JAMIE WHITEHOUSE, AICP
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Sussex County
DELAWARE
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PLEASE NOTE

This paperless packet is published on the County's website for convenience purposes, and only includes information received up to the close of business on the day before a public hearing. Documents received after this, or documents submitted during the public hearing are not uploaded to the Paperless Packet. The legal record is the paper record maintained in the Offices of the Planning & Zoning Department.

ROBERT C. WHEATLEY, CHAIRMAN
KIM HOEY STEVENSON, VICE CHAIRMAN
R. KELLER HOPKINS
J. BRUCE MEARS
HOLLY WINGATE

2 THE CIRCLE | PO BOX 417
GEORGETOWN, DE 19947
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Sussex County
Planning & Zoning Commission

AGENDA

March 10, 2022

5:00 P.M.

Call to Order

Approval of Agenda

Approval of Minutes – February 10, 2022

Other Business

(2021-13) Baylis Estates Phase II BM
Final Subdivision Plan

The Peninsula on Indian River Bay MR-RPC (Phase 11 – Still Waters) BM
Revised Site Plan

(S-21-34) Lincoln Retirement Community KH
Preliminary Site Plan

(2004-55) Baylis Estates (Phase I) Amenities BM
Amenities Plan

(2018-20) Tanager Woods Amenities KS
Amenities Plan

(S-18-89) Friendship Creek Amenities HW
Amenities Plan

Lands of Kim Ireland KS
Minor Subdivision off of a 50-ft Easement

Old Business

2021-06 – Coral Lakes (F.K.A. Coral Crossing) KS
A Coastal Area cluster subdivision to divide 152.32 acres +/- into 315 single family lots to be located on a certain parcel of land and lying and being in Indian River Hundred, Sussex County. The property is located on the southwest side of Robinsonville Road (S.C.R 277) approximately

EQUAL HOUSING OPPORTUNITY

0.65 mile south of Kendale Road (S.C.R. 287) Tax Parcels: 234-6.00-67.00 & 84.00. Zoning: AR-1 (Agricultural Residential District).

2021-19 East Gate HW

A Coastal Area cluster subdivision to divide 36.71 acres +/- into 88 single-family lots to be located on certain parcels of land and lying and being in Baltimore Hundred, Sussex County. The properties are located on the southwest side of Zion Church Road (Route 20), approximately 0.76 mile southeast of Evans Road (S.C.R. 383). Tax Parcels: 533-11.00-45.05, 45.06, 45.07 & 45.08. Zoning: GR (General Residential District).

C/U 2288 Broom Solar Partners HW

An Ordinance to grant a Conditional Use of land in an AR-1 Agricultural Residential District for a solar farm to be located on a certain parcel of land lying and being in Baltimore Hundred, Sussex County, containing 72.00 acres, more or less. The property is lying on the north side of Frankford School Road (S.C.R. 92) approximately 0.55 mile west of Pyle Center Road (S.C.R. 20). 911 Address: N/A. Tax Parcel: 533-5.00-47.00

C/U 2284 Eastern Shore Natural Gas Company KH

An Ordinance to grant a Conditional Use of land in an AR-1 Agricultural Residential District for the expansion of C/U 889 (Ordinance No. 536) for public utilities or public services uses to be located on a certain parcel of land lying and being in Northwest Fork Hundred, Sussex County, containing 29.98 acres, more or less. The property being a landlocked parcel accessed off Emma Jane Lane, approximately 0.33 mile south of E. Newton Road (S.C.R. 584). 911 Address: 17019, 17025, 17035 & 17041 Black Cherry Drive, Bridgeville. Tax Parcel: 131-10.00-99.00

C/U 2285 Ashley DiMichele KS

An Ordinance to grant a Conditional Use of land in an AR-1 Agricultural Residential Zoning District for a tourist home to be located on a certain parcel of land lying and being in Broadkill Hundred, Sussex County, containing 2.831 acres, more or less.
The property is lying on the south side of Cave Neck Road (S.C.R. 88), approximately 0.43 mile west of Diamond Farm Road (S.C.R. 257). 911 Address: 26182 Cave Neck Road, Milton. Tax Parcel: 235-21.00-48.00

C/U 2305 Barnhill Preserve of DE, LLC HW

An Ordinance to grant a Conditional Use of land in an AR-1 (Agricultural Residential District) for a zoological park to be located on a certain parcel of land lying and being in Baltimore Hundred, Sussex County, containing 7.24 acres, more or less. The property is lying on the northeast side of Peppers Corner Road (S.C.R. 365), approximately 0.61 mile southeast of Roxanna Road (Route 17). 911 Address: 34215 Peppers Corner Road, Frankford. Tax Parcel 134-15.00-124.00

Public Hearings

C/Z 1953 Brasure Holdings, LLC KS

An Ordinance to amend the Comprehensive Zoning Map of Sussex County from an AR-1 Agricultural Residential District to a C-2 Medium Commercial District for a portion of a certain parcel of land lying and being in Baltimore Hundred, Sussex County, containing 1.646 acres, more or less. The property is lying on the northwest side of Lighthouse Road (Rt.

54) approximately 0.27 mile southwest of Zion Church Road (Rt. 20). 911 Address: 35131 Lighthouse Road, Selbyville. Tax Parcel: 533-19.00-13.02.

2022-01 Henlopen Properties, LLC KS
A Coastal Area subdivision to divide 43.777 acres +/- into two hundred and sixty-seven (267) lots on a certain parcel of land lying and being in Lewes & Rehoboth Hundred, Sussex County. The property is located on the southeast side of Kings Highway (Rt. 9) and on the north side of Gills Neck Road (S.C.R. 267). Tax Parcel: 335-8.00-37.00 (portion of). Zoning: MR (Medium Residential District).

C/Z 1967 Henlopen Properties, LLC KS
An Ordinance to amend the Comprehensive Zoning Map of Sussex County from an AR-1 Agricultural Residential District to a MR Medium Residential District for a certain parcel of land lying and being in Lewes & Rehoboth Hundred, Sussex County, containing 43.777 acres, more or less. The property is lying on the southeast side of Kings Highway (Rt. 9) and on the north side of Gills Neck Road (S.C.R. 267). 911 Address: N/A. Tax Parcel: 335-8.00-37.00 (portion of).

C/Z 1968 Henlopen Properties, LLC KS
An Ordinance to amend the Comprehensive Zoning Map of Sussex County from an AR-1 Agricultural Residential District to a C-2 Medium Commercial District for a certain parcel of land lying and being in Lewes & Rehoboth Hundred, Sussex County, containing 3.041 acres, more or less. The property is lying on the southeast side of Kings Highway (Rt. 9) approximately 0.11-mile northeast of the intersection of Kings Highway (Rt. 9) and Gills Neck Road (S.C.R. 267). 911 Address: N/A. Tax Parcel: 335-8.00-37.00 (portion of).

C/U 2334 Henlopen Properties, LLC KS
An Ordinance to grant a Conditional Use of land in a MR Medium Residential District for multi-family (267 units) to be located on a certain parcel of land lying and being in Lewes & Rehoboth Hundred, Sussex County, containing 43.777 acres, more or less. The property is lying on the southeast side of Kings Highway (Rt. 9) and on the north side of Gills Neck Road (S.C.R. 267). 911 Address: N/A. Tax Parcel: 335-8.00-37.00 (portion of).

In accordance with 29 Del. C. §10004(e)(2), this Agenda was posted on March 3, 2022 at 3:45 p.m., and at least seven (7) days in advance of the meeting.

This Agenda is subject to change to include the addition or deletion of items, including Executive Sessions, which arise at the time of the Meeting.

Agenda items listed may be considered out of sequence.

Please note that application C/Z 1962 Jeff-Kat, LLC has not been included in the agenda and will not be heard by the Planning & Zoning Commission at its meeting of March 10, 2022. This application will be re-noticed for a future meeting.

-MEETING DETAILS-

The meeting will be streamed live at: https://sussexcountyde.gov/council-chamber-broadcast

The County provides a dial-in telephone number for the public to comment during the appropriate time of the meeting. Note, the on-line stream experiences a 30-second delay. Any person who dials in by telephone should listen to the teleconference audio to avoid the on-line stream delay.

To join the meeting via telephone, please dial:

Conference Number: 1 302-394-5036

Conference Code: 570176

Members of the public joining the meeting on the telephone will be provided an opportunity to make comments for those items listed under Public Hearings on this agenda.

The Planning & Zoning Commission meeting materials, including the "packet", are electronically accessible on the County's website at: **https://sussexcountyde.gov/**

If any member of the public would like to submit comments electronically, these may be sent to pandz@sussexcountyde.gov. All comments are encouraged to be submitted by 4:00 P.M on Wednesday, March 9, 2022.

# # # #

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Memorandum

To: Sussex County Planning Commission Members
From: Jamie Whitehouse, AICP, Director, Department of Planning & Zoning; Jenny Norwood, Planning and Zoning Manager; Lauren DeVore, Planner III; Michael Lowrey, Planner III; Chase Phillips, Planner II; Christin Scott, Planner I; Elliott Young, Planner I & Jesse Lindenberg, Planner I
CC: Vince Robertson, Assistant County Attorney
Date: March 3rd, 2022
RE: Other Business for the March 10th, 2022 Planning Commission Meeting

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This memo is to provide background for the Planning Commission to consider as a part of the Other Business to be reviewed during the March 10th, 2022 Meeting of the Planning & Zoning Commission.

(2021-13) Baylis Estates Phase II BM

Final Subdivision Plan

This is a Final Subdivision Plan to amend the existing cluster subidivison for Baylis Estates Phase II (2017-01) to subdivide 130.52 +/- acres into fifty-one (51) single-family lots, private roads and open space. The Applicant seeks to redesign a porton of the existing approved subdivision to add fourteen (14) additional lots for a total of one-hundred and fifty lots (150) between existing and previously approved Phase I (2004-55) and this updated Phase II. The Preliminary Subdivision Plan for Phase II was previously approved by the Planning and Zoning Commission at their meeting of Thursday, June 10, 2021. The property is located on the northeast side of Mount Joy Road (S.C.R. 297). The Commission has been provided with electronic copies of the Phase II proposal as well as the updated Record Plan showing a total of 150 lots in their packet for this evening. The Final Subdivision Plan complies with the Sussex County Zoning and Subdivision Codes and all Conditions of Approval. Zoning: AR-1 (Agricultural Residential District). Tax Parcel: 234-29.00-42.00. Staff are in receipt of all agency approvals.

The Peninsula on Indian River Bay MR-RPC (Phase 11 – Still Waters) BM

Revised Site Plan

This is a Revised Site Plan for the construction of seventy-nine (79) single-family detached condominium units for Phase 11 of The Peninsula on Indian River Bay (C/Z 1475). The Peninsula is a Residential Planned Community that was approved by the Sussex County Council at their meeting of Tuesday, November 19th, 2002 through Ordinance No. 1573. Phase 11 received final approval for forty-eight (48) single family lots by the Sussex County Council on Tuesday, November 13th, 2007. Lastly, Change of Zone No. 1936 was approved by the Sussex County County Council at their meeting of December 7th, 2021 through Ordinance No. 2818. This Ordinance amended Condition #1 of Ordinance No. 2690 and allowed for an increase in the maxmimum number of single family detached condo units within the RPC from 388 to 471 (83 units) total. The Revised Preliminary Site Plan complies with the Sussex County Zoning Code and all Conditions of Approval. Zoning: MR-RPC (Medium Density Residential – Residential Planned Community). Tax Parcel: 234-30.00-317.00. Staff are currently awaiting agency approvals and the Site Plan will be required to be brought back before the Commission for a final determination and final approval.

(S-21-34) Lincoln Retirement Community KH

Preliminary Site Plan

This is a Preliminary Site Plan for the construction of a proposed 42,000 +/- square foot assisted living facility, thirty (30) single-family detached cottages, a proposed walking trail and other ancillary improvements. The proposal was the subject of a previous Board of Adjustment Application (BOA Case No. 12320) for a special use exception to operate a convalescent home, nursing home, and/or home for the aged. The Special Use Exception was approved by the Board of Adjustment at their meeting of Monday, June 17, 2019, of which the Findings of Fact were approved and signed on August 6, 2019. It should be noted that a limited one-year time extension was sought for the existing Special Use Exception, which was granted by the Board of Adjustment at their meeting of Monday, January 25, 2021. This action extended the date of expiration from the original approval date to August 6, 2022. The property is located on the north side of Johnson Road (S.C.R. 207) in Lincoln, Delaware. The Preliminary Site Plan complies with the Sussex County Zoning Code and all Conditions of Approval. Zoning: AR-1 (Agricultural Residential District). Tax Parcel: 330-15.00-33.01. Staff are awaiting agency approvals.

(2004-55) Baylis Estates (Phase I) Amenities BM

Amenities Plan

This is a Final Amenities Plan for the existing Baylis Estates Phase I subdivision. The plan proposes a 4,1400 square foot clubhouse, 1,215 square foot in-ground pool and gencing, multipurpose courts and twenty-one (21) parking spaces. The site is located between Phases I and II as Lots 122 through 126 are currently proposed as part of Phase II. The Preliminary Amenities Plan for the subdivision was originally considered by the Planning and Zoning Commission at their meeting of Thursday, May 27, 2021, where the Commission had approved the plan with the condition that all proposed landscaping be included on the plans. The Final Amenities Plan complies with the Sussex County Zoning Code. Tax Parcel: 234-29.00-42.00. Zoning: AR-1 (Agricultural Residential Zoning District). Staff are in receipt of all agency approvals.

(2018-20) Tanager Woods Amenities KS

Amenities Plan

This is a Preliminary Amenities Plan for the existing Tanager Woods Subdivision for the construction of a proposed 2,516 square foot clubhouse, a 4,160 square foot multi-use court, and a 2,531 square foot pool with a 6,707 square foot pool deck. Included in the site plan are 30 parking spaces, sidewalks, and other site improvements. The property is located on the east side of Fieldfare Lane and the west side of Winona Lane within the subdivision. The Amenities Plan complies with the Sussex County Zoning and Subdivision Codes. Zoning: AR-1 (Agricultural Residential District). Tax Parcel: 234-6.00-85.01. Staff are in receipt of all agency approvals, therefore the plan can be considered for preliminary and final approval.

(S-18-89) Friendship Creek Amenities HW

Amenities Plan

This is a Preliminary Amenities Plan for Friendship Creek (Conditional Use No. 2142) for the construction of a proposed 1,400 square foot pool and a 276 square bathroom and pool equipment building with an outdoor shower. Included in the site plan are 19 parking spaces, sidewalks, and other site improvements. The property is located on the south side of Dundee Street and the east side of Coldstream Street within the existing subdivision. The Amenities Plan complies with the Sussex County Zoning and Subdivision Codes. Zoning: GR (General Residential District). Tax Parcel: 134-16.00-39.00. Staff are awaiting agency approvals.

Lands of Kim Ireland KS

Minor Subdivision off a 50-foot easement

This is a Minor Subdivision Plan for the subdivision of a 5.00 acre +/- parcel of land into (1) lot and residual lands off of a proposed 50-foot ingress/egress easement. Proposed Lot 1 consists of 1.23 acres +/- and the residual lands consist of 3.77 acres +/- . The property is located on the east side of Atlanta Road (Route 30). The Minor Subdivision Plan complies with the Sussex County Zoning and Subdivision Codes. Zoning: AR-1 (Agricultural Residential District). Tax Parcel: 131-8.00-40.17. Staff are awaiting agency approvals.

MAPPING & ADDRESSING

MEGAN NEHRBAS
MANAGER OF GEOGRAPHIC
INFORMATION SYSTEMS (GIS)
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Sussex County
DELAWARE
sussexcountyde.gov

January 23,2020

Kullman Consulting Services, LLC.
Attn: Ken Kullman

RE: **Baylis Estates Phase 2**

I have received proposed street name(s) for the proposed subdivision, **Baylis Estates Phase 2**, located in Millsboro. In reviewing the proposed street name(s) the following have been approved:

Leila Ct	Amile Dr	

Use only approved road names that you have written confirmation for or you will be required to rerecord. Each street name is to be used only once.

Upon final approval of **Baylis Estates Phase 2** please forward a copy of the recorded site plan to my attention. Our office would appreciate a digital copy if at all possible, for the purpose of addressing. Should you have any questions, please contact the Sussex County Addressing Department at 302-855-1176.

Sincerely,

Terri L.Dukes

Terri L.Dukes
Addressing Technician II

CC: Christin Headley
Planning & Zoning

STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. BOX 778
DOVER, DELAWARE 19903

JENNIFER COHAN
SECRETARY

July 02, 2020

Mr. Michael Cotten
Cotten Engineering, LLC
10087 Concord Road
Seaford, Delaware 19973

SUBJECT: Entrance Plan Approval Letter
Baylis Estates
Tax Parcel #234-29.00-42.00
Mount Joy Road (SCR 297)
Indian River Hundred, Sussex County

Dear Mr. Cotten:

The Department of Transportation has reviewed the Subdivision Entrance Plan Addendum dated April 10, 2020 (last revised May 26, 2020) for the referenced project and determined that they are in general conformance with the Department's current regulations, specifications and standard details. By signing and sealing the plan set, the developer's engineer is responsible for accuracy of content. Any errors, omissions or required field changes will be the responsibility of the developer. This plan approval shall be valid a period of **one (1) year**. If an entrance permit has not been obtained within one year, then the plans must be updated to meet current requirements and resubmitted for review and approval.

This letter represents an amendment to the plans approved October 25, 2012 by Marc Coté.

This letter does not authorize the commencement of entrance construction. The following items will be required prior to the permit being issued. A pre-construction meeting may be required as determined by the South District Public Works office.

1. A copy of the recorded Site Plan which is consistent with the DelDOT "No Objection to Recordation" stamped plan and all appropriate signatures, seals, plot book and page number.
2. Three (3) copies of the approved entrance plan addendum.
3. Completed permit application.
4. Executed agreements (i.e. construction, signal, letter).
5. An itemized construction cost estimate.

DelDOT

6. A 150% security based upon an approved itemized construction cost estimate and W-9 form (if providing escrow).
7. A letter of source of materials, work schedule, list of subcontractors, emergency telephone numbers and names of contact persons.

Please contact the South District Public Works office (302) 853-1340 concerning any questions you may have relative to the aforementioned required items.

Sincerely,

Susanne K. Laws
Sussex County Review Coordinator
Development Coordination

cc: Kevin Brozyna, Insight Homes, Inc.
Jamie Whitehouse, Sussex County Planning & Zoning Commission
Rusty Warrington, Sussex County Planning & Zoning
Jessica L. Watson, Sussex Conservation District
Gemez Norwood, South District Public Work Manager
James Argo, South District Project Reviewer
Robert Bragg, South District Subdivision Manager
Jerry Nagyiski, Safety Officer Supervisor
Chris Sylvester, Traffic Studies Manager
Jennifer Pinkerton, Chief Materials & Research Engineer
Linda Osiecki, Pedestrian Coordinator
John Fiori, Bicycle Coordinator
Mark Galipo, Traffic Development Coordination Engineer
Tim Phillips, Maintenance Support Manager
Dan Thompson, Safety Officer North District
Jared Kauffman, DTC Planner
James Kelley, JMT
Wendy L. Polasko, Process and Quality Control Engineer
Brian Yates, Sussex County Reviewer

STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. BOX 778
DOVER, DELAWARE 19903

NICOLE MAJESKI
SECRETARY

January 28, 2022

Mr. Jamie Whitehouse, Director
Sussex County Planning & Zoning Commission
Sussex County Administration Building
P.O. Box 417
Georgetown, Delaware 19947

SUBJECT: **Revised Letter of No Objection to Recordation**
Baylis Estates Phase 2 – Final Record Plan 150 Lots
Tax Parcel # 234-29.00-42.00
Mount Joy Road (SCR 297)
Indian River Hundred, Sussex County

Dear Mr. Whitehouse:

The Department of Transportation has reviewed the Site Plan, dated October 9, 2020 (last revised January 14, 2022), for the above referenced site, and has no objection to its recordation as shown on the enclosed drawings. This "No Objection to Recordation" approval shall be valid for a period of **five (5) years**. If the Site Plan is not recorded prior to the expiration of the "No Objection to Recordation", then the plan must be updated to meet current requirements and resubmitted for review and approval.

This letter represents a revision to the plans approved April 30, 2020, by Susanne Laws.

This letter does not authorize the commencement of entrance construction. Entrance plans shall be developed in accordance with DelDOT's Development Coordination Manual and submitted to the Development Coordination Section for review and approval.

This "No Objection to Recordation" letter is not a DelDOT endorsement of the project discussed above. Rather, it is a recitation of the transportation improvements, which the applicant may be required to make as a pre-condition to recordation steps and deed restrictions as required by the respective county/municipality in which the project is located. If transportation investments are necessary, they are based on an analysis of the proposed project, its location, and

its estimated impact on traffic movements and densities. The required improvements conform to DelDOT's published rules, regulations and standards. Ultimate responsibility for the approval of any project rests with the local government in which the land use decisions are authorized. There may be other reasons (environmental, historic, neighborhood composition, etc.) which compel that jurisdiction to modify or reject this proposed plan even though DelDOT has established that these enumerated transportation improvements are acceptable.

If I can be of any further assistance, please call me at (302) 760-2266.

Very truly yours,

R. Stephen McCabe
Sussex County Review Coordinator
Development Coordination

cc: Kevin Brozyna, Insight Homes, Inc.
Steven Fortunato, Bohler Engineering
Sussex County Planning & Zoning
Jessica L. Watson, Sussex Conservation District
Matt Schlitter, South District Public Works Engineer
Scott Rust, South District Public Work Manager
James Argo, South District Project Reviewer
Larkin, South District Subdivision Manager
Jennifer Pinkerton, Chief Materials & Research Engineer
Linda Osiecki, Pedestrian Coordinator
John Fiori, Bicycle Coordinator
Mark Galipo, Traffic Development Coordination Engineer
Tim Phillips, Maintenance Support Manager
Dan Thompson, Safety Officer North District
Jared Kauffman, DTC Planner
James Kelley, JMT
Wendy L. Polasko, P.E., Subdivision Engineer
Brian Yates, Sussex County Reviewer

October 7, 2021

Mr. Kevin Brozyne
c/o Bohler Engineering
18958 Coastal Highway, Suite D
Rehoboth Beach, DE 19971

RE: Baylis Estates Phase 2

Dear Mr. Brozyne:

A Sediment and Stormwater Management Plan has been reviewed for compliance with the Sediment and Stormwater Regulations and is approved with conditions (see attached). Enclosed herein please find a copy of the approved application form and approved plan sets. Please retain a copy for your use and provide the contractor with a copy to be retained onsite at all times. Failure to keep an approved plan onsite is a violation of the approved plan.

Approval of a Sediment and Stormwater Plan does not grant or imply a right to discharge stormwater runoff. The owner/developer is responsible for acquiring any and all agreements, easements, etc., necessary to comply with State drainage and other applicable laws.

This plan approval pertains to compliance with the *Delaware Sediment and Stormwater Regulations*. Please understand that the approval of this plan does not relieve you from complying with any and all federal, state, county, or municipal laws and regulations.

As of January 1, 2014, the Sussex Conservation District began collecting financial guarantees to ensure the construction of stormwater management practices is accomplished in accordance with the approved sediment and stormwater plan. Please refer to the SCD Policy on Bonds located on our website at *Sussexconservation.org*. If you have any questions concerning the aforementioned, please do not hesitate to call 302 856-7219.

Sincerely,

Jessica Watson

Jessica Watson
Program Manager

JW/jmg

cc:

CONDITIONS OF APPROVAL

NOTIFICATION

1. This approved plan will remain valid for 5 years from the date of this approval. If construction does not begin within five years, the approved plan will be considered to have expired, and must be resubmitted to the District for a new review. In addition, if work is not completed within the five-year timeframe, the District must be contacted and a request for an extension submitted. Depending on regulation changes, a new plan may need to be submitted to ensure that all stormwater management facilities are constructed to the most recent standards.

2. Submittal of the Notice of Intent (NOI) for Storm Water Discharges Associated with Construction Activities together with this approval of the detailed Sediment and Stormwater Plan provide this project with Federal permit coverage to be authorized to discharge storm water associated with construction activities. It is the owner's responsibility to ensure that permit coverage remains valid throughout construction by submitting the NOI fee annually as requested. The developer is responsible for weekly self-inspection reporting to be retained onsite.

3. Notify the Sussex Conservation District Sediment and Stormwater Management Section of your intent to begin construction in writing five (5) days prior to commencing. Failure to do so constitutes a violation of the approved plan.

CHANGES

4. This project is to be undertaken in accordance with the plans submitted and as approved. If changes are necessary at any time during the completion of the project, submit revised plans, prior to further construction, to the Sussex Conservation District Sediment and Stormwater Program for review and approval of the revision.

5. Should ownership change during the construction period, a revised plan must be submitted for approval showing the new owner's signature on the owner's certification. In addition, a Transfer of Authorization form must be submitted to DNREC to transfer Federal permit coverage to the new owner.

CONSTRUCTION AND CLOSEOUT

6. A pre-construction meeting must take place before any land disturbing activity begins. The meeting may take place on site and be attended by the owner, contractor, design consultant, Certified Construction Reviewer and Sussex Conservation District Sediment and Stormwater Program Construction Reviewer. The owner or the owner's designee shall contact the Sussex Conservation Construction Reviewer to schedule the pre-construction meeting.

7. Keep available onsite, during all phases of construction, a copy of the approved Sediment and Stormwater Management Plan.

8. Keep available onsite, during all phases of constriction, copies of the Developers weekly self-inspection reports and/or the CCR Reports.

9. Any sediment transported off-site to roads or road rights-of-way including ditches shall be removed. Any damage to ditches shall be repaired and stabilized to original condition.

10. Grading shall not impair surface drainage, create an erosion hazard, or create a source of sediment to any adjacent watercourse or property owner.

11. Failure to implement the permanent stormwater management practices as mentioned herein constitutes a violation of the conditions of this plan approval; it may result in the suspension or revocation of building permits or grading permits issued by the local jurisdiction; and it may result in legal action by the DNREC to bring the site into compliance with the approved Sediment and Stormwater Management Plan and the *Delaware Sediment and Stormwater Regulations*.

12. The permanent stormwater management facility or facilities must be constructed and accepted by the Sussex Conservation District Sediment and Stormwater Program prior to final closeout of the project site. Post construction verification documentation of the stormwater management facility or facilities must be completed as soon as construction of the facility or facilities is complete so that any necessary modifications may be made during the construction period.

DETAILED SEDIMENT AND STORMWATER MANAGEMENT PLAN APPLICATION

NAME OF PROJECT: Baylis Estates Phase 2

PROJECT DESCRIPTION: 37 Lot Residential Subdivision

LOCATION OF PROJECT: Mount Joy Road

PROJECT TAX MAP NUMBER: 234-29.00-42.00

PROJECT COORDINATES (*center of site-decimal degrees*) LAT: 38° 37' 10.46" N LONG: 75° 12' 22.99" W

TYPE OF PROJECT: Residential WATERSHED: Rehoboth Bay

NUMBER OF LOTS: 37 TOTAL ACRES: 13.4 DISTURBED ACRES: 13.4

APPLICANT'S CONTACT INFORMATION

FIRST NAME: Kevin LAST NAME: Brozyne

COMPANY NAME: Baylis Estates Investments LLC

ADDRESS: 16255 Sussex Hwy

CITY: Bridgeville STATE: DE ZIP: 19933

PHONE NUMBER: 302-337-0400 FAX NUMBER: 302-721-4900

EMAIL ADDRESS: kevin@insightde.com

CONSULTANT CONTACT INFORMATION

CONSULTANT/ENGINEER NAME: Cotten Engineering LLC

CONTACT PERSON/PROJECT MANAGER: Michael Cotten

PHONE #: (302) 628-9164 FAX #: (302) 628-9164

EMAIL ADDRESS:

SUSSEX CONSERVATION DISTRICT APPROVAL

REVIEWER: DATE: 12-10-21

APPROVAL: DATE: 12/10/2021

If ownership of this project changes during the construction period, Sussex Conservation District will require a new signed owner's certification statement.... In addition, the authorization to discharge stormwater under the regulations Part 2 Special Conditions for Storm Water Discharges Associated with Construction Activities, must be transferred by the original owner to the new owner, please contact DNREC for assistance at 302-739-9921.

SEP 27 2019

You created this PDF from an application that is not licensed to print to novaPDF printer (http://www.novapdf.com)

OWNER/DEVELOPER CERTIFICATION

- I/We certify that the information on this form and the attached plans are true and accurate to the best of my/our knowledge.
- I/We understand that DNREC/Delegated Agency may request information in addition to that set forth herein as may be deemed appropriate in considering this application.
- I/We will abide by the conditions of this approval as issued.
- I/We hereby certify that all clearing, grading, construction and/or development will be done pursuant to the approved plan, and that all responsible personnel involved in the land disturbing activities will have a Sediment and Stormwater Management Certification from DNREC/Delegated Agency.
- I/We hereby authorize the right of entry for periodic on site inspection by DNREC/Delegated Agency personnel and/or authorized agents.

OWNER/DEVELOPER SIGNATURE:_____DATE: _____

OWNER/DEVELOPER PRINTED NAME: _____

AGENT AUTHOIZATION

(If this authorization form is completed with the application, all future correspondence may be signed by the duly authorized agent.)

I, _____, hereby designate and authorize the following identified agent to act on my behalf in the processing of this application and to furnish any information that is requested.

AGENT NAME:_____

AGENT ADDRESS: _____

CITY: _____ STATE: _____ ZIP: _____

AGENT PHONE #: ( ) _____ FAX #: _____

EMAIL ADDRESS: _____

OWNER/DEVELOPER SIGNATURE:_____DATE: _____

AGENT SIGNATURE: _____DATE: _____

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Please attach project Supplemental BMP Data Sheet to the Detailed Sediment and Stormwater Management Plan Application.

PROJECT BMP DATA SHEET

List the BMP(s) utilized in the project stormwater management quantity and water quality strategy.

BMP NAME	BMP TYPE	ACRES TREATED	BMP LOCATION COORDINATES (@ BMP release point - decimal degrees)	
			LATITUDE	*LONGITUDE*
Wet Ponds Extended De	Wet pond	13.4	38° 37' 10.46" N	75° 12' 22.99" W
	No BMP selected			
	No BMP selected			
	No BMP selected			
	No BMP selected			
	No BMP selected			
	No BMP selected			
	No BMP selected			

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OFFICE OF THE STATE FIRE MARSHAL
Technical Services

22705 Park Avenue
Georgetown, DE 19947

SFMO PERMIT

Plan Review Number: 2021-04-206162-MJS-01
Status: Approved as Submitted

Tax Parcel Number: 234-29.00-42.00
Date: 02/25/2021

Project

Baylis Estates Phase 2

Baylis Estates
Phase #: 2

Mount Joy Road
Millsboro DE 19966

Scope of Project

Number of Stories:
Square Footage:
Construction Class:
Fire District: 80 - Indian River Volunteer Fire Co., Inc.

Occupant Load Inside:
Occupancy Code:

Applicant

Jena Cooper
18958 Coastal Highway
Rehoboth, DE 19971

This office has reviewed the plans and specifications of the above described project for compliance with the Delaware State Fire Prevention Regulations, in effect as of the date of this review.

A Review Status of "Approved as Submitted" or "Not Approved as Submitted" must comply with the provisions of the attached Plan Review Comments.

Any Conditional Approval does not relieve the Applicant, Owner, Engineer, Contractor, nor their representatives from their responsibility to comply with the plan review comments and the applicable provisions of the Delaware State Fire Prevention Regulations in the construction, installation and/or completion of the project as reviewed by this Agency.

A final inspection is required.

This Plan Review Project was prepared by:

Desiree McCall

FIRE PROTECTION PLAN REVIEW COMMENTS

Plan Review Number: 2021-04-206162-MJS-01
Status: Approved as Submitted

Tax Parcel Number: 234-29.00-42.00
Date: 02/25/2021

PROJECT COMMENTS

1002 A	This project has been reviewed under the provisions of the Delaware State Fire Prevention Regulations (DSFPR) UPDATED March 11, 2016. The current Delaware State Fire Prevention Regulations are available on our website at www.statefiremarshal.delaware.gov. These plans were not reviewed for compliance with the Americans with Disabilities Act (ADA). These plans were not reviewed for compliance with any Local, Municipal, nor County Building Codes.
1030 A	This site meets Water Flow Table 2, therefore the following water for fire protection requirements apply: Main Sizes: 6" minimum. Minimum Capacity: 500 gpm @ 20 psi residual for 1 hour duration. Hydrant Spacing: 1,000' on center.
1180 A	This report reflects site review only. It is the responsibility of the applicant and owner to forward copies of this review to any other agency as required by those agencies.
1130 A	Provide a water flow test on the subdivision hydrant(s) once they have been installed, and before they are placed into service (DSFPR Part I, Section 4 4.2 and Part III, Chapter 3). Results are to be forwarded to this Agency for review.
1132 A	Fire hydrants shall be color coded in accordance with the DSFPR, Part III, Section 3 4. This includes both color coding the bonnet and 2" reflective tape around the barrel under the top flange.
1232 A	All threads provided for fire department connections, to sprinkler systems, standpipes, yard hydrants or any other fire hose connections shall be uniform to those used by the fire department in whose district they are located. DSFPR Part III,Section 1.1.5.1.
1432 A	The steamer connection of all fire hydrants shall be so positioned so as to be facing the street or fire lane. (DSFPR Regulation 705, Chapter 5, Section 10). The center of all hose outlet(s) on fire hydrants shall be not less than 18 inches above finalgrade (NFPA 24, Section 7.3.3).

1501 A	If there are any questions about the above referenced comments please feel free to contact the Fire Protection Specialist who reviewed this project. Please have the plan review number available when calling about a specific project. When changes orrevisions to the plans occur, plans are required to be submitted, reviewed, and approved.

ENGINEERING DEPARTMENT

JOHN J. ASHMAN
SR. MANAGER OF UTILITY PLANNING
& DESIGN REVIEW

(302) 855-7370 T
(302) 854-5391 F
jashman@sussexcountyde.gov

Sussex County

DELAWARE
sussexcountyde.gov

HANS M. MEDLARZ, P.E.
COUNTY ENGINEER

December 9, 2021

Mr. Steve Fortunato, P.E.
Bohler Engineering
18958 Coastal Hwy., Suite D
Rehoboth Beach, DE 19971

REF: **BAYLIS ESTATES – PHASE 2**
OAK ORCHARD SANITARY SEWER DISTRICT
SUBDIVISION NO. 2021-13
SUSSEX COUNTY TAX MAP NUMBER
234 – 29.00 PARCEL 42.00
AGREEMENT # 439-2

Dear Mr. Fortunato:

The above referenced project was approved on December 9, 2021 and one (1) set of approved plans are enclosed. This approval is valid for three (3) years, unless prior to expiration of that three (3) year period, a time extension is requested and approved by the Department. Plans granted an extension beyond the three (3) period will be required to meet updated standards and specifications.

Also, it is your responsibility to secure approvals and/or permits that may be required by other regulatory agencies.

Please contact Mrs. Susan Isaacs of Division of Utility Engineering to initiate pre-construction procedures for private roads and Mr. Keith Bryan in Division of Utility Engineering to initiate pre-construction procedures for sanitary sewer.

Should you have any questions, please do not hesitate to contact me.

Sincerely,

SUSSEX COUNTY ENGINEERING DEPARTMENT

Jordan T. Dickerson
Public Works Technician IV

cc: Mr. Keith Bryan, w/2 enclosures
Public Works Field File, w/enclosure

DELAWARE HEALTH AND SOCIAL SERVICES
Division of Public Health

Office of Engineering
Phone: (302) 741-8640
Fax: (302) 741-8631

November 4, 2021

TIDEWATER UTILITIES, INC.

APPROVAL TO CONSTRUCT
Meadows District
Baylis Estates Phase 2 Connection
PWS #DE0000271
Approval #21W160

Mr. Stan Aldridge
Baylis Estates Investments, LLC
16255 Sussex Highway
Bridgeville, DE 19933

Dear Mr. Aldridge:

As provided by Section 2.11 of the *State of Delaware Regulations Governing Public Drinking Water Systems*, you are granted approval to connect Baylis Estates – Phase 2 to the existing main in accordance with the plans submitted by Bohler Engineering. The plans consist of:

1. Transmittal letter dated November 2, 2021.
2. Two copies of the plans entitled "Construction Plans for Baylis Estates Phase 2" dated February 12, 2021 and revised November 2, 2021.

These plans, as noted, are made a part of this approval. This approval is granted subject to the enclosed list of conditions. It is the owner's responsibility to ensure as-built drawings are maintained throughout all phases of construction. Prior to receiving an Approval to Operate, the Office of Engineering requires one set of as-built drawings, including profile markups.

The Office of Engineering recommends detectable tracer tape that is three inches wide and blue in color to be installed directly above all water mains larger than two inches in diameter.

I am sending one set of plans with a copy of this approval to Bohler Engineering that is signed and dated by the Office of Engineering.

Should you have any questions regarding this matter, please feel free to contact Bill Milliken at (302) 741-8646.

Plans reviewed by:

William J. Milliken, Jr.
Engineer III
Office of Engineering

Sincerely,

Doug Lodge, P.E.
Supervisor of Engineering
Office of Engineering

cc: Tawanda Priester, Tidewater Utilities, Inc.
Alexis Virdin-Gede, Tidewater utilities, Inc.
Steve Fortunato, P.E. Bohler Engineering
Ashley Kunder, Office of Drinking Water

1. The approval is void if construction has not started by November 4, 2022.

2. The project shall be constructed in accordance with the approved plans and all required conditions listed in this Approval to Construct. If any changes are necessary, revised plans shall be submitted and a supplemental approval issued prior to the start of construction. As-built plans including profile mark-ups must be submitted to the Office of Engineering after construction has been completed.

3. Representatives of the Division of Public Health may inspect this project at any time during the construction.

4. This approval does not cover the structural stability of any units or parts of this project.

5. The water system shall be operated in conformance with the *State of Delaware Regulations Governing Public Drinking Water Systems*.

6. All potable water lines and appurtenances shall be disinfected using one of the methods in the American Water Works Association Standard C651, current edition.

7. Water mains crossing sanitary and storm sewers should be laid to provide a minimum vertical distance of 18 inches between the outside of the water main and the outside of the sewer, and the water main should be above the sewer. At crossings, one full length of water pipe should be located so both joints will be as far from the sewer as possible. Special structural support for the water and sewer pipes may be required. In cases where it is not practical to maintain an 18-inch separation, the Division may allow deviation on a case-by-case basis if supported by data from the design engineer.

8. Water mains should be laid 10 feet horizontally from any existing or proposed sanitary or storm sewers. The distance should be measured edge to edge. In cases where it is not practical to maintain a 10-foot separation, the Division may allow deviation on a case-by-case basis if supported by data from the design engineer.

9. All chemicals, materials, mechanical devices, and coatings in contact with potable water shall comply with National Sanitation Foundation/American National Standards Institute Standards (NSF/ANSI) 60 and 61 and shall be inert, nontoxic, and shall not import any taste, odor, or color to the water.

10. Sufficient valves should be provided so that inconvenience and sanitary hazards will be minimized during repairs. Valves should be located at not more than 500-foot intervals in commercial districts and at not more than one block or 800-foot intervals in other districts.

11. There shall be no connection between the distribution system and any pipes, pumps, hydrants, or tanks whereby unsafe water or other contaminating materials may be discharged or drawn into the system.

12. Fire hydrant drains shall not be connected to or located within 10 feet of sanitary sewers, storm sewers, or storm drains.

13. Prior to usage of water from this new well, water plant, storage plant, or distribution system, approval for the water quality must be obtained from the Division of Public Health.

14. The water system should be capable of providing at least 25 psi at ground level at all times throughout the distribution system.

15. All plastic pipe utilized in this drinking water system shall be approved for potable water use (NSF-pw). If any piping is joined with solder or flux, the solder and flux shall be lead free (less than or equal to 0.2 percent lead).

16. All water lines should be buried to a depth of at least 3 feet.

17. A certificate of Public Conveniences and Necessity should be acquired from the Public Service Commission, (302) 739-4247.

18. This approval is for the distribution system only. Plans and specifications for all well plumbing, pumps, storage (including any interior coatings), and treatment must be submitted to and approved by this office prior to their installation.

19. The approval is subject to immediate revocation upon violation of any of the preceding conditions.

20. All other local (state/county/city/town) approvals or permits needed must be obtained prior to beginning construction.

21. Upon completion of construction and before the system is placed into operation, a "Notice of Completion" must be submitted to the Office of Engineering. Before placing the system into operation, the following must be adhered to:
    a. Submit a set of as-built plans with profile markups to the Office of Engineering.
    b. Obtain an Approval to Operate from the Office of Engineering.

RECORD PLAN

BAYLIS ESTATES

PROPOSED

RESIDENTIAL SUBDIVISION

LOCATION OF SITE

MOUNT JOY RD, MAINTENANCE NUMBER: 297

SUSSEX COUNTY, DELAWARE

INDIAN RIVER HUNDRED

TAX MAP 2-34-29 PARCEL 42

SHEET INDEX

SHEET TITLE	SHEET NUMBER
RECORD COVER SHEET	1
OVERALL RECORD SITE PLAN	2
RECORD SITE PLAN	3 - 6
PROPOSED ROAD SECTION	7
LANDSCAPE PLAN	8

STANDARD DRAWING LEGEND

FOR ENTIRE PLAN SET
(NOT TO SCALE)

EXISTING NOTE	TYPICAL NOTE TEXT	PROPOSED NOTE
	ONSITE PROPERTY LINE / R.O.W. LINE	
	NEIGHBORING PROPERTY LINE / INTERIOR PARCEL LINE	
	EASEMENT LINE	
	SETBACK LINE	
	CONCRETE CURB & GUTTER	CURB AND GUTTER; SPILL CURB / TRANSITION CURB; DEPRESSED CURB AND GUTTER
	UTILITY POLE WITH LIGHT	
	POLE LIGHT	
	TRAFFIC LIGHT	
	UTILITY POLE	
	TYPICAL LIGHT	
	ACORN LIGHT	
	TYPICAL SIGN	
	PARKING COUNTS	X
120 / 125	CONTOUR LINE	120 / 125
TC 19.64 OR 19.64	SPOT ELEVATIONS	TC $16.00 / TC $16.00 BC $15.55
SAN #	SANITARY LABEL	SAN #
STM #	STORM LABEL	STM #
SL	SANITARY SEWER LATERAL	SL
W	UNDERGROUND WATER LINE	W
E	UNDERGROUND ELECTRIC LINE	E
G	UNDERGROUND GAS LINE	G
OH	OVERHEAD WIRE	OH
T	UNDERGROUND TELEPHONE LINE	T
C	UNDERGROUND CABLE LINE	C
	STORM SEWER	
S	SANITARY SEWER MAIN	S
	HYDRANT	
S	SANITARY MANHOLE	S
D	STORM MANHOLE	D
WM	WATER METER	
WV	WATER VALVE	
	GAS VALVE	
	GAS METER	
	TYPICAL END SECTION	
	HEADWALL OR ENDWALL	
	YARD INLET	
	CURB INLET	
	CLEAN OUT	
E	ELECTRIC MANHOLE	E
T	TELEPHONE MANHOLE	T
EB	ELECTRIC BOX	EB
EP	ELECTRIC PEDESTAL	EP
	MONITORING WELL	
	TEST PIT	
	BENCHMARK	

NOTES

1. ALL ON-SITE STREETS ARE PRIVATE AND SHALL BE MAINTAINED BY THE OWNER UNTIL DEDICATION TO THE HOMEOWNERS ASSOCIATION. THE PERPETUAL MAINTENANCE OF THE STREETS SHALL BE BY THE RESPECTIVE ORGANIZATION.
2. STORMWATER MANAGEMENT AND STORM DRAINAGE SHALL BE IN ACCORDANCE WITH THE SUSSEX COUNTY CONSERVATION DISTRICT AND SUSSEX COUNTY ENGINEERING REQUIREMENTS. THE SITE IS TO BE TREATED BY MULTIPLE WET PONDS. MAINTENANCE OF THE ON-SITE STORMWATER MANAGEMENT FACILITIES AND STORM DRAINAGE SYSTEM SHALL BE BY THE OWNER UNTIL DEDICATION TO THE HOMEOWNERS ASSOCIATION. THE PERPETUAL MAINTENANCE OF THE ABOVE PROACTIVE SHALL BE BY THE RESPECTIVE ORGANIZATION.
3. ALL OPEN SPACE SHALL BE MAINTAINED BY THE HOMEOWNERS ASSOCIATION.
4. FOR ANY NEW DEVELOPMENT LOCATED IN WHOLE OR IN PART WITH 20 FEET OF THE BOUNDARY OF LAND USED PRIMARILY FOR AGRICULTURAL PURPOSES, NO IMPROVEMENT REQUIRING AN OCCUPANCY APPROVAL FOR A RESIDENTIAL TYPE USE SHALL BE CONSTRUCTED WITHIN 20 FEET OF THE BOUNDARY OF THE LANDS USED PRIMARILY FOR AGRICULTURAL PURPOSES.
5. CONSTRUCTION TO COMMENCE IMMEDIATELY UPON APPROVAL. STORM DRAIN AND WATER LINES WILL BE PLACED FIRST, FOLLOWED BY UTILITIES AND STREETS.
6. THE HOMEOWNERS ASSOCIATION WILL BE REQUIRED TO MAINTAIN THE FORESTED/PLANTING BUFFER AND OPEN SPACE AND THE SPECIFICS WILL BE SPELLED OUT IN THE HOMEOWNERS ASSOCIATION DOCUMENTS.
7. NO LANDSCAPING SHALL BE ALLOWED WITHIN R/W UNLESS THE PLANS ARE COMPLIANT WITH SECTION 3.7 OF THE DEVELOPMENT COORDINATION MANUAL (DCM).
8. ALL ENTRANCES SHALL CONFORM TO THE DELAWARE DEPARTMENT OF TRANSPORTATION'S (DELDOT'S) CURRENT DEVELOPMENT COORDINATION MANUAL (DCM) AND SHALL BE SUBJECT TO ITS APPROVAL.
9. SHRUBBERY, PLANTINGS, SIGNS AND/OR OTHER VISUAL BARRIERS THAT COULD OBSTRUCT THE SIGHT DISTANCE OF A DRIVER PREPARING TO ENTER THE ROADWAY ARE PROHIBITED WITHIN THE DEFINED DEPARTURE SIGHT TRIANGLE AREA ESTABLISHED ON THIS PLAN. IF THE ESTABLISHED DEPARTURE SIGHT TRIANGLE AREA IS OUTSIDE THE RIGHT-OF-WAY OR PROJECTS ONTO AN ADJACENT PROPERTY OWNER'S LAND, A SIGHT EASEMENT SHOULD BE ESTABLISHED AND RECORDED WITH ALL AFFECTED PROPERTY OWNERS TO MAINTAIN THE REQUIRED SIGHT DISTANCE.
10. UPON COMPLETION OF THE CONSTRUCTION OF THE SIDEWALK OR SHARED-USE PATH ACROSS THIS PROJECT'S FRONTAGE AND PHYSICAL CONNECTION TO ADJACENT EXISTING FACILITIES, THE DEVELOPER, THE PROPERTY OWNERS OR BOTH ASSOCIATED WITH THIS PROJECT, SHALL BE RESPONSIBLE TO REMOVE ANY EXISTING ROAD TIE-IN CONNECTIONS LOCATED ALONG ADJACENT PROPERTIES, AND RESTORE THE AREA TO GRASS. SUCH ACTIONS SHALL BE COMPLETED AT DELDOT'S DISCRETION, AND IN CONFORMANCE WITH DELDOT'S "SHARED-USE PATH AND/OR SIDEWALK TERMINATION POLICY".
11. SUBDIVISION STREETS CONSTRUCTED WITHIN THE LIMITS OF THE RIGHT-OF-WAY ARE PRIVATE AS SHOWN ON THIS PLAN AND ARE TO BE MAINTAINED BY THE DEVELOPER, PROPERTY OWNERS OR BOTH. THE STATE OF DELAWARE ASSUMES NO MAINTENANCE RESPONSIBILITIES FOR THE FUTURE MAINTENANCE OF THESE STREETS.
12. THE SIDEWALK AND SHARED-USE PATH SHALL BE THE RESPONSIBILITY OF THE DEVELOPER, THE PROPERTY OWNERS OR BOTH WITHIN THIS SUBDIVISION. THE STATE OF DELAWARE ASSUMES NO RESPONSIBILITY FOR THE FUTURE MAINTENANCE OF THE SIDEWALK AND/OR SHARED-USE PATH.
13. ALL LOTS SHALL HAVE ACCESS FROM THE INTERNAL SUBDIVISION STREET.
14. DRIVEWAYS WILL NOT BE PERMITTED TO BE PLACED AT CATCH BASIN LOCATIONS.
15. LOTS WILL BE PERMITTED TO HAVE ACCESS POINTS THAT COMPLY WITH THE DEVELOPMENT COORDINATION MANUAL (DCM) SPACING REQUIREMENTS OF CHAPTER 1 AND LIMITATIONS ON NUMBER OF ACCESS POINTS ESTABLISHED IN DCM CHAPTER 7. HORSESHOE DRIVEWAYS AND SECONDARY ENTRANCES REQUIRE ADDITIONAL DELDOT REVIEW AND SEPARATE PERMITTING. RESTRICTIONS AS DESCRIBED IN THE DCM CHAPTER 7 MAY PROHIBIT SOME SECONDARY ENTRANCE REQUESTS FROM BEING GRANTED.
16. TO MINIMIZE RUTTING AND EROSION OF THE ROADSIDE DUE TO ON-STREET PARKING, DRIVEWAY AND BUILDING LAYOUTS MUST BE CONFIGURED TO ALLOW FOR VEHICLES TO BE STORED IN THE DRIVEWAY BEYOND THE RIGHT-OF-WAY, WITHOUT INTERFERING WITH SIDEWALK ACCESS AND CLEARANCE.
17. THE DEVELOPER SHALL BE REQUIRED TO FURNISH AND PLACE RIGHT-OF-WAY MONUMENTS IN ACCORDANCE WITH DELDOT'S DEVELOPMENT COORDINATION MANUAL.
18. THE DEVELOPER SHALL BE REQUIRED TO FURNISH AND PLACE RIGHT-OF-WAY MONUMENTS ON THE DEDICATED SUBDIVISION STREET RIGHT-OF-WAY IN ACCORDANCE WITH SECTION 3.2.4.1 OF THE DEVELOPMENT COORDINATION MANUAL, AND THE REQUIREMENTS OF THE LAND USE AGENCY. RIGHT-OF-WAY MONUMENTS SHALL BE PLACED ALONG THE RIGHT-OF-WAY LINES, AT A MINIMUM ON ONE SIDE OF THE STREET AT EVERY CHANGE IN HORIZONTAL ALIGNMENT TO PROVIDE A PERMANENT REFERENCE FOR THE RE-ESTABLISHING THE CENTERLINE AND RIGHT-OF-WAY LINE.
19. ALL UTILITY EASEMENTS SHOWN ARE TO BE DEDICATED TO THE HOMEOWNERS ASSOCIATION, UNLESS OTHERWISE NOTED.
20. THIS PROPERTY IS LOCATED IN THE VICINITY OF AND USED PRIMARILY FOR AGRICULTURAL PURPOSES ON WHICH NORMAL AGRICULTURAL USES AND ACTIVITIES HAVE BEEN AFFORDED THE HIGHEST PRIORITY USE STATUS. IT CAN BE ANTICIPATED THAT SUCH AGRICULTURAL USES AND ACTIVITIES MAY NOW OR IN THE FUTURE INVOLVE NOISE, DUST, MANURE AND OTHER ODORS, THE USE OF AGRICULTURAL CHEMICALS, AND NIGHTTIME FARM OPERATIONS. THE USE AND ENJOYMENT OF THE PROPERTY IS EXPRESSLY CONDITIONED ON ACCEPTANCE OF ANY ANNOYANCE OR INCONVENIENCE WHICH MAY RESULT FROM SUCH NORMAL AGRICULTURAL USES AND ACTIVITIES.
21. ALL INTERIOR LOT LINES ARE RESERVED FOR THE CENTERLINE OF A TWENTY (20) FOOT DRAINAGE AND/OR UTILITY EASEMENT. ALL INTERIOR PERIMETER LOT LINES AND BOUNDARY LINES SHALL HAVE A TEN (10) FOOT DRAINAGE AND/OR UTILITY EASEMENT.
22. THE REQUIRED RIGHT-OF-WAY DEDICATION, ALONG WITH THE 15' PERMANENT EASEMENT FOR THE SHARED USE PATH, WERE DEDICATED TO THE STATE OF DELAWARE PER THE BAYLIS ESTATES RECORD FINAL SITE PLAN APPROVED BY SUSSEX COUNTY ON 3/8/18 AND RECORDED IN DEED BOOK 182, PAGE 57.
23. PAVING SECTIONS TO BE CONSTRUCTED PER APPLICABLE SUSSEX COUNTY ENGINEERING REQUIREMENTS.
24. PRIOR TO THE ISSUANCE OF THE 66TH CERTIFICATE OF OCCUPANCY, THE CLUBHOUSE AND AMENITIES SHALL BE CONSTRUCTED AND AVAILABLE FOR THE USE BY THE RESIDENTS.
25. ANY ADDITIONAL SIGNAGE WILL REQUIRE THE ISSUANCE OF A SEPARATE PERMIT FROM THE COUNTY.

SUSSEX CONSERVATION DISTRICT APPROVAL

APPROVED BY SUSSEX COUNTY PLANNING AND ZONING

PLANNING AND ZONING COMMISSION

APPROVED BY SUSSEX COUNTY COUNCIL

PRESIDENT OF THE SUSSEX COUNTY COUNCIL

CONDITIONS OF APPROVAL

THE PLANNING AND ZONING COMMISSION GRANTED PRELIMINARY APPROVAL OF THIS PROJECT AT ITS MEETING ON THURSDAY, JUNE 10, 2021. THE FOLLOWING CONDITIONS APPLY TO THIS PROJECT:

1. PLEASE NOTE THE FOLLOWING CONDITIONS WHICH APPLY TO PHASE 1 OF THE BAYLIS ESTATES (2004-55) SUBDIVISION AS PROVIDED AT THE PLANNING AND ZONING COMMISSION'S MEETING OF OCTOBER 18, 2006:

   A. ~~THERE SHALL BE NO MORE THAN 99 LOTS WITHIN THE SUBDIVISION.~~
   B. THE APPLICANT SHALL FORM A HOMEOWNER'S ASSOCIATION TO BE RESPONSIBLE FOR THE MAINTENANCE OF STREETS, ROADS, ANY BUFFERS, STORMWATER MANAGEMENT FACILITIES, OPEN SPACES AND OTHER COMMON AREAS.
   C. THE STORMWATER MANAGEMENT SYSTEM SHALL MEET OR EXCEED THE REQUIREMENTS OF THE STATE AND COUNTY. BEST MANAGEMENT PRACTICES SHALL BE USED IN THE MAINTENANCE OF THE SYSTEM.
   D. ALL ENTRANCES SHALL COMPLY WITH ALL OF DELDOT'S REQUIREMENTS.
   E. STREET LIGHTING SHALL BE PROVIDED, AND THE LOCATION OF THE STREETLIGHTS SHALL BE SHOWN ON THE FINAL SITE PLAN.
   F. SIDEWALKS SHALL BE INSTALLED ON BOTH SIDES OF ALL STREETS WITHIN THE SUBDIVISION. SIDEWALKS SHALL CONNECT TO THE ROADWAY AT THE ENTRANCE TO THE PROJECT.
   G. AS STATED BY THE APPLICANT, WALKING TRAILS CONNECTED TO THE SIDEWALKS AND AMENITIES SHALL BE INSTALLED THROUGHOUT THE PROJECT, WITH THEIR LOCATION SHOWN ON THE FINAL SITE PLAN. H. AS STATED DURING THE APPLICANT'S PRESENTATION, THE APPLICANT SHALL MAINTAIN AS MANY EXISTING TREES AS POSSIBLE. THE UNDISTURBED FORESTED AREAS SHALL BE SHOWN ON THE FINAL SITE PLAN.
   I. AMENITIES SHALL BE CONSTRUCTED ON THE SITE, INCLUDING A COMMUNITY CENTER, AND SWIMMING POOL AND TENNIS COURT. THE LOCATION OF THESE AREAS SHALL BE SHOWN ON THE FINAL SITE PLAN. THESE AMENITIES SHALL BE CONSTRUCTED AND OPEN TO USE BY RESIDENTS WITHIN 2 YEARS OF THE ISSUANCE OF THE FIRST BUILDING PERMIT.
   J. NO WETLANDS SHALL BE INCLUDED WITHIN ANY LOT LINES.
   K. ROAD NAMING AND ADDRESSING SHALL BE SUBJECT TO THE REVIEW AND APPROVAL OF THE SUSSEX COUNTY MAPPING AND ADDRESSING DEPARTMENT.
   L. A SCHOOL BUS STOP SHALL BE LOCATED WITHIN THE PROJECT WITH AT LEAST 4 PARKING SPACES FOR PARENTS. THE LOCATION OF THE SCHOOL BUS STOP SHALL BE APPROVED BY THE LOCAL SCHOOL DISTRICT PRIOR TO FINAL SITE PLAN APPROVAL.
   M. AS VOLUNTEERED AND REPRESENTED BY THE APPLICANT, THE APPLICANT SHALL COMPLY WITH THE TERMS OF A MEMORANDUM OF UNDERSTANDING DATED JULY 11, 2006 BETWEEN IT AND THE INDIAN TOWN FARMS HOA.
   N. THE FINAL SITE PLAN SHALL BE SUBJECT TO THE REVIEW AND APPROVAL OF THE PLANNING AND ZONING COMMISSION.

2. PLEASE NOTE THE FOLLOWING CONDITIONS WHICH APPLY TO PHASE 2 OF THE BAYLIS ESTATES (2017-1) SUBDIVISION AS PROVIDED AT THE PLANNING AND ZONING COMMISSION'S MEETING OF MAY 18, 2017.

   A. ~~THERE SHALL BE NO MORE THAN 37 ADDITIONAL LOTS WITHIN THE SUBDIVISION.~~
   B. THE EXTENSION SHALL BE PART OF THE BAYLIS ESTATES SUBDIVISION AND THE LOT OWNERS SHALL BE MEMBERS OF THE HOA RESPONSIBLE FOR THE MAINTENANCE OF STREETS, ROADS, BUFFERS, STORMWATER MANAGEMENT FACILITIES AND OTHER COMMON AREAS.
   C. THE STORMWATER MANAGEMENT SYSTEM SHALL MEET OR EXCEED THE REQUIREMENTS OF THE STATE AND COUNTY. THE FINAL SITE PLAN SHALL CONTAIN THE APPROVAL OF THE SUSSEX CONSERVATION DISTRICT FOR THE DESIGN AND LOCATION OF ALL STORMWATER MANAGEMENT AREAS AND EROSION AND SEDIMENTATION CONTROL FACILITIES.
   D. THE APPLICANT SHALL MAINTAIN AS MANY EXISTING TREES AS POSSIBLE. THE UNDISTURBED FORESTED AREAS SHALL BE CLEARLY SHOWN ON THE FINAL SITE PLAN.
   E. AS PROFFERED BY THE APPLICANT, SIDEWALKS SHALL BE INSTALLED ON BOTH SIDES OF THE STREETS IN THE SITE.
   F. THE SUBDIVISION SHALL BE SERVED BY SUSSEX COUNTY SEWER.
   G. THE SUBDIVISION SHALL BE SERVED BY A PUBLICLY REGULATED CENTRAL WATER SYSTEM PROVIDING DRINKING WATER AND FIRE PROTECTION.
   H. STREET DESIGN SHALL MEET OR EXCEED SUSSEX COUNTY STANDARDS.
   I. ROAD NAMING AND ADDRESSING SHALL BE SUBJECT TO THE REVIEW AND APPROVAL OF THE SUSSEX COUNTY MAPPING AND ADDRESSING DEPARTMENT.
   J. A REVISED PRELIMINARY SITE PLAN EITHER DEPICTING OR NOTING THESE CONDITIONS MUST BE SUBMITTED TO THE OFFICE OF PLANNING AND ZONING.
   K. THE FINAL SITE PLAN SHALL BE SUBJECT TO THE REVIEW AND APPROVAL OF THE PLANNING AND ZONING COMMISSION.

3. **PLEASE NOTE THAT PER THE LATEST PLAN OF RECORD RECORDED AT PB 308, PG 89 ON APRIL 16, 2020, THAT THE CLUBHOUSE AND AMENITIES SHALL BE CONSTRUCTED AND AVAILABLE FOR USE BY RESIDENTS PRIOR TO THE ISSUANCE OF THE 66TH CERTIFICATE OF OCCUPANCY.**

4. AMENITIES FOR THIS PROJECT ARE PER PRELIMINARY PLAN APPROVED ON MAY 27, 2021.

PREPARED BY

BOHLER

CONTACT: STEVEN T. FORTUNATO, P.E.

OWNER/DEVELOPER

BAYLIS ESTATES INVESTMENTS, LLC
16255 SUSSEX HIGHWAY
BRIDGEVILLE, DE 19933
CONTACT: KEVIN BROZYNA
(302) 337-0400

PROJECT NOTES

1. TAX MAP PARCEL NO.: 2-34-29 PARCEL 42
2. EXISTING ZONING: AR-1 (AGRICULTURAL RESIDENTIAL)
3. PROPOSED ZONING: AR-1 (AGRICULTURAL RESIDENTIAL)
4. EXISTING USE: VACANT/WOODED
5. PROPOSED USE: RESIDENTIAL SUBDIVISION
6. TOTAL SITE AREA: 75.48± AC
7. DENSITY:
   PERMITTED: 3,287,989 SF/21,780 SF/LOT = 150 LOTS
   PROPOSED: 150 LOTS TOTAL
8. PROPOSED RESIDENTIAL UNITS: 150 SINGLE-FAMILY
9. INVESTMENT AREA: LEVEL 2 & 3
10. SITE AREA:

TOTAL SITE:	75.48± AC	
PHASE 1:	55.04± AC	
R.O.W.:	7.59± AC	
LOTS:	22.65± AC	
OPEN AREA:	22.60± AC	
BUFFER AREA:	2.20± AC	
IMPERVIOUS AREA:	22.65± AC	
SWM AREA:	14.30± AC	
PHASE 2:	20.44± AC	
R.O.W.:	2.72± AC	
LOTS:	11.75± AC	
OPEN AREA:	1.19± AC	
BUFFER AREA:	1.23± AC	
IMPERVIOUS AREA:	6.21± AC	
EXISTING FORESTED AREA:	75.48± AC	
FORESTED AREA TO REMAIN:	8.79± AC	
OPEN SPACE AREA:	8.79± AC	(31.5%)

11. OWNER/DEVELOPER:

    BAYLIS ESTATES INVESTMENTS, LLC
    C/O KEVIN BROZYNA
    16255 SUSSEX HIGHWAY
    BRIDGEVILLE, DE 19933
    (302) 337-0400

12. ENGINEER:

    BOHLER
    18958 COASTAL HWY, SUITE D
    REHOBOTH BEACH, DE 19971
    (302) 644-1155

13. DATUM:
    HORIZONTAL: NAD 83 (DELAWARE STATE PLANE GRID)
    VERTICAL: NAVD 88

14. EXISTING GROSS ACREAGE: 3,287,989 SF (75.48 AC)
    PROPOSED GROSS ACREAGE: 3,287,989 SF (75.48 AC)

15. THIS PROPERTY IS LOCATED IN OTHER AREAS ZONE X (AREAS DETERMINED TO BE OUTSIDE THE .02% CHANCE ANNUAL FLOODPLAIN)PER MAP ENTITLED "NATIONAL FLOOD INSURANCE PROGRAM, FIRM, FLOOD INSURANCE RATE MAP, SUSSEX COUNTY, DELAWARE, AND INCORPORATED AREAS, PANEL 477 OF 660", COMMUNITY PANEL NUMBER 100005C0477K, REVISED: MARCH 16, 2015.
16. ACCESS TO THE SITE SHALL BE FROM MOUNT JOY RD VIA ONE EXISTING FULL MOVEMENT ENTRANCE.
17. ALL FIRE LANES, FIRE HYDRANTS, FIRE DEPARTMENT CONNECTIONS, SPRINKLERS, STANDPIPE CONNECTIONS, AND FIRE EXITS SHALL BE MARKED AND/OR PROTECTED IN ACCORDANCE WITH THE DELAWARE STATE FIRE REGULATION.
18. WATER SUPPLY: TIDEWATER. SUBJECT TO THE APPROVAL OF THE DELAWARE STATE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL, THE DELAWARE STATE DIVISION OF PUBLIC HEALTH AND TIDEWATER UTILITIES, INC.
19. SANITARY SEWER: SUSSEX COUNTY. SUBJECT TO THE APPROVAL OF THE DELAWARE STATE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL AND SUSSEX COUNTY PUBLIC WORKS.
20. SUBDIVISION STREETS SHALL BE PRIVATELY OWNED AND MAINTAINED.
21. REFERENCE PREVIOUSLY APPROVED DELDOT RECORD PLANS FOR APPROVED SIGHT DISTANCE AND SITE ENTRANCE INFORMATION.
22. UTILITY ELEMENTS TO BE RELOCATED/REPLACED TO BE DONE SO IN ACCORDANCE WITH PROVIDER SPECIFICATIONS, BY GENERAL CONTRACTOR. GENERAL CONTRACTOR TO COORDINATE SAME PRIOR TO PROJECT BIDDING AND CONSTRUCTION.
23. COUNTY PROJECT REFERENCE NUMBERS: 2021-13, 2017-01, 2004-55
24. THIS SITE IS LOCATED WITHIN THE COSTAL AREA.
25. THIS SITE IS NOT LOCATED WITHIN A WELLHEAD PROTECTION AREA. THE SITE LIES WITHIN AREAS OF "POOR" AND "FAIR" GROUNDWATER RECHARGE POTENTIAL.
26. NO WETLANDS ARE CONTAINED ON THE SITE. REFERENCE WETLANDS CERTIFICATION ON PREVIOUSLY APPROVED RECORD PLAN PREPARED BY COTTEN ENGINEERING, LLC DATED JANUARY 31, 2018, RECORDED APRIL 16, 2020 BOOK 308, PAGE 89.

LOCATION MAP

SCALE: 1" = 1 MILE
PLAN REFERENCE:

DELORME STREET ATLAS 2009
COPYRIGHT 2008

CERTIFICATION OF OWNERSHIP

I HEREBY CERTIFY THAT I AM THE OWNER/DEVELOPER OF THE PROPERTY SHOWN ON THIS PLAN, THAT THIS PLAN WAS MADE AT MY DIRECTION, THAT I ACKNOWLEDGE THE SAME TO BE MY ACT, AND DESIRE THE PLAN TO BE DEVELOPED AS SHOWN IN ACCORDANCE WITH ALL APPLICABLE LAWS AND REGULATIONS.

ROB LISLE / KEVIN BROZYNA — DATE
BAYLIS ESTATES INVESTMENTS, LLC
16255 SUSSEX HIGHWAY
BRIDGEVILLE, DE 19933
P: (443) 532-5222

CERTIFICATION OF ACCURACY (ENGINEER)

I, STEVEN T. FORTUNATO, P.E., HEREBY CERTIFY THAT I AM A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF DELAWARE AND THAT THE INFORMATION SHOWN HEREON HAS BEEN PREPARED UNDER MY SUPERVISION AND TO THE BEST OF MY KNOWLEDGE AND BELIEF REPRESENTS GOOD ENGINEERING PRACTICES AS REQUIRED BY THE APPLICABLE LAWS OF THE STATE OF DELAWARE.

STEVEN T. FORTUNATO, P.E. — DATE
BOHLER
18958 COASTAL HWY, SUITE D
REHOBOTH BEACH, DE 19971
P: (302)644-1155 / F: (302)703-3173

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
PLANNING SERVICES
PERMITTING SERVICES
TRANSPORTATION SERVICES

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REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	2/25/22	PER AGENCY COMMENT	JSW / STF

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ALWAYS CALL 811
It's fast. It's free. It's the law.

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PROJECT No.: DE190077
DRAWN BY: JSW
CHECKED BY: STF
DATE: 10/21/21
CAD I.D.: RP - 0

PROJECT:

RECORD PLAN

FOR

BAYLIS ESTATES

PROPOSED RESIDENTIAL DEVELOPMENT

INDIAN RIVER HUNDRED
SUSSEX COUNTY, DE
TAX MAP: 2-34-29, PARCEL 42

BOHLER
18958 COASTAL HWY, SUITE D
REHOBOTH BEACH, DE 19971
Phone: (302) 644-1155
Fax: (302) 703-3173
BohlerEngineering.com

STEVEN T. FORTUNATO — LICENSED — No.19519 — PROFESSIONAL ENGINEER — STATE OF DELAWARE — 2/25/22

SHEET TITLE:

RECORD COVER SHEET

SHEET NUMBER: 1 OF 8

REVISION 1 - 2/25/22

Feb 25, 2022
H:\19\DE190077\DRAWINGS\PLAN SET\RECORD PLAN\DE190077 - RP - 1---LAYOUT 1 - COVER SHEET
JW

SEE SHEET 3

SEE SHEET 4

SEE SHEET 5

SEE SHEET 6

SWM POND 2
BOTTOM EL.=9.00'
BENCH EL.=13.00'
WSEL=14.00'

SWM POND 3
BOTTOM EL.=9.00'
BENCH EL.=1.00'
WSEL=14.00'

SWM POND 4
BOTTOM EL.=9.00'
BENCH EL.=13.00'
WSEL=14.00'

SWM POND 5
BOTTOM EL.=9.00'
BENCH EL.=13.00'
WSEL=14.00'

SWM POND 1
BOTTOM EL.=9.00'
BENCH EL.=13.00'
WSEL=14.00'

15' PE Previously Dedicated To The State Of Delaware (Deed Book 182, Page 57)

PROPOSED 10' SHARED USE PATH

30' FORESTED BUFFER

TREE LINE TO REMAIN

EX. TREES TO REMAIN

EX. EDGE OF PAVEMENT

EX. ROAD CENTERLINE

RIGHT-OF-WAY

EXISTING PROPERTY LINE

50' EASEMENT FOR FUTURE CONNECTION

PHASE 1
PHASE 2

MOUNT JOY ROAD
RTE. 54
MAINTENANCE #: 00297
SPEED LIMIT: 45 MPH

WEST HENRY PLACE
BAYLIS AVENUE
WEST KATHRYN COURT
BAYLIS AVE
HALEY CT
KATHLEEN DRIVE
EAST KATHRYN COURT
EAST HENRY PLACE
LEILA CT
AMILE DR

1 10,218 SF
2 14,607 SF
3 11,154 SF
4 11,269 SF
5 11,646 SF
6 12,966 SF
7 12,615 SF
8 10,411 SF
9 9,500 SF
10 9,707 SF
11 9,375 SF
12 9,375 SF
13 9,375 SF
14 9,375 SF
15 8,724 SF
16 8,726 SF
17 10,521 SF
18 10,518 SF
19 8,877 SF
20 7,671 SF
21 7,779 SF
22 8,843 SF
23 10,510 SF
24 10,515 SF
25 8,890 SF
26 7,943 SF
27 7,600 SF
28 8,282 SF
29 9,419 SF
30 10,521 SF
31 10,108 SF
32 10,018 SF
33 9,375 SF
34 9,375 SF
35 9,375 SF
36 9,157 SF
37 10,370 SF
38 10,000 SF
39 16,637 SF
40 9,840 SF
41 10,000 SF
42 11,163 SF
43 8,962 SF
44 8,962 SF
45 7,500 SF
46 7,500 SF
47 9,375 SF
48 9,618 SF
49 8,075 SF
50 9,834 SF
51 7,500 SF
52 8,750 SF
53 7,980 SF
54 10,096 SF
55 8,810 SF
56 7,735 SF
57 8,545 SF
58 8,245 SF
59 8,545 SF
60 7,653 SF
61 12,570 SF
62 10,518 SF
63 10,035 SF
64 9,784 SF
65 7,500 SF
66 7,500 SF
67 8,662 SF
68 9,811 SF
69 8,844 SF
70 9,345 SF
71 8,900 SF
72 8,751 SF
73 11,028 SF
74 8,482 SF
75 8,482 SF
76 8,810 SF
77 9,375 SF
78 10,193 SF
79 9,171 SF
80 14,219 SF
81 14,525 SF
82 12,094 SF
83 14,386 SF
84 7,500 SF
85 7,500 SF
86 8,875 SF
87 8,718 SF
88 7,500 SF
89 7,500 SF
90 7,500 SF
91 8,750 SF
92 8,898 SF
93 8,865 SF
94 8,939 SF
95 9,956 SF
96 11,106 SF
97 9,789 SF
98 9,732 SF
99 9,500 SF
100 13,307 SF
101 13,242 SF
102 13,250 SF
103 11,409 SF
104 14,094 SF
105 10,600 SF
106 11,388 SF
107 10,961 SF
108 12,363 SF
109 9,165 SF
111 13,847 SF
112 10,252 SF
113 11,218 SF
114 9,413 SF
115 10,890 SF
116 10,050 SF
117 10,000 SF
118 9,855 SF
119 8,682 SF
120 8,918 SF
121 8,770 SF
122 10,339 SF
123 7,500 SF
124 7,500 SF
125 7,500 SF
126 7,500 SF
127 9,516 SF
128 9,968 SF
129 12,123 SF
130 12,014 SF
131 15,453 SF
132 12,030 SF
133 15,440 SF
134 10,677 SF
135 8,043 SF
136 9,007 SF
137 10,702 SF
138 7,700 SF
139 7,700 SF
140 7,700 SF
141 7,700 SF
142 7,700 SF
143 7,700 SF
144 7,700 SF
145 8,800 SF
146 8,675 SF
147 7,700 SF
148 7,935 SF
149 7,503 SF
150 8,050 SF

SITE BENCHMARK:
CONCRETE MONUMENT (NAD 83)
ELEV. 16.68 (NAVD 88)
NORTHING: 227316.57
EASTING: 716733.40

SITE BENCHMARK:
CONCRETE MONUMENT (NAD 83)
ELEV. 20.11 (NAVD 88)
NORTHING: 224687.17
EASTING: 716479.18

SITE BENCHMARK:
CONCRETE MONUMENT (NAD 83)
ELEV. 18.02 (NAVD 88)
NORTHING: 226,528.79
EASTING: 717898.31

30' FORESTED BUFFER
EX.PROPERTY LINE
PROP.PROPERTY LINE
PROP.TREE LINE

TAX MAP: #234-29.00-37.00 N/F LANDS OF OLIVIA JENNIFER BOOK 3414 PAGE 37 ZONE: AR-1 USE: RESIDENTIAL

TAX MAP: #234-29.00-41.00 N/F LANDS OF JOHNSON LESLIE AND ROAS I. (CLOUGH) IN BOOK 4845 PAGE 60 ZONE: AR-1 USE: RESIDENTIAL

N/F LANDS OF STEVEN FERENCZI AND CHRISTINA WEST-FERENCZI BOOK 4838 PAGE 147 ZONE: AR-1 USE: RESIDENTIAL

TAX MAP: #234-29.00-297.00 N/F LANDS OF SHAUN C. & JENNIFER A. FINK BOOK 3777 PAGE 336 ZONE: AR-1 USE: RESIDENTIAL

TAX MAP: #234-29.00-298.00 N/F LANDS OF JOHN J. & MARGARET E. AVANZATO BOOK 0 PAGE 0 ZONE: AR-1 USE: RESIDENTIAL

TAX MAP: #234-29.00-299.00 N/F LANDS OF DONALD J. & ROBIN L. WEBER BOOK 4454 PAGE 84 ZONE: AR-1 USE: RESIDENTIAL

TAX MAP: #234-29.00-300.00 N/F LANDS OF JOSEPH C. & SHARON M. BASSITA BOOK 0 PAGE 0 ZONE: AR-1 USE: RESIDENTIAL

TAX MAP: #234-29.00-301.00 N/F LANDS OF STOVER CHAD BOOK 5039 PAGE 158 ZONE: AR-1 USE: RESIDENTIAL

TAX MAP: #234-29.00-302.00 N/F LANDS OF IRENE GIANESSES BOOK 2344 PAGE 290 ZONE: AR-1 USE: RESIDENTIAL

TAX MAP: #234-29.00-303.00 N/F LANDS OF ALLEN J. & MARY JANE DONATO BOOK 0 PAGE 0 ZONE: AR-1 USE: RESIDENTIAL

TAX MAP: #234-29.00-304.00 N/F LANDS OF EDWARD R. SR & CHERE A. RIORDAN BOOK 0 PAGE 0 ZONE: AR-1 USE: RESIDENTIAL

N/F LANDS OF INDIAN TOWN FARMS PROPERTY OWNERS ASSOC. BOOK 0 PAGE 0 ZONE: AR-1 USE: RESIDENTIAL

TAX MAP: #234-29.00-33.00 N/F LANDS OF DON C. AHSHAPANCK & CIMELITA ALANIZ BOOK 351 PAGE 237 ZONE: AR-1 USE: RESIDENTIAL

TAX MAP: #234-29.00-34.00 N/F LANDS OF BARRY BARLOW BOOK 3009 PAGE 238 ZONE: AR-1 USE: RESIDENTIAL

TAX MAP: #234-29.00-35.00 N/F LANDS OF RICARDO YGMEZ BOOK 4310 PAGE 293 ZONE: AR-1 USE: RESIDENTIAL

TAX MAP: #234-29.00-31.00 N/F LANDS OF PRICE CYRIL H. (CORS DAVIS BOOK 0 PAGE 0 ZONE: AR-1 USE: RESIDENTIAL

TAX MAP: #234-29.00-32.00 N/F LANDS OF TARA S. & STERLING A. DOUGHTY BOOK 2430 PAGE 272 ZONE: AR-1 USE: RESIDENTIAL

TAX MAP: #234-29.00-36.00 N/F LANDS OF TARA SAMMONS--DOUGHTY & STERLING A. DOUGHTY BOOK 4597 PAGE 54 ZONE: AR-1 USE: RESIDENTIAL

TAX MAP: #234-29.00-39.00 N/F LANDS OF XPRESS CONTRACTING, LLC BOOK 4952 PAGE 6 ZONE: AR-1 USE: RESIDENTIAL

TAX MAP: #234-29.00-40.00 N/F LANDS OF FOUR DIAMONDS DEVELOPMENT & CONSULTING, LLC BOOK 4701 PAGE 66 ZONE: CR-1 USE: RESIDENTIAL

TAX MAP: #234-29.00-48.00 N/F LANDS OF LAMBOLL STUCCO LLC BOOK 4049 PAGE 227 ZONE: AR-1 USE: AGRICULTURAL

TAX MAP: #234-29.00-48.05 N/F LANDS OF DHARON A HARRING BOOK 4364 PAGE 173 ZONE: AR-1 USE: RESIDENTIAL

TAX MAP: #234-29.00-49.00 N/F LANDS OF LOUIS C & JUDY A HAGEN BOOK 0 PAGE 0 ZONE: AR-1 USE: COMMERCIAL

TAX MAP: #234-29.00-50.00 N/F LANDS OF JANICE B DAVIS BOOK 2826 PAGE 320 ZONE: AR-1 USE: RESIDENTIAL

TAX MAP: #234-29.00-51.00 N/F LANDS OF WILLIAM L OEHM BOOK 4676 PAGE 299 ZONE: AR-1 USE: RESIDENTIAL

TAX MAP: #234-29.00-52.00 N/F LANDS OF EARL R. & KATHLEEN T. LOUGHEED BOOK 4445 PAGE 178 ZONE: AR-1 USE: RESIDENTIAL

TAX MAP: #234-29.00-53.00 N/F LANDS OF ROBERT A. & IRENE E. HAAS BOOK 5208 PAGE 134 ZONE: AR-1 USE: RESIDENTIAL

TAX MAP: #234-29.00-54.00 N/F LANDS OF STERLING V. & MARY G. STREET BOOK 2408 PAGE 1 ZONE: AR-1 USE: RESIDENTIAL

TAX MAP: #234-29.00-295.00 N/F LANDS OF 26582 JOHN J. WILLIAMS HIGHWAY LLC BOOK 4252 PAGE 177 ZONE: C-3 USE: COMMERCIAL

TAX MAP: #234-29.00-296.01 N/F LANDS OF MOORE'S CLOVERLEAF FARM LLC BOOK 2923 PAGE 322 ZONE: AR-1 USE: AGRICULTURAL

TAX MAP: #234-29.00-297.00 N/F LANDS OF TARA S. & STERLING A. DOUGHTY BOOK 2430 PAGE 272 ZONE: AR-1 USE: RESIDENTIAL

80 40 20 0 80
1"= 80'

Feb 25, 2022
I:\1\9\DE190077\DRAWINGS\PLAN SET\RECORD PLANS\DE190077 - RP - 1 - LAYOUT 2 - OVERALL PLAN.DWG

BOHLER

SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
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REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	2/25/22	PER AGENCY COMMENT	JSW / STF

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PROJECT No.:	DE190077
DRAWN BY:	JSW
CHECKED BY:	STF
DATE:	10/21/21
CAD I.D.:	RP - 0

PROJECT:

RECORD PLAN

FOR

BAYLIS ESTATES

PROPOSED RESIDENTIAL DEVELOPMENT

INDIAN RIVER HUNDRED
SUSSEX COUNTY, DE
TAX MAP: 2-34-29, PARCEL 42

BOHLER

18958 COASTAL HWY, SUITE D
REHOBOTH BEACH, DE 19971
Phone: (302) 644-1155
Fax: (302) 703-3173
BohlerEngineering.com

S.T. FORTUNATO — No. 19519 — PROFESSIONAL ENGINEER — DELAWARE LICENSE No. 19519 — 2/25/22 — DELAWARE PROFESSIONAL ENGINEER

SHEET TITLE:

OVERALL RECORD SITE PLAN

SHEET NUMBER:

2
OF 8

REVISION 1 - 2/25/22

TAX MAP # 234-29.00-37.00
N/F LANDS OF OLIVIA JENNIFER
BOOK 2414 PAGE 37
ZONE: AR-1

TAX MAP # 234-29.00-41.00
N/F LANDS OF JOHNSON LESLIE AND ROAS I O'LOUGHLIN
BOOK 4845 PAGE 60
ZONE: AR-1

EX. PROPERTY LINE
30' FORESTED BUFFER

TAX MAP #234-29.00-296.00
N/F LANDS OF STEVEN FERENCZI AND CHRISTINA WEST-FERENCZI
BOOK 4838 PAGE 147
ZONE: AR-1

TAX MAP #234-29.00-297.00
N/F LANDS OF SHAUN C & JENNIFER A FINK
BOOK 3777 PAGE 336
ZONE: AR-1

NOTE

1) A 20-FOOT WIDE PERMANENT EASEMENT CONTAINING 1,230± SQUARE FEET IS HEREBY ESTABLISHED FOR THE STATE OF DELAWARE AS PER THIS PLAT, FOR EMERGENCY ACCESS TO DRAINAGE FACILITIES CONVEYING RUNOFF FROM STATE MAINTAINED ROADS AND/OR RIGHTS-OF-WAY. THE PORTIONS OF THE DRAINAGE EASEMENT AND SYSTEM THAT ARE UPSTREAM OR OFFSITE AS WELL AS SECTIONS THAT ARE NOT DIRECTLY COLLECTING AND CONVEYING THE DRAINAGE RUNOFF OF THE PROPOSED STATE MAINTAINED ROADS AND/OR RIGHTS-OF-WAY SHALL BE THE RESPONSIBILITY OF THE DEVELOPER, PROPERTY OWNERS, OR BOTH. THE STATE OF DELAWARE ASSUMES NO RESPONSIBILITY FOR THE FUTURE MAINTENANCE OF ANY EXEMPTED PORTIONS OF THE STORMDRAIN SYSTEM AND/OR DRAINAGE EASEMENTS."

N40°16'05"E
2155.00'

Open Space A
±819,194 SF
±18.81 Ac

SWM POND 2
BOTTOM EL.=9.00'
BENCH EL.=13.00'
WSEL=14.00'
AREA=2.34± AC

SWM POND 3
BOTTOM EL.=9.00'
BENCH EL.=1.00'
WSEL=14.00'
AREA=2.30± AC

TAX MAP # 234-29.00-36.00
N/F LANDS OF DON C AHSHAPANCK & CAMELITA ALANIZ
BOOK 351 PAGE 237
ZONE: AR-1

15' PE Previously Dedicated To The State Of Delaware (Deed Book 182, Page 57)

A 43.75 FOOT STRIP OF RIGHT OF WAY FROM THE CENTERLINE OF THE EXISTING ROADWAY WAS PREVIOUSLY DEDICATED TO THE STATE OF DELAWARE (DEED BOOK 182, PAGE 57)

64.1' ROW
39.2'

PROP. SWALE

S49°35'40"E
1505.57'

PROPOSED 10' SHARED USE PATH

PROPOSED 5' BIKE LANE

RIGHT OF WAY

PROP. EDGE OF PAVEMENT
EX. EDGE OF PAVEMENT

TAX MAP # 234-29.00-35.00
N/F LANDS OF NANTICOKE INDIAN ASSOCIATION INC.
BOOK 323,3 PAGE 306
ZONE: AR-1

N36°54'03"E 61.30'
S36°54'03"W 20.00'
S36°54'03"W 61.67'

PROP. DRAINAGE EASEMENT, SEE NOTE 1 ON SHEET 3

5.3' 11' 10.6' 10.7' 5'

TAX MAP # 234-29.00-34.00
N/F LANDS OF BARRY BARLOW
BOOK 3009 PAGE 238
ZONE: AR-1

N82°52'23"E 39.53'
N45°09'51"E 48.16'
N40°24'01"E 222.22'

PROP. ROAD CENTERLINE PER PREVIOUSLY APPROVED RECORD PLAN (BY OTHERS)
EX. ROAD CENTERLINE

TAX MAP # 234-29.00-33.00
N/F LANDS OF RICARDO GOMEZ
BOOK 4,310 PAGE 293
ZONE: AR-1

MOUNT JOY ROAD
MAJOR COLLECTOR
MAINTENANCE #: 00297
SPEED LIMIT: 45 MPH

PROPERTY MARKER LEGEND

- SET CONCRETE MONUMENT.
- SET IRON ROD AND CAP.
- EXISTING PROPERTY MARKER

N17°20'08"E 72.65'
N36°06'50"E 84.39'
N70°41'56"E 61.99'
S80°23'00"E 62.36'
S70°49'35"E 95.47'
S20° 127.01'
S20°52'47"E 101.06'
N69°43'57"W 43.36'
S49°35'40"E 1505.57'
S49°35'40"E 51.37'
S49°35'40"E 3,167.52'
S49°35'40"E 3,116.15'
S49°35'40"E 3,065.40'
S49°35'40"E 3,014.65'
S49°35'40"E 2,963.91'
S49°35'40"E 2,913.16'
S49°35'40"E 2,862.41'
S49°35'40"E 2,811.67'
S49°35'40"E 2,760.92'
S49°35'40"E 2,710.17'
S49°35'40"E 2,659.42'
S49°35'40"E 2,608.68'
S49°35'40"E 2,557.93'
S49°35'40"E 2,507.18'
S49°35'40"E 2,456.43'
S49°35'40"E 2,405.69'
S49°35'40"E 2,354.94'
S49°35'40"E 2,304.19'
S49°35'40"E 2,253.44'
S49°35'40"E 2,202.70'
S49°35'40"E 2,151.95'
S49°35'40"E 2,101.20'
S49°35'40"E 2,050.45'
S49°35'40"E 1,999.71'
S49°35'40"E 1,948.96'
S49°35'40"E 1,898.21'
S49°35'40"E 1,847.46'
S49°35'40"E 1,796.72'
S49°35'40"E 1,745.97'
S49°35'40"E 1,695.22'
S49°35'40"E 1,644.47'
S49°35'40"E 1,593.73'
S49°35'40"E 1,542.98'
S49°35'40"E 1,492.23'
S49°35'40"E 1,441.48'
S49°35'40"E 1,390.74'
S49°35'40"E 1,339.99'
S49°35'40"E 1,289.24'
S49°35'40"E 1,238.49'
S49°35'40"E 1,187.75'
S49°35'40"E 1,137.00'
S49°35'40"E 1,086.25'
S49°35'40"E 1,035.50'
S49°35'40"E 984.76'
S49°35'40"E 934.01'
S49°35'40"E 883.26'
S49°35'40"E 832.51'
S49°35'40"E 781.77'
S49°35'40"E 731.02'
S49°35'40"E 680.27'
S49°35'40"E 629.52'
S49°35'40"E 578.78'
S49°35'40"E 528.03'
S49°35'40"E 477.28'
S49°35'40"E 426.53'
S49°35'40"E 375.79'
S49°35'40"E 325.04'
S49°35'40"E 274.29'
S49°35'40"E 223.54'
S49°35'40"E 172.80'
S49°35'40"E 122.05'
S49°35'40"E 71.30'
S49°35'40"E 20.55'

1 10,218 SF
2 14,607 SF
3 11,154 SF
4 11,269 SF
5 11,646 SF
6 12,966 SF
7 12,615 SF
8 411 SF
9 9,500 SF
10 9,707 SF
31 10,108 SF
44 8,962 SF
45 7,500 SF
46 7,500 SF
47 9,375 SF
48 9,618 SF
49 8,075 SF
50 9,834 SF
51 7,500 SF
52 8,750 SF
53 7,980 SF
54 10,096 SF
61 12,570 SF
62 10,518 SF
69 8,844 SF
68 9,811 SF

R=52.00' Δ=053°24'22" L=48.47' CHB=S30°47'14"W CHD=46.73'
R=52.00' Δ=053°24'22" L=48.47' CHB=S84°11'36"W CHD=46.73'
R=52.00' Δ=053°24'22" L=48.47' CHB=S22°37'08"E CHD=46.73'
R=52.00' Δ=053°24'22" L=48.47' CHB=S76°01'31"E CHD=46.73'
R=52.00' Δ=278°20'08" L=252.61' TOTAL CHB=S04°26'03"W CHD=68.00'
R=26.00' Δ=049°10'04" L=22.31' CHB=N69°30'01"E CHD=21.63'
R=26.00' Δ=049°10'04" L=22.31' CHB=N61°19'55"W CHD=21.63'
R=52.00' Δ=032°21'20" L=29.36' CHB=N61°05'38"E CHD=28.98'
R=52.00' Δ=032°21'20" L=29.36' CHB=N52°55'33"W CHD=28.98'
R=100.00' Δ=004°32'05" L=7.91' CHB=N83°38'55"W CHD=7.91'
R=100.00' Δ=036°18'58" L=63.38' TOTAL CHB=N67°45'28"W CHD=62.33'
R=100.00' Δ=017°59'50" L=31.41' CHB=N58°35'54"W CHD=31.28'
R=50.00' Δ=036°18'58" L=31.69' CHB=S67°45'28"E CHD=31.16'
R=26.00' Δ=090°00'00" L=40.84' CHB=S58°24'01"W CHD=36.77'
R=26.00' Δ=090°00'00" L=40.84' CHB=N04°35'59"W CHD=36.77'
R=355.12' Δ=002°08'02" L=13.23' CHB=N39°23'24"E CHD=13.22'
R=375.00' Δ=023°17'38" L=152.46' TOTAL CHB=N28°45'12"E CHD=151.41'
R=425.00' Δ=023°17'38" L=172.79' TOTAL CHB=N28°45'12"E CHD=171.60'
R=425.00' Δ=008°05'44" L=60.05' CHB=N29°48'09"E CHD=60.00'
R=425.00' Δ=008°38'54" L=64.15' CHB=N21°25'50"E CHD=64.09'
R=175.00' Δ=017°23'39" L=53.12' CHB=N49°17'01"E CHD=52.92'
R=325.00' Δ=034°41'09" L=196.75' CHB=S34°26'57"W CHD=193.76'
R=325.00' Δ=011°33'28" L=65.56' CHB=N24°18'46"E CHD=65.45'
R=325.00' Δ=010°39'30" L=59.51' CHB=N35°20'15"E CHD=59.43'
R=275.00' Δ=025°15'45" L=121.25' TOTAL CHB=S39°09'40"W CHD=120.27'
R=275.00' Δ=017°49'46" L=85.58' CHB=S35°26'40"W CHD=85.23'
R=26.00' Δ=099°25'24" L=45.12' CHB=S23°10'55"E CHD=39.67'
R=26.00' Δ=090°00'00" L=40.84' CHB=N62°06'23"E CHD=36.77'
R=50.00' Δ=055°18'51" L=48.27' CHB=N79°28'58"E CHD=46.42'
R=99.89' Δ=056°18'52"

10' REAR SETBACK (TYP)
10' SIDE SETBACK (TYP)
-25' FRONT SETBACK (TYP)
15' SIDE SETBACK

WOODED AREA TO REMAIN

WEST HENRY PLACE
BAYLIS AVENUE
KATHLEEN DRIVE

15' PE DEDICATED TO THE STATE OF DELAWARE PER THIS PLAT (1,846± SF).
MONUMENT SIGN LOCATION

SUSSEX COUTNY PUMP STATION

MATCHLINE - SHEET 4

MATCHLINE - SHEET 5

40 20 10 0 40
1"= 40'

Feb 25, 2022
H:\19\DE190077\DRAWINGS\PLAN SET\RECORD PLAN\DE190077 - RP - 1---LAYOUT 3 - SITE PLAN.MW

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REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	2/25/22	PER AGENCY COMMENT	JSW / STF

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PROJECT No.: DE190077
DRAWN BY: JSW
CHECKED BY: STF
DATE: 10/21/21
CAD I.D.: RP - 0

PROJECT:

RECORD PLAN

FOR

BAYLIS ESTATES

PROPOSED RESIDENTIAL DEVELOPMENT

INDIAN RIVER HUNDRED
SUSSEX COUNTY, DE
TAX MAP: 2-34-29, PARCEL 42

BOHLER
18958 COASTAL HWY, SUITE D
REHOBOTH BEACH, DE 19971
Phone: (302) 644-1155
Fax: (302) 703-3173
BohlerEngineering.com

STEVEN T. FORTUNATO
S.T. FORTUNATO
No. 19519
PROFESSIONAL ENGINEER
STATE OF DELAWARE
2/25/22

SHEET TITLE:

RECORD SITE PLAN

SHEET NUMBER:
3
OF 8

REVISION 1 - 2/25/22

TAX MAP #2-34-29.00-300.00
N/F LANDS OF JOSEPH G & SHARON M BASISTA
BOOK 0 PAGE 0
ZONE: AR-1

TAX MAP #2-34-29.00-301.00
N/F LANDS OF STOVER CHAD
BOOK 5039 PAGE 158
ZONE: AR-1

TAX MAP #2-34-29.00-302.00
N/F LANDS OF IRENE GIANESSES
BOOK 2344 PAGE 290
ZONE: AR-1

TAX MAP #2-34-29.00-303.00
N/F LANDS OF ALLEN J & MARY JANE DONATO
BOOK 0 PAGE 0
ZONE: AR-1

TAX MAP #2-34-29.00-304.00
N/F LANDS OF EDWARD R SR & CHERE A RIORDAN
BOOK 0 PAGE 0
ZONE: AR-1

TAX MAP #2-34-29.00-39.00
N/F LANDS OF INDIAN TOWN FARMS PROPERTY OWNERS ASSOC.
BOOK 0 PAGE 0
ZONE: AR-1

EX. PROPERTY LINE
30' FORESTED BUFFER

N40°16'05"E
2155.00

SITE BENCHMARK:
CONCRETE MONUMENT (NAD 83)
ELEV. 16.68 (NAVD 88)
NORTHING: 227216.57
EASTING: 716733.40

SWM POND 4
BOTTOM EL.=9.00'
BENCH EL.=13.00'
WSEL=14.00'
AREA=2.89± AC

SWM POND 5
BOTTOM EL.=9.00'
BENCH EL.=13.00'
WSEL=14.00'
AREA=3.81± AC

MATCHLINE - SHEET 3

MATCHLINE - SHEET 6

WEST KATHRYN COURT

BAYLIS AVE

HALEY LN

PHASE 1

PHASE 2

WOODED AREA TO REMAIN

Open Space B
±19,495 SF
±0.45 Ac

OPEN SPACE F

OPEN SPACE G

50' EASEMENT FOR FUTURE CONNECTION

EX. PROPERTY LINE

70 9,345 SF
71 8,900 SF
72 8,751 SF
73 11,028 SF
77 9,375 SF
78 10,193 SF
79 9,171 SF
80 14,219 SF
81 14,525 SF
82 12,094 SF
83 14,386 SF
84 7,500 SF
85 7,500 SF
86 8,875 SF
87 8,718 SF
88 7,500 SF
89 7,500 SF
90 7,500 SF
91 8,750 SF
92 8,898 SF
93 8,865 SF
94 8,939 SF
95 9,956 SF
96 11,106 SF
97 9,789 SF
98 9,732 SF
99 9,500 SF
100 13,307 SF
106 11,388 SF
40 9,840 SF
75 8,482 SF
76 8,810 SF
55 8,810 SF
56 7,735 SF
8,545 SF
58 8,245 SF
61 9,570 SF

TAX MAP #2-34-23.00-115.00
N/F LANDS OF FOUR DIAMONDS DEVELOPMENT & CONSULTING LLC
BOOK 4701 PAGE 66
ZONE: CR-1

TAX MAP #2-34-29.00-49.02
N/F LANDS OF LAMBOLL STAZCO LLC
BOOK 4049 PAGE 227
ZONE: AR-1

PROPERTY MARKER LEGEND
- SET CONCRETE MONUMENT.
- SET IRON ROD AND CAP.
- EXISTING PROPERTY MARKER

40 20 10 0 40
1"= 40'

Feb 25, 2022
H:\19\DE190077\DRAWINGS\PLAN SET\RECORD PLAN\DE190077 - RP - 1----LAYOUT 4 - SITE PLAN
AM

BOHLER
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LAND SURVEYING
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LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

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REVISIONS

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1	2/25/22	PER AGENCY COMMENT	JSW / STF

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PROJECT No.:	DE190077
DRAWN BY:	JSW
CHECKED BY:	STF
DATE:	10/21/21
CAD I.D.:	RP - 0

PROJECT:

RECORD PLAN

FOR

BAYLIS ESTATES

PROPOSED RESIDENTIAL DEVELOPMENT

INDIAN RIVER HUNDRED
SUSSEX COUNTY, DE
TAX MAP: 2-34-29, PARCEL 42

BOHLER
18958 COASTAL HWY, SUITE D
REHOBOTH BEACH, DE 19971
Phone: (302) 644-1155
Fax: (302) 703-3173
BohlerEngineering.com

S.T. FORTUNATO
No.19519
PROFESSIONAL ENGINEER
STATE OF DELAWARE
2/25/22

SHEET TITLE:

RECORD SITE PLAN

SHEET NUMBER:
4
OF 8

REVISION 1 - 2/25/22

MATCHLINE - SHEET 3

MATCHLINE - SHEET 6

BAYLIS AVENUE

EAST HENRY PLACE

MOUNT JOY ROAD
(AKA SR 297)
MAJOR COLLECTOR
MAINTENANCE #: 00297
SPEED LIMIT: 45 MPH

LEILA CT

AMILE DR

PHASE 1
PHASE 2

PHASE 2
PHASE 1

15' PE DEDICATED TO THE STATE OF DELAWARE PER THIS PLAT (1,846± SF).

SUSSEX COUNTY PUMP STATION

PROP.TREE LINE

OPEN SPACE H

OPEN SPACE D

OPEN SPACE E

OPEN SPACE J

30' FORESTED BUFFER

EX. PROPERTY LINE

PROP.PROPERTY LINE

EX. ROAD CENTERLINE

PROPOSED 10' SHARED USE PATH

PROP. SWALE

PROP. DRAINAGE EASEMENT, SEE NOTE 1 ON SHEET 5

15' PE PREVIOUSLY DEDICATED TO THE STATE OF DELAWARE (DEED BOOK 182, PAGE 57)

MONUMENT SIGN LOCATION

RIGHT-OF-WAY

65' ROW

50' ROW

TAX MAP: # 234-29.00-28.00
N/F LANDS OF RICARDO GOMEZ
BOOK 4310 PAGE 293
ZONE: AR-1

TAX MAP: # 234-29.00-30.00
N/F LANDS OF PRICE
CYRIL H DORIS DAVIS
BOOK O PAGE 0
ZONE: AR-1

TAX MAP: # 234-29.00-29.00
N/F LANDS OF TARA
SAMMONS-DOUGHTY &
STERLING A DOUGHTY
BOOK 4597 PAGE 54
ZONE: AR-1

TAX MAP: # 234-29.00-30.00
N/F LANDS OF XPRESS
CONTRACTING LLC
BOOK 4952 PAGE 8
ZONE: AR-1

TAX MAP: #234-29.00-263.00
N/F LANDS OF STERLING V. & MARY
G STREET
BOOK 2408 PAGE 1
ZONE: AR-1

SITE BENCHMARK:
CONCRETE MONUMENT (NAD 83)
ELEV. 20.11 (NAVD 88)
NORTHING: 234087.37
EASTING: 1764778.18

PROPERTY MARKER LEGEND

- SET CONCRETE MONUMENT.
- SET IRON ROD AND CAP.
- EXISTING PROPERTY MARKER

NOTE

1) A 20-FOOT WIDE PERMANENT EASEMENT CONTAINING 687± SQUARE FEET IS HEREBY ESTABLISHED FOR THE STATE OF DELAWARE AS PER THIS PLAT, FOR EMERGENCY ACCESS TO DRAINAGE FACILITIES CONVEYING RUNOFF FROM STATE MAINTAINED ROADS AND/OR RIGHTS-OF-WAY. THE PORTIONS OF THE DRAINAGE EASEMENT AND SYSTEM THAT ARE UPSTREAM OR OFFSITE AS WELL AS SECTIONS THAT ARE NOT DIRECTLY COLLECTING AND CONVEYING THE DRAINAGE RUNOFF OF THE PROPOSED STATE MAINTAINED ROADS AND/OR RIGHTS-OF-WAY SHALL BE THE RESPONSIBILITY OF THE DEVELOPER, PROPERTY OWNERS, OR BOTH. THE STATE OF DELAWARE ASSUMES NO RESPONSIBILITY FOR THE FUTURE MAINTENANCE OF ANY EXEMPTED PORTIONS OF THE STORMDRAIN SYSTEM AND/OR DRAINAGE EASEMENTS."

1" = 40'

Feb 25, 2022
H:\19\DE190077\DRAWINGS\PLAN SET\RECORD PLAN\DE190077 - RP - 1---LAYOUT 5 - SITE PLAN.DWG

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PROJECT No.: DE190077
DRAWN BY: JSW
CHECKED BY: STF
DATE: 10/21/21
CAD I.D.: RP - 0

PROJECT:

RECORD PLAN

FOR

BAYLIS ESTATES

PROPOSED RESIDENTIAL DEVELOPMENT

INDIAN RIVER HUNDRED
SUSSEX COUNTY, DE
TAX MAP: 2-34-29, PARCEL 42

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18958 COASTAL HWY, SUITE D
REHOBOTH BEACH, DE 19971
Phone: (302) 644-1155
Fax: (302) 703-3173
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JOHN T. FORTUNATO
LICENSED
S.T. FORTUNATO
No.19519
PROFESSIONAL ENGINEER
DELAWARE
PROFESSIONAL ENGINEER
2/25/22

SHEET TITLE:

RECORD SITE PLAN

SHEET NUMBER:

5
OF 8

REVISION 1 - 2/25/22

MATCHLINE - SHEET 4

MATCHLINE - SHEET 5

EAST KATHLEEN DR

HALEY CT

AMILE DR

SWM POND 1
BOTTOM EL.=9.00'
BENCH EL.=13.00'
WSEL=14.00'
AREA=3.03± AC

PHASE 1
PHASE 2
PHASE 1C

OPEN SPACE G
OPEN SPACE I
OPEN SPACE K

POOL (BY OTHER) 1,215± SF
PROP. CLUBHOUSE 4,100± S.F. FFE: 20.7' MAX HEIGHT: 42'
MULTI-PURPOSE ACTIVITY COURT
MULTI-PURPOSE ACTIVITY COURT

30' FORESTED BUFFER
EX. PROPERTY LINE
PROP.TREE LINE
PROP.PROPERTY LINE
EXISTING PROPERTY LINE
PROP.PROPERTY LINE

TAX MAP #234-29.00-48.00
N/F LANDS OF SHARON A HARRING
BOOK 4564 PAGE 173
ZONE: AR-1

TAX MAP #234-29.00-47.00
N/F LANDS OF LOUIS C & JUDY A HAGEN
BOOK 0 PAGE 0
ZONE: AR-1

TAX MAP #234-29.00-263.07
LANDS OF 26582 JOHN J WILLIAMS HIGHWAY LLC
BOOK 4202 PAGE 117
ZONE: C-1

TAX MAP #234-29.00-263.01
N/F LANDS OF MOORE'S CLOVERLEAF FARM LLC
BOOK 2923 PAGE 322
ZONE: AR-1

TAX MAP #234-29.00-263.02
N/F LANDS OF WILLIAM L DEIHM
BOOK 4676 PAGE 299
ZONE: AR-1

TAX MAP #234-29.00-263.04
N/F LANDS OF EARL R & KATHLEEN T LOUGHEED
BOOK 4445 PAGE 178
ZONE: AR-1

TAX MAP #234-29.00-263.03
N/F LANDS OF ROBERT A & IRENE E HAAS
BOOK 5208 PAGE 134
ZONE: AR-1

SITE BENCHMARK
CONCRETE MONUMENT (NAD 83)
ELEV. 19.02 (NAVD 88)
NORTHING: 226328.79
EASTING: 717898.31

2157.98'
S40°50'45"W

PROPERTY MARKER LEGEND

- SET CONCRETE MONUMENT.
- SET IRON ROD AND CAP.
- EXISTING PROPERTY MARKER

40 20 10 0 40
1"= 40'

Feb 25, 2022
H:\1905E\190077\DRAWINGS\PLAN SETS\RECORD PLANS\E190077 - RP - 1 - LAYOUT 6 - SITE PLAN.DWG

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CHECKED BY:	STF
DATE:	10/21/21
CAD I.D.:	RP - 0

PROJECT:

RECORD PLAN

FOR

BAYLIS ESTATES

PROPOSED RESIDENTIAL DEVELOPMENT

INDIAN RIVER HUNDRED
SUSSEX COUNTY, DE
TAX MAP: 2-34-29, PARCEL 42

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STEVEN T. FORTUNATO
LICENSED PROFESSIONAL ENGINEER
S.T. FORTUNATO
No.19519
PROFESSIONAL ENGINEER
DELAWARE LICENSE No. 19519
2/25/22
PROFESSIONAL ENGINEER
DELAWARE

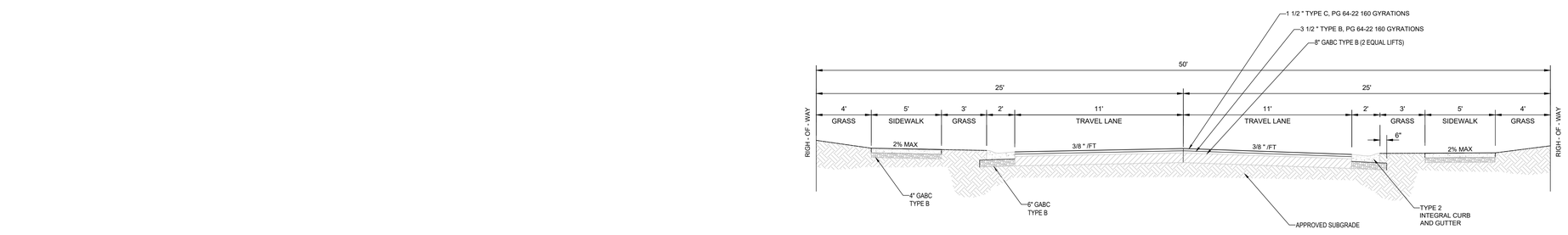
SHEET TITLE:

RECORD SITE PLAN

SHEET NUMBER:

6
OF 8

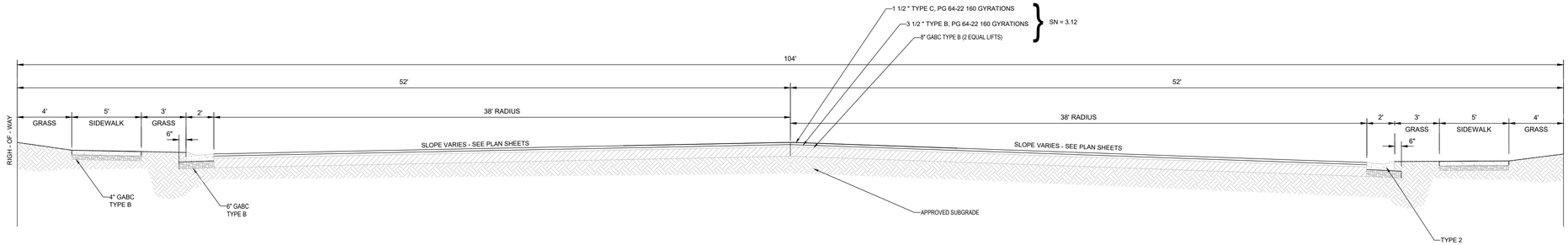
REVISION 1 - 2/25/22



ROAD SECTION

NOT TO SCALE

WEST HENRY PLACE
WEST KATHRYN COURT
KATHLEEN DRIVE
HAYLEY COURT
AMILE DRIVE
EAST HENRY PLACE
EAST KATHRYN COURT
BAYLIS AVENUE
LEILA COURT



TYPICAL CUL-DE-SAC SECTION

NOT TO SCALE

WEST HENRY PLACE
WEST KATHRYN COURT
LEILA COURT
BAYLIS AVENUE
HAYLEY COURT
AMILE DRIVE

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CAD I.D.:	RP - 0

PROJECT:

RECORD PLAN

FOR

BAYLIS ESTATES

PROPOSED RESIDENTIAL DEVELOPMENT

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SUSSEX COUNTY, DE
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LICENSED
S.T. FORTUNATO
No. 19519
PROFESSIONAL ENGINEER
DELAWARE LICENSE No. 19519
DATE: 2/25/22
PROFESSIONAL ENGINEER
DELAWARE

SHEET TITLE:

ROAD SECTIONS

SHEET NUMBER:

7
OF 8

REVISION 1 - 2/25/22

Feb 25, 2022
H:\19\DE190077\DRAWINGS\PLAN SETS\RECORD PLANS\E190077 - RP - 1----LAYOUT 7 - ROAD SECTION.dwg

Feb 25, 2022
C:\PROGRAMDATA\BOHLER\DRC\3D0200\TEMP\ACPUBLISH_7776\DE190077-LSP-01---LAYOUT 1 - OVERALL PLAN.DWG
JW

BOHLER

SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL SCIENCE
PERMITTING SERVICES
TRANSPORTATION SERVICES

THE BOHLER CIVIL DESIGN AND CONTENT OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE EXPOSED OR USED FOR ANY PURPOSE, WITHOUT PRIOR WRITTEN AUTHORIZATION FROM BOHLER. ONLY APPROVED PLANS SHALL BE UTILIZED FOR CONSTRUCTION PURPOSES.

REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	2/25/22	PER AGENCY COMMENT	JSW / STF

811 Know what's below. Call before you dig.
ALWAYS CALL 811
It's fast. It's free. It's the law.

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

PROJECT No.:	DE190077
DRAWN BY:	JSW
CHECKED BY:	STF
DATE:	10/21/21
CAD I.D.:	RP - 0

PROJECT:

RECORD PLAN

FOR

BAYLIS ESTATES
PHASE 2

PROPOSED RESIDENTIAL DEVELOPMENT

INDIAN RIVER HUNDRED
SUSSEX COUNTY, DE
TAX MAP: 2-34-29, PARCEL 42

BOHLER
18958 COASTAL HWY, SUITE D
REHOBOTH BEACH, DE 19971
Phone: (302) 644-1155
Fax: (302) 703-3173
BohlerEngineering.com

E.R. McWILLIAMS
CERTIFICATE NO. S1-0000502
02/24/2022
REGISTERED LANDSCAPE ARCHITECT
DELAWARE LICENSE NUMBER S1-0000502
STATE OF DELAWARE REGISTERED LANDSCAPE ARCHITECT

SHEET TITLE:

LANDSCAPE PLAN

SHEET NUMBER:

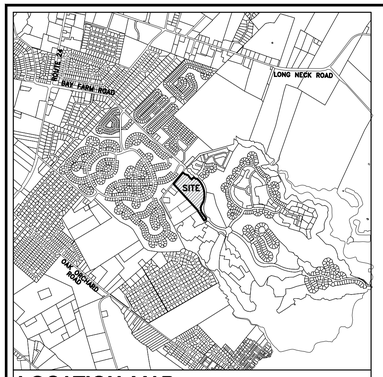
8
OF 8

REVISION 1 - 2/25/22

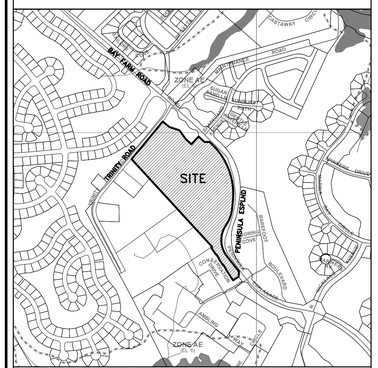
LINGO CREEK
INDIAN RIVER BAY
CAPTAINS WAY
SR 209
OLD DIXIE HIGHWAY
MARINA BAY CIRCLE
MARINA BAY DRIVE
PENINSULA
ESPLANADE
MAKESIDE DRIVE
MAKESIDE BEND
SEASIDE DRIVE
SEASIDE AVENUE
SEASIDE TERRACE
SEASIDE PLACE
SEASIDE COURT
SEASIDE WAY
SEASIDE BEND
SEASIDE CIRCLE
SEASIDE PASSAGE
SEASIDE PATH
SEASIDE LANE
SEASIDE ALLEY
SEASIDE BOULEVARD
SEASIDE PARKWAY
SEASIDE ESPLANADE
SEASIDE PROMENADE
SEASIDE TERRACE
SEASIDE PLAZA

PHASE 11 - STILL WATERS

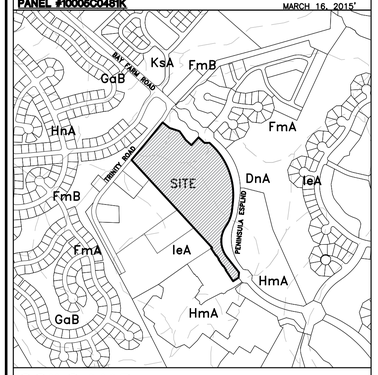
THE PENINSULA ON INDIAN RIVER BAY
INDIAN RIVER HUNDRED
SUSSEX COUNTY, DELAWARE
PRELIMINARY PLAN
DECEMBER, 2021
DBF # 1319A052



LOCATION MAP SCALE: 1" = 1/2 MILE



FLOODPLAIN MAP SCALE: 1" = 800'
PANEL #10005C0481K MARCH 16, 2015'



SOILS MAP SCALE: 1" = 800'

DnA – DOWNER LOAMY SAND, 0 TO 2% SLOPES, HSG A
FmA – FORT MOTT LOAMY SAND, 0 TO 2% SLOPES, HSG A
FmB – FORT MOTT LOAMY SAND, 2 TO 5% SLOPES, HSG A
IeA – INGLESIDE LOAMY SAND, 0 TO 5% SLOPES, HSG A

DATA COLUMN

TAX MAP ID: 2-34-30.00-317.00 & 317.02
2-34-30.00-318.00 THRU 365.00

DEED REF: D 4942/337

DATUM
VERTICAL: NAVD 88
HORIZONTAL: NAD 83(DE STATE PLANE)

LAT/LON:
IRON ROD WITH CAP SET
BENCHMARK: NORTH WEST SIDE
LAT: 224,770.65 LON: 723,644.57

IRON ROD WITH CAP SET
BENCHMARK: NORTH WEST SIDE
LAT: 225,137.96 LON: 723,900.06

EXISTING ZONING: MR-RPC(MEDIUM DENSITY RESIDENTIAL/ RESIDENTIAL PLANNED COMMUNITY)

PROPOSED USE: RESIDENTIAL DEVELOPMENT

TOTAL PROPOSED SITE AREA: 20.531 ACRES

PROPOSED UNITS: 79 SINGLE FAMILY (CONDO OWNERSHIP)

DENSITY:
MAXIMUM: 4.0 UNITS PER ACRE
PROPOSED: 3.9 UNITS PER ACRE

PROPOSED CONSTRUCTION: WOOD/CONCRETE BLOCK

AREAS:

PARCEL A:	1.991 AC
PARCEL B:	1.995 AC
PARCEL C:	3.359 AC
PARCEL D:	0.805 AC
PARCEL E:	2.009 AC
PARCEL F:	2.231 AC
PARCEL G:	2.479 AC
PARCEL H:	0.803 AC
PARCEL I:	1.146 AC
PARCEL J:	1.115 AC
EASEMENT AREA:	2.798 AC
TOTAL SITE AREA	20.531 AC

IMPERVIOUS AREAS:

PAVEMENT(STREETS):	1.630 AC
SIDEWAYS:	0.307 AC
DRIVEWAYS:	0.751 AC
BUILDINGS:	6.229 AC
TOTAL IMPERVIOUS AREAS:	8.917 (43.4%)

SETBACK REQUIREMENTS
SINGLE FAMILY
FRONT YARD: 10 FT. (20' AGG. FRONT AND REAR)
SIDE YARD: 10 FT.
REAR YARD: 10 FT.

BUILDING HEIGHT: 42 FT. MAX. 3-1/2 STORIES

PARKING
REQUIRED: 158 SPACES
PROVIDED: 158 SPACES

UTILITIES:
SANITARY SEWER: SUSSEX COUNTY SEWER (LONG NECK SANITARY SEWER DISTRICT)
WATER SUPPLY: TIDEWATER UTILITIES INC.

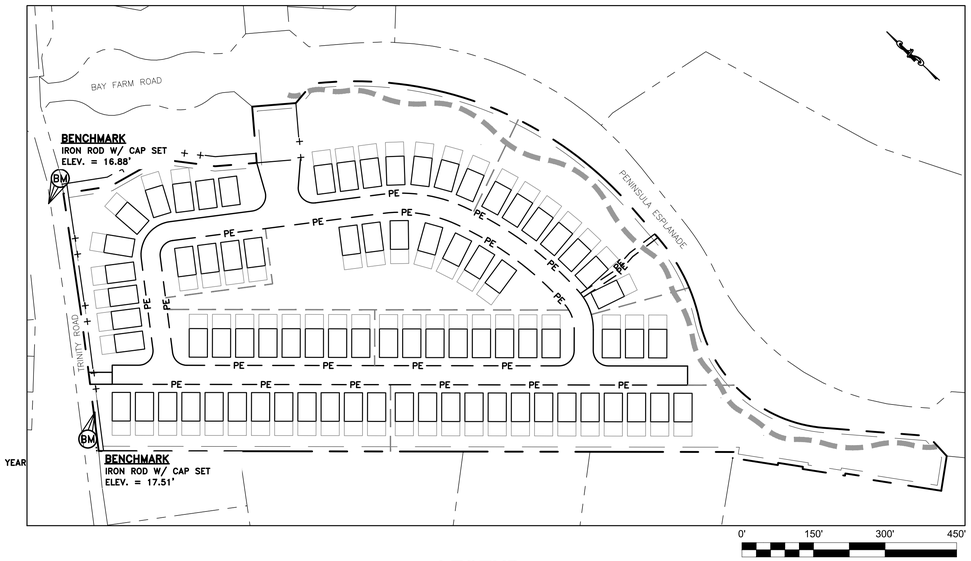
FLOOD HAZARD MAP: THE PROPERTY IS NOT IMPACTED BY THE 100 YEAR FLOODPLAIN AS DETERMINED BY FEMA MAP 10005C0481K (DATED MARCH 16, 2015).

OWNER/DEVELOPER:
OA-BP MARINA BAY-LAKESIDE, LLC.
GREG TOBIAS
20184 PHILLIPS STREET
REHOBOTH BEACH, DE 19971
GREG@OACOMPANIES.COM

ENGINEER:
DAVIS, BOWEN & FRIEDEL, INC.
CLIFTON D. MUMFORD, P.E.
1 PARK AVENUE
MILFORD, DE 19963
PHONE:(302) 424-1441
FAX:(302) 424-0430
CDM@DBFINC.COM

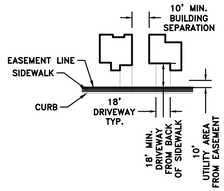
SHEET INDEX

PRELIMINARY TITLE SHEET	C-900
PRELIMINARY PLAN – SITE PLAN	C-901
PRELIMINARY PLAN – UTILITY PLAN	C-902



LEGEND

- PROPERTY BOUNDARY LINE
- PROPOSED PARCEL LINE
- PROPOSED BUILDING SETBACK LINE
- PE — PE — PROPOSED EASEMENT LINE
- EXISTING PROPERTY LINE
- ++ — ++ EXISTING EASEMENT LINE
- EXISTING SHARED USE PATH
- ## PROPERTY LABEL
- IRON ROD WITH CAP SET
- CONCRETE MONUMENT SET
- PROPERTY CORNER LOCATE
- PROPOSED SIDEWALK
- PROPOSED FORESTRY ROAD



TYPICAL SINGLE FAMILY DETAIL

GENERAL NOTES:

1. STREETS, STORMWATER MANAGEMENT FACILITIES AND OTHER COMMON AREAS SHALL BE MAINTAINED BY THE DEVELOPER UNTIL SUCH TIME AS A HOMEOWNER'S ASSOCIATION CAN PROVIDE FOR REQUIRED MAINTENANCE. SUSSEX COUNTY AND THE STATE OF DELAWARE ASSUME NO RESPONSIBILITY FOR THE FUTURE MAINTENANCE OF THESE FACILITIES WITHIN THE SITE.
2. SUBDIVISION STREETS CONSTRUCTED WITHIN THE LIMITS OF THE RIGHT-OF-WAY SHOWN ON THIS PLAN ARE PRIVATE AND ARE TO BE MAINTAINED BY THE DEVELOPER, PROPERTY OWNERS OR BOTH. THE STATE ASSUMES NO MAINTENANCE RESPONSIBILITIES FOR THE FUTURE MAINTENANCE OF THESE STREETS.
3. THE SIDEWALK SHALL BE THE RESPONSIBILITY OF THE DEVELOPER, THE PROPERTY OWNERS OR BOTH WITHIN THIS SUBDIVISION. SUSSEX COUNTY AND THE STATE OF DELAWARE ASSUME NO RESPONSIBILITY FOR THE FUTURE MAINTENANCE OF THE SIDEWALK.
4. ACCESS TO ALL LOTS SHALL BE PROVIDED FROM THE PRIVATE SUBDIVISION STREETS PROPOSED WITH THIS PLAN. NO DIRECT ACCESS TO PUBLIC STREETS IS PROPOSED EXCEPT THE ENTRANCES SPECIFICALLY SHOWN ON THIS PLAN.
5. BASED UPON FLOOD INSURANCE RATE MAP (FIRM) NUMBER 10005C0481K, DATED MARCH 16, 2015; THE ENTIRE PROPERTY IS LOCATED IN AN AREA DESIGNATED AS ZONE "X" (UNSHADED) – AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN.
6. THE BOUNDARY INFORMATION SHOWN IN THESE PLANS ARE BASED ON FIELD SURVEYS PERFORMED BY McCRONE, INC.
7. TOPOGRAPHIC SURVEY DATA PROVIDED BY DAVIS, BOWEN, & FRIEDEL, INC.
8. THIS PLAN DOES NOT VERIFY TO THE LOCATION AND/OR EXISTENCE OF EASEMENTS OR RIGHT-OF-WAYS CROSSING SUBJECT PROPERTY AS NO TITLE SEARCH WAS PROVIDED.
9. UTILITY EASEMENTS DEPICTED HEREON REPRESENT, TO THE GREATEST EXTENT PERMITTED BY LAW. PRIVATE EASEMENTS FOR THE EXCLUSIVE USE AND BENEFIT OF THOSE UTILITY COMPANIES AND/OR OTHER PROVIDERS OF SERVICES TO THE DEVELOPMENT AS MAY BE DESIGNED BY OWNER, OR ITS SUCCESSORS AND ASSIGNS, FROM TIME TO TIME BY AN INSTRUMENT IN WRITING, AND IN NO WAY GRANT, CONVEY OR CREATE ANY GENERAL PUBLIC UTILITY EASEMENT OR ANY GENERAL OR PUBLIC ACCESS RIGHTS.
10. UNLESS OTHERWISE DESIGNATED BY OWNER, OR ITS SUCCESSORS AND ASSIGNS, FROM TIME TO TIME BY AN INSTRUMENT IN WRITING, STORM DRAIN EASEMENTS DEPICTED HEREON REPRESENTS PRIVATE EASEMENTS TO ACCESS THE STORM DRAINS FOR THE SOLE PURPOSE OF MAINTAINING AND REPAIRING SUCH STORM DRAINS, AND IN NO WAY GRANT, CONVEY OR CREATE ANY GENERAL PUBLIC UTILITY EASEMENT OR ANY GENERAL OR PUBLIC ACCESS RIGHTS.
11. NO BOUNDARY TREATMENT/FENCING IS PROPOSED.
12. ANY ADDITIONAL ACCESSORY STRUCTURES ASSOCIATED WITH THE MULTIFAMILY DWELLINGS SHALL BE SUBJECT TO SITE PLAN REVIEW.
13. THE OWNER SHALL CAUSE TO BE FORMED A HOMEOWNERS' ASSOCIATION TO BE RESPONSIBLE FOR THE OWNERSHIP AND MAINTENANCE OF THE STREETS, ROADS, BUFFERS, STORMWATER MANAGEMENT FACILITIES, AND OTHER COMMON AREAS. IN ADDITION, THE ASSOCIATION SHALL MAINTAIN THE CEMETERIES LOCATED WITHIN THE PROJECT. ACCESS TO THE CEMETERIES SHALL NOT BE DENIED TO FAMILY MEMBERS OF THE PERSONS INTERRED IN THE CEMETERIES.
14. THE COMMON AREA WILL NOT INCLUDE, AMONG OTHER THINGS, THE GOLF COURSE PARCEL, CLUBHOUSE OR OTHER RECREATION FACILITIES.
15. THE HOMEOWNERS' ASSOCIATION SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF THE STROMWATER DRAINAGE AND MANAGEMENT FACILITIES RELATED TO THE RESIDENTIAL PROPERTIES, HOMEOWNERS' ASSOCIATION PROPERTIES AND ROAD RIGHT-OF-WAY WITHIN THE PROJECT. THE HOMEOWNERS' ASSOCIATION SHALL ALSO BE RESPONSIBLE FOR THE MAINTENANCE OF THE STORMWATER DRAINAGE AND MANAGEMENT FACILITIES THAT CONVEY STORMWATER FROM THESE THREE AREAS THROUGH THE GOLF COURSE PROPERTIES. HOWEVER, MAINTENANCE OF THE PORTION OF THE STORMWATER DRAINAGE AND MANAGEMENT FACILITIES RELATED TO THE GOLF COURSE SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE GOLF COURSE PROPERTIES. ALL STORMWATER MANAGEMENT FACILITIES SHALL BE MAINTAINED IN A SATISFACTORY CONDITION AS REQUIRED BY SUSSEX COUNTY, DELAWARE AND IN ACCORDANCE WITH THE DEVELOPER'S RESTRICTIVE COVENANTS ON GOLF COURSE PROPERTIES ENTERED INTO BY AND BETWEEN THE DEVELOPER AND THE HOMEOWNERS' ASSOCIATION (THE "GOLF COURSE COVENANTS"). SHOULD THE OWNER OR OWNERS OF THE GOLF COURSE PROPERTIES DEFAULT IN THE MAINTENANCE OF THE STORMWATER DRAINAGE AND MANAGEMENT FACILITIES, THE HOMEOWNERS' ASSOCIATION SHALL HAVE THE RIGHT TO MAINTAIN THE FACILITIES SUBJECT TO THE TERMS AND CONDITIONS OF THE GOLF COURSE COVENANTS.
16. THIS SITE IS NOT IN AN AREA DESIGNATED TO HAVE EXCELLENT GROUNDWATER RECHARGE POTENTIAL.
17. THIS SITE IS NOT IN A WELLHEAD PROTECTION AREA.

CONDITIONS OF APPROVAL (ORDINANCE NO. 1573)

(Ordinance 2690, approved by County Council on December 7, 2021 amended Condition #1)

1. The maximum number of units shall not exceed 1,394 units comprised, as follows:
   358 Single-Family Lots
   471 Single-Family Detached Condominiums
   270 Single-Family Attached Town Houses
   295 Multi-Family Units
2. Residential building permits shall not exceed 300 per year.
3. Commercial building area shall not exceed 10,250 square feet within this project.
4. Site plan review shall be required for each phase of development.
5. An underground gas storage facility for service to this project only shall be permitted subject to approval by the Office of the State Fire Marshal, and other agencies with jurisdiction, and subject to site plan approval by the Commission. The facility shall be no less than 50' from adjacent properties.
6. The interior street design shall be in accordance with or exceed Sussex County street design requirements. Street design shall include curbs, sidewalks, and street lighting. Applicant shall submit as part of the site plan review a landscape plan showing the proposed tree and shrub landscaping design for the project.
7. All entrances, Intel'Sections, roadway improvements, and multi-modal facilities required by DeiDOT shall be completed by the applicant as required by DeiDOT in its letter of April 23, 2002, or in accordance with any further modification required by DeiDOT.
8. The Applicant, its successors, or assigns, shall operate and maintain a community shuttle bus service to shopping areas and connecting to bus stops operated by DART. The service and location shall be subject to review and comment by DART and DeiDOT and subject to site plan review by the Commission. The service and any related improvements shall be completed within two (2) years of the issuance of the first building permit.
9. Within one (1) year of approval of the master plan, the applicant shall coordinate with the State, County, and other local emergency planning offices in the development and implementation of an emergency evacuation procedure for the project.
10. Recreational facilities, e.g., tennis courts, swimming pool, community buildings, pathways, trails, and beaches shall be constructed and open to use by the residents within two (2) years of the issuance of the first building permit.
11. The RPC shall be served by an existing or an extended Sussex County sanitary sewer district.
12. The RPC shall be served by a central water system providing adequate drinking water and fire protection as required by applicable regulations.
13. Stormwater management and erosion and sediment control shall be constructed in accordance with applicable State and County requirements. If it is determined that additional areas are required for stormwater management, parking, or other use, the additional area shall be taken from lot areas, not designated Federal or State wetlands or open space areas.
14. State wetlands shall not be included in individual lots. Federal and State wetlands shall be maintained as non-disturbance areas, except where authorized by Federal or State permits.
15. No piers, docks, boat ramps, or other water related recreational facilities shall be permitted adjacent to Emily's Gut.
16. No individual boat docks or boat launching facilities for motorized boats shall be permitted except a community water taxi.
17. No on-site or individual storage of motorized boats, personal watercraft, trailers, or campers shall be permitted.
18. The Applicant shall cause to be formed a homeowners' association to be responsible for the maintenance of the streets, roads, buffers, stormwater management facilities, and other common areas. In addition, the association shall maintain the cemeteries located within the project. Access to the cemeteries shall not be denied to family members of persons interred in the cemeteries.
19. The Applicant, its successors, and assigns shall operate the stormwater management facilities and the golf course in a manner consistent with the Best Management Practices (BMPs) set forth in the applicants exhibits submitted as part of the record including implementation of a stormwater facility management program.
20. No site preparation, site disturbance, site excavation or other site construction shall be commenced until all permits required by all other laws, ordinances, rules and regulations shall have been issued and the approved final site plan is recorded, except such site work for which a (continued) permit has been issued by the Sussex Conservation District. The site work authorized by the Sussex Conservation District permit may be commenced upon submission of copies of the application for permits from the Sussex County Engineering Department and DeiDOT to the Director of Planning and Zoning and submission of a bond in an amount equal to 125% of the cost of the site work authorized by the Sussex Conservation District permit and in a form acceptable to the County Attorney. The bond shall be released upon the issuance of all other permits and the filing of an approved master plan or final site plan.
21. Road naming and addressing shall be subject to the approval of the Sussex County Mapping and Addressing Department.

DAVIS, BOWEN & FRIEDEL, INC.
ARCHITECTS, ENGINEERS & SURVEYORS
SALISBURY, MARYLAND (410) 543-9091
MILFORD, DELAWARE (302) 424-1441
EASTON, MARYLAND (410) 770-4744

SUSSEX COUNTY PLANNING & ZONING APPROVAL

SUSSEX COUNTY PLANNING & ZONING STAFF _____ DATE _____

SUSSEX COUNTY COUNCIL PRESIDENT _____ DATE _____

ENGINEER'S STATEMENT

I, CLIFTON D. MUMFORD, P.E., HEREBY STATE THAT I AM A REGISTERED ENGINEER IN THE STATE OF DELAWARE, THAT THE INFORMATION SHOWN HEREON HAS BEEN PREPARED UNDER MY SUPERVISION AND TO MY BEST KNOWLEDGE AND BELIEF REPRESENTS GOOD ENGINEERING PRACTICES AS REQUIRED BY THE APPLICABLE LAWS OF THE STATE OF DELAWARE.

DAVIS, BOWEN & FRIEDEL, INC. DATE
by CLIFTON D. MUMFORD, P.E.

OWNER'S STATEMENT

I, GREG TOBIAS, MANAGING MEMBER OF OCEAN ATLANTIC-BP INVESTORS AND MANAGER OF OA-BP MARINA BAY-LAKSIDE, LLC., HEREBY CERTIFY THAT OA-BP MARINA BAY-LAKESIDE, LLC. IS THE OWNER OF THE PROPERTY WHICH IS THE SUBJECT OF THIS PLAT; THAT THIS SUBDIVISION PLAT THEREOF WAS MADE AT THEIR DIRECTION; THAT ALL STREETS SHOWN HEREON ARE TO BE PRIVATE RIGHT-OF-WAYS AND ARE TO BE MAINTAINED BY THE HOMEOWNERS ASSOCIATION; THAT ALL PROPOSED STREET CONTROL MONUMENTS WILL BE SET AT THE LOCATIONS SHOWN, AND THAT THEY ACKNOWLEDGE THE SAME TO BE THEIR ACT AND DESIRE THIS PLAT BE RECORDED ACCORDING TO LAW.

GREG TOBIAS, MANAGER _____ DATE _____

C-900

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PROPOSED CURVE TABLE FOR BOUNDARY

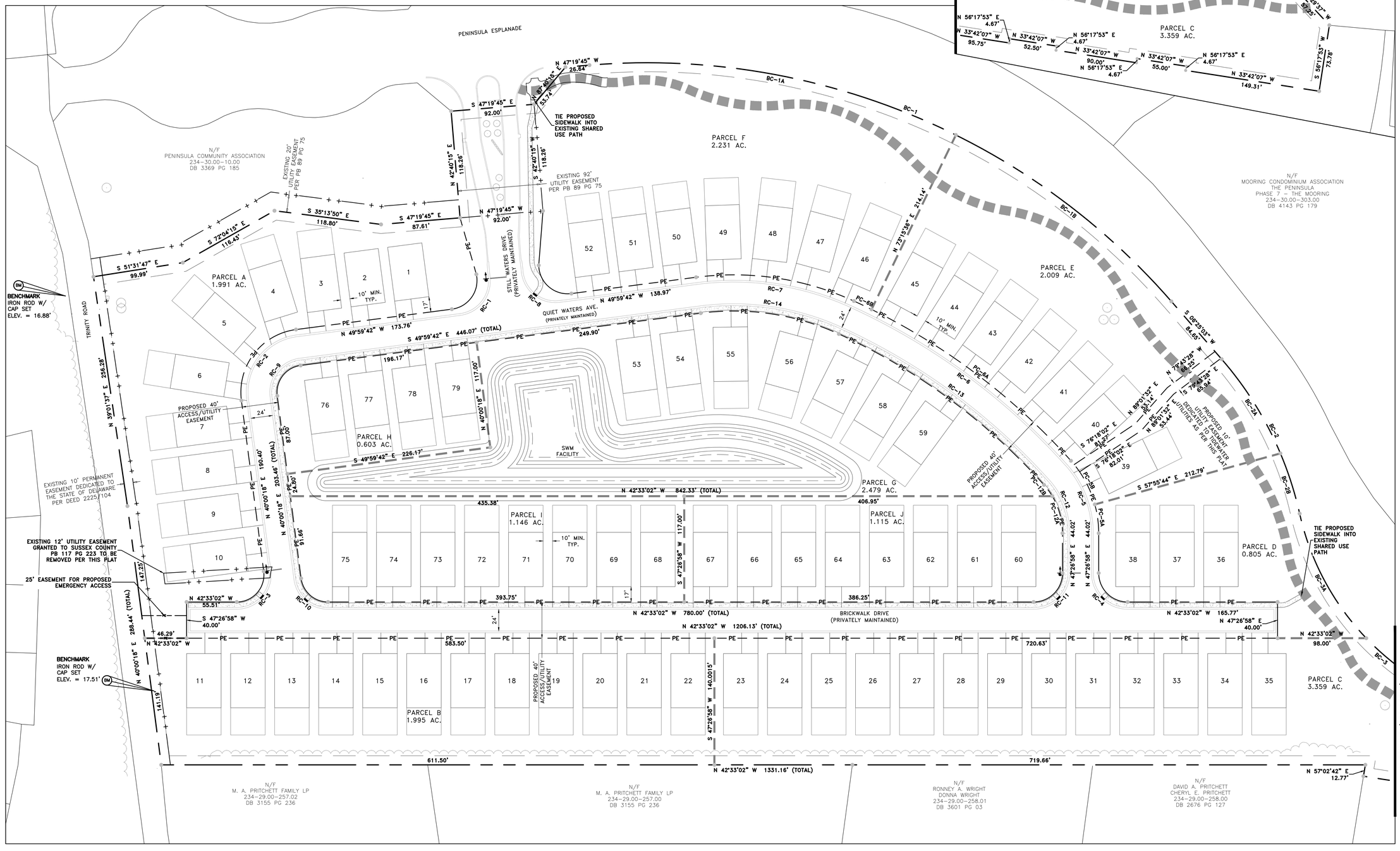
CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
BC-1	768.00'	720.43'	694.30'	S 20°27'21" E	53°44'49"
BC-1A	768.00'	417.49'	412.37'	S 31°45'21" E	31°08'48"
BC-1B	768.00'	302.94'	300.98'	N 04°52'57" W	22°36'01"
BC-2	389.00'	193.25'	191.27'	S 20°38'58" W	28°27'50"
BC-2A	389.00'	123.26'	122.75'	N 15°29'42" E	18°09'18"
BC-2B	389.00'	69.99'	69.90'	N 29°43'37" E	10°18'32"
BC-3	291.00'	371.02'	346.40'	S 01°38'39" E	73°03'04"
BC-3A	291.00'	158.07'	156.14'	N 19°19'10" E	31°07'25"
BC-3B	291.00'	212.95'	208.23'	S 17°12'22" E	41°55'39"

PROPOSED CURVE TABLE FOR ACCESS EASEMENT

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
RC-1	32.00'	52.99'	47.14'	S 82°33'46" W	94°53'05"
RC-2	70.00'	109.96'	98.99'	S 85°00'18" W	90°00'00"
RC-3	30.00'	51.02'	45.09'	N 88°43'38" E	97°26'40"
RC-4	32.00'	50.27'	45.25'	N 02°26'58" E	90°00'00"
RC-5	120.00'	87.72'	85.78'	S 26°30'30" W	41°52'57"
RC-6	730.00'	299.99'	297.89'	N 06°12'21" W	23°32'45"
RC-7	320.00'	178.81'	176.49'	S 33°59'13" E	32°00'58"
RC-8	32.00'	53.91'	47.76'	N 01°43'57" W	96°31'29"
RC-9	30.00'	47.12'	42.43'	N 85°00'18" E	90°00'00"
RC-10	30.00'	43.23'	39.58'	S 01°16'22" E	82°33'20"
RC-11	32.00'	50.27'	45.25'	S 87°33'02" E	90°00'00"
RC-12	80.00'	58.48'	57.19'	S 26°30'30" W	41°52'57"
RC-13	690.00'	283.56'	281.57'	S 06°12'21" E	23°32'45"
RC-14	280.00'	156.46'	154.43'	N 33°59'13" W	32°00'58"

PROPOSED CURVE TABLE FOR LOTS

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
PC-5A	120.00'	32.21'	32.11'	S 39°45'37" W	15°22'42"
PC-5B	120.00'	55.51'	55.02'	N 18°49'09" E	26°30'15"
PC-6A	730.00'	278.44'	276.76'	S 05°21'36" E	21°51'15"
PC-6B	730.00'	21.55'	21.55'	N 17°07'58" W	1°41'30"
PC-12A	80.00'	43.03'	42.51'	N 32°02'31" E	30°48'54"
PC-12B	80.00'	15.45'	15.43'	N 11°06'03" E	11°04'03"



DAVIS, BOWEN & FRIEDEL, INC.
ARCHITECTS ENGINEERS SURVEYORS
SALISBURY, MARYLAND (410) 543-9091
OCEAN VIEW, DELAWARE (302) 537-1441
EASTON, MARYLAND (410) 770-4744

PRELIMINARY SITE PLAN

PHASE 11 - STILL WATERS
THE PENINSULA ON THE INDIAN RIVER BAY
SUSSEX COUNTY, DELAWARE

Revisions:

Date: DECEMBER, 2021
Scale: 1" = 50'
Dwn.By: SHF
Proj.No.: 1319A052
Dwg.No.: C-901

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P:\Ocean Atlantic\Stillwater\Design\Preliminary\1319A052 - PRELIMINARY SITE PLAN.dwg Mar 01 , 2022 - 1:14pm BART

TIE INTO EXISTING SEWER MANHOLE. CONTRACTOR TO BORE 12" HOLE TO INSTALL 8" SEWER WITH 2" LINK SEAL

PENINSULA ESPLANADE

TIE PROPOSED SIDEWALK INTO EXISTING SHARED USE PATH

PROVIDE CONNECTION TO PROPOSED 8" WATER MAIN FROM EXISTING 12" WATER MAIN. CONTRACTOR TO TEST PIT, VERIFY LOCATION AND DEPTH, REMOVE ALL 6" AND REPLACE WITH 8"

N/F
PENINSULA COMMUNITY ASSOCIATION
234-30.00-10.00
DB 3369 PG 185

N/F
OA-BP MARINA BAY-LAKESIDE, LLC
234-30.00-1.08
DB 4320 PG 303

STILL WATERS DRIVE

QUIET WATERS AVENUE

STORMWATER MANAGEMENT POND

TRINITY ROAD

16' FORESTRY ROAD FOR EMERGENCY ACCESS

BRICKWALK DRIVE

CONTRACTOR TO TEST PIT, VERIFY LOCATION AND DEPTH, REMOVE ALL 6" AND REPLACE WITH 8"

TIE PROPOSED SIDEWALK INTO EXISTING SHARED USE PATH

N/F
M. A. PRITCHETT FAMILY LP
234-29.00-257.02
DB 3155 PG 236

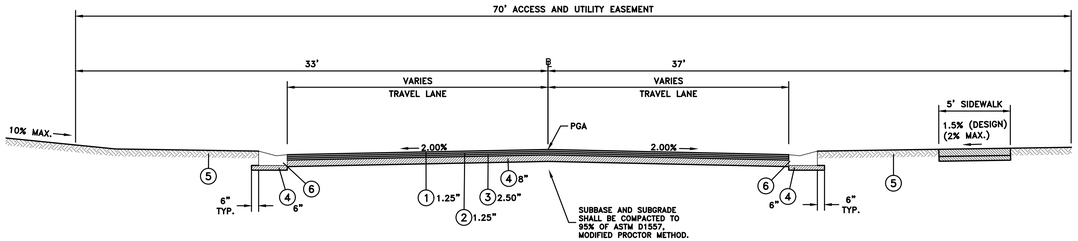
N/F
M. A. PRITCHETT FAMILY LP
234-29.00-257.00
DB 3155 PG 236

N/F
RONNEY A. WRIGHT
DONNA WRIGHT
234-29.00-258.01
DB 3601 PG 03

N/F
DAVID A. PRITCHETT
CHERYL E. PRITCHETT
234-29.00-258.00
DB 2676 PG 127

LEGEND

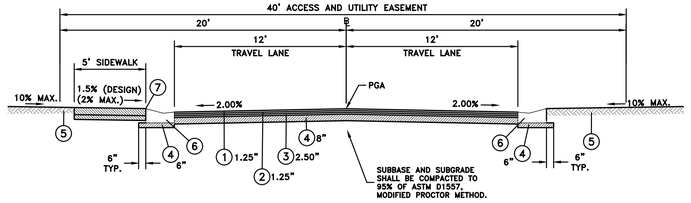
- PROPOSED HYDRANT
- EXISTING HYDRANT



TYPICAL ENTRANCE STREET SECTION

SCALE: 1"= 5'

1. BITUMINOUS CONCRETE, SUPERPAVE, TYPE 'C', PG 64-22, 160 GYRATIONS (CARBONATE STONE) *TOPCOAT
2. BITUMINOUS CONCRETE, SUPERPAVE, TYPE 'C', PG 64-22, 160 GYRATIONS (CARBONATE STONE)
3. BITUMINOUS CONCRETE, SUPERPAVE, TYPE 'B', PG 64-22, 160 GYRATIONS
4. GRADED AGGREGATE BASE COURSE, TYPE 'B'
5. TOPSOIL (6" DEPTH), PERMANENT GRASS SEEDING, DRY GROUND
6. INTEGRAL P.C.C. CURB AND GUTTER, TYPE 2
7. TYPE IV, POLYURETHANE BONDED RECYCLED RUBBER



TYPICAL RESIDENTIAL STREET SECTION

SCALE: 1"= 5'

0' 50' 100' 200'

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P:\Ocean Atlantic\Stillwater\Design\Preliminary\1319A052 - PRELIMINARY UTILITY PLAN.dwg Mar 01, 2022 - 1:16pm BART

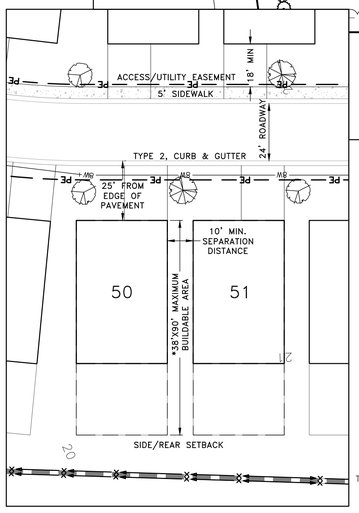
DAVIS, BOWEN & FRIEDEL, INC.
ARCHITECTS ENGINEERS SURVEYORS
SALISBURY, MARYLAND (410) 543-9091
OCEAN CITY, MARYLAND (302) 537-1441
EASTON, MARYLAND (410) 770-4744

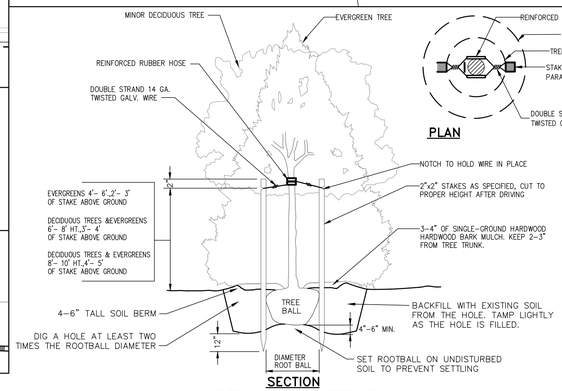
PRELIMINARY UTILITY PLAN

PHASE 11 - STILL WATERS
THE PENINSULA ON THE INDIAN RIVER BAY
SUSSEX COUNTY, DELAWARE

Revisions:

Date: DECEMBER, 2021
Scale: 1" = 50'
Dwn.By: SHF
Proj.No.: 1319A052
Dwg.No.: C-902





STAKING DETAIL

NO SCALE

GENERAL LANDSCAPE NOTES

1 QUALITY AND SIZE OF PLANTS, SPREAD OF ROOTS, AND SIZE OF ROOT BALLS SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARDS OF THE AMERICAN ASSOCIATION OF NURSERYMEN "AMERICAN STANDARDS FOR NURSERY STOCK".

2 CONTRACTOR SHALL BE REQUIRED TO GUARANTEE ALL PLANT MATERIALS FOR A PERIOD OF ONE YEAR AFTER INSTALLATION IS COMPLETE AND FINAL ACCEPTANCE OF PHASE I SITE WORK HAS BEEN GIVEN. AT THE END OF ONE YEAR ALL PLANT MATERIAL WHICH IS DEAD OR DYING SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE AS ORIGINALLY SPECIFIED.

3 CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO UTILITIES AND MAY MAKE MINOR ADJUSTMENTS IN SPACING AND/OR LOCATION OF PLANT MATERIALS. CONTRACTOR TO VERIFY "AS BUILT" LOCATION OF ALL UTILITIES.

4 NO SUBSTITUTIONS SHALL BE MADE WITHOUT APPROVAL OF THE OWNER.

5 ALL AREAS NOT STABILIZED IN PAVING OR PLANT MATERIALS SHOULD BE SEEDED AND MULCHED. (SEE EROSION & SEDIMENT CONTROL PLAN.)

6 EVERGREEN TREES SHALL HAVE A FULL, WELL-BRANCHED, CONICAL FORM TYPICAL OF THE SPECIES.

7 ALL DECIDUOUS SHADE TREES SHALL BRANCH A MINIMUM OF 7'-0" ABOVE GROUND LEVEL. TREES SHALL BE PLANTED AND STAKED IN ACCORDANCE WITH THE STAKING DETAIL SHOWN.

8 THE FULL EXTENT OF ALL PLANTING BEDS SHALL RECEIVE 4" OF TOPSOIL AND 3" OF SHREDDED HARDWOOD MULCH PER SPECIFICATIONS.

9 THE CONTRACTOR SHALL SUPPLY ALL PLANT MATERIALS IN QUANTITIES SUFFICIENT TO COMPLETE THE PLANTINGS SHOWN ON THIS DRAWING AND AS SPECIFIED.

10 ALL PLANTS SHALL BEAR THE SAME RELATIONSHIP TO FINISHED GRADE AS THE PLANT'S ORIGINAL GRADE BEFORE DIGGING.

11 THE CONTRACTOR SHALL WATER ALL PLANTS THOROUGHLY TWICE DURING THE FIRST 24-HOUR PERIOD AFTER PLANTING, AND THEN WEEKLY OR MORE OFTEN, IF NECESSARY, DURING THE FIRST GROWING SEASON.

FORESTED BUFFER PLANT SCHEDULE

SYMBOL	KEY	BOTANICAL NAME	COMMON NAME	SIZE	QUANTITY
		DECIDUOUS TREE			
	AR	ACER rubrum	RED MAPLE	1 3/4 – 2" Cal., B&B	27
	AS	ACER saccharum 'GREEN MOUNTAIN	SUGAR MAPLE	1 3/4 – 2" Cal., B&B	28
	QM	QUERCUS phellos	WILLOW OAK	1 3/4 – 2" Cal., B&B	27
	FG	FAGUS grandifolia	AMERICAN BEECH	1 3/4 – 2" Cal., B&B	26
				TOTAL	108
		EVERGREEN TREE			
	PS	PINUS strobus	EASTERN WHITE PINE	5'-6' Ht., B&B	20
	JV	JUNIPERUS virginiana	EASTERN RED CEDAR	5'-6' Ht., B&B	15
	IO	ILEX opaca	AMERICAN HOLLY	5'-6' Ht., B&B	14
				TOTAL	49

LANDSCAPE ARCHITECT'S STATEMENT

I, TIMOTHY M. METZNER, HEREBY STATE THAT I AM A REGISTERED LANDSCAPE ARCHITECT IN THE STATE OF DELAWARE, THAT THE INFORMATION SHOWN HEREON HAS BEEN PREPARED UNDER MY SUPERVISION AND TO MY BEST KNOWLEDGE AND BELIEF REPRESENTS GOOD ARCHITECTURAL PRACTICES AS REQUIRED BY THE APPLICABLE LAWS OF THE STATE OF DELAWARE.

SIGNATURE DATE

REGISTERED LANDSCAPE ARCHITECT: TIMOTHY M. METZNER
DAVIS, BOWEN & FRIEDEL, INC.
1 PARK AVENUE
MILFORD, DELAWARE 19963

0 50 100 150

DAVIS, BOWEN & FRIEDEL, INC.
ARCHITECTS ENGINEERS SURVEYORS
SALISBURY, MARYLAND (410) 543-9091
SUSSEX, DELAWARE (302) 856-4561
EASTON, MARYLAND (410) 770-4744

L-101 – LANDSCAPE PLAN

PHASE 11 - STILL WATERS
THE PENINSULA ON THE INDIAN RIVER BAY
SUSSEX COUNTY, DELAWARE

Revisions:

Date: DECEMBER, 2021
Scale: 1" = 50'
Dwn.By: TCB
Proj.No.: 1319A052
Dwg.No.: L-101

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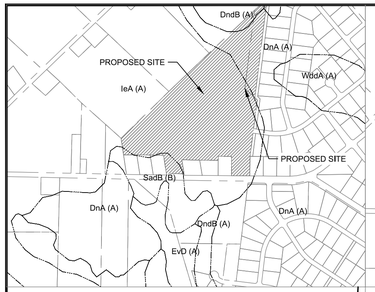
LINCOLN RETIREMENT COMMUNITY

RECORD PLANS

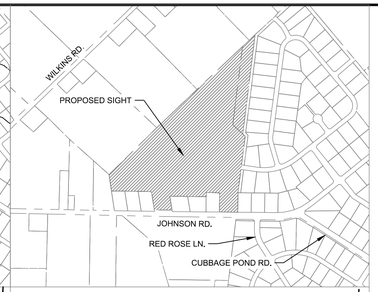
SUSSEX COUNTY PROJECT REFERENCE # S-21-34



SOILS MAP

SCALE: 1" = 800'

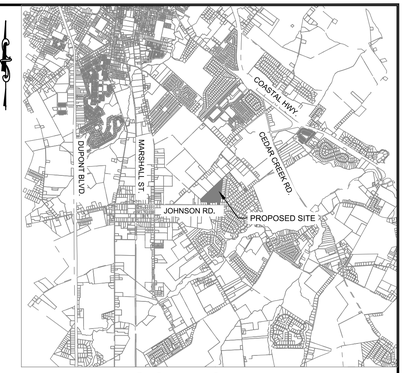
SYMBOL	NAME	SOIL GROUP
IeA	INGLESIDE LOAMY SAND, 0-2% SLOPES	A
SadB	SASSAFRAS SANDY LOAM, 2-5% SLOPES	B
DnA	DOWNER LOAMY SAND 0-2% SLOPES	A
DndB	DOWNER LOAMY SAND, 2-5% SLOPES	A
WddA	WOODSTOWN SANDY LOAM, 0-2% SLOPES	A
EvD	EVESBORO LOAMY SAND, 5-15% SLOPES	A



ZONING MAP

SCALE: 1" = 800'

ALL PARCELS ON THIS MAP ARE ZONED AR-1



LOCATION MAP

SCALE: 1" = 1 MILE

CALL Miss Utility of Delmarva
BEFORE YOU DIG
800-282-8555 or 811

PROJECT TEAM

OWNER/DEVELOPER
COUNTRY REST HOME, INC.
12046 SUNSET LANE
GREENWOOD, DE 19950
(302) 349-4114

SITE PLANER, ENGINEER, AND SURVEYOR
SITEWORKS ENGINEERING
19 COMMERCE STREET
HARRINGTON, DE 19952
(302) 841-7901

GEOTECHNICAL ENGINEER
GEO-TECHNOLOGY ASSOCIATES
21133 STERLING AVENUE, UNIT 7
GEORGETOWN, DE 19947
(302) 588-9761

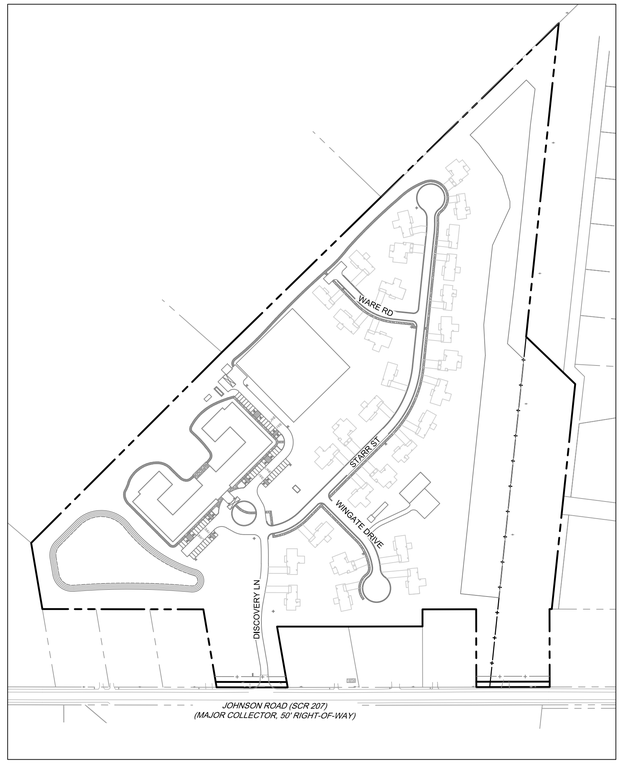
INDEX OF DRAWINGS

Sheet Number	Sheet Title
RP-1	RECORD PLAN COVER
RP-2	RECORD PLAN
RP-3	RECORD PLAN
RP-4	RECORD PLAN
LP-1	LANDSCAPE PLAN

PROJECT NET DEVELOPMENT AREA = 15.96 ACRES

CONDITIONS OF APPROVAL: (CASE NO. 12320)

1. THE ASSISTED LIVING FACILITY SHALL CONTAIN NO MORE THAN 30 SINGLE-FAMILY HOMES AND A BUILDING CONSISTING OF NO MORE THAN 50,000 SQUARE FEET CONTAINING NO MORE THAN 40 UNITS TO ALLOW FOR AGING IN PLACE ALONG WITH ANCILLARY USES.
2. THE 40-UNIT FACILITY SHALL BE SET BACK A MINIMUM OF SEVENTY-FIVE FEET (75') FROM THE REAR PROPERTY LINES OF THE HOMES BETWEEN THE FACILITY AND JOHNSON ROAD.
3. ALL ENTRANCES, INTERSECTIONS, INTER-CONNECTION, ROADWAY, AND MULTI-MODAL IMPROVEMENTS REQUIRED BY DELDOT SHALL BE COMPLETED BY THE APPLICANT IN ACCORDANCE WITH DELDOT'S REQUIREMENTS.
4. THE FACILITY (INCLUDING THE SINGLE-FAMILY DETACHED HOMES AND THE MULTI-UNIT BUILDING) SHALL BE SERVED BY A PRIVATELY OPERATED, ON-SITE SANITARY SEWER TREATMENT PLANT AND DISPOSAL SYSTEM SUBJECT TO REGULATIONS OF DNREC GOVERNING THE DESIGN, INSTALLATION, AND OPERATION OF ON-SITE WASTEWATER TREATMENT AND DISPOSAL SYSTEMS.
5. THE FACILITY (INCLUDING THE SINGLE-FAMILY DETACHED HOMES AND THE MULTI-UNIT BUILDING) SHALL BE SERVED BY PRIVATE ON-SITE WELL(S) SUBJECT TO DNREC APPROVAL AND THE DELAWARE DEPARTMENT OF PUBLIC HEALTH. THE SYSTEM SHALL BE DESIGNED AND INSTALLED TO PROVIDE ADEQUATE DRINKING WATER AND FIRE PROTECTION AS REQUIRED BY APPLICABLE REGULATIONS.
6. STORM WATER MANAGEMENT AND EROSION AND SEDIMENT CONTROL FACILITIES SHALL BE CONSTRUCTED IN ACCORDANCE WITH APPLICABLE STATE AND COUNTY REQUIREMENTS. THESE FACILITIES SHALL BE OPERATED IN A MANNER THAT IS CONSISTENT WITH BEST MANAGEMENT PRACTICES. THE FINAL SITE PLAN SHALL CONTAIN THE APPROVAL OF THE SUSSEX CONSERVATION DISTRICT.
7. THE APPLICANT SHALL PROVIDE AGRICULTURAL BUFFERS AND WETLAND BUFFERS, AS NECESSARY, IN ACCORDANCE WITH THE APPLICABLE REGULATIONS. THE AGRICULTURAL USE NOTICE (3 DEL. C. § 910) SHALL BE INCLUDED IN ALL LEASES FOR UNITS ON THE PROPERTY.
8. THE APPLICANT SHALL SUBMIT AS PART OF THE SITE PLAN REVIEW A LANDSCAPE PLAN SHOWING THE PROPOSED TREE AND SHRUB LANDSCAPE DESIGN. THE APPLICANT SHALL PROVIDE A THIRTY FOOT (30') FORESTED BUFFER ALONG ALL BOUNDARIES OF THE PROPERTY EXCEPT FOR THE BOUNDARY ADJACENT TO THE POWER LINES WHICH SHALL REMAIN OPEN FOR SANITARY SEWER AND MAINTENANCE OF THE POWER LINES.
9. ALL FIRE SAFETY AND PROTECTION REQUIREMENTS, INCLUDING, BUT NOT LIMITED TO FIRE LANES, FIRE HYDRANTS, AND FIRE DEPARTMENT CONNECTIONS, SHALL BE REVIEWED, APPROVED, AND INSTALLED ACCORDING TO THE STATE OF DELAWARE FIRE PREVENTION REGULATIONS.
10. PRELIMINARY AND FINAL SITE PLANS SHALL BE SUBJECT TO THE REVIEW AND APPROVAL OF THE PLANNING & ZONING COMMISSION.



SITE OVERVIEW

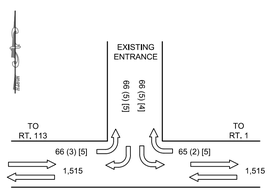
SCALE: 1" = 150'

LEGEND

	EXISTING	PROPOSED
PROPERTY LINE / RIGHT OF WAY		
ADJOINING PROPERTY LINE		
BUILDING RESTRICTION LINE		
EASEMENT		
CENTER LINE OF ROAD		
EDGE OF PAVING		
CURB		
DRIVEWAY		
CONTOURS		
SWALE		
LIMIT OF CONSTRUCTION		LOC
WETLANDS LINE AND FLAG	NW	
FLOODPLAIN	FP	
SOILS/DESIGNATION	MmA	
SOIL BORING		
WOODS		
FENCE	X	X
SIDEWALK		
SHARED USE PATH		
BUILDING		
UTILITY POLE/GUY WIRE		
OVERHEAD ELECTRIC	OHE	
CABLE TV, PEDESTAL OR HAND HOLE		
TRAFFIC SIGN		
SINGLE & TWIN HEAD SITE LIGHT		
ELECTRICAL HAND HOLE AND TRANSFORMER		
FIBER OPTIC HAND HOLE		
WATER MAIN, FIRE HYDRANT, VALVE, SERVICE ASSEMBLY, AND METER PIT	FH, W	FH, W, V
SEWER MAIN, MAHNOLE, & CLEANOUT	MH, S, C.O.	MH, S, C.O.
SANITARY SEWER FORCEMAIN	FM	FM
UNDERGROUND ELECTRIC	E	
UNDERGROUND GAS	GAS	
UNDERGROUND FIBER OPTIC	FO	
TELEPHONE LINE	T	
STORM WATER PIPE, MH, AND CB		

LINCOLN RETIREMENT COMMUNITY - TRAFFIC GENERATION - JOHNSON ROAD (S 207)

(EXISTING FULL MOVEMENT ENTRANCE)



TRAFFIC GENERATION DIAGRAM

ADT (AM PEAK) [PM PEAK]

ROAD TRAFFIC DATA:

FUNCTIONAL CLASSIFICATION - S 207 (JOHNSON ROAD) - MAJOR COLLECTOR
POSTED SPEED LIMIT - 50 MPH
AADT = 2,612 TRIPS (FROM 2019 DELDOT TRAFFIC SUMMARY)
10 YEAR PROJECTED AADT= 1,16 x 2,612 = 3,030 TRIPS
10 YEAR PROJECTED AADT = SITE ADT = 3,030 + 263 = 3,293 TRIPS
TRAFFIC PATTERN GROUP = 6 (FROM 2019 DELDOT TRAFFIC SUMMARY)
PEAK HOUR - 12.07% x 3,293 TRIPS = 398 TRIPS
DIRECTIONAL DISTRIBUTION S 207 (JOHNSON RD):
- 50% TO THE WEST (ROUTE 113) = 1,515
- 50% TO THE EAST (ROUTE 1) = 1,515

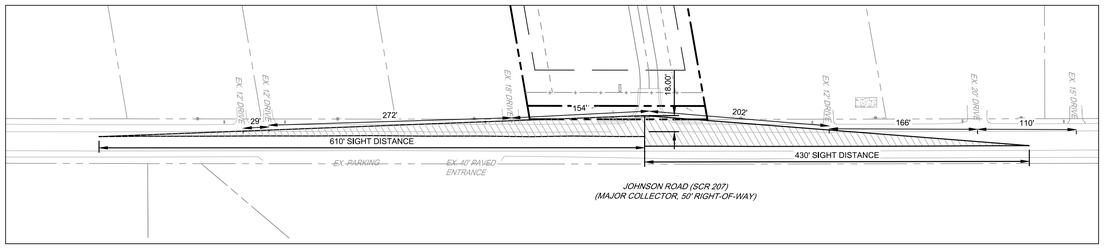
SITE TRAFFIC DATA:

SOURCE: ITE TRIP GENERATION MANUAL 10TH EDITION
SENIOR ADULT HOUSING DETACHED (251) - 30 UNITS = 128 TRIPS
SENIOR ADULT HOUSING ATTACHED (252) - 40 UNITS = 135 TRIPS
TOTAL SITE TRIPS = 263 TRIPS (132 IN / 131 OUT)
ONE ENTRANCE - FULL MOVEMENT
DESIGN VEHICLE - SU-30
DIRECTIONAL DISTRIBUTION:
- 50% TO & FROM THE EAST = 263 * 50% = 131
- 50% TO & FROM THE WEST = 263 * 50% = 132

MORNING PEAK:
- LAND USE CODE (251): 7 TRIPS (2 IN / 5 OUT) (33% ENTERING / 67% EXITING)
- LAND USE CODE (252): 8 TRIPS (3 IN / 5 OUT) (35% ENTERING / 65% EXITING)
- TOTAL MORNING PEAK TRIPS: 15 (5 IN / 10 OUT)

EVENING PEAK:
- LAND USE CODE (251): 9 TRIPS (5 IN / 4 OUT) (61% ENTERING / 39% EXITING)
- LAND USE CODE (252): 10 TRIPS (5 IN / 5 OUT) (55% ENTERING / 45% EXITING)
- TOTAL EVENING PEAK TRIPS: 19 (10 IN / 9 OUT)

5% TRUCKS AND BUSES = 263 * 5% = 13



0 80' 160'

SIGHT DISTANCE

SCALE: 1" = 80'

ENGINEERS CERTIFICATION

I, IT IS HEREBY CERTIFIED THAT I AM A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF DELAWARE, THAT THE INFORMATION SHOWN HEREON HAS BEEN PREPARED UNDER MY SUPERVISION, AND TO MY BEST KNOWLEDGE AND BELIEF REPRESENTS GOOD ENGINEERING PRACTICES AS REQUIRED BY THE APPLICABLE LAWS OF THE STATE OF DELAWARE.

DAVID M. HEATWOLE, P.E. (DE LICENSE NO. #17760) DATE
19 COMMERCE STREET
HARRINGTON, DE 19952

OWNER'S CERTIFICATION

I, THE UNDERSIGNED, HEREBY CERTIFY THAT I AM THE LEGAL OWNER OF THE PROPERTY DESCRIBED AND SHOWN ON THIS PLAN, THAT THE PLAN WAS MADE AT MY DIRECTION, THAT I ACKNOWLEDGE THE SAME TO BE MY ACT, AND DESIRE THE PLAN TO BE RECORDED AS SHOWN IN ACCORDANCE WITH ALL APPLICABLE LAWS AND REGULATIONS.

POLLY D YODER DATE
8289 GREENWOOD RD
GREENWOOD, DE 19950

OWNER'S CERTIFICATION

I, THE UNDERSIGNED, HEREBY CERTIFY THAT I AM THE LEGAL OWNER OF THE PROPERTY DESCRIBED AND SHOWN ON THIS PLAN, THAT THE PLAN WAS MADE AT MY DIRECTION, THAT I ACKNOWLEDGE THE SAME TO BE MY ACT, AND DESIRE THE PLAN TO BE RECORDED AS SHOWN IN ACCORDANCE WITH ALL APPLICABLE LAWS AND REGULATIONS.

MARK B. YODER, JR DATE
8289 GREENWOOD RD
GREENWOOD, DE 19950

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RECORD PLAN COVER

LINCOLN RETIREMENT COMMUNITY
TAX PARCEL NO. 330-15.00-33.01
JOHNSON ROAD (SCR 207)
CEDAR CREEK HUNDRED, SUSSEX COUNTY

ISSUE / REVISION BLOCK
11/16/21 - FIRE MARSHAL
11/24/21 - SUSSEX CONSERVATION DISTRICT
11/29/21 - DELDOT
11/29/21 - SUSSEX COUNTY P&Z
2/21/22 - FIRE MARSHAL
2/25/22 - DELDOT
2/28/22 - SUSSEX COUNTY P&Z

SCALE	PROJECT #	DRAWN BY
AS NOTED	CHRE1902	JDC

DRAWING NUMBER

RP-1

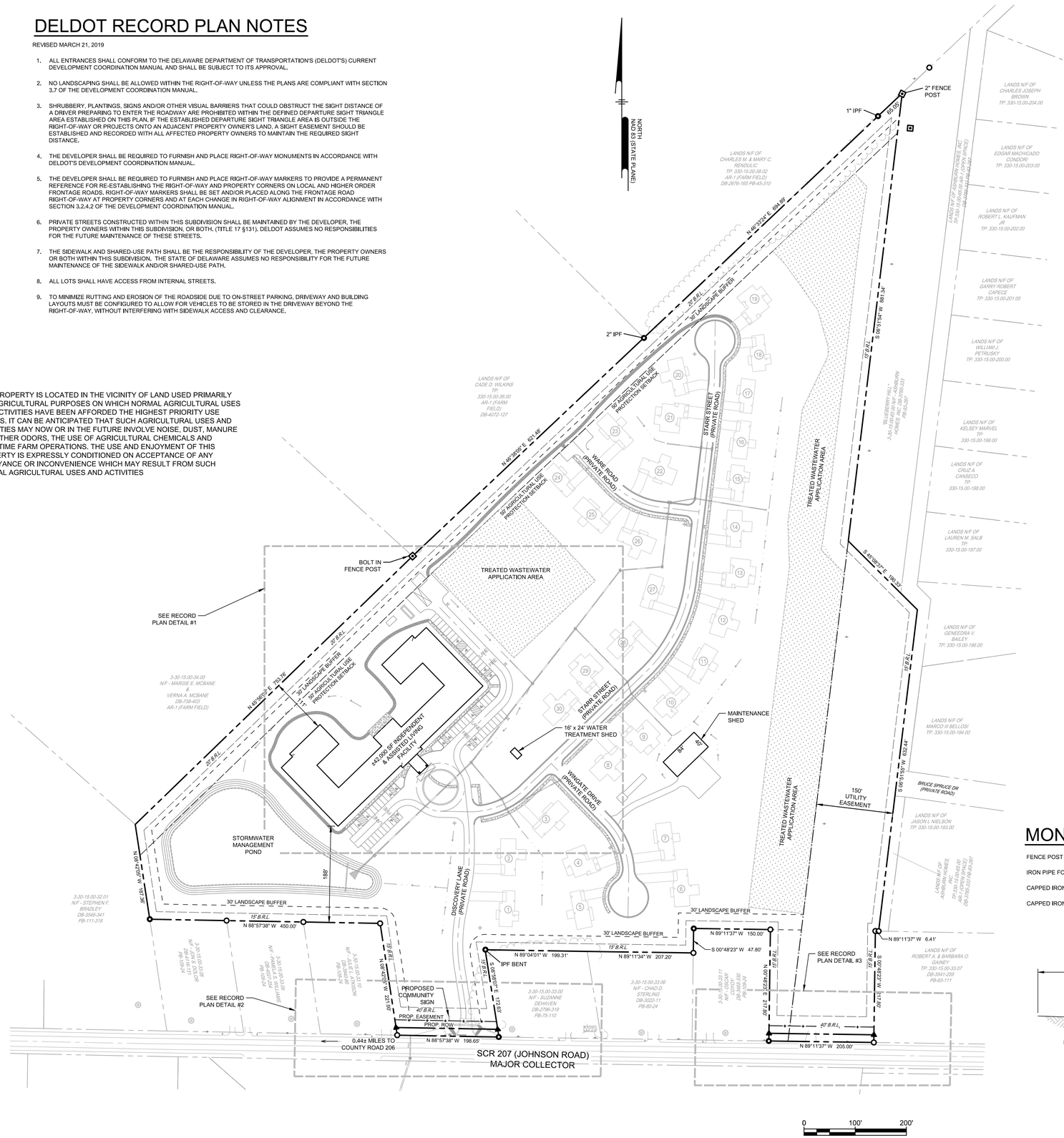
Z:\PROJECTS\County Rest Home\CHRE1902 - Lincoln Retirement Community\DESIGN\PLOTS\SITEWORKE1902 - Record Plan Cover Sheet.dwg PLOTTED: 2/28/2022 8:23 AM, BY: Dave Heatwole PLOTSTYLE: _SiteWorks-ENG.ctb

DELDOT RECORD PLAN NOTES

REVISED MARCH 21, 2019

1. ALL ENTRANCES SHALL CONFORM TO THE DELAWARE DEPARTMENT OF TRANSPORTATION'S (DELDOT'S) CURRENT DEVELOPMENT COORDINATION MANUAL AND SHALL BE SUBJECT TO ITS APPROVAL.
2. NO LANDSCAPING SHALL BE ALLOWED WITHIN THE RIGHT-OF-WAY UNLESS THE PLANS ARE COMPLIANT WITH SECTION 3.7 OF THE DEVELOPMENT COORDINATION MANUAL.
3. SHRUBBERY, PLANTINGS, SIGNS AND/OR OTHER VISUAL BARRIERS THAT COULD OBSTRUCT THE SIGHT DISTANCE OF A DRIVER PREPARING TO ENTER THE ROADWAY ARE PROHIBITED WITHIN THE DEFINED DEPARTURE SIGHT TRIANGLE AREA ESTABLISHED ON THIS PLAN. IF THE ESTABLISHED DEPARTURE SIGHT TRIANGLE AREA IS OUTSIDE THE RIGHT-OF-WAY OR PROJECTS ONTO AN ADJACENT PROPERTY OWNER'S LAND, A SIGHT EASEMENT SHOULD BE ESTABLISHED AND RECORDED WITH ALL AFFECTED PROPERTY OWNERS TO MAINTAIN THE REQUIRED SIGHT DISTANCE.
4. THE DEVELOPER SHALL BE REQUIRED TO FURNISH AND PLACE RIGHT-OF-WAY MONUMENTS IN ACCORDANCE WITH DELDOT'S DEVELOPMENT COORDINATION MANUAL.
5. THE DEVELOPER SHALL BE REQUIRED TO FURNISH AND PLACE RIGHT-OF-WAY MARKERS TO PROVIDE A PERMANENT REFERENCE FOR RE-ESTABLISHING THE RIGHT-OF-WAY AND PROPERTY CORNERS ON LOCAL AND HIGHER ORDER FRONTAGE ROADS. RIGHT-OF-WAY MARKERS SHALL BE SET AND/OR PLACED ALONG THE FRONTAGE ROAD RIGHT-OF-WAY AT PROPERTY CORNERS AND AT EACH CHANGE IN RIGHT-OF-WAY ALIGNMENT IN ACCORDANCE WITH SECTION 3.2.4.2 OF THE DEVELOPMENT COORDINATION MANUAL.
6. PRIVATE STREETS CONSTRUCTED WITHIN THIS SUBDIVISION SHALL BE MAINTAINED BY THE DEVELOPER, THE PROPERTY OWNERS WITHIN THIS SUBDIVISION, OR BOTH. (TITLE 17 §131). DELDOT ASSUMES NO RESPONSIBILITIES FOR THE FUTURE MAINTENANCE OF THESE STREETS.
7. THE SIDEWALK AND SHARED-USE PATH SHALL BE THE RESPONSIBILITY OF THE DEVELOPER, THE PROPERTY OWNERS OR BOTH WITHIN THIS SUBDIVISION. THE STATE OF DELAWARE ASSUMES NO RESPONSIBILITY FOR THE FUTURE MAINTENANCE OF THE SIDEWALK AND/OR SHARED-USE PATH.
8. ALL LOTS SHALL HAVE ACCESS FROM INTERNAL STREETS.
9. TO MINIMIZE RUTTING AND EROSION OF THE ROADSIDE DUE TO ON-STREET PARKING, DRIVEWAY AND BUILDING LAYOUTS MUST BE CONFIGURED TO ALLOW FOR VEHICLES TO BE STORED IN THE DRIVEWAY BEYOND THE RIGHT-OF-WAY, WITHOUT INTERFERING WITH SIDEWALK ACCESS AND CLEARANCE.

THIS PROPERTY IS LOCATED IN THE VICINITY OF LAND USED PRIMARILY FOR AGRICULTURAL PURPOSES ON WHICH NORMAL AGRICULTURAL USES AND ACTIVITIES HAVE BEEN AFFORDED THE HIGHEST PRIORITY USE STATUS. IT CAN BE ANTICIPATED THAT SUCH AGRICULTURAL USES AND ACTIVITIES MAY NOW OR IN THE FUTURE INVOLVE NOISE, DUST, MANURE AND OTHER ODORS, THE USE OF AGRICULTURAL CHEMICALS AND NIGHTTIME FARM OPERATIONS. THE USE AND ENJOYMENT OF THIS PROPERTY IS EXPRESSLY CONDITIONED ON ACCEPTANCE OF ANY ANNOYANCE OR INCONVENIENCE WHICH MAY RESULT FROM SUCH NORMAL AGRICULTURAL USES AND ACTIVITIES



SITE DATA:

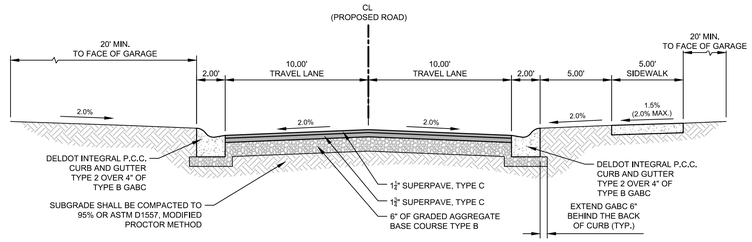
1.	TAX MAP NUMBER:	330-15.00-33.01
2.	GROSS AREA:	32.6 ACRES
3.	TOTAL LOTS / PARCELS	1 EXISTING (NO PROPOSED LOTS)
4.	DEVELOPER NAME:	COUNTRY REST HOME, INC.
5.	PROPERTY ADDRESS:	18971 JOHNSON ROAD LINCOLN, DE 19960
6.	HUNDRED/COUNTY: GOVERNMENT ENTITY RESPONSIBLE FOR LAND USE APPROVAL:	CEDAR CREEK HUNDRED / SUSSEX COUNTY SUSSEX COUNTY
7.	CURRENT ZONING:	AR-1 AGRICULTURAL RESIDENTIAL
8.	PROPOSED ZONING:	AR-1 WITH SPECIAL USE EXCEPTION FOR A CONVALESCENT HOME, NURSING HOME, AND / OR HOME FOR THE AGED PER BOA CASE NO. 12320 APPROVED BYT THE BOARD ON 9/6/2019, A ONE-YEAR EXTENSION FOR THIS USE WAS GRANTED BY THE BOARD ON 1/25/2021, EXTENDING THE EXPIRATION DATE FROM 8/6/2021 TO 8/6/2022.
9.	PRESENT USE:	TILLED CROPS
10.	PROPOSED USE:	CONVALESCENT HOME, NURSING HOME, AND / OR HOME FOR THE AGED
11.	REQUIRED SETBACKS (B.R.L.): COTTAGE BUILDING SETBACKS	FRONT: 40-FEET SIDE: 15-FEET REAR: 20-FEET CORNER: 15-FEET 10-12 FEET (BUILDING BUILDING SEPARATION)
12.	DWELLING UNITS: PROPOSED COTTAGES: ASSISTED / INDEPENDENT LIVING BLDG: BUILDING SIZE:	30 2-BEDROOM COTTAGES 15 SINGLE BEDROOM UNITS 25 TWO (2) BEDROOM UNITS ± 50,000 SF
13.	BUILDING SETBACKS AND RESTRICTIONS FOR COTTAGES: BUILDING SETBACK FROM ON-SITE SEWER DISPOSAL BED: 50-FEET	
14.	WATER SUPPLIER: PRIVATE (ON-SITE WELL) WATER IS SUBJECT TO THE APPROVAL OF THE DELAWARE STATE DEPARTMENTS OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL AND THE DELAWARE DIVISION OF PUBLIC HEALTH.	
15.	SANITARY SEWER PROVIDER: PRIVATE ON-SITE TREATMENT PLANT & DISPOSAL SYSTEM SUBJECT TO THE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL'S REGULATIONS GOVERNING THE DESIGN, INSTALLATION AND OPERATION OF ON-SITE WASTEWATER TREATMENT AND DISPOSAL SYSTEMS.	
16.	STREETS:	PRIVATE
17.	FEMA FLOOD ZONE, MAP #, AND DATE: ZONE X, 10005C0044K, DATED MARCH 16, 2015 ZONE X, 10005C0132K, DATED MARCH 16, 2015 ZONE X, 10005C0131J, DATED JANUARY 6, 2005	
18.	REQUIRED PARKING NUMBER OF BEDROOMS NEEDED SPACES PER BEDROOMS EXPECTED EMPLOYEES: NEEDED SPACES FOR EMPLOYEES: PARKING SPACES REQUIRED: SPACES PROVIDED: ADA SPACES PROVIDED:	1 FOR EACH 4 PATIENT BEDS, PLUS 1 PER 2 EMPLOYEES ON THE LARGEST SHIFT 60 (20 SINGLE UNITS AND 20 DOUBLE UNITS) 15 5 3 18 61 16
19.	LOADING SPACES BUILDING REQUIRING A LOADING SPACE LOADING SPACES REQUIRED LOADING SPACES PROVIDED	2 FOR FLOOR AREA BETWEEN 25,000 - 100,000 SF 1 (INDEPENDENT LIVING FACILITY) 2 (FLOOR AREA BETWEEN 25,000 - 100,000 SF) 2 SPACES
20.	POSTED SPEED LIMIT FOR JOHNSON RD (SCR 207):	50 MPH
21.	STATE INVESTMENT AREA:	LEVEL 3
22.	PROPOSED BUILDING HEIGHT:	LESS THAN 42 FEET
23.	LATITUDE AND LONGITUDE STATE PLAN COORDINATES: LONGITUDE: W075.2414 LATITUDE: N038.5221	
24.	WETLAND AREA:	0.00 AC. ±
25.	PROPOSED DISCHARGE LOCATION:	INFILTRATION
26.	PROXIMITY TO T.I.D.:	NOT WITHIN AN IDENTIFIED TID
27.	LIMIT OF DISTURBANCE:	25.5 ACRES ±
28.	WATERSHED:	CEDAR CREEK
29.	EXISTING / PROPOSED FORESTED AREA:	0.00 ACRES
30.	PLUS NUMBER:	2020-01-02
31.	HORIZONTAL / VERTICAL DATUM	NAD83 / NAVD 88
32.	THE PROJECT IS LOCATED WITHIN A DEVELOPING AREA AS NOTED AS PART OF THE FUTURE LAND USE MAP INCLUDED WITHIN THE SUSSEX COUNTY 2018 COMPREHENSIVE PLAN UPDATE.	

GENERAL NOTES:

1. THE BOUNDARY INFORMATION SHOWN ON THIS PLAN IS BASED ON A MORRIS RITCHIE & ASSOCIATES SURVEY DATED 4/30/19.
2. ALL KNOWN EASEMENTS ARE SHOWN ON THE PLAN; HOWEVER, THIS SURVEY DOES NOT VERIFY TO THE LOCATION AND/OR EXISTENCE OF EASEMENTS OR RIGHTS OF WAY CROSSING SUBJECT PROPERTY.
3. THE ITEMS DEPICTED ON THE FINAL SITE PLAN ARE FOR ILLUSTRATIVE AND OUTLINE PURPOSES ONLY. THE GENERAL LOCATION AND DIMENSIONS OF ITEMS DEPICTED ON THE FINAL SITE PLAN MAY BE SUPERCEDED BY APPROVED / REVISED CONSTRUCTION DRAWINGS, BUILDING PERMIT DRAWINGS AND OTHER MODIFICATIONS THERETO APPROVED BY THE AUTHORITIES HAVING JURISDICTION AT THE SOLE DISCRETION OF THE DEVELOPER INCLUDING THE DEVELOPER'S SUCCESSORS AND ASSIGNS.
4. ALL LIGHTING SHALL BE DOWNWARD SCREENED TO MINIMIZE GLARE ON SURROUNDING RESIDENTIAL PROPERTIES.
5. THE PROPOSED SIGN IS NOT APPROVED AS PART OF THIS SITE PLAN. A SEPARATE SUSSEX COUNTY PERMIT IS REQUIRED. ALL SIGNS SHALL BE <40' IN HEIGHT.
6. THE TYPICAL COTTAGE WILL BE APPROXIMATELY 1,500 SQUARE FEET.
7. THE PROJECT IS LOCATED WITHIN AND AREA OF "FAIR" GROUNDWATER RECHARGE POTENTIAL PER THE DNREC ENVIRONMENTAL NAVIGATOR.

MONUMENT LEGEND

FENCE POST	⊡
IRON PIPE FOUND	●
CAPPED IRON PIPE FOUND	○
CAPPED IRON REBAR TO BE SET	▲



TYPICAL PRIVATE STREET SECTION

SCALE: H 1" = 5'
V 1" = 2'

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RECORD PLAN

LINCOLN RETIREMENT COMMUNITY

TAX PARCEL NO. 330-15.00-33.01
JOHNSON ROAD (SCR 207)
CEDAR CREEK HUNDRED, SUSSEX COUNTY

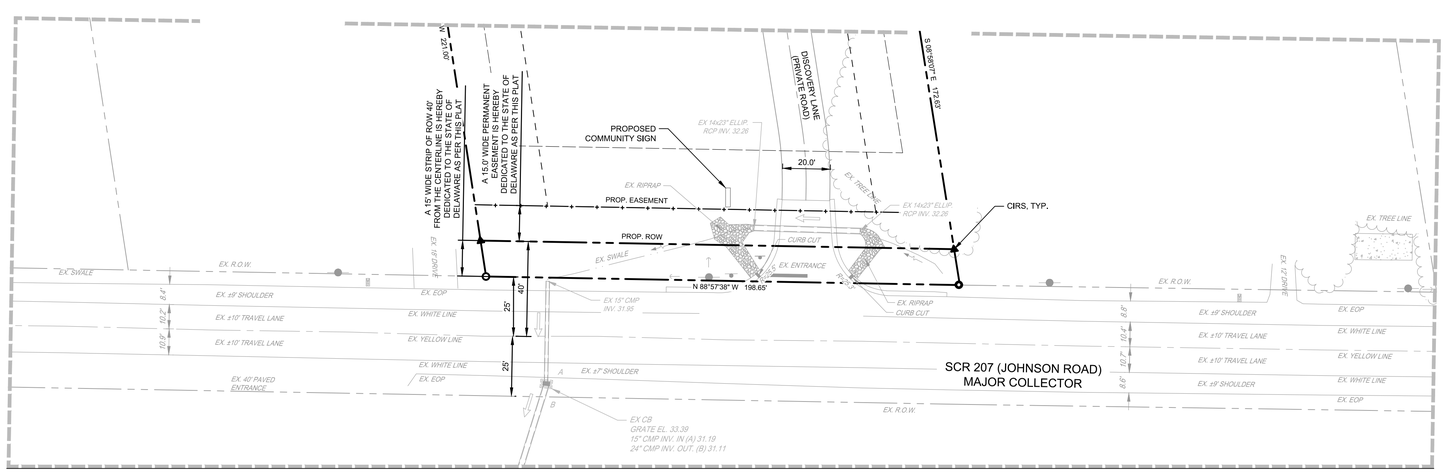
ISSUE / REVISION BLOCK
11/16/21 - FIRE MARSHAL
11/24/21 - SUSSEX CONSERVATION DISTRICT
11/29/21 - DELDOT
11/29/21 - SUSSEX COUNTY P&Z
2/21/22 - FIRE MARSHAL
2/25/22 - DELDOT
2/28/22 - SUSSEX COUNTY P&Z

SCALE	PROJECT #	DRAWN BY
AS NOTED	CHRE1902	JDC

DRAWING NUMBER

RP-2

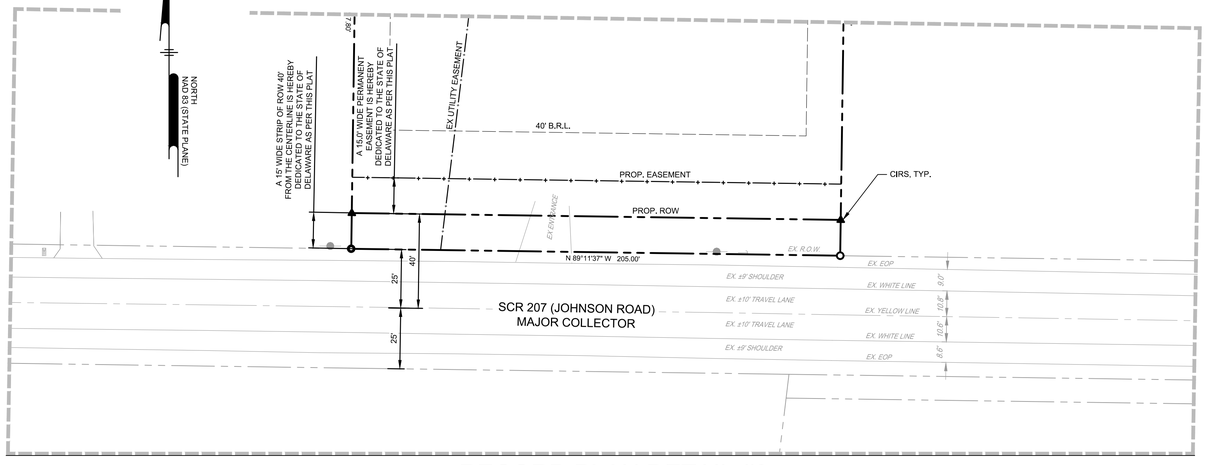
Z:\PROJECTS\County Rest Home\CHRE1902 - Lincoln Retirement Community\DESIGN\PLOTS\NS SET\CHRE1902 - Record Plan.dwg PLOTTED: 2/28/2022 8:33 AM, BY: Dave Hostwelle PLOTSTYLE: _SiteWorks-ENG.ctb



RECORD PLAN DETAIL #2

SCALE: 1" = 30'

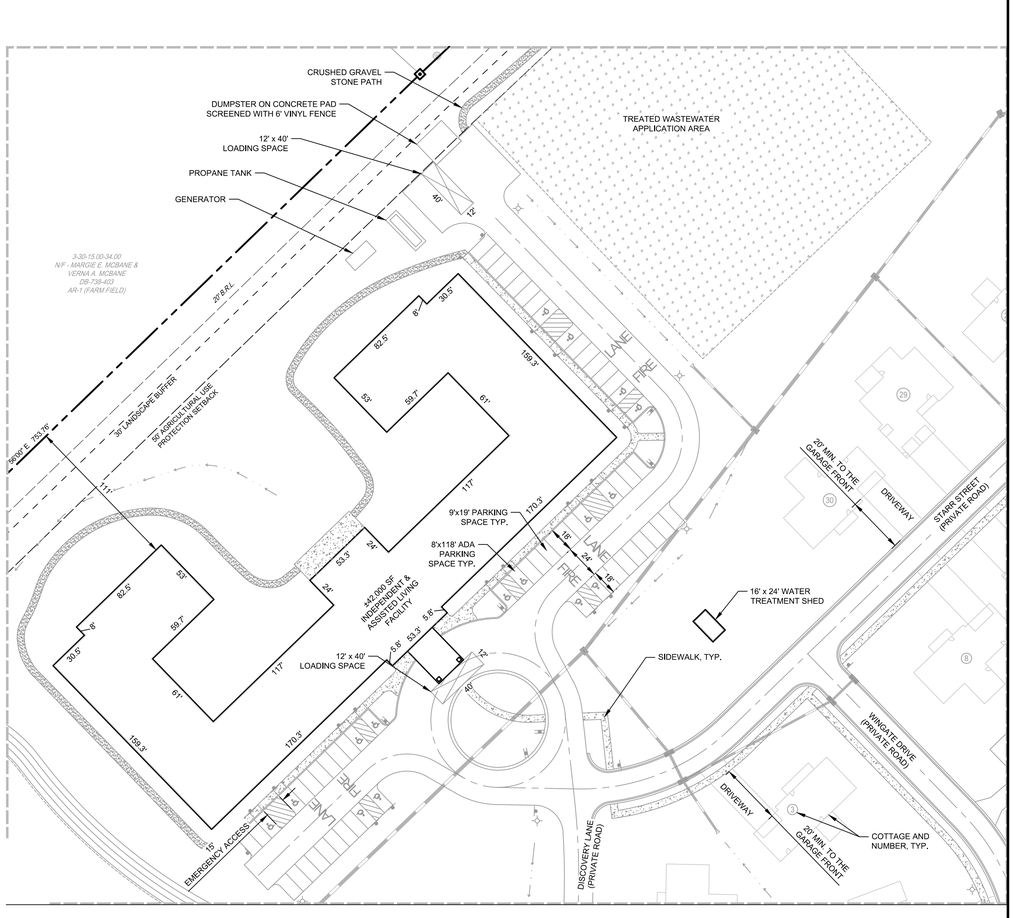
0 30' 60'



RECORD PLAN DETAIL #3

SCALE: 1" = 30'

0 30' 60'



RECORD PLAN DETAIL #1

SCALE: 1" = 50'

0 50' 100'

LINCOLN RETIREMENT COMMUNITY

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RECORD PLAN

ISSUE / REVISION BLOCK

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2/21/22 - FIRE MARSHAL

2/25/22 - DELDOT

2/28/22 - SUSSEX COUNTY P&Z

SCALE	PROJECT #	DRAWN BY
AS NOTED	CHRE1902	JDC

DRAWING NUMBER

RP-3

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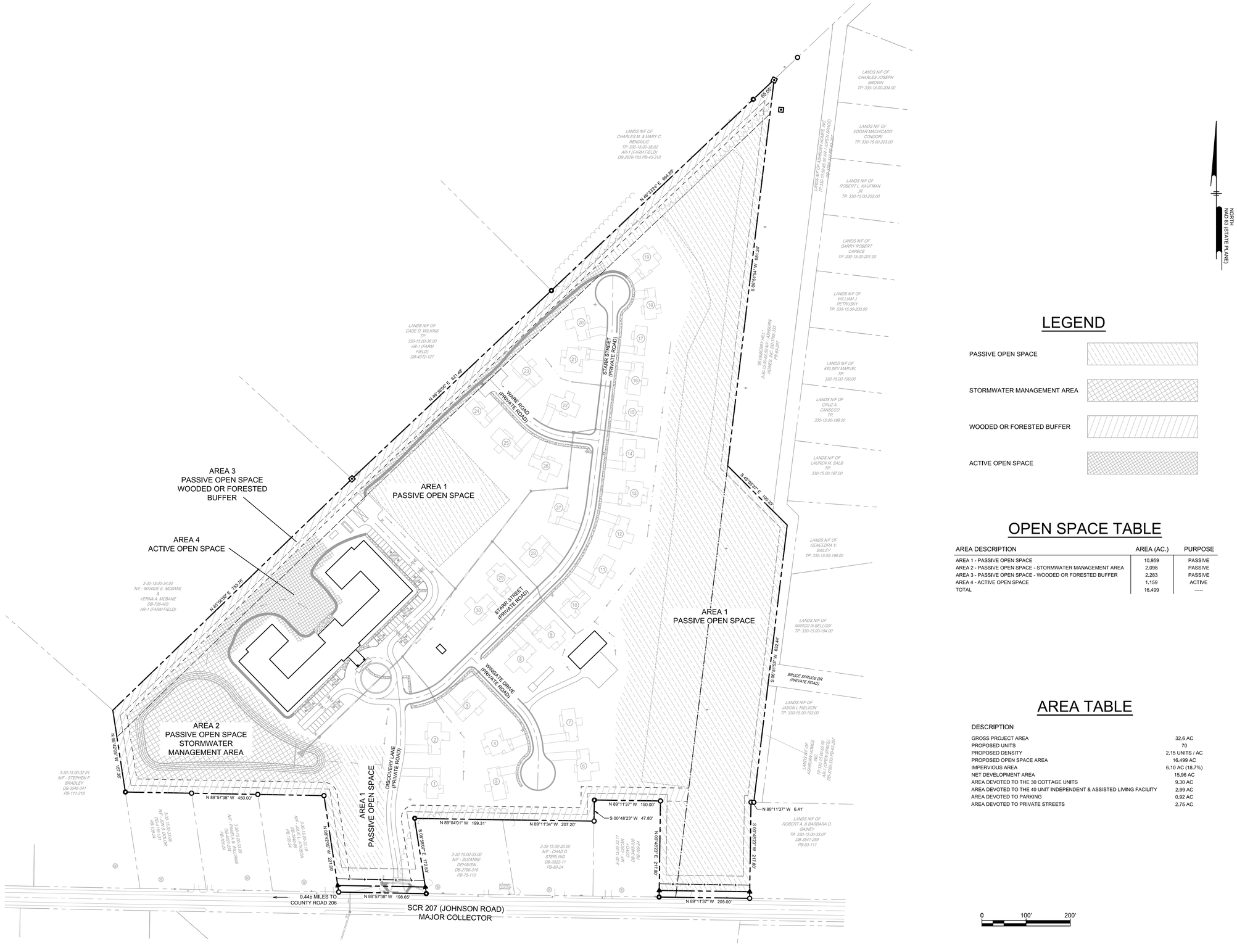

LEGEND

- PASSIVE OPEN SPACE
- STORMWATER MANAGEMENT AREA
- WOODED OR FORESTED BUFFER
- ACTIVE OPEN SPACE

OPEN SPACE TABLE

AREA DESCRIPTION	AREA (AC.)	PURPOSE
AREA 1 - PASSIVE OPEN SPACE	10.959	PASSIVE
AREA 2 - PASSIVE OPEN SPACE - STORMWATER MANAGEMENT AREA	2.098	PASSIVE
AREA 3 - PASSIVE OPEN SPACE - WOODED OR FORESTED BUFFER	2.283	PASSIVE
AREA 4 - ACTIVE OPEN SPACE	1.159	ACTIVE
TOTAL	16.499	-----

AREA TABLE

DESCRIPTION	
GROSS PROJECT AREA	32.6 AC
PROPOSED UNITS	70
PROPOSED DENSITY	2.15 UNITS / AC
PROPOSED OPEN SPACE AREA	16.499 AC
IMPERVIOUS AREA	6.10 AC (18.7%)
NET DEVELOPMENT AREA	15.96 AC
AREA DEVOTED TO THE 30 COTTAGE UNITS	9.30 AC
AREA DEVOTED TO THE 40 UNIT INDEPENDENT & ASSISTED LIVING FACILITY	2.99 AC
AREA DEVOTED TO PARKING	0.92 AC
AREA DEVOTED TO PRIVATE STREETS	2.75 AC

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2/28/22 - SUSSEX COUNTY P&Z

SCALE	PROJECT #	DRAWN BY
1" = 100'	CHRE1902	JDC

DRAWING NUMBER

RP-4

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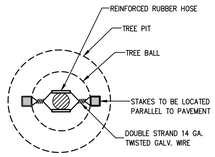
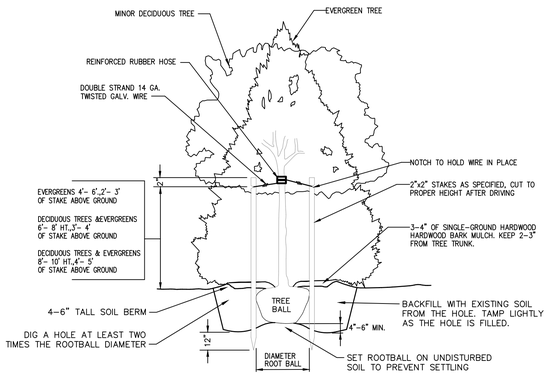


PLAN



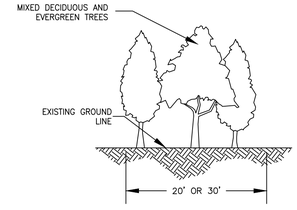
SECTION

STAKING DETAIL

NO SCALE

TYPICAL FORESTED BUFFER 100' x 30'

NOT TO SCALE

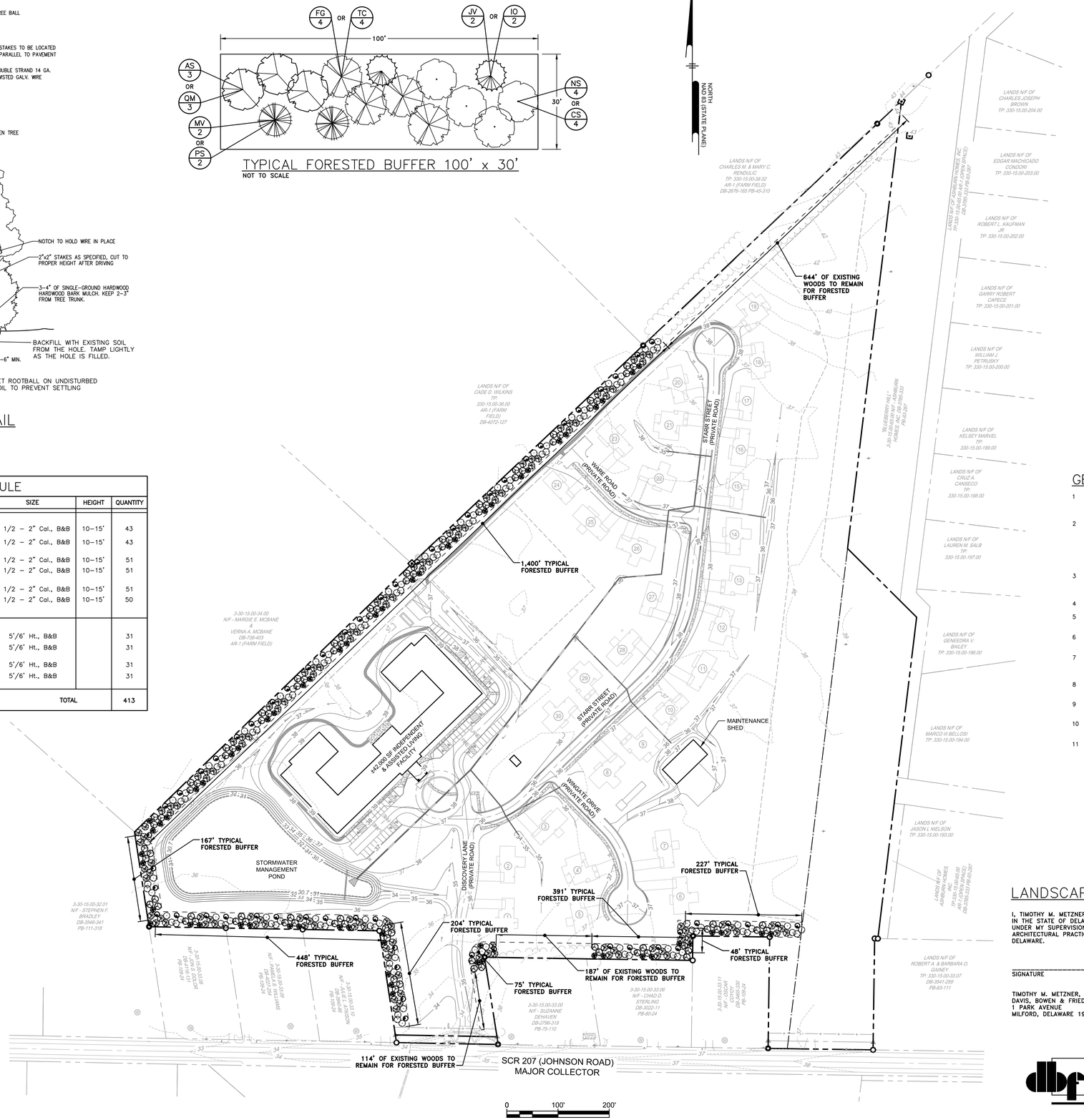


BUFFER DETAIL

NOT TO SCALE

LANDSCAPE PLANT SCHEDULE

SYMBOL	KEY	BOTANICAL NAME	COMMON NAME	SIZE	HEIGHT	QUANTITY
		DECIDUOUS TREE				
	AS	Acer saccharum 'Green Mountain'	SUGAR MAPLE	1 1/2 – 2" Cal., B&B	10–15'	43
	QM	Quercus phellos	WILLOW OAK	1 1/2 – 2" Cal., B&B	10–15'	43
	FG	Fagus grandifolia	AMERICAN BEECH	1 1/2 – 2" Cal., B&B	10–15'	51
	TC	Tilia cordata	LITTLELEAF LINDEN	1 1/2 – 2" Cal., B&B	10–15'	51
	NS	Nyssa sylvatica	BLACK TUPELO	1 1/2 – 2" Cal., B&B	10–15'	51
	CS	Carya ovata	SHAGBARK HICKORY	1 1/2 – 2" Cal., B&B	10–15'	50
		EVERGREEN TREE				
	MV	Magnolia virginiana	SWEETBAY MAGNOLIA	5'/6' Ht., B&B		31
	PS	Pinus strobus	EASTERN WHITE PINE	5'/6' Ht., B&B		31
	JV	Juniperus virginiana	EASTERN RED CEDAR	5'/6' Ht., B&B		31
	IO	Ilex opaca	AMERICAN HOLLY	5'/6' Ht., B&B		31
				TOTAL		413



GENERAL LANDSCAPE NOTES

1 QUALITY AND SIZE OF PLANTS, SPREAD OF ROOTS, AND SIZE OF BALLS SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARDS OF THE AMERICAN ASSOCIATION OF NURSERYMEN "AMERICAN STANDARDS FOR NURSERY STOCK".

2 THE LAND DEVELOPER SHALL BE HELD RESPONSIBLE FOR THE HEALTH AND SURVIVAL OF THE TREES INCLUDING REGULAR NECESSARY WATERING FOR A MINIMUM OF TWO YEARS OR UNTIL SUCH LATER DATE AS THE MAINTENANCE RESPONSIBILITIES ARE TRANSFERRED TO A HOMEOWNERS ASSOCIATION, PROVIDED HOWEVER THAT THE DEVELOPER SHALL REPLACE ANY TREES THAT DIE DURING THE MINIMUM TWO YEAR DEVELOPER MAINTENANCE PRIOR TO TRANSFERRING MAINTENANCE RESPONSIBILITIES TO A HOMEOWNERS ASSOCIATION.

3 CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO UTILITIES AND MAY MAKE MINOR ADJUSTMENTS IN SPACING AND/OR LOCATION OF PLANT MATERIALS. CONTRACTOR TO VERIFY "AS BUILT" LOCATION OF ALL UTILITIES.

4 NO SUBSTITUTIONS SHALL BE MADE WITHOUT APPROVAL OF THE OWNER.

5 ALL AREAS NOT STABILIZED IN PAVING OR PLANT MATERIALS SHOULD BE SEEDED AND MULCHED. (SEE EROSION & SEDIMENT CONTROL PLAN.)

6 EVERGREEN TREES SHALL HAVE A FULL, WELL–BRANCHED, CONICAL FORM TYPICAL OF THE SPECIES.

7 ALL DECIDUOUS SHADE TREES SHALL BRANCH A MINIMUM OF 6'–0" ABOVE GROUND LEVEL. TREES SHALL BE PLANTED AND STAKED IN ACCORDANCE WITH THE STAKING DETAIL SHOWN.

8 THE FULL EXTENT OF ALL PLANTING BEDS SHALL RECEIVE 4" OF TOPSOIL AND 3" OF BARK MULCH PER SPECIFICATIONS.

9 THE CONTRACTOR SHALL SUPPLY ALL PLANT MATERIALS IN QUANTITIES SUFFICIENT TO COMPLETE THE PLANTINGS SHOWN ON THIS DRAWING AND AS SPECIFIED.

10 ALL PLANTS SHALL BEAR THE SAME RELATIONSHIP TO FINISHED GRADE AS THE PLANT'S ORIGINAL GRADE BEFORE DIGGING.

11 THE CONTRACTOR SHALL WATER ALL PLANTS THOROUGHLY TWICE DURING THE FIRST 24–HOUR PERIOD AFTER PLANTING, AND THEN WEEKLY OR MORE OFTEN, IF NECESSARY, DURING THE FIRST GROWING SEASON.

LANDSCAPE ARCHITECT'S STATEMENT

I, TIMOTHY M. METZNER, HEREBY STATE THAT I AM A REGISTERED LANDSCAPE ARCHITECT IN THE STATE OF DELAWARE, THAT THE INFORMATION SHOWN HEREON HAS BEEN PREPARED UNDER MY SUPERVISION AND TO MY BEST KNOWLEDGE AND BELIEF REPRESENTS GOOD ARCHITECTURAL PRACTICES AS REQUIRED BY THE APPLICABLE LAWS OF THE STATE OF DELAWARE.

SIGNATURE DATE

TIMOTHY M. METZNER, RLA, LEED AP ND
DAVIS, BOWEN & FRIEDEL, INC.
1 PARK AVENUE
MILFORD, DELAWARE 19963

DAVIS, BOWEN & FRIEDEL, INC.

ARCHITECTS ENGINEERS

SALISBURY, MARYLAND (410) 543–9091
MILFORD, DELAWARE (302) 424–1441
EASTON, MARYLAND (410) 770–4744

SITEWORKS ENGINEERING
PO BOX 212 | 19 COMMERCE ST, HARRINGTON, DE 19952 Phone: (302) 841-7901

LANDSCAPE PLAN

LINCOLN RETIREMENT COMMUNITY
TAX PARCEL NO. 330-15.00-33.01
JOHNSON ROAD (SCR 207)
CEDAR CREEK HUNDRED, SUSSEX COUNTY

ISSUE / REVISION BLOCK
11/16/21 - FIRE MARSHAL
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2/25/22 - DELDOT
2/28/22 - SUSSEX COUNTY P&Z

SCALE	PROJECT #	DRAWN BY
1" = 100'	CHRE1902	JDC

DRAWING NUMBER

LP-1

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KEY SHEET

LINCOLN RETIREMENT COMMUNITY

TAX PARCEL NO. 330-15.00-33.01

JOHNSON ROAD (SCR 207)

CEDAR CREEK HUNDRED, SUSSEX COUNTY

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2/25/22 - DELDOT

2/28/22 - SUSSEX COUNTY P&Z

SCALE	PROJECT #	DRAWN BY
1" = 100'	CHRE1902	JDC

DRAWING NUMBER

K-1

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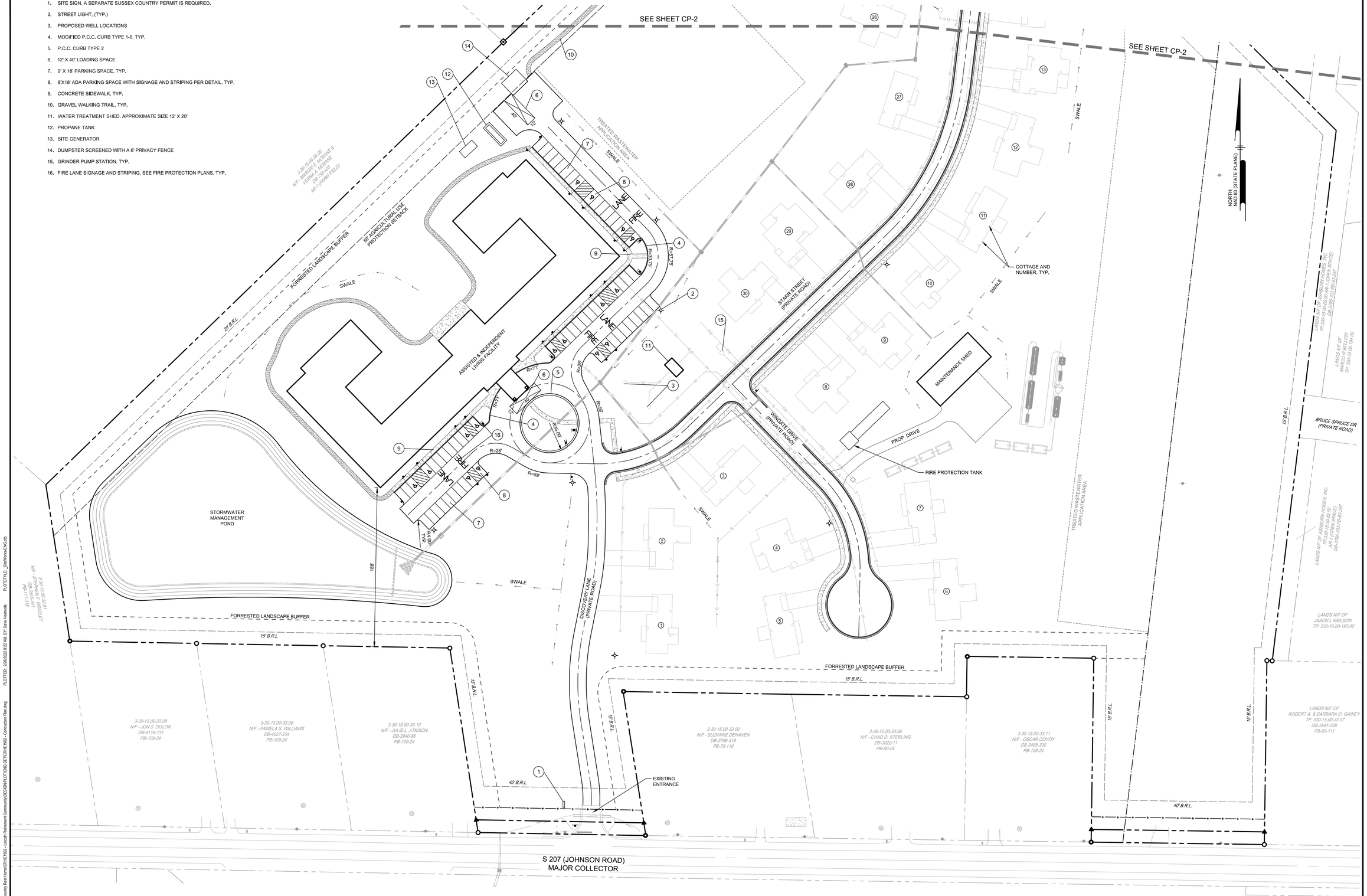
KEYED NOTES

1. SITE SIGN. A SEPARATE SUSSEX COUNTRY PERMIT IS REQUIRED.
2. STREET LIGHT, (TYP.)
3. PROPOSED WELL LOCATIONS
4. MODIFIED P.C.C. CURB TYPE 1-6, TYP.
5. P.C.C. CURB TYPE 2
6. 12' X 40' LOADING SPACE
7. 9' X 18' PARKING SPACE, TYP.
8. 8'X18' ADA PARKING SPACE WITH SIGNAGE AND STRIPING PER DETAIL, TYP.
9. CONCRETE SIDEWALK, TYP.
10. GRAVEL WALKING TRAIL, TYP.
11. WATER TREATMENT SHED, APPROXIMATE SIZE 12' X 20'
12. PROPANE TANK
13. SITE GENERATOR
14. DUMPSTER SCREENED WITH A 6' PRIVACY FENCE
15. GRINDER PUMP STATION, TYP.
16. FIRE LANE SIGNAGE AND STRIPING, SEE FIRE PROTECTION PLANS, TYP.



LINCOLN RETIREMENT COMMUNITY
TAX PARCEL NO. 330-15.00-33.01
JOHNSON ROAD (SCR 207)
CEDAR CREEK HUNDRED, SUSSEX COUNTY

CONSTRUCTION PLAN

SITEWORKS ENGINEERING
PO BOX 2 | 19 COMMERCE ST., HARRINGTON, DE 19952 Phone: (302) 841-7901

ISSUE / REVISION BLOCK

11/16/21 - FIRE MARSHAL

11/24/21 - SUSSEX CONSERVATION DISTRICT

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2/21/22 - FIRE MARSHAL

2/25/22 - DELDOT

2/28/22 - SUSSEX COUNTY P&Z

SCALE	PROJECT #	DRAWN BY
1" = 50'	CHRE1902	JDC

DRAWING NUMBER

CP-1

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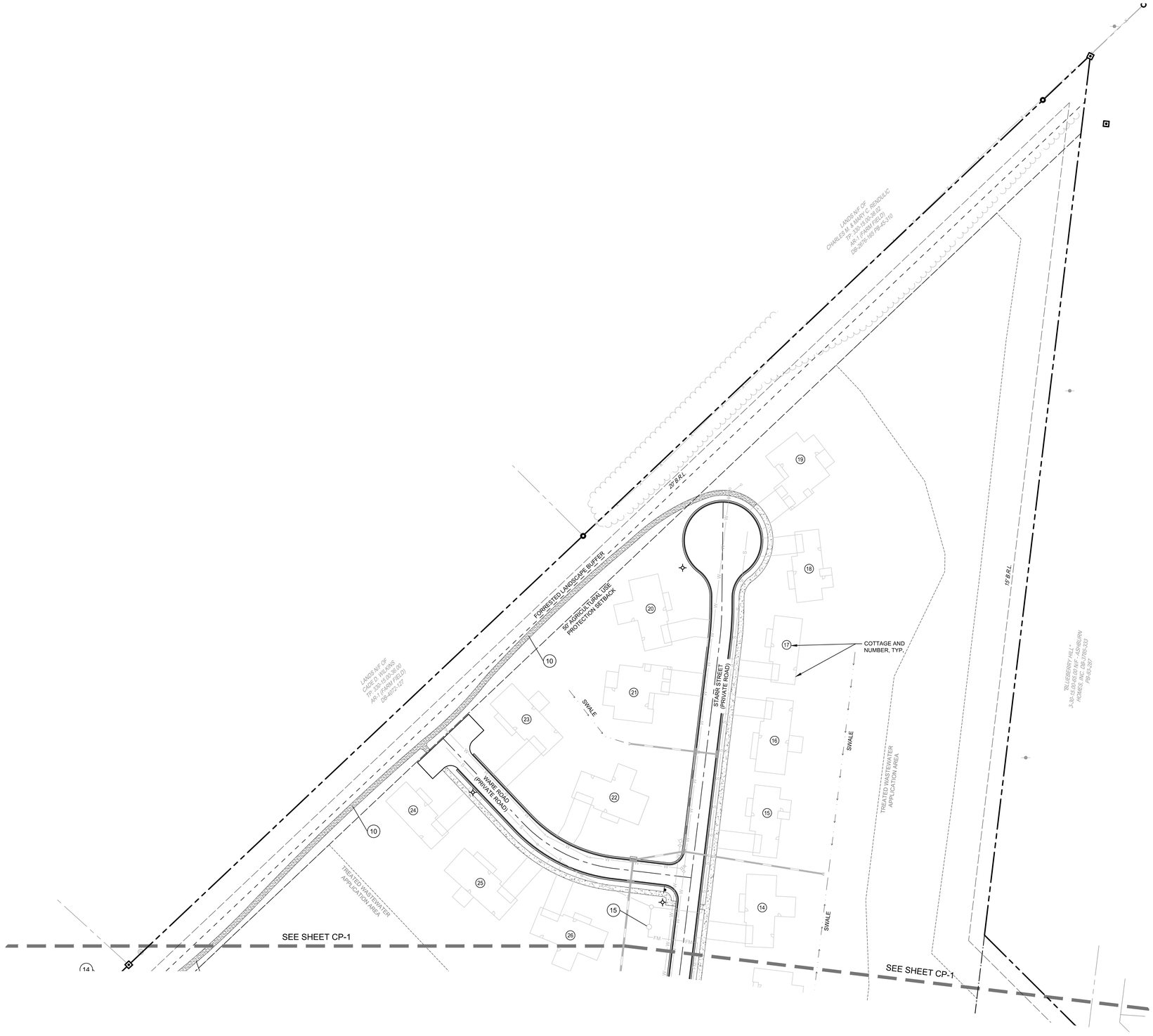

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12. PROPANE TANK
13. SITE GENERATOR
14. DUMPSTER SCREENED WITH A 6' PRIVACY FENCE
15. GRINDER PUMP STATION, TYP.
16. FIRE LANE SIGNAGE AND STRIPING, SEE FIRE PROTECTION PLANS, TYP.

SITEWORKS ENGINEERING
PO BOX 212 | 19 COMMERCE ST., HARRINGTON, DE 19952 Phone: (302) 841-7901

CONSTRUCTION PLAN

LINCOLN RETIREMENT COMMUNITY

TAX PARCEL NO. 330-15.00-33.01

JOHNSON ROAD (SCR 207)

CEDAR CREEK HUNDRED, SUSSEX COUNTY

ISSUE / REVISION BLOCK

11/16/21 - FIRE MARSHAL

11/24/21 - SUSSEX CONSERVATION DISTRICT

11/29/21 - DELDOT

11/29/21 - SUSSEX COUNTY P&Z

2/21/22 - FIRE MARSHAL

2/25/22 - DELDOT

2/28/22 - SUSSEX COUNTY P&Z

SCALE	PROJECT #	DRAWN BY
1" = 50'	CHRE1902	JDC

DRAWING NUMBER

CP-2

Z:\PROJECTS\Country Rest Home\CHRE1902 - Lincoln Retirement Community\DESIGN\PLOT\ENG SET\CHRE1902 - Contruction Plan.dwg PLOTTED: 2/28/2022 8:22 AM, BY: Dave Heatwole PLOTSTYLE: _SiteWorks-ENG.ctb

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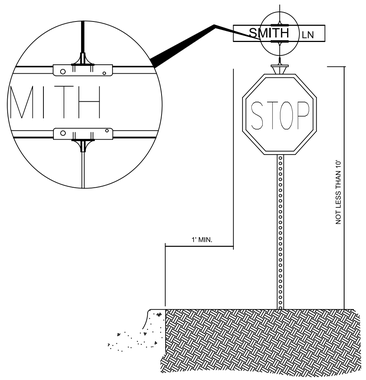
OCT 2006

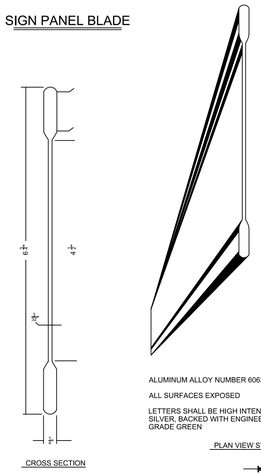
TYPICAL INSTALLATION



N.T.S.

DELAWARE
DEPARTMENT OF TRANSPORTATION

SIGN PANEL BLADE



ALUMINUM ALLOY NUMBER 6063-T6

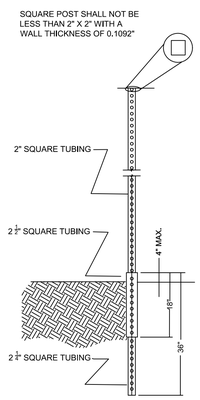
ALL SURFACES EXPOSED

LETTERS SHALL BE HIGH INTENSITY SILVER, BACKED WITH ENGINEER GRADE GREEN

BLADE SPECIFICATIONS & TYPICAL INSTALLATION

STANDARD NO. S-7

BREAK-AWAY ASSEMBLY



N.T.S.

DELAWARE
DEPARTMENT OF TRANSPORTATION

NOTES

1. SQUARE TUBES ARE TO BE FORMED FROM GALVANIZED SHEET STRUCTURAL (PHYSICAL) QUALITY, ASTM A 446, GRADE A, COATING DESIGNATION G 90, REGULAR SPANGLE, OR HOT ROLLED CARBON SHEET STEEL STRUCTURAL (PHYSICAL) QUALITY, ASTM A 570, GRADE 33.

   A. NOMINAL OUTSIDE DIMENSION, (INCHES):

2 X 2	+/-	.008
2 1/2 X 2 1/2	+/-	.010
2 1/2 X 2 1/2	+/-	.010

   B. ALL FOUR SIDES ARE TO HAVE EVENLY SPACED 5/8" DIAMETER HOLES ON 1" CENTERS THE ENTIRE LENGTH OF THE TUBE.

   C. TOLERANCE ON HOLE SIZES IS +/-1/64", TOLERANCE ON HOLE SPACING IS +/-1/8" IN 20 FEET.

   D. STANDARD CORNER RADIUS SHALL BE 3/32" +/- 1/64".

   E. THE FASTENERS TO BE SUPPLIED UNDER THIS SPECIFICATION SHALL BE 5/8" GRADE 5 UNC CORNER BOLTS WITH CADMIUM OR ZINC PLATING, INSTALLATION OF SIGNS SHALL BE WITH 1" X 22" BOLT WITH LOCKNUT AND WASHER.

2. THE CONTRACTOR SHALL PROVIDE AND INSTALL PVC (POLYVINYL CHLORIDE) SLEEVES (4" INSIDE DIAMETER MINIMUM, 6" INSIDE DIAMETER MAXIMUM) IN PROPOSED CONCRETE SIDEWALKS, ISLANDS, AND MEDIANS FOR FUTURE TRAFFIC SIGN POSTS AS DIRECTED BY THE ENGINEER. THE LOWER END OF THE SLEEVE SHALL BE SET ON THE TOP OF THE SOIL.

3. DEVELOPMENT SIGNS SHALL BE DISPLAYED ON TWO POSTS.

   A. DEVELOPMENT SIGNS SHALL BE INSTALLED WITHIN THE RIGHT-OF-WAY OF THE HIGHWAY ON WHICH THE ENTRANCE(S) IS (ARE) LOCATED. THE SIGNS SHALL BE PLACED WITHIN 500 FEET OF THE CENTERLINE OF THE ENTRANCE(S).

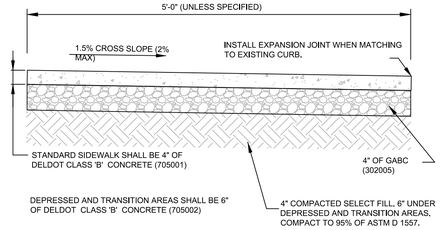
4. ALL SUBDIVISIONS SHALL BE REQUIRED TO HAVE ONE SPEED LIMIT 25 AND ONE WATCH CHILDREN SIGN, IN ADDITION TO THE STANDARD STOP SIGN AND STREET BLADES. THE SPEED LIMIT 25 SIGN MAY BE MOUNTED BELOW THE WATCH CHILDREN SIGN IF A 12' POST IS USED.

5. FLAT PANEL SIGN MATERIALS:
   STOP SIGN FACES SHALL BE FABRICATED OF TYPE "IX" ENCLOSED LENS (DIAMOND GRADE) REFLECTIVE SHEETING, ALL OTHER SIGNS SHALL BE A MINIMUM TYPE "III" ENCAPSULATED LENS (HIGH INTENSITY) REFLECTIVE SHEETING AND SHALL BE APPLIED TO SIGN GRADE ALUMINUM SHEET (MINIMUM THICKNESS +/-0.080").

6. THE CAESAR RODNEY DEVELOPMENT SIGN IS THE CURRENT STANDARD. FOR THE SPECIFICATIONS, SEE STANDARD NO. S-5.

SIGN POST SPECIFICATIONS & GENERAL NOTES

STANDARD NO. S-1



NOTE: PLACE EXPANSION JOINTS 20' ON CENTER AND CONTROL JOINTS 5' ON CENTER OR MATCH EXISTING PATTERN IF CONNFLICTING TO EXISTING SIDEWALK.

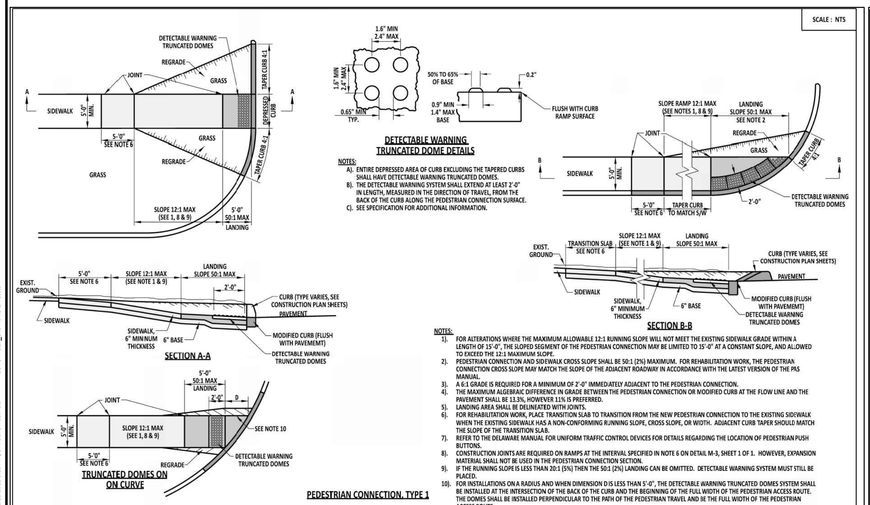
CONCRETE SIDEWALK

NOT TO SCALE

STOP SIGN DETAIL

NOT TO SCALE

SCALE : NTS



NOTES:
1). FOR ALTERATIONS WHERE THE MAXIMUM ALLOWABLE 12:1 RUNNING SLOPE WILL NOT MEET THE EXISTING SIDEWALK GRADE WITHIN A LENGTH OF 15'-0", THE SLOPED SEGMENT OF THE PEDESTRIAN CONNECTION MAY BE LIMITED TO 15'-0" AT A CONSTANT SLOPE, AND ALLOWED TO EXCEED THE 12:1 MAXIMUM SLOPE.
2). PEDESTRIAN CONNECTION AND SIDEWALK CROSS SLOPE SHALL BE 50:1 (2%) MAXIMUM. FOR REHABILITATION WORK, THE PEDESTRIAN CONNECTION CROSS SLOPE MAY MATCH THE SLOPE OF THE ADJACENT ROADWAY IN ACCORDANCE WITH THE LATEST VERSION OF THE PAS MANUAL.
3). A 6:1 GRADE IS REQUIRED FOR A MINIMUM OF 2'-0" IMMEDIATELY ADJACENT TO THE PEDESTRIAN CONNECTION.
4). THE MAXIMUM ALGEBRAIC DIFFERENCE IN GRADE BETWEEN THE PEDESTRIAN CONNECTION OR MODIFIED CURB AT THE FLOW LINE AND THE PAVEMENT SHALL BE 13.3%, HOWEVER 11% IS PREFERRED.
5). LANDING AREA SHALL BE DELINEATED WITH JOINTS.
6). FOR REHABILITATION WORK, PLACE TRANSITION SLAB TO TRANSITION FROM THE NEW PEDESTRIAN CONNECTION TO THE EXISTING SIDEWALK WHEN THE EXISTING SIDEWALK HAS A NON-CONFORMING RUNNING SLOPE, CROSS SLOPE, OR WIDTH. ADJACENT CURB TAPER SHOULD MATCH THE SLOPE OF THE TRANSITION SLAB.
7). REFER TO THE DELAWARE MANUAL FOR UNIFORM TRAFFIC CONTROL DEVICES FOR DETAILS REGARDING THE LOCATION OF PEDESTRIAN PUSH BUTTONS.
8). CONSTRUCTION JOINTS ARE REQUIRED ON RAMPS AT THE INTERVAL SPECIFIED IN NOTE 6 ON DETAIL M-3, SHEET 1 OF 1. HOWEVER, EXPANSION MATERIAL SHALL NOT BE USED IN THE PEDESTRIAN CONNECTION SECTION.
9). IF THE RUNNING SLOPE IS LESS THAN 20:1 (5%) THEN THE 50:1 (2%) LANDING CAN BE OMITTED. DETECTABLE WARNING SYSTEM MUST STILL BE PLACED.
10). FOR INSTALLATIONS ON A RADIUS AND WHEN DIMENSION D IS LESS THAN 5'-0", THE DETECTABLE WARNING TRUNCATED DOMES SYSTEM SHALL BE INSTALLED AT THE INTERSECTION OF THE BACK OF THE CURB AND THE BEGINNING OF THE FULL WIDTH OF THE PEDESTRIAN ACCESS ROUTE. THE DOMES SHALL BE INSTALLED PERPENDICULAR TO THE PATH OF THE PEDESTRIAN TRAVEL AND SI THE FULL WIDTH OF THE PEDESTRIAN ACCESS ROUTE.

PEDESTRIAN CONNECTION, TYPE 1

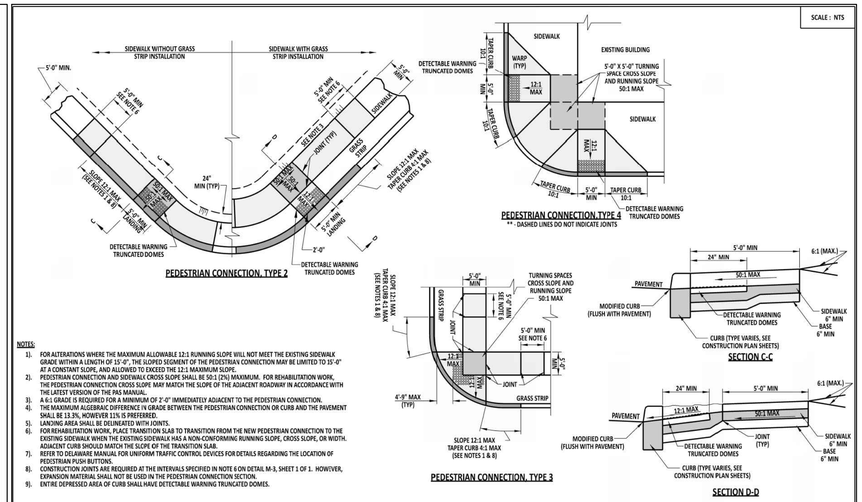
DELAWARE
DEPARTMENT OF TRANSPORTATION

PEDESTRIAN CONNECTION, TYPE 1 AND SECTIONS				APPROVED	SIGNATURE ON FILE	1/04/2019
STANDARD NO. C-2 (2018)	SHT. 1	OF	3	RECOMMENDED	SIGNATURE ON FILE	12/20/2018

SIGN POST DETAIL

NOT TO SCALE

SCALE : NTS



NOTES:
1). FOR ALTERATIONS WHERE THE MAXIMUM ALLOWABLE 12:1 RUNNING SLOPE WILL NOT MEET THE EXISTING SIDEWALK GRADE WITHIN A LENGTH OF 15'-0", THE SLOPED SEGMENT OF THE PEDESTRIAN CONNECTION MAY BE LIMITED TO 15'-0" AT A CONSTANT SLOPE, AND ALLOWED TO EXCEED THE 12:1 MAXIMUM SLOPE.
2). PEDESTRIAN CONNECTION AND SIDEWALK CROSS SLOPE SHALL BE 50:1 (2%) MAXIMUM. FOR REHABILITATION WORK, THE PEDESTRIAN CONNECTION CROSS SLOPE MAY MATCH THE SLOPE OF THE ADJACENT ROADWAY IN ACCORDANCE WITH THE LATEST VERSION OF THE PAS MANUAL.
3). A 6:1 GRADE IS REQUIRED FOR A MINIMUM OF 2'-0" IMMEDIATELY ADJACENT TO THE PEDESTRIAN CONNECTION.
4). THE MAXIMUM ALGEBRAIC DIFFERENCE IN GRADE BETWEEN THE PEDESTRIAN CONNECTION OR CURB AND THE PAVEMENT SHALL BE 13.3%, HOWEVER 11% IS PREFERRED.
5). LANDING AREA SHALL BE DELINEATED WITH JOINTS.
6). FOR REHABILITATION WORK, PLACE TRANSITION SLAB TO TRANSITION FROM THE NEW PEDESTRIAN CONNECTION TO THE EXISTING SIDEWALK WHEN THE EXISTING SIDEWALK HAS A NON-CONFORMING RUNNING SLOPE, CROSS SLOPE, OR WIDTH. ADJACENT CURB SHOULD MATCH THE SLOPE OF THE TRANSITION SLAB.
7). REFER TO DELAWARE MANUAL FOR UNIFORM TRAFFIC CONTROL DEVICES FOR DETAILS REGARDING THE LOCATION OF PEDESTRIAN PUSH BUTTONS.
8). CONSTRUCTION JOINTS ARE REQUIRED AT THE INTERVALS SPECIFIED IN NOTE 6 ON DETAIL M-3, SHEET 1 OF 1. HOWEVER, EXPANSION MATERIAL SHALL NOT BE USED IN THE PEDESTRIAN CONNECTION SECTION.
9). ENTIRE DEPRESSED AREA OF CURB SHALL HAVE DETECTABLE WARNING TRUNCATED DOMES.

PEDESTRIAN CONNECTION, TYPES 2, 3, & 4

DELAWARE
DEPARTMENT OF TRANSPORTATION

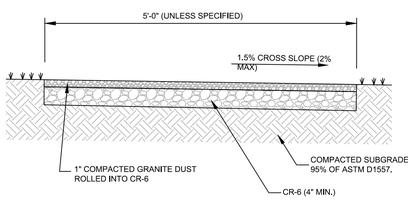
PEDESTRIAN CONNECTION, TYPES 2, 3, & 4				APPROVED	SIGNATURE ON FILE	1/04/2019
STANDARD NO. C-2 (2018)	SHT. 2	OF	3	RECOMMENDED	SIGNATURE ON FILE	12/20/2018

ROAD CONSTRUCTION NOTES:

1. SURFACE TREATMENT SHALL NOT BE APPLIED:
   1.A. AFTER NOVEMBER 1 OR PRIOR TO APRIL 1, OR
   1.B. WHEN THE TEMPERATURE IS BELOW 50 -F: OR
   1.C. ON ANY WET OR FROZEN SURFACE.
2. HOT MIX SHALL NOT BE APPLIED:
   2.A. WHEN TEMPERATURE IS BELOW 40 -F: OR
   2.B. ON ANY WET OR FROZEN SURFACE.
3. FOR ALL WOODED AREAS, A SUFFICIENT AREA BEYOND THE RIGHT-OF-WAY LINE SHALL BE CLEARED AND GRUBBED, TO ALLOW PROPER GRADING OF THE ROADWAY SWALE AND BACKSLOPES.
4. ALL DISTURBED AREAS MUST BE STABILIZED WITH 6-INCHES OF TOPSOIL, SEED AND MULCH

PEDESTRIAN CONNECTION TYPE 1 DETAIL

NOT TO SCALE



GRAVEL TRAIL

NOT TO SCALE

PEDESTRIAN CONNECTION TYPES 2, 3, & 4 DETAIL

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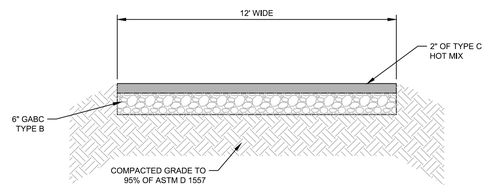
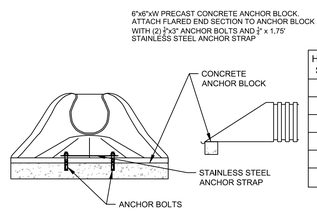


WASTEWATER TREATMENT PLANT ACCESS DRIVE

NOT TO SCALE



HDPE END SECTION	WIDTH	LENGTH
12"	2.1'	2.4'
15"	2.1'	2.4'
18"	2.7'	2.9'
24"	3.0'	3.8'
30"	4.4'	5.7'
36"	4.4'	5.7'

HDPE FLARED END SECTION WITH ANTIFLOATATION BLOCK

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CONSTRUCTION DETAILS

LINCOLN RETIREMENT COMMUNITY
TAX PARCEL NO. 330-15.00-33.01
JOHNSON ROAD (SCR 207)
CEDAR CREEK HUNDRED, SUSSEX COUNTY

ISSUE / REVISION BLOCK
11/16/21 - FIRE MARSHAL
11/24/21 - SUSSEX CONSERVATION DISTRICT
11/29/21 - DELDOT
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2/21/22 - FIRE MARSHAL
2/25/22 - DELDOT
2/28/22 - SUSSEX COUNTY P&Z

SCALE	PROJECT #	DRAWN BY
AS NOTED	CHRE1902	JDC

DRAWING NUMBER

CP-3

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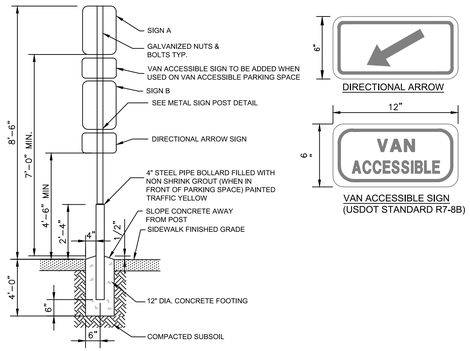
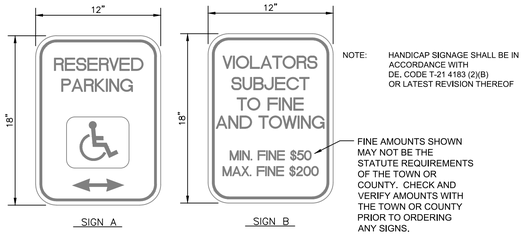


VAN ACCESSIBLE SIGN
(USDOT STANDARD R7-8B)

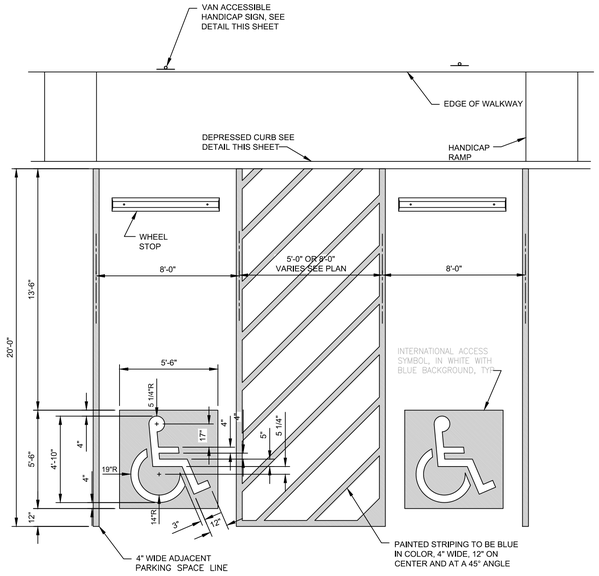


NOTE: HANDICAP SIGNAGE SHALL BE IN ACCORDANCE WITH DE. CODE T-21 4183 (2)(B) OR LATEST REVISION THEREOF

FINE AMOUNTS SHOWN MAY NOT BE THE STATUTE REQUIREMENTS OF THE TOWN OR COUNTY. CHECK AND VERIFY AMOUNTS WITH THE TOWN OR COUNTY PRIOR TO ORDERING ANY SIGNS.

HANDICAP PARKING SIGNAGE DETAIL

NOT TO SCALE



HANDICAP PARKING DETAIL

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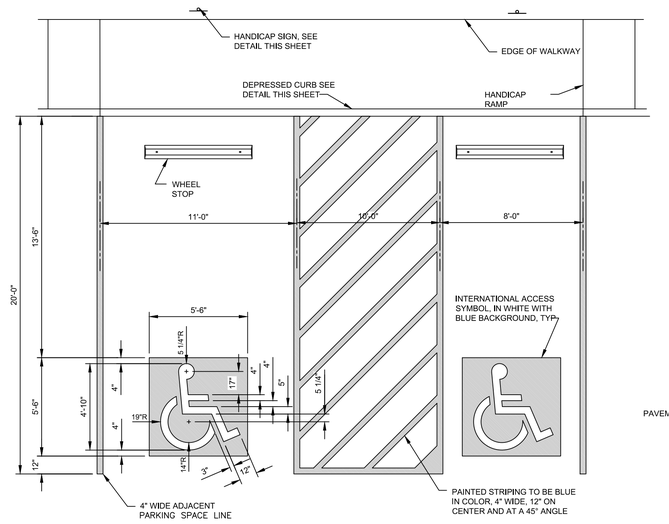
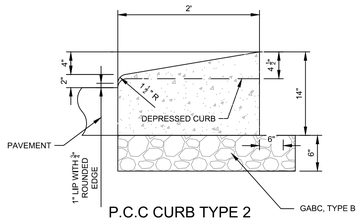


VAN ACCESSIBLE HANDICAP PARKING LAYOUT

NOT TO SCALE

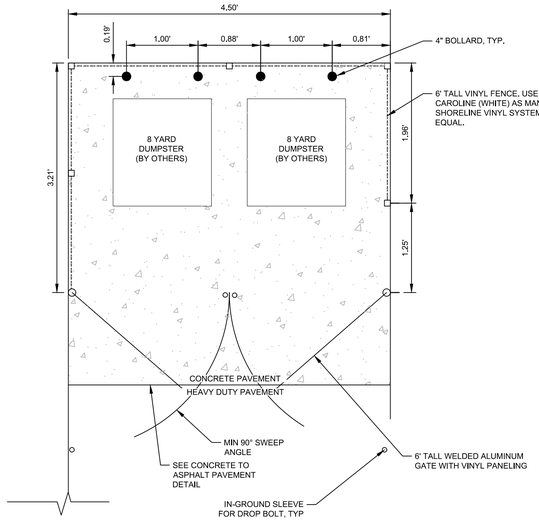


P.C.C CURB TYPE 2

NOTES:
1. PROVIDE ¾" PRE-MOLDED EXPANSION JOINTS @15'-0" MAX. SPACING.
2. TAPERED END SECTIONS TO BE USED AT ALL TERMINAL POINTS.
3. 3,000 PSI CONCRETE

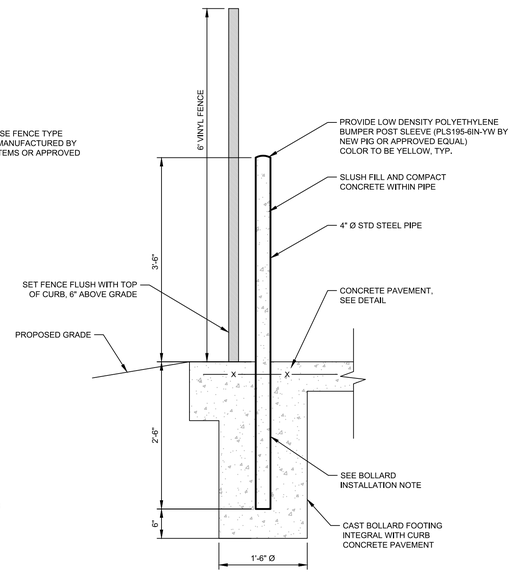
CURB DETAIL

NOT TO SCALE



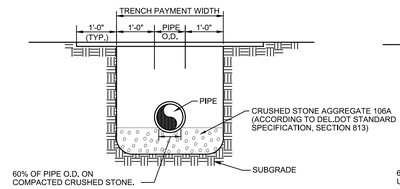
DUMPSTER DETAIL - PLAN

NOT TO SCALE

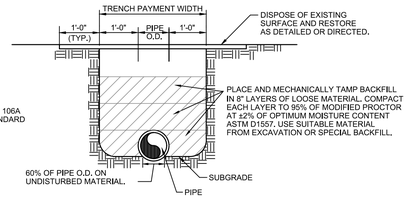


DUMPSTER DETAIL - BOLLARD

NOT TO SCALE



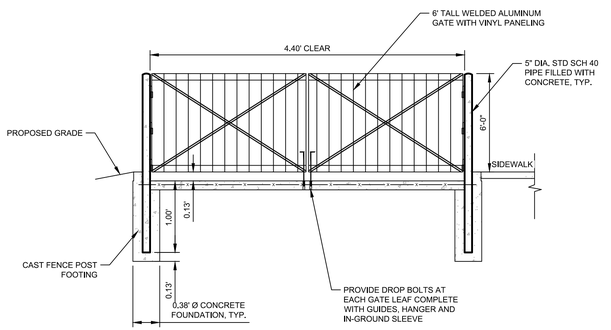
CRUSHED STONE BEDDING



TRENCH BACKFILL

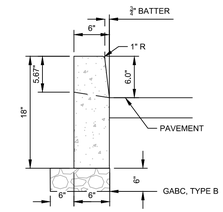
TRENCH BACKFILL & PIPE BEDDING DETAIL

NOT TO SCALE



DUMPSTER DETAIL - GATE

NOT TO SCALE



MODIFIED P.C.C
CURB TYPE 1-6

NOTES:
1. PROVIDE ¾" PRE-MOLDED EXPANSION JOINTS @15'-0" MAX. SPACING.
2. TAPERED END SECTIONS TO BE USED AT ALL TERMINAL POINTS.
3. 3,000 PSI CONCRETE

CURB DETAIL

NOT TO SCALE

LINCOLN RETIREMENT COMMUNITY

TAX PARCEL NO. 330-15.00-33.01

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CEDAR CREEK HUNDRED, SUSSEX COUNTY

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CONSTRUCTION DETAILS

ISSUE / REVISION BLOCK
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- 2/21/22 - FIRE MARSHAL
- 2/25/22 - DELDOT
- 2/28/22 - SUSSEX COUNTY P&Z

SCALE	PROJECT #	DRAWN BY
AS NOTED	CHRE1902	JDC

DRAWING NUMBER

CP-4

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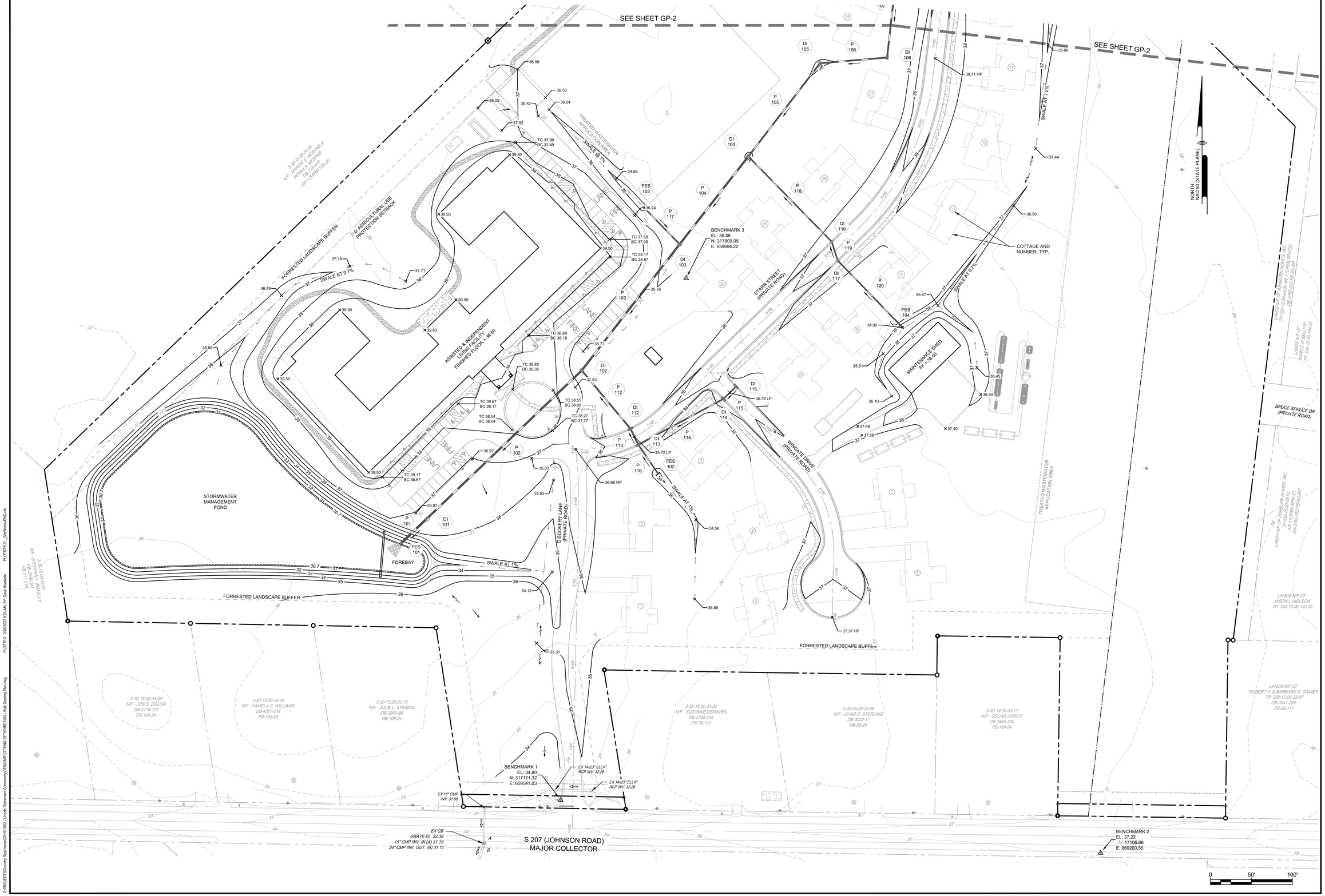

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BULK GRADING PLAN

LINCOLN RETIREMENT COMMUNITY

TAX PARCEL NO. 330-15.00-33.01

JOHNSON ROAD (SCR 207)

CEDAR CREEK HUNDRED, SUSSEX COUNTY

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SCALE	PROJECT #	DRAWN BY
1" = 50'	CHRE1902	JDC

DRAWING NUMBER

GP-1

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STORM DRAINAGE STRUCTURE SCHEDULE

LABEL	DESCRIPTION			T.G. ELEV.	INVERT IN.	INVERT IN.	INVERT IN.	INVERT OUT
	BOX	TOP UNIT	GRATE					
DI 101	48"x48"	TYPE A	TYPE 1	36.72	30.78	----	----	30.78
DI 102	48"x30"	TYPE A	TYPE 1	35.30	31.16	31.16	----	31.16
DI 103	48"x30"	TYPE A	TYPE 1	35.60	31.46	31.46	----	31.46
DI 104	48"x30"	TYPE A	TYPE 1	35.80	31.68	32.98	----	31.68
DI 105	48"x30"	TYPE A	TYPE 1	35.60	31.99	----	----	31.99
DI 106	48"x30"	TYPE A	TYPE 1	35.80	32.17	----	----	32.17
DI 107	72"x24"	TYPE S	TYPE 1	36.46	32.40	----	----	32.40
DI 108	72"x48"	TYPE S	TYPE 1	36.46	32.45	----	----	32.45
DI 109	48"x30"	TYPE S	TYPE 1	37.15	32.59	32.59	----	32.59
DI 110	72"x24"	TYPE S	TYPE 1	36.28	32.87	32.87	----	32.87
DI 111	72"x24"	TYPE S	TYPE 1	36.28	----	----	----	32.93
DI 112	72"x24"	TYPE S	TYPE 1	35.45	31.65	----	----	31.65
DI 113	72"x24"	TYPE S	TYPE 1	35.45	31.70	31.95	----	31.70
DI 114	72"x24"	TYPE S	TYPE 1	35.51	32.05	----	----	32.05
DI 115	72"x24"	TYPE S	TYPE 1	35.51	----	----	----	32.12
DI 116	34"x24"	TYPE S	TYPE 1	37.11	34.44	----	----	34.44
DI 117	34"x24"	TYPE S	TYPE 1	37.06	34.56	----	----	34.56

NOTE:
CONCRETE MATERIALS AND REINFORCEMENT, FABRICATION, FINNISH, AND INSTALLATION SHALL CONFORM TO DELDOT'S STANDARDS AND SPECIFICATIONS. ALL DRAINAGE STRUCTURES SHALL BE CONSTRUCTED PER DELDOTS STANDARDS DETAILS, LATEST EDITION.

STORM DRAINAGE PIPE SCHEDULE

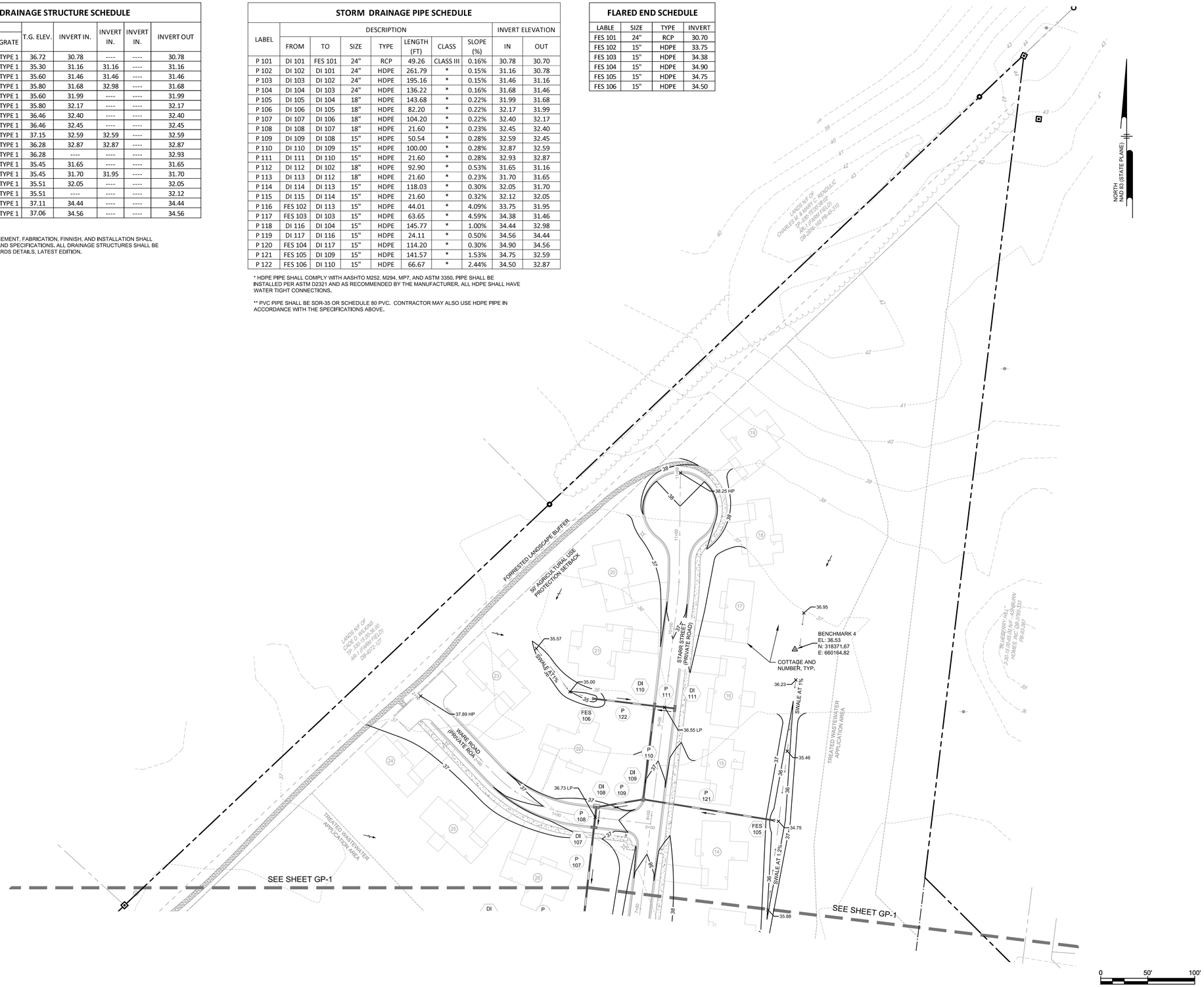
LABEL	DESCRIPTION							INVERT ELEVATION	
	FROM	TO	SIZE	TYPE	LENGTH (FT)	CLASS	SLOPE (%)	IN	OUT
P 101	DI 101	FES 101	24"	RCP	49.26	CLASS III	0.16%	30.78	30.70
P 102	DI 102	DI 101	24"	HDPE	261.79	*	0.15%	31.16	30.78
P 103	DI 103	DI 102	24"	HDPE	195.16	*	0.15%	31.46	31.16
P 104	DI 104	DI 103	24"	HDPE	136.22	*	0.16%	31.68	31.46
P 105	DI 105	DI 104	18"	HDPE	143.68	*	0.22%	31.99	31.68
P 106	DI 106	DI 105	18"	HDPE	82.20	*	0.22%	32.17	31.99
P 107	DI 107	DI 106	18"	HDPE	104.20	*	0.22%	32.40	32.17
P 108	DI 108	DI 107	18"	HDPE	21.60	*	0.23%	32.45	32.40
P 109	DI 109	DI 108	15"	HDPE	50.54	*	0.28%	32.59	32.45
P 110	DI 110	DI 109	15"	HDPE	100.00	*	0.28%	32.87	32.59
P 111	DI 111	DI 110	15"	HDPE	21.60	*	0.28%	32.93	32.87
P 112	DI 112	DI 102	18"	HDPE	92.90	*	0.53%	31.65	31.16
P 113	DI 113	DI 112	18"	HDPE	21.60	*	0.23%	31.70	31.65
P 114	DI 114	DI 113	15"	HDPE	118.03	*	0.30%	32.05	31.70
P 115	DI 115	DI 114	15"	HDPE	21.60	*	0.32%	32.12	32.05
P 116	FES 102	DI 113	15"	HDPE	44.01	*	4.09%	33.75	31.95
P 117	FES 103	DI 103	15"	HDPE	63.65	*	4.59%	34.38	31.46
P 118	DI 116	DI 104	15"	HDPE	145.77	*	1.00%	34.44	32.98
P 119	DI 117	DI 116	15"	HDPE	24.11	*	0.50%	34.56	34.44
P 120	FES 104	DI 117	15"	HDPE	114.20	*	0.30%	34.90	34.56
P 121	FES 105	DI 109	15"	HDPE	141.57	*	1.53%	34.75	32.59
P 122	FES 106	DI 110	15"	HDPE	66.67	*	2.44%	34.50	32.87

* HDPE PIPE SHALL COMPLY WITH AASHTO M252, M294, MP7, AND ASTM 3350. PIPE SHALL BE INSTALLED PER ASTM D2321 AND AS RECOMMENDED BY THE MANUFACTURER. ALL HDPE SHALL HAVE WATER TIGHT CONNECTIONS.

** PVC PIPE SHALL BE SDR-35 OR SCHEDULE 80 PVC. CONTRACTOR MAY ALSO USE HDPE PIPE IN ACCORDANCE WITH THE SPECIFICATIONS ABOVE.

FLARED END SCHEDULE

LABLE	SIZE	TYPE	INVERT
FES 101	24"	RCP	30.70
FES 102	15"	HDPE	33.75
FES 103	15"	HDPE	34.38
FES 104	15"	HDPE	34.90
FES 105	15"	HDPE	34.75
FES 106	15"	HDPE	34.50



SITEWORKS ENGINEERING
PO BOX 2 | 19 COMMERCE ST, HARRINGTON, DE 19952 Phone: (302) 841-7901

BULK GRADING PLAN

LINCOLN RETIREMENT COMMUNITY

TAX PARCEL NO. 330-15.00-33.01
JOHNSON ROAD (SCR 207)
CEDAR CREEK HUNDRED, SUSSEX COUNTY

ISSUE / REVISION BLOCK

11/16/21 - FIRE MARSHAL

11/24/21 - SUSSEX CONSERVATION DISTRICT

11/29/21 - DELDOT

11/29/21 - SUSSEX COUNTY P&Z

2/21/22 - FIRE MARSHAL

2/25/22 - DELDOT

2/28/22 - SUSSEX COUNTY P&Z

SCALE	PROJECT #	DRAWN BY
1" = 50'	CHRE1902	JDC

DRAWING NUMBER

GP-2

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Z:\PROJECTS\County Rest Home\CHRE1902 - Lincoln Retirement Community\DESIGN\PLOTENG SET\CHRE1902 - Bulk Grading Plan.dwg PLOTTED: 2/28/2022 2:23 AM BY: Dave Heutmaik PLOTSTYLE: _SiteWorks-ENG.ctb

OFFICE OF THE STATE FIRE MARSHAL
Technical Services

22705 Park Avenue
Georgetown, DE 19947

SFMO PERMIT

Plan Review Number: 2021-04-207812-MJS-01
Status: Approved as Submitted

Tax Parcel Number: 234-29.00-42.00
Date: 08/10/2021

Project

Baylis Clubhouse

Baylis Estates

Mount Joy Road
Millsboro DE 19966

Scope of Project

Number of Stories:
Square Footage:
Construction Class:
Fire District: 80 - Indian River Volunteer Fire Co., Inc.

Occupant Load Inside:
Occupancy Code: 9625

Applicant

Jena Cooper
18958 Coastal Highway
Rehoboth, DE 19971

This office has reviewed the plans and specifications of the above described project for compliance with the Delaware State Fire Prevention Regulations, in effect as of the date of this review.

A Review Status of "Approved as Submitted" or "Not Approved as Submitted" must comply with the provisions of the attached Plan Review Comments.

Any Conditional Approval does not relieve the Applicant, Owner, Engineer, Contractor, nor their representatives from their responsibility to comply with the plan review comments and the applicable provisions of the Delaware State Fire Prevention Regulations in the construction, installation and/or completion of the project as reviewed by this Agency.

A final inspection is required.

This Plan Review Project was prepared by:

Jefferson Cerri
Fire Protection Specialist II

FIRE PROTECTION PLAN REVIEW COMMENTS

Plan Review Number: 2021-04-207812-MJS-01
Status: Approved as Submitted
Tax Parcel Number: 234-29.00-42.00
Date: 08/10/2021

PROJECT COMMENTS

1002 A	**This project has been reviewed under the provisions of the Delaware State Fire Prevention Regulations (DSFPR) UPDATED March 11, 2016. The current Delaware State Fire Prevention Regulations are available on our website at www.statefiremarshal.delaware.gov. These plans were not reviewed for compliance with the Americans with Disabilities Act (ADA). These plans were not reviewed for compliance with any Local, Municipal, nor County Building Codes.**
2447 A	**Outside open air assembly areas (decks, patio, etc.) where egress from the area can be accomplished without re entering the building will get an occupant load for just the outside open air assembly area. The occupant load is for the outside open airassembly area ONLY and is separate from the building's posted occupant load. Any alterations to the outside open air assembly area shall require formal plan submittal to the DE State Fire Marshal's Office.**
OCCUPANT LOAD CALCULATED FOR POOL AND POOL DECK = 135	
1180 A	**This report reflects site review only. It is the responsibility of the applicant and owner to forward copies of this review to any other agency as required by those agencies.**
1190 A	**Separate plan submittal is required for the building(s) proposed for this project.**
FOR CLUBHOUSE	
2500 A	**A final inspection is required for this project prior to occupancy (DSFPR Part I, Section 4-7). Contact this Agency to schedule this inspection. Please have the plan review number available. A MINIMUM OF FIVE (5) WORKING DAYS NOTICE IS REQUIRED.**
2710 A	**The following items will be field verified by this Agency at the time of final inspection:**
2040 A	**Any door in a required means of egress from an area having an occupant load of 100 or more persons may be provided with a latch or lock only if it is panic hardware or fire exit hardware complying with NFPA 101, Section 12.2.2.2.3 and**

	section 7.2.1.7.1
FOR REQUIRED GATES FROM POOL DECK	
1501 A	**If there are any questions about the above referenced comments please feel free to contact the Fire Protection Specialist who reviewed this project. Please have the plan review number available when calling about a specific project. When changes orrevisions to the plans occur, plans are required to be submitted, reviewed, and approved.**

STANDARD DRAWING LEGEND

FOR ENTIRE PLAN SET
(NOT TO SCALE)

EXISTING NOTE	TYPICAL NOTE TEXT	PROPOSED NOTE
	ONSITE PROPERTY LINE / R.O.W. LINE	
	NEIGHBORING PROPERTY LINE / INTERIOR PARCEL LINE	
	EASEMENT LINE	
	SETBACK LINE	
	CONCRETE CURB & GUTTER	CURB AND GUTTER; SPILL CURB / TRANSITION CURB; DEPRESSED CURB AND GUTTER
	UTILITY POLE WITH LIGHT	
	POLE LIGHT	
	TRAFFIC LIGHT	
	UTILITY POLE	
	TYPICAL LIGHT	
	ACORN LIGHT	
	TYPICAL SIGN	
	PARKING COUNTS	X
120 / 125	CONTOUR LINE	120 / 125
SPOT EL.	SPOT ELEVATIONS	TC 516.00 / TC 516.00 / BC 515.50
	SANITARY LABEL	SAN #
	STORM LABEL	STM #
	SANITARY SEWER LATERAL	SL
	UNDERGROUND WATER LINE	W
	UNDERGROUND ELECTRIC LINE	E
	UNDERGROUND GAS LINE	G
	OVERHEAD WIRE	OH
	UNDERGROUND TELEPHONE LINE	T
	UNDERGROUND CABLE LINE	C
	STORM SEWER	
	SANITARY SEWER MAIN	S
	HYDRANT	
	SANITARY MANHOLE	(S)
	STORM MANHOLE	(D)
	WATER METER	
	WATER VALVE	
	GAS VALVE	
	GAS METER	
	TYPICAL END SECTION	
	HEADWALL OR ENDWALL	
	YARD INLET	
	CURB INLET	
	CLEAN OUT	O
	ELECTRIC MANHOLE	(E)
	TELEPHONE MANHOLE	(T)
	ELECTRIC BOX	EB
	ELECTRIC PEDESTAL	EP
	MONITORING WELL	
	TEST PIT	
	BENCHMARK	

REFERENCE APPROVED PHASE 1 PLAN PREPARED BY COTTON ENGINEERING AND AERIAL TOPOGRAPHIC SURVEY.

FINAL SITE PLAN

FOR

BAYLIS ESTATES CLUBHOUSE

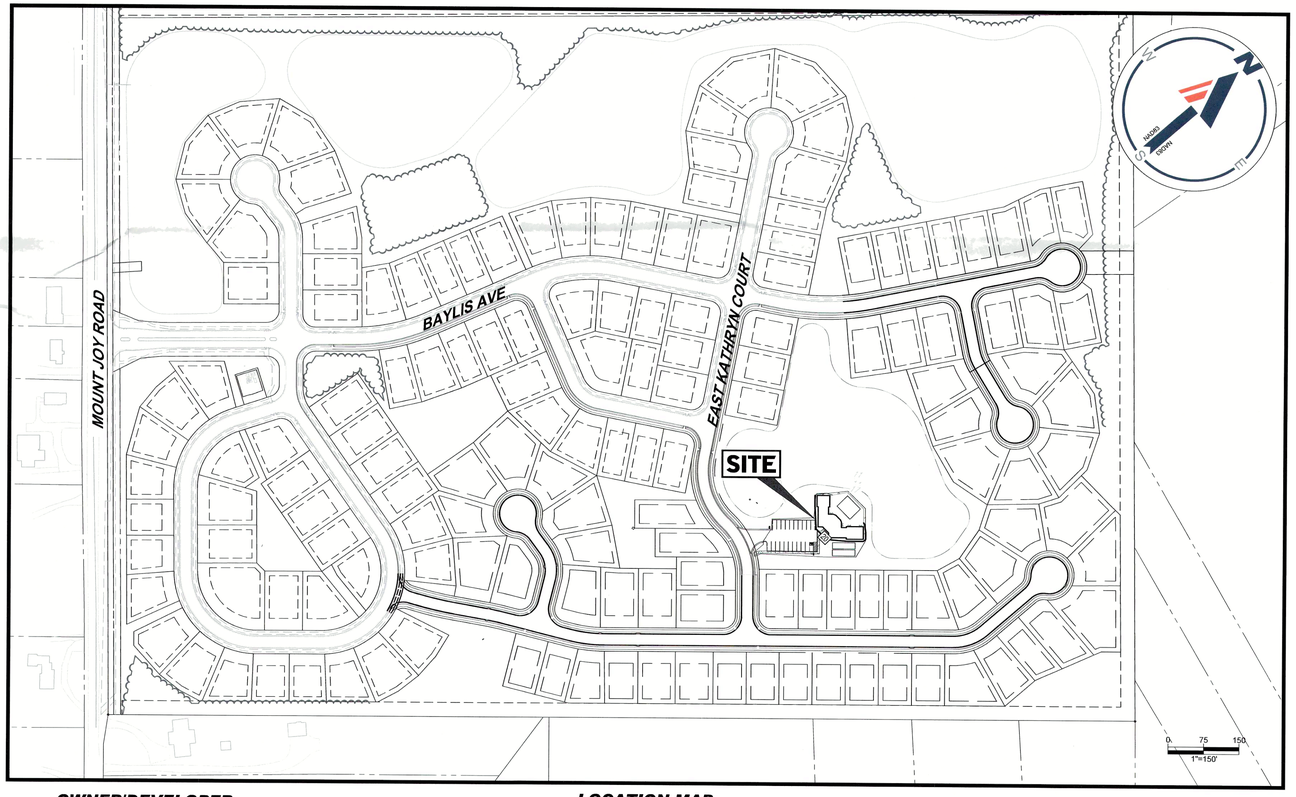
PROPOSED

RESIDENTIAL DEVELOPMENT

LOCATION OF SITE
MOUNT JOY RD
SUSSEX COUNTY, DELAWARE
INDIAN RIVER HUNDRED
TAX MAP 234-29.00-42.00

SHEET INDEX

SHEET TITLE	SHEET NUMBER
COVER SHEET	1
FINAL SITE PLAN	2



LOCATION MAP

OWNER/DEVELOPER

BAYLIS ESTATES INVESTMENTS, LLC
16255 SUSSEX HIGHWAY
BRIDGEVILLE, DE 19933
CONTACT: KEVIN BROZYNA
(302) 337-0400

CERTIFICATION OF OWNERSHIP

I HEREBY CERTIFY THAT I AM THE OWNER/DEVELOPER OF THE PROPERTY SHOWN ON THIS PLAN, THAT THIS PLAN WAS MADE AT MY DIRECTION, THAT I ACKNOWLEDGE THE SAME TO BE MY ACT, AND DESIRE THE PLAN TO BE DEVELOPED AS SHOWN IN ACCORDANCE WITH ALL APPLICABLE LAWS AND REGULATIONS.

ROB LISLE / KEVIN BROZYNA — DATE
BAYLIS ESTATES INVESTMENTS, LLC
16255 SUSSEX HIGHWAY
BRIDGEVILLE, DE 19933
P: (443) 532-5222

PREPARED BY

BOHLER

CONTACT: STEVEN T. FORTUNATO, P.E.

APPLICANT

BOHLER
18958 COASTAL HWY, SUITE D
REHOBOTH BEACH, DE 19971
(302) 644-1155

CERTIFICATION OF ACCURACY (ENGINEER)

I, STEVEN T. FORTUNATO, P.E., HEREBY CERTIFY THAT I AM A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF DELAWARE AND THAT THE INFORMATION SHOWN HEREON HAS BEEN PREPARED UNDER MY SUPERVISION AND TO THE BEST OF MY KNOWLEDGE AND BELIEF REPRESENTS GOOD ENGINEERING PRACTICES AS REQUIRED BY THE APPLICABLE LAWS OF THE STATE OF DELAWARE.

STEVEN T. FORTUNATO, P.E. — DATE
BOHLER
18958 COASTAL HWY, SUITE D
REHOBOTH BEACH, DE 19971
P: (302)644-1155 / F: (302)703-3173

APPROVED BY SUSSEX COUNTY PLANNING AND ZONING

PLANNING AND ZONING COMMISSION — DATE

DEVELOPMENT STANDARDS	SINGLE FAMILY (REQUIRED)	SINGLE FAMILY (PROVIDED)
TRACT AREA:		75.48± AC
LOT AREA PER DWELLING UNIT:	7,500 SF	MIN 7,500 SF
STREET FRONTAGE:	30 FT	MIN 30 FT
LOT WIDTH AT FRONT BUILDING LINE:	60 FT	MIN 60 FT
MAX BUILDING HEIGHT:	42 FT	<42 FT
SETBACKS		
FRONT YARD:	25 Ft	25 FT
SIDE YARD (ONE / SUM OF BOTH):	10 FT	10 FT
REAR YARD:	10 Ft	10 FT

PROJECT NOTES

1. OWNER/DEVELOPER:
   BAYLIS ESTATES INVESTMENTS, LLC
   C/O ROB LISLE
   16255 SUSSEX HIGHWAY
   BRIDGEVILLE, DE 19933
   (302) 337-0400
2. ENGINEER:
   BOHLER
   18958 COASTAL HWY, SUITE D
   REHOBOTH BEACH, DE 19971
   (302) 644-1155
3. TAX MAP PARCEL NO.: 234-29.00-42.00
4. EXISTING ZONING: AR-1 (AGRICULTURAL RESIDENTIAL)
5. PROPOSED ZONING: AR-1 (AGRICULTURAL RESIDENTIAL)
6. TOTAL SITE AREA: 55.04± AC
7. DENSITY:
   PERMITTED: 3,287,989 SF/21,780 SF/LOT = 150 LOTS
   PROPOSED: 150 LOTS TOTAL
8. INVESTMENT AREA: LEVEL 2 & 3
9. SITE AREA:
   TOTAL SITE: 75.48 AC
   PHASE 1: 55.04± AC
   PHASE 2
   R.O.W.: 2.60± AC
   LOTS: 11.50± AC
   OPEN AREA: 2.3± AC
   BUFFER AREA: 1.23± AC
   TOTAL AREA: 17.63± AC
   FORESTED AREA
   EXISTING: 75.48± AC
   REMAINING: 8.79± AC
   REMOVED: 66.69± AC
   *NOTE: REMOVAL OF HEALTHY, MATURE TREES SHALL BE LIMITED AND SCENIC VIEWS THAT CAN BE SEEN FROM WITHIN THE TRACT SHOULD BE PRESERVED TO THE GREATEST EXTENT POSSIBLE.
   OPEN AREA
   PHASE 1: 28.29± AC
   PHASE 2: 2.30± AC
   TOTAL: 30.59± AC (40.5%)
10. DATUM:
    HORIZONTAL: NAD 83 (DELAWARE STATE PLANE GRID)
    VERTICAL: NAVD 88
    (REFER TO APPROVED COTTON ENGINEERING, LLC. PLANS REVISED 04/20/2020 FOR MORE INFORMATION)
11. EXISTING GROSS ACREAGE: 3,287,989 SF (75.48 AC)
    PROPOSED GROSS ACREAGE: 2,397,542 SF (55.04 AC)
12. THIS PROPERTY IS LOCATED IN OTHER AREAS ZONE X (AREAS DETERMINED TO BE OUTSIDE THE .02% CHANCE ANNUAL FLOODPLAIN)PER MAP ENTITLED "NATIONAL FLOOD INSURANCE PROGRAM, FIRM, FLOOD INSURANCE RATE MAP, SUSSEX COUNTY, DELAWARE, AND INCORPORATED AREAS, PANEL 477 OF 660", COMMUNITY PANEL NUMBER 10005C0477K, REVISED: MARCH 16, 2015.
13. ACCESS TO THE SITE SHALL BE FROM MOUNT JOY RD VIA ONE EXISTING FULL MOVEMENT ENTRANCE.
14. ALL FIRE LANES, FIRE HYDRANTS, FIRE DEPARTMENT CONNECTIONS, SPRINKLERS, STANDPIPE CONNECTIONS, AND FIRE EXITS SHALL BE MARKED AND/OR PROTECTED IN ACCORDANCE WITH THE DELAWARE STATE FIRE REGULATION.
15. THE PROPOSED CLUBHOUSE IS TO BE WOOD FRAMED CONSTRUCTION AND NOT PROTECTED BY AUTOMATIC SPRINKLERS. THE INTENDED USE IS FOR ASSEMBLY.
16. WATER SUPPLY: TIDEWATER. SUBJECT TO THE APPROVAL OF THE DELAWARE STATE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL, THE DELAWARE STATE DIVISION OF PUBLIC HEALTH AND TIDEWATER UTILITIES, INC.
17. SANITARY SEWER: SUSSEX COUNTY. SUBJECT TO THE APPROVAL OF THE DELAWARE STATE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL AND SUSSEX COUNTY PUBLIC WORKS.
18. SUBDIVISION STREETS SHALL BE PRIVATELY OWNED AND MAINTAINED.
19. REFERENCE DELDOT RECORD PLANS FOR APPROVED SIGHT DISTANCE AND SITE ENTRANCE INFORMATION.
20. UTILITY ELEMENTS TO BE RELOCATED/REPLACED TO BE DONE SO IN ACCORDANCE WITH PROVIDER SPECIFICATIONS, BY GENERAL CONTRACTOR. GENERAL CONTRACTOR TO COORDINATE SAME PRIOR TO PROJECT BIDDING AND CONSTRUCTION.
21. THIS PLAN IS BASED ON DESIGN ELEMENTS SHOWN ON A PREVIOUSLY APPROVED PLAN PREPARED BY COTTON ENGINEERING, LLC, DATED REVISED 04/20/2020. THIS PLAN IS FOR PERMITTING PURPOSE ONLY. SOME INFORMATION SHOWN ON THESE PLANS IS PROVIDED FOR REFERENCE ONLY. REFER TO THE PREVIOUSLY APPROVED PLANS FOR MORE INFORMATION.
22. COUNTY PROJECT REFERENCE NUMBER: 2021-13
23. THIS PROJECT LIES WITHIN THE COSTAL AREA.
24. THIS PROJECT LIES WITHIN AN AREA OF "POOR" AND "FAIR" GROUNDWATER RECHARGE POTENTIAL.
25. THIS PROJECT DOES NOT LIE WITHIN A WELLHEAD PROTECTION AREA.
26. ACCORDING TO THE NATIONAL WETLANDS INVENTORY MAPPING, THERE ARE NO WETLANDS PRESENT ON THIS SITE.
27. THE HOMEOWNERS ASSOCIATION WILL BE REQUIRED TO MAINTAIN THE FORESTED/PLANTING BUFFER AND OPEN SPACE AND THE SPECIFICS WILL BE SPELLED OUT IN THE HOMEOWNERS ASSOCIATION DOCUMENTS.
28. DEED RESTRICTIONS SHALL APPLY PER A SEPARATE AGREEMENT PREPARED BY THE DEVELOPER.
29. CLUBHOUSE PARKING

TYPE OF BUSINESS:	COMMERCIAL
PARKING SPACES REQUIRED:	1 SPACE / 200 SF FLOOR AREA 4,100 SF / 200 SF = 21 SPACES
PARKING SPACES PROVIDED:	21 SPACES (INCLUDING 1 ADA VAN ACCESSIBLE SPACE)

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

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REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY

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PROJECT No.:	DE190077
DRAWN BY:	JSW
CHECKED BY:	STF
DATE:	2/12/21
CAD I.D.:	SDP - 0

PROJECT:

FINAL SITE PLAN

FOR

BAYLIS ESTATES CLUBHOUSE

PROPOSED RESIDENTIAL DEVELOPMENT

INDIAN RIVER HUNDRED
MOUNT JOY ROAD
SUSSEX COUNTY, DE
TAX MAP: 234-29.00-42.00

BOHLER
18958 COASTAL HWY, SUITE D
REHOBOTH BEACH, DE 19971
Phone: (302) 644-1155
Fax: (302) 703-3173
BohlerEngineering.com

STEVEN T. FORTUNATO — No.19519 — PROFESSIONAL ENGINEER — DELAWARE — 8/19/21

SHEET TITLE:

COVER SHEET

SHEET NUMBER: 1 OF 2

ORG. DATE - 07/21/21

Aug 18, 2021
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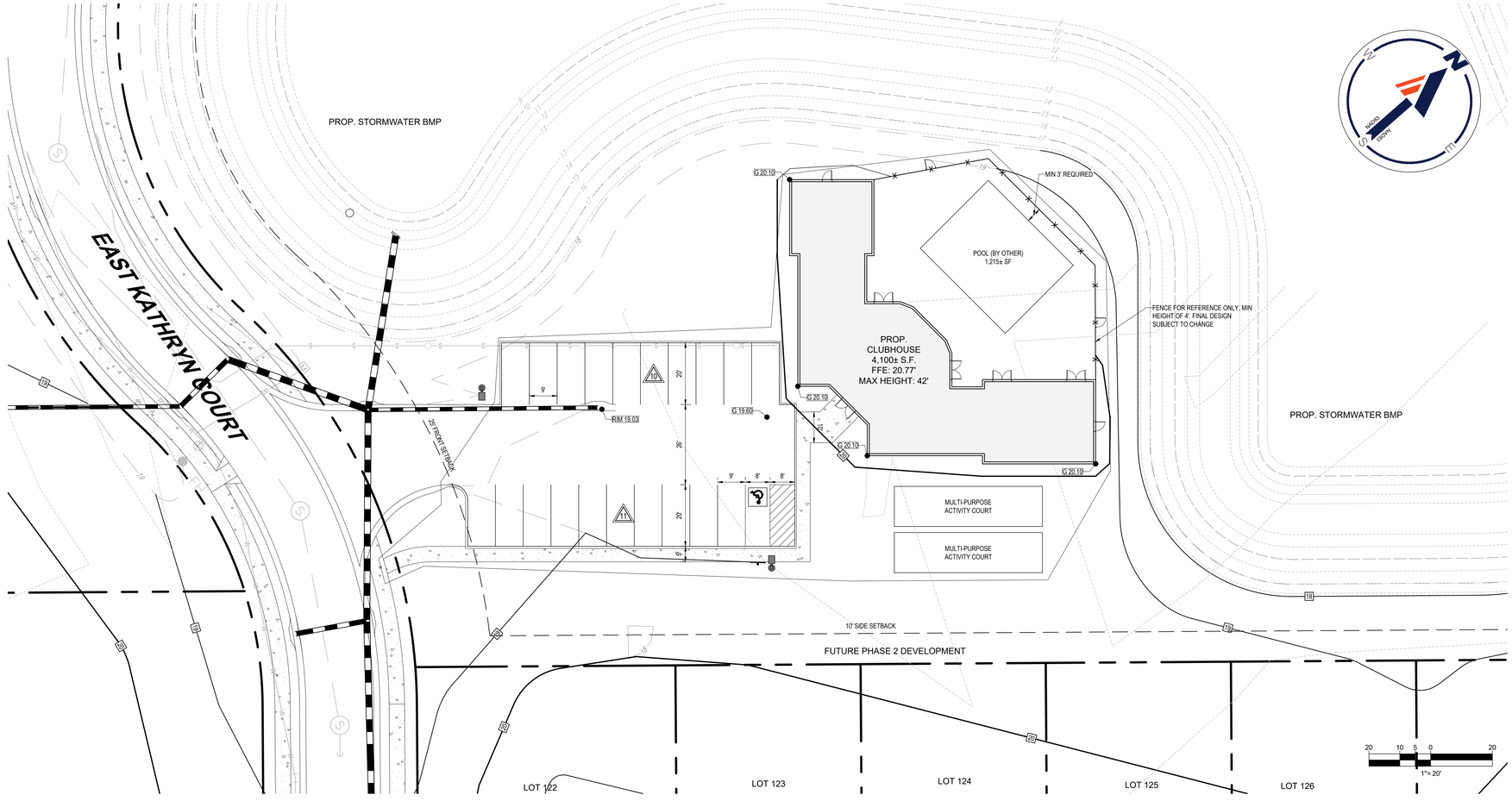
BR



NOTES

1. ALL GATES AROUND POOL TO BE ARCHITECTURAL SAFETY GATES WITH REQUIRED PANIC OR FIRE EXIT HARDWARE.
2. SITE LIGHTING SHOWN FOR REFERENCE ONLY. DEVELOPER TO COORDINATE WITH UTILITY PROVIDER FOR LOCATION AND DESIGN.

BOHLER

SITE CIVIL AND CONSULTING ENGINEERING
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PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
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PERMITTING SERVICES
TRANSPORTATION SERVICES

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REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY

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PROJECT No.:	DE190077
DRAWN BY:	JSW
CHECKED BY:	STF
DATE:	07/23/21
CAD I.D.:	0

PROJECT:

FINAL SITE PLAN

FOR

BAYLIS ESTATES CLUBHOUSE

PROPOSED RESIDENTIAL DEVELOPMENT

INDIAN RIVER HUNDRED
MOUNT JOY ROAD
SUSSEX COUNTY, DE
TAX MAP: 234-29.00-42.00

BOHLER

18958 COASTAL HWY, SUITE D
REHOBOTH BEACH, DE 19971
Phone: (302) 644-1155
Fax: (302) 703-3173
BohlerEngineering.com

STEVEN T. FORTUNATO — LICENSED — No.19519 — PROFESSIONAL ENGINEER — DELAWARE LICENSE No. 19519 — 8/18/21 — DELAWARE PROFESSIONAL ENGINEER

SHEET TITLE:

FINAL SITE PLAN

SHEET NUMBER:

2
OF 2

ORG. DATE - 07/23/21

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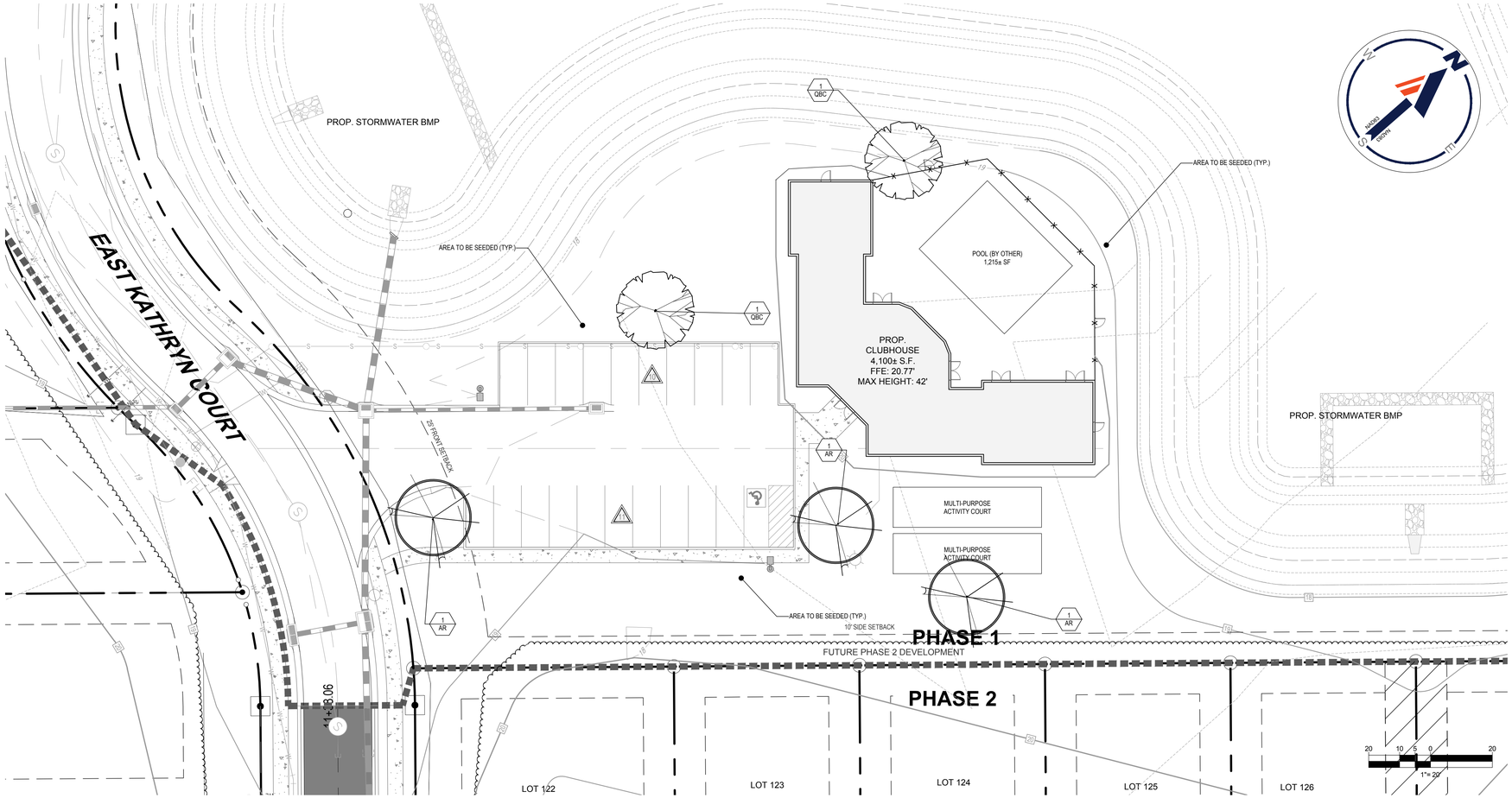

LANDSCAPE SCHEDULE

KEY	QTY.	BOTANICAL NAME	COMMON NAME	CAL. / HT.	CONT.
SHADE TREES					
AR	3	ACER RUBRUM	RED MAPLE	2 1/2-3" CAL. / 12-14'	B+B
QBC	2	QUERCUS BICOLOR	SWAMP WHITE OAK	2 1/2-3" CAL. / 12-14'	B+B
SUBTOTAL:	5				

NOTE: IF ANY DISCREPANCIES OCCUR BETWEEN AMOUNTS SHOWN IN THE PLAN AND THE PLANT LIST, THE PLAN SHALL DICTATE.

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SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

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PROJECT No.:	DE190077
DRAWN BY:	JSW
CHECKED BY:	STF
DATE:	07/23/21
CAD I.D.:	0

PROJECT:

FINAL SITE PLAN

FOR

BAYLIS ESTATES
CLUBHOUSE

PROPOSED RESIDENTIAL DEVELOPMENT

INDIAN RIVER HUNDRED
MOUNT JOY ROAD
SUSSEX COUNTY, DE
TAX MAP: 234-29.00-42.00

BOHLER

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E.R. McWILLIAMS
08/19/2021
REGISTERED LANDSCAPE ARCHITECT
STATE OF DELAWARE REGISTERED LANDSCAPE ARCHITECT

SHEET TITLE:

LANDSCAPE PLAN

SHEET NUMBER:

3
OF 2

ORG. DATE - 07/23/21

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LANDSCAPE SPECIFICATIONS

1. SCOPE OF WORK:
THE LANDSCAPE CONTRACTOR SHALL BE REQUIRED TO PERFORM ALL CLEARING, FINISHED GRADING, SOIL PREPARATION, PERMANENT SEEDING OR SODDING, PLANTING AND MULCHING INCLUDING ALL LABOR, MATERIALS, TOOLS AND EQUIPMENT NECESSARY FOR THE COMPLETION OF THIS PROJECT, UNLESS OTHERWISE CONTRACTED BY THE GENERAL CONTRACTOR.

2. MATERIALS
A. GENERAL - ALL HARDSCAPE MATERIALS SHALL MEET OR EXCEED SPECIFICATIONS AS OUTLINED IN THE STATE DEPARTMENT OF TRANSPORTATION'S SPECIFICATIONS.

B. TOPSOIL - NATURAL, FRIABLE, LOAMY SILT SOIL HAVING AN ORGANIC CONTENT NOT LESS THAN 5%, A PH RANGE BETWEEN 4.5-7.0. IT SHALL BE FREE OF DEBRIS, ROCKS LARGER THAN ONE INCH (1"), WOOD, ROOTS, VEGETABLE MATTER AND CLAY CLODS.

C. LAWN - ALL DISTURBED AREAS ARE TO BE TREATED WITH A MINIMUM SIX INCH (6") THICK LAYER OF TOPSOIL, OR AS DIRECTED BY THE LOCAL ORDINANCE OR CLIENT, AND SEEDED OR SODDED IN ACCORDANCE WITH THE PERMANENT STABILIZATION METHODS INDICATED WITHIN THE SOIL EROSION AND SEDIMENT CONTROL NOTES.
1.1. LAWN SEED MIXTURE SHALL BE FRESH, CLEAN NEW CROP SEED.
1.2. SOD SHALL BE STRONGLY ROOTED, WEED AND DISEASE/PEST FREE WITH A UNIFORM THICKNESS.
1.3. SODDING WILL BE ALLOWED ON SLOPES GREATER THAN 4:1 SHALL BE PEGGED TO HOLD SOD IN PLACE.

D. MULCH - THE MULCH AROUND THE PERIMETER OF THE BUILDING SHALL BE A 3" LAYER OF DOUBLE SHREDDED BLACK CEDAR MULCH ONLY. ALL OTHER AREAS SHALL BE MULCHED WITH A 3" LAYER OF DOUBLE SHREDDED DARK BROWN HARDWOOD BARK MULCH, UNLESS OTHERWISE STATED ON THE LANDSCAPE PLAN.

E. FERTILIZER
1.1. FERTILIZER SHALL BE DELIVERED TO THE SITE MIXED AS SPECIFIED IN THE ORIGINAL UNOPENED STANDARD BAGS SHOWING WEIGHT, ANALYSIS AND NAME OF MANUFACTURER. FERTILIZER SHALL BE STORED IN A WEATHERPROOF PLACE SO THAT IT CAN BE KEPT DRY PRIOR TO USE.
1.2. FOR THE PURPOSE OF BIDDING, ASSUME THAT FERTILIZER SHALL BE 10% NITROGEN, 6% PHOSPHORUS AND 4% POTASSIUM BY WEIGHT. A FERTILIZER SHOULD NOT BE SELECTED WITHOUT A SOIL TEST PERFORMED BY A CERTIFIED SOIL LABORATORY.

F. PLANT MATERIAL
1.1. ALL PLANTS SHALL IN ALL CASES CONFORM TO THE REQUIREMENTS OF THE "AMERICAN STANDARD FOR NURSERY STOCK" (ANSI Z60.1), LATEST EDITION, AS PUBLISHED BY THE AMERICAN NURSERY & LANDSCAPE ASSOCIATION.
1.2. IN ALL CASES, BOTANICAL NAMES SHALL TAKE PRECEDENCE OVER COMMON NAMES FOR ANY AND ALL PLANT MATERIAL.
1.3. PLANTS SHALL BE LEGIBLY TAGGED WITH THE PROPER NAME AND SIZE. TAGS ARE TO REMAIN ON AT LEAST ONE PLANT OF EACH SPECIES FOR VERIFICATION PURPOSES DURING THE FINAL INSPECTION.
1.4. TREES WITH ABRASION OF THE BARK, SUN SCALDS, DISFIGURATION OR FRESH CUTS OF LIMBS OVER 1¼", WHICH HAVE NOT BEEN COMPLETELY CALLUSED, SHALL BE REJECTED.PLANTS SHALL NOT BE BOUND WITH WIRE OR ROPE AT ANY TIME SO AS TO DAMAGE THE BARK OR BREAK BRANCHES.
1.5. ALL PLANTS SHALL BE TYPICAL OF THEIR SPECIES OR VARIETY AND SHALL HAVE A NORMAL HABIT OF GROWTH: WELL DEVELOPED BRANCHES, DENSELY FOLIATED, VIGOROUS ROOT SYSTEMS AND BE FREE OF DISEASE, INSECTS, PESTS, EGGS OR LARVAE.
1.6. CALIPER MEASUREMENTS OF NURSERY GROWN TREES SHALL BE TAKEN AT A POINT ON THE TRUNK SIX INCHES (6") ABOVE THE NATURAL GRADE FOR TREES UP TO AND INCLUDING A FOUR INCH (4") CALIPER SIZE. IF THE CALIPER AT SIX INCHES (6") ABOVE THE GROUND EXCEEDS FOUR INCHES (4") IN CALIPER, THE CALIPER SHOULD BE MEASURED AT A POINT 12" ABOVE THE NATURAL GRADE.
1.7. SHRUBS SHALL BE MEASURED TO THE AVERAGE HEIGHT OR SPREAD OF THE SHRUB, AND NOT TO THE LONGEST BRANCH.
1.8. TREES AND SHRUBS SHALL BE HANDLED WITH CARE BY THE ROOT BALL.

3. GENERAL WORK PROCEDURES
A. CONTRACTOR TO UTILIZE WORKMANLIKE INDUSTRY STANDARDS IN PERFORMING ALL LANDSCAPE CONSTRUCTION. THE SITE IS TO BE LEFT IN A CLEAN STATE AT THE END OF EACH WORKDAY. ALL DEBRIS, MATERIALS AND TOOLS SHALL BE PROPERLY STORED, STOCKPILED OR DISPOSED OF.

B. WASTE MATERIALS AND DEBRIS SHALL BE COMPLETELY DISPOSED OF AT THE CONTRACTOR'S EXPENSE. DEBRIS SHALL NOT BE BURIED, INCLUDING ORGANIC MATERIALS, BUT SHALL BE REMOVED COMPLETELY FROM THE SITE.

4. SITE PREPARATIONS
A. BEFORE AND DURING PRELIMINARY GRADING AND FINISHED GRADING, ALL WEEDS AND GRASSES SHALL BE DUG OUT BY THE ROOTS AND DISPOSED OF IN ACCORDANCE WITH GENERAL WORK PROCEDURES OUTLINED HEREIN.

B. ALL EXISTING TREES TO REMAIN SHALL BE PRUNED TO REMOVE ANY DAMAGED BRANCHES. THE ENTIRE LIMB OF ANY DAMAGED BRANCH SHALL BE CUT OFF AT THE TRUNK. CONTRACTOR SHALL ENSURE THAT CUTS ARE SMOOTH AND STRAIGHT. ANY EXPOSED ROOTS SHALL BE CUT BACK WITH CLEAN, SHARP TOOLS AND TOPSOIL SHALL BE PLACED AROUND THE REMAINDER OF THE ROOTS. EXISTING TREES SHALL BE MONITORED ON A REGULAR BASIS FOR ADDITIONAL ROOT OR BRANCH DAMAGE AS A RESULT OF CONSTRUCTION. ROOTS SHALL NOT BE LEFT EXPOSED FOR MORE THAN ONE (1) DAY. CONTRACTOR SHALL WATER EXISTING TREES AS NEEDED TO PREVENT SHOCK OR DECLINE.

C. CONTRACTOR SHALL ARRANGE TO HAVE A UTILITY STAKE-OUT TO LOCATE ALL UNDERGROUND UTILITIES PRIOR TO INSTALLATION OF ANY LANDSCAPE MATERIAL. UTILITY COMPANIES SHALL BE CONTACTED THREE (3) DAYS PRIOR TO THE BEGINNING OF WORK.

5. TREE PROTECTION
A. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING TREES TO REMAIN. A TREE PROTECTION ZONE SHALL BE ESTABLISHED AT THE DRIP LINE OR 15 FEET FROM THE TRUNK OR AT THE LIMIT OF CONSTRUCTION DISTURBANCE, WHICHEVER IS GREATER. LOCAL STANDARDS THAT MAY REQUIRE A MORE STRICT TREE PROTECTION ZONE SHALL BE HONORED.

B. A FORTY-EIGHT INCH (48") HIGH WOODEN SNOW FENCE OR ORANGE COLORED HIGH-DENSITY 'VISI-FENCE', OR APPROVED EQUAL, MOUNTED ON STEEL POSTS SHALL BE PLACED ALONG THE BOUNDARY OF THE TREE PROTECTION ZONE. POSTS SHALL BE LOCATED AT A MAXIMUM OF EIGHT FEET (8') ON CENTER OR AS INDICATED WITHIN THE TREE PROTECTION DETAIL.

C. WHEN THE TREE PROTECTION FENCING HAS BEEN INSTALLED, IT SHALL BE INSPECTED BY THE APPROVING AGENCY PRIOR TO DEMOLITION, GRADING, TREE CLEARING OR ANY OTHER CONSTRUCTION. THE FENCING ALONG THE TREE PROTECTION ZONE SHALL BE REGULARLY INSPECTED BY THE LANDSCAPE CONTRACTOR AND MAINTAINED UNTIL ALL CONSTRUCTION ACTIVITY HAS BEEN COMPLETED.

D. AT NO TIME SHALL MACHINERY, DEBRIS, FALLEN TREES OR OTHER MATERIALS BE PLACED, STOCKPILED OR LEFT STANDING IN THE TREE PROTECTION ZONE.

6. SOIL MODIFICATIONS
A. CONTRACTOR SHALL ATTAIN A SOIL TEST FOR ALL AREAS OF THE SITE PRIOR TO CONDUCTING ANY PLANTING. SOIL TESTS SHALL BE PERFORMED BY A CERTIFIED SOIL LABORATORY.

B. LANDSCAPE CONTRACTOR SHALL REPORT ANY SOIL OR DRAINAGE CONDITIONS CONSIDERED DETRIMENTAL TO THE GROWTH OF PLANT MATERIAL. SOIL MODIFICATIONS, AS SPECIFIED HEREIN, MAY NEED TO BE CONDUCTED BY THE LANDSCAPE CONTRACTOR DEPENDING ON SITE CONDITIONS.

C. THE FOLLOWING AMENDMENTS AND QUANTITIES ARE APPROXIMATE AND ARE FOR BIDDING PURPOSES ONLY. COMPOSITION OF AMENDMENTS SHOULD BE REVISED DEPENDING ON THE OUTCOME OF A TOPSOIL ANALYSIS PERFORMED BY A CERTIFIED SOIL LABORATORY.
1.1. TO INCREASE A SANDY SOIL'S ABILITY TO RETAIN WATER AND NUTRIENTS, THOROUGHLY TILL ORGANIC MATTER INTO THE TOP 6-12". USE COMPOSTED BARK, COMPOSTED LEAF MULCH OR PEAT MOSS. ALL PRODUCTS SHOULD BE COMPOSTED TO A DARK COLOR AND BE FREE OF PIECES WITH IDENTIFIABLE LEAF OR WOOD STRUCTURE. AVOID MATERIAL WITH A PH HIGHER THAN 7.5.
1.2. TO INCREASE DRAINAGE, MODIFY HEAVY CLAY OR SILT (MORE THAN 40% CLAY OR SILT) BY ADDING COMPOSTED PINE BARK (UP TO 30% BY VOLUME) AND/OR AGRICULTURAL GYPSUM. COARSE SAND MAY BE USED IF ENOUGH IS ADDED TO BRING THE SAND CONTENT TO MORE THAN 60% OF THE TOTAL MIX. SUBSURFACE DRAINAGE LINES MAY NEED TO BE ADDED TO INCREASE DRAINAGE.
1.3. MODIFY EXTREMELY SANDY SOILS (MORE THAN 85%) BY ADDING ORGANIC MATTER AND/OR DRY, SHREDDED CLAY LOAM UP TO 30% OF THE TOTAL MIX.

7. FINISHED GRADING
A. UNLESS OTHERWISE CONTRACTED, THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION OF TOPSOIL AND THE ESTABLISHMENT OF FINE-GRADING WITHIN THE DISTURBANCE AREA OF THE SITE.

B. LANDSCAPE CONTRACTOR SHALL VERIFY THAT SUBGRADE FOR INSTALLATION OF TOPSOIL HAS BEEN ESTABLISHED. THE SUBGRADE OF THE SITE MUST MEET THE FINISHED GRADE LESS THE REQUIRED TOPSOIL THICKNESS (1"±).

C. ALL LAWN AND PLANTING AREAS SHALL BE GRADED TO A SMOOTH, EVEN AND UNIFORM PLANE WITH NO ABRUPT CHANGE OF SURFACE AS DEPICTED WITHIN THIS SET OF CONSTRUCTION PLANS, UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER OR LANDSCAPE ARCHITECT.

D. ALL PLANTING AREAS SHALL BE GRADED AND MAINTAINED TO ALLOW FREE FLOW OF SURFACE WATER IN AND AROUND THE PLANTING BEDS. STANDING WATER SHALL NOT BE PERMITTED IN PLANTING BEDS.

8. TOPSOILING
A. CONTRACTOR SHALL PROVIDE A SIX INCH (6") THICK MINIMUM LAYER OF TOPSOIL, OR AS DIRECTED BY THE LOCAL ORDINANCE OR CLIENT, IN ALL PLANTING AREAS. TOPSOIL SHOULD BE SPREAD OVER A PREPARED SURFACE IN A UNIFORM LAYER TO ACHIEVE THE DESIRED COMPACTED THICKNESS.

B. ON-SITE TOPSOIL MAY BE USED TO SUPPLEMENT THE TOTAL AMOUNT REQUIRED. TOPSOIL FROM THE SITE MAY BE REJECTED IF IT HAS NOT BEEN PROPERLY REMOVED, STORED AND PROTECTED PRIOR TO CONSTRUCTION.

C. CONTRACTOR SHALL FURNISH TO THE APPROVING AGENCY AN ANALYSIS OF BOTH IMPORTED AND ON-SITE TOPSOIL TO BE UTILIZED IN ALL PLANTING AREAS. THE PH AND NUTRIENT LEVELS MAY NEED TO BE ADJUSTED THROUGH SOIL MODIFICATIONS AS NEEDED TO ACHIEVE THE REQUIRED LEVELS AS SPECIFIED IN THE MATERIALS SECTION ABOVE.

D. ALL PLANTING AND LAWN AREAS ARE TO BE CULTIVATED TO A DEPTH OF SIX INCHES (6"). ALL DEBRIS EXPOSED FROM EXCAVATION AND CULTIVATION SHALL BE DISPOSED OF IN ACCORDANCE WITH GENERAL WORK PROCEDURES SECTION ABOVE. THE FOLLOWING SHALL BE TILLED INTO THE TOP FOUR INCHES (4") IN TWO DIRECTIONS (QUANTITIES BASED ON A 1,000 SQUARE FOOT AREA):
1.1. 20 POUNDS 'GROW POWER' OR APPROVED EQUAL
1.2. 20 POUNDS NITRO-FORM (COURSE) 38-0-0 BLUE CHIP

E. THE SPREADING OF TOPSOIL SHALL NOT BE CONDUCTED UNDER MUDDY OR FROZEN CONDITIONS.

9. PLANTING
A. INSOFAR THAT IT IS FEASIBLE, PLANT MATERIAL SHALL BE PLANTED ON THE DAY OF DELIVERY. IN THE EVENT THAT THIS IS NOT POSSIBLE, LANDSCAPE CONTRACTOR SHALL PROTECT UNINSTALLED PLANT MATERIAL. PLANTS SHALL NOT REMAIN UNPLANTED FOR LONGER THAN A THREE DAY PERIOD AFTER DELIVERY. PLANTS THAT WILL NOT BE PLANTED FOR A PERIOD OF TIME GREATER THAN THREE DAYS SHALL BE HEALED IN WITH TOPSOIL OR MULCH TO HELP PRESERVE ROOT MOISTURE.

B. PLANTING OPERATIONS SHALL BE PERFORMED DURING PERIODS WITHIN THE PLANTING SEASON WHEN WEATHER AND SOIL CONDITIONS ARE SUITABLE AND IN ACCORDANCE WITH ACCEPTED LOCAL PRACTICE. PLANTS SHALL NOT BE INSTALLED IN TOPSOIL THAT IS IN A MUDDY OR FROZEN CONDITION.

C. ANY INJURED ROOTS OR BRANCHES SHALL BE PRUNED TO MAKE CLEAN-CUT ENDS PRIOR TO PLANTING UTILIZING CLEAN, SHARP TOOLS. ONLY INJURED OR DISEASED BRANCHING SHALL BE REMOVED.

D. ALL PLANTING CONTAINERS AND NON-BIODEGRADABLE MATERIALS SHALL BE REMOVED FROM ROOT BALLS DURING PLANTING. NATURAL FIBER BURLAP MUST BE CUT FROM AROUND THE TRUNK OF THE TREE AND FOLDED DOWN AGAINST THE ROOT BALL PRIOR TO BACKFILLING.

E. POSITION TREES AND SHRUBS AT THEIR INTENDED LOCATIONS AS PER THE PLANS AND SECURE THE APPROVAL OF THE LANDSCAPE ARCHITECT PRIOR TO EXCAVATING PITS, MAKING NECESSARY ADJUSTMENTS AS DIRECTED.

F. PRIOR TO THE ISSUANCE OF ANY CERTIFICATE OF OCCUPANCY, THE PROPOSED LANDSCAPE, AS SHOWN ON THE APPROVED LANDSCAPE PLAN, MUST BE INSTALLED, INSPECTED AND APPROVED BY THE APPROVING AGENCY. THE APPROVING AGENCY SHALL TAKE INTO ACCOUNT SEASONAL CONSIDERATIONS IN THIS REGARD AS FOLLOWS. THE PLANTING OF TREES, SHRUBS, VINES OR GROUND COVER SHALL OCCUR ONLY DURING THE FOLLOWING PLANTING SEASONS:
1.1. PLANTS: MARCH 15 TO DECEMBER 15
1.2. LAWN: MARCH 15 TO JUNE 15 OR SEPT. 1 TO DECEMBER 1

G. PLANTINGS REQUIRED FOR A CERTIFICATE OF OCCUPANCY SHALL BE PROVIDED DURING THE NEXT APPROPRIATE SEASON AT THE MUNICIPALITY'S DISCRETION. CONTRACTOR SHOULD CONTACT APPROVING AGENCY FOR POTENTIAL SUBSTITUTIONS.

H. FURTHERMORE, THE FOLLOWING TREE VARIETIES ARE UNUSUALLY SUSCEPTIBLE TO WINTER DAMAGE. WITH TRANSPLANT SHOCK AND THE SEASONAL LACK OF NITROGEN AVAILABILITY, THE RISK OF PLANT DEATH IS GREATLY INCREASED. IT IS NOT RECOMMENDED THAT THESE SPECIES BE PLANTED DURING THE FALL PLANTING SEASON.

ACER RUBRUM	PLATANUS X ACERIFOLIA
BETULA VARIETIES	POPULOUS VARIETIES
CARPINUS VARIETIES	PRUNUS VARIETIES
CRATAEGUS VARIETIES	PYRUS VARIETIES
KOELREUTERIA	QUERCUS VARIETIES
LIQUIDAMBER STYRACIFLUA	TILIA TOMENTOSA
LIRIODENDRON TULIPIFERA	ZELKOVA VARIETIES

I. PLANTING PITS SHALL BE DUG WITH LEVEL BOTTOMS, WITH THE WIDTH TWICE THE DIAMETER OF ROOT BALL. THE ROOT BALL SHALL REST ON UNDISTURBED GRADE. EACH PLANT PIT SHALL BE BACKFILLED IN LAYERS WITH THE FOLLOWING PREPARED SOIL MIXED THOROUGHLY:
- 1 PART PEAT MOSS
- 1 PART COMPOSTED COW MANURE BY VOLUME
- 3 PARTS TOPSOIL BY VOLUME
- 21 GRAMS 'AGRIFORM' PLANTING TABLETS (OR APPROVED EQUAL) AS FOLLOWS:
  - A) 2 TABLETS PER 1 GALLON PLANT
  - B) 3 TABLETS PER 5 GALLON PLANT
  - C) 4 TABLETS PER 15 GALLON PLANT
  - D) LARGER PLANTS: 2 TABLETS PER ½" CALIPER OF TRUNK

J. FILL PREPARED SOIL AROUND BALL OF PLANT HALF-WAY AND INSERT PLANT TABLETS. COMPLETE BACKFILL AND WATER THOROUGHLY.

K. ALL PLANTS SHALL BE PLANTED SO THAT THE TOP OF THE ROOT BALL, THE POINT AT WHICH THE ROOT FLARE BEGINS, IS SET AT GROUND LEVEL AND IN THE CENTER OF THE PIT. NO SOIL IS TO BE PLACED DIRECTLY ON TOP OF THE ROOT BALL.

L. ALL PROPOSED TREES DIRECTLY ADJACENT TO WALKWAYS OR DRIVEWAYS SHALL BE PRUNED AND MAINTAINED TO A MINIMUM BRANCHING HEIGHT OF 7' FROM GRADE.

M. GROUND COVER AREAS SHALL RECEIVE A ¼" LAYER OF HUMUS RAKED INTO THE TOP 1" OF PREPARED SOIL PRIOR TO PLANTING. ALL GROUND COVER AREAS SHALL BE WEEDED AND TREATED WITH A PRE-EMERGENT CHEMICAL AS PER MANUFACTURER'S RECOMMENDATION.

N. NO PLANT, EXCEPT GROUND COVERS, GRASSES OR VINES, SHALL BE PLANTED LESS THAN TWO FEET (2') FROM EXISTING STRUCTURES AND SIDEWALKS.

O. ALL PLANTING AREAS AND PLANTING PITS SHALL BE MULCHED AS SPECIFIED HEREIN TO FILL THE ENTIRE BED AREA OR SAUCER. NO MULCH IS TO TOUCH THE TRUNK OF THE TREE OR SHRUB.

P. ALL PLANTING AREAS SHALL BE WATERED IMMEDIATELY UPON INSTALLATION IN ACCORDANCE WITH THE WATERING SPECIFICATIONS AS LISTED HEREIN.

10. TRANSPLANTING (WHEN REQUIRED)
A. ALL TRANSPLANTS SHALL BE DUG WITH INTACT ROOT BALLS CAPABLE OF SUSTAINING THE PLANT.

B. IF PLANTS ARE TO BE STOCKPILED BEFORE REPLANTING, THEY SHALL BE HEALED IN WITH MULCH OR SOIL, ADEQUATELY WATERED AND PROTECTED FROM EXTREME HEAT, SUN AND WIND.

C. PLANTS SHALL NOT BE DUG FOR TRANSPLANTING BETWEEN APRIL 10 AND JUNE 30.

D. UPON REPLANTING, BACKFILL SOIL SHALL BE AMENDED WITH FERTILIZER AND ROOT GROWTH HORMONE.

E. TRANSPLANTS SHALL BE GUARANTEED FOR THE LENGTH OF THE GUARANTEE PERIOD SPECIFIED HEREIN.

F. IF TRANSPLANTS DIE, SHRUBS AND TREES LESS THAN SIX INCHES (6") DBH SHALL BE REPLACED IN KIND. TREES GREATER THAN SIX INCHES (6") DBH MAY BE REQUIRED TO BE REPLACED IN ACCORDANCE WITH THE MUNICIPALITY'S TREE REPLACEMENT GUIDELINES.

11. WATERING
A. NEW PLANTINGS OR LAWN AREAS SHALL BE ADEQUATELY IRRIGATED BEGINNING IMMEDIATELY AFTER PLANTING. WATER SHALL BE APPLIED TO EACH TREE AND SHRUB IN SUCH MANNER AS NOT TO DISTURB BACKFILL AND TO THE EXTENT THAT ALL MATERIALS IN THE PLANTING HOLE ARE THOROUGHLY SATURATED. WATERING SHALL CONTINUE AT LEAST UNTIL PLANTS ARE ESTABLISHED.

B. SITE OWNER SHALL PROVIDE WATER IF AVAILABLE ON SITE AT TIME OF PLANTING. IF WATER IS NOT AVAILABLE ON SITE, CONTRACTOR SHALL SUPPLY ALL NECESSARY WATER. THE USE OF WATERING BAGS IS RECOMMENDED FOR ALL NEWLY PLANTED TREES.

C. IF AN IRRIGATION SYSTEM HAS BEEN INSTALLED ON THE SITE, IT SHALL BE USED TO WATER PROPOSED PLANT MATERIAL, BUT ANY FAILURE OF THE SYSTEM DOES NOT ELIMINATE THE CONTRACTOR'S RESPONSIBILITY OF MAINTAINING THE DESIRED MOISTURE LEVEL FOR VIGOROUS, HEALTHY GROWTH.

12. GUARANTEE
A. THE LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL PLANTS FOR A PERIOD OF ONE (1) YEAR FROM APPROVAL OF LANDSCAPE INSTALLATION BY THE APPROVING AGENCY. CONTRACTOR SHALL SUPPLY THE OWNER WITH A MAINTENANCE BOND FOR TEN PERCENT (10%) OF THE VALUE OF THE LANDSCAPE INSTALLATION WHICH WILL BE RELEASED AT THE CONCLUSION OF THE GUARANTEE PERIOD AND WHEN A FINAL INSPECTION HAS BEEN COMPLETED AND APPROVED BY THE OWNER OR AUTHORIZED REPRESENTATIVE.

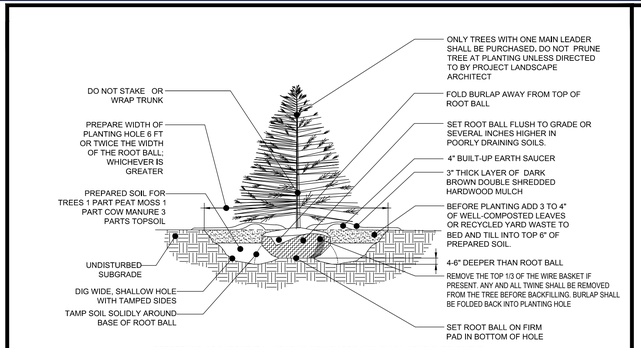
B. ANY DEAD OR DYING PLANT MATERIAL SHALL BE REPLACED FOR THE LENGTH OF THE GUARANTEE PERIOD. REPLACEMENT OF PLANT MATERIAL SHALL BE CONDUCTED AT THE FIRST SUCCEEDING PLANTING SEASON. ANY DEBRIS SHALL BE DISPOSED OF OFF-SITE, WITHOUT EXCEPTION.

C. TREES AND SHRUBS SHALL BE MAINTAINED BY THE CONTRACTOR DURING CONSTRUCTION AND THROUGHOUT THE 90 DAY MAINTENANCE PERIOD AS SPECIFIED HEREIN. CULTIVATION, WEEDING, WATERING AND THE PREVENTATIVE TREATMENTS SHALL BE PERFORMED AS NECESSARY TO KEEP PLANT MATERIAL IN GOOD CONDITION AND FREE OF INSECTS AND DISEASE.

D. LAWNS SHALL BE MAINTAINED THROUGH WATERING, FERTILIZING, WEEDING, MOWING, TRIMMING AND OTHER OPERATIONS SUCH AS ROLLING, REGARDING AND REPLANTING AS REQUIRED TO ESTABLISH A SMOOTH, ACCEPTABLE LAWN, FREE OF ERODED OR BARE AREAS.

13. CLEANUP
A. UPON THE COMPLETION OF ALL LANDSCAPE INSTALLATION AND BEFORE THE FINAL ACCEPTANCE, THE CONTRACTOR SHALL REMOVE ALL UNUSED MATERIALS, EQUIPMENT AND DEBRIS FROM THE SITE. ALL PAVED AREAS ARE TO BE CLEANED.

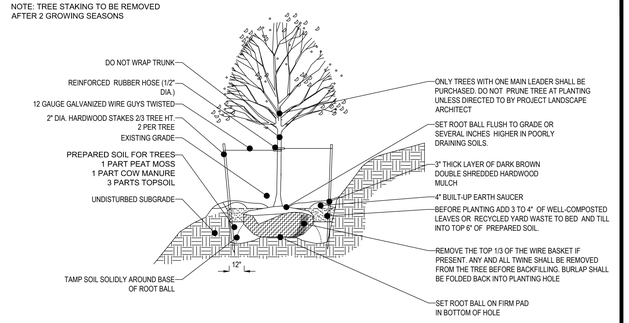
B. THE SITE SHALL BE CLEANED AND LEFT IN A NEAT AND ACCEPTABLE CONDITION AS APPROVED BY THE OWNER OR AUTHORIZED REPRESENTATIVE.



REFERENCE: ARCHITECTURAL GRAPHIC STANDARDS 1998 CUMULATIVE SUPPLEMENT.

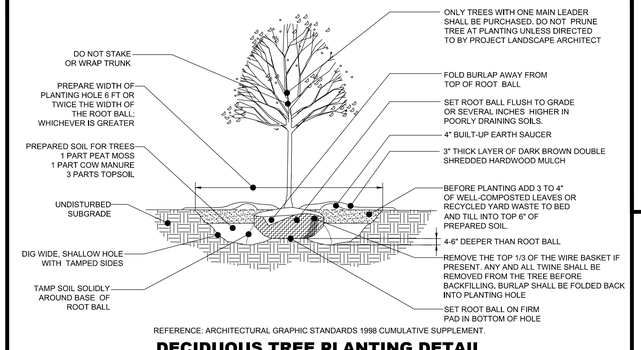
EVERGREEN TREE PLANTING DETAIL

NOT TO SCALE



TREE PLANTING ON SLOPE DETAIL

NOT TO SCALE



REFERENCE: ARCHITECTURAL GRAPHIC STANDARDS 1998 CUMULATIVE SUPPLEMENT.

DECIDUOUS TREE PLANTING DETAIL

NOT TO SCALE

SEEDING SPECIFICATIONS

1. PRIOR TO SEEDING, AREA IS TO BE TOPSOILED, FINE GRADED, AND RAKED OF ALL DEBRIS LARGER THAN 2" DIAMETER.
2. PRIOR TO SEEDING, CONSULT MANUFACTURER'S RECOMMENDATIONS AND INSTRUCTIONS.
3. SEEDING RATES:

PERENNIAL RYEGRASS	1/2 LB/1,000 SQ FT
KENTUCKY BLUEGRASS	1 LB/1,000 SQ FT
RED FESCUE	1 1/2 LBS/1,000 SQ FT
SPREADING FESCUE	1 1/2 LBS/1,000 SQ FT
FERTILIZER (20:10:10)	14 LBS/1,000 SQ FT
MULCH	90 LBS/1,000 SQ FT

4. GERMINATION RATES WILL VARY AS TO TIME OF YEAR FOR SOWING. CONTRACTOR TO IRRIGATE SEEDED AREA UNTIL AN ACCEPTABLE STAND OF COVER IS ESTABLISHED BY OWNER.

OWNER MAINTENANCE RESPONSIBILITIES

UPON OWNER'S (OR OWNER CONTRACTOR'S) COMPLETION OF LANDSCAPING WORK, THE OWNER IS FULLY RESPONSIBLE FOR ALL FUTURE MAINTENANCE, CARE, UPKEEP, WATERING, AND TRIMMING OF ALL INSTALLED VEGETATION, PLANTS, TREE, BUSHES, SHRUBS, GRASSES, GRASS, ORNAMENTAL PLANTS AND FLOWERS, FLOWERS, GROUND COVER, AND LANDSCAPING, INCLUDING ALL LANDSCAPE ISLANDS AND AREAS ADJACENT OR PART OF THE LANDSCAPED AREAS. THIS RESPONSIBILITY INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING:

- TREES ADJACENT TO WALKWAYS AND AREAS OF PEDESTRIAN TRAFFIC MUST BE MAINTAINED TO ASSURE THAT ANY BRANCHES MUST BE LIMBED UP TO A CLEARANCE HEIGHT OF 7 FT. (FROM ALL PEDESTRIAN SURFACES) OR PRUNED BACK TO AVOID ANY INTERFERENCE WITH THE TYPICAL PATH OF TRAVEL.
- TREES WITHIN VEHICULAR SIGHT LINES, AS ILLUSTRATED ON THE LANDSCAPE PLAN, ARE TO BE TRIMMED TO A CLEARANCE HEIGHT OF 7 FT. (FROM ALL PAVED, TRAVELED SURFACES), OR AS OTHERWISE INDICATED ON THE PLANS.
- VEGETATIVE GROUND COVER, SHRUBS AND ORNAMENTAL PLANTS AND GRASSES MUST BE TRIMMED SO THAT NO PORTION OF THE PLANT EXCEEDS 30 INCHES ABOVE GRADE (OF ALL PAVED, TRAVEL SURFACES) ALONG AND WITHIN THE SIGHT LINES OF PARKING LOTS AND INGRESS-EGRESS WAYS.
- FALLEN PLANT FLOWERS, FRUIT, SEEDS AND DEBRIS DROPPINGS ARE TO BE REMOVED IMMEDIATELY FROM VEHICULAR AND PEDESTRIAN TRAFFIC AREAS TO PREVENT TRIPPING, SLIPPING OR ANY OTHER HAZARDS.

THESE REQUIREMENTS DO NOT AFFECT THE PLANT LIFE GUARANTEES THE LANDSCAPE CONTRACTOR IS REQUIRED TO PROVIDE.

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
LAND DEVELOPMENT CONSULTANTS
PERMITTING SERVICES
TRANSPORTATION SERVICES

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REVISIONS

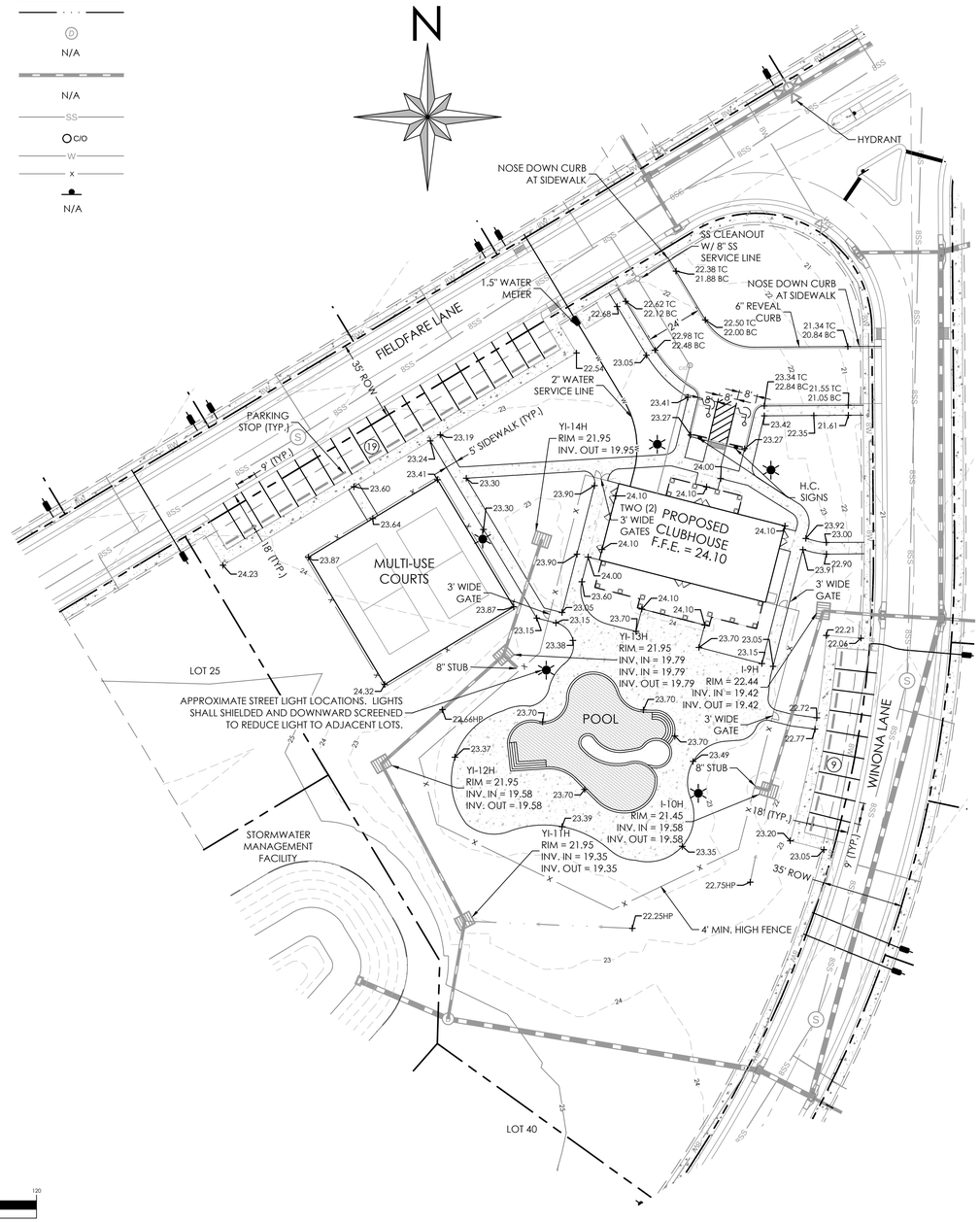
| REV | DATE | COM

AMENITY SITE PLAN FOR TANAGER WOODS

INDIAN RIVER HUNDRED
SUSSEX COUNTY, DELAWARE

LEGEND

	EXISTING	PROPOSED
PROPERTY LINE		
EASEMENT/BUFFER LINE		
R.O.W. LINE		
SPOT ELEV. LABEL	+ 19.25	27.00
MAJOR CONTOUR		
MINOR CONTOUR		
ROAD CENTERLINE		
EDGE OF CONCRETE		
EDGE OF PAVEMENT		
PAVEMENT HATCH	N/A	
BUILDING	N/A	
CURB AND GUTTER		
SIDEWALK		
SIDEWALK HATCH		
EDGE OF POND	N/A	
STORM MANHOLE	D	D
CURB INLET		N/A
STORM PIPE		
SANITARY MANHOLE	S	N/A
SANITARY PIPE	SS	SS
SANITARY CLEANOUT	C/O	C/O
WATER PIPE	W	W
FENCE	N/A	x
SIGN	N/A	
FIRE HYDRANT		N/A



GRAPHIC SCALE

30 0 15 30 60 120

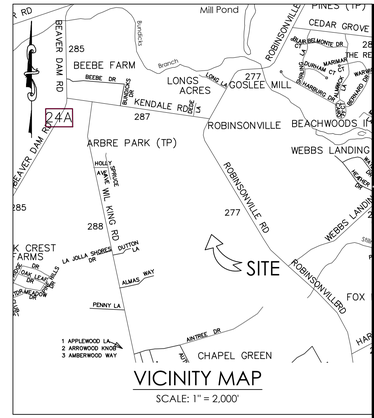
(IN FEET)
1 inch = 30 ft.

SITE DATA:

APPLICANT/ DEVELOPER/ OWNER: TANAGER WOODS, LLC
5950 SYMPHONY WOODS DRIVE
SUITE 408
COLUMBIA, MD 21044
PHONE: 410-861-7159
CONTACT: MEGAN CONNER

ENGINEER: SOLUTIONS IPEM
303 NORTH BEDFORD STREET
GEORGETOWN, DE 19947
PHONE: 302-297-9215
CONTACT: JIM ERIKSEN, PE

- TAX MAP:
  234-6.00-58.00
  AREA = 56.4636 AC.±
  RECREATIONAL AREA = 1.7736 AC.
- PROPOSED USE: RECREATIONAL FACILITY AND PARKING
- EXISTING ZONING:
  AR-1 (PORTIONS WITH COASTAL AREA OVERLAY)
- THERE ARE NO WETLANDS ON AMENITY PARCEL 58.01
- SITE LIES WITHIN HENLOPEN TRANSPORTATION IMPROVEMENT DISTRICT. BUT PRELIMINARY APPROVALS WITH SUSSEX COUNTY PRE-DATED THE CREATION OF THE HENLOPEN TRANSPORTATION IMPROVEMENT DISTRICT, AND THE PROJECT IS NOT SUBJECT TO AN AGREEMENT WITH DELDOT.
- PARCEL IS LOCATED WITHIN AN AREA OF POOR/FAIR GROUNDWATER RECHARGE POTENTIAL.
- PARCEL IS NOT LOCATED WITHIN A WELLHEAD PROTECTION AREA.
- MAXIMUM BUILDING HEIGHT = 42'
- FLOOD ZONE:
  THE PROPERTY IS LOCATED WITHIN FLOOD ZONE X (UNSHADED)- AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN, PER FIRM MAP NUMBER 10005C0330J, MAP REVISED JANUARY 6, 2005.
- WATER SUPPLY:
  TIDEWATER UTILITIES, INC
- SANITARY SEWER:
  SUSSEX COUNTY UNIFIED SANITARY SEWER DISTRICT
- TOPOGRAPHY AND BOUNDARY SHOWN HEREIN ARE AS PROVIDED BY SOLUTIONS IPEM LLC.
- PROJECT DATUM:
  HORIZONTAL: DELAWARE STATE PLANE NAD 83
  VERTICAL: NAVD 88
- AUTOMATIC SPRINKLERS ARE NOT PROPOSED FOR THIS STRUCTURE.
- TYPE OF CONSTRUCTION: NFPA TYPE V (000)
- ALL FIRE LANES, FIRE HYDRANTS, AND FIRE DEPARTMENT CONNECTIONS SHALL BE MARKED IN ACCORDANCE WITH THE STATE FIRE PREVENTION REGULATIONS AND AS SHOWN ON THESE PLANS.
- A LOCK BOX CONTAINING KEYS FOR FIRE DEPARTMENT ACCESS TO THE BUILDINGS ARE REQUIRED. CONTACT THE LOCAL FIRE CHIEF FOR ORDERING INFORMATION AND LOCATION OF THE BOX ON THE BUILDING.
- PROPOSED BUILDING:
  2,516 SQ.FT.
  42' MAXIMUM HEIGHT
  4,160 SQ.FT. COURT AREA
  2,531 ± SQ.FT. POOL AREA
  7,219 ± SQ.FT. POOL DECK AREA
- PARKING REQUIRED: N/A
  PARKING PROVIDED: 30 TOTAL (2 HANDICAP SPACES)
- THE AMENITY AREA AND FACILITIES ARE FOR THE RESIDENCES OF TANAGER WOODS AND SUBJECT TO HOA DOCUMENTS.



VICINITY MAP
SCALE: 1" = 2,000'

NOTES:

1. PER THE CONDITIONS OF APPROVAL (CONDITION J), THE AMENITIES SHALL BE CONSTRUCTED AND AVAILABLE FOR USE BEFORE ISSUANCE OF THE 80TH BUILDING PERMIT.
2. THE FENCE AROUND THE POOL SHALL BE A MINIMUM OF HEIGHT OF FOUR (4) FEET AND CONSTRUCTED OF BLACK ALUMINUM.
3. THE FENCE AROUND THE MULTI-USE COURTS SHALL BE A MINIMUM OF 8' BLACK OR GREEN DECORATIVE CHAINLINK OR SIMILAR MATERIAL APPROVED BY THE ENGINEER.
4. LIGHTING FOR THE RECREATIONAL FACILITIES AND PARKING SHALL BE COORDINATED BETWEEN DE COOP AND THE DEVELOPER.
5. THE SITE AMENITIES SHALL BE FOR RESIDENTS/MEMBERS OF THE HOMEOWNERS ASSOCIATION AND AUTHORIZED GUESTS ONLY.
6. FINAL/DETAILED DRAINAGE OF THE POOL DECK IS TO BE DONE BY OTHERS.
7. FINAL LANDSCAPING AND AESTHETIC HARDSCAPING IMPROVEMENTS SHALL BE DONE BY OTHERS.

OWNER'S CERTIFICATION

THE OWNER, TANAGER WOODS, LLC., HEREBY CERTIFIES THAT THESE DRAWINGS HAVE BEEN APPROVED.

MEGAN CONNER DATE

WETLAND STATEMENT

I, Edward M. Launay, PWS, STATES THAT THE BOUNDARIES OF WATERS OF THE UNITED STATES INCLUDING WETLANDS SUBJECT TO THE CORPS OF ENGINEERS REGULATORY PROGRAM DELINEATED UPON THIS PLAN HAVE BEEN DETERMINED USING MY PROFESSIONAL JUDGMENT IN ACCORDANCE WITH THE 1987 CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL, ATLANTIC GULF COAST REGIONAL SUPPLEMENT, REGULATIONS AND SUPPLEMENTAL GUIDANCE (33 CFR 328.3(a)(8),Waters of the U.S. Definition/CECW-OR, 10-7-1991, Questions and Answers on the 1987 COE Manual/CECW-OR, 9-26-1990, RGL 90-7/CECW-OR, 3-6-1992, Clarification and Interpretation of the 1987 Manual). THIS DELINEATION HAS NOT BEEN CONDUCTED FOR USDA PROGRAM OR AGRICULTURAL PURPOSES.

EDWARD M. LAUNAY, PWS No. 875 Date
SOCIETY OF WETLANDS SCIENTISTS
CORPS OF ENGINEERS,
CERTIFIED WETLAND DELINEATOR WDCP93MD0510036B

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3003 Merritt Mill Road
Salisbury, MD 21804
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JAMES A. ERIKSEN
LICENSED
16716287
DELAWARE
PROFESSIONAL ENGINEER

Seal 2-1-2022
Date

REVISIONS

NO.	DATE	DESCRIPTION
2	4/15/21	ADDRESS AGENCY COMMENTS
3	5/26/21	ADDRESS SCD COMMENTS
4	8/11/21	ADDRESS SCD COMMENTS
5	1/20/22	REVISE SANITARY SEWER CLEANOUT LOT 29
6	1/27/22	ADD CURB RAMPS @ VICINITY OF FIELDFARE RD AND WINONA LN
7	2/1/22	REVISE AMENITY SITE PLAN

AMENITY SITE PLAN
for
TANAGER WOODS
INDIAN RIVER HUNDRED
SUSSEX COUNTY, DELAWARE

Date:	4/24/18
Job Number:	G18002
Scale:	1" = 30'
Drawn By:	JPR
Designed By:	JPR
Approved By:	JRE

Sheet No.: 80

File Name: G18002-Amenity-SITEplan

PRELIMINARY SITE PLAN

FOR

AMENITY AREA FRIENDSHIP CREEK

COUNTY PROJECT REFERENCE NO. S-18-89

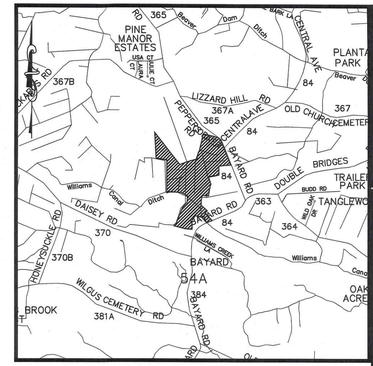
BALTIMORE HUNDRED - SUSSEX COUNTY, DELAWARE

LEGEND

PROPERTY LINE		
EASEMENT LINE		
SETBACK LINE		
CONCRETE MONUMENT FOUND	CMF □	N/A
IRON PIPE FOUND	IPF ●	N/A
BENCH MARK	ELEV:	N/A
SPOT ELEV. LABEL	× 19.25	19.25
MAJOR CONTOUR	10	10
MINOR CONTOUR	7	7
ROAD CENTERLINE		
EDGE OF CONCRETE		
EDGE OF PAVEMENT		
EDGE OF GRAVEL		N/A
PAINT STRIPE		
CURB		
PAVEMENT HATCH		
CONCRETE HATCH		
BUILDING OUTLINE		
SIDEWALK		
SIDEWALK HATCH		
FENCE LINE		N/A
SIGN		N/A
EDGE OF WETLAND		N/A
FLOODPLAIN		N/A
STORM MANHOLE	Ⓟ	Ⓓ
CURB INLET		
YARD INLET		
STORM PIPE		
RIP RAP		
SANITARY MANHOLE	N/A	Ⓢ
SANITARY CLEANOUT	N/A	C/O
SANITARY PIPE	N/A	SS
WATER VALVE	N/A	WV
WATER PIPE	N/A	W
FIRE HYDRANT	N/A	
OVERHEAD ELECTRIC	E	N/A
UNDERGROUND ELECTRIC	E	N/A
UTILITY POLE		N/A
LIGHT POLE		
DECIDUOUS TREE		N/A
CONIFEROUS TREE		N/A
TREE LINE		N/A

OVERALL AMENITY SITE PLAN

SCALE: 1" = 150'



VICINITY MAP

SCALE: 1" = 2,000'

SITE DATA:

OWNER/ DEVELOPER: FRIENDSHIP CREEK, LLC
940 W. SPROUL ROAD, SUITE 301
SPRINGFIELD, PA 19064
CONTACT: KEVIN MCLAUGHLIN

ENGINEER: SOLUTIONS IPEM
303 NORTH BEDFORD STREET
GEORGETOWN, DE 19947
PHONE: 302-297-9215
CONTACT: JASON PALKEWICZ

- TAX MAP: 134-16.00-39.00
- THE PARCEL IS NOT LOCATED WITHIN A WELLHEAD PROTECTION AREA
- THE PARCEL LIES WITHIN AN AREA OF "GOOD" GROUNDWATER RECHARGE POTENTIAL
- SUSSEX COUNTY PROJECT REFERENCE NO.: S-18-89
- PROPOSED SETBACKS:
  FRONT: 40'
  SIDE: 10'
  REAR: 10'
- POOL EQUIPMENT AND BATHROOM BUILDING HEIGHT = 15'-1"
- EXISTING ZONING DISTRICT: GR-GENERAL RESIDENTIAL (COASTAL AREA)
- FLOOD ZONE:
  THE PROPERTY IS LOCATED WITHIN FLOOD ZONE X (UNSHADED)- AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN, AND FLOOD ZONE AE (EL.4) - SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD, PER FIRM MAP NUMBER 10005C0513K, MAP REVISED MARCH 16, 2015.
- WATER SUPPLY:
  ARTESIAN WATER COMPANY, INC.
- SANITARY SEWER:
  SUSSEX COUNTY UNIFIED SANITARY SEWER DISTRICT
- TOPOGRAPHY AND BOUNDARY SHOWN HEREIN ARE AS PROVIDED BY CYPRESS SURVEY, LLC.
- PROJECT DATUM:
  HORIZONTAL: DELAWARE STATE PLANE NAD 83
  VERTICAL: NAVD 88
- PARKING
  REQUIRED: N/A
  PROVIDED: 19 SPACES (2 H.C.) → 1 SPACE PER 25 S.F.
- THE CONSTRUCTION OF THE AMENITY AREA SHALL NOT BE PHASED

SHEET INDEX

1 COVER SHEET
2 SITE PLAN
3 GRADING PLAN
4 FIRE MARSHAL PLAN
5 EROSION AND SEDIMENT CONTROL PLAN

WETLAND STATEMENT

I, EDWARD M. LAUNAY, PWS, STATE THAT THE BOUNDARIES OF WATERS OF THE UNITED STATES INCLUDING WETLANDS SUBJECT TO THE CORPS OF ENGINEERS REGULATORY PROGRAM DELINEATED UPON THIS PLAN HAVE BEEN DETERMINED USING MY PROFESSIONAL JUDGMENT IN ACCORDANCE WITH THE 1987 CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL, REGULATIONS AND SUPPLEMENTAL GUIDANCE (33 CFR 328.3(a)(8), WATERS OF THE U.S. DEFINITION/CECW-OR, 10-7-1991, QUESTIONS AND ANSWERS ON THE 1987 COE MANUAL/CECW-OR, 9-26-1990, RGL 90-7/CECW-OR, 3-6-1992, CLARIFICATION AND INTERPRETATION OF THE 1987 MANUAL). THIS DELINEATION HAS NOT BEEN CONDUCTED FOR USDA PROGRAM OR AGRICULTURAL PURPOSES.

IN ACCORDANCE WITH DNREC WETLANDS MAPS, NO STATE REGULATED WETLANDS OCCUR ON THIS SITE.

EDWARD M. LAUNAY, PWS No. 875 — DATE 5/6/2020
SOCIETY OF WETLANDS SCIENTISTS
CORP OF ENGINEERS, CERTIFIED WETLAND DELINEATOR (WDCP93MD0510036B)

ENGINEER'S CERTIFICATION

I HEREBY CERTIFY THAT THESE DRAWINGS HAVE BEEN PREPARED UNDER MY SUPERVISION.

JASON PALKEWICZ, PE — DATE 02/03/22

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T. 302.297.9215

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Seal

Date

NO.	DATE	DESCRIPTION
		REVISIONS

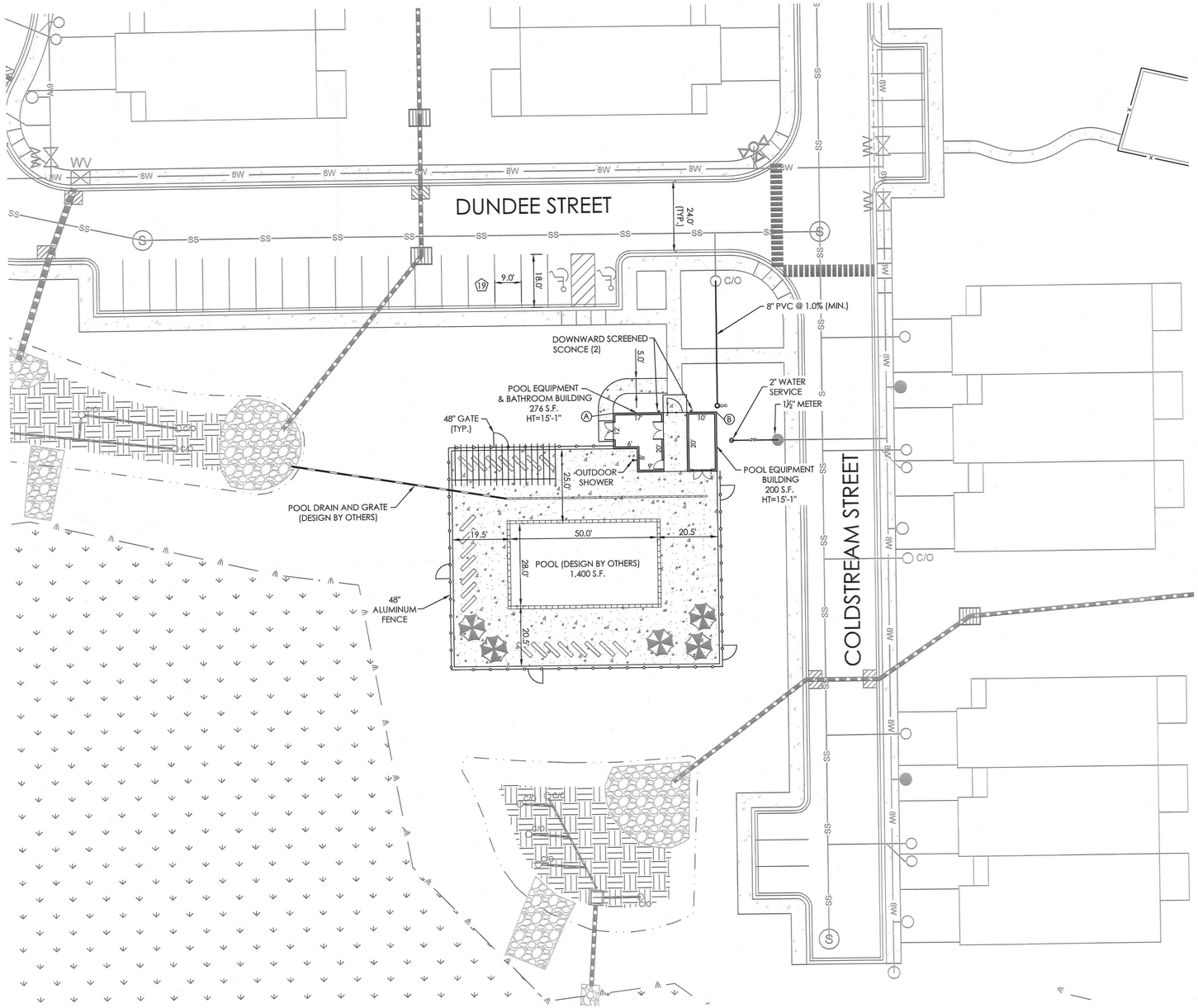
COVER SHEET
for
FRIENDSHIP CREEK
BALTIMORE HUNDRED
SUSSEX COUNTY, DELAWARE

Date:	1-11-22
Job Number:	G17067
Scale:	AS NOTED
Drawn By:	ML
Designed By:	JP
Approved By:	JP

Sheet No.: 1

File Name: 18040-cover

N



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E:742013.7050

Ⓑ N:187970.8716
E:742048.7050

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

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Seal

Date

REVISIONS

NO.	DESCRIPTION	DATE

SITE PLAN
for
FRIENDSHIP CREEK
BALTIMORE HUNDRED
SUSSEX COUNTY, DELAWARE

Date:	1-11-22
Job Number:	G17067
Scale:	1"=20'
Drawn By:	HHB
Designed By:	HHB
Approved By:	JP

Sheet No.: 2

File Name: site

N

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

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Seal

Date

REVISIONS

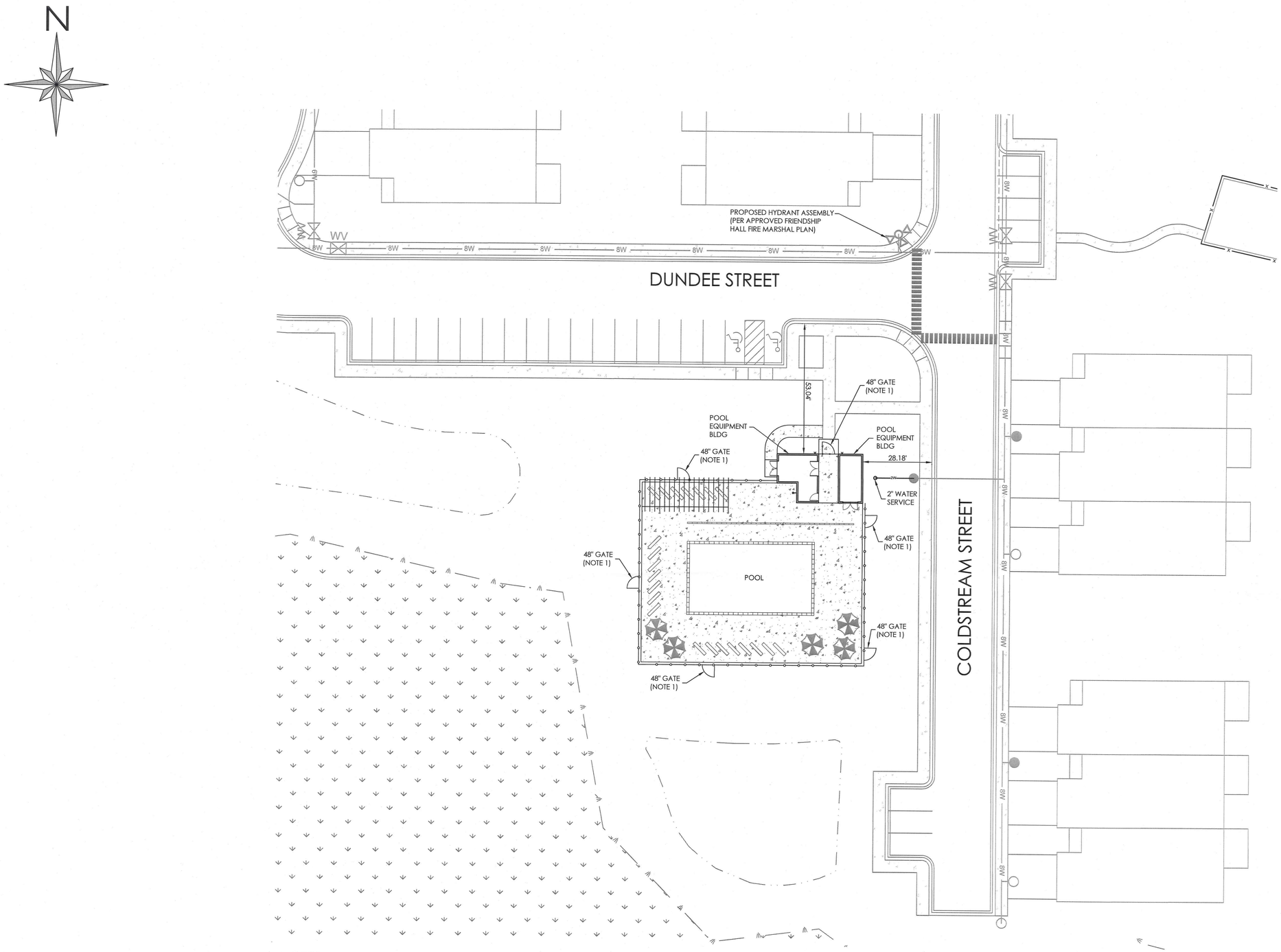
NO.	DATE	DESCRIPTION

GRADING PLAN
for
FRIENDSHIP CREEK
BALTIMORE HUNDRED
SUSSEX COUNTY, DELAWARE

Date:	1-11-22
Job Number:	G17067
Scale:	1"=20'
Drawn By:	HHB
Designed By:	HHB
Approved By:	JP

Sheet No.: 3

File Name: site



SITE DATA:

OWNER/ APPLICANT: FRIENDSHIP CREEK, LLC
940 W. SPROUL ROAD, SUITE 301
SPRINGFIELD, PA 19064
CONTACT: KEVIN MCLAUGHLIN

ENGINEER: SOLUTIONS IPEM
303 NORTH BEDFORD STREET
GEORGETOWN, DE 19947
PHONE: 302-297-9215
CONTACT: JASON PALKEWICZ, PE

- TAX MAP:
  134-16.00-39.00
- PROPOSED USE: POOL HOUSE & POOL
- SUSSEX COUNTY REFERENCE NO.: S-18-89
- WATER SUPPLY:
  ARTESIAN WATER COMPANY
- ALL FIRE LANES, FIRE HYDRANTS, AND FIRE DEPARTMENT CONNECTIONS SHALL BE MARKED IN ACCORDANCE WITH THE STATE FIRE PREVENTION REGULATIONS AND AS SHOWN ON THESE SHEETS.
- WATER FLOW - CLUBHOUSE
  MAIN SIZES: 6" MINIMUM. MINIMUM CAPACITY: 100 GPM @ 20 PSI FOR 1 HOUR DURATION. HYDRANT SPACING: 800 FEET ON CENTER.
- ALL FIRE HYDRANT ASSEMBLIES SHALL BE PLACED A MAXIMUM OF 7' OFF THE EDGE OF THE PAVEMENT OR SIDEWALK.
- ALL PROPOSED FIRE HYDRANTS SHALL BE INSTALLED IN ACCORDANCE WITH THE MOST CURRENT EDITION OF THE DELAWARE STATE FIRE PREVENTION REGULATIONS (DSFPR, PART II, CHAPTERS 6 & 7).
- FIRE HYDRANTS SHALL BE COLOR CODED IN ACCORDANCE WITH THE DSFPR, PART 703, CHAPTER 3, SECTION 4.0. THIS INCLUDES BOTH COLOR CODING BONNET AND 2" REFLECTIVE TAPE AROUND THE BARREL UNDER THE TOP FLANGE.
- THE STEAM CONNECTION OF ALL FIRE HYDRANTS SHALL BE SO POSITIONED SO AS TO BE FACING THE EDGE OF STREET, OR TRAFFIC LANE (DSFPR PART 705, CHAPTER 6, SECTION 2.0 AND 2.7).
- THE AMENITY BUILDING WILL NOT BE BE PROTECTED BY AUTOMATIC SPRINKLERS.
- MAXIMUM BUILDING HEIGHT: 42 FEET (ONE STORY)
- BUILDING CONSTRUCTION: NFPA TYPE V (000)

NOTES:

1. GATE LATCH OR LOCK SHALL HAVE PANIC HARDWARE OR FIRE EXIT HARDWARE COMPLYING WITH NFPA 101, SECTIONS 12.2.2.2.3 AND 7.2.1.7.1.

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

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JASON PALKEWICZ LICENSED PROFESSIONAL ENGINEER No. 12083 STATE OF DELAWARE
Seal
Date

REVISIONS

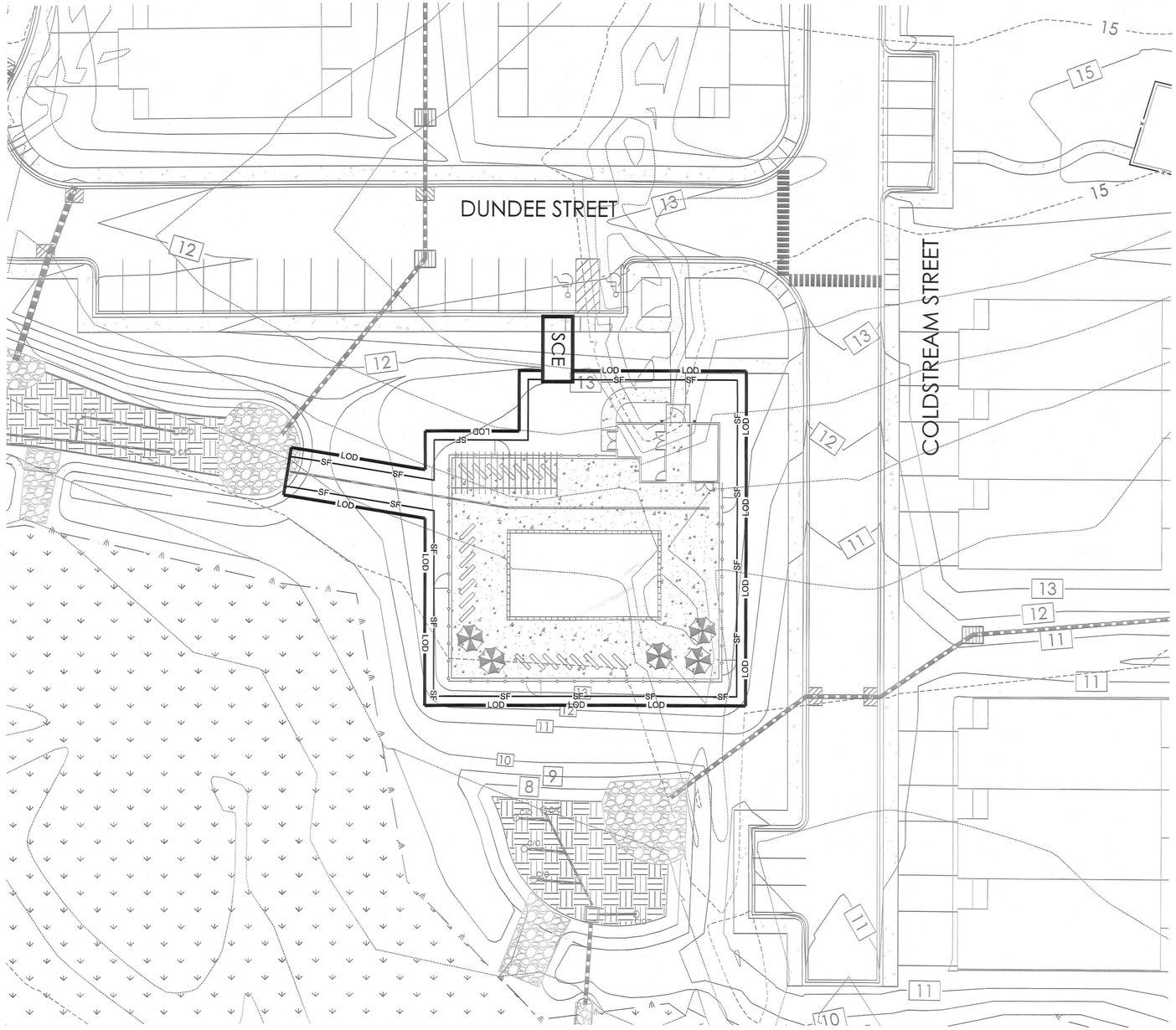
NO.	DATE	DESCRIPTION

FIRE MARHAL PLAN
for
FRIENDSHIP CREEK
BALTIMORE HUNDRED
SUSSEX COUNTY, DELAWARE

Date:	1-11-22
Job Number:	G17067
Scale:	1"=20'
Drawn By:	HHB
Designed By:	HHB
Approved By:	JP

Sheet No.: 4
File Name: site

N



GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

OWNER'S CERTIFICATION

I HEREBY CERTIFY THAT ALL LAND CLEARING, CONSTRUCTION AND DEVELOPMENT SHALL BE DONE PURSUANT TO THE APPROVED PLAN AND THAT RESPONSIBLE PERSONNEL (I.E., BLUE CARD HOLDER) INVOLVED IN THE LAND DISTURBANCE WILL HAVE A CERTIFICATION OF TRAINING PRIOR TO INITIATION OF THE PROJECT, AT A DNREC SPONSORED OR APPROVED TRAINING COURSE FOR THE CONTROL OF EROSION AND SEDIMENT DURING CONSTRUCTION. IN ADDITION, I GRANT THE DNREC SEDIMENT AND STORMWATER PROGRAM AND/OR THE RELEVANT DELEGATED AGENCY THE RIGHT TO CONDUCT ON-SITE REVIEWS, AND I UNDERSTAND MY RESPONSIBILITIES UNDER THE NPDES CONSTRUCTION GENERAL PERMIT AS REFERENCED ON THIS COVER SHEET.

KEVIN MCLAUGHLIN - FRIENDSHIP CREEK, LLC

ENGINEER'S CERTIFICATION

I HEREBY CERTIFY THAT THIS PLAN HAS BEEN PREPARED UNDER MY SUPERVISION AND TO THE BEST OF MY KNOWLEDGE COMPLIES WITH THE APPLICABLE STATE AND LOCAL REGULATIONS AND ORDINANCES.

JASON PALKEWICZ, PE

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Seal

Date

REVISIONS

NO.	DESCRIPTION	DATE

EROSION AND SEDIMENT CONTROL PLAN
for
FRIENDSHIP CREEK
BALTIMORE HUNDRED
SUSSEX COUNTY, DELAWARE

Date:	1-11-22
Job Number:	G17067
Scale:	1"=20'
Drawn By:	HHB
Designed By:	HHB
Approved By:	JP

Sheet No.: 5

File Name: site

LEGEND

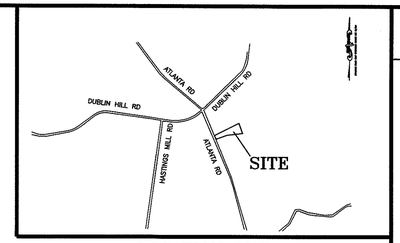
- POINT
- IRON PIPE/REBAR FOUND
- IRON REBAR TO BE SET
- EXISTING PROPERTY LINE / EXISTING R.O.W. LINE
- PROPOSED PROPERTY LINE / PROPOSED R.O.W. LINE
- ADJACENT PROPERTY LINE
- EXISTING EDGE OF PAVEMENT
- EXISTING ROAD CENTERLINE
- EXISTING GRAVEL DRIVE
- BUILDING RESTRICTION LINE
- FEMA FLOODLINE
- UTILITY POLE

MINOR SUBDIVISION PLAN NOTES

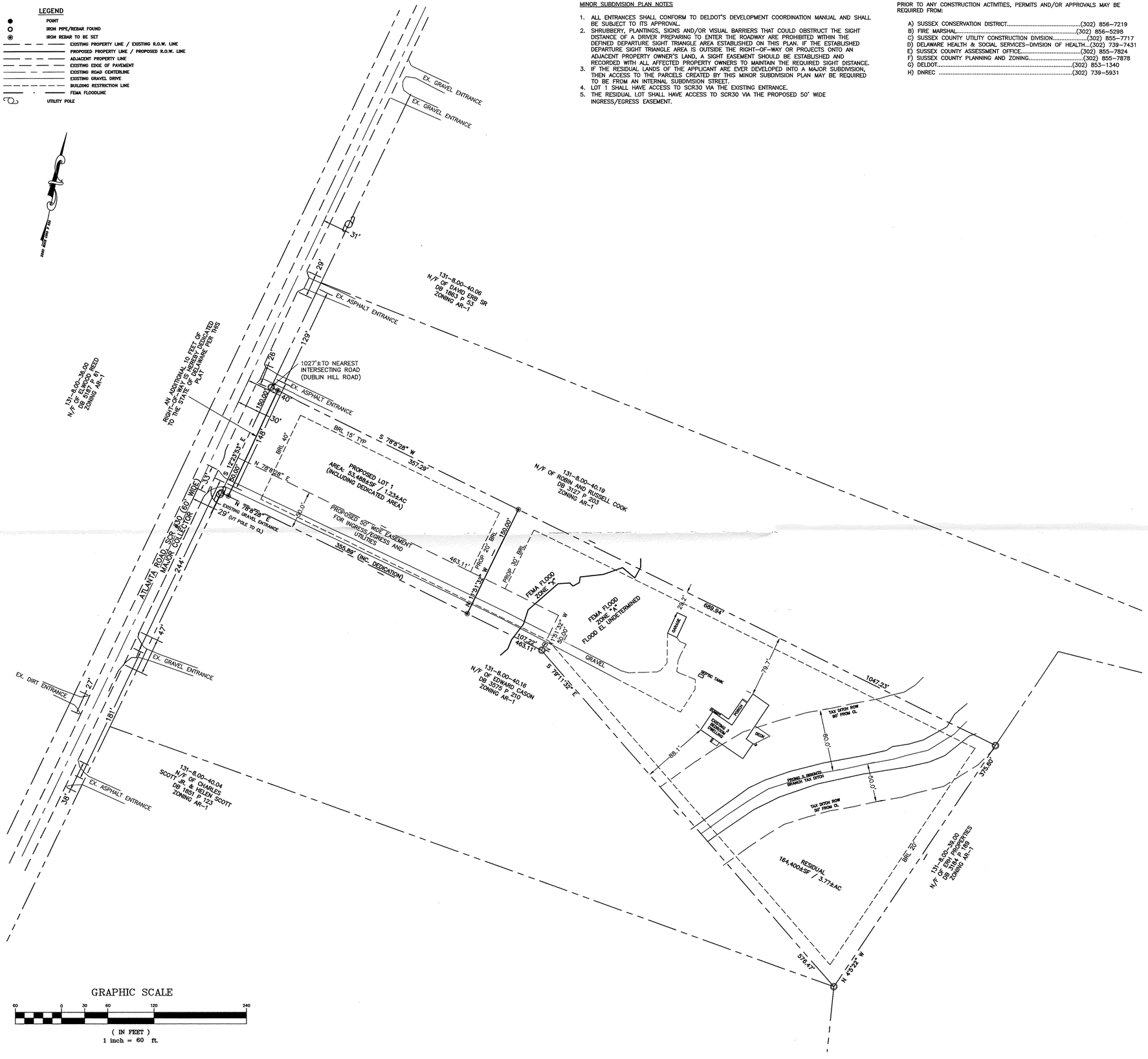
1. ALL ENTRANCES SHALL CONFORM TO DELDOT'S DEVELOPMENT COORDINATION MANUAL AND SHALL BE SUBJECT TO ITS APPROVAL.
2. SHRUBBERY, PLANTINGS, SIGNS AND/OR VISUAL BARRIERS THAT COULD OBSTRUCT THE SIGHT DISTANCE OF A DRIVER PREPARING TO ENTER THE ROADWAY ARE PROHIBITED WITHIN THE DEFINED DEPARTURE SIGHT TRIANGLE AREA ESTABLISHED ON THIS PLAN. IF THE ESTABLISHED DEPARTURE SIGHT TRIANGLE AREA IS OUTSIDE THE RIGHT-OF-WAY OR PROJECTS ONTO AN ADJACENT PROPERTY OWNER'S LAND, A SIGHT EASEMENT SHOULD BE ESTABLISHED AND RECORDED WITH ALL AFFECTED PROPERTY OWNERS TO MAINTAIN THE REQUIRED SIGHT DISTANCE.
3. IF THE RESIDUAL LANDS OF THE APPLICANT ARE EVER DEVELOPED INTO A MAJOR SUBDIVISION, THEN ACCESS TO THE PARCELS CREATED BY THIS MINOR SUBDIVISION PLAN MAY BE REQUIRED TO BE FROM AN INTERNAL SUBDIVISION STREET.
4. LOT 1 SHALL HAVE ACCESS TO SCR30 VIA THE EXISTING ENTRANCE.
5. THE RESIDUAL LOT SHALL HAVE ACCESS TO SCR30 VIA THE PROPOSED 50' WIDE INGRESS/EGRESS EASEMENT.

PRIOR TO ANY CONSTRUCTION ACTIVITIES, PERMITS AND/OR APPROVALS MAY BE REQUIRED FROM:

A) SUSSEX CONSERVATION DISTRICT.....(302) 856-7219
B) FIRE MARSHAL.....(302) 856-5298
C) SUSSEX COUNTY UTILITY CONSTRUCTION DIVISION.....(302) 855-7717
D) DELAWARE HEALTH & SOCIAL SERVICES-DIVISION OF HEALTH...(302) 739-7431
E) SUSSEX COUNTY ASSESSMENT OFFICE.....(302) 855-7824
F) SUSSEX COUNTY PLANNING AND ZONING.....(302) 855-7878
G) DELDOT.....(302) 853-1340
H) DNREC .....(302) 739-5931



LOCATION MAP
1'' = 1/2 MILE



GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)
1 inch = 60 ft.

NOTES

1. TITLE REFERENCED TO DEED BOOK 4369, PAGE 335.
2. SUBJECT TO ANY AND ALL RESTRICTIONS, RESERVATIONS, CONDITIONS, EASEMENTS & AGREEMENTS OF RECORD IN THE OFFICE OF RECORDER OF DEEDS, SUSSEX COUNTY, DE.
3. THIS SURVEY DOES NOT CERTIFY AS TO THE EXISTENCE OR NON-EXISTENCE OF ANY EASEMENTS OR RIGHT-OF-WAYS AFFECTING THE PROPERTIES SHOWN HEREIN.
4. THIS SURVEY DOES NOT CERTIFY AS TO THE EXISTENCE OR NON-EXISTENCE OF ANY WETLANDS ON THE PROPERTY. NO DELINEATION WAS PERFORMED OR PROVIDED.

SITE DATA

1. TAX MAP NUMBER	131-8.00-40.17
2. CURRENT ZONING:	AR-1
3. TOTAL AREA	217,897 ±s.f. 5.00 ±Acres
4. USE	PRESENT: AG/RESIDENTIAL PROPOSED: SAME
5. STREETS	TO REMAIN PRIVATE
6. ACCESS	PRIVATE
7. MAINTENANCE	STREETS TO BE MAINTAINED BY OWNER AND/OR HOMEOWNERS ASSOCIATION
8. SETBACKS	FRONT: 40' ATLANTA RD., 30' INTERIOR, SIDE: 15', REAR: 20'
9. SPEED LIMIT	50 MPH (SPICER ROAD)
10. SEWER	PRIVATE ON-SITE
11. WATER	PRIVATE ON-SITE
12. EXISTING LOTS PROPOSED LOTS	1 2 (INCLUDING RESIDUAL)
13. TIDS	NOT IMPACTED BY ANY TIDS
14. FLOOD ZONE	'A' AND 'X'
15. MAX BLDG HEIGHT	42.0'

GENERAL PROJECT

1. Owner/Developer
JOHN AND KIM IRELAND
18049 ATLANTA ROAD
BRIDGEVILLE, DE 19933
(302) 853-2441

2. Civil/Site Engineer:
COTTEN ENGINEERING LLC
10087 CONCORD RD
SEAFORD, DELAWARE 19973
Phone/Fax: (302) 628-9164
c/o: Michael S. Cotten, P.E.

3. Surveyor
COTTEN ENGINEERING LLC
10087 CONCORD RD
SEAFORD, DELAWARE 19973
Phone/Fax: (302) 628-9164
c/o: Michael S. Cotten, P.E.

4. The project is located on the eastern side of Atlanta Road (SCR 30), major collector, 60' wide R.O.W.

5. Class "C" Survey

6. This Survey does not certify to the location and/or existence of easements and Right-of-Ways crossing subject property other than those shown, as no title search was provided.

I, THE UNDERSIGNED, HEREBY CERTIFY TO THE OWNERSHIP OF THE PROPERTY DESCRIBED AND SHOWN ON THIS PLAN, THAT THE PLAN WAS MADE AT MY DISCRETION, AND THAT I ACKNOWLEDGE THE SAME TO BE OUR ACT AND THAT I DESIRE THE PLAN TO BE RECORDED ACCORDING TO THE LAW.

JOHN AND KIM IRELAND, OWNER DATE

DESIGNER/ENGINEER SIGNATURE
I HEREBY CERTIFY THAT THIS PLAN HAS BEEN MADE UNDER MY SUPERVISION AND COMPLIES WITH THE LAWS OF SUSSEX COUNTY AND THE STATE OF DELAWARE.

MICHAEL S. COTTEN, P.E. DATE

APPROVED BY SUSSEX COUNTY PLANNING AND ZONING

DATE

#	
1.	INITIAL SUBMISSION -
2.	
3.	
4.	
5.	
6.	

MINOR SUBDIVISION OF LANDS OF JOHN AND KIM IRELAND

COTTEN ENGINEERING LLC
CIVIL ENGINEERING, SURVEYING, ENVIRONMENTAL PLANNING CONSULTANTS
10087 CONCORD RD
SEAFORD, DE. 19973
PH: (302) 628-9164
FAX: (302) 628-9164

DRAFT

MICHAEL S. COTTEN, P.E.
LICENSE# 12769

MINOR SUBDIVISION PLAN
OF LANDS N/F OF
JOHN AND KIM IRELAND
18049 ATLANTA ROAD
BRIDGEVILLE, DE 19933
NORTHWEST HUNDRED
SUSSEX COUNTY, DELAWARE
TM# 131-8.00-40.17

SCALE:	AS SHOWN
DESIGNED:	CE
PLANNED:	CE
DRAWN:	JCD
APPROVED:	MC
JOB:	21-611

SHEET NO. 1 OF 1

JAMIE WHITEHOUSE, AICP
DIRECTOR OF PLANNING & ZONING
(302) 855-7878 T
(302) 854-5079 F
jamie.whitehouse@sussexcountyde.gov

Sussex County
DELAWARE
sussexcountyde.gov

PLEASE NOTE

This paperless packet is published on the County's website for convenience purposes, and only includes information received up to the close of business on the day before a public hearing. Documents received after this, or documents submitted during the public hearing are not uploaded to the Paperless Packet. The legal record is the paper record maintained in the Offices of the Planning & Zoning Department.

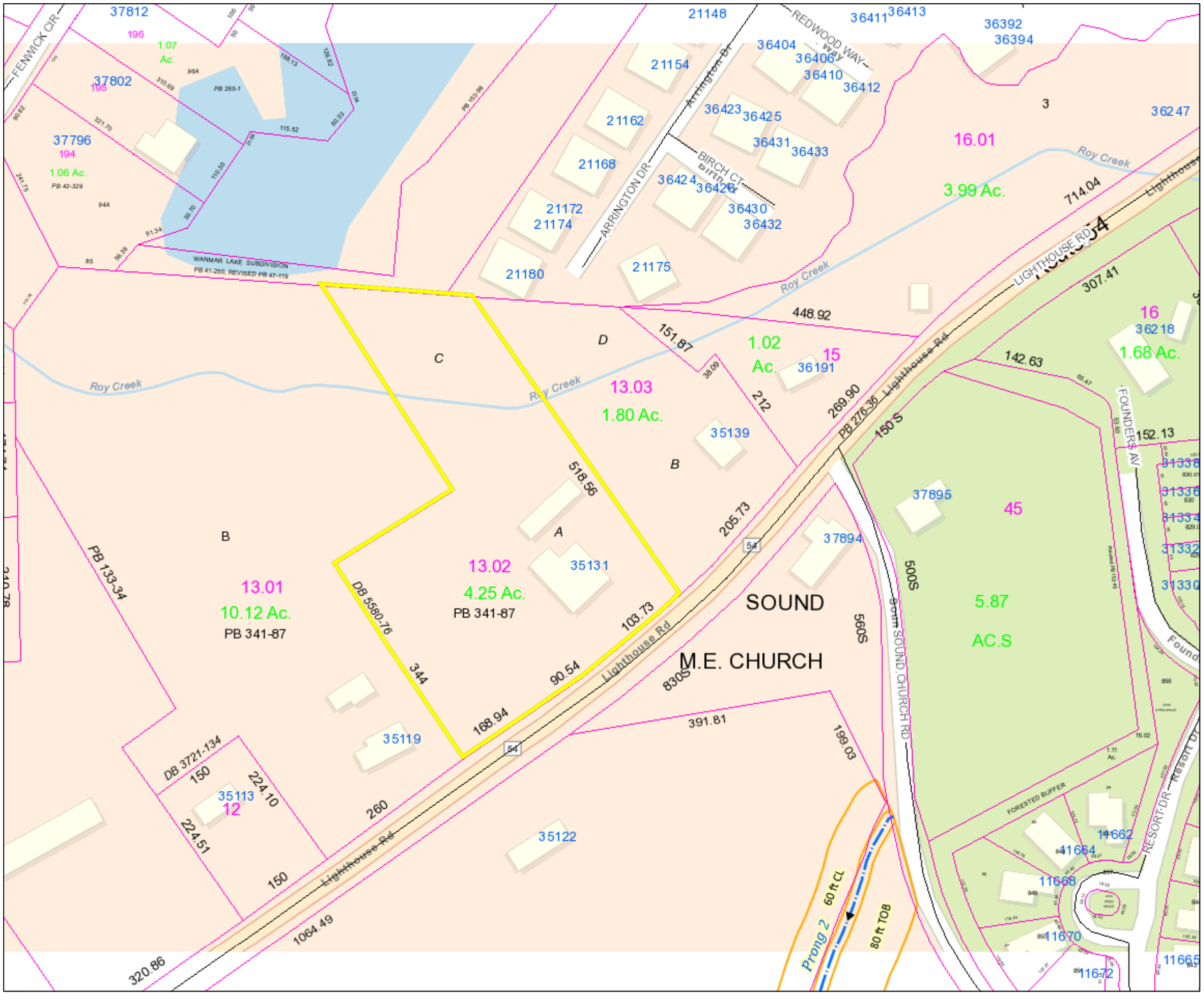
PLANNING & ZONING COMMISSION
ROBERT C. WHEATLEY, CHAIRMAN
KIM HOEY STEVENSON, VICE-CHAIRMAN
R. KELLER HOPKINS
J. BRUCE MEARS
HOLLY J. WINGATE

Sussex County
DELAWARE
sussexcountyde.gov
302-855-7878 T
302-854-5079 F
JAMIE WHITEHOUSE, MRTPI, AICP
DIRECTOR OF PLANNING & ZONING

PLANNING AND ZONING AND COUNTY COUNCIL INFORMATION SHEET
Planning Commission Public Hearing Date: March 10th, 2022

Application:	CZ 1953 Breasure Holdings, LLC
Applicant:	Brasure Holdings, LLC 35131 Lighthouse Road Selbyville, DE 19975
Owner:	Brasure Holdings, LLC 35131 Lighthouse Road Selbyville, DE 19975
Site Location:	Lying on the northwest side of Lighthouse Road (Rt. 54) approximately 0.27 mile west of Zion Church Road (Rt. 20)
Current Zoning:	Agricultural Residential (AR-1) Zoning District
Proposed Zoning:	Medium Commercial (C-2) Zoning District
Comprehensive Land Use Plan Reference:	Coastal Area
Councilmanic District:	Mr. Rieley
School District:	Indian River School District
Fire District:	Roxana Fire Department
Sewer:	Sussex County
Water:	Well
Site Area:	1.646 acres +/-
Tax Map ID.:	533-19.00-13.02

Sussex County



PIN:	533-19.00-13.02
Owner Name	BRASURE HOLDINGS LLC
Book	4537
Mailing Address	35131 LIGHTHOUSE RD
City	SELBYVILLE
State	DE
Description	NW/LIGHTHOUSE RD
Description 2	PARCEL A C
Description 3	N/A
Land Code	

polygonLayer
- Override 1

polygonLayer
- Override 1
- Tax Parcels
- 911 Address
- Streets
- County Boundaries

Tax Ditch Segments
- Tax Ditch Channel
- Pond Feature
- Special Access ROW
- Extent of Right-of-Way
- Municipal Boundaries
- TID

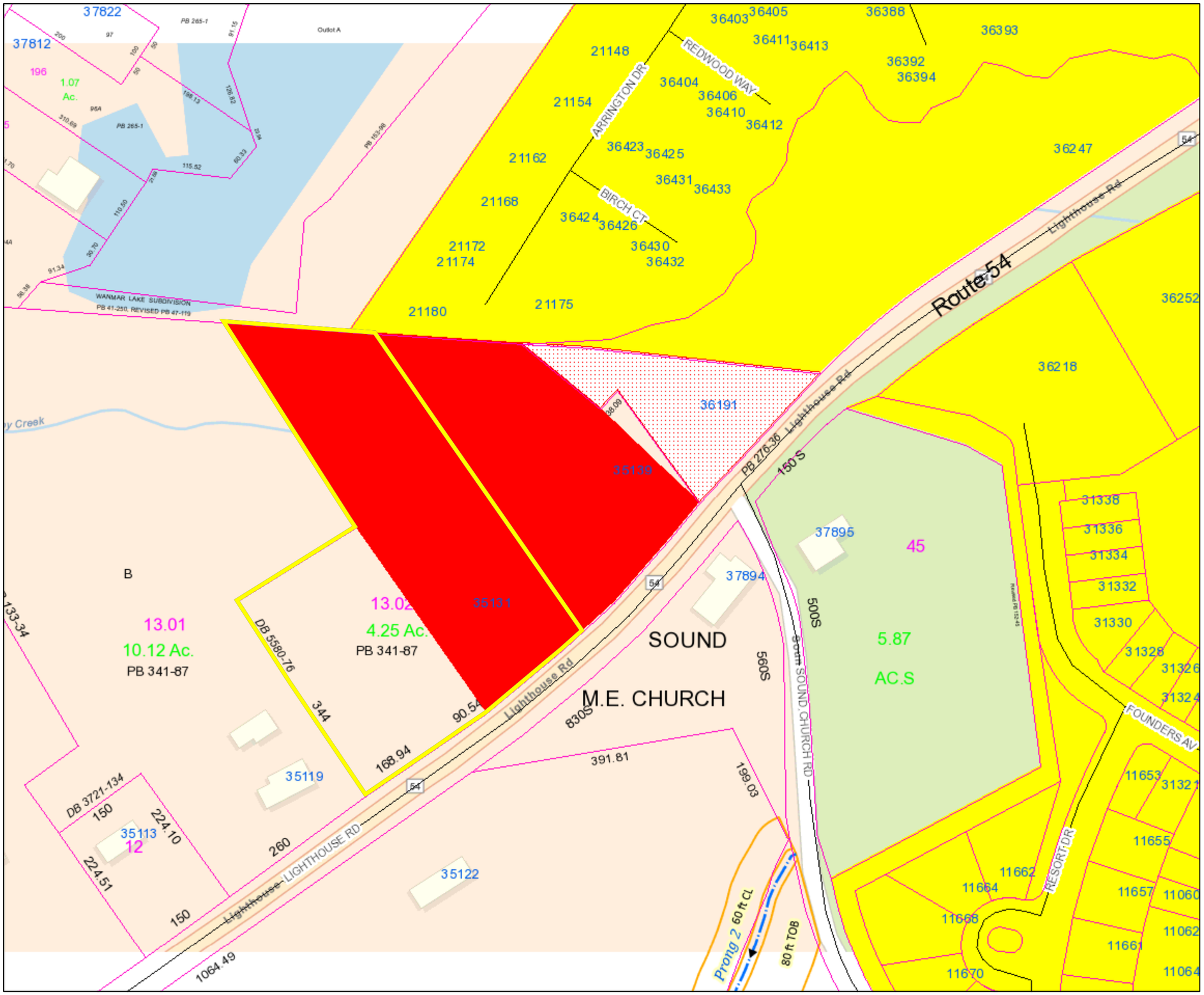
1:2,257

0 0.0275 0.055 0.11 mi

0 0.0425 0.085 0.17 km

January 31, 2022

Sussex County



PIN:	533-19.00-13.02
Owner Name	BRASURE HOLDINGS LLC
Book	4537
Mailing Address	35131 LIGHTHOUSE RD
City	SELBYVILLE
State	DE
Description	NW/LIGHTHOUSE RD
Description 2	PARCEL A C
Description 3	N/A
Land Code	

polygonLayer

Override 1

polygonLayer

Override 1

Tax Parcels

911 Address

Streets

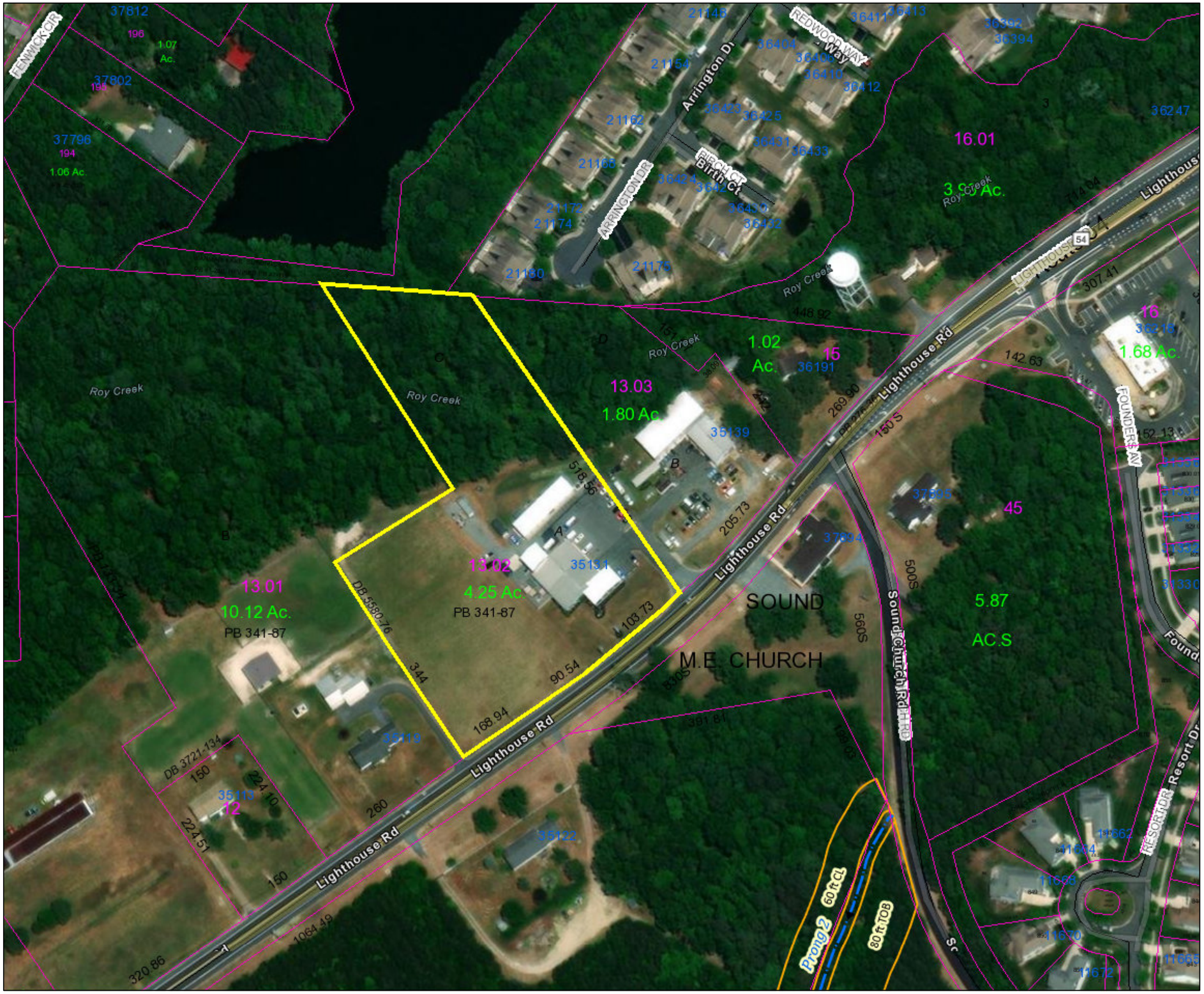
1:2,257

0 0.0275 0.055 0.11 mi

0 0.0425 0.085 0.17 km

January 31, 2022

Sussex County



PIN:	533-19.00-13.02
Owner Name	BRASURE HOLDINGS LLC
Book	4537
Mailing Address	35131 LIGHTHOUSE RD
City	SELBYVILLE
State	DE
Description	NW/LIGHTHOUSE RD
Description 2	PARCEL A C
Description 3	N/A
Land Code	

polygonLayer
Override 1
polygonLayer
Override 1
Tax Parcels
911 Address
Streets
County Boundaries
Tax Ditch Segments
Tax Ditch Channel
Pond Feature
Special Access ROW
Extent of Right-of-Way
Municipal Boundaries
TID

1:2,257

0 0.0275 0.055 0.11 mi
0 0.0425 0.085 0.17 km

January 31, 2022

JAMIE WHITEHOUSE, AICP MRTPI
PLANNING & ZONING DIRECTOR
(302) 855-7878 T
(302) 854-5079 F
jamie.whitehouse@sussexcountyde.gov

Sussex County
DELAWARE
sussexcountyde.gov

Memorandum

To: Sussex County Planning Commission Members
From: Christin Scott, Planner I
CC: Vince Robertson, Assistant County Attorney, and applicant
Date: March 2, 2022
RE: Staff Analysis for CZ 1953 Brasure Holdings, LLC

This memo is to provide background and analysis for the Planning Commission to consider as a part of application CZ 1953 Brasure Holdings, LLC to be reviewed during the March 10, 2022, Planning Commission Meeting. This analysis should be included in the record of this application and is subject to comments and information that may be presented during the public hearing.

The request is for a Change of Zone for part of Tax Parcel 533-19.00-13.02 to allow for a change of zone from an Agricultural Residential (AR-1) Zoning District to a Medium Commercial (C-2) Zoning District. The property is lying on the northwest side of Lighthouse Road (Rt. 54), approximately 0.27 mile southwest of Zion Church Road (Rt. 20). The portion of the parcel to be rezoned consists of 1.646 acres +/-.

The 2018 Sussex County Comprehensive Plan Update (Comprehensive Plan) provides a framework of how land is to be developed. As part of the Comprehensive Plan, a Future Land Use Map is included to help determine how land should be zoned to ensure responsible development. The Future Land Use map in the plan indicates that the subject property has a land use designation of "Coastal Area." The properties to the north, south, east and west of the subject property also contain the Future Land Use Designation of "Coastal Area."

As outlined within the 2018 Sussex County Comprehensive Plan, Coastal Areas are areas that can accommodate development provided special environmental concerns are addressed. A range of housing types should be permitted in Coastal Areas, including single-family homes, townhouses, and multi-family units. Retail and office uses are appropriate but larger shopping centers and office parks should be confined to selected locations with access along arterial roads. Appropriate mixed-use development should also be allowed. In doing so, careful mixtures of homes with light commercial, office and institutional uses can be appropriate to provide for convenient services and to allow people to work close to home. Major new industrial uses are not proposed in these areas.

The portion of this property is zoned Agricultural Residential (AR-1) Zoning District. The rest of the property is zoned General Commercial (C-1) Zoning District. Adjacent parcels to the north are also zoned Agricultural Residential (AR-1) Zoning District. The properties to the south on the opposite side of Lighthouse Road (Route 54) are zone Agricultural Residential (AR-1) and Medium Residential (MR) and the adjacent properties to the west are zoned Agricultural Residential (AR-1) Zoning District. Properties further to the east are zoned Heavy Commercial (C-3), Neighborhood Business (B-1) and Medium Residential (MR) Zoning Districts.

The 2018 Sussex County Comprehensive Plan outlines Zoning Districts by their applicability to each Future Land Use category. Under Table 4.5-2 "Zoning Districts Applicable to Future Land Use Categories," the Medium Commercial (C-2) Zoning District is listed as an applicable zoning district in the Coastal Area.

Since 2011, there have been nine (9) Change of Zone applications within a 1-mile radius of the application site. The Change of Zone applications approved include Medium Residential (MR), Commercial Residential (CR-1), Neighborhood Business (B-1), and Medium Commercial (C-2) Zoning Districts.

Based on the analysis of the land use, surrounding zoning and uses, a Change of Zone from an Agricultural Residential Zoning District (AR-1) to a Medium Commercial Zoning District (C-2) could be considered as being consistent with the land use, based on the size, scale, zoning and surrounding uses.

File #: CZ ~~1911~~ 1953
20211023

Planning & Zoning Commission Application
Sussex County, Delaware

Sussex County Planning & Zoning Department
2 The Circle (P.O. Box 417) Georgetown, DE 19947
302-855-7878 ph. 302-854-5079 fax

Type of Application: (please check applicable)
Conditional Use ___
Zoning Map Amendment ✓

Site Address of Conditional Use/Zoning Map Amendment
35131 Lighthouse RD, Selbyville DE 19975

Type of Conditional Use Requested:
Seeks a change of zone from ~~AR-1~~ C-1 to C-2 for a 1.646 acre portion of tax parcel #533-19.00-13.02

Tax Map #: 533-19.00-13.02 **Size of Parcel(s):** 4.251

Current Zoning: ~~AR-1~~ C-1 **Proposed Zoning:** C-2 **Size of Building:** 80' x 100'

Land Use Classification: Coastal Area Commercial

Water Provider: Well on-site **Sewer Provider:** Sussex County Sewer

Applicant Information

Applicant Name: Brasure Holdings, LLC
Applicant Address: 35131 Lighthouse RD
City: Selbyville State: DE ZipCode: 19975
Phone #: 302-436-5652 E-mail: david@brasurescarpetcare.com

Owner Information

Owner Name: Same as above
Owner Address: _____
City: _____ State: _____ Zip Code: _____
Phone #: _____ E-mail: _____

Agent/Attorney/Engineer Information

Agent/Attorney/Engineer Name: None
Agent/Attorney/Engineer Address: _____
City: _____ State: _____ Zip Code: _____
Phone #: _____ E-mail: _____

EQUAL HOUSING OPPORTUNITY

Check List for Sussex County Planning & Zoning Applications

The following shall be submitted with the application

✓ **Completed Application**

✓ **Provide eight (8) copies of the Site Plan or Survey of the property**

- Survey shall show the location of existing or proposed building(s), building setbacks, parking area, proposed entrance location, etc.
- Provide a PDF of Plans (may be e-mailed to a staff member)
- Deed or Legal description

✓ **Provide Fee $500.00**

___ **Optional - Additional information for the Commission/Council to consider** (ex. architectural elevations, photos, exhibit books, etc.) If provided submit 8 copies and they shall be submitted a minimum of ten (10) days prior to the Planning Commission meeting.

___ **Please be aware that Public Notice will be sent to property owners within 200 feet of the subject site and County staff will come out to the subject site, take photos and place a sign on the site stating the date and time of the Public Hearings for the application.**

✓ **DelDOT Service Level Evaluation Request Response**

N/A **PLUS Response Letter** (if required)

The undersigned hereby certifies that the forms, exhibits, and statements contained in any papers or plans submitted as a part of this application are true and correct.

I also certify that I or an agent on by behalf shall attend all public hearing before the Planning and Zoning Commission and the Sussex County Council and any other hearing necessary for this application and that I will answer any questions to the best of my ability to respond to the present and future needs, the health, safety, morals, convenience, order, prosperity, and general welfare of the inhabitants of Sussex County, Delaware.

Signature of Applicant/Agent/Attorney

Date: 7-8-21

Signature of Owner

Date: 7-8-21 ✓

For office use only:

Date Submitted: 07/08/2021 Fee: $500.00 Check #: 1046

Staff accepting application: chase phillips Application & Case #: 202110231 CZ1947

Location of property: _____

_____

Subdivision: _____

Date of PC Hearing: _____ Recommendation of PC Commission: _____

Date of CC Hearing: _____ Decision of CC: _____

STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. BOX 778
DOVER, DELAWARE 19903

NICOLE MAJESKI
SECRETARY

June 23, 2021

Mr. Jamie Whitehouse, Director
Sussex County Planning & Zoning
P.O. Box 417
Georgetown, DE 19947

Dear Mr. Whitehouse:

The Department has completed its review of a Service Level Evaluation Request for the **David Brasure, Brasure Holdings LLC** proposed land use application, which we received on June 8, 2021. This application is for an approximately 2.60- acre parcel (Tax Parcels: 533-19.00-13.02). The subject land is located on the north side of Fenwick Road (Sussex Road 58) 400 ft from the intersection with Pepper Road (Sussex Road 376). The subject land is currently zoned AR-1 (Agriculture Residential) and C-1 (General Commercial) with a proposed zoning of C-1 (General Commercial) and C-2 (Medium Commercial). The applicant seeks to build a storage building.

Per the 2019 Delaware Vehicle Volume Summary, the annual average daily traffic volume along Fenwick Road from Zion Church Road to Williamsville Road is 2,676.

Based on our review, we estimate that the above land use will generate fewer than 50 vehicle trips per day. This number of trips is below DelDOT's minimum warrants for determining that a Traffic Impact Study (TIS) should be required for a particular development. DelDOT's regulations specify the minimum TIS warrants as 50 vehicle trips in any hour and/or 500 vehicle trips per day. Because the proposed land use would generate fewer than 50 vehicle trips per day, we consider the development's traffic impact to be **diminutive** in the context of our agreement with the County regarding land development coordination and we do not recommend that the applicant be required to perform a TIS for the subject application. DelDOT's description of this application as diminutive with regard to warranting a TIS does not mean that it is diminutive in other respects. We recommend that the applicant not be required to perform a TIS for the subject application.

If the County approves this application, the applicant should be reminded that DelDOT requires compliance with State regulations regarding plan approvals and entrance permits, whether or not a TIS is required.

DelDOT

Please contact Ms. Annamaria Furmato, at (302) 760-2710, if you have questions concerning this correspondence.

Sincerely,

T. William Brockenbrough, Jr.
County Coordinator
Development Coordination

TWB:afm
cc: David Brasure, Brasure Holdings LLC, Applicant
Russell Warrington, Sussex County Planning & Zoning
David Edgell, Coordinator, Cabinet Committee on State Planning Issues
Todd Sammons, Assistant Director, Development Coordination
Scott Rust, South District Public Works Manager, Maintenance & Operations
Steve McCabe, Sussex County Review Coordinator, Development Coordination
Derek Sapp, Subdivision Manager, Development Coordination
Kevin Hickman, Subdivision Manager, Development Coordination
Brian Yates, Subdivision Manager, Development Coordination
John Andrescavage, Subdivision Manager, Development Coordination
James Argo, South District Project Reviewer, Maintenance & Operations
Troy Brestel, Project Engineer, Development Coordination
Claudy Joinville, Project Engineer, Development Coordination
Annamaria Furmato, Project Engineer, Development Coordination

SUSSEX COUNTY ENGINEERING DEPARTMENT
UTILITY PLANNING & DESIGN REVIEW DIVISION
C/U & C/Z COMMENTS

TO: **Jamie Whitehouse**

REVIEWER: **Chris Calio**

DATE: **2/21/2022**

APPLICATION: **CZ 1953 Brasure Holdings, LLC**

APPLICANT: **Brasure Holdings, LLC**

FILE NO: **OM-4.05**

TAX MAP & PARCEL(S): **533-19.00-13.02**

LOCATION: **Lying on the northwest side of Lighthouse Road (Rt. 54), approximately 0.27 mile west of Sound Church Road (Rt. 20).**

NO. OF UNITS: **Upzone from AR-1 to C-2**

GROSS ACREAGE: **1.646**

SYSTEM DESIGN ASSUMPTION, MAXIMUM NO. OF UNITS/ACRE: **4**

SEWER:

(1). Is the project in a County operated and maintained sanitary sewer and/or water district?

Yes ☒ No ☐

a. If yes, see question (2).
b. If no, see question (7).

(2). Which County Tier Area is project in? **Tier 1**

(3). Is wastewater capacity available for the project? **Yes** If not, what capacity is available? **N/A**.

(4). Is a Construction Agreement required? **Yes** If yes, contact Utility Engineering at (302) 855-7717.

(5). Are there any System Connection Charge (SCC) credits for the project? **No** If yes, how many? **N/A**. Is it likely that additional SCCs will be required? **Yes** If yes, the current System Connection Charge Rate is **Unified $6,600.00** per EDU. Please contact **Noell Warren** at **302-855-7719** for additional information on charges.

(6). Is the project capable of being annexed into a Sussex County sanitary sewer district? **N/A**

☐ Attached is a copy of the Policy for Extending District Boundaries in a Sussex County Water and/or Sanitary Sewer District.

(7). Is project adjacent to the Unified Sewer District? **N/A**

(8). Comments: **There are currently 3.17 EDU's assessed at this property.**

(9). Is a Sewer System Concept Evaluation required? **Yes, Contact Utility Planning at 302-855-7370 to apply**

(10). Is a Use of Existing Infrastructure Agreement Required? **Yes**

(11). **All residential roads must meet or exceed Sussex County minimum design standards.**

UTILITY PLANNING & DESIGN REVIEW APPROVAL:

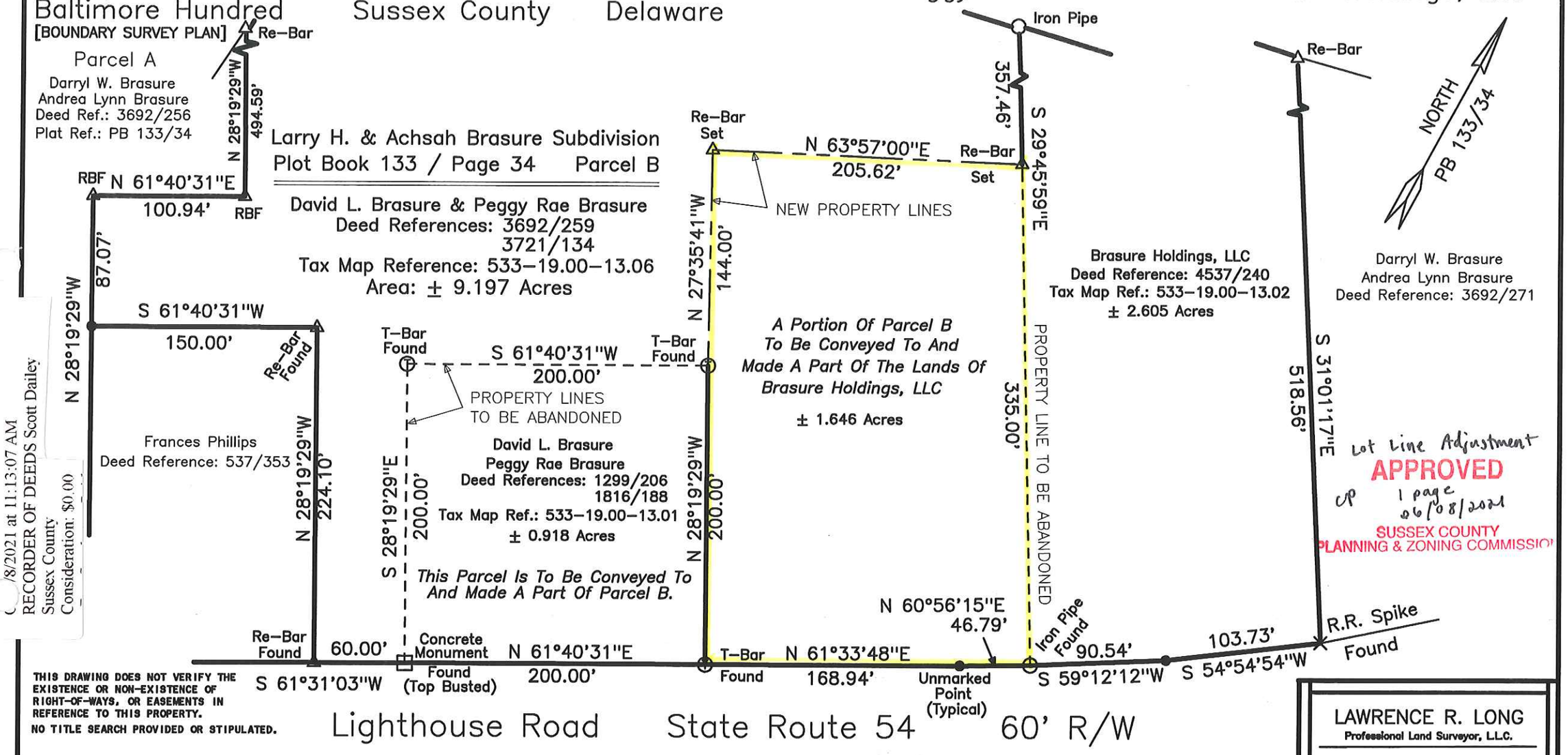
John J. Ashman
Sr. Manager of Utility Planning & Design Review

Xc: Hans M. Medlarz, P.E.
Lisa Walls
Noell Warren

Survey: Revised & Reassembled Lands Of David L. Brasure & Peggy Rae Brasure And Brasure Holdings, LLC

Baltimore Hundred Sussex County Delaware

[BOUNDARY SURVEY PLAN]



CONFORMED COPY
Document # 20210000037207 BK: 341 PG: 87
6/8/2021 at 11:13:07 AM
RECORDER OF DEEDS Scott Dailey
Sussex County
Consideration: $0.00

THIS DRAWING DOES NOT VERIFY THE EXISTENCE OR NON-EXISTENCE OF RIGHT-OF-WAYS, OR EASEMENTS IN REFERENCE TO THIS PROPERTY.
NO TITLE SEARCH PROVIDED OR STIPULATED.

80 0 80 160 240

GRAPHIC SCALE – FEET

I, Lawrence R. Long, registered as a Professional Land Surveyor in the State of Delaware, hereby state that the information shown on this plan has been prepared under my supervision and meets the standards of practice as established by the State of Delaware Board of Professional Land Surveyors. Any changes to the property conditions, improvements, boundary or property corners after the date shown hereon, shall necessitate a new review and certification for any official or legal use.

Class B Survey
May 25,2021

Lawrence R. Long
LAWRENCE R. LONG (Valid In Red Ink Only)
Professional Land Surveyor
DELAWARE #543 MARYLAND #10961

LAWRENCE R. LONG
Professional Land Surveyor, L.L.C.
36079 Bayard Road
Frankford, DE 19945
PHONE: 302-436-5215
Land Surveying Services
DELAWARE / MARYLAND

JAMIE WHITEHOUSE, AICP
DIRECTOR OF PLANNING & ZONING
(302) 855-7878 T
(302) 854-5079 F
jamie.whitehouse@sussexcountyde.gov

Sussex County
DELAWARE
sussexcountyde.gov

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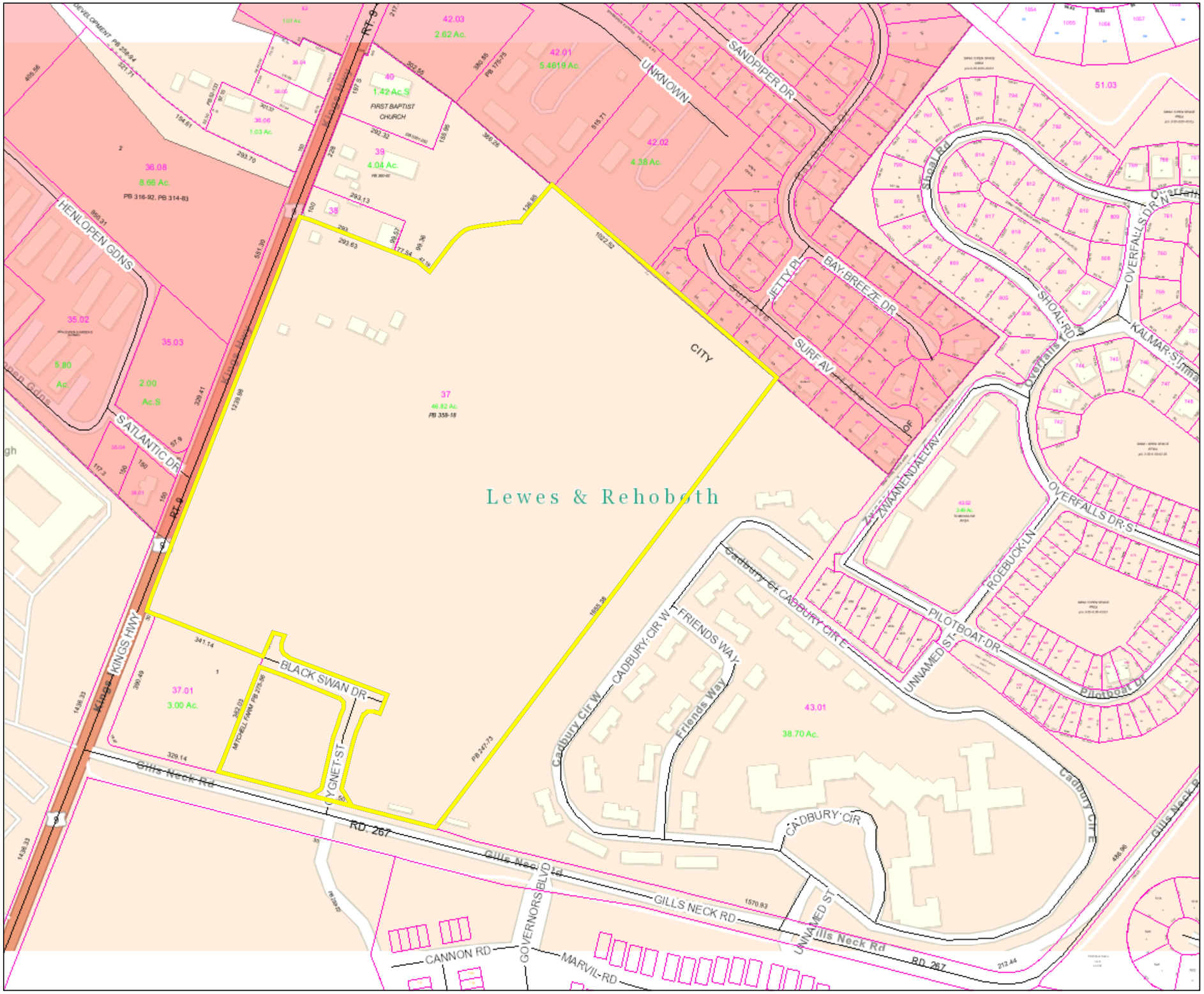
PLANNING & ZONING COMMISSION
ROBERT C. WHEATLEY, CHAIRMAN
KIM HOEY STEVENSON, VICE-CHAIRMAN
R. KELLER HOPKINS
J. BRUCE MEARS
HOLLY J. WINGATE

Sussex County
DELAWARE
sussexcountyde.gov
302-855-7878 T
302-854-5079 F
JAMIE WHITEHOUSE, MRTPI, AICP
DIRECTOR OF PLANNING & ZONING

PLANNING AND ZONING AND COUNTY COUNCIL INFORMATION SHEET
Planning Commission Public Hearing Date: March 10th, 2022

Application:	2022-01 Henlopen Properties, LLC
Applicant:	Henlopen Properties, LLC 4750 Owning Mills Boulevard Owing Mills, MD 21117
Owner:	Mitchell Family, LLC 1019 Kings Highway Lewes, DE 19958
Site Location:	Lying on the southeast side of Kings Hwy. (Rt. 9) and on the north side of Gills Neck Rd. (S.C.R. 267)
Current Zoning:	Medium Residential (MR) Zoning District
Proposed:	267 Single Family Lots
Comprehensive Land Use Plan Reference:	Coastal Area
Councilmanic District:	Mr. Schaeffer
School District:	Cape Henlopen School District
Fire District:	Lewes Volunteer Fire Department
Sewer:	Sussex County
Water:	Tidewater
Site Area:	43.777 acres +/-
Tax Map ID.:	335-8.00-37.00

Sussex County



PIN:	335-8.00-37.00
Owner Name	JEFF-KAT LLC
Book	5613
Mailing Address	1007 KINGS HWY
City	LEWES
State	DE
Description	SE/KINGS HWY
Description 2	RESIDUAL LANDS
Description 3	N/A
Land Code	

polygonLayer
Override 1

polygonLayer
Override 1
Tax Parcels
Streets
Hundred Boundaries
County Boundaries

Tax Ditch Segments
Tax Ditch Channel
Pond Feature
Special Access ROW
Extent of Right-of-Way
Municipal Boundaries
TID

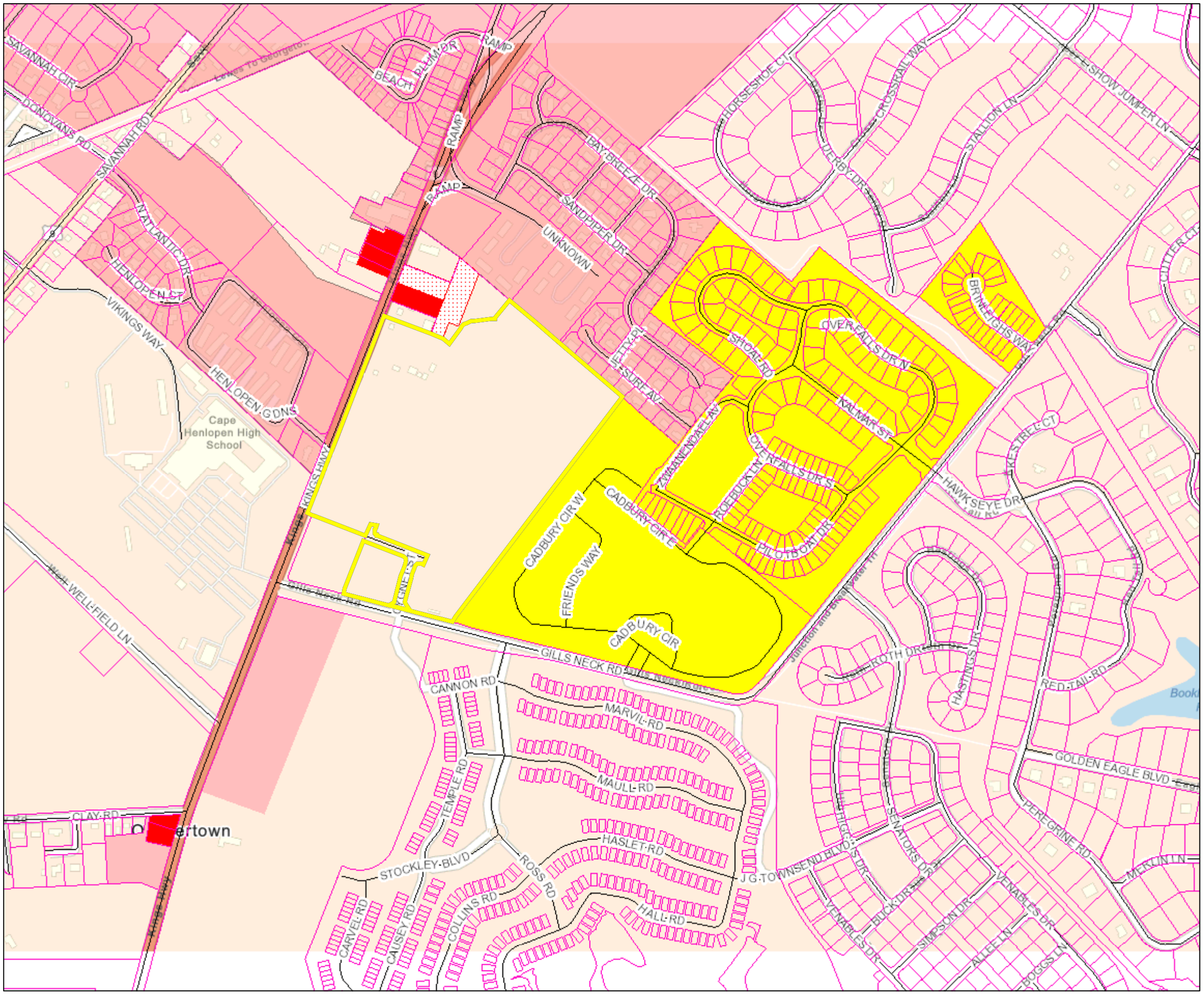
1:4,514

0 0.05 0.1 0.2 mi

0 0.075 0.15 0.3 km

January 31, 2022

Sussex County



PIN:	335-8.00-37.00
Owner Name	JEFF-KAT LLC
Book	5613
Mailing Address	1007 KINGS HWY
City	LEWES
State	DE
Description	SE/KINGS HWY
Description 2	RESIDUAL LANDS
Description 3	N/A
Land Code	

polygonLayer
Override 1

polygonLayer
Override 1

Tax Parcels

Streets

1:9,028

0 0.1 0.2 0.4 mi

0 0.175 0.35 0.7 km

January 31, 2022

Sussex County

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polygonLayer

Override 1

polygonLayer

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Tax Parcels

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Special Access ROW

Extent of Right-of-Way

Municipal Boundaries

TID

1:4,514

0 0.05 0.1 0.2 mi

0 0.075 0.15 0.3 km

January 31, 2022

File #: 2022-1
2022-00453

Sussex County Major Subdivision Application

Sussex County, Delaware

Sussex County Planning & Zoning Department
2 The Circle (P.O. Box 417) Georgetown, DE 19947
302-855-7878 ph. 302-854-5079 fax

RECEIVED
JAN 05 2022
SUSSEX COUNTY
PLANNING & ZONING

Type of Application: (please check applicable)
Standard: ___
Cluster: ___
ESDDOZ: ✓

Location of Subdivision:
Northeast quadrant of Kings Highway and Gills Neck Road, Lewes

Proposed Name of Subdivision:

Tax Map #: 335-8.00-37.00 Total Acreage: 43.777 +/- acres

Zoning: AR-1 **Density:** 6.10 **Minimum Lot Size:** 2,400 **Number of Lots:** 267

Open Space Acres: 11.794

Water Provider: Tidewater **Sewer Provider:** Sussex County

Applicant Information

Applicant Name: Henlopen Properties, LLC
Applicant Address: 4750 Owning Mills Blvd
City: Owning Mills State: MD ZipCode: 21117
Phone #: E-mail:

Owner Information

Owner Name: Mitchell Family, LLC
Owner Address: 1019 Kings Highway
City: Lewes State: DE Zip Code: 19958
Phone #: E-mail:

Agent/Attorney/Engineer Information

Agent/Attorney/Engineer Name: Davis, Bowen & Friedel, Inc.
Agent/Attorney/Engineer Address: 1 Park Avenue
City: Milford State: DE Zip Code: 19963
Phone #: (302) 424-1441 E-mail: rwl@dbfinc.com

Check List for Sussex County Major Subdivision Applications

The following shall be submitted with the application

✓ **Completed Application**

✓ **Provide fifteen (15) copies of the Site Plan or Survey of the property and a PDF (via e-mail)**
- Plan shall show the existing conditions, setbacks, roads, floodplain, wetlands, topography, proposed lots, landscape plan, etc. **Per Subdivision Code 99-22, 99-23 & 99-24**
- Provide compliance with Section 99-9.
- Deed or Legal description, copy of proposed deed restrictions, soil feasibility study

✓ **Provide Fee $500.00**

___ **Optional - Additional information for the Commission to consider** (ex. photos, exhibit books, etc.) If provided submit seven (7) copies and they shall be submitted a minimum of ten (10) days prior to the Planning Commission meeting.

✓ **Please be aware that Public Notice will be sent to property owners within 200 feet of the subject site and County staff will come out to the subject site, take photos and place a sign on the site stating the date and time of the Public Hearings for the application.**

— **PLUS Response Letter** (if required)

___ **51% of property owners consent if applicable**

The undersigned hereby certifies that the forms, exhibits, and statements contained in any papers or plans submitted as a part of this application are true and correct.

I also certify that I or an agent on by behalf shall attend all public hearing before the Planning and Zoning Commission and any other hearing necessary for this application and that I will answer any questions to the best of my ability to respond to the present and future needs, the health, safety, morals, convenience, order, prosperity, and general welfare of the inhabitants of Sussex County, Delaware.

Signature of Applicant/Agent/Attorney

Date: 12/22/2021

Signature of Owner

Date: 12/22/21

For office use only:

Date Submitted: 1/5/22

Staff accepting application: CSF

Fee: $500.00 Check #: 10025047

Application & Case #: 2022-00453

Location of property: _____

Date of PC Hearing: _____

Recommendation of PC Commission: _____

SUSSEX COUNTY ENGINEERING DEPARTMENT
UTILITY PLANNING & DESIGN REVIEW DIVISION
C/U & C/Z COMMENTS

TO:	**Jamie Whitehouse**
REVIEWER:	**Chris Calio**
DATE:	**2/21/2022**
APPLICATION:	**2022-01 Henlopen Properties, LLC**
APPLICANT:	**Henlopen Properties, LLC**
FILE NO:	**OM-9.04**
TAX MAP & PARCEL(S):	**335-8.00-37.00**
LOCATION:	**Lying on the southeast side of Kings Highway (Rt. 9) and on the north side of Gills Neck Road (SCR 267).**
NO. OF UNITS:	**267 single family lots**
GROSS ACREAGE:	**43.777**

SYSTEM DESIGN ASSUMPTION, MAXIMUM NO. OF UNITS/ACRE: **4**

SEWER:

(1). Is the project in a County operated and maintained sanitary sewer and/or water district?

Yes ☒ No ☐

a. If yes, see question (2).
b. If no, see question (7).

(2). Which County Tier Area is project in? **Tier 1**

(3). Is wastewater capacity available for the project? **Yes** If not, what capacity is available? **N/A**.

(4). Is a Construction Agreement required? **Yes** If yes, contact Utility Engineering at (302) 855-7717.

(5). Are there any System Connection Charge (SCC) credits for the project? **No** If yes, how many? **N/A**. Is it likely that additional SCCs will be required? **Yes** If yes, the current System Connection Charge Rate is **Unified $6,600.00** per EDU. Please contact **Christine Fletcher** at **302-855-7719** for additional information on charges.

(6). Is the project capable of being annexed into a Sussex County sanitary sewer district? **N/A**

☐ Attached is a copy of the Policy for Extending District Boundaries in a Sussex County Water and/or Sanitary Sewer District.

(7). Is project adjacent to the Unified Sewer District? **N/A**

(8). Comments: **Click or tap here to enter text.**

(9). Is a Sewer System Concept Evaluation required? **Yes, Contact Utility Planning at 302-855-7370 to apply**

(10). Is a Use of Existing Infrastructure Agreement Required? **Yes**

(11). **All residential roads must meet or exceed Sussex County minimum design standards.**

UTILITY PLANNING & DESIGN REVIEW APPROVAL:

John J. Ashman
Sr. Manager of Utility Planning & Design Review

Xc: Hans M. Medlarz, P.E.
Lisa Walls
Christine Fletcher

MAPPING & ADDRESSING

MEGAN NEHRBAS
MANAGER OF GEOGRAPHIC
INFORMATION SYSTEMS (GIS)
(302) 855-1176 T
(302) 853-5889 F

Sussex County
DELAWARE
sussexcountyde.gov

December 21, 2021

Davis, Bowen & Friedel, Inc.

Attn: Ring W. Lardner, P.E.

RE: **Change of Sub Division Name(s)/Formally known as:**

ZWAANENDAEL FARM

I have received your request to change the subdivision previously approved as **ZWAANENDAEL FARM**, which is located in **Lewes** (335-8.00-37.00) The name change has been approved and will now been known as:

MITCHELLS CORNER

Should you have any questions please contact the **Sussex County Addressing Department at 302-853-5888 or 302-855-1176.**

Sincerely,

Terri L Dukes

Terri L. Dukes
Addressing Technician II

CC: Christin Scott
Planning & Zoning

STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. BOX 778
DOVER, DELAWARE 19903

NICOLE MAJESKI
SECRETARY

February 28, 2022

Mr. Ring Lardner
Davis, Bowen & Friedel, Inc.
1 Park Avenue
Milford, DE 19963

Dear Mr. Lardner:

The enclosed Traffic Impact Study (TIS) review letter for the **Mitchell Farm (Zwaanendael Farm)** (Tax Parcel: 335-8.00-37.00) development has been completed under the responsible charge of a registered professional engineer whose firm is authorized to work in the State of Delaware. They have found the TIS to conform to DelDOT's Development Coordination Manual and other accepted practices and procedures for such studies. DelDOT accepts this letter and concurs with the recommendations. If you have any questions concerning this letter or the enclosed review letter, please contact me at (302) 760-2124.

Sincerely,

Claudy Joinville
Project Engineer

CJ:km
Enclosures
cc with enclosures: Mr. Robert Mitchell, The Mitchell Family Ltd. Partnership
Mr. Paul Townsend, Owner
Mr. David Hutt, Morris, James, Wilson, Halbrook & Bayard, LLP
Mr. DJ Hughes, Davis, Bowen & Friedel, Inc.
Ms. Ann Marie Townshend, City Manager, City of Lewes
Mr. David Edgell, Office of State Planning Coordination
Mr. Jamie Whitehouse, Sussex County Planning and Zoning
Ms. Joanne Arellano, Johnson, Mirmiran, & Thompson, Inc.
DelDOT Distribution

DelDOT

DelDOT Distribution

Brad Eaby, Deputy Attorney General
Shanté Hastings, Deputy Secretary / Director of Transportation Solutions (DOTS)
Pamela Steinebach, Director, Planning
Mark Luszcz, Deputy Director, Traffic, DOTS
Peter Haag, Chief Traffic Engineer, Traffic, DOTS
Michael Simmons, Assistant Director, Project Development South, DOTS
Todd Sammons, Assistant Director, Development Coordination
T. William Brockenbrough, Jr., County Coordinator, Development Coordination
Chris Sylvester, Traffic Studies Manager, Traffic, DOTS
Alistair Probert, South District Engineer, South District
Matthew Schlitter, South District Public Works Engineer, South District
Jared Kauffman, Service Development Planner, Delaware Transit Corporation
Tremica Cherry, Service Development Planner, Delaware Transit Corporation
Anthony Aglio, Planning Supervisor, Statewide & Regional Planning
Wendy Polasko, Subdivision Engineer, Development Coordination
Steve McCabe, Sussex Review Coordinator, Development Coordination
Mark Galipo, Traffic Engineer, Traffic, DOTS
Brian Yates, Subdivision Manager, Development Coordination
Annamaria Furmato, Project Engineer, Development Coordination

Revised February 28, 2022
October 7, 2021

Mr. Claudy Joinville
Project Engineer
Development Coordination
DelDOT Division of Planning
800 Bay Road
P O Box 778
Dover, DE 19903

RE:Agreement No. 1945F
Project Number T202069012
Traffic Impact Study Services
Task 4A-Mitchell Farm (Zwaanendael Farm)

Dear Mr. Joinville:

In October 2021, Johnson, Mirmiran and Thompson (JMT) completed the review of the Traffic Impact Study (TIS) for Mitchell Farm (Zwaanendael Farm), prepared by Davis, Bowen & Friedel, Inc. dated November 2019 and the TIS Addendum prepared by Davis, Bowen & Friedel, Inc. dated April 2020. The task was assigned as Task Number 4A and the report was prepared in a manner generally consistent with DelDOT's *Development Coordination Manual*.

Since that review, the developer has proposed land use changes and this letter has been revised to summarize the modifications. In addition, changes have been made to the DelDOT *US 9, Kings Highway, Dartmouth Drive to Freeman Highway* (DelDOT Contract No. T202212901) project as well as to the interim improvements proposed by the developer. This letter summarizes the recommendations based on what is now planned and proposed. A copy of the October 7, 2021 TIS review letter is attached for reference.

The TIS evaluates the impacts of a proposed mixed-use development in Sussex County, Delaware. The current site plan proposes 14,400 square feet of shopping center, 28,800 square feet of medical/dental office, and 267 multi-family homes. This plan represents a trip generation reduction of approximately 50%. Construction is anticipated to be complete in 2027. The existing 39,000 square foot medical/dental office building on Lot 1 would remain with the land use changes.

Table 1 summarizes the updated full build out of the site. The trip generation for the proposed development was determined by using the comparable land use and rates/equations contained in the *Trip Generation, 10th Edition: An ITE Informational Report*, published by the Institute of Transportation Engineers (ITE).

Table 1
Mitchell Farm (Zwaanendael Farm) Trip Generation – Updated Full Build Out

Land Use	ADT	AM Peak Hour			PM Peak Hour			SAT Peak Hour		
		In	Out	Total	In	Out	Total	In	Out	Total
267 Multifamily Low-Rise Houses (ITE Code 220)	1,978	28	93	121	90	52	142	101	86	187
67,800 SF Medical-Dental Office Building (ITE Code 720)*	2,517	123	35	158	65	167	232	120	90	210
14,400 SF Shopping Center (ITE Code 820)	1,610	9	5	14	62	68	130	70	64	134
Total Trips	**6,105**	**160**	**133**	**293**	**217**	**287**	**504**	**291**	**240**	**531**
Internal Capture	-	8	8	16	35	35	70	36	36	72
New Trips	**6,105**	**152**	**125**	**277**	**182**	**252**	**434**	**255**	**204**	**459**

*The existing 39,000 square-feet of medical-dental office building on Lot 1 would be maintained as part of the proposed development and is included in this calculation.

A comparison of the new trips between the updated land use changes and the TIS/TIS Addendum was conducted. As depicted in Table 2, the proposed updated land use changes is expected to generate significantly less traffic for the full build out of the site.

Table 2
Mitchell Farm (Zwaanendael Farm) Trip Generation Comparison – Full Build Out

Land Use	ADT	AM Peak Hour			PM Peak Hour			SAT Peak Hour		
		In	Out	Total	In	Out	Total	In	Out	Total
Updated Land Uses – New Trips	6,105	152	125	277	182	252	434	255	204	459
November 2019 TIS/April 2020 TIS Addendum – New Trips	9,268	356	166	522	271	548	819	617	478	1,095
Difference	**- 3,163**	**-204**	**-41**	**-245**	**-89**	**-296**	**-385**	**-362**	**-274**	**-636**

The site is located on the northeast corner of the intersection of Kings Highway (Sussex Road 268) and Gills Neck Road (Sussex Road 267). Two access points are proposed: one along Kings Highway directly opposite the proposed site access for the Beebe Medical development and one along Gills Neck Road opposite the site access for the proposed Gills Neck Village Center commercial project.

The site consists of two tax parcels, a 3-acre parcel known as Lot 1 and the remainder of the original parcel consisting of approximately 48 acres. Both parcels are zoned AR-1 (Agricultural Residential). Lot 1 is subject to a conditional use for a 39,000 square foot medical/dental office building which has been constructed. The remaining parcel (48 acres) is the subject of the following applications pending with Sussex County: a subdivision application, 2 change of zone applications (C-2 and MR), and a conditional use (MR parcel).

It should be noted that the 39,000 square foot medical/dental office building on Lot 1 that has been approved and constructed provides a Site Entrance along Gills Neck Road. The Site Entrance is constructed as a two-way stop-controlled intersection with one shared left turn/through lane and one right turn lane along the southbound Site Entrance approach (stop-controlled). One left turn lane and one through lane are provided along the eastbound Gills Neck Road approach and one through lane and one right turn lane are provided along the westbound Gills Neck Road approach. As part of the Lot 1 construction, sidewalks and bike lanes have been added along the Gills Neck Road site frontage and the Site Entrance along Gills Neck Road contains ADA compliant curb ramps.

DelDOT has several relevant and ongoing improvement projects and plans within the study area including the *Realignment of Old Orchard Road/Savannah Road/Wescoats Road* (DelDOT Contract No. T201609601) project; a signal at the Kings Highway and Clay Road intersection which was recently installed; the *Corridor Management Plan* for the Lewes Scenic and Historic Byway (October 2015); the *Kings Highway and Gills Neck Road Master Plan* dated September 2016; and the Delaware River and Bay Authority (DRBA) *Freeman Highway Rehabilitation* project (DelDOT Contract No. 20191619-00). Detailed information regarding these projects can be found in the October 7, 2021 TIS review letter.

As part of the DelDOT *US 9, Kings Highway, Dartmouth Drive to Freeman Highway* (DelDOT Contract No. T202212901) project, Kings Highway is proposed to be widened to provide two through lanes in each direction. DelDOT held a public workshop on February 23, 2022 to discuss the proposed improvements which include widening Kings Highway to provide two 11-foot lanes in each direction with 5-foot shoulders, and a curbed median would be provided to separate each direction of travel. Additionally, the following intersections along Kings Highway are proposed to be converted to roundabouts: Dartmouth Drive, Clay Road, Gills Neck Road, Beebe Medical Center/Mitchell Farm site entrance, and Freeman Highway. Pedestrian and transit improvements are also proposed. The project is in the design and planning stage with construction anticipated to start in Fiscal Year 2026. More information about the project can be found here: https://deldot.gov/projects/index.shtml?dc=details&projectNumber=T202212901

The October 7, 2021 TIS review evaluated cases with dualization of Kings Highway as it was then envisioned. DelDOT's current plan of the project is different.

Although the projected trip generation associated with the site has reduced significantly, the developer has agreed to the interim improvements similar to those identified in the October 2021 TIS review. The interim improvements would add a second left turn lane from Gills Neck Road onto southbound Kings Highway and a second through lane along southbound Kings Highway starting north of Gills Neck Road and ending at Clay Road. These improvements would potentially be replaced as part of the *US 9, Kings Highway, Dartmouth Drive to Freeman Highway* project. Details follow in the itemized list of recommendations.

Should Sussex County approve the proposed development, the following items should be incorporated into the site design and reflected on the record plan. All applicable agreements (i.e. letter agreements for off-site improvements and traffic signal agreements) should be executed prior to entrance plan approval for the proposed development. The following items should be implemented at the same time as site construction once all agency approvals and permits are secured and completed in accordance with DelDOT's Standards and Specifications.

1. The developer should provide a bituminous concrete overlay to the existing travel lanes along Kings Highway from north of Gills Neck Road to south of Clay Road in the area affected by the improvements discussed below in Item Number 4, including any auxiliary lanes, at DelDOT's discretion. DelDOT should analyze the existing lanes' pavement section and recommend an overlay thickness to the developer's engineer, if necessary.

2. The developer should construct a rights-in/rights-out site entrance for the proposed Mitchell Farm/Zwaanendael Farm development on Kings Highway directly across from the Beebe Medical entrance, approximately 1,550 feet north of the northeast tangent point of the Gills Neck Road/Cape Henlopen High School Entrance. The design of the entrance, including lengths of turn lanes, will be determined during the Entrance Plan review process.

3. The developer should maintain the existing site entrance for the proposed Mitchell Farm/Zwaanendael Farm development, approximately 650 feet east of the northeast tangent point of the Kings Highway intersection and directly across from the proposed Gills Neck Village Center Entrance to be consistent with the lane configurations shown in the table below:

Approach	Current Configuration	Proposed Configuration
Eastbound Gills Neck Road	One left turn lane and one through lane	One left turn lane, one through lane, and one right turn lane*
Westbound Gills Neck Road	One through lane and one right turn lane	One left turn lane**, one through lane, and one right turn lane
Northbound Gills Neck Village Center Entrance	Approach does not exist	One left turn/through lane and one right turn lane***
Southbound Site Entrance	One shared left turn/through lane and one right turn lane	No change

*Right turn lane to be built by others
**Left turn lane to be built by others
***Approach to be built by others

Based on DelDOT's *Development Coordination Manual*, the recommended minimum storage lengths (excluding taper) of the separate left turn and right turn lanes along Gills Neck Road are listed below. The calculated queue lengths from the HCS analysis can be accommodated within the recommended storage length.

Approach	Left Turn Lane	Right Turn Lane
Eastbound Gills Neck Road	120 feet*	190 feet**
Westbound Gills Neck Road	120 feet**	120 feet*

*This storage length is the existing storage length per the June 2018 Zwaanendael Farm Rezoning Sketch Plan and it should be maintained.
**To be built by others

As a TOA/TIS will be performed for the Gills Neck Village Center, the recommended lane configurations and storage lengths for the Gills Neck Village Center entrance may be modified based on those results.

4. The developer should improve the Kings Highway and Gills Neck Road/Cape Henlopen High School Entrance intersection to be consistent with the lane configurations shown in the table below:

Approach	Current Configuration	Proposed Configuration
Eastbound Cape Henlopen High School	One shared left turn/through lane and one right turn lane	No change
Westbound Gills Neck Road	One left turn lane, one through lane, and one right turn lane	Two left turn lanes and one shared through/right turn lane
Northbound Kings Highway	One left turn lane, one through lane, and one right turn lane	No change
Southbound Kings Highway	One left turn lane, one through lane, and one right turn lane	One left turn lane, two through lanes, and one right turn lane

The recommended minimum storage lengths (excluding taper) of the separate left turn and right turn lanes along Kings Highway and Gills Neck Road are listed below.

Approach	Left Turn Lane	Through/Right Turn Lane	Right Turn Lane
Northbound Kings Highway	250 feet*	-	180 feet*
Southbound Kings Highway	340 feet*	-	280 feet*
Westbound Gills Neck Road	420 feet	570 feet**	-

*Storage lengths match the existing storage lengths per field conditions and should be maintained.
**Storage length does not match the existing storage length and requires lengthening.

The developer would reconstruct Kings Highway south of the Gills Neck Road intersection to provide two through lanes and the rightmost through lane should transition to a right turn only lane at the Clay Road intersection. An SUP should be constructed along Kings Highway from Cape Henlopen High School to Clay Road.

The developer should donate any temporary construction easements needed to build and remove the interim improvements.

The developer should enter into a traffic signal agreement with DelDOT for the intersection of Kings Highway with Gills Neck Road to address the changes necessitated in the above improvements. The traffic signal agreement should include pedestrian signals, crosswalks, interconnection, and ITS equipment such as CCTV cameras at DelDOT's discretion. Prior to Entrance Plan approval, the developer should submit a plan to the DelDOT Development Coordination section depicting the design of Kings Highway from Gills Neck Road to Clay Road. The final design should be determined during the Entrance Plan review process.

5. The developer should enter into an agreement with DelDOT to fund an equitable portion of improvements to the intersections of Kings Highway with Dartmouth Drive, Clay Road, Gills Neck Road/Cape Henlopen High School Entrance, Atlantic Drive, Freeman Highway, Bay Breeze Drive, and the Site Entrance/Beebe Medical Center Entrance as part of the *US 9, Kings Highway, Dartmouth Drive to Freeman Highway* project. The developer should coordinate with DelDOT on the implementation and equitable cost sharing of the improvements.

6. The development should dedicate right-of-way along Kings Highway and Gills Neck Road in accordance with the functional classification of both roads to provide 50 feet from centerline on Kings Highway and 30 feet from centerline on Gills Neck Road. In addition, on Kings Highway, the development should reserve 30 feet parallel to Kings Highway to accommodate the *US 9, Kings Highway, Dartmouth Drive to Freeman Highway* project. Beyond these right-of-way dedications/reservations both roads should have a 15-foot-wide permanent easement.

7. The developer should enter into an agreement with DelDOT to fund an equitable portion of improvements to the intersection of Clay Road and Marsh Road as part of the *Realignment of Old Orchard Road/Savannah Road/Wescoats Road* (DelDOT Contract No. T201609601) project. The project will improve the intersection of Marsh Road and Clay Road to eliminate the existing skewed angle of the intersection. The developer should coordinate with DelDOT on the implementation and equitable cost sharing of the Clay Road and Marsh Road intersection improvements.

8. Vehicular interconnections or cross access easements between the on-site lots should be provided. The developer should coordinate with DelDOT's Development Coordination Section to determine the locations and feasibilities of the interconnections.

9. The following bicycle, pedestrian, and transit improvements should be included:

    a. A minimum fifteen-foot wide permanent easement from the edge of the right-of-way should be dedicated to DelDOT along the Kings Highway site frontage. Within the easement, the developer should construct a ten-foot wide shared-use path (SUP) to meet the shared-use path recently constructed for Lot 1. The developer should coordinate with DelDOT's Development Coordination and Project Development South sections during the plan review process to identify the exact location of the SUP.

    b. One or more accessways should be provided from the SUP into the site at locations to be defined during the Plan review process.

c. Where internal sidewalks are located alongside of parking spaces, a buffer, physical barrier or signage should be added to eliminate vehicular overhang onto the sidewalk.

d. The tie-in installed for Lot 1 should be removed once the SUP is extended along the entire property frontage.

e. ADA compliant curb ramps and marked crosswalks should be provided along the Kings Highway Site Entrance approach to Kings Highway. The use of diagonal curb ramps is discouraged.

f. Minimum five-foot wide bicycle lanes should be incorporated in the right turn lane and shoulder along the northbound Kings Highway approach to the Kings Highway Site Entrance.

g. Utility covers should be moved outside of any designated bicycle lanes and any proposed sidewalks/shared-use paths or should be flush with the pavement.

h. Bike parking should be provided near the building entrances. Where the building architecture provides for an awning or other overhang, the bike parking should be covered.

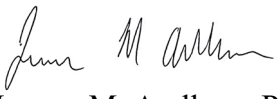
i. A Type 2 bus stop should be installed at the Kings Highway Site Entrance intersection. The developer should coordinate with DART and DelDOT on the location, design, as well as the amenities to provide.

Please note that this review generally focuses on capacity and level of service issues; additional safety and operational issues will be further addressed through DelDOT's Plan Review process.

Improvements in this TIS may be considered "significant" under DelDOT's *Work Zone Safety and Mobility Procedures and Guidelines*. These guidelines are available on DelDOT's website at https://www.deldot.gov//Publications/manuals/de_mutcd/index.shtml. For any additional information regarding the work zone impact and mitigation procedures during construction please contact Mr. Jeff VanHorn, Assistant Director for Traffic Operations and Management. Mr. VanHorn can be reached at (302) 659-4606 or by email at Jeffrey.VanHorn@delaware.gov.

Additional details on our review of the TIS are attached. Please contact me at (302) 266-9600 if you have any questions concerning this review.

Sincerely,
Johnson, Mirmiran, and Thompson, Inc.



Joanne M. Arellano, P.E., PTOE

cc: Mir Wahed, P.E., PTOE
Janna Brown, E.I.T.
Enclosure

October 7, 2021 TIS Review Letter

October 7, 2021

Mr. Troy Brestel
Project Engineer
Development Coordination
DelDOT Division of Planning
800 Bay Road
P O Box 778
Dover, DE 19903

RE: Agreement No. 1945F
Project Number T202069012
Traffic Impact Study Services
Task 4A-Mitchell Farm (Zwaanendael Farm)

Dear Mr. Brestel:

Johnson, Mirmiran and Thompson (JMT) has completed the review of the Traffic Impact Study (TIS) for Mitchell Farm (Zwaanendael Farm), prepared by Davis, Bowen & Friedel, Inc. dated November 2019 and the TIS Addendum prepared by Davis, Bowen & Friedel, Inc. dated April 2020. This task was assigned as Task Number 4A. The report is prepared in a manner generally consistent with DelDOT's *Development Coordination Manual*.

The TIS evaluates the impacts of a proposed mixed-use development in Sussex County, Delaware. The development would be comprised of 206,500 square feet of medical/office buildings, 60 single-family homes, and 150 multi-family (mid-rise) homes. Construction is anticipated to be complete in 2027.

The site is located on the northeast corner of the intersection of Kings Highway (Sussex Road 268) and Gills Neck Road (Sussex Road 267). Two full access points are proposed: one along Kings Highway directly opposite the proposed site access for the Beebe Medical development and one along Gills Neck Road opposite the site access for the proposed Gills Neck Village Center commercial project.

The site consists of two tax parcels, a 3-acre parcel known as Lot 1 and the remainder of the original parcel consisting of approximately 48 acres. Both parcels are zoned AR-1 (Agricultural Residential). Lot 1 is subject to a conditional use for a 39,000 square foot medical/office building which has been constructed. The remaining parcel (48 acres) is the subject of the following applications pending with Sussex County: a subdivision application, 3 change of zone applications (B-2, C-3, and MR), and a conditional use (MR parcel).

It should be noted that the 39,000 square foot medical/office building on Lot 1 that has been approved and constructed provides a Site Entrance along Gills Neck Road. The Site Entrance is constructed as a two-way stop-controlled intersection with one shared left turn/through lane and one right turn lane along the southbound Site Entrance approach (stop-controlled). One left turn

lane and one through lane are provided along the eastbound Gills Neck Road approach and one through lane and one right turn lane are provided along the westbound Gills Neck Road approach. As part of the Lot 1 construction, sidewalks and bike lanes have been added along the Gills Neck Road site frontage and the Site Entrance along Gills Neck Road contains ADA compliant curb ramps.

DelDOT has several relevant and ongoing improvement projects and plans within the study area including the *Realignment of Old Orchard Road/Savannah Road/Wescoats Road* (DelDOT Contract No. T201609601) project; a signal at the Kings Highway and Clay Road intersection which was recently installed; the *Corridor Management Plan* for the Lewes Scenic and Historic Byway (October 2015); the *Kings Highway and Gills Neck Road Master Plan* dated September 2016; the *US 9, Kings Highway, Dartmouth Drive to Freeman Highway* project; and the Delaware River and Bay Authority (DRBA) *Freeman Highway Rehabilitation* project (DelDOT Contract No. 20191619-00). Detailed information regarding these projects can be found later in this letter.

As part of the DelDOT *US 9, Kings Highway, Dartmouth Drive to Freeman Highway* project, Kings Highway is proposed to be widened to provide two through lanes in each direction. For the purposes of this letter, this DelDOT project will also be referred to as the Kings Highway Dual Lane project. At each intersection within the DelDOT project limits, improvement alternatives to achieve acceptable LOS in addition to dual lanes will be evaluated and subject to the typical DelDOT process, which includes public workshops.

While the specific alternatives to be examined in developing the DelDOT project have not been determined, improvement alternatives have been previously identified in several documents, including the 2007 DelDOT Planning *Kings Highway Corridor Study*, 2008 DelDOT TIS Review Letters, 2009 Letter Agreement, 2009 DelDOT Planning document *Kings Highway/Gills Neck Road Planned Area Improvements*, 2015 Lewes Scenic and Historic Byway *Corridor Management Plan*, and the 2016 DelDOT *Kings Highway/Gills Neck Road Master Plan* completed as part of the Lewes Scenic and Historic Byway.

The TIS evaluates the following future 2027 scenarios:

- Case 2a – Future 2027 without development and without Kings Highway Dual Lane project
- Case 3a – Future 2027 with development and without Kings Highway Dual Lane project
- Case 3b – Future 2027 with development and with Kings Highway Dual Lane project
- Case 3c – Future 2027 with development, with no site entrance along Kings Highway and without the completion of the Kings Highway Dual Lane project

JMT also included a future 2027 without development scenario with the completion of the Kings Highway Dual Lane project (Case 2b). Intersections outside the limits of the Kings Highway Dual Lane project were addressed as part of Case 2a, without development; and 3a with the development.

As part of the TIS Addendum, the following scenarios were evaluated and included in JMT's review:

- Case 2d – Future 2023 with development of Lot 1 (39,000 square feet of medical/dental office space) and without Kings Highway Dual Lane project
- Case 3d – Future 2023 with 117,000 square feet of medical/dental office space, including 39,000 square feet medical/dental office space from Lot 1, and without Kings Highway Dual Lane project and a rights-in site entrance along Kings Highway
- Case 3b – Future 2027 with development and with Kings Highway Dual Lane Project and Bay Breeze Drive left turn out restriction

Only intersections impacted by volume modifications during Cases 2d, 3d, and 3b were analyzed as part of the TIS Addendum. Specifically, for Cases 2d and 3d the following intersections were analyzed as part of JMT's review:

- Kings Highway (Sussex Road 268)/Site Entrance
- Gills Neck Road (Sussex Road 267)/Site Entrance
- Kings Highway/Atlantic Drive
- Kings Highway/Gills Neck Road/Cape Henlopen High School Entrance
- Kings Highway/Clay Road (Sussex Road 269)

For Case 3b, the following intersections were analyzed as part of JMT's review:

- Kings Highway/Bay Breeze Drive
- Kings Highway/Freeman Highway (Sussex Road 23)

The TIS Addendum also included an additional scenario for a Future 2021 condition with development of Lot 1 (39,000 square feet of medical/dental office space) and without Kings Highway Dual Lane project. However, per direction from DelDOT this scenario was not included in this review.

In addition to the TIS Addendum, analyses were conducted for the additional "Case 4 – Future 2027 with development and Kings Highway Dual Lane Project with Additional Improvements" scenario at intersections along Kings Highway which operated under constrained conditions despite the widening of the roadway (Case 3b). These Case 4 analyses were conducted for planning purposes only. The actual intersection improvements will be determined as part of the DelDOT project.

Based on our review of the TIS and assuming the DelDOT Kings Highway Dual Lane project will be completed by 2027 per the DelDOT CTP and discussions with DelDOT, we have the following comments and recommendations:

With the Kings Highway Dual Lane Project and individual intersection improvements alternatives to be evaluated as part of the DelDOT Project process that includes public workshops,

improvement alternatives to achieve acceptable LOS will be identified. The following intersections (signalized) or intersection approaches (unsignalized) exhibit level of service (LOS) deficiencies without the implementation of physical roadway and/or traffic control improvements. Any location and scenario shown with an "X" in the following tables indicates a LOS deficiency. Further details are provided later in this letter.

Intersection	Intersection Control	LOS Deficiencies Occur			Year	Case
		AM	PM	Saturday		
Kings Highway (Sussex Road 268)/Site Entrance/Beebe Medical Entrance	Unsignalized		X	X	2027	2a
					2027	2b
					2023	2d
		X	X	X	2027	3a
		X	X	X	2027	3b
			X	X	2027	3c
				X	2023	3d
	Roundabout				2027	2a
					2027	2b
			X	X	2027	3a
					2027	3b
			X	X	2027	3c
	Signalized				2027	2a
			X	X	2027	3a
					2027	3b
					2027	3c
					2027	3d
Gills Neck Road (Sussex Road 267)/Site Entrance/Gills Neck Village Center Entrance	Unsignalized				2027	2a
					2023	2d
		X*	X*	X*	2027	3a
		X*	X*	X*	2027	3b
		X*	X	X	2027	3c
			X*	X*	2023	3d

*LOS deficiency occurs along the Gills Neck Village Center Entrance approach which is to be built by others.

Intersection	Intersection Control	LOS Deficiencies Occur			Year	Case
		AM	PM	Saturday		
Kings Highway (Sussex Road 268)/Bay Breeze Drive	Unsignalized			X	2018	1
			X	X	2027	2a
			X	X	2027	2b
			X	X	2027	3a
					2027	3b
	Roundabout				2027	2a
					2027	2b
				X	2027	3a
					2027	3b
	Signalized				2027	2a
					2027	2b
					2027	3a
					2027	3b
Kings Highway/Freeman Highway (Sussex Road 23)	Unsignalized				2018	1
			X	X	2027	2a
			X	X	2027	3a
			X	X	2027	3b
	Signalized				2027	2
					2027	3
Kings Highway (Sussex Road 268)/Savannah Road (Sussex Road 18)	Unsignalized			X	2018	1
			X	X	2027	2a
			X	X	2027	3a
	Single Lane Roundabout				2027	2a
					2027	3a
	Signalized				2027	2a
					2027	3a

Intersection	Intersection Control	LOS Deficiencies Occur			Year	Case
		AM	PM	Saturday		
Savannah Road/Gills Neck Road/Front Street (Sussex Road 267)	Signalized			X	2018	1
				X	2027	2a
					2027	2a*
				X	2027	3a
					2027	3a*
	Single Lane Roundabout				2027	2a
					2027	3a
Kings Highway (Sussex Road 268)/Atlantic Drive	Unsignalized				2018	1
			X	X	2027	2a
				X	2027	2b
			X	X	2023	2d
			X	X	2027	3a
					2027	3b*
			X	X	2027	3c
			X	X	2023	3d
	Signalized				2027	2a
					2027	2b
					2023	2d
			X		2027	3a
					2027	3b*
					2027	3c
					2023	3d

Notes:
[1]At the intersection of Savannah Road/Gills Neck Road/Front Street, Case 2a* and 3a* are scenarios which include implementing an additional through lane along northbound and southbound Savannah Road.
[2]Atlantic Drive would provide only rights-in/rights-out movements along Kings Highway during Case 3b*.

Intersection	Intersection Control	LOS Deficiencies Occur			Year	Case
		AM	PM	Saturday		
Kings Highway/Gills Neck Road/Cape Henlopen High School	Signalized	X	X	X	2018	1
		X	X	X	2027	2a
		X			2027	2b
		X		X	2023	2d
		X	X	X	2027	3a
		X	X	X	2027	3b
		X	X	X	2027	3c
		X		X	2023	3d
					2027	4
Kings Highway/Clay Road (Sussex Road 269)	Unsignalized	X	X	X	2018	1
	Signalized	X	X	X	2027	2a
					2027	2b
			X		2023	2d
		X	X	X	2027	3a
			X		2027	3b
		X	X	X	2027	3c
			X	X	2023	3d
						4
Kings Highway (Sussex Road 268)/Dartmouth Drive (Sussex Road 268A)	Unsignalized		X	X	2018	1
		X	X	X	2027	2a
		X	X	X	2027	3a
	Single Lane Roundabout				2027	2a
					2027	3a
	Signalized				2027	2a
				X	2027	3a

As shown in the above table, ten study intersections are identified to exhibit LOS deficiencies. To minimize the impact of the deficiencies without the completion of the Kings Highway Dual Lane Project, interim condition improvements have been identified. The following section separates the analysis results based on the full build out of the site and the interim condition.

Interim Condition

As part of the TIS report, interim improvements without the implementation of the Kings Highway Dual Lane project were recommended at the Gills Neck Road/Cape Henlopen High School Entrance intersection. One scenario of the interim improvements included the modification of the westbound Gills Neck Road approach to provide two left turn lanes and a shared through/right turn lane and providing split phase signal operation along the eastbound and westbound approaches. In addition, the southbound Kings Highway approach would be modified to provide one left turn lane, one through lane, and one shared through/right turn lane.

Per a meeting between DelDOT and the developer on February 26, 2020, the interim improvements were further refined from those mentioned in the TIS and were identified to contain the following:

- Restripe the westbound Gills Neck Road approach to Kings Highway to provide two left turn lanes, and one shared through/right turn lane
- Lengthen the westbound Gills Neck Road shared through/right turn lane to provide 570 feet of storage.
- Restripe the southbound Kings Highway approach to Gills Neck Road to provide one left turn lane, one through lane, and one shared through/right turn lane
- Restripe southbound Kings Highway south of Gills Neck Road to provide two through lanes, the rightmost through lane would become a right-turn only lane onto Clay Road
- Construct a shared-use path along the western side of Kings Highway from the Gills Neck Road/Cape Henlopen High School Entrance intersection to the Clay Road intersection
- Provide a rights-in only entrance along Kings Highway across from the proposed Beebe Medical Center development
- Maintain the full movement entrance along Gills Neck Road across from the proposed Gills Neck Village Center access

The TIS Addendum analyzed these interim conditions based on a partial build of the site (117,000 square feet of medical/office space in 2023) without the Kings Highway Dual Lane project and with a rights-in access along Kings Highway (Case 3d). At the unsignalized Kings Highway/Site Entrance/Beebe Medical Site Entrance intersection, the eastbound Beebe Medical Site Entrance would experience capacity constraints during the Case 3d Saturday peak period (LOS F with 50.6 seconds of delay per vehicle). However, the projected 95th percentile queue length would be approximately 20 feet, which would have minimal impacts to the Beebe Medical Site Entrance.

At the unsignalized Gills Neck Road/Site Entrance/Gills Neck Village Center Entrance, the northbound Gills Neck Village Center Entrance would experience capacity constraints during the Case 3d weekday PM and Saturday peak periods (LOS F with 76.3 seconds of delay per vehicle). The projected 95th percentile queue length would be approximately 105 feet. As the design of this entrance would be the responsibility of the Gills Neck Village Center, additional improvements to mitigate the LOS deficiencies at this intersection during the Case 3d conditions would be unreasonable to assign to the Mitchell Farm developer.

At the unsignalized Kings Highway/Atlantic Drive intersection, the eastbound Atlantic Drive approach would experience capacity constraints during the Case 3d weekday PM and Saturday peak periods (LOS F with 164.8 seconds of delay per vehicle). However, the projected 95th percentile queue length would be approximately 80 feet, which could be accommodated within Atlantic Drive and not impact adjacent intersections.

At the signalized Kings Highway/Gills Neck Road/Cape Henlopen High School intersection, LOS deficiencies would continue to occur during the weekday AM, weekday PM, and Saturday peak periods under Case 3d conditions. However, the delays would reduce when compared to 2018 Existing Case 1 conditions during all peak periods. Specifically, during the Saturday peak period, the Case 1 delay is calculated to be 832.0 seconds per vehicle and under Case 3d conditions the delay would decrease to 366.8 seconds per vehicle. For the Saturday peak period, it should be noted that the proposed site entrance along Gills Neck Road is approximately 650 feet east of the Gills Neck Road/Kings Highway intersection. The projected 95th percentile queue length under Case 3d conditions during the Saturday peak period would be approximately 770 feet which would spillback past the Gills Neck Road site entrance. DBF analysis calculated a shorter 95th percentile queue length along westbound Gills Neck Road. However, the DBF analysis incorporated a longer signal cycle length and did not account for the signalization of Clay Road at Kings Highway.

With the future signalization of the Kings Highway/Clay Road intersection and the addition of an access on the easterly leg for the Gills Neck Village Center, the Kings Highway/Clay Road intersection would experience capacity constraints under Case 3d weekday PM and Saturday peak period conditions (LOS F with 165.2 seconds of delay per vehicle). The calculated 95th percentile queue length along the southbound Kings Highway approach to Clay Road would be approximately 2,300 feet during the weekday PM peak period and would impact operations at intersections upstream including the Kings Highway/Gills Neck Road intersection.

As interim improvements would reduce the delay at the Kings Highway and Gills Neck Road intersection prior to the completion of the Kings Highway Dual Lane project and improve operations along Kings Highway between the Beebe Medical Site Entrance and Clay Road compared to existing conditions, it is recommended that the developer implement the interim improvements as part of the partial build of the site (117,000 square feet of medical/office space).

Full Build Out of Site

The unsignalized Site Entrance along Kings Highway is proposed approximately 1,550 feet north of the northeast tangent point of the Gills Neck Road/Cape Henlopen High School Entrance intersection and exhibits LOS deficiencies during the AM, PM, and Saturday peak hours under future conditions with or without the proposed development and without completion of the Kings Highway Dual Lane project. These deficiencies occur along the eastbound Beebe Medical Entrance and the westbound Site Entrance approaches.

The provision of a signal and the completion of the Kings Highway Dual Lane project would improve the intersection to operate at LOS C (25.0 seconds of delay per vehicle) or better during all peak hours under future conditions, with or without the proposed development. However, these improvements should be part of the larger long-term improvement Kings Highway Dual Lane project. Therefore, we do not recommend the developer implement any improvements at this intersection. It is recommended that the developer coordinate with DelDOT on the implementation and equitable cost sharing of the Kings Highway Dual Lane project including the installation of a signal at this intersection.

The unsignalized Atlantic Drive intersection with Kings Highway exhibits LOS deficiencies during the PM and Saturday peak hours under future conditions, with or without the proposed development and without the completion of the Kings Highway Dual Lane project. These deficiencies can be mitigated through the completion of the Kings Highway Dual Lane project or signalization of the intersection. However, due to the proximity of the Atlantic Drive intersection to the proposed Kings Highway Site Entrance intersection and the Kings Highway/Gills Neck Road intersection, it is suggested that the Atlantic Drive approach to Kings Highway be modified to rights-in/rights-out only and remain unsignalized. The intersection will operate at acceptable LOS C (18.1 seconds of delay per vehicle) or better with a rights-in/rights out only restriction.

Additionally, interconnection should be provided between Henlopen Gardens and the proposed Beebe Medical development to minimize the number of U-turn movements at the adjacent signalized intersections. If interconnection is not feasible, U-turn movements could be provided at the adjacent signalized intersections as part of the Kings Highway Dual Lane project. These improvements should be part of the larger long-term improvement Kings Highway Dual Lane project. Therefore, we do not recommend the developer implement any improvements at this intersection. It is recommended that the developer coordinate with DelDOT on the implementation and equitable cost sharing of the Kings Highway Dual Lane project.

The signalized Gills Neck Road/Cape Henlopen High School Entrance intersection with Kings Highway exhibits LOS deficiencies during the AM, PM, and Saturday peak hours under existing and future conditions, with or without the proposed development and without the completion of the Kings Highway Dual Lane project. These deficiencies could be mitigated by the provision of one left turn lane, one shared left turn/through lane, and one right turn lane along westbound Gills Neck Road, the provision of one left turn lane, one through lane, and one right turn lane along the eastbound Cape Henlopen High School Entrance approach, the modification of the signal phasing along the eastbound and westbound approaches to split phase, and the completion of the Kings Highway Dual Lane project. These improvements would improve the intersection to operate at LOS D (54.9 seconds of delay per vehicle). The improvements that require widening of the roadway should be part of the larger long-term improvement Kings Highway Dual Lane project. Therefore, we recommend the developer implement only the interim improvements at this intersection and coordinate with DelDOT on the equitable cost sharing of the Kings Highway Dual Lane project.

The unsignalized Site Entrance along Gills Neck Road is proposed approximately 650 feet east of the northeast tangent point of the Kings Highway intersection and exhibits LOS deficiencies during the AM, PM, and Saturday peak hours under future conditions with the proposed development and with or without the completion of the Kings Highway Dual Lane project. Specifically, these deficiencies are only projected along the northbound Gills Neck Village Center Entrance with delays during the PM peak of 201.4 seconds per vehicle under Cases 3a and 3b conditions, and the calculated 95th percentile queue length would be approximately 113 feet. Although long delays are expected, they would occur at the Gills Neck Village Center Entrance and should not be the responsibility of the Mitchell Farm developer to mitigate as the Site Entrance for the Mitchell Farm (Zwaanendael Farm) site has already been constructed. As such, it is recommended that the Mitchell Farm developer maintain the full access at the Site Entrance.

The formerly unsignalized intersection of Clay Road with Kings Highway exhibited LOS deficiencies during the AM, PM, and Saturday peak hours under existing and future conditions, with or without the proposed development and with or without the completion of the Kings Highway Dual Lane project. DelDOT recently converted the intersection to a signalized intersection consistent with the recommendations from DelDOT's *Signal Justification Study US9 – Kings Highway (S268) & Clay Road (S269)*. The study also recommended a long-term improvement to determine the feasibility of converting the intersection to a roundabout or installing appropriate turn lanes as part of a larger project such as the Kings Highway Dual Lane project. Additionally, the Gills Neck Village Center development will construct a westbound approach to the intersection.

A TIS/TOA has not been completed for the Gills Neck Village Center development as previously contemplated. However, per the January 15, 2008, TIS review letter performed by McCormick Taylor for the original development proposed at the site (the Gills Neck Road Subdivision, Townsend Property), the westbound approach was recommended to provide two left turn lanes, one through lane, and one right turn lane opposite Clay Road. With the signalization of the intersection, the completion of the Kings Highway Dual Lane project, and the addition of auxiliary lanes along all approaches, the intersection would operate at acceptable LOS. Therefore, we recommend the Mitchell Farm developer only implement the interim improvements at the intersection. However, it is recommended that the Mitchell Farm developer coordinate with DelDOT on the implementation and equitable cost sharing of the improvements at this intersection as part of the Gills Neck Village Center development and the Kings Highway Dual Lane project. The improvements should include the provision of two left turn lanes along the westbound Gills Neck Village Center approach.

The unsignalized intersection of Kings Highway and Dartmouth Drive exhibits LOS deficiencies during the AM, PM, and Saturday peak hours under existing and future conditions with or without the development and with or without the Kings Highway Dual Lane project. The deficiencies at this intersection could be mitigated through the provision of a roundabout or a signal.

Per the January 15, 2008, TIS review letter for the Gills Neck Road Subdivision, improvements were recommended to modify the intersection to a single-lane roundabout with a bypass lane for

the southbound Kings Highway right-turn movement and a bypass lane for the northbound Kings Highway through movement. Should a roundabout be determined to be infeasible at this location, the January 15, 2008, TIS review letter also recommended the eastbound Dartmouth Drive approach be modified to provide an exclusive left-turn lane and a shared left turn/right turn lane as well provide a second receiving lane along northbound Kings Highway. However, these improvements are outside the scope of this TIS, as any extensive improvements to this intersection should be part of a larger long-term improvement project (such as the Kings Highway Dual Lane project). Therefore, we do not recommend the developer implement any improvements at this intersection. It is recommended that the developer coordinate with DelDOT on the equitable cost sharing of the Kings Highway Dual Lane project including either the installation of a roundabout or a signal at this intersection.

The unsignalized Bay Breeze Drive intersection with Kings Highway exhibits LOS deficiencies during the PM and Saturday peak hours under existing and future conditions, with or without the proposed development and with or without the completion of the Kings Highway Dual Lane project. These deficiencies could be mitigated through the provision of a signal or by restricting left-out movements from Bay Breeze Drive. However, these improvements are outside the scope of this TIS, as any extensive improvements to this intersection should be part of a larger long-term improvement project (such as the Kings Highway Dual Lane project). Therefore, we do not recommend the developer implement any improvements at this intersection.

The unsignalized Freeman Highway intersection with Kings Highway exhibits LOS deficiencies during the PM and Saturday peak hours under future conditions, with or without the proposed development and with or without the completion of the Kings Highway Dual Lane project. These deficiencies could be mitigated through the provision of a signal. However, these improvements are outside the scope of this TIS, as any extensive improvements to this intersection should be part of a larger long-term improvement project (such as the Kings Highway Dual Lane project). Therefore, we do not recommend the developer implement any improvements at this intersection.

It should be noted that the TIS analyzed the Freeman Highway intersection with Kings Highway with a different methodology from that used by JMT. Based on coordination with DelDOT's Planning and Traffic Studies Sections, it was agreed that JMT's approach to analyzing this intersection was more appropriate. However, the TIS methodology could be deemed the more appropriate approach if a gap study was conducted to further validate this method.

The unsignalized Savannah Road intersection with Kings Highway exhibits LOS deficiencies during the PM and Saturday peak hours under existing and future conditions with or without the proposed development. These deficiencies could be mitigated through the provision of a single lane roundabout or a signal. However, a roundabout is not feasible at this location due to the existing buildings adjacent to the intersection. Additionally, the deficiencies occur along the eastbound 3rd Street approach and the 95th percentile queue length along this approach under Case 3 conditions during the Saturday peak hour is approximately 255 feet which would not extend into the adjacent Chestnut Street intersection. Therefore, we do not recommend the developer implement any improvements at this intersection.

The signalized Front Street/Gills Neck Road intersection with Savannah Road exhibits LOS deficiencies during the Saturday peak hour under existing and future condition with or without the proposed development. These deficiencies could be mitigated through the provision of a single lane roundabout or an additional through lane along northbound and southbound Savannah Road. However, a roundabout is not feasible at this location due to the existing buildings adjacent to the intersection and widening Savannah Road may not be feasible at this location due to the existing draw bridge located along the northerly leg. Therefore, we do not recommend the developer implement any improvements at this intersection.

Should Sussex County approve the proposed development, the following items should be incorporated into the site design and reflected on the record plan. All applicable agreements (i.e. letter agreements for off-site improvements and traffic signal agreements) should be executed prior to entrance plan approval for the proposed development.

Interim Improvements

The following items should be incorporated as part of the partial build out of the site (117,000 square feet of medical/office space) or any land use not projected to exceed the daily or peak hour site traffic based on the partial build out of the site.

1. The developer should provide a bituminous concrete overlay to the existing travel lanes along the northbound Kings Highway site frontage in the area affected by entrance plan construction, including any auxiliary lanes, at DelDOT's discretion. DelDOT should analyze the existing lanes' pavement section and recommend an overlay thickness to the developer's engineer, if necessary.

2. The developer should construct a rights-in only site entrance for the proposed Mitchell Farm/Zwaanendael Farm development on Kings Highway, approximately 1,550 feet north of the northeast tangent point of the Gills Neck Road/Cape Henlopen High School Entrance intersection to be consistent with the lane configurations shown in the table below:

Approach	Current Configuration	Proposed Configuration
Eastbound Beebe Medical Entrance	Approach does not exist	One left turn lane and one right turn lane*
Westbound Site Entrance	Approach does not exist	One receiving lane for the rights-in movements**
Northbound Kings Highway	One through lane	One shared left turn/through lane and one right turn lane**
Southbound Kings Highway	One through lane	One through lane and one right turn lane*

*To be built by others

**To be built by developer by 2023 before the completion of the Mitchell Farm/Zwaanendael Farm medical/office space.

Based on DelDOT's *Development Coordination Manual*, the recommended minimum storage lengths (excluding taper) of the separate left turn and right turn lanes along Kings Highway are listed below. The calculated queue lengths from the HCS analysis can be accommodated within the recommended storage length.

Approach	Right Turn Lane
Northbound Kings Highway	290 feet
Southbound Kings Highway	115 feet*

*This storage length is the proposed storage length on the October 4, 2019, plans for the Beebe Medical Center and it should be built by the developer of that project.

The developer should submit a plan to DelDOT's Development Coordination section depicting the design of the signalized intersection as it could exist in 2027 and show the interim improvements in that context. The final design of the site entrance should be determined during the Entrance Plan review process.

3. The developer should maintain the existing site entrance for the proposed Mitchell Farm/Zwaanendael Farm development, approximately 650 feet east of the northeast tangent point of the Kings Highway intersection and directly across from the proposed Gills Neck Village Center Entrance to be consistent with the lane configurations shown in the table below:

Approach	Current Configuration	Proposed Configuration
Eastbound Gills Neck Road	One left turn lane and one through lane	One left turn lane, one through lane, and one right turn lane*
Westbound Gills Neck Road	One through lane and one right turn lane	One left turn lane**, one through lane, and one right turn lane
Northbound Gills Neck Village Center Entrance	Approach does not exist	One left turn/through lane and one right turn lane***
Southbound Site Entrance	One shared left turn/through lane and one right turn lane	No change

*Right turn lane to be built by others
**Left turn lane to be built by others
***Approach to be built by others

Based on DelDOT's *Development Coordination Manual*, the recommended minimum storage lengths (excluding taper) of the separate left turn and right turn lanes along Gills Neck Road are listed below. The calculated queue lengths from the HCS analysis can be accommodated within the recommended storage length.

Approach	Left Turn Lane	Right Turn Lane
Eastbound Gills Neck Road	120 feet*	190 feet**
Westbound Gills Neck Road	120 feet**	120 feet*

*This storage length is the existing storage length per the June 2018 Zwaanendael Farm Rezoning Sketch Plan and it should be maintained.
**To be built by others

As a TOA/TIS will be performed for the Gills Neck Village Center, the recommended lane configurations and storage lengths for the Gills Neck Village Center entrance may be modified based on those results.

4. The developer should restripe the Kings Highway and Gills Neck Road/Cape Henlopen High School Entrance intersection to be consistent with the lane configurations shown in the table below:

Approach	Current Configuration	Proposed Configuration
Eastbound Cape Henlopen High School	One shared left turn/through lane and one right turn lane	No change
Westbound Gills Neck Road	One left turn lane, one through lane, and one right turn lane	Two left turn lanes and one shared through/right turn lane
Northbound Kings Highway	One left turn lane, one through lane, and one right turn lane	No change
Southbound Kings Highway	One left turn lane, one through lane, and one right turn lane	One left turn lane, one through lane, and one shared through/right turn lane

The recommended minimum storage lengths (excluding taper) of the separate left turn and right turn lanes along Kings Highway and Gills Neck Road are listed below.

Approach	Left Turn Lane	Through/Right Turn Lane	Right Turn Lane
Northbound Kings Highway	250 feet*	-	180 feet*
Southbound Kings Highway	340 feet*	550 feet	-
Westbound Gills Neck Road	420 feet	570 feet**	-

*Storage lengths match the existing storage lengths per field conditions and should be maintained.
**Storage length does not match the existing storage length and requires lengthening.

The developer should restripe Kings Highway south of the Gills Neck Road intersection to provide two through lanes and the rightmost through lane should transition to a right turn only lane at the Clay Road intersection. The SUP should be constructed along Kings Highway to connect to Clay Road and the shoulder along Kings Highway should be eliminated.

The developer should enter into a traffic signal agreement with DelDOT for the intersection of Kings Highway with Gills Neck Road. The traffic signal agreement should include pedestrian signals, crosswalks, interconnection, and ITS equipment such as CCTV cameras at DelDOT's discretion. Prior to Entrance Plan approval, the developer should submit a plan to DelDOT Development Coordination section depicting the design of Kings Highway from Gills Neck Road to Clay Road. The final design should be determined during the Entrance Plan review process.

Full Build Out Improvements

The following items should be incorporated as part of the full build out of the site.

5. The developer should enter into an agreement with DelDOT to fund an equitable portion of improvements to the intersections of Kings Highway with Dartmouth Drive, Clay Road, Gills Neck Road/Cape Henlopen High School Entrance, Atlantic Drive, Freeman Highway, Bay Breeze Drive, and the Site Entrance/Beebe Medical Center Entrance as part of the *US 9, Kings Highway, Dartmouth Drive to Freeman Highway* project. The developer should coordinate with DelDOT on the implementation and equitable cost sharing of the improvements. The amount of right-of-way dedicated by the property owner for the DelDOT Project in excess of 50 feet from the centerline on Kings Highway and 40 feet from the centerline on Gills Neck Road that otherwise would have been purchased as part of the DelDOT project would be considered as part of the contribution towards the DelDOT project.

6. The developer should enter into an agreement with DelDOT to fund an equitable portion of improvements to the intersection of Clay Road and Marsh Road as part of the *Realignment of Old Orchard Road/Savannah Road/Wescoats Road* (DelDOT Contract No. T201609601) project. The project will improve the intersection of Marsh Road and Clay Road to eliminate the existing skewed angle of the intersection. The developer should coordinate with DelDOT on the implementation and equitable cost sharing of the Clay Road and Marsh Road intersection improvements.

7. Vehicular interconnections or cross access easements between the on-site lots should be provided. The developer should coordinate with DelDOT's Development Coordination Section to determine the locations and feasibilities of the interconnections.

8. The following bicycle, pedestrian, and transit improvements should be included:

    a. A minimum fifteen-foot wide permanent easement from the edge of the right-of-way should be dedicated to DelDOT along the Kings Highway site frontage. Within the easement, the developer should construct a ten-foot wide shared-use path (SUP) to meet the shared-use path recently constructed for Lot 1. The developer should coordinate with DelDOT's Development Coordination section during the plan review process to identify the exact location of the SUP.

    b. An accessway should be provided from the SUP into the site for Lots 1 through 5.

    c. Where internal sidewalks are located alongside of parking spaces, a buffer, physical barrier or signage should be added to eliminate vehicular overhang onto the sidewalk.

    d. The tie-in installed for Lot 1 should be removed once the SUP is extended along the entire property frontage.

    e. ADA compliant curb ramps and marked crosswalks should be provided along the Kings Highway Site Entrance approach to Kings Highway. The use of diagonal curb ramps is discouraged.

    f. Minimum five-foot wide bicycle lanes should be incorporated in the right turn lane and shoulder along the northbound Kings Highway approach to the Kings Highway Site Entrance.

    g. Utility covers should be moved outside of any designated bicycle lanes and any proposed sidewalks/shared-use paths or should be flush with the pavement.

h. Bike parking should be provided near the building entrances. Where the building architecture provides for an awning or other overhang, the bike parking should be covered.

i. A Type 2 bus stop should be installed at the Kings Highway Site Entrance intersection. The developer should coordinate with DART and DelDOT on the location, design, as well as the amenities to provide.

Please note that this review generally focuses on capacity and level of service issues; additional safety and operational issues will be further addressed through DelDOT's Plan Review process.

Improvements in this TIS may be considered "significant" under DelDOT's *Work Zone Safety and Mobility Procedures and Guidelines*. These guidelines are available on DelDOT's website at https://www.deldot.gov//Publications/manuals/de_mutcd/index.shtml. For any additional information regarding the work zone impact and mitigation procedures during construction please contact Mr. Jeff VanHorn, Assistant Director for Traffic Operations and Management. Mr. VanHorn can be reached at (302) 659-4606 or by email at Jeffrey.VanHorn@delaware.gov.

Additional details on our review of the TIS are attached. Please contact me at (302) 266-9600 if you have any questions concerning this review.

Sincerely,
Johnson, Mirmiran, and Thompson, Inc.

Joanne M. Arellano, P.E., PTOE

cc: Mir Wahed, P.E., PTOE
Janna Brown, E.I.T.

Enclosure

General Information

Report date: November 2019
Prepared by: Davis, Bowen & Friedel, Inc.
Prepared for: The Mitchell Family Ltd. Partnership
Tax Parcel: 335-8.00-37.00
Generally consistent with DelDOT's *Development Coordination Manual (DCM)*: Yes

Project Description and Background

Description: The developer seeks to develop 206,500 square feet of medical-dental office space, 60 single-family detached houses, and 150 multi-family mid-rise dwelling units.
Location: The subject site is located on the northeast corner of the intersection of Kings Highway (Sussex Road 268) and Gills Neck Road (Sussex Road 267) in Sussex County, Delaware.
Amount of Land to be developed: An approximately 52.71-acre parcel.
Land Use approval(s) needed: Rezoning and Entrance Plan.
Proposed completion date: 2027.
Proposed access location: Two full access points are proposed: one along Kings Highway directly opposite the proposed site access for the Beebe Medical development and one along Gills Neck Road opposite the site access for the proposed Gills Neck Village Center commercial project.

Daily Traffic Volumes:

- 2018 Average Annual Daily Traffic on Kings Highway: 13,019 vehicles per day (non-Summer)
- 2018 Average Annual Daily Traffic on Gills Neck Road: 4,995 vehicles per day (non-Summer)

Site Map

**Graphic is an approximation based on the Rezoning Sketch Plan prepared by* Davis, Bowen & Friedel, Inc. *dated June 2018.*

Relevant and On-going Projects

DelDOT has several relevant and ongoing improvement projects within the study area including the *Realignment of Old Orchard Road/Savannah Road/Wescoats Road* (DelDOT Contract No. T201609601) project. The project will realign Old Orchard Road to intersect Savannah Road at its intersection with Wescoats Road. Additionally, the project will improve the intersection of Marsh Road and Clay Road to eliminate the existing skewed angle of the intersection. Construction is anticipated to begin in 2023.

Per direction from the DelDOT Traffic Section, a signal at the Kings Highway and Clay Road intersection was recently installed. DelDOT completed the *Signal Justification Study US9 – Kings Highway (S268) & Clay Road (S269)* in February 2020. As part of the study, field observations were conducted, existing sight distances were assessed, crashes were reviewed, intersection analyses were performed, and warrant analyses based on the DE MUTCD were evaluated. The

crash evaluation reviewed data from August 7, 2014 to January 23, 2020 which identified one fatal angle crash. Four of the DE MUTCD Traffic Signal Warrants were met which included the eight-hour, four-hour, and peak-hour vehicular warrants as well as the Alternative Crash Experience Warrant (IA-19.3). Various improvement options were evaluated as part of the study, including the implementation of all-way-stop-control and installation of a roundabout or signal. The study recommended the short-term improvement to install a traffic signal. A long-term improvement to determine the feasibility of converting the intersection to a roundabout or installing appropriate turn lanes was recommended.

In October 2015 a collaborative effort by DelDOT, Delaware Greenways, and other groups developed the *Corridor Management Plan* for the Lewes Scenic and Historic Byway. This was done as part of the *Delaware Byways Program*. The *Delaware Byways Program* includes the identification, promotion, preservation, and enhancement of Delaware roadways with at least one of the following qualities: scenic, historic, natural, cultural, recreational, and archaeological. The Lewes Scenic and Historic Byway traverses through the City of Lewes and extends into Sussex County on the following roads: New Road, Pilot Town Road, Savannah Road, Cape Henlopen Drive, Gills Neck Road, and Kings Highway. Recommendations from the plan for Kings Highway include considering options for narrow or wide medians and opportunities for linking together isolated parcels in a gridded circulation network. Additionally, at the Kings Highway/Gills Neck Road intersection, the plan recommends the consideration of options that accommodate planned pedestrian and bicycle pathways and movements. More information about the Corridor Management Plan can be found here: https://deldot.gov/Programs/byways/index.shtml?dc=cmp

The *Kings Highway and Gills Neck Road Master Plan* dated September 2016 is an early action project of the Lewes Scenic and Historic Byway Corridor Management Plan. The purpose of the Master Plan is to establish a vision for Kings Highway and Gills Neck Road. The Master Plan recommends two travel lanes per direction and a boulevard design along Kings Highway. From north of Gills Neck Road to Freeman Highway, the Master Plan recommends one travel lane per direction with a center turn lane along Kings Highway. Additionally, a roundabout and a signal are recommended at the Dartmouth Drive and Clay Road intersections, respectively. Along Gills Neck Road, one travel lane per direction with a boulevard design is recommended. More information about the Master Plan can be found here:
https://deldot.gov/Programs/byways/pdfs/lewes_cmp/KHGN_MasterPlan_092616finalrx.pdf?cache=1582120567909

The *US 9, Kings Highway, Dartmouth Drive to Freeman Highway* project is planned to implement the improvements recommended by the Master Plan. A DelDOT Contract Number does not exist for the recommended improvements yet. Based on the proposed CTP FY 20 thru FY 26 Spending Plan, design is projected to start Fiscal Year 2022 and construction is projected to start Fiscal Year 2026.

Additionally, the Delaware River and Bay Authority (DRBA) *Freeman Highway Rehabilitation* project (Contract No. 20191619-00) includes the repaving of Freeman Highway from south of the intersection with Bay Breeze Drive to the intersection with Cape Henlopen Drive.

Livable Delaware
(Source: Delaware Strategies for State Policies and Spending, 2015)

Location with respect to the Strategies for State Policies and Spending Map of Delaware:
The proposed development is located within the Investment Level 1 area.

Investment Level 1

These areas are often municipalities, towns, or urban/urbanizing places in counties where density is generally higher than in surrounding areas. In Investment Level 1 Areas, state investments and policies should support and encourage a wide range of uses and densities, promote other transportation options, foster efficient use of existing public and private investments, and enhance community identity and integrity. Overall, it is the state's intent to use its spending and management tools to maintain and enhance community character, to promote well-designed and efficient new growth, and to facilitate redevelopment in Investment Level 1 Areas.

In Level 1 Areas the state's first priority will be for preserving existing facilities and making safety improvements. Level 1 areas will also be the highest priority for context sensitive transportation system capacity enhancements, transit-system enhancements, ADA accessibility, and for closing gaps in the pedestrian system, including the Safe Routes to School projects. Further, Level 1 areas are the first priority for planning projects and studies, bicycle facilities, signal-system enhancements, and the promotion of interconnectivity between neighborhoods and public facilities.

Proposed Development's Compatibility with Livable Delaware:
The proposed development is located in the Investment Level 1 area. According to Livable Delaware, Level 1 areas support and encourage a wide range of uses and enhance community identity and integrity. The proposed project is a mixed-use development that will support the ongoing development in the surrounding area. Therefore, the proposed development is generally consistent with the 2015 update of the Livable Delaware "Strategies for State Policies and Spending."

Comprehensive Plans
(Source: Sussex County March 2019 Comprehensive Plan)

Sussex County Comprehensive Plan:
Per the *Sussex County Comprehensive Plan Future Land Use Map,* the proposed development is in an area designated as Coastal Area.

Proposed Development's Compatibility with the Sussex County Comprehensive Plan:
Per the *Sussex County Comprehensive Plan Future Land Use Map,* the proposed development is in an area designated as Coastal Area. A range of housing types are appropriate in Coastal Areas, including single-family homes and multifamily units, as well as office and mixed-use developments. Therefore, the proposed development is generally consistent with the *Sussex County March 2019 Comprehensive Plan.*

Trip Generation

The trip generation for the proposed development was determined by using the comparable land use and rates/equations contained in the *Trip Generation, 10th Edition: An ITE Informational Report*, published by the Institute of Transportation Engineers (ITE) for ITE Land Use Code 210 (Single-Family Detached Housing), Land Use Code 221 (Multifamily Mid-Rise Housing), and Land Use Code 720 (Medical-Dental Office Building). The trip generation was approved by DelDOT during the PTIS review as well as the review of the TIS Addendum.

Table 1
Mitchell Farm (Zwaanendael Farm) Trip Generation – Full Build Out

Land Use	**ADT**	**AM Peak Hour**			**PM Peak Hour**			**SAT Peak Hour**		
		In	Out	Total	In	Out	Total	In	Out	Total
60 Single-Family Detached Houses (ITE Code 210)	650	12	35	47	39	23	62	37	31	68
150 Multifamily Mid-Rise Houses (ITE Code 221)	816	13	38	51	40	25	65	34	36	70
206,500 SF Medical-Dental Office Building (ITE Code 720)	7,846	332	94	426	197	505	702	552	417	969
Total Trips	**9,312**	**357**	**167**	**524**	**276**	**553**	**829**	**623**	**484**	**1,107**
Internal Capture	44	1	1	2	5	5	10	6	6	12
New Trips	**9,268**	**356**	**166**	**522**	**271**	**548**	**819**	**617**	**478**	**1,095**

Mitchell Farm (Zwaanendael Farm) Trip Generation – Partial Build Out (Case 3d)

Land Use	**ADT**	**AM Peak Hour**			**PM Peak Hour**			**SAT Peak Hour**		
		In	Out	Total	In	Out	Total	In	Out	Total
117,000 SF Medical-Dental Office Building (ITE Code 720)	1,003	200	57	257	112	287	399	300	227	527

Overview of TIS

Intersections examined:

1. Kings Highway (Sussex Road 268)/Site Entrance/Beebe Medical Site Entrance
2. Gills Neck Road (Sussex Road 267)/Site Entrance/Gills Neck Village Center Site Entrance
3. Kings Highway/Bay Breeze Drive
4. Kings Highway/Freeman Highway (Sussex Road 23)
5. Kings Highway/Savannah Road (Sussex Road 18)
6. Savannah Road/Gills Neck Road/Front Street (Sussex Road 267)
7. Kings Highway/Atlantic Drive *(City of Lewes)*
8. Kings Highway/Gills Neck Road/Cape Henlopen High School Entrance
9. Kings Highway/Clay Road (Sussex Road 269)
10. Clay Road/Marsh Road (Sussex Road 269B)
11. Kings Highway/Dartmouth Drive (Sussex Road 268A)

Conditions examined:

TIS

1. Case 1 – Existing (2018)
2. Case 2a – 2027 without development and without the Kings Highway dual lanes project
   Case 2b – 2027 without development and with the Kings Highway dual lanes project
3. Case 3a – 2027 with development and without the Kings Highway dual lanes project
   Case 3b – 2027 with development and with the Kings Highway dual lanes project
   Case 3c – 2027 with development, without the Kings Highway dual lanes project, and without an entrance along Kings Highway
4. Case 4 – 2027 with development and with the Kings Highway dual lanes project with additional improvements

TIS Addendum

1. Case 2d – Future 2023 with development of Lot 1 (39,000 square feet of medical/dental office space) and without the Kings Highway Dual Lane Project
2. Case 3d – Future 2023 with 117,000 square feet of medical/dental office space, without the Kings Highway Dual Lane Project, and rights-in site entrance on Kings Highway

Committed Developments considered:

1. Gills Neck Village Center (75,000 square foot shopping center, 213 single family homes on the residual lands)
2. Governors (287 single-family detached houses, 136 multi-family low-rise dwelling units)

3. Beebe Medical (175-unit continuing care retirement, 140 multi-family low-rise dwelling units)
4. Showfield (252 single-family detached houses: *86 units proposed in the City of Lewes, 166 units recorded in Sussex County*)
5. White's Pond Meadow-Gills Neck Road (79 single-family detached homes)
6. Admirals Chase (26 semi-detached houses)
7. Cape Henlopen High School Expansion (400 students)
8. The Moorings at Lewes, formerly known as Cadbury, expansion (32-unit Continuing Care Retirement Center)

*Note: Committed development information provided in the TIS supersedes the information provided in the July 3, 2018 DelDOT Scoping Meeting Memorandum. DelDOT provided future year 2027 Case 2 projections based on the DelDOT Travel Demand Model that includes background growth as well as traffic from the eight committed developments.

Peak hours evaluated: Weekday morning, Weekday evening, and Summer Saturday midday peak hours.

Intersection Descriptions

1. **Kings Highway (Sussex Road 268)/Site Entrance/Beebe Medical Site Entrance**
   Type of Control: Proposed two-way stop-controlled intersection (four-legged intersection)
   Eastbound Approach: (Beebe Site Access) Proposed one shared left turn/through lane and one right turn lane, stop-controlled
   Westbound Approach: (Site Entrance) Proposed one shared left turn/through lane and one right turn lane, stop-controlled
   Northbound Approach: (Kings Highway) Existing one through lane; proposed one left turn lane, one through lane, and one right turn lane
   Southbound Approach: (Kings Highway) Existing one through lane; proposed one left turn lane, one through lane, and one right turn lane

2. **Gills Neck Road (Sussex Road 267)/Site Entrance/Gills Neck Village Center Site Entrance**
   Type of Control: Proposed two-way stop-controlled intersection (four-legged intersection)
   Eastbound Approach: (Gills Neck Road) Existing one through lane; proposed one left turn lane, one through lane, and one right turn lane
   Westbound Approach: (Gills Neck Road) Existing one through lane; proposed one left turn lane, one through lane, and one right turn lane
   Northbound Approach: (Gills Neck Village Center Entrance) Proposed one shared left turn/through lane and one right turn lane, stop-controlled

Southbound Approach: (Site Entrance) Proposed one shared left turn/through lane and one right turn lane, stop-controlled

3. **Kings Highway/Bay Breeze Drive**
   Type of Control: Existing stop-controlled intersection
   Westbound Approach: (Bay Breeze Drive) Existing one left-turn lane and one right-turn lane, stop-controlled
   Northbound Approach: (Kings Highway) Existing one shared through lane/channelized right-turn lane
   Southbound Approach: (Kings Highway) Existing two through lanes and one left-turn lane (stop-controlled)

4. **Kings Highway/Freeman Highway (Sussex Road 23)**
   Type of Control: Existing stop-controlled intersection
   Northbound Approach: (Kings Highway) Existing one left-turn lane (stop-controlled) and one through lane
   Southbound Approach: (Freeman Highway) Existing one through lane and one channelized right-turn lane (stop-controlled)

5. **Kings Highway/Savannah Road (Sussex Road 18)**
   Type of Control: Existing two-way stop-controlled intersection (four-legged intersection)
   Eastbound Approach: (3rd Street) Existing one shared through/left-turn lane and one right-turn lane, stop controlled
   Westbound Approach: (Kings Highway) Existing one shared through/left-turn lane and one right-turn lane, stop controlled
   Northbound Approach: (Savannah Road) Existing one left-tun lane and one shared through/right-turn lane
   Southbound Approach: (Savannah Road) Existing one left-tun lane and one shared through/right-turn lane

6. **Savannah Road/Gills Neck Road/Front Street (Sussex Road 267)**
   Type of Control: Existing signalized intersection (four-legged)
   Eastbound Approach: (Front Street) Existing one left turn lane and one shared through/right turn lane
   Westbound Approach: (Gills Neck Road) Existing one shared left turn/through/right turn lane
   Northbound Approach: (Savannah Road) Existing one left turn lane and one shared through/right turn lane

Southbound Approach: (Savannah Road) Existing on left turn lane and one shared through/right turn lane

7. **Kings Highway/Atlantic Drive**
   Type of Control: Existing two-way stop-controlled intersection (T-intersection)
   Eastbound Approach: (Atlantic Drive) Existing one shared left-turn/right-turn lane, stop-controlled
   Northbound Approach: (Kings Highway) Existing one shared left-turn/through lane
   Southbound Approach: (Kings Highway) Existing one shared through/right-turn lane

8. **Kings Highway/Gills Neck Road/Cape Henlopen High School Entrance**
   Type of Control: Existing signalized intersection (four-legged)
   Eastbound Approach: (Cape Henlopen High School Entrance) Existing one shared left turn/through lane and one right turn lane
   Westbound Approach: (Gills Neck Road) Existing one left turn lane, one through lane, and one right turn lane
   Northbound Approach: (Kings Highway) Existing one left turn lane, one through lane, and one right turn lane
   Southbound Approach: (Kings Highway) Existing one left turn lane, one through lane, and one right turn lane

9. **Kings Highway/Clay Road (Sussex Road 269)**
   Type of Control: Existing two-way stop-controlled intersection (T-intersection)
   Eastbound Approach: (Clay Road) Existing one shared left turn/right turn lane, stop-controlled
   Northbound Approach: (Kings Highway) Existing one shared left turn/through lane
   Southbound Approach: (Kings Highway) Existing one shared through/right turn lane

10. **Clay Road (Sussex Road 269) and Marsh Road (Sussex Road 269B)**
    Type of Control: Existing two-way stop-controlled intersection (T-intersection)
    Eastbound Approach: (Clay Road) Existing one shared through/right turn lane
    Westbound Approach: (Clay Road) Existing one shared through/left turn lane
    Northbound Approach: (Marsh Road) Existing one left-turn lane and one right-turn lane, stop-controlled.

11. **Kings Highway (Sussex Road 268) and Dartmouth Drive (Sussex Road 268A)**
    Type of Control: Existing two-way stop-controlled intersection
    Eastbound Approach: (Dartmouth Drive) Existing one shared left turn/right turn lane, stop-controlled

Northbound Approach: (Kings Highway) One left-turn lane and one through lane
Southbound Approach: (Kings Highway) One through lane and one channelized right-turn lane

Transit, Pedestrian, and Bicycle Facilities

Existing transit service: Per DelDOT Gateway, Delaware Transit Corporation (DTC) currently does not provide existing services within the study area.

Planned transit service: Per email correspondence on February 11, 2020 with Mr. Jared Kauffman, Fixed-Route Planner at the DTC, a Type 2 bus stop has been installed at the intersection of Kings Highway and Gills Neck Road/Cape Henlopen High School Entrance. An additional Type 2 bus stop should be installed along northbound Kings Highway at the intersection with the site entrance. Additionally, a sidewalk/SUP interconnection should be provided between the site and the adjacent Bay Breeze Estates.

Existing bicycle and pedestrian facilities: According to DelDOT's *Lewes & Rehoboth Beach Area Bicycle Map*, two Connector Bicycle Routes and one Regional Bicycle Route exist within the study area. One Connector Bicycle Route travels along Gills Neck Road, beginning at the study intersection with Savannah Road, traversing through one study intersection (Site Entrance) intersecting with another Connector Bicycle Route at the study intersection of Kings Highway. The other Connector Bicycle Route exists along Kings Highway and traverses through seven of the study intersections (Freeman Highway, Bay Breeze Drive, Site Entrance, Atlantic Drive, Gills Neck Road/Cape Henlopen High School Entrance, Clay Road, and Dartmouth Drive). The Regional Bicycle Route exists along Savannah Road and traverses through one study intersection (Gills Neck Road/Front Street) Pedestrian facilities currently exist at four of the study intersections: Savannah Road/Gills Neck Road/Front Street, Kings Highway/Savannah Road, Kings Highway/Gills Neck Road/Cape Henlopen High School Entrance, and Gills Neck Road/Site Entrance.

Planned bicycle and pedestrian facilities: Per email correspondence on February 12, 2020 from Mr. John Fiori, DelDOT's Bicycle Coordinator, the following improvements were recommended:

- The existing 10-foot wide shared-use path (SUP) should be extended along the Kings Highway site frontage. Once the SUP is extended, the existing tie-in installed for Minor Subdivision Lot 1 shall be removed (including pipe), top soiled, seeding, mulched, and re-graded to assure positive drainage.
- An internal sidewalk/SUP connection is required from the SUP into the site for Lots 1 thru 5.
- Internal bicycle racks should be provided at all Lots.
- Revise design of SUP from Type 2 ramp on the egress side to Type 1 ramp.
- Per the DCM, the site shall dedicate right-of-way per the roadway classification and establish a 15-foot wide permanent easement along the property frontage.
- All entrance, roadway and/or intersection improvements required shall incorporate bicycle and pedestrian facilities. Per the DCM, if the right turn lane is warranted, then a bike lane

shall be incorporated along the right turn lane; if a left turn lane is required any roadway improvements shall include a shoulder matching the roadway classification or existing conditions.

Bicycle Level of Traffic Stress in Delaware: Researchers with the Mineta Transportation Institute developed a framework to measure low-stress connectivity, which can be used to evaluate and guide bicycle network planning. Bicycle LTS analysis uses factors such as the speed of traffic, volume of traffic, and the number of lanes to rate each roadway segment on a scale of 1 to 4, where 1 is a low-stress place to ride and 4 is a high-stress place to ride. It analyzes the total connectivity of a network to evaluate how many destinations can be accessed using low-stress routes. Developed by planners at the Delaware Department of Transportation (DelDOT), the bicycle Level of Traffic Stress (LTS) model will be applied to bicycle system planning and evaluation throughout the state. The Bicycle LTS for the roadways under existing conditions along the site frontage are summarized below. The Bicycle LTS was determined utilizing the map on the DelDOT Gateway.

- Kings Highway – LTS: 3 and 4
- Gills Neck Road – LTS: 4

Crash Evaluation

Per the crash data included in the TIS from July 25, 2015 to July 25, 2018 and provided by the Delaware Crash Analysis Reporting System, a total of 166 crashes were reported within the study area. The TIS reports that 89 of these crashes are relevant within the study area and intersections. 19 of these crashes occurred within the functional area of the intersection of Kings Highway and Clay Road, 18 occurred within the functional area of the intersection of Kings Highway and Gills Neck Road/Cape Henlopen High School Access, 17 occurred within the functional area of Savannah Road/Kings Highway/3rd Street, and 11 occurred within the function area of Savannah Road/Front Street/Gills Neck Road. No fatalities occurred within the study area over the 3-year period.

A crash evaluation was also completed as part of DelDOT's *Signal Justification Study US9 – Kings Highway (S268) & Clay Road (S269)* in February 2020. As part of the study, a crash evaluation reviewed data from August 7, 2014 to January 23, 2020 which identified one fatal angle crash at the Kings Highway and Clay Road intersection. The installation of a traffic signal was identified in the study as a short-term improvement which is expected to be implemented prior to Summer of 2021.

Previous Comments

Comments from DelDOT from the Preliminary Traffic Impact Study (PTIS) were addressed in the final TIS.

General HCS Analysis Comments

(See table footnotes on the following pages for specific comments)

1. For the intersection analyses, the TIS used HCS7 version 7.8, whereas JMT used HCS7 version 7.8.5. The TIS Addendum did utilize HCS7 version 7.8.5.

2. Per DelDOT's *Development Coordination Manual*, JMT used a heavy vehicle percentage of 3% for each movement greater than 100 vph in the Case 2 and Case 3 future scenario analyses, unless the existing heavy vehicle percentage was greater than 3% and there was no significant increase of vehicles along that movement, in which case the existing heavy vehicle percentage was used for analysis of future scenarios. The TIS utilized various heavy vehicle percentages.

3. Per DelDOT's *Development Coordination Manual* and coordination with DelDOT Planning, JMT used a heavy vehicle percentage of 5% for each movement less than 100 vph along roadways and site entrances, whereas the TIS did in some locations.

4. Per DelDOT's *Development Coordination Manual,* both the TIS and JMT utilized the existing PHF for the Case 1 scenario and a future PHF for Cases 2 and 3 scenarios of 0.80 for roadways with less than 500 vph, 0.88 for roadways between 500 and 1,000 vph, and 0.92 for roadways with more than 1,000 vph or the existing PHF, whichever was higher, unless DelDOT-approved calibrated PHFs were provided by the TIS. JMT did not alter any PHFs for cases without widening, whereas the TIS utilized altered PHFs.

5. Per DelDOT's *Development Coordination Manual,* JMT and the TIS utilized a base saturation flow rate of 1,750 pc/h/ln at all intersections.

6. JMT utilized bicycle and pedestrian counts consistent with the existing turning movement counts whereas the TIS did not.

7. At the signalized intersections, JMT increased right turn on red volumes proportionally with volume increases, whereas the TIS maintained existing right turn on red volumes.

8. At the unsignalized intersections, differences in critical headways and follow-up headways were noticed between the TIS and JMT's analysis. JMT utilized the HCS7 Version 7.8.5 default values.

9. At the unsignalized intersections, the TIS utilized proportion of time spent blocked at the intersections based on field views. The TIS utilized the highest proportion of time spent blocked that would be able to provide an HCS output, which resulted in inconsistent values being used. It is recognized that existing delays may be longer than what is calculated in the JMT analysis due to blocked side streets especially during Cape May-Lewes Ferry arrival/departure times. However, JMT analyzed the intersections with no proportion of

time spent blocked input in order to provide a comparable baseline between cases and peaks.

10. The analysis includes scenarios with or without the *US 9, Kings Highway, Dartmouth Drive to Freeman Highway* DelDOT project. As part of the project, Kings Highway is proposed to be widened to provide two through lanes in each direction.

11. Three separate Case 3 scenarios were included in the analysis:

    - Case 3a – Future 2027 with development and without the Kings Highway Dual Lane project.

    - Case 3b – Future 2027 with development and with the Kings Highway Dual Lane project. As part of this scenario, Atlantic Drive is assumed to only provide rights-in/rights-out movements along Kings Highway and an interconnection would exist between Atlantic Drive and the Beebe Medical Center.

    - Case 3c – Future 2027 with development and without the Kings Highway Dual Lane project and without a site entrance along Kings Highway.

12. The analysis also includes the TIS Addendum which reviewed the following scenarios:

    Case 2d – Future 2023 with development of Lot 1 (39,000 square feet of medical/dental office space) and without the Kings Highway Dual Lane Project

    - Case 3d – Future 2023 with 117,000 square feet of medical/dental office space, without the Kings Highway Dual Lane Project, and rights-in site entrance on Kings Highway

13. The analyses highlighted in gray represent the JMT interim recommendations as part of the TIS Review letter.

14. The analyses highlighted in blue represent the JMT suggested improvements with the full build of the proposed development.

Table 2
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/Site Entrance	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development and without Kings Highway Dual Lane Project (Case 2a) [2]						
Northbound Kings Highway Left Turn	A (8.7)	F (90.3)	F (58.2)	A (8.7)	B (12.0)	B (11.1)
Eastbound Beebe Medical Entrance	B (14.9)	F (*)	F (*)	B (14.2)	E (42.9)	E (45.0)
2027 without Development and with Kings Highway Dual Lane Project (Case 2b) [3]						
Northbound Kings Highway Left Turn	-	-	-	A (8.7)	B (12.1)	B (11.2)
Eastbound Beebe Medical Entrance	-	-	-	B (11.5)	D (25.8)	C (23.7)
2023 with development of Lot 1 (39,000 square feet of medical/dental office space) and without the Kings Highway Dual Lane Project (Case 2d)[2]						
Northbound Kings Highway Left Turn	A (8.6)	F (136.9)	F (74.3)	A (8.6)	B (10.3)	B (10.6)
Eastbound Beebe Medical Entrance	B (14.4)	F (*)	F (*)	B (13.8)	D (26.5)	D (32.0)

*HCS reported delay greater than 1000 seconds per vehicle

[1] For signalized and unsignalized analysis, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.
[2] For the PM and Saturday peak periods, the TIS utilized various values for proportion of time blocked whereas JMT utilized the default value of 0.
[3] For this scenario, JMT incorporated two through lanes in each direction along Kings Highway.

Table 2
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/Site Entrance	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development and without Kings Highway Dual Lane Project (Case 3a) [2]						
Northbound Kings Highway Left Turn	A (8.7)	F (259.0)	F (162.7)	A (8.7)	B (12.0)	B (11.1)
Southbound Kings Highway Left Turn	B (10.3)	B (10.9)	C (16.5)	B (10.3)	B (10.9)	C (16.5)
Eastbound Beebe Medical Entrance	C (19.5)	F (*)	F (*)	C (17.9)	F (130.8)	F (358.0)
Westbound Site Entrance	F (78.6)	F (*)	F (*)	F (59.4)	F (*)	F (*)
2027 with Development and with Kings Highway Dual Lane Project (Case 3b) [3]						
Northbound Kings Highway Left Turn	A (8.9)	B (12.6)	B (11.4)	A (8.9)	B (12.6)	B (11.4)
Southbound Kings Highway Left Turn	B (10.3)	B (10.9)	C (16.5)	B (10.3)	B (10.9)	C (16.5)
Eastbound Beebe Medical Entrance	C (20.8)	F (144.8)	F (468.9)	C (19.1)	F (78.9)	F (340.4)
Westbound Site Entrance	F (55.5)	F (*)	F (*)	E (44.7)	F (*)	F (*)
2027 with Development, without Kings Highway Dual Lane Project and no site entrance on Kings Highway (Case 3c) [2]						
Northbound Kings Highway Left Turn	A (8.9)	F (90.3)	E (48.1)	A (8.9)	B (12.4)	B (11.9)
Eastbound Beebe Medical Site Entrance	C (16.3)	F (*)	F (*)	C (15.4)	F (53.3)	F (67.4)

*HCS reported delay greater than 1000 seconds per vehicle

Table 2 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control[1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/Site Entrance	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2023 with 117,000 square feet of medical/dental office space, without the Kings Highway Dual Lane Project, and rights-in site entrance on Kings Highway (Case 3d) [2]						
Northbound Kings Highway Left Turn	A (8.7)	B (10.4)	B (10.8)	A (8.7)	B (10.4)	B (10.8)
Eastbound Beebe Medical Site Entrance	C (16.1)	E (40.9)	F (64.4)	C (15.2)	D (34.7)	F (50.6)

*HCS reported delay greater than 1000 seconds per vehicle

Note: Analysis highlighted in gray represents the JMT interim recommendations

Table 2 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Roundabout[1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/Site Entrance	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development and without Kings Highway Dual Lane Project (Case 2a) [4]						
Eastbound Beebe Medical Entrance	-	-	-	A (5.3)	B (11.5)	A (10.0)
Northbound Kings Highway	-	-	-	A (8.9)	B (12.5)	D (32.7)
Southbound Kings Highway	-	-	-	A (7.0)	E (39.2)	C (21.5)
Overall Intersection	-	-	-	A (8.0)	D (27.7)	D (27.2)
2027 without Development and with Kings Highway Dual Lane Project (Case 2b) [3,5]						
Eastbound Beebe Medical Entrance	-	-	-	A (4.6)	A (8.8)	A (7.8)
Northbound Kings Highway	-	-	-	A (5.1)	A (5.9)	A (7.5)
Southbound Kings Highway	-	-	-	A (4.5)	A (7.8)	A (7.0)
Overall Intersection	-	-	-	A (4.9)	A (7.0)	A (7.2)

*HCS reported delay greater than 1000 seconds per vehicle

[4] JMT modeled the intersection as a single-lane roundabout.
[5] JMT modeled the intersection as a dual-lane roundabout.

Table 2 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Roundabout	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/Site Entrance	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development and without Kings Highway Dual Lane Project (Case 3a) [4]						
Eastbound Beebe Medical Entrance	-	-	-	A (6.1)	C (15.0)	B (14.0)
Westbound Site Entrance	-	-	-	A (7.7)	C (20.5)	E (37.8)
Northbound Kings Highway	-	-	-	B (13.9)	C (20.1)	F (163.0)
Southbound Kings Highway	-	-	-	A (8.6)	F (131.9)	F (90.8)
Overall Intersection	-	-	-	B (11.4)	F (75.5)	F (121.1)
2027 with Development and with Kings Highway Dual Lane Project (Case 3b) [3, 5]						
Eastbound Beebe Medical Entrance	-	-	-	A (5.3)	B (11.2)	B (11.0)
Westbound Site Entrance	-	-	-	A (6.7)	B (14.8)	C (21.8)
Northbound Kings Highway	-	-	-	A (6.5)	A (7.1)	B (12.1)
Southbound Kings Highway	-	-	-	A (5.4)	B (11.7)	B (10.1)
Overall Intersection	-	-	-	A (6.1)	B (10.2)	B (12.1)

*HCS reported delay greater than 1000 seconds per vehicle

Table 2 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Roundabout	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/Site Entrance	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development, without Kings Highway Dual Lane Project and no site entrance on Kings Highway (Case 3c) [4]						
Eastbound Beebe Medical Entrance	-	-	-	A (5.7)	B (12.3)	B (11.7)
Northbound Kings Highway	-	-	-	A (9.5)	C (16.3)	F (51.5)
Southbound Kings Highway	-	-	-	A (7.8)	F (51.2)	E (36.3)
Overall Intersection	-	-	-	A (8.7)	E (35.6)	E (43.8)

Table 2 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Signalized Intersection[1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/Site Entrance[6]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development and without Kings Highway Dual Lane Project (Case 2a) [7]	-	-	-	A (4.7)	A (10.0)	B (13.8)
2027 without Development and with Kings Highway Dual Lane Project (Case 2b)[3,7]	-	-	-	A (3.3)	A (3.2)	A (4.2)
2023 with development of Lot 1 (39,000 square feet of medical/dental office space) and without the Kings Highway Dual Lane Project (Case 2d) [7]	-	-	-	A (4.7)	A (5.6)	A (8.9)
2027 with Development and without Kings Highway Dual Lane Project (Case 3a)[8,9]	A (9.5)	D (51.5)	F (105.4)	B (18.7)	F (81.3)	F (114.0)

[6] JMT used a signal cycle length of 100 seconds during the AM and Saturday peak periods, and a cycle length of 130 seconds during the PM peak period for all Cases. The TIS used various signal cycle lengths for each period and case analyzed.

[7] JMT modeled the intersection as split phase with one shared left turn/through lane along the northbound Kings Highway approach, one through lane and one right turn lane along the southbound Kings Highway approach, and one left turn lane and one right turn lane along the eastbound Beebe Medical Center approach. The signal would operate with two phases.

[8] Both the TIS and JMT modeled the intersection with one left turn lane, one through lane, and one right turn lane along northbound and southbound Kings Highway, and one shared left turn/through lane and one right turn lane along eastbound Beebe Medical Center and the westbound Site Entrance.

[9] Both the TIS and JMT modeled the northbound and southbound approaches with protected and permissive left turn phasing. The TIS modeled the eastbound and westbound approaches as concurrent phases with permitted left turns, whereas JMT modeled as split phase operation.

Table 2 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Signalized Intersection[1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/Site Entrance[6]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development and with Kings Highway Dual Lane Project (Case 3b) [9,10]	B (12.1)	B (16.2)	B (16.2)	B (13.3)	C (23.7)	C (23.0)
2027 with Development, without Kings Highway Dual Lane Project and no site entrance on Kings Highway (Case 3c) [11]	-	-	-	A (5.0)	B (15.0)	D (49.7)
2023 with 117,000 square feet of medical/dental office space, without the Kings Highway Dual Lane Project, and rights-in site entrance on Kings Highway (Case 3d)[11]	-	-	-	A (4.6)	A (5.7)	A (9.4)

Note: Analysis highlighted in blue represents JMT suggested improvements with the full build of the proposed development

[10] Both the TIS and JMT modeled the intersection with one shared left turn/through lane and one right turn lane along eastbound Beebe Medical Center and the westbound Site Entrance. The TIS modeled the northbound and southbound Kings Highway approaches with one left turn lane, one through lane, and one shared through/right turn lane. JMT modeled the northbound and southbound Kings Highway approaches with one left turn lane, two through lanes, and one right turn lane.

[11] Reduction in delay when compared to Case 3a is due to the removal of the easterly leg Site Entrance on Kings Highway from this intersection.

[11] JMT modeled the northbound Kings Highway approach with a shared left turn/through lane and a separate right turn lane, the southbound Kings Highway approach with a through lane and a right turn lane, and the eastbound Beebe Medical Center approach with a separate left turn lane and a right turn lane.

Table 3
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control[1]	**LOS per TIS**			**LOS per JMT**		
Gills Neck Road (Sussex Road 267)/Site Entrance	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development and without Kings Highway Dual Lane Project (Case 2a)[2, 12]						
Westbound Gills Neck Road Left Turn	F (434.6)	A (8.9)	A (8.5)	A (8.1)	A (8.9)	A (8.4)
Northbound Gills Neck Village Center Entrance	F (*)	F (*)	F (*)	C (16.4)	C (22.5)	C (16.5)
2023 with development of Lot 1 (39,000 square feet of medical/dental office space) and without the Kings Highway Dual Lane Project (Case 2d) [2,13]						
Eastbound Gills Neck Road Left Turn	F (130.7)	D (34.2)	F (102.7)	A (8.4)	A (8.1)	A (8.1)
Westbound Gills Neck Road Left Turn	E (47.0)	D (30.9)	F (55.2)	A (7.9)	A (8.5)	A (8.2)
Northbound Gills Neck Village Center Entrance	F (*)	F (*)	F (*)	C (20.6)	D (28.5)	C (24.0)
Southbound Site Entrance	F (95.3)	F (133.4)	F (166.8)	B (11.3)	B (11.8)	B (10.9)

*HCS reported delay greater than 1000 seconds per vehicle

[12] Both the TIS and JMT modeled the intersection with one through lane and one right turn lane along eastbound Gills Neck Road, one left turn lane and one through lane along westbound Gills Neck Road, and one left turn lane and one through lane along the northbound Gills Neck Village Center entrance.

[13] Both the TIS and JMT modeled the intersection with one left turn lane, one through lane, and one right turn lane along the eastbound and westbound Gills Neck Road approaches, and one shared left turn/through lane and one right turn lane along the northbound Gills Neck Village Center entrance and the southbound Site Entrance.

Table 3 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control[1]	**LOS per TIS**			**LOS per JMT**		
Gills Neck Road (Sussex Road 267)/Site Entrance	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development and without Kings Highway Dual Lane Project (Case 3a) [2,13]						
Eastbound Gills Neck Road Left Turn	F (104.1)	C (16.6)	D (27.7)	A (9.1)	A (8.7)	A (9.0)
Westbound Gills Neck Road Left Turn	A (8.1)	B (14.1)	A (8.4)	A (8.1)	A (8.9)	A (8.4)
Northbound Gills Neck Village Center Entrance	F (*)	F (*)	F (*)	E (44.7)	F (201.4)	F (261.6)
Southbound Site Entrance	F (120.2)	F (88.1)	F (120.9)	B (14.2)	C (18.6)	C (17.8)
2027 with Development and with Kings Highway Dual Lane Project (Case 3b) [13,14]						
Eastbound Gills Neck Road Left Turn	A (9.1)	A (8.7)	A (9.0)	A (9.1)	A (8.7)	A (9.0)
Westbound Gills Neck Road Left Turn	A (8.1)	A (8.9)	A (8.4)	A (8.1)	A (8.9)	A (8.4)
Northbound Gills Neck Village Center Entrance	F (54.9)	F (280.9)	F (351.9)	E (44.7)	F (201.4)	F (266.1)
Southbound Site Access	B (14.8)	C (19.8)	C (19.3)	B (14.2)	C (18.6)	C (17.8)

*HCS reported delay greater than 1000 seconds per vehicle
Note: Analysis highlighted in blue represents JMT suggested improvements with the full build of the proposed development

[14] The Gills Neck Village Center Entrance improvements will be determined as part of the Gills Neck Village Center TOA.

Table 3 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, INC.

Unsignalized Intersection Two-Way Stop Control[1]	**LOS per TIS**			**LOS per JMT**		
Gills Neck Road (Sussex Road 267)/Site Access	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development, without Kings Highway Dual Lane Project and no site entrance on Kings Highway (Case 3c) [2,14]						
Eastbound Gills Neck Road Left Turn	F (77.7)	B (11.2)	D (31.8)	B (10.4)	A (9.5)	B (11.9)
Westbound Gills Neck Road Left Turn	A (8.1)	A (8.9)	A (8.4)	A (8.1)	A (8.9)	A (8.4)
Northbound Gills Neck Village Center Entrance	F (*)	F (*)	F (*)	F (344.7)	F (*)	F (*)
Southbound Site Entrance	F (871.5)	F (90.5)	F (*)	C (17.1)	F (54.4)	F (56.5)
2027 with Development, without Kings Highway Dual Lane Project and a rights-in only entrance on Kings Highway (Case 3c)						
Eastbound Gills Neck Road Left Turn	-	-	-	A (9.5)	A (8.9)	A (9.7)
Westbound Gills Neck Road Left Turn	-	-	-	A (8.1)	A (8.9)	A (8.4)
Northbound Gills Neck Village Center Entrance	-	-	-	F (117.5)	F (*)	F (*)
Southbound Site Entrance	-	-	-	C (15.5)	F (52.0)	D (28.7)

*HCS reported excessive delay greater than 1000 seconds per vehicle

Table 3 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control[1]	**LOS per TIS**			**LOS per JMT**		
Gills Neck Road (Sussex Road 267)/Site Entrance	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2023 with 117,000 square feet of medical/dental office space, without the Kings Highway Dual Lane Project, and rights-in site entrance on Kings Highway (Case 3d)[15]						
Eastbound Gills Neck Road Left Turn	A (8.5)	A (8.2)	A (8.4)	A (8.5)	A (8.2)	A (8.4)
Westbound Gills Neck Road Left Turn	A (7.9)	A (8.5)	A (8.2)	A (7.9)	A (8.5)	A (8.2)
Northbound Gills Neck Village Center Entrance	D (27.9)	F (97.4)	F (101.2)	C (24.9)	F (75.5)	F (76.3)
Southbound Site Access	B (11.9)	C (15.4)	B (13.2)	B (11.6)	B (14.9)	B (12.8)

Note: Analysis highlighted in gray represents the JMT interim recommendations

Table 4
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/ Bay Breeze Drive [2, 15]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2018 Existing (Case 1)						
Southbound Kings Highway Left Turn	A (8.6)	F (289.8)	F (458.6)	-	-	-
Westbound Bay Breeze Drive Approach	C (19.8)	F (*)	F (*)	-	-	-
2027 without Development and without Kings Highway Dual Lane Project (Case 2a)						
Southbound Kings Highway Left Turn	A (9.1)	F (286.0)	B (12.0)	-	-	-
Westbound Bay Breeze Drive Approach	D (25.7)	F (*)	F (144.1)	-	-	-
2027 without Development and with Kings Highway Dual Lane Project (Case 2b) [3, 16]						
Southbound Kings Highway Left Turn	-	A (9.9)	B (12.0)	A (9.2)	B (10.2)	B (12.3)
Westbound Bay Breeze Drive Approach	-	F (128.2)	F (144.1)	C (18.9)	E (39.3)	F (52.0)
2027 with Development and without Kings Highway Dual Lane Project (Case 3a)						
Southbound Kings Highway Left Turn	A (9.2)	F (286.0)	F (447.6)	-	-	-
Westbound Bay Breeze Drive Approach	D (30.2)	F (*)	F (*)	-	-	-

*HCS reported excessive delay greater than 1000 seconds per vehicle

[15] Due to the unique configuration of the Kings Highway/Bay Breeze Drive intersection, JMT analyzed the intersection as two separate intersections. The TIS analyzed it as a single T-intersection.

[16] JMT assumed the intersection would be modified to a traditional T-intersection as part of the Kings Highway Dual Lane project.

Table 4 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/ Bay Breeze Drive [2, 17]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development and with Kings Highway Dual Lane Project (Case 3b) [18]						
Southbound Kings Highway Left Turn	A (9.2)	B (10.5)	B (12.8)	A (9.4)	A (10.8)	B (13.1)
Westbound Bay Breeze Drive Approach	C (22.5)	F (65.6)	F (93.7)	C (20.8)	F (52.6)	F (72.3)
2027 with Development and with Kings Highway Dual Lane Project and Bay Breeze Drive left turn out restriction (Case 3b)						
Southbound Kings Highway Left Turn	A (9.2)	B (10.5)	B (12.8)	A (9.4)	B (10.8)	B (13.1)
Westbound Bay Breeze Drive Right Turn	B (11.4)	B (13.0)	C (15.9)	B (11.3)	B (12.9)	C (15.6)

*HCS reported excessive delay greater than 1000 seconds per vehicle

Table 4 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/ Bay Breeze Drive [2,17]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2018 Existing (Case 1)						
Westbound Bay Breeze Drive Left Turn	-	-	-	C (19.6)	D (25.8)	E (45.5)
2027 without Development and without Kings Highway Dual Lane Project (Case 2a)						
Westbound Bay Breeze Drive Left Turn	-	-	-	D (25.2)	F (106.4)	F (153.2)
2027 with Development and without Kings Highway Dual Lane Project (Case 3a)						
Westbound Bay Breeze Drive Left Turn	-	-	-	D (29.6)	F (164.0)	F (261.0)

[17] Due to the unique configuration of the Kings Highway/Bay Breeze Drive intersection, JMT analyzed the intersection as two separate intersections. This table summarized the results of the analysis conducted at the location where the westbound Bay Breeze Drive approach is a stop-controlled left-turn lane, the northbound Kings Highway approach is a through lane and a right turn lane, and the southbound Kings Highway approach is a through lane.

Table 4 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/ Bay Breeze Drive [2,18,19]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2018 Existing (Case 1)						
Southbound Kings Highway Left Turn	-	-	-	B (13.5)	B (14.0)	C (21.7)
Westbound Bay Breeze Drive Right Turn	-	-	-	B (12.1)	B (12.2)	C (18.8)
2027 without Development and without Kings Highway Dual Lane Project (Case 2a)						
Southbound Kings Highway Left Turn	-	-	-	C (15.3)	C (19.1)	D (29.6)
Westbound Bay Breeze Drive Right Turn	-	-	-	B (13.5)	C (16.1)	D (25.2)
2027 with Development and without Kings Highway Dual Lane Project (Case 3a)						
Southbound Kings Highway Left Turn	-	-	-	C (15.8)	C (21.9)	D (33.8)
Westbound Bay Breeze Drive Right Turn	-	-	-	B (13.9)	C (18.1)	D (28.6)

[18] JMT analyzed the southbound left-turn movement as an eastbound through movement as the movement is stop-controlled.

[19] Due to the unique configuration of the Kings Highway/Bay Breeze Drive intersection, JMT analyzed the intersection as two separate intersections. This table summarizes the results of the analysis conducted at the location where the westbound Bay Breeze Drive approach is a yield-controlled channelized right-turn lane, the northbound Kings Highway approach is a through lane, and the southbound Kings Highway approach is a left-turn lane.

Table 4 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Roundabout [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/ Bay Breeze Drive[2]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development and without Kings Highway Dual Lane Project (Case 2a) [4]						
Westbound Bay Breeze Drive Approach	-	-	-	A (6.7)	A (8.2)	B (12.4)
Northbound Kings Highway Approach	-	-	-	A (8.9)	B (12.5)	E (42.9)
Southbound Kings Highway Approach	-	-	-	A (6.4)	C (22.1)	C (15.7)
Overall Intersection	-	-	-	A (7.9)	C (17.6)	C (30.8)
2027 with Development and with Kings Highway Dual Lane Project (Case 2b) [3, 5]						
Westbound Bay Breeze Drive Approach	-	-	-	A (5.7)	A (6.7)	A (9.4)
Northbound Kings Highway Approach	-	-	-	A (5.2)	A (6.0)	A (7.9)
Southbound Kings Highway Approach	-	-	-	A (4.4)	A (7.0)	A (6.4)
Overall Intersection	-	-	-	A (4.9)	A (6.5)	A (7.2)
2027 with Development and without Kings Highway Dual Lane Project (Case 3a) [4]						
Westbound Bay Breeze Drive Approach	-	-	-	A (7.0)	A (9.4)	B (14.1)
Northbound Kings Highway Approach	-	-	-	A (9.5)	C (16.4)	F (66.6)
Southbound Kings Highway Approach	-	-	-	A (7.2)	D (27.4)	C (23.3)
Overall Intersection				A (8.5)	C (22.0)	E (46.8)

Table 4 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Roundabout [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/ Bay Breeze Drive[2]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development and with Kings Highway Dual Lane Project (Case 3b) [3, 5]						
Westbound Bay Breeze Drive Approach	-	-	-	A (5.9)	A (7.5)	B (10.4)
Northbound Kings Highway Approach	-	-	-	A (5.4)	A (6.5)	A (8.5)
Southbound Kings Highway Approach	-	-	-	A (4.7)	A (7.3)	A (7.1)
Overall Intersection	-	-	-	A (5.1)	A (6.9)	A (7.9)

Table 4 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Signalized Intersection[1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/ Bay Breeze Drive [20,21]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development and without Kings Highway Dual Lane Project (Case 2a)	-	-	-	A (8.3)	A (9.3)	D (38.0)
2027 without Development and with Kings Highway Dual Lane Project (Case 2b) [3]	-	-	-	A (6.0)	A (4.9)	A (6.2)
2027 with Development and without Kings Highway Dual Lane Project (Case 3a)	-	-	-	A (8.5)	B (10.9)	D (52.6)
2027 with Development and with Kings Highway Dual Lane Project (Case 3b) [3]	-	-	-	A (5.9)	A (5.0)	A (6.6)

[20] JMT used a signal cycle length of 100 seconds during the AM and Saturday peak periods, and a cycle length of 130 seconds during the PM peak period.
[21] JMT modeled the signal as a three-phase signal with protected-permissive left turn phasing along the southbound Kings Highway approach.

Table 5
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway/Freeman Highway (Sussex Road 23) [22]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2018 Existing (Case 1) [23]						
Northbound Kings Highway Left Turn	A (8.4)	B (12.4)	A (9.1)	C (15.0)	C (18.4)	C (19.6)
2027 without Development and without Kings Highway Dual Lane Project (Case 2a) [23]						
Northbound Kings Highway Left Turn	A (8.7)	C (17.6)	B (11.0)	C (17.2)	F (109.6)	F (68.4)
2027 with Development and without Kings Highway Dual Lane Project (Case 3a) [23]						
Northbound Kings Highway Left Turn	A (8.9)	C (23.5)	B (12.2)	C (19.1)	F (199.4)	F (140.6)
2027 with Development and with Kings Highway Dual Lane Project (Case 3b)						
Northbound Kings Highway Left Turn	-	B (13.4)	-	C (19.1)	F (199.4)	F (140.6)
2027 with Development and with Kings Highway Dual Lane Project and Bay Breeze Drive left turn out restriction (Case 3b)[24]						
Northbound Kings Highway Left Turn	A (9.0)	B (14.1)	B (12.5)	C (17.2)	F (231.7)	F (151.3)

[22] The TIS modeled the northbound movement as a left-turn lane and a through lane. JMT did not include the through movement in the analysis, because it is a free-flow movement with no conflicts. JMT modeled the northbound left-turn movement as a westbound through as it is stop-controlled.
[23] For the PM peak period, the TIS utilized various values for proportion of time blocked whereas JMT utilized the default value of 0.
[24] For this scenario, Bay Breeze Drive left turn outs would be restricted and those movements would be U-turns at the Kings Highway/Freeman Highway intersection.

Table 5 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Signalized Intersection[1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268) / Freeman Highway (Sussex Road 23) [25]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development (Case 2)	-	-	-	B (14.9)	D (36.9)	C (25.0)
2027 with Development (Case 3)	-	-	-	B (17.6)	D (38.0)	C (27.5)

[25] JMT analyzed the intersection as signalized. The AM and Saturday signal cycle lengths are 100 seconds and the PM signal cycle length is 130 seconds.

Table 6
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control[1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268) / Savannah Road (Sussex Road 18) [26]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2018 Existing (Case 1)						
Eastbound 3rd Street Approach	B (11.5)	B (14.8)	D (28.5)	B (11.6)	C (16.5)	E (35.1)
Westbound Kings Highway Approach	B (10.4)	B (12.7)	C (16.2)	B (10.3)	B (13.3)	C (16.9)
Northbound Savannah Road Left Turn	A (7.5)	A (7.8)	A (7.8)	A (7.5)	A (7.9)	A (7.9)
Southbound Savannah Road Left Turn	A (7.7)	A (7.9)	A (8.7)	A (7.7)	A (8.0)	A (8.9)
2027 without Development (Case 2)						
Eastbound 3rd Street Approach	B (13.8)	F (55.7)	F (99.6)	B (14.7)	F (165.4)	F (171.0)
Westbound Kings Highway Approach	B (11.5)	E (35.3)	C (21.8)	B (11.5)	E (46.5)	C (23.6)
Northbound Savannah Road Left Turn	A (7.6)	A (7.9)	A (7.8)	A (7.6)	A (8.0)	A (8.0)
Southbound Savannah Road Left Turn	A (7.8)	A (8.5)	A (9.1)	A (7.8)	A (8.6)	A (9.3)
2027 with Development (Case 3) [27]						
Eastbound 3rd Street Approach	C (15.5)	F (96.7)	F (277.0)	C (17.2)	F (357.6)	F (565.9)
Westbound Kings Highway Approach	B (12.1)	F (56.7)	D (30.6)	B (12.0)	F (89.8)	E (39.5)
Northbound Savannah Road Left Turn	A (7.6)	A (8.0)	A (7.8)	A (7.6)	A (8.0)	A (8.0)
Southbound Savannah Road Left Turn	A (7.9)	A (8.6)	A (9.3)	A (7.9)	A (8.7)	A (9.5)

[26] For the analysis, the TIS used HCS7 version 7.8, whereas JMT used HCS7 version 7.8.5 resulting in delay differences.
[27] During the weekday AM, the TIS used a westbound through volume of 24, and JMT used a volume of 23 consistent with the volume diagrams.

Table 6 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Roundabout[1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268) / Savannah Road (Sussex Road 18) [28]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development (Case 2)						
Eastbound 3rd Street	-	-	-	A (4.3)	A (7.4)	A (5.6)
Westbound Kings Highway	-	-	-	A (4.9)	A (7.6)	B (10.0)
Northbound Savannah Road	-	-	-	A (5.1)	A (7.5)	B (10.0)
Southbound Savannah Road	-	-	-	A (4.8)	A (7.7)	A (5.8)
Overall Intersection	-	-	-	A (4.9)	A (7.6)	A (8.4)
2027 with Development (Case 3)						
Eastbound 3rd Street	-	-	-	A (4.5)	A (7.8)	A (6.2)
Westbound Kings Highway	-	-	-	A (5.1)	A (8.5)	B (11.4)
Northbound Savannah Road	-	-	-	A (5.3)	A (7.8)	B (11.4)
Southbound Savannah Road	-	-	-	A (5.0)	A (8.3)	A (6.4)
Overall Intersection	-	-	-	A (5.1)	A (8.2)	A (9.4)

[28] JMT modeled the intersection as a single-lane roundabout.

Table 6 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Signalized Intersection [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268) / Savannah Road (Sussex Road 18) [29]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development (Case 2)	-	-	-	C (26.6)	C (33.7)	C (31.3)
2027 with Development (Case 3)	-	-	-	C (29.3)	D (37.5)	D (36.3)

[29] JMT modeled the intersection as a signalized with split phases along the 3rd Street and Kings Highway approaches. A cycle length of 120 seconds was utilized for all peak periods.

Table 7
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, INC.

Signalized Intersection [1]	**LOS per TIS**			**LOS per JMT**		
Savannah Road/Gills Neck Road/Front Street (Sussex Road 267) [30]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2018 Existing (Case 1) [31]	B (15.9)	B (19.1)	F (136.7)	C (29.8)	C (31.3)	F (166.2)
2027 without Development (Case 2) [31]				C (32.1)	D (36.3)	F (240.1)
2027 without Development (Case 2) *with signal timing optimization* [34]	B (14.1)	B (17.7)	F (154.6)	B (15.2)	B (19.7)	F (160.5)
2027 without Development (Case 2) *with improvement* [33]				B (14.2)	B (17.2)	D (44.6)
2027 with Development (Case 3) [33]				C (32.4)	D (36.9)	F (263.7)
2027 with Development (Case 3) *with signal timing optimization* [32]	B (14.5)	B (17.8)	F (158.2)	B (18.3)	C (22.0)	F (176.7)
2027 with Development (Case 3) *with improvement* [33]				B (16.8)	B (17.8)	D (48.2)

[30] JMT did not incorporate RTOR because the movement in restricted, whereas the TIS did.
[31] JMT used MAX 1 Timers, whereas the TIS utilized observed signal timing splits for existing cases and optimized signal timing splits for future cases.
[32] For optimized signal timing scenarios, JMT utilized cycle lengths of 60, 90, and 120 seconds for the AM, PM, and Saturday peak hours, respectively.
[33] JMT improvement scenario includes providing an additional through lane along northbound and southbound Savannah Road with signal timing optimization. Cycle lengths of 60, 90, and 120 seconds were utilized for the AM, PM, and Saturday peak hours, respectively.

Table 7 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, INC.

Roundabout[1]	**LOS per TIS**			**LOS per JMT**		
Savannah Road/Gills Neck Road/Front Street (Sussex Road 267)	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development (Case 2) [34]						
Eastbound Front Street Approach	-	-	-	A (4.1)	A (5.7)	C (15.0)
Westbound Gills Neck Road Approach	-	-	-	A (4.7)	A (5.2)	B (14.8)
Northbound Savannah Road Approach	-	-	-	A (5.2)	A (5.7)	E (39.8)
Southbound Savannah Road Approach	-	-	-	A (4.7)	A (7.8)	C (16.9)
Overall				A (4.8)	A (6.6)	C (24.4)
2027 with Development (Case 3) [34]						
Eastbound Front Street Approach	-	-	-	A (4.2)	A (5.9)	B (15.9)
Westbound Gills Neck Road Approach	-	-	-	A (4.7)	A (5.4)	C (16.1)
Northbound Savannah Road Approach	-	-	-	A (5.3)	A (6.1)	F (54.1)
Southbound Savannah Road Approach	-	-	-	A (4.8)	A (8.2)	C (20.8)
Overall				A (4.9)	A (6.9)	D (31.3)

[34] JMT modeled the intersection as a single-lane roundabout with a right turn bypass lane along the eastbound Front Street and the northbound Savannah Road approaches.

Table 8
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/ Atlantic Drive [2]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2018 Existing (Case 1)						
Northbound Kings Highway Left Turn	A (8.3)	F (112.3)	F (126.5)	A (8.3)	B (10.4)	A (9.7)
Eastbound Atlantic Drive Approach	B (13.7)	F (*)	F (*)	B (13.2)	C (24.7)	D (31.1)
2027 without Development and without Kings Highway Dual Lane Project (Case 2a)						
Northbound Kings Highway Left Turn	A (8.8)	F (78.2)	F (84.5)	A (8.9)	B (12.4)	B (10.9)
Eastbound Atlantic Drive Approach	C (17.7)	F (*)	F (*)	C (16.6)	F (57.1)	F (93.4)
2027 without Development and with Kings Highway Dual Lane Project (Case 2b) [3]						
Northbound Kings Highway Left Turn	-	-	-	A (8.9)	B (12.5)	B (11.0)
Eastbound Atlantic Drive Approach	-	-	-	B (12.9)	C (24.1)	E (38.0)
2023 with development of Lot 1 (39,000 square feet of medical/dental office space) and without the Kings Highway Dual Lane Project (Case 2d)						
Northbound Kings Highway Left Turn	A (8.6)	F (110.0)	F (125.1)	A (8.7)	B (11.3)	B (10.4)
Eastbound Atlantic Drive Approach	C (15.8)	F (*)	F (*)	C (15.0)	E (35.8)	F (52.4)

*HCS reported excessive delay greater than 1000 seconds per vehicle

Table 8 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/ Atlantic Drive [2]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development and without Kings Highway Dual Lane Project (Case 3a)						
Northbound Kings Highway Left Turn	A (9.0)	F (73.4)	E (43.7)	A (9.1)	B (13.7)	B (11.7)
Eastbound Atlantic Drive Approach	C (20.7)	F (*)	F (*)	C (19.0)	F (107.4)	F (261.9)
2027 with Development and with Kings Highway Dual Lane Project and Atlantic Drive as Rights-In/Rights-Out Only (Case 3b) [3]						
Eastbound Atlantic Drive Right Turn	B (10.7)	C (17.8)	B (14.1)	B (10.6)	C (17.7)	B (14.3)
2027 with Development, only access along Gills Neck Road and without Kings Highway Dual Lane Project (Case 3c)						
Northbound Kings Highway Left Turn	A (9.1)	F (60.7)	F (64.0)	A (9.2)	B (12.8)	B (11.6)
Eastbound Atlantic Drive Approach	C (19.9)	F (*)	F (*)	C (18.4)	F (76.5)	F (168.9)

*HCS reported excessive delay greater than 1000 seconds per vehicle
Note:
Analysis highlighted in blue represents JMT suggested improvements with the full build of the proposed development

Table 8 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/ Atlantic Drive[2]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development, without Kings Highway Dual Lane Project and rights-in only along Kings Highway (Case 3c) [35]						
Northbound Kings Highway Left Turn	-	-	-	A (9.2)	B (12.8)	B (11.6)
Eastbound Atlantic Drive Approach	-	-	-	C (20.1)	F (89.6)	F (351.4)
2023 with 117,000 square feet of medical/dental office space, without the Kings Highway Dual Lane Project, and rights-in site entrance on Kings Highway (Case 3d)						
Northbound Kings Highway Left Turn	A (8.7)	B (11.3)	B (11.6)	A (8.7)	B (11.4)	B (11.2)
Eastbound Atlantic Drive Approach	C (17.1)	E (44.9)	F (397.7)	C (16.1)	E (39.0)	F (164.8)

Note: Analysis highlighted in gray represents the JMT interim recommendations

[35] The additional northbound Kings Highway through traffic as a result of a rights-in only site access along Kings Highway increases the delay for vehicles exiting Atlantic Drive.

Table 8 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Signalized Intersection[1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/ Atlantic Drive [36,37]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development and without Kings Highway Dual Lane Project (Case 2a)	-	-	-	A (8.1)	C (32.3)	B (19.8)
2027 without Development and with Kings Highway Dual Lane Project (Case 2b)	-	-	-	A (5.6)	B (14.2)	A (6.6)
2023 with development of Lot 1 (39,000 square feet of medical/dental office space) and without the Kings Highway Dual Lane Project (Case 2d)	-	-	-	A (7.5)	C (22.9)	B (13.8)
2027 with Development and without Kings Highway Dual Lane Project (Case 3a)	-	-	-	A (8.9)	E (56.7)	D (45.6)
2027 with Development and with Kings Highway Dual Lane Project (Case 3b) [38]	-	-	-	A (5.6)	B (13.8)	A (7.1)
2027 with Development, only access along Gills Neck Road, and without Kings Highway Dual Lane Project (Case 3c)	-	-	-	A (8.7)	D (40.2)	C (34.1)
2023 with 117,000 square feet of medical/dental office space, without the Kings Highway Dual Lane Project, and rights-in site entrance on Kings Highway (Case 3d)	-	-	-	A (7.9)	C (22.9)	C (30.4)

[36] JMT modeled the intersection as signalized with a cycle length of 100 seconds during the AM and Saturday peak periods, and 130 seconds during the PM peak period. The signal would operate with protected-permissive left turn phasing along the northbound Kings Highway approach.

[37] JMT modeled the intersection with one left turn lane and one through lane along northbound Kings Highway, one through lane and one right turn lane along southbound Kings Highway, and one left turn lane and one right turn lane along Atlantic Drive. For the scenarios with the Kings Highway Dual Lane Project, the number of through lanes along Kings Highway would increase to two.

[38] JMT assumed Atlantic Drive would not have turning restrictions with the provision of a traffic signal and the Kings Highway Dual Lane Project.

Table 9
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, INC.

Signalized Intersection [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway/Gills Neck Road/Cape Henlopen High School [39,40,41]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2018 Existing (Case 1) [42]	F (160.3)	F (343.7)	F (412.7)	F (226.2)	F (359.7)	F (832.0)
2027 without Development and without Kings Highway Dual Lane Project (Case 2a) [43]	F (202.3)	F (112.9)	F (433.5)	F (436.3)	F (160.6)	F (574.0)
2027 without Development and with Kings Highway Dual Lane Project (Case 2b) [44]	D (46.2)	C (32.2)	C (26.4)	E (78.7)	D (50.5)	D (51.0)
2027 without Development, with Kings Highway Dual Lane Project (Case 2b) *with improvements* [45]	D (48.0)	D (53.2)	C (28.7)	C (31.8)	D (45.2)	C (33.2)
2023 with development of Lot 1 (39,000 square feet of medical/dental office space) and without the Kings Highway Dual Lane Project (Case 2d)[46]	F (209.3)	F (111.4)	F (314.9)	F (152.8)	D (46.6)	F (307.5)

[39] For future Cases, JMT analyzed the intersection as a coordinated intersection with Clay Road, whereas the TIS analyzed the intersection as an uncoordinated intersection.
[40] For future Cases with the Kings Highway Dual Lane Project (Cases 2b and 3b), both the TIS and JMT increased the peak hour factor to 0.92 and set all initial queue lengths to zero.
[41] For future Cases, JMT utilized signal cycle lengths consistent with the DelDOT Timing Plan whereas the TIS utilized various cycle lengths.
[42] JMT utilized timing splits provided on the DelDOT Timing Plan, whereas the TIS did not. Both the TIS and JMT utilized signal cycle lengths consistent with the DelDOT Timing Plan.
[43] For the AM, PM, and Saturday peak hours, JMT maintained the calibrated peak hour factor, whereas the TIS increased the peak hour factor to various values.
[44] Both the TIS and JMT modeled the intersection with two through lanes along Kings Highway and the Gills Neck Road and Cape Henlopen High School Entrance approaches maintained the existing lane configurations.
[45] Both the TIS and JMT modeled the intersection with two through lanes along Kings Highway, one left turn lane, one left turn/through lane, and one right turn lane along Gills Neck Road, and the Cape Henlopen High School Entrance approach would maintain the existing lane configurations. The signal phasing along Gills Neck Road and the Cape Henlopen High School would be modified to split phase.
[46] Both the TIS and JMT utilized weighted peak hour factors to conduct the analysis.

Table 9 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Signalized Intersection [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway/Gills Neck Road/Cape Henlopen High School [41,42,43]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development and without Kings Highway Dual Lane Project (Case 3a)	F (248.5)	F (202.4)	F (448.3)	F (443.4)	F (251.2)	F (754.6)
2027 with Development and with Kings Highway Dual Lane Project (Case 3b) [44]	D (51.9)	E (67.5)	D (51.4)	F (87.8)	F (117.2)	F (111.5)
2027 with Development and with Kings Highway Dual Lane Project (Case 4) [47]	D (47.7)	E (61.2)	D (39.1)	D (54.5)	D (54.1)	D (54.9)

Note: Analysis highlighted in blue represents JMT suggested improvements with the full build of the proposed development

[47] Both the TIS and JMT modeled the intersection with two through lanes along Kings Highway, one left turn lane, one shared left turn/through lane, and one right turn lane along Gills Neck Road and one left turn lane, one through lane, and one right turn lane along the Cape Henlopen High School Entrance approach. The signal phasing along Gills Neck Road and the Cape Henlopen High School would be modified to split phase.

Table 9 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Signalized Intersection [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway/Gills Neck Road/Cape Henlopen High School [41,42,43]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development without Kings Highway Dual Lane Project (Case 3c)	F (230.0)	F (197.4)	F (425.1)	F (451.9)	F (279.7)	F (686.7)
2027 with Development and without Kings Highway Dual Lane Project (Case 3c) *with TIS improvements* [48]	F (200.2)	F (143.4)	F (363.1)	F (356.2)	F (167.6)	F (571.2)
2027 with Development without Kings Highway Dual Lane Project and with rights-in only entrance along Kings Highway (Case 3c) [49]	-	-	-	F (327.8)	F (135.0)	F (582.6)
2023 with 117,000 square feet of medical/dental office space, without the Kings Highway Dual Lane Project, and rights-in site entrance on Kings Highway (Case 3d)[50,51]	F (139.6)	E (62.6)	F (317.3)	F (161.2)	D (54.7)	F (366.8)

Note: Analysis highlighted in gray represents the JMT interim recommendations

[48] TIS improvements scenario incorporates two left turn lanes and a shared through/right turn lane along the westbound Gills Neck Road approach and split phase operation along the eastbound and westbound approaches.

[49] This scenario models the westbound Gills Neck Road approach with one left turn lane, one shared left turn/through lane, and one right turn lane and the southbound approach with one left turn lane, one through lane, and one shared through/right turn lane.

[50] Both the TIS and JMT modeled the intersection with one left turn lane, one through lane, and one right turn lane along northbound Kings Highway, one left turn lane, one through lane, and one shared through/right turn lane along southbound Kings Highway, and two left turn lanes, and one shared through/right turn lane along Gills Neck Road. The TIS and JMT maintained the existing lane configurations along the Cape Henlopen High School Entrance approach. The signal phasing along Gills Neck Road and the Cape Henlopen High School would be modified to split phase.

[51] During the PM peak hour, JMT optimized the signal timing splits and modified the signal cycle length to 150 seconds.

Table 10
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway/Clay Road (Sussex Road 269) [2, 52]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2018 Existing (Case 1)						
Northbound Kings Highway Left Turn	F (168.4)	B (13.4)	F (64.3)	A (9.0)	B (14.1)	A (9.7)
Eastbound Clay Road Approach	F (*)	F (*)	F (*)	F (160.1)	F (*)	F (400.9)
2027 without Development and without Kings Highway Dual Lane Project (Case 2a)						
Northbound Kings Highway Left Turn	F (110.1)	C (16.1)	F (69.4)	-	-	-
Southbound Kings Highway Left Turn	F (177.7)	B (13.0)	F (152.6)	-	-	-
Eastbound Clay Road Approach	F (*)	F (103.4)	F (735.5)	-	-	-
Westbound Gills Neck Village Center Access	F (*)	D (25.4)	F (863.8)	-	-	-
2027 with Development and without Kings Highway Dual Lane Project (Case 3a)						
Northbound Kings Highway Left Turn	F (110.1)	C (22.8)	D (29.5)	-	-	-
Southbound Kings Highway Left Turn	F (177.7)	B (14.4)	F (163.9)	-	-	-
Eastbound Clay Road Approach	F (*)	F (319.8)	F (430.2)	-	-	-
Westbound Gills Neck Village Center Access	F (*)	E (37.3)	F (*)	-	-	-

[52] For all future Cases, JMT modeled the intersection as a signalized intersection per direction from DelDOT, whereas the TIS only modeled the intersection as signalized for Cases that only incorporated the widening project.

Table 10 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Signalized Intersection [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway/Clay Road (Sussex Road 269) [53, 54]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development and without Kings Highway Dual Lane Project (Case 2a)	-	-	-	E (55.8)	F (107.9)	E (71.1)
2027 without Development and with Kings Highway Dual Lane Project (Case 2b) [55]	C (26.9)	C (30.1)	C (23.4)	D (36.9)	C (28.3)	C (23.5)
2027 without Development and with Kings Highway Dual Lane Project (Case 2b) *with improvements* [56]	-	-	-	D (37.0)	C (28.6)	C (23.3)
2023 with development of Lot 1 (39,000 square feet of medical/dental office space) and without the Kings Highway Dual Lane Project (Case 2d)	-	-	-	C (34.2)	F (94.9)	D (46.5)
2027 with Development and without Kings Highway Dual Lane Project (Case 3a)	-	-	-	F (103.0)	F (191.3)	F (151.1)

[53] For future Cases, JMT analyzed the intersection as a signalized intersection coordinated with Gills Neck Road, whereas the TIS analyzed the intersection as an uncoordinated signalized intersection. JMT utilized signal cycle lengths consistent with the signal cycle lengths at the Kings Highway/Gills Neck Road intersection whereas the TIS utilized various signal cycle lengths.

[54] JMT modeled the intersection with one left turn lane, one through lane, and one right turn lane along the northbound and southbound Kings Highway approaches, one left turn lane, one through lane, and one right turn lane along the eastbound Clay Road approach, and two left turn lanes, one through lane and one right turn lane along the Gills Neck Village Center Entrance. Protected-permissive left turn phasing was utilized along the northbound and southbound approaches, and split phase was utilized along the eastbound and westbound approaches.

[55] JMT and the TIS modeled the intersection with two through lanes along Kings Highway. The TIS modeled the side street approaches with one left turn lane, one through lane, and one right turn lane.

[56] JMT incorporated a scenario with improvements proposed at the Kings Highway/Gills Neck Road intersection. Specifically, the improvements include the intersection with two through lanes along Kings Highway, one left turn lane, one left turn/through lane, and one right turn lane along Gills Neck Road, and the Cape Henlopen High School Entrance approach would maintain the existing lane configurations. The signal phasing along Gills Neck Road and the Cape Henlopen High School would be modified to split phase.

Table 10 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, INC.

Signalized Intersection [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway/Clay Road (Sussex Road 269) [57, 58]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development and with Kings Highway Dual Lane Project (Case 3b)	-	-	-	D (50.8)	E (58.0)	D (36.6)
2027 with Development and with Kings Highway Dual Lane Project (Case 4) [57,58]	C (30.1)	D (37.0)	C (33.3)	D (39.4)	D (46.5)	D (43.0)

Note: Analysis highlighted in blue represents JMT suggested improvements with the full build of the proposed development

[57] Both the TIS and JMT modeled the intersection with two through lanes along Kings Highway, one left turn lane, one through lane, and one right turn lane along Clay Road.

[58] Along the westbound Gills Neck Village Center Entrance approach, JMT provided two left turn lanes, one through lanes, and one right turn lane whereas the TIS provided one left turn lane, one through lane, and one right turn lane. The TIS used protected and permissive phasing along the eastbound and westbound approaches whereas JMT utilized split phase operation.

Table 10 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, INC.

Signalized Intersection [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway/Clay Road (Sussex Road 269) [57, 58]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development, without Kings Highway Dual Lane Project and no site entrance on Kings Highway (Case 3c)	-	-	-	F (87.0)	F (196.3)	F (158.6)
2027 with Development, without Kings Highway Dual Lane Project and no site entrance on Kings Highway (Case 3c) *with TIS improvements* [59]	-	-	-	F (131.9)	F (193.6)	F (168.3)
2027 with Development, without Kings Highway Dual Lane Project and rights-in only entrance on Kings Highway (Case 3c) [60]	-	-	-	F (95.6)	F (189.3)	F (156.6)
2023 with 117,000 square feet of medical/dental office space, without the Kings Highway Dual Lane Project, and rights-in site entrance on Kings Highway (Case 3d)[55]	-	-	-	D (40.7)	F (165.2)	E (69.7)

Note: Analysis highlighted in gray represents the JMT interim recommendations

[59] The TIS improvements scenario incorporates two left turn lanes and a shared through/right turn lane along the westbound Gills Neck Road approach to Kings Highway and split phase operation along the eastbound and westbound approaches at the Gills Neck Road/Kings Highway intersection.

[60] JMT modeled the southbound Kings Highway approach with one right turn lane and one through lane.

Table 11
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection)[1]	**LOS per TIS**			**LOS per JMT**		
Clay Road (Sussex Road 269) / Marsh Road (Sussex Road 269A)	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
2018 Existing (Case 1) [61]						
Westbound Clay Road Left	A (7.5)	A (7.6)	A (7.6)	-	-	-
Northbound Marsh Road Approach	A (9.3)	A (9.5)	A (9.4)	-	-	-

[61] Due to the unique configuration of the Clay Road/Marsh Road intersection in Case 1, JMT analyzed the intersection as three separate intersections. The TIS analyzed it as a single standard T-intersection and the results are summarized in this table.

Table 11 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection)[1]	**LOS per TIS**			**LOS per JMT**		
Clay Road (Sussex Road 269) / Marsh Road (Sussex Road 269A) [62]	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
2018 Existing (Case 1) – a [63]						
Eastbound Clay Road Right Turn	-	-	-	A (8.5)	A (8.9)	A (8.5)
Northbound Marsh Road Left Turn	-	-	-	A (7.3)	A (7.6)	A (7.3)
2018 Existing (Case 1) – b [64]						
Eastbound U-turn[65]	-	-	-	-	A (7.5)	-
Northbound Marsh Road Left Turn	-	-	-	A (9.4)	B (10.1)	B (10.4)
2018 Existing (Case 1) – c [66]						
Westbound Clay Road Left Turn	-	-	-	A (7.5)	A (7.5)	A (7.6)
Northbound Marsh Road Right Turn	-	-	-	A (9.1)	A (8.8)	A (9.3)

[62] Due to the unique configuration of the Clay Road/Marsh Road intersection, JMT analyzed the intersection as three separate intersections.
[63] Intersection 'a' depicts the analysis conducted at the location where the eastbound Clay Road approach is a stop-controlled right turn lane, the northbound Marsh Road approach is a shared through/left turn lane, and the southbound Marsh Road approach is a through lane.
[64] Intersection 'b' depicts the analysis conducted at the location where the eastbound Clay Road approach is a shared through/right turn lane, the westbound Clay Road approach is a through lane, and the northbound Marsh Road approach is a stop-controlled left turn lane.
[65] JMT modeled the U-turn as a left turn due to limitations of the HCS software.
[66] Intersection "c" depicts the analysis conducted at the location where the eastbound Clay Road approach is a through lane, the westbound Clay Road approach is a shared through/left turn lane and the northbound Marsh Road approach is a stop-controlled right turn lane.

Table 11 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection)[1]	**LOS per TIS**			**LOS per JMT**		
Clay Road (Sussex Road 269) / Marsh Road (Sussex Road 269A) [67]	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
2027 without Development and without Kings Highway Dual Lane project (Case 2a)						
Eastbound Clay Road Approach	B (13.3)	B (13.1)	B (13.5)	B (13.3)	B (12.8)	B (13.0)
Northbound Marsh Road Left Turn	A (8.1)	A (8.2)	A (8.1)	A (8.1)	A (8.2)	A (8.0)
2027 with Development (Case 3)						
Eastbound Clay Road Approach	C (15.2)	C (16.5)	C (18.3)	B (14.4)	C (15.5)	C (15.9)
Northbound Marsh Road Left Turn	A (8.2)	A (8.6)	A (8.4)	A (8.3)	A (8.6)	A (8.3)

[67] The intersection will be reconfigured as part of the *Realignment of Old Orchard Road/Savannah Road/Wescoats Road* (DelDOT Contract No. T201609601) project. The existing westbound Clay Road left-turn onto Marsh Road will be a major street through movement. The existing right-turn from Marsh Road onto Clay Road will be a major street through movement. The existing eastbound through movement on Clay Road will be a stop-controlled minor street left-turn onto Clay Road.

Table 12
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, INC.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268) / Dartmouth Drive (Sussex Road 268A) [2,68,69]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2018 Existing (Case 1)						
Northbound Kings Highway Left Turn	A (9.7)	A (7.7)	F (133.7)	A (7.4)	A (7.7)	A (7.5)
Eastbound Dartmouth Drive Approach	D (28.7)	F (145.0)	F (*)	D (29.5)	F (86.3)	F (180.7)
2027 without Development (Case 2)						
Northbound Kings Highway Left Turn	A (9.7)	A (7.8)	F (142.5)	A (7.4)	A (7.8)	A (7.6)
Eastbound Dartmouth Drive Approach	F (330.2)	F (*)	F (*)	F (199.0)	F (840.3)	F (831.0)
2027 with Development (Case 3)						
Northbound Kings Highway Left Turn	A (9.7)	A (7.8)	F (142.5)	A (7.4)	A (7.8)	A (7.6)
Eastbound Dartmouth Drive Approach	F (944.9)	F (*)	F (*)	F (477.8)	F (*)	F (*)

*HCS reported excessive delay greater than 1000 seconds per vehicle

[68] The TIS utilized various values for proportion of time blocked whereas JMT utilized the default value of 0.
[69] Results represent the eastbound Dartmouth Drive Approach to have one shared left turn/right turn lane. JMT also incorporated the right turn lane to have a flared right turn with a 5-vehicle storage.

Table 12 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Roundabout[1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268) / Dartmouth Drive (Sussex Road 268A) [70]	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
2027 without Development and with or without Kings Highway Dual Lane Project (Case 2a) [71]						
Eastbound Dartmouth Drive Approach	A (5.7)	A (6.3)	A (5.9)	A (5.7)	A (6.4)	A (6.0)
Northbound Kings Highway Approach	A (0.2)	A (0.9)	A (0.6)	A (0.2)	A (0.9)	A (0.6)
Southbound Kings Highway Approach	A (0.2)	A (0.4)	A (0.2)	A (0.2)	A (0.4)	A (0.2)
Overall Intersection	A (1.1)	A (1.5)	A (1.2)	A (1.1)	A (1.5)	A (1.3)
2027 with Development and with or without Kings Highway Dual Lane Project (Case 3) [71]						
Eastbound Dartmouth Drive Approach	A (6.3)	A (6.9)	A (7.0)	A (6.2)	A (6.9)	A (7.2)
Northbound Kings Highway Approach	A (0.2)	A (0.9)	A (0.5)	A (0.2)	A (0.9)	A (0.5)
Southbound Kings Highway Approach	A (0.2)	A (0.3)	A (0.2)	A (0.2)	A (0.3)	A (0.2)
Overall Intersection	A (1.2)	A (1.5)	A (1.4)	A (1.2)	A (1.5)	A (1.5)

Note: Analysis highlighted in blue represents JMT suggested improvements with the full build of the proposed development

[70] Both the TIS and JMT modeled the northbound approach with a right turn bypass lane to represent a northbound bypass lane.
[71] Both the TIS and JMT modeled the intersection as a single-lane roundabout.

Table 12 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Signalized Intersection [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268) / Dartmouth Drive (Sussex Road 268A) [72]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development and with or without Kings Highway Dual Lane Project (Case 2a)	-	-	-	C (27.3)	C (26.3)	D (41.4)
2027 with Development and with or without Kings Highway Dual Lane Project (Case 3)	-	-	-	D (54.1)	D (41.9)	F (112.1)

[72] JMT analyzed the intersection as a signalized intersection with a 60 second cycle length during all peak periods. The eastbound Dartmouth Drive approach would provide one left turn lane and one shared left turn/right turn lane, the northbound Kings Highway approach would provide one left turn lane and one through lane, and the southbound Kings Highway approach would provide one through lane.

MAPPING & ADDRESSING

MEGAN NEHRBAS
MANAGER OF GEOGRAPHIC
INFORMATION SYSTEMS (GIS)
(302) 855-1176 T
(302) 853-5889 F

Sussex County
DELAWARE
sussexcountyde.gov

December 21, 2021

Davis, Bowen & Friedel, Inc.

Attn: Ring W. Lardner, P.E.

RE: **Change of Sub Division Name(s)/Formally known as:**

ZWAANENDAEL FARM

I have received your request to change the subdivision previously approved as **ZWAANENDAEL FARM**, which is located in **Lewes** (335-8.00-37.00) The name change has been approved and will now been known as:

MITCHELLS CORNER

Should you have any questions please contact the **Sussex County Addressing Department at 302-853-5888 or 302-855-1176.**

Sincerely,

Terri L Dukes

Terri L. Dukes
Addressing Technician II

CC: Christin Scott
Planning & Zoning

MITCHELL FAMILY FARM

KINGS HIGHWAY (SCR268)

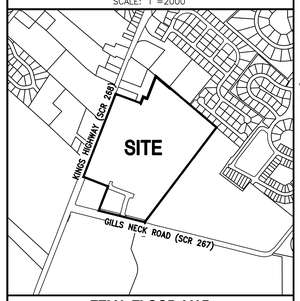
LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

PRELIMINARY SUBDIVISION PLANS

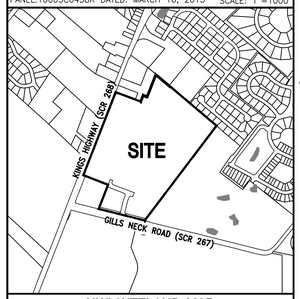
DECEMBER 2021

DBF PROJECT # 3808A001

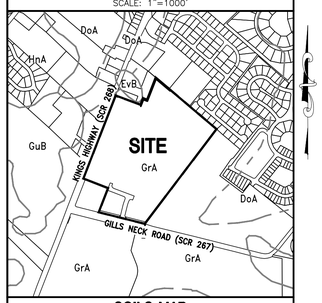
LOCATION MAP
SCALE: 1"=2000'



FEMA FLOOD MAP
PANEL:10005C0458K DATED: MARCH 16, 2015 SCALE: 1"=1000'



NWI WETLAND MAP
SCALE: 1"=1000'



SOILS MAP
SCALE: 1"=1000'

SYMB	SOIL TYPE
FhA	FORT MOTT-HENLOPEN COMPLEX, 0-2% SLOPES
HmA	HAMMONTON LOAMY SAND, 0 TO 2 PERCENT SLOPES
PsA	PEPPERBOX-ROSEDALE COMPLEX, 0-2% SLOPES

DATA COLUMN

TAX MAP ID:335-8.00-37.00

EXISTING ZONING AGRICULTURAL

PROPOSED USE RESIDENTIAL

SITE AREA 43.789 AC.

PROPOSED LOTS/UNITS
PROPOSED DUPLEX LOTS/UNITS 114 LOTS/UNITS
PROPOSED TOWNHOUSE LOTS/UNITS 153 LOTS/UNITS
TOTAL SINGLE FAMILY LOTS/UNITS 267 LOTS/UNITS

TOTAL DENSITY
(267 DU ÷ 43.789 AC) 6.10 DU/AC

MR - MEDIUM DENSITY RESIDENTIAL DISTRICT

DUPLEX LOTS	REQUIRED	PROPOSED
MINIMUM LOT SIZE ALLOWED	1,600 S.F.	4,000 S.F.
MINIMUM LOT WIDTH	30'	45'
FRONT YARD SETBACK	25'	25'
SIDE YARD SETBACK	10'	10'
REAR YARD SETBACK	10'	10'
MAXIMUM HEIGHT	42' OR 3 STORIES	

MR - MEDIUM DENSITY RESIDENTIAL DISTRICT

TOWNHOUSE LOTS	REQUIRED	PROPOSED
MINIMUM LOT SIZE ALLOWED	1,600 S.F.	2,400 S.F.
MINIMUM LOT WIDTH	16'	24'
FRONT YARD SETBACK	25'	25'
SIDE YARD SETBACK	10'	10'
REAR YARD SETBACK	10'	10'
MAXIMUM HEIGHT	42' OR 3 STORIES	

AREAS

EXISTING SITE	
SITE AREA:	46.818 AC.
SCR 267 R.O.W. DEDICATION	-0.076 AC.
SCR 268 R.O.W. DEDICATION	-0.608 AC.
RESIDUAL LANDS	-3.041 AC.
TOTAL SITE AREA	43.093 AC.

PROPOSED SITE	
LOT AREA:	23.229 AC.
RIGHT -OF-WAY:	8.070 AC.
OPEN SPACE (TOTAL)	11.794 AC.
OPEN SPACE A	0.179 AC.
OPEN SPACE B	0.476 AC.
OPEN SPACE C	0.740 AC.
OPEN SPACE D	1.311 AC.
OPEN SPACE E	1.052 AC.
OPEN SPACE F	1.834 AC.
OPEN SPACE G	0.294 AC.
OPEN SPACE H	0.420 AC.
OPEN SPACE I	2.368 AC.
OPEN SPACE J	0.292 AC.
OPEN SPACE K	0.242 AC.
OPEN SPACE L	1.508 AC.
OPEN SPACE M	0.401 AC.
OPEN SPACE N	0.677 AC.
TOTAL SITE AREA	43.093 AC.

ESTIMATED EDU'S 275

SEWER PROVIDER	SUSSEX COUNTY
WATER PROVIDER	TIDEWATER
ELECTRIC PROVIDER	CITY OF LEWES BOARD OF PUBLIC WORKS/DELAWARE ELECTRIC COOP.
WETLANDS	NONE ARE PRESENT ON SITE
SOURCE WATER PROTECTION AREAS	SITE IS LOCATED WITHIN A WELL HEAD PROTECTION AREA
FLOOD ZONE	AREA OF MINIMAL FLOOD HAZARD
FIRE DISTRICT	82ND
SCHOOL DISTRICT	CAPE HENLOPEN
ELECTION DISTRICT	3RD
HORIZONTAL DATUM :	NAD83
VERTICAL DATUM :	NAVD88

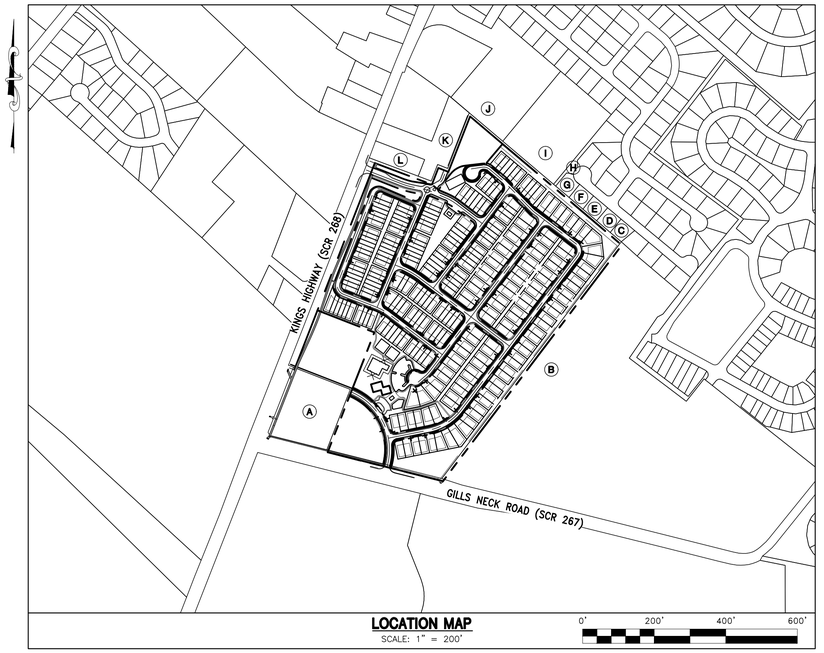
OWNER
MITCHELL FAMILY LTD. PARTNERSHIP
1019 KINGS HIGHWAY
LEWES, DE 19958
(302) 448-6430

DEVELOPER
HENLOPEN PROPERTIES LLC
4750 OWINGS MILL BLVD
OWINGS MILL, MD 21117

ENGINEER/SURVEYOR
DAVIS, BOWEN & FRIEDEL, INC.
1 PARK AVENUE
MILFORD, DELAWARE 19963
(302)424-1441

ADJACENT PROPERTY OWNERS

KEY	PARCEL ID	PROPERTY OWNER	DEED	ZONING
A	335-8.00-37.01	CAPE HENLOPEN MEDICAL CENTER LLC	DB:5007 PG:276	C-3 HEAVY COMMERCIAL
B	335-8.00-43.01	CADBURY AT LEWES INC	DB:2934 PG:239	MR MEDIUM-DENSITY RESIDENTIAL
C	335-8.00-326.00	JOHN A JIULIANO & LAURA T OTA	DB:3978 PG:171	R-2 RESIDENTIAL LOW DENSITY
D	335-8.00-327.00	PATTI J STEWART	DB:4158 PG:247	R-2 RESIDENTIAL LOW DENSITY
E	335-8.00-328.00	KEVIN P HAZARD & JOANN T HAZARD	DB:5357 PG:123	R-2 RESIDENTIAL LOW DENSITY
F	335-8.00-329.00	LINDA S LEKITES	DB:3027 PG:314	R-2 RESIDENTIAL LOW DENSITY
G	335-8.00-330.00	DAVID A CANNON/CATHY E WILLIAMS	DB:2194 PG:246	R-2 RESIDENTIAL LOW DENSITY
H	335-8.00-336.00	BAY BREEZE ESTATES HOMEOWNERS ASSOC INC	DB:1985 PG:181	R-2 RESIDENTIAL LOW DENSITY
I	335-8.00-42.02	JEFFERSON ESTATES II LLC	DB:4745 PG:296	R-5 MIXED RESIDENTIAL
J	335-8.00-42.01	JEFFERSON ESTATES II LLC	DB:4338 PG:195	R-5 MIXED RESIDENTIAL
K	335-8.00-39.00	JEFF-KAT LLC	DB:5381 PG:282	C-3 HEAVY COMMERCIAL
L	335-8.00-38.00	THREE BUILDERS LLC	DB:3173 PG:100	C-1 GENERAL COMMERCIAL



LOCATION MAP
SCALE: 1" = 200'

LEGEND

EXISTING	PROPOSED
BOUNDARY LINE	RIGHT-OF-WAY / BOUNDARY LINE
ADJACENT PROPERTY OWNER	EASEMENT
EASEMENT	SETBACK
CONTOUR (33)	BUFFER
CATCH BASIN, STORM PIPE	SANITARY SEWER IDENTIFICATION, MANHOLE, PIPE, FLOW ARROW, PIPE SIZE (8SS)
SANITARY SEWER MANHOLE, PIPE (EX-SS)	WATER MAIN, TEE W/ VALVES, PIPE SIZE (8W)
WATER MAIN (EX-W)	FIRE HYDRANT ASSEMBLY
FIRE HYDRANT ASSEMBLY	PROPOSED TREE LINE
UTILITY POLE	SIDEWALK
SIGN	PAVEMENT
FENCE	
BUSHES, TREES	
TREE LINE	
WETLANDS (WET)	
PAVEMENT	

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PRELIMINARY SITE PLAN OVERVIEW	PL-02
PRELIMINARY SITE PLAN	PL-03
PRELIMINARY SITE PLAN	PL-04
PRELIMINARY SITE PLAN	PL-05
PRELIMINARY SITE PLAN	PL-06
PRELIMINARY SITE PLAN	PL-07
PRELIMINARY SITE PLAN	PL-08
PRELIMINARY UTILITY PLAN OVERVIEW	PL-09
PRELIMINARY UTILITY PLAN	PL-10
PRELIMINARY UTILITY PLAN	PL-11
PRELIMINARY UTILITY PLAN	PL-12
PRELIMINARY UTILITY PLAN	P-13
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PRELIMINARY UTILITY PLAN	PL-15

ENGINEER'S STATEMENT

I, THE UNDERSIGNED, HEREBY STATE THAT I AM A REGISTERED ENGINEER IN THE STATE OF DELAWARE, THAT THE INFORMATION SHOWN HEREON HAS BEEN PREPARED UNDER MY SUPERVISION AND TO MY BELIEF REPRESENTS GOOD ENGINEERING PRACTICES AS REQUIRED BY THE APPLICABLE LAWS OF THE STATE OF DELAWARE.

RING W. LARDNER, P.E. DATE
DAVIS, BOWEN & FRIEDEL, INC.
1 PARK AVENUE
MILFORD, DELAWARE, 19963

OWNER'S STATEMENT

I, THE UNDERSIGNED, CERTIFY THAT I AM THE OWNER OF THE PROPERTY DESCRIBED AND SHOWN ON THIS PLAN, THAT THE PLAN WAS MADE AT MY DIRECTION, AND THAT I ACKNOWLEDGE THE SAME TO BE ACT AND DESIRE THE PLAN TO BE RECORDED TO ORDINANCE.

THE MITCHELL FAMILY LTD. PARTNERSHIP DATE
1019 KINGS HIGHWAY
LEWES, DE 19958

SUSSEX CONSERVATION DISTRICT

DEVELOPER'S STATEMENT

I, THE UNDERSIGNED, CERTIFY THAT I AM THE OWNER OF THE PROPERTY DESCRIBED AND SHOWN ON THIS PLAN, THAT THE PLAN WAS MADE AT MY DIRECTION, AND THAT I ACKNOWLEDGE THE SAME TO BE ACT AND DESIRE THE PLAN TO BE RECORDED TO ORDINANCE.

HENLOPEN PROPERTIES LLC DATE
4750 OWINGS MILL BLVD
OWINGS MILL, MD 21117

GENERAL NOTES

1. ALL UNITS SHALL HAVE ACCESS FROM THE INTERNAL SUBDIVISION STREET.
2. ALL FIRE LANES, FIRE HYDRANTS, AND FIRE DEPARTMENT CONNECTIONS SHALL BE MARKED IN ACCORDANCE WITH THE DELAWARE STATE FIRE PREVENTION REGULATIONS. BUILDING CONSTRUCTION TO BE MASONRY AND WOOD.
3. THE SUSSEX CONSERVATION DISTRICT RESERVES THE RIGHT TO ADD, MODIFY OR DELETE ANY EROSION AND SEDIMENT CONTROL MEASURES AS THEY DEEM NECESSARY.
4. AFTER THE CREATION OF THE COMMUNITY'S HOMEOWNER'S ASSOCIATION ALL BUFFER AREAS, AND THE STORMWATER MANAGEMENT AREA, SHALL BE OWNED AND MAINTAINED BY THE COMMUNITY'S HOMEOWNER'S ASSOCIATION. THE DEVELOPER SHALL MAINTAIN THESE AREAS UNTIL THE COMMUNITY HOMEOWNER'S ASSOCIATION IS ESTABLISHED.
5. ALL SWM AREAS WILL BE MAINTAINED IN ACCORDANCE WITH DESIGN AND SPECIFICATIONS FOR THE SPECIFIC SWM AREA. THIS INFORMATION WILL BE PROVIDED TO THE HOMEOWNER'S ASSOCIATION PRIOR TO TURNOVER.
6. ALL COMMON AREAS COVERED WITH GRASS SHALL BE PERIODICALLY MAINTAINED ON A BASIS DETERMINED BY THE HOMEOWNER'S ASSOCIATION.
7. BOUNDARY AND TOPOGRAPHIC INFORMATION SHOWN ON THIS PLAN ARE FROM A FIELD RUN SURVEY PERFORMED BY DBF, INC. IN OCTOBER, NOVEMBER AND DECEMBER OF 2017 AND JANUARY OF 2018 AND INFORMATION FOUND IN THE RECORDER OF DEEDS OFFICE IN AND FOR SUSSEX COUNTY.
8. A WETLANDS DELINEATION WAS PERFORMED BY ENVIRONMENTAL RESOURCES, INC. IN NOVEMBER & DECEMBER OF 2017 AND JANUARY OF 2018.
9. THIS PLAN DOES NOT VERIFY THE LOCATION AND/OR EXISTENCE OF EASEMENTS OR RIGHT-OF-WAYS CROSSING THE SUBJECT PROPERTIES AS NO TITLE SEARCH WAS PROVIDED.
10. THE PROPERTY IS IMPACTED BY THE 100-YEAR FLOODPLAIN AS DETERMINED BY FEMA PANEL 10005C0331K, AND 10005C0333K, DATED MARCH 16, 2015.
11. A TEN (10) FOOT STRIP IS HEREBY RESERVED AS AN EASEMENT FOR DRAINAGE AND UTILITIES ALONG ALL STREET RIGHT OF WAY, FRONT, SIDE AND REAR LOT LINES.

DELDOT GENERAL NOTES

1. ALL ENTRANCES SHALL CONFORM TO THE DELAWARE DEPARTMENT OF TRANSPORTATION'S (DELDOT'S) CURRENT DEVELOPMENT COORDINATION MANUAL AND SHALL BE SUBJECT TO ITS APPROVAL.
2. NO LANDSCAPING SHALL BE ALLOWED WITHIN THE RIGHT-OF-WAY UNLESS THE PLANS ARE COMPLIANT WITH SECTION 3.7 OF THE DEVELOPMENT COORDINATION MANUAL.
3. SHRUBBERY, PLANTINGS, SIGNS AND/OR OTHER VISUAL BARRIERS THAT COULD OBSTRUCT THE SIGHT DISTANCE OF A DRIVER PREPARING TO ENTER THE ROADWAY ARE PROHIBITED WITHIN THE DEFINED DEPARTURE SIGHT TRIANGLE AREA ESTABLISHED ON THIS PLAN. IF THE ESTABLISHED DEPARTURE SIGHT TRIANGLE AREA IS OUTSIDE THE RIGHT-OF-WAY OR PROJECTS ONTO AN ADJACENT PROPERTY OWNER'S LAND, A SIGHT EASEMENT SHOULD BE ESTABLISHED AND RECORDED WITH ALL AFFECTED PROPERTY OWNERS TO MAINTAIN THE REQUIRED SIGHT DISTANCE.
4. UPON COMPLETION OF THE CONSTRUCTION OF THE SIDEWALK OR SHARED-USE PATH ACROSS THIS PROJECT'S FRONTAGE AND PHYSICAL CONNECTION TO ADJACENT EXISTING FACILITIES, THE DEVELOPER, THE PROPERTY OWNERS OR BOTH ASSOCIATED WITH THIS PROJECT, SHALL BE RESPONSIBLE TO REMOVE ANY EXISTING ROAD TIE-IN CONNECTIONS LOCATED ALONG ADJACENT PROPERTIES, AND RESTORE THE AREA TO GRASS. SUCH ACTIONS SHALL BE COMPLETED AT DELDOT'S DISCRETION, AND IN CONFORMANCE WITH DELDOT'S DEVELOPMENT COORDINATION MANUAL.
5. PRIVATE STREETS CONSTRUCTED WITHIN THIS SUBDIVISION SHALL BE MAINTAINED BY THE DEVELOPER, THE PROPERTY OWNERS WITHIN THIS SUBDIVISION OR BOTH (TITLE 17 131). DELDOT ASSUMES NO RESPONSIBILITIES FOR THE FUTURE MAINTENANCE OF THESE STREETS.
6. THE SIDEWALK AND SHARED USE PATH SHALL BE THE RESPONSIBILITY OF THE DEVELOPER, THE PROPERTY OWNERS OR BOTH WITHIN THIS SUBDIVISION. THE STATE OF DELAWARE ASSUMES NO RESPONSIBILITY FOR THE FUTURE MAINTENANCE FOR THE SIDEWALK AND/OR SHARED-USE PATH.
7. ALL LOTS SHALL HAVE ACCESS FROM THE INTERNAL SUBDIVISION STREET.
8. TO MINIMIZE RUTTING AND EROSION OF THE ROADSIDE DUE TO ON-STREET PARKING, DRIVEWAY AND BUILDING LAYOUTS MUST BE CONFIGURED TO ALLOW FOR VEHICLES TO BE STORED IN THE DRIVEWAY BEYOND THE RIGHT-OF-WAY, WITHOUT INTERFERING WITH SIDEWALK ACCESS AND CLEARANCE.
9. THE DEVELOPER SHALL BE REQUIRED TO FURNISH AND PLACE RIGHT-OF-WAY MARKERS TO PROVIDE A PERMANENT REFERENCE FOR RE-ESTABLISHING THE RIGHT-OF-WAY AND PROPERTY CORNERS ON LOCAL AND HIGHER ORDER FRONTAGE ROADS. RIGHT-OF-WAY MARKERS SHALL BE SET AND/OR PLACED ALONG THE FRONTAGE ROAD RIGHT-OF-WAY AT PROPERTY CORNERS AND AT EACH CHANGE IN RIGHT-OF-WAY ALIGNMENT IN ACCORDANCE WITH SECTION 3.2.4.2 OF THE DEVELOPMENT COORDINATION MANUAL.

OPEN SPACE MANAGEMENT PLAN:

1. ALL COMMON AREAS COVERED WITH GRASS SHALL BE PERIODICALLY MAINTAINED ON A BASIS DETERMINED BY THE MAINTENANCE CORPORATION/HOMEOWNER'S ASSOCIATION.
2. ALL ACTIVE OPEN SPACE AMENITIES SHALL BE INSPECTED ANNUALLY TO ENSURE THEY ARE SAFE FOR PLAY AND REPAIRED AS REQUIRED.
3. ALL SWM AREAS WILL BE MAINTAINED IN ACCORDANCE WITH DESIGN AND SPECIFICATIONS FOR THE SPECIFIC SWM AREA. THIS INFORMATION WILL BE PROVIDED TO THE MAINTENANCE CORPORATION / HOMEOWNER'S ASSOCIATION PRIOR TO TURNOVER.
4. A SEPARATE AMENITIES SITE PLAN WILL BE SUBMITTED FOR REVIEW AND APPROVAL FOR ALL THE AMENITY AREAS.

DAVIS, BOWEN & FRIEDEL, INC. ARCHITECTS ENGINEERS SURVEYORS
SALISBURY, MARYLAND (410) 543-9091
MILFORD, DELAWARE (302) 424-1441
EASTON, MARYLAND (410) 770-4744

DUPLEX LOT AREA TABLE

LOT	SQ. FT.	ACRES	LOT	SQ. FT.	ACRES
D1	4,697±	0.1078±	D58	4,816±	0.1106±
D2	4,725±	0.1085±	D59	5,116±	0.1174±
D3	4,725±	0.1085±	D60	4,725±	0.1085±
D4	4,725±	0.1085±	D61	4,725±	0.1085±
D5	4,734±	0.1087±	D62	4,725±	0.1085±
D6	5,631±	0.1293±	D63	4,725±	0.1085±
D7	6,037±	0.1386±	D64	4,725±	0.1085±
D8	6,564±	0.1507±	D65	4,725±	0.1085±
D9	5,914±	0.1358±	D66	4,725±	0.1085±
D10	4,769±	0.1095±	D67	4,725±	0.1085±
D11	4,725±	0.1085±	D68	4,725±	0.1085±
D12	4,725±	0.1085±	D69	4,725±	0.1085±
D13	4,725±	0.1085±	D70	4,725±	0.1085±
D14	4,725±	0.1085±	D71	4,725±	0.1085±
D15	4,725±	0.1085±	D72	5,116±	0.1174±
D16	4,725±	0.1085±	D73	5,116±	0.1174±
D17	4,725±	0.1085±	D74	4,725±	0.1085±
D18	4,725±	0.1085±	D75	4,725±	0.1085±
D19	4,725±	0.1085±	D76	4,725±	0.1085±
D20	4,725±	0.1085±	D77	4,725±	0.1085±
D21	4,725±	0.1085±	D78	4,725±	0.1085±
D22	4,725±	0.1085±	D79	4,725±	0.1085±
D23	4,725±	0.1085±	D80	4,725±	0.1085±
D24	4,725±	0.1085±	D81	4,725±	0.1085±
D25	4,725±	0.1085±	D82	4,725±	0.1085±
D26	4,725±	0.1085±	D83	4,725±	0.1085±
D27	4,725±	0.1085±	D84	4,725±	0.1085±
D28	4,725±	0.1085±	D85	4,725±	0.1085±
D29	4,725±	0.1085±	D86	5,116±	0.1174±
D30	4,725±	0.1085±	D87	5,641±	0.1295±
D31	4,725±	0.1085±	D88	4,725±	0.1085±
D32	4,725±	0.1085±	D89	4,725±	0.1085±
D33	4,725±	0.1085±	D90	4,725±	0.1085±
D34	4,725±	0.1085±	D91	4,725±	0.1085±
D35	6,441±	0.1479±	D92	4,725±	0.1085±
D36	6,354±	0.1459±	D93	4,725±	0.1085±
D37	7,095±	0.1629±	D94	4,725±	0.1085±
D38	4,953±	0.1137±	D95	4,725±	0.1085±
D39	4,872±	0.1119±	D96	4,707±	0.1081±
D40	4,985±	0.1144±	D97	5,334±	0.1225±
D41	5,098±	0.1170±	D98	5,660±	0.1299±
D42	5,211±	0.1196±	D99	4,725±	0.1085±
D43	5,324±	0.1222±	D100	4,725±	0.1085±
D44	5,436±	0.1248±	D101	4,725±	0.1085±
D45	6,104±	0.1401±	D102	4,690±	0.1077±
D46	4,950±	0.1136±	D103	7,130±	0.1637±
D47	4,950±	0.1136±	D104	6,443±	0.1479±
D48	4,950±	0.1136±	D105	5,754±	0.1321±
D49	4,950±	0.1136±	D106	5,032±	0.1155±
D50	4,950±	0.1136±	D107	4,728±	0.1085±
D51	4,950±	0.1136±	D108	4,725±	0.1085±
D52	4,950±	0.1136±	D109	4,725±	0.1085±
D53	4,950±	0.1136±	D110	4,725±	0.1085±
D54	4,950±	0.1136±	D111	4,725±	0.1085±
D55	4,950±	0.1136±	D112	4,725±	0.1085±
D56	4,950±	0.1136±	D113	4,725±	0.1085±
D57	4,950±	0.1136±	D114	5,641±	0.1295±

TOWNHOUSE LOT AREA TABLE

LOT	SQ. FT.	ACRES	LOT	SQ. FT.	ACRES	LOT	SQ. FT.	ACRES
T1	3,666±	0.0842±	T52	3,845±	0.0883±	T103	2,400±	0.0551±
T2	2,800±	0.0643±	T53	2,400±	0.0551±	T104	2,400±	0.0551±
T3	2,800±	0.0643±	T54	2,398±	0.0550±	T105	2,400±	0.0551±
T4	2,800±	0.0643±	T55	2,398±	0.0550±	T106	2,400±	0.0551±
T5	3,800±	0.0872±	T56	2,398±	0.0550±	T107	3,265±	0.0750±
T6	3,800±	0.0872±	T57	2,396±	0.0550±	T108	4,541±	0.1042±
T7	2,800±	0.0643±	T58	4,300±	0.0987±	T109	2,655±	0.0610±
T8	2,800±	0.0643±	T59	3,898±	0.0895±	T110	2,547±	0.0585±
T9	2,800±	0.0643±	T60	2,398±	0.0550±	T111	2,542±	0.0584±
T10	3,800±	0.0872±	T61	2,398±	0.0550±	T112	2,542±	0.0584±
T11	3,800±	0.0872±	T62	2,398±	0.0550±	T113	3,602±	0.0827±
T12	2,800±	0.0643±	T63	2,398±	0.0550±	T114	3,601±	0.0827±
T13	2,800±	0.0643±	T64	2,400±	0.0551±	T115	2,542±	0.0584±
T14	2,800±	0.0643±	T65	4,044±	0.0928±	T116	2,542±	0.0584±
T15	3,800±	0.0872±	T66	3,264±	0.0749±	T117	3,595±	0.0825±
T16	3,800±	0.0872±	T67	2,400±	0.0551±	T118	3,777±	0.0867±
T17	2,800±	0.0643±	T68	2,398±	0.0550±	T119	2,800±	0.0643±
T18	2,800±	0.0643±	T69	2,398±	0.0550±	T120	2,800±	0.0643±
T19	5,116±	0.1174±	T70	2,398±	0.0550±	T121	2,800±	0.0643±
T20	4,474±	0.1027±	T71	2,398±	0.0550±	T122	2,800±	0.0643±
T21	3,211±	0.0737±	T72	3,410±	0.0783±	T123	3,800±	0.0872±
T22	3,139±	0.0721±	T73	3,400±	0.0781±	T124	3,800±	0.0872±
T23	4,144±	0.0951±	T74	2,400±	0.0551±	T125	2,800±	0.0643±
T24	3,972±	0.0912±	T75	2,400±	0.0551±	T126	2,800±	0.0643±
T25	2,841±	0.0652±	T76	2,400±	0.0551±	T127	2,800±	0.0643±
T26	2,800±	0.0643±	T77	2,400±	0.0551±	T128	4,166±	0.0956±
T27	2,800±	0.0643±	T78	2,400±	0.0551±	T129	3,856±	0.0885±
T28	2,800±	0.0643±	T79	3,400±	0.0781±	T130	2,940±	0.0675±
T29	3,810±	0.0875±	T80	3,400±	0.0781±	T131	2,940±	0.0675±
T30	3,800±	0.0872±	T81	2,400±	0.0551±	T132	2,990±	0.0916±
T31	2,800±	0.0643±	T82	2,400±	0.0551±	T133	3,990±	0.0916±
T32	2,800±	0.0643±	T83	2,400±	0.0551±	T134	2,940±	0.0675±
T33	3,936±	0.0903±	T84	2,400±	0.0551±	T135	2,940±	0.0675±
T34	3,865±	0.0887±	T85	2,400±	0.0551±	T136	3,990±	0.0916±
T35	2,800±	0.0643±	T86	3,352±	0.0769±	T137	3,990±	0.0916±
T36	2,800±	0.0643±	T87	3,904±	0.0896±	T138	2,940±	0.0675±
T37	2,800±	0.0643±	T88	2,400±	0.0551±	T139	2,942±	0.0675±
T38	2,800±	0.0643±	T89	2,400±	0.0551±	T140	5,279±	0.1212±
T39	3,817±	0.0876±	T90	2,400±	0.0551±	T141	4,813±	0.1105±
T40	5,238±	0.1203±	T91	2,400±	0.0551±	T142	2,942±	0.0675±
T41	2,800±	0.0643±	T92	2,400±	0.0551±	T143	4,517±	0.1037±
T42	2,800±	0.0643±	T93	3,400±	0.0781±	T144	3,990±	0.0916±
T43	2,800±	0.0643±	T94	3,395±	0.0779±	T145	2,940±	0.0675±
T44	2,800±	0.0643±	T95	2,400±	0.0551±	T146	2,940±	0.0675±
T45	3,800±	0.0872±	T96	2,400±	0.0551±	T147	2,940±	0.0675±
T46	3,800±	0.0872±	T97	2,400±	0.0551±	T148	3,990±	0.0916±
T47	2,800±	0.0643±	T98	2,400±	0.0551±	T149	3,990±	0.0916±
T48	2,800±	0.0643±	T99	2,400±	0.0551±	T150	2,940±	0.0675±
T49	2,800±	0.0643±	T100	3,405±	0.0782±	T151	2,940±	0.0675±
T50	2,800±	0.0643±	T101	3,400±	0.0781±	T152	2,940±	0.0675±
T51	4,368±	0.1003±	T102	2,400±	0.0551±	T153	3,856±	0.0885±

TOTAL LOT AREA	1,011,855±	23.229±

LOT LINE TABLE

LINE	BEARING	DISTANCE
L1	N 78°49'03" E	28.07'
L2	N 78°49'03" E	19.43'
L3	N 37°09'44" E	1.14'
L4	N 52°50'16" W	26.49'
L5	S 44°27'23" E	51.13'
L6	S 52°50'16" E	34.42'
L7	S 37°09'44" W	20.00'
L8	N 37°09'44" E	25.00'
L9	S 37°09'44" W	25.00'
L10	N 37°09'44" E	25.00'
L11	S 37°09'44" W	25.00'
L12	S 37°09'44" W	30.00'
L13	S 37°09'44" W	13.71'
L14	S 78°49'03" W	19.43'
L15	S 78°49'03" W	26.98'
L16	N 49°52'58" E	1.29'
L17	N 37°09'44" E	29.03'
L18	N 37°09'44" E	30.00'
L19	N 37°09'44" E	13.00'
L20	N 49°43'50" W	22.03'
L21	S 49°43'50" E	8.15'
L22	S 44°27'23" E	8.54'
L23	N 52°50'16" W	14.99'
L24	S 37°09'44" W	28.72'
L25	S 37°09'44" W	19.92'
L26	N 52°50'16" W	43.39'
L27	N 23°01'38" E	13.16'
L28	S 23°01'38" W	8.98'
L29	S 23°01'38" W	8.99'
L30	N 21°23'51" E	16.27'
L31	N 21°23'51" E	8.95'
L32	S 68°42'52" E	11.86'
L33	S 68°42'52" E	12.32'
L34	S 52°50'16" E	28.66'
L35	S 52°50'16" E	18.00'
L36	N 52°50'16" W	13.00'
L37	N 52°50'16" W	5.66'
L38	N 67°45'35" W	14.67'
L39	S 52°50'16" E	13.00'

RIGHT-OF-WAY CURVE TABLE

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
RC-1	329.13'	465.90'	427.96'	N 26°39'07" W	81°06'18"
RC-2	369.13'	111.24'	110.82'	N 05°16'02" E	17°15'59"
RC-3	30.00'	43.03'	39.44'	S 37°43'32" W	82°11'00"
RC-4	320.00'	232.65'	227.56'	N 57°59'23" E	41°39'18"
RC-5	369.13'	319.60'	309.71'	N 42°33'51" W	49°36'30"
RC-6	30.00'	43.68'	39.92'	S 59°28'16" E	83°25'22"
RC-7	280.00'	203.57'	199.11'	N 57°59'23" E	41°39'18"
RC-8	70.00'	109.96'	98.99'	N 07°50'16" W	90°00'00"
RC-9	70.00'	57.46'	55.86'	N 73°14'50" W	47°02'00"
RC-10	120.00'	96.50'	93.92'	S 60°11'57" W	46°04'26"
RC-11	46.00'	208.95'	70.34'	S 46°53'28" E	260°15'15"
RC-12	17.00'	23.17'	21.42'	S 42°01'48" W	78°05'46"
RC-13	30.00'	25.76'	24.97'	N 74°19'35" W	49°11'29"
RC-14	25.00'	35.61'	32.68'	N 03°38'49" W	81°37'07"
RC-15	25.00'	39.27'	35.36'	N 82°09'44" E	90°00'00"
RC-16	325.00'	80.18'	79.98'	N 59°54'19" W	14°08'07"
RC-17	270.00'	47.41'	47.35'	S 73°37'58" E	10°03'39"
RC-18	330.00'	57.95'	57.87'	S 73°37'58" E	10°03'39"
RC-19	5.00'	8.87'	7.75'	N 27°49'05" W	101°41'25"
RC-20	25.00'	39.27'	35.36'	N 68°01'38" E	90°00'00"
RC-21	55.00'	87.96'	78.88'	S 67°12'44" W	91°37'47"
RC-22	70.00'	110.09'	99.09'	S 23°39'30" E	90°06'43"
RC-23	280.00'	77.59'	77.34'	N 60°46'34" W	15°52'36"
RC-24	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
RC-25	25.00'	37.67'	34.21'	N 80°19'51" E	86°20'13"
RC-26	46.00'	203.58'	73.68'	S 03°17'05" E	253°34'05"
RC-27	270.00'	59.94'	59.82'	N 43°31'21" E	12°43'13"
RC-28	25.00'	39.27'	35.36'	S 82°09'44" W	90°00'00"
RC-29	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
RC-30	25.00'	39.27'	35.36'	N 82°09'44" E	90°00'00"
RC-31	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
RC-32	25.00'	39.27'	35.36'	S 82°09'44" W	90°00'00"
RC-33	25.00'	39.27'	35.36'	S 07°50'16" E	90°00'00"
RC-34	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
RC-35	25.00'	39.27'	35.36'	N 82°09'44" E	90°00'00"
RC-36	320.00'	40.60'	40.57'	N 56°28'20" W	7°16'08"
RC-37	25.00'	36.27'	33.17'	S 18°32'23" E	83°08'01"
RC-38	25.00'	39.58'	35.58'	S 68°23'12" W	90°43'10"
RC-39	480.00'	112.39'	112.14'	N 59°32'44" W	13°24'57"
RC-40	25.00'	38.51'	34.81'	N 67°09'23" E	88°15'31"
RC-41	25.00'	39.32'	35.39'	S 23°39'30" E	90°06'43"
RC-42	25.00'	39.98'	35.85'	S 67°12'44" W	91°37'47"
RC-43	25.00'	39.27'	35.36'	N 21°58'22" W	90°00'00"
RC-44	38.00'	11.34'	11.30'	N 72°43'06" E	17°06'13"
RC-45	275.00'	67.84'	67.67'	N 59°54'19" W	14°08'07"
RC-46	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
RC-47	25.00'	39.27'	35.36'	N 82°09'44" E	90°00'00"
RC-48	520.00'	122.84'	122.55'	N 59°36'18" W	13°32'05"
RC-49	25.00'	39.01'	35.17'	S 21°40'21" E	89°23'58"
RC-50	25.00'	39.27'	35.36'	S 07°50'16" E	90°00'00"
RC-51	25.00'	42.93'	37.84'	S 86°21'11" W	98°22'53"
RC-52	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
RC-53	25.00'	39.27'	35.36'	N 82°09'44" E	90°00'00"

LOT CURVE TABLE

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
LC1	30.00'	17.99'	17.73'	S 61°38'05" W	34°21'56"
LC2	320.00'	25.59'	25.59'	N 76°31'34" E	4°34'56"
LC3	320.00'	40.32'	40.30'	N 70°37'30" E	7°13'12"
LC4	320.00'	41.83'	41.80'	N 63°16'14" E	7°29'20"
LC5	320.00'	42.76'	42.72'	N 55°41'54" E	7°39'20"
LC6	320.00'	38.15'	38.13'	N 48°27'19" E	6°49'51"
LC7	320.00'	44.00'	43.96'	N 41°06'04" E	7°52'59"
LC8	70.00'	2.43'	2.43'	N 36°10'06" E	1°59'16"
LC9	70.00'	32.74'	32.44'	N 21°46'31" E	26°47'56"
LC10	70.00'	33.84'	33.51'	N 05°28'29" W	27°42'05"
LC11	70.00'	23.96'	23.84'	N 29°07'44" W	19°36'28"
LC12	70.00'	16.99'	16.95'	N 45°53'07" W	13°54'17"
LC13	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
LC14	25.00'	39.27'	35.36'	N 82°09'44" E	90°00'00"
LC15	25.00'	39.27'	35.36'	S 82°09'44" W	90°00'00"
LC16	25.00'	39.27'	35.36'	S 07°50'16" E	90°00'00"
LC17	25.00'	39.27'	35.36'	N 82°09'44" E	90°00'00"
LC18	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
LC19	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
LC20	280.00'	31.35'	31.33'	N 40°22'12" E	6°24'55"
LC21	280.00'	38.46'	38.43'	N 66°25'47" E	7°52'10"
LC22	280.00'	41.31'	41.27'	N 74°35'27" E	8°27'11"
LC23	30.00'	19.32'	18.99'	S 82°43'44" E	36°54'26"
LC24	46.00'	27.77'	27.35'	S 76°12'20" E	34°35'35"
LC25	46.00'	29.36'	28.86'	N 68°12'52" E	36°33'59"
LC26	270.00'	43.66'	43.61'	N 45°11'10" E	9°15'53"
LC27	270.00'	15.98'	15.98'	N 38°51'29" E	3°23'29"
LC28	25.00'	39.27'	35.36'	S 82°09'44" W	90°00'00"
LC29	25.00'	39.27'	35.36'	S 07°50'16" E	90°00'00"
LC30	25.00'	42.93'	37.84'	S 86°21'11" W	98°22'53"
LC31	70.00'	16.11'	16.07'	N 56°19'22" W	13°11'03"
LC32	25.00'	35.61'	32.68'	N 03°38'49" W	81°37'07"
LC33	25.00'	39.27'	35.36'	N 82°09'44" E	90°00'00"
LC34	325.00'	32.29'	32.27'	N 55°41'01" W	5°41'31"
LC35	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
LC36	25.00'	39.27'	35.36'	N 82°09'44" E	90°00'00"
LC37	520.00'	31.63'	31.63'	N 54°34'49" W	3°29'07"
LC38	520.00'	75.59'	75.52'	N 62°12'29" W	8°19'44"
LC39	25.00'	39.01'	35.17'	S 21°40'21" E	89°23'58"
LC40	38.00'	11.34'	11.30'	N 72°43'06" E	17°06'13"
LC41	275.00'	7.75'	7.75'	N 66°09'55" W	1°36'55"
LC42	25.00'	39.27'	35.36'	N 21°58'22" W	90°00'00"
LC43	25.00'	38.51'	34.81'	N 67°09'23" E	88°15'31"
LC44	25.00'	39.98'	35.85'	S 67°12'44" W	91°37'47"
LC45	25.00'	39.32'	35.39'	S 23°39'30" E	90°06'43"
LC46	70.00'	72.14'	68.99'	S 08°07'40" E	59°03'01"
LC47	70.00'	25.75'	25.61'	S 48°11'32" E	21°04'44"
LC48	70.00'	12.20'	12.18'	S 63°43'23" E	9°58'58"
LC49	280.00'	21.70'	21.69'	N 66°29'40" W	4°26'24"
LC50	280.00'	9.34'	9.34'	N 53°47'36" W	1°54'41"
LC51	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
LC52	25.00'	36.27'	33.17'	S 18°32'23" E	83°08'01"
LC53	320.00'	16.23'	16.23'	N 58°39'11" W	2°54'24"
LC54	320.00'	24.36'	24.36'	N 55°01'07" W	4°21'43"
LC55	25.00'	39.27'	35.36'	N 82°09'44" E	90°00'00"
LC56	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
LC57	480.00'	49.31'	49.28'	N 56°34'11" W	5°53'07"
LC58	480.00'	28.01'	28.01'	N 61°11'04" W	3°20'38"
LC59	480.00'	28.46'	28.46'	N 64°33'18" W	3°23'50"
LC60	25.00'	39.58'	35.58'	S 68°23'12" W	90°43'10"
LC61	375.00'	25.78'	25.77'	N 65°42'35" W	3°56'18"
LC62	375.00'	28.02'	28.02'	N 61°36'00" W	4°16'53"
LC63	375.00'	36.73'	36.71'	N 56°39'13" W	5°36'40"
LC64	425.00'	64.25'	64.19'	N 60°27'05" W	8°39'41"
LC65	425.00'	24.35'	24.35'	N 54°28'45" W	3°16'59"

RIGHT-OF-WAY LINE TABLE

LINE	BEARING	DISTANCE
RL-1	N 13°54'02" E	15.10'
RL-2	N 13°54'02" E	15.00'
RL-3	S 49°52'58" W	40.76'
RL-4	N 52°50'16" W	34.42'
RL-5	N 23°01'38" E	18.17'

BOUNDARY LINE TABLE

LINE	BEARING	DISTANCE
BL-1	S 12°26'54" W	7.06'
BL-2	N 50°42'39" W	47.19'

BOUNDARY CURVE TABLE

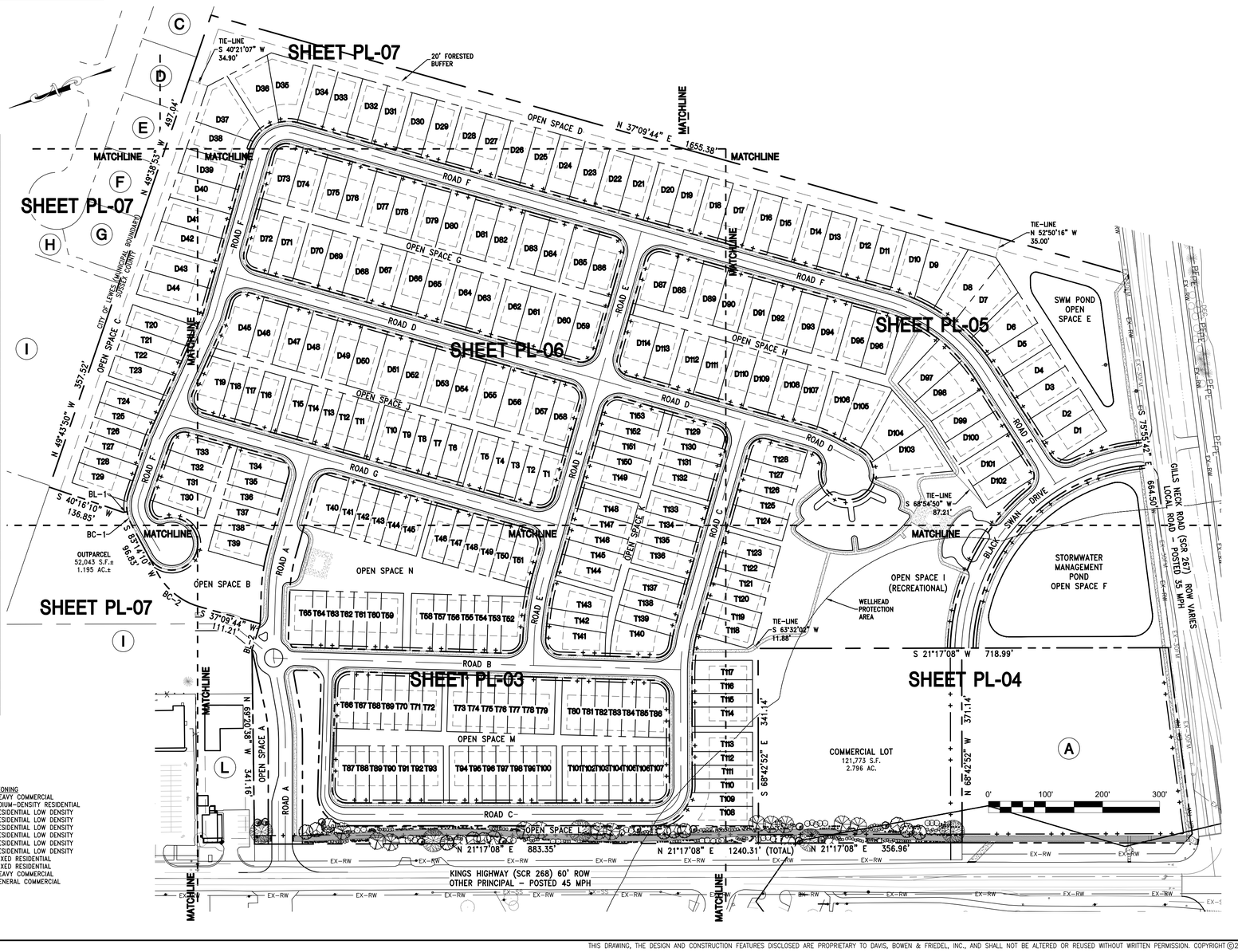
CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
BC-1	70.00'	23.47'	23.36'	N 87°09'28" W	19°12'44"
BC-2	120.00'	96.50'	93.92'	S 60°11'57" W	46°04'26"

RIGHT-OF-WAY AREA TABLE

DESCRIPTION	SQ. FT.	ACRES
ROAD A	39,668±	0.911±
ROAD B	26,892±	0.617±
ROAD C	57,657±	1.324±
ROAD D	50,827±	1.167±
ROAD E	29,314±	0.673±
ROAD F	98,635±	2.264±
ROAD G	27,244±	0.625±
BLACK SWAN DRIVE	20,391±	0.468±
TOTAL AREA	351,528±	8.070±

ADJACENT PROPERTY OWNERS

KEY	PARCEL ID	PROPERTY OWNER	DEED	ZONING
A	335-8.00-37.01	CAPE HENLOPEN MEDICAL CENTER LLC	DB:5007 PG:276	C-3 HEAVY COMMERCIAL
B	335-8.00-43.01	CADBURY AT LEWES INC	DB:2934 PG:239	MR MEDIUM-DENSITY RESIDENTIAL
C	335-8.00-326.00	JOHN A JIULIANO & LAURA T OTA	DB:3978 PG:171	R-2 RESIDENTIAL LOW DENSITY
D	335-8.00-327.00	PATTI J STEWART	DB:4138 PG:247	R-2 RESIDENTIAL LOW DENSITY
E	335-8.00-328.00	KEVIN P HAZARD & JOANN T HAZARD	DB:5357 PG:123	R-2 RESIDENTIAL LOW DENSITY
F	335-8.00-329.00	LINDA S LEKITES	DB:3027 PG:314	R-2 RESIDENTIAL LOW DENSITY
G	335-8.00-330.00	DAVID A CANNON/CATHY E WILLIAMS	DB:2194 PG:246	R-2 RESIDENTIAL LOW DENSITY
H	335-8.00-336.00	BAY BREEZE ESTATES HOMEOWNERS ASSOC INC	DB:1985 PG:181	R-2 RESIDENTIAL LOW DENSITY
I	335-8.00-42.02	JEFFERSON ESTATES II LLC	DB:4743 PG:296	R-5 MIXED RESIDENTIAL
J	335-8.00-42.01	JEFFERSON ESTATES II LLC	DB:4338 PG:195	R-5 MIXED RESIDENTIAL
K	335-8.00-39.00	JEFF-KAT LLC	DB:5381 PG:282	C-3 HEAVY COMMERCIAL
L	335-8.00-38.00	THREE BUILDERS LLC	DB:3173 PG:100	C-1 GENERAL COMMERCIAL



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OCEAN CITY, MARYLAND (410) 289-7441
EASTON, MARYLAND (410) 770-4744

MITCHELL FAMILY FARM

LEWES & REHOBOTH HUNDRED

CITY OF LEWES, SUSSEX COUNTY, DELAWARE

PRELIMINARY SITE PLAN OVERVIEW

Revisions:

Date: DECEMBER 2021
Scale: 1" = 100'
Dwn.By: DEG
Proj.No.: 3808A001
Dwg.No.: PL-02

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MATCHLINE – SHEET PL-06

MATCHLINE – SHEET PL-07

MATCHLINE – SHEET PL-04

ROAD A

ROAD B

ROAD C

ROAD E

OPEN SPACE N

OPEN SPACE M

OPEN SPACE L

OPEN SPACE A

OPEN SPACE B (RECREATIONAL)

DOG PARK

MAIL PLAZA PAVILION

SHARED-USE-PATH

EXISTING BUILDING

EXISTING DWELLING

GARAGE

WOOD POST

WELLHEAD PROTECTION AREA

KINGS HIGHWAY (SCR 268) 60' ROW
OTHER PRINCIPAL – POSTED 45 MPH

0' 30' 60' 90'

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PRELIMINARY SITE PLAN

MITCHELL FAMILY FARM

KINGS HIGHWAY (SCR 268)

LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

Revisions:

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MATCHLINE – SHEET PL-05

T123
T122
T121
T120
T119
T118
T117
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T115
T114
T113
T112
T111
T110
T109
T108

SPORTS COURT
SPORTS COURT
POOL & SPLASH PAD
WELLHEAD PROTECTION AREA
COMMUNITY CENTER/PATIO 4,700± SQ FT
OPEN SPACE I (RECREATIONAL)
BLACK SWAN DRIVE
40' R.O.W.
OPEN SPACE F STORMWATER MANAGEMENT POND
GILLS NECK ROAD (SCR 267)
LOCAL ROAD – POSTED 35 MPH
ROW VARIES
15' PROPERTY CONSTRUCTION BUFFER
S 83°32'02" W 11.88' TIE-LINE
N 21°17'08" E 724.03'
S 21°17'08" W 336.95'
S 21°17'08" W 362.03'
S 75°55'47" E 322.20'
COMMERCIAL LOT
121,773 S.F.
2.796 AC.
N 68°42'52" W 341.14'
N 21°17'08" E 356.96'
FIRE LANE
FIRE LANE
A
MATCHLINE – SHEET PL-03
KINGS HIGHWAY (SCR 268) 60' ROW
OTHER PRINCIPAL – POSTED 45 MPH
0' 30' 60' 90'

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PRELIMINARY SITE PLAN

MITCHELL FAMILY FARM
KINGS HIGHWAY (SCR 268)
LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

Revisions:

Date: DECEMBER 2021
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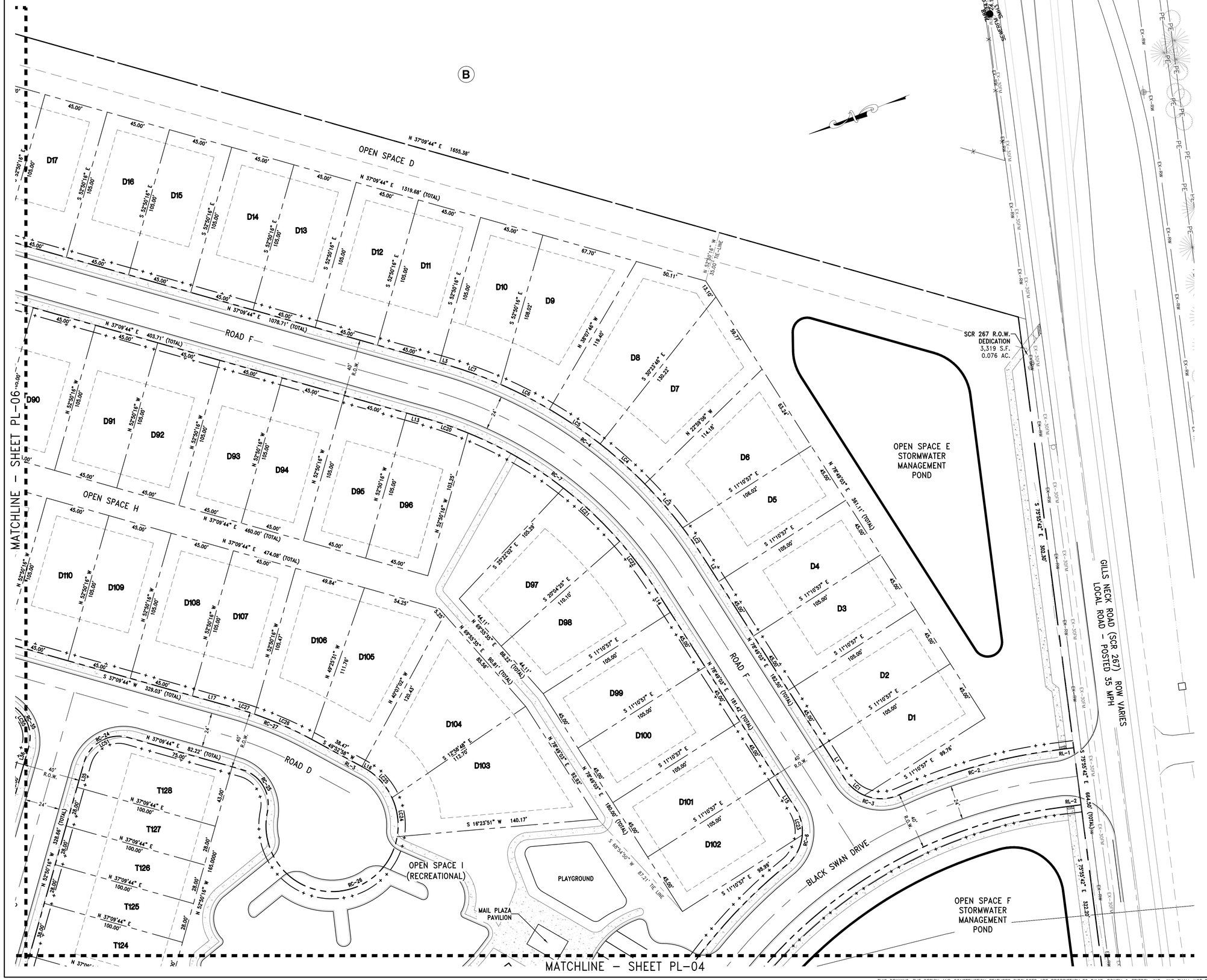
Dwg.No.: PL-04



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PRELIMINARY SITE PLAN

MITCHELL FAMILY FARM

KINGS HIGHWAY (SCR 268)

LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

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PL-06

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MITCHELL FAMILY FARM

KINGS HIGHWAY (SCR 268)

LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

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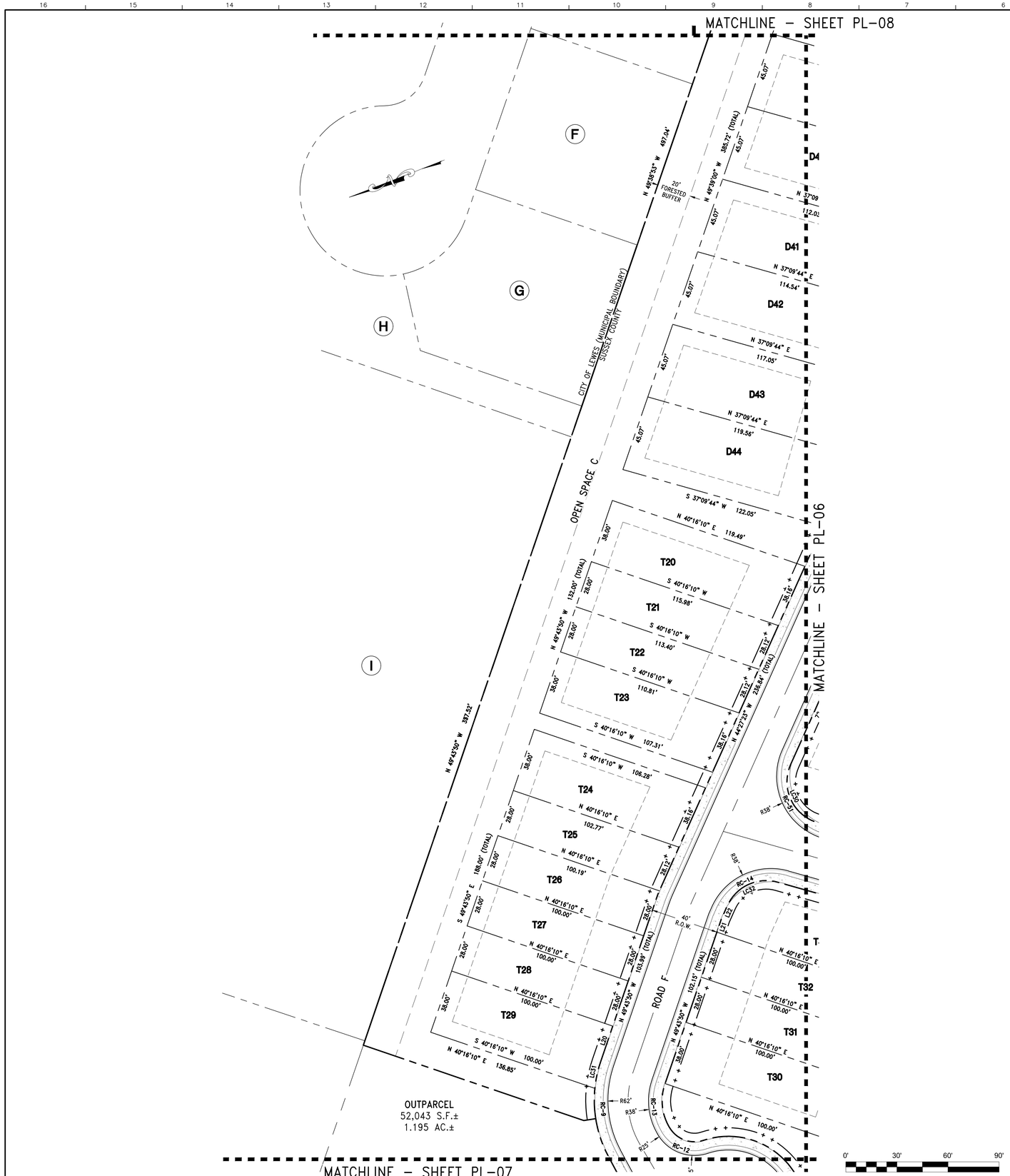
PRELIMINARY SITE PLAN



MITCHELL FAMILY FARM

KINGS HIGHWAY (SCR 268)

LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

PRELIMINARY SITE PLAN

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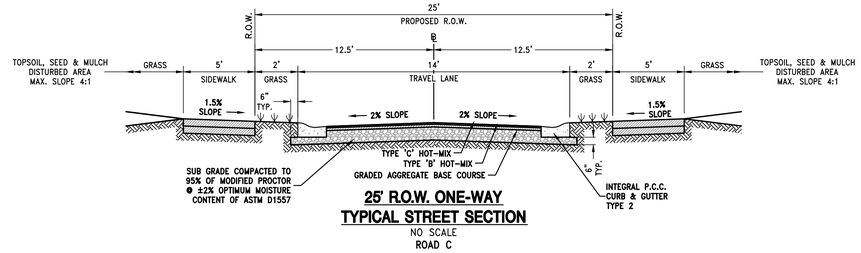
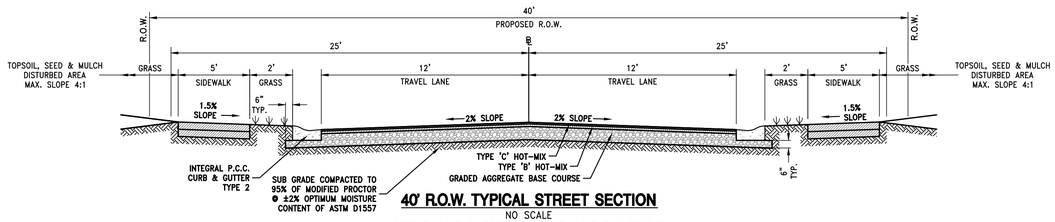
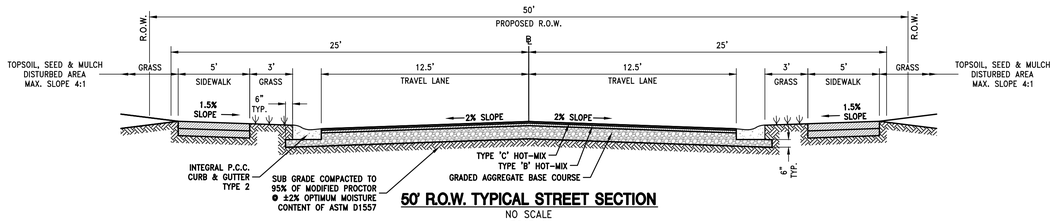


25' R.O.W. ONE-WAY
TYPICAL STREET SECTION
NO SCALE
ROAD C

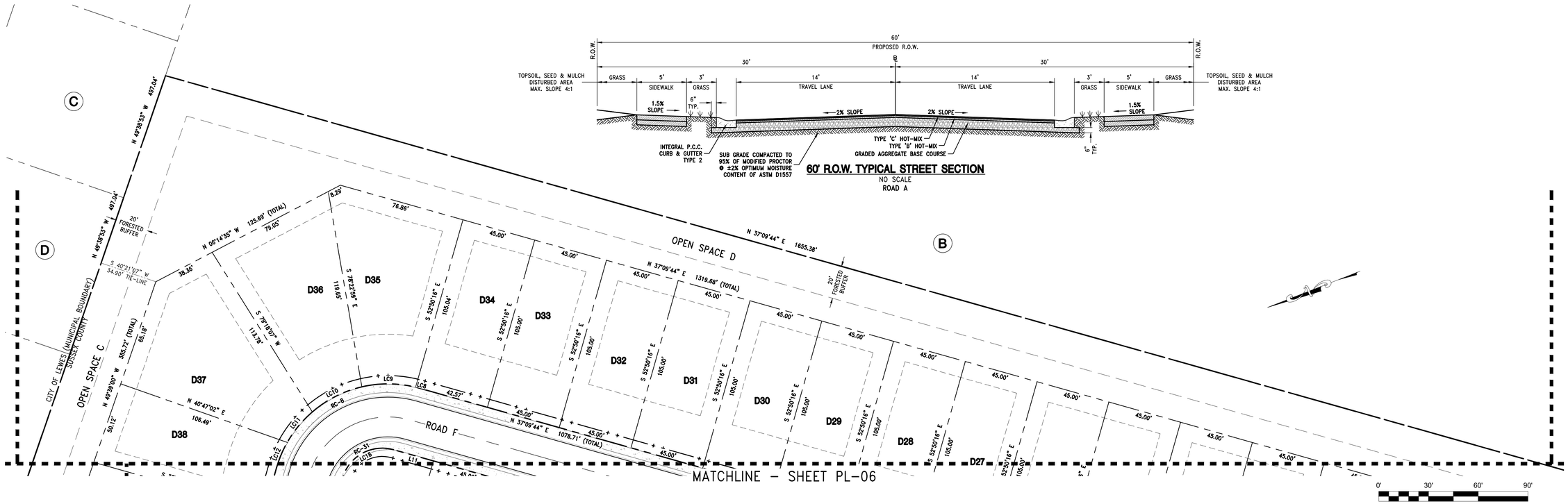


40' R.O.W. TYPICAL STREET SECTION
NO SCALE
ROAD B, ROAD C, ROAD D, ROAD E, ROAD F & ROAD G



50' R.O.W. TYPICAL STREET SECTION
NO SCALE
ROAD A

60' R.O.W. TYPICAL STREET SECTION
NO SCALE
ROAD A



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ARCHITECTS ENGINEERS SURVEYORS
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NEWARK, DELAWARE (302) 737-1141
EASTON, MARYLAND (410) 770-4744

PRELIMINARY SITE PLAN

MITCHELL FAMILY FARM
KINGS HIGHWAY (SCR 268)
LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

Revisions:

Date: DECEMBER 2021
Scale: 1" = 30'
Dwn.By: DEG
Proj.No.: 3808A001
Dwg.No.: PL-08

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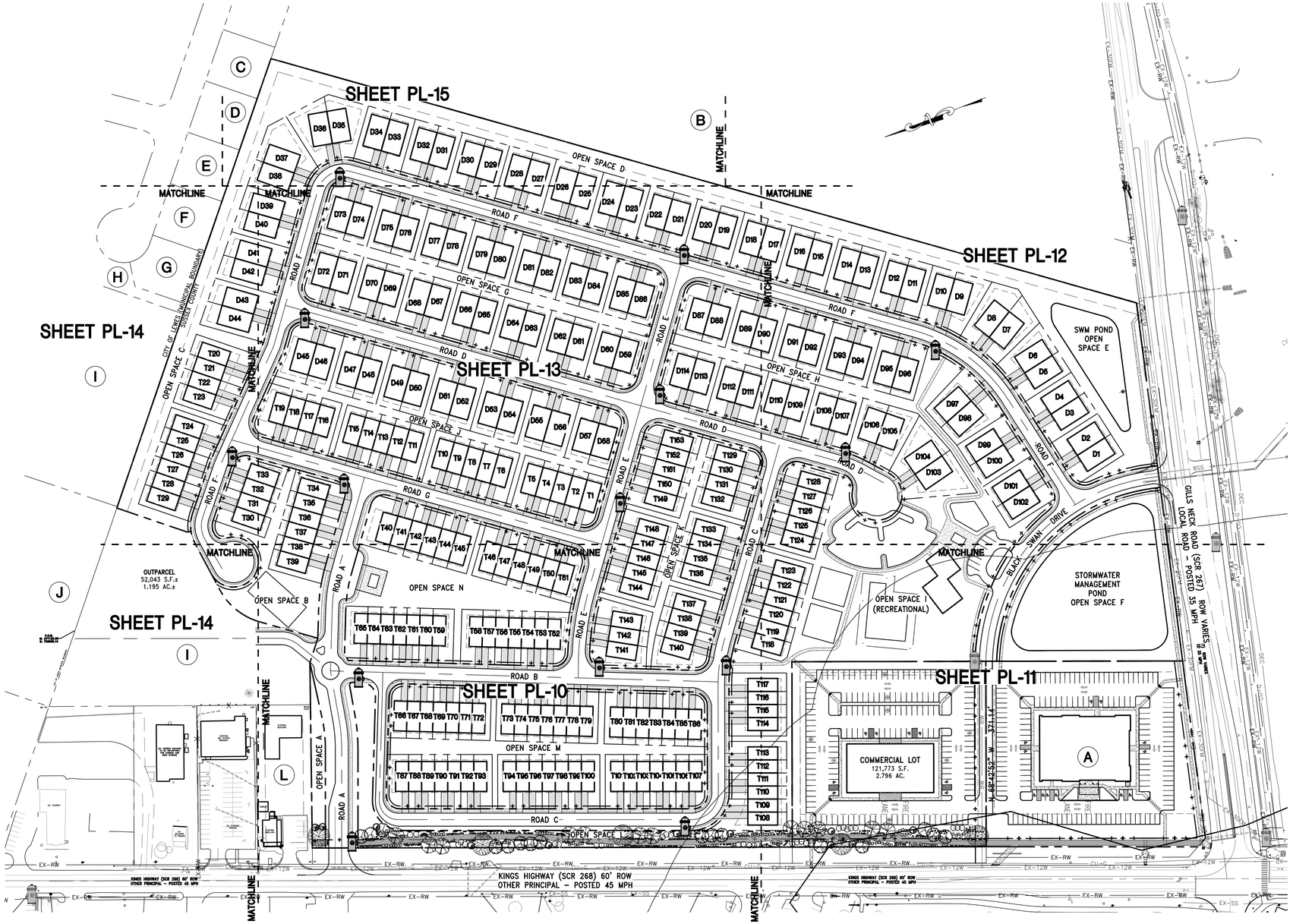
SHEET PL-15
SHEET PL-12
SHEET PL-14
SHEET PL-13
SHEET PL-10
SHEET PL-11
MATCHLINE
OPEN SPACE D
ROAD F
OPEN SPACE G
ROAD E
ROAD D
OPEN SPACE H
OPEN SPACE C
OPEN SPACE J
ROAD G
ROAD C
OPEN SPACE I
ROAD A
OPEN SPACE N
OPEN SPACE B
ROAD B
OPEN SPACE M
OPEN SPACE L
OPEN SPACE K
CITY OF LEWES MUNICIPAL BOUNDARY
SUSSEX COUNTY BOUNDARY
OUTPARCEL
52,043 S.F.±
1.195 AC.±
SWM POND
OPEN
SPACE E
STORMWATER
MANAGEMENT
POND
OPEN SPACE F
OPEN SPACE I
(RECREATIONAL)
COMMERCIAL LOT
121,773 S.F.
2.796 AC.
GILLS NECK
LOCAL ROAD - POSTED 35 MPH
BLACK SWAN DRIVE
KINGS HIGHWAY (SCR 268) 60' ROW
OTHER PRINCIPAL - POSTED 45 MPH
EX-RW
EX-12W
EX-SS
EX-SWM
EX-OHW
EX-UGT
EX-UGW
EX-UGG
EX-UGC
EX-UGS
EX-UGTV
EX-UGF
EX-UGSL
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EX-UGSTT
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EX-UGST39
EX-UGST40

MATCHLINE – SHEET PL-13

MATCHLINE – SHEET PL-14

MATCHLINE – SHEET PL-11

T38 T39 T44 T45 T46 T47 T48 T49 T50 T51 T147 T146 T145 T144 T134 T135 T136 T137 T138 T139 T140 T143 T142 T65 T64 T63 T62 T61 T60 T59 T58 T57 T56 T55 T54 T53 T52 T66 T67 T68 T69 T70 T71 T72 T73 T74 T75 T76 T77 T78 T79 T80 T81 T82 T83 T84 T85 T86 T87 T88 T89 T90 T91 T92 T93 T94 T95 T96 T97 T98 T99 T100 T101 T102 T103 T104 T105 T106 T107 T117 T116 T115 T114 T113 T112 T111 T110 T109 T108

ROAD A
ROAD B
ROAD C
ROAD E

MAIL PLAZA PAVILION
DOG PARK
OPEN SPACE B (RECREATIONAL)
OPEN SPACE N
OPEN SPACE M
OPEN SPACE L
OPEN SPACE A

SAN–MH
FIRE HYDRANT ASSEMBLY
WELLHEAD PROTECTION AREA

EXISTING BUILDING
EXISTING DWELLING
GARAGE
WOOD POST
WE FIP

SCR 268 R.O.W. DEDICATION
38,330 S.F.
0.880 AC.

KINGS HIGHWAY (SCR 268) 60' ROW
OTHER PRINCIPAL – POSTED 45 MPH

0' 30' 60' 90'

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PRELIMINARY UTILITY PLAN

MITCHELL FAMILY FARM

KINGS HIGHWAY (SCR 268)

LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

Revisions:

Date: DECEMBER 2021
Scale: 1" = 30'
Dwn.By: DEG
Proj.No.: 3808A001
Dwg.No.: PL-10

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MATCHLINE – SHEET PL-12

MATCHLINE – SHEET PL-10

T123
T122
T121
T120
T119
T118
T117
T116
T115
T114
T113
T112
T111
T110
T109
T108

SPORTS COURT
SPORTS COURT
POOL & SPLASH PAD
WELLHEAD PROTECTION AREA
COMMUNITY CENTER/PATIO 4,700± SQ FT
OPEN SPACE I (RECREATIONAL)
15' PROPERTY CONSTRUCTION BUFFER
8W BLACK SWAN DRIVE
OPEN SPACE F STORMWATER MANAGEMENT POND
GILLS NECK ROAD (SCR 267) LOCAL ROAD – POSTED 35 MPH ROW VARIES
COMMERCIAL LOT 121,773 S.F. 2.796 AC.
15' PROPERTY CONSTRUCTION BUFFER
FIRE LANE
FIRE LANE
A
KINGS HIGHWAY (SCR 268) 60' ROW
OTHER PRINCIPAL – POSTED 45 MPH

0' 30' 60' 90'

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SUITE 202 – 1543 KENNER AVENUE (302) 644-1441
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PRELIMINARY UTILITY PLAN

MITCHELL FAMILY FARM

KINGS HIGHWAY (SCR 268)

LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

Revisions:

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Dwg.No.: PL-11

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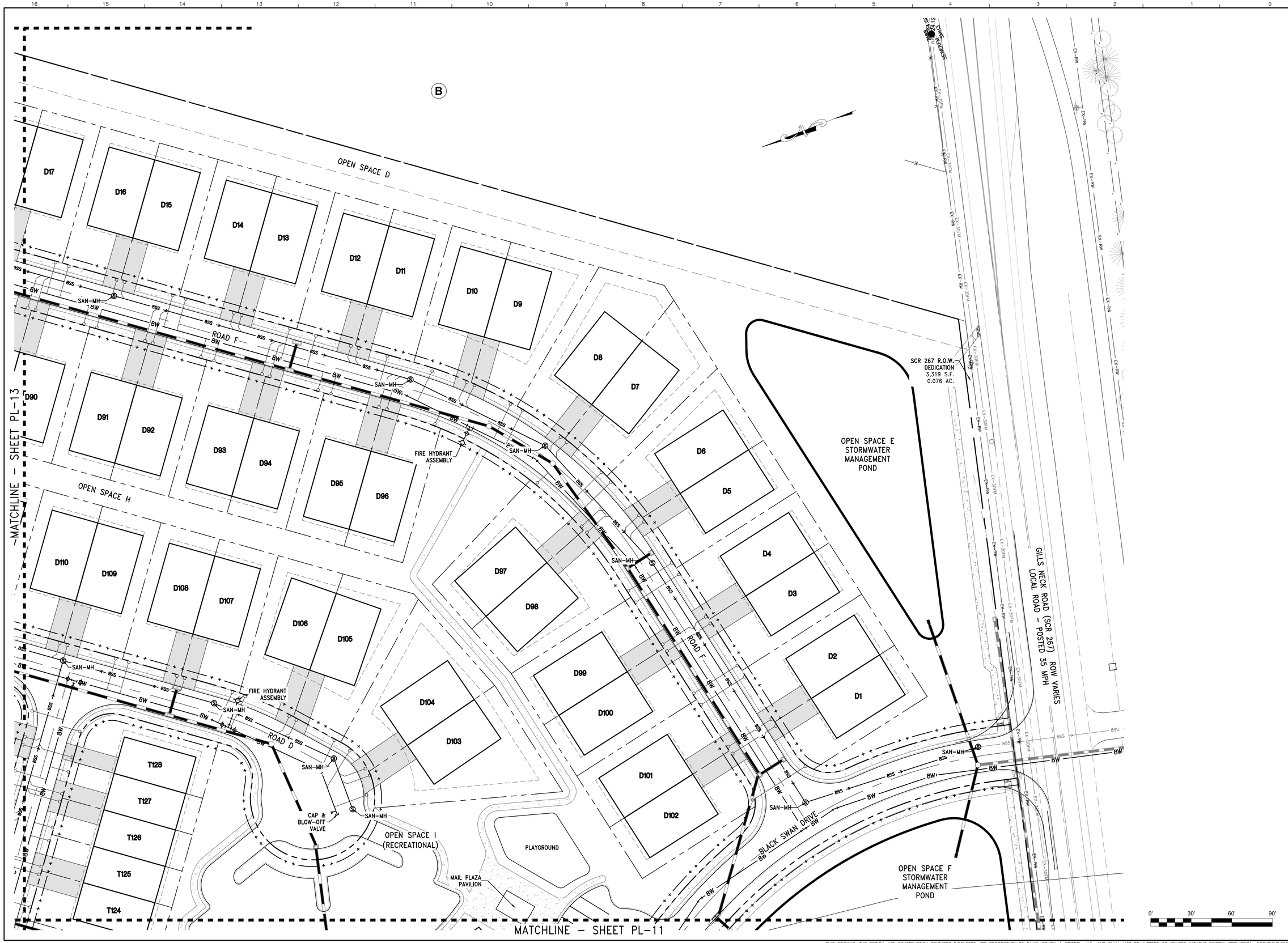
OPEN SPACE D
D17
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T128
T127
T126
T125
T124
OPEN SPACE H
OPEN SPACE E
STORMWATER
MANAGEMENT
POND
OPEN SPACE F
STORMWATER
MANAGEMENT
POND
ROAD F
ROAD D
BLACK SWAN DRIVE
SAN-MH
FIRE HYDRANT ASSEMBLY
CAP & BLOW-OFF VALVE
OPEN SPACE I
(RECREATIONAL)
PLAYGROUND
MAIL PLAZA
PAVILION
SCR 267 R.O.W. DEDICATION
3,319 S.F.
0.076 AC.
GILLS NECK ROAD (SCR 267)
LOCAL ROAD - POSTED 35 MPH
ROW VARIES
8W
8SS
EX-RW
EX-30"W
EX-8"W
EX-8"SS
EX-12"W
EX-8"G
EX-3"GW
EX-3"W
EX-3"G
EX-3"E
EX-3"TV
EX-3"T
EX-3"S
EX-3"SW

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PL-13

Date: DECEMBER 2021
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Proj.No.: 3808A001
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Revisions:

MITCHELL FAMILY FARM

KINGS HIGHWAY (SCR 268)

LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

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PRELIMINARY UTILITY PLAN

MATCHLINE – SHEET PL-15

MATCHLINE – SHEET PL-14

MATCHLINE – SHEET PL-13

MATCHLINE – SHEET PL-10

MATCHLINE – SHEET PL-14

F

G

H

I

J

K

D41

D42

D43

D44

T20

T21

T22

T23

T24

T25

T26

T27

T28

T29

T30

T31

T32

CITY OF LEWES (MUNICIPAL BOUNDARY)
SUSSEX COUNTY

OPEN SPACE C

ROAD F

OUTPARCEL
52,043 S.F.±
1.195 AC.±

FIRE HYDRANT ASSEMBLY

SAN–MH

FIP

CMF

0' 30' 60' 90'

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PRELIMINARY UTILITY PLAN

MITCHELL FAMILY FARM

KINGS HIGHWAY (SCR 268)

LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

Revisions:

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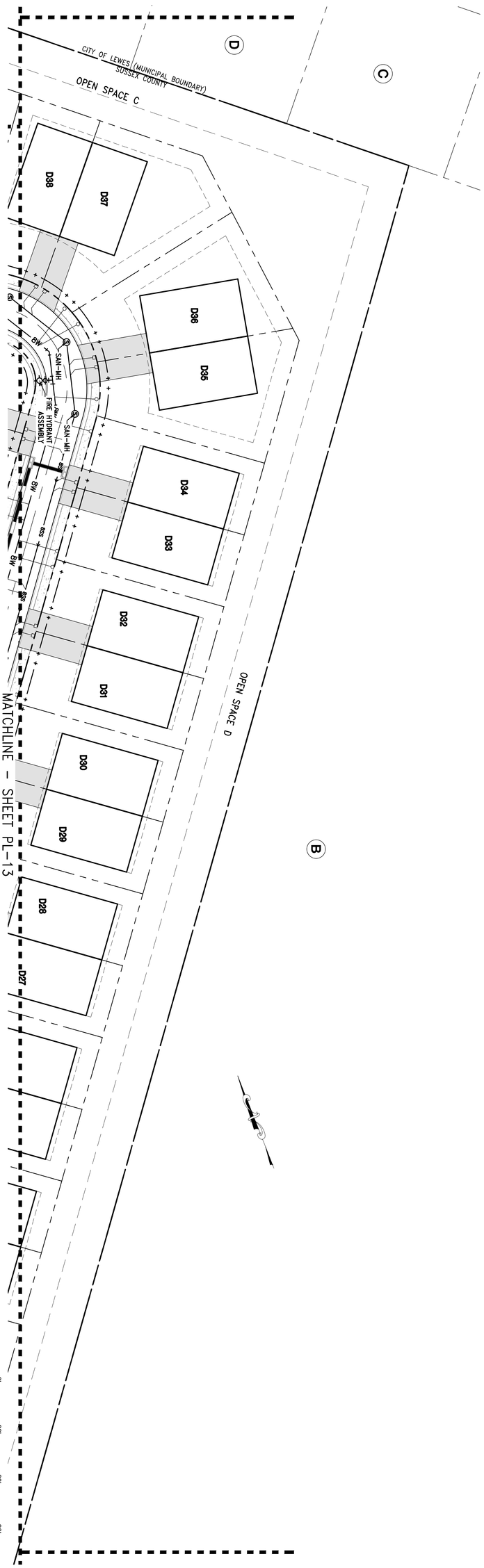

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MITCHELL FAMILY FARM

KINGS HIGHWAY (SCR 268)

LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

PRELIMINARY UTILITY PLAN

Revisions:

Date: DECEMBER 2021
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Proj No.: 3808A001
Dwg No.: PL-15

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JAMIE WHITEHOUSE, AICP
DIRECTOR OF PLANNING & ZONING
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(302) 854-5079 F
jamie.whitehouse@sussexcountyde.gov

Sussex County
DELAWARE
sussexcountyde.gov

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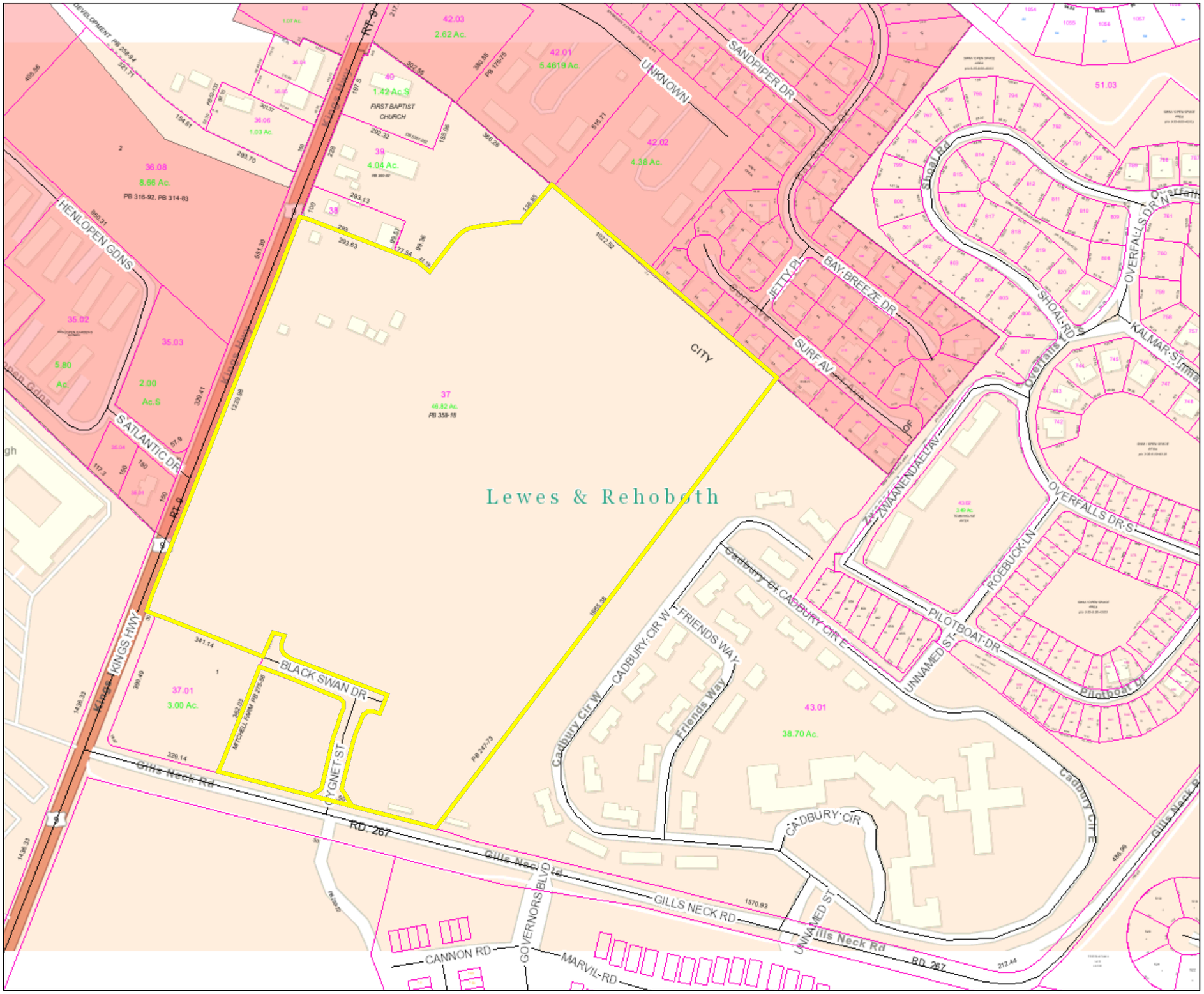
PLANNING & ZONING COMMISSION
ROBERT C. WHEATLEY, CHAIRMAN
KIM HOEY STEVENSON, VICE-CHAIRMAN
R. KELLER HOPKINS
J. BRUCE MEARS
HOLLY J. WINGATE

Sussex County
DELAWARE
sussexcountyde.gov
302-855-7878 T
302-854-5079 F
JAMIE WHITEHOUSE, MRTPI, AICP
DIRECTOR OF PLANNING & ZONING

PLANNING AND ZONING AND COUNTY COUNCIL INFORMATION SHEET
Planning Commission Public Hearing Date: March 10th, 2022

Application:	CZ 1967 Henlopen Properties, LLC
Applicant:	Henlopen Properties, LLC 4750 Owning Mills Boulevard Owing Mills, MD 21117
Owner:	Mitchell Family, LLC 1019 Kings Highway Lewes, DE 19958
Site Location:	Lying on the southeast side of Kings Hwy. (Rt. 9) and on the north side of Gills Neck Rd. (S.C.R. 267)
Current Zoning:	Agricultural Residential (AR-1) Zoning District
Proposed Zoning:	Medium Residential (MR) Zoning District
Comprehensive Land Use Plan Reference:	Coastal Area
Councilmanic District:	Mr. Schaeffer
School District:	Cape Henlopen School District
Fire District:	Lewes Fire Department
Sewer:	Sussex County
Water:	Tidewater
Site Area:	43.777 acres +/-
Tax Map ID.:	335-8.00-37.00 (portion of)

Sussex County



PIN:	335-8.00-37.00
Owner Name	JEFF-KAT LLC
Book	5613
Mailing Address	1007 KINGS HWY
City	LEWES
State	DE
Description	SE/KINGS HWY
Description 2	RESIDUAL LANDS
Description 3	N/A
Land Code	

polygonLayer
Override 1

polygonLayer
Override 1
Tax Parcels
Streets
Hundred Boundaries
County Boundaries

Tax Ditch Segments
Tax Ditch Channel
Pond Feature
Special Access ROW
Extent of Right-of-Way
Municipal Boundaries
TID

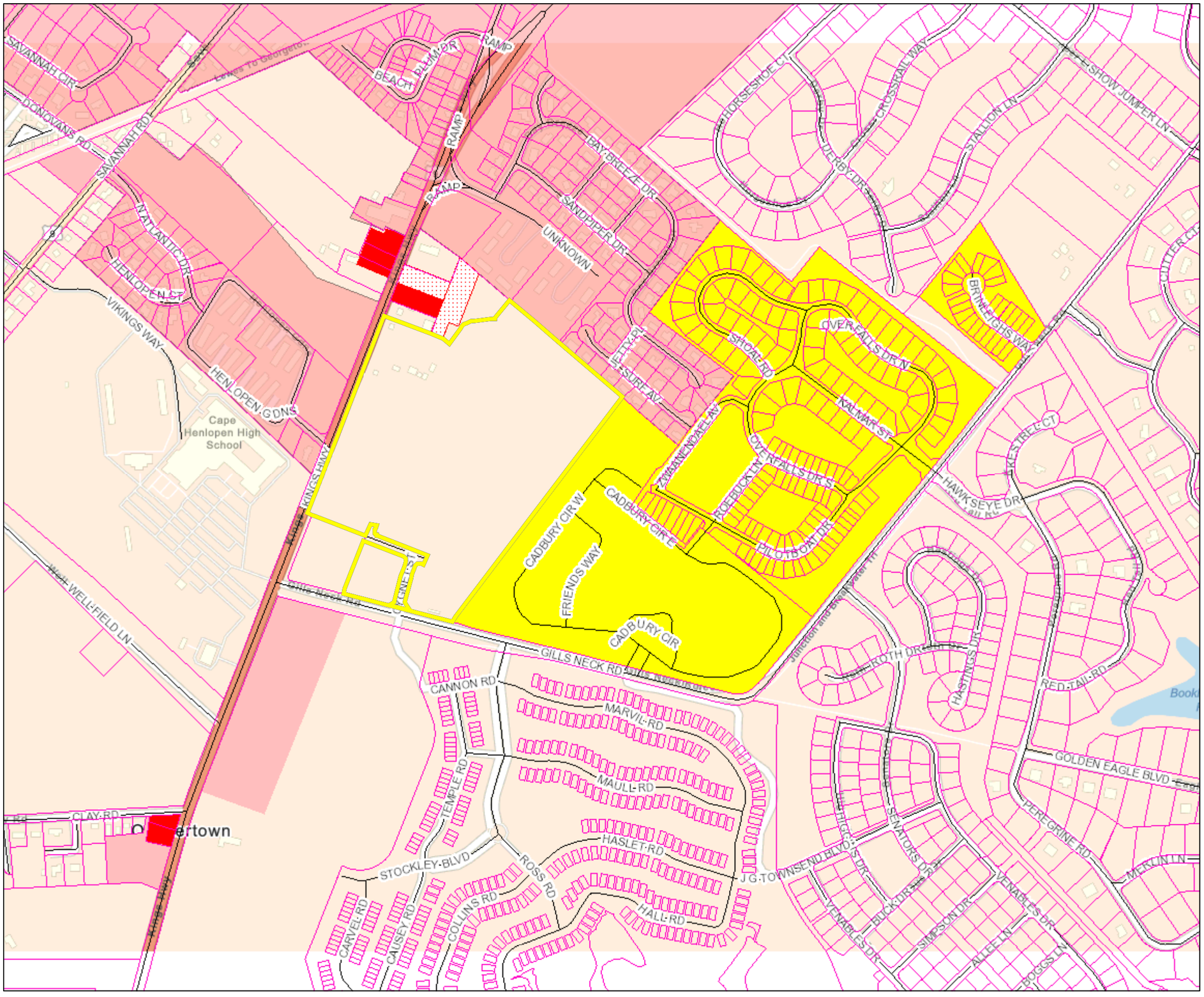
1:4,514

0 0.05 0.1 0.2 mi

0 0.075 0.15 0.3 km

January 31, 2022

Sussex County



PIN:	335-8.00-37.00
Owner Name	JEFF-KAT LLC
Book	5613
Mailing Address	1007 KINGS HWY
City	LEWES
State	DE
Description	SE/KINGS HWY
Description 2	RESIDUAL LANDS
Description 3	N/A
Land Code	

polygonLayer
Override 1

polygonLayer
Override 1

Tax Parcels

Streets

1:9,028

0 0.1 0.2 0.4 mi

0 0.175 0.35 0.7 km

January 31, 2022

Sussex County

PIN:	335-8.00-37.00
Owner Name	JEFF-KAT LLC
Book	5613
Mailing Address	1007 KINGS HWY
City	LEWES
State	DE
Description	SE/KINGS HWY
Description 2	RESIDUAL LANDS
Description 3	N/A
Land Code	

polygonLayer

Override 1

polygonLayer

Override 1

Tax Parcels

Streets

Hundred Boundaries

County Boundaries

Tax Ditch Segments

Tax Ditch Channel

Pond Feature

Special Access ROW

Extent of Right-of-Way

Municipal Boundaries

TID

1:4,514

0 0.05 0.1 0.2 mi

0 0.075 0.15 0.3 km

January 31, 2022

JAMIE WHITEHOUSE, AICP MRTPI
PLANNING & ZONING DIRECTOR
(302) 855-7878 T
(302) 854-5079 F
jamie.whitehouse@sussexcountyde.gov

Sussex County
DELAWARE
sussexcountyde.gov

Memorandum

To: Sussex County Planning Commission Members
From: Christin Scott, Planner I
CC: Vince Robertson, Assistant County Attorney, and applicant
Date: March 2, 2022
RE: Staff Analysis for CZ 1967 Henlopen Properties, LLC

This memo is to provide background and analysis for the Planning Commission to consider as a part of application CZ 1967 Henlopen Properties, LLC to be reviewed during the March 10, 2022, Planning Commission Meeting. This analysis should be included in the record of this application and is subject to comments and information that may be presented during the public hearing.

The request is for a Change of Zone for part of Tax Parcel 335-8.00-37.00 (portion of) to allow for a change of zone from an Agricultural Residential (AR-1) Zoning District to a Medium Residential (MR) Zoning District. The property is lying on the southeast side of Kings Highway (Rt. 9), approximately 390 feet northeast of Gills Neck Road (S.C.R. 267) and on the north side of Gills Neck Road (S.C.R. 267) approximately 329 southeast of Kings Highway (Rt. 9). The portion of the parcel to be rezoned consists of 43.777 acres +/-.

The 2018 Sussex County Comprehensive Plan Update (Comprehensive Plan) provides a framework of how land is to be developed. As part of the Comprehensive Plan, a Future Land Use Map is included to help determine how land should be zoned to ensure responsible development. The Future Land Use map in the plan indicates that the subject property has a land use designation of "Coastal Area." The properties to the south, east and west of the subject property also contain the Future Land Use Designation of "Coastal Area." Properties further to the north and across Kings Highway to the west are located within the municipality of Lewes.

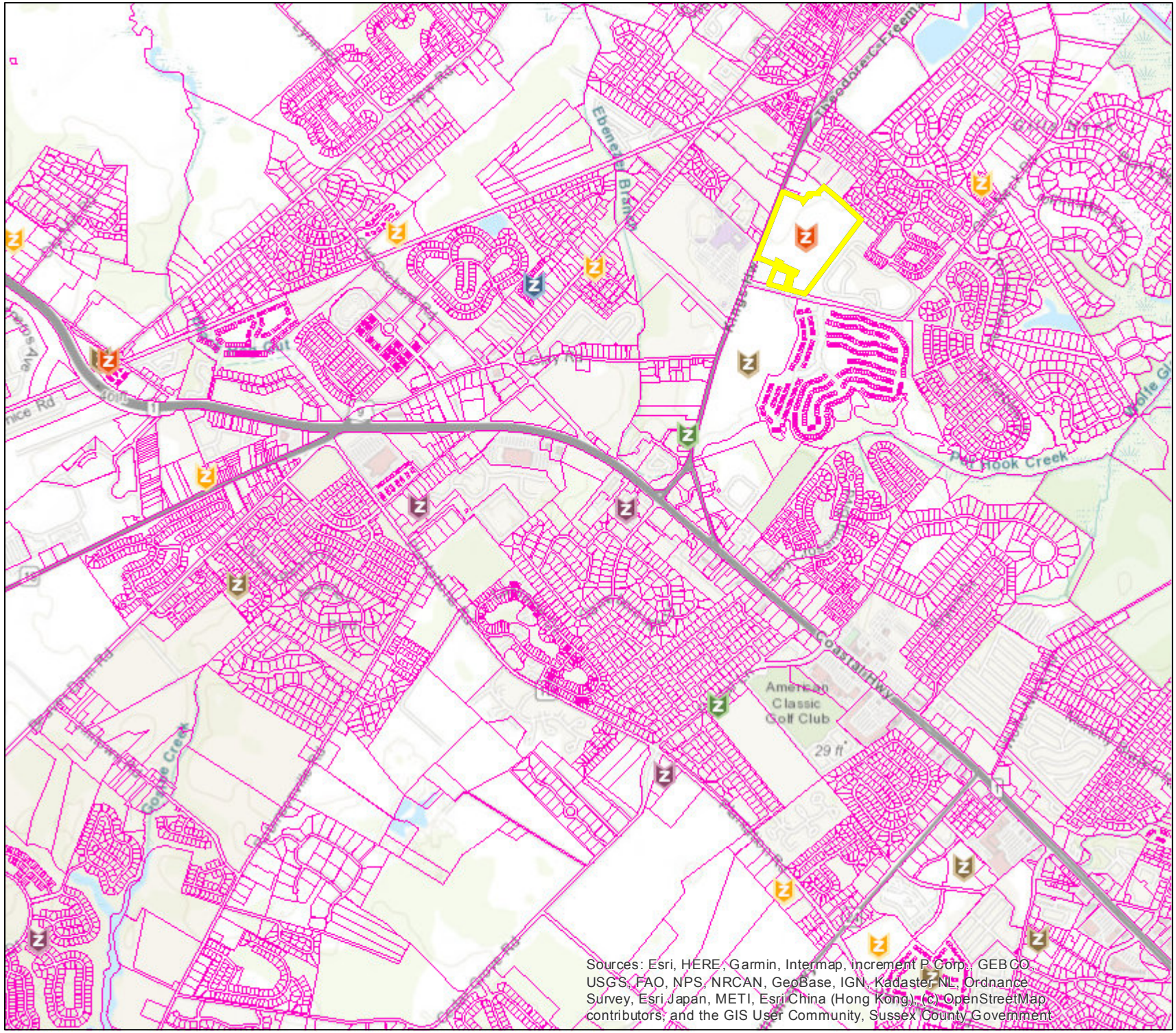
As outlined within the 2018 Sussex County Comprehensive Plan, Coastal Areas are areas that can accommodate development provided special environmental concerns are addressed. A range of housing types should be permitted in Coastal Areas, including single-family homes, townhouses, and multi-family units. Retail and office uses are appropriate but larger shopping centers and office parks should be confined to selected locations with access along arterial roads. Appropriate mixed-use development should also be allowed. In doing so, careful mixtures of homes with light commercial, office and institutional uses can be appropriate to provide for convenient services and to allow people to work close to home. Major new industrial uses are not proposed in these areas.

The portion of this property is zoned Agricultural Residential (AR-1) Zoning District. Adjacent parcels to the north are also zoned Agricultural Residential (AR-1) Zoning District, as well as General Commercial (C-1) and Heavy Commercial (C-3). The properties to the north are zoned Medium Residential (MR) and the properties across Kings Highway and Gills Neck Road to the west and south are zoned Agricultural Residential (AR-1) Zoning District and Neighborhood Business (B-1).

The 2018 Sussex County Comprehensive Plan outlines Zoning Districts by their applicability to each Future Land Use category. Under Table 4.5-2 "Zoning Districts Applicable to Future Land Use Categories," the Medium Residential (MR) Zoning District is listed as an applicable zoning district in the Coastal Area.

Since 2011, there have been nine (9) Change of Zone applications within a 2-mile radius of the application site. The Change of Zone applications approved include Medium Residential (MR), Neighborhood Business (B-1), Heavy Commercial (C-3) and Medium Commercial (C-2) Zoning Districts.

Based on the analysis of the land use, surrounding zoning and uses, a Change of Zone from an Agricultural Residential Zoning District (AR-1) to a Medium Residential Zoning District (MR) could be considered as being consistent with the land use, based on the size, scale, zoning and surrounding uses.



Addresses / Parcels
- TaxParcels

Council Districts
- Fire Districts
- County District 01
- County District 02
- County District 03
- County District 04
- County District 05
- County Boundaries

Schools/Libraries
- School Buildings (Various)
- School Library
- Public Library
- Special Library
- DOE School Districts
- DOE VoTech School Districts

Hydrology
- Streams / Rivers
- Lakes, Ponds, Bays

Flood Zones
- 0.2% Annual Chance Flood Hazard
- A
- AE
- AO
- Open Water
- VE

- Public Protected Lands
- Municipalities
- Communities
- Boundaries State County

N

Sussex County Map

0 1,250 2,500 5,000 7,500 10,000 Feet

File #: C21967
202200008

Planning & Zoning Commission Application
Sussex County, Delaware

Sussex County Planning & Zoning Department
2 The Circle (P.O. Box 417) Georgetown, DE 19947
302-855-7878 ph. 302-854-5079 fax

RECEIVED
JAN 05 2022
SUSSEX COUNTY
PLANNING & ZONING

Type of Application: (please check applicable)
Conditional Use ___
Zoning Map Amendment ✓

Site Address of Conditional Use/Zoning Map Amendment

Northeast quadrant of Kings Highway and Gills Neck Road, Lewes

Type of Conditional Use Requested:

N/A

Tax Map #: 335-8.00-37.00 (portion) **Size of Parcel(s):** 43.777 +/- acres

Current Zoning: AR-1 **Proposed Zoning:** MR **Size of Building:** TBD

Land Use Classification: Agricultural

Water Provider: Tidewater **Sewer Provider:** Sussex County

Applicant Information

Applicant Name: Henlopen Properties, LLC
Applicant Address: 4750 Owning Mills Blvd
City: Owing Mills State: MD ZipCode: 21117
Phone #: E-mail:

Owner Information

Owner Name: Mitchell Family, LLC
Owner Address: 1019 Kings Highway
City: Lewes State: DE Zip Code: 19958
Phone #: E-mail:

Agent/Attorney/Engineer Information

Agent/Attorney/Engineer Name: Davis, Bowen & Friedel, Inc.
Agent/Attorney/Engineer Address: 1 Park Avenue
City: Milford State: DE Zip Code: 19963
Phone #: (302) 424-1441 E-mail: rwl@dbfinc.com

Check List for Sussex County Planning & Zoning Applications

The following shall be submitted with the application

✓ **Completed Application**

✓ **Provide eight (8) copies of the Site Plan or Survey of the property**
- Survey shall show the location of existing or proposed building(s), building setbacks, parking area, proposed entrance location, etc.
- Provide a PDF of Plans (may be e-mailed to a staff member)
- Deed or Legal description

✓ **Provide Fee $500.00**

___ **Optional - Additional information for the Commission/Council to consider** (ex. architectural elevations, photos, exhibit books, etc.) If provided submit 8 copies and they shall be submitted a minimum of ten (10) days prior to the Planning Commission meeting.

✓ **Please be aware that Public Notice will be sent to property owners within 200 feet of the subject site and County staff will come out to the subject site, take photos and place a sign on the site stating the date and time of the Public Hearings for the application.**

✓ **DelDOT Service Level Evaluation Request Response**

___ **PLUS Response Letter** (if required)

The undersigned hereby certifies that the forms, exhibits, and statements contained in any papers or plans submitted as a part of this application are true and correct.

I also certify that I or an agent on by behalf shall attend all public hearing before the Planning and Zoning Commission and the Sussex County Council and any other hearing necessary for this application and that I will answer any questions to the best of my ability to respond to the present and future needs, the health, safety, morals, convenience, order, prosperity, and general welfare of the inhabitants of Sussex County, Delaware.

Signature of Applicant/Agent/Attorney

_____ Date: 12/22/2021

Signature of Owner

Robert P. Mitchell Date: 12/22/21

For office use only:

Date Submitted: 1/5/22 Fee: $500.00 Check #: 100250244

Staff accepting application: cor Application & Case #: 20220008

Location of property: _____

_____

Subdivision: _____

Date of PC Hearing: _____ Recommendation of PC Commission: _____

Date of CC Hearing: _____ Decision of CC: _____

RECEIVED

JAN 0 5 2022

SUSSEX COUNTY
PLANNING & ZONING

STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. BOX 778
DOVER, DELAWARE 19903

NICOLE MAJESKI
SECRETARY

December 20, 2021

Mr. Jamie Whitehouse, Director
Sussex County Planning & Zoning
P.O. Box 417
Georgetown, DE 19947

Dear Mr. Whitehouse:

The Department has completed its review of a Service Level Evaluation Request for the **Henlopen Properties, LLC (Jon Mayers)** proposed land use application, which we received on December 10, 2021. This application is for an approximately 42-acre portion of a 48.01- acre parcel (Tax Parcel: 335-8.00-37.00). The subject land is located on the north side of Gills Neck Road (Sussex Road 267) and the east side of Kings Highway (US Route 9). The subject land is currently zoned AR (Agriculture Residential), with a proposed zoning of MR (Medium Density Residential) for 267 multifamily houses.

Per the 2019 Delaware Vehicle Volume Summary, the annual average daily traffic volumes along Gills Neck Road from Red Tail Road to Kings Highway, is 4,186 vehicles per day. The annual average daily traffic volumes along Kings Highway from Kings Highway (Sussex Road 268) to Gills Neck Road, is 12,019 vehicles per day.

Based on our review, we estimate that the proposed land use will generate more than 50 vehicle trips per peak hour or 500 vehicle trips per day, and would be considered to have a **Minor** impact to the local area roadways. In this instance, the Department considers a Minor impact to be when a proposed land use would generate more than either 50 vehicle trips per peak hour and / or 500 vehicle trips per day but fewer than 200 vehicle trips per a weekly peak hour and 2,000 vehicle trips per day. Because of this impact, we recommend that the applicant be required to perform a Traffic Impact Study (TIS) for the subject application. However, our Development Coordination Manual provides that where a TIS is required only because the volume warrants are met, and the projected trip generation will be fewer than 200 vehicle trips per a weekly peak hour and fewer than 2,000 vehicle trips per day, DelDOT may permit the developer to pay an Area-Wide Study Fee of $10 per daily trip in lieu of doing a TIS. For this application, if the County were agreeable, we would permit the developer to pay an Area-wide Study Fee.

DelDOT

If the County approves this application, the applicant should be reminded that DelDOT requires compliance with State regulations regarding plan approvals and entrance permits, whether or not a TIS is required.

Please contact Ms. Annamaria Furmato, at Annamaria.Furmato@delaware.gov, if you have questions concerning this correspondence.

Sincerely,

T. William Brockenbrough, Jr.

T. William Brockenbrough, Jr.
County Coordinator
Development Coordination

TWB:afm
cc: Henlopen Properties, LLC (Jon Mayers), Applicant
Sussex Reviewer, Sussex County Planning & Zoning
David Edgell, Coordinator, Cabinet Committee on State Planning Issues
Todd Sammons, Assistant Director, Development Coordination
Scott Rust, South District Public Works Manager, Maintenance & Operations
Steve McCabe, Sussex County Review Coordinator, Development Coordination
Derek Sapp, Subdivision Manager, Development Coordination
Kevin Hickman, Subdivision Manager, Development Coordination
Brian Yates, Subdivision Manager, Development Coordination
John Andrescavage, Subdivision Manager, Development Coordination
James Argo, South District Project Reviewer, Maintenance & Operations
Claudy Joinville, Project Engineer, Development Coordination
Annamaria Furmato, Project Engineer, Development Coordination

SUSSEX COUNTY ENGINEERING DEPARTMENT
UTILITY PLANNING & DESIGN REVIEW DIVISION
C/U & C/Z COMMENTS

TO: **Jamie Whitehouse**

REVIEWER: **Chris Calio**

DATE: **2/21/2022**

APPLICATION: **CZ 1967 Henlopen Properties, LLC**

APPLICANT: **Henlopen Properties, LLC**

FILE NO: **OM-9.04**

TAX MAP & PARCEL(S): **335-8.00-37.00 (p/o)**

LOCATION: **Lying on the southeast side of Kings Highway (Rt. 9) and on the north side of Gills Neck Road (SCR 267).**

NO. OF UNITS: **Change of Zone from AR-1 to MR**

GROSS ACREAGE: **43.777**

SYSTEM DESIGN ASSUMPTION, MAXIMUM NO. OF UNITS/ACRE: **4**

SEWER:

(1). Is the project in a County operated and maintained sanitary sewer and/or water district?

Yes ☒ No ☐

a. If yes, see question (2).
b. If no, see question (7).

(2). Which County Tier Area is project in? **Tier 1**

(3). Is wastewater capacity available for the project? **Yes** If not, what capacity is available? **N/A**.

(4). Is a Construction Agreement required? **Yes** If yes, contact Utility Engineering at (302) 855-7717.

(5). Are there any System Connection Charge (SCC) credits for the project? **No** If yes, how many? **N/A**. Is it likely that additional SCCs will be required? **Yes** If yes, the current System Connection Charge Rate is **Unified $6,600.00** per EDU. Please contact **Christine Fletcher** at **302-855-7719** for additional information on charges.

(6). Is the project capable of being annexed into a Sussex County sanitary sewer district? **N/A**

☐ Attached is a copy of the Policy for Extending District Boundaries in a Sussex County Water and/or Sanitary Sewer District.

(7). Is project adjacent to the Unified Sewer District? **N/A**

(8). Comments: **Click or tap here to enter text.**

(9). Is a Sewer System Concept Evaluation required? **Yes, Contact Utility Planning at 302-855-7370 to apply**

(10). Is a Use of Existing Infrastructure Agreement Required? **Yes**

(11). **All residential roads must meet or exceed Sussex County minimum design standards.**

UTILITY PLANNING & DESIGN REVIEW APPROVAL:

John J. Ashman
Sr. Manager of Utility Planning & Design Review

Xc: Hans M. Medlarz, P.E.
Lisa Walls
Christine Fletcher

STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. BOX 778
DOVER, DELAWARE 19903

NICOLE MAJESKI
SECRETARY

February 28, 2022

Mr. Ring Lardner
Davis, Bowen & Friedel, Inc.
1 Park Avenue
Milford, DE 19963

Dear Mr. Lardner:

The enclosed Traffic Impact Study (TIS) review letter for the **Mitchell Farm (Zwaanendael Farm)** (Tax Parcel: 335-8.00-37.00) development has been completed under the responsible charge of a registered professional engineer whose firm is authorized to work in the State of Delaware. They have found the TIS to conform to DelDOT's Development Coordination Manual and other accepted practices and procedures for such studies. DelDOT accepts this letter and concurs with the recommendations. If you have any questions concerning this letter or the enclosed review letter, please contact me at (302) 760-2124.

Sincerely,

Claudy Joinville
Project Engineer

CJ:km
Enclosures
cc with enclosures: Mr. Robert Mitchell, The Mitchell Family Ltd. Partnership
Mr. Paul Townsend, Owner
Mr. David Hutt, Morris, James, Wilson, Halbrook & Bayard, LLP
Mr. DJ Hughes, Davis, Bowen & Friedel, Inc.
Ms. Ann Marie Townshend, City Manager, City of Lewes
Mr. David Edgell, Office of State Planning Coordination
Mr. Jamie Whitehouse, Sussex County Planning and Zoning
Ms. Joanne Arellano, Johnson, Mirmiran, & Thompson, Inc.
DelDOT Distribution

DelDOT

DelDOT Distribution

Brad Eaby, Deputy Attorney General
Shanté Hastings, Deputy Secretary / Director of Transportation Solutions (DOTS)
Pamela Steinebach, Director, Planning
Mark Luszcz, Deputy Director, Traffic, DOTS
Peter Haag, Chief Traffic Engineer, Traffic, DOTS
Michael Simmons, Assistant Director, Project Development South, DOTS
Todd Sammons, Assistant Director, Development Coordination
T. William Brockenbrough, Jr., County Coordinator, Development Coordination
Chris Sylvester, Traffic Studies Manager, Traffic, DOTS
Alistair Probert, South District Engineer, South District
Matthew Schlitter, South District Public Works Engineer, South District
Jared Kauffman, Service Development Planner, Delaware Transit Corporation
Tremica Cherry, Service Development Planner, Delaware Transit Corporation
Anthony Aglio, Planning Supervisor, Statewide & Regional Planning
Wendy Polasko, Subdivision Engineer, Development Coordination
Steve McCabe, Sussex Review Coordinator, Development Coordination
Mark Galipo, Traffic Engineer, Traffic, DOTS
Brian Yates, Subdivision Manager, Development Coordination
Annamaria Furmato, Project Engineer, Development Coordination

Revised February 28, 2022
October 7, 2021

Mr. Claudy Joinville
Project Engineer
Development Coordination
DelDOT Division of Planning
800 Bay Road
P O Box 778
Dover, DE 19903

RE:Agreement No. 1945F
Project Number T202069012
Traffic Impact Study Services
Task 4A-Mitchell Farm (Zwaanendael Farm)

Dear Mr. Joinville:

In October 2021, Johnson, Mirmiran and Thompson (JMT) completed the review of the Traffic Impact Study (TIS) for Mitchell Farm (Zwaanendael Farm), prepared by Davis, Bowen & Friedel, Inc. dated November 2019 and the TIS Addendum prepared by Davis, Bowen & Friedel, Inc. dated April 2020. The task was assigned as Task Number 4A and the report was prepared in a manner generally consistent with DelDOT's *Development Coordination Manual*.

Since that review, the developer has proposed land use changes and this letter has been revised to summarize the modifications. In addition, changes have been made to the DelDOT *US 9, Kings Highway, Dartmouth Drive to Freeman Highway* (DelDOT Contract No. T202212901) project as well as to the interim improvements proposed by the developer. This letter summarizes the recommendations based on what is now planned and proposed. A copy of the October 7, 2021 TIS review letter is attached for reference.

The TIS evaluates the impacts of a proposed mixed-use development in Sussex County, Delaware. The current site plan proposes 14,400 square feet of shopping center, 28,800 square feet of medical/dental office, and 267 multi-family homes. This plan represents a trip generation reduction of approximately 50%. Construction is anticipated to be complete in 2027. The existing 39,000 square foot medical/dental office building on Lot 1 would remain with the land use changes.

Table 1 summarizes the updated full build out of the site. The trip generation for the proposed development was determined by using the comparable land use and rates/equations contained in the *Trip Generation, 10th Edition: An ITE Informational Report*, published by the Institute of Transportation Engineers (ITE).

Table 1
Mitchell Farm (Zwaanendael Farm) Trip Generation – Updated Full Build Out

Land Use	ADT	AM Peak Hour			PM Peak Hour			SAT Peak Hour		
		In	Out	Total	In	Out	Total	In	Out	Total
267 Multifamily Low-Rise Houses (ITE Code 220)	1,978	28	93	121	90	52	142	101	86	187
67,800 SF Medical-Dental Office Building (ITE Code 720)*	2,517	123	35	158	65	167	232	120	90	210
14,400 SF Shopping Center (ITE Code 820)	1,610	9	5	14	62	68	130	70	64	134
Total Trips	**6,105**	**160**	**133**	**293**	**217**	**287**	**504**	**291**	**240**	**531**
Internal Capture	-	8	8	16	35	35	70	36	36	72
New Trips	**6,105**	**152**	**125**	**277**	**182**	**252**	**434**	**255**	**204**	**459**

*The existing 39,000 square-feet of medical-dental office building on Lot 1 would be maintained as part of the proposed development and is included in this calculation.

A comparison of the new trips between the updated land use changes and the TIS/TIS Addendum was conducted. As depicted in Table 2, the proposed updated land use changes is expected to generate significantly less traffic for the full build out of the site.

Table 2
Mitchell Farm (Zwaanendael Farm) Trip Generation Comparison – Full Build Out

Land Use	ADT	AM Peak Hour			PM Peak Hour			SAT Peak Hour		
		In	Out	Total	In	Out	Total	In	Out	Total
Updated Land Uses – New Trips	6,105	152	125	277	182	252	434	255	204	459
November 2019 TIS/April 2020 TIS Addendum – New Trips	9,268	356	166	522	271	548	819	617	478	1,095
Difference	**- 3,163**	**-204**	**-41**	**-245**	**-89**	**-296**	**-385**	**-362**	**-274**	**-636**

The site is located on the northeast corner of the intersection of Kings Highway (Sussex Road 268) and Gills Neck Road (Sussex Road 267). Two access points are proposed: one along Kings Highway directly opposite the proposed site access for the Beebe Medical development and one along Gills Neck Road opposite the site access for the proposed Gills Neck Village Center commercial project.

The site consists of two tax parcels, a 3-acre parcel known as Lot 1 and the remainder of the original parcel consisting of approximately 48 acres. Both parcels are zoned AR-1 (Agricultural Residential). Lot 1 is subject to a conditional use for a 39,000 square foot medical/dental office building which has been constructed. The remaining parcel (48 acres) is the subject of the following applications pending with Sussex County: a subdivision application, 2 change of zone applications (C-2 and MR), and a conditional use (MR parcel).

It should be noted that the 39,000 square foot medical/dental office building on Lot 1 that has been approved and constructed provides a Site Entrance along Gills Neck Road. The Site Entrance is constructed as a two-way stop-controlled intersection with one shared left turn/through lane and one right turn lane along the southbound Site Entrance approach (stop-controlled). One left turn lane and one through lane are provided along the eastbound Gills Neck Road approach and one through lane and one right turn lane are provided along the westbound Gills Neck Road approach. As part of the Lot 1 construction, sidewalks and bike lanes have been added along the Gills Neck Road site frontage and the Site Entrance along Gills Neck Road contains ADA compliant curb ramps.

DelDOT has several relevant and ongoing improvement projects and plans within the study area including the *Realignment of Old Orchard Road/Savannah Road/Wescoats Road* (DelDOT Contract No. T201609601) project; a signal at the Kings Highway and Clay Road intersection which was recently installed; the *Corridor Management Plan* for the Lewes Scenic and Historic Byway (October 2015); the *Kings Highway and Gills Neck Road Master Plan* dated September 2016; and the Delaware River and Bay Authority (DRBA) *Freeman Highway Rehabilitation* project (DelDOT Contract No. 20191619-00). Detailed information regarding these projects can be found in the October 7, 2021 TIS review letter.

As part of the DelDOT *US 9, Kings Highway, Dartmouth Drive to Freeman Highway* (DelDOT Contract No. T202212901) project, Kings Highway is proposed to be widened to provide two through lanes in each direction. DelDOT held a public workshop on February 23, 2022 to discuss the proposed improvements which include widening Kings Highway to provide two 11-foot lanes in each direction with 5-foot shoulders, and a curbed median would be provided to separate each direction of travel. Additionally, the following intersections along Kings Highway are proposed to be converted to roundabouts: Dartmouth Drive, Clay Road, Gills Neck Road, Beebe Medical Center/Mitchell Farm site entrance, and Freeman Highway. Pedestrian and transit improvements are also proposed. The project is in the design and planning stage with construction anticipated to start in Fiscal Year 2026. More information about the project can be found here: https://deldot.gov/projects/index.shtml?dc=details&projectNumber=T202212901

The October 7, 2021 TIS review evaluated cases with dualization of Kings Highway as it was then envisioned. DelDOT's current plan of the project is different.

Although the projected trip generation associated with the site has reduced significantly, the developer has agreed to the interim improvements similar to those identified in the October 2021 TIS review. The interim improvements would add a second left turn lane from Gills Neck Road onto southbound Kings Highway and a second through lane along southbound Kings Highway starting north of Gills Neck Road and ending at Clay Road. These improvements would potentially be replaced as part of the *US 9, Kings Highway, Dartmouth Drive to Freeman Highway* project. Details follow in the itemized list of recommendations.

Should Sussex County approve the proposed development, the following items should be incorporated into the site design and reflected on the record plan. All applicable agreements (i.e. letter agreements for off-site improvements and traffic signal agreements) should be executed prior to entrance plan approval for the proposed development. The following items should be implemented at the same time as site construction once all agency approvals and permits are secured and completed in accordance with DelDOT's Standards and Specifications.

1. The developer should provide a bituminous concrete overlay to the existing travel lanes along Kings Highway from north of Gills Neck Road to south of Clay Road in the area affected by the improvements discussed below in Item Number 4, including any auxiliary lanes, at DelDOT's discretion. DelDOT should analyze the existing lanes' pavement section and recommend an overlay thickness to the developer's engineer, if necessary.

2. The developer should construct a rights-in/rights-out site entrance for the proposed Mitchell Farm/Zwaanendael Farm development on Kings Highway directly across from the Beebe Medical entrance, approximately 1,550 feet north of the northeast tangent point of the Gills Neck Road/Cape Henlopen High School Entrance. The design of the entrance, including lengths of turn lanes, will be determined during the Entrance Plan review process.

3. The developer should maintain the existing site entrance for the proposed Mitchell Farm/Zwaanendael Farm development, approximately 650 feet east of the northeast tangent point of the Kings Highway intersection and directly across from the proposed Gills Neck Village Center Entrance to be consistent with the lane configurations shown in the table below:

Approach	Current Configuration	Proposed Configuration
Eastbound Gills Neck Road	One left turn lane and one through lane	One left turn lane, one through lane, and one right turn lane*
Westbound Gills Neck Road	One through lane and one right turn lane	One left turn lane**, one through lane, and one right turn lane
Northbound Gills Neck Village Center Entrance	Approach does not exist	One left turn/through lane and one right turn lane***
Southbound Site Entrance	One shared left turn/through lane and one right turn lane	No change

*Right turn lane to be built by others
**Left turn lane to be built by others
***Approach to be built by others

Based on DelDOT's *Development Coordination Manual*, the recommended minimum storage lengths (excluding taper) of the separate left turn and right turn lanes along Gills Neck Road are listed below. The calculated queue lengths from the HCS analysis can be accommodated within the recommended storage length.

Approach	Left Turn Lane	Right Turn Lane
Eastbound Gills Neck Road	120 feet*	190 feet**
Westbound Gills Neck Road	120 feet**	120 feet*

*This storage length is the existing storage length per the June 2018 Zwaanendael Farm Rezoning Sketch Plan and it should be maintained.
**To be built by others

As a TOA/TIS will be performed for the Gills Neck Village Center, the recommended lane configurations and storage lengths for the Gills Neck Village Center entrance may be modified based on those results.

4. The developer should improve the Kings Highway and Gills Neck Road/Cape Henlopen High School Entrance intersection to be consistent with the lane configurations shown in the table below:

Approach	Current Configuration	Proposed Configuration
Eastbound Cape Henlopen High School	One shared left turn/through lane and one right turn lane	No change
Westbound Gills Neck Road	One left turn lane, one through lane, and one right turn lane	Two left turn lanes and one shared through/right turn lane
Northbound Kings Highway	One left turn lane, one through lane, and one right turn lane	No change
Southbound Kings Highway	One left turn lane, one through lane, and one right turn lane	One left turn lane, two through lanes, and one right turn lane

The recommended minimum storage lengths (excluding taper) of the separate left turn and right turn lanes along Kings Highway and Gills Neck Road are listed below.

Approach	Left Turn Lane	Through/Right Turn Lane	Right Turn Lane
Northbound Kings Highway	250 feet*	-	180 feet*
Southbound Kings Highway	340 feet*	-	280 feet*
Westbound Gills Neck Road	420 feet	570 feet**	-

*Storage lengths match the existing storage lengths per field conditions and should be maintained.
**Storage length does not match the existing storage length and requires lengthening.

The developer would reconstruct Kings Highway south of the Gills Neck Road intersection to provide two through lanes and the rightmost through lane should transition to a right turn only lane at the Clay Road intersection. An SUP should be constructed along Kings Highway from Cape Henlopen High School to Clay Road.

The developer should donate any temporary construction easements needed to build and remove the interim improvements.

The developer should enter into a traffic signal agreement with DelDOT for the intersection of Kings Highway with Gills Neck Road to address the changes necessitated in the above improvements. The traffic signal agreement should include pedestrian signals, crosswalks, interconnection, and ITS equipment such as CCTV cameras at DelDOT's discretion. Prior to Entrance Plan approval, the developer should submit a plan to the DelDOT Development Coordination section depicting the design of Kings Highway from Gills Neck Road to Clay Road. The final design should be determined during the Entrance Plan review process.

5. The developer should enter into an agreement with DelDOT to fund an equitable portion of improvements to the intersections of Kings Highway with Dartmouth Drive, Clay Road, Gills Neck Road/Cape Henlopen High School Entrance, Atlantic Drive, Freeman Highway, Bay Breeze Drive, and the Site Entrance/Beebe Medical Center Entrance as part of the *US 9, Kings Highway, Dartmouth Drive to Freeman Highway* project. The developer should coordinate with DelDOT on the implementation and equitable cost sharing of the improvements.

6. The development should dedicate right-of-way along Kings Highway and Gills Neck Road in accordance with the functional classification of both roads to provide 50 feet from centerline on Kings Highway and 30 feet from centerline on Gills Neck Road. In addition, on Kings Highway, the development should reserve 30 feet parallel to Kings Highway to accommodate the *US 9, Kings Highway, Dartmouth Drive to Freeman Highway* project. Beyond these right-of-way dedications/reservations both roads should have a 15-foot-wide permanent easement.

7. The developer should enter into an agreement with DelDOT to fund an equitable portion of improvements to the intersection of Clay Road and Marsh Road as part of the *Realignment of Old Orchard Road/Savannah Road/Wescoats Road* (DelDOT Contract No. T201609601) project. The project will improve the intersection of Marsh Road and Clay Road to eliminate the existing skewed angle of the intersection. The developer should coordinate with DelDOT on the implementation and equitable cost sharing of the Clay Road and Marsh Road intersection improvements.

8. Vehicular interconnections or cross access easements between the on-site lots should be provided. The developer should coordinate with DelDOT's Development Coordination Section to determine the locations and feasibilities of the interconnections.

9. The following bicycle, pedestrian, and transit improvements should be included:

    a. A minimum fifteen-foot wide permanent easement from the edge of the right-of-way should be dedicated to DelDOT along the Kings Highway site frontage. Within the easement, the developer should construct a ten-foot wide shared-use path (SUP) to meet the shared-use path recently constructed for Lot 1. The developer should coordinate with DelDOT's Development Coordination and Project Development South sections during the plan review process to identify the exact location of the SUP.

    b. One or more accessways should be provided from the SUP into the site at locations to be defined during the Plan review process.

c. Where internal sidewalks are located alongside of parking spaces, a buffer, physical barrier or signage should be added to eliminate vehicular overhang onto the sidewalk.

d. The tie-in installed for Lot 1 should be removed once the SUP is extended along the entire property frontage.

e. ADA compliant curb ramps and marked crosswalks should be provided along the Kings Highway Site Entrance approach to Kings Highway. The use of diagonal curb ramps is discouraged.

f. Minimum five-foot wide bicycle lanes should be incorporated in the right turn lane and shoulder along the northbound Kings Highway approach to the Kings Highway Site Entrance.

g. Utility covers should be moved outside of any designated bicycle lanes and any proposed sidewalks/shared-use paths or should be flush with the pavement.

h. Bike parking should be provided near the building entrances. Where the building architecture provides for an awning or other overhang, the bike parking should be covered.

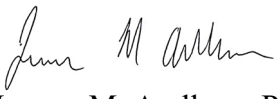
i. A Type 2 bus stop should be installed at the Kings Highway Site Entrance intersection. The developer should coordinate with DART and DelDOT on the location, design, as well as the amenities to provide.

Please note that this review generally focuses on capacity and level of service issues; additional safety and operational issues will be further addressed through DelDOT's Plan Review process.

Improvements in this TIS may be considered "significant" under DelDOT's *Work Zone Safety and Mobility Procedures and Guidelines*. These guidelines are available on DelDOT's website at https://www.deldot.gov//Publications/manuals/de_mutcd/index.shtml. For any additional information regarding the work zone impact and mitigation procedures during construction please contact Mr. Jeff VanHorn, Assistant Director for Traffic Operations and Management. Mr. VanHorn can be reached at (302) 659-4606 or by email at Jeffrey.VanHorn@delaware.gov.

Additional details on our review of the TIS are attached. Please contact me at (302) 266-9600 if you have any questions concerning this review.

Sincerely,
Johnson, Mirmiran, and Thompson, Inc.



Joanne M. Arellano, P.E., PTOE

cc: Mir Wahed, P.E., PTOE
Janna Brown, E.I.T.
Enclosure

October 7, 2021 TIS Review Letter

October 7, 2021

Mr. Troy Brestel
Project Engineer
Development Coordination
DelDOT Division of Planning
800 Bay Road
P O Box 778
Dover, DE 19903

RE: Agreement No. 1945F
Project Number T202069012
Traffic Impact Study Services
Task 4A-Mitchell Farm (Zwaanendael Farm)

Dear Mr. Brestel:

Johnson, Mirmiran and Thompson (JMT) has completed the review of the Traffic Impact Study (TIS) for Mitchell Farm (Zwaanendael Farm), prepared by Davis, Bowen & Friedel, Inc. dated November 2019 and the TIS Addendum prepared by Davis, Bowen & Friedel, Inc. dated April 2020. This task was assigned as Task Number 4A. The report is prepared in a manner generally consistent with DelDOT's *Development Coordination Manual*.

The TIS evaluates the impacts of a proposed mixed-use development in Sussex County, Delaware. The development would be comprised of 206,500 square feet of medical/office buildings, 60 single-family homes, and 150 multi-family (mid-rise) homes. Construction is anticipated to be complete in 2027.

The site is located on the northeast corner of the intersection of Kings Highway (Sussex Road 268) and Gills Neck Road (Sussex Road 267). Two full access points are proposed: one along Kings Highway directly opposite the proposed site access for the Beebe Medical development and one along Gills Neck Road opposite the site access for the proposed Gills Neck Village Center commercial project.

The site consists of two tax parcels, a 3-acre parcel known as Lot 1 and the remainder of the original parcel consisting of approximately 48 acres. Both parcels are zoned AR-1 (Agricultural Residential). Lot 1 is subject to a conditional use for a 39,000 square foot medical/office building which has been constructed. The remaining parcel (48 acres) is the subject of the following applications pending with Sussex County: a subdivision application, 3 change of zone applications (B-2, C-3, and MR), and a conditional use (MR parcel).

It should be noted that the 39,000 square foot medical/office building on Lot 1 that has been approved and constructed provides a Site Entrance along Gills Neck Road. The Site Entrance is constructed as a two-way stop-controlled intersection with one shared left turn/through lane and one right turn lane along the southbound Site Entrance approach (stop-controlled). One left turn

lane and one through lane are provided along the eastbound Gills Neck Road approach and one through lane and one right turn lane are provided along the westbound Gills Neck Road approach. As part of the Lot 1 construction, sidewalks and bike lanes have been added along the Gills Neck Road site frontage and the Site Entrance along Gills Neck Road contains ADA compliant curb ramps.

DelDOT has several relevant and ongoing improvement projects and plans within the study area including the *Realignment of Old Orchard Road/Savannah Road/Wescoats Road* (DelDOT Contract No. T201609601) project; a signal at the Kings Highway and Clay Road intersection which was recently installed; the *Corridor Management Plan* for the Lewes Scenic and Historic Byway (October 2015); the *Kings Highway and Gills Neck Road Master Plan* dated September 2016; the *US 9, Kings Highway, Dartmouth Drive to Freeman Highway* project; and the Delaware River and Bay Authority (DRBA) *Freeman Highway Rehabilitation* project (DelDOT Contract No. 20191619-00). Detailed information regarding these projects can be found later in this letter.

As part of the DelDOT *US 9, Kings Highway, Dartmouth Drive to Freeman Highway* project, Kings Highway is proposed to be widened to provide two through lanes in each direction. For the purposes of this letter, this DelDOT project will also be referred to as the Kings Highway Dual Lane project. At each intersection within the DelDOT project limits, improvement alternatives to achieve acceptable LOS in addition to dual lanes will be evaluated and subject to the typical DelDOT process, which includes public workshops.

While the specific alternatives to be examined in developing the DelDOT project have not been determined, improvement alternatives have been previously identified in several documents, including the 2007 DelDOT Planning *Kings Highway Corridor Study*, 2008 DelDOT TIS Review Letters, 2009 Letter Agreement, 2009 DelDOT Planning document *Kings Highway/Gills Neck Road Planned Area Improvements*, 2015 Lewes Scenic and Historic Byway *Corridor Management Plan*, and the 2016 DelDOT *Kings Highway/Gills Neck Road Master Plan* completed as part of the Lewes Scenic and Historic Byway.

The TIS evaluates the following future 2027 scenarios:

- Case 2a – Future 2027 without development and without Kings Highway Dual Lane project
- Case 3a – Future 2027 with development and without Kings Highway Dual Lane project
- Case 3b – Future 2027 with development and with Kings Highway Dual Lane project
- Case 3c – Future 2027 with development, with no site entrance along Kings Highway and without the completion of the Kings Highway Dual Lane project

JMT also included a future 2027 without development scenario with the completion of the Kings Highway Dual Lane project (Case 2b). Intersections outside the limits of the Kings Highway Dual Lane project were addressed as part of Case 2a, without development; and 3a with the development.

As part of the TIS Addendum, the following scenarios were evaluated and included in JMT's review:

- Case 2d – Future 2023 with development of Lot 1 (39,000 square feet of medical/dental office space) and without Kings Highway Dual Lane project
- Case 3d – Future 2023 with 117,000 square feet of medical/dental office space, including 39,000 square feet medical/dental office space from Lot 1, and without Kings Highway Dual Lane project and a rights-in site entrance along Kings Highway
- Case 3b – Future 2027 with development and with Kings Highway Dual Lane Project and Bay Breeze Drive left turn out restriction

Only intersections impacted by volume modifications during Cases 2d, 3d, and 3b were analyzed as part of the TIS Addendum. Specifically, for Cases 2d and 3d the following intersections were analyzed as part of JMT's review:

- Kings Highway (Sussex Road 268)/Site Entrance
- Gills Neck Road (Sussex Road 267)/Site Entrance
- Kings Highway/Atlantic Drive
- Kings Highway/Gills Neck Road/Cape Henlopen High School Entrance
- Kings Highway/Clay Road (Sussex Road 269)

For Case 3b, the following intersections were analyzed as part of JMT's review:

- Kings Highway/Bay Breeze Drive
- Kings Highway/Freeman Highway (Sussex Road 23)

The TIS Addendum also included an additional scenario for a Future 2021 condition with development of Lot 1 (39,000 square feet of medical/dental office space) and without Kings Highway Dual Lane project. However, per direction from DelDOT this scenario was not included in this review.

In addition to the TIS Addendum, analyses were conducted for the additional "Case 4 – Future 2027 with development and Kings Highway Dual Lane Project with Additional Improvements" scenario at intersections along Kings Highway which operated under constrained conditions despite the widening of the roadway (Case 3b). These Case 4 analyses were conducted for planning purposes only. The actual intersection improvements will be determined as part of the DelDOT project.

Based on our review of the TIS and assuming the DelDOT Kings Highway Dual Lane project will be completed by 2027 per the DelDOT CTP and discussions with DelDOT, we have the following comments and recommendations:

With the Kings Highway Dual Lane Project and individual intersection improvements alternatives to be evaluated as part of the DelDOT Project process that includes public workshops,

improvement alternatives to achieve acceptable LOS will be identified. The following intersections (signalized) or intersection approaches (unsignalized) exhibit level of service (LOS) deficiencies without the implementation of physical roadway and/or traffic control improvements. Any location and scenario shown with an "X" in the following tables indicates a LOS deficiency. Further details are provided later in this letter.

Intersection	Intersection Control	LOS Deficiencies Occur			Year	Case
		AM	PM	Saturday		
Kings Highway (Sussex Road 268)/Site Entrance/Beebe Medical Entrance	Unsignalized		X	X	2027	2a
					2027	2b
					2023	2d
		X	X	X	2027	3a
		X	X	X	2027	3b
			X	X	2027	3c
				X	2023	3d
	Roundabout				2027	2a
					2027	2b
			X	X	2027	3a
					2027	3b
			X	X	2027	3c
	Signalized				2027	2a
			X	X	2027	3a
					2027	3b
					2027	3c
					2027	3d
Gills Neck Road (Sussex Road 267)/Site Entrance/Gills Neck Village Center Entrance	Unsignalized				2027	2a
					2023	2d
		X*	X*	X*	2027	3a
		X*	X*	X*	2027	3b
		X*	X	X	2027	3c
			X*	X*	2023	3d

*LOS deficiency occurs along the Gills Neck Village Center Entrance approach which is to be built by others.

Intersection	Intersection Control	LOS Deficiencies Occur			Year	Case
		AM	PM	Saturday		
Kings Highway (Sussex Road 268)/Bay Breeze Drive	Unsignalized			X	2018	1
			X	X	2027	2a
			X	X	2027	2b
			X	X	2027	3a
					2027	3b
	Roundabout				2027	2a
					2027	2b
				X	2027	3a
					2027	3b
	Signalized				2027	2a
					2027	2b
					2027	3a
					2027	3b
Kings Highway/Freeman Highway (Sussex Road 23)	Unsignalized				2018	1
			X	X	2027	2a
			X	X	2027	3a
			X	X	2027	3b
	Signalized				2027	2
					2027	3
Kings Highway (Sussex Road 268)/Savannah Road (Sussex Road 18)	Unsignalized			X	2018	1
			X	X	2027	2a
			X	X	2027	3a
	Single Lane Roundabout				2027	2a
					2027	3a
	Signalized				2027	2a
					2027	3a

Intersection	Intersection Control	LOS Deficiencies Occur			Year	Case
		AM	PM	Saturday		
Savannah Road/Gills Neck Road/Front Street (Sussex Road 267)	Signalized			X	2018	1
				X	2027	2a
					2027	2a*
				X	2027	3a
					2027	3a*
	Single Lane Roundabout				2027	2a
					2027	3a
Kings Highway (Sussex Road 268)/Atlantic Drive	Unsignalized				2018	1
			X	X	2027	2a
				X	2027	2b
			X	X	2023	2d
			X	X	2027	3a
					2027	3b*
			X	X	2027	3c
			X	X	2023	3d
	Signalized				2027	2a
					2027	2b
					2023	2d
			X		2027	3a
					2027	3b*
					2027	3c
					2023	3d

Notes:
[1]At the intersection of Savannah Road/Gills Neck Road/Front Street, Case 2a* and 3a* are scenarios which include implementing an additional through lane along northbound and southbound Savannah Road.
[2]Atlantic Drive would provide only rights-in/rights-out movements along Kings Highway during Case 3b*.

Intersection	Intersection Control	LOS Deficiencies Occur			Year	Case
		AM	PM	Saturday		
Kings Highway/Gills Neck Road/Cape Henlopen High School	Signalized	X	X	X	2018	1
		X	X	X	2027	2a
		X			2027	2b
		X		X	2023	2d
		X	X	X	2027	3a
		X	X	X	2027	3b
		X	X	X	2027	3c
		X		X	2023	3d
					2027	4
Kings Highway/Clay Road (Sussex Road 269)	Unsignalized	X	X	X	2018	1
	Signalized	X	X	X	2027	2a
					2027	2b
			X		2023	2d
		X	X	X	2027	3a
			X		2027	3b
		X	X	X	2027	3c
			X	X	2023	3d
						4
Kings Highway (Sussex Road 268)/Dartmouth Drive (Sussex Road 268A)	Unsignalized		X	X	2018	1
		X	X	X	2027	2a
		X	X	X	2027	3a
	Single Lane Roundabout				2027	2a
					2027	3a
	Signalized				2027	2a
				X	2027	3a

As shown in the above table, ten study intersections are identified to exhibit LOS deficiencies. To minimize the impact of the deficiencies without the completion of the Kings Highway Dual Lane Project, interim condition improvements have been identified. The following section separates the analysis results based on the full build out of the site and the interim condition.

Interim Condition

As part of the TIS report, interim improvements without the implementation of the Kings Highway Dual Lane project were recommended at the Gills Neck Road/Cape Henlopen High School Entrance intersection. One scenario of the interim improvements included the modification of the westbound Gills Neck Road approach to provide two left turn lanes and a shared through/right turn lane and providing split phase signal operation along the eastbound and westbound approaches. In addition, the southbound Kings Highway approach would be modified to provide one left turn lane, one through lane, and one shared through/right turn lane.

Per a meeting between DelDOT and the developer on February 26, 2020, the interim improvements were further refined from those mentioned in the TIS and were identified to contain the following:

- Restripe the westbound Gills Neck Road approach to Kings Highway to provide two left turn lanes, and one shared through/right turn lane
- Lengthen the westbound Gills Neck Road shared through/right turn lane to provide 570 feet of storage.
- Restripe the southbound Kings Highway approach to Gills Neck Road to provide one left turn lane, one through lane, and one shared through/right turn lane
- Restripe southbound Kings Highway south of Gills Neck Road to provide two through lanes, the rightmost through lane would become a right-turn only lane onto Clay Road
- Construct a shared-use path along the western side of Kings Highway from the Gills Neck Road/Cape Henlopen High School Entrance intersection to the Clay Road intersection
- Provide a rights-in only entrance along Kings Highway across from the proposed Beebe Medical Center development
- Maintain the full movement entrance along Gills Neck Road across from the proposed Gills Neck Village Center access

The TIS Addendum analyzed these interim conditions based on a partial build of the site (117,000 square feet of medical/office space in 2023) without the Kings Highway Dual Lane project and with a rights-in access along Kings Highway (Case 3d). At the unsignalized Kings Highway/Site Entrance/Beebe Medical Site Entrance intersection, the eastbound Beebe Medical Site Entrance would experience capacity constraints during the Case 3d Saturday peak period (LOS F with 50.6 seconds of delay per vehicle). However, the projected 95th percentile queue length would be approximately 20 feet, which would have minimal impacts to the Beebe Medical Site Entrance.

At the unsignalized Gills Neck Road/Site Entrance/Gills Neck Village Center Entrance, the northbound Gills Neck Village Center Entrance would experience capacity constraints during the Case 3d weekday PM and Saturday peak periods (LOS F with 76.3 seconds of delay per vehicle). The projected 95th percentile queue length would be approximately 105 feet. As the design of this entrance would be the responsibility of the Gills Neck Village Center, additional improvements to mitigate the LOS deficiencies at this intersection during the Case 3d conditions would be unreasonable to assign to the Mitchell Farm developer.

At the unsignalized Kings Highway/Atlantic Drive intersection, the eastbound Atlantic Drive approach would experience capacity constraints during the Case 3d weekday PM and Saturday peak periods (LOS F with 164.8 seconds of delay per vehicle). However, the projected 95th percentile queue length would be approximately 80 feet, which could be accommodated within Atlantic Drive and not impact adjacent intersections.

At the signalized Kings Highway/Gills Neck Road/Cape Henlopen High School intersection, LOS deficiencies would continue to occur during the weekday AM, weekday PM, and Saturday peak periods under Case 3d conditions. However, the delays would reduce when compared to 2018 Existing Case 1 conditions during all peak periods. Specifically, during the Saturday peak period, the Case 1 delay is calculated to be 832.0 seconds per vehicle and under Case 3d conditions the delay would decrease to 366.8 seconds per vehicle. For the Saturday peak period, it should be noted that the proposed site entrance along Gills Neck Road is approximately 650 feet east of the Gills Neck Road/Kings Highway intersection. The projected 95th percentile queue length under Case 3d conditions during the Saturday peak period would be approximately 770 feet which would spillback past the Gills Neck Road site entrance. DBF analysis calculated a shorter 95th percentile queue length along westbound Gills Neck Road. However, the DBF analysis incorporated a longer signal cycle length and did not account for the signalization of Clay Road at Kings Highway.

With the future signalization of the Kings Highway/Clay Road intersection and the addition of an access on the easterly leg for the Gills Neck Village Center, the Kings Highway/Clay Road intersection would experience capacity constraints under Case 3d weekday PM and Saturday peak period conditions (LOS F with 165.2 seconds of delay per vehicle). The calculated 95th percentile queue length along the southbound Kings Highway approach to Clay Road would be approximately 2,300 feet during the weekday PM peak period and would impact operations at intersections upstream including the Kings Highway/Gills Neck Road intersection.

As interim improvements would reduce the delay at the Kings Highway and Gills Neck Road intersection prior to the completion of the Kings Highway Dual Lane project and improve operations along Kings Highway between the Beebe Medical Site Entrance and Clay Road compared to existing conditions, it is recommended that the developer implement the interim improvements as part of the partial build of the site (117,000 square feet of medical/office space).

Full Build Out of Site

The unsignalized Site Entrance along Kings Highway is proposed approximately 1,550 feet north of the northeast tangent point of the Gills Neck Road/Cape Henlopen High School Entrance intersection and exhibits LOS deficiencies during the AM, PM, and Saturday peak hours under future conditions with or without the proposed development and without completion of the Kings Highway Dual Lane project. These deficiencies occur along the eastbound Beebe Medical Entrance and the westbound Site Entrance approaches.

The provision of a signal and the completion of the Kings Highway Dual Lane project would improve the intersection to operate at LOS C (25.0 seconds of delay per vehicle) or better during all peak hours under future conditions, with or without the proposed development. However, these improvements should be part of the larger long-term improvement Kings Highway Dual Lane project. Therefore, we do not recommend the developer implement any improvements at this intersection. It is recommended that the developer coordinate with DelDOT on the implementation and equitable cost sharing of the Kings Highway Dual Lane project including the installation of a signal at this intersection.

The unsignalized Atlantic Drive intersection with Kings Highway exhibits LOS deficiencies during the PM and Saturday peak hours under future conditions, with or without the proposed development and without the completion of the Kings Highway Dual Lane project. These deficiencies can be mitigated through the completion of the Kings Highway Dual Lane project or signalization of the intersection. However, due to the proximity of the Atlantic Drive intersection to the proposed Kings Highway Site Entrance intersection and the Kings Highway/Gills Neck Road intersection, it is suggested that the Atlantic Drive approach to Kings Highway be modified to rights-in/rights-out only and remain unsignalized. The intersection will operate at acceptable LOS C (18.1 seconds of delay per vehicle) or better with a rights-in/rights out only restriction.

Additionally, interconnection should be provided between Henlopen Gardens and the proposed Beebe Medical development to minimize the number of U-turn movements at the adjacent signalized intersections. If interconnection is not feasible, U-turn movements could be provided at the adjacent signalized intersections as part of the Kings Highway Dual Lane project. These improvements should be part of the larger long-term improvement Kings Highway Dual Lane project. Therefore, we do not recommend the developer implement any improvements at this intersection. It is recommended that the developer coordinate with DelDOT on the implementation and equitable cost sharing of the Kings Highway Dual Lane project.

The signalized Gills Neck Road/Cape Henlopen High School Entrance intersection with Kings Highway exhibits LOS deficiencies during the AM, PM, and Saturday peak hours under existing and future conditions, with or without the proposed development and without the completion of the Kings Highway Dual Lane project. These deficiencies could be mitigated by the provision of one left turn lane, one shared left turn/through lane, and one right turn lane along westbound Gills Neck Road, the provision of one left turn lane, one through lane, and one right turn lane along the eastbound Cape Henlopen High School Entrance approach, the modification of the signal phasing along the eastbound and westbound approaches to split phase, and the completion of the Kings Highway Dual Lane project. These improvements would improve the intersection to operate at LOS D (54.9 seconds of delay per vehicle). The improvements that require widening of the roadway should be part of the larger long-term improvement Kings Highway Dual Lane project. Therefore, we recommend the developer implement only the interim improvements at this intersection and coordinate with DelDOT on the equitable cost sharing of the Kings Highway Dual Lane project.

The unsignalized Site Entrance along Gills Neck Road is proposed approximately 650 feet east of the northeast tangent point of the Kings Highway intersection and exhibits LOS deficiencies during the AM, PM, and Saturday peak hours under future conditions with the proposed development and with or without the completion of the Kings Highway Dual Lane project. Specifically, these deficiencies are only projected along the northbound Gills Neck Village Center Entrance with delays during the PM peak of 201.4 seconds per vehicle under Cases 3a and 3b conditions, and the calculated 95th percentile queue length would be approximately 113 feet. Although long delays are expected, they would occur at the Gills Neck Village Center Entrance and should not be the responsibility of the Mitchell Farm developer to mitigate as the Site Entrance for the Mitchell Farm (Zwaanendael Farm) site has already been constructed. As such, it is recommended that the Mitchell Farm developer maintain the full access at the Site Entrance.

The formerly unsignalized intersection of Clay Road with Kings Highway exhibited LOS deficiencies during the AM, PM, and Saturday peak hours under existing and future conditions, with or without the proposed development and with or without the completion of the Kings Highway Dual Lane project. DelDOT recently converted the intersection to a signalized intersection consistent with the recommendations from DelDOT's *Signal Justification Study US9 – Kings Highway (S268) & Clay Road (S269)*. The study also recommended a long-term improvement to determine the feasibility of converting the intersection to a roundabout or installing appropriate turn lanes as part of a larger project such as the Kings Highway Dual Lane project. Additionally, the Gills Neck Village Center development will construct a westbound approach to the intersection.

A TIS/TOA has not been completed for the Gills Neck Village Center development as previously contemplated. However, per the January 15, 2008, TIS review letter performed by McCormick Taylor for the original development proposed at the site (the Gills Neck Road Subdivision, Townsend Property), the westbound approach was recommended to provide two left turn lanes, one through lane, and one right turn lane opposite Clay Road. With the signalization of the intersection, the completion of the Kings Highway Dual Lane project, and the addition of auxiliary lanes along all approaches, the intersection would operate at acceptable LOS. Therefore, we recommend the Mitchell Farm developer only implement the interim improvements at the intersection. However, it is recommended that the Mitchell Farm developer coordinate with DelDOT on the implementation and equitable cost sharing of the improvements at this intersection as part of the Gills Neck Village Center development and the Kings Highway Dual Lane project. The improvements should include the provision of two left turn lanes along the westbound Gills Neck Village Center approach.

The unsignalized intersection of Kings Highway and Dartmouth Drive exhibits LOS deficiencies during the AM, PM, and Saturday peak hours under existing and future conditions with or without the development and with or without the Kings Highway Dual Lane project. The deficiencies at this intersection could be mitigated through the provision of a roundabout or a signal.

Per the January 15, 2008, TIS review letter for the Gills Neck Road Subdivision, improvements were recommended to modify the intersection to a single-lane roundabout with a bypass lane for

the southbound Kings Highway right-turn movement and a bypass lane for the northbound Kings Highway through movement. Should a roundabout be determined to be infeasible at this location, the January 15, 2008, TIS review letter also recommended the eastbound Dartmouth Drive approach be modified to provide an exclusive left-turn lane and a shared left turn/right turn lane as well provide a second receiving lane along northbound Kings Highway. However, these improvements are outside the scope of this TIS, as any extensive improvements to this intersection should be part of a larger long-term improvement project (such as the Kings Highway Dual Lane project). Therefore, we do not recommend the developer implement any improvements at this intersection. It is recommended that the developer coordinate with DelDOT on the equitable cost sharing of the Kings Highway Dual Lane project including either the installation of a roundabout or a signal at this intersection.

The unsignalized Bay Breeze Drive intersection with Kings Highway exhibits LOS deficiencies during the PM and Saturday peak hours under existing and future conditions, with or without the proposed development and with or without the completion of the Kings Highway Dual Lane project. These deficiencies could be mitigated through the provision of a signal or by restricting left-out movements from Bay Breeze Drive. However, these improvements are outside the scope of this TIS, as any extensive improvements to this intersection should be part of a larger long-term improvement project (such as the Kings Highway Dual Lane project). Therefore, we do not recommend the developer implement any improvements at this intersection.

The unsignalized Freeman Highway intersection with Kings Highway exhibits LOS deficiencies during the PM and Saturday peak hours under future conditions, with or without the proposed development and with or without the completion of the Kings Highway Dual Lane project. These deficiencies could be mitigated through the provision of a signal. However, these improvements are outside the scope of this TIS, as any extensive improvements to this intersection should be part of a larger long-term improvement project (such as the Kings Highway Dual Lane project). Therefore, we do not recommend the developer implement any improvements at this intersection.

It should be noted that the TIS analyzed the Freeman Highway intersection with Kings Highway with a different methodology from that used by JMT. Based on coordination with DelDOT's Planning and Traffic Studies Sections, it was agreed that JMT's approach to analyzing this intersection was more appropriate. However, the TIS methodology could be deemed the more appropriate approach if a gap study was conducted to further validate this method.

The unsignalized Savannah Road intersection with Kings Highway exhibits LOS deficiencies during the PM and Saturday peak hours under existing and future conditions with or without the proposed development. These deficiencies could be mitigated through the provision of a single lane roundabout or a signal. However, a roundabout is not feasible at this location due to the existing buildings adjacent to the intersection. Additionally, the deficiencies occur along the eastbound 3rd Street approach and the 95th percentile queue length along this approach under Case 3 conditions during the Saturday peak hour is approximately 255 feet which would not extend into the adjacent Chestnut Street intersection. Therefore, we do not recommend the developer implement any improvements at this intersection.

The signalized Front Street/Gills Neck Road intersection with Savannah Road exhibits LOS deficiencies during the Saturday peak hour under existing and future condition with or without the proposed development. These deficiencies could be mitigated through the provision of a single lane roundabout or an additional through lane along northbound and southbound Savannah Road. However, a roundabout is not feasible at this location due to the existing buildings adjacent to the intersection and widening Savannah Road may not be feasible at this location due to the existing draw bridge located along the northerly leg. Therefore, we do not recommend the developer implement any improvements at this intersection.

Should Sussex County approve the proposed development, the following items should be incorporated into the site design and reflected on the record plan. All applicable agreements (i.e. letter agreements for off-site improvements and traffic signal agreements) should be executed prior to entrance plan approval for the proposed development.

Interim Improvements

The following items should be incorporated as part of the partial build out of the site (117,000 square feet of medical/office space) or any land use not projected to exceed the daily or peak hour site traffic based on the partial build out of the site.

1. The developer should provide a bituminous concrete overlay to the existing travel lanes along the northbound Kings Highway site frontage in the area affected by entrance plan construction, including any auxiliary lanes, at DelDOT's discretion. DelDOT should analyze the existing lanes' pavement section and recommend an overlay thickness to the developer's engineer, if necessary.

2. The developer should construct a rights-in only site entrance for the proposed Mitchell Farm/Zwaanendael Farm development on Kings Highway, approximately 1,550 feet north of the northeast tangent point of the Gills Neck Road/Cape Henlopen High School Entrance intersection to be consistent with the lane configurations shown in the table below:

Approach	Current Configuration	Proposed Configuration
Eastbound Beebe Medical Entrance	Approach does not exist	One left turn lane and one right turn lane*
Westbound Site Entrance	Approach does not exist	One receiving lane for the rights-in movements**
Northbound Kings Highway	One through lane	One shared left turn/through lane and one right turn lane**
Southbound Kings Highway	One through lane	One through lane and one right turn lane*

*To be built by others

**To be built by developer by 2023 before the completion of the Mitchell Farm/Zwaanendael Farm medical/office space.

Based on DelDOT's *Development Coordination Manual*, the recommended minimum storage lengths (excluding taper) of the separate left turn and right turn lanes along Kings Highway are listed below. The calculated queue lengths from the HCS analysis can be accommodated within the recommended storage length.

Approach	Right Turn Lane
Northbound Kings Highway	290 feet
Southbound Kings Highway	115 feet*

*This storage length is the proposed storage length on the October 4, 2019, plans for the Beebe Medical Center and it should be built by the developer of that project.

The developer should submit a plan to DelDOT's Development Coordination section depicting the design of the signalized intersection as it could exist in 2027 and show the interim improvements in that context. The final design of the site entrance should be determined during the Entrance Plan review process.

3. The developer should maintain the existing site entrance for the proposed Mitchell Farm/Zwaanendael Farm development, approximately 650 feet east of the northeast tangent point of the Kings Highway intersection and directly across from the proposed Gills Neck Village Center Entrance to be consistent with the lane configurations shown in the table below:

Approach	Current Configuration	Proposed Configuration
Eastbound Gills Neck Road	One left turn lane and one through lane	One left turn lane, one through lane, and one right turn lane*
Westbound Gills Neck Road	One through lane and one right turn lane	One left turn lane**, one through lane, and one right turn lane
Northbound Gills Neck Village Center Entrance	Approach does not exist	One left turn/through lane and one right turn lane***
Southbound Site Entrance	One shared left turn/through lane and one right turn lane	No change

*Right turn lane to be built by others
**Left turn lane to be built by others
***Approach to be built by others

Based on DelDOT's *Development Coordination Manual*, the recommended minimum storage lengths (excluding taper) of the separate left turn and right turn lanes along Gills Neck Road are listed below. The calculated queue lengths from the HCS analysis can be accommodated within the recommended storage length.

Approach	Left Turn Lane	Right Turn Lane
Eastbound Gills Neck Road	120 feet*	190 feet**
Westbound Gills Neck Road	120 feet**	120 feet*

*This storage length is the existing storage length per the June 2018 Zwaanendael Farm Rezoning Sketch Plan and it should be maintained.
**To be built by others

As a TOA/TIS will be performed for the Gills Neck Village Center, the recommended lane configurations and storage lengths for the Gills Neck Village Center entrance may be modified based on those results.

4. The developer should restripe the Kings Highway and Gills Neck Road/Cape Henlopen High School Entrance intersection to be consistent with the lane configurations shown in the table below:

Approach	Current Configuration	Proposed Configuration
Eastbound Cape Henlopen High School	One shared left turn/through lane and one right turn lane	No change
Westbound Gills Neck Road	One left turn lane, one through lane, and one right turn lane	Two left turn lanes and one shared through/right turn lane
Northbound Kings Highway	One left turn lane, one through lane, and one right turn lane	No change
Southbound Kings Highway	One left turn lane, one through lane, and one right turn lane	One left turn lane, one through lane, and one shared through/right turn lane

The recommended minimum storage lengths (excluding taper) of the separate left turn and right turn lanes along Kings Highway and Gills Neck Road are listed below.

Approach	Left Turn Lane	Through/Right Turn Lane	Right Turn Lane
Northbound Kings Highway	250 feet*	-	180 feet*
Southbound Kings Highway	340 feet*	550 feet	-
Westbound Gills Neck Road	420 feet	570 feet**	-

*Storage lengths match the existing storage lengths per field conditions and should be maintained.
**Storage length does not match the existing storage length and requires lengthening.

The developer should restripe Kings Highway south of the Gills Neck Road intersection to provide two through lanes and the rightmost through lane should transition to a right turn only lane at the Clay Road intersection. The SUP should be constructed along Kings Highway to connect to Clay Road and the shoulder along Kings Highway should be eliminated.

The developer should enter into a traffic signal agreement with DelDOT for the intersection of Kings Highway with Gills Neck Road. The traffic signal agreement should include pedestrian signals, crosswalks, interconnection, and ITS equipment such as CCTV cameras at DelDOT's discretion. Prior to Entrance Plan approval, the developer should submit a plan to DelDOT Development Coordination section depicting the design of Kings Highway from Gills Neck Road to Clay Road. The final design should be determined during the Entrance Plan review process.

Full Build Out Improvements

The following items should be incorporated as part of the full build out of the site.

5. The developer should enter into an agreement with DelDOT to fund an equitable portion of improvements to the intersections of Kings Highway with Dartmouth Drive, Clay Road, Gills Neck Road/Cape Henlopen High School Entrance, Atlantic Drive, Freeman Highway, Bay Breeze Drive, and the Site Entrance/Beebe Medical Center Entrance as part of the *US 9, Kings Highway, Dartmouth Drive to Freeman Highway* project. The developer should coordinate with DelDOT on the implementation and equitable cost sharing of the improvements. The amount of right-of-way dedicated by the property owner for the DelDOT Project in excess of 50 feet from the centerline on Kings Highway and 40 feet from the centerline on Gills Neck Road that otherwise would have been purchased as part of the DelDOT project would be considered as part of the contribution towards the DelDOT project.

6. The developer should enter into an agreement with DelDOT to fund an equitable portion of improvements to the intersection of Clay Road and Marsh Road as part of the *Realignment of Old Orchard Road/Savannah Road/Wescoats Road* (DelDOT Contract No. T201609601) project. The project will improve the intersection of Marsh Road and Clay Road to eliminate the existing skewed angle of the intersection. The developer should coordinate with DelDOT on the implementation and equitable cost sharing of the Clay Road and Marsh Road intersection improvements.

7. Vehicular interconnections or cross access easements between the on-site lots should be provided. The developer should coordinate with DelDOT's Development Coordination Section to determine the locations and feasibilities of the interconnections.

8. The following bicycle, pedestrian, and transit improvements should be included:

    a. A minimum fifteen-foot wide permanent easement from the edge of the right-of-way should be dedicated to DelDOT along the Kings Highway site frontage. Within the easement, the developer should construct a ten-foot wide shared-use path (SUP) to meet the shared-use path recently constructed for Lot 1. The developer should coordinate with DelDOT's Development Coordination section during the plan review process to identify the exact location of the SUP.

    b. An accessway should be provided from the SUP into the site for Lots 1 through 5.

    c. Where internal sidewalks are located alongside of parking spaces, a buffer, physical barrier or signage should be added to eliminate vehicular overhang onto the sidewalk.

    d. The tie-in installed for Lot 1 should be removed once the SUP is extended along the entire property frontage.

    e. ADA compliant curb ramps and marked crosswalks should be provided along the Kings Highway Site Entrance approach to Kings Highway. The use of diagonal curb ramps is discouraged.

    f. Minimum five-foot wide bicycle lanes should be incorporated in the right turn lane and shoulder along the northbound Kings Highway approach to the Kings Highway Site Entrance.

    g. Utility covers should be moved outside of any designated bicycle lanes and any proposed sidewalks/shared-use paths or should be flush with the pavement.

h. Bike parking should be provided near the building entrances. Where the building architecture provides for an awning or other overhang, the bike parking should be covered.

i. A Type 2 bus stop should be installed at the Kings Highway Site Entrance intersection. The developer should coordinate with DART and DelDOT on the location, design, as well as the amenities to provide.

Please note that this review generally focuses on capacity and level of service issues; additional safety and operational issues will be further addressed through DelDOT's Plan Review process.

Improvements in this TIS may be considered "significant" under DelDOT's *Work Zone Safety and Mobility Procedures and Guidelines*. These guidelines are available on DelDOT's website at https://www.deldot.gov//Publications/manuals/de_mutcd/index.shtml. For any additional information regarding the work zone impact and mitigation procedures during construction please contact Mr. Jeff VanHorn, Assistant Director for Traffic Operations and Management. Mr. VanHorn can be reached at (302) 659-4606 or by email at Jeffrey.VanHorn@delaware.gov.

Additional details on our review of the TIS are attached. Please contact me at (302) 266-9600 if you have any questions concerning this review.

Sincerely,
Johnson, Mirmiran, and Thompson, Inc.

Joanne M. Arellano, P.E., PTOE

cc: Mir Wahed, P.E., PTOE
Janna Brown, E.I.T.

Enclosure

General Information

Report date: November 2019
Prepared by: Davis, Bowen & Friedel, Inc.
Prepared for: The Mitchell Family Ltd. Partnership
Tax Parcel: 335-8.00-37.00
Generally consistent with DelDOT's *Development Coordination Manual (DCM)*: Yes

Project Description and Background

Description: The developer seeks to develop 206,500 square feet of medical-dental office space, 60 single-family detached houses, and 150 multi-family mid-rise dwelling units.
Location: The subject site is located on the northeast corner of the intersection of Kings Highway (Sussex Road 268) and Gills Neck Road (Sussex Road 267) in Sussex County, Delaware.
Amount of Land to be developed: An approximately 52.71-acre parcel.
Land Use approval(s) needed: Rezoning and Entrance Plan.
Proposed completion date: 2027.
Proposed access location: Two full access points are proposed: one along Kings Highway directly opposite the proposed site access for the Beebe Medical development and one along Gills Neck Road opposite the site access for the proposed Gills Neck Village Center commercial project.

Daily Traffic Volumes:

- 2018 Average Annual Daily Traffic on Kings Highway: 13,019 vehicles per day (non-Summer)
- 2018 Average Annual Daily Traffic on Gills Neck Road: 4,995 vehicles per day (non-Summer)

Site Map

**Graphic is an approximation based on the Rezoning Sketch Plan prepared by* Davis, Bowen & Friedel, Inc. *dated June 2018.*

Relevant and On-going Projects

DelDOT has several relevant and ongoing improvement projects within the study area including the *Realignment of Old Orchard Road/Savannah Road/Wescoats Road* (DelDOT Contract No. T201609601) project. The project will realign Old Orchard Road to intersect Savannah Road at its intersection with Wescoats Road. Additionally, the project will improve the intersection of Marsh Road and Clay Road to eliminate the existing skewed angle of the intersection. Construction is anticipated to begin in 2023.

Per direction from the DelDOT Traffic Section, a signal at the Kings Highway and Clay Road intersection was recently installed. DelDOT completed the *Signal Justification Study US9 – Kings Highway (S268) & Clay Road (S269)* in February 2020. As part of the study, field observations were conducted, existing sight distances were assessed, crashes were reviewed, intersection analyses were performed, and warrant analyses based on the DE MUTCD were evaluated. The

crash evaluation reviewed data from August 7, 2014 to January 23, 2020 which identified one fatal angle crash. Four of the DE MUTCD Traffic Signal Warrants were met which included the eight-hour, four-hour, and peak-hour vehicular warrants as well as the Alternative Crash Experience Warrant (IA-19.3). Various improvement options were evaluated as part of the study, including the implementation of all-way-stop-control and installation of a roundabout or signal. The study recommended the short-term improvement to install a traffic signal. A long-term improvement to determine the feasibility of converting the intersection to a roundabout or installing appropriate turn lanes was recommended.

In October 2015 a collaborative effort by DelDOT, Delaware Greenways, and other groups developed the *Corridor Management Plan* for the Lewes Scenic and Historic Byway. This was done as part of the *Delaware Byways Program*. The *Delaware Byways Program* includes the identification, promotion, preservation, and enhancement of Delaware roadways with at least one of the following qualities: scenic, historic, natural, cultural, recreational, and archaeological. The Lewes Scenic and Historic Byway traverses through the City of Lewes and extends into Sussex County on the following roads: New Road, Pilot Town Road, Savannah Road, Cape Henlopen Drive, Gills Neck Road, and Kings Highway. Recommendations from the plan for Kings Highway include considering options for narrow or wide medians and opportunities for linking together isolated parcels in a gridded circulation network. Additionally, at the Kings Highway/Gills Neck Road intersection, the plan recommends the consideration of options that accommodate planned pedestrian and bicycle pathways and movements. More information about the Corridor Management Plan can be found here: https://deldot.gov/Programs/byways/index.shtml?dc=cmp

The *Kings Highway and Gills Neck Road Master Plan* dated September 2016 is an early action project of the Lewes Scenic and Historic Byway Corridor Management Plan. The purpose of the Master Plan is to establish a vision for Kings Highway and Gills Neck Road. The Master Plan recommends two travel lanes per direction and a boulevard design along Kings Highway. From north of Gills Neck Road to Freeman Highway, the Master Plan recommends one travel lane per direction with a center turn lane along Kings Highway. Additionally, a roundabout and a signal are recommended at the Dartmouth Drive and Clay Road intersections, respectively. Along Gills Neck Road, one travel lane per direction with a boulevard design is recommended. More information about the Master Plan can be found here:
https://deldot.gov/Programs/byways/pdfs/lewes_cmp/KHGN_MasterPlan_092616finalrx.pdf?cache=1582120567909

The *US 9, Kings Highway, Dartmouth Drive to Freeman Highway* project is planned to implement the improvements recommended by the Master Plan. A DelDOT Contract Number does not exist for the recommended improvements yet. Based on the proposed CTP FY 20 thru FY 26 Spending Plan, design is projected to start Fiscal Year 2022 and construction is projected to start Fiscal Year 2026.

Additionally, the Delaware River and Bay Authority (DRBA) *Freeman Highway Rehabilitation* project (Contract No. 20191619-00) includes the repaving of Freeman Highway from south of the intersection with Bay Breeze Drive to the intersection with Cape Henlopen Drive.

Livable Delaware
(Source: Delaware Strategies for State Policies and Spending, 2015)

Location with respect to the Strategies for State Policies and Spending Map of Delaware:
The proposed development is located within the Investment Level 1 area.

Investment Level 1

These areas are often municipalities, towns, or urban/urbanizing places in counties where density is generally higher than in surrounding areas. In Investment Level 1 Areas, state investments and policies should support and encourage a wide range of uses and densities, promote other transportation options, foster efficient use of existing public and private investments, and enhance community identity and integrity. Overall, it is the state's intent to use its spending and management tools to maintain and enhance community character, to promote well-designed and efficient new growth, and to facilitate redevelopment in Investment Level 1 Areas.

In Level 1 Areas the state's first priority will be for preserving existing facilities and making safety improvements. Level 1 areas will also be the highest priority for context sensitive transportation system capacity enhancements, transit-system enhancements, ADA accessibility, and for closing gaps in the pedestrian system, including the Safe Routes to School projects. Further, Level 1 areas are the first priority for planning projects and studies, bicycle facilities, signal-system enhancements, and the promotion of interconnectivity between neighborhoods and public facilities.

Proposed Development's Compatibility with Livable Delaware:
The proposed development is located in the Investment Level 1 area. According to Livable Delaware, Level 1 areas support and encourage a wide range of uses and enhance community identity and integrity. The proposed project is a mixed-use development that will support the ongoing development in the surrounding area. Therefore, the proposed development is generally consistent with the 2015 update of the Livable Delaware "Strategies for State Policies and Spending."

Comprehensive Plans
(Source: Sussex County March 2019 Comprehensive Plan)

Sussex County Comprehensive Plan:
Per the *Sussex County Comprehensive Plan Future Land Use Map,* the proposed development is in an area designated as Coastal Area.

Proposed Development's Compatibility with the Sussex County Comprehensive Plan:
Per the *Sussex County Comprehensive Plan Future Land Use Map,* the proposed development is in an area designated as Coastal Area. A range of housing types are appropriate in Coastal Areas, including single-family homes and multifamily units, as well as office and mixed-use developments. Therefore, the proposed development is generally consistent with the *Sussex County March 2019 Comprehensive Plan.*

Trip Generation

The trip generation for the proposed development was determined by using the comparable land use and rates/equations contained in the *Trip Generation, 10th Edition: An ITE Informational Report*, published by the Institute of Transportation Engineers (ITE) for ITE Land Use Code 210 (Single-Family Detached Housing), Land Use Code 221 (Multifamily Mid-Rise Housing), and Land Use Code 720 (Medical-Dental Office Building). The trip generation was approved by DelDOT during the PTIS review as well as the review of the TIS Addendum.

Table 1
Mitchell Farm (Zwaanendael Farm) Trip Generation – Full Build Out

Land Use	**ADT**	**AM Peak Hour**			**PM Peak Hour**			**SAT Peak Hour**		
		In	Out	Total	In	Out	Total	In	Out	Total
60 Single-Family Detached Houses (ITE Code 210)	650	12	35	47	39	23	62	37	31	68
150 Multifamily Mid-Rise Houses (ITE Code 221)	816	13	38	51	40	25	65	34	36	70
206,500 SF Medical-Dental Office Building (ITE Code 720)	7,846	332	94	426	197	505	702	552	417	969
Total Trips	**9,312**	**357**	**167**	**524**	**276**	**553**	**829**	**623**	**484**	**1,107**
Internal Capture	44	1	1	2	5	5	10	6	6	12
New Trips	**9,268**	**356**	**166**	**522**	**271**	**548**	**819**	**617**	**478**	**1,095**

Mitchell Farm (Zwaanendael Farm) Trip Generation – Partial Build Out (Case 3d)

Land Use	**ADT**	**AM Peak Hour**			**PM Peak Hour**			**SAT Peak Hour**		
		In	Out	Total	In	Out	Total	In	Out	Total
117,000 SF Medical-Dental Office Building (ITE Code 720)	1,003	200	57	257	112	287	399	300	227	527

Overview of TIS

Intersections examined:

1. Kings Highway (Sussex Road 268)/Site Entrance/Beebe Medical Site Entrance
2. Gills Neck Road (Sussex Road 267)/Site Entrance/Gills Neck Village Center Site Entrance
3. Kings Highway/Bay Breeze Drive
4. Kings Highway/Freeman Highway (Sussex Road 23)
5. Kings Highway/Savannah Road (Sussex Road 18)
6. Savannah Road/Gills Neck Road/Front Street (Sussex Road 267)
7. Kings Highway/Atlantic Drive *(City of Lewes)*
8. Kings Highway/Gills Neck Road/Cape Henlopen High School Entrance
9. Kings Highway/Clay Road (Sussex Road 269)
10. Clay Road/Marsh Road (Sussex Road 269B)
11. Kings Highway/Dartmouth Drive (Sussex Road 268A)

Conditions examined:

TIS

1. Case 1 – Existing (2018)
2. Case 2a – 2027 without development and without the Kings Highway dual lanes project
   Case 2b – 2027 without development and with the Kings Highway dual lanes project
3. Case 3a – 2027 with development and without the Kings Highway dual lanes project
   Case 3b – 2027 with development and with the Kings Highway dual lanes project
   Case 3c – 2027 with development, without the Kings Highway dual lanes project, and without an entrance along Kings Highway
4. Case 4 – 2027 with development and with the Kings Highway dual lanes project with additional improvements

TIS Addendum

1. Case 2d – Future 2023 with development of Lot 1 (39,000 square feet of medical/dental office space) and without the Kings Highway Dual Lane Project
2. Case 3d – Future 2023 with 117,000 square feet of medical/dental office space, without the Kings Highway Dual Lane Project, and rights-in site entrance on Kings Highway

Committed Developments considered:

1. Gills Neck Village Center (75,000 square foot shopping center, 213 single family homes on the residual lands)
2. Governors (287 single-family detached houses, 136 multi-family low-rise dwelling units)

3. Beebe Medical (175-unit continuing care retirement, 140 multi-family low-rise dwelling units)
4. Showfield (252 single-family detached houses: *86 units proposed in the City of Lewes, 166 units recorded in Sussex County*)
5. White's Pond Meadow-Gills Neck Road (79 single-family detached homes)
6. Admirals Chase (26 semi-detached houses)
7. Cape Henlopen High School Expansion (400 students)
8. The Moorings at Lewes, formerly known as Cadbury, expansion (32-unit Continuing Care Retirement Center)

*Note: Committed development information provided in the TIS supersedes the information provided in the July 3, 2018 DelDOT Scoping Meeting Memorandum. DelDOT provided future year 2027 Case 2 projections based on the DelDOT Travel Demand Model that includes background growth as well as traffic from the eight committed developments.

Peak hours evaluated: Weekday morning, Weekday evening, and Summer Saturday midday peak hours.

Intersection Descriptions

1. **Kings Highway (Sussex Road 268)/Site Entrance/Beebe Medical Site Entrance**
   Type of Control: Proposed two-way stop-controlled intersection (four-legged intersection)
   Eastbound Approach: (Beebe Site Access) Proposed one shared left turn/through lane and one right turn lane, stop-controlled
   Westbound Approach: (Site Entrance) Proposed one shared left turn/through lane and one right turn lane, stop-controlled
   Northbound Approach: (Kings Highway) Existing one through lane; proposed one left turn lane, one through lane, and one right turn lane
   Southbound Approach: (Kings Highway) Existing one through lane; proposed one left turn lane, one through lane, and one right turn lane

2. **Gills Neck Road (Sussex Road 267)/Site Entrance/Gills Neck Village Center Site Entrance**
   Type of Control: Proposed two-way stop-controlled intersection (four-legged intersection)
   Eastbound Approach: (Gills Neck Road) Existing one through lane; proposed one left turn lane, one through lane, and one right turn lane
   Westbound Approach: (Gills Neck Road) Existing one through lane; proposed one left turn lane, one through lane, and one right turn lane
   Northbound Approach: (Gills Neck Village Center Entrance) Proposed one shared left turn/through lane and one right turn lane, stop-controlled

Southbound Approach: (Site Entrance) Proposed one shared left turn/through lane and one right turn lane, stop-controlled

3. **Kings Highway/Bay Breeze Drive**
   Type of Control: Existing stop-controlled intersection
   Westbound Approach: (Bay Breeze Drive) Existing one left-turn lane and one right-turn lane, stop-controlled
   Northbound Approach: (Kings Highway) Existing one shared through lane/channelized right-turn lane
   Southbound Approach: (Kings Highway) Existing two through lanes and one left-turn lane (stop-controlled)

4. **Kings Highway/Freeman Highway (Sussex Road 23)**
   Type of Control: Existing stop-controlled intersection
   Northbound Approach: (Kings Highway) Existing one left-turn lane (stop-controlled) and one through lane
   Southbound Approach: (Freeman Highway) Existing one through lane and one channelized right-turn lane (stop-controlled)

5. **Kings Highway/Savannah Road (Sussex Road 18)**
   Type of Control: Existing two-way stop-controlled intersection (four-legged intersection)
   Eastbound Approach: (3rd Street) Existing one shared through/left-turn lane and one right-turn lane, stop controlled
   Westbound Approach: (Kings Highway) Existing one shared through/left-turn lane and one right-turn lane, stop controlled
   Northbound Approach: (Savannah Road) Existing one left-tun lane and one shared through/right-turn lane
   Southbound Approach: (Savannah Road) Existing one left-tun lane and one shared through/right-turn lane

6. **Savannah Road/Gills Neck Road/Front Street (Sussex Road 267)**
   Type of Control: Existing signalized intersection (four-legged)
   Eastbound Approach: (Front Street) Existing one left turn lane and one shared through/right turn lane
   Westbound Approach: (Gills Neck Road) Existing one shared left turn/through/right turn lane
   Northbound Approach: (Savannah Road) Existing one left turn lane and one shared through/right turn lane

Southbound Approach: (Savannah Road) Existing on left turn lane and one shared through/right turn lane

7. **Kings Highway/Atlantic Drive**
   Type of Control: Existing two-way stop-controlled intersection (T-intersection)
   Eastbound Approach: (Atlantic Drive) Existing one shared left-turn/right-turn lane, stop-controlled
   Northbound Approach: (Kings Highway) Existing one shared left-turn/through lane
   Southbound Approach: (Kings Highway) Existing one shared through/right-turn lane

8. **Kings Highway/Gills Neck Road/Cape Henlopen High School Entrance**
   Type of Control: Existing signalized intersection (four-legged)
   Eastbound Approach: (Cape Henlopen High School Entrance) Existing one shared left turn/through lane and one right turn lane
   Westbound Approach: (Gills Neck Road) Existing one left turn lane, one through lane, and one right turn lane
   Northbound Approach: (Kings Highway) Existing one left turn lane, one through lane, and one right turn lane
   Southbound Approach: (Kings Highway) Existing one left turn lane, one through lane, and one right turn lane

9. **Kings Highway/Clay Road (Sussex Road 269)**
   Type of Control: Existing two-way stop-controlled intersection (T-intersection)
   Eastbound Approach: (Clay Road) Existing one shared left turn/right turn lane, stop-controlled
   Northbound Approach: (Kings Highway) Existing one shared left turn/through lane
   Southbound Approach: (Kings Highway) Existing one shared through/right turn lane

10. **Clay Road (Sussex Road 269) and Marsh Road (Sussex Road 269B)**
    Type of Control: Existing two-way stop-controlled intersection (T-intersection)
    Eastbound Approach: (Clay Road) Existing one shared through/right turn lane
    Westbound Approach: (Clay Road) Existing one shared through/left turn lane
    Northbound Approach: (Marsh Road) Existing one left-turn lane and one right-turn lane, stop-controlled.

11. **Kings Highway (Sussex Road 268) and Dartmouth Drive (Sussex Road 268A)**
    Type of Control: Existing two-way stop-controlled intersection
    Eastbound Approach: (Dartmouth Drive) Existing one shared left turn/right turn lane, stop-controlled

Northbound Approach: (Kings Highway) One left-turn lane and one through lane
Southbound Approach: (Kings Highway) One through lane and one channelized right-turn lane

Transit, Pedestrian, and Bicycle Facilities

Existing transit service: Per DelDOT Gateway, Delaware Transit Corporation (DTC) currently does not provide existing services within the study area.

Planned transit service: Per email correspondence on February 11, 2020 with Mr. Jared Kauffman, Fixed-Route Planner at the DTC, a Type 2 bus stop has been installed at the intersection of Kings Highway and Gills Neck Road/Cape Henlopen High School Entrance. An additional Type 2 bus stop should be installed along northbound Kings Highway at the intersection with the site entrance. Additionally, a sidewalk/SUP interconnection should be provided between the site and the adjacent Bay Breeze Estates.

Existing bicycle and pedestrian facilities: According to DelDOT's *Lewes & Rehoboth Beach Area Bicycle Map*, two Connector Bicycle Routes and one Regional Bicycle Route exist within the study area. One Connector Bicycle Route travels along Gills Neck Road, beginning at the study intersection with Savannah Road, traversing through one study intersection (Site Entrance) intersecting with another Connector Bicycle Route at the study intersection of Kings Highway. The other Connector Bicycle Route exists along Kings Highway and traverses through seven of the study intersections (Freeman Highway, Bay Breeze Drive, Site Entrance, Atlantic Drive, Gills Neck Road/Cape Henlopen High School Entrance, Clay Road, and Dartmouth Drive). The Regional Bicycle Route exists along Savannah Road and traverses through one study intersection (Gills Neck Road/Front Street) Pedestrian facilities currently exist at four of the study intersections: Savannah Road/Gills Neck Road/Front Street, Kings Highway/Savannah Road, Kings Highway/Gills Neck Road/Cape Henlopen High School Entrance, and Gills Neck Road/Site Entrance.

Planned bicycle and pedestrian facilities: Per email correspondence on February 12, 2020 from Mr. John Fiori, DelDOT's Bicycle Coordinator, the following improvements were recommended:

- The existing 10-foot wide shared-use path (SUP) should be extended along the Kings Highway site frontage. Once the SUP is extended, the existing tie-in installed for Minor Subdivision Lot 1 shall be removed (including pipe), top soiled, seeding, mulched, and re-graded to assure positive drainage.
- An internal sidewalk/SUP connection is required from the SUP into the site for Lots 1 thru 5.
- Internal bicycle racks should be provided at all Lots.
- Revise design of SUP from Type 2 ramp on the egress side to Type 1 ramp.
- Per the DCM, the site shall dedicate right-of-way per the roadway classification and establish a 15-foot wide permanent easement along the property frontage.
- All entrance, roadway and/or intersection improvements required shall incorporate bicycle and pedestrian facilities. Per the DCM, if the right turn lane is warranted, then a bike lane

shall be incorporated along the right turn lane; if a left turn lane is required any roadway improvements shall include a shoulder matching the roadway classification or existing conditions.

Bicycle Level of Traffic Stress in Delaware: Researchers with the Mineta Transportation Institute developed a framework to measure low-stress connectivity, which can be used to evaluate and guide bicycle network planning. Bicycle LTS analysis uses factors such as the speed of traffic, volume of traffic, and the number of lanes to rate each roadway segment on a scale of 1 to 4, where 1 is a low-stress place to ride and 4 is a high-stress place to ride. It analyzes the total connectivity of a network to evaluate how many destinations can be accessed using low-stress routes. Developed by planners at the Delaware Department of Transportation (DelDOT), the bicycle Level of Traffic Stress (LTS) model will be applied to bicycle system planning and evaluation throughout the state. The Bicycle LTS for the roadways under existing conditions along the site frontage are summarized below. The Bicycle LTS was determined utilizing the map on the DelDOT Gateway.

- Kings Highway – LTS: 3 and 4
- Gills Neck Road – LTS: 4

Crash Evaluation

Per the crash data included in the TIS from July 25, 2015 to July 25, 2018 and provided by the Delaware Crash Analysis Reporting System, a total of 166 crashes were reported within the study area. The TIS reports that 89 of these crashes are relevant within the study area and intersections. 19 of these crashes occurred within the functional area of the intersection of Kings Highway and Clay Road, 18 occurred within the functional area of the intersection of Kings Highway and Gills Neck Road/Cape Henlopen High School Access, 17 occurred within the functional area of Savannah Road/Kings Highway/3rd Street, and 11 occurred within the function area of Savannah Road/Front Street/Gills Neck Road. No fatalities occurred within the study area over the 3-year period.

A crash evaluation was also completed as part of DelDOT's *Signal Justification Study US9 – Kings Highway (S268) & Clay Road (S269)* in February 2020. As part of the study, a crash evaluation reviewed data from August 7, 2014 to January 23, 2020 which identified one fatal angle crash at the Kings Highway and Clay Road intersection. The installation of a traffic signal was identified in the study as a short-term improvement which is expected to be implemented prior to Summer of 2021.

Previous Comments

Comments from DelDOT from the Preliminary Traffic Impact Study (PTIS) were addressed in the final TIS.

General HCS Analysis Comments

(See table footnotes on the following pages for specific comments)

1. For the intersection analyses, the TIS used HCS7 version 7.8, whereas JMT used HCS7 version 7.8.5. The TIS Addendum did utilize HCS7 version 7.8.5.

2. Per DelDOT's *Development Coordination Manual*, JMT used a heavy vehicle percentage of 3% for each movement greater than 100 vph in the Case 2 and Case 3 future scenario analyses, unless the existing heavy vehicle percentage was greater than 3% and there was no significant increase of vehicles along that movement, in which case the existing heavy vehicle percentage was used for analysis of future scenarios. The TIS utilized various heavy vehicle percentages.

3. Per DelDOT's *Development Coordination Manual* and coordination with DelDOT Planning, JMT used a heavy vehicle percentage of 5% for each movement less than 100 vph along roadways and site entrances, whereas the TIS did in some locations.

4. Per DelDOT's *Development Coordination Manual,* both the TIS and JMT utilized the existing PHF for the Case 1 scenario and a future PHF for Cases 2 and 3 scenarios of 0.80 for roadways with less than 500 vph, 0.88 for roadways between 500 and 1,000 vph, and 0.92 for roadways with more than 1,000 vph or the existing PHF, whichever was higher, unless DelDOT-approved calibrated PHFs were provided by the TIS. JMT did not alter any PHFs for cases without widening, whereas the TIS utilized altered PHFs.

5. Per DelDOT's *Development Coordination Manual,* JMT and the TIS utilized a base saturation flow rate of 1,750 pc/h/ln at all intersections.

6. JMT utilized bicycle and pedestrian counts consistent with the existing turning movement counts whereas the TIS did not.

7. At the signalized intersections, JMT increased right turn on red volumes proportionally with volume increases, whereas the TIS maintained existing right turn on red volumes.

8. At the unsignalized intersections, differences in critical headways and follow-up headways were noticed between the TIS and JMT's analysis. JMT utilized the HCS7 Version 7.8.5 default values.

9. At the unsignalized intersections, the TIS utilized proportion of time spent blocked at the intersections based on field views. The TIS utilized the highest proportion of time spent blocked that would be able to provide an HCS output, which resulted in inconsistent values being used. It is recognized that existing delays may be longer than what is calculated in the JMT analysis due to blocked side streets especially during Cape May-Lewes Ferry arrival/departure times. However, JMT analyzed the intersections with no proportion of

time spent blocked input in order to provide a comparable baseline between cases and peaks.

10. The analysis includes scenarios with or without the *US 9, Kings Highway, Dartmouth Drive to Freeman Highway* DelDOT project. As part of the project, Kings Highway is proposed to be widened to provide two through lanes in each direction.

11. Three separate Case 3 scenarios were included in the analysis:

    - Case 3a – Future 2027 with development and without the Kings Highway Dual Lane project.

    - Case 3b – Future 2027 with development and with the Kings Highway Dual Lane project. As part of this scenario, Atlantic Drive is assumed to only provide rights-in/rights-out movements along Kings Highway and an interconnection would exist between Atlantic Drive and the Beebe Medical Center.

    - Case 3c – Future 2027 with development and without the Kings Highway Dual Lane project and without a site entrance along Kings Highway.

12. The analysis also includes the TIS Addendum which reviewed the following scenarios:

    Case 2d – Future 2023 with development of Lot 1 (39,000 square feet of medical/dental office space) and without the Kings Highway Dual Lane Project

    - Case 3d – Future 2023 with 117,000 square feet of medical/dental office space, without the Kings Highway Dual Lane Project, and rights-in site entrance on Kings Highway

13. The analyses highlighted in gray represent the JMT interim recommendations as part of the TIS Review letter.

14. The analyses highlighted in blue represent the JMT suggested improvements with the full build of the proposed development.

Table 2
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/Site Entrance	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development and without Kings Highway Dual Lane Project (Case 2a) [2]						
Northbound Kings Highway Left Turn	A (8.7)	F (90.3)	F (58.2)	A (8.7)	B (12.0)	B (11.1)
Eastbound Beebe Medical Entrance	B (14.9)	F (*)	F (*)	B (14.2)	E (42.9)	E (45.0)
2027 without Development and with Kings Highway Dual Lane Project (Case 2b) [3]						
Northbound Kings Highway Left Turn	-	-	-	A (8.7)	B (12.1)	B (11.2)
Eastbound Beebe Medical Entrance	-	-	-	B (11.5)	D (25.8)	C (23.7)
2023 with development of Lot 1 (39,000 square feet of medical/dental office space) and without the Kings Highway Dual Lane Project (Case 2d)[2]						
Northbound Kings Highway Left Turn	A (8.6)	F (136.9)	F (74.3)	A (8.6)	B (10.3)	B (10.6)
Eastbound Beebe Medical Entrance	B (14.4)	F (*)	F (*)	B (13.8)	D (26.5)	D (32.0)

*HCS reported delay greater than 1000 seconds per vehicle

[1] For signalized and unsignalized analysis, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.
[2] For the PM and Saturday peak periods, the TIS utilized various values for proportion of time blocked whereas JMT utilized the default value of 0.
[3] For this scenario, JMT incorporated two through lanes in each direction along Kings Highway.

Table 2
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/Site Entrance	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development and without Kings Highway Dual Lane Project (Case 3a) [2]						
Northbound Kings Highway Left Turn	A (8.7)	F (259.0)	F (162.7)	A (8.7)	B (12.0)	B (11.1)
Southbound Kings Highway Left Turn	B (10.3)	B (10.9)	C (16.5)	B (10.3)	B (10.9)	C (16.5)
Eastbound Beebe Medical Entrance	C (19.5)	F (*)	F (*)	C (17.9)	F (130.8)	F (358.0)
Westbound Site Entrance	F (78.6)	F (*)	F (*)	F (59.4)	F (*)	F (*)
2027 with Development and with Kings Highway Dual Lane Project (Case 3b) [3]						
Northbound Kings Highway Left Turn	A (8.9)	B (12.6)	B (11.4)	A (8.9)	B (12.6)	B (11.4)
Southbound Kings Highway Left Turn	B (10.3)	B (10.9)	C (16.5)	B (10.3)	B (10.9)	C (16.5)
Eastbound Beebe Medical Entrance	C (20.8)	F (144.8)	F (468.9)	C (19.1)	F (78.9)	F (340.4)
Westbound Site Entrance	F (55.5)	F (*)	F (*)	E (44.7)	F (*)	F (*)
2027 with Development, without Kings Highway Dual Lane Project and no site entrance on Kings Highway (Case 3c) [2]						
Northbound Kings Highway Left Turn	A (8.9)	F (90.3)	E (48.1)	A (8.9)	B (12.4)	B (11.9)
Eastbound Beebe Medical Site Entrance	C (16.3)	F (*)	F (*)	C (15.4)	F (53.3)	F (67.4)

*HCS reported delay greater than 1000 seconds per vehicle

Table 2 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control[1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/Site Entrance	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2023 with 117,000 square feet of medical/dental office space, without the Kings Highway Dual Lane Project, and rights-in site entrance on Kings Highway (Case 3d) [2]						
Northbound Kings Highway Left Turn	A (8.7)	B (10.4)	B (10.8)	A (8.7)	B (10.4)	B (10.8)
Eastbound Beebe Medical Site Entrance	C (16.1)	E (40.9)	F (64.4)	C (15.2)	D (34.7)	F (50.6)

*HCS reported delay greater than 1000 seconds per vehicle

Note: Analysis highlighted in gray represents the JMT interim recommendations

Table 2 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Roundabout[1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/Site Entrance	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development and without Kings Highway Dual Lane Project (Case 2a) [4]						
Eastbound Beebe Medical Entrance	-	-	-	A (5.3)	B (11.5)	A (10.0)
Northbound Kings Highway	-	-	-	A (8.9)	B (12.5)	D (32.7)
Southbound Kings Highway	-	-	-	A (7.0)	E (39.2)	C (21.5)
Overall Intersection	-	-	-	A (8.0)	D (27.7)	D (27.2)
2027 without Development and with Kings Highway Dual Lane Project (Case 2b) [3,5]						
Eastbound Beebe Medical Entrance	-	-	-	A (4.6)	A (8.8)	A (7.8)
Northbound Kings Highway	-	-	-	A (5.1)	A (5.9)	A (7.5)
Southbound Kings Highway	-	-	-	A (4.5)	A (7.8)	A (7.0)
Overall Intersection	-	-	-	A (4.9)	A (7.0)	A (7.2)

*HCS reported delay greater than 1000 seconds per vehicle

[4] JMT modeled the intersection as a single-lane roundabout.
[5] JMT modeled the intersection as a dual-lane roundabout.

Table 2 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Roundabout	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/Site Entrance	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development and without Kings Highway Dual Lane Project (Case 3a) [4]						
Eastbound Beebe Medical Entrance	-	-	-	A (6.1)	C (15.0)	B (14.0)
Westbound Site Entrance	-	-	-	A (7.7)	C (20.5)	E (37.8)
Northbound Kings Highway	-	-	-	B (13.9)	C (20.1)	F (163.0)
Southbound Kings Highway	-	-	-	A (8.6)	F (131.9)	F (90.8)
Overall Intersection	-	-	-	B (11.4)	F (75.5)	F (121.1)
2027 with Development and with Kings Highway Dual Lane Project (Case 3b) [3, 5]						
Eastbound Beebe Medical Entrance	-	-	-	A (5.3)	B (11.2)	B (11.0)
Westbound Site Entrance	-	-	-	A (6.7)	B (14.8)	C (21.8)
Northbound Kings Highway	-	-	-	A (6.5)	A (7.1)	B (12.1)
Southbound Kings Highway	-	-	-	A (5.4)	B (11.7)	B (10.1)
Overall Intersection	-	-	-	A (6.1)	B (10.2)	B (12.1)

*HCS reported delay greater than 1000 seconds per vehicle

Table 2 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Roundabout	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/Site Entrance	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development, without Kings Highway Dual Lane Project and no site entrance on Kings Highway (Case 3c) [4]						
Eastbound Beebe Medical Entrance	-	-	-	A (5.7)	B (12.3)	B (11.7)
Northbound Kings Highway	-	-	-	A (9.5)	C (16.3)	F (51.5)
Southbound Kings Highway	-	-	-	A (7.8)	F (51.2)	E (36.3)
Overall Intersection	-	-	-	A (8.7)	E (35.6)	E (43.8)

Table 2 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Signalized Intersection[1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/Site Entrance[6]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development and without Kings Highway Dual Lane Project (Case 2a) [7]	-	-	-	A (4.7)	A (10.0)	B (13.8)
2027 without Development and with Kings Highway Dual Lane Project (Case 2b)[3,7]	-	-	-	A (3.3)	A (3.2)	A (4.2)
2023 with development of Lot 1 (39,000 square feet of medical/dental office space) and without the Kings Highway Dual Lane Project (Case 2d) [7]	-	-	-	A (4.7)	A (5.6)	A (8.9)
2027 with Development and without Kings Highway Dual Lane Project (Case 3a)[8,9]	A (9.5)	D (51.5)	F (105.4)	B (18.7)	F (81.3)	F (114.0)

[6] JMT used a signal cycle length of 100 seconds during the AM and Saturday peak periods, and a cycle length of 130 seconds during the PM peak period for all Cases. The TIS used various signal cycle lengths for each period and case analyzed.

[7] JMT modeled the intersection as split phase with one shared left turn/through lane along the northbound Kings Highway approach, one through lane and one right turn lane along the southbound Kings Highway approach, and one left turn lane and one right turn lane along the eastbound Beebe Medical Center approach. The signal would operate with two phases.

[8] Both the TIS and JMT modeled the intersection with one left turn lane, one through lane, and one right turn lane along northbound and southbound Kings Highway, and one shared left turn/through lane and one right turn lane along eastbound Beebe Medical Center and the westbound Site Entrance.

[9] Both the TIS and JMT modeled the northbound and southbound approaches with protected and permissive left turn phasing. The TIS modeled the eastbound and westbound approaches as concurrent phases with permitted left turns, whereas JMT modeled as split phase operation.

Table 2 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Signalized Intersection[1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/Site Entrance[6]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development and with Kings Highway Dual Lane Project (Case 3b) [9,10]	B (12.1)	B (16.2)	B (16.2)	B (13.3)	C (23.7)	C (23.0)
2027 with Development, without Kings Highway Dual Lane Project and no site entrance on Kings Highway (Case 3c) [11]	-	-	-	A (5.0)	B (15.0)	D (49.7)
2023 with 117,000 square feet of medical/dental office space, without the Kings Highway Dual Lane Project, and rights-in site entrance on Kings Highway (Case 3d)[11]	-	-	-	A (4.6)	A (5.7)	A (9.4)

Note: Analysis highlighted in blue represents JMT suggested improvements with the full build of the proposed development

[10] Both the TIS and JMT modeled the intersection with one shared left turn/through lane and one right turn lane along eastbound Beebe Medical Center and the westbound Site Entrance. The TIS modeled the northbound and southbound Kings Highway approaches with one left turn lane, one through lane, and one shared through/right turn lane. JMT modeled the northbound and southbound Kings Highway approaches with one left turn lane, two through lanes, and one right turn lane.

[11] Reduction in delay when compared to Case 3a is due to the removal of the easterly leg Site Entrance on Kings Highway from this intersection.

[11] JMT modeled the northbound Kings Highway approach with a shared left turn/through lane and a separate right turn lane, the southbound Kings Highway approach with a through lane and a right turn lane, and the eastbound Beebe Medical Center approach with a separate left turn lane and a right turn lane.

Table 3
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control[1]	**LOS per TIS**			**LOS per JMT**		
Gills Neck Road (Sussex Road 267)/Site Entrance	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development and without Kings Highway Dual Lane Project (Case 2a)[2, 12]						
Westbound Gills Neck Road Left Turn	F (434.6)	A (8.9)	A (8.5)	A (8.1)	A (8.9)	A (8.4)
Northbound Gills Neck Village Center Entrance	F (*)	F (*)	F (*)	C (16.4)	C (22.5)	C (16.5)
2023 with development of Lot 1 (39,000 square feet of medical/dental office space) and without the Kings Highway Dual Lane Project (Case 2d) [2,13]						
Eastbound Gills Neck Road Left Turn	F (130.7)	D (34.2)	F (102.7)	A (8.4)	A (8.1)	A (8.1)
Westbound Gills Neck Road Left Turn	E (47.0)	D (30.9)	F (55.2)	A (7.9)	A (8.5)	A (8.2)
Northbound Gills Neck Village Center Entrance	F (*)	F (*)	F (*)	C (20.6)	D (28.5)	C (24.0)
Southbound Site Entrance	F (95.3)	F (133.4)	F (166.8)	B (11.3)	B (11.8)	B (10.9)

*HCS reported delay greater than 1000 seconds per vehicle

[12] Both the TIS and JMT modeled the intersection with one through lane and one right turn lane along eastbound Gills Neck Road, one left turn lane and one through lane along westbound Gills Neck Road, and one left turn lane and one through lane along the northbound Gills Neck Village Center entrance.

[13] Both the TIS and JMT modeled the intersection with one left turn lane, one through lane, and one right turn lane along the eastbound and westbound Gills Neck Road approaches, and one shared left turn/through lane and one right turn lane along the northbound Gills Neck Village Center entrance and the southbound Site Entrance.

Table 3 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control[1]	**LOS per TIS**			**LOS per JMT**		
Gills Neck Road (Sussex Road 267)/Site Entrance	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development and without Kings Highway Dual Lane Project (Case 3a) [2,13]						
Eastbound Gills Neck Road Left Turn	F (104.1)	C (16.6)	D (27.7)	A (9.1)	A (8.7)	A (9.0)
Westbound Gills Neck Road Left Turn	A (8.1)	B (14.1)	A (8.4)	A (8.1)	A (8.9)	A (8.4)
Northbound Gills Neck Village Center Entrance	F (*)	F (*)	F (*)	E (44.7)	F (201.4)	F (261.6)
Southbound Site Entrance	F (120.2)	F (88.1)	F (120.9)	B (14.2)	C (18.6)	C (17.8)
2027 with Development and with Kings Highway Dual Lane Project (Case 3b) [13,14]						
Eastbound Gills Neck Road Left Turn	A (9.1)	A (8.7)	A (9.0)	A (9.1)	A (8.7)	A (9.0)
Westbound Gills Neck Road Left Turn	A (8.1)	A (8.9)	A (8.4)	A (8.1)	A (8.9)	A (8.4)
Northbound Gills Neck Village Center Entrance	F (54.9)	F (280.9)	F (351.9)	E (44.7)	F (201.4)	F (266.1)
Southbound Site Access	B (14.8)	C (19.8)	C (19.3)	B (14.2)	C (18.6)	C (17.8)

*HCS reported delay greater than 1000 seconds per vehicle
Note: Analysis highlighted in blue represents JMT suggested improvements with the full build of the proposed development

[14] The Gills Neck Village Center Entrance improvements will be determined as part of the Gills Neck Village Center TOA.

Table 3 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, INC.

Unsignalized Intersection Two-Way Stop Control[1]	**LOS per TIS**			**LOS per JMT**		
Gills Neck Road (Sussex Road 267)/Site Access	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development, without Kings Highway Dual Lane Project and no site entrance on Kings Highway (Case 3c) [2,14]						
Eastbound Gills Neck Road Left Turn	F (77.7)	B (11.2)	D (31.8)	B (10.4)	A (9.5)	B (11.9)
Westbound Gills Neck Road Left Turn	A (8.1)	A (8.9)	A (8.4)	A (8.1)	A (8.9)	A (8.4)
Northbound Gills Neck Village Center Entrance	F (*)	F (*)	F (*)	F (344.7)	F (*)	F (*)
Southbound Site Entrance	F (871.5)	F (90.5)	F (*)	C (17.1)	F (54.4)	F (56.5)
2027 with Development, without Kings Highway Dual Lane Project and a rights-in only entrance on Kings Highway (Case 3c)						
Eastbound Gills Neck Road Left Turn	-	-	-	A (9.5)	A (8.9)	A (9.7)
Westbound Gills Neck Road Left Turn	-	-	-	A (8.1)	A (8.9)	A (8.4)
Northbound Gills Neck Village Center Entrance	-	-	-	F (117.5)	F (*)	F (*)
Southbound Site Entrance	-	-	-	C (15.5)	F (52.0)	D (28.7)

*HCS reported excessive delay greater than 1000 seconds per vehicle

Table 3 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control[1]	**LOS per TIS**			**LOS per JMT**		
Gills Neck Road (Sussex Road 267)/Site Entrance	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2023 with 117,000 square feet of medical/dental office space, without the Kings Highway Dual Lane Project, and rights-in site entrance on Kings Highway (Case 3d)[15]						
Eastbound Gills Neck Road Left Turn	A (8.5)	A (8.2)	A (8.4)	A (8.5)	A (8.2)	A (8.4)
Westbound Gills Neck Road Left Turn	A (7.9)	A (8.5)	A (8.2)	A (7.9)	A (8.5)	A (8.2)
Northbound Gills Neck Village Center Entrance	D (27.9)	F (97.4)	F (101.2)	C (24.9)	F (75.5)	F (76.3)
Southbound Site Access	B (11.9)	C (15.4)	B (13.2)	B (11.6)	B (14.9)	B (12.8)

Note: Analysis highlighted in gray represents the JMT interim recommendations

Table 4
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/ Bay Breeze Drive [2, 15]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2018 Existing (Case 1)						
Southbound Kings Highway Left Turn	A (8.6)	F (289.8)	F (458.6)	-	-	-
Westbound Bay Breeze Drive Approach	C (19.8)	F (*)	F (*)	-	-	-
2027 without Development and without Kings Highway Dual Lane Project (Case 2a)						
Southbound Kings Highway Left Turn	A (9.1)	F (286.0)	B (12.0)	-	-	-
Westbound Bay Breeze Drive Approach	D (25.7)	F (*)	F (144.1)	-	-	-
2027 without Development and with Kings Highway Dual Lane Project (Case 2b) [3, 16]						
Southbound Kings Highway Left Turn	-	A (9.9)	B (12.0)	A (9.2)	B (10.2)	B (12.3)
Westbound Bay Breeze Drive Approach	-	F (128.2)	F (144.1)	C (18.9)	E (39.3)	F (52.0)
2027 with Development and without Kings Highway Dual Lane Project (Case 3a)						
Southbound Kings Highway Left Turn	A (9.2)	F (286.0)	F (447.6)	-	-	-
Westbound Bay Breeze Drive Approach	D (30.2)	F (*)	F (*)	-	-	-

*HCS reported excessive delay greater than 1000 seconds per vehicle

[15] Due to the unique configuration of the Kings Highway/Bay Breeze Drive intersection, JMT analyzed the intersection as two separate intersections. The TIS analyzed it as a single T-intersection.

[16] JMT assumed the intersection would be modified to a traditional T-intersection as part of the Kings Highway Dual Lane project.

Table 4 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/ Bay Breeze Drive [2, 17]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development and with Kings Highway Dual Lane Project (Case 3b) [18]						
Southbound Kings Highway Left Turn	A (9.2)	B (10.5)	B (12.8)	A (9.4)	A (10.8)	B (13.1)
Westbound Bay Breeze Drive Approach	C (22.5)	F (65.6)	F (93.7)	C (20.8)	F (52.6)	F (72.3)
2027 with Development and with Kings Highway Dual Lane Project and Bay Breeze Drive left turn out restriction (Case 3b)						
Southbound Kings Highway Left Turn	A (9.2)	B (10.5)	B (12.8)	A (9.4)	B (10.8)	B (13.1)
Westbound Bay Breeze Drive Right Turn	B (11.4)	B (13.0)	C (15.9)	B (11.3)	B (12.9)	C (15.6)

*HCS reported excessive delay greater than 1000 seconds per vehicle

Table 4 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/ Bay Breeze Drive [2,17]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2018 Existing (Case 1)						
Westbound Bay Breeze Drive Left Turn	-	-	-	C (19.6)	D (25.8)	E (45.5)
2027 without Development and without Kings Highway Dual Lane Project (Case 2a)						
Westbound Bay Breeze Drive Left Turn	-	-	-	D (25.2)	F (106.4)	F (153.2)
2027 with Development and without Kings Highway Dual Lane Project (Case 3a)						
Westbound Bay Breeze Drive Left Turn	-	-	-	D (29.6)	F (164.0)	F (261.0)

[17] Due to the unique configuration of the Kings Highway/Bay Breeze Drive intersection, JMT analyzed the intersection as two separate intersections. This table summarized the results of the analysis conducted at the location where the westbound Bay Breeze Drive approach is a stop-controlled left-turn lane, the northbound Kings Highway approach is a through lane and a right turn lane, and the southbound Kings Highway approach is a through lane.

Table 4 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/ Bay Breeze Drive [2,18,19]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2018 Existing (Case 1)						
Southbound Kings Highway Left Turn	-	-	-	B (13.5)	B (14.0)	C (21.7)
Westbound Bay Breeze Drive Right Turn	-	-	-	B (12.1)	B (12.2)	C (18.8)
2027 without Development and without Kings Highway Dual Lane Project (Case 2a)						
Southbound Kings Highway Left Turn	-	-	-	C (15.3)	C (19.1)	D (29.6)
Westbound Bay Breeze Drive Right Turn	-	-	-	B (13.5)	C (16.1)	D (25.2)
2027 with Development and without Kings Highway Dual Lane Project (Case 3a)						
Southbound Kings Highway Left Turn	-	-	-	C (15.8)	C (21.9)	D (33.8)
Westbound Bay Breeze Drive Right Turn	-	-	-	B (13.9)	C (18.1)	D (28.6)

[18] JMT analyzed the southbound left-turn movement as an eastbound through movement as the movement is stop-controlled.

[19] Due to the unique configuration of the Kings Highway/Bay Breeze Drive intersection, JMT analyzed the intersection as two separate intersections. This table summarizes the results of the analysis conducted at the location where the westbound Bay Breeze Drive approach is a yield-controlled channelized right-turn lane, the northbound Kings Highway approach is a through lane, and the southbound Kings Highway approach is a left-turn lane.

Table 4 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Roundabout [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/ Bay Breeze Drive[2]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development and without Kings Highway Dual Lane Project (Case 2a) [4]						
Westbound Bay Breeze Drive Approach	-	-	-	A (6.7)	A (8.2)	B (12.4)
Northbound Kings Highway Approach	-	-	-	A (8.9)	B (12.5)	E (42.9)
Southbound Kings Highway Approach	-	-	-	A (6.4)	C (22.1)	C (15.7)
Overall Intersection	-	-	-	A (7.9)	C (17.6)	C (30.8)
2027 with Development and with Kings Highway Dual Lane Project (Case 2b) [3, 5]						
Westbound Bay Breeze Drive Approach	-	-	-	A (5.7)	A (6.7)	A (9.4)
Northbound Kings Highway Approach	-	-	-	A (5.2)	A (6.0)	A (7.9)
Southbound Kings Highway Approach	-	-	-	A (4.4)	A (7.0)	A (6.4)
Overall Intersection	-	-	-	A (4.9)	A (6.5)	A (7.2)
2027 with Development and without Kings Highway Dual Lane Project (Case 3a) [4]						
Westbound Bay Breeze Drive Approach	-	-	-	A (7.0)	A (9.4)	B (14.1)
Northbound Kings Highway Approach	-	-	-	A (9.5)	C (16.4)	F (66.6)
Southbound Kings Highway Approach	-	-	-	A (7.2)	D (27.4)	C (23.3)
Overall Intersection				A (8.5)	C (22.0)	E (46.8)

Table 4 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Roundabout [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/ Bay Breeze Drive[2]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development and with Kings Highway Dual Lane Project (Case 3b) [3, 5]						
Westbound Bay Breeze Drive Approach	-	-	-	A (5.9)	A (7.5)	B (10.4)
Northbound Kings Highway Approach	-	-	-	A (5.4)	A (6.5)	A (8.5)
Southbound Kings Highway Approach	-	-	-	A (4.7)	A (7.3)	A (7.1)
Overall Intersection	-	-	-	A (5.1)	A (6.9)	A (7.9)

Table 4 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Signalized Intersection[1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/ Bay Breeze Drive [20,21]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development and without Kings Highway Dual Lane Project (Case 2a)	-	-	-	A (8.3)	A (9.3)	D (38.0)
2027 without Development and with Kings Highway Dual Lane Project (Case 2b) [3]	-	-	-	A (6.0)	A (4.9)	A (6.2)
2027 with Development and without Kings Highway Dual Lane Project (Case 3a)	-	-	-	A (8.5)	B (10.9)	D (52.6)
2027 with Development and with Kings Highway Dual Lane Project (Case 3b) [3]	-	-	-	A (5.9)	A (5.0)	A (6.6)

[20] JMT used a signal cycle length of 100 seconds during the AM and Saturday peak periods, and a cycle length of 130 seconds during the PM peak period.
[21] JMT modeled the signal as a three-phase signal with protected-permissive left turn phasing along the southbound Kings Highway approach.

Table 5
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway/Freeman Highway (Sussex Road 23) [22]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2018 Existing (Case 1) [23]						
Northbound Kings Highway Left Turn	A (8.4)	B (12.4)	A (9.1)	C (15.0)	C (18.4)	C (19.6)
2027 without Development and without Kings Highway Dual Lane Project (Case 2a) [23]						
Northbound Kings Highway Left Turn	A (8.7)	C (17.6)	B (11.0)	C (17.2)	F (109.6)	F (68.4)
2027 with Development and without Kings Highway Dual Lane Project (Case 3a) [23]						
Northbound Kings Highway Left Turn	A (8.9)	C (23.5)	B (12.2)	C (19.1)	F (199.4)	F (140.6)
2027 with Development and with Kings Highway Dual Lane Project (Case 3b)						
Northbound Kings Highway Left Turn	-	B (13.4)	-	C (19.1)	F (199.4)	F (140.6)
2027 with Development and with Kings Highway Dual Lane Project and Bay Breeze Drive left turn out restriction (Case 3b)[24]						
Northbound Kings Highway Left Turn	A (9.0)	B (14.1)	B (12.5)	C (17.2)	F (231.7)	F (151.3)

[22] The TIS modeled the northbound movement as a left-turn lane and a through lane. JMT did not include the through movement in the analysis, because it is a free-flow movement with no conflicts. JMT modeled the northbound left-turn movement as a westbound through as it is stop-controlled.
[23] For the PM peak period, the TIS utilized various values for proportion of time blocked whereas JMT utilized the default value of 0.
[24] For this scenario, Bay Breeze Drive left turn outs would be restricted and those movements would be U-turns at the Kings Highway/Freeman Highway intersection.

Table 5 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Signalized Intersection[1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268) / Freeman Highway (Sussex Road 23) [25]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development (Case 2)	-	-	-	B (14.9)	D (36.9)	C (25.0)
2027 with Development (Case 3)	-	-	-	B (17.6)	D (38.0)	C (27.5)

[25] JMT analyzed the intersection as signalized. The AM and Saturday signal cycle lengths are 100 seconds and the PM signal cycle length is 130 seconds.

Table 6
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control[1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268) / Savannah Road (Sussex Road 18) [26]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2018 Existing (Case 1)						
Eastbound 3rd Street Approach	B (11.5)	B (14.8)	D (28.5)	B (11.6)	C (16.5)	E (35.1)
Westbound Kings Highway Approach	B (10.4)	B (12.7)	C (16.2)	B (10.3)	B (13.3)	C (16.9)
Northbound Savannah Road Left Turn	A (7.5)	A (7.8)	A (7.8)	A (7.5)	A (7.9)	A (7.9)
Southbound Savannah Road Left Turn	A (7.7)	A (7.9)	A (8.7)	A (7.7)	A (8.0)	A (8.9)
2027 without Development (Case 2)						
Eastbound 3rd Street Approach	B (13.8)	F (55.7)	F (99.6)	B (14.7)	F (165.4)	F (171.0)
Westbound Kings Highway Approach	B (11.5)	E (35.3)	C (21.8)	B (11.5)	E (46.5)	C (23.6)
Northbound Savannah Road Left Turn	A (7.6)	A (7.9)	A (7.8)	A (7.6)	A (8.0)	A (8.0)
Southbound Savannah Road Left Turn	A (7.8)	A (8.5)	A (9.1)	A (7.8)	A (8.6)	A (9.3)
2027 with Development (Case 3) [27]						
Eastbound 3rd Street Approach	C (15.5)	F (96.7)	F (277.0)	C (17.2)	F (357.6)	F (565.9)
Westbound Kings Highway Approach	B (12.1)	F (56.7)	D (30.6)	B (12.0)	F (89.8)	E (39.5)
Northbound Savannah Road Left Turn	A (7.6)	A (8.0)	A (7.8)	A (7.6)	A (8.0)	A (8.0)
Southbound Savannah Road Left Turn	A (7.9)	A (8.6)	A (9.3)	A (7.9)	A (8.7)	A (9.5)

[26] For the analysis, the TIS used HCS7 version 7.8, whereas JMT used HCS7 version 7.8.5 resulting in delay differences.
[27] During the weekday AM, the TIS used a westbound through volume of 24, and JMT used a volume of 23 consistent with the volume diagrams.

Table 6 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Roundabout[1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268) / Savannah Road (Sussex Road 18) [28]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development (Case 2)						
Eastbound 3rd Street	-	-	-	A (4.3)	A (7.4)	A (5.6)
Westbound Kings Highway	-	-	-	A (4.9)	A (7.6)	B (10.0)
Northbound Savannah Road	-	-	-	A (5.1)	A (7.5)	B (10.0)
Southbound Savannah Road	-	-	-	A (4.8)	A (7.7)	A (5.8)
Overall Intersection	-	-	-	A (4.9)	A (7.6)	A (8.4)
2027 with Development (Case 3)						
Eastbound 3rd Street	-	-	-	A (4.5)	A (7.8)	A (6.2)
Westbound Kings Highway	-	-	-	A (5.1)	A (8.5)	B (11.4)
Northbound Savannah Road	-	-	-	A (5.3)	A (7.8)	B (11.4)
Southbound Savannah Road	-	-	-	A (5.0)	A (8.3)	A (6.4)
Overall Intersection	-	-	-	A (5.1)	A (8.2)	A (9.4)

[28] JMT modeled the intersection as a single-lane roundabout.

Table 6 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Signalized Intersection [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268) / Savannah Road (Sussex Road 18) [29]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development (Case 2)	-	-	-	C (26.6)	C (33.7)	C (31.3)
2027 with Development (Case 3)	-	-	-	C (29.3)	D (37.5)	D (36.3)

[29] JMT modeled the intersection as a signalized with split phases along the 3rd Street and Kings Highway approaches. A cycle length of 120 seconds was utilized for all peak periods.

Table 7
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, INC.

Signalized Intersection [1]	**LOS per TIS**			**LOS per JMT**		
Savannah Road/Gills Neck Road/Front Street (Sussex Road 267) [30]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2018 Existing (Case 1) [31]	B (15.9)	B (19.1)	F (136.7)	C (29.8)	C (31.3)	F (166.2)
2027 without Development (Case 2) [31]				C (32.1)	D (36.3)	F (240.1)
2027 without Development (Case 2) *with signal timing optimization* [34]	B (14.1)	B (17.7)	F (154.6)	B (15.2)	B (19.7)	F (160.5)
2027 without Development (Case 2) *with improvement* [33]				B (14.2)	B (17.2)	D (44.6)
2027 with Development (Case 3) [33]				C (32.4)	D (36.9)	F (263.7)
2027 with Development (Case 3) *with signal timing optimization* [32]	B (14.5)	B (17.8)	F (158.2)	B (18.3)	C (22.0)	F (176.7)
2027 with Development (Case 3) *with improvement* [33]				B (16.8)	B (17.8)	D (48.2)

[30] JMT did not incorporate RTOR because the movement in restricted, whereas the TIS did.
[31] JMT used MAX 1 Timers, whereas the TIS utilized observed signal timing splits for existing cases and optimized signal timing splits for future cases.
[32] For optimized signal timing scenarios, JMT utilized cycle lengths of 60, 90, and 120 seconds for the AM, PM, and Saturday peak hours, respectively.
[33] JMT improvement scenario includes providing an additional through lane along northbound and southbound Savannah Road with signal timing optimization. Cycle lengths of 60, 90, and 120 seconds were utilized for the AM, PM, and Saturday peak hours, respectively.

Table 7 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, INC.

Roundabout[1]	**LOS per TIS**			**LOS per JMT**		
Savannah Road/Gills Neck Road/Front Street (Sussex Road 267)	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development (Case 2) [34]						
Eastbound Front Street Approach	-	-	-	A (4.1)	A (5.7)	C (15.0)
Westbound Gills Neck Road Approach	-	-	-	A (4.7)	A (5.2)	B (14.8)
Northbound Savannah Road Approach	-	-	-	A (5.2)	A (5.7)	E (39.8)
Southbound Savannah Road Approach	-	-	-	A (4.7)	A (7.8)	C (16.9)
Overall				A (4.8)	A (6.6)	C (24.4)
2027 with Development (Case 3) [34]						
Eastbound Front Street Approach	-	-	-	A (4.2)	A (5.9)	B (15.9)
Westbound Gills Neck Road Approach	-	-	-	A (4.7)	A (5.4)	C (16.1)
Northbound Savannah Road Approach	-	-	-	A (5.3)	A (6.1)	F (54.1)
Southbound Savannah Road Approach	-	-	-	A (4.8)	A (8.2)	C (20.8)
Overall				A (4.9)	A (6.9)	D (31.3)

[34] JMT modeled the intersection as a single-lane roundabout with a right turn bypass lane along the eastbound Front Street and the northbound Savannah Road approaches.

Table 8
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/ Atlantic Drive [2]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2018 Existing (Case 1)						
Northbound Kings Highway Left Turn	A (8.3)	F (112.3)	F (126.5)	A (8.3)	B (10.4)	A (9.7)
Eastbound Atlantic Drive Approach	B (13.7)	F (*)	F (*)	B (13.2)	C (24.7)	D (31.1)
2027 without Development and without Kings Highway Dual Lane Project (Case 2a)						
Northbound Kings Highway Left Turn	A (8.8)	F (78.2)	F (84.5)	A (8.9)	B (12.4)	B (10.9)
Eastbound Atlantic Drive Approach	C (17.7)	F (*)	F (*)	C (16.6)	F (57.1)	F (93.4)
2027 without Development and with Kings Highway Dual Lane Project (Case 2b) [3]						
Northbound Kings Highway Left Turn	-	-	-	A (8.9)	B (12.5)	B (11.0)
Eastbound Atlantic Drive Approach	-	-	-	B (12.9)	C (24.1)	E (38.0)
2023 with development of Lot 1 (39,000 square feet of medical/dental office space) and without the Kings Highway Dual Lane Project (Case 2d)						
Northbound Kings Highway Left Turn	A (8.6)	F (110.0)	F (125.1)	A (8.7)	B (11.3)	B (10.4)
Eastbound Atlantic Drive Approach	C (15.8)	F (*)	F (*)	C (15.0)	E (35.8)	F (52.4)

*HCS reported excessive delay greater than 1000 seconds per vehicle

Table 8 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/ Atlantic Drive [2]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development and without Kings Highway Dual Lane Project (Case 3a)						
Northbound Kings Highway Left Turn	A (9.0)	F (73.4)	E (43.7)	A (9.1)	B (13.7)	B (11.7)
Eastbound Atlantic Drive Approach	C (20.7)	F (*)	F (*)	C (19.0)	F (107.4)	F (261.9)
2027 with Development and with Kings Highway Dual Lane Project and Atlantic Drive as Rights-In/Rights-Out Only (Case 3b) [3]						
Eastbound Atlantic Drive Right Turn	B (10.7)	C (17.8)	B (14.1)	B (10.6)	C (17.7)	B (14.3)
2027 with Development, only access along Gills Neck Road and without Kings Highway Dual Lane Project (Case 3c)						
Northbound Kings Highway Left Turn	A (9.1)	F (60.7)	F (64.0)	A (9.2)	B (12.8)	B (11.6)
Eastbound Atlantic Drive Approach	C (19.9)	F (*)	F (*)	C (18.4)	F (76.5)	F (168.9)

*HCS reported excessive delay greater than 1000 seconds per vehicle
Note:
Analysis highlighted in blue represents JMT suggested improvements with the full build of the proposed development

Table 8 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/ Atlantic Drive[2]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development, without Kings Highway Dual Lane Project and rights-in only along Kings Highway (Case 3c) [35]						
Northbound Kings Highway Left Turn	-	-	-	A (9.2)	B (12.8)	B (11.6)
Eastbound Atlantic Drive Approach	-	-	-	C (20.1)	F (89.6)	F (351.4)
2023 with 117,000 square feet of medical/dental office space, without the Kings Highway Dual Lane Project, and rights-in site entrance on Kings Highway (Case 3d)						
Northbound Kings Highway Left Turn	A (8.7)	B (11.3)	B (11.6)	A (8.7)	B (11.4)	B (11.2)
Eastbound Atlantic Drive Approach	C (17.1)	E (44.9)	F (397.7)	C (16.1)	E (39.0)	F (164.8)

Note: Analysis highlighted in gray represents the JMT interim recommendations

[35] The additional northbound Kings Highway through traffic as a result of a rights-in only site access along Kings Highway increases the delay for vehicles exiting Atlantic Drive.

Table 8 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Signalized Intersection[1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/ Atlantic Drive [36,37]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development and without Kings Highway Dual Lane Project (Case 2a)	-	-	-	A (8.1)	C (32.3)	B (19.8)
2027 without Development and with Kings Highway Dual Lane Project (Case 2b)	-	-	-	A (5.6)	B (14.2)	A (6.6)
2023 with development of Lot 1 (39,000 square feet of medical/dental office space) and without the Kings Highway Dual Lane Project (Case 2d)	-	-	-	A (7.5)	C (22.9)	B (13.8)
2027 with Development and without Kings Highway Dual Lane Project (Case 3a)	-	-	-	A (8.9)	E (56.7)	D (45.6)
2027 with Development and with Kings Highway Dual Lane Project (Case 3b) [38]	-	-	-	A (5.6)	B (13.8)	A (7.1)
2027 with Development, only access along Gills Neck Road, and without Kings Highway Dual Lane Project (Case 3c)	-	-	-	A (8.7)	D (40.2)	C (34.1)
2023 with 117,000 square feet of medical/dental office space, without the Kings Highway Dual Lane Project, and rights-in site entrance on Kings Highway (Case 3d)	-	-	-	A (7.9)	C (22.9)	C (30.4)

[36] JMT modeled the intersection as signalized with a cycle length of 100 seconds during the AM and Saturday peak periods, and 130 seconds during the PM peak period. The signal would operate with protected-permissive left turn phasing along the northbound Kings Highway approach.

[37] JMT modeled the intersection with one left turn lane and one through lane along northbound Kings Highway, one through lane and one right turn lane along southbound Kings Highway, and one left turn lane and one right turn lane along Atlantic Drive. For the scenarios with the Kings Highway Dual Lane Project, the number of through lanes along Kings Highway would increase to two.

[38] JMT assumed Atlantic Drive would not have turning restrictions with the provision of a traffic signal and the Kings Highway Dual Lane Project.

Table 9
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, INC.

Signalized Intersection [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway/Gills Neck Road/Cape Henlopen High School [39,40,41]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2018 Existing (Case 1) [42]	F (160.3)	F (343.7)	F (412.7)	F (226.2)	F (359.7)	F (832.0)
2027 without Development and without Kings Highway Dual Lane Project (Case 2a) [43]	F (202.3)	F (112.9)	F (433.5)	F (436.3)	F (160.6)	F (574.0)
2027 without Development and with Kings Highway Dual Lane Project (Case 2b) [44]	D (46.2)	C (32.2)	C (26.4)	E (78.7)	D (50.5)	D (51.0)
2027 without Development, with Kings Highway Dual Lane Project (Case 2b) *with improvements* [45]	D (48.0)	D (53.2)	C (28.7)	C (31.8)	D (45.2)	C (33.2)
2023 with development of Lot 1 (39,000 square feet of medical/dental office space) and without the Kings Highway Dual Lane Project (Case 2d)[46]	F (209.3)	F (111.4)	F (314.9)	F (152.8)	D (46.6)	F (307.5)

[39] For future Cases, JMT analyzed the intersection as a coordinated intersection with Clay Road, whereas the TIS analyzed the intersection as an uncoordinated intersection.
[40] For future Cases with the Kings Highway Dual Lane Project (Cases 2b and 3b), both the TIS and JMT increased the peak hour factor to 0.92 and set all initial queue lengths to zero.
[41] For future Cases, JMT utilized signal cycle lengths consistent with the DelDOT Timing Plan whereas the TIS utilized various cycle lengths.
[42] JMT utilized timing splits provided on the DelDOT Timing Plan, whereas the TIS did not. Both the TIS and JMT utilized signal cycle lengths consistent with the DelDOT Timing Plan.
[43] For the AM, PM, and Saturday peak hours, JMT maintained the calibrated peak hour factor, whereas the TIS increased the peak hour factor to various values.
[44] Both the TIS and JMT modeled the intersection with two through lanes along Kings Highway and the Gills Neck Road and Cape Henlopen High School Entrance approaches maintained the existing lane configurations.
[45] Both the TIS and JMT modeled the intersection with two through lanes along Kings Highway, one left turn lane, one left turn/through lane, and one right turn lane along Gills Neck Road, and the Cape Henlopen High School Entrance approach would maintain the existing lane configurations. The signal phasing along Gills Neck Road and the Cape Henlopen High School would be modified to split phase.
[46] Both the TIS and JMT utilized weighted peak hour factors to conduct the analysis.

Table 9 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Signalized Intersection [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway/Gills Neck Road/Cape Henlopen High School [41,42,43]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development and without Kings Highway Dual Lane Project (Case 3a)	F (248.5)	F (202.4)	F (448.3)	F (443.4)	F (251.2)	F (754.6)
2027 with Development and with Kings Highway Dual Lane Project (Case 3b) [44]	D (51.9)	E (67.5)	D (51.4)	F (87.8)	F (117.2)	F (111.5)
2027 with Development and with Kings Highway Dual Lane Project (Case 4) [47]	D (47.7)	E (61.2)	D (39.1)	D (54.5)	D (54.1)	D (54.9)

Note: Analysis highlighted in blue represents JMT suggested improvements with the full build of the proposed development

[47] Both the TIS and JMT modeled the intersection with two through lanes along Kings Highway, one left turn lane, one shared left turn/through lane, and one right turn lane along Gills Neck Road and one left turn lane, one through lane, and one right turn lane along the Cape Henlopen High School Entrance approach. The signal phasing along Gills Neck Road and the Cape Henlopen High School would be modified to split phase.

Table 9 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Signalized Intersection [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway/Gills Neck Road/Cape Henlopen High School [41,42,43]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development without Kings Highway Dual Lane Project (Case 3c)	F (230.0)	F (197.4)	F (425.1)	F (451.9)	F (279.7)	F (686.7)
2027 with Development and without Kings Highway Dual Lane Project (Case 3c) *with TIS improvements* [48]	F (200.2)	F (143.4)	F (363.1)	F (356.2)	F (167.6)	F (571.2)
2027 with Development without Kings Highway Dual Lane Project and with rights-in only entrance along Kings Highway (Case 3c) [49]	-	-	-	F (327.8)	F (135.0)	F (582.6)
2023 with 117,000 square feet of medical/dental office space, without the Kings Highway Dual Lane Project, and rights-in site entrance on Kings Highway (Case 3d)[50,51]	F (139.6)	E (62.6)	F (317.3)	F (161.2)	D (54.7)	F (366.8)

Note: Analysis highlighted in gray represents the JMT interim recommendations

[48] TIS improvements scenario incorporates two left turn lanes and a shared through/right turn lane along the westbound Gills Neck Road approach and split phase operation along the eastbound and westbound approaches.

[49] This scenario models the westbound Gills Neck Road approach with one left turn lane, one shared left turn/through lane, and one right turn lane and the southbound approach with one left turn lane, one through lane, and one shared through/right turn lane.

[50] Both the TIS and JMT modeled the intersection with one left turn lane, one through lane, and one right turn lane along northbound Kings Highway, one left turn lane, one through lane, and one shared through/right turn lane along southbound Kings Highway, and two left turn lanes, and one shared through/right turn lane along Gills Neck Road. The TIS and JMT maintained the existing lane configurations along the Cape Henlopen High School Entrance approach. The signal phasing along Gills Neck Road and the Cape Henlopen High School would be modified to split phase.

[51] During the PM peak hour, JMT optimized the signal timing splits and modified the signal cycle length to 150 seconds.

Table 10
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway/Clay Road (Sussex Road 269) [2, 52]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2018 Existing (Case 1)						
Northbound Kings Highway Left Turn	F (168.4)	B (13.4)	F (64.3)	A (9.0)	B (14.1)	A (9.7)
Eastbound Clay Road Approach	F (*)	F (*)	F (*)	F (160.1)	F (*)	F (400.9)
2027 without Development and without Kings Highway Dual Lane Project (Case 2a)						
Northbound Kings Highway Left Turn	F (110.1)	C (16.1)	F (69.4)	-	-	-
Southbound Kings Highway Left Turn	F (177.7)	B (13.0)	F (152.6)	-	-	-
Eastbound Clay Road Approach	F (*)	F (103.4)	F (735.5)	-	-	-
Westbound Gills Neck Village Center Access	F (*)	D (25.4)	F (863.8)	-	-	-
2027 with Development and without Kings Highway Dual Lane Project (Case 3a)						
Northbound Kings Highway Left Turn	F (110.1)	C (22.8)	D (29.5)	-	-	-
Southbound Kings Highway Left Turn	F (177.7)	B (14.4)	F (163.9)	-	-	-
Eastbound Clay Road Approach	F (*)	F (319.8)	F (430.2)	-	-	-
Westbound Gills Neck Village Center Access	F (*)	E (37.3)	F (*)	-	-	-

[52] For all future Cases, JMT modeled the intersection as a signalized intersection per direction from DelDOT, whereas the TIS only modeled the intersection as signalized for Cases that only incorporated the widening project.

Table 10 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Signalized Intersection [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway/Clay Road (Sussex Road 269) [53, 54]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development and without Kings Highway Dual Lane Project (Case 2a)	-	-	-	E (55.8)	F (107.9)	E (71.1)
2027 without Development and with Kings Highway Dual Lane Project (Case 2b) [55]	C (26.9)	C (30.1)	C (23.4)	D (36.9)	C (28.3)	C (23.5)
2027 without Development and with Kings Highway Dual Lane Project (Case 2b) *with improvements* [56]	-	-	-	D (37.0)	C (28.6)	C (23.3)
2023 with development of Lot 1 (39,000 square feet of medical/dental office space) and without the Kings Highway Dual Lane Project (Case 2d)	-	-	-	C (34.2)	F (94.9)	D (46.5)
2027 with Development and without Kings Highway Dual Lane Project (Case 3a)	-	-	-	F (103.0)	F (191.3)	F (151.1)

[53] For future Cases, JMT analyzed the intersection as a signalized intersection coordinated with Gills Neck Road, whereas the TIS analyzed the intersection as an uncoordinated signalized intersection. JMT utilized signal cycle lengths consistent with the signal cycle lengths at the Kings Highway/Gills Neck Road intersection whereas the TIS utilized various signal cycle lengths.

[54] JMT modeled the intersection with one left turn lane, one through lane, and one right turn lane along the northbound and southbound Kings Highway approaches, one left turn lane, one through lane, and one right turn lane along the eastbound Clay Road approach, and two left turn lanes, one through lane and one right turn lane along the Gills Neck Village Center Entrance. Protected-permissive left turn phasing was utilized along the northbound and southbound approaches, and split phase was utilized along the eastbound and westbound approaches.

[55] JMT and the TIS modeled the intersection with two through lanes along Kings Highway. The TIS modeled the side street approaches with one left turn lane, one through lane, and one right turn lane.

[56] JMT incorporated a scenario with improvements proposed at the Kings Highway/Gills Neck Road intersection. Specifically, the improvements include the intersection with two through lanes along Kings Highway, one left turn lane, one left turn/through lane, and one right turn lane along Gills Neck Road, and the Cape Henlopen High School Entrance approach would maintain the existing lane configurations. The signal phasing along Gills Neck Road and the Cape Henlopen High School would be modified to split phase.

Table 10 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, INC.

Signalized Intersection [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway/Clay Road (Sussex Road 269) [57, 58]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development and with Kings Highway Dual Lane Project (Case 3b)	-	-	-	D (50.8)	E (58.0)	D (36.6)
2027 with Development and with Kings Highway Dual Lane Project (Case 4) [57,58]	C (30.1)	D (37.0)	C (33.3)	D (39.4)	D (46.5)	D (43.0)

Note: Analysis highlighted in blue represents JMT suggested improvements with the full build of the proposed development

[57] Both the TIS and JMT modeled the intersection with two through lanes along Kings Highway, one left turn lane, one through lane, and one right turn lane along Clay Road.

[58] Along the westbound Gills Neck Village Center Entrance approach, JMT provided two left turn lanes, one through lanes, and one right turn lane whereas the TIS provided one left turn lane, one through lane, and one right turn lane. The TIS used protected and permissive phasing along the eastbound and westbound approaches whereas JMT utilized split phase operation.

Table 10 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, INC.

Signalized Intersection [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway/Clay Road (Sussex Road 269) [57, 58]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development, without Kings Highway Dual Lane Project and no site entrance on Kings Highway (Case 3c)	-	-	-	F (87.0)	F (196.3)	F (158.6)
2027 with Development, without Kings Highway Dual Lane Project and no site entrance on Kings Highway (Case 3c) *with TIS improvements* [59]	-	-	-	F (131.9)	F (193.6)	F (168.3)
2027 with Development, without Kings Highway Dual Lane Project and rights-in only entrance on Kings Highway (Case 3c) [60]	-	-	-	F (95.6)	F (189.3)	F (156.6)
2023 with 117,000 square feet of medical/dental office space, without the Kings Highway Dual Lane Project, and rights-in site entrance on Kings Highway (Case 3d)[55]	-	-	-	D (40.7)	F (165.2)	E (69.7)

Note: Analysis highlighted in gray represents the JMT interim recommendations

[59] The TIS improvements scenario incorporates two left turn lanes and a shared through/right turn lane along the westbound Gills Neck Road approach to Kings Highway and split phase operation along the eastbound and westbound approaches at the Gills Neck Road/Kings Highway intersection.

[60] JMT modeled the southbound Kings Highway approach with one right turn lane and one through lane.

Table 11
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection)[1]	**LOS per TIS**			**LOS per JMT**		
Clay Road (Sussex Road 269) / Marsh Road (Sussex Road 269A)	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
2018 Existing (Case 1) [61]						
Westbound Clay Road Left	A (7.5)	A (7.6)	A (7.6)	-	-	-
Northbound Marsh Road Approach	A (9.3)	A (9.5)	A (9.4)	-	-	-

[61] Due to the unique configuration of the Clay Road/Marsh Road intersection in Case 1, JMT analyzed the intersection as three separate intersections. The TIS analyzed it as a single standard T-intersection and the results are summarized in this table.

Table 11 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection)[1]	**LOS per TIS**			**LOS per JMT**		
Clay Road (Sussex Road 269) / Marsh Road (Sussex Road 269A) [62]	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
2018 Existing (Case 1) – a [63]						
Eastbound Clay Road Right Turn	-	-	-	A (8.5)	A (8.9)	A (8.5)
Northbound Marsh Road Left Turn	-	-	-	A (7.3)	A (7.6)	A (7.3)
2018 Existing (Case 1) – b [64]						
Eastbound U-turn[65]	-	-	-	-	A (7.5)	-
Northbound Marsh Road Left Turn	-	-	-	A (9.4)	B (10.1)	B (10.4)
2018 Existing (Case 1) – c [66]						
Westbound Clay Road Left Turn	-	-	-	A (7.5)	A (7.5)	A (7.6)
Northbound Marsh Road Right Turn	-	-	-	A (9.1)	A (8.8)	A (9.3)

[62] Due to the unique configuration of the Clay Road/Marsh Road intersection, JMT analyzed the intersection as three separate intersections.
[63] Intersection 'a' depicts the analysis conducted at the location where the eastbound Clay Road approach is a stop-controlled right turn lane, the northbound Marsh Road approach is a shared through/left turn lane, and the southbound Marsh Road approach is a through lane.
[64] Intersection 'b' depicts the analysis conducted at the location where the eastbound Clay Road approach is a shared through/right turn lane, the westbound Clay Road approach is a through lane, and the northbound Marsh Road approach is a stop-controlled left turn lane.
[65] JMT modeled the U-turn as a left turn due to limitations of the HCS software.
[66] Intersection "c" depicts the analysis conducted at the location where the eastbound Clay Road approach is a through lane, the westbound Clay Road approach is a shared through/left turn lane and the northbound Marsh Road approach is a stop-controlled right turn lane.

Table 11 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection)[1]	**LOS per TIS**			**LOS per JMT**		
Clay Road (Sussex Road 269) / Marsh Road (Sussex Road 269A) [67]	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
2027 without Development and without Kings Highway Dual Lane project (Case 2a)						
Eastbound Clay Road Approach	B (13.3)	B (13.1)	B (13.5)	B (13.3)	B (12.8)	B (13.0)
Northbound Marsh Road Left Turn	A (8.1)	A (8.2)	A (8.1)	A (8.1)	A (8.2)	A (8.0)
2027 with Development (Case 3)						
Eastbound Clay Road Approach	C (15.2)	C (16.5)	C (18.3)	B (14.4)	C (15.5)	C (15.9)
Northbound Marsh Road Left Turn	A (8.2)	A (8.6)	A (8.4)	A (8.3)	A (8.6)	A (8.3)

[67] The intersection will be reconfigured as part of the *Realignment of Old Orchard Road/Savannah Road/Wescoats Road* (DelDOT Contract No. T201609601) project. The existing westbound Clay Road left-turn onto Marsh Road will be a major street through movement. The existing right-turn from Marsh Road onto Clay Road will be a major street through movement. The existing eastbound through movement on Clay Road will be a stop-controlled minor street left-turn onto Clay Road.

Table 12
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, INC.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268) / Dartmouth Drive (Sussex Road 268A) [2,68,69]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2018 Existing (Case 1)						
Northbound Kings Highway Left Turn	A (9.7)	A (7.7)	F (133.7)	A (7.4)	A (7.7)	A (7.5)
Eastbound Dartmouth Drive Approach	D (28.7)	F (145.0)	F (*)	D (29.5)	F (86.3)	F (180.7)
2027 without Development (Case 2)						
Northbound Kings Highway Left Turn	A (9.7)	A (7.8)	F (142.5)	A (7.4)	A (7.8)	A (7.6)
Eastbound Dartmouth Drive Approach	F (330.2)	F (*)	F (*)	F (199.0)	F (840.3)	F (831.0)
2027 with Development (Case 3)						
Northbound Kings Highway Left Turn	A (9.7)	A (7.8)	F (142.5)	A (7.4)	A (7.8)	A (7.6)
Eastbound Dartmouth Drive Approach	F (944.9)	F (*)	F (*)	F (477.8)	F (*)	F (*)

*HCS reported excessive delay greater than 1000 seconds per vehicle

[68] The TIS utilized various values for proportion of time blocked whereas JMT utilized the default value of 0.
[69] Results represent the eastbound Dartmouth Drive Approach to have one shared left turn/right turn lane. JMT also incorporated the right turn lane to have a flared right turn with a 5-vehicle storage.

Table 12 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Roundabout[1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268) / Dartmouth Drive (Sussex Road 268A) [70]	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
2027 without Development and with or without Kings Highway Dual Lane Project (Case 2a) [71]						
Eastbound Dartmouth Drive Approach	A (5.7)	A (6.3)	A (5.9)	A (5.7)	A (6.4)	A (6.0)
Northbound Kings Highway Approach	A (0.2)	A (0.9)	A (0.6)	A (0.2)	A (0.9)	A (0.6)
Southbound Kings Highway Approach	A (0.2)	A (0.4)	A (0.2)	A (0.2)	A (0.4)	A (0.2)
Overall Intersection	A (1.1)	A (1.5)	A (1.2)	A (1.1)	A (1.5)	A (1.3)
2027 with Development and with or without Kings Highway Dual Lane Project (Case 3) [71]						
Eastbound Dartmouth Drive Approach	A (6.3)	A (6.9)	A (7.0)	A (6.2)	A (6.9)	A (7.2)
Northbound Kings Highway Approach	A (0.2)	A (0.9)	A (0.5)	A (0.2)	A (0.9)	A (0.5)
Southbound Kings Highway Approach	A (0.2)	A (0.3)	A (0.2)	A (0.2)	A (0.3)	A (0.2)
Overall Intersection	A (1.2)	A (1.5)	A (1.4)	A (1.2)	A (1.5)	A (1.5)

Note: Analysis highlighted in blue represents JMT suggested improvements with the full build of the proposed development

[70] Both the TIS and JMT modeled the northbound approach with a right turn bypass lane to represent a northbound bypass lane.
[71] Both the TIS and JMT modeled the intersection as a single-lane roundabout.

Table 12 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Signalized Intersection [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268) / Dartmouth Drive (Sussex Road 268A) [72]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development and with or without Kings Highway Dual Lane Project (Case 2a)	-	-	-	C (27.3)	C (26.3)	D (41.4)
2027 with Development and with or without Kings Highway Dual Lane Project (Case 3)	-	-	-	D (54.1)	D (41.9)	F (112.1)

[72] JMT analyzed the intersection as a signalized intersection with a 60 second cycle length during all peak periods. The eastbound Dartmouth Drive approach would provide one left turn lane and one shared left turn/right turn lane, the northbound Kings Highway approach would provide one left turn lane and one through lane, and the southbound Kings Highway approach would provide one through lane.

BOUNDARY CURVE TABLE

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
BC-1	70.00'	23.47'	23.36'	N 87°09'28" W	19°12'44"
BC-2	120.00'	96.50'	93.92'	N 60°11'57" E	46°04'26"

BOUNDARY LINE TABLE

LINE	BEARING	DISTANCE
BL-1	N 12°26'54" E	7.06'

ADJACENT PROPERTY OWNERS

KEY	PARCEL ID	PROPERTY OWNER	DEED	ZONING
A	335-8.00-37.01	CAPE HENLOPEN MEDICAL CENTER LLC	DB:5007 PG:276	C-3 HEAVY COMMERCIAL
B	335-8.00-43.01	CADBURY AT LEWES INC	DB:2934 PG:239	MR MEDIUM-DENSITY RESIDENTIAL
C	335-8.00-326.00	JOHN A JIULIANO & LAURA T OTA	DB:3978 PG:171	R-2 RESIDENTIAL LOW DENSITY
D	335-8.00-327.00	PATTI J STEWART	DB:4138 PG:247	R-2 RESIDENTIAL LOW DENSITY
E	335-8.00-328.00	KEVIN P HAZARD & JOANN T HAZARD	DB:5357 PG:123	R-2 RESIDENTIAL LOW DENSITY
F	335-8.00-329.00	LINDA S LEKITES	DB:3027 PG:314	R-2 RESIDENTIAL LOW DENSITY
G	335-8.00-330.00	DAVID A CANNON/CATHY E WILLIAMS	DB:2194 PG:246	R-2 RESIDENTIAL LOW DENSITY
H	335-8.00-336.00	BAY BREEZE ESTATES HOMEOWNERS ASSOC INC	DB:1985 PG:181	R-2 RESIDENTIAL LOW DENSITY
I	335-8.00-42.02	JEFFERSON ESTATES II LLC	DB:4743 PG:296	R-5 MIXED RESIDENTIAL
J	335-8.00-42.01	JEFFERSON ESTATES II LLC	DB:4338 PG:195	R-5 MIXED RESIDENTIAL
K	335-8.00-39.00	JEFF-WAT LLC	DB:5381 PG:282	C-3 HEAVY COMMERCIAL
L	335-8.00-38.00	THREE BUILDERS LLC	DB:3173 PG:100	C-1 GENERAL COMMERCIAL

N/F:
MITCHELL FAMILY, LLC.
335-8.00-37.00
DB:5074 PG:48

TO BE REZONED FROM
AR-1 AGRICULTURAL RESIDENTIAL DISTRICT
TO MR MEDIUM-DENSITY RESIDENTIAL DISTRICT

RESIDENTIAL DEVELOPMENT
1,906,941 S.F.
43.777 AC.

S 37°09'44" W 1655.38'

S 49°36'53" E 487.04'

S 49°43'30" E 371.52'

N 40°16'10" E 136.85'

BL-1

BC-1

N 83°14'10" E 96.83'

BC-2

N 37°09'44" E 111.21'

S 50°42'39" E 47.19'

S 69°20'38" E 77.53'

S 69°20'38" E 371.16' (TOTAL)

S 69°20'38" E 293.63'

P.O.B.
N: 275,716.78
E: 732,889.89

N 21°17'08" E 883.02'

N 68°42'52" W 371.14'

N 21°17'08" E 356.96'

N 21°17'08" E 723.99'

N 21°17'08" E 362.03'

N 75°55'42" W 664.50'

CITY OF LEWES (MUNICIPAL BOUNDARY)
SUSSEX COUNTY

GILLS NECK ROAD (SCR 267) ROW VARIES
LOCAL ROAD - POSTED 35 MPH

KINGS HIGHWAY (SCR 268) 60' ROW
OTHER PRINCIPAL - POSTED 45 MPH

A B C D E F G H I

0' 80' 160' 240'
SCALE: 1" = 80'

DAVIS, BOWEN & FRIEDEL, INC.
ARCHITECTS ENGINEERS SURVEYORS
SALISBURY, MARYLAND (410) 543-9091
NEW CASTLE, DELAWARE (302) 322-4444
EASTON, MARYLAND (410) 770-4744

RE-ZONING PLAN - RESIDENTIAL

MITCHELL FARM

KINGS HIGHWAY (SCR 268)

LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

Revisions:

Date: DECEMBER 2021
Scale: 1" = 80'
Dwn.By: DEG
Proj.No.: 3808A001
Dwg.No.: RZ-01

P:\Chesapeake Realty\Zwaanendael Farm\Prelim\3808A001-REZONING PLAN_REVISED.dwg Dec 20, 2021 - 3:57pm GRED

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Sussex County
DELAWARE
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PLEASE NOTE

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PLANNING & ZONING COMMISSION
ROBERT C. WHEATLEY, CHAIRMAN
KIM HOEY STEVENSON, VICE-CHAIRMAN
R. KELLER HOPKINS
J. BRUCE MEARS
HOLLY J. WINGATE

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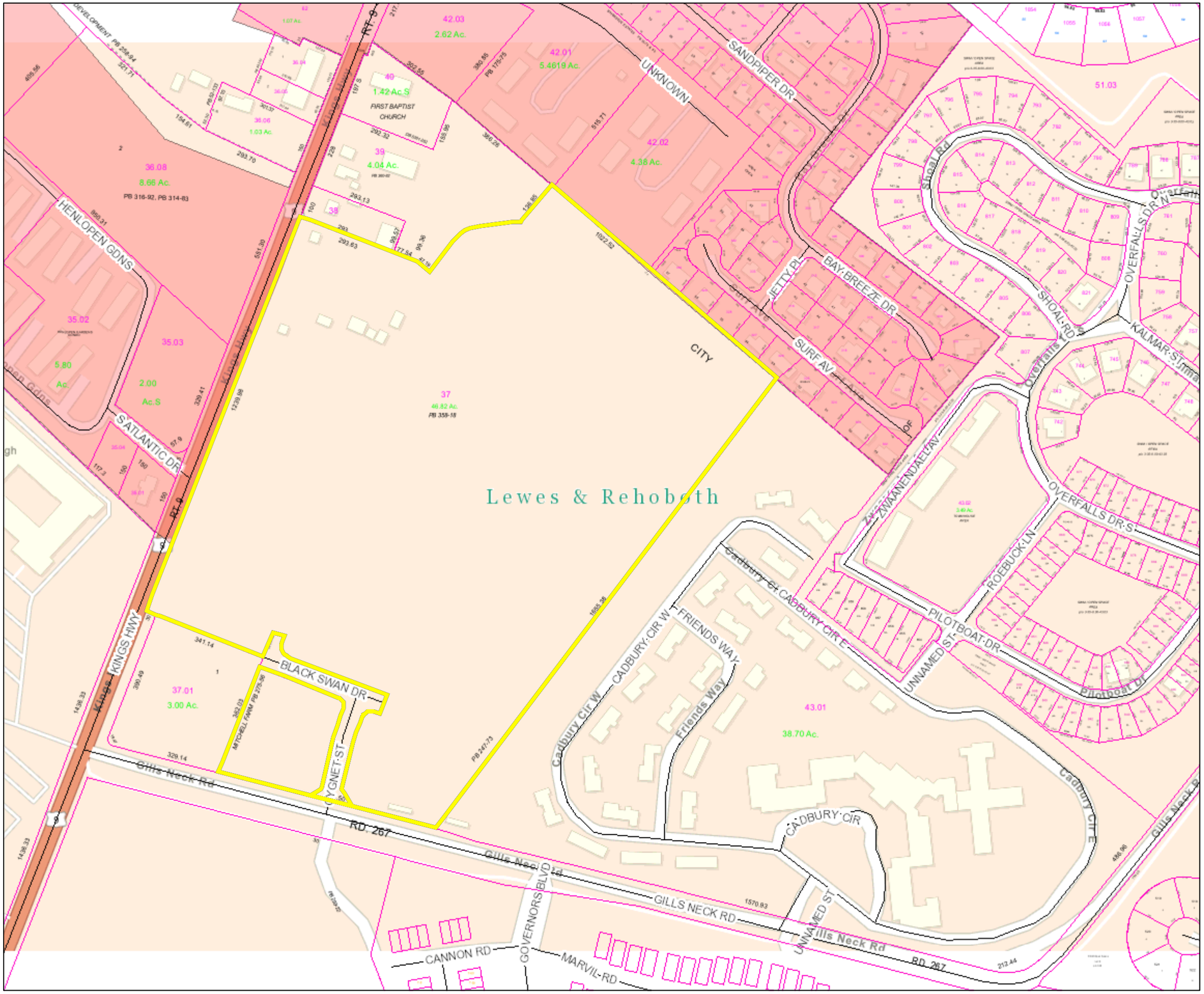
302-854-5079 F
JAMIE WHITEHOUSE, MRTPI, AICP
DIRECTOR OF PLANNING & ZONING

PLANNING AND ZONING AND COUNTY COUNCIL INFORMATION SHEET
Planning Commission Public Hearing Date: March 10th, 2022

Application:	CZ 1968 Henlopen Properties, LLC
Applicant:	Henlopen Properties, LLC 4750 Owning Mills Boulevard Owing Mills, MD 21117
Owner:	Mitchell Family, LLC 1019 Kings Highway Lewes, DE 19958
Site Location:	Lying on the north side of Gills Neck Rd. (S.C.R. 267)
Current Zoning:	Agricultural Residential (AR-1) Zoning District
Proposed Zoning:	Medium Commercial (C-2) Zoning District
Comprehensive Land Use Plan Reference:	Coastal Area
Councilmanic District:	Mr. Schaeffer
School District:	Cape Henlopen School District
Fire District:	Lewes Fire Department
Sewer:	Sussex County
Water:	Tidewater
Site Area:	3.041 acres +/-
Tax Map ID.:	335-8.00-37.00 (portion of)

EQUAL HOUSING OPPORTUNITY

Sussex County



PIN:	335-8.00-37.00
Owner Name	JEFF-KAT LLC
Book	5613
Mailing Address	1007 KINGS HWY
City	LEWES
State	DE
Description	SE/KINGS HWY
Description 2	RESIDUAL LANDS
Description 3	N/A
Land Code	

polygonLayer
Override 1

polygonLayer
Override 1
Tax Parcels
Streets
Hundred Boundaries
County Boundaries

Tax Ditch Segments
Tax Ditch Channel
Pond Feature
Special Access ROW
Extent of Right-of-Way
Municipal Boundaries
TID

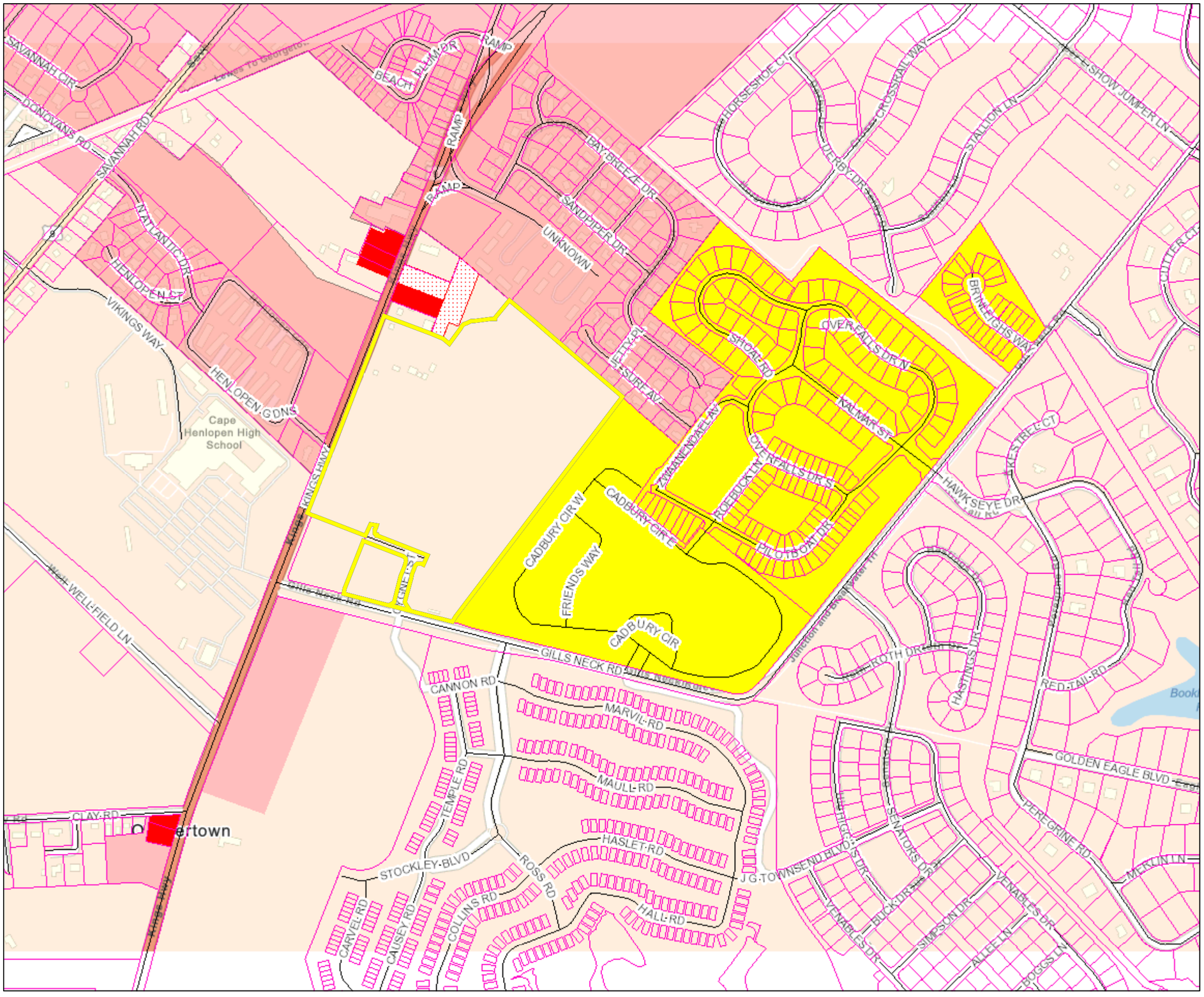
1:4,514

0 0.05 0.1 0.2 mi

0 0.075 0.15 0.3 km

January 31, 2022

Sussex County



PIN:	335-8.00-37.00
Owner Name	JEFF-KAT LLC
Book	5613
Mailing Address	1007 KINGS HWY
City	LEWES
State	DE
Description	SE/KINGS HWY
Description 2	RESIDUAL LANDS
Description 3	N/A
Land Code	

polygonLayer
Override 1

polygonLayer
Override 1

Tax Parcels

Streets

1:9,028

0 0.1 0.2 0.4 mi

0 0.175 0.35 0.7 km

January 31, 2022

Sussex County

PIN:	335-8.00-37.00
Owner Name	JEFF-KAT LLC
Book	5613
Mailing Address	1007 KINGS HWY
City	LEWES
State	DE
Description	SE/KINGS HWY
Description 2	RESIDUAL LANDS
Description 3	N/A
Land Code	

polygonLayer

Override 1

polygonLayer

Override 1

Tax Parcels

Streets

Hundred Boundaries

County Boundaries

Tax Ditch Segments

Tax Ditch Channel

Pond Feature

Special Access ROW

Extent of Right-of-Way

Municipal Boundaries

TID

1:4,514

0 0.05 0.1 0.2 mi

0 0.075 0.15 0.3 km

January 31, 2022

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Sussex County
DELAWARE
sussexcountyde.gov

Memorandum

To: Sussex County Planning Commission Members
From: Christin Scott, Planner I
CC: Vince Robertson, Assistant County Attorney, and applicant
Date: March 2, 2022
RE: Staff Analysis for CZ 1968 Henlopen Properties, LLC

This memo is to provide background and analysis for the Planning Commission to consider as a part of application CZ 1968 Henlopen Properties, LLC to be reviewed during the March 10, 2022, Planning Commission Meeting. This analysis should be included in the record of this application and is subject to comments and information that may be presented during the public hearing.

The request is for a Change of Zone for part of Tax Parcel 335-8.00-37.00 (portion of) to allow for a change of zone from an Agricultural Residential (AR-1) Zoning District to a Medium Commercial (C-2) Zoning District. The property is lying on the southeast side of Kings Highway (Rt. 9), approximately 0.11-mile northeast of the intersection of Kings Highway (Rt. 9) and Gills Neck Road (S.C.R. 267) The portion of the parcel to be rezoned consists of 3.041 acres +/-.

The 2018 Sussex County Comprehensive Plan Update (Comprehensive Plan) provides a framework of how land is to be developed. As part of the Comprehensive Plan, a Future Land Use Map is included to help determine how land should be zoned to ensure responsible development. The Future Land Use map in the plan indicates that the subject property has a land use designation of "Coastal Area." The properties to the south, east and west of the subject property also contain the Future Land Use Designation of "Coastal Area." Properties further to the north and across Kings Highway to the west are located within the municipality of Lewes.

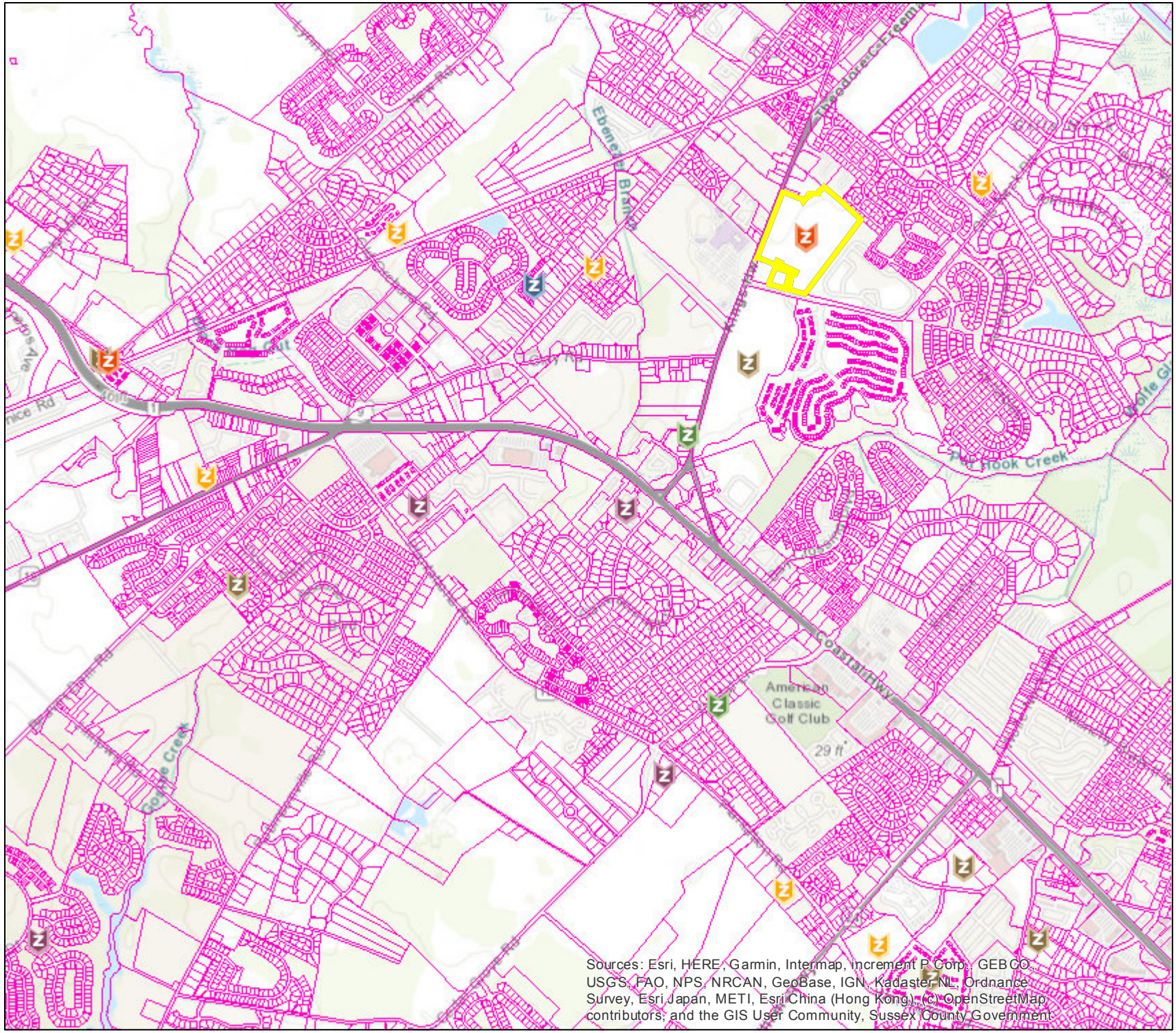
As outlined within the 2018 Sussex County Comprehensive Plan, Coastal Areas are areas that can accommodate development provided special environmental concerns are addressed. A range of housing types should be permitted in Coastal Areas, including single-family homes, townhouses, and multi-family units. Retail and office uses are appropriate but larger shopping centers and office parks should be confined to selected locations with access along arterial roads. Appropriate mixed-use development should also be allowed. In doing so, careful mixtures of homes with light commercial, office and institutional uses can be appropriate to provide for convenient services and to allow people to work close to home. Major new industrial uses are not proposed in these areas.

The portion of this property is zoned Agricultural Residential (AR-1) Zoning District. Adjacent parcels to the north are also zoned Agricultural Residential (AR-1) Zoning District, as well as General Commercial (C-1) and Heavy Commercial (C-3). The properties to the north are zoned Medium Residential (MR) and the properties across Kings Highway and Gills Neck Road to the west and south are zoned Agricultural Residential (AR-1) Zoning District and Neighborhood Business (B-1).

The 2018 Sussex County Comprehensive Plan outlines Zoning Districts by their applicability to each Future Land Use category. Under Table 4.5-2 "Zoning Districts Applicable to Future Land Use Categories," the Medium Commercial (C-2) Zoning District is listed as an applicable zoning district in the Coastal Area.

Since 2011, there have been nine (9) Change of Zone applications within a 2-mile radius of the application site. The Change of Zone applications approved include Medium Residential (MR), Neighborhood Business (B-1), Heavy Commercial (C-3) and Medium Commercial (C-2) Zoning Districts.

Based on the analysis of the land use, surrounding zoning and uses, a Change of Zone from an Agricultural Residential Zoning District (AR-1) to a Medium Commercial Zoning District (C-2) could be considered as being consistent with the land use, based on the size, scale, zoning and surrounding uses.



Addresses / Parcels
- TaxParcels

Council Districts
- Fire Districts
- County District 01
- County District 02
- County District 03
- County District 04
- County District 05
- County Boundaries

Schools/Libraries
- School Buildings (Various)
- School Library
- Public Library
- Special Library
- DOE School Districts
- DOE VoTech School Districts

Hydrology
- Streams / Rivers
- Lakes, Ponds, Bays

Flood Zones
- 0.2% Annual Chance Flood Hazard
- A
- AE
- AO
- Open Water
- VE

- Public Protected Lands
- Municipalities
- Communities
- Boundaries State County

N

Sussex County Map

0 1,250 2,500 5,000 7,500 10,000 Feet

File #: C21968
2022000009

Planning & Zoning Commission Application
Sussex County, Delaware

Sussex County Planning & Zoning Department
2 The Circle (P.O. Box 417) Georgetown, DE 19947
302-855-7878 ph. 302-854-5079 fax

RECEIVED
JAN 0 5 2022
SUSSEX COUNTY
PLANNING & ZONING

Type of Application: (please check applicable)
Conditional Use ___
Zoning Map Amendment ✓

Site Address of Conditional Use/Zoning Map Amendment

Northeast quadrant of Kings Highway and Gills Neck Road, Lewes

Type of Conditional Use Requested:

N/A

Tax Map #: 335-8.00-37.00 (portion) **Size of Parcel(s):** 3.041 +/- acres

Current Zoning: AR-1 **Proposed Zoning:** C2 **Size of Building:** TBD

Land Use Classification: Agricultural

Water Provider: Tidewater **Sewer Provider:** Sussex County

Applicant Information

Applicant Name: Henlopen Properties, LLC
Applicant Address: 4750 Owning Mills Blvd
City: Owing Mills State: MD ZipCode: 21117
Phone #: E-mail:

Owner Information

Owner Name: Mitchell Family, LLC
Owner Address: 1019 Kings Highway
City: Lewes State: DE Zip Code: 19958
Phone #: E-mail:

Agent/Attorney/Engineer Information

Agent/Attorney/Engineer Name: Davis, Bowen & Friedel, Inc.
Agent/Attorney/Engineer Address: 1 Park Avenue
City: Milford State: DE Zip Code: 19963
Phone #: (302) 424-1441 E-mail: rwl@dbfinc.com

Check List for Sussex County Planning & Zoning Applications

The following shall be submitted with the application

✓ **Completed Application**

✓ **Provide eight (8) copies of the Site Plan or Survey of the property**
- Survey shall show the location of existing or proposed building(s), building setbacks, parking area, proposed entrance location, etc.
- Provide a PDF of Plans (may be e-mailed to a staff member)
- Deed or Legal description

✓ **Provide Fee $500.00**

___ **Optional - Additional information for the Commission/Council to consider** (ex. architectural elevations, photos, exhibit books, etc.) If provided submit 8 copies and they shall be submitted a minimum of ten (10) days prior to the Planning Commission meeting.

✓ **Please be aware that Public Notice will be sent to property owners within 200 feet of the subject site and County staff will come out to the subject site, take photos and place a sign on the site stating the date and time of the Public Hearings for the application.**

___ **DelDOT Service Level Evaluation Request Response**

___ **PLUS Response Letter** (if required)

The undersigned hereby certifies that the forms, exhibits, and statements contained in any papers or plans submitted as a part of this application are true and correct.

I also certify that I or an agent on by behalf shall attend all public hearing before the Planning and Zoning Commission and the Sussex County Council and any other hearing necessary for this application and that I will answer any questions to the best of my ability to respond to the present and future needs, the health, safety, morals, convenience, order, prosperity, and general welfare of the inhabitants of Sussex County, Delaware.

Signature of Applicant/Agent/Attorney

_____ Date: 12/22/2021

Signature of Owner

_____ Date: 12/22/21

For office use only:

Date Submitted: 1/5/22 Fee: $500.00 Check #: 10025 0245

Staff accepting application: CAR Application & Case #: 202200009

Location of property: _____

Subdivision: _____

Date of PC Hearing: _____ Recommendation of PC Commission: _____

Date of CC Hearing: _____ Decision of CC: _____

STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. BOX 778
DOVER, DELAWARE 19903

NICOLE MAJESKI
SECRETARY

RECEIVED
JAN 05 2022
SUSSEX COUNTY
PLANNING & ZONING

December 20, 2021

Mr. Jamie Whitehouse, Director
Sussex County Planning & Zoning
P.O. Box 417
Georgetown, DE 19947

Dear Mr. Whitehouse:

The Department has completed its review of a Service Level Evaluation Request for the **Henlopen Properties, LLC (Jon Mayers)** proposed land use application, which we received on December 10, 2021. This application is for an approximately 3-acre portion of a 48.01- acre parcel (Tax Parcel: 335-8.00-37.00). The subject land is located on the north side of Gills Neck Road (Sussex Road 267) and the east side of Kings Highway (US Route 9). The subject land is currently zoned AR (Agriculture Residential), with a proposed zoning of C-2 (Medium Commercial) for retail and medical offices.

Per the 2019 Delaware Vehicle Volume Summary, the annual average daily traffic volumes along Gills Neck Road from Red Tail Road to Kings Highway, is 4,186 vehicles per day. The annual average daily traffic volumes along Kings Highway from Kings Highway (Sussex Road 268) to Gills Neck Road, is 12,019 vehicles per day.

Based on our review, we estimate that the proposed land use would generate more than 50 vehicle trips in any hour or 500 vehicle trips per day, and would be considered to have a **Major** impact to the local area roadways. In this instance, the Department considers a Major impact to be when a proposed land use would generate more than 200 vehicle trips in any hour of the week and / or 2,000 vehicle trips per day. According to the Institute of Transportation Engineers (ITE) Trip Generation Manual, (trip generation). These numbers of trips meet DelDOT's warrants for requiring a Traffic Impact Study (TIS).

DelDOT

If the County approves this application, the applicant should be reminded that DelDOT requires compliance with State regulations regarding plan approvals and entrance permits, whether or not a TIS is required.

Please contact Ms. Annamaria Furmato, at Annamaria.Furmato@delaware.gov, if you have questions concerning this correspondence.

Sincerely,

T. William Brockenbrough, Jr.
County Coordinator
Development Coordination

TWB:afm
cc: Henlopen Properties, LLC (Jon Mayers), Applicant
Sussex Reviewer, Sussex County Planning & Zoning
David Edgell, Coordinator, Cabinet Committee on State Planning Issues
Todd Sammons, Assistant Director, Development Coordination
Scott Rust, South District Public Works Manager, Maintenance & Operations
Steve McCabe, Sussex County Review Coordinator, Development Coordination
Derek Sapp, Subdivision Manager, Development Coordination
Kevin Hickman, Subdivision Manager, Development Coordination
Brian Yates, Subdivision Manager, Development Coordination
John Andrescavage, Subdivision Manager, Development Coordination
James Argo, South District Project Reviewer, Maintenance & Operations
Claudy Joinville, Project Engineer, Development Coordination
Annamaria Furmato, Project Engineer, Development Coordination

SUSSEX COUNTY ENGINEERING DEPARTMENT
UTILITY PLANNING & DESIGN REVIEW DIVISION
C/U & C/Z COMMENTS

TO: **Jamie Whitehouse**

REVIEWER: **Chris Calio**

DATE: **2/21/2022**

APPLICATION: **CZ 1968 Henlopen Properties, LLC**

APPLICANT: **Henlopen Properties, LLC**

FILE NO: **OM-9.04**

TAX MAP & PARCEL(S): **335-8.00-37.00 (p/o)**

LOCATION: **Lying on the southeast side of Kings Highway (Rt. 9) and on the north side of Gills Neck Road (SCR 267).**

NO. OF UNITS: **Change of Zone from AR-1 to C-2**

GROSS ACREAGE: **3.041**

SYSTEM DESIGN ASSUMPTION, MAXIMUM NO. OF UNITS/ACRE: **4**

SEWER:

(1). Is the project in a County operated and maintained sanitary sewer and/or water district?

Yes ☒ No ☐

a. If yes, see question (2).
b. If no, see question (7).

(2). Which County Tier Area is project in? **Tier 1**

(3). Is wastewater capacity available for the project? **Yes** If not, what capacity is available? **N/A**.

(4). Is a Construction Agreement required? **Yes** If yes, contact Utility Engineering at (302) 855-7717.

(5). Are there any System Connection Charge (SCC) credits for the project? **No** If yes, how many? **N/A**. Is it likely that additional SCCs will be required? **Yes** If yes, the current System Connection Charge Rate is **Unified $6,600.00** per EDU. Please contact **Christine Fletcher** at **302-855-7719** for additional information on charges.

(6). Is the project capable of being annexed into a Sussex County sanitary sewer district? **N/A**

☐ Attached is a copy of the Policy for Extending District Boundaries in a Sussex County Water and/or Sanitary Sewer District.

(7). Is project adjacent to the Unified Sewer District? **N/A**

(8). Comments: **Click or tap here to enter text.**

(9). Is a Sewer System Concept Evaluation required? **Yes, Contact Utility Planning at 302-855-7370 to apply**

(10). Is a Use of Existing Infrastructure Agreement Required? **Yes**

(11). **All residential roads must meet or exceed Sussex County minimum design standards.**

UTILITY PLANNING & DESIGN REVIEW APPROVAL:

John J. Ashman
Sr. Manager of Utility Planning & Design Review

Xc: Hans M. Medlarz, P.E.
Lisa Walls
Christine Fletcher

STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. BOX 778
DOVER, DELAWARE 19903

NICOLE MAJESKI
SECRETARY

February 28, 2022

Mr. Ring Lardner
Davis, Bowen & Friedel, Inc.
1 Park Avenue
Milford, DE 19963

Dear Mr. Lardner:

The enclosed Traffic Impact Study (TIS) review letter for the **Mitchell Farm (Zwaanendael Farm)** (Tax Parcel: 335-8.00-37.00) development has been completed under the responsible charge of a registered professional engineer whose firm is authorized to work in the State of Delaware. They have found the TIS to conform to DelDOT's Development Coordination Manual and other accepted practices and procedures for such studies. DelDOT accepts this letter and concurs with the recommendations. If you have any questions concerning this letter or the enclosed review letter, please contact me at (302) 760-2124.

Sincerely,

Claudy Joinville
Project Engineer

CJ:km
Enclosures
cc with enclosures: Mr. Robert Mitchell, The Mitchell Family Ltd. Partnership
Mr. Paul Townsend, Owner
Mr. David Hutt, Morris, James, Wilson, Halbrook & Bayard, LLP
Mr. DJ Hughes, Davis, Bowen & Friedel, Inc.
Ms. Ann Marie Townshend, City Manager, City of Lewes
Mr. David Edgell, Office of State Planning Coordination
Mr. Jamie Whitehouse, Sussex County Planning and Zoning
Ms. Joanne Arellano, Johnson, Mirmiran, & Thompson, Inc.
DelDOT Distribution

DelDOT

DelDOT Distribution

Brad Eaby, Deputy Attorney General
Shanté Hastings, Deputy Secretary / Director of Transportation Solutions (DOTS)
Pamela Steinebach, Director, Planning
Mark Luszcz, Deputy Director, Traffic, DOTS
Peter Haag, Chief Traffic Engineer, Traffic, DOTS
Michael Simmons, Assistant Director, Project Development South, DOTS
Todd Sammons, Assistant Director, Development Coordination
T. William Brockenbrough, Jr., County Coordinator, Development Coordination
Chris Sylvester, Traffic Studies Manager, Traffic, DOTS
Alistair Probert, South District Engineer, South District
Matthew Schlitter, South District Public Works Engineer, South District
Jared Kauffman, Service Development Planner, Delaware Transit Corporation
Tremica Cherry, Service Development Planner, Delaware Transit Corporation
Anthony Aglio, Planning Supervisor, Statewide & Regional Planning
Wendy Polasko, Subdivision Engineer, Development Coordination
Steve McCabe, Sussex Review Coordinator, Development Coordination
Mark Galipo, Traffic Engineer, Traffic, DOTS
Brian Yates, Subdivision Manager, Development Coordination
Annamaria Furmato, Project Engineer, Development Coordination

Revised February 28, 2022
October 7, 2021

Mr. Claudy Joinville
Project Engineer
Development Coordination
DelDOT Division of Planning
800 Bay Road
P O Box 778
Dover, DE 19903

RE:Agreement No. 1945F
Project Number T202069012
Traffic Impact Study Services
Task 4A-Mitchell Farm (Zwaanendael Farm)

Dear Mr. Joinville:

In October 2021, Johnson, Mirmiran and Thompson (JMT) completed the review of the Traffic Impact Study (TIS) for Mitchell Farm (Zwaanendael Farm), prepared by Davis, Bowen & Friedel, Inc. dated November 2019 and the TIS Addendum prepared by Davis, Bowen & Friedel, Inc. dated April 2020. The task was assigned as Task Number 4A and the report was prepared in a manner generally consistent with DelDOT's *Development Coordination Manual*.

Since that review, the developer has proposed land use changes and this letter has been revised to summarize the modifications. In addition, changes have been made to the DelDOT *US 9, Kings Highway, Dartmouth Drive to Freeman Highway* (DelDOT Contract No. T202212901) project as well as to the interim improvements proposed by the developer. This letter summarizes the recommendations based on what is now planned and proposed. A copy of the October 7, 2021 TIS review letter is attached for reference.

The TIS evaluates the impacts of a proposed mixed-use development in Sussex County, Delaware. The current site plan proposes 14,400 square feet of shopping center, 28,800 square feet of medical/dental office, and 267 multi-family homes. This plan represents a trip generation reduction of approximately 50%. Construction is anticipated to be complete in 2027. The existing 39,000 square foot medical/dental office building on Lot 1 would remain with the land use changes.

Table 1 summarizes the updated full build out of the site. The trip generation for the proposed development was determined by using the comparable land use and rates/equations contained in the *Trip Generation, 10th Edition: An ITE Informational Report*, published by the Institute of Transportation Engineers (ITE).

Table 1
Mitchell Farm (Zwaanendael Farm) Trip Generation – Updated Full Build Out

Land Use	ADT	AM Peak Hour			PM Peak Hour			SAT Peak Hour		
		In	Out	Total	In	Out	Total	In	Out	Total
267 Multifamily Low-Rise Houses (ITE Code 220)	1,978	28	93	121	90	52	142	101	86	187
67,800 SF Medical-Dental Office Building (ITE Code 720)*	2,517	123	35	158	65	167	232	120	90	210
14,400 SF Shopping Center (ITE Code 820)	1,610	9	5	14	62	68	130	70	64	134
Total Trips	**6,105**	**160**	**133**	**293**	**217**	**287**	**504**	**291**	**240**	**531**
Internal Capture	-	8	8	16	35	35	70	36	36	72
New Trips	**6,105**	**152**	**125**	**277**	**182**	**252**	**434**	**255**	**204**	**459**

*The existing 39,000 square-feet of medical-dental office building on Lot 1 would be maintained as part of the proposed development and is included in this calculation.

A comparison of the new trips between the updated land use changes and the TIS/TIS Addendum was conducted. As depicted in Table 2, the proposed updated land use changes is expected to generate significantly less traffic for the full build out of the site.

Table 2
Mitchell Farm (Zwaanendael Farm) Trip Generation Comparison – Full Build Out

Land Use	ADT	AM Peak Hour			PM Peak Hour			SAT Peak Hour		
		In	Out	Total	In	Out	Total	In	Out	Total
Updated Land Uses – New Trips	6,105	152	125	277	182	252	434	255	204	459
November 2019 TIS/April 2020 TIS Addendum – New Trips	9,268	356	166	522	271	548	819	617	478	1,095
Difference	**- 3,163**	**-204**	**-41**	**-245**	**-89**	**-296**	**-385**	**-362**	**-274**	**-636**

The site is located on the northeast corner of the intersection of Kings Highway (Sussex Road 268) and Gills Neck Road (Sussex Road 267). Two access points are proposed: one along Kings Highway directly opposite the proposed site access for the Beebe Medical development and one along Gills Neck Road opposite the site access for the proposed Gills Neck Village Center commercial project.

The site consists of two tax parcels, a 3-acre parcel known as Lot 1 and the remainder of the original parcel consisting of approximately 48 acres. Both parcels are zoned AR-1 (Agricultural Residential). Lot 1 is subject to a conditional use for a 39,000 square foot medical/dental office building which has been constructed. The remaining parcel (48 acres) is the subject of the following applications pending with Sussex County: a subdivision application, 2 change of zone applications (C-2 and MR), and a conditional use (MR parcel).

It should be noted that the 39,000 square foot medical/dental office building on Lot 1 that has been approved and constructed provides a Site Entrance along Gills Neck Road. The Site Entrance is constructed as a two-way stop-controlled intersection with one shared left turn/through lane and one right turn lane along the southbound Site Entrance approach (stop-controlled). One left turn lane and one through lane are provided along the eastbound Gills Neck Road approach and one through lane and one right turn lane are provided along the westbound Gills Neck Road approach. As part of the Lot 1 construction, sidewalks and bike lanes have been added along the Gills Neck Road site frontage and the Site Entrance along Gills Neck Road contains ADA compliant curb ramps.

DelDOT has several relevant and ongoing improvement projects and plans within the study area including the *Realignment of Old Orchard Road/Savannah Road/Wescoats Road* (DelDOT Contract No. T201609601) project; a signal at the Kings Highway and Clay Road intersection which was recently installed; the *Corridor Management Plan* for the Lewes Scenic and Historic Byway (October 2015); the *Kings Highway and Gills Neck Road Master Plan* dated September 2016; and the Delaware River and Bay Authority (DRBA) *Freeman Highway Rehabilitation* project (DelDOT Contract No. 20191619-00). Detailed information regarding these projects can be found in the October 7, 2021 TIS review letter.

As part of the DelDOT *US 9, Kings Highway, Dartmouth Drive to Freeman Highway* (DelDOT Contract No. T202212901) project, Kings Highway is proposed to be widened to provide two through lanes in each direction. DelDOT held a public workshop on February 23, 2022 to discuss the proposed improvements which include widening Kings Highway to provide two 11-foot lanes in each direction with 5-foot shoulders, and a curbed median would be provided to separate each direction of travel. Additionally, the following intersections along Kings Highway are proposed to be converted to roundabouts: Dartmouth Drive, Clay Road, Gills Neck Road, Beebe Medical Center/Mitchell Farm site entrance, and Freeman Highway. Pedestrian and transit improvements are also proposed. The project is in the design and planning stage with construction anticipated to start in Fiscal Year 2026. More information about the project can be found here: https://deldot.gov/projects/index.shtml?dc=details&projectNumber=T202212901

The October 7, 2021 TIS review evaluated cases with dualization of Kings Highway as it was then envisioned. DelDOT's current plan of the project is different.

Although the projected trip generation associated with the site has reduced significantly, the developer has agreed to the interim improvements similar to those identified in the October 2021 TIS review. The interim improvements would add a second left turn lane from Gills Neck Road onto southbound Kings Highway and a second through lane along southbound Kings Highway starting north of Gills Neck Road and ending at Clay Road. These improvements would potentially be replaced as part of the *US 9, Kings Highway, Dartmouth Drive to Freeman Highway* project. Details follow in the itemized list of recommendations.

Should Sussex County approve the proposed development, the following items should be incorporated into the site design and reflected on the record plan. All applicable agreements (i.e. letter agreements for off-site improvements and traffic signal agreements) should be executed prior to entrance plan approval for the proposed development. The following items should be implemented at the same time as site construction once all agency approvals and permits are secured and completed in accordance with DelDOT's Standards and Specifications.

1. The developer should provide a bituminous concrete overlay to the existing travel lanes along Kings Highway from north of Gills Neck Road to south of Clay Road in the area affected by the improvements discussed below in Item Number 4, including any auxiliary lanes, at DelDOT's discretion. DelDOT should analyze the existing lanes' pavement section and recommend an overlay thickness to the developer's engineer, if necessary.

2. The developer should construct a rights-in/rights-out site entrance for the proposed Mitchell Farm/Zwaanendael Farm development on Kings Highway directly across from the Beebe Medical entrance, approximately 1,550 feet north of the northeast tangent point of the Gills Neck Road/Cape Henlopen High School Entrance. The design of the entrance, including lengths of turn lanes, will be determined during the Entrance Plan review process.

3. The developer should maintain the existing site entrance for the proposed Mitchell Farm/Zwaanendael Farm development, approximately 650 feet east of the northeast tangent point of the Kings Highway intersection and directly across from the proposed Gills Neck Village Center Entrance to be consistent with the lane configurations shown in the table below:

Approach	Current Configuration	Proposed Configuration
Eastbound Gills Neck Road	One left turn lane and one through lane	One left turn lane, one through lane, and one right turn lane*
Westbound Gills Neck Road	One through lane and one right turn lane	One left turn lane**, one through lane, and one right turn lane
Northbound Gills Neck Village Center Entrance	Approach does not exist	One left turn/through lane and one right turn lane***
Southbound Site Entrance	One shared left turn/through lane and one right turn lane	No change

*Right turn lane to be built by others
**Left turn lane to be built by others
***Approach to be built by others

Based on DelDOT's *Development Coordination Manual*, the recommended minimum storage lengths (excluding taper) of the separate left turn and right turn lanes along Gills Neck Road are listed below. The calculated queue lengths from the HCS analysis can be accommodated within the recommended storage length.

Approach	Left Turn Lane	Right Turn Lane
Eastbound Gills Neck Road	120 feet*	190 feet**
Westbound Gills Neck Road	120 feet**	120 feet*

*This storage length is the existing storage length per the June 2018 Zwaanendael Farm Rezoning Sketch Plan and it should be maintained.
**To be built by others

As a TOA/TIS will be performed for the Gills Neck Village Center, the recommended lane configurations and storage lengths for the Gills Neck Village Center entrance may be modified based on those results.

4. The developer should improve the Kings Highway and Gills Neck Road/Cape Henlopen High School Entrance intersection to be consistent with the lane configurations shown in the table below:

Approach	Current Configuration	Proposed Configuration
Eastbound Cape Henlopen High School	One shared left turn/through lane and one right turn lane	No change
Westbound Gills Neck Road	One left turn lane, one through lane, and one right turn lane	Two left turn lanes and one shared through/right turn lane
Northbound Kings Highway	One left turn lane, one through lane, and one right turn lane	No change
Southbound Kings Highway	One left turn lane, one through lane, and one right turn lane	One left turn lane, two through lanes, and one right turn lane

The recommended minimum storage lengths (excluding taper) of the separate left turn and right turn lanes along Kings Highway and Gills Neck Road are listed below.

Approach	Left Turn Lane	Through/Right Turn Lane	Right Turn Lane
Northbound Kings Highway	250 feet*	-	180 feet*
Southbound Kings Highway	340 feet*	-	280 feet*
Westbound Gills Neck Road	420 feet	570 feet**	-

*Storage lengths match the existing storage lengths per field conditions and should be maintained.
**Storage length does not match the existing storage length and requires lengthening.

The developer would reconstruct Kings Highway south of the Gills Neck Road intersection to provide two through lanes and the rightmost through lane should transition to a right turn only lane at the Clay Road intersection. An SUP should be constructed along Kings Highway from Cape Henlopen High School to Clay Road.

The developer should donate any temporary construction easements needed to build and remove the interim improvements.

The developer should enter into a traffic signal agreement with DelDOT for the intersection of Kings Highway with Gills Neck Road to address the changes necessitated in the above improvements. The traffic signal agreement should include pedestrian signals, crosswalks, interconnection, and ITS equipment such as CCTV cameras at DelDOT's discretion. Prior to Entrance Plan approval, the developer should submit a plan to the DelDOT Development Coordination section depicting the design of Kings Highway from Gills Neck Road to Clay Road. The final design should be determined during the Entrance Plan review process.

5. The developer should enter into an agreement with DelDOT to fund an equitable portion of improvements to the intersections of Kings Highway with Dartmouth Drive, Clay Road, Gills Neck Road/Cape Henlopen High School Entrance, Atlantic Drive, Freeman Highway, Bay Breeze Drive, and the Site Entrance/Beebe Medical Center Entrance as part of the *US 9, Kings Highway, Dartmouth Drive to Freeman Highway* project. The developer should coordinate with DelDOT on the implementation and equitable cost sharing of the improvements.

6. The development should dedicate right-of-way along Kings Highway and Gills Neck Road in accordance with the functional classification of both roads to provide 50 feet from centerline on Kings Highway and 30 feet from centerline on Gills Neck Road. In addition, on Kings Highway, the development should reserve 30 feet parallel to Kings Highway to accommodate the *US 9, Kings Highway, Dartmouth Drive to Freeman Highway* project. Beyond these right-of-way dedications/reservations both roads should have a 15-foot-wide permanent easement.

7. The developer should enter into an agreement with DelDOT to fund an equitable portion of improvements to the intersection of Clay Road and Marsh Road as part of the *Realignment of Old Orchard Road/Savannah Road/Wescoats Road* (DelDOT Contract No. T201609601) project. The project will improve the intersection of Marsh Road and Clay Road to eliminate the existing skewed angle of the intersection. The developer should coordinate with DelDOT on the implementation and equitable cost sharing of the Clay Road and Marsh Road intersection improvements.

8. Vehicular interconnections or cross access easements between the on-site lots should be provided. The developer should coordinate with DelDOT's Development Coordination Section to determine the locations and feasibilities of the interconnections.

9. The following bicycle, pedestrian, and transit improvements should be included:

    a. A minimum fifteen-foot wide permanent easement from the edge of the right-of-way should be dedicated to DelDOT along the Kings Highway site frontage. Within the easement, the developer should construct a ten-foot wide shared-use path (SUP) to meet the shared-use path recently constructed for Lot 1. The developer should coordinate with DelDOT's Development Coordination and Project Development South sections during the plan review process to identify the exact location of the SUP.

    b. One or more accessways should be provided from the SUP into the site at locations to be defined during the Plan review process.

c. Where internal sidewalks are located alongside of parking spaces, a buffer, physical barrier or signage should be added to eliminate vehicular overhang onto the sidewalk.

d. The tie-in installed for Lot 1 should be removed once the SUP is extended along the entire property frontage.

e. ADA compliant curb ramps and marked crosswalks should be provided along the Kings Highway Site Entrance approach to Kings Highway. The use of diagonal curb ramps is discouraged.

f. Minimum five-foot wide bicycle lanes should be incorporated in the right turn lane and shoulder along the northbound Kings Highway approach to the Kings Highway Site Entrance.

g. Utility covers should be moved outside of any designated bicycle lanes and any proposed sidewalks/shared-use paths or should be flush with the pavement.

h. Bike parking should be provided near the building entrances. Where the building architecture provides for an awning or other overhang, the bike parking should be covered.

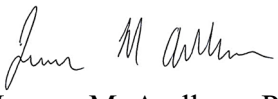
i. A Type 2 bus stop should be installed at the Kings Highway Site Entrance intersection. The developer should coordinate with DART and DelDOT on the location, design, as well as the amenities to provide.

Please note that this review generally focuses on capacity and level of service issues; additional safety and operational issues will be further addressed through DelDOT's Plan Review process.

Improvements in this TIS may be considered "significant" under DelDOT's *Work Zone Safety and Mobility Procedures and Guidelines*. These guidelines are available on DelDOT's website at https://www.deldot.gov//Publications/manuals/de_mutcd/index.shtml. For any additional information regarding the work zone impact and mitigation procedures during construction please contact Mr. Jeff VanHorn, Assistant Director for Traffic Operations and Management. Mr. VanHorn can be reached at (302) 659-4606 or by email at Jeffrey.VanHorn@delaware.gov.

Additional details on our review of the TIS are attached. Please contact me at (302) 266-9600 if you have any questions concerning this review.

Sincerely,
Johnson, Mirmiran, and Thompson, Inc.



Joanne M. Arellano, P.E., PTOE

cc: Mir Wahed, P.E., PTOE
Janna Brown, E.I.T.
Enclosure

October 7, 2021 TIS Review Letter

October 7, 2021

Mr. Troy Brestel
Project Engineer
Development Coordination
DelDOT Division of Planning
800 Bay Road
P O Box 778
Dover, DE 19903

RE: Agreement No. 1945F
Project Number T202069012
Traffic Impact Study Services
Task 4A-Mitchell Farm (Zwaanendael Farm)

Dear Mr. Brestel:

Johnson, Mirmiran and Thompson (JMT) has completed the review of the Traffic Impact Study (TIS) for Mitchell Farm (Zwaanendael Farm), prepared by Davis, Bowen & Friedel, Inc. dated November 2019 and the TIS Addendum prepared by Davis, Bowen & Friedel, Inc. dated April 2020. This task was assigned as Task Number 4A. The report is prepared in a manner generally consistent with DelDOT's *Development Coordination Manual*.

The TIS evaluates the impacts of a proposed mixed-use development in Sussex County, Delaware. The development would be comprised of 206,500 square feet of medical/office buildings, 60 single-family homes, and 150 multi-family (mid-rise) homes. Construction is anticipated to be complete in 2027.

The site is located on the northeast corner of the intersection of Kings Highway (Sussex Road 268) and Gills Neck Road (Sussex Road 267). Two full access points are proposed: one along Kings Highway directly opposite the proposed site access for the Beebe Medical development and one along Gills Neck Road opposite the site access for the proposed Gills Neck Village Center commercial project.

The site consists of two tax parcels, a 3-acre parcel known as Lot 1 and the remainder of the original parcel consisting of approximately 48 acres. Both parcels are zoned AR-1 (Agricultural Residential). Lot 1 is subject to a conditional use for a 39,000 square foot medical/office building which has been constructed. The remaining parcel (48 acres) is the subject of the following applications pending with Sussex County: a subdivision application, 3 change of zone applications (B-2, C-3, and MR), and a conditional use (MR parcel).

It should be noted that the 39,000 square foot medical/office building on Lot 1 that has been approved and constructed provides a Site Entrance along Gills Neck Road. The Site Entrance is constructed as a two-way stop-controlled intersection with one shared left turn/through lane and one right turn lane along the southbound Site Entrance approach (stop-controlled). One left turn

lane and one through lane are provided along the eastbound Gills Neck Road approach and one through lane and one right turn lane are provided along the westbound Gills Neck Road approach. As part of the Lot 1 construction, sidewalks and bike lanes have been added along the Gills Neck Road site frontage and the Site Entrance along Gills Neck Road contains ADA compliant curb ramps.

DelDOT has several relevant and ongoing improvement projects and plans within the study area including the *Realignment of Old Orchard Road/Savannah Road/Wescoats Road* (DelDOT Contract No. T201609601) project; a signal at the Kings Highway and Clay Road intersection which was recently installed; the *Corridor Management Plan* for the Lewes Scenic and Historic Byway (October 2015); the *Kings Highway and Gills Neck Road Master Plan* dated September 2016; the *US 9, Kings Highway, Dartmouth Drive to Freeman Highway* project; and the Delaware River and Bay Authority (DRBA) *Freeman Highway Rehabilitation* project (DelDOT Contract No. 20191619-00). Detailed information regarding these projects can be found later in this letter.

As part of the DelDOT *US 9, Kings Highway, Dartmouth Drive to Freeman Highway* project, Kings Highway is proposed to be widened to provide two through lanes in each direction. For the purposes of this letter, this DelDOT project will also be referred to as the Kings Highway Dual Lane project. At each intersection within the DelDOT project limits, improvement alternatives to achieve acceptable LOS in addition to dual lanes will be evaluated and subject to the typical DelDOT process, which includes public workshops.

While the specific alternatives to be examined in developing the DelDOT project have not been determined, improvement alternatives have been previously identified in several documents, including the 2007 DelDOT Planning *Kings Highway Corridor Study*, 2008 DelDOT TIS Review Letters, 2009 Letter Agreement, 2009 DelDOT Planning document *Kings Highway/Gills Neck Road Planned Area Improvements*, 2015 Lewes Scenic and Historic Byway *Corridor Management Plan*, and the 2016 DelDOT *Kings Highway/Gills Neck Road Master Plan* completed as part of the Lewes Scenic and Historic Byway.

The TIS evaluates the following future 2027 scenarios:

- Case 2a – Future 2027 without development and without Kings Highway Dual Lane project
- Case 3a – Future 2027 with development and without Kings Highway Dual Lane project
- Case 3b – Future 2027 with development and with Kings Highway Dual Lane project
- Case 3c – Future 2027 with development, with no site entrance along Kings Highway and without the completion of the Kings Highway Dual Lane project

JMT also included a future 2027 without development scenario with the completion of the Kings Highway Dual Lane project (Case 2b). Intersections outside the limits of the Kings Highway Dual Lane project were addressed as part of Case 2a, without development; and 3a with the development.

As part of the TIS Addendum, the following scenarios were evaluated and included in JMT's review:

- Case 2d – Future 2023 with development of Lot 1 (39,000 square feet of medical/dental office space) and without Kings Highway Dual Lane project
- Case 3d – Future 2023 with 117,000 square feet of medical/dental office space, including 39,000 square feet medical/dental office space from Lot 1, and without Kings Highway Dual Lane project and a rights-in site entrance along Kings Highway
- Case 3b – Future 2027 with development and with Kings Highway Dual Lane Project and Bay Breeze Drive left turn out restriction

Only intersections impacted by volume modifications during Cases 2d, 3d, and 3b were analyzed as part of the TIS Addendum. Specifically, for Cases 2d and 3d the following intersections were analyzed as part of JMT's review:

- Kings Highway (Sussex Road 268)/Site Entrance
- Gills Neck Road (Sussex Road 267)/Site Entrance
- Kings Highway/Atlantic Drive
- Kings Highway/Gills Neck Road/Cape Henlopen High School Entrance
- Kings Highway/Clay Road (Sussex Road 269)

For Case 3b, the following intersections were analyzed as part of JMT's review:

- Kings Highway/Bay Breeze Drive
- Kings Highway/Freeman Highway (Sussex Road 23)

The TIS Addendum also included an additional scenario for a Future 2021 condition with development of Lot 1 (39,000 square feet of medical/dental office space) and without Kings Highway Dual Lane project. However, per direction from DelDOT this scenario was not included in this review.

In addition to the TIS Addendum, analyses were conducted for the additional "Case 4 – Future 2027 with development and Kings Highway Dual Lane Project with Additional Improvements" scenario at intersections along Kings Highway which operated under constrained conditions despite the widening of the roadway (Case 3b). These Case 4 analyses were conducted for planning purposes only. The actual intersection improvements will be determined as part of the DelDOT project.

Based on our review of the TIS and assuming the DelDOT Kings Highway Dual Lane project will be completed by 2027 per the DelDOT CTP and discussions with DelDOT, we have the following comments and recommendations:

With the Kings Highway Dual Lane Project and individual intersection improvements alternatives to be evaluated as part of the DelDOT Project process that includes public workshops,

improvement alternatives to achieve acceptable LOS will be identified. The following intersections (signalized) or intersection approaches (unsignalized) exhibit level of service (LOS) deficiencies without the implementation of physical roadway and/or traffic control improvements. Any location and scenario shown with an "X" in the following tables indicates a LOS deficiency. Further details are provided later in this letter.

Intersection	Intersection Control	LOS Deficiencies Occur			Year	Case
		AM	PM	Saturday		
Kings Highway (Sussex Road 268)/Site Entrance/Beebe Medical Entrance	Unsignalized		X	X	2027	2a
					2027	2b
					2023	2d
		X	X	X	2027	3a
		X	X	X	2027	3b
			X	X	2027	3c
				X	2023	3d
	Roundabout				2027	2a
					2027	2b
			X	X	2027	3a
					2027	3b
			X	X	2027	3c
	Signalized				2027	2a
			X	X	2027	3a
					2027	3b
					2027	3c
					2027	3d
Gills Neck Road (Sussex Road 267)/Site Entrance/Gills Neck Village Center Entrance	Unsignalized				2027	2a
					2023	2d
		X*	X*	X*	2027	3a
		X*	X*	X*	2027	3b
		X*	X	X	2027	3c
			X*	X*	2023	3d

*LOS deficiency occurs along the Gills Neck Village Center Entrance approach which is to be built by others.

Intersection	Intersection Control	LOS Deficiencies Occur			Year	Case
		AM	PM	Saturday		
Kings Highway (Sussex Road 268)/Bay Breeze Drive	Unsignalized			X	2018	1
			X	X	2027	2a
			X	X	2027	2b
			X	X	2027	3a
					2027	3b
	Roundabout				2027	2a
					2027	2b
				X	2027	3a
					2027	3b
	Signalized				2027	2a
					2027	2b
					2027	3a
					2027	3b
Kings Highway/Freeman Highway (Sussex Road 23)	Unsignalized				2018	1
			X	X	2027	2a
			X	X	2027	3a
			X	X	2027	3b
	Signalized				2027	2
					2027	3
Kings Highway (Sussex Road 268)/Savannah Road (Sussex Road 18)	Unsignalized			X	2018	1
			X	X	2027	2a
			X	X	2027	3a
	Single Lane Roundabout				2027	2a
					2027	3a
	Signalized				2027	2a
					2027	3a

Intersection	Intersection Control	LOS Deficiencies Occur			Year	Case
		AM	PM	Saturday		
Savannah Road/Gills Neck Road/Front Street (Sussex Road 267)	Signalized			X	2018	1
				X	2027	2a
					2027	2a*
				X	2027	3a
					2027	3a*
	Single Lane Roundabout				2027	2a
					2027	3a
Kings Highway (Sussex Road 268)/Atlantic Drive	Unsignalized				2018	1
			X	X	2027	2a
				X	2027	2b
			X	X	2023	2d
			X	X	2027	3a
					2027	3b*
			X	X	2027	3c
			X	X	2023	3d
	Signalized				2027	2a
					2027	2b
					2023	2d
			X		2027	3a
					2027	3b*
					2027	3c
					2023	3d

Notes:
[1]At the intersection of Savannah Road/Gills Neck Road/Front Street, Case 2a* and 3a* are scenarios which include implementing an additional through lane along northbound and southbound Savannah Road.
[2]Atlantic Drive would provide only rights-in/rights-out movements along Kings Highway during Case 3b*.

Intersection	Intersection Control	LOS Deficiencies Occur			Year	Case
		AM	PM	Saturday		
Kings Highway/Gills Neck Road/Cape Henlopen High School	Signalized	X	X	X	2018	1
		X	X	X	2027	2a
		X			2027	2b
		X		X	2023	2d
		X	X	X	2027	3a
		X	X	X	2027	3b
		X	X	X	2027	3c
		X		X	2023	3d
					2027	4
Kings Highway/Clay Road (Sussex Road 269)	Unsignalized	X	X	X	2018	1
	Signalized	X	X	X	2027	2a
					2027	2b
			X		2023	2d
		X	X	X	2027	3a
			X		2027	3b
		X	X	X	2027	3c
			X	X	2023	3d
						4
Kings Highway (Sussex Road 268)/Dartmouth Drive (Sussex Road 268A)	Unsignalized		X	X	2018	1
		X	X	X	2027	2a
		X	X	X	2027	3a
	Single Lane Roundabout				2027	2a
					2027	3a
	Signalized				2027	2a
				X	2027	3a

As shown in the above table, ten study intersections are identified to exhibit LOS deficiencies. To minimize the impact of the deficiencies without the completion of the Kings Highway Dual Lane Project, interim condition improvements have been identified. The following section separates the analysis results based on the full build out of the site and the interim condition.

Interim Condition

As part of the TIS report, interim improvements without the implementation of the Kings Highway Dual Lane project were recommended at the Gills Neck Road/Cape Henlopen High School Entrance intersection. One scenario of the interim improvements included the modification of the westbound Gills Neck Road approach to provide two left turn lanes and a shared through/right turn lane and providing split phase signal operation along the eastbound and westbound approaches. In addition, the southbound Kings Highway approach would be modified to provide one left turn lane, one through lane, and one shared through/right turn lane.

Per a meeting between DelDOT and the developer on February 26, 2020, the interim improvements were further refined from those mentioned in the TIS and were identified to contain the following:

- Restripe the westbound Gills Neck Road approach to Kings Highway to provide two left turn lanes, and one shared through/right turn lane
- Lengthen the westbound Gills Neck Road shared through/right turn lane to provide 570 feet of storage.
- Restripe the southbound Kings Highway approach to Gills Neck Road to provide one left turn lane, one through lane, and one shared through/right turn lane
- Restripe southbound Kings Highway south of Gills Neck Road to provide two through lanes, the rightmost through lane would become a right-turn only lane onto Clay Road
- Construct a shared-use path along the western side of Kings Highway from the Gills Neck Road/Cape Henlopen High School Entrance intersection to the Clay Road intersection
- Provide a rights-in only entrance along Kings Highway across from the proposed Beebe Medical Center development
- Maintain the full movement entrance along Gills Neck Road across from the proposed Gills Neck Village Center access

The TIS Addendum analyzed these interim conditions based on a partial build of the site (117,000 square feet of medical/office space in 2023) without the Kings Highway Dual Lane project and with a rights-in access along Kings Highway (Case 3d). At the unsignalized Kings Highway/Site Entrance/Beebe Medical Site Entrance intersection, the eastbound Beebe Medical Site Entrance would experience capacity constraints during the Case 3d Saturday peak period (LOS F with 50.6 seconds of delay per vehicle). However, the projected 95th percentile queue length would be approximately 20 feet, which would have minimal impacts to the Beebe Medical Site Entrance.

At the unsignalized Gills Neck Road/Site Entrance/Gills Neck Village Center Entrance, the northbound Gills Neck Village Center Entrance would experience capacity constraints during the Case 3d weekday PM and Saturday peak periods (LOS F with 76.3 seconds of delay per vehicle). The projected 95th percentile queue length would be approximately 105 feet. As the design of this entrance would be the responsibility of the Gills Neck Village Center, additional improvements to mitigate the LOS deficiencies at this intersection during the Case 3d conditions would be unreasonable to assign to the Mitchell Farm developer.

At the unsignalized Kings Highway/Atlantic Drive intersection, the eastbound Atlantic Drive approach would experience capacity constraints during the Case 3d weekday PM and Saturday peak periods (LOS F with 164.8 seconds of delay per vehicle). However, the projected 95th percentile queue length would be approximately 80 feet, which could be accommodated within Atlantic Drive and not impact adjacent intersections.

At the signalized Kings Highway/Gills Neck Road/Cape Henlopen High School intersection, LOS deficiencies would continue to occur during the weekday AM, weekday PM, and Saturday peak periods under Case 3d conditions. However, the delays would reduce when compared to 2018 Existing Case 1 conditions during all peak periods. Specifically, during the Saturday peak period, the Case 1 delay is calculated to be 832.0 seconds per vehicle and under Case 3d conditions the delay would decrease to 366.8 seconds per vehicle. For the Saturday peak period, it should be noted that the proposed site entrance along Gills Neck Road is approximately 650 feet east of the Gills Neck Road/Kings Highway intersection. The projected 95th percentile queue length under Case 3d conditions during the Saturday peak period would be approximately 770 feet which would spillback past the Gills Neck Road site entrance. DBF analysis calculated a shorter 95th percentile queue length along westbound Gills Neck Road. However, the DBF analysis incorporated a longer signal cycle length and did not account for the signalization of Clay Road at Kings Highway.

With the future signalization of the Kings Highway/Clay Road intersection and the addition of an access on the easterly leg for the Gills Neck Village Center, the Kings Highway/Clay Road intersection would experience capacity constraints under Case 3d weekday PM and Saturday peak period conditions (LOS F with 165.2 seconds of delay per vehicle). The calculated 95th percentile queue length along the southbound Kings Highway approach to Clay Road would be approximately 2,300 feet during the weekday PM peak period and would impact operations at intersections upstream including the Kings Highway/Gills Neck Road intersection.

As interim improvements would reduce the delay at the Kings Highway and Gills Neck Road intersection prior to the completion of the Kings Highway Dual Lane project and improve operations along Kings Highway between the Beebe Medical Site Entrance and Clay Road compared to existing conditions, it is recommended that the developer implement the interim improvements as part of the partial build of the site (117,000 square feet of medical/office space).

Full Build Out of Site

The unsignalized Site Entrance along Kings Highway is proposed approximately 1,550 feet north of the northeast tangent point of the Gills Neck Road/Cape Henlopen High School Entrance intersection and exhibits LOS deficiencies during the AM, PM, and Saturday peak hours under future conditions with or without the proposed development and without completion of the Kings Highway Dual Lane project. These deficiencies occur along the eastbound Beebe Medical Entrance and the westbound Site Entrance approaches.

The provision of a signal and the completion of the Kings Highway Dual Lane project would improve the intersection to operate at LOS C (25.0 seconds of delay per vehicle) or better during all peak hours under future conditions, with or without the proposed development. However, these improvements should be part of the larger long-term improvement Kings Highway Dual Lane project. Therefore, we do not recommend the developer implement any improvements at this intersection. It is recommended that the developer coordinate with DelDOT on the implementation and equitable cost sharing of the Kings Highway Dual Lane project including the installation of a signal at this intersection.

The unsignalized Atlantic Drive intersection with Kings Highway exhibits LOS deficiencies during the PM and Saturday peak hours under future conditions, with or without the proposed development and without the completion of the Kings Highway Dual Lane project. These deficiencies can be mitigated through the completion of the Kings Highway Dual Lane project or signalization of the intersection. However, due to the proximity of the Atlantic Drive intersection to the proposed Kings Highway Site Entrance intersection and the Kings Highway/Gills Neck Road intersection, it is suggested that the Atlantic Drive approach to Kings Highway be modified to rights-in/rights-out only and remain unsignalized. The intersection will operate at acceptable LOS C (18.1 seconds of delay per vehicle) or better with a rights-in/rights out only restriction.

Additionally, interconnection should be provided between Henlopen Gardens and the proposed Beebe Medical development to minimize the number of U-turn movements at the adjacent signalized intersections. If interconnection is not feasible, U-turn movements could be provided at the adjacent signalized intersections as part of the Kings Highway Dual Lane project. These improvements should be part of the larger long-term improvement Kings Highway Dual Lane project. Therefore, we do not recommend the developer implement any improvements at this intersection. It is recommended that the developer coordinate with DelDOT on the implementation and equitable cost sharing of the Kings Highway Dual Lane project.

The signalized Gills Neck Road/Cape Henlopen High School Entrance intersection with Kings Highway exhibits LOS deficiencies during the AM, PM, and Saturday peak hours under existing and future conditions, with or without the proposed development and without the completion of the Kings Highway Dual Lane project. These deficiencies could be mitigated by the provision of one left turn lane, one shared left turn/through lane, and one right turn lane along westbound Gills Neck Road, the provision of one left turn lane, one through lane, and one right turn lane along the eastbound Cape Henlopen High School Entrance approach, the modification of the signal phasing along the eastbound and westbound approaches to split phase, and the completion of the Kings Highway Dual Lane project. These improvements would improve the intersection to operate at LOS D (54.9 seconds of delay per vehicle). The improvements that require widening of the roadway should be part of the larger long-term improvement Kings Highway Dual Lane project. Therefore, we recommend the developer implement only the interim improvements at this intersection and coordinate with DelDOT on the equitable cost sharing of the Kings Highway Dual Lane project.

The unsignalized Site Entrance along Gills Neck Road is proposed approximately 650 feet east of the northeast tangent point of the Kings Highway intersection and exhibits LOS deficiencies during the AM, PM, and Saturday peak hours under future conditions with the proposed development and with or without the completion of the Kings Highway Dual Lane project. Specifically, these deficiencies are only projected along the northbound Gills Neck Village Center Entrance with delays during the PM peak of 201.4 seconds per vehicle under Cases 3a and 3b conditions, and the calculated 95th percentile queue length would be approximately 113 feet. Although long delays are expected, they would occur at the Gills Neck Village Center Entrance and should not be the responsibility of the Mitchell Farm developer to mitigate as the Site Entrance for the Mitchell Farm (Zwaanendael Farm) site has already been constructed. As such, it is recommended that the Mitchell Farm developer maintain the full access at the Site Entrance.

The formerly unsignalized intersection of Clay Road with Kings Highway exhibited LOS deficiencies during the AM, PM, and Saturday peak hours under existing and future conditions, with or without the proposed development and with or without the completion of the Kings Highway Dual Lane project. DelDOT recently converted the intersection to a signalized intersection consistent with the recommendations from DelDOT's *Signal Justification Study US9 – Kings Highway (S268) & Clay Road (S269)*. The study also recommended a long-term improvement to determine the feasibility of converting the intersection to a roundabout or installing appropriate turn lanes as part of a larger project such as the Kings Highway Dual Lane project. Additionally, the Gills Neck Village Center development will construct a westbound approach to the intersection.

A TIS/TOA has not been completed for the Gills Neck Village Center development as previously contemplated. However, per the January 15, 2008, TIS review letter performed by McCormick Taylor for the original development proposed at the site (the Gills Neck Road Subdivision, Townsend Property), the westbound approach was recommended to provide two left turn lanes, one through lane, and one right turn lane opposite Clay Road. With the signalization of the intersection, the completion of the Kings Highway Dual Lane project, and the addition of auxiliary lanes along all approaches, the intersection would operate at acceptable LOS. Therefore, we recommend the Mitchell Farm developer only implement the interim improvements at the intersection. However, it is recommended that the Mitchell Farm developer coordinate with DelDOT on the implementation and equitable cost sharing of the improvements at this intersection as part of the Gills Neck Village Center development and the Kings Highway Dual Lane project. The improvements should include the provision of two left turn lanes along the westbound Gills Neck Village Center approach.

The unsignalized intersection of Kings Highway and Dartmouth Drive exhibits LOS deficiencies during the AM, PM, and Saturday peak hours under existing and future conditions with or without the development and with or without the Kings Highway Dual Lane project. The deficiencies at this intersection could be mitigated through the provision of a roundabout or a signal.

Per the January 15, 2008, TIS review letter for the Gills Neck Road Subdivision, improvements were recommended to modify the intersection to a single-lane roundabout with a bypass lane for

the southbound Kings Highway right-turn movement and a bypass lane for the northbound Kings Highway through movement. Should a roundabout be determined to be infeasible at this location, the January 15, 2008, TIS review letter also recommended the eastbound Dartmouth Drive approach be modified to provide an exclusive left-turn lane and a shared left turn/right turn lane as well provide a second receiving lane along northbound Kings Highway. However, these improvements are outside the scope of this TIS, as any extensive improvements to this intersection should be part of a larger long-term improvement project (such as the Kings Highway Dual Lane project). Therefore, we do not recommend the developer implement any improvements at this intersection. It is recommended that the developer coordinate with DelDOT on the equitable cost sharing of the Kings Highway Dual Lane project including either the installation of a roundabout or a signal at this intersection.

The unsignalized Bay Breeze Drive intersection with Kings Highway exhibits LOS deficiencies during the PM and Saturday peak hours under existing and future conditions, with or without the proposed development and with or without the completion of the Kings Highway Dual Lane project. These deficiencies could be mitigated through the provision of a signal or by restricting left-out movements from Bay Breeze Drive. However, these improvements are outside the scope of this TIS, as any extensive improvements to this intersection should be part of a larger long-term improvement project (such as the Kings Highway Dual Lane project). Therefore, we do not recommend the developer implement any improvements at this intersection.

The unsignalized Freeman Highway intersection with Kings Highway exhibits LOS deficiencies during the PM and Saturday peak hours under future conditions, with or without the proposed development and with or without the completion of the Kings Highway Dual Lane project. These deficiencies could be mitigated through the provision of a signal. However, these improvements are outside the scope of this TIS, as any extensive improvements to this intersection should be part of a larger long-term improvement project (such as the Kings Highway Dual Lane project). Therefore, we do not recommend the developer implement any improvements at this intersection.

It should be noted that the TIS analyzed the Freeman Highway intersection with Kings Highway with a different methodology from that used by JMT. Based on coordination with DelDOT's Planning and Traffic Studies Sections, it was agreed that JMT's approach to analyzing this intersection was more appropriate. However, the TIS methodology could be deemed the more appropriate approach if a gap study was conducted to further validate this method.

The unsignalized Savannah Road intersection with Kings Highway exhibits LOS deficiencies during the PM and Saturday peak hours under existing and future conditions with or without the proposed development. These deficiencies could be mitigated through the provision of a single lane roundabout or a signal. However, a roundabout is not feasible at this location due to the existing buildings adjacent to the intersection. Additionally, the deficiencies occur along the eastbound 3rd Street approach and the 95th percentile queue length along this approach under Case 3 conditions during the Saturday peak hour is approximately 255 feet which would not extend into the adjacent Chestnut Street intersection. Therefore, we do not recommend the developer implement any improvements at this intersection.

The signalized Front Street/Gills Neck Road intersection with Savannah Road exhibits LOS deficiencies during the Saturday peak hour under existing and future condition with or without the proposed development. These deficiencies could be mitigated through the provision of a single lane roundabout or an additional through lane along northbound and southbound Savannah Road. However, a roundabout is not feasible at this location due to the existing buildings adjacent to the intersection and widening Savannah Road may not be feasible at this location due to the existing draw bridge located along the northerly leg. Therefore, we do not recommend the developer implement any improvements at this intersection.

Should Sussex County approve the proposed development, the following items should be incorporated into the site design and reflected on the record plan. All applicable agreements (i.e. letter agreements for off-site improvements and traffic signal agreements) should be executed prior to entrance plan approval for the proposed development.

Interim Improvements

The following items should be incorporated as part of the partial build out of the site (117,000 square feet of medical/office space) or any land use not projected to exceed the daily or peak hour site traffic based on the partial build out of the site.

1. The developer should provide a bituminous concrete overlay to the existing travel lanes along the northbound Kings Highway site frontage in the area affected by entrance plan construction, including any auxiliary lanes, at DelDOT's discretion. DelDOT should analyze the existing lanes' pavement section and recommend an overlay thickness to the developer's engineer, if necessary.

2. The developer should construct a rights-in only site entrance for the proposed Mitchell Farm/Zwaanendael Farm development on Kings Highway, approximately 1,550 feet north of the northeast tangent point of the Gills Neck Road/Cape Henlopen High School Entrance intersection to be consistent with the lane configurations shown in the table below:

Approach	Current Configuration	Proposed Configuration
Eastbound Beebe Medical Entrance	Approach does not exist	One left turn lane and one right turn lane*
Westbound Site Entrance	Approach does not exist	One receiving lane for the rights-in movements**
Northbound Kings Highway	One through lane	One shared left turn/through lane and one right turn lane**
Southbound Kings Highway	One through lane	One through lane and one right turn lane*

*To be built by others

**To be built by developer by 2023 before the completion of the Mitchell Farm/Zwaanendael Farm medical/office space.

Based on DelDOT's *Development Coordination Manual*, the recommended minimum storage lengths (excluding taper) of the separate left turn and right turn lanes along Kings Highway are listed below. The calculated queue lengths from the HCS analysis can be accommodated within the recommended storage length.

Approach	Right Turn Lane
Northbound Kings Highway	290 feet
Southbound Kings Highway	115 feet*

*This storage length is the proposed storage length on the October 4, 2019, plans for the Beebe Medical Center and it should be built by the developer of that project.

The developer should submit a plan to DelDOT's Development Coordination section depicting the design of the signalized intersection as it could exist in 2027 and show the interim improvements in that context. The final design of the site entrance should be determined during the Entrance Plan review process.

3. The developer should maintain the existing site entrance for the proposed Mitchell Farm/Zwaanendael Farm development, approximately 650 feet east of the northeast tangent point of the Kings Highway intersection and directly across from the proposed Gills Neck Village Center Entrance to be consistent with the lane configurations shown in the table below:

Approach	Current Configuration	Proposed Configuration
Eastbound Gills Neck Road	One left turn lane and one through lane	One left turn lane, one through lane, and one right turn lane*
Westbound Gills Neck Road	One through lane and one right turn lane	One left turn lane**, one through lane, and one right turn lane
Northbound Gills Neck Village Center Entrance	Approach does not exist	One left turn/through lane and one right turn lane***
Southbound Site Entrance	One shared left turn/through lane and one right turn lane	No change

*Right turn lane to be built by others
**Left turn lane to be built by others
***Approach to be built by others

Based on DelDOT's *Development Coordination Manual*, the recommended minimum storage lengths (excluding taper) of the separate left turn and right turn lanes along Gills Neck Road are listed below. The calculated queue lengths from the HCS analysis can be accommodated within the recommended storage length.

Approach	Left Turn Lane	Right Turn Lane
Eastbound Gills Neck Road	120 feet*	190 feet**
Westbound Gills Neck Road	120 feet**	120 feet*

*This storage length is the existing storage length per the June 2018 Zwaanendael Farm Rezoning Sketch Plan and it should be maintained.
**To be built by others

As a TOA/TIS will be performed for the Gills Neck Village Center, the recommended lane configurations and storage lengths for the Gills Neck Village Center entrance may be modified based on those results.

4. The developer should restripe the Kings Highway and Gills Neck Road/Cape Henlopen High School Entrance intersection to be consistent with the lane configurations shown in the table below:

Approach	Current Configuration	Proposed Configuration
Eastbound Cape Henlopen High School	One shared left turn/through lane and one right turn lane	No change
Westbound Gills Neck Road	One left turn lane, one through lane, and one right turn lane	Two left turn lanes and one shared through/right turn lane
Northbound Kings Highway	One left turn lane, one through lane, and one right turn lane	No change
Southbound Kings Highway	One left turn lane, one through lane, and one right turn lane	One left turn lane, one through lane, and one shared through/right turn lane

The recommended minimum storage lengths (excluding taper) of the separate left turn and right turn lanes along Kings Highway and Gills Neck Road are listed below.

Approach	Left Turn Lane	Through/Right Turn Lane	Right Turn Lane
Northbound Kings Highway	250 feet*	-	180 feet*
Southbound Kings Highway	340 feet*	550 feet	-
Westbound Gills Neck Road	420 feet	570 feet**	-

*Storage lengths match the existing storage lengths per field conditions and should be maintained.
**Storage length does not match the existing storage length and requires lengthening.

The developer should restripe Kings Highway south of the Gills Neck Road intersection to provide two through lanes and the rightmost through lane should transition to a right turn only lane at the Clay Road intersection. The SUP should be constructed along Kings Highway to connect to Clay Road and the shoulder along Kings Highway should be eliminated.

The developer should enter into a traffic signal agreement with DelDOT for the intersection of Kings Highway with Gills Neck Road. The traffic signal agreement should include pedestrian signals, crosswalks, interconnection, and ITS equipment such as CCTV cameras at DelDOT's discretion. Prior to Entrance Plan approval, the developer should submit a plan to DelDOT Development Coordination section depicting the design of Kings Highway from Gills Neck Road to Clay Road. The final design should be determined during the Entrance Plan review process.

Full Build Out Improvements

The following items should be incorporated as part of the full build out of the site.

5. The developer should enter into an agreement with DelDOT to fund an equitable portion of improvements to the intersections of Kings Highway with Dartmouth Drive, Clay Road, Gills Neck Road/Cape Henlopen High School Entrance, Atlantic Drive, Freeman Highway, Bay Breeze Drive, and the Site Entrance/Beebe Medical Center Entrance as part of the *US 9, Kings Highway, Dartmouth Drive to Freeman Highway* project. The developer should coordinate with DelDOT on the implementation and equitable cost sharing of the improvements. The amount of right-of-way dedicated by the property owner for the DelDOT Project in excess of 50 feet from the centerline on Kings Highway and 40 feet from the centerline on Gills Neck Road that otherwise would have been purchased as part of the DelDOT project would be considered as part of the contribution towards the DelDOT project.

6. The developer should enter into an agreement with DelDOT to fund an equitable portion of improvements to the intersection of Clay Road and Marsh Road as part of the *Realignment of Old Orchard Road/Savannah Road/Wescoats Road* (DelDOT Contract No. T201609601) project. The project will improve the intersection of Marsh Road and Clay Road to eliminate the existing skewed angle of the intersection. The developer should coordinate with DelDOT on the implementation and equitable cost sharing of the Clay Road and Marsh Road intersection improvements.

7. Vehicular interconnections or cross access easements between the on-site lots should be provided. The developer should coordinate with DelDOT's Development Coordination Section to determine the locations and feasibilities of the interconnections.

8. The following bicycle, pedestrian, and transit improvements should be included:

    a. A minimum fifteen-foot wide permanent easement from the edge of the right-of-way should be dedicated to DelDOT along the Kings Highway site frontage. Within the easement, the developer should construct a ten-foot wide shared-use path (SUP) to meet the shared-use path recently constructed for Lot 1. The developer should coordinate with DelDOT's Development Coordination section during the plan review process to identify the exact location of the SUP.

    b. An accessway should be provided from the SUP into the site for Lots 1 through 5.

    c. Where internal sidewalks are located alongside of parking spaces, a buffer, physical barrier or signage should be added to eliminate vehicular overhang onto the sidewalk.

    d. The tie-in installed for Lot 1 should be removed once the SUP is extended along the entire property frontage.

    e. ADA compliant curb ramps and marked crosswalks should be provided along the Kings Highway Site Entrance approach to Kings Highway. The use of diagonal curb ramps is discouraged.

    f. Minimum five-foot wide bicycle lanes should be incorporated in the right turn lane and shoulder along the northbound Kings Highway approach to the Kings Highway Site Entrance.

    g. Utility covers should be moved outside of any designated bicycle lanes and any proposed sidewalks/shared-use paths or should be flush with the pavement.

h. Bike parking should be provided near the building entrances. Where the building architecture provides for an awning or other overhang, the bike parking should be covered.

i. A Type 2 bus stop should be installed at the Kings Highway Site Entrance intersection. The developer should coordinate with DART and DelDOT on the location, design, as well as the amenities to provide.

Please note that this review generally focuses on capacity and level of service issues; additional safety and operational issues will be further addressed through DelDOT's Plan Review process.

Improvements in this TIS may be considered "significant" under DelDOT's *Work Zone Safety and Mobility Procedures and Guidelines*. These guidelines are available on DelDOT's website at https://www.deldot.gov//Publications/manuals/de_mutcd/index.shtml. For any additional information regarding the work zone impact and mitigation procedures during construction please contact Mr. Jeff VanHorn, Assistant Director for Traffic Operations and Management. Mr. VanHorn can be reached at (302) 659-4606 or by email at Jeffrey.VanHorn@delaware.gov.

Additional details on our review of the TIS are attached. Please contact me at (302) 266-9600 if you have any questions concerning this review.

Sincerely,
Johnson, Mirmiran, and Thompson, Inc.

Joanne M. Arellano, P.E., PTOE

cc: Mir Wahed, P.E., PTOE
Janna Brown, E.I.T.

Enclosure

General Information

Report date: November 2019
Prepared by: Davis, Bowen & Friedel, Inc.
Prepared for: The Mitchell Family Ltd. Partnership
Tax Parcel: 335-8.00-37.00
Generally consistent with DelDOT's *Development Coordination Manual (DCM)*: Yes

Project Description and Background

Description: The developer seeks to develop 206,500 square feet of medical-dental office space, 60 single-family detached houses, and 150 multi-family mid-rise dwelling units.
Location: The subject site is located on the northeast corner of the intersection of Kings Highway (Sussex Road 268) and Gills Neck Road (Sussex Road 267) in Sussex County, Delaware.
Amount of Land to be developed: An approximately 52.71-acre parcel.
Land Use approval(s) needed: Rezoning and Entrance Plan.
Proposed completion date: 2027.
Proposed access location: Two full access points are proposed: one along Kings Highway directly opposite the proposed site access for the Beebe Medical development and one along Gills Neck Road opposite the site access for the proposed Gills Neck Village Center commercial project.

Daily Traffic Volumes:

- 2018 Average Annual Daily Traffic on Kings Highway: 13,019 vehicles per day (non-Summer)
- 2018 Average Annual Daily Traffic on Gills Neck Road: 4,995 vehicles per day (non-Summer)

Site Map

**Graphic is an approximation based on the Rezoning Sketch Plan prepared by* Davis, Bowen & Friedel, Inc. *dated June 2018.*

Relevant and On-going Projects

DelDOT has several relevant and ongoing improvement projects within the study area including the *Realignment of Old Orchard Road/Savannah Road/Wescoats Road* (DelDOT Contract No. T201609601) project. The project will realign Old Orchard Road to intersect Savannah Road at its intersection with Wescoats Road. Additionally, the project will improve the intersection of Marsh Road and Clay Road to eliminate the existing skewed angle of the intersection. Construction is anticipated to begin in 2023.

Per direction from the DelDOT Traffic Section, a signal at the Kings Highway and Clay Road intersection was recently installed. DelDOT completed the *Signal Justification Study US9 – Kings Highway (S268) & Clay Road (S269)* in February 2020. As part of the study, field observations were conducted, existing sight distances were assessed, crashes were reviewed, intersection analyses were performed, and warrant analyses based on the DE MUTCD were evaluated. The

crash evaluation reviewed data from August 7, 2014 to January 23, 2020 which identified one fatal angle crash. Four of the DE MUTCD Traffic Signal Warrants were met which included the eight-hour, four-hour, and peak-hour vehicular warrants as well as the Alternative Crash Experience Warrant (IA-19.3). Various improvement options were evaluated as part of the study, including the implementation of all-way-stop-control and installation of a roundabout or signal. The study recommended the short-term improvement to install a traffic signal. A long-term improvement to determine the feasibility of converting the intersection to a roundabout or installing appropriate turn lanes was recommended.

In October 2015 a collaborative effort by DelDOT, Delaware Greenways, and other groups developed the *Corridor Management Plan* for the Lewes Scenic and Historic Byway. This was done as part of the *Delaware Byways Program*. The *Delaware Byways Program* includes the identification, promotion, preservation, and enhancement of Delaware roadways with at least one of the following qualities: scenic, historic, natural, cultural, recreational, and archaeological. The Lewes Scenic and Historic Byway traverses through the City of Lewes and extends into Sussex County on the following roads: New Road, Pilot Town Road, Savannah Road, Cape Henlopen Drive, Gills Neck Road, and Kings Highway. Recommendations from the plan for Kings Highway include considering options for narrow or wide medians and opportunities for linking together isolated parcels in a gridded circulation network. Additionally, at the Kings Highway/Gills Neck Road intersection, the plan recommends the consideration of options that accommodate planned pedestrian and bicycle pathways and movements. More information about the Corridor Management Plan can be found here: https://deldot.gov/Programs/byways/index.shtml?dc=cmp

The *Kings Highway and Gills Neck Road Master Plan* dated September 2016 is an early action project of the Lewes Scenic and Historic Byway Corridor Management Plan. The purpose of the Master Plan is to establish a vision for Kings Highway and Gills Neck Road. The Master Plan recommends two travel lanes per direction and a boulevard design along Kings Highway. From north of Gills Neck Road to Freeman Highway, the Master Plan recommends one travel lane per direction with a center turn lane along Kings Highway. Additionally, a roundabout and a signal are recommended at the Dartmouth Drive and Clay Road intersections, respectively. Along Gills Neck Road, one travel lane per direction with a boulevard design is recommended. More information about the Master Plan can be found here:
https://deldot.gov/Programs/byways/pdfs/lewes_cmp/KHGN_MasterPlan_092616finalrx.pdf?cache=1582120567909

The *US 9, Kings Highway, Dartmouth Drive to Freeman Highway* project is planned to implement the improvements recommended by the Master Plan. A DelDOT Contract Number does not exist for the recommended improvements yet. Based on the proposed CTP FY 20 thru FY 26 Spending Plan, design is projected to start Fiscal Year 2022 and construction is projected to start Fiscal Year 2026.

Additionally, the Delaware River and Bay Authority (DRBA) *Freeman Highway Rehabilitation* project (Contract No. 20191619-00) includes the repaving of Freeman Highway from south of the intersection with Bay Breeze Drive to the intersection with Cape Henlopen Drive.

Livable Delaware
(Source: Delaware Strategies for State Policies and Spending, 2015)

Location with respect to the Strategies for State Policies and Spending Map of Delaware:
The proposed development is located within the Investment Level 1 area.

Investment Level 1

These areas are often municipalities, towns, or urban/urbanizing places in counties where density is generally higher than in surrounding areas. In Investment Level 1 Areas, state investments and policies should support and encourage a wide range of uses and densities, promote other transportation options, foster efficient use of existing public and private investments, and enhance community identity and integrity. Overall, it is the state's intent to use its spending and management tools to maintain and enhance community character, to promote well-designed and efficient new growth, and to facilitate redevelopment in Investment Level 1 Areas.

In Level 1 Areas the state's first priority will be for preserving existing facilities and making safety improvements. Level 1 areas will also be the highest priority for context sensitive transportation system capacity enhancements, transit-system enhancements, ADA accessibility, and for closing gaps in the pedestrian system, including the Safe Routes to School projects. Further, Level 1 areas are the first priority for planning projects and studies, bicycle facilities, signal-system enhancements, and the promotion of interconnectivity between neighborhoods and public facilities.

Proposed Development's Compatibility with Livable Delaware:
The proposed development is located in the Investment Level 1 area. According to Livable Delaware, Level 1 areas support and encourage a wide range of uses and enhance community identity and integrity. The proposed project is a mixed-use development that will support the ongoing development in the surrounding area. Therefore, the proposed development is generally consistent with the 2015 update of the Livable Delaware "Strategies for State Policies and Spending."

Comprehensive Plans
(Source: Sussex County March 2019 Comprehensive Plan)

Sussex County Comprehensive Plan:
Per the *Sussex County Comprehensive Plan Future Land Use Map,* the proposed development is in an area designated as Coastal Area.

Proposed Development's Compatibility with the Sussex County Comprehensive Plan:
Per the *Sussex County Comprehensive Plan Future Land Use Map,* the proposed development is in an area designated as Coastal Area. A range of housing types are appropriate in Coastal Areas, including single-family homes and multifamily units, as well as office and mixed-use developments. Therefore, the proposed development is generally consistent with the *Sussex County March 2019 Comprehensive Plan.*

Trip Generation

The trip generation for the proposed development was determined by using the comparable land use and rates/equations contained in the *Trip Generation, 10th Edition: An ITE Informational Report*, published by the Institute of Transportation Engineers (ITE) for ITE Land Use Code 210 (Single-Family Detached Housing), Land Use Code 221 (Multifamily Mid-Rise Housing), and Land Use Code 720 (Medical-Dental Office Building). The trip generation was approved by DelDOT during the PTIS review as well as the review of the TIS Addendum.

Table 1
Mitchell Farm (Zwaanendael Farm) Trip Generation – Full Build Out

Land Use	**ADT**	**AM Peak Hour**			**PM Peak Hour**			**SAT Peak Hour**		
		In	Out	Total	In	Out	Total	In	Out	Total
60 Single-Family Detached Houses (ITE Code 210)	650	12	35	47	39	23	62	37	31	68
150 Multifamily Mid-Rise Houses (ITE Code 221)	816	13	38	51	40	25	65	34	36	70
206,500 SF Medical-Dental Office Building (ITE Code 720)	7,846	332	94	426	197	505	702	552	417	969
Total Trips	**9,312**	**357**	**167**	**524**	**276**	**553**	**829**	**623**	**484**	**1,107**
Internal Capture	44	1	1	2	5	5	10	6	6	12
New Trips	**9,268**	**356**	**166**	**522**	**271**	**548**	**819**	**617**	**478**	**1,095**

Mitchell Farm (Zwaanendael Farm) Trip Generation – Partial Build Out (Case 3d)

Land Use	**ADT**	**AM Peak Hour**			**PM Peak Hour**			**SAT Peak Hour**		
		In	Out	Total	In	Out	Total	In	Out	Total
117,000 SF Medical-Dental Office Building (ITE Code 720)	1,003	200	57	257	112	287	399	300	227	527

Overview of TIS

Intersections examined:

1. Kings Highway (Sussex Road 268)/Site Entrance/Beebe Medical Site Entrance
2. Gills Neck Road (Sussex Road 267)/Site Entrance/Gills Neck Village Center Site Entrance
3. Kings Highway/Bay Breeze Drive
4. Kings Highway/Freeman Highway (Sussex Road 23)
5. Kings Highway/Savannah Road (Sussex Road 18)
6. Savannah Road/Gills Neck Road/Front Street (Sussex Road 267)
7. Kings Highway/Atlantic Drive *(City of Lewes)*
8. Kings Highway/Gills Neck Road/Cape Henlopen High School Entrance
9. Kings Highway/Clay Road (Sussex Road 269)
10. Clay Road/Marsh Road (Sussex Road 269B)
11. Kings Highway/Dartmouth Drive (Sussex Road 268A)

Conditions examined:

TIS

1. Case 1 – Existing (2018)
2. Case 2a – 2027 without development and without the Kings Highway dual lanes project
   Case 2b – 2027 without development and with the Kings Highway dual lanes project
3. Case 3a – 2027 with development and without the Kings Highway dual lanes project
   Case 3b – 2027 with development and with the Kings Highway dual lanes project
   Case 3c – 2027 with development, without the Kings Highway dual lanes project, and without an entrance along Kings Highway
4. Case 4 – 2027 with development and with the Kings Highway dual lanes project with additional improvements

TIS Addendum

1. Case 2d – Future 2023 with development of Lot 1 (39,000 square feet of medical/dental office space) and without the Kings Highway Dual Lane Project
2. Case 3d – Future 2023 with 117,000 square feet of medical/dental office space, without the Kings Highway Dual Lane Project, and rights-in site entrance on Kings Highway

Committed Developments considered:

1. Gills Neck Village Center (75,000 square foot shopping center, 213 single family homes on the residual lands)
2. Governors (287 single-family detached houses, 136 multi-family low-rise dwelling units)

3. Beebe Medical (175-unit continuing care retirement, 140 multi-family low-rise dwelling units)
4. Showfield (252 single-family detached houses: *86 units proposed in the City of Lewes, 166 units recorded in Sussex County*)
5. White's Pond Meadow-Gills Neck Road (79 single-family detached homes)
6. Admirals Chase (26 semi-detached houses)
7. Cape Henlopen High School Expansion (400 students)
8. The Moorings at Lewes, formerly known as Cadbury, expansion (32-unit Continuing Care Retirement Center)

*Note: Committed development information provided in the TIS supersedes the information provided in the July 3, 2018 DelDOT Scoping Meeting Memorandum. DelDOT provided future year 2027 Case 2 projections based on the DelDOT Travel Demand Model that includes background growth as well as traffic from the eight committed developments.

Peak hours evaluated: Weekday morning, Weekday evening, and Summer Saturday midday peak hours.

Intersection Descriptions

1. **Kings Highway (Sussex Road 268)/Site Entrance/Beebe Medical Site Entrance**
   Type of Control: Proposed two-way stop-controlled intersection (four-legged intersection)
   Eastbound Approach: (Beebe Site Access) Proposed one shared left turn/through lane and one right turn lane, stop-controlled
   Westbound Approach: (Site Entrance) Proposed one shared left turn/through lane and one right turn lane, stop-controlled
   Northbound Approach: (Kings Highway) Existing one through lane; proposed one left turn lane, one through lane, and one right turn lane
   Southbound Approach: (Kings Highway) Existing one through lane; proposed one left turn lane, one through lane, and one right turn lane

2. **Gills Neck Road (Sussex Road 267)/Site Entrance/Gills Neck Village Center Site Entrance**
   Type of Control: Proposed two-way stop-controlled intersection (four-legged intersection)
   Eastbound Approach: (Gills Neck Road) Existing one through lane; proposed one left turn lane, one through lane, and one right turn lane
   Westbound Approach: (Gills Neck Road) Existing one through lane; proposed one left turn lane, one through lane, and one right turn lane
   Northbound Approach: (Gills Neck Village Center Entrance) Proposed one shared left turn/through lane and one right turn lane, stop-controlled

Southbound Approach: (Site Entrance) Proposed one shared left turn/through lane and one right turn lane, stop-controlled

3. **Kings Highway/Bay Breeze Drive**
   Type of Control: Existing stop-controlled intersection
   Westbound Approach: (Bay Breeze Drive) Existing one left-turn lane and one right-turn lane, stop-controlled
   Northbound Approach: (Kings Highway) Existing one shared through lane/channelized right-turn lane
   Southbound Approach: (Kings Highway) Existing two through lanes and one left-turn lane (stop-controlled)

4. **Kings Highway/Freeman Highway (Sussex Road 23)**
   Type of Control: Existing stop-controlled intersection
   Northbound Approach: (Kings Highway) Existing one left-turn lane (stop-controlled) and one through lane
   Southbound Approach: (Freeman Highway) Existing one through lane and one channelized right-turn lane (stop-controlled)

5. **Kings Highway/Savannah Road (Sussex Road 18)**
   Type of Control: Existing two-way stop-controlled intersection (four-legged intersection)
   Eastbound Approach: (3rd Street) Existing one shared through/left-turn lane and one right-turn lane, stop controlled
   Westbound Approach: (Kings Highway) Existing one shared through/left-turn lane and one right-turn lane, stop controlled
   Northbound Approach: (Savannah Road) Existing one left-tun lane and one shared through/right-turn lane
   Southbound Approach: (Savannah Road) Existing one left-tun lane and one shared through/right-turn lane

6. **Savannah Road/Gills Neck Road/Front Street (Sussex Road 267)**
   Type of Control: Existing signalized intersection (four-legged)
   Eastbound Approach: (Front Street) Existing one left turn lane and one shared through/right turn lane
   Westbound Approach: (Gills Neck Road) Existing one shared left turn/through/right turn lane
   Northbound Approach: (Savannah Road) Existing one left turn lane and one shared through/right turn lane

Southbound Approach: (Savannah Road) Existing on left turn lane and one shared through/right turn lane

7. **Kings Highway/Atlantic Drive**
   Type of Control: Existing two-way stop-controlled intersection (T-intersection)
   Eastbound Approach: (Atlantic Drive) Existing one shared left-turn/right-turn lane, stop-controlled
   Northbound Approach: (Kings Highway) Existing one shared left-turn/through lane
   Southbound Approach: (Kings Highway) Existing one shared through/right-turn lane

8. **Kings Highway/Gills Neck Road/Cape Henlopen High School Entrance**
   Type of Control: Existing signalized intersection (four-legged)
   Eastbound Approach: (Cape Henlopen High School Entrance) Existing one shared left turn/through lane and one right turn lane
   Westbound Approach: (Gills Neck Road) Existing one left turn lane, one through lane, and one right turn lane
   Northbound Approach: (Kings Highway) Existing one left turn lane, one through lane, and one right turn lane
   Southbound Approach: (Kings Highway) Existing one left turn lane, one through lane, and one right turn lane

9. **Kings Highway/Clay Road (Sussex Road 269)**
   Type of Control: Existing two-way stop-controlled intersection (T-intersection)
   Eastbound Approach: (Clay Road) Existing one shared left turn/right turn lane, stop-controlled
   Northbound Approach: (Kings Highway) Existing one shared left turn/through lane
   Southbound Approach: (Kings Highway) Existing one shared through/right turn lane

10. **Clay Road (Sussex Road 269) and Marsh Road (Sussex Road 269B)**
    Type of Control: Existing two-way stop-controlled intersection (T-intersection)
    Eastbound Approach: (Clay Road) Existing one shared through/right turn lane
    Westbound Approach: (Clay Road) Existing one shared through/left turn lane
    Northbound Approach: (Marsh Road) Existing one left-turn lane and one right-turn lane, stop-controlled.

11. **Kings Highway (Sussex Road 268) and Dartmouth Drive (Sussex Road 268A)**
    Type of Control: Existing two-way stop-controlled intersection
    Eastbound Approach: (Dartmouth Drive) Existing one shared left turn/right turn lane, stop-controlled

Northbound Approach: (Kings Highway) One left-turn lane and one through lane
Southbound Approach: (Kings Highway) One through lane and one channelized right-turn lane

Transit, Pedestrian, and Bicycle Facilities

Existing transit service: Per DelDOT Gateway, Delaware Transit Corporation (DTC) currently does not provide existing services within the study area.

Planned transit service: Per email correspondence on February 11, 2020 with Mr. Jared Kauffman, Fixed-Route Planner at the DTC, a Type 2 bus stop has been installed at the intersection of Kings Highway and Gills Neck Road/Cape Henlopen High School Entrance. An additional Type 2 bus stop should be installed along northbound Kings Highway at the intersection with the site entrance. Additionally, a sidewalk/SUP interconnection should be provided between the site and the adjacent Bay Breeze Estates.

Existing bicycle and pedestrian facilities: According to DelDOT's *Lewes & Rehoboth Beach Area Bicycle Map*, two Connector Bicycle Routes and one Regional Bicycle Route exist within the study area. One Connector Bicycle Route travels along Gills Neck Road, beginning at the study intersection with Savannah Road, traversing through one study intersection (Site Entrance) intersecting with another Connector Bicycle Route at the study intersection of Kings Highway. The other Connector Bicycle Route exists along Kings Highway and traverses through seven of the study intersections (Freeman Highway, Bay Breeze Drive, Site Entrance, Atlantic Drive, Gills Neck Road/Cape Henlopen High School Entrance, Clay Road, and Dartmouth Drive). The Regional Bicycle Route exists along Savannah Road and traverses through one study intersection (Gills Neck Road/Front Street) Pedestrian facilities currently exist at four of the study intersections: Savannah Road/Gills Neck Road/Front Street, Kings Highway/Savannah Road, Kings Highway/Gills Neck Road/Cape Henlopen High School Entrance, and Gills Neck Road/Site Entrance.

Planned bicycle and pedestrian facilities: Per email correspondence on February 12, 2020 from Mr. John Fiori, DelDOT's Bicycle Coordinator, the following improvements were recommended:

- The existing 10-foot wide shared-use path (SUP) should be extended along the Kings Highway site frontage. Once the SUP is extended, the existing tie-in installed for Minor Subdivision Lot 1 shall be removed (including pipe), top soiled, seeding, mulched, and re-graded to assure positive drainage.
- An internal sidewalk/SUP connection is required from the SUP into the site for Lots 1 thru 5.
- Internal bicycle racks should be provided at all Lots.
- Revise design of SUP from Type 2 ramp on the egress side to Type 1 ramp.
- Per the DCM, the site shall dedicate right-of-way per the roadway classification and establish a 15-foot wide permanent easement along the property frontage.
- All entrance, roadway and/or intersection improvements required shall incorporate bicycle and pedestrian facilities. Per the DCM, if the right turn lane is warranted, then a bike lane

shall be incorporated along the right turn lane; if a left turn lane is required any roadway improvements shall include a shoulder matching the roadway classification or existing conditions.

Bicycle Level of Traffic Stress in Delaware: Researchers with the Mineta Transportation Institute developed a framework to measure low-stress connectivity, which can be used to evaluate and guide bicycle network planning. Bicycle LTS analysis uses factors such as the speed of traffic, volume of traffic, and the number of lanes to rate each roadway segment on a scale of 1 to 4, where 1 is a low-stress place to ride and 4 is a high-stress place to ride. It analyzes the total connectivity of a network to evaluate how many destinations can be accessed using low-stress routes. Developed by planners at the Delaware Department of Transportation (DelDOT), the bicycle Level of Traffic Stress (LTS) model will be applied to bicycle system planning and evaluation throughout the state. The Bicycle LTS for the roadways under existing conditions along the site frontage are summarized below. The Bicycle LTS was determined utilizing the map on the DelDOT Gateway.

- Kings Highway – LTS: 3 and 4
- Gills Neck Road – LTS: 4

Crash Evaluation

Per the crash data included in the TIS from July 25, 2015 to July 25, 2018 and provided by the Delaware Crash Analysis Reporting System, a total of 166 crashes were reported within the study area. The TIS reports that 89 of these crashes are relevant within the study area and intersections. 19 of these crashes occurred within the functional area of the intersection of Kings Highway and Clay Road, 18 occurred within the functional area of the intersection of Kings Highway and Gills Neck Road/Cape Henlopen High School Access, 17 occurred within the functional area of Savannah Road/Kings Highway/3rd Street, and 11 occurred within the function area of Savannah Road/Front Street/Gills Neck Road. No fatalities occurred within the study area over the 3-year period.

A crash evaluation was also completed as part of DelDOT's *Signal Justification Study US9 – Kings Highway (S268) & Clay Road (S269)* in February 2020. As part of the study, a crash evaluation reviewed data from August 7, 2014 to January 23, 2020 which identified one fatal angle crash at the Kings Highway and Clay Road intersection. The installation of a traffic signal was identified in the study as a short-term improvement which is expected to be implemented prior to Summer of 2021.

Previous Comments

Comments from DelDOT from the Preliminary Traffic Impact Study (PTIS) were addressed in the final TIS.

General HCS Analysis Comments

(See table footnotes on the following pages for specific comments)

1. For the intersection analyses, the TIS used HCS7 version 7.8, whereas JMT used HCS7 version 7.8.5. The TIS Addendum did utilize HCS7 version 7.8.5.

2. Per DelDOT's *Development Coordination Manual*, JMT used a heavy vehicle percentage of 3% for each movement greater than 100 vph in the Case 2 and Case 3 future scenario analyses, unless the existing heavy vehicle percentage was greater than 3% and there was no significant increase of vehicles along that movement, in which case the existing heavy vehicle percentage was used for analysis of future scenarios. The TIS utilized various heavy vehicle percentages.

3. Per DelDOT's *Development Coordination Manual* and coordination with DelDOT Planning, JMT used a heavy vehicle percentage of 5% for each movement less than 100 vph along roadways and site entrances, whereas the TIS did in some locations.

4. Per DelDOT's *Development Coordination Manual,* both the TIS and JMT utilized the existing PHF for the Case 1 scenario and a future PHF for Cases 2 and 3 scenarios of 0.80 for roadways with less than 500 vph, 0.88 for roadways between 500 and 1,000 vph, and 0.92 for roadways with more than 1,000 vph or the existing PHF, whichever was higher, unless DelDOT-approved calibrated PHFs were provided by the TIS. JMT did not alter any PHFs for cases without widening, whereas the TIS utilized altered PHFs.

5. Per DelDOT's *Development Coordination Manual,* JMT and the TIS utilized a base saturation flow rate of 1,750 pc/h/ln at all intersections.

6. JMT utilized bicycle and pedestrian counts consistent with the existing turning movement counts whereas the TIS did not.

7. At the signalized intersections, JMT increased right turn on red volumes proportionally with volume increases, whereas the TIS maintained existing right turn on red volumes.

8. At the unsignalized intersections, differences in critical headways and follow-up headways were noticed between the TIS and JMT's analysis. JMT utilized the HCS7 Version 7.8.5 default values.

9. At the unsignalized intersections, the TIS utilized proportion of time spent blocked at the intersections based on field views. The TIS utilized the highest proportion of time spent blocked that would be able to provide an HCS output, which resulted in inconsistent values being used. It is recognized that existing delays may be longer than what is calculated in the JMT analysis due to blocked side streets especially during Cape May-Lewes Ferry arrival/departure times. However, JMT analyzed the intersections with no proportion of

time spent blocked input in order to provide a comparable baseline between cases and peaks.

10. The analysis includes scenarios with or without the *US 9, Kings Highway, Dartmouth Drive to Freeman Highway* DelDOT project. As part of the project, Kings Highway is proposed to be widened to provide two through lanes in each direction.

11. Three separate Case 3 scenarios were included in the analysis:

    - Case 3a – Future 2027 with development and without the Kings Highway Dual Lane project.

    - Case 3b – Future 2027 with development and with the Kings Highway Dual Lane project. As part of this scenario, Atlantic Drive is assumed to only provide rights-in/rights-out movements along Kings Highway and an interconnection would exist between Atlantic Drive and the Beebe Medical Center.

    - Case 3c – Future 2027 with development and without the Kings Highway Dual Lane project and without a site entrance along Kings Highway.

12. The analysis also includes the TIS Addendum which reviewed the following scenarios:

    Case 2d – Future 2023 with development of Lot 1 (39,000 square feet of medical/dental office space) and without the Kings Highway Dual Lane Project

    - Case 3d – Future 2023 with 117,000 square feet of medical/dental office space, without the Kings Highway Dual Lane Project, and rights-in site entrance on Kings Highway

13. The analyses highlighted in gray represent the JMT interim recommendations as part of the TIS Review letter.

14. The analyses highlighted in blue represent the JMT suggested improvements with the full build of the proposed development.

Table 2
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/Site Entrance	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development and without Kings Highway Dual Lane Project (Case 2a) [2]						
Northbound Kings Highway Left Turn	A (8.7)	F (90.3)	F (58.2)	A (8.7)	B (12.0)	B (11.1)
Eastbound Beebe Medical Entrance	B (14.9)	F (*)	F (*)	B (14.2)	E (42.9)	E (45.0)
2027 without Development and with Kings Highway Dual Lane Project (Case 2b) [3]						
Northbound Kings Highway Left Turn	-	-	-	A (8.7)	B (12.1)	B (11.2)
Eastbound Beebe Medical Entrance	-	-	-	B (11.5)	D (25.8)	C (23.7)
2023 with development of Lot 1 (39,000 square feet of medical/dental office space) and without the Kings Highway Dual Lane Project (Case 2d)[2]						
Northbound Kings Highway Left Turn	A (8.6)	F (136.9)	F (74.3)	A (8.6)	B (10.3)	B (10.6)
Eastbound Beebe Medical Entrance	B (14.4)	F (*)	F (*)	B (13.8)	D (26.5)	D (32.0)

*HCS reported delay greater than 1000 seconds per vehicle

[1] For signalized and unsignalized analysis, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.
[2] For the PM and Saturday peak periods, the TIS utilized various values for proportion of time blocked whereas JMT utilized the default value of 0.
[3] For this scenario, JMT incorporated two through lanes in each direction along Kings Highway.

Table 2
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/Site Entrance	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development and without Kings Highway Dual Lane Project (Case 3a) [2]						
Northbound Kings Highway Left Turn	A (8.7)	F (259.0)	F (162.7)	A (8.7)	B (12.0)	B (11.1)
Southbound Kings Highway Left Turn	B (10.3)	B (10.9)	C (16.5)	B (10.3)	B (10.9)	C (16.5)
Eastbound Beebe Medical Entrance	C (19.5)	F (*)	F (*)	C (17.9)	F (130.8)	F (358.0)
Westbound Site Entrance	F (78.6)	F (*)	F (*)	F (59.4)	F (*)	F (*)
2027 with Development and with Kings Highway Dual Lane Project (Case 3b) [3]						
Northbound Kings Highway Left Turn	A (8.9)	B (12.6)	B (11.4)	A (8.9)	B (12.6)	B (11.4)
Southbound Kings Highway Left Turn	B (10.3)	B (10.9)	C (16.5)	B (10.3)	B (10.9)	C (16.5)
Eastbound Beebe Medical Entrance	C (20.8)	F (144.8)	F (468.9)	C (19.1)	F (78.9)	F (340.4)
Westbound Site Entrance	F (55.5)	F (*)	F (*)	E (44.7)	F (*)	F (*)
2027 with Development, without Kings Highway Dual Lane Project and no site entrance on Kings Highway (Case 3c) [2]						
Northbound Kings Highway Left Turn	A (8.9)	F (90.3)	E (48.1)	A (8.9)	B (12.4)	B (11.9)
Eastbound Beebe Medical Site Entrance	C (16.3)	F (*)	F (*)	C (15.4)	F (53.3)	F (67.4)

*HCS reported delay greater than 1000 seconds per vehicle

Table 2 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control[1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/Site Entrance	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2023 with 117,000 square feet of medical/dental office space, without the Kings Highway Dual Lane Project, and rights-in site entrance on Kings Highway (Case 3d) [2]						
Northbound Kings Highway Left Turn	A (8.7)	B (10.4)	B (10.8)	A (8.7)	B (10.4)	B (10.8)
Eastbound Beebe Medical Site Entrance	C (16.1)	E (40.9)	F (64.4)	C (15.2)	D (34.7)	F (50.6)

*HCS reported delay greater than 1000 seconds per vehicle

Note: Analysis highlighted in gray represents the JMT interim recommendations

Table 2 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Roundabout[1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/Site Entrance	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development and without Kings Highway Dual Lane Project (Case 2a) [4]						
Eastbound Beebe Medical Entrance	-	-	-	A (5.3)	B (11.5)	A (10.0)
Northbound Kings Highway	-	-	-	A (8.9)	B (12.5)	D (32.7)
Southbound Kings Highway	-	-	-	A (7.0)	E (39.2)	C (21.5)
Overall Intersection	-	-	-	A (8.0)	D (27.7)	D (27.2)
2027 without Development and with Kings Highway Dual Lane Project (Case 2b) [3,5]						
Eastbound Beebe Medical Entrance	-	-	-	A (4.6)	A (8.8)	A (7.8)
Northbound Kings Highway	-	-	-	A (5.1)	A (5.9)	A (7.5)
Southbound Kings Highway	-	-	-	A (4.5)	A (7.8)	A (7.0)
Overall Intersection	-	-	-	A (4.9)	A (7.0)	A (7.2)

*HCS reported delay greater than 1000 seconds per vehicle

[4] JMT modeled the intersection as a single-lane roundabout.
[5] JMT modeled the intersection as a dual-lane roundabout.

Table 2 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Roundabout	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/Site Entrance	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development and without Kings Highway Dual Lane Project (Case 3a) [4]						
Eastbound Beebe Medical Entrance	-	-	-	A (6.1)	C (15.0)	B (14.0)
Westbound Site Entrance	-	-	-	A (7.7)	C (20.5)	E (37.8)
Northbound Kings Highway	-	-	-	B (13.9)	C (20.1)	F (163.0)
Southbound Kings Highway	-	-	-	A (8.6)	F (131.9)	F (90.8)
Overall Intersection	-	-	-	B (11.4)	F (75.5)	F (121.1)
2027 with Development and with Kings Highway Dual Lane Project (Case 3b) [3, 5]						
Eastbound Beebe Medical Entrance	-	-	-	A (5.3)	B (11.2)	B (11.0)
Westbound Site Entrance	-	-	-	A (6.7)	B (14.8)	C (21.8)
Northbound Kings Highway	-	-	-	A (6.5)	A (7.1)	B (12.1)
Southbound Kings Highway	-	-	-	A (5.4)	B (11.7)	B (10.1)
Overall Intersection	-	-	-	A (6.1)	B (10.2)	B (12.1)

*HCS reported delay greater than 1000 seconds per vehicle

Table 2 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Roundabout	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/Site Entrance	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development, without Kings Highway Dual Lane Project and no site entrance on Kings Highway (Case 3c) [4]						
Eastbound Beebe Medical Entrance	-	-	-	A (5.7)	B (12.3)	B (11.7)
Northbound Kings Highway	-	-	-	A (9.5)	C (16.3)	F (51.5)
Southbound Kings Highway	-	-	-	A (7.8)	F (51.2)	E (36.3)
Overall Intersection	-	-	-	A (8.7)	E (35.6)	E (43.8)

Table 2 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Signalized Intersection[1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/Site Entrance[6]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development and without Kings Highway Dual Lane Project (Case 2a) [7]	-	-	-	A (4.7)	A (10.0)	B (13.8)
2027 without Development and with Kings Highway Dual Lane Project (Case 2b)[3,7]	-	-	-	A (3.3)	A (3.2)	A (4.2)
2023 with development of Lot 1 (39,000 square feet of medical/dental office space) and without the Kings Highway Dual Lane Project (Case 2d) [7]	-	-	-	A (4.7)	A (5.6)	A (8.9)
2027 with Development and without Kings Highway Dual Lane Project (Case 3a)[8,9]	A (9.5)	D (51.5)	F (105.4)	B (18.7)	F (81.3)	F (114.0)

[6] JMT used a signal cycle length of 100 seconds during the AM and Saturday peak periods, and a cycle length of 130 seconds during the PM peak period for all Cases. The TIS used various signal cycle lengths for each period and case analyzed.

[7] JMT modeled the intersection as split phase with one shared left turn/through lane along the northbound Kings Highway approach, one through lane and one right turn lane along the southbound Kings Highway approach, and one left turn lane and one right turn lane along the eastbound Beebe Medical Center approach. The signal would operate with two phases.

[8] Both the TIS and JMT modeled the intersection with one left turn lane, one through lane, and one right turn lane along northbound and southbound Kings Highway, and one shared left turn/through lane and one right turn lane along eastbound Beebe Medical Center and the westbound Site Entrance.

[9] Both the TIS and JMT modeled the northbound and southbound approaches with protected and permissive left turn phasing. The TIS modeled the eastbound and westbound approaches as concurrent phases with permitted left turns, whereas JMT modeled as split phase operation.

Table 2 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Signalized Intersection[1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/Site Entrance[6]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development and with Kings Highway Dual Lane Project (Case 3b) [9,10]	B (12.1)	B (16.2)	B (16.2)	B (13.3)	C (23.7)	C (23.0)
2027 with Development, without Kings Highway Dual Lane Project and no site entrance on Kings Highway (Case 3c) [11]	-	-	-	A (5.0)	B (15.0)	D (49.7)
2023 with 117,000 square feet of medical/dental office space, without the Kings Highway Dual Lane Project, and rights-in site entrance on Kings Highway (Case 3d)[11]	-	-	-	A (4.6)	A (5.7)	A (9.4)

Note: Analysis highlighted in blue represents JMT suggested improvements with the full build of the proposed development

[10] Both the TIS and JMT modeled the intersection with one shared left turn/through lane and one right turn lane along eastbound Beebe Medical Center and the westbound Site Entrance. The TIS modeled the northbound and southbound Kings Highway approaches with one left turn lane, one through lane, and one shared through/right turn lane. JMT modeled the northbound and southbound Kings Highway approaches with one left turn lane, two through lanes, and one right turn lane.

[11] Reduction in delay when compared to Case 3a is due to the removal of the easterly leg Site Entrance on Kings Highway from this intersection.

[11] JMT modeled the northbound Kings Highway approach with a shared left turn/through lane and a separate right turn lane, the southbound Kings Highway approach with a through lane and a right turn lane, and the eastbound Beebe Medical Center approach with a separate left turn lane and a right turn lane.

Table 3
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control[1]	**LOS per TIS**			**LOS per JMT**		
Gills Neck Road (Sussex Road 267)/Site Entrance	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development and without Kings Highway Dual Lane Project (Case 2a)[2, 12]						
Westbound Gills Neck Road Left Turn	F (434.6)	A (8.9)	A (8.5)	A (8.1)	A (8.9)	A (8.4)
Northbound Gills Neck Village Center Entrance	F (*)	F (*)	F (*)	C (16.4)	C (22.5)	C (16.5)
2023 with development of Lot 1 (39,000 square feet of medical/dental office space) and without the Kings Highway Dual Lane Project (Case 2d) [2,13]						
Eastbound Gills Neck Road Left Turn	F (130.7)	D (34.2)	F (102.7)	A (8.4)	A (8.1)	A (8.1)
Westbound Gills Neck Road Left Turn	E (47.0)	D (30.9)	F (55.2)	A (7.9)	A (8.5)	A (8.2)
Northbound Gills Neck Village Center Entrance	F (*)	F (*)	F (*)	C (20.6)	D (28.5)	C (24.0)
Southbound Site Entrance	F (95.3)	F (133.4)	F (166.8)	B (11.3)	B (11.8)	B (10.9)

*HCS reported delay greater than 1000 seconds per vehicle

[12] Both the TIS and JMT modeled the intersection with one through lane and one right turn lane along eastbound Gills Neck Road, one left turn lane and one through lane along westbound Gills Neck Road, and one left turn lane and one through lane along the northbound Gills Neck Village Center entrance.

[13] Both the TIS and JMT modeled the intersection with one left turn lane, one through lane, and one right turn lane along the eastbound and westbound Gills Neck Road approaches, and one shared left turn/through lane and one right turn lane along the northbound Gills Neck Village Center entrance and the southbound Site Entrance.

Table 3 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control[1]	**LOS per TIS**			**LOS per JMT**		
Gills Neck Road (Sussex Road 267)/Site Entrance	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development and without Kings Highway Dual Lane Project (Case 3a) [2,13]						
Eastbound Gills Neck Road Left Turn	F (104.1)	C (16.6)	D (27.7)	A (9.1)	A (8.7)	A (9.0)
Westbound Gills Neck Road Left Turn	A (8.1)	B (14.1)	A (8.4)	A (8.1)	A (8.9)	A (8.4)
Northbound Gills Neck Village Center Entrance	F (*)	F (*)	F (*)	E (44.7)	F (201.4)	F (261.6)
Southbound Site Entrance	F (120.2)	F (88.1)	F (120.9)	B (14.2)	C (18.6)	C (17.8)
2027 with Development and with Kings Highway Dual Lane Project (Case 3b) [13,14]						
Eastbound Gills Neck Road Left Turn	A (9.1)	A (8.7)	A (9.0)	A (9.1)	A (8.7)	A (9.0)
Westbound Gills Neck Road Left Turn	A (8.1)	A (8.9)	A (8.4)	A (8.1)	A (8.9)	A (8.4)
Northbound Gills Neck Village Center Entrance	F (54.9)	F (280.9)	F (351.9)	E (44.7)	F (201.4)	F (266.1)
Southbound Site Access	B (14.8)	C (19.8)	C (19.3)	B (14.2)	C (18.6)	C (17.8)

*HCS reported delay greater than 1000 seconds per vehicle
Note: Analysis highlighted in blue represents JMT suggested improvements with the full build of the proposed development

[14] The Gills Neck Village Center Entrance improvements will be determined as part of the Gills Neck Village Center TOA.

Table 3 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
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Unsignalized Intersection Two-Way Stop Control[1]	**LOS per TIS**			**LOS per JMT**		
Gills Neck Road (Sussex Road 267)/Site Access	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development, without Kings Highway Dual Lane Project and no site entrance on Kings Highway (Case 3c) [2,14]						
Eastbound Gills Neck Road Left Turn	F (77.7)	B (11.2)	D (31.8)	B (10.4)	A (9.5)	B (11.9)
Westbound Gills Neck Road Left Turn	A (8.1)	A (8.9)	A (8.4)	A (8.1)	A (8.9)	A (8.4)
Northbound Gills Neck Village Center Entrance	F (*)	F (*)	F (*)	F (344.7)	F (*)	F (*)
Southbound Site Entrance	F (871.5)	F (90.5)	F (*)	C (17.1)	F (54.4)	F (56.5)
2027 with Development, without Kings Highway Dual Lane Project and a rights-in only entrance on Kings Highway (Case 3c)						
Eastbound Gills Neck Road Left Turn	-	-	-	A (9.5)	A (8.9)	A (9.7)
Westbound Gills Neck Road Left Turn	-	-	-	A (8.1)	A (8.9)	A (8.4)
Northbound Gills Neck Village Center Entrance	-	-	-	F (117.5)	F (*)	F (*)
Southbound Site Entrance	-	-	-	C (15.5)	F (52.0)	D (28.7)

*HCS reported excessive delay greater than 1000 seconds per vehicle

Table 3 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control[1]	**LOS per TIS**			**LOS per JMT**		
Gills Neck Road (Sussex Road 267)/Site Entrance	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2023 with 117,000 square feet of medical/dental office space, without the Kings Highway Dual Lane Project, and rights-in site entrance on Kings Highway (Case 3d)[15]						
Eastbound Gills Neck Road Left Turn	A (8.5)	A (8.2)	A (8.4)	A (8.5)	A (8.2)	A (8.4)
Westbound Gills Neck Road Left Turn	A (7.9)	A (8.5)	A (8.2)	A (7.9)	A (8.5)	A (8.2)
Northbound Gills Neck Village Center Entrance	D (27.9)	F (97.4)	F (101.2)	C (24.9)	F (75.5)	F (76.3)
Southbound Site Access	B (11.9)	C (15.4)	B (13.2)	B (11.6)	B (14.9)	B (12.8)

Note: Analysis highlighted in gray represents the JMT interim recommendations

Table 4
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/ Bay Breeze Drive [2, 15]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2018 Existing (Case 1)						
Southbound Kings Highway Left Turn	A (8.6)	F (289.8)	F (458.6)	-	-	-
Westbound Bay Breeze Drive Approach	C (19.8)	F (*)	F (*)	-	-	-
2027 without Development and without Kings Highway Dual Lane Project (Case 2a)						
Southbound Kings Highway Left Turn	A (9.1)	F (286.0)	B (12.0)	-	-	-
Westbound Bay Breeze Drive Approach	D (25.7)	F (*)	F (144.1)	-	-	-
2027 without Development and with Kings Highway Dual Lane Project (Case 2b) [3, 16]						
Southbound Kings Highway Left Turn	-	A (9.9)	B (12.0)	A (9.2)	B (10.2)	B (12.3)
Westbound Bay Breeze Drive Approach	-	F (128.2)	F (144.1)	C (18.9)	E (39.3)	F (52.0)
2027 with Development and without Kings Highway Dual Lane Project (Case 3a)						
Southbound Kings Highway Left Turn	A (9.2)	F (286.0)	F (447.6)	-	-	-
Westbound Bay Breeze Drive Approach	D (30.2)	F (*)	F (*)	-	-	-

*HCS reported excessive delay greater than 1000 seconds per vehicle

[15] Due to the unique configuration of the Kings Highway/Bay Breeze Drive intersection, JMT analyzed the intersection as two separate intersections. The TIS analyzed it as a single T-intersection.

[16] JMT assumed the intersection would be modified to a traditional T-intersection as part of the Kings Highway Dual Lane project.

Table 4 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/ Bay Breeze Drive [2, 17]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development and with Kings Highway Dual Lane Project (Case 3b) [18]						
Southbound Kings Highway Left Turn	A (9.2)	B (10.5)	B (12.8)	A (9.4)	A (10.8)	B (13.1)
Westbound Bay Breeze Drive Approach	C (22.5)	F (65.6)	F (93.7)	C (20.8)	F (52.6)	F (72.3)
2027 with Development and with Kings Highway Dual Lane Project and Bay Breeze Drive left turn out restriction (Case 3b)						
Southbound Kings Highway Left Turn	A (9.2)	B (10.5)	B (12.8)	A (9.4)	B (10.8)	B (13.1)
Westbound Bay Breeze Drive Right Turn	B (11.4)	B (13.0)	C (15.9)	B (11.3)	B (12.9)	C (15.6)

*HCS reported excessive delay greater than 1000 seconds per vehicle

Table 4 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/ Bay Breeze Drive [2,17]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2018 Existing (Case 1)						
Westbound Bay Breeze Drive Left Turn	-	-	-	C (19.6)	D (25.8)	E (45.5)
2027 without Development and without Kings Highway Dual Lane Project (Case 2a)						
Westbound Bay Breeze Drive Left Turn	-	-	-	D (25.2)	F (106.4)	F (153.2)
2027 with Development and without Kings Highway Dual Lane Project (Case 3a)						
Westbound Bay Breeze Drive Left Turn	-	-	-	D (29.6)	F (164.0)	F (261.0)

[17] Due to the unique configuration of the Kings Highway/Bay Breeze Drive intersection, JMT analyzed the intersection as two separate intersections. This table summarized the results of the analysis conducted at the location where the westbound Bay Breeze Drive approach is a stop-controlled left-turn lane, the northbound Kings Highway approach is a through lane and a right turn lane, and the southbound Kings Highway approach is a through lane.

Table 4 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/ Bay Breeze Drive [2,18,19]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2018 Existing (Case 1)						
Southbound Kings Highway Left Turn	-	-	-	B (13.5)	B (14.0)	C (21.7)
Westbound Bay Breeze Drive Right Turn	-	-	-	B (12.1)	B (12.2)	C (18.8)
2027 without Development and without Kings Highway Dual Lane Project (Case 2a)						
Southbound Kings Highway Left Turn	-	-	-	C (15.3)	C (19.1)	D (29.6)
Westbound Bay Breeze Drive Right Turn	-	-	-	B (13.5)	C (16.1)	D (25.2)
2027 with Development and without Kings Highway Dual Lane Project (Case 3a)						
Southbound Kings Highway Left Turn	-	-	-	C (15.8)	C (21.9)	D (33.8)
Westbound Bay Breeze Drive Right Turn	-	-	-	B (13.9)	C (18.1)	D (28.6)

[18] JMT analyzed the southbound left-turn movement as an eastbound through movement as the movement is stop-controlled.

[19] Due to the unique configuration of the Kings Highway/Bay Breeze Drive intersection, JMT analyzed the intersection as two separate intersections. This table summarizes the results of the analysis conducted at the location where the westbound Bay Breeze Drive approach is a yield-controlled channelized right-turn lane, the northbound Kings Highway approach is a through lane, and the southbound Kings Highway approach is a left-turn lane.

Table 4 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Roundabout [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/ Bay Breeze Drive[2]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development and without Kings Highway Dual Lane Project (Case 2a) [4]						
Westbound Bay Breeze Drive Approach	-	-	-	A (6.7)	A (8.2)	B (12.4)
Northbound Kings Highway Approach	-	-	-	A (8.9)	B (12.5)	E (42.9)
Southbound Kings Highway Approach	-	-	-	A (6.4)	C (22.1)	C (15.7)
Overall Intersection	-	-	-	A (7.9)	C (17.6)	C (30.8)
2027 with Development and with Kings Highway Dual Lane Project (Case 2b) [3, 5]						
Westbound Bay Breeze Drive Approach	-	-	-	A (5.7)	A (6.7)	A (9.4)
Northbound Kings Highway Approach	-	-	-	A (5.2)	A (6.0)	A (7.9)
Southbound Kings Highway Approach	-	-	-	A (4.4)	A (7.0)	A (6.4)
Overall Intersection	-	-	-	A (4.9)	A (6.5)	A (7.2)
2027 with Development and without Kings Highway Dual Lane Project (Case 3a) [4]						
Westbound Bay Breeze Drive Approach	-	-	-	A (7.0)	A (9.4)	B (14.1)
Northbound Kings Highway Approach	-	-	-	A (9.5)	C (16.4)	F (66.6)
Southbound Kings Highway Approach	-	-	-	A (7.2)	D (27.4)	C (23.3)
Overall Intersection				A (8.5)	C (22.0)	E (46.8)

Table 4 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Roundabout [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/ Bay Breeze Drive[2]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development and with Kings Highway Dual Lane Project (Case 3b) [3, 5]						
Westbound Bay Breeze Drive Approach	-	-	-	A (5.9)	A (7.5)	B (10.4)
Northbound Kings Highway Approach	-	-	-	A (5.4)	A (6.5)	A (8.5)
Southbound Kings Highway Approach	-	-	-	A (4.7)	A (7.3)	A (7.1)
Overall Intersection	-	-	-	A (5.1)	A (6.9)	A (7.9)

Table 4 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Signalized Intersection[1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/ Bay Breeze Drive [20,21]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development and without Kings Highway Dual Lane Project (Case 2a)	-	-	-	A (8.3)	A (9.3)	D (38.0)
2027 without Development and with Kings Highway Dual Lane Project (Case 2b) [3]	-	-	-	A (6.0)	A (4.9)	A (6.2)
2027 with Development and without Kings Highway Dual Lane Project (Case 3a)	-	-	-	A (8.5)	B (10.9)	D (52.6)
2027 with Development and with Kings Highway Dual Lane Project (Case 3b) [3]	-	-	-	A (5.9)	A (5.0)	A (6.6)

[20] JMT used a signal cycle length of 100 seconds during the AM and Saturday peak periods, and a cycle length of 130 seconds during the PM peak period.
[21] JMT modeled the signal as a three-phase signal with protected-permissive left turn phasing along the southbound Kings Highway approach.

Table 5
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway/Freeman Highway (Sussex Road 23) [22]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2018 Existing (Case 1) [23]						
Northbound Kings Highway Left Turn	A (8.4)	B (12.4)	A (9.1)	C (15.0)	C (18.4)	C (19.6)
2027 without Development and without Kings Highway Dual Lane Project (Case 2a) [23]						
Northbound Kings Highway Left Turn	A (8.7)	C (17.6)	B (11.0)	C (17.2)	F (109.6)	F (68.4)
2027 with Development and without Kings Highway Dual Lane Project (Case 3a) [23]						
Northbound Kings Highway Left Turn	A (8.9)	C (23.5)	B (12.2)	C (19.1)	F (199.4)	F (140.6)
2027 with Development and with Kings Highway Dual Lane Project (Case 3b)						
Northbound Kings Highway Left Turn	-	B (13.4)	-	C (19.1)	F (199.4)	F (140.6)
2027 with Development and with Kings Highway Dual Lane Project and Bay Breeze Drive left turn out restriction (Case 3b)[24]						
Northbound Kings Highway Left Turn	A (9.0)	B (14.1)	B (12.5)	C (17.2)	F (231.7)	F (151.3)

[22] The TIS modeled the northbound movement as a left-turn lane and a through lane. JMT did not include the through movement in the analysis, because it is a free-flow movement with no conflicts. JMT modeled the northbound left-turn movement as a westbound through as it is stop-controlled.
[23] For the PM peak period, the TIS utilized various values for proportion of time blocked whereas JMT utilized the default value of 0.
[24] For this scenario, Bay Breeze Drive left turn outs would be restricted and those movements would be U-turns at the Kings Highway/Freeman Highway intersection.

Table 5 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Signalized Intersection[1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268) / Freeman Highway (Sussex Road 23) [25]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development (Case 2)	-	-	-	B (14.9)	D (36.9)	C (25.0)
2027 with Development (Case 3)	-	-	-	B (17.6)	D (38.0)	C (27.5)

[25] JMT analyzed the intersection as signalized. The AM and Saturday signal cycle lengths are 100 seconds and the PM signal cycle length is 130 seconds.

Table 6
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control[1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268) / Savannah Road (Sussex Road 18) [26]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2018 Existing (Case 1)						
Eastbound 3rd Street Approach	B (11.5)	B (14.8)	D (28.5)	B (11.6)	C (16.5)	E (35.1)
Westbound Kings Highway Approach	B (10.4)	B (12.7)	C (16.2)	B (10.3)	B (13.3)	C (16.9)
Northbound Savannah Road Left Turn	A (7.5)	A (7.8)	A (7.8)	A (7.5)	A (7.9)	A (7.9)
Southbound Savannah Road Left Turn	A (7.7)	A (7.9)	A (8.7)	A (7.7)	A (8.0)	A (8.9)
2027 without Development (Case 2)						
Eastbound 3rd Street Approach	B (13.8)	F (55.7)	F (99.6)	B (14.7)	F (165.4)	F (171.0)
Westbound Kings Highway Approach	B (11.5)	E (35.3)	C (21.8)	B (11.5)	E (46.5)	C (23.6)
Northbound Savannah Road Left Turn	A (7.6)	A (7.9)	A (7.8)	A (7.6)	A (8.0)	A (8.0)
Southbound Savannah Road Left Turn	A (7.8)	A (8.5)	A (9.1)	A (7.8)	A (8.6)	A (9.3)
2027 with Development (Case 3) [27]						
Eastbound 3rd Street Approach	C (15.5)	F (96.7)	F (277.0)	C (17.2)	F (357.6)	F (565.9)
Westbound Kings Highway Approach	B (12.1)	F (56.7)	D (30.6)	B (12.0)	F (89.8)	E (39.5)
Northbound Savannah Road Left Turn	A (7.6)	A (8.0)	A (7.8)	A (7.6)	A (8.0)	A (8.0)
Southbound Savannah Road Left Turn	A (7.9)	A (8.6)	A (9.3)	A (7.9)	A (8.7)	A (9.5)

[26] For the analysis, the TIS used HCS7 version 7.8, whereas JMT used HCS7 version 7.8.5 resulting in delay differences.
[27] During the weekday AM, the TIS used a westbound through volume of 24, and JMT used a volume of 23 consistent with the volume diagrams.

Table 6 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Roundabout[1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268) / Savannah Road (Sussex Road 18) [28]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development (Case 2)						
Eastbound 3rd Street	-	-	-	A (4.3)	A (7.4)	A (5.6)
Westbound Kings Highway	-	-	-	A (4.9)	A (7.6)	B (10.0)
Northbound Savannah Road	-	-	-	A (5.1)	A (7.5)	B (10.0)
Southbound Savannah Road	-	-	-	A (4.8)	A (7.7)	A (5.8)
Overall Intersection	-	-	-	A (4.9)	A (7.6)	A (8.4)
2027 with Development (Case 3)						
Eastbound 3rd Street	-	-	-	A (4.5)	A (7.8)	A (6.2)
Westbound Kings Highway	-	-	-	A (5.1)	A (8.5)	B (11.4)
Northbound Savannah Road	-	-	-	A (5.3)	A (7.8)	B (11.4)
Southbound Savannah Road	-	-	-	A (5.0)	A (8.3)	A (6.4)
Overall Intersection	-	-	-	A (5.1)	A (8.2)	A (9.4)

[28] JMT modeled the intersection as a single-lane roundabout.

Table 6 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Signalized Intersection [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268) / Savannah Road (Sussex Road 18) [29]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development (Case 2)	-	-	-	C (26.6)	C (33.7)	C (31.3)
2027 with Development (Case 3)	-	-	-	C (29.3)	D (37.5)	D (36.3)

[29] JMT modeled the intersection as a signalized with split phases along the 3rd Street and Kings Highway approaches. A cycle length of 120 seconds was utilized for all peak periods.

Table 7
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, INC.

Signalized Intersection [1]	**LOS per TIS**			**LOS per JMT**		
Savannah Road/Gills Neck Road/Front Street (Sussex Road 267) [30]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2018 Existing (Case 1) [31]	B (15.9)	B (19.1)	F (136.7)	C (29.8)	C (31.3)	F (166.2)
2027 without Development (Case 2) [31]				C (32.1)	D (36.3)	F (240.1)
2027 without Development (Case 2) *with signal timing optimization* [34]	B (14.1)	B (17.7)	F (154.6)	B (15.2)	B (19.7)	F (160.5)
2027 without Development (Case 2) *with improvement* [33]				B (14.2)	B (17.2)	D (44.6)
2027 with Development (Case 3) [33]				C (32.4)	D (36.9)	F (263.7)
2027 with Development (Case 3) *with signal timing optimization* [32]	B (14.5)	B (17.8)	F (158.2)	B (18.3)	C (22.0)	F (176.7)
2027 with Development (Case 3) *with improvement* [33]				B (16.8)	B (17.8)	D (48.2)

[30] JMT did not incorporate RTOR because the movement in restricted, whereas the TIS did.
[31] JMT used MAX 1 Timers, whereas the TIS utilized observed signal timing splits for existing cases and optimized signal timing splits for future cases.
[32] For optimized signal timing scenarios, JMT utilized cycle lengths of 60, 90, and 120 seconds for the AM, PM, and Saturday peak hours, respectively.
[33] JMT improvement scenario includes providing an additional through lane along northbound and southbound Savannah Road with signal timing optimization. Cycle lengths of 60, 90, and 120 seconds were utilized for the AM, PM, and Saturday peak hours, respectively.

Table 7 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, INC.

Roundabout[1]	**LOS per TIS**			**LOS per JMT**		
Savannah Road/Gills Neck Road/Front Street (Sussex Road 267)	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development (Case 2) [34]						
Eastbound Front Street Approach	-	-	-	A (4.1)	A (5.7)	C (15.0)
Westbound Gills Neck Road Approach	-	-	-	A (4.7)	A (5.2)	B (14.8)
Northbound Savannah Road Approach	-	-	-	A (5.2)	A (5.7)	E (39.8)
Southbound Savannah Road Approach	-	-	-	A (4.7)	A (7.8)	C (16.9)
Overall				A (4.8)	A (6.6)	C (24.4)
2027 with Development (Case 3) [34]						
Eastbound Front Street Approach	-	-	-	A (4.2)	A (5.9)	B (15.9)
Westbound Gills Neck Road Approach	-	-	-	A (4.7)	A (5.4)	C (16.1)
Northbound Savannah Road Approach	-	-	-	A (5.3)	A (6.1)	F (54.1)
Southbound Savannah Road Approach	-	-	-	A (4.8)	A (8.2)	C (20.8)
Overall				A (4.9)	A (6.9)	D (31.3)

[34] JMT modeled the intersection as a single-lane roundabout with a right turn bypass lane along the eastbound Front Street and the northbound Savannah Road approaches.

Table 8
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/ Atlantic Drive [2]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2018 Existing (Case 1)						
Northbound Kings Highway Left Turn	A (8.3)	F (112.3)	F (126.5)	A (8.3)	B (10.4)	A (9.7)
Eastbound Atlantic Drive Approach	B (13.7)	F (*)	F (*)	B (13.2)	C (24.7)	D (31.1)
2027 without Development and without Kings Highway Dual Lane Project (Case 2a)						
Northbound Kings Highway Left Turn	A (8.8)	F (78.2)	F (84.5)	A (8.9)	B (12.4)	B (10.9)
Eastbound Atlantic Drive Approach	C (17.7)	F (*)	F (*)	C (16.6)	F (57.1)	F (93.4)
2027 without Development and with Kings Highway Dual Lane Project (Case 2b) [3]						
Northbound Kings Highway Left Turn	-	-	-	A (8.9)	B (12.5)	B (11.0)
Eastbound Atlantic Drive Approach	-	-	-	B (12.9)	C (24.1)	E (38.0)
2023 with development of Lot 1 (39,000 square feet of medical/dental office space) and without the Kings Highway Dual Lane Project (Case 2d)						
Northbound Kings Highway Left Turn	A (8.6)	F (110.0)	F (125.1)	A (8.7)	B (11.3)	B (10.4)
Eastbound Atlantic Drive Approach	C (15.8)	F (*)	F (*)	C (15.0)	E (35.8)	F (52.4)

*HCS reported excessive delay greater than 1000 seconds per vehicle

Table 8 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/ Atlantic Drive [2]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development and without Kings Highway Dual Lane Project (Case 3a)						
Northbound Kings Highway Left Turn	A (9.0)	F (73.4)	E (43.7)	A (9.1)	B (13.7)	B (11.7)
Eastbound Atlantic Drive Approach	C (20.7)	F (*)	F (*)	C (19.0)	F (107.4)	F (261.9)
2027 with Development and with Kings Highway Dual Lane Project and Atlantic Drive as Rights-In/Rights-Out Only (Case 3b) [3]						
Eastbound Atlantic Drive Right Turn	B (10.7)	C (17.8)	B (14.1)	B (10.6)	C (17.7)	B (14.3)
2027 with Development, only access along Gills Neck Road and without Kings Highway Dual Lane Project (Case 3c)						
Northbound Kings Highway Left Turn	A (9.1)	F (60.7)	F (64.0)	A (9.2)	B (12.8)	B (11.6)
Eastbound Atlantic Drive Approach	C (19.9)	F (*)	F (*)	C (18.4)	F (76.5)	F (168.9)

*HCS reported excessive delay greater than 1000 seconds per vehicle
Note:
Analysis highlighted in blue represents JMT suggested improvements with the full build of the proposed development

Table 8 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/ Atlantic Drive[2]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development, without Kings Highway Dual Lane Project and rights-in only along Kings Highway (Case 3c) [35]						
Northbound Kings Highway Left Turn	-	-	-	A (9.2)	B (12.8)	B (11.6)
Eastbound Atlantic Drive Approach	-	-	-	C (20.1)	F (89.6)	F (351.4)
2023 with 117,000 square feet of medical/dental office space, without the Kings Highway Dual Lane Project, and rights-in site entrance on Kings Highway (Case 3d)						
Northbound Kings Highway Left Turn	A (8.7)	B (11.3)	B (11.6)	A (8.7)	B (11.4)	B (11.2)
Eastbound Atlantic Drive Approach	C (17.1)	E (44.9)	F (397.7)	C (16.1)	E (39.0)	F (164.8)

Note: Analysis highlighted in gray represents the JMT interim recommendations

[35] The additional northbound Kings Highway through traffic as a result of a rights-in only site access along Kings Highway increases the delay for vehicles exiting Atlantic Drive.

Table 8 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Signalized Intersection[1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/ Atlantic Drive [36,37]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development and without Kings Highway Dual Lane Project (Case 2a)	-	-	-	A (8.1)	C (32.3)	B (19.8)
2027 without Development and with Kings Highway Dual Lane Project (Case 2b)	-	-	-	A (5.6)	B (14.2)	A (6.6)
2023 with development of Lot 1 (39,000 square feet of medical/dental office space) and without the Kings Highway Dual Lane Project (Case 2d)	-	-	-	A (7.5)	C (22.9)	B (13.8)
2027 with Development and without Kings Highway Dual Lane Project (Case 3a)	-	-	-	A (8.9)	E (56.7)	D (45.6)
2027 with Development and with Kings Highway Dual Lane Project (Case 3b) [38]	-	-	-	A (5.6)	B (13.8)	A (7.1)
2027 with Development, only access along Gills Neck Road, and without Kings Highway Dual Lane Project (Case 3c)	-	-	-	A (8.7)	D (40.2)	C (34.1)
2023 with 117,000 square feet of medical/dental office space, without the Kings Highway Dual Lane Project, and rights-in site entrance on Kings Highway (Case 3d)	-	-	-	A (7.9)	C (22.9)	C (30.4)

[36] JMT modeled the intersection as signalized with a cycle length of 100 seconds during the AM and Saturday peak periods, and 130 seconds during the PM peak period. The signal would operate with protected-permissive left turn phasing along the northbound Kings Highway approach.

[37] JMT modeled the intersection with one left turn lane and one through lane along northbound Kings Highway, one through lane and one right turn lane along southbound Kings Highway, and one left turn lane and one right turn lane along Atlantic Drive. For the scenarios with the Kings Highway Dual Lane Project, the number of through lanes along Kings Highway would increase to two.

[38] JMT assumed Atlantic Drive would not have turning restrictions with the provision of a traffic signal and the Kings Highway Dual Lane Project.

Table 9
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, INC.

Signalized Intersection [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway/Gills Neck Road/Cape Henlopen High School [39,40,41]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2018 Existing (Case 1) [42]	F (160.3)	F (343.7)	F (412.7)	F (226.2)	F (359.7)	F (832.0)
2027 without Development and without Kings Highway Dual Lane Project (Case 2a) [43]	F (202.3)	F (112.9)	F (433.5)	F (436.3)	F (160.6)	F (574.0)
2027 without Development and with Kings Highway Dual Lane Project (Case 2b) [44]	D (46.2)	C (32.2)	C (26.4)	E (78.7)	D (50.5)	D (51.0)
2027 without Development, with Kings Highway Dual Lane Project (Case 2b) *with improvements* [45]	D (48.0)	D (53.2)	C (28.7)	C (31.8)	D (45.2)	C (33.2)
2023 with development of Lot 1 (39,000 square feet of medical/dental office space) and without the Kings Highway Dual Lane Project (Case 2d)[46]	F (209.3)	F (111.4)	F (314.9)	F (152.8)	D (46.6)	F (307.5)

[39] For future Cases, JMT analyzed the intersection as a coordinated intersection with Clay Road, whereas the TIS analyzed the intersection as an uncoordinated intersection.
[40] For future Cases with the Kings Highway Dual Lane Project (Cases 2b and 3b), both the TIS and JMT increased the peak hour factor to 0.92 and set all initial queue lengths to zero.
[41] For future Cases, JMT utilized signal cycle lengths consistent with the DelDOT Timing Plan whereas the TIS utilized various cycle lengths.
[42] JMT utilized timing splits provided on the DelDOT Timing Plan, whereas the TIS did not. Both the TIS and JMT utilized signal cycle lengths consistent with the DelDOT Timing Plan.
[43] For the AM, PM, and Saturday peak hours, JMT maintained the calibrated peak hour factor, whereas the TIS increased the peak hour factor to various values.
[44] Both the TIS and JMT modeled the intersection with two through lanes along Kings Highway and the Gills Neck Road and Cape Henlopen High School Entrance approaches maintained the existing lane configurations.
[45] Both the TIS and JMT modeled the intersection with two through lanes along Kings Highway, one left turn lane, one left turn/through lane, and one right turn lane along Gills Neck Road, and the Cape Henlopen High School Entrance approach would maintain the existing lane configurations. The signal phasing along Gills Neck Road and the Cape Henlopen High School would be modified to split phase.
[46] Both the TIS and JMT utilized weighted peak hour factors to conduct the analysis.

Table 9 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Signalized Intersection [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway/Gills Neck Road/Cape Henlopen High School [41,42,43]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development and without Kings Highway Dual Lane Project (Case 3a)	F (248.5)	F (202.4)	F (448.3)	F (443.4)	F (251.2)	F (754.6)
2027 with Development and with Kings Highway Dual Lane Project (Case 3b) [44]	D (51.9)	E (67.5)	D (51.4)	F (87.8)	F (117.2)	F (111.5)
2027 with Development and with Kings Highway Dual Lane Project (Case 4) [47]	D (47.7)	E (61.2)	D (39.1)	D (54.5)	D (54.1)	D (54.9)

Note: Analysis highlighted in blue represents JMT suggested improvements with the full build of the proposed development

[47] Both the TIS and JMT modeled the intersection with two through lanes along Kings Highway, one left turn lane, one shared left turn/through lane, and one right turn lane along Gills Neck Road and one left turn lane, one through lane, and one right turn lane along the Cape Henlopen High School Entrance approach. The signal phasing along Gills Neck Road and the Cape Henlopen High School would be modified to split phase.

Table 9 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Signalized Intersection [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway/Gills Neck Road/Cape Henlopen High School [41,42,43]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development without Kings Highway Dual Lane Project (Case 3c)	F (230.0)	F (197.4)	F (425.1)	F (451.9)	F (279.7)	F (686.7)
2027 with Development and without Kings Highway Dual Lane Project (Case 3c) *with TIS improvements* [48]	F (200.2)	F (143.4)	F (363.1)	F (356.2)	F (167.6)	F (571.2)
2027 with Development without Kings Highway Dual Lane Project and with rights-in only entrance along Kings Highway (Case 3c) [49]	-	-	-	F (327.8)	F (135.0)	F (582.6)
2023 with 117,000 square feet of medical/dental office space, without the Kings Highway Dual Lane Project, and rights-in site entrance on Kings Highway (Case 3d)[50,51]	F (139.6)	E (62.6)	F (317.3)	F (161.2)	D (54.7)	F (366.8)

Note: Analysis highlighted in gray represents the JMT interim recommendations

[48] TIS improvements scenario incorporates two left turn lanes and a shared through/right turn lane along the westbound Gills Neck Road approach and split phase operation along the eastbound and westbound approaches.

[49] This scenario models the westbound Gills Neck Road approach with one left turn lane, one shared left turn/through lane, and one right turn lane and the southbound approach with one left turn lane, one through lane, and one shared through/right turn lane.

[50] Both the TIS and JMT modeled the intersection with one left turn lane, one through lane, and one right turn lane along northbound Kings Highway, one left turn lane, one through lane, and one shared through/right turn lane along southbound Kings Highway, and two left turn lanes, and one shared through/right turn lane along Gills Neck Road. The TIS and JMT maintained the existing lane configurations along the Cape Henlopen High School Entrance approach. The signal phasing along Gills Neck Road and the Cape Henlopen High School would be modified to split phase.

[51] During the PM peak hour, JMT optimized the signal timing splits and modified the signal cycle length to 150 seconds.

Table 10
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway/Clay Road (Sussex Road 269) [2, 52]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2018 Existing (Case 1)						
Northbound Kings Highway Left Turn	F (168.4)	B (13.4)	F (64.3)	A (9.0)	B (14.1)	A (9.7)
Eastbound Clay Road Approach	F (*)	F (*)	F (*)	F (160.1)	F (*)	F (400.9)
2027 without Development and without Kings Highway Dual Lane Project (Case 2a)						
Northbound Kings Highway Left Turn	F (110.1)	C (16.1)	F (69.4)	-	-	-
Southbound Kings Highway Left Turn	F (177.7)	B (13.0)	F (152.6)	-	-	-
Eastbound Clay Road Approach	F (*)	F (103.4)	F (735.5)	-	-	-
Westbound Gills Neck Village Center Access	F (*)	D (25.4)	F (863.8)	-	-	-
2027 with Development and without Kings Highway Dual Lane Project (Case 3a)						
Northbound Kings Highway Left Turn	F (110.1)	C (22.8)	D (29.5)	-	-	-
Southbound Kings Highway Left Turn	F (177.7)	B (14.4)	F (163.9)	-	-	-
Eastbound Clay Road Approach	F (*)	F (319.8)	F (430.2)	-	-	-
Westbound Gills Neck Village Center Access	F (*)	E (37.3)	F (*)	-	-	-

[52] For all future Cases, JMT modeled the intersection as a signalized intersection per direction from DelDOT, whereas the TIS only modeled the intersection as signalized for Cases that only incorporated the widening project.

Table 10 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Signalized Intersection [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway/Clay Road (Sussex Road 269) [53, 54]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development and without Kings Highway Dual Lane Project (Case 2a)	-	-	-	E (55.8)	F (107.9)	E (71.1)
2027 without Development and with Kings Highway Dual Lane Project (Case 2b) [55]	C (26.9)	C (30.1)	C (23.4)	D (36.9)	C (28.3)	C (23.5)
2027 without Development and with Kings Highway Dual Lane Project (Case 2b) *with improvements* [56]	-	-	-	D (37.0)	C (28.6)	C (23.3)
2023 with development of Lot 1 (39,000 square feet of medical/dental office space) and without the Kings Highway Dual Lane Project (Case 2d)	-	-	-	C (34.2)	F (94.9)	D (46.5)
2027 with Development and without Kings Highway Dual Lane Project (Case 3a)	-	-	-	F (103.0)	F (191.3)	F (151.1)

[53] For future Cases, JMT analyzed the intersection as a signalized intersection coordinated with Gills Neck Road, whereas the TIS analyzed the intersection as an uncoordinated signalized intersection. JMT utilized signal cycle lengths consistent with the signal cycle lengths at the Kings Highway/Gills Neck Road intersection whereas the TIS utilized various signal cycle lengths.

[54] JMT modeled the intersection with one left turn lane, one through lane, and one right turn lane along the northbound and southbound Kings Highway approaches, one left turn lane, one through lane, and one right turn lane along the eastbound Clay Road approach, and two left turn lanes, one through lane and one right turn lane along the Gills Neck Village Center Entrance. Protected-permissive left turn phasing was utilized along the northbound and southbound approaches, and split phase was utilized along the eastbound and westbound approaches.

[55] JMT and the TIS modeled the intersection with two through lanes along Kings Highway. The TIS modeled the side street approaches with one left turn lane, one through lane, and one right turn lane.

[56] JMT incorporated a scenario with improvements proposed at the Kings Highway/Gills Neck Road intersection. Specifically, the improvements include the intersection with two through lanes along Kings Highway, one left turn lane, one left turn/through lane, and one right turn lane along Gills Neck Road, and the Cape Henlopen High School Entrance approach would maintain the existing lane configurations. The signal phasing along Gills Neck Road and the Cape Henlopen High School would be modified to split phase.

Table 10 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, INC.

Signalized Intersection [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway/Clay Road (Sussex Road 269) [57, 58]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development and with Kings Highway Dual Lane Project (Case 3b)	-	-	-	D (50.8)	E (58.0)	D (36.6)
2027 with Development and with Kings Highway Dual Lane Project (Case 4) [57,58]	C (30.1)	D (37.0)	C (33.3)	D (39.4)	D (46.5)	D (43.0)

Note: Analysis highlighted in blue represents JMT suggested improvements with the full build of the proposed development

[57] Both the TIS and JMT modeled the intersection with two through lanes along Kings Highway, one left turn lane, one through lane, and one right turn lane along Clay Road.

[58] Along the westbound Gills Neck Village Center Entrance approach, JMT provided two left turn lanes, one through lanes, and one right turn lane whereas the TIS provided one left turn lane, one through lane, and one right turn lane. The TIS used protected and permissive phasing along the eastbound and westbound approaches whereas JMT utilized split phase operation.

Table 10 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, INC.

Signalized Intersection [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway/Clay Road (Sussex Road 269) [57, 58]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development, without Kings Highway Dual Lane Project and no site entrance on Kings Highway (Case 3c)	-	-	-	F (87.0)	F (196.3)	F (158.6)
2027 with Development, without Kings Highway Dual Lane Project and no site entrance on Kings Highway (Case 3c) *with TIS improvements* [59]	-	-	-	F (131.9)	F (193.6)	F (168.3)
2027 with Development, without Kings Highway Dual Lane Project and rights-in only entrance on Kings Highway (Case 3c) [60]	-	-	-	F (95.6)	F (189.3)	F (156.6)
2023 with 117,000 square feet of medical/dental office space, without the Kings Highway Dual Lane Project, and rights-in site entrance on Kings Highway (Case 3d)[55]	-	-	-	D (40.7)	F (165.2)	E (69.7)

Note: Analysis highlighted in gray represents the JMT interim recommendations

[59] The TIS improvements scenario incorporates two left turn lanes and a shared through/right turn lane along the westbound Gills Neck Road approach to Kings Highway and split phase operation along the eastbound and westbound approaches at the Gills Neck Road/Kings Highway intersection.

[60] JMT modeled the southbound Kings Highway approach with one right turn lane and one through lane.

Table 11
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection)[1]	**LOS per TIS**			**LOS per JMT**		
Clay Road (Sussex Road 269) / Marsh Road (Sussex Road 269A)	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
2018 Existing (Case 1) [61]						
Westbound Clay Road Left	A (7.5)	A (7.6)	A (7.6)	-	-	-
Northbound Marsh Road Approach	A (9.3)	A (9.5)	A (9.4)	-	-	-

[61] Due to the unique configuration of the Clay Road/Marsh Road intersection in Case 1, JMT analyzed the intersection as three separate intersections. The TIS analyzed it as a single standard T-intersection and the results are summarized in this table.

Table 11 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection)[1]	**LOS per TIS**			**LOS per JMT**		
Clay Road (Sussex Road 269) / Marsh Road (Sussex Road 269A) [62]	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
2018 Existing (Case 1) – a [63]						
Eastbound Clay Road Right Turn	-	-	-	A (8.5)	A (8.9)	A (8.5)
Northbound Marsh Road Left Turn	-	-	-	A (7.3)	A (7.6)	A (7.3)
2018 Existing (Case 1) – b [64]						
Eastbound U-turn[65]	-	-	-	-	A (7.5)	-
Northbound Marsh Road Left Turn	-	-	-	A (9.4)	B (10.1)	B (10.4)
2018 Existing (Case 1) – c [66]						
Westbound Clay Road Left Turn	-	-	-	A (7.5)	A (7.5)	A (7.6)
Northbound Marsh Road Right Turn	-	-	-	A (9.1)	A (8.8)	A (9.3)

[62] Due to the unique configuration of the Clay Road/Marsh Road intersection, JMT analyzed the intersection as three separate intersections.
[63] Intersection 'a' depicts the analysis conducted at the location where the eastbound Clay Road approach is a stop-controlled right turn lane, the northbound Marsh Road approach is a shared through/left turn lane, and the southbound Marsh Road approach is a through lane.
[64] Intersection 'b' depicts the analysis conducted at the location where the eastbound Clay Road approach is a shared through/right turn lane, the westbound Clay Road approach is a through lane, and the northbound Marsh Road approach is a stop-controlled left turn lane.
[65] JMT modeled the U-turn as a left turn due to limitations of the HCS software.
[66] Intersection "c" depicts the analysis conducted at the location where the eastbound Clay Road approach is a through lane, the westbound Clay Road approach is a shared through/left turn lane and the northbound Marsh Road approach is a stop-controlled right turn lane.

Table 11 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection)[1]	**LOS per TIS**			**LOS per JMT**		
Clay Road (Sussex Road 269) / Marsh Road (Sussex Road 269A) [67]	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
2027 without Development and without Kings Highway Dual Lane project (Case 2a)						
Eastbound Clay Road Approach	B (13.3)	B (13.1)	B (13.5)	B (13.3)	B (12.8)	B (13.0)
Northbound Marsh Road Left Turn	A (8.1)	A (8.2)	A (8.1)	A (8.1)	A (8.2)	A (8.0)
2027 with Development (Case 3)						
Eastbound Clay Road Approach	C (15.2)	C (16.5)	C (18.3)	B (14.4)	C (15.5)	C (15.9)
Northbound Marsh Road Left Turn	A (8.2)	A (8.6)	A (8.4)	A (8.3)	A (8.6)	A (8.3)

[67] The intersection will be reconfigured as part of the *Realignment of Old Orchard Road/Savannah Road/Wescoats Road* (DelDOT Contract No. T201609601) project. The existing westbound Clay Road left-turn onto Marsh Road will be a major street through movement. The existing right-turn from Marsh Road onto Clay Road will be a major street through movement. The existing eastbound through movement on Clay Road will be a stop-controlled minor street left-turn onto Clay Road.

Table 12
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, INC.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268) / Dartmouth Drive (Sussex Road 268A) [2,68,69]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2018 Existing (Case 1)						
Northbound Kings Highway Left Turn	A (9.7)	A (7.7)	F (133.7)	A (7.4)	A (7.7)	A (7.5)
Eastbound Dartmouth Drive Approach	D (28.7)	F (145.0)	F (*)	D (29.5)	F (86.3)	F (180.7)
2027 without Development (Case 2)						
Northbound Kings Highway Left Turn	A (9.7)	A (7.8)	F (142.5)	A (7.4)	A (7.8)	A (7.6)
Eastbound Dartmouth Drive Approach	F (330.2)	F (*)	F (*)	F (199.0)	F (840.3)	F (831.0)
2027 with Development (Case 3)						
Northbound Kings Highway Left Turn	A (9.7)	A (7.8)	F (142.5)	A (7.4)	A (7.8)	A (7.6)
Eastbound Dartmouth Drive Approach	F (944.9)	F (*)	F (*)	F (477.8)	F (*)	F (*)

*HCS reported excessive delay greater than 1000 seconds per vehicle

[68] The TIS utilized various values for proportion of time blocked whereas JMT utilized the default value of 0.
[69] Results represent the eastbound Dartmouth Drive Approach to have one shared left turn/right turn lane. JMT also incorporated the right turn lane to have a flared right turn with a 5-vehicle storage.

Table 12 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Roundabout[1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268) / Dartmouth Drive (Sussex Road 268A) [70]	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
2027 without Development and with or without Kings Highway Dual Lane Project (Case 2a) [71]						
Eastbound Dartmouth Drive Approach	A (5.7)	A (6.3)	A (5.9)	A (5.7)	A (6.4)	A (6.0)
Northbound Kings Highway Approach	A (0.2)	A (0.9)	A (0.6)	A (0.2)	A (0.9)	A (0.6)
Southbound Kings Highway Approach	A (0.2)	A (0.4)	A (0.2)	A (0.2)	A (0.4)	A (0.2)
Overall Intersection	A (1.1)	A (1.5)	A (1.2)	A (1.1)	A (1.5)	A (1.3)
2027 with Development and with or without Kings Highway Dual Lane Project (Case 3) [71]						
Eastbound Dartmouth Drive Approach	A (6.3)	A (6.9)	A (7.0)	A (6.2)	A (6.9)	A (7.2)
Northbound Kings Highway Approach	A (0.2)	A (0.9)	A (0.5)	A (0.2)	A (0.9)	A (0.5)
Southbound Kings Highway Approach	A (0.2)	A (0.3)	A (0.2)	A (0.2)	A (0.3)	A (0.2)
Overall Intersection	A (1.2)	A (1.5)	A (1.4)	A (1.2)	A (1.5)	A (1.5)

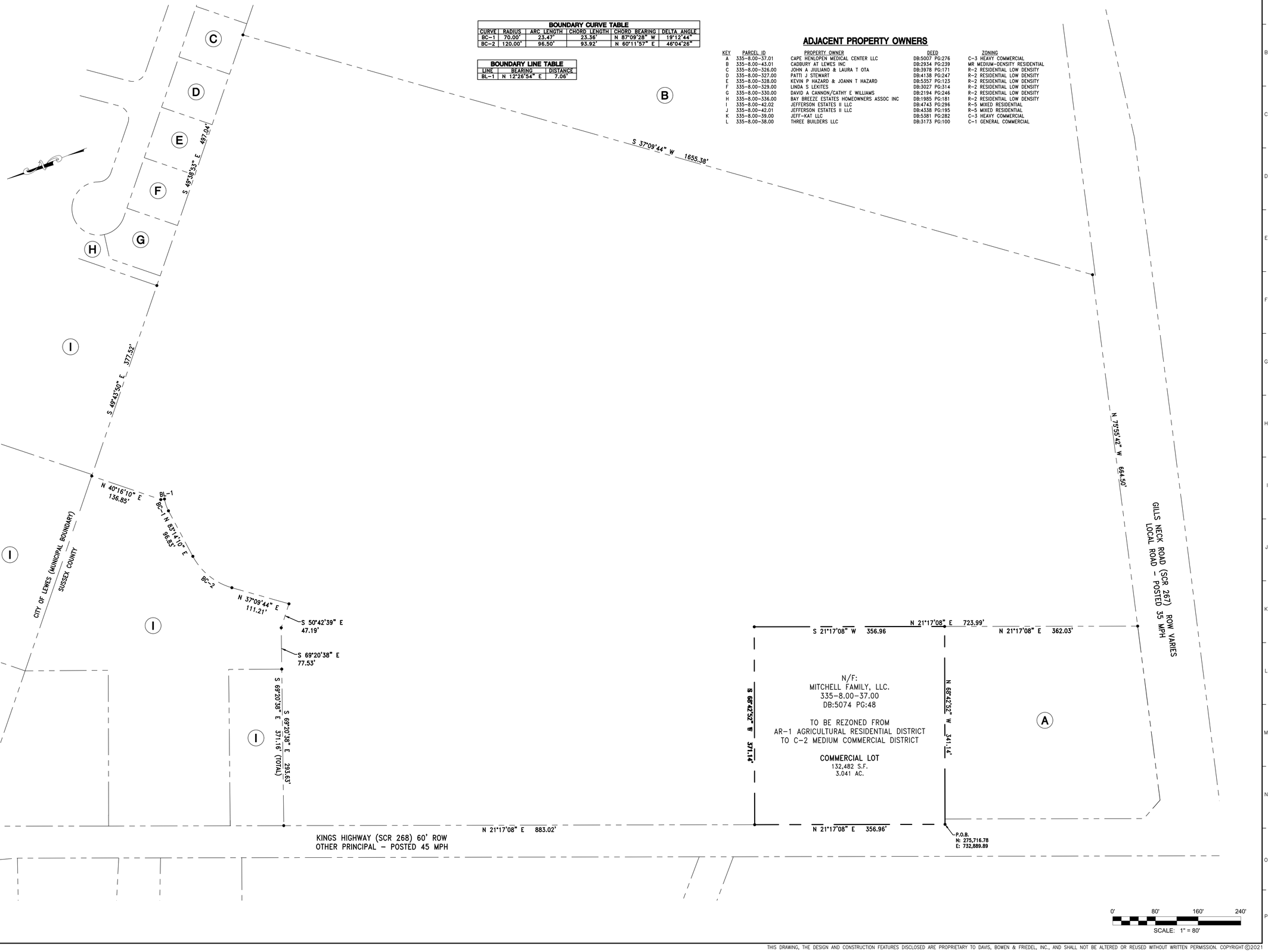
Note: Analysis highlighted in blue represents JMT suggested improvements with the full build of the proposed development

[70] Both the TIS and JMT modeled the northbound approach with a right turn bypass lane to represent a northbound bypass lane.
[71] Both the TIS and JMT modeled the intersection as a single-lane roundabout.

Table 12 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Signalized Intersection [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268) / Dartmouth Drive (Sussex Road 268A) [72]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development and with or without Kings Highway Dual Lane Project (Case 2a)	-	-	-	C (27.3)	C (26.3)	D (41.4)
2027 with Development and with or without Kings Highway Dual Lane Project (Case 3)	-	-	-	D (54.1)	D (41.9)	F (112.1)

[72] JMT analyzed the intersection as a signalized intersection with a 60 second cycle length during all peak periods. The eastbound Dartmouth Drive approach would provide one left turn lane and one shared left turn/right turn lane, the northbound Kings Highway approach would provide one left turn lane and one through lane, and the southbound Kings Highway approach would provide one through lane.



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RE-ZONING PLAN - COMMERCIAL

MITCHELL FARM

KINGS HIGHWAY (SCR 268)

LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

Revisions:

Date:	DECEMBER 2021
Scale:	1" = 80'
Dwn.By:	DEG
Proj.No.:	3808A001
Dwg.No.:	RZ-02

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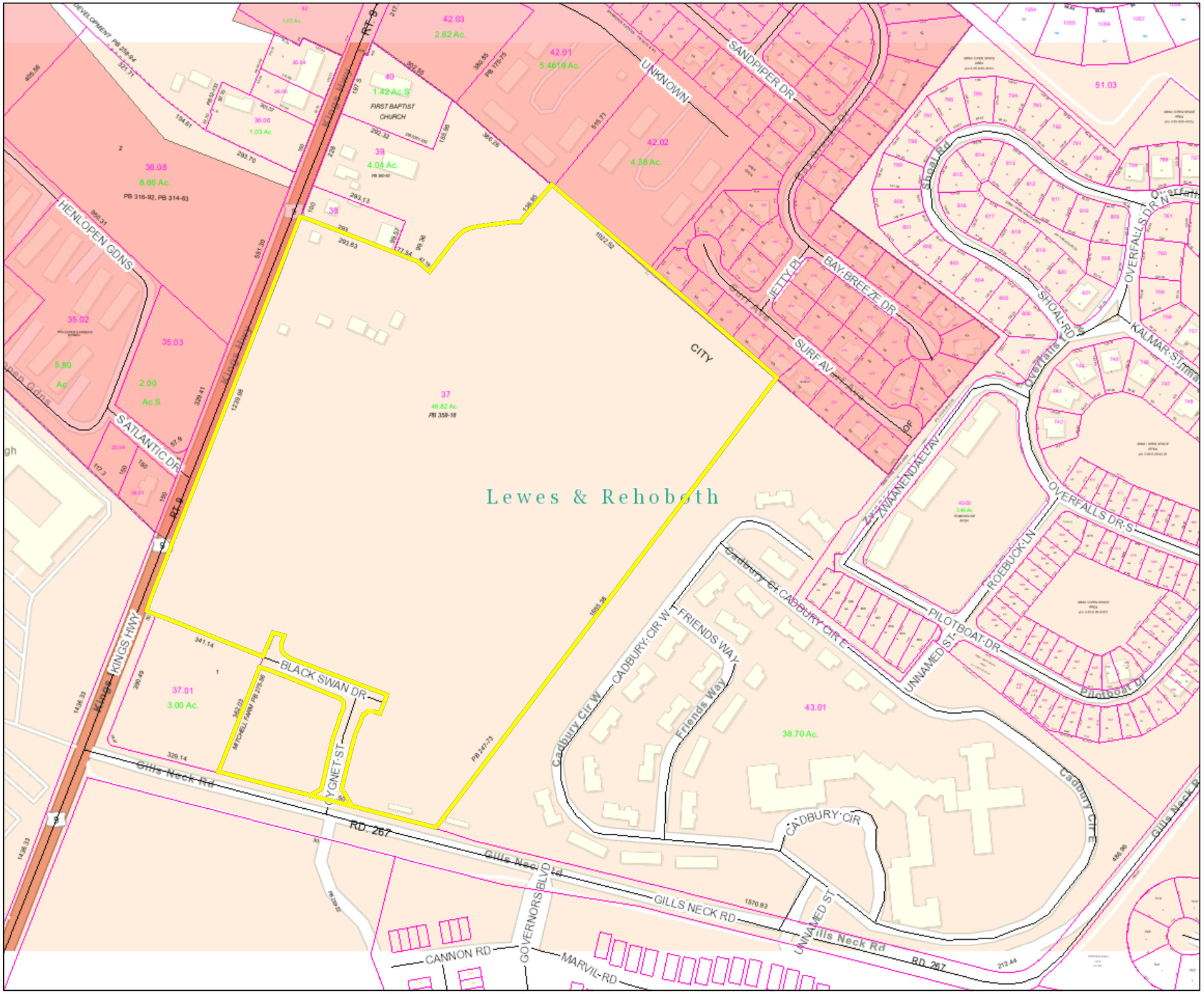
JAMIE WHITEHOUSE, MRTPI, AICP
DIRECTOR OF PLANNING & ZONING

PLANNING AND ZONING AND COUNTY COUNCIL INFORMATION SHEET
Planning Commission Public Hearing Date: March 10th, 2022

Application:	CU 2334 Henlopen Properties, LLC
Applicant:	Henlopen Properties, LLC 4750 Owning Mills Boulevard Owing Mills, MD 21117
Owner:	Mitchell Family, LLC 1019 Kings Highway Lewes, DE 19958
Site Location:	Lying on the southeast side of Kings Hwy. (Rt. 9) and on the north side of Gills Neck Rd. (S.C.R. 267)
Current Zoning:	Medium Residential (MR) Zoning District
Proposed Use:	Multi-Family (267 units)
Comprehensive Land Use Plan Reference:	Coastal Area
Councilmanic District:	Mr. Schaeffer
School District:	Cape Henlopen School District
Fire District:	Lewes Fire Department
Sewer:	Sussex County
Water:	Tidewater
Site Area:	43.777 acres +/-
Tax Map ID.:	335-8.00-37.00 (portion of)

Sussex County



PIN:	335-8.00-37.00
Owner Name	JEFF-KAT LLC
Book	5613
Mailing Address	1007 KINGS HWY
City	LEWES
State	DE
Description	SE/KINGS HWY
Description 2	RESIDUAL LANDS
Description 3	N/A
Land Code	

polygonLayer
Override 1

polygonLayer
Override 1
Tax Parcels
Streets
Hundred Boundaries
County Boundaries

Tax Ditch Segments
Tax Ditch Channel
Pond Feature
Special Access ROW
Extent of Right-of-Way
Municipal Boundaries
TID

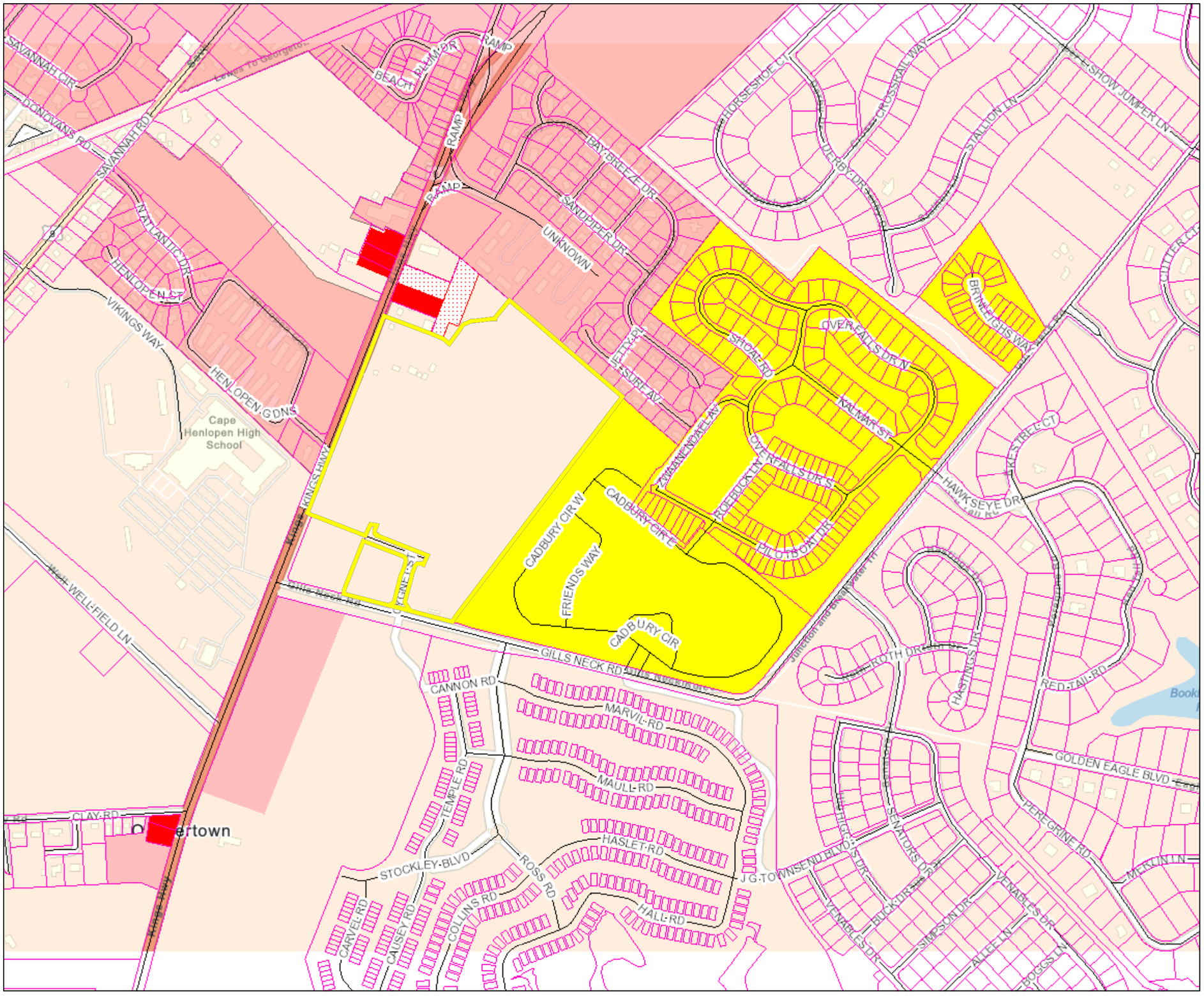
1:4,514

0 0.05 0.1 0.2 mi

0 0.075 0.15 0.3 km

January 31, 2022

Sussex County



PIN:	335-8.00-37.00
Owner Name	JEFF-KAT LLC
Book	5613
Mailing Address	1007 KINGS HWY
City	LEWES
State	DE
Description	SE/KINGS HWY
Description 2	RESIDUAL LANDS
Description 3	N/A
Land Code	

polygonLayer
Override 1

polygonLayer
Override 1

Tax Parcels

Streets

1:9,028

0 0.1 0.2 0.4 mi

0 0.175 0.35 0.7 km

January 31, 2022

Sussex County

PIN:	335-8.00-37.00
Owner Name	JEFF-KAT LLC
Book	5613
Mailing Address	1007 KINGS HWY
City	LEWES
State	DE
Description	SE/KINGS HWY
Description 2	RESIDUAL LANDS
Description 3	N/A
Land Code	

polygonLayer

Override 1

polygonLayer

Override 1

Tax Parcels

Streets

Hundred Boundaries

County Boundaries

Tax Ditch Segments

Tax Ditch Channel

Pond Feature

Special Access ROW

Extent of Right-of-Way

Municipal Boundaries

TID

1:4,514

0 0.05 0.1 0.2 mi

0 0.075 0.15 0.3 km

January 31, 2022

JAMIE WHITEHOUSE, AICP MRTPI
PLANNING & ZONING DIRECTOR
(302) 855-7878 T
(302) 854-5079 F
jamie.whitehouse@sussexcountyde.gov

Sussex County
DELAWARE
sussexcountyde.gov

Memorandum

To: Sussex County Planning Commission Members
From: Mrs. Christin Scott, Planner I
CC: Mr. Vince Robertson, Assistant County Attorney and Applicant
Date: March 3, 2022
RE: Staff Analysis for CU 2334 Henlopen Properties, LLC

This memo is to provide background and analysis for the Planning Commission to consider as a part of application CU 2334 Henlopen Properties, LLC to be reviewed during the March 10, 2022 Planning Commission Meeting. This analysis should be included in the record of this application and is subject to comments and information that may be presented during the public hearing.

The request is for a Conditional Use for a portion of Tax Parcel: 335-8.00-37.00 to allow for a multi-family (267 unit) to be located on the southeast side of Kings Highway (Rt. 9). The property is lying on the southeast side of Kings Highway (Rt. 9) and on the north side of Gills Neck Road (S.C.R. 267). The parcel consists of 43.777 acres +/-.

The 2018 Sussex County Comprehensive Plan Update (Comprehensive Plan) provides a framework of how land is to be developed. As part of the Comprehensive Plan, a Future Land Use Map is included to help determine how land should be zoned to ensure responsible development. The Future Land Use map in the plan indicates that the subject property has a land use designation of "Coastal Area." The properties to the south, east and west of the subject property also contain the Future Land Use Designation of "Coastal Area." Properties further to the north and across Kings Highway to the west are located within the municipality of Lewes.

As outlined within the 2018 Sussex County Comprehensive Plan, Coastal Areas are areas that can accommodate development provided special environmental concerns are addressed. A range of housing types should be permitted in Coastal Areas, including single-family homes, townhouses, and multi-family units. Retail and office uses are appropriate but larger shopping centers and office parks should be confined to selected locations with access along arterial roads. Appropriate mixed-use development should also be allowed. In doing so, careful mixtures of homes with light commercial, office and institutional uses can be appropriate to provide for convenient services and to allow people to work close to home. Major new industrial uses are not proposed in these areas.

The portion of this property is zoned Agricultural Residential (AR-1) Zoning District. Adjacent parcels to the north are also zoned Agricultural Residential (AR-1) Zoning District, as well as General Commercial (C-1) and Heavy Commercial (C-3). The properties to the north are zoned Medium Residential (MR) and the properties across Kings Highway and Gills Neck Road to the west and south are zoned Agricultural Residential (AR-1) Zoning District and Neighborhood Business (B-1).

Since 2011, there have been nineteen (19) Conditional Use applications within a 1-mile radius of the project site. Please see the attached excel spreadsheet for more information regarding the previous Conditional Use Applications.

Based on the analysis of the land use, surrounding zoning and uses, the Conditional use to allow for multi-family (267 units), subject to considerations of scale and impact, could be considered as being consistent with the land use, area zoning and surrounding uses.

Conditional Use Number	Tax Parcel #	APPLICANT	911 Address or Road Name	Current Zoning	Proposed Use	P&Z Initial Hearing Date	P&Z Decision	P&Z Decision Date	CC Initial Hearing Date	CC Decision Date	CC Decision	Ordinance Number	parcel id 2
1912	335-8.18-30.00	Wm. A. Bell & Kathleen M. Sperl-Bell	Savannah Road	AR-1	Professional Office	9/22/2011	Recommended Approval	10/13/2011	10/11/2011	11/8/2011	Approved	2226	
1974	335-12.06-7.00	Sara Kay I. Phillips	Route 9B (Savannah Road)	AR-1	Hair Salon	12/19/2013	Recommended Approval	12/19/2013	1/14/2014	1/14/2014	Approved	2334	
2073	334-6.00-496.00	Delmarva Power & Light Co.	18200 Coastal Hwy., Lewes	C-1	Expansion to an existing electrical station	2/23/2017	Recommended Approval	2/23/2017	3/7/2017	3/7/2017	Approved	2486	334-6.00-497.00
2064	335-12.05-4.00	R & K Partners	1537 Savannah Rd., Lewes	AR-1	medical offices	1/26/2017	Recommended Approval	2/9/2017	3/7/2017	3/7/2017	Approved	2484	
2069	335-12.06-58.00	Rudolph Joseph Johnson	34001 Clay Rd	AR-1	Workout Studio	3/9/2017	Recommended Approval	3/23/2017	4/11/2017	4/25/2017	Approved	2494	
2074	335-12.06-1.00	Quail Valley 1525, LLC (Midway Fitness)	1523 Savannah Rd	AR-1	Commercial use as a Therapy and Fitness Center	4/6/2017	Recommended Approval	5/11/2017	5/23/2017	8/8/2017	Denied		
2109	335-8.14-49.00	Quakertown Wellness Center	1204 Savannah Rd.	AR-1	Holistic Health Center with massage, acupuncture and chiropractor	12/14/2017	Recommended Approval	12/21/2017	1/9/2018	1/9/2018	Approved	2541	335-8.00-35.00
2116	335-8.18-2.00	William and Stacey Smith	1501 Savannah Rd.	AR-1	professional offices	2/22/2018	Recommended Approval	3/8/2018	3/20/2018	3/20/2018	Approved	2569	
2112	335-8.00-37.01	Mitchell Family Limited Partnership	SE corner of Kings Hwy. and Gills Neck Rd.	AR-1	medical office and ancillary medical uses	1/11/2018	Recommended Approval	2/8/2018	2/6/2018	3/20/2018	Approved	2567	335-8.00-37.00 (portion of)
2137	335-12.06-50.00	John W. Ford	1530 Savannah Rd.	AR-1	professional offices	7/12/2018	Recommended Approval	7/26/2018	7/31/2018	7/31/2018	Approved	2592	
2133	335-8.14-47.00	Dr. Laima Anthaney and Dr. Michael Cahoon	1200 Savannah Rd.	AR-1	professional office	6/28/2018	Recommended Approval	6/28/2018	7/31/2018	7/31/2018	Approved	2591	
2132	335-12.06-58.00	Dorothy Darley	33995 Clay Rd.	AR-1	Hair Studio	6/14/2018	Recommended Approval	6/14/2018	7/31/2018	7/31/2018	Approved	2590	
2134	335-8.00-44.00	The Evergreen Companies, LLC (Admirals Chase)	16386 Gills Neck Rd.	MR	multifamily	7/12/2018	Recommended Approval	7/26/2018	8/14/2018	8/14/2018	Approved	2594	
2136	335-8.18-4.00	Christine Degnon	1409 Savannah Rd.	AR-1	medical offices	7/26/2018	Recommended Approval	8/23/2018	8/21/2018	10/23/2018	Approved	2608	
2159	335-8.18-28.00	Elisabeth Ann Burkhardt	1500 Savannah Rd.	AR-1	professional office	12/13/2018	Recommended Approval	12/13/2018	1/15/2019	1/15/2019	Approved	2628	
2160	335-12.06-3.00	Procino, Wells, and Woodland, P.A.	1519 Savannah Rd.	AR-1	Professional Office	2/28/2019	Recommended Approval	2/28/2019	3/19/2019	3/19/2019	Approved	2638	
2169	335-12.06-1.00	Robert & Debora Reed	1525 Savannah Rd.	AR-1	Multi-family	5/9/2019	Recommended Approval	5/23/2019	6/18/2019	6/18/2019	Approved	2663	
2264	335-8.18-15.00	Laudan Investments, LLC	1302 & 1305 Svannah Rd	AR-1	General Office Use	10/28/2021	Recommended Approval	11/4/2021	11/16/2021	11/16/2021	Approved		335-8.18-16.00
2313	335-12.06-49.00	John Ford	1528 Savannah Rd	AR-1	Realty Office								

File #: CU# 2334
202200007

Planning & Zoning Commission Application
Sussex County, Delaware

Sussex County Planning & Zoning Department
2 The Circle (P.O. Box 417) Georgetown, DE 19947
302-855-7878 ph. 302-854-5079 fax

RECEIVED
JAN 05 2022
SUSSEX COUNTY
PLANNING & ZONING

Type of Application: (please check applicable)
Conditional Use ✓
Zoning Map Amendment ___

Site Address of Conditional Use/Zoning Map Amendment

Northeast quadrant of Kings Highway and Gills Neck Road, Lewes

Type of Conditional Use Requested:

Multi-family (267 units)

Tax Map #: 335-8.00-37.00 (portion) **Size of Parcel(s):** 43.777 +/- acres

Current Zoning: AR-1 **Proposed Zoning:** MR **Size of Building:** TBD

Land Use Classification: Agricultural

Water Provider: Tidewater **Sewer Provider:** Sussex County

Applicant Information

Applicant Name: Henlopen Properties, LLC
Applicant Address: 4750 Owning Mills Blvd
City: Owing Mills State: MD ZipCode: 21117
Phone #: E-mail:

Owner Information

Owner Name: Mitchell Family, LLC
Owner Address: 1019 Kings Highway
City: Lewes State: DE Zip Code: 19958
Phone #: E-mail:

Agent/Attorney/Engineer Information

Agent/Attorney/Engineer Name: Davis, Bowen & Friedel, Inc.
Agent/Attorney/Engineer Address: 1 Park Avenue
City: Milford State: DE Zip Code: 19963
Phone #: (302) 424-1441 E-mail: rwl@dbfinc.com

EQUAL HOUSING OPPORTUNITY

Check List for Sussex County Planning & Zoning Applications

The following shall be submitted with the application

✓ **Completed Application**

✓ **Provide eight (8) copies of the Site Plan or Survey of the property**

- Survey shall show the location of existing or proposed building(s), building setbacks, parking area, proposed entrance location, etc.
- Provide a PDF of Plans (may be e-mailed to a staff member)
- Deed or Legal description

✓ **Provide Fee $500.00**

___ **Optional - Additional information for the Commission/Council to consider** (ex. architectural elevations, photos, exhibit books, etc.) If provided submit 8 copies and they shall be submitted a minimum of ten (10) days prior to the Planning Commission meeting.

✓ **Please be aware that Public Notice will be sent to property owners within 200 feet of the subject site and County staff will come out to the subject site, take photos and place a sign on the site stating the date and time of the Public Hearings for the application.**

✓ **DelDOT Service Level Evaluation Request Response**

___ **PLUS Response Letter** (if required)

The undersigned hereby certifies that the forms, exhibits, and statements contained in any papers or plans submitted as a part of this application are true and correct.

I also certify that I or an agent on by behalf shall attend all public hearing before the Planning and Zoning Commission and the Sussex County Council and any other hearing necessary for this application and that I will answer any questions to the best of my ability to respond to the present and future needs, the health, safety, morals, convenience, order, prosperity, and general welfare of the inhabitants of Sussex County, Delaware.

Signature of Applicant/Agent/Attorney

_____ Date: 12/22/2021

Signature of Owner

_____ Date: 12/22/21

For office use only:

Date Submitted: 1/5/22 Fee: $500.00 Check #: 1002502246

Staff accepting application: CSR Application & Case #: 2022-00007

Location of property: _____

Subdivision: _____

Date of PC Hearing: _____ Recommendation of PC Commission: _____

Date of CC Hearing: _____ Decision of CC: _____

STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. BOX 778
DOVER, DELAWARE 19903

NICOLE MAJESKI
SECRETARY

RECEIVED
JAN 0 5 2022
SUSSEX COUNTY
PLANNING & ZONING

December 20, 2021

Mr. Jamie Whitehouse, Director
Sussex County Planning & Zoning
P.O. Box 417
Georgetown, DE 19947

Dear Mr. Whitehouse:

The Department has completed its review of a Service Level Evaluation Request for the **Henlopen Properties, LLC (Jon Mayers)** proposed land use application, which we received on December 10, 2021. This application is for an approximately 42-acre portion of a 48.01- acre parcel (Tax Parcel: 335-8.00-37.00). The subject land is located on the north side of Gills Neck Road (Sussex Road 267) and the east side of Kings Highway (US Route 9). The subject land is currently zoned AR (Agriculture Residential), and the applicant seeks a conditional use approval to build 267 multifamily houses.

Per the 2019 Delaware Vehicle Volume Summary, the annual average daily traffic volumes along Gills Neck Road from Red Tail Road to Kings Highway, is 4,186 vehicles per day. The annual average daily traffic volumes along Kings Highway from Kings Highway (Sussex Road 268) to Gills Neck Road, is 12,019 vehicles per day.

Based on our review, we estimate that the proposed land use will generate more than 50 vehicle trips per peak hour or 500 vehicle trips per day, and would be considered to have a **Minor** impact to the local area roadways. In this instance, the Department considers a Minor impact to be when a proposed land use would generate more than either 50 vehicle trips per peak hour and/ or 500 vehicle trips per day but fewer than 200 vehicle trips per a weekly peak hour and 2,000 vehicle trips per day. Because of this impact, we recommend that the applicant be required to perform a Traffic Impact Study (TIS) for the subject application. However, our Development Coordination Manual provides that where a TIS is required only because the volume warrants are met, and the projected trip generation will be fewer than 200 vehicle trips per a weekly peak hour and fewer than 2,000 vehicle trips per day, DelDOT may permit the developer to pay an Area-Wide Study Fee of $10 per daily trip in lieu of doing a TIS. For this application, if the County were agreeable, we would permit the developer to pay an Area-wide Study Fee.

DelDOT

If the County approves this application, the applicant should be reminded that DelDOT requires compliance with State regulations regarding plan approvals and entrance permits, whether or not a TIS is required.

Please contact Ms. Annamaria Furmato, at Annamaria.Furmato@delaware.gov, if you have questions concerning this correspondence.

Sincerely,

T. William Brockenbrough, Jr.

T. William Brockenbrough, Jr.
County Coordinator
Development Coordination

TWB:afm
cc: Henlopen Properties, LLC (Jon Mayers), Applicant
Sussex Reviewer, Sussex County Planning & Zoning
David Edgell, Coordinator, Cabinet Committee on State Planning Issues
Todd Sammons, Assistant Director, Development Coordination
Scott Rust, South District Public Works Manager, Maintenance & Operations
Steve McCabe, Sussex County Review Coordinator, Development Coordination
Derek Sapp, Subdivision Manager, Development Coordination
Kevin Hickman, Subdivision Manager, Development Coordination
Brian Yates, Subdivision Manager, Development Coordination
John Andrescavage, Subdivision Manager, Development Coordination
James Argo, South District Project Reviewer, Maintenance & Operations
Claudy Joinville, Project Engineer, Development Coordination
Annamaria Furmato, Project Engineer, Development Coordination

SUSSEX COUNTY ENGINEERING DEPARTMENT
UTILITY PLANNING & DESIGN REVIEW DIVISION
C/U & C/Z COMMENTS

TO: **Jamie Whitehouse**

REVIEWER: **Chris Calio**

DATE: **2/21/2022**

APPLICATION: **CU 2334 Henlopen Properties, LLC**

APPLICANT: **Henlopen Properties, LLC**

FILE NO: **OM-9.04**

TAX MAP & PARCEL(S): **335-8.00-37.00 (p/o)**

LOCATION: **Lying on the southeast side of Kings Highway (Rt. 9) and on the north side of Gills Neck Road (SCR 267).**

NO. OF UNITS: **Multifamily – 267 units**

GROSS ACREAGE: **43.777**

SYSTEM DESIGN ASSUMPTION, MAXIMUM NO. OF UNITS/ACRE: **4**

SEWER:

(1). Is the project in a County operated and maintained sanitary sewer and/or water district?

Yes ☒ No ☐

a. If yes, see question (2).
b. If no, see question (7).

(2). Which County Tier Area is project in? **Tier 1**

(3). Is wastewater capacity available for the project? **Yes** If not, what capacity is available? **N/A**.

(4). Is a Construction Agreement required? **Yes** If yes, contact Utility Engineering at (302) 855-7717.

(5). Are there any System Connection Charge (SCC) credits for the project? **No** If yes, how many? **N/A**. Is it likely that additional SCCs will be required? **Yes** If yes, the current System Connection Charge Rate is **Unified $6,600.00** per EDU. Please contact **Christine Fletcher** at **302-855-7719** for additional information on charges.

(6). Is the project capable of being annexed into a Sussex County sanitary sewer district? **N/A**

☐ Attached is a copy of the Policy for Extending District Boundaries in a Sussex County Water and/or Sanitary Sewer District.

(7). Is project adjacent to the Unified Sewer District? **N/A**

(8). Comments: **Click or tap here to enter text.**

(9). Is a Sewer System Concept Evaluation required? **Yes, Contact Utility Planning at 302-855-7370 to apply**

(10). Is a Use of Existing Infrastructure Agreement Required? **Yes**

(11). **All residential roads must meet or exceed Sussex County minimum design standards.**

UTILITY PLANNING & DESIGN REVIEW APPROVAL:

John J. Ashman
Sr. Manager of Utility Planning & Design Review

Xc: Hans M. Medlarz, P.E.
Lisa Walls
Christine Fletcher

MAPPING & ADDRESSING

MEGAN NEHRBAS
MANAGER OF GEOGRAPHIC
INFORMATION SYSTEMS (GIS)
(302) 855-1176 T
(302) 853-5889 F

Sussex County
DELAWARE
sussexcountyde.gov

December 21, 2021

Davis, Bowen & Friedel, Inc.

Attn: Ring W. Lardner, P.E.

RE: **Change of Sub Division Name(s)/Formally known as:**

ZWAANENDAEL FARM

I have received your request to change the subdivision previously approved as **ZWAANENDAEL FARM**, which is located in **Lewes** (335-8.00-37.00) The name change has been approved and will now been known as:

MITCHELLS CORNER

Should you have any questions please contact the **Sussex County Addressing Department at 302-853-5888 or 302-855-1176.**

Sincerely,

Terri L Dukes

Terri L. Dukes
Addressing Technician II

CC: Christin Scott
Planning & Zoning

MITCHELL FAMILY FARM

KINGS HIGHWAY (SCR268)

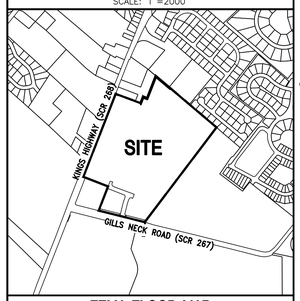
LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

PRELIMINARY SUBDIVISION PLANS

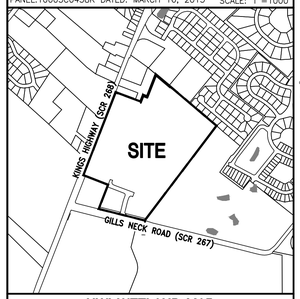
DECEMBER 2021

DBF PROJECT # 3808A001

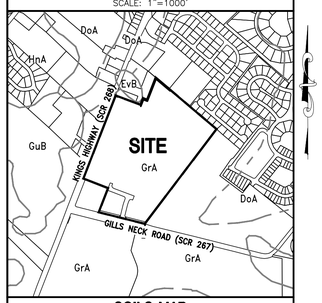
LOCATION MAP
SCALE: 1"=2000'



FEMA FLOOD MAP
PANEL:10005C0458K DATED: MARCH 16, 2015 SCALE: 1"=1000'



NWI WETLAND MAP
SCALE: 1"=1000'



SOILS MAP
SCALE: 1"=1000'

SYMB	SOIL TYPE
FhA	FORT MOTT-HENLOPEN COMPLEX, 0-2% SLOPES
HmA	HAMMONTON LOAMY SAND, 0 TO 2 PERCENT SLOPES
PsA	PEPPERBOX-ROSEDALE COMPLEX, 0-2% SLOPES

DATA COLUMN

TAX MAP ID:335-8.00-37.00

EXISTING ZONING AGRICULTURAL

PROPOSED USE RESIDENTIAL

SITE AREA 43.789 AC.

PROPOSED LOTS/UNITS
PROPOSED DUPLEX LOTS/UNITS 114 LOTS/UNITS
PROPOSED TOWNHOUSE LOTS/UNITS 153 LOTS/UNITS
TOTAL SINGLE FAMILY LOTS/UNITS 267 LOTS/UNITS

TOTAL DENSITY
(267 DU ÷ 43.789 AC) 6.10 DU/AC

MR - MEDIUM DENSITY RESIDENTIAL DISTRICT

DUPLEX LOTS	REQUIRED	PROPOSED
MINIMUM LOT SIZE ALLOWED	1,600 S.F.	4,000 S.F.
MINIMUM LOT WIDTH	30'	45'
FRONT YARD SETBACK	25'	25'
SIDE YARD SETBACK	10'	10'
REAR YARD SETBACK	10'	10'
MAXIMUM HEIGHT	42' OR 3 STORIES	

MR - MEDIUM DENSITY RESIDENTIAL DISTRICT

TOWNHOUSE LOTS	REQUIRED	PROPOSED
MINIMUM LOT SIZE ALLOWED	1,600 S.F.	2,400 S.F.
MINIMUM LOT WIDTH	16'	24'
FRONT YARD SETBACK	25'	25'
SIDE YARD SETBACK	10'	10'
REAR YARD SETBACK	10'	10'
MAXIMUM HEIGHT	42' OR 3 STORIES	

AREAS

EXISTING SITE	
SITE AREA:	46.818 AC.
SCR 267 R.O.W. DEDICATION	-0.076 AC.
SCR 268 R.O.W. DEDICATION	-0.608 AC.
RESIDUAL LANDS	-3.041 AC.
TOTAL SITE AREA	43.093 AC.

PROPOSED SITE	
LOT AREA:	23.229 AC.
RIGHT -OF-WAY:	8.070 AC.
OPEN SPACE (TOTAL)	11.794 AC.
OPEN SPACE A	0.179 AC.
OPEN SPACE B	0.476 AC.
OPEN SPACE C	0.740 AC.
OPEN SPACE D	1.311 AC.
OPEN SPACE E	1.052 AC.
OPEN SPACE F	1.834 AC.
OPEN SPACE G	0.294 AC.
OPEN SPACE H	0.420 AC.
OPEN SPACE I	2.368 AC.
OPEN SPACE J	0.292 AC.
OPEN SPACE K	0.242 AC.
OPEN SPACE L	1.508 AC.
OPEN SPACE M	0.401 AC.
OPEN SPACE N	0.677 AC.
TOTAL SITE AREA	43.093 AC.

ESTIMATED EDU'S 275

SEWER PROVIDER	SUSSEX COUNTY
WATER PROVIDER	TIDEWATER
ELECTRIC PROVIDER	CITY OF LEWES BOARD OF PUBLIC WORKS/DELAWARE ELECTRIC COOP.
WETLANDS	NONE ARE PRESENT ON SITE
SOURCE WATER PROTECTION AREAS	SITE IS LOCATED WITHIN A WELL HEAD PROTECTION AREA
FLOOD ZONE	AREA OF MINIMAL FLOOD HAZARD
FIRE DISTRICT	82ND
SCHOOL DISTRICT	CAPE HENLOPEN
ELECTION DISTRICT	3RD
HORIZONTAL DATUM :	NAD83
VERTICAL DATUM :	NAVD88

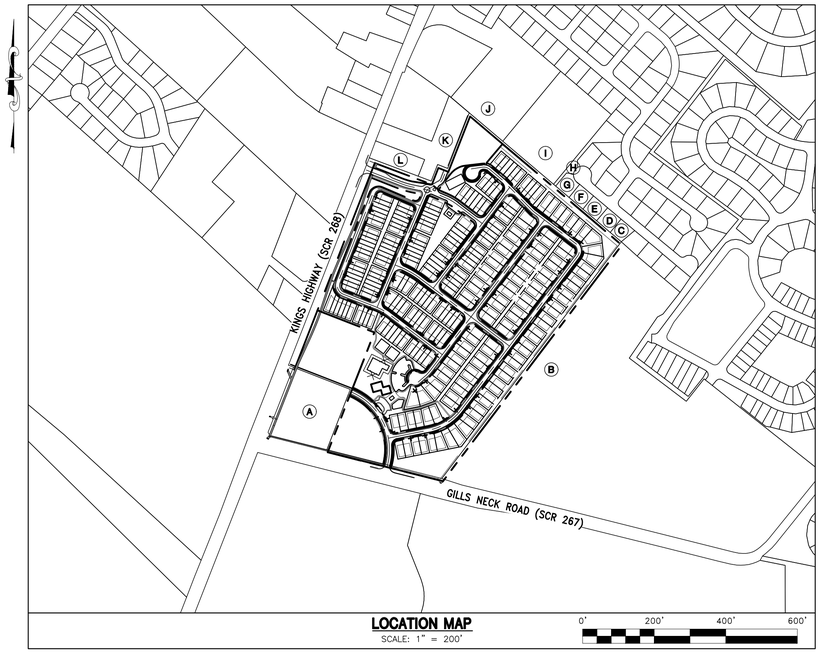
OWNER
MITCHELL FAMILY LTD. PARTNERSHIP
1019 KINGS HIGHWAY
LEWES, DE 19958
(302) 448-6430

DEVELOPER
HENLOPEN PROPERTIES LLC
4750 OWINGS MILL BLVD
OWINGS MILL, MD 21117

ENGINEER/SURVEYOR
DAVIS, BOWEN & FRIEDEL, INC.
1 PARK AVENUE
MILFORD, DELAWARE 19963
(302)424-1441

ADJACENT PROPERTY OWNERS

KEY	PARCEL ID	PROPERTY OWNER	DEED	ZONING
A	335-8.00-37.01	CAPE HENLOPEN MEDICAL CENTER LLC	DB:5007 PG:276	C-3 HEAVY COMMERCIAL
B	335-8.00-43.01	CADBURY AT LEWES INC	DB:2934 PG:239	MR MEDIUM-DENSITY RESIDENTIAL
C	335-8.00-326.00	JOHN A JIULIANO & LAURA T OTA	DB:3978 PG:171	R-2 RESIDENTIAL LOW DENSITY
D	335-8.00-327.00	PATTI J STEWART	DB:4158 PG:247	R-2 RESIDENTIAL LOW DENSITY
E	335-8.00-328.00	KEVIN P HAZARD & JOANN T HAZARD	DB:5357 PG:123	R-2 RESIDENTIAL LOW DENSITY
F	335-8.00-329.00	LINDA S LEKITES	DB:3027 PG:314	R-2 RESIDENTIAL LOW DENSITY
G	335-8.00-330.00	DAVID A CANNON/CATHY E WILLIAMS	DB:2194 PG:246	R-2 RESIDENTIAL LOW DENSITY
H	335-8.00-336.00	BAY BREEZE ESTATES HOMEOWNERS ASSOC INC	DB:1985 PG:181	R-2 RESIDENTIAL LOW DENSITY
I	335-8.00-42.02	JEFFERSON ESTATES II LLC	DB:4745 PG:296	R-5 MIXED RESIDENTIAL
J	335-8.00-42.01	JEFFERSON ESTATES II LLC	DB:4338 PG:195	R-5 MIXED RESIDENTIAL
K	335-8.00-39.00	JEFF-KAT LLC	DB:5381 PG:282	C-3 HEAVY COMMERCIAL
L	335-8.00-38.00	THREE BUILDERS LLC	DB:3173 PG:100	C-1 GENERAL COMMERCIAL



LOCATION MAP
SCALE: 1" = 200'

LEGEND

EXISTING	PROPOSED
BOUNDARY LINE	RIGHT-OF-WAY / BOUNDARY LINE
ADJACENT PROPERTY OWNER	EASEMENT
EASEMENT	SETBACK
CONTOUR (33)	BUFFER
CATCH BASIN, STORM PIPE	SANITARY SEWER IDENTIFICATION, MANHOLE, PIPE, FLOW ARROW, PIPE SIZE (8SS)
SANITARY SEWER MANHOLE, PIPE (EX-SS)	WATER MAIN, TEE W/ VALVES, PIPE SIZE (8W)
WATER MAIN (EX-W)	FIRE HYDRANT ASSEMBLY
FIRE HYDRANT ASSEMBLY	PROPOSED TREE LINE
UTILITY POLE	SIDEWALK
SIGN	PAVEMENT
FENCE	
BUSHES, TREES	
TREE LINE	
WETLANDS (WET)	
PAVEMENT	

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ENGINEER'S STATEMENT

I, THE UNDERSIGNED, HEREBY STATE THAT I AM A REGISTERED ENGINEER IN THE STATE OF DELAWARE, THAT THE INFORMATION SHOWN HEREON HAS BEEN PREPARED UNDER MY SUPERVISION AND TO MY BELIEF REPRESENTS GOOD ENGINEERING PRACTICES AS REQUIRED BY THE APPLICABLE LAWS OF THE STATE OF DELAWARE.

RING W. LARDNER, P.E. DATE
DAVIS, BOWEN & FRIEDEL, INC.
1 PARK AVENUE
MILFORD, DELAWARE, 19963

OWNER'S STATEMENT

I, THE UNDERSIGNED, CERTIFY THAT I AM THE OWNER OF THE PROPERTY DESCRIBED AND SHOWN ON THIS PLAN, THAT THE PLAN WAS MADE AT MY DIRECTION, AND THAT I ACKNOWLEDGE THE SAME TO BE ACT AND DESIRE THE PLAN TO BE RECORDED TO ORDINANCE.

THE MITCHELL FAMILY LTD. PARTNERSHIP DATE
1019 KINGS HIGHWAY
LEWES, DE 19958

SUSSEX CONSERVATION DISTRICT

DEVELOPER'S STATEMENT

I, THE UNDERSIGNED, CERTIFY THAT I AM THE OWNER OF THE PROPERTY DESCRIBED AND SHOWN ON THIS PLAN, THAT THE PLAN WAS MADE AT MY DIRECTION, AND THAT I ACKNOWLEDGE THE SAME TO BE ACT AND DESIRE THE PLAN TO BE RECORDED TO ORDINANCE.

HENLOPEN PROPERTIES LLC DATE
4750 OWINGS MILL BLVD
OWINGS MILL, MD 21117

GENERAL NOTES

1. ALL UNITS SHALL HAVE ACCESS FROM THE INTERNAL SUBDIVISION STREET.
2. ALL FIRE LANES, FIRE HYDRANTS, AND FIRE DEPARTMENT CONNECTIONS SHALL BE MARKED IN ACCORDANCE WITH THE DELAWARE STATE FIRE PREVENTION REGULATIONS. BUILDING CONSTRUCTION TO BE MASONRY AND WOOD.
3. THE SUSSEX CONSERVATION DISTRICT RESERVES THE RIGHT TO ADD, MODIFY OR DELETE ANY EROSION AND SEDIMENT CONTROL MEASURES AS THEY DEEM NECESSARY.
4. AFTER THE CREATION OF THE COMMUNITY'S HOMEOWNER'S ASSOCIATION ALL BUFFER AREAS, AND THE STORMWATER MANAGEMENT AREA, SHALL BE OWNED AND MAINTAINED BY THE COMMUNITY'S HOMEOWNER'S ASSOCIATION. THE DEVELOPER SHALL MAINTAIN THESE AREAS UNTIL THE COMMUNITY HOMEOWNER'S ASSOCIATION IS ESTABLISHED.
5. ALL SWM AREAS WILL BE MAINTAINED IN ACCORDANCE WITH DESIGN AND SPECIFICATIONS FOR THE SPECIFIC SWM AREA. THIS INFORMATION WILL BE PROVIDED TO THE HOMEOWNER'S ASSOCIATION PRIOR TO TURNOVER.
6. ALL COMMON AREAS COVERED WITH GRASS SHALL BE PERIODICALLY MAINTAINED ON A BASIS DETERMINED BY THE HOMEOWNER'S ASSOCIATION.
7. BOUNDARY AND TOPOGRAPHIC INFORMATION SHOWN ON THIS PLAN ARE FROM A FIELD RUN SURVEY PERFORMED BY DBF, INC. IN OCTOBER, NOVEMBER AND DECEMBER OF 2017 AND JANUARY OF 2018 AND INFORMATION FOUND IN THE RECORDER OF DEEDS OFFICE IN AND FOR SUSSEX COUNTY.
8. A WETLANDS DELINEATION WAS PERFORMED BY ENVIRONMENTAL RESOURCES, INC. IN NOVEMBER & DECEMBER OF 2017 AND JANUARY OF 2018.
9. THIS PLAN DOES NOT VERIFY THE LOCATION AND/OR EXISTENCE OF EASEMENTS OR RIGHT-OF-WAYS CROSSING THE SUBJECT PROPERTIES AS NO TITLE SEARCH WAS PROVIDED.
10. THE PROPERTY IS IMPACTED BY THE 100-YEAR FLOODPLAIN AS DETERMINED BY FEMA PANEL 10005C0331K, AND 10005C0333K, DATED MARCH 16, 2015.
11. A TEN (10) FOOT STRIP IS HEREBY RESERVED AS AN EASEMENT FOR DRAINAGE AND UTILITIES ALONG ALL STREET RIGHT OF WAY, FRONT, SIDE AND REAR LOT LINES.

DELDOT GENERAL NOTES

1. ALL ENTRANCES SHALL CONFORM TO THE DELAWARE DEPARTMENT OF TRANSPORTATION'S (DELDOT'S) CURRENT DEVELOPMENT COORDINATION MANUAL AND SHALL BE SUBJECT TO ITS APPROVAL.
2. NO LANDSCAPING SHALL BE ALLOWED WITHIN THE RIGHT-OF-WAY UNLESS THE PLANS ARE COMPLIANT WITH SECTION 3.7 OF THE DEVELOPMENT COORDINATION MANUAL.
3. SHRUBBERY, PLANTINGS, SIGNS AND/OR OTHER VISUAL BARRIERS THAT COULD OBSTRUCT THE SIGHT DISTANCE OF A DRIVER PREPARING TO ENTER THE ROADWAY ARE PROHIBITED WITHIN THE DEFINED DEPARTURE SIGHT TRIANGLE AREA ESTABLISHED ON THIS PLAN. IF THE ESTABLISHED DEPARTURE SIGHT TRIANGLE AREA IS OUTSIDE THE RIGHT-OF-WAY OR PROJECTS ONTO AN ADJACENT PROPERTY OWNER'S LAND, A SIGHT EASEMENT SHOULD BE ESTABLISHED AND RECORDED WITH ALL AFFECTED PROPERTY OWNERS TO MAINTAIN THE REQUIRED SIGHT DISTANCE.
4. UPON COMPLETION OF THE CONSTRUCTION OF THE SIDEWALK OR SHARED-USE PATH ACROSS THIS PROJECT'S FRONTAGE AND PHYSICAL CONNECTION TO ADJACENT EXISTING FACILITIES, THE DEVELOPER, THE PROPERTY OWNERS OR BOTH ASSOCIATED WITH THIS PROJECT, SHALL BE RESPONSIBLE TO REMOVE ANY EXISTING ROAD TIE-IN CONNECTIONS LOCATED ALONG ADJACENT PROPERTIES, AND RESTORE THE AREA TO GRASS. SUCH ACTIONS SHALL BE COMPLETED AT DELDOT'S DISCRETION, AND IN CONFORMANCE WITH DELDOT'S DEVELOPMENT COORDINATION MANUAL.
5. PRIVATE STREETS CONSTRUCTED WITHIN THIS SUBDIVISION SHALL BE MAINTAINED BY THE DEVELOPER, THE PROPERTY OWNERS WITHIN THIS SUBDIVISION OR BOTH (TITLE 17 131). DELDOT ASSUMES NO RESPONSIBILITIES FOR THE FUTURE MAINTENANCE OF THESE STREETS.
6. THE SIDEWALK AND SHARED USE PATH SHALL BE THE RESPONSIBILITY OF THE DEVELOPER, THE PROPERTY OWNERS OR BOTH WITHIN THIS SUBDIVISION. THE STATE OF DELAWARE ASSUMES NO RESPONSIBILITY FOR THE FUTURE MAINTENANCE FOR THE SIDEWALK AND/OR SHARED-USE PATH.
7. ALL LOTS SHALL HAVE ACCESS FROM THE INTERNAL SUBDIVISION STREET.
8. TO MINIMIZE RUTTING AND EROSION OF THE ROADSIDE DUE TO ON-STREET PARKING, DRIVEWAY AND BUILDING LAYOUTS MUST BE CONFIGURED TO ALLOW FOR VEHICLES TO BE STORED IN THE DRIVEWAY BEYOND THE RIGHT-OF-WAY, WITHOUT INTERFERING WITH SIDEWALK ACCESS AND CLEARANCE.
9. THE DEVELOPER SHALL BE REQUIRED TO FURNISH AND PLACE RIGHT-OF-WAY MARKERS TO PROVIDE A PERMANENT REFERENCE FOR RE-ESTABLISHING THE RIGHT-OF-WAY AND PROPERTY CORNERS ON LOCAL AND HIGHER ORDER FRONTAGE ROADS. RIGHT-OF-WAY MARKERS SHALL BE SET AND/OR PLACED ALONG THE FRONTAGE ROAD RIGHT-OF-WAY AT PROPERTY CORNERS AND AT EACH CHANGE IN RIGHT-OF-WAY ALIGNMENT IN ACCORDANCE WITH SECTION 3.2.4.2 OF THE DEVELOPMENT COORDINATION MANUAL.

OPEN SPACE MANAGEMENT PLAN:

1. ALL COMMON AREAS COVERED WITH GRASS SHALL BE PERIODICALLY MAINTAINED ON A BASIS DETERMINED BY THE MAINTENANCE CORPORATION/HOMEOWNER'S ASSOCIATION.
2. ALL ACTIVE OPEN SPACE AMENITIES SHALL BE INSPECTED ANNUALLY TO ENSURE THEY ARE SAFE FOR PLAY AND REPAIRED AS REQUIRED.
3. ALL SWM AREAS WILL BE MAINTAINED IN ACCORDANCE WITH DESIGN AND SPECIFICATIONS FOR THE SPECIFIC SWM AREA. THIS INFORMATION WILL BE PROVIDED TO THE MAINTENANCE CORPORATION / HOMEOWNER'S ASSOCIATION PRIOR TO TURNOVER.
4. A SEPARATE AMENITIES SITE PLAN WILL BE SUBMITTED FOR REVIEW AND APPROVAL FOR ALL THE AMENITY AREAS.

DAVIS, BOWEN & FRIEDEL, INC. ARCHITECTS ENGINEERS SURVEYORS
SALISBURY, MARYLAND (410) 543-9091
MILFORD, DELAWARE (302) 424-1441
EASTON, MARYLAND (410) 770-4744

DUPLEX LOT AREA TABLE

LOT	SQ. FT.	ACRES	LOT	SQ. FT.	ACRES
D1	4,697±	0.1078±	D58	4,816±	0.1106±
D2	4,725±	0.1085±	D59	5,116±	0.1174±
D3	4,725±	0.1085±	D60	4,725±	0.1085±
D4	4,725±	0.1085±	D61	4,725±	0.1085±
D5	4,734±	0.1087±	D62	4,725±	0.1085±
D6	5,631±	0.1293±	D63	4,725±	0.1085±
D7	6,037±	0.1386±	D64	4,725±	0.1085±
D8	6,564±	0.1507±	D65	4,725±	0.1085±
D9	5,914±	0.1358±	D66	4,725±	0.1085±
D10	4,769±	0.1095±	D67	4,725±	0.1085±
D11	4,725±	0.1085±	D68	4,725±	0.1085±
D12	4,725±	0.1085±	D69	4,725±	0.1085±
D13	4,725±	0.1085±	D70	4,725±	0.1085±
D14	4,725±	0.1085±	D71	4,725±	0.1085±
D15	4,725±	0.1085±	D72	5,116±	0.1174±
D16	4,725±	0.1085±	D73	5,116±	0.1174±
D17	4,725±	0.1085±	D74	4,725±	0.1085±
D18	4,725±	0.1085±	D75	4,725±	0.1085±
D19	4,725±	0.1085±	D76	4,725±	0.1085±
D20	4,725±	0.1085±	D77	4,725±	0.1085±
D21	4,725±	0.1085±	D78	4,725±	0.1085±
D22	4,725±	0.1085±	D79	4,725±	0.1085±
D23	4,725±	0.1085±	D80	4,725±	0.1085±
D24	4,725±	0.1085±	D81	4,725±	0.1085±
D25	4,725±	0.1085±	D82	4,725±	0.1085±
D26	4,725±	0.1085±	D83	4,725±	0.1085±
D27	4,725±	0.1085±	D84	4,725±	0.1085±
D28	4,725±	0.1085±	D85	4,725±	0.1085±
D29	4,725±	0.1085±	D86	5,116±	0.1174±
D30	4,725±	0.1085±	D87	5,641±	0.1295±
D31	4,725±	0.1085±	D88	4,725±	0.1085±
D32	4,725±	0.1085±	D89	4,725±	0.1085±
D33	4,725±	0.1085±	D90	4,725±	0.1085±
D34	4,725±	0.1085±	D91	4,725±	0.1085±
D35	6,441±	0.1479±	D92	4,725±	0.1085±
D36	6,354±	0.1459±	D93	4,725±	0.1085±
D37	7,095±	0.1629±	D94	4,725±	0.1085±
D38	4,953±	0.1137±	D95	4,725±	0.1085±
D39	4,872±	0.1119±	D96	4,707±	0.1081±
D40	4,985±	0.1144±	D97	5,334±	0.1225±
D41	5,098±	0.1170±	D98	5,660±	0.1299±
D42	5,211±	0.1196±	D99	4,725±	0.1085±
D43	5,324±	0.1222±	D100	4,725±	0.1085±
D44	5,436±	0.1248±	D101	4,725±	0.1085±
D45	6,104±	0.1401±	D102	4,690±	0.1077±
D46	4,950±	0.1136±	D103	7,130±	0.1637±
D47	4,950±	0.1136±	D104	6,443±	0.1479±
D48	4,950±	0.1136±	D105	5,754±	0.1321±
D49	4,950±	0.1136±	D106	5,032±	0.1155±
D50	4,950±	0.1136±	D107	4,728±	0.1085±
D51	4,950±	0.1136±	D108	4,725±	0.1085±
D52	4,950±	0.1136±	D109	4,725±	0.1085±
D53	4,950±	0.1136±	D110	4,725±	0.1085±
D54	4,950±	0.1136±	D111	4,725±	0.1085±
D55	4,950±	0.1136±	D112	4,725±	0.1085±
D56	4,950±	0.1136±	D113	4,725±	0.1085±
D57	4,950±	0.1136±	D114	5,641±	0.1295±

TOWNHOUSE LOT AREA TABLE

LOT	SQ. FT.	ACRES	LOT	SQ. FT.	ACRES	LOT	SQ. FT.	ACRES
T1	3,666±	0.0842±	T52	3,845±	0.0883±	T103	2,400±	0.0551±
T2	2,800±	0.0643±	T53	2,400±	0.0551±	T104	2,400±	0.0551±
T3	2,800±	0.0643±	T54	2,398±	0.0550±	T105	2,400±	0.0551±
T4	2,800±	0.0643±	T55	2,398±	0.0550±	T106	2,400±	0.0551±
T5	3,800±	0.0872±	T56	2,398±	0.0550±	T107	3,265±	0.0750±
T6	3,800±	0.0872±	T57	2,396±	0.0550±	T108	4,541±	0.1042±
T7	2,800±	0.0643±	T58	4,300±	0.0987±	T109	2,655±	0.0610±
T8	2,800±	0.0643±	T59	3,898±	0.0895±	T110	2,547±	0.0585±
T9	2,800±	0.0643±	T60	2,398±	0.0550±	T111	2,542±	0.0584±
T10	3,800±	0.0872±	T61	2,398±	0.0550±	T112	2,542±	0.0584±
T11	3,800±	0.0872±	T62	2,398±	0.0550±	T113	3,602±	0.0827±
T12	2,800±	0.0643±	T63	2,398±	0.0550±	T114	3,601±	0.0827±
T13	2,800±	0.0643±	T64	2,400±	0.0551±	T115	2,542±	0.0584±
T14	2,800±	0.0643±	T65	4,044±	0.0928±	T116	2,542±	0.0584±
T15	3,800±	0.0872±	T66	3,264±	0.0749±	T117	3,595±	0.0825±
T16	3,800±	0.0872±	T67	2,400±	0.0551±	T118	3,777±	0.0867±
T17	2,800±	0.0643±	T68	2,398±	0.0550±	T119	2,800±	0.0643±
T18	2,800±	0.0643±	T69	2,398±	0.0550±	T120	2,800±	0.0643±
T19	5,116±	0.1174±	T70	2,398±	0.0550±	T121	2,800±	0.0643±
T20	4,474±	0.1027±	T71	2,398±	0.0550±	T122	2,800±	0.0643±
T21	3,211±	0.0737±	T72	3,410±	0.0783±	T123	3,800±	0.0872±
T22	3,139±	0.0721±	T73	3,400±	0.0781±	T124	3,800±	0.0872±
T23	4,144±	0.0951±	T74	2,400±	0.0551±	T125	2,800±	0.0643±
T24	3,972±	0.0912±	T75	2,400±	0.0551±	T126	2,800±	0.0643±
T25	2,841±	0.0652±	T76	2,400±	0.0551±	T127	2,800±	0.0643±
T26	2,800±	0.0643±	T77	2,400±	0.0551±	T128	4,166±	0.0956±
T27	2,800±	0.0643±	T78	2,400±	0.0551±	T129	3,856±	0.0885±
T28	2,800±	0.0643±	T79	3,400±	0.0781±	T130	2,940±	0.0675±
T29	3,810±	0.0875±	T80	3,400±	0.0781±	T131	2,940±	0.0675±
T30	3,800±	0.0872±	T81	2,400±	0.0551±	T132	2,990±	0.0916±
T31	2,800±	0.0643±	T82	2,400±	0.0551±	T133	3,990±	0.0916±
T32	2,800±	0.0643±	T83	2,400±	0.0551±	T134	2,940±	0.0675±
T33	3,936±	0.0903±	T84	2,400±	0.0551±	T135	2,940±	0.0675±
T34	3,865±	0.0887±	T85	2,400±	0.0551±	T136	3,990±	0.0916±
T35	2,800±	0.0643±	T86	3,352±	0.0769±	T137	3,990±	0.0916±
T36	2,800±	0.0643±	T87	3,904±	0.0896±	T138	2,940±	0.0675±
T37	2,800±	0.0643±	T88	2,400±	0.0551±	T139	2,942±	0.0675±
T38	2,800±	0.0643±	T89	2,400±	0.0551±	T140	5,279±	0.1212±
T39	3,817±	0.0876±	T90	2,400±	0.0551±	T141	4,813±	0.1105±
T40	5,238±	0.1203±	T91	2,400±	0.0551±	T142	2,942±	0.0675±
T41	2,800±	0.0643±	T92	2,400±	0.0551±	T143	4,517±	0.1037±
T42	2,800±	0.0643±	T93	3,400±	0.0781±	T144	3,990±	0.0916±
T43	2,800±	0.0643±	T94	3,395±	0.0779±	T145	2,940±	0.0675±
T44	2,800±	0.0643±	T95	2,400±	0.0551±	T146	2,940±	0.0675±
T45	3,800±	0.0872±	T96	2,400±	0.0551±	T147	2,940±	0.0675±
T46	3,800±	0.0872±	T97	2,400±	0.0551±	T148	3,990±	0.0916±
T47	2,800±	0.0643±	T98	2,400±	0.0551±	T149	3,990±	0.0916±
T48	2,800±	0.0643±	T99	2,400±	0.0551±	T150	2,940±	0.0675±
T49	2,800±	0.0643±	T100	3,405±	0.0782±	T151	2,940±	0.0675±
T50	2,800±	0.0643±	T101	3,400±	0.0781±	T152	2,940±	0.0675±
T51	4,368±	0.1003±	T102	2,400±	0.0551±	T153	3,856±	0.0885±

TOTAL LOT AREA	1,011,855±	23.229±

LOT LINE TABLE

LINE	BEARING	DISTANCE
L1	N 78°49'03" E	28.07'
L2	N 78°49'03" E	19.43'
L3	N 37°09'44" E	1.14'
L4	N 52°50'16" W	26.49'
L5	S 44°27'23" E	51.13'
L6	S 52°50'16" E	34.42'
L7	S 37°09'44" W	20.00'
L8	N 37°09'44" E	25.00'
L9	S 37°09'44" W	25.00'
L10	N 37°09'44" E	25.00'
L11	S 37°09'44" W	25.00'
L12	S 37°09'44" W	30.00'
L13	S 37°09'44" W	13.71'
L14	S 78°49'03" W	19.43'
L15	S 78°49'03" W	26.98'
L16	N 49°52'58" E	1.29'
L17	N 37°09'44" E	29.03'
L18	N 37°09'44" E	30.00'
L19	N 37°09'44" E	13.00'
L20	N 49°43'50" W	22.03'
L21	S 49°43'50" E	8.15'
L22	S 44°27'23" E	8.54'
L23	N 52°50'16" W	14.99'
L24	S 37°09'44" W	28.72'
L25	S 37°09'44" W	19.92'
L26	N 52°50'16" W	43.39'
L27	N 23°01'38" E	13.16'
L28	S 23°01'38" W	8.98'
L29	S 23°01'38" W	8.99'
L30	N 21°23'51" E	16.27'
L31	N 21°23'51" E	8.95'
L32	S 68°42'52" E	11.86'
L33	S 68°42'52" E	12.32'
L34	S 52°50'16" E	28.66'
L35	S 52°50'16" E	18.00'
L36	N 52°50'16" W	13.00'
L37	N 52°50'16" W	5.66'
L38	N 67°45'35" W	14.67'
L39	S 52°50'16" E	13.00'

RIGHT-OF-WAY CURVE TABLE

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
RC-1	329.13'	465.90'	427.96'	N 26°39'07" W	81°06'18"
RC-2	369.13'	111.24'	110.82'	N 05°16'02" E	17°15'59"
RC-3	30.00'	43.03'	39.44'	S 37°43'32" W	82°11'00"
RC-4	320.00'	232.65'	227.56'	N 57°59'23" E	41°39'18"
RC-5	369.13'	319.60'	309.71'	N 42°33'51" W	49°36'30"
RC-6	30.00'	43.68'	39.92'	S 59°28'16" E	83°25'22"
RC-7	280.00'	203.57'	199.11'	N 57°59'23" E	41°39'18"
RC-8	70.00'	109.96'	98.99'	N 07°50'16" W	90°00'00"
RC-9	70.00'	57.46'	55.86'	N 73°14'50" W	47°02'00"
RC-10	120.00'	96.50'	93.92'	S 60°11'57" W	46°04'26"
RC-11	46.00'	208.95'	70.34'	S 46°53'28" E	260°15'15"
RC-12	17.00'	23.17'	21.42'	S 42°01'48" W	78°05'46"
RC-13	30.00'	25.76'	24.97'	N 74°19'35" W	49°11'29"
RC-14	25.00'	35.61'	32.68'	N 03°38'49" W	81°37'07"
RC-15	25.00'	39.27'	35.36'	N 82°09'44" E	90°00'00"
RC-16	325.00'	80.18'	79.98'	N 59°54'19" W	14°08'07"
RC-17	270.00'	47.41'	47.35'	S 73°37'58" E	10°03'39"
RC-18	330.00'	57.95'	57.87'	S 73°37'58" E	10°03'39"
RC-19	5.00'	8.87'	7.75'	N 27°49'05" W	101°41'25"
RC-20	25.00'	39.27'	35.36'	N 68°01'38" E	90°00'00"
RC-21	55.00'	87.96'	78.88'	S 67°12'44" W	91°37'47"
RC-22	70.00'	110.09'	99.09'	S 23°39'30" E	90°06'43"
RC-23	280.00'	77.59'	77.34'	N 60°46'34" W	15°52'36"
RC-24	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
RC-25	25.00'	37.67'	34.21'	N 80°19'51" E	86°20'13"
RC-26	46.00'	203.58'	73.68'	S 03°17'05" E	253°34'05"
RC-27	270.00'	59.94'	59.82'	N 43°31'21" E	12°43'13"
RC-28	25.00'	39.27'	35.36'	S 82°09'44" W	90°00'00"
RC-29	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
RC-30	25.00'	39.27'	35.36'	N 82°09'44" E	90°00'00"
RC-31	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
RC-32	25.00'	39.27'	35.36'	S 82°09'44" W	90°00'00"
RC-33	25.00'	39.27'	35.36'	S 07°50'16" E	90°00'00"
RC-34	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
RC-35	25.00'	39.27'	35.36'	N 82°09'44" E	90°00'00"
RC-36	320.00'	40.60'	40.57'	N 56°28'20" W	7°16'08"
RC-37	25.00'	36.27'	33.17'	S 18°32'23" E	83°08'01"
RC-38	25.00'	39.58'	35.58'	S 68°23'12" W	90°43'10"
RC-39	480.00'	112.39'	112.14'	N 59°32'44" W	13°24'57"
RC-40	25.00'	38.51'	34.81'	N 67°09'23" E	88°15'31"
RC-41	25.00'	39.32'	35.39'	S 23°39'30" E	90°06'43"
RC-42	25.00'	39.98'	35.85'	S 67°12'44" W	91°37'47"
RC-43	25.00'	39.27'	35.36'	N 21°58'22" W	90°00'00"
RC-44	38.00'	11.34'	11.30'	N 72°43'06" E	17°06'13"
RC-45	275.00'	67.84'	67.67'	N 59°54'19" W	14°08'07"
RC-46	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
RC-47	25.00'	39.27'	35.36'	N 82°09'44" E	90°00'00"
RC-48	520.00'	122.84'	122.55'	N 59°36'18" W	13°32'05"
RC-49	25.00'	39.01'	35.17'	S 21°40'21" E	89°23'58"
RC-50	25.00'	39.27'	35.36'	S 07°50'16" E	90°00'00"
RC-51	25.00'	42.93'	37.84'	S 86°21'11" W	98°22'53"
RC-52	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
RC-53	25.00'	39.27'	35.36'	N 82°09'44" E	90°00'00"

LOT CURVE TABLE

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
LC1	30.00'	17.99'	17.73'	S 61°38'05" W	34°21'56"
LC2	320.00'	25.59'	25.59'	N 76°31'34" E	4°34'56"
LC3	320.00'	40.32'	40.30'	N 70°37'30" E	7°13'12"
LC4	320.00'	41.83'	41.80'	N 63°16'14" E	7°29'20"
LC5	320.00'	42.76'	42.72'	N 55°41'54" E	7°39'20"
LC6	320.00'	38.15'	38.13'	N 48°27'19" E	6°49'51"
LC7	320.00'	44.00'	43.96'	N 41°06'04" E	7°52'59"
LC8	70.00'	2.43'	2.43'	N 36°10'06" E	1°59'16"
LC9	70.00'	32.74'	32.44'	N 21°46'31" E	26°47'56"
LC10	70.00'	33.84'	33.51'	N 05°28'29" W	27°42'05"
LC11	70.00'	23.96'	23.84'	N 29°07'44" W	19°36'28"
LC12	70.00'	16.99'	16.95'	N 45°53'07" W	13°54'17"
LC13	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
LC14	25.00'	39.27'	35.36'	N 82°09'44" E	90°00'00"
LC15	25.00'	39.27'	35.36'	S 82°09'44" W	90°00'00"
LC16	25.00'	39.27'	35.36'	S 07°50'16" E	90°00'00"
LC17	25.00'	39.27'	35.36'	N 82°09'44" E	90°00'00"
LC18	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
LC19	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
LC20	280.00'	31.35'	31.33'	N 40°22'12" E	6°24'55"
LC21	280.00'	38.46'	38.43'	N 66°25'47" E	7°52'10"
LC22	280.00'	41.31'	41.27'	N 74°35'27" E	8°27'11"
LC23	30.00'	19.32'	18.99'	S 82°43'44" E	36°54'26"
LC24	46.00'	27.77'	27.35'	S 76°12'20" E	34°35'35"
LC25	46.00'	29.36'	28.86'	N 68°12'52" E	36°33'59"
LC26	270.00'	43.66'	43.61'	N 45°11'10" E	9°15'53"
LC27	270.00'	15.98'	15.98'	N 38°51'29" E	3°23'29"
LC28	25.00'	39.27'	35.36'	S 82°09'44" W	90°00'00"
LC29	25.00'	39.27'	35.36'	S 07°50'16" E	90°00'00"
LC30	25.00'	42.93'	37.84'	S 86°21'11" W	98°22'53"
LC31	70.00'	16.11'	16.07'	N 56°19'22" W	13°11'03"
LC32	25.00'	35.61'	32.68'	N 03°38'49" W	81°37'07"
LC33	25.00'	39.27'	35.36'	N 82°09'44" E	90°00'00"
LC34	325.00'	32.29'	32.27'	N 55°41'01" W	5°41'31"
LC35	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
LC36	25.00'	39.27'	35.36'	N 82°09'44" E	90°00'00"
LC37	520.00'	31.63'	31.63'	N 54°34'49" W	3°29'07"
LC38	520.00'	75.59'	75.52'	N 62°12'29" W	8°19'44"
LC39	25.00'	39.01'	35.17'	S 21°40'21" E	89°23'58"
LC40	38.00'	11.34'	11.30'	N 72°43'06" E	17°06'13"
LC41	275.00'	7.75'	7.75'	N 66°09'55" W	1°36'55"
LC42	25.00'	39.27'	35.36'	N 21°58'22" W	90°00'00"
LC43	25.00'	38.51'	34.81'	N 67°09'23" E	88°15'31"
LC44	25.00'	39.98'	35.85'	S 67°12'44" W	91°37'47"
LC45	25.00'	39.32'	35.39'	S 23°39'30" E	90°06'43"
LC46	70.00'	72.14'	68.99'	S 08°07'40" E	59°03'01"
LC47	70.00'	25.75'	25.61'	S 48°11'32" E	21°04'44"
LC48	70.00'	12.20'	12.18'	S 63°43'23" E	9°58'58"
LC49	280.00'	21.70'	21.69'	N 66°29'40" W	4°26'24"
LC50	280.00'	9.34'	9.34'	N 53°47'36" W	1°54'41"
LC51	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
LC52	25.00'	36.27'	33.17'	S 18°32'23" E	83°08'01"
LC53	320.00'	16.23'	16.23'	N 58°39'11" W	2°54'24"
LC54	320.00'	24.36'	24.36'	N 55°01'07" W	4°21'43"
LC55	25.00'	39.27'	35.36'	N 82°09'44" E	90°00'00"
LC56	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
LC57	480.00'	49.31'	49.28'	N 56°34'11" W	5°53'07"
LC58	480.00'	28.01'	28.01'	N 61°11'04" W	3°20'38"
LC59	480.00'	28.46'	28.46'	N 64°33'18" W	3°23'50"
LC60	25.00'	39.58'	35.58'	S 68°23'12" W	90°43'10"
LC61	375.00'	25.78'	25.77'	N 65°42'35" W	3°56'18"
LC62	375.00'	28.02'	28.02'	N 61°36'00" W	4°16'53"
LC63	375.00'	36.73'	36.71'	N 56°39'13" W	5°36'40"
LC64	425.00'	64.25'	64.19'	N 60°27'05" W	8°39'41"
LC65	425.00'	24.35'	24.35'	N 54°28'45" W	3°16'59"

RIGHT-OF-WAY LINE TABLE

LINE	BEARING	DISTANCE
RL-1	N 13°54'02" E	15.10'
RL-2	N 13°54'02" E	15.00'
RL-3	S 49°52'58" W	40.76'
RL-4	N 52°50'16" W	34.42'
RL-5	N 23°01'38" E	18.17'

BOUNDARY LINE TABLE

LINE	BEARING	DISTANCE
BL-1	S 12°26'54" W	7.06'
BL-2	N 50°42'39" W	47.19'

BOUNDARY CURVE TABLE

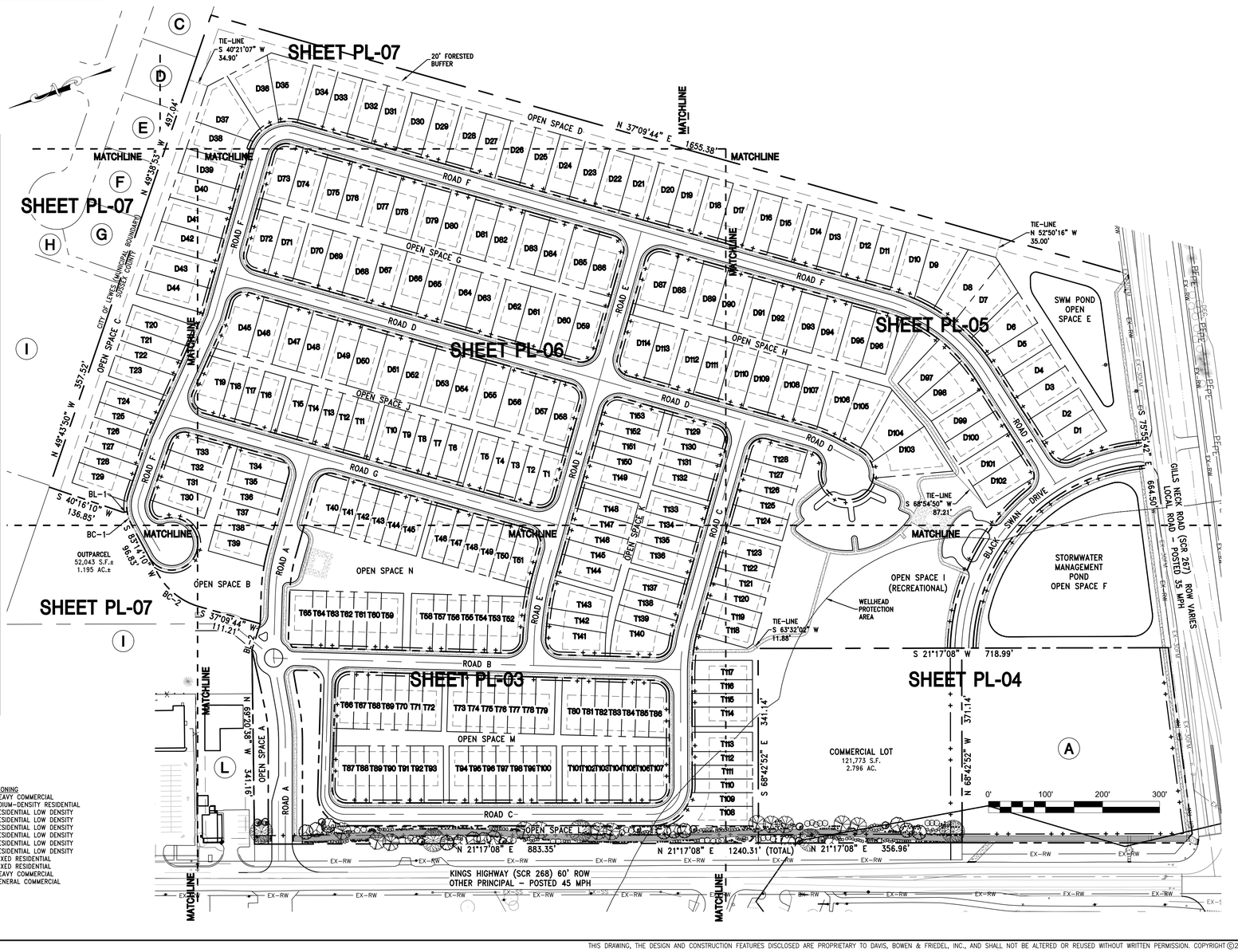
CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
BC-1	70.00'	23.47'	23.36'	N 87°09'28" W	19°12'44"
BC-2	120.00'	96.50'	93.92'	S 60°11'57" W	46°04'26"

RIGHT-OF-WAY AREA TABLE

DESCRIPTION	SQ. FT.	ACRES
ROAD A	39,668±	0.911±
ROAD B	26,892±	0.617±
ROAD C	57,657±	1.324±
ROAD D	50,827±	1.167±
ROAD E	29,314±	0.673±
ROAD F	98,635±	2.264±
ROAD G	27,244±	0.625±
BLACK SWAN DRIVE	20,391±	0.468±
TOTAL AREA	351,528±	8.070±

ADJACENT PROPERTY OWNERS

KEY	PARCEL ID	PROPERTY OWNER	DEED	ZONING
A	335-8.00-37.01	CAPE HENLOPEN MEDICAL CENTER LLC	DB:5007 PG:276	C-3 HEAVY COMMERCIAL
B	335-8.00-43.01	CADBURY AT LEWES INC	DB:2934 PG:239	MR MEDIUM-DENSITY RESIDENTIAL
C	335-8.00-326.00	JOHN A JIULIANO & LAURA T OTA	DB:3978 PG:171	R-2 RESIDENTIAL LOW DENSITY
D	335-8.00-327.00	PATTI J STEWART	DB:4138 PG:247	R-2 RESIDENTIAL LOW DENSITY
E	335-8.00-328.00	KEVIN P HAZARD & JOANN T HAZARD	DB:5357 PG:123	R-2 RESIDENTIAL LOW DENSITY
F	335-8.00-329.00	LINDA S LEKITES	DB:3027 PG:314	R-2 RESIDENTIAL LOW DENSITY
G	335-8.00-330.00	DAVID A CANNON/CATHY E WILLIAMS	DB:2194 PG:246	R-2 RESIDENTIAL LOW DENSITY
H	335-8.00-336.00	BAY BREEZE ESTATES HOMEOWNERS ASSOC INC	DB:1985 PG:181	R-2 RESIDENTIAL LOW DENSITY
I	335-8.00-42.02	JEFFERSON ESTATES II LLC	DB:4743 PG:296	R-5 MIXED RESIDENTIAL
J	335-8.00-42.01	JEFFERSON ESTATES II LLC	DB:4338 PG:195	R-5 MIXED RESIDENTIAL
K	335-8.00-39.00	JEFF-KAT LLC	DB:5381 PG:282	C-3 HEAVY COMMERCIAL
L	335-8.00-38.00	THREE BUILDERS LLC	DB:3173 PG:100	C-1 GENERAL COMMERCIAL



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MITCHELL FAMILY FARM

LEWES & REHOBOTH HUNDRED

CITY OF LEWES, SUSSEX COUNTY, DELAWARE

PRELIMINARY SITE PLAN OVERVIEW

Revisions:

Date: DECEMBER 2021
Scale: 1" = 100'
Dwn.By: DEG
Proj.No.: 3808A001
Dwg.No.: PL-02

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MATCHLINE – SHEET PL-06

MATCHLINE – SHEET PL-07

MATCHLINE – SHEET PL-04

ROAD A

ROAD B

ROAD C

ROAD E

OPEN SPACE N

OPEN SPACE M

OPEN SPACE L

OPEN SPACE A

OPEN SPACE B (RECREATIONAL)

DOG PARK

MAIL PLAZA PAVILION

SHARED-USE-PATH

EXISTING BUILDING

EXISTING DWELLING

GARAGE

WOOD POST

WELLHEAD PROTECTION AREA

KINGS HIGHWAY (SCR 268) 60' ROW
OTHER PRINCIPAL – POSTED 45 MPH

0' 30' 60' 90'

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PRELIMINARY SITE PLAN

MITCHELL FAMILY FARM

KINGS HIGHWAY (SCR 268)

LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

Revisions:

Date: DECEMBER 2021
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MATCHLINE – SHEET PL-05

T123
T122
T121
T120
T119
T118
T117
T116
T115
T114
T113
T112
T111
T110
T109
T108

SPORTS COURT
SPORTS COURT
POOL & SPLASH PAD
WELLHEAD PROTECTION AREA
COMMUNITY CENTER/PATIO 4,700± SQ FT
OPEN SPACE I (RECREATIONAL)
BLACK SWAN DRIVE
40' R.O.W.
OPEN SPACE F STORMWATER MANAGEMENT POND
GILLS NECK ROAD (SCR 267)
LOCAL ROAD – POSTED 35 MPH
ROW VARIES
15' PROPERTY CONSTRUCTION BUFFER
S 83°32'02" W 11.88' TIE-LINE
N 21°17'08" E 724.03'
S 21°17'08" W 336.95'
S 21°17'08" W 362.03'
S 75°55'47" E 322.20'
COMMERCIAL LOT
121,773 S.F.
2.796 AC.
N 68°42'52" W 341.14'
N 21°17'08" E 356.96'
FIRE LANE
FIRE LANE
A
MATCHLINE – SHEET PL-03
KINGS HIGHWAY (SCR 268) 60' ROW
OTHER PRINCIPAL – POSTED 45 MPH
0' 30' 60' 90'

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PRELIMINARY SITE PLAN

MITCHELL FAMILY FARM
KINGS HIGHWAY (SCR 268)
LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

Revisions:

Date: DECEMBER 2021
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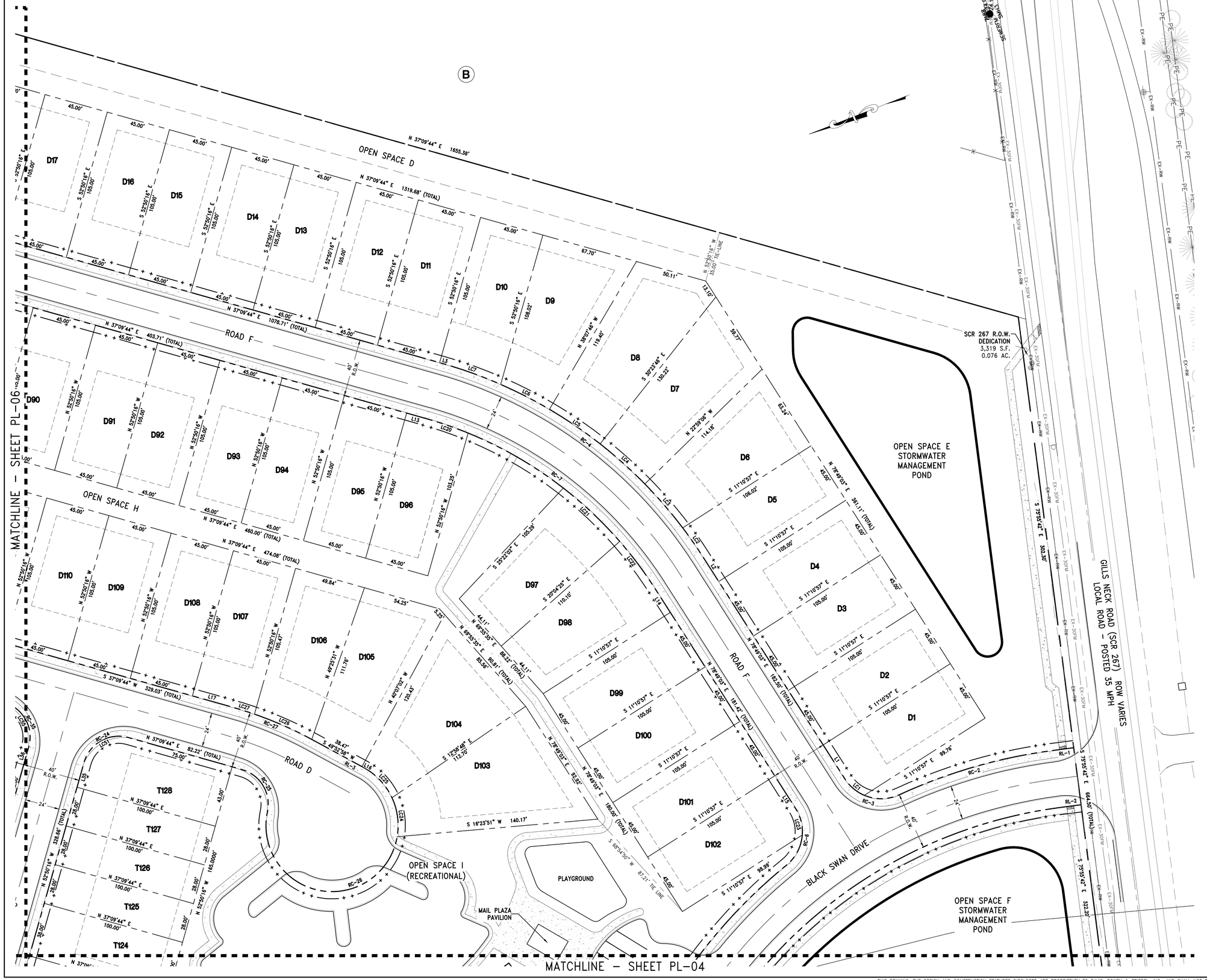

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PRELIMINARY SITE PLAN

MITCHELL FAMILY FARM

KINGS HIGHWAY (SCR 268)

LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

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PL-06

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KINGS HIGHWAY (SCR 268)

LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

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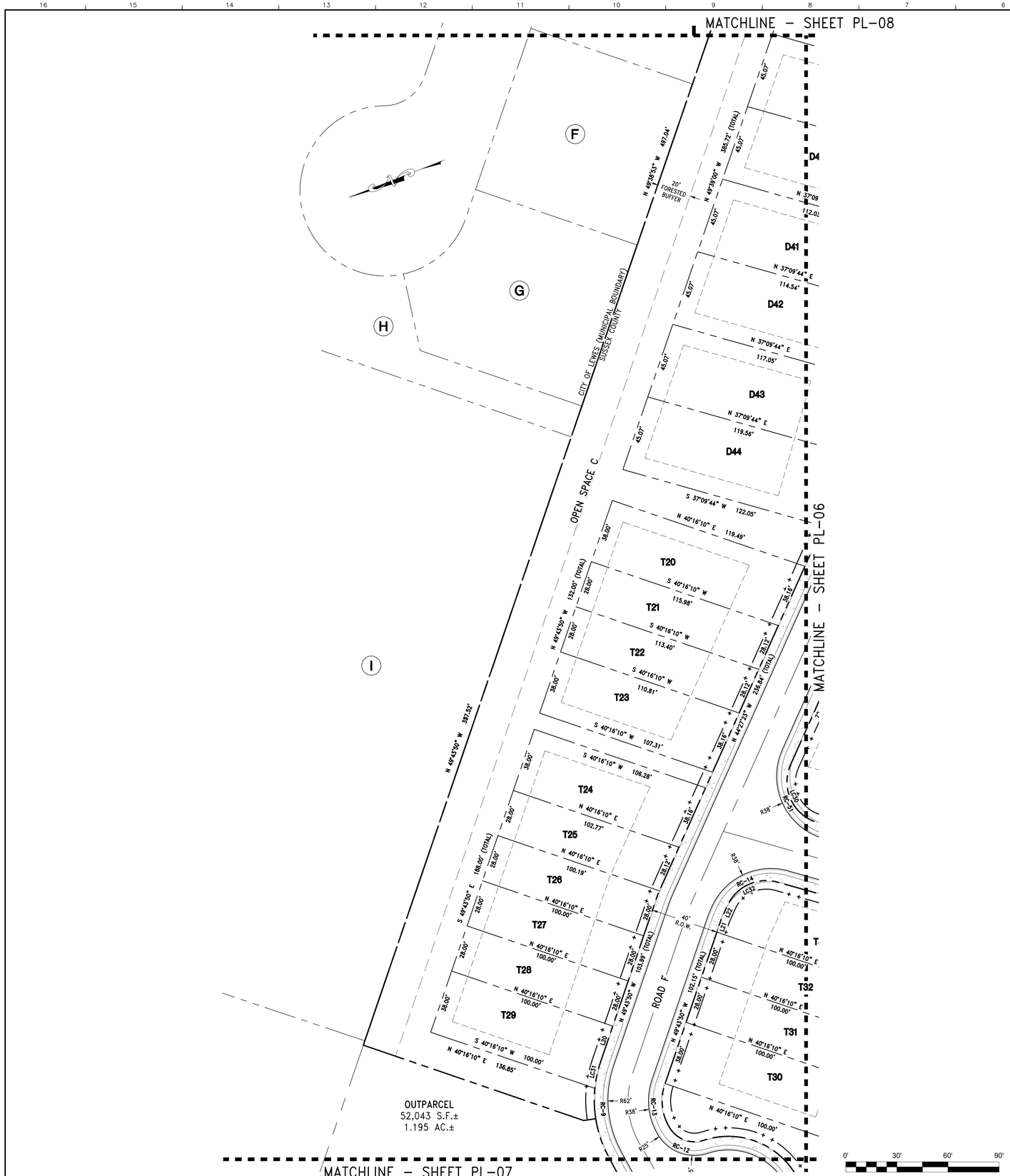
PRELIMINARY SITE PLAN



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PRELIMINARY SITE PLAN

MITCHELL FAMILY FARM

KINGS HIGHWAY (SCR 268)

LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

Revisions:

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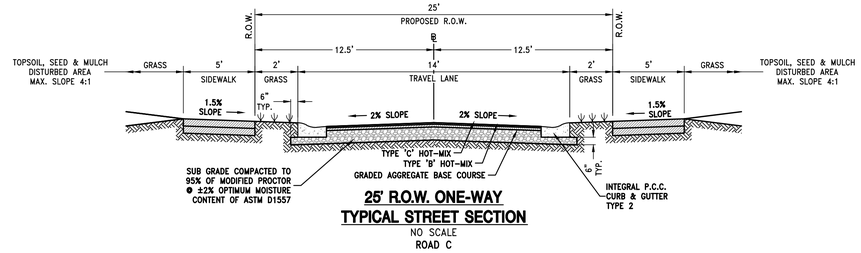
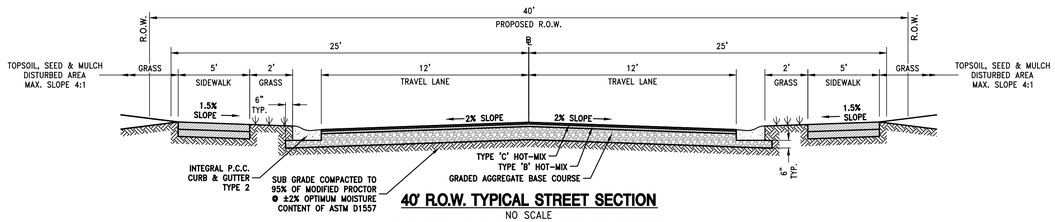
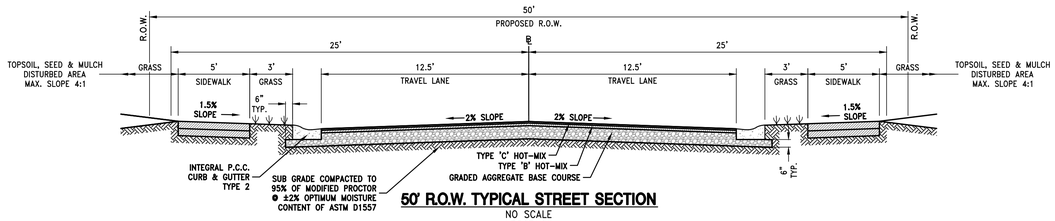


25' R.O.W. ONE-WAY
TYPICAL STREET SECTION
NO SCALE
ROAD C

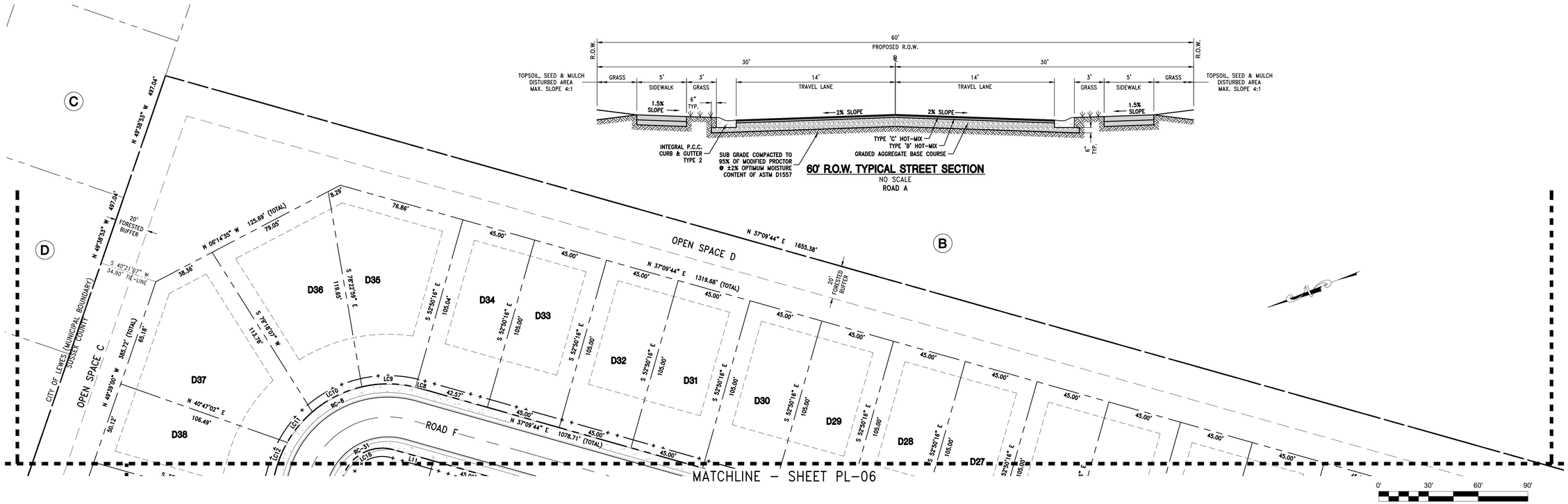


40' R.O.W. TYPICAL STREET SECTION
NO SCALE
ROAD B, ROAD C, ROAD D, ROAD E, ROAD F & ROAD G



50' R.O.W. TYPICAL STREET SECTION
NO SCALE
ROAD A

60' R.O.W. TYPICAL STREET SECTION
NO SCALE
ROAD A



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PRELIMINARY SITE PLAN

MITCHELL FAMILY FARM
KINGS HIGHWAY (SCR 268)
LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

Revisions:

Date: DECEMBER 2021
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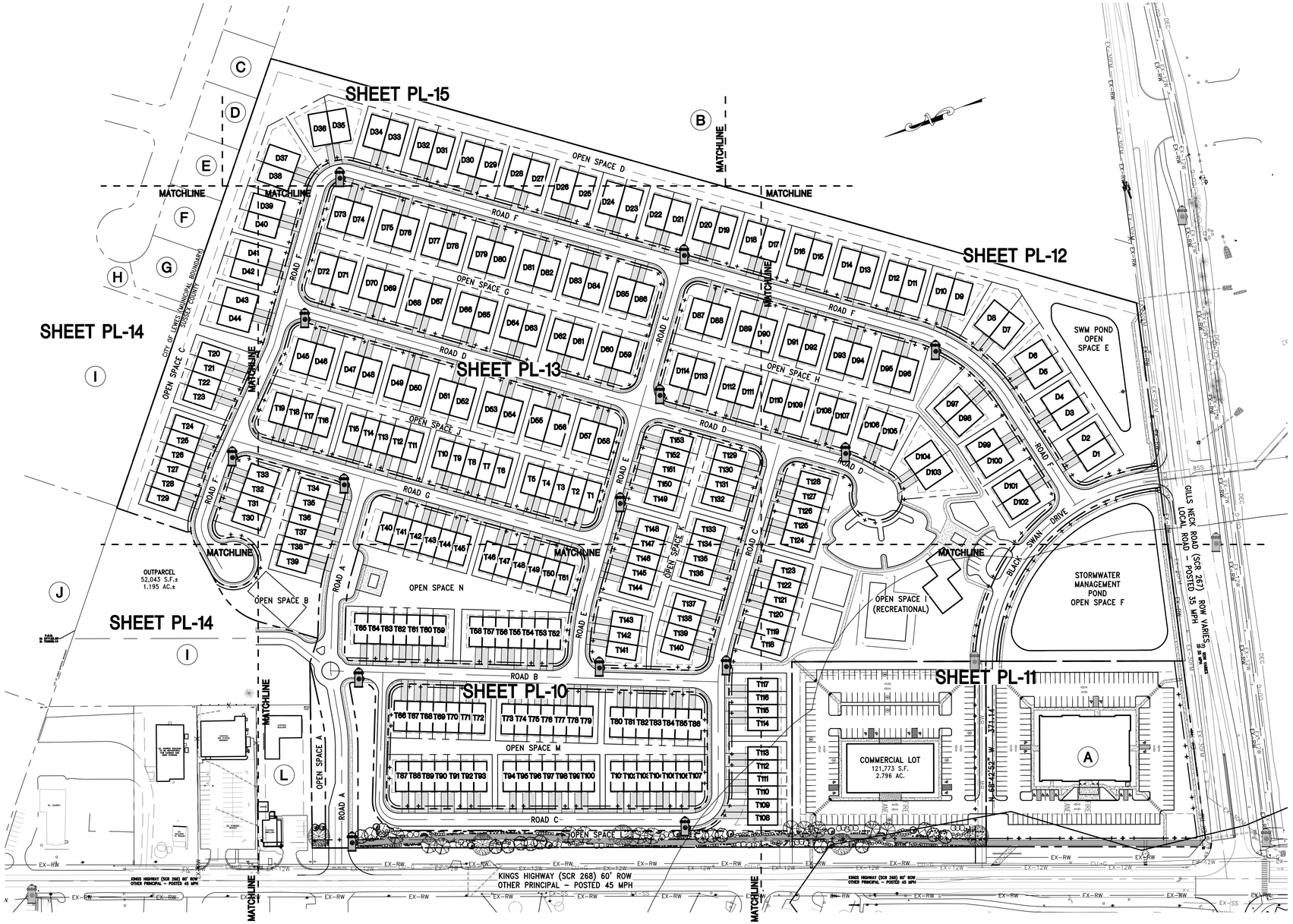
SHEET PL-15
SHEET PL-12
SHEET PL-14
SHEET PL-13
SHEET PL-10
SHEET PL-11
MATCHLINE
OPEN SPACE D
ROAD F
OPEN SPACE G
ROAD E
ROAD D
OPEN SPACE H
OPEN SPACE C
OPEN SPACE J
ROAD G
ROAD C
OPEN SPACE I
ROAD A
OPEN SPACE N
OPEN SPACE B
ROAD B
OPEN SPACE M
OPEN SPACE L
OPEN SPACE K
CITY OF LEWES MUNICIPAL BOUNDARY
SUSSEX COUNTY BOUNDARY
OUTPARCEL
52,043 S.F.±
1.195 AC.±
SWM POND
OPEN
SPACE E
STORMWATER
MANAGEMENT
POND
OPEN SPACE F
OPEN SPACE I
(RECREATIONAL)
COMMERCIAL LOT
121,773 S.F.
2.796 AC.
GILLS NECK
LOCAL ROAD - POSTED 35 MPH
BLACK SWAN DRIVE
KINGS HIGHWAY (SCR 268) 60' ROW
OTHER PRINCIPAL - POSTED 45 MPH
EX-RW
EX-12W
EX-SS
EX-SWM
EX-OHW
EX-UGT
EX-UGW
EX-UGG
EX-UGC
EX-UGS
EX-UGTV
EX-UGF
EX-UGSL
EX-UGSTL
EX-UGSTR
EX-UGSTM
EX-UGSTB
EX-UGSTT
EX-UGSTC
EX-UGSTS
EX-UGSTF
EX-UGSTG
EX-UGSTW
EX-UGSTV
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EX-UGST39
EX-UGST40

MATCHLINE – SHEET PL-13

MATCHLINE – SHEET PL-14

MATCHLINE – SHEET PL-11

T38 T39 T44 T45 T46 T47 T48 T49 T50 T51 T147 T146 T145 T144 T134 T135 T136 T137 T138 T139 T140 T143 T142 T65 T64 T63 T62 T61 T60 T59 T58 T57 T56 T55 T54 T53 T52 T66 T67 T68 T69 T70 T71 T72 T73 T74 T75 T76 T77 T78 T79 T80 T81 T82 T83 T84 T85 T86 T87 T88 T89 T90 T91 T92 T93 T94 T95 T96 T97 T98 T99 T100 T101 T102 T103 T104 T105 T106 T107 T117 T116 T115 T114 T113 T112 T111 T110 T109 T108

ROAD A
ROAD B
ROAD C
ROAD E

MAIL PLAZA PAVILION
DOG PARK
OPEN SPACE B (RECREATIONAL)
OPEN SPACE N
OPEN SPACE M
OPEN SPACE L
OPEN SPACE A

SAN–MH
FIRE HYDRANT ASSEMBLY
WELLHEAD PROTECTION AREA

EXISTING BUILDING
EXISTING DWELLING
GARAGE
WOOD POST
WE FIP

SCR 268 R.O.W. DEDICATION
38,330 S.F.
0.880 AC.

KINGS HIGHWAY (SCR 268) 60' ROW
OTHER PRINCIPAL – POSTED 45 MPH

0' 30' 60' 90'

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ANNAPOLIS, MARYLAND (301) 261-1444
EASTON, MARYLAND (410) 770-4744

PRELIMINARY UTILITY PLAN

MITCHELL FAMILY FARM

KINGS HIGHWAY (SCR 268)

LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

Revisions:

Date: DECEMBER 2021
Scale: 1" = 30'
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MATCHLINE – SHEET PL-12

MATCHLINE – SHEET PL-10

T123
T122
T121
T120
T119
T118
T117
T116
T115
T114
T113
T112
T111
T110
T109
T108

SPORTS COURT
SPORTS COURT
POOL & SPLASH PAD
WELLHEAD PROTECTION AREA
COMMUNITY CENTER/PATIO 4,700± SQ FT
OPEN SPACE I (RECREATIONAL)
15' PROPERTY CONSTRUCTION BUFFER
8W BLACK SWAN DRIVE
OPEN SPACE F STORMWATER MANAGEMENT POND
GILLS NECK ROAD (SCR 267) LOCAL ROAD – POSTED 35 MPH ROW VARIES
COMMERCIAL LOT 121,773 S.F. 2.796 AC.
15' PROPERTY CONSTRUCTION BUFFER
FIRE LANE
FIRE LANE
A
KINGS HIGHWAY (SCR 268) 60' ROW
OTHER PRINCIPAL – POSTED 45 MPH

0' 30' 60' 90'

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PRELIMINARY UTILITY PLAN

MITCHELL FAMILY FARM

KINGS HIGHWAY (SCR 268)

LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

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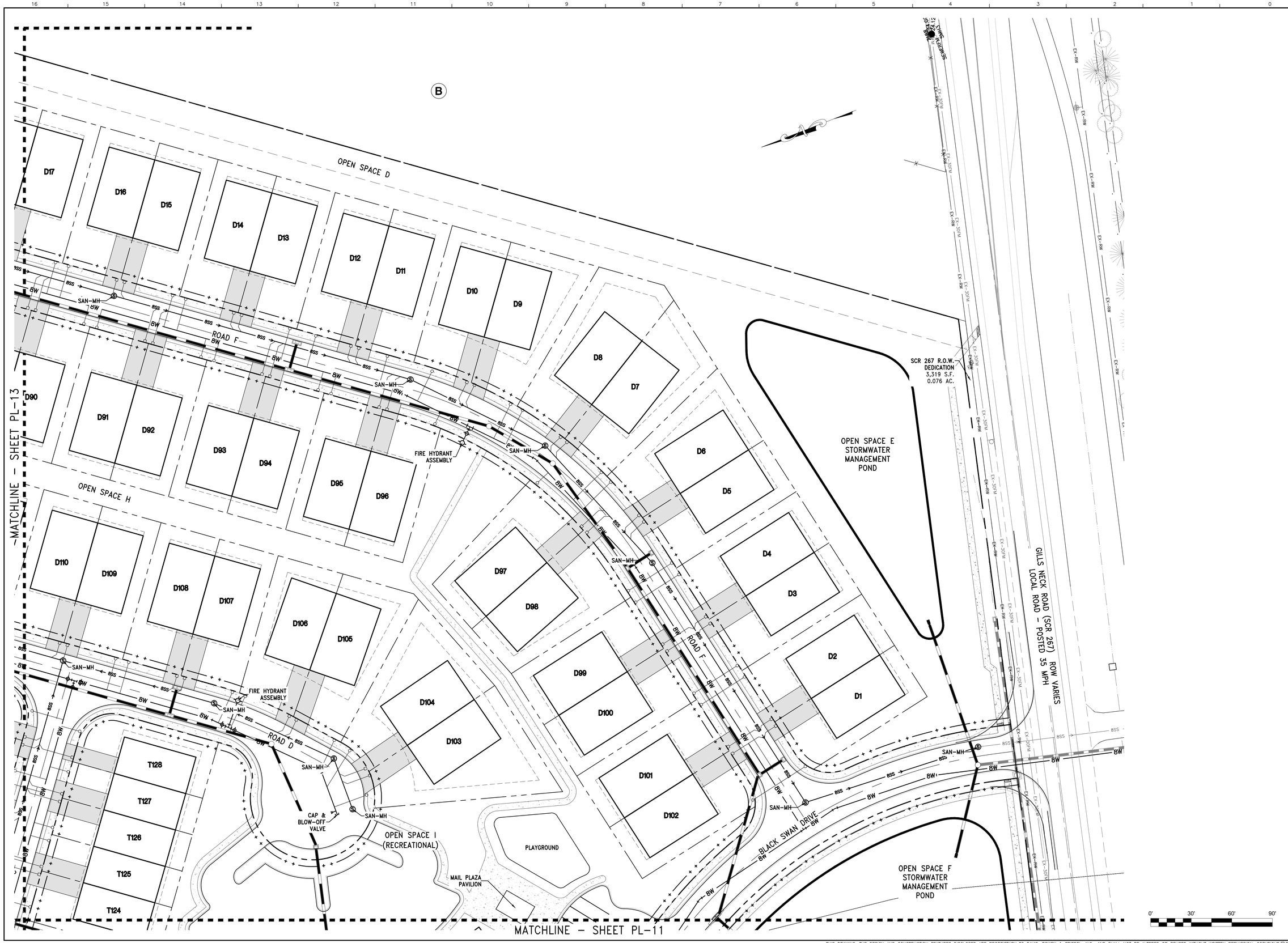
OPEN SPACE D
D17
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D110
T128
T127
T126
T125
T124
OPEN SPACE H
OPEN SPACE E
STORMWATER
MANAGEMENT
POND
OPEN SPACE F
STORMWATER
MANAGEMENT
POND
ROAD F
ROAD D
BLACK SWAN DRIVE
SAN-MH
FIRE HYDRANT ASSEMBLY
CAP & BLOW-OFF VALVE
OPEN SPACE I
(RECREATIONAL)
PLAYGROUND
MAIL PLAZA
PAVILION
SCR 267 R.O.W. DEDICATION
3,319 S.F.
0.076 AC.
GILLS NECK ROAD (SCR 267)
LOCAL ROAD - POSTED 35 MPH
ROW VARIES
8W
8SS
EX-RW
EX-30"W
EX-8"W
EX-8"SS
EX-12"W
EX-8"G
EX-3"GW
EX-3"W
EX-3"G
EX-3"E
EX-3"TV
EX-3"T
EX-3"S
EX-3"SW

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PL-13

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MITCHELL FAMILY FARM

KINGS HIGHWAY (SCR 268)

LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

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PRELIMINARY UTILITY PLAN

MATCHLINE – SHEET PL-15

MATCHLINE – SHEET PL-14

MATCHLINE – SHEET PL-13

MATCHLINE – SHEET PL-10

MATCHLINE – SHEET PL-14

F

G

H

I

J

K

D41

D42

D43

D44

T20

T21

T22

T23

T24

T25

T26

T27

T28

T29

T30

T31

T32

CITY OF LEWES (MUNICIPAL BOUNDARY)
SUSSEX COUNTY

OPEN SPACE C

ROAD F

OUTPARCEL
52,043 S.F.±
1.195 AC.±

FIRE HYDRANT ASSEMBLY

SAN–MH

FIP

CMF

8W

8SS

0' 30' 60' 90'

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PRELIMINARY UTILITY PLAN

MITCHELL FAMILY FARM

KINGS HIGHWAY (SCR 268)

LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

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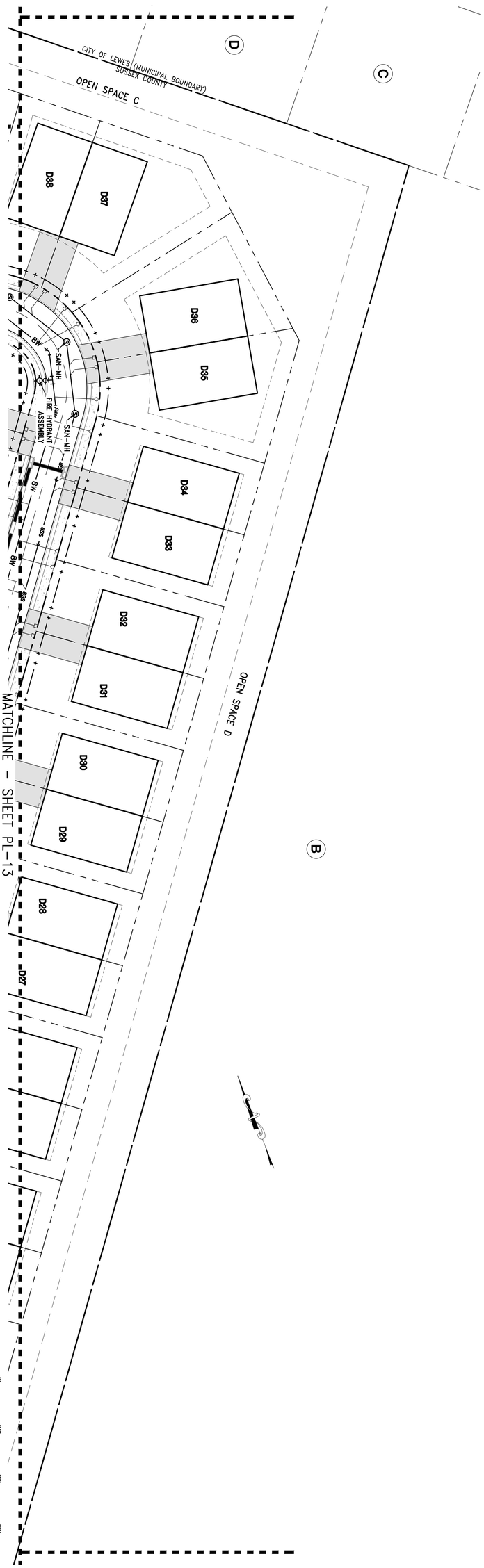

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MITCHELL FAMILY FARM

KINGS HIGHWAY (SCR 268)

LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

PRELIMINARY UTILITY PLAN

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Dwg No.: PL-15

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MITCHELLS CORNER

LEWES & REHOBOTH HUNDRED

SUBDIVISION NUMBER 2022-01

CZ #1967: AR-1 TO C2
CZ #1968: AR-1 TO MR
CU #2334

Sussex County, Delaware

3808A001
FEBRUARY 2022

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    2. C-2 Change of Zone

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    3. 2020 State Strategies Map
    4. 2045 Future Land Use Map
    5. Current Sussex County and City of Lewes Zoning Map
    6. 1992 Aerial Map
    7. Current Aerial Map
    8. Environmental Map
    9. Source Water Protection Areas Map
    10. NRCS Soils Map

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    2. Plot Book 235, Page 18 – Minor Subdivision -
    3. Deed Book 4583 Page 327 – The Moorings
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    11. Plot Book 358, Page 18 – Big Oyster (Transfer 2)
    12. Deed Book 5613, Page 209 – Big Oyster (Transfer 2)
    13. Deed Book 327, Page 427 – Mitchell Family Acquisition
    14. Deed Book 5074, Page 48 – Mitchell Family LLC

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G. C-2 Rezoning Application & Plan: CZ 1968

H. MR Rezoning Application & Plan: CZ 1967

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K. Environmental Assessment and Public Facilities Report

L. Chapter 89 Response

M. PLUS Response 2021-12-05

N. Surrounding Densities and Building Scale

O. Major Subdivision Landscape Buffer Waiver

P. SCD Approval Letter & Drainage Map

Q. Traffic

1. DelDOT Traffic Impact Study Review Letter (Current Application)
2. Response to Service Level Evaluation Requests (SLER)
3. Generation Diagram Gills Neck Entrance
4. LT Associates Letter Agreement with DelDOT
5. FY21 – FY26 CTP Approved (Excerpt)
6. FY23 – FY28 CTP Development Plan (COT Review on 2/24/2022)

R. Edward Otter, Inc Report

S. Verdantas Letter Regarding Wellhead Protection

T. Letter of Architectural Appropriateness

U. Peer Review Letter by Pennoni

A

A. Land Use & Zoning

1. The property is located northeast of the intersection of Kings Highway and Gills Neck Road.

2. The Owner of the property is Mitchell Family, LLC.

3. The Developer of the property is Henlopen Properties, LLC.

4. The property is currently zoned AR-1 (Agricultural / Residential).

5. The property is adjacent to land zoned Neighborhood Business (B-1, Townsend Village Center, Medium-Density Residential (MR, The Moorings) (R-5, Jefferson Apartments, City of Lewes), Residential Low Density (R-2, Bay Breeze Estates, City of Lewes) Agricultural-Residential (AR-1, Lane Builders), Heavy Commercial (C-3, Big Oyster), and Agricultural-Residential with Conditional Use (AR-1, CU 2112 for a 39,000 square foot medical / professional office, Cape Henlopen Medical Center).

6. The property is located in the Level 1 Area of the 2020 State Strategies Map.

7. The property is located within the Coastal Area on the Future Land Use Map.

B. Land Utilization

1. The total acreage of land to be utilized for this project is approximately 46.818 acres.

2. The proposed project will include a 267 unit mixed residential development and a commercial pad site for professional or medical office use.

3. The commercial building will be set back from the front property line similar to the existing Cape Henlopen Medical Center.

4. The project will include the use of Best Management Practices (BMPs) and Green Technology for stormwater management.

C. Environmental

1. The property does not contain federal wetlands as indicated on the National Wetland Inventory Map (see map C8)

2. The project is not located in the floodplain per FEMA map 1005C0194K, dated March 16, 2015.

3. The project is located within a Sourcewater Protection Area and the development of the site will be in compliance with Chapter 89 of the Sussex County Code.

4. An Environmental Assessment Report was prepared by Verdantas to demonstrate the project will provide recharge to mitigate the impact on the project. A copy of the report can be found in Appendix S.

D. Traffic

1. A Support Facilities Report has been completed for all four applications.

2. A Traffic Impact Study has been completed for this project.

3. An addendum to the Traffic Impact Study has been completed for this project.

4. A Traffic Impact Study Review Letter from DelDOT has been received.

5. The Developer as part of the Traffic Impact Study shall install interim improvements and will be finalized, approved and installed with the entrance plan review, approval and construction process.

E. Civil Engineering

1. The site's sanitary sewer needs will be served by Sussex County in the Unified Sewer District.

2. Drinking water and fire protection will be provided by Tidewater Utilities, Inc. or the City of Lewes Board of Public Works.

3. Electric service for this site will be provided by the City of Lewes Board of Public Works and Delaware Electric Coop.

B

Major Subdivision/Conditional Use & MR Data Sheet

Owner:	Mitchell Family, LLC
Developer:	Henlopen Properties, LLC
Engineer:	Davis, Bowen & Friedel, Inc.
Attorney:	Morris James, LLP

Project Description

Physical Location:	Northeast of the intersection of Kings Highway and Gills Neck Rd.
Tax Parcel #:	3-35-8.00-37.00 (part of)
Site Acreage:	43.77 acres +/-
Current Zoning:	AR-1 (Agricultural / Residential)
Proposed Zoning:	MR (Medium-Density Residential)
Current Use:	Agriculture
Proposed Use:	Multi-Family Residential
Dwelling Units:	114 Duplexes 153 Townhomes 267 Total Units
Density:	6.10 units/acre

Minimum Zoning Requirements

MR:		Required	Proposed
	Minimum Lot Area:	1,600 SF	2,400 SF
	Average Lot Area:	3,630 SF	3,904 SF
	Minimum Lot Width:	16 FT	24 FT
	Minimum Lot Depth	100 FT	100 FT
	Front Yard Setback:	30 FT	30 FT
	Side Yard Setback:	10 FT	10 FT
	Rear Yard Setback:	10 FT	10 FT
	Maximum Building Height:	42 FT	42 FT

C-2 Change of Zone Data Sheet

Owner: Mitchell Family, LLC
Developer: Henlopen Properties, LLC
Engineer: Davis, Bowen & Friedel, Inc.
Attorney: Morris James, LLP

Project Description

Physical Location: Northeast of the intersection of Kings Highway and Gills Neck Rd.

Tax Parcel #: 3-35-8.00-37.00 (part of)
Site Acreage: 46.818 acres +/-
Rezoning Acreage: 3.041 acres +/-

Current Zoning: AR-1 (Agricultural / Residential)
Proposed Zoning: C-2 (Medium Commercial)

Current Use: Agricultural
Proposed Use: Commercial (Professional or Medical Office)

Zoning Requirements

C-2:	Required	Proposed
Minimum Lot Area:	15,000 SF	3.014 Acres
Minimum Lot Width:	75 FT	356 FT
Minimum Lot Depth:	100 FT	341 FT
Maximum Floor Area:	75,000 SF	43,200 SF
Minimum Front Yard Setback:	60 FT	60 FT
Minimum Side Yard Setback:	5 FT	5 FT
(Adj Residential):	20 FT	20 FT
Minimum Rear Yard Setback:	5 FT	5 FT
(Adj Residential):	30 FT	20 FT
Maximum Building Height:	42 FT	42 FT

C

MITCHELLS CORNER

City of Lewes
Swaanendael
New Road
Savannah Place
Strip Commercial/ Mr. P's
White's Pond Meadows
Showfield
Wolfe Pointe
Tradewind Estates
Dutchmens Harvest
Lane Builders
Bay Breeze Estates
Big Oyster
Jefferson Estates II
Admirals Chase
Wolfe Runne
The Orchard
Lewes Medical Development
Henlopen Gardens
Covey Creek
Lewes Georgetown Highway
Jack Lingo Realtor
Cape Henlopen High School
Site
Breakwater
The Villages of Five Points East
Old Orchard Road
Cape Henlopen Medical Center
The Moorings
Kingston Court
McNicol Place
Cape Professional Campus
Village Center
Gills Neck Road
Governors
Hawkseye Subdivision
The Villages of Five Points West
Poore's Propane
Clay Road
Kings Highway
Senators
CHEER/New Covenant Church
Savannah East/ Harbour Towne
Route 1
Crooked Hammock
Lowes
Home Depot
Bay Crossing
Spring 2017 Aerial Photo

Sources:
Tax Parcels per Sussex County

N
W E
S

February 2020

Surrounding Communities Map

Mitchells Corner

Sussex County, Delaware

0 1,000 2,000 Feet

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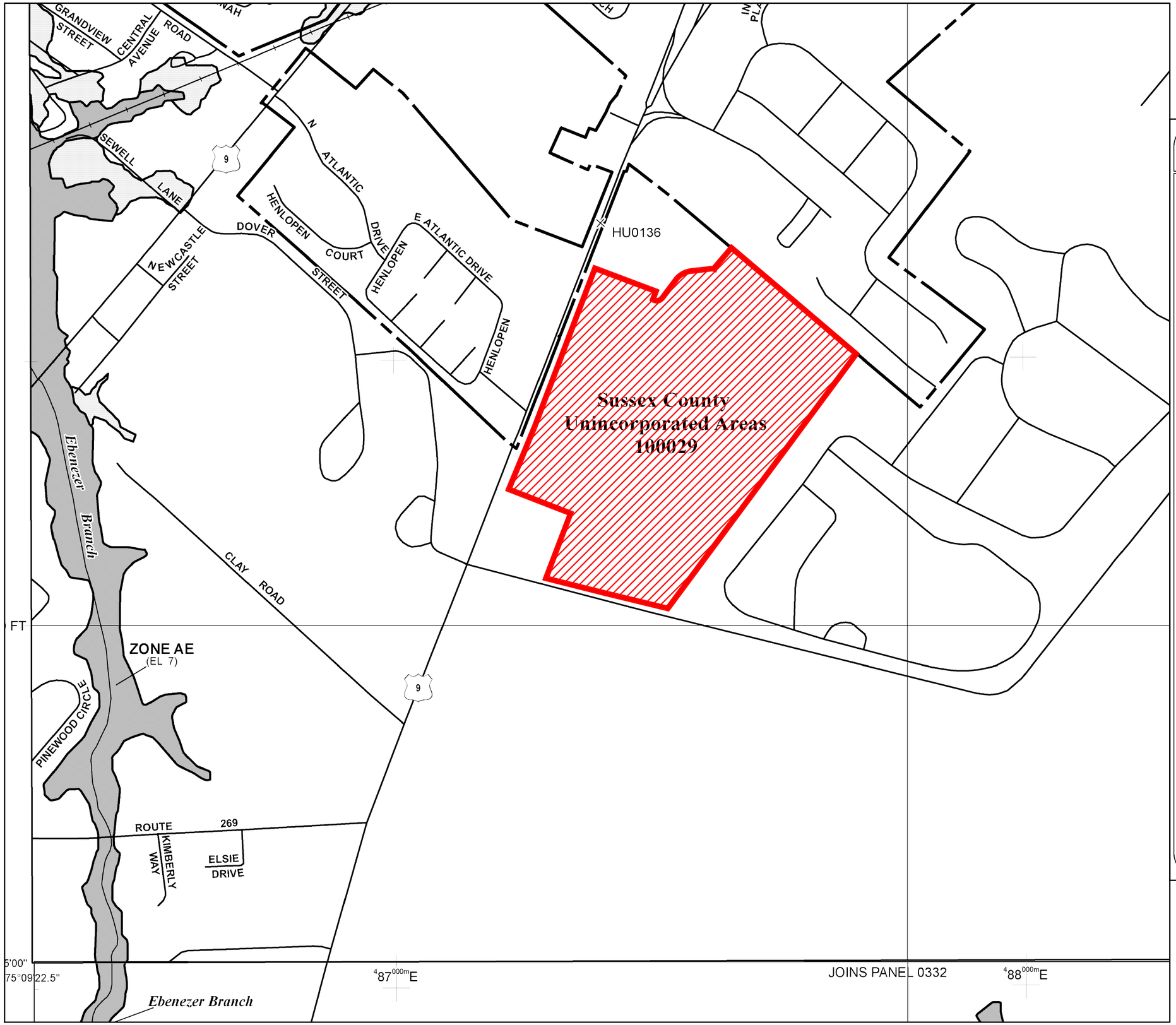


NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0194K

FIRM

FLOOD INSURANCE RATE MAP

SUSSEX COUNTY, DELAWARE
AND INCORPORATED AREAS

PANEL 194 OF 660

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
LEWES, CITY OF	100041	0194	K
SUSSEX COUNTY	100029	0194	K

- NOTE -

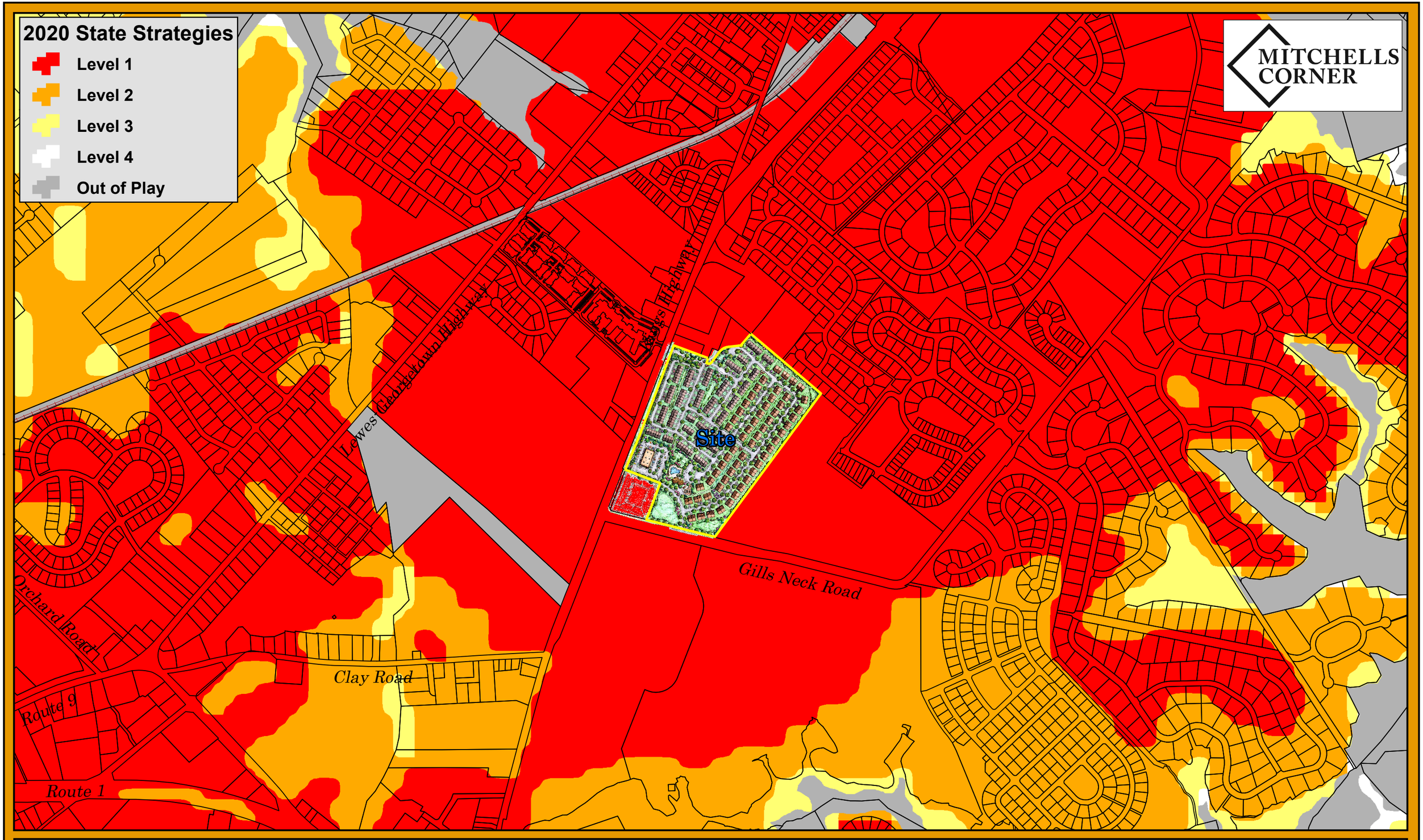
THIS MAP INCLUDES BOUNDARIES OF THE COASTAL BARRIER RESOURCES SYSTEM ESTABLISHED UNDER THE COASTAL BARRIER RESOURCES ACT OF 1982 AND/OR SUBSEQUENT ENABLING LEGISLATION.

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
10005C0194K

MAP REVISED
MARCH 16, 2015

Federal Emergency Management Agency



Sources:
Tax Parcels per Sussex County

N
W E
S

February 2022

2020 State Strategies

Mitchells Corner

Sussex County, Delaware

0 800 1,600 Feet

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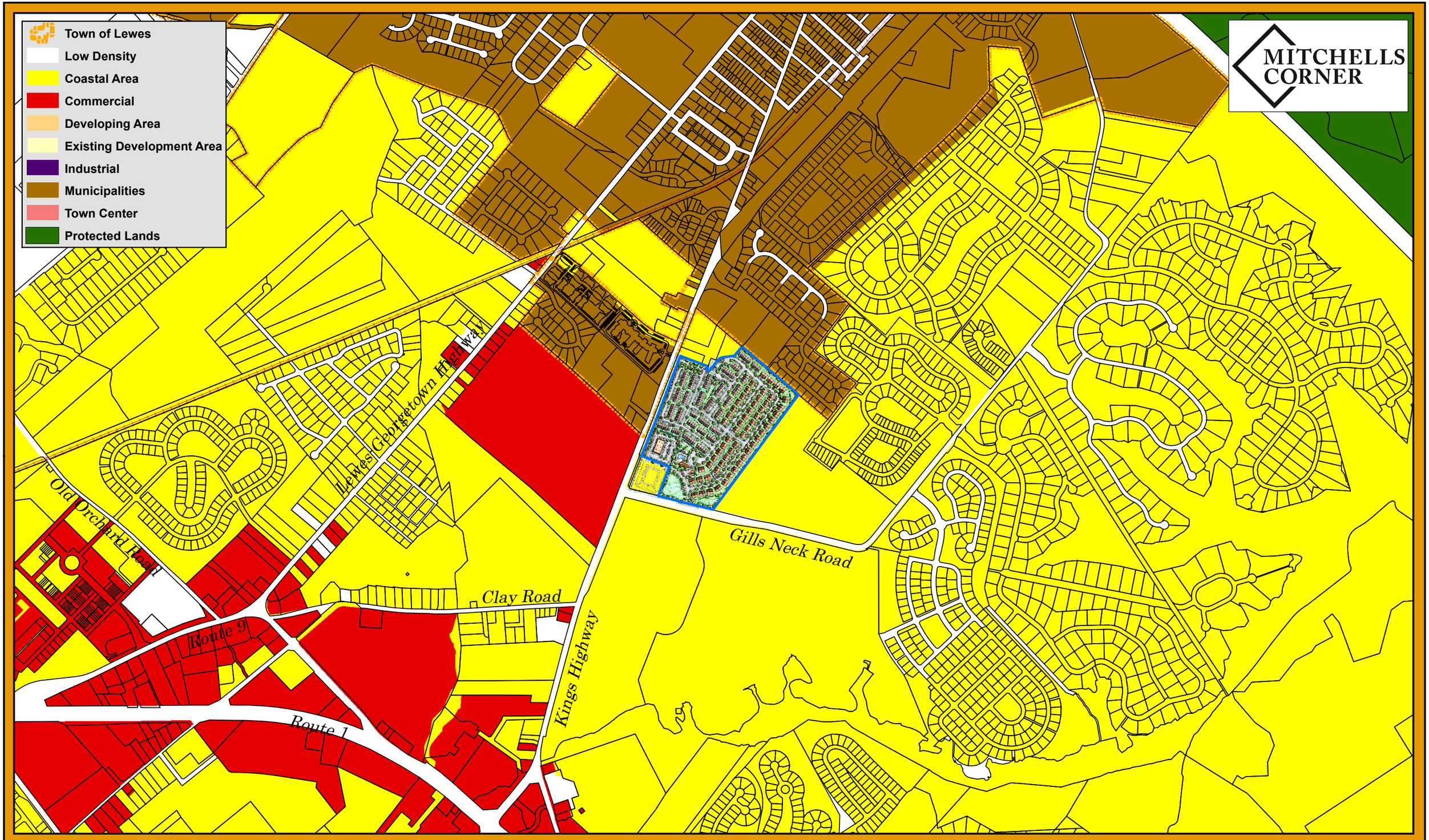

Sources:
Tax Parcels per Sussex County

N
W E
S

February 2022

Sussex County 2045 Future Land Use Map

Mitchells Corner

Sussex County, Delaware

0 1,000 2,000 Feet

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MITCHELLS CORNER

Town of Lewes
Agricultural - AR-1
Agricultural - AR-2
Medium Residential - MR
General Residential - GR
High Density Residential - HR2
Vacation, Retire, Resident - VRP
Neighborhood Business - B-1
Business Community -B-2
General Commercial - C-1
General Commercial - C-2
Heavy Commercial - C-3
Commercial Residential
Marine - M
Limited Industrial-LI1
Light Industrial - LI-2
Heavy Industrial - HI-1

Proposed MR

Proposed C-2

Lewes-Georgetown Highway

Gills Neck Road

Clay Road

Kings Highway

Route 9

Route 1

Lewes Zoning
OS Open Space
OS (W) Open Space (Water)
R-1 Suburban
R-2 Residential Low Density
R-2 (H) Residential Low Density (Historic)
R-3 Residential Beach
R-3 (H) Residential Beach (Historic)
R-4 Residential Medium Density
R-4 (H) Residential Medium Density (Historic)
Ax-Res Annexation Residential
R-5 Mixed Residential
LC (H) Limited Commercial (H)
C/H Cultural/Historic
CF Community Facilities
CF (E) Community Facilities (Educational)
CF (HC) Community Facilities (Health Care)
TC Town Center
TC (H) Town Center (Historic)
MC Marine Commercial
GC General Commercial
I Industrial

Sources:
Tax Parcels per Sussex County

N
W E
S

February 2022

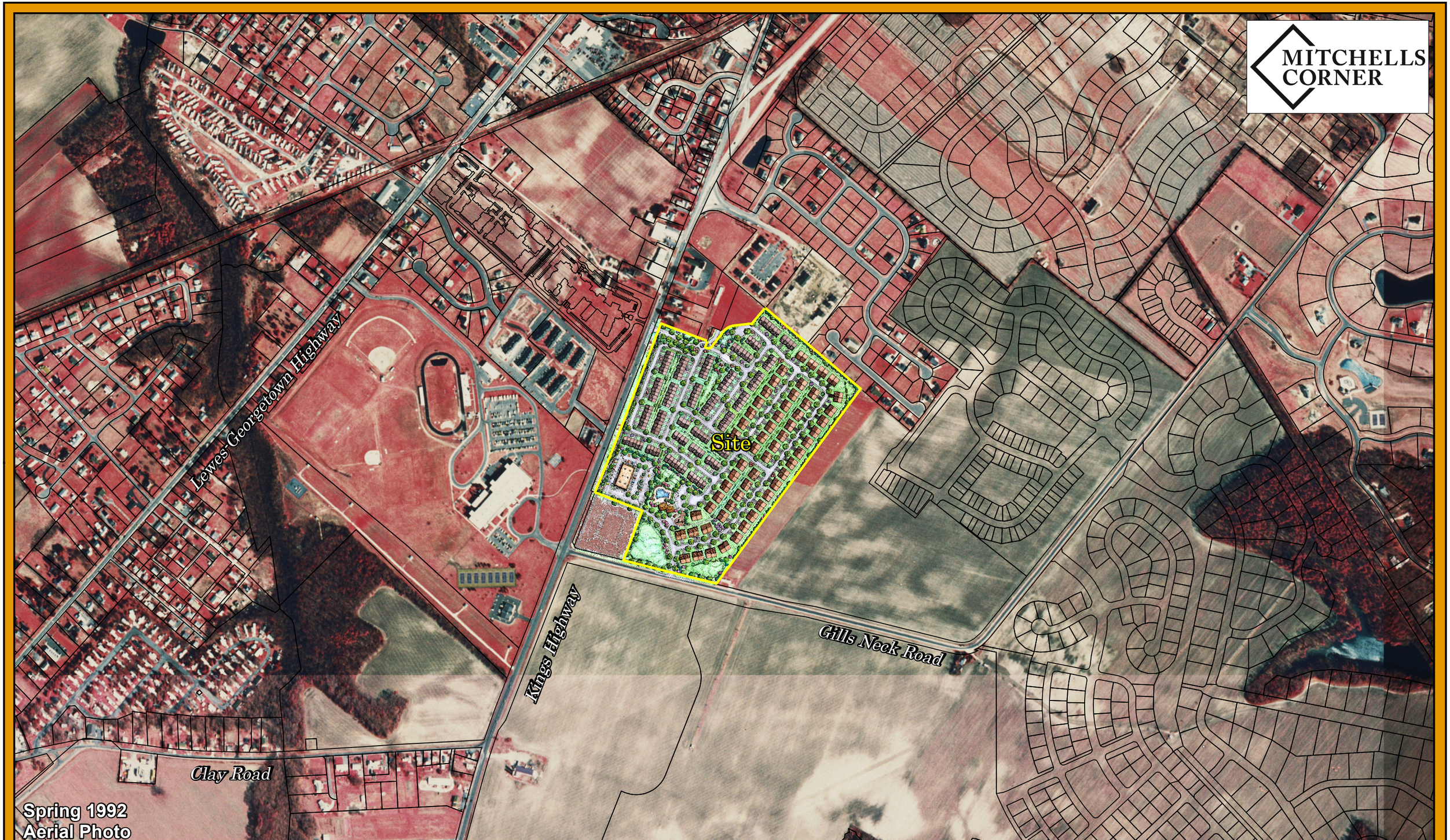
Sussex County Zoning Map

Mitchells Corner

Sussex County, Delaware

0 800 1,600 Feet

DAVIS BOWEN & FRIEDEL, INC.
ARCHITECTS • ENGINEERS • SURVEYORS



Sources:
Tax Parcels per Sussex County

N
W E
S

February 2022

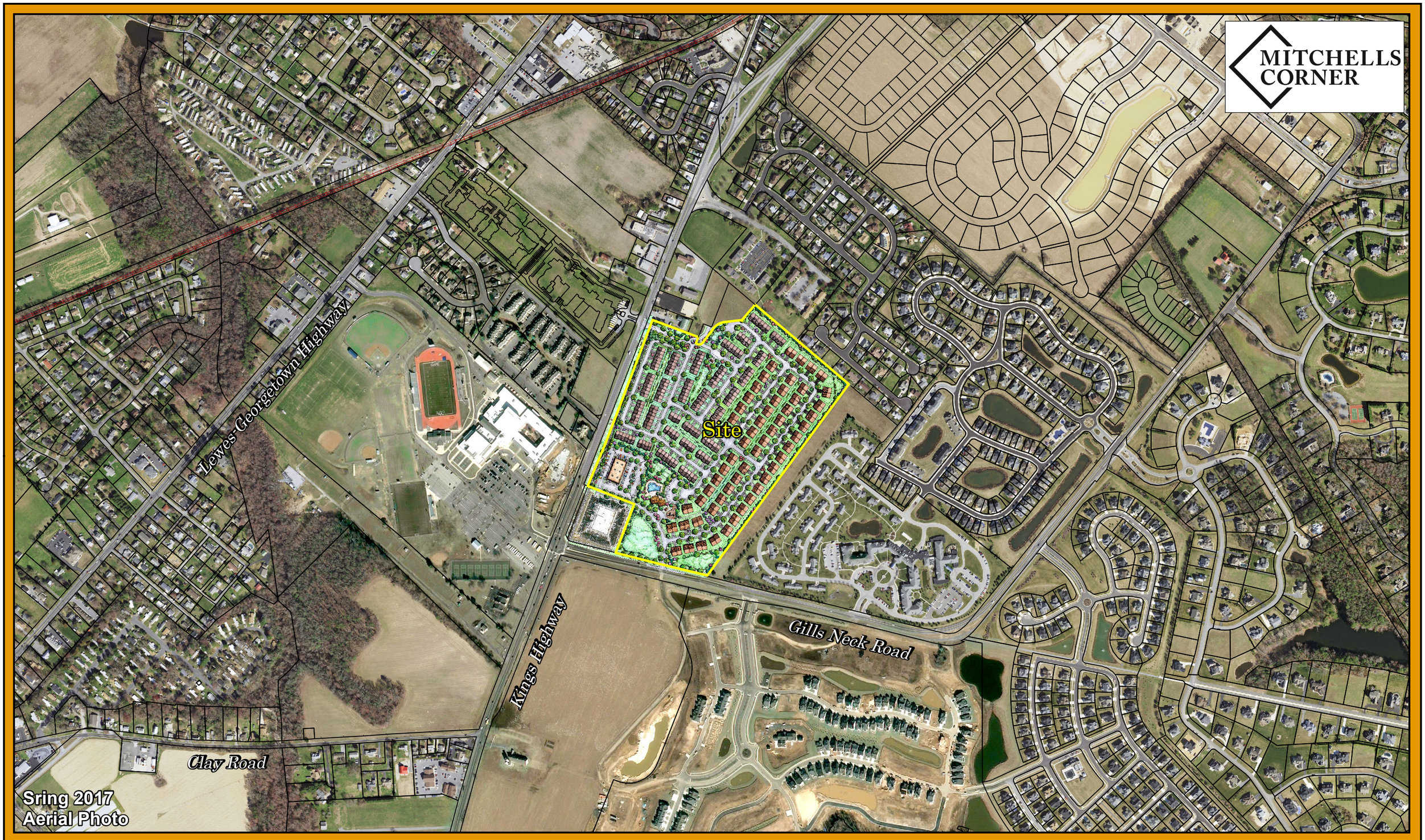
1992 Aerial Photo

Mitchells Corner

Sussex County, Delaware

0 600 1,200 Feet

DAVIS BOWEN & FRIEDEL, INC.
ARCHITECTS • ENGINEERS • SURVEYORS



Sources:
Tax Parcels per Sussex County

N W E S

February 2022

2017 Aerial Photo

Mitchells Corner

Sussex County, Delaware

0 600 1,200 Feet

DAVIS BOWEN & FRIEDEL, INC.
ARCHITECTS • ENGINEERS • SURVEYORS

Sources:
Tax Parcels per Sussex County

N
W E
S

February 2022

Environmental Map

Mitchells Corner

Sussex County, Delaware

0 600 1,200 Feet

DAVIS BOWEN & FRIEDEL, INC.
ARCHITECTS • ENGINEERS • SURVEYORS

Wellhead Protection Area

Excellent Recharge Area

MITCHELLS CORNER

Site

Lewes-Georgetown Highway

Kings Highway

Gills Neck Road

Clay Road

Spring 2017
Aerial Photo

Sources:
Tax Parcels per Sussex County

N
W E
S

February 2022

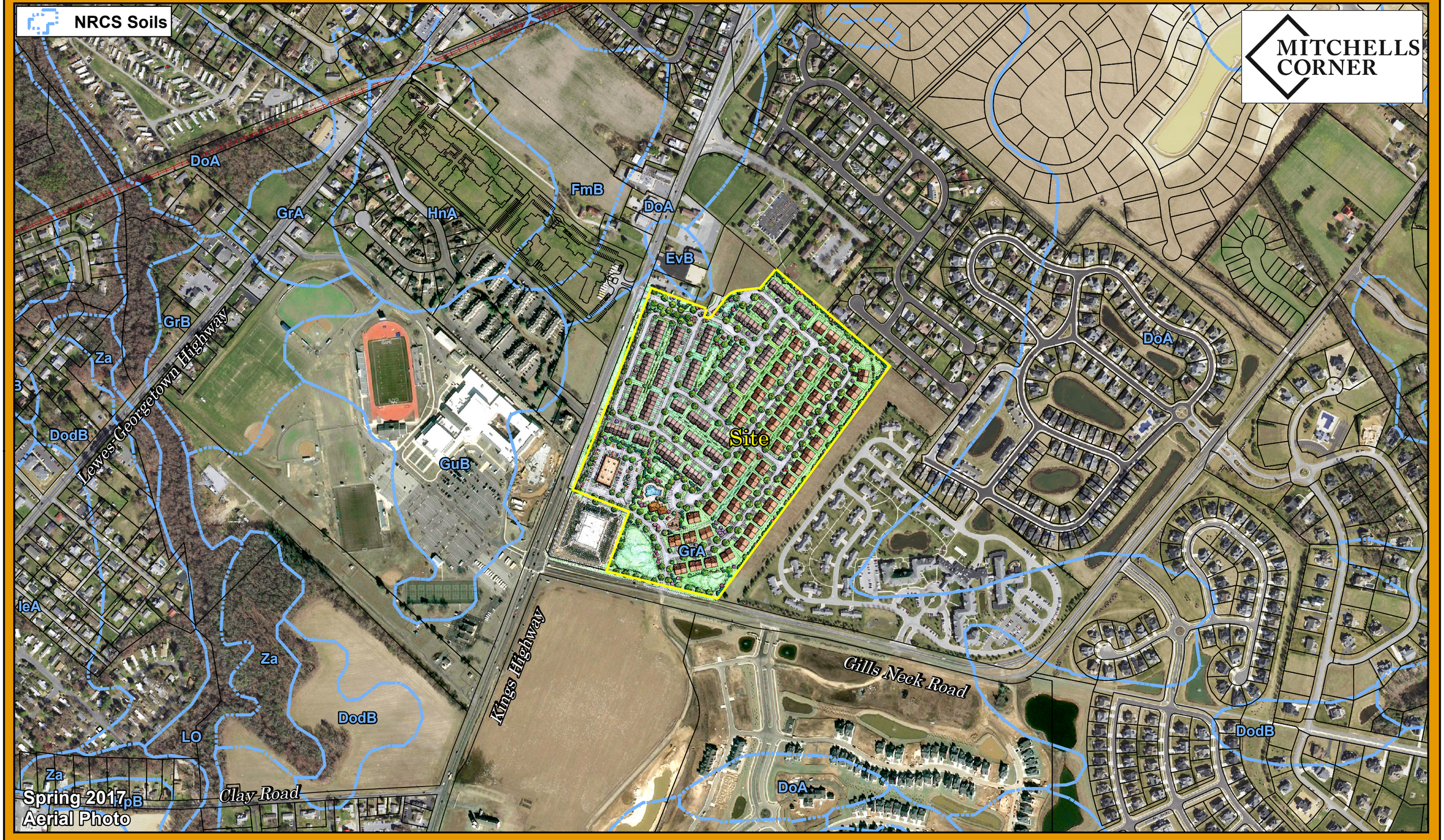
Source Water Protection Areas

Mitchells Corner

Sussex County, Delaware

0 600 1,200
Feet

DAVIS BOWEN & FRIEDEL, INC.
ARCHITECTS • ENGINEERS • SURVEYORS
www.dbfinc.com



Sources:
Tax Parcels per Sussex County

February 2022

NCRS Soil Survey

Mitchells Corner

Sussex County, Delaware

0 500 1,000 Feet

DAVIS BOWEN & FRIEDEL, INC.
ARCHITECTS • ENGINEERS • SURVEYORS

D

LINGO
REALTY

E

LAW OFFICES
PARKOWSKI, GUERKE & SWAYZE
PROFESSIONAL ASSOCIATION
116 WEST WATER STREET
P.O. BOX 598
DOVER, DELAWARE 19903
302-678-3262
FAX: 302-678-9415
www.pgslegal.com

F. MICHAEL PARKOWSKI
I. BARRY GUERKE
DAVID S. SWAYZE
CLAY T. JESTER
JEREMY W. HOMER
JOHN C. ANDRADE
MARK F. DUNKLE (also GA & PA)
WILLIAM A. DENMAN
MICHAEL W. ARRINGTON (also MD & DC)
CHRISTINE P. SCHILTZ
MICHAEL W. TEICHMAN
KASHIF I. CHOWDHRY (also PA)
JAMES D. NUTTER
ELIO BATTISTA JR.

CAROLYN M. MCNEICE
OF COUNSEL

WILMINGTON OFFICE
800 KING STREET, SUITE 203
WILMINGTON, DE 19801
302-654-3300
FAX: 302-654-3033

GEORGETOWN OFFICE
16 S. FRONT STREET
GEORGETOWN, DE 19947
302-855-9090
FAX: 302-855-1113

August 29, 2013

VIA HAND DELIVERY
Ashley Spangler
Delaware Agricultural Lands
Preservation Foundation
2320 S. DuPont Highway
Dover, Delaware 19901

RE: Recorded Termination Agreement

Dear Ashley:

Enclosed please find the following original signed Termination Agreement, which has been filed and indexed with the Office of the Recorder of Deeds:

1. Mitchell S-98-02-042F

Sincerely yours,

G. Erin Wright, DCP
Delaware Certified Paralegal

26120

Tax Map #3-35-8.00-37.00 BK: 4143 PG: 136
Prepared By: Delaware Agricultural
Lands Preservation Foundation (S-98-02-042F)
2320 S. DuPont Highway, Dover, DE 19901
Return to: Parkowski, Guerke & Swayze, P.A.
116 W. Water Street, Dover, DE 19903

TERMINATION OF DELAWARE AGRICULTURAL LANDS PRESERVATION FOUNDATION AGRICULTURAL PRESERVATION DISTRICT AGREEMENT

THIS termination document is made and recorded for the purpose of giving record notice of the termination of the Agricultural Preservation District Agreement described herein. The District Agreement dated **April 22, 1998**, by and between **LOWDER W. MITCHELL, JR. AND JANE T. MITCHELL, husband and wife,** and Delaware Agricultural Lands Preservation Foundation, recorded in the Office of the Recorder of Deeds for **SUSSEX** County, Delaware, in Deed Book **02293**, Page **010**, affected the parcel of land identified on the **SUSSEX** County Tax Map as **3-35-8.00-37.00**, consisting of **57.89** acres with improvements.

Pursuant to instructions from the Delaware Agricultural Lands Preservation Foundation, timely notice was given to the Foundation that the above-described property was to be withdrawn from the District. The Foundation acknowledged receipt of the said notice, which was made six (6) months prior to the expiration date of the Agreement. By his execution of this document, an authorized representative of the Delaware Agricultural Lands Preservation Foundation does confirm the withdrawal of the above-described lands from the Delaware Agricultural Lands Preservation Agricultural Preservation District Agreement effective **April 22, 2013**.

IN WITNESS WHEREOF, the undersigned has set its Hand and Seal this 27th day of June, 2013.

WITNESS:

Ashley Spangler

DELAWARE AGRICULTURAL LANDS PRESERVATION FOUNDATION

By: Robin West

Authorized Designee

STATE OF DELAWARE :
: SS.
COUNTY OF Kent :

BE IT REMEMBERED, that on this 27th day of June, 2013, personally came before me, the Subscriber, a Notary Public for the State and County aforesaid, Robin West, known to me or satisfactorily proved to be the person who executed the foregoing instrument, and he acknowledged he is an authorized designee of DELAWARE AGRICULTURAL LANDS PRESERVATION FOUNDATION, party to this instrument, he is authorized to execute the instrument, and he did execute the instrument for and on behalf of the said Foundation as its act and deed.

Given under my Hand and Seal of office, the day and year aforesaid.

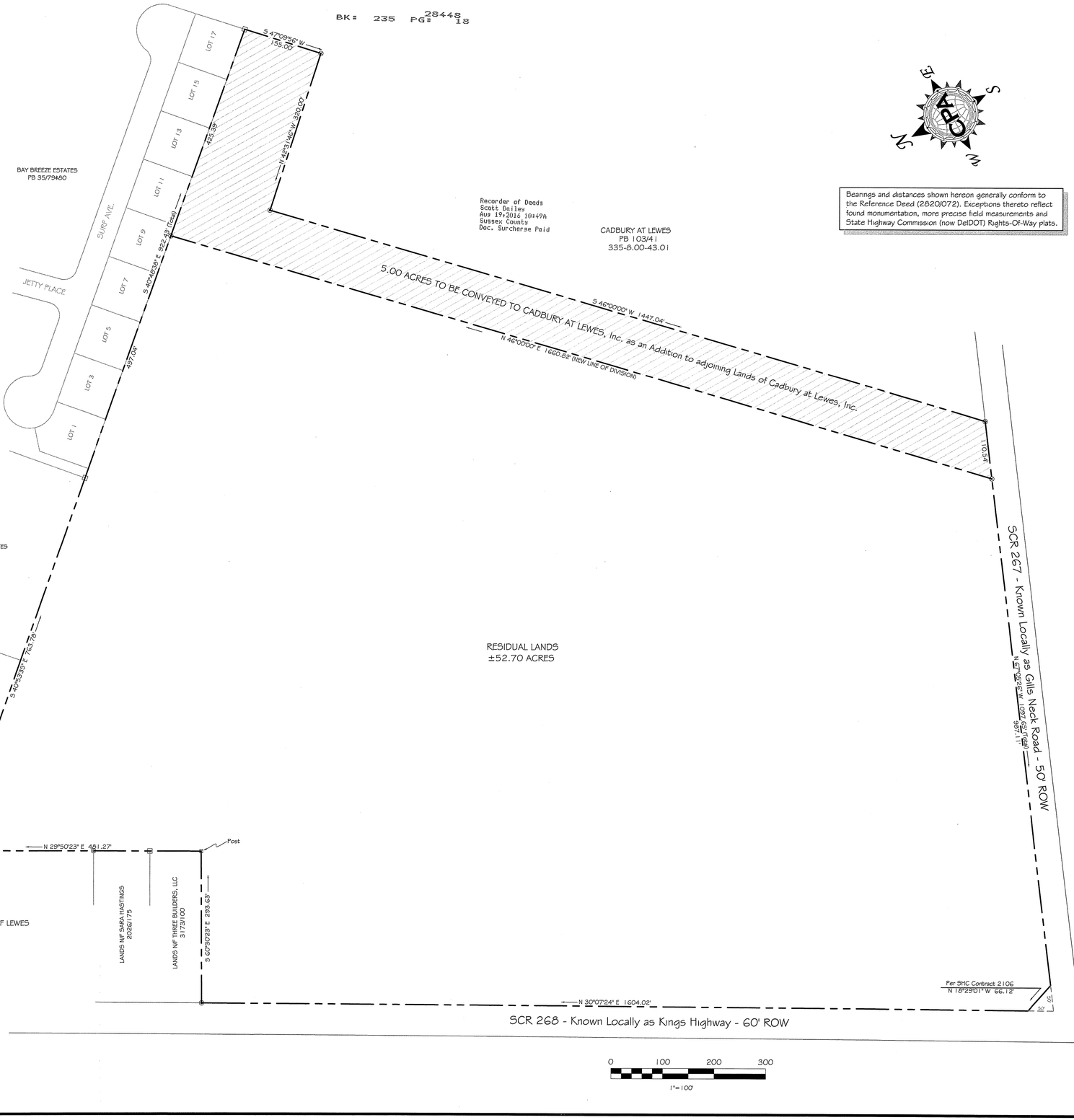
CATHY M. MESICK NOTARY PUBLIC STATE OF DELAWARE MY COMMISSION EXPIRES SEPTEMBER 11, 2016

Cathy M. Mesick
expires 9/11/2016
Notary Public

RECEIVED
JUL 01 2013
ASSESSMENT DIVISION
OF SUSSEX COUNTY

Recorder of Deeds
Scott Dailey
Jul 01,2013 09:03A
Sussex County
Doc. Surcharge Paid

BK: 235 PG: 28448
18



APPROVED
5.0 acres as an Extension
to Cadbury at Lewes, Inc -
SUSSEX COUNTY 10-14-14
PLANNING & ZONING COMMISSION

COMPASS POINT ASSOCIATES
SURVEYING
LAND PLANNING
P.O. Box 246
Harbeson, DE 19951
(302) 684-2980
fax (302) 684-2983
cpallc@comcast.net

professional seal

Project:
BOUNDARY SURVEY PLAN - MINOR SUBDIVISION PLAN:
LANDS OF THE L.W. & J.T. MITCHELL FAMILY LIMITED PARTNERSHIP
near Lewes, in Lewes & Rehoboth Hundred
Sussex County, Delaware
TM 335-8.00-37.00

Revisions
10/06/2014 to address MJW+EB email comments of 10/07/2014

Surveyed By: V. Walch, PLS
Prepared By: P.E.L.
Checked By: H.F.J., PLS/M.W.
Project #: 13114
Class "B" Survey
Client: Robert Mitchell

No recorded rights-of-way, easements or other encumbrances affecting these lands have been provided to the Surveyor by the Client. No warranty as to title to any lands depicted hereon is explicitly or implicitly provided.

Date:
Jan. 2014

Scale:
As Shown

Sheet 1 of 1

28450

TAX MAP AND PARCEL #: 3-35 8.00 37.00 p/o
PREPARED BY & RETURN TO: BK: 4583 PG: 327
Morris James Wilson Halbrook & Bayard, LLP
107 West Market Street
P.O. Box 690
Georgetown, DE 19947
File No. 201487/RGG

Consideration: 1,250,000.00

County		18,750.00
State		18,750.00
Town	Total	37,500.00

Received: Teresa C Aug 19,2016

THIS DEED, made this 19th day of August, 2016,

- BETWEEN -

L.W. & J.T. MITCHELL FAMILY LIMITED PARTNERSHIP, a Delaware Limited Partnership, of 1019 Kings Highway, Lewes, DE 19958, party of the first part,

- AND -

CADBURY AT LEWES, INC., A DELAWARE NOT-FOR-PROFIT CORPORATION, of 17028 Cadbury Circle, Lewes, DE 19958, party of the second part.

WITNESSETH: That the said party of the first part, for and in consideration of the sum of **TEN and 00/100 Dollars ($10.00)**, lawful money of the United States of America, the receipt whereof is hereby acknowledged, hereby grants and conveys unto the party of the second part, and its successors and assigns, in fee simple, the following described lands, situate, lying and being in Sussex County, State of Delaware:

ALL that certain tract of land situate on the northerly side of Sussex County Route 267 – known locally as, and hereafter referred to as, Gills Neck Road - near Lewes, in Lewes and Rehoboth Hundred, Sussex County, Delaware, being more particularly described according to a recent Boundary Survey Plan-Minor Subdivision Lands of L.W. & J.T. Mitchell Family Limited Partnership, prepared by Compass Point Associates, dated January, 2014 and of record in the Office of the Recorder of Deeds in and for Sussex County in Plot Book 235, Page 18.

BEGINNING, for the purpose of this Description at a point on the northerly right of way line of Gills Neck Road, abovementioned, said Beginning Point being on the common boundary corner of these lands and said lands of Cadbury at Lewes, Inc.; thence by and with the said northerly right of way line of Gills Neck Road North 67 degrees 05 minutes 26 seconds West 110.54 feet; thence by and with a new line separating and dividing these lands from the remaining lands of the said L. W. and J. T. Mitchell Family Partnership North 46 degrees 00 minutes 00 seconds East 1660.82 feet to a point on the common boundary line between the said lands of the L. W. and J. T. Mitchell Family Partnership and the Bay Breeze Estates subdivision; thence by and with the common boundary line between these lands and the said Bay Breeze Estates subdivision South 40 degrees 48 minutes 38 seconds East 425.39 feet to a point on the line of Cadbury at Lewes, Inc., abovementioned; thence by and with the common boundary line between these lands and said lands of Cadbury at Lewes, Inc. the following three courses and

CMS CMS

distances, to wit: 1) South 47 degrees 09 minutes 56 seconds West 155.00 feet; 2) North 42 degrees 31 minutes 46 seconds West 320.00 feet; 3) South 46 degrees 00 minutes 00 seconds West 1447.04 feet to the Beginning and containing 5.00 acres of land, be the same more or less

BEING part of the same lands conveyed to L.W. & J.T. Mitchell Family Partnership, a Delaware Limited Partnership by Deed of Lowder W. Mitchell, Jr., and Jane T. Mitchell dated March 31, 2003 and recorded in the Office of the Recorder of Deeds in and for Sussex County in Deed Book 2820, Page 72.

SUBJECT to any and all restrictions, reservations, conditions, easements and agreements of record in the Office of the Recorder of Deeds in and for Sussex County, Delaware.

IN WITNESS WHEREOF, the said L.W. & J.T. Mitchell Family Limited Partnership, a Delaware Limited Partnership, has caused its name to be hereunto set under seal by Robert P. Mitchell, General Partner, of L.W. & J.T. Mitchell Family Limited Partnership, the day and year first above written.

L.W. & J.T. MITCHELL FAMILY LIMITED PARTNERSHIP, a Delaware Limited Partnership

Witness

By: _____(SEAL)
Robert P. Mitchell, General Partner

STATE OF DELAWARE, COUNTY OF SUSSEX: to-wit

BE IT REMEMBERED, that on this 19th day of August, A.D. 2016, personally appeared before me, the Subscriber, a Notary Public in and for the State and County aforesaid, Robert P. Mitchell, General Partner of L.W. & J.T. Mitchell Family Limited Partnership, a Delaware Limited Partnership, party to this Indenture, known to me personally to be such, and acknowledged this Indenture to be his act and deed and the act and deed of said partnership; that the signature of the General Partner is in his own proper handwriting and by his authority to act; and that the act of signing, sealing, acknowledging and delivering the said Indenture was first duly authorized by a resolution of the partnership.

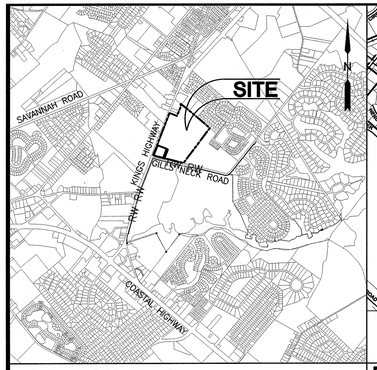
GIVEN under my Hand and Seal of Office the day and year aforesaid.

Notary Public

My Commission Expires: **ROBERT G. GIBBS**
NOTARIAL OFFICER PURSUANT TO
29 DEL. CODE SECT. 4323
ATTORNEY AT LAW - DELAWARE

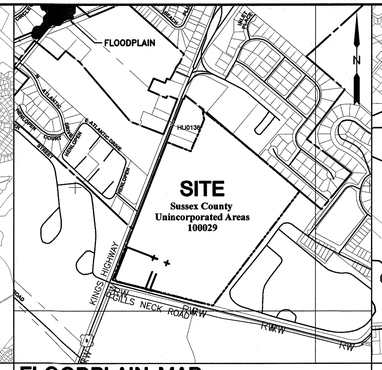
RECEIVED
Aug 19,2016
ASSESSMENT DIVISION
OF SUSSEX COUNTY

Recorder of Deeds
Scott Dailey
Aug 19,2016 10:56A
Sussex County
Doc. Surcharge Paid



LOCATION MAP

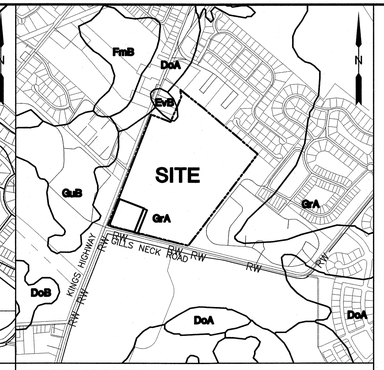
SCALE: 1" = 1/2-MILE



FLOODPLAIN MAP

FEMA PANEL 10005C0194K

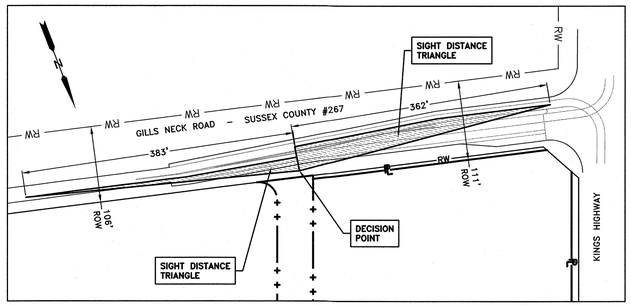
SCALE: 1" = 800'



SOILS MAP

SCALE: 1" = 1000'

GrA: GREENWICH LOAM, 0 TO 2 PERCENT SLOPES (B)
EvB: EVESBORO LOAMY SAND, 0 TO 5 PERCENT SLOPES (A)



SIGHT DISTANCE TRIANGLE

SCALE: 1"=100'

DATA COLUMN

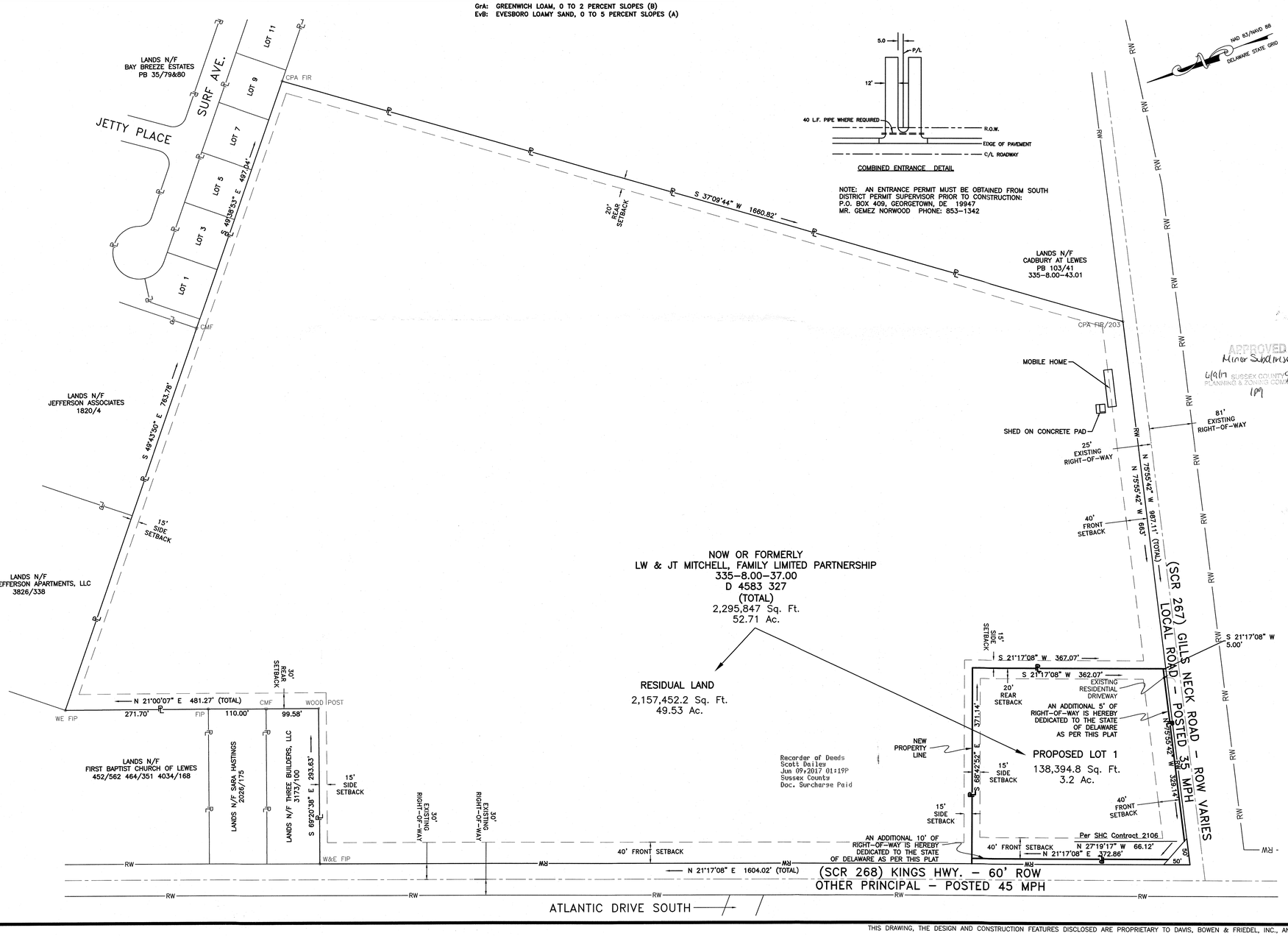
TAX MAP ID	:335-8.00-37.00
EXISTING ZONING	:AR-1
TOTAL SITE AREA	:52.71 ±AC.
AREA OF LOT 1	:3.20 ±AC.
AREA OF RESIDUAL LAND	:49.53 ±AC.
SETBACKS	
MINIMUM LOT WIDTH	:150'
FRONT YARD SETBACK	:40'
SIDE YARD SETBACK	:15'
REAR YARD SETBACK	:20'
NUMBER OF LOTS CREATED	:1
LOT 1 ROAD FRONTAGE	:735 FEET
IMPERVIOUS COVERAGE PERMITTED	:80%
PRESENT USE OF LOT 1	:FARMING
PROPOSED USE OF RESIDUAL	:FARMING
PROPOSED SEWER	:WEST REHOBOTH EXPANSION OF THE DEWEY BEACH SANITARY SEWER DISTRICT
PROPOSED WATER	:TIDEWATER UTILITIES
VERTICAL DATUM	:NAVD 88

LEGEND

- PL — PROPERTY BOUNDARY LINE
- PL — PROPOSED PROPERTY LINE
- RW — PROPERTY RIGHT-OF-WAY LINE
- PL — EXISTING ADJOINING PROPERTY LINE
- RW — EXISTING RIGHT-OF-WAY LINE
- PROPOSED BUILDING SETBACK LINE
- UTILITY/ ACCESS EASEMENT AREA
- RIGHT-OF-WAY CENTERLINE

NOTES

1. THIS PLAT DOES NOT VERIFY THE EXISTENCE OR THE ABSENCE OF EASEMENTS AND/OR RIGHT-OF-WAYS.
2. NO TITLE REPORT FURNISHED.
3. NO WETLANDS EXIST ON SITE.
4. SHRUBBERY, PLANTINGS, SIGNS AND/OR OTHER VISUAL BARRIERS THAT COULD OBSTRUCT THE SIGHT DISTANCE OF A DRIVER PREPARING TO ENTER THE ROADWAY ARE PROHIBITED WITHIN THE DEFINED DEPARTURE SIGHT TRIANGLE AREA ESTABLISHED ON THIS PLAN. IF THE ESTABLISHED DEPARTURE SIGHT TRIANGLE AREA IS OUTSIDE OF THE RIGHT-OF-WAY OR PROJECTS ONTO AN ADJACENT PROPERTY OWNER'S LAND, A SIGHT EASEMENT SHALL BE ESTABLISHED AND RECORDED WITH ALL AFFECTED PROPERTY OWNERS TO MAINTAIN THE REQUIRED SIGHT DISTANCE.
5. ALL ENTRANCES SHALL CONFORM TO DELDOT'S DEVELOPMENT COORDINATION MANUAL (DCM) AND SHALL BE SUBJECT TO ITS APPROVAL.
6. IF THE RESIDUAL LANDS OF THE APPLICANT ARE EVER DEVELOPED INTO A MAJOR SUBDIVISION, THEN THE ACCESS TO THE PARCELS CREATED BY THIS MINOR SUBDIVISION PLAN MAY BE REQUIRED TO BE FROM AN INTERNAL SUBDIVISION STREET.



BEARINGS AND DISTANCES SHOWN HEREON GENERALLY CONFORM TO THE DELAWARE STATE PLANE COORDINATE SYSTEM. EXCEPTIONS THERETO REFLECT FOUND MONUMENTATION, MORE PRECISE FIELD MEASUREMENTS AND STATE HIGHWAY COMMISSION (NOW DELDOT) RIGHTS-OF-WAY PLATS. HORIZONTAL AND VERTICAL COORDINATE VALUES CONFORM TO THE DELAWARE STATE PLANE COORDINATE SYSTEM.

APPROVED
Minor Subdivision
6/9/17
SUSSEX COUNTY PLANNING & ZONING COMMISSION
9
109

OWNERS CERTIFICATION

WE, MITCHELL FARM LTD, HEREBY CERTIFY THAT WE ARE THE OWNERS OF THE PROPERTY DESCRIBED ON THIS PLAN, THAT THE PLAN WAS MADE AT OUR DIRECTION, THAT ALL PROPOSED MONUMENTS AND MARKERS SHOWN HEREON WILL BE SET AT THE LOCATION INDICATED, AND THAT WE ACKNOWLEDGE THE SAME TO BE OUR ACT AND DESIRE THE PLAN TO BE RECORDED AS SHOWN IN ACCORDANCE WITH ALL APPLICABLE LAWS AND REGULATIONS.

Robert P. Mitchell — 5/24/17
SIGNATURE — DATE

Robert P. Mitchell
PRINTED NAME

SURVEYORS CERTIFICATION

I, PETER E. LOEWENSTEIN, PLS HEREBY CERTIFY THAT I AM A REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF DELAWARE, AND THAT THE PLAN SHOWN AND DESCRIBED HEREON HAS BEEN PREPARED UNDER MY SUPERVISION AND TO THE BEST OF MY KNOWLEDGE AND BELIEF IS TRUE AND CORRECT TO THE ACCURACY REQUIRED BY ACCEPTED STANDARDS AND PRACTICES AND BY THE SUSSEX COUNTY ZONING AND SUBDIVISION REGULATIONS.

5/30/17
DATE

PETER E. LOEWENSTEIN
P.O. BOX 247
HARBESON, DE 19951
(302) 684-2980

ENGINEER'S STATEMENT

I, RING LARDNER, P.E., HEREBY STATE THAT I AM A REGISTERED ENGINEER IN THE STATE OF DELAWARE, THAT THE INFORMATION SHOWN HEREON HAS BEEN PREPARED UNDER MY SUPERVISION AND TO MY BEST KNOWLEDGE AND BELIEF REPRESENTS GOOD ENGINEERING PRACTICES AS REQUIRED BY THE APPLICABLE LAWS OF THE STATE OF DELAWARE.

5.23.2017
DATE

DAVIS, BOWEN & FRIEDEL, INC.
RING LARDNER, P.E.

RING W. LARDNER — REGISTERED — No. 15847 — PROFESSIONAL ENGINEER — DELAWARE

0 100 200 300
SCALE: 1" = 100'

DAVIS, BOWEN & FRIEDEL, INC.
ARCHITECTS, ENGINEERS & SURVEYORS
SALISBURY, MARYLAND (410) 543-9091
MILFORD, DELAWARE (302) 424-1441

RECORD MINOR SUBDIVISION PLAN

MITCHELL FARM
CITY OF LEWES
LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

REVISION:
2017-04-25
DELDOT COMMENTS

2017-05-18
DELDOT REDLINE

Date:	MARCH, 2017
Scale:	AS SHOWN
Dwn.By:	ACM
Proj.No.:	2640A001
Dwg.No.:	MS-1

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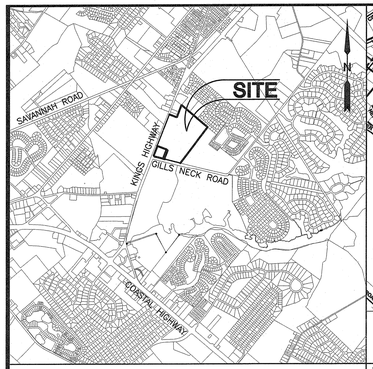
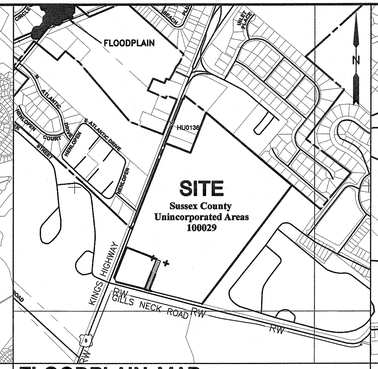


LOCATION MAP

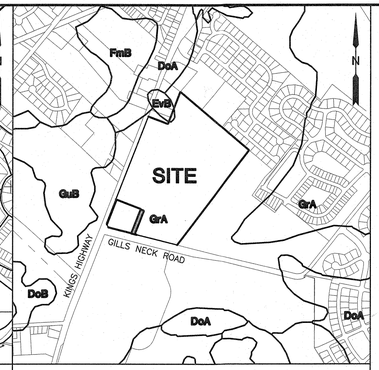
SCALE: 1" = 1/2-MILE



FLOODPLAIN MAP

FEMA PANEL 10005C0194K

SCALE: 1" = 800'



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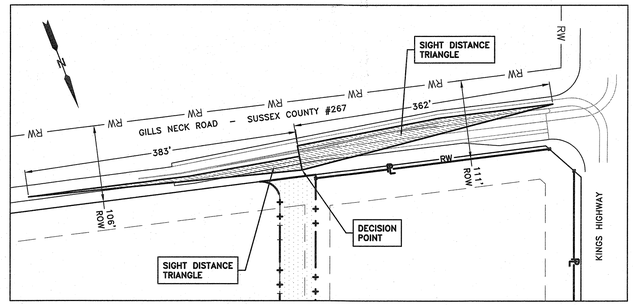

SIGHT DISTANCE TRIANGLE

SCALE: 1"=100'

CONFORMED COPY
Document # 201800036859 BK: 271 PG: 47
On 10/9/2018 at 12:40:52 PM
RECORDER OF DEEDS Scott Dailey
Sussex County
Consideration: $0.00

DATA COLUMN

TAX MAP ID	:335-8.00-37.00
EXISTING ZONING	:AR-1
TOTAL SITE AREA	:52.705 ±AC.
AREA OF LOT 1	:3.177 ±AC.
AREA OF RESIDUAL LAND	:49.528 ±AC.
SETBACKS	
MINIMUM LOT WIDTH	:150'
FRONT YARD SETBACK	:40'
SIDE YARD SETBACK	:15'
REAR YARD SETBACK	:20'
NUMBER OF LOTS CREATED	:1
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IMPERVIOUS COVERAGE PERMITTED	:80%
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PROPOSED USE OF RESIDUAL	:FARMING
PROPOSED SEWER	:WEST REHOBOTH EXPANSION OF THE DEWEY BEACH SANITARY SEWER DISTRICT
PROPOSED WATER	:TIDEWATER UTILITIES

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- RW — PROPERTY RIGHT-OF-WAY LINE
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4. SHRUBBERY, PLANTINGS, SIGNS AND/OR OTHER VISUAL BARRIERS THAT COULD OBSTRUCT THE SIGHT DISTANCE OF A DRIVER PREPARING TO ENTER THE ROADWAY ARE PROHIBITED WITHIN THE DEFINED DEPARTURE SIGHT TRIANGLE AREA ESTABLISHED ON THIS PLAN. IF THE ESTABLISHED DEPARTURE SIGHT TRIANGLE AREA IS OUTSIDE OF THE RIGHT-OF-WAY OR PROJECTS ONTO AN ADJACENT PROPERTY OWNER'S LAND, A SIGHT EASEMENT SHALL BE ESTABLISHED AND RECORDED WITH ALL AFFECTED PROPERTY OWNERS TO MAINTAIN THE REQUIRED SIGHT DISTANCE.
5. ALL ENTRANCES SHALL CONFORM TO DELDOT'S DEVELOPMENT COORDINATION MANUAL (DCM) AND SHALL BE SUBJECT TO ITS APPROVAL.
6. IF THE RESIDUAL LANDS OF THE APPLICANT ARE EVER DEVELOPED INTO A MAJOR SUBDIVISION, THEN THE ACCESS TO THE PARCELS CREATED BY THIS MINOR SUBDIVISION PLAN MAY BE REQUIRED TO BE FROM AN INTERNAL SUBDIVISION STREET.

BEARINGS AND DISTANCES SHOWN HEREON GENERALLY CONFORM TO THE DELAWARE STATE PLANE COORDINATE SYSTEM. EXCEPTIONS THERETO REFLECT FOUND MONUMENTATION, MORE PRECISE FIELD MEASUREMENTS AND STATE HIGHWAY COMMISSION (NOW DELDOT) RIGHTS-OF-WAY PLATS. HORIZONTAL AND VERTICAL COORDINATE VALUES CONFORM TO THE DELAWARE STATE PLANE COORDINATE SYSTEM.

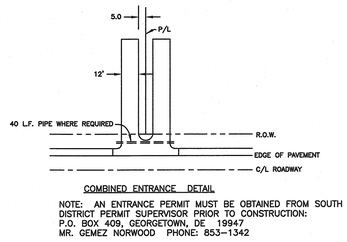
0 50 100 150

SCALE: 1" = 50'

APPROVED
1 LOT MINOR SUBDIVISION - REVISED
OCT 01, 2018
SUSSEX COUNTY COUNCIL
PLANNING & ZONING COMMISSION
1 SHEET

PURPOSE: THE PURPOSE OF THIS PLAN IS TO CORRECT BEARINGS AND DISTANCES OF LOT 1.

SUPERCEDE: THIS PLAN SUPERCEDES IN IT'S ENTIRETY THE PLAN RECORDED IN SUSSEX COUNTY RECORDER OF DEEDS PLAT BOOK 247, PAGE 73 ON JUNE 9, 2017.



COMBINED ENTRANCE DETAIL

NOTE: AN ENTRANCE PERMIT MUST BE OBTAINED FROM SOUTH DISTRICT PERMIT SUPERVISOR PRIOR TO CONSTRUCTION:
P.O. BOX 409, GEORGETOWN, DE 19947
MR. GEMEZ NORWOOD PHONE: 853-1342

OWNERS CERTIFICATION

WE, MITCHELL FARM LTD, HEREBY CERTIFY THAT WE ARE THE OWNERS OF THE PROPERTY DESCRIBED ON THIS PLAN, THAT THE PLAN WAS MADE AT OUR DIRECTION, THAT ALL PROPOSED MONUMENTS AND MARKERS SHOWN HEREON WILL BE SET AT THE LOCATION INDICATED, AND THAT WE ACKNOWLEDGE THE SAME TO BE OUR ACT AND DESIRE THE PLAN TO BE RECORDED AS SHOWN IN ACCORDANCE WITH ALL APPLICABLE LAWS AND REGULATIONS.

Robert P. Mitchell — Executive Partner — 10-08-18
SIGNATURE — DATE

Robert P. Mitchell
PRINTED NAME

ENGINEER'S STATEMENT

I, RING LARDNER, P.E., HEREBY STATE THAT I AM A REGISTERED ENGINEER IN THE STATE OF DELAWARE, THAT THE INFORMATION SHOWN HEREON HAS BEEN PREPARED UNDER MY SUPERVISION AND TO MY BEST KNOWLEDGE AND BELIEF REPRESENTS GOOD ENGINEERING PRACTICES AS REQUIRED BY THE APPLICABLE LAWS OF THE STATE OF DELAWARE.

No. 18547 — REGISTERED PROFESSIONAL ENGINEER

10/5/2018
DAVIS, BOWEN & FRIEDEL, INC. — DATE
RING LARDNER, P.E.

DAVIS, BOWEN & FRIEDEL, INC.
ARCHITECTS, ENGINEERS & SURVEYORS
SALISBURY, MARYLAND (410) 543-9091
MILFORD, DELAWARE (302) 424-1441

RECORD MINOR SUBDIVISION PLAN

MITCHELL FARM

CITY OF LEWES

LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

REVISION:
2017-04-25
DELDOT COMMENTS

2017-05-18
DELDOT REDLINE

2018-09-27
PLAT CORRECTION

Date:	MARCH, 2017
Scale:	AS SHOWN
Dwn.By:	ACM
Proj.No.:	2640A001
Dwg.No.:	MS-1

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DATA COLUMN

TAX MAP ID:	335-8.00-37.01
DEED REFERENCE:	DEED BOOK 2820, PAGE 72 PB 247, PAGE 73
DATUM	
VERTICAL:	NAVD 88
HORIZONTAL:	NAD 83 (DE STATE PLANE)
BENCHMARK:	CONCRETE MONUMENT
LOCATION:	SE PROPERTY CORNER
LAT/LON:	(38.754941, -75.144259)
LAND USE	
EXISTING:	AGRICULTURAL
PROPOSED:	39,000 S.F. MEDICAL BUILDING (CONDITIONAL USE)
ZONING	
EXISTING:	AR-1 (AGRICULTURAL RESIDENTIAL), CU #2112
MINIMUM REQUIREMENTS	
FRONT SETBACK:	40 FT. PARKING 60 FT. BUILDING (KINGS HIGHWAY)
SIDE SETBACK:	15 FT.
REAR SETBACK:	20 FT.
MAXIMUM REQUIREMENTS	
BUILDING HEIGHT:	42 FT.
AREAS	
EXISTING SITE:	
GROSS SITE AREA:	3.18± AC.
DEDICATED RIGHT-OF-WAY:	(-) 0.18± AC.
NET SITE AREA:	3.00± AC.
PROPOSED:	
IMPERVIOUS AREA:	2.15± AC. (71%)
TOTAL PARKING CALCULATION:	
4 PER EACH PROVIDER	
1 PER 2 EMPLOYEES	
12 PROVIDERS = 48 SPACES	
30 EMPLOYEES = 15 SPACES	
63 REQUIRED SPACES	
PROPOSED PARKING:	
LOADING SPACES:	1 SPACE (DROP-OFF AREA)
REQUIRED LOADING SPACES:	2 SPACES (WAIVER REQUEST FOR 1 SPACE)
ACCESSIBLE PARKING:	12 SPACES (8%)
REGULAR PARKING:	149 SPACES
TOTAL PARKING:	161 SPACES
POSTED SPEED LIMIT:	GILLS NECK ROAD - 35 MPH KINGS HIGHWAY - 45 MPH
UTILITIES	
SEWER PROVIDER:	SUSSEX COUNTY UNIFIED SANITARY SEWER DISTRICT-WEST REHOBOTH EXPANSION AREA
WATER PROVIDER:	CITY OF LEWES - BOARD OF PUBLIC WORKS
PROPOSED CONSTRUCTION:	STRUCTURAL STEEL
PROPOSED BUILDING HEIGHT:	35'-11"

FLOODPLAIN - THE PROPERTY IS NOT IMPACTED BY THE 100 YEAR FLOODPLAIN AS DETERMINED BY FEMA PANEL 10005C0194K.

THE PROPERTY IS LOCATED IN A SOURCE WATER PROTECTION AREA.

THIS SITE IS NOT LOCATED IN OR ADJACENT TO A TRANSPORTATION IMPROVEMENT DISTRICT (TID).

THIS SITE IS LOCATED IN AN INVESTMENT LEVEL 1 AREA PER THE 2015 DELAWARE STRATEGIES FOR STATE POLICIES AND SPENDING MAP.

OWNER/DEVELOPER
L.W. & J.T. MITCHELL FAMILY L.P.
1019 KINGS HWY
LEWES, DE 19958

ENGINEER:
DAVIS, BOWEN, & FRIEDEL, INC.
RING W. LARDNER, P.E.
1 PARK AVE.
MILFORD, DE 19963
PHONE: 302-424-1441
FAX: 302-424-0430

GENERAL NOTES

1. THIS RECORD PLAN - RED SATISFIES THE DEPARTMENT'S RECORDATION REQUIREMENTS AND ARE BASED ON THE PARCEL'S LOCATION. NO COMMITMENTS ARE STATED OR IMPLIED BY DELDOT THROUGH THE ISSUANCE OF THIS LETTER WITH RESPECT TO: ENTRANCE LOCATION(S), ACCESS CONFIGURATIONS, AUXILIARY LANES AND/OR ROADWAY IMPROVEMENTS WHICH WILL BE EVALUATED AND REQUIRED AS NECESSARY AT THE TIME OF ENTRANCE CONSTRUCTION PLAN REVIEW OR APPROVAL FOR THE SITE.
2. NO LANDSCAPING SHALL BE ALLOWED WITHIN RIGHT OF WAY UNLESS THE PLANS ARE COMPLIANT WITH SECTION 3.7 OF THE DEVELOPMENT COORDINATION MANUAL.
3. SHRUBBERY, PLANTINGS, SIGNS AND/OR OTHER VISUAL BARRIERS THAT COULD OBSTRUCT THE SIGHT DISTANCE OF A DRIVER PREPARING TO ENTER THE ROADWAY ARE PROHIBITED WITHIN THE DEFINED DEPARTURE SIGHT TRIANGLE AREA ESTABLISHED ON THIS PLAN. IF THE ESTABLISHED DEPARTURE SIGHT TRIANGLE AREA IS OUTSIDE THE RIGHT-OF-WAY OR PROJECTS ONTO AN ADJACENT PROPERTY OWNER'S LAND, A SIGHT EASEMENT SHOULD BE ESTABLISHED AND RECORDED WITH ALL AFFECTED PROPERTY OWNERS TO MAINTAIN THE REQUIRED SIGHT DISTANCE.
4. THE DEVELOPER SHALL BE REQUIRED TO FURNISH AND PLACE RIGHT-OF-WAY MONUMENTS IN ACCORDANCE WITH DELDOT'S DEVELOPMENT COORDINATION MANUAL.
5. THE DEVELOPER SHALL BE REQUIRED TO FURNISH AND PLACE RIGHT-OF-WAY MARKERS TO PROVIDE A PERMANENT REFERENCE FOR RE-ESTABLISHING THE RIGHT-OF-WAY AND PROPERTY CORNERS ON LOCAL AND HIGHER ORDER FRONTAGE ROADS. RIGHT-OF-WAY MARKERS SHALL BE SET AND/OR PLACED ALONG THE FRONTAGE ROAD RIGHT-OF-WAY AT PROPERTY CORNERS AND AT EACH CHANGE IN RIGHT-OF-WAY ALIGNMENT IN ACCORDANCE WITH SECTION 3.2.4.2 OF THE DEVELOPMENT COORDINATION MANUAL.
6. A PERPETUAL CROSS ACCESS INGRESS/EGRESS EASEMENT IS HEREBY ESTABLISHED AS SHOWN ON THIS PLAT.
7. THIS COMMERCIAL PARCEL HAS DIRECT FRONTAGE ALONG KINGS HIGHWAY (SCR 268), WHICH HAS A FUNCTIONAL CLASSIFICATION OF OTHER PRINCIPLE ARTERIAL AS DEFINED BY THE STATE OF DELAWARE'S DEPARTMENT OF TRANSPORTATION. PER SECTION 3.6.1 OF THE DELDOT DEVELOPMENT COORDINATION MANUAL (DCM): IT IS THE DEVELOPER'S RESPONSIBILITY TO EVALUATE NOISE LEVELS AND THEIR IMPACTS ON PROPOSED DEVELOPMENT, FOR PROJECTS ADJACENT TO EXISTING TRANSPORTATION FACILITIES WITH THIS FUNCTIONAL CLASSIFICATION. ROADWAYS WITH THIS CLASSIFICATION CAN BE EXPECTED TO GENERATE ELEVATED LEVELS OF ROAD AND TRAFFIC RELATED NOISE, SIMILAR TO WHAT CAN BE EXPECTED IN URBAN AREAS. A DETAILED NOISE ANALYSIS PER DCM 3.6 IS TYPICALLY RECOMMENDED TO HELP GAUGE THE ACTUAL IMPACTS THAT ROADWAY RELATED NOISE MAY HAVE ON VARIOUS POTENTIAL LAND-USES (SUCH AS THOSE DESCRIBED IN DCM FIGURE 3.6.3-A: NOISE ABATEMENT CRITERIA). WITH THE INCLUSION OF THIS NOTE, THE DEVELOPER IS ACKNOWLEDGING THAT THE PROPOSED SITE AND/OR BUILDING LOCATION CAN BE EXPECTED TO EXCEED THE SPECIFIC MAXIMUM NOISE LEVELS FOR CERTAIN COMMERCIAL AND NON-RESIDENTIAL USES AS SHOWN IN DCM FIGURE 3.6.3-A. THE DEVELOPER'S WAIVER OF THE NOISE ANALYSIS AND REVIEW OF POTENTIAL NOISE MITIGATION MEASURES ARE SUPPORTED BY THE INFEASIBILITY OF APPLYING NOISE MITIGATION MEASURES, BASED ON ENGINEERING CONSIDERATIONS AND FACTORS THAT WOULD LIMIT THE ABILITY TO ACHIEVE SUBSTANTIAL NOISE REDUCTION, RELATED TO THE COMMERCIAL USE OF THE SITE AND/OR BUILDINGS. THIS WAIVER ACKNOWLEDGES THAT THE DECIBEL LEVEL FOR THIS PARCEL MAY EXCEED THE APPLICABLE LIMITS FOR SOME CURRENT OR FUTURE PROPOSED USES. THE USE OF THIS NOTE SIGNIFIES THE SUBDIVISION ENGINEER'S CONCURRENCE WITH WAIVING THE DEVELOPER'S COMPLETION OF A DETAILED NOISE STUDY AND SUBSEQUENT REVIEW OF RESULTING NOISE ABATEMENT FINDINGS OR MITIGATION MEASURES. ANY FUTURE COMPLAINTS RELATING TO EXISTING OR FUTURE NOISE LEVELS IMPACTING PROPOSED USES ON THIS SITE AND ALONG THIS EXISTING TRANSPORTATION FACILITY SHALL BE THE RESPONSIBILITY OF THE DEVELOPER OR LAND OWNER OR BOTH.

OWNER'S CERTIFICATION

I, THE UNDERSIGNED, HEREBY CERTIFY THAT I AM THE OWNER OF THE PROPERTY DESCRIBED ON THIS PLAN, THAT THE PLAN WAS MADE BY MY DIRECTION AND THAT I ACKNOWLEDGE THE SAME TO BE MY ACT AND DESIRE THE PLAN TO BE RECORDED AS SHOWN IN ACCORDANCE WITH ALL APPLICABLE LAWS AND REGULATIONS.

L.W. & J.T. MITCHELL FAMILY L.P. — DATE 12-10-18
1019 KINGS HWY.
LEWES, DE 19958

ENGINEER'S STATEMENT

I, RING W. LARDNER, P.E., HEREBY STATE THAT I AM A REGISTERED ENGINEER IN THE STATE OF DELAWARE, THAT THE INFORMATION SHOWN HEREON HAS BEEN PREPARED UNDER MY SUPERVISION AND TO MY BEST KNOWLEDGE AND BELIEF REPRESENTS GOOD ENGINEERING PRACTICES AS REQUIRED BY THE APPLICABLE LAWS OF THE STATE OF DELAWARE.

DAVIS, BOWEN & FRIEDEL, INC.
by RING W. LARDNER, P.E. — DATE 12/7/2018

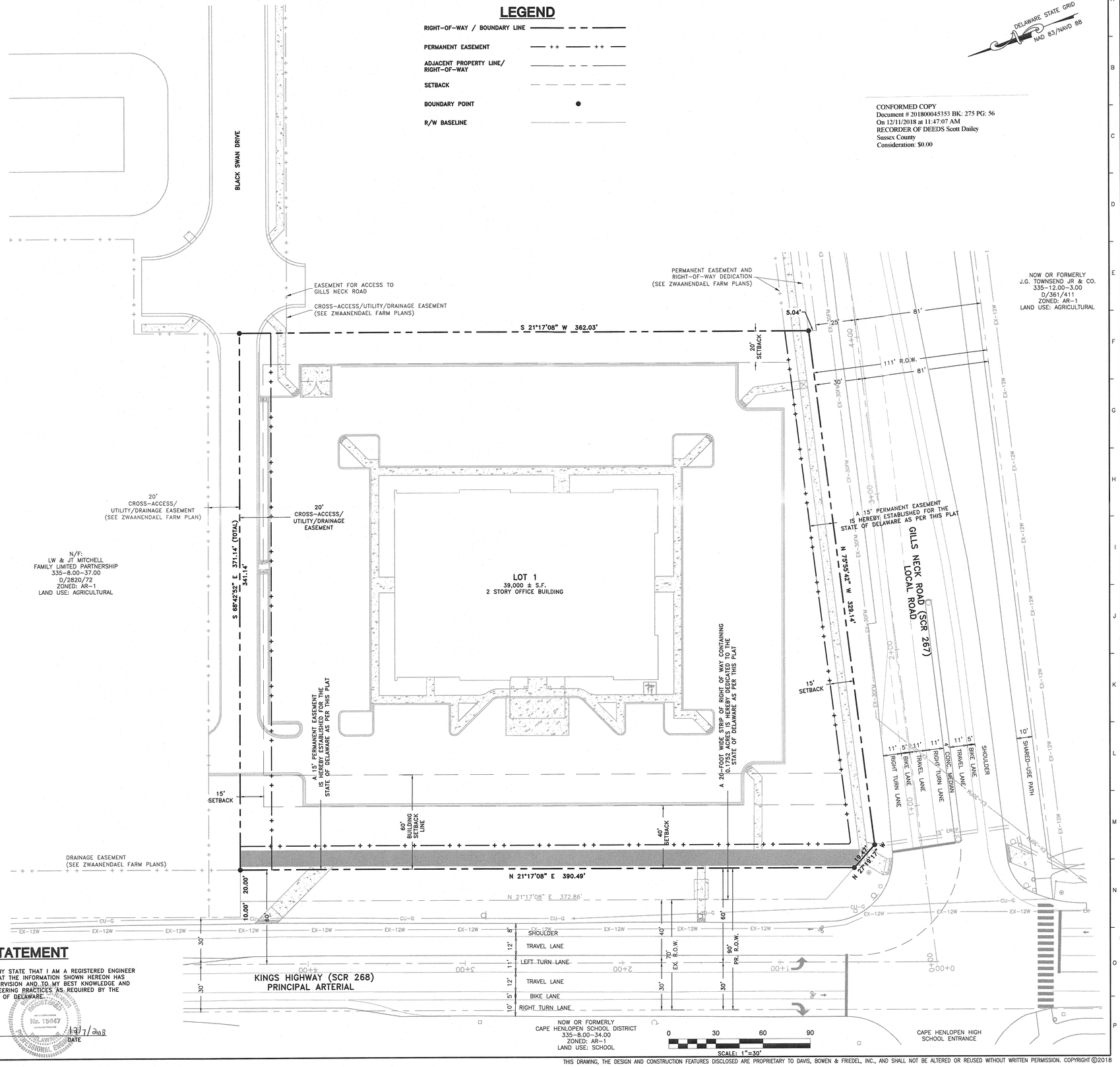
RING W. LARDNER — No. 15647 — REGISTERED PROFESSIONAL ENGINEER — DELAWARE

LEGEND

- RIGHT-OF-WAY / BOUNDARY LINE
- PERMANENT EASEMENT
- ADJACENT PROPERTY LINE/ RIGHT-OF-WAY
- SETBACK
- BOUNDARY POINT
- R/W BASELINE

DELAWARE STATE GRID NAD 83/NAVD 88

CONFORMED COPY
Document # 201800045353 BK: 275 PG: 56
On 12/11/2018 at 11:47:07 AM
RECORDER OF DEEDS Scott Dailey
Sussex County
Consideration: $0.00



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DAVIS, BOWEN & FRIEDEL, INC.
ARCHITECTS ENGINEERS SURVEYORS
SALISBURY, MARYLAND (410) 543-9091
MILFORD, DELAWARE (302) 424-1441
EASTON, MARYLAND (410) 770-4744

RECORD PLAN - RED

MITCHELL FARM - LOT 1
GILLS NECK ROAD (SCR 267)
LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

Revisions:
2018-10-10: SCD
FM
2018-10-22: DELDOT
2018-10-30: FM
2018-11-02: SCD
2018-11-07: DELDOT

APPROVED
Record Plan Only
12/6/18 P&Z 8/9/18
LPS

Date: AUGUST, 2018
Scale: 1" = 30'
Dwn.By: TAJ/SHF
Proj.No.: 2916A002
Dwg.No.: V-101

P:\Lighthouse\Mitchell\Farm_Lot-1\Design\2940A001-RECORD PLAN.dwg Dec 05, 2018 - 11:57am

Electronically Recorded Document# 2019000002504 BK: 5007 PG: 276
Recorder of Deeds, Scott Dailey On 1/22/2019 at 2:51:09 PM Sussex County, DE
Consideration: $1,800,000.00 County/Town: $27,000.00 State: $45,000.00 Total: $72,000.00
Doc Surcharge Paid Town: SUSSEX COUNTY

TAX MAP AND PARCEL NO.: 3-35 8.00 37.01

PREPARED BY:
Morris James, LLP
107 West Market Street
P.O. Box 690
Georgetown, DE 19947

RETURN TO:
Baird Mandalas Brockstedt, LLC
1413 Savannah Road, Suite 1
Lewes, DE 19958

THIS DEED, made this 18th day of January, 2019,

- BETWEEN -

L.W. & J.T. MITCHELL FAMILY LIMITED PARTNERSHIP, A DELAWARE LIMITED PARTNERSHIP, of 1019 Kings Highway, Lewes, DE 19958, party of the first part,

- AND -

CAPE HENLOPEN MEDICAL CENTER, LLC, A DELAWARE LIMITED LIABILITY COMPANY, in care of Baird Mandalas & Brockstedt, LLC, 1413 Savannah Road, Suite 1, Lewes, Delaware 19958, party of the second part.

WITNESSETH: That the said party of the first part, for and in consideration of the sum of **TEN and 00/100 Dollars ($10.00)**, lawful money of the United States of America, the receipt whereof is hereby acknowledged, hereby grants and conveys unto the party of the second part, and its successors and assigns, in fee simple, the following described lands, situate, lying and being in Sussex County, State of Delaware:

ALL that piece or parcel of land, hereinafter described, situate, lying and being at the northeasterly intersection of Kings Highway and Gills Neck Road; said piece or parcel of land being located in Lewes-Rehoboth Hundred, Sussex County, Delaware; being as shown on a plot entitled, "Record Plan – Red, Mitchell Farm – Lot 1" prepared by Davis, Bowen & Friedel, Inc., dated August 2018, last revision November 7, 2018, and recorded on December 11, 2018 in the Office of the Recorder of Deeds in and for Sussex County, Delaware in Plot Book 275, Page 56; said piece or parcel of land being more particularly described as follows:

BEGINNING for the same at a point formed by the intersection of the northerly right-of-way line of Gills Neck Road with the westerly line of the lands of, now or formerly, LW

Document# 2019000002504 BK: 5007 PG: 277
Recorder of Deeds, Scott Dailey On 1/22/2019 at 2:51:09 PM Sussex County, DE
Doc Surcharge Paid

& JT Mitchell Family Limited Partnership, as recorded in the Office of the Recorder of Deeds in and for Sussex County and the State of Delaware in Deed Book 2820, Page 72, thence;

1) leaving said Mitchell Family lands and running by and with said Gills Neck Road, North 75 degrees 55 minutes 42 seconds West 329.14 feet to a point on the easterly right-of-way line of said Kings Highway, thence;

2) leaving said Gills Neck Road and running by and with said Kings Highway, the following two courses and distances, North 27 degrees 19 minutes 17 seconds West 19.47 feet to a point, thence running;

3) North 21 degrees 17 minutes 08 seconds East 390.49 feet to a point on the southerly line of the aforesaid Mitchell Family lands, thence;

4) leaving said Kings Highway and running by and with said Mitchell lands, the following two courses and distances, South 68 degrees 42 minutes 52 seconds East 341.14 feet to a point, thence running;

5) South 21 degrees 17 minutes 08 seconds West 362.03 feet to the point and place of beginning; **CONTAINING** 3.00 acres of land, more or less.

SUBJECT to any and all restrictions, reservations, covenants, conditions, plans, easements and agreements of record in the Office of the Recorder of Deeds in and for Sussex County, Delaware, this reference to which shall not be construed to re-impose any such restrictions, reservations, covenants, conditions, plans, easements and agreements which have otherwise been terminated in accordance with their terms or otherwise as applicable.

BEING part of the same lands conveyed to L.W. & J.T. Mitchell Family Limited Partnership, a Delaware Limited Partnership by deed of Lowder W. Mitchell, Jr. and Jane T. Mitchell, husband and wife, dated March 31, 2003 and recorded in the Office of the Recorder of Deeds in and for Sussex County, Delaware, on April 3, 2003, in Deed Book 2820, Page 72.

Document# 2019000002504 BK: 5007 PG: 278
Recorder of Deeds, Scott Dailey On 1/22/2019 at 2:51:09 PM Sussex County, DE
Doc Surcharge Paid

IN WITNESS WHEREOF, the said L.W. & J.T. Mitchell Family Limited Partnership, a Delaware Limited Partnership, has caused its name to be hereunto set under seal by Robert P. Mitchell, General Partner, of L.W. & J.T. Mitchell Family Limited Partnership, the day and year first above written.

L.W. & J.T. MITCHELL FAMILY LIMITED PARTNERSHIP, A DELAWARE LIMITED PARTNERSHIP

By: Robert P. Mitchell General Partner {SEAL}
Robert P. Mitchell, General Partner

STATE OF DELAWARE :
: **ss.**
COUNTY OF SUSSEX :

BE IT REMEMBERED, that on this 18th day of January, A.D. 2019, personally appeared before me, the Subscriber, a Notary Public in and for the State and County aforesaid, Robert P. Mitchell, General Partner of L.W. & J.T. Mitchell Family Limited Partnership, a Delaware Limited Partnership, party to this Indenture, known to me personally to be such, and acknowledged this Indenture to be his act and deed and the act and deed of said partnership; that the signature of the General Partner is in his own proper handwriting and by his authority to act; and that the act of signing, sealing, acknowledging and delivering said Indenture was first duly authorized by a resolution of the partnership.

GIVEN under my Hand and Seal of Office the day and year aforesaid.

Notary Public

THOMAS P. CARNEY
Delaware Attorney at Law with
Power to act as Notary Public
per 29 Del. C. § 4323(a)(3)
My Commission Has No Expiration

My Commission Expires: _____

PERMANENT UTILITY EASEMENT (A) – 593,377 S.F.					
CURVE	ARC LENGTH	RADIUS	DELTA ANGLE	CHORD BEARING	CHORD LENGTH
EA–1				N 58°59'10" E	35.30'
EA–2				N 13°54'02" E	155.38'
EA–3	69.09'	536.00'	7°23'07"	N 17°35'35" E	69.04'
EA–4				N 21°17'08" E	20.79'
EA–5	39.27'	25.00'	90°00'00"	N 23°42'52" W	35.36'
EA–6				N 68°42'52" W	251.15'
EA–7				N 21°17'08" E	30.00'
EA–8				N 68°42'52" W	371.14'
EA–9				N 21°17'08" E	20.00'
EA–10				S 68°42'52" E	371.14'
EA–11				N 21°17'08" E	47.00'
EA–12				S 68°42'52" E	60.00'
EA–13				N 21°17'08" E	892.10'
EA–14				S 68°42'52" E	67.51'
EA–15				S 21°17'08" W	29.07'
EA–16				N 88°47'08" E	244.07'
EA–17				N 21°17'08" E	157.95'
EA–18	114.18'	60.00'	109°01'51"	N 75°48'04" E	97.71'
EA–19				S 49°41'01" E	273.96'
EA–20	100.99'	60.00'	96°26'24"	S 01°27'49" E	89.49'
EA–21				S 46°45'23" W	175.23'
EA–22	145.34'	434.00'	19°11'17"	S 37°09'44" W	144.67'
EA–23				S 27°34'06" W	198.58'
EA–24	55.59'	166.00'	19°11'17"	S 37°09'44" W	55.33'
EA–25				S 46°45'23" W	99.01'
EA–26	49.98'	45.00'	63°38'28"	S 78°34'37" W	47.45'
EA–27				S 33°08'11" W	149.48'
EA–28				S 21°17'08" W	226.96'
EA–29				N 68°42'22" W	80.49'
EA–30				S 21°17'08" W	60.00'
EA–31				N 68°45'10" W	17.51'
EA–32	42.41'	27.00'	90°00'00"	S 66°17'08" W	38.18'
EA–33				S 21°17'08" W	18.79'
EA–34	61.35'	476.00'	7°23'07"	S 17°35'35" W	61.31'
EA–35				S 13°54'02" W	140.56'
EA–36				S 31°00'50" E	56.65'
EA–37				N 75°55'42" W	125.00'

DATA COLUMN

TAX MAP ID: 335–8.00–37.00

DEED REFERENCE: DEED BOOK 2820, PAGE 72

DATUM
VERTICAL: NAVD 88
HORIZONTAL: NAD 83 (DE STATE PLANE)
BENCHMARK: CONCRETE MONUMENT
LOCATION: SE PROPERTY CORNER
LAT/LON: (38.754941, –75.144259)

LAND USE
EXISTING: AGRICULTURAL
PROPOSED: FUTURE DEVELOPMENT – COMMERCIAL/RESIDENTIAL SIZE AND UNIT COUNT TO BE DETERMINED

ZONING
EXISTING: AR–1 (AGRICULTURAL RESIDENTIAL)

AREAS
PARCEL 37.00:
TOTAL AREA: 49.406± AC.
DEDICATED R/W: 0.076± AC.
NET PARCEL AREA: 49.330± AC.

ONSITE LOD AREA: 14.1± AC.
TOTAL LOD AREA: 20.1± AC.

SWM DISCHARGE LOCATIONS:
POND 1 & 2 HEADWATERS OF POT HOOK CREEK/WOLFE GLADE (N: 272,747 E: 732,540)

GILLS NECK ROAD FRONTAGE DISCHARGES TO THE INTERSECTION OF GILLS NECK ROAD AND KINGS HIGHWAY AND GOVERNORS POND 1.
KINGS HIGHWAY FRONTAGE DISCHARGES TO AN EXISTING CROSS–ROAD PIPE ADJACENT TO THE ZWAANENDAEL FARM DRIVEWAY ALONG KINGS HIGHWAY.

UTILITIES
SEWER PROVIDER: SUSSEX COUNTY UNIFIED SANITARY SEWER DISTRICT WEST REHOBOTH EXPANSION AREA

WATER PROVIDER: CITY OF LEWES

FLOODPLAIN – THE PROPERTY IS NOT IMPACTED BY THE 100 YEAR FLOODPLAIN AS DETERMINED BY FEMA PANEL 10005C0194K.

WETLANDS – THERE ARE NO WETLANDS LOCATED ON THE SITE.

THE PROPERTY IS LOCATED IN A SOURCE WATER PROTECTION AREA.

OWNER/DEVELOPER
L.W. & J.T. MITCHELL FAMILY L.P.
1019 KINGS HWY
LEWES, DE 19958

ENGINEER:
DAVIS, BOWEN, & FRIEDEL, INC.
RING W. LARDNER, P.E.
1 PARK AVE.
MILFORD, DE 19963
PHONE: 302–424–1441
FAX: 302–424–0430

BUILDING SETBACKS:
FRONT: 40 FT./60 FT.
SIDE: 15 FT.
REAR: 20 FT.

POSTED SPEED LIMIT:
GILLS NECK ROAD: 35 MPH
KINGS HIGHWAY: 45 MPH

THIS PROPERTY IS NOT LOCATED IN A TRANSPORTATION IMPROVEMENT DISTRICT (TID), IT IS APPROXIMATELY 0.77 MILES FROM THE HENLOPEN TID WHICH IS CURRENTLY UNDER DEVELOPMENT.

THIS SITE IS LOCATED IN AN INVESTMENT LEVEL 1 AREA PER THE 2015 DELAWARE STRATEGIES FOR STATE POLICIES AND SPENDING MAP

GENERAL NOTES

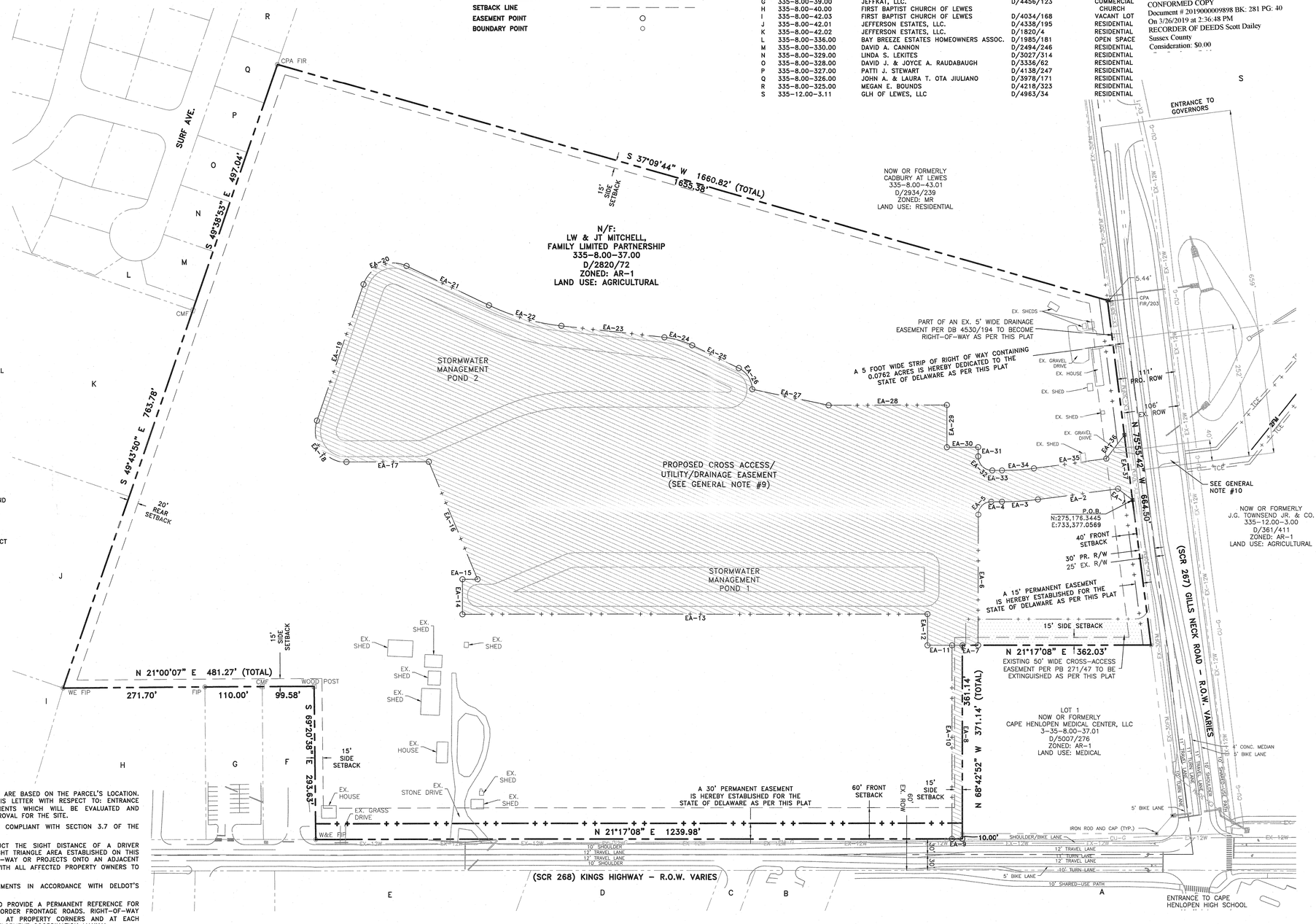
1. THIS RECORD PLAN – RED SATISFIES THE DEPARTMENT'S RECORDATION REQUIREMENTS AND ARE BASED ON THE PARCEL'S LOCATION. NO COMMITMENTS ARE STATED OR IMPLIED BY DELDOT THROUGH THE ISSUANCE OF THIS LETTER WITH RESPECT TO: ENTRANCE LOCATION(S), ACCESS CONFIGURATIONS, AUXILIARY LANES AND/OR ROADWAY IMPROVEMENTS WHICH WILL BE EVALUATED AND REQUIRED AS NECESSARY AT THE TIME OF ENTRANCE CONSTRUCTION PLAN REVIEW OR APPROVAL FOR THE SITE.
2. NO LANDSCAPING SHALL BE ALLOWED WITHIN RIGHT OF WAY UNLESS THE PLANS ARE COMPLIANT WITH SECTION 3.7 OF THE DEVELOPMENT COORDINATION MANUAL.
3. SHRUBBERY, PLANTINGS, SIGNS AND/OR OTHER VISUAL BARRIERS THAT COULD OBSTRUCT THE SIGHT DISTANCE OF A DRIVER PREPARING TO ENTER THE ROADWAY ARE PROHIBITED WITHIN THE DEFINED DEPARTURE SIGHT TRIANGLE AREA ESTABLISHED ON THIS PLAN. IF THE ESTABLISHED DEPARTURE SIGHT TRIANGLE AREA IS OUTSIDE THE RIGHT–OF–WAY OR PROJECTS ONTO AN ADJACENT PROPERTY OWNER'S LAND, A SIGHT EASEMENT SHOULD BE ESTABLISHED AND RECORDED WITH ALL AFFECTED PROPERTY OWNERS TO MAINTAIN THE REQUIRED SIGHT DISTANCE.
4. THE DEVELOPER SHALL BE REQUIRED TO FURNISH AND PLACE RIGHT–OF–WAY MONUMENTS IN ACCORDANCE WITH DELDOT'S DEVELOPMENT COORDINATION MANUAL.
5. THE DEVELOPER SHALL BE REQUIRED TO FURNISH AND PLACE RIGHT–OF–WAY MARKERS TO PROVIDE A PERMANENT REFERENCE FOR RE–ESTABLISHING THE RIGHT–OF–WAY AND PROPERTY CORNERS ON LOCAL AND HIGHER ORDER FRONTAGE ROADS. RIGHT–OF–WAY MARKERS SHALL BE SET AND/OR PLACED ALONG THE FRONTAGE ROAD RIGHT–OF–WAY AT PROPERTY CORNERS AND AT EACH CHANGE IN RIGHT–OF–WAY ALIGNMENT IN ACCORDANCE WITH SECTION 3.2.4.2 OF THE DEVELOPMENT COORDINATION MANUAL.
6. A PERPETUAL CROSS ACCESS INGRESS/EGRESS EASEMENT IS HEREBY ESTABLISHED AS SHOWN ON THIS PLAT.
7. A BLANKET EASEMENT IS GRANTED TO THE STATE OF DELAWARE TO PERFORM EMERGENCY MAINTENANCE ON ANY STORM DRAIN PIPES, STRUCTURES, AND STORMWATER MANAGEMENT FACILITIES CONVEYING RUNOFF FROM THE STATE OF DELAWARE RIGHT–OF–WAY. SAID EASEMENT SHALL BE 20' WIDE CENTERED ON AFOREMENTIONED DRAINAGE PIPES AND STRUCTURES.
8. KINGS HIGHWAY AND GILLS NECK ROAD ARE SCENIC AND HISTORIC BYWAYS, WITH KINGS HIGHWAY ALSO DESIGNATED AS A FEDERAL AID PRIMARY ROAD. THERE WILL BE NO ON OR OFF PREMISE ADVERTISING OF OTHER PARTIES/VENUES AND VARIABLE OR ELECTRONIC MESSAGING BOARDS ARE NOT PERMITTED. NO BILLBOARDS ARE PERMITTED EITHER. PLEASE CONTACT THE DEPARTMENT OF TRANSPORTATION BYWAYS COORDINATOR OR DESIGNEE AT 302–760–2131 FOR MORE INFORMATION.
9. A VARIABLE WIDTH PERMANENT EASEMENT CONTAINING 593,377 SQUARE FEET IS HEREBY ESTABLISHED FOR THE STATE OF DELAWARE AS PER THIS PLAT, FOR EMERGENCY ACCESS TO DRAINAGE FACILITIES CONVEYING RUNOFF FROM THE STATE MAINTAINED ROADS AND/OR RIGHT–OF–WAY. THE PORTIONS OF THE DRAINAGE EASEMENT AND SYSTEM THAT ARE UPSTREAM OR OFFSITE AS WELL AS SECTIONS THAT ARE NOT DIRECTLY COLLECTING AND CONVEYING THE DRAINAGE RUNOFF OF THE PROPOSED STATE MAINTAINED ROAD AND/OR RIGHT–OF–WAY SHALL BE THE RESPONSIBILITY OF THE DEVELOPER, PROPERTY OWNERS, OR BOTH. THE STATE OF DELAWARE ASSUMES NO RESPONSIBILITY FOR THE FUTURE MAINTENANCE OF ANY EXEMPTED PORTIONS OF THE STORM DRAIN SYSTEM AND/OR DRAINAGE EASEMENTS.
10. THE PORTIONS OF THE DRAINAGE SYSTEM THAT ARE UPSTREAM OR OFFSITE AS WELL AS SECTIONS THAT ARE NOT DIRECTLY COLLECTING AND CONVEYING THE DRAINAGE RUNOFF OF THE PROPOSED STATE MAINTAINED ROADS AND/OR RIGHT–OF–WAY SHALL BE THE RESPONSIBILITY OF THE DEVELOPER, PROPERTY OWNERS, OR BOTH. THE STATE OF DELAWARE ASSUMES NO RESPONSIBILITY FOR THE FUTURE MAINTENANCE OF ANY EXEMPT PORTIONS OF THE STORM DRAIN SYSTEM AND/OR DRAINAGE EASEMENTS.

LEGEND

RIGHT–OF–WAY / BOUNDARY LINE
ADJACENT PROPERTY LINE
EXISTING EASEMENT
PROPOSED EASEMENT
SETBACK LINE
EASEMENT POINT
BOUNDARY POINT

ADJACENT PROPERTY OWNERS

	PARCEL#	OWNER	DEED	LAND USE
A	335–8.00–34.00	CAPE HENLOPEN SCHOOL DISTRICT		SCHOOL
B	335–8.00–35.01	JACK LINGO REALTOR, INC.		RESIDENTIAL
C	335–8.00–35.02	PRIME, INC.		RESIDENTIAL
D	335–8.00–35.03	PRPL PROPERTIES, LLC.	D/4672/67	RESIDENTIAL
E	335–8.00–36.07	BEEBE MEDICAL CENTER, INC.	D/2368/165	VACANT LOT
F	335–8.00–38.00	THREE BUILDERS, INC.	D/3173/100	COMMERCIAL
G	335–8.00–39.00	JEFFKAT, LLC.	D/4456/123	COMMERCIAL
H	335–8.00–40.00	FIRST BAPTIST CHURCH OF LEWES		CHURCH
I	335–8.00–42.03	FIRST BAPTIST CHURCH OF LEWES	D/4034/168	VACANT LOT
J	335–8.00–42.01	JEFFERSON ESTATES, LLC.	D/4338/195	RESIDENTIAL
K	335–8.00–42.02	JEFFERSON ESTATES, LLC.	D/1820/4	RESIDENTIAL
L	335–8.00–336.00	BAY BREEZE ESTATES HOMEOWNERS ASSOC.	D/1985/181	OPEN SPACE
M	335–8.00–330.00	DAVID A. CANNON	D/2494/246	RESIDENTIAL
N	335–8.00–329.00	LINDA S. LEKITES	D/3027/314	RESIDENTIAL
O	335–8.00–328.00	DAVID J. & JOYCE A. RAUDABAUGH	D/3336/62	RESIDENTIAL
P	335–8.00–327.00	PATTI J. STEWART	D/4138/247	RESIDENTIAL
Q	335–8.00–326.00	JOHN A. & LAURA T. OTA JIULIANO	D/3978/171	RESIDENTIAL
R	335–8.00–325.00	MEGAN E. BOUNDS	D/4218/323	RESIDENTIAL
S	335–12.00–3.11	GLH OF LEWES, LLC	D/4963/34	RESIDENTIAL



OWNER'S CERTIFICATION

I, THE UNDERSIGNED, HEREBY CERTIFY THAT I AM THE OWNER OF THE PROPERTY DESCRIBED ON THIS PLAN, THAT THE PLAN WAS MADE BY MY DIRECTION AND THAT I ACKNOWLEDGE THE SAME TO BE MY ACT AND DESIRE THE PLAN TO BE RECORDED AS SHOWN IN ACCORDANCE WITH ALL APPLICABLE LAWS AND REGULATIONS.

Robert P. Mitchell 3-19-19

L.W. & J.T. MITCHELL, FAMILY L.P. DATE
1019 KINGS HWY.
LEWES, DE 19958

APPROVED
Boundary/Easement Creation
SUSSEX COUNTY PLANNING & ZONING COMMISSION
3/20/19

ENGINEER'S STATEMENT

I, RING W. LARDNER, P.E., HEREBY STATE THAT I AM A REGISTERED ENGINEER IN THE STATE OF DELAWARE, THAT THE INFORMATION SHOWN HEREON HAS BEEN PREPARED UNDER MY SUPERVISION AND TO MY BEST KNOWLEDGE AND BELIEF REPRESENTS GOOD ENGINEERING PRACTICES AS REQUIRED BY THE APPLICABLE LAWS OF THE STATE OF DELAWARE.

DAVIS, BOWEN & FRIEDEL, INC. 3/18/2019
by RING W. LARDNER, P.E. DATE

0 100 200 300

CONFORMED COPY
Document # 20190000009898 BK: 281 PG: 40
On 3/26/2019 at 2:36:48 PM
RECORDER OF DEEDS Scott Dailey
Sussex County
Consideration: $0.00

DAVIS, BOWEN & FRIEDEL, INC.
ARCHITECTS ENGINEERS SURVEYORS
SALISBURY, MARYLAND (410) 543–9091
MILFORD, DELAWARE (302) 424–1441
EASTON, MARYLAND (410) 770–4744

RED RECORD PLAN

GILLS NECK ROAD
SCR 267

ZWAANENDAEL FARM
LEWES & REHOBOTH HUNDRED
SUSSEX COUNTY, DELAWARE

Revisions:
2018–10–11: SCD
FM
2018–10–23: SCE
2018–10–25: DELDOT
2018–11–05: LBPW
2018–11–19: SCD
2019–01–18: DELDOT
2019–02–14: DELDOT

Date: AUGUST, 2018
Scale: 1" = 100'
Dwn.By: TAJ/SHF
Proj.No.: 2640A002
Dwg.No.: V–101

P:\Mitchell Family Ltd Partnership\Mitchell Farm\DESIGN\2640A001-RECORD PLAN.dwg Mar 18, 2019 - 3:31pm mumc

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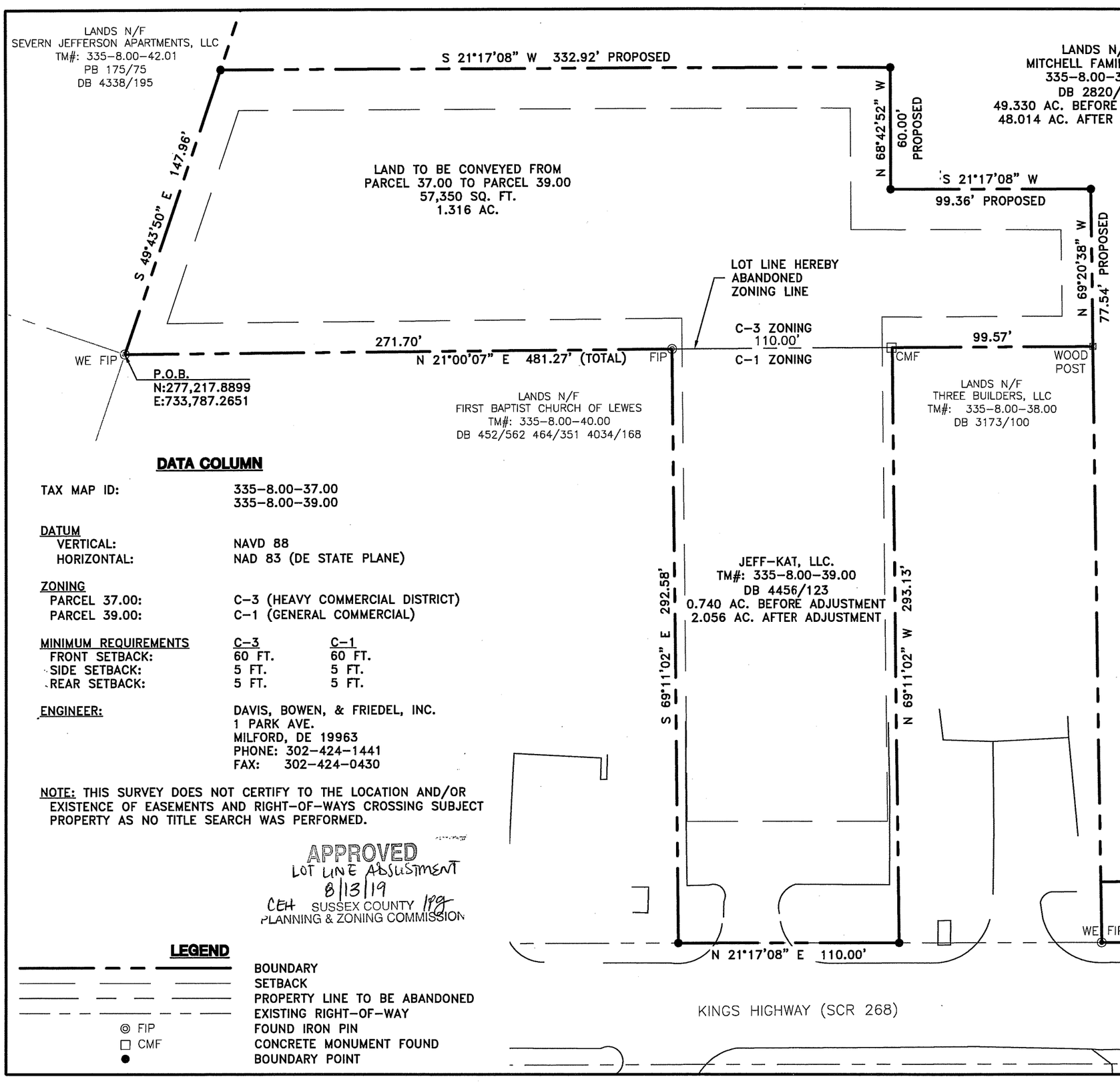
Document# 2019000031453 BK: 290 PG: 23
Recorder of Deeds, Scott Dailey On 8/28/2019 at 1:47:47 PM Sussex County, DE
Doc Surcharge Paid



DATA COLUMN

TAX MAP ID:	335-8.00-37.00 335-8.00-39.00
DATUM	
VERTICAL:	NAVD 88
HORIZONTAL:	NAD 83 (DE STATE PLANE)
ZONING	
PARCEL 37.00:	C-3 (HEAVY COMMERCIAL DISTRICT)
PARCEL 39.00:	C-1 (GENERAL COMMERCIAL)

MINIMUM REQUIREMENTS	C-3	C-1
FRONT SETBACK:	60 FT.	60 FT.
SIDE SETBACK:	5 FT.	5 FT.
REAR SETBACK:	5 FT.	5 FT.

ENGINEER:
DAVIS, BOWEN, & FRIEDEL, INC.
1 PARK AVE.
MILFORD, DE 19963
PHONE: 302-424-1441
FAX: 302-424-0430

NOTE: THIS SURVEY DOES NOT CERTIFY TO THE LOCATION AND/OR EXISTENCE OF EASEMENTS AND RIGHT-OF-WAYS CROSSING SUBJECT PROPERTY AS NO TITLE SEARCH WAS PERFORMED.

APPROVED
LOT LINE ADJUSTMENT
8/13/19
CEH SUSSEX COUNTY
PLANNING & ZONING COMMISSION

LEGEND

- BOUNDARY
- SETBACK
- PROPERTY LINE TO BE ABANDONED
- EXISTING RIGHT-OF-WAY
- ◎ FIP — FOUND IRON PIN
- □ CMF — CONCRETE MONUMENT FOUND
- ● — BOUNDARY POINT

OWNER'S CERTIFICATION

I, THE UNDERSIGNED, HEREBY CERTIFY THAT I AM THE OWNER OF THE PROPERTY DESCRIBED AND SHOWN ON THIS PLAN, THE PLAN WAS MADE AT OUR DIRECTION, WE ACKNOWLEDGE THE SAME TO BE OUR ACT AND DESIRE THE PLAN BE RECORDED ACCORDING TO LAW.

Robert P. Mitchell 8-8-19

MITCHELL FAMILY, LLC. DATE
1019 KINGS HWY.
LEWES, DE 19958

Document # 2019000031453 BK: 290 PG: 23
On 8/28/2019 at 1:47:47 PM
RECORDER OF DEEDS Scott Dailey
Sussex County
Consideration: $0.00
Doc Surcharge Paid

OWNER'S CERTIFICATION

I, THE UNDERSIGNED, HEREBY CERTIFY THAT I AM THE OWNER OF THE PROPERTY DESCRIBED AND SHOWN ON THIS PLAN, THE PLAN WAS MADE AT OUR DIRECTION, WE ACKNOWLEDGE THE SAME TO BE OUR ACT AND DESIRE THE PLAN BE RECORDED ACCORDING TO LAW.

8/12/2019

JEFF-KATT, LLC. DATE
55 BAY REACH
REHOBOTH BEACH, DE 19971

ENGINEER'S STATEMENT

I, RING W. LARDNER, P.E., HEREBY STATE THAT I AM A REGISTERED ENGINEER IN THE STATE OF DELAWARE, THAT THE INFORMATION SHOWN HEREON HAS BEEN PREPARED UNDER MY SUPERVISION AND TO MY BEST KNOWLEDGE AND BELIEF REPRESENTS GOOD ENGINEERING PRACTICES AS REQUIRED BY THE APPLICABLE LAWS OF THE STATE OF DELAWARE.

8/26/2019

DAVIS, BOWEN & FRIEDEL, INC. DATE
by RING W. LARDNER, P.E.

RING W. LARDNER REGISTERED No. 15647 DELAWARE PROFESSIONAL ENGINEER

0 50 100 150

DAVIS, BOWEN & FRIEDEL, INC.
ARCHITECTS, ENGINEERS & SURVEYORS
SALISBURY, MARYLAND (410) 543-9091
MILFORD, DELAWARE (302) 424-1441

LOT LINE ADJUSTMENT
PARCEL 37.00 & PARCEL 39.00
LEWES & REHOBOTH HUNDRED
SUSSEX COUNTY, DELAWARE

Date:	SEPT. 2018
Scale:	1" = 50'
Dwn.By:	TAJ
Proj.No.:	
Dwg.No.:	1

P:\Mitchell Family Ltd Partnership\Mitchell Farm\DESIGN\Lot Exhibits\Zwaanendael-Farm_Lot-Exhibits.dwg Jul 26, 2019 - 8:50am

Document# 2019000031460 BK: 5112 PG: 76
Recorder of Deeds, Scott Dailey On 8/28/2019 at 2:12:29 PM Sussex County, DE
Consideration: $0.00 County/Town: $0.00 State: $0.00 Total: $0.00
Doc Surcharge Paid Town: SUSSEX COUNTY

TAX PARCEL NOS.: 3-35-8.00-39.00 and
p/o 3-35-8.00-37.00

PREPARED BY & RETURN TO:
Parkowski, Guerke & Swayze, P.A.
19354C Miller Road
Rehoboth Beach, DE 19971
File No. 087-19/VGR

THIS DEED, made this 27th day of August, 2019,

- BETWEEN -

JEFF-KAT, LLC, a Delaware limited liability company, of 1007 Kings Highway, Lewes, DE 19958, party of the first part,

- AND -

JEFF-KAT, LLC, a Delaware limited liability company, of 1007 Kings Highway, Lewes, DE 19958, party of the second part.

WITNESSETH: That the said party of the first part, for and in consideration of the sum of Ten Dollars and 00/100 ($10.00), lawful money of the United States of America, the receipt whereof is hereby acknowledged, hereby grants and conveys unto the party of the second part, and its heirs and assigns, in fee simple, the following described lands, situate, lying and being in Sussex County, State of Delaware:

ALL that piece or parcel of land, hereinafter described, situate, lying and being on the easterly side of Kings Highway (Road 268); being located in Lewes and Rehoboth I-hundred, Sussex County, Delaware; said piece or parcel of land being more particularly described as follows:

BEGINNING at a point along the easterly right-of-way line of Kings Highway; said point being the northwestern boundary corner for lands now or formerly of Jeff-Kat, LLC, as recorded in the Office of the Recorder of Deeds in and for Sussex County and the State of Delaware in Deed Book D-4456, Page 123; thence, leaving said Point of Beginning and running by and with said Jeff-Kat lands, North 69 degrees I I minutes 02 seconds East 292.58 feet to a found iron pipe; thence, running by and with lands now or formerly' of First Baptist Church of Lewes. as recorded in said Office of the Recorder of Deeds in Deed Book 4034. Page 168, North 21 degrees 00 minutes 07 seconds East 271.70 feet to a found iron pin at a point on the southerly line of lands of. now or formerly, Severn Jefferson Apartments, LLC, as recorded in said Office

Document# 2019000031460 BK: 5112 PG: 77
Recorder of Deeds, Scott Dailey On 8/28/2019 at 2:12:29 PM Sussex County, DE
Doc Surcharge Paid

of the Recorder of Deeds in Deed Book 4338, Page 195; thence, leaving said Baptist Church lands and running by and with said Severn lands, South 49 degrees 43 minutes 50 seconds East 147.96 feet to a point; thence, leaving said Severn lands and running through lands of, now or formerly, Mitchell Family, LLC, as recorded in said Office of the Recorder of Deeds in Deed Book 2820, Page 72, being a new property line, the following four courses and distances: (1) South 21 degrees 17 minutes 08 seconds West 332.92 feet to a point, thence, (2) North 68 degrees 42 minutes 52 seconds West 60.00 feet to a point, thence, (3) South 21 degrees 17 minutes 08 seconds West 99.36 feet to a point, thence, (4) North 69 degrees 20 minutes 38 seconds West 77.54 feet to a wooden post found at a point on the southeasterly line of lands of, now or formerly', Three Builders, Inc., as recorded in said Office of the Recorder of Deeds in Deed Book 31 73, Page 100; thence, leaving said Mitchell lands and running by and with said Three Builders lands, North 21 degrees 00 minutes 07 seconds East 99.57 feet to a concrete monument found at a point, thence North 69 degrees I I minutes 02 seconds West 293.13 feet to a point along the easterly right-of-way line of Kings Highway, said point being the southwestern boundary corner of these lands; thence, by and with the said right-of-way line of Kings Highway North 21 degrees 17 minutes 08 seconds East 110.00 feet to the point and place of beginning, said to contain 2.056 acres, as depicted on a survey prepared by Davis, Bowen & Friedel, Inc. dated July 26, 2019 and entitled "Lot Line Adjustment" recorded in the Office of the Recorder of Deeds in and for Sussex County at Plot Book _290 . Page _23

BEING the same lands conveyed to JEFF-KAT, LLC, by deed from Robert R. Hastings, Trustee of the Robert R. Hastings Revocable Trust dated September 26, 2001, as amended, dated October 8, 2015, and recorded in the Office of the Recorder of Deeds, in and for Sussex County, Delaware, in Deed Book 4456, Page 123.

ALSO BEING the same lands conveyed to JEFF-KAT, LLC, a Delaware limited liability company, by deed from L.W. & J.T. Mitchell Family, L.P., a Delaware limited partnership, now known as Mitchell Family, LLC, a Delaware limited liability company, by conversion in an Agreement dated March 4, 2019, dated August 27, 2019, and recorded in the Office of the Recorder of Deeds, in and for Sussex County, Delaware, in Deed Book _5112 Page 73

SUBJECT to any and all restrictions, reservations, conditions, easements and agreements of record in the Office of the Recorder of Deeds in and for Sussex County, Delaware.

[*Signature page to immediately follow*]

Document# 2019000031460 BK: 5112 PG: 78
Recorder of Deeds, Scott Dailey On 8/28/2019 at 2:12:29 PM Sussex County, DE
Doc Surcharge Paid

IN WITNESS WHEREOF, the said limited liability company, has caused its name to be hereunto set under seal by Jeffrey A. Hamer and Kimberly A. Hamer, as Members of the JEFF-KAT, LLC, a Delaware limited liability company, the day and year first above written.

Witness

Witness

JEFF-KAT, LLC

By: _____(SEAL)
Jeffrey A. Hamer, Member

By: _____(SEAL)
Kimberly A. Hamer, Member

STATE OF DELAWARE, COUNTY OF SUSSEX: to-wit

BE IT REMEMBERED, that on this 27th day of August, 2019, personally appeared before me, the Subscriber, a Notary Public in and for the State and County aforesaid, Jeffrey A. Hamer and Kimberly A. Hamer, Members of JEFF-KAT, LLC, a Delaware limited liability company, party to this Indenture, known to me personally to be such, and acknowledged this Indenture to be their act and deed and the act and deed of said limited liability company.

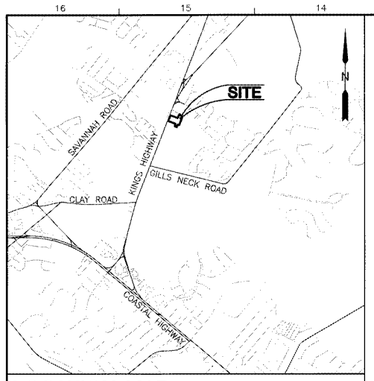
GIVEN under my Hand and Seal of Office the day and year aforesaid.

Notary Public

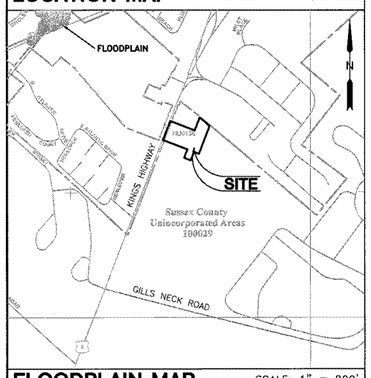
My Commission Expires: N/A

ADMITTED TO DELAWARE BAR 12/15/94
ATTORNEY
VINCENT G. ROBERTSON
NOTARY
UNIFORM LAW ON NOTARIAL ACTS
PURSUANT TO 29 DEL C. SEC 4323 (3)

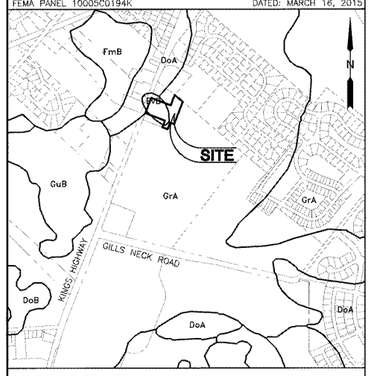
Document# 2021000077093 BK: 358 PG: 18
Recorder of Deeds, Scott Dailey On 12/16/2021 at 11:03:27 AM Sussex County, DE
Doc Surcharge Paid



LOCATION MAP SCALE: 1" = 1/2-MILE

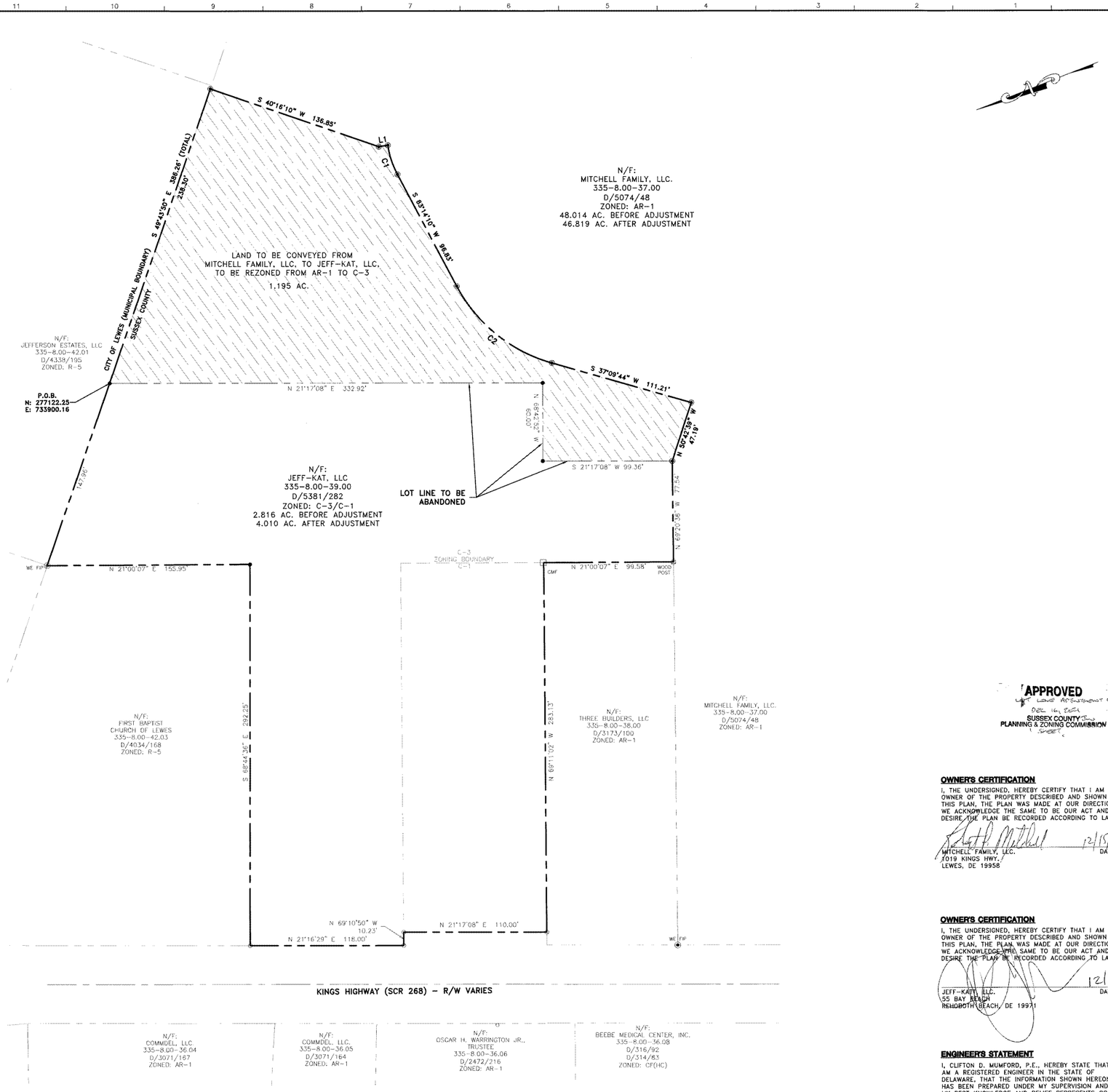


FLOODPLAIN MAP SCALE: 1" = 800'
FEMA PANEL 10005C0194K DATED: MARCH 16, 2015



SOILS MAP SCALE: 1" = 1000'

DoA: DOWNER SANDY LOAM, 0 TO 2 PERCENT SLOPES (B)
EvB: EVESBORO LOAMY SAND, 0 TO 5 PERCENT SLOPES (A)
GrA: GREENWICH LOAM, 0 TO 2 PERCENT SLOPES (B)



DATA COLUMN

TAX MAP ID:	335-8.00-37.00 335-8.00-39.00
DATUM HORIZONTAL:	NAD 83 (DE STATE PLANE)
ZONING PARCEL 37.00: PARCEL 39.00:	AR-1 (AGRICULTURE RESIDENTIAL DISTRICT) C-1/C-3 (GENERAL COMMERCIAL/HEAVY COMMERCIAL DISTRICT)

MINIMUM REQUIREMENTS	AR-1	C-1	C-3
FRONT SETBACK:	30 FT.	60 FT.	30 FT.
SIDE SETBACK:	15 FT.	5 FT.	20 FT. MIN WITH COMBINED MIN AGG. OF 50 FT
REAR SETBACK:	20 FT.	5 FT.	50 FT.

ENGINEER: DAVIS, BOWEN & FRIEDEL, INC.
1 PARK AVE.
MILFORD, DE 19963
PHONE: 302-424-1441
FAX: 302-424-0430

NOTE: THIS SURVEY DOES NOT CERTIFY TO THE LOCATION AND/OR EXISTENCE OF EASEMENTS AND RIGHTS-OF-WAY CROSSING SUBJECT PROPERTY AS NO TITLE SEARCH WAS PERFORMED.

CURVE TABLE

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
C1	70.00'	23.47'	23.36'	N 87°09'28" W	19°12'44"
C2	120.00'	96.50'	93.92'	S 60°11'57" W	46°04'26"

LINE TABLE

LINE	BEARING	DISTANCE
L1	S 12°26'54" W	7.06'

LEGEND

- BOUNDARY
- PROPERTY LINE TO BE ABANDONED
- ADJACENT PROPERTY LINE
- FIP — FOUND IRON PIN
- CMF — CONCRETE MONUMENT FOUND
- BOUNDARY POINT
- IRON ROD WITH CAP SET

APPROVED
DEC 14, 2021
SUSSEX COUNTY
PLANNING & ZONING COMMISSION

OWNER'S CERTIFICATION

I, THE UNDERSIGNED, HEREBY CERTIFY THAT I AM THE OWNER OF THE PROPERTY DESCRIBED AND SHOWN ON THIS PLAN, THE PLAN WAS MADE AT OUR DIRECTION, WE ACKNOWLEDGE THE SAME TO BE OUR ACT AND DESIRE THE PLAN BE RECORDED ACCORDING TO LAW.

MITCHELL FAMILY, LLC. — DATE 12/15/21
2019 KINGS HWY.
LEWES, DE 19958

OWNER'S CERTIFICATION

I, THE UNDERSIGNED, HEREBY CERTIFY THAT I AM THE OWNER OF THE PROPERTY DESCRIBED AND SHOWN ON THIS PLAN, THE PLAN WAS MADE AT OUR DIRECTION, WE ACKNOWLEDGE THE SAME TO BE OUR ACT AND DESIRE THE PLAN BE RECORDED ACCORDING TO LAW.

JEFF-KAT, LLC. — DATE 12/15/21
55 BAY BEACH
REHOBOTH BEACH, DE 19971

ENGINEER'S STATEMENT

I, CLIFTON D. MUMFORD, P.E., HEREBY STATE THAT I AM A REGISTERED ENGINEER IN THE STATE OF DELAWARE, THAT THE INFORMATION SHOWN HEREON HAS BEEN PREPARED UNDER MY SUPERVISION AND TO MY BEST KNOWLEDGE AND BELIEF, REPRESENTS GOOD ENGINEERING PRACTICES AS REQUIRED BY THE APPLICABLE LAWS OF THE STATE OF DELAWARE.

CLIFTON D. MUMFORD No. 19635 — DATE 12-14-21
DAVIS, BOWEN & FRIEDEL, INC.
by CLIFTON D. MUMFORD, P.E.

0 40 80 120

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DAVIS, BOWEN & FRIEDEL, INC.
ARCHITECTS ENGINEERS SURVEYORS
SALISBURY, MARYLAND (410) 543-9091
MILFORD, DELAWARE (302) 424-1441
EASTON, MARYLAND (410) 770-4744

LOT LINE ADJUSTMENT AND REZONING PLAN

LANDS OF MITCHELL FAMILY, LLC

LEWES & REHOBOTH HUNDRED

SUSSEX COUNTY, DELAWARE

Revisions:

Date: JUNE, 2021
Scale: 1" = 40'
Dwn.By: TCB
Proj.No.: 3007A002
Dwg.No.: LLA-RZ

P:\Jeff.Kat 21\Kng's Highway Site Expansion\Design (Re-Design)\Exhibits\Exhibit Record Plan.dwg Dec 10, 2021 - 2:38pm mumc

Document# 2021000077094 BK: 5613 PG: 209
Recorder of Deeds, Scott Dailey On 12/16/2021 at 11:03:27 AM Sussex County, DE
Consideration: $1,100,000.00 County/Town: $16,500.00 State: $27,500.00 Total: $44,000.00
Doc Surcharge Paid Town: SUSSEX COUNTY

TAX PARCEL NO.: P/O 3-35-8.00-37.00
as extension of 3-35-8.00-39.00

PREPARED BY & RETURN TO:
Parkowski, Guerke & Swayze, P.A.
19354C Miller Road
Rehoboth Beach, DE 19971
File No. 228-21/VGR

THIS DEED, made this 15th day of December, 2021,

- BETWEEN -

MITCHELL FAMILY, LLC, a Delaware limited liability company, of 20773 Atlanta Road, Seaford, DE 19973, party of the first part,

- AND -

JEFF-KAT, LLC, a Delaware limited liability company, of 1007 Kings Highway, Lewes, DE 19958, party of the second part.

WITNESSETH: That the said party of the first part, for and in consideration of the sum of Ten Dollars and 00/100 ($10.00), lawful money of the United States of America, the receipt whereof is hereby acknowledged, hereby grants and conveys unto the party of the second part, and its heirs and assigns, in fee simple, the following described lands, situate, lying and being in Sussex County, State of Delaware:

ALL that piece or parcel of land, hereinafter described, situate, lying and being on the southeasterly side of Lands now or formerly of Jeff-Kat, LLC, and being located in Lewes & Rehoboth Hundred, Sussex County, Delaware, being part of the northerly corner of Parcel 37.00, as shown on a plat entitled "Lot Line Adjustment and Rezoning Plan", completed by Davis Bowen & Friedel, Inc., dated June 2021, recorded in Plot Book _358 _, Page _18 ___, and being particularly described as follows:

BEGINNING at point formed by northerly corner of lands now or formerly of Mitchell Family LLC., and said point is the easterly corner of lands now or formerly of Jeff-Kat LLC., as recorded in the Office of the Recorder of Deeds in and for Sussex County and the State of Delaware; said beginning point being coordinated on the Delaware State Grid System as North: 277,122.25 feet, East: 733,900.16 feet; thence; (1) leaving said lands of Jeff-Kat LLC., and running by and with lands now or formerly of Jefferson Estates LLC., South 49 degrees 43 minutes 50 seconds East 238.30 feet to a point, thence running; (2) through subject property the following 8 courses, South 40 degrees 16 minutes 10 seconds West 136.85 feet to a point, thence running; (3) South 12 degrees 26 minutes 54 seconds West 7.06 feet to a point, thence running;

Document# 2021000077094 BK: 5613 PG: 210
Recorder of Deeds, Scott Dailey On 12/16/2021 at 11:03:27 AM Sussex County, DE
Doc Surcharge Paid

(4) by and with a curve to the left having a radius of 70.00 feet, and arc length of 23.47 feet, a chord bearing of North 87 degrees 09 minutes 28 seconds West, and a chord length of 23.36 feet to a point, thence running; (5) South 83 degrees 14 minutes 10 seconds West 96.83 feet to a point, thence running; (6) by and with a curve to the left having a radius of 120.00 feet, and arc length of 96.50 feet, a chord bearing of South 60 degrees 11 minutes 57 seconds West, and a chord length of 93.92 feet to a point, thence running; (7) South 37 degrees 09 minutes 44 seconds West 111.21 feet to a point, thence running; (8) North 50 degrees 42 minutes 39 seconds West 47.19 feet to a point at lands now or formerly of Jeff-Kat LLC., thence running; (9) by and with said lands of Jeff-Kat LLC. the following 3 courses, North 21 degrees 17 minutes 08 seconds East 99.36 feet to a point, thence running; (10) South 68 degrees 42 minutes 52 seconds East 60.00 feet to a point, thence running; (11) North 21 degrees 17 minutes 08 seconds East 332.92 feet to the point and place of beginning; CONTAINING 1.195 acres of land, more or less.

Said lands to be combined with and become part of existing lands of Jeff-Kat, LLC, known as Sussex County Tax Parcel No. 3-35-8.00-39.00.

SUBJECT to any and all restrictions, reservations, conditions, easements and agreements of record in the Office of the Recorder of Deeds in and for Sussex County, Delaware.

BEING a part of the same lands conveyed unto Mitchell Family, LLC, a Delaware limited liability company, by deed from L.W. & J.T. Mitchell Family Limited Partnership, dated June 11, 2019, and recorded June 12, 2019, in the Office of the Recorder of Deeds, in and for Sussex County, Delaware, in Deed Book 5074, Page 48.

IN WITNESS WHEREOF, the said Mitchell Family, LLC, a Delaware limited liability company, has caused its name to be hereunto set under seal by Robert P. Mitchell, Manager of Mitchell Family, LLC, the day and year first above written.

Witness

MITCHELL FAMILY, LLC

By: _____(SEAL)
Robert P. Mitchell, Manager

STATE OF DELAWARE, COUNTY OF SUSSEX: to-wit

BE IT REMEMBERED, that on this 15th day of December, 2021, personally appeared before me, the Subscriber, a Notary Public in and for the State and County aforesaid, Robert P. Mitchell, Manager of Mitchell Family, LLC, a Delaware limited liability company, party to this Indenture, known to me personally to be such, and acknowledged this Indenture to be his/her act and deed and the act and deed of said limited liability company.

GIVEN under my Hand and Seal of Office the day and year aforesaid.

ADMITTED TO DELAWARE BAR 12/15/94
ATTORNEY
VINCENT G. ROBERTSON
NOTARY
UNIFORM LAW ON NOTARIAL ACTS
PURSUANT TO 29 DEL C. SEC 4323 (3)

Notary Public
My Commission Expires: N/A

BOOK 321 PAGE 42

State of Michigan } s.s. Be It Remembered, That
L. Lester Ormes Genesee County } on this 14 day of December
Notary Public in the year of our Lord, one thousand
Genesee County nine hundred and forty personally came
Mich. before me, the subscriber a Notary Public
in and for the State and County aforesaid,
Harry M. Parker and Bernice M. Parker his wife,
Parties to this Indenture known to me personally to be
such, and they acknowledged this Indenture to be
their Deed. And the said Bernice M. Parker being
at the same time privately examined by me apart
from her husband acknowledged that she executed the
said Indenture willingly without compulsion or threats
or fear of her husbands displeasure. Given under
My Hand and Seal of office the day and year aforesaid.

L. Lester Ormes
Notary Public

Received for Record
December 23, A.D. 1940
Charles H. Hurley, Recorder

Recorded Dec 23 1940

Purchasers Report Made This 23 day Dec 1940. Boards of Assessment of Sussex Co. Del. Harvey T. Wolfe, Clerk.

Deed - George N. Robinson To Lowder N. Mitchell et ux

This Deed, Made the twenty-third day of December, in the year of our Lord one thousand nine hundred and forty; Between George N. Robinson widower of Lewes and Rehoboth Hundred, Sussex County and State of Delaware, party of the first part and Lowder N. Mitchell and Laura A. Mitchell, his wife of the Hundred, County and State aforesaid, parties of the second part; Witnesseth, That the said party of the first part, for and in consideration of the sum of one Dollar ($1.00) and other Good & valuable Consideration, lawful Money of the United States of America, the receipt whereof is hereby acknowledged, hereby grants and Conveys unto the said parties of the second part, their Heirs and Assigns, as tenants by the entirety, All That Certain tract of land situate lying and being in Lewes and Rehoboth Hundred, Sussex County, State of Delaware, and more particularly described as follows, to wit: Beginning at a point on the east side of the State Road leading from Murray's Corner to Lewes and a corner for lands of Eugene Maull; thence with the same south sixty-one degrees east three hundred feet to a post; thence with the same and lands of Fred Marshall, Virgil Dennis and other lands of George N. Robinson, North twenty-nine and one-half degrees East four hundred and eighty-one feet to a stone in the line of lands of The Sussex Trust Company; thence with the same south forty one degrees and fifteen minutes east sixteen hundred and eighty six feet to a

Stone; thence with three lines of Mrs. Riggin's lands South forty-five degrees West one hundred and fifty-five feet to a stone, thence North forty three degrees west three hundred and twenty feet to a stone; thence South forty six degrees West fourteen hundred and sixty feet to a stone on the North side of Book Lamm Road; thence with the North side of the same North sixty-seven and one-half degrees West eleven hundred and forty-six feet to a stone at the intersection of this road with the first Named State Road; thence with the same North twenty-Nine and three-fourths degrees East sixteen hundred and sixty-three feet to the place of beginning Containing fifty-seven and Ninety-eight hundredths (57.98) Acres more or less. Being only a portion of the same lands and premises which were Conveyed to the said George H. Robinson his Grantor by Indenture of Ebe H. Mansell and Bertha P. Hickman Administrators of Wm. Harberson Hickman, dated the seventh day of April AD 1891, and recorded in the office of the Recorder of Deeds at Georgetown Delaware, in and for Sussex County, in Deed Book C.C.B. No. 127, Page 42 etc. Together with the tenements, hereditaments, franchises, waters, watercourses, rights, liberties, privileges, and appurtenances thereunto belonging, and the reversions and remainders, rents, issues and profits thereof. And all the estate, right title, interest property, Claim and demand whatsoever, of the said party of the first part, at law, equity or otherwise in and to the same and every part and parcel thereof. To Have and To Hold, the said lands, premises hereditaments hereby granted or mentioned, or intended so to be, with the Appurtenances, unto the said parties of the second part, their heirs and assigns to and for their only proper use and behoof forever in fee simple. And the said George H. Robinson for himself, his heirs, Executors and Administrators does hereby Covenant, Grant, promise and Agree to and with the said parties of the second part their heirs and assigns, that the said George H. Robinson at the execution hereof is seized of an indefeasible estate in fee simple in the said property; that the said George H. Robinson has good right, full power and lawful authority to Grant, Bargain, Sell and Convey the same in the Manner aforesaid; that the said parties of the second part, their heirs and assigns May forever hereafter have, hold, possess and quietly enjoy the same, without any suit, Molestation, or interruption, by any person whatsoever, lawfully claiming any right therein; that the said premises are at the time of the execution hereof free from all encumbrances; that the said

Recorded & Returned
Georgetown, Del.
4/23/90

George H. Robinson and all persons hereafter Claiming under him, will at any time hereafter, at the Request and Expence of the said parties of the second part, their heirs or assigns, Make all such further Assurance for the more effectual Conveying of the said Premises with the appurtenances, and May be reasonably required by him, and that said George H. Robinson will forever Warrant and defend the said property under the said parties of the second part their heirs, executors administrators and assigns, against the Claims and demands of all persons whatsoever. In Witness Whereof, the said party of the first part has hereunto set his Hand and Seal, the day and year first above written.

Signed, Sealed and Delivered in the Presence of
Alice D. Adams

S.S. P.R.R. 11-23-40

George H. Robinson (Seal)

State of Delaware } s.s. Be It Remembered, That
County of Sussex } on this 23 day of December in the year of our Lord one thousand Nine Hundred and forty personally came before me, the Subscriber, a Notary Public in and for the State and County aforesaid George H. Robinson, widower, party to this Indenture, known to me personally to be such, and Acknowledged this Indenture to be his Deed. Given under My Hand and Seal of office, the day and year aforesaid.

Alice D. Adams
Notary Public
My Commission Expire 9 day March 1941

Alice D. Adams Notary Public Appt. March 9, 1939 for 2 years Seal Del.

Recorded Dec. 23, A.D. 1940

Charles H. Hurley, Recorder

Purchasers Report Made This 23rd day of December 1940 Board of Assessment of Sussex County. Per. Harvey B. Wolfe. Clerk.

Recorded in Deed Book 324 Page 429 &c. Del.

Deed: Clara B. Pusey Admx &c. to C. V. Townsend Jr. Inc.

This Indenture, Made the twenty first day of December in the year of our Lord One thousand Nine hundred and forty. Between Clara B. Pusey Administratrix of George H. Pusey late of the County of Sussex and State of Delaware, deceased, party of the first part, and C. V. Townsend Jr. Inc. a Corporation of the State of Delaware party of the second part, Witness, at an Orphans Court of the State of Delaware in and for Sussex County, held at Georgetown on the sixteenth day of November A.D. One thousand Nine Hundred forty, upon the application of Clara B. Pusey administratrix of George H. Pusey, deceased, aforesaid, it was ordered by the Court that the said Clara B. Pusey, Administratrix of George

Document# 2019000020741 BK: 5074 PG: 48
Recorder of Deeds, Scott Dailey On 6/12/2019 at 3:11:48 PM Sussex County, DE
Consideration: $0.00 County/Town: $0.00 State: $0.00 Total: $0.00
Doc Surcharge Paid Town: SUSSEX COUNTY

TAX MAP AND PARCEL #: 3-35 8.00 37.00
PREPARED BY & RETURN TO:
Morris James LLP
107 West Market Street
P.O. Box 690
Georgetown, DE 19947
File No. 20193/RGG

THIS CONFIRMATORY DEED, made this 11th day of June, 2019,

- BETWEEN -

L.W. & J.T. MITCHELL FAMILY LIMITED PARTNERSHIP, of 1019 Kings Highway, Lewes, DE 19958, party of the first part,

- AND –

MITCHELL FAMILY, LLC, a Delaware limited liability company, of 1019 Kings Highway, Lewes, DE 19958, party of the second part.

WITNESSETH: That the said party of the first part, for and in consideration of the sum of **TEN and 00/100 Dollars ($10.00)**, lawful money of the United States of America, the receipt whereof is hereby acknowledged, hereby grants and conveys unto the party of the second part, and its successors and assigns, in fee simple, the following described lands, situate, lying and being in Sussex County, State of Delaware:

ALL that piece or parcel of land, hereinafter described, situate, lying and being on the northerly side of Gills Neck Road (Road 267) and the easterly side of Kings Highway (Road 268); being located in Lewes and Rehoboth Hundred, Sussex County, Delaware; designated as "Residual Land" as shown on Plot entitled Record Minor Subdivision Plan, prepared by Davis, Bowen & Friedel, Inc., dated March, 2017, and recorded October 9, 2018, in the Office of the Recorder of Deeds, in and for Sussex County in Plot Book 271, Page 47; said piece or parcel of land being more particularly described as follows:

COMMENCING at a Wingate and Eschenbach found iron pipe along the easterly right-of-way line of Kings Highway; said point being located 30' from the centerline of Kings Highway and being the southwestern boundary corner for lands now or formerly of Three Builders, Inc., as recorded in the Office of the Recorder of Deeds in and for Sussex County and the State of Delaware in Deed Book D-3173, Page 100; coordinated on the Delaware State Grid System as North 276,872.17, East 733,340.02, thence,

1) leaving said point of beginning and running by and with lands now or formerly of Three Builders, Inc., South 69 degrees 20 minutes 38 seconds East 293.63 feet to wooden post at a point on the westerly line of lands of now or formerly of JeffKat, LLC, as recorded in said Office of the Recorder of Deeds in Deed Book D-4456, Page 123, thence,

2) running by and with said Three Builders lands, and in part with said JeffKat lands and in part with lands of, now or formerly, First Baptist Church of Lewes, North 21 degrees 00 minutes 07 seconds East 481.27 feet to an iron pipe found at a point on the easterly line of lands of, now or formerly, Jefferson Estate, LLC, as recorded in said Office of the Recorder of Deeds in Deed Book D-4338, Page 195, thence,

3) leaving said First Baptist Church lands and running by and with said Jefferson Estates lands, South 49 degrees 43 minutes 50 seconds East 763.78 feet to a concrete monument found at a point on the southerly line of Baybreeze Subdivision, thence,

4) leaving said Jefferson Estates and running by and with said Baybreeze Subdivision, South 49 degrees 38 minutes 53 seconds East 497.04 feet to a found iron rod at a point on the westerly line of lands of, now or formerly, Cadbury at Lewes as recorded in said Office of the Recorder of Deeds in Deed Book D-2934, Page 239, thence,

5) leaving said Baybreeze lands and running by and with said Cadbury lands, South 37 degrees 09 minutes 44 seconds West 1,655.38 feet to a point on the northerly right-of-way line o Gills Neck Road, width varies, thence,

6) leaving said Cadbury lands and running by and with said right-of-way line of Gills Neck Road, North 75 degrees 55 minutes 42 seconds West 664.50 feet to a point on the easterly line of lands of, now or formerly, Cape Henlopen Medical Center, LLC, thence,

7) running by and with said Cape Henlopen Medical lands, the following 2 courses and distances, North 21 degrees 17 minutes 08 seconds East 362.03 feet to a point, thence,

8) North 68 degrees 42 minutes 52 seconds West 371.14 feet to a point on the aforementioned right-of-way line of Kings Highway, thence,

9) leaving said Cape Henlopen lands and running by and with said right-of-way line of Kings Highway, North 21 degrees 17 minutes 08 seconds East 1239.98 feet to the point and place of beginning; **CONTAINING** 49.330 acres of land, more or less.

BEING a part of the same lands conveyed unto L.W. & J.T. Mitchell Family Limited Partnership by Deed of Louder W. Mitchell, Jr. and Jane T. Mitchell, his wife, dated March 31, 2003 and recorded April 3, 2003 in the Office the Recorder of Deeds in and for Sussex County in Deed Book 2820, Page 72.

THIS CONFIRMATORY DEED is being executed and recorded to confirm the record owner of the property as Mitchell Farm, LLC which is the same entity as L.W. & J.T. Mitchell Family Limited Partnership, as L.W. & J.T. Mitchell Family Limited Partnership was converted from a limited partnership to a limited liability company pursuant to a Certificate of Conversion filed with the State of Delaware, Secretary of State Division of Corporations on March 4, 2019, File Number 3638808, pursuant to 6 *Del. C.* §17-219 & 6 *Del. C.* §18-214.

Document# 2019000020741 BK: 5074 PG: 50
Recorder of Deeds, Scott Dailey On 6/12/2019 at 3:11:48 PM Sussex County, DE
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SUBJECT to all easements, agreements, covenants, and plans of record, this reference to which shall not be construed to reimpose any such easements, agreement, covenants and plans that have otherwise lapsed, expired, or have otherwise been terminated in accordance with their terms or otherwise, as applicable, but not subject to any mortgages, judgments or other liens of record or otherwise.

IN WITNESS WHEREOF, the said L.W. & J.T. Mitchell Family Limited Partnership, a Delaware general partnership, has caused its name to be hereunto set under seal by Robert P. Mitchell, General Partner of L.W. & J.T. Mitchell Family Limited Partnership, the day and year first above written.

Witness

L.W. & J. T. MITCHELL FAMILY LIMITED PARTNERSHIP

By: _____(SEAL)
Robert P. Mitchell, General Partner

STATE OF DELAWARE, COUNTY OF SUSSEX: to-wit

BE IT REMEMBERED, that on this 11th day of June, A.D. 2019, personally appeared before me, the Subscriber, a Notary Public in and for the State and County aforesaid, Robert P. Mitchell, General Partner of L.W. & J.T. Mitchell Family Limited Partnership, a Delaware partnership, party to this Indenture, known to me personally to be such, and acknowledged this Indenture to be his act and deed and the act and deed of said partnership; that the signature of the General Partner is in his/her own proper handwriting and by his authority to act; and that the act of signing, sealing, acknowledging and delivering the said Indenture was first duly authorized by a resolution of the partnership.

GIVEN under my Hand and Seal of Office the day and year aforesaid.

DAVID C. HUTT, ESQ. #4037
Notarial Officer pursuant to
29 Del. Code §4323
ATTORNEY AT LAW
Delaware

Notary Public
My Commission Expires: _____

F

Morris James LLP

David C. Hutt
302.856.0018
dhutt@morrisjames.com

December 30, 2021

BY HAND DELIVERY & EMAIL TO: jamie.whitehouse@sussexcountyde.gov

Jamie Whitehouse, Director
Sussex County Planning & Zoning Office
2 The Circle, P.O. Box 417
Georgetown, DE 19947

RE: Substitution of Applications
Mitchell Farm a/k/a Zwaanendael Farm, now Mitchells Corner
SCTP No. 335-8.00-37.00

Dear Mr. Whitehouse:

In follow-up to our conversations regarding the applications relating to the above-referenced tax parcel, rather than amending each of the pending applications, it is more efficient to withdraw them and substitute applications in their place. Mitchell Family, LLC requests that the pending applications be withdrawn and the new applications described hereinafter be substituted in their place. It is our understanding that the replacement applications will be considered at future public hearings for which the prior applications were scheduled (tentatively March 10, 2022 (Planning & Zoning) and April 26, 2022 (County Council)). If this understanding is not correct, please advise me immediately as I will need to seek further direction from my client.

The applications to be withdrawn, are the following applications that were filed on April 15, 2019:

- Subdivision Application 2019-11, Zwaanendael Farm, 5 lots, 48.01± acres;
- CZ 1886, Mitchell Family, LLC; AR-1 to C-3, 11.58± acres;
- CZ 1887, Mitchell Family, LLC; AR-1 to MR, 30.15± acres;
- CZ 1888, Mitchell Family, LLC; AR-1 to B-2, 5.43± acres; and
- CU 2181, Mitchell Family, LLC; 209 Multifamily Units, 30.15± acres

The applications to be substituted in place of these applications as they relate to the same property are as follows:

- Subdivision Application, Mitchells Corner, 43.777± acres;
- Change of Zone from AR-1 to C-2, 3.041± acres;
- Change of Zone from AR-1 to MR, 43.777± acres; and

107 West Market Street | Georgetown, DE 19947-1438 T 302.856.0015 F 302.856.7116
Mailing Address P.O. Box 690 | Georgetown, DE 19947-0690 www.morrisjames.com

- Conditional Use, 267 Multifamily Units, 43.777± acres.

For each application, Ring W. Lardner, P.E., the engineer for the project, has put together a cover page describing the application being filed and the attachments included with the application. In addition to the paper copies being filed today, electronic copies of these applications will be available in Davis Bowen & Friedel, Inc.'s Dropbox project share to ensure the applications are available in both paper and electronic format.

If you have any questions, please do not hesitate to contact me.

Very Truly Yours,

MORRIS JAMES LLP

David C. Hutt, Esquire

Enclosures
cc: Ring W. Lardner, P.E.

DAVIS BOWEN & FRIEDEL, INC.

ARCHITECTS • ENGINEERS • SURVEYORS

Michael R. Wigley, AIA, LEED AP
W. Zachary Crouch, P.E.
Michael E. Wheedleton, AIA, LEED GA
Jason P. Loar, P.E.
Ring W. Lardner, P.E.
Jamie L. Sechler, P.E.

December 21, 2021

Sussex County Administrative Building
Planning and Zoning Department
2 The Circle
P.O. Box 589
Georgetown, Delaware 19947

Attn: Mr. Jamie Whitehouse, Director of Planning

Re: Zwaanendael Farm – Major Subdivision Application
Tax Parcel No: 3-35-8.00-37.00 (partial)
DBF #3808A001

Dear Mr. Whitehouse,

On behalf of our client, Henlopen Properties, LLC, we are pleased to submit the Major Subdivision application and plans to be considered by the Sussex County Planning and Zoning Commission for the above parcel. We have enclosed the following:

- Application for Major Subdivision with $500 fee
- (10) Copies of the "Major Subdivision Site Plan"
- (1) Copies of the Legal Description for the Major Subdivision
- (1) Deed Book 2820 Page 72
- (1) Electronic Copy uploaded to Dropbox project share

We respectfully request to be placed on the earliest available Planning and Zoning Commission Agenda. If you have any questions or need additional information, please contact me at (302) 424-1441 or via e-mail at rwl@dbfinc.com.

Sincerely,
DAVIS, BOWEN & FRIEDEL, INC.

Ring W. Ladner, P.E.
Principal

P:\Chesapeake Reality\Zwaanendael Farm\Documents\P&Z\2021-12-21 Major Subdivision\Cover Letter.doc

CC: Henlopen Properties, LLC.

File #: _____

Sussex County Major Subdivision Application
Sussex County, Delaware

Sussex County Planning & Zoning Department
2 The Circle (P.O. Box 417) Georgetown, DE 19947
302-855-7878 ph. 302-854-5079 fax

Type of Application: (please check applicable)
Standard: __
Cluster: __
ESDDOZ: ✓

Location of Subdivision:
Northeast quadrant of Kings Highway and Gills Neck Road, Lewes

Proposed Name of Subdivision:

Tax Map #: 335-8.00-37.00 Total Acreage: 43.777 +/- acres

Zoning: AR-1 **Density:** 6.10 **Minimum Lot Size:** 2,400 **Number of Lots:** 267

Open Space Acres: 11.794

Water Provider: Tidewater **Sewer Provider:** Sussex County

Applicant Information

Applicant Name: Henlopen Properties, LLC
Applicant Address: 4750 Owning Mills Blvd
City: Owning Mills State: MD ZipCode: 21117
Phone #: _____ E-mail: _____

Owner Information

Owner Name: Mitchell Family, LLC
Owner Address: 1019 Kings Highway
City: Lewes State: DE Zip Code: 19958
Phone #: _____ E-mail: _____

Agent/Attorney/Engineer Information

Agent/Attorney/Engineer Name: Davis, Bowen & Friedel, Inc.
Agent/Attorney/Engineer Address: 1 Park Avenue
City: Milford State: DE Zip Code: 19963
Phone #: (302) 424-1441 E-mail: rwl@dbfinc.com

Check List for Sussex County Major Subdivision Applications

The following shall be submitted with the application

✓ **Completed Application**

✓ **Provide fifteen (15) copies of the Site Plan or Survey of the property and a PDF (via e-mail)**
- Plan shall show the existing conditions, setbacks, roads, floodplain, wetlands, topography, proposed lots, landscape plan, etc. **Per Subdivision Code 99-22, 99-23 & 99-24**
- Provide compliance with Section 99-9.
- Deed or Legal description, copy of proposed deed restrictions, soil feasibility study

✓ **Provide Fee $500.00**

___ **Optional - Additional information for the Commission to consider** (ex. photos, exhibit books, etc.) If provided submit seven (7) copies and they shall be submitted a minimum of ten (10) days prior to the Planning Commission meeting.

✓ **Please be aware that Public Notice will be sent to property owners within 200 feet of the subject site and County staff will come out to the subject site, take photos and place a sign on the site stating the date and time of the Public Hearings for the application.**

___ **PLUS Response Letter** (if required)

___ **51% of property owners consent if applicable**

The undersigned hereby certifies that the forms, exhibits, and statements contained in any papers or plans submitted as a part of this application are true and correct.

I also certify that I or an agent on by behalf shall attend all public hearing before the Planning and Zoning Commission and any other hearing necessary for this application and that I will answer any questions to the best of my ability to respond to the present and future needs, the health, safety, morals, convenience, order, prosperity, and general welfare of the inhabitants of Sussex County, Delaware.

Signature of Applicant/Agent/Attorney

_____ Date: 12/22/2024

Signature of Owner

_____ Date: 12/22/24

For office use only:

Date Submitted: _____ Fee: $500.00 Check #: _____

Staff accepting application: _____ Application & Case #: _____

Location of property: _____

Date of PC Hearing: _____ Recommendation of PC Commission: _____

LEGAL DESCRIPTION

RESIDUAL LANDS

MITCHELL FAMILY, LLC

PORTION OF TAX PARCEL #3-35-8.00-37.00

December 10, 2021

ALL that piece or parcels of land, hereinafter described, situate, lying and being on the northerly side of Gills Neck Road (Road 267) and the easterly side of Kings Highway (Road 268); being located in Lewes and Rehoboth Hundred, Sussex County, Delaware; said piece or parcels of land being a portion of the lands of Mitchell Family, LLC; said piece or parcels of land being more particularly described as follows:

BEGINNING at a Wingate and Eschenbach found iron pipe along the easterly right-of-way line of Kings Highway; said point being located 30' from the centerline of Kings Highway and being the southwestern boundary corner for lands now or formerly of Three Builders, Inc., as recorded in the Office of the Recorder of Deeds in and for Sussex County and the State of Delaware in Deed Book D-3173, Page 100; coordinated on the Delaware State Grid System as North 276,872.17, East 733,340.02, thence,

1) leaving said point of beginning and running by and with lands now or formerly of Three Builders, Inc., South 69 degrees 20 minutes 38 seconds East 293.63 feet to wooden post at a point on the westerly line of lands of now or formerly of Jeff-Kat, LLC, as recorded in said Office of the Recorder of Deeds in Deed Book D-4456, Page 123, thence,

2) running by and with said Jeff-Kat lands, the following four (7) courses and distances, South 69 degrees 20 minutes 38 seconds East 77.54 feet to a point, thence running,

3) South 50 degrees 42 minutes 39 seconds East 47.19 feet to a point, thence running,

4) North 37 degrees 09 minutes 44 seconds East 111.21 feet to a point, thence running,

5) along a curve to the right, having a radius of 120.00 feet, an arc length of 96.50 feet and a chord bearing and distance of North 60 degrees 11 minutes 57 seconds East 93.92 feet to a point, thence running,

6) North 83 degrees 14 minutes 10 seconds East 96.83 feet to a point, thence running,

7) along a curve to the right, having a radius of 70.00 feet, an arc length of 23.47 feet and a chord bearing and distance of North 87 degrees 09 minutes 28 seconds West 23.36 feet to a point, thence running,

8) North 12 degrees 26 minutes 54 seconds East 7.06 feet to a point, thence running,

9) North 40 degrees 16 minutes 10 seconds East 136.85 feet to a point on the easterly line of lands of, now or formerly, Jefferson Estate, LLC, as recorded in said Office of the Recorder of Deeds in Deed Book D-4338, Page 195, thence,

10) leaving said Jeff-Kat lands and running by and with said Jefferson Estates lands, South 49 degrees 43 minutes 50 seconds East 377.52 feet to a concrete monument found at a point on the southerly line of Baybreeze Subdivision, thence,

11) leaving said Jefferson Estates and running by and with said Baybreeze Subdivision, South 49 degrees 38 minutes 53 seconds East 497.04 feet to a found iron rod at a point on the westerly line of lands of, now or formerly, Cadbury at Lewes as recorded in said Office of the Recorder of Deeds in Deed Book D-2934, Page 239, thence,

12) leaving said Baybreeze lands and running by and with said Cadbury lands, South 37 degrees 09 minutes 44 seconds West 1,655.38 feet to a point on the northerly right-of-way line of Gills Neck Road, width varies, thence,

13) leaving said Cadbury lands and running by and with said right-of-way line of Gills Neck Road, North 75 degrees 55 minutes 42 seconds West 664.50 feet to a point on the easterly line of lands of, now or formerly, Cape Henlopen Medical Center, LLC, thence,

14) running by and with said Cape Henlopen Medical lands, North 21 degrees 17 minutes 08 seconds East 362.03 feet to a point on the easterly line of Commercial Lot, thence,

15) leaving Cape Henlopen Medical lands and running by and with said Commercial Lot, the following two (2) courses and distances, North 21 degrees 17 minutes 08 seconds East 356.96 feet to a point, thence running,

16) North 68 degrees 42 minutes 52 seconds West 371.14 feet to a point on the aforementioned right-of-way line of Kings Highway, thence,

17) leaving said Cape Henlopen lands and running by and with said right-of-way line of Kings Highway, North 21 degrees 17 minutes 08 seconds East 883.02 feet to the point and place of beginning; **CONTAINING** 43.777 acres of land, more or less.

18956 BK02820 PG072

Tax Parcel #3-35-8.00-37.00
Prepared by: David W. Baker, Esq., P.A.
P O Box 551, 109 S. Race St.
Georgetown, Delaware 19947
Return to: LOWDER W. MITCHELL, JR.
JANE T. MITCHELL
1019 Kings Highway
Lewes, Delaware 19958

NO LIEN OR TITLE SEARCH
PERFORMED - NONE REQUESTED

This Deed, made this 31st day of March

in the year of our Lord Two Thousand Three.

BETWEEN LOWDER W. MITCHELL, JR. and JANE T. MITCHELL, husband and wife, of 1019 Kings Highway, Lewes, Delaware 19958, parties of the first part,

-and-

L. W. & J. T. MITCHELL FAMILY LIMITED PARTNERSHIP, a Delaware Limited Partnership, of 1019 Kings Highway, Lewes, Delaware, party of the second part,

WITNESSETH, That the said parties of the first part, for and in consideration of the sum of One Dollar ($1.00) lawful money of the United States of America, the receipt whereof is hereby acknowledged, hereby grants and conveys unto the party of the second part, its Heirs and Assigns,

ALL that certain tract of land, situate, lying and being in Lewes and Rehoboth Hundred, Sussex County, Delaware, and more particularly described as follows to wit:

BEGINNING at a post on the east side of the State Road leading from Murray's Corner to Lewes, and a corner for lands now or formerly of EUGENE MAULL; thence with the same South 61° East 300 feet to a post; thence with same and lands now or formerly of FRED MARSHALL, VIRGIL DENNIS and GEORGE W. ROBINSON, North 29-1/2° East 481 feet to a stone in line of lands now or formerly of THE

1 **Consideration: $0.00 Exempt Code: A**

County	State	Total
0.00	0.00	0.00

counter **Date: 04/03/2003**

SUSSEX TRUST COMPANY; thence with the same South 41°15' East 1686 feet to a stone; thence with three lines of lands now or formerly of MRS. RIGGIN'S lands, South 45° West 155 to a stone; thence North 43° West 320 feet to a stone; thence South 46° West 1460 feet to a stone on the north side of Bookhammer Road; thence with the north side of the same North 67-1/2° West 1146 feet to a stone at the intersection of this road with the first named State Road; thence with the same North 29-3/4° East 1663 feet to the place of beginning, containing 57.98 acres of land, more or less.

BEING the same lands conveyed unto LOWDER W. MITCHELL, JR. and JANE T. MITCHELL by deed of LOWDER W. MITCHELL, JR. and JANE T. MICHELL dated the 19th day of February, A.D. 1998, and filed of record in the Office of the Recorder of Deeds, in and for Sussex County, State of Delaware, in Deed Book 2267 at Page 209.

IN WITNESS WHEREOF, The said parties of the first part have hereunto set their hands and seals, the day and year aforesaid.

SIGNED, SEALED, DELIVERED,
and Witnessed in the presence of

Lowder W. Mitchell (SEAL)
LOWDER W. MITCHELL, JR.

Jane T. Mitchell (SEAL)
JANE T. MITCHELL

STATE OF DELAWARE :
: ss.
SUSSEX COUNTY :

BE IT REMEMBERED, that on this 31st day of March in the year of our Lord Two Thousand Three personally came before me, a Notary Public in and for the State and County aforesaid, LOWDER W. MITCHELL, JR., TRUSTEE and JANE T. MITCHELL, TRUSTEE, parties to this Indenture, known to me personally to be such, and acknowledge this Indenture to be their Deed.

GIVEN under my hand and Seal of Office, the day and year aforesaid.

(Seal)
Notary Public

J. EVERETT MOORE, JR. ESQ.
ATTORNEY-NOTARY PUBLIC
Unif. Notarial Act 10 Del. C. 4323(a)(3)
Non Expiring Commission

RECORDER OF DEEDS
JOHN F BRADY
03 APR -3 AM 9:24
RECORDER OF DEEDS
NO SURCHARGE PAID

Received
APR 04 2003
ASSESSMENT DIVISION
OF SUSSEX CTY

STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. BOX 778
DOVER, DELAWARE 19903

NICOLE MAJESKI
SECRETARY

December 20, 2021

Mr. Jamie Whitehouse, Director
Sussex County Planning & Zoning
P.O. Box 417
Georgetown, DE 19947

Dear Mr. Whitehouse:

The Department has completed its review of a Service Level Evaluation Request for the **Henlopen Properties, LLC (Jon Mayers)** proposed land use application, which we received on December 10, 2021. This application is for an approximately 42-acre portion of a 48.01- acre parcel (Tax Parcel: 335-8.00-37.00). The subject land is located on the north side of Gills Neck Road (Sussex Road 267) and the east side of Kings Highway (US Route 9). The subject land is currently zoned AR (Agriculture Residential), and the applicant seeks a conditional use approval to build 267 multifamily houses.

Per the 2019 Delaware Vehicle Volume Summary, the annual average daily traffic volumes along Gills Neck Road from Red Tail Road to Kings Highway, is 4,186 vehicles per day. The annual average daily traffic volumes along Kings Highway from Kings Highway (Sussex Road 268) to Gills Neck Road, is 12,019 vehicles per day.

Based on our review, we estimate that the proposed land use will generate more than 50 vehicle trips per peak hour or 500 vehicle trips per day, and would be considered to have a **Minor** impact to the local area roadways. In this instance, the Department considers a Minor impact to be when a proposed land use would generate more than either 50 vehicle trips per peak hour and / or 500 vehicle trips per day but fewer than 200 vehicle trips per a weekly peak hour and 2,000 vehicle trips per day. Because of this impact, we recommend that the applicant be required to perform a Traffic Impact Study (TIS) for the subject application. However, our Development Coordination Manual provides that where a TIS is required only because the volume warrants are met, and the projected trip generation will be fewer than 200 vehicle trips per a weekly peak hour and fewer than 2,000 vehicle trips per day, DelDOT may permit the developer to pay an Area-Wide Study Fee of $10 per daily trip in lieu of doing a TIS. For this application, if the County were agreeable, we would permit the developer to pay an Area-wide Study Fee.

DelDOT

If the County approves this application, the applicant should be reminded that DelDOT requires compliance with State regulations regarding plan approvals and entrance permits, whether or not a TIS is required.

Please contact Ms. Annamaria Furmato, at Annamaria.Furmato@delaware.gov, if you have questions concerning this correspondence.

Sincerely,

T. William Brockenbrough, Jr.
County Coordinator
Development Coordination

TWB:afm
cc: Henlopen Properties, LLC (Jon Mayers), Applicant
Sussex Reviewer, Sussex County Planning & Zoning
David Edgell, Coordinator, Cabinet Committee on State Planning Issues
Todd Sammons, Assistant Director, Development Coordination
Scott Rust, South District Public Works Manager, Maintenance & Operations
Steve McCabe, Sussex County Review Coordinator, Development Coordination
Derek Sapp, Subdivision Manager, Development Coordination
Kevin Hickman, Subdivision Manager, Development Coordination
Brian Yates, Subdivision Manager, Development Coordination
John Andrescavage, Subdivision Manager, Development Coordination
James Argo, South District Project Reviewer, Maintenance & Operations
Claudy Joinville, Project Engineer, Development Coordination
Annamaria Furmato, Project Engineer, Development Coordination

DAVIS BOWEN & FRIEDEL, INC.

ARCHITECTS ENGINEERS SURVEYORS

Michael R. Wigley, AIA, LEED AP
W. Zachary Crouch, P.E.
Michael E. Wheedleton, AIA
Jason P. Loar, P.E.
Ring W. Lardner, P.E.
Jamie L. Sechler., P.E.

December 21, 2021

Sussex County Administrative Building
Planning and Zoning Department
2 The Circle
P.O. Box 589
Georgetown, Delaware 19947

Attn: Mr. Jamie Whitehouse, Director of Planning

Re: Mitchells Corner
Tax Parcel No: 3-35-8.00-37.00
DBF #3808A001

Dear Mr. Whitehouse,

On behalf of our client, Henlopen Properties, LLC, we are submitting an Environmental Assessment and Public Facility Evaluation Report in accordance with §115-194.3. Coastal Area, Subparagraph B (2). We offer the following information that comprises our report:

(a) *Proposed Drainage design and the effect on stormwater quality and quantity leaving the site, including methods for reducing the amount of phosphorous and nitrogen in the stormwater runoff and the control of any other pollutants such as petroleum hydrocarbons or metals*. The proposed improvements will meet or exceed the state regulations for quality and quantity control of stormwater. We intend to use an infiltration pond as well as other Green Technology to meet the quantity requirement. The proposed site through the use of Green Technology and other Best Management Practices and Best Available Technologies will reduce the nitrogen and phosphorus loading by 40%. Minimizing impervious area and preservation of trees will further reduce nitrogen and phosphorous loadings. The project will not develop or produce other pollutants such as petroleum hydrocarbons or metals.

(b) *Proposed method of providing potable and, where appropriate, irrigation water and the effect on public or private water systems and groundwater, including an estimate of average and peak demands.* The proposed project is adjacent to two public water providers. The estimated average for the project is 69,750 GPD and estimated peak use of 209,250 GPD.

(c) *Proposed means of wastewater treatment and disposal with an analysis of the effect on the quality of groundwater and surface waters, including alternative locations for on-site septic systems.* The proposed project will discharge wastewater to an existing gravity sewer manhole constructed during phase 1 that connects to the pump station within the Governors development.

(d) *Analysis of the increase in traffic and the effect on the surrounding roadway system.* A Traffic Impact Study (TIS) has been submitted to DelDOT and interim improvements will be completed by the Developer.

(e) *The presence of any endangered or threatened species listed on federal or state registers and proposed habitat protection areas.* There are no records of federally listed endangered or threatened species or their critical habitats listed on this site.

(f) *The preservation and protection from loss of any tidal or nontidal wetlands on the site.* There are no wetlands on this site.

(g) *Provisions for open space as defined in §115-4.* The proposed project incorporates active and passive open space amenities. Some passive open space amenities include ponds and associated landscape buffers. Active open space amenities include walking paths and an active amenity area.

(h) *A description of provisions for public and private infrastructure.* The Developer will improve Kings Highway in accordance with DelDOT's rules and regulations. The Developer will also construct the water mains internally in the project that will be owned and maintained by a public utility. Besides the water system, all other internal utilities and roadways will be constructed by the Developer and privately maintained.

(i) *Economic, recreational or other benefits.* The proposed project will create a considerable number of jobs during construction. In addition, the project will generate transfer taxes as well other economic impacts in the beach community. There are numerous recreational activities provided within the site. In addition, part of the proposed project includes a commercial rezoning which will provide employment opportunities.

(j) *The presence of any historic or cultural resources that are listed on the National Register of Historic Places.* The site does not contain any historic or cultural resources that are listed on the National Register of Historic Places.

(k) *An affirmation that the proposed application and proposed mitigation measures are in conformance with the current Sussex County Comprehensive Plan.* The proposed application and mitigation measures comply with the current Sussex County Comprehensive Plan.

(l) *Actions to be taken by the applicant to mitigate the detrimental impacts identified relevant to Subsection B(2)(a) through (k) above and the manner by which they are consistent with the Comprehensive Plan.* All mitigation measures, where required, have been discussed in their respective section. All mitigation measures as well as the application are consistent with the Comprehensive Plan.

If you have any questions or need additional information, please call me at (302) 424-1441.

Sincerely,
Davis, Bowen & Friedel, Inc.

Ring W. Lardner, P.E.
Principal

P:\Chesapeake Reality\Zwaanendael Farm\Documents\P&Z\2021-12-21 Major Subdivision\2021-12-21 Public Facilities Report.docx

Cc: David Hutt, Morris James LLP
Henlopen Properties, LLC

Mailing List Application Form

For Applications requiring a Public Hearing in Sussex County

Please fill out this form and return it with your application. As a part of your application a Public Hearing is required. The property owners within 200' of the site of the application will be notified. Staff will notify the property owners.

Application Information:

Site Address:

Parcel #:

Site Address:

Parcel #:

Applicant Name:

Owner Name:

Type of Application:

Conditional Use:
Change of Zone:
Subdivision:
Board of Adjustment:

Date Submitted:

For office use only:

Date of Public Hearing: _____
File #:_____
Date list created: _____ List created by: _____
Date letters mailed: _____ Letters sent by: _____

MITCHELL FAMILY FARM

KINGS HIGHWAY (SCR268)

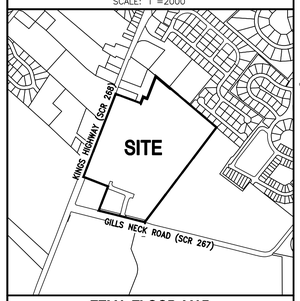
LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

PRELIMINARY SUBDIVISION PLANS

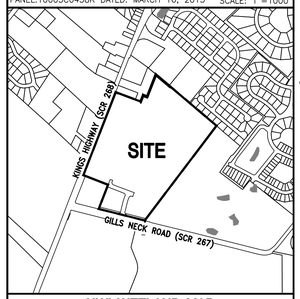
DECEMBER 2021

DBF PROJECT # 3808A001

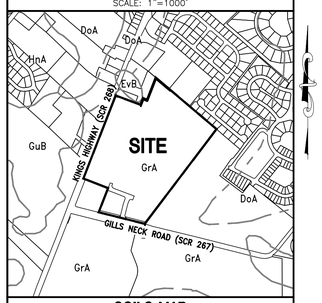
LOCATION MAP
SCALE: 1"=2000'



FEMA FLOOD MAP
PANEL:10005C0458K DATED: MARCH 16, 2015 SCALE: 1"=1000'



NWI WETLAND MAP
SCALE: 1"=1000'



SOILS MAP
SCALE: 1"=1000'

SYMB	SOIL TYPE
FhA	FORT MOTT-HENLOPEN COMPLEX, 0-2% SLOPES
HmA	HAMMONTON LOAMY SAND, 0 TO 2 PERCENT SLOPES
PsA	PEPPERBOX-ROSEDALE COMPLEX, 0-2% SLOPES

DATA COLUMN

TAX MAP ID:335-8.00-37.00

EXISTING ZONING AGRICULTURAL

PROPOSED USE RESIDENTIAL

SITE AREA 43.789 AC.

PROPOSED LOTS/UNITS
PROPOSED DUPLEX LOTS/UNITS 114 LOTS/UNITS
PROPOSED TOWNHOUSE LOTS/UNITS 153 LOTS/UNITS
TOTAL SINGLE FAMILY LOTS/UNITS 267 LOTS/UNITS

TOTAL DENSITY
(267 DU ÷ 43.789 AC) 6.10 DU/AC

MR - MEDIUM DENSITY RESIDENTIAL DISTRICT

DUPLEX LOTS	REQUIRED	PROPOSED
MINIMUM LOT SIZE ALLOWED	1,600 S.F.	4,000 S.F.
MINIMUM LOT WIDTH	30'	45'
FRONT YARD SETBACK	25'	25'
SIDE YARD SETBACK	10'	10'
REAR YARD SETBACK	10'	10'
MAXIMUM HEIGHT	42' OR 3 STORIES	

MR - MEDIUM DENSITY RESIDENTIAL DISTRICT

TOWNHOUSE LOTS	REQUIRED	PROPOSED
MINIMUM LOT SIZE ALLOWED	1,600 S.F.	2,400 S.F.
MINIMUM LOT WIDTH	16'	24'
FRONT YARD SETBACK	25'	25'
SIDE YARD SETBACK	10'	10'
REAR YARD SETBACK	10'	10'
MAXIMUM HEIGHT	42' OR 3 STORIES	

AREAS

EXISTING SITE	
SITE AREA:	46.818 AC.
SCR 267 R.O.W. DEDICATION	-0.076 AC.
SCR 268 R.O.W. DEDICATION	-0.608 AC.
RESIDUAL LANDS	-3.041 AC.
TOTAL SITE AREA	43.093 AC.

PROPOSED SITE	
LOT AREA:	23.229 AC.
RIGHT -OF-WAY:	8.070 AC.
OPEN SPACE (TOTAL)	11.794 AC.
OPEN SPACE A	0.179 AC.
OPEN SPACE B	0.476 AC.
OPEN SPACE C	0.740 AC.
OPEN SPACE D	1.311 AC.
OPEN SPACE E	1.052 AC.
OPEN SPACE F	1.834 AC.
OPEN SPACE G	0.294 AC.
OPEN SPACE H	0.420 AC.
OPEN SPACE I	2.368 AC.
OPEN SPACE J	0.292 AC.
OPEN SPACE K	0.242 AC.
OPEN SPACE L	1.508 AC.
OPEN SPACE M	0.401 AC.
OPEN SPACE N	0.677 AC.
TOTAL SITE AREA	43.093 AC.

ESTIMATED EDU'S 275

SEWER PROVIDER	SUSSEX COUNTY
WATER PROVIDER	TIDEWATER
ELECTRIC PROVIDER	CITY OF LEWES BOARD OF PUBLIC WORKS/DELAWARE ELECTRIC COOP.
WETLANDS	NONE ARE PRESENT ON SITE
SOURCE WATER PROTECTION AREAS	SITE IS LOCATED WITHIN A WELL HEAD PROTECTION AREA
FLOOD ZONE	AREA OF MINIMAL FLOOD HAZARD
FIRE DISTRICT	82ND
SCHOOL DISTRICT	CAPE HENLOPEN
ELECTION DISTRICT	3RD
HORIZONTAL DATUM :	NAD83
VERTICAL DATUM :	NAVD88

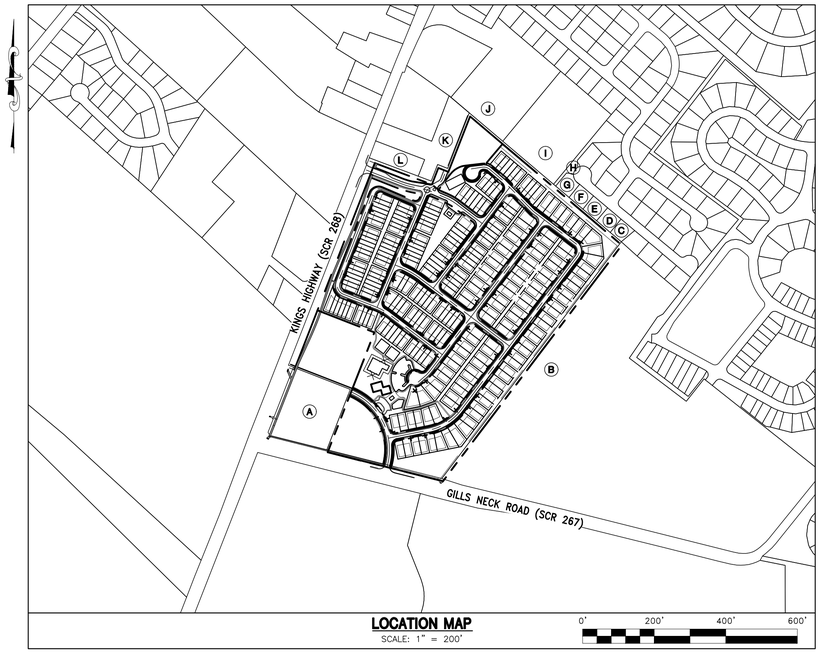
OWNER
MITCHELL FAMILY LTD. PARTNERSHIP
1019 KINGS HIGHWAY
LEWES, DE 19958
(302) 448-6430

DEVELOPER
HENLOPEN PROPERTIES LLC
4750 OWINGS MILL BLVD
OWINGS MILL, MD 21117

ENGINEER/SURVEYOR
DAVIS, BOWEN & FRIEDEL, INC.
1 PARK AVENUE
MILFORD, DELAWARE 19963
(302)424-1441

ADJACENT PROPERTY OWNERS

KEY	PARCEL ID	PROPERTY OWNER	DEED	ZONING
A	335-8.00-37.01	CAPE HENLOPEN MEDICAL CENTER LLC	DB:5007 PG:276	C-3 HEAVY COMMERCIAL
B	335-8.00-43.01	CADBURY AT LEWES INC	DB:2934 PG:239	MR MEDIUM-DENSITY RESIDENTIAL
C	335-8.00-326.00	JOHN A JIULIANO & LAURA T OTA	DB:3978 PG:171	R-2 RESIDENTIAL LOW DENSITY
D	335-8.00-327.00	PATTI J STEWART	DB:4158 PG:247	R-2 RESIDENTIAL LOW DENSITY
E	335-8.00-328.00	KEVIN P HAZARD & JOANN T HAZARD	DB:5357 PG:123	R-2 RESIDENTIAL LOW DENSITY
F	335-8.00-329.00	LINDA S LEKITES	DB:3027 PG:314	R-2 RESIDENTIAL LOW DENSITY
G	335-8.00-330.00	DAVID A CANNON/CATHY E WILLIAMS	DB:2194 PG:246	R-2 RESIDENTIAL LOW DENSITY
H	335-8.00-336.00	BAY BREEZE ESTATES HOMEOWNERS ASSOC INC	DB:1985 PG:181	R-2 RESIDENTIAL LOW DENSITY
I	335-8.00-42.02	JEFFERSON ESTATES II LLC	DB:4745 PG:296	R-5 MIXED RESIDENTIAL
J	335-8.00-42.01	JEFFERSON ESTATES II LLC	DB:4338 PG:195	R-5 MIXED RESIDENTIAL
K	335-8.00-39.00	JEFF-KAT LLC	DB:5381 PG:282	C-3 HEAVY COMMERCIAL
L	335-8.00-38.00	THREE BUILDERS LLC	DB:3173 PG:100	C-1 GENERAL COMMERCIAL



LOCATION MAP
SCALE: 1" = 200'

LEGEND

EXISTING	PROPOSED
BOUNDARY LINE	RIGHT-OF-WAY / BOUNDARY LINE
ADJACENT PROPERTY OWNER	EASEMENT
EASEMENT	SETBACK
CONTOUR (33)	BUFFER
CATCH BASIN, STORM PIPE	SANITARY SEWER IDENTIFICATION, MANHOLE, PIPE, FLOW ARROW, PIPE SIZE (8SS)
SANITARY SEWER MANHOLE, PIPE (EX-SS)	WATER MAIN, TEE W/ VALVES, PIPE SIZE (8W)
WATER MAIN (EX-W)	FIRE HYDRANT ASSEMBLY
FIRE HYDRANT ASSEMBLY	PROPOSED TREE LINE
UTILITY POLE	SIDEWALK
SIGN	PAVEMENT
FENCE	
BUSHES, TREES	
TREE LINE	
WETLANDS (WET)	
PAVEMENT	

INDEX OF SHEETS	
PRELIMINARY TITLE SHEET	PL-01
PRELIMINARY SITE PLAN OVERVIEW	PL-02
PRELIMINARY SITE PLAN	PL-03
PRELIMINARY SITE PLAN	PL-04
PRELIMINARY SITE PLAN	PL-05
PRELIMINARY SITE PLAN	PL-06
PRELIMINARY SITE PLAN	PL-07
PRELIMINARY SITE PLAN	PL-08
PRELIMINARY UTILITY PLAN OVERVIEW	PL-09
PRELIMINARY UTILITY PLAN	PL-10
PRELIMINARY UTILITY PLAN	PL-11
PRELIMINARY UTILITY PLAN	PL-12
PRELIMINARY UTILITY PLAN	P-13
PRELIMINARY UTILITY PLAN	PL-14
PRELIMINARY UTILITY PLAN	PL-15

ENGINEER'S STATEMENT

I, THE UNDERSIGNED, HEREBY STATE THAT I AM A REGISTERED ENGINEER IN THE STATE OF DELAWARE, THAT THE INFORMATION SHOWN HEREON HAS BEEN PREPARED UNDER MY SUPERVISION AND TO MY BELIEF REPRESENTS GOOD ENGINEERING PRACTICES AS REQUIRED BY THE APPLICABLE LAWS OF THE STATE OF DELAWARE.

RING W. LARDNER, P.E. DATE
DAVIS, BOWEN & FRIEDEL, INC.
1 PARK AVENUE
MILFORD, DELAWARE, 19963

OWNER'S STATEMENT

I, THE UNDERSIGNED, CERTIFY THAT I AM THE OWNER OF THE PROPERTY DESCRIBED AND SHOWN ON THIS PLAN, THAT THE PLAN WAS MADE AT MY DIRECTION, AND THAT I ACKNOWLEDGE THE SAME TO BE ACT AND DESIRE THE PLAN TO BE RECORDED TO ORDINANCE.

THE MITCHELL FAMILY LTD. PARTNERSHIP DATE
1019 KINGS HIGHWAY
LEWES, DE 19958

SUSSEX CONSERVATION DISTRICT

DEVELOPER'S STATEMENT

I, THE UNDERSIGNED, CERTIFY THAT I AM THE OWNER OF THE PROPERTY DESCRIBED AND SHOWN ON THIS PLAN, THAT THE PLAN WAS MADE AT MY DIRECTION, AND THAT I ACKNOWLEDGE THE SAME TO BE ACT AND DESIRE THE PLAN TO BE RECORDED TO ORDINANCE.

HENLOPEN PROPERTIES LLC DATE
4750 OWINGS MILL BLVD
OWINGS MILL, MD 21117

GENERAL NOTES

1. ALL UNITS SHALL HAVE ACCESS FROM THE INTERNAL SUBDIVISION STREET.
2. ALL FIRE LANES, FIRE HYDRANTS, AND FIRE DEPARTMENT CONNECTIONS SHALL BE MARKED IN ACCORDANCE WITH THE DELAWARE STATE FIRE PREVENTION REGULATIONS. BUILDING CONSTRUCTION TO BE MASONRY AND WOOD.
3. THE SUSSEX CONSERVATION DISTRICT RESERVES THE RIGHT TO ADD, MODIFY OR DELETE ANY EROSION AND SEDIMENT CONTROL MEASURES AS THEY DEEM NECESSARY.
4. AFTER THE CREATION OF THE COMMUNITY'S HOMEOWNER'S ASSOCIATION ALL BUFFER AREAS, AND THE STORMWATER MANAGEMENT AREA, SHALL BE OWNED AND MAINTAINED BY THE COMMUNITY'S HOMEOWNER'S ASSOCIATION. THE DEVELOPER SHALL MAINTAIN THESE AREAS UNTIL THE COMMUNITY HOMEOWNER'S ASSOCIATION IS ESTABLISHED.
5. ALL SWM AREAS WILL BE MAINTAINED IN ACCORDANCE WITH DESIGN AND SPECIFICATIONS FOR THE SPECIFIC SWM AREA. THIS INFORMATION WILL BE PROVIDED TO THE HOMEOWNER'S ASSOCIATION PRIOR TO TURNOVER.
6. ALL COMMON AREAS COVERED WITH GRASS SHALL BE PERIODICALLY MAINTAINED ON A BASIS DETERMINED BY THE HOMEOWNER'S ASSOCIATION.
7. BOUNDARY AND TOPOGRAPHIC INFORMATION SHOWN ON THIS PLAN ARE FROM A FIELD RUN SURVEY PERFORMED BY DBF, INC. IN OCTOBER, NOVEMBER AND DECEMBER OF 2017 AND JANUARY OF 2018 AND INFORMATION FOUND IN THE RECORDER OF DEEDS OFFICE IN AND FOR SUSSEX COUNTY.
8. A WETLANDS DELINEATION WAS PERFORMED BY ENVIRONMENTAL RESOURCES, INC. IN NOVEMBER & DECEMBER OF 2017 AND JANUARY OF 2018.
9. THIS PLAN DOES NOT VERIFY THE LOCATION AND/OR EXISTENCE OF EASEMENTS OR RIGHT-OF-WAYS CROSSING THE SUBJECT PROPERTIES AS NO TITLE SEARCH WAS PROVIDED.
10. THE PROPERTY IS IMPACTED BY THE 100-YEAR FLOODPLAIN AS DETERMINED BY FEMA PANEL 10005C0331K, AND 10005C0333K, DATED MARCH 16, 2015.
11. A TEN (10) FOOT STRIP IS HEREBY RESERVED AS AN EASEMENT FOR DRAINAGE AND UTILITIES ALONG ALL STREET RIGHT OF WAY, FRONT, SIDE AND REAR LOT LINES.

DELDOT GENERAL NOTES

1. ALL ENTRANCES SHALL CONFORM TO THE DELAWARE DEPARTMENT OF TRANSPORTATION'S (DELDOT'S) CURRENT DEVELOPMENT COORDINATION MANUAL AND SHALL BE SUBJECT TO ITS APPROVAL.
2. NO LANDSCAPING SHALL BE ALLOWED WITHIN THE RIGHT-OF-WAY UNLESS THE PLANS ARE COMPLIANT WITH SECTION 3.7 OF THE DEVELOPMENT COORDINATION MANUAL.
3. SHRUBBERY, PLANTINGS, SIGNS AND/OR OTHER VISUAL BARRIERS THAT COULD OBSTRUCT THE SIGHT DISTANCE OF A DRIVER PREPARING TO ENTER THE ROADWAY ARE PROHIBITED WITHIN THE DEFINED DEPARTURE SIGHT TRIANGLE AREA ESTABLISHED ON THIS PLAN. IF THE ESTABLISHED DEPARTURE SIGHT TRIANGLE AREA IS OUTSIDE THE RIGHT-OF-WAY OR PROJECTS ONTO AN ADJACENT PROPERTY OWNER'S LAND, A SIGHT EASEMENT SHOULD BE ESTABLISHED AND RECORDED WITH ALL AFFECTED PROPERTY OWNERS TO MAINTAIN THE REQUIRED SIGHT DISTANCE.
4. UPON COMPLETION OF THE CONSTRUCTION OF THE SIDEWALK OR SHARED-USE PATH ACROSS THIS PROJECT'S FRONTAGE AND PHYSICAL CONNECTION TO ADJACENT EXISTING FACILITIES, THE DEVELOPER, THE PROPERTY OWNERS OR BOTH ASSOCIATED WITH THIS PROJECT, SHALL BE RESPONSIBLE TO REMOVE ANY EXISTING ROAD TIE-IN CONNECTIONS LOCATED ALONG ADJACENT PROPERTIES, AND RESTORE THE AREA TO GRASS. SUCH ACTIONS SHALL BE COMPLETED AT DELDOT'S DISCRETION, AND IN CONFORMANCE WITH DELDOT'S DEVELOPMENT COORDINATION MANUAL.
5. PRIVATE STREETS CONSTRUCTED WITHIN THIS SUBDIVISION SHALL BE MAINTAINED BY THE DEVELOPER, THE PROPERTY OWNERS WITHIN THIS SUBDIVISION OR BOTH (TITLE 17 131). DELDOT ASSUMES NO RESPONSIBILITIES FOR THE FUTURE MAINTENANCE OF THESE STREETS.
6. THE SIDEWALK AND SHARED USE PATH SHALL BE THE RESPONSIBILITY OF THE DEVELOPER, THE PROPERTY OWNERS OR BOTH WITHIN THIS SUBDIVISION. THE STATE OF DELAWARE ASSUMES NO RESPONSIBILITY FOR THE FUTURE MAINTENANCE FOR THE SIDEWALK AND/OR SHARED-USE PATH.
7. ALL LOTS SHALL HAVE ACCESS FROM THE INTERNAL SUBDIVISION STREET.
8. TO MINIMIZE RUTTING AND EROSION OF THE ROADSIDE DUE TO ON-STREET PARKING, DRIVEWAY AND BUILDING LAYOUTS MUST BE CONFIGURED TO ALLOW FOR VEHICLES TO BE STORED IN THE DRIVEWAY BEYOND THE RIGHT-OF-WAY, WITHOUT INTERFERING WITH SIDEWALK ACCESS AND CLEARANCE.
9. THE DEVELOPER SHALL BE REQUIRED TO FURNISH AND PLACE RIGHT-OF-WAY MARKERS TO PROVIDE A PERMANENT REFERENCE FOR RE-ESTABLISHING THE RIGHT-OF-WAY AND PROPERTY CORNERS ON LOCAL AND HIGHER ORDER FRONTAGE ROADS. RIGHT-OF-WAY MARKERS SHALL BE SET AND/OR PLACED ALONG THE FRONTAGE ROAD RIGHT-OF-WAY AT PROPERTY CORNERS AND AT EACH CHANGE IN RIGHT-OF-WAY ALIGNMENT IN ACCORDANCE WITH SECTION 3.2.4.2 OF THE DEVELOPMENT COORDINATION MANUAL.

OPEN SPACE MANAGEMENT PLAN:

1. ALL COMMON AREAS COVERED WITH GRASS SHALL BE PERIODICALLY MAINTAINED ON A BASIS DETERMINED BY THE MAINTENANCE CORPORATION/HOMEOWNER'S ASSOCIATION.
2. ALL ACTIVE OPEN SPACE AMENITIES SHALL BE INSPECTED ANNUALLY TO ENSURE THEY ARE SAFE FOR PLAY AND REPAIRED AS REQUIRED.
3. ALL SWM AREAS WILL BE MAINTAINED IN ACCORDANCE WITH DESIGN AND SPECIFICATIONS FOR THE SPECIFIC SWM AREA. THIS INFORMATION WILL BE PROVIDED TO THE MAINTENANCE CORPORATION / HOMEOWNER'S ASSOCIATION PRIOR TO TURNOVER.
4. A SEPARATE AMENITIES SITE PLAN WILL BE SUBMITTED FOR REVIEW AND APPROVAL FOR ALL THE AMENITY AREAS.

DAVIS, BOWEN & FRIEDEL, INC. ARCHITECTS ENGINEERS SURVEYORS
SALISBURY, MARYLAND (410) 543-9091
MILFORD, DELAWARE (302) 424-1441
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DUPLEX LOT AREA TABLE

LOT	SQ. FT.	ACRES	LOT	SQ. FT.	ACRES
D1	4,697±	0.1078±	D58	4,816±	0.1106±
D2	4,725±	0.1085±	D59	5,116±	0.1174±
D3	4,725±	0.1085±	D60	4,725±	0.1085±
D4	4,725±	0.1085±	D61	4,725±	0.1085±
D5	4,734±	0.1087±	D62	4,725±	0.1085±
D6	5,631±	0.1293±	D63	4,725±	0.1085±
D7	6,037±	0.1386±	D64	4,725±	0.1085±
D8	6,564±	0.1507±	D65	4,725±	0.1085±
D9	5,914±	0.1358±	D66	4,725±	0.1085±
D10	4,769±	0.1095±	D67	4,725±	0.1085±
D11	4,725±	0.1085±	D68	4,725±	0.1085±
D12	4,725±	0.1085±	D69	4,725±	0.1085±
D13	4,725±	0.1085±	D70	4,725±	0.1085±
D14	4,725±	0.1085±	D71	4,725±	0.1085±
D15	4,725±	0.1085±	D72	5,116±	0.1174±
D16	4,725±	0.1085±	D73	5,116±	0.1174±
D17	4,725±	0.1085±	D74	4,725±	0.1085±
D18	4,725±	0.1085±	D75	4,725±	0.1085±
D19	4,725±	0.1085±	D76	4,725±	0.1085±
D20	4,725±	0.1085±	D77	4,725±	0.1085±
D21	4,725±	0.1085±	D78	4,725±	0.1085±
D22	4,725±	0.1085±	D79	4,725±	0.1085±
D23	4,725±	0.1085±	D80	4,725±	0.1085±
D24	4,725±	0.1085±	D81	4,725±	0.1085±
D25	4,725±	0.1085±	D82	4,725±	0.1085±
D26	4,725±	0.1085±	D83	4,725±	0.1085±
D27	4,725±	0.1085±	D84	4,725±	0.1085±
D28	4,725±	0.1085±	D85	4,725±	0.1085±
D29	4,725±	0.1085±	D86	5,116±	0.1174±
D30	4,725±	0.1085±	D87	5,641±	0.1295±
D31	4,725±	0.1085±	D88	4,725±	0.1085±
D32	4,725±	0.1085±	D89	4,725±	0.1085±
D33	4,725±	0.1085±	D90	4,725±	0.1085±
D34	4,725±	0.1085±	D91	4,725±	0.1085±
D35	6,441±	0.1479±	D92	4,725±	0.1085±
D36	6,354±	0.1459±	D93	4,725±	0.1085±
D37	7,095±	0.1629±	D94	4,725±	0.1085±
D38	4,953±	0.1137±	D95	4,725±	0.1085±
D39	4,872±	0.1119±	D96	4,707±	0.1081±
D40	4,985±	0.1144±	D97	5,334±	0.1225±
D41	5,098±	0.1170±	D98	5,660±	0.1299±
D42	5,211±	0.1196±	D99	4,725±	0.1085±
D43	5,324±	0.1222±	D100	4,725±	0.1085±
D44	5,436±	0.1248±	D101	4,725±	0.1085±
D45	6,104±	0.1401±	D102	4,690±	0.1077±
D46	4,950±	0.1136±	D103	7,130±	0.1637±
D47	4,950±	0.1136±	D104	6,443±	0.1479±
D48	4,950±	0.1136±	D105	5,754±	0.1321±
D49	4,950±	0.1136±	D106	5,032±	0.1155±
D50	4,950±	0.1136±	D107	4,728±	0.1085±
D51	4,950±	0.1136±	D108	4,725±	0.1085±
D52	4,950±	0.1136±	D109	4,725±	0.1085±
D53	4,950±	0.1136±	D110	4,725±	0.1085±
D54	4,950±	0.1136±	D111	4,725±	0.1085±
D55	4,950±	0.1136±	D112	4,725±	0.1085±
D56	4,950±	0.1136±	D113	4,725±	0.1085±
D57	4,950±	0.1136±	D114	5,641±	0.1295±

TOWNHOUSE LOT AREA TABLE

LOT	SQ. FT.	ACRES	LOT	SQ. FT.	ACRES	LOT	SQ. FT.	ACRES
T1	3,666±	0.0842±	T52	3,845±	0.0883±	T103	2,400±	0.0551±
T2	2,800±	0.0643±	T53	2,400±	0.0551±	T104	2,400±	0.0551±
T3	2,800±	0.0643±	T54	2,398±	0.0550±	T105	2,400±	0.0551±
T4	2,800±	0.0643±	T55	2,398±	0.0550±	T106	2,400±	0.0551±
T5	3,800±	0.0872±	T56	2,398±	0.0550±	T107	3,265±	0.0750±
T6	3,800±	0.0872±	T57	2,396±	0.0550±	T108	4,541±	0.1042±
T7	2,800±	0.0643±	T58	4,300±	0.0987±	T109	2,655±	0.0610±
T8	2,800±	0.0643±	T59	3,898±	0.0895±	T110	2,547±	0.0585±
T9	2,800±	0.0643±	T60	2,398±	0.0550±	T111	2,542±	0.0584±
T10	3,800±	0.0872±	T61	2,398±	0.0550±	T112	2,542±	0.0584±
T11	3,800±	0.0872±	T62	2,398±	0.0550±	T113	3,602±	0.0827±
T12	2,800±	0.0643±	T63	2,398±	0.0550±	T114	3,601±	0.0827±
T13	2,800±	0.0643±	T64	2,400±	0.0551±	T115	2,542±	0.0584±
T14	2,800±	0.0643±	T65	4,044±	0.0928±	T116	2,542±	0.0584±
T15	3,800±	0.0872±	T66	3,264±	0.0749±	T117	3,595±	0.0825±
T16	3,800±	0.0872±	T67	2,400±	0.0551±	T118	3,777±	0.0867±
T17	2,800±	0.0643±	T68	2,398±	0.0550±	T119	2,800±	0.0643±
T18	2,800±	0.0643±	T69	2,398±	0.0550±	T120	2,800±	0.0643±
T19	5,116±	0.1174±	T70	2,398±	0.0550±	T121	2,800±	0.0643±
T20	4,474±	0.1027±	T71	2,398±	0.0550±	T122	2,800±	0.0643±
T21	3,211±	0.0737±	T72	3,410±	0.0783±	T123	3,800±	0.0872±
T22	3,139±	0.0721±	T73	3,400±	0.0781±	T124	3,800±	0.0872±
T23	4,144±	0.0951±	T74	2,400±	0.0551±	T125	2,800±	0.0643±
T24	3,972±	0.0912±	T75	2,400±	0.0551±	T126	2,800±	0.0643±
T25	2,841±	0.0652±	T76	2,400±	0.0551±	T127	2,800±	0.0643±
T26	2,800±	0.0643±	T77	2,400±	0.0551±	T128	4,166±	0.0956±
T27	2,800±	0.0643±	T78	2,400±	0.0551±	T129	3,856±	0.0885±
T28	2,800±	0.0643±	T79	3,400±	0.0781±	T130	2,940±	0.0675±
T29	3,810±	0.0875±	T80	3,400±	0.0781±	T131	2,940±	0.0675±
T30	3,800±	0.0872±	T81	2,400±	0.0551±	T132	2,990±	0.0916±
T31	2,800±	0.0643±	T82	2,400±	0.0551±	T133	3,990±	0.0916±
T32	2,800±	0.0643±	T83	2,400±	0.0551±	T134	2,940±	0.0675±
T33	3,936±	0.0903±	T84	2,400±	0.0551±	T135	2,940±	0.0675±
T34	3,865±	0.0887±	T85	2,400±	0.0551±	T136	3,990±	0.0916±
T35	2,800±	0.0643±	T86	3,352±	0.0769±	T137	3,990±	0.0916±
T36	2,800±	0.0643±	T87	3,904±	0.0896±	T138	2,940±	0.0675±
T37	2,800±	0.0643±	T88	2,400±	0.0551±	T139	2,942±	0.0675±
T38	2,800±	0.0643±	T89	2,400±	0.0551±	T140	5,279±	0.1212±
T39	3,817±	0.0876±	T90	2,400±	0.0551±	T141	4,813±	0.1105±
T40	5,238±	0.1203±	T91	2,400±	0.0551±	T142	2,942±	0.0675±
T41	2,800±	0.0643±	T92	2,400±	0.0551±	T143	4,517±	0.1037±
T42	2,800±	0.0643±	T93	3,400±	0.0781±	T144	3,990±	0.0916±
T43	2,800±	0.0643±	T94	3,395±	0.0779±	T145	2,940±	0.0675±
T44	2,800±	0.0643±	T95	2,400±	0.0551±	T146	2,940±	0.0675±
T45	3,800±	0.0872±	T96	2,400±	0.0551±	T147	2,940±	0.0675±
T46	3,800±	0.0872±	T97	2,400±	0.0551±	T148	3,990±	0.0916±
T47	2,800±	0.0643±	T98	2,400±	0.0551±	T149	3,990±	0.0916±
T48	2,800±	0.0643±	T99	2,400±	0.0551±	T150	2,940±	0.0675±
T49	2,800±	0.0643±	T100	3,405±	0.0782±	T151	2,940±	0.0675±
T50	2,800±	0.0643±	T101	3,400±	0.0781±	T152	2,940±	0.0675±
T51	4,368±	0.1003±	T102	2,400±	0.0551±	T153	3,856±	0.0885±

TOTAL LOT AREA	1,011,855±	23.229±

LOT LINE TABLE

LINE	BEARING	DISTANCE
L1	N 78°49'03" E	28.07'
L2	N 78°49'03" E	19.43'
L3	N 37°09'44" E	1.14'
L4	N 52°50'16" W	26.49'
L5	S 44°27'23" E	51.13'
L6	S 52°50'16" E	34.42'
L7	S 37°09'44" W	20.00'
L8	N 37°09'44" E	25.00'
L9	S 37°09'44" W	25.00'
L10	N 37°09'44" E	25.00'
L11	S 37°09'44" W	25.00'
L12	S 37°09'44" W	30.00'
L13	S 37°09'44" W	13.71'
L14	S 78°49'03" W	19.43'
L15	S 78°49'03" W	26.98'
L16	N 49°52'58" E	1.29'
L17	N 37°09'44" E	29.03'
L18	N 37°09'44" E	30.00'
L19	N 37°09'44" E	13.00'
L20	N 49°43'50" W	22.03'
L21	S 49°43'50" E	8.15'
L22	S 44°27'23" E	8.54'
L23	N 52°50'16" W	14.99'
L24	S 37°09'44" W	28.72'
L25	S 37°09'44" W	19.92'
L26	N 52°50'16" W	43.39'
L27	N 23°01'38" E	13.16'
L28	S 23°01'38" W	8.98'
L29	S 23°01'38" W	8.99'
L30	N 21°23'51" E	16.27'
L31	N 21°23'51" E	8.95'
L32	S 68°42'52" E	11.86'
L33	S 68°42'52" E	12.32'
L34	S 52°50'16" E	28.66'
L35	S 52°50'16" E	18.00'
L36	N 52°50'16" W	13.00'
L37	N 52°50'16" W	5.66'
L38	N 67°45'35" W	14.67'
L39	S 52°50'16" E	13.00'

RIGHT-OF-WAY CURVE TABLE

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
RC-1	329.13'	465.90'	427.96'	N 26°39'07" W	81°06'18"
RC-2	369.13'	111.24'	110.82'	N 05°16'02" E	17°15'59"
RC-3	30.00'	43.03'	39.44'	S 37°43'32" W	82°11'00"
RC-4	320.00'	232.65'	227.56'	N 57°59'23" E	41°39'18"
RC-5	369.13'	319.60'	309.71'	N 42°33'51" W	49°36'30"
RC-6	30.00'	43.68'	39.92'	S 59°28'16" E	83°25'22"
RC-7	280.00'	203.57'	199.11'	N 57°59'23" E	41°39'18"
RC-8	70.00'	109.96'	98.99'	N 07°50'16" W	90°00'00"
RC-9	70.00'	57.46'	55.86'	N 73°14'50" W	47°02'00"
RC-10	120.00'	96.50'	93.92'	S 60°11'57" W	46°04'26"
RC-11	46.00'	208.95'	70.34'	S 46°53'28" E	260°15'15"
RC-12	17.00'	23.17'	21.42'	S 42°01'48" W	78°05'46"
RC-13	30.00'	25.76'	24.97'	N 74°19'35" W	49°11'29"
RC-14	25.00'	35.61'	32.68'	N 03°38'49" W	81°37'07"
RC-15	25.00'	39.27'	35.36'	N 82°09'44" E	90°00'00"
RC-16	325.00'	80.18'	79.98'	N 59°54'19" W	14°08'07"
RC-17	270.00'	47.41'	47.35'	S 73°37'58" E	10°03'39"
RC-18	330.00'	57.95'	57.87'	S 73°37'58" E	10°03'39"
RC-19	5.00'	8.87'	7.75'	N 27°49'05" W	101°41'25"
RC-20	25.00'	39.27'	35.36'	N 68°01'38" E	90°00'00"
RC-21	55.00'	87.96'	78.88'	S 67°12'44" W	91°37'47"
RC-22	70.00'	110.09'	99.09'	S 23°39'30" E	90°06'43"
RC-23	280.00'	77.59'	77.34'	N 60°46'34" W	15°52'36"
RC-24	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
RC-25	25.00'	37.67'	34.21'	N 80°19'51" E	86°20'13"
RC-26	46.00'	203.58'	73.68'	S 03°17'05" E	253°34'05"
RC-27	270.00'	59.94'	59.82'	N 43°31'21" E	12°43'13"
RC-28	25.00'	39.27'	35.36'	S 82°09'44" W	90°00'00"
RC-29	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
RC-30	25.00'	39.27'	35.36'	N 82°09'44" E	90°00'00"
RC-31	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
RC-32	25.00'	39.27'	35.36'	S 82°09'44" W	90°00'00"
RC-33	25.00'	39.27'	35.36'	S 07°50'16" E	90°00'00"
RC-34	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
RC-35	25.00'	39.27'	35.36'	N 82°09'44" E	90°00'00"
RC-36	320.00'	40.60'	40.57'	N 56°28'20" W	7°16'08"
RC-37	25.00'	36.27'	33.17'	S 18°32'23" E	83°08'01"
RC-38	25.00'	39.58'	35.58'	S 68°23'12" W	90°43'10"
RC-39	480.00'	112.39'	112.14'	N 59°32'44" W	13°24'57"
RC-40	25.00'	38.51'	34.81'	N 67°09'23" E	88°15'31"
RC-41	25.00'	39.32'	35.39'	S 23°39'30" E	90°06'43"
RC-42	25.00'	39.98'	35.85'	S 67°13'44" W	91°37'47"
RC-43	25.00'	39.27'	35.36'	N 21°58'22" W	90°00'00"
RC-44	38.00'	11.34'	11.30'	N 72°43'06" E	17°06'13"
RC-45	275.00'	67.84'	67.67'	N 59°54'19" W	14°08'07"
RC-46	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
RC-47	25.00'	39.27'	35.36'	N 82°09'44" E	90°00'00"
RC-48	520.00'	122.84'	122.55'	N 59°36'18" W	13°32'05"
RC-49	25.00'	39.01'	35.17'	S 21°40'21" E	89°23'58"
RC-50	25.00'	39.27'	35.36'	S 07°50'16" E	90°00'00"
RC-51	25.00'	42.93'	37.84'	S 86°21'11" W	98°22'53"
RC-52	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
RC-53	25.00'	39.27'	35.36'	N 82°09'44" E	90°00'00"

LOT CURVE TABLE

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
LC1	30.00'	17.99'	17.73'	S 61°38'05" W	34°21'56"
LC2	320.00'	25.59'	25.59'	N 76°31'34" E	4°34'56"
LC3	320.00'	40.32'	40.30'	N 70°37'30" E	7°13'12"
LC4	320.00'	41.83'	41.80'	N 63°16'14" E	7°29'20"
LC5	320.00'	42.76'	42.72'	N 55°41'54" E	7°39'20"
LC6	320.00'	38.15'	38.13'	N 48°27'19" E	6°49'51"
LC7	320.00'	44.00'	43.96'	N 41°06'04" E	7°52'59"
LC8	70.00'	2.43'	2.43'	N 36°10'06" E	1°59'16"
LC9	70.00'	32.74'	32.44'	N 21°46'31" E	26°47'56"
LC10	70.00'	33.84'	33.51'	N 05°28'29" W	27°42'05"
LC11	70.00'	23.96'	23.84'	N 29°07'44" W	19°36'28"
LC12	70.00'	16.99'	16.95'	N 45°53'07" W	13°54'17"
LC13	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
LC14	25.00'	39.27'	35.36'	N 82°09'44" E	90°00'00"
LC15	25.00'	39.27'	35.36'	S 82°09'44" W	90°00'00"
LC16	25.00'	39.27'	35.36'	S 07°50'16" E	90°00'00"
LC17	25.00'	39.27'	35.36'	N 82°09'44" E	90°00'00"
LC18	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
LC19	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
LC20	280.00'	31.35'	31.33'	N 40°22'12" E	6°24'55"
LC21	280.00'	38.46'	38.43'	N 66°25'47" E	7°52'10"
LC22	280.00'	41.31'	41.27'	N 74°35'27" E	8°27'11"
LC23	30.00'	19.32'	18.99'	S 82°43'44" E	36°54'26"
LC24	46.00'	27.77'	27.35'	S 76°12'20" E	34°35'35"
LC25	46.00'	29.36'	28.86'	N 68°12'52" E	36°33'59"
LC26	270.00'	43.66'	43.61'	N 45°11'10" E	9°15'53"
LC27	270.00'	15.98'	15.98'	N 38°51'29" E	3°23'29"
LC28	25.00'	39.27'	35.36'	S 82°09'44" W	90°00'00"
LC29	25.00'	39.27'	35.36'	S 07°50'16" E	90°00'00"
LC30	25.00'	42.93'	37.84'	S 86°21'11" W	98°22'53"
LC31	70.00'	16.11'	16.07'	N 56°19'22" W	13°11'03"
LC32	25.00'	35.61'	32.68'	N 03°38'49" W	81°37'07"
LC33	25.00'	39.27'	35.36'	N 82°09'44" E	90°00'00"
LC34	325.00'	32.29'	32.27'	N 55°41'01" W	5°41'31"
LC35	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
LC36	25.00'	39.27'	35.36'	N 82°09'44" E	90°00'00"
LC37	520.00'	31.63'	31.63'	N 54°34'49" W	3°29'07"
LC38	520.00'	75.59'	75.52'	N 62°12'29" W	8°19'44"
LC39	25.00'	39.01'	35.17'	S 21°40'21" E	89°23'58"
LC40	38.00'	11.34'	11.30'	N 72°43'06" E	17°06'13"
LC41	275.00'	7.75'	7.75'	N 66°09'55" W	1°36'55"
LC42	25.00'	39.27'	35.36'	N 21°58'22" W	90°00'00"
LC43	25.00'	38.51'	34.81'	N 67°09'23" E	88°15'31"
LC44	25.00'	39.98'	35.85'	S 67°12'44" W	91°37'47"
LC45	25.00'	39.32'	35.39'	S 23°39'30" E	90°06'43"
LC46	70.00'	72.14'	68.99'	S 08°07'40" E	59°03'01"
LC47	70.00'	25.75'	25.61'	S 48°11'32" E	21°04'44"
LC48	70.00'	12.20'	12.18'	S 63°43'23" E	9°58'58"
LC49	280.00'	21.70'	21.69'	N 66°29'40" W	4°26'24"
LC50	280.00'	9.34'	9.34'	N 53°47'36" W	1°54'41"
LC51	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
LC52	25.00'	36.27'	33.17'	S 18°32'23" E	83°08'01"
LC53	320.00'	16.23'	16.23'	N 58°39'11" W	2°54'24"
LC54	320.00'	24.36'	24.36'	N 55°01'07" W	4°21'43"
LC55	25.00'	39.27'	35.36'	N 82°09'44" E	90°00'00"
LC56	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
LC57	480.00'	49.31'	49.28'	N 56°34'11" W	5°53'07"
LC58	480.00'	28.01'	28.01'	N 61°11'04" W	3°20'38"
LC59	480.00'	28.46'	28.46'	N 64°33'18" W	3°23'50"
LC60	25.00'	39.58'	35.58'	S 68°23'12" W	90°43'10"
LC61	375.00'	25.78'	25.77'	N 65°42'35" W	3°56'18"
LC62	375.00'	28.02'	28.02'	N 61°36'00" W	4°16'53"
LC63	375.00'	36.73'	36.71'	N 56°39'13" W	5°36'40"
LC64	425.00'	64.25'	64.19'	N 60°27'05" W	8°39'41"
LC65	425.00'	24.35'	24.35'	N 54°28'45" W	3°16'59"

RIGHT-OF-WAY LINE TABLE

LINE	BEARING	DISTANCE
RL-1	N 13°54'02" E	15.10'
RL-2	N 13°54'02" E	15.00'
RL-3	S 49°52'58" W	40.76'
RL-4	N 52°50'16" W	34.42'
RL-5	N 23°01'38" E	18.17'

BOUNDARY LINE TABLE

LINE	BEARING	DISTANCE
BL-1	S 12°26'54" W	7.06'
BL-2	N 50°42'39" W	47.19'

BOUNDARY CURVE TABLE

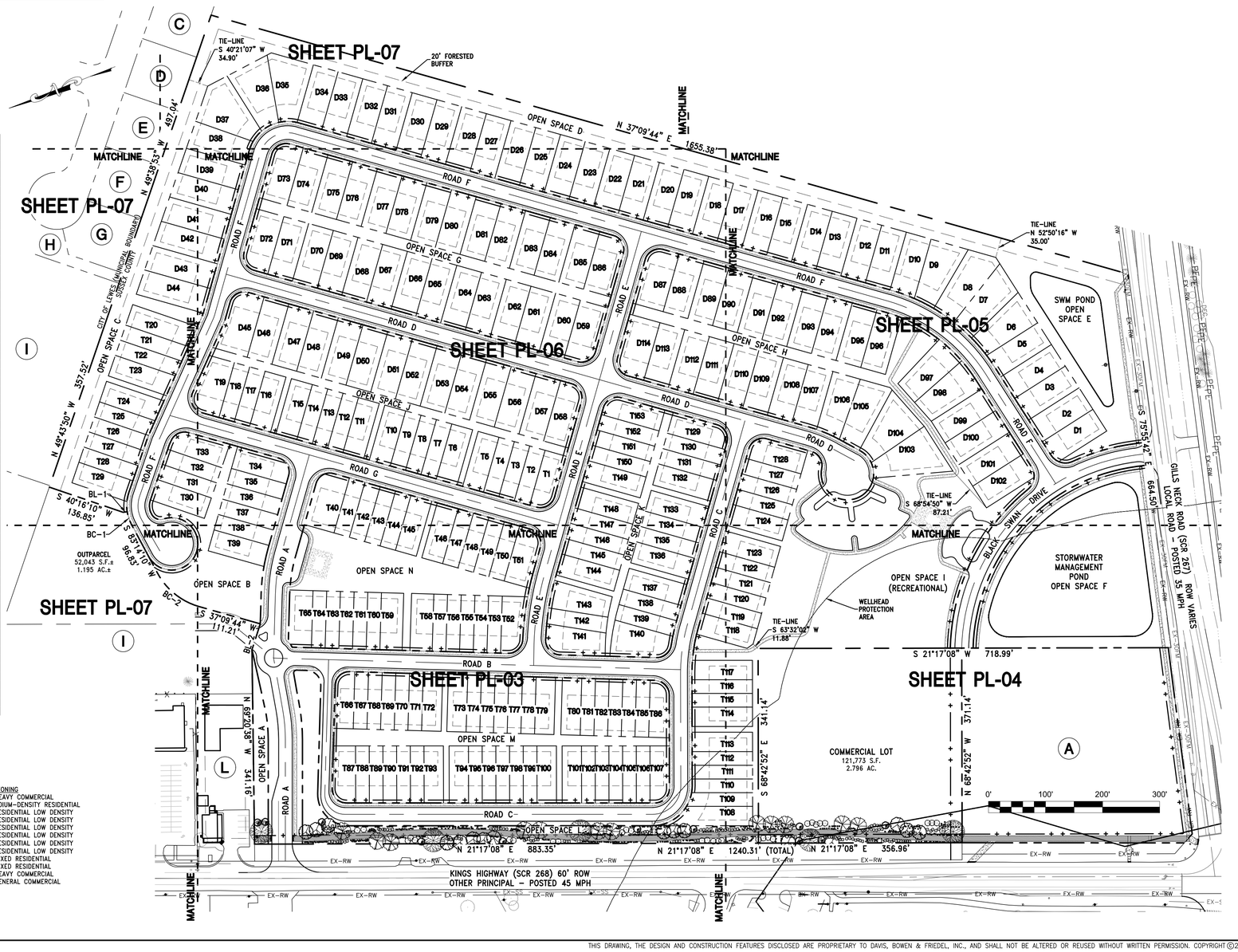
CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
BC-1	70.00'	23.47'	23.36'	N 87°09'28" W	19°12'44"
BC-2	120.00'	96.50'	93.92'	S 60°11'57" W	46°04'26"

RIGHT-OF-WAY AREA TABLE

DESCRIPTION	SQ. FT.	ACRES
ROAD A	39,668±	0.911±
ROAD B	26,892±	0.617±
ROAD C	57,657±	1.324±
ROAD D	50,827±	1.167±
ROAD E	29,314±	0.673±
ROAD F	98,635±	2.264±
ROAD G	27,244±	0.625±
BLACK SWAN DRIVE	20,391±	0.468±
TOTAL AREA	351,528±	8.070±

ADJACENT PROPERTY OWNERS

KEY	PARCEL ID	PROPERTY OWNER	DEED	ZONING
A	335-8.00-37.01	CAPE HENLOPEN MEDICAL CENTER LLC	DB:5007 PG:276	C-3 HEAVY COMMERCIAL
B	335-8.00-43.01	CADBURY AT LEWES INC	DB:2934 PG:239	MR MEDIUM-DENSITY RESIDENTIAL
C	335-8.00-326.00	JOHN A JIULIANO & LAURA T OTA	DB:3978 PG:171	R-2 RESIDENTIAL LOW DENSITY
D	335-8.00-327.00	PATTI J STEWART	DB:4138 PG:247	R-2 RESIDENTIAL LOW DENSITY
E	335-8.00-328.00	KEVIN P HAZARD & JOANN T HAZARD	DB:5357 PG:123	R-2 RESIDENTIAL LOW DENSITY
F	335-8.00-329.00	LINDA S LEKITES	DB:3027 PG:314	R-2 RESIDENTIAL LOW DENSITY
G	335-8.00-330.00	DAVID A CANNON/CATHY E WILLIAMS	DB:2194 PG:246	R-2 RESIDENTIAL LOW DENSITY
H	335-8.00-336.00	BAY BREEZE ESTATES HOMEOWNERS ASSOC INC	DB:1985 PG:181	R-2 RESIDENTIAL LOW DENSITY
I	335-8.00-42.02	JEFFERSON ESTATES II LLC	DB:4743 PG:296	R-5 MIXED RESIDENTIAL
J	335-8.00-42.01	JEFFERSON ESTATES II LLC	DB:4338 PG:195	R-5 MIXED RESIDENTIAL
K	335-8.00-39.00	JEFF-KAT LLC	DB:5381 PG:282	C-3 HEAVY COMMERCIAL
L	335-8.00-38.00	THREE BUILDERS LLC	DB:3173 PG:100	C-1 GENERAL COMMERCIAL



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MITCHELL FAMILY FARM

LEWES & REHOBOTH HUNDRED

CITY OF LEWES, SUSSEX COUNTY, DELAWARE

PRELIMINARY SITE PLAN OVERVIEW

Revisions:

Date: DECEMBER 2021
Scale: 1" = 100'
Dwn.By: DEG
Proj.No.: 3808A001
Dwg.No.: PL-02

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MATCHLINE – SHEET PL-06

MATCHLINE – SHEET PL-07

MATCHLINE – SHEET PL-04

ROAD A

ROAD B

ROAD C

ROAD E

OPEN SPACE N

OPEN SPACE M

OPEN SPACE L

OPEN SPACE A

OPEN SPACE B (RECREATIONAL)

DOG PARK

MAIL PLAZA PAVILION

SHARED-USE-PATH

EXISTING BUILDING

EXISTING DWELLING

GARAGE

WOOD POST

WELLHEAD PROTECTION AREA

KINGS HIGHWAY (SCR 268) 60' ROW
OTHER PRINCIPAL – POSTED 45 MPH

0' 30' 60' 90'

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PRELIMINARY SITE PLAN

MITCHELL FAMILY FARM

KINGS HIGHWAY (SCR 268)

LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

Revisions:

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MATCHLINE – SHEET PL-05

T123
T122
T121
T120
T119
T118
T117
T116
T115
T114
T113
T112
T111
T110
T109
T108

SPORTS COURT
SPORTS COURT
POOL & SPLASH PAD
WELLHEAD PROTECTION AREA
COMMUNITY CENTER/PATIO 4,700± SQ FT
OPEN SPACE I (RECREATIONAL)
BLACK SWAN DRIVE
40' R.O.W.
OPEN SPACE F STORMWATER MANAGEMENT POND
GILLS NECK ROAD (SCR 267)
LOCAL ROAD – POSTED 35 MPH
ROW VARIES
15' PROPERTY CONSTRUCTION BUFFER
S 83°32'02" W 11.88' TIE-LINE
N 21°17'08" E 724.03'
S 21°17'08" W 336.95'
S 21°17'08" W 362.03'
S 75°55'47" E 322.20'
COMMERCIAL LOT
121,773 S.F.
2.796 AC.
N 68°42'52" W 341.14'
N 21°17'08" E 356.96'
FIRE LANE
FIRE LANE
A
MATCHLINE – SHEET PL-03
KINGS HIGHWAY (SCR 268) 60' ROW
OTHER PRINCIPAL – POSTED 45 MPH
0' 30' 60' 90'

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PRELIMINARY SITE PLAN

MITCHELL FAMILY FARM
KINGS HIGHWAY (SCR 268)
LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

Revisions:

Date: DECEMBER 2021
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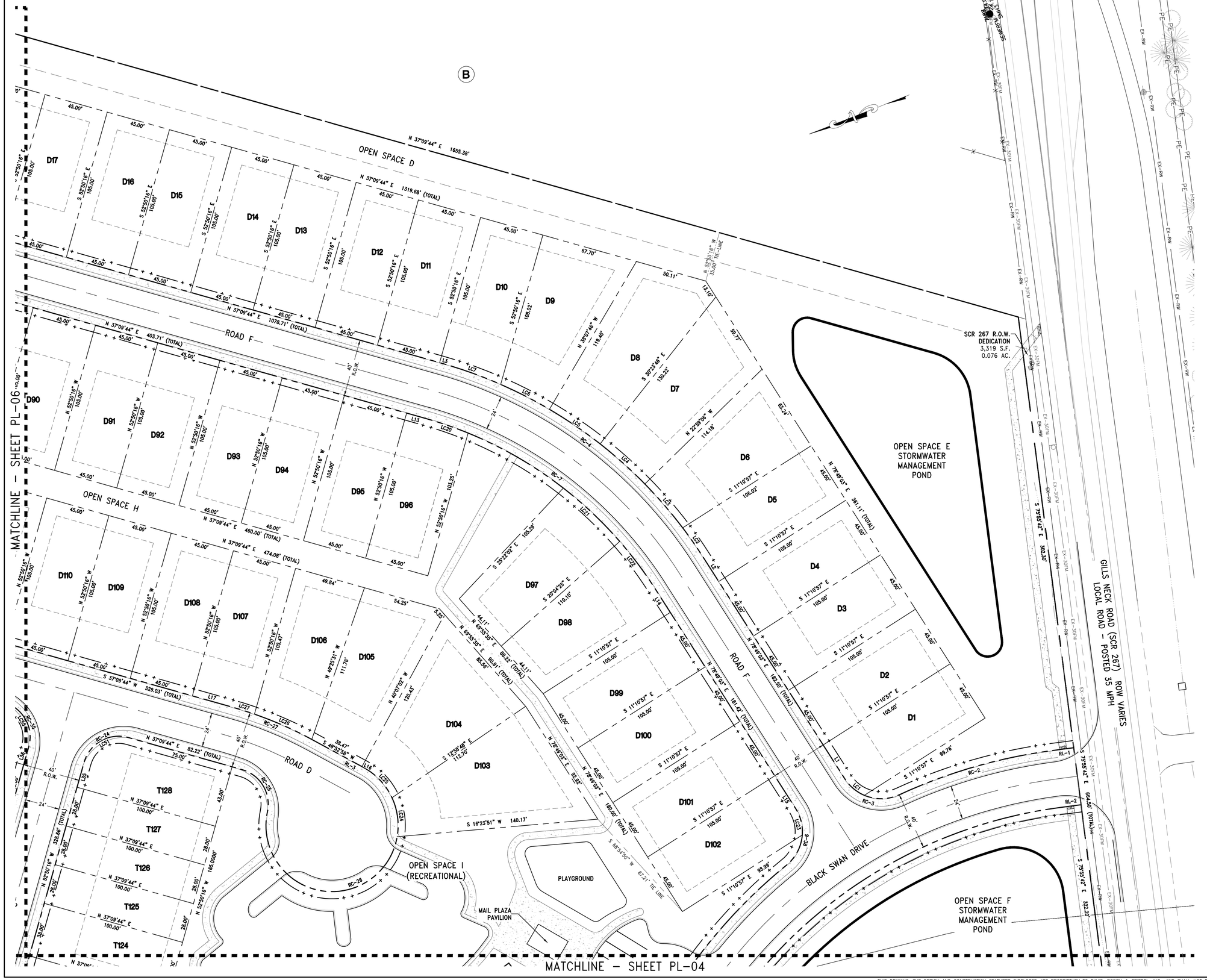
Dwg.No.: PL-04



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PRELIMINARY SITE PLAN

MITCHELL FAMILY FARM

KINGS HIGHWAY (SCR 268)

LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

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PL-06

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Dwg No.:
Revisions:

MITCHELL FAMILY FARM

KINGS HIGHWAY (SCR 268)

LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

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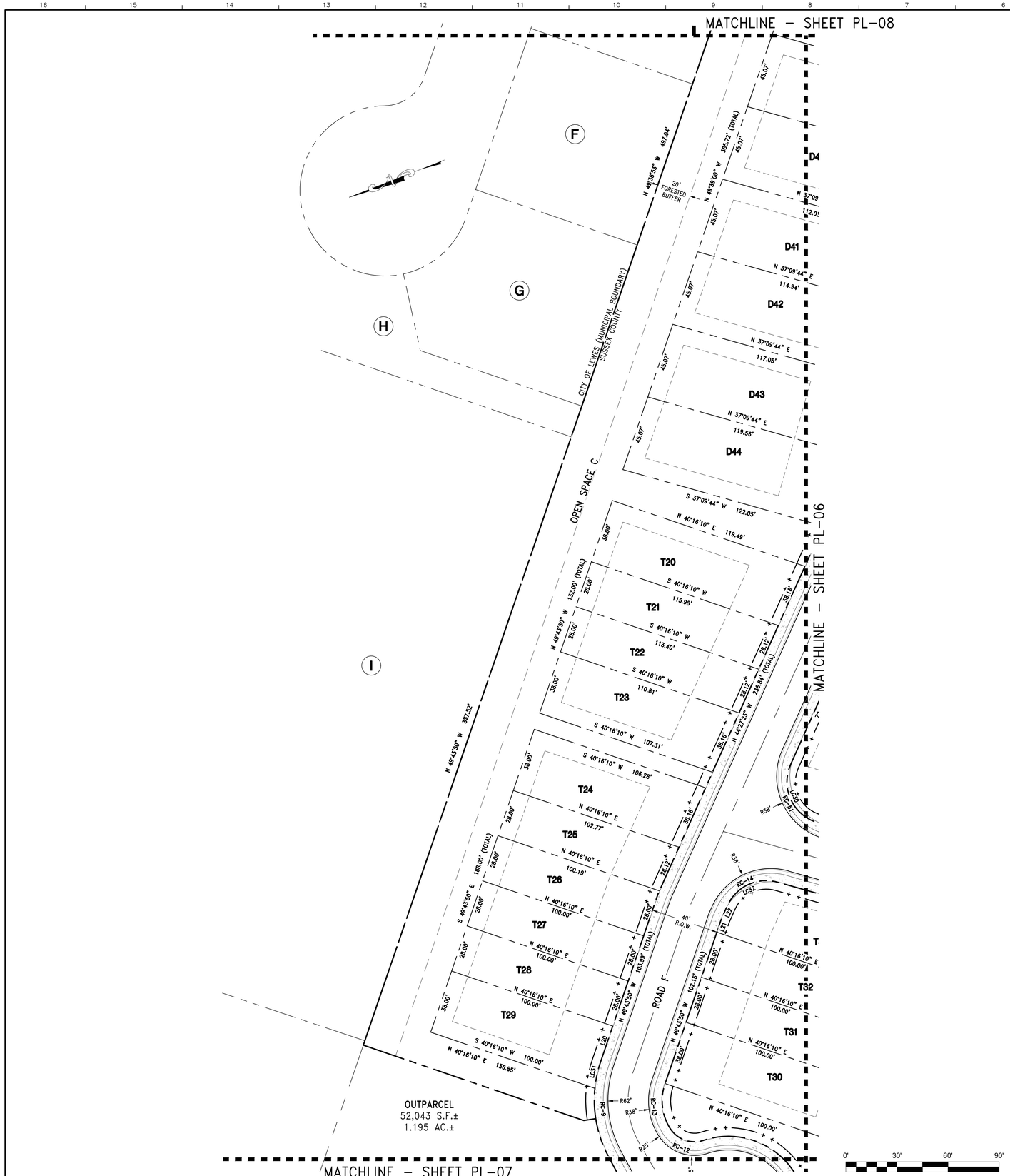
PRELIMINARY SITE PLAN



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PRELIMINARY SITE PLAN

MITCHELL FAMILY FARM

KINGS HIGHWAY (SCR 268)

LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

Revisions:

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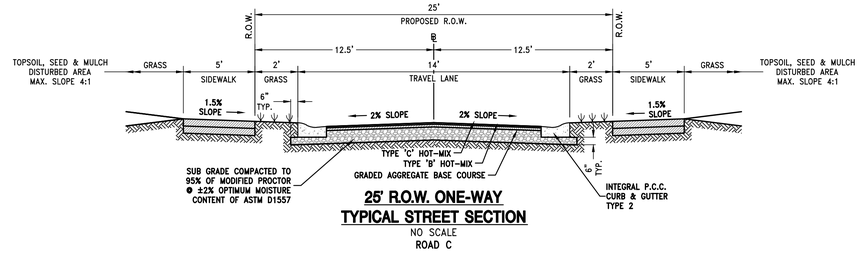
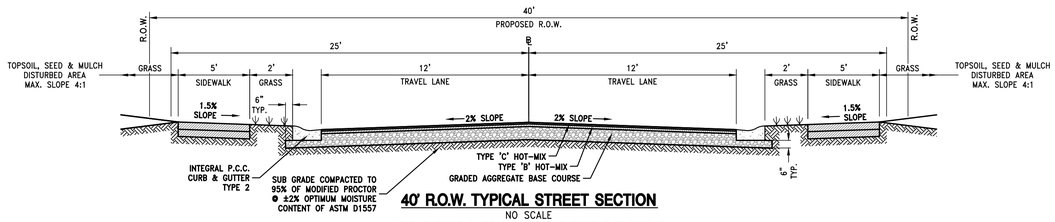
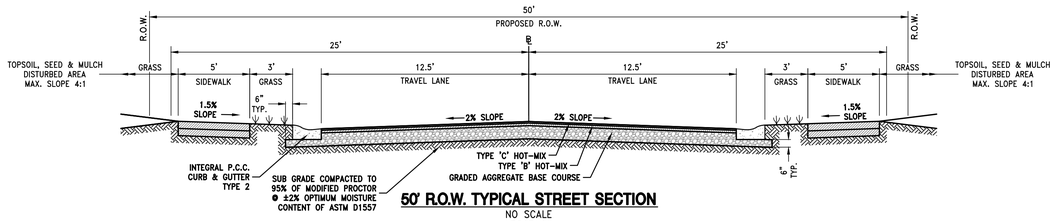


25' R.O.W. ONE-WAY
TYPICAL STREET SECTION
NO SCALE
ROAD C

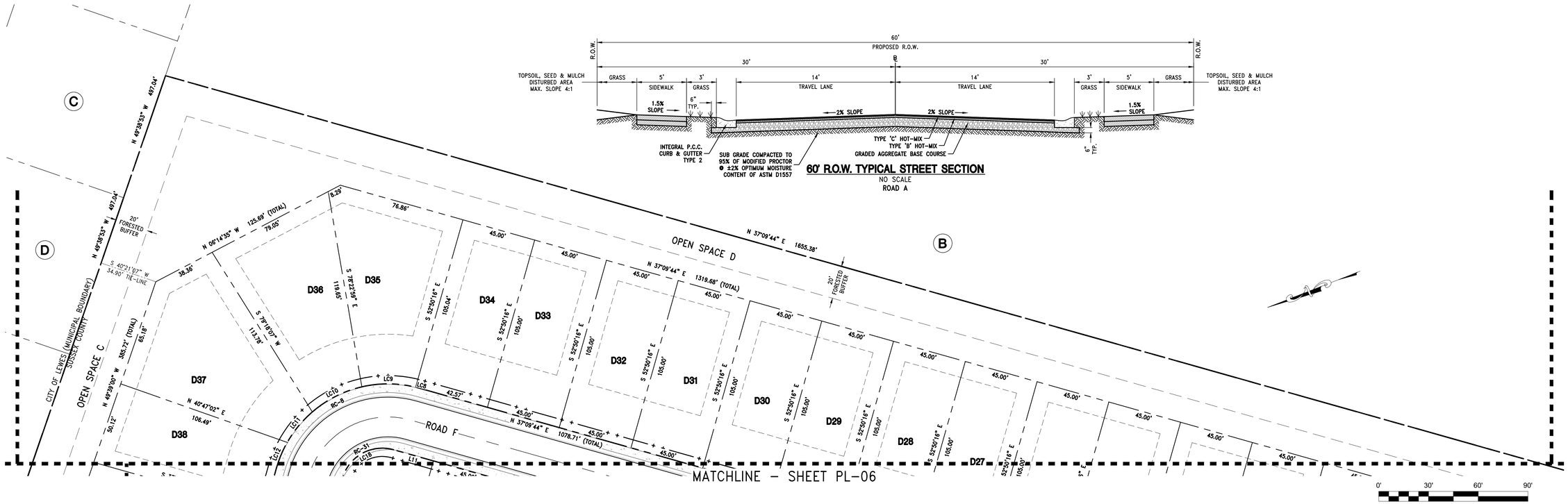


40' R.O.W. TYPICAL STREET SECTION
NO SCALE
ROAD B, ROAD C, ROAD D, ROAD E, ROAD F & ROAD G



50' R.O.W. TYPICAL STREET SECTION
NO SCALE
ROAD A

60' R.O.W. TYPICAL STREET SECTION
NO SCALE
ROAD A



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PRELIMINARY SITE PLAN

MITCHELL FAMILY FARM
KINGS HIGHWAY (SCR 268)
LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

Revisions:

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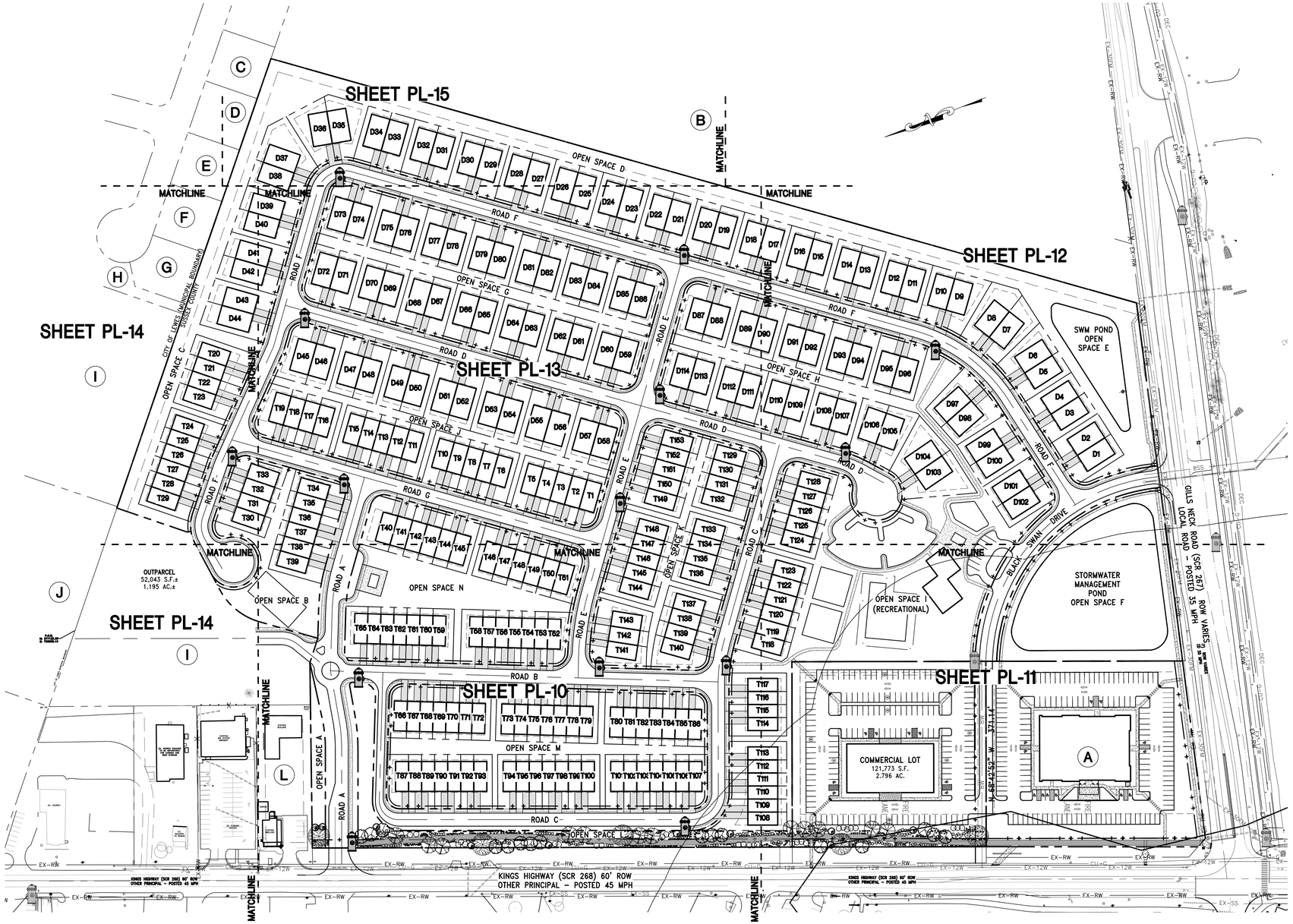
SHEET PL-15
SHEET PL-12
SHEET PL-14
SHEET PL-13
SHEET PL-10
SHEET PL-11
MATCHLINE
OPEN SPACE D
ROAD F
OPEN SPACE G
ROAD E
ROAD D
OPEN SPACE H
OPEN SPACE C
OPEN SPACE J
ROAD G
ROAD C
OPEN SPACE I
ROAD A
OPEN SPACE N
OPEN SPACE B
ROAD B
OPEN SPACE M
OPEN SPACE L
OPEN SPACE K
CITY OF LEWES MUNICIPAL BOUNDARY
SUSSEX COUNTY BOUNDARY
OUTPARCEL
52,043 S.F.±
1.195 AC.±
SWM POND
OPEN
SPACE E
STORMWATER
MANAGEMENT
POND
OPEN SPACE F
OPEN SPACE I
(RECREATIONAL)
COMMERCIAL LOT
121,773 S.F.
2.796 AC.
GILLS NECK
LOCAL ROAD - POSTED 35 MPH
BLACK SWAN DRIVE
KINGS HIGHWAY (SCR 268) 60' ROW
OTHER PRINCIPAL - POSTED 45 MPH
EX-RW
EX-12W
EX-SS
EX-SWM
EX-OHW
EX-UGT
EX-UGW
EX-UGG
EX-UGC
EX-UGS
EX-UGTV
EX-UGF
EX-UGSL
EX-UGSTL
EX-UGSTR
EX-UGSTM
EX-UGSTB
EX-UGSTT
EX-UGSTC
EX-UGSTS
EX-UGSTF
EX-UGSTG
EX-UGSTW
EX-UGSTV
EX-UGSTX
EX-UGSTY
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EX-UGST38
EX-UGST39
EX-UGST40

MATCHLINE – SHEET PL-13

MATCHLINE – SHEET PL-14

MATCHLINE – SHEET PL-11

T38 T39 T44 T45 T46 T47 T48 T49 T50 T51 T147 T146 T145 T144 T134 T135 T136 T137 T138 T139 T140 T143 T142 T65 T64 T63 T62 T61 T60 T59 T58 T57 T56 T55 T54 T53 T52 T66 T67 T68 T69 T70 T71 T72 T73 T74 T75 T76 T77 T78 T79 T80 T81 T82 T83 T84 T85 T86 T87 T88 T89 T90 T91 T92 T93 T94 T95 T96 T97 T98 T99 T100 T101 T102 T103 T104 T105 T106 T107 T117 T116 T115 T114 T113 T112 T111 T110 T109 T108

ROAD A
ROAD B
ROAD C
ROAD E

MAIL PLAZA PAVILION
DOG PARK
OPEN SPACE B (RECREATIONAL)
OPEN SPACE N
OPEN SPACE M
OPEN SPACE L
OPEN SPACE A

SAN–MH
FIRE HYDRANT ASSEMBLY
WELLHEAD PROTECTION AREA

EXISTING BUILDING
EXISTING DWELLING
GARAGE
WOOD POST
WE FIP

SCR 268 R.O.W. DEDICATION
38,330 S.F.
0.880 AC.

KINGS HIGHWAY (SCR 268) 60' ROW
OTHER PRINCIPAL – POSTED 45 MPH

0' 30' 60' 90'

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ANNAPOLIS, MARYLAND (301) 261-1444
EASTON, MARYLAND (410) 770-4744

PRELIMINARY UTILITY PLAN

MITCHELL FAMILY FARM

KINGS HIGHWAY (SCR 268)

LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

Revisions:

Date: DECEMBER 2021
Scale: 1" = 30'
Dwn.By: DEG
Proj.No.: 3808A001
Dwg.No.: PL-10

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MATCHLINE – SHEET PL-12

MATCHLINE – SHEET PL-10

T123
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T121
T120
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T108

SPORTS COURT
SPORTS COURT
POOL & SPLASH PAD
WELLHEAD PROTECTION AREA
COMMUNITY CENTER/PATIO 4,700± SQ FT
OPEN SPACE I (RECREATIONAL)
15' PROPERTY CONSTRUCTION BUFFER
8W BLACK SWAN DRIVE
OPEN SPACE F STORMWATER MANAGEMENT POND
GILLS NECK ROAD (SCR 267) LOCAL ROAD – POSTED 35 MPH ROW VARIES
COMMERCIAL LOT 121,773 S.F. 2.796 AC.
15' PROPERTY CONSTRUCTION BUFFER
FIRE LANE
FIRE LANE
A
KINGS HIGHWAY (SCR 268) 60' ROW
OTHER PRINCIPAL – POSTED 45 MPH

0' 30' 60' 90'

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SUITE 202 – 1543 KENNER AVENUE (302) 644-1441
EASTON, MARYLAND (410) 770-4744

PRELIMINARY UTILITY PLAN

MITCHELL FAMILY FARM

KINGS HIGHWAY (SCR 268)

LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

Revisions:

Date: DECEMBER 2021
Scale: 1" = 30'
Dwn.By: DEG
Proj.No.: 3808A001
Dwg.No.: PL-11

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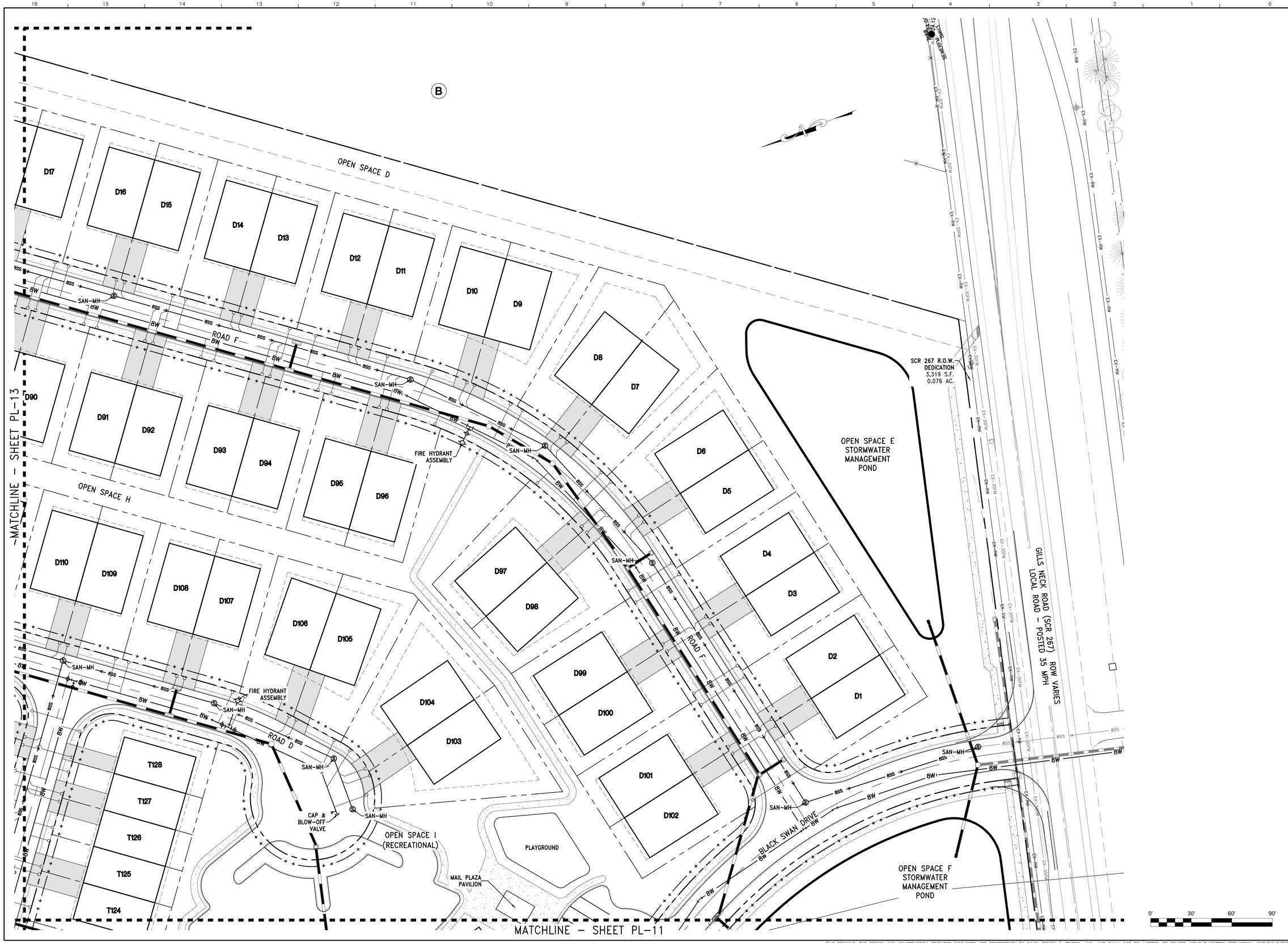
OPEN SPACE D
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T126
T125
T124
OPEN SPACE H
OPEN SPACE E
STORMWATER
MANAGEMENT
POND
OPEN SPACE F
STORMWATER
MANAGEMENT
POND
ROAD F
ROAD D
BLACK SWAN DRIVE
SAN-MH
FIRE HYDRANT ASSEMBLY
CAP & BLOW-OFF VALVE
OPEN SPACE I
(RECREATIONAL)
PLAYGROUND
MAIL PLAZA
PAVILION
SCR 267 R.O.W. DEDICATION
3,319 S.F.
0.076 AC.
GILLS NECK ROAD (SCR 267)
LOCAL ROAD - POSTED 35 MPH
ROW VARIES
8W
8SS
EX-RW
EX-30"W
EX-8"W
EX-8"SS
EX-12"W
EX-8"G
EX-3"GW
EX-3"W
EX-3"G
EX-3"E
EX-3"TV
EX-3"T
EX-3"S
EX-3"SW

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PL-13

Date: DECEMBER 2021
Scale: 1" = 30'
Dwn.By: DEG
Proj.No.: 3808A001
Dwg.No.:

Revisions:

MITCHELL FAMILY FARM

KINGS HIGHWAY (SCR 268)

LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

DAVIS, BOWEN & FRIEDEL, INC.
ARCHITECTS ENGINEERS SURVEYORS
SALISBURY, MARYLAND (410) 543-9091
MILFORD, DELAWARE (302) 424-1441
EASTON, MARYLAND (410) 770-4744

PRELIMINARY UTILITY PLAN

MATCHLINE – SHEET PL-15

MATCHLINE – SHEET PL-14

MATCHLINE – SHEET PL-13

MATCHLINE – SHEET PL-10

MATCHLINE – SHEET PL-14

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CITY OF LEWES (MUNICIPAL BOUNDARY)
SUSSEX COUNTY

OPEN SPACE C

ROAD F

OUTPARCEL
52,043 S.F.±
1.195 AC.±

FIRE HYDRANT ASSEMBLY

SAN–MH

FIP

CMF

0' 30' 60' 90'

DAVIS, BOWEN & FRIEDEL, INC.
ARCHITECTS ENGINEERS SURVEYORS
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MILFORD, DELAWARE (302) 424-1441
EASTON, MARYLAND (410) 770-4744

PRELIMINARY UTILITY PLAN

MITCHELL FAMILY FARM

KINGS HIGHWAY (SCR 268)

LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

Revisions:

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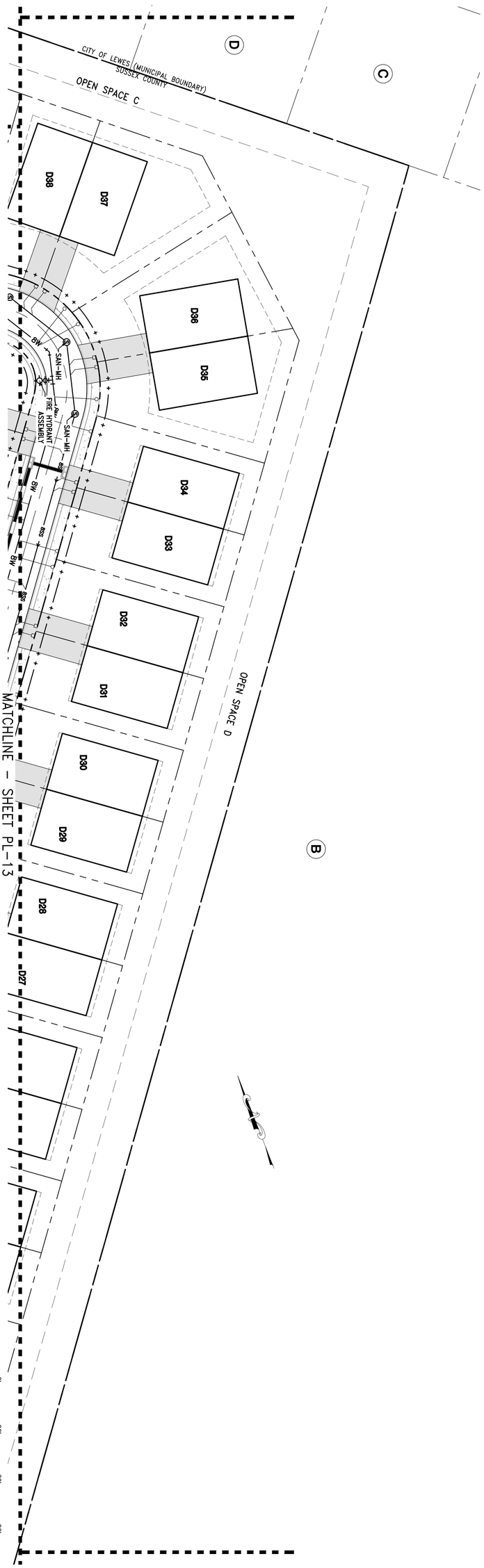

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MITCHELL FAMILY FARM

KINGS HIGHWAY (SCR 268)

LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

PRELIMINARY UTILITY PLAN

Revisions:

Date: DECEMBER 2021
Scale: 1" = 30'
Dsn By: DEG
Proj No.: 3808A001
Dwg No.: PL-15

DAVIS, BOWEN & FRIEDEL, INC.
ARCHITECTS ENGINEERS SURVEYORS
SALISBURY, MARYLAND (410) 543-9091
MILFORD, DELAWARE (302) 424-1441
EASTON, MARYLAND (410) 770-4744

G

DAVIS BOWEN & FRIEDEL, INC.

ARCHITECTS • ENGINEERS • SURVEYORS

Michael R. Wigley, AIA, LEED AP
W. Zachary Crouch, P.E.
Michael E. Wheedleton, AIA, LEED GA
Jason P. Loar, P.E.
Ring W. Lardner, P.E.
Jamie L. Sechler, P.E.

December 21, 2021

Sussex County Administrative Building
Planning and Zoning Department
2 The Circle
P.O. Box 589
Georgetown, Delaware 19947

Attn: Mr. Jamie Whitehouse, Director of Planning

Re: Mitchell Farm – C-2 Rezoning Application
Tax Parcel No: 3-35-8.00-37.00 (partial)
DBF #3808A001

Dear Mr. Whitehouse,

On behalf of our client, Henlopen Properties, LLC, we are pleased to submit the Change of Zoning application and plans to be considered by the Sussex County Planning and Zoning Commission for the above parcel. We have enclosed the following:

- Application for Zoning Amendment with $500 fee
- (2) Copies of the "C2 Rezoning Plan"
- (1) Copies of the Legal Description for the C2 rezoning
- (1) Deed Book 2820 Page 72
- (1) DelDOT SFR (SLER Response)
- (1) Electronic Copy uploaded to Dropbox project share

We respectfully request to be placed on the earliest available Planning and Zoning Commission Agenda. If you have any questions or need additional information, please contact me at (302) 424-1441 or via e-mail at rwl@dbfinc.com.

Sincerely,
DAVIS, BOWEN & FRIEDEL, INC.

Ring W. Ladner, P.E.
Principal

P:\Chesapeake Reality\Zwaanendael Farm\Documents\P&Z\2021-12-21 C-2 Re zoning\C-2 Rezoning Cover.doc

CC: Henlopen Properties, LLC.

File #: _____

Planning & Zoning Commission Application
Sussex County, Delaware

Sussex County Planning & Zoning Department
2 The Circle (P.O. Box 417) Georgetown, DE 19947
302-855-7878 ph. 302-854-5079 fax

Type of Application: (please check applicable)
Conditional Use ___
Zoning Map Amendment ✓

Site Address of Conditional Use/Zoning Map Amendment

Northeast quadrant of Kings Highway and Gills Neck Road, Lewes

Type of Conditional Use Requested:

N/A

Tax Map #: 335-8.00-37.00 (portion) **Size of Parcel(s):** 3.041 +/- acres

Current Zoning: AR-1 **Proposed Zoning:** C2 **Size of Building:** TBD

Land Use Classification: Agricultural

Water Provider: Tidewater **Sewer Provider:** Sussex County

Applicant Information

Applicant Name: Henlopen Properties, LLC
Applicant Address: 4750 Owning Mills Blvd
City: Owing Mills State: MD ZipCode: 21117
Phone #: _____ E-mail: _____

Owner Information

Owner Name: Mitchell Family, LLC
Owner Address: 1019 Kings Highway
City: Lewes State: DE Zip Code: 19958
Phone #: _____ E-mail: _____

Agent/Attorney/Engineer Information

Agent/Attorney/Engineer Name: Davis, Bowen & Friedel, Inc.
Agent/Attorney/Engineer Address: 1 Park Avenue
City: Milford State: DE Zip Code: 19963
Phone #: (302) 424-1441 E-mail: rwl@dbfinc.com

Check List for Sussex County Planning & Zoning Applications

The following shall be submitted with the application

✓ **Completed Application**

✓ **Provide eight (8) copies of the Site Plan or Survey of the property**
- Survey shall show the location of existing or proposed building(s), building setbacks, parking area, proposed entrance location, etc.
- Provide a PDF of Plans (may be e-mailed to a staff member)
- Deed or Legal description

✓ **Provide Fee $500.00**

___ **Optional - Additional information for the Commission/Council to consider** (ex. architectural elevations, photos, exhibit books, etc.) If provided submit 8 copies and they shall be submitted a minimum of ten (10) days prior to the Planning Commission meeting.

✓ **Please be aware that Public Notice will be sent to property owners within 200 feet of the subject site and County staff will come out to the subject site, take photos and place a sign on the site stating the date and time of the Public Hearings for the application.**

___ **DelDOT Service Level Evaluation Request Response**

___ **PLUS Response Letter** (if required)

The undersigned hereby certifies that the forms, exhibits, and statements contained in any papers or plans submitted as a part of this application are true and correct.

I also certify that I or an agent on by behalf shall attend all public hearing before the Planning and Zoning Commission and the Sussex County Council and any other hearing necessary for this application and that I will answer any questions to the best of my ability to respond to the present and future needs, the health, safety, morals, convenience, order, prosperity, and general welfare of the inhabitants of Sussex County, Delaware.

Signature of Applicant/Agent/Attorney

_____ Date: 12/22/2024

Signature of Owner

Robert P. Mitchell Date: 12/22/24

For office use only:

Date Submitted: _____ Fee: $500.00 Check #: _____

Staff accepting application: _____ Application & Case #: _____

Location of property: _____

_____

Subdivision: _____

Date of PC Hearing: _____ Recommendation of PC Commission: _____

Date of CC Hearing: _____ Decision of CC: _____

LEGAL DESCRIPTION

COMMERCIAL LOT

MITCHELL FAMILY, LLC

PORTION OF TAX PARCEL #3-35-8.00-37.00

December 10, 2021

ALL that piece or parcels of land, hereinafter described, situate, lying and being on the easterly side of Kings Highway (Road 268); being located in Lewes and Rehoboth Hundred, Sussex County, Delaware; said piece or parcels of land being a portion of the lands of Mitchell Family, LLC; said piece or parcels of land being more particularly described as follows:

BEGINNING at an iron rod and cap set at a point on the easterly right-of-way line of Kings Highway, 60 feet wide, with the northerly line of, lands now or formerly, Cape Henlopen Medical Center, LLC., as recorded in the Office of the Recorder of Deeds in and for Sussex County and the State of Delaware in Plat Book 271, Page 47; thence,

1) leaving said point of beginning and running by and with right-of-way line of Kings Highway, North 21 degrees 17 minutes 08 seconds East 356.96 feet to a point, thence,

2) leaving said right-of-way line of Kings Highway and running with Residual Lands of Mitchell Family, LLC, as recorded in said Office of the Recorder of Deeds in Deed Book 5074, Page 48, the following two (2) courses and distances, South 68 degrees 42 minutes 52 seconds East 371.14 feet to a point, thence running,

3) South 21 degrees 17 minutes 08 seconds West 356.96 feet to a point on the northerly line of said Cape Henlopen Medical lands, thence,

4) leaving said Mitchell lands and running by and with Cape Henlopen Medical lands, North 68 degrees 42 minutes 52 seconds West 371.14 feet to the point and place of beginning; **CONTAINING** 3.041 acres of land, more or less.

18956 BK02820 PG072

Tax Parcel #3-35-8.00-37.00
Prepared by: David W. Baker, Esq., P.A.
P O Box 551, 109 S. Race St.
Georgetown, Delaware 19947
Return to: LOWDER W. MITCHELL, JR.
JANE T. MITCHELL
1019 Kings Highway
Lewes, Delaware 19958

NO LIEN OR TITLE SEARCH
PERFORMED - NONE REQUESTED

This Deed, made this 31st day of March

in the year of our Lord Two Thousand Three.

BETWEEN LOWDER W. MITCHELL, JR. and JANE T. MITCHELL, husband and wife, of 1019 Kings Highway, Lewes, Delaware 19958, parties of the first part,

-and-

L. W. & J. T. MITCHELL FAMILY LIMITED PARTNERSHIP, a Delaware Limited Partnership, of 1019 Kings Highway, Lewes, Delaware, party of the second part,

WITNESSETH, That the said parties of the first part, for and in consideration of the sum of One Dollar ($1.00) lawful money of the United States of America, the receipt whereof is hereby acknowledged, hereby grants and conveys unto the party of the second part, its Heirs and Assigns,

ALL that certain tract of land, situate, lying and being in Lewes and Rehoboth Hundred, Sussex County, Delaware, and more particularly described as follows to wit:

BEGINNING at a post on the east side of the State Road leading from Murray's Corner to Lewes, and a corner for lands now or formerly of EUGENE MAULL; thence with the same South 61° East 300 feet to a post; thence with same and lands now or formerly of FRED MARSHALL, VIRGIL DENNIS and GEORGE W. ROBINSON, North 29-1/2° East 481 feet to a stone in line of lands now or formerly of THE

1 **Consideration: $0.00 Exempt Code: A**

County	State	Total
0.00	0.00	0.00

counter **Date: 04/03/2003**

SUSSEX TRUST COMPANY; thence with the same South 41°15' East 1686 feet to a stone; thence with three lines of lands now or formerly of MRS. RIGGIN'S lands, South 45° West 155 to a stone; thence North 43° West 320 feet to a stone; thence South 46° West 1460 feet to a stone on the north side of Bookhammer Road; thence with the north side of the same North 67-1/2° West 1146 feet to a stone at the intersection of this road with the first named State Road; thence with the same North 29-3/4° East 1663 feet to the place of beginning, containing 57.98 acres of land, more or less.

BEING the same lands conveyed unto LOWDER W. MITCHELL, JR. and JANE T. MITCHELL by deed of LOWDER W. MITCHELL, JR. and JANE T. MICHELL dated the 19th day of February, A.D. 1998, and filed of record in the Office of the Recorder of Deeds, in and for Sussex County, State of Delaware, in Deed Book 2267 at Page 209.

IN WITNESS WHEREOF, The said parties of the first part have hereunto set their hands and seals, the day and year aforesaid.

SIGNED, SEALED, DELIVERED,
and Witnessed in the presence of

Lowder W. Mitchell (SEAL)
LOWDER W. MITCHELL, JR.

Jane T. Mitchell (SEAL)
JANE T. MITCHELL

STATE OF DELAWARE :
: ss.
SUSSEX COUNTY :

BE IT REMEMBERED, that on this 31st day of March in the year of our Lord Two Thousand Three personally came before me, a Notary Public in and for the State and County aforesaid, LOWDER W. MITCHELL, JR., TRUSTEE and JANE T. MITCHELL, TRUSTEE, parties to this Indenture, known to me personally to be such, and acknowledge this Indenture to be their Deed.

GIVEN under my hand and Seal of Office, the day and year aforesaid.

(Seal)
Notary Public

J. EVERETT MOORE, JR. ESQ.
ATTORNEY-NOTARY PUBLIC
Unif. Notarial Act 10 Del. C. 4323(a)(3)
Non Expiring Commission

RECORDER OF DEEDS
JOHN F BRADY
03 APR -3 AM 9:24
RECORDER OF DEEDS
NO SURCHARGE PAID

Received
APR 04 2003
ASSESSMENT DIVISION
OF SUSSEX CTY

DAVIS BOWEN & FRIEDEL, INC.

ARCHITECTS ENGINEERS SURVEYORS

Michael R. Wigley, AIA, LEED AP
W. Zachary Crouch, P.E.
Michael E. Wheedleton, AIA
Jason P. Loar, P.E.
Ring W. Lardner, P.E.
Jamie L. Sechler., P.E.

December 21, 2021

Sussex County Administrative Building
Planning and Zoning Department
2 The Circle
P.O. Box 589
Georgetown, Delaware 19947

Attn: Mr. Jamie Whitehouse, Director of Planning

Re: Mitchells Corner
Tax Parcel No: 3-35-8.00-37.00
DBF #3808A001

Dear Mr. Whitehouse,

On behalf of our client, Henlopen Properties, LLC, we are submitting an Environmental Assessment and Public Facility Evaluation Report in accordance with §115-194.3. Coastal Area, Subparagraph B (2). We offer the following information that comprises our report:

(a) *Proposed Drainage design and the effect on stormwater quality and quantity leaving the site, including methods for reducing the amount of phosphorous and nitrogen in the stormwater runoff and the control of any other pollutants such as petroleum hydrocarbons or metals*. The proposed improvements will meet or exceed the state regulations for quality and quantity control of stormwater. We intend to use an infiltration pond as well as other Green Technology to meet the quantity requirement. The proposed site through the use of Green Technology and other Best Management Practices and Best Available Technologies will reduce the nitrogen and phosphorus loading by 40%. Minimizing impervious area and preservation of trees will further reduce nitrogen and phosphorous loadings. The project will not develop or produce other pollutants such as petroleum hydrocarbons or metals.

(b) *Proposed method of providing potable and, where appropriate, irrigation water and the effect on public or private water systems and groundwater, including an estimate of average and peak demands.* The proposed project is adjacent to two public water providers. The estimated average for the project is 69,750 GPD and estimated peak use of 209,250 GPD.

(c) *Proposed means of wastewater treatment and disposal with an analysis of the effect on the quality of groundwater and surface waters, including alternative locations for on-site septic systems.* The proposed project will discharge wastewater to an existing gravity sewer manhole constructed during phase 1 that connects to the pump station within the Governors development.

(d) *Analysis of the increase in traffic and the effect on the surrounding roadway system.* A Traffic Impact Study (TIS) has been submitted to DelDOT and interim improvements will be completed by the Developer.

(e) *The presence of any endangered or threatened species listed on federal or state registers and proposed habitat protection areas.* There are no records of federally listed endangered or threatened species or their critical habitats listed on this site.

(f) *The preservation and protection from loss of any tidal or nontidal wetlands on the site.* There are no wetlands on this site.

(g) *Provisions for open space as defined in §115-4.* The proposed project incorporates active and passive open space amenities. Some passive open space amenities include ponds and associated landscape buffers. Active open space amenities include walking paths and an active amenity area.

(h) *A description of provisions for public and private infrastructure.* The Developer will improve Kings Highway in accordance with DelDOT's rules and regulations. The Developer will also construct the water mains internally in the project that will be owned and maintained by a public utility. Besides the water system, all other internal utilities and roadways will be constructed by the Developer and privately maintained.

(i) *Economic, recreational or other benefits.* The proposed project will create a considerable number of jobs during construction. In addition, the project will generate transfer taxes as well other economic impacts in the beach community. There are numerous recreational activities provided within the site. In addition, part of the proposed project includes a commercial rezoning which will provide employment opportunities.

(j) *The presence of any historic or cultural resources that are listed on the National Register of Historic Places.* The site does not contain any historic or cultural resources that are listed on the National Register of Historic Places.

(k) *An affirmation that the proposed application and proposed mitigation measures are in conformance with the current Sussex County Comprehensive Plan.* The proposed application and mitigation measures comply with the current Sussex County Comprehensive Plan.

(l) *Actions to be taken by the applicant to mitigate the detrimental impacts identified relevant to Subsection B(2)(a) through (k) above and the manner by which they are consistent with the Comprehensive Plan.* All mitigation measures, where required, have been discussed in their respective section. All mitigation measures as well as the application are consistent with the Comprehensive Plan.

If you have any questions or need additional information, please call me at (302) 424-1441.

Sincerely,
Davis, Bowen & Friedel, Inc.

Ring W. Lardner, P.E.
Principal

P:\Chesapeake Reality\Zwaanendael Farm\Documents\P&Z\2021-12-21 C-2 Re zoning\2021-12-21 Public Facilities Report.docx

Cc: David Hutt, Morris James LLP
Henlopen Properties, LLC

STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. BOX 778
DOVER, DELAWARE 19903

NICOLE MAJESKI
SECRETARY

December 20, 2021

Mr. Jamie Whitehouse, Director
Sussex County Planning & Zoning
P.O. Box 417
Georgetown, DE 19947

Dear Mr. Whitehouse:

The Department has completed its review of a Service Level Evaluation Request for the **Henlopen Properties, LLC (Jon Mayers)** proposed land use application, which we received on December 10, 2021. This application is for an approximately 3-acre portion of a 48.01- acre parcel (Tax Parcel: 335-8.00-37.00). The subject land is located on the north side of Gills Neck Road (Sussex Road 267) and the east side of Kings Highway (US Route 9). The subject land is currently zoned AR (Agriculture Residential), with a proposed zoning of C-2 (Medium Commercial) for retail and medical offices.

Per the 2019 Delaware Vehicle Volume Summary, the annual average daily traffic volumes along Gills Neck Road from Red Tail Road to Kings Highway, is 4,186 vehicles per day. The annual average daily traffic volumes along Kings Highway from Kings Highway (Sussex Road 268) to Gills Neck Road, is 12,019 vehicles per day.

Based on our review, we estimate that the proposed land use would generate more than 50 vehicle trips in any hour or 500 vehicle trips per day, and would be considered to have a **Major** impact to the local area roadways. In this instance, the Department considers a Major impact to be when a proposed land use would generate more than 200 vehicle trips in any hour of the week and / or 2,000 vehicle trips per day. According to the Institute of Transportation Engineers (ITE) Trip Generation Manual, (trip generation). These numbers of trips meet DelDOT's warrants for requiring a Traffic Impact Study (TIS).

DelDOT

If the County approves this application, the applicant should be reminded that DelDOT requires compliance with State regulations regarding plan approvals and entrance permits, whether or not a TIS is required.

Please contact Ms. Annamaria Furmato, at Annamaria.Furmato@delaware.gov, if you have questions concerning this correspondence.

Sincerely,

T. William Brockenbrough, Jr.
County Coordinator
Development Coordination

TWB:afm
cc: Henlopen Properties, LLC (Jon Mayers), Applicant
Sussex Reviewer, Sussex County Planning & Zoning
David Edgell, Coordinator, Cabinet Committee on State Planning Issues
Todd Sammons, Assistant Director, Development Coordination
Scott Rust, South District Public Works Manager, Maintenance & Operations
Steve McCabe, Sussex County Review Coordinator, Development Coordination
Derek Sapp, Subdivision Manager, Development Coordination
Kevin Hickman, Subdivision Manager, Development Coordination
Brian Yates, Subdivision Manager, Development Coordination
John Andrescavage, Subdivision Manager, Development Coordination
James Argo, South District Project Reviewer, Maintenance & Operations
Claudy Joinville, Project Engineer, Development Coordination
Annamaria Furmato, Project Engineer, Development Coordination

Mailing List Application Form

For Applications requiring a Public Hearing in Sussex County

Please fill out this form and return it with your application. As a part of your application a Public Hearing is required. The property owners within 200' of the site of the application will be notified. Staff will notify the property owners.

Application Information:

Site Address:

Parcel #:

Site Address:

Parcel #:

Applicant Name:

Owner Name:

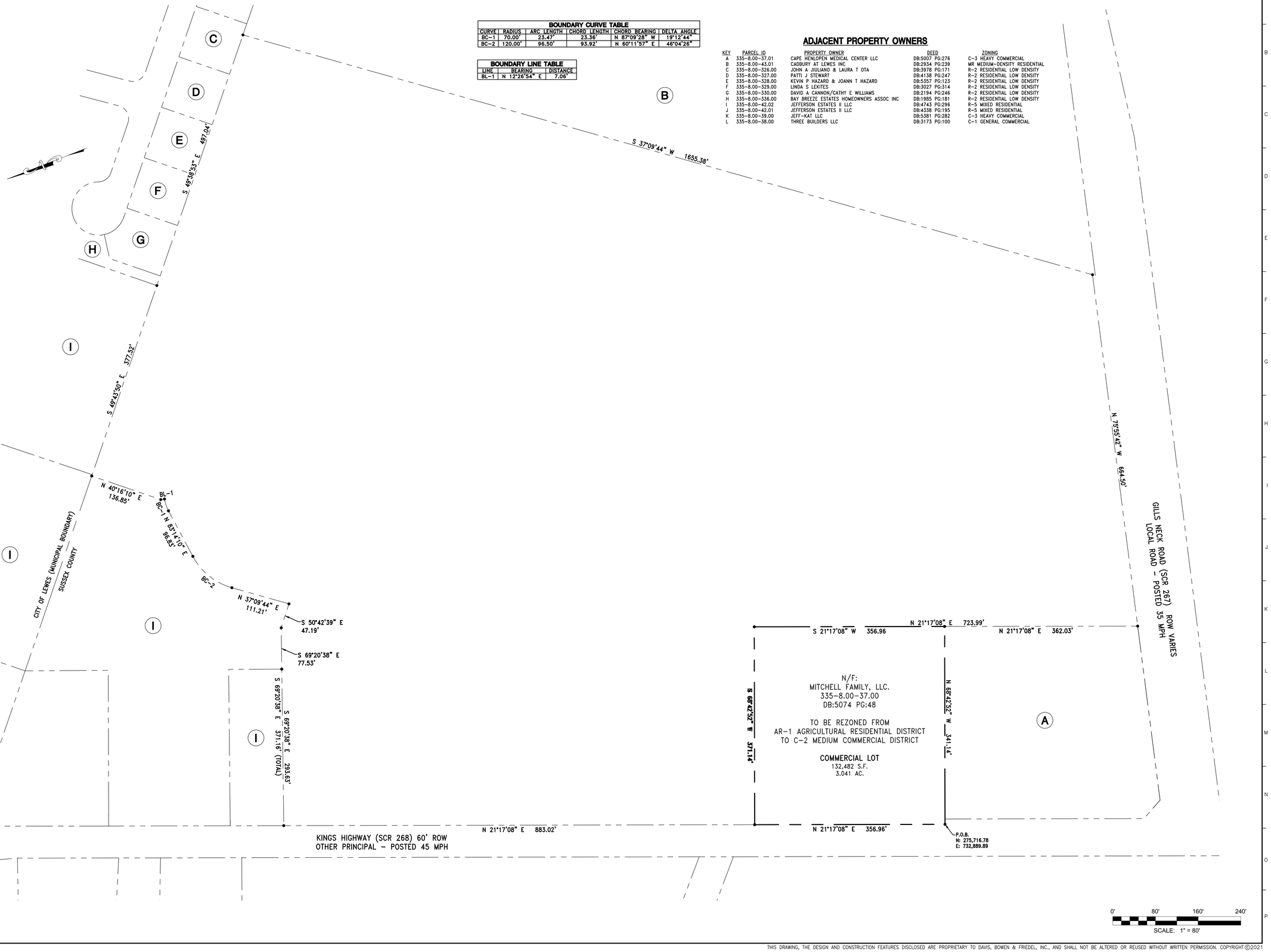
Type of Application:

Conditional Use:
Change of Zone:
Subdivision:
Board of Adjustment:

Date Submitted:

For office use only:

Date of Public Hearing: _____
File #:_____
Date list created: _____ List created by: _____
Date letters mailed: _____ Letters sent by: _____



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ARCHITECTS ENGINEERS SURVEYORS
SALISBURY, MARYLAND (410) 543-9091
NORTH MAIN STREET (302) 856-7444
EASTON, MARYLAND (410) 770-4744

RE-ZONING PLAN - COMMERCIAL

MITCHELL FARM

KINGS HIGHWAY (SCR 268)

LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

Revisions:

Date:	DECEMBER 2021
Scale:	1" = 80'
Dwn.By:	DEG
Proj.No.:	3808A001
Dwg.No.:	RZ-02

P:\Chesapeake Realty\Zwaenendael Farm\Prelim\3808A001-REZONING PLAN_REVISED.dwg Dec 20 2021 - 3:57pm GRED

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H

DAVIS BOWEN & FRIEDEL, INC.

ARCHITECTS • ENGINEERS • SURVEYORS

Michael R. Wigley, AIA, LEED AP
W. Zachary Crouch, P.E.
Michael E. Wheedleton, AIA, LEED GA
Jason P. Loar, P.E.
Ring W. Lardner, P.E.
Jamie L. Sechler, P.E.

December 21, 2021

Sussex County Administrative Building
Planning and Zoning Department
2 The Circle
P.O. Box 589
Georgetown, Delaware 19947

Attn: Mr. Jamie Whitehouse, Director of Planning

Re: Zwaanendael Farm – MR Rezoning Application
Tax Parcel No: 3-35-8.00-37.00 (partial)
DBF #3808A001

Dear Mr. Whitehouse,

On behalf of our client, Henlopen Properties, LLC, we are pleased to submit the Change of Zoning application and plans to be considered by the Sussex County Planning and Zoning Commission for the above parcel. We have enclosed the following:

- Application for Zoning Amendment with $500 fee
- (2) Copies of the "MR Rezoning Plan"
- (1) Copies of the Legal Description for the MR rezoning
- (1) Deed Book 2820 Page 72
- (1) DelDOT SFR (SLER Response)
- (1) Electronic copy uploaded to Dropbox project share folder

We respectfully request to be placed on the earliest available Planning and Zoning Commission Agenda. If you have any questions or need additional information, please contact me at (302) 424-1441 or via e-mail at rwl@dbfinc.com.

Sincerely,
DAVIS, BOWEN & FRIEDEL, INC.

Ring W. Ladner, P.E.
Principal

P:\Chesapeake Reality\Zwaanendael Farm\Documents\P&Z\2021-12-21 MR Re zoning\MR Re-zoning Cover.doc

CC: Henlopen Properties, LLC.

File #: _____

Planning & Zoning Commission Application
Sussex County, Delaware

Sussex County Planning & Zoning Department
2 The Circle (P.O. Box 417) Georgetown, DE 19947
302-855-7878 ph. 302-854-5079 fax

Type of Application: (please check applicable)
Conditional Use ___
Zoning Map Amendment ✓

Site Address of Conditional Use/Zoning Map Amendment

Northeast quadrant of Kings Highway and Gills Neck Road, Lewes

Type of Conditional Use Requested:

N/A

Tax Map #: 335-8.00-37.00 (portion) **Size of Parcel(s):** 43.777 +/- acres

Current Zoning: AR-1 **Proposed Zoning:** MR **Size of Building:** TBD

Land Use Classification: Agricultural

Water Provider: Tidewater **Sewer Provider:** Sussex County

Applicant Information

Applicant Name: Henlopen Properties, LLC
Applicant Address: 4750 Owning Mills Blvd
City: Owing Mills State: MD ZipCode: 21117
Phone #: _____ E-mail: _____

Owner Information

Owner Name: Mitchell Family, LLC
Owner Address: 1019 Kings Highway
City: Lewes State: DE Zip Code: 19958
Phone #: _____ E-mail: _____

Agent/Attorney/Engineer Information

Agent/Attorney/Engineer Name: Davis, Bowen & Friedel, Inc.
Agent/Attorney/Engineer Address: 1 Park Avenue
City: Milford State: DE Zip Code: 19963
Phone #: (302) 424-1441 E-mail: rwl@dbfinc.com

Check List for Sussex County Planning & Zoning Applications

The following shall be submitted with the application

✓ **Completed Application**

✓ **Provide eight (8) copies of the Site Plan or Survey of the property**
- Survey shall show the location of existing or proposed building(s), building setbacks, parking area, proposed entrance location, etc.
- Provide a PDF of Plans (may be e-mailed to a staff member)
- Deed or Legal description

✓ **Provide Fee $500.00**

___ **Optional - Additional information for the Commission/Council to consider** (ex. architectural elevations, photos, exhibit books, etc.) If provided submit 8 copies and they shall be submitted a minimum of ten (10) days prior to the Planning Commission meeting.

✓ **Please be aware that Public Notice will be sent to property owners within 200 feet of the subject site and County staff will come out to the subject site, take photos and place a sign on the site stating the date and time of the Public Hearings for the application.**

✓ **DelDOT Service Level Evaluation Request Response**

___ **PLUS Response Letter** (if required)

The undersigned hereby certifies that the forms, exhibits, and statements contained in any papers or plans submitted as a part of this application are true and correct.

I also certify that I or an agent on by behalf shall attend all public hearing before the Planning and Zoning Commission and the Sussex County Council and any other hearing necessary for this application and that I will answer any questions to the best of my ability to respond to the present and future needs, the health, safety, morals, convenience, order, prosperity, and general welfare of the inhabitants of Sussex County, Delaware.

Signature of Applicant/Agent/Attorney

_____ Date: 12/22/2021

Signature of Owner

Robert P. Mitchell Date: 12/22/21

For office use only:

Date Submitted: _____ Fee: $500.00 Check #: _____

Staff accepting application: _____ Application & Case #: _____

Location of property: _____

_____

Subdivision: _____

Date of PC Hearing: _____ Recommendation of PC Commission: _____

Date of CC Hearing: _____ Decision of CC: _____

LEGAL DESCRIPTION

RESIDUAL LANDS

MITCHELL FAMILY, LLC

PORTION OF TAX PARCEL #3-35-8.00-37.00

December 10, 2021

ALL that piece or parcels of land, hereinafter described, situate, lying and being on the northerly side of Gills Neck Road (Road 267) and the easterly side of Kings Highway (Road 268); being located in Lewes and Rehoboth Hundred, Sussex County, Delaware; said piece or parcels of land being a portion of the lands of Mitchell Family, LLC; said piece or parcels of land being more particularly described as follows:

BEGINNING at a Wingate and Eschenbach found iron pipe along the easterly right-of-way line of Kings Highway; said point being located 30' from the centerline of Kings Highway and being the southwestern boundary corner for lands now or formerly of Three Builders, Inc., as recorded in the Office of the Recorder of Deeds in and for Sussex County and the State of Delaware in Deed Book D-3173, Page 100; coordinated on the Delaware State Grid System as North 276,872.17, East 733,340.02, thence,

1) leaving said point of beginning and running by and with lands now or formerly of Three Builders, Inc., South 69 degrees 20 minutes 38 seconds East 293.63 feet to wooden post at a point on the westerly line of lands of now or formerly of Jeff-Kat, LLC, as recorded in said Office of the Recorder of Deeds in Deed Book D-4456, Page 123, thence,

2) running by and with said Jeff-Kat lands, the following four (7) courses and distances, South 69 degrees 20 minutes 38 seconds East 77.54 feet to a point, thence running,

3) South 50 degrees 42 minutes 39 seconds East 47.19 feet to a point, thence running,

4) North 37 degrees 09 minutes 44 seconds East 111.21 feet to a point, thence running,

5) along a curve to the right, having a radius of 120.00 feet, an arc length of 96.50 feet and a chord bearing and distance of North 60 degrees 11 minutes 57 seconds East 93.92 feet to a point, thence running,

6) North 83 degrees 14 minutes 10 seconds East 96.83 feet to a point, thence running,

7) along a curve to the right, having a radius of 70.00 feet, an arc length of 23.47 feet and a chord bearing and distance of North 87 degrees 09 minutes 28 seconds West 23.36 feet to a point, thence running,

8) North 12 degrees 26 minutes 54 seconds East 7.06 feet to a point, thence running,

9) North 40 degrees 16 minutes 10 seconds East 136.85 feet to a point on the easterly line of lands of, now or formerly, Jefferson Estate, LLC, as recorded in said Office of the Recorder of Deeds in Deed Book D-4338, Page 195, thence,

10) leaving said Jeff-Kat lands and running by and with said Jefferson Estates lands, South 49 degrees 43 minutes 50 seconds East 377.52 feet to a concrete monument found at a point on the southerly line of Baybreeze Subdivision, thence,

11) leaving said Jefferson Estates and running by and with said Baybreeze Subdivision, South 49 degrees 38 minutes 53 seconds East 497.04 feet to a found iron rod at a point on the westerly line of lands of, now or formerly, Cadbury at Lewes as recorded in said Office of the Recorder of Deeds in Deed Book D-2934, Page 239, thence,

12) leaving said Baybreeze lands and running by and with said Cadbury lands, South 37 degrees 09 minutes 44 seconds West 1,655.38 feet to a point on the northerly right-of-way line of Gills Neck Road, width varies, thence,

13) leaving said Cadbury lands and running by and with said right-of-way line of Gills Neck Road, North 75 degrees 55 minutes 42 seconds West 664.50 feet to a point on the easterly line of lands of, now or formerly, Cape Henlopen Medical Center, LLC, thence,

14) running by and with said Cape Henlopen Medical lands, North 21 degrees 17 minutes 08 seconds East 362.03 feet to a point on the easterly line of Commercial Lot, thence,

15) leaving Cape Henlopen Medical lands and running by and with said Commercial Lot, the following two (2) courses and distances, North 21 degrees 17 minutes 08 seconds East 356.96 feet to a point, thence running,

16) North 68 degrees 42 minutes 52 seconds West 371.14 feet to a point on the aforementioned right-of-way line of Kings Highway, thence,

17) leaving said Cape Henlopen lands and running by and with said right-of-way line of Kings Highway, North 21 degrees 17 minutes 08 seconds East 883.02 feet to the point and place of beginning; **CONTAINING** 43.777 acres of land, more or less.

18956 BK02820 PG072

Tax Parcel #3-35-8.00-37.00
Prepared by: David W. Baker, Esq., P.A.
P O Box 551, 109 S. Race St.
Georgetown, Delaware 19947
Return to: LOWDER W. MITCHELL, JR.
JANE T. MITCHELL
1019 Kings Highway
Lewes, Delaware 19958

NO LIEN OR TITLE SEARCH
PERFORMED - NONE REQUESTED

This Deed, made this 31st day of March

in the year of our Lord Two Thousand Three.

BETWEEN LOWDER W. MITCHELL, JR. and JANE T. MITCHELL, husband and wife, of 1019 Kings Highway, Lewes, Delaware 19958, parties of the first part,

-and-

L. W. & J. T. MITCHELL FAMILY LIMITED PARTNERSHIP, a Delaware Limited Partnership, of 1019 Kings Highway, Lewes, Delaware, party of the second part,

WITNESSETH, That the said parties of the first part, for and in consideration of the sum of One Dollar ($1.00) lawful money of the United States of America, the receipt whereof is hereby acknowledged, hereby grants and conveys unto the party of the second part, its Heirs and Assigns,

ALL that certain tract of land, situate, lying and being in Lewes and Rehoboth Hundred, Sussex County, Delaware, and more particularly described as follows to wit:

BEGINNING at a post on the east side of the State Road leading from Murray's Corner to Lewes, and a corner for lands now or formerly of EUGENE MAULL; thence with the same South 61° East 300 feet to a post; thence with same and lands now or formerly of FRED MARSHALL, VIRGIL DENNIS and GEORGE W. ROBINSON, North 29-1/2° East 481 feet to a stone in line of lands now or formerly of THE

1 **Consideration: $0.00 Exempt Code: A**

County	State	Total
0.00	0.00	0.00

counter **Date: 04/03/2003**

SUSSEX TRUST COMPANY; thence with the same South 41°15' East 1686 feet to a stone; thence with three lines of lands now or formerly of MRS. RIGGIN'S lands, South 45° West 155 to a stone; thence North 43° West 320 feet to a stone; thence South 46° West 1460 feet to a stone on the north side of Bookhammer Road; thence with the north side of the same North 67-1/2° West 1146 feet to a stone at the intersection of this road with the first named State Road; thence with the same North 29-3/4° East 1663 feet to the place of beginning, containing 57.98 acres of land, more or less.

BEING the same lands conveyed unto LOWDER W. MITCHELL, JR. and JANE T. MITCHELL by deed of LOWDER W. MITCHELL, JR. and JANE T. MICHELL dated the 19th day of February, A.D. 1998, and filed of record in the Office of the Recorder of Deeds, in and for Sussex County, State of Delaware, in Deed Book 2267 at Page 209.

IN WITNESS WHEREOF, The said parties of the first part have hereunto set their hands and seals, the day and year aforesaid.

SIGNED, SEALED, DELIVERED,
and Witnessed in the presence of

Lowder W. Mitchell (SEAL)
LOWDER W. MITCHELL, JR.

Jane T. Mitchell (SEAL)
JANE T. MITCHELL

STATE OF DELAWARE :
: ss.
SUSSEX COUNTY :

BE IT REMEMBERED, that on this 31st day of March in the year of our Lord Two Thousand Three personally came before me, a Notary Public in and for the State and County aforesaid, LOWDER W. MITCHELL, JR., TRUSTEE and JANE T. MITCHELL, TRUSTEE, parties to this Indenture, known to me personally to be such, and acknowledge this Indenture to be their Deed.

GIVEN under my hand and Seal of Office, the day and year aforesaid.

(Seal)
Notary Public

J. EVERETT MOORE, JR. ESQ.
ATTORNEY-NOTARY PUBLIC
Unif. Notarial Act 10 Del. C. 4323(a)(3)
Non Expiring Commission

RECORDER OF DEEDS
JOHN F BRADY
03 APR -3 AM 9:24
RECORDER OF DEEDS
NO SURCHARGE PAID

Received
APR 04 2003
ASSESSMENT DIVISION
OF SUSSEX CTY

DAVIS BOWEN & FRIEDEL, INC.

ARCHITECTS ENGINEERS SURVEYORS

Michael R. Wigley, AIA, LEED AP
W. Zachary Crouch, P.E.
Michael E. Wheedleton, AIA
Jason P. Loar, P.E.
Ring W. Lardner, P.E.
Jamie L. Sechler., P.E.

December 21, 2021

Sussex County Administrative Building
Planning and Zoning Department
2 The Circle
P.O. Box 589
Georgetown, Delaware 19947

Attn: Mr. Jamie Whitehouse, Director of Planning

Re: Mitchells Corner
Tax Parcel No: 3-35-8.00-37.00
DBF #3808A001

Dear Mr. Whitehouse,

On behalf of our client, Henlopen Properties, LLC, we are submitting an Environmental Assessment and Public Facility Evaluation Report in accordance with §115-194.3. Coastal Area, Subparagraph B (2). We offer the following information that comprises our report:

(a) *Proposed Drainage design and the effect on stormwater quality and quantity leaving the site, including methods for reducing the amount of phosphorous and nitrogen in the stormwater runoff and the control of any other pollutants such as petroleum hydrocarbons or metals*. The proposed improvements will meet or exceed the state regulations for quality and quantity control of stormwater. We intend to use an infiltration pond as well as other Green Technology to meet the quantity requirement. The proposed site through the use of Green Technology and other Best Management Practices and Best Available Technologies will reduce the nitrogen and phosphorus loading by 40%. Minimizing impervious area and preservation of trees will further reduce nitrogen and phosphorous loadings. The project will not develop or produce other pollutants such as petroleum hydrocarbons or metals.

(b) *Proposed method of providing potable and, where appropriate, irrigation water and the effect on public or private water systems and groundwater, including an estimate of average and peak demands.* The proposed project is adjacent to two public water providers. The estimated average for the project is 69,750 GPD and estimated peak use of 209,250 GPD.

(c) *Proposed means of wastewater treatment and disposal with an analysis of the effect on the quality of groundwater and surface waters, including alternative locations for on-site septic systems.* The proposed project will discharge wastewater to an existing gravity sewer manhole constructed during phase 1 that connects to the pump station within the Governors development.

(d) *Analysis of the increase in traffic and the effect on the surrounding roadway system.* A Traffic Impact Study (TIS) has been submitted to DelDOT and interim improvements will be completed by the Developer.

(e) *The presence of any endangered or threatened species listed on federal or state registers and proposed habitat protection areas.* There are no records of federally listed endangered or threatened species or their critical habitats listed on this site.

(f) *The preservation and protection from loss of any tidal or nontidal wetlands on the site.* There are no wetlands on this site.

(g) *Provisions for open space as defined in §115-4.* The proposed project incorporates active and passive open space amenities. Some passive open space amenities include ponds and associated landscape buffers. Active open space amenities include walking paths and an active amenity area.

(h) *A description of provisions for public and private infrastructure.* The Developer will improve Kings Highway in accordance with DelDOT's rules and regulations. The Developer will also construct the water mains internally in the project that will be owned and maintained by a public utility. Besides the water system, all other internal utilities and roadways will be constructed by the Developer and privately maintained.

(i) *Economic, recreational or other benefits.* The proposed project will create a considerable number of jobs during construction. In addition, the project will generate transfer taxes as well other economic impacts in the beach community. There are numerous recreational activities provided within the site. In addition, part of the proposed project includes a commercial rezoning which will provide employment opportunities.

(j) *The presence of any historic or cultural resources that are listed on the National Register of Historic Places.* The site does not contain any historic or cultural resources that are listed on the National Register of Historic Places.

(k) *An affirmation that the proposed application and proposed mitigation measures are in conformance with the current Sussex County Comprehensive Plan.* The proposed application and mitigation measures comply with the current Sussex County Comprehensive Plan.

(l) *Actions to be taken by the applicant to mitigate the detrimental impacts identified relevant to Subsection B(2)(a) through (k) above and the manner by which they are consistent with the Comprehensive Plan.* All mitigation measures, where required, have been discussed in their respective section. All mitigation measures as well as the application are consistent with the Comprehensive Plan.

If you have any questions or need additional information, please call me at (302) 424-1441.

Sincerely,
Davis, Bowen & Friedel, Inc.

Ring W. Lardner, P.E.
Principal

P:\Chesapeake Reality\Zwaanendael Farm\Documents\P&Z\2021-12-21 MR Re zoning\2021-12-21 Public Facilities Report.docx

Cc: David Hutt, Morris James LLP
Henlopen Properties, LLC

STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. BOX 778
DOVER, DELAWARE 19903

NICOLE MAJESKI
SECRETARY

December 20, 2021

Mr. Jamie Whitehouse, Director
Sussex County Planning & Zoning
P.O. Box 417
Georgetown, DE 19947

Dear Mr. Whitehouse:

The Department has completed its review of a Service Level Evaluation Request for the **Henlopen Properties, LLC (Jon Mayers)** proposed land use application, which we received on December 10, 2021. This application is for an approximately 42-acre portion of a 48.01- acre parcel (Tax Parcel: 335-8.00-37.00). The subject land is located on the north side of Gills Neck Road (Sussex Road 267) and the east side of Kings Highway (US Route 9). The subject land is currently zoned AR (Agriculture Residential), with a proposed zoning of MR (Medium Density Residential) for 267 multifamily houses.

Per the 2019 Delaware Vehicle Volume Summary, the annual average daily traffic volumes along Gills Neck Road from Red Tail Road to Kings Highway, is 4,186 vehicles per day. The annual average daily traffic volumes along Kings Highway from Kings Highway (Sussex Road 268) to Gills Neck Road, is 12,019 vehicles per day.

Based on our review, we estimate that the proposed land use will generate more than 50 vehicle trips per peak hour or 500 vehicle trips per day, and would be considered to have a **Minor** impact to the local area roadways. In this instance, the Department considers a Minor impact to be when a proposed land use would generate more than either 50 vehicle trips per peak hour and / or 500 vehicle trips per day but fewer than 200 vehicle trips per a weekly peak hour and 2,000 vehicle trips per day. Because of this impact, we recommend that the applicant be required to perform a Traffic Impact Study (TIS) for the subject application. However, our Development Coordination Manual provides that where a TIS is required only because the volume warrants are met, and the projected trip generation will be fewer than 200 vehicle trips per a weekly peak hour and fewer than 2,000 vehicle trips per day, DelDOT may permit the developer to pay an Area-Wide Study Fee of $10 per daily trip in lieu of doing a TIS. For this application, if the County were agreeable, we would permit the developer to pay an Area-wide Study Fee.

DelDOT

If the County approves this application, the applicant should be reminded that DelDOT requires compliance with State regulations regarding plan approvals and entrance permits, whether or not a TIS is required.

Please contact Ms. Annamaria Furmato, at Annamaria.Furmato@delaware.gov, if you have questions concerning this correspondence.

Sincerely,

T. William Brockenbrough, Jr.
County Coordinator
Development Coordination

TWB:afm
cc: Henlopen Properties, LLC (Jon Mayers), Applicant
Sussex Reviewer, Sussex County Planning & Zoning
David Edgell, Coordinator, Cabinet Committee on State Planning Issues
Todd Sammons, Assistant Director, Development Coordination
Scott Rust, South District Public Works Manager, Maintenance & Operations
Steve McCabe, Sussex County Review Coordinator, Development Coordination
Derek Sapp, Subdivision Manager, Development Coordination
Kevin Hickman, Subdivision Manager, Development Coordination
Brian Yates, Subdivision Manager, Development Coordination
John Andrescavage, Subdivision Manager, Development Coordination
James Argo, South District Project Reviewer, Maintenance & Operations
Claudy Joinville, Project Engineer, Development Coordination
Annamaria Furmato, Project Engineer, Development Coordination

Mailing List Application Form

For Applications requiring a Public Hearing in Sussex County

Please fill out this form and return it with your application. As a part of your application a Public Hearing is required. The property owners within 200' of the site of the application will be notified. Staff will notify the property owners.

Application Information:

Site Address:

Parcel #:

Site Address:

Parcel #:

Applicant Name:

Owner Name:

Type of Application:

Conditional Use:
Change of Zone:
Subdivision:
Board of Adjustment:

Date Submitted:

For office use only:

Date of Public Hearing: _____
File #:_____
Date list created: _____ List created by: _____
Date letters mailed: _____ Letters sent by: _____

BOUNDARY CURVE TABLE

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
BC-1	70.00'	23.47'	23.36'	N 87°09'28" W	19°12'44"
BC-2	120.00'	96.50'	93.92'	N 60°11'57" E	46°04'26"

BOUNDARY LINE TABLE

LINE	BEARING	DISTANCE
BL-1	N 12°26'54" E	7.06'

ADJACENT PROPERTY OWNERS

KEY	PARCEL ID	PROPERTY OWNER	DEED	ZONING
A	335-8.00-37.01	CAPE HENLOPEN MEDICAL CENTER LLC	DB:5007 PG:276	C-3 HEAVY COMMERCIAL
B	335-8.00-43.01	CADBURY AT LEWES INC	DB:2934 PG:239	MR MEDIUM-DENSITY RESIDENTIAL
C	335-8.00-326.00	JOHN A JIULIANO & LAURA T OTA	DB:3978 PG:171	R-2 RESIDENTIAL LOW DENSITY
D	335-8.00-327.00	PATTI J STEWART	DB:4138 PG:247	R-2 RESIDENTIAL LOW DENSITY
E	335-8.00-328.00	KEVIN P HAZARD & JOANN T HAZARD	DB:5357 PG:123	R-2 RESIDENTIAL LOW DENSITY
F	335-8.00-329.00	LINDA S LEKITES	DB:3027 PG:314	R-2 RESIDENTIAL LOW DENSITY
G	335-8.00-330.00	DAVID A CANNON/CATHY E WILLIAMS	DB:2194 PG:246	R-2 RESIDENTIAL LOW DENSITY
H	335-8.00-336.00	BAY BREEZE ESTATES HOMEOWNERS ASSOC INC	DB:1985 PG:181	R-2 RESIDENTIAL LOW DENSITY
I	335-8.00-42.02	JEFFERSON ESTATES II LLC	DB:4743 PG:296	R-5 MIXED RESIDENTIAL
J	335-8.00-42.01	JEFFERSON ESTATES II LLC	DB:4338 PG:195	R-5 MIXED RESIDENTIAL
K	335-8.00-39.00	JEFF-WAT LLC	DB:5381 PG:282	C-3 HEAVY COMMERCIAL
L	335-8.00-38.00	THREE BUILDERS LLC	DB:3173 PG:100	C-1 GENERAL COMMERCIAL

N/F:
MITCHELL FAMILY, LLC.
335-8.00-37.00
DB:5074 PG:48

TO BE REZONED FROM
AR-1 AGRICULTURAL RESIDENTIAL DISTRICT
TO MR MEDIUM-DENSITY RESIDENTIAL DISTRICT

RESIDENTIAL DEVELOPMENT
1,906,941 S.F.
43.777 AC.

S 37°09'44" W 1655.38'

S 49°36'53" E 487.04'

S 49°43'30" E 371.52'

N 40°16'10" E 136.85'

BL-1

BC-1

N 83°14'10" E 96.83'

BC-2

N 37°09'44" E 111.21'

S 50°42'39" E 47.19'

S 69°20'38" E 77.53'

S 69°20'38" E 371.16' (TOTAL)

S 69°20'38" E 293.63'

P.O.B.
N: 275,716.78
E: 732,889.89

N 21°17'08" E 883.02'

N 68°42'52" W 371.14'

N 21°17'08" E 356.96'

N 21°17'08" E 723.99'

N 21°17'08" E 362.03'

N 75°55'42" W 664.50'

CITY OF LEWES (MUNICIPAL BOUNDARY)
SUSSEX COUNTY

GILLS NECK ROAD (SCR 267) ROW VARIES
LOCAL ROAD - POSTED 35 MPH

KINGS HIGHWAY (SCR 268) 60' ROW
OTHER PRINCIPAL - POSTED 45 MPH

A B C D E F G H I

0' 80' 160' 240'
SCALE: 1" = 80'

DAVIS, BOWEN & FRIEDEL, INC.
ARCHITECTS ENGINEERS SURVEYORS
SALISBURY, MARYLAND (410) 543-9091
NEW CASTLE, DELAWARE (302) 322-4444
EASTON, MARYLAND (410) 770-4744

RE-ZONING PLAN - RESIDENTIAL

MITCHELL FARM

KINGS HIGHWAY (SCR 268)

LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

Revisions:

Date: DECEMBER 2021
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- Application for Zoning Amendment with $500 fee
- (2) Copies of the "Conditional Use"
- (1) Copies of the Legal Description for the Conditional Use
- (1) Deed Book 2820 Page 72
- (1) DelDOT SFR (SLER Response)
- (1) Electronic copy uploaded to Dropbox project share

We respectfully request to be placed on the earliest available Planning and Zoning Commission Agenda. If you have any questions or need additional information, please contact me at (302) 424-1441 or via e-mail at rwl@dbfinc.com.

Sincerely,
DAVIS, BOWEN & FRIEDEL, INC.

Ring W. Ladner, P.E.
Principal

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CC: Henlopen Properties, LLC.

File #: _____

Planning & Zoning Commission Application
Sussex County, Delaware

Sussex County Planning & Zoning Department
2 The Circle (P.O. Box 417) Georgetown, DE 19947
302-855-7878 ph. 302-854-5079 fax

Type of Application: (please check applicable)
Conditional Use ✓
Zoning Map Amendment ___

Site Address of Conditional Use/Zoning Map Amendment

Northeast quadrant of Kings Highway and Gills Neck Road, Lewes

Type of Conditional Use Requested:

Tax Map #: 335-8.00-37.00 (portion) **Size of Parcel(s):** 43.777 +/- acres

Current Zoning: AR-1 **Proposed Zoning:** MR **Size of Building:** TBD

Land Use Classification: Agricultural

Water Provider: Tidewater **Sewer Provider:** Sussex County

Applicant Information

Applicant Name: Henlopen Properties, LLC
Applicant Address: 4750 Owning Mills Blvd
City: Owing Mills State: MD ZipCode: 21117
Phone #: _____ E-mail: _____

Owner Information

Owner Name: Mitchell Family, LLC
Owner Address: 1019 Kings Highway
City: Lewes State: DE Zip Code: 19958
Phone #: _____ E-mail: _____

Agent/Attorney/Engineer Information

Agent/Attorney/Engineer Name: Davis, Bowen & Friedel, Inc.
Agent/Attorney/Engineer Address: 1 Park Avenue
City: Milford State: DE Zip Code: 19963
Phone #: (302) 424-1441 E-mail: rwl@dbfinc.com

Check List for Sussex County Planning & Zoning Applications

The following shall be submitted with the application

✓ **Completed Application**

✓ **Provide eight (8) copies of the Site Plan or Survey of the property**

- Survey shall show the location of existing or proposed building(s), building setbacks, parking area, proposed entrance location, etc.
- Provide a PDF of Plans (may be e-mailed to a staff member)
- Deed or Legal description

✓ **Provide Fee $500.00**

___ **Optional - Additional information for the Commission/Council to consider** (ex. architectural elevations, photos, exhibit books, etc.) If provided submit 8 copies and they shall be submitted a minimum of ten (10) days prior to the Planning Commission meeting.

✓ **Please be aware that Public Notice will be sent to property owners within 200 feet of the subject site and County staff will come out to the subject site, take photos and place a sign on the site stating the date and time of the Public Hearings for the application.**

✓ **DelDOT Service Level Evaluation Request Response**

___ **PLUS Response Letter** (if required)

The undersigned hereby certifies that the forms, exhibits, and statements contained in any papers or plans submitted as a part of this application are true and correct.

I also certify that I or an agent on by behalf shall attend all public hearing before the Planning and Zoning Commission and the Sussex County Council and any other hearing necessary for this application and that I will answer any questions to the best of my ability to respond to the present and future needs, the health, safety, morals, convenience, order, prosperity, and general welfare of the inhabitants of Sussex County, Delaware.

Signature of Applicant/Agent/Attorney

_____ Date: 12/22/2021

Signature of Owner

_____ Date: 12/22/21

For office use only:

Date Submitted: _____ Fee: $500.00 Check #: _____

Staff accepting application: _____ Application & Case #: _____

Location of property: _____

_____

Subdivision: _____

Date of PC Hearing: _____ Recommendation of PC Commission: _____

Date of CC Hearing: _____ Decision of CC: _____

LEGAL DESCRIPTION

RESIDUAL LANDS

MITCHELL FAMILY, LLC

PORTION OF TAX PARCEL #3-35-8.00-37.00

December 10, 2021

ALL that piece or parcels of land, hereinafter described, situate, lying and being on the northerly side of Gills Neck Road (Road 267) and the easterly side of Kings Highway (Road 268); being located in Lewes and Rehoboth Hundred, Sussex County, Delaware; said piece or parcels of land being a portion of the lands of Mitchell Family, LLC; said piece or parcels of land being more particularly described as follows:

BEGINNING at a Wingate and Eschenbach found iron pipe along the easterly right-of-way line of Kings Highway; said point being located 30' from the centerline of Kings Highway and being the southwestern boundary corner for lands now or formerly of Three Builders, Inc., as recorded in the Office of the Recorder of Deeds in and for Sussex County and the State of Delaware in Deed Book D-3173, Page 100; coordinated on the Delaware State Grid System as North 276,872.17, East 733,340.02, thence,

1) leaving said point of beginning and running by and with lands now or formerly of Three Builders, Inc., South 69 degrees 20 minutes 38 seconds East 293.63 feet to wooden post at a point on the westerly line of lands of now or formerly of Jeff-Kat, LLC, as recorded in said Office of the Recorder of Deeds in Deed Book D-4456, Page 123, thence,

2) running by and with said Jeff-Kat lands, the following four (7) courses and distances, South 69 degrees 20 minutes 38 seconds East 77.54 feet to a point, thence running,

3) South 50 degrees 42 minutes 39 seconds East 47.19 feet to a point, thence running,

4) North 37 degrees 09 minutes 44 seconds East 111.21 feet to a point, thence running,

5) along a curve to the right, having a radius of 120.00 feet, an arc length of 96.50 feet and a chord bearing and distance of North 60 degrees 11 minutes 57 seconds East 93.92 feet to a point, thence running,

6) North 83 degrees 14 minutes 10 seconds East 96.83 feet to a point, thence running,

7) along a curve to the right, having a radius of 70.00 feet, an arc length of 23.47 feet and a chord bearing and distance of North 87 degrees 09 minutes 28 seconds West 23.36 feet to a point, thence running,

8) North 12 degrees 26 minutes 54 seconds East 7.06 feet to a point, thence running,

9) North 40 degrees 16 minutes 10 seconds East 136.85 feet to a point on the easterly line of lands of, now or formerly, Jefferson Estate, LLC, as recorded in said Office of the Recorder of Deeds in Deed Book D-4338, Page 195, thence,

10) leaving said Jeff-Kat lands and running by and with said Jefferson Estates lands, South 49 degrees 43 minutes 50 seconds East 377.52 feet to a concrete monument found at a point on the southerly line of Baybreeze Subdivision, thence,

11) leaving said Jefferson Estates and running by and with said Baybreeze Subdivision, South 49 degrees 38 minutes 53 seconds East 497.04 feet to a found iron rod at a point on the westerly line of lands of, now or formerly, Cadbury at Lewes as recorded in said Office of the Recorder of Deeds in Deed Book D-2934, Page 239, thence,

12) leaving said Baybreeze lands and running by and with said Cadbury lands, South 37 degrees 09 minutes 44 seconds West 1,655.38 feet to a point on the northerly right-of-way line of Gills Neck Road, width varies, thence,

13) leaving said Cadbury lands and running by and with said right-of-way line of Gills Neck Road, North 75 degrees 55 minutes 42 seconds West 664.50 feet to a point on the easterly line of lands of, now or formerly, Cape Henlopen Medical Center, LLC, thence,

14) running by and with said Cape Henlopen Medical lands, North 21 degrees 17 minutes 08 seconds East 362.03 feet to a point on the easterly line of Commercial Lot, thence,

15) leaving Cape Henlopen Medical lands and running by and with said Commercial Lot, the following two (2) courses and distances, North 21 degrees 17 minutes 08 seconds East 356.96 feet to a point, thence running,

16) North 68 degrees 42 minutes 52 seconds West 371.14 feet to a point on the aforementioned right-of-way line of Kings Highway, thence,

17) leaving said Cape Henlopen lands and running by and with said right-of-way line of Kings Highway, North 21 degrees 17 minutes 08 seconds East 883.02 feet to the point and place of beginning; **CONTAINING** 43.777 acres of land, more or less.

18956 BK02820 PG072

Tax Parcel #3-35-8.00-37.00
Prepared by: David W. Baker, Esq., P.A.
P O Box 551, 109 S. Race St.
Georgetown, Delaware 19947
Return to: LOWDER W. MITCHELL, JR.
JANE T. MITCHELL
1019 Kings Highway
Lewes, Delaware 19958

NO LIEN OR TITLE SEARCH
PERFORMED - NONE REQUESTED

This Deed, made this 31st day of March

in the year of our Lord Two Thousand Three.

BETWEEN LOWDER W. MITCHELL, JR. and JANE T. MITCHELL, husband and wife, of 1019 Kings Highway, Lewes, Delaware 19958, parties of the first part,

-and-

L. W. & J. T. MITCHELL FAMILY LIMITED PARTNERSHIP, a Delaware Limited Partnership, of 1019 Kings Highway, Lewes, Delaware, party of the second part,

WITNESSETH, That the said parties of the first part, for and in consideration of the sum of One Dollar ($1.00) lawful money of the United States of America, the receipt whereof is hereby acknowledged, hereby grants and conveys unto the party of the second part, its Heirs and Assigns,

ALL that certain tract of land, situate, lying and being in Lewes and Rehoboth Hundred, Sussex County, Delaware, and more particularly described as follows to wit:

BEGINNING at a post on the east side of the State Road leading from Murray's Corner to Lewes, and a corner for lands now or formerly of EUGENE MAULL; thence with the same South 61° East 300 feet to a post; thence with same and lands now or formerly of FRED MARSHALL, VIRGIL DENNIS and GEORGE W. ROBINSON, North 29-1/2° East 481 feet to a stone in line of lands now or formerly of THE

1 **Consideration: $0.00 Exempt Code: A**

County	State	Total
0.00	0.00	0.00

counter **Date: 04/03/2003**

SUSSEX TRUST COMPANY; thence with the same South 41°15' East 1686 feet to a stone; thence with three lines of lands now or formerly of MRS. RIGGIN'S lands, South 45° West 155 to a stone; thence North 43° West 320 feet to a stone; thence South 46° West 1460 feet to a stone on the north side of Bookhammer Road; thence with the north side of the same North 67-1/2° West 1146 feet to a stone at the intersection of this road with the first named State Road; thence with the same North 29-3/4° East 1663 feet to the place of beginning, containing 57.98 acres of land, more or less.

BEING the same lands conveyed unto LOWDER W. MITCHELL, JR. and JANE T. MITCHELL by deed of LOWDER W. MITCHELL, JR. and JANE T. MICHELL dated the 19th day of February, A.D. 1998, and filed of record in the Office of the Recorder of Deeds, in and for Sussex County, State of Delaware, in Deed Book 2267 at Page 209.

IN WITNESS WHEREOF, The said parties of the first part have hereunto set their hands and seals, the day and year aforesaid.

SIGNED, SEALED, DELIVERED,
and Witnessed in the presence of

Lowder W. Mitchell (SEAL)
LOWDER W. MITCHELL, JR.

Jane T. Mitchell (SEAL)
JANE T. MITCHELL

STATE OF DELAWARE :
: ss.
SUSSEX COUNTY :

BE IT REMEMBERED, that on this 31st day of March in the year of our Lord Two Thousand Three personally came before me, a Notary Public in and for the State and County aforesaid, LOWDER W. MITCHELL, JR., TRUSTEE and JANE T. MITCHELL, TRUSTEE, parties to this Indenture, known to me personally to be such, and acknowledge this Indenture to be their Deed.

GIVEN under my hand and Seal of Office, the day and year aforesaid.

(Seal)
Notary Public

J. EVERETT MOORE, JR. ESQ.
ATTORNEY-NOTARY PUBLIC
Unif. Notarial Act 10 Del. C. 4323(a)(3)
Non Expiring Commission

RECORDER OF DEEDS
JOHN F BRADY
03 APR -3 AM 9:24
RECORDER OF DEEDS
NO SURCHARGE PAID

Received
APR 04 2003
ASSESSMENT DIVISION
OF SUSSEX CTY

DAVIS BOWEN & FRIEDEL, INC.

ARCHITECTS ENGINEERS SURVEYORS

Michael R. Wigley, AIA, LEED AP
W. Zachary Crouch, P.E.
Michael E. Wheedleton, AIA
Jason P. Loar, P.E.
Ring W. Lardner, P.E.
Jamie L. Sechler., P.E.

December 21, 2021

Sussex County Administrative Building
Planning and Zoning Department
2 The Circle
P.O. Box 589
Georgetown, Delaware 19947

Attn: Mr. Jamie Whitehouse, Director of Planning

Re: Mitchells Corner
Tax Parcel No: 3-35-8.00-37.00
DBF #3808A001

Dear Mr. Whitehouse,

On behalf of our client, Henlopen Properties, LLC, we are submitting an Environmental Assessment and Public Facility Evaluation Report in accordance with §115-194.3. Coastal Area, Subparagraph B (2). We offer the following information that comprises our report:

(a) *Proposed Drainage design and the effect on stormwater quality and quantity leaving the site, including methods for reducing the amount of phosphorous and nitrogen in the stormwater runoff and the control of any other pollutants such as petroleum hydrocarbons or metals*. The proposed improvements will meet or exceed the state regulations for quality and quantity control of stormwater. We intend to use an infiltration pond as well as other Green Technology to meet the quantity requirement. The proposed site through the use of Green Technology and other Best Management Practices and Best Available Technologies will reduce the nitrogen and phosphorus loading by 40%. Minimizing impervious area and preservation of trees will further reduce nitrogen and phosphorous loadings. The project will not develop or produce other pollutants such as petroleum hydrocarbons or metals.

(b) *Proposed method of providing potable and, where appropriate, irrigation water and the effect on public or private water systems and groundwater, including an estimate of average and peak demands.* The proposed project is adjacent to two public water providers. The estimated average for the project is 69,750 GPD and estimated peak use of 209,250 GPD.

(c) *Proposed means of wastewater treatment and disposal with an analysis of the effect on the quality of groundwater and surface waters, including alternative locations for on-site septic systems.* The proposed project will discharge wastewater to an existing gravity sewer manhole constructed during phase 1 that connects to the pump station within the Governors development.

(d) *Analysis of the increase in traffic and the effect on the surrounding roadway system.* A Traffic Impact Study (TIS) has been submitted to DelDOT and interim improvements will be completed by the Developer.

(e) *The presence of any endangered or threatened species listed on federal or state registers and proposed habitat protection areas.* There are no records of federally listed endangered or threatened species or their critical habitats listed on this site.

(f) *The preservation and protection from loss of any tidal or nontidal wetlands on the site.* There are no wetlands on this site.

(g) *Provisions for open space as defined in §115-4.* The proposed project incorporates active and passive open space amenities. Some passive open space amenities include ponds and associated landscape buffers. Active open space amenities include walking paths and an active amenity area.

(h) *A description of provisions for public and private infrastructure.* The Developer will improve Kings Highway in accordance with DelDOT's rules and regulations. The Developer will also construct the water mains internally in the project that will be owned and maintained by a public utility. Besides the water system, all other internal utilities and roadways will be constructed by the Developer and privately maintained.

(i) *Economic, recreational or other benefits.* The proposed project will create a considerable number of jobs during construction. In addition, the project will generate transfer taxes as well other economic impacts in the beach community. There are numerous recreational activities provided within the site. In addition, part of the proposed project includes a commercial rezoning which will provide employment opportunities.

(j) *The presence of any historic or cultural resources that are listed on the National Register of Historic Places.* The site does not contain any historic or cultural resources that are listed on the National Register of Historic Places.

(k) *An affirmation that the proposed application and proposed mitigation measures are in conformance with the current Sussex County Comprehensive Plan.* The proposed application and mitigation measures comply with the current Sussex County Comprehensive Plan.

(l) *Actions to be taken by the applicant to mitigate the detrimental impacts identified relevant to Subsection B(2)(a) through (k) above and the manner by which they are consistent with the Comprehensive Plan.* All mitigation measures, where required, have been discussed in their respective section. All mitigation measures as well as the application are consistent with the Comprehensive Plan.

If you have any questions or need additional information, please call me at (302) 424-1441.

Sincerely,
Davis, Bowen & Friedel, Inc.

Ring W. Lardner, P.E.
Principal

P:\Chesapeake Reality\Zwaanendael Farm\Documents\P&Z\2021-12-21 Conditional Use\2021-12-21 Public Facilities Report.docx

Cc: David Hutt, Morris James LLP
Henlopen Properties, LLC

STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. BOX 778
DOVER, DELAWARE 19903

NICOLE MAJESKI
SECRETARY

December 20, 2021

Mr. Jamie Whitehouse, Director
Sussex County Planning & Zoning
P.O. Box 417
Georgetown, DE 19947

Dear Mr. Whitehouse:

The Department has completed its review of a Service Level Evaluation Request for the **Henlopen Properties, LLC (Jon Mayers)** proposed land use application, which we received on December 10, 2021. This application is for an approximately 42-acre portion of a 48.01- acre parcel (Tax Parcel: 335-8.00-37.00). The subject land is located on the north side of Gills Neck Road (Sussex Road 267) and the east side of Kings Highway (US Route 9). The subject land is currently zoned AR (Agriculture Residential), and the applicant seeks a conditional use approval to build 267 multifamily houses.

Per the 2019 Delaware Vehicle Volume Summary, the annual average daily traffic volumes along Gills Neck Road from Red Tail Road to Kings Highway, is 4,186 vehicles per day. The annual average daily traffic volumes along Kings Highway from Kings Highway (Sussex Road 268) to Gills Neck Road, is 12,019 vehicles per day.

Based on our review, we estimate that the proposed land use will generate more than 50 vehicle trips per peak hour or 500 vehicle trips per day, and would be considered to have a **Minor** impact to the local area roadways. In this instance, the Department considers a Minor impact to be when a proposed land use would generate more than either 50 vehicle trips per peak hour and / or 500 vehicle trips per day but fewer than 200 vehicle trips per a weekly peak hour and 2,000 vehicle trips per day. Because of this impact, we recommend that the applicant be required to perform a Traffic Impact Study (TIS) for the subject application. However, our Development Coordination Manual provides that where a TIS is required only because the volume warrants are met, and the projected trip generation will be fewer than 200 vehicle trips per a weekly peak hour and fewer than 2,000 vehicle trips per day, DelDOT may permit the developer to pay an Area-Wide Study Fee of $10 per daily trip in lieu of doing a TIS. For this application, if the County were agreeable, we would permit the developer to pay an Area-wide Study Fee.

DelDOT

If the County approves this application, the applicant should be reminded that DelDOT requires compliance with State regulations regarding plan approvals and entrance permits, whether or not a TIS is required.

Please contact Ms. Annamaria Furmato, at Annamaria.Furmato@delaware.gov, if you have questions concerning this correspondence.

Sincerely,

T. William Brockenbrough, Jr.
County Coordinator
Development Coordination

TWB:afm
cc: Henlopen Properties, LLC (Jon Mayers), Applicant
Sussex Reviewer, Sussex County Planning & Zoning
David Edgell, Coordinator, Cabinet Committee on State Planning Issues
Todd Sammons, Assistant Director, Development Coordination
Scott Rust, South District Public Works Manager, Maintenance & Operations
Steve McCabe, Sussex County Review Coordinator, Development Coordination
Derek Sapp, Subdivision Manager, Development Coordination
Kevin Hickman, Subdivision Manager, Development Coordination
Brian Yates, Subdivision Manager, Development Coordination
John Andrescavage, Subdivision Manager, Development Coordination
James Argo, South District Project Reviewer, Maintenance & Operations
Claudy Joinville, Project Engineer, Development Coordination
Annamaria Furmato, Project Engineer, Development Coordination

Mailing List Application Form

For Applications requiring a Public Hearing in Sussex County

Please fill out this form and return it with your application. As a part of your application a Public Hearing is required. The property owners within 200' of the site of the application will be notified. Staff will notify the property owners.

Application Information:

Site Address:

Parcel #:

Site Address:

Parcel #:

Applicant Name:

Owner Name:

Type of Application:

Conditional Use:
Change of Zone:
Subdivision:
Board of Adjustment:

Date Submitted:

For office use only:

Date of Public Hearing: _____
File #:_____
Date list created: _____ List created by: _____
Date letters mailed: _____ Letters sent by: _____

MITCHELL FAMILY FARM

KINGS HIGHWAY (SCR268)

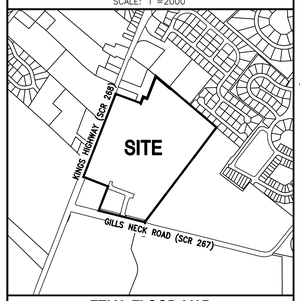
LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

PRELIMINARY SUBDIVISION PLANS

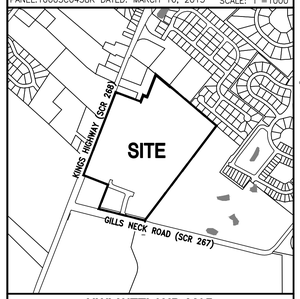
DECEMBER 2021

DBF PROJECT # 3808A001

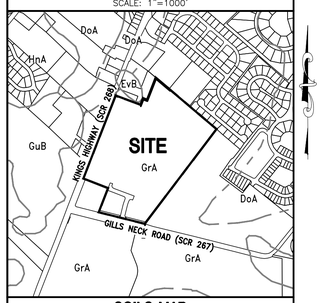
LOCATION MAP
SCALE: 1"=2000'



FEMA FLOOD MAP
PANEL:10005C0458K DATED: MARCH 16, 2015 SCALE: 1"=1000'



NWI WETLAND MAP
SCALE: 1"=1000'



SOILS MAP
SCALE: 1"=1000'

SYMB	SOIL TYPE
FhA	FORT MOTT-HENLOPEN COMPLEX, 0-2% SLOPES
HmA	HAMMONTON LOAMY SAND, 0 TO 2 PERCENT SLOPES
PsA	PEPPERBOX-ROSEDALE COMPLEX, 0-2% SLOPES

DATA COLUMN

TAX MAP ID:335-8.00-37.00

EXISTING ZONING AGRICULTURAL

PROPOSED USE RESIDENTIAL

SITE AREA 43.789 AC.

PROPOSED LOTS/UNITS
PROPOSED DUPLEX LOTS/UNITS 114 LOTS/UNITS
PROPOSED TOWNHOUSE LOTS/UNITS 153 LOTS/UNITS
TOTAL SINGLE FAMILY LOTS/UNITS 267 LOTS/UNITS

TOTAL DENSITY
(267 DU ÷ 43.789 AC) 6.10 DU/AC

MR - MEDIUM DENSITY RESIDENTIAL DISTRICT

DUPLEX LOTS	REQUIRED	PROPOSED
MINIMUM LOT SIZE ALLOWED	1,600 S.F.	4,000 S.F.
MINIMUM LOT WIDTH	30'	45'
FRONT YARD SETBACK	25'	25'
SIDE YARD SETBACK	10'	10'
REAR YARD SETBACK	10'	10'
MAXIMUM HEIGHT	42' OR 3 STORIES	

MR - MEDIUM DENSITY RESIDENTIAL DISTRICT

TOWNHOUSE LOTS	REQUIRED	PROPOSED
MINIMUM LOT SIZE ALLOWED	1,600 S.F.	2,400 S.F.
MINIMUM LOT WIDTH	16'	24'
FRONT YARD SETBACK	25'	25'
SIDE YARD SETBACK	10'	10'
REAR YARD SETBACK	10'	10'
MAXIMUM HEIGHT	42' OR 3 STORIES	

AREAS

EXISTING SITE	
SITE AREA:	46.818 AC.
SCR 267 R.O.W. DEDICATION	-0.076 AC.
SCR 268 R.O.W. DEDICATION	-0.608 AC.
RESIDUAL LANDS	-3.041 AC.
TOTAL SITE AREA	43.093 AC.

PROPOSED SITE	
LOT AREA:	23.229 AC.
RIGHT -OF-WAY:	8.070 AC.
OPEN SPACE (TOTAL)	11.794 AC.
OPEN SPACE A	0.179 AC.
OPEN SPACE B	0.476 AC.
OPEN SPACE C	0.740 AC.
OPEN SPACE D	1.311 AC.
OPEN SPACE E	1.052 AC.
OPEN SPACE F	1.834 AC.
OPEN SPACE G	0.294 AC.
OPEN SPACE H	0.420 AC.
OPEN SPACE I	2.368 AC.
OPEN SPACE J	0.292 AC.
OPEN SPACE K	0.242 AC.
OPEN SPACE L	1.508 AC.
OPEN SPACE M	0.401 AC.
OPEN SPACE N	0.677 AC.
TOTAL SITE AREA	43.093 AC.

ESTIMATED EDU'S 275

SEWER PROVIDER	SUSSEX COUNTY
WATER PROVIDER	TIDEWATER
ELECTRIC PROVIDER	CITY OF LEWES BOARD OF PUBLIC WORKS/DELAWARE ELECTRIC COOP.
WETLANDS	NONE ARE PRESENT ON SITE
SOURCE WATER PROTECTION AREAS	SITE IS LOCATED WITHIN A WELL HEAD PROTECTION AREA
FLOOD ZONE	AREA OF MINIMAL FLOOD HAZARD
FIRE DISTRICT	82ND
SCHOOL DISTRICT	CAPE HENLOPEN
ELECTION DISTRICT	3RD
HORIZONTAL DATUM :	NAD83
VERTICAL DATUM :	NAVD88

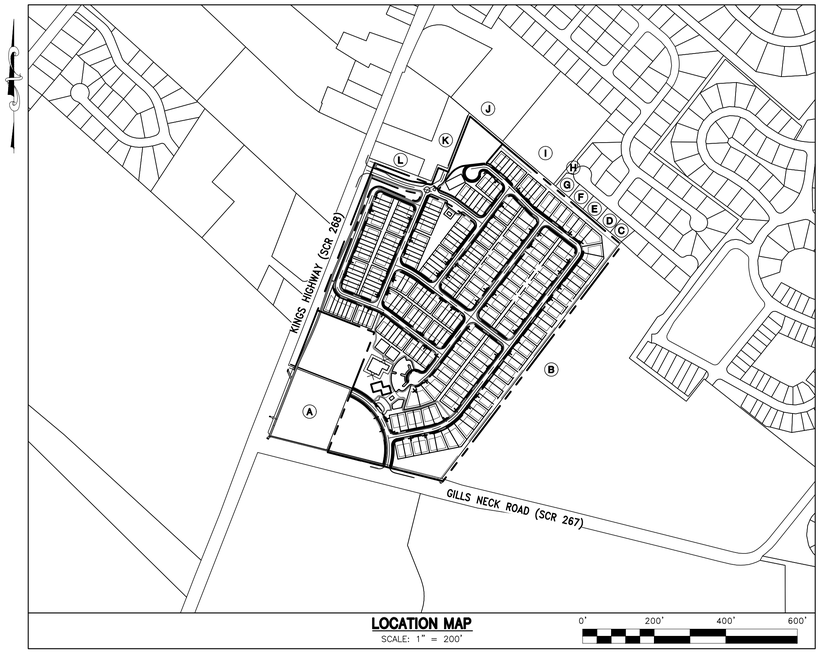
OWNER
MITCHELL FAMILY LTD. PARTNERSHIP
1019 KINGS HIGHWAY
LEWES, DE 19958
(302) 448-6430

DEVELOPER
HENLOPEN PROPERTIES LLC
4750 OWINGS MILL BLVD
OWINGS MILL, MD 21117

ENGINEER/SURVEYOR
DAVIS, BOWEN & FRIEDEL, INC.
1 PARK AVENUE
MILFORD, DELAWARE 19963
(302)424-1441

ADJACENT PROPERTY OWNERS

KEY	PARCEL ID	PROPERTY OWNER	DEED	ZONING
A	335-8.00-37.01	CAPE HENLOPEN MEDICAL CENTER LLC	DB:5007 PG:276	C-3 HEAVY COMMERCIAL
B	335-8.00-43.01	CADBURY AT LEWES INC	DB:2934 PG:239	MR MEDIUM-DENSITY RESIDENTIAL
C	335-8.00-326.00	JOHN A JIULIANO & LAURA T OTA	DB:3978 PG:171	R-2 RESIDENTIAL LOW DENSITY
D	335-8.00-327.00	PATTI J STEWART	DB:4158 PG:247	R-2 RESIDENTIAL LOW DENSITY
E	335-8.00-328.00	KEVIN P HAZARD & JOANN T HAZARD	DB:5357 PG:123	R-2 RESIDENTIAL LOW DENSITY
F	335-8.00-329.00	LINDA S LEKITES	DB:3027 PG:314	R-2 RESIDENTIAL LOW DENSITY
G	335-8.00-330.00	DAVID A CANNON/CATHY E WILLIAMS	DB:2194 PG:246	R-2 RESIDENTIAL LOW DENSITY
H	335-8.00-336.00	BAY BREEZE ESTATES HOMEOWNERS ASSOC INC	DB:1985 PG:181	R-2 RESIDENTIAL LOW DENSITY
I	335-8.00-42.02	JEFFERSON ESTATES II LLC	DB:4745 PG:296	R-5 MIXED RESIDENTIAL
J	335-8.00-42.01	JEFFERSON ESTATES II LLC	DB:4338 PG:195	R-5 MIXED RESIDENTIAL
K	335-8.00-39.00	JEFF-KAT LLC	DB:5381 PG:282	C-3 HEAVY COMMERCIAL
L	335-8.00-38.00	THREE BUILDERS LLC	DB:3173 PG:100	C-1 GENERAL COMMERCIAL



LOCATION MAP
SCALE: 1" = 200'

LEGEND

EXISTING	PROPOSED
BOUNDARY LINE	RIGHT-OF-WAY / BOUNDARY LINE
ADJACENT PROPERTY OWNER	EASEMENT
EASEMENT	SETBACK
CONTOUR (33)	BUFFER
CATCH BASIN, STORM PIPE	SANITARY SEWER IDENTIFICATION, MANHOLE, PIPE, FLOW ARROW, PIPE SIZE (8SS)
SANITARY SEWER MANHOLE, PIPE (EX-SS)	WATER MAIN, TEE W/ VALVES, PIPE SIZE (8W)
WATER MAIN (EX-W)	FIRE HYDRANT ASSEMBLY
FIRE HYDRANT ASSEMBLY	PROPOSED TREE LINE
UTILITY POLE	SIDEWALK
SIGN	PAVEMENT
FENCE	
BUSHES, TREES	
TREE LINE	
WETLANDS (WET)	
PAVEMENT	

INDEX OF SHEETS	
PRELIMINARY TITLE SHEET	PL-01
PRELIMINARY SITE PLAN OVERVIEW	PL-02
PRELIMINARY SITE PLAN	PL-03
PRELIMINARY SITE PLAN	PL-04
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ENGINEER'S STATEMENT

I, THE UNDERSIGNED, HEREBY STATE THAT I AM A REGISTERED ENGINEER IN THE STATE OF DELAWARE, THAT THE INFORMATION SHOWN HEREON HAS BEEN PREPARED UNDER MY SUPERVISION AND TO MY BELIEF REPRESENTS GOOD ENGINEERING PRACTICES AS REQUIRED BY THE APPLICABLE LAWS OF THE STATE OF DELAWARE.

RING W. LARDNER, P.E. DATE
DAVIS, BOWEN & FRIEDEL, INC.
1 PARK AVENUE
MILFORD, DELAWARE, 19963

OWNER'S STATEMENT

I, THE UNDERSIGNED, CERTIFY THAT I AM THE OWNER OF THE PROPERTY DESCRIBED AND SHOWN ON THIS PLAN, THAT THE PLAN WAS MADE AT MY DIRECTION, AND THAT I ACKNOWLEDGE THE SAME TO BE ACT AND DESIRE THE PLAN TO BE RECORDED TO ORDINANCE.

THE MITCHELL FAMILY LTD. PARTNERSHIP DATE
1019 KINGS HIGHWAY
LEWES, DE 19958

SUSSEX CONSERVATION DISTRICT

DEVELOPER'S STATEMENT

I, THE UNDERSIGNED, CERTIFY THAT I AM THE OWNER OF THE PROPERTY DESCRIBED AND SHOWN ON THIS PLAN, THAT THE PLAN WAS MADE AT MY DIRECTION, AND THAT I ACKNOWLEDGE THE SAME TO BE ACT AND DESIRE THE PLAN TO BE RECORDED TO ORDINANCE.

HENLOPEN PROPERTIES LLC DATE
4750 OWINGS MILL BLVD
OWINGS MILL, MD 21117

GENERAL NOTES

1. ALL UNITS SHALL HAVE ACCESS FROM THE INTERNAL SUBDIVISION STREET.
2. ALL FIRE LANES, FIRE HYDRANTS, AND FIRE DEPARTMENT CONNECTIONS SHALL BE MARKED IN ACCORDANCE WITH THE DELAWARE STATE FIRE PREVENTION REGULATIONS. BUILDING CONSTRUCTION TO BE MASONRY AND WOOD.
3. THE SUSSEX CONSERVATION DISTRICT RESERVES THE RIGHT TO ADD, MODIFY OR DELETE ANY EROSION AND SEDIMENT CONTROL MEASURES AS THEY DEEM NECESSARY.
4. AFTER THE CREATION OF THE COMMUNITY'S HOMEOWNER'S ASSOCIATION ALL BUFFER AREAS, AND THE STORMWATER MANAGEMENT AREA, SHALL BE OWNED AND MAINTAINED BY THE COMMUNITY'S HOMEOWNER'S ASSOCIATION. THE DEVELOPER SHALL MAINTAIN THESE AREAS UNTIL THE COMMUNITY HOMEOWNER'S ASSOCIATION IS ESTABLISHED.
5. ALL SWM AREAS WILL BE MAINTAINED IN ACCORDANCE WITH DESIGN AND SPECIFICATIONS FOR THE SPECIFIC SWM AREA. THIS INFORMATION WILL BE PROVIDED TO THE HOMEOWNER'S ASSOCIATION PRIOR TO TURNOVER.
6. ALL COMMON AREAS COVERED WITH GRASS SHALL BE PERIODICALLY MAINTAINED ON A BASIS DETERMINED BY THE HOMEOWNER'S ASSOCIATION.
7. BOUNDARY AND TOPOGRAPHIC INFORMATION SHOWN ON THIS PLAN ARE FROM A FIELD RUN SURVEY PERFORMED BY DBF, INC. IN OCTOBER, NOVEMBER AND DECEMBER OF 2017 AND JANUARY OF 2018 AND INFORMATION FOUND IN THE RECORDER OF DEEDS OFFICE IN AND FOR SUSSEX COUNTY.
8. A WETLANDS DELINEATION WAS PERFORMED BY ENVIRONMENTAL RESOURCES, INC. IN NOVEMBER & DECEMBER OF 2017 AND JANUARY OF 2018.
9. THIS PLAN DOES NOT VERIFY THE LOCATION AND/OR EXISTENCE OF EASEMENTS OR RIGHT-OF-WAYS CROSSING THE SUBJECT PROPERTIES AS NO TITLE SEARCH WAS PROVIDED.
10. THE PROPERTY IS IMPACTED BY THE 100-YEAR FLOODPLAIN AS DETERMINED BY FEMA PANEL 10005C0331K, AND 10005C0333K, DATED MARCH 16, 2015.
11. A TEN (10) FOOT STRIP IS HEREBY RESERVED AS AN EASEMENT FOR DRAINAGE AND UTILITIES ALONG ALL STREET RIGHT OF WAY, FRONT, SIDE AND REAR LOT LINES.

DELDOT GENERAL NOTES

1. ALL ENTRANCES SHALL CONFORM TO THE DELAWARE DEPARTMENT OF TRANSPORTATION'S (DELDOT'S) CURRENT DEVELOPMENT COORDINATION MANUAL AND SHALL BE SUBJECT TO ITS APPROVAL.
2. NO LANDSCAPING SHALL BE ALLOWED WITHIN THE RIGHT-OF-WAY UNLESS THE PLANS ARE COMPLIANT WITH SECTION 3.7 OF THE DEVELOPMENT COORDINATION MANUAL.
3. SHRUBBERY, PLANTINGS, SIGNS AND/OR OTHER VISUAL BARRIERS THAT COULD OBSTRUCT THE SIGHT DISTANCE OF A DRIVER PREPARING TO ENTER THE ROADWAY ARE PROHIBITED WITHIN THE DEFINED DEPARTURE SIGHT TRIANGLE AREA ESTABLISHED ON THIS PLAN. IF THE ESTABLISHED DEPARTURE SIGHT TRIANGLE AREA IS OUTSIDE THE RIGHT-OF-WAY OR PROJECTS ONTO AN ADJACENT PROPERTY OWNER'S LAND, A SIGHT EASEMENT SHOULD BE ESTABLISHED AND RECORDED WITH ALL AFFECTED PROPERTY OWNERS TO MAINTAIN THE REQUIRED SIGHT DISTANCE.
4. UPON COMPLETION OF THE CONSTRUCTION OF THE SIDEWALK OR SHARED-USE PATH ACROSS THIS PROJECT'S FRONTAGE AND PHYSICAL CONNECTION TO ADJACENT EXISTING FACILITIES, THE DEVELOPER, THE PROPERTY OWNERS OR BOTH ASSOCIATED WITH THIS PROJECT, SHALL BE RESPONSIBLE TO REMOVE ANY EXISTING ROAD TIE-IN CONNECTIONS LOCATED ALONG ADJACENT PROPERTIES, AND RESTORE THE AREA TO GRASS. SUCH ACTIONS SHALL BE COMPLETED AT DELDOT'S DISCRETION, AND IN CONFORMANCE WITH DELDOT'S DEVELOPMENT COORDINATION MANUAL.
5. PRIVATE STREETS CONSTRUCTED WITHIN THIS SUBDIVISION SHALL BE MAINTAINED BY THE DEVELOPER, THE PROPERTY OWNERS WITHIN THIS SUBDIVISION OR BOTH (TITLE 17 131). DELDOT ASSUMES NO RESPONSIBILITIES FOR THE FUTURE MAINTENANCE OF THESE STREETS.
6. THE SIDEWALK AND SHARED USE PATH SHALL BE THE RESPONSIBILITY OF THE DEVELOPER, THE PROPERTY OWNERS OR BOTH WITHIN THIS SUBDIVISION. THE STATE OF DELAWARE ASSUMES NO RESPONSIBILITY FOR THE FUTURE MAINTENANCE FOR THE SIDEWALK AND/OR SHARED-USE PATH.
7. ALL LOTS SHALL HAVE ACCESS FROM THE INTERNAL SUBDIVISION STREET.
8. TO MINIMIZE RUTTING AND EROSION OF THE ROADSIDE DUE TO ON-STREET PARKING, DRIVEWAY AND BUILDING LAYOUTS MUST BE CONFIGURED TO ALLOW FOR VEHICLES TO BE STORED IN THE DRIVEWAY BEYOND THE RIGHT-OF-WAY, WITHOUT INTERFERING WITH SIDEWALK ACCESS AND CLEARANCE.
9. THE DEVELOPER SHALL BE REQUIRED TO FURNISH AND PLACE RIGHT-OF-WAY MARKERS TO PROVIDE A PERMANENT REFERENCE FOR RE-ESTABLISHING THE RIGHT-OF-WAY AND PROPERTY CORNERS ON LOCAL AND HIGHER ORDER FRONTAGE ROADS. RIGHT-OF-WAY MARKERS SHALL BE SET AND/OR PLACED ALONG THE FRONTAGE ROAD RIGHT-OF-WAY AT PROPERTY CORNERS AND AT EACH CHANGE IN RIGHT-OF-WAY ALIGNMENT IN ACCORDANCE WITH SECTION 3.2.4.2 OF THE DEVELOPMENT COORDINATION MANUAL.

OPEN SPACE MANAGEMENT PLAN:

1. ALL COMMON AREAS COVERED WITH GRASS SHALL BE PERIODICALLY MAINTAINED ON A BASIS DETERMINED BY THE MAINTENANCE CORPORATION/HOMEOWNER'S ASSOCIATION.
2. ALL ACTIVE OPEN SPACE AMENITIES SHALL BE INSPECTED ANNUALLY TO ENSURE THEY ARE SAFE FOR PLAY AND REPAIRED AS REQUIRED.
3. ALL SWM AREAS WILL BE MAINTAINED IN ACCORDANCE WITH DESIGN AND SPECIFICATIONS FOR THE SPECIFIC SWM AREA. THIS INFORMATION WILL BE PROVIDED TO THE MAINTENANCE CORPORATION / HOMEOWNER'S ASSOCIATION PRIOR TO TURNOVER.
4. A SEPARATE AMENITIES SITE PLAN WILL BE SUBMITTED FOR REVIEW AND APPROVAL FOR ALL THE AMENITY AREAS.

DAVIS, BOWEN & FRIEDEL, INC. ARCHITECTS ENGINEERS SURVEYORS
SALISBURY, MARYLAND (410) 543-9091
MILFORD, DELAWARE (302) 424-1441
EASTON, MARYLAND (410) 770-4744

DUPLEX LOT AREA TABLE

LOT	SQ. FT.	ACRES	LOT	SQ. FT.	ACRES
D1	4,697±	0.1078±	D58	4,816±	0.1106±
D2	4,725±	0.1085±	D59	5,116±	0.1174±
D3	4,725±	0.1085±	D60	4,725±	0.1085±
D4	4,725±	0.1085±	D61	4,725±	0.1085±
D5	4,734±	0.1087±	D62	4,725±	0.1085±
D6	5,631±	0.1293±	D63	4,725±	0.1085±
D7	6,037±	0.1386±	D64	4,725±	0.1085±
D8	6,564±	0.1507±	D65	4,725±	0.1085±
D9	5,914±	0.1358±	D66	4,725±	0.1085±
D10	4,769±	0.1095±	D67	4,725±	0.1085±
D11	4,725±	0.1085±	D68	4,725±	0.1085±
D12	4,725±	0.1085±	D69	4,725±	0.1085±
D13	4,725±	0.1085±	D70	4,725±	0.1085±
D14	4,725±	0.1085±	D71	4,725±	0.1085±
D15	4,725±	0.1085±	D72	5,116±	0.1174±
D16	4,725±	0.1085±	D73	5,116±	0.1174±
D17	4,725±	0.1085±	D74	4,725±	0.1085±
D18	4,725±	0.1085±	D75	4,725±	0.1085±
D19	4,725±	0.1085±	D76	4,725±	0.1085±
D20	4,725±	0.1085±	D77	4,725±	0.1085±
D21	4,725±	0.1085±	D78	4,725±	0.1085±
D22	4,725±	0.1085±	D79	4,725±	0.1085±
D23	4,725±	0.1085±	D80	4,725±	0.1085±
D24	4,725±	0.1085±	D81	4,725±	0.1085±
D25	4,725±	0.1085±	D82	4,725±	0.1085±
D26	4,725±	0.1085±	D83	4,725±	0.1085±
D27	4,725±	0.1085±	D84	4,725±	0.1085±
D28	4,725±	0.1085±	D85	4,725±	0.1085±
D29	4,725±	0.1085±	D86	5,116±	0.1174±
D30	4,725±	0.1085±	D87	5,641±	0.1295±
D31	4,725±	0.1085±	D88	4,725±	0.1085±
D32	4,725±	0.1085±	D89	4,725±	0.1085±
D33	4,725±	0.1085±	D90	4,725±	0.1085±
D34	4,725±	0.1085±	D91	4,725±	0.1085±
D35	6,441±	0.1479±	D92	4,725±	0.1085±
D36	6,354±	0.1459±	D93	4,725±	0.1085±
D37	7,095±	0.1629±	D94	4,725±	0.1085±
D38	4,953±	0.1137±	D95	4,725±	0.1085±
D39	4,872±	0.1119±	D96	4,707±	0.1081±
D40	4,985±	0.1144±	D97	5,334±	0.1225±
D41	5,098±	0.1170±	D98	5,660±	0.1299±
D42	5,211±	0.1196±	D99	4,725±	0.1085±
D43	5,324±	0.1222±	D100	4,725±	0.1085±
D44	5,436±	0.1248±	D101	4,725±	0.1085±
D45	6,104±	0.1401±	D102	4,690±	0.1077±
D46	4,950±	0.1136±	D103	7,130±	0.1637±
D47	4,950±	0.1136±	D104	6,443±	0.1479±
D48	4,950±	0.1136±	D105	5,754±	0.1321±
D49	4,950±	0.1136±	D106	5,032±	0.1155±
D50	4,950±	0.1136±	D107	4,728±	0.1085±
D51	4,950±	0.1136±	D108	4,725±	0.1085±
D52	4,950±	0.1136±	D109	4,725±	0.1085±
D53	4,950±	0.1136±	D110	4,725±	0.1085±
D54	4,950±	0.1136±	D111	4,725±	0.1085±
D55	4,950±	0.1136±	D112	4,725±	0.1085±
D56	4,950±	0.1136±	D113	4,725±	0.1085±
D57	4,950±	0.1136±	D114	5,641±	0.1295±

TOWNHOUSE LOT AREA TABLE

LOT	SQ. FT.	ACRES	LOT	SQ. FT.	ACRES	LOT	SQ. FT.	ACRES
T1	3,666±	0.0842±	T52	3,845±	0.0883±	T103	2,400±	0.0551±
T2	2,800±	0.0643±	T53	2,400±	0.0551±	T104	2,400±	0.0551±
T3	2,800±	0.0643±	T54	2,398±	0.0550±	T105	2,400±	0.0551±
T4	2,800±	0.0643±	T55	2,398±	0.0550±	T106	2,400±	0.0551±
T5	3,800±	0.0872±	T56	2,398±	0.0550±	T107	3,265±	0.0750±
T6	3,800±	0.0872±	T57	2,396±	0.0550±	T108	4,541±	0.1042±
T7	2,800±	0.0643±	T58	4,300±	0.0987±	T109	2,655±	0.0610±
T8	2,800±	0.0643±	T59	3,898±	0.0895±	T110	2,547±	0.0585±
T9	2,800±	0.0643±	T60	2,398±	0.0550±	T111	2,542±	0.0584±
T10	3,800±	0.0872±	T61	2,398±	0.0550±	T112	2,542±	0.0584±
T11	3,800±	0.0872±	T62	2,398±	0.0550±	T113	3,602±	0.0827±
T12	2,800±	0.0643±	T63	2,398±	0.0550±	T114	3,601±	0.0827±
T13	2,800±	0.0643±	T64	2,400±	0.0551±	T115	2,542±	0.0584±
T14	2,800±	0.0643±	T65	4,044±	0.0928±	T116	2,542±	0.0584±
T15	3,800±	0.0872±	T66	3,264±	0.0749±	T117	3,595±	0.0825±
T16	3,800±	0.0872±	T67	2,400±	0.0551±	T118	3,777±	0.0867±
T17	2,800±	0.0643±	T68	2,398±	0.0550±	T119	2,800±	0.0643±
T18	2,800±	0.0643±	T69	2,398±	0.0550±	T120	2,800±	0.0643±
T19	5,116±	0.1174±	T70	2,398±	0.0550±	T121	2,800±	0.0643±
T20	4,474±	0.1027±	T71	2,398±	0.0550±	T122	2,800±	0.0643±
T21	3,211±	0.0737±	T72	3,410±	0.0783±	T123	3,800±	0.0872±
T22	3,139±	0.0721±	T73	3,400±	0.0781±	T124	3,800±	0.0872±
T23	4,144±	0.0951±	T74	2,400±	0.0551±	T125	2,800±	0.0643±
T24	3,972±	0.0912±	T75	2,400±	0.0551±	T126	2,800±	0.0643±
T25	2,841±	0.0652±	T76	2,400±	0.0551±	T127	2,800±	0.0643±
T26	2,800±	0.0643±	T77	2,400±	0.0551±	T128	4,166±	0.0956±
T27	2,800±	0.0643±	T78	2,400±	0.0551±	T129	3,856±	0.0885±
T28	2,800±	0.0643±	T79	3,400±	0.0781±	T130	2,940±	0.0675±
T29	3,810±	0.0875±	T80	3,400±	0.0781±	T131	2,940±	0.0675±
T30	3,800±	0.0872±	T81	2,400±	0.0551±	T132	2,990±	0.0916±
T31	2,800±	0.0643±	T82	2,400±	0.0551±	T133	3,990±	0.0916±
T32	2,800±	0.0643±	T83	2,400±	0.0551±	T134	2,940±	0.0675±
T33	3,936±	0.0903±	T84	2,400±	0.0551±	T135	2,940±	0.0675±
T34	3,865±	0.0887±	T85	2,400±	0.0551±	T136	3,990±	0.0916±
T35	2,800±	0.0643±	T86	3,352±	0.0769±	T137	3,990±	0.0916±
T36	2,800±	0.0643±	T87	3,904±	0.0896±	T138	2,940±	0.0675±
T37	2,800±	0.0643±	T88	2,400±	0.0551±	T139	2,942±	0.0675±
T38	2,800±	0.0643±	T89	2,400±	0.0551±	T140	5,279±	0.1212±
T39	3,817±	0.0876±	T90	2,400±	0.0551±	T141	4,813±	0.1105±
T40	5,238±	0.1203±	T91	2,400±	0.0551±	T142	2,942±	0.0675±
T41	2,800±	0.0643±	T92	2,400±	0.0551±	T143	4,517±	0.1037±
T42	2,800±	0.0643±	T93	3,400±	0.0781±	T144	3,990±	0.0916±
T43	2,800±	0.0643±	T94	3,395±	0.0779±	T145	2,940±	0.0675±
T44	2,800±	0.0643±	T95	2,400±	0.0551±	T146	2,940±	0.0675±
T45	3,800±	0.0872±	T96	2,400±	0.0551±	T147	2,940±	0.0675±
T46	3,800±	0.0872±	T97	2,400±	0.0551±	T148	3,990±	0.0916±
T47	2,800±	0.0643±	T98	2,400±	0.0551±	T149	3,990±	0.0916±
T48	2,800±	0.0643±	T99	2,400±	0.0551±	T150	2,940±	0.0675±
T49	2,800±	0.0643±	T100	3,405±	0.0782±	T151	2,940±	0.0675±
T50	2,800±	0.0643±	T101	3,400±	0.0781±	T152	2,940±	0.0675±
T51	4,368±	0.1003±	T102	2,400±	0.0551±	T153	3,856±	0.0885±

TOTAL LOT AREA	1,011,855±	23.229±

LOT LINE TABLE

LINE	BEARING	DISTANCE
L1	N 78°49'03" E	28.07'
L2	N 78°49'03" E	19.43'
L3	N 37°09'44" E	1.14'
L4	N 52°50'16" W	26.49'
L5	S 44°27'23" E	51.13'
L6	S 52°50'16" E	34.42'
L7	S 37°09'44" W	20.00'
L8	N 37°09'44" E	25.00'
L9	S 37°09'44" W	25.00'
L10	N 37°09'44" E	25.00'
L11	S 37°09'44" W	25.00'
L12	S 37°09'44" W	30.00'
L13	S 37°09'44" W	13.71'
L14	S 78°49'03" W	19.43'
L15	S 78°49'03" W	26.98'
L16	N 49°52'58" E	1.29'
L17	N 37°09'44" E	29.03'
L18	N 37°09'44" E	30.00'
L19	N 37°09'44" E	13.00'
L20	N 49°43'50" W	22.03'
L21	S 49°43'50" E	8.15'
L22	S 44°27'23" E	8.54'
L23	N 52°50'16" W	14.99'
L24	S 37°09'44" W	28.72'
L25	S 37°09'44" W	19.92'
L26	N 52°50'16" W	43.39'
L27	N 23°01'38" E	13.16'
L28	S 23°01'38" W	8.98'
L29	S 23°01'38" W	8.99'
L30	N 21°23'51" E	16.27'
L31	N 21°23'51" E	8.95'
L32	S 68°42'52" E	11.86'
L33	S 68°42'52" E	12.32'
L34	S 52°50'16" E	28.66'
L35	S 52°50'16" E	18.00'
L36	N 52°50'16" W	13.00'
L37	N 52°50'16" W	5.66'
L38	N 67°45'35" W	14.67'
L39	S 52°50'16" E	13.00'

RIGHT-OF-WAY CURVE TABLE

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
RC-1	329.13'	465.90'	427.96'	N 26°39'07" W	81°06'18"
RC-2	369.13'	111.24'	110.82'	N 05°16'02" E	17°15'59"
RC-3	30.00'	43.03'	39.44'	S 37°43'32" W	82°11'00"
RC-4	320.00'	232.65'	227.56'	N 57°59'23" E	41°39'18"
RC-5	369.13'	319.60'	309.71'	N 42°33'51" W	49°36'30"
RC-6	30.00'	43.68'	39.92'	S 59°28'16" E	83°25'22"
RC-7	280.00'	203.57'	199.11'	N 57°59'23" E	41°39'18"
RC-8	70.00'	109.96'	98.99'	N 07°50'16" W	90°00'00"
RC-9	70.00'	57.46'	55.86'	N 73°14'50" W	47°02'00"
RC-10	120.00'	96.50'	93.92'	S 60°11'57" W	46°04'26"
RC-11	46.00'	208.95'	70.34'	S 46°53'28" E	260°15'15"
RC-12	17.00'	23.17'	21.42'	S 42°01'48" W	78°05'46"
RC-13	30.00'	25.76'	24.97'	N 74°19'35" W	49°11'29"
RC-14	25.00'	35.61'	32.68'	N 03°38'49" W	81°37'07"
RC-15	25.00'	39.27'	35.36'	N 82°09'44" E	90°00'00"
RC-16	325.00'	80.18'	79.98'	N 59°54'19" W	14°08'07"
RC-17	270.00'	47.41'	47.35'	S 73°37'58" E	10°03'39"
RC-18	330.00'	57.95'	57.87'	S 73°37'58" E	10°03'39"
RC-19	5.00'	8.87'	7.75'	N 27°49'05" W	101°41'25"
RC-20	25.00'	39.27'	35.36'	N 68°01'38" E	90°00'00"
RC-21	55.00'	87.96'	78.88'	S 67°12'44" W	91°37'47"
RC-22	70.00'	110.09'	99.09'	S 23°39'30" E	90°06'43"
RC-23	280.00'	77.59'	77.34'	N 60°46'34" W	15°52'36"
RC-24	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
RC-25	25.00'	37.67'	34.21'	N 80°19'51" E	86°20'13"
RC-26	46.00'	203.58'	73.68'	S 03°17'05" E	253°34'05"
RC-27	270.00'	59.94'	59.82'	N 43°31'21" E	12°43'13"
RC-28	25.00'	39.27'	35.36'	S 82°09'44" W	90°00'00"
RC-29	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
RC-30	25.00'	39.27'	35.36'	N 82°09'44" E	90°00'00"
RC-31	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
RC-32	25.00'	39.27'	35.36'	S 82°09'44" W	90°00'00"
RC-33	25.00'	39.27'	35.36'	S 07°50'16" E	90°00'00"
RC-34	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
RC-35	25.00'	39.27'	35.36'	N 82°09'44" E	90°00'00"
RC-36	320.00'	40.60'	40.57'	N 56°28'20" W	7°16'08"
RC-37	25.00'	36.27'	33.17'	S 18°32'23" E	83°08'01"
RC-38	25.00'	39.58'	35.58'	S 68°23'12" W	90°43'10"
RC-39	480.00'	112.39'	112.14'	N 59°32'44" W	13°24'57"
RC-40	25.00'	38.51'	34.81'	N 67°09'23" E	88°15'31"
RC-41	25.00'	39.32'	35.39'	S 23°39'30" E	90°06'43"
RC-42	25.00'	39.98'	35.85'	S 67°12'44" W	91°37'47"
RC-43	25.00'	39.27'	35.36'	N 21°58'22" W	90°00'00"
RC-44	38.00'	11.34'	11.30'	N 72°43'06" E	17°06'13"
RC-45	275.00'	67.84'	67.67'	N 59°54'19" W	14°08'07"
RC-46	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
RC-47	25.00'	39.27'	35.36'	N 82°09'44" E	90°00'00"
RC-48	520.00'	122.84'	122.55'	N 59°36'18" W	13°32'05"
RC-49	25.00'	39.01'	35.17'	S 21°40'21" E	89°23'58"
RC-50	25.00'	39.27'	35.36'	S 07°50'16" E	90°00'00"
RC-51	25.00'	42.93'	37.84'	S 86°21'11" W	98°22'53"
RC-52	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
RC-53	25.00'	39.27'	35.36'	N 82°09'44" E	90°00'00"

LOT CURVE TABLE

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
LC1	30.00'	17.99'	17.73'	S 61°38'05" W	34°21'56"
LC2	320.00'	25.59'	25.59'	N 76°31'34" E	4°34'56"
LC3	320.00'	40.32'	40.30'	N 70°37'30" E	7°13'12"
LC4	320.00'	41.83'	41.80'	N 63°16'14" E	7°29'20"
LC5	320.00'	42.76'	42.72'	N 55°41'54" E	7°39'20"
LC6	320.00'	38.15'	38.13'	N 48°27'19" E	6°49'51"
LC7	320.00'	44.00'	43.96'	N 41°06'04" E	7°52'59"
LC8	70.00'	2.43'	2.43'	N 36°10'06" E	1°59'16"
LC9	70.00'	32.74'	32.44'	N 21°46'31" E	26°47'56"
LC10	70.00'	33.84'	33.51'	N 05°28'29" W	27°42'05"
LC11	70.00'	23.96'	23.84'	N 29°07'44" W	19°36'28"
LC12	70.00'	16.99'	16.95'	N 45°53'07" W	13°54'17"
LC13	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
LC14	25.00'	39.27'	35.36'	N 82°09'44" E	90°00'00"
LC15	25.00'	39.27'	35.36'	S 82°09'44" W	90°00'00"
LC16	25.00'	39.27'	35.36'	S 07°50'16" E	90°00'00"
LC17	25.00'	39.27'	35.36'	N 82°09'44" E	90°00'00"
LC18	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
LC19	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
LC20	280.00'	31.35'	31.33'	N 40°22'12" E	6°24'55"
LC21	280.00'	38.46'	38.43'	N 66°25'47" E	7°52'10"
LC22	280.00'	41.31'	41.27'	N 74°35'27" E	8°27'11"
LC23	30.00'	19.32'	18.99'	S 82°43'44" E	36°54'26"
LC24	46.00'	27.77'	27.35'	S 76°12'20" E	34°35'35"
LC25	46.00'	29.36'	28.86'	N 68°12'52" E	36°33'59"
LC26	270.00'	43.66'	43.61'	N 45°11'10" E	9°15'53"
LC27	270.00'	15.98'	15.98'	N 38°51'29" E	3°23'29"
LC28	25.00'	39.27'	35.36'	S 82°09'44" W	90°00'00"
LC29	25.00'	39.27'	35.36'	S 07°50'16" E	90°00'00"
LC30	25.00'	42.93'	37.84'	S 86°21'11" W	98°22'53"
LC31	70.00'	16.11'	16.07'	N 56°19'22" W	13°11'03"
LC32	25.00'	35.61'	32.68'	N 03°38'49" W	81°37'07"
LC33	25.00'	39.27'	35.36'	N 82°09'44" E	90°00'00"
LC34	325.00'	32.29'	32.27'	N 55°41'01" W	5°41'31"
LC35	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
LC36	25.00'	39.27'	35.36'	N 82°09'44" E	90°00'00"
LC37	520.00'	31.63'	31.63'	N 54°34'49" W	3°29'07"
LC38	520.00'	75.59'	75.52'	N 62°12'29" W	8°19'44"
LC39	25.00'	39.01'	35.17'	S 21°40'21" E	89°23'58"
LC40	38.00'	11.34'	11.30'	N 72°43'06" E	17°06'13"
LC41	275.00'	7.75'	7.75'	N 66°09'55" W	1°36'55"
LC42	25.00'	39.27'	35.36'	N 21°58'22" W	90°00'00"
LC43	25.00'	38.51'	34.81'	N 67°09'23" E	88°15'31"
LC44	25.00'	39.98'	35.85'	S 67°12'44" W	91°37'47"
LC45	25.00'	39.32'	35.39'	S 23°39'30" E	90°06'43"
LC46	70.00'	72.14'	68.99'	S 08°07'40" E	59°03'01"
LC47	70.00'	25.75'	25.61'	S 48°11'32" E	21°04'44"
LC48	70.00'	12.20'	12.18'	S 63°43'23" E	9°58'58"
LC49	280.00'	21.70'	21.69'	N 66°29'40" W	4°26'24"
LC50	280.00'	9.34'	9.34'	N 53°47'36" W	1°54'41"
LC51	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
LC52	25.00'	36.27'	33.17'	S 18°32'23" E	83°08'01"
LC53	320.00'	16.23'	16.23'	N 58°39'11" W	2°54'24"
LC54	320.00'	24.36'	24.36'	N 55°01'07" W	4°21'43"
LC55	25.00'	39.27'	35.36'	N 82°09'44" E	90°00'00"
LC56	25.00'	39.27'	35.36'	N 07°50'16" W	90°00'00"
LC57	480.00'	49.31'	49.28'	N 56°34'11" W	5°53'07"
LC58	480.00'	28.01'	28.01'	N 61°11'04" W	3°20'38"
LC59	480.00'	28.46'	28.46'	N 64°33'18" W	3°23'50"
LC60	25.00'	39.58'	35.58'	S 68°23'12" W	90°43'10"
LC61	375.00'	25.78'	25.77'	N 65°42'35" W	3°56'18"
LC62	375.00'	28.02'	28.02'	N 61°36'00" W	4°16'53"
LC63	375.00'	36.73'	36.71'	N 56°39'13" W	5°36'40"
LC64	425.00'	64.25'	64.19'	N 60°27'05" W	8°39'41"
LC65	425.00'	24.35'	24.35'	N 54°28'45" W	3°16'59"

RIGHT-OF-WAY LINE TABLE

LINE	BEARING	DISTANCE
RL-1	N 13°54'02" E	15.10'
RL-2	N 13°54'02" E	15.00'
RL-3	S 49°52'58" W	40.76'
RL-4	N 52°50'16" W	34.42'
RL-5	N 23°01'38" E	18.17'

BOUNDARY LINE TABLE

LINE	BEARING	DISTANCE
BL-1	S 12°26'54" W	7.06'
BL-2	N 50°42'39" W	47.19'

BOUNDARY CURVE TABLE

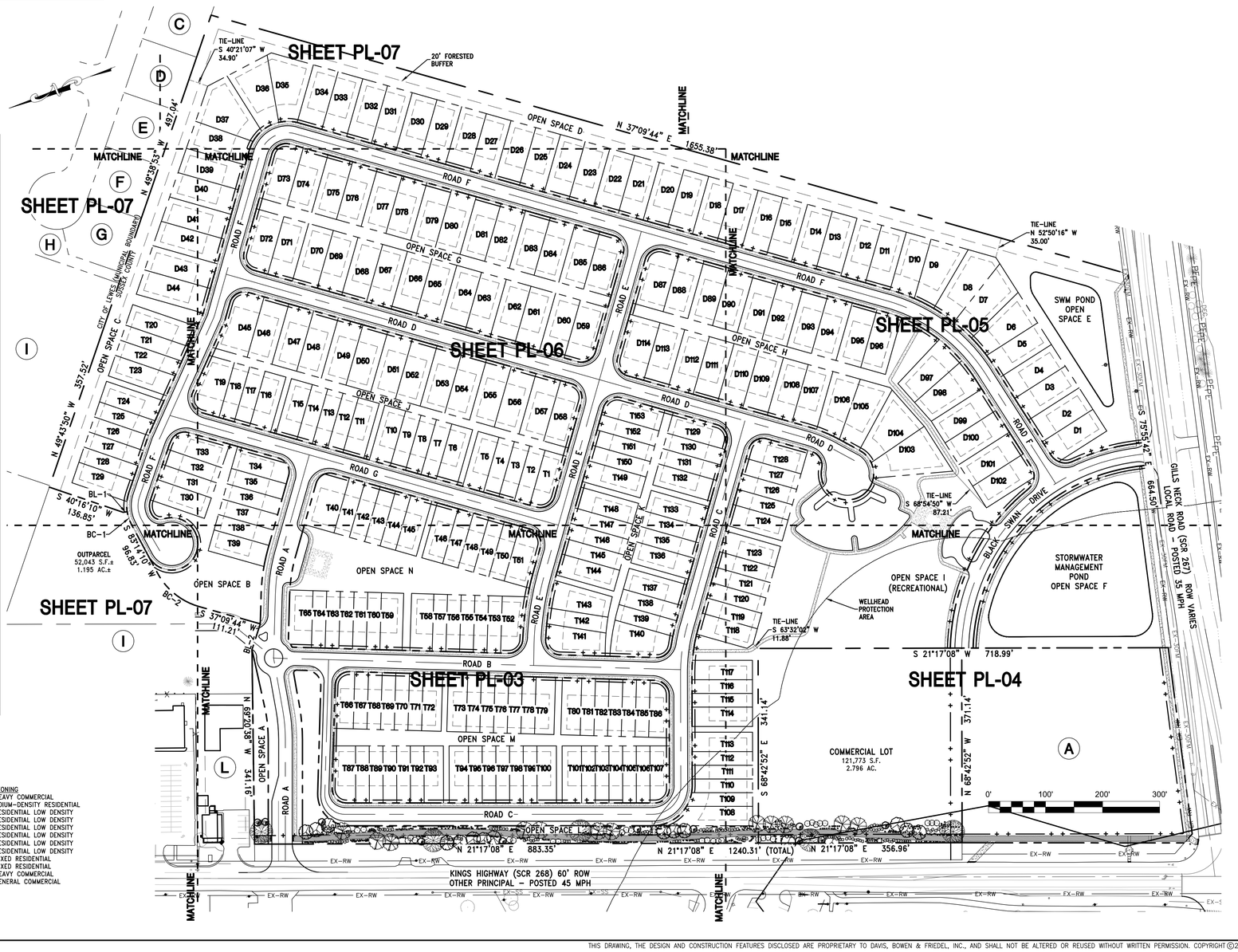
CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
BC-1	70.00'	23.47'	23.36'	N 87°09'28" W	19°12'44"
BC-2	120.00'	96.50'	93.92'	S 60°11'57" W	46°04'26"

RIGHT-OF-WAY AREA TABLE

DESCRIPTION	SQ. FT.	ACRES
ROAD A	39,668±	0.911±
ROAD B	26,892±	0.617±
ROAD C	57,657±	1.324±
ROAD D	50,827±	1.167±
ROAD E	29,314±	0.673±
ROAD F	98,635±	2.264±
ROAD G	27,244±	0.625±
BLACK SWAN DRIVE	20,391±	0.468±
TOTAL AREA	351,528±	8.070±

ADJACENT PROPERTY OWNERS

KEY	PARCEL ID	PROPERTY OWNER	DEED	ZONING
A	335-8.00-37.01	CAPE HENLOPEN MEDICAL CENTER LLC	DB:5007 PG:276	C-3 HEAVY COMMERCIAL
B	335-8.00-43.01	CADBURY AT LEWES INC	DB:2934 PG:239	MR MEDIUM-DENSITY RESIDENTIAL
C	335-8.00-326.00	JOHN A JIULIANO & LAURA T OTA	DB:3978 PG:171	R-2 RESIDENTIAL LOW DENSITY
D	335-8.00-327.00	PATTI J STEWART	DB:4138 PG:247	R-2 RESIDENTIAL LOW DENSITY
E	335-8.00-328.00	KEVIN P HAZARD & JOANN T HAZARD	DB:5357 PG:123	R-2 RESIDENTIAL LOW DENSITY
F	335-8.00-329.00	LINDA S LEKITES	DB:3027 PG:314	R-2 RESIDENTIAL LOW DENSITY
G	335-8.00-330.00	DAVID A CANNON/CATHY E WILLIAMS	DB:2194 PG:246	R-2 RESIDENTIAL LOW DENSITY
H	335-8.00-336.00	BAY BREEZE ESTATES HOMEOWNERS ASSOC INC	DB:1985 PG:181	R-2 RESIDENTIAL LOW DENSITY
I	335-8.00-42.02	JEFFERSON ESTATES II LLC	DB:4743 PG:296	R-5 MIXED RESIDENTIAL
J	335-8.00-42.01	JEFFERSON ESTATES II LLC	DB:4338 PG:195	R-5 MIXED RESIDENTIAL
K	335-8.00-39.00	JEFF-KAT LLC	DB:5381 PG:282	C-3 HEAVY COMMERCIAL
L	335-8.00-38.00	THREE BUILDERS LLC	DB:3173 PG:100	C-1 GENERAL COMMERCIAL



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MITCHELL FAMILY FARM

LEWES & REHOBOTH HUNDRED

CITY OF LEWES, SUSSEX COUNTY, DELAWARE

PRELIMINARY SITE PLAN OVERVIEW

Revisions:

Date: DECEMBER 2021
Scale: 1" = 100'
Dwn.By: DEG
Proj.No.: 3808A001
Dwg.No.: PL-02

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MATCHLINE – SHEET PL-06

MATCHLINE – SHEET PL-07

MATCHLINE – SHEET PL-04

ROAD A

ROAD B

ROAD C

ROAD E

OPEN SPACE N

OPEN SPACE M

OPEN SPACE L

OPEN SPACE A

OPEN SPACE B (RECREATIONAL)

DOG PARK

MAIL PLAZA PAVILION

SHARED-USE-PATH

EXISTING BUILDING

EXISTING DWELLING

GARAGE

WOOD POST

WELLHEAD PROTECTION AREA

KINGS HIGHWAY (SCR 268) 60' ROW
OTHER PRINCIPAL – POSTED 45 MPH

0' 30' 60' 90'

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PRELIMINARY SITE PLAN

MITCHELL FAMILY FARM

KINGS HIGHWAY (SCR 268)

LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

Revisions:

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MATCHLINE – SHEET PL-05

T123
T122
T121
T120
T119
T118
T117
T116
T115
T114
T113
T112
T111
T110
T109
T108

SPORTS COURT
SPORTS COURT
POOL & SPLASH PAD
WELLHEAD PROTECTION AREA
COMMUNITY CENTER/PATIO 4,700± SQ FT
OPEN SPACE I (RECREATIONAL)
BLACK SWAN DRIVE
40' R.O.W.
OPEN SPACE F STORMWATER MANAGEMENT POND
GILLS NECK ROAD (SCR 267)
LOCAL ROAD – POSTED 35 MPH
ROW VARIES
15' PROPERTY CONSTRUCTION BUFFER
S 83°32'02" W 11.88' TIE-LINE
N 21°17'08" E 724.03'
S 21°17'08" W 336.95'
S 21°17'08" W 362.03'
S 75°55'47" E 322.20'
COMMERCIAL LOT
121,773 S.F.
2.796 AC.
N 68°42'52" W 341.14'
N 21°17'08" E 356.96'
FIRE LANE
FIRE LANE
A
MATCHLINE – SHEET PL-03
KINGS HIGHWAY (SCR 268) 60' ROW
OTHER PRINCIPAL – POSTED 45 MPH
0' 30' 60' 90'

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PRELIMINARY SITE PLAN

MITCHELL FAMILY FARM
KINGS HIGHWAY (SCR 268)
LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

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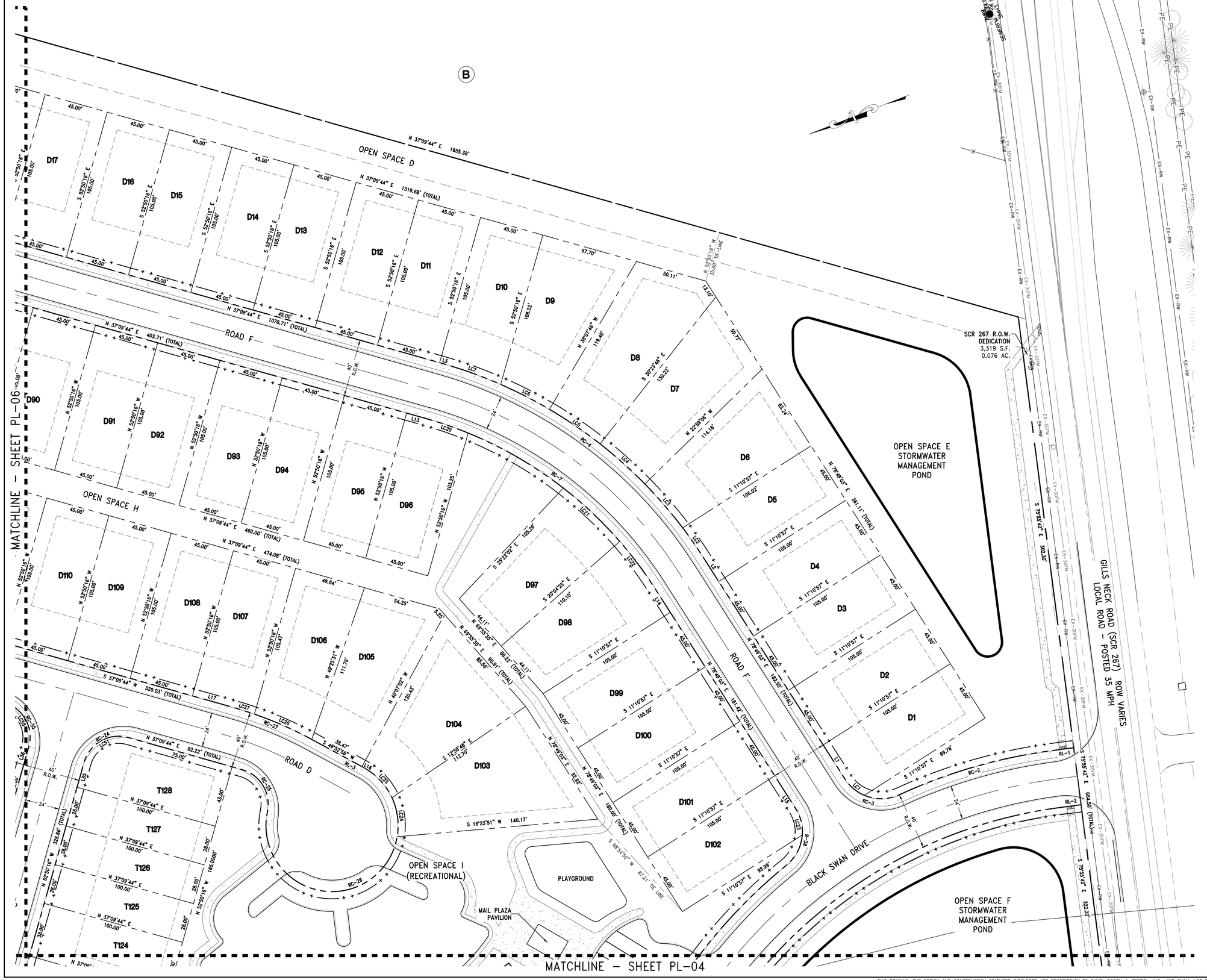

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PRELIMINARY SITE PLAN

MITCHELL FAMILY FARM

KINGS HIGHWAY (SCR 268)

LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

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PL-06

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KINGS HIGHWAY (SCR 268)

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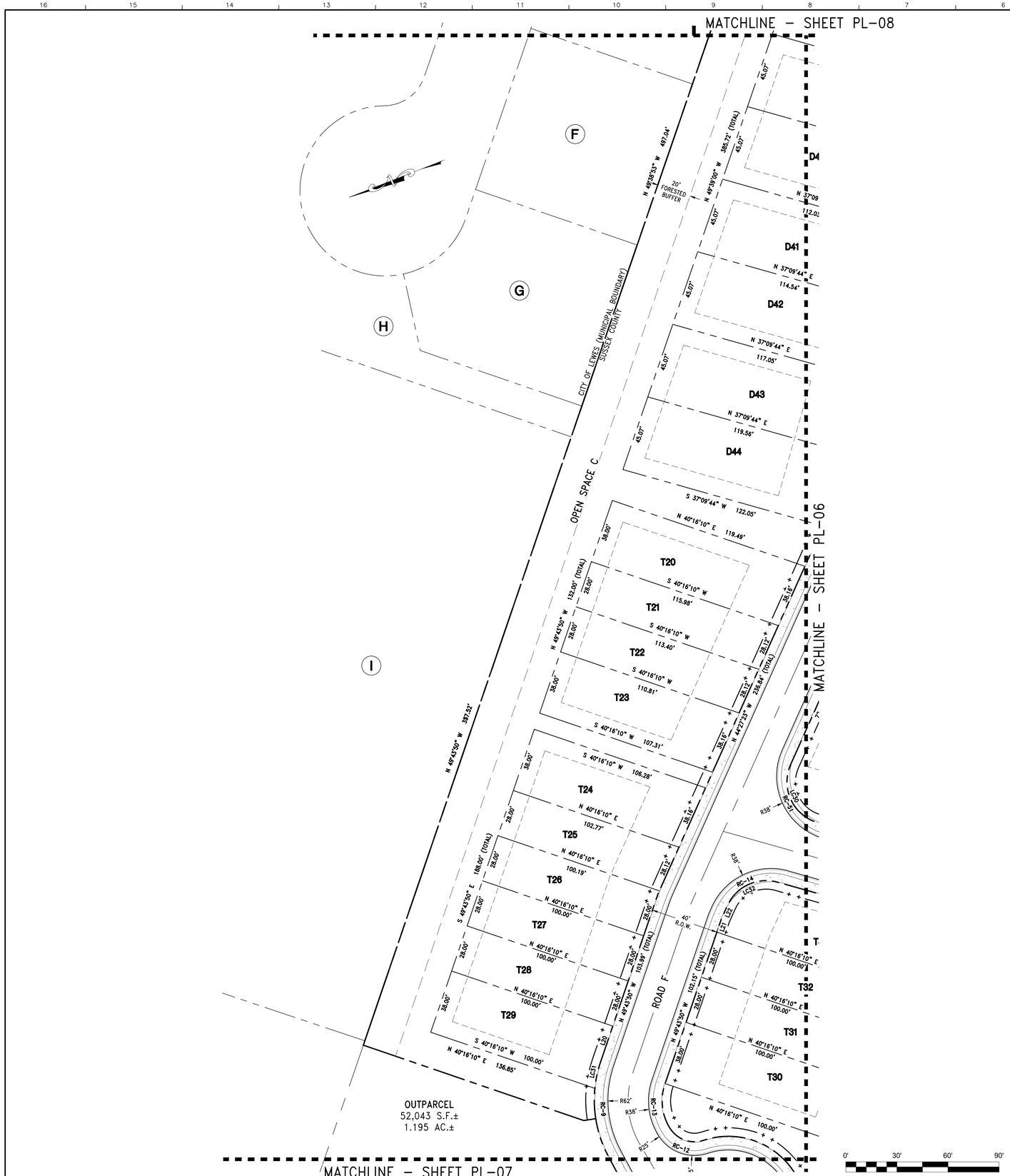
PRELIMINARY SITE PLAN



MITCHELL FAMILY FARM

KINGS HIGHWAY (SCR 268)

LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

PRELIMINARY SITE PLAN

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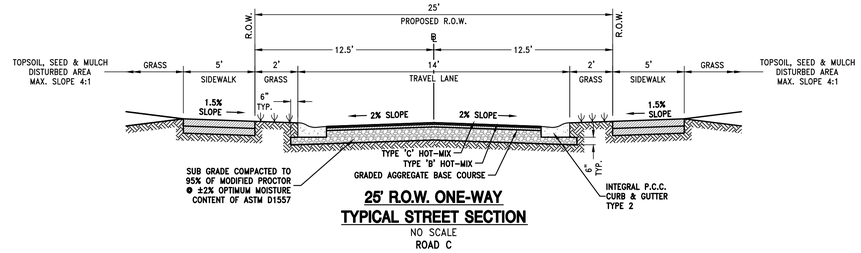
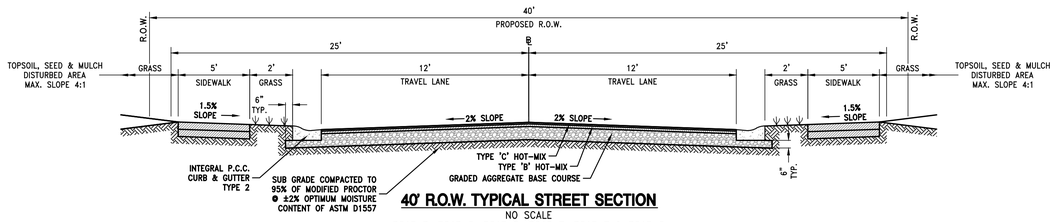
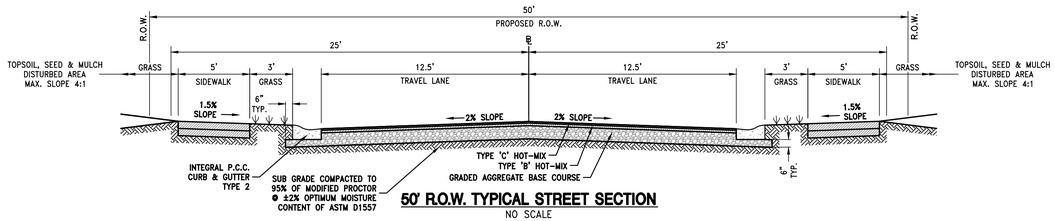


25' R.O.W. ONE-WAY
TYPICAL STREET SECTION
NO SCALE
ROAD C

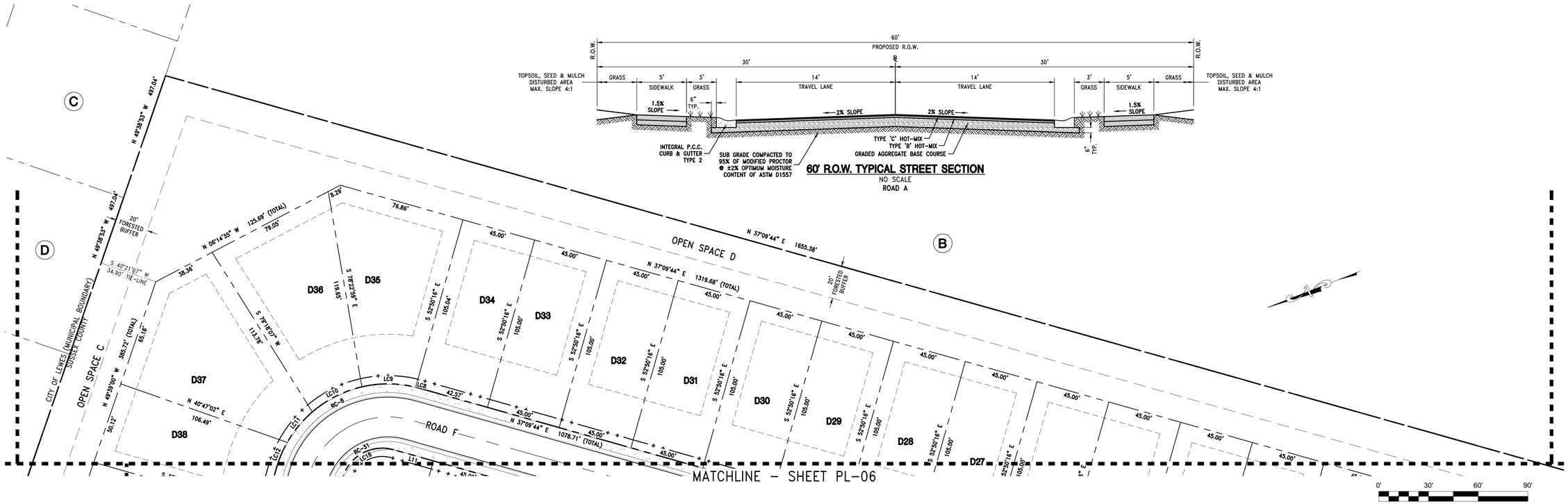


40' R.O.W. TYPICAL STREET SECTION
NO SCALE
ROAD B, ROAD C, ROAD D, ROAD E, ROAD F & ROAD G



50' R.O.W. TYPICAL STREET SECTION
NO SCALE
ROAD A

60' R.O.W. TYPICAL STREET SECTION
NO SCALE
ROAD A



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PRELIMINARY SITE PLAN

MITCHELL FAMILY FARM
KINGS HIGHWAY (SCR 268)
LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

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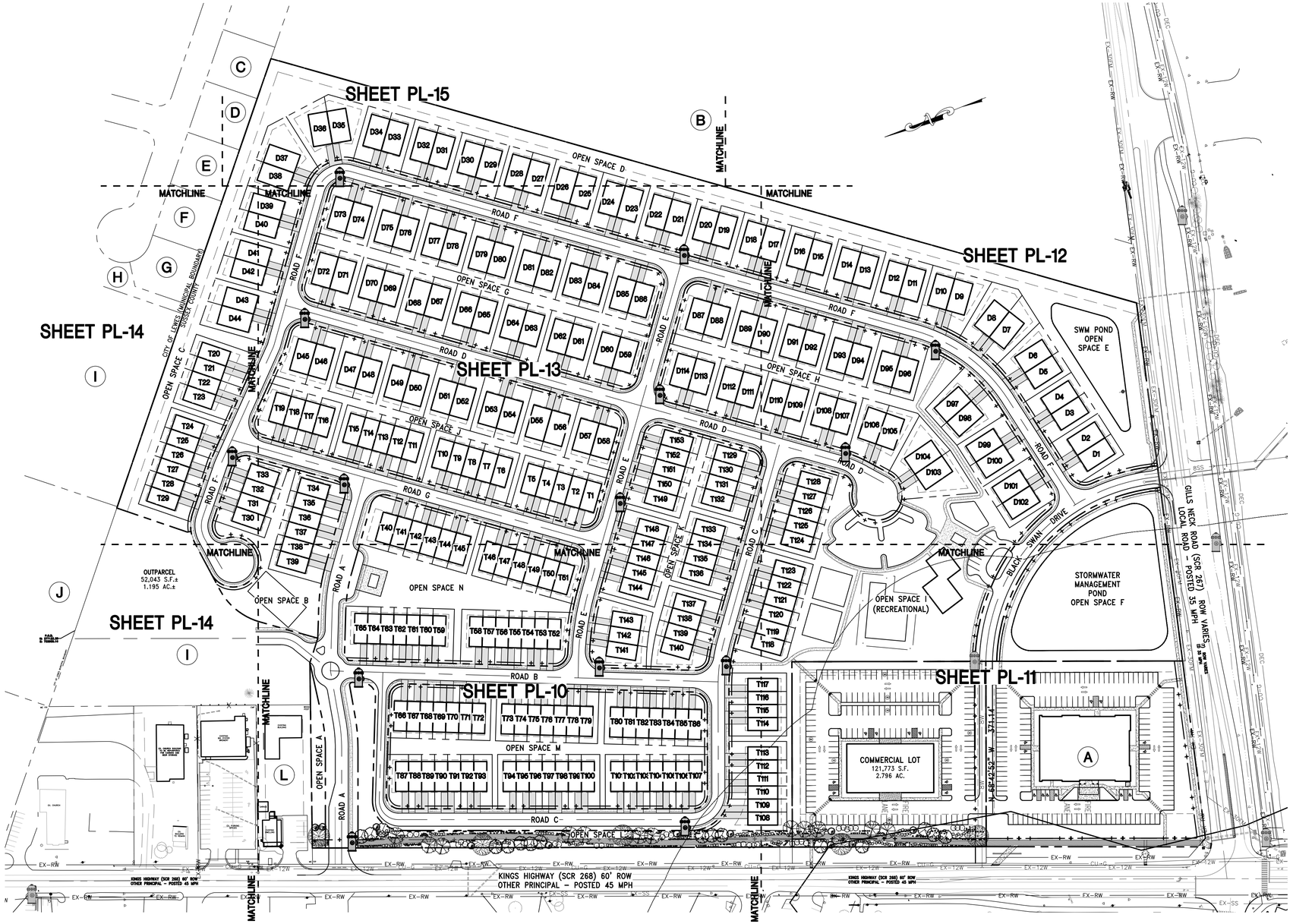
SHEET PL-15
SHEET PL-12
SHEET PL-14
SHEET PL-13
SHEET PL-10
SHEET PL-11
MATCHLINE
OPEN SPACE D
ROAD F
OPEN SPACE G
ROAD E
ROAD D
OPEN SPACE H
OPEN SPACE C
OPEN SPACE J
ROAD G
ROAD C
OPEN SPACE I
ROAD A
OPEN SPACE N
OPEN SPACE B
ROAD B
OPEN SPACE M
OPEN SPACE L
OPEN SPACE K
CITY OF LEWES MUNICIPAL BOUNDARY
SUSSEX COUNTY BOUNDARY
OUTPARCEL
52,043 S.F.±
1.195 AC.±
SWM POND
OPEN
SPACE E
STORMWATER
MANAGEMENT
POND
OPEN SPACE F
OPEN SPACE I
(RECREATIONAL)
COMMERCIAL LOT
121,773 S.F.
2.796 AC.
GILLS NECK
LOCAL ROAD - POSTED 35 MPH
BLACK SWAN DRIVE
KINGS HIGHWAY (SCR 268) 60' ROW
OTHER PRINCIPAL - POSTED 45 MPH
EX-RW
EX-12W
EX-SS
EX-SWM
EX-OHW
EX-UGT
EX-UGW
EX-UGG
EX-UGC
EX-UGS
EX-UGTV
EX-UGF
EX-UGSL
EX-UGSTL
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MATCHLINE – SHEET PL-13

MATCHLINE – SHEET PL-14

MATCHLINE – SHEET PL-11

T38 T39 T44 T45 T46 T47 T48 T49 T50 T51 T147 T146 T145 T144 T134 T135 T136 T137 T138 T139 T140 T143 T142 T65 T64 T63 T62 T61 T60 T59 T58 T57 T56 T55 T54 T53 T52 T66 T67 T68 T69 T70 T71 T72 T73 T74 T75 T76 T77 T78 T79 T80 T81 T82 T83 T84 T85 T86 T87 T88 T89 T90 T91 T92 T93 T94 T95 T96 T97 T98 T99 T100 T101 T102 T103 T104 T105 T106 T107 T117 T116 T115 T114 T113 T112 T111 T110 T109 T108

ROAD A
ROAD B
ROAD C
ROAD E

MAIL PLAZA PAVILION
DOG PARK
OPEN SPACE B (RECREATIONAL)
OPEN SPACE N
OPEN SPACE M
OPEN SPACE L
OPEN SPACE A

SAN–MH
FIRE HYDRANT ASSEMBLY
WELLHEAD PROTECTION AREA

EXISTING BUILDING
EXISTING DWELLING
GARAGE
WOOD POST
WE FIP

SCR 268 R.O.W. DEDICATION
38,330 S.F.
0.880 AC.

KINGS HIGHWAY (SCR 268) 60' ROW
OTHER PRINCIPAL – POSTED 45 MPH

0' 30' 60' 90'

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ANNAPOLIS, MARYLAND (301) 261-1444
EASTON, MARYLAND (410) 770-4744

PRELIMINARY UTILITY PLAN

MITCHELL FAMILY FARM

KINGS HIGHWAY (SCR 268)

LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

Revisions:

Date: DECEMBER 2021
Scale: 1" = 30'
Dwn.By: DEG
Proj.No.: 3808A001
Dwg.No.: PL-10

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MATCHLINE – SHEET PL-12

MATCHLINE – SHEET PL-10

T123
T122
T121
T120
T119
T118
T117
T116
T115
T114
T113
T112
T111
T110
T109
T108

SPORTS COURT
SPORTS COURT
POOL & SPLASH PAD
WELLHEAD PROTECTION AREA
COMMUNITY CENTER/PATIO 4,700± SQ FT
OPEN SPACE I (RECREATIONAL)
15' PROPERTY CONSTRUCTION BUFFER
8W BLACK SWAN DRIVE
OPEN SPACE F STORMWATER MANAGEMENT POND
GILLS NECK ROAD (SCR 267) LOCAL ROAD – POSTED 35 MPH ROW VARIES
COMMERCIAL LOT 121,773 S.F. 2.796 AC.
15' PROPERTY CONSTRUCTION BUFFER
FIRE LANE
FIRE LANE
A
KINGS HIGHWAY (SCR 268) 60' ROW
OTHER PRINCIPAL – POSTED 45 MPH

0' 30' 60' 90'

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PRELIMINARY UTILITY PLAN

MITCHELL FAMILY FARM

KINGS HIGHWAY (SCR 268)

LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

Revisions:

Date: DECEMBER 2021
Scale: 1" = 30'
Dwn.By: DEG
Proj.No.: 3808A001
Dwg.No.: PL-11

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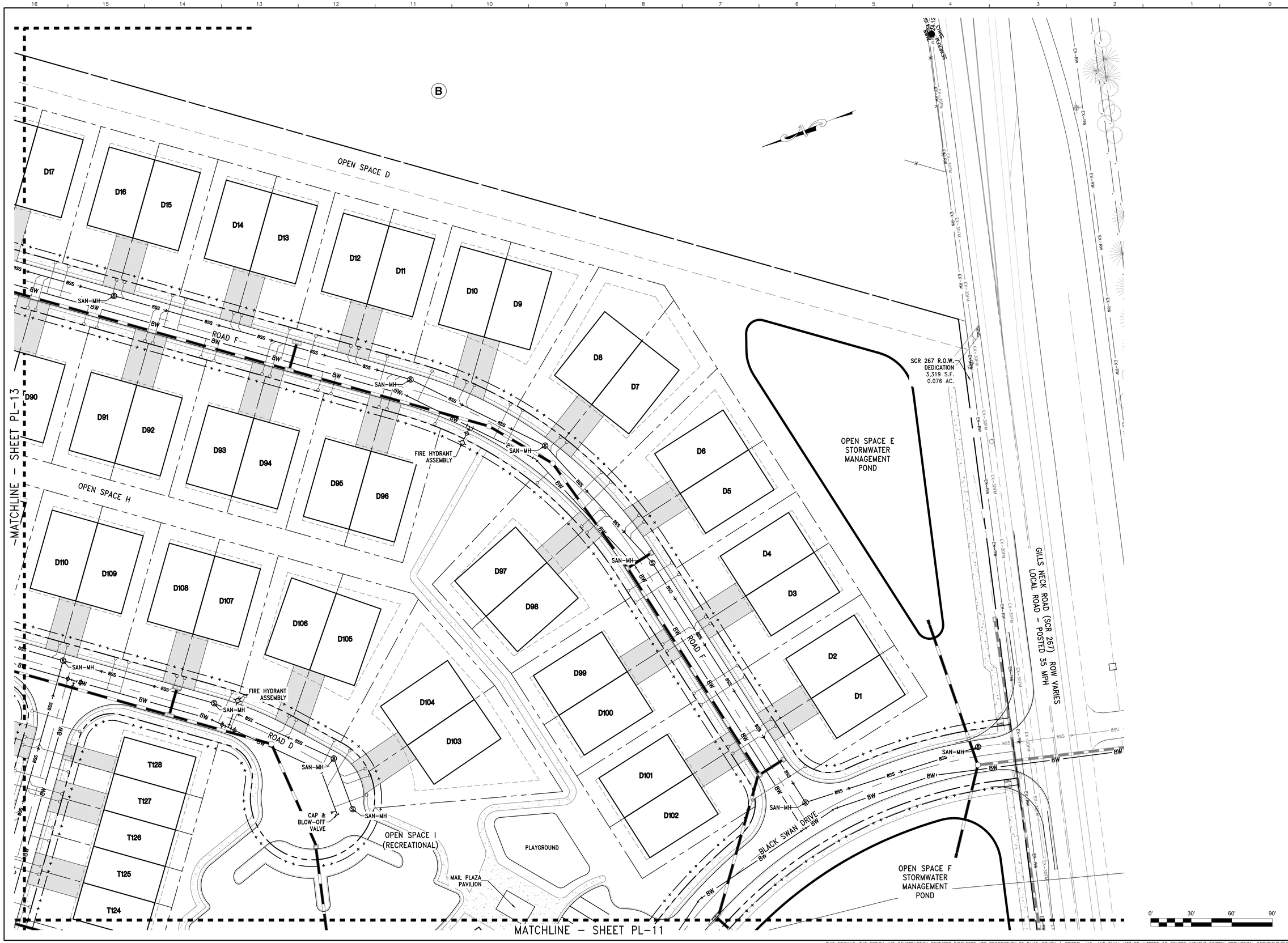
OPEN SPACE D
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T127
T126
T125
T124
OPEN SPACE H
OPEN SPACE E
STORMWATER
MANAGEMENT
POND
OPEN SPACE F
STORMWATER
MANAGEMENT
POND
ROAD F
ROAD D
BLACK SWAN DRIVE
SAN-MH
FIRE HYDRANT ASSEMBLY
CAP & BLOW-OFF VALVE
OPEN SPACE I
(RECREATIONAL)
PLAYGROUND
MAIL PLAZA
PAVILION
SCR 267 R.O.W. DEDICATION
3,319 S.F.
0.076 AC.
GILLS NECK ROAD (SCR 267)
LOCAL ROAD - POSTED 35 MPH
ROW VARIES
8W
8SS
EX-RW
EX-30"W
EX-8"W
EX-8"SS
EX-12"W
EX-8"G
EX-3"GW
EX-3"W
EX-3"G
EX-3"E
EX-3"TV
EX-3"T
EX-3"S
EX-3"SW

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PL-13

Date: DECEMBER 2021
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Dwg.No.:

Revisions:

MITCHELL FAMILY FARM

KINGS HIGHWAY (SCR 268)

LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

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EASTON, MARYLAND (410) 770-4744

PRELIMINARY UTILITY PLAN

MATCHLINE – SHEET PL-15

MATCHLINE – SHEET PL-14

MATCHLINE – SHEET PL-13

MATCHLINE – SHEET PL-10

MATCHLINE – SHEET PL-14

F

G

H

I

J

K

D41

D42

D43

D44

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T28

T29

T30

T31

T32

CITY OF LEWES (MUNICIPAL BOUNDARY)
SUSSEX COUNTY

OPEN SPACE C

ROAD F

OUTPARCEL
52,043 S.F.±
1.195 AC.±

FIRE HYDRANT ASSEMBLY

SAN–MH

FIP

CMF

8W

8SS

0' 30' 60' 90'

DAVIS, BOWEN & FRIEDEL, INC.
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PRELIMINARY UTILITY PLAN

MITCHELL FAMILY FARM

KINGS HIGHWAY (SCR 268)

LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

Revisions:

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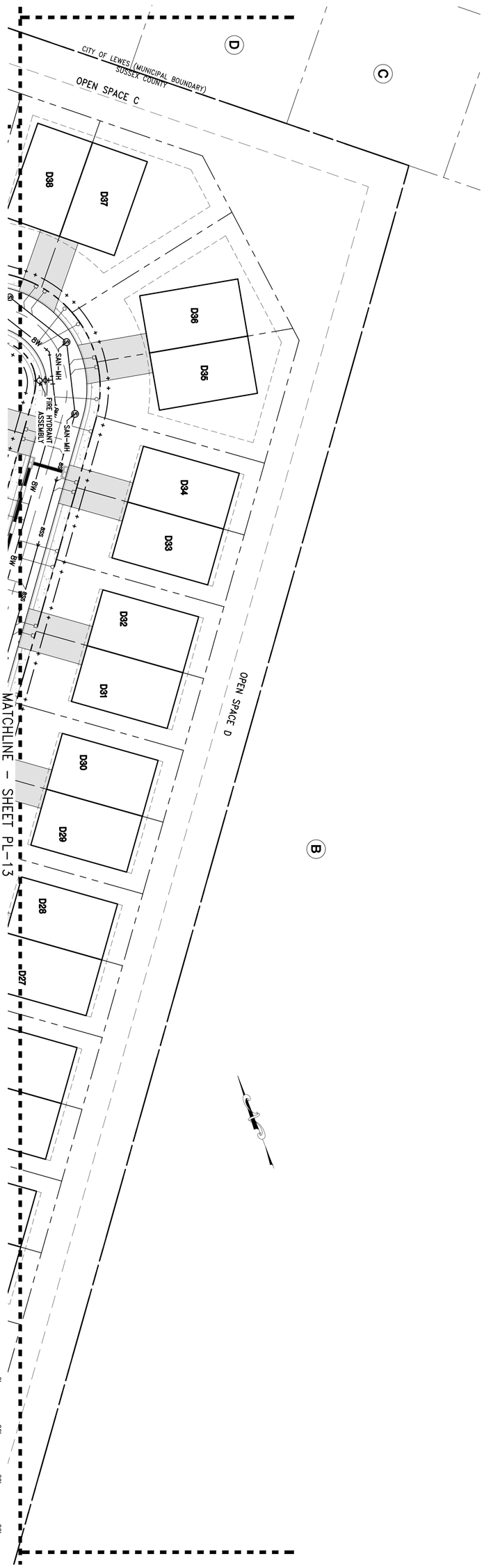

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MITCHELL FAMILY FARM

KINGS HIGHWAY (SCR 268)

LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

PRELIMINARY UTILITY PLAN

Revisions:

Date: DECEMBER 2021
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Proj No.: 3808A001
Dwg No.: PL-15

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Michael E. Wheedleton, AIA
Jason P. Loar, P.E.
Ring W. Lardner, P.E.
Jamie L. Sechler, P.E.

February 28, 2022

Sussex County Administrative Building
Planning and Zoning Department
2 The Circle
Georgetown, DE 19947

Attn: Mr. Jamie Whitehouse, AICP, MRTPI
Planning and Zoning Director

Re: Mitchells Corner
Chapter 99-9C Response
Tax Map # 3-35-8.00-37.00 (Part Of)
DBF# 3808A001

Dear Chairman Wheatley and Members of the Commission,

On behalf of our client, Henlopen Properties, LLC, we are pleased to provide you with our written response to the items listed in Chapter 99-9C.

The proposed subdivision, Mitchells Corner provides a careful consideration of the following items in Sussex County Chapter 99-9C:

1. **Integration of the proposed subdivision into the existing terrain and surrounding landscape.**

    a. The subdivision is adjacent to Jefferson Apartments to the north, Bay Breeze to the north, and the Moorings to the east, all of which include multi-family dwellings.

    b. The subdivision strives to minimize grading as much as possible.

    c. The proposed subdivision is located within a transition area between residential and commercial uses.

2. **Minimal use of wetlands and floodplains.**

    a. The property does not contain wetlands.

    b. The property is not located within the 100-year floodplain.

3. **Preservation of natural and historical features.**

    a. A wellhead protection area overlaps a small part of the site near the southwest corner of the property. The impact of the development on the wellhead protection area will be mitigated through the use of Best Management practices including, grass swales, infiltration ponds, and 48-hour wet extended detention ponds.

    b. Edward Otter, Inc. performed a review of the project and the existing farmhouse will be documented prior to its demolition and removal from the site.

4. **Preservation of open space and scenic views.**

    a. Active open space is provided in the form of gazebos, walking trails, and an active amenity area.

    b. A portion of the subdivision will front King's Highway similar to other residential units along the highway.

    c. The Developer will continue to cooperate with the Lewes Scenic By-Ways Committee for an appropriate streetscape.

5. **Minimization of tree, vegetation, and soil removal and grade changes.**

    a. There are no wooded areas on the site, trees will be added in the buffer areas and throughout the site.

    b. Grade changes will be minimized to the extent necessary to provide road construction to meet design requirements and to ensure proper lot drainage.

    c. The site will be "balanced," which will minimize the need for soil to be removed or hauled to the site.

6. **Screening of objectionable features from neighboring properties and roadways.**

    a. The site will not contain objectionable features and will provide a 20' forested buffer along the northern and eastern boundary line adjacent to the existing residential developments.

7. **Provision for water supply.**

    a. Tidewater Utilities, Inc. or Lewes Board of Public Works will supply all homes with central water and provide water for fire protection. The Owner will apply for the respective CPCN once the provider has been chosen.

8. **Provision for sewage disposal.**

    a. Sussex County Council will provide sanitary sewer conveyance and treatment for the proposed subdivision. The property is located within a Tier One area of the Unified Sanitary Sewer District.

9. **Prevention of pollution of surface and groundwater.**

    a. Best Available Technologies (BATs) will be used during the design and construction of the property.

    b. Best Management Practices (BMPs) will be used during the design and construction of the property.

    c. The site will utilize Green Technology where feasible for the project.

    d. A water climatic budget will be prepared and followed to comply with the Chapter 89 regulations for a wellhead protection area.

10. **Minimization of erosion and sedimentation, minimization of changes in groundwater levels, minimization of increased rates of runoff, minimization of potential for flooding, and design of drainage so that groundwater recharge is maximized.**

    a. The stormwater management areas will be designed to meet all local, state, and federal guidelines for sediment and nutrient removal.

    b. An Erosion and Sediment Control Plan will be developed and implemented as required by the Sussex Conservation District and DNREC. The plan will specify in detail how the project is to be constructed to limit the amount of sediment and other pollutants leaving the site during construction.

11. **Provision for safe vehicular and pedestrian movement within the site and to adjacent roadways.**

    a. The interior of the subdivision contains sidewalks on both sides of the street providing pedestrian connection throughout the site.

    b. The road design will conform to Sussex County standards and specifications and will be turned over to the property owner's association(s) for maintenance upon acceptance by the County.

    c. Street lighting will be provided for this project and designed by the electric provider.

d. The Developer will install a multi-modal path along Kings Highway and Gills Neck Road.

e. The Developer will dedicate 50 feet of right-of-way measured from the centerline for King's Highway. In addition, the developer will reserve an additional 30 feet of right-of-way in support of the King's Highway improvements.

f. The Developer will dedicate 30 feet of right-of-way measured from the centerline of the road for Gills Neck Road.

12. **Effect on area property values.**

a. Based on historical land trends in Sussex County, the property values around the proposed subdivision will increase with the development of Mitchells Corner.

13. **Preservation and conservation of farmland.**

a. This property is in a Level 1 investment area that is designated for growth. The size and location of the parcel does not make it viable to be maintained in agricultural use as this area continues to develop.

14. **Effect on schools, public buildings, and community facilities.**

a. The increase in tax revenue to the school district will assist in the maintenance and operations of the public school system.

b. The project is completing interim improvements that will include extending the shared use path from the high school to Clay Road.

c. The project, based on historic trends of residential development in the area, will most likely be occupied by retirees and/or used for second homes and thus will minimally affect the school district.

15. **Effect on area roadways and public transportation.**

a. A Traffic Impact Study (TIS) and an addendum was prepared by the Developer and reviewed by DelDOT. A final letter has been received by the Developer.

b. The project will use the existing entrance off of Gills Neck Road and additional improvements are not required.

c. A right-in / right-out entrance will be designed and installed on King's Highway to meet DelDOT standards.

d. The Developer will install interim improvements that will consist of the following:

   i Add a second southbound through lane that will begin approximately 1,100 feet north of the intersection of King's Highway / Gills Neck Road and Cape Henlopen High School. The second through lane will transition to a right turn lane at the intersection of Clay Road and Kings Highway.

   ii Install a shared-use path from Cape Henlopen High School to Clay Road.

   iii Install a second left turn lane from Gills Neck Road onto King's Highway.

e. The interior streets will be designed to Sussex County standards and specifications.

16. **Compatibility with other area land uses.**

a. The subdivision conforms to the designated zoning for the property and is consistent with the surrounding land uses as mentioned above.

b. The proposed gross density of the residential portion of the project is 6.10 dwelling units per acre of land.

c. The density of the Jefferson Apartments is 9.75 units per acre and the density of the Moorings at Lewes is 6.42 units per acre.

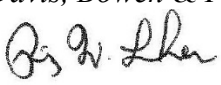
17. **Effect on area waterways.**

a. The subdivision will provide water quality treatment in accordance with the Sediment and Stormwater Regulations.

b. The site will comply with all TMDLs and PCS's as adopted by the State.

On behalf of our client, we thank you for your review and consideration of this response. If you should have any questions or concerns, please contact me at 424-1441

Sincerely,
Davis, Bowen & Friedel, Inc.



Ring W. Lardner, P.E.
Principal

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cc: Jon Mayers, Henlopen Properties, LLC
David Hutt, Morris James, LLP

K

DAVIS BOWEN & FRIEDEL, INC.

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Michael E. Wheedleton, AIA
Jason P. Loar, P.E.
Ring W. Lardner, P.E.
Jamie L. Sechler., P.E.

December 21, 2021
Updated: February 28, 2022

Sussex County Administrative Building
Planning and Zoning Department
2 The Circle
P.O. Box 589
Georgetown, Delaware 19947

Attn: Mr. Jamie Whitehouse, Director of Planning

Re: Mitchells Corner
Tax Parcel No: 3-35-8.00-37.00
DBF #3808A001

Dear Mr. Whitehouse,

On behalf of our client, Henlopen Properties, LLC, we are submitting an Environmental Assessment and Public Facility Evaluation Report in accordance with §115-194.3. Coastal Area, Subparagraph B (2). We offer the following information that comprises our report:

(a) *Proposed Drainage design and the effect on stormwater quality and quantity leaving the site, including methods for reducing the amount of phosphorous and nitrogen in the stormwater runoff and the control of any other pollutants such as petroleum hydrocarbons or metals*. **The proposed improvements will meet or exceed the state regulations for quality and quantity control of stormwater. We intend to use an infiltration pond as well as other Green Technology to meet the quality and quantity requirements. The proposed site through the use of Green Technology and other Best Management Practices and Best Available Technologies will reduce the nitrogen and phosphorus loading by 40%. The project will provide pre-treatment for hydrobarbons or metals generated from automotive traffic within the site.**

(b) *Proposed method of providing potable and, where appropriate, irrigation water and the effect on public or private water systems and groundwater, including an estimate of average and peak demands.* **The proposed project is adjacent to two public water providers. The estimated average for the project is 80,000 GPD and estimated peak use of 240,000 GPD.**

(c) *Proposed means of wastewater treatment and disposal with an analysis of the effect on the quality of groundwater and surface waters, including alternative locations for on-site septic systems.* **The proposed project will discharge wastewater to an existing gravity sewer manhole constructed during phase 1 that connects to the pump station within**

the Governors development.

(d) *Analysis of the increase in traffic and the effect on the surrounding roadway system.* **A Traffic Impact Study (TIS) and an addendum was submitted to DelDOT. The Deveoper has received the review letter and interim improvements will be completed by the Developer.**

(e) *The presence of any endangered or threatened species listed on federal or state registers and proposed habitat protection areas.* **There are no records of federally listed endangered or threatened species or their critical habitats listed on this site.**

(f) *The preservation and protection from loss of any tidal or nontidal wetlands on the site.* **There are no wetlands on this site.**

(g) *Provisions for open space as defined in §115-4.* **The proposed project incorporates active and passive open space amenities. Some passive open space amenities include ponds and associated landscape buffers. Active open space amenities include walking paths and an active amenity area.**

(h) *A description of provisions for public and private infrastructure.* **The Developer will improve Kings Highway in accordance with DelDOT's rules and regulations. The Developer will also construct the water and sewer mains internally in the project that will be owned and maintained by a public utility. Besides the water and sewer system, all other internal utilities and roadways will be constructed by the Developer and privately maintained.**

(i) *Economic, recreational, or other benefits.* **The proposed project will create a considerable number of jobs during construction. In addition, the project will generate transfer taxes as well as other economic impacts in the beach community. There are numerous recreational activities provided within the site. In addition, part of the proposed project includes a commercial rezoning which will provide employment opportunities.**

(j) *The presence of any historic or cultural resources that are listed on the National Register of Historic Places.* **The site does not contain any historic or cultural resources that are listed on the National Register of Historic Places.**

(k) *An affirmation that the proposed application and proposed mitigation measures are in conformance with the current Sussex County Comprehensive Plan.* **The proposed application and mitigation measures comply with the current Sussex County Comprehensive Plan.**

(l) *Actions to be taken by the applicant to mitigate the detrimental impacts identified relevant to Subsection B(2)(a) through (k) above and the manner by which they are consistent with the Comprehensive Plan.* **All mitigation measures, where required, have been discussed**

in their respective section. All mitigation measures as well as the application are consistent with the Comprehensive Plan.

If you have any questions or need additional information, please call me at (302) 424-1441.

Sincerely,
Davis, Bowen & Friedel, Inc.

Ring W. Lardner, P.E.
Principal

K - Public Facilities Report.docx

Cc: David Hutt, Morris James LLP
Henlopen Properties, LLC

L

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W. Zachary Crouch, P.E.
Michael E. Wheedleton, AIA
Jason P. Loar, P.E.
Ring W. Lardner, P.E.
Jamie L. Sechler, P.E.

February 28, 2022

Sussex County Administrative Building
Planning and Zoning Department
2 The Circle
Georgetown, DE 19947

Attn: Mr. Jamie Whitehouse, AICP, MRTPI
Planning and Zoning Director

Re: Mitchells Corner
Chapter 89-6F Wellhead Protection Area Response
Tax Map # 3-35-8.00-37.00
DBF# 2640A002

Dear Chairman Wheatley and Members of the Commission,

On behalf of our client, Henlopen Properties, LLC, we are pleased to demonstrate that the proposed subdivision, Mitchells Corner provides a careful consideration of the following items in Sussex County Chapter 89-6F:

F. The following conditions shall apply to all areas within a wellhead protection area that falls between the edge of the safe zone and the outer boundary of the wellhead protection area:

1. **The requirements of this chapter do not impose any limitations upon land development, provided the impervious cover of any portion of the tax parcel located within the wellhead protection area is 35% or less.**

    a. The impervious cover of the proposed development that falls within the wellhead protection area will be greater than 35%.

2. **Impervious cover of that portion of a tax parcel within the wellhead protection area which is greater than 35% but no more than 60% is allowed, provided the applicant demonstrates through an environmental assessment report prepared by a registered professional geologist or registered professional engineer familiar with the hydrogeologic characteristics of Sussex County and using a climatic water budget that will ensure that post-development recharge quantity will meet or exceed the existing (predevelopment) recharge quantity. Beneficial efforts to mitigate discharges to impervious surfaces shall count towards the formula used to compute post-development mitigation of any discharges.**

a. The impervious coverage of the proposed development that falls within the wellhead protection area for this project is 44% and when combined with the exsiting Cape Henlopen Medical Center is 52%. A preliminary water climatic budget has been prepared identifying the amount of recharge required. The project as proposed requires additional recharge.

3. **For all new construction where the impervious surfaces exceed 60% or where the level of post-development recharge is less than predevelopment recharge, all structures shall be required to discharge roof drains into underground recharge systems or into permeable surfaces that allow the discharges to infiltrate into the ground. Efforts to mitigate discharges to impervious surfaces shall count towards the formula used to compute post-development mitigation of any discharges.**

    a. The project, per the preliminary water climatic budget, needs to provide an additional 64,347 gallons (2,646 roof top square footage) of annual supplemental recharge. The project has 452,580 square feet of additional rooftop to balance the deficit.

4. **Notwithstanding provisions of § 89-6A (nonconforming uses) in Commercial, Industrial and Business Districts, including, but not limited to, Urban Business (UB), Neighborhood Business (B-1), General Commercial (C-1), Commercial Residential (CR-1), Marine, Light Industrial (LI-1), Light Industrial (LI-2), and Heavy Industrial (HI), within designated development zones where the impervious cover of property exists prior to the effective date of this chapter and the applicant desires to re-develop the property, the gross impervious cover shall be equal to or less than the original impervious cover percentage of the original site.**

    a. This requirement does not apply to this project.

5. **Discharge from roof drains, containment areas, or impoundments that receive runoff from an area that may contain contaminants from mechanical systems shall be disposed of using best management practices, such as grass swales.**

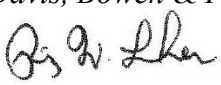
    a. Best management practices will be utilized within the wellhead protection area as well as throughout the site.

6. **Aboveground and underground storage tanks (USTs) containing petroleum or any hazardous substances listed in 40 CFR 116 in an aggregate quantity equal to or greater than a reportable quantity as defined in 40 CFR 117 shall not be permitted in a designated wellhead protection area unless such facilities meet the aboveground and underground storage tank regulations as applicable to the State of Delaware.**

    a. The above requirement will be added to the Record plan notes for this project.

On behalf of our client, we thank you for your review and consideration of this response. If you should have any questions or concerns, please contact me at 424-1441

Sincerely,
Davis, Bowen & Friedel, Inc.



Ring W. Lardner, P.E.
Principal

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Cc: Jon Mayers, Henlopen Properties, LLC
David Hutt, Morris James, LLP

M

DAVIS BOWEN & FRIEDEL, INC.

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February 28, 2022

Sussex County Administrative Building
Planning and Zoning Department
2 The Circle
Georgetown, DE 19947

Attn: Mr. Jamie Whitehouse, AICP, MRTPI
Planning and Zoning Director

Re: Mitchells Corner
Response to 2021-12-05 PLUS Comments
Tax Map # 3-35-8.00-37.00
DBF# 3808A001

Dear Mr. Whitehouse,

On behalf of the Developer, Henlopen Properties, LLC, we are pleased to provide a written response to the PLUS comments. We offer the following in response to those comments:

Strategies for State Policies and Spending

- *This project is located in Investment Level 1 according to the Strategies for State Policies and Spending. Investment Level 1 reflects areas that are already developed in an urban or suburban fashion, where infrastructure is existing or readily available, and where future redevelopment or infill projects are expected and encouraged by State policy. The Office of State Planning has no objections to the rezoning of this portion of the parcel from AR-1 to MR-RPC provided it meets the requirements of the County.*

- *This is on the border of the City of Lewes, which will provide the water to this property and we encourage the owner/developer to either annex into the city or to work with the County and the City to ensure any future development complements the surrounding neighborhoods.*

We have read the above comments and plan revisions are not required.

Code Requirements/Agency Permitting Requirements

Department of Transportation – Contact Bill Brockenbrough 760-2109

- *Because the site fronts on a road that is part of the Federal-Aid Primary Road System, that is Kings Highway (US Route 9), it is subject to outdoor advertising regulations found in CFR 23 §131 and 17 Del. C. §1101-1120. Accordingly, the applicant should expect the following requirements:*

    - *No new billboards, variable message boards, or electronic changing message sign(s) anywhere on or off Kings Highway. Any such structure or fixture shall be 660 feet away, i.e., any closest byway right-of-way edge.*

    - *No off-premises advertising on the property for others within 660 feet of Kings Highway, e.g., displaying on-site the bank/financial institution funding the project or the contractor building the project.*

    - *Along Kings Highway, the applicant would not be permitted to advertise or direct information about themselves on other private property.*

- *The site access on Kings Highway (US Route 9) and Gills Neck Road (Sussex Road 267) must be designed in accordance with DelDOT's Development Coordination Manual, which is available at http://www.deldot.gov/Business/subdivisions/index.shtml?dc=changes.*

- *Pursuant to Section P.3 of the Manual, a Pre-Submittal Meeting is required before plans are submitted for review. The form needed to request the meeting and guidance on what will be covered there and how to prepare for it is located at https://www.deldot.gov/Business/subdivisions/pdfs/Meeting_Request_Form.pdf?08022017.*

- *Section 1.7 of the Manual addresses fees that are assessed for the review of development proposals. DelDOT anticipates collecting the Initial Stage Fee when the record plan is submitted for review and the Construction Stage Fee when construction plans are submitted for review.*

- *Section 1.2 of the Manual provides DelDOT's general policy on the location of entrances, with additional, detailed criteria provided in subsequent chapters and sections. Road A, the site entrance proposed on Kings Highway, should be aligned*

opposite the planned entrance to the Beebe Medical Center property (aka The Lodge at Historic Lewes, Tax Parcel 335-8.00-39.00). The applicant should expect the DelDOT will not permit left turns out onto Kings Highway from either the subject parcel or the Beebe Medical Center property.

- *Per Section 2.2.2.1 of the Manual, Traffic Impact Studies (TIS) are warranted for developments generating more than 500 vehicle trip ends per day or 50 vehicle trip ends per hour in any hour of the day. On the PLUS applications, the combined daily trips for the commercial and residential developments are estimated at 4,914 vehicle trip ends per day, respectively. Therefore, the development warrants a TIS. On October 8, 2021, DelDOT commented on TIS, and an addendum prepared for a different plan for this same site. DelDOT anticipates issuing a revised letter reflecting the changed site plan. Because the location and the access points are the same and the proposed trip generation is reduced, the applicant should expect a similar letter for the new plan*

- *As necessary, in accordance with Section 3.2.5 and Figure 3.2.5-a of the Manual, DelDOT will require the dedication of right-of-way along the site's frontage on Kings Highway and Gills Neck Road. By this regulation, this dedication is to provide a minimum of 40 feet of right-of-way from the physical centerline of Kings Highway and 30 feet of right-of-way from the physical centerline of Gills Neck Road. The following right-of-way dedication note is required, "**An X-foot wide right-of-way is hereby dedicated to the State of Delaware, as per this plat.**" These are minimum standard widths. Coordination with DelDOT's Division of Transportation Solutions will be needed regarding the specific rights-of-way needed to accommodate DelDOT's planned widening of Kings Highway.*

- *In accordance with Section 3.2.5.1.2 of the Manual, DelDOT will require the establishment of a 15-foot wide permanent easement across the property frontage on Kings Highway and Gills Neck Road. The location of the easement shall be outside the limits of the ultimate right-of-way. The easement area can be used as part of the open space calculation for the site. The following note is required, "**A 15-foot-wide permanent easement is hereby established for the State of Delaware, as per this plat.**"*

- *Referring to Section 3.4.2.1 of the Manual, the following items, among other things, are required on the Record Plan:*

    - *A Traffic Generation Diagram. See Figure 3.4.2-a for the required format and content.*

    - *Depiction of all existing entrances within 450 feet of the Kings Highway entrance and within 300 feet of the Gills Neck Road entrance.*

  - *Notes identifying the type of off-site improvements, agreements (signal, letter) contributions, and when the off-site improvements are warranted.*

- *Section 3.5 of the Manual provides DelDOT's requirements with regard to connectivity. The requirements in Sections 3.5.1 through 3.5.3 shall be followed for all development projects having access to state roads or proposing DelDOT maintained public road for subdivisions. If possible, an interconnection should be negotiated with Jeffkat, LLC (Tax Parcel 335-8.00-39.00) and, again if possible, through that parcel to the First Baptist Church (Tax Parcel 335-8.00-40.00) and Lane Builders (Tax Parcel 335-8.00-38.00). Doing so would have the benefits of better managing left turns along Kings Highway and affording those parcels access to Gills Neck Road. The plan presented addresses this comment.*

- *Section 3.5.4.2 of the Development Coordination Manual addresses requirements for shared-use paths and sidewalks. For projects in Level 1 and 2 Investment Areas, installation of paths or sidewalks along the frontage on State-maintained roads is required. DelDOT anticipates requiring a Shared Use Path (SUP) along Kings Highway and a sidewalk along Gills Neck Road. Coordination with DelDOT's Division of Transportation Solutions will be needed regarding the SUP along Kings Highway.*

- *Section 3.5.4.4 of the Manual addresses accessways, paved pathways connecting a sidewalk or path along a road frontage to an internal sidewalk or path. DelDOT anticipates requiring three accessways to the SUP on Kings Highway:*

  - *One at the end of the existing SUP to serve the existing and proposed commercial building and provide a connection to the bus stop there. As an aside, the developer should anticipate a requirement from Delaware Transit Corporation to provide curbing at that stop.*

  - *One to the front of the townhouses that would adjoin the proposed commercial building.*

  - *One to the townhouses closest to the proposed entrance on Kings Highway to serve an anticipated bus stop at that location. DelDOT will defer to Delaware Transit Corporation regarding their requirements for the design of the bus stop.*

- *In accordance with Section 3.8 of the Manual, storm water facilities, excluding filter strips and bioswales, shall be located a minimum of 20 feet from the ultimate State right-of-way along Kings Highway and Gills Neck Road.*

- *In accordance with Section 5.2.9 of the Manual, the Auxiliary Lane Worksheet should be used to determine whether auxiliary lanes are warranted at the site entrances and how long those lanes should be. The worksheet can be found at http://www.deldot.gov/Business/subdivisions/index.shtml.*
- *In accordance with Section 5.14 of the Manual, all existing utilities must be shown on the plan and a utility relocation plan will be required for any utilities that need to be relocated.*

We have read all of the above comments. The TIS is complete and we have received the final letter from the Department. All other comments will be incorporated into the entrance plans and/or record plans at the appropriate time in the land use process.

Department of Natural Resources and Environmental Control – Beth Krumrine 735-3480
Concerns Identified Within the Development Footprint

Stormwater Management

This application proposes greater than 5000 square feet of land-disturbing activities, therefore, this project will be subject to Delaware's Sediment and Stormwater Regulations.

- *A Sediment and Stormwater Plan must be developed, then approved by the appropriate plan review agency prior to any land-disturbing activity taking place on the site. For this project, the plan review agency is the Sussex Conservation District.*

- *Additionally, to address federal requirements, construction activities that exceed 1.0 acre of land disturbance require Construction General Permit coverage through submittal of an electronic Notice of Intent for Stormwater Discharges Associated with Construction Activity. This form must be submitted electronically (https://apps.dnrec.delaware.gov/enoi/, select Construction Stormwater General Permit) to the DNREC Division of Watershed Stewardship, along with the $195 fee.*

- *Schedule a project application meeting with the appropriate plan review agency prior to moving forward with the stormwater and site design. As part of this process, you must submit a Stormwater Assessment Study.*

Plan review agency contact: Sussex Conservation District at (302) 856-2105 or (302) 856-7219.
Website: https://www.sussexconservation.org/

General stormwater contact: DNREC Sediment and Stormwater Program at (302) 739-9921.
E-mail: DNREC.Stormwater@delaware.gov.

Website: https://dnrec.alpha.delaware.gov/watershed-stewardship/sediment-stormwater/

We have read the above comments and will meet the DNREC regulations and will coordinate with the Sussex Conservation District at the appropriate time.

Wellhead Protection Area

A Wellhead Protection Area is located on the southwest portion of the site. Wellhead Protection Areas are the surface and subsurface areas surrounding a water well, or a public water supply wellfield. Contaminants leaching into the soil have the potential to reach the water supplies in these areas.

- *The applicant must comply with all county and municipal codes that affect public drinking water supply Wellhead Protection Areas.*

Contact: DNREC Source Water Assessment and Protection Program at (302) 739-9945.
Website: https://dnrec.alpha.delaware.gov/water/supply/ground-water-protection/

The project will comply with Sussex County Chapter 89 regarding development within a wellhead protection area.

Wastewater permits – Large Systems

Sussex County holds existing permits with the DNREC Groundwater Discharges Section's Large Systems Branch for wastewater disposal.

- *If additional flows to Sussex County's system will require capacity updates, it is the responsibility of the permitee (Sussex County) to notify the Large Systems Branch.*

Contact: DNREC Large Systems Branch at (302) 739-9948.
Website: https://dnrec.alpha.delaware.gov/water/groundwater/

The project will not require a capacity update as the flows were already accounted for in the previous update.

Nutrient Management Plan

This project proposes open space. According to the application, the exact acreage of open space is yet to be determined.

- *A nutrient management plan is required for all persons or entities who apply nutrients to lands or areas of open space of 10 acres or more.*

Contact: Delaware Department of Agriculture's Nutrient Management Program at (302) 698-4558. Website: https://agriculture.delaware.gov/nutrient-management/

The project does include open space and a nutrient management plan will be prepared if nutrients

are applied.

State Historic Preservation Office – Contact Carlton Hall 736-7400

- *There is a known archaeological site S00799 on the southern part of the parcel.*
- *There is high potential for both prehistoric and historic archaeological resources on this parcel. There is a known prehistoric site on the parcel (S00799) near the intersection of Kings Highway and Gills Neck Road. The parcel is near the Ebenezer Branch, a tributary of Canary Creek. Soils on the parcel are well drained. There is high potential for prehistoric and early historic resources to be affected by the proposed undertaking due to the known site on the parcel, the concentration of sites in the area, and favorable environmental conditions.*
- *There are also high potential historic archaeological resources will be impacted by the proposed undertaking due to known historic structures on the parcel. Historic aerials and topographic maps show two historic dwellings at the northwest corner of the parcel, along Kings Highway. One of the dwellings has been moved by the owner since the prior review of the project in 2019. The Delaware SHPO recommends an archaeological survey prior to any ground disturbance.*
- *If any project or development proceeds, the developer should be aware of the Unmarked Human Burials and Human Skeletal Remains Law (Del. C. Title 7, Ch. 54).*
- *If there is federal involvement, in the form of licenses, permits, or funds, the federal agency, often through its client, is responsible for complying with Section 106 of the National Historic Preservation Act (36 CFR 800) and must consider their project's effects on any known or potential cultural or historic resources. For further information on the Section 106 process please review the Advisory Council on Historic Preservation's website at: www.achp.gov*

The Developer has hired Edwater Otter, Inc. to assist with the above comments and will coordinate with SHPO as needed.

Delaware State Fire Marshall's Office – Contact John Rudd 323-5365

At the time of formal submittal, the applicant shall provide; completed application, fee, and three sets of plans depicting the following in accordance with the Delaware State Fire Prevention Regulation:

Fire Protection Water Requirements:

- *Water distribution system capable of delivering at least 1000 gpm for 1-hour duration, at 20-psi residual pressure is required. Fire hydrants with 800 foot spacing on center.*

- *Where a water distribution system is proposed for townhouse type dwelling sites, the infrastructure for fire protection water shall be provided, including the size of water mains.*

Fire Protection Features:

- *For townhouse buildings, provide a section/detail and the UL design number of the 2-hour fire rated separation wall on the Site plan*

Accessibility:

- *All premises, which the fire department may be called upon to protect in case of fire, and which are not readily accessible from public roads, shall be provided with suitable gates and access roads, and fire lanes so that all buildings on the premises are accessible to fire apparatus. This means that the access road to the subdivision from Gills Neck Road must be constructed so fire department apparatus may negotiate it. If a "center island" is placed at an entrance into the subdivision, it shall be arranged in such a manner that it will not adversely affect quick and unimpeded travel of fire apparatus into the subdivision.*

- *Fire department access shall be provided in such a manner so that fire apparatus will be able to locate within 100 ft. of the front door.*

- *Any dead-end road more than 300 feet in length shall be provided with a turn-around or cul-de-sac arranged such that fire apparatus will be able to turn around by making not more than one backing maneuver. The minimum paved radius of the cul-de-sac shall be 38 feet. The dimensions of the cul-de-sac or turn-around shall be shown on the final plans. Also, please be advised that parking is prohibited in the cul-de-sac or turn around.*

- *The use of speed bumps or other methods of traffic speed reduction must be in accordance with Department of Transportation requirements.*

- *The local Fire Chief, prior to any submission to our Agency, shall approve in writing the use of gates that limit fire department access into and out of the development or property.*

Gas Piping and System Information:

- *Provide type of fuel proposed and show locations of bulk containers on plan.*

Required Notes:

- *Provide a note on the final plans submitted for review to read "All fire lanes, fire hydrants, and fire department connections shall be marked in accordance with the Delaware State Fire Prevention Regulations"*

- *Proposed Use*
- *Square footage of each structure (Total of all Floors)*
- *National Fire Protection Association (NFPA) Construction Type*
- *Maximum Height of Buildings (including number of stories)*
- *Name of Water Provider*
- *Letter from Water Provider approving the system layout*
- *Townhouse 2-hr separation wall details shall be shown on site plans*
- *Provide Road Names, even for County Roads.*

We have read all of the Fire Marshal comments and will comply with all requirements of the Fire Prevention Regulations.

Recommendations/Additional Information

This section includes a list of site-specific suggestions that are intended to enhance the project. These suggestions have been generated by the State Agencies based on their expertise and subject area knowledge. ***These suggestions do not represent State code requirements.*** *They are offered here to provide proactive ideas to help the applicant enhance the site design, and it is hoped* ***(but in no way required)*** *that the applicant will open a dialogue with the relevant agencies to discuss how the suggestions can benefit the project.*

Department of Transportation – Contact Bill Brockenbrough 760-2109

- *Because both of the roads on which the site fronts are part of the Historic Lewes Byway, the applicant should expect the following requirements:*
    - *Byways signs may be required along both roads as part of the plan review process.*
    - *There is an adopted Kings Highway and Gills Neck Road Master Plan for future roadway and right-of-way improvements. This plan can be viewed at https://www.deldot.gov/Programs/byways/pdfs/lewes_cmp/KHGN_MasterPlan_092616finalrx.pdf. The Master Plan was undertaken in consideration of implementation with DelDOT, the Historic Lewes Byway Committee, City of Lewes, Sussex County, and other key stakeholders.*
    - *Improvements to Kings Highway, from Dartmouth Drive to Freeman Highway, to be designed and built consistent with that Master Plan, are funded in DelDOT's*

Capital Transportation Program for Fiscal Years 2021 through 2026 for Preliminary Engineering in Fiscal Years 2022 and 2023, Right-of-Way Acquisition in Fiscal Years 2024 and 2025 and Construction beginning in Fiscal Year 2026. Depending on the project schedule, the applicant may be required to undertake part of the Master Plan construction and/or reserve greater or additional rights-of-way.

- *A typical cross section for future roadway and right-of-way improvements in consideration of context sensitive design solutions for Byway Transportation Corridors has been conceptually recommended for future implementation. The applicant has already coordinated with DelDOT on how to best achieve this cross section as well as any private landscaping, screening, and the provisions of multi-modal elements (sidewalk or shared use path). It appears that early coordination and land dedication provisions have been considered or are illustrated on the current PLUS submission. Adjustments may be needed when detailed plans are submitted.*

- *Landscaping or landscaping buffers and/or vegetation screening is strongly encouraged with the project along both Kings Highway and Gills Neck Road. DelDOT has a suggested list of native and low maintenance vegetation plantings and will require its use for plantings in the right-of-way. Landscaping efforts undertaken or partially undertaken in State right of way will require written agreements with DelDOT regarding maintenance responsibility.*

- *The applicant may be asked to work with or provide updates to the Lewes Byway Committee and per implementation of the Master Plan and byways coordination. The applicant may contact the Byways Chair, Ms. Mary Roth at mroth@delawaregreenways.org or (302) 545-2881.*

- *The plan presented does not provide for a hierarchy of streets internal to the site. Distinguishing better between minor and collector streets would assist visitors in finding their way through the site.*

- *The proposed outparcel has a slightly different acreage from that shown on the plan presented by Jeff-Kat, LLC. DelDOT understands that this difference has since been resolved. DelDOT further understands that the rectangular structure shown on the outparcel has been removed. If it is added back, DelDOT would recommend labeling it with regard to its use.*

- *The applicant should expect a requirement that any substation and/or wastewater facilities will be required to have access from an internal driveway with no direct access to Kings Highway or Gills Neck Road.*

- *The applicant should expect a requirement that all PLUS and Technical Advisory Committee (TAC) comments be addressed prior to submitting plans for review.*

- *Please be advised that the Standard General Notes have been updated and posted to the DelDOT website. Please begin using the new versions and look for the revision dates of March 21, 2019, and March 16, 2021. The notes can be found at https://www.deldot.gov/Business/subdivisions/*

We have read all of DelDOT's comments and are familiar with the various submission requirements and by-ways. The Developer has met with members of the Lewes By-Way Committee to prepare a streetscape along Kings Highway.

Department of Natural Resources and Environmental Control – Beth Krumrine 735-3480
Stormwater Management

- *Where the site and soil conditions allow, integrate runoff reduction techniques including infiltration basins, bio-retention (rain gardens), filter strips, and pavers to encourage on-site stormwater infiltration and reduce runoff.*

- *For improved stormwater management, preserve existing trees, wetlands, and passive open space.*

Plan review agency contact: Sussex Conservation District at (302) 856-2105 or (302) 856-7219.
Website: https://www.sussexconservation.org/

General stormwater contact: DNREC Sediment and Stormwater Program at (302) 739-9921.
E-mail: DNREC.Stormwater@delaware.gov.
Website: https://dnrec.alpha.delaware.gov/watershed-stewardship/sediment-stormwater/

Drainage

- *All existing drainage ditches on the property should be evaluated for function and cleaned, if needed, prior to the construction of the project.*

- *Environmental permits or exemptions may be required by the County Conservation District (Standard Plan), the DNREC Sediment and Stormwater Program (eNOI/NOT), Army Corp of Engineers, and/or DNREC Wetlands and Subaqueous Lands Section prior to clearing and/or excavating ditch channels.*

- *All precautions should be taken to ensure the project does not hinder any off-site drainage upstream of the project or create any off-site drainage problems downstream by the release of on-site stormwater.*

Contact: DNREC Drainage Program at (302) 855-1930.
Website: https://dnrec.alpha.delaware.gov/drainage-stormwater/

The project will utilize infiltration practices as the primary means of stormwater management.

Water Quality (Pollution Control Strategies)

- *This site lies within the Broadkill River Watershed. Surface water quality in this watershed does not meet Federal and/or State Water Quality Standards and a Pollution Control Strategy is in place for this watershed.*

- *Reduce impervious surfaces on the project site by eliminating areas of impervious pavement and/or using pervious pavement where practicable.*

- *Reduce stormwater runoff by integrating infiltration basins, bio-retention (rain gardens), filter strips, and by preserving existing trees, wetlands, and passive open space.*

- *Reduce the necessity for nutrient application by maintaining open space as meadow or forest planted exclusively with native plants. Native plants are well-suited to our climate and require limited maintenance.*

Contact: DNREC Division of Watershed Stewardship's Watershed Assessment Section at (302) 739-9939. https://dnrec.alpha.delaware.gov/watershed-stewardship/

The project will utilize infiltration practices as the primary means of stormwater management.

Wastewater Disposal Systems – Small Systems

- *An expired permit (permit # 219598) exists for this site in the Small System Branch database.*
- *Contact the DNREC Groundwater Discharges Section to properly abandon this system.*

Contact: DNREC Groundwater Discharges Section at (302) 856-4561
Website: https://dnrec.alpha.delaware.gov/water/groundwater/septic-systems/

We thank the section for this information and will coordinate with the land owner.

Additional Sustainable Practices

- *Build garages and parking spaces to be "EV-ready." Many manufacturers have pledged to sell only electric vehicles in the next 10-15 years. Installing a 240-volt outlet in one or two locations in a garage will enable a resident to easily (and cheaply) install a level 2 electric vehicle charger. This will increasingly be a selling point for homes.*

- *Offer the option to install solar or geothermal systems for each home. This allows a purchaser to incorporate the cost into their mortgage, making it more affordable. For community facilities such as the proposed community center, consider using renewable energy infrastructure such as solar or geothermal to reduce energy costs and further reduce pollution created from offsite generation. Grant funds and incentives are available for Delmarva Power customers through the DNREC Green Energy Fund, which includes several funding types through the state's major electric utilities (https://dnrec.alpha.delaware.gov/climate-coastal-energy/renewable/assistance/).*

- *Incorporate nonmotorized connectivity and install bicycle racks where feasible to help facilitate non-vehicular travel modes.*

- *Use efficient Energy Star-rated products and materials in construction and redevelopment. Energy-efficient appliances use less energy over time. This saves consumers and businesses money, while also helping to reduce pollution from power generation.*

- *Use structural paint coatings that are low in Volatile Organic Compounds to help protect air quality. Air pollution from new construction is generated through the use of maintenance equipment, paints, and consumer products like roof coatings and primers.*

- *Use recycled materials, such as reclaimed asphalt pavement, to reduce heat island effects on paved surfaces, prevent landfill waste, and lower material costs.*

  Contact: DNREC Division of Climate, Coastal & Energy at (302) 735-3480.
  Website: https://dnrec.alpha.delaware.gov/climate-coastal-energy/

The above information will be shared with perspective homebuilders and EV stations will be incorporated into the commercial parcel.

Delaware State Fire Marshall's Office – Contact John Rudd 323-5365

- *Although not a requirement of the State Fire Prevention Regulations, the Office of the State Fire Marshal encourages home builders to consider the benefits of home sprinkler protection in dwellings.*

- *The Office of the State Fire Marshal also reminds home builders that they are obligated to comply with requirements of Subchapter III of Chapter 36 of Title 6 of the Delaware Code which can be found at the following website: http://delcode.delaware.gov/title6/c036/sc03/index.shtml*

- *Preliminary meetings with fire protection specialists are encouraged prior to formal submittal. Please call for an appointment. Applications and brochures can be downloaded from our website: www.statefiremarshal.delaware.gov, technical services link, plan review, applications, or brochures.*

We have read the above comments and will coordinate with a Fire Protection Specialist as needed.

State Housing Authority – Contact: Karen Horton 739-4263

- *DSHA strongly supports the proposal to rezone 52 acres on the corner of Kings Highway and Gills Neck Road from AR-1 (Agriculture-Residential) to MR-RPC (Medium Density Residential, Residential Planned Community) and C-3 (Commercial) in anticipation of a 267-unit residential subdivision. While the rezoning will result in a relatively low density of 6 units per acre, duplexes and townhomes are often more affordable to the many county residents who work in the coastal resort economy.*
- *This site is also located within a DSHA-defined "Area of Opportunity" which are strong, high-value markets, with close job proximity and economic opportunity, high-performing schools, amenities, and supportive infrastructure that help households succeed. Unfortunately, these same areas contain little affordable housing. The need for housing affordable, particularly in the coastal resort area, is acute and well documented. For well over 10 years, the gap between the highest earners and the average wage group has grown. Compounded with wages not increasing proportionally to housing costs, many residents were already experiencing housing insecurity by the beginning of 2020. The onset of the COVID pandemic then exposed the inequity of those hardest hit, increased the number of residents experiencing housing insecurity, and placed those already struggling into dire housing circumstances.*
- *It is important to note that developing this parcel in recent years has been challenging due to community opposition, lawsuits, and internal battles within the adjacent City of Lewes and its Board of Public Works. Community opposition has been particularly aggressive in the Lewes-Rehoboth area which has often delayed the availability of more affordable housing options or prevented them from being built altogether – which has exacerbated the housing insecurity experienced by so many county households. Approving this rezoning application will permit residents to affordably live close to their jobs, gain access to the resources and*

benefits this area provides, and begin to mitigate the housing insecurity experienced by so many county residents.

We thank the State Housing Authority for their support.

Delaware Emergency Management Agency – Contact Philip Cane 659-2325

- *The parcel is located within an area of minimal flood concern (1000 year or greater); however, this is expected to increase over the next 30 years. First Street Foundation rates the community risk level of 3, which suggests a major risk from flooding, combining risks associated between residential properties, commercial properties, critical infrastructure facilities, social infrastructure facilities and roads, between now and the next 30 years.*

  The county has a population density of 265.20 per square mile based on the US 2020 Census report; an increase from 2010 at 208.90 persons per square mile. The specific census block has a total population of 57 people, though with development, this will certainly change. Adjacent blocks brings the area to a total population of 1837, primarily adults.

  The parcel is located within the County's evacuation zone D; directly across the street from Zones A & B. According to FEMA's National Risk Index, the parcel is considered relatively moderate for natural hazards with its community resilience also at relatively moderate. It's social vulnerability however, is currently rated as relatively high. In terms of energy use and consumption, the region utilizes electricity as the predominant fuel type, with liquid propane coming in second. As such, the parcel has a photovoltaic power potential of 1508 kWh per kWp. DEMA strongly encourages the use of renewable energies and high efficiency appliances and utilities. As such, should solar panels be utilized, DEMA recommends an optimum tilt of the photovoltaic modules to be at approximately 35 degrees. In terms of utilities, DEMA suggests incorporating 90% series furnaces/HVAC systems, the closer to 99% the better as well as A/C units of 20 Seer or greater. DEMA recommends using tankless hot water heaters, and battery backup systems for sump pumps to reduce potential water damage from power failure. Lastly, DEMA encourages the integration of modern and emerging technologies, such as the potential for electric vehicles in garages/parking lots, green roof where applicable and allowable, and the like.

We thank DEMA for their comments.

If you have any questions or need additional information, please contact me at (302) 424-1441 or via email at rwl@dbfinc.com.

Sincerely,
DAVIS, BOWEN & FRIEDEL, INC.

Ring W. Lardner, P.E.
Principal

M - MC_PLUS Response_2021-12-05.docx

CC: Jon Mayers, Henlopen Properties, LLC
David Hutt, Morris James LLP
David Edgell, Office of State Planning

N

Zwaanendael Farm - Surrounding Commercial		
	Business Name	Square Feet
1	Dartmouth Business Center	20,416
2	Fulton Bank	3,219
3	Crooked Hammock	9,312
4	Coastal Coin	737
5	Cape Henlopen Medical Center	39,000
6	The Moorings At Lewes	117,584
7	Lane Builders	6,800
8	Big Oyster Brewery	7,500
9	First Baptist Church of Lewes	11,132
10	Tunnell & Raysor	1,278
11	Oak Construction	2,000
12	Coldwell Banker	2,800
13	Mandies Magical Marketplace	1,402
14	Aqua Marine	595
15	Neurology	2,800
16	Brush Factory	18,245
17	Mr Ps Shopping Center	9,550
18	Jack Lingo Realty	3,235
19	Cape Henlopen High School	367,888
20	Cape Henlopen School District Office	9,150
21	Kingston Court	2,387
22	Russ Palmer Builders	2,760
23	Cape Professional Center	18,365
24	New Covenent Church	16,875
25	Seasonal Solutions	2,935

Sources:
Tax Parcels per Sussex County

N W E S

February 2022

Surrounding Commercial

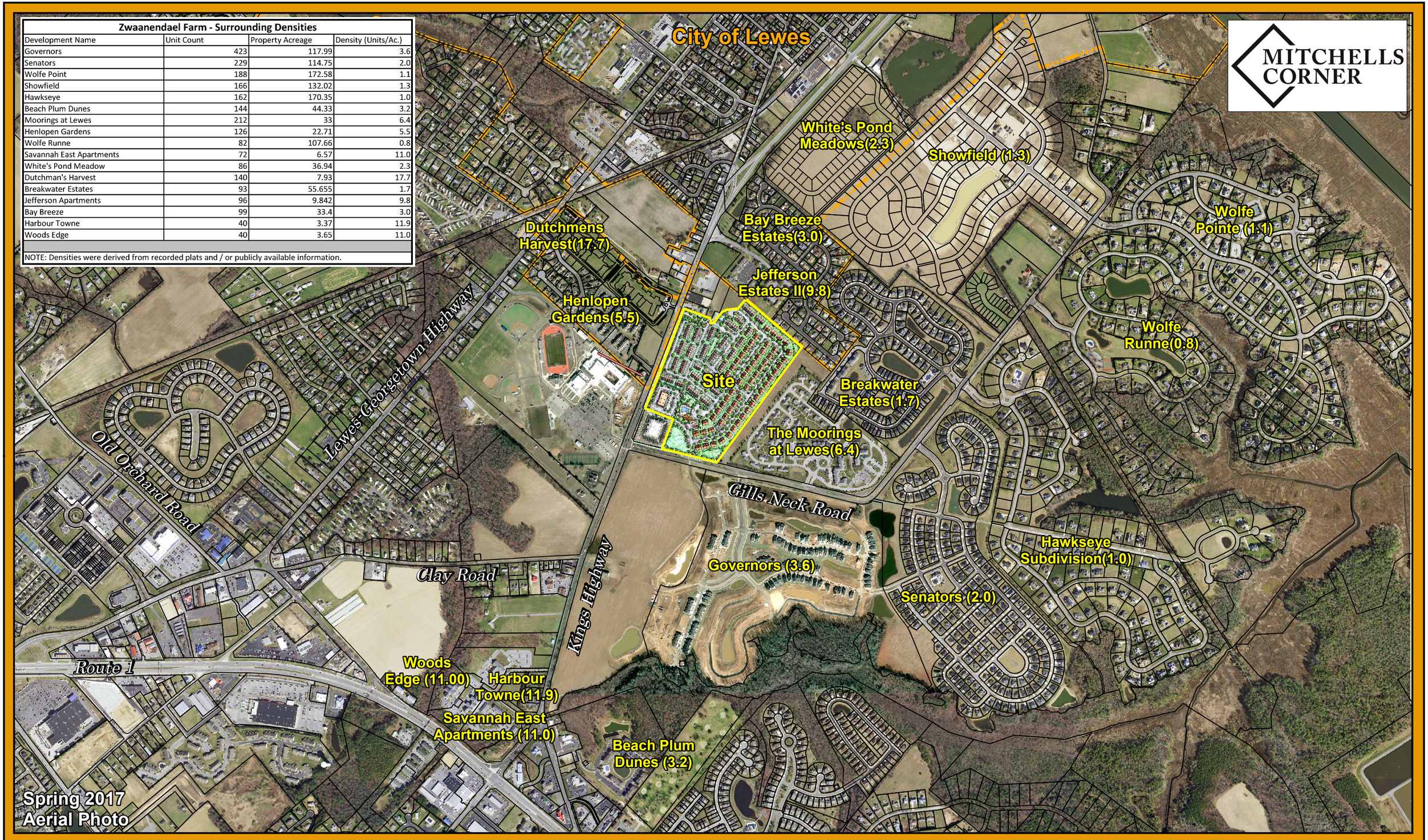
Mitchells Corner

Sussex County, Delaware

0 800 1,600 Feet

DAVIS BOWEN & FRIEDEL, INC.
ARCHITECTS • ENGINEERS • SURVEYORS

Zwaanendael Farm - Surrounding Densities			
Development Name	Unit Count	Property Acreage	Density (Units/Ac.)
Governors	423	117.99	3.6
Senators	229	114.75	2.0
Wolfe Point	188	172.58	1.1
Showfield	166	132.02	1.3
Hawkseye	162	170.35	1.0
Beach Plum Dunes	144	44.33	3.2
Moorings at Lewes	212	33	6.4
Henlopen Gardens	126	22.71	5.5
Wolfe Runne	82	107.66	0.8
Savannah East Apartments	72	6.57	11.0
White's Pond Meadow	86	36.94	2.3
Dutchman's Harvest	140	7.93	17.7
Breakwater Estates	93	55.655	1.7
Jefferson Apartments	96	9.842	9.8
Bay Breeze	99	33.4	3.0
Harbour Towne	40	3.37	11.9
Woods Edge	40	3.65	11.0
NOTE: Densities were derived from recorded plats and / or publicly available information.			



Sources:
Tax Parcels per Sussex County

February 2022

Surrounding Densities Map

Mitchells Corner

Sussex County, Delaware

0 1,000 2,000 Feet

DAVIS BOWEN & FRIEDEL, INC.
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O

DAVIS BOWEN & FRIEDEL, INC.

ARCHITECTS ENGINEERS SURVEYORS

Michael R. Wigley, AIA, LEED AP
W. Zachary Crouch, P.E.
Michael E. Wheedleton, AIA
Jason P. Loar, P.E.
Ring W. Lardner, P.E.
Jamie L. Sechler, P.E.

February 28, 2022

Sussex County Administrative Building
Planning and Zoning Department
2 The Circle
P.O. Box 589
Georgetown, Delaware 19947

Attn: Mr. Jamie Whitehouse
Director of Planning

Re: **Mitchells Corner**
Major Subdivision Landscape Buffer Waiver
Tax Parcel No: 3-35-8.00-37.00
DBF #3808A001

Dear Mr. Whitehouse,

On behalf of our client, Henlopen Properties LLC, we respectfully request a landscape buffer waiver for areas of the subdivision boundary that are adjacent to the Big Oyster Brewery, Proposed Commercial Lot, Cape Henlopen Medical Center, and road frontages. A buffer will be provided for areas of the subdivision that are adjacent to Jefferson Apartments, Bay Breeze, and The Moorings at Lewes.

If you have any questions or require additional information, please do not hesitate to contact me at (302) 424-1441, or via e-mail at rwl@dbfinc.com.

Sincerely,
DAVIS, BOWEN & FRIEDEL, INC.

Ring W. Lardner, P.E.
Principal

P:\Chesapeake Reality\Zwaanendael Farm\Documents\P&Z\2022-02-28 Final P&Z Booklet\O - MC_ Buffer Waiver.docx

CC: Jon Mayers, Henlopen Properties, LLC
David Hutt, Morris James LLP

P

Sussex conservation district
PREPARE. PROTECT. PRESERVE.

January 31, 2019

Mr. Robert Mitchell
c/o Davis, Bowen, & Friedel, Inc.
1 Park Avenue
Milford, DE 19963

RE: Zwaanendael Farm Phase 1

Dear Mitchell:

A Sediment and Stormwater Management Plan has been reviewed for compliance with the Sediment and Stormwater Regulations and is approved with conditions (see attached). Enclosed herein please find a copy of the approved application form and approved plan sets. Please retain a copy for your use, and provide the contractor with a copy to be retained onsite at all times. Failure to keep an approved plan onsite is a violation of the approved plan.

Approval of a Sediment and Stormwater Plan does not grant or imply a right to discharge stormwater runoff. The owner/developer is responsible for acquiring any and all agreements, easements, etc., necessary to comply with State drainage and other applicable laws.

This plan approval pertains to compliance with the *Delaware Sediment and Stormwater Regulations*. Please understand that the approval of this plan does not relieve you from complying with any and all federal, state, county, or municipal laws and regulations.

As of January 1, 2014, the Sussex Conservation District began collecting financial guarantees to ensure the construction of stormwater management practices is accomplished in accordance with the approved sediment and stormwater plan. Please refer to the SCD Policy on Bonds located on our website at *Sussexconservation.org*. If you have any questions concerning the aforementioned, please do not hesitate to call 302 856-7219.

Sincerely,

Jessica Watson

Jessica Watson
Program Manager

JW/jmg

cc: Janelle Cornwell

CONDITIONS OF APPROVAL

NOTIFICATION

1. This approved plan will remain valid for 5 years from the date of this approval. If construction does not begin within three years, the approved plan will be considered to have expired, and must be resubmitted to the District for a new review. In addition, if work is not completed within the five-year timeframe, the District must be contacted and a request for an extension submitted. Depending on regulation changes, a new plan may need to be submitted to ensure that all stormwater management facilities are constructed to the most recent standards.
2. Submittal of the Notice of Intent (NOI) for Storm Water Discharges Associated with Construction Activities together with this approval of the detailed Sediment and Stormwater Plan provide this project with Federal permit coverage to be authorized to discharge storm water associated with construction activities. It is the owner's responsibility to ensure that permit coverage remains valid throughout construction by submitting the NOI fee annually as requested. The developer is responsible for weekly self-inspection reporting to be retained onsite.
3. Notify the Sussex Conservation District Sediment and Stormwater Management Section of your intent to begin construction in writing five (5) days prior to commencing. Failure to do so constitutes a violation of the approved plan.

CHANGES

4. This project is to be undertaken in accordance with the plans submitted and as approved. If changes are necessary at any time during the completion of the project, submit revised plans, prior to further construction, to the Sussex Conservation District Sediment and Stormwater Program for review and approval of the revision.
5. Should ownership change during the construction period, a revised plan must be submitted for approval showing the new owner's signature on the owner's certification. In addition, a Transfer of Authorization form must be submitted to DNREC to transfer Federal permit coverage to the new owner.

CONSTRUCTION AND CLOSEOUT

6. A pre-construction meeting must take place before any land disturbing activity begins. The meeting may take place on site and be attended by the owner, contractor, design consultant, Certified Construction Reviewer and Sussex Conservation District Sediment and Stormwater Program Construction Reviewer. The owner or the owner's designee shall contact the Sussex Conservation Construction Reviewer to schedule the pre-construction meeting.
7. Keep available onsite, during all phases of construction, a copy of the approved Sediment and Stormwater Management Plan.
8. Keep available onsite, during all phases of constriction, copies of the Developers weekly self-inspection reports and/or the CCR Reports.
9. Any sediment transported off-site to roads or road rights-of-way including ditches shall be removed. Any damage to ditches shall be repaired and stabilized to original condition.
10. Grading shall not impair surface drainage, create an erosion hazard, or create a source of sediment to any adjacent watercourse or property owner.
11. Failure to implement the permanent stormwater management practices as mentioned herein constitutes a violation of the conditions of this plan approval; it may result in the suspension or revocation of building permits or grading permits issued by the local jurisdiction; and it may result in legal action by the DNREC to bring the site into compliance with the approved Sediment and Stormwater Management Plan and the *Delaware Sediment and Stormwater Regulations*.
12. The permanent stormwater management facility or facilities must be constructed and accepted by the Sussex Conservation District Sediment and Stormwater Program prior to final closeout of the project site. Post construction verification documentation of the stormwater management facility or facilities must be completed as soon as construction of the facility or facilities is complete so that any necessary modifications may be made during the construction period.

Summary for Subcatchment 1S:

Commercial Lots 1, 2, 3, p/o 4, 7 & 8
Future Single Family and Townhouse areas along SE boundary line and between Pond 1 and 2
Off-site cultivated land along SE boundary
DelDOT ROW along Gills Neck Road (DA 3S and 4S are included in the area but are separated out for H&H calcs)

Runoff = 47.97 cfs @ 12.09 hrs, Volume= 4.729 af, Depth= 1.80"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr RPv Rainfall=2.70", Ia/S=0.05

	Area (ac)	CN	Description
	15.702	92	Urban commercial, 85% imp, HSG B
	1.959	98	Water Surface, HSG B
	10.641	85	1/8 acre lots, 65% imp, HSG B
*	0.548	98	Paved roads (DD-ROW)
*	0.299	61	>75% Grass cover, Good, HSG B (DD-ROW)
	2.439	78	Row crops, straight row, Good, HSG B
	31.588	89	Weighted Average
	8.818		27.91% Pervious Area
	22.770		72.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	72	0.0140	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.40"
2.6	225	0.0050	1.44		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
14.9	297	Total			

Summary for Subcatchment 2S:

Commercial Lots p/o 4, 5 & 6
Residential single family and townhouses
Off-site cultivated land along the eastern boundary
1/4 acre lots from Bay Breeze

Runoff = 28.87 cfs @ 12.15 hrs, Volume= 3.479 af, Depth= 1.67"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr RPv Rainfall=2.70", Ia/S=0.05

Area (ac)	CN	Description
3.610	92	Urban commercial, 85% imp, HSG B
0.167	89	Urban commercial, 85% imp, HSG A
3.558	98	Water Surface, HSG B
15.301	85	1/8 acre lots, 65% imp, HSG B
1.645	78	Row crops, straight row, Good, HSG B
0.671	75	1/4 acre lots, 38% imp, HSG B
24.952	87	Weighted Average
7.983		31.99% Pervious Area
16.969		68.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.3	100	0.0050	0.09		**Sheet Flow,** Cultivated: Residue>20% n= 0.170 P2= 3.40"
2.1	244	0.0150	1.97		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
20.4	344	Total			

Summary for Subcatchment 3S: GILLS STA. 3+00 - 7+00 LEFT

Included in area for DA-1S but separated out for DelDOT H&H calcs

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.92 cfs @ 11.98 hrs, Volume= 0.054 af, Depth= 1.40"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr RPv Rainfall=2.70", Ia/S=0.05

	Area (ac)	CN	Description
	0.197	61	>75% Grass cover, Good, HSG B
*	0.220	98	Gills Neck Road
*	0.047	98	Sidewalk
	0.464	82	Weighted Average
	0.197		42.46% Pervious Area
	0.267		57.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 4S: GILLS STA. 8+00 - 10+50 LEFT

Included in area for DA-1S but separated out for DelDOT H&H calcs

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.51 cfs @ 11.98 hrs, Volume= 0.030 af, Depth= 1.45"

SOIL SURVEY LEGEND		
SYMBOL	DESCRIPTION	HSG
EvB	EVESBORO LOAMY SAND, 0 TO 5 PERCENT SLOPES	A
GrA	GREENWICH LOAM, 0 TO 2 PERCENT SLOPES	B

LEGEND

DH-NW
9.135ac.
CN=82
Tc=25.6min.

DRAINAGE BOUNDARY & LABEL

EXISTING CONTOUR & ELEVATION

EXISTING LIDAR CONTOUR

SOIL BOUNDARY & TYPE

AP — ANALYSIS POINT

TC PATH

Tc LABEL

100'SF
CR>20%
@0.19%

SF=SHEET FLOW
SC=SHALLOW CONCENTRATED
CH=CHANNEL
(POINTS TO END OF SECTION)

MATCHLINE – SEE RIGHT

KINGS HWY.

VILLAGE CENTER

GOVERNORS POND 5

GOVERNORS

GOVERNORS POND 9

AP6

POT HOOK CREEK

POND OUTFALL PIPE TO POT HOOK CREEK (ANALYSIS POINT 2)
SCALE: 1" = 200'

KINGS HWY. (SCR 589)
PRINCIPAL ARTERIAL

FIRST BAPTIST CHURCH OF LEWES

JEFFERSON APARTMENTS

BAY BREEZE ESTATES

BEEBE MEDICAL

BIG OYSTER BREWERY

BIG OYSTER BREWERY

LOT 6

LOT 5

LOT 4

LOT 3

LOT 2

LOT 7

LOT 8

10S
0.356 AC.
CN=76
Tc=5.0min.

AP1

HENLOPEN GARDENS

ATLANTIC DRIVE SOUTH

JACK LINGO REALTOR

CAPE HENLOPEN HIGH SCHOOL

9S
1.555 AC.
CN=77
Tc=5.0min.

8S
0.678 AC.
CN=82
Tc=5.0min.

72' SF GRASS
@ 1.40%

225' SC PAVED
@ 0.50%

PARCEL 37.01
LOT 1

1S
31.588 AC.
CN=89
Tc=14.9min.

3S
0.464 AC.
CN=82
Tc=5.0min.

4S
0.250 AC.
CN=83
Tc=5.0min.

2S
24.952 AC.
CN=87
Tc=20.4 min.

244' SC UNPAVED
@ 1.50%

100' SF CULT.
@ 0.50%

SURF AVE.

JETTY PLACE

SWM FACILITY 2

SWM FACILITY 1

PARCEL 37.00

RESIDUAL LANDS
(FUTURE RESIDENTIAL DEVELOPMENT)

CADBURY AT LEWES

THE VILLAGE CENTER

AP5

7S
0.384 AC.
CN=87
Tc=5.0min.

6S
1.006 AC.
CN=83
Tc=5.0min.

5S
0.501 AC.
CN=76
Tc=5.0min.

AP4

GILLS NECK ROAD (SCR 267)
LOCAL ROAD

MATCHLINE – SEE LEFT

ZWAANENDAEL FARM DRAINAGE MAP
SCALE: 1" = 100'

LAND-USE HATCH

- ROW CROPS
- PAVEMENT
- WATER
- GRASS
- 1/4 ACRE LOTS
- 1/8 ACRE LOTS
- COMMERCIAL

0 100 200 300

DAVIS, BOWEN & FRIEDEL, INC.
ARCHITECTS ENGINEERS SURVEYORS
SALISBURY, MARYLAND (410) 543-9091
SEAFORD, DELAWARE (302) 629-4441
EASTON, MARYLAND (410) 770-4744

POST DEVELOPMENT DRAINAGE AREA PLAN

ZWAANENDAEL FARM
LEWES & REHOBOTH HUNDRED
SUSSEX COUNTY, DELAWARE

Revisions:
2018-10-12 SCD
2018-11-19 SCD

Date: AUGUST, 2018
Scale: AS NOTED
Dwn.By: CDM
Proj.No.: 2460A001
Dwg.No.: SWM-02

P:\Mitchell Family Ltd Partnership\Mitchell Farm\DESIGN\SSM\2640A001-POST.dwg Nov 19, 2018 - 1:36pm mumc

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Q

Revised February 28, 2022
October 7, 2021

Mr. Claudy Joinville
Project Engineer
Development Coordination
DelDOT Division of Planning
800 Bay Road
P O Box 778
Dover, DE 19903

RE:Agreement No. 1945F
Project Number T202069012
Traffic Impact Study Services
Task 4A-Mitchell Farm (Zwaanendael Farm)

Dear Mr. Joinville:

In October 2021, Johnson, Mirmiran and Thompson (JMT) completed the review of the Traffic Impact Study (TIS) for Mitchell Farm (Zwaanendael Farm), prepared by Davis, Bowen & Friedel, Inc. dated November 2019 and the TIS Addendum prepared by Davis, Bowen & Friedel, Inc. dated April 2020. The task was assigned as Task Number 4A and the report was prepared in a manner generally consistent with DelDOT's *Development Coordination Manual*.

Since that review, the developer has proposed land use changes and this letter has been revised to summarize the modifications. In addition, changes have been made to the DelDOT *US 9, Kings Highway, Dartmouth Drive to Freeman Highway* (DelDOT Contract No. T202212901) project as well as to the interim improvements proposed by the developer. This letter summarizes the recommendations based on what is now planned and proposed. A copy of the October 7, 2021 TIS review letter is attached for reference.

The TIS evaluates the impacts of a proposed mixed-use development in Sussex County, Delaware. The current site plan proposes 14,400 square feet of shopping center, 28,800 square feet of medical/dental office, and 267 multi-family homes. This plan represents a trip generation reduction of approximately 50%. Construction is anticipated to be complete in 2027. The existing 39,000 square foot medical/dental office building on Lot 1 would remain with the land use changes.

Table 1 summarizes the updated full build out of the site. The trip generation for the proposed development was determined by using the comparable land use and rates/equations contained in the *Trip Generation, 10th Edition: An ITE Informational Report*, published by the Institute of Transportation Engineers (ITE).

Table 1
Mitchell Farm (Zwaanendael Farm) Trip Generation – Updated Full Build Out

Land Use	ADT	AM Peak Hour			PM Peak Hour			SAT Peak Hour		
		In	Out	Total	In	Out	Total	In	Out	Total
267 Multifamily Low-Rise Houses (ITE Code 220)	1,978	28	93	121	90	52	142	101	86	187
67,800 SF Medical-Dental Office Building (ITE Code 720)*	2,517	123	35	158	65	167	232	120	90	210
14,400 SF Shopping Center (ITE Code 820)	1,610	9	5	14	62	68	130	70	64	134
Total Trips	**6,105**	**160**	**133**	**293**	**217**	**287**	**504**	**291**	**240**	**531**
Internal Capture	-	8	8	16	35	35	70	36	36	72
New Trips	**6,105**	**152**	**125**	**277**	**182**	**252**	**434**	**255**	**204**	**459**

*The existing 39,000 square-feet of medical-dental office building on Lot 1 would be maintained as part of the proposed development and is included in this calculation.

A comparison of the new trips between the updated land use changes and the TIS/TIS Addendum was conducted. As depicted in Table 2, the proposed updated land use changes is expected to generate significantly less traffic for the full build out of the site.

Table 2
Mitchell Farm (Zwaanendael Farm) Trip Generation Comparison – Full Build Out

Land Use	ADT	AM Peak Hour			PM Peak Hour			SAT Peak Hour		
		In	Out	Total	In	Out	Total	In	Out	Total
Updated Land Uses – New Trips	6,105	152	125	277	182	252	434	255	204	459
November 2019 TIS/April 2020 TIS Addendum – New Trips	9,268	356	166	522	271	548	819	617	478	1,095
Difference	**- 3,163**	**-204**	**-41**	**-245**	**-89**	**-296**	**-385**	**-362**	**-274**	**-636**

The site is located on the northeast corner of the intersection of Kings Highway (Sussex Road 268) and Gills Neck Road (Sussex Road 267). Two access points are proposed: one along Kings Highway directly opposite the proposed site access for the Beebe Medical development and one along Gills Neck Road opposite the site access for the proposed Gills Neck Village Center commercial project.

The site consists of two tax parcels, a 3-acre parcel known as Lot 1 and the remainder of the original parcel consisting of approximately 48 acres. Both parcels are zoned AR-1 (Agricultural Residential). Lot 1 is subject to a conditional use for a 39,000 square foot medical/dental office building which has been constructed. The remaining parcel (48 acres) is the subject of the following applications pending with Sussex County: a subdivision application, 2 change of zone applications (C-2 and MR), and a conditional use (MR parcel).

It should be noted that the 39,000 square foot medical/dental office building on Lot 1 that has been approved and constructed provides a Site Entrance along Gills Neck Road. The Site Entrance is constructed as a two-way stop-controlled intersection with one shared left turn/through lane and one right turn lane along the southbound Site Entrance approach (stop-controlled). One left turn lane and one through lane are provided along the eastbound Gills Neck Road approach and one through lane and one right turn lane are provided along the westbound Gills Neck Road approach. As part of the Lot 1 construction, sidewalks and bike lanes have been added along the Gills Neck Road site frontage and the Site Entrance along Gills Neck Road contains ADA compliant curb ramps.

DelDOT has several relevant and ongoing improvement projects and plans within the study area including the *Realignment of Old Orchard Road/Savannah Road/Wescoats Road* (DelDOT Contract No. T201609601) project; a signal at the Kings Highway and Clay Road intersection which was recently installed; the *Corridor Management Plan* for the Lewes Scenic and Historic Byway (October 2015); the *Kings Highway and Gills Neck Road Master Plan* dated September 2016; and the Delaware River and Bay Authority (DRBA) *Freeman Highway Rehabilitation* project (DelDOT Contract No. 20191619-00). Detailed information regarding these projects can be found in the October 7, 2021 TIS review letter.

As part of the DelDOT *US 9, Kings Highway, Dartmouth Drive to Freeman Highway* (DelDOT Contract No. T202212901) project, Kings Highway is proposed to be widened to provide two through lanes in each direction. DelDOT held a public workshop on February 23, 2022 to discuss the proposed improvements which include widening Kings Highway to provide two 11-foot lanes in each direction with 5-foot shoulders, and a curbed median would be provided to separate each direction of travel. Additionally, the following intersections along Kings Highway are proposed to be converted to roundabouts: Dartmouth Drive, Clay Road, Gills Neck Road, Beebe Medical Center/Mitchell Farm site entrance, and Freeman Highway. Pedestrian and transit improvements are also proposed. The project is in the design and planning stage with construction anticipated to start in Fiscal Year 2026. More information about the project can be found here: https://deldot.gov/projects/index.shtml?dc=details&projectNumber=T202212901

The October 7, 2021 TIS review evaluated cases with dualization of Kings Highway as it was then envisioned. DelDOT's current plan of the project is different.

Although the projected trip generation associated with the site has reduced significantly, the developer has agreed to the interim improvements similar to those identified in the October 2021 TIS review. The interim improvements would add a second left turn lane from Gills Neck Road onto southbound Kings Highway and a second through lane along southbound Kings Highway starting north of Gills Neck Road and ending at Clay Road. These improvements would potentially be replaced as part of the *US 9, Kings Highway, Dartmouth Drive to Freeman Highway* project. Details follow in the itemized list of recommendations.

Should Sussex County approve the proposed development, the following items should be incorporated into the site design and reflected on the record plan. All applicable agreements (i.e. letter agreements for off-site improvements and traffic signal agreements) should be executed prior to entrance plan approval for the proposed development. The following items should be implemented at the same time as site construction once all agency approvals and permits are secured and completed in accordance with DelDOT's Standards and Specifications.

1. The developer should provide a bituminous concrete overlay to the existing travel lanes along Kings Highway from north of Gills Neck Road to south of Clay Road in the area affected by the improvements discussed below in Item Number 4, including any auxiliary lanes, at DelDOT's discretion. DelDOT should analyze the existing lanes' pavement section and recommend an overlay thickness to the developer's engineer, if necessary.

2. The developer should construct a rights-in/rights-out site entrance for the proposed Mitchell Farm/Zwaanendael Farm development on Kings Highway directly across from the Beebe Medical entrance, approximately 1,550 feet north of the northeast tangent point of the Gills Neck Road/Cape Henlopen High School Entrance. The design of the entrance, including lengths of turn lanes, will be determined during the Entrance Plan review process.

3. The developer should maintain the existing site entrance for the proposed Mitchell Farm/Zwaanendael Farm development, approximately 650 feet east of the northeast tangent point of the Kings Highway intersection and directly across from the proposed Gills Neck Village Center Entrance to be consistent with the lane configurations shown in the table below:

Approach	Current Configuration	Proposed Configuration
Eastbound Gills Neck Road	One left turn lane and one through lane	One left turn lane, one through lane, and one right turn lane*
Westbound Gills Neck Road	One through lane and one right turn lane	One left turn lane**, one through lane, and one right turn lane
Northbound Gills Neck Village Center Entrance	Approach does not exist	One left turn/through lane and one right turn lane***
Southbound Site Entrance	One shared left turn/through lane and one right turn lane	No change

*Right turn lane to be built by others
**Left turn lane to be built by others
***Approach to be built by others

Based on DelDOT's *Development Coordination Manual*, the recommended minimum storage lengths (excluding taper) of the separate left turn and right turn lanes along Gills Neck Road are listed below. The calculated queue lengths from the HCS analysis can be accommodated within the recommended storage length.

Approach	Left Turn Lane	Right Turn Lane
Eastbound Gills Neck Road	120 feet*	190 feet**
Westbound Gills Neck Road	120 feet**	120 feet*

*This storage length is the existing storage length per the June 2018 Zwaanendael Farm Rezoning Sketch Plan and it should be maintained.
**To be built by others

As a TOA/TIS will be performed for the Gills Neck Village Center, the recommended lane configurations and storage lengths for the Gills Neck Village Center entrance may be modified based on those results.

4. The developer should improve the Kings Highway and Gills Neck Road/Cape Henlopen High School Entrance intersection to be consistent with the lane configurations shown in the table below:

Approach	Current Configuration	Proposed Configuration
Eastbound Cape Henlopen High School	One shared left turn/through lane and one right turn lane	No change
Westbound Gills Neck Road	One left turn lane, one through lane, and one right turn lane	Two left turn lanes and one shared through/right turn lane
Northbound Kings Highway	One left turn lane, one through lane, and one right turn lane	No change
Southbound Kings Highway	One left turn lane, one through lane, and one right turn lane	One left turn lane, two through lanes, and one right turn lane

The recommended minimum storage lengths (excluding taper) of the separate left turn and right turn lanes along Kings Highway and Gills Neck Road are listed below.

Approach	Left Turn Lane	Through/Right Turn Lane	Right Turn Lane
Northbound Kings Highway	250 feet*	-	180 feet*
Southbound Kings Highway	340 feet*	-	280 feet*
Westbound Gills Neck Road	420 feet	570 feet**	-

*Storage lengths match the existing storage lengths per field conditions and should be maintained.
**Storage length does not match the existing storage length and requires lengthening.

The developer would reconstruct Kings Highway south of the Gills Neck Road intersection to provide two through lanes and the rightmost through lane should transition to a right turn only lane at the Clay Road intersection. An SUP should be constructed along Kings Highway from Cape Henlopen High School to Clay Road.

The developer should donate any temporary construction easements needed to build and remove the interim improvements.

The developer should enter into a traffic signal agreement with DelDOT for the intersection of Kings Highway with Gills Neck Road to address the changes necessitated in the above improvements. The traffic signal agreement should include pedestrian signals, crosswalks, interconnection, and ITS equipment such as CCTV cameras at DelDOT's discretion. Prior to Entrance Plan approval, the developer should submit a plan to the DelDOT Development Coordination section depicting the design of Kings Highway from Gills Neck Road to Clay Road. The final design should be determined during the Entrance Plan review process.

5. The developer should enter into an agreement with DelDOT to fund an equitable portion of improvements to the intersections of Kings Highway with Dartmouth Drive, Clay Road, Gills Neck Road/Cape Henlopen High School Entrance, Atlantic Drive, Freeman Highway, Bay Breeze Drive, and the Site Entrance/Beebe Medical Center Entrance as part of the *US 9, Kings Highway, Dartmouth Drive to Freeman Highway* project. The developer should coordinate with DelDOT on the implementation and equitable cost sharing of the improvements.

6. The development should dedicate right-of-way along Kings Highway and Gills Neck Road in accordance with the functional classification of both roads to provide 50 feet from centerline on Kings Highway and 30 feet from centerline on Gills Neck Road. In addition, on Kings Highway, the development should reserve 30 feet parallel to Kings Highway to accommodate the *US 9, Kings Highway, Dartmouth Drive to Freeman Highway* project. Beyond these right-of-way dedications/reservations both roads should have a 15-foot-wide permanent easement.

7. The developer should enter into an agreement with DelDOT to fund an equitable portion of improvements to the intersection of Clay Road and Marsh Road as part of the *Realignment of Old Orchard Road/Savannah Road/Wescoats Road* (DelDOT Contract No. T201609601) project. The project will improve the intersection of Marsh Road and Clay Road to eliminate the existing skewed angle of the intersection. The developer should coordinate with DelDOT on the implementation and equitable cost sharing of the Clay Road and Marsh Road intersection improvements.

8. Vehicular interconnections or cross access easements between the on-site lots should be provided. The developer should coordinate with DelDOT's Development Coordination Section to determine the locations and feasibilities of the interconnections.

9. The following bicycle, pedestrian, and transit improvements should be included:

    a. A minimum fifteen-foot wide permanent easement from the edge of the right-of-way should be dedicated to DelDOT along the Kings Highway site frontage. Within the easement, the developer should construct a ten-foot wide shared-use path (SUP) to meet the shared-use path recently constructed for Lot 1. The developer should coordinate with DelDOT's Development Coordination and Project Development South sections during the plan review process to identify the exact location of the SUP.

    b. One or more accessways should be provided from the SUP into the site at locations to be defined during the Plan review process.

c. Where internal sidewalks are located alongside of parking spaces, a buffer, physical barrier or signage should be added to eliminate vehicular overhang onto the sidewalk.

d. The tie-in installed for Lot 1 should be removed once the SUP is extended along the entire property frontage.

e. ADA compliant curb ramps and marked crosswalks should be provided along the Kings Highway Site Entrance approach to Kings Highway. The use of diagonal curb ramps is discouraged.

f. Minimum five-foot wide bicycle lanes should be incorporated in the right turn lane and shoulder along the northbound Kings Highway approach to the Kings Highway Site Entrance.

g. Utility covers should be moved outside of any designated bicycle lanes and any proposed sidewalks/shared-use paths or should be flush with the pavement.

h. Bike parking should be provided near the building entrances. Where the building architecture provides for an awning or other overhang, the bike parking should be covered.

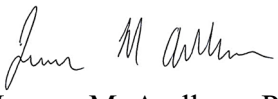
i. A Type 2 bus stop should be installed at the Kings Highway Site Entrance intersection. The developer should coordinate with DART and DelDOT on the location, design, as well as the amenities to provide.

Please note that this review generally focuses on capacity and level of service issues; additional safety and operational issues will be further addressed through DelDOT's Plan Review process.

Improvements in this TIS may be considered "significant" under DelDOT's *Work Zone Safety and Mobility Procedures and Guidelines*. These guidelines are available on DelDOT's website at https://www.deldot.gov//Publications/manuals/de_mutcd/index.shtml. For any additional information regarding the work zone impact and mitigation procedures during construction please contact Mr. Jeff VanHorn, Assistant Director for Traffic Operations and Management. Mr. VanHorn can be reached at (302) 659-4606 or by email at Jeffrey.VanHorn@delaware.gov.

Additional details on our review of the TIS are attached. Please contact me at (302) 266-9600 if you have any questions concerning this review.

Sincerely,
Johnson, Mirmiran, and Thompson, Inc.



Joanne M. Arellano, P.E., PTOE

cc: Mir Wahed, P.E., PTOE
Janna Brown, E.I.T.
Enclosure

October 7, 2021 TIS Review Letter

October 7, 2021

Mr. Troy Brestel
Project Engineer
Development Coordination
DelDOT Division of Planning
800 Bay Road
P O Box 778
Dover, DE 19903

RE: Agreement No. 1945F
Project Number T202069012
Traffic Impact Study Services
Task 4A-Mitchell Farm (Zwaanendael Farm)

Dear Mr. Brestel:

Johnson, Mirmiran and Thompson (JMT) has completed the review of the Traffic Impact Study (TIS) for Mitchell Farm (Zwaanendael Farm), prepared by Davis, Bowen & Friedel, Inc. dated November 2019 and the TIS Addendum prepared by Davis, Bowen & Friedel, Inc. dated April 2020. This task was assigned as Task Number 4A. The report is prepared in a manner generally consistent with DelDOT's *Development Coordination Manual*.

The TIS evaluates the impacts of a proposed mixed-use development in Sussex County, Delaware. The development would be comprised of 206,500 square feet of medical/office buildings, 60 single-family homes, and 150 multi-family (mid-rise) homes. Construction is anticipated to be complete in 2027.

The site is located on the northeast corner of the intersection of Kings Highway (Sussex Road 268) and Gills Neck Road (Sussex Road 267). Two full access points are proposed: one along Kings Highway directly opposite the proposed site access for the Beebe Medical development and one along Gills Neck Road opposite the site access for the proposed Gills Neck Village Center commercial project.

The site consists of two tax parcels, a 3-acre parcel known as Lot 1 and the remainder of the original parcel consisting of approximately 48 acres. Both parcels are zoned AR-1 (Agricultural Residential). Lot 1 is subject to a conditional use for a 39,000 square foot medical/office building which has been constructed. The remaining parcel (48 acres) is the subject of the following applications pending with Sussex County: a subdivision application, 3 change of zone applications (B-2, C-3, and MR), and a conditional use (MR parcel).

It should be noted that the 39,000 square foot medical/office building on Lot 1 that has been approved and constructed provides a Site Entrance along Gills Neck Road. The Site Entrance is constructed as a two-way stop-controlled intersection with one shared left turn/through lane and one right turn lane along the southbound Site Entrance approach (stop-controlled). One left turn

lane and one through lane are provided along the eastbound Gills Neck Road approach and one through lane and one right turn lane are provided along the westbound Gills Neck Road approach. As part of the Lot 1 construction, sidewalks and bike lanes have been added along the Gills Neck Road site frontage and the Site Entrance along Gills Neck Road contains ADA compliant curb ramps.

DelDOT has several relevant and ongoing improvement projects and plans within the study area including the *Realignment of Old Orchard Road/Savannah Road/Wescoats Road* (DelDOT Contract No. T201609601) project; a signal at the Kings Highway and Clay Road intersection which was recently installed; the *Corridor Management Plan* for the Lewes Scenic and Historic Byway (October 2015); the *Kings Highway and Gills Neck Road Master Plan* dated September 2016; the *US 9, Kings Highway, Dartmouth Drive to Freeman Highway* project; and the Delaware River and Bay Authority (DRBA) *Freeman Highway Rehabilitation* project (DelDOT Contract No. 20191619-00). Detailed information regarding these projects can be found later in this letter.

As part of the DelDOT *US 9, Kings Highway, Dartmouth Drive to Freeman Highway* project, Kings Highway is proposed to be widened to provide two through lanes in each direction. For the purposes of this letter, this DelDOT project will also be referred to as the Kings Highway Dual Lane project. At each intersection within the DelDOT project limits, improvement alternatives to achieve acceptable LOS in addition to dual lanes will be evaluated and subject to the typical DelDOT process, which includes public workshops.

While the specific alternatives to be examined in developing the DelDOT project have not been determined, improvement alternatives have been previously identified in several documents, including the 2007 DelDOT Planning *Kings Highway Corridor Study*, 2008 DelDOT TIS Review Letters, 2009 Letter Agreement, 2009 DelDOT Planning document *Kings Highway/Gills Neck Road Planned Area Improvements*, 2015 Lewes Scenic and Historic Byway *Corridor Management Plan*, and the 2016 DelDOT *Kings Highway/Gills Neck Road Master Plan* completed as part of the Lewes Scenic and Historic Byway.

The TIS evaluates the following future 2027 scenarios:

- Case 2a – Future 2027 without development and without Kings Highway Dual Lane project
- Case 3a – Future 2027 with development and without Kings Highway Dual Lane project
- Case 3b – Future 2027 with development and with Kings Highway Dual Lane project
- Case 3c – Future 2027 with development, with no site entrance along Kings Highway and without the completion of the Kings Highway Dual Lane project

JMT also included a future 2027 without development scenario with the completion of the Kings Highway Dual Lane project (Case 2b). Intersections outside the limits of the Kings Highway Dual Lane project were addressed as part of Case 2a, without development; and 3a with the development.

As part of the TIS Addendum, the following scenarios were evaluated and included in JMT's review:

- Case 2d – Future 2023 with development of Lot 1 (39,000 square feet of medical/dental office space) and without Kings Highway Dual Lane project
- Case 3d – Future 2023 with 117,000 square feet of medical/dental office space, including 39,000 square feet medical/dental office space from Lot 1, and without Kings Highway Dual Lane project and a rights-in site entrance along Kings Highway
- Case 3b – Future 2027 with development and with Kings Highway Dual Lane Project and Bay Breeze Drive left turn out restriction

Only intersections impacted by volume modifications during Cases 2d, 3d, and 3b were analyzed as part of the TIS Addendum. Specifically, for Cases 2d and 3d the following intersections were analyzed as part of JMT's review:

- Kings Highway (Sussex Road 268)/Site Entrance
- Gills Neck Road (Sussex Road 267)/Site Entrance
- Kings Highway/Atlantic Drive
- Kings Highway/Gills Neck Road/Cape Henlopen High School Entrance
- Kings Highway/Clay Road (Sussex Road 269)

For Case 3b, the following intersections were analyzed as part of JMT's review:

- Kings Highway/Bay Breeze Drive
- Kings Highway/Freeman Highway (Sussex Road 23)

The TIS Addendum also included an additional scenario for a Future 2021 condition with development of Lot 1 (39,000 square feet of medical/dental office space) and without Kings Highway Dual Lane project. However, per direction from DelDOT this scenario was not included in this review.

In addition to the TIS Addendum, analyses were conducted for the additional "Case 4 – Future 2027 with development and Kings Highway Dual Lane Project with Additional Improvements" scenario at intersections along Kings Highway which operated under constrained conditions despite the widening of the roadway (Case 3b). These Case 4 analyses were conducted for planning purposes only. The actual intersection improvements will be determined as part of the DelDOT project.

Based on our review of the TIS and assuming the DelDOT Kings Highway Dual Lane project will be completed by 2027 per the DelDOT CTP and discussions with DelDOT, we have the following comments and recommendations:

With the Kings Highway Dual Lane Project and individual intersection improvements alternatives to be evaluated as part of the DelDOT Project process that includes public workshops,

improvement alternatives to achieve acceptable LOS will be identified. The following intersections (signalized) or intersection approaches (unsignalized) exhibit level of service (LOS) deficiencies without the implementation of physical roadway and/or traffic control improvements. Any location and scenario shown with an "X" in the following tables indicates a LOS deficiency. Further details are provided later in this letter.

Intersection	Intersection Control	LOS Deficiencies Occur			Year	Case
		AM	PM	Saturday		
Kings Highway (Sussex Road 268)/Site Entrance/Beebe Medical Entrance	Unsignalized		X	X	2027	2a
					2027	2b
					2023	2d
		X	X	X	2027	3a
		X	X	X	2027	3b
			X	X	2027	3c
				X	2023	3d
	Roundabout				2027	2a
					2027	2b
			X	X	2027	3a
					2027	3b
			X	X	2027	3c
	Signalized				2027	2a
			X	X	2027	3a
					2027	3b
					2027	3c
					2027	3d
Gills Neck Road (Sussex Road 267)/Site Entrance/Gills Neck Village Center Entrance	Unsignalized				2027	2a
					2023	2d
		X*	X*	X*	2027	3a
		X*	X*	X*	2027	3b
		X*	X	X	2027	3c
			X*	X*	2023	3d

*LOS deficiency occurs along the Gills Neck Village Center Entrance approach which is to be built by others.

Intersection	Intersection Control	LOS Deficiencies Occur			Year	Case
		AM	PM	Saturday		
Kings Highway (Sussex Road 268)/Bay Breeze Drive	Unsignalized			X	2018	1
			X	X	2027	2a
			X	X	2027	2b
			X	X	2027	3a
					2027	3b
	Roundabout				2027	2a
					2027	2b
				X	2027	3a
					2027	3b
	Signalized				2027	2a
					2027	2b
					2027	3a
					2027	3b
Kings Highway/Freeman Highway (Sussex Road 23)	Unsignalized				2018	1
			X	X	2027	2a
			X	X	2027	3a
			X	X	2027	3b
	Signalized				2027	2
					2027	3
Kings Highway (Sussex Road 268)/Savannah Road (Sussex Road 18)	Unsignalized			X	2018	1
			X	X	2027	2a
			X	X	2027	3a
	Single Lane Roundabout				2027	2a
					2027	3a
	Signalized				2027	2a
					2027	3a

Intersection	Intersection Control	LOS Deficiencies Occur			Year	Case
		AM	PM	Saturday		
Savannah Road/Gills Neck Road/Front Street (Sussex Road 267)	Signalized			X	2018	1
				X	2027	2a
					2027	2a*
				X	2027	3a
					2027	3a*
	Single Lane Roundabout				2027	2a
					2027	3a
Kings Highway (Sussex Road 268)/Atlantic Drive	Unsignalized				2018	1
			X	X	2027	2a
				X	2027	2b
			X	X	2023	2d
			X	X	2027	3a
					2027	3b*
			X	X	2027	3c
			X	X	2023	3d
	Signalized				2027	2a
					2027	2b
					2023	2d
			X		2027	3a
					2027	3b*
					2027	3c
					2023	3d

Notes:
[1]At the intersection of Savannah Road/Gills Neck Road/Front Street, Case 2a* and 3a* are scenarios which include implementing an additional through lane along northbound and southbound Savannah Road.
[2]Atlantic Drive would provide only rights-in/rights-out movements along Kings Highway during Case 3b*.

Intersection	Intersection Control	LOS Deficiencies Occur			Year	Case
		AM	PM	Saturday		
Kings Highway/Gills Neck Road/Cape Henlopen High School	Signalized	X	X	X	2018	1
		X	X	X	2027	2a
		X			2027	2b
		X		X	2023	2d
		X	X	X	2027	3a
		X	X	X	2027	3b
		X	X	X	2027	3c
		X		X	2023	3d
					2027	4
Kings Highway/Clay Road (Sussex Road 269)	Unsignalized	X	X	X	2018	1
	Signalized	X	X	X	2027	2a
					2027	2b
			X		2023	2d
		X	X	X	2027	3a
			X		2027	3b
		X	X	X	2027	3c
			X	X	2023	3d
						4
Kings Highway (Sussex Road 268)/Dartmouth Drive (Sussex Road 268A)	Unsignalized		X	X	2018	1
		X	X	X	2027	2a
		X	X	X	2027	3a
	Single Lane Roundabout				2027	2a
					2027	3a
	Signalized				2027	2a
				X	2027	3a

As shown in the above table, ten study intersections are identified to exhibit LOS deficiencies. To minimize the impact of the deficiencies without the completion of the Kings Highway Dual Lane Project, interim condition improvements have been identified. The following section separates the analysis results based on the full build out of the site and the interim condition.

Interim Condition

As part of the TIS report, interim improvements without the implementation of the Kings Highway Dual Lane project were recommended at the Gills Neck Road/Cape Henlopen High School Entrance intersection. One scenario of the interim improvements included the modification of the westbound Gills Neck Road approach to provide two left turn lanes and a shared through/right turn lane and providing split phase signal operation along the eastbound and westbound approaches. In addition, the southbound Kings Highway approach would be modified to provide one left turn lane, one through lane, and one shared through/right turn lane.

Per a meeting between DelDOT and the developer on February 26, 2020, the interim improvements were further refined from those mentioned in the TIS and were identified to contain the following:

- Restripe the westbound Gills Neck Road approach to Kings Highway to provide two left turn lanes, and one shared through/right turn lane
- Lengthen the westbound Gills Neck Road shared through/right turn lane to provide 570 feet of storage.
- Restripe the southbound Kings Highway approach to Gills Neck Road to provide one left turn lane, one through lane, and one shared through/right turn lane
- Restripe southbound Kings Highway south of Gills Neck Road to provide two through lanes, the rightmost through lane would become a right-turn only lane onto Clay Road
- Construct a shared-use path along the western side of Kings Highway from the Gills Neck Road/Cape Henlopen High School Entrance intersection to the Clay Road intersection
- Provide a rights-in only entrance along Kings Highway across from the proposed Beebe Medical Center development
- Maintain the full movement entrance along Gills Neck Road across from the proposed Gills Neck Village Center access

The TIS Addendum analyzed these interim conditions based on a partial build of the site (117,000 square feet of medical/office space in 2023) without the Kings Highway Dual Lane project and with a rights-in access along Kings Highway (Case 3d). At the unsignalized Kings Highway/Site Entrance/Beebe Medical Site Entrance intersection, the eastbound Beebe Medical Site Entrance would experience capacity constraints during the Case 3d Saturday peak period (LOS F with 50.6 seconds of delay per vehicle). However, the projected 95th percentile queue length would be approximately 20 feet, which would have minimal impacts to the Beebe Medical Site Entrance.

At the unsignalized Gills Neck Road/Site Entrance/Gills Neck Village Center Entrance, the northbound Gills Neck Village Center Entrance would experience capacity constraints during the Case 3d weekday PM and Saturday peak periods (LOS F with 76.3 seconds of delay per vehicle). The projected 95th percentile queue length would be approximately 105 feet. As the design of this entrance would be the responsibility of the Gills Neck Village Center, additional improvements to mitigate the LOS deficiencies at this intersection during the Case 3d conditions would be unreasonable to assign to the Mitchell Farm developer.

At the unsignalized Kings Highway/Atlantic Drive intersection, the eastbound Atlantic Drive approach would experience capacity constraints during the Case 3d weekday PM and Saturday peak periods (LOS F with 164.8 seconds of delay per vehicle). However, the projected 95th percentile queue length would be approximately 80 feet, which could be accommodated within Atlantic Drive and not impact adjacent intersections.

At the signalized Kings Highway/Gills Neck Road/Cape Henlopen High School intersection, LOS deficiencies would continue to occur during the weekday AM, weekday PM, and Saturday peak periods under Case 3d conditions. However, the delays would reduce when compared to 2018 Existing Case 1 conditions during all peak periods. Specifically, during the Saturday peak period, the Case 1 delay is calculated to be 832.0 seconds per vehicle and under Case 3d conditions the delay would decrease to 366.8 seconds per vehicle. For the Saturday peak period, it should be noted that the proposed site entrance along Gills Neck Road is approximately 650 feet east of the Gills Neck Road/Kings Highway intersection. The projected 95th percentile queue length under Case 3d conditions during the Saturday peak period would be approximately 770 feet which would spillback past the Gills Neck Road site entrance. DBF analysis calculated a shorter 95th percentile queue length along westbound Gills Neck Road. However, the DBF analysis incorporated a longer signal cycle length and did not account for the signalization of Clay Road at Kings Highway.

With the future signalization of the Kings Highway/Clay Road intersection and the addition of an access on the easterly leg for the Gills Neck Village Center, the Kings Highway/Clay Road intersection would experience capacity constraints under Case 3d weekday PM and Saturday peak period conditions (LOS F with 165.2 seconds of delay per vehicle). The calculated 95th percentile queue length along the southbound Kings Highway approach to Clay Road would be approximately 2,300 feet during the weekday PM peak period and would impact operations at intersections upstream including the Kings Highway/Gills Neck Road intersection.

As interim improvements would reduce the delay at the Kings Highway and Gills Neck Road intersection prior to the completion of the Kings Highway Dual Lane project and improve operations along Kings Highway between the Beebe Medical Site Entrance and Clay Road compared to existing conditions, it is recommended that the developer implement the interim improvements as part of the partial build of the site (117,000 square feet of medical/office space).

Full Build Out of Site

The unsignalized Site Entrance along Kings Highway is proposed approximately 1,550 feet north of the northeast tangent point of the Gills Neck Road/Cape Henlopen High School Entrance intersection and exhibits LOS deficiencies during the AM, PM, and Saturday peak hours under future conditions with or without the proposed development and without completion of the Kings Highway Dual Lane project. These deficiencies occur along the eastbound Beebe Medical Entrance and the westbound Site Entrance approaches.

The provision of a signal and the completion of the Kings Highway Dual Lane project would improve the intersection to operate at LOS C (25.0 seconds of delay per vehicle) or better during all peak hours under future conditions, with or without the proposed development. However, these improvements should be part of the larger long-term improvement Kings Highway Dual Lane project. Therefore, we do not recommend the developer implement any improvements at this intersection. It is recommended that the developer coordinate with DelDOT on the implementation and equitable cost sharing of the Kings Highway Dual Lane project including the installation of a signal at this intersection.

The unsignalized Atlantic Drive intersection with Kings Highway exhibits LOS deficiencies during the PM and Saturday peak hours under future conditions, with or without the proposed development and without the completion of the Kings Highway Dual Lane project. These deficiencies can be mitigated through the completion of the Kings Highway Dual Lane project or signalization of the intersection. However, due to the proximity of the Atlantic Drive intersection to the proposed Kings Highway Site Entrance intersection and the Kings Highway/Gills Neck Road intersection, it is suggested that the Atlantic Drive approach to Kings Highway be modified to rights-in/rights-out only and remain unsignalized. The intersection will operate at acceptable LOS C (18.1 seconds of delay per vehicle) or better with a rights-in/rights out only restriction.

Additionally, interconnection should be provided between Henlopen Gardens and the proposed Beebe Medical development to minimize the number of U-turn movements at the adjacent signalized intersections. If interconnection is not feasible, U-turn movements could be provided at the adjacent signalized intersections as part of the Kings Highway Dual Lane project. These improvements should be part of the larger long-term improvement Kings Highway Dual Lane project. Therefore, we do not recommend the developer implement any improvements at this intersection. It is recommended that the developer coordinate with DelDOT on the implementation and equitable cost sharing of the Kings Highway Dual Lane project.

The signalized Gills Neck Road/Cape Henlopen High School Entrance intersection with Kings Highway exhibits LOS deficiencies during the AM, PM, and Saturday peak hours under existing and future conditions, with or without the proposed development and without the completion of the Kings Highway Dual Lane project. These deficiencies could be mitigated by the provision of one left turn lane, one shared left turn/through lane, and one right turn lane along westbound Gills Neck Road, the provision of one left turn lane, one through lane, and one right turn lane along the eastbound Cape Henlopen High School Entrance approach, the modification of the signal phasing along the eastbound and westbound approaches to split phase, and the completion of the Kings Highway Dual Lane project. These improvements would improve the intersection to operate at LOS D (54.9 seconds of delay per vehicle). The improvements that require widening of the roadway should be part of the larger long-term improvement Kings Highway Dual Lane project. Therefore, we recommend the developer implement only the interim improvements at this intersection and coordinate with DelDOT on the equitable cost sharing of the Kings Highway Dual Lane project.

The unsignalized Site Entrance along Gills Neck Road is proposed approximately 650 feet east of the northeast tangent point of the Kings Highway intersection and exhibits LOS deficiencies during the AM, PM, and Saturday peak hours under future conditions with the proposed development and with or without the completion of the Kings Highway Dual Lane project. Specifically, these deficiencies are only projected along the northbound Gills Neck Village Center Entrance with delays during the PM peak of 201.4 seconds per vehicle under Cases 3a and 3b conditions, and the calculated 95th percentile queue length would be approximately 113 feet. Although long delays are expected, they would occur at the Gills Neck Village Center Entrance and should not be the responsibility of the Mitchell Farm developer to mitigate as the Site Entrance for the Mitchell Farm (Zwaanendael Farm) site has already been constructed. As such, it is recommended that the Mitchell Farm developer maintain the full access at the Site Entrance.

The formerly unsignalized intersection of Clay Road with Kings Highway exhibited LOS deficiencies during the AM, PM, and Saturday peak hours under existing and future conditions, with or without the proposed development and with or without the completion of the Kings Highway Dual Lane project. DelDOT recently converted the intersection to a signalized intersection consistent with the recommendations from DelDOT's *Signal Justification Study US9 – Kings Highway (S268) & Clay Road (S269)*. The study also recommended a long-term improvement to determine the feasibility of converting the intersection to a roundabout or installing appropriate turn lanes as part of a larger project such as the Kings Highway Dual Lane project. Additionally, the Gills Neck Village Center development will construct a westbound approach to the intersection.

A TIS/TOA has not been completed for the Gills Neck Village Center development as previously contemplated. However, per the January 15, 2008, TIS review letter performed by McCormick Taylor for the original development proposed at the site (the Gills Neck Road Subdivision, Townsend Property), the westbound approach was recommended to provide two left turn lanes, one through lane, and one right turn lane opposite Clay Road. With the signalization of the intersection, the completion of the Kings Highway Dual Lane project, and the addition of auxiliary lanes along all approaches, the intersection would operate at acceptable LOS. Therefore, we recommend the Mitchell Farm developer only implement the interim improvements at the intersection. However, it is recommended that the Mitchell Farm developer coordinate with DelDOT on the implementation and equitable cost sharing of the improvements at this intersection as part of the Gills Neck Village Center development and the Kings Highway Dual Lane project. The improvements should include the provision of two left turn lanes along the westbound Gills Neck Village Center approach.

The unsignalized intersection of Kings Highway and Dartmouth Drive exhibits LOS deficiencies during the AM, PM, and Saturday peak hours under existing and future conditions with or without the development and with or without the Kings Highway Dual Lane project. The deficiencies at this intersection could be mitigated through the provision of a roundabout or a signal.

Per the January 15, 2008, TIS review letter for the Gills Neck Road Subdivision, improvements were recommended to modify the intersection to a single-lane roundabout with a bypass lane for

the southbound Kings Highway right-turn movement and a bypass lane for the northbound Kings Highway through movement. Should a roundabout be determined to be infeasible at this location, the January 15, 2008, TIS review letter also recommended the eastbound Dartmouth Drive approach be modified to provide an exclusive left-turn lane and a shared left turn/right turn lane as well provide a second receiving lane along northbound Kings Highway. However, these improvements are outside the scope of this TIS, as any extensive improvements to this intersection should be part of a larger long-term improvement project (such as the Kings Highway Dual Lane project). Therefore, we do not recommend the developer implement any improvements at this intersection. It is recommended that the developer coordinate with DelDOT on the equitable cost sharing of the Kings Highway Dual Lane project including either the installation of a roundabout or a signal at this intersection.

The unsignalized Bay Breeze Drive intersection with Kings Highway exhibits LOS deficiencies during the PM and Saturday peak hours under existing and future conditions, with or without the proposed development and with or without the completion of the Kings Highway Dual Lane project. These deficiencies could be mitigated through the provision of a signal or by restricting left-out movements from Bay Breeze Drive. However, these improvements are outside the scope of this TIS, as any extensive improvements to this intersection should be part of a larger long-term improvement project (such as the Kings Highway Dual Lane project). Therefore, we do not recommend the developer implement any improvements at this intersection.

The unsignalized Freeman Highway intersection with Kings Highway exhibits LOS deficiencies during the PM and Saturday peak hours under future conditions, with or without the proposed development and with or without the completion of the Kings Highway Dual Lane project. These deficiencies could be mitigated through the provision of a signal. However, these improvements are outside the scope of this TIS, as any extensive improvements to this intersection should be part of a larger long-term improvement project (such as the Kings Highway Dual Lane project). Therefore, we do not recommend the developer implement any improvements at this intersection.

It should be noted that the TIS analyzed the Freeman Highway intersection with Kings Highway with a different methodology from that used by JMT. Based on coordination with DelDOT's Planning and Traffic Studies Sections, it was agreed that JMT's approach to analyzing this intersection was more appropriate. However, the TIS methodology could be deemed the more appropriate approach if a gap study was conducted to further validate this method.

The unsignalized Savannah Road intersection with Kings Highway exhibits LOS deficiencies during the PM and Saturday peak hours under existing and future conditions with or without the proposed development. These deficiencies could be mitigated through the provision of a single lane roundabout or a signal. However, a roundabout is not feasible at this location due to the existing buildings adjacent to the intersection. Additionally, the deficiencies occur along the eastbound 3rd Street approach and the 95th percentile queue length along this approach under Case 3 conditions during the Saturday peak hour is approximately 255 feet which would not extend into the adjacent Chestnut Street intersection. Therefore, we do not recommend the developer implement any improvements at this intersection.

The signalized Front Street/Gills Neck Road intersection with Savannah Road exhibits LOS deficiencies during the Saturday peak hour under existing and future condition with or without the proposed development. These deficiencies could be mitigated through the provision of a single lane roundabout or an additional through lane along northbound and southbound Savannah Road. However, a roundabout is not feasible at this location due to the existing buildings adjacent to the intersection and widening Savannah Road may not be feasible at this location due to the existing draw bridge located along the northerly leg. Therefore, we do not recommend the developer implement any improvements at this intersection.

Should Sussex County approve the proposed development, the following items should be incorporated into the site design and reflected on the record plan. All applicable agreements (i.e. letter agreements for off-site improvements and traffic signal agreements) should be executed prior to entrance plan approval for the proposed development.

Interim Improvements

The following items should be incorporated as part of the partial build out of the site (117,000 square feet of medical/office space) or any land use not projected to exceed the daily or peak hour site traffic based on the partial build out of the site.

1. The developer should provide a bituminous concrete overlay to the existing travel lanes along the northbound Kings Highway site frontage in the area affected by entrance plan construction, including any auxiliary lanes, at DelDOT's discretion. DelDOT should analyze the existing lanes' pavement section and recommend an overlay thickness to the developer's engineer, if necessary.

2. The developer should construct a rights-in only site entrance for the proposed Mitchell Farm/Zwaanendael Farm development on Kings Highway, approximately 1,550 feet north of the northeast tangent point of the Gills Neck Road/Cape Henlopen High School Entrance intersection to be consistent with the lane configurations shown in the table below:

Approach	Current Configuration	Proposed Configuration
Eastbound Beebe Medical Entrance	Approach does not exist	One left turn lane and one right turn lane*
Westbound Site Entrance	Approach does not exist	One receiving lane for the rights-in movements**
Northbound Kings Highway	One through lane	One shared left turn/through lane and one right turn lane**
Southbound Kings Highway	One through lane	One through lane and one right turn lane*

*To be built by others

**To be built by developer by 2023 before the completion of the Mitchell Farm/Zwaanendael Farm medical/office space.

Based on DelDOT's *Development Coordination Manual*, the recommended minimum storage lengths (excluding taper) of the separate left turn and right turn lanes along Kings Highway are listed below. The calculated queue lengths from the HCS analysis can be accommodated within the recommended storage length.

Approach	Right Turn Lane
Northbound Kings Highway	290 feet
Southbound Kings Highway	115 feet*

*This storage length is the proposed storage length on the October 4, 2019, plans for the Beebe Medical Center and it should be built by the developer of that project.

The developer should submit a plan to DelDOT's Development Coordination section depicting the design of the signalized intersection as it could exist in 2027 and show the interim improvements in that context. The final design of the site entrance should be determined during the Entrance Plan review process.

3. The developer should maintain the existing site entrance for the proposed Mitchell Farm/Zwaanendael Farm development, approximately 650 feet east of the northeast tangent point of the Kings Highway intersection and directly across from the proposed Gills Neck Village Center Entrance to be consistent with the lane configurations shown in the table below:

Approach	Current Configuration	Proposed Configuration
Eastbound Gills Neck Road	One left turn lane and one through lane	One left turn lane, one through lane, and one right turn lane*
Westbound Gills Neck Road	One through lane and one right turn lane	One left turn lane**, one through lane, and one right turn lane
Northbound Gills Neck Village Center Entrance	Approach does not exist	One left turn/through lane and one right turn lane***
Southbound Site Entrance	One shared left turn/through lane and one right turn lane	No change

*Right turn lane to be built by others
**Left turn lane to be built by others
***Approach to be built by others

Based on DelDOT's *Development Coordination Manual*, the recommended minimum storage lengths (excluding taper) of the separate left turn and right turn lanes along Gills Neck Road are listed below. The calculated queue lengths from the HCS analysis can be accommodated within the recommended storage length.

Approach	Left Turn Lane	Right Turn Lane
Eastbound Gills Neck Road	120 feet*	190 feet**
Westbound Gills Neck Road	120 feet**	120 feet*

*This storage length is the existing storage length per the June 2018 Zwaanendael Farm Rezoning Sketch Plan and it should be maintained.
**To be built by others

As a TOA/TIS will be performed for the Gills Neck Village Center, the recommended lane configurations and storage lengths for the Gills Neck Village Center entrance may be modified based on those results.

4. The developer should restripe the Kings Highway and Gills Neck Road/Cape Henlopen High School Entrance intersection to be consistent with the lane configurations shown in the table below:

Approach	Current Configuration	Proposed Configuration
Eastbound Cape Henlopen High School	One shared left turn/through lane and one right turn lane	No change
Westbound Gills Neck Road	One left turn lane, one through lane, and one right turn lane	Two left turn lanes and one shared through/right turn lane
Northbound Kings Highway	One left turn lane, one through lane, and one right turn lane	No change
Southbound Kings Highway	One left turn lane, one through lane, and one right turn lane	One left turn lane, one through lane, and one shared through/right turn lane

The recommended minimum storage lengths (excluding taper) of the separate left turn and right turn lanes along Kings Highway and Gills Neck Road are listed below.

Approach	Left Turn Lane	Through/Right Turn Lane	Right Turn Lane
Northbound Kings Highway	250 feet*	-	180 feet*
Southbound Kings Highway	340 feet*	550 feet	-
Westbound Gills Neck Road	420 feet	570 feet**	-

*Storage lengths match the existing storage lengths per field conditions and should be maintained.
**Storage length does not match the existing storage length and requires lengthening.

The developer should restripe Kings Highway south of the Gills Neck Road intersection to provide two through lanes and the rightmost through lane should transition to a right turn only lane at the Clay Road intersection. The SUP should be constructed along Kings Highway to connect to Clay Road and the shoulder along Kings Highway should be eliminated.

The developer should enter into a traffic signal agreement with DelDOT for the intersection of Kings Highway with Gills Neck Road. The traffic signal agreement should include pedestrian signals, crosswalks, interconnection, and ITS equipment such as CCTV cameras at DelDOT's discretion. Prior to Entrance Plan approval, the developer should submit a plan to DelDOT Development Coordination section depicting the design of Kings Highway from Gills Neck Road to Clay Road. The final design should be determined during the Entrance Plan review process.

Full Build Out Improvements

The following items should be incorporated as part of the full build out of the site.

5. The developer should enter into an agreement with DelDOT to fund an equitable portion of improvements to the intersections of Kings Highway with Dartmouth Drive, Clay Road, Gills Neck Road/Cape Henlopen High School Entrance, Atlantic Drive, Freeman Highway, Bay Breeze Drive, and the Site Entrance/Beebe Medical Center Entrance as part of the *US 9, Kings Highway, Dartmouth Drive to Freeman Highway* project. The developer should coordinate with DelDOT on the implementation and equitable cost sharing of the improvements. The amount of right-of-way dedicated by the property owner for the DelDOT Project in excess of 50 feet from the centerline on Kings Highway and 40 feet from the centerline on Gills Neck Road that otherwise would have been purchased as part of the DelDOT project would be considered as part of the contribution towards the DelDOT project.

6. The developer should enter into an agreement with DelDOT to fund an equitable portion of improvements to the intersection of Clay Road and Marsh Road as part of the *Realignment of Old Orchard Road/Savannah Road/Wescoats Road* (DelDOT Contract No. T201609601) project. The project will improve the intersection of Marsh Road and Clay Road to eliminate the existing skewed angle of the intersection. The developer should coordinate with DelDOT on the implementation and equitable cost sharing of the Clay Road and Marsh Road intersection improvements.

7. Vehicular interconnections or cross access easements between the on-site lots should be provided. The developer should coordinate with DelDOT's Development Coordination Section to determine the locations and feasibilities of the interconnections.

8. The following bicycle, pedestrian, and transit improvements should be included:

    a. A minimum fifteen-foot wide permanent easement from the edge of the right-of-way should be dedicated to DelDOT along the Kings Highway site frontage. Within the easement, the developer should construct a ten-foot wide shared-use path (SUP) to meet the shared-use path recently constructed for Lot 1. The developer should coordinate with DelDOT's Development Coordination section during the plan review process to identify the exact location of the SUP.

    b. An accessway should be provided from the SUP into the site for Lots 1 through 5.

    c. Where internal sidewalks are located alongside of parking spaces, a buffer, physical barrier or signage should be added to eliminate vehicular overhang onto the sidewalk.

    d. The tie-in installed for Lot 1 should be removed once the SUP is extended along the entire property frontage.

    e. ADA compliant curb ramps and marked crosswalks should be provided along the Kings Highway Site Entrance approach to Kings Highway. The use of diagonal curb ramps is discouraged.

    f. Minimum five-foot wide bicycle lanes should be incorporated in the right turn lane and shoulder along the northbound Kings Highway approach to the Kings Highway Site Entrance.

    g. Utility covers should be moved outside of any designated bicycle lanes and any proposed sidewalks/shared-use paths or should be flush with the pavement.

h. Bike parking should be provided near the building entrances. Where the building architecture provides for an awning or other overhang, the bike parking should be covered.

i. A Type 2 bus stop should be installed at the Kings Highway Site Entrance intersection. The developer should coordinate with DART and DelDOT on the location, design, as well as the amenities to provide.

Please note that this review generally focuses on capacity and level of service issues; additional safety and operational issues will be further addressed through DelDOT's Plan Review process.

Improvements in this TIS may be considered "significant" under DelDOT's *Work Zone Safety and Mobility Procedures and Guidelines*. These guidelines are available on DelDOT's website at https://www.deldot.gov//Publications/manuals/de_mutcd/index.shtml. For any additional information regarding the work zone impact and mitigation procedures during construction please contact Mr. Jeff VanHorn, Assistant Director for Traffic Operations and Management. Mr. VanHorn can be reached at (302) 659-4606 or by email at Jeffrey.VanHorn@delaware.gov.

Additional details on our review of the TIS are attached. Please contact me at (302) 266-9600 if you have any questions concerning this review.

Sincerely,
Johnson, Mirmiran, and Thompson, Inc.

Joanne M. Arellano, P.E., PTOE

cc: Mir Wahed, P.E., PTOE
Janna Brown, E.I.T.

Enclosure

General Information

Report date: November 2019
Prepared by: Davis, Bowen & Friedel, Inc.
Prepared for: The Mitchell Family Ltd. Partnership
Tax Parcel: 335-8.00-37.00
Generally consistent with DelDOT's *Development Coordination Manual (DCM)*: Yes

Project Description and Background

Description: The developer seeks to develop 206,500 square feet of medical-dental office space, 60 single-family detached houses, and 150 multi-family mid-rise dwelling units.
Location: The subject site is located on the northeast corner of the intersection of Kings Highway (Sussex Road 268) and Gills Neck Road (Sussex Road 267) in Sussex County, Delaware.
Amount of Land to be developed: An approximately 52.71-acre parcel.
Land Use approval(s) needed: Rezoning and Entrance Plan.
Proposed completion date: 2027.
Proposed access location: Two full access points are proposed: one along Kings Highway directly opposite the proposed site access for the Beebe Medical development and one along Gills Neck Road opposite the site access for the proposed Gills Neck Village Center commercial project.

Daily Traffic Volumes:

- 2018 Average Annual Daily Traffic on Kings Highway: 13,019 vehicles per day (non-Summer)
- 2018 Average Annual Daily Traffic on Gills Neck Road: 4,995 vehicles per day (non-Summer)

Site Map

**Graphic is an approximation based on the Rezoning Sketch Plan prepared by* Davis, Bowen & Friedel, Inc. *dated June 2018.*

Relevant and On-going Projects

DelDOT has several relevant and ongoing improvement projects within the study area including the *Realignment of Old Orchard Road/Savannah Road/Wescoats Road* (DelDOT Contract No. T201609601) project. The project will realign Old Orchard Road to intersect Savannah Road at its intersection with Wescoats Road. Additionally, the project will improve the intersection of Marsh Road and Clay Road to eliminate the existing skewed angle of the intersection. Construction is anticipated to begin in 2023.

Per direction from the DelDOT Traffic Section, a signal at the Kings Highway and Clay Road intersection was recently installed. DelDOT completed the *Signal Justification Study US9 – Kings Highway (S268) & Clay Road (S269)* in February 2020. As part of the study, field observations were conducted, existing sight distances were assessed, crashes were reviewed, intersection analyses were performed, and warrant analyses based on the DE MUTCD were evaluated. The

crash evaluation reviewed data from August 7, 2014 to January 23, 2020 which identified one fatal angle crash. Four of the DE MUTCD Traffic Signal Warrants were met which included the eight-hour, four-hour, and peak-hour vehicular warrants as well as the Alternative Crash Experience Warrant (IA-19.3). Various improvement options were evaluated as part of the study, including the implementation of all-way-stop-control and installation of a roundabout or signal. The study recommended the short-term improvement to install a traffic signal. A long-term improvement to determine the feasibility of converting the intersection to a roundabout or installing appropriate turn lanes was recommended.

In October 2015 a collaborative effort by DelDOT, Delaware Greenways, and other groups developed the *Corridor Management Plan* for the Lewes Scenic and Historic Byway. This was done as part of the *Delaware Byways Program*. The *Delaware Byways Program* includes the identification, promotion, preservation, and enhancement of Delaware roadways with at least one of the following qualities: scenic, historic, natural, cultural, recreational, and archaeological. The Lewes Scenic and Historic Byway traverses through the City of Lewes and extends into Sussex County on the following roads: New Road, Pilot Town Road, Savannah Road, Cape Henlopen Drive, Gills Neck Road, and Kings Highway. Recommendations from the plan for Kings Highway include considering options for narrow or wide medians and opportunities for linking together isolated parcels in a gridded circulation network. Additionally, at the Kings Highway/Gills Neck Road intersection, the plan recommends the consideration of options that accommodate planned pedestrian and bicycle pathways and movements. More information about the Corridor Management Plan can be found here: https://deldot.gov/Programs/byways/index.shtml?dc=cmp

The *Kings Highway and Gills Neck Road Master Plan* dated September 2016 is an early action project of the Lewes Scenic and Historic Byway Corridor Management Plan. The purpose of the Master Plan is to establish a vision for Kings Highway and Gills Neck Road. The Master Plan recommends two travel lanes per direction and a boulevard design along Kings Highway. From north of Gills Neck Road to Freeman Highway, the Master Plan recommends one travel lane per direction with a center turn lane along Kings Highway. Additionally, a roundabout and a signal are recommended at the Dartmouth Drive and Clay Road intersections, respectively. Along Gills Neck Road, one travel lane per direction with a boulevard design is recommended. More information about the Master Plan can be found here:
https://deldot.gov/Programs/byways/pdfs/lewes_cmp/KHGN_MasterPlan_092616finalrx.pdf?cache=1582120567909

The *US 9, Kings Highway, Dartmouth Drive to Freeman Highway* project is planned to implement the improvements recommended by the Master Plan. A DelDOT Contract Number does not exist for the recommended improvements yet. Based on the proposed CTP FY 20 thru FY 26 Spending Plan, design is projected to start Fiscal Year 2022 and construction is projected to start Fiscal Year 2026.

Additionally, the Delaware River and Bay Authority (DRBA) *Freeman Highway Rehabilitation* project (Contract No. 20191619-00) includes the repaving of Freeman Highway from south of the intersection with Bay Breeze Drive to the intersection with Cape Henlopen Drive.

Livable Delaware
(Source: Delaware Strategies for State Policies and Spending, 2015)

Location with respect to the Strategies for State Policies and Spending Map of Delaware:
The proposed development is located within the Investment Level 1 area.

Investment Level 1

These areas are often municipalities, towns, or urban/urbanizing places in counties where density is generally higher than in surrounding areas. In Investment Level 1 Areas, state investments and policies should support and encourage a wide range of uses and densities, promote other transportation options, foster efficient use of existing public and private investments, and enhance community identity and integrity. Overall, it is the state's intent to use its spending and management tools to maintain and enhance community character, to promote well-designed and efficient new growth, and to facilitate redevelopment in Investment Level 1 Areas.

In Level 1 Areas the state's first priority will be for preserving existing facilities and making safety improvements. Level 1 areas will also be the highest priority for context sensitive transportation system capacity enhancements, transit-system enhancements, ADA accessibility, and for closing gaps in the pedestrian system, including the Safe Routes to School projects. Further, Level 1 areas are the first priority for planning projects and studies, bicycle facilities, signal-system enhancements, and the promotion of interconnectivity between neighborhoods and public facilities.

Proposed Development's Compatibility with Livable Delaware:
The proposed development is located in the Investment Level 1 area. According to Livable Delaware, Level 1 areas support and encourage a wide range of uses and enhance community identity and integrity. The proposed project is a mixed-use development that will support the ongoing development in the surrounding area. Therefore, the proposed development is generally consistent with the 2015 update of the Livable Delaware "Strategies for State Policies and Spending."

Comprehensive Plans
(Source: Sussex County March 2019 Comprehensive Plan)

Sussex County Comprehensive Plan:
Per the *Sussex County Comprehensive Plan Future Land Use Map,* the proposed development is in an area designated as Coastal Area.

Proposed Development's Compatibility with the Sussex County Comprehensive Plan:
Per the *Sussex County Comprehensive Plan Future Land Use Map,* the proposed development is in an area designated as Coastal Area. A range of housing types are appropriate in Coastal Areas, including single-family homes and multifamily units, as well as office and mixed-use developments. Therefore, the proposed development is generally consistent with the *Sussex County March 2019 Comprehensive Plan.*

Trip Generation

The trip generation for the proposed development was determined by using the comparable land use and rates/equations contained in the *Trip Generation, 10th Edition: An ITE Informational Report*, published by the Institute of Transportation Engineers (ITE) for ITE Land Use Code 210 (Single-Family Detached Housing), Land Use Code 221 (Multifamily Mid-Rise Housing), and Land Use Code 720 (Medical-Dental Office Building). The trip generation was approved by DelDOT during the PTIS review as well as the review of the TIS Addendum.

Table 1
Mitchell Farm (Zwaanendael Farm) Trip Generation – Full Build Out

Land Use	**ADT**	**AM Peak Hour**			**PM Peak Hour**			**SAT Peak Hour**		
		In	Out	Total	In	Out	Total	In	Out	Total
60 Single-Family Detached Houses (ITE Code 210)	650	12	35	47	39	23	62	37	31	68
150 Multifamily Mid-Rise Houses (ITE Code 221)	816	13	38	51	40	25	65	34	36	70
206,500 SF Medical-Dental Office Building (ITE Code 720)	7,846	332	94	426	197	505	702	552	417	969
Total Trips	**9,312**	**357**	**167**	**524**	**276**	**553**	**829**	**623**	**484**	**1,107**
Internal Capture	44	1	1	2	5	5	10	6	6	12
New Trips	**9,268**	**356**	**166**	**522**	**271**	**548**	**819**	**617**	**478**	**1,095**

Mitchell Farm (Zwaanendael Farm) Trip Generation – Partial Build Out (Case 3d)

Land Use	**ADT**	**AM Peak Hour**			**PM Peak Hour**			**SAT Peak Hour**		
		In	Out	Total	In	Out	Total	In	Out	Total
117,000 SF Medical-Dental Office Building (ITE Code 720)	1,003	200	57	257	112	287	399	300	227	527

Overview of TIS

Intersections examined:

1. Kings Highway (Sussex Road 268)/Site Entrance/Beebe Medical Site Entrance
2. Gills Neck Road (Sussex Road 267)/Site Entrance/Gills Neck Village Center Site Entrance
3. Kings Highway/Bay Breeze Drive
4. Kings Highway/Freeman Highway (Sussex Road 23)
5. Kings Highway/Savannah Road (Sussex Road 18)
6. Savannah Road/Gills Neck Road/Front Street (Sussex Road 267)
7. Kings Highway/Atlantic Drive *(City of Lewes)*
8. Kings Highway/Gills Neck Road/Cape Henlopen High School Entrance
9. Kings Highway/Clay Road (Sussex Road 269)
10. Clay Road/Marsh Road (Sussex Road 269B)
11. Kings Highway/Dartmouth Drive (Sussex Road 268A)

Conditions examined:

TIS

1. Case 1 – Existing (2018)
2. Case 2a – 2027 without development and without the Kings Highway dual lanes project
   Case 2b – 2027 without development and with the Kings Highway dual lanes project
3. Case 3a – 2027 with development and without the Kings Highway dual lanes project
   Case 3b – 2027 with development and with the Kings Highway dual lanes project
   Case 3c – 2027 with development, without the Kings Highway dual lanes project, and without an entrance along Kings Highway
4. Case 4 – 2027 with development and with the Kings Highway dual lanes project with additional improvements

TIS Addendum

1. Case 2d – Future 2023 with development of Lot 1 (39,000 square feet of medical/dental office space) and without the Kings Highway Dual Lane Project
2. Case 3d – Future 2023 with 117,000 square feet of medical/dental office space, without the Kings Highway Dual Lane Project, and rights-in site entrance on Kings Highway

Committed Developments considered:

1. Gills Neck Village Center (75,000 square foot shopping center, 213 single family homes on the residual lands)
2. Governors (287 single-family detached houses, 136 multi-family low-rise dwelling units)

3. Beebe Medical (175-unit continuing care retirement, 140 multi-family low-rise dwelling units)
4. Showfield (252 single-family detached houses: *86 units proposed in the City of Lewes, 166 units recorded in Sussex County*)
5. White's Pond Meadow-Gills Neck Road (79 single-family detached homes)
6. Admirals Chase (26 semi-detached houses)
7. Cape Henlopen High School Expansion (400 students)
8. The Moorings at Lewes, formerly known as Cadbury, expansion (32-unit Continuing Care Retirement Center)

*Note: Committed development information provided in the TIS supersedes the information provided in the July 3, 2018 DelDOT Scoping Meeting Memorandum. DelDOT provided future year 2027 Case 2 projections based on the DelDOT Travel Demand Model that includes background growth as well as traffic from the eight committed developments.

Peak hours evaluated: Weekday morning, Weekday evening, and Summer Saturday midday peak hours.

Intersection Descriptions

1. **Kings Highway (Sussex Road 268)/Site Entrance/Beebe Medical Site Entrance**
   Type of Control: Proposed two-way stop-controlled intersection (four-legged intersection)
   Eastbound Approach: (Beebe Site Access) Proposed one shared left turn/through lane and one right turn lane, stop-controlled
   Westbound Approach: (Site Entrance) Proposed one shared left turn/through lane and one right turn lane, stop-controlled
   Northbound Approach: (Kings Highway) Existing one through lane; proposed one left turn lane, one through lane, and one right turn lane
   Southbound Approach: (Kings Highway) Existing one through lane; proposed one left turn lane, one through lane, and one right turn lane

2. **Gills Neck Road (Sussex Road 267)/Site Entrance/Gills Neck Village Center Site Entrance**
   Type of Control: Proposed two-way stop-controlled intersection (four-legged intersection)
   Eastbound Approach: (Gills Neck Road) Existing one through lane; proposed one left turn lane, one through lane, and one right turn lane
   Westbound Approach: (Gills Neck Road) Existing one through lane; proposed one left turn lane, one through lane, and one right turn lane
   Northbound Approach: (Gills Neck Village Center Entrance) Proposed one shared left turn/through lane and one right turn lane, stop-controlled

Southbound Approach: (Site Entrance) Proposed one shared left turn/through lane and one right turn lane, stop-controlled

3. **Kings Highway/Bay Breeze Drive**
   Type of Control: Existing stop-controlled intersection
   Westbound Approach: (Bay Breeze Drive) Existing one left-turn lane and one right-turn lane, stop-controlled
   Northbound Approach: (Kings Highway) Existing one shared through lane/channelized right-turn lane
   Southbound Approach: (Kings Highway) Existing two through lanes and one left-turn lane (stop-controlled)

4. **Kings Highway/Freeman Highway (Sussex Road 23)**
   Type of Control: Existing stop-controlled intersection
   Northbound Approach: (Kings Highway) Existing one left-turn lane (stop-controlled) and one through lane
   Southbound Approach: (Freeman Highway) Existing one through lane and one channelized right-turn lane (stop-controlled)

5. **Kings Highway/Savannah Road (Sussex Road 18)**
   Type of Control: Existing two-way stop-controlled intersection (four-legged intersection)
   Eastbound Approach: (3rd Street) Existing one shared through/left-turn lane and one right-turn lane, stop controlled
   Westbound Approach: (Kings Highway) Existing one shared through/left-turn lane and one right-turn lane, stop controlled
   Northbound Approach: (Savannah Road) Existing one left-tun lane and one shared through/right-turn lane
   Southbound Approach: (Savannah Road) Existing one left-tun lane and one shared through/right-turn lane

6. **Savannah Road/Gills Neck Road/Front Street (Sussex Road 267)**
   Type of Control: Existing signalized intersection (four-legged)
   Eastbound Approach: (Front Street) Existing one left turn lane and one shared through/right turn lane
   Westbound Approach: (Gills Neck Road) Existing one shared left turn/through/right turn lane
   Northbound Approach: (Savannah Road) Existing one left turn lane and one shared through/right turn lane

Southbound Approach: (Savannah Road) Existing on left turn lane and one shared through/right turn lane

7. **Kings Highway/Atlantic Drive**
   Type of Control: Existing two-way stop-controlled intersection (T-intersection)
   Eastbound Approach: (Atlantic Drive) Existing one shared left-turn/right-turn lane, stop-controlled
   Northbound Approach: (Kings Highway) Existing one shared left-turn/through lane
   Southbound Approach: (Kings Highway) Existing one shared through/right-turn lane

8. **Kings Highway/Gills Neck Road/Cape Henlopen High School Entrance**
   Type of Control: Existing signalized intersection (four-legged)
   Eastbound Approach: (Cape Henlopen High School Entrance) Existing one shared left turn/through lane and one right turn lane
   Westbound Approach: (Gills Neck Road) Existing one left turn lane, one through lane, and one right turn lane
   Northbound Approach: (Kings Highway) Existing one left turn lane, one through lane, and one right turn lane
   Southbound Approach: (Kings Highway) Existing one left turn lane, one through lane, and one right turn lane

9. **Kings Highway/Clay Road (Sussex Road 269)**
   Type of Control: Existing two-way stop-controlled intersection (T-intersection)
   Eastbound Approach: (Clay Road) Existing one shared left turn/right turn lane, stop-controlled
   Northbound Approach: (Kings Highway) Existing one shared left turn/through lane
   Southbound Approach: (Kings Highway) Existing one shared through/right turn lane

10. **Clay Road (Sussex Road 269) and Marsh Road (Sussex Road 269B)**
    Type of Control: Existing two-way stop-controlled intersection (T-intersection)
    Eastbound Approach: (Clay Road) Existing one shared through/right turn lane
    Westbound Approach: (Clay Road) Existing one shared through/left turn lane
    Northbound Approach: (Marsh Road) Existing one left-turn lane and one right-turn lane, stop-controlled.

11. **Kings Highway (Sussex Road 268) and Dartmouth Drive (Sussex Road 268A)**
    Type of Control: Existing two-way stop-controlled intersection
    Eastbound Approach: (Dartmouth Drive) Existing one shared left turn/right turn lane, stop-controlled

Northbound Approach: (Kings Highway) One left-turn lane and one through lane
Southbound Approach: (Kings Highway) One through lane and one channelized right-turn lane

Transit, Pedestrian, and Bicycle Facilities

Existing transit service: Per DelDOT Gateway, Delaware Transit Corporation (DTC) currently does not provide existing services within the study area.

Planned transit service: Per email correspondence on February 11, 2020 with Mr. Jared Kauffman, Fixed-Route Planner at the DTC, a Type 2 bus stop has been installed at the intersection of Kings Highway and Gills Neck Road/Cape Henlopen High School Entrance. An additional Type 2 bus stop should be installed along northbound Kings Highway at the intersection with the site entrance. Additionally, a sidewalk/SUP interconnection should be provided between the site and the adjacent Bay Breeze Estates.

Existing bicycle and pedestrian facilities: According to DelDOT's *Lewes & Rehoboth Beach Area Bicycle Map*, two Connector Bicycle Routes and one Regional Bicycle Route exist within the study area. One Connector Bicycle Route travels along Gills Neck Road, beginning at the study intersection with Savannah Road, traversing through one study intersection (Site Entrance) intersecting with another Connector Bicycle Route at the study intersection of Kings Highway. The other Connector Bicycle Route exists along Kings Highway and traverses through seven of the study intersections (Freeman Highway, Bay Breeze Drive, Site Entrance, Atlantic Drive, Gills Neck Road/Cape Henlopen High School Entrance, Clay Road, and Dartmouth Drive). The Regional Bicycle Route exists along Savannah Road and traverses through one study intersection (Gills Neck Road/Front Street) Pedestrian facilities currently exist at four of the study intersections: Savannah Road/Gills Neck Road/Front Street, Kings Highway/Savannah Road, Kings Highway/Gills Neck Road/Cape Henlopen High School Entrance, and Gills Neck Road/Site Entrance.

Planned bicycle and pedestrian facilities: Per email correspondence on February 12, 2020 from Mr. John Fiori, DelDOT's Bicycle Coordinator, the following improvements were recommended:

- The existing 10-foot wide shared-use path (SUP) should be extended along the Kings Highway site frontage. Once the SUP is extended, the existing tie-in installed for Minor Subdivision Lot 1 shall be removed (including pipe), top soiled, seeding, mulched, and re-graded to assure positive drainage.
- An internal sidewalk/SUP connection is required from the SUP into the site for Lots 1 thru 5.
- Internal bicycle racks should be provided at all Lots.
- Revise design of SUP from Type 2 ramp on the egress side to Type 1 ramp.
- Per the DCM, the site shall dedicate right-of-way per the roadway classification and establish a 15-foot wide permanent easement along the property frontage.
- All entrance, roadway and/or intersection improvements required shall incorporate bicycle and pedestrian facilities. Per the DCM, if the right turn lane is warranted, then a bike lane

shall be incorporated along the right turn lane; if a left turn lane is required any roadway improvements shall include a shoulder matching the roadway classification or existing conditions.

Bicycle Level of Traffic Stress in Delaware: Researchers with the Mineta Transportation Institute developed a framework to measure low-stress connectivity, which can be used to evaluate and guide bicycle network planning. Bicycle LTS analysis uses factors such as the speed of traffic, volume of traffic, and the number of lanes to rate each roadway segment on a scale of 1 to 4, where 1 is a low-stress place to ride and 4 is a high-stress place to ride. It analyzes the total connectivity of a network to evaluate how many destinations can be accessed using low-stress routes. Developed by planners at the Delaware Department of Transportation (DelDOT), the bicycle Level of Traffic Stress (LTS) model will be applied to bicycle system planning and evaluation throughout the state. The Bicycle LTS for the roadways under existing conditions along the site frontage are summarized below. The Bicycle LTS was determined utilizing the map on the DelDOT Gateway.

- Kings Highway – LTS: 3 and 4
- Gills Neck Road – LTS: 4

Crash Evaluation

Per the crash data included in the TIS from July 25, 2015 to July 25, 2018 and provided by the Delaware Crash Analysis Reporting System, a total of 166 crashes were reported within the study area. The TIS reports that 89 of these crashes are relevant within the study area and intersections. 19 of these crashes occurred within the functional area of the intersection of Kings Highway and Clay Road, 18 occurred within the functional area of the intersection of Kings Highway and Gills Neck Road/Cape Henlopen High School Access, 17 occurred within the functional area of Savannah Road/Kings Highway/3rd Street, and 11 occurred within the function area of Savannah Road/Front Street/Gills Neck Road. No fatalities occurred within the study area over the 3-year period.

A crash evaluation was also completed as part of DelDOT's *Signal Justification Study US9 – Kings Highway (S268) & Clay Road (S269)* in February 2020. As part of the study, a crash evaluation reviewed data from August 7, 2014 to January 23, 2020 which identified one fatal angle crash at the Kings Highway and Clay Road intersection. The installation of a traffic signal was identified in the study as a short-term improvement which is expected to be implemented prior to Summer of 2021.

Previous Comments

Comments from DelDOT from the Preliminary Traffic Impact Study (PTIS) were addressed in the final TIS.

General HCS Analysis Comments

(See table footnotes on the following pages for specific comments)

1. For the intersection analyses, the TIS used HCS7 version 7.8, whereas JMT used HCS7 version 7.8.5. The TIS Addendum did utilize HCS7 version 7.8.5.

2. Per DelDOT's *Development Coordination Manual*, JMT used a heavy vehicle percentage of 3% for each movement greater than 100 vph in the Case 2 and Case 3 future scenario analyses, unless the existing heavy vehicle percentage was greater than 3% and there was no significant increase of vehicles along that movement, in which case the existing heavy vehicle percentage was used for analysis of future scenarios. The TIS utilized various heavy vehicle percentages.

3. Per DelDOT's *Development Coordination Manual* and coordination with DelDOT Planning, JMT used a heavy vehicle percentage of 5% for each movement less than 100 vph along roadways and site entrances, whereas the TIS did in some locations.

4. Per DelDOT's *Development Coordination Manual,* both the TIS and JMT utilized the existing PHF for the Case 1 scenario and a future PHF for Cases 2 and 3 scenarios of 0.80 for roadways with less than 500 vph, 0.88 for roadways between 500 and 1,000 vph, and 0.92 for roadways with more than 1,000 vph or the existing PHF, whichever was higher, unless DelDOT-approved calibrated PHFs were provided by the TIS. JMT did not alter any PHFs for cases without widening, whereas the TIS utilized altered PHFs.

5. Per DelDOT's *Development Coordination Manual,* JMT and the TIS utilized a base saturation flow rate of 1,750 pc/h/ln at all intersections.

6. JMT utilized bicycle and pedestrian counts consistent with the existing turning movement counts whereas the TIS did not.

7. At the signalized intersections, JMT increased right turn on red volumes proportionally with volume increases, whereas the TIS maintained existing right turn on red volumes.

8. At the unsignalized intersections, differences in critical headways and follow-up headways were noticed between the TIS and JMT's analysis. JMT utilized the HCS7 Version 7.8.5 default values.

9. At the unsignalized intersections, the TIS utilized proportion of time spent blocked at the intersections based on field views. The TIS utilized the highest proportion of time spent blocked that would be able to provide an HCS output, which resulted in inconsistent values being used. It is recognized that existing delays may be longer than what is calculated in the JMT analysis due to blocked side streets especially during Cape May-Lewes Ferry arrival/departure times. However, JMT analyzed the intersections with no proportion of

time spent blocked input in order to provide a comparable baseline between cases and peaks.

10. The analysis includes scenarios with or without the *US 9, Kings Highway, Dartmouth Drive to Freeman Highway* DelDOT project. As part of the project, Kings Highway is proposed to be widened to provide two through lanes in each direction.

11. Three separate Case 3 scenarios were included in the analysis:

    - Case 3a – Future 2027 with development and without the Kings Highway Dual Lane project.

    - Case 3b – Future 2027 with development and with the Kings Highway Dual Lane project. As part of this scenario, Atlantic Drive is assumed to only provide rights-in/rights-out movements along Kings Highway and an interconnection would exist between Atlantic Drive and the Beebe Medical Center.

    - Case 3c – Future 2027 with development and without the Kings Highway Dual Lane project and without a site entrance along Kings Highway.

12. The analysis also includes the TIS Addendum which reviewed the following scenarios:

    Case 2d – Future 2023 with development of Lot 1 (39,000 square feet of medical/dental office space) and without the Kings Highway Dual Lane Project

    - Case 3d – Future 2023 with 117,000 square feet of medical/dental office space, without the Kings Highway Dual Lane Project, and rights-in site entrance on Kings Highway

13. The analyses highlighted in gray represent the JMT interim recommendations as part of the TIS Review letter.

14. The analyses highlighted in blue represent the JMT suggested improvements with the full build of the proposed development.

Table 2
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/Site Entrance	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development and without Kings Highway Dual Lane Project (Case 2a) [2]						
Northbound Kings Highway Left Turn	A (8.7)	F (90.3)	F (58.2)	A (8.7)	B (12.0)	B (11.1)
Eastbound Beebe Medical Entrance	B (14.9)	F (*)	F (*)	B (14.2)	E (42.9)	E (45.0)
2027 without Development and with Kings Highway Dual Lane Project (Case 2b) [3]						
Northbound Kings Highway Left Turn	-	-	-	A (8.7)	B (12.1)	B (11.2)
Eastbound Beebe Medical Entrance	-	-	-	B (11.5)	D (25.8)	C (23.7)
2023 with development of Lot 1 (39,000 square feet of medical/dental office space) and without the Kings Highway Dual Lane Project (Case 2d)[2]						
Northbound Kings Highway Left Turn	A (8.6)	F (136.9)	F (74.3)	A (8.6)	B (10.3)	B (10.6)
Eastbound Beebe Medical Entrance	B (14.4)	F (*)	F (*)	B (13.8)	D (26.5)	D (32.0)

*HCS reported delay greater than 1000 seconds per vehicle

[1] For signalized and unsignalized analysis, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.
[2] For the PM and Saturday peak periods, the TIS utilized various values for proportion of time blocked whereas JMT utilized the default value of 0.
[3] For this scenario, JMT incorporated two through lanes in each direction along Kings Highway.

Table 2
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Based on Traffic Impact Study for Mitchell Farm
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Unsignalized Intersection Two-Way Stop Control [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/Site Entrance	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development and without Kings Highway Dual Lane Project (Case 3a) [2]						
Northbound Kings Highway Left Turn	A (8.7)	F (259.0)	F (162.7)	A (8.7)	B (12.0)	B (11.1)
Southbound Kings Highway Left Turn	B (10.3)	B (10.9)	C (16.5)	B (10.3)	B (10.9)	C (16.5)
Eastbound Beebe Medical Entrance	C (19.5)	F (*)	F (*)	C (17.9)	F (130.8)	F (358.0)
Westbound Site Entrance	F (78.6)	F (*)	F (*)	F (59.4)	F (*)	F (*)
2027 with Development and with Kings Highway Dual Lane Project (Case 3b) [3]						
Northbound Kings Highway Left Turn	A (8.9)	B (12.6)	B (11.4)	A (8.9)	B (12.6)	B (11.4)
Southbound Kings Highway Left Turn	B (10.3)	B (10.9)	C (16.5)	B (10.3)	B (10.9)	C (16.5)
Eastbound Beebe Medical Entrance	C (20.8)	F (144.8)	F (468.9)	C (19.1)	F (78.9)	F (340.4)
Westbound Site Entrance	F (55.5)	F (*)	F (*)	E (44.7)	F (*)	F (*)
2027 with Development, without Kings Highway Dual Lane Project and no site entrance on Kings Highway (Case 3c) [2]						
Northbound Kings Highway Left Turn	A (8.9)	F (90.3)	E (48.1)	A (8.9)	B (12.4)	B (11.9)
Eastbound Beebe Medical Site Entrance	C (16.3)	F (*)	F (*)	C (15.4)	F (53.3)	F (67.4)

*HCS reported delay greater than 1000 seconds per vehicle

Table 2 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control[1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/Site Entrance	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2023 with 117,000 square feet of medical/dental office space, without the Kings Highway Dual Lane Project, and rights-in site entrance on Kings Highway (Case 3d) [2]						
Northbound Kings Highway Left Turn	A (8.7)	B (10.4)	B (10.8)	A (8.7)	B (10.4)	B (10.8)
Eastbound Beebe Medical Site Entrance	C (16.1)	E (40.9)	F (64.4)	C (15.2)	D (34.7)	F (50.6)

*HCS reported delay greater than 1000 seconds per vehicle

Note: Analysis highlighted in gray represents the JMT interim recommendations

Table 2 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Roundabout[1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/Site Entrance	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development and without Kings Highway Dual Lane Project (Case 2a) [4]						
Eastbound Beebe Medical Entrance	-	-	-	A (5.3)	B (11.5)	A (10.0)
Northbound Kings Highway	-	-	-	A (8.9)	B (12.5)	D (32.7)
Southbound Kings Highway	-	-	-	A (7.0)	E (39.2)	C (21.5)
Overall Intersection	-	-	-	A (8.0)	D (27.7)	D (27.2)
2027 without Development and with Kings Highway Dual Lane Project (Case 2b) [3,5]						
Eastbound Beebe Medical Entrance	-	-	-	A (4.6)	A (8.8)	A (7.8)
Northbound Kings Highway	-	-	-	A (5.1)	A (5.9)	A (7.5)
Southbound Kings Highway	-	-	-	A (4.5)	A (7.8)	A (7.0)
Overall Intersection	-	-	-	A (4.9)	A (7.0)	A (7.2)

*HCS reported delay greater than 1000 seconds per vehicle

[4] JMT modeled the intersection as a single-lane roundabout.
[5] JMT modeled the intersection as a dual-lane roundabout.

Table 2 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Roundabout	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/Site Entrance	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development and without Kings Highway Dual Lane Project (Case 3a) [4]						
Eastbound Beebe Medical Entrance	-	-	-	A (6.1)	C (15.0)	B (14.0)
Westbound Site Entrance	-	-	-	A (7.7)	C (20.5)	E (37.8)
Northbound Kings Highway	-	-	-	B (13.9)	C (20.1)	F (163.0)
Southbound Kings Highway	-	-	-	A (8.6)	F (131.9)	F (90.8)
Overall Intersection	-	-	-	B (11.4)	F (75.5)	F (121.1)
2027 with Development and with Kings Highway Dual Lane Project (Case 3b) [3, 5]						
Eastbound Beebe Medical Entrance	-	-	-	A (5.3)	B (11.2)	B (11.0)
Westbound Site Entrance	-	-	-	A (6.7)	B (14.8)	C (21.8)
Northbound Kings Highway	-	-	-	A (6.5)	A (7.1)	B (12.1)
Southbound Kings Highway	-	-	-	A (5.4)	B (11.7)	B (10.1)
Overall Intersection	-	-	-	A (6.1)	B (10.2)	B (12.1)

*HCS reported delay greater than 1000 seconds per vehicle

Table 2 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Roundabout	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/Site Entrance	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development, without Kings Highway Dual Lane Project and no site entrance on Kings Highway (Case 3c) [4]						
Eastbound Beebe Medical Entrance	-	-	-	A (5.7)	B (12.3)	B (11.7)
Northbound Kings Highway	-	-	-	A (9.5)	C (16.3)	F (51.5)
Southbound Kings Highway	-	-	-	A (7.8)	F (51.2)	E (36.3)
Overall Intersection	-	-	-	A (8.7)	E (35.6)	E (43.8)

Table 2 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Signalized Intersection[1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/Site Entrance[6]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development and without Kings Highway Dual Lane Project (Case 2a) [7]	-	-	-	A (4.7)	A (10.0)	B (13.8)
2027 without Development and with Kings Highway Dual Lane Project (Case 2b)[3,7]	-	-	-	A (3.3)	A (3.2)	A (4.2)
2023 with development of Lot 1 (39,000 square feet of medical/dental office space) and without the Kings Highway Dual Lane Project (Case 2d) [7]	-	-	-	A (4.7)	A (5.6)	A (8.9)
2027 with Development and without Kings Highway Dual Lane Project (Case 3a)[8,9]	A (9.5)	D (51.5)	F (105.4)	B (18.7)	F (81.3)	F (114.0)

[6] JMT used a signal cycle length of 100 seconds during the AM and Saturday peak periods, and a cycle length of 130 seconds during the PM peak period for all Cases. The TIS used various signal cycle lengths for each period and case analyzed.

[7] JMT modeled the intersection as split phase with one shared left turn/through lane along the northbound Kings Highway approach, one through lane and one right turn lane along the southbound Kings Highway approach, and one left turn lane and one right turn lane along the eastbound Beebe Medical Center approach. The signal would operate with two phases.

[8] Both the TIS and JMT modeled the intersection with one left turn lane, one through lane, and one right turn lane along northbound and southbound Kings Highway, and one shared left turn/through lane and one right turn lane along eastbound Beebe Medical Center and the westbound Site Entrance.

[9] Both the TIS and JMT modeled the northbound and southbound approaches with protected and permissive left turn phasing. The TIS modeled the eastbound and westbound approaches as concurrent phases with permitted left turns, whereas JMT modeled as split phase operation.

Table 2 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Signalized Intersection[1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/Site Entrance[6]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development and with Kings Highway Dual Lane Project (Case 3b) [9,10]	B (12.1)	B (16.2)	B (16.2)	B (13.3)	C (23.7)	C (23.0)
2027 with Development, without Kings Highway Dual Lane Project and no site entrance on Kings Highway (Case 3c) [11]	-	-	-	A (5.0)	B (15.0)	D (49.7)
2023 with 117,000 square feet of medical/dental office space, without the Kings Highway Dual Lane Project, and rights-in site entrance on Kings Highway (Case 3d)[11]	-	-	-	A (4.6)	A (5.7)	A (9.4)

Note: Analysis highlighted in blue represents JMT suggested improvements with the full build of the proposed development

[10] Both the TIS and JMT modeled the intersection with one shared left turn/through lane and one right turn lane along eastbound Beebe Medical Center and the westbound Site Entrance. The TIS modeled the northbound and southbound Kings Highway approaches with one left turn lane, one through lane, and one shared through/right turn lane. JMT modeled the northbound and southbound Kings Highway approaches with one left turn lane, two through lanes, and one right turn lane.

[11] Reduction in delay when compared to Case 3a is due to the removal of the easterly leg Site Entrance on Kings Highway from this intersection.

[11] JMT modeled the northbound Kings Highway approach with a shared left turn/through lane and a separate right turn lane, the southbound Kings Highway approach with a through lane and a right turn lane, and the eastbound Beebe Medical Center approach with a separate left turn lane and a right turn lane.

Table 3
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control[1]	**LOS per TIS**			**LOS per JMT**		
Gills Neck Road (Sussex Road 267)/Site Entrance	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development and without Kings Highway Dual Lane Project (Case 2a)[2, 12]						
Westbound Gills Neck Road Left Turn	F (434.6)	A (8.9)	A (8.5)	A (8.1)	A (8.9)	A (8.4)
Northbound Gills Neck Village Center Entrance	F (*)	F (*)	F (*)	C (16.4)	C (22.5)	C (16.5)
2023 with development of Lot 1 (39,000 square feet of medical/dental office space) and without the Kings Highway Dual Lane Project (Case 2d) [2,13]						
Eastbound Gills Neck Road Left Turn	F (130.7)	D (34.2)	F (102.7)	A (8.4)	A (8.1)	A (8.1)
Westbound Gills Neck Road Left Turn	E (47.0)	D (30.9)	F (55.2)	A (7.9)	A (8.5)	A (8.2)
Northbound Gills Neck Village Center Entrance	F (*)	F (*)	F (*)	C (20.6)	D (28.5)	C (24.0)
Southbound Site Entrance	F (95.3)	F (133.4)	F (166.8)	B (11.3)	B (11.8)	B (10.9)

*HCS reported delay greater than 1000 seconds per vehicle

[12] Both the TIS and JMT modeled the intersection with one through lane and one right turn lane along eastbound Gills Neck Road, one left turn lane and one through lane along westbound Gills Neck Road, and one left turn lane and one through lane along the northbound Gills Neck Village Center entrance.

[13] Both the TIS and JMT modeled the intersection with one left turn lane, one through lane, and one right turn lane along the eastbound and westbound Gills Neck Road approaches, and one shared left turn/through lane and one right turn lane along the northbound Gills Neck Village Center entrance and the southbound Site Entrance.

Table 3 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control[1]	**LOS per TIS**			**LOS per JMT**		
Gills Neck Road (Sussex Road 267)/Site Entrance	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development and without Kings Highway Dual Lane Project (Case 3a) [2,13]						
Eastbound Gills Neck Road Left Turn	F (104.1)	C (16.6)	D (27.7)	A (9.1)	A (8.7)	A (9.0)
Westbound Gills Neck Road Left Turn	A (8.1)	B (14.1)	A (8.4)	A (8.1)	A (8.9)	A (8.4)
Northbound Gills Neck Village Center Entrance	F (*)	F (*)	F (*)	E (44.7)	F (201.4)	F (261.6)
Southbound Site Entrance	F (120.2)	F (88.1)	F (120.9)	B (14.2)	C (18.6)	C (17.8)
2027 with Development and with Kings Highway Dual Lane Project (Case 3b) [13,14]						
Eastbound Gills Neck Road Left Turn	A (9.1)	A (8.7)	A (9.0)	A (9.1)	A (8.7)	A (9.0)
Westbound Gills Neck Road Left Turn	A (8.1)	A (8.9)	A (8.4)	A (8.1)	A (8.9)	A (8.4)
Northbound Gills Neck Village Center Entrance	F (54.9)	F (280.9)	F (351.9)	E (44.7)	F (201.4)	F (266.1)
Southbound Site Access	B (14.8)	C (19.8)	C (19.3)	B (14.2)	C (18.6)	C (17.8)

*HCS reported delay greater than 1000 seconds per vehicle
Note: Analysis highlighted in blue represents JMT suggested improvements with the full build of the proposed development

[14] The Gills Neck Village Center Entrance improvements will be determined as part of the Gills Neck Village Center TOA.

Table 3 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, INC.

Unsignalized Intersection Two-Way Stop Control[1]	**LOS per TIS**			**LOS per JMT**		
Gills Neck Road (Sussex Road 267)/Site Access	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development, without Kings Highway Dual Lane Project and no site entrance on Kings Highway (Case 3c) [2,14]						
Eastbound Gills Neck Road Left Turn	F (77.7)	B (11.2)	D (31.8)	B (10.4)	A (9.5)	B (11.9)
Westbound Gills Neck Road Left Turn	A (8.1)	A (8.9)	A (8.4)	A (8.1)	A (8.9)	A (8.4)
Northbound Gills Neck Village Center Entrance	F (*)	F (*)	F (*)	F (344.7)	F (*)	F (*)
Southbound Site Entrance	F (871.5)	F (90.5)	F (*)	C (17.1)	F (54.4)	F (56.5)
2027 with Development, without Kings Highway Dual Lane Project and a rights-in only entrance on Kings Highway (Case 3c)						
Eastbound Gills Neck Road Left Turn	-	-	-	A (9.5)	A (8.9)	A (9.7)
Westbound Gills Neck Road Left Turn	-	-	-	A (8.1)	A (8.9)	A (8.4)
Northbound Gills Neck Village Center Entrance	-	-	-	F (117.5)	F (*)	F (*)
Southbound Site Entrance	-	-	-	C (15.5)	F (52.0)	D (28.7)

*HCS reported excessive delay greater than 1000 seconds per vehicle

Table 3 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control[1]	**LOS per TIS**			**LOS per JMT**		
Gills Neck Road (Sussex Road 267)/Site Entrance	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2023 with 117,000 square feet of medical/dental office space, without the Kings Highway Dual Lane Project, and rights-in site entrance on Kings Highway (Case 3d)[15]						
Eastbound Gills Neck Road Left Turn	A (8.5)	A (8.2)	A (8.4)	A (8.5)	A (8.2)	A (8.4)
Westbound Gills Neck Road Left Turn	A (7.9)	A (8.5)	A (8.2)	A (7.9)	A (8.5)	A (8.2)
Northbound Gills Neck Village Center Entrance	D (27.9)	F (97.4)	F (101.2)	C (24.9)	F (75.5)	F (76.3)
Southbound Site Access	B (11.9)	C (15.4)	B (13.2)	B (11.6)	B (14.9)	B (12.8)

Note: Analysis highlighted in gray represents the JMT interim recommendations

Table 4
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/ Bay Breeze Drive [2, 15]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2018 Existing (Case 1)						
Southbound Kings Highway Left Turn	A (8.6)	F (289.8)	F (458.6)	-	-	-
Westbound Bay Breeze Drive Approach	C (19.8)	F (*)	F (*)	-	-	-
2027 without Development and without Kings Highway Dual Lane Project (Case 2a)						
Southbound Kings Highway Left Turn	A (9.1)	F (286.0)	B (12.0)	-	-	-
Westbound Bay Breeze Drive Approach	D (25.7)	F (*)	F (144.1)	-	-	-
2027 without Development and with Kings Highway Dual Lane Project (Case 2b) [3, 16]						
Southbound Kings Highway Left Turn	-	A (9.9)	B (12.0)	A (9.2)	B (10.2)	B (12.3)
Westbound Bay Breeze Drive Approach	-	F (128.2)	F (144.1)	C (18.9)	E (39.3)	F (52.0)
2027 with Development and without Kings Highway Dual Lane Project (Case 3a)						
Southbound Kings Highway Left Turn	A (9.2)	F (286.0)	F (447.6)	-	-	-
Westbound Bay Breeze Drive Approach	D (30.2)	F (*)	F (*)	-	-	-

*HCS reported excessive delay greater than 1000 seconds per vehicle

[15] Due to the unique configuration of the Kings Highway/Bay Breeze Drive intersection, JMT analyzed the intersection as two separate intersections. The TIS analyzed it as a single T-intersection.

[16] JMT assumed the intersection would be modified to a traditional T-intersection as part of the Kings Highway Dual Lane project.

Table 4 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/ Bay Breeze Drive [2, 17]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development and with Kings Highway Dual Lane Project (Case 3b) [18]						
Southbound Kings Highway Left Turn	A (9.2)	B (10.5)	B (12.8)	A (9.4)	A (10.8)	B (13.1)
Westbound Bay Breeze Drive Approach	C (22.5)	F (65.6)	F (93.7)	C (20.8)	F (52.6)	F (72.3)
2027 with Development and with Kings Highway Dual Lane Project and Bay Breeze Drive left turn out restriction (Case 3b)						
Southbound Kings Highway Left Turn	A (9.2)	B (10.5)	B (12.8)	A (9.4)	B (10.8)	B (13.1)
Westbound Bay Breeze Drive Right Turn	B (11.4)	B (13.0)	C (15.9)	B (11.3)	B (12.9)	C (15.6)

*HCS reported excessive delay greater than 1000 seconds per vehicle

Table 4 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/ Bay Breeze Drive [2,17]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2018 Existing (Case 1)						
Westbound Bay Breeze Drive Left Turn	-	-	-	C (19.6)	D (25.8)	E (45.5)
2027 without Development and without Kings Highway Dual Lane Project (Case 2a)						
Westbound Bay Breeze Drive Left Turn	-	-	-	D (25.2)	F (106.4)	F (153.2)
2027 with Development and without Kings Highway Dual Lane Project (Case 3a)						
Westbound Bay Breeze Drive Left Turn	-	-	-	D (29.6)	F (164.0)	F (261.0)

[17] Due to the unique configuration of the Kings Highway/Bay Breeze Drive intersection, JMT analyzed the intersection as two separate intersections. This table summarized the results of the analysis conducted at the location where the westbound Bay Breeze Drive approach is a stop-controlled left-turn lane, the northbound Kings Highway approach is a through lane and a right turn lane, and the southbound Kings Highway approach is a through lane.

Table 4 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/ Bay Breeze Drive [2,18,19]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2018 Existing (Case 1)						
Southbound Kings Highway Left Turn	-	-	-	B (13.5)	B (14.0)	C (21.7)
Westbound Bay Breeze Drive Right Turn	-	-	-	B (12.1)	B (12.2)	C (18.8)
2027 without Development and without Kings Highway Dual Lane Project (Case 2a)						
Southbound Kings Highway Left Turn	-	-	-	C (15.3)	C (19.1)	D (29.6)
Westbound Bay Breeze Drive Right Turn	-	-	-	B (13.5)	C (16.1)	D (25.2)
2027 with Development and without Kings Highway Dual Lane Project (Case 3a)						
Southbound Kings Highway Left Turn	-	-	-	C (15.8)	C (21.9)	D (33.8)
Westbound Bay Breeze Drive Right Turn	-	-	-	B (13.9)	C (18.1)	D (28.6)

[18] JMT analyzed the southbound left-turn movement as an eastbound through movement as the movement is stop-controlled.

[19] Due to the unique configuration of the Kings Highway/Bay Breeze Drive intersection, JMT analyzed the intersection as two separate intersections. This table summarizes the results of the analysis conducted at the location where the westbound Bay Breeze Drive approach is a yield-controlled channelized right-turn lane, the northbound Kings Highway approach is a through lane, and the southbound Kings Highway approach is a left-turn lane.

Table 4 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Roundabout [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/ Bay Breeze Drive[2]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development and without Kings Highway Dual Lane Project (Case 2a) [4]						
Westbound Bay Breeze Drive Approach	-	-	-	A (6.7)	A (8.2)	B (12.4)
Northbound Kings Highway Approach	-	-	-	A (8.9)	B (12.5)	E (42.9)
Southbound Kings Highway Approach	-	-	-	A (6.4)	C (22.1)	C (15.7)
Overall Intersection	-	-	-	A (7.9)	C (17.6)	C (30.8)
2027 with Development and with Kings Highway Dual Lane Project (Case 2b) [3, 5]						
Westbound Bay Breeze Drive Approach	-	-	-	A (5.7)	A (6.7)	A (9.4)
Northbound Kings Highway Approach	-	-	-	A (5.2)	A (6.0)	A (7.9)
Southbound Kings Highway Approach	-	-	-	A (4.4)	A (7.0)	A (6.4)
Overall Intersection	-	-	-	A (4.9)	A (6.5)	A (7.2)
2027 with Development and without Kings Highway Dual Lane Project (Case 3a) [4]						
Westbound Bay Breeze Drive Approach	-	-	-	A (7.0)	A (9.4)	B (14.1)
Northbound Kings Highway Approach	-	-	-	A (9.5)	C (16.4)	F (66.6)
Southbound Kings Highway Approach	-	-	-	A (7.2)	D (27.4)	C (23.3)
Overall Intersection				A (8.5)	C (22.0)	E (46.8)

Table 4 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Roundabout [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/ Bay Breeze Drive[2]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development and with Kings Highway Dual Lane Project (Case 3b) [3, 5]						
Westbound Bay Breeze Drive Approach	-	-	-	A (5.9)	A (7.5)	B (10.4)
Northbound Kings Highway Approach	-	-	-	A (5.4)	A (6.5)	A (8.5)
Southbound Kings Highway Approach	-	-	-	A (4.7)	A (7.3)	A (7.1)
Overall Intersection	-	-	-	A (5.1)	A (6.9)	A (7.9)

Table 4 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Signalized Intersection[1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/ Bay Breeze Drive [20,21]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development and without Kings Highway Dual Lane Project (Case 2a)	-	-	-	A (8.3)	A (9.3)	D (38.0)
2027 without Development and with Kings Highway Dual Lane Project (Case 2b) [3]	-	-	-	A (6.0)	A (4.9)	A (6.2)
2027 with Development and without Kings Highway Dual Lane Project (Case 3a)	-	-	-	A (8.5)	B (10.9)	D (52.6)
2027 with Development and with Kings Highway Dual Lane Project (Case 3b) [3]	-	-	-	A (5.9)	A (5.0)	A (6.6)

[20] JMT used a signal cycle length of 100 seconds during the AM and Saturday peak periods, and a cycle length of 130 seconds during the PM peak period.
[21] JMT modeled the signal as a three-phase signal with protected-permissive left turn phasing along the southbound Kings Highway approach.

Table 5
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway/Freeman Highway (Sussex Road 23) [22]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2018 Existing (Case 1) [23]						
Northbound Kings Highway Left Turn	A (8.4)	B (12.4)	A (9.1)	C (15.0)	C (18.4)	C (19.6)
2027 without Development and without Kings Highway Dual Lane Project (Case 2a) [23]						
Northbound Kings Highway Left Turn	A (8.7)	C (17.6)	B (11.0)	C (17.2)	F (109.6)	F (68.4)
2027 with Development and without Kings Highway Dual Lane Project (Case 3a) [23]						
Northbound Kings Highway Left Turn	A (8.9)	C (23.5)	B (12.2)	C (19.1)	F (199.4)	F (140.6)
2027 with Development and with Kings Highway Dual Lane Project (Case 3b)						
Northbound Kings Highway Left Turn	-	B (13.4)	-	C (19.1)	F (199.4)	F (140.6)
2027 with Development and with Kings Highway Dual Lane Project and Bay Breeze Drive left turn out restriction (Case 3b)[24]						
Northbound Kings Highway Left Turn	A (9.0)	B (14.1)	B (12.5)	C (17.2)	F (231.7)	F (151.3)

[22] The TIS modeled the northbound movement as a left-turn lane and a through lane. JMT did not include the through movement in the analysis, because it is a free-flow movement with no conflicts. JMT modeled the northbound left-turn movement as a westbound through as it is stop-controlled.
[23] For the PM peak period, the TIS utilized various values for proportion of time blocked whereas JMT utilized the default value of 0.
[24] For this scenario, Bay Breeze Drive left turn outs would be restricted and those movements would be U-turns at the Kings Highway/Freeman Highway intersection.

Table 5 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Signalized Intersection[1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268) / Freeman Highway (Sussex Road 23) [25]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development (Case 2)	-	-	-	B (14.9)	D (36.9)	C (25.0)
2027 with Development (Case 3)	-	-	-	B (17.6)	D (38.0)	C (27.5)

[25] JMT analyzed the intersection as signalized. The AM and Saturday signal cycle lengths are 100 seconds and the PM signal cycle length is 130 seconds.

Table 6
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control[1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268) / Savannah Road (Sussex Road 18) [26]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2018 Existing (Case 1)						
Eastbound 3rd Street Approach	B (11.5)	B (14.8)	D (28.5)	B (11.6)	C (16.5)	E (35.1)
Westbound Kings Highway Approach	B (10.4)	B (12.7)	C (16.2)	B (10.3)	B (13.3)	C (16.9)
Northbound Savannah Road Left Turn	A (7.5)	A (7.8)	A (7.8)	A (7.5)	A (7.9)	A (7.9)
Southbound Savannah Road Left Turn	A (7.7)	A (7.9)	A (8.7)	A (7.7)	A (8.0)	A (8.9)
2027 without Development (Case 2)						
Eastbound 3rd Street Approach	B (13.8)	F (55.7)	F (99.6)	B (14.7)	F (165.4)	F (171.0)
Westbound Kings Highway Approach	B (11.5)	E (35.3)	C (21.8)	B (11.5)	E (46.5)	C (23.6)
Northbound Savannah Road Left Turn	A (7.6)	A (7.9)	A (7.8)	A (7.6)	A (8.0)	A (8.0)
Southbound Savannah Road Left Turn	A (7.8)	A (8.5)	A (9.1)	A (7.8)	A (8.6)	A (9.3)
2027 with Development (Case 3) [27]						
Eastbound 3rd Street Approach	C (15.5)	F (96.7)	F (277.0)	C (17.2)	F (357.6)	F (565.9)
Westbound Kings Highway Approach	B (12.1)	F (56.7)	D (30.6)	B (12.0)	F (89.8)	E (39.5)
Northbound Savannah Road Left Turn	A (7.6)	A (8.0)	A (7.8)	A (7.6)	A (8.0)	A (8.0)
Southbound Savannah Road Left Turn	A (7.9)	A (8.6)	A (9.3)	A (7.9)	A (8.7)	A (9.5)

[26] For the analysis, the TIS used HCS7 version 7.8, whereas JMT used HCS7 version 7.8.5 resulting in delay differences.
[27] During the weekday AM, the TIS used a westbound through volume of 24, and JMT used a volume of 23 consistent with the volume diagrams.

Table 6 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Roundabout[1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268) / Savannah Road (Sussex Road 18) [28]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development (Case 2)						
Eastbound 3rd Street	-	-	-	A (4.3)	A (7.4)	A (5.6)
Westbound Kings Highway	-	-	-	A (4.9)	A (7.6)	B (10.0)
Northbound Savannah Road	-	-	-	A (5.1)	A (7.5)	B (10.0)
Southbound Savannah Road	-	-	-	A (4.8)	A (7.7)	A (5.8)
Overall Intersection	-	-	-	A (4.9)	A (7.6)	A (8.4)
2027 with Development (Case 3)						
Eastbound 3rd Street	-	-	-	A (4.5)	A (7.8)	A (6.2)
Westbound Kings Highway	-	-	-	A (5.1)	A (8.5)	B (11.4)
Northbound Savannah Road	-	-	-	A (5.3)	A (7.8)	B (11.4)
Southbound Savannah Road	-	-	-	A (5.0)	A (8.3)	A (6.4)
Overall Intersection	-	-	-	A (5.1)	A (8.2)	A (9.4)

[28] JMT modeled the intersection as a single-lane roundabout.

Table 6 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Signalized Intersection [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268) / Savannah Road (Sussex Road 18) [29]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development (Case 2)	-	-	-	C (26.6)	C (33.7)	C (31.3)
2027 with Development (Case 3)	-	-	-	C (29.3)	D (37.5)	D (36.3)

[29] JMT modeled the intersection as a signalized with split phases along the 3rd Street and Kings Highway approaches. A cycle length of 120 seconds was utilized for all peak periods.

Table 7
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, INC.

Signalized Intersection [1]	**LOS per TIS**			**LOS per JMT**		
Savannah Road/Gills Neck Road/Front Street (Sussex Road 267) [30]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2018 Existing (Case 1) [31]	B (15.9)	B (19.1)	F (136.7)	C (29.8)	C (31.3)	F (166.2)
2027 without Development (Case 2) [31]				C (32.1)	D (36.3)	F (240.1)
2027 without Development (Case 2) *with signal timing optimization* [34]	B (14.1)	B (17.7)	F (154.6)	B (15.2)	B (19.7)	F (160.5)
2027 without Development (Case 2) *with improvement* [33]				B (14.2)	B (17.2)	D (44.6)
2027 with Development (Case 3) [33]				C (32.4)	D (36.9)	F (263.7)
2027 with Development (Case 3) *with signal timing optimization* [32]	B (14.5)	B (17.8)	F (158.2)	B (18.3)	C (22.0)	F (176.7)
2027 with Development (Case 3) *with improvement* [33]				B (16.8)	B (17.8)	D (48.2)

[30] JMT did not incorporate RTOR because the movement in restricted, whereas the TIS did.
[31] JMT used MAX 1 Timers, whereas the TIS utilized observed signal timing splits for existing cases and optimized signal timing splits for future cases.
[32] For optimized signal timing scenarios, JMT utilized cycle lengths of 60, 90, and 120 seconds for the AM, PM, and Saturday peak hours, respectively.
[33] JMT improvement scenario includes providing an additional through lane along northbound and southbound Savannah Road with signal timing optimization. Cycle lengths of 60, 90, and 120 seconds were utilized for the AM, PM, and Saturday peak hours, respectively.

Table 7 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, INC.

Roundabout[1]	**LOS per TIS**			**LOS per JMT**		
Savannah Road/Gills Neck Road/Front Street (Sussex Road 267)	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development (Case 2) [34]						
Eastbound Front Street Approach	-	-	-	A (4.1)	A (5.7)	C (15.0)
Westbound Gills Neck Road Approach	-	-	-	A (4.7)	A (5.2)	B (14.8)
Northbound Savannah Road Approach	-	-	-	A (5.2)	A (5.7)	E (39.8)
Southbound Savannah Road Approach	-	-	-	A (4.7)	A (7.8)	C (16.9)
Overall				A (4.8)	A (6.6)	C (24.4)
2027 with Development (Case 3) [34]						
Eastbound Front Street Approach	-	-	-	A (4.2)	A (5.9)	B (15.9)
Westbound Gills Neck Road Approach	-	-	-	A (4.7)	A (5.4)	C (16.1)
Northbound Savannah Road Approach	-	-	-	A (5.3)	A (6.1)	F (54.1)
Southbound Savannah Road Approach	-	-	-	A (4.8)	A (8.2)	C (20.8)
Overall				A (4.9)	A (6.9)	D (31.3)

[34] JMT modeled the intersection as a single-lane roundabout with a right turn bypass lane along the eastbound Front Street and the northbound Savannah Road approaches.

Table 8
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/ Atlantic Drive [2]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2018 Existing (Case 1)						
Northbound Kings Highway Left Turn	A (8.3)	F (112.3)	F (126.5)	A (8.3)	B (10.4)	A (9.7)
Eastbound Atlantic Drive Approach	B (13.7)	F (*)	F (*)	B (13.2)	C (24.7)	D (31.1)
2027 without Development and without Kings Highway Dual Lane Project (Case 2a)						
Northbound Kings Highway Left Turn	A (8.8)	F (78.2)	F (84.5)	A (8.9)	B (12.4)	B (10.9)
Eastbound Atlantic Drive Approach	C (17.7)	F (*)	F (*)	C (16.6)	F (57.1)	F (93.4)
2027 without Development and with Kings Highway Dual Lane Project (Case 2b) [3]						
Northbound Kings Highway Left Turn	-	-	-	A (8.9)	B (12.5)	B (11.0)
Eastbound Atlantic Drive Approach	-	-	-	B (12.9)	C (24.1)	E (38.0)
2023 with development of Lot 1 (39,000 square feet of medical/dental office space) and without the Kings Highway Dual Lane Project (Case 2d)						
Northbound Kings Highway Left Turn	A (8.6)	F (110.0)	F (125.1)	A (8.7)	B (11.3)	B (10.4)
Eastbound Atlantic Drive Approach	C (15.8)	F (*)	F (*)	C (15.0)	E (35.8)	F (52.4)

*HCS reported excessive delay greater than 1000 seconds per vehicle

Table 8 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/ Atlantic Drive [2]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development and without Kings Highway Dual Lane Project (Case 3a)						
Northbound Kings Highway Left Turn	A (9.0)	F (73.4)	E (43.7)	A (9.1)	B (13.7)	B (11.7)
Eastbound Atlantic Drive Approach	C (20.7)	F (*)	F (*)	C (19.0)	F (107.4)	F (261.9)
2027 with Development and with Kings Highway Dual Lane Project and Atlantic Drive as Rights-In/Rights-Out Only (Case 3b) [3]						
Eastbound Atlantic Drive Right Turn	B (10.7)	C (17.8)	B (14.1)	B (10.6)	C (17.7)	B (14.3)
2027 with Development, only access along Gills Neck Road and without Kings Highway Dual Lane Project (Case 3c)						
Northbound Kings Highway Left Turn	A (9.1)	F (60.7)	F (64.0)	A (9.2)	B (12.8)	B (11.6)
Eastbound Atlantic Drive Approach	C (19.9)	F (*)	F (*)	C (18.4)	F (76.5)	F (168.9)

*HCS reported excessive delay greater than 1000 seconds per vehicle
Note:
Analysis highlighted in blue represents JMT suggested improvements with the full build of the proposed development

Table 8 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/ Atlantic Drive[2]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development, without Kings Highway Dual Lane Project and rights-in only along Kings Highway (Case 3c) [35]						
Northbound Kings Highway Left Turn	-	-	-	A (9.2)	B (12.8)	B (11.6)
Eastbound Atlantic Drive Approach	-	-	-	C (20.1)	F (89.6)	F (351.4)
2023 with 117,000 square feet of medical/dental office space, without the Kings Highway Dual Lane Project, and rights-in site entrance on Kings Highway (Case 3d)						
Northbound Kings Highway Left Turn	A (8.7)	B (11.3)	B (11.6)	A (8.7)	B (11.4)	B (11.2)
Eastbound Atlantic Drive Approach	C (17.1)	E (44.9)	F (397.7)	C (16.1)	E (39.0)	F (164.8)

Note: Analysis highlighted in gray represents the JMT interim recommendations

[35] The additional northbound Kings Highway through traffic as a result of a rights-in only site access along Kings Highway increases the delay for vehicles exiting Atlantic Drive.

Table 8 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Signalized Intersection[1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268)/ Atlantic Drive [36,37]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development and without Kings Highway Dual Lane Project (Case 2a)	-	-	-	A (8.1)	C (32.3)	B (19.8)
2027 without Development and with Kings Highway Dual Lane Project (Case 2b)	-	-	-	A (5.6)	B (14.2)	A (6.6)
2023 with development of Lot 1 (39,000 square feet of medical/dental office space) and without the Kings Highway Dual Lane Project (Case 2d)	-	-	-	A (7.5)	C (22.9)	B (13.8)
2027 with Development and without Kings Highway Dual Lane Project (Case 3a)	-	-	-	A (8.9)	E (56.7)	D (45.6)
2027 with Development and with Kings Highway Dual Lane Project (Case 3b) [38]	-	-	-	A (5.6)	B (13.8)	A (7.1)
2027 with Development, only access along Gills Neck Road, and without Kings Highway Dual Lane Project (Case 3c)	-	-	-	A (8.7)	D (40.2)	C (34.1)
2023 with 117,000 square feet of medical/dental office space, without the Kings Highway Dual Lane Project, and rights-in site entrance on Kings Highway (Case 3d)	-	-	-	A (7.9)	C (22.9)	C (30.4)

[36] JMT modeled the intersection as signalized with a cycle length of 100 seconds during the AM and Saturday peak periods, and 130 seconds during the PM peak period. The signal would operate with protected-permissive left turn phasing along the northbound Kings Highway approach.

[37] JMT modeled the intersection with one left turn lane and one through lane along northbound Kings Highway, one through lane and one right turn lane along southbound Kings Highway, and one left turn lane and one right turn lane along Atlantic Drive. For the scenarios with the Kings Highway Dual Lane Project, the number of through lanes along Kings Highway would increase to two.

[38] JMT assumed Atlantic Drive would not have turning restrictions with the provision of a traffic signal and the Kings Highway Dual Lane Project.

Table 9
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, INC.

Signalized Intersection [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway/Gills Neck Road/Cape Henlopen High School [39,40,41]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2018 Existing (Case 1) [42]	F (160.3)	F (343.7)	F (412.7)	F (226.2)	F (359.7)	F (832.0)
2027 without Development and without Kings Highway Dual Lane Project (Case 2a) [43]	F (202.3)	F (112.9)	F (433.5)	F (436.3)	F (160.6)	F (574.0)
2027 without Development and with Kings Highway Dual Lane Project (Case 2b) [44]	D (46.2)	C (32.2)	C (26.4)	E (78.7)	D (50.5)	D (51.0)
2027 without Development, with Kings Highway Dual Lane Project (Case 2b) *with improvements* [45]	D (48.0)	D (53.2)	C (28.7)	C (31.8)	D (45.2)	C (33.2)
2023 with development of Lot 1 (39,000 square feet of medical/dental office space) and without the Kings Highway Dual Lane Project (Case 2d)[46]	F (209.3)	F (111.4)	F (314.9)	F (152.8)	D (46.6)	F (307.5)

[39] For future Cases, JMT analyzed the intersection as a coordinated intersection with Clay Road, whereas the TIS analyzed the intersection as an uncoordinated intersection.
[40] For future Cases with the Kings Highway Dual Lane Project (Cases 2b and 3b), both the TIS and JMT increased the peak hour factor to 0.92 and set all initial queue lengths to zero.
[41] For future Cases, JMT utilized signal cycle lengths consistent with the DelDOT Timing Plan whereas the TIS utilized various cycle lengths.
[42] JMT utilized timing splits provided on the DelDOT Timing Plan, whereas the TIS did not. Both the TIS and JMT utilized signal cycle lengths consistent with the DelDOT Timing Plan.
[43] For the AM, PM, and Saturday peak hours, JMT maintained the calibrated peak hour factor, whereas the TIS increased the peak hour factor to various values.
[44] Both the TIS and JMT modeled the intersection with two through lanes along Kings Highway and the Gills Neck Road and Cape Henlopen High School Entrance approaches maintained the existing lane configurations.
[45] Both the TIS and JMT modeled the intersection with two through lanes along Kings Highway, one left turn lane, one left turn/through lane, and one right turn lane along Gills Neck Road, and the Cape Henlopen High School Entrance approach would maintain the existing lane configurations. The signal phasing along Gills Neck Road and the Cape Henlopen High School would be modified to split phase.
[46] Both the TIS and JMT utilized weighted peak hour factors to conduct the analysis.

Table 9 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Signalized Intersection [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway/Gills Neck Road/Cape Henlopen High School [41,42,43]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development and without Kings Highway Dual Lane Project (Case 3a)	F (248.5)	F (202.4)	F (448.3)	F (443.4)	F (251.2)	F (754.6)
2027 with Development and with Kings Highway Dual Lane Project (Case 3b) [44]	D (51.9)	E (67.5)	D (51.4)	F (87.8)	F (117.2)	F (111.5)
2027 with Development and with Kings Highway Dual Lane Project (Case 4) [47]	D (47.7)	E (61.2)	D (39.1)	D (54.5)	D (54.1)	D (54.9)

Note: Analysis highlighted in blue represents JMT suggested improvements with the full build of the proposed development

[47] Both the TIS and JMT modeled the intersection with two through lanes along Kings Highway, one left turn lane, one shared left turn/through lane, and one right turn lane along Gills Neck Road and one left turn lane, one through lane, and one right turn lane along the Cape Henlopen High School Entrance approach. The signal phasing along Gills Neck Road and the Cape Henlopen High School would be modified to split phase.

Table 9 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Signalized Intersection [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway/Gills Neck Road/Cape Henlopen High School [41,42,43]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development without Kings Highway Dual Lane Project (Case 3c)	F (230.0)	F (197.4)	F (425.1)	F (451.9)	F (279.7)	F (686.7)
2027 with Development and without Kings Highway Dual Lane Project (Case 3c) *with TIS improvements* [48]	F (200.2)	F (143.4)	F (363.1)	F (356.2)	F (167.6)	F (571.2)
2027 with Development without Kings Highway Dual Lane Project and with rights-in only entrance along Kings Highway (Case 3c) [49]	-	-	-	F (327.8)	F (135.0)	F (582.6)
2023 with 117,000 square feet of medical/dental office space, without the Kings Highway Dual Lane Project, and rights-in site entrance on Kings Highway (Case 3d)[50,51]	F (139.6)	E (62.6)	F (317.3)	F (161.2)	D (54.7)	F (366.8)

Note: Analysis highlighted in gray represents the JMT interim recommendations

[48] TIS improvements scenario incorporates two left turn lanes and a shared through/right turn lane along the westbound Gills Neck Road approach and split phase operation along the eastbound and westbound approaches.

[49] This scenario models the westbound Gills Neck Road approach with one left turn lane, one shared left turn/through lane, and one right turn lane and the southbound approach with one left turn lane, one through lane, and one shared through/right turn lane.

[50] Both the TIS and JMT modeled the intersection with one left turn lane, one through lane, and one right turn lane along northbound Kings Highway, one left turn lane, one through lane, and one shared through/right turn lane along southbound Kings Highway, and two left turn lanes, and one shared through/right turn lane along Gills Neck Road. The TIS and JMT maintained the existing lane configurations along the Cape Henlopen High School Entrance approach. The signal phasing along Gills Neck Road and the Cape Henlopen High School would be modified to split phase.

[51] During the PM peak hour, JMT optimized the signal timing splits and modified the signal cycle length to 150 seconds.

Table 10
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway/Clay Road (Sussex Road 269) [2, 52]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2018 Existing (Case 1)						
Northbound Kings Highway Left Turn	F (168.4)	B (13.4)	F (64.3)	A (9.0)	B (14.1)	A (9.7)
Eastbound Clay Road Approach	F (*)	F (*)	F (*)	F (160.1)	F (*)	F (400.9)
2027 without Development and without Kings Highway Dual Lane Project (Case 2a)						
Northbound Kings Highway Left Turn	F (110.1)	C (16.1)	F (69.4)	-	-	-
Southbound Kings Highway Left Turn	F (177.7)	B (13.0)	F (152.6)	-	-	-
Eastbound Clay Road Approach	F (*)	F (103.4)	F (735.5)	-	-	-
Westbound Gills Neck Village Center Access	F (*)	D (25.4)	F (863.8)	-	-	-
2027 with Development and without Kings Highway Dual Lane Project (Case 3a)						
Northbound Kings Highway Left Turn	F (110.1)	C (22.8)	D (29.5)	-	-	-
Southbound Kings Highway Left Turn	F (177.7)	B (14.4)	F (163.9)	-	-	-
Eastbound Clay Road Approach	F (*)	F (319.8)	F (430.2)	-	-	-
Westbound Gills Neck Village Center Access	F (*)	E (37.3)	F (*)	-	-	-

[52] For all future Cases, JMT modeled the intersection as a signalized intersection per direction from DelDOT, whereas the TIS only modeled the intersection as signalized for Cases that only incorporated the widening project.

Table 10 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Signalized Intersection [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway/Clay Road (Sussex Road 269) [53, 54]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development and without Kings Highway Dual Lane Project (Case 2a)	-	-	-	E (55.8)	F (107.9)	E (71.1)
2027 without Development and with Kings Highway Dual Lane Project (Case 2b) [55]	C (26.9)	C (30.1)	C (23.4)	D (36.9)	C (28.3)	C (23.5)
2027 without Development and with Kings Highway Dual Lane Project (Case 2b) *with improvements* [56]	-	-	-	D (37.0)	C (28.6)	C (23.3)
2023 with development of Lot 1 (39,000 square feet of medical/dental office space) and without the Kings Highway Dual Lane Project (Case 2d)	-	-	-	C (34.2)	F (94.9)	D (46.5)
2027 with Development and without Kings Highway Dual Lane Project (Case 3a)	-	-	-	F (103.0)	F (191.3)	F (151.1)

[53] For future Cases, JMT analyzed the intersection as a signalized intersection coordinated with Gills Neck Road, whereas the TIS analyzed the intersection as an uncoordinated signalized intersection. JMT utilized signal cycle lengths consistent with the signal cycle lengths at the Kings Highway/Gills Neck Road intersection whereas the TIS utilized various signal cycle lengths.

[54] JMT modeled the intersection with one left turn lane, one through lane, and one right turn lane along the northbound and southbound Kings Highway approaches, one left turn lane, one through lane, and one right turn lane along the eastbound Clay Road approach, and two left turn lanes, one through lane and one right turn lane along the Gills Neck Village Center Entrance. Protected-permissive left turn phasing was utilized along the northbound and southbound approaches, and split phase was utilized along the eastbound and westbound approaches.

[55] JMT and the TIS modeled the intersection with two through lanes along Kings Highway. The TIS modeled the side street approaches with one left turn lane, one through lane, and one right turn lane.

[56] JMT incorporated a scenario with improvements proposed at the Kings Highway/Gills Neck Road intersection. Specifically, the improvements include the intersection with two through lanes along Kings Highway, one left turn lane, one left turn/through lane, and one right turn lane along Gills Neck Road, and the Cape Henlopen High School Entrance approach would maintain the existing lane configurations. The signal phasing along Gills Neck Road and the Cape Henlopen High School would be modified to split phase.

Table 10 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, INC.

Signalized Intersection [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway/Clay Road (Sussex Road 269) [57, 58]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development and with Kings Highway Dual Lane Project (Case 3b)	-	-	-	D (50.8)	E (58.0)	D (36.6)
2027 with Development and with Kings Highway Dual Lane Project (Case 4) [57,58]	C (30.1)	D (37.0)	C (33.3)	D (39.4)	D (46.5)	D (43.0)

Note: Analysis highlighted in blue represents JMT suggested improvements with the full build of the proposed development

[57] Both the TIS and JMT modeled the intersection with two through lanes along Kings Highway, one left turn lane, one through lane, and one right turn lane along Clay Road.

[58] Along the westbound Gills Neck Village Center Entrance approach, JMT provided two left turn lanes, one through lanes, and one right turn lane whereas the TIS provided one left turn lane, one through lane, and one right turn lane. The TIS used protected and permissive phasing along the eastbound and westbound approaches whereas JMT utilized split phase operation.

Table 10 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, INC.

Signalized Intersection [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway/Clay Road (Sussex Road 269) [57, 58]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 with Development, without Kings Highway Dual Lane Project and no site entrance on Kings Highway (Case 3c)	-	-	-	F (87.0)	F (196.3)	F (158.6)
2027 with Development, without Kings Highway Dual Lane Project and no site entrance on Kings Highway (Case 3c) *with TIS improvements* [59]	-	-	-	F (131.9)	F (193.6)	F (168.3)
2027 with Development, without Kings Highway Dual Lane Project and rights-in only entrance on Kings Highway (Case 3c) [60]	-	-	-	F (95.6)	F (189.3)	F (156.6)
2023 with 117,000 square feet of medical/dental office space, without the Kings Highway Dual Lane Project, and rights-in site entrance on Kings Highway (Case 3d)[55]	-	-	-	D (40.7)	F (165.2)	E (69.7)

Note: Analysis highlighted in gray represents the JMT interim recommendations

[59] The TIS improvements scenario incorporates two left turn lanes and a shared through/right turn lane along the westbound Gills Neck Road approach to Kings Highway and split phase operation along the eastbound and westbound approaches at the Gills Neck Road/Kings Highway intersection.

[60] JMT modeled the southbound Kings Highway approach with one right turn lane and one through lane.

Table 11
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection)[1]	**LOS per TIS**			**LOS per JMT**		
Clay Road (Sussex Road 269) / Marsh Road (Sussex Road 269A)	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
2018 Existing (Case 1) [61]						
Westbound Clay Road Left	A (7.5)	A (7.6)	A (7.6)	-	-	-
Northbound Marsh Road Approach	A (9.3)	A (9.5)	A (9.4)	-	-	-

[61] Due to the unique configuration of the Clay Road/Marsh Road intersection in Case 1, JMT analyzed the intersection as three separate intersections. The TIS analyzed it as a single standard T-intersection and the results are summarized in this table.

Table 11 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection)[1]	**LOS per TIS**			**LOS per JMT**		
Clay Road (Sussex Road 269) / Marsh Road (Sussex Road 269A) [62]	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
2018 Existing (Case 1) – a [63]						
Eastbound Clay Road Right Turn	-	-	-	A (8.5)	A (8.9)	A (8.5)
Northbound Marsh Road Left Turn	-	-	-	A (7.3)	A (7.6)	A (7.3)
2018 Existing (Case 1) – b [64]						
Eastbound U-turn[65]	-	-	-	-	A (7.5)	-
Northbound Marsh Road Left Turn	-	-	-	A (9.4)	B (10.1)	B (10.4)
2018 Existing (Case 1) – c [66]						
Westbound Clay Road Left Turn	-	-	-	A (7.5)	A (7.5)	A (7.6)
Northbound Marsh Road Right Turn	-	-	-	A (9.1)	A (8.8)	A (9.3)

[62] Due to the unique configuration of the Clay Road/Marsh Road intersection, JMT analyzed the intersection as three separate intersections.
[63] Intersection 'a' depicts the analysis conducted at the location where the eastbound Clay Road approach is a stop-controlled right turn lane, the northbound Marsh Road approach is a shared through/left turn lane, and the southbound Marsh Road approach is a through lane.
[64] Intersection 'b' depicts the analysis conducted at the location where the eastbound Clay Road approach is a shared through/right turn lane, the westbound Clay Road approach is a through lane, and the northbound Marsh Road approach is a stop-controlled left turn lane.
[65] JMT modeled the U-turn as a left turn due to limitations of the HCS software.
[66] Intersection "c" depicts the analysis conducted at the location where the eastbound Clay Road approach is a through lane, the westbound Clay Road approach is a shared through/left turn lane and the northbound Marsh Road approach is a stop-controlled right turn lane.

Table 11 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection)[1]	**LOS per TIS**			**LOS per JMT**		
Clay Road (Sussex Road 269) / Marsh Road (Sussex Road 269A) [67]	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
2027 without Development and without Kings Highway Dual Lane project (Case 2a)						
Eastbound Clay Road Approach	B (13.3)	B (13.1)	B (13.5)	B (13.3)	B (12.8)	B (13.0)
Northbound Marsh Road Left Turn	A (8.1)	A (8.2)	A (8.1)	A (8.1)	A (8.2)	A (8.0)
2027 with Development (Case 3)						
Eastbound Clay Road Approach	C (15.2)	C (16.5)	C (18.3)	B (14.4)	C (15.5)	C (15.9)
Northbound Marsh Road Left Turn	A (8.2)	A (8.6)	A (8.4)	A (8.3)	A (8.6)	A (8.3)

[67] The intersection will be reconfigured as part of the *Realignment of Old Orchard Road/Savannah Road/Wescoats Road* (DelDOT Contract No. T201609601) project. The existing westbound Clay Road left-turn onto Marsh Road will be a major street through movement. The existing right-turn from Marsh Road onto Clay Road will be a major street through movement. The existing eastbound through movement on Clay Road will be a stop-controlled minor street left-turn onto Clay Road.

Table 12
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, INC.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268) / Dartmouth Drive (Sussex Road 268A) [2,68,69]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2018 Existing (Case 1)						
Northbound Kings Highway Left Turn	A (9.7)	A (7.7)	F (133.7)	A (7.4)	A (7.7)	A (7.5)
Eastbound Dartmouth Drive Approach	D (28.7)	F (145.0)	F (*)	D (29.5)	F (86.3)	F (180.7)
2027 without Development (Case 2)						
Northbound Kings Highway Left Turn	A (9.7)	A (7.8)	F (142.5)	A (7.4)	A (7.8)	A (7.6)
Eastbound Dartmouth Drive Approach	F (330.2)	F (*)	F (*)	F (199.0)	F (840.3)	F (831.0)
2027 with Development (Case 3)						
Northbound Kings Highway Left Turn	A (9.7)	A (7.8)	F (142.5)	A (7.4)	A (7.8)	A (7.6)
Eastbound Dartmouth Drive Approach	F (944.9)	F (*)	F (*)	F (477.8)	F (*)	F (*)

*HCS reported excessive delay greater than 1000 seconds per vehicle

[68] The TIS utilized various values for proportion of time blocked whereas JMT utilized the default value of 0.
[69] Results represent the eastbound Dartmouth Drive Approach to have one shared left turn/right turn lane. JMT also incorporated the right turn lane to have a flared right turn with a 5-vehicle storage.

Table 12 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Roundabout[1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268) / Dartmouth Drive (Sussex Road 268A) [70]	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
2027 without Development and with or without Kings Highway Dual Lane Project (Case 2a) [71]						
Eastbound Dartmouth Drive Approach	A (5.7)	A (6.3)	A (5.9)	A (5.7)	A (6.4)	A (6.0)
Northbound Kings Highway Approach	A (0.2)	A (0.9)	A (0.6)	A (0.2)	A (0.9)	A (0.6)
Southbound Kings Highway Approach	A (0.2)	A (0.4)	A (0.2)	A (0.2)	A (0.4)	A (0.2)
Overall Intersection	A (1.1)	A (1.5)	A (1.2)	A (1.1)	A (1.5)	A (1.3)
2027 with Development and with or without Kings Highway Dual Lane Project (Case 3) [71]						
Eastbound Dartmouth Drive Approach	A (6.3)	A (6.9)	A (7.0)	A (6.2)	A (6.9)	A (7.2)
Northbound Kings Highway Approach	A (0.2)	A (0.9)	A (0.5)	A (0.2)	A (0.9)	A (0.5)
Southbound Kings Highway Approach	A (0.2)	A (0.3)	A (0.2)	A (0.2)	A (0.3)	A (0.2)
Overall Intersection	A (1.2)	A (1.5)	A (1.4)	A (1.2)	A (1.5)	A (1.5)

Note: Analysis highlighted in blue represents JMT suggested improvements with the full build of the proposed development

[70] Both the TIS and JMT modeled the northbound approach with a right turn bypass lane to represent a northbound bypass lane.
[71] Both the TIS and JMT modeled the intersection as a single-lane roundabout.

Table 12 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Mitchell Farm
Report Dated: September 2019
Prepared by Davis, Bowen & Friedel, Inc.

Signalized Intersection [1]	**LOS per TIS**			**LOS per JMT**		
Kings Highway (Sussex Road 268) / Dartmouth Drive (Sussex Road 268A) [72]	Weekday AM	Weekday PM	Saturday Peak	Weekday AM	Weekday PM	Saturday Peak
2027 without Development and with or without Kings Highway Dual Lane Project (Case 2a)	-	-	-	C (27.3)	C (26.3)	D (41.4)
2027 with Development and with or without Kings Highway Dual Lane Project (Case 3)	-	-	-	D (54.1)	D (41.9)	F (112.1)

[72] JMT analyzed the intersection as a signalized intersection with a 60 second cycle length during all peak periods. The eastbound Dartmouth Drive approach would provide one left turn lane and one shared left turn/right turn lane, the northbound Kings Highway approach would provide one left turn lane and one through lane, and the southbound Kings Highway approach would provide one through lane.

STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. BOX 778
DOVER, DELAWARE 19903

NICOLE MAJESKI
SECRETARY

December 20, 2021

Mr. Jamie Whitehouse, Director
Sussex County Planning & Zoning
P.O. Box 417
Georgetown, DE 19947

Dear Mr. Whitehouse:

The Department has completed its review of a Service Level Evaluation Request for the **Henlopen Properties, LLC (Jon Mayers)** proposed land use application, which we received on December 10, 2021. This application is for an approximately 42-acre portion of a 48.01- acre parcel (Tax Parcel: 335-8.00-37.00). The subject land is located on the north side of Gills Neck Road (Sussex Road 267) and the east side of Kings Highway (US Route 9). The subject land is currently zoned AR (Agriculture Residential), and the applicant seeks a conditional use approval to build 267 multifamily houses.

Per the 2019 Delaware Vehicle Volume Summary, the annual average daily traffic volumes along Gills Neck Road from Red Tail Road to Kings Highway, is 4,186 vehicles per day. The annual average daily traffic volumes along Kings Highway from Kings Highway (Sussex Road 268) to Gills Neck Road, is 12,019 vehicles per day.

Based on our review, we estimate that the proposed land use will generate more than 50 vehicle trips per peak hour or 500 vehicle trips per day, and would be considered to have a **Minor** impact to the local area roadways. In this instance, the Department considers a Minor impact to be when a proposed land use would generate more than either 50 vehicle trips per peak hour and / or 500 vehicle trips per day but fewer than 200 vehicle trips per a weekly peak hour and 2,000 vehicle trips per day. Because of this impact, we recommend that the applicant be required to perform a Traffic Impact Study (TIS) for the subject application. However, our Development Coordination Manual provides that where a TIS is required only because the volume warrants are met, and the projected trip generation will be fewer than 200 vehicle trips per a weekly peak hour and fewer than 2,000 vehicle trips per day, DelDOT may permit the developer to pay an Area-Wide Study Fee of $10 per daily trip in lieu of doing a TIS. For this application, if the County were agreeable, we would permit the developer to pay an Area-wide Study Fee.

DelDOT

If the County approves this application, the applicant should be reminded that DelDOT requires compliance with State regulations regarding plan approvals and entrance permits, whether or not a TIS is required.

Please contact Ms. Annamaria Furmato, at Annamaria.Furmato@delaware.gov, if you have questions concerning this correspondence.

Sincerely,

T. William Brockenbrough, Jr.
County Coordinator
Development Coordination

TWB:afm
cc: Henlopen Properties, LLC (Jon Mayers), Applicant
Sussex Reviewer, Sussex County Planning & Zoning
David Edgell, Coordinator, Cabinet Committee on State Planning Issues
Todd Sammons, Assistant Director, Development Coordination
Scott Rust, South District Public Works Manager, Maintenance & Operations
Steve McCabe, Sussex County Review Coordinator, Development Coordination
Derek Sapp, Subdivision Manager, Development Coordination
Kevin Hickman, Subdivision Manager, Development Coordination
Brian Yates, Subdivision Manager, Development Coordination
John Andrescavage, Subdivision Manager, Development Coordination
James Argo, South District Project Reviewer, Maintenance & Operations
Claudy Joinville, Project Engineer, Development Coordination
Annamaria Furmato, Project Engineer, Development Coordination

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December 20, 2021

Mr. Jamie Whitehouse, Director
Sussex County Planning & Zoning
P.O. Box 417
Georgetown, DE 19947

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Per the 2019 Delaware Vehicle Volume Summary, the annual average daily traffic volumes along Gills Neck Road from Red Tail Road to Kings Highway, is 4,186 vehicles per day. The annual average daily traffic volumes along Kings Highway from Kings Highway (Sussex Road 268) to Gills Neck Road, is 12,019 vehicles per day.

Based on our review, we estimate that the proposed land use would generate more than 50 vehicle trips in any hour or 500 vehicle trips per day, and would be considered to have a **Major** impact to the local area roadways. In this instance, the Department considers a Major impact to be when a proposed land use would generate more than 200 vehicle trips in any hour of the week and / or 2,000 vehicle trips per day. According to the Institute of Transportation Engineers (ITE) Trip Generation Manual, (trip generation). These numbers of trips meet DelDOT's warrants for requiring a Traffic Impact Study (TIS).

DelDOT

If the County approves this application, the applicant should be reminded that DelDOT requires compliance with State regulations regarding plan approvals and entrance permits, whether or not a TIS is required.

Please contact Ms. Annamaria Furmato, at Annamaria.Furmato@delaware.gov, if you have questions concerning this correspondence.

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Per the 2019 Delaware Vehicle Volume Summary, the annual average daily traffic volumes along Gills Neck Road from Red Tail Road to Kings Highway, is 4,186 vehicles per day. The annual average daily traffic volumes along Kings Highway from Kings Highway (Sussex Road 268) to Gills Neck Road, is 12,019 vehicles per day.

Based on our review, we estimate that the proposed land use will generate more than 50 vehicle trips per peak hour or 500 vehicle trips per day, and would be considered to have a **Minor** impact to the local area roadways. In this instance, the Department considers a Minor impact to be when a proposed land use would generate more than either 50 vehicle trips per peak hour and / or 500 vehicle trips per day but fewer than 200 vehicle trips per a weekly peak hour and 2,000 vehicle trips per day. Because of this impact, we recommend that the applicant be required to perform a Traffic Impact Study (TIS) for the subject application. However, our Development Coordination Manual provides that where a TIS is required only because the volume warrants are met, and the projected trip generation will be fewer than 200 vehicle trips per a weekly peak hour and fewer than 2,000 vehicle trips per day, DelDOT may permit the developer to pay an Area-Wide Study Fee of $10 per daily trip in lieu of doing a TIS. For this application, if the County were agreeable, we would permit the developer to pay an Area-wide Study Fee.

DelDOT

If the County approves this application, the applicant should be reminded that DelDOT requires compliance with State regulations regarding plan approvals and entrance permits, whether or not a TIS is required.

Please contact Ms. Annamaria Furmato, at Annamaria.Furmato@delaware.gov, if you have questions concerning this correspondence.

Sincerely,

T. William Brockenbrough, Jr.
County Coordinator
Development Coordination

TWB:afm
cc: Henlopen Properties, LLC (Jon Mayers), Applicant
Sussex Reviewer, Sussex County Planning & Zoning
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James Argo, South District Project Reviewer, Maintenance & Operations
Claudy Joinville, Project Engineer, Development Coordination
Annamaria Furmato, Project Engineer, Development Coordination

DELDOT CONSTRUCTION PLAN GENERAL NOTES

REVISED: DECEMBER 8, 2017

1. ALL ENTRANCES SHALL CONFORM TO THE DELAWARE DEPARTMENT OF TRANSPORTATION'S (DELDOT'S) CURRENT DEVELOPMENT COORDINATION MANUAL (DCM) AND SHALL BE SUBJECT TO ITS APPROVAL.
2. ALL MATERIALS AND WORKMANSHIP WITHIN THE STATE OF DELAWARE RIGHT-OF-WAY SHALL BE IN ACCORDANCE WITH CURRENT STATE OF DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, SUPPLEMENTAL SPECIFICATIONS, STANDARD CONSTRUCTION DETAILS, SPECIAL PROVISIONS AND DESIGN GUIDANCE MEMORANDUMS.
3. ALL DISTURBED AREAS WITHIN THE STATE RIGHT-OF-WAY, BUT NOT IN THE PAVEMENT, SHALL BE TOP-SOILED (6" MINIMUM), FERTILIZED, SEEDED AND MULCHED. IF SOD IS USED NEXT TO SIDEWALK OR SHARED-USE PATH, CONTRACTOR SHALL GRADE TOPSOIL ADJACENT TO THE SIDEWALK OR SHARED-USE PATH PRIOR TO PLACEMENT OF SOD TO ENSURE THAT SOD IS PLACED FLUSH OR JUST BELOW EDGE OF SIDEWALK OR SHARED-USE PATH TO AVOID WATER PONDING ON THE SIDEWALK OR SHARED-USE PATH.
4. A 72-HOUR (MINIMUM) NOTICE SHALL BE GIVEN TO THE DELDOT DISTRICT PERMIT SUPERVISOR PRIOR TO STARTING ENTRANCE CONSTRUCTION.
5. MISS UTILITY OF DELAWARE SHALL BE NOTIFIED THREE (3) CONSECUTIVE WORKING DAYS PRIOR TO EXCAVATION, AT 1-800-282-8555.
6. ALL SIGNING, STRIPING AND MAINTENANCE OF TRAFFIC IS THE CONTRACTOR'S RESPONSIBILITY AND SHALL FOLLOW THE GUIDELINES SHOWN IN THE DELAWARE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (DE MUTCD) FOR STREETS AND HIGHWAYS (LATEST EDITION). THE OWNER OR MAINTENANCE CORPORATION SHALL BE RESPONSIBLE FOR MAINTENANCE OF ALL SIGNS INSTALLED AS PART OF THIS PROJECT.
7. PLAN LOCATION AND DIMENSIONS SHALL BE STRICTLY ADHERED TO UNLESS OTHERWISE DIRECTED BY THE DELDOT INSPECTOR.
8. A COPY OF THE UP TO DATE APPROVED CONSTRUCTION DOCUMENTS AND DELDOT APPROVAL LETTERS SHALL BE MAINTAINED ON THE PROJECT SITE AT ALL TIMES AND BE AVAILABLE FOR INSPECTION BY DELDOT PERSONNEL.
9. EXISTING UTILITIES ARE SHOWN IN ACCORDANCE WITH THE BEST AVAILABLE INFORMATION. COMPLETENESS OR CORRECTNESS THEREOF IS NOT GUARANTEED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE UTILITY COMPANIES INVOLVED IN ORDER TO SECURE THE MOST ACCURATE INFORMATION AVAILABLE AS TO UTILITY LOCATION AND ELEVATION. NO CONSTRUCTION AROUND OR ADJACENT TO UTILITIES SHALL BEGIN WITHOUT NOTIFYING THEIR OWNERS AT LEAST 48-HOURS IN ADVANCE. THE CONTRACTOR SHALL TAKE THE NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE AND ANY DAMAGE DONE TO THEM DUE TO HIS/HER NEGLIGENCE SHALL BE IMMEDIATELY AND COMPLETELY REPAIRED AT THE CONTRACTOR'S EXPENSE. TO LOCATE EXISTING UTILITIES IN THE FIELD PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL CONTACT MISS UTILITY OF DELAWARE (SEE NOTE #5).
10. SHOULD UTILITY RELOCATION BE REQUIRED, THE DEVELOPER MUST SUBMIT A UTILITY RELOCATION PLAN FOR DELDOT REVIEW, ALONG WITH CORRESPONDENCE FROM THE UTILITY COMPANIES STATING PRELIMINARY APPROVAL TO THE RELOCATION AND DESIGN OF THE UTILITIES PRIOR TO THE DELDOT PRE-CONSTRUCTION MEETING. NO PHYSICAL CONSTRUCTION CAN OCCUR UNTIL THE UTILITY PLANS ARE APPROVED, THE INDIVIDUAL UTILITY COMPANIES ISSUE FINAL APPROVAL, AND A DELDOT UTILITY PERMIT IS ISSUED TO THE UTILITY COMPANY.
11. UPON COMPLETION OF THE CONSTRUCTION OF THE SIDEWALK OR SHARED-USE PATH ACROSS THIS PROJECT'S FRONTAGE AND PHYSICAL CONNECTION TO ADJACENT EXISTING FACILITIES, THE DEVELOPER, THE PROPERTY OWNERS OR BOTH ASSOCIATED WITH THIS PROJECT, SHALL BE RESPONSIBLE TO REMOVE ANY EXISTING ROAD TIE-IN CONNECTIONS LOCATED ALONG ADJACENT PROPERTIES, AND RESTORE THE AREA TO GRASS. THESE DISTURBED AREAS SHALL BE TOP-SOILED (6" MINIMUM), FERTILIZED, SEEDED AND MULCHED. SUCH ACTIONS SHALL BE COMPLETED AT DELDOT'S DISCRETION, AND IN CONFORMANCE WITH DELDOT'S "SHARED-USE PATH AND/OR SIDEWALK TERMINATION POLICY".
12. DELDOT WILL NOT PROVIDE THE RESPECTIVE LOCAL LAND USE AGENCY WITH A 'NO OBJECTION TO THE ISSUANCE OF THE CERTIFICATE OF OCCUPANCY NOTICE' UNTIL THE ENTRANCE(S) ARE COMPLETED TO THE SATISFACTION OF THE DEPARTMENT.
13. DESIGN, FABRICATION AND INSTALLATION OF ALL PERMANENT SIGNING SHALL BE AS OUTLINED IN THE LATEST VERSION OF THE DE MUTCD.
14. DESIGN AND INSTALLATION OF ALL PAVEMENT MARKINGS AND STRIPING SHALL BE AS OUTLINED IN THE LATEST VERSION OF THE DE MUTCD. FOR FINAL PERMANENT PAVEMENT MARKINGS:

    A) EPOXY RESIN PAINT SHALL BE REQUIRED FOR LONG LINE STRIPING.

    B) THERMO PLASTIC (EXTRUDED OR PREFORMED MATERIAL) WILL BE REQUIRED ON ASPHALT SURFACES, FOR SHORT LINE STRIPING, I.E. SYMBOLS/LEGENDS.
15. REMOVAL OF LONG LINE PAVEMENT STRIPING SHALL BE PERFORMED USING: SHOT, SAND OR HYDRO-BLASTING. FOG SEAL ERADICATED STRIPING WITH CSS-1H.
16. BREAKAWAY POSTS SHALL BE USED WHEN INSTALLING ALL SIGNS. REFERENCE DELDOT STANDARD CONSTRUCTION DETAIL T-15.
17. THE ENDS OF ALL CURBS SHALL BE TRANSITIONED TO BE FLUSH WITH THE PAVEMENT AT A RATIO OF TWELVE TO ONE (12:1).
18. A DOUBLE YELLOW CENTERLINE WILL BE REQUIRED ALONG THE PAVED PORTION OF GILLS NECK ROAD (ROUTE SCR 267). STRIPING OF THE CENTERLINE SHALL BE 5-INCH WIDE LINE SEPARATED BY A 6-INCH SPACE.
19. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSURE THAT PAVING WITHIN THE STATE OF DELAWARE RIGHT-OF-WAY IS INSTALLED TO THE ELEVATIONS SHOWN AND THAT NO PONDING OF WATER EXISTS AFTER PAVING IS COMPLETE.
20. MAINTENANCE OF THE STREETS WITHIN THIS SUBDIVISION WILL BE THE RESPONSIBILITY OF THE DEVELOPER, THE PROPERTY OWNERS WITHIN THIS SUBDIVISION, OR BOTH. THE STATE OF DELAWARE ASSUMES NO RESPONSIBILITY FOR THE FUTURE MAINTENANCE OF THESE STREETS.
21. ALL STORM DRAIN PIPING DESIGNATED AS RCP IS TO BE REINFORCED CONCRETE PIPE, MEETING AASHTO M-170 SPECIFICATIONS. SEE PLANS FOR SPECIFIC CLASS OF PIPE.
22. BITUMINOUS CONCRETE SHALL BE PLACED IN ACCORDANCE WITH DELDOT SPECIAL PROVISION(S) 401011, 401020 & 4001034 - BITUMINOUS CONCRETE SUPERPAVE. CRACK SEAL ALL LONG. & BUTT JOINTS.
23. CRACK SEAL ALL HOT-MIX TO CONCRETE INTERFACES.
24. CORRUGATED POLYETHYLENE PIPE SHALL BE INSTALLED IN ACCORDANCE WITH DELDOT SPECIAL PROVISION(S) 601213.
25. VERIFY IF ANY UTILITIES WILL NEED TO BE RELOCATED DUE TO THE ADDITION OF THE SHOULDER. FOR CLEAR ZONE PURPOSES, ALL UTILITIES ARE TO BE A MINIMUM OF 10 FEET FROM THE EDGE OF TRAVEL LANE AND 5 FEET FROM THE EDGE OF PAVEMENT. ANY UTILITY THAT DOES NOT MEET THIS REQUIREMENT SHALL BE RELOCATED.
26. ALL PROPOSED CLOSED STORMDRAIN SYSTEMS SHALL BE VIDEO INSPECTED, REPAIRED AS NECESSARY AND APPROVED PRIOR TO THE INSTALLATION OF FINAL PAVING. IF REPAIRS ARE NEEDED, THE REPAIRED PIPE SECTIONS WILL NEED TO BE VIDEO INSPECTED AGAIN BEFORE THE REPAIR CAN BE APPROVED.
27. DRIVEWAYS WILL NOT BE PERMITTED TO BE PLACED AT DRAINAGE INLET LOCATIONS.
28. ALL SUBGRADE SHALL BE COMPACTED TO 95% OF THE MAXIMUM STANDARD T-99 DRY DENSITY.
29. THE DEVELOPER AND EXISTING/FUTURE OWNER OF NON-STATE-MAINTAINED ROADWAYS SHALL ENSURE THAT THE TRAFFIC CONTROL DEVICES ON SAID ROADWAYS OPEN TO PUBLIC TRAVEL ARE IN COMPLIANCE WITH THE LATEST VERSION OF THE DELAWARE MUTCD.
30. FOR INFORMATION ON OBTAINING A UTILITY PERMIT IN SUSSEX COUNTY, CONTACT M&O-SOUTH DISTRICT-PUBLIC WORKS AT (302) 853-1340.
31. FOR INFORMATION ON GETTING APPROVAL FOR PROPOSED OUTDOOR ADVERTISING IN SUSSEX COUNTY, CONTACT M&O-SOUTH DISTRICT-PUBLIC WORKS AT (302) 853-1340.
32. BOTH ROADWAYS (KINGS HIGHWAY AND GILLS NECK ROAD) ARE SCENIC AND HISTORIC BYWAY ROADS WITH KINGS HIGHWAY ALSO DESIGNATED AS A FEDERAL AID PRIMARY ROAD, THERE WILL BE NO ON OR OFF PREMISE ADVERTISING OF OTHER PARTIES/VENUES AND VARIABLE OR ELECTRONIC MESSAGING BOARDS ARE NOT PERMITTED. NO BILLBOARDS ARE PERMITTED EITHER. PLEASE CONTACT MIKE HAHN, BYWAYS COORDINATOR, 302-760-2131 FOR MORE INFORMATION.
33. A LEVEL II INSPECTION AGREEMENT WILL BE REQUIRED FOR THIS PROJECT.

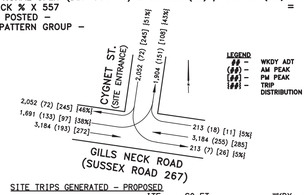
GENERAL NOTES,
SIGHT DISTANCE TRIANGLES AND
TRAFFIC GENERATION DIAGRAMS
GILLSNECK ROAD (SCR 267)

CONTRACT NUMBER	COUNTY	FAP NUMBER	SHEET NUMBER	TOTAL SHEETS
N/A	SUSSEX		3	23

DelDOT REVIEWED FOR GENERAL CONFORMITY
Mar. 19, 2019

ROAD
GILLS NECK ROAD (SUSSEX ROAD 267)
FUNCTIONAL CLASSIFICATION - LOCAL
DESIGN VEHICLE - SU-30

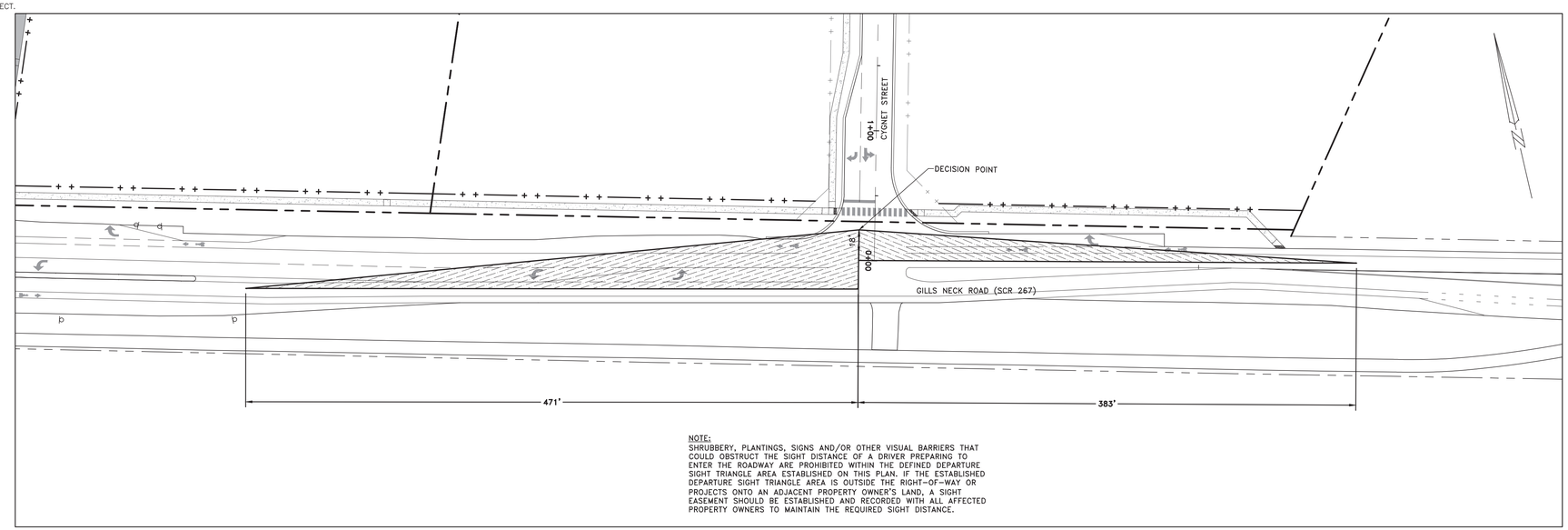
2018 ADT (2018 DBF ATR COUNT)	=	5,242
2018 AADT (2018 DBF ATR COUNT)	=	5,011
2018 WEEKDAY ADT (2018 DBF ATR COUNT TUES-THURS)	=	5,742
2018 WEEKDAY AADT (2018 DBF ATR COUNT TUES-THURS)	=	5,490
10 YR PROJECTED AADT = 1.16 X 5,490	=	6,368
10 YR PROJECTED AADT + SITE ADT EAST OF SITE (212)	=	6,580
10 YR PROJECTED AADT + SITE ADT WEST OF SITE (1,199)	=	7,567
10 YR PROJECTED AADT + ENTERING SITE ADT AT SITE ACCESS (705)	=	7,073
AM PEAK HOUR = 6,368 X 7.04%	=	448
AM DIRECTIONAL SPLIT (DBF COUNTS) = 43.07% (EB) / 56.93% (WB)	=	193/255
PM PEAK HOUR = 6,368 X 8.75%	=	557
PM DIRECTIONAL SPLIT (DBF COUNTS) = 48.89% (EB) / 51.11% (WB)	=	272/285
9.43 TRUCK % X 557	=	53
SPEED - POSTED -		35
TRAFFIC PATTERN GROUP -		7



SITE TRIPS GENERATED - PROPOSED

TYPE OF DEV.	ITE CODE	SQ FT UNITS	AM	PM	WKDY ADT
SINGLE FAMILY UNITS	210	74	57	76	788
MULTIFAMILY MID-RISE UNITS	221	72	25	32	391
MEDICAL-DENTAL OFFICE	720	206.500	426	702	7,846
TOTAL			508	810	9,025
INTERNAL CAPTURE			-2	-10	-36
EXTERNAL TRIPS			506	800	8,989

NOTES:
SITE WILL ALSO HAVE ACCESS ALONG KINGS HIGHWAY AND WILL BE INTERCONNECTED WITH THAT ACCESS.
TRIP GENERATION IS BASED ON ITE TRIP GENERATION MANUAL 10TH EDITION.
DAILY INTERNAL CAPTURE CALCULATIONS ARE CONSISTENT WITH 2ND EDITION OF ITE HANDBOOK, AM AND PM PEAK HOUR INTERNAL CAPTURE CALCULATIONS ARE CONSISTENT WITH 3RD EDITION OF ITE HANDBOOK.



NOTE:
SHRUBBERY, PLANTINGS, SIGNS AND/OR OTHER VISUAL BARRIERS THAT COULD OBSTRUCT THE SIGHT DISTANCE OF A DRIVER PREPARING TO ENTER THE ROADWAY ARE PROHIBITED WITHIN THE DEFINED DEPARTURE SIGHT TRIANGLE AREA ESTABLISHED ON THIS PLAN. IF THE ESTABLISHED DEPARTURE SIGHT TRIANGLE AREA IS OUTSIDE THE RIGHT-OF-WAY OR PROJECTS ONTO AN ADJACENT PROPERTY OWNER'S LAND, A SIGHT EASEMENT SHOULD BE ESTABLISHED AND RECORDED WITH ALL AFFECTED PROPERTY OWNERS TO MAINTAIN THE REQUIRED SIGHT DISTANCE.

GILLS NECK ROAD (SCR 267) SIGHT DISTANCE

SCALE: 1" = 50'

JOHN W. LANDON
REGISTERED
No. 16547
DELAWARE
PROFESSIONAL ENGINEER
03/12/2019

DAVIS, BOWEN & FRIEDEL, INC.
ARCHITECTS, ENGINEERS & SURVEYORS
SALISBURY, MARYLAND (410) 543-9091
MILFORD, DELAWARE (302) 424-1441

GENERAL NOTES, SIGHT DISTANCE AND T.G.D.

ZWAANENDAEL FARM
GILLS NECK ROAD (SCR 267) IMPROVEMENTS
LEWES AND REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

REVISIONS:
2018-10-25: DELDOT
2019-01-10: DELDOT
2019-02-14: DELDOT

Date:	AUGUST, 2018
Scale:	NTS
Dwn.By:	SHF
Proj.No.:	2640A001
Dwg.No.:	DD-03

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LT Associates, LLC
PO Box 430
Georgetown, Delaware 19947

September 24, 2009

Todd Sammons
Project Engineer, Planning
Delaware Department of Transportation
800 Bay Road
P.O. Box 778
Dover, Delaware 19903

Re: Kings Highway/Gills Neck Road, Proposed Area Improvements

Dear Mr. Sammons:

This Letter Agreement ("Letter Agreement") shall set forth the terms and conditions pursuant to which the Delaware Department of Transportation ("DelDOT") will administer and manage the offsite improvements associated with Governors, Senators and The Village Centre projects (collectively "Projects" or "Properties").

INTRODUCTION

Whereas a Traffic Impact Study was conducted by Orth-Rodgers & Associates dated May 18, 2006 wherein the scope of work was agreed upon on July 7, 2005 and

Whereas a traffic impact study was reviewed by McCormick Taylor, Inc. on behalf of DelDOT wherein certain transportation improvements were recommended in a final traffic impact study letter, dated January 15, 2008, as the proportionate responsibility of LT Associates, LLC ("LT Associates") should the Projects listed proceed and

Whereas DelDOT produced a document entitled "Kings Highway/Gills Neck Road Proposed Area Improvements" and a related Estimate of Cost for such improvements and

Whereas in a meeting held on July 21, 2009, DelDOT agreed that LT Associates', responsibility for transportation improvements related to the Projects was proportionate to vehicular trips generated by the Projects, background traffic being DelDOT's responsibility, and that LT Associates would take full financial and construction responsibility for certain transportation improvements and that all other transportation improvements other than those listed in this Agreement are the sole responsibility of DelDOT and/or other developers, and

Whereas in the meeting dated July 21, 2009, LT Associates agreed with DelDOT that the dedication of land to DelDOT for use as right of way for related transportation improvements was necessary and desirable and that, together with transportation improvement costs, the total contribution from LT Associates was in excess of the total contribution estimated by DelDOT to be LT Associates' responsibility and

Whereas DelDOT recognized that the dedication of land for rights of way and all transportation improvements would be triggered by certain project related events, then,

TERMS

In consideration of the mutual covenants and agreements set forth in this Letter Agreement, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, and intending to be legally bound hereby, the parties hereby covenant and agree as follows:

1. Letters of No Objection. DelDOT will expedite its issuance of one Letter of No Objection for each of the above-referenced projects to LT Associates subject to the customary record plan submission and review process.

2. Governors and The Village Centre Highway Permits. LT Associates, will submit Applications for the Permits to DelDOT (collectively "Applications"). The plans for the Projects (collectively "Plans") will substantially conform to the concept plans referenced in item #3 below and be consistent with the Letters of No Objection based on the current *Standards and Regulations for Subdivision Streets and State Highway Access* manual. DelDOT hereby agrees to expedite the processing of the Applications and issuance of the required Permits when Applications are received.

3. LT Associates, LLC's Responsibility for Transportation Improvements. LT Associates shall be solely responsible for the cost of final engineering and construction of the following transportation improvements, as well as underground signal infrastructure (excluding footings and wiring), conceptually depicted in the Delaware Department of Transportation Kings Highway/Gills Neck Road Proposed Area Improvements attached hereto as "Exhibits A#2, A#4, A#5, and as depicted in Gills Neck Road/Cadbury Entrance to Hawkseye Entrance attached hereto as "Exhibit A#10", and as depicted in Right in/Right out Village Centre Entrance onto Gills Neck Road attached hereto as "Exhibit A#12" with the exception of the cost of and installation of all traffic signals which shall be the sole responsibility of DelDOT. Such improvements shall begin by the time of the event listed below and be consistent with the Letters of No Objection. **Note: All intersection plans shall be reviewed by DelDOT's Traffic Section for location of signalization equipment and conduit placement. LT Associates is responsible for conduit installation.**

A#2 Gills Neck Road/Kings Highway/Cape Henlopen High Intersection.
The intersection shall be improved to include: (i) one left-turn lane and one shared through/right-turn lane at the eastbound Cape Henlopen High School entrance; (ii) one left-turn lane, one through lane, and one right-turn lane at the westbound Gills Neck Road approach; (iii) one left-turn lane, one through lane, and one right-turn lane at the northbound Kings Highway approach; and (iv) one left-turn lane, one through lane, and one right-turn lane at the southbound Kings Highway approach.
The start of construction shall be prior to the issuance by Sussex County of the 112th building permit for Senators.

A#4 Clay Road/Town Centre site entrance.
The start of construction shall be at the commencement of Phase 1 of The Village Centre.

A#5 Gills Neck Road/Kings Highway to Cadbury entrance including Town Centre site entrance.

The start of construction shall be either at the commencement of Phase 1 of Governors or Phase 1 of The Village Centre, whichever begins first.

A#10 Gills Neck Road/Cadbury entrance to Hawkseye entrance.
The start of construction shall be prior to the issuance by Sussex County of the 112th building permit in Senators.

A#12 Right in/Right out Village Centre Entrance onto Gills Neck Road
The start of construction shall be at the commencement of Phase 1 of The Village Centre.

4. LT Associates', Responsibility for Other Transportation Improvements. LT Associates shall be solely responsible for the cost of final engineering and construction of the following transportation improvements as conceptually depicted in the Senators Phase 1 Road Plans, Sheets C8.3 and C8.4 attached hereto as "Exhibit B" and The Village Centre Overall Site Plan, Sheet C2.0 attached hereto as "Exhibit C". Such improvements shall begin by the time of the event listed below:

- Bike Trail through Senators. (Exhibit B)
  The start of construction shall be the beginning of the Last Phase of Senators.
- 25 space vehicular parking area dedicated to bike users in The Village Centre. (Exhibit C)
  The start of construction shall be at the commencement of Phase 1 of The Village Centre.
- 100 space parking area in The Village Centre for a potential Park & Ride shuttle. (Exhibit C)
  The start of construction shall be at the commencement of the Last Phase of The Village Centre.
- $50,000 lump sum contribution to the improvement of the Rt. 1and Dartmouth Drive intersection as depicted in DelDOT's Kings Highway/Gills Neck Road Proposed Area Improvements, Map Reference #3 attached hereto as "Exhibit D".
  The contribution shall be at the commencement of Phase 1 of The Village Centre.

5. LT Associates' Responsibility for Right of Way Dedication. LT Associates shall be solely responsible for the following dedication of rights of way and/or easements at its cost:

- Gills Neck Road right of way dedication– The Village Centre, Governors, and Senators
- Kings Highway right of way dedication - Village Centre property
- Kings Highway right of way dedication - Jones Farm property

- Clay Road right of way dedication - Jones Farm property
- Bike Trail easement through Senators and Hawkseye

These right of way dedications shall be sufficient to accommodate the improvements in Item #3 above and improvements by DelDOT or others to Kings Highway, Clay Road and Gills Neck Road more or less as indicated on the Senators, Governors, Village Centre Right of Way Dedication Plan attached hereto as "Exhibit E".

6. DelDOT's Responsibility for Transportation Improvements. DelDOT shall be solely responsible for the cost and installation of traffic signals (excluding the underground infrastructure, which shall be placed during intersection construction) when warranted at all intersections constructed by LT Associates. DelDOT shall also be responsible for the collection of funds from other developers or land owners who have a proportionate responsibility for any transportation improvement undertaken by LT Associates up to the time of acceptance of the construction of said improvement. DelDOT shall also be solely responsible for all other transportation improvements listed in The McCormick Taylor, Inc. traffic impact study letter dated January 15, 2008 or in the DelDOT produced document entitled "Kings Highway/Gills Neck Road Proposed Area Improvements" and a related Estimate of Cost for such improvements.

7. Condition of the Property to be Dedicated to DelDOT for Rights of Way. LT Associates applicant hereby specifically disclaims any warranty, guaranty or representation, oral or written, past, present or future concerning (i) the nature or physical condition of the property, as designated on the plan to be recorded as being dedicated to DelDOT, including, without limitation, the water, soil and geology, and the suitability thereof and of the purposes for any and all activities and uses which purchaser may elect to conduct thereon; and (ii) the compliance of the property with any law, ordinance or regulation of any government or other body.

DelDOT shall inspect the property and rely solely upon its own investigations and not on any information provided by LT Associates. The transfer of the property as provided for in this letter agreement is made on an "as is" basis.

DelDOT expressly acknowledges that, in consideration of the agreements made herein, LT Associates, its agents or contractors make no warranty or representation, express or implied, or arising by operation of law, including but not limited to, any warranty of condition, habitability, merchantability or fitness for a particular purpose, in respect of the properties.

Notwithstanding the prior paragraphs of Paragraph 7, LT Associates expressly represents and warrants to DelDOT that LT Associates, it agents or contractors have no actual knowledge have not themselves or have not authorized any other party to dump or bury any hazardous or toxic materials or any form of fungi on or beneath the surface of the Properties. In addition, LT Associates, its agents or contractors have no actual knowledge of the existence of any underground tank under the Properties.

Except as provided in this Paragraph 7, LT Associates its agents or contractors make no representation, warranty or guaranty, and hereby specifically disclaim any warranty, guaranty or representation, with respect to the presence, removal or disposal on or beneath the property (or any parcel in proximity thereto) of hazardous materials, toxic materials and fungi of all forms and types, and shall have no liability to DelDOT thereof or therefor.

DelDOT hereby releases LT Associates its agents or contractors from, and waives any right to proceed against LT Associates, agents or contractors its agents or contractors for, any and all costs, expenses, claims, liabilities and demands (including attorney's and other fees), at law or in equity, whether known or unknown, arising out of the physical, developmental, environmental, economic, legal or other condition of the property.

The provisions of this section 7 shall specifically survive closing or transfer of the property.

8. Miscellaneous. This Letter Agreement shall be governed by and construed according to the laws of the State of Delaware. This Letter Agreement constitutes the entire agreement between the parties and supersedes all previous communications, written or oral. This Letter Agreement may be modified only by a written instrument executed by both the parties. Time is of the essence of this Letter Agreement. If any provision of this Letter Agreement, as applied to either party or to any circumstance, shall be adjudged by a court to be void or unenforceable, the same shall in no way affect any other provision of this Letter Agreement, the application of any such provision in any other circumstances, or the validity or enforceability of this Letter Agreement as a whole. This Letter Agreement may be executed in one or more counterparts (or with counterpart signature pages), each of which shall be deemed an original and part of one and the same document. Telefax signatures shall be deemed as originals.

The captions used in this Letter Agreement are inserted for convenience of reference only and in no way define, describe or limit the scope or intent of any of the provisions hereof.

Very truly yours,

LT Associates, LLC

By: Paul G. Townsend

Name: Paul G. Townsend

Title: Manager, Member LTA, LLC

Accepted and Agreed to on this 24 day of September, 2009.

Delaware Department of Transportation

By: Carolann Wicks

Name: Carolann Wicks

Title: Secretary

Map Reference 2

High School / Kings Hwy / Gills Neck Rd (Before)

High School / Kings Hwy / Gills Neck Rd (After)

Exhibit A #2

Map Reference 4

Clay Rd & Kings Highway (Before)

Clay Rd & Kings Highway (After)

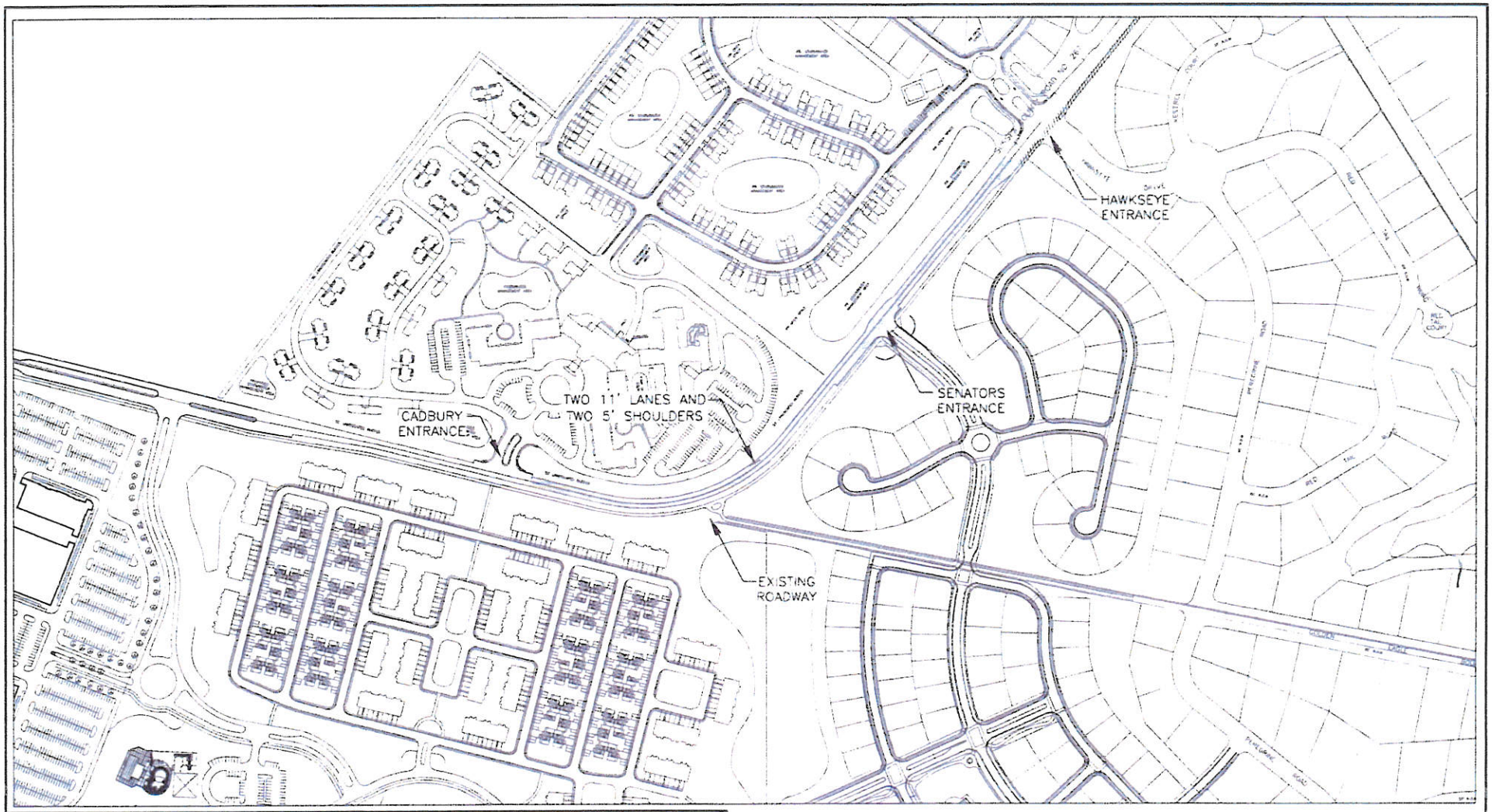
Exhibit A #4

Map Reference 5

Gills Neck Rd & Commercial Site Entrance (Before)

Gills Neck Rd* & Commercial Site Entrance (After)

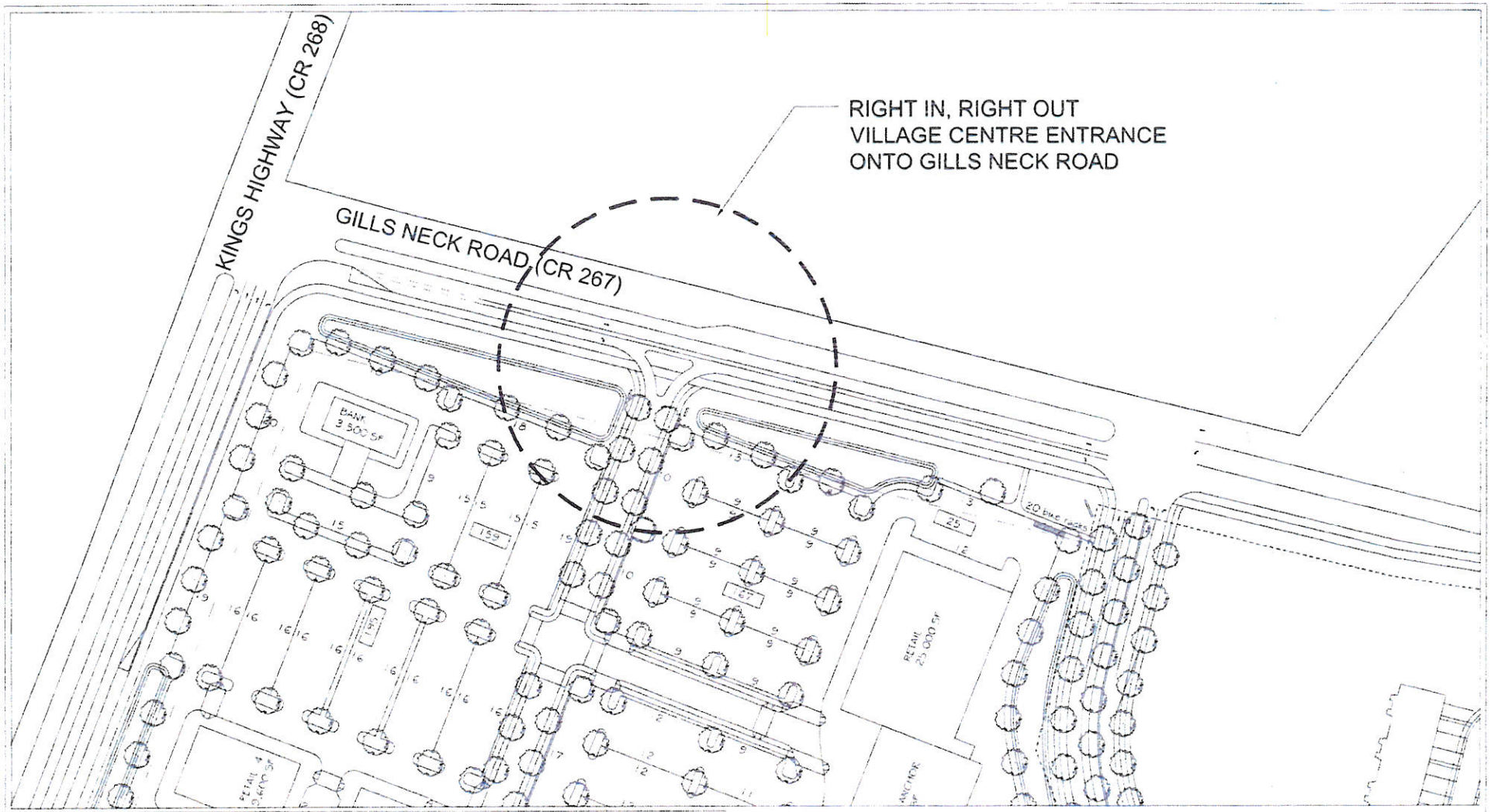
• Gills Neck road to be improved consistent with LT Associates, dated May 10, 2005 or to two eleven foot travel lanes and two five foot shoulders from Kings Highway to Cadbury site entrance



DRAWN BY: DLB	GMB	EXHIBIT A #10	
CK. BY:	GEORGE, MILES & BUHR, LLP ARCHITECTS & ENGINEERS	GILLS NECK ROAD\CADBURY ENTRANCE TO HAWKSEYE ENTRANCE.	
JOB NO.: 2004127.E			
SCALE: 1" = 300'			
DATE: 7-31-09			

0 150 300 600 900

SCALE: 1" = 300'



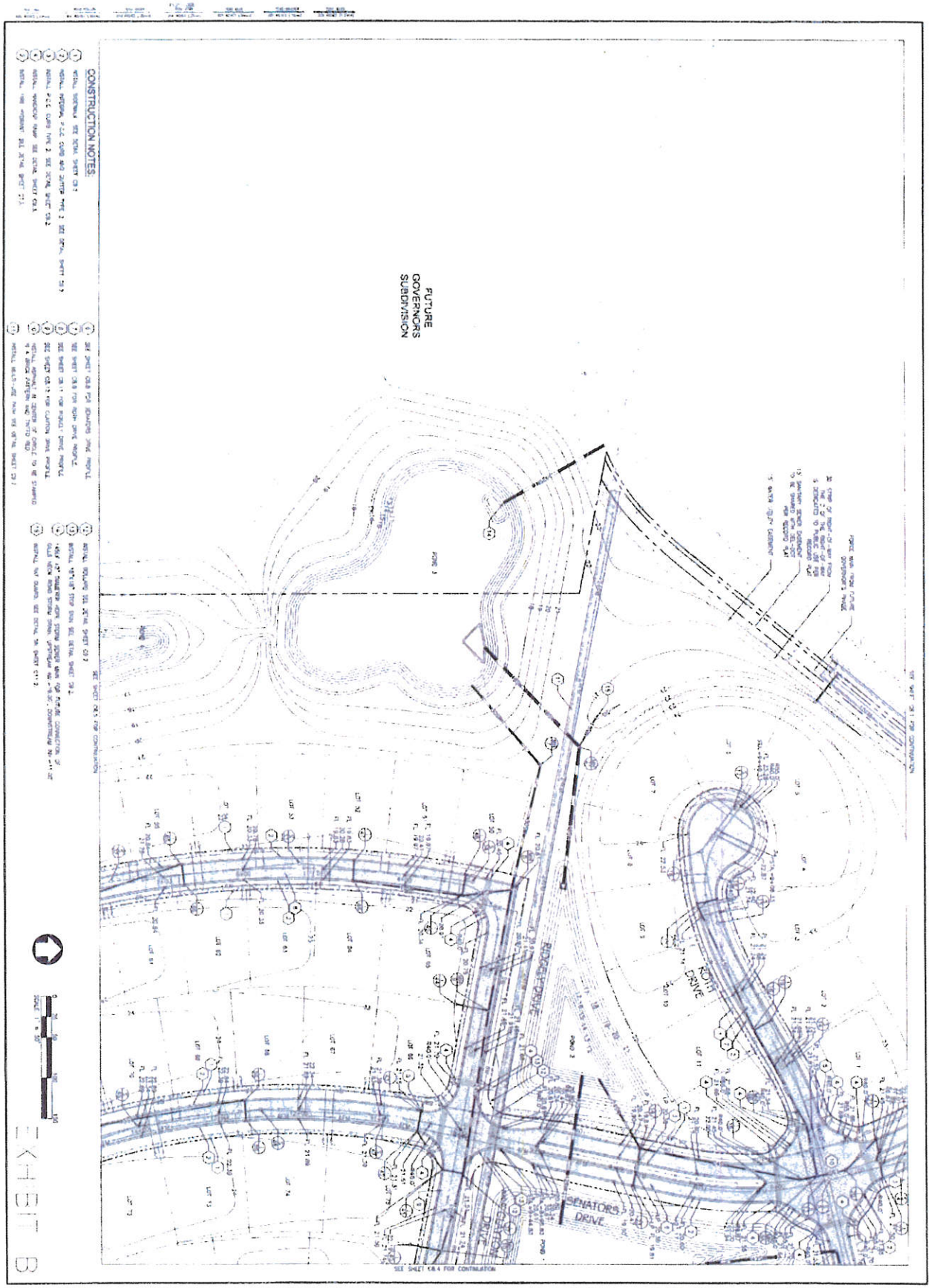
DRAWN BY: DLB
CK. BY
JOB NO.: 2004127.E
SCALE: 1" = 100'
DATE: 9-02-09

GMB
GEORGE, MILES & BUHR, LLP
ARCHITECTS & ENGINEERS

EXHIBIT A #12

RIGHT IN, RIGHT OUT
THE VILLAGE CENTRE ENTRANCE
ONTO GILLS NECK ROAD

0 50 100 200 300
SCALE: 1" = 100'



SENATORS
PHASE 1
LEWES & REHOBOTH HUNDRED
SUSSEX COUNTY, DELAWARE

ROAD PLANS

C8.3

GMB
GEORGE, MILES & BUHR, LLC
ARCHITECTS & ENGINEERS
206 WEST MAIN STREET
SALISBURY, MARYLAND 21801

NO	REVISIONS	DATE
1	PER SCD REVIEW	2/23/09
2	PER SCD REVIEW	7/13/09

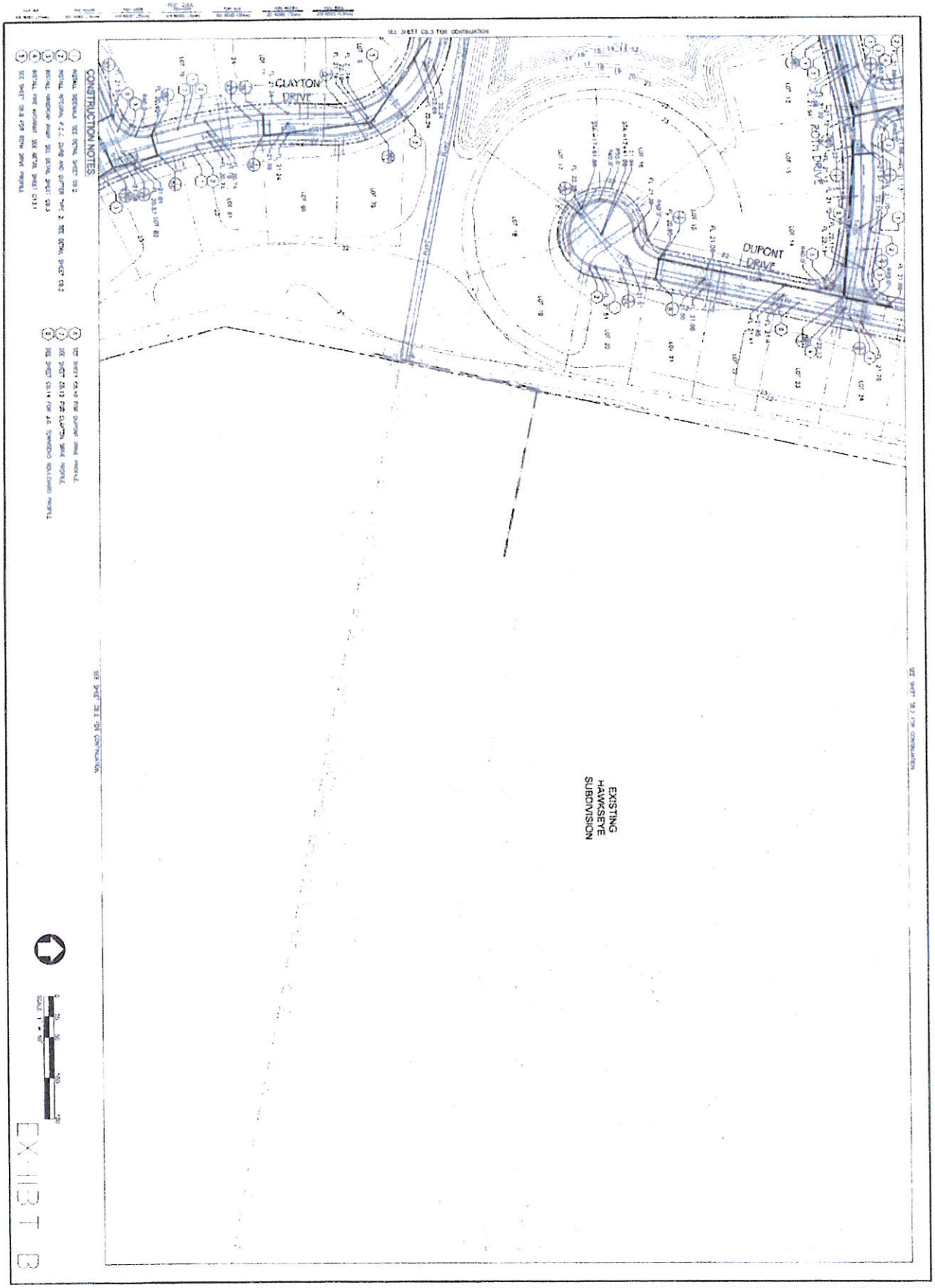


EXHIBIT B

C8.4	ROAD PLANS		SENATORS PHASE 1 LEWES & REHOBOTH HUNDRED SUSSEX COUNTY, DELAWARE	GMB GEORGE, MILES & BUHR, LLC ARCHITECTS & ENGINEERS 206 WEST MAIN STREET SALISBURY, MARYLAND 21801	NO. 1	REVISIONS PER SCD REVIEW	DATE 9/23/09

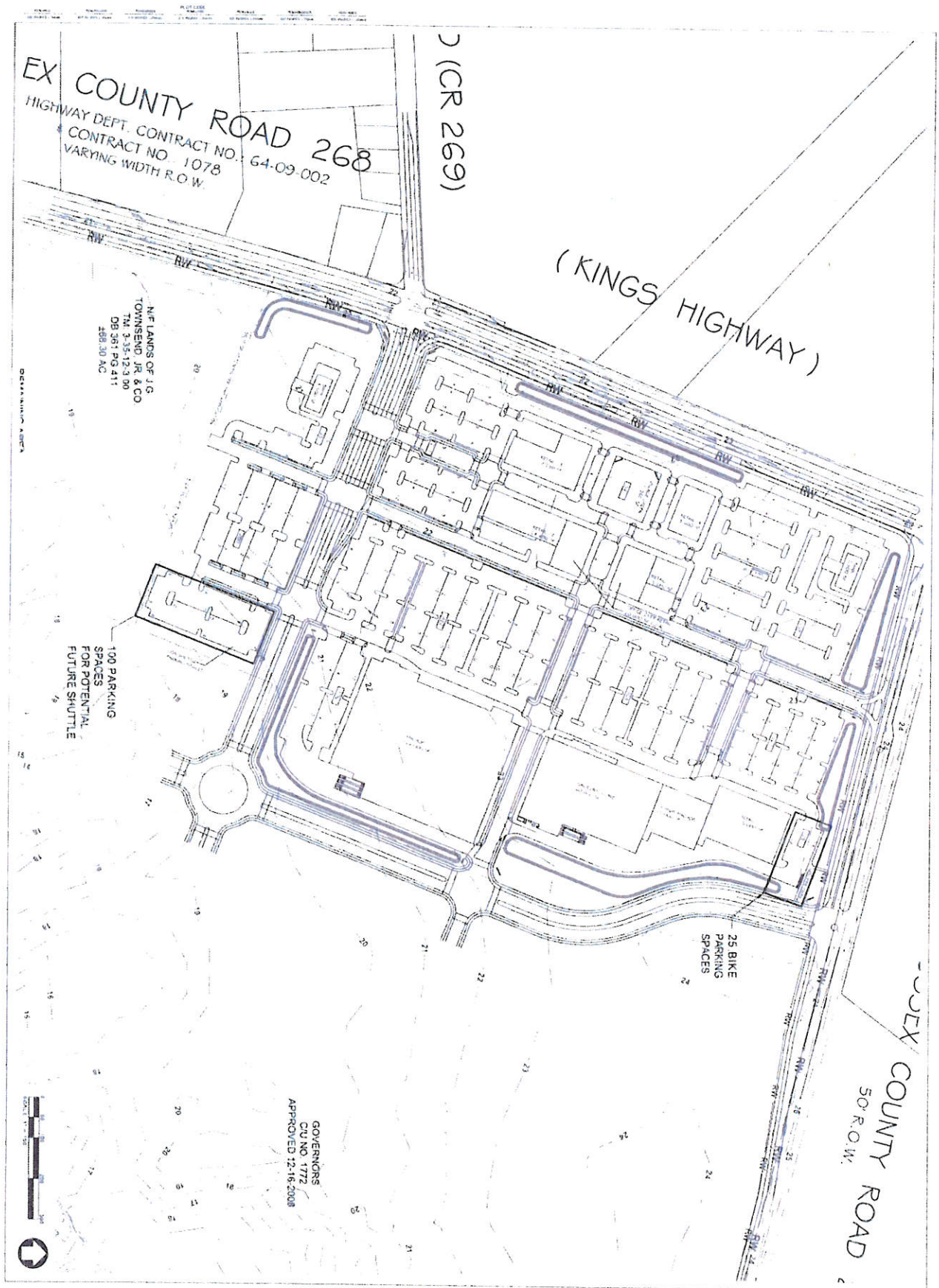


EXHIBIT C
THE VILLAGE CENTRE OVERALL SITE PLAN
C2.0

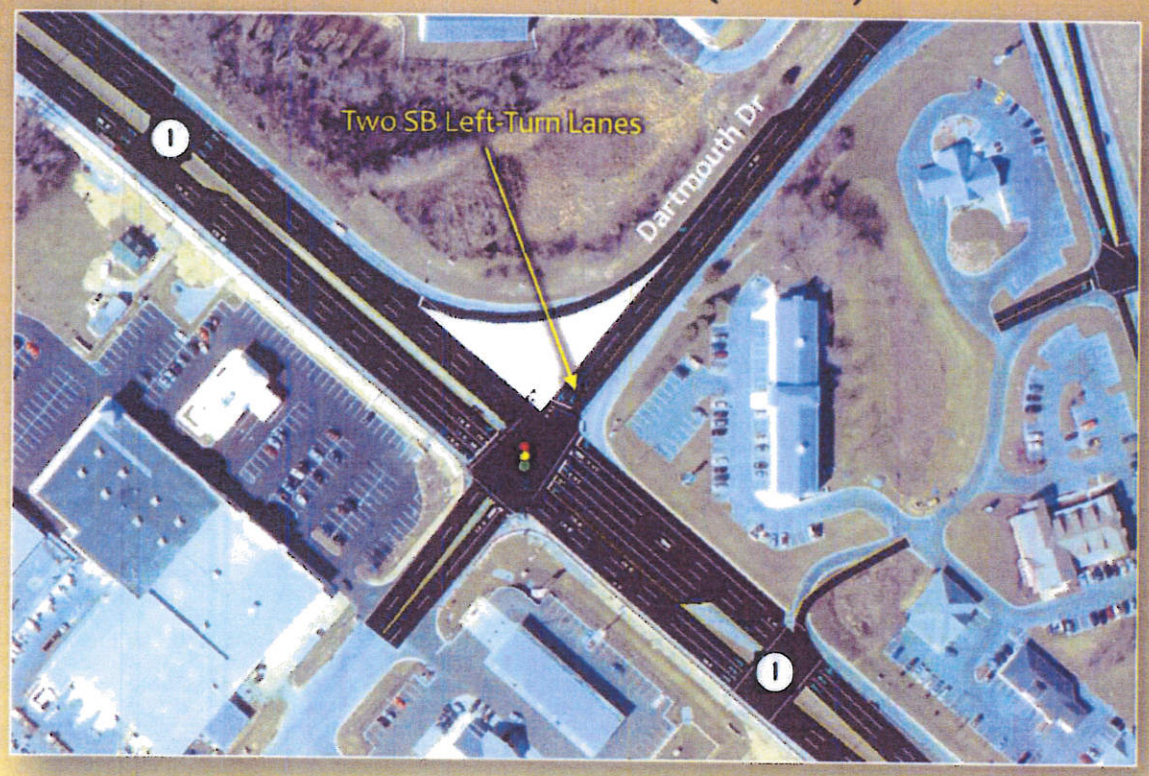
THE VILLAGE CENTRE
LEWES & REHOBOTH HUNDRED
SUSSEX COUNTY, DELAWARE

GMB
GEORGE, MILES & BUHR, LLC
ARCHITECTS & ENGINEERS
208 WEST MAIN STREET
SALISBURY, MARYLAND 21801

NO	REVISIONS	DATE

Map Reference 3

Dartmouth Dr & SR 1 (Before)



Dartmouth Dr & SR 1 (After)

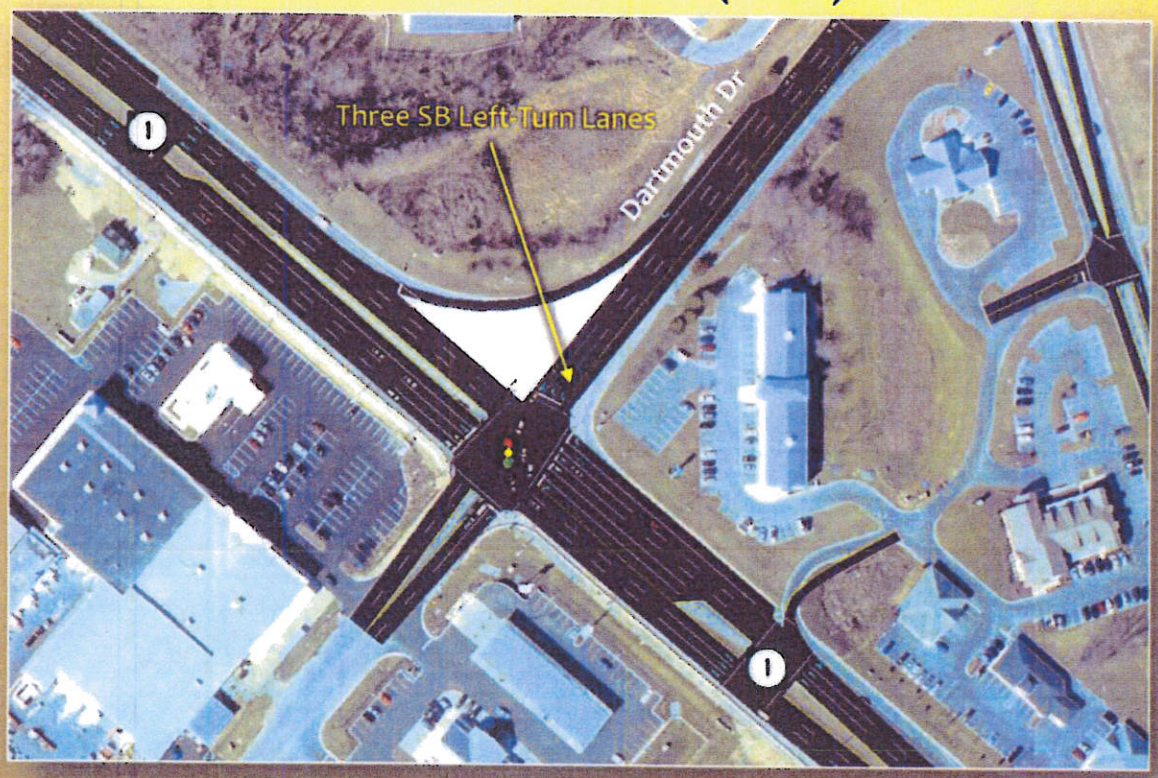


Exhibit D

s, LLC , Governors, nowfield) Costs	LT Associates, LLC Per Agreement	DelDOT Per Agreement
6	$0	$757,500
3	$443,500	$200,000
	$50,000	$115,000
3	$365,590	$200,000
		$200,000
5	$420,000	$0
9	$840,000	$0
		$200,000
		$0
	$726,400	$0
0	$2,845,490	$1,672,500

JS	**Map Reference #10**				
/13/2009					
)eveloper Cost Shares Gills Neck Road (Kings Highway to the beginning of the curve)					
Gills Neck Road Site Entrance					
					Roadway
)evelopment	**PM Peak Hour Volumes**	**Trip %**		**Costs**	$417,600
owne Center	332	27.88	$202,489	Design (15%)	$62,640
	1191			Right of Way	$0
	PM Peak Hour Volumes	**Trip %**		Utilities ($10k/pole)	
Governors	63	5.29	$38,424	Telephone Pole Relocations	$100,000
	1191			MOT (10%)	$41,760
	PM Peak Hour Volumes	**Trip %**		Contingency Cost (15%)	$62,640
enators	164	13.77	$100,025	Drainage (10%)	$41,760
	1191			Total Estimate	$726,400
	PM Peak Hour Volumes	**Trip %**			
howfield	142	11.92	$86,607		
	1191				
	Total Development Contribution	58.86			
elDOT Percentage		41.14	$298,855		
			$726,400		

TJS	**Map Reference #9**			
7/13/2009				
Developer Cost Shares Gills Neck Road/Showfield Site Entrance Roundabout				
**Note: Costs are solely associated with Showfield site entrance				
Site Entrance Improvements Roundabout				

TJS	**Map Reference #8**		
7/13/2009			
Developer Cost Shares Monroe Avenue/Showfield Site Entrance			
**Note: Costs are solely associated with Showfield site entrance			
Site Entrance Improvements and Signal Agreement			

TJS	**Map Reference #7**			
7/13/2009				
Developer Cost Shares ROW Dedication along Freeman Highway and Overlay				
**Note: 20 foot dedication along 4,200 ft at $10/ft^2				
			Frontage ROW	
Development		**Costs**	$840,000	
Showfield				
**Note: $350,000/mile, 2"overlay with milling for 4,200 feet at 40 foot width				
			Frontage Overlay	
Development		**Costs**	$278,409	
Showfield			$1,118,409	

TJS	**Map Reference #6**			
7/13/2009				
Developer Cost Shares ROW Dedication along Kings Highway and Overlay				
**Note: 20 foot dedication along 2,100 ft at $10/ft^2				
			Frontage ROW	
Development		**Costs**	$420,000	
Towne Center				
**Note: $350,000/mile, 2"overlay with milling for 2,100 feet at 40 foot width				
			Frontage Overlay	
Development		**Costs**	$139,205	
Towne Center			$559,205	Total
*Check ROW width				

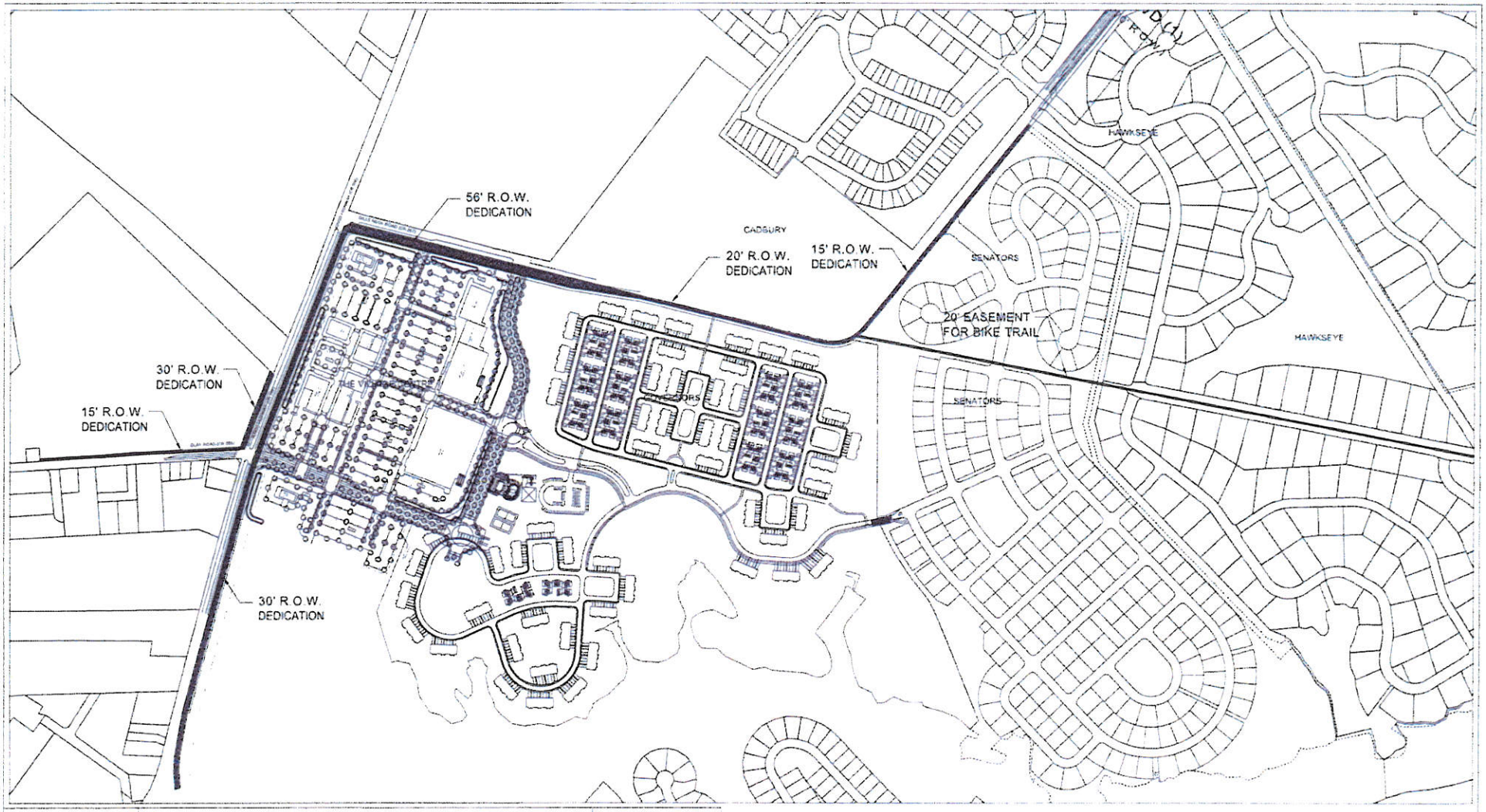
TJS	**Map Reference #5**			
7/13/2009				
Developer Cost Shares Gills Neck Road/Towne Center Site Entrance				
**Note: Costs are solely associated with Towne Center site entrance				
Site Entrance Improvements and Signal Agreement				

TJS	**Map Reference #4**				
7/13/2009					
Developer Cost Shares Clay Road/Towne Center Site Entrance/Kings Highway					
**Note: Did not include Towne Center specific entrance improvements					
					Intersection
Development	**PM Peak Hour Volumes**	**Trip %**		**Costs**	$276,800
Towne Center	879	24.95	$141,117	Design (15%)	$41,520
	3523			Right of Way	$56,550
	PM Peak Hour Volumes	**Trip %**		Utilities ($10k/pole)	
Governors	137	3.89	$21,994	Telephone Pole Relocations	$80,000
	3523			MOT (10%)	$27,680
	PM Peak Hour Volumes	**Trip %**		Contingency Cost (15%)	$41,520
Senators	128	3.63	$20,549	Drainage (10%)	$41,520
	3523			Total Estimate	$565,590
	PM Peak Hour Volumes	**Trip %**			
Showfield	272	7.72	$43,667		
	3523				
	PM Peak Hour Volumes	**Trip %**			
Jones Property	126	3.58	$20,228		
	3523				
	Total Development Contribution	43.77			
DelDOT Percentage		56.23	$318,034		
			$565,590		

TJS	**Map Reference #3**				
7/13/2009					
Developer Cost Shares Route 1 and Dartmouth Drive					
					Intersection
Development	**PM Peak Hour Volumes**	**Trip %**		**Costs**	$70,000
Towne Center	263	4.57	$7,547	Design (15%)	$10,500
	5750			Right of Way	$60,000
	PM Peak Hour Volumes	**Trip %**		Utilities ($10k/pole)	
Governors	35	0.61	$1,004	Telephone Pole Relocations	$0
	5750			MOT (10%)	$7,000
	PM Peak Hour Volumes	**Trip %**		Contingency Cost (15%)	$10,500
Senators	42	0.73	$1,205	Drainage (10%)	$7,000
	5750			Total Estimate	$165,000
	PM Peak Hour Volumes	**Trip %**			
Showfield	86	1.50	$2,468		
	5750				
	PM Peak Hour Volumes	**Trip %**			
Jones Property	70	1.22	$2,009		
	5750				
	Total Development Contribution	8.63			
DelDOT Percentage		91.37	$150,767		
			$165,000		

TJS	**Map Reference #2**						
7/13/2009							
Developer Cost Shares Gills Neck Road/Kings Highway/Cape Henlopen High School							
**Note: Included a one time $60,000 contribution from Cape Henlopen High School							
					Intersection		
Development	**PM Peak Hour Volumes**	**Trip %**		**Costs**	$363,000		
Towne Center	276	9.55	$61,477	Design (15%)	$54,450		
	2889			Right of Way	$99,000		
	PM Peak Hour Volumes	**Trip %**		Utilities ($10k/pole)			
Governors	81	2.80	$18,042	Telephone Pole Relocations	$60,000		
	2889			MOT (10%)	$36,300		
	PM Peak Hour Volumes	**Trip %**		Contingency Cost (15%)	$54,450		
Senators	164	5.68	$36,530	Drainage (10%)	$36,300		
	2889			Total Estimate	$643,500	**Reduced by $60,000	
	PM Peak Hour Volumes	**Trip %**					
Showfield	279	9.66	$62,145				
	2889						
	PM Peak Hour Volumes	**Trip %**					
Jones Property	68	2.35	$15,146				
	2889						
	PM Peak Hour Volumes	**Trip %**					
*Cape Henlopen High School one time $60,000 contribution	N/A						
	N/A						
	Total Development Contribution	30.04					
DelDOT Percentage		69.96	$450,160				
			$643,500				

TJS	**Map Reference #1**				
7/13/2009					
Developer Cost Shares Intersection of Kings Highway and Dartmouth Drive Roundabout					
Two By-pass lanes at 12 feet and two 10 foot shoulders					
					Intersection
Development	**PM Peak Hour Volumes**	**Trip %**		**Costs**	$465,000
Towne Center	216	7.70	$58,311	Design (15%)	$69,750
	2806			Right of Way	$0
	PM Peak Hour Volumes	**Trip %**		Utilities ($10k/pole)	
Governors	82	2.92	$22,136	Telephone Pole Relocations	$60,000
	2806			MOT (10%)	$46,500
	PM Peak Hour Volumes	**Trip %**		Contingency Cost (15%)	$69,750
Senators	82	2.92	$22,136	Drainage (10%)	$46,500
	2806			Total Estimate	$757,500
	PM Peak Hour Volumes	**Trip %**			
Showfield	175	6.24	$47,243		
	2806				
	PM Peak Hour Volumes	**Trip %**			
Jones Property	229	8.16	$61,820		
	2806				
	Total Development Contribution	27.94			
DelDOT Percentage		72.06	$545,854		
			$757,500		



DRAWN BY: DLB
CK. BY:
JOB NO.: 2004127.E
SCALE: 1" = 500'
DATE: 9-02-09

GMB
GEORGE, MILES & BUHR, LLP
ARCHITECTS & ENGINEERS

EXHIBIT E

SENATORS, GOVERNORS, THE VILLAGE CENTRE RIGHT OF WAY DEDICATION PLAN

0 250 500 1000 1500
SCALE: 1" = 500'

STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. BOX 778
DOVER, DELAWARE 19903

JENNIFER COHAN
SECRETARY

To: Members of the Council on Transportation and All Delaware Residents

I am pleased to enclose the Delaware Department of Transportation's (DelDOT) Capital Transportation Program (CTP) for Fiscal Years 2021-2026. This program is consistent with DelDOT's mission to provide a safe, reliable, and convenient option to access the transportation network that offers travelers cost-effective choices for the movement of people and goods.

As part of DelDOT's efforts to provide information that is easily understood by the residents of Delaware, the program is grouped into four major funding categories:

- **Road Systems** – Improvements to the state's roads and bridges;
- **Grants and Allocations** – Includes the Community Transportation Fund, which is allocated by legislators for various projects in their districts;
- **Transit Systems** – Investments in transit services including buses, maintenance and other facilities, transit shelters, and other assets supporting all modes of operation;
- **Support Systems** – All other investments to the transportation network including facilities, equipment, information systems, etc.

The first four years of DelDOT's CTP constitute Delaware's State Transportation Improvement Program (STIP). The CTP lists projects and services we are already working on and has been developed with the assistance of the Wilmington Area Planning Council (WILMAPCO), Dover/Kent County Metropolitan Planning Organization, Salisbury/Wicomico Metropolitan Planning Organization, and Sussex County. It recognizes the priorities they have set in their respective four-year Transportation Improvement Programs (TIP). In addition, we held public hearings in August and September to gather public comment and to get a better sense of local and statewide multi-modal priorities.

In June the General Assembly authorized DelDOT to proceed with the Fiscal Year 2021 elements of the program.

The Department looks forward to working on this exciting program which will improve the transportation system throughout the state. Additional information on the proposal is available on the DelDOT web site, www.deldot.gov.

Sincerely,

Jennifer Cohan
Secretary

APPROVED

DelDOT

Project Title | **Primavera #** | **Project #**

US9, Kings Highway, Dartmouth Drive to Freeman Highway | **19-10005**

Project Description The proposed improvements of this project include additional capacity improvements, sidewalks and multi-use paths, intersection improvements.

Project Justification This project was identified by Sussex County and through the Lewes Byway Committee. This project is needed to support economic development along the corridor.

Senatorial District(s): 6 Representative Districts(s): 14

PROJECT AUTHORIZATION SCHEDULE
IN ($000)

PROJECT NUMBER	PHASE	FUNDING SOURCE	CURRENT ESTIMATE	FY 2021			FY 2022			FY 2023			FY 2024			STATE TOTAL	FEDERAL TOTAL
				STATE	FEDERAL	FUND TYPE	STATE	FEDERAL	FUND TYPE	STATE	FEDERAL	FUND TYPE	STATE	FEDERAL	FUND TYPE		
	PE	100% STATE	1,500.0				1,500.0									1,500.0	
	ROW	100% STATE	2,000.0										2,000.0			2,000.0	
	C	80% FHWA	11,000.0														
Total			**14,500.0**				**1,500.0**						**2,000.0**			**3,500.0**	

PROJECT FUNDING SCHEDULE
IN ($000)

PROJECT NUMBER	PHASE	FUNDING SOURCE	BALANCE AS OF JULY 1, (State Only)	CURRENT ESTIMATE	FY 2021			FY 2022			FY 2023			FY 2024			FY 2025	FY 2026
					STATE	FEDERAL	OTHER	STATE	FEDERAL	OTHER	STATE	FEDERAL	OTHER	STATE	FEDERAL	OTHER	TOTAL	TOTAL
	PE	100% STATE		1,500.0				750.0			750.0							
	ROW	100% STATE		2,000.0										1,000.0			1,000.0	
	C	80% FHWA		11,000.0														5,500.0
Total				**14,500.0**				**750.0**			**750.0**			**1,000.0**			**1,000.0**	**5,500.0**

	A	B	C	D	F	G	H	I	K	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF
1	Priority	County	Project Title	P6	Category	Class	Family	Phase	Current Estimate	FY21 State Spend	FY21 Fed Spend	FY21 Other Spend	FY22 State Spend	FY22 Fed Spend	FY22 Other Spend	FY23 State Spend	FY23 Fed Spend	FY23 Other Spend	FY24 State Spend	FY24 Fed Spend	FY24 Other Spend	FY25 State Spend	FY25 Fed Spend	FY25 Other Spend	FY26 State Spend	FY26 Fed Spend	FY26 Other Spend
1062	38	Sussex	SR1 and Cave Neck Road Grade Separated Intersection	16-99026	Road Systems	Arterials	Arterials	**PE Total**	2,000,000	500,000	-	-	500,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1064	38	Sussex	SR1 and Cave Neck Road Grade Separated Intersection	16-99026	Road Systems	Arterials	Arterials	**ROW Total**	1,200,000	-	-	-	600,000	-	-	600,000	-	-	-	-	-	-	-	-	-	-	-	-
1066	38	Sussex	SR1 and Cave Neck Road Grade Separated Intersection	16-99026	Road Systems	Arterials	Arterials	**C Total**	12,000,000	-	-	-	-	-	-	-	-	-	250,000	1,000,000	-	1,500,000	6,000,000	-	650,000	2,600,000	-
1067	38		**SR1 and Cave Neck Road Grade Separated Intersection Total**						**15,200,000**	**500,000**	**-**	**-**	**1,100,000**	**-**	**-**	**600,000**	**-**	**-**	**250,000**	**1,000,000**	**-**	**1,500,000**	**6,000,000**	**-**	**650,000**	**2,600,000**	**-**
1069	26	Sussex	SR1 Fenwick Island Sidewalk (Lighthouse Rd. to Lewes St.)	NEW FY21	Road Systems	Arterials	Arterials	**PE Total**	800,000	-	-	-	-	-	-	-	-	-	400,000	-	-	400,000	-	-	-	-	-
1071	26	Sussex	SR1 Fenwick Island Sidewalk (Lighthouse Rd. to Lewes St.)	NEW FY21	Road Systems	Arterials	Arterials	**ROW Total**	1,000,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	500,000	-	-
1073	26	Sussex	SR1 Fenwick Island Sidewalk (Lighthouse Rd. to Lewes St.)	NEW FY21	Road Systems	Arterials	Arterials	**C Total**	9,000,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1074	26		**SR1 Fenwick Island Sidewalk (Lighthouse Rd. to Lewes St.) Total**						**10,800,000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**400,000**	**-**	**-**	**400,000**	**-**	**-**	**500,000**	**-**	**-**
1076	61	Sussex	SR1, Minos Conaway Road Grade Separated Intersection	14-00501	Road Systems	Arterials	Arterials	**PE Total**	1,168,420	-	200,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1078	61	Sussex	SR1, Minos Conaway Road Grade Separated Intersection	14-00501	Road Systems	Arterials	Arterials	**ROW Total**	12,000,000	1,000,000	4,000,000	-	1,400,000	5,600,000	-	-	-	-	-	-	-	-	-	-	-	-	-
1080	61	Sussex	SR1, Minos Conaway Road Grade Separated Intersection	14-00501	Road Systems	Arterials	Arterials	**C Total**	20,000,000	-	-	-	-	-	-	500,000	2,000,000	-	2,000,000	8,000,000	-	1,500,000	6,000,000	-	-	-	-
1081	61		**SR1, Minos Conaway Road Grade Separated Intersection Total**						**33,168,420**	**1,000,000**	**4,200,000**	**-**	**1,400,000**	**5,600,000**	**-**	**500,000**	**2,000,000**	**-**	**2,000,000**	**8,000,000**	**-**	**1,500,000**	**6,000,000**	**-**	**-**	**-**	**-**
1083	9	Sussex	US 113 @ US 9 Grade Separated Intersection	18-09113	Road Systems	Arterials	Arterials	**PE Total**	850,000	-	-	-	500,000	-	-	350,000	-	-	-	-	-	-	-	-	-	-	-
1085	9	Sussex	US 113 @ US 9 Grade Separated Intersection	18-09113	Road Systems	Arterials	Arterials	**ROW Total**	9,300,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1087	9	Sussex	US 113 @ US 9 Grade Separated Intersection	18-09113	Road Systems	Arterials	Arterials	**C Total**	43,000,000	-	-	-	-	-	-	-	-	-	-	-	-	200,000	800,000	-	4,500,000	18,000,000	-
1088	9		**US 113 @ US 9 Grade Separated Intersection Total**						**53,150,000**	**-**	**-**	**-**	**500,000**	**-**	**-**	**350,000**	**-**	**-**	**-**	**-**	**-**	**200,000**	**800,000**	**-**	**4,500,000**	**18,000,000**	**-**
1090	13	Sussex	US 113 Widening, Dagsboro Road to Hardscrabble Road	NEW FY21	Road Systems	Arterials	Arterials	**PE Total**	2,500,000	-	-	-	-	-	-	500,000	-	-	1,000,000	-	-	500,000	-	-	500,000	-	-
1092	13	Sussex	US 113 Widening, Dagsboro Road to Hardscrabble Road	NEW FY21	Road Systems	Arterials	Arterials	**ROW Total**	500,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1094	13	Sussex	US 113 Widening, Dagsboro Road to Hardscrabble Road	NEW FY21	Road Systems	Arterials	Arterials	**C Total**	35,000,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1095	13		**US 113 Widening, Dagsboro Road to Hardscrabble Road Total**						**38,000,000**	**-**	**-**	**-**	**-**	**-**	**-**	**500,000**	**-**	**-**	**1,000,000**	**-**	**-**	**500,000**	**-**	**-**	**500,000**	**-**	**-**
1097	6	Sussex	US9, Kings Highway, Dartmouth Drive to Freeman Highway	19-10005	Road Systems	Collectors	Collectors	**PE Total**	1,500,000	-	-	-	750,000	-	-	750,000	-	-	-	-	-	-	-	-	-	-	-	-
1099	6	Sussex	US9, Kings Highway, Dartmouth Drive to Freeman Highway	19-10005	Road Systems	Collectors	Collectors	**ROW Total**	2,000,000	-	-	-	-	-	-	-	-	-	1,000,000	-	-	1,000,000	-	-	-	-	-
1101	6	Sussex	US9, Kings Highway, Dartmouth Drive to Freeman Highway	19-10005	Road Systems	Collectors	Collectors	**C Total**	11,000,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,100,000	4,400,000	-
1102	6		**US9, Kings Highway, Dartmouth Drive to Freeman Highway Total**						**14,500,000**	**-**	**-**	**-**	**750,000**	**-**	**-**	**750,000**	**-**	**-**	**1,000,000**	**-**	**-**	**1,000,000**	**-**	**-**	**1,100,000**	**4,400,000**	**-**
1104	52	Sussex	Georgetown East Gateway Improvements	18-00319	Road Systems	Arterials	Arterials	**PE Total**	1,769,951	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1106	52	Sussex	Georgetown East Gateway Improvements	18-00319	Road Systems	Arterials	Arterials	**ROW Total**	3,650,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1108	52	Sussex	Georgetown East Gateway Improvements	18-00319	Road Systems	Arterials	Arterials	**C Total**	10,200,000	1,240,000	4,960,000	-	778,814	3,107,200	-	-	-	-	-	-	-	-	-	-	-	-	-
1111	52	Sussex	Georgetown East Gateway Improvements	18-00319	Road Systems	Arterials	Arterials	**Utilities Total**	603,895	360,779	243,116	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1112	52		**Georgetown East Gateway Improvements Total**						**16,223,846**	**1,600,779**	**5,203,116**	**-**	**778,814**	**3,107,200**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
1114	37	Sussex	US 9 and Minos Conaway Intersection Improvements	NEW FY21	Road Systems	Arterials	Arterials	**PE Total**	300,000	-	-	-	-	-	-	-	-	-	150,000	-	-	150,000	-	-	-	-	-
1116	37	Sussex	US 9 and Minos Conaway Intersection Improvements	NEW FY21	Road Systems	Arterials	Arterials	**ROW Total**	500,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	500,000	-	-
1118	37	Sussex	US 9 and Minos Conaway Intersection Improvements	NEW FY21	Road Systems	Arterials	Arterials	**C Total**	1,200,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1119	37		**US 9 and Minos Conaway Intersection Improvements Total**						**2,000,000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**150,000**	**-**	**-**	**150,000**	**-**	**-**	**500,000**	**-**	**-**
1121	8	Sussex	US 9 Widening (Ward Ave. to Old Vine Rd.)	NEW FY21	Road Systems	Arterials	Arterials	**PE Total**	1,500,000	-	-	-	500,000	-	-	500,000	-	-	500,000	-	-	-	-	-	-	-	-
1123	8	Sussex	US 9 Widening (Ward Ave. to Old Vine Rd.)	NEW FY21	Road Systems	Arterials	Arterials	**ROW Total**	4,000,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,000,000	-	-
1125	8	Sussex	US 9 Widening (Ward Ave. to Old Vine Rd.)	NEW FY21	Road Systems	Arterials	Arterials	**C Total**	18,000,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1126	8		**US 9 Widening (Ward Ave. to Old Vine Rd.) Total**						**23,500,000**	**-**	**-**	**-**	**500,000**	**-**	**-**	**500,000**	**-**	**-**	**500,000**	**-**	**-**	**2,000,000**	**-**	**-**	**2,000,000**	**-**	**-**
1128	109	Sussex	US 113 at SR 16 (Ellendale) Grade Separated Intersection	12-10023	Road Systems	Arterials	Arterials	**PE Total**	500,000	10,000	40,000	-	6,000	24,000	-	6,000	24,000	-	4,000	16,000	-	-	-	-	-	-	-
1130	109	Sussex	US 113 at SR 16 (Ellendale) Grade Separated Intersection	12-10023	Road Systems	Arterials	Arterials	**ROW Total**	19,600,000	-	-	-	-	-	-	2,520,000	10,080,000	-	1,400,000	5,600,000	-	-	-	-	-	-	-
1132	109	Sussex	US 113 at SR 16 (Ellendale) Grade Separated Intersection	12-10023	Road Systems	Arterials	Arterials	**C Total**	39,000,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1133	109		**US 113 at SR 16 (Ellendale) Grade Separated Intersection Total**						**59,100,000**	**10,000**	**40,000**	**-**	**6,000**	**24,000**	**-**	**2,526,000**	**10,104,000**	**-**	**1,404,000**	**5,616,000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
1135	90	Sussex	US 113, North / South Improvements	04-00020	Road Systems	Arterials	Arterials	**PD Total**	16,046,743	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1137	90	Sussex	US 113, North / South Improvements	04-00020	Road Systems	Arterials	Arterials	**PE Total**	18,000,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1139	90	Sussex	US 113, North / South Improvements	04-00020	Road Systems	Arterials	Arterials	**ROW Total**	47,500,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1141	90	Sussex	US 113, North / South Improvements	04-00020	Road Systems	Arterials	Arterials	**C Total**	180,000,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1142	90		**US 113, North / South Improvements Total**						**261,546,743**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
1144	21	Sussex	US113 @ SR18/SR404 (Georgetown) Grade Separated Intersection	13-11111	Road Systems	Arterials	Arterials	**PE Total**	3,130,000	130,000	520,000	-	75,000	300,000	-	15,000	60,000	-	-	-	-	-	-	-	-	-	-	-
1147	21	Sussex	US113 @ SR18/SR404 (Georgetown) Grade Separated Intersection	13-11111	Road Systems	Arterials	Arterials	**ROW Total**	36,200,000	1,060,000	4,240,000	-	1,680,000	6,720,000	-	1,642,000	6,568,000	-	-	-	-	-	-	-	-	-	-	-
1149	21	Sussex	US113 @ SR18/SR404 (Georgetown) Grade Separated Intersection	13-11111	Road Systems	Arterials	Arterials	**C Total**	26,700,000	-	-	-	-	-	-	1,600,000	6,400,000	-	1,600,000	6,400,000	-	2,140,000	8,560,000	-	-	-	-
1150	21		**US113 @ SR18/SR404 (Georgetown) Grade Separated Intersection Total**						**66,030,000**	**1,190,000**	**4,760,000**	**-**	**1,755,000**	**7,020,000**	**-**	**3,257,000**	**13,028,000**	**-**	**1,600,000**	**6,400,000**	**-**	**2,140,000**	**8,560,000**	**-**	**-**	**-**	**-**	**-**
1152	35	Sussex	HEP SC, SR 1 and SR 16 Grade Separated Intersection	14-00044	Road Systems	Arterials	Safety Improvement Program	**PE Total**	2,958,934	-	169,535	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1154	35	Sussex	HEP SC, SR 1 and SR 16 Grade Separated Intersection	14-00044	Road Systems	Arterials	Safety Improvement Program	**ROW Total**	5,000,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1156	35	Sussex	HEP SC, SR 1 and SR 16 Grade Separated Intersection	14-00044	Road Systems	Arterials	Safety Improvement Program	**C Total**	22,000,000	-	2,000,000	-	-	10,000,000	-	-	10,000,000	-	-	-	-	-	-	-	-	-	-
1157	35		**HEP SC, SR 1 and SR 16 Grade Separated Intersection Total**						**29,958,934**	**-**	**2,169,535**	**-**	**-**	**10,000,000**	**-**	**-**	**10,000,000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
1159	98	Sussex	Park Avenue Relocation	13-00003	Road Systems	Collectors	Collectors	**PD Total**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1161	98	Sussex	Park Avenue Relocation	13-00003	Road Systems	Collectors	Collectors	**PE Total**	3,914,855	10,420	41,679	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1162	98		**Park Avenue Relocation Total**						**3,914,855**	**10,420**	**41,679**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
1164	98	Sussex	Park Avenue Relocation Phase 1	20-00400	Road Systems	Collectors	Collectors	**ROW Total**	2,500,000	2,000,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1166	98	Sussex	Park Avenue Relocation Phase 1	20-00400	Road Systems	Collectors	Collectors	**C Total**	14,500,000	600,000	2,400,000	-	1,600,000	6,400,000	-	700,000	2,800,000	-	-	-	-	-	-	-	-	-	-
1167	98		**Park Avenue Relocation Phase 1 Total**						**17,000,000**	**2,600,000**	**2,400,000**	**-**	**1,600,000**	**6,400,000**	**-**	**700,000**	**2,800,000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
1169	98	Sussex	Park Avenue Relocation Phase 2	19-00400	Road Systems	Collectors	Collectors	**ROW Total**	4,500,000	1,000,000	-	-	2,000,000	-	-	1,500,000	-	-	-	-	-	-	-	-	-	-	-	-
1171	98	Sussex	Park Avenue Relocation Phase 2	19-00400	Road Systems	Collectors	Collectors	**C Total**	17,310,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,731,000	6,924,000	-
1172	98		**Park Avenue Relocation Phase 2 Total**						**21,810,000**	**1,000,000**	**-**	**-**	**2,000,000**	**-**	**-**	**1,500,000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1,731,000**	**6,924,000**	**-**
1174	65	Sussex	Plantation Road Improvements, SR 24 to US 9	04-92847	Road Systems	Collectors	S275, Plantations Road	**PE Total**	2,917,208	65,223	260,893	-	20,000	80,000	-	20,000	80,000	-	20,000	80,000	-	-	-	-	-	-	-
1175	65		**Plantation Road Improvements, SR 24 to US 9 Total**						**2,917,208**	**65,223**	**260,893**	**-**	**20,000**	**80,000**	**-**	**20,000**	**80,000**	**-**	**20,000**	**80,000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
1177	65	Sussex	Plantation Road Improvements, Robinsonville Road to US9	20-00500	Road Systems	Collectors	S275, Plantations Road	**ROW Total**	4,500,000	4,000,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1179	65	Sussex	Plantation Road Improvements, Robinsonville Road to US9	20-00500	Road Systems	Collectors	S275, Plantations Road	**C Total**	13,500,000	-	-	-	-	6,000,000	-	-	6,000,000	-	-	1,500,000	-	-	-	-	-	-	-
1180	65		**Plantation Road Improvements, Robinsonville Road to US9 Total**						**18,000,000**	**4,000,000**	**-**	**-**	**-**	**6,000,000**	**-**	**-**	**6,000,000**	**-**	**-**	**1,500,000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
1182	65	Sussex	Plantation Road Improvements, SR 24 to Robinsonville Road	19-04001	Road Systems	Collectors	S275, Plantations Road	**ROW Total**	3,500,000	-	-	-	1,625,000	-	-	1,625,000	-	-	250,000	-	-	-	-	-	-	-	-
1184	65	Sussex	Plantation Road Improvements, SR 24 to Robinsonville Road	19-04001	Road Systems	Collectors	S275, Plantations Road	**C Total**	6,500,000	-	-	-	-	-	-	-	-	-	-	-	-	650,000	2,600,000	-	650,000	2,600,000	-
1185	65		**Plantation Road Improvements, SR 24 to Robinsonville Road Total**						**10,000,000**	**-**	**-**	**-**	**1,625,000**	**-**	**-**	**1,625,000**	**-**	**-**	**250,000**	**-**	**-**	**650,000**	**2,600,000**	**-**	**650,000**	**2,600,000**	**-**
1187	28	Sussex	SR 24, Mulberry Knoll to SR 1	06-00909	Road Systems	Collectors	SR 24 Program	**PE Total**	1,564,128	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1189	28	Sussex	SR 24, Mulberry Knoll to SR 1	06-00909	Road Systems	Collectors	SR 24 Program	**ROW Total**	3,284,910	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1191	28	Sussex	SR 24, Mulberry Knoll to SR 1	06-00909	Road Systems	Collectors	SR 24 Program	**CE Total**	1,514,566	302,913	1,211,653	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1194	28	Sussex	SR 24, Mulberry Knoll to SR 1	06-00909	Road Systems	Collectors	SR 24 Program	**C Total**	6,989,098	1,096,640	4,386,559	319,900	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1197	28	Sussex	SR 24, Mulberry Knoll to SR 1	06-00909	Road Systems	Collectors	SR 24 Program	**Traffic Total**	920,073	209,718	686,614	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1199	28	Sussex	SR 24, Mulberry Knoll to SR 1	06-00909	Road Systems	Collectors	SR 24 Program	**Utilities Total**	736,331	147,266	589,065	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1201	28	Sussex	SR 24, Mulberry Knoll to SR 1	06-00909	Road Systems	Collectors	SR 24 Program	**Contingency Total**	840,793	168,159	672,634	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1202	28		**SR 24, Mulberry Knoll to SR 1 Total**						**15,849,900**	**1,924,695**	**7,546,524**	**319,900**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
1204	51	Sussex	Realignment of Old Orchard Road at Wescoats Corner	14-00502	Road Systems	Local	Local	**PE Total**	1,639,284	373,241	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1206	51	Sussex	Realignment of Old Orchard Road at Wescoats Corner	14-00502	Road Systems	Local	Local	**ROW Total**	1,300,000	1,000,000	-	-	300,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1209	51	Sussex	Realignment of Old Orchard Road at Wescoats Corner	14-00502	Road Systems	Local	Local	**C Total**	12,030,000	-	-	-	1,400,000	5,600,000	-	1,000,000	4,000,000	-	-	-	-	-	-	-	-	-	-
1210	51		**Realignment of Old Orchard Road at Wescoats Corner Total**						**14,969,284**	**1,373,241**	**-**	**-**	**1,700,000**	**5,600,000**	**-**	**1,000,000**	**4,000,000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
1212	99	Sussex	New Road, Nassau Road to Old Orchard Road	NEW FY21	Road Systems	Collectors	Collectors	**PE Total**	800,000	-	-	-	-	-	-	-	-	-	-	-	-	400,000	-	-	400,000	-	-
1214	99	Sussex	New Road, Nassau Road to Old Orchard Road	NEW FY21	Road Systems	Collectors	Collectors	**ROW Total**	2,000,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1216	99	Sussex	New Road, Nassau Road to Old Orchard Road	NEW FY21	Road Systems	Collectors	Collectors	**C Total**	4,200,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1217	99		**New Road, Nassau Road to Old Orchard Road Total**						**7,000,000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**400,000**	**-**	**-**	**400,000**	**-**	**-**
1219	103	Sussex	Old Landing Rd and Airport Rd Intersection Improvement and Airport Rd Extension	NEW FY21	Road Systems	Collectors	Collectors	**PE Total**	800,000	-	-	-	-	-	-	-	-	-	-	-	-	400,000	-	-	400,000	-	-
1221	103	Sussex	Old Landing Rd and Airport Rd Intersection Improvement and Airport Rd Extension	NEW FY21	Road Systems	Collectors	Collectors	**ROW Total**	1,500,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1223	103	Sussex	Old Landing Rd and Airport Rd Intersection Improvement and Airport Rd Extension	NEW FY21	Road Systems	Collectors	Collectors	**C Total**	2,800,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1224	103		**Old Landing Rd and Airport Rd Intersection Improvement and Airport Rd Extension Total**						**5,100,000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**400,000**	**-**	**-**	**400,000**	**-**	**-**
1226	97	Sussex	Old Landing Road and Warrington Road Intersection Improvement	NEW FY21	Road Systems	Collectors	Collectors	**PE Total**	800,000	-	-	-	-	-	-	-	-	-	-	-	-	400,000	-	-	400,000	-	-
1228	97	Sussex	Old Landing Road and Warrington Road Intersection Improvement	NEW FY21	Road Systems	Collectors	Collectors	**ROW Total**	3,000,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1230	97	Sussex	Old Landing Road and Warrington Road Intersection Improvement	NEW FY21	Road Systems	Collectors	Collectors	**C Total**	2,800,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1231	97		**Old Landing Road and Warrington Road Intersection Improvement Total**						**6,600,000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**400,000**	**-**	**-**	**400,000**	**-**	**-**
1233	77	Sussex	Cave Neck Road, Hudson and Sweetbriar Roads Intersection Improvement	NEW FY21	Road Systems	Collectors	Collectors	**PE Total**	1,000,000	-	-	-	-	-	-	-	-	-	-	-	-	500,000	-	-	500,000	-	-
1235	77	Sussex	Cave Neck Road, Hudson and Sweetbriar Roads Intersection Improvement	NEW FY21	Road Systems	Collectors	Collectors	**ROW Total**	500,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1237	77	Sussex	Cave Neck Road, Hudson and Sweetbriar Roads Intersection Improvement	NEW FY21	Road Systems	Collectors	Collectors	**C Total**	3,000,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1238	77		**Cave Neck Road, Hudson and Sweetbriar Roads Intersection Improvement Total**						**4,500,000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**500,000**	**-**	**-**	**500,000**	**-**	**-**
1240	60	Sussex	SR 54 Multi-modal Improvements (Blue Beard Trail to Monroe Ave.)	NEW FY21	Road Systems	Collectors	Collectors	**PE Total**	750,000	-	-	-	-	-	-	-	-	-	-	-	-	375,000	-	-	375,000	-	-
1242	60	Sussex	SR 54 Multi-modal Improvements (Blue Beard Trail to Monroe Ave.)	NEW FY21	Road Systems	Collectors	Collectors	**ROW Total**	1,000,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1244	60	Sussex	SR 54 Multi-modal Improvements (Blue Beard Trail to Monroe Ave.)	NEW FY21	Road Systems	Collectors	Collectors	**C Total**	5,000,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1245	60		**SR 54 Multi-modal Improvements (Blue Beard Trail to Monroe Ave.) Total**						**6,750,000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**375,000**	**-**	**-**	**375,000**	**-**	**-**
1247	80	Sussex	Discount Land Road, US 13A to US 13	18-00468	Road Systems	Local	Local	**PE Total**	450,000	75,000	-	-	25,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1249	80	Sussex	Discount Land Road, US 13A to US 13	18-00468	Road Systems	Local	Local	**ROW Total**	500,000	150,000	-	-	-	-	-	350,000	-	-	-	-	-	-	-	-	-	-	-
1251	80	Sussex	Discount Land Road, US 13A to US 13	18-00468	Road Systems	Local	Local	**C Total**	2,100,000	-	-	-	100,000	-	-	2,000,000	-	-	-	-	-	-	-	-	-	-	-
1252	80		**Discount Land Road, US 13A to US 13 Total**						**3,050,000**	**225,000**	**-**	**-**	**475,000**	**-**	**-**	**2,000,000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
1254	SOGR	Sussex	Woodland Ferry Renovations, South, FY19 - FY24	18-12007	Road Systems	Materials & Min	Materials & Minor Contracts	**CE Total**	1,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1256	SOGR	Sussex	Woodland Ferry Renovations, South, FY19 - FY24	18-12007	Road Systems	Materials & Min	Materials & Minor Contracts	**Maintenance Total**	920,385	25,000	100,000	-	25,000	100,000	-	25,000	100,000	-	25,000	100,000	-	25,000	100,000	-	25,000	100,000	-
1257	SOGR		**Woodland Ferry Renovations, South, FY19 - FY24 Total**						**921,385**	**25,000**	**100,000**	**-**	**25,000**	**100,000**	**-**	**25,000**	**100,000**	**-**	**25,000**	**100,000**	**-**	**25,000**	**100,000**	**-**	**25,000**	**100,000**	**-**

FY23 to FY28 Capital Transportation Program

Proposed Project Implementation For Prioritized Projects

Denotes Projects in construction or going to advertisement in the next 6 months

New Projects added to FY23 - FY28 CTP

Applied Enhanced Project Prioritization Method for Score

Changes in projects from December meeting

Fast Track Fund Program w/ Sussex County

PE Preliminary Engineering
ROW Right-of-Way Acquisition
C Construction

Rank	Project Name	FY23	FY24	FY25	FY26	FY27	FY28	County	Score
1	US 40 Salem Church Road to Walther Road	PE/ROW	C	C	C			New Castle	0.711
2	S. College Ave. Gateway	PE	PE	PE	ROW	C	C	New Castle	0.703
3	West Camden Bypass	PE/ROW	C	C				Kent	0.701
4	***US 13, US 40 to Memorial Drive Pedestrian Improvements***	PE/ROW/C	C	C				New Castle	0.697
5	US 9, Kings Highway, Dartmouth Dr to Freeman Highway	PE/ROW	PE/ROW	PE/ROW	C	C	C	Sussex	0.697
6	***SR 299, SR1 to Catherine Street***	C	C					New Castle	0.681
7	US 9 Widening (Ward Ave. to Old Vine Blvd.)	PE	PE	ROW	ROW	C	C	Sussex	0.677
8	US 113 and US 9 Grade Separated Intersection	PE	PE	PE/ROW	PE/ROW	C	C	Sussex	0.626
9	Glasgow Avenue, SR 896 to US 40	PE	PE/ROW	PE/ROW	C			New Castle	0.592
10	US 113 Widening, Dagsboro Road to Hardscrabble Road	PE	PE	PE/ROW	PE/ROW	PE/ROW	PE/ROW	Sussex	0.589
11	East Camden Bypass	PE/ROW/C	C	C				Kent	0.588
12	SR 896 Widening, US 40 to I-95							New Castle	0.583
13	SR 4, Harmony Road Intersection Improvements	PE	ROW	ROW	C	C		New Castle	0.571
14	SR 9, New Castle Ave, Landers Lane to A Street	PE	PE/ROW	ROW/C	C			New Castle	0.565
15	***HSIP SC, 24 at Mount Joy Road and SR 24 at Bay Farm Road Intersection Improvements***	C						Sussex	0.558
16	Walnut Shade Road, US 13 to Peachtree Run Road	ROW	C	C				Kent	0.557
17	US 113 and Shortly Road/Bedford Road GSI					PE	PE	Sussex	0.555
18	US 113 at SR18/SR404 (Georgetown) Grade Separated Intersection	PE/ROW	PE/C	C	C	C		Sussex	0.546
19	US 113 and Redden Road/E. Redden Road GSI					PE	PE	Sussex	0.539
20	***SR 2 and Red Mill Road Intersection Improvement***	C	C					New Castle	0.539
21	Dewey Beach Pedestrian and ADA Improvements (Anchors Way to Bayard Ave.)		PE	PE	ROW	ROW		Sussex	0.533
22	HEP KC, US 13, Lochmeath Way to Puncheon Run Connector	PE	PE	C	C	C		Kent	0.527
23	HEP KC, US 13, Walnut Shade Road to Lochmeath Way	PE/ROW	PE		C	C	C	Kent	0.526
24	SR 1 Fenwick Island Sidewalk (Lighthouse Rd. to Lewes St.)		PE	PE	ROW	ROW		Sussex	0.522
25	NE Front Street, Rehoboth Blvd to SR1	PE	ROW	ROW/C	C			Kent	0.519
26	US 113 and Avenue of Honor/E. Piney Grove Road GSI					PE	PE	Sussex	0.512
27	SR 4 and Churchmans Rd Intersection Improvement		PE	PE	ROW	C	C	New Castle	0.504
28	Wilmington Initiatives, King and Orange Streets, MLK to 10th street	C						New Castle	0.501
29	I-95 and SR 896 Interchange	PE/ROW	PE/ROW/C	C	C			New Castle	0.499
30	US 40 (Pulaski Hwy) and SR 7 (Bear Christiana Rd) Intersection Improvements	PE	PE	PE	ROW	ROW		New Castle	0.497
31	***HSIP SC, 24 at SR 5 / SR 23 Intersection Improvements***	C						Sussex	0.496

FY23 to FY28 Capital Transportation Program

Proposed Project Implementation For Prioritized Projects

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New Projects added to FY23 - FY28 CTP

Applied Enhanced Project Prioritization Method for Score

Changes in projects from December meeting

Fast Track Fund Program w/ Sussex County

PE Preliminary Engineering
ROW Right-of-Way Acquisition
C Construction

Rank	Project Name	FY23	FY24	FY25	FY26	FY27	FY28	County	Score
32	***HEP SC, SR 1 and SR 16 Grade Separated Intersection***	PE/C	PE/C	C				Sussex	0.494
33	SR 1 and Cave Neck Road Grade Separated Intersection	PE/ROW	ROW/C	C	C			Sussex	0.488
34	US 9 and Minos Conaway Intersection Improvement		PE	PE	ROW	C	C	Sussex	0.488
35	***Newark Regional Transportation Center***	C	C					New Castle	0.484
36	SR 1 Widening, SR 273 to Tybouts Corner	PE	PE	PE/ROW	PE/ROW	ROW		New Castle	0.483
37	***SR 273 and Chapman Road Intersection Improvements***	C						New Castle	0.480
38	US 40 & SR 896 Grade Separated Intersection	PE/ROW	PE/C	C	C			New Castle	0.479
39	N427, Cedar Lane Road, Marl Pit Road, to Boyds Corner Road			ROW	C	C		New Castle	0.479
40	Old Capital Trail, Newport Road to Stanton Road	PE	PE/ROW	PE/ROW/C	C	C		New Castle	0.476
41	NCC Transit Center	PE	PE/ROW	ROW				New Castle	0.473
42	***SR 72, McCoy Road to SR 71***	C	C					New Castle	0.465
43	12 St. Connector		PE	PE	ROW	C	C	New Castle	0.463
44	***HSIP SC, 24 at Camp Arrow Head Rd & SR 24 at Robinsonville Rd/Angola Rd Intersection Improvements***	C	C					Sussex	0.449
45	Brenford Road (SR 13 to DE 42: Lynnbury Woods Road)					PE	PE	Kent	0.449
46	Realignment of Old Orchard Road at Westcoats Corner	PE/C	C	C	C			Sussex	0.449
47	SR 8, Connector from Commerce Way to SR 8	PE	ROW	ROW/C	C			Kent	0.441
48	Tyler McConnell Bridge, SR 141, Montchanin Rd. to Alapocas Dr.						PE	New Castle	0.439
49	N15, Boyds Corner Road, Cedar Lane Road to US 13	PE	PE/ROW	ROW			C	New Castle	0.438
50	North Millsboro Bypass, US113 to SR24	PE/ROW/C	C	C				Sussex	0.437
51	HSIP NCC, Old Baltimore Pike and Salem Church Road			PE	PE	PE/ROW	C	New Castle	0.428
52	SR 54 Multi-modal Improvements (Blue Beard Trail to Monroe Ave.)			PE	PE	ROW	ROW	Sussex	0.426
53	SR 1, Minos Conaway Grade Separated Intersection	ROW	C	C	C			Sussex	0.425
54	Walnut Street, 3rd Street to 16th Street	PE/ROW	PE/C	C				New Castle	0.423
55	SR 2 (Kirkwood Hwy) and Harmony Rd Intersection Improvements		PE	PE	ROW	C		New Castle	0.423
56	***Plantations Road Improvements, SR 24 to US 9***	PE/C	PE/C	PE/C				Sussex	0.421
57	US 13: I-495 to PA Line			PE	PE	ROW	ROW	New Castle	0.421
58	SR 4, Ogletown Stanton Road/SR 7, Christiana Stanton Road Phase I, Stanton Split	PE	PE/ROW	PE/ROW	ROW/C	C	C	New Castle	0.419
59	South State Street/Plaindealing Road/Woodlytown Road Intersection Improvements			PE	PE	ROW	ROW	Kent	0.415
60	Irish Hill Road Upgrade (US 13 to Glen Forest Road)					PE	PE	Kent	0.415
61	***SR 24, Love Creek to Mulberry Knoll***	C	C					Sussex	0.414
62	4th Street, Walnut Street to Adams Street	PE/ROW	PE	C	C			New Castle	0.405

FY23 to FY28 Capital Transportation Program

Proposed Project Implementation For Prioritized Projects

Denotes Projects in construction or going to advertisement in the next 6 months

New Projects added to FY23 - FY28 CTP

Applied Enhanced Project Prioritization Method for Score

Changes in projects from December meeting

Fast Track Fund Program w/ Sussex County

PE Preliminary Engineering
ROW Right-of-Way Acquisition
C Construction

Rank	Project Name	FY23	FY24	FY25	FY26	FY27	FY28	County	Score
63	SR 4, Christina Parkway from SR 2, Elkton Road to SR 896, South College Avenue, Newark	PE	PE/ROW	PE	C	C	C	New Castle	0.397
64	***Kenton Road, SR8 to Chestnut Grove Road***	PE/C	C					Kent	0.394
65	Southbridge Local Street Network		PE	PE	ROW	ROW		New Castle	0.393
66	West Street, New Burton Road to North Street			PE	ROW	C	C	Kent	0.389
67	Cave Neck Road, Hudson Road and Sweetbriar Road	PE/ROW	PE/ROW	C	C			Sussex	0.381
68	Peachtree Run Rd. (Voshells Mill Rd. to Irish Hill Rd.)			PE	PE	PE	ROW	Kent	0.378
69	Discount Land Road, US 13A to US 13	PE/ROW	PE/ROW	C	C			Sussex	0.369
70	Churchman's Crossing Fairplay Station Parking Expansion	PE/C	C					New Castle	0.368
71	Canterbury Road - SR 12 to US 13			PE	PE	ROW	ROW	Kent	0.363
72	Postal Lane (Linden Lane to SR 1) Improvements						PE	Sussex	0.359
73	Duck Creek Parkway (Bassett St. to Main St.)				PE	PE	ROW	Kent	0.351
74	Irish Hill Road, Fox Chase Road to McGinnis Pond Road	PE	ROW	ROW/C	ROW/C			Kent	0.350
75	College Road, Kenton Road to McKee Road	PE	PE	ROW	ROW	C		Kent	0.338
76	Garasches Lane Sidewalk, Wilmington	PE/ROW	PE/C					New Castle	0.337
77	East 7th Street				PE	PE	PE	New Castle	0.336
78	N. Main St. Smyrna - Shoulders (Duck Creek Parkway to Glenwood Ave.)				PE	PE	ROW	Kent	0.329
79	Mulberry Knoll Road (Cedar Grove Road to US 9 at Old Vine Road) Extension						PE	Sussex	0.329
80	US 113, North / South Improvements							Sussex	0.325
81	I-295 Northbound, SR141 to US13	PE	ROW	C	C			New Castle	0.325
82	Maryland Ave. and Monroe St. (Maryland Ave./Monroe St./MLK Area)				PE	PE	ROW	New Castle	0.324
83	HSIP KC, SR 15 and SR 42 Intersection Improvements	PE/ROW	PE/ROW	C				Kent	0.322
84	Beaver Dam Rd Widening (SR 1 to Dairy Farm Rd.)				PE	PE	PE	Sussex	0.293
85	SR 896 at Bethel Church Road Interchange	PE	PE	PE				New Castle	0.286
86	Old Landing Road and Warrington Road Intersection Improvement	PE	PE	ROW	C			Sussex	0.277
87	***Park Avenue Relocation***	PE/C	C	C	C			Sussex	0.273
88	Shady Road (Plantation Road to SR 1) Improvements						PE	Sussex	0.272
89	New Road, Nassau Road to Old Orchard Road			PE	PE	ROW	C	Sussex	0.271
90	US 13, Duck Creek to SR1	PE	PE					New Castle	0.268
91	***HEP KC, SR 8 & SR 15 Intersection Improvements***	C	C					Kent	0.268
92	SR 9, River Road Area Improvements, Flood Remediation	PE	PE/ROW	ROW			C	New Castle	0.266
93	Airport Road Extension, Old Landing Rd to SR 24	PE	PE	ROW	C			Sussex	0.265

FY23 to FY28 Capital Transportation Program

Proposed Project Implementation For Prioritized Projects

Denotes Projects in construction or going to advertisement in the next 6 months	PE	Preliminary Engineering
New Projects added to FY23 - FY28 CTP	ROW	Right-of-Way Acquisition
Applied Enhanced Project Prioritization Method for Score	C	Construction
Changes in projects from December meeting		
Fast Track Fund Program w/ Sussex County		

Rank	Project Name	FY23	FY24	FY25	FY26	FY27	FY28	County	Score
94	Port Area Truck Parking Facility Near Wilmington							New Castle	0.263
95	Dairy Farm Road and Beaver Dam Road/Fisher Road Intersection Improvement							Sussex	0.259
96	Possum Park Road and Old Possum Park Road Intersection Improvements	PE/ROW	PE/ROW/C	C				New Castle	0.255
97	Garrison Oak Connector Road (SR 1 via White Oak Road)			PE	PE			Kent	0.251
98	Redden Road (Oak Rd to Kings Crossroads) Improvements						PE	Sussex	0.249
99	W. Line Road and SR 54 (Lighthouse Road) Intersection Improvement						PE	Sussex	0.245
100	Falling Point Road and Vines Creek Road (SR 26) Intersection Improvement						PE	Sussex	0.240
101	N412, Lorewood Grove Road, Jamison Corner Rd to SR 1	PE	PE/ROW	PE/ROW	C	C	C	New Castle	0.236
102	***Denny Road and Lexington Parkway Intersection Improvement***	C						New Castle	0.226
103	***Claymont Regional Transportation Center***	C	C					New Castle	0.194
104	US 113 at SR 16 (Ellendale) Grade Separated Intersection	PE	PE	PE				Sussex	0.154
105	SR 1, Scarborough Road C-D Roads							Kent	0.154
106	Otts Chapel Road and Welsh Track Road Intersection Improvements	PE	ROW	C				New Castle	0.148
TOTAL	PRELIMINARY ENGINEERING (PE)	52	43	30	16	13	15		
	RIGHT OF WAY ACQUISITION (ROW)	20	22	21	17	12	9		
	CONSTRUCTION (C)	22	28	29	28	19	16		

	A	B	C	D	F	G	H	I	K	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF
1	Priority	County	Project Title	P6	Category	Class	Family	Phase	Current Estimate	FY23 State Spend	FY23 Fed Spend	FY23 Other Spend	FY24 State Spend	FY24 Fed Spend	FY24 Other Spend	FY25 State Spend	FY25 Fed Spend	FY25 Other Spend	FY26 State Spend	FY26 Fed Spend	FY26 Other Spend	FY27 State Spend	FY27 Fed Spend	FY27 Other Spend	FY28 State Spend	FY28 Fed Spend	FY28 Other Spend
824	67	Sussex	Cave Neck Road, Hudson and Sweetbriar Roads Intersection Improvement	20-20014	Road Systems	Collectors	Collectors	PE Total	2,000,000	-	-	400,000	-	-	133,135	1,000,000	-	-	-	-	-	-	-	-	-	-	-
827	67	Sussex	Cave Neck Road, Hudson and Sweetbriar Roads Intersection Improvement	20-20014	Road Systems	Collectors	Collectors	ROW Total	7,600,000	-	-	1,000,000	-	-	2,800,000	-	-	-	-	-	-	3,800,000	-	-	-	-	-
830	67	Sussex	Cave Neck Road, Hudson and Sweetbriar Roads Intersection Improvement	20-20014	Road Systems	Collectors	Collectors	C Total	10,400,000	-	-	-	-	-	-	-	-	2,600,000	-	-	2,600,000	-	-	-	-	-	-
831	**67**		**Cave Neck Road, Hudson and Sweetbriar Roads Intersection Improvement Total**						**20,000,000**	**-**	**-**	**1,400,000**	**-**	**-**	**2,933,135**	**1,000,000**	**-**	**2,600,000**	**-**	**-**	**2,600,000**	**3,800,000**	**-**	**-**	**-**	**-**	**-**
833	79	Sussex	Mulberry Knoll Road (Cedar Grove Road to US 9 at Old Vine Road) Extension	FY23 COT	Road Systems	Collectors	Collectors	PE Total	1,100,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	550,000	-	-
834	**79**		**Mulberry Knoll Road (Cedar Grove Road to US 9 at Old Vine Road) Extension Total**						**1,100,000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**550,000**	**-**	**-**
836	89	Sussex	New Road, Nassau Road to Old Orchard Road	20-20009	Road Systems	Collectors	Collectors	PE Total	800,000	-	-	-	-	-	-	400,000	-	-	400,000	-	-	-	-	-	-	-	-
838	89	Sussex	New Road, Nassau Road to Old Orchard Road	20-20009	Road Systems	Collectors	Collectors	ROW Total	2,000,000	-	-	-	-	-	-	-	-	-	-	-	-	2,000,000	-	-	-	-	-
840	89	Sussex	New Road, Nassau Road to Old Orchard Road	20-20009	Road Systems	Collectors	Collectors	C Total	4,200,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4,200,000	-	-
841	**89**		**New Road, Nassau Road to Old Orchard Road Total**						**7,000,000**	**-**	**-**	**-**	**-**	**-**	**-**	**400,000**	**-**	**-**	**400,000**	**-**	**-**	**2,000,000**	**-**	**-**	**4,200,000**	**-**	**-**
843	86	Sussex	Old Landing Road and Warrington Road Intersection Improvement	20-20012	Road Systems	Collectors	Collectors	PE Total	800,000	400,000	-	-	400,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
845	86	Sussex	Old Landing Road and Warrington Road Intersection Improvement	20-20012	Road Systems	Collectors	Collectors	ROW Total	3,000,000	-	-	-	-	-	-	3,000,000	-	-	-	-	-	-	-	-	-	-	-
847	86	Sussex	Old Landing Road and Warrington Road Intersection Improvement	20-20012	Road Systems	Collectors	Collectors	C Total	2,800,000	-	-	-	-	-	-	-	-	-	2,800,000	-	-	-	-	-	-	-	-
848	**86**		**Old Landing Road and Warrington Road Intersection Improvement Total**						**6,600,000**	**400,000**	**-**	**-**	**400,000**	**-**	**-**	**3,000,000**	**-**	**-**	**2,800,000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
850	87	Sussex	Park Avenue Relocation	13-00003	Road Systems	Collectors	Collectors	PD Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
852	87	Sussex	Park Avenue Relocation	13-00003	Road Systems	Collectors	Collectors	PE Total	6,498,872	110,689	442,756	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
853	**87**		**Park Avenue Relocation Total**						**6,498,872**	**110,689**	**442,756**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
855	87	Sussex	Park Avenue Relocation Phase 1	20-00400	Road Systems	Collectors	Collectors	ROW Total	5,029,700	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
857	87	Sussex	Park Avenue Relocation Phase 1	20-00400	Road Systems	Collectors	Collectors	CE Total	2,429,070	485,814	1,943,256	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
859	87	Sussex	Park Avenue Relocation Phase 1	20-00400	Road Systems	Collectors	Collectors	C Total	14,230,773	2,000,000	8,000,000	-	646,155	2,584,619	-	-	-	-	-	-	-	-	-	-	-	-	-
861	87	Sussex	Park Avenue Relocation Phase 1	20-00400	Road Systems	Collectors	Collectors	Traffic Total	362,456	72,491	289,964	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
863	87	Sussex	Park Avenue Relocation Phase 1	20-00400	Road Systems	Collectors	Collectors	Utilities Total	79,000	15,800	63,200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
865	87	Sussex	Park Avenue Relocation Phase 1	20-00400	Road Systems	Collectors	Collectors	Contingency Tot	711,539	-	-	-	142,308	569,231	-	-	-	-	-	-	-	-	-	-	-	-	-
867	87	Sussex	Park Avenue Relocation Phase 1	20-00400	Road Systems	Collectors	Collectors	Rail Road Total	2,100,000	420,000	1,680,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
868	**87**		**Park Avenue Relocation Phase 1 Total**						**24,942,538**	**2,994,105**	**11,976,420**	**-**	**788,462**	**3,153,850**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
871	87	Sussex	Park Avenue Relocation Phase 2	19-00400	Road Systems	Collectors	Collectors	ROW Total	4,500,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
873	87	Sussex	Park Avenue Relocation Phase 2	19-00400	Road Systems	Collectors	Collectors	C Total	23,500,000	-	-	-	-	3,500,000	-	-	10,000,000	-	-	10,000,000	-	-	-	-	-	-	-
874	**87**		**Park Avenue Relocation Phase 2 Total**						**28,000,000**	**-**	**-**	**-**	**-**	**3,500,000**	**-**	**-**	**10,000,000**	**-**	**-**	**10,000,000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
876	56	Sussex	Plantation Road Improvements, SR 24 to US 9	04-92847	Road Systems	Collectors	S275, Plantations Road	PE Total	4,080,879	120,000	480,000	-	100,000	400,000	-	85,331	341,322	-	-	-	-	-	-	-	-	-	-
877	**56**		**Plantation Road Improvements, SR 24 to US 9 Total**						**4,080,879**	**120,000**	**480,000**	**-**	**100,000**	**400,000**	**-**	**85,331**	**341,322**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
879	56	Sussex	Plantation Road Improvements, Robinsonville Road to US9	20-00500	Road Systems	Collectors	S275, Plantations Road	ROW Total	4,500,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
881	56	Sussex	Plantation Road Improvements, Robinsonville Road to US9	20-00500	Road Systems	Collectors	S275, Plantations Road	C Total	14,500,000	-	6,000,000	-	-	7,500,000	-	-	1,000,000	-	-	-	-	-	-	-	-	-	-
883	56	Sussex	Plantation Road Improvements, Robinsonville Road to US9	20-00500	Road Systems	Collectors	S275, Plantations Road	Utilities Total	441,989	-	441,989	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
884	**56**		**Plantation Road Improvements, Robinsonville Road to US9 Total**						**19,441,989**	**-**	**6,441,989**	**-**	**-**	**7,500,000**	**-**	**-**	**1,000,000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
886	56	Sussex	Plantation Road Improvements, SR 24 to Robinsonville Road	19-04001	Road Systems	Collectors	S275, Plantations Road	ROW Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
888	56	Sussex	Plantation Road Improvements, SR 24 to Robinsonville Road	19-04001	Road Systems	Collectors	S275, Plantations Road	C Total	15,700,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
889	**56**		**Plantation Road Improvements, SR 24 to Robinsonville Road Total**						**22,700,000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
891	98	Sussex	Redden Road (Oak Rd to Kings Crossroads) Improvements	FY23 COT	Road Systems	Collectors	Collectors	PE Total	4,500,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,250,000	-
892	**98**		**Redden Road (Oak Rd to Kings Crossroads) Improvements Total**						**4,500,000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2,250,000**	**-**
894	52	Sussex	SR 54 Multi-modal Improvements (Blue Beard Trail to Monroe Ave.)	21-20008	Road Systems	Collectors	Collectors	PE Total	750,000	-	-	-	-	-	-	375,000	-	-	375,000	-	-	-	-	-	-	-	-
896	52	Sussex	SR 54 Multi-modal Improvements (Blue Beard Trail to Monroe Ave.)	21-20008	Road Systems	Collectors	Collectors	ROW Total	1,000,000	-	-	-	-	-	-	-	-	-	-	-	-	500,000	-	-	500,000	-	-
898	52	Sussex	SR 54 Multi-modal Improvements (Blue Beard Trail to Monroe Ave.)	21-20008	Road Systems	Collectors	Collectors	C Total	5,000,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
899	**52**		**SR 54 Multi-modal Improvements (Blue Beard Trail to Monroe Ave.) Total**						**6,750,000**	**-**	**-**	**-**	**-**	**-**	**-**	**375,000**	**-**	**-**	**375,000**	**-**	**-**	**500,000**	**-**	**-**	**500,000**	**-**	**-**
901	5	Sussex	US9, Kings Highway, Dartmouth Drive to Freeman Highway	19-10005	Road Systems	Collectors	Collectors	PE Total	2,700,000	1,000,000	-	-	657,471	-	-	250,000	-	-	-	-	-	-	-	-	-	-	-
903	5	Sussex	US9, Kings Highway, Dartmouth Drive to Freeman Highway	19-10005	Road Systems	Collectors	Collectors	ROW Total	7,500,000	-	1,000,000	-	-	3,500,000	-	-	3,000,000	-	-	-	-	-	-	-	-	-	-
905	5	Sussex	US9, Kings Highway, Dartmouth Drive to Freeman Highway	19-10005	Road Systems	Collectors	Collectors	C Total	22,000,000	-	-	-	-	-	-	-	-	-	-	2,000,000	-	-	10,000,000	-	-	10,000,000	-
906	**5**		**US9, Kings Highway, Dartmouth Drive to Freeman Highway Total**						**32,200,000**	**1,000,000**	**1,000,000**	**-**	**657,471**	**3,500,000**	**-**	**250,000**	**3,000,000**	**-**	**-**	**2,000,000**	**-**	**-**	**10,000,000**	**-**	**-**	**10,000,000**	**-**
908	99	Sussex	W. Line Road and SR 54 (Lighthouse Road) Intersection Improvement	FY23 COT	Road Systems	Collectors	Collectors	PE Total	500,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	250,000	-	-
909	**99**		**W. Line Road and SR 54 (Lighthouse Road) Intersection Improvement Total**						**500,000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**250,000**	**-**	**-**
911	69	Sussex	Discount Land Road, US 13A to US 13	18-00468	Road Systems	Local	Local	PE Total	310,000	57,000	-	-	15,053	-	-	-	-	-	-	-	-	-	-	-	-	-	-
913	69	Sussex	Discount Land Road, US 13A to US 13	18-00468	Road Systems	Local	Local	ROW Total	500,000	250,000	-	-	250,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
915	69	Sussex	Discount Land Road, US 13A to US 13	18-00468	Road Systems	Local	Local	C Total	5,000,000	-	-	-	-	-	-	3,500,000	-	-	1,500,000	-	-	-	-	-	-	-	-
916	**69**		**Discount Land Road, US 13A to US 13 Total**						**5,810,000**	**307,000**	**-**	**-**	**265,053**	**-**	**-**	**3,500,000**	**-**	**-**	**1,500,000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
918	100	Sussex	Falling Point Road and Vines Creek Road (SR 26) Intersection Improvement	FY23 COT	Road Systems	Local	Local	PE Total	500,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	250,000	-	-
919	**100**		**Falling Point Road and Vines Creek Road (SR 26) Intersection Improvement Total**						**500,000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**250,000**	**-**	**-**
921	72	Sussex	Postal Lane (Linden Lane to SR 1) Improvements	FY23 COT	Road Systems	Local	Local	PE Total	500,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	250,000	-	-
922	**72**		**Postal Lane (Linden Lane to SR 1) Improvements Total**						**500,000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**250,000**	**-**	**-**
924	46	Sussex	Realignment of Old Orchard Road at Wescoats Corner	14-00502	Road Systems	Local	Local	PE Total	2,082,658	335,210	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
926	46	Sussex	Realignment of Old Orchard Road at Wescoats Corner	14-00502	Road Systems	Local	Local	ROW Total	1,300,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
929	46	Sussex	Realignment of Old Orchard Road at Wescoats Corner	14-00502	Road Systems	Local	Local	C Total	13,701,700	-	1,000,000	-	-	5,000,000	-	-	5,000,000	-	-	2,000,000	-	-	-	-	-	-	-
930	**46**		**Realignment of Old Orchard Road at Wescoats Corner Total**						**17,084,358**	**335,210**	**1,000,000**	**-**	**-**	**5,000,000**	**-**	**-**	**5,000,000**	**-**	**-**	**2,000,000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
932	88	Sussex	Shady Road (Plantation Road to SR 1) Improvements	FY23 COT	Road Systems	Local	Local	PE Total	300,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	150,000	-	-
933	**88**		**Shady Road (Plantation Road to SR 1) Improvements Total**						**300,000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**150,000**	**-**	**-**
935	**SOGR**	Sussex	Woodland Ferry Renovations Program	21-10031	Road Systems	Materials & Min	Materials & Minor Cont	Other Total	875,000	25,000	100,000	-	25,000	100,000	-	25,000	100,000	-	25,000	100,000	-	25,000	100,000	-	25,000	100,000	-
936	**SOGR**		**Woodland Ferry Renovations Program Total**						**875,000**	**25,000**	**100,000**	**-**	**25,000**	**100,000**	**-**	**25,000**	**100,000**	**-**	**25,000**	**100,000**	**-**	**25,000**	**100,000**	**-**	**25,000**	**100,000**	**-**
938	**SOGR**	Sussex	Lewes Park & Ride and Maintenance Facility - Phase 2	16-10285	Transit Systems	Facilities	Transit Facilities	PE Total	300,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
940	**SOGR**	Sussex	Lewes Park & Ride and Maintenance Facility - Phase 2	16-10285	Transit Systems	Facilities	Transit Facilities	CE Total	1,012,379	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
942	**SOGR**	Sussex	Lewes Park & Ride and Maintenance Facility - Phase 2	16-10285	Transit Systems	Facilities	Transit Facilities	C Total	9,481,488	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
944	**SOGR**	Sussex	Lewes Park & Ride and Maintenance Facility - Phase 2	16-10285	Transit Systems	Facilities	Transit Facilities	Traffic Total	315	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
947	**SOGR**	Sussex	Lewes Park & Ride and Maintenance Facility - Phase 2	16-10285	Transit Systems	Facilities	Transit Facilities	Contingency Tot	2,991,224	84,225	336,899	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
949	**SOGR**	Sussex	Lewes Park & Ride and Maintenance Facility - Phase 2	16-10285	Transit Systems	Facilities	Transit Facilities	Management To	30,320	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
950	**SOGR**		**Lewes Park & Ride and Maintenance Facility - Phase 2 Total**						**13,815,726**	**84,225**	**336,899**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
952	**SOGR**	Sussex	Resorts Park & Ride Improvements	18-71801	Transit Systems	Facilities	Transit Facilities	PE Total	600,000	-	600,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
954	**SOGR**	Sussex	Resorts Park & Ride Improvements	18-71801	Transit Systems	Facilities	Transit Facilities	C Total	6,550,000	-	-	-	-	3,275,000	-	-	3,275,000	-	-	-	-	-	-	-	-	-	-
955	**SOGR**		**Resorts Park & Ride Improvements Total**						**7,150,000**	**-**	**600,000**	**-**	**-**	**3,275,000**	**-**	**-**	**3,275,000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
957	**SOGR**	Sussex	Georgetown Hub	18-71802	Transit Systems	Facilities	Transit Facilities	PE Total	172,196	50,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
959	**SOGR**	Sussex	Georgetown Hub	18-71802	Transit Systems	Facilities	Transit Facilities	CE Total	60,000	12,000	48,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
961	**SOGR**	Sussex	Georgetown Hub	18-71802	Transit Systems	Facilities	Transit Facilities	C Total	1,140,000	228,000	912,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
962	**SOGR**		**Georgetown Hub Total**						**1,372,197**	**290,000**	**960,000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
964	**SOGR**	Sussex	Inter City Operating	07-30122	Transit Systems	Vehicles	Transit Admin	Procurement Tot	2,269,764	-	189,147	189,147	-	189,147	189,147	-	189,147	189,147	-	189,147	189,147	-	189,147	189,147	-	189,147	189,147
965	**SOGR**		**Inter City Operating Total**						**2,269,764**	**-**	**189,147**	**189,147**	**-**	**189,147**	**189,147**	**-**	**189,147**	**189,147**	**-**	**189,147**	**189,147**	**-**	**189,147**	**189,147**	**-**	**189,147**	**189,147**
967	**SOGR**	Sussex	Transit Vehicle Expansion (2) 30' Low Floor Buses SC FY23	18-11024	Transit Systems	Vehicles	Transit Vehicles	Procurement Tot	1,162,000	232,400	929,600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
968	**SOGR**		**Transit Vehicle Expansion (2) 30' Low Floor Buses SC FY23 Total**						**1,162,000**	**232,400**	**929,600**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
970	**SOGR**	Sussex	Transit Vehicle Expansion (2) 35' Electric Buses SC FY19	18-11011	Transit Systems	Vehicles	Transit Vehicles	Procurement Tot	3,120,408	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
971	**SOGR**		**Transit Vehicle Expansion (2) 35' Electric Buses SC FY19 Total**						**3,120,408**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
973	**SOGR**	Sussex	Transit Vehicle Replacement (8) 29' Low Floor Buses SC FY23	14-11010	Transit Systems	Vehicles	Transit Vehicles	Procurement Tot	4,010,288	802,058	3,208,230	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
974	**SOGR**		**Transit Vehicle Replacement (8) 29' Low Floor Buses SC FY23 Total**						**4,010,288**	**802,058**	**3,208,230**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
976	**SOGR**	Sussex	Transit Vehicle Replacement (6) 25' Low Floor CAW Buses SC FY23	21-11002	Transit Systems	Vehicles	Transit Vehicles	Procurement Tot	1,360,000	272,000	1,088,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
977	**SOGR**		**Transit Vehicle Replacement (6) 25' Low Floor CAW Buses SC FY23 Total**						**1,360,000**	**272,000**	**1,088,000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
979	**SOGR**	Sussex	Transit Vehicle Replacement (12) 29' Low Floor Buses SC FY23	22-11010	Transit Systems	Vehicles	Transit Vehicles	Procurement Tot	5,988,000	1,197,600	4,790,400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
980	**SOGR**		**Transit Vehicle Replacement (12) 29' Low Floor Buses SC FY23 Total**						**5,988,000**	**1,197,600**	**4,790,400**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
983	**SOGR**	Sussex	Transit Vehicle Replacement Paratransit Buses SC Program	07-22440	Transit Systems	Vehicles	Transit Vehicles	Procurement Tot	20,400,000	416,000	1,664,000	-	446,400	1,785,600	-	637,600	2,550,400	-	330,000	1,320,000	-	507,000	2,028,000	-	772,710	3,090,840	-
984	**SOGR**		**Transit Vehicle Replacement Paratransit Buses SC Program Total**						**20,400,000**	**416,000**	**1,664,000**	**-**	**446,400**	**1,785,600**	**-**	**637,600**	**2,550,400**	**-**	**330,000**	**1,320,000**	**-**	**507,000**	**2,028,000**	**-**	**772,710**	**3,090,840**	**-**
985		**Sussex Total**							**1,184,911,075**	**16,495,120**	**81,496,107**	**1,589,147**	**4,830,549**	**125,109,248**	**3,122,282**	**11,832,931**	**134,845,869**	**2,789,147**	**9,730,000**	**62,069,147**	**2,789,147**	**8,032,000**	**57,342,147**	**189,147**	**7,947,710**	**53,354,987**	**189,147**
987	**MGT**	Statewide	Bicycle, Pedestrian and other Improvements	05-10007	Road Systems	Bicycle/Pedestria	Bicycle, Pedestrian and	PE Total	4,000,000	-	3,580,000	-	-	250,000	-	-	-	-	-	-	-	-	-	-	-	-	-
989	**MGT**	Statewide	Bicycle, Pedestrian and other Improvements	05-10007	Road Systems	Bicycle/Pedestria	Bicycle, Pedestrian and	C Total	45,500,000	1,600,000	6,400,000	-	1,500,000	6,000,000	-	1,500,000	6,000,000	-	1,500,000	6,000,000	-	1,500,000	6,000,000	-	1,500,000	6,000,000	-
990	**MGT**		**Bicycle, Pedestrian and other Improvements Total**						**49,500,000**	**1,600,000**	**9,980,000**	**-**	**1,500,000**	**6,250,000**	**-**	**1,500,000**	**6,000,000**	**-**	**1,500,000**	**6,000,000**	**-**	**1,500,000**	**6,000,000**	**-**	**1,500,000**	**6,000,000**	**-**
992	**MGT**	Statewide	Carbon Reduction Program	22-66300	Road Systems	Bicycle/Pedestria	Carbon Reduction	C Total	27,098,325	-	5,400,000	-	-	5,400,000	-	-	5,400,000	-	-	5,400,000	-	-	5,400,000	-	-	-	-
993	**MGT**		**Carbon Reduction Program Total**						**27,098,325**	**-**	**5,400,000**	**-**	**-**	**5,400,000**	**-**	**-**	**5,400,000**	**-**	**-**	**5,400,000**	**-**	**-**	**5,400,000**	**-**	**-**	**-**	**-**
995	**REQ**	Statewide	Pedestrian ADA Accessibility	14-22614	Road Systems	Bicycle/Pedestria	Pedestrian ADA Accessi	Program Funding	27,000,000	4,500,000	-	-	4,500,000	-	-	4,500,000	-	-	4,500,000	-	-	4,500,000	-	-	4,500,000	-	-
996	**REQ**		**Pedestrian ADA Accessibility Total**						**27,000,000**	**4,500,000**	**-**	**-**	**4,500,000**	**-**	**-**	**4,500,000**	**-**	**-**	**4,500,000**	**-**	**-**	**4,500,000**	**-**	**-**	**4,500,000**	**-**	**-**
999	**SOGR**	Statewide	Bridge Inspection Program	14-07002	Road Systems	Bridge	Bridge Inspection	PE Total	41,900,000	1,700,000	5,600,000	-	1,800,000	6,000,000	-	1,700,000	5,600,000	-	1,700,000	5,600,000	-	1,800,000	6,000,000	-	1,800,000	6,000,000	-
1000	**SOGR**		**Bridge Inspection Program Total**						**41,900,000**	**1,700,000**	**5,600,000**	**-**	**1,800,000**	**6,000,000**	**-**	**1,700,000**	**5,600,000**	**-**	**1,700,000**	**5,600,000**	**-**	**1,800,000**	**6,000,000**	**-**	**1,800,000**	**6,000,000**	**-**
1003	**SOGR**	Statewide	Bridge Management	05-10003	Road Systems	Bridge	Bridge Management	C Total	79,650,000	8,106,000	5,704,000	-	11,226,000	5,304,000	-	8,486,000	3,544,000	-	7,846,000	4,184,000	-	8,174,000	3,896,000	-	9,174,000	3,896,000	-
1004	**SOGR**		**Bridge Management Total**						**79,650,000**	**8,106,000**	**5,704,000**	**-**	**11,226,000**	**5,304,000**	**-**	**8,486,000**	**3,544,000**	**-**	**7,846,000**	**4,184,000**	**-**	**8,174,000**	**3,896,000**	**-**	**9,174,000**	**3,896,000**	**-**
1006	**SOGR**	Statewide	Bridge Painting Program	15-07002	Road Systems	Bridge	Bridge Painting	C Total	49,250,000	2,800,000	11,200,000	-	1,700,000	6,800,000	-	1,800,000	7,200,000	-	1,700,000	6,800,000	-	1,600,000	6,400,000	-	1,600,000	6,400,000	-
1007	**SOGR**		**Bridge Painting Program Total**						**49,250,000**	**2,800,000**	**11,200,000**	**-**	**1,700,000**	**6,800,000**	**-**	**1,800,000**	**7,200,000**	**-**	**1,700,000**	**6,800,000**	**-**	**1,600,000**	**6,400,000**	**-**	**1,600,000**	**6,400,000**	**-**
1009	**SOGR**	Statewide	**Bridge Preservation Program**	**05-10006**	Road Systems	Bridge	Bridge Preservation	PD Total	167,564	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1014	**SOGR**	Statewide	**Bridge Preservation Program**	**05-10006**	Road Systems	Bridge	Bridge Preservation	PE Total	40,498,092	7,722,074	2,736,990	12,000	2,959,496	2,931,985	-	1,211,719	1,250,000	-	250,000	-	-	100,000	-	-	-	-	-
1019	**SOGR**	Statewide	**Bridge Preservation Program**	**05-10006**	Road Systems	Bridge	Bridge Preservation	ROW Total	3,300,936	1,838,000	48,000	4,000	508,000	32,000	-	70,900	-	-	95,000	-	-	25,000	-	-	-	-	-
1025	**SOGR**	Statewide	**Bridge Preservation Program**	**05-10006**	Road Systems	Bridge	Bridge Preservation	CE Total	9,987,865	515,594	1,011,456	-	286,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1033	**SOGR**	Statewide	**Bridge Preservation Program**	**05-10006**	Road Systems	Bridge	Bridge Preservation	C Total	290,422,907	5,326,699	22,437,570	20,000	1,332,018	50,514,286	-	-	52,607,619	-	-	41,600,000	-	8,000,000	32,000,000	-	8,000,000	32,000,000	-
1036	**SOGR**	Statewide	**Bridge Preservation Program**	**05-10006**	Road Systems	Bridge	Bridge Preservation	Traffic Total	16,324	463	375	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1039	**SOGR**	Statewide	**Bridge Preservation Program**	**05-10006**	Road Systems	Bridge	Bridge Preservation	Utilities Total	859,851	75,212	300,850	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Cultural Resource Assessment
Mitchell Farm,
Route 9 and Gills Neck Road,
Lewes, Delaware

February 23, 2022

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INTRODUCTION

Edward Otter, Inc. was contracted by Davis, Bowen & Friedel to conduct an archaeological assessment of Sussex tax parcel 335-8.00-37.00, also known as the Mitchell Farm. The subject parcel is being proposed as a new mixed-use commercial and residential subdivision.

Goals

An archaeological assessment seeks to determine the archaeological potential of a particular piece of land. This work does not include survey level archaeological field work but instead is dependent on archival research and the use of site predictive models. The goal is to determine areas that have archaeological sites or have a potential to have archeological sites. This information can then be used for planning purposes.

Location and Setting

Located on the northeast side of the intersection of King's Highway and Gill's Neck Road, the property is just outside the town limits of Lewes, Sussex County, Delaware (Figure 1). The tract consists of 52.17 acres of land which has been agricultural field. (Figure 2). Currently on the property is a house, garage, and agricultural out buildings.

Soils on the property consist of Greenwich loam. This is a well-drained loam. Topography is nearly level with elevation ranging from 17 to 21 feet above mean sea level. There are no streams on the property and none are immediately adjacent. Ebenezer branch is the closest water way and it is over 600 meters to the west/southwest.

PREVIOUS RESEARCH

The area around the Mitchell farm is well known for containing prehistoric archaeological resources (Figure 3). The Townsend site is a National Register listed site that contains nearly 100 prehistoric features including burials and an early colonial site. Prehistoric sites tend to be along waterways (Figure 3). Also within a mile of the project area are several historic structure resources including a portion of the Lewes Historic District (Figure 4).

On the property itself, is one recorded above-ground historic resource, S01046 (Figure 5). This was the Mitchell farm complex which includes a house (Figure 6) and agricultural outbuildings. The current CHRIS map also indicates S01047 is on the property but this is an error. That structure is located on a separate parcel. It has been heavily modified and is now occupied by Lane Builders. Also shown on the property is an archaeological site 7S-D-40 (S00799).

Prior archaeological study on this parcel is limited to work conducted in association with the sewer line that runs along King's Highway (Thomas 1977). Prior to the construction of the sewer, the treatment facility sites and the main lines were subject to archaeological survey. Pedestrian reconnaissance was done within the plowed fields along King's Highway and this resulted in the identification of archaeological site 7-S-D-40 (CRS 00799). Thomas stated there was "a scattering of early historic items indicative of a field dumping area" (Thomas 1977:4-1). The artifact inventory suggests a late 18th through early 19th century site with redware, pearlware, whiteware and Chinese porcelain (Thomas 1977:5-2).

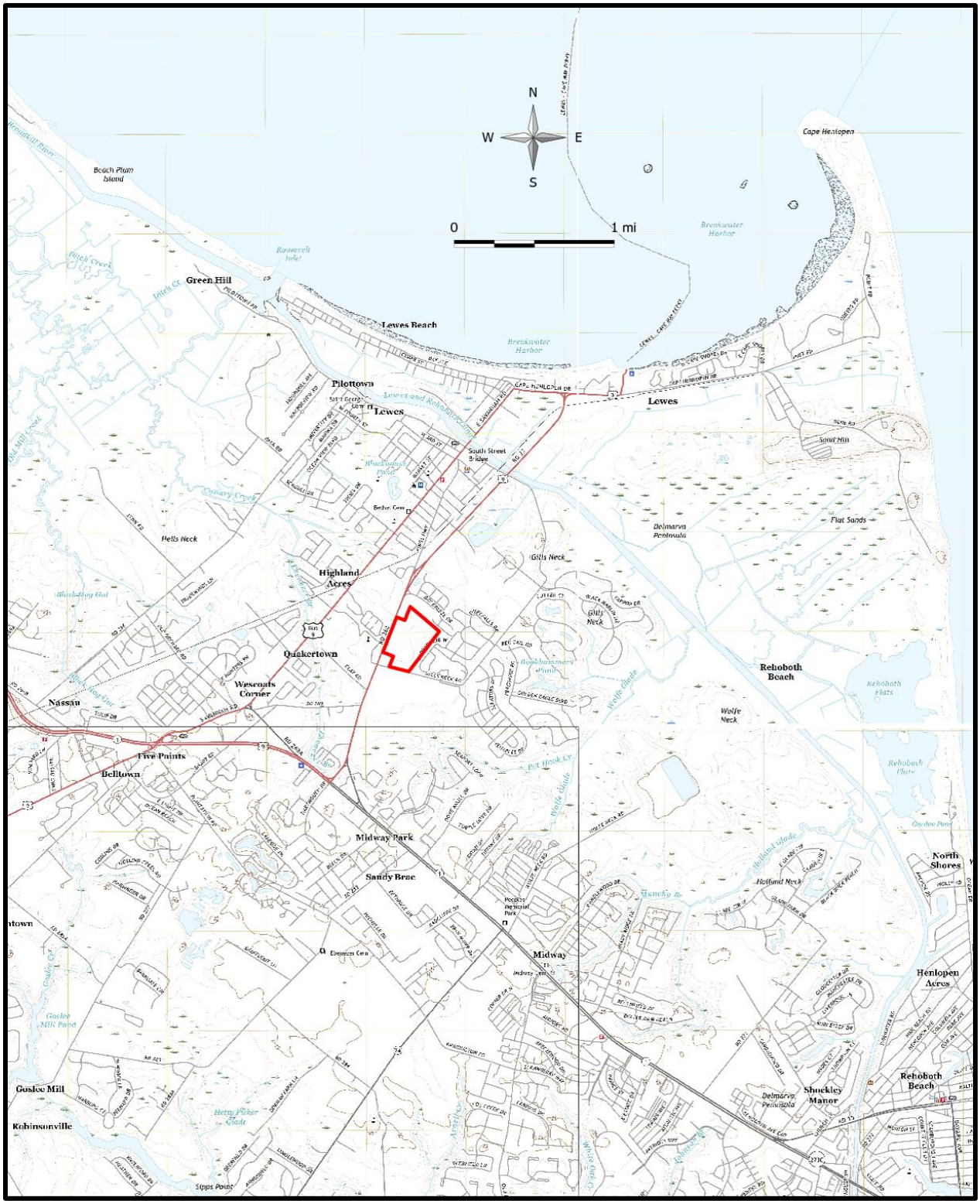

Figure 1. Project Location

Figure 2. 2020 Aerial Photograph

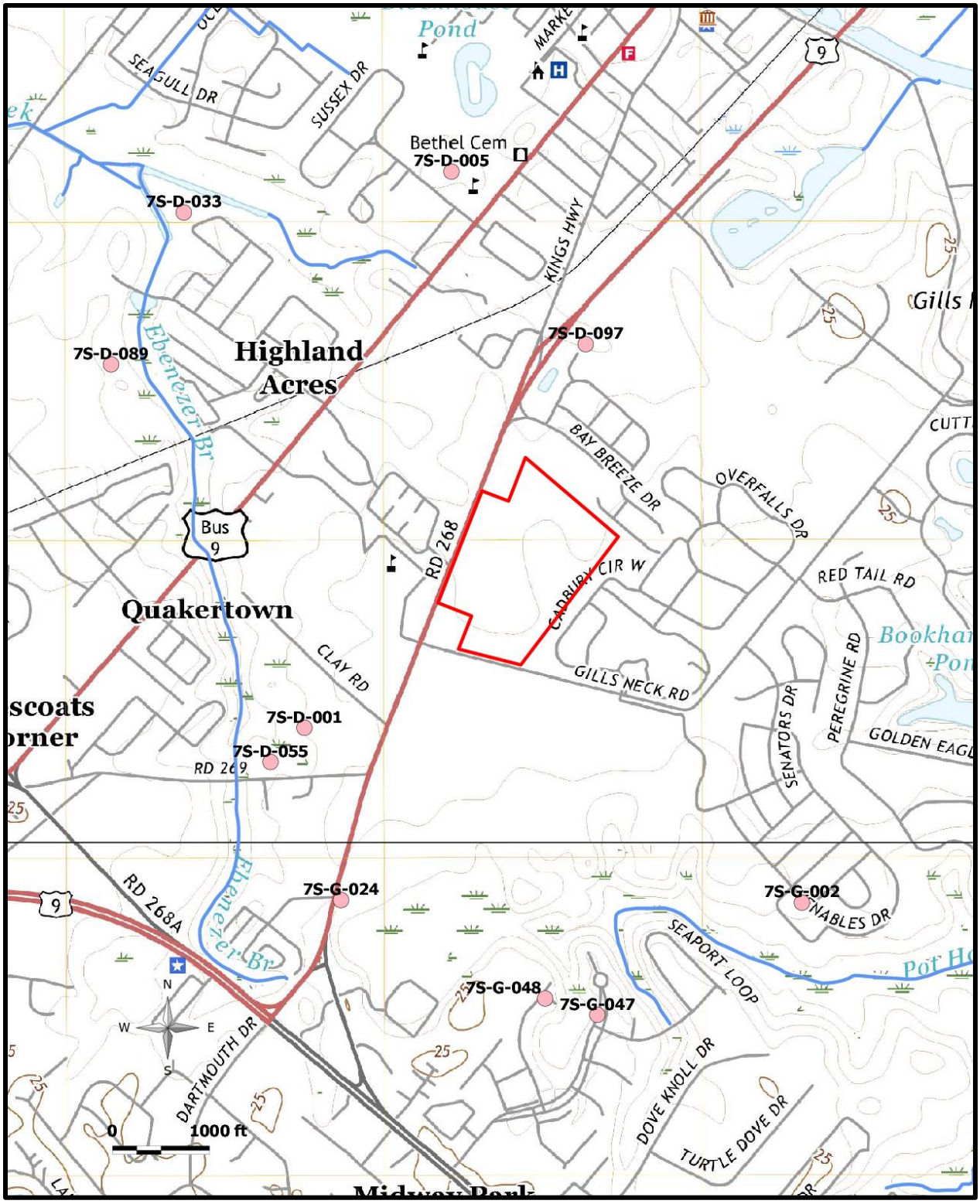

Figure 3. Reported Prehistoric Sites within One Mile

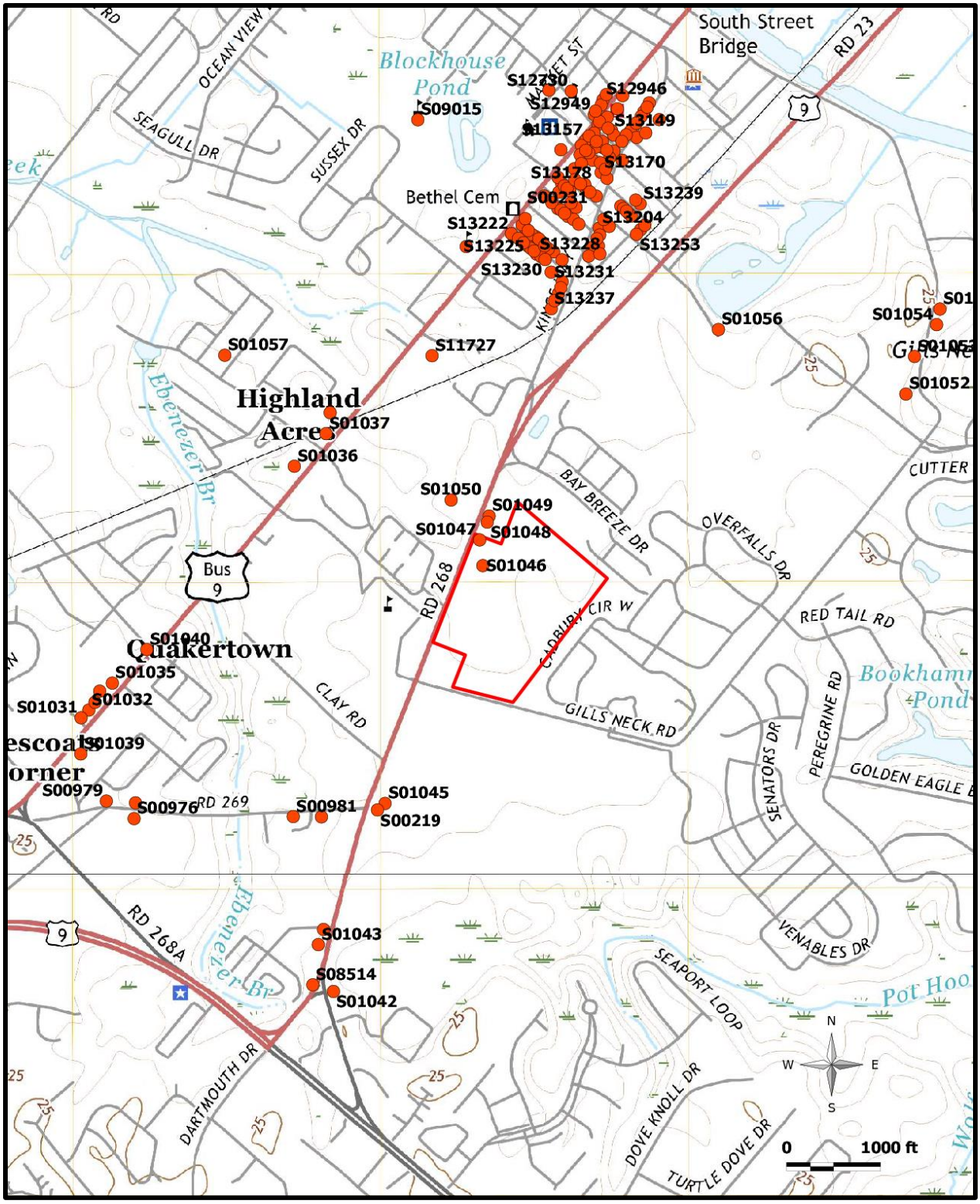

Figure 4. Above Ground Historic Resources within One Mile

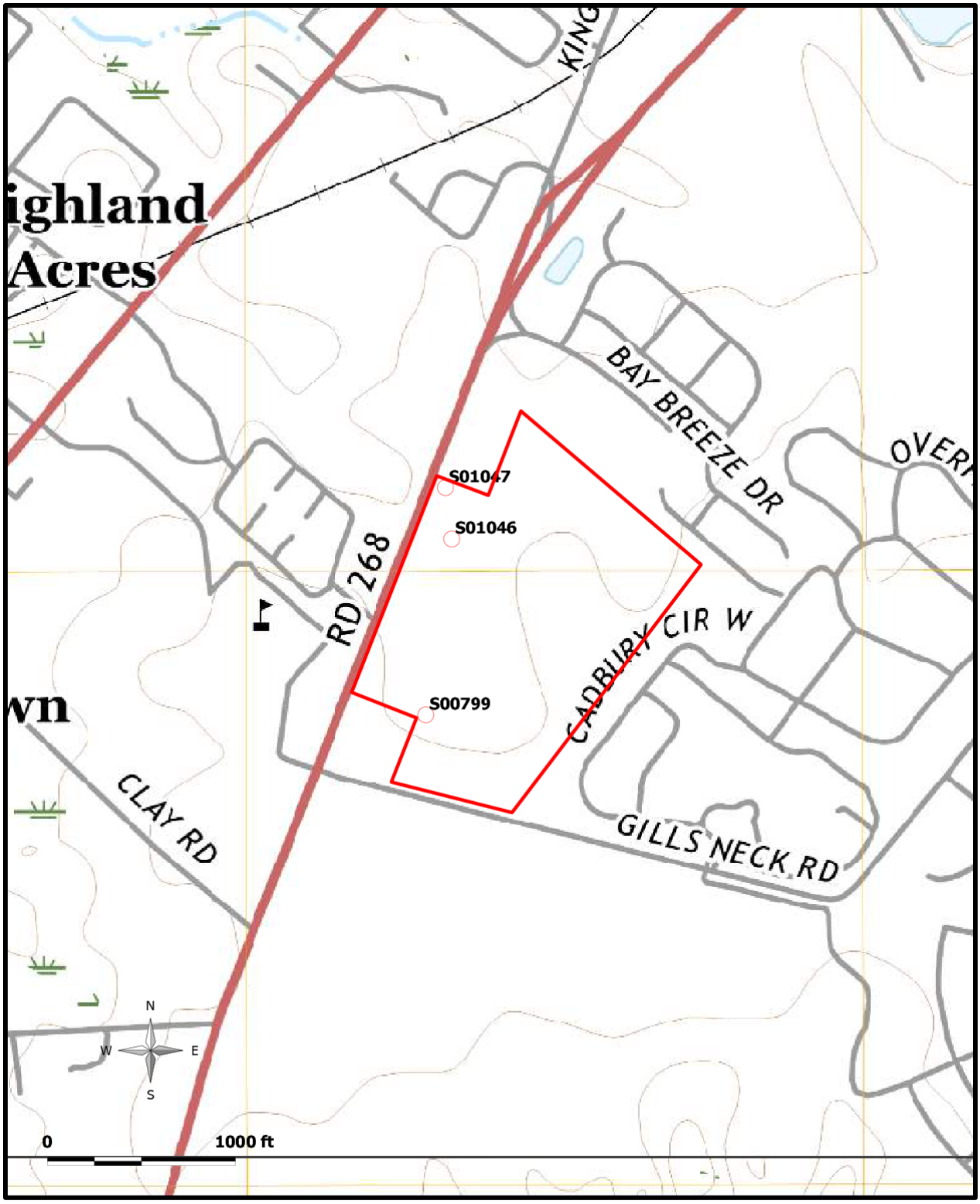

Figure 5. CHRIS points on Mitchell Farm

Figure 6. Mitchell House (From De CHRIS File)

METHODS

In order to accomplish the objectives set forth for this project, archival research was conducted. Two forms of information were sought. Historic documents, mostly courthouse records were sought to understand past ownership, habitation and use of the property. This form of research often provides information about the location of archaeological sites and also provides a context for those sites.

The other form of information was environmental. Environmental variables are used in models that predict the locations for Prehistoric archaeological sites. Since the 1980s much research has been done to determine correlations between landforms, soils, and hydrology to the locations of Prehistoric sites. Such modeling is used here to suggest areas most likely to contain Prehistoric archaeological resources.

CULTURAL HISTORY

Humans have occupied the North American continent for at least 15,000 years. The span of human existence is divided into two eras, prehistoric and historic. The historic era is equivalent to the time of Euro-American occupation. The prehistoric period is divided into periods and sub-periods. Delaware and Maryland use different names and dates for these divisions. Presented here is a sort of hybrid of these.

Prehistoric Era

Extensive research has been conducted over the last half-century providing information about the people living in the Middle Atlantic region for the last 15000 years. Recent work has raised the possibility of pushing the earliest occupation date back as far as 20,000 years ago.

Paleo I (Pre-Clovis 20000+ - 13500 B.C.)

While there was some evidence for human occupation in North America prior to 12,000 B.C., the notion was not widely accepted. More recently, sites such as Cactus Hill in Virginia (McAvoy & McAvoy 1997) and Miles River in Talbot County, Maryland (Lowery et al 2010) provide strong evidence for the sites with these early dates. This period is called pre-Clovis and sites are still controversial. Little is known of the culture of these people including their origin (Stanford & Bradley 2012).

The closest thing to a temporally diagnostic artifact for this period is the bi-point. At least eight sites from Delmarva have produced bi-points. Most of these have been from submerged contexts (Stanford et al 2014). Associated with bi-points is a tool kit including choppers, scrapers, and prismatic blades. The Miles Point site in Talbot County produced prismatic blades (Lowery 2007; Lowery et al 2010). These artifacts were recovered from a loess deposit dated between 40,000 and 20,000 years bp (Wah, Lowery & Wagner 2012).

Paleo II (13500 - 8000 BC)

On Delmarva the Paleo II can be subdivided into three periods based on projectile point forms. The oldest is Clovis, followed by mid-paleo points, and lastly Hardaway and Dalton points. Clovis and mid-paleo points are characteristically fluted and are distinguished by their size and thickness. Mid-paleo points are smaller and thinner than Clovis and at least some fit the definition of the Crowfield type. Dalton points have well defined shoulders and a deep notch in their base.

Geomorphologic analysis indicates the Clovis period is at or before the onset of the Younger Dryas. The Younger Dryas was a period in which global temperatures abruptly dropped after a period of warming. Clovis aged sites have been associated with the Tilghman paleosol (Wah, Lowery & Wagner 2012:39). This paleosol is buried under a significant loess deposit (Paw Paw Loess). The Paw Paw Loess covers a large portion of the Maryland section of Delmarva and part of Delaware with the greatest thickness on the western shoreline of the Peninsula. The source for the sediment is thought to be the ancestral Susquehanna Channel (Wah, Lowery & Wagner 2012: 37). Sediment thickness is greatest near the source and generally less than 1.8 meters. Exceptions to this are locations on the east side of confluences and major waterways. Presumably these bodies contributed sediment that settled locally.

Across Delmarva, the different types of paleo points are found together on the same sites. This suggests a similarity in subsistence/settlement patterns. Geographic settings have changed significantly since Paleo II times with large amounts of aeolian deposition and stream modifications so that present conditions may not reflect what the setting once was. Many of these sites are found eroding from the shoreline and it is likely that the Paw Paw loess deposits conceal a number of these sites.

Paleoindian points have been found in many places along the shoreline where erosion has cut through the loess deposits. Paleo points have been near Eldorado and another on the Nanticoke near Riverton. In Delaware, there is a cluster on the upper portion of the Marshyhope west of Greenwood (Custer 1989:94). The numbers of points found in the interior of the peninsula may be related to the lack of Paw Paw loess leaving Paleoindian age soils closer to the surface.

Most stone tools found from the Paleo-Indian Period are associated with the processing of foods and other raw materials acquired through these activities. The tool kit typically contained projectile points for the killing and butchering of animals, biface blades for butchering and for the manufacture of other multi-purpose bifacial tools, and flaked tools for various purposes such as working bone, antler, or hide (Raber 1985; Custer 1989, 1996).

Paleo-Indian culture is interpreted as consisting of small mobile groups subsisting through hunting, fishing, and gathering. A correlation has been noted between Paleoindian site locations and specific resource areas, notably quarries (Gardner 1974, 1977; Raber 1985; Kraft 1986; Ritchie 1969). There are no primary outcrops of lithics on Delmarva only cobble deposits. These include high quality material and are peppered across the region. On Delmarva, there appears to be a correlation with spring heads and streams (Lowery 2002: 67). These, too, are spread across Delmarva. The low relief of much of Delmarva results in a uniform mosaic of environmental niches. Small changes in elevation result in differences between dry and wet soils and this factor, in conjunction with proximity to flowing surface water are seen as the major predictors of site locations for this and subsequent periods.

Archaic Period (8000 - 1000 BC)

Around 7,000 B.C., evolving Holocene environments continued to change with a gradual warming of the climate melting ice caps and raising the sea level. Spruce woodland gave way to mixed coniferous/deciduous forests establishing essentially modern floral and faunal patterns (Carbone 1976; Custer 1989). These environmental changes spurred a shift in human adaptation hunter-gatherer strategies producing new settlement-subsistence patterns based around exploitation of new seasonally rich environments including acorns, nuts, berries, and tubers with abundant fauna resources of fish, shellfish, deer, elk, bear, and a variety of small mammals.

Early Archaic Period (7000 BC – 5000 BC)

The most commonly found points of this period are Kirk and Palmer types. Amos and Charleston are less frequently found. The Early Archaic tool kit is much like that from the Paleo-Indian period (Dent, 1995; Raber et al 1998). The most notable change was in the form of scrapers which changed at this time. The remainder of the tools appear the same as those from the Paleo-Indian period.

Early Archaic site locations are generally the same as for Paleo-Indian sites, based on the current databases for site locations on Delmarva. The Crane Site assemblage from Dorchester County is characteristic of this with Dalton/Hardaway points and Kirk/Palmers. Local stone resources, such as quartz and rhyolite, were preferred for tool manufacture instead of exotic mineral types formerly obtained from distant sources.

The Archaic people are interpreted living in small, egalitarian and mobile hunter-gatherer groups. Their economy was based on hunting, fishing, and gathering utilizing a wide range of plants.

The flora and fauna became much more like that we see today although sea level was still significantly lower than the present.

The Middle Archaic Period (5000 B.C. - 3000 B.C.)

The Middle Archaic Period is poorly documented and understood. This period is marked archaeologically by the appearance of bifurcated projectile points in the earlier portion. In the later part of the period Stanly and Morrow Mountain points are found. A significant change at this time is the appearance of ground stone objects. Plant processing tools, axes and mortars appear during this period suggesting more use of plant resources. Pollen studies indicate an increase in nut producing trees, including oaks. Pollen studies also indicate a warming period across the middle Atlantic with a continued rise in sea level resulting in the inland expansion of tides and saline water.

Archaeological work has been done on relatively few sites of this period. Middle archaic sites tend to not be where early archaic sites, are suggesting a shift in either environmental setting or settlement preference. The interpretation is that settlement changes are related to environmental factors. Settlements that have been recognized are small and contain few artifacts. Only stone artifacts have been found, mostly waste flakes. The size of the sites and the relatively few artifacts suggest these were short-term camps with a small number of inhabitants (Barse & Marston 2007).

Late Archaic Period (3,000 B.C. - 800 B.C.)

In Delaware's chronology, this portion of prehistory is identified as the earlier portion of the Woodland I (Custer 1984). Two complexes are recognized, the Clyde Farm complex to the north and Barkers Landing to the south. The sites in lower Delaware and adjacent areas of Maryland fall into the Barkers Landing Complex (Custer 1989).

Projectile points characteristic of the Late Archaic period include the Otter Creek, Lamoka, Brewerton, Savannah River, Halifax, and Susquehanna and Perkiomen broadspear types. Soapstone bowls were manufactured and used during this period and are a good temporal diagnostic for the later part of the period. Lithic materials were procured locally and from distant sources. Rhyolite and argillite from piedmont areas is common and nearly all ground stone objects are produced of foreign stone such as slate or basalt.

Climatic changes, about 2,600 B.C., produced the warmest and driest conditions of the current post-glacial period, with oak and hickory emerging as the dominant tree species in the Middle Atlantic region. These nuts provide important food sources for many species including deer and turkey. Sea level rise was slowing and the Chesapeake and Delaware estuaries were becoming more stable. This allowed for an increase in estuarine resources, shellfish in particular.

Increases in population and sedentism (and decreased foraging territory) are suggested by the new archaeological visibility of sites (Dent 1995). Sites are found in a variety of locations with larger sites found along major waterways. Areas with well drained soils along bodies of water, especially in association with freshwater springs or freshettes and bay basin features are good locations for small sites of this period.

During the beginning of the Late Archaic, there is evidence for long-distance trade/exchange, exploitation of local nuts and seeds, a wide variety of lithic resources, and new riverine focus giving rise to large settlements along fertile major waterways (possibly in response to dryer climate).

At the end of the Late Archaic period pottery technology developed with the continuation of some projectile point types. Traditionally, pottery is used to mark the beginning of the Woodland Period. Over the years research has revealed that except for the introduction of pottery the Late Archaic and the earliest part of the Woodland Period are very much alike. In Pennsylvania the term Transitional is used to refer to this period. The first pottery vessels (Marcey Creek ware) were tempered with steatite. The shape of these vessels, with flat bottoms and lug handles, suggests an imitation of earlier steatite bowls. Steatite bowl fragments have been recovered from sites on the lower shore and adjacent areas of Delaware. For this reason, the earliest ceramic wares are here included as part of the Late Archaic.

On the lower shore, Marcey Creek is found as are other recognized types of similar form. Dames Quarter is probably the second most common. It is tempered with crushed black rock, probably gneiss making it distinctive. Marcey Creek pottery is flat bottomed as are some of the Dames Quarter vessels. Ware plain, another early type is also flat bottomed.

Late Archaic site locations on Delmarva are more often not where Middle Archaic sites are found although sites of the Late Archaic are more numerous than any of the previous periods. While this is at least partly attributable to environmental change, fundamental changes in subsistence were occurring at this time. Small wild seeds, roots, and squash, were likely important components of the diet.

In Delaware, and the greater Middle Atlantic region, early varieties of cultigens and cultivars have been found in archaeological context (Adavasio & Johnson 1981; Hart & Scarry 1999; Gremillion1997). Cultivation appears to have started during the later part of the Late Archaic as cultivars have been found in terminal Archaic contexts elsewhere in the Eastern United States (Purrington 1983). Tobacco may have been cultivated at this time. The presence of pipes during this cultural period suggests the use of tobacco at this time. However, there is no evidence for beans or maize at this period.

A species of setaria, S. parviflora, has been found in dated contexts 4000 – 3500 B.C. in the southwest (Austin, 2006) and within a similar time frame from southwestern Mexico (Callen 1963:237). Other relatives in this family have been domesticated in Asia. Austin claims that Setaria was the dominant grain prior to maize domestication (Austin 2006:149) noting that setaria has been recovered from sites across the United States (Austin 2006:151).

Analysis of residue on Marcey Creek ceramics recovered from the Gray Farm (7K-F-11 & 7K-F-169) resulted in the identification of plant starch grains and phytoliths. Bristlegrass (Setaria sp) and little barley grass (Hordeum sp), were recovered as was arrowhead, sometimes called indian potato or duck potato (sagittaria sp) and sedge (scirpus sp). Arrowhead and sedge are both aquatic plants. Both have been found in prehistoric contexts (Hart 2008) and there is a claim from British Columbia of a purposefully built potato garden (Wade 2016). Given the emphasis often given to Chenopodium and Knotweed (Smith 1995), it is perhaps surprising these plants were not identified.

Squash may have been the first truly domesticated plants in North America (Smith & Yarnall 2009). Squash remains have been identified on sites of this time frame from across the eastern United States including New York, Michigan, and elsewhere (Hart 2008). Squash remains have been dated in Pennsylvania to about 5400 B.C. (McConaughy 2008). The hard-skinned winter varieties of squash can be stored for months. Leaves and flowers, available in the early spring can be eaten and fruit can be harvested green or mature. These plants can provide food for over six months of a year. They are versatile and easy to grow.

The development of horticulture and agriculture from this time to contact is poorly understood. True farming may not have taken place but simple encouragement of key plants can have an impact on plant communities. For example, removing competing plants or burning may have been used to encourage wild plant growth.

Two technological advances are seen as indicators of more sedentary lives and the use of storable surplus food supplies. These are pottery and pits. Pits appear first and are occasionally reported from non-ceramic sites such as 18TA424 near Easton, Maryland (Otter 2012). Pits are believed to have been used to store surplus foods for later use. Pottery provided a new means of preparing and storing food and, because of their fragile nature, suggest a more sedentary life. These changes continued into the Woodland Period.

Woodland Period (800 BC - A.D. 1550)

About 2,000 years before present the shorelines and landforms similar to those of today began to emerge as warm and dry climatic conditions gave way to a cooler, moister modern climate. The dominant oak-hickory forest was also superseded by oak and chestnut vegetation. The Woodland period is marked by the introduction of agriculture, intensive pottery production, and transition from spear to hunting with a bow concurrent with the progression from hunting and gathering to horticulture and eventually full agricultural-based societies with complex social structures.

Shifts in settlement pattern, and the creation of long-distance trade networks begin at this time and continue through the Early Woodland. The intensive trade and exchange network noted during the Late Archaic fades from the archaeological record, although increasing evidence of sedentism is manifested in the expanded use of storage facilities and the development of long-term residential architecture and permanent villages. Increased harvesting of plants reflects an intensification of food procurement, generally acknowledged as being spurred by population growth. Material culture of the Woodland period is typified by distinctive ceramic forms, small triangular projectile points reflective of bow-and-arrow technology.

Early Woodland Period (800 B.C. - A. D. 100)

Across the Middle Atlantic conoidal shaped ceramics with sand or crushed quartz temper spread quickly. These appear to derive possibly from Vinette I centered in lower New York and northern Pennsylvania. On Delmarva the wares are crushed quartz tempered Wolf Neck ceramics and sand tempered Accokeek ware. Analogous ceramic types spread across the eastern United States by about 500 B.C. forming a good horizon marker. In Delaware, this period is termed the Wolfe Neck complex. Radiocarbon dates on Wolfe Neck associated features range from around 800 BC to 100 BC (Bastian 1975; Griffith 2010).

Wolfe Neck pottery is a recognized pottery type found across the Delmarva Peninsula at this time. This ware is seen as homologous to other pottery types across the Middle Atlantic region including Popes Creek in southern Maryland, Bushkill in Pennsylvania, and Prince George ware in Virginia. A riverain or maritime orientation is indicated by site settings along waterways. Numerous shell middens exist along the bay shores and brackish waterways. Settlement patterns seem very similar to the Late Archaic.

Wolfe neck pottery is often found on sites with stemmed points with Rossville being the most recognized (Custer 1989:250). Sites of this period might also contain Accokeek pottery which similarly contains crushed quartz temper and cord or net marked exteriors. Sites of the Early Woodland often coincide with sites of the Late Archaic.

With the more fully developed estuaries, shellfish are used more often. Shell deposits are found in coastal areas beginning at this period. Some are many feet thick. These are often described as trash deposits but little effort has been given to alternative explanations. In the American southeast shell deposits have been recognized as ceremonial sites.
The use of wild plants and some domesticated, or semi-domesticated plants continued. Squash almost certainly was grown at this time.

During this period a distinctive projectile point type known as Meadowood is found. This is associated with the Meadowood culture from New York. These points are not common and do not appear on all sites of this period. They are not as rare as once thought with a distribution that covers the entire Delmarva Peninsula.

One of the characteristics associated with Meadowood in New York are elaborate burials with exotic goods referred to as Middlesex (Ritchie 1969). Tubular stone pipes, birdstones, and other exotic artifacts are found in these burials. Similar items have been found on Delmarva (Lowery 2005). Materials for these items cannot be procured locally and there can be no doubt long distance trade was taking place.

However, the presence of these items might indicate something more than trade. It is possible this represents an influx of people from the north. Another possible explanation is that this material represents a stratification of society where elites possessed these exotic goods (Tache 2011). Such a society is often cited as being based on food surplus. Historically archaeologists have claimed abundant fish resources were involved. It is possible that this interpretation reflects a bias toward protein sources in the diet, on the part of archaeologists, and that the surpluses could have come from other resources such as agricultural surplus. The presence of these items spread sparsely across the region without the ceremonial burial sites found in New York suggests that whatever was going on here wasn't quite the same.

Slightly later than Meadowood, is the Delmarva Adena. Like Meadowood, there are exotic artifacts produced from materials obtained in Ohio and New York. Elaborate burials with these exotic artifacts have been found in Delaware and the Maryland coastal plain. Besides the exotic materials, other artifacts associated with Adena are Coulbourne ceramics (Custer 1984: 89; Wise, Clark & Dunn 1989:45) and Adena points. Sites such as Sandy Hill in Dorchester County, Maryland and the Frederica Site in Kent County, Delaware have produced spectacular artifacts.

Unlike the Meadowood, these are more closely associated with burial sites. Using Tache's (2011) approach, these would be more ceremonial items than trade goods. This remains a poorly understood aspect of Delmarva archaeology with no sites identifiable as Adena habitations. The major sites that have been identified mostly were found by accident and artifacts collected without the benefit of scientific archaeology.

Middle Woodland Period (A.D. 100 - A.D. 1000)

Around A.D. 100 Mockley ceramics became dominant on Delmarva and continued until about 1000 A.D (Griffith 2010). This ceramic contains crushed shell temper. Vessels are either cord marked or net marked. Sites are often defined by the presence of large amounts of oyster shell refuse. Selby Bay/Fox Creek projectiles are typically found with Mockley pottery. These are frequently made from rhyolite which must be imported from the piedmont.

Middle Woodland sites indicate the most intense maritime exploitation of all prehistoric cultures. Sites are usually located along streams and include oyster or mussel shells, fish bones, and terrestrial animals. Reptile bones are common. Sites seem to be associated with marsh areas and are generally located in settings which would provide food throughout the year including seed crops such as amaranth and chenopodium (Custer, Stiner & Watson 1983:28). Evidence exists, in the form of more numerous pit features, for increased sedentism over the Early Woodland period.

Economic changes are possibly related to environmental conditions. The period was warmer and dryer. Oyster bearing sites are found further upstream than at any other time possibly indicating an intrusion of salt water. The Taft Site in Fairfax County Virginia has a Middle Woodland component with oyster shells and a Late Woodland component of fresh water mussel. Such an intrusion would have affected all of the major streams on Delmarva.

The drastic change in pottery technology is seen as an indication of an abrupt social transformation. Site locations change with an increased focus on estuarine resources. A majority of Middle Woodland sites do not overlay Early Woodland sites. It has been proposed that changes seen in the archaeological record indicate Algonquian speakers entering the area (Luckenbach, Clark & Levy 1987).

Jacks Reef points are another type found during this time frame and are a trait of the Webb Phase (Thomas & Warren 1970; Custer 1984). These points are widely spread over Delmarva and have a date range between 500 AD and 1000 AD. They are sometimes found in association with Hell Island pottery which is tempered with finely crushed quartz. Hell Island Pottery appears to be more northerly with only minor amounts found in the lower Delaware and adjacent Maryland. Jacks Reef points are more widespread and have been found across Delmarva (Lowery 2013).

The most studied Webb Phase site in Delaware is the Island Field Site which contained a large cemetery. Exotic goods such as platform pipes were recovered. Similarities have been noted with Kipp Island sites of New England in the types of artifacts recovered (Custer et al 1990:58). Similar pipes and Jacks Reef points have been recovered from the Riverton site in Wicomico County which was destroyed by sand mining.

Late Woodland Period (1000 AD -1650 AD)

The last prehistoric period, known as the Late Woodland Period (1000 AD -1650 AD), lasted until the first contacts with European cultures. The Late Woodland was marked by settled life supported by agriculture although much of the diet continued to be drawn from wild food resources. Site locations are often the same as Middle Woodland sites suggesting a continuation of lifeways. There are more Late Woodland sites than Middle Woodland suggesting a population increase.

This is the first period where maize agriculture is known through archaeological samples in the Middle Atlantic. Maize has been reported from the Thomas Point Site in St. Marys County, at the Ritter site and Kea I and II sites in Lewes (Otter nd). Ethnographic data from the eastern shore indicate corn was grown at the time of European contact (Smith 1844). However, recent studies at Gray Farm found bristlegrass (Setaria sp), little barley (Hordeum sp) and possibly wild rye (elymus sp) and maize remains on late woodland pottery shards (Hay et al 2012). The presence of these starch grains and phytoliths indicates the diet of Native Americans during the Late Woodland was not focused on the "three sisters" corn, beans, and squash. Likely these were components of the diet but a variety of native plants would have also been consumed.

Soil type would be an important factor in site location with sites located at the most productive soil. The cooler conditions during the Little Ice Age may have increased the availability of surface water by reducing evaporation rates. Thus, sites might be found in places that presently do not have reliable water sources.

Late Woodland settlements were not dense concentrations of houses but were more dispersed. John Smith's description seems appropriate: "Their houses are in the midst of their fields or gardens, which are small plots of ground. Some 20 acres, some 40, some 100, some 200. Some more, some less. In some places from 2 to 5 houses together, or but a little separated by groves of trees" (Smith 1608). It seems that the prehistoric village at Lewes included a number of dwellings that were spread along the courses of Canary Creek, Black Hog Gut, and Pothook's creek where fresh water was available.

An account by Henry Norwood in 1649 provides a glimpse of dispersed housing on the lower portion of Delmarva. Individual houses were spread across the landscape (Norwood 1649). In his travels, Norwood visits a fisherman's house, then a Queen's house and a King's house a half mile away. Work at the Chicone Reservation in Dorchester County seems to show a similar pattern with house sites along Chicone Creek and a King's house identified as having more material (Busby 2010). This explains the lack of an easily identifiable Indian town at the reservation sites. Palisaded villages are not found on Delmarva except in the far north western portion. Those villages were in areas of conflict with groups from the north.

In general, Late Woodland sites yield fewer flaked and ground stone tools than earlier periods but now include more artifacts of pottery, bone, and shell. Triangular, un-stemmed, projectile points of various shapes are characteristic of the Late Woodland Period throughout the Middle Atlantic States. Townsend/Rappahannock pottery and Killens pottery are typical for this period.

During the Late Woodland, there is a greater use of local stone material (cobbles). There is also regionalization of ceramic technology. Across the Middle Atlantic regional ceramic types such as

Minquanan, Killens, Moyoane, Yeowicomico, and others have been identified. These factors suggest populations with more established territories and a reduction in long distance trade.

This is not to say trade or contact with outside groups ceased. Small amounts of non-local ceramics have been found on sites along the Nanticoke. Clemson Island pottery has been noted at sites on the Nanticoke drainage at Middleford (Mellin personal communication), at Prickly Pear Island (Archaeological files, Delaware State Museums) and near Portsville at site 7S-H-104 (Custer & Mellin 1989). This pottery type dates to the early part of the Late Woodland.

Early ethnographic reports record contact between Delmarva groups and those in Pennsylvania and New York. It is uncertain how much of that contact is a result of the impact of European contact and trade.

Ossuary burials are known from this period but single burials are also known. The reason for the two styles is unknown. Dog burials have also been found. Burials have been found in and near habitation sites and lack exotic goods seen in the earlier Adena and Webb Phase burials. True ossuary burials appear to be a late manifestation, after c. 1450 AD, with some containing European goods (Curry 1999).

Historic Era

Native lifeways of the Late Woodland continued as Europeans made their presence felt. As time went on the European disruptions increased, forever changing how the Native Americans lived. Changes came about through disease, importation of new goods and foods, alterations in trade networks and inter-group relations. As the Dutch in New York and the French in Canada expanded their trade networks and conducted war with the English, the natives were drawn into these conflicts.

European settlement of Delmarva has four origins, Cape Charles Virginia, Lewes and New Castle Delaware, and Kent Island, Maryland. Cape Charles was firmly established in the 1630's as was Kent Island. Lewes was permanently settled in 1657. The settlements expanded from their initial points. Virginians expanded north up the peninsula into what is now southern Maryland and lower Delaware. Marylanders from Kent Island moved south, north, and east up the Nanticoke, Choptank, and Chester rivers spreading into what is now Delaware. Lewes and New Castle settlers expanded westward. These movements pushed the native populations toward the center of the Peninsula.

<u>European Disruption</u>

In June 1608 Captain John Smith sailed from Jamestown to explore the Chesapeake Bay. Others were exploring the Atlantic coast and by 1614 the Dutch had a year-round presence on Manhattan. From this base the Dutch expanded up the Hudson and Delaware Rivers and into Connecticut. In 1632 the Dutch attempted a settlement on the Hoornkil (Lewes Creek). Relations with the Native Americans there, the Siconese (various spellings) did not go well and the fort was destroyed along with all of its inhabitants.

Other European settlements on Delmarva were Virginians on the lower end of the peninsula and Maryland on Kent Island in 1634. As Virginian settlements moved north those from Maryland spread south and east. The Maryland government declared war on the Nanticokes, and others in 1642 and 1647 although little fighting occurred. European settlement reached the Nanticoke in the 1670s.

By 1670 Maryland claimed all of the Nanticoke drainage and issued land patents. A series of reservations were created in 1678 including Tundotank, Askiminikansen, Parahawkin, Puckamee and Chicone. The latter two were opposite each other across the Nanticoke River and were established for the Nanticoke nation. Chicone became known as the residence of the Chief of the Nanticoke and trade with Europeans took place here. Mentions of Puckamee are short-lived in the records (Roundtree & Davidson 1997). The Chicone reservation was along the north side of the Nanticoke from Chicacone Creek to the Marshyhope (Figure 4).

By an act of General Assembly in Maryland, the Broad Creek Reservation was set aside for the Nanticokes in 1711 (Maryland Archives Online). The reservation was created near an existing Nanticoke town that had been occupied for at least one hundred years (Rountree and Davidson 1997). The three-thousand-acre reservation included land on the north and south sides of Broad Creek including where the town of Laurel is now located (Figure 4). Although the Nanticoke now had land set aside for their sole use, the English continued to disregard boundaries and tensions escalated (Busby 2010). At this same time a roughly one-thousand-acre reservation, Askekesky, was created on the south side of Shiles Branch of the Indian River west of present-day Millsboro.

In 1742 Maryland's Lord Proprietor entered into new treaties with the lower Eastern Shore tribes. Indian people would not be allowed to possess hunting rifles unless they were licensed. No relatives or groups from outside of the reservation were permitted to visit. Native people were not permitted to enter an English town without a prior appointment or announcement. Separate treaties were made with the groups across the shore including the Chicone and Broad Creek groups (Maryland Archives 1883A). These treaties forbade the groups from combining their leadership (Maryland Archives 1883A).

After 1742 there was a continued disintegration of the native communities (Roundtree & Davidson 1997:155). There was continual encroachment and harassment by European settlers and individuals were moving between reservations. Many reservation inhabitants went to live with the Susquehannas. Some removed to the Six Nations area where they were assimilated into the Iroquois. Others left the reservation and acculturated within English society. Because of the depopulation of the Native groups, the reservations of Chicone and Broad Creek were reclaimed by Maryland and sold off between 1768 and 1785 (Roundtree & Davidson 1997:159). Native inhabitants apparently sold off the last of the Askekesky lands by 1741 (Roundtree & Davidson 1997:156).

Those Native Americans that did not leave Delmarva bought land, and adopted European style living. They maintained their social ties and developed closed communities. In 1881 the Indian River Nanticokes incorporated and were recognized by the state of Delaware as a legal entity after the Nanticoke were recognized by social scientists as a remnant population worthy of study (Babcock 1899; Speck 1915). There exists today a tribal organization and there is a conscious effort to rebuild the tribe's identity.

The largest groups are currently on the north side of the Indian River and in the Cheswold area of Kent County. In historical perspective, native groups from the lower Nanticoke moved up-river as Europeans encroached on their land. A reservation was established in the Laurel area in 1711 that persisted until 1768 (Roundtree & Davidson 1997).

European expansion in southwestern Sussex County came largely from Maryland. Until 1776 the boundary was not established but seems to have been generally conceded to be the Nanticoke

River. Early land patents on the west side were filed in Dorchester County. Agriculture appears to have been the major economic endeavor in the region.

Exploration and Frontier Settlement (1630 - 1730) (Contact Period)

European settlement of the Delmarva Peninsula began in Virginia about 1628, at Lewes (Swanandael) about 1630 and along the upper Chesapeake Bay about 1633. The Delaware settlements were contested between the Swedes, Dutch, and English. In 1659 the Dutch re-settled the Whorekil with the establishment of a new fort. It appears there were no civilians until 1663 when a group guided by Cornelius Plockhoy establish a utopian colony. This colony was attached by Maryland the following year to exert English control over the region.

This same year, 1665, the Duke of York was given control of the area and it remained under English control except for a brief time in 1673 when the Dutch seized control. By 1674 the English had gained complete control of the region. After William Penn was granted the Delaware counties in 1682 the economic focus became centered around Philadelphia. Maryland contested ownership of portions of Delaware and were actively issuing land patents south of the Indian River and along the Nanticoke and Choptank rivers.

Intensified and Durable Occupation (1730 - 1770)

The population of lower Delmarva grew steadily during this period. Life was centered around agrarian pursuits. Farm products reached foreign markets through Philadelphia or Baltimore with the Nanticoke River being an important avenue to the Chesapeake. Iron forges came into existence along the Nanticoke, and presumably along other waterways, about 1760 and were largely gone by the Revolution. Road networks were developed and settlers moved further inland. Small hamlets like Cannon's Ferry developed at this time, mostly along river crossings (DeCunzo & Catts 1990:44).

Transformation from Colony to State (1770 - 1830)

The Revolution altered foreign markets. Food produced on Delmarva was sold in Baltimore and Philadelphia instead of Europe or the West Indies. These economic ties continued until the Civil War. Rapid population growth after the Revolution led to the clearing and tilling of marginal lands (DeCunzo & Catts 1990:53). In 1776 the Maryland/Delaware boundary was established in its present location and the lands on the west side of the Nanticoke were re-patented in Delaware.

In 1810 more than 70% of the textile mills of Delaware were in Sussex County. Flax and wool were major crops in the county. Diversified farming of grains and potatoes along with various life stock existed in the rural areas.

Industrialization and Capitalization (1830 - 1880)

The rise of Baltimore as an important overseas port siphoned Delmarva goods away from Philadelphia. Railroads reached the lower peninsula around 1850 and Seaford in 1868. This allowed farmers to raise more perishable, and lucrative, crops such as peaches. Canning also developed after the Civil War and became an important industry. Corn and wheat remained the major crops. At the same time, it shifted the main commercial routes from water to the rail lines with new railroad towns springing up.

Urbanization and Sub-urbanization (1880 - 1940)

The term for this period is somewhat misleading for central and southern Delaware. Little urbanization occurred. The most significant changes of this period in southern Delaware were improvements in transportation and a shift to truck crops and poultry as major farm products. Some industry related to the wars, in particular the establishment of airfields, did occur. The modern poultry industry that quickly raises and markets chickens was developed in Sussex County. The need to satisfy feeding requirements of the birds shifted crops from truck items to feed crops.

RESULTS

Prehistoric Site Potential

Generalized predictive models for Native American site locations vary depending on the views of the creators of those models. Commonalities in the models are environmental variables used as predictors for site locations. These include soil slope, soil drainage, and distance to surface water. Slopes greater than 8 percent are generally seen as not likely to contain Native American sites except for specialty sites such as rock-shelters or quarries. Well drained soils are more likely to contain sites than poorly drained soils.

The distance to surface water is the most variable criterion among models. In some models 200 meters (656 feet) is the limit for high potential (Lothrop, Custer & De Santis 1987). For Ranere and Hansell 100 meters is the limit of any site potential (Ranere & Hansell 1985).

The type of water, salt or fresh, also seems to play a factor in coastal plain site locations (Ranere & Hansell 1985) with salt water not having the same attraction as fresh water. Appropriate soils along salt water bodies are not likely to contain sites unless there is also a fresh water source nearby. However, in wetland settings small changes in topography can greatly enhance site potential (Cavallo & Mounier 1980).

Two facts must be considered, streams that are no longer flowing on the surface. and salt water intrusion further inland as a result of sea level rise. Another approach is to look at landform rather than distance to water (Siegel, Kellogg & Kingsley 2001). Stream benches hold the most sites followed by terraces, floodplains and upland flats. Ridgetops and slopes hold relatively few sites. While this approach was developed in the piedmont, it likely has utility in the coastal plain as well. In a break-down of landform and temporal period of Pineland sites, smaller sites are found in areas further from water, such as drainage divides, and on areas of limited land area like hummocks (Cavallo & Mounier 1980). Larger sites tend to be on the larger bodies of fresh water where there is a broad area of well-drained soil.

Soils on the Mitchell farm are well drained. However, surface water is not present with the closest stream being over 600 meters away. Based on this distance to water, it is interpreted that there is a low potential for this property to contain significant prehistoric resources. In the 1950s when the Sussex Society for History and Archaeology was active the fields around Lewes were surveyed. If a site were present here it would likely have been noted. Likewise, no prehistoric sites were noted during survey for the Lecates Sewer project.

Archival Research

An attempt was made to examine all records involving Parcel 335-8.00-37.00 back to the first Sussex County, Delaware land patents, granted in the last quarter of the 17th century. A chain of title was created (Appendix I) by working from present to past in the land records. To accomplish this, land deeds, wills and probates, Orphans' Court, census enumerations, tax assessments, and genealogical records, were studied for information about land ownership and habitation.

The initial land patent for this property, containing 800 acres, appears to have been made to Alexander Moleston in 1674. Likely he was already seated on the property and the record is a reaffirmation of his title under the new government under the Duke of York. Most of Alexander's land passed to his son, Alexander, and it was he who sold most of the original patent land.

Nathaniel Hall made at least two purchases of land from Alexander Moleston (4/207, 6/424). Nathanial Hall was the father of Nathaniel Hall who died in 1732. His children include David Hall, Esquire who married Mary Kollock, Peter, Joseph, Bersheba, Lydia, and Mary. The son of David and Mary was Colonel David Hall who served in the Delaware Line during the Revolution. Dr. David Hall died intestate and his land was divided by the Orphans' Court in 1797. The mansion and two acres (at the intersection of King Street and Second Street) was given to daughter Jane and her husband Simon Kollock. Dr. Joseph Hall received a share of 70 acres (in 3 tracts) south of South Street. Colonel David Hall received 58 acres, part of Hall's Island and some smaller pieces. Son Simon Hall was given land on the north side of Lewes Road and Mary Hall received 21 acres on the south side and 128 acres between Peter White, Peter Hall, and James Wilson. Peter Hall received two small pieces.

The heirs of Colonel David Hall were Elizabeth, who married John White, Mary, wife of David Walker, Jane, wife of John Collins, Catherine who married Edward Huffington, and Lydia. Portions of the land passed through all of these lines. Jane re-married Simon Kollock. She passed land along to her brother's daughter Polly Houston who re-married a Walker, Mary Wilson and her children Lemuel and Samuel Wilson. Boundary descriptions, when they are present, are typically vague. The larger tract has been cut into several pieces that were merged and re-cut differently.

What can be determined is that the southern 16 acres abutting on Gill's Neck Road and Kings Highway was acquired in 1822 by Whittington Clifton. It was parts of three parcels owned by Col. David Hall, Reverend James Wilson, and William Coleman. The property was depicted in an orphan's court plat of the land of Whittington Clifton (Figure 7). George Hickman bought the land from the heirs in 1823 (35/452). This land apparently passed to Nathaniel Hickman, George's son. In 1870, as a result of a lawsuit against Nathaniel Hickman, the land was sold. The purchaser was Harbeson Hickman (81/412). The property consisted of 115 acres with a two-story.

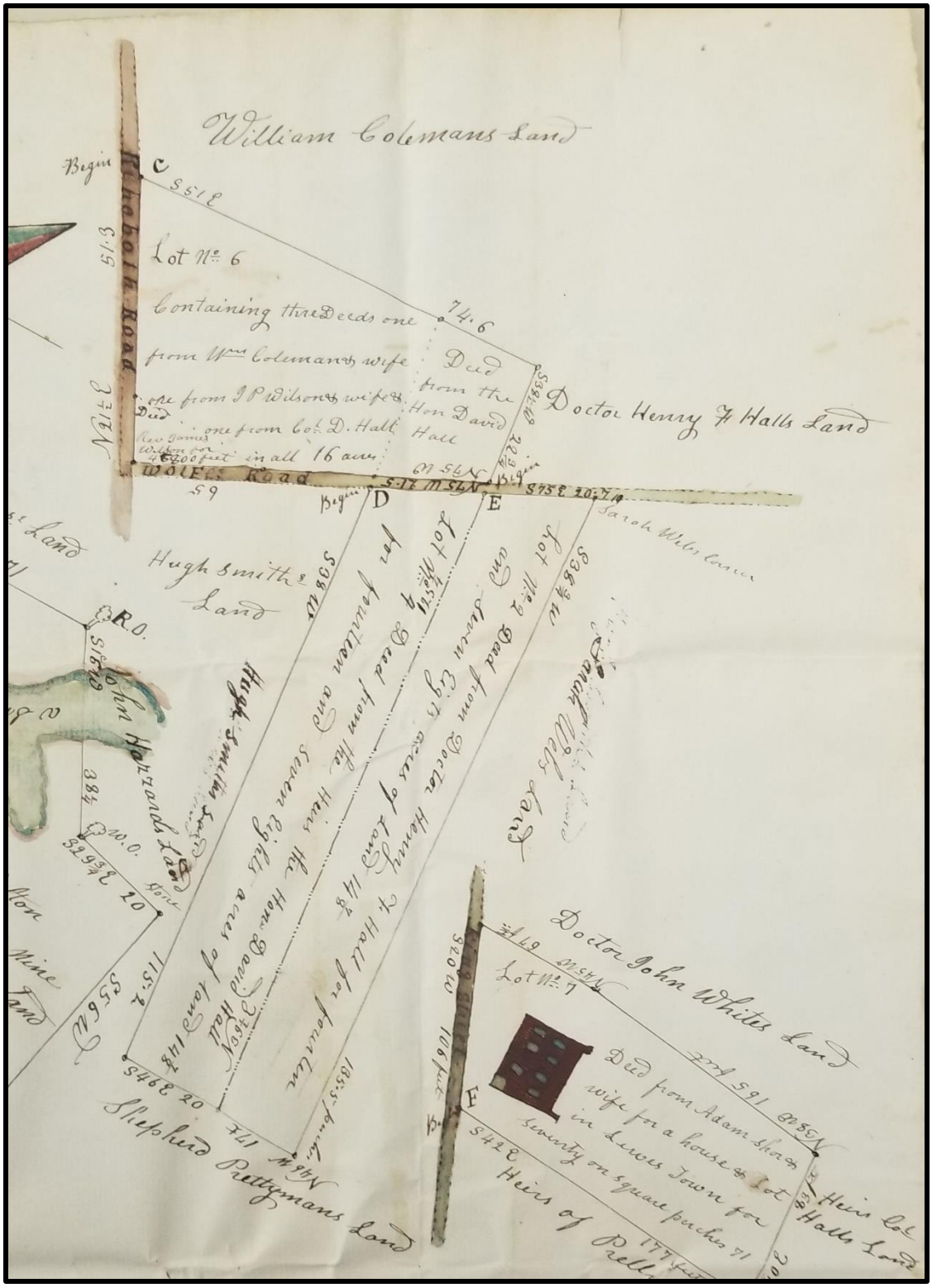

Figure 7. 1822 Orphans Court Plat, Land of Whittington Clifton

The northern portion of the current tract was noted as owned by Thomas Coleman in 1822 (Figure 7). Apparently, the land was inherited from his father, William Coleman but how William acquired the land remains unknown. It is known that Jacob Herdsman purchased 90 acres, the land of John W. Walker at sheriffs' sale in 1861 (69/212). This is the same land he sold to Nathaniel Hickman in 1865 (75/81). It is believed that John Walker inherited the land from his father, David Walker who had inherited from David Hall through his mother, Mary.

The 1868 Pomeroy and Beers Atlas indicates a building on the property by 1868 (Figure 8). This is consistent with the mention of a house in the 1870 deed to Harbison Hickman. A map drawn for Harbison Hickman's Orphan's Court in 1897 also depicts the house (Figure 9).

After the death of Harbeson Hickman, his estate was sold off in pieces. George W. Robinson bought 109 acres in 1897 which included the current Mitchel Farm (127/42). Lowder and Laura Mitchell purchased 57.98 acres from Robinson (327/427). The land was owned by the Mitchells until 2019. The State of Delaware recorded a house and outbuildings on the property in 1997 and placed them on the state registry. That document indicates a construction date of c. 1905 indicating the house was likely built by George Robinson.

Based on this research, and prior archaeological work, it appears that there are two areas that contain historic deposits. The most obvious is the area around the Mitchell house. If that house was built in 1905, an earlier structure was removed since a house was present as early as 1868. The farm complex is clearly seen on the 1926 aerial photograph (Figure 10).

The second historic resource is indicated as an archaeological site, 7S-D-40. The site was identified during archaeological survey in 1977 for sewer mains along Kings Highway. The exact location is marked on the old SPO maps and the currently mapped location is well away from the sewer lines. It does appear the site was located towards the southwest corner of the property in an area that has been heavily disturbed with construction (Figure 11). The materials identified during the earlier survey suggest this might be the site of Whittington Clifton's early 19th century house.

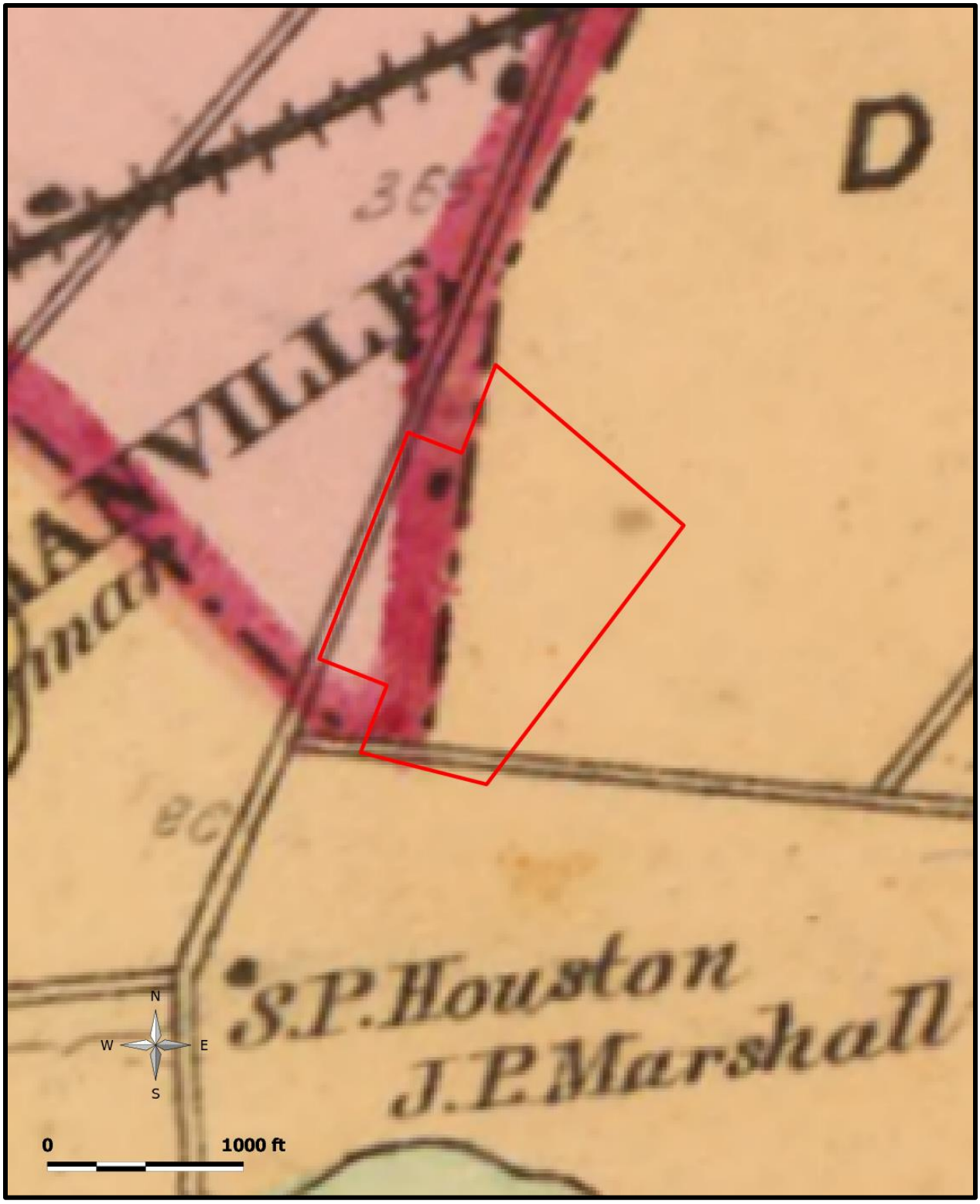

Figure 8. 1868 Pomeroy & Beers Atlas

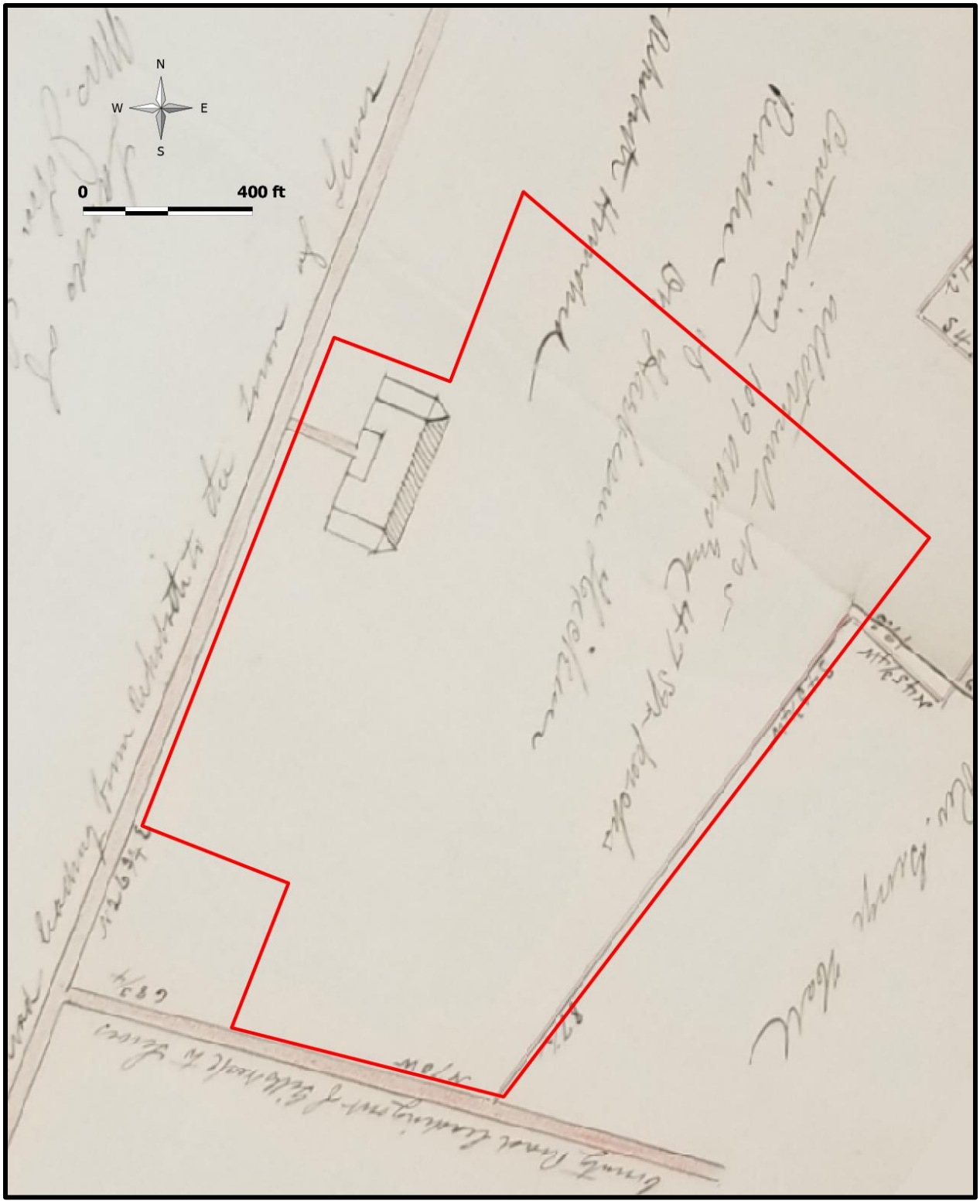

Figure 9. 1897 Orphan's Court Plat, Land of Harbeson Hickman

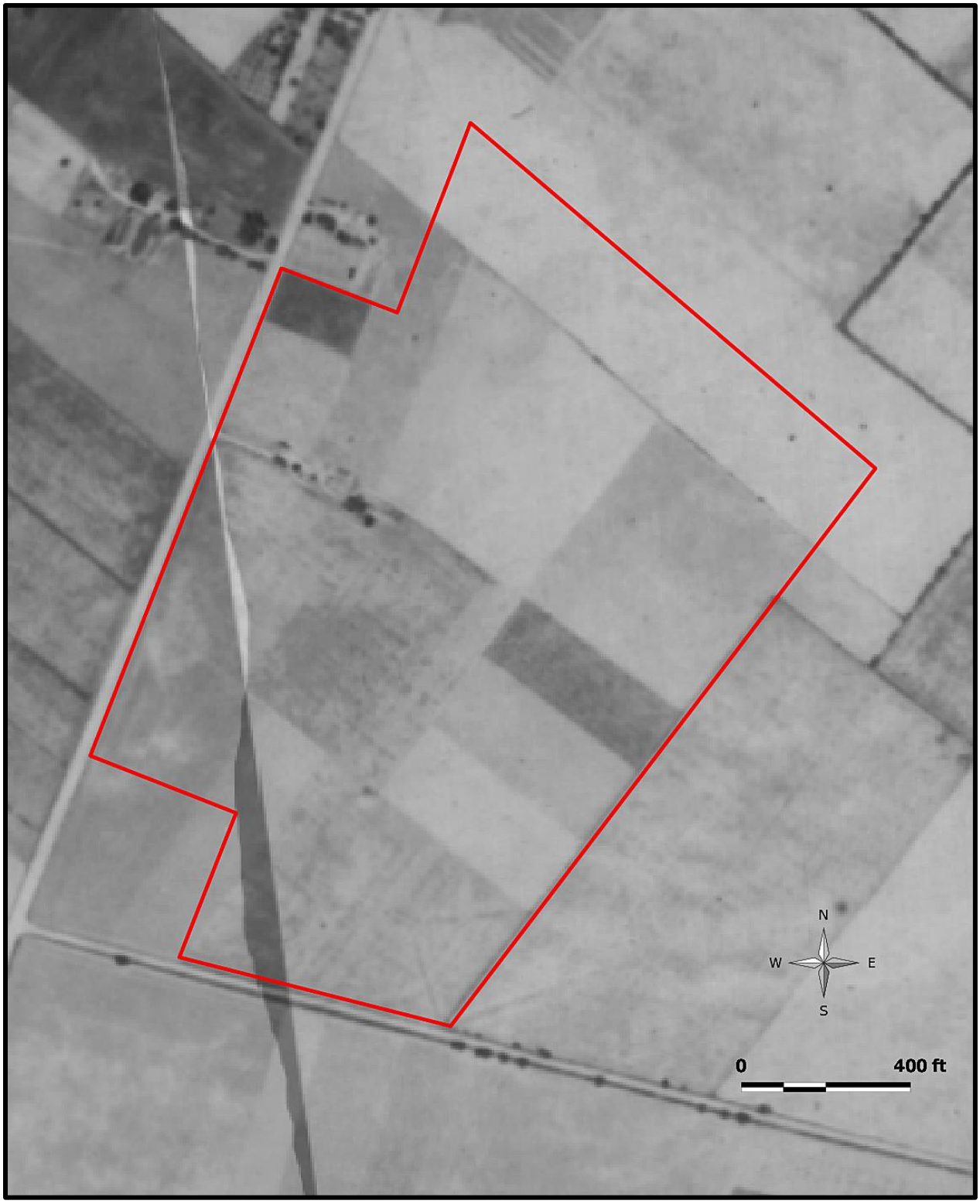

Figure 10. 1926 Aerial Photograph

Figure 11. 2020 Aerial with Sites Located

CONCLUSION

Two historic period archaeological sites can be identified on the Mitchell Farm tract. One of these appears to be late 19th through 20th century in age and has a house still standing on it. Considering the continuous occupation of the site and reworking of the farmyard and buildings, the chance for finding intact cultural deposits is unlikely. The buildings, while listed on the state inventory of historic properties, have not been thoroughly examined. Since the buildings will not be preserved, they should be documented prior to demolition.

The second site is recorded near the southwest corner of the tract. This site appears to have been located on the land now occupied by the new medical building. This site was likely the home of Whittington Clifton during the late 18th and early 19th century as artifacts consistent with this period were recovered there.

The examined deeds, maps and aerial photographs suggest there is little potential for additional historic period archaeological resources although servant dwellings and barns cannot be ruled out without physical field survey. This portion of Lewes was historically farmland with few houses until development in the 21st century.

Prehistoric archaeological sites are not likely to be encountered on the property. Based on our current understanding of prehistoric land use, the tract is too far from surface water to have been occupied. A stray projectile point or so would not be unexpected considering the number of prehistoric sites in the area.

REFERENCES

Adavasio, James M. & William C. Johnson
1981 The appearance of Cultigens in the Upper Ohio Valley: A view from Meadowcroft Rockshelter. Pennsylvania Archaeologist 41:63-80.

Austin, Daniel F.
2006 Fox-Tail Millets (Setaria: Poaceae) – Abandoned Food in Two Hemispheres. Economic Botany Vol 60 No. 2 pp143 - 158

Babcock, William H.
1899 The Nanticoke Indians of Indian River, Delaware
American Anthropologist new series Vol 1 no. 2 pp 277-282

Barse, William P. & Jennifer Marston
2007 Phase III Investigations at the Beech Ridge Site for the Crawford Carrol Avenue Project. Prepared for Delaware Department of Transportation

Bastian, Tyler
1975 Preliminary Notes on the Results of the Fifth Annual Maryland Archaeological Field School. Archaeological Society of Maryland, Inc, Newsletter 21 (6): 2-4.

Busby, Virginia Roche
2010 Transformation and Persistence: The Nanticoke Indians and Chicone Indian Town in the Context of European Contact and Colonization. Ph.D. Dissertation, University of Virginia.

Carbone, Victor
1976 Environment and Prehistory in the Shenandoah Valley, Ph.D. Dissertation, Catholic University of America

Cavallo, John & R. Alan Mounier
1980 An Inventory and Assessment of Prehistoric Archaeological Resources in the New Jersey Pinelands: Phase 1 of a Regional Predictive Model

Curry, Dennis C.
1999 Feast of the Dead: Aboriginal Ossuaries in Maryland. Archaeological Society of Maryland.

Custer, Jay F.
1984 Delaware Prehistoric Archaeology. University of Delaware Press. Newark, Delaware.

1989 Prehistoric Cultures of the Delmarva Peninsula. University of Delaware Press. Newark, Delaware.

1996 *Prehistoric Cultures of Eastern Pennsylvania*. Harrisburg, Pennsylvania: Pennsylvania Historical and Museum Commission.

Custer, Jay F. & Glen R. Mellin
1989 Archaeological Survey in Southwestern Delaware 1987-1988. Bulletin of the Archaeological Society of Delaware Number 26 (new series).

Custer, Jay F., Karen R. Rosenberg, Glenn Mellin, & Arthur Washburn
1990 An Update on New Research at the Island Field Site (7F-K-17) Kent County, Delaware. Bulletin of the Archaeological Society of Delaware Number 27 (new series).

Custer, Jay F., Mary C. Stiner and Scott C. Watson
1983 Excavations at the Wilgus Site (7S-K-21), Sussex County, Delaware. Bulletin of the Archaeological Society of Maryland No. 15 (new series)

Dent, Richard J. Jr.
1995 Chesapeake Prehistory. Plenum Press, New York & London

Dent, Richard J. Jr. & B. E. Kaufman
1985 Aboriginal Subsistence and Site Ecology as Interpreted from Microfloral and Faunal Remains. In *Shawnee-Minisink: A Stratified Paleoindian-archaic Site in the Upper Delaware Valley of Pennsylvania*, edited by C.W. McNett, pp. 55-79. New York: Academic Press.

DeCunzo, LuAnne & Wade P. Catts
1990 Management Plan for Delawares Historical Archaeological Resources

Gardner, Williams M
1974 Flint Run Paleoindian Complex: Pattern and Process during the Paleo-Indiand to Early Archaic. In: The Flint Run Paleo-Indian Complex: A Preliminary Report 1971-1973. Edited by William M. Gardner. *Occasional Publications No. 1, Catholic University Archaeological Laboratories, Washington, D.C.*

1977 Flint Run Paleo-Indian Complex and its implications for eastern North American prehistory. *Annals of the New York Academy of Sciences 288:257-263.*

Griffith Daniel R.
2010 Delaware American Indian Ceramics Radiocarbon Dates. Bulletin of the Archaeological Society of Delaware. No 47 (new series) pp. 1 – 38.

Hart, John P.
2008 Current Northeast Paleoethnobotany II. New York State Museum Bulletin Series 512.

Hart John P. & C. Margaret Scarry
1999 The Age of Common Beans (Phaseolus vulgaris) in the Northeastern United States. American Antiquity Vol 64, NO. 4 pp653-658

Hay, Conran A., Melissa Diamanti, & David Rue
2012 Gray Farm Site Phase II and III Excavations on the Murderkill River (Sites 7K-F-11 and 7F-K-169). Prepared for Delaware Department of Transportation

Lothrop, Jonathan C., Jay F. Custer & Collen De Santis
1987 Phase I & II Archaeological Investigations of Route 896 Corridor, Route 4-West Chestnut Hill Road to Summit Bridge Approach, New Castle County, Delaware.
DelDot Archaeological Series No. 52.

Lowery, Darrin
2002 A Time of Dust: Archaeological and Geomorphological Investigations at the Paw Paw Cove Paleo-Indian Site Complex in Talbot County, Maryland.

2005 Archaeological Survey of the Fishing Bay and the Fairmount Wildlife Management Areas within Dorchester and Somerset Counties, Maryland

Lowery, Darrin L.
2013 Jacks Reef in the Chesapeake and Delmarva Region: Research into the Coastal Archaeology of the Era Between circa cal A.D. 480 and cal A. D. 900. Archaeology of Eastern North America Vol. 41 pp 5-30.

Lowery, Darin, Michael A. O'Neal, John S. Wah, Daniel P. Wagner, Dennis J. Stanford
2010 Late Pleistocene Upland Stratigraphy of the Western Delmarva Peninsula, USA. Quaternary Science Reviews 29:1472-1480.

Luckenbach, Alvin H., Wayne E. Clark, and Richard S. Levy
1987 Rethinking Cultural Stability in Eastern North American Prehistory: Linguistic evidence from Eastern Algonquian. Journal of Middle Atlantic Archaeology 3:1-33.

McConaughy, Mark A.
2008 Current Issues in Paleoethnobotanical Research from Pennsylvania and Vicinity. In: John Hart, ed. Current Paleoethnobotany II. New York State Museum Bulletin Series 512.

Norwood, Henry
1649 A Voyage to Virginia. In: Tracts and Other Papers Vol III compiled by Peter Force 1844.

Otter, Edward
2012 Phase II Archaeological Investigations 18TA420, 18TA424, 18TA425, and 18TA427, Between Route 662 and Hailam School Road, Easton, Talbot County, Maryland.

Otter, Edward
Nd Report on Archaeological Investigations on the Groome Property, Lewes, Delaware. (In progress)

Purrington, Burton L.
1983 Ancient Mountaineers: An Overview of Prehistoric Archaeology of North Carolina's Western Mountain Region. In The Prehistory of North Carolina, Mark A Mathis & Jeffrey J. Crow, ed. North Carolina Division of Archives and History.

Ranere, Anthony J. & Patricia Hansell
1985 Archaeological Survey in the Drainage of the Lower Great Egg Harbor River. Manuscript on file Office of New Jersey Heritage, Department of Environmental Protection.

Roundtree, Helen C. and Thomas E. Davidson
1997 Eastern Shore Indians of Virginia and Maryland

Siegel, Peter E., Douglas C. Kellogg & Robert G. Kingsley
2001 Prehistoric Settlement Patterns in Upland Settings: An Analysis of Site Data In a Sample of Exempted Watersheds Brandywine Creek Watershed (Watershed H) Chester, Lancaster and Delaware Counties, Pennsylvania. Chapter 4 in: Prehistoric Settlement Patterns in Upland Settings: An Analysis of Site Data in a Sample of Exempted Watersheds.

Smith, Bruce D.
1995 Rivers of Change. Smithsonian Institution.

Smith, Bruce D and Richard A. Yarnell
2009 Initial Formation of an Indigenous Crop Complex in Eastern North America at 3800 B.P. Proceedings of the National Academy of Sciences of the United States. Vol 106 no 16 P6561-6566.

Smith, Captain John
1982 The General History of Virginia, New England and the Summer Isles. Southern Classics Library (facsimile printing).

Smith, Peter
1844 Tracts and other Papers Relating Principally to the Origin, Settlement and Progress of the Colonies in North America. Collected by Peter Force Vol III.

Tache, Karine
2011 Structure and Regional Diversity of the Meadowood Interaction Sphere. University of Michigan Press, Museum of Anthropology Memoir 48.

Thomas, Ronald A
1977 A Cultural Resource Survey of the John M. Lecato Regional Wastewater Facilities.

Thomas, Ronald A. & Nancy H. Warren
1970 A Middle Woodland Cemetery in Central Delaware: Excavations at the Island Field Site. Bulletin of the Archaeological Society of Delaware Number 8 (new series).

Wade, Lizzie
2016 Ancient Underwater Garden Discovered in Canada. Sciencemag.org (doi:10.1126/science.aal0542)

Wah, John S., Darrin L. Lowery, & Daniel P. Wagner
2012 Loess, Landscape Evolution, and Pre-Clovis on the Delmarva Peninsula. In Pre-Clovis in the Americas: International Science Proceedings 9-10 November 2012 edited by Denis J. Stanford and A. T. Tenger. Smithsonian Institution. Washington D.C.

Wise, Cara L., Cherie Clark & Meril Dunn
1989 A Cultural Resources Management Plan for Trap Pond State Park. On file: Delaware Division of Historical and Cultural Affairs.

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ENVIRONMENTAL ASSESSMENT REPORT

TAX PARCEL 335-8.00-37.00
LEWES, DELAWARE

February 2022

Prepared for:

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Project No. 14447

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I. INTRODUCTION

Verdantas has prepared this Environmental Assessment Report (EAR) for tax parcel 335-8.00-37.00 in Sussex County, Delaware (the Property). The Property covers approximately 48± acres, including 6.34 acres located within a mapped Wellhead Protection Area (WPA) designated for the City of Lewes water supply well field.

An existing stormwater basin on the Property extends partly within the WPA and is designed to handle stormwater from both the Property and the adjacent Cape Henlopen Medical Center property (tax parcel 335-8.00-37.00). Accordingly, the water budget analysis for this assessment also considers the Medical Center. In addition, a stone dam structure was placed over the WPA boundary within the basin to divide the WPA portion from the remaining portion of the basin.

The Sussex County Code defines WPAs as "surface and subsurface areas surrounding public water supply wells or well fields where the quantity or quality of groundwater moving toward such wells or well fields may be affected by land use activity. Such activity may result in a reduction of recharge or may lead to introduction of contaminants to groundwater used for public supply (wellhead)."

The Property owner proposes to place 2.75 acres (120,000 square feet) of impervious cover within the 6.34 acres of Wellhead Area on the Property, equaling 44% impervious cover. The Cape Henlopen Medical Center parcel covers 3.00 acres with 2.14 acres of impervious cover, including 0.47 acres of rooftop. When considering the planned impervious cover for the Property and the existing impervious cover at the Cape Henlopen Medical Center parcel, the post-development impervious cover of the combined parcels will total 4.89 acres or 52% of the WPA.

Per Chapter 89, Section F, part 2 of the referenced code "Impervious cover of that portion of a tax parcel within the wellhead protection area which is greater than 35% but no more than 60% is allowed, provided the applicant demonstrates through an environmental assessment report prepared by a registered professional geologist or registered professional engineer familiar with the hydrogeologic characteristics of Sussex County and using a climatic water budget that will insure that post-development recharge quantity will meet or exceed the existing (predevelopment) recharge quantity.

For all new construction where the impervious surfaces exceed 60% or where the level of post-development recharge is less than predevelopment recharge, all structures shall be required to discharge roof drains into underground recharge systems or into permeable surfaces that allow the discharges to infiltrate into the ground. Efforts to mitigate discharges to impervious surfaces shall count towards the formula used to compute post-development mitigation of any discharges. Beneficial efforts to mitigate discharges to impervious surfaces shall count towards the formula used to compute post-development mitigation of any discharges".

This EAR included the following:

1. Characterization of the Property in terms of location, topography, and surface water drainage.

2. Description of the geology and groundwater characteristics of the Property, and surrounding area based on published and publicly available documents.

3. A review of the Delaware Environmental Navigator website to determine if the site is regulated under any programs overseen by the Department of Natural Resources and Environmental Control.

4. A walking site reconnaissance to assess existing conditions.

5. Review of a site-specific geotechnical assessment report prepared for the Property.

6. Review of a site-specific infiltration testing assessment report prepared for the Property.

7. Preparation of a climatic water balance assessment to compare predevelopment and post development recharge within the WPA.

The EAR also includes an assessment of the potential impact of site development as planned, and recommendations for post development recharge to exceed the existing recharge levels within the WPA and maintaining the quality of recharge water.

II. PROJECT SITE AND ADJACENT LANDS

The Property boundaries are shown on an aerial image derived from the Sussex County website (Appendix 1). The Property and mapped wellhead area are shown on the aerial photograph overlay in Appendix 2. The Property is located at the northeast corner of Kings Highway and Gills Neck Road, just east of the Lewes City limits in Sussex County, Delaware.

The Property has been historically utilized for agricultural purposes. A residence and farming support buildings are located on the northwest corner of the Property. The area of the Property within the WPA is undeveloped farm field, with a stormwater basin extending partially into the WPA from the main portion of the Property. The Property is bordered by the following lands:

- Single-family, multi-family, and assisted living homes to the east and northeast.
- Commercial properties to the north along Kings Highway
- Kings Highway to the west, beyond which is Cape Henlopen High School and Henlopen Garden Apartments.
- Gills Neck Road to the south beyond which is the residential community "Governors" under construction.

Land use west of Kings Highway near the Lewes well field can generally be characterized as residential with some mixed commercial properties and Cape Henlopen High School. Most of the residential properties, a number of commercial properties, and

Cape Henlopen High School were established prior to the Delaware Source Water Protection Law of 2001 and the Sussex County Ordinance of 2008 that established the wellhead protection area.
Approximately 200 developed residential lots and approximately a dozen commercial lots are located within the wellhead protection area. Most of the residential lots in the wellhead area are within the subdivisions of McNichol Place Mobil Home Park and Quaker Heights. Homes along the road frontages of these subdivisions can be observed in historical aerial photographs dating back to 1954, and Quaker Heights appeared to be completely developed by 1968. The residential subdivisions are currently served by the Sussex County sanitary sewage system but were previously served by individual on-site septic systems. According to officials from Sussex County, the main sanitary sewer line was installed in December 1995 and the homeowners were required to connect to the sanitary sewer system by December 1996. The Lewes supply wells were installed by 1984. Accordingly, septic systems were utilized within the 5-year modelled travel time used to define the wellhead area for a period of 12 years.

The Lewes supply well field is bordered to the northeast by Cape Henlopen High School and the Cape Henlopen School District office. The Cape Henlopen High School was built in 1976 and redeveloped in 2009-2010, during which the building was replaced, and additional parking areas and buildings were added to the parcel. Prior to 2005, the estimated impervious cover on the Cape Henlopen High School and the school district office covered a total area of approximately 370,000 square feet (SF). The high school was expanded again in 2021 by an additional 631,880 SF, resulting in a total of 1,001,880 SF impervious cover on the high school property.

The parking areas of the Cape Henlopen High School cover a total area of about 352,000 SF including a 14,000 SF bus parking area. Stormwater collected from the parking areas is conveyed into a dry infiltration stormwater basin on the north side of the school property. The basin is located within the 5-year wellhead protection zone and has no apparent pre-treatment structures with the exception of a fore bay. This basin also collects water from paved areas containing one 8,000 gallon above ground diesel-fuel storage tank and a greenhouse. The nearest point of parking lots for the Cape Henlopen High School is about 370 feet from the nearest Lewes supply wellhead.

The parking lot of the Cape Henlopen District office is located about 75 feet from the nearest Lewes wellhead and conveys stormwater directly to the ground surface without treatment.

The Lewes well field is bordered directly to the east by Kings Highway. Traffic studies by Davis, Bowen, & Friedel, Inc. (DBF) in 2019 recorded weekday average traffic at 12,048 vehicles per day and Saturday average trips totaling 10,650 vehicles per day. There is no treatment of stormwater conveyed into the wellhead area from the highway.

The areas east of the well field and Kings Highway can be characterized as agricultural (including the project site), and newer residential subdivisions.

III. CITY OF LEWES WATER SUPPLY WELLS

Information provided for this section was primarily obtained from a report titled *Public Water Supply Assessment for Lewes Water PWS: DE0000602*, prepared by the State of Delaware, DNREC Source Water Assessment and Protection Program, dated December 31, 2003. A copy of the assessment report is included as Appendix 3.

The Lewes well field is comprised of five supply wells, two of which are classified as "deep unconfined wells" because they are greater than 100 feet deep. The three remaining wells are classified as "shallow unconfined" because the tops of the well screens are less than 100 feet deep. At the time of the report, the water supply system supplied an average daily population of 2,600 residential consumers and 6,400 transient consumers during summer months. The supply well details are summarized below.

Permit No.	Diameter (inches)	Screen Interval (feet below ground surface)	Well Capacity (gallons per minute)
36869	12	70-147	1,350
45267	16	118-148	800
50389	12	70-150	780
55832	16	100-150	1,450
55833	16	85-135	1,420

The State of Delaware, DNREC's Source Water Assessment Plan includes designated wellhead protection areas around public wells. The wellhead protection areas are designed to protect the groundwater potentially flowing to the wells beneath these areas. The wellhead protection area for the Lewes supply wells was delineated using a computer model known as Visual MODFLOW. The MODFLOW model uses existing water level data, regional stream flows, recharge estimates and hydrologic characteristics of the local geology to create a computer-generated representation of the aquifer system. Simulations of pumping from the supply wells can then be completed to estimate how water flows to the wells over time.

The groundwater model for the Lewes and Rehoboth Beach supply wells is documented in a report produced by the Delaware Geological Survey-DGS (Andres, Duffy, and Costas) titled *Report of Investigations No. 65 Wellhead Protection Area Delineations For the Lewes-Rehoboth Beach Area, Delaware*, dated 2003. The model delineated a boundary around the well field in which a five-year travel time is estimated for the groundwater to reach the supply wells. The wellhead area was expanded by the DGS to include a 100-meter buffer zone added to the 5-year boundary to "provide means to protect the quality of water entering the wells under the full range of expected conditions".

Verdantas reviewed the annual Water Quality Report for 2021 from the Lewes Board of Public Works. A copy of the report is included as Appendix 4. As indicated in the report, no contaminant exceedances were reported.

No records of Drinking Water Public Notices of Violation were reported by the State of Delaware Office of Drinking Water for the Lewes water supply for the period presented (2015-2021).

Verdantas reviewed historical water quality data for the Lewes water supply system for previous studies using the DNREC, Drinking Water Branch web site. Laboratory analysis completed for samples from the water system indicated that nitrates, sulfates, and chlorides are detected on a regular basis in the water system. The sulfates and chlorides may originate from a number of sources. However, it is likely that nitrates in the groundwater are a result of agricultural activities in the vicinity of the well field. The nitrate levels in samples collected from the Lewes water system have ranged from approximately 3.5 parts per million (ppm) to 7 ppm. The current EPA allowable maximum concentration limit (MCL) for nitrates in public water systems is 10 ppm.

Nitrates, herbicides, pesticides, and coliform bacteria can pose a threat to the supply wells from nearby agricultural land use, while metals and petroleum hydrocarbons may pose a concern with commercial land use and automobiles. However, the use of Green Technology, Best Management Practices (BMPs) for handling stormwater is required for the proposed commercial land cover.

IV. TOPOGRAPHY AND SURFACE WATER DRAINAGE

Existing topography of the Property and proposed post-development topography of the Property are presented on the attached plans prepared by Davis Bowen & Friedel, Inc. The predevelopment plan shows the Property as gently sloping from an elevation of approximately 23 feet above mean sea level (MSL) on the south end of the Property to approximately 17 feet above MSL in the north corner of the Property. Accordingly, surface water is expected to drain generally from south and the WPA to the north across the Property.

The DNREC Environmental Navigator website maps a drainage basin divide along Kings Highway with surface water drainage conveyed to the Red Mill Creek basin west of Kings Highway, and drainage conveyed into the North Rehoboth Bay drainage basin east of Kings Highway. The topography indicates that the Property and Lewes well field are in different drainage basins, and surface water drainage on the Property does not flow into the WPA under natural conditions.

V. GEOLOGY AND GROUNDWATER CHARACTERISTICS (PUBLISHED INFO.)

The project site is located within the Coastal Plain Physiographic Province which is characterized by flat to gently sloping land surfaces underlain by sedimentary deposits. The unconfined aquifer in the Lewes area is comprised of a number of sedimentary units

that were deposited in marine delta, fluvial, marsh, lagoonal, and estuarine environments. According to mapping by the DGS [1] the Beaverdam Formation is the predominant unit comprising the unconfined aquifer in the vicinity of the project site. The Beaverdam Formation is reported to range from about 80 to 130 feet in thickness and is capped with 10 to 20 feet of younger deposits. The DGS describes the Beaverdam Formation as containing three distinct facies:

Facies 1	Medium to coarse sand with trace silt and gravel beds from less than one foot thick to 35 feet thick. Interpreted as being deposited in beach, channel and shallow near shore environments.
Facies 2	Fine to coarse sand with trace silt and silty fine to medium sand with clayey beds not exceeding one foot in thickness. Interpreted as being deposited in tributary tidal channels, levees, tidal deltas, and tidal flats.
Facies 3	Laminated silt, clay and fine to coarse silty sand. Interpreted as being deposited in low energy distal sub-tidal to inter-tidal flat, open water bay bottom and tidal creek.

The sediments in the Beaverdam Formation typically fine upward with Facies #3 more common in the upper half of the formation while Facies #1 is typically found in the lower half of the formation. Facies #1 and the coarser grained layers in Facies #2 function as water bearing aquifers and may be included as part of the unconfined aquifer.

Mapping by the United States Geological Survey [2] indicates that the top of the water table in the vicinity of the site is probably less than 10 feet above mean sea level (MSL) which would suggest a depth to the top of the water table exceeding 10 feet below ground surface elevation. Topography and surface water drainage patterns would suggest that groundwater beneath the Property would also flow to the north and east within the North Rehoboth Bay drainage basin. An exception would be potential drawdown of the water table aquifer as a result of substantial groundwater extraction.

VI. SITE-SPECIFIC GEOLOGY AND GROUNDWATER CHARACTERISTICS

John D. Hynes & Associates, Inc. performed an assessment of subsurface and geotechnical conditions at the Property in May 2018. The assessment is summarized in a report titled “Report of Subsurface Exploration and Geotechnical Consulting Services, Mitchell Farm, Lewes, Delaware”. A copy of the report is included as Appendix 5.

The referenced assessment was based on the completion of 18 test borings and falling-head infiltration testing. As indicated on the soil boring logs in the report, the site soils beneath the organic topsoil horizon consists of fine to medium sand with trace silt. Groundwater was encountered approximately 13 to 15 feet below ground surface elevation. The time-weighted infiltration rates at the boring locations in the south corner near the WPA ranged from 1.20 inches per hour to 14.4 inches per hour.

John D. Hynes & Associates, Inc. performed additional infiltration testing at the Property in March 2019. The assessment is summarized in a letter report dated April 8, 2019. A copy of the report is included as Appendix 6. The assessment was performed to evaluate infiltration rates at the bottom of a stormwater management pond constructed on the Property. Six single-ring falling-head infiltration tests were performed in the bottom of the stormwater management pond, and the average infiltration rate was calculated to be 15.29 inches per hour.

The soil textures, depth to groundwater, and infiltration rates described in the site-specific assessment reports suggest suitable conditions for infiltration and stormwater treatment on the project site.

VII. CLIMATIC WATER BUDGET AND BALANCE

Annual climatic water balances are used to estimate ground-water recharge for pre- and post-development land uses. The water balance computes recharge potential based on the following formula: $P = I + R + ET + \Delta SM$, where

P = annual precipitation (inches)
I = infiltration (inches)
R = runoff (inches)
ET = evapotranspiration (inches)
Δ SM = change in soil moisture (inches)

Sources used to implement the water balance methods are listed as follows.

- Thornthwaite, C.W. and Mather, J. R. (1957). *Instructions and Tables for Computing Potential Evapotranspiration and Water Balance*.
- Kauffmann, Wazniak, and Vonk, *Delaware Ground-Water Recharge Design Manual "Supplement 1 to the Source Water Protection Guidance Manual for the Local Governments of Delaware"* March 2004, revised May 2005, and June 2017.
- United States Department of Agriculture, Natural Resources Conservation Service. (1986). *Technical Release 55. Urban Hydrology for Small Watersheds*.
- United States Department of Agriculture, Soil Conservation Service. (1970). *Soil Survey of New Castle County, Delaware; Soil Survey of Kent County, Delaware; and Soil Survey of Sussex County, Delaware*.

The climatic water budget prepared for this report incorporates the Property and the adjoining Cape Henlopen Medical Center property, as it also conveys stormwater to the existing stormwater facility on the Property. It should also be noted that as a conservative measure, the predevelopment land cover was considered 100% pervious agricultural land to reflect conditions before any development was performed on either parcel. Spreadsheets presenting the climatic water balance are included as Appendix 7.

Summaries of the pre-development and post-development surface cover and estimated recharge volumes are presented below.

Pre-development					
Cover Type	Soil Group	Area (acres)	Recharge (Inches)	Recharge Volume (acre-inches)	Recharge Volume (gallons)
Agricultural	B	9.34	11.02	103	2,796,891
Stormwater Basin	A	NA	NA	NA	NA
Impervious Cover (sidewalks/pavement)	NA	NA	NA	NA	NA
Total		9.34		103	**2,796,891**

Post-development					
Cover Type	Soil Group	Area (acres)	Recharge (Inches)	Recharge Volume (acre-inches)	Recharge Volume (gallons)
Grass/Landscape	B	4.12	12.93	53	1,439,177
Stormwater Basin	A	0.33	13.87	5	135,711
Impervious Cover (Buildings, etc.)	NA	4.89	NA	NA	NA
Total		9.52		44	**1,574,948**

The pre and post development calculations result in the following.

Annual deficit in post development recharge	1,221,943 gallons
Rooftop needed for supplemental recharge to balance the water budget	50,223 square feet
Rooftop available within the WPA for supplemental recharge	47,577 square feet
Additional rooftop needed from outside the WPA needed to balance the water budget	2,646 square feet
Rooftop outside the WPA potentially available for supplemental recharge to the WPA recharge basin	452,580 square feet

As indicated above, a deficit of 2,646 square feet of rooftop is needed to provide 64,367 gallons of annual supplemental recharge to balance the water budget. According to DBF, up to 452,580 square feet of rooftop will be constructed on the Property outside of the WPA. Verdantas understands that additional rooftop area from planned buildings outside

the WPA can be conveyed to the portion of the basin within the WPA to substantially exceed the deficit of 2,646 square feet of rooftop recharge needed to balance the climatic water budget.

Verdantas recommends conveying stormwater from paved impervious surfaces to other stormwater facilities outside of the WPA, or to the portion of the main existing stormwater basin located outside the WPA where practical. Where stormwater from paved surfaces needs to be conveyed directly into the portion of the stormwater structure within the WPA, Verdantas recommends installing pretreatment structures to contain debris and potential petroleum releases prior to discharge into the basin.

VIII. ENVIRONMENTAL REGULATORY STATUS OF PROPERTY

Verdantas reviewed the DNREC Environmental Navigator (DEN) website to determine if the Property of nearby properties are listed on DNREC's database because of environmental issues. The review was completed on January 7, 2022, and neither the Property nor any contiguous properties were not included in the DEN database system. In addition, the DEN showed no wetlands, groundwater management zones, critical natural areas, or flood zones mapped on the Property. The DEN did confirm the mapped wellhead area for the Lewes supply wells.

IX. CONCLUSIONS AND RECOMMENDATIONS

Based on a review of publicly available information and site-specific reports, it is the opinion of Verdantas that development of the Property as proposed can be done without adversely impacting the Lewes supply wells. This opinion is based on the following:

1. The site geology, depth to groundwater, and site-specific infiltration testing suggest that conditions are suitable for stormwater infiltration and recharge.

2. The Lewes supply wells have provided acceptable drinking water beginning in 1977, with the mapped wellhead protection area containing:

    - More than 200 homes, many of which were served by septic systems that functioned for 12 years within the 5-year capture zone.
    - A number of commercial properties.
    - A highway located directly adjacent to the wellfield with traffic totals exceeding 12,000 vehicles per day and no treatment of stormwater conveyed into the wellhead area.
    - A high school located directly adjacent to the well field since 1976 with no use of Green Technology BMPs until it was re-developed beginning in 2009.

    These land uses, along with the water quality data for the Lewes supply wells,

suggest that the subsurface soils above the water table and the aquifer effectively renovate groundwater migrating to the supply wells.

Nitrates have been reported near EPA maximum allowable concentrations in the Lewes water system and are likely the result of agricultural land use in the vicinity of the well field. Nitrates, herbicides, pesticides, and coliform bacteria can pose a threat to the supply wells from nearby agricultural land use, while metals and petroleum hydrocarbons may pose a concern with commercial land cover and automobiles.

It is likely that the potential for impacting the water table from nitrates will be reduced if the project site is no longer used for agricultural purposes. In addition, Green Technology, Best Management Practices will be used to handle post development stormwater on the Property. Studies have shown that properly designed basins with favorable subsurface soil conditions can adequately infiltrate stormwater and reduce pollutants [(4)].

Per Sussex County Code (Chapter 89 Source Water Protection) and recommendations offered by Verdantas, the following practices should be applied to developing the Property.

- The post development impervious cover for the planned Property development coupled with the existing Cape Henlopen Medical Center will be 52%. Assuming that all rooftop water within the WPA from both parcels will be conveyed to the recharge basin, a total of 2,646 square feet of additional rooftop is needed to balance the climatic water budget using rooftop area only. This can be accomplished by conveying water to the WPA recharge basin from rooftop surfaces of the Property planned outside of the WPA.
- Verdantas recommends installing pre-treatment structures for inflows to the recharge basin where water from paved surfaces will be conveyed into the portion of the recharge basin within the WPA. Pre-treatment structures typically function to control debris and potential petroleum releases.
- Discharge from roof drains, containment areas or structures that contain mechanical systems should be discharged using best management practices, such as the use of bio-swales.
- Aboveground and underground storage tanks (USTs) containing petroleum or hazardous substances listed in 40 CFR 116 in an aggregate quantity equal to or greater than a reportable quantity as defined in 40 CFR 117 are not permitted in a designated wellhead protection area unless such facilities meet the aboveground and underground storage tank regulations as applicable to the State of Delaware.
- Stormwater management oversight shall be referred to and governed by the Sussex County Conservation District within wellhead protection areas.
- Structures used to recharge stormwater should be inspected on a regular basis to ensure that the structures are adequately infiltrating water and not becoming fouled by sediment, debris, or bio-matter.

This report is based on our professional judgement of site conditions represented by available maps, plans, reports, and correspondence. While this evaluation was performed to generally characterize the hydrogeology of the project site, subsurface conditions are in fact unknown. It is important to note that latent conditions and other contingencies bearing upon the results of this study may become evident in the future. Calculations prepared by Verdantas were based on areas of existing and planned impervious and pervious cover provided to Verdantas by DBF.

XII. REFERENCES

1. Andres and Klingbeil, Thickness and Transmissivity of the Unconfined Aquifer of Eastern Sussex County, Delaware, Report of Investigations No. 70. Delaware Geological Survey, 2006.

2. Adams, Boggess, and Davis, Water-Table, Surface Drainage, and Engineering Soils Map of the Lewes and Rehoboth Beach Areas, United States Geological Survey, 1964.

3. Andres, Ground-Water Recharge Potential Mapping in Kent and Sussex Counties, Delaware, Delaware Geological Survey Report of Investigation No. 66.

4. Schueler, T., 1987. Controlling Urban Runoff: A Practical Manual for Planning and Designing Urban BMPs., Metropolitan Washington Council of Governments, Washington, DC.

SFC:
14447_EAR.DRAFT RPT

PRE DEVELOPMENT PLANS

SOIL SURVEY LEGEND		
SYMBOL	DESCRIPTION	HSG
EvB	EVESBORO LOAMY SAND, 0 TO 5 PERCENT SLOPES	A
GrA	GREENWICH LOAM, 0 TO 2 PERCENT SLOPES	B

LEGEND

DH-NW
9.135ac.
CN=82
Tc=25.6min.

DRAINAGE BOUNDARY & LABEL

EXISTING CONTOUR & ELEVATION

EXISTING LIDAR CONTOUR

SOIL BOUNDARY & TYPE

AP

ANALYSIS POINT

TC PATH

Tc LABEL

100'SF
CR>20%
@0.19%

SF=SHEET FLOW
SC=SHALLOW CONCENTRATED
CH=CHANNEL
(POINTS TO END OF SECTION)

LAND-USE HATCH

ROW CROPS

PAVEMENT

GRASS

1/4 ACRE LOTS

2 AC. RES.

FIRST BAPTIST CHURCH OF LEWES

KINGS HIGHWAY

KINGS HWY (SCR 268) PRINCIPAL ARTERIAL

BAYBREEZE DRIVE

JEFFERSON APARTMENTS

BIG OYSTER BREWERY

BEEBE MEDICAL

AP1

AP2

AP3

7S
3.292 AC.
CN=67
Tc=20.3min.

100' SF GRASS @ 1.00%

230' SC UNPAVED @ 1.38%

775' SC UNPAVED @ 0.60%

2S
5.69 AC.
CN=78
Tc=28.7min.

JETTY PL

BAY BREEZE ESTATES

SURF AVE

3S
12.83 AC.
CN=78
Tc=43.7min.

609' SC UNPAVED @ 0.50%

100' SF CULT. @ 0.50%

100' SF CULT. @ 0.10%

HENLOPEN GARDENS

SOUTH ATLANTIC DRIVE

JACK LINGO REALTOR

CAPE HENLOPEN HIGH SCHOOL

PARCEL 37.00

1205' SC UNPAVED @ 0.50%

1S
36.416 AC.
CN=78
Tc=35.9min.

PARCEL 37.01

CADBURY AT LEWES

332' SC UNPAVED @ 0.30%

4S
1.087 AC.
CN=83
Tc=23.0min.

100' SF CULT. @ 0.50%

69' SF CULT. @ 0.30%

THE VILLAGE CENTER

AP5

6S
1.016 AC.
CN=82
Tc=5.0min.

5S
0.535 AC.
CN=77
Tc=5.0min.

AP4

GILLS NECK ROAD (SCR 267) LOCAL ROAD

GILLS N...

EvB(A)

GrA(B)

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PRE DEVELOPMENT DRAINAGE AREA PLAN

ZWAANENDAEL FARM

LEWES & REHOBOTH HUNDRED

SUSSEX COUNTY, DELAWARE

Revisions:
2018-10-12 SCD
2018-11-19 SCD

Date: AUGUST, 2018
Scale: AS NOTED
Dwn.By: CDM
Proj.No.: 2460A002
Dwg.No.: SWM-01

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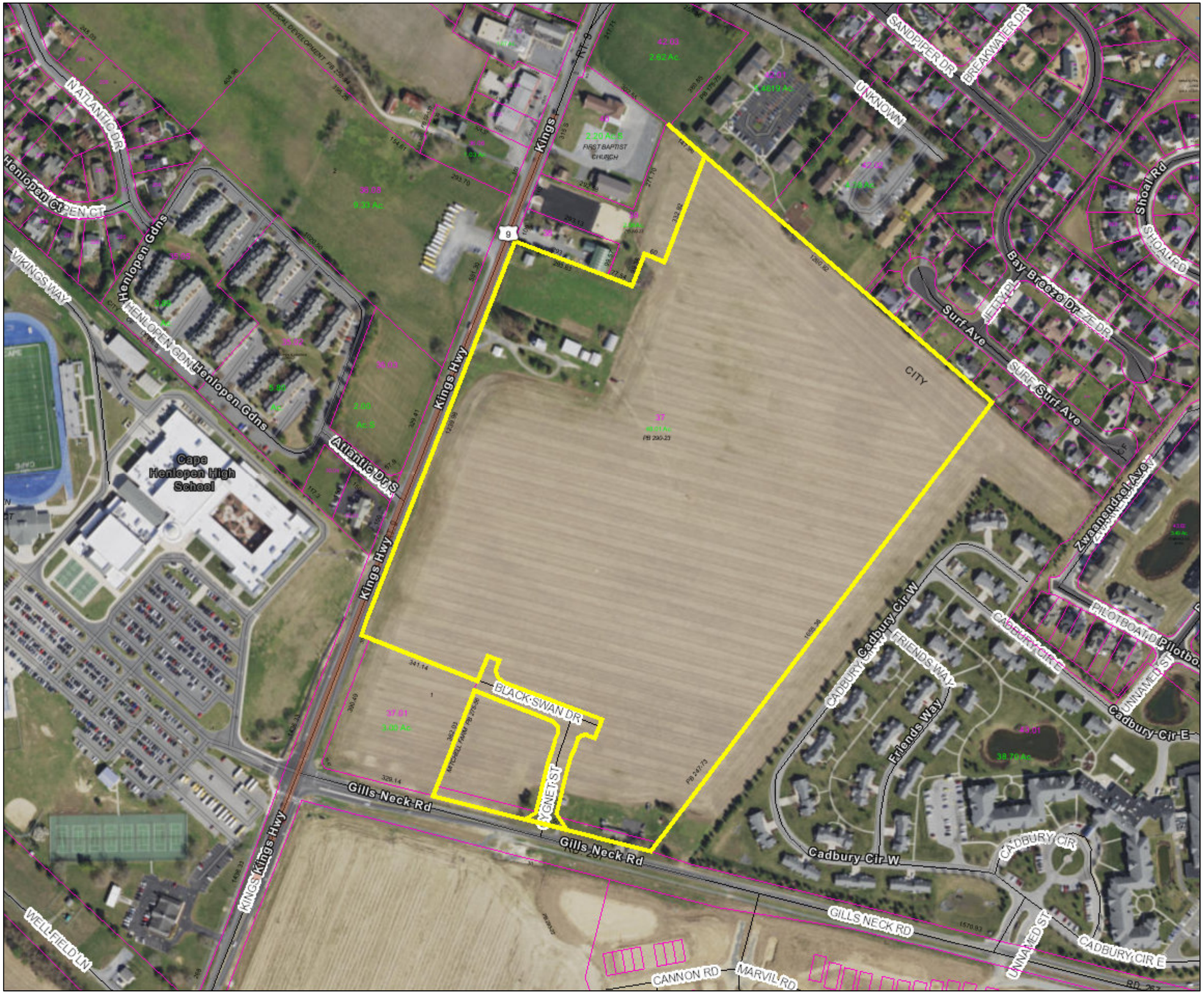
P:\Mitchell Family Ltd Partnership\Mitchell Farm\DESIGN\SSM\2460A002 - PRE.dwg Nov 19, 2018 - 1:23pm mumc

APPENDIX 1

COUNTY TAX MAP SHOWING PROPERTY BOUNDARIES

Sussex County



PIN:	335-8.00-37.00
Owner Name	MITCHELL FAMILY LLC
Book	5074
Mailing Address	1019 KINGS HWY
City	LEWES
State	DE
Description	SE/RD 268 APPROX 391' NE
Description 2	ALSO HAS FRONT FTG NE/
Description 3	
Land Code	

polygonLayer

Override 1

polygonLayer

Override 1

Tax Parcels

Streets

County Boundaries

1:4,514

0 0.05 0.1 0.2 mi

0 0.075 0.15 0.3 km

February 27, 2020

APPENDIX 2

AERIAL OVERLAY WITH WELLHEAD
PROTECTION AREA

Wellhead Protection Area

Excellent Recharge Area

MITCHELLS CORNER

Site

Lewes-Georgetown Highway

Kings Highway

Gills Neck Road

Clay Road

Spring 2017
Aerial Photo

Source Water Protection Areas

Mitchell's Corner

Sussex County, Delaware

February 2022

N W E S

0 600 1,200 Feet

Sources:
Tax Parcels per Sussex County

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APPENDIX 3

DNREC SOURCE WATER ASSESSMENT REPORT

Public Water Supply
Source Water Assessment
for

Lewes Water

PWS ID: DE0000602

Sussex County, Delaware

Final Report: December 31, 2003

State of Delaware
Department of Natural Resources and Environmental Control
Division of Water Resources
Source Water Assessment and Protection Program
89 Kings Highway
Dover, Delaware 19901

Phone: (302) 739-4793 fax: (302) 739-2296

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Summary

The Delaware Department of Natural Resources and Environmental Control's (DNREC) Division of Water Resources has completed the Source Water Assessment for the public water supply wells for Lewes Water as required under the 1996 amendments to the Safe Drinking Water Act. This assessment has been performed using the methods specified in the State of Delaware Source Water Assessment Plan (DNREC, 1999).

Lewes Water uses five wells to provide drinking water to the system. Of these, two wells withdraw water from the unconfined Columbia Group-Pocomoke aquifer. These wells are classified as 'Deep Unconfined' because they are greater than 100 feet deep and no significant clay layers exist between the ground surface and the well's screens. Because these wells are screened deep into the unconfined aquifer they have a medium vulnerability to contamination from processes at the ground surface. As unconfined wells capable of pumping over 50,000 gallons per day, the wellhead protection areas were delineated using a computer model that attempts to simulate ground-water flow. Additionally, three wells withdraw water from the unconfined Columbia Group-Pocomoke aquifer. These wells are classified as 'Shallow Unconfined' because they are less than 100 feet deep and no significant clay layers exist between the ground surface and the well screens. Because these wells are screened at shallower depths within the unconfined aquifer they have a high vulnerability to contamination from processes at the ground surface. As unconfined wells capable of pumping over 50,000 gallons per day, the wellhead protection areas were delineated using a computer model that attempts to simulate ground-water flow.

This public water supply system provides water to an average daily population of 2600 residential consumers from January 1 to December 31 and an average daily population of 6400 transient consumers from May 1 to September 30 through 2364 residential service connections.

There are three discrete sources of potential contamination in the wellhead protection area. These sites have substantial contaminant potentials that may pose a significant threat to the drinking water resources.

An analysis of land use activities in the area show almost 39 percent of the total wellhead protection area for the system contains various urban land uses. There are six other land uses covering the remaining portions percent of the wellfield.

Although water samples may have been taken from within the distribution system, no raw water (well tap) samples have been recorded for this Public Water Supply System.

Overall, Lewes Water has a **high** susceptibility to nutrients, a moderate susceptibility to pathogens, a **very high** susceptibility to petroleum hydrocarbons, a moderate susceptibility to pesticides, a low susceptibility to PCBs, a moderate susceptibility to

other organic compounds, a low susceptibility to metals and, a moderate susceptibility to other inorganic compounds.

Introduction

The 1996 amendments to the Safe Drinking Water Act (SDWA) require that source water assessments be performed for all sources of public drinking water in each state. Because of this, each state was required to develop a Source Water Assessment Plan (SWAP). The State of Delaware's SWAP was developed by a committee of scientists, water industry professionals, conservation groups, government agencies, and interested citizens in 1998 and approved by the United States Environmental Protection Agency in October, 1999.

This assessment for Lewes Water has been performed using the methods specified in the State of Delaware Source Water Assessment Plan (DNREC, 1999)

The assessment consists of these four critical steps:

1) Delineation of source water areas;
2) Determination of the vulnerability of a well or intake to contamination;
3) Identification of existing and potential sources of contamination; and
4) Determination of the susceptibility of the source water area to contamination.

Step 1 consists of mapping the land surface area that contributes to the water supply. For ground water systems, this is called the wellhead protection area. Lewes Water uses five wells to provide drinking water to the system. Of these, two wells withdraw water from the unconfined Columbia Group-Pocomoke aquifer. These wells are classified as 'Deep Unconfined' because they are greater than 100 feet deep and no significant clay layers exist between the ground surface and the well's screens. Because these wells are screened deep into the unconfined aquifer they have a medium vulnerability to contamination from processes at the ground surface. As unconfined wells capable of pumping over 50,000 gallons per day, the wellhead protection areas were delineated using a computer model that attempts to simulate ground-water flow. Additionally, three wells withdraw water from the unconfined Columbia Group-Pocomoke aquifer. These wells are classified as 'Shallow Unconfined' because they are less than 100 feet deep and no significant clay layers exist between the ground surface and the well screens. Because these wells are screened at shallower depths within the unconfined aquifer they have a high vulnerability to contamination from processes at the ground surface. As unconfined wells capable of pumping over 50,000 gallons per day, the wellhead protection areas were delineated using a computer model that attempts to simulate ground-water flow.

Step 2 uses a step-by-step decision making process by which each well or surface water intake for a particular system is examined to determine its vulnerability to contamination. Vulnerability is the relative ease with which contaminants, if released into a source water area, could move and enter a public water supply well or intake at concentrations of concern. Vulnerability includes consideration of such factors as aquifer characteristics, well or surface water intake integrity, and wellscreen depth. A series of questions about

the type of system (surface water or ground water), hydrologic setting, and well construction are used in the decision-making process.

Step 3 consists of creating an inventory of all existing and potential sources of contamination within the delineated source water protection areas. This was done utilizing DNREC's contaminant site inventories, 1997 land use maps, analytical data compiled by the Office of Drinking Water and through visual examination during site visits.

Step 4 consists of determining the susceptibility of the source water area to contamination. This process combines steps 1, 2, 3, water quality reports, and other information.

This information must be summarized into a report and made available to the public. It is the goal of the Division of Water Resources that the summaries provided from the source water assessment and protection program will help drinking-water systems better understand the potential threats to their drinking water supply and to work to protect these drinking water resources.

Study Area

Lewes Water is located east of Delaware Route 1 and between Savannah Road and Kings Highway. This location is shown on Map 1 Base Map for Lewes Water. This public water supply system provides water to an average daily population of 2600 residential consumers from January 1 to December 31 and an average daily population of 6400 transient consumers from May 1 to September 30 through 2364 residential service connections.

Public Water Supply Well Data

Information about the construction and operation of these wells is summarized in Table1. This information was gathered from various sources (DNREC, Delaware Geological Survey, Department of Health and Social Services), and a letter requesting confirmation from the system.

Table 1: Well Construction Data

Well #	Permit #	Allocation #	Year Constructed	Well Capacity (Gpm)	Diameter (inches)	Screen Interval (fbgs)	Aquifer
1A	36869	95-0008	1977	1350	12	70-147	Columbia Group-Pocomoke
2A	45267	95-0008	1980	800	16	118-148	Columbia Group-Pocomoke
3A	50389	95-0008	1982	780	12	70-150	Columbia Group-Pocomoke
4A	55832	95-0008	1984	1450	16	100-150	Columbia Group-Pocomoke
5A	55833	95-0008	1984	1420	16	85-135	Columbia Group-Pocomoke

* fbgs = feet below ground surface

Geology and Hydrogeology

Unconfined Aquifers
Columbia Aquifer:
The Columbia Aquifer is a lithologically complex hydrologic unit generally comprised of 1 surficial and 2 subsurface geological formations (Fm.). These deposits were laid down in a number of depositional environments including marine delta, estuarine, fluvial, swamp, marsh, and lagoonal (Ramsey and Schenck, 1990). The major surficial units include the Pleistocene-aged Lynch Heights and Scotts Corner Formations, the Pleistocene to Holocene aged Cypress Swamp Fm. and modern day Holocene deposits (Ramsey, 2001; Andres and Howard, 2000; and Andres and Duffy 2003). These surficial units are very heterogeneous and are comprised of admixtures of sand, silt, and clay. Fine-grained beds within these formations can serve as leaky confining units which locally confine the Columbia Aquifer in some locations.

The major subsurface units of the Columbia Aquifer which subcrop the surficial units include the Pliocene- aged Beaverdam Fm. and the upper Miocene-aged Bethany Fm. (Ramsey and Schenck, 1990). The Beaverdam Fm. is predominantly a sand unit and generally forms the bulk of the Columbia Aquifer's saturated thickness. The underlying Bethany Fm. is predominantly a silty Fm. which contains interbedded fine to coarse sands (Ramsey and Schenck, 1990.) The silt beds of the Bethany Fm. generally form the base of the unconfined aquifer system.

Upper muddy silt beds at the top of the Bethany Fm. are missing over much of the study area. Where the silt beds are absent, sands of the Bethany Fm. are hydraulically connected with those of the Beaverdam Fm. and form a thick and highly productive unconfined aquifer system. According to Talley (1988), saturated thicknesses of over two hundred feet thick occur in the southeastern portion of the study area.

Cross-sections from Andres (1986), indicates that in the northern portion of the study area, where the Miocene Manokin Fm. is relatively close to the land surface, the Bethany Fm. has been eroded away. In this area, the sands of the underlying Manokin Fm. are in hydraulic connection with the Beaverdam Fm. and become part of the unconfined Columbia Aquifer System. A cross-section from Talley (1987) indicates that the Bethany Fm. clays are missing in the southern portion of the study area (in an area northeast of Roxana). In this area, sands of the Beaverdam, Bethany and Manokin Formations are hydraulically connected and comprise the extremely thick unconfined Columbia Aquifer System.

The Beaverdam Fm. is the primary unit comprising the Columbia Aquifer over most of the study area. Based on geological maps from Talley (1988) and Andres (1987), the Beaverdam Fm. ranges in thickness from approximately 80' to 130' across the study area. This unit is generally covered by at least 10' to 20' of the aforementioned surficial units. Andres (1987) and Ramsey (2001) generally describe the formation as a pale orange to yellowish brown, medium to coarse sand with beds of fine sandy silt and/or clay, fine sand, and gravelly coarse sand. Thin layers of dark colored clayey silt and silty clay are present throughout the formation (Andres and Duffy, 2003). According to Andres and

Howard (1995), the Beaverdam Fm. often has two dominant lithologies: an upper fine unit comprised of fine sands and muds and a lower unit consisting of a medium to coarse sand with discontinuous layers of gravel, fine sand, silt and clay. The upper fine-grained unit generally occurs within the upper 25' of the ground surface (Andres, 1994). According to Ramsey (2001), orange, brown and grey are characteristic colors of the Beaverdam Fm. Andres and Keyser (2002) state that the Fm.'s pale orange color, distinctive multicolored coarse sand grains, the weathered lithic fragments and the sticky clay matrix coating sand grains distinguish the Beaverdam Fm. from younger units. The bottom of the Beaverdam Fm. is an irregular surface with as much as 40' of relief (Ramsey, 2001).

Sands of the Bethany Fm. subcrop the Beaverdam Fm. and become a part of the Columbia Aquifer throughout most of the study area. Areas where sands of the Bethany Fm. subcrop the Beaverdam Fm. are often referred to as the Pocomoke Aquifer Subcrop Area (Picket, 1976). Cross-sections from Talley (1988) and Andres (1987) indicate that sands of the Bethany Fm. range from approximately 10' to 100' thick in the area. Andres (1986) describes the Bethany Fm. sands as a "blue-gray or olive gray, fine to very coarse sand".

The thickness of the Columbia aquifer ranges from approximately 70' thick in the southwestern portion of the study area to well over 200' thick near Roxana (Denver, 1983; and Talley, 1987). The thickest portion of the aquifer occurs in the Pocomoke Aquifer Subcrop Area. Transmissivities derived from aquifer test data range from 7300 ft^2 /d to 22,590 ft^2 /d. Transmissivities are highly variable due to the different lithologies of the formations comprising the Columbia Aquifer and the various thicknesses of the aquifer (Johnston, 1973; and Talley and Andres, 1987).

Source Water Protection Area Delineation

The State of Delaware's Source Water Assessment Plan describes the methods to be used for the delineation of the areas that contribute water to public drinking water supplies. These source water areas are delineated by applying the methodology described in section 3.5 of the Delaware SWAP to an understanding of the geologic and hydrologic setting of the area coupled with a review of well logs and well construction information. The wellhead areas for this system were delineated using a computer model (MODFLOW) that attempts to simulate ground-water flow. The modeling methods are summarized in Table 2a.

Table 2a: Aquifer type and Delineation Method

Well #	Permit #	Aquifer	Aquifer Type	Delineation Method
1A	36869	Columbia Group-Pocomoke	unconfined	MODFLOW Ground-Water Model
2A	45267	Columbia Group-Pocomoke	unconfined	MODFLOW Ground-Water Model
3A	50389	Columbia Group-Pocomoke	unconfined	MODFLOW Ground-Water Model
4A	55832	Columbia Group-Pocomoke	unconfined	MODFLOW Ground-Water Model
5A	55833	Columbia Group-Pocomoke	unconfined	MODFLOW Ground-Water Model

In order to have this model produce reasonable and accurate results the characteristics of both the wells and the geology must be determined and input into the model. A review of the well construction data provided the needed information for the wells, and a literature review provided the needed data to represent the various hydrogeologic factors. Table 2b below summarizes these data with references where appropriate. Using these data, the well locations, and same regional hydrology, it should be possible to recreate the model output using the same model (Visual MODFLOW, 2001).

Table 2b: Model Parameters and Settings

Well #	Pumping Rate (ft3/day)	Radius (feet)	# Particles	Release Depth (Elevation)
1A	71228.814	0.5	16-36	0 (Ground Surface)
2A	30992.232	0.6	16-36	0 (Ground Surface)
3A	30031.78	0.5	16-36	0 (Ground Surface)
4A	33305.085	0.6	16-36	0 (Ground Surface)
5A	41387.712	0.6	16-36	0 (Ground Surface)

Property	Value	Units	Reference
Duration	5	years	DNREC, 1999
Recharge	140-492	Millimeters / year	Andres and Duffy, 2003
Porosity	23 - 30	percent	Freeze and Cherry, 1979
Hydraulic Conductivity	0.000093-0.000347	Meters / second	Andres and Duffy, 2003
Base of Aquifer	60	Meters below sea level	Andres and Duffy, 2003
Aquifer Thickness	15 - 75	Meters	Andres and Duffy, 2003

Because of the differences between the complexity of the real-world and the simplifications necessary for the model, a brief discussion of the methodology for the source water area delineation is appropriate. This particular model uses available water level data from production wells and observation wells, and the regional stream flow to generate a representative water table surface. From this, the model then "pumps" the wells and calculates the changes to this surface caused by the water being withdrawn from the wells. During this time the model tracks "particles" over the duration of the model run to detail how water flows into the wells over that time period. Because of the lack of site-specific real world data across the entire modeled area assumptions have to be made and the results scrutinized. Some of the key assumption that were made are as follows:

- Although the hydrogeology varies with depth and distance, the exact details of the subsurface are not known. Therefore the model parameters that represent these features need to be varied (multiple model runs then make a composite of the results);

- This is a Steady-State Model, meaning that the wells must be pumping continuously over the model duration (yields a conservative, larger, wellhead area)

- The specifics of the interactions between the aquifer and the smaller streams are not well known. Therefore it is assumed that these streams are not significant sources of water to the aquifer (wellhead areas can extend across smaller streams)

More discussion on specific model assumptions can be found in the model documentation (USGS, 1983). Based upon this methodology, the resulting delineated Source Water Areas are conservative and are larger than the true capture zones for each well, as the WHPA for this wellfield includes a 300-foot buffer zone which allows for a margin of safety that is designed to provide means to protect the quality of water entering the wells under the full range of expected conditions (Andres et al, 2003). As more data and more time become available, it may be possible to further refine the areas and more closely simulate real-world conditions.

The areas delineated by this process are shown on Map 2 Delineation Map for Lewes Water. The Lewes wellfield contains five wells (1A - 36869, 2A - 45267, 3A - 50389, 4A - 55832, 5A - 55833). Table 2c below list any wellfields and their associated wells and acreages.

Table 2c: Delineated Source Water Areas

Wellfield	Wells	Acreage	Vulnerability
Lewes	Lewes	342.89	High

Vulnerability Determination

The vulnerability is the relative ease with which contaminants, if released into a source water area, could move and enter a public water supply well or surface water intake at concentrations of concern. Individual intakes or wells are ranked as having high, medium, or low vulnerability according to the process described in section 5.1 of the Delaware SWAP. The determination of this vulnerability is conducted through a series of questions about the type of intake (surface or ground water), hydrogeologic setting, and construction.

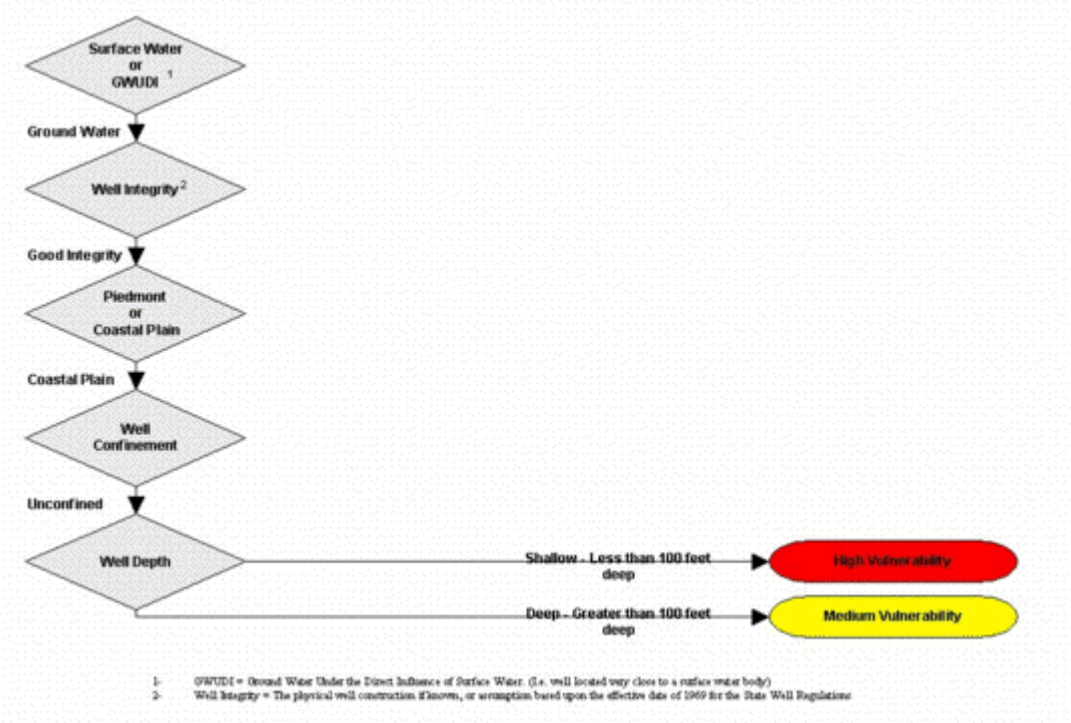

Figure 1: Vulnerability Determination process

Lewes Water uses five wells to provide drinking water to the system. Of these, two wells withdraw water from the unconfined Columbia Group-Pocomoke aquifer. These wells are classified as 'Deep Unconfined' because they are greater than 100 feet deep and no significant clay layers exist between the ground surface and the well's screens. Because these wells are screened deep into the unconfined aquifer they have a medium vulnerability to contamination from processes at the ground surface. As unconfined wells capable of pumping over 50,000 gallons per day, the wellhead protection areas were delineated using a computer model that attempts to simulate ground-water flow. Additionally, three wells withdraw water from the unconfined Columbia Group-Pocomoke aquifer. These wells are classified as 'Shallow Unconfined' because they are less than 100 feet deep and no significant clay layers exist between the ground surface and the well screens. Because these wells are screened at shallower depths within the unconfined aquifer they have a high vulnerability to contamination from processes at the ground surface. As unconfined wells capable of pumping over 50,000 gallons per day, the wellhead protection areas were delineated using a computer model that attempts to simulate ground-water flow.

Existing and Potential Sources of Contamination

There are a multitude of potential contaminant sources that, if present, could degrade drinking water quality. Most of these sources are anthropogenic, however, natural 'contaminants' such as salt water or iron deposits can also impact water supplies. Most human impacts occur at or just below the ground surface and therefore are much more of a concern for shallow water supplies that lack a protective confining layer.

Discrete Sources

Discrete sources are defined as existing or potential sources of pollution to surface or ground water supplies at well defined, usually manufactured 'points' or locations. The Source Water Program has divided the discrete sources into the following categories:

Underground Storage Tanks	Large On-Site Septic
Landfills / Dumps	Wastewater Spray Irrigation
National Pollutant Discharge Elimination Sys.	Waste Sludge Application
Tire Piles	Animal Feedlot Operations
Hazardous Waste Generators	Combined Sewer Overflows
Toxic Release Inventory	Dredge Spoils
Salvage Yards	Golf Courses
Pesticide Loading, Mixing, & Storage Facility	Domestic Septic Systems
State and Federal Superfund Sites	

These discrete sources can contaminate source waters depending upon their location, the severity of a release, and other factors. For example, golf courses may contribute both pesticides and nutrients to the surface and ground waters by means of surface application for landscaping purposes, whereas tire piles generally do not pose a threat to the waters of the state unless they begin to burn. There are three discrete sources of potential contamination in the wellhead protection area. These sites have substantial contaminant potentials that may that these pose a significant threat to the drinking water resources. A brief description of each of these sites and their associated contaminant potentials follows.

Lewes Wellfield (wells 1A (ID # 36869), 2A (ID # 45267), 3A (ID # 50389), 4A (ID # 55832), and 5A (ID # 55833))

Cape Henlopen High School (MAPID: UT6253)
This is an underground storage tank facility with a historic product release. This site has a **high** contaminant potential for petroleum hydrocarbons, and a negligible contaminant potential for nutrients, pathogens, pesticides, PCBs, other organic compounds, metals, and other inorganic compounds.

MCNICHOL Place Mobil Home (MAPID: UT5901)
This is an underground storage tank facility. This site has a medium contaminant potential for petroleum hydrocarbons, and a negligible contaminant potential for nutrients, pathogens, pesticides, PCBs, other organic compounds, metals, and other inorganic compounds.

Domestic Septic System (MAPID: 94 Systems - 0.27 per Acre)
Domestic septic systems may exist in the source water area. This site has a low contaminant potential for nutrients, and a negligible contaminant potential for pathogens, petroleum hydrocarbons, pesticides, PCBs, other organic compounds, metals, and other inorganic compounds.

Additional information for other contaminant sources can be found on the state web site (http://www.dnrec.state.de.us/) using the Environmental Navigator. The inventory contains categorized data for multiple forms of media (surface water, ground water, etc).

Land Use / Land Cover

Anthropogenic activities associated with various land uses have the potential to contribute to ground-water quality problems, particularly when examining potential 'non-point' source contamination. There is, however, some overlap between discrete sources of contamination and some land use categories. For instance, individual domestic septic systems may be considered discrete sources, however, the regional impact of a number of systems in a large development might also be considered as 'non-point'.

Map 4 Land Use Map for Lewes Water shows the land use within the delineated area. The table on Map 4 summarizes the system-wide land use that is the percent of the entire system's source water area overlain by that particular land use. Based upon the SWAP, the contaminant potential could be adjusted depending on the percentage of land use within the WHPA, with land uses occupying the greatest portion of the wellhead areas having a more significant potential impact.

Using the most recent GIS information, almost 39 percent of the total wellhead protection area for the system contains various urban land uses. There are six other land uses covering the remaining portions percent of the wellfield.

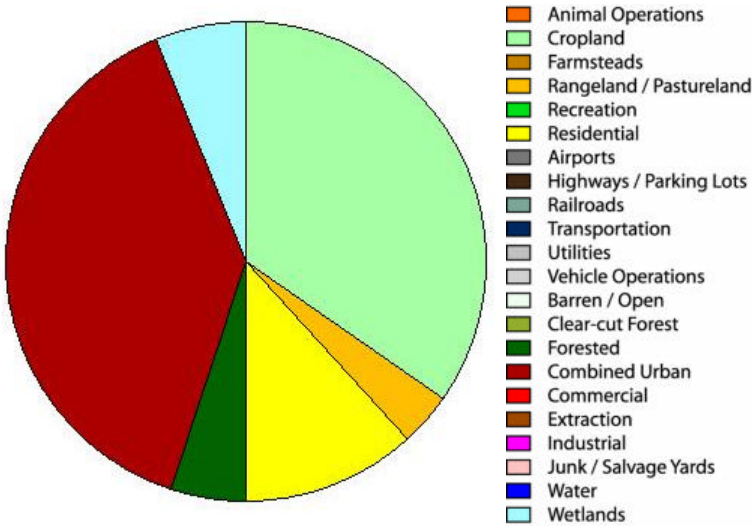

Figure 2: System-Wide Land Use

Roads and Railroads

Roads and railroads represent potential conduits for the entry of contaminants into soils and ground water. The possibility exists that an accident, such as a spill, could impact water quality. Furthermore, certain upkeep and maintenance practices such as road salting, or pesticides applications could also introduce contaminants along these

transportation pathways. Table 3 summarizes the lengths and types of conduits that run through the various wellhead areas. These are the highlighted roads and railroads shown on Map 3 Discrete Sources Map for Lewes Water and Map 4 Land Use Map for Lewes Water. Smaller (tertiary) or private roads are not included in the assessment because of the lack of consistent data across the State.

Table 3: Roads and Railways found within WHPA

Wellfield	Conduit	Mileage	Type
Lewes	Road	1.2	Major

Water Quality Data

This portion of the source water assessment evaluates the water quality of raw water *before* it enters into any treatment process (i.e. filtration, disinfection, fluoridation, softening, etc.) and/or the distribution system. However, it should be noted that many water supply systems utilize certain treatment methods that remove contaminants or impurities from the drinking water before it is delivered to the public.

The Delaware SWAP classifies contaminants into eight (8) categories. Examples of contaminants within each of the eight categories are as follows:

Other Inorganic:	Fluoride, Chloride, pH, Sulfate, Radon, Radium, Strontium,
Metals:	Copper, Arsenic, Iron, Manganese
Nutrients:	Nitrate, Nitrite
Other Organics:	Vinyl Chloride, PCE, TCE
Pathogens:	Coliform Bacteria, Cryptosporidium, Giardia lambia
Pesticides:	Alachlor, Atrazine, Glyphosate
Petroleum Hydrocarbons:	Gasoline, Heating Oil, Benzene, Toluene
Polychlorinated Biphenyls:	PCB

The Source Water Assessment and Protection Program has reviewed the available analytical data for this system for the previous five years. While this report may show that a drinking water standard was exceeded for a particular contaminant at one instance, the Department of Health and Social Services, Division of Public Health, Office of Drinking Water, which regulates drinking water quality, may not consider it a violation based upon more detailed procedures detailed within their regulations (DHSS, 2002). In the event that a contaminant, which is not naturally found in the source water, has been detected as a result of maintenance to the water distribution system, its results will be noted and explained within the text. These results may not be considered when determining the final susceptibility for a well and/or public water system.

Naturally Occurring Contaminants

There are several naturally occurring potential contaminants that will be identified as part of the assessments of public water supplies. These include iron, chloride, sodium, radon, radium, manganese, sulfate and others. These will be identified as part of the

susceptibility determination for each well and listed as being naturally occurring if detected.

Analytical Data

Data from the Department of Health and Social Services' Division of Public Health's Office of Drinking Water's (DPH-ODW) analytical database was reviewed for raw/untreated water quality data for the past five years.

Although water samples may have been taken from within the distribution system, no raw water (well tap) samples have been recorded for this Public Water Supply System.

Water Treatment Methods

No treatment process has been specified for this system.

For more information about the water treatment used please contact Lewes Water or the Division of Public Health's Office of Drinking Water at (302) 739-5410.

Susceptibility Determination

The key part of a source water assessment is the determination of the likelihood that a particular public water supply system will capture contaminants at concentrations of concern. This analysis, termed susceptibility determination, combines the source water protection area delineation, the vulnerability determination for the wells, the contaminant source inventory, and the water quality information to yield a relative susceptibility for the public water system. Each individual water source is rated for each of the eight-contaminant categories on a scale ranging from no susceptibility to having been documented as having exceeded drinking-water standards.

Vulnerability

Lewes Water uses five wells to provide drinking water to the system. Of these, two wells withdraw water from the unconfined Columbia Group-Pocomoke aquifer. These wells are classified as 'Deep Unconfined' because they are greater than 100 feet deep and no significant clay layers exist between the ground surface and the well's screens. Because these wells are screened deep into the unconfined aquifer they have a medium vulnerability to contamination from processes at the ground surface. As unconfined wells capable of pumping over 50,000 gallons per day, the wellhead protection areas were delineated using a computer model that attempts to simulate ground-water flow. Additionally, three wells withdraw water from the unconfined Columbia Group-Pocomoke aquifer. These wells are classified as 'Shallow Unconfined' because they are less than 100 feet deep and no significant clay layers exist between the ground surface and the well screens. Because these wells are screened at shallower depths within the unconfined aquifer they have a high vulnerability to contamination from processes at the ground surface. As unconfined wells capable of pumping over 50,000 gallons per day, the

wellhead protection areas were delineated using a computer model that attempts to simulate ground-water flow.

Contaminant Inventory

There are three discrete sources of potential contamination in the wellhead protection area. These sites have substantial contaminant potentials that may that these pose a significant threat to the drinking water resources.

The contaminant potential from all discrete sources is as follows:

Low Contaminant Potential for Nutrients
Negligible Contaminant Potential for Pathogens
High Contaminant Potential for Petroleum
Negligible Contaminant Potential for Pesticides
Negligible Contaminant Potential for PCBs
Negligible Contaminant Potential for Other Organic
Negligible Contaminant Potential for Metals
Negligible Contaminant Potential for Other Inorganic

As stated previously, almost 39 percent of the total wellhead protection area for the system contains various urban land uses. There are six other land uses covering the remaining portions percent of the wellfield.

The contaminant potential from all land uses is as follows:

Medium Contaminant Potential for Nutrients
Low Contaminant Potential for Pathogens
Low Contaminant Potential for Petroleum
Low Contaminant Potential for Pesticides
Negligible Contaminant Potential for PCBs
Low Contaminant Potential for Other Organic
Negligible Contaminant Potential for Metals
Low Contaminant Potential for Other Inorganic

Water Quality

No analytical data were available to be used to adjust the susceptibility ratings for this system.

Individual Source Susceptibility

All of the wells for Lewes Water have unique properties, such as depth, location, date drilled, and pumping rate. These influence the delineated area, the vulnerability determination, and the contaminant inventory. This water system has only one wellhead area for the entire system. A Susceptibility Assessment must be performed for each

individual wellhead area/wellfield. A brief discussion for each wellfield follows and the results are further summarized in Appendix B Table 7: Well Specific Susceptibility.

The Lewes wellfield has a **high** susceptibility to nutrients due to land use activities, a moderate susceptibility to pathogens due to land use activities, a **very high** susceptibility to petroleum hydrocarbons due to discrete sources, a moderate susceptibility to pesticides due to land use activities, a low susceptibility to PCBs due to both discrete sources and land use activities, a moderate susceptibility to other organic compounds due to land use activities, a low susceptibility to metals due to both discrete sources and land use activities and, a moderate susceptibility to other inorganic compounds due to land use activities.

System Wide Susceptibility

The individual susceptibilities of each of this system's wells are detailed in the previous section. On a source-by-source basis these wells could have very different susceptibility ratings. When looked at as a group for the entire system some generalized, conservative statements can be made. For instance, if one assumes that the system is only as protected as it's weakest link, then the system-wide susceptibility to any given contaminant category is determined by the most susceptible water source. Using this methodology, a drinking water system with five wells that have a low susceptibility to metals, and one well that is highly susceptible to metals would be rated as having a high susceptibility to that contaminant category. In many instances this could mean that a particular land use overlying an unconfined well could drive the system-wide susceptibility higher. However, it is also possible that a confined-aquifer well that withdraws iron-rich water could dramatically raise this system's susceptibility rating for metals.

As stated, this system-wide susceptibility is a conservative rating that summarizes the most susceptible portions of any system. This susceptibility is the relative likelihood that a public water supply might draw water contaminated at concentrations of concern to public health. This Susceptibility Assessment is a summary of the vulnerability and contaminant potential to raw water supplies. The actual water quality delivered to the consumer is monitored by Public Health's Office of Drinking Water (and for community systems is reported in the Consumer Confidence Reports) and is not part of this assessment.

Overall, Lewes Water has a **high** susceptibility to nutrients, a moderate susceptibility to pathogens, a **very high** susceptibility to petroleum hydrocarbons, a moderate susceptibility to pesticides, a low susceptibility to PCBs, a moderate susceptibility to other organic compounds, a low susceptibility to metals and, a moderate susceptibility to other inorganic compounds. The individual well contributions to the system-wide susceptibility are explained below with a further summary provided in Appendix B Table8: Overall System Susceptibility.

Table 4: Overall Susceptibility Rating

Susceptibility	Contaminant Category
Very High	Petroleum Hydrocarbons
High	Nutrients
Moderate	Pathogens Pesticides Other Organics Other Inorganics
Low	PCBs Metals

References

Andres Scott A., 1994. Ground-Water Recharge Potential for the Laurel, Sharptown, and Trap Pond 7.5-Minute Quadrangles. Delaware Geological Survey.

--, 1994. Geohydrology of the Northern Coastal Area , Delaware. Delaware Geological Survey. Hydrologic Map Series No. 5, Sheet 2.

--, 1994. Stratigraphic and Depositional History of the Post-Choptank Chesapeake Group. Delaware Geological Survey, University of Delaware, ROI #42.

Andres, Scott A. 1986. Geohydrology of the Northern Coastal Area, Delaware. Delaware Geological Survey, University of Delaware, Hydrologic Map Series No.5. Sheet 1 Basic Geohydrologic Data.

Andres, Scott A. and Duffy, Cheryl A. 2003. Wellhead Protection Area Delineations for the Lewes-Rehoboth Beach Area, Delaware. Delaware Geological Survey, University of Delaware, Final Contract Report 03-01.

Andres, Scott A. and Howard, C. Scott, 1995. Ground-Water Recharge Potential for the Millsboro and Harbeson 7.5-Minute Quadrangles. Delaware Geological Survey.

Andres, Scott A. and Keyser, Todd A., March 2002. Ground-Water Recharge Potential for the Pittsville, Delmar, and Hebron 7.5-Minute Quadrangles. Delaware Geological Survey.

Andres, Scott A., and Howard, Scott C. 2000. The Cypress Swamp Formation, Delaware. Delaware Geological Survey, University of Delaware, ROI #62.

Configuration of the Base and Thickness of the Unconfined Aquifer in Southeastern Sussex County, Delaware. Delaware Geological Survey, Open File Report No. 20.

Delaware Department of Health and Social Services, Division of Public Health, 2002 (Revised), State of Delaware Regulations Governing Public Drinking Water Systems.

Groot, Johan J. and Jordan, Robert R. 1999. The Pliocene and Quaternary Deposits of Delaware: Palynology, Ages, and Paleoenvironments. Delaware Geological Survey, University of Delaware, ROI #58.

Johnston, Richard H., June 1973. Hydrology of the Columbia (Pleistocene) Deposits of Delaware: An Appraisal of a Regional Water-Table Aquifer, Bulletin No. 14: Delaware Geological Survey (pg 46-48).

Pickett, Thomas E. 1976. Generalized Geologic Map of Delaware. Delaware Geological Survey, University of Delaware.

Ramsey, Kelvin W. and William S. Schenck, June 1990. Geologic Map of Southern Delaware, Open File Report No. 32: Delaware Geological Survey.

Geologic Map of the Ellendale and Milton Quadrangles, Delaware, Geologic Map Series No. 11: Delaware Geological Survey.

Ramsey, Kelvin W. 1999. Cross-Section of the Pliocene and Quaternary Deposits along the Atlantic Coast of Delaware. Delaware Geological Survey, University of Delaware, Miscellaneous Map #6.

Talley, John H. 1987. Geohydrology of the Southern Coastal Area, Delaware. Delaware Geological Survey, University of Delaware, Hydrologic Map Series No. 7. Sheet 1 Basic Geohydrologic Data.

Talley, John H. 1988. Geohydrology of the Columbia Aquifer. Delaware Geological Survey, University of Delaware, Hydrologic Map Series No. 7. Sheet 2 Geohydrology of the Columbia Aquifer.

Talley, John H. and Andres, Scott A. 1987. Basic Hydrologic Data for Coastal Sussex County, Delaware. Delaware Geological Survey, University of Delaware, Special Publication No. 14.

Appendix A: Maps

Map 1: Base Map for Wellhead Areas

Map 1: Base Map

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Please contact the Source Water Assessment and Protection Program at Phone: (302) 739-4793 or Fax: (302) 739-2296 to request more information regarding this map.

Map 2: Delineation Map for Wellhead Areas

Map 2: Delineation Map

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Please contact the Source Water Assessment and Protection Program at Phone: (302) 739-4793 or Fax: (302) 739-2296 to request more information regarding this map.

Map 3: Discrete Sources Within Wellhead Areas

Map 3: Discrete Source Map

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Please contact the Source Water Assessment and Protection Program at Phone: (302) 739-4793 or Fax: (302) 739-2296 to request more information regarding this map.

Map 4: Land Use Within Wellhead Areas

Map 4: Land Use Map

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Please contact the Source Water Assessment and Protection Program at Phone: (302) 739-4793 or Fax: (302) 739-2296 to request more information regarding this map.

Appendix B: Tables

Table 5: Discrete Sources Within Wellhead Areas

Wellfield	SiteType	Site ID	Nutrients	Pathogens	Petroleum	Pesticides	PCBs	Other Organic	Metals	Other Inorganic
Lewes	Underground Storage Tanks	9000398	N	N	H	N	N	N	N	N
Lewes	Underground Storage Tanks	5000846	N	N	M	N	N	N	N	N
Lewes	Domestic Septic System		L	N	N	N	N	N	N	N

Wellfield Summary	SiteType	Site ID	Nutrients	Pathogens	Petroleum	Pesticides	PCBs	Other Organic	Metals	Other Inorganic
Lewes	All Site Types	All Sites	L	N	H	N	N	N	N	N

System Summary	Nutrients	Pathogens	Petroleum	Pesticides	PCBs	Other Organic	Metals	Other Inorganic
Overall	L	N	H	N	N	N	N	N

Table 6: Land Use Within Wellhead Area

Wellfield	Land Use	Area (acres)	Percent	Nutrients	Pathogens	Petroleum	Pesticides	PCBs	Other Organic	Metals	Other Inorganic
Lewes	Combined Urban	133.12	38.82	N	N	L	L	N	L	N	L
Lewes	Cropland	118.9	34.68	M	N	N	L	N	N	N	L
Lewes	Residential	40.09	11.69	L	L	L	L	N	N	N	N
Lewes	Wetlands	20.97	6.12	N	N	N	N	N	N	N	N
Lewes	Forested	17.52	5.11	N	N	N	L	N	N	N	N
Lewes	Rangeland / Pastureland	12.3	3.59	L	L	N	L	N	N	N	N

Wellfield Summary	Land Use	Area (acres)	Nutrients	Pathogens	Petroleum	Pesticides	PCBs	Other Organic	Metals	Other Inorganic
Lewes	All Land Uses	342.9	M	L	L	L	N	L	N	L

System Summary	Nutrients	Pathogens	Petroleum	Pesticides	PCBs	Other Organic	Metals	Other Inorganic
Overall	M	L	L	L	N	L	N	L

Table 7: Individual Well Susceptibility

Wellfield	DNREC ID	Based On	Vulnerability	Nutrients	Pathogens	Petroleum	Pesticides	PCBs	Other Organic	Metals	Other Inorganic
Lewes	36869	Discrete Sources	High	Moderate Susceptibility	Low Susceptibility	Very High Susceptibility	Low Susceptibility	Low Susceptibility	Low Susceptibility	Low Susceptibility	Low Susceptibility
Lewes	36869	Land Use	High	High Susceptibility	Moderate Susceptibility	Moderate Susceptibility	Moderate Susceptibility	Low Susceptibility	Moderate Susceptibility	Low Susceptibility	Moderate Susceptibility
Lewes	36869	Overall	High	High Susceptibility	Moderate Susceptibility	Very High Susceptibility	Moderate Susceptibility	Low Susceptibility	Moderate Susceptibility	Low Susceptibility	Moderate Susceptibility
Lewes	45267	Discrete Sources	Medium	Low Susceptibility	Very Low Susceptibility	High Susceptibility	Very Low Susceptibility	Very Low Susceptibility	Very Low Susceptibility	Very Low Susceptibility	Very Low Susceptibility
Lewes	45267	Land Use	Medium	Moderate Susceptibility	Low Susceptibility	Low Susceptibility	Low Susceptibility	Very Low Susceptibility	Low Susceptibility	Very Low Susceptibility	Low Susceptibility
Lewes	45267	Overall	Medium	Moderate Susceptibility	Low Susceptibility	High Susceptibility	Low Susceptibility	Very Low Susceptibility	Low Susceptibility	Very Low Susceptibility	Low Susceptibility
Lewes	50389	Discrete Sources	High	Moderate Susceptibility	Low Susceptibility	Very High Susceptibility	Low Susceptibility	Low Susceptibility	Low Susceptibility	Low Susceptibility	Low Susceptibility
Lewes	50389	Land Use	High	High Susceptibility	Moderate Susceptibility	Moderate Susceptibility	Moderate Susceptibility	Low Susceptibility	Moderate Susceptibility	Low Susceptibility	Moderate Susceptibility
Lewes	50389	Overall	High	High Susceptibility	Moderate Susceptibility	Very High Susceptibility	Moderate Susceptibility	Low Susceptibility	Moderate Susceptibility	Low Susceptibility	Moderate Susceptibility
Lewes	55832	Discrete Sources	Medium	Low Susceptibility	Very Low Susceptibility	High Susceptibility	Very Low Susceptibility	Very Low Susceptibility	Very Low Susceptibility	Very Low Susceptibility	Very Low Susceptibility
Lewes	55832	Land Use	Medium	Moderate Susceptibility	Low Susceptibility	Low Susceptibility	Low Susceptibility	Very Low Susceptibility	Low Susceptibility	Very Low Susceptibility	Low Susceptibility
Lewes	55832	Overall	Medium	Moderate Susceptibility	Low Susceptibility	High Susceptibility	Low Susceptibility	Very Low Susceptibility	Low Susceptibility	Very Low Susceptibility	Low Susceptibility
Lewes	55833	Discrete Sources	High	Moderate Susceptibility	Low Susceptibility	Very High Susceptibility	Low Susceptibility	Low Susceptibility	Low Susceptibility	Low Susceptibility	Low Susceptibility
Lewes	55833	Land Use	High	High Susceptibility	Moderate Susceptibility	Moderate Susceptibility	Moderate Susceptibility	Low Susceptibility	Moderate Susceptibility	Low Susceptibility	Moderate Susceptibility
Lewes	55833	Overall	High	High Susceptibility	Moderate Susceptibility	Very High Susceptibility	Moderate Susceptibility	Low Susceptibility	Moderate Susceptibility	Low Susceptibility	Moderate Susceptibility

Wellfield	Based On	Vulnerability	Nutrients	Pathogens	Petroleum	Pesticides	PCBs	Other Organic	Metals	Other Inorganic
Lewes	Discrete Sources	High	Moderate Susceptibility	Low Susceptibility	Very High Susceptibility	Low Susceptibility	Low Susceptibility	Low Susceptibility	Low Susceptibility	Low Susceptibility
Lewes	Land Use	High	High Susceptibility	Moderate Susceptibility	Moderate Susceptibility	Moderate Susceptibility	Low Susceptibility	Moderate Susceptibility	Low Susceptibility	Moderate Susceptibility
Lewes	Overall	High	High Susceptibility	Moderate Susceptibility	Very High Susceptibility	Moderate Susceptibility	Low Susceptibility	Moderate Susceptibility	Low Susceptibility	Moderate Susceptibility

Table 8: Overall System Susceptibility

Based On	Vulnerability	Nutrients	Pathogens	Petroleum	Pesticides	PCBs	Other Organic	Metals	Other Inorganic
Discrete Sources	High	Moderate Susceptibility	Low Susceptibility	Very High Susceptibility	Low Susceptibility	Low Susceptibility	Low Susceptibility	Low Susceptibility	Low Susceptibility
Land Use	High	High Susceptibility	Moderate Susceptibility	Moderate Susceptibility	Moderate Susceptibility	Low Susceptibility	Moderate Susceptibility	Low Susceptibility	Moderate Susceptibility
Overall	High	High Susceptibility	Moderate Susceptibility	Very High Susceptibility	Moderate Susceptibility	Low Susceptibility	Moderate Susceptibility	Low Susceptibility	Moderate Susceptibility

Appendix C: Analytical Data

No Available Analytical Data

Appendix D: Data Sources

Data Sources Used in Source Water Assessments

Type	Organization	Section	Phone Number
Public Water Supply Well Data	Department of Natural Resources and Environmental Control	Water Supply Section	(302) 739-4793
Public Water Supply Well Data	Delaware Geological Survey		(302) 831-2833
Water Quality Data	Department of Health and Social Services	Division of Public Health Office of Drinking Water	(302) 739-5410
Land Use / Land Cover GIS Coverage	Delaware Office of State Planning Coordination		(302) 739-3090
Animal Feedlot Operations	County Conservation Districts	Kent	(302) 697-2600
Animal Feedlot Operations	County Conservation Districts	New Castle	(302) 832-3100
Animal Feedlot Operations	County Conservation Districts	Sussex	(302) 856-3990
Combined Sewer Overflows (CSOs)	Department of Natural Resources and Environmental Control	Surface Water Discharges Section	(302) 739-5731
Dredge Spoil Disposal Areas	Department of Natural Resources and Environmental Control	Soil and Water Conservation	(302) 739-4411
Hazardous Waste Generator Sites	Department of Natural Resources and Environmental Control	Solid and Hazardous Waste Management Branch	(302) 739-3689
Landfills and Dumps	Department of Natural Resources and Environmental Control	Solid and Hazardous Waste Management Branch	(302) 739-3689
Large On-site Septic Systems	Department of Natural Resources and Environmental Control	Ground Water Discharges Section	(302) 739-4762
NPDES Wastewater Outfalls	Department of Natural Resources and Environmental Control	Surface Water Discharges Section	(302) 739-5731
Pesticide Loading, Mixing, and Storage Facilities	Delaware Department of Agriculture	Pesticide Management Section	(302) 739-4811
Salvage Yards	Department of Natural Resources and Environmental Control	Solid and Hazardous Waste Management Branch	(302) 739-3689
Site Investigation and Restoration Branch (SIRB) [Superfund] Sites	Department of Natural Resources and Environmental Control	Site Investigation and Restoration Branch	(302) 395-2600
Sludge Application Sites	Department of Natural Resources and Environmental Control	Surface Water Discharges Section	(302) 739-5731
Spray Irrigation Sites	Department of Natural Resources and Environmental Control	Ground Water Discharges Section	(302) 739-4762
Tire Piles	Department of Natural Resources and Environmental Control	Solid and Hazardous Waste Management Branch	(302) 739-3820
Toxic Release Inventory Sites	Department of Natural Resources and Environmental Control	Air Quality Management Section	(302) 739-4791
Underground Storage Tanks	Department of Natural Resources and Environmental Control	Underground Storage Tank Branch	(302) 395-2500

APPENDIX 4

ANNUAL WATER QUALITY REPORT FOR LEWES

2021 Water Quality Report
LEWES BOARD OF PUBLIC WORKS
107 Franklin Ave., Lewes, DE 19958
PWS ID# DE0000602
May 1, 2021

We are pleased to present this year's Annual Water Quality Report (Consumer Confidence Report) as required by the Safe Drinking Water Act (SDWA). This report is designed to provide details about where your water comes from, what it contains, and how it compares to standards set by regulatory agencies. This report is a snapshot of last year's water quality. We are committed to providing you with this information because informed customers are our best allies.

Spanish (Espanol): Este informe contiene informacion muy importante sobre la calidad de su agua beber. Traduscalo o hable con alguien que lo entienda bien.

Do I need to take special precautions?
Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Water Drinking Hotline (800-426-4791).

Where does my water come from?
Your water is groundwater that comes from the unconfined Columbia Group – Pocomoke Aquifer.

Source water assessment and availability
Our source water assessment is available through: http://delawaresourcewater.org/assessments/

The Source Water Assessment's Summary of Our System's Susceptibility to Contamination
Lewes BPW is exceedingly susceptible to nutrients, metals and other inorganic compounds based on the analytical data. It has a very high susceptibility rating for petroleum hydrocarbons based on discrete sources and the analytical data. It has a high susceptibility for pathogens, pesticides, PCBs, and other organic compound land use activities.

Why are there contaminants in my drinking water?
Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's (EPA) Safe Drinking Water Hotline, 800-426-4791.

The sources of drinking water, both tap water and bottled water, include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. In order to ensure that tap water is safe to drink, EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

Contaminants that may be present in source water include:

- Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

- Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.
- Organic chemical contaminants, including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.
- Radioactive contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities.

How can I get involved?
If you have any questions about this report or concerning your water utility, please contact **Darrin Gordon at 302-645-6228.** We want our valued customers to be informed about their water utility. If you want to learn more, please attend the Lewes Board of Public Works meeting the 4th Wednesday of each month at 4:00 pm at City Hall in Lewes or as posted on the Lewes BPW website at: https://lewesbpw.delaware.gov/

Additional information about lead
If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Lewes Board of Public Works is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at: http://www.epa.gov/safewater/lead

For more information, contact:
Darrin Gordon
107 Franklin Ave.
Lewes, DE 19958
(302) 645-6228

Water Quality Data Tables

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of contaminants in water provided by public water systems. The table below lists all of the drinking water contaminants that we detected during the calendar year of this report. Although many more contaminants were tested, only those substances listed below were found in your water. All sources of drinking water contain some naturally occurring contaminants. At low levels, these substances are generally not harmful in our drinking water. Removing all contaminants would be extremely expensive, and in most cases, would not provide increased protection of public health. A few naturally occurring minerals may actually improve the taste of drinking water and have nutritional value at low levels. Unless otherwise noted, the data presented in this table is from testing done in the calendar year of the report. The EPA or the State requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants do not vary significantly from year to year, or the system is not considered vulnerable to this type of contamination. As such, some of our data, though representative, may be more than one year old. In this table you will find terms and abbreviations that might not be familiar to you. To help you better understand these terms, we have provided the definitions in the tables below.

Definitions

Unit Descriptions	
Term	**Definition**
ppm	ppm: parts per million, or milligrams per liter (mg/L)
ppb	ppb: parts per billion, or micrograms per liter (µg/L)
NA	NA: not applicable
ND	ND: Not detected
NR	NR: Monitoring not required, but recommended.

Important Drinking Water Definitions	
Term	**Definition**
MCLG	MCLG: Maximum Contaminant Level Goal: The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
MCL	MCL: Maximum Contaminant Level: The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
SMCL	SMCL: Suggested Maximum Contaminant Level for aesthetic contaminants.
TT	TT: Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water.
AL	AL: Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
MRDLG	MRDLG: Maximum residual disinfection level goal. The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
MRDL	MRDL: Maximum residual disinfectant level. The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Table of Regulated Contaminants Utilizing 2020 Test Results

Lead and Copper	Units	MCLG	AL	90th Percentile	# sites over AL	Sample Date	Violation	Typical Source of Contamination
Lead	ppb	n/a	15	1.3	0	2019	No	Corrosion of household plumbing systems; erosion of natural deposits
Copper	ppm	1.3	1.3	0.076	0	2019	No	Erosion of natural deposits; leaching from wood preservatives; corrosion of household plumbing system.
Regulated Contaminants	**Units**	**MCLG**	**MCL**	**Highest Level**	**Range**	**Sample Date**	**Violation**	**Typical Source of Contamination**
Total Trihalomethanes (TTHM)	ppb	n/a	80	27	27.2-27.2	2020	No	By-product of drinking water disinfection
Chlorine	ppm	MRDLG 4	MRDL 4	1.39	1.05-1.39	2020	No	Water additive to control microbes.
Fluoride	ppm	2	2	1	0.4014-0.9744	2020	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Nitrate (measured as Nitrogen)	ppm	10	10	5	4.553-5.9462	2020	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Nitrile (measured as Nitrogen)	ppm	1	1	0.1223	0-0.1223	2020	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Atrazine	ppb	3	3	0.028	0.028-0.028	2018	No	Runoff from herbicide used on row crops

Delaware Secondary Drinking Water Standards

Contaminants	Units	State SMCL	Average	Range
Alkalinity	ppm	n/a	56.9	0-56.9
Chloride	ppm	250	26.65	23.7347-30.3193
Sodium	ppm	n/a	39.461	0-39.461
Sulfate	ppm	250	17.20	14.3799-20.3509

Lewes BPW strives to provide continuous care and top-quality water to every tap. We ask that all our customers help us protect our water sources which are the heart of our community, our way of life, and our children's future.

This CCR Report was prepared in collaboration with Delaware Rural Water Association and the Lewes BPW.

APPENDIX 5

REPORT OF SUBSURFACE EXPLORATION AND GEOTECHNICAL CONSULTING SERVICES

May 2018

John D. Hynes & Associates, Inc.

JOHN D. HYNES & ASSOCIATES, INC.

Geotechnical and Environmental Consultants
Monitoring Well Installation
Construction Inspection and Materials Testing

May 30, 2018

Mr. Clifford Mumford, P.E.
Davis, Bowen, & Friedel, Inc.
1 Park Avenue
Milford, Delaware 19963

Re: Report of Subsurface Exploration and Geotechnical Consulting Services
Mitchell Farm
Lewes, Delaware
Project No.: JDH-10/18/226

Dear Mr. Mumford:

John D. Hynes & Associates, Inc. has completed the authorized infiltration testing, and geotechnical consulting services for the Mitchell Farm project located in Lewes, Delaware. Our services were performed, generally, in accordance with our contract dated April 24, 2018.

This report describes the exploration methods employed, and exhibits the data obtained. We include soil boring logs, and the field infiltration test data.

We appreciate the opportunity to be of service to you. If you have any questions regarding the contents of this report or if we may be of further assistance, please contact our office.

Respectfully,

JOHN D. HYNES & ASSOCIATES, INC.

Calissa J. Johnston
Staff Engineer

Jason A. Lindsey, P.E.
Project Engineer

John D. Hynes, P.E.
President

JASON A. LINDSEY LICENSE No. 19816 DELAWARE PROFESSIONAL ENGINEER

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REPORT OF
SUBSURFACE EXPLORATION
AND
GEOTECHNICAL CONSULTING SERVICES

MITCHELL FARM
LEWES, DELAWARE

PREPARED FOR
DAVIS, BOWEN, & FRIEDEL, INC.

MAY 30, 2018
PROJECT NO.: JDH-10/18/226

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HYNES

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PURPOSE AND SCOPE

The subsurface exploration study was performed to evaluate the subsurface conditions with respect to the following:

1. Soil and groundwater conditions at the boring locations selected by DBF;
2. Infiltration test results for boring locations B-1 through B-18; and
3. Estimated seasonal high groundwater levels at the test boring locations.

The boring logs present the estimated (visual) soil classifications in accordance with the USCS and USDA soil classification systems. Refer to the boring log sheets in the Appendix for the subsurface conditions at each boring location.

EXISTING SITE CONDITIONS

As shown on the Project Location Map (Drawing JDH-10/18/226-A) in the Appendix, the project site is located near the northeast corner of the intersection of Kings Highway and Gills Neck Road in Lewes, Delaware. At the time of our field work, the project site was a fallow farmfield. The project is located in a suburban area and is generally surrounded by residential developments. Topographically, the project site is relatively flat. Ground surface elevations at the site from EL. 19.2 to El. 22.0. Elevations were provided by DBF, Inc.

PROJECT CHARACTERISTICS

The proposed project includes the construction of a residential subdivision with stormwater management ponds at the locations shown on the Soil Boring Plan provided by DBF. Infiltration testing was requested. The boring locations are shown on the Boring Location Plan (JDH-10/18/226-B) in the Appendix. The Plan shows the subdivision streets, building lots and stormwater management structure locations.

FIELD EXPLORATION AND STUDY

In order to determine the nature of the subsurface conditions at the site, 18 test borings, designated as B-1 through B-18, were drilled at the approximate locations shown on our Boring Location Plan (Drawing No.: JDH-10/18/226-B) in the Appendix. A track-mounted GeoProbe 7822 DT drill rig was used to drill test borings B-1 through B-6 and B-10 to B-15 to depths of 15.5 feet. A hand auger was used to drill test borings B-7 through B-9 and B-16 through B-18 to depths of 15 feet. Infiltration tests were completed at all boring locations as requested by DBF. Single ring, falling head, infiltration tests were completed in companion borings adjacent to borings B-1 through B-18.

Soil sampling and testing were carried out in accordance with ASTM Specification D-1586. A brief description of our field procedures is included in the Appendix. The results of all boring and sampling operations are shown on the boring logs.

Samples of the subsurface soils were examined by our engineering staff and were visually classified in accordance with the USDA Classification System (USDA) and the Unified Soil Classification System (USCS). The estimated USDA descriptions and symbols appear on the description column of the boring logs and keys to the system's nomenclature is provided in the Appendix of this report. The USCS system nomenclature (SP. SP-SM, SM and ML, etc.) is, also, noted on the log sheets. Also included are reference sheets, which define the USDA and USCS terms and symbols used on the boring logs. Additionally, the Munsell soil color and color code is provided for each stratum.

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We note that the test boring records represent our interpretation of the field data based on visual examination and selected soil classification tests. Indicated interfaces between materials may be gradual.

The laboratory at Hynes & Associates performed five Sieve Analysis tests on selected boring samples. The test results are presented in the remarks column of the test boring logs.

SUBSURFACE CONDITIONS

Referring to the boring logs, note that we encountered approximately 6 to 24 inches of organic bearing soil at the boring locations. Other thicknesses of organic bearing soils, or other materials may be located at other locations on site.

Below the organic bearing soil horizon, the soils layers were visually classified in accordance with the USCS and USDA classification systems. We encountered layers of Clayey SILTs (ML, Silty Clay Loam and Silt Loam), SANDs (SP, Sand), and Silty SANDs (SM, Sandy loam and Loamy sand) to boring termination depths.

Groundwater was encountered during drilling operations to approximately 14 feet. Groundwater elevations may vary at other times during the year depending upon the amount of local precipitation and the extent of local surface development.

INFILTRATION TESTING

Single ring, falling head infiltration tests were performed at locations B-1 through B-18. The testing was completed in general accordance with DNREC guidelines. The test depths were assigned by DBF, Inc. The test location, infiltration test depth, average measured infiltration rates and last hour infiltration rates are summarized in the table below:

Table 1: Summary of Infiltration Test Results

Test Boring Location	Depth to Groundwater (ft.)	Ground Surface Elevation	Estimated Seasonal High Groundwater (ft.)	Elevation of Seasonal High Groundwater (ft.)	Infiltration Test Depth (ft.)	K_m (in./hr.) Time Weighted Average	K_m (in./hr.) Last Test Hour
SB-1	14	20.30	13	6.30	7.60	8.40	3.60
SB-2	14	21.41	13	7.41	7.70	20.25	18.36
SB-3	14	21.90	14	7.90	7.95	28.59	19.44
SB-4	14	21.36	13	7.36	8.40	5.91	1.20
SB-5	14	21.96	14	7.96	7.70	3.66	1.56
SB-6	14	20.09	13	6.09	7.70	8.34	6.60
SB-7	14	21.81	13	7.81	9.50	11.19	4.68
SB-8	14	22.04	14	8.04	9.60	7.47	3.48
SB-9	>15	20.72	14	6.72	7.80	5.40	1.80
SB-10	14	19.85	13	5.85	8.10	1.20	1.20
SB-11	14	20.41	13	7.41	8.00	4.35	2.40
SB-12	14	21.67	13	7.67	7.60	13.35	3.60

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Test Boring Location	Depth to Groundwater (ft.)	Ground Surface Elevation	Estimated Seasonal High Groundwater (ft.)	Elevation of Seasonal High Groundwater (ft.)	Infiltration Test Depth (ft.)	K_m (in./hr.) Time Weighted Average	K_m (in./hr.) Last Test Hour
SB-13	14	20.83	13	6.83	7.35	10.47	2.16
SB-14	14	19.15	12	5.15	8.00	14.40	4.80
SB-15	14	19.20	12	5.20	8.00	10.65	4.80
SB-16	13	19.46	12	5.46	8.60	96.00	96.00
SB-17	13	18.50	12	5.50	7.80	11.13	6.24
SB-18	13	22.0	12	9.00	8.10	1.35	0.60

*NE: Not Encountered

Refer to the "Infiltration Data Table" and "Single Ring Infiltration" test procedures in the Appendix for additional information regarding the infiltration tests.

REMARKS

This report has been prepared solely and exclusively for Davis, Bowen, & Friedel, Inc. to provide guidance to design professionals in developing stormwater management plans for the Mitchell Farm project located in Lewes, Delaware. It has not been developed to meet the needs of others, and application of this report for other than its intended purpose could result in substantial difficulties. The Consulting Engineer cannot be held accountable for any problems which occur due to the application of this report to other than its intended purpose. This report in its entirety should be attached to the project specifications.

These analyses are, of necessity, based on the concepts made available to us at the time of the writing of this report, and on-site conditions, surface and subsurface that existed at the time the exploratory borings were drilled. Further assumption has been made that the limited exploratory borings, in relation both to the areal extent of the site and to depth, are representative of conditions across the site.

Our professional services have been performed, our findings obtained and our recommendations prepared in accordance with generally accepted engineering principles and practices.

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APPENDIX

1. Investigative Procedures
2. Project Location Map
3. Infiltration Test Location Plan
4. Infiltration Test Results
5. Single Ring Falling Head Infiltration Test Procedures
6. Unified Soil Classification Sheet
7. USDA Soil Classification Sheet
8. Field Classification Sheet
9. Information Sheet

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HAND AUGER SOIL TEST BORINGS

Test borings were conducted using a hand auger. The auger is manually advanced by rotating the shaft of the auger. The auger is withdrawn at short intervals for inspection of soils collected in the auger head. Soil samples are taken when soil conditions are noted to change. The soil descriptions for each boring are presented on the boring logs in the Appendix.

SOIL CLASSIFICATION

Soil classifications provide a general guide to the engineering properties of various soil types and enable the engineer to apply his past experience to current problems. In our investigation, jar samples obtained during drilling operations are examined in our laboratory and visually classified by the geotechnical engineer in accordance with ASTM Specification D-2488. The soils are classified according to the AASHTO or Unified Classification System (ASTM D-2487). Each of these classification systems and the in-place physical soil properties provides an index for estimating the soil's behavior.

SOIL TEST BORINGS

Soil drilling and sampling operations were performed in accordance with ASTM Specification D-1586. The borings were advanced by mechanically turning continuous hollow stem auger flights into the ground. At regular intervals, samples were obtained with a standard 1.4 inch I.D., 2.0 inch O.D. splitspoon sampler. The sampler was first seated 6 inches to penetrate any loose cuttings and then driven an additional foot with blows of a 140-pound hammer falling 30 inches. The number of hammer blows required to drive the sampler the final foot is the "Standard Penetration Resistance". The penetration resistance, when properly evaluated, is an index to the soil's strength, density and behavior under applied loads. The soil descriptions and penetration resistances for each boring are presented on the Test Boring Records in the Appendix.

SIEVE ANALYSIS TEST

Gradational analysis tests were performed to determine the particle size and distribution of the samples tested. The grain size distribution of soils coarser than a No. 200 sieve is determined by passing the sample through a standard set of nested sieves. The percentage of materials passing the No. 200 sieve is determined by washing the material over a No. 200 sieve. These tests are in accordance with ASTM D-421, D-422 and D-1140. The results are presented in the Appendix to our report.

NATURAL MOISTURE TEST

Portions from representative soil samples obtained during drilling operations were selected for Natural Moisture Content testing. The Natural Moisture Content Test determines the moisture content of soils by drying the sample in an oven with a standard drying temperature of 110 °C. The loss of mass drying the sample, is used to determine the moisture content into the soil. The natural moisture content of the sample is calculated in percentage as the weight of water divided by the weight of dry soil times 100. The natural moisture content of soils is determined in accordance with ASTM Specification D-2216.

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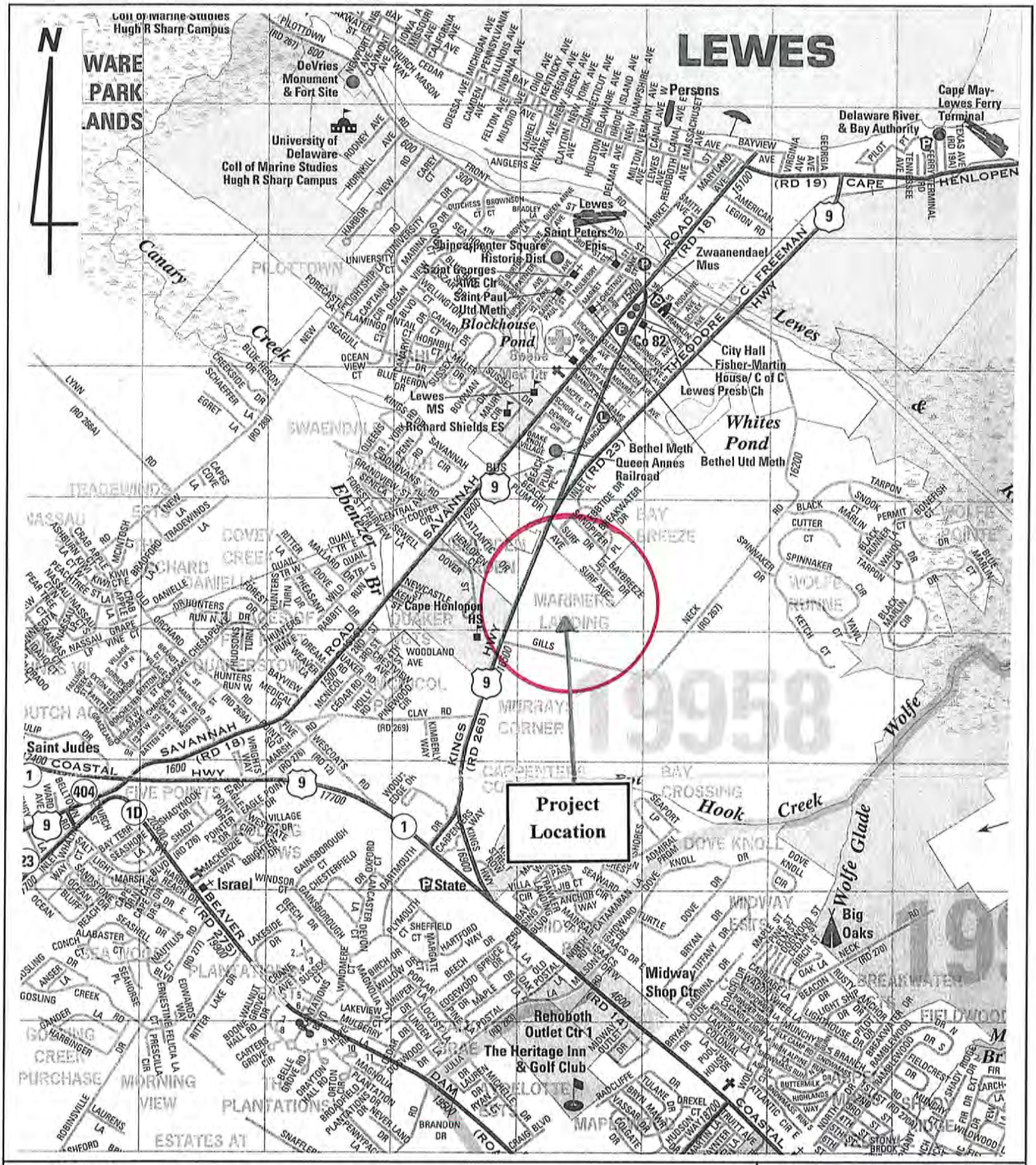
N
LEWES
Project Location
Coll of Marine Studies
Hugh R Sharp Campus
WARE
PARK
LANDS
DeVries
Monument
& Fort Site
University of
Delaware
Coll of Marine Studies
Hugh R Sharp Campus
Persons
Delaware River
& Bay Authority
Cape May-
Lewes Ferry
Terminal
Lewes
Saint Peters
Epis
Shipcarpenter Square
Historic Dist
Saint Georges
Meth Ch
Saint Paul
Utd Meth
Blockhouse
Pond
Zwaanendael
Mus
City Hall
Fisher-Martin
House/ C of C
Lewes Presb Ch
Co 82
Whites
Pond
Bethel Meth
Queen Annes
Railroad
Bethel Utd Meth
Lewes
MS
Richard Shields ES
Cape Henlopen
HS
Saint Judes
Israel
State
Big
Oaks
Midway
Shop Ctr
Rehoboth
Outlet Ctr 1
The Heritage Inn
& Golf Club
Canary
Creek
Ebenezer
Br
Hook
Creek
Wolfe
Glade
Wolfe
Creek
Pilottown
Road
Savannah
Road
Kings
Highway
Coastal
Highway
Beaver
Dam
Road
Cape
Henlopen
(RD 19)
(RD 18)
(RD 268)
(RD 269)
(RD 270)
(RD 271)
(RD 276)
(RD 14)
(RD 23)
(RD 267)
(RD 268A)
(RD 269A)
(RD 19A)
C. Freeman
Hwy
Theodore
Hwy
Gills
Neck
Clay
Rd
Woodland
Ave
Atlantic
Ave
Bayview
Ave
Surf
Ave
Baybreeze
Dr
Spinnaker
Dr
Black
Marlin
Cir
Tarpon
Dr
Snook
Ct
Permit
Ct
Bonefish
Ct
Cutter
Ct
Black
Runner
Ct
Wahoo
La
Dr
Ct
Yawl
Ct
Ketch
Ct
Admiral
Prom
Knoll
Dr
Dove
Knoll
Cir
Seaport
Lp
Crossing
Bay
Breeze
Wolfe
Pointe
Mariners
Landing
Carpenters
Crossing
Dutch
Acres
Five
Points
Windmill
Run
Plantations
Morning
View
Estates at
Purchase
Creek
Gosling
Creek
Harbinger
Dr
Seahorse
Pl
Seashell
Ct
Nautilus
Rd
Conch
Ct
Alabaster
Ct
Anser
La
Gander
La
Rd
Ossling
Ct
Robinsville
Rd
Laurens
La
Ashford
Ba
Snaffler
Rd
Pennypack
La
Brandon
Dr
Craig
Blvd
Ro
Coastal
Hwy
Lewes
Rehoboth
Canal
Rehoboth
Blvd
Delmar
Ave
Virginia
Ave
Georgia
Ave
Maryland
Ave
Massachusetts
Ave
Rhode
Island
Ave
Delaware
Ave
Connecticut
Ave
New
Jersey
Ave
Pennsylvania
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Illinois
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Kentucky
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Oregon
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New York
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Clayton
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Houston
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Milton
Ave
New
Hampshire
Ave
Vermont
Ave
Canal
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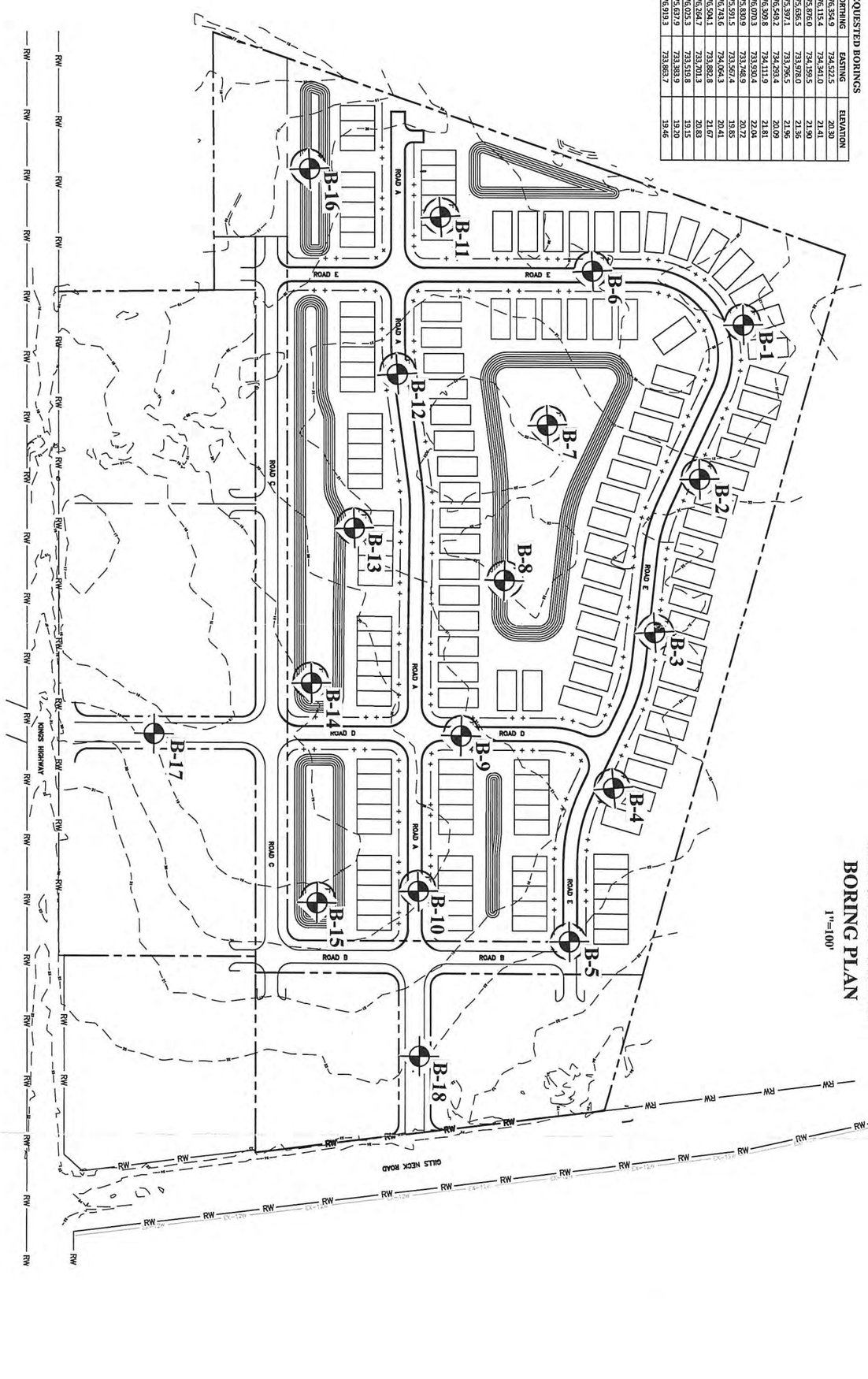
Rehoboth
Ave
Baltimore
Ave
Philadelphia
Ave
Wilmington
Ave
Dover
Ave
Camden
Ave
Odessa
Ave
Michigan
Ave
Felton
Ave
Milford
Ave
Laurel
Ave
Newark
Ave
Church
Way
Cedar
Mason
Clairmont
Ave
Iowa
Ave
Missouri
Ave
California
Ave
Newport
Gap
Pike
Pilottown
(RD 267)
Rodney
Ave
Hornkill
Ave
Carey
Ct
Front
Anglers
Bayview
Ave
Georgia
Ave
Virginia
Ave
Texas
Ave
Pilot
Pt
Ferry
Terminal
Rd
Tennessee
Ave
Ferry
Terminal
Rd
American
Legion
Rd
Smith
Ave
Market
St
Queen
Ave
Lewes
Rd
Harbor
Rd
Hornbill
Ct
Canary
Dr
Creekside
Dr
Schaefer
Dr
Egret
La
Lynn
(RD 268A)
Tradewinds
La
Capes
Cove
Ln
Bradford
Ct
Mcintosh
Ct
Crab Apple
Rd
Ashburn
Ct
Kiwi
Ct
Peachtree
St
Pear Tree
Ct
Grape
Vine
Ct
Orchard
Dr
Old Daniell
Dr
Hunters
Run N
Hunters
Run W
Hudsons
Turn
Chesapeake
Dr
Nassau
Ln
Quail
Tr
Maylard
Dr
Dove
Wild
Run
Pheasant
Run
Rabbit
Dr
Forest
Dr
Ritter
La
Sewell
Dr
Cooper
Cir
Fairview
Dr
Central
Dr
Seneca
St
Grandview
Dr
Queens
Cir
York
Cir
Penn
Rd
Savannah
Cir
Coventry
Cir
Beach
Plum
Dr
Valley
Rd
Abbidge
Dr
Beakwater
Dr
Sandpiper
Dr
Jet
Pl
Surf
Ave
Dr
Baybreeze
Dr
Spinnaker
Dr
Neck
(RD 267)
Gills
Clay
Rd
(RD 269)
Kimberly
Way
Wescoats
(RD 12)
Wrights
Way
Marsh
(RD 276)
Eagle
Point
Dr
Village
Dr
Westgate
Dr
Pointer
Dr
Cir
Shadyhook
Dr
Shady
Dr
Mackenzie
Way
Brighten
Dr
Windsor
Ct
Chesterfield
Dr
Gainsborough
Ct
Dr
Dartmouth
Dr
Kings
Way
Carpenters
Way
Admiral
Prom
Knoll
Dr
Dove
Knoll
Cir
Seaport
Lp
Shores
Dr
Villa
Ct
Jib
Ct
Seaward
Dr
Anchor
Way
Catamaran
Dr
Mainsail
Dr
Turtle
Dove
Bryan
Dr
Tiffany
Dr
Isaacs
Dr
Sabina
Dr
Carriage
La
Wagon Wheel
La
Lantern
La
Colonial
Dr
Pool
La
Dr
Oak
La
Rusty
Anchor
Dr
Beacon
Dr
Light Ship
Dr
Lighthouse
Dr
Pilot
Dr
Breakwater
Dr
Bramblewood
Dr
Fieldcrest
Dr
Shady Ridge
Dr
Munchy
Ct
Br
Fir
Larch
La
Yew
La
Dr
Wildwood
Dr
Ext
Dr
Fir
Dr

REQUESTED BORINGS			
BORING	NORTHING	EASTING	ELEVATION
1	276,554.9	734,522.5	20.30
2	276,115.4	734,341.0	21.41
3	275,876.0	734,199.5	21.90
4	275,686.5	733,978.0	21.36
5	275,397.1	733,796.5	21.96
6	276,548.2	734,293.4	21.09
7	276,309.8	734,111.9	21.81
8	276,109.3	734,032.2	21.64
9	275,829.0	733,748.9	20.72
10	275,591.5	733,567.4	19.85
11	276,743.6	734,064.3	20.41
12	276,504.1	733,882.8	21.67
13	276,264.7	733,701.3	20.83
14	276,025.3	733,519.8	19.15
15	275,637.9	733,383.9	19.20
16	276,919.3	733,883.7	19.46



MITCHELL FARM
BORING PLAN
1"=100'

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Boring Location Plan
Mitchell Farm
Lewes, Delaware

Date: May 16, 2018
Scale: 1 in. ≈ 250 ft.
Drawn: DBF, Inc.
DWG. No.
JDH-10/18/226-B

DAVIS, BOWEN & FRIEDEL, INC.
ARCHITECTS, ENGINEERS & SURVEYORS
SALISBURY, MARYLAND (410) 543-9091
MILFORD, DELAWARE (302) 424-1441

HYNES & ASSOCIATES

LOG OF BORING B-1

Davis, Bowen & Friedel, Inc.
1 Park Avenue
Milford, Delaware 19963

Mitchell Farm

Project No.: JDH-10/18/226

Date Completed: : May 14, 2018
Logged By: : C. Johnston
Drilled By: : B. Jones
Drilling Method: : HSA (Geoprobe 7822 DT)
Total Depth: : 15 feet

Depth in Feet	Surf. Elev. 20.30	DESCRIPTION	GRAPHIC	USCS	Sample No.	Blows per 6 inches	REMARKS
0	20.3	Dark yellowish brown, wet, soft, clayey SILT, with trace fine to medium sand (10 YR 4/6, Silty clay loam)		ML	1	1-1-2-2	Scale 1" ~ 3 feet Approximately 6 inches of organic bearing soil was encountered at the ground surface. Groundwater was encountered at 14 feet during drilling operations. Boring caved in at 8.6 feet.
2	18.3						
		Brownish yellow, wet, medium dense, fine to coarse SAND, with trace silt (10 YR 6/6, Sand)		SP	2	2-5-7	
4	16.3						
6	14.3	Very pale brown, wet to saturated, medium dense, fine to coarse SAND, with trace silt (10 YR 7/3)			3	3-6-9	
8	12.3						
10	10.3			SP	4	3-6-8	
12	8.3				5	3-6-9	
14	6.3				6	4-5-8	
		Boring terminated at 15 feet.					
16	4.3						
18	2.3						
20							

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LOG OF BORING B-2

Davis, Bowen & Friedel, Inc.
1 Park Avenue
Milford, Delaware 19963

Mitchell Farm

Project No.: JDH-10/18/226

Date Completed: : May 14, 2018
Logged By: : C. Johnston
Drilled By: : B. Jones
Drilling Method: : HSA (Geoprobe 7822 DT)
Total Depth: : 15.5 feet

Depth in Feet	Surf. Elev. 21.41	DESCRIPTION	GRAPHIC	USCS	Sample No.	Blows per 6 inches	REMARKS
0	21.41	Dark yellowish brown, wet, very soft clayey SILT, with trace fine to medium sand (10 YR 4/6, Silty clay loam)		ML	1	1-1-1-2	Scale 1" ~ 3 feet Approximately 12 inches of organic bearing soil was encountered at the ground surface. Groundwater was encountered at 14 feet during drilling operations. Boring caved in at 9 feet.
2	19.41						
		Brownish yellow, wet, medium dense, fine to coarse SAND, with trace silt (10 YR 6/6, Sand)		SP	2	4-5-7	
4	17.41						
6	15.41	Very pale brown, wet to saturated, medium dense, fine to coarse SAND, with trace silt (10 YR 7/3, Sand)			3	4-7-9	
8	13.41						
10	11.41			SP	4	4-4-8	
12	9.41				5	3-7-9	
14	7.41				6	3-6-8	
16	5.41	Boring terminated at 15.5 feet.					
18	3.41						
20							

HYNES & ASSOCIATES

LOG OF BORING B-3

Davis, Bowen & Friedel, Inc.
1 Park Avenue
Milford, Delaware 19963

Mitchell Farm

Project No.: JDH-10/18/226

Date Completed: : May 14, 2018
Logged By: : C. Johnston
Drilled By: : B. Jones
Drilling Method: : HSA (Geoprobe 7822 DT)
Total Depth: : 15.5 feet

Depth in Feet	Surf. Elev. 21.90	DESCRIPTION	GRAPHIC	USCS	Sample No.	Blows per 6 inches	REMARKS
0	21.9	Brown, wet, soft clayey SILT, with trace fine to medium sand (10 YR 4/3, Silt loam)		ML	1	1-1-2-2	Scale 1" ~ 3 feet Approximately 24 inches of organic bearing soil was encountered at the ground surface. Groundwater was encountered at 14 feet during drilling operations.
2	19.9						
		Brown, wet, medium dense, fine to coarse SAND, with trace silt (10 YR 5/3)		SP	2	3-5-7	
4	17.9						
6	15.9	Very pale brown, wet to saturated, medium dense, fine to coarse SAND, with trace silt (10 YR 7/3, Sand)		SP	3	3-6-6	
8	13.9						
					4	4-5-8	
10	11.9						
					5	3-7-9	
12	9.9						
					6	3-7-8	
14	7.9						
16	5.9	Boring terminated at 15.5 feet.					
18	3.9						
20							

HYNES & ASSOCIATES

LOG OF BORING B-4

Davis, Bowen & Friedel, Inc.
1 Park Avenue
Milford, Delaware 19963

Mitchell Farm

Project No.: JDH-10/18/226

Date Completed: : May 14, 2018
Logged By: : C. Johnston
Drilled By: : B. Jones
Drilling Method: : HSA (Geoprobe 7822 DT)
Total Depth: : 15.5 feet

Depth in Feet	Surf. Elev. 21.36	DESCRIPTION	GRAPHIC	USCS	Sample No.	Blows per 6 inches	REMARKS
0	21.36	Dark yellowish brown, wet, soft clayey SILT, with trace fine to medium sand (10 YR 4/6, Silt loam)		ML	1	1-1-2-2	Scale 1" ~ 3 feet Approximately 12 inches of organic bearing soil was encountered at the ground surface.
2	19.36	Brownish yellow, wet, medium dense, fine to coarse SAND, with trace silt (10 YR 6/6, Sand)		SP	2	2-4-8	Groundwater was encountered at 14 feet during drilling operations. Boring caved in at 8.8 feet.
4	17.36						Laboratory Test Results Sample No. 4 From 9 to 10.5 feet Sieve Analysis Sieve Size / Passing % 3/8" 100 No. 4 99.4 No. 10 87.4 No. 20 70.3 No. 40 46.7 No. 60 19.6 No. 100 3.8 No. 200 2.2 Natural Moisture = 3.6%
6	15.36	Very pale brown, wet to saturated, medium dense, fine to coarse SAND, with trace silt (10 YR 8/3, Sand)		SP	3	4-5-8	
8	13.36						
10	11.36				4	3-6-9	
12	9.36				5	4-8-10	
14	7.36				6	5-5-7	
16	5.36	Boring terminated at 15.5 feet.					
18	3.36						
20							

HYNES & ASSOCIATES

LOG OF BORING B-5

Davis, Bowen & Friedel, Inc.
1 Park Avenue
Milford, Delaware 19963

Mitchell Farm

Project No.: JDH-10/18/226

Date Completed: : May 14, 2018
Logged By: : C. Johnston
Drilled By: : B. Jones
Drilling Method: : HSA (Geoprobe 7822 DT)
Total Depth: : 15.5 feet

Depth in Feet	Surf. Elev. 21.96	DESCRIPTION	GRAPHIC	USCS	Sample No.	Blows per 6 inches	REMARKS
0	21.96	Dark yellowish brown, wet, soft clayey SILT, with trace fine to coarse sand (10 YR 4/4, Silt loam)		ML	1	1-1-2-2	Scale 1" ~ 3 feet Approximately 18 inches of organic bearing soil was encountered at the ground surface.
2	19.96	Brownish yellow, wet, medium dense, fine to coarse SAND, with trace silt (10 YR 6/6, Sand)		SP	2	2-4-8	Groundwater was encountered at 14 feet during drilling operations. Boring caved in at 9 feet.
4	17.96	Light yellowish brown, wet, medium dense, fine to coarse SAND, with trace silt (10 YR 6/4, Sand)		SP	3	3-5-7	Laboratory Test Results Sample No. 3 From 6 to 7.5 feet Sieve Analysis Sieve Size / Passing % 3/8" 100 No. 4 99.4 No. 10 94.5 No. 20 85.5 No. 40 72.2 No. 60 53.5 No. 100 8.9 No. 200 1.4 Natural Moisture = 6.7%
6	15.96						
8	13.96	White, wet, medium dense, fine to coarse SAND, with trace silt (10 YR 8/1, Sand)		SP	4	3-7-9	
10	11.96						
12	9.96				5	4-8-9	
14	7.96	Very pale brown, wet to saturated, fine to coarse SAND, with trace silt (10 YR 7/3, Sand)		SP	6	4-5-6	
16	5.96	Boring terminated at 15.5 feet.					
18	3.96						
20							

HYNES & ASSOCIATES

LOG OF BORING B-6

Davis, Bowen & Friedel, Inc.
1 Park Avenue
Milford, Delaware 19963

Mitchell Farm

Project No.: JDH-10/18/226

Date Completed: : May 14, 2018
Logged By: : C. Johnston
Drilled By: : B. Jones
Drilling Method: : HSA (Geoprobe 7822 DT)
Total Depth: : 15.5 feet

Depth in Feet	Surf. Elev. 20.09	DESCRIPTION	GRAPHIC	USCS	Sample No.	Blows per 6 inches	REMARKS
0	20.09	Dark yellowish brown, wet, soft clayey SILT, with trace fine to medium sand (10 YR 4/6, Silty clay loam)		ML	1	1-1-2-2	Scale 1" ~ 3 feet Approximately 18 inches of organic bearing soil was encountered at the ground surface. Groundwater was encountered at 14 feet during drilling operations. Boring caved in at 9 feet.
2	18.09						
		Light yellowish brown, wet, medium dense, fine to coarse SAND, with trace silt (10 YR 6/3)			2	4-5-7	
4	16.09			SP			
6	14.09				3	4-7-9	
8	12.09						
		Very pale brown, wet to saturated, medium dense, fine to coarse SAND, with trace silt (10 YR 7/3, Sand)			4	4-4-8	
10	10.09						
				SP	5	3-7-9	
12	8.09						
14	6.09				6	3-6-8	
16	4.09	Boring terminated at 15.5 feet.					
18	2.09						
20							

HYNES & ASSOCIATES

LOG OF BORING B-7

Davis, Bowen & Friedel, Inc.
1 Park Avenue
Milford, Delaware 19963

Mitchell Farm

Project No.: JDH-10/18/226

Date Completed: : May 14, 2018
Logged By: : C. Johnston
Drilled By: : B. Hynes
Drilling Method: : Hand Auger
Total Depth: : 15 feet

Depth in Feet	Surf. Elev. 21.81	DESCRIPTION	GRAPHIC	USCS	Sample No.	REMARKS
0	21.81	Dark yellowish brown, wet, clayey SILT, with trace fine to medium sand (10 YR 4/6, Silty clay loam)		ML	1	Scale 1" ~ 3 feet Approximately 14 inches of organic bearing soil was encountered at the ground surface. Groundwater was encountered at 14 feet during augering operations.
2	19.81					
4	17.81	Brownish yellow, wet, fine to coarse SAND, with trace silt (10 YR 6/6, Sand)		SP	2	
6	15.81				3	
8	13.81	Very pale brown, wet to saturated, fine to coarse SAND, with trace silt (10 YR 7/3, Sand)		SP	4	
10	11.81					
12	9.81				5	
14	7.81					
		Boring terminated at 15 feet.				
16	5.81					
18	3.81					
20						

HYNES & ASSOCIATES

LOG OF BORING B-8

Davis, Bowen & Friedel, Inc.
1 Park Avenue
Milford, Delaware 19963

Mitchell Farm

Project No.: JDH-10/18/226

Date Completed: : May 14, 2018
Logged By: : C. Johnston
Drilled By: : B. Hynes
Drilling Method: : Hand Auger
Total Depth: : 15.5 feet

Depth in Feet	Surf. Elev. 22.04	DESCRIPTION	GRAPHIC	USCS	Sample No.	REMARKS
0	22.04	Brown, wet, fine to coarse SAND, with trace to little silt (10 YR 5/3, Loamy sand)		ML	1	Scale 1" ~ 3 feet Approximately 12 inches of organic bearing soil was encountered at the ground surface. Groundwater was encountered at 14 feet during augering operations. Laboratory Test Results Sample No. 5 From 9 to 10 feet Sieve Analysis Sieve Size / Passing % No. 10 100 No. 20 99.6 No. 40 98.8 No. 60 70.5 No. 100 11.1 No. 200 7.6 Natural Moisture = 11.3%
2	20.04					
4	18.04	Pale brown, wet, fine to coarse SAND, with trace silt (10 YR 6/3, Sand)		SP	2	
6	16.04	Very pale brown, wet, fine to coarse SAND, with trace silt (10 YR 7/3, Sand)		SP	3	
8	14.04	Light yellowish brown, wet, fine to coarse SAND, with trace silt (10/ YR 6/4, Sand)		SP	4	
10	12.04	Brownish yellow, wet, fine to coarse SAND, with trace silt (10 YR 6/6, Sand)		SP	5	
12	10.04	Very pale brown, wet to saturated, fine to coarse SAND, with trace silt (10 YR 8/3, Sand)		SP	6	
14	8.04				7	
16	6.04	Boring terminated at 15.5 feet.				
18	4.04					
20						

HYNES & ASSOCIATES

LOG OF BORING B-9

Davis, Bowen & Friedel, Inc.
1 Park Avenue
Milford, Delaware 19963

Mitchell Farm

Project No.: JDH-10/18/226

Date Completed: : May 14, 2018
Logged By: : C. Johnston
Drilled By: : B. Hynes
Drilling Method: : Hand Auger
Total Depth: : 15 feet

Depth in Feet	Surf. Elev. 20.72	DESCRIPTION	GRAPHIC	USCS	Sample No.	REMARKS
0	20.72	Dark yellowish brown, wet, clayey SILT, with trace fine to medium sand (10 YR 4/6, Silt loam)		ML	1	Scale 1" ~ 3 feet Approximately 14 inches of organic bearing soil was encountered at the ground surface. Groundwater was not encountered during augering operations.
2	18.72					
		Brownish yellow, wet, fine to coarse SAND, with trace silt (10 YR 6/6, Sand)		SP	2	
4	16.72					
		Very pale brown, wet, fine to coarse SAND, with trace silt (10 YR 7/4, Sand)		SP	3	
6	14.72					
8	12.72	Very pale brown, wet to saturated, fine to coarse SAND, with trace silt (10 YR 7/3, Sand)		SP	4	
10	10.72					
12	8.72				5	
14	6.72					
		Boring terminated at 15 feet.				
16	4.72					
18	2.72					
20						

HYNES & ASSOCIATES

LOG OF BORING B-10

Davis, Bowen & Friedel, Inc.
1 Park Avenue
Milford, Delaware 19963

Mitchell Farm

Project No.: JDH-10/18/226

Date Completed: : May 14, 2018
Logged By: : C. Johnston
Drilled By: : B. Jones
Drilling Method: : HSA (Geoprobe 7822 DT)
Total Depth: : 15.5 feet

Depth in Feet	Surf. Elev. 19.85	DESCRIPTION	GRAPHIC	USCS	Sample No.	Blows per 6 inches	REMARKS
0	19.85	Yellowish brown, wet, soft clayey SILT, with trace fine to medium sand (10 YR 5/6, Silt loam)		ML	1	4-3-2-2	Scale 1" ~ 3 feet Approximately 12 inches of organic bearing soil was encountered at the ground surface. Groundwater was encountered at 14 feet during drilling operations. Boring caved in at 10 feet. Laboratory Test Results Sample No. 6 From 14 to 15.5 feet Sieve Analysis Sieve Size / Passing % No. 10 100 No. 20 99.2 No. 40 98.5 No. 60 88.4 No. 100 11.3 No. 200 2.6 Natural Moisture = 8.3%
2	17.85	Yellow, wet, medium dense, fine to coarse SAND, with trace silt (10 YR 7/6, Sand)		SP	2	1-4-8	
4	15.85						
6	13.85	Very pale brown, wet, medium dense, fine to coarse SAND, with trace silt (10 YR 7/4, Sand)		SP	3	4-10-9	
8	11.85						
10	9.85				4	3-8-8	
12	7.85	Very pale brown, wet to saturated, medium dense, fine to coarse SAND, with trace silt (10 YR 7/3, Sand)		SP	5	6-10-11	
14	5.85				6	7-7-6	
16	3.85	Boring terminated at 15.5 feet.					
18	1.85						
20							

HYNES & ASSOCIATES

LOG OF BORING B-11

Davis, Bowen & Friedel, Inc.
1 Park Avenue
Milford, Delaware 19963

Mitchell Farm

Project No.: JDH-10/18/226

Date Completed: : May 14, 2018
Logged By: : C. Johnston
Drilled By: : B. Jones
Drilling Method: : HSA (Geoprobe 7822 DT)
Total Depth: : 15.5 feet

Depth in Feet	Surf. Elev. 20.41	DESCRIPTION	GRAPHIC	USCS	Sample No.	Blows per 6 inches	REMARKS
0	20.41	Dark yellowish brown, wet, soft clayey SILT, with trace fine to medium sand (10 YR 5/6, Silty clay loam)		ML	1	1-1-2-3	Scale 1" ~ 3 feet Approximately 12 inches of organic bearing soil was encountered at the ground surface. Groundwater was encountered at 14 feet during drilling operations. Boring caved in at 8.8 feet.
2	18.41						
		Brownish yellow, wet, medium dense, fine to coarse SAND, with trace silt (10 YR 6/6, Sand)			2	4-6-6	
4	16.41			SP			
6	14.41				3	4-7-8	
8	12.41						
		Very pale brown, wet to saturated, medium dense, fine to coarse SAND, with trace silt (10 YR 7/3, Sand)			4	3-5-8	
10	10.41						
				SP	5	3-6-9	
12	8.41						
14	6.41				6	3-5-7	
16	4.41	Boring terminated at 15.5 feet.					
18	2.41						
20							

HYNES & ASSOCIATES

LOG OF BORING SB-12

Davis, Bowen & Friedel, Inc.
1 Park Avenue
Milford, Delaware 19963

Mitchell Farm

Project No.: JDH-10/18/226

Date Completed: : May 14, 2018
Logged By: : C. Johnston
Drilled By: : B. Hynes
Drilling Method: : Hand Auger
Total Depth: : 15 feet

Depth in Feet	Surf. Elev. 21.67	DESCRIPTION	GRAPHIC	USCS	Sample No.	REMARKS
0	21.67	Dark yellowish brown, wet, clayey SILT, with trace fine to medium sand (10 YR 4/6, Silty clay loam)		ML	1	Scale 1" ~ 3 feet Approximately 16 inches of organic bearing soil was encountered at the ground surface. Groundwater was encountered at 14 feet during augering operations.
2	19.67				2	
		Yellowish brown, wet, fine to coarse SAND, with trace silt (10 YR 5/6, Sand)		SP	3	
4	17.67	Brownish yellow, wet, fine to coarse SAND, with trace silt (10 YR 6/6, Sand)		SP	4	
6	15.67				5	
8	13.67	Very pale brown, wet to saturated, fine to coarse SAND, with trace silt (10 YR 8/3, Sand)		SP	6	
10	11.67					
12	9.67				7	
14	7.67					
		Boring terminated at 15 feet.				
16	5.67					
18	3.67					
20						

HYNES & ASSOCIATES

LOG OF BORING B-13

(Page 1 of 1)

Davis, Bowen & Friedel, Inc.
1 Park Avenue
Milford, Delaware 19963

Mitchell Farm

Project No.: JDH-10/18/226

Date Completed: : May 14, 2018
Logged By: : C. Johnston
Drilled By: : B. Hynes
Drilling Method: : Hand Auger
Total Depth: : 15 feet

Depth in Feet	Surf. Elev. 20.83	DESCRIPTION	GRAPHIC	USCS	Sample No.	REMARKS
0	20.83	Dark yellowish brown, wet, clayey SILT, with trace fine to medium sand (10 YR 4/6, Silty clay loam)		ML	1	Scale 1" ~ 3 feet Approximately 12 inches of organic bearing soil was encountered at the ground surface. Groundwater was encountered at 14 feet during augering operations.
2	18.83	Yellowish brown, wet, fine to coarse SAND, with trace silt (10 YR 5/6, Sand)		SP	2	
4	16.83	Brownish yellow, wet, fine to coarse SAND, with trace silt (10 YR 6/6, Sand)		SP	3	
6	14.83	Very pale brown, wet, fine to coarse SAND, with trace silt (10 YR 8/2, Sand)		SP	4	
8	12.83					
10	10.83				5	
12	8.83	Very pale brown, wet to saturated, fine to coarse SAND, with trace silt (10 YR 7/3)		SP	6	
14	6.83					
		Boring terminated at 15 feet.				
16	4.83					
18	2.83					
20						

HYNES & ASSOCIATES

LOG OF BORING B-14

Davis, Bowen & Friedel, Inc.
1 Park Avenue
Milford, Delaware 19963

Mitchell Farm

Project No.: JDH-10/18/226

Date Completed: : May 14, 2018
Logged By: : C. Johnston
Drilled By: : B. Jones
Drilling Method: : Hand Auger
Total Depth: : 15 feet

Depth in Feet	Surf. Elev. 19.15	DESCRIPTION	GRAPHIC	USCS	Sample No.	REMARKS
0	19.15	Dark yellowish brown, wet, clayey SILT, with trace fine to medium sand (10 YR 4/4, Silt loam)		ML	1	Scale 1" ~ 3 feet Approximately 12 inches of organic bearing soil was encountered at the ground surface. Groundwater was encountered at 14 feet during augering operations.
2	17.15	Dark yellowish brown, wet, fine to coarse SAND, with little silt, trace clay (10 YR 4/6, Sandy loam)		SM	2	
4	15.15	Brownish yellow, wet, fine to coarse SAND, with trace silt (10 YR 6/6, Sand)		SP	3	
6	13.15				4	
8	11.15					
10	9.15	Very pale brown, wet to saturated, fine to coarse SAND, with trace silt (10 YR 7/3)		SP	5	
12	7.15				6	
14	5.15					
		Boring terminated at 15 feet.				
16	3.15					
18	1.15					
20						

HYNES & ASSOCIATES

LOG OF BORING B-15

Davis, Bowen & Friedel, Inc.
1 Park Avenue
Milford, Delaware 19963

Mitchell Farm

Project No.: JDH-10/18/226

Date Completed: : May 14, 2018
Logged By: : C. Johnston
Drilled By: : B. Jones
Drilling Method: : HSA (Geoprobe 7822 DT)
Total Depth: : 15.5 feet

Depth in Feet	Surf. Elev. 19.20	DESCRIPTION	GRAPHIC	USCS	Sample No.	Blows per 6 inches	REMARKS
0	19.2	Brown, wet, very loose, fine to coarse SAND, with trace silt (10 YR 5/3, Sand)		SP	1	2-2-3-2	Scale 1" ~ 3 feet Approximately 18 inches of organic bearing soil was encountered at the ground surface.
2	17.2						
		Yellowish brown, wet, very loose, fine to coarse SAND, with trace silt (10 YR 5/6, Sand)		SP	2	2-2-3	Groundwater was encountered at 14 feet during drilling operations. Boring caved in at 9 feet. ÿ
4	15.2						
		Very pale brown, wet, medium dense, fine to coarse SAND, with trace silt (10 YR 8/3, Sand)		SP	3	4-7-8	Laboratory Test Results Sample No. 2 From 3 to 4.5 feet Sieve Analysis Sieve Size / Passing % No. 4 100 No. 10 98.7 No. 20 92.3 No. 40 78.2 No. 60 51.6 No. 100 3.4 No. 200 1.4 Natural Moisture = 5.3%
6	13.2						
8	11.2						
					4	7-8-10	
10	9.2						
12	7.2				5	6-8-8	
		Very pale brown, wet to saturated, medium dense, fine to coarse SAND, with trace silt (10 YR 7/3, Sand)		SP	6	3-6-7	
14	5.2						
16	3.2	Boring terminated at 15.5 feet.					
18	1.2						
20							

HYNES & ASSOCIATES

LOG OF BORING SB-16

Davis, Bowen & Friedel, Inc.
1 Park Avenue
Milford, Delaware 19963

Mitchell Farm

Project No.: JDH-10/18/226

Date Completed: : May 14, 2018
Logged By: : C. Johnston
Drilled By: : B. Hynes
Drilling Method: : Hand Auger
Total Depth: : 15 feet

Depth in Feet	Surf. Elev. 19.46	DESCRIPTION	GRAPHIC	USCS	Sample No.	REMARKS
0	19.46	Dark yellowish brown, wet, clayey SILT, with trace fine to medium sand (10 YR 4/6, Silty clay loam)		ML	1	Scale 1" ~ 3 feet Approximately 12 inches of organic bearing soil was encountered at the ground surface. Groundwater was encountered at 13 feet during augering operations.
2	17.46				2	
4	15.46	Brown, wet, fine to coarse SAND, with trace silt (10 YR 5/3, Sand)		SP	3	
6	13.46	Light yellowish brown, wet, fine to coarse SAND, with trace silt (10 YR 6/4, Sand)		SP	4	
8	11.46	Brownish yellow, wet, fine to coarse SAND, with trace silt (10 YR 6/6, Sand)		SP	5	
10	9.46				6	
12	7.46	Very pale brown, wet to saturated, fine to coarse SAND, with trace silt		SP	7	
14	5.46				8	
16	3.46	Boring terminated at 15 feet.				
18	1.46					
20						

HYNES & ASSOCIATES

LOG OF BORING B-17

Davis, Bowen & Friedel, Inc.
1 Park Avenue
Milford, Delaware 19963

Mitchell Farm

Project No.: JDH-10/18/226

Date Completed: : May 21, 2018
Logged By: : C. Johnston
Drilled By: : Z. Mitchell/B. Stimis
Drilling Method: : Hand Auger
Total Depth: : 15 feet

Depth in Feet	Surf. Elev. 18.5	DESCRIPTION	GRAPHIC	USCS	Sample No.	REMARKS
0	18.5	Dark yellowish brown, wet, clayey SILT, with trace fine to medium sand (10 YR 4/4, Silty clay loam)		ML	1	Scale 1" ~ 3 feet Approximately 12 inches of organic bearing soil was encountered at the ground surface. Groundwater was encountered at 13 feet during augering operations.
2	16.5	Yellowish brown, wet, fine to coarse SAND, with trace silt (10 YR 5/6, Sand)		SP	2	
4	14.5					
6	12.5	Brownish yellow, wet, fine to coarse SAND, with trace silt (10 YR 6/6, Sand)		SP	3	
8	10.5	Very pale brown, wet to saturated, fine to coarse SAND, with trace silt (10 YR 7/3, Sand)		SP	4	
10	8.5					
12	6.5				5	
					6	
14	4.5	Yellowish brown, saturated, fine to coarse SAND, with trace silt (10 YR 5/6, Sand)		SP	7	
		Boring terminated at 15 feet.				
16	2.5					
18	.5					
20						

HYNES & ASSOCIATES

LOG OF BORING B-18

Davis, Bowen & Friedel, Inc.
1 Park Avenue
Milford, Delaware 19963

Mitchell Farm

Project No.: JDH-10/18/226

Date Completed: : May 21, 2018
Logged By: : C. Johnston
Drilled By: : Z. Mitchell/B. Stimis
Drilling Method: : Hand Auger
Total Depth: : 15 feet

Depth in Feet	Surf. Elev. 22.0	DESCRIPTION	GRAPHIC	USCS	Sample No.	REMARKS
0	22	Dark yellowish brown, wet, clayey SILT, with trace fine to medium sand (10 YR 4/6, Silty clay loam)		ML	1	Scale 1" ~ 3 feet Approximately 18 inches of organic bearing soil was encountered at the ground surface. Groundwater was encountered at 13 feet during augering operations.
2	20					
4	18	Yellowish brown, wet, fine to coarse SAND, with trace silt (10 YR 5/6, Sand)		SP	2	
6	16	Very pale brown, wet to saturated, fine to coarse SAND, with trace silt (10 YR 7/4)		SP	3	
					4	
8	14					
10	12				5	
12	10				6	
14	8	Very pale brown, saturated, fine to coarse SAND, with trace silt (10 YR 7/4)		SP	7	
		Boring terminated at 15 feet.				
16	6					
18	4					
20						

INFILTRATION TEST DATA SHEET

JOB NAME: Mitchell Farm

PROJECT NUMBER: JDH-10/18/226 **TEST LOCATION:** B-1

TEST DATE: May 21, 2018 **TEST DEPTH:** 7.60 ft

	TIME	DEPTH TO WATER BELOW GROUND SURFACE	HYDRAULIC HEAD	Δ HYDRAULIC HEAD	PERMEABILITY (K_m)		COMMENTS
Test Hour 1	9:45	5.60 ft	2.00 ft				
	10:00	6.60 ft	1.00 ft	1.00 ft			
	10:15	7.30 ft	0.30 ft	0.70 ft			Refill to 5.60 ft. BGS
	10:30	6.60 ft	1.00 ft	1.00 ft			
	10:45	7.10 ft	0.50 ft	0.50 ft	3.20 ft/hr	38.40 in/hr	
Test Hour 2	11:00	7.35 ft	0.25 ft	0.25 ft			
	11:15	7.60 ft	0.00 ft	0.25 ft			Refill to 5.60 ft. BGS
	11:30	6.20 ft	1.40 ft	0.60 ft			
	11:45	6.55 ft	1.05 ft	0.35 ft	1.45 ft/hr	17.40 in/hr	
Test Hour 3	12:00	6.85 ft	0.75 ft	0.30 ft			
	12:15	7.05 ft	0.55 ft	0.20 ft			Refill to 5.60 ft. to BGS
	12:30	5.65 ft	1.95 ft	0.05 ft			
	12:45	5.70 ft	1.90 ft	0.05 ft	0.60 ft/hr	7.20 in/hr	
Test Hour 4	13:00	5.80 ft	1.80 ft	0.10 ft			
	13:15	5.95 ft	1.65 ft	0.15 ft			Refill to 5.50 ft. BGS
	13:30	5.60 ft	2.00 ft	0.10 ft			
	13:45	5.70 ft	1.90 ft	0.10 ft	0.45 ft/hr	5.40 in/hr	
Test Hour 5	14:00	5.80 ft	1.80 ft	0.10 ft			
	14:15	5.90 ft	1.70 ft	0.10 ft			Refill to 5.60 ft. BGS
	14:30	5.70 ft	1.90 ft	0.10 ft			
	14:45	5.70 ft	1.90 ft	0.00 ft	0.30 ft/hr	3.60 in/hr	

There are generally two acceptable methods to calculate steady state infiltration rates:
1. Time Weighted Average: 8.40 in/hr
2. Final Test Hour Reading: 3.60 in/hr

INFILTRATION TEST DATA SHEET

JOB NAME: Mitchell Farm

PROJECT NUMBER: JDH-10/18/226 **TEST LOCATION:** B-2

TEST DATE: May 21, 2018 **TEST DEPTH:** 7.70 ft

	TIME	DEPTH TO WATER BELOW GROUND SURFACE	HYDRAULIC HEAD	Δ HYDRAULIC HEAD	PERMEABILITY (K_m)		COMMENTS
Test Hour 1	9:45	5.70 ft	2.00 ft				
	10:00	7.25 ft	0.45 ft	1.55 ft			
	10:15	5.70 ft	2.00 ft	0.00 ft			Refill to 5.70 ft. BGS
	10:30	6.70 ft	1.00 ft	1.00 ft			
	10:45	7.20 ft	0.50 ft	0.50 ft	3.05 ft/hr	36.60 in/hr	Refill to 5.70 ft. BGS
Test Hour 2	11:00	6.31 ft	1.39 ft	0.61 ft			
	11:15	6.85 ft	0.85 ft	0.54 ft			
	11:30	7.41 ft	0.29 ft	0.56 ft			
	11:45	7.68 ft	0.02 ft	0.27 ft	1.98 ft/hr	23.76 in/hr	Refill to 5.70 ft. BGS
Test Hour 3	12:00	6.38 ft	1.32 ft	0.68 ft			
	12:15	6.97 ft	0.73 ft	0.59 ft			
	12:30	7.14 ft	0.56 ft	0.17 ft			
	12:45	7.30 ft	0.40 ft	0.16 ft	1.60 ft/hr	19.20 in/hr	Refill to 5.70 ft. BGS
Test Hour 4	13:00	6.14 ft	1.56 ft	0.44 ft			
	13:15	6.60 ft	1.10 ft	0.46 ft			
	13:30	7.05 ft	0.65 ft	0.45 ft			
	13:45	7.34 ft	0.36 ft	0.29 ft	1.64 ft/hr	19.68 in/hr	Refill to 5.70 ft. BGS
Test Hour 5	14:00	6.08 ft	1.62 ft	0.38 ft			
	14:15	6.51 ft	1.19 ft	0.43 ft			
	14:30	6.93 ft	0.77 ft	0.42 ft			
	14:45	7.23 ft	0.47 ft	0.30 ft	1.53 ft/hr	18.36 in/hr	

There are generally two acceptable methods to calculate steady state infiltration rates:
1. Time Weighted Average: 20.25 in/hr
2. Final Test Hour Reading: 18.36 in/hr

INFILTRATION TEST DATA SHEET

JOB NAME: Mitchell Farm

PROJECT NUMBER: JDH-10/18/226 **TEST LOCATION:** B-3

TEST DATE: May 21, 2018 **TEST DEPTH:** 7.95 ft

	TIME	DEPTH TO WATER BELOW GROUND SURFACE	HYDRAULIC HEAD	Δ HYDRAULIC HEAD	PERMEABILITY (K_m)		COMMENTS
Test Hour 1	9:45	5.95 ft	2.00 ft				
	10:00	7.55 ft	0.40 ft	1.60 ft			
	10:15	5.95 ft	2.00 ft	0.00 ft			Refill to 5.95 ft. BGS
	10:30	6.70 ft	1.25 ft	0.75 ft			
	10:45	7.40 ft	0.55 ft	0.70 ft	3.05 ft/hr	36.60 in/hr	Refill to 5.95 ft. BGS
Test Hour 2	11:00	6.79 ft	1.16 ft	0.84 ft			
	11:15	7.37 ft	0.58 ft	0.58 ft			
	11:30	7.83 ft	0.12 ft	0.46 ft			
	11:45	7.95 ft	0.00 ft	0.12 ft	2.00 ft/hr	24.00 in/hr	Refill to 5.95 ft. BGS
Test Hour 3	12:00	7.75 ft	0.20 ft	1.80 ft			
	12:15	7.95 ft	0.00 ft	0.20 ft			Refill to 5.95 ft. BGS
	12:30	7.75 ft	0.20 ft	1.80 ft			
	12:45	7.95 ft	0.00 ft	0.20 ft	4.00 ft/hr	48.00 in/hr	
Test Hour 4	13:00	6.57 ft	1.38 ft	0.62 ft			
	13:15	6.97 ft	0.98 ft	0.40 ft			
	13:30	7.35 ft	0.60 ft	0.38 ft			
	13:45	7.86 ft	0.09 ft	0.51 ft	1.91 ft/hr	22.92 in/hr	Refill to 5.95 ft. BGS
Test Hour 5	14:00	6.49 ft	1.46 ft	0.54 ft			
	14:15	6.87 ft	1.08 ft	0.38 ft			
	14:30	7.28 ft	0.67 ft	0.41 ft			
	14:45	7.57 ft	0.38 ft	0.29 ft	1.62 ft/hr	19.44 in/hr	

There are generally two acceptable methods to calculate steady state infiltration rates:
1. Time Weighted Average: 28.59 in/hr
2. Final Test Hour Reading: 19.44 in/hr

INFILTRATION TEST DATA SHEET

JOB NAME: Mitchell Farm

PROJECT NUMBER: JDH-10/18/226 **TEST LOCATION:** B-4

TEST DATE: May 21, 2018 **TEST DEPTH:** 8.40 ft

	TIME	DEPTH TO WATER BELOW GROUND SURFACE	HYDRAULIC HEAD	Δ HYDRAULIC HEAD	PERMEABILITY (K_m)		COMMENTS
Test Hour 1	9:45	6.40 ft	2.00 ft				
	10:00	8.21 ft	0.19 ft	1.81 ft			
	10:15	6.40 ft	2.00 ft	0.00 ft			Refill to 6.40 ft. BGS
	10:30	6.82 ft	1.58 ft	0.42 ft			
	10:45	7.04 ft	1.36 ft	0.22 ft	2.45 ft/hr	29.40 in/hr	Refill to 6.40 ft. BGS
Test Hour 2	11:00	6.55 ft	1.85 ft	0.15 ft			
	11:15	6.70 ft	1.70 ft	0.15 ft			
	11:30	7.53 ft	0.87 ft	0.83 ft			
	11:45	7.70 ft	0.70 ft	0.17 ft	1.30 ft/hr	15.60 in/hr	Refill to 6.40 ft. BGS
Test Hour 3	12:00	6.54 ft	1.86 ft	0.14 ft			
	12:15	6.68 ft	1.72 ft	0.14 ft			
	12:30	6.78 ft	1.62 ft	0.10 ft			
	12:45	6.85 ft	1.55 ft	0.07 ft	0.45 ft/hr	5.40 in/hr	Refill to 6.40 ft. BGS
Test Hour 4	13:00	6.40 ft	2.00 ft	0.00 ft			
	13:15	6.45 ft	1.95 ft	0.05 ft			
	13:30	6.48 ft	1.92 ft	0.03 ft			
	13:45	6.52 ft	1.88 ft	0.04 ft	0.12 ft/hr	1.44 in/hr	Refill to 6.40 ft. BGS
Test Hour 5	14:00	6.43 ft	1.97 ft	0.03 ft			
	14:15	6.45 ft	1.95 ft	0.02 ft			
	14:30	6.48 ft	1.92 ft	0.03 ft			
	14:45	6.50 ft	1.90 ft	0.02 ft	0.10 ft/hr	1.20 in/hr	

There are generally two acceptable methods to calculate steady state infiltration rates:
1. Time Weighted Average: 5.91 in/hr
2. Final Test Hour Reading: 1.20 in/hr

INFILTRATION TEST DATA SHEET

JOB NAME: Mitchell Farm

PROJECT NUMBER: JDH-10/18/226 **TEST LOCATION:** B-5

TEST DATE: May 21, 2018 **TEST DEPTH:** 7.70 ft

	TIME	DEPTH TO WATER BELOW GROUND SURFACE	HYDRAULIC HEAD	Δ HYDRAULIC HEAD	PERMEABILITY (K_m)		COMMENTS
Test Hour 1	9:45	5.70 ft	2.00 ft				
	10:00	7.63 ft	0.07 ft	1.93 ft			
	10:15	5.70 ft	2.00 ft	0.00 ft			Refill to 5.70 ft. BGS
	10:30	6.30 ft	1.40 ft	0.60 ft			
	10:45	7.00 ft	0.70 ft	0.70 ft	3.23 ft/hr	38.76 in/hr	Refill to 5.70 ft. BGS
Test Hour 2	11:00	5.85 ft	1.85 ft	0.15 ft			
	11:15	5.90 ft	1.80 ft	0.05 ft			
	11:30	6.00 ft	1.70 ft	0.10 ft			
	11:45	6.20 ft	1.50 ft	0.20 ft	0.50 ft/hr	6.00 in/hr	Refill to 5.70 ft. BGS
Test Hour 3	12:00	5.83 ft	1.87 ft	0.13 ft			
	12:15	5.91 ft	1.79 ft	0.08 ft			
	12:30	6.00 ft	1.70 ft	0.09 ft			
	12:45	6.10 ft	1.60 ft	0.10 ft	0.40 ft/hr	4.80 in/hr	Refill to 5.70 ft. BGS
Test Hour 4	13:00	5.78 ft	1.92 ft	0.08 ft			
	13:15	5.83 ft	1.87 ft	0.05 ft			
	13:30	5.87 ft	1.83 ft	0.04 ft			
	13:45	5.89 ft	1.81 ft	0.02 ft	0.19 ft/hr	2.28 in/hr	Refill to 5.70 ft. BGS
Test Hour 5	14:00	5.75 ft	1.95 ft	0.05 ft			
	14:15	5.78 ft	1.92 ft	0.03 ft			
	14:30	5.81 ft	1.89 ft	0.03 ft			
	14:45	5.83 ft	1.87 ft	0.02 ft	0.13 ft/hr	1.56 in/hr	

There are generally two acceptable methods to calculate steady state infiltration rates:
1. Time Weighted Average: 3.66 in/hr
2. Final Test Hour Reading: 1.56 in/hr

INFILTRATION TEST DATA SHEET

JOB NAME: Mitchell Farm

PROJECT NUMBER: JDH-10/18/226 **TEST LOCATION:** B-6

TEST DATE: May 21, 2018 **TEST DEPTH:** 7.70 ft

	TIME	DEPTH TO WATER BELOW GROUND SURFACE	HYDRAULIC HEAD	Δ HYDRAULIC HEAD	PERMEABILITY (K_m)		COMMENTS
Test Hour 1	9:45	5.70 ft	2.00 ft				
	10:00	7.70 ft	0.00 ft	2.00 ft			Refill to 5.70 ft. BGS
	10:15	7.50 ft	0.20 ft	1.80 ft			Refill to 5.70 ft. BGS
	10:30	7.00 ft	0.70 ft	1.30 ft			
	10:45	7.40 ft	0.30 ft	0.40 ft	5.50 ft/hr	66.00 in/hr	Refill to 5.70 ft. BGS
Test Hour 2	11:00	5.90 ft	1.80 ft	0.20 ft			
	11:15	6.20 ft	1.50 ft	0.30 ft			
	11:30	6.45 ft	1.25 ft	0.25 ft			
	11:45	6.68 ft	1.02 ft	0.23 ft	0.98 ft/hr	11.76 in/hr	Refill to 5.70 ft. BGS
Test Hour 3	12:00	5.85 ft	1.85 ft	0.15 ft			
	12:15	6.00 ft	1.70 ft	0.15 ft			
	12:30	6.10 ft	1.60 ft	0.10 ft			
	12:45	6.25 ft	1.45 ft	0.15 ft	0.55 ft/hr	6.60 in/hr	Refill to 5.70 ft. BGS
Test Hour 4	13:00	5.80 ft	1.90 ft	0.20 ft			
	13:15	6.00 ft	1.70 ft	0.20 ft			
	13:30	6.15 ft	1.55 ft	0.15 ft			
	13:45	6.30 ft	1.40 ft	0.15 ft	0.70 ft/hr	8.40 in/hr	Refill to 5.70 ft. BGS
Test Hour 5	14:00	5.75 ft	1.95 ft	0.15 ft			
	14:15	5.90 ft	1.80 ft	0.15 ft			
	14:30	6.05 ft	1.65 ft	0.15 ft			
	14:45	6.15 ft	1.55 ft	0.10 ft	0.55 ft/hr	6.60 in/hr	

There are generally two acceptable methods to calculate steady state infiltration rates:
1. Time Weighted Average: 8.34 in/hr
2. Final Test Hour Reading: 6.60 in/hr

INFILTRATION TEST DATA SHEET

JOB NAME: Mitchell Farm

PROJECT NUMBER: JDH-10/18/226 **TEST LOCATION:** B-7

TEST DATE: May 21, 2018 **TEST DEPTH:** 9.50 ft

	TIME	DEPTH TO WATER BELOW GROUND SURFACE	HYDRAULIC HEAD	Δ HYDRAULIC HEAD	PERMEABILITY (K_m)		COMMENTS
Test Hour 1	9:45	7.50 ft	2.00 ft				
	10:00	9.50 ft	0.00 ft	2.00 ft			Refill to 7.50 ft. BGS
	10:15	9.30 ft	0.20 ft	1.80 ft			
	10:30	9.50 ft	0.00 ft	0.20 ft			Refill to 7.50 ft. BGS
	10:45	8.55 ft	0.95 ft	1.05 ft	5.05 ft/hr	60.60 in/hr	Refill to 7.50 ft. BGS
Test Hour 2	11:00	8.00 ft	1.50 ft	0.50 ft			
	11:15	8.31 ft	1.19 ft	0.31 ft			
	11:30	8.45 ft	1.05 ft	0.14 ft			
	11:45	8.84 ft	0.66 ft	0.39 ft	1.34 ft/hr	16.08 in/hr	Refill to 7.50 ft. BGS
Test Hour 3	12:00	8.18 ft	1.32 ft	0.68 ft			
	12:15	8.34 ft	1.16 ft	0.16 ft			
	12:30	8.64 ft	0.86 ft	0.30 ft			
	12:45	8.90 ft	0.60 ft	0.26 ft	1.40 ft/hr	16.80 in/hr	Refill to 7.50 ft. BGS
Test Hour 4	13:00	7.73 ft	1.77 ft	0.23 ft			
	13:15	7.85 ft	1.65 ft	0.12 ft			
	13:30	8.01 ft	1.49 ft	0.16 ft			
	13:45	8.10 ft	1.40 ft	0.09 ft	0.60 ft/hr	7.20 in/hr	Refill to 7.50 ft. BGS
Test Hour 5	14:00	7.51 ft	1.99 ft	0.01 ft			
	14:15	7.52 ft	1.98 ft	0.01 ft			
	14:30	7.78 ft	1.72 ft	0.26 ft			
	14:45	7.89 ft	1.61 ft	0.11 ft	0.39 ft/hr	4.68 in/hr	

There are generally two acceptable methods to calculate steady state infiltration rates:
1. Time Weighted Average: 11.19 in/hr
2. Final Test Hour Reading: 4.68 in/hr

INFILTRATION TEST DATA SHEET

JOB NAME: Mitchell Farm

PROJECT NUMBER: JDH-10/18/226 **TEST LOCATION:** B-8

TEST DATE: May 21, 2018 **TEST DEPTH:** 9.60 ft

	TIME	DEPTH TO WATER BELOW GROUND SURFACE	HYDRAULIC HEAD	Δ HYDRAULIC HEAD	PERMEABILITY (K_m)		COMMENTS
Test Hour 1	9:45	7.60 ft	2.00 ft				
	10:00	8.20 ft	1.40 ft	0.60 ft			
	10:15	8.42 ft	1.18 ft	0.22 ft			
	10:30	8.60 ft	1.00 ft	0.18 ft			
	10:45	8.95 ft	0.65 ft	0.35 ft	1.35 ft/hr	16.20 in/hr	Refill to 7.60 ft. BGS
Test Hour 2	11:00	8.23 ft	1.37 ft	0.63 ft			
	11:15	8.40 ft	1.20 ft	0.17 ft			
	11:30	8.58 ft	1.02 ft	0.18 ft			
	11:45	8.72 ft	0.88 ft	0.14 ft	1.12 ft/hr	13.44 in/hr	Refill to 7.60 ft. BGS
Test Hour 3	12:00	8.05 ft	1.55 ft	0.45 ft			
	12:15	8.30 ft	1.30 ft	0.25 ft			
	12:30	8.42 ft	1.18 ft	0.12 ft			
	12:45	8.48 ft	1.12 ft	0.06 ft	0.88 ft/hr	10.56 in/hr	Refill to 7.60 ft. BGS
Test Hour 4	13:00	7.62 ft	1.98 ft	0.02 ft			
	13:15	7.63 ft	1.97 ft	0.01 ft			
	13:30	7.73 ft	1.87 ft	0.10 ft			
	13:45	7.80 ft	1.80 ft	0.07 ft	0.20 ft/hr	2.40 in/hr	Refill to 7.60 ft. BGS
Test Hour 5	14:00	7.68 ft	1.92 ft	0.08 ft			
	14:15	7.73 ft	1.87 ft	0.05 ft			
	14:30	7.81 ft	1.79 ft	0.08 ft			
	14:45	7.89 ft	1.71 ft	0.08 ft	0.29 ft/hr	3.48 in/hr	

There are generally two acceptable methods to calculate steady state infiltration rates:
1. Time Weighted Average: 7.47 in/hr
2. Final Test Hour Reading: 3.48 in/hr

INFILTRATION TEST DATA SHEET

JOB NAME: Mitchell Farm

PROJECT NUMBER: JDH-10/18/226 **TEST LOCATION:** B-9

TEST DATE: May 21, 2018 **TEST DEPTH:** 7.80 ft

	TIME	DEPTH TO WATER BELOW GROUND SURFACE	HYDRAULIC HEAD	Δ HYDRAULIC HEAD	PERMEABILITY (K_m)		COMMENTS
Test Hour 1	9:45	5.80 ft	2.00 ft				
	10:00	7.50 ft	0.30 ft	1.70 ft			Refill to 5.80 ft. BGS
	10:15	6.45 ft	1.35 ft	0.65 ft			
	10:30	6.80 ft	1.00 ft	0.35 ft			
	10:45	7.50 ft	0.30 ft	0.70 ft	3.40 ft/hr	40.80 in/hr	Refill to 5.80 ft. BGS
Test Hour 2	11:00	6.00 ft	1.80 ft	0.20 ft			
	11:15	6.15 ft	1.65 ft	0.15 ft			
	11:30	6.45 ft	1.35 ft	0.30 ft			
	11:45	6.65 ft	1.15 ft	0.20 ft	0.85 ft/hr	10.20 in/hr	Refill to 5.80 ft. BGS
Test Hour 3	12:00	6.10 ft	1.70 ft	0.30 ft			
	12:15	6.20 ft	1.60 ft	0.10 ft			
	12:30	6.20 ft	1.60 ft	0.00 ft			
	12:45	6.20 ft	1.60 ft	0.00 ft	0.40 ft/hr	4.80 in/hr	Refill to 5.80 ft. BGS
Test Hour 4	13:00	6.00 ft	1.80 ft	0.20 ft			
	13:15	6.10 ft	1.70 ft	0.10 ft			
	13:30	6.20 ft	1.60 ft	0.10 ft			
	13:45	6.20 ft	1.60 ft	0.00 ft	0.40 ft/hr	4.80 in/hr	Refill to 5.80 ft. BGS
Test Hour 5	14:00	5.90 ft	1.90 ft	0.10 ft			
	14:15	5.95 ft	1.85 ft	0.05 ft			
	14:30	5.95 ft	1.85 ft	0.00 ft			
	14:45	5.95 ft	1.85 ft	0.00 ft	0.15 ft/hr	1.80 in/hr	

There are generally two acceptable methods to calculate steady state infiltration rates:
1. Time Weighted Average: 5.40 in/hr
2. Final Test Hour Reading: 1.80 in/hr

INFILTRATION TEST DATA SHEET

JOB NAME: Mitchell Farm

PROJECT NUMBER: JDH-10/18/226 **TEST LOCATION:** B-10

TEST DATE: May 21, 2018 **TEST DEPTH:** 8.10 ft

	TIME	DEPTH TO WATER BELOW GROUND SURFACE	HYDRAULIC HEAD	Δ HYDRAULIC HEAD	PERMEABILITY (K_m)		COMMENTS
Test Hour 1	9:45	6.10 ft	2.00 ft				
	10:00	8.10 ft	0.00 ft	2.00 ft			Refill to 6.10 ft. BGS
	10:15	6.50 ft	1.60 ft	0.40 ft			
	10:30	6.70 ft	1.40 ft	0.20 ft			
	10:45	6.80 ft	1.30 ft	0.10 ft	2.70 ft/hr	32.40 in/hr	Refill to 6.10 ft. BGS
Test Hour 2	11:00	6.10 ft	2.00 ft	0.00 ft			
	11:15	6.20 ft	1.90 ft	0.10 ft			
	11:30	6.30 ft	1.80 ft	0.10 ft			
	11:45	6.30 ft	1.80 ft	0.00 ft	0.20 ft/hr	2.40 in/hr	Refill to 6.10 ft. BGS
Test Hour 3	12:00	6.10 ft	2.00 ft	0.00 ft			
	12:15	6.10 ft	2.00 ft	0.00 ft			
	12:30	6.10 ft	2.00 ft	0.00 ft			
	12:45	6.10 ft	2.00 ft	0.00 ft	0.00 ft/hr	0.00 in/hr	Refill to 6.10 ft. BGS
Test Hour 4	13:00	6.15 ft	1.95 ft	0.05 ft			
	13:15	6.20 ft	1.90 ft	0.05 ft			
	13:30	6.20 ft	1.90 ft	0.00 ft			
	13:45	6.20 ft	1.90 ft	0.00 ft	0.10 ft/hr	1.20 in/hr	Refill to 6.10 ft. BGS
Test Hour 5	14:00	6.20 ft	1.90 ft	0.00 ft			
	14:15	6.10 ft	2.00 ft	0.00 ft			
	14:30	6.15 ft	1.95 ft	0.05 ft			
	14:45	6.20 ft	1.90 ft	0.05 ft	0.10 ft/hr	1.20 in/hr	

There are generally two acceptable methods to calculate steady state infiltration rates:
1. Time Weighted Average: 1.20 in/hr
2. Final Test Hour Reading: 1.20 in/hr

INFILTRATION TEST DATA SHEET

JOB NAME: Mitchell Farm

PROJECT NUMBER: JDH-10/18/226 **TEST LOCATION:** B-11

TEST DATE: May 21, 2018 **TEST DEPTH:** 8.00 ft

	TIME	DEPTH TO WATER BELOW GROUND SURFACE	HYDRAULIC HEAD	Δ HYDRAULIC HEAD	PERMEABILITY (K_m)		COMMENTS
Test Hour 1	9:45	6.00 ft	2.00 ft				
	10:00	7.10 ft	0.90 ft	1.10 ft			
	10:15	7.70 ft	0.30 ft	0.60 ft			Refill to 6.00 ft. BGS
	10:30	6.20 ft	1.80 ft	0.20 ft			
	10:45	6.50 ft	1.50 ft	0.30 ft	2.20 ft/hr	26.40 in/hr	
Test Hour 2	11:00	6.75 ft	1.25 ft	0.25 ft			
	11:15	6.95 ft	1.05 ft	0.20 ft			Refill to 6.00 ft. BGS
	11:30	6.10 ft	1.90 ft	0.10 ft			
	11:45	6.20 ft	1.80 ft	0.10 ft	0.65 ft/hr	7.80 in/hr	
Test Hour 3	12:00	6.30 ft	1.70 ft	0.10 ft			Refill to 6.00 ft. BGS
	12:15	5.95 ft	2.05 ft	0.05 ft			
	12:30	6.00 ft	2.00 ft	0.05 ft			
	12:45	6.10 ft	1.90 ft	0.10 ft	0.30 ft/hr	3.60 in/hr	
Test Hour 4	13:00	6.20 ft	1.80 ft	0.10 ft			Refill to 6.00 ft. BGS
	13:15	6.00 ft	2.00 ft	0.10 ft			
	13:30	6.05 ft	1.95 ft	0.05 ft			
	13:45	6.10 ft	1.90 ft	0.05 ft	0.30 ft/hr	3.60 in/hr	
Test Hour 5	14:00	6.15 ft	1.85 ft	0.05 ft			Refill to 6.00 ft. BGS
	14:15	6.10 ft	1.90 ft	0.10 ft			
	14:30	6.15 ft	1.85 ft	0.05 ft			
	14:45	6.15 ft	1.85 ft	0.00 ft	0.20 ft/hr	2.40 in/hr	

There are generally two acceptable methods to calculate steady state infiltration rates:
1. Time Weighted Average: 4.35 in/hr
2. Final Test Hour Reading: 2.40 in/hr

INFILTRATION TEST DATA SHEET

JOB NAME: Mitchell Farm

PROJECT NUMBER: JDH-10/18/226 **TEST LOCATION:** B-12

TEST DATE: May 21, 2018 **TEST DEPTH:** 7.60 ft

	TIME	DEPTH TO WATER BELOW GROUND SURFACE	HYDRAULIC HEAD	Δ HYDRAULIC HEAD	PERMEABILITY (K_m)		COMMENTS
Test Hour 1	9:45	5.60 ft	2.00 ft				
	10:00	5.60 ft	2.00 ft	0.00 ft			
	10:15	7.20 ft	0.40 ft	1.60 ft			Refill to 5.60 ft. BGS
	10:30	7.50 ft	0.10 ft	1.90 ft			Refill to 5.60 ft. BGS
	10:45	6.00 ft	1.60 ft	0.40 ft	3.90 ft/hr	46.80 in/hr	
Test Hour 2	11:00	6.60 ft	1.00 ft	0.60 ft			
	11:15	6.95 ft	0.65 ft	0.35 ft			
	11:30	7.20 ft	0.40 ft	0.25 ft			Refill to 5.60 ft. BGS
	11:45	5.90 ft	1.70 ft	0.30 ft	1.50 ft/hr	18.00 in/hr	
Test Hour 3	12:00	6.50 ft	1.10 ft	0.60 ft			
	12:15	6.75 ft	0.85 ft	0.25 ft			
	12:30	6.95 ft	0.65 ft	0.20 ft			Refill to 5.60 ft. BGS
	12:45	6.15 ft	1.45 ft	0.55 ft	1.60 ft/hr	19.20 in/hr	
Test Hour 4	13:00	6.50 ft	1.10 ft	0.35 ft			
	13:15	6.80 ft	0.80 ft	0.30 ft			
	13:30	5.85 ft	1.75 ft	0.25 ft			Refill to 5.60 ft. BGS
	13:45	6.00 ft	1.60 ft	0.15 ft	1.05 ft/hr	12.60 in/hr	
Test Hour 5	14:00	6.30 ft	1.30 ft	0.30 ft			
	14:15	6.30 ft	1.30 ft	0.00 ft			
	14:30	6.30 ft	1.30 ft	0.00 ft			
	14:45	6.30 ft	1.30 ft	0.00 ft	0.30 ft/hr	3.60 in/hr	

There are generally two acceptable methods to calculate steady state infiltration rates:
1. Time Weighted Average: 13.35 in/hr
2. Final Test Hour Reading: 3.60 in/hr

INFILTRATION TEST DATA SHEET

JOB NAME: Mitchell Farm

PROJECT NUMBER: JDH-10/18/226 **TEST LOCATION:** B-13

TEST DATE: May 21, 2018 **TEST DEPTH:** 7.35 ft

	TIME	DEPTH TO WATER BELOW GROUND SURFACE	HYDRAULIC HEAD	Δ HYDRAULIC HEAD	PERMEABILITY (K_m)		COMMENTS
Test Hour 1	9:45	5.35 ft	2.00 ft				
	10:00	6.96 ft	0.39 ft	1.61 ft			
	10:15	7.17 ft	0.18 ft	0.21 ft			
	10:30	7.24 ft	0.11 ft	0.07 ft			
	10:45	7.28 ft	0.07 ft	0.04 ft	1.93 ft/hr	23.16 in/hr	Refill to 5.35 ft. BGS
Test Hour 2	11:00	5.90 ft	1.45 ft	0.55 ft			
	11:15	6.30 ft	1.05 ft	0.40 ft			
	11:30	6.70 ft	0.65 ft	0.40 ft			
	11:45	6.92 ft	0.43 ft	0.22 ft	1.57 ft/hr	18.84 in/hr	Refill to 5.35 ft. BGS
Test Hour 3	12:00	6.03 ft	1.32 ft	0.68 ft			
	12:15	6.44 ft	0.91 ft	0.41 ft			
	12:30	6.65 ft	0.70 ft	0.21 ft			
	12:45	6.80 ft	0.55 ft	0.15 ft	1.45 ft/hr	17.40 in/hr	Refill to 5.35 ft. BGS
Test Hour 4	13:00	5.47 ft	1.88 ft	0.12 ft			
	13:15	5.55 ft	1.80 ft	0.08 ft			
	13:30	5.60 ft	1.75 ft	0.05 ft			
	13:45	5.64 ft	1.71 ft	0.04 ft	0.29 ft/hr	3.48 in/hr	Refill to 5.35 ft. BGS
Test Hour 5	14:00	5.35 ft	2.00 ft	0.00 ft			
	14:15	5.35 ft	2.00 ft	0.00 ft			
	14:30	5.45 ft	1.90 ft	0.10 ft			
	14:45	5.53 ft	1.82 ft	0.08 ft	0.18 ft/hr	2.16 in/hr	

There are generally two acceptable methods to calculate steady state infiltration rates:
1. Time Weighted Average: 10.47 in/hr
2. Final Test Hour Reading: 2.16 in/hr

INFILTRATION TEST DATA SHEET

JOB NAME: Mitchell Farm

PROJECT NUMBER: JDH-10/18/226 **TEST LOCATION:** B-14

TEST DATE: May 21, 2018 **TEST DEPTH:** 8.00 ft

	TIME	DEPTH TO WATER BELOW GROUND SURFACE	HYDRAULIC HEAD	Δ HYDRAULIC HEAD	PERMEABILITY (K_m)		COMMENTS
Test Hour 1	9:45	6.00 ft	2.00 ft				
	10:00	7.70 ft	0.30 ft	1.70 ft			Refill to 6.00 ft. BGS
	10:15	7.00 ft	1.00 ft	1.00 ft			
	10:30	7.50 ft	0.50 ft	0.50 ft			Refill to 6.00 ft. BGS
	10:45	6.30 ft	1.70 ft	0.30 ft	3.50 ft/hr	42.00 in/hr	
Test Hour 2	11:00	7.00 ft	1.00 ft	0.70 ft			
	11:15	7.25 ft	0.75 ft	0.25 ft			
	11:30	7.50 ft	0.50 ft	0.25 ft			Refill to 6.00 ft. BGS
	11:45	6.70 ft	1.30 ft	0.70 ft	1.90 ft/hr	22.80 in/hr	
Test Hour 3	12:00	7.25 ft	0.75 ft	0.55 ft			
	12:15	7.60 ft	0.40 ft	0.35 ft			
	12:30	8.00 ft	0.00 ft	0.40 ft			Refill to 6.00 ft. BGS
	12:45	6.35 ft	1.65 ft	0.35 ft	1.65 ft/hr	19.80 in/hr	
Test Hour 4	13:00	6.65 ft	1.35 ft	0.30 ft			
	13:15	6.85 ft	1.15 ft	0.20 ft			
	13:30	7.00 ft	1.00 ft	0.15 ft			Refill to 6.00 ft. BGS
	13:45	6.20 ft	1.80 ft	0.20 ft	0.85 ft/hr	10.20 in/hr	
Test Hour 5	14:00	6.35 ft	1.65 ft	0.15 ft			
	14:15	6.50 ft	1.50 ft	0.15 ft			
	14:30	6.50 ft	1.50 ft	0.00 ft			Refill to 6.00 ft. BGS
	14:45	6.10 ft	1.90 ft	0.10 ft	0.40 ft/hr	4.80 in/hr	

There are generally two acceptable methods to calculate steady state infiltration rates:
1. Time Weighted Average: 14.40 in/hr
2. Final Test Hour Reading: 4.80 in/hr

INFILTRATION TEST DATA SHEET

JOB NAME: Mitchell Farm

PROJECT NUMBER: JDH-10/18/226 **TEST LOCATION:** B-15

TEST DATE: May 21, 2018 **TEST DEPTH:** 8.00 ft

	TIME	DEPTH TO WATER BELOW GROUND SURFACE	HYDRAULIC HEAD	Δ HYDRAULIC HEAD	PERMEABILITY (K_m)		COMMENTS
Test Hour 1	9:45	6.00 ft	2.00 ft				
	10:00	7.35 ft	0.65 ft	1.35 ft			
	10:15	7.95 ft	0.05 ft	0.60 ft			Refill to 6.00 ft. BGS
	10:30	7.05 ft	0.95 ft	1.05 ft			
	10:45	7.70 ft	0.30 ft	0.65 ft	3.65 ft/hr	43.80 in/hr	Refill to 6.00 ft. BGS
Test Hour 2	11:00	6.55 ft	1.45 ft	0.55 ft			
	11:15	6.95 ft	1.05 ft	0.40 ft			
	11:30	7.25 ft	0.75 ft	0.30 ft			
	11:45	7.55 ft	0.45 ft	0.30 ft	1.55 ft/hr	18.60 in/hr	Refill to 6.00 ft. BGS
Test Hour 3	12:00	6.35 ft	1.65 ft	0.35 ft			
	12:15	6.55 ft	1.45 ft	0.20 ft			
	12:30	6.90 ft	1.10 ft	0.35 ft			
	12:45	7.05 ft	0.95 ft	0.15 ft	1.05 ft/hr	12.60 in/hr	Refill to 6.00 ft. BGS
Test Hour 4	13:00	6.45 ft	1.55 ft	0.45 ft			
	13:15	6.55 ft	1.45 ft	0.10 ft			
	13:30	6.55 ft	1.45 ft	0.00 ft			
	13:45	6.55 ft	1.45 ft	0.00 ft	0.55 ft/hr	6.60 in/hr	Refill to 6.00 ft. BGS
Test Hour 5	14:00	6.40 ft	1.60 ft	0.40 ft			
	14:15	6.40 ft	1.60 ft	0.00 ft			
	14:30	6.40 ft	1.60 ft	0.00 ft			
	14:45	6.40 ft	1.60 ft	0.00 ft	0.40 ft/hr	4.80 in/hr	

There are generally two acceptable methods to calculate steady state infiltration rates:
1. Time Weighted Average: 10.65 in/hr
2. Final Test Hour Reading: 4.80 in/hr

INFILTRATION TEST DATA SHEET

JOB NAME: Mitchell Farm

PROJECT NUMBER: JDH-10/18/226 **TEST LOCATION:** B-16

TEST DATE: May 21, 2018 **TEST DEPTH:** 8.60 ft

	TIME	DEPTH TO WATER BELOW GROUND SURFACE	HYDRAULIC HEAD	Δ HYDRAULIC HEAD	PERMEABILITY (K_m)		COMMENTS
Test Hour 1	9:45	6.60 ft	2.00 ft				
	10:00	6.60 ft	2.00 ft	2.00 ft			Refilled to 6.60 ft. BGS
	10:15	6.60 ft	2.00 ft	2.00 ft			
	10:30	6.60 ft	2.00 ft	2.00 ft			
	10:45	6.60 ft	2.00 ft	2.00 ft	8.00 ft/hr	96.00 in/hr	
Test Hour 2	11:00	6.60 ft	2.00 ft	2.00 ft			
	11:15	6.60 ft	2.00 ft	2.00 ft			
	11:30	6.60 ft	2.00 ft	2.00 ft			
	11:45	6.60 ft	2.00 ft	2.00 ft	8.00 ft/hr	96.00 in/hr	
Test Hour 3	12:00	6.60 ft	2.00 ft	2.00 ft			
	12:15						
	12:30						
	12:45				2.00 ft/hr	96.00 in/hr	
Test Hour 4	13:00						
	13:15						
	13:30						
	13:45				0.00 ft/hr	0.00 in/hr	
Test Hour 5	14:00						
	14:15						
	14:30						
	14:45				0.00 ft/hr	0.00 in/hr	

*Test cancled after 2 hours of consistant readings.

There are generally two acceptable methods to calculate steady state infiltration rates:
1. Time Weighted Average: 96 in/hr
2. Final Test Hour Reading: 96 in/hr

INFILTRATION TEST DATA SHEET

JOB NAME: Mitchell Farm

PROJECT NUMBER: JDH-10/18/226 **TEST LOCATION:** B-17

TEST DATE: May 21, 2018 **TEST DEPTH:** 7.80 ft

	TIME	DEPTH TO WATER BELOW GROUND SURFACE	HYDRAULIC HEAD	Δ HYDRAULIC HEAD	PERMEABILITY (K_m)		COMMENTS
Test Hour 1	9:45	5.80 ft	2.00 ft				
	10:00	7.35 ft	0.45 ft	1.55 ft			
	10:15	7.70 ft	0.10 ft	0.35 ft			
	10:30	7.80 ft	0.00 ft	0.10 ft			Refill to 5.80 ft. BGS
	10:45	6.76 ft	1.04 ft	0.96 ft	2.96 ft/hr	35.52 in/hr	Refill to 5.80 ft. BGS
Test Hour 2	11:00	6.30 ft	1.50 ft	0.50 ft			
	11:15	6.32 ft	1.48 ft	0.02 ft			
	11:30	6.33 ft	1.47 ft	0.01 ft			
	11:45	6.60 ft	1.20 ft	0.27 ft	0.80 ft/hr	9.60 in/hr	Refill to 5.80 ft. BGS
Test Hour 3	12:00	6.40 ft	1.40 ft	0.60 ft			
	12:15	7.10 ft	0.70 ft	0.70 ft			
	12:30	7.20 ft	0.60 ft	0.10 ft			
	12:45	7.44 ft	0.36 ft	0.24 ft	1.64 ft/hr	19.68 in/hr	Refill to 5.80 ft. BGS
Test Hour 4	13:00	5.98 ft	1.82 ft	0.18 ft			
	13:15	6.15 ft	1.65 ft	0.17 ft			
	13:30	6.38 ft	1.42 ft	0.23 ft			
	13:45	6.55 ft	1.25 ft	0.17 ft	0.75 ft/hr	9.00 in/hr	Refill to 5.80 ft. BGS
Test Hour 5	14:00	5.92 ft	1.88 ft	0.12 ft			
	14:15	6.07 ft	1.73 ft	0.15 ft			
	14:30	6.18 ft	1.62 ft	0.11 ft			
	14:45	6.32 ft	1.48 ft	0.14 ft	0.52 ft/hr	6.24 in/hr	

There are generally two acceptable methods to calculate steady state infiltration rates:
1. Time Weighted Average: 11.13 in/hr
2. Final Test Hour Reading: 6.24 in/hr

INFILTRATION TEST DATA SHEET

JOB NAME: Mitchell Farm

PROJECT NUMBER: JDH-10/18/226 **TEST LOCATION:** B-18

TEST DATE: May 21, 2018 **TEST DEPTH:** 8.10 ft

	TIME	DEPTH TO WATER BELOW GROUND SURFACE	HYDRAULIC HEAD	Δ HYDRAULIC HEAD	PERMEABILITY (K_m)		COMMENTS
Test Hour 1	9:45	6.10 ft	2.00 ft				
	10:00	7.20 ft	0.90 ft	1.10 ft			
	10:15	7.40 ft	0.70 ft	0.20 ft			
	10:30	7.50 ft	0.60 ft	0.10 ft			
	10:45	7.63 ft	0.47 ft	0.13 ft	1.53 ft/hr	18.36 in/hr	Refill to 6.10 ft. BGS
Test Hour 2	11:00	6.10 ft	2.00 ft	0.00 ft			
	11:15	6.16 ft	1.94 ft	0.06 ft			
	11:30	6.20 ft	1.90 ft	0.04 ft			
	11:45	6.20 ft	1.90 ft	0.00 ft	0.10 ft/hr	1.20 in/hr	Refill to 6.10 ft. BGS
Test Hour 3	12:00	6.20 ft	1.90 ft	0.10 ft			
	12:15	6.25 ft	1.85 ft	0.05 ft			
	12:30	6.28 ft	1.82 ft	0.03 ft			
	12:45	6.30 ft	1.80 ft	0.02 ft	0.20 ft/hr	2.40 in/hr	Refill to 6.10 ft. BGS
Test Hour 4	13:00	6.15 ft	1.95 ft	0.05 ft			
	13:15	6.18 ft	1.92 ft	0.03 ft			
	13:30	6.18 ft	1.92 ft	0.00 ft			
	13:45	6.20 ft	1.90 ft	0.02 ft	0.10 ft/hr	1.20 in/hr	Refill to 6.10 ft. BGS
Test Hour 5	14:00	6.10 ft	2.00 ft	0.00 ft			
	14:15	6.13 ft	1.97 ft	0.03 ft			
	14:30	6.15 ft	1.95 ft	0.02 ft			
	14:45	6.15 ft	1.95 ft	0.00 ft	0.05 ft/hr	0.60 in/hr	

There are generally two acceptable methods to calculate steady state infiltration rates:
1. Time Weighted Average: 1.35 in/hr
2. Final Test Hour Reading: 0.60 in/hr

Falling Head
Single Ring Infiltration Test

Tools and Supplies:

☐	15 gallons of clean water per test	☐	Hand Auger 4-inch bucket (with extensions)
☐	4 inch diameter thin wall PVC pipe	☐	Driving Block
☐	Sledge Hammer	☐	5 gallon buckets
☐	3- inch hand auger bucket	☐	Water level indicator
☐	Shovels Flat/Round	☐	Gator/ATV (as necessary)

Procedure:

A. Unless directed otherwise, advance one soil boring at each test location. The boring should extend to groundwater. Accurately measure depth to groundwater and depth of each soil change. Pay close attention to soils for mottling. Contact office to determine test depth. Note: This step can be omitted if test borings were advanced during a previous site visit.

B. Advance a 4-inch diameter soil boring to the specified test depth. **Check boring log to ensure that soil at bottom of excavation is soil type to be tested.**

C. Cut thin wall PVC to length (approximately 1 to 2' longer than desired test depth).

D. Push/drive PVC to bottom of soil boring.

E. Using 3-inch auger, clean out bottom of test hole to remove any soils that caved in during PVC placement. Drive PVC casing an additional 2 inches to ensure that bottom of test hole does not extend beyond the bottom of the PVC pipe.

F. Collect initial test information using water level indicator
1. Determine the total depth to the bottom of the hole from top of pipe and record.
2. Determine riser height above ground and record.
3. Subtract 2 feet from total depth (See F.1.) and record.

G. Start Test
1. Set up water level indicator at depth determined in F.3.
2. Fill tube with water until water level indicator alarms. To minimize soil scouring, slowly pour water down the inside of the casing wall.
3. Record exact depth to water with water level indicator.

H. Run Test:
1. Pre-soak (1 hour or less).
    a. Record depth to water every 15 minutes for first hour (pre-soak).
    b. At the end of first hour refill pipe with water to level determined in Step F.3.

Falling Head
Single Ring Infiltration Test

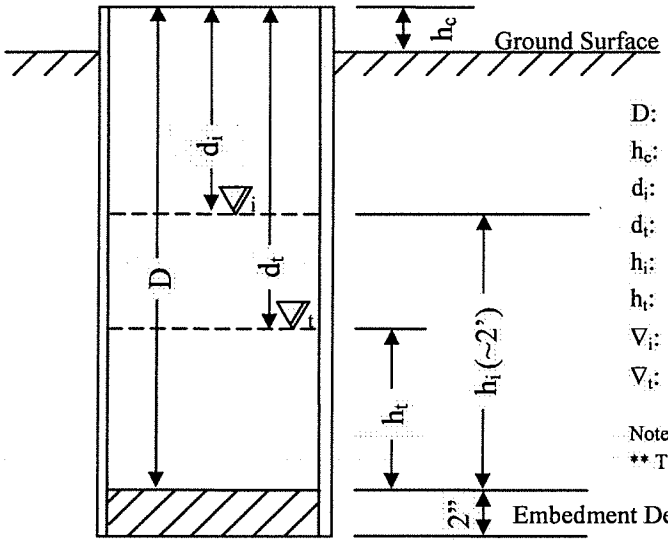
2. Infiltration testing (four, one hour tests)\
    a. Test starts after completing Step H.1.b.
    b. Record depth of water every 15 minutes (or more frequently)for one hour, or until water drains from pipe (which ever occurs first.
    c. Refill pipe with water to level determined in Step F.3.
    d. Repeat steps H.2.b. and c. three additional times (four test runs).
    e. Testing concludes after pre-soak and four test runs are completed.

I. Calculations

Infiltration rate is calculated as inches per hour.

Determine the water level drop recorded during each one hour test (note that the water level indicator is marked in tenths of a foot. A conversion to inches is required). Multiply the water level drop recorded in tenths of a foot by 1.2 to get water level drop in inches.

All data should be recorded on pre-made forms.



D: Depth from top of casing to bottom of boring.
h_c: Height of casing above ground surface.
d_i: Depth to water at time t=0.
d_t: Depth to water at time t.
h_i: Height of water at time t=0.
h_t: Height of water at time t.
∇_i: Water level at time t=0.
∇_t: Water level at time t.

Note:
** Take all measurements to 1/100 inch

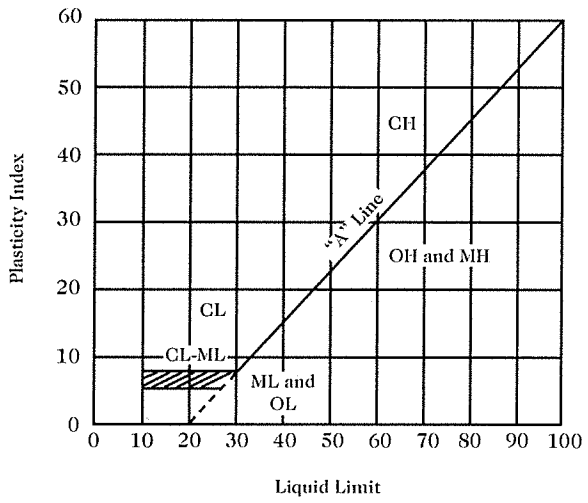
JOHN D. HYNES & ASSOCIATES, INC.

Geotechnical and Environmental Consultants
Monitoring Well Installation
Construction Inspection and Materials Testing

UNIFIED SOIL CLASSIFICATION SYSTEM

Major Divisions			*Group Symbols*	*Typical Names*	*Laboratory Classification Criteria*	
Coarse-grained soils (More than half of material is larger than No 200 sieve size)	Gravels (More than half of coarse fraction is larger than No 4 sieve size)	Clean gravels (Little or no fines)	GW	Well-graded gravels, gravel-sand mixtures, little or no fines	Determine percentages of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No 200 sieve size), coarse grained soils are classified as follows: Less than 5 percent: GW, GP, SW, SP. More than 12 percent: GM, GC, SM, SC. 5 to 12 percent: *Borderline cases requiring dual symbols*[a]	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3
			GP	Poorly graded gravels, gravel sand mixtures, little or no fines		Not meeting all graduation requirements for GW
		Gravels with fines (Appreciable amount of fines)	GM[a] d / u	Silty gravels, gravel-sand-silt mixtures	Atterberg limits below "A" line or P.I. less than 4	Above "A" line with P.I. between 4 and 7 are *borderline* cases requiring use of dual symbols
			GC	Clayey gravels, gravel-sand-clay mixtures	Atterberg limits above "A" line with P.I. greater than 7	
	Sands (More than half of coarse fraction is smaller than No 4 sieve size)	Clean sands (Little or no fines)	SW	Well-graded sands, gravelly sands,		$C_u = \frac{D_{60}}{D_{10}}$ greater than 6; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3
			SP	Poorly graded sands, gravelly sands, little or no fines		Not meeting all graduation requirements for SW
		Sands with fines (Appreciable amount of fines)	SM[a] d / u	Silty sands, sand-silt mixtures	Atterberg limits below "A" line or P.I. less than 4	Above "A" line with P.I. between 4 and 7 are *borderline* cases requiring use of dual symbols.
			SC	Clayey sands, sand-clay mixtures	Atterberg limits above "A" line with P.I. greater than 7	
Fine-grained soils (More than half material is smaller than No 200 sieve)	Silts and clays (Liquid limit less than 50)		ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands, or clayey silts with slight plasticity		
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays		
			OL	Organic silts and organic silty clays of low plasticity		
	Silts and clays (Liquid limit greater than 50)		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts		
			CH	Inorganic clays of high plasticity, fat clays		
			OH	Organic clays of medium to high plasticity, organic silts		
	Highly organic soils		Pt	Peat and other highly organic soils		

Plasticity Chart



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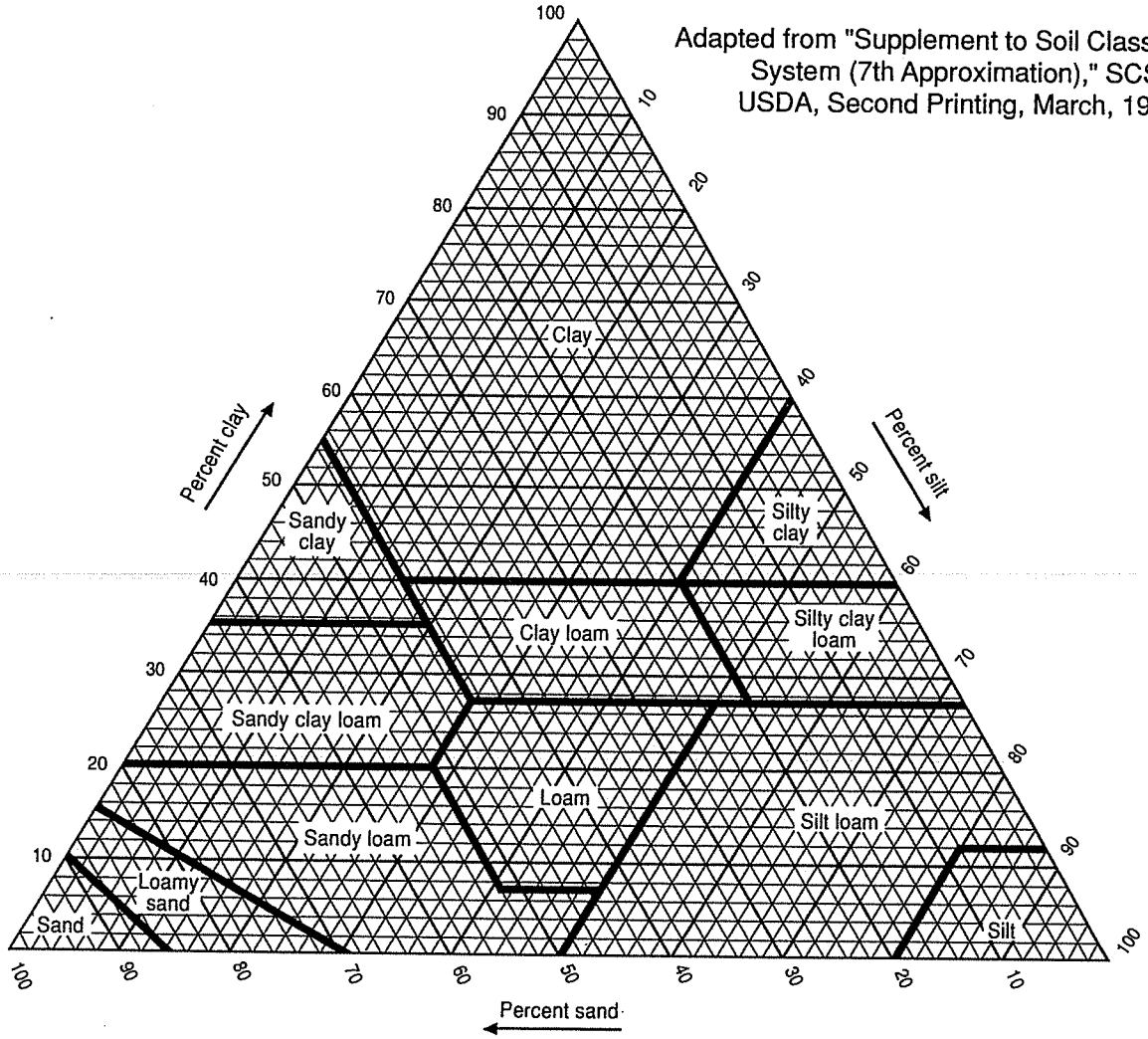
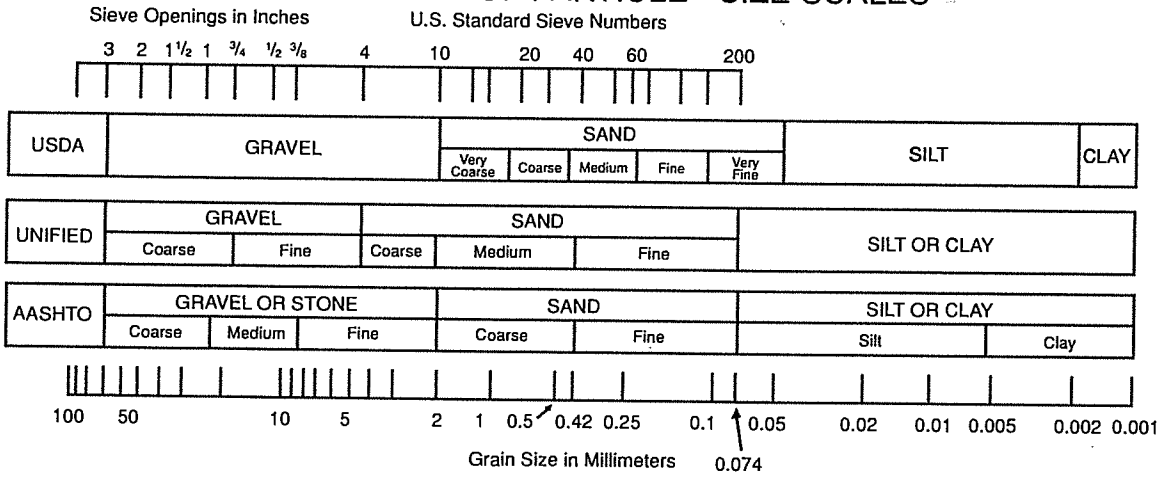
HYNES

USDA SOIL CLASSIFICATION SYSTEM

Adapted from "Supplement to Soil Classification System (7th Approximation)," SCS, USDA, Second Printing, March, 1967



COMPARISON OF PARTICLE - SIZE SCALES



Soil triangle of the basic soil textural classes. (U.S. Soil Conservation Service.) 288-D-2782.

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HYNES

FIELD CLASSIFICATION SYSTEM FOR SOIL EXPLORATION

NON-COHESIVE SOILS
(Silt, Sand, Gravel and Combinations)

DENSITY

Very Loose	- 5 blows/ft. or less
Loose	- 6 to 10 blows/ft.
Medium Dense	- 11 to 30 blows/ft.
Dense	- 31 to 50 blows/ft.
Very Dense	- 51 blows/ft. or more

RELATIVE PROPORTIONS

Descriptive Term	Percent
Trace	1 - 10
Little	11 - 20
Some	21 - 35
And	36 - 50

PARTICLE SIZE IDENTIFICATION

Boulders	- 8 inch diameter or more
Cobbles	- 3 to 8 inch diameter
Gravel	- Coarse - 1 to 3 inch
	- Medium - 1/2 to 1 inch
	- Fine - 4.75 mm to 1/2 inch
Sand	- Coarse - 2.0 mm to 4.75 mm
	- Medium - 0.425 mm to 2.0 mm
	- Fine - 0.075 mm to 0.425 mm
Silt	- 0.075 mm to 0.002 mm

COHESIVE SOILS
(Clay, Silt and Combinations)

CONSISTENCY

Very Soft	- 3 blows/ft. or less
Soft	- 4 to 5 blows/ft.
Medium Stiff	- 6 to 10 blows/ft.
Stiff	- 11 to 15 blows/ft.
Very Stiff	- 16 to 30 blows/ft.
Hard	- 31 blows/ft. or more

PLASTICITY

Degree of Plasticity	Plasticity Index
None to Slight	0 - 4
Slight	5 - 7
Medium	8 - 22
High to Very High	over 22

Classification on logs are made by visual inspection of samples unless a sample has been subjected to laboratory classification testing.

Standard Penetration Test - Driving a 2.0" O.D., 1-3/8" I.D., splitspoon sampler a distance of 1.0 foot into undisturbed soil with a 140 pound hammer free falling a distance of 30.0 inches. It is customary to drive the spoon 6 inches to seat into undisturbed soil, then perform the test. The number of hammer blows for seating the spoon and making the test are recorded for each 6 inches of penetration on the drill log (Example - 6/8/9). The standard penetration test value (N - value) can be obtained by adding the last two figures (i.e. 8 + 9 = 17 blows/ft.). (ASTM D-1586)

Strata Changes - In the column "Soil Descriptions," on the drill log, the horizontal lines represent strata changes. A solid line (—) represents an actually observed change, a dashed line (----) represents an estimated change.

Groundwater - Observations were made at the times indicated. Porosity of soil strata, weather conditions, site topography, etc. may cause changes in the water levels indicated on the logs.

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Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a civil engineer may not fulfill the needs of a constructor — a construction contractor — or even another civil engineer. Because each geotechnical- engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. No one except you should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you* — should apply this report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical-engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

Geotechnical Engineers Base Each Report on a Unique Set of Project-Specific Factors

Geotechnical engineers consider many unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk-management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical-engineering report that was:

- not prepared for you;
- not prepared for your project;
- not prepared for the specific site explored; or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical-engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical-engineering report is based on conditions that existed at the time the geotechnical engineer performed the study. *Do not rely on a geotechnical-engineering report whose adequacy may have been affected by:* the passage of time; man-made events, such as construction on or adjacent to the site; or natural events, such as floods, droughts, earthquakes, or groundwater fluctuations. *Contact the geotechnical engineer before applying this report to determine if it is still reliable.* A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ — sometimes significantly — from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide geotechnical-construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are Not Final

Do not overrely on the confirmation-dependent recommendations included in your report. *Confirmation-dependent recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations *only* by observing actual subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's confirmation-dependent recommendations if that engineer does not perform the geotechnical-construction observation required to confirm the recommendations' applicability.*

A Geotechnical-Engineering Report Is Subject to Misinterpretation

Other design-team members' misinterpretation of geotechnical-engineering reports has resulted in costly

problems. Confront that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Constructors can also misinterpret a geotechnical-engineering report. Confront that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing geotechnical construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical-engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make constructors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give constructors the complete geotechnical-engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise constructors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure constructors have sufficient time* to perform additional study. Only then might you be in a position to give constructors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and constructors fail to recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Environmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform an *environmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold-prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, many mold- prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical- engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; *none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.*

Rely, on Your GBC-Member Geotechnical Engineer for Additional Assistance

Membership in the Geotechnical Business Council of the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project. Confer with you GBC-Member geotechnical engineer for more information.

GBC GEOTECHNICAL BUSINESS COUNCIL
of the Geoprofessional Business Association

8811 Colesville Road/Suite G106, Silver Spring, MD 20910
Telephone: 301/565-2733 Facsimile: 301/589-2017
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APPENDIX 6

RESULTS OF ADDITIONAL INFILTRATION TESTING, APRIL 2019

John D. Hynes & Associates, Inc.

HYNES

JOHN D. HYNES & ASSOCIATES, INC.

Geotechnical and Environmental Consultants
Monitoring Well Installation
Construction Inspection and Materials Testing

April 8, 2019

LW & JT Mitchell Family LP
c/o Robert Mitchell
1019 Kings Highway
Lewes, Delaware 19958

Re: Pond Bottom Infiltration Test Results
Mitchell Farm
Lewes, Delaware
Project No.: JDH-10/19/172

Dear Mr. Mitchell:

John D. Hynes & Associates, Inc. completed additional subsurface evaluation services for the referenced Mitchell Farm project located in Lewes, Delaware. The work was completed in general accordance with our discussions with Davis, Bowen & Friedel, Inc.

The subsurface exploration study was performed to evaluate the subsurface conditions at the bottom of stormwater management (SWM) structure Pond 1. The SWM structure had been excavated prior to our site work. The purpose of the evaluation was to estimate the infiltration rates of the soils at the pond bottom and to evaluate the soils immediately below the pond bottom.

To determine the nature of the subsurface conditions at the site, six borings, designated as IT-1 through IT-6, were drilled. The borings were drilled on March 27, 2019 at the approximate locations shown on our Boring Location Sketch (Drawing No.: JDH-10/19/172-B). The borings were drilled to depths of approximately 3 feet using a hand auger. Single ring, falling head infiltration tests were performed in companion boreholes adjacent to the test boring locations at the bottom of Pond 1.

Soil sampling and testing were carried out in accordance with ASTM Specification D-1586. A brief description of our field procedures is included as an Attachment. The results of all boring and sampling operations are shown on the boring logs.

Samples of the subsurface soils were examined by our engineering staff and were visually classified in accordance with the Unified Soil Classification System (USCS) and ASTM Specification D-2488. The test boring samples were, also, classified in accordance with the United States Department of Agriculture (USDA) Classification System. The estimated USCS symbols and the USDA classifications are included on the boring logs. Keys to the systems' nomenclature are provided as an Attachment. Also included are reference sheets which define the terms and symbols used on the boring logs. The Munsell soil color and color code are, also, included for each stratum encountered in the test borings.

We note that the test boring records represent our interpretation of the field data based on visual examination and selected soil classification tests. Indicated interfaces between materials may be gradual. At the time of our exploration, no organic bearing soil was encountered at the surface at the boring locations. Varying thicknesses of organic bearing soils and other surficial materials may be present at other parts of the site.

Subsurface soils, visually classified in accordance with the USCS, consisted of layers of SAND (SP) and Low-Silt SAND (SM) to the boring termination depths. The test boring samples were, also, classified in accordance with the USDA classification system. The classifications consisted of Sand and Loamy sand.

32185 Beaver Run Drive • Salisbury, Maryland 21804 • 410-546-6462 • Fax 410-548-5346
Email: jdhynes@aol.com

Groundwater was not encountered. Groundwater elevations may vary at other times during the year depending upon the amount of local precipitation, and the extent of local surface development.

Infiltration tests were performed at each boring location. The infiltration tests were performed at bottom of existing SWM structure (Pond 1). The testing was completed in general accordance with DNREC guidelines. Testing was completed using the 12-inch standard falling head method. The test locations, infiltration test depth, and last test increment infiltration rates are summarized in the table below:

Table 1: Summary of Infiltration Test Results

Test Boring Location	Ground Elevation At Boring Location (ft.)	Infiltration Test Depth[1] (ft.)	Estimated Infiltration Test Elevation (ft.)	K_m (in./hr.) Last Test Increment
IT-1	14.0	0.00	14.0	18.75
IT-2	14.0	0.00	14.0	12.50
IT-3	14.0	0.00	14.0	15.00
IT-4	14.0	0.00	14.0	30.00
IT-5	14.0	0.00	14.0	18.75
IT-6	14.0	0.00	14.0	3.00

[1]All tests completed at the bottom of the SWM structure.

Refer to the "Infiltration Data Table" and "Single Ring Infiltration" test procedures in the Appendix for additional information regarding the infiltration tests.

In summary, Hynes & Associates completed 6 falling head infiltration tests and hand augered 6 soil borings in the bottom of one stormwater management (SWM) structure at the site. Based on our testing, the average infiltration rate for all 6 tests was 15.29 inches per hour (in./hr.).

This report has been prepared solely and exclusively for L.W. & J.T. Mitchell Family LP to provide guidance to design professionals in developing plans for the proposed Mitchell Farm project located in Lewes, Delaware. It has not been developed to meet the needs of others, and application of this report for other than its intended purpose could result in substantial difficulties. The Consulting Engineer cannot be held accountable for any problems which occur due to the application of this report to other than its intended purpose. This report in its entirety should be attached to the project specifications.

These analyses and recommendations are, of necessity, based on the concepts made available to us at the time of the writing of this report, and on-site conditions, surface and subsurface that existed at the time the exploratory borings were drilled. Further assumption has been made that the limited exploratory borings, in relation both to the areal extent of the site and to depth, are representative of conditions across the site. It is also recommended that we be given the opportunity to review all plans for the project in order to comment on the interaction of soil conditions as described herein and the design requirements.

Our professional services have been performed, our findings obtained and our recommendations prepared in accordance with generally accepted engineering principles and practices.

We appreciate the opportunity to be of service to you. If you have any questions regarding the attached data, or if we may be of further assistance, please contact our office.

Respectfully,

JOHN D. HYNES & ASSOCIATES, INC.

Alycen Kus

Alycen E. Kus
Environmental Staff

Richard D. Rhoads
Project Geologist

JOHN D. HYNES REGISTERED No. 7591 DELAWARE PROFESSIONAL ENGINEER

John D. Hynes, P.E.
President

AEK: RDR: JDH/sf

c.c.: Cliff Mumford; Davis, Bowen & Friedel, Inc.; Via Email: cdm@dbfinc.com

HYNES

ATTACHMENTS

1. Investigative Procedures
2. Project Location Map
3. Boring Location Plan
4. Boring Logs
5. Table 1: Summary of Infiltration Test Results
6. Infiltration Test Results
7. Infiltration Test Procedures
8. Unified Soil Classification Sheet
9. USDA Soil Classification Sheet
10. Field Classification Sheet
11. Important Information Sheet

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INVESTIGATIVE PROCEDURES

HAND AUGER SOIL TEST BORINGS

Test borings were performed using a hand auger. The auger is manually advanced by rotating the shaft of the auger. The auger is withdrawn at short intervals for inspection of soils collected in the auger head. Soil samples are taken when soil conditions are noted to change. The soil descriptions for each boring are presented on the boring logs in the Appendix.

SOIL CLASSIFICATION

Soil classifications provide a general guide to the engineering properties of various soil types and enable the engineer to apply his past experience to current problems. In our investigation, jar samples obtained during drilling operations are examined in our laboratory and visually classified by the geotechnical engineer in accordance with ASTM Specification D-2488. The soils are classified according to the USDA or Unified Classification System (ASTM D-2487). Each of these classification systems and the in-place physical soil properties provides an index for estimating the soil's behavior.

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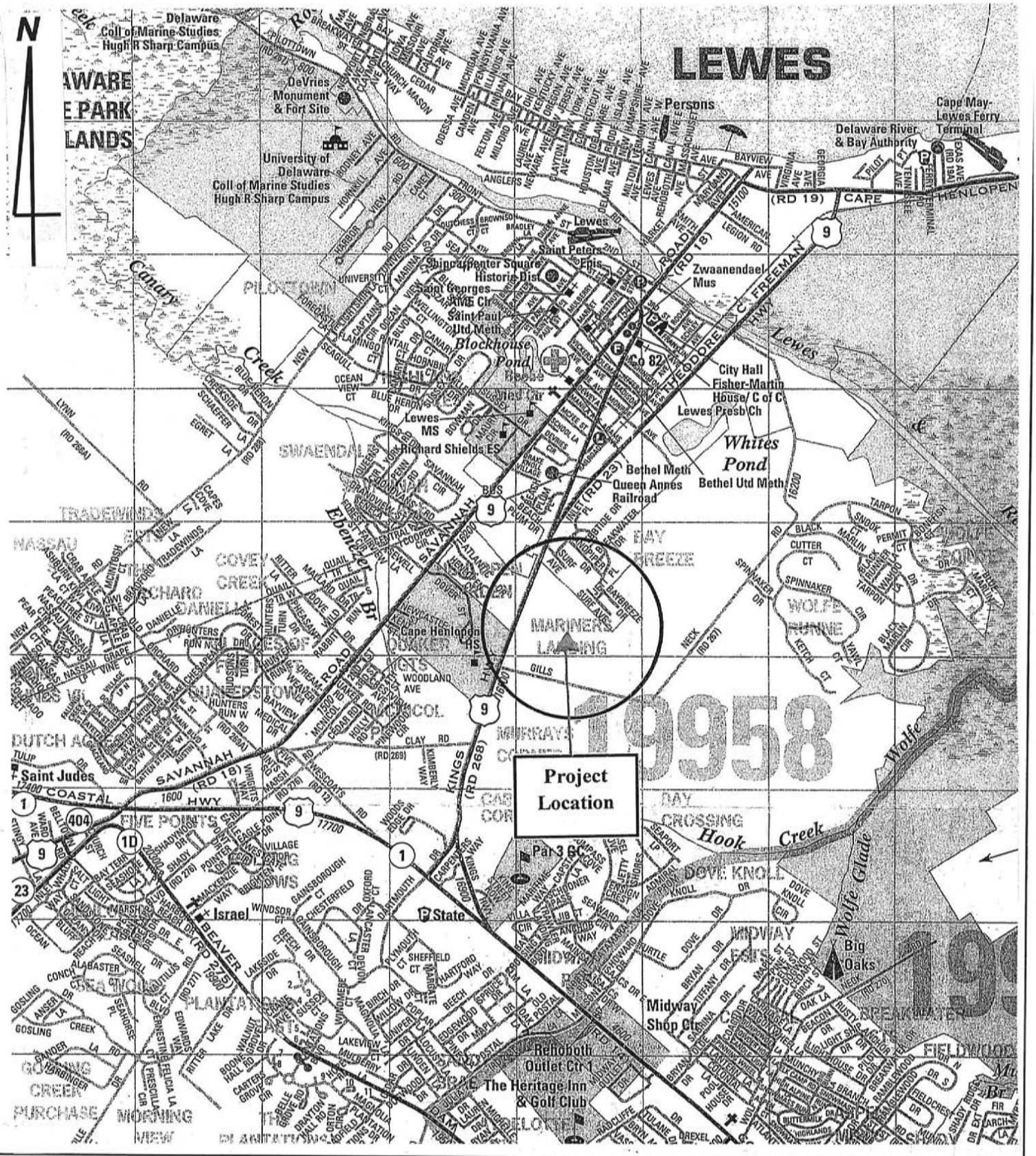

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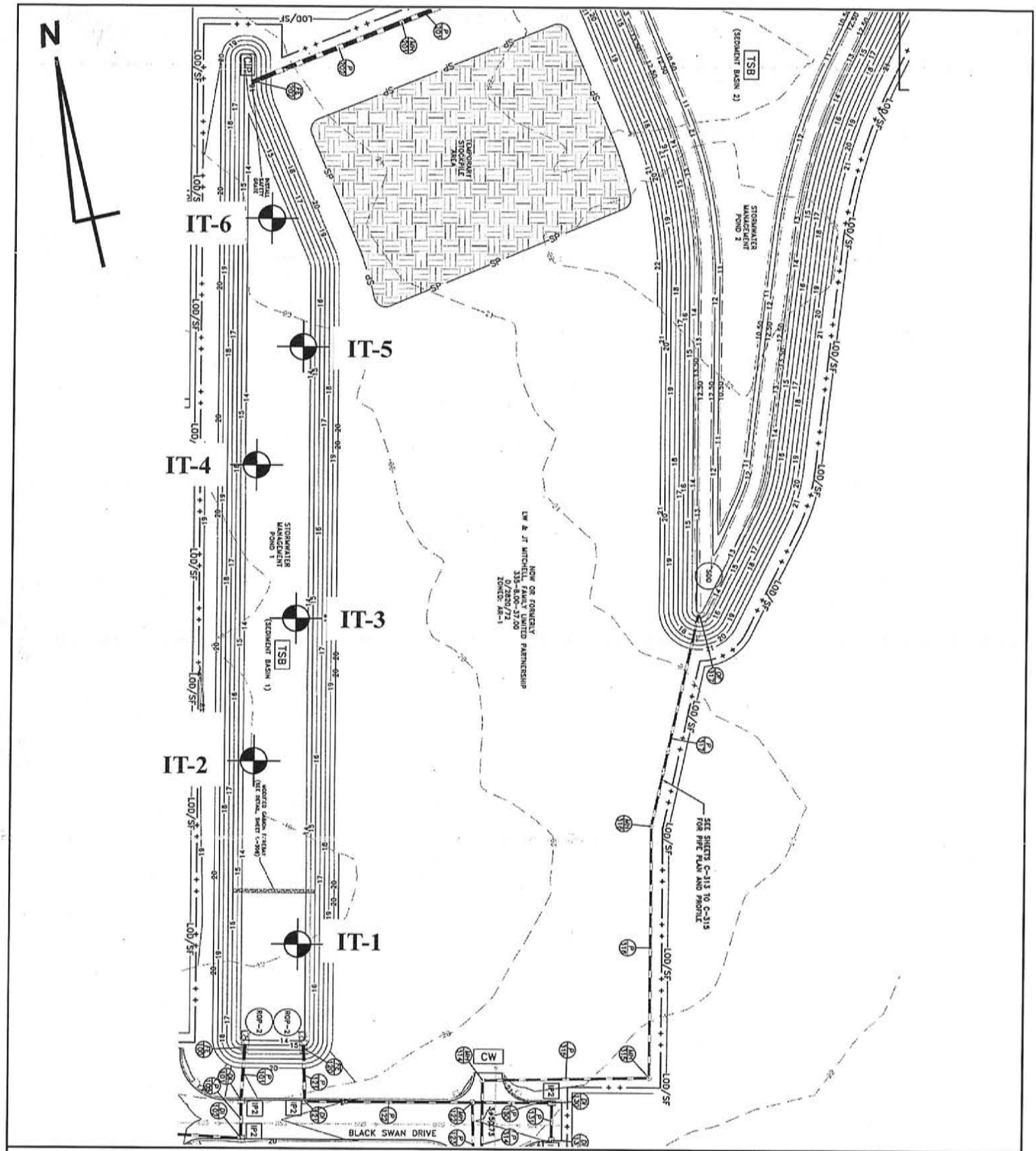
410-546-6462 / Fax: 410-548-5346

Date: March 29, 2019	
Scale: 1 in. = 2,000 ft.	
Drawn: ADC Maps	
Project Location Map Mitchell Farm Lewes, Delaware	DWG. No. JDH-10/19/172-A



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32185 Beaver Run Drive • Salisbury, Maryland 21804
410-546-6462 / Fax: 410-548-5346

Date: March 29, 2019	
Scale: 1 in. ≈ 125 feet	
Drawn: DBF	
Boring and Infiltration Test Location Plan Mitchell Farm Lewes, Delaware	DWG. No. JDH-10/19/172-B

HYNES & ASSOCIATES

LOG OF BORING IT-1

LW & JT Mitchell Family LP
1019 Kings Highway
Lewes, Delaware 19958

Mitchell Farm

Project No.: JDH-10/19/172

Date Completed: : March 27, 2019
Logged By: : A. Kus
Drilled By: : A. Vance
Drilling Method: : Hand Auger
Total Depth: : 3 feet

Depth in Feet	Surf. Elev. 14.0	DESCRIPTION	GRAPHIC	USCS	Sample No.	REMARKS
0	14	Very pale brown, wet, fine to medium SAND, with trace silt (10 YR 7/3, Sand)		SP	1	Scale 1" ~ 1.5 feet
1	13				2	Boring excavated at bottom of infiltration stormwater management basin.
2	12				3	Groundwater was not encountered during augering operations.
3	11	Boring terminated at 3 feet.				
4	10					
5	9					
6	8					
7	7					
8	6					
9	5					
10						

HYNES & ASSOCIATES

LOG OF BORING IT-2

LW & JT Mitchell Family LP
1019 Kings Highway
Lewes, Delaware 19958

Mitchell Farm

Project No.: JDH-10/19/172

Date Completed: : March 27, 2019
Logged By: : A. Kus
Drilled By: : A. Vance
Drilling Method: : Hand Auger
Total Depth: : 3 feet

Depth in Feet	Surf. Elev. 14.0	DESCRIPTION	GRAPHIC	USCS	Sample No.	REMARKS
0	14	Very pale brown, wet, fine to medium SAND, with trace silt (10 YR 7/3, Sand)		SP	1	Scale 1" ~ 1.5 feet Boring excavated at bottom of infiltration stormwater management basin. Groundwater was not encountered during augering operations.
1	13				2	
2	12				3	
3	11	Boring terminated at 3 feet.				
4	10					
5	9					
6	8					
7	7					
8	6					
9	5					
10						

HYNES & ASSOCIATES

LOG OF BORING IT-3

LW & JT Mitchell Family LP
1019 Kings Highway
Lewes, Delaware 19958

Mitchell Farm

Project No.: JDH-10/19/172

Date Completed: : March 27, 2019
Logged By: : A. Kus
Drilled By: : A. Vance
Drilling Method: : Hand Auger
Total Depth: : 3 feet

Depth in Feet	Surf. Elev. 14.0	DESCRIPTION	GRAPHIC	USCS	Sample No.	REMARKS
0	14	Brownish yellow, wet, fine to medium SAND, with trace silt (10 YR 6/6, Sand)		SP	1	Scale 1" ~ 1.5 feet Boring excavated at bottom of infiltration stormwater management basin. Groundwater was not encountered during augering operations.
1	13				2	
2	12	Very pale brown, wet, fine to medium SAND, with trace silt (10 YR 7/3, Sand)		SP	3	
3	11	Boring terminated at 3 feet.				
4	10					
5	9					
6	8					
7	7					
8	6					
9	5					
10						

HYNES & ASSOCIATES

LOG OF BORING IT-4

LW & JT Mitchell Family LP
1019 Kings Highway
Lewes, Delaware 19958

Mitchell Farm

Project No.: JDH-10/19/172

Date Completed: : March 27, 2019
Logged By: : A. Kus
Drilled By: : A. Vance
Drilling Method: : Hand Auger
Total Depth: : 3 feet

Depth in Feet	Surf. Elev. 14.0	DESCRIPTION	GRAPHIC	USCS	Sample No.	REMARKS
0	14	Brownish yellow, wet, fine to medium SAND, with trace silt (10 YR 6/6, Sand)		SP	1	Scale 1" ~ 1.5 feet Boring excavated at bottom of infiltration stormwater management basin. Groundwater was not encountered during augering operations.
1	13				2	
2	12	Very pale brown, wet, fine to medium SAND, with trace silt (10 YR 7/3, Sand)		SP	3	
3	11	Boring terminated at 3 feet.				
4	10					
5	9					
6	8					
7	7					
8	6					
9	5					
10						

HYNES & ASSOCIATES

LOG OF BORING IT-5

LW & JT Mitchell Family LP
1019 Kings Highway
Lewes, Delaware 19958

Mitchell Farm

Project No.: JDH-10/19/172

Date Completed: : March 27, 2019
Logged By: : A. Kus
Drilled By: : A. Vance
Drilling Method: : Hand Auger
Total Depth: : 3 feet

Depth in Feet	Surf. Elev. 14.0	DESCRIPTION	GRAPHIC	USCS	Sample No.	REMARKS
0	14	Very pale brown, wet, fine to medium SAND, with trace silt (10 YR 7/3, Sand)		SP	1	Scale 1" ~ 1.5 feet Boring excavated at bottom of infiltration stormwater management basin. Groundwater was not encountered during augering operations.
1	13				2	
2	12				3	
3	11	Boring terminated at 3 feet.				
4	10					
5	9					
6	8					
7	7					
8	6					
9	5					
10						

HYNES & ASSOCIATES

LOG OF BORING IT-6

LW & JT Mitchell Family LP
1019 Kings Highway
Lewes, Delaware 19958

Mitchell Farm

Project No.: JDH-10/19/172

Date Completed: : March 27, 2019
Logged By: : A. Kus
Drilled By: : A. Vance
Drilling Method: : Hand Auger
Total Depth: : 3 feet

Depth in Feet	Surf. Elev. 14.0	DESCRIPTION	GRAPHIC	USCS	Sample No.	REMARKS
0	14	Yellowish brown, wet, fine to medium SAND, with little silt (10 YR 5/8, Loamy sand)		SM	1	Scale 1" ~ 1.5 feet
		Very pale brown, wet, fine to medium SAND, with trace silt (10 YR 7/3, Sand)		SP	2	Boring excavated at bottom of infiltration stormwater management basin.
1	13					Groundwater was not encountered during augering operations.
2	12				3	
3	11	Boring terminated at 3 feet.				
4	10					
5	9					
6	8					
7	7					
8	6					
9	5					
10						

Falling Head
Single Ring Infiltration Test

Project: Mitchell Farm
Date: 3/27/2019
Project No.: 10/19/172
Test Location: IT-1

Depth from top of Casing to Bottom of Boring (D): N/A ft.
Height of Casing above Ground Surface (h_c): N/A ft.

Test Depth: 6.00 ft.
Tester/ Technician Performing Test: Alycen

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)
Presoak	8:41	-	12.00	-
	9:11	30	0.00	12.00
Test 1	9:38	-	6.00	-
	9:40	2	5.00	1.00
	9:42	2	4.375	0.625
	9:44	2	3.50	0.875
	9:46	2	2.875	0.625
	9:48	2	2.50	0.375
	9:50	2	2.00	0.50
	9:52	2	1.50	0.50
	9:54	2	1.00	0.50
	9:56	2	0.50	0.50
	9:58	2	0.00	0.50
		Test 1	**Infiltration Rate (in./hr.):**	**15.00**
Test 2	9:59	-	6.00	-
	10:01	2	5.125	0.875
	10:03	2	4.625	0.50
	10:05	2	3.875	0.750
	10:07	2	3.25	0.625
	10:09	2	2.50	0.75
	10:11	2	2.00	0.50
	10:13	2	1.375	0.625
	10:15	2	0.875	0.50
	10:17	2	0.25	0.625
	10:19	2	0.00	0.25
		Test 2	**Infiltration Rate (in./hr.):**	**18.75**

Falling Head
Single Ring Infiltration Test

Project: Mitchell Farm
Date: 3/27/2019
Project No.: 10/19/172
Test Location: IT-2

Depth from top of Casing to Bottom of Boring (D): N/A ft.
Height of Casing above Ground Surface (h_c): N/A ft.

Test Depth: 6.00 ft.
Tester/ Technician Performing Test: Alycen

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)
Presoak	8:58	-	12.00	-
	9:28	30	3.00	9.00
	9:38	40	0.00	12.00
Test 1	10:24	-	6.00	-
	10:27	3	5.00	1.00
	10:30	3	4.00	1.00
	10:33	3	3.375	0.625
	10:36	3	2.75	0.625
	10:39	3	2.00	0.75
	10:42	3	1.50	0.50
	10:45	3	0.875	0.625
	10:48	3	0.25	0.625
	10:51	3	0.00	0.25
		Test 1	**Infiltration Rate (in./hr.):**	**12.50**
Test 2	10:52	-	6.00	-
	10:55	3	5.125	0.875
	10:58	3	4.375	0.75
	11:01	3	3.75	0.625
	11:04	3	3.00	0.75
	11:07	3	2.25	0.75
	11:10	3	1.625	0.625
	11:13	3	1.00	0.625
	11:16	3	0.375	0.625
	11:19	3	0.00	0.375
		Test 2	**Infiltration Rate (in./hr.):**	**12.50**

Falling Head
Single Ring Infiltration Test

Project: Mitchell Farm
Date: 3/27/2019
Project No.: 10/19/172
Test Location: IT-3

Depth from top of Casing to Bottom of Boring (D): N/A ft.
Height of Casing above Ground Surface (h_c): N/A ft.

Test Depth: 6.00 ft.
Tester/ Technician Performing Test: Alycen

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)
Presoak	9:07	-	12.00	-
	9:28	21	0.00	12.00
Test 1	11:35	-	6.00	-
	11:37	2	4.50	1.50
	11:39	2	3.375	1.125
	11:41	2	2.50	0.875
	11:43	2	1.50	1.00
	11:45	2	0.625	0.875
	11:47	2	0.00	0.625
		Test 1	**Infiltration Rate (in./hr.):**	**30.00**
	11:47	-	6.00	-
	11:49	2	5.00	1.00
	11:51	2	3.75	1.25
	11:53	2	2.25	1.50
	11:55	2	1.500	0.75
	11:57	2	0.75	0.75
	11:59	2	0.00	0.75
		Test 2	**Infiltration Rate (in./hr.):**	**30.00**
	12:00	2	6.00	-
	12:02	2	5.00	1.00
Test 3	12:04	2	3.875	1.125
	12:06	2	2.75	1.125
	12:08	2	1.875	0.875
	12:10	2	1.125	0.75
	12:12	2	0.625	0.50
	12:14	2	0.00	0.625
		Test 3	**Infiltration Rate (in./hr.):**	**15.00**

Falling Head
Single Ring Infiltration Test

Project: Mitchell Farm
Date: 3/27/2019
Project No.: 10/19/172
Test Location: IT-4

Depth from top of Casing to Bottom of Boring (D): N/A ft.
Height of Casing above Ground Surface (h_c): N/A ft.

Test Depth: 6.00 ft.
Tester/ Technician Performing Test: Alycen

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)
Presoak	9:21	-	12.00	-
	9:41	20	2.00	10.00
	9:43	22	0.00	12.00
Test 1	12:19	-	6.00	-
	12:21	2	4.75	1.25
	12:23	2	3.625	1.125
	12:25	2	2.625	1.00
	12:27	2	1.50	1.125
	12:29	2	0.50	1.00
	12:31	2	0.00	0.50
		Test 1	**Infiltration Rate (in./hr.):**	**30.00**
	12:31	-	6.00	-
	12:33	2	5.25	0.75
	12:35	2	4.125	1.125
	12:37	2	3.00	0.75
	12:39	2	2.25	1.00
	12:41	2	1.25	1.00
	12:43	2	0.00	1.25
		Test 2	**Infiltration Rate (in./hr.):**	**30.00**
	12:43	2	6.00	-
Test 3	12:45	2	5.00	1.00
	12:47	2	4.00	1.00
	12:49	2	3.00	1.00
	12:51	2	2.00	1.00
	12:53	2	1.00	1.00
	12:55	2	0.00	1.00
		Test 3	**Infiltration Rate (in./hr.):**	**30.00**

Falling Head
Single Ring Infiltration Test

Project: Mitchell Farm
Date: 3/27/2019
Project No.: 10/19/172
Test Location: IT-5

Depth from top of Casing to Bottom of Boring (D): N/A ft.
Height of Casing above Ground Surface (h_c): N/A ft.

Test Depth: 6.00 ft.
Tester/ Technician Performing Test: Alycen

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)
Presoak	10:56	-	12.00	-
	11:28	32	0.00	12.00
Test 1	13:00	-	6.00	-
	13:02	2	5.00	1.00
	13:04	2	4.25	0.750
	12:06	2	3.375	0.875
	13:08	2	2.750	0.625
	13:10	2	2.125	0.625
	13:12	2	1.50	0.625
	13:14	2	0.875	0.625
	13:16	2	0.25	0.625
	13:18	2	0.00	0.25
		Test 1	**Infiltration Rate (in./hr.):**	**18.75**
Test 2	13:19	-	6.00	-
	13:21	2	5.25	0.750
	13:23	2	4.375	0.875
	13:25	2	3.75	0.625
	13:27	2	3.00	0.75
	13:29	2	2.25	0.75
	13:31	2	1.625	0.625
	13:33	2	1.00	0.625
	13:35	2	0.375	0.625
	13:37	2	0.00	0.375
		Test 2	**Infiltration Rate (in./hr.):**	**18.75**

Falling Head
Single Ring Infiltration Test

Project: Mitchell Farm
Date: 3/27/2019
Project No.: 10/19/172
Test Location: IT-6

Depth from top of Casing to Bottom of Boring (D): N/A ft.
Height of Casing above Ground Surface (h_c): N/A ft.

Test Depth: 6.00 ft.
Tester/ Technician Performing Test: Alycen

	Time (t)	Time Elapsed (min)	Hydraulic Head (h) (in)	Change (Δh) (in)
Presoak	11:27	-	12.00	-
	12:56		2.00	10.00
Test 1	13:00	-	6.00	-
	13:05	5	5.50	0.50
	13:10	5	4.50	1.00
	12:15	5	4.00	0.50
	13:20	5	3.50	0.50
	13:25	5	2.875	0.625
	12:30	5	2.25	0.625
	12:40	10	1.625	0.625
	13:50	10	1.00	0.625
	14:00	10	0.00	1.00
		Test 1	**Infiltration Rate (in./hr.):**	**3.75**
Test 2	14:00	-	6.00	-
	14:10	10	5.00	1.000
	14:20	10	4.00	1.00
	14:30	10	3.25	0.75
	14:40	10	2.50	0.75
	14:50	10	2.00	0.50
	15:00	10	1.50	0.50
		Test 2	**Infiltration Rate (in./hr.):**	**3.00**

Falling Head
Single Ring Infiltration Test
(Delaware)

Tools and Supplies:

- ☐ 50 gallons of clean water per test
- ☐
- ☐ One 12" (or 4") ring per test
- ☐ Well Sand
- ☐ Shovels Flat/Round
- ☐ Hand Rake
- ☐ Sledge Hammer
- ☐ Driving Block and Cap
- ☐ Purge Pump, tubing, and buckets
- ☐ Battery
- ☐ Mini Excavator – Rental (pits deeper than 2 ft)
- ☐ Gator/ATV (as necessary
- ☐ Hand Auger (with extensions)
- ☐ 4 inch thin wall PVC (at least one foot longer than test depth)

Note: 1 test period equals 1 hour maximum or until water empties out of ring, or until infiltration rate equilibrates. Contact Project manager before stopping test for less than 4 test runs and with questions about testing.

Procedure:

A. Advance one soil boring at each test location. The boring should extend to groundwater. Accurately measure depth to groundwater and depth of each soil change. Pay close attention to soils for mottling. Contact office for test depth if depth not provided.

B. Excavate test pit to specified test depth. Test pit should be sloped or benched in accordance with OSHA standards. (For safety two people will be onsite for tests deeper than 4 feet).

C. Use Flat point shovel or trowel to grade bottom of test pit. Bottom of excavation should be flat but not compacted. **Check boring log to ensure that soil at bottom of excavation is soil type to be tested.**

D. Set up ring (permeameter)/Pre-soak

1. Set ring at bottom of excavation.
2. Using driving block drive (ring) approximately 2-3 inches into the ground.
3. Lightly tamp disturbed soil along inside and outside edges of ring. **Do not compact soil at the bottom of the hole.**
4. Use hand rake to scarify soils within test ring.
5. Spread approximately ½" of well sand in bottom of ring.
6. Fill ring with approximately 12 inches of water. Be careful not to erode soil at bottom
7. Measure using tape measure distance from top of ring to to water surface. You may also use water level indicator device.
8. Monitor water drop every 10-15 minutes for 1 hour or until ring runs dry (whichever occurs first).
9. Contact project manager after pre-soak with infiltration data.

Falling Head
Single Ring Infiltration Test
(Delaware)

E. Run Test (minimum 2 test periods)

1. Readings should be no greater than 15 minutes apart. Reading interval to be based on pre-soak data. See attached data sheet.
2. For each test period, fill ring with 6 inches of water.
3. After pre-soak, run 2-4 test intervals, depending on test data.
4. Individual Test period can be terminated when four successive readings during a test period vary less than ¼ inch for rates greater than 2 in/hr., or vary by 1/8 inch for rates less than 2 in/hr. Test period can also be terminated after 1 hour.
5. If test rates do not equilibrate after 4 test periods, contact project manager.
6. If ring runs dry within 7 minutes, contact project manager.

Falling Head
Single Ring Infiltration Test
(Delaware)

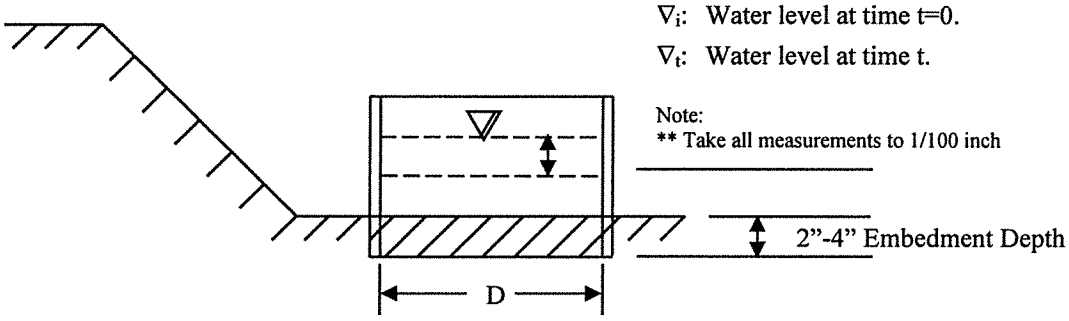
D: Diameter of Ring.

H_c: Distance from bottom of Drop Tube to Soil.

∇: Water level in infiltration Ring.

∇_i: Water level at time t=0.

∇_t: Water level at time t.



Note:
** Take all measurements to 1/100 inch

JOHN D. HYNES & ASSOCIATES, INC.

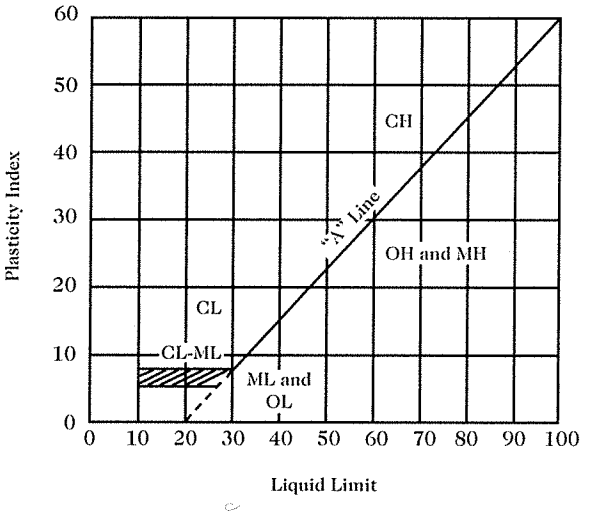
Geotechnical and Environmental Consultants
Monitoring Well Installation
Construction Inspection and Materials Testing

UNIFIED SOIL CLASSIFICATION SYSTEM

Major Divisions			*Group Symbols*	*Typical Names*	*Laboratory Classification Criteria*	
Coarse-grained soils (More than half of material is larger than No 200 sieve size)	Gravels (More than half of coarse fraction is larger than No 4 sieve size)	Clean gravels (Little or no fines)	GW	Well-graded gravels, gravel-sand mixtures, little or no fines	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3	
			GP	Poorly graded gravels, gravel sand mixtures, little or no fines	Not meeting all graduation requirements for GW	
		Gravels with fines (Appreciable amount of fines)	GM[a] d u	Silty gravels, gravel-sand-silt mixtures	Atterberg limits below "A" line or P.I. less than 4	Above "A" line with P.I. between 4 and 7 are *borderline* cases requiring use of dual symbols
			GC	Clayey gravels, gravel-sand-clay mixtures	Atterberg limits above "A" line with P.I. greater than 7	
	Sands (More than half of coarse fraction is smaller than No 4 sieve size)	Clean sands (Little or no fines)	SW	Well-graded sands, gravelly sands,	$C_u = \frac{D_{60}}{D_{10}}$ greater than 6; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3	
			SP	Poorly graded sands, gravelly sands, little or no fines	Not meeting all graduation requirements for SW	
		Sands with fines (Appreciable amount of fines)	SM[a] d u	Silty sands, sand-silt mixtures	Atterberg limits below "A" line or P.I. less than 4	Above "A" line with P.I. between 4 and 7 are *borderline* cases requiring use of dual symbols.
			SC	Clayey sands, sand-clay mixtures	Atterberg limits above "A" line with P.I. greater than 7	
Fine-grained soils (More than half material is smaller than No 200 sieve)	Silts and clays (Liquid limit less than 50)		ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands, or clayey silts with slight plasticity		
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays		
			OL	Organic silts and organic silty clays of low plasticity		
	Silts and clays (Liquid limit greater than 50)		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts		
			CH	Inorganic clays of high plasticity, fat clays		
			OH	Organic clays of medium to high plasticity, organic silts		
	Highly organic soils		Pt	Peat and other highly organic soils		

Determine percentages of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No 200 sieve size), coarse grained soils are classified as follows:
Less than 5 percent — GW, GP, SW, SP
More than 12 percent — GM, GC, SM, SC
5 to 12 percent — *Borderline cases requiring dual symbols*[a]

Plasticity Chart



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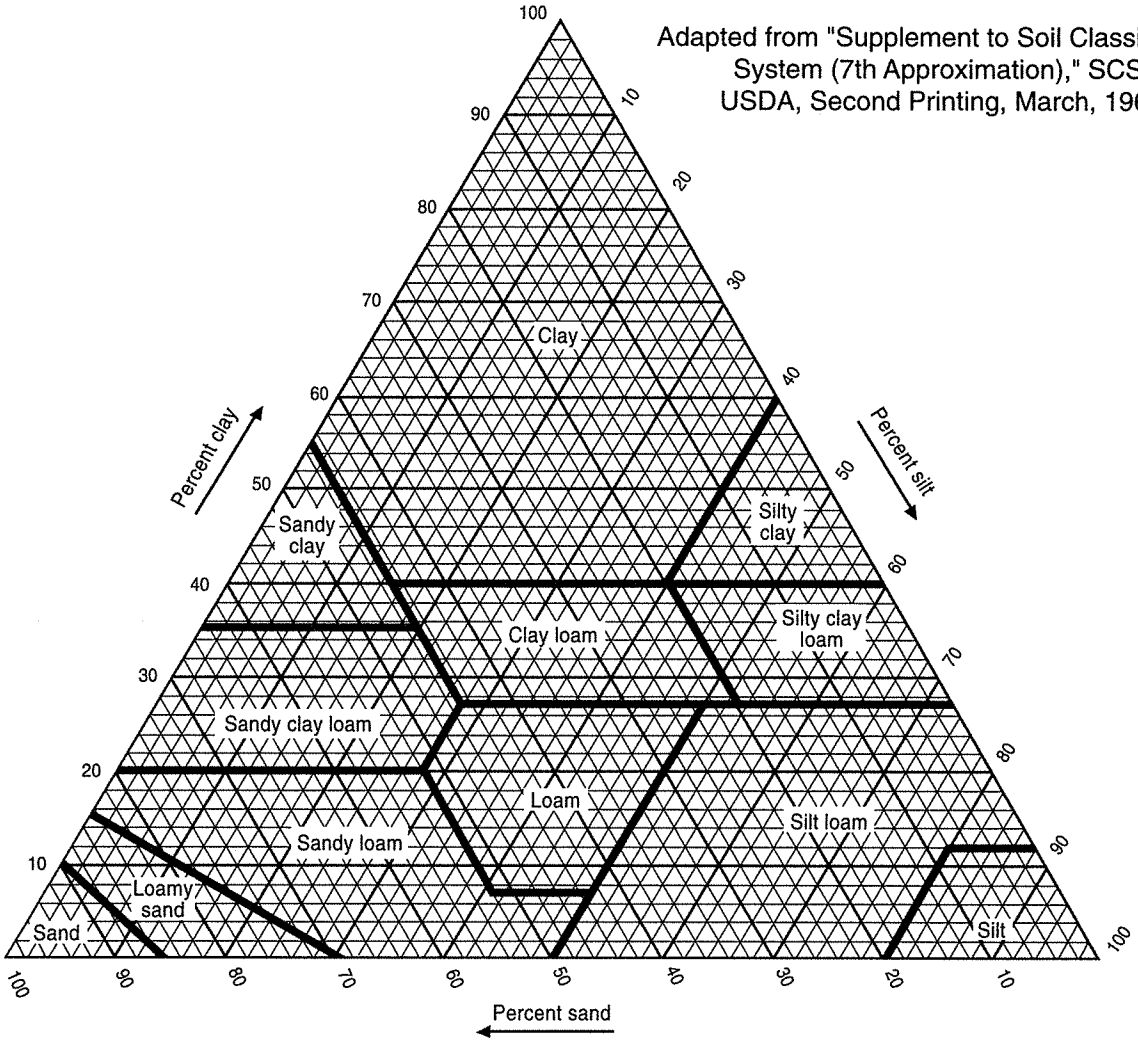
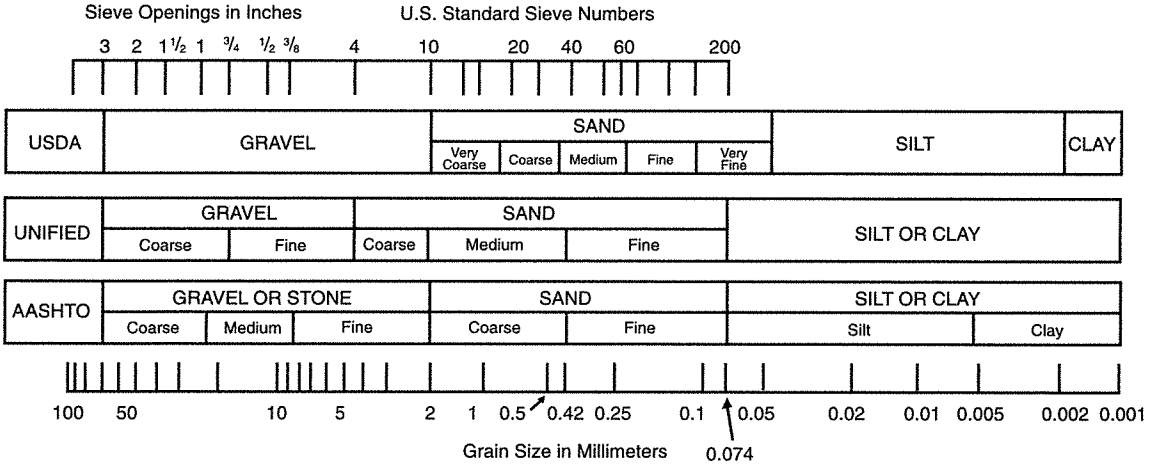
HYNES

USDA SOIL CLASSIFICATION SYSTEM

Adapted from "Supplement to Soil Classification System (7th Approximation)," SCS, USDA, Second Printing, March, 1967



COMPARISON OF PARTICLE - SIZE SCALES



Soil triangle of the basic soil textural classes. (U.S. Soil Conservation Service.) 288-D-2782.

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HYNES

FIELD CLASSIFICATION SYSTEM FOR SOIL EXPLORATION

NON-COHESIVE SOILS
(Silt, Sand, Gravel and Combinations)

DENSITY

Very Loose	- 5 blows/ft. or less
Loose	- 6 to 10 blows/ft.
Medium Dense	- 11 to 30 blows/ft.
Dense	- 31 to 50 blows/ft.
Very Dense	- 51 blows/ft. or more

RELATIVE PROPORTIONS

Descriptive Term	Percent
Trace	1 - 10
Little	11 - 20
Some	21 - 35
And	36 - 50

PARTICLE SIZE IDENTIFICATION

Boulders	- 8 inch diameter or more
Cobbles	- 3 to 8 inch diameter
Gravel	- Coarse - 1 to 3 inch
	- Medium - 1/2 to 1 inch
	- Fine - 4.75 mm to 1/2 inch
Sand	- Coarse - 2.0 mm to 4.75 mm
	- Medium - 0.425 mm to 2.0 mm
	- Fine - 0.075 mm to 0.425 mm
Silt	- 0.075 mm to 0.002 mm

COHESIVE SOILS
(Clay, Silt and Combinations)

CONSISTENCY

Very Soft	- 3 blows/ft. or less
Soft	- 4 to 5 blows/ft.
Medium Stiff	- 6 to 10 blows/ft.
Stiff	- 11 to 15 blows/ft.
Very Stiff	- 16 to 30 blows/ft.
Hard	- 31 blows/ft. or more

PLASTICITY

Degree of Plasticity	Plasticity Index
None to Slight	0 - 4
Slight	5 - 7
Medium	8 - 22
High to Very High	over 22

Classification on logs are made by visual inspection of samples unless a sample has been subjected to laboratory classification testing.

Standard Penetration Test - Driving a 2.0" O.D., 1-3/8" I.D., splitspoon sampler a distance of 1.0 foot into undisturbed soil with a 140 pound hammer free falling a distance of 30.0 inches. It is customary to drive the spoon 6 inches to seat into undisturbed soil, then perform the test. The number of hammer blows for seating the spoon and making the test are recorded for each 6 inches of penetration on the drill log (Example - 6/8/9). The standard penetration test value (N - value) can be obtained by adding the last two figures (i.e. 8 + 9 = 17 blows/ft.). (ASTM D-1586)

Strata Changes - In the column "Soil Descriptions," on the drill log, the horizontal lines represent strata changes. A solid line (—) represents an actually observed change, a dashed line (----) represents an estimated change.

Groundwater - Observations were made at the times indicated. Porosity of soil strata, weather conditions, site topography, etc. may cause changes in the water levels indicated on the logs.

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Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a civil engineer may not fulfill the needs of a constructor — a construction contractor — or even another civil engineer. Because each geotechnical- engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. No one except you should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you* — should apply this report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical-engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

Geotechnical Engineers Base Each Report on a Unique Set of Project-Specific Factors

Geotechnical engineers consider many unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk-management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical-engineering report that was:

- not prepared for you;
- not prepared for your project;
- not prepared for the specific site explored; or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical-engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical-engineering report is based on conditions that existed at the time the geotechnical engineer performed the study. *Do not rely on a geotechnical-engineering report whose adequacy may have been affected by:* the passage of time; man-made events, such as construction on or adjacent to the site; or natural events, such as floods, droughts, earthquakes, or groundwater fluctuations. *Contact the geotechnical engineer before applying this report to determine if it is still reliable.* A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ — sometimes significantly — from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide geotechnical-construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are Not Final

Do not overrely on the confirmation-dependent recommendations included in your report. *Confirmation-dependent recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations *only* by observing actual subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's confirmation-dependent recommendations if that engineer does not perform the geotechnical-construction observation required to confirm the recommendations' applicability.*

A Geotechnical-Engineering Report Is Subject to Misinterpretation

Other design-team members' misinterpretation of geotechnical-engineering reports has resulted in costly

problems. Confront that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Constructors can also misinterpret a geotechnical-engineering report. Confront that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing geotechnical construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical-engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make constructors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give constructors the complete geotechnical-engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise constructors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure constructors have sufficient time* to perform additional study. Only then might you be in a position to give constructors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and constructors fail to recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Environmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform an *environmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold-prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, many mold- prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical- engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; *none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.*

Rely, on Your GBC-Member Geotechnical Engineer for Additional Assistance

Membership in the Geotechnical Business Council of the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project. Confer with you GBC-Member geotechnical engineer for more information.

GEOTECHNICAL BUSINESS COUNCIL
of the Geoprofessional Business Association

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e-mail: info@geoprofessional.org www.geoprofessional.org

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APPENDIX 7

CLIMATIC WATER BUDGET SPREADSHEETS

Table 1 - Site Description
Mitchell Farm, Lewes, DElaware

Name of development:	Mitchell/Zwaanandael Farm		
Calculations by:	Steve Cahill, P.G.		
Name of watershed:	North Rehoboth Bay		
Landuse/landcover			
Existing site:	Agricultural with Stormwater Basin Installed		
Proposed site:	Commercial and Residential Development		
Type of WRPA:	Wellhead Area per Sussex County Code		
Project area			
Entire property:	51.01	acres	
Area within WRPA:	9.34	acres	
Impervious cover			
Existing within WRPA:	2.48	acres	26.0%
Proposed within WRPA:	4.89	acres	52%
Proposed Groundwater recharge facilities:		Infiltration basin	

***Although the existing impervious cover = 26% within the WPA, calculations assume no predevelopment impervious cover to reflect all predevelopment conditions.**

February 2022
Project No. 14447
Verdantas.

Climatic Water Balance
Predevelopment, Agricultural Areas

CLIMATIC WATER BALANCE IN SOIL GROUP B FOR AGRICULTURAL USE
SOIL MOISTURE STORAGE = 8 inches

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Precipitation (P)	3.03	3.16	3.44	3.09	3.42	3.69	4.83	4.87	3.93	4.37	2.47	3.07	43.37
Runoff Coeff. (RC)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	
Runoff (RO=RC*P)	0.30	0.32	0.34	0.31	0.34	0.37	0.48	0.49	0.39	0.44	0.25	0.31	4.34
Infiltration (P-RO)	2.73	2.84	3.10	2.78	3.08	3.32	4.35	4.38	3.54	3.93	2.22	2.76	
PET	0.00	0.00	0.62	2.00	3.72	5.25	6.10	5.31	3.74	2.02	0.75	0.00	
Infiltration-PET	2.73	2.84	2.48	0.78	-0.64	-1.93	-1.75	-0.93	-0.20	1.91	1.47	2.76	
Cumulative Water Loss	0.00	0.00	0.00	0.00	-0.64	-2.57	-4.32	-5.25	-5.45	0.00	0.00	0.00	
Storage (ST)	8.00	8.00	8.00	8.00	7.38	5.79	4.66	4.14	4.04	5.95	7.42	8.00	
Change ST	0.00	0.00	0.00	0.00	-0.62	-1.59	-1.13	-0.52	-0.10	1.91	1.47	0.58	
AET	0.00	0.00	0.62	2.00	3.70	4.91	5.48	4.90	3.64	2.02	0.75	0.00	28.02
Percolation	2.73	2.84	2.48	0.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.18	11.02

Values are in inches except for RC, which is unitless.
Assume Corn and Grain Crop Use with Soil Group B
PET = Potential Evapotranspiration; AET = Actual Evapotranspiration

References: Delaware Environmental Observing System, Historical Monthly Station Summary Retrieval
Georgetown-Delaware Coastal Airport, Weather Station, Mean Monthly Precipitation 2010 to 2021
Thornwaite, C.W. & J.R. Mather, 1957. "Instructions and Tables for Computing Potential Evapotranspiration and the Water Balance." Drexel Institute of Technology, Publications in Climatology, Centeron, New Jersey.
WRA, 2005. "Delaware Ground-Water Recharge Design Manual; Supplement 1 to the Source Water Protection Guidance Manual for the Local Governments of Delaware." March 2004, revised May 2005, revised June 2017. University of Delaware, Water Resources Agency (WRA).

Climatic Water Balance
Predevelopment, Stormwater Basin

CLIMATIC WATER BALANCE IN SOIL GROUP A FOR SWM Basin
SOIL MOISTURE STORAGE = 14 inches

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Precipitation (P)	3.03	3.16	3.44	3.09	3.42	3.69	4.83	4.87	3.93	4.37	2.47	3.07	43.37
Runoff Coeff. (RC)	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
Runoff (RO=RC*P)	0.03	0.03	0.03	0.03	0.03	0.04	0.05	0.05	0.04	0.04	0.02	0.03	0.43
Infiltration (P-RO)	3.00	3.13	3.41	3.06	3.39	3.65	4.78	4.82	3.89	4.33	2.45	3.04	
PET	0.00	0.00	0.62	2.00	3.72	5.25	6.10	5.31	3.74	2.02	0.75	0.00	
Infiltration-PET	3.00	3.13	2.79	1.06	-0.33	-1.60	-1.32	-0.49	0.15	2.31	1.70	3.04	
Cumulative Water Loss	0.00	0.00	0.00	0.00	-0.33	-1.93	-3.25	-3.74	0.00	0.00	0.00	0.00	
Storage (ST)	14.00	14.00	14.00	14.00	13.67	12.20	11.10	10.71	10.86	13.17	14.00	14.00	
Change ST	0.00	0.00	0.00	0.00	-0.33	-1.47	-1.10	-0.39	0.15	2.31	0.83	0.00	
AET	0.00	0.00	0.62	2.00	3.72	5.25	6.10	5.31	3.74	2.02	0.75	0.00	29.51
Percolation	3.00	3.13	2.79	1.06	0.00	0.00	0.00	0.00	0.00	0.00	0.87	3.04	13.87

Values are in inches except for RC, which is unitless.
Assume Soil Group A, Sandy Soils with Meadow-Type Vegetation
PET = Potential Evapotranspiration; AET = Actual Evapotranspiration

References: Delaware Environmental Observing System, Historical Monthly Station Summary Retrieval
Georgetown-Delaware Coastal Airport, Weather Station, Mean Monthly Precipitation 2010 to 2021
Thornwaite, C.W. & J.R. Mather, 1957. "Instructions and Tables for Computing Potential Evapotranspiration and the Water Balance." Drexel Institute of Technology, Publications in Climatology, Centeron, New Jersey.
WRA, 2005. "Delaware Ground-Water Recharge Design Manual; Supplement 1 to the Source Water Protection Guidance Manual for the Local Governments of Delaware." March 2004, revised May 2005, revised June 2017. University of Delaware, Water Resources Agency (WRA).

Climatic Water Balance
Post Development, Grass Landscape Areas

CLIMATIC WATER BALANCE IN SOIL GROUP B FOR GRASS COVERED AREAS POST DEVELOPMENT
SOIL MOISTURE STORAGE = 10 inches

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Precipitation (P)	3.03	3.16	3.44	3.09	3.42	3.69	4.83	4.87	3.93	4.37	2.47	3.07	43.37
Runoff Coeff. (RC)	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	
Runoff (RO=RC*P)	0.12	0.13	0.14	0.12	0.14	0.15	0.19	0.19	0.16	0.17	0.10	0.12	1.73
Infiltration (P-RO)	2.91	3.03	3.30	2.97	3.28	3.54	4.64	4.68	3.77	4.20	2.37	2.95	
PET	0.00	0.00	0.62	2.00	3.72	5.25	6.10	5.31	3.74	2.02	0.75	0.00	
Infiltration-PET	2.91	3.03	2.68	0.97	-0.44	-1.71	-1.46	-0.63	0.03	2.18	1.62	2.95	
Cumulative Water Loss	0.00	0.00	0.00	0.00	-0.44	-2.14	-3.61	-4.24	0.00	0.00	0.00	0.00	
Storage (ST)	10.00	10.00	10.00	10.00	9.57	8.10	7.01	6.57	6.60	8.78	10.00	10.00	
Change ST	0.00	0.00	0.00	0.00	-0.43	-1.47	-1.09	-0.44	0.03	2.18	1.22	0.00	
AET	0.00	0.00	0.62	2.00	3.71	5.01	5.73	5.12	3.74	2.02	0.75	0.00	28.70
Percolation	2.91	3.03	2.68	0.97	0.00	0.00	0.00	0.00	0.00	0.00	0.40	2.95	12.93

Values are in inches except for RC, which is unitless.
Assume Grass as Pervious Cover with Group B Soils
PET = Potential Evapotranspiration; AET = Actual Evapotranspiration
Assume Grass as Pervious Cover
References: Delaware Environmental Observing System, Historical Monthly Station Summary Retrieval
Georgetown-Delaware Coastal Airport, Weather Station, Mean Monthly Precipitation 2010 to 2021

Thornwaite, C.W. & J.R. Mather, 1957. "Instructions and Tables for Computing Potential Evapotranspiration and the Water Balance." Drexel Institute of Technology, Publications in Climatology, Centeron, New Jersey.
WRA, 2005. "Delaware Ground-Water Recharge Design Manual; Supplement 1 to the Source Water Protection Guidance Manual for the Local Governments of Delaware." March 2004, revised May 2005, revised June 2017. University of Delaware, Water Resources Agency (WRA).

Recharge Volumes
Mitchell/Zwaanendael Farm

PRE-DEVELOPMENT RECHARGE VOLUME

(Includes allowable 20% impervious)

Cover Type	Soil Group	Surface Cover (percent)	Area (acres)	Recharge (inches)	Recharge Volume (acre-inches)	Recharge Volume (gallons)
Agricultural Land	B	100%	9.34	11.02	103	2,796,891
Stormwater Basin	A	0%	0.00	0.00	0	-
Impervious (sidewalks/pavement	N/A	0%	0.00	N/A	N/A	N/A
Total		100%	9.34	11.02	103	2,796,891

POST-DEVELOPMENT RECHARGE VOLUME

Cover Type	Soil Group	Surface Cover (percent)	Area (acres)	Recharge (inches)	Recharge Volume (acre-inches)	Recharge Volume (gallons)
Pervious, Grass/Landscape Areas	B	44%	4.12	12.93	53	1,439,177
Stormwater Basin	A	4%	0.33	13.87	5	135,771
Building/other impervious	N/A	52%	4.89	N/A	N/A	N/A
Total		100%	9.34		37	1,574,948

NET LOSS IN RECHARGE DUE TO DEVELOPMENT

Status			Recharge Volume (acre-inches)	Recharge Volume (gallons)
Predevelopment	Impervious	0%	103	2,796,891
Postdevelopment	Impervious	52%	37	1,574,948
Net Recharge Loss				1,221,943

The recharge facility should be designed to infiltrate the Net Recharge Loss within the Wellhead Area.
Pre-development calculations assume no starting imperviosu cover. All lands were originally agricultural.

February 2022
Project No. 14447
Verdantas

Table 5 - Required Rooftop Area
Zwaanandael-Mitchell Farm

Required Rooftop Area (RFA) = Net Recharge Loss / (Annual Precipitation * 90% Not Evaporated)

Net Recharge Loss =	1,221,943	gallons per year
Annual Precipitation =	43.37	inches per year
Volume Not Evaporated =	90%	
RFA =	**50,223**	**square feet required for discharge**

Surplus Rooftop Area = Proposed Building Area - RFA

Proposed Building =	47,577	square feet
RFA =	50,223	square feet
Surplus or (Deficit) in Rooftop Area =	(2,646)	square feet

Recharge Volume of Proposed Rooftop = Rooftop Area * Precipitation * 90% Not Evaporated

Proposed Building =	47,577	square feet
Annual Precipitation =	43.37	inches per year
Volume Not Evaporated =	90%	
Recharge Volume of Proposed Rooftop =	1,157,576	gallons per year

Surplus Recharge Volume = Recharge Volume of Proposed Rooftop - Net Recharge Loss

Recharge Volume of Proposed Rooftop =	1,157,576	gallons per year
Net Recharge Loss =	1,221,943	gallons per year
Surplus or (Deficit) of Recharge Volume =	(64,367)	gallons per year

References Water Resource Agency, 2005. "Delaware Ground-Water Recharge Design Manual."

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Mitchells Corner
Letter of Architectural Appropriateness:

Cape Henlopen High School and Cape Henlopen Medical Center currently frame the busy intersection of Kings Highway and Gills Neck Road. The Mitchells Corner Commercial Building is proposed for an approximately 3.0-acre parcel of land situated approximately 375 feet from the intersection. It is part of a proposed project that includes road improvements around the intersection, a section of greenway along Kings Highway and new townhome residences.

The school and the medical building are neither inhospitable to each other, nor do they directly complement each other in style, form or scale. The Medical building and the school are articulated with tower, shape and massing to draw attention to themselves. The proposed building foregoes articulated (scale) elements to serve as a link between the medical building and the residential buildings. The idea is to have the three parts, medical, office and residential, work as a group.

Architecturally, Cape Henlopen High School is a large, complex building designed as a combination of brick facades with punched openings and arched roof gables that alternate with light color bays. Important parts of the design, such as the entry, have volumetric curved forms. The school's entry drive is part of the intersection, while the building is physically set back with parking and open space in front.

Cape Henlopen Medical Center sits on the northeast corner of the intersection. The building has light colored tower-like blocks in various sizes, primarily used as a design element to provide verticality and to visually strengthen the building corners. The façade between the towers is brick with horizontal windows.

As one can see, there are numerous architectural motifs in the context that might be evoked to rationalize nearly any architectural style. The design challenge of the Mitchells Corner Commercial Building is, therefore, to 'fit' an amorphous architectural context. We choose to enhance the context by relating our materials, form and scale to this environment in a number of respects. The proposed building emulates the brick and punched openings of the Cape Henlopen High School. It is this motif that supports and ties together the various elements of the school building, and we use it for a similar design purpose. We use square punched openings to convey stability and calm. Brick is also the one material common to all the buildings around the intersection. Consequently, the brick facade will also provide a neutral transition from the Medical Building on one side to the proposed townhomes on the other. We added metal panels above the windows to provide a horizontal gesture that further links the adjacent medical and residential buildings. We also acknowledge the corner features of the Cape Henlopen Medical Center by reversing their assertiveness with small glass corners on the proposed building. What is solid on the Medical Center becomes transparent on the proposed building. Lastly, we designed a brick, rectangular frame to mark the entry. This reiterates the form of the Medical Center towers without verticality. Thus, the proposed building extends the context through scale, materials and form as a 'good neighbor', rather than drawing attention to itself as a 'statement building'.

Daryl Carrington, Ph.D.

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February 28, 2022

Mr. Ring W. Lardner, P.E., Principal
Davis, Bowen & Friedel, Inc.
Milford, DE 19966

Transmitted by Email: rwl@dbfinc.com

RE: MITCHELLS CORNER | C/U 2334 | C/Z 1967 | C/Z 1968 | S-2022-01
HENLOPEN PROPERTIES, LLC
KINGS HIGHWAY | TAX MAP 335-8.00-37.00
LEWES REHOBOTH HUNDRED, SUSSEX COUNTY

Dear Mr. Lardner:

Pursuant to your request, I have reviewed the preliminary subdivision plan, dated December 2021 for the above referenced project and applications. You requested a peer review of the property as it pertains to Land Planning in an area that is among the most desirable locations in Sussex County. My opinions below are based on my many years of land planning in Sussex County as well my knowledge of similar style projects while doing work for both the public and private sectors. Land Use Planning is based on social, economic, political, legal, physical and planning aspects of urban and rural land use. Our exchange of ideas and information from a diverse range of disciplines and individuals will hopefully help formulate effective land use decisions.

The overall purpose of this review is to demonstrate and promote the applicant's interest in the proposed development's compliance with the rules, regulations and standards of the County's Zoning regulations and districts as established and adopted and in accordance with 2019 Comprehensive Plan which promotes the health, safety, morals, convenience, order, prosperity and general welfare of the citizens of Sussex County, Delaware. We know that the regulations and ordinances ensure the lessening of congestion in the streets and roads reducing the waste of excessive amounts of roads; securing safety from fire, flood and other dangers; providing adequate light and air; preventing on the one hand excessive concentration of population and on the other hand excessive and wasteful scattering of population; promoting adequate provisions for public requirements, transportation, water supply, water- and air-pollution abatement, drainage, sanitation, education opportunities, recreation and protecting both urban and nonurban development. The regulations and ordinances are made with reasonable consideration, the character of the particular district involved, its particular suitability for particular uses, the conservation of property values and natural resources and the general and appropriate trend and character of land, building and population development.

By way of background, I reviewed the following:

Plan Reviewed:	"PRELIMINARY SUBDIVISION PLANS" dated DECEMBER 2021 Sheets PL-01 through PL - 15
Sussex County Public Notice:	C/U 2334 AN ORDINANCE TO GRANT A CONDITIONAL USE OF LAND IN A MR MEDIUM RESIDENTIAL DISTRICT FOR MULTI-FAMILY (267 UNITS) TO BE LOCATED ON A CERTAIN PARCEL OF LAND LYING AND BEING IN LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, CONTAINING 43.777 ACRES, MORE OR LESS. C/Z 1967 AN ORDINANCE TO AMEND THE COMPREHENSIVE ZONING MAP OF SUSSEX COUNTY FROM AN AR-1 AGRICULTURAL RESIDENTIAL DISTRICT TO A MR MEDIUM RESIDENTIAL DISTRICT FOR A CERTAIN PARCEL OF LAND LYING AND BEING IN LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, CONTAINING 43.777 ACRES, MORE OR LESS. C/Z 1968 AN ORDINANCE TO AMEND THE COMPREHENSIVE ZONING MAP OF SUSSEX COUNTY FROM AN AR-1 AGRICULTURAL RESIDENTIAL DISTRICT TO A C-2 MEDIUM COMMERCIAL DISTRICT FOR A CERTAIN PARCEL OF LAND LYING AND BEING IN LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, CONTAINING 3.041 ACRES, MORE OR LESS. S-2022-01 A COASTAL AREA SUBDIVISION TO DIVIDE 43.777 ACRES +/- INTO TWO HUNDRED AND SIXTY-SEVEN (267) LOTS ON A CERTAIN PARCEL OF LAND LYING AND BEING IN LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY. THE PROPERTY IS LOCATED ON THE SOUTHEAST SIDE OF KINGS HIGHWAY (RT. 9) AND ON THE NORTH SIDE OF GILLS NECK ROAD (S.C.R. 267). TAX PARCEL: 335-8.00-37.00 (PORTION OF). ZONING: MR (MEDIUM RESIDENTIAL DISTRICT).
Location:	Kings Highway (Principal Arterial) and Gills Neck Road (Local Road)
Current Zoning:	AR-1, Agricultural Residential
Proposed Zoning:	MR Medium Residential C-2 Medium Commercial CU Conditional Use
Density:	C-2 – 3.04 +/- Acres (Public Notice) – 2.796+/- Acres Sheet PL-02 (exclusive of DelDOT dedication) MR/CU – 43.789 +/- Acres | 267 Units | 6.10 Units/Acre (Medium Density)
Total Gross Area:	46.829± Acres
Wetlands:	0.00± Acres
Source Water Protection Area:	Yes (portion of well-head protection area)
Flood Zone:	Outside the 100-year Floodplain
Sanitary Sewer:	Sussex County
Water:	Tidewater Utilities, Inc./City of Lewes board of Public Works

2019 Sussex County Comprehensive Plan FLUM Growth Area:	Coastal Area
2020 State Strategy Area:	Level 1
Character of Area/ Adjacent Properties:	City of Lewes – Apartments; Church; Single Family Detached Dwellings Sussex County – The Moorings (formerly Cadbury at Lewes); Single Family Attached Dwellings – Zoned MR/RPC Sussex County – Cape Henlopen Medical Center – Zoned AR-1/Conditional Use (CU#2112 – 39,000 SF Medical Office Building) Sussex County – Lane Builders Office – Zoned AR-1/CU Sussex County – Big Oyster Brewery – Zoned C-1/C-3 and AR-1 (pending rezoning to C-3 – CZ1962) Additionally, in the immediate area are medium to high-density single-family developments, Cape Henlopen High School (Institutional) and other commercial and employment uses that have developed the scale and character of the community.

Sussex County has many strong cities and towns as well as healthy rural landscapes with a range of housing types including single family homes, townhouses and multi-family units ranging in medium and high densities that continue to be planned next to and near commercial and employment areas. One of the characterizations of sprawl is the segregation of land uses. Mitchells Corner applications provide for a project that is in keeping with the character of the neighborhood. In order to encourage carefully planned mixed-use developments as a means of creating a superior living environment through unified developments, one must provide for design ingenuity while protecting existing and future developments and achieving the goals of the Comprehensive Plan. The application reviewed for this project meets the goals and the criteria for providing a total environment and design that meets the combined traditional zoning and subdivision regulations as well as the desires of how development is occurring and avoids overlapping regulations.

The Comprehensive Plan is an adopted document that sets forth the County's goals and implementation strategies intended to direct present and future physical, social and economic development within the County. The plan is long range in nature and provides the framework for County residents and decision makers to conceptualize how the County should look and function – (Pg 1-6). While the Comprehensive Plan acts as a policy guide for future development and decision-making, the County Code regulates the use of land. The Zoning Ordinance is the primary legal tool to regulate the uses of land. The County's official zoning map must be consistent with the use and intensities of uses provided for in the Future Land Use Plan. Table 4.5-2 in the Comprehensive Plan provides a tool for assisting in determining which zoning districts are applicable to each future land use category. Sussex County has designated the Mitchell' Corner Properties as a Coastal Area. The Coastal Area is a Growth Area and is an area that can accommodate development provided special environmental concerns are addressed. Appropriate

mixed-use developments are permitted in the Coastal Area. The Comprehensive Plan discusses how a mixture of homes and light commercial *should* be allowed.

Table 4.5-2 Zoning Districts Applicable to Future Land Use Categories

FUTURE LAND USE PLAN CATEGORY	APPLICABLE ZONING DISTRICT
Coastal Area	Agricultural Residential District (AR-1) Medium Density Residential District (MR) General Residential District (GR) High Density Residential District (HR-1 & HR-2) Business Community District (B-2) Business Research (B-3) Medium Commercial District (C-2) Heavy Commercial District (C-3) Planned Commercial District (C-4) Service/Limited Manufacturing District (C-5) Institutional District (I-1) Marine District (M) New Zoning Districts

MR and C-2 zoning districts are both applicable districts within the Coastal Area category of the Future Land Use Plan.

The MR District provides for medium-density residential development in areas which are expected to become generally urban in character and where sanitary sewers and public water supplies are available at the time of construction and accessory uses as may be necessary or are normally compatible with residential surroundings. With the Conditional Use added as an overlay, the MR District will allow for multifamily dwelling structures, subject to the provisions of Articles IV through XX, § 115-219 and Table 2. With 4-8 units per acre being supported for medium density in certain locations, Mitchel's Corner at 6.10 units/acre is appropriate given its connection to central sewer and water; its proximity to commercial uses and employment centers; its connection to an Arterial roadway and its consistency with the character of the area.

The C-2 District provides primarily for uses that include retail sales and performance of consumer services. It permits a variety of retail, professional and services businesses. The district should be primarily located near arterial and collector streets. It accommodates community commercial uses that do not have outside storage or sales. In Ordinance 2550, Sussex County Council desired to create a more specific C-2 Medium Commercial zoning district with smaller, more related uses within the district to promote better planning and predictability within Sussex County.

Important to note is the architectural massing, composition, scale, and character of the neighboring properties to this project. They consist of a mixture of residential, commercial, and institutional buildings in a variety of sizes and shapes. Large, small, tall and short, single-family detached and attached homes and commercial and institutional use buildings on a variety of lot sizes, in multiple zoning districts, abutted by a Principal Arterial known as Kings Highway - in two different jurisdictions…all populate both nearby and contiguous neighborhoods. The subdivision plans reviewed provide for a careful mixture of homes with commercial zoning that are appropriate in this location. This is an area that can support the medium density being proposed along with a mixture of commercial zoning that is in keeping with the character of the area. The plan proposes connectivity to an Arterial Roadway as well as a Local Road with

interconnectivity to an adjacent parcel. Capital facilities and infrastructure (water, wastewater, gas and power) are already available and adequate to support the growth. The layout accommodates social interaction with connection to adjacent properties and uses with shared use paths and sidewalks which will offer opportunities for interaction between the different housing types as well as the commercial areas for fostering pride of ownership.

The Mitchells Corner development follows some widely accepted planning concepts as it proposes to infill the development where infrastructure already exists. The proposal also has a compact building design fronting narrow streets, which if applied properly, fosters walkability, allows for more common open space while minimizing impervious areas and makes more efficient use of the land than conventional subdivisions and land development. While providing for an evaluation and comparison of the Mitchells Corner Development per the County's ordinances and Comprehensive Plan, I offer the following review comments that focus on planning principles and design standards:

A. The traffic circle at the intersection of Road A and Road B may need to be increased to handle the additional traffic that could be recognized for commercial traffic (if Road B does not interconnect with the commercial property), to the commercial parcels in a more efficient manner. It is recognized that the traffic circle is planned and sized for traffic calming and safety into the residential neighborhood, however, careful attention should be paid to the available lane width and turning radius used with the traffic circle if this becomes the secondary travel method to the commercial properties.

B. Landscaping within the buffering around the perimeter of the property was not shown within the plans reviewed. However, it was shown along the multi-modal path adjacent to King's Highway. It is recommended that the buffers be shown with potential landscaping on the current plan.

C. According to the Sussex County Tax Maps, the Outparcel at the end of Road F (1.195+/- Acres) is part of Tax Parcel 39.00, Zoned AR-1 and it is not known by the plans of what is intended for this parcel as a part of this application.

D. As described in *Understanding the Basics of Land Use* (2010), there are several opportunities presented in the plans, suggested comments, and recommendations. These land planning elements, when done properly could provide a myriad of benefits: 1) save money and materials with more efficient use of land and infrastructure; 2) create a sense of place and reinforce a sense of community; 3) protect and enhance property values; 4) safeguard public health; 5) increase fairness and opportunity; 6) provide public facilities and infrastructure; 7) improve economic development and quality of life; 8) protect the environment and conserve resources; 9) provide a forum for resolving conflicts and reaching agreement; and 10) setting clear expectations that the owners, applicants, consultants, and designers vetted when preparing the applications for this project.

The Mitchells Corner project has the potential to bring positive impacts to the County and the City of Lewes's existing built environment. The location allows the community to integrate into an established residential and commercial area. As the City of Lewes and Sussex County continue to welcome more residents and visitors each year, development that connects with the land use regulations and sound land use planning principles is essential to the areas planned growth and development.

Respectfully Submitted,

PENNONI

Mark H. Davidson, VP
Principal Land Planner

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