April 25, 2022

Via Electronic Mail

Mr. Ring Lardner, P.E.
Principal
Davis, Bowen & Fridel, Inc.
1 Park Avenue
Milford, Delaware

RE: Project Number 14447
Supplemental Information to Environmental Assessment Report dated February 2022
Mitchell Farm, Tax Parcel 335-8.00-37.00

Dear Mr. Lardner:

Per your request, we have prepared this letter-report to supplement an Environmental Assessment Report (EAR) prepared by Verdantas LLC titled "Environmental Assessment Report, Tax Parcel 335-8.00-37.00, Lewes, Delaware", dated February 2022. The February 2022 EAR determined solely the post-development rooftop area needed to balance the water budget. Geotechnical information included in the EAR was based on the since rescinded application but is still applicable to assessing this project. Verdantas understands that the size and location of the stormwater basin (recharge facility) for this application was based on better infiltration rates than those for the original design and the proximity to the existing outfall pipe beneath Gills Neck Road (positive drainage) from the property.

The Sussex County Code (the Code) indicates "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 (EAR) 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."

The referenced tax parcel (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. Per the EAR, stormwater facilities planned for the Property will also serve the adjacent Lewes Medical Center on tax parcel (335-8.00-37.01). Accordingly, the water budget analysis included the existing Medical Center, resulting in a total area for both properties of 51.01 acres, with 9.34 total acres within the WPA. The impervious cover planned for the combined parcels is 4.89 acres or 52% of the WPA as permitted by Code. Planned post-development recharge will far exceed pre- development recharge and will provide a substantial increase in water supply to the Lewes wellfield.

Additionally, the purpose of this supplemental information to the February 2022 EAR is as follows.

- Provide updated mapping related to local drainage basins and anticipated surface water drainage and groundwater flow.

- Address typographical errors in the initial EAR.
- Provide revisions to the water budget based on changes made for post-development planning and handling of stormwater for recharge.
- Discuss the benefits of increasing the quantity of water recharged to the wellhead area.
- Provide documentation that water quality can be maintained and even improved when developing agricultural lands.

SURFACE WATER DRAINAGE AND GROUNDWATER FLOW

Verdantas updated a review of the drainage basin mapping for the Property using the United States Geological Survey (USGS) Hydrologic Unit Code 12 (HUC 12). The HUCs range from HUC 2 to HUC 12 with the higher number (12) providing more detailed, local sub-watershed levels including tributary systems. The HUC 12 mapping shows the Property to be located within the Canary Creek-Broadkill River Drainage Basin and just west of the Wolfe Glade-Rehoboth Canal Drainage Basin. The boundary between the two drainage basins and topography indicates that surface drainage on the Property would be conveyed under natural conditions in a northwesterly direction towards the headwaters of Canary Creek or to the northeast in the direction of the Lewes-Rehoboth Canal. It is likely that groundwater beneath the Property follows natural topography and flows towards the headwaters of Canary Creek and the canal, unless artificially drawn to the wellfield because of pumping from the Lewes supply wells (see Figure 1).

WATER BUDGET AND WATER QUANTITY

The climatic water budget prepared for the February 2022 EAR was based on using the existing stormwater basin and calculating the rooftop area needed for recharge to equal or exceed pre-development recharge. Total post-development recharge available from all impervious cover within the WPA was not determined.

Pre and post development recharge summary tables derived from the body of the February 2022 EAR are provided below. There were typographical errors in these summary tables that did not affect the totals for the water budget calculations or affect the report conclusions. Those corrected values are highlighted on the tables.

Pre-development Recharge					
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 Recharge					
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 (135,771)
Impervious Cover (Buildings, etc.)	NA	4.89	NA	NA	NA
Total		9.52 (9.34)		44 (58)	**1,574,948**

The water budget for the EAR indicated that 50,223 square feet of rooftop area would be required to balance the water budget but did not include post-development recharge that would be provided by other imperious surfaces within the WPA.

The water budget has been updated using a revised preliminary post-development site plan with the recharge basin located within the WPA and covering an area of 0.85 acres. A revised "Preliminary Post-Development Plan" prepared by Davis, Bowen & Fridel, Inc. is attached as Exhibit 1. Stormwater from all impervious surfaces within the WPA will be conveyed to this basin for recharge to the subsurface. Revised spreadsheets presenting the climatic water balance are included as Exhibit 2. Summaries of the pre-development and post-development surface cover and estimated recharge volumes are presented below.

Pre-development Recharge					
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 Recharge					
Cover Type	Soil Group	Area (acres)	Recharge (Inches)	Recharge Volume (acre-inches)	Recharge Volume (gallons)
Grass/Landscape	B	3.60	12.93	47	1,276,251
Stormwater Basin	A	0.85	13.87	12	325,851
Impervious Cover (Buildings, etc.)	NA	4.89	39*	191	5,186,468
Total	-	9.34	65.8	250	**6,788,570**

*Assume 10% evaporation of annual 43.37 inches of precipitation conveyed for recharge.

The pre and post development calculations result in the following.

Pre-Development Annual Recharge	2,796,891 gallons
Post-Development Annual Recharge	6,788,570 gallons
Annual Surplus Recharge from Impervious Cover within WPA	**3,991,679 gallons**

Post-development recharge will surpass pre-development recharge by almost four million gallons per year solely from stormwater collected within the WPA. Stormwater from areas of the Property outside the WPA may also be conveyed to the recharge basin, providing substantial supplemental recharge and water supply to the Lewes wellfield. This proposed recharge provides an excellent opportunity to help offset the potential lowering of groundwater levels in the wellfield from ever increasing water demands anticipated by the City of Lewes.

Where stormwater from paved surfaces is conveyed into the recharge basin, Verdantas recommends installing pretreatment structures to contain debris and potential petroleum releases prior to discharge into the basin. These structures are typically designed with dual chambers separated by a baffle wall to contain floating debris and petroleum within the primary chamber while allowing water to flow beneath the baffle wall and through the secondary chamber.

CHANGE IN LAND USE AND WATER QUALITY

The planned development is in character with land uses already within the WPA, but with the addition of Green Technology Best Management Practices (BMPs). The Lewes supply wells have historically provided acceptable drinking water with the following land uses present within the WPA:

- A number of commercial properties and more than 200 homes, many of which were served by septic systems before a sanitary sewer system was provided.
- Kings Highway runs directly adjacent to the wellfield with traffic totals exceeding 12,000 vehicles per day with no treatment of stormwater conveyed into the wellhead area. Future planning includes expanding Kings Highway into a dual highway.
- Cape Henlopen High School is located directly adjacent to the well field. BMPs were not utilized until the school was re-developed beginning in 2009. Impervious cover at the high school and district office exceeds one million square feet. The impervious cover includes approximately 600 parking spaces, bus parking, an above ground diesel fuel tank, and a greenhouse. We estimate that 50,000 to 100,000 vehicles park on the paved areas of the high school and school district office annually. This does not consider truck traffic, fuel deliveries, and other service and maintenance vehicles.

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. The only contaminant that has been reported near EPA Maximum Concentration limits (MCLS) allowable for public drinking water systems in the Lewes water supply is Nitrates. Nitrates reported in the Lewes water system 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 agricultural land use and should be reduced with residential and commercial land use and Green Technology BMPs. Studies have found that development of agricultural land often improves the quality of surface water and groundwater.

A publication titled "Controlling Urban Runoff: A Practical Manual for Planning and Designing Urban BMPs" [1] indicates that properly designed basins with favorable subsurface soil conditions

can adequately infiltrate stormwater and reduce pollutants. BMPs serve a dual purpose by providing effective management of stormwater flow and controlling non-point source pollution. The referenced study also indicated the following:

- The greatest sediment loads are produced from larger intensely developed watersheds that are not utilizing BMPs.
- Artificial groundwater recharge is an effective BMP to reduce the frequency and severity of downstream floods.
- "Infiltration BMPs are an excellent means of providing for groundwater recharge, which is often lost as a consequence of watershed development. Natural levels of recharge can be duplicated by diverting a significant fraction of the runoff from frequent small and moderate storms back into the soils."
- "Infiltration practices have a moderate to high removal capability for both particulate and soluble urban pollutants."
- Long-term studies of pollutant migration in soils beneath infiltration practices indicate only limited downward migration of pollutants through the soil (EPA 1983).

The University of Delaware Water Resources Agency prepared a report for the New Castle County Department of Land Use titled "Report on Water Resource Protection Areas, New Castle County, Delaware" [(2)] dated March 14, 2011. Approximately 180 Water Resource Protection Area (WRPA) projects were reviewed for the report. Twenty-two of the WRPA projects included Water Management Agreements that required pre and post development groundwater monitoring with laboratory analysis of groundwater samples. The Water Resources Agency indicated in the cover page of the report that "groundwater quality and quantity have largely been preserved under the WRPA provisions of New Castle County Code." Data in the report also indicated that groundwater quality typically improved following development. New Castle County has permitted recharge basins in Water Resource Protection Areas to receive both rooftop water and stormwater from paved surfaces, typically with pretreatment structures for water conveyed from the paved surfaces.

In 2016, a Sussex County Planning and Zoning Commissioner sent an inquiry to DNREC regarding the Lewes WPA water quality when considering a rezoning application for the planned Village Center located south of the project site.[(3)] One of the questions asked of DNREC was "Has the purity of the water changed and/or have any new pollutants been detected?" DNREC's response was "Based on the sample results from the last 5-10 years made available to DNREC by the ODW there has been no change in water quality." This is an important observation as the proposed development of the Property is consistent with historical and existing land use within the WPA. ODW refers to the Delaware Department of Public Health, Office of Drinking Water.

RECOMMENDATIONS

Considering the Sussex County Code (Chapter 89 Source Water Protection) and BMPs, Verdantas recommends the following practices when developing the Property, per the original EAR.

- Install pre-treatment structures where water from paved surfaces will be conveyed into 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 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.

If you have any questions regarding this supplemental report, please contact us.

Sincerely,

Verdantas LLC

Steven Cahill, P.G.
Senior Project Manager

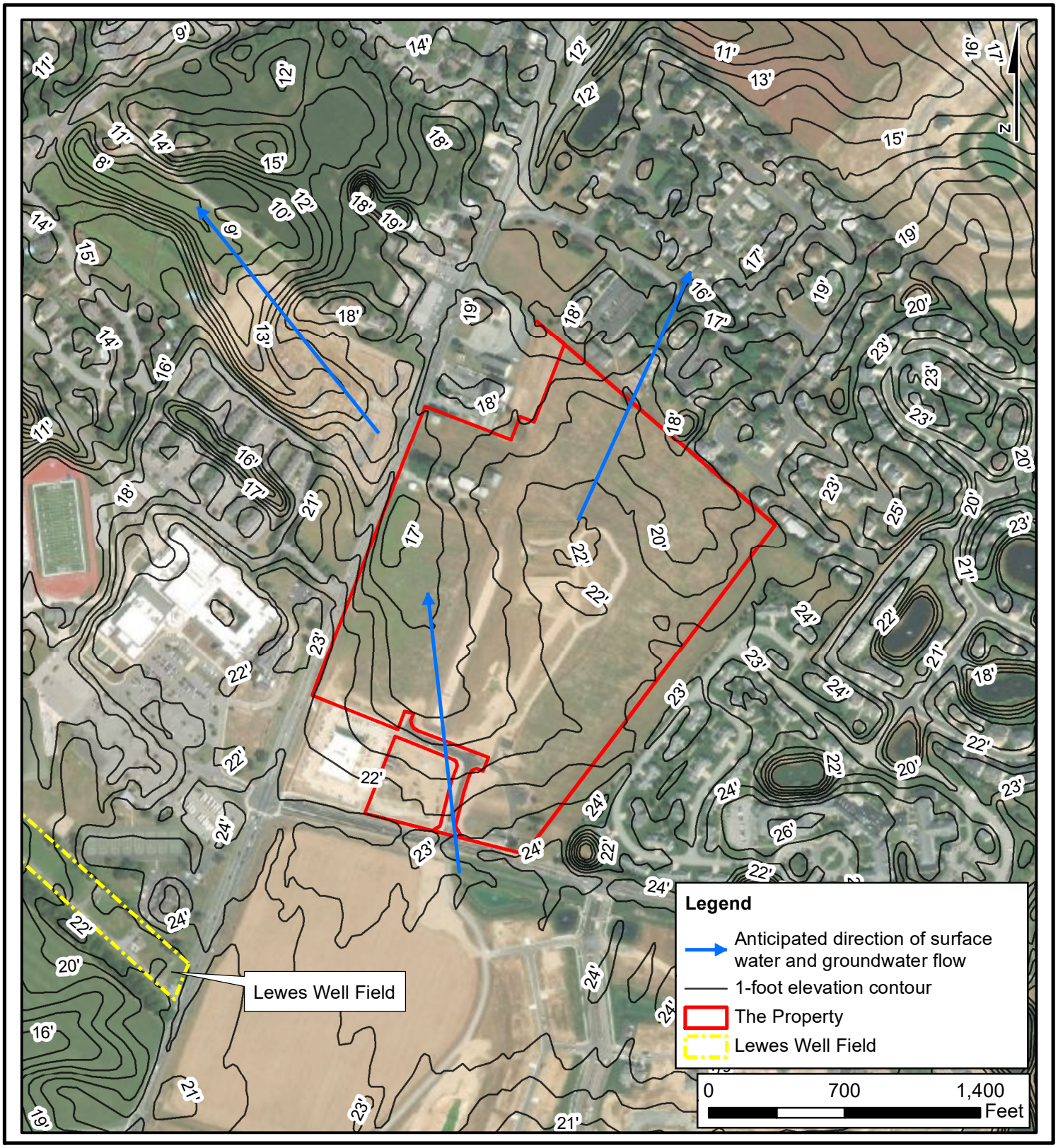
REFERENCES

1. Schueler, T., 1987. Controlling Urban Runoff: A Practical Manual for Planning and Designing Urban BMPs., Metropolitan Washington Council of Governments, Washington, DC.

2. Homesy and Kauffman, 2011, Report on Water Resource Protection Areas, New Castle County, Delaware, March 14, 2011.

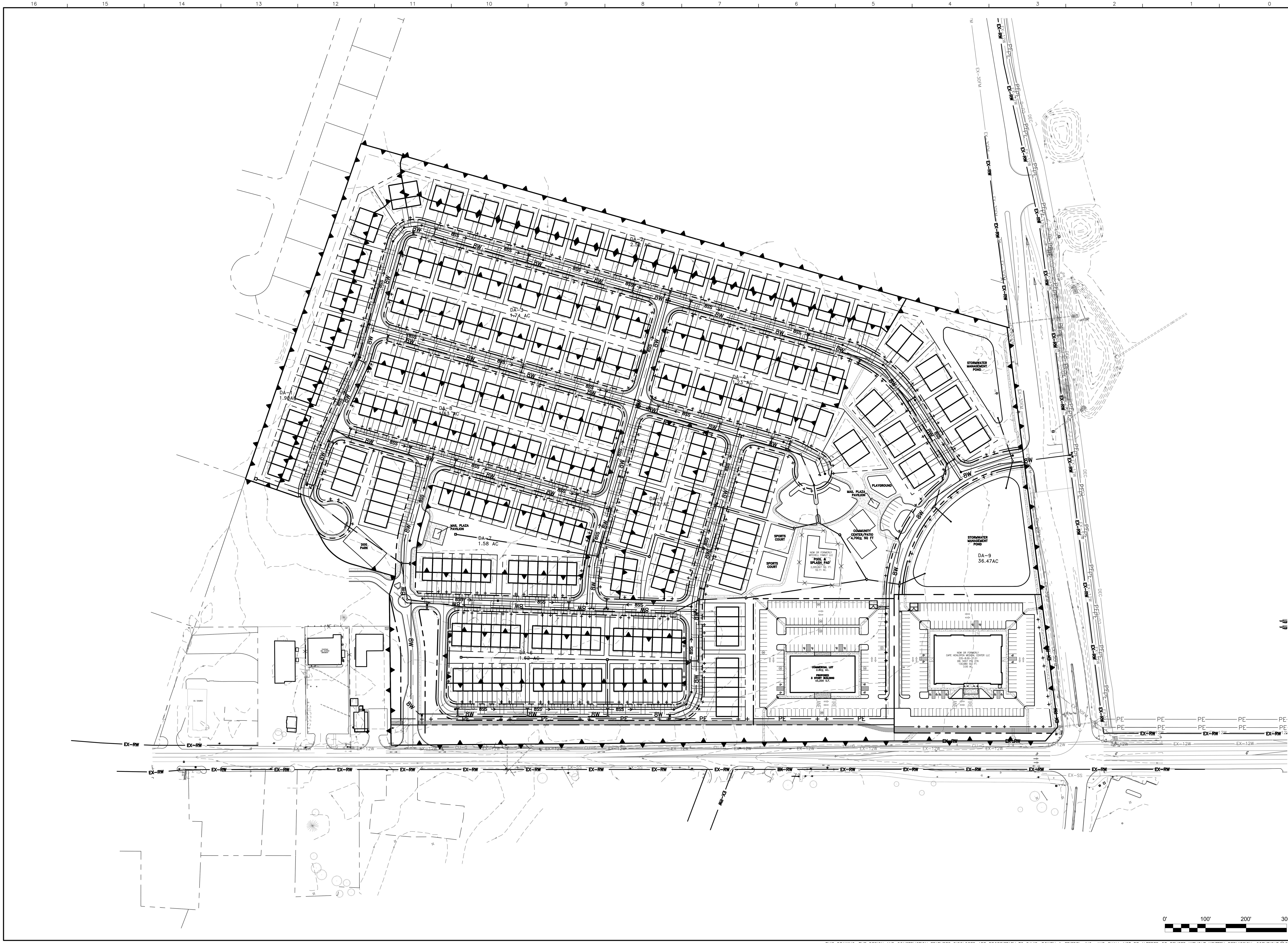
3. Electronic mail dated October 31, 2016, from Anne Mundel (DNREC) to Kevin Coyle (DNREC), Anita Beckel (DNREC), and Michael Tholstrup (DNREC) regarding inquiries from Janelle Cornwell (Sussex County Planning and Zoning Manager))

FIGURE 1: SURFACE WATER AND GROUNDATER FLOW



Date: 04/2022	**ESTIMATED NATURAL SURFACE WATER AND GROUNDWATER DRAINAGE DIRECTION**	DESIGNED BY: KLS	DUFFIELD ASSOCIATES Soil, Water & the Environment
SCALE: AS SHOWN		DRAWN BY: KLS	5400 LIMESTONE ROAD WILMINGTON, DE 19808-1232 TEL. (302)239-6634 FAX (302)239-8485
PROJECT NO. 14447	MITCHELL FARM	CHECKED BY: SFC	OFFICES IN PENNSYLVANIA, SOUTHERN DELAWARE, MARYLAND AND NEW JERSEY
SHEET: FIGURE 3	LEWES~SUSSEX COUNTY~DELAWARE	FILE: 14447-FlowDirection.mxd	EMAIL: DUFFIELD@DUFFNET.COM

EXHIBIT 1: PRELIMINARY POST DEVELOPMENT PLAN



MITCHELLS CORNER

KINGS HIGHWAY (SCR 268)

LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

PRELIMINARY POST DEVELOPMENT

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

Revisions:

Date:	APRRIL 2022
Scale:	1" = 100'
Dwn.By:	RWL
Proj.No.:	3808A001
Dwg.No.:	PST

EXHIBIT 2: WATER BUDGET CALCULATION SHEETS

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	***Includes Lewes Medical Center**		
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.**

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

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 (ROOFTOPS ONLY)

Cover Type	Soil Group	Surface Cover (percent)	Area (acres)	Recharge (inches)	Recharge Volume (acre-inches)	Recharge Volume (gallons)
Pervious, Grass/Landscape Areas	B	39%	3.60	12.93	47	1,276,251
Stormwater Basin	A	9%	0.85	13.87	12	325,851
Building/other impervious	N/A	12%	1.10	39.00	43	1,167,634
Total		60%	5.55		102	2,769,736

POST-DEVELOPMENT RECHARGE VOLUME (All IMPERVIOUS)

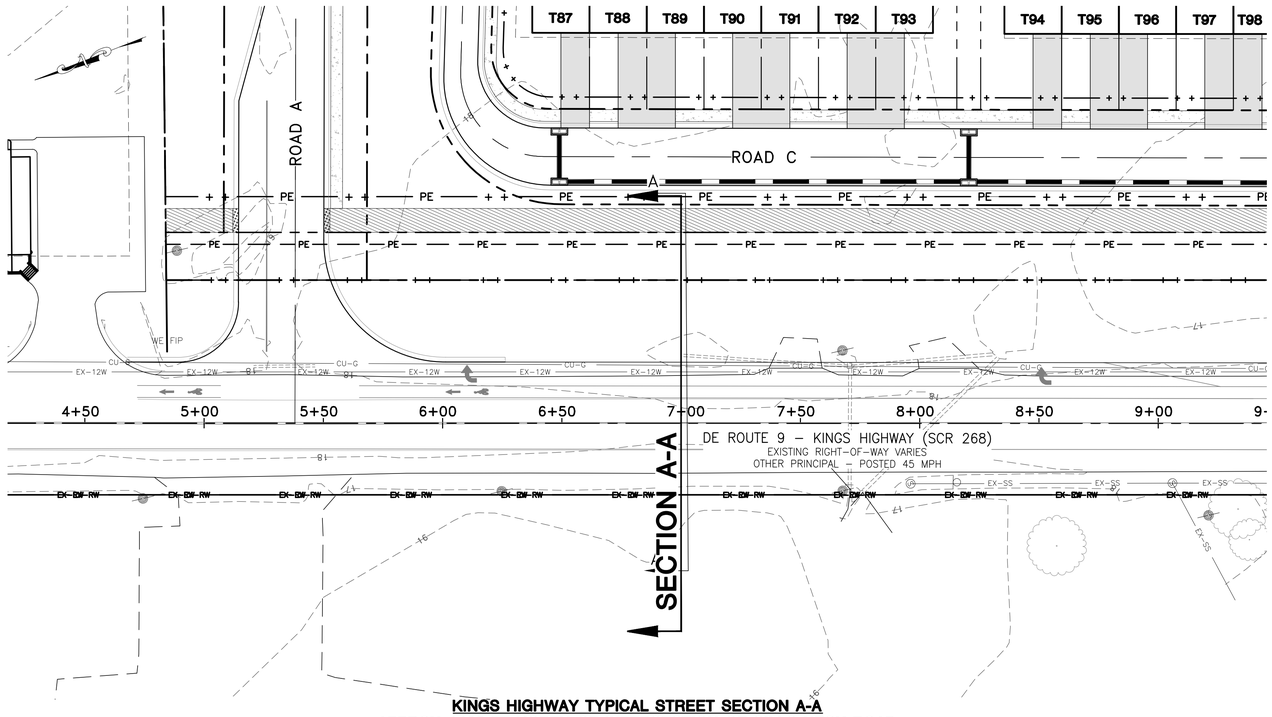
Cover Type	Soil Group	Surface Cover (percent)	Area (acres)	Recharge (inches)	Recharge Volume (acre-inches)	Recharge Volume (gallons)
Pervious, Grass/Landscape Areas	B	39%	3.60	12.93	47	1,276,251
Stormwater Basin	A	9%	0.85	13.87	12	325,851
Building/other impervious	N/A	52%	4.89	39.00	191	5,186,468
Total		100%	9.34		250	6,788,570

NET GAIN IN RECHARGE DUE TO DEVELOPMENT

Status			Recharge Volume (acre-inches)	Recharge Volume (gallons)
Predevelopment	Impervious	0%	103	2,796,891
Postdevelopment	Impervious	52%	250	6,788,570
Net Recharge Gain				3,991,679

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.

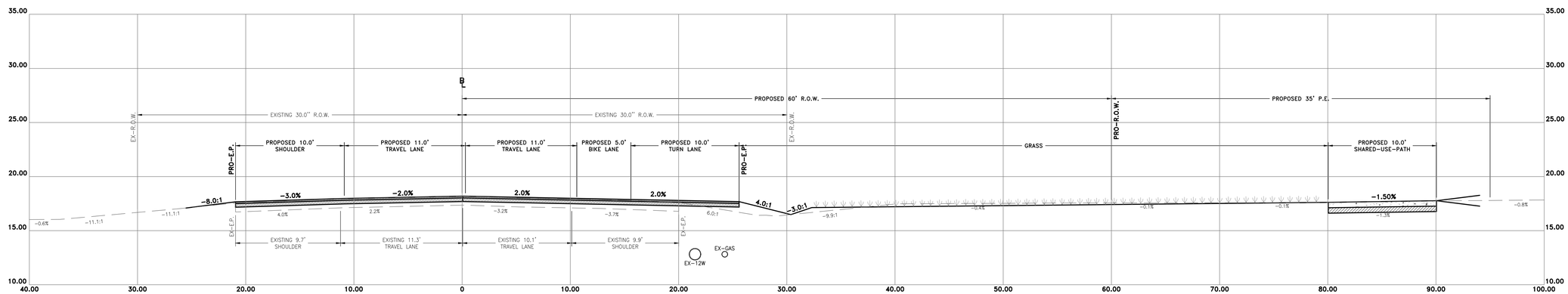
April 2022
Project No. 14447
Verdantas



KINGS HIGHWAY TYPICAL STREET SECTION A-A
APPROX. 1,465 FT NORTH OF INTERSECTION OF GILLS NECK ROAD

SCALE: 1" = 30'

0' 30' 60' 90'



KINGS HIGHWAY TYPICAL STREET SECTION A-A
APPROX. 1,465 FT NORTH OF INTERSECTION OF GILLS NECK ROAD

VERTICAL SCALE: 1"=5'
0' 5' 10' 15'

HORIZONTAL SCALE: 1"=5'
0' 5' 10' 15'

C:\Carlson Projects\Temp\AcPublish_10453\3808A001 - CROSS SECTIONS.dwg Apr 20, 2022 - 12:13pm GRED

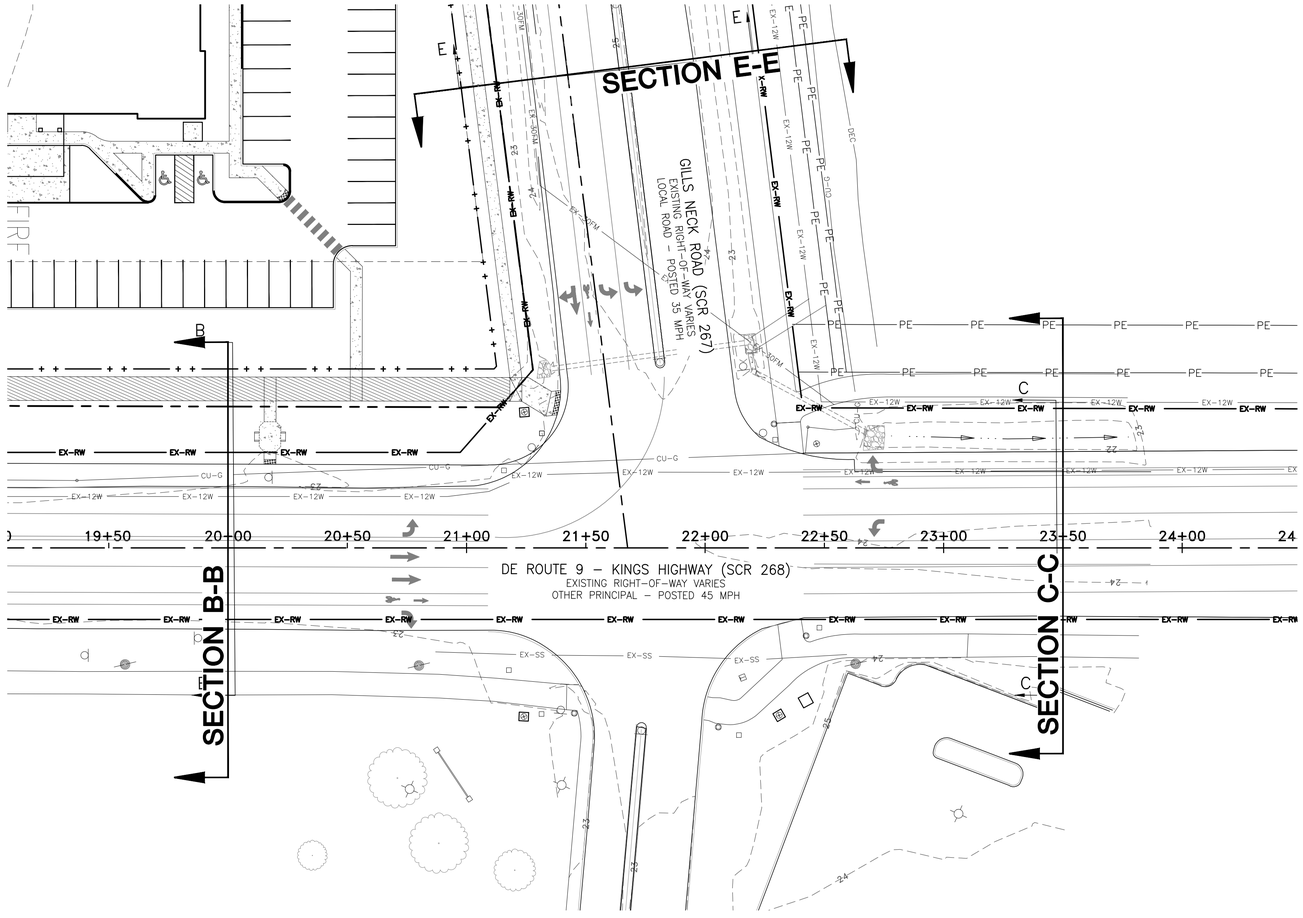
DAVIS, BOWEN & FRIEDEL, INC.
ARCHITECTS ENGINEERS SURVEYORS
SALISBURY, MARYLAND (410) 543-9091
MILFORD, DELAWARE (302) 424-1441
EASTON, MARYLAND (410) 770-4744

OFFSITE ROAD IMPROVEMENTS CROSS SECTIONS

MITCHELL FAMILY FARM
LEWES & REHOBOTH HUNDRED
CITY OF LEWES, SUSSEX COUNTY, DELAWARE

Revisions:

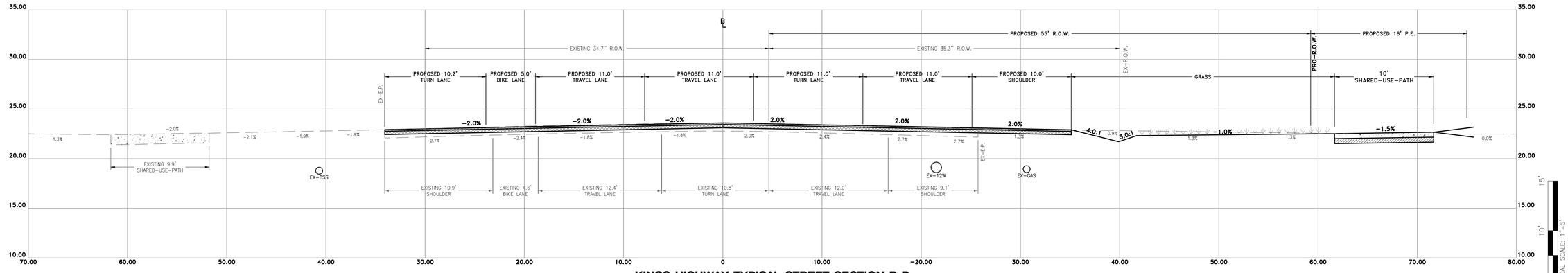
Date:	APRIL 2022
Scale:	AS NOTED
Dwn.By:	DEG
Proj.No.:	3808A001
Dwg.No.:	CS-01



KINGS HIGHWAY & GILLS NECK ROAD INTERSECTION

SCALE: 1" = 30'

0' 30' 60' 90'



KINGS HIGHWAY TYPICAL STREET SECTION B-B
APPROX. 165 FT NORTH OF INTERSECTION OF GILLS NECK ROAD

0' 5' 10' 15'
HORIZONTAL SCALE: 1"=5'

0' 5' 10' 15'
VERTICAL SCALE: 1"=5'

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

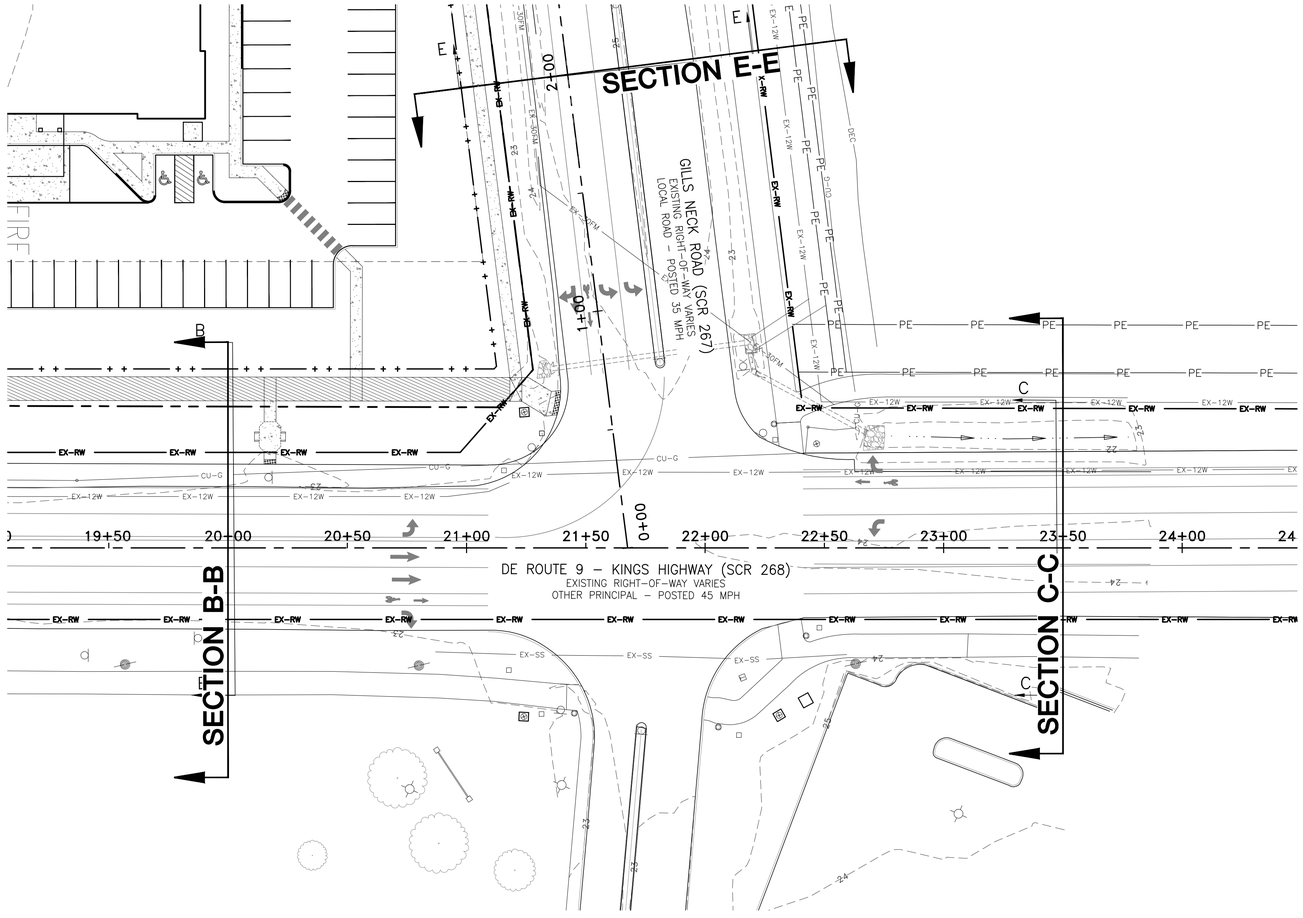
OFFSITE ROAD IMPROVEMENTS CROSS SECTIONS

MITCHELL FAMILY FARM
LEWES & REHOBOTH HUNDRED
CITY OF LEWES, SUSSEX COUNTY, DELAWARE

Revisions:

Date:	APRIL 2022
Scale:	AS NOTED
Dwn.By:	DEG
Proj.No.:	3808A001
Dwg.No.:	CS-02

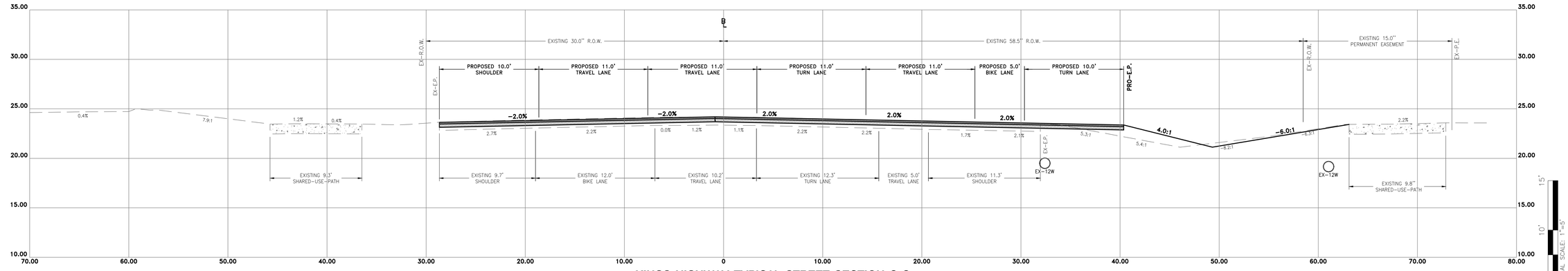
C:\Carlson Projects\Temp\AcPublish_10453\3808A001 - CROSS SECTIONS.dwg Apr 20, 2022 - 12:14pm GRED



KINGS HIGHWAY & GILLS NECK ROAD INTERSECTION

SCALE: 1" = 30'

0' 30' 60' 90'



KINGS HIGHWAY TYPICAL STREET SECTION C-C
APPROX. 180 FT SOUTH OF INTERSECTION OF GILLS NECK ROAD

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

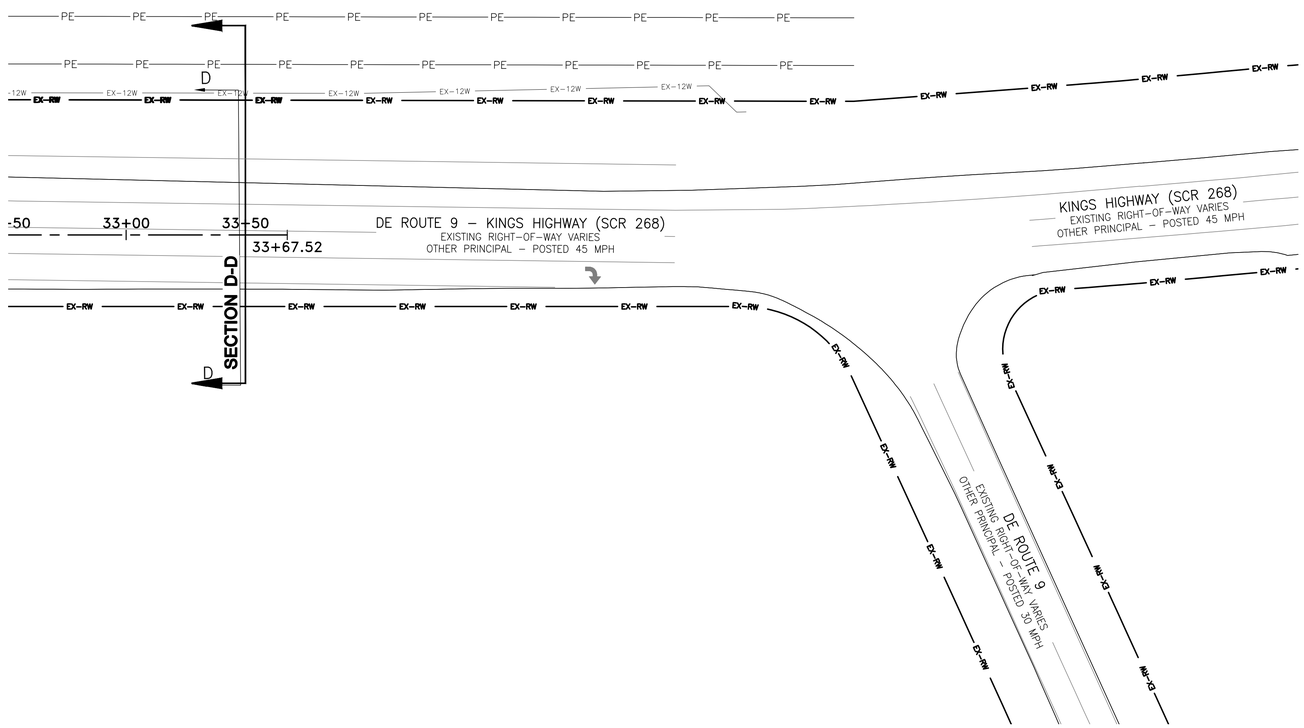
OFFSITE ROAD IMPROVEMENTS CROSS SECTIONS

MITCHELL FAMILY FARM
LEWES & REHOBOTH HUNDRED
CITY OF LEWES, SUSSEX COUNTY, DE

Revisions:

Date:	APRIL 2022
Scale:	AS NOTED
Dwn.By:	DEG
Proj.No.:	3808A001
Dwg.No.:	CS-03

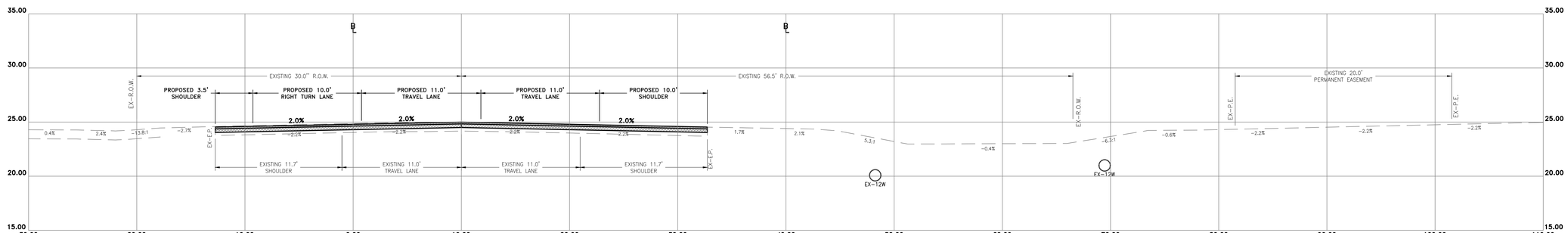
C:\Carlson Projects\Temp\AcPublish_10453\3808A001 - CROSS SECTIONS.dwg Apr 20, 2022 - 12:14pm GRED



INTERSECTION KINGS HIGHWAY OF GILLS NECK ROAD

SCALE: 1" = 30'

0' 30' 60' 90'



KINGS HIGHWAY TYPICAL STREET (SECTION D-D)
APPROX. 1,180 FT SOUTH OF INTERSECTION OF GILLS NECK ROAD

0' 5' 10' 15'
HORIZONTAL SCALE: 1"=5'

0' 5' 10' 15'
VERTICAL SCALE: 1"=5'

C:\Carlson Projects\Temp\AcPublish_10453\3808A001 - CROSS SECTIONS.dwg Apr 20, 2022 - 12:14pm GRED

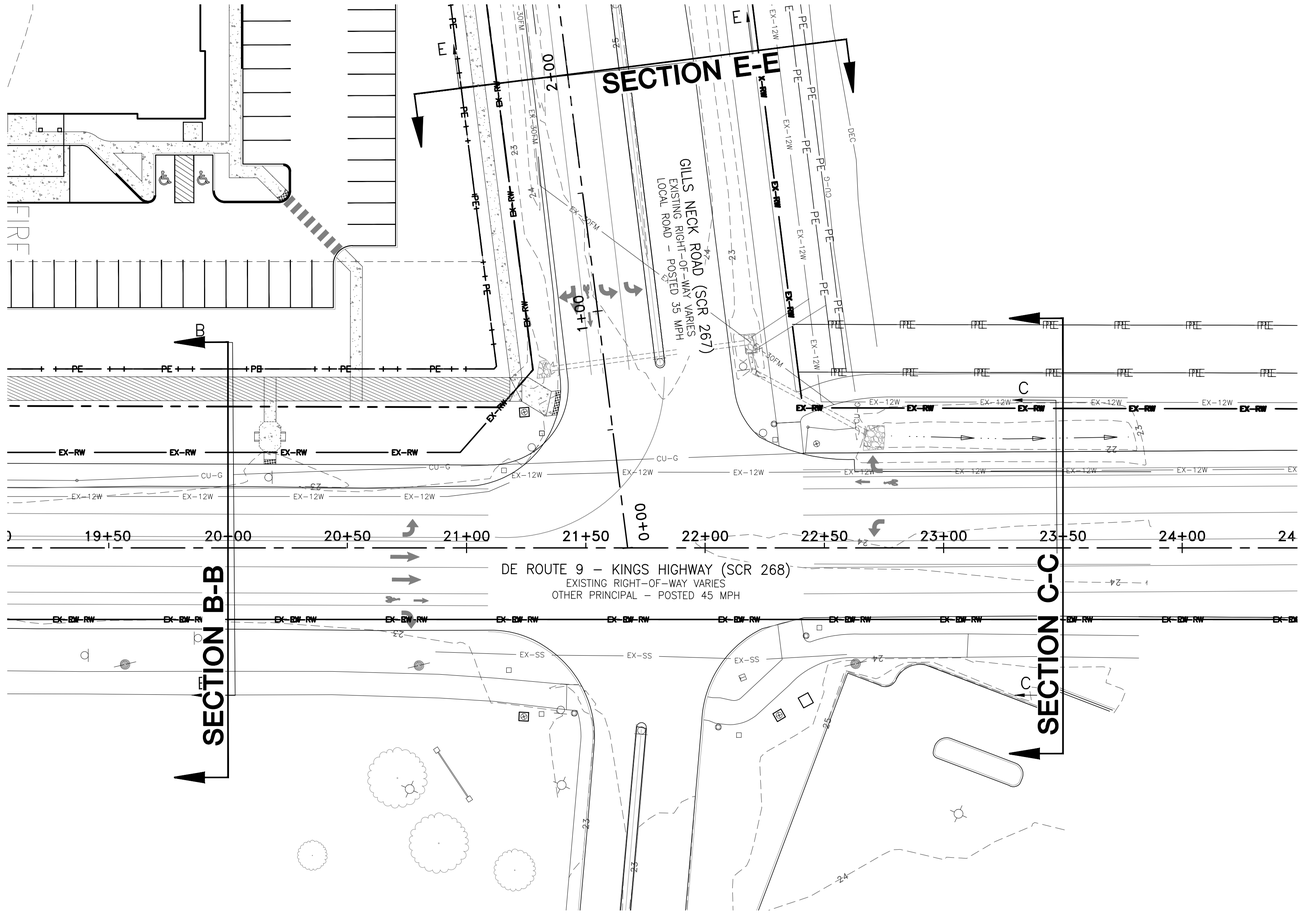
DAVIS, BOWEN & FRIEDEL, INC.
ARCHITECTS ENGINEERS SURVEYORS
SALISBURY, MARYLAND (410) 543-9091
MILFORD, DELAWARE (302) 424-1441
EASTON, MARYLAND (410) 770-4744

OFFSITE ROAD IMPROVEMENTS CROSS SECTIONS

MITCHELL FAMILY FARM
LEWES & REHOBOTH HUNDRED
CITY OF LEWES, SUSSEX COUNTY, DE

Revisions:

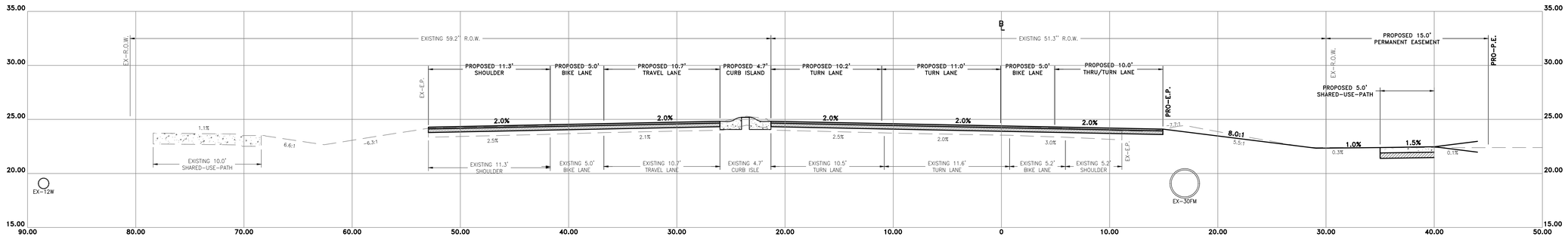
Date:	APRIL 2022
Scale:	AS NOTED
Dwn.By:	DEG
Proj.No.:	3808A001
Dwg.No.:	CS-04



KINGS HIGHWAY & GILLS NECK ROAD INTERSECTION

SCALE: 1" = 30'

0' 30' 60' 90'



GILLS NECK ROAD TYPICAL STREET SECTION E-E
APPROX. 200 FT EAST OF INTERSECTION OF KINGS HIGHWAY

0' 5' 10' 15'
HORIZONTAL SCALE: 1"=5'

0' 5' 10' 15'
VERTICAL SCALE: 1"=5'

DAVIS, BOWEN & FRIEDEL, INC.
ARCHITECTS ENGINEERS SURVEYORS
SALISBURY, MARYLAND (410) 543-9091
GEORGETOWN, DELAWARE (302) 854-5141
EASTON, MARYLAND (410) 770-4744

OFFSITE ROAD IMPROVEMENTS CROSS SECTIONS

MITCHELL FAMILY FARM
LEWES & REHOBOTH HUNDRED
CITY OF LEWES, SUSSEX COUNTY, DE

Revisions:

Date:	APRIL 2022
Scale:	AS NOTED
Dwn.By:	DEG
Proj.No.:	3808A001
Dwg.No.:	CS-05

C:\Carlson Projects\Temp\AcPublish_10453\3808A001 - CROSS SECTIONS.dwg Apr 20, 2022 - 12:14pm GRED

MITCHELLS CORNER

City of Lewes
Swaanendael
Savannah Place
New Road
Tradewind Estates
The Orchard
Strip Commercial/ Mr. P's
Lane Builders
Dutchmens Harvest
Big Oyster
Lewes Medical Development
Henlopen Gardens
Jack Lingo Realtor
Cape Henlopen High School
Site
Covey Creek
Lewes Georgetown Highway
The Villages of Five Points East
Old Orchard Road
The Villages of Five Points West
Cape Henlopen Medical Center
White's Pond Meadows
Showfield
Bay Breeze Estates
Jefferson Estates II
Admirals Chase
Wolfe Pointe
Wolfe Runne
Breakwater
The Moorings
Gills Neck Road
Kingston Court
McNicol Place
Cape Professional Campus
Village Center
Governors
Senators
Hawkseye Subdivision
Poore's Propane
Clay Road
Kings Highway
CHEER/New Covenant Church
Savannah East/ Harbour Towne
Route 1
Crooked Hammock
Bay Crossing
Lowes
Home Depot
Spring 2017 Aerial Photo

Surrounding Communities Map

Mitchells Corner

Sussex County, Delaware

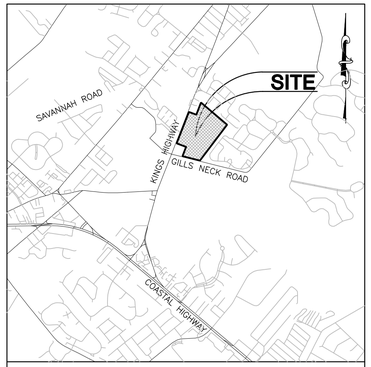
Sources:
Tax Parcels per Sussex County

N W E S

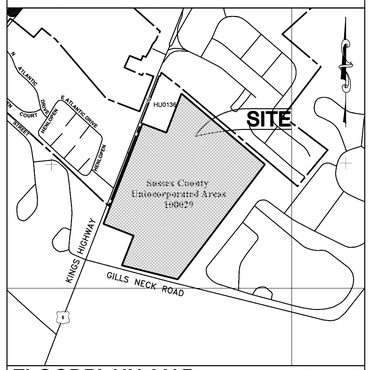
April 2022
February 2020

0 1,000 2,000 Feet

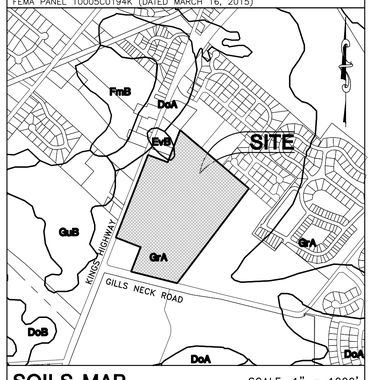
DAVIS BOWEN & FRIEDEL, INC.
ARCHITECTS • ENGINEERS • SURVEYORS



LOCATION MAP SCALE: 1" = 1/2-MILE



FLOODPLAIN MAP SCALE: 1" = 800'
FEMA PANEL 10005C0194K (DATED MARCH 16, 2015)



SOILS MAP SCALE: 1" = 1000'

GrA: GREENWICH LOAM, 0 TO 2 PERCENT SLOPES (B)
EvB: EVESBORO LOAMY SAND, 0 TO 5 PERCENT SLOPES (A)

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)
PROPOSED:	MR (MEDIUM-DENSITY RESIDENTIAL)
AREAS	
PARCEL 37.00:	
GROSS SITE AREA:	48.013± AC.
OPEN SPACE:	0.200± AC.
INTERNAL R.O.W.:	3.612± AC.
LOT AREA:	13.199± AC.
RESIDUAL AREA:	30.148± AC.
DEDICATED R/W:	(–)0.854± AC.
NET SITE AREA:	47.159 AC.
BUILDING SETBACKS:	
FRONT:	40 FT.
BACK:	10 FT.
SIDE:	10 FT.
MINIMUM REQUIREMENTS:	
LOT AREA:	10,000 SQ.FT.
LOT WIDTH:	75 FT.
LOT DEPTH:	100 FT.
MAXIMUM REQUIREMENTS:	
BUILDING HEIGHT:	42 FT.
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:	LEWES BOARD OF PUBLIC WORKS

FLOODPLAIN – THE PROPERTY IS NOT IMPACTED BY THE 100 YEAR FLOODPLAIN AS DETERMINED BY FEMA PANEL 10005C0194K.

THIS PROPERTY 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.

WETLANDS – THERE ARE NO WETLANDS LOCATED ON THE SITE.

THE PROPERTY IS LOCATED IN A SOURCE WATER PROTECTION AREA.

OWNER/DEVELOPER
MITCHELL FAMILY, LLC.
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

CURVE TABLE

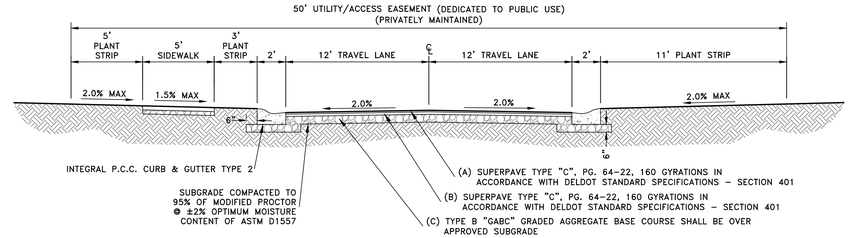
CURVE	ARC LENGTH	RADIUS	DELTA ANGLE	CHORD BEARING	CHORD LENGTH
C-1	69.09'	536.00'	7°23'07"	N 17°35'35" E	69.04'
C-2	39.27'	25.00'	90°00'00"	N 23°42'52" W	35.36'
C-3	39.27'	25.00'	90°00'00"	N 23°42'52" W	35.36'
C-4	39.27'	25.00'	90°00'00"	N 66°17'08" E	35.36'
C-5	42.41'	27.00'	90°00'00"	S 23°42'52" E	38.18'
C-6	18.85'	12.00'	90°00'00"	N 66°17'08" E	16.97'
C-7	42.41'	27.00'	90°00'00"	S 66°17'08" W	38.18'
C-8	61.35'	476.00'	7°23'07"	S 17°35'35" W	61.31'

LINE TABLE

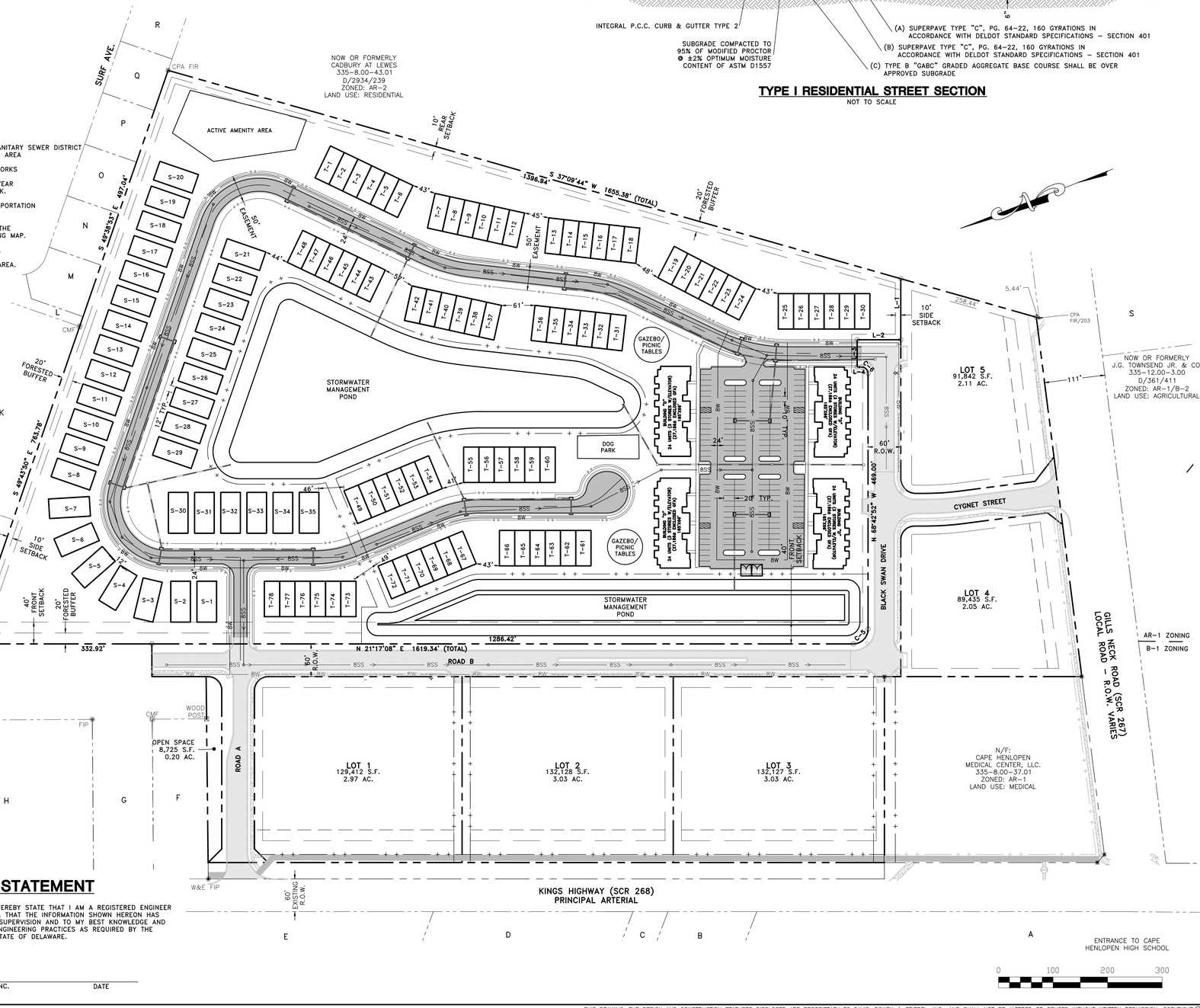
LINE	BEARING	DISTANCE
L-1	N 68°42'52" W	111.94'
L-2	N 21°17'08" E	80.00'
L-3	N 68°42'52" W	50.00'
L-4	S 21°17'08" W	8.00'

GENERAL NOTES

1. BOUNDARY AND TOPOGRAPHIC SURVEY WERE COMPLETED BY COMPASS POINT. ADDITIONAL TOPOGRAPHY WAS PERFORMED BY DBF.



TYPE I RESIDENTIAL STREET SECTION
NOT TO SCALE



ADJACENT PROPERTY OWNERS

	PARCEL#	OWNER	DEED	LAND USE	ZONING
A	335-8.00-34.00	CAPE HENLOPEN SCHOOL DISTRICT		SCHOOL	AR-1
B	335-8.00-35.01	JACK LINGO REALTOR, INC.		RESIDENTIAL	AR-1
C	335-8.00-35.02	PRIME, INC.		RESIDENTIAL	AR-1
D	335-8.00-35.03	PRPL PROPERTIES, LLC.	D/4672/67	RESIDENTIAL	AR-1
E	335-8.00-36.07	BEEBE MEDICAL CENTER, INC.	D/2368/165	VACANT LOT	AR-1
F	335-8.00-38.00	THREE BUILDERS, INC.	D/3173/100	COMMERCIAL	AR-1
G	335-8.00-39.00	JEFFKAT, LLC.	D/4456/123	COMMERCIAL	C-1
H	335-8.00-40.00	FIRST BAPTIST CHURCH OF LEWES		CHURCH	AR-1
I	335-8.00-42.03	FIRST BAPTIST CHURCH OF LEWES	D/4034/168	VACANT LOT	R-5 (LEWES)
J	335-8.00-42.01	JEFFERSON ESTATES, LLC.	D/4338/195	RESIDENTIAL	R-5 (LEWES)
K	335-8.00-42.02	JEFFERSON ESTATES, LLC.	D/1820/4	RESIDENTIAL	R-5 (LEWES)
L	335-8.00-336.00	BAY BREEZE ESTATES HOMEOWNERS ASSOC.	D/1985/181	OPEN SPACE	R-2 (LEWES)
M	335-8.00-330.00	DAVID A. CANNON	D/2494/246	RESIDENTIAL	R-2 (LEWES)
N	335-8.00-329.00	LINDA S. LEKITES	D/3027/314	RESIDENTIAL	R-2 (LEWES)
O	335-8.00-328.00	DAVID J. & JOYCE A. RAUDABAUGH	D/3336/62	RESIDENTIAL	R-2 (LEWES)
P	335-8.00-327.00	PATTI J. STEWART	D/4138/247	RESIDENTIAL	R-2 (LEWES)
Q	335-8.00-326.00	JOHN A. & LAURA T. OTA JIULIANO	D/3978/171	RESIDENTIAL	R-2 (LEWES)
R	335-8.00-325.00	MEGAN E. BOUNDS	D/4218/323	RESIDENTIAL	R-2 (LEWES)
S	335-12.00-3.11	GOVERNORS SUBDIVISION		RESIDENTIAL	AR-1

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 DEVELOPED AS SHOWN IN ACCORDANCE WITH ALL APPLICABLE LAWS AND REGULATIONS.

MITCHELL FAMILY, LLC. DATE
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. DATE
by RING W. LARDNER, P.E.

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

MR SKETCH PLAN

ZWAANENDAEL FARM
LEWES & REHOBOTH HUNDRED
SUSSEX COUNTY, DELAWARE

Revisions:

Date: ARPIL, 2019
Scale: 1" = 100'
Dwn.By: TAJ
Proj.No.: 2640A002
Dwg.No.: SK-01

P:\Mitchell Family Ltd Partnership\Mitchell Farm\DESIGN\2640A002- MR SKETCH PLAN.dwg Apr 15, 2019 - 1:22pm mumc

PARCEL DEEDED TO THE MOORINGS

PARCEL DEEDED TO BIG OYSTER

PARCEL DEEDED TO BIG OYSTER

PARCEL DEEDED TO CAPE HENLOPEN MEDICAL CENTER

0' 10' 200' 300'

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

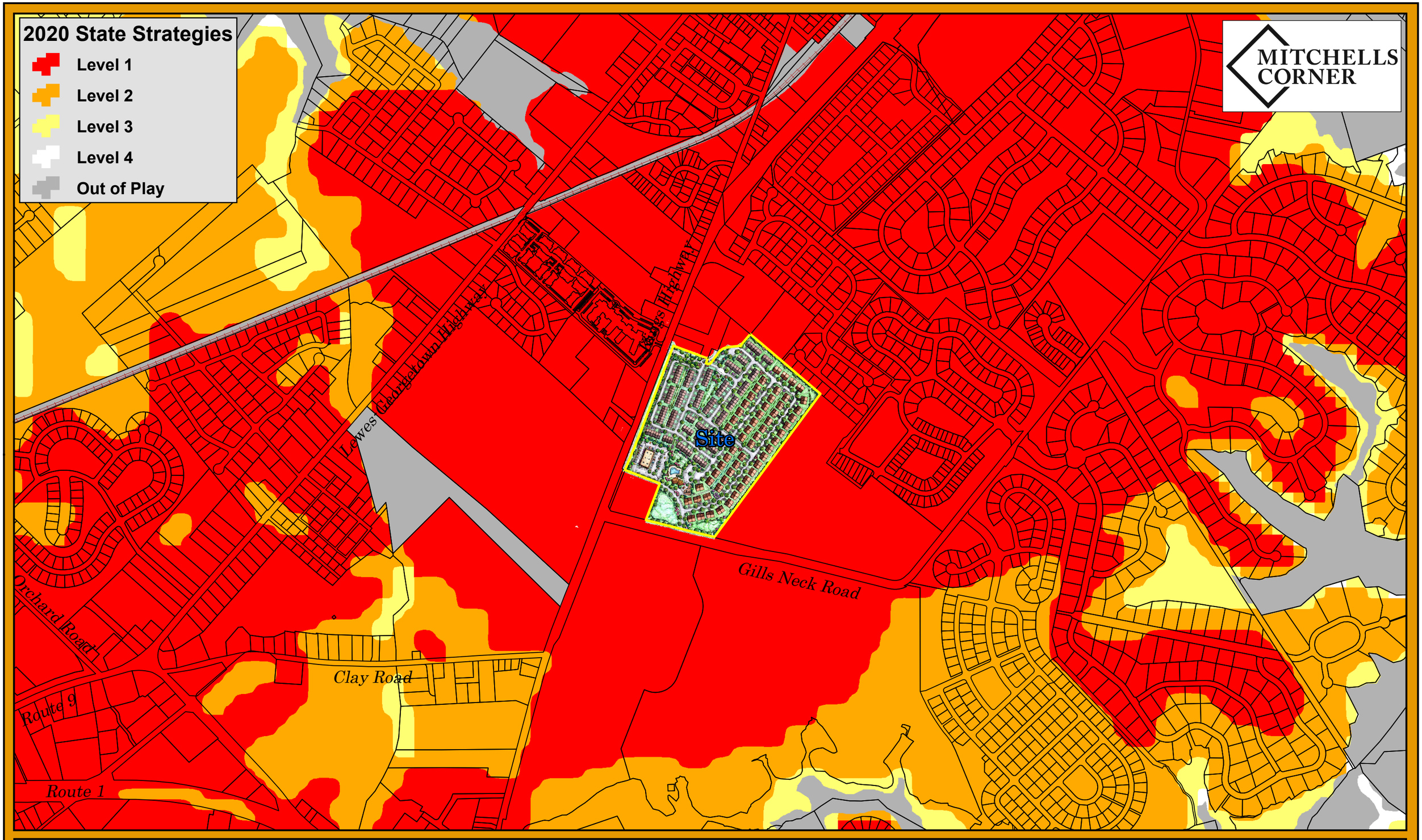
DEED MOSAIC

MITCHELLS CORNER
KINGS HIGHWAY (SCR 268)
LEWES & REHOBOTH HUNDRED, SUSSEX COUNTY, DELAWARE

Revisions:

Date: DECEMBER 2021
Scale: 1" = 100'
Dwn.By: RWL
Proj.No.: 3808A001
Dwg.No.: D

P:\Chesapeake Reality\Zwaanendael Farm\Design\Booklet Phase 2\Parcel History.dwg Feb 23, 2022 - 6:31am larr



Sources:
Tax Parcels per Sussex County

N
W E
S

April 2022

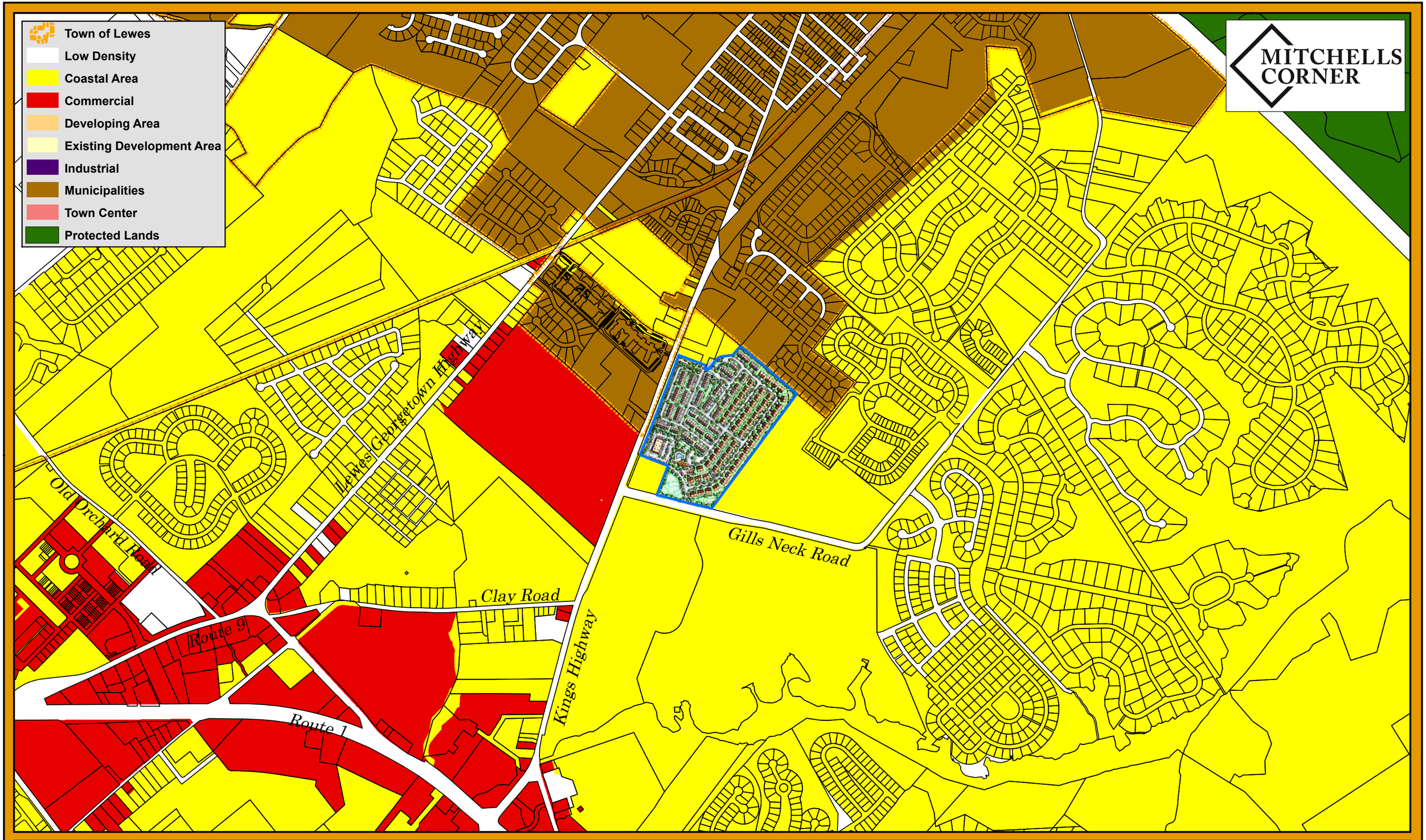
2020 State Strategies

Mitchells Corner

Sussex County, Delaware

0 800 1,600 Feet

DAVIS BOWEN & FRIEDEL, INC.
ARCHITECTS • ENGINEERS • SURVEYORS



Sussex County 2045 Future Land Use Map

Mitchells Corner

Sussex County, Delaware

April 2022

Sources:
Tax Parcels per Sussex County

0 1,000 2,000 Feet

DAVIS BOWEN & FRIEDEL, INC.
ARCHITECTS • ENGINEERS • SURVEYORS

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

April 2022

Sussex County Zoning Map

Mitchells Corner

Sussex County, Delaware

0 800 1,600 Feet

DAVIS BOWEN & FRIEDEL, INC.
ARCHITECTS • ENGINEERS • SURVEYORS

MITCHELLS CORNER

Site

Lewes-Georgetown Highway

Kings Highway

Gills Neck Road

Clay Road

Spring 1992
Aerial Photo

Sources:
Tax Parcels per Sussex County

N
W E
S

April 2022

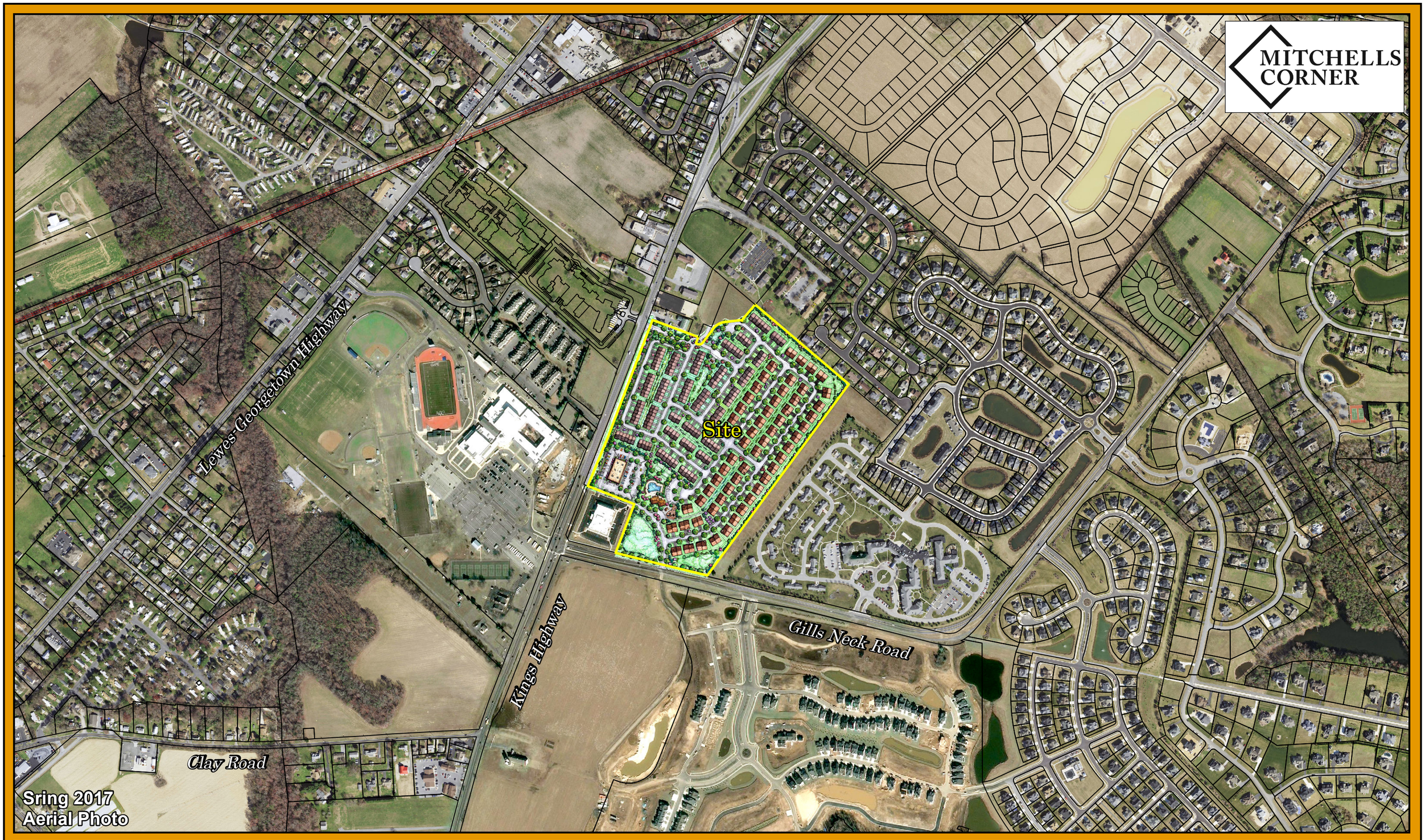
1992 Aerial Photo

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

April 2022

2017 Aerial Photo

Mitchells Corner

Sussex County, Delaware

0 600 1,200 Feet

DAVIS BOWEN & FRIEDEL, INC.
ARCHITECTS • ENGINEERS • SURVEYORS
www.dbfinc.com

MITCHELL'S CORNER

28 JAN 2022

SCALE 1"=50'

0 50 100 150

GILLS NECK ROAD

KINGS HIGHWAY

EX. CHURCH

EXISTING RW SYSTEM (MAGNOLIA)

100-YR Flood Plain
NWI Wetlands
State 2' Contours

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

April 2022

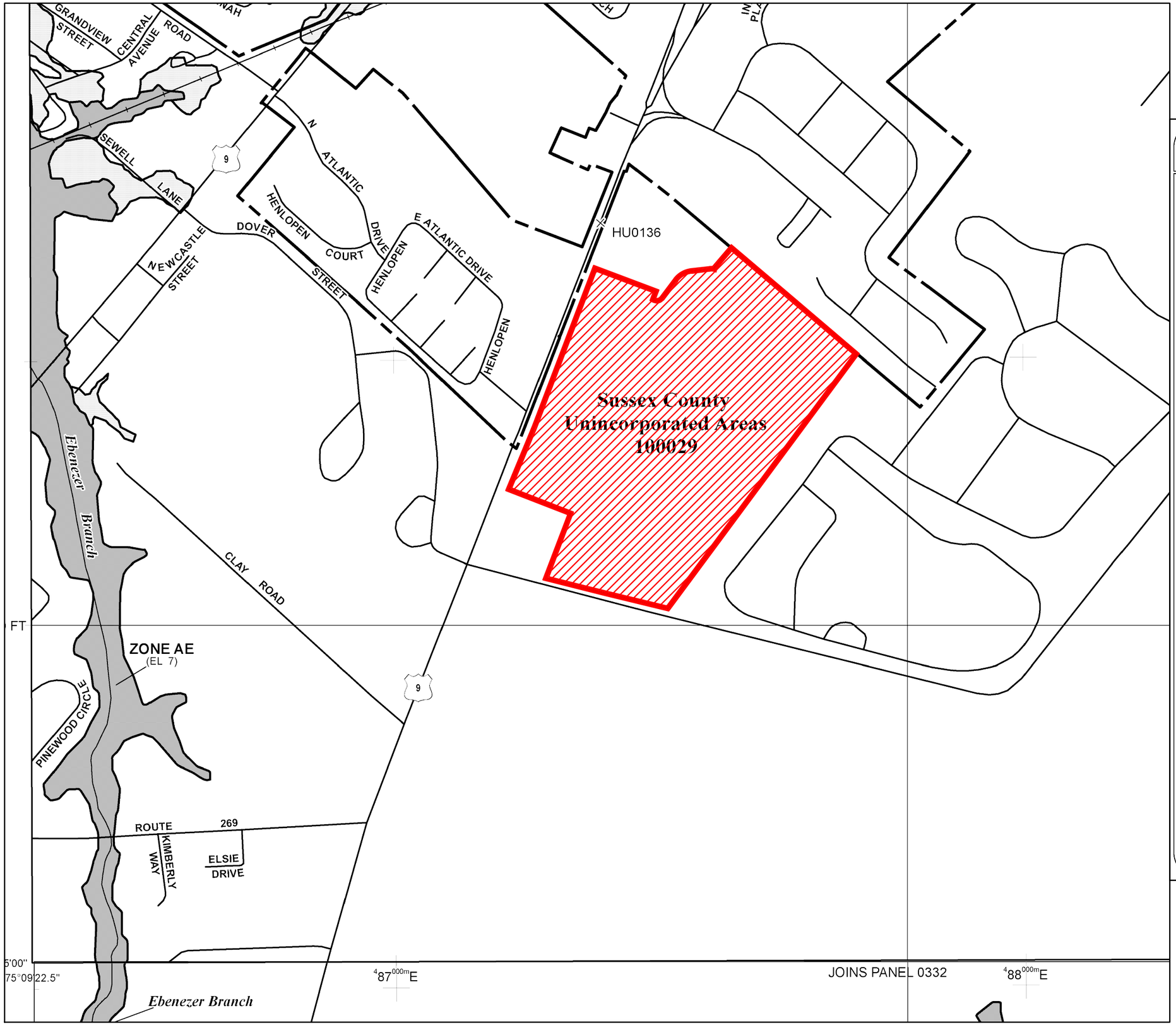
Environmental Map

Mitchells Corner

Sussex County, Delaware

0 600 1,200 Feet

DAVIS BOWEN & FRIEDEL, INC.
ARCHITECTS • ENGINEERS • SURVEYORS



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 -

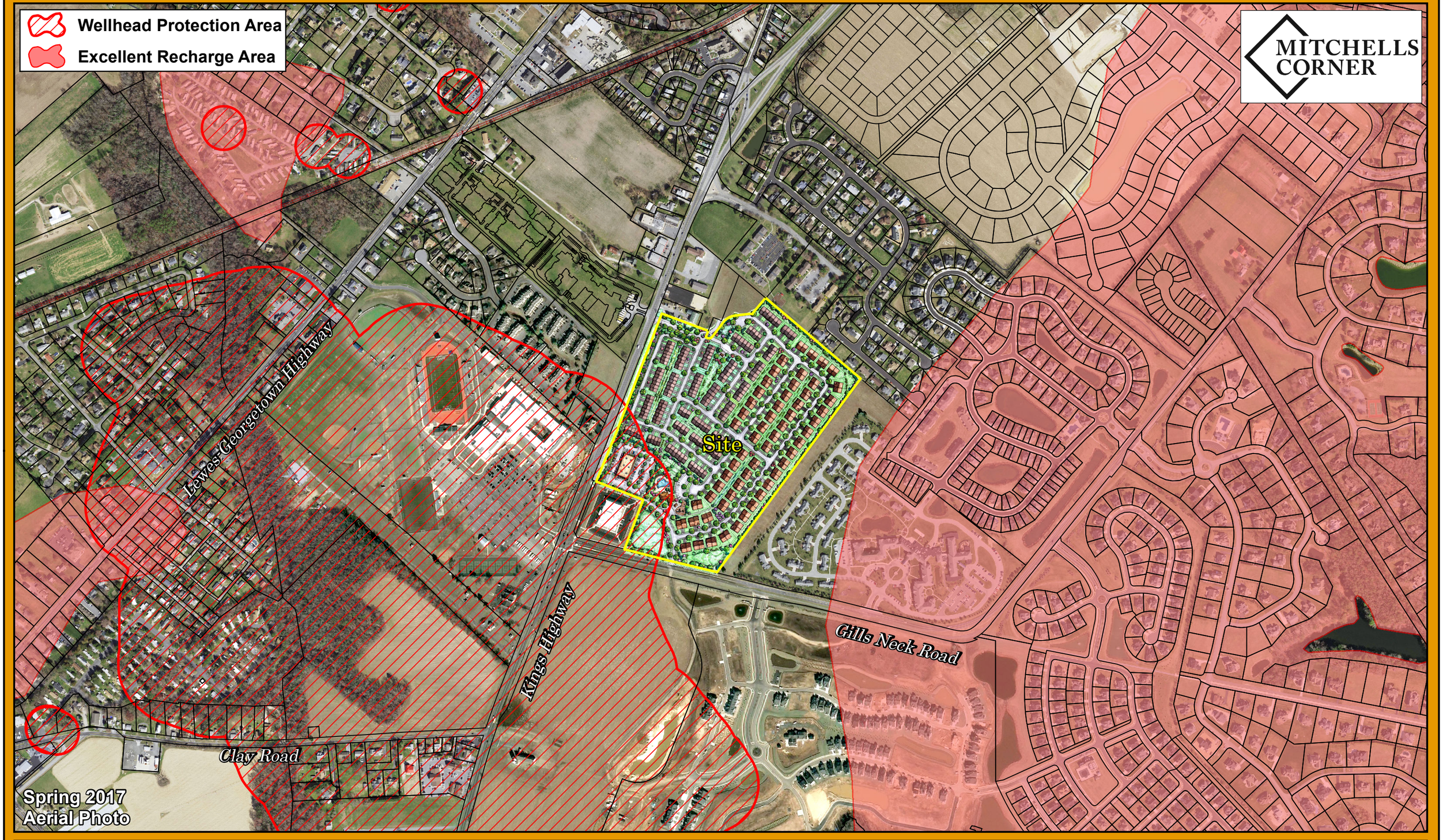
THIS MAP INCLUDES BOUNDARIES OF THE COASTAL BARRIER RESOURCES SYSTEM ESTABLISHED UNDER THE COASTAL BARRIER RESOURCES ACT OF 1982 AND/OR SUBSEQUENT ENABLING LEGISLATION.

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

April 2022

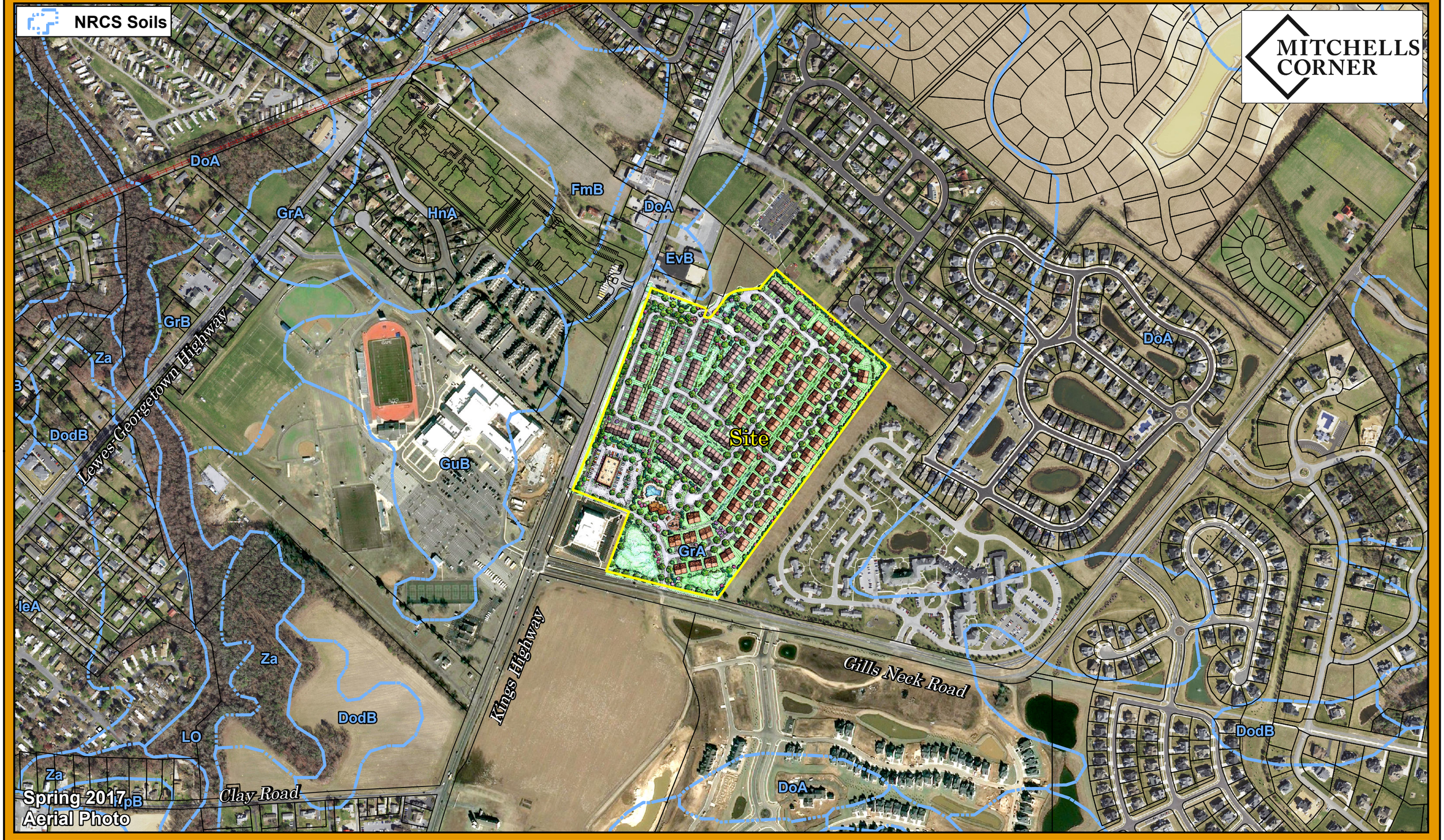
Source Water Protection Areas

Mitchell's 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

N
W E
S

April 2022

NCRS Soil Survey

Mitchells Corner

Sussex County, Delaware

0 500 1,000 Feet

DAVIS BOWEN & FRIEDEL, INC.
ARCHITECTS • ENGINEERS • SURVEYORS


LINGO
REALTY

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

April 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.			

MITCHELLS CORNER

City of Lewes

White's Pond Meadows(2.3)

Showfield (1.3)

Wolfe Pointe (1.1)

Bay Breeze Estates(3.0)

Dutchmens Harvest(17.7)

Jefferson Estates II(9.8)

Henlopen Gardens(5.5)

Wolfe Runne(0.8)

Site

Breakwater Estates(1.7)

The Moorings at Lewes(6.4)

Lewes-Georgetown Highway

Old Orchard Road

Gills Neck Road

Hawkseye Subdivision(1.0)

Governors (3.6)

Clay Road

Kings Highway

Senators (2.0)

Route 1

Woods Edge (11.00)

Harbour Towne(11.9)

Savannah East Apartments (11.0)

Beach Plum Dunes (3.2)

Spring 2017 Aerial Photo

Sources:
Tax Parcels per Sussex County

April 2022

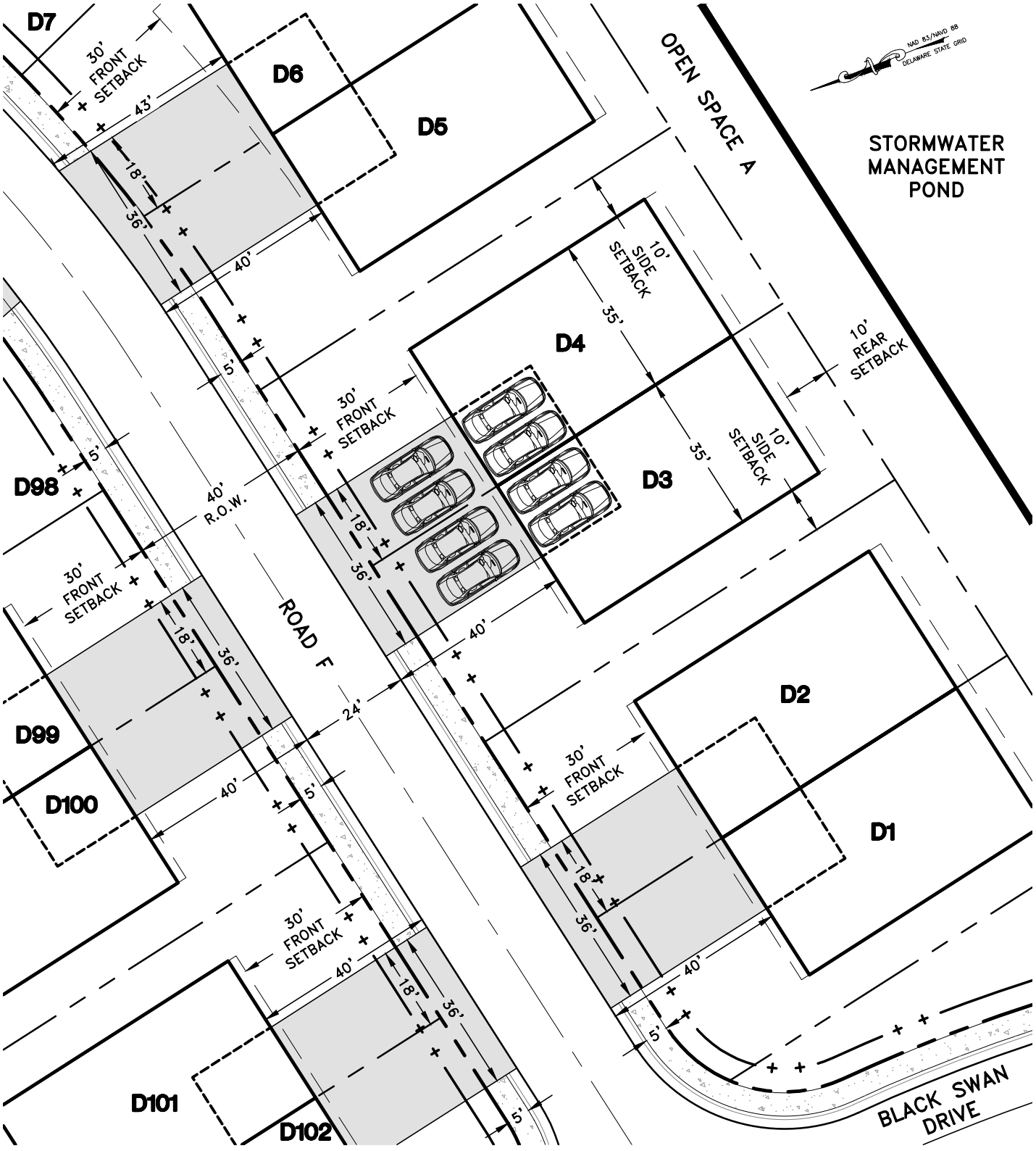
Surrounding Densities Map

Mitchells Corner

Sussex County, Delaware

0 1,000 2,000 Feet

DAVIS BOWEN & FRIEDEL, INC.
ARCHITECTS • ENGINEERS • SURVEYORS

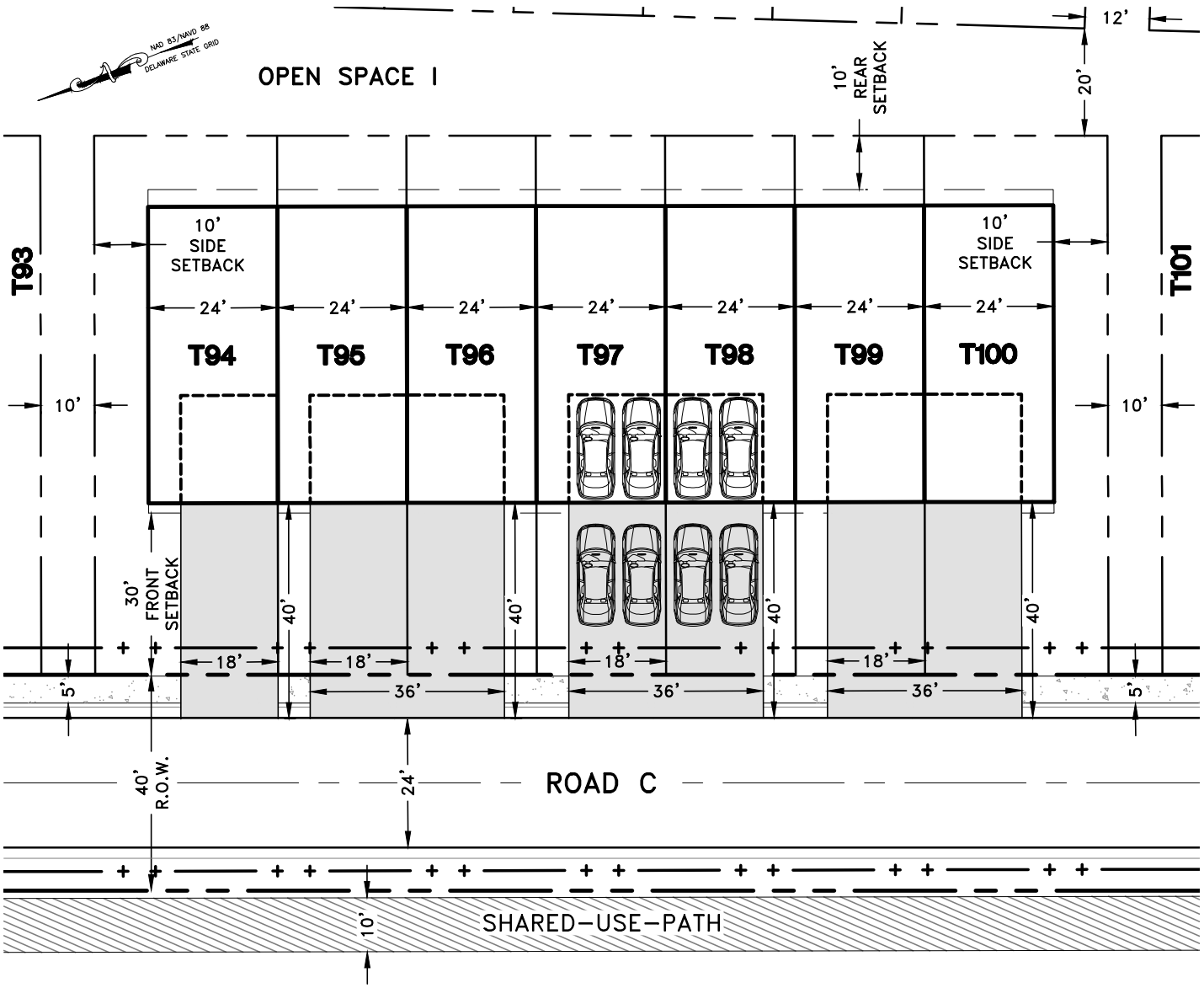


DAVIS, BOWEN & FRIEDEL, INC.
ARCHITECTS, ENGINEERS & SURVEYORS
SALISBURY, MARYLAND (410) 543-9091
MILFORD, DELAWARE (302) 424-1441

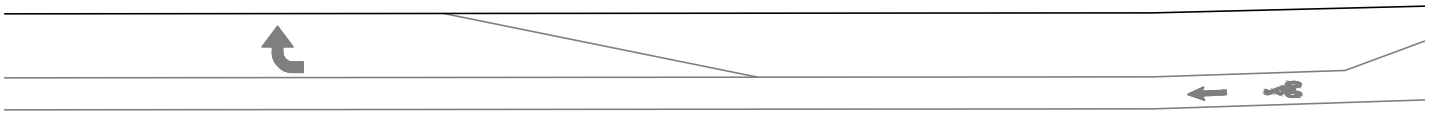
MITCHELL FAMILY FARM

DUPLEX PARKING EXHIBIT
LEWES & REHOBOTH HUNDRED
CITY OF LEWES, SUSSEX COUNTY, DELAWARE

PROJ. NO. : 3808A001	DATE : APRIL 2022	SCALE: 1" = 30'	DWG. EX-01 – 1 of 3



KINGS HIGHWAY (SCR 268) 60' ROW
OTHER PRINCIPAL – POSTED 45 MPH



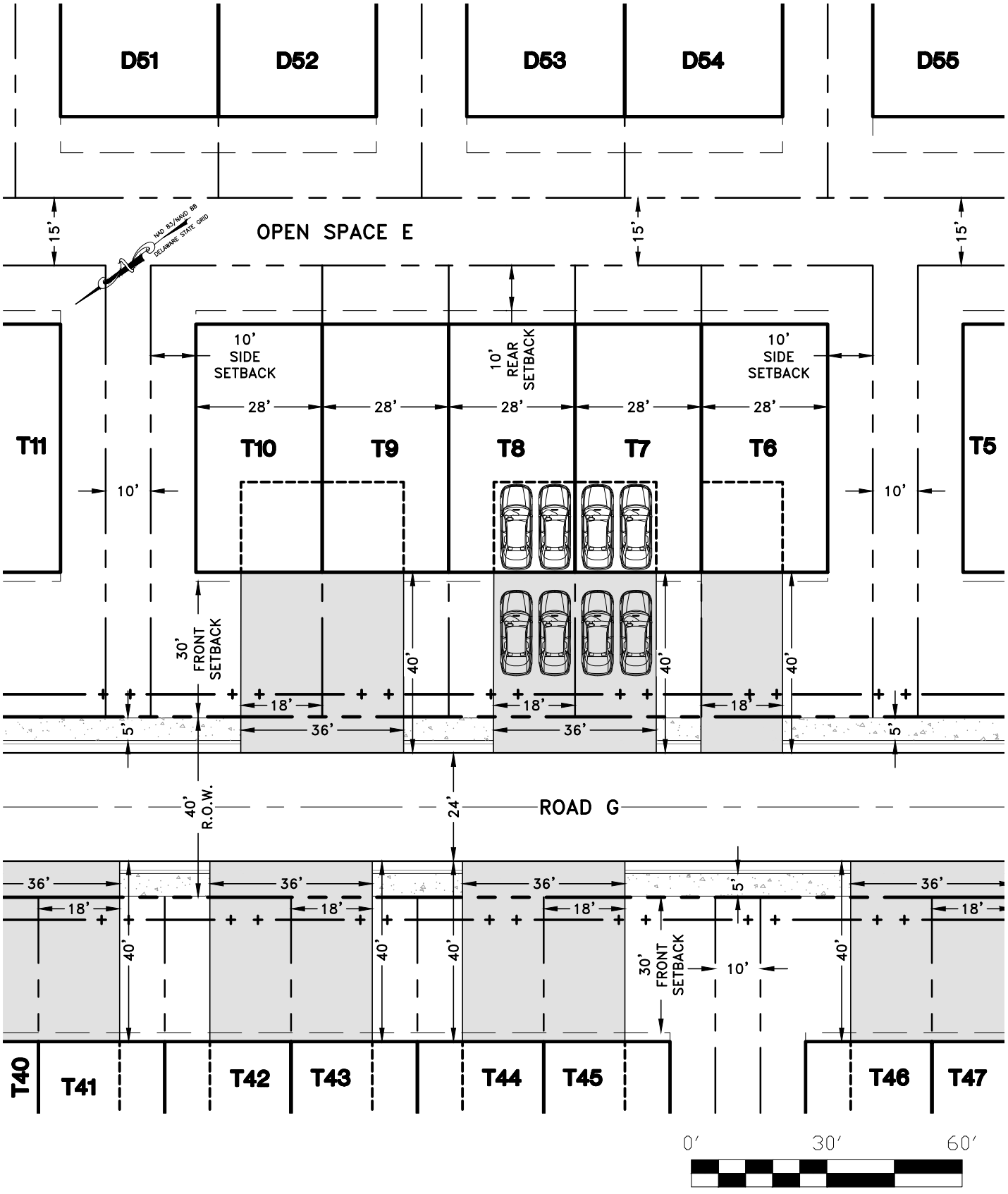
0' 30' 60'

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

MITCHELL FAMILY FARM

24' WIDE TOWNHOUSE PARKING EXHIBIT
LEWES & REHOBOTH HUNDRED
CITY OF LEWES, SUSSEX COUNTY, DELAWARE

PROJ. NO. : 3808A001	DATE : APRIL 2022	SCALE: 1" = 30'	DWG. EX-02 – 2 of 3



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

MITCHELL FAMILY FARM

28' WIDE TOWNHOUSE PARKING EXHIBIT
LEWES & REHOBOTH HUNDRED
CITY OF LEWES, SUSSEX COUNTY, DELAWARE

PROJ. NO. : 3808A001	DATE : APRIL 2022	SCALE: 1" = 30'	DWG. EX-03 – 3 of 3

Two goals of the Sussex County Code for WPAs:

Ensure that post-development recharge quantity will meet the existing (predevelopment) recharge quantity.

Minimize the impact on and reduce the risk of contamination.

Recharge and Water Quantity

There is often a perception that developing a site automatically results in more runoff and a deficit in the quantity of groundwater recharge.

Annual Pre and Post Development Water Recharge within the WPA boundary of the Project Site.

Predevelopment Recharge: 2,796,891 gallons

Post Development Recharge: 6,788,570 gallons

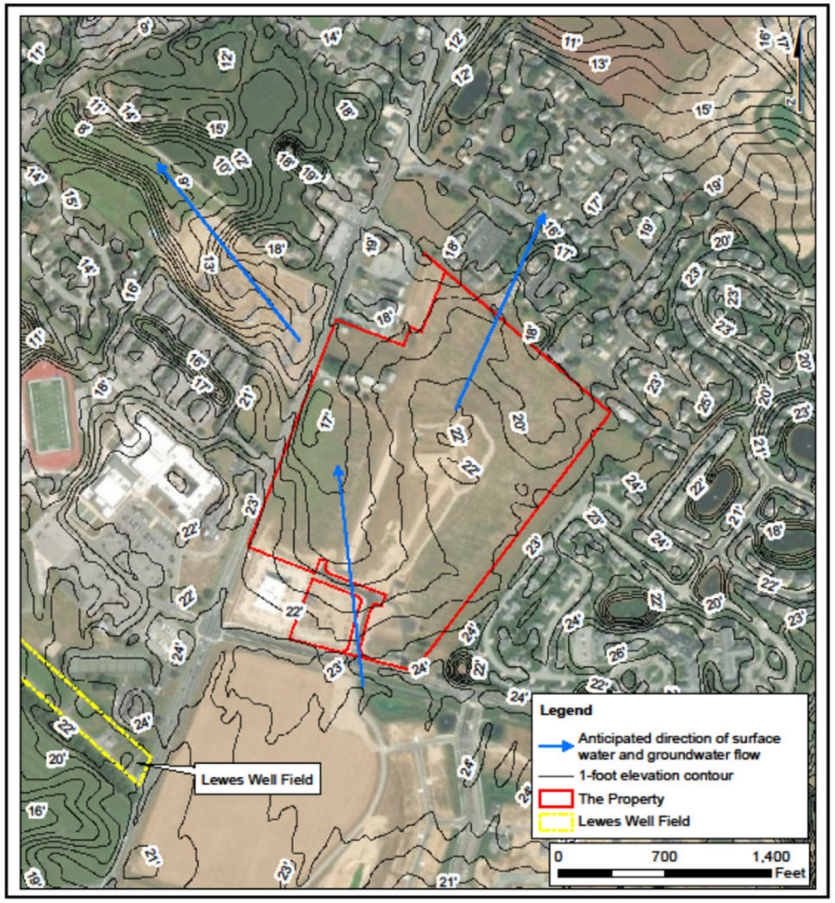
Surplus Post-Development Recharge : **3,991,679 gallons**

The volume of stormwater runoff will be substantially reduced by collecting the water for supplemental recharge.

Stormwater from areas of the Property outside the WPA may also be conveyed to the recharge basin, providing substantial supplemental recharge and an excellent opportunity to help offset the potential lowering of groundwater levels in the wellfield from ever increasing water demands anticipated by the City of Lewes.

CHANGE IN LAND USE AND WATER QUALITY

Natural Drainage and Groundwater Flow



Date: 04/2022	ESTIMATED NATURAL SURFACE WATER AND GROUNDWATER DRAINAGE DIRECTION	DESIGNED BY: KLS	DUFFIELD ASSOCIATES
SCALE: AS SHOWN		DRAWN BY: KLS	5400 LIMESTONE ROAD WILMINGTON, DE 19808-1232 TEL. (302)239-6634 FAX (302)239-8485
PROJECT NO. 14447	MITCHELL FARM	CHECKED BY: SFC	OFFICES IN PENNSYLVANIA, SOUTHERN DELAWARE, MARYLAND AND NEW JERSEY
SHEET: FIGURE 3	LEWES~SUSSEX COUNTY~DELAWARE	FILE: 14447-FlowDirection.mxd	EMAIL: DUFFIELD@DUFFNET.COM

There is often the misperception that developing a site will automatically result in the degradation of surface water and groundwater quality. Benefits to the WPA with the change in land use from agricultural to residential and commercial.

- Change from uncontrolled sheet flow runoff from agricultural fields to Green Technology Best Management Practices.
- Control of stormwater runoff volume and velocity. Stormwater runoff volume will be reduced.
- Reduction in soil erosion and sedimentation in downstream water bodies.
- Reduced loading of nitrogen, phosphorus, pesticides, and herbicides in surface water and groundwater.

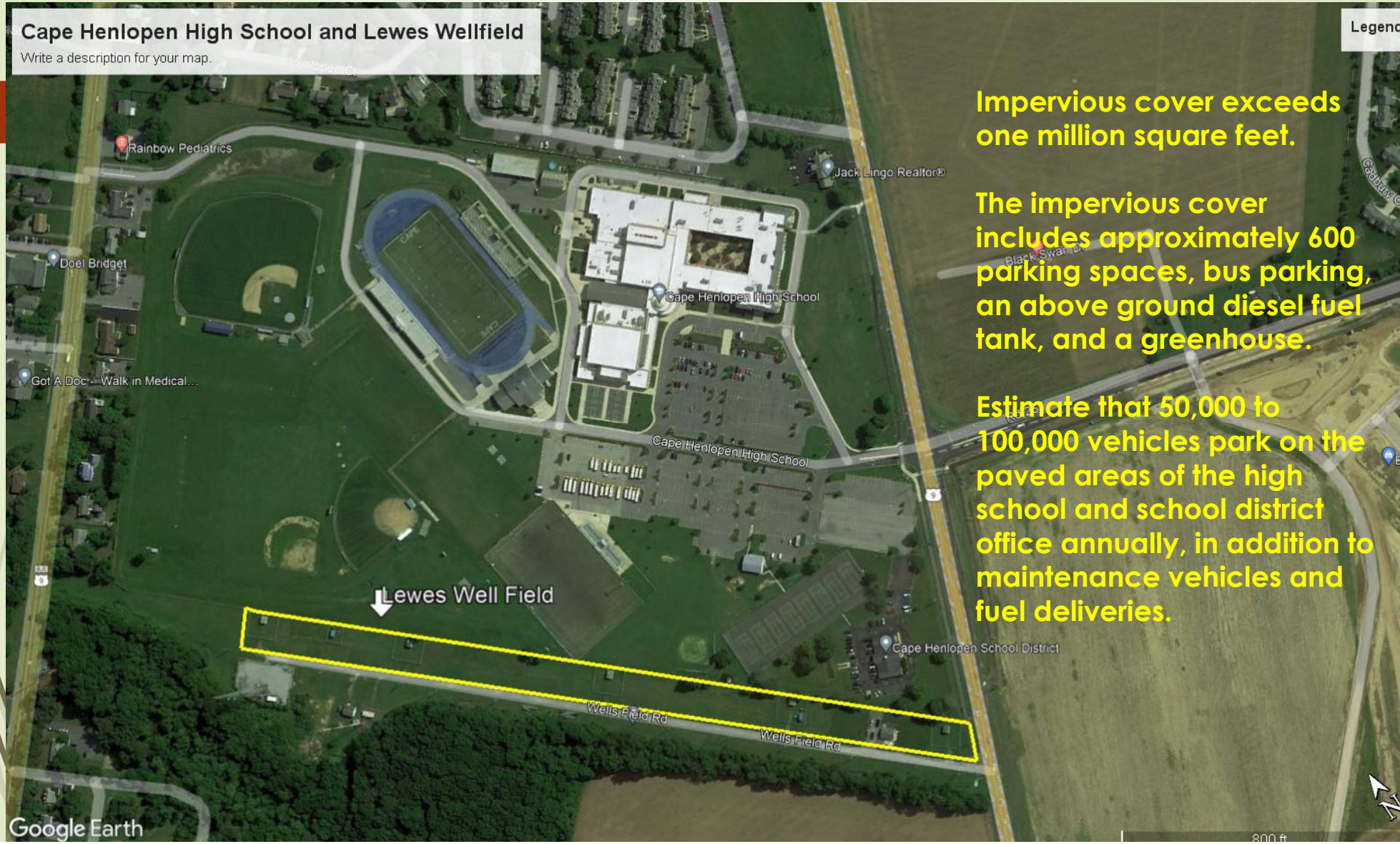
Water supply wells are found throughout Delaware within residential and commercial areas with no adverse impacts from the surrounding land use.

The Lewes supply wells have historically provided acceptable drinking water with a variety of land uses present within the WPA

Commercial properties and more than 200 homes, many of which were served by septic systems before a sanitary sewer system was provided.

Kings Highway runs directly adjacent to the wellfield with traffic totals exceeding 12,000 vehicles per day with no treatment of stormwater conveyed into the wellhead area. Future planning includes expanding Kings Highway into a dual highway.

Cape Henlopen High School is located directly adjacent to the well field.



Impervious cover exceeds one million square feet.

The impervious cover includes approximately 600 parking spaces, bus parking, an above ground diesel fuel tank, and a greenhouse.

Estimate that 50,000 to 100,000 vehicles park on the paved areas of the high school and school district office annually, in addition to maintenance vehicles and fuel deliveries.

Residential land use, commercial land use and parking lots do not typically impact supply wells.

Supply wells are most often impacted by the following, none of which are proposed in the WPA:

- Underground Storage Tanks
- Manufacturing and Industry
- Dry Cleaning Operations
- Agriculture
- Poultry Operations

The University of Delaware Water Resources Agency prepared a report for the New Castle County Department of Land Use titled “Report on Water Resource Protection Areas, New Castle County, Delaware” dated March 14, 2011. Many WRPA projects included Water Management Agreements requiring pre and post development groundwater quality monitoring. The Water Resources Agency indicated in the cover page of the report that **“groundwater quality and quantity have largely been preserved under the WRPA provisions of New Castle County Code.”** Data in the report also indicated that groundwater quality typically improved or remained unchanged following development.

New Castle County does permit recharge basins in Water Resource Protection Areas to receive both rooftop water and stormwater from paved surfaces, typically with pretreatment structures for water conveyed from the paved surfaces.

In 2016, a Sussex County Planning and Zoning Commissioner sent an inquiry to DNREC regarding the Lewes WPA water quality when considering a rezoning application for the planned Village Center located south of the project site. One of the questions asked of DNREC was "Has the purity of the water changed and/or have any new pollutants been detected?" DNREC's response was **"Based on the sample results from the last 5-10 years made available to DNREC by the ODW there has been no change in water quality."**

This is an important observation as the proposed development of the Property is consistent with historical and existing land use within the WPA.

Summary

The quantity of recharge will be substantially increased with post development, providing the Lewes wellfield with millions of additional gallons of water.

The loading of nitrates, phosphorus, herbicides and pesticides to surface water and groundwater will be reduced. Soil erosion and the volume of stormwater runoff will be reduced.

Residential and commercial land use do not typically impact supply wells as demonstrated by the water quality maintained in the Lewes wellfield and as indicated by studies.

Soil Conditions and depth to groundwater are favorable for infiltration and recharge.