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Sussex County

DELAWARE
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COUNTY ADMINISTRATIVE OFFICES
2 THE CIRCLE | PO BOX 417
GEORGETOWN, DELAWARE



December 13, 2022

Lockhaven Farm, LLC
26412 Broadkill Road
Milton, Delaware 19968

**RE: Minor Subdivision
Tax Map 235-15.00-34.00**

To Whom It May Concern,

Scaled Engineering Inc (Scaled) has been contracted by Lockhaven Farm, LLC (client) to prepare a Minor Subdivision Plan for "Lockhaven Farm", known herein as the "Site". The site is located northwest side of Round Pole Bridge Road, west of Hudson Road, Milton, DE 19968. The site is listed under Sussex County tax map number 235-15.00-34.00. Pursuant to the Minor Subdivision Plan (copy attached), Scaled is providing a summary of soil investigation work conducted at the site.

Per the Department of Natural Resources and Environmental Control (DNREC) policy, a soil feasibility study may be submitted for any proposed Major Subdivision to ensure compliance with the DNREC "Regulations Governing the Design, Installation, and Operation of On-Site Wastewater Treatment and Disposal Systems" (Regulations), and to satisfy other local government approval processes. In general, a soil feasibility study includes hand-auger borings and test pits, excavated in a grid pattern across a site to indicate the type of limiting zone, its depth, estimated permeability rate, soil series or taxonomic subgroup, and associated on-site wastewater treatment and disposal system (OWTDS) suitability. Percolation tests are conducted within each soil interpretive unit to establish representative percolation rates. A soil feasibility report detailing results of the feasibility study is submitted to DNREC for review. Following DNREC's review, the owner/developer is provided a statement of preliminary subdivision feasibility, which contains a statement of on-site wastewater treatment and disposal feasibility. Feasibility study approvals do not expire, and soil conditions remain valid unless a site is altered in a way that impacts the soils.

A soil feasibility study was performed for the site by Geo-Technology Associates, Inc (GTA), and a report titled "Report of Soil Feasibility Study, Gaitlyn Farm, Tax Map 2-35-15-34, Sussex County, Delaware", dated March 2006 was submitted to DNREC for review (copy attached). DNREC issued a "Non-Binding Statement of Feasibility" letter, dated December 17, 2015 (copy attached), stating the proposed major subdivision would be feasible in accordance with the Regulations "as long as judicious and coordinated use of land is exercised, areas delineated by GTA as being feasible for OWTDS as depicted by the Plan are accurate and if proposed Lot 3 is combined with proposed Lots 2 and/or 4". The site has not been altered in a way that impacts the soils since the feasibility approval; therefore, findings of the feasibility remain valid. Scaled prepared a new proposed Major Subdivision Plan for the site. Correspondence with DNREC (copy attached) confirmed soils data from the original feasibility study can be utilized to obtain a new Non-Binding Statement of Feasibility for the new Major

Subdivision. Scaled prepared an updated Soil Delineation Map (copy attached) depicting suitable soils area with the updated lot configuration overlaid. The updated Map confirms all proposed lots are situated within area suitable for OWTDS.

Scaled performed a preliminary soil investigation to further evaluate the “proposed Lot 3” area of the site mentioned in the DNREC Non-Binding Statement of Feasibility. Results of the investigation concluded sufficient area exists within the “proposed Lot 3” area to place a residential dwelling, well and septic. A copy of the “Preliminary Soil Investigation” letter is provided as an attachment to this letter.

Scaled has prepared a Minor Subdivision Plan for the site, which includes four proposed lots and remaining lands. Proposed Lots 1, 2 and 3 are situated within area found suitable for septic in the soil feasibility study. The site has remained unaltered since the soil feasibility study; therefore, the soil conditions have not changed, nor has the suitability for an OWTDS. Scaled performed a site evaluation for on-site septic for proposed Lot 4 (formerly known as Lot 15). Lot 4 was found suitable for a capping fill gravity OWTDS, with additional area suitable for capping fill and full depth low pressure pipe OWTDS. The site evaluation was approved by DNREC and is valid until August 27, 2025 (copy attached). Based on combined soil investigation information, sufficient area to fit a dwelling, septic and well exists for each proposed lot, and the remaining lands.

Please feel free to contact me with any questions, concerns, or for additional information at (302) 227-7808 or josh@scaledengineering.com

Respectfully Submitted,

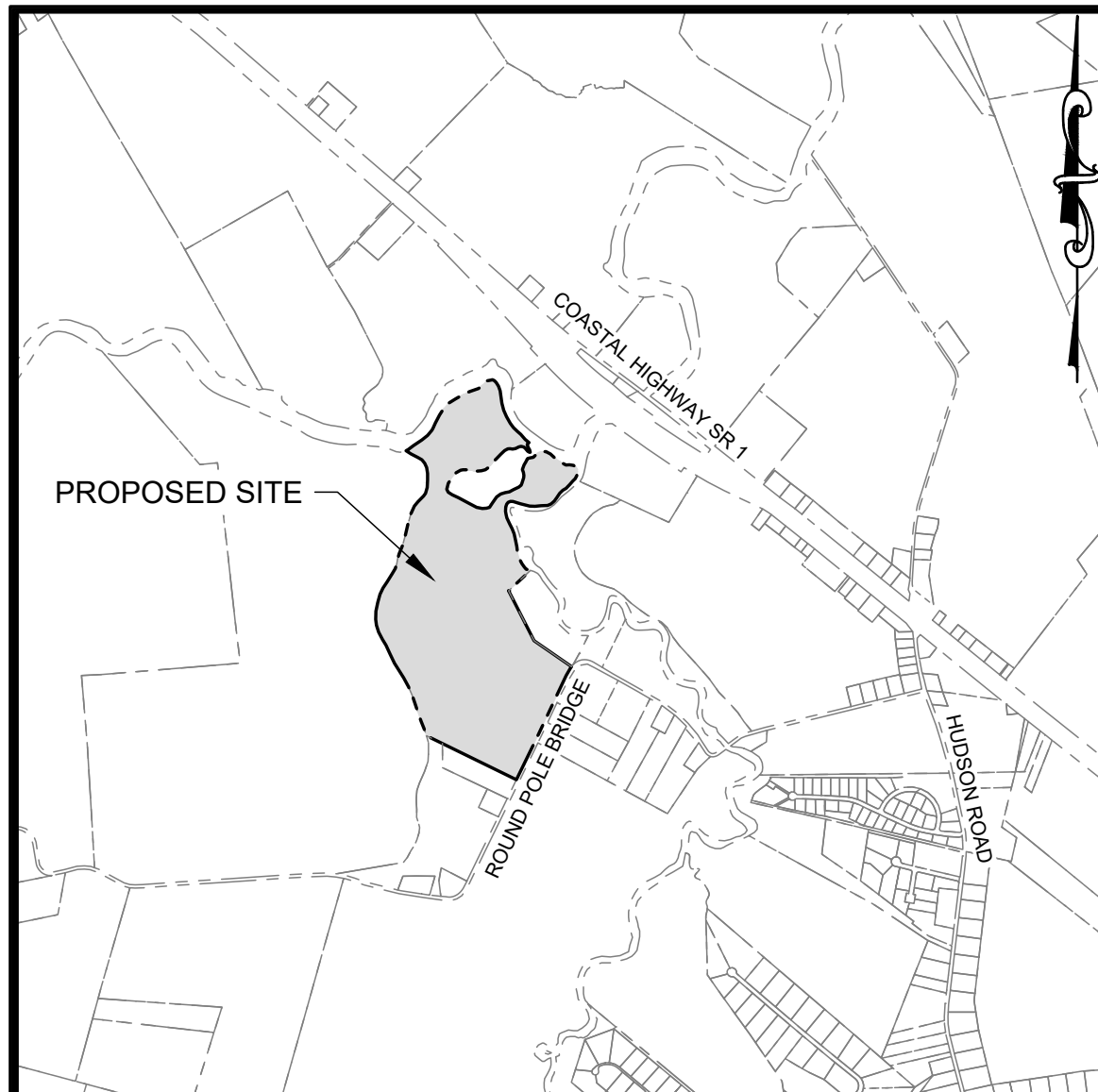
SCALED ENGINEERING INC.



M. Josh Stallings
Senior Environmental Scientist
Class D.2 Site Evaluator, DNREC License #4601

ATTACHMENTS

MINOR SUBDIVISION PLAN

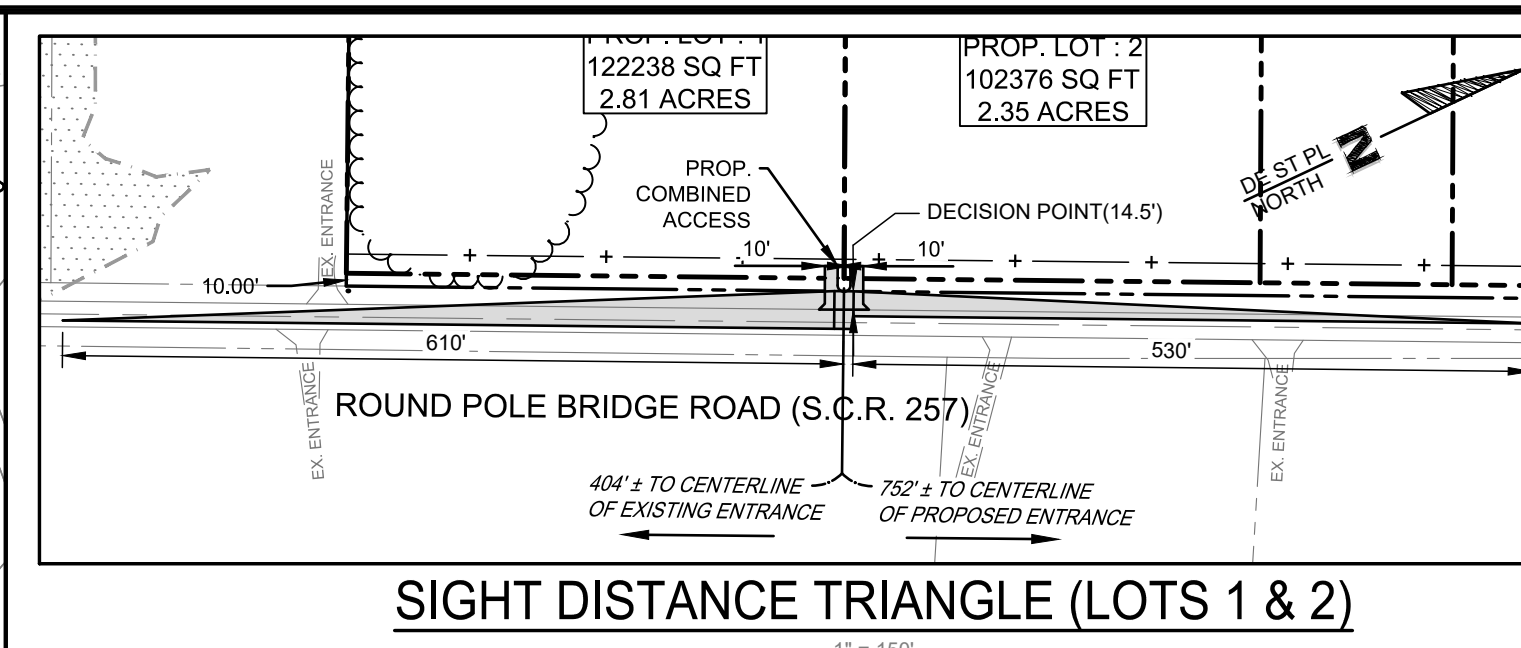


LOCATION MAP

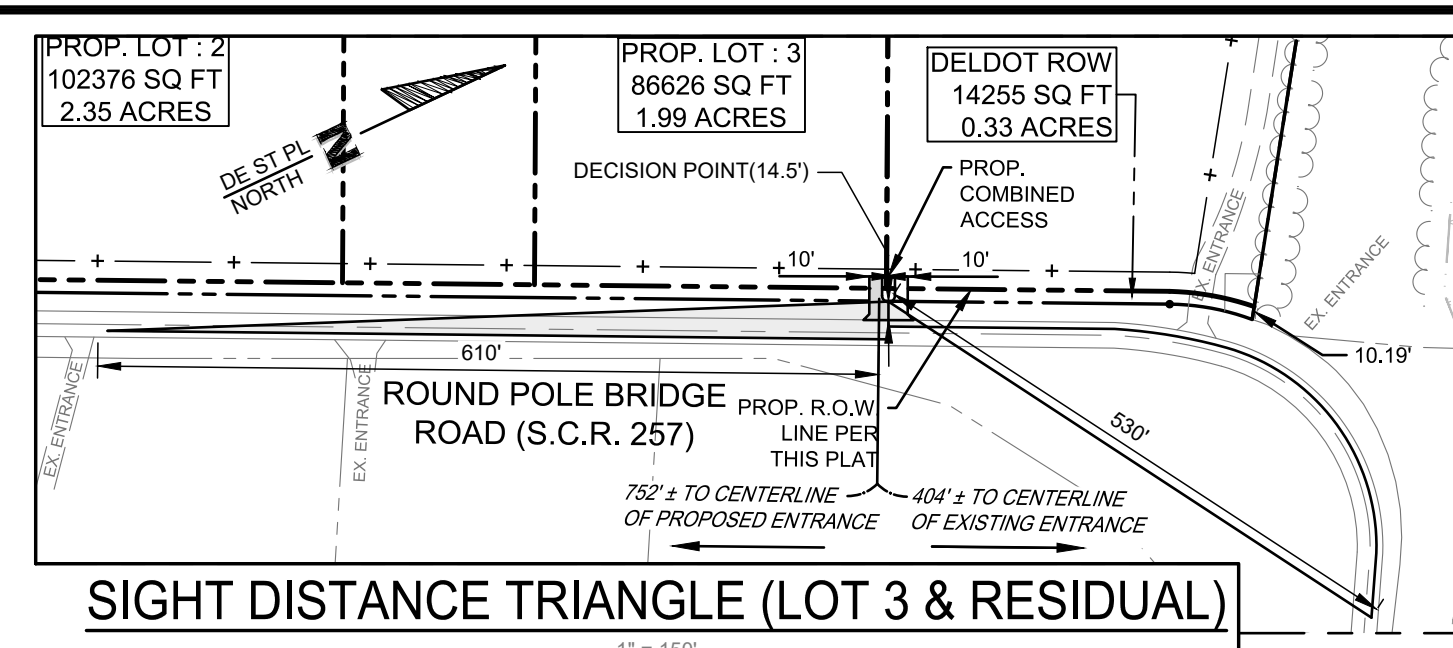
SCALE: 1" = 2,000'

DELDOT NOTES:

- IF EXISTING ENTRANCES ARE ALTERED, THEY SHALL CONFORM TO DELDOT'S DEVELOPMENT COORDINATION MANUAL (DCM) AND SHALL BE SUBJECT TO ITS APPROVAL. NO CONSTRUCTION ACTIVITY SHALL OCCUR IN THE RIGHT-OF-WAY (ROW) WITHOUT A DELDOT PERMIT.
 - 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 OWNERS LAND, A SIGHT EASEMENT SHOULD BE ESTABLISHED AND RECORDED WITH ALL AFFECTED PROPERTY OWNERS TO MAINTAIN THE REQUIRED SIGHT DISTANCE.
 - 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.
 - REFER TO DELDOT STANDARD DETAIL M-2 FOR RIGHT-OF-WAY MONUMENTS.
 - ALL ENTRANCES SHALL CONFORM TO DELDOT'S DEVELOPMENT COORDINATION MANUAL (DCM) AND SHALL BE SUBJECT TO ITS APPROVAL.
 - LOTS 1 & 2 SHALL HAVE COMBINED ACCESS FROM SCR 257.
 - LOT 3 & RESIDUAL SHALL HAVE COMBINED ACCESS FROM SCR 257.
 - LOT 4 SHALL HAVE COMBINED ACCESS FROM EXISTING ENTRANCE OFF SCR 257.
- MAINTENANCE OF EASEMENT SHALL BE SHARED BY THE ABOVE DESCRIBED PARCELS.



SIGHT DISTANCE TRIANGLE (LOTS 1 & 2)



SIGHT DISTANCE TRIANGLE (LOT 3 & RESIDUAL)

WETLANDS DELINEATION CERTIFICATION STATEMENT:

I, BRUCE BAGLEY, CERTIFY THAT THIS PROPERTY HAS BEEN EXAMINED FOR WETLANDS IN ACCORDANCE WITH CRITERIA FOUND IN THE 1987 CORPS OF ENGINEERS WETLAND DELINEATION MANUAL AND ASSOCIATED REGULATORY DOCUMENTS. THE DELINEATION HERE SHOWN, IN MY BEST PROFESSIONAL JUDGEMENT, ACCURATELY DEPICTS WETLAND BOUNDARIES PRESENT WITHIN THE PROJECT AREA.

BRUCE BAGLEY
420 COSDEN RD.
BARCLAY, MD 21607

OWNER CERTIFICATION:

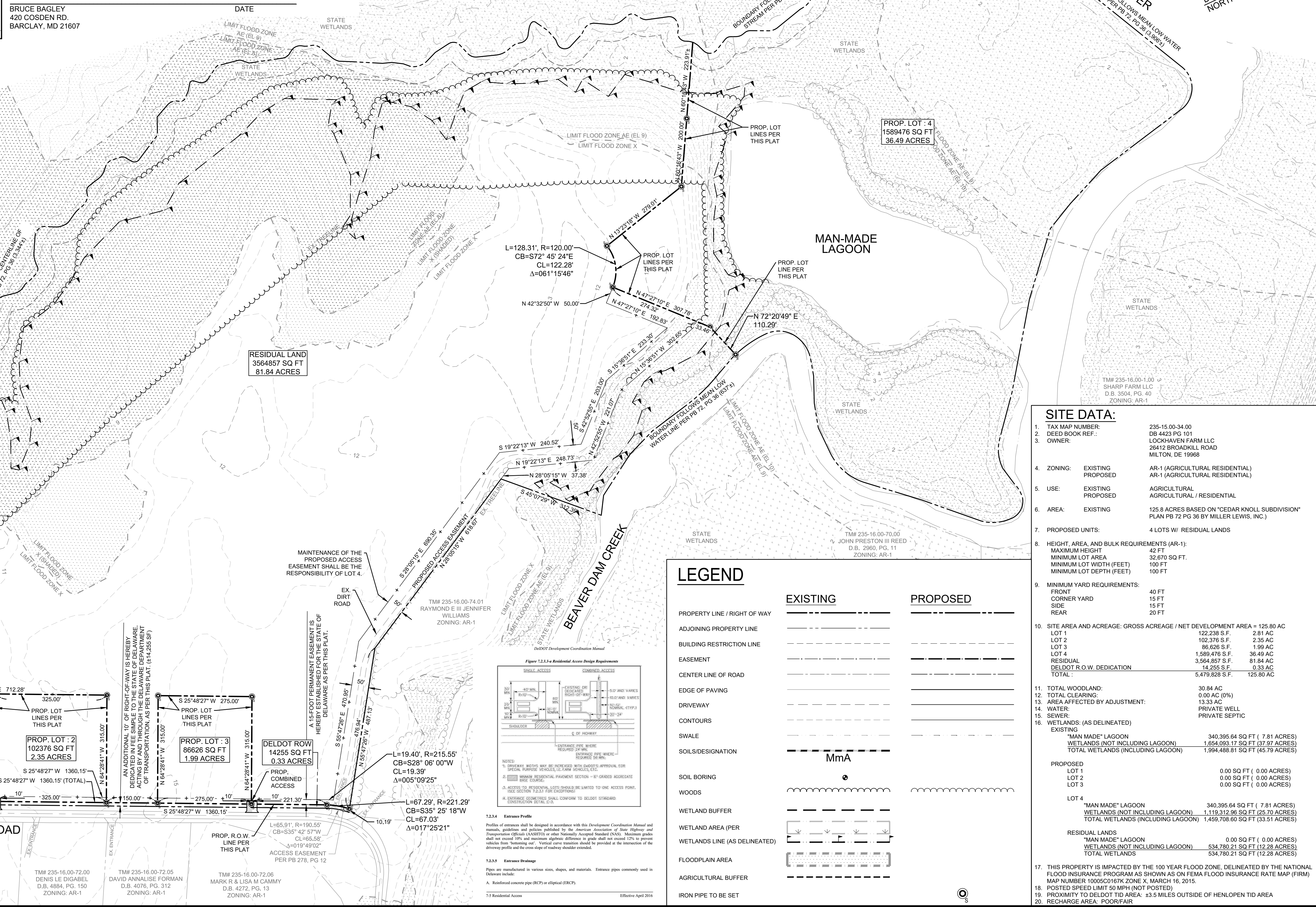
I, THE UNDERSIGNED, HEREBY CERTIFY TO THE OWNERSHIP OF THE PROPERTY DESCRIBED AND SHOWN ON THIS PLAN, THAT THE PLAN WAS MADE AT MY DIRECTION, AND THAT I ACKNOWLEDGE THE SAME TO BE MY ACT AND THAT I DESIRE THE PLAN TO BE RECORDED ACCORDING TO LAW. I CERTIFY THAT TITLE 17, SECTION 530 IS APPLICABLE TO THE PROPERTY DESCRIBED AND SHOWN ON THIS PLAN BY VIRTUE OF:

PRINTED NAME: LOCKHAVEN FARM, LLC
26412 BROADKILL ROAD
MILTON, DE 19968

ENGINEERS CERTIFICATION

I, CARLTON R. SAVAGE, JR. HEREBY CERTIFY 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.

CARLTON R. SAVAGE, JR., P.E. (LICENSE #16457)

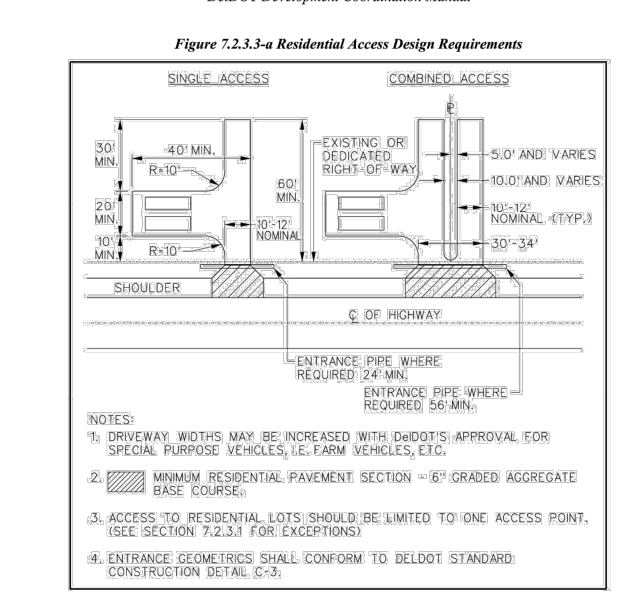


SITE DATA:

1. TAX MAP NUMBER:	235-15.00-34.00
2. DEED BOOK REF.:	DB 4423 PG 101
3. OWNER:	LOCKHAVEN FARM LLC 26412 BROADKILL ROAD MILTON, DE 19968
4. ZONING:	EXISTING: AR-1 (AGRICULTURAL RESIDENTIAL) PROPOSED: AR-1 (AGRICULTURAL RESIDENTIAL)
5. USE:	EXISTING: AGRICULTURAL PROPOSED: AGRICULTURAL / RESIDENTIAL
6. AREA:	EXISTING: 125.8 ACRES BASED ON "CEDAR KNOLL SUBDIVISION" PLAN PB 72 PG 36 BY MILLER LEWIS, INC.) PROPOSED: 4 LOTS W/ RESIDUAL LANDS
7. PROPOSED UNITS:	4 LOTS W/ RESIDUAL LANDS
8. HEIGHT, AREA, AND BULK REQUIREMENTS (AR-1):	MAXIMUM HEIGHT: 42 FT MINIMUM LOT AREA: 33,870 SQ FT MINIMUM LOT WIDTH (FEET): 100 FT MINIMUM LOT DEPTH (FEET): 100 FT
9. MINIMUM YARD REQUIREMENTS:	FRONT: 40 FT CORNER YARD: 15 FT SIDE: 15 FT REAR: 20 FT
10. SITE AREA AND ACREAGE: GROSS ACREAGE / NET DEVELOPMENT AREA = 125.80 AC	
11. TOTAL WOODLAND:	30.84 AC
12. TOTAL CLEARING:	0.00 AC (0%)
13. AREA AFFECTED BY ADJUSTMENT:	13.33 AC
14. WATER:	PRIVATE WELL
15. SEWER:	PRIVATE SEPTIC
16. WETLANDS: (AS DELINEATED)	
EXISTING:	"MAN MADE" LAGOON: 340,395.64 SQ FT (7.81 ACRES) WETLANDS (NOT INCLUDING LAGOON): 1,654,093.17 SQ FT (37.97 ACRES) TOTAL WETLANDS (INCLUDING LAGOON): 1,994,488.81 SQ FT (45.79 ACRES)
PROPOSED:	LOT 1: 0.00 SQ FT (0.00 ACRES) LOT 2: 0.00 SQ FT (0.00 ACRES) LOT 3: 0.00 SQ FT (0.00 ACRES) LOT 4: "MAN MADE" LAGOON: 340,395.64 SQ FT (7.81 ACRES) WETLANDS (NOT INCLUDING LAGOON): 1,119,312.96 SQ FT (25.70 ACRES) TOTAL WETLANDS (INCLUDING LAGOON): 1,459,708.60 SQ FT (33.51 ACRES)
RESIDUAL LANDS:	"MAN MADE" LAGOON: 0.00 SQ FT (0.00 ACRES) WETLANDS (NOT INCLUDING LAGOON): 534,780.21 SQ FT (12.28 ACRES) TOTAL WETLANDS: 534,780.21 SQ FT (12.28 ACRES)
17. THIS PROPERTY IS IMPACTED BY THE 100 YEAR FLOOD ZONE, DELINEATED BY THE NATIONAL FLOOD INSURANCE PROGRAM AS SHOWN AS ON FEMA FLOOD INSURANCE RATE MAP (FIRM) MAP NUMBER 10005C0167K ZONE X, MARCH 16, 2015.	
18. POSTED SPEED LIMIT 50 MPH (NOT POSTED)	
19. PROXIMITY TO DELDOT TID AREA: 3.5 MILES OUTSIDE OF HENLOPEN TID AREA	
20. RECHARGE AREA: POOR/FAIR	

LEGEND

	EXISTING	PROPOSED
PROPERTY LINE / RIGHT OF WAY	---	---
ADJOINING PROPERTY LINE	---	---
BUILDING RESTRICTION LINE	---	---
EASEMENT	---	---
CENTER LINE OF ROAD	---	---
EDGE OF PAVING	---	---
DRIVEWAY	---	---
CONTOURS	---	---
SWALE	---	---
SOILS/DESIGNATION	---	MmM
SOIL BORING	---	---
WOODS	---	---
WETLAND BUFFER	---	---
WETLAND AREA (PER	---	---
WETLANDS LINE (AS DELINEATED)	---	---
FLOODPLAIN AREA	---	---
AGRICULTURAL BUFFER	---	---
IRON PIPE TO BE SET	---	---



2.2.4 Entrance Profile
Profiles of entrances shall be designed in accordance with this Development Coordination Manual and standards, guidelines and policies published by the Delaware Association of State Highway and Transportation Officials (ASHTO) or other National Accepted Standard (NAS). Maximum grades shall not exceed 10% and maximum algebraic difference in grade shall not exceed 12% to prevent vehicle from "bottoming out". Vertical curve transition should be provided at the intersection of the driveway profile and the cross slope of roadway shoulder extended.

2.2.5 Entrance Drainage
Pipes are manufactured in various sizes, shapes, and materials. Entrance pipes commonly used in Delaware include:
A. Reinforced concrete pipe (RCP) or elliptical (ECP).
Effective April 2016

SCALED ENGINEERING
 Scaled Engineering Inc.
 2000 Highway 101
 Rehoboth Beach, DE 19807
 Phone: (302) 236-3600

MINOR SUBDIVISION PLAN

LOCKHAVEN FARM MINOR SUBDIVISION
 TM: 235-15.00-34.00
 LOCKHAVEN FARM, LLC

REVISIONS:
 10-25-22 SCP&Z COMMENTS

Date: 9-21-22
 Scale: 1" = 150'
 Dwn. By: JRE
 Proj. No.: LDCC005
 Dwg. No.:

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SOIL FEASIBILITY REPORT

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REPORT OF
SOIL FEASIBILITY STUDY

GAITLYN FARM
Tax Map # 2-35-15-34
Sussex County, Delaware

MARCH 2006

Prepared For:

Meridian Architects and Engineers
26412 Broadkill Road
Milton, Delaware 19968

Attn: Ms. Jessica Nichols, P.E.

Prepared By:

GEO-TECHNOLOGY ASSOCIATES, INC.
Geotechnical and Environmental Consultants
3445-A Box Hill Corporate Center Drive
Abingdon, Maryland 21009

GTA Job No: 060037

GEO-TECHNOLOGY ASSOCIATES, INC.

GEOTECHNICAL AND
ENVIRONMENTAL CONSULTANTS

A Practicing ASPE Member Firm



March 24, 2006

Meridian Architects and Engineers
26412 Broadkill Road
Milton, Delaware 19968

Attn: Ms. Jessica Nichols, P.E.

Re: Soil Feasibility Report
Gaitlyn Farm
Tax Map# 2-35-15-34
Sussex County, Delaware

Dear Ms. Nichols:

In accordance with our agreement, Geo-Technology Associates, Inc. (GTA) has performed a Soil Feasibility Study (SFS) for the proposed Gaitlyn Farm subdivision, in Sussex County, Delaware. The SFS was performed to evaluate the suitability of soil conditions for wastewater disposal via individual on-lot systems. The results of the SFS are summarized in the attached report.

We appreciate the opportunity to be of assistance to you on this project. Should you have any questions, or should you require additional information, please contact the undersigned.

Sincerely,
GEO-TECHNOLOGY ASSOCIATES, INC.

A handwritten signature in black ink, appearing to read "Kevin A. Thomas". The signature is fluid and cursive, extending across the width of the text area.

Kevin A. Thomas, CPSS
Soil Scientist License # 4395

A handwritten signature in black ink, appearing to read "Craig T. Rodano". The signature is cursive and somewhat stylized, with a large initial "C".

Craig T. Rodano, P.G.
Vice President

KAT/CTR/klt

050864 L:\Shared\Aquifer\Reports\WW - Perc Rpts\060037 Gaitlyn Farm\GAILLYN FARM SF rpt.doc

3445-A Box Hill Corporate Center Drive, Abingdon, MD 21009

(410) 515-9446

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Appendix B	Infiltration Test Data
Appendix C	Soil Profile Notes

REPORT OF SOIL FEASIBILITY STUDY

**GAITLYN FARM
SUSSEX COUNTY, DELAWARE
MARCH 2006**

1.0 INTRODUCTION

Geo-Technology Associates, Inc. (GTA) has performed a Soil Feasibility Study (SFS) at the Gaitlyn Farm site, located approximately 2,000 feet west of Brickyard Road and Hudson Road intersection, in Sussex County, Delaware. GTA understands that the site is proposed for development with 25 single-family homes to be serviced by private on-site wastewater disposal systems and wells.

The purpose of the SFS was to evaluate the suitability of soil conditions for wastewater disposal via individual on-lot wastewater disposal systems. The SFS was performed within an approximate 79-acre portion of the site, excluding the northwestern portion based on previous wetland delineation by Mr. Kenneth W. Redinger. The results of the field observations, testing, and analysis associated with the SFS are summarized herein.

2.0 SITE LOCATION AND DESCRIPTION

The subject property consists of an approximate 126-acre tract consisting primarily of open agricultural fields and woodlands. The woodlands are situated at the central and western portions of the site, including areas along the banks of the Broadkill River and Beaverdam Creek.

According to the *Preliminary Subdivision Plat for Gaitlyn Farm* (Preliminary Plan), prepared by Meridian Architects and Engineers (MAE), the elevations on the site range from a minimum of approximately 4 feet above Mean Sea Level (ft MSL), at the western and eastern portions of the site along the Broadkill River and Beaverdam Creek, to a maximum of approximately 16 ft MSL near the south-central portion of the site. The topography of the site is

gently to moderately sloping, with surface water drainage generally directed to the west on the western portion of the site, toward the Broadkill River and east on the eastern portion of the site, toward Beaverdam Creek. A *Site Location Map* is inset on the *Preliminary Test Pit/Hand Auger Location and Soil Taxonomy Plan* (Soils Plan), which is attached to this Report in Appendix A.

3.0 GEOLOGY AND SOILS

According to the *Geology of Southern Delaware*, published by the Delaware Geologic Survey in 1990 (DGS, 1990), the site is situated on the alluvial deposits of the Coastal Plain Physiographic Province. The Coastal Plain is characterized by undifferentiated and interlayered sedimentary materials, derived from eroded and transported rock formations to the north and west. Specifically, the DGS (1990) indicates that the surficial deposits that underlie the site are the Pleistocene Age sediments of the Columbia Formation. The Columbia Formation is characterized by quartz sands and gravels, with the uppermost portion of the Formation being silty, and thin clay beds occurring locally.

According to the *Sussex County Soil Survey*, issued by the U.S. Department of Agriculture, and dated October 1971 (USDA, 1971), the site is underlain by the well-drained Evesboro loamy sand (EvA); Kalmia sandy loam (Ka), Kenansville loamy sand (KbA) and Sassafras sandy loam (SaA); the moderately well-drained Rumford loamy sand (RuB); the very poorly drained Johnston silt loam (Jo) and Tidal Marsh (Tm).

4.0 SOIL FEASIBILITY STUDY

The SFS was performed on February 1, 2, 3, 6 and 7, 2006, and included the excavation of 50 test pits and 18 hand auger borings at the approximate locations indicated on the Soils Plan attached to this Report in Appendix A. In addition, infiltrometer testing was performed at twelve locations, also indicated on the Soils Plan.

The soils encountered by the test pits and hand auger borings were classified by a D-Licensed Soil Scientist, in accordance with the Delaware Natural Resources and Environmental Control (DNREC) protocol. Mr. Jack Hayes of DNREC was present on February 2, 2006, and observed the soils encountered within approximately 32 of the 50 evaluated test pits. The results of the SFS are summarized herein, with the infiltrometer testing and soil profile evaluations summarized on the *Infiltration Data* table and *Soil Profile Notes*, attached to this Report in Appendices B and C.

4.1 General Description of Soils

The soils at the western and eastern portions of the site, and along the side slopes of the Broadkill River and Beaver Dam Creek, are characterized by a sandy epipedon (surface soil) of variable thickness, which overlies a sandy loam to sandy clay loam subsoil. These soils appear to be well- to moderately well-drained. Water bearing fine to coarse sands to loamy fine to coarse sands were generally encountered below the subsoil. The sandy loam to sandy clay loam subsoil materials generally appear to be uniformly present beneath these portions of the site, in contrast to the soils at the central portion of the site.

The soils at the central portion of the site are characterized by a sandy epipedon of variable thickness, which overlies a sandy loam to clay subsoil and appear to be moderately to somewhat poorly drained. Fine to coarse sands to loamy fine to coarse sands were generally encountered below the subsoil. The loamy to clayey subsoil materials generally appear to be uniformly present beneath the central portion of the site and appear to be hydraulically restrictive.

4.2 Soil Taxonomic Descriptions in the Context of Wastewater Disposal Suitability

The soils encountered by the test pits and hand augers were classified by a D-Licensed Soil Scientist, in accordance with DNREC protocol. A description of the Soil Taxonomic groups with regard to wastewater disposal suitability is as follows:

4.2.1 Arenic Hapludult (HCGK), Lamellic Hapludult (HCGI) and Typic Dystrudept (KGEX)

The Arenic Hapludult (HCGK) soil is typically comprised of surface horizon(s) that may include a plow horizon, if currently or previously under agricultural production; an elluvial horizon, or a zone of clay loss, with textures of loamy sand or sand to depths ranging from approximately 20 to 40 in. bgs. These surface soils typically transition to or terminate into argillic horizon(s), or zone(s) of clay increase, greater than 10 inches thick. The HCGK soil has a seasonal high groundwater table or saturated soil conditions greater than or equal to 40 in. bgs.

The Lamellic Hapludult (HCGI) soil is typically comprised of surface horizon(s) that may include a plow horizon, if currently or previously under agricultural production; and an elluvial horizon. These surface soils transition or terminate into horizons known as lamellae (argillic horizons that are less than 1 to 2 inches thick). The lamellae can form multiple thin bands of clay, bridging sand and silt grains, within the soil profile. The HCGI soil has a seasonal high groundwater table or saturated soil conditions greater than or equal to 40 in. bgs.

The Typic Dystrudept (KGEX) soil is typically comprised of surface horizon(s) that may include a plow horizon, if currently or previously under agricultural production; and an elluvial horizon with textures of loamy sand or sand to depths ranging from approximately 20 to 40 in. bgs. These surface soils transition to or terminate into cambic horizon(s), or zone(s) of physical alterations, chemical transformations or removals. The KGEX soils have a seasonal high groundwater table or saturated soil conditions greater than or equal to 40 in. bgs.

Redoximorphic features, or indicators of seasonally saturated conditions, were generally encountered within 43 to 64 in. bgs for the soils observed and designated as Arenic Hapludult, Lamellic Hapludult and Typic Dystrudept. The Arenic Hapludult and

Lamellic Hapludult soils encountered at the site were typically comprised of loamy sand to depths of approximately 20 to 39 in. bgs. The soils transitioned to or terminated in an argillic horizon, i.e., the subsoil or solum comprised of loamy sand to sandy clay loam, to depths ranging from approximately 39 to 60 in. bgs. Below the solum, the soil transitioned into the water-bearing parent or geologic material, typically comprised of loamy sand or sand to depths of approximately 60 to greater than 72 in. bgs.

The Typic Dystrudept soil encountered at the site was typically comprised of loamy sand to depths of approximately 20 to 39 in. bgs. These soils transitioned to or terminated in a cambic horizon, i.e., the subsoil or solum comprised of loamy sand, to depths ranging from approximately 39 to 50 in. bgs. Below the solum, the soil transitioned into the water-bearing parent or geologic material, typically comprised of loamy sand or sands to depths of approximately 50 to greater than 72 in. bgs.

Based on observed soil textures, infiltrometer testing, and DNREC's *Regulations Governing the Design, Installation and Operation of On-Site Wastewater Treatment and Disposal Systems* (Regulations), amended on April 11, 2005, the observed Arenic Hapludult, Lamellic Hapludult and Typic Dystrudept soils are generally associated with rapid to moderately rapid percolation rates of approximately 8 to 25 minutes per inch (mpi). However, some areas exhibited slight cementation and/or finer textures deeper in the soil profile, indicating potentially slow 50 to 80 mpi, permeability.

The Arenic Hapludult, Lamellic Hapludult and Typic Dystrudept soils encountered appear to be generally favorable for the following wastewater disposal systems: capping fill pressure dosed; full-depth or capping fill low pressure pipe; and elevated sand mound.

It should be noted that soils at the site are heterogeneous and may have Oxyaquic or Aquic inclusions (see section 4.3.2 for soil morphology). Such inclusions may be associated with relatively shallow limiting zones.

4.2.2 Oxyaquic Hapludult (HCGH), Oxyaquic Dystrudept (KGEL) and Oxyaquic Udipsamment (LCFC)

The Oxyaquic Hapludult (HCGH) soils are typically comprised of one or both surface horizon(s) that may include a plow horizon, if currently or previously under agricultural production; and elluvial horizon if present. HCGH soils transition to or terminate into an argillic horizon(s) greater than 10 inches thick, with redoximorphic features at depths less than or equal to 39 in. bgs. Oxyaquic Hapludult soils are typically saturated for at least 20 consecutive days, or more than 30 cumulative days, within the upper 39 inches of the soil profile, and include redoximorphic features at depths less than or equal to 39 in. bgs.

The Oxyaquic Dystrudept (KGEL) soils are typically comprised of one or both surface horizon(s) that may include a plow horizon, if currently or previously under agricultural production; and elluvial horizon. These surface soils transition to or terminate into cambic horizon(s), or zone(s) of physical alterations, chemical transformations or removals and include redoximorphic features at depths less than or equal to 39 in. bgs. Oxyaquic Dystrudept soils are typically saturated for at least 20 consecutive days, or more than 30 cumulative days, within the upper 39 inches of the soil profile.

The Oxyaquic Udipsamment (LCFC) soils are typically comprised of one or both surface horizon(s) that may include a plow horizon, if currently or previously under agricultural production; and elluvial horizon if present. These surface soils transition or terminate into the original parent material. The Oxyaquic Udipsamment is a sandy-textured soil associated with a lack of pedogenic horizons, and is typically saturated for at least 20 consecutive days, or more than 30 cumulative days, within the upper 39 inches of the soil profile, and include redoximorphic features at depths less than or equal to 39 in. bgs.

Faint to prominent redoximorphic features were encountered at depths of 21 to 39 in. bgs within the soils designated as Oxyaquic Hapludult, Oxyaquic Dystrudept and Oxyaquic Udipsamment. The Oxyaquic Hapludult soils encountered on the site are comprised of sandy loam to loamy sand surface horizon(s), i.e., plow and elluvial horizon(s), at depths ranging from 9 to 29 in. bgs, transitioning to or terminating into sandy loam to sandy clay loam argillic horizon(s), at depth ranging from 9 to 39 in. bgs, and include redoximorphic features at depths less than or equal to 39 in. bgs.

The Oxyaquic Dystrudept soils encountered on the site are comprised of sandy loam to loamy sand surface horizon(s) that may include plow and elluvial horizon(s), at depths ranging from 9 to 29 in. bgs. These soils transitioned to or terminated into loamy sand to sandy loam cambic horizon(s), at depths ranging from 9 to 39 in. bgs, and included redoximorphic features less than or equal to 39 in. bgs.

The Oxyaquic Udipsamment soils encountered on the site are comprised of sandy loam to loamy sand surface horizon(s) and may include plow and elluvial horizon(s), at depths ranging from 9 to 29 in. bgs. These soils transitioned to or terminated into the geologic parent material, and included redoximorphic features at depths less than or equal to 39 in. bgs.

The Oxyaquic Hapludult, Oxyaquic Dystrudept and Oxyaquic Udipsamment soils parent or geologic material typically is comprised of loamy sand to loamy fine sand or sands at approximately 24 to greater than 72 in. bgs. The Oxyaquic Hapludult, Oxyaquic Dystrudept and Oxyaquic Udipsamment soils observed on this site appear to be associated with relatively shallow seasonal saturated conditions at depths of approximately 21 to 39 in. bgs.

Based on observed soil textures, infiltrometer results, and the Regulations, the Oxyaquic Hapludult soils are associated with a rapid to moderately rapid percolation

rates of approximately 7 to 18 mpi (see *Soil Profile Notes*). These soils are associated with limited options with respect to emplacement of on-site wastewater disposal systems due to the observed redoximorphic features and shallow saturated conditions within the soil profile. The Oxyaquic Hapludult, Oxyaquic Dystrudept and Oxyaquic Udipsamment soils encountered at the site are potentially favorable for emplacement of the following systems: full-depth and capping-fill low pressure pipe and elevated sand mound.

It should be noted that soils at the site are heterogeneous and may have Aquic inclusions (see below for soil description). Such inclusions may be associated with different limiting zones.

4.2.3 Aquic Hapludults (HCGF) Aquic Arenic Hapludult (HCGE) Soil Taxonomic Complex

Aquic Hapludult (HCGF) soils are typically comprised of surface horizon(s) that may include a plow horizon, if currently or previously under agricultural production; and may or may not have an elluvial horizon. Additionally, these soils transition to or terminate into an argillic horizon(s) to more than 10 inches thick. These soils have redoximorphic features within the upper 24 inches of the argillic horizon(s). The redoximorphic feature is described as a soil color value of 4 or more and a soil chroma value of 2 or less. Aquic Hapludult soils are associated with a seasonal high groundwater table or saturated soil conditions less depths than or equal to 39 in. bgs.

Aquic Arenic Hapludult (HCGE) soils are typically comprised of surface horizon(s) that may include a plow horizon, if currently or previously under agricultural production; and have an elluvial horizon at least 20 inches thick. HCGE soils transition to or terminate into an argillic horizon(s) greater than 10 inches thick. These soils have redoximorphic features within the upper 24 inches of the argillic horizon(s) with a soil color value of 4 or more and a soil chroma value of 2 or less. HCGE soils are generally

associated with a seasonal high groundwater table or saturated soil conditions at depths less than or equal to 39 in. bgs.

Faint to prominent redoximorphic features were encountered at depths of approximately 11 to 20 in. bgs. within the soils observed and were designated as Aquic Hapludult and Aquic Arenic Hapludult. It should be noted that soils encountered in Test Pit TP-K1 had prominent redoximorphic features at a depths of approximately 36 in. bgs. The Aquic Hapludult soils encountered at the site generally included sandy loam to loamy sand surface horizon(s) that may include plow and elluvial horizon(s), at depths ranging from 9 to 19 in. bgs. The Aquic Arenic Hapludult soils encountered on this site were generally comprised of loamy sand surface horizon(s) that may include plow and elluvial horizon(s) at depths ranging from 20 to 36 in. bgs. The HCGF and HCGE surface soils transitioned to or terminated into sandy loam to clay loam argillic horizon(s) at depths ranging from 19 to 36 in. bgs. These soils had redoximorphic features with a soil color value of 4 or more and a soil chroma value of 2 or less within the top 24 inches of the argillic horizon(s). Below the argillic horizons, the soil transitioned into the parent or geologic material typically comprised of loamy sand to loamy fine sand or sands at approximately 60 to more than 72 in. bgs. The Aquic Hapludult and Aquic Arenic Hapludult soils observed on this site appeared to be associated with relatively shallow seasonal saturated conditions at depths of approximately 11 to 20 in. bgs, with the exception of TP-K1, which had a water depth of 57 in. bgs.

Based on observed soil textures, infiltrometer testing, and the Regulations, the Aquic Hapludult and Aquic Arenic Hapludult soils are associated with a slow to very slow percolation rate of approximately 80 to more than 120 mpi, with the exception of TP-K1 witch had a rapid percolation rate of 7 mpi (see *Appendix B*). Aquic Hapludults and Aquic Arenic Hapludult on this site are likely to be associated with limited options with respect to emplacement of on-site wastewater disposal systems due to the observed

redoximorphic features, slow permeability and shallow saturated conditions observed within the soil profile. The Aquic Hapludult and Aquic Arenic Hapludult soils encountered are potentially favorable for emplacement of alternative wastewater disposal systems, with the exception of the area within the vicinity of TP-K1, which is suitable for full-depth and capping-fill low pressure pipe, and elevated sand mound wastewater disposal systems. Areas with less than 18 in. bgs. to the water table and/or redoximorphic features will require advanced pre-treatment.

4.3 Infiltrometer Testing

Infiltrometer testing was performed in Test Pits TP-A9, TP-B6, TP-B7, TP-C4, TP-C8, TP-E3, TP-E9, TP-G7, TP-H3, TP-I2, TP-J4 and TP-K1 at depths ranging from approximately 16 to 40 in. bgs. The tests resulted in the following infiltration rates: approximately 16, 3 and 10 minutes per inch (mpi) in the Arenic Hapludult and Typic Dystrudept soil encountered by Test Pits TP-A9, TP-B6 and TP-B7, respectively; approximately 7 to 18 minutes per inch (mpi) in the Oxyaquic Hapludult and Oxyaquic Dystrudept soils encountered in Test Pits TP-C4, TP-C8, TP-E3, TP-I2 and TP-J4; and approximately 7 to greater than 120 minutes per inch (mpi) in the Aquic Hapludult and Aquic Arenic Hapludult soils encountered in Test Pits TP-G7, TP-H3 and TP-K1. The results of the infiltrometer testing are summarized in Appendix B. In accordance with DNREC protocol, percolation rates were assigned for the encountered soils based on soil texture, DNREC's Regulations and the infiltrometer testing results. Assigned percolation rates are indicated on the *Soil Profile Notes*, attached in Appendix C.

5.0 SUMMARY AND CONCLUSIONS

GTA performed an SFS during the period of February 1, 2, 3, 6 and 7, 2006, consisting of the excavation of 50 test pits and 18 hand auger borings and performance of twelve double-ring infiltrometer tests. Mr. Jack Hayes of DNREC was present during the field evaluation performed on February 2, 2006. Soil profiles encountered within the test pits and hand auger borings were classified by a D-Licensed Soil Scientist, in general accordance with DNREC protocol. Based on the observed soil profiles, a *Preliminary Test Pit/Hand Auger Boring Location and Soil*

Taxonomy Plan was prepared, and is attached to this Report in Appendix A. Conclusions associated with each of the encountered soil taxonomic class, with respect to wastewater disposal feasibility follows.

5.1 Arenic Hapludult (HCGK), Lamellic Hapludult (HCGI) and Typic Dystrudept (KGEX)

Redoximorphic features were generally encountered at depths of approximately 43 to 64 in. bgs for the soils observed and designated as Arenic Hapludult, Lamellic Hapludult and Typic Dystrudept. Based on observed soil textures, infiltrometer testing, and the Regulations, these soils are associated with very rapid to moderately rapid percolation rates of approximately 3 to 16 mpi (see *Appendices B and C*). The Arenic Hapludult, Lamellic Hapludult and Typic Dystrudept soils encountered within Lots 1, 16, 17, 18, and 20 through 25 are potentially favorable for capping fill pressurized, full-depth and capping fill low pressure pipe and elevated sand mound systems.

5.2 Oxyaquic Hapludult (HCGH), Oxyaquic Dystrudept (KGEL) and Oxyaquic Udipsamment (LCFC)

Faint to prominent redoximorphic features were encountered at depths of approximately 21 to 39 in. bgs within the soils designated as Oxyaquic Hapludult, Oxyaquic Dystrudept and Oxyaquic Udipsamment. The soils are associated with limitations with respect to emplacement of on-site wastewater disposal systems due to the observed redoximorphic features and high water tables observed within the test pits and/or hand auger borings. Based on observed soil textures and the Regulations the Oxyaquic Hapludult, Oxyaquic Dystrudept and Oxyaquic Udipsamment soils are associated with a rapid to moderately rapid percolation rates of approximately 7 to 18 mpi (see *Soil Profile Notes and Appendix B*). The Oxyaquic Hapludult, Oxyaquic Dystrudept and Oxyaquic Udipsamment soils encountered within Lots 1, 5 through 11, 14 through 23 and 25 are potentially favorable for full-depth and capping fill low pressurize pipe or elevated sand mound wastewater disposal systems.

5.3 Aquic Hapludults (HCGF) and Aquic Arenic Hapludults (HCGE)

Faint to prominent redoximorphic features were generally encountered at approximate depths of 11 to 22 in. bgs within the soils designated as Aquic Hapludult and Aquic Arenic Hapludult. The Aquic Hapludult and Aquic Arenic Hapludult soils observed on this site appear to be associated with relatively shallow seasonal saturated conditions at depths of approximately 11 to 30 in. bgs.

Based on observed soil textures and the Regulations the Aquic Hapludult and Aquic Arenic Hapludult soils are generally associated with a slow to very slow percolation rate of approximately 80 to greater than 120 mpi. The Aquic Hapludult and Aquic Arenic Hapludult soils encountered at portions of proposed Lots 1 through 22 appear to be unsuitable for emplacement of conventional disposal systems, but may be favorable for alternative wastewater disposal systems.

If wastewater systems are proposed within the soil types delineated as Aquic Arenic Hapludult or Aquic Hapludult, monitoring of groundwater levels within the proposed disposal areas through the "wet season," i.e., the annual period extending from January through April is recommended. It is recommended that well installation for monitoring during this 2006 "wet season" be initiated immediately to establish suitability of soil conditions for potential alternative system emplacement.

6.0 LIMITATIONS

This Report has been prepared for the exclusive use of Meridian Architects and engineers in accordance with generally accepted soil science practice. No warranty, express or implied, is made.

The analyses and conclusions contained in this Report are based on the data obtained from limited observations utilizing test pits and hand auger borings which indicate soil conditions only within specific areas at specific times, and only to the depths penetrated. They

do not necessarily reflect variations in soil conditions that may exist outside of their zone of penetration.

In the event that any changes in the nature, design, or location of the facilities are planned, the conclusions contained in this Report should not be considered valid unless the changes are reviewed and conclusions of this Report are verified in writing. Geo-Technology Associates, Inc. is not responsible for any claims, damages, or liability associated with interpretation of subsurface data or reuse of the subsurface data or engineering analysis without the expressed written authorization of Geo-Technology Associates, Inc.

This Report and the attached appendices are instruments of service. If certain conditions or items are noted during our investigation, Geo-Technology Associates, Inc. may be required by prevailing statutes to notify and provide information to regulatory or enforcement agencies. Geo-Technology Associates, Inc. will notify our Client should a required disclosure condition exist.

This Report was prepared by Geo-Technology Associates, Inc. for the sole and exclusive use of GTA and Meridian Architects and Engineers. Use and reproduction of this Report by any other person without the expressed written permission of Geo-Technology Associates, Inc. and Meridian Architects and Engineers is unauthorized, and such use is at the sole risk of the user.

******* END OF REPORT *******

**Infiltration Test Data
GAILLYN FARM
Sussex County, Delaware**

Test Pit	Test Depth (inches)	Test Rate: Drop (in inches)/Unit Time	Infiltration Rate Minutes Per Inch (mpi)	Free Water (in. bgs.)	Soil Type
A9	32	0.63/10min	16	>80	Arenic Hapludult
B6	36	3.06/10min	3	>72	Typic Dystrudept
B7	35	1/10min	10	>72	Arenic Hapludult
C4	24	1.38/10min	7	39	Oxyaquic Dystrudept
C8	30	0.75/10min	14	>82	Oxyaquic Hapludult
E3	25	1.38/10min	7	26	Oxyaquic Dystrudept
E9*	22	0.125/30min	240	17	Aquic Hapludult
G7	20	0.38/30min	80	24	Aquic Arenic Hapludult
H3	22	NM	*	23	Aquic Arenic Hapludult
	16**	0.69/30min	43		
I2	26	1.13/10min	9	42	Oxyaquic Hapludult
J4	40	0.56/10min	18	53	Oxyaquic Dystrudept
K1	32	1.38/10min	7	57	Aquic Arenic Hapludult

Notes:

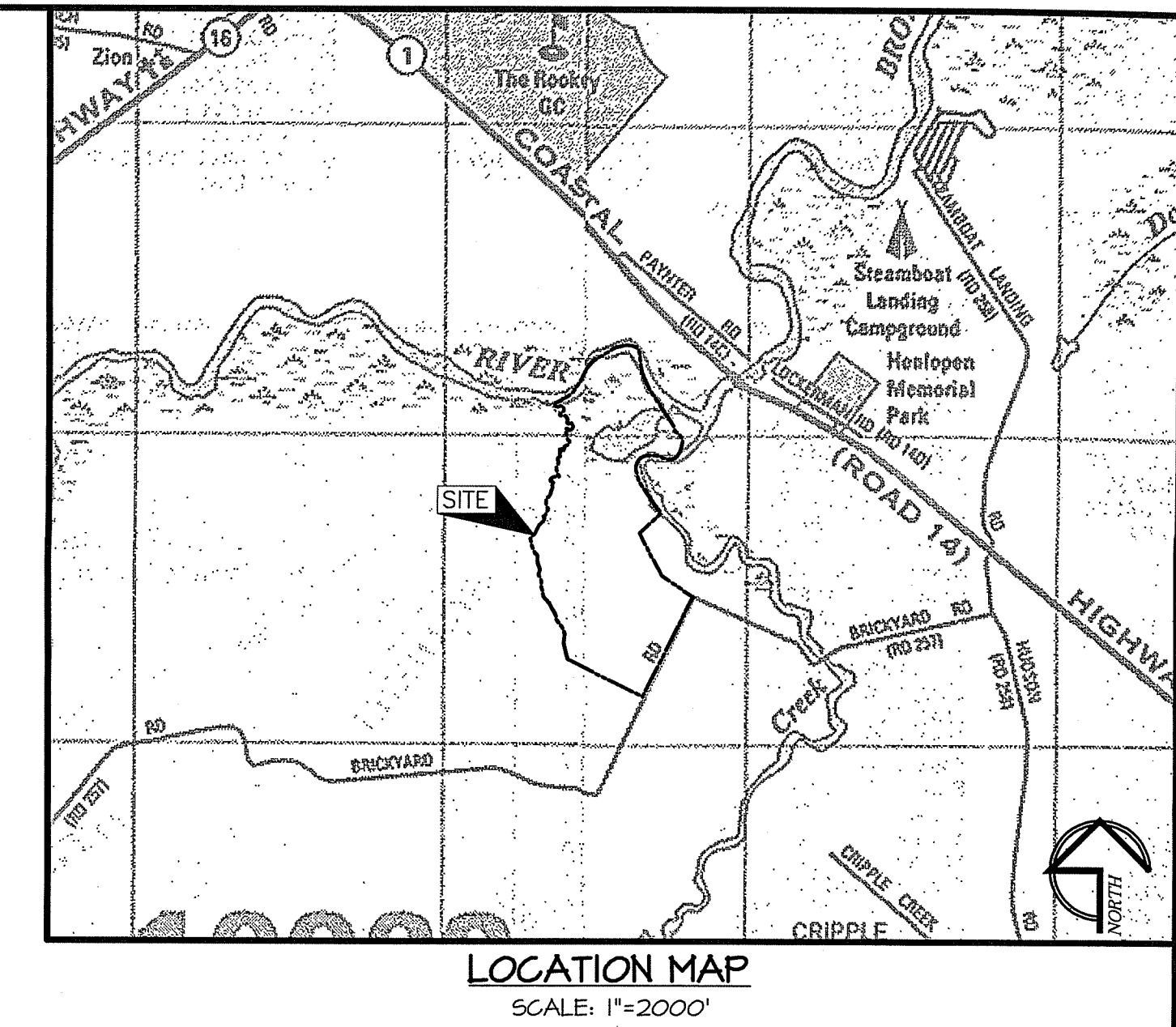
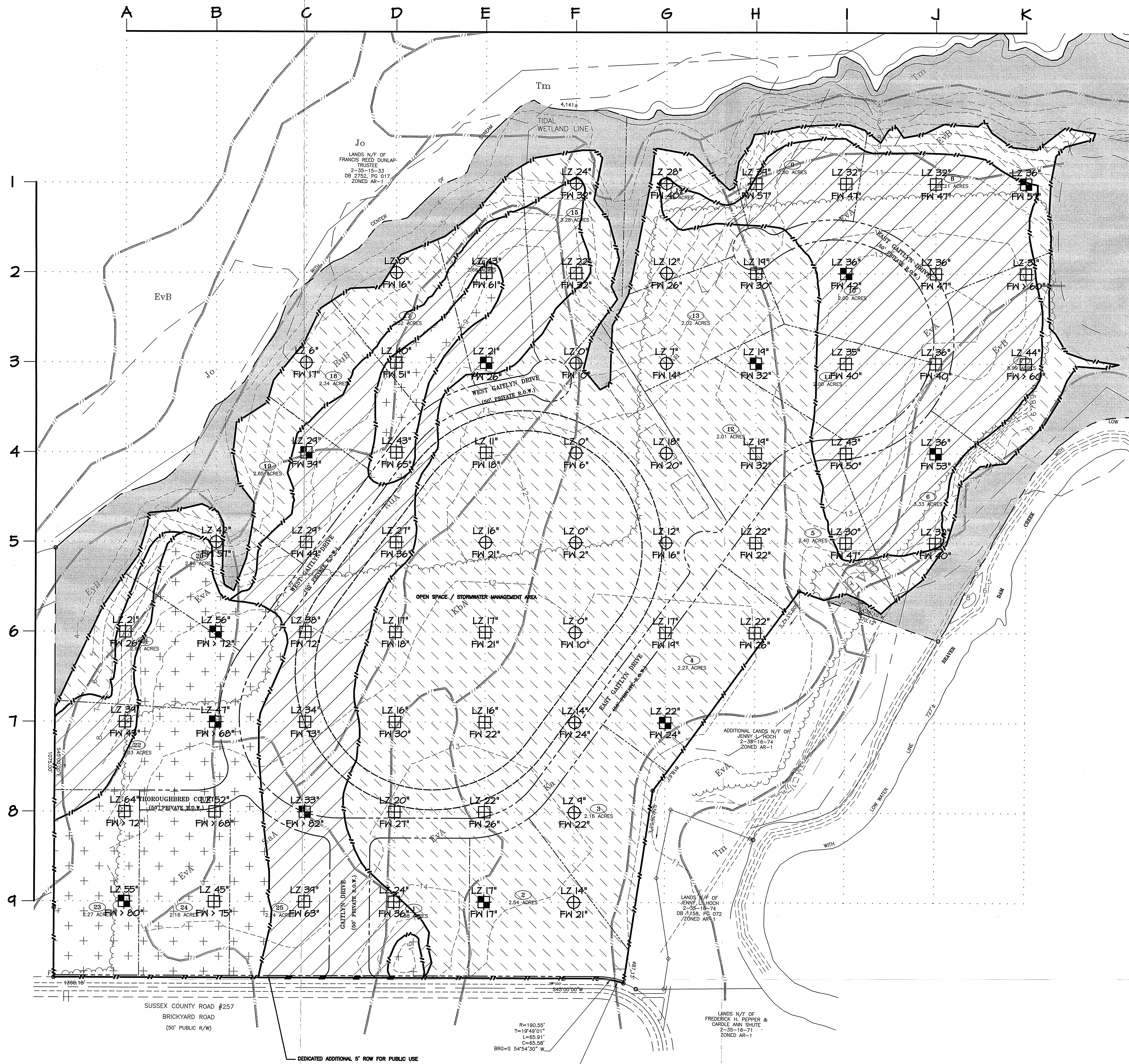
in. bgs. = inches below ground surface

mpi = minutes per inch

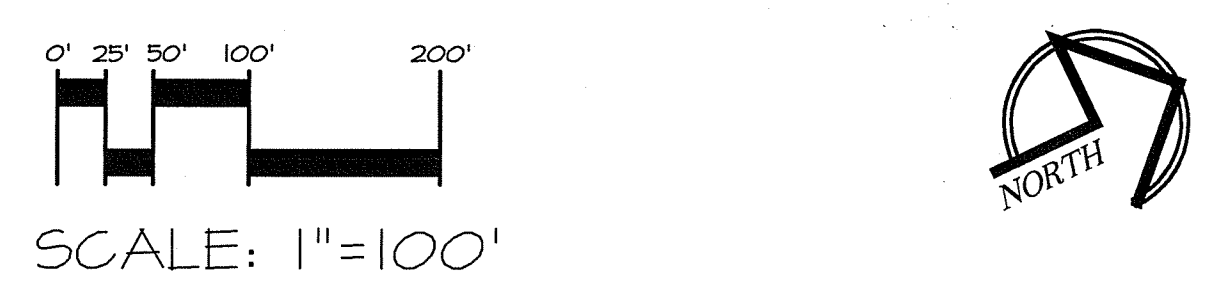
NM = no movement

* During test the water table rose above the base of the infiltrometer ring

** Within Test Pit H3, the second test was pre-soaked for only 2 hours, with only one measurement during the pre-soak



- LEGEND**
- THESE SOIL TYPES ARE POTENTIALLY FAVORABLE FOR THE FOLLOWING SYSTEM TYPES: CAPPING FILL PRESSURE DOSED, FULL DEPTH, AND CAPPING FILL LOW PRESSURE PIPE AND ELEVATED SAND MOUND.
 - THESE SOIL TYPES ARE POTENTIALLY FAVORABLE FOR THE FOLLOWING SYSTEM TYPES: FULL DEPTH AND CAPPING FILL LOW PRESSURE PIPE, AND ELEVATED SAND MOUND.
 - THESE SOIL TYPES APPEAR TO BE UNSUITABLE FOR CONVENTIONAL WASTEWATER DISPOSAL SYSTEMS, BUT MAY BE FAVORABLE FOR ALTERNATIVE WASTEWATER DISPOSAL SYSTEMS.
 - HAND AUGER LOCATION
 - TEST PIT LOCATION
 - INFILTRATOR AND TEST PIT LOCATION
 - LZ 30" DEPTH TO LIMITING ZONE
 - FW 18" DEPTH TO FREE WATER



	GEO-TECHNOLOGY ASSOCIATES, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS 3445-A BOX HILL CORPORATE CENTER DRIVE ABINGDON, MARYLAND 21009 (410) 515-9446 FAX (410) 515-4895
	PRELIMINARY TEST PIT/HAND AUGER LOCATION AND SOIL TAXONOMY PLAN GAITLYN FARM SUSSEX COUNTY, DELAWARE
JOB NO: 060037 SCALE: 1"=100" DATE: MARCH 2006 DRAWN BY: JAT DESIGN BY: JAT/KAT REVIEW BY: CTR SHEET: 1	

SUSSEX COUNTY ROAD #257
BRICKYARD ROAD
(50' PUBLIC R/W)

R=190.55'
θ=19°49'01"
L=45.91'
C=65.58'
BRG=5 54°54'30" W

LANDS N/2 OF
FREDERICK N. PEPPER &
CAROLE ANN SHUTE
2-35-16-71
ZONED AR-1

DEDICATED ADDITIONAL 5' ROW FOR PUBLIC USE

DNREC NON-BINDING STATEMENT OF FEASIBILITY LETTER



STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
& ENVIRONMENTAL CONTROL
DIVISION OF WATER RESOURCES
20653 DUPONT BLVD
UNIT 5
GEORGETOWN, DE 19947

December 17, 2015

Lockwood Design & Construction
and Development Companies
c/o Don A. Lockwood
26412 Broadkill Road
Milton, Delaware 19968

RE: Soil Feasibility Study
Gaitlyn Farm
Tax Map No.: 235-15.00-34.00

Dear Mr. Lockwood:

The Department of Natural Resources and Environmental Control (the Department) has received a submittal from Meridian Architects and Engineers (MAE) requesting a non-binding statement of feasibility for subdivision as required by the Regulations Governing the Design, Installation and Operation of On-Site Wastewater Treatment and Disposal Systems, dated January 4, 1985, last amended on January 11, 2014 (the Regulations).

The submittal consists of a report titled "Report of Soil Feasibility Study, Gaitlyn Farm, Tax Map # 2-35-15-34, Sussex County, Delaware," dated March 2006" prepared by Geo-Technology Associates, Inc (GTA). The report includes a written summary of the study, soil profile notes and the results of permeability testing. In addition, the report includes a plan titled "Preliminary Test Pit/Hand Auger Location and Soil Taxonomy Plan, Gaitlyn Farm, Sussex County, Delaware," dated March 2006, sheet 1 of 1, prepared by GTA and hereafter referred to as the Plan. Information shown by the Plan includes, but is not necessarily limited to, the boundaries of the evaluated area, the conceptual lot layout, test pit and hand soil boring locations, soil mapping units, permeability test locations and on-site topographic information at an apparent one-foot contour.

Background Information

The property is located along the northwest side of Brickyard Road (CR 257) about 2,000 feet west of Hudson Road (CR 258), Sussex County, Delaware. The property consists of 126 acres of which approximately 79 acres were reportedly evaluated by GTA. This 79-acre portion of the property will hereafter be referred to as the project site. The owner(s)/developer propose to subdivide the project site into 25 lots to be occupied by single-family homes and on-site wastewater treatment and disposal systems (OWTDS).

Delaware's good nature depends on you!

Based on information provided by GTA and a review of aerial photography the project site consists of agricultural land and woods. The project site is bordered by the Broadkill River to the north, Beaverdam Creek to the east, agriculture and residential land use to the south and an unnamed tributary off Broadkill River to the west.

Soils Investigations by GTA and Discussion

Sixty-eight (68) observations (test pits and soil borings) and twelve (12) permeability tests were reportedly performed by GTA as part of the study. GTA delineated the project site into three areas being the HCGK-HCGI-KGEX complex, the HCGH-KGEL-LCFC complex and the HCGF-HCGE complex.

The HCGK-HCGI-KGEX complex has estimated limiting zones of 43 to 64 inches and estimated permeability rates of 20 to 35 minutes per inch (MPI). Three permeability tests were performed in this complex with measured rates of 3 to 16 MPI.

The HCGH-KGEL-LCFC complex has estimated limiting zones of 21 to 44 inches and estimated permeability rates of 20 to 65 MPI. Six permeability tests were performed in this complex with measured rates of 7 to 18 MPI.

The information above suggests that areas encompassed by the HCGK-HCGI-KGEX and HCGH-KGEL-LCFC complexes have limiting zones and permeability rates that conform to current Regulations and therefore, feasible for OWTDS.

The HCGF-HCGE complex has estimated limiting zones of 0 to 43 inches and estimated permeability rates of 20 to slower than 120 MPI. The estimated limiting zone of 43 inches is considered by the Department as an anomaly for this complex. Also, the observations with estimated limiting zones of zero inches are located outside proposed lot boundaries. The removal of these observations results in a limiting zone range of 7 to 22 inches which better represents this complex.

A review of soil profile notes for those observations located in the HCGF-HCGE complex suggests that proposed Lot 3 may not have sediments with limiting zones feasible for OWTDS. Therefore, proposed Lot 3 may need to be combined with proposed Lot 2 and/or 4.

Three permeability tests were performed in this complex at observations E9, G7 and H3 with measured rates of 240, 80 and 43 MPI, respectively. The rate of 240 MPI at E9 is suspect based on the observation by GTA that the water table rose above the base of the infiltration ring during the test which serves to disallow the infiltration into soil of water added as part of the test. The test at E9 was reportedly performed at a depth of 22 inches in sandy clay loam sediments (no consistence noted). Also, it is the Department's opinion that the measured rate of 80 MPI at G7 is unusual since the test was reportedly located in loamy sand sediments having friable consistence. It was reported that the water table was located just four inches below the depth of the test which may have served to limit downward movement of the water added as part of the test. The test at H3 is likely the most representative of this complex. GTA attempted to perform

the test at a depth of 22 inches, but the water table rose above the base of the infiltration ring forcing GTA to run the test at a shallower depth. The test was run at a depth of 16 inches in a sandy loam with friable consistence.

The Department reviewed soil profile notes for those observations within the HCGF-HCGE complex and determined that test pits/soil borings located on proposed lots encountered sediments with textures, structures and consistencies that are usually associated with estimated permeability rates that conform to regulatory requirements (rates of 120 MPI and faster). This is confirmed by the rates measured in sediments tested in both the HCGK-HCGI-KGEX and HCGH-KGEL-LCFC complexes. Tests were performed in similar sediments with measured rates of 3 to 18 MPI.

The information above suggests that certain portions of the areas encompassed by the HCGF-HCGE complex do not have limiting zones that conform to current Regulations and therefore, are not feasible for OWTDS. It is the opinion of the Department that permeability tests performed in this complex were compromised by the height of the water table during testing and that for the most part sediments in this complex that were encountered in areas encompassed by proposed lots likely have similar permeability rates as those measured in the other two complexes.

Conclusions

- Based on information collected, analyzed and presented by GTA as part of the soil feasibility study, it appears that proposed Lots 1, 5 through 11 and 14 through 25 as shown by the Plan have sufficient area occupied by either the HCGK-HCGI-KGEX complex or HCGH-KGEL-LCFC complex to locate an initial OWTDS.
- Based on information collected, analyzed and presented by GTA as part of the soil feasibility study, it appears that proposed Lots 2, 4, 12 and 13 as shown by the Plan are located on the HCGF-HCGE complex which is marginal for on-site OWTDS. Sand Mounds and Innovative/Alternative OWTDS will be required based on estimated limiting zones.
- Based on information collected, analyzed and presented by GTA as part of the soil feasibility study, proposed Lot 3 will likely need to be combined with proposed Lots 2 and/or 4. No information contained by the study suggests that soils on proposed Lot 3 are feasible for an initial OWTDS.

Site Preparation

Removal, disturbance or compaction of soils mapped as being feasible for OWTDS during any portion of the construction and building phase other than that necessary for system installation may result in the rescission of the site evaluation approval. Soil material from road cuts and other excavated sources should not be placed on any portion of areas proposed for OWTDS. It is best to keep all areas proposed for OWTDS free from any form of disturbance by methods such as staking,

flagging or fencing. Tree clearing, if necessary, should be performed in accordance with current Department "Lot Clearing Guidelines." The Department reserves the right to inspect the construction site at any time to ensure compliance with the above.

Future Requirements and Comments

Prior to obtaining individual OWTDS construction permits complete site evaluation reports will be required for all lots in accordance with the Regulations. The Department requires one copy of the **Record Plat** following final subdivision approval by the Planning and Zoning Commission of Sussex County prior to processing and approving any site evaluations.

Non-Binding Statement of Feasibility

Based on the information prepared, analyzed and presented by GTA, it is the opinion of the Department that the proposed major subdivision as shown by the Plan would be feasible (at least an initial OWTDS on each proposed lot) in accordance with the Regulations Governing the Design, Installation and Operation of On-Site Wastewater Treatment and Disposal Systems, dated January 4, 1985, last amended on January 11, 2014, as long as judicious and coordinated use of land is exercised, areas delineated by GTA as being feasible for OWTDS as depicted by the Plan are accurate and if proposed Lot 3 is combined with proposed Lots 2 and/or 4.

The comments in this letter are technical and are not intended to suggest that the Department supports this development proposal. This letter does not in any way suggest or imply that you may receive or may be entitled to permits or other approvals necessary to construct the development you indicate or any subdivision thereof on these lands.

Sincerely,



J. Scott Kline
Environmental Scientist

Cc: file

DNREC CORRESPONDENCE

Josh Stallings

From: Gray, Jaime (DNREC) <Jaime.Gray@delaware.gov>
Sent: Wednesday, May 11, 2022 9:17 AM
To: Josh Stallings
Cc: Tsai, Jenwei (DNREC); Cassidy, James W. (DNREC); Carlton Savage
Subject: RE: Feasibility Study

Josh,

Submit the Soil Feasibility Letter of Intent and subsequent report as you would a new application with the new subdivision layout and soils data.

Regards,
Jaime

Jaime D. Ewalt Gray, Ph.D.,
Environmental Scientist III
DNREC, Division of Water, Groundwater Discharges Section (GWDS)

21309 Berlin Road, Unit 2, Georgetown DE 19947



Jaime.Gray@delaware.gov

<https://dnrec.alpha.delaware.gov/water/groundwater/>

(office) 302-259-7006 | (cell) 302-270-8047 | (main) 302-856-4561

From: Josh Stallings <josh@scaledengineering.com>
Sent: Tuesday, May 10, 2022 5:35 PM
To: Gray, Jaime (DNREC) <Jaime.Gray@delaware.gov>
Cc: Tsai, Jenwei (DNREC) <Jenwei.Tsai@delaware.gov>; Cassidy, James W. (DNREC) <James.Cassidy@delaware.gov>; Carlton Savage <carlton@scaledengineering.com>
Subject: Feasibility Study

Hi Jaime,

I want to go over a feasibility study/subdivision project we're involved with to determine how to move forward. There are a few moving parts so I'll try to explain as much of the history as I know.

The property tax map number is 235-15.00-34.00. A feasibility study was performed in 2006 for the site, which was formerly known as "Gaitlyn Farm". A copy of the report is attached for your reference. On December 17, 2015, DNREC issued a Non-Binding Statement of Feasibility (copy attached). The major subdivision was never submitted to the County for approval. Scaled was contracted by the current owner, Lockhaven Farm LLC, to revise the major subdivision layout and submit for approval. The major subdivision did not gain approval at the County, partially because the lot configuration did not match the original configuration associated with the DNREC Non-Binding Statement of Feasibility.

We have revised the subdivision layout per comments from the reviewing agencies, and are planning to move forward with subdivision submittals. Because we have changed the lot configuration, we will need a new DNREC Non-Binding Statement of Feasibility (letter of approval). The site is unaltered from the original soil feasibility study. We have overlaid the subdivision layout on the feasibility study map and confirmed each proposed lot falls within area found suitable for septic (see attached plan). The original soil delineation plan is also attached. Historically, feasibility studies had no expiration date, assuming the site remained unaltered; however, the subdivision layout referenced in the report has changed, so I'm not exactly sure what is required moving forward.

Our hope is to submit the original feasibility study with our new lot configuration for DNREC review, considering the soils/site condition have not changed and a DNREC letter of approval was previously provided. Will that be acceptable, or will the department require something additional? We are just trying to confirm what will be needed for a DNREC feasibility review and approval.

This is definitely not a typical situation, so please feel free to call to discuss this further if you have any questions.

Thank you,

M. Josh Stallings

Senior Environmental Scientist



Scaled Engineering Inc.

[20246 Coastal Highway](#)

[Rehoboth Beach, DE 19971](#)

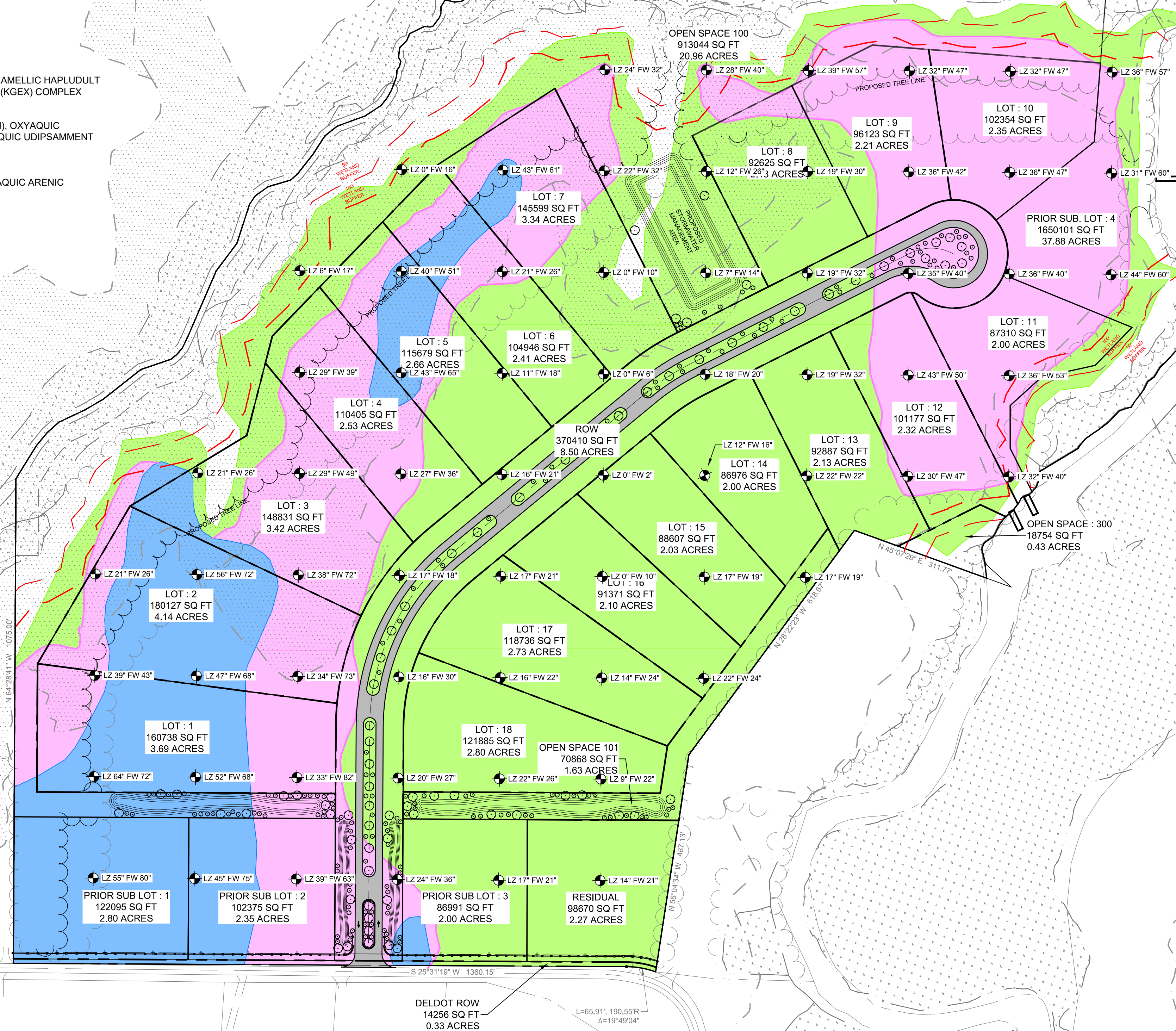
Office: (302) 227-7808 ext. 201

Cell: (302) 632-7548

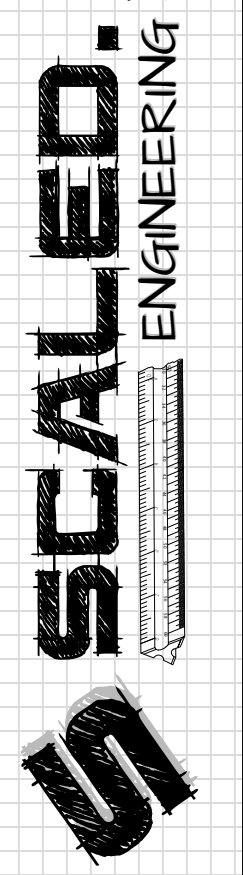
UPDATED SOIL DELINEATION MAP

LEGEND

- ARENIC HAPLUDULT (HCGK), LAMELLIC HAPLUDULT (HCGI), & TYPIC DYSTRUDEPT (KGEX) COMPLEX
- OXYAQUIC HAPLUDULT (HCGH), OXYAQUIC DYSTRUDEPT (KGEL), & OXYAQUIC UDIPSAMMENT (LCFC) COMPLEX
- AQUIC HAPLUDULT (HCGF) & AQUIC ARENIC HAPLUDULT (HCGE) COMPLEX
- LZ 24° FW 32° SOIL BORING



PROJECT: UNLIMITED DEVELOPMENT CONSULTING ENGINEERING INC. PROJECT: UNLIMITED DEVELOPMENT CONSULTING ENGINEERING INC. PROJECT: UNLIMITED DEVELOPMENT CONSULTING ENGINEERING INC.



SOILS EXHIBIT

LOCKHAVEN
TM: 235-15.00-34.00
LIMITLESS DEVELOPMENT CONSULTING, LLC

Date: 3-10-22
 Scale: 1" = 150'
 Dwn.By: JRE
 Proj.No.: LDC0005
 Dwg.No.:

S-1

THIS DRAWING INCLUDING DESIGN AND CONSTRUCTION FEATURES ARE PROPRIETARY TO SCALED ENGINEERING INC. AND SHALL NOT BE ALTERED OR REUSED WITHOUT WRITTEN PERMISSION. COPYRIGHT © 2020

PRELIMINARY SOIL INVESTIGATION LETTER



July 8, 2021

Limitless Development Consulting, Inc.
26412 Broadkill Road
Milton, DE 19968

**RE: Lockhaven Subdivision
Preliminary Soil Investigation**

To Whom It May Concern,

Scaled Engineering Inc (Scaled) performed a preliminary soil investigation for on-site wastewater treatment and disposal system (OWTDS) suitability for proposed Lot 21 of Lockhaven Subdivision, located off Round Pole Bridge Road, Milton, DE 19968. Lot 21 is situated in area formerly designated as Lot 3 in the original subdivision layout. Soil was evaluated by method of hand-auger borings, excavated a maximum depth of seventy-two (72) inches below the soil surface. Soil profiles were evaluated in accordance with the United States Department of Agriculture (USDA), Soil Survey Manual (Handbook 18) and USDA Natural Resources Conservation Service (NRCS) Field Book for Describing and Sampling Soils. Soils were classified in accordance with USDA, NRCS "Keys to Soil Taxonomy", Twelfth Edition, 2014.

Four (4) hand-auger borings were excavated throughout the lot (see attached "Soil Investigation Plan"). Soils encountered were moderately well to somewhat poorly drained, with limiting zones ranging from ten (10) to twenty (20) inches below the soil surface (see attached "Soil Boring Summary" table). Based on DNREC regulations, Lot 21 (former Lot 3 area) is suitable for an OWTDS, with sufficient area to place a residential dwelling, well and septic. Soil borings SB 21-1, SB 21-2 and SB 21-3 were suitable for Peat Biofilter, Innovative/Alternative Elevated Sand Mound, and/or Conventional Elevated Sand Mound. Soil boring SB 21-4 was found unsuitable for any OWTDS.

Please feel free to contact me with any questions, concerns, or for additional information at (302) 227-7808 ext. 201, or josh@scaledengineering.com.

Respectfully Submitted,

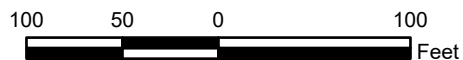
SCALED ENGINEERING INC.

A handwritten signature in blue ink that reads "M. Josh Stallings".

M. Josh Stallings
Senior Environmental Scientist
DNREC Class D.2 Soil Scientist (License #4601)



Esri, USDA Farm Service Agency



SOIL INVESTIGATION PLAN

LOCKHAVEN SUBDIVISION
 ROUND POLE BRIDGE ROAD
 MILTON, DE 19968

TM: 235-15.00-34.00

Date: 7/8/2021

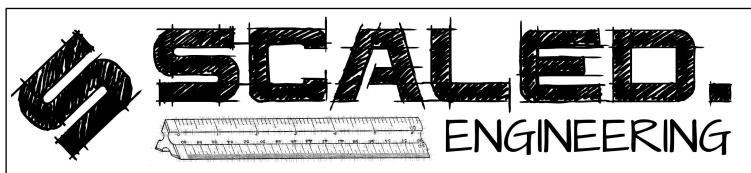
1 IN = 100 FT

Drawn: MJS

Project: LDCO005

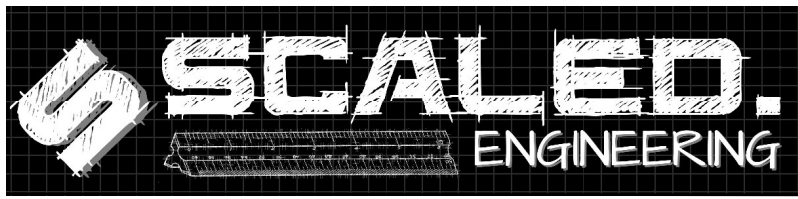
Legend

 Soil Investigation Boring



SOIL BORING SUMMARY			
BORING #	DEPTH TO LIMITING ZONE (IN)	SOIL CLASSIFICATION	SYSTEM TYPE
SB 21-1	14	OXYAQUIC HAPLUDULT	PEAT BIOFILTER OR INNOVATIVE/ALTERNATIVE ELEVATED SAND MOUND
SB 21-2	20	OXYAQUIC HAPLUDULT	ELEVATED SAND MOUND
SB 21-3	12	OXYAQUIC HAPLUDULT	PEAT BIOFILTER OR INNOVATIVE/ALTERNATIVE ELEVATED SAND MOUND
SB 21-4	10	AQUIC HAPLUDULT	DENIAL (UNSUITABLE FOR OWTDS)

DNREC APPROVED SITE EVALUATION



563411

20246 Coastal Highway
Rehoboth Beach, DE 19971
PH: (302) 632-7548
www.scaledengineering.com

SITE EVALUATION – APPROVAL PAGE

The soils on this site are approved when the following is completed in full and signed by the approving authority. The information contained in this site evaluation reflects Delaware Department of Natural Resources and Environmental Control (DNREC) policies and procedures at the time of the review. Exhibits and Regulations cited in this report refer to the most current DNREC "Regulations Governing the Design, Installation and Operation of On-Site Wastewater Treatment and Disposal Systems". Isolation distance requirements, limited area of suitable soils, filling, removal, and/or compaction of the soil **may negate** construction permit approval or modify the type of system that can be permitted. All information shall be verified by interested parties prior to design and installation of the septic system. This is not a construction permit. Approval of this site evaluation is limited to **five years**. Upon expiration, a new site evaluation will be required in compliance with regulations in effect at that time.

Owner's Name: Lockhaven Farm, LLC

Lot/Parcel #: 15 (Proposed), Lockhaven Subdivision

Tax Map #: 235-15.00-34.00

Owner/Client Email: dal@lockwooddesigns.com

Disposal Option 1: Capping Fill Gravity On-Site Wastewater Treatment and Disposal System (OWTDS). Trenches are highly recommended.

Location of Option 1: In the immediate vicinity of Soil Borings (BOR) #1 (see plot drawing).

Depth to Limiting Zone: 48 inches to indication of saturation/seasonal high water table.

Disposal Option 2: Full Depth Low Pressure Pipe OWTDS.

Location of Option 2: In the immediate vicinity of BOR #3 (see plot drawing).

Depth to Limiting Zone: 36 inches to indication of saturation/seasonal high water table.

RECEIVED
08/26/2020
GROUNDWATER

Disposal Option 3: Capping Fill Low Pressure Pipe OWTDS.

Location of Option 3: In the immediate vicinity of BOR #2 (see plot drawing).

Depth to Limiting Zone: 32 inches to indication of saturation/seasonal high water table.

Design Considerations and Comments: See Exhibit M and N (Option 1); Exhibit O and P (Options 2 & 3). Maintain all isolation distances specified in Exhibit C. See Exhibit C for ways to reduce well isolation distances. Other disposal options include any conventional or innovative/alternative technologies approved by DNREC. See Report for additional design information.

Replacement Disposal System: Same as above if space allows or a sand-lined upgrade in area of initial system.

Location of Replacement System: Adjacent to Initial Disposal System.

Depth to Limiting Zone (Replacement System): Same as above.

Instructions to Property Owner / Client

1. Contact a Licensed Class **B (Option 1 Only) or C** System Designer.
2. A permeability rate of **30 (Option 1) and 45 (Options 2 & 3)** minutes per inch has been estimated based on the soils found on this site, guidelines set forth in the Regulations, and other factors. You may use the estimated rate or, at your expense, have a percolation test conducted. If you do not choose to use the estimated permeability rate, contact a Licensed Class A Percolation Tester. The depth, location, number, and method of percolation test is to be determined by the Class D Soil Scientist.
3. If you have questions, call the evaluator at (302) 632-7548 or DNREC Sussex County (302) 856-4561; Kent County (302) 739-9947.
4. See attached Site Evaluation Report for additional information.

This report has been prepared by: M. Josh Stallings, License # D4601
M. Josh Stallings

Disclaimer: Approval of this site evaluation indicates only that the site evaluation, **based on information presented to us**, was conducted in compliance with the Regulations. It is not an indication of the correctness or quality of the evaluation nor does it guarantee the evaluation is free of omissions.

Field Checked _____

For Office Use Only

Date 8/27/20

J
DNREC Reviewing Soil Scientist

Expiration Date 8/27/25

IF THERE ARE QUESTIONS REGARDING THIS REPORT CONTACT CLASS D LICENSEE THE CLASS D LICENSEE IS RESPONSIBLE FOR ERRORS/OMISSIONS



20246 Coastal Highway
Rehoboth Beach, DE 19971
PH: (302) 632-7548
www.scaledengineering.com

SITE EVALUATION – REPORT PAGE

Owner's Name: Lockhaven Farm, LLC **Lot/Parcel #:** 15 (Proposed), Lockhaven Subdivision
Tax Map #: 235-15.00-34.00 **Evaluation Date:** 08/21/2020
Owner's Address: 26412 Broadkill Road, Milton, DE 19968 **Phone:** 302-684-4844
Property Location: Proposed Lot 15, Lockhaven Subdivision; Round Pole Bridge Road, Milton, DE 19968
Evaluator's Name: M. Josh Stallings **License Number:** D4601
Inland Bay Watershed: **NO** w/in 1,000' of Chesapeake Bay Tidal Area: **NO** Wetlands: **YES**
Central Sewer/Water: **N/A (both)** 12 Unit HUC: 020402070803 Flood Plain: See Attached Map

Depth to and Type of Limiting Zones Encountered:

- BOR 1:** 48 inches to redoximorphic features as an indication of saturation/seasonal high water table
>72 inches to freewater; **Lamellic Hapludult**
- BOR 2:** 32 inches to redoximorphic features as an indication of saturation/seasonal high water table
>72 inches to freewater; **Aquic Arenic Hapludult**
- BOR 3:** 36 inches to redoximorphic features as an indication of saturation/seasonal high water table
>72 inches to freewater; **Oxyaquic Quartzipsamment**

Summary of Evaluation:

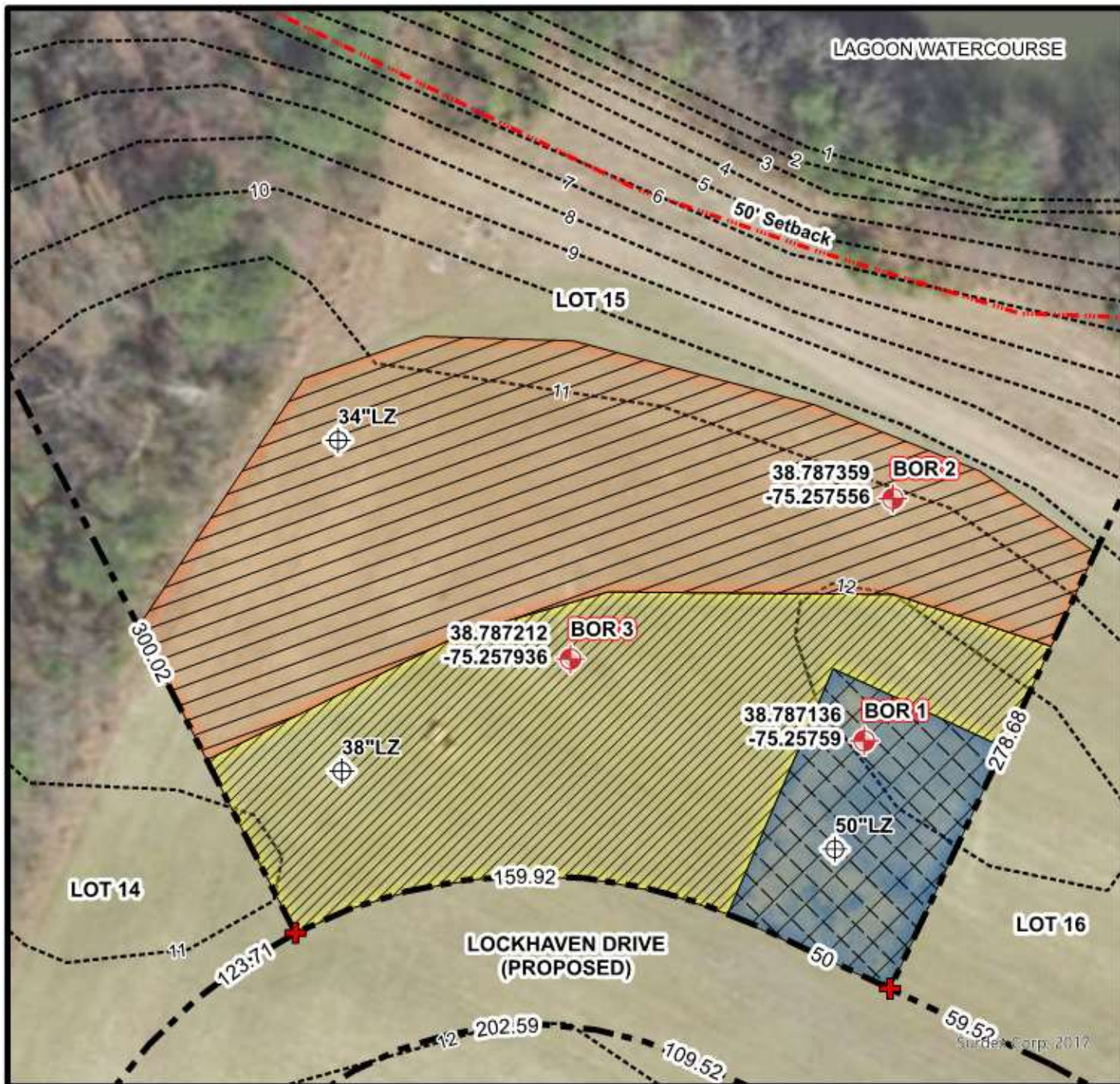
The site at the time of the evaluation was a vacant, partially wooded, 125.8± acre agricultural/residential lot planted with soybeans. Plans have been submitted to subdivide the property into a major subdivision, named Lockhaven. Soil investigation was performed within proposed Lot 15. Site evaluation was conducted to determine OWTDS suitability for residential construction. The site has minor limitations for OWTDS design/installation. Disposal Option 1 was delineated on the backslope/shoulder of a subtle, but distinct ridge. Estimated permeability rate for Disposal Options 2 and 3 was established from the most restrictive soil within said disposal areas. Limiting zones encountered appeared to be associated with slowly permeable subsoil/substratum, rather than differences in elevation. The site is bordered to the north by a manmade lagoon and wetlands. No pertinent easements/setbacks were listed per Deed Book 4423, Page 101, nor Plot Book 72, Page 36. Soil boring locations and existing site features were established with GPS and/or existing site reference points, and are approximate. System designer shall field-verify all site features (isolation distances, slope direction/percentage, measurements, etc.) prior to permitting. Care should be taken during lot clearing in the proposed disposal area to minimize soil disturbance, loss, and compaction. Placing a substantial barrier around the proposed disposal area prior to beginning any site development will help avoid accidental soil compaction.

08/26/2020

Date

Evaluator's Signature

Note: Site Evaluation information was collected for on-site wastewater treatment and disposal interpretations only. The information in this site evaluation and plot plan have been compiled from any of the following sources: tax map, deed, survey, record plot, or field located property corners; and may include anecdotal information supplied by property owners, adjacent residents, and/or other interested parties. Location of wells and septic systems are by direct observation where possible, but are often based on information provided by permits, property owners, adjacent residents, and/or other interested parties. This plot plan represents site conditions at the time of the evaluation. All site features (slope direction, slope percentage, etc.) provided in this site evaluation are approximate. No survey was provided nor performed by Scaled Engineering Inc. No title search has been performed; any easements shown are from record plans or deed. Subsequent alteration of the site or adjacent properties may negate approval by the regulatory agency(ies) involved in permitting. All information shall be verified by interested parties.



NOTE:
All wells within 150' of proposed OWTDS area shown on plan (unless otherwise noted).



SITE EVALUATION PLAN

LOCKHAVEN FARM, LLC
PROPOSED LOT 15, LOCKHAVEN SUBD.
MILTON, DE 19968

TM: 235-15.00-34.00 (P/O)

Date: 8/26/2020

1 IN = 50 FT

Drawn: MJS

Project: LDCO005

Legend

- | | | | |
|--|---------------------|--|----------------------|
| | Soil Boring | | CFG Disposal Area |
| | Unlogged Boring | | FDLPP Disposal Area |
| | Survey Stake | | CFLPP Disposal Area |
| | Watercourse Setback | | 2014 Sussex Contours |





20246 Coastal Highway
 Rehoboth Beach, DE 19971
 PH: (302) 632-7548
 www.scaledengineering.com

Date: 8/21/2020 Tax ID Number: 235-15.00-34.00

Property Owner: Lockhaven Farm, LLC Project Number: LDCO005

Property Location: Proposed Lot 15, Lockhaven Subdivision, Milton, DE 19968

Profile #: BOR 1 Slope: 1-2% Estimated Permeability: 30 mpi

Profile Type: Soil Boring Test Pit GPS: See Plot

Horizon	Depth (in.)	Colors		Mottles Desc.	Texture	Structure	Consistence
		Matrix	Mottles	Ab. S. Con.			
Ap	0-10	10yr4/3			LS	m	fr
BE	10-28	10yr5/4			LS	m	vfr
EandB+	28-48	10yr5/8	7.5yr4/6	30-50% Lamellae	LS SL	m m	vfr fr
BC+	48-54	10yr7/6	7.5yr6/8 7.5yr4/6	fzd Lamellae	(25%) LS	m	vfr
C	54-60	2.5yr7/3			LS	m	vfr
2C	60-72	10yr6/6	2.5yr6/2 7.5yr5/8	c1p c2d	SL	m	fr/fi

Soil Classification: Lamellic Aap Indult Relief: backslope

Depth to Limiting Zone: 48" to Redox Features Depth to Freewater: >72"

Comments:

Soil Scientist: M. Josh Stalling's



20246 Coastal Highway
 Rehoboth Beach, DE 19971
 PH: (302) 632-7548
 www.scaledengineering.com

Date: 8/21/2020

Tax ID Number: 235-15.00-34.00

Property Owner: Lockhaven Farm, LLC

Project Number: LDCO005

Property Location: Proposed Lot 15, Lockhaven Subdivision, Milton, DE 19968

Profile #: BOR 2 Slope: 1-3% Estimated Permeability: 40 mpi

Profile Type: Soil Boring Test Pit GPS: See Plot

Horizon	Depth (in.)	Colors		Mottles Desc.	Texture	Structure	Consistence
		Matrix	Mottles	Ab. S. Con.			
Ap	0-10	10yr5/3			LS	m	fr
BE	10-18	10yr5/4			LS	m	vfr
EandBt	18-32	10yr5/4	7.5yr4/6	5% Lamella	LS	m	vfr
Bt ₁	32-42	7.5yr4/6 10yr6/6	2.5y6/2 7.5yr5/8	fzP c2d	(Lenses) LS + SCL	m	fr
Bt ₂	42-52	7.5yr4/6			SL	m	fr
BC _t	52-58	7.5yr4/6 10yr5/6	(SL-30%) (LS-70%)		SL LS	m m	fr vfr
C	58-72	10yr7/6	2.5y7/2 7.5yr6/8	C2p C2d	LS	m	vfr

Soil Classification: Aquic Arenic Hapludult Relief: back slope

Depth to Limiting Zone: 32" to Redox Features Depth to Freewater: >72"

Comments: Bt had lenses of LS throughout

Soil Scientist: M. John Stalling's



20246 Coastal Highway
 Rehoboth Beach, DE 19971
 PH: (302) 632-7548
 www.scaledengineering.com

Date: 8/21/2020

Tax ID Number: 235-15.00-34.00

Property Owner: Lockhaven Farm, LLC

Project Number: LDCO005

Property Location: Proposed Lot 15, Lockhaven Subdivision, Milton, DE 19968

Profile #: BOR 3 Slope: 1-2% Estimated Permeability: 45 mpi

Profile Type: Soil Boring Test Pit GPS: See Plot

Horizon	Depth (in.)	Colors		Mottles Desc.	Texture	Structure	Consistence
		Matrix	Mottles	Ab. S. Con.			
Ap	0-8	10yr 4/3			LS	m	fr
BE	8-20	10yr 5/4			LS	m	vfr
EandBt	20-36	10yr 5/6	7.5yr 4/6	5% Lamellae	LS	m	vfr
BC	36-44	10yr 7/6	7.5yr 5/8	c2d	LS	m	vfr
C	44-54	2.5yr 7/4	10yr 6/8	c2p	LS	m	vfr
2C	54-72	10yr 6/4	2.5yr 6/1 7.5yr 6/8	m2p m2p	PSL	m	vfi

Soil Classification: Oxyaquic Quartzipsamment Relief: back slope

Depth to Limiting Zone: 36" to Redox Conc. Depth to Freewater: >72"

Comments:

Soil Scientist: M. Josh Stalling's

PARID: 235-15.00-34.00
 LOCKHAVEN FARM LLC

ROLL: RP

Property Information

Property Location:

Unit:

City:

State:

Zip:

Class: AGR-Agriculture
 Use Code (LUC): AG-AG
 Town: 00-None
 Tax District: 235 – BROAD KILL
 School District: 6 - CAPE HENLOPEN
 Council District: 3-Burton
 Fire District: 85-Milton
 Deeded Acres: 125.8000
 Frontage: 0
 Depth: .000
 Irr Lot:
 Zoning 1: AR-1-AGRICULTURAL/RESIDEINTIAL
 Zoning 2: -
 Plot Book Page: 72 36/PB

100% Land Value: \$12,600
 100% Improvement Value
 100% Total Value

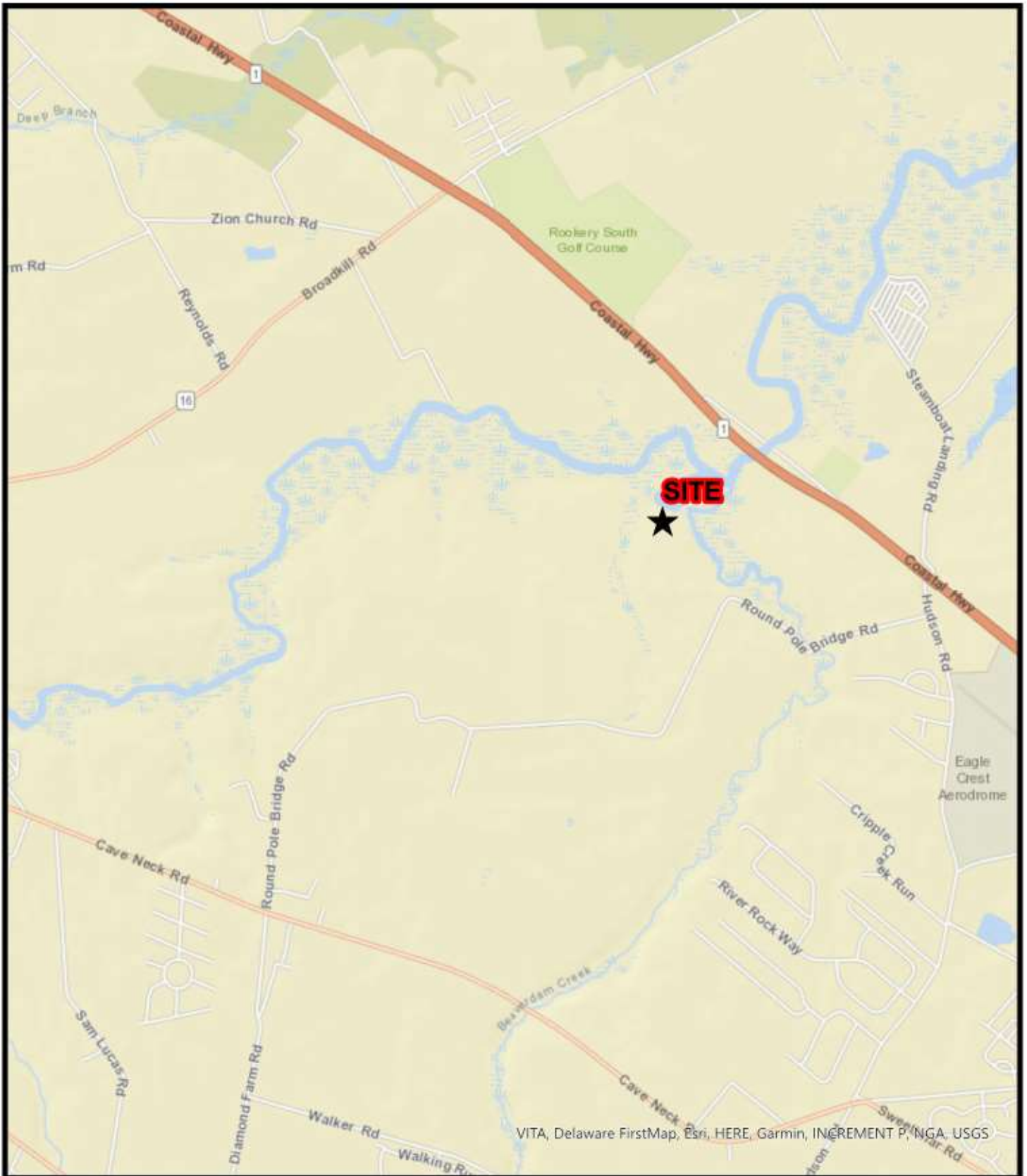
Legal

Legal Description: RD MILTON TO
 DRAWBRIDGE VIA CAVE
 NECK

Owners

Owner	Co-owner	Address	City	State	Zip
LOCKHAVEN FARM LLC		26412 BROADKILL ROAD	MILTON	DE	19968

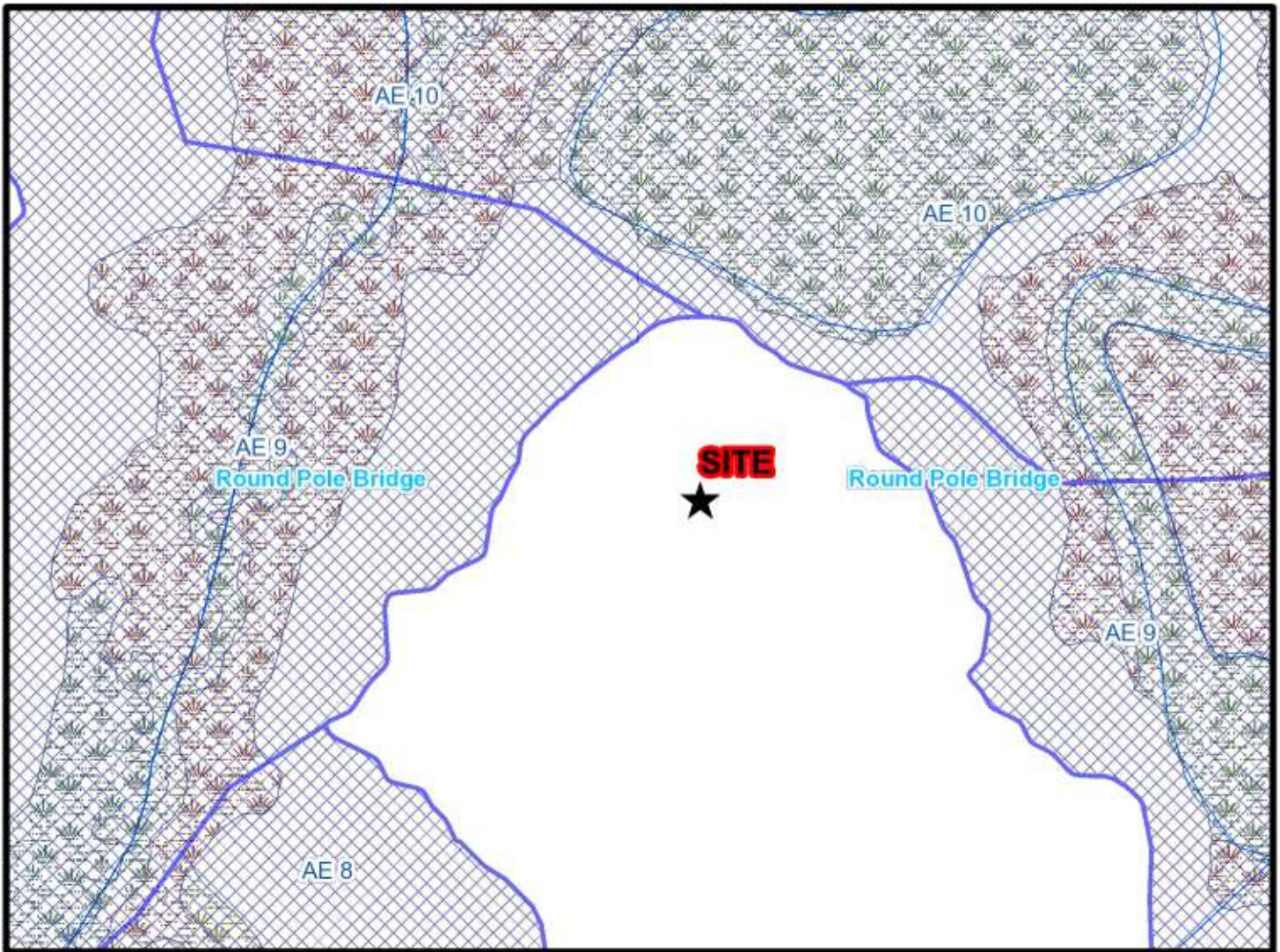
SITE LOCATION



0 0.42 0.85 1.7 Miles



DNREC MAPPING



Legend

DNREC Features

Watersheds



Tax Ditch Segments



1 - 989

990

991 - 993

994 - 999

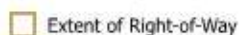
Bay Building Line



Ocean Building Line

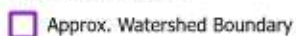


Tax Ditch Maximum ROWs



Extent of Right-of-Way

Tax Ditch Areas

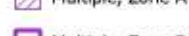


Approx. Watershed Boundary

Groundwater Management Zones



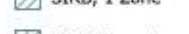
HSCA, 1 Zone



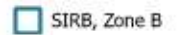
Multiple, Zone A



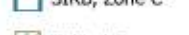
Multiple, Zone B



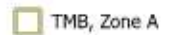
SHWMB, 1 Zone



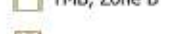
SIRB, 1 Zone



SIRB, Zone A



SIRB, Zone B



SIRB, Zone C



TMB, 1 Zone



TMB, Zone A

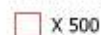


TMB, Zone B



GWPB, 1 Zone

FEMA Flood Maps



X 500



A



AE



AO

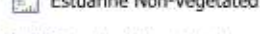


VE

State Wetlands 2007



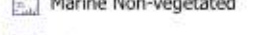
Agriculture



Estuarine Non-Vegetated



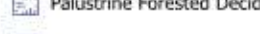
Estuarine Vegetated



Lacustrine



Marine Non-vegetated



Palustrine Emergent



Palustrine Forested

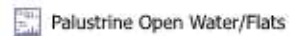


Palustrine Forested Deciduous



Palustrine Forested Evergreen

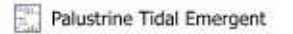
Palustrine Open Water/Flats



Palustrine Open Water/Flats



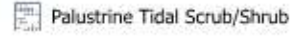
Palustrine Scrub/Shrub



Palustrine Scrub/shrub



Palustrine Tidal Emergent



Palustrine Tidal Forested



Palustrine Tidal Forested



Palustrine Tidal Scrub/Shrub



Riverine Non-vegetated



Riverine Vegetated

Recharge Areas



Wellhead Protection Areas



Delaware_State_Parcel



TAX MAP AND PARCEL #:
2-35-15.00-34.00
PREPARED BY & RETURN TO:
Young Malmberg, P.A.
30 The Green
Dover, DE 19901
File No. 15RE7367/CFM

No new survey requested or performed.

THIS DEED, made this 13th day of July, 2015,
- BETWEEN -

TAC BEACON I, LLC, a Delaware limited liability company, of PO BOX 1855,
Orange Park, FL 32067, Grantor

- AND -

LOCKHAVEN FARM L.L.C., a Delaware limited liability company, c/o 30 The Green,
Dover, DE 19901, Grantee.

WITNESSETH: That the said Grantor, for and in consideration of the sum of ONE DOLLAR (\$1.00), lawful money of the United States of America, and other good and valuable consideration, the receipt whereof is hereby acknowledged, Grantor hereby grants and conveys unto the Grantee, and its heirs and assigns, in fee simple, the following described lands, situate, lying and being in Sussex County, State of Delaware:

ALL that certain piece, parcel and tract of land, situate, lying and being in Broadkill Hundred, Sussex County, State of Delaware, and being described more particularly:

BEGINNING at an iron pipe (set) on the northeasterly right of way line of Sussex County Road #257 (50' R/W); said pipe being situated a distance of 4,200 feet, more or less from Sussex County Road #258; thence with Sussex County Road #257 and along a curve to the left having a radius of 190.55 feet, the central angle being 19 degrees 49 minutes 01 second, the arc length being 65.91 feet, the chord bearing South 54 degrees 54 minutes 30 seconds West a distance of 65.58 feet to a point; thence continuing with Sussex County Road #257 South 45 degrees 00 minutes 00 seconds West, a distance of 1,360.15 feet to an iron pipe (found); thence with Lands of Wallace C. & Nancy G. Edmanson, now or formerly North 45 degrees 00 minutes 00 seconds West a distance of 1,075.00 feet, more or less, to a point; thence with the centerline of a stream and lands of Francis Reed Dunlap, now or formerly, a distance of 4,141.00 feet to a point;

AP

MS

thence with the low water line of Broadkill River and the low water line of Beaver Dam creek a distance of 4,259.00 feet, more or less, to a point; thence with Lands of Jenny L. Hoch, now or formerly, the following three (3) courses and distances: (1) South 64 degrees 36 minutes 10 seconds West a distance of 207.82 feet to an iron pipe (set); thence continuing the same courses a distance of 162.30 feet to an iron pipe (found); (2) South 08 degrees 53 minutes 42 seconds East a distance of 618.67 feet to an iron pipe (found); (3) South 36 degrees 35 minutes 53 seconds East a distance of 487.13 feet home to the point and place at beginning said to contain 125.8 acres of land, be the same more or less.

BEING part of the same lands and premises which were conveyed unto TAC Beacon I, LLC, by deed of Land-Lock, L.L.C., Bethany Grand, LLC and Darin A. Lockwood and Don Allen Lockwood, dated January 14, 2015, and recorded in the Office of the Recorder of Deeds, in and for Sussex County, Delaware, on January 20, 2015, in Deed Book 4354, Page 301.

TOGETHER with all the rights, title and interest of the Grantor in and all street roads and public places, opened or proposed, adjoining the said Land, and all easements and rights of way, public or private, now or hereafter used in connection with said Land.

SUBJECT to any and all restrictions, reservations, conditions, easements and agreements of record in the Office of the Recorder of Deeds in and for Milton, Sussex County, Delaware.

IN WITNESS WHEREOF, the said TAC Beacon I, LLC, a Delaware limited liability company, has caused its name to be hereunto set under seal by Robert L. Supple Jr., an authorized member of TAC Beacon I, LLC, the day and year first above written.

TAC BEACON I, LLC

By: **Beacon Asset Managers, LLC**
Authorized Member

By: **Pharos Funding, LLC**
Manager

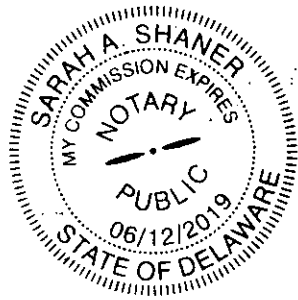
Carah Thomas
Witness

BY: Robert L. Supple Jr. (SEAL)
Name: Robert L. Supple Jr.
Its: Manager

STATE OF DELAWARE, COUNTY OF SUSSEX: to-wit

BE IT REMEMBERED, that on this 13th day of July, A.D. 2015, personally appeared before me, the Subscriber, a Notary Public in and for the State and County aforesaid, Pharos Funding, LLC, Manager of TAC Beacon I, LLC, a Delaware limited liability company, by Robert L. Spadaro, its Manager 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 limited liability company; that the signature of the Manager 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 limited liability company.

GIVEN under my Hand and Seal of Office the day and year aforesaid.



Sarah A. Shaner
NOTARY PUBLIC
My Commission Expires: 6-12-19

Consideration: 500,000.00

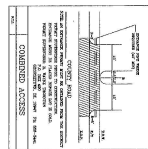
County 7,500.00
State 7,500.00
Town Total 15,000.00
Received: Faith D Jul 21, 2015

RECEIVED

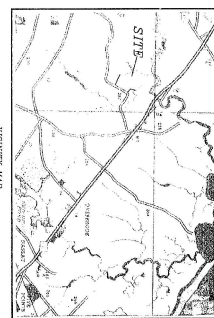
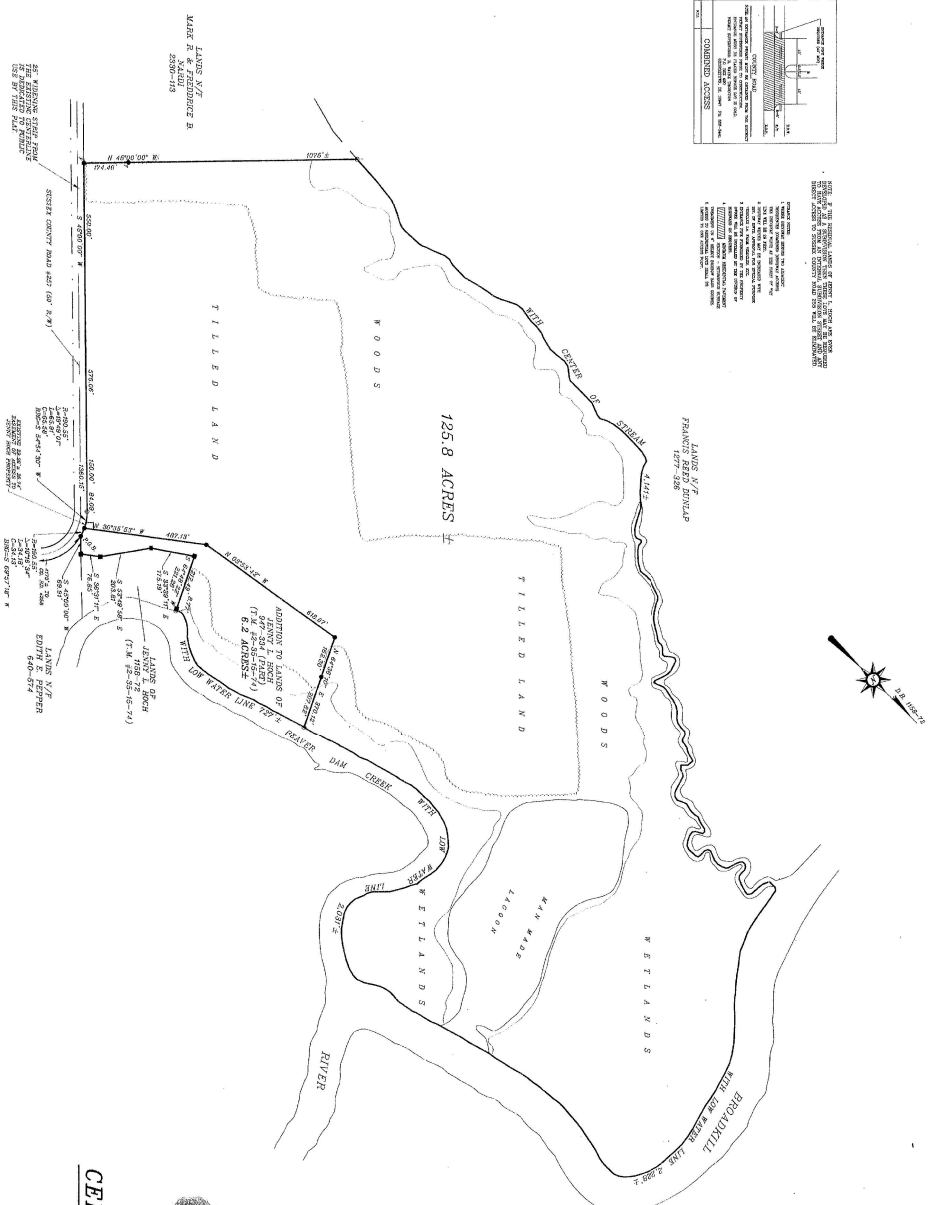
JUL 21 2015

**ASSESSMENT DIVISION
OF SUSSEX COUNTY**

Recorder of Deeds
Scott Dailey
Jul 21, 2015 03:12P
Sussex County
Doc. Surcharge Paid



NOTES: 1. THIS SUBDIVISION IS SUBJECT TO ALL RECORDS, EASEMENTS, RIGHTS OF WAY, AND OTHER INTERESTS OF RECORD. 2. THE PROPERTY IS SUBJECT TO ALL RECORDS, EASEMENTS, RIGHTS OF WAY, AND OTHER INTERESTS OF RECORD. 3. THE PROPERTY IS SUBJECT TO ALL RECORDS, EASEMENTS, RIGHTS OF WAY, AND OTHER INTERESTS OF RECORD. 4. THE PROPERTY IS SUBJECT TO ALL RECORDS, EASEMENTS, RIGHTS OF WAY, AND OTHER INTERESTS OF RECORD. 5. THE PROPERTY IS SUBJECT TO ALL RECORDS, EASEMENTS, RIGHTS OF WAY, AND OTHER INTERESTS OF RECORD. 6. THE PROPERTY IS SUBJECT TO ALL RECORDS, EASEMENTS, RIGHTS OF WAY, AND OTHER INTERESTS OF RECORD. 7. THE PROPERTY IS SUBJECT TO ALL RECORDS, EASEMENTS, RIGHTS OF WAY, AND OTHER INTERESTS OF RECORD. 8. THE PROPERTY IS SUBJECT TO ALL RECORDS, EASEMENTS, RIGHTS OF WAY, AND OTHER INTERESTS OF RECORD. 9. THE PROPERTY IS SUBJECT TO ALL RECORDS, EASEMENTS, RIGHTS OF WAY, AND OTHER INTERESTS OF RECORD. 10. THE PROPERTY IS SUBJECT TO ALL RECORDS, EASEMENTS, RIGHTS OF WAY, AND OTHER INTERESTS OF RECORD.



10 AUG 31 PM 2:57
SUSSEX COUNTY
LOC. SURCHARGE PAID

- CONCRETE MONUMENT (ROUND)
- IRON PIPE (ROUND)
- IRON PIPE (SPT)
- PILE



CEDAR KNOLL SUBDIVISION

ORIGIN: JERRY L. JONES
R.F.N. & BOX 2888-A
WILTON, DE 19888

APPROVED
BY: [Signature]
DATE: 05/28/01
PHONE: 302-338-3333

SCALE: 1" = 200'

CLASS "P" SURVEY

MULLEN LEWIS, INC. LAND SURVEYING 1000 N. MARKET STREET SEAFORD, DELAWARE 19973		PROJECT: BROADKILL	
DATE: 05/28/01 MAP: 28-334		COUNTY: DELAWARE	
SURVEYOR: D.K. MILLER		STATE: SUSSEX	
SCALE: 1" = 200' DATE: 05/28/01		DRAWN BY: D.K. MILLER	

