

Prepared for:

DORCHESTER COUNTY
DEPARTMENT OF PUBLIC WORKS
5435 Handley Road
Cambridge, Maryland 21613

PHASE I REPORT

DORCHESTER COUNTY MUNICIPAL LANDFILL

HURLOCK, DORCHESTER COUNTY, MARYLAND

Professional Certification: I hereby certify that this document was approved by me, and that I am a duly licensed Professional Engineer under the laws of the State of Maryland,

License No. 40367

Expiration Date: 06/09/19

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1. INTRODUCTION

1.1 Terms of Reference

Maryland Regulation of Water Supply, Sewage Disposal, and Solid Waste, COMAR 26.04.07, requires a person who will construct or operate a sanitary landfill to obtain a permit from the Approving Authority, Maryland Department of the Environment (MDE). A Phase I report is required to be submitted along with the request for a permit. In accordance with this requirement, this report is prepared to notify MDE of the intention to apply for development of the Dorchester County Municipal Landfill (also referred to as “DCMLF”), a new landfill located in the Beulah Facility in Hurlock, Dorchester County, Maryland, and to provide general information about the site. The footprint of the proposed DCMLF is approximately 65 acres and will be located adjacent to the currently active New Beulah Landfill and Old Beulah Landfill (together referred to as the Beulah Facility). This report is prepared by Geosyntec Consultants (Geosyntec) of Columbia, Maryland, on behalf of the Dorchester County Department of Public Works (the County), the owner and operator of the Beulah Facility.

This Phase I Report is organized in a manner that is intended to address the specific requirements of COMAR 26.04.07.06. The remainder of this report is organized as follows:

- Section 2 describes how this report addresses and meets the regulatory requirements for the Phase I report;
- Section 3 presents the current layout of the facility and topographic features;
- Section 4 presents a description of soils at the site and surrounding area;
- Section 5 presents the site geology;
- Section 6 presents general information regarding the proposed expansion; and
- Section 7 presents relevant references.

1.2 Description of Proposed Development

DCMLF is to be entirely located within property owned by the County at the existing Beulah Facility. As shown on the area map provided as Figure 1, DCMLF is located in Dorchester County, Maryland, east of Maryland Route 16, approximately 0.5 mile southeast of the community of Beulah, 15 to 20 miles northeast of the town of Cambridge (the County Seat), and approximately midway between the towns of Preston and Hurlock.

It is noted here that the Beulah Facility currently comprises two distinct municipal solid waste (MSW) disposal areas on adjacent properties: (i) the unlined inactive Old Beulah Landfill, which is located on the 170-acre P. 10; and (ii) the lined active Beulah Municipal Landfill (New

Beulah), which is located on a 59-acre sub-parcel of P. 62 to the southeast of Old Beulah. Old Beulah was an old-style cut-and-fill landfill operation with no containment, which opened in the 1970s. The active 26.2-acre New Beulah Landfill was opened in 1996. DCMLF will be located to the east of New Beulah on a 75-acre sub-parcel of P. 62 and P. 140 (30 acres).

The proposed footprint of DCMLF covers an area of approximately 65 acres (Figure 2), and will reach a maximum elevation of 107 ft above mean sea level (ft-msl) (Figure 3). The total waste disposal capacity of DCMLF will be approximately 5,130,000 cubic yards (cy).

The New Beulah Landfill is currently the only active permitted MSW disposal facility in Dorchester County. Based on the calculated remaining permitted airspace in New Beulah in the 2016 Annual Tonnage Report [Dorchester County, 2016], the landfill is expected to run out of available disposal capacity in 2018. Under the vertical expansion of New Beulah, 450,000 cy of additional airspace will be added [Geosyntec, 2014]. It is estimated that this additional disposal capacity will run out in 2022. As a result, if hauling waste to out-of-county facilities is to be avoided, the County will need to provide an alternative site or landfill unit for waste disposal or develop an alternative waste conversion facility (e.g., waste-to-energy incinerator). The County is committed to continue waste filling activities and extending the useful life of the Beulah Facility by constructing DCMLF. After the disposal capacity of DCMLF is exhausted, the landfill will be closed.

2. PHASE I REPORT REQUIREMENTS

2.1 Overview

In this Section, a summary of the Phase I Report requirements is provided (in *italic* type), followed by a brief description of how the requirement is met or addressed in this report.

2.2 Phase I Report Requirements (COMAR 26.04.07.06.B)

- (1) *Completed and signed application form referenced in Regulation (26.04.07.05.B).*

The application form is included as Attachment 1.

- (2) *Current U.S.G.S. 7.5 minute quadrangle map with the proposed site outlined.*

An area map reproduced from the USGS 7.5-minute quadrangle map is shown in Figure 1.

- (3) *Current topographic map, which is an accurate depiction of the site at the time of application, at a scale not smaller than 1 inch equals 200 feet, which depicts the property boundaries, on-site buildings and structures, and pertinent surficial features including but not limited to: (a) Springs, (b) Seeps, (c) Streams, (d) Rock outcrops, (e) Sink holes, (f) Surface impoundments, (g) Water wells, (h) Forested areas, and (i) The location of any buried or overhead power transmission lines, utility pipelines, or storage tanks on the property.*

The current topography at the site is shown in Figure 2. A narrative description of the topographic features is presented in Section 3 of this report.

- (4) *Map which depicts the surrounding zoning and land use within 1/2 mile of the site boundaries.*

Zoning of the surrounding area is shown in Figure 4. A narrative description is presented in Section 3 of this report.

- (5) *Map showing the distribution of the soils at the site.*

A U.S. Department of Agriculture (USDA) soil distribution map for the site and surrounding area is shown in Figure 5.

- (6) *Narrative description of the soils at the site.*

A narrative description of the soils at the site is presented in Section 4 of this report.

- (7) *Map showing the geology at the site based on available data.*

The geology for Dorchester County is shown in Figure 6.

- (8) *Narrative description of the geology at the site based on available data.*

A narrative description of the site geology is presented in Section 5 of this report.

- (9) *Description of the proposed activity including: (a) Type of facility, (b) Area served, (c) Capacity, and (d) Types of waste accepted.*

A brief description of the proposed activity is provided in Section 6 of this report.

2.3 Additional Requirements

In fulfillment of additional MDE requirements for submission of a Phase I Report, Geosyntec has included the following attachments to this report:

- (1) *Property Owners within 1,000-ft Radius of the Landfill*

A tabulated list of property owners within a 1,000-ft radius of the landfill is provided in Attachment 2, along with clarifying notes. The list was compiled based on information provided by Dorchester County Tax Assessment Office, in particular Tax Map No. 5. Relevant portions of the map showing the location of the proposed landfill and the parcels/lots of land conservatively identified to be within (or just beyond) a 1,000-ft distance of the cell footprint are reproduced in Figure A included in Attachment 2.

- (2) *Notification to Federal Aviation Administration (FAA)*

The FAA's Notice Criteria Tool, available at oeaaa.faa.gov, was used to determine if the County is required to submit a notice to the FAA with the intention to build a landfill of 170 ft height above ground surface (ags) at the Beulah site. Based on the height and location of the landfill, it is not required to file a notice with the FAA. The report generated by the tool is provided as Attachment 3.

3. SITE DESCRIPTION

3.1 Local Zoning and Site Topography

Existing site topography at DCMLF is shown in Figure 2, while Figure 4 shows a zoning map of the surrounding area. DCMLF is located within an agricultural conservation (AC) district. The area west of Maryland Route 16 next to the site is zoned as a rural residential (RR) district. The area to the north-northwest of the site is zoned as a rural residential resource conservation area (RR-RCA) district. An agricultural conservation resource conservation area (AC-RCA) district and a rural residential (RR) district are located approximately 0.2 mile north-northwest of the site. A general business district (B-2) is located approximately 0.5 mile to the north-northeast of the site.

The Beulah Facility currently comprises two distinct waste disposal areas on adjacent properties: (i) inactive Old Beulah, which was an old style cut-and-fill operation with no containment system located on P. 10 to the west of DCMLF; and (ii) active New Beulah, located southeast of Old Beulah on a neighboring sub-parcel of P. 62 (as shown Figure A of Attachment 2). DCMLF will be located on parcel P. 140, the site of a former composting facility, and a sub-parcel of P. 62. These two parcels have a combined area of 105 acres. The main Gravel Run stream generally flows northwestward and westward in the site vicinity, forming the northern boundary of P. 10. A northwestward flowing branch of Gravel Run forms the southwestern boundary of the DCMLF sub-parcel of P. 62 and P. 140, while another northward flowing branch forms the boundary between P. 10 and P. 62. The County also owns P. 15 to the south of DCMLF, which is currently used for borrow soil. To the south of DCMLF are P. 87, also owned by the County, and P.64, a privately-owned property screened by a line of trees. To the north of DCMLF are four additional privately owned parcels (P. 31, P. 92, P. 11, P. 4). Directly to the east of the site is an inactive state-owned railroad. The sub-parcel of P. 62 directly to the east of railroad is owned by the County Commissioners of Dorchester.

Based on the USGS topographic map for the area (Figure 1) and various site inspections, no sinkholes, seeps, springs, or rocky outcrops are present on or near the site. There are wooded areas bounding DCMLF to the north, west, and south, generally following the stream line. No tidal wetlands exist at the property. Stream banks are buffered by non-tidal wetlands and associated floodplains. A wetland formed as a result of excavation within the borrow pit on the sub-parcel of P. 62 exists where DCMLF will be constructed. Per Code of Maryland Regulations (COMAR) 26.23.03.01.B.8, impacts to wetlands that have been temporarily created incidental to a mining activity may qualify for a letter of exemption. Activities that qualify for a letter of exemption and are located outside of the Critical Area are exempt from Maryland permit and mitigation requirements. No other wetlands will be disturbed as part of construction activities at DCMLF.

3.2 Existing Conditions and Land Use

Current site topography and existing conditions at DCMLF are shown in Figure 2. The site was previously cleared and is predominantly flat and grassy. A maintenance and storage building as well as five groundwater monitoring well locations are located in the northern area of the site. A borrow area, approximately 26 acres in size, is present in the southern portion of the site. This borrow area is currently used to provide cover soil for New Beulah landfill.

Site access from Maryland Route 16 is provided via the southwestern corner of P. 10. The scale house is located near the entrance to the facility (not shown) and used to control facility access and disposal of waste in New Beulah. This facility will also be used to control access and disposal of waste in DCMLF. The main access road runs parallel to the southern property boundary of P. 10 and enters the New Beulah property on the western side of the landfill. Access to the DCMLF site is currently possible via two spur roads from the main access road: one which follows the eastern boundary of Old Beulah, and one which branches off from the north side of the New Beulah property. Both spur roads are apparent in Figure 2.

Overhead power transmission lines run along the railroad tracks on the eastern boundary of the site. Buried power lines run parallel to the main access road from the facility entrance at Maryland Route 16, thereafter branching to the flare station, leachate tanks, and Cell 4 and 5 leachate manholes at New Beulah, but do not currently extend to the DCMLF site boundary. No other buried or overhead power transmission lines or utility pipelines are present on the property.

4. NARRATIVE DESCRIPTIONS OF SOILS

The USDA soil distribution map for the site and surrounding area is shown as Figure 5. According to the map, the proposed development area and its surroundings have top soils classified as sandy loam or loamy sand.

Two test boring programs have been conducted to evaluate subsurface geologic conditions at the Beulah Facility. The subsurface investigations are summarized below:

New Beulah Area Boring Investigation: Ten borings were conducted by Century at the New Beulah location in 1992 [Century Engineering, 1992]. The depth of borings varied from 18 to 65 ft. The results from the subsurface investigation indicated that soils within the upper 30 ft at the site are primarily coarse-grained with some lenses of silt and clay. Laboratory testing revealed that most of the soil classified as silty sands (SM) according to the Unified Soil Classification System (USCS). The average grain size (D_{50}) ranged between 0.4 and 0.8 mm. The fines content ranged between 2 and 44 percent having an average of 14 percent. Five out of the ten borings were converted to groundwater monitoring wells.

Old Beulah Area Boring Investigation: In 2006, Geosyntec conducted seven borings with standard penetration tests (SPTs) around the Old Beulah site. The depths of the borings ranged from 13 ft to 24 ft. Four borings were converted to groundwater monitoring wells.

According to the site investigations and laboratory tests, the subsurface soils at the site consist of approximately 45 ft of sand overlying a layer of clay. The upper sand primarily consists of loose to medium dense clayey sand and silty sand, varying in color from reddish brown to light grey. The underlying clay consists of gray to reddish brown stiff fat clay.

Geosyntec is currently performing soil borings as part of the Phase II exploration of the site. Results of this investigation will be presented in the Phase II Report of the Application for a Solid Waste Landfill for DCMLF.

5. NARRATIVE DESCRIPTION OF THE GEOLOGY

5.1 Regional Geology

The geology and hydrogeology of the eastern shore of Maryland on the Delmarva Peninsula is dominated by the southeast-thickening wedge of poorly consolidated to unconsolidated sediments that range in age from Cretaceous, 66.4 to 144 million years ago (Ma), through Quaternary, 0 to 1.6 Ma. The sediments of the Coastal Plain are sand, gravel, silt, and clay that range from zero thickness at the Fall Line, about 50 miles west of Cambridge, to nearly 8,000 ft along the Atlantic Coast of the Delmarva Peninsula [Buchman and Wilson, 1984]. Beyond the coast line, the sediments extend at least another 75 miles and reach a maximum thickness of about 40,000 feet. Based on a generalized geologic cross section of the coastal plain from Mack, et al [1971] the thickness of sediments below Dorchester County ranges from 3,000 to 4,000 ft. The deposits lie on a basement of crystalline rock which dips to the Southeast in a gentle homoclinal structure. The formations overlying this basement rock form units which thicken to the southeast or direction of dip. The sediments underlying the county, in ascending order from bedrock to ground surface, can be categorized under the following geologic formations: Patuxent, Arundel, Patapsco, Raritan, Magothy, Matawan, Monmouth, Brightseat, Aquia, Piney Point, Calvert, Choptank, St. Marys, Pensauken, and Beaverdam Formations.

Dorchester County is located on the Coastal Plain Physiographic Province. As shown in the surficial geologic map of Dorchester County in Figure 6, the sediments in this area are Quaternary Lowland Deposits, which are undifferentiated grey to buff sand and gravel, gray to brown lignitic silt, and clay with occasional boulders and rare shell beds. The mineral resources of this area are sand and gravel used as borrow materials for the construction industry.

5.2 Site Geology

Combined with the regional geologic information above, results from Century Engineering boring investigations [1992], Geosyntec boring investigations [2017], well completion records, and laboratory analyses indicate that the subsurface geologic strata at the site comprise the following three geologic formations of primary importance (i.e., St. Marys, Pensauken, and Beaverdam Formations) with regards to proposed development of the landfill. An area geologic map showing the location of Beulah Landfill is provided in Geosyntec's 2009 Phase II report.

Beaverdam Formation:

The Beaverdam Formation is a late Pliocene or early Pleistocene deposit, consisting primarily of tan to brown sands with some pebble to gravel sized material. Silt lenses are also present in this formation. The thickness of the Beaverdam Formation at the site was estimated to be zero to five feet according to the results of the 1992 boring investigation performed by Century Engineering (CE). According to the boring results, this formation is similar to the Pensauken Formation in terms of soil particle gradation and classification.

Pensauken Formation (Columbia Aquifer):

The Pliocene Pensauken Formation underlying the Beaverdam Formation consists of loose to medium dense red and tan gravelly sands with occasionally small lenses of silt and clay. The SPT blow counts conducted in this formation by CE ranged between 2 and 34 blows/ft with a majority below 10 blows/ft. Results from Geosyntec [2017] revealed similar SPT blow counts. This formation serves as an unconfined aquifer, known as the Columbia Aquifer (see Section 5.3). Results from field investigations by Century [1992] and Geosyntec [2017] reveal that this layer is approximately 45-50 ft thick in the vicinity of the site.

St. Marys Formation:

The St. Marys Formation is a member of the Miocene Chesapeake Group, which consists of fined grained sediments (i.e. clays, silts and fine sands). This formation serves as a confining unit, separating the Columbia Aquifer from the lower Chesapeake Group Aquifers. One deep boring (P-5) penetrated the top of this formation during the Century [1992] investigation and Z borings penetrated the top of this formation during the Geosyntec [2017] investigation. The top elevation of the St Marys Formation is estimated to be approximately 15-25 feet below mean sea level near the DCMLF site. The thickness of this formation beneath the site is unknown although regional geologic information suggests it is unlikely to exceed 75 ft.

5.3 Groundwater

The unconfined Columbia Aquifer lies within the Pensauken Formation. The St. Marys Formation acts as a confining unit, which separates the Columbia Aquifer from the underlying aquifers of the Chesapeake Group. Analysis of monitoring well data [Geosyntec, 2016], and ongoing monthly monitoring of six groundwater wells at the New Beulah landfill from 2000 through 2016, shows that the groundwater table within the Columbia Aquifer ranges from about 17 ft-msl to 24 ft-msl. At the New Beulah site, groundwater generally flows from south to north towards Gravel Run. Groundwater velocity was calculated to be 21 inches/year. The permeability obtained from the in-situ falling head tests ranged between 8×10^{-6} and 1.8×10^{-5} cm/sec [Geosyntec, 2016]. It is assumed that groundwater conditions at the DCMLF site are similar to those at the New Beulah site.

6. DESCRIPTION OF PROPOSED ACTIVITIES

The proposed construction of DCLM will provide approximately 5,130,000 cubic yards (cy) of additional solid waste disposal capacity. The landfill, which is intended to serve only the residents and businesses of Dorchester County, will continue to accept residential and commercial solid waste (household refuse and waste from businesses, stores, and offices), bulky waste (household appliances and white goods), scrap automobile and truck tires, land clearing debris and yard waste, and construction and demolition (C&D) debris.

The 2016 waste tonnage total reported by the County was 59,006 tons, of which 53,136 tons were landfilled [Dorchester County, 2017]. Based on County estimates, additional disposal capacity will be needed at the landfill in 2018. As summarized in Table 1 below, for planning purposes it is therefore assumed that the additional disposal capacity provided by a vertical expansion of New Beulah will be required starting in January 2018. The vertical expansion is expected to provide 450,000 cy of additional capacity [Geosyntec, 2014]. Based on a 1% waste growth rate projected from 2016 data, it is anticipated that the additional capacity provided by the vertical expansion will be exhausted in 2022, at which point, waste will need to be placed in DCMLF. It is projected that the waste tonnage accepted for disposal will be about 62,637 tons in 2022 (i.e., Year 1 of DCMLF) growing to about 65,180 tons in 2026 (i.e., Year 5 of DCMLF). This is illustrated on the application form in Attachment 1. Of this total tonnage, it is expected that about 56,405 tons and 58,695 tons will be landfilled in 2022 and 2026, respectively. Using a conservative airspace utilization factor of 0.6 tons/cy, this equates to approximately 94,008 cy in 2022, increasing to 97,825 cy by 2026. Based on these estimates, the expected service life of DCMLF is approximately 44 years, with exhaustion of disposal capacity occurring in 2066.

Table 1 – Projected Waste Accepted and Landfilled for Dorchester County

Year	Waste Accepted (tons)	Waste Landfilled (tons)	Landfill Volume Consumed^[2] (cy)	Cumulative Volume Consumed (cy)
2016 ^[1]	59,006	53,136	88,560	-
2017	59,597	53,667	89,446	338,181
2018 ^[3]	60,192	54,204	90,340	428,521
2019	60,794	54,746	91,243	519,765
2020	61,402	55,294	92,156	611,921
2021	62,016	55,846	93,077	704,998
2022 ^[4]	62,637	56,405	94,008	799,006
2023	63,263	56,969	94,948	893,955
2024	63,896	57,539	95,898	989,853
2025	64,534	58,114	96,857	1,086,709
2026	65,180	58,695	97,825	1,184,535
2027	65,832	59,282	98,804	1,283,338
2028	66,490	59,875	99,792	1,383,130
2029	67,155	60,474	100,790	1,483,919
2030	67,826	61,078	101,797	1,585,717
2031	68,505	61,689	102,815	1,688,532
2032	69,190	62,306	103,844	1,792,376
2033	69,882	62,929	104,882	1,897,258
2034	70,580	63,558	105,931	2,003,189
2035	71,286	64,194	106,990	2,110,179
2036	71,999	64,836	108,060	2,218,239
2037	72,719	65,484	109,141	2,327,379
2038	73,446	66,139	110,232	2,437,612
2039	74,181	66,801	111,334	2,548,946
2040	74,923	67,469	112,448	2,661,394
2041	75,672	68,143	113,572	2,774,966
2042	76,428	68,825	114,708	2,889,674

2043	77,193	69,513	115,855	3,005,529
2044	77,965	70,208	117,014	3,122,542
2045	78,744	70,910	118,184	3,240,726
2046	79,532	71,619	119,365	3,360,091
2047	80,327	72,335	120,559	3,480,650
2048	81,130	73,059	121,765	3,602,415
2049	81,942	73,789	122,982	3,725,398
2050	82,761	74,527	124,212	3,849,610
2051	83,589	75,273	125,454	3,975,064
2052	84,425	76,025	126,709	4,101,773
2053	85,269	76,786	127,976	4,229,749
2054	86,122	77,553	129,256	4,359,005
2055	86,983	78,329	130,548	4,489,553
2056	87,853	79,112	131,854	4,621,407
2057	88,731	79,903	133,172	4,754,579
2058	89,618	80,702	134,504	4,889,083
2059	90,515	81,509	135,849	5,024,932
2060	91,420	82,325	137,208	5,162,140
2061	92,334	83,148	138,580	5,300,719
2062	93,257	83,979	139,965	5,440,685
2063	94,190	84,819	141,365	5,582,050
2064	95,132	85,667	142,779	5,724,829
2065	96,083	86,524	144,207	5,869,035
2066 ^[5]	97,044	87,389	145,649	6,014,684
2067	98,014	88,263	147,105	6,161,789
2068	98,994	89,146	148,576	6,310,365
2069	99,984	90,037	150,062	6,460,427
2070	100,984	90,938	151,563	6,611,989
2071	101,994	91,847	153,078	6,765,068
2072	103,014	92,765	154,609	6,919,676
2073	104,044	93,693	156,155	7,075,831
2074	105,085	94,630	157,717	7,233,548

2075	106,135	95,576	159,294	7,392,842
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Notes:

1. Data for 2016 from Dorchester County, 2017
2. Based on airspace utilization factor (AUF) of 0.6 tons/cy, which corresponds to historical volume consumption at the landfill and accounts for cover soil.
3. Year in which remaining capacity under current permit is expected to be reached (348,374 cy as of 31 December 2013)
4. Year in which additional capacity under vertical expansion is expected to be reached
(450,000 cy from vertical expansion; $348,374 + 450,000 = 796,374$ cy)
5. Year in which additional capacity in DCML is expected to be reached
(5,100,000 cy expected from DCML; $796,374 + 5,130,000 = 5,926,374$)

7. REFERENCES

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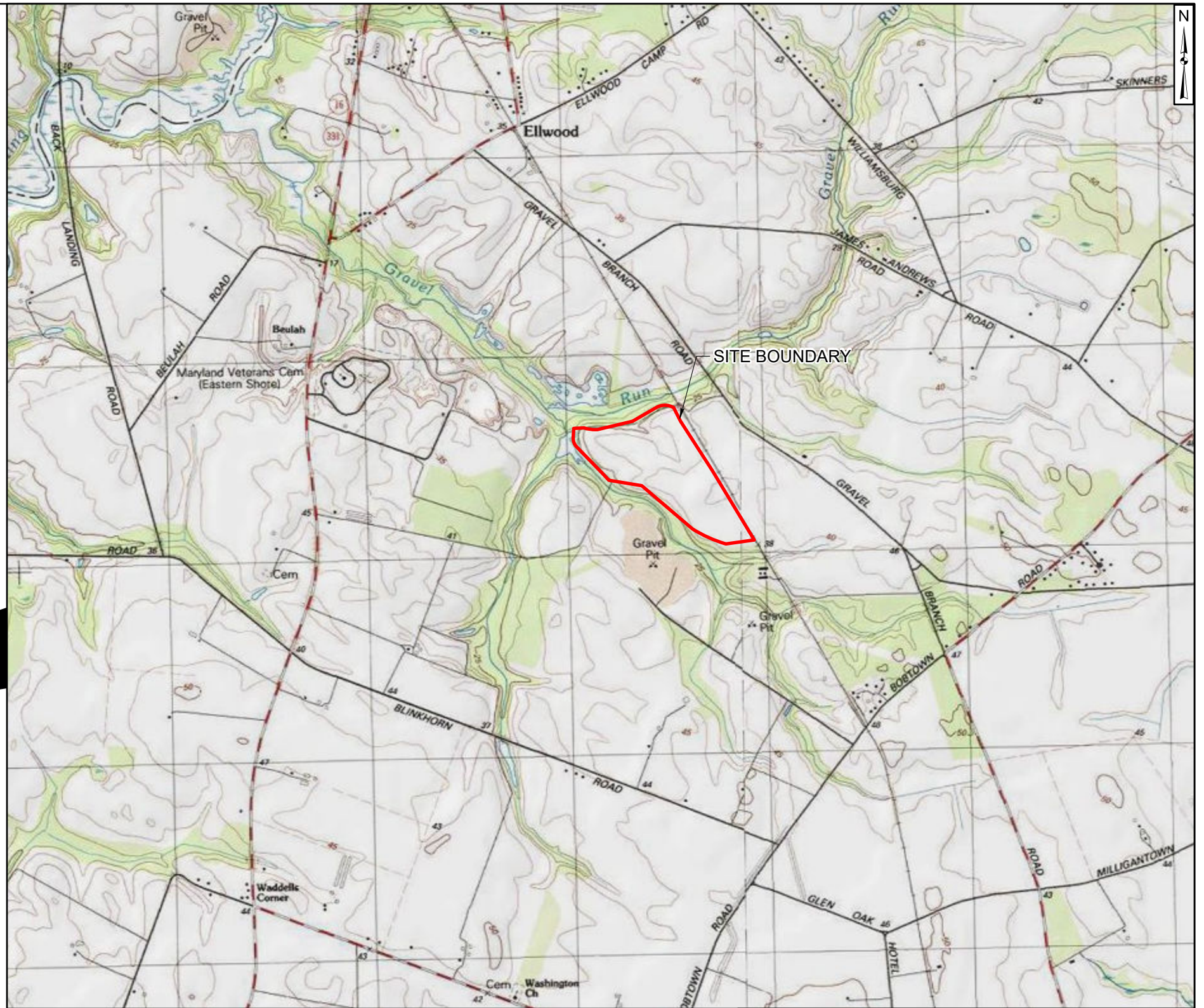
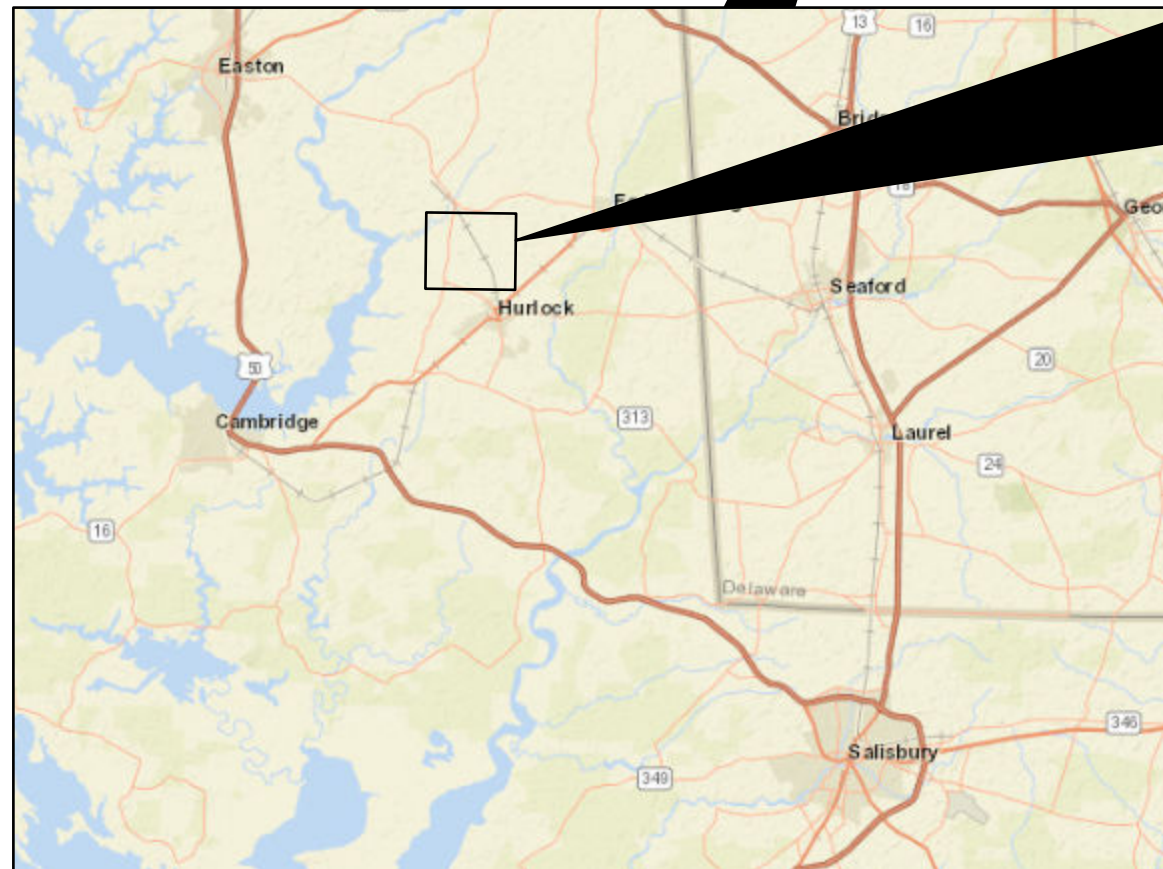
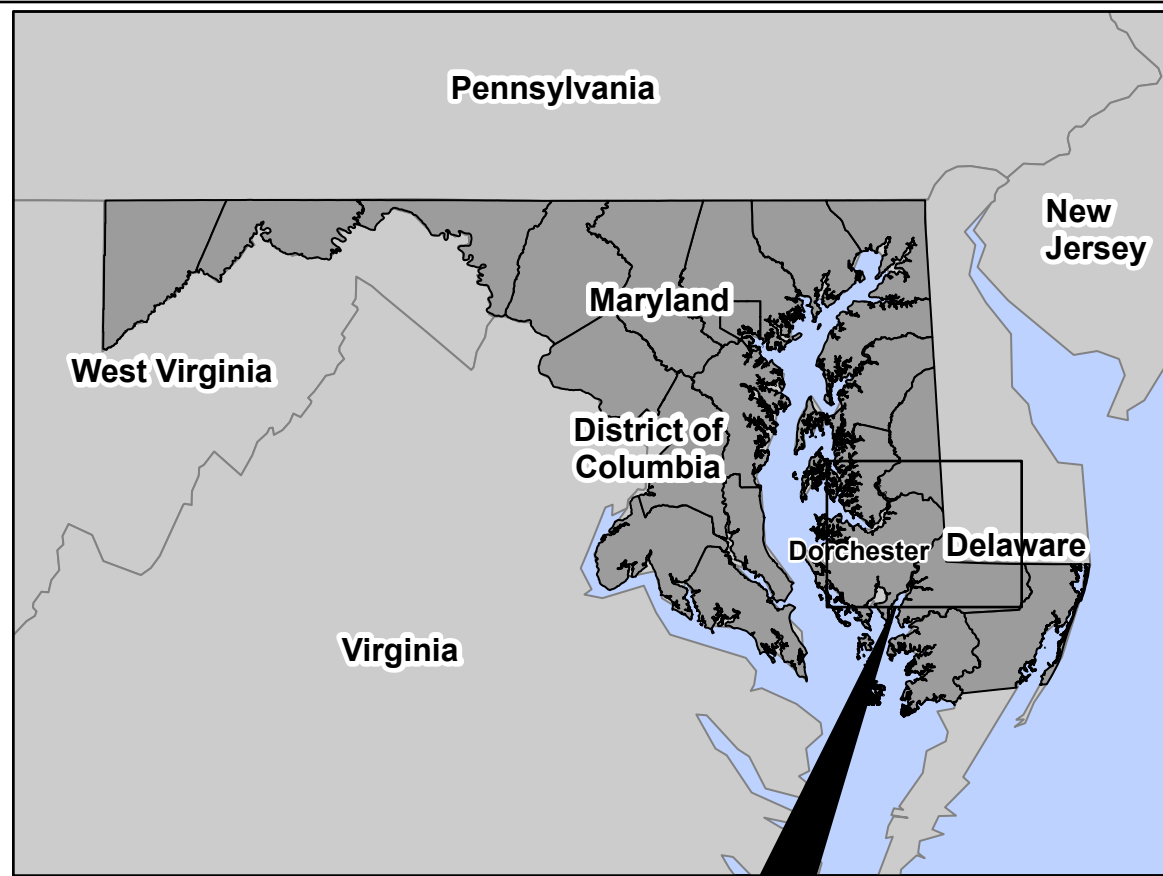
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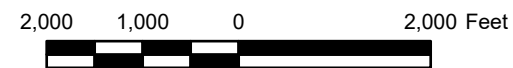
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FIGURES



Legend
 Site Boundary

Area Map Scale



Area Map

Dorchester County Municipal Landfill
 Hurlock, Dorchester County, Maryland

Geosyntec
 consultants

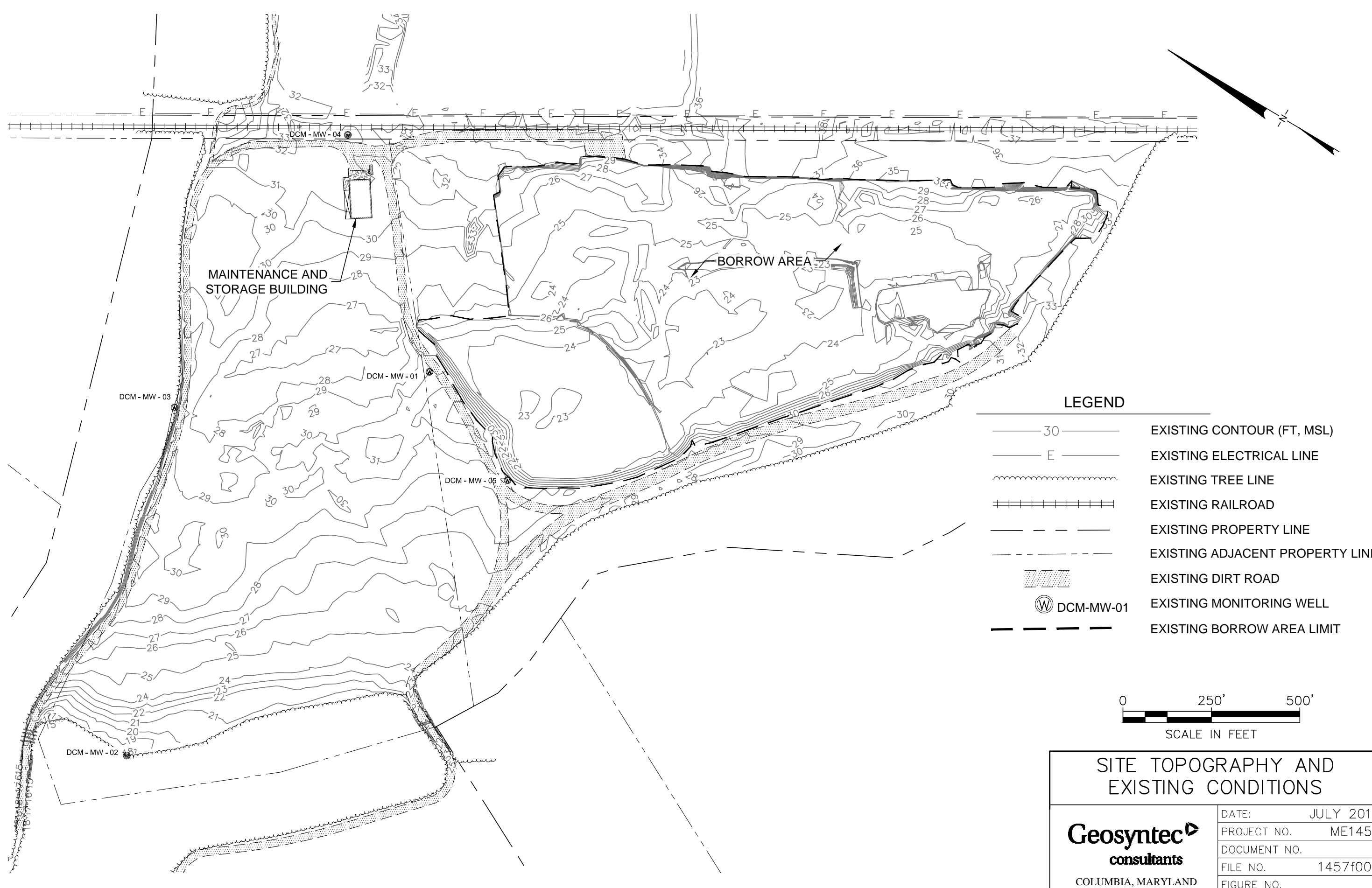
Figure

1

Columbia, Maryland

July 2017

Notes:
 Topographic Map accessed via ArcGIS Online and provided by the National Geographic Society.



LEGEND

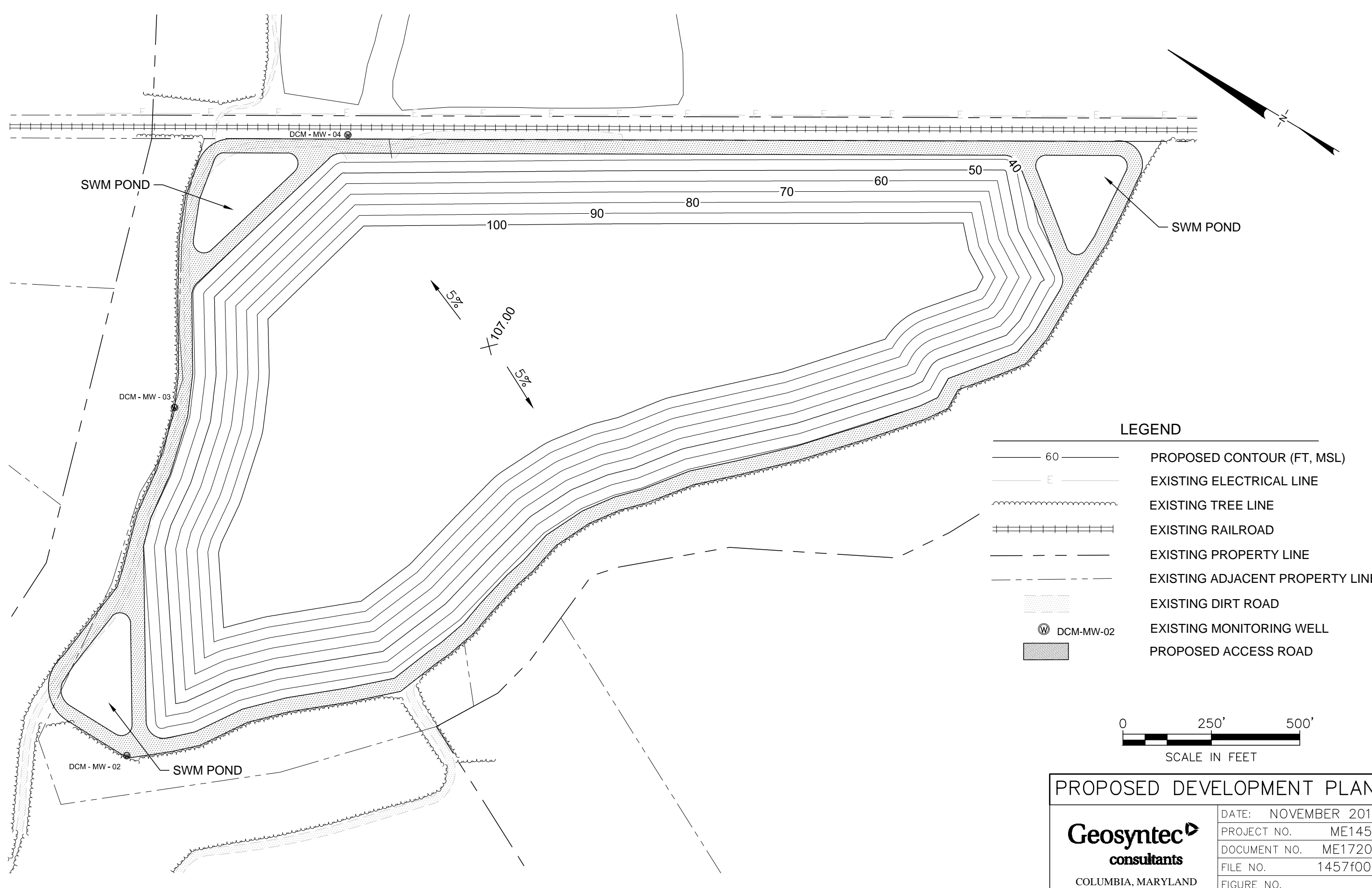
- 30 — EXISTING CONTOUR (FT, MSL)
- E — EXISTING ELECTRICAL LINE
- ~~~~~ EXISTING TREE LINE
- +++++ EXISTING RAILROAD
- - - - - EXISTING PROPERTY LINE
- - - - - EXISTING ADJACENT PROPERTY LINE
- ▨ EXISTING DIRT ROAD
- ⊙ DCM-MW-01 EXISTING MONITORING WELL
- — — — — EXISTING BORROW AREA LIMIT



SITE TOPOGRAPHY AND EXISTING CONDITIONS

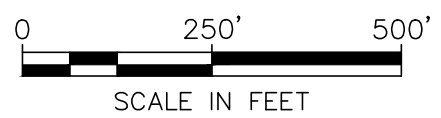
Geosyntec
consultants
 COLUMBIA, MARYLAND

DATE:	JULY 2017
PROJECT NO.	ME1457
DOCUMENT NO.	
FILE NO.	1457f002
FIGURE NO.	2



LEGEND

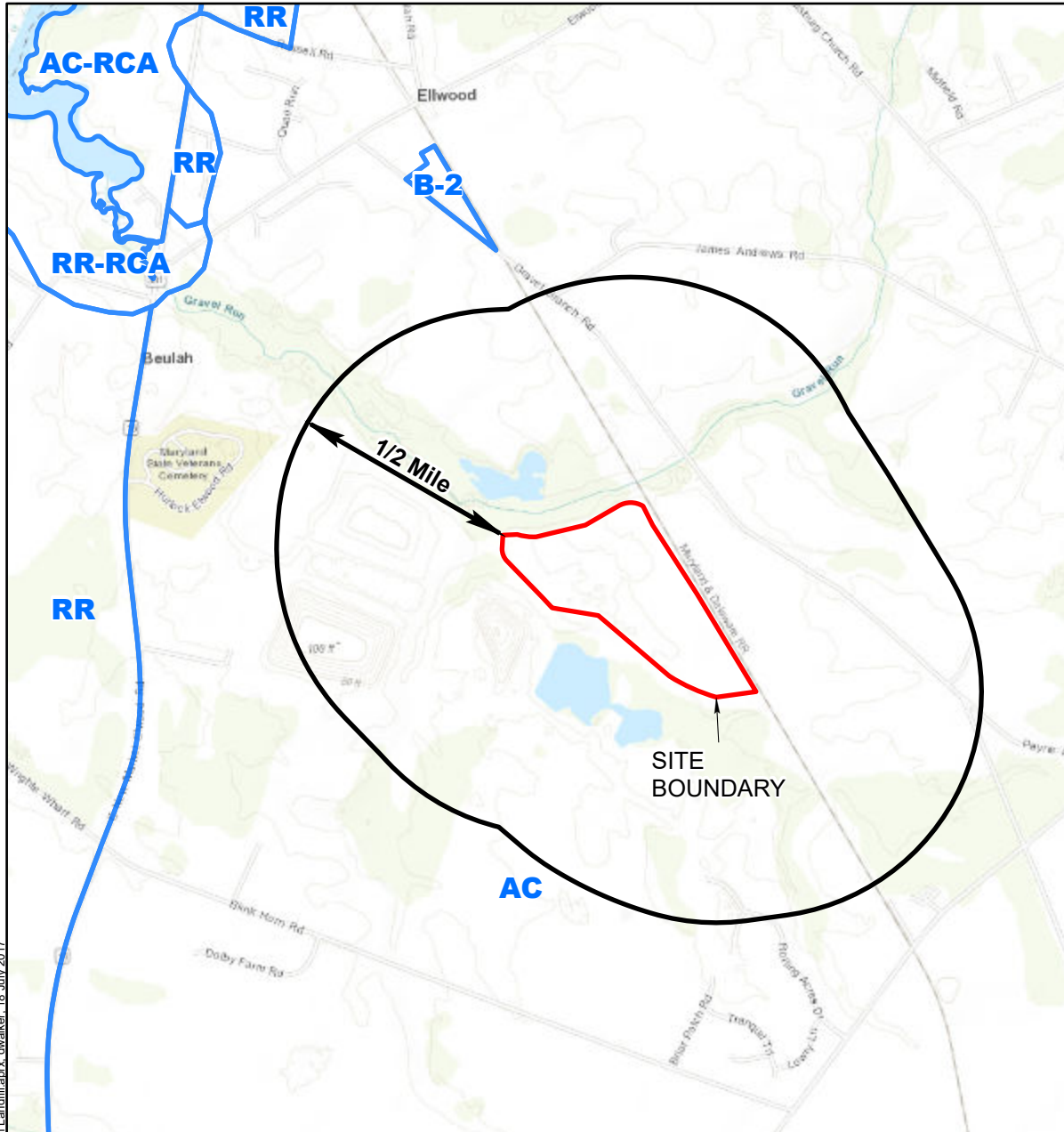
- 60 — PROPOSED CONTOUR (FT, MSL)
- - - - - EXISTING ELECTRICAL LINE
- ~~~~~ EXISTING TREE LINE
- ||||| EXISTING RAILROAD
- - - - - EXISTING PROPERTY LINE
- - - - - EXISTING ADJACENT PROPERTY LINE
- ~~~~~ EXISTING DIRT ROAD
- Ⓜ DCM-MW-02 EXISTING MONITORING WELL
- PROPOSED ACCESS ROAD



PROPOSED DEVELOPMENT PLAN

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COLUMBIA, MARYLAND

DATE:	NOVEMBER 2017
PROJECT NO.	ME1457
DOCUMENT NO.	ME17203
FILE NO.	1457f004
FIGURE NO.	3



ZONING DISTRICTS

AC:
Agricultural Conservation District

AC-RCA:
Agricultural Conservation
Resource Conservation Area District

RR:
Rural Residential District

RR-RCA:
Rural Residential
Resource Conservation Area District

B-2:
General Business District

2,000 1,000 0 2,000 Feet



Zoning Map of Surrounding Area

Dorchester County Municipal Landfill
Hurlock, Dorchester County, Maryland

Geosyntec
consultants

Figure

4

Legend

Site Boundary

Notes:
Zoning Map provided by Dorchester County, Maryland.
Topographic Map accessed via ArcGIS Online and provided by the National Geographic Society.

Columbia, Maryland

July 2017

Custom Soil Resource Report
Soil Map



MAP LEGEND

- Area of Interest (AOI)**
 - Area of Interest (AOI)
- Soils**
 - Soil Map Unit Polygons
 - Soil Map Unit Lines
 - Soil Map Unit Points
- Background**
 - Aerial Photography
- Water Features**
 - Streams and Canals
- Transportation**
 - Rails
 - Interstate Highways
 - US Routes
 - Major Roads
 - Local Roads

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Dorchester County, Maryland
Survey Area Data: Version 16, Sep 22, 2016

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 17, 2010—Jul 4, 2010

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Dorchester County, Maryland (MD019)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
DoA	Downer sandy loam, 0 to 2 percent slopes, Northern Tidewater Area	67.2	23.9%
FmA	Fort Mott loamy sand, 0 to 2 percent slopes	75.6	26.9%
FmB	Fort Mott loamy sand, 2 to 5 percent slopes	13.6	4.8%
GaB	Galestown loamy sand, 2 to 5 percent slopes	51.8	18.4%
RsB	Runclint sand, 2 to 5 percent slopes	4.1	1.5%
UzB	Udortheints, loamy, 0 to 5 percent slopes	24.4	8.7%
W	Water	8.4	3.0%
Za	Zekiah sandy loam, frequently flooded	36.4	12.9%
Totals for Area of Interest		281.5	100.0%

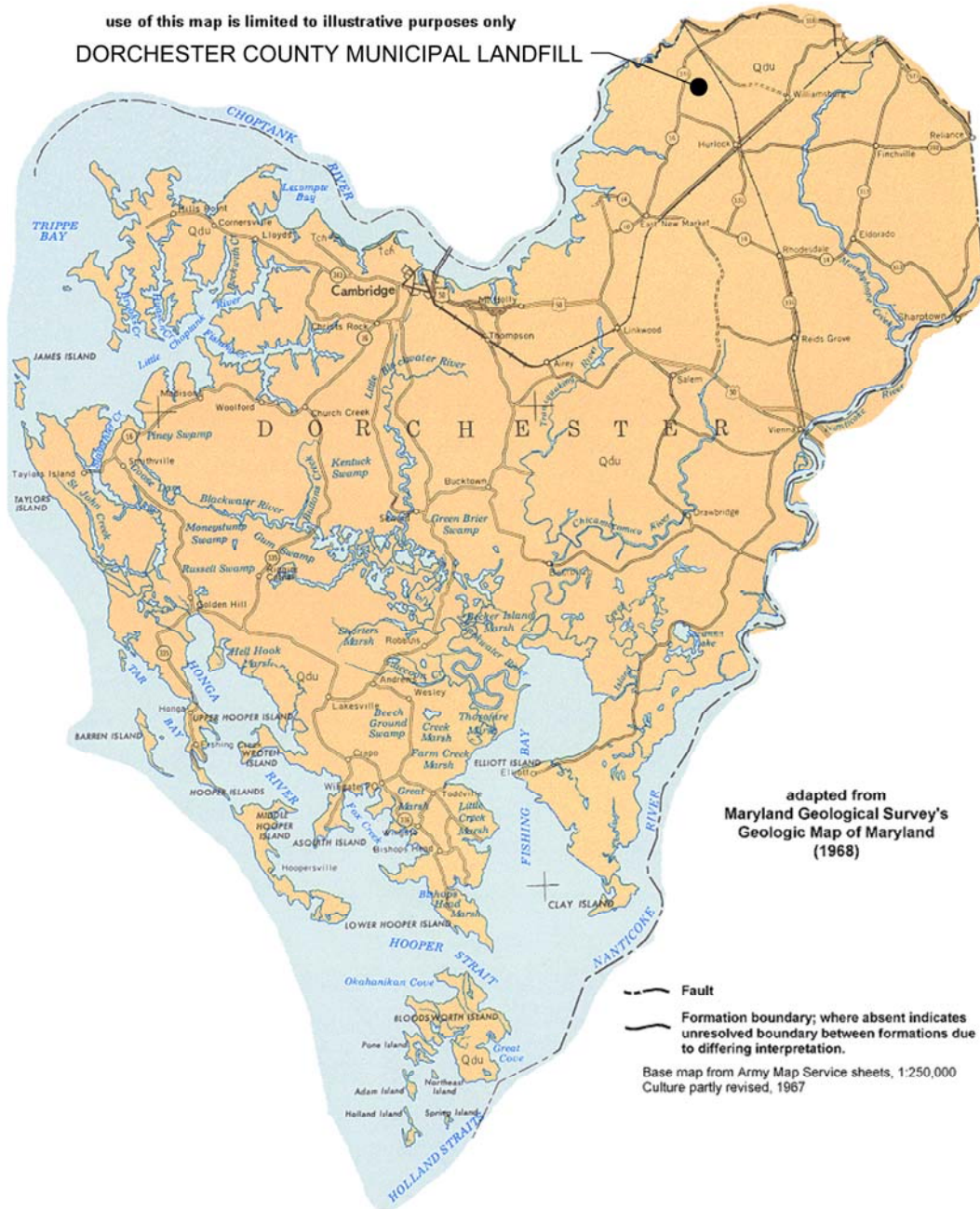
SOIL DISTRIBUTION MAP



COLUMBIA, MARYLAND

DATE:	JULY 2017
PROJECT NO.	ME1457
DOCUMENT NO.	
FILE NO.	0925f104A
FIGURE NO.	5

use of this map is limited to illustrative purposes only
 DORCHESTER COUNTY MUNICIPAL LANDFILL



adapted from
 Maryland Geological Survey's
 Geologic Map of Maryland
 (1968)

--- Fault
 --- Formation boundary; where absent indicates unresolved boundary between formations due to differing interpretation.
 Base map from Army Map Service sheets, 1:250,000
 Culture partly revised, 1967

Qdu

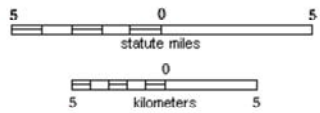
Lowland Deposits

Undifferentiated gray to buff sand and gravel, gray to brown lignitic silt and clay, occasional boulders, and rare shell beds.
 Surficial deposits occur as intercalated fluvial sands and marsh muds (e.g. in upstream floodplains of the Wicomico and Nanticoke Rivers), well sorted, stabilized sand dunes (e.g. eastern Wicomico County), shell-bearing estuarine clays and silts (e.g. lower Dorchester County and Pocomoke River basin of Worcester County), and beach zone sands (e.g. Fenwick and Assateague Islands). Wisconsin to Holocene in age.
 Subsurface deposits of pre-Wisconsin age consist of buff to reddish-brown sand and gravel locally incised into Miocene sediments (e.g. Salisbury area), estuarine to marine white to gray sands, and gray to blue, shell-bearing clays (e.g. Worcester County).

Tch

Choptank Formation

Interbedded brown to yellow very fine-grained to fine-grained sand and gray to dark bluish-green argillaceous silt; locally indurated to calcareous sandstone; prominent shell beds; thickness 0 to 50 feet.



SOURCE: MARYLAND GEOLOGICAL SURVEY
 HTTP://WWW.MGS.MD.GOV/ESIC/GEO/DOR.HTML

**SURFICIAL GEOLOGIC MAP
 OF DORCHESTER COUNTY**

Geosyntec
 consultants
 COLUMBIA, MARYLAND

DATE:	JULY 2017
PROJECT NO.	ME1457
DOCUMENT NO.	
FILE NO.	1457f006
FIGURE NO.	6

ATTACHMENT 1

REFUSE DISPOSAL PERMIT APPLICATION FORM

Refuse Disposal Permit Application

Authority: Title 9, Environment Article, Annotated Code of Maryland, and Code of Maryland Regulations (COMAR) 26.04.07
 Municipal landfills also see 40 CFR Part 258 and EPA guidance for additional requirements.

Application for: **New Permit** **Renewal Permit**

Existing Permit No. 2015/WMF/0628 Issued Date: 02 / 23 / 2015 Expiration Date: 02 / 22 / 2020

Applicant's Legal Name: County Council of Dorchester County

Applicant's Status: **Individual** **Corporation** **Government** **Other:** _____

Federal Employer Identification No.: 52-6000933
 Maryland State Department of Assessments and Taxation (SDAT) ID No.: N/A
 Please note that a business/entity must be registered to do business in Maryland before a permit can be issued. The business or entity's information provided in this application must match the information in the SDAT register.

Proof of workers' compensation coverage is required under § 1-202 of the Environment Article. Please provide one of the following:
 (1) A copy of a Certificate of Compliance issued by the Maryland Workers' Compensation Commission; or
 (2) Workers' Compensation Insurance Policy/Binder Number: 2762420

Applicant's Mailing Address: 5435 Handley Road City: Cambridge State: MD Zip Code: 21613

Applicant's Telephone No. (410) 228 - 2920 Facsimile No.: (410) 228 - 9516

Emergency Contact Name & Title: Ryan White Telephone No.: (410) 228 - 2920

Facility/Site Name: Dorchester County Municipal Landfill

Facility/Site Address: 6812 East New Market - Elwood Road City: Hurlock State: MD Zip Code: 21643

County: Dorchester County Maryland Grid Coordinates: 368 , 000 N / 1,632 , 000 E

County Zoning Map No.: 005 Lot/Parcel No.: P.62; P. 140 Deed/Liber/Folio No.: _____

State Legislative District: 37B Local Council / Election District: 37

Bay Tributary Watershed Code: 02130403 Latitude/Longitude (Deg/Min/Sec): 38 - 40 - 18.0 / 75 - 52 - 46.7

Site Acreage: 150 Facility Acreage (Estimated): 65

Type of Solid Waste Acceptance Facility

- Municipal Landfill**¹ **Rubble Landfill**^{1,3} **Industrial Landfill**¹ **Land Clearing Debris Landfill**¹ **Incinerator**^{1,2}
 Transfer Station¹ **Processing Facility**² **Processing Facility & Transfer Station**^{1,2}

Notes: 1. Financial Security is required for a privately owned facility. 2. Air Quality Permit may be required. 3. Groundwater Discharge Permit may be required.

Proposed Days & Hours of Operation: Mon - Sat 7:30 am - 4:30 pm

Provide a brief description of solid waste handling and other activities to be conducted at this facility: _____
 Activities to be conducted at this facility include landfilling and citizen drop off center.

If available, attach the following documentation required for permit issuance:

- A written statement from the County in which the proposed facility is to be located, demonstrating that the proposed facility meets all applicable County zoning and land use requirements and is in conformity with the County Solid Waste Management Plan, in accordance with §9- 210(a)(3) of the Environment Article.**
 For an incinerator, a written statement from the County where the proposed facility is to be located, demonstrating that the County has an approved Recycling Plan in accordance with §9-204.1 and §9-505 of the Environment Article.
 For a rubble landfill, a written statement from the County in which the proposed facility is to be located, demonstrating that the County has specified in the County Solid Waste Plan the types of waste that may be disposed of in the facility, in accordance with §9-210(c) of the Environment Article.

Provide the estimated amount of solid waste to be accepted in Tons (T) or Cubic Yards (CY) from the following facilities and sources:

<p>A. Intermediate Facilities:</p> <p>Processing Facilities _____</p> <p>Transfer Stations _____</p> <p>Incinerators _____</p>	<p>B. Origin Of Waste By Region:</p> <p>Within Jurisdiction _____ x _____</p> <p>Out-of-County in Maryland _____</p> <p>Out-of-State (Specify Name) _____</p>
---	--

Please indicate the estimated amount of solid waste in Tons (T) or Cubic Yards (CY) to be accepted at this facility. This list will be used to determine the type of permit and the list of acceptable materials that will be allowed under the permit for which you are applying.

Type of Waste	1 st Year (units)	5 th Year (units)
Residential (household refuse, domestic waste, garbage, etc.)	36,331 tons	37,806 tons
Commercial (waste from businesses, stores, offices, etc.)	--	--
Industrial (non-hazardous sludge, dust, off-spec products, etc. from industrial or manufacturing operations or processes)	--	--
Construction and Demolition (lumber, masonry, drywall, etc.)	16,608 tons	17,283 tons
Land Clearing Debris (stumps, limbs, leaves, earthen material, etc.)	513 tons	534 tons
Agricultural (crop residue, manure, unprocessed materials, etc.)	--	--
Institutional (non-hazardous waste from schools, hospitals, etc.)	--	--
Special Medical Waste (infectious waste from hospitals, doctor's offices, research labs, etc.)	--	--
Animal Carcasses (road kills, farm animals, etc.)	--	--
Bulky Waste (appliances, furniture, etc.)	--	--
Litter (street sweepings, municipal wastebaskets, etc.)	--	--
Scrap Tires (automobiles, trucks, etc.) - Requires a separate license for handling or managing tires.	165 tons	172 tons
Sewage Sludge or Septage - Requires separate permit for sewage sludge utilization.	--	--
Water Treatment Plant Sludge (alum precipitate, etc.)	3,462 tons	3,602 tons
Hazardous Waste (from chemical plants, gas stations, etc.)	--	--
Asbestos (shingles, insulation, etc.) - Requires special training and handling	4 tons	4 tons
Incinerator Ash (from incinerators, waste-to-energy incinerators, special medical waste incinerators, boilers, etc.)	--	--
Fly Ash (pollution abatement equipment dusts & bottom ash from coal fired electric generating plants)	--	--
Other (list): concrete, scrap metal, white goods, soil	5,554 tons	5,779 tons
Total	62,637 tons	65,180 tons

By signing this form, I the applicant or duly authorized representative, do solemnly affirm under the penalties of perjury that the contents of this application are true to the best of my knowledge, information, and belief. I hereby authorize the representatives of the Department to have access to the site of the proposed facility for inspection and to records relating to this application at any reasonable time. I acknowledge that depending on the type of facility applied for, other permits or approvals may be required.


Signature of Applicant

GREGORY A. LEBLANC
Applicant's Name (Print) FOR RYAN WHITE

11/21/17
Date

COUNTY ENGINEER
Title

This Notice is provided pursuant to §10-624 of the State Government Article of the Maryland Code. The personal information requested on this form is intended to be used in processing your application. Failure to provide the information requested may result in your application not being processed. You have the right to inspect, amend, or correct this form. The Maryland Department of the Environment ("MDE") is a public agency and subject to the Maryland Public Information Act. This form may be made available on the Internet via MDE's website and is subject to inspection or copying, in whole or in part, by the public and other governmental agencies, if not protected by Federal or State law.

Privacy Act Notice: This Notice is provided pursuant to the Federal Privacy Act of 1974, 5 U.S.C. §552.a. Disclosure of your Social Security Number or Federal Employer Identification Number on this application is mandatory pursuant to the provisions of §1-203 (2003), Environment Article, Annotated Code of Maryland, which requires the MDE to verify that an applicant for a permit has paid all undisputed taxes and unemployment insurance. Social Security or Federal Employer Identification Numbers will not be used for any purposes other than those described in this Notice.

For questions regarding this application form, please contact the Department at (410) 537-3315

DORCHESTER COUNTY PLANNING & ZONING OFFICE

County Office Building
501 Court Lane, Room 111
CAMBRIDGE, MARYLAND 21613
PHONE: 410-228-3234
FAX: 410-228-1563



October 10, 2017

Maryland Department of the Environment
Land and Materials Administration
c/o Martha Hynson, Chief: Solid Waste Operations Division
1800 Washington Boulevard
Baltimore, Maryland 21230

Re: Solid Waste Management Plan and Phase 1 Report – Zoning Consistency

Dear Ms. Hynson,

The Dorchester County Department of Planning and Zoning has reviewed the updated County Solid Waste Management Plan (2017-2026) and Phase 1 Report prepared in support of the proposed development of the Dorchester County Municipal Landfill at the Beulah facility in Hurlock, Dorchester County, Maryland. This letter serves to certify that the proposed landfill meets all applicable Dorchester County zoning and land use requirements and is in conformity with the updated County Solid Waste Management Plan (2017-2026).

Please contact me with any comments or questions regarding this letter.

Sincerely,

A handwritten signature in black ink, appearing to read 'Rodney L. Banks', is written over a light blue circular stamp.

Rodney L. Banks
Deputy Director of Planning and Zoning

RLB/rb

cc: Ryan White, Director of Public Works
Greg LeBlanc, Engineer
file

ATTACHMENT 2

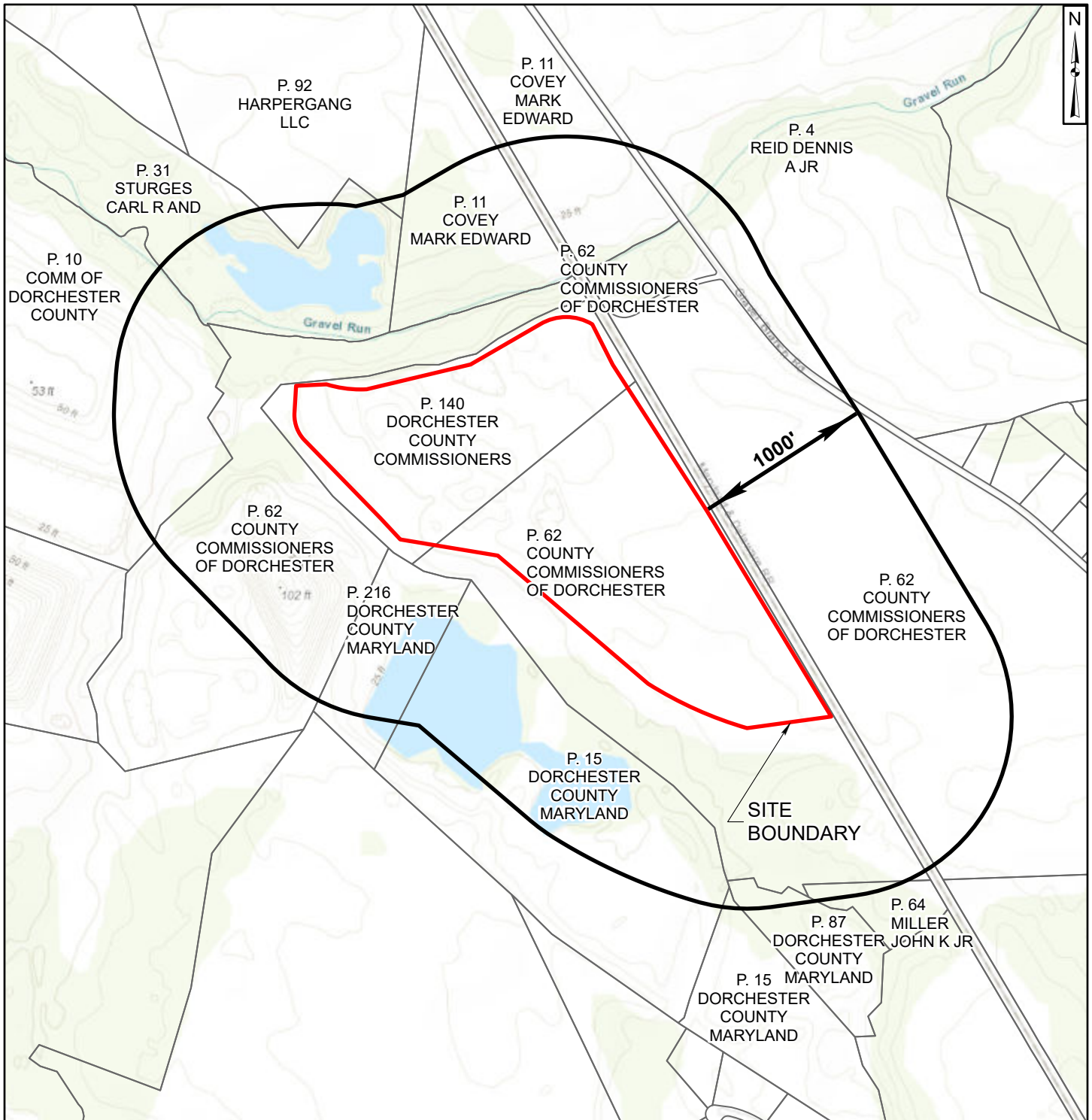
PROPERTY OWNERS WITHIN 1,000-FT
RADIUS OF DCMLF






ATTACHMENT 2
PROPERTY OWNERS WITHIN 1,000-FT OF
DORCHESTER COUNTY MUNICIPAL LANDFILL
HURLOCK, DORCHESTER COUNTY, MARYLAND

OWNER NAME	STREET LOCATION ¹	OWNER OCC ²	PAR ³
DORCHESTER COUNTY COMMISSIONERS C/O NEW EARTH SERVICE, INC	6898 GRAVEL BRACH ROAD	N	140
COUNTY COMMISSIONERS OF DORCHESTER COUNTY	W/S GRAVEL BRANCH ROAD	N	62
REID DENNIS A JR, R & J REID FARMS LLC	GRAVEL BRANCH RD	N	4
COVEY MARK EDWARD	6932 GRAVEL BRANCH RD	D	11
HARPERGANG LLC	7006 GRAVEL BRANCH RD	N	92
STURGES, CARL R. AND JACQUELINE K. ET AL	W/S GRAVEL BRANCH ROAD	N	31
COUNTY COMMISSIONERS OF DORCHESTER COUNTY	BEULAH LANDFILL	N	10
DORCHESTER COUNTY MARYLAND	BOBTOWN RD	N	216
DORCHESTER COUNTY	NE/S BOBTOWN ROAD	N	15
DORCHESTER COUNTY	GRAVEL PIT	N	15
DORCHESTER COUNTY MARYLAND	NW OF BOBTOWN RD	N	87
MILLER JOHN K JR	BOBTOWN RD	N	64

NOTES:

- (1) The street address assigned by the local government. It includes the street number and street name as well as any directions and street types. Note that it is not necessarily the same as the mailing address.
- (2) This indicates whether the property is the owner's principal residence. A principal residence will have an H or D in this field. Other property types will have an N in this field.
- (3) Identifies the parcel number of the property as shown on Figure A.1. A parcel may be one account or may encompass several accounts if it has been subdivided.



Legend  Site Boundary  Site Boundary Buffer (1000-feet)  Property Parcels	800 400 0 800 Feet 	
	Property Owners Within 1,000 Feet of Site Boundary Dorchester County Municipal Landfill Hurlock, Dorchester County, Maryland	
Notes: Property boundaries provided by the Maryland Department of Planning. Downloaded from http://planning.maryland.gov/OurProducts/downloadFiles.shtml on 23 September 2016. Topographic Map accessed via ArcGIS Online and provided by the National Geographic Society.		
	Figure A.1	Columbia, Maryland July 2017

P:\GIS\Beulah Landfill.aprx. owalker. 18. July 2017

ATTACHMENT 3

FAA DETERMINATION OF NO HAZARD TO AIR NAVIGATION



Notice Criteria Tool

[Notice Criteria Tool - Desk Reference Guide V_2014.2.0](#)

The requirements for filing with the Federal Aviation Administration for proposed structures vary based on a number of factors: height, proximity to an airport, location, and frequencies emitted from the structure, etc. For more details, please reference [CFR Title 14 Part 77.9](#).

You must file with the FAA at least 45 days prior to construction if:

- your structure will exceed 200ft above ground level
- your structure will be in proximity to an airport and will exceed the slope ratio
- your structure involves construction of a traverseway (i.e. highway, railroad, waterway etc...) and once adjusted upward with the appropriate vertical distance would exceed a standard of 77.9(a) or (b)
- your structure will emit frequencies, and does not meet the conditions of the [FAA Co-location Policy](#)
- your structure will be in an instrument approach area and might exceed part 77 Subpart C
- your proposed structure will be in proximity to a navigation facility and may impact the assurance of navigation signal reception
- your structure will be on an airport or heliport
- filing has been requested by the FAA

If you require additional information regarding the filing requirements for your structure, please identify and contact the appropriate FAA representative using the [Air Traffic Areas of Responsibility map](#) for Off Airport construction, or contact the [FAA Airports Region / District Office](#) for On Airport construction.

The tool below will assist in applying Part 77 Notice Criteria.

Latitude:	<input type="text" value="38"/> Deg <input type="text" value="40"/> M <input type="text" value="18"/> S <input type="button" value="N ▼"/>
Longitude:	<input type="text" value="75"/> Deg <input type="text" value="52"/> M <input type="text" value="46.7"/> S <input type="button" value="W ▼"/>
Horizontal Datum:	<input type="button" value="NAD83 ▼"/>
Site Elevation (SE):	<input type="text" value="30"/> (nearest foot)
Unadjusted Structure Height :	<input type="text" value="77"/> (nearest foot)
Height Adjustment:	<input type="text" value="15"/> (nearest foot)
Total Structure Height (AGL):	<input type="text" value="92"/> (nearest foot)
Traverseway:	<input type="button" value="Private Road ▼"/> <small>(Additional height is added to certain structures under 77.9(c)) User can increase the default height adjustment for Traverseway, Private Roadway and Waterway</small>
Is structure on airport:	<input checked="" type="radio"/> No <input type="radio"/> Yes

Results

You do not exceed Notice Criteria.

