THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS / BUREAU OF ENGINEERING / CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION

4. THE EXISTING TOPOGRAPHY IS TAKEN FROM FIELD RUN SURVEY WITH MAXIMUM TWO FOOT CONTOUR INTERVALS PREPARED BY VANMAR ASSOCIATES, INC., MAY 2017.

THE BASIS OF BEARINGS FOR THIS PLAN IS THE MARYLAND COORDINATE SYSTEM (NAD83/9 I.) PER HOWARD COUNTY **SURVEY CONTROL STATIONS:**

HO.CO. #07CA N.610,731.347 E.1,292,224.348 HO.CO. #07FC N.608,315.535 E.1,291,525.534

DISTANCES SHOWN HEREON ARE GROUND DISTANCES.

THIS PROPERTY IS NOT LOCATED WITHIN THE METROPOLITAN DISTRICT. THIS LOT WILL BE SERVED BY PRIVATE WATER AND PRIVATE SEWERAGE.

STORMWATER MANAGEMENT WILL BE PROVIDED BY BIORETENTION (F-6), MICRO-BIORETENTION (M-6), A CISTERN (M-1) AND ROOFTOP DISCONNECT (N-2) TO MEET THE REQUIREMENTS OF THE MARYLAND STORMWATER DESIGN MANUAL DATED MAY, 2009, AND IN ACCORDANCE WITH THE MD SWM ACT OF 2007.

THERE ARE NO HISTORIC STRUCTURES, CEMETERIES OR ENVIRONMENTAL FEATURES (I.E. STREAMS OR THEIR BUFFERS STEEP SLOPES, WETLANDS, ETC.) FOUND ON THIS SITE.

ANY DAMAGE TO THE STATE HIGHWAY RIGHT OF WAYS ON THIS SITE WILL BE THE CORRECTED AT THE CONTRACTOR'S

10. THIS PLAN IS SUBJECT TO PRIOR DPZ FILE NO. ECP-16-026, APPROVED MAY 26, 2016.

THE LISBON VOLUNTEER FIRE COMPANY, INC. 1330 WOODBINE ROAD WOODBINE, MARYLAND 21797 PROPERTY MAINTENANCE: THE LISBON VOLUNTEER FIRE COMPANY, INC.

2. PROPERTY INFORMATION: TAX MAP: 07 GRID: 11 PARCEL: 488 TAX ACCOUNT # 04-340574, 04-340582 DEED REFERENCE: LIBER 13092, FOLIO 041 PLAT NO.

TOTAL SITE AREA: 8.226 AC.± 13. THIS PLAN IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS PER COUNCIL BILL 45-2003 AND ZONING REGULATIONS AS AMENDED BY COUNCIL BILL 75-2003. DEVELOPMENT OR CONSTRUCTION ON THESE LOTS MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE SITE DEVELOPMENT PLAN. FOREST BANK NAME: LOTS 1 - 7, BUILDABLE PRESERVATION PARCEL A \$ QUARTZ HILL III FOREST MITIGATION BANK: FILE # F-13-070

14. NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE LIMITS OF FLOODPLAIN, WETLANDS, STREAMS, OR THEIR REQUIRED BUFFERS, OR FOREST CONSERVATION EASEMENT

15. SITE DEVELOPMENT PLAN APPROVAL BY THE DEPARTMENT OF PLANNING AND ZONING IS REQUIRED PRIOR TO BUILDING PERMITS BEING ISSUED FOR THE CONSTRUCTION OF NEW BUILDINGS. THE AFFORESTATION REQUIREMENT WILL BE MET BY PURCHASING FOREST CREDIT FROM AN EXISTING OFF-SITE FOREST

BANK AT THE RATE OF 1.23 AC. FOR NEW FOREST CREDIT. (SCE General Note #13) 17. THE SUBJECT PROPERTY CONSISTS OF TWO (2) RECORDED LOTS. NO FURTHER SUBDIVISION (INCLUDING LOT

THE SUBJECT PROPERTY IS SERVED BY AN EXISTING WELL (#HO-95-2137) AND A PROPOSED SEPTIC SYSTEM. PERCOLATION TESTING AND SEPTIC AREA LAYOUT HAVE BEEN APPROVED BY THE HOWARD COUNTY HEALTH DEPARTMENT.

THE SUBJECT PROPERTY IS NOT LOCATED IN A SPECIAL FLOOD HAZARD AREA PER THE NATIONAL FLOOD INSURANCE PROGRAM. SEE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NO. 24027C0030D, EFFECTIVE NOVEMBER 6, 2013. 21. SITE LIGHTING TO BE BUILDING MOUNTED WALL PACKS, DOWN DIRECTED SO AS TO CAUSE NO OFF SITE GLARE.

22. A) THE RI-I ("STOP") SIGN FOR THE DEVELOPMENT MUST BE INSTALLED BEFORE THE BASE PAVING IS B) THE TRAFFIC CONTROL DEVICE LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND MUST BE FIELD APPROVED BY HOWARD COUNTY TRAFFIC DIVISION (410-313-2430) PRIOR TO THE INSTALLATION OF

ANY OF THE TRAFFIC CONTROL DEVICES. ALL TRAFFIC CONTROL DEVICES AND THEIR LOCATIONS SHALL BE IN ACCORDANCE WITH THE LATEST

EDITION OF THE "MARYLAND MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" (MJMUTCD). ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) - 3' LONG. THE ANCHOR SHALL NOTE EXTEND MORE THAN TWO "QUICK PUNCH" HOLES ABOVE GROUND

HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.

25. ALL PLAN DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.

EXISTING UTILITIES ARE BASED ON PUBLIC UTILITY RECORDS AND VISUAL OBSERVATION.

THE FLOODPLAIN STUDY FOR THIS PROJECT WAS PREPARED BY VANMAR ASSOCIATES, INC., DATED JULY 11. 2017 AND WAS APPROVED ON AUGUST 14, 2017.

THE TRAFFIC STUDY/APFO STATEMENT FOR THIS PROJECT WAS PREPARED BY VANMAR ASSOCIATES, INC. DATED MAY 24, 2017 AND WAS APPROVED ON JUNE 26, 2017.

THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD

COUNTY CODE AND THE LANDSCAPE MANUAL 30. THE ZONING DIVISION HAS DETERMINED THAT THE SILO MAY EXCEED THE 34-FOOT HEIGHT REQUIREMENT AND THE ENTIRE FIRE HOUSE STRUCTURE WILL BE CONSIDERED A GABLE ROOF STRUCTURE NOT TO EXCEED 40 FEET

I'HIS AREA DESIGNATES A PRIVATE SEWAGE AREA OF AT LEAST 10,000 SQUARE FEET AS REQUIRED BY THE MARYLAND STATE DEPARTMENT OF THE ENVIRONMENT FOR INDIVIDUAL SEWAGE DISPOSAL. IMPROVEMENTS OF ANY NATURE IN THIS AREA ARE RESTRICTED UNTIL PUBLIC SEWERAGE IS AVAILABLE. THESE AREAS SHALL BECOME NULL AND VOID UPON CONNECTION TO A PUBLIC SEWERAGE SYSTEM. THE COUNTY HEALTH OFFICER

SHALL HAVE AUTHORITY TO GRANT ADJUSTMENTS TO THE PRIVATE SEWAGE AREA. RECORDATION OF A

4-12-18

MODIFIED SEWAGE AREA SHALL NOT BE NECESSARY. 32. SEPTIC SYSTEM DESIGN FLOWS: SLEEPING FOR 3 PEOPLE (BEDS) @ 100 GPD = 300 GPD 300-PERSON SOCIAL HALL @ 5 GPD = 1,500 GPD

APPROVED

APPROVED

TOTAL DESIGN FLOW = 1,800 GPD 33. THE HEALTH DEPARTMENT RECOMMENDS THAT THE WASTEWATER PUMP SYSTEM BE WIRED TO A CIRCUIT ENERGIZED BY THE EMERGENCY GENERATOR.

MDE MUST Approve THE DISCHARGE FROM THE RAINWATER SKID TO THE STORMWIER PEVICE PRIOR TO HEALTH DEPT. APPROVAL OF BUILDING PERMIT



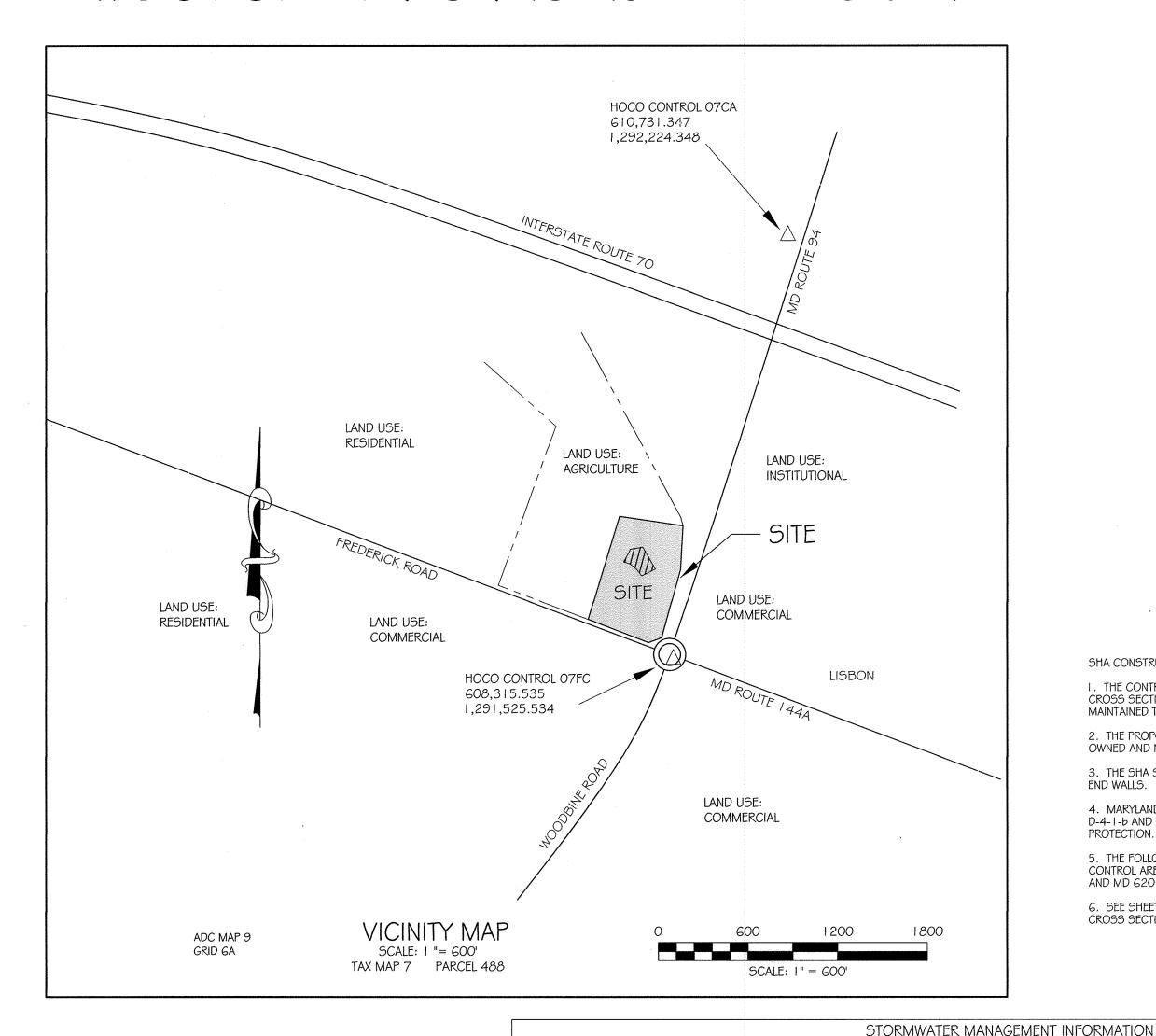
NOT TO SCALE

SITE DEVELOPMENT PLAN LOT 3, LOWER TRAIL

LISBON VOLUNTEER FIRE CO., INC.

TAX MAP: 7 GRID: 11 PARCEL: 488 FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

MDOT SHA TRACKING No. 1 1 APHO 01 4XX



SHA CONSTRUCTION NOTES:

PRACTICE TYPE (QUANTITY) | PUBLIC | PRIVATE | HOA MAINTAINS |

LOT/PARCEL No.

LOT 3 / P.488

. THE CONTRACTOR SHALL VERIFY EXISTING PAVEMENT ELEVATIONS. CROSS SECTION DESIGNS INCLUDING CROSS SLOPES SHALL BE MAINTAINED TO THE BEST EXTENT PRACTICAL.

2. THE PROPOSED CULVERT AND END TREATMENT TO BE PRIVATELY 3. THE SHA STANDARD MD 354.01SHALL BE USED FOR CONCRETE

4. MARYLAND DEPARTMENT OF THE ENVIRONMENT STANDARD DETAILS D-4-1-6 AND D-4-1-C SHALL BE USED FOR RIP-RAP OUTLET

5. THE FOLLOWING SHA STANDARDS FOR TEMPORARY TRAFFIC CONTROL ARE REQUIRED FOR THIS PROJECT: MD 104.00, MD 104.01

6. SEE SHEET 14 FOR PAVEMENT STRIPING, DETAILS AND ADDITIONAL

2 OF 15	SITE DEVELOPMENT PLAN
3 OF 15	SITE NOTES AND DETAILS
4 OF 15	SEDIMENT CONTROL PLAN AND SOILS MAP
5 OF 15	SEDIMENT CONTROL NOTES AND DETAILS
6 OF 15	STORMWATER MANAGEMENT PLAN AND NOTES
7 OF 15	STORMWATER MANAGEMENT NOTES AND DETAILS
8 OF 15	STATE HIGHWAY ENTRANCE PLAN AND DETAILS
9 OF 15	DRAINAGE AREA MAP
10 OF 15	FOREST CONSERVATION & LANDSCAPE PLAN, NOTES & DETAILS
11 OF 15	EXISTING CONDITIONS
12 OF 15	BORING LOGS AND SPECIFICATIONS
13 OF 15	SEPTIC SYSTEM PLAN AND PROFILE
14 OF 15	STATE HIGHWAY STRIPING PLAN AND DETAILS
15 OF 15	STATE HIGHWAY CROSS SECTIONS

SHEET INDEX

DESCRIPTION

EXISTING USE: RESIDENTIAL/OPEN SPACE.

PROPOSED USE: VOLUNTEER FIRE DEPARTMENT 24,257 TOTAL FLOOR SPACE OF PROPOSED BUILDING:

EMPLOYEES: I SPACE PER EMPLOYEE = 10 SPACES (10 EMPLOYEES) OFFICE: 6,800 SQ. FT. (3.3 SPACES PER 1,000 SQ. FT.) = 22 SPACES SOCIAL HALL: 9,130 SQ. FT. (10 SPACES PER 1,000 SQ. FT.) = 91 SPACES

TOTAL SPACES PROPOSED: 134 SPACES PARKING PROVIDED: 134 SPACES (INCLUDING 6 HANDICAPPED)

OPEN SPACE: N/A RECREATIONAL AREA: N/A 24.257 BUILDING COVERAGE: 24,414 SQ. FT

TOTAL SPACES REQUIRED: 123 SPACES

PREVIOUS HOWARD COUNTY FILES: ECP-16-026 TOTAL AREA OF FLOODPLAIN ON SITE: 0.00 AC. ±

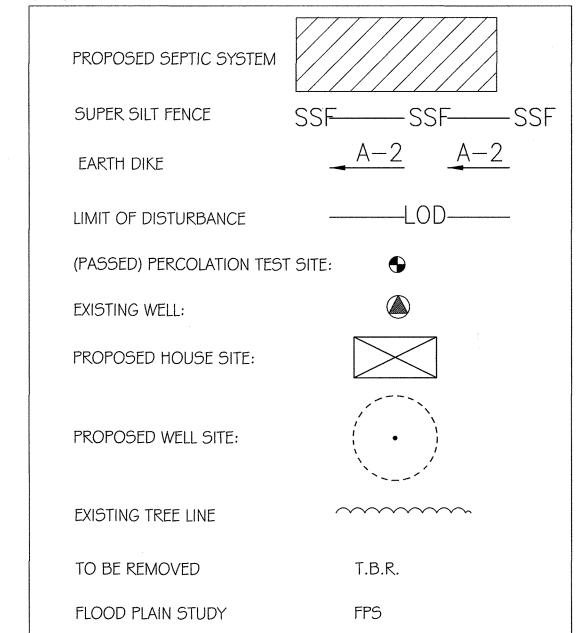
TOTAL AREA OF STEEP SLOPES IN EXCESS OF 25%: 0.00 AC. ± NET TRACT AREA: 8.23 AC.± TOTAL AREA OF WETLANDS: 0.00 AC. ±

TOTAL AREA OF FOREST: 0.00 AC.± TOTAL GREEN OPEN AREA: 5.69 AC.± TOTAL IMPERVIOUS AREA: 2.54 AC.±

AREA OF ERODIBLE SOILS: 0.00 AC.± TOTAL AREA OF STREAM ON SITE: 0.00 AC. ±

TOTAL AREA OF STREAM BUFFER ON SITE: 0.00 AC. ±

LEGEND



SOIL LEGEND **HYDROLOGIC** MAP SYMBOL MAPPING UNIT SOIL GROUP GLENELG LOAM, 0% - 3% SLOPES GLENELG LOAM, 3% - 8% SLOPES GLENVILLE SILT LOAM, 0% - 3% SLOPES MANOR LOAM, 8% - 15% SLOPES

TITLE SHEET LOT 3, LOWER TRAIL LISBON VOLUNTEER FIRE CO., INC

GRID NO: 11

PARCEL NO: 488 EX. ZONING: RC-DEO



ELECTION DISTRICT: No. 4 SCALE: AS SHOWN HOWARD COUNTY, MARYLAND SHEET I OF 15



DATE: JANUARY, 2017 'n VANMAR

ASSOCIATES, INC. **Engineers Surveyors Planners** 310 South Main Street Mount Airy, Maryland 21771 (301) 829-2890 (301) 831-5015 (410) 549-2751 vanmar.com Fax (301) 831-5603 @Copyright, Latest Date Shown SDP-17-035

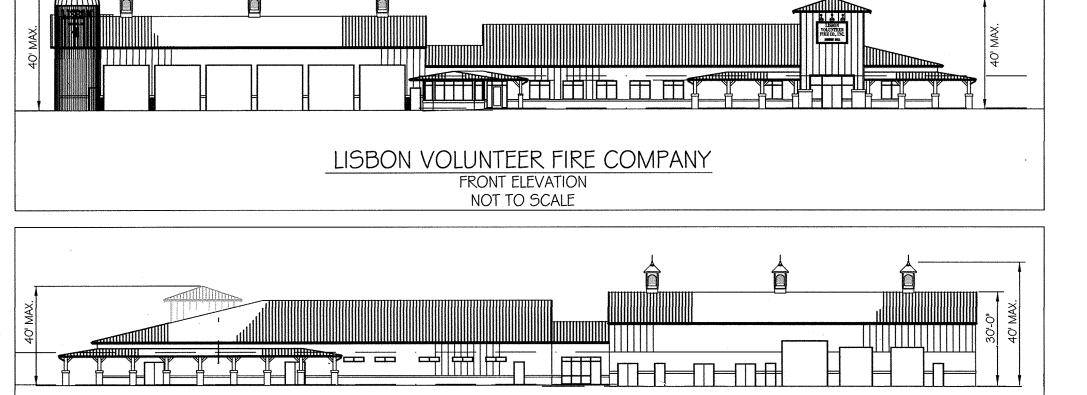
7-11-18 CHIEF, DIVISION OF LAND DEVELOPMENT W Chil Edundson 6.12.18 CHIEF, DEVELOPMENT ENGINEERING DIVISION & DATE

HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS.

HOWARD COUNTY HEALTH DEPARTMENT

COUNTY HEALTH OFFICER



LISBON VOLUNTEER FIRE COMPANY

REAR ELEVATION

NOT TO SCALE

HOWARD COUNTY GEODETIC CONTROL STATIONS:

LOT/PARCEL NUMBER

LOT 3. LOWER TRAIL

LOT 3, LOWER TRAIL

HO. CO. #07CA N.610,731.347 E.1,292,224.348 ELEV. = 619.303HO. CO. #07FC N.608,315.535 E.1,291,525.534

ELEV. = 591.373

LOT 3, LOWER TRAIL NON ROOF-TOP DISCONNECT

FACILITY NAME \$ NUMBER

BIO-RETENTION FACILITY # I

LOT 3, LOWER TRAIL | MICRO-BIORETENTION FACILITY #2 | MICRO-BIORETENTION (M-6)

LOT 3, LOWER TRAIL | MICRO-BIORETENTION FACILITY #3 | MICRO-BIORETENTION (M-6)

OWNER / DEVELOPER: LISBON VOL. FIRE COMPANY clo CURTIS LOWREY P.O. BOX 40, LISBON, MD 21765

443-472-7765

HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME. AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 18417, EXPIRATION DATE: 09/18/19 1

BIO-RETENTION (F-6)

CISTERN (M-1)

DISCONNECT (N-2)

SUBDIVSION NAME

LOWER TRAIL

WATER CODE: N/A

STREET ADDRESS

SECTION/AREA

RC-DEO 07

PROFESSIONAL CERTIFICATION

16104 FREDERICK ROAD, WOODBINE, MD. 21797

PERMIT INFORMATION CHART

SEWER CODE: N/A

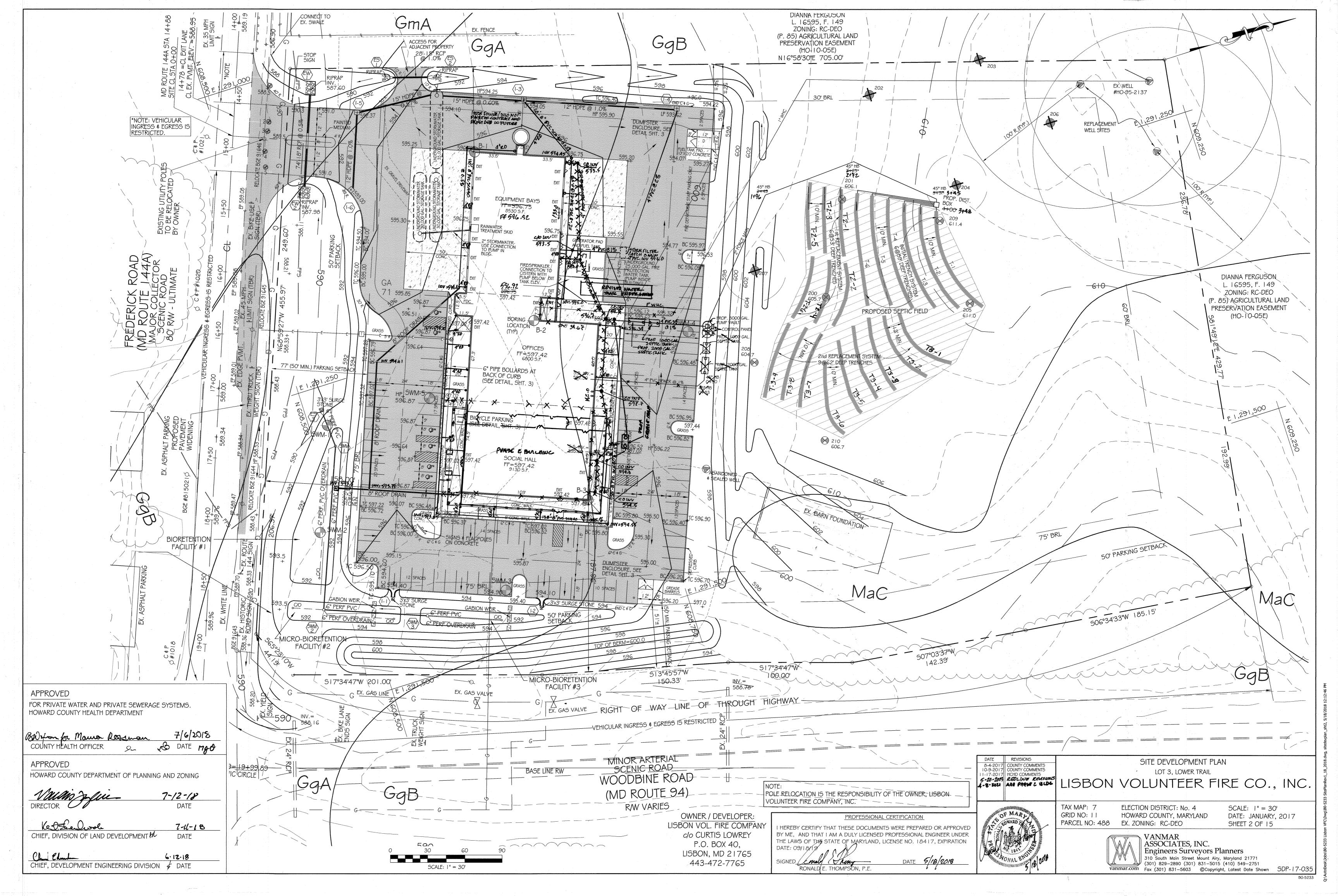
PLAT # GRID # ZONING TAX MAP# ELECT. DISTRICT CENSUS TRACT

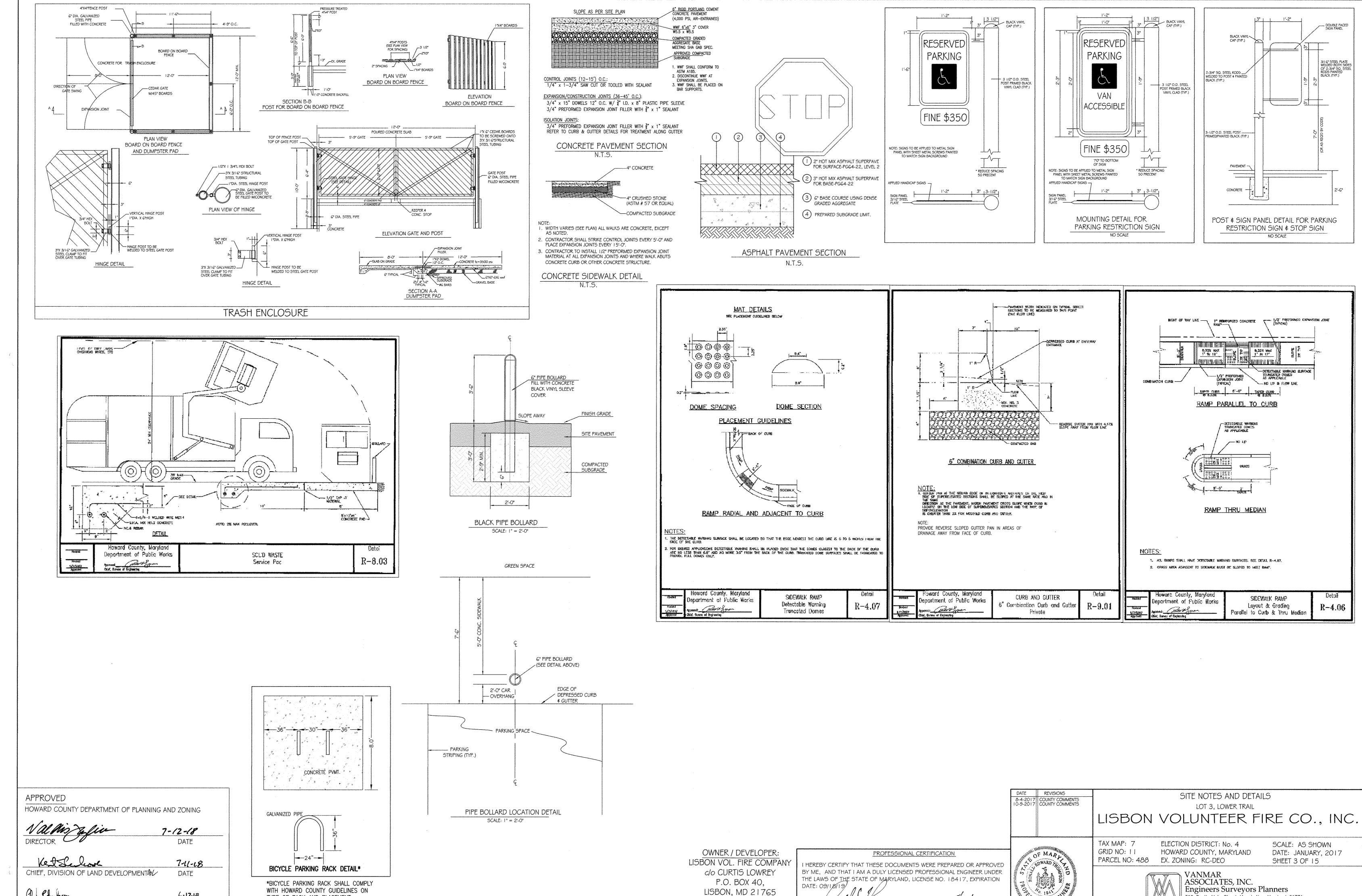
SIGNED Link (Thing DATE 5/21/2018 RONALD E. THOMPSON, P.E.

8-4-2017 COUNTY COMMENTS

10-9-2017 COUNTY COMMENTS

5-20-2019 REDLINE REVISIONS





SIGNED (Link) Thing
RONALD E. THOMPSON, P.E.

443-472-7765

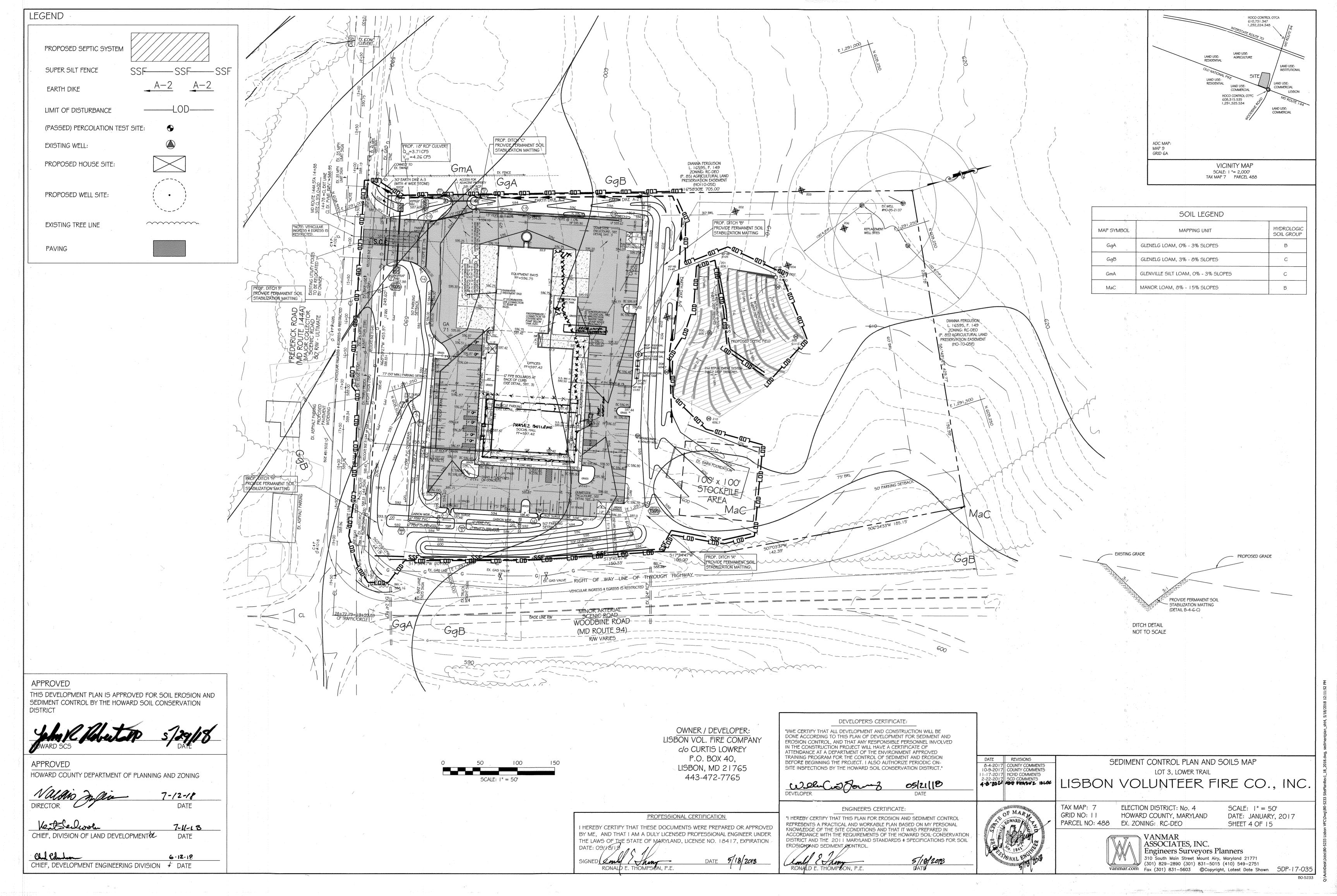
DATE 5/18/2018

TYPE OF RACK AND PLACEMENT.

CHIÉF, DEVELOPMENT ENGINEERING DIVISION # DATE

Vanimar.com Fax (301) 831-5603 @Copyright, Latest Date Shown SDP-17-035

310 South Main Street Mount Airy, Maryland 21771 (301) 829-2890 (301) 831-5015 (410) 549-2751



The process of preparing the soils to sustain adequate vegetative stabilization

To provide a suitable soil medium for vegetative growth onditions Where Practice Applies:

Where vegetative stabilization is to be established.

A. Soil Preparation Temporary Stabilization

Seedbed preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened, it must not be rolled or dragged smooth but left in the roughened condition. Slopes 3:1 or flatter are to be tracked with ridges running parallel to the contour of the slope Apply fertilizer and lime as prescribed on the plans

Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or other suitable means. Permanent Stabilization A soil test is required for any earth disturbance of 5 acres or more. The minimum soil conditions required for permanent vegetative establishment are:

Soil pH between 6.0 and 7.0. Soluble salts less than 500 parts per million (ppm) Soil contains less than 40 percent clay but enough fine grained material (greater than 30 percent silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception: if love arass will be planted, then a sandy soil (less than 30 percent silt plus clay) would be acceptable.

Soil contains sufficient pore space to permit adequate root penetration Application of amendments or topsoil is required if on-site soils do not meet the above conditions. Graded areas must be maintained in a true and even grade as specified on the approved plan, then

Soil contains 1,5 percent minimum organic matter by weight.

scanfied or otherwise loosened to a depth of 3 to 5 inches. B.13 Apply soil amendments as specified on the approved plan or as indicated by the results of a soil test. Mix soil amendments into the top 3 to 5 inches of soil by disking or other suitable means. Rake lawr areas to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface where site conditions will not permit normal seedbed preparation. Track slopes 3:1 or flatter with tracked equipment leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. Leave the top 1 to 3 inches of soil loose and friable. Seedbed loosening may be unnecessary on newly disturbed areas.

Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is to provide a suitable soil medium for vegetative growth. Soils of concern have low moisture Topsoil salvaged from an existing site may be used provided it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-NRCS.

Topsoiling is limited to areas having 2:1 or flatter slopes where: The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish

continuing supplies of moisture and plant nutrients. The original soil to be vegetated contains material toxic to plant growth The soil is so acidic that treatment with limestone is not feasible Areas having slopes steeper than 2:1 require special consideration and design Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:

Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1½ inches in diameter Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and

approved by the appropriate approval authority, may be used in lieu of natural topsoil Topsoil Application Erosion and sediment control practices must be maintained when applying topsoil Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations must be corrected in order to prevent the formation of depressions or

Topsoil must not be placed if the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading B. 14 and Soil Amendments (Fertilizer and Lime Specifications) Soil tests must be performed to determine the exact ratios and application rates for both lime and

fertilizer on sites having disturbed areas of 5 acres or more. Soil analysis may be performed by a recognized private or commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses Fertilizers must be uniform in composition, free flowing and suitable for accurate application by appropriate equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers must all be delivered to the site fully labeled according t the applicable laws and must bear the name, trade name or trademark and warranty of the producer Lime materials must be ground limestone (hydrated or burnt lime may be substituted except when

hydroseeding) which contains at least 50 percent total oxides (calcium oxide plus magnesium oxide). imestone must be ground to such fineness that at least 50 percent will pass through a #100 mesh. sieve and 98 to 100 percent will pass through a #20 mesh sieve. Lime and fertilizer are to be evenly distributed and incorporated into the top 3 to 5 inches of soil by disking or other suitable means.

Where the subsoil is either highly acidic or composed of heavy clays, spread ground limestone at the rate of 4 to 8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil.

SEQUENCE OF CONSTRUCTION

OBTAIN ALL REQUIRED GRADING, MDE PERMITS, APPROVALS AND LICENSES FROM APPROPRIATE AGENCIES. (I WEEK)

NOTIFY SEDIMENT CONTROL INSPECTOR AT LEAST THREE (3) WORKING DAYS PRIOR TO STARTING WORK. (1 WEEK) INSTALL STABILIZED CONSTRUCTION ENTRANCE, EARTH DIKES, SUPER SILT FENCE, TEMPORARY STONE OUTLET AND TEMPORARY GABION OUTLET STRUCTURES WITH

LIMITED DISTURBANCE. (1 WEEK) ONCE THE SEDIMENT CONTROL DEVICES ARE INSTALLED, THE PERMITTEE MUST OBTAIN APPROVAL FROM THE INSPECTOR BEFORE PROCEEDING WITH ADDITIONAL

CLEARING, GRUBBING OR GRADING, (I WEEK) ROUGH GRADE THE SITE, INSTALL PERIMETER DITCHES, (2 WEEKS) INSTALL UTILITIES AND GRADE SITE. (8 WEEKS) CONSTRUCT BUILDING AND PAVEMENTS. (16 WEEKS)

FINAL GRADING OF SITE. STABILIZE DISTURBED AREAS PER PERMANENT SEEDING ONCE SURROUNDING AREAS ARE STABILIZED WITH GRASS GROWING INSTALL

STORMWATER MANAGEMENT FACILITIES INCLUDING MICRO-BIORETENTION FACILITIES, (2 WEEKS) UPON APPROVAL OF SEDIMENT CONTROL INSPECTOR; REMOVE ALL TEMPORARY

SEDIMENT CONTROL DEVICES, (1 WEEK) NOTIFY INSPECTOR FOR FINAL INSPECTION. (I WEEK)

* NOTE: IT IS IMPORTANT TO PROTECT THE SWM AREAS FROM ERODED SOIL DELAY CONSTRUCTION OF THESE FACILITIES UNTIL UPSTREAM AREAS HAVE BEEN ADEQUATELY STABILIZED. ALL EXCAVATED MATERIALS MUST BE MOVED TO A TO A PROTECTED AREA WITHIN THE L.O.D. OR REMOVED FROM THE SITE.

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND

SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION

HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

B-4-3 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING

The application of seed and mulch to establish vegetative cover

To protect disturbed soils from erosion during and at the end of construction.

Conditions Where Practice Applies To the surface of all perimeter controls, slopes, and any disturbed area not under active grading.

 All seed must meet the requirements of the Maryland State Seed Law. All seed must be subject to re-testing by a recognized seed laboratory. All seed used must have been tested within the 6 months immediately preceding the date of sowing such material on any project. Refer to Table B.4 regarding the quality of seed. Seed tags must be available upon request to the inspector to verify type of seed and seeding rate Mulch alone may be applied between the fall and spring seeding dates only if the ground is frozen

The appropriate seeding mixture must be applied when the ground thaws, Inoculants: The inoculant for treating legume seed in the seed mixtures must be a pure culture of nitrogen fixing bacteria prepared specifically for the species, Inoculants must not be used later thai the date indicated on the container. Add fresh inoculants as directed on the package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less effective. Sod or seed must not be placed on soil which has been treated with soil sterilants or chemicals

used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials.

Dry Seeding: This includes use of conventional drop or broadcast spreaders. Incorporate seed into the subsoil at the rates prescribed on Temporary Seeding Table B. I.

Permanent Seeding Table B.3, or site-specific seeding summaries. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each irection. Roll the seeded area with a weighted roller to provide good seed to soil contact. B. 16 Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil. Cultipacking seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seedbed must be firm after planting.

Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer). If fertilizer is being applied at the time of seeding, the application rates should not exceed the following: nitrogen, 100 pounds per acre total of soluble nitrogen; P205 (phosphorous),

200 pounds per acre; K2O (potassium), 200 pounds per acre. Lime: Use only ground agricultural limestone (up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not

Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each

Mix seed and fertilizer on site and seed immediately and without interruption When hydroseeding do not incorporate seed into the soil.

Mulch Materials (in order of preference)

Straw consisting of thoroughly threshed wheat, rye, oat, or barley and reasonably bright in color. Straw is to be free of noxious weed seeds as specified in the Maryland Seed Law and not musty, moldy, caked, decayed, or excessively dusty. Note: Use only sterile straw mulch in areas where one species of arass is desired. Wood Cellulose Fiber Mulch (WCFM) consisting of specially prepared wood cellulose processed into

a uniform fibrous physical state. WCFM is to be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry

WCFM, including dye, must contain no germination or growth inhibiting factors. WCFM materials are to be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material must form a blotter-like ground cover, on application, having moisture absorption and percolation properties and must cover and hold

WCFM material must not contain elements or compounds at concentration levels that will be WCFM must conform to the following physical requirements: fiber length of approximately 10 millimeters, diameter approximately 1 millimeter, pH range of 4.0 to 8.5, ash content of 1.6 percent maximum and water holding capacity of 90 percent minimum. B.17

grass seed in contact with the soil without inhibiting the growth of the grass seedlings

Apply mulch to all seeded areas immediately after seeding. When straw mulch is used, spread it over all seeded areas at the rate of 2 tons per acre to a uniform loose depth of 1 to 2 inches. Apply mulch to achieve a uniform distribution and depth so that the soil surface is not exposed. When using a mulch anchoring tool, increase the application rate to 2.5 tons

Wood cellulose fiber used as mulch must be applied at a net dry weight of 1500 pounds per acre. Mix the wood cellulose fiber with water to attain a mixture with a maximum of 50 pounds of wood Perform mulch anchoring immediately following application of mulch to minimize loss by wind or water.

This may be done by one of the following methods (listed by preference), depending upon the size of the area and erosion hazard: A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of 2 inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should follow the

Wood cellulose fiber may be used for anchoring straw. Apply the fiber binder at a net dry weight of 750 pounds per acre. Mix the wood cellulose liber with water at a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water. Synthetic binders such as Acrylic DLR (Agro-Tack), DCA-70, Petroset, Terra Tax II, Terra Tack AR or other approved equal may be used. Follow application rates as specified by the manufacture pplication of liquid binders needs to be heavier at the edges where wind catches mulch, such as in

Lightweight plastic netting may be stapled over the mulch according to manufacturer recommendations. Netting is usually available in rolls 4 to 15 feet wide and 300 to 3,000 feet long.

B-4-4 STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION

valleys and on crests of banks. Use of asphalt binders is strictly prohibited.

To stabilize disturbed soils with vegetation for up to 6 months.

To use fast growing vegetation that provides cover on disturbed soils.

Exposed soils where ground cover is needed for a period of G months or less. For longer duration of time, Permanent stabilization practices are required.

1. Select one or more of the species or seed mixtures listed in Table B. I for the appropriate Plant Hardiness Zone (from Figure B.3), and enter them in the Temporary Seeding Summary below along with application rates, seeding dates and seeding depths. If this Summary is not put on the plan and completed, then Table B. I plus fertilizer and lime rates must be put on the plan.

For sites having soil tests performed, use and show the recommended rates by the testing agency Soil tests are not required for Temporary Seeding. 3. When stabilization is required outside of a seeding season, apply seed and mulch or straw mulch alone as prescribed in Section B-4-3.A. I.b and maintain until the next seeding season.

Hardiness Zone (from Figure B.3): 6b Seed Mixture (from Table B. I): Fertilizer Rate Lime Rate (10-20-20)Application Rate (lb/ac) Seeding Dates 436 lb/ac Q.5 INCHES JUNE 1 - JULY 31 10 lb/1000 sf) (90 lb/1000 sf)

B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

To stabilize disturbed soils with permanent vegetation.

Exposed soils where ground cover is needed for 6 months or more.

will receive a medium to high level of maintenance

To use long-lived perennial grasses and legimes to establish permanent ground cover on disturbed soils. Conditions Where Practice Applies

7-11-18

Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardiness Zone (from Figure B.3) and based on the site condition or purpose found on Table B.2. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The Summary is to be placed on the plan.

Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical Field Office Guide, Section 342 - Critical Area Planting. For sites having disturbed area over 5 acres, use and show the rates recommended by the soil

For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at 3 ½ pounds per 1000 square feet (150 pounds per acre) at the time of seeding in addition to the soil amendments shown in the Permanent Seeding Summary Turfarass Mixtures Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which

Select one or more of the species or mixtures listed below based on the site conditions or purpose. Enter selected mixture(5), application rates, and seeding dates in the Permanent Seeding bummary. The summary is to be placed on the plan. Kentucky Bluegrass: Full Sun Mixture: For use in areas that receive intensive management. Irrigation required in the areas of central Maryland and Eastern Shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by

Kentucky Bluegrass/Perennial Rye: Full Sun Mixture: For use in full sun areas where B.22 rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass Cultivars/Certified Kentucky Bluegrass Seeding Rate: 2 pounds mixture per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.

III. Tall Fescue/Kentucky Bluearass: Full Sun Mixture: For use in drought prone areas and/or for areas receiving low to medium management in full sun to medium shade. Recommended mixture includes Certified Tall Fescue Cultivars 95 to 100 percent, Certified Kentucky Bluegrass Cultivars 0 to 5 percent. Seeding Rate: 5 to 8 pounds per 1000 square feet. One or more cultivars may be

iv. Kentucky Bluegrass/Fine Fescue: Shade Mixture: For use in areas with shade in Bluegrass lawns. For establishment in high quality, intensively managed turf area. Mixture includes; Certified Kentucky Bluegrass Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 11/2 to 3 pounds per 1000 sauare feet.

Select turfarass varieties from those listed in the most current University of Maryland Publication,

Agronomy Memo #77, "Turfgrass Cultivar Recommendations for Maryland" Choose certified material. Certified material is the best guarantee of cultivar purity. The certification program of the Maryland Department of Agriculture, Turf and Seed Section, provides a reliable means of consumer protection and assures a pure genetic line Ideal Times of Seeding for Turf Grass Mixtures Western MD: March 15 to June 1, August 1 to October 1 (Hardiness Zones: 5b, Ga) Central MD: March 1 to May 15, August 15 to October 15

(Hardiness Zone: 6b) Southern MD, Eastern Shore: March 1 to May 15, August 15 to October 15 Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 11/2 inches in diameter. The resulting seedbed must be in such condition that future mowing of grasses will pose

If soil moisture is deficient, supply new seedings with adequate water for plant growth (1/2 to 1 inch every 3 to 4 days depending on soil texture) until they are firmly established. This is especially true when seedings are made late in the planting season, in abnormally dry or hot seasons, or on adverse

		Hardiness Zone (from Figure B.3): <u>6b</u> Seed Mixture (from Table B.3): <u>1 i</u>			Lime Rate			
٠.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	N	P2O5	K20	DIRE NAVE
	KENTUCKY BLUEGRASS	20	MAR. 1 - MAY 15 AUG. 1 - OCT. 15	1/4-1/2 in	45 pounds	90 lb/ac (2	90 lb/ac (90	2 tons/ac
			The state of the s	1/4-1/2 in	per acre	lb/1000 sf)	lb/1000 sf)	(90 lb/
			1	1/4-1/2 in	1000 sf)	eminese versioner	and single services	1000 31)

B. Sod: To provide quick cover on disturbed areas (2:1 grade or flatter).

Class of turfqrass sod must be Maryland State Certified. Sod labels must be made available to the iob foreman and inspector Sod must be machine cut at a uniform soil thickness of 3/4 inch, plus or minus 1/4 inch, at the time of

cutting. Measurement for thickness must exclude top growth and thatch. Broken pads and torn or uneven ends will not be acceptable Standard size sections of sod must be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section Sod must not be harvested or transplanted when moisture content (excessively dry or wet) may

Sod must be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period must be approved by an agronomist or soil scientist prior to its installation. During periods of excessively high temperature or in areas having dry subsoil, lightly irrigate the subsoil immediately prior to laying the sod.

Lay the first row of sod in a straight line with subsequent rows placed parallel to it and tighth wedged against each other. Stagger lateral joints to promote more uniform growth and strength Ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air drying of the roots.

Wherever possible, lay sod with the long edges parallel to the contour and with staggering joints. Roll and tamp, peg or otherwise secure the sod to prevent slippage on slopes. Ensure solid contact exists between sod roots and the underlying soil surface. Water the sod immediately following rolling and tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet. Complete the operations of laying, tamping and

irrigating for any piece of sod within eight hours. Sod Maintenance In the absence of adequate rainfall, water daily during the first week or as often and sufficiently as necessary to maintain moist soil to a depth of 4 inches. Water sod during the heat of the day to

After the first week, sod watering is required as necessary to maintain adequate moisture content. Do not mow until the sod is firmly rooted. No more than \(\frac{1}{2} \) of the grass leaf must be removed by the initial cutting or subsequent cuttings. Maintain a grass height of at least 3 inches unless otherwise specified.

A mound or pile of soil protected by appropriately designed erosion and sediment control

o provide a designated location for the temporary storage of soil that controls the potential for erosion, sedimentation, and changes to drainage patterns.

Stockpile areas are utilized when it is necessary to salvage and store soil for later use.

The stockpile location and all related sediment control practices must be clearly

ndicated on the erosion and sediment control plar The footprint of the stockpile must be sized to accommodate the anticipated volume of material and based on a side slope ratio no steeper than 2:1. Benching must be provided in accordance with Section B-3 Land Grading.

Runoff from the stockpile area must drain to a suitable sediment control practice. Access the stockpile area from the upgrade side. Clear water runoff into the stockpile area must be minimized by use of a diversion device such as an earth dike, temporary swale or diversion fence. Provisions must be made for

discharging concentrated flow in a non-erosive manner. Where runoff concentrates along the toe of the stockpile fill, an appropriate erosion/sediment control practice must be used to intercept the discharge.

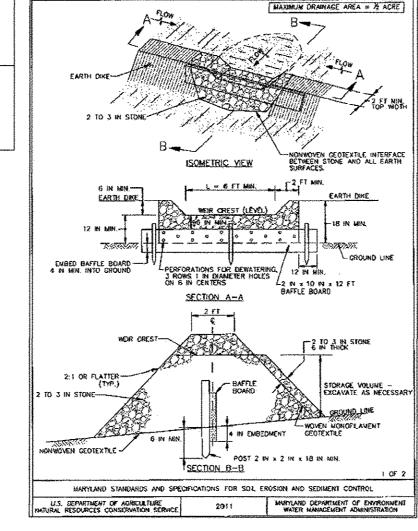
Stockpiles must be stabilized in accordance with the 3/7 day stabilization requirement as well as Standard B-4-1 Incremental Stabilization and Standard B-4-4 Temporary 8. If the stockpile is located on an impervious surface, a liner should be provided below the

stockpile to facilitate cleanup. Stockpiles containing contaminated material must be covered with impermeable sheeting.

The stockpile area must continuously meet the requirements for Adequate Vegetative Establishment in accordance with Section B-4 Vegetative Stabilization. Side slopes must be maintained at no steeper than a 2:1 ratio. The stockpile area must be kept free of erosion. If the vertical height of a stockpile exceeds 20 feet for 2:1 slopes, 30 feet for 3:1 slopes, or 40 feet for 4:1 slopes, benching must be provided in accordance with Section B-3 Land

DETAIL E-7 TEMPORARY STONE OUTLET

TSOS



OWNER / DEVELOPER:

LISBON VOL. FIRE COMPANY

do CURTIS LOWREY

P.O. BOX 40,

LISBON, MD 21765

443-472-7765

STRUCTURE CONSTRUCTION SPECIFICATIONS PROVIDE STORAGE VOLUME AS SPECIFIED ON APPROVED PLANS. 2. USE NONWOYEN GEOTEXTILE ON INTERFACE BETWEEN GROUND AND STORM. PERFORATE BAFFLE BOARD WITH 3 ROWS OF 1 INCH QUAMETER HOLES 5 INCHES ON CENTER, EMBED MANAGEM OF 4 INCHES INTO GROUND, AND EXTEND BAFFEL BOARD MINIMUM OF 12 INCHES INTO EARTH DIKE. USE CLEAN 2 TO 3 INCH STONE OR EQUIVALENT RECYCLED CONCRETE, PLACE WOVEN MONOFILAMEN GEOTEXTILE ON UPSTREAM FACE AND COVER WITH A MINIMUM OF B INCHES OF ADDITIONAL STONE. . USE NONWOVEN AND WOVEN MONOFILAMENT CEOTEXTILES AS SPECIFIED IN SECTION H-1 MATERIALS . SET WER CREST OF STONE 6 INCHES LOWER THAN THE TOP OF EARTH DIKE, USE MINIMUM LENGTH OF 6 FEET FOR WER CREST. MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL U.S. DEPARTMENT OF AGRICULTURE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT ADMINISTRATION WATER MANAGEMENT ADMINISTRATION

VEGETATIVE SPECIFICATIONS AND NOTES

Recommended temporary seed mixture

prevent tracking of mud onto public roads

Disturb as small an area of the present cover as possible while performing grading.

Balboa Rye at 150 lbs. per acre

2 tons ground limestone per acre

10-10-10 at 1,000 lbs. per acr

Ky. 31 Fescue at 60 lbs. per acre

2 tons ground limestone per acre

10-10-10 at 1000 lbs. per acre

DETAIL B-4-6-C PERMANENT SOIL

CONSTRUCTION SPECIFICATIONS:

55-1 or equivalent at 200 gal, per acre

55-1 or equivalent at 200 gal. per acre

fourteen days as to all other disturbed or graded areas on the project site.

Straw at 1.5 tons per acre

Limit duration of exposure of bare earth from grading operation to 7 days by the establishment of

emporary vegetation (or mulching if appropriate) or by completing permanent seeding within 14 days.

grading on or off this site that is affected by this construction.) If final grading is completed at a time

other than the seeding season, a temporary ground cover such as mulching will be used to stabilize

All points of construction ingress and egress shall be protected by 50 ft. (linear) of crushed stone to

Following initial soil disturbance or redisturbance, permanent or temporary stabilization (specified or

plans) shall be completed within seven calendar days as to the surface of all perimeter control, dikes,

swales ditches, perimeter slopes, and all slopes greater than 3 horizontal to 1 vertical (3:1) and

On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be

proceeding with any other earth disturbance or grading. Other building or grading inspection

requested upon completion of installation of perimeter erosion and sediment controls, but before

approvals may not be authorized until this initial approval by the inspection agency is made. Approval

shall be requested upon final stabilization of all sites with disturbed areas in excess of 2 acres before

STABILIZATION MATTING CHANNEL APPLICATION

USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.

USE PERMANENT SOIL STABILIZATION MATTING MADE OF OPEN WEAVE SYNTHETIC, NON-DEGRADABLE FIBERS OR ELEPHNIS OF UNFORM THEORESS AND DISTRIBUTION THROUGHOUT. CHEMICALS USED IN THE MAT MUST BE NON-LORGHING AND NON-TOXIC TO VEGETATION AND SEED GENERALIZON AND HON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 26/2 INCHES AND SUFFICIENTLY BONDED OR SEVIN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.

SECURE MATTING USING STEEL STAPLES OR WOOD STAKES. STAPLES MUST BE "U" OR "T" SHAPED STEEL MIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE I TO 1 \$ MICHES MIDE AND EARLY OF 8 BOTHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 MICH MAIN LEG, A MINIMUM 1 NICH SECONDARY LEG, AND MINIMUM 4 NICH HEAD, WOOD STAKES MUST BE ROUGH-SANN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1X3 INCH IN CROSS SECTION, AND WEDGE SHAPE AT THE BOTTOM.

PERFORM FINAL CRADING, TOPSOL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS, PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS, UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED BROSION AND SEDIMENT CONTROL PLAN.

UNROLL MATTING IN DIRECTION OF WATER FLOW, CENTERING THE FIRST ROLL ON THE CHANNEL CENTER LINE. WORK FROM CENTER OF CHANNEL OUTWARD WHEN PLACING ROLLS, LAY MATTING SMOOTHLY AND FIRMLY UPON THE SEEDED SUPFACE, AVOID 5 TRETCHING THE MATTING.

KEY IN THE TOP OF SLOPE END OF MAT 8 INCHES (MINIMUM) BY DISGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL AND TAMPING TO SECURE THE MAT END IN THE KEY.

OVERLAP OR ABUT EDGES OF MATTING ROLLS PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL END BY 6 INCHES (MIRMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE MEXT DOWNSTREAM MAT,

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

DETAIL E-8 TEMPORARY GABION

OUTLET STRUCTURE

-TIE-IN (SEE EARTH DIKE TRANSITION DETAIL ON 2 OF 2)

4 TO 7 IN STONE - 2 1

4 TO 7 IN STONE

STURACE VOLUME— EXCAVATE IN ACCORDANCE WITH APPROVED PLAY

DETAIL E-7 TEMPORARY STONE OUTLET

2 GABION BASKETS AT 6 FT EACH - 12 FT

PLAN

NONWOVEN __

150s

SECTION A-A

WARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

GRADE AT FRONT AND BACK FACE OF WALL

CALL "MISS UTILITY" AT

1-800-257-7777

48 HOURS BEFORE START OF CONSTRUCTION

(* INCLUDE SHEAR STRESS)

TANDARO SYMBOL

MAXIMUM ORAINAGE AREA = 1/2 ACRE

Establish permanent vegetative cover immediately after final grading is completed. (This includes all

PROFESSIONAL CERTIFICATION

HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 18417, EXPIRATION DATE: 09/1/8/1/9

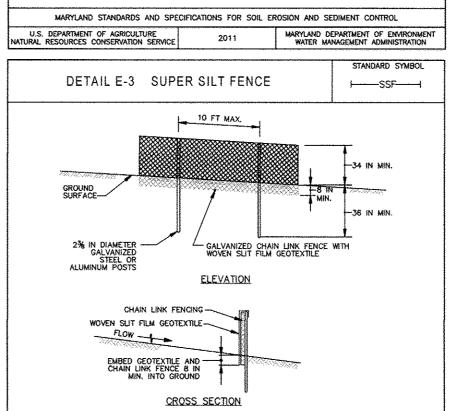
Many RONALD E. THOMPSON, P.E.

DETAIL B-1 STABILIZED CONSTRUCTION SCE **ENTRANCE** - EXISTING PAVEMEN -FARTH FIL MIN. 6 IN OF 2 TO 3 IN
AGGREGATE OVER LENGTH
AND WIDTH OF ENTRANCE **PROFILE** 50 FT MIN. PLAN VEW PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (*30 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.

PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT LOCATED AT A HIGH SPOT.

REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE.

MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.



CONSTRUCTION SPECIFICATIONS INSTALL 2% INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.

. FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2% INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS. . Fasten woven sut film geotextile as specified in section H-1 materials, securely to the upslope side of chain link fence with ties spaced every 24 inches at the top and mid section. Embed geotextile and chain link fence a minimum of 8 inches into the ground.

WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS. 6. EXTEND BOTH ENDS OF THE SUPER SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.

PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.

REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN, IF UNDERMINING OCCURS, REINSTALL CHAIN, IS USED TO AND CONTINUE. MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMEN WATER MANAGEMEN
DETAIL E-8 TEMPORARY GAB OUTLET STRUCTU		STANDARD SYMBOL TGOS
TOP OF ADJOINING TRANSITION MIN. 18 IN TYPE 'A' DIKE OZ. 30 IN TYPE 'B' DIKE EX. CROUND EX. CROUND EARTH DIKE TRANSITION EARTH DIKE TRANSITION EARTH DIKE TRANSITION FARTH DIKE TRANSITION TRANSITION EARTH DIKE TRANSITION FARTH DIKE TRANSITION TRANSITION EARTH DIKE TRANSITION TRANSITION FARTH DIKE TRANSITION TRANSI	TIE-IN GRADE BARTH INTO FACE OF	DIKE WALL
NOTES:		

. Shape earth dike to line, crade, and cross section as specified on plan. Bank projections on irregularities are not allowed.

CONSTRUCTION SPECIFICATIONS PROVIDE STORAGE VOLUME AS SPECIFIED ON APPROVED PLANS. . USE BASKETS WADE OF IT CAUGE WIRE OR HEAVES . USE NONWOVEN AND WOVEN MONOFILAMENT GEOTEXTILES AS SPECIFIED IN SECTION H-1 MATERIALS . INSTALL GABIONS IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS EMBED THE GABION OUTLET STRUCTURE INTO THE SOIL A MINIMUM OF 9 MICHES. PROMDE NONWOVED CECTEXTILE UNDER ALL GABIONS.

FIL CABION BASKETS WITH CLEAN 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE WITHOUT REBAR OR WIRE MESH. MAKE THE WEIR CREST OF THE SASION OUTLET STRUCTURE 9 INCHES LOWER THAN THE TOP OF THE ADJACENT CABIONS.

PROVIDE A MINIMUM WEIR CREST OF S FEET. ATTACH WOVEN MONOFILAMENT GEOTEXTILE TO THE UPSTREAM FACE OF GABION BASISETS AND COVER WITH 4 TO 7 WICH STONE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDILENT CONTROL MARYLAND DEPARTUENT OF ENVIRONME WATER MANAGEMENT ADMINISTRATION 2311

DEVELOPER'S CERTIFICATE: "IWE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE

DONE ACCORDING TO THIS PLAN OF DEVELOPMENT FOR SEDIMENT AND EROSION CONTROL, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

ENGINEER'S CERTIFICATE I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL

REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT AND THE 2011 MARYLAND STANDARDS & SPECIFICATIONS FOR SOIL EROSJØN AND SEDIMENT CØNTROL.

8-4-2017 COUNTY COMMENTS

10-9-2017 COUNTY COMMENTS

-31-2018 SCD COMMENTS

HOWARD SOIL CONSERVATION DISTRICT PERMANENT SEEDING NOTES DETAIL C-1 EARTH DIKE PLACE DESIGNATION (e.g. A-1) ON FLOW CHANNEL SIDE OF DIK Apply to graded or cleared areas not subject to immediate further disturbance where a permanent long-lived vegetative cover is the following schedules CROSS SECTION CONTINUOUS GRADE 0.5% MIN. TO 10% MAX. SLOPE a - DIKE HEIGHT 18 IN MIN. 30 IN MIN. b - DIKE WIDTH 24 IN MIN. 36 IN MIN.

c - FLOW WIDTH 4 FT MIN. 6 FT MIN.

d - FLOW DEPTH 12 IN MIN. 24 IN MIN.

FLOW CHANNEL STABILIZATION

STEP 3

CONSTRUCTION SPECIFICATIONS

STOCKPILE NOTES:

DUST CONTROL

PAVED ARE COMPLETED.

NO STOCKPILING ALLOWED ON ASPHALT

CAN NOT EXCEED 5,000 SQUARE FEE

REPAIRED THE SAME DAY

STABILIZED UNTIL THE NEXT REDISTURBANCE.

SEED WITH STRAW MULCH AND TACK. (NOT ALLOWED FOR CLEAR WATER A-2/8-2 SEED WITH SOIL STABILIZATION MATTING OR LINE WITH SOD 4 to 7 inch stone or equivalent recycled concrete pressed into soil a minimum of 7 inches and flush with ground. A-3/B-3

Construct flow channel on an uninterrupted, continuous grade, adjusting the location due to field conditions as necessary to maintain positive drainage.

STABILIZE EARTH DIKE WITHIN THREE DAYS OF INSTALLATION. STABILIZE FLOW CHANNEL FOR CLEAR WATER DIVERSION WITHIN 24 HOURS OF INSTALLATION. MAINTAIN LINE, GRADE, AND CROSS SECTION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS, AND MAINTAIN POSITIVE DRAINAGE. KEEP EARTH DIKE AND POINT OF DISCHARGE FREE OF EROSION, AND CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION 8-4 VEGETATIVE STABILIZATION.

UPON REMOVAL OF EARTH DIKE, GRADE AREA FLUSH WITH EXISTING GROUND. WITHIN 24 HOURS OF REMOVAL STABILIZE DISTURBED AREA WITH TOPSOIL, SEED, AND MULCH, OR AS SPECIFIED ON APPROVED PLAN. MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL 2011

STANDARD SYMBOL FENCE CENTER TO CENTER __36 IN MIN. FENCE POST LENGTH DRIVEN MIN. 16 IN INTO GROUND A pre-construction meeting must occur with the Howard Count epartment of Public Works, Construction Inspection Division 16 IN MIN. HEIGHT OF WOVEN SUT FILM GEOTEXTILE ELEVATION ONTROL*, and revisions thereto STEP 2

STAPLE ----

JOINING TWO ADJACENT SILT

FENCE SECTIONS (TOP VIEW)

USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET

USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION.

PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H $^{-1}$ MATERIALS.

EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND, BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC,

WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

ALL STOCKPILES LEFT AT THE END OF THE NEXT DAY NEED TO BE

FOR UTILITY WORK ONLY OR FOR OFF-SITE UTILITY WORK

FINAL GRADING, SEEDEING AND MULCHING CAN OCCUR.

SHOULD THE STOCKPILE AREA EXCEED 15 FEET IN HEIGHT, IT MUST

DUST CONTROL METHOD FOR THIS SITE TO PREVENT BLOWING AND MOVEMENT

OF DUST FROM EXPOSED SOIL SURFACES: CALCIUM CHLORIDE SHALL BE APPLIED

TO EXPOSED SURFACES AT A RATE THAT WILL KEEP SURFACE MOIST UNTIL SOIL IS

STABILIZED ACCORDING TO VEGETATIVE SPECS. FOR THIS SITE AND AREAS TO BE

ONLY DO AS MUCH WORK AS CAN BE DONE IN ONE DAY SO BACKFILLING

EARTHWORK CUT AND FILL QUANTITIES AND AREA OF DISTURBANCE INDICATED OF

THIS PLAN ARE SHOWN FOR PURPOSE OF OBTAINING SEDIMENT CONTROL PLAN

APPROVAL AND ARE NOT TO BE USED FOR CONTRACTUAL OBLIGATION.

ANY SEDIMENT CONTROL MEASURES DISTURBED BY CONSTRUCTION WILL BE

----STAPLE

specified above in accordance with the 2011 MARYLANI SEDIMENT CONTROL for topsoil (Sec. B-4-2), permanent seeding (Sec. B-4-5), temporary seeding (Sec. B-4-4) and mulching (Sec. B-4-3). Temporary stabilization with mulch alone can only be applied between the fall and spring seeding dates the around is frozen. Incremental stabilization (Sec. B-4-1) pecifications shall be enforced in areas with > 15' of cut and/o Stockpiles (Sec. B-4-8) in excess of 20 ft. must be benched with stable outlet. All concentrated flow, steep slope ind highly erodible areas shall receive soil stabilization matting All sediment control structures are to remain in place, and are

to be maintained in operative condition until permission for their removal has been obtained from the CID. See Site Analysis below. day of disturbance.

inspected by the contractor weekly; and the next day after each am event. A written report by the contractor, made available upon request, is part of every inspection and should include: Inspection date - Inspection type (routine, pre-storm event, during rain event) -- Name and title of inspector

and/or current activities Evidence of sediment discharges Identification of plan deficiencies Identification of sediment controls that require maintenance - Identification of missing or improperly installed sediment

and stabilization requirements Photographs REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT, REPLACE GEOTEXTILE IF TORN, IF UNDERMINING OCCURS REINSTALL FENCE. Maintenance and/or corrective action performed Other inspection items as required by the General Permit fo

of each workday, whichever is shorter.

by the CID per the list of HSCD-approved field changes. Disturbance shall not occur outside the LOD. A project is to be sequenced so that grading activities begin on one grading unit (maximum acreage of 20 ac. per grading unit) at a time. Work may proceed to be subsequent grading unit when at least 50 percent of the disturbed area in the preceding grading unit has een stabilized and approved by the CID. Unless otherwise specified and approved by the HSCD, no more than 30 acres fumulatively may be disturbed at a given time. Wash water from any equipment, vehicles, wheels, pavement and other sources must be treated in a sediment basin or othe

approved washout structure Topsoil shall be stockpiled and preserved on-site for redistribution on final arade. All silt fence and super silt fence shall be placed on-the-contour curled uphill by 2' in elevation.

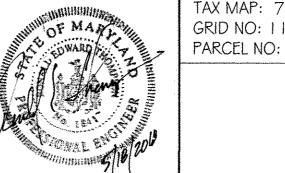
restricted time periods (inclusive):
-- Use I and IP March I -June 15 Use III and IIIP October 1-April 30

-- Use IV March I-May 3 I A copy of this plan, the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, and associated permits shall be on-site and available when the site is active.

AREA TO BE VEGETIVE STABILIZED

SEDIMENT CONTROL NOTES AND DETAILS

LOT 3, LOWER TRAIL LISBON VOLUNTEER FIRE CO., INC.



GRID NO: 11 PARCEL NO: 488 EX. ZONING: RC-DEO

ELECTION DISTRICT: No. 4 HOWARD COUNTY, MARYLAND



Seedbed Preparation: Loosen upper three inches of soil by raking disking or other acceptable means before seeding, if not previously Soil Amendments: In lieu of soil test recommendations, use one of l. Préferred-Apply 2 tones/acre dolomitic limestone (92 lbs/1000 sq. ft.) and 600 lbs/acre 10-10-10 fertilize (14 lbs/1000 sq. ft.) before seeding. Harrow or disk into

pper three inches of soil. At time of seeding, apply 400 lbs/acre 30- 0-0 preaform fertilizer (9 lbs/1000 sa. ft.) 2. Acceptable--Apply 2 tons/acre dolomitic limestone (9)

bs/1000 sq. ft.) and 1000 lbs/acre 10-10-10 fertiliz (23 lbs/1000 sa. ft.) before seeding. Harrow or disk into upper three inches of soil. Seeding: For the periods March 1-April 30, and August 1-Octobe 15, seed with 60 lbs/acre (1.4 lbs/1000 sq. ft.) of Kentucky 31 Tall Fescue. For the period May 1-July 31, seed with 60 lbs Kentucky 31 Tall Fescue per acre and 2 lbs/acre (.05 lbs/1000 so ft.) of weeping lovegrass. During the period of October 16-

Option 1 -- Two tons per acre of well anchored straw mulch and seed as soon as possible in the spring. Option 3--Seed with 60 lbs/acre Kentucky 30 Tall Fescur and mulch with 2 tons/acre well anchored Mulching: Apply 1-1/2 to 2 tons per acre (70 to 90 lbs/1000 se

ft.) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sq. ft.) of emulsified asphalt or flat areas. On slope 8 feet or higher, use 348 gallons per acre (8 gal/1000 sq. ft.) for anchoring. Maintenance: Inspect all seeding areas and make needed repairs, replacements and reseedings. TEMPORARY SEEDING NOTES

Apply to graded or cleared areas likely to be re-disturbed where a short-term vegetative cover is needed. Seedbed Preparation: Loosen upper three inches of soil by raking disking or other acceptable means before seeding, if not previously Soil Amendments: Apply 600 lbs/acre 10-10-10 fertilizer (14

Seeding: For periods March 1-April 30, and from August 15-October 15, seed with 2-1/2 bushel per acre of annual rye (3.) lbs/1000 sq. ft.). For the period May 1-August 14, seed with 3 lbs/acre of weeping lovegrass (.07 lbs/1000 sq. ft.). For the period November 16-February 28, protect site by applying 2 tons of well anchored straw mulch and seed as soon as possible in the spring, or use sod.

Mulching: Apply 1-1/2 to 2 tons/acre (70 to 90 lbs/1000 sq. ft.) of unrotted weed-free, small grain straw immediately after seeding

Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sq. ft.) of emulsified asphalt on flat areas. On slopes 8 ft. or higher use 348 gallons per acre (8 gal/1000 sq. ft.) for anchoring. Refer to the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for addition rates and methods not covered. HOWARD SOIL CONSERVATION DISTRIC STANDARD SEDIMENT CONTROL NOTES

(CID), 410-313-1855 after the future LOD and protected areas are marked clearly in the field. A minimum of 48 hour a. Prior to the start of earth disturbance, b. Upon completion of the installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading, c. Prior to the start of another phase of construction or opening d. Prior to the removal or modification of sediment control

authorized until this initial approval by the inspection agency is made. Other related state and federal permits shall be All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the 2011 MARYLAND STANDARDS AND PECIFICATIONS FOR SOIL EROSION AND SEDIMENT

Following initial soil disturbance or re-disturbance, permanent temporary stabilization is required within three (3) calendar days as to the surface of all perimeter controls, dikes, swale: ditches, perimeter slopes and all slopes greater than 3 horizontal to 1 vertical (3:1); and seven (7) calendar days as ti all other disturbed areas on the project site except those areas under active grading. All disturbed areas must be stabilized within the time period STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND

ny sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same Additional sediment control must be provided, if deemed necessary by the CID. The site and all controls shall be

- Weather information (current conditions as well as time and amount of last recorded precipitation) - Brief description of project's status (e.g. percent complete)

Compliance status regarding the sequence of construction

Trenches for the construction of utilities is limited to three pipe lengths or that which can be back filled and stabilized by the end any major changes or revisions to the plan or sequence o onstruction must be reviewed and approved by the HSCD prior to proceeding with construction. Minor revisions may allowed

and be imbricated at 25' minimum intervals, with lower ends Stream channels must not be disturbed during the following

AREA DISTURBED AREA TO BE ROOFED OR PAVED OFFSITE WASTE/BORROW AREA LOCATION

49 ACRES 8,000 Cubic Yards

SCALE: AS SHOWN DATE: JANUARY, 2017 SHEET 5 OF 15

→ VANMAR

CHIEF, DIVISION OF LAND DEVELOPMENTAL

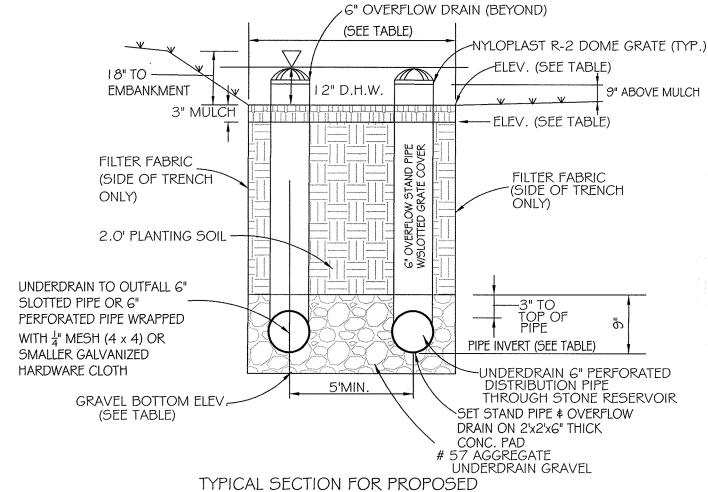
APPROVED

CHIEF, DEVELOPMENT ENGINEERING DIVISION & DATE

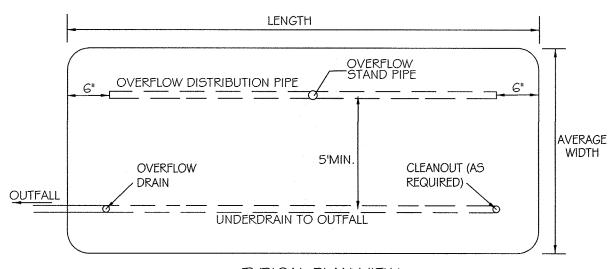
- 2. PLANTING SOIL THE SOIL SHALL BE A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES. NO OTHER MATERIALS OR SUBSTANCES SHALL BE MIXED OR DUMPED WITHIN THE BIORETENTION AREA THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVE A HINDRANCE TO THE PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SOIL SHALL BE FREE OF BERMUDA GRASS, QUACKGRASS, JOHNSON GRASS, OR OTHER
 - NOXIOUS WEEDS AS SPECIFIED UNDER COMAR 15.08.01.05. THE PLANTING SOIL SHALL BE TESTED AND SHALL MEET THE FOLLOWING CRITERIA:
 - PH RANGE 5.2 - 7.0 ORGANIC MATTER 15 - 4% (BY WEIGHT)
 - MAGNESIUM 35 LB/OC PHOSPHORUS (PHOSPHATE - P205) 75 LB/OC POTASSIUM (POTASH-K20) 85 LB/OC
 - SOLUBLE SOILS NOT TO EXCEED 500 PPM ALL BIORENTENTION AREAS SHALL HAVE A MINIMUM OF ONE TEST. EACH TEST SHALL CONSIST OF BOTH THE STANDARD SOIL TEST FOR PH, PHOSPHORUS, POTASSIUM AND ADDITIONAL TESTS OF ORGANIC MATTER AND SOLUBLE SOILS. A TEXTURAL ANALYSIS IS REQUIRED FROM THE SITE STOCKPILED TOPSOIL. IF TOPSOIL IS IMPORTED, THEN A TEXTURE ANALYSIS SHALL BE PERFORMED FOR EACH LOCATION WHERE THE TOPSOIL WAS EXCAVATED.
 - SINCE DIFFERENT LABS CALIBRATE THEIR TESTING EQUIPMENT DIFFERENTLY, ALL TESTING RESULTS SHALL COME FROM
- SHOULD THE PH FALL OUT OF THE ACCEPTABLE RANGE, IT MAY BE MODIFIED (HIGHER) WITH LIME OR (LOWER) WITH IRON SULFATE PLUS SULFUR. 3. COMPACTION:
- IT IS VERY IMPORTANT TO MINIMIZE COMPACTION OF BOTH THE BASE OF THE BIORETENTION AREA AND THE REQUIRED BACKFILL WHEN POSSIBLE, USE EXCAVATION HOES TO REMOVE ORIGINAL SOIL. IF BIORETENTION RUBBER TIRES WITH LARGE LUGS, OR HIGH PRESSURE TIRES WILL CAUSE EXCESSIVE COMPACTION RESULTING IN REDUCED INFILTRATION RATES, IT IS NOT ACCEPTABLE. COMPACTION WILL SIGNIFICANTLY CONTRIBUTE TO DESIGN FAILURE. COMPACTION CAN BE ALLEVIATED AT THE BASE OF THE BIORETENTION FACILITY BY USING A PRIMARY TILLING OPERATION SUCH AS A CHISEL PLOW RIPPER OR SUBSOILER. THESE TILLING OPERATIONS AREA TO REFRACTURE THE SOIL PROFILE THROUGH THE 12 INCH COMPACTION ZONE. SUBSTITUTE METHODS MUST BE APPROVED BY THE ENGINEER. ROTOTILLERS TYPICALLY DO NOT TILL DEEP ENOUGH TO REDUCE THE EFFECTS OF COMPACTION FOR HEAVY EQUIPMENT. ROTOTILL 2 TO 3 INCHES OF SAND INTO THE BASE OF THE BIORETENTION FACILITY BEFORE BACKFILLING THE OPTIONAL SAND LAYER, PUMP ANY PONDED WATER BEFORE PREPARING (ROTOTILLING) BASE.
- WHEN BACKFILLING THE TOPSOIL OVER THE SAND LAYER, FIRST PLACE 3 TO 4 INCHES OF TOPSOIL TO FINAL GRADE. WHEN BACKFILLING THE BIORETENTION FACILITY, PLACE SOIL IN LIFTS 12" TO 18". DO NOT USE HEAVY EQUIPMENT WITHIN THE BIORETENTION BASIN. HEAVY EQUIPMENT CAN BE USED AROUNG THE PERIMETER OF THE BASIN TO SUPPLY SOILS AND SAND. GRADE BIORETENTION MATERIALS WITH LIGHT EQUIPMENT SUCH AS A COMPACT LOADER OR A DOZER/LOADER WITH MARSH TRACKS.
- 4. PLANT MATERIAL: RECOMMENDED PLANT MATERIAL FOR BIORETENTION AREAS CAN BE FOUND IN APPENDIX 'A', SECTON A.2.3.* SEE THE PLANTING SPECIFICATIONS, THIS SHEET.
- 5. PLANT INSTALLATION: MULCH SHOULD BE PLACED TO A UNIFORM THICKNESS OF 2" TO 3". SHREDDED HARDWOOD MULCH IS THE ONLY ACCEPTED MULCH. PINE MULCH AND WOOD CHIPS WILL FLOAT AND MOVE TO THE PERIMETER OF THE BIORETENTION AREA DURING A STORM EVENT AND ARE NOT ACCEPABLE. SHREDDED MULCH MUST BE WELL AGED (6 TO 12 MONTHS) FOR ACCPTANCE. ROOT STOCK OF THE PLANT MATERIAL SHALL BE KEPT MOIST DURING TRANSPORT AND ON-SITE STORAGE. THE PLANT ROOT BALL SHALL BE PLANTED SO THAT 1/8 OF THE BALL IS ABOVE FINAL GRADE SURFACE. THE DIAMETER OF THE PLANTING PIT SHALL BE AT LEAST 6" LARGER THAN THE DIAMETER OF THE PLANTING BALL. SET AND MAINTAIN THE PLANT STRAIGHT DURING THE ENTIRE PLANTING PROCESS. THOROUGHLY WATER GROUND BED COVER AFTER INSTALLATION. TREES SHALL BE BRACED USING 2" X 2" STAKES ONLY AS NECESSARY AND FOR THE FIRST GROWING SEASON ONLY. STAKES
- ARE TO BE EQUALLY SPACED ON THE OUTSIDE OF THE TREE BALL. GRASSES AND LEGUME SEED SHOULD BE DRILLED INTO THE SOIL TO A DEPTH OF AT LEAST ONE INCH. GRASS AND LEGUME PLUGS SHALL BE PLANTED FOLLOWING THE NON-GRASS GROUND COVER PLANTING SPECIFICATIONS.
- THE TOPSOIL SPECIFICATIONS PROVIDE ENOUGH ORGANIC MATERIAL TO ADEQUATELY SUPPLY NUTRIENTS FROM NATURAL CYCLING. THE PRIMARY FUNCTION OF THE BIORETENTION STRUCTURE IS TO IMPROVE WATER QUALITY. ADDING FERTILIZERS DEFEATS, OR AT A MINIMUM, IMPEDES TO GOAL. ONLY ADD FERTILIZER IF WOOD CHIPS OR MULCH ARE USED TO AMEND THE SOIL. ROTOTILL UREA FERTILIZER AT A RATE OF 2 POUNDS PER 1000 SQUARE FEET 6. UNDERDRAINS:
- UNDERDRAINS ARE TO BE PLACED ON A 3'-O" WIDE SECTION OF FILTER CLOTH. PIPE IS PLACED NEXT, FOLLOWED BY THE GRAVEL BEDDING. THE ENDS OF UNDERDRAIN PIPES NOT TERMINATING IN AN OBSERVATION WELL SHALL BE CAPPED. THE MAIN COLLECTOR PIPE FOR UNDERDRAIN SYSTEMS SHALL BE CONSTRUCTED AT A MINIMUM SLOPE OF 0.5%. OBSERVATION WELLS AND/OR CLEAN-OUT PIPES MUST BE PROVIDED (ONE MINIMUM PER EVERY 1000 SQUARE FEET OF SURFACE AREA).
- 7. MISCELLANEOUS: THE BIORETENTION FACILITIES SHALL NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREAS HAVE BEEN STABILIZED.
 - * REFERENCE THE MDE STORMWATER MANAGEMENT DESIGN MANUAL

	BIO-RETENTION # MICRO-BIORETENTION FACILITY SCHEDULE											
FACILITY NUMBER	AVG. SURFACE DIMENSIONS	AVG. SURFACE AREA	SURFACE ELEV.	EMBANKMENT ELEV.	W.S.E.	TOP OF SOIL ELEV.	TOP OF GRAVEL ELEV.	UNDERDRAIN INV.	OVERDRAIN INV.	GRAVEL BOTTOM ELEVATION		
ı	130' X 30'	3,900 S.F.	592.00	593.50	593.00	591.75	589.75	589.00	589.00	588.33		
2	95' X 16'	1,520 S.F.	592.00	593.50	593.00	591.75	589.75	589.00	589.00	587.50		
3	100' X 14'	1,400 S.F.	592.00	593.50	593.00	591.75	589.75	589.00	589.00	587.50		





PRIVATE BIORETENTION \$ MICRO-BIORETENTION FACILITIES N.T.S.



TYPICAL PLAN VIEW PRIVATE BIORETENTION & MICRO-BIORETENTION FACILITIES

OPERATION AND MAINTENANCE SCHEDULE FOR BIORETENTION & MICRO-BIORETENTION FACILITIES INSPECT FACILITY ON A SEMI-ANNUAL BASIS THE FIRST YEAR, AND AFTER

- MAJOR STORM EVENTS. INSPECT FACILITY ANNUALLY AFTER THE FIRST YEAR. TEST PLANTING BED SOILS ON AN ANNUAL BASIS FOR PH TO ESTABLISH ACIDIC LEVELS. IF THE PH IS BELOW 5.2, APPLY LIMESTONE. IF THE PH IS ABOVE 7.0,
- IRON SULFATE PLUS SULFUR SHOULD BE ADDED. INSPECT SOIL BED FOR EROSION AFTER MAJOR STORM EVENTS. CORRECT
- EROSION PROBLEMS AS NECESSARY. INSPECT SURFACE BED FOR CLOGGING FROM FINE SEDIMENTS ON AN ANNUAL BASIS. IF CLOGGED, CORES AERATE NON-VEGETATED AREAS TO INSURE
- ADEQUATE FILTRATION BI-ANNUAL MULCHING IS RECOMMENDED. A 3" MULCH DEPTH IS
- RECOMMENDED. ALL PLANT MATERIALS SHOULD BE INSPECTED ANNUALLY. DEAD OR SEVERELY
- DISEASED SPECIES SHOULD BE REPLACED. 8. WOODY VEGETATION MAY REQUIRE PERIODIC PRUNING.

OPERATION AND MAINTENANCE SCHEDULE FOR CISTERN AND OIL/GRIT SPREADER FACILITIES

- I. INSPECT FACILITY STRUCTURES SEMI-ANNUALLY AND AFTER MAJOR STORM EVENTS. FOLLOW OSHA AND OTHER APPLICABLE LIFE / SAFETY MEASURES FOR
- THE CISTERN PIPE SHOULD BE PUMPED DRY MONTHLY OR PRIOR TO ANY
- INSPECTIONS THE ENTIRE SYSTEM SHOULD BE CLEANED TO REMOVE LEAVES, TRASH AND
- THE OIL/GRIT SEPARATOR SHOULD BE CLEANED TO REMOVE SURFACE OIL FROM THE INLET CHAMBER, AS REQUIRED.
- THE CONCRETE STRUCTURES SHALL BE INSPECTED FOR SURFACE SPALLING. CRACKING OR REINFORCEMENT EXPOSURE SEMI-ANNUALLY.
- SYSTEM CONNECTIONS SHOULD BE CHECKED FOR FROZEN LINES AND ICE BLOCKAGES DURING WINTER
- ALL METAL MATERIALS INCLUDING PIPES, MANHOLE STEPS, FRAMES AND COVERS SHOULD BE CHECKED FOR CORROSION. REPAIRS INCLUDING REMOVING SURFACE CORROSION, PAINTING, RE-SURFACING OR COMPLETE
- REPLACEMENT SHOULD BE MADE. IT IS IMPORTANT THAT THE SYSTEM REMAIN WATERTIGHT. ANY EVIDENCE OF
- WATER PENETRATION EITHER INTO OR OUT SHOULD BE REPAIRED.
- RECORDS OF MAINTENANCE INCLUDING DATES, INSPECTION FINDINGS, AND REPAIRS SHOULD BE KEPT ON-SITE.

ALL STORMWATER MANAGEMENT FACILITIES ARE PRIVATE AND SHALL BE MAINTAINED BY THE OWNER / DEVELOPER.

SPECIFICATIONS FOR CISTERN AND OILIGRIT SEPARATOR FACILITIES SEE HOWARD COUNTY DPW STANDARD DETAILS FOR ADDITIONAL INORMATION AND SPECIFICATIONS.

- THE CISTERN SHALL BE HELICALLY CORRUGATED ALUMINIZED STEEL PIPE TYPE 2. ANNULAR CORRUGATED ENDS SHALL BE PROVIDED FOR USE WITH WATERTIGHT CONNECTION BANDS. CONNECTIONS TO CONCRETE STRUCTURES REQUIRE TWO COATS OF A BITUMINOUS PAINT OF A CUTBACK TYPE. SHOP DRAWINGS WITH ADDITIONAL DETAILS INCLUDING REINFORCEMENT SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO CASTING.
- ALL PIPE CONNECTIONS SHALL BE WATERTIGHT
- STRUCTURE SHALL BE SET ON A FIRM GRAVEL SUBBASE (MINIMUM 12" THICK) AS SPECIFIED BY GEOTECHNICAL ENGINEER. ADJUSTMENTS SHALL BE MADE TO THE MANHOLE FRAME AND COVERS TO MATCH
- THE FINAL SURFACE GRADES. ANTIFLOTATION DEVICES FOR THE CISTERN TANK INCLUDING FOOTERS AND TIE-DOWNS SHALL BE INSTALLED AS DIRECTED BY GEOTECHNICAL ENGINEER AND SHOWN ON APPROVED SHOP DRAWINGS

OWNER / DEVELOPER: LISBON VOL. FIRE COMPANY do CURTIS LOWREY P.O. BOX 40, LISBON, MD 21765 443-472-7765

70



CALL "MISS UTILITY" AT 1-800-257-7777 48 HOURS BEFORE START OF CONSTRUCTION

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 18417, EXPIRATION DATE: 09/18/19/

(Lewel) Thing SIGNED RONALD E. THOMPSON, P.E.

KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT AND THE 2011 MARYLAND STANDARDS & SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. LAW (Therag

77' (50' MIN.) PARKING SETBAC

* 592* ;

-- MICRO-BIORETENTION

FACILITY #2

MICRO-BIORETENTION FACILITY #1, #2 \$ #3

PLANTING PLAN SCALE: | " = 20'

PLANT NAME

SWITCH GRASS

"HANSE HERMS"

JOE PYE WEED

DEVELOPER'S CERTIFICATE:

DONE ACCORDING TO THIS PLAN OF DEVELOPMENT FOR SEDIMENT AND

"IWE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE

NEW YORK IRONWEED

"VERNONIA NOVEBORACENSIS"

"EUTROCHIUM PURPUREUM"

GABION WEIR

EROSION CONTROL, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-8-4-2017 COUNTY COMMENTS SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT." 0-9-2017 COUNTY COMMENTS 5-20-2019 REDLINE REVISIONS ENGINEER'S CERTIFICATE "I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL

BIO RETENTION LANDSCAPE SCHEDULE

SIZE

I QUART

I QUART

GALLON

INV=593.77 596.87

2 | SPAC#5

594

GABION V

MICRO-BIORETENTION —

FACILITY #3

BMP # I QUANTITY | BMP #2 QUANTITY | BMP #3 QUANTITY

160

120

PLANT INSTALLATION SHALL BE PER MDE SPECIFICATIONS IN THE 2000 STORMWATER DESIGN MANUAL. ADDITIONAL SPECIFICATIONS: PLANT BMP LEVEL SURFACE AS SHOWN IN THE ABOVE TABLE WITH AN EVEN DISTRIBUTION DENSITY. STABILIZE BMP SIDE SLOPES WITH PERMANENT GRASS SEED PER NRCS SPECIFICATIONS. SIDE SLOPE

NOTES

3' C/C±

@ 5' C/C±

PERENNIAL

@ 5' C/C±

- TORINGING

SYMBOL

FF=597.42

6800 S.F.

BACK OF CURB

, BICYCLE PARKING

(SEE DETAIL, SHT. 3)

(SEE DETAIL, SHT. 3)

SOCIAL HALL

FF=597.42

9130 S.F.

MATTING. WATER AS NECESSARY UNTIL ESTABLISHED VEGETATION. THE CONTRACTOR SHALL PROVIDE AN UNCONDITIONAL ONE (1) YEAR GUARANTEE FROM THE DATE OF

PERMANENT GRASS AREAS SHALL HAVE 3" OF CLEAN TOPSOIL ON TILLED SUB-SOIL AND CURLEX

ACCEPTANCE FOR ALL PLANT MATERIALS. PLANT MATERIAL SHALL CONFORM TO THE U.S. STANDARD FOR NURSERY STOCK BY THE AMERICAN ASSOCIATION OF NURSERYMEN.

PLANTING PERENNIALS AND GRASSES: ROOT SYSTEMS SHALL BE SPLIT OR CRUMBLED. POTTED PLANTS SHALL BE SET SO THAT THE TOP OF THE POT IS EVEN WITH EXISTING GRADE. TREAT THE MULCHED AND PLANTED AREA WITH A PRE-EMERGENT HERBICIDE.

ALL PLANTS MUST BE THOROUGHLY AND REGULARLY WATERED PRIOR TO ACCEPTANCE. DO NOT PLANT VEGETATION WITHIN 2 FT. OF THE RISER OR AS NOTED ON PLANTING PLAN.

STORMWATER MANAGEMENT PLAN \$ NOTES LOT 3, LOWER TRAIL LISBON VOLUNTEER FIRE CO., INC.

TAX MAP: 7 GRID NO: 11

252

ELECTION DISTRICT: No. 4

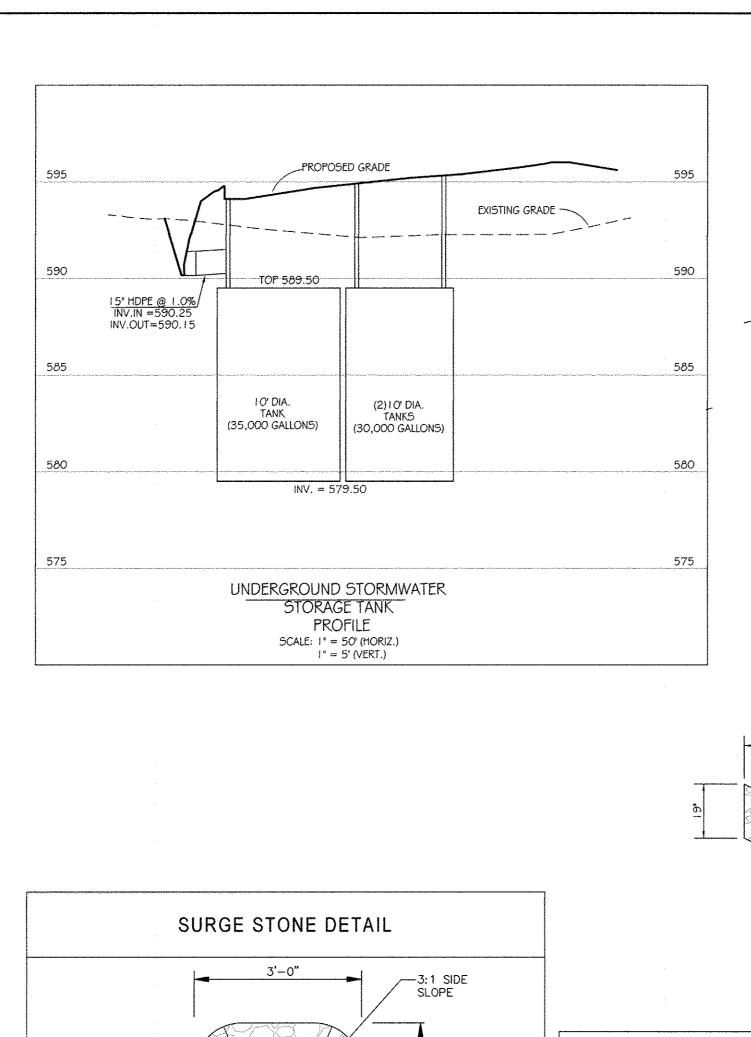
HOWARD COUNTY, MARYLAND

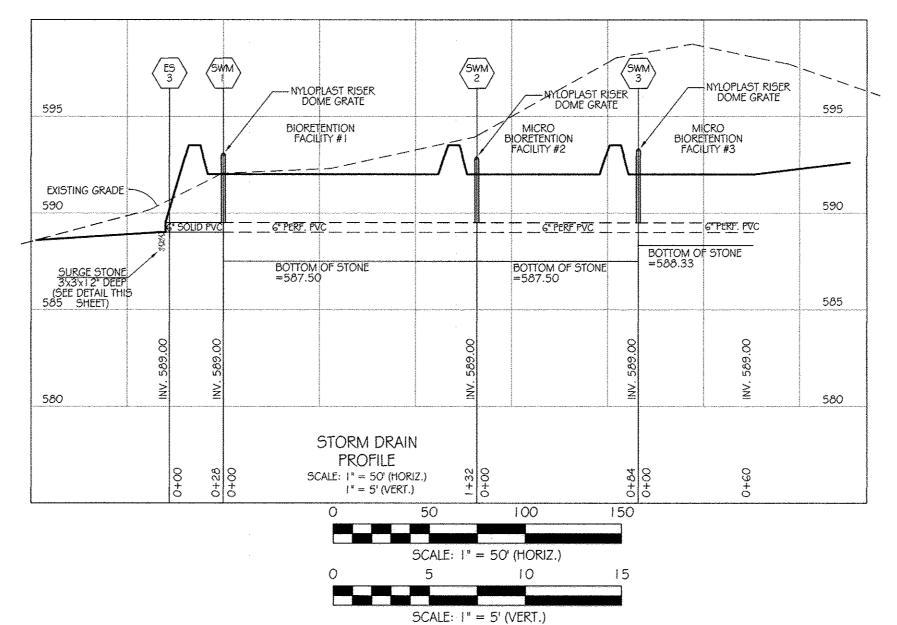
SCALE: AS SHOWN DATE: JANUARY, 2017 PARCEL NO: 488 EX. ZONING: RC-DEO SHEET 6 OF 15

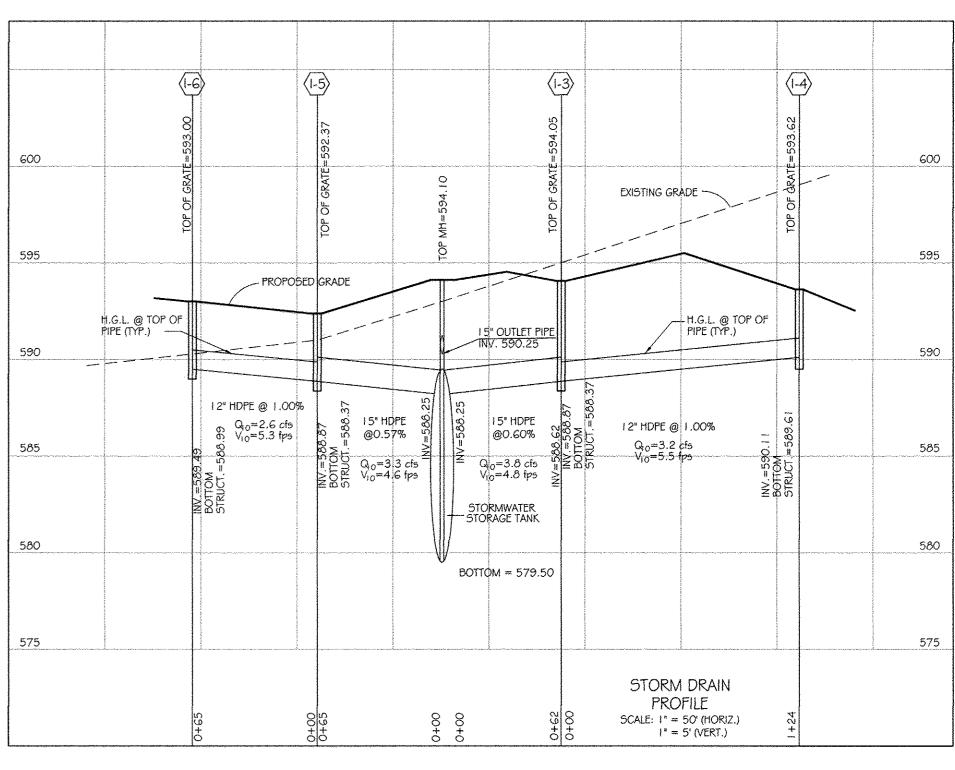


ASSOCIATES, INC. Engineers Surveyors Planners 310 South Main Street Mount Airy, Maryland 21771 (301) 829-2890 (301) 831-5015 (410) 549-2751

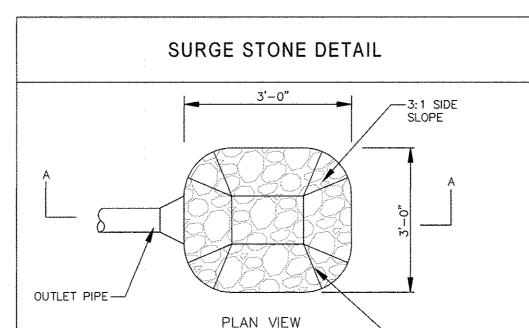
vanmar.com Fax (301) 831-5603 @Copyright, Latest Date Shown SDP-17-035







SCALE: I'' = 5' (VERT.)



CLASS | RIP-RAP PROTECTION ON FILTER FABRIC RIP-RAP CHANNEL DETAIL (NOT TO SCALE)

> RIP-RAP PROTECTION FROM ENDWALL EW-1 TO MEET EXISTING SWALE WEST OF SITE ENTRANCE

FOR ADDITIONAL INFORMATION & DETAILS, SEE SEDIMENT CONTROL DETAIL D-4-1-B. FOREBAY GABION WEIR NOTES

GABIONS SHALL BE MANUFACTURED BY MACCAFERRI GABIONS INC. OR APPROVED EQUAL. THE INSTALLATION SHALL FOLLOW THE MANUFACTURER'S SPECIFICATIONS THE GABION BASKETS SHALL BE PVC COATED AND FILLED WITH CLEAN 4" - 7" STONE. THE GABION STONE SHALL BE CAREFULLY PLACED TO CREATE TIGHT, INTERLOCKING

AGGREGATE WITH MINIMAL VOIDS. TWO SHEETS OF IMPERVIOUS GEOTEXTILE OR 20 MIL VINYL/PLASTIC SHEETING SHALL BE PLACED ON THE BURIED UPSTREAM (FOREBAY SIDE) FACE OF THE BASKETS. USE

2 FT OVERLAP. GABIONS SHALL BE PLACED ON GEOTEXTILE FABRIC (MIRAFI 600X OR APPROVED EQUAL)

AT ALL SOIL/GABION INTERFACES. GABIONS SHALL BE CAREFULLY PLACED WITH NO DAMAGED WIRE. EARTH FOUNDATION

SHALL BE FIRM. SOIL AROUND GABIONS SHALL BE WELL-COMPACTED. GABIONS SHALL BE FASTENED TOGETHER WITH MANUFACTURER-SPECIFIED WIRING. GABIONS TO BE INSTALLED ACROSS FOREBAY AREA WITH 18" IMBEDMENT INTO ADJACENT FACILITY SIDE SLOPES. GABION BASKETS TO BE 6' X 3' X 1.5' DEEP.

THEY SHALL BE PLACED IN LINE AND LEVEL GRADE AND IMBEDDED 6". THE CONTRACTOR SHALL WELL-COMPACT THE EMBANKMENT SOIL AT THE BURIED GABION ENDS. THE GABION FOUNDATION SHALL BE APPROVED BY A GEOTECHNICAL ENGINEER.

SURGE ST	ONE DETAIL
	3:1 SIDE SLOPE
	3,-0,,
OUTLET PIPE—/ PLAN	VIEW SURGE STONE
DIA. 18 IN NONWOVEN GEOTEXTILE—	6 IN 2x PIPE DIA. TOEWALL FOR PERMANEN' PLUNGE POOLS
SECTIO	<u>N_A-A</u>

STORM	STRUCTURE	SCHEDULE

		€ DRI\	/EWAY	KST TOAT TABLAANIBAHAHISAA	
505	ROCK OUTLET PROTECTION II			ROCK OUT PROTECTIO	III NC
595					595
	president ares		n		
	Velacion PANS da	1/-			
	EXISTING GRADE	7		VSE=	591.53
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	STORM DRAIN PROFILE	INV=589.87	INV=590.	e communitaris per primaris per menural de l'America (m. 1544).	nga Pamangangan na na sanggan na n
	SCALE: I" = 50' (HORIZ.)	1		
	$I^* = 5' \text{ (VERT.)}$	0+0	0+28		

APPROVED

APPROVED

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND

SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION

HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION # DATE

CHIEF, DIVISION OF LAND DEVELOPMENT

DATE

7-11-18

6.12.18

STRUCTURE NO.	TYPE	STD.	TOP ELEV.	INVERT IN ELEV.	INVERT OUT ELEV.	REMARKS
EW-1	END WALL	MD 354.01	589.85	_	587.60	18" RCP
EW-2	END WALL	MD 354.01	590.23	587.98	_	18" RCP
ES-1	END SECTION	MD-			589.87	15" RCP
ES-2	END SECTION	MD-		590.15	_	15" RCP

1—1	CURB OPENING	MD 640.02		594.10	592.00	
l-2	CURB OPENING	MD 640.02	_	594.40	592.00	-
1–3	WR INLET	HOWARD CO. D-4.37	594.05	588.87	588.87	BOTTOM = 588
1-4	WR INLET	HOWARD CO. D-4.37	593.62	_	590.11	BOTTOM = 589
1–5	WR INLET	HOWARD CO. D-4.37	592.37	588.87	588.87	BOTTOM = 588
1-6	WR INLET	HOWARD CO. D-4.37	593.00	—	589.49	BOTTOM = 588
SWM-1	DOME GRATE	NYLOPLAST R-2	592.75	589.00	589.00	6" DIAMETER
SWM-2	DOME GRATE	NYLOPLAST R-2	592.75	589.00	589.00	6" DIAMETER
SWM-3	DOME GRATE	NYLOPLAST R-2	592.75	589.00	589.00	6" DIAMETER

PIPE SCHEDULE								
SIZE	TYPE	CLASS	LENGTH	REMARKS				
6"	SOLID PVC		38'	SWM RISERS & OUTLET				
6"	PERF. PVC		476'	SWM UNDER- AND OVERDRAINS				
12"	HDPE	-	181'					
15"	HDPE		121'					
15"	RCP	1	28'					
18"	RCP	111	76'	_				

PROFESSIONAL	CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPA BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 18

DATE: 09/1/8/1/9 SIGNED (July 7 hum RONALD E. THOMPSON, P.E.

<u>N</u>	"I HEREBY CERTIFY THAT THIS PLAN FOR EROSI	ON AND SEDIMENT CONTROL
ARED OR APPROVED AL ENGINEER UNDER 8417, EXPIRATION	REPRESENTS A PRACTICAL AND WORKABLE PLA KNOWLEDGE OF THE SITE CONDITIONS AND TH ACCORDANCE WITH THE REQUIREMENTS OF TH DISTRICT AND THE 2011 MARYLAND STANDAN EROSION AND SEDIMENT CONTROL.	HAT IT WAS PREPARED IN HE HOWARD SOIL CONSERVATION
9/10/2013	RONALD E. THOMPSON, P.E.	5/10/2018 DATE

DEVELOPER'S CERTIFICATE:

DONE ACCORDING TO THIS PLAN OF DEVELOPMENT FOR SEDIMENT AND

EROSION CONTROL, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED

ENGINEER'S CERTIFICATE:

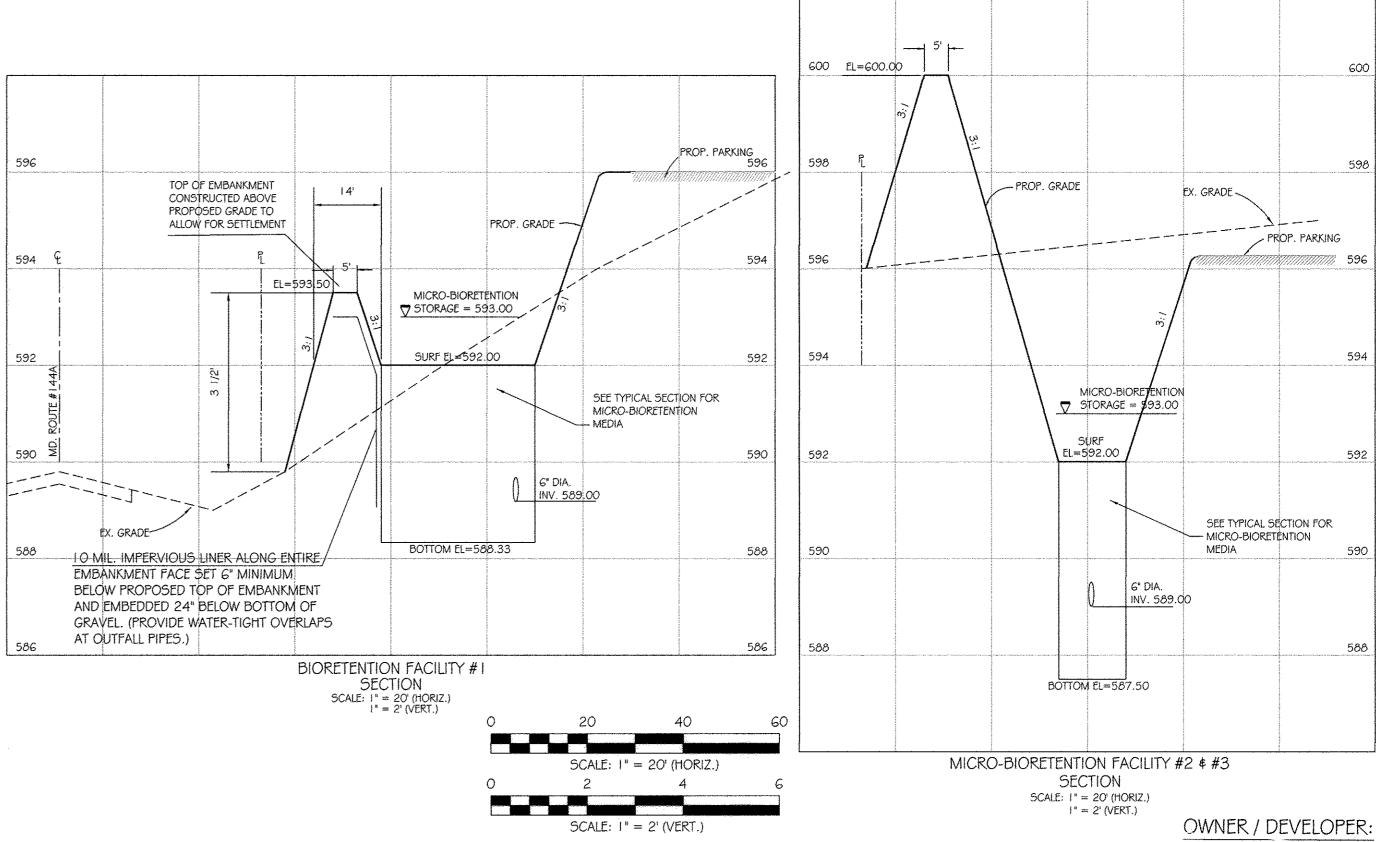
"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE

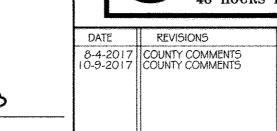
IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF

ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION

BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-

SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

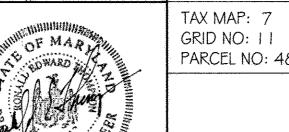




CALL "MISS UTILITY" AT 1-800-257-7777 48 HOURS BEFORE START OF CONSTRUCTION LISBON VOL. FIRE COMPANY c/o CURTIS LOWREY P.O. BOX 40, LISBON, MD 21765 443-472-7765

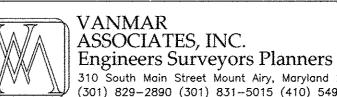
STORMWATER MANAGEMENT NOTES AND DETAILS LOT 3, LOWER TRAIL

LISBON VOLUNTEER FIRE CO., INC.

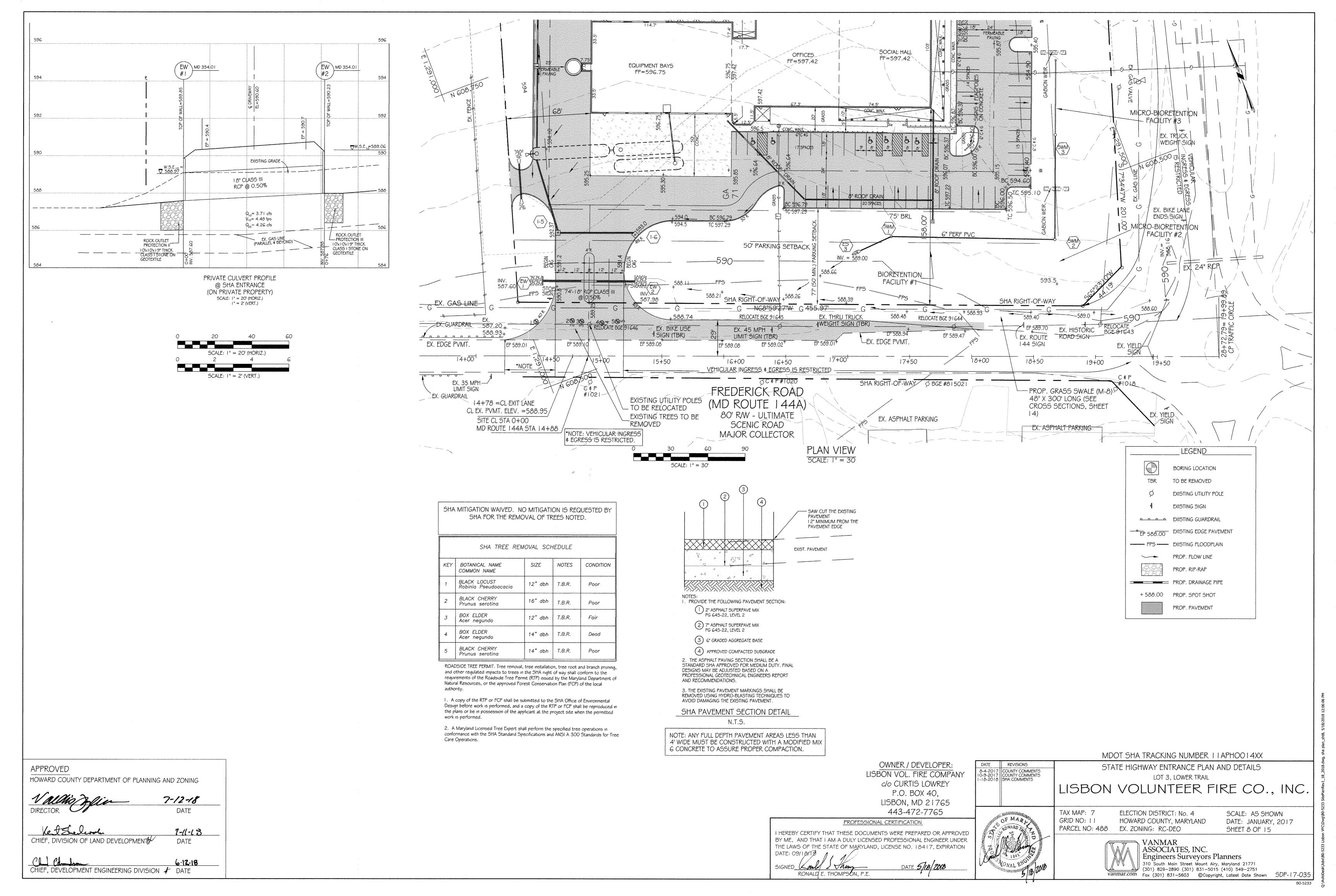


ELECTION DISTRICT: No. 4 HOWARD COUNTY, MARYLAND PARCEL NO: 488 EX. ZONING: RC-DEO

SCALE: AS SHOWN DATE: JANUARY, 2017 SHEET 7 OF 15



| Engineers Surveyors Planners 310 South Main Street Mount Airy, Maryland 21771 (301) 829-2890 (301) 831-5015 (410) 549-2751 vanmar.com Fax (301) 831-5603 @Copyright, Latest Date Shown SDP-17-035





		DRAINAGE A	REA TABU	LATION		
STUDY POINT	AREA	AREA ID	"C" FACTOR	ZONING	% IMPERVIOUS	% SOIL GROUP
Α	0.39 AC.	DITCH N.E. COR. OF PARKING LOT	0.24	RC-DEO	0%	100% 'C'
В	1.16 AC.	DITCH N.W. COR. OF PARKING LOT	0.19	RC-DEO	0%	100% 'C'
С	2.34 AC.	DITCH 5.W. COR. OF PARKING LOT	0.19	RC-DEO	0%	100% 'C'
D	0.51 AC.	SWM #2	N/A	RC-DEO	75%	I 00% 'B'
E	0.19 AC.	EQUIPMENT BUILDING	NA	RC-DEO	100%	100% 'B'
F	0.36 AC.	OFFICE / SOCIAL HALL BUILDING	N/A	RC-DEO	100%	100% 'B'
G	0.45 AC.	SWM #3	N/A	RC-DEO	51%	100% 'B'
H	0.21 AC.	SWALE HEADED EAST ALONG MD. RTE. #144	0.30	RC-DEO	20%	100% 'B'
 	1.18 AC.	PROP. CULVERT @ DRIVEWAY ENTRANCE	0.37	RC-DEO	30%	100% 'B'
J	0.20 AC.	ACROSS DRIVEWAY ENTRANCE	0.86	RC-DEO	100%	100% 'B'
K	0.71 AC.	5WM #1	N/A	RC-DEO	77%	100% 'B'
L	1.82 AC.	CISTERN	N/A	RC-DEO	88%	1 00% 'B'

MAP SYMBOL	MAPPING UNIT	HYDROLOGI SOIL GROUI
GgA	GLENELG LOAM, 0% - 3% SLOPES	В
GgB	GLENELG LOAM, 3% - 8% SLOPES	С
GmA	GLENVILLE SILT LOAM, 0% - 3% SLOPES	С
MaC	MANOR LOAM, 8% - 15% SLOPES	В

DATE REVISIONS

8-4-2017 COUNTY COMMENTS
10-9-2017 COUNTY COMMENTS

LOT 3, LOWER TRAIL LISBON VOLUNTEER FIRE CO., INC.

DRAINAGE AREA MAP

TAX MAP: 7 GRID NO: 11

PARCEL NO: 488 EX. ZONING: RC-DEO

ELECTION DISTRICT: No. 4 HOWARD COUNTY, MARYLAND SCALE: I" = 50' DATE: JANUARY, 2017 SHEET 9 OF 15



VANMAR
ASSOCIATES, INC.
Engineers Surveyors Planners
310 South Main Street Mount Airy, Maryland 21771
(301) 829-2890 (301) 831-5015 (410) 549-2751
vanmar.com
Fax (301) 831-5603 ©Copyright, Latest Date Shown SDP-17-035

CHIEF, DIVISION OF LAND DEVELOPMENTA 7-11-18 Chil Columbian

CHIEF, DEVELOPMENT ENGINEERING DIVISION & DATE

6.12.18

APPROVED

OWNER / DEVELOPER: LISBON VOL. FIRE COMPANY c/o CURTIS LOWREY P.O. BOX 40, LISBON, MD 21765 443-472-7765

PROFESSIONAL CERTIFICATION HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED

BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 18417, EXPIRATION DATE: 09/18/19 RONALD E. THOMPSON, P.E.

Plants shall conform to current American Standards for Nursery Stock by American Association of Nurserymen (AAN), particularly with regards to site, growth, and size of ball and density of branch structure. Contractor to ensure conformance to national and local buildings codes and

2. All plants (B&B or container) shall be properly identified by weatherproof labels securely attached hereto before delivery to the project site. Labels shall identify plants by name, species, and size. Labels shall not be removed until the final inspection by the owners representative. . Any material and/or work may be rejected by the owners representative if it does not meet the requirements of the specifications, the contractor

shall remove all rejected materials from the site. 4. The contractor shall furnish all plants in quantities and sizes to complete the work as specified in plant schedule. The landscape contractor shall be responsible to verify all plant quantities on the plans prior to commencement of work. Quantities in the plant schedule are for the contractors convenience only and do not constitute the final count

i. Substitutions in plant species or size shall not be permitted except with the written approval of the owners representative. 6. Plants shall be located as shown on the drawings and by scaling or as designated in the field by the owners representative. Tree locations to be field adjusted as required to maintain 10' minimum clearance from all utilities, street lights, and driveways. All locations are to be approved by the owners representative before excavation. The contractor shall note that in the case of a discrepancy between the scaled and figured dimensions

shown on these plans, the figured dimension shall govern. The location of existing utilities shown hereon are approximate only. Contractor shall excavate to verify the existence, location, and depth of any utilities (constructed and existing) and shall notify the engineer of any discrepancies prior to the beginning of all work, excavation, grading,

8. Contractor shall locate and mark all underground utility lines and irrigation systems prior to excavating plant beds or pits. All utility easement areas where no planting shall take place shall also be marked on the site, prior to locating and digging the tree pits. If utility lines are encountered in excavation of tree pits, other locations for the trees shall be selected by the owners representative. Such changes shall be made by the contractor without additional compensation. No changes of location shall be made without the approval of the owners representative. Any utility (whether shown or not) damaged due to construction shall be repaired immediately. The contractor shall be responsible for removing or replacing any existing fences, driveways, etc., damaged or removed by the contractor during construction. All offsite disturbed areas shall be returned to their

9. All equipment and tools shall be placed so as not to interfere or hinder pedestrian and vehicular traffic flow. 10. During planting operations, excess and waste materials shall be promptly and frequently removed from the site.

11. All tree pits are to be excavated to a minimum depth to allow the tree root ball to be a minimum of 4" higher than finish grade, the tree root ball is to rest on undisturbed soil, or a compacted bed must be prepared for the tree root ball to rest on which will not subside causing the tree to sink below finish grade. All tree pits are to be a minimum of 12" larger on every side of the trees root ball.

12. The topsoil to be used to fill the tree pits is to be plant specific. The topsoil for trees shall consist of a maximum of 2/3 existing topsoil from the site, which is cleaned and free of clay, a minimum of 1/3 organic material. These materials are to be mixed prior to backfilling when planting. 13. The contractor is responsible to ensure that all tree pits are well drained. The landscape contractor, without cost to the owner, will replace all plant material which is affected by poor drainage. 14. All lawn areas are to be seeded with grass seed appropriate for the sunlight conditions which exist on the site.

15. All lawn areas are to be tiled to a depth of 6" and all foreign material removed which will inhibit the healthy growth of the lawn. All old grass and grass roots are to be removed from the site. New topsoil of a minimum 4" is to be placed over the areas to be seeded. The grass areas are to be fine graded to ensure that no undulations occur on the lawn. The lawns are to be graded in such a way as to appear perfectly well tallored and even. The lawn topsoil is to be rolled and lightly irrigated prior to placing of the seed, the seed is not to be laid on frozen or soaked soil. 16. Existing trees are to be protected during the preparation of the lawn areas. The roots of the trees are to be undisturbed during the cleaning of the

17. All plants are to be handled with the best care and attention to ensure that the plants are not bruised, broken, torn, or damaged in any way which

19. The trees must me staked in accordance with acceptable nursery practice to ensure that they are secure in the ground and will grow straight and

will affect the plants general appearance and well being. 18. All trees are to be planted with the accepted standards of the American Association of Nurserymen. The trees are to be properly watered and backfilled during planting. All care must be taken to ensure that the trees are upright, a tree's best side is exposed to the point of greatest visibility.

uniform. The trees are to be wrapped if the contractor deems it necessary to protect the trees from sun scald or insect attack. 20. Contractor is to provide a 1-year guarantee for all plant material and other work done on site.

1. Quantities as shown on the plan shall govern over plant list quantities. Contractor to verify plant list totals with quantities shown on plan. 22. Do not plant within 20' of a property line abutting and agricultural use. 23. Plant material source: Within 100 mile radius of Maryland if possible.

24. VanMar Associates, Inc. is not responsible for the contractor's utilization of men, materials, equipment, or safety measures in performance of any work for this construction. The contractor assumes all responsibility for performing the work correctly and in conformance with all code requirements.

25. Should the contractor discover discrepancies between the plans and field conditions, the "work" shall be stopped immediately and the engineer notified immediately to resolve the situation. Should the contractor make field corrections or adjustments without notifying the engineer, then the contractor assumes all responsibility for those changes.

26. It is the intent of these plans and specifications to provide 100% completed work and this shall be the project scope. It shall be distinctly understood that failure to notify the engineer of discrepancies found on these plans and specifications, specifically and work which would naturally and/or normally be required to complete the project shall not relieve the contractor of his responsibility to perform such work.

This plan has been prepared in accordance with the provisions of Section 16.124 of the Howard County Code and the Landscape Manual. 28. At the time of installment, all shrubs and other plantings herewith listed and approved for this site, shall be of the proper height requirements in accordance with the Howard County Landscape Manual. In addition, no substitutions or relocation of required plantings may be made without prior review and approval from the Department of Planning and Zoning. Any deviation from this approved Landscape Plan may result in denial or delay in the release of landscape surety until such time as all required materials are planted and/or revisions are made to applicable plans and

29. The owner, tenant and/or their agents shall be responsible for maintenance of the required landscaping, including both plant materials and berms, fences and walls. All plant material shall be maintained in good growing condition, and when necessary, replaced with new materials to ensure continued compliance with applicable regulations. All other required landscaping shall be permanently maintained in good condition and when necessary, repaired or replaced. 30. The owner / developer is responsible for the planting of all plant material required to meet the standards established by the Howard County

31. It has been determined that a landscape surety is not required because the volunteer fire station will serve as a public service to the community. 32. All plant materials shall be in good condition and be obtained locally within a 100 mile radius of the subject site.

33. The developed must plant 52 shade trees, 16 evergreen trees and 71 shrubs.

Lisbon Volunteer Fire Department 2/10/2016 Forest Conservation Worksheet 2.1 Note: Use 0 for all negative numbers that result from the calculations Net Tract Area B. Deductions (Critical Area, area restricted by local ordinance or program) 0.00 c. Net Tract Area Net Tract Area = Total Tract (A) - Deductions (B) 8.23 Land Use Category: D. Afforestation Threshold (Net Tract Area [15 %) 1.23 E Conservation Threshold (Net Tract Area 20 %) 1.65 Existing Forest Cover F. Existing Forest Cover within the Net Tract Area 0.00 G. Area of Forest Above Conservation Threshold If the Existing Forest Cover (F) is greater than the Conservation Threshold (E), then G = F - E Otherwise G = 0. 0.00 H. Breakeven Point (Amount of forest that must be retained so that no mitigation is requi (1) If the Area of Forest Above the Conservation Threshold (G) is greater than 0, then H = (0.2 * the Area of Forest Above Conservation Threshold (G) + the Conservation Threshold (E); 0.00 (2) If the Area of Forest Above the Conservation Threshold (G) is equal to 0, then H = Existing Forest Cover (F) Forest Clearing Permitted Without Mitigation 0.00 I = Existing Forest Cover (F) - Breakeven Point (H) Proposed Forest Clearing Total Area of Forest to be Cleared 0.00 K. Total Area of Forest to be Retained 0.00 K = Existing Forest Cover (F) - Forest to be Cleared (J) Planting Requirements If the Total Area of Forest to be Retaoned (K) is at or above the Breakeven Point (H), no planting is required and no further calculations are necessary (L=0, M=0, N=0, P=0); Otherwise, calculate the planting requirement(s) as follows: Reforestation for Clearing Above the Conservation Threshold = 0.00 (1) If the Total Area of Forest to be Retained (K) is greater than the Conservation Threshold (E), then L = the Area of Forest to be Cleared (J) * 0.25; (2) If the Forest to be Retained (K) is less than or equal to the Conservation Threshold (E), then L = Area of Forest Above Conservation Threshold (G) * 0.25 Reforestation for Clearing Below the Conservation Threshold (1) If Existing Forest Cover (F) is greater than the Conservation Threshold (E) and the Forest to be Retained (K) is less than or equal to the Conservation Threshold (E), M= 0.00 then M = 2.0 * (Conservation Threshold [E] - Forest to be Retained [K]) (2) If Existing Forest Cover (F) is less than or equal to the Conservation Threshold (E), then M = 2.0 * Forest to be Cleared (J) N. Credit for Retention Above the Conservation Threshold If the Area of Forest to be Retained (K) is greater than the Conservation Threshold (E), 0.00 Total Reforestation Required P = L + M - N 0.00 Q. Total Afforestation Required If Existing Forest Cover (F) is less than the Afforestation Threshold (D), then 1.23 Q = Afforestation threshold (D) - Existing Forest Cover (F) R. Total Planting Requirement R=P+Q

APPROVED HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING 7-/2-/8 7-11-18 CHIEF, DIVISION OF LAND DEVELOPMENTAL

CHIEF, DEVELOPMENT ENGINEERING DIVISION 4 DATE

6.12.18

(DESCRIBE PLANT SUBSTITUTION CREDITS

and Edular

PERIMETER C: | DECIDUOUS TREE / 40; | EVERGREEN TREE / 20 PERIMETER E: | DECIDUOUS TREE / 40; | SHRUB / 4' L.F. PERIMETER PROPERTIES LINEAR FEET OF ROADWAY CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED) CREDIT FOR WALL, FENCE, BERM (Yes, No, Linear Feet) (Describe below if needed.) NUMBER OF PLANTS REQUIRED SHADE TREES EVERGREEN TREES SHRUBS
NUMBER OF PLANTS PROVIDED SHADE TREES
EVERGREEN TREES
OTHER TREES (2:1 SUBSTITUTION)
SHRUBS (10:1 SUBSTITUTION)

PLANT LIST CONDITION SPACING (SEE NOTES) SYMBOL QUANTITY BOTANICAL NAME AMERICAN SYCAMORE B≰B AS SHOWN Platanus occidentalis RED MAPLE 2.5"cal. B≢B AS SHOWN Acer rubrum NORWAY SPRUCE B * B 6-8' ht. Picea abies (excelsa) WHITE PINE B \$ B AS SHOWN 6-8' ht. Pinus strobus unsheared GLOSSY ABELIA 2 gal. can

PARKING LOT INTERNAL LANDSCAPING

JMBER OF PARKING SPACES

JMBER OF TREES PROVIDED

SHADE TREES OTHER TREES (2:1 SUBSTITUTION)

ANDSCAPED ISLANDS REQUIRED

ANDSCAPED ISLANDS PROVIDED

NUMBER OF TREES REQUIRED

PERIMETER B: | DECIDUOUS TREE / 50'; | EVERGREEN TREE / 40'

Variable of the second

(P. 85) AGRICULTURAL LAND

IWE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND THE LANDSCAPE MANUAL. INVE FURTHER CERTIFY THAT UPON COMPLETION, A CERTIFICATION OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

DEVELOPER/BUILDER CERTIFICATE:

PROFESSIONAL CERTIFICATION

HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 569, EXPIRATION DATE: 08/16/19.

443-472-7765 05/09/17

COMMENTS 8-4-2017 | COUNTY COMMENTS 10-9-2017 COUNTY COMMENTS

OWNER / DEVELOPER:

LISBON VOL. FIRE COMPANY

clo CURTIS LOWREY

P.O. BOX 40,

LISBON, MD 21765

DIANNA FERGUSON

RESERVATION EASEMENT

AZONING: RC-DEO AGRICULTURAL LAND

FOREST CONSERVATION \$ LANDSCAPING PLAN, NOTES AND DETAILS

LISBON VOLUNTEER FIRE CO., INC.

TAX MAP: 7 GRID NO: 11 ELECTION DISTRICT: No. 4

PLACE STAKES PARALLEL

TO WALKS AND BUILDINGS

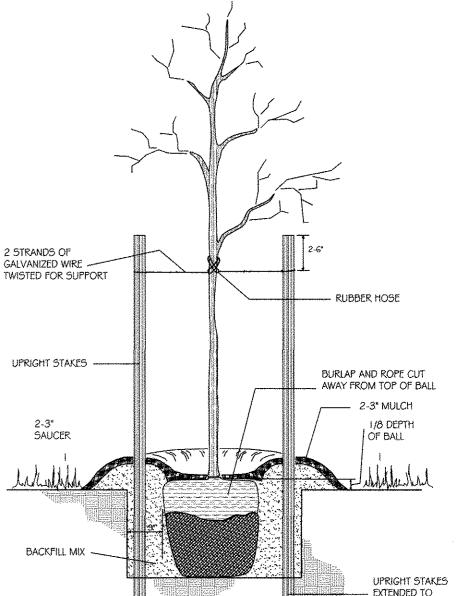
SCALE: I'' = 50'HOWARD COUNTY, MARYLAND DATE: JANUARY, 2017 SHEET 10 OF 15



ASSOCIATES, INC. **Engineers Surveyors Planners** 310 South Main Street Mount Airy, Maryland 21771 (301) 829-2890 (301) 831-5015 (410) 549-2751

PROPOSED SEPTIC SYSTEM SUPER SILT FENCE EARTH DIKE LIMIT OF DISTURBANCE (PASSED) PERCOLATION TEST SITE: **EXISTING WELL:** PROPOSED HOUSE SITE: PROPOSED WELL SITE: ~~~~~ EXISTING TREE LINE PERMEABLE PAVING SHA MITIGATION WAIVED. NO MITIGATION IS REQUESTED BY SHA FOR THE REMOVAL OF TREES NOTED. SHA TREE REMOVAL SCHEDULE KEY BOTANICAL NAME SIZE NOTES CONDITION COMMON NAME BLACK LOCUST 12" dbh | T.B.R. Robinia Pseudoacacia BLACK CHERRY 16" dbh | T.B.R. Prunus serotina BOX ELDER 12" dbh | T.B.R. Fair Acer negundo BOX ELDER 14" dbh | T.B.R. Dead Acer negundo BLACK CHERRY 14" dbh | T.B.R. Prunus serotina ROADSIDE TREE PERMIT. Tree removal, tree installation, tree root and branch pruning, and other regulated impacts to trees in the SHA right of way shall conform to the requirements of the Roadside Tree Permit (RTP) issued by the Maryland Department of Natural Resources, or the approved Forest Conservation Plan (FCP) of the local 1. A copy of the RTP or FCP shall be submitted to the SHA Office of Environmental Design before work is performed, and a copy of the RTP or FCP shall be reproduced in the plans or be in possession of the applicant at the project site when the permitted 2. A Maryland Licensed Tree Expert shall perform the specified tree operations in conformance with the SHA Standard Specifications and ANSI A 300 Standards for Tree

LEGEND

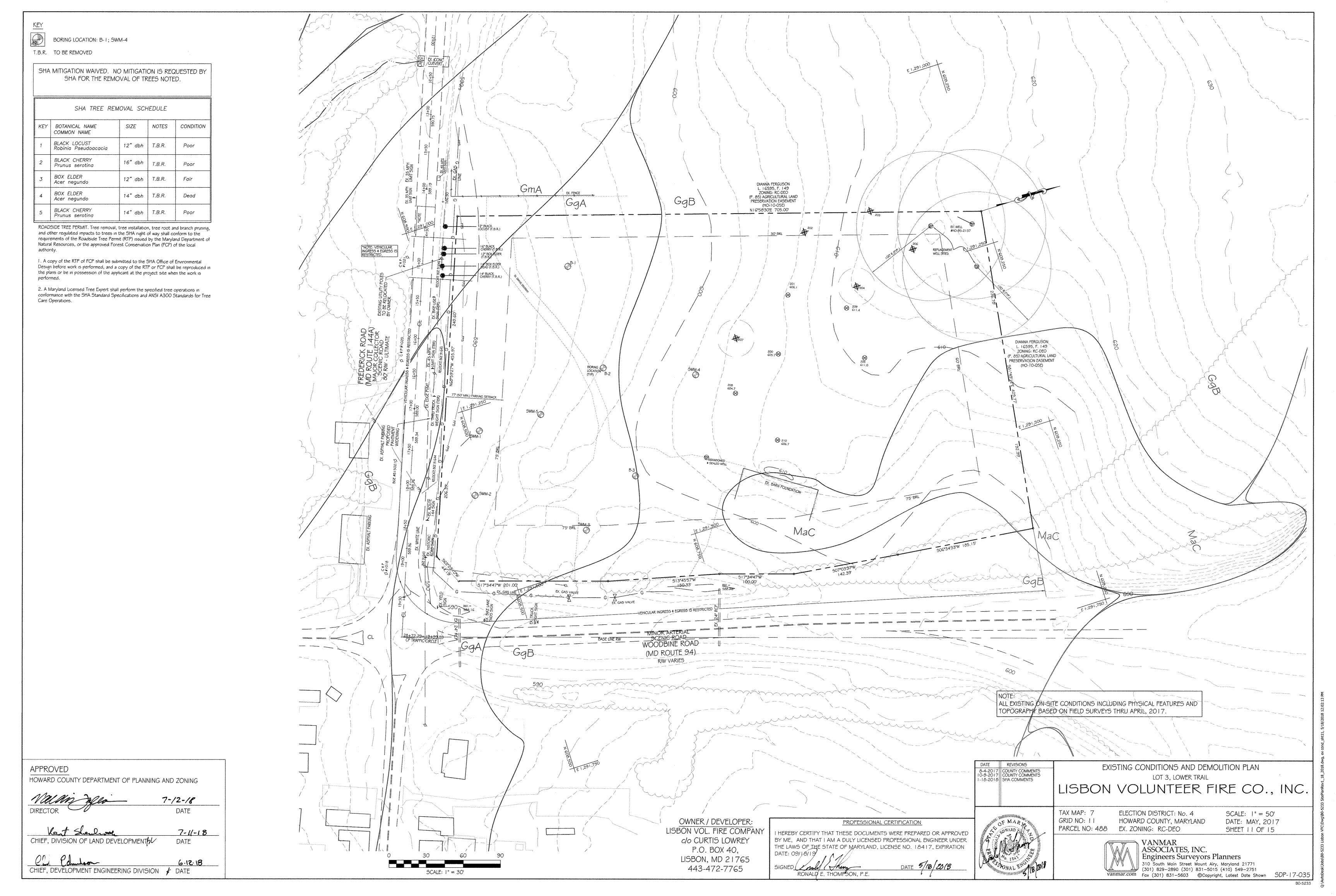


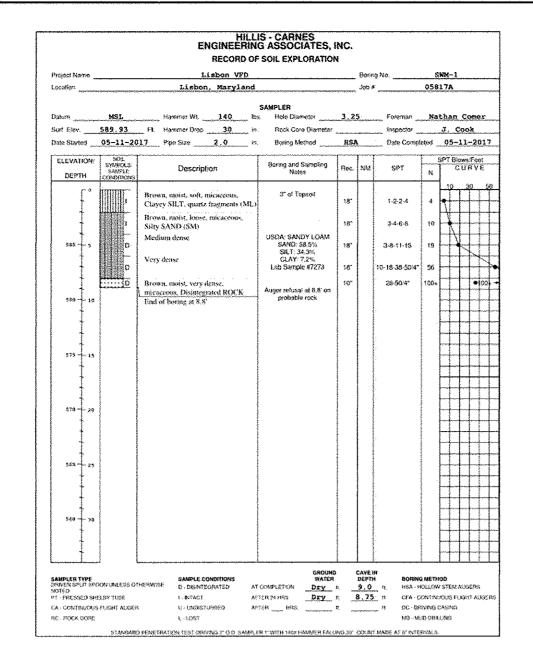
TYPICAL UPRIGHT STAKING DETAIL (N.T.S.)

LOT 3, LOWER TRAIL

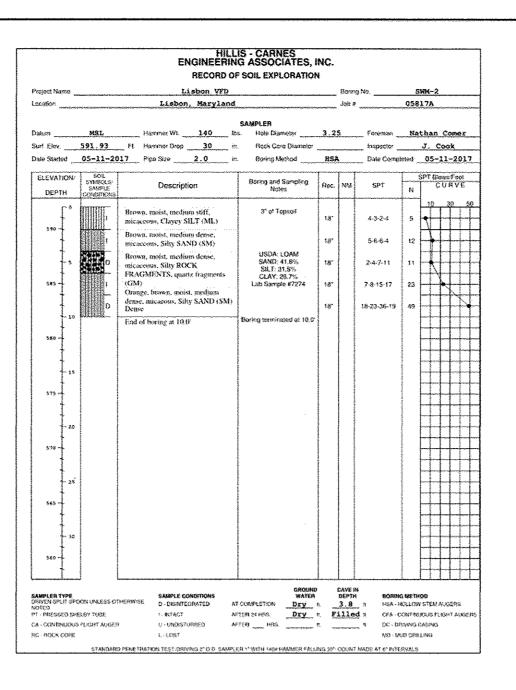
PARCEL NO: 488 EX, ZONING: RC-DEO

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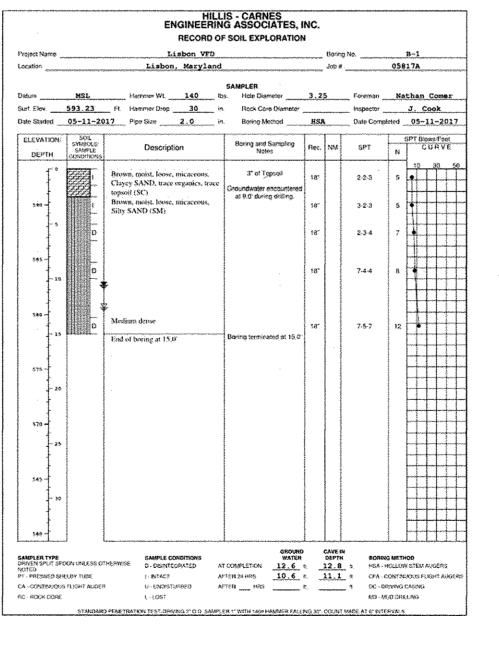


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11:06	47 9/16	0.5	1	2/16	1.500
11:36	47 14/16	0.5		5/16	0.625
12:06	48 15/16	0.5	1	1/16	2.125
12:36	49 14/16	0.5	15/16		1.875
13:05	50 11/16	0.5			1.625
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11:03	51 6/16	0.5		1	2.000	
11:33	52 5/16	0,5	15	/16	1.875	
12:03	53 3/16	0.5	14	/16	1.750	
12:33	53 15/16	0.5	12	/16 1.500		
1:03	54 14/16	0.5	15	/16	1.875	
1:33	55 7/16	0.5	9/16		1.125	
apth of test ben	eath existing grades Estimated tr	5'		e of test@	5-15-17	
	HILLIS-CA	RNES		HCEA Proje	ect No.: 05917A	
E	NGINEERING ASS			SCALE: NT		
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and the second	and make the factors and the factors and the same					filtration Rate: 0.59			and and other first and a great	and the second s		
rojec	t No.: 05917A			***************************************	HILLIS-CA	RNES		HCEA	Project f	vo.: 05917	rA.	_
NTS					ENGINEERING ASS	OCIATES, INC.		SCALE	NTS			_
: May	16, 2017							DATE	: May 1	6. 2017		_
	LOG NO. SWM-2					on Test Log on VFD				LOG I		
				ng ettik dipuntusia ping dipuntusia dipuntusi dipuntusia dipuntusi dipuntusia dipuntusi dipuntusia		HILLIS - CAF NEERING ASSO	CIATES, I					
			Project Na	come quantitude principal propriation productive principal princip	RE	NEERING ASSO CORD OF SOIL EX	CIATES, I PLORATION	i	Barina No.		в	ins)
						NEERING ASSO CORD OF SOIL EX	CIATES, I	B			B 0581	
			Location	MSL	RE Lisbo Lisbon, M	NEERING ASSO CORD OF SOIL EX ON VED AXYLAND SAMPLER 40 Ibs. Hole C	PLORATION	3.25	lob#	oieman	0581 Nat	.7/
			Datum	MSL 593.23	RE Lisbon, M	NEERING ASSO CORD OF SOIL EX on VED acyland SAMPLER 40 lbs. Hele C 30 in. Bock 1	PLORATION Diameter Core Diameter	3.25	F	oreman	Nat	71 hs
			Datum	MSL 593.23 ed 05-11-20	Liabon, M Liabon WI 1 R. Hammer Drop	NEERING ASSO CORD OF SOIL EX ON VFD ACYland SAMPLER 40 lbs. Hele C 30 in. Bering Bering as	PLORATION Diameter Core Diameter	3.25	F F	oreman	Nat Nat	7, he
			Datum Surt Flow Date Start	MSL 593.23 pd 05-11-20 ION: SOL SYMBOLS: SAMPLE	RE Lisbon, M Harmer Wt. 1 Ft. Harmer Drop 17 Pipe Size 2. Description Brown, moist, loose, micc Clayey SAND, trace orga	SAMPLER 40 Ibs. Hole C 30 in Boring at the cools, or cross trace Groundwate	PLORATION Diameter Core Diameter Method PS Sampling lates Topsoil er encountered	3.25 HSA Rec. 3	E STATE OF THE STA	oreman	Nat	this o
			Datum Surt Flow Date Start	MSL 593.23 pd 05-11-20 ION: SOL SYMBOLS: SAMPLE	RE Lisbo Lisbon, M Hearmer Wt. 1 Pt Hearmer Drop 17 Pipe Size 2 Description Brown, goolst, loose, mice	SAMPLER SAMPLER O in Boring as spices, trace Groundwat as 9.0 fe Groundwat as 9.0 fe Groundwat as 9.0 fe Groundwat as 9.0 fe	PLORATION Diameter Core Diameter Adotted and Sampling lates	3.25 HSA Rec. 3		oreman aspector alle Comple	Nat:) h
			Datum Surt Elev Date Start ELEVAT DEP1	MSL 593.23 ed 05-11-20 ION: SMRSCUS H CONSTRONS	RE Lisbo Lisbon, M Harmer Wt. 1 Pt. Harmer Drop 17 Pipe Size 2 Description Brown, moist, loose, micc Clayey SAND, trace orgatopsoid (SC) Brown, maist, loose, micr.	SAMPLER SAMPLER O in Boring as spices, trace Groundwat as 9.0 fe Groundwat as 9.0 fe Groundwat as 9.0 fe Groundwat as 9.0 fe	PLORATION Diameter Core Diameter Method PS Sampling lates Topsoil er encountered	3.25 HSA	To be the second of the second	oreman	Nat:	7) 0!



HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

Location Liebon, Maryland Joh # 05817A

Datum MSL Hammer Wt. 140 lbs. Hole Diameter 3.25 Forenso Nathan Comer Surf. Elev. 598,15 Ft. Haremer Grop 30 in. Rock Core Diameter Inspector J. Cook

Date Started 05-11-2017 Pipe Size 2.0 in Royang Method HSA Date Completed 05-11-2017

SAMPLER TYPE
DIVENT OPTION SOURCE SO THERWISE
D. DISSIFECRATED
D. DISSIFECRATED
D. DISSIFECRATED
AFTER 24 MPR
DEY
R. FRESSED SHILBY TUBE
CA - CONTINUOUS FLOWT ANGER
U. HARDSTERBED
AFTER 24 MPR
DEY
R. B. J. CAP - CONTINUOUS FLOWT ANGERS
R. FROCK CORE
L. SOCK CORE
L.

STANDARD PEAR FRATION TEST ORIVING TO D. SAMPLER 1" WITH 1402 HAMBLER FALLING SC", COLDIT MADE AT 6" INTERNALS

0.125

0,500 0.875

0.750

0.750

0.500

4/16

7/16

6/16

6/16

Description

micaccous, Clayey SILT (ML).

Orane, brown, maist, loose, micaccous, Silty SAND (SM)

Iragineats (SM)

TIME OF DEPTH TO WATER, INCHES

9:46 32 10/16

10:16 32 11/16 10:46 32 15/16

11:16 33 6/16

11:46 33 12/16

12:16 34 2/16

13:16 34 11/16

Brown, moist, medium dense,

nicaccous, Silty ROCK FRAGMENTS (GM) Brown, moist, medium dense, micaccous, Silty SAND with rock

Bragments (SM)
Brown, gray, moist, medium dense, miscoccous, Sily ROCK,
FRAGMENTS (GM)
End of boring at 10.0'

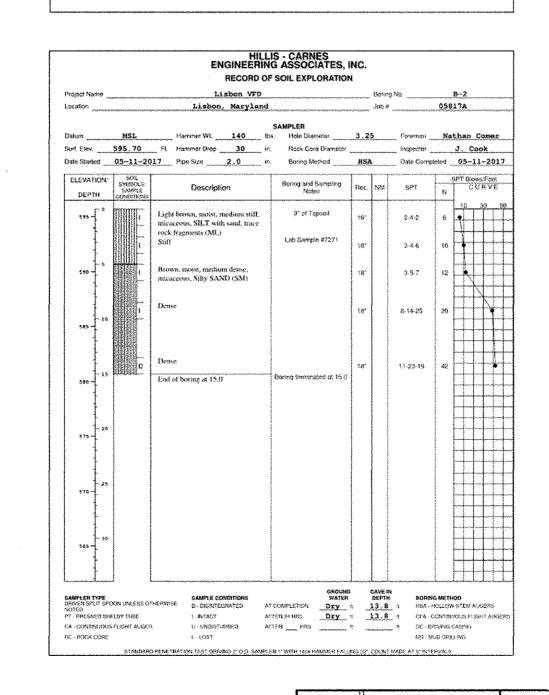
DEPTH CONDITIONS

Being and Sampling Rec. NM SPT

RECORD OF SOIL EXPLORATION

		ENGINEERIN	IS - CARNES IG ASSOCIATES, I F SOIL EXPLORATION						
Project Name _		Lisbon VFD			Barin	g No	s	WM-4	_
		Lisbon, Maryland							
Surl. Elev.	602.83 05-11-20	Hammer WI: 140 fo FI: Hammer Drop 30 in 17 Pipe Size 2,0 in	Rock Core Diameter Boring Method	·		Inspector _	leted	J. Cook 05-11-1	21
DEPTH	SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM	SPT	N	CUR	ř
500 - 10 500 - 13 500 - 13 500 - 25	0	Red, brown, moist, medium stiff, microcous, Clayey SILT, trace organics Trace rock fragments Stiff Brown, moist, medium dense, microcous, Sitry SAND (SM) Brown, white, moist, medium dense, microcous, Sitry ROCK FRAGMENTS, quartz fragments (GM) End of horing at 10.07	3" of Topsok USDA: CLAY LOAM SAMD: 31.3% SILF: 37.4% CLAY: 31.3% Lats Sample #7276 Boring terminated at 10.0"	29" 24" 24" 25"		2-2-3-3 3-3-4-3 7-4-5-5 4-7-10-14 17-11-13-9			The state of the s
570	-		Salah di Kawangan	in a superior in the superior			Attavorteorized		-
SAMPLER TYPE DEIVEN SPUT SPO NOTED PT - PRESSED SHE CA - CONTRICOUS	LEY TURE	- ROACE A	GROUND WATER T CONFLETION Dry FIER 1985.	8 9	CAVE I DEPTO 4.1 3.9	d BORNA d BSA-1 d CFA-1		i stem auges Kous pukrat	
RE HOCK CORE		L - £ CS97*				\$60 - N	SA) OFFE	LING	

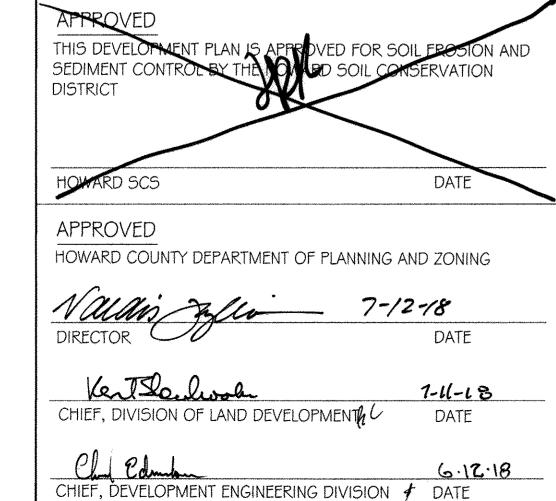
TIME OF READING	DEPTH TO WATER, INCHES	TIME CHANGE, HOURS	DEPTH CHANGE, INCHES	RATE, INCHESTIOUI	
9:44	42 1/16				
10:14	42 9/16	0.5	8/16	1.000	
10:44	42 13/16	0.5	4/16	0.500	
11:14	43	0.5	3/16	0.375	
11;44	43 5/16	0.5	5/16	0.625	
12:14	43 11/16	0.5	6/16	0.750	
12:44	44	0.5	5/16	0.625	
13:14	44 8/16	0.5	8/16	1,000	
13:44	44 11/16	0.5	3/16	0.375	
				and the state of the	
Jepth of test bein	eath existing grades Estimated in	5'	Cate of testG	5-15-17	
	HILLIS-CA	RNES	HGEA Proje	ct-No.: 05917A	
E	NGINEERING ASS		SCALE: NT		
		on Test Log	DATE: Me	y 16, 2017	



			IG ASSOCIATES, I F SOIL EXPLORATION							
Project Name		Lisbon VFD					\$WM~5			
		Lisbon, Maryland								
		Hammer Wt. 140 B	SAMPLER							
		Ft. Hammer Drop 30 in								
Date Started _	05-11-20	117 Pipe Size								
ELEVATION/ DEPTH	SOL SYMBOLS: SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Floc.	MM	\$PT	N	SPT Blows/Foot CURVE		
to the state of th	And the second s	Brown, moist, soft, micaccous, Clayey SILT (ML) Very stiff, with rock fragments,	3" of Topsod	20°	44	2223	A A	10 30 50		
590	A CONTRACTOR OF THE CONTRACTOR	quartz fragments	Control of the Contro	24"		4-7-11-7	18			
1.	ū	Suff, with rock fragments	USDA: LOAM SAND: 35.654 SE,T:43.3%	86-	1000	4-5-8-16	13			
4	0	Brown, moist, dense, micaccous, Sitty SAND with quartz fragments	CLAY: 21.1% Lab Sample 67277	22"	11County probable	13-21-15-23	36			
sas -[(SM) Medium dense, no rock fragments	Participants of the Control of the C	24"	olyghii (coqqimy)	3-9-14-16	23			
j= 10	HIROECTES	End of boring at 10.0'	Boring terminated at 10.0	*veryaharderayde	d dispersion		p-varr)shapen			
589 -	10		great individual to		a constant		Separation of the separation o			
1.5	****		Gardy Adva Bellefild.		- Principality		ending for any produce			
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565	F1 17-300LF104		obossejna Body.				hujuwa kirin			
1-20	Control of the contro		**Professional		of Sympotium A		o cyndystyce open			
100-4	***************************************		- Anna California Cali	Contact of the second	adjorate and control		ed to be designed as a second			
SAMPLER TYPE DOLVEN SPLIT SP NOTED	OON URAESS OF	SAMPLE CONDITIONS DEPARTS D. DISNIEGRATED AT	ONUORO WATER TOTAL MOTSFERSO		CAVE E DEPTH 7.75	BORRE		IOD V STEM ALIGERS		
PT - PRESSED SA CA - CONTINUOU	S FLIGHT ALIGES	U - UMERSTANSHIO A	TER SAMES DEY	£ ~~	7.8	_ n Exc - ta	tevijeG	LARUS FERENT AUGERS CASENG		
RC - POCK CORE		1 1.087) Pemetration test servans 2° 0 d. Gampu				M9 - M		1		

TIME OF READING	DEPTH TO WATER, INCHES	TIME CHANGE, DEPTH CHANGE, INCHES		E. RATE, INCHES/HOUR
9:41	56 9/16			
10:11	56 12/16	0.5	3/16	0.375
10:41	57	0.5	4/16	0.500
11:11	57 5/16	0.5	5/16	0.625
11:41	57 8/16	0.5	3/16	0,375
12:11	57 12/16	0.5	4/16	0.500
12:41	58 1/16	0.5	5/16	0.625
13:11	58 6/16	0.5	5/16	0.625
13:41	58 10/16	0.5	4/16	0.500
ith at test beni	eath existing grades Extrnated Ir	5'	Date of test_inds	Q5:15;17
****	HILLIS-CA	RNES	HCEA I	Project No.: 05917A
E	NGINEERING ASS	OCIATES, INC.	SCALE	
***************************************	Infiltratio Lisb	on Test Log on VFD	LUATE	May 16, 2017 LOG NO, SWM-5

Oreigns Manne		Tisher ton			*2****					
		Lisbon VFD							*****	
Location	Sobbile Additional and the Control of the Control o	Lisbon, Maryland	$\sigma_{a,a,b,a,a,b,a,b,a,b,a,b,a,a,b,a,a,a,a,b,a$		300 F	Antonia e-minima a-stranostrò	058	1.12	HANGENGHAN	Waynayes
			SAMPLER							
		Hammer Wt. 160 b								
		Ft. Hammer Orop 38 in								
Date Started	05-11-20	117 Papa Size2.0 in	Boring Method	HSA		Date Comp	digted _	05-	1-2	01
ELEVATION	50%	to anni in minera series i company primerime de menten (2 mente son meneromente series // menerominante de des		ľ		~~~;~;~~~~	7	PT Re	ws/F	005
DEPTH	SAMPLC STRING	Description	Storing and Sampling Notes	Res.	NOV	SPT	į N	E	UR	Æ
DEFIN	CONDITIONS			-	-		8	10	30	
ſ.		Asphalt paving and gravel	E Asphall	or	de la constante de la constant	NA	NA.		T	Complete
1		_	10° pravel	ľ	900	12.55	1000		7	
I	7777	Red, brown, moist, median stiff,		1	100		V 24 c o v o o			1
	/////I	micaccous, Lean CLAY, trace sand		18"	A. Virginia	2-3-2	5	1		
239 7	///A_	(CL)	Lab Danah direkt		4.040		Darge		I.	- E
	D D	Red, brown, maist, loose, micaceous, Silty SAND (SM)	Lab Sample 47272	18"	a de la composition della comp	5-4-6	10			
1		200 2 200 to 1250			-		especial in		1	Ļ
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†					34		right Co			·
1	D I			18"	T-hui	9-12-16	29	-	+	-
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L	7-14			<u>L</u>	1	·/	<u> </u>			
Sampler type Dynen split opt	(nukesa o	RAMPLE CONDITIONS THERWISE O CHEMITORATED AT	GROUND WATER COMPLETION DIV		CAVE IN DEPTH 14.0		IG METH	00 (STEM)	contre	242
rotto) PT - Pressed SH			TOTAL DIN		6.6			MKKATA MKKATA		
CA - CONTINUOS - AC			78f1 1995	9.	-0-2010		FAING 1			
80 - POCK OCRO		1.4027	Andrew Comments		**********		SAST CRIME			

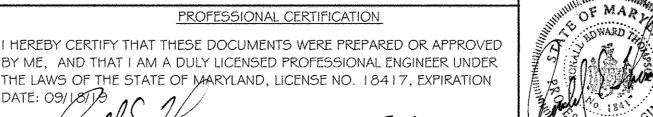


OWNER / DEVELOPER: LISBON VOL. FIRE COMPANY c/o CURTIS LOWREY P.O. BOX 40, LISBON, MD 21765 443-472-7765

10-9-2017 COUNTY COMMENTS

SOIL BORING LOGS AND DETAILS

LOT 3, LOWER TRAIL LISBON VOLUNTEER FIRE CO., INC.



PROFESSIONAL CERTIFICATION

DATE 9/18/2018

BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER

THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 18417, EXPIRATION

DATE: 09/18/19 10

SIGNED (ml) Theny

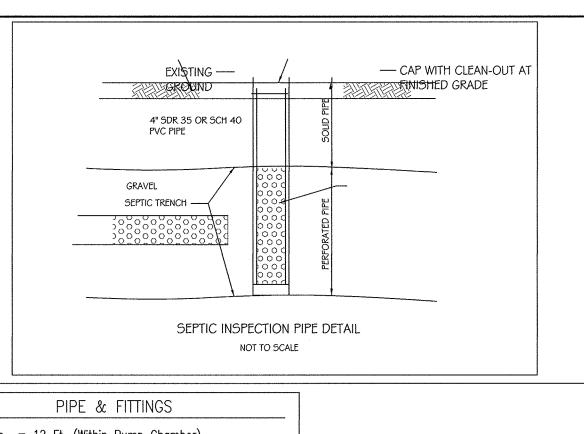
RONALD E. THOMPSON, P.E.

TAX MAP: 7 ELECTION DISTRICT: No. 4 HOWARD COUNTY, MARYLAND GRID NO: 11 PARCEL NO: 488 EX. ZONING: RC-DEO

SCALE: AS SHOWN DATE: MAY, 2017 SHEET 12 OF 15

> VANMAR ASSOCIATES, INC. Engineers Surveyors Planners

310 South Main Street Mount Airy, Maryland 21771 (301) 829-2890 (301) 831-5015 (410) 549-2751 Vanmar.com Fax (301) 831-5603 ©Copyright, Latest Date Shown SDP-17-035



FM Pipe = 12 Ft. (Within Pump Chamber) FM Pipe = 270 Ft. (Pump Chamber to Distribution Box) Total = 282 Ft PUMP SELECTION FRICTION LOSSES TOTAL DYNAMIC HEAD = 36 Feet 90° Bends: 3 ea. X 10 = 30 45' Bends: 3 ea. X 4 = 12 GOULDS WE Series Model 05 HH Disconnect: 1 ea. X 3 = 3(SEE PUMP SELECTION CHART) Total = 45 Ft.PUMP FLOW RATE = 34 GPM TOTAL LENGTH = 327 Ft. OUTLET / FORCE MAIN = 2 in. STATIC HEAD FORCE MAIN VELOCITY = 3.4 FEET/SECOND Elev. @ Distribution Box = 608.00 Elev. @ Pump = 581.00 Total = 27.0 Ft. FRICTION HEAD 327 feet x 2.75 Ft/ Foot = 9.0 Ft.Total = 9.0 Ft. TOTAL HEAD = 36 FEET

PUMP CALCULATIONS

Goulds Water Technology

Wastewater

Specifically designed for the following uses:

Hospitals, Industry, Effluent Systems **SPECIFICATIONS**

Homes, Farms, Trailer Courts, Motels, Schools,

• Solids handling capabilities: ¾" maximum • Discharge size: 2" NPT Capacities: up to 140 GPM • Total heads: up to 128 feet TDH

• Temperature: 104°F (40°C) continuous, 140°F (60°C) intermittent. See order numbers on reverse side for specific HP. voltage, phase and RPM's available.

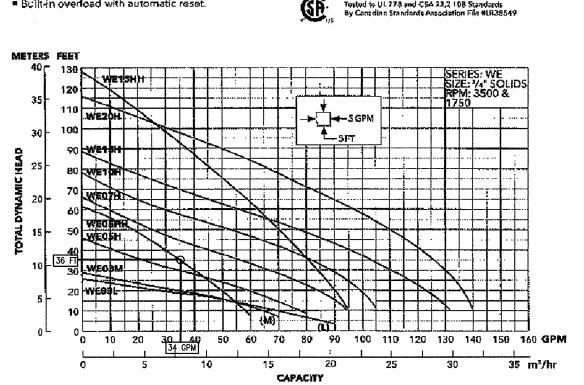
• Fully submerged in high-grade turbine oil for lubrication and efficient heat transfer.

- Class B insulation on 16 - 11/2 HP models • Class Finsulation on 2 H2 models.

Single phase (60 Hz):

PAGE 2

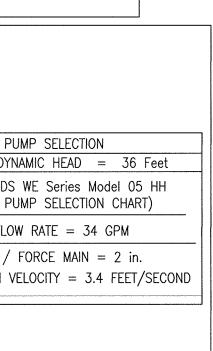
* Capacitor start motors for maximum starting torque. Built-in overload with automatic reset.



APPROVED FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS. HOWARD COUNTY HEALTH DEPARTMENT Brichon for Maura Rossman COUNTY HEALTH OFFICER APPROVED HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING 7-/2-18 DATE

7-11-18 CHIEF, DIVISION OF LAND DEVELOPMENT

Chil Columb 6.15.18 CHIEF, DEVELOPMENT ENGINEERING DIVISION & DATE



H-20 TRAFFIC RATED FOR 1' TO 5' OF EARTH COVER. 2. CONCRETE TO BE 5000 PSI MIN. @ 28 DAYS.
3. REINFORCING STEEL TO BE PER ASTM A615, GRADE 60.
4. BOX WT. (W/BAFFLES)=19,400#, LID WT.=5,800#.

 SJTOW or STOW severe duty oil and water resistant power cords * 1/2 - 1 HP models have NEMA three prong grounding

• 11/2 HP and larger units have bare lead cord ands.

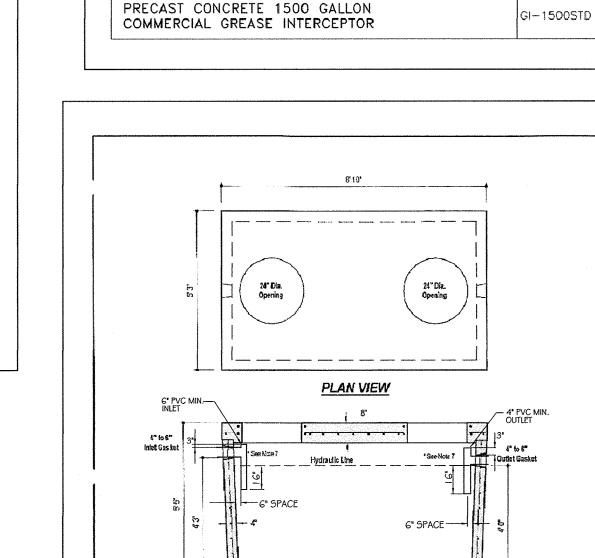
Three phase (60 Hz): Class 10 overload protection must be provided in separately ordered starter unit.

 STOW power cords all have bare lead cord ends. Designed for Continuous Operation: Pump ratings are within the motor manufacturer's recommended working limits, can be operated continuously with-

out damage when fully submerged. Bearings: Upper and lower heavy duty ball bearing construction. • Power Cable: Severe duty rated, oil and water resistant. Epoxy seal on motor end provides secondary

moisture barrier in case of outer jacket damage and to prevent oil wicking. Standard cord is 20'. Optional lengths are available. • O-ring: Assures positive sealing against contaminants and oil leakage.

AGENCY LISTINGS Tosted to UL 278 and CSA 22.2 108 Standards
By Canadian Standards Association File #1828549

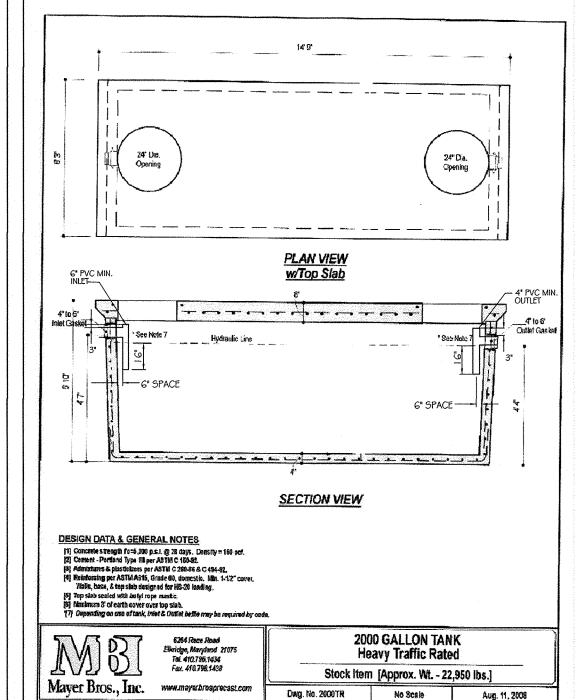


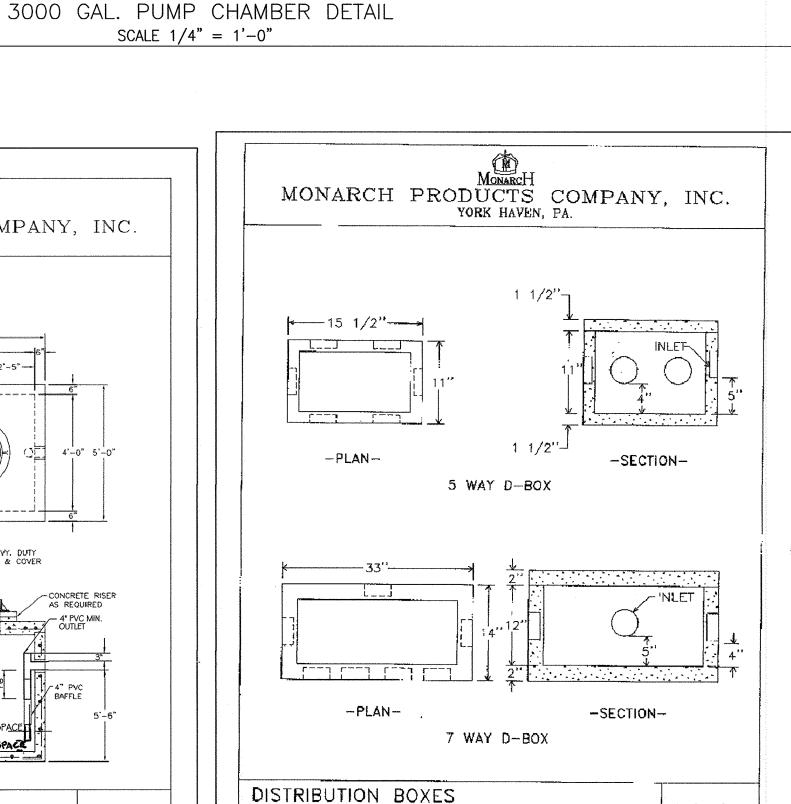
DESIGN DATA & GENERAL NOTES

[7] Concrete strength Feel ,600 p.s.l. @ 28 days. Density = 160 pcf.
[7] Commit - Portland Type Nil per ASTM C 160-92.
[3] Admictares & plassificaters per ASTM C 260-65 & C 494-92.
[4] Relificating per ASTM ATES. Min. 1-127 cover.
[6] You slab sealed with butlyt rope mastic.

] Maximum 5:0" of earth Cover cyer top stab. If Depending on use of tank, talet & Outlet baffle may be required by cod

6364 Race Road Elkridge, Maryland 21975 Tel. 410.786.1434





WITH PLASTIC PIPE SEALS

6" BLOCKS

36' x 36' WATERTIGHT LOCKABLE SINGLE PIECE ALUMINIUM HATCH WITH POSITIVE LOCKING ARM —

PROP. GRADE = 597.00

EXTEND FLOAT TREE FOR-

' San. inv. elev. = 590.95

HIGH WATER ALARM ELEV. = 582.42

PUMP ON ELEV. = 581.92

ACCESS FROM TOP OF

PUMP CHAMBER

1. PUMP STATION WET WELL TO BE CONSTRUCTED

PER HOWARD COUNTY SPECIFICATIONS FOR SANITARY SEWER MATERIALS AND INSTALLATION.

2. PER HOWARD COUNTY CODE, THE PUMP CHAMBER

3. THE TWO PUMPS SHALL BE CONNECTED TO THE

SINGLE FORCE MAIN WITH CHECK VALVES.

EMERGENÇY STORAGE VOLUME = 1800 GALLONS

241 C.F./ 28.27 FT. X 12 = 102 IN. (MIN.)

DOSE VOLUME = 1800 / 6 = 300 GALLONS

40 C.F./ 28.27 FT. X 12 = 17 IN. (MIN.)

MONARCH PRODUCTS COMPANY, INC

-PLAN-

-SECTION-

SECTION A-A

1,000 GALLON TANK

Heavy-Traffic Rated

Stock [tem [Approx. Wt. - 14,000 lbs.]

Dwg. No. 1000TR1 No Scale Aug 11, 2008

724" DIA. HYY. DUTY C.I. FRAME & COVER

YORK HAVEN, PA.

SHALL HAVE DUPLEX PUMP\$ INSTALLED. 3. THE TWO PUMPS SHALL BE CONNECTED TO THE CONTROL PANEL AND ALTERNATE CYCLES

DURING OPERATION.

1800/7.48 = 241 C.F.

6' DIA. = 28.27 C.F./ FT.

300/7.48 = 40 C.F.6' DIA. = 28.27 C.F./ FT. PRE-CAST CONCRETE PER

596

592

580

576

PRE-CAST CONCRETE PER

21 MIL. BUTYL RUBBER SEALANT COATING

-9-INCHES EACH SIDE OF JOINT

(KOPPERS 300M OR EQUAL)

ASTM C-478 WATERTIGHT_RUBBER_GASKET JOINT PER ASTM C-443

ASTM C-478

24" MAX. FROM FLOAT TREE AND QUICK DISCONNECT TO

QUICK DISCONNECT UNIONS

591.00

—on discharge lines

Joint Detail for Pre—Cast

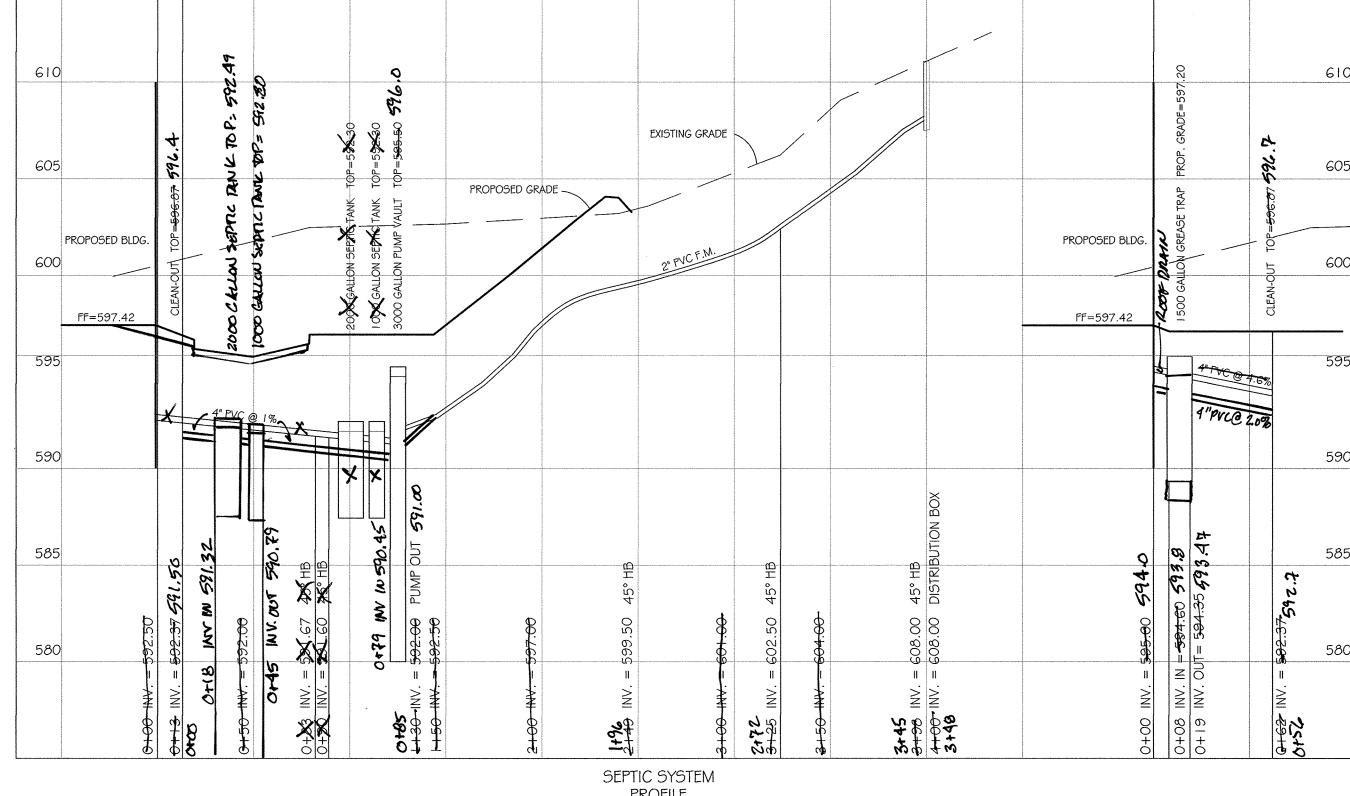
STROUTURE WALLS

(NOT TO SCALE)

CHECK VALVES FOR EACH PUMP

AT TOP OF LOOP INV. $= \frac{595.50^{\circ}}{}$

GROUND SURFACE



PROFILE SCALE: I" = 50' (HORIZ.) I'' = 5' (VERT.)

INITIAL SYSTEM

Trench T-1-1EX. GRD=610.8 INV. Truch 48 B. Tranch. 602.8 Tranch TI-ZEY. GRD= 610.3 Iny. Tranch 606.3 B. Tranch=602.3 Tranch T1-3 EX. GRB = 609.5 INV. Tranch 605.5 B. Tranch = 601.5 Trench TI 4 EX GRO=608.8 INV Trench 604.8 B Trench=600.8 Trench TI. 5 EX GRD = 608.0 INV Trench 604.0 B Trench - 600.0 Travel TI-6 DX GRD = 607.0 INV. Travel 603.0 B Travel = 599.0

Trench T2-1 EX. GRO: LOOK. 2 INVTrench 602.2 B. Trench 598.2 2,250 S.F. / 3' TRENCH = 750 L.F. STD. TRENCH Trench T2-1 Ex. GKU= 606.2 INV. Trench 602. Z B. Tranch 598. Z 750 L.F. STD. TRENCH X 71% (CONVERSION FOR DEEP TRENCH) = 533 L.F. DEEP TRENCH REQUIRED Trench T2 · Z Ex. GRO = 606.2 INV. Trench 602. L v. Harbi 510. L = 533 L.F. DEEP TRENCH REQUIRED

Trench T2 · 3 Ex. GRO = 605.5 INV. Trench 601.5 B. Trench 597.5

Trench T2 · 4 Ex GRO = 605.5 INV Trench 601.0 B. Trench 597.0

Trench T2 · 4 Ex GRO = 605.5 INV Trench 601.0 B. Trench 597.0 Trans TZ-6 Ex GRO= 605.0 INV Trench 601.0 B. Transh 597.0

2nd Replacement System Trunch T3-1 EXGRD= 608.3 INV. Trunch 604.3 B. Trench 600.3

Trunch T3-2 EX GRD= 607.8 INV Trunch 603.8 B. Trench 599.8

Trunch T3-2 EX GRD= 607.8 INV Trunch 603.8 B. Trench 599.8 Tranch 79.2 EX GRO: G07.8 In Tranch 603.8 B. Tranch 599.5

Tranch 79.2 EX GRO: G07.8 In Tranch 603.8 B. Tranch 599.5

Tranch 79.2 EX GRO: G07.5 In Tranch 603.8 B. Tranch 599.5

Tranch 79.2 EX GRO: G07.5 In Tranch 603.8 B. Tranch 599.5

Tranch 79.2 EX GRO: G07.5 In Tranch 603.8 B. Tranch 599.5

Tranch 79.4 EX GRO: G07.2 In Tranch 603.7 B. Tranch 598.9

Tranch 79.5 EX GRO: G06.9 In Tranch 602.9 B. Tranch 598.9

Tranch 79.6 EX GRO: G06.5 In Tranch 603.8 B. Tranch 598.5

Tranch 79.6 EX GRO: G06.5 In Tranch 603.6 B. Tranch 598.5

Tranch 79.6 EX GRO: G06.5 In Tranch 603.6 B. Tranch 598.5

Tranch 79.6 EX GRO: G06.5 In Tranch 603.5 B. Tranch 598.5

Tranch 79.6 EX GRO: G06.5 In Tranch 603.5 B. Tranch 598.5

Tranch 79.6 EX GRO: G06.5 In Tranch 603.5 B. Tranch 598.5

Tranch 79.6 EX GRO: G06.5 In Tranch 603.5 B. Tranch 598.5

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Tranch 79.6 EX GRO: G06.5 In Tranch 603.5 B. Tranch 598.5

Tranch 79.6 EX GRO: G06.5 In Tranch 603.5 B. Tranch 597.5

Tranch 79.8 EX GRO: G06.5 In Tranch 603.5 B. Tranch 597.5

Tranch 79.9 EX GRO: G06.5 In Tranch 603.5 B. Tranch 597.5

Tranch 79.9 EX GRO: G06.5 In Tranch 603.5 B. Tranch 597.5

Tranch 79.9 EX GRO: G06.5 In Tranch 603.5 B. Tranch 597.5

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Tranch 79.9 EX GRO: G07.5 In Tranch 603.5 B. Tranch 597.5

Tranch 79.9 EX GRO: G07.5 In Tranch 603.

SEPTIC SYSTEM DESIGN

THE PROPOSED LISBON VFC BUILDING WILL HAVE A BUNK ROOM. THE BUNK ROOM WILL HAVE A MAXIMUM OF 3 MEMBERS SLEEPING IN IT DURING ANY DAY WHEN THE 300-PERSON SOCIAL HALL IS BEING UTILIZED

MAXIMUM USAGE: 3 PEOPLE @ 100 GPD = 300 GPD + 300-PERSON SOCIAL HALL @ 5 GPD = 1,500 GPD TOTAL DESIGN FLOW = 1,800 GPD

FOR INITIAL SYSTEM: 1,800 GPD / 0.8 APPLICATION RATE = 2,250 S.F.

500 L.F. STD. TRENCH X 63% (CONVERSION FOR DEEP TRENCH) = 315 L.F. DEEP TRENCH REQUIRED FOR SECOND REPLACEMENT SYSTEM:

1,800 GPD / 0.6 APPLICATION RATE = 3,000 S.F. 3,000 S.F. / 3' TRENCH = 1,000 L.F. STD. TRENCH

PROP. PUMP TANK: EX. GRD. ELEV. = 604.00 PROP. GRD. ELEV. = 597.00 INV. IN = 590.93INV. OUT = 592.00

PROP. DISTRIBUTION BOX: EX GRD. ELEV. = 611.00 INV. IN = 608.00 INV. OUT = 607.00

GENERAL NOTES:

OWNER: THE LISBON VOLUNTEER FIRE COMPANY, INC. DEED REFERENCE: LIBER 13092 FOLIO 041 DATE: FEBRUARY 24, 2011

2. TAX MAP: 7 GRID: 11 PARCEL: 488

NEAREST POTABLE WATER SUPPLY: MT. AIRY. DISTANCE: 4 MILES ±

TOPOGRAPHY AND PLANIMETRICS: FROM HOWARD COUNTY GIS, SUPPLEMENTED WITH FIELD LOCATIONS BY VANMAR ASSOCIATES. CONTOUR INTERVAL IS 2 FEET. ERTICAL DATUM IS NAVD88.

THERE ARE NO WELLS OR SEPTIC SYSTEMS WITHIN 100' OF THE PROPERTY BOUNDARY AND 200 ' DOWN GRADIENT UNLESS OTHERWISE SHOWN HEREON.

THE EXISTING WELL SHOWN ON THIS PLAN HAS BEEN FIELD LOCATED BY VANMAR ASSOCIATES AND ACCURATELY SHOWN.

7. SOIL TYPES: GLENELG (GgA, GgB), GLENVILLE (GmA), MANOR (MaC) HOWARD

COUNTY SOILS MAP GRID NO. 307

THE LOTS SHOWN HEREON COMPLY WITH THE MINIMUM OWNERSHIP, WIDTH AND LOT AREAS REQUIRED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT.

ANY CHANGE TO THE LOCATIONS OR DEPTHS OF ANY COMPONENTS MUST BE APPROVED BY THE ENGINEER AND THE HOWARD COUNTY HEALTH DEPARTMENT PRIOR TO INSTALLATION. A REVISED SITE PLAN MAY BE REQUIRED.

10. THE SOURCE OF SOILS INFORMATION SHOWN HEREON IS THE NATURAL RESOURCES CONSERVATION SERVICE.

THE EXISTING WELL HAS BEEN DRILLED AND THE WELL COMPLETION REPORT APPROVED BY THE HOWARD CONTY HEALTH DEPARTMENT (TAG # HO-95-2137).

ALL EXISTING STRUCTURES AFFECTING THE PROPOSED SEPTIC SYSTEM ARE TO BE RAZED PRIOR TO APPROVAL OF BUILDING PERMIT APPLICATION FOR THE NEW FIRE STATION

13. AN EXISTING WELL HAS BEEN SEALED AND THE ABANDONMENT REPORT RECEIVED BY THE

HEALTH DEPARTMENT DOCUMENTS ASSOCIATE SEVERAL WELLS WITH THIS PROPERTY WHICH HAVE NOT BEEN OBSERVED. SHOULD ANY WELL NOT SHOWN ON THIS PLAN BE DISCOVERED DURING DEVELOPMENT OF THIS PROPERTY, THE CONTACTOR IS TO IMMEDIATELY NOTIFY THE HEALTH DEPARTMENT.

15. A WAIVER HAS BEEN APPROVED BY THE HOWARD COUNTY HEALTH DEPARTMENT FOR THE EARTH COVER OVER THE SEPTIC TANKS TO EXCEED 3 FEET. THE EARTH COVER IS NOT TO EXCEED 5 FEET AND THE SEPTIC TANKS ARE DESIGNED TO TRAFFIC BEARING

16. ELECTRICAL WORK FOR THE INSTALLATION MUST BE PERFORMED BY A LICENSED ELECTRICIAN.

17. THE PUMP CHAMBER MUST PASS A FIELD CONDUCTED WATERTIGHT TEST.

SEE SHEET 2 FOR THE SEPTIC SYSTEM LAYOUT AND COMPONENTS

OWNER / DEVELOPER: LISBON VOL. FIRE COMPANY c/o CURTIS LOWREY P.O. BOX 40, LISBON, MD 21765 443-472-7765

PROFESSIONAL CERTIFICATION

HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 18417, EXPIRATION

DATE: 09/18/18 SIGNED Land Thong RONALD E. THOMPSON, P.E.



REVISIONS

8-4-2017 COUNTY COMMENTS

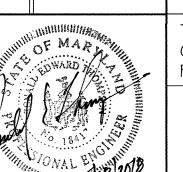
10-9-2017 COUNTY COMMENTS

5-20-2019 REDLINE REVISIONS

1-17-2017 HCHD COMMENTS

SEPTIC SYSTEM PLAN LOT 3, LOWER TRAIL

LISBON VOLUNTEER FIRE CO., INC.



TAX MAP: 7 GRID NO: 11 PARCEL NO: 488 EX. ZONING: RC-DEO

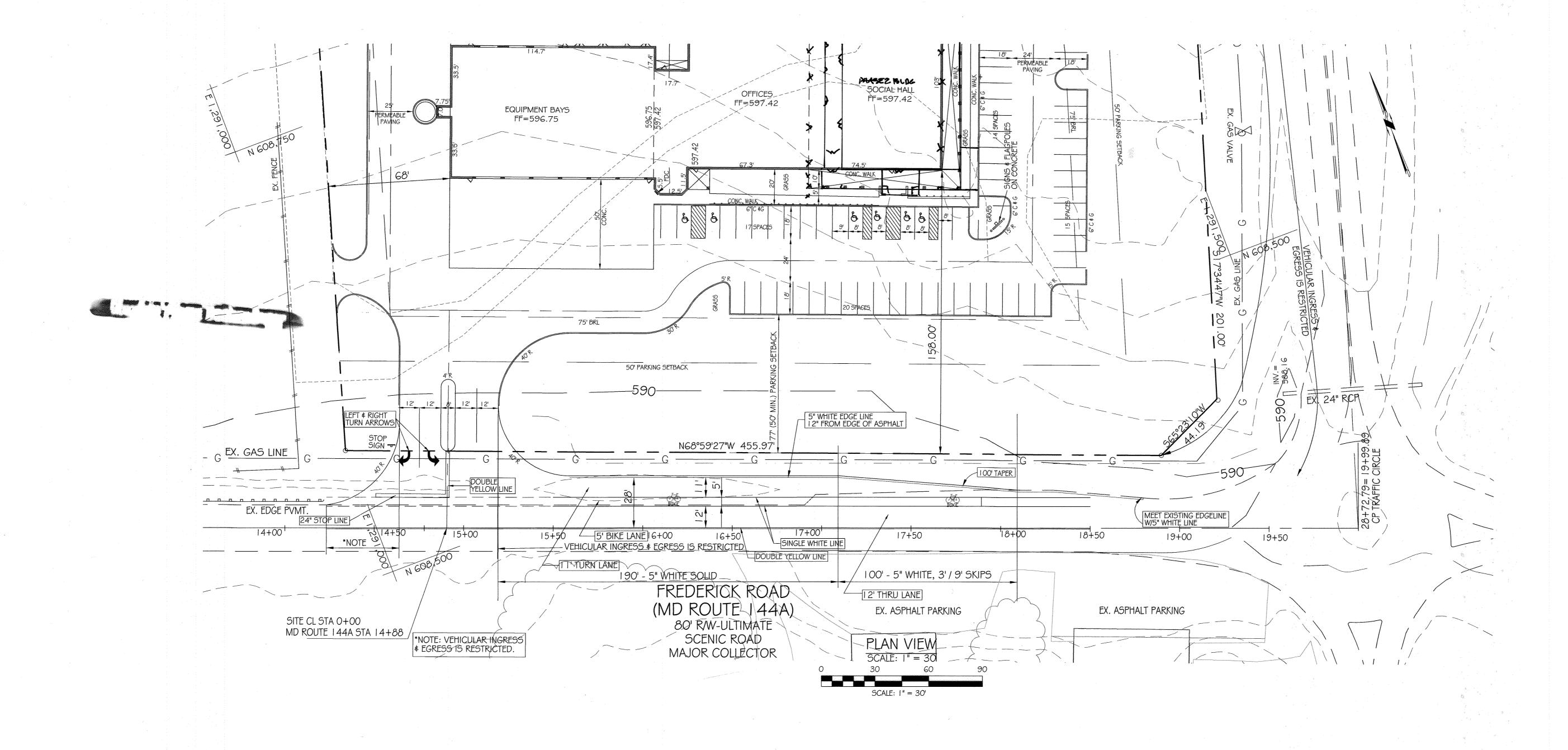
ELECTION DISTRICT: No. 4 HOWARD COUNTY, MARYLAND

SCALE: AS NOTED DATE: JANUARY, 2017 SHEET 13 OF 15



VANMAR ASSOCIATES, INC. Engineers Surveyors Planners 310 South Main Street Mount Airy, Maryland 21771 (301) 829-2890 (301) 831-5015 (410) 549-2751

vanmar.com Fax (301) 831-5603 @Copyright, Latest Date Shown SDP-17-035



APPROVED HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING 7-12-18 DATE KertSenlooh 7-11-18 CHIEF, DIVISION OF LAND DEVELOPMENT DATE Chil Edunh 6.12.18

CHIEF, DEVELOPMENT ENGINEERING DIVISION & DATE

OWNER / DEVELOPER: LISBON VOL. FIRE COMPANY clo CURTIS LOWREY P.O. BOX 40, LISBON, MD 21765 443-472-7765

PROFESSIONAL CERTIFICATION

HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 18417, EXPIRATION DATE: 09/18/19

SIGNED RONALD E. THOMPSON, P.E. DATE 5/18/2018

DATE REVISIONS
8-4-2017 COUNTY COMMENTS
10-9-2017 COUNTY COMMENTS
1-18-2018 SHA COMMENTS

4-8-2021 APP PHASE 2 18-06

MDOT SHA TRACKING NUMBER 1 1 APHOO 1 4XX STATE HIGHWAY STRIPING PLAN AND DETAILS

LOT 3, LOWER TRAIL LISBON VOLUNTEER FIRE CO., INC.

TAX MAP: 7 GRID NO: 11

ELECTION DISTRICT: No. 4 HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN DATE: AUGUST, 2017 PARCEL NO: 488 EX. ZONING: RC-DEO SHEET 14 OF 15



VANMAR
ASSOCIATES, INC.
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