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1	COVER SHEET
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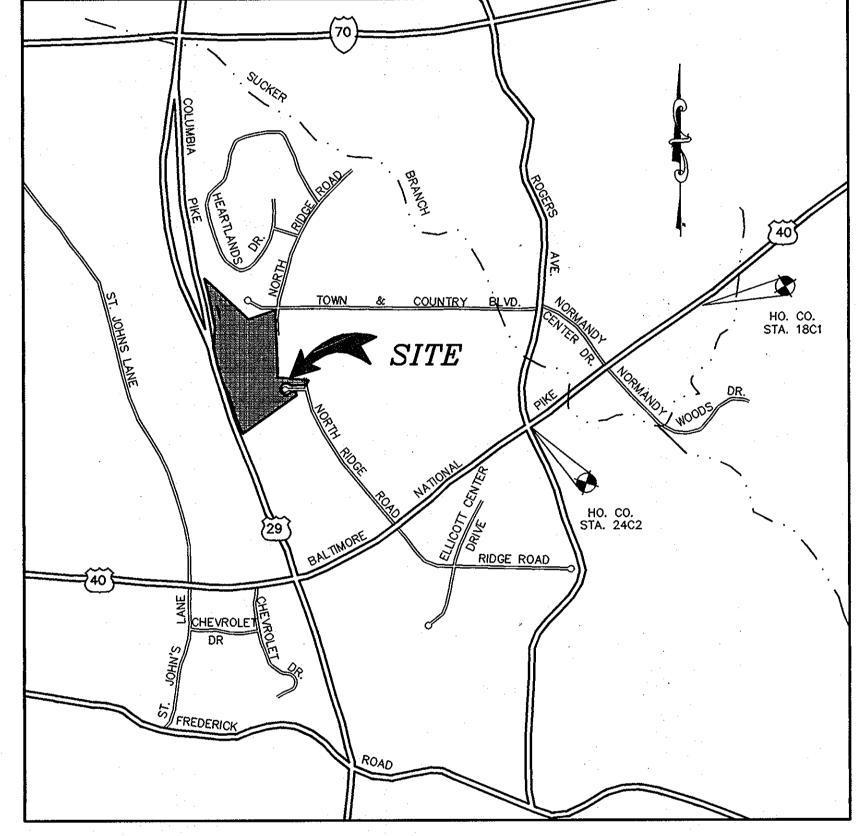
SITE DEVELOPMENT PLAN EXECUTIVE CENTER ELLICOTT CITY WAL-MART PARCEL D 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND

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	/

SUBDIVISION NAME ELLICOTT CITY WAL-MART	SECTION/AREA		ARCEL # EL - D
PLAT # BLOCK # ZON 19014&19015 23 & 5 POI	-	ELEC. DIST. 2ND	CENSUS TRACT 602600
WATER CODE FO3	SEWER CODE	1452800	

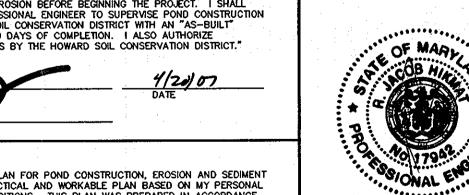
GENERAL NOTES (CONT.)

33. VARIANCE PETITION (BOA CASE NO. 11-025V) TO REDUCE THE 75-FOOT STRUCTURE AND USE SETBACK PROM REGIDENTIAL DISTRICTS TO SO FEET FOR PARKING IN POR (PLANNED OFFICE RESEARCH) ZONING DISTRICT WAS GRANTED ON DECEMBER 5, 2011.



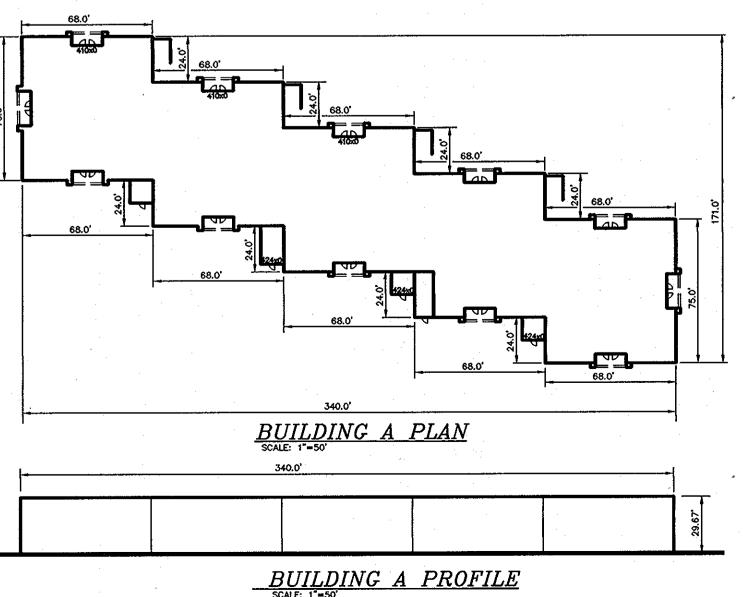
VICINITY MAP

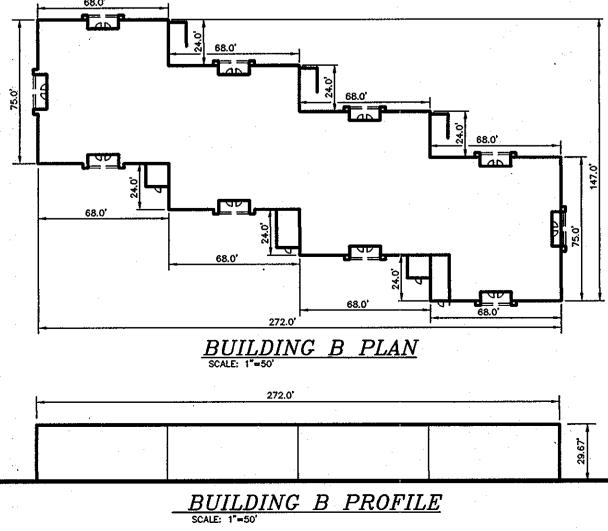
SCALE: 1" = 1000'



<u>OWNER/DEVELOPER</u>

EXECUTIVE CENTER PARCEL D LIMITED PARTNERSHIP 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MD 21093 (410) 825-8400





GENERAL NOTES:

- 1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
- 2. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/CONSTRUCTION INSPECTIONS DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR
- TO THE START OF WORK. 3. THE CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST

FIVE (5) DAYS PRIOR TO ANY EXCAVATION WORK: C&P TELEPHONE COMPANY (410) 725-9976 HOWARD COUNTY BUREAU OF UTILITIES (410) 313-4900 AT&T CABLE LOCATION DIVISION (410) 393-3533 BALTIMORE GAS & ELECTRIC (410) 685-0123 STATE HIGHWAY ADMINISTRATION (410) 531-5533 HOWARD COUNTY DEPT. OF PUBLIC WORKS/ CONSTRUCTION INSPECTION DIVISION (410) 313-1880

4. PROJECT BACKGROUND:

- LOCATION: 2ND ELECTION DISTRICT, TAX MAP 17 & 24, BLOCKS 23 & 5, P/O PARCEL 1085. TOTAL TRACT AREA OF PARCEL D: 17.12 Ac.±
- DATE PREVIOUS PLANS APPROVED AND DPZ REFERENCE # F-96-01, F-96-09, F-99-208, SDP-96-01, SDP-98-29, WP 99-52, WP 98-48 WP 04-33; WP 05-22; WP 06-32; WP 00-38; GP 98-81; Fo1-098.
- 5. TOPOGRAPHY SHOWN HEREON IS BASED ON AERIAL PHOTOGRAPHIC MAPPING PREPARED BY MAPPING ASSOCIATES DATED OCTOBER 1986. AND FIELD TOPOGRAPHY BY MILDENBERG. BOENDER AND ASSOC.,INC. ON NOVEMBER 1997 AND APRIL 2002. HOWARD COUNTY 200 SCALE TOPOGRAPHIC MAPS WERE USED FOR OFF-SITE DRAINAGE AREA MAP.
- 6. COORDINATES BASED ON NAD '83, MARYLAND COORDINATE SYSTEM AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS No. 18G1 AND 24C2. STA. No. 18G1 N 589,984.951 E 1,367,750.255 EL. 408.50 STA. No. 24C2 N 588,648.316 E 1,366,038.135 EL. 354.78
- 7. WATER AND SEWER ARE PUBLIC. CONNECTED TO PROJECT # 14--3453-D & 14-3444-D.
- 8. WATER HOUSE CONNECTIONS ARE FOR INSIDE METER SETTING, FOR ALL CONNECTIONS.
- 9. STORMWATER MANAGEMENT IS PROVIDED BY P-1 MICRO POOL EXTENDED DETENSION IN ACCORDANCE WITH THE 2000 MARYLAND STORMWATER DESIGN MANUAL, VOLUMES I & II. . STORMWATER MANAGEMENT WILL BE PRIVATELY OWNED AND MAINTAINED.
- 10. THERE ARE NO WETLAND AREAS WHICH WILL BE AFFECTED BY THE PROPOSED CONSTRUCTION.
- 11. THE PROPOSED SWM FACILITY PREVIOUSLY RECEIVED A DESIGN MANUAL WAIVER FOR
- FOREBAY, SAFETY BENCH AND 12' ACCESS BENCH. 12. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN WETLANDS AND STREAM
- BUFFERS OR FOREST CONSERVATION EASEMENT. EXCEPT AS SHOWN ON APPROVED PLANS.
- 13. USE CONCRETE CURB AND GUTTER STD. R-3-01 UNLESS OTHERWISE NOTED. 14. USE HOWARD COUNTY STD. P-2 PAVING SECTION AND SIDEWALK STD. DET. R-3.05 UNLESS
- OTHERWISE SHOWN. 15. SITE ANALYSIS DATA CHART: TOTAL PROJECT AREA: 17.12 Ac ±

LIMIT OF DISTURBED AREA: 9.78 Ac. ±

- PRESENT ZONING: POR
- PROPOSED USE: GENERAL OFFICE-2 STORY BUILDING-TOTAL AREA-51,910 SQ.FT. (25,890 SQ.FT- FIRST FLOR, 26,020 SQ.FT.- SECOND FLOOR)
- PROPOSED USE: GENERAL OFFICE-2 STORY BUILDING-TOTAL AREA-41,670 SQ.FT.
- (20,835 SQ.FT.- EACH FLOOR) TOTAL OFFICE SPACE PROPOSED: 93.580 SQ.FT.
- TOTAL NUMBER OF PARKING SPACES REQUIRED (3.3 SPA. PER 1,000 SQ.FT.)=309 SPA. TOTAL NUMBER OF PARKING SPACES PROVIDED: 410
- 16. ALL STORM DRAIN PIPE TO BE H.D.P.E..PIPES UNLESS OTHERVISE NOTED.
- 17. ALL OUTDOOR LIGHTING SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH ZONING SECTION 134.
- 18. THIS PROJECT IS SUBJECT TO WP 99-52 (SECTION 16.116(a)(1), TO ALLOW GRADING AND REMOVAL OF VEGETATIVE COVER WITHIN WETLAND AND BUFFER AREAS: 2, 3, 4, 5 AND 6 AS APPROVED ON MAY 7, 1999. AND WP-98-48 (SECTION 16.155(a)(1)(I) TO PERMIT ISSUANCE OF A GRADING PERMIT FOR MASS GRADING ASSOCIÀTED WITH DEVELOPMENT WITHOUT AN APPROVED SITE DEVELOPMENT PLAN, APPROVED ON DECEMBER 8, 1997, AND CONSTRUCTED UNDER GP 98-81
- 19. THE FOREST CONSERVATION OBLIGATIONS FOR THE SUBDIVISION OF ELLICOTT CITY WAL-MART, PARCELS B, C, AND D HAVE BEEN MET BY PROVIDING A TOTAL OF 6.2065 ACRES OF ON-SITE RETENTION IN 3 FCE'S. 1.50 ACRES OF ON-SITE REFORESTATION IN ONE FCE AND TWO FEE-IN-LIEU PAYMENTS TOTALING \$51,179.44 TO THE HO. CO. FOREST CONSERVATION FUND AS PART OF THE APPROVAL CONDITIONS OF F-96-009, F-96-001 AND F-99-208. AND THE ABANDONMENT OF 0.04 ACRES OF RETENTION FCE 4 AND THE CREATION OF 0.04 ACRES RETENTION FCE 3-A PER THIS PLAN AND F-99-208.
- 20. LANDSCAPING HAS BEEN PROVIDED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING (91 SHADE TREES, 80 EVERGREENS, 64 SHRUBS) HAS BEEN POSTED AS PART OF THE DPW DEVELOPERS AGREEMENT IN THE AMOUNT OF \$41,220.00
- 21. NO CEMETERIES OR HISTORIC STRUCTURES EXIST ON SITE.
- 22. NO EXISTING STRUCTURES EXIST ON SITE.
- 23. TRAFFIC STUDY BY THE TRAFFIC GROUUP, APPROVED ON JUNE 09, 2006.
- 24. CONTRACTOR TO VERIFY THE LOCATION OF ALL EXISTING UTILITIES ON SITE PRIOR TO COMMENCING CONSTRUCTION.
- 25. THIS PROJECT IS SUBJECT TO WP-98-049, APPROVED DECEMBER 8, 1997, TO WAIVE SECTION 16.155(a)(1)(i) TO PERMIT MASS GRADING WITHOUT APPROVED SITE DEVELOPMENT PLAN. AND WP-00-038, APPROVED OCTOBER 21, 1999. TO WAIVE SECTIONS 16.123(a)(2) AND 16.155(a)(i) TO PERMIT GRADING WITHOUT APPROVED SDP. AND WP-02-006, APPROVED AUGUST 28, 2001 TO WAIVE SECTION 16.156(m)(1)&(2) TO REACTIVATE SDP-98-29 AND GRANT A 1 YEAR EXTENSION TO APPLY FOR GRADING PERMIT. AND WP-04-033. APPROVED OCTOBER 2, 2003, TO WAIVE SECTION 16.156(m)(1)&(2) TO GRANT 1 YEAR EXTENSION TO APPLY FOR GRADING PERMIT AND 2 YEAR EXTENSION TO APPLY FOR BUILDING PERMIT. AND WP-05-22, APPROVED OCTOBER 15, 2004 TO WAIVE SECTION 16.156(m)(1)&(2) TO PERMIT EXTENSION FOR GRADING AND BUILDING PERMITS. AND WP-06-032, DENIED DECEMBER 2, 2005 TO WAIVE SECTIONS 16.156(m)(1)(ii) & 16.156(m)(1)(i) & 16.156 (m)(2) TO REACTIVATE SDP-98-29 AND GRADING & BUILDING PERMITS EXTENSION.
- SDP-98-029 BECAME NULL AND VOID ON 10/15/05 BECAUSE THE NEW DEADLINE DATE OF 10/15/05 TO APPLY FOR A BUILDING PERMIT FOR AT LEAST ONE OF THE BUILDINGS ON SDP-98-029 IN ACCORDANCE WITH THE WP-05-022 APPROVAL LETTER OF 10/15/04 WAS NOT COMPLIED WITH.
- TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNAGE SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
- 28. THERE IS NO FLOODPLAIN ON THE SITE.
- 29. ALL PLAN DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
- THE STREET LIGHT LOCATION AND TYPE OF LIGHTS SHOWN AT THE SITE ENTRANCE IS AS FOLLOWS 250-WATT HPS VAPOR FIXTURE (SAG) MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12' ARM AT LINEAR PROFILE STA. 0+88 AND STA. 2+20, OFFSET 5' OF FACE OF CURB. ON-SITE OUTDOOR LIGHTING FIXTURE SHALL BE FULL CUTOFF, RECTANGULAR FIXTURES. LIGHT FIXTURES SHALL BE 250 WATT HPS VAPOR, MOUNTED ON A 30' BRONZE FIBERGLASS POLE LOCATED AS SHOWN
- ALL BRIDGES WILL HAVE HANDRAILS EXTENDED A MINIMUM ONE FOOT BEYOND THE RAMP.
- 32. CONSTRUCTION OF RETAINING WALLS SHALL BE MONITORED BY A MARYLAND REGISTERED PROFESSIONAL



PROFESSIONAL CERTIFICATION

HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT IAM A DULY LICENSED. Professional Engineer under MARYLAND, LICENSE NO. 8818, EXPIRATION DATE: 10/17/12.

of **17**

SDP-06-094

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V

MILDENBE BOENDER

AS-BUILT CERTIFICATION I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AND ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES. "I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, 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 SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT"

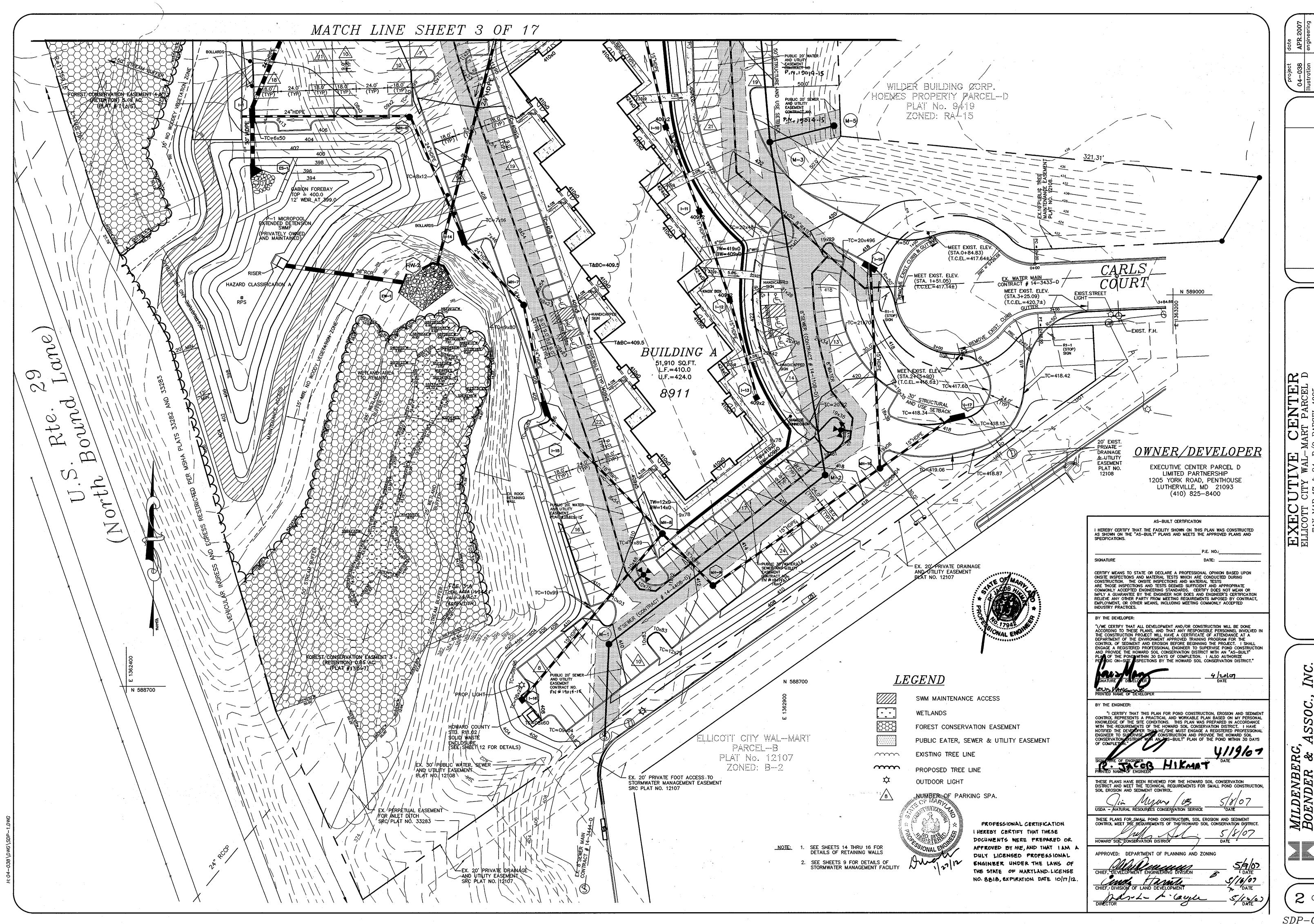
PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE TIONS BY THE HOWARD SOIL CONSERVATION DISTRICT. "I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

SIGNATURE OF ENGINEER

PRINTED NAME OF ENGINEER THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION,

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

APPROVED: DEPARTMENT OF PLANNING AND ZONING



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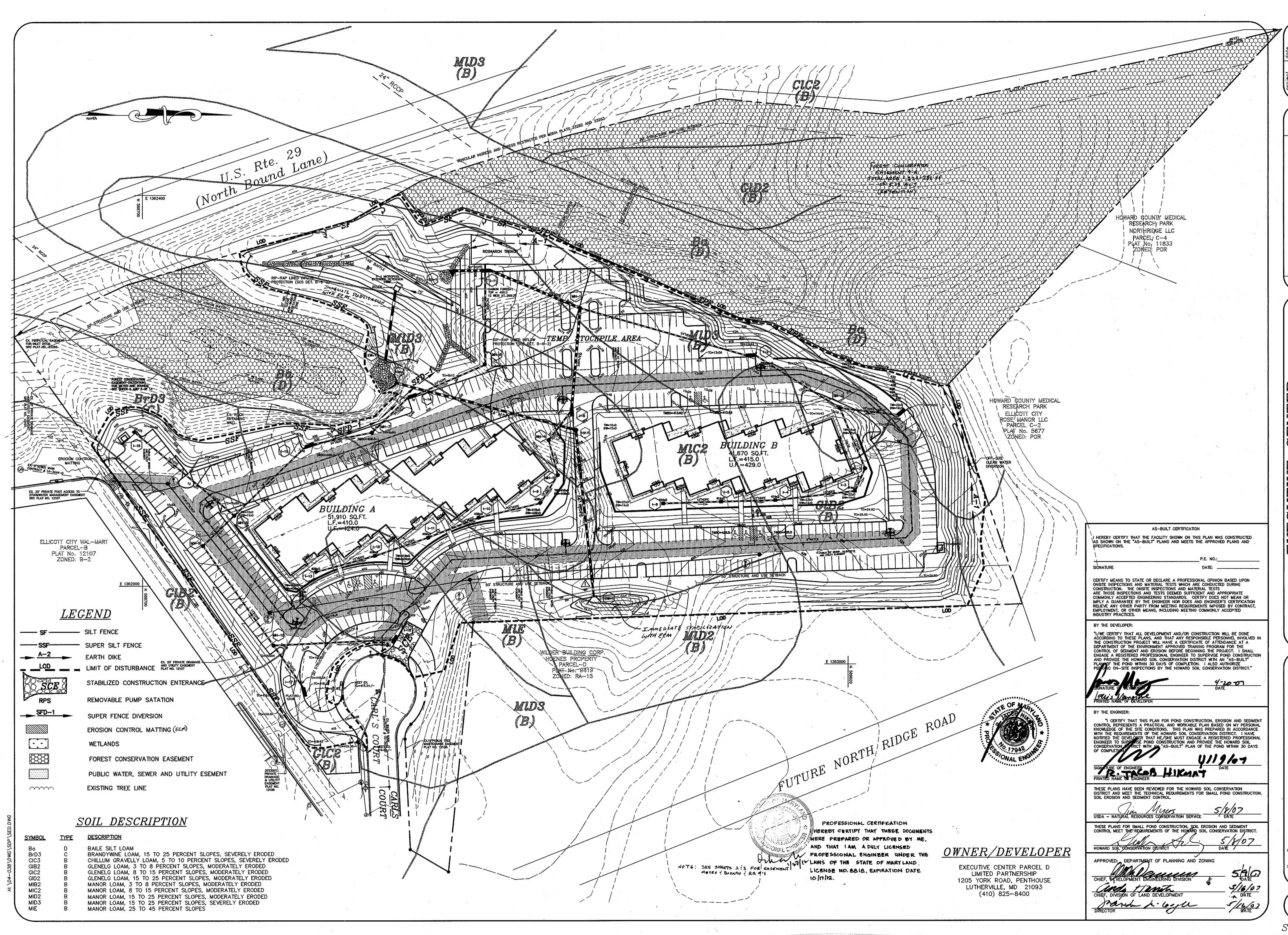
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ASSO

MILDENBERG, BOENDER &

3 of 17



SSOC.

ELECTION DIS EROSION

DP-06-094

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HOWARD SOIL CONSERVATION DISTRICT PERMANENT SEEDING NOTES

APPLY TO GRADED OR CLEARED AREAS NOT SUBJECT TO IMMEDIATE FURTHER DISTURBANCE WHERE A PERMANENT LONG-

SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING , DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

- SOIL AMENDMENTS: IN LIEU OF SOIL TEST RECOMMENDATIONS, USE ONE OF THE FOLLOWING SCHEDULES: 1) PREFERRED -- APPLY 2 TONS PER ACRES DOLOMITIC LIMESTONE (92 LBS/1000 SQ.FT.) AND 600 LBS. PER ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ.FT.) BEFORE SEEDING. HARROW OR DISK INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING, APPLY
 - 400 LBS. PER ACRE 30-0-0 UREAFORM FERTILIZER (9 LBS./1000 SQ.FT.). ACCEPTABLE - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS./1000 SQ.FT.) AND 1000 LBS. PER ACRE 10-10-10 FERTILIZER (23 LBS./1000 SQ.FT.) BEFORE SEEDING. HARROW OR DISK INTO UPPER THREE INCHES OF SOIL.

SEEDING - FOR THE PERIODS MARCH 1 THRU APRIL 30, AND AUGUST 1 THRU OCTOBER 15, SEED WITH 60 LBS. PER ACRE 1.4 LBS/1000 SQ.FT.) OF KENTUCKY 31 TALL FESCUE. FOR THE PERIOD MAY 1 THRU JULY 31, SEED WITH 60 LBS. KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LOBS. PER ACRE (.05 LBS./1000 SQ.FT.) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 THRU FEBRUARY 28, PROTECT SITE BY: OPTION (1) - 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. OPTION (2) - USE SOD. OPTION (3) -SEED WITH 60 LBS./ACRE KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONE/ACRE WELL ANCHORED STRAW.

MULCHING - APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS./1000 SQ.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 ON FLAT AREAS. ON SLOPES 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 REDISTURBED 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, FOR NOT PREVIOUSLY LOOSENED.

SOIL AMENDMENTS: APPLY 600 LBS. PER ACRE 10-10-10 FERTILIZER (14 LBS./1000 SQ.FT.)

SEEDING: FOR PERIODS MARCH 1 THRU APRIL 30 AND FROM AUGUST 15 THRU OCTOBER 15, SEED WITH 2-1/2 BUSHEL PER ACRE OF ANNUAL RYE (3.2 LBS./1000 SQ.FT.) FOR THE PERIOD MAY 1 THRU AUGUST 14. SEED WITH 3 LBS. PER ACRE OF WEEPING LOVEGRASS (.07 LBS./1000 SQ.FT.). FOR THE PERIOD NOVEMBER 16 THRU NOVEMBER 28, PROTECT SITE BY APPLYING 2 TONS PER ACRE 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 PER ACRE (70 TO 90 LBS./1000 SQ.FT.) OF UNROTTED WEED FREE SMALL GRAIN

TOOL OR 218 GAL PER ACRE (5 GAL/1000 SQ.FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES 8 FEET OR STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING HIGHER, USE 348 GAL PER ACRE (8 GAL/1000 SQ.FT.) FOR ANCHORING. REFER TO THE 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR ADDITIONAL RATES AND METHODS NOT COVERED.

STANDARD SEDIMENT CONTROL NOTES

- 1) A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF NAY
- ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT "MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL", AND REVISIONS THERETO.
- FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1, B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
- ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12, OF THE HOWARD COUNTY DESIGN MANUAL STORM DRAINAGE.
- ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1991 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC.51), SOD (SEC. 54), TEMPORARY SEEDING (SEC. 50) AND MULCHING (SEC.52). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
- 6) 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 HOWARI COUNTY SEDIMENT CONTROL INSPECTOR.

7) SITE ANALYSIS: 17.12 ACRES TOTAL AREA OF SITE AREA TO BE ROOFED OR PAVED: _ ACRES ACRES AREA TO BE VEGITATIVELY STABILIZED: 35,000 CU. YDS. 35,000 CU. YDS. TOTAL CUT TOTAL FILL TOTAL WASTE/BORROW AREA LOCATION:

THESE QUANTITIES ARE FOR PERMIT PURPOSES ONLY CONTRACTOR IS REQUIRED TO PROVIDE HIS OWN QUANTITIES MEASUREMENTS.

- 8) ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
- 9) ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- 10) ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS. BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
- 11) TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN BE BACK FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

SEQUENCE OF CONSTRUCTION

- OBTAIN GRADING PERMIT
- 2. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE, WITH MOUNTABLE BERM, AT LOCATION SHOWN. (1 DAY)
- 3. CONSTRUCT SUPER SILT FENCES AND SEDIMENT BASIN
- WITH MATERIALS ON SITE. (4 DAYS)
- 4. CONSTRUCT DIVERSION DIKES AS INDICATED (1 DAY)
- WITH PERMISSION OF INSPECTOR BRING SITE TO GRADE, INCLUDING STORM DRAIN SYSTEM. DELAY CONSTRUCTION OF RECHARGE TRENCH (30 DAYS)
- 6. CONSTRUCT BUILDINGS, PAVEMENT AND CURB AND GUTTER AS INDICATED (35 DAYS)
- WHEN ALL CONTRIBUTING AREAS TO STORM DRAIN SYSTEM HAVE BEEN STABILIZED, CONSTRUCT RECHARGE TRENCH (35 DAYS)
- 8. STABILIZE ALL REMAINING DISTURBED AREAS. (3 DAYS)
- WHEN ALL CONTRIBUTING DRAINAGE AREAS TO SEDIMENT CONTROL DEVICES HAVE BEEN STABILIZED AND WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL DEVICES AND STABILIZE REMAINING DISTURBED AREAS. (3 DAYS)
- 10. WHEN ALL CONTRIBUTING DRAINAGE AREAS TO THE SEDIMENT BASIN HAVE BEEN STABILIZED AND WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, CONVERT SEDIMENT BASIN TO PERMANENT SWMF: (15 DAYS)
 - * REPLACE SEDIMENT CONTROL LOW FLOW PLATE WITH PERMANENT LOW FLOW PLATE AT RISER STRUCTURE
 - * STABILIZE DISTURBED AREA.
- 11. PROVIDE AS-BUILT OF COMPLETED SWM FACILITY TO HOWARD SOIL CONSERVATION DISTRICT

STANDARD AND SPECIFICATIONS FOR TOPSOIL

TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CONTENT,

DEFINITION

PLACEMENT OF TOPSOIL OVER A PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION.

LOW NUTRIENT LEVELS, LOW pH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.

CONDITIONS WHERE PRACTICE APPLIES

- THIS PRACTICE IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE a. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE
- b. 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.
- c. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.

d. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE

FOR THE PURPOSE OF THESE STANDARDS AND SPECIFICATIONS, AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN FOR ADEQUATE STABILIZATION. AREAS HAVING SLOPES STEEPER THAN 2:1 SHALL HAVE THE APPROPRIATE STABILIZATION SHOWN ON THE PLANS.

CONSTRUCTION AND MATERIAL SPECIFICATIONS

- TOPSOIL SALVAGED FROM THE EXISTING SITE MAY BE USED PROVIDED THAT IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATION. 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-SCS IN COOPERATION WITH MARYLAND AGRICULTURAL EXPERIMENTAL STATION. II. TOPSOIL SPECIFICATIONS - SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING:
- TOPSOIL SHALL BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. REGARDLESS, TOPSOIL SHALL NOT BE A MIXTURE OF CON-TRASTING TEXTURED SUBSOILS AND SHALL CONTAIN LESS THAN 5% BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1 1/2" IN
- ii. TOPSOIL MUST BE FREE OF PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACKGRASS, JOHNSON-SON GRASS, NUTSEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.
- WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, GROUND LIMESTONE SHALL BE SPREAD AT THE RATE OF 4-8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL. LIME SHALL BE DISTRIBUTED UNIFORMLY OVER DESIGNATED AREAS AND WORKED INTO THE SOIL IN CONJUNCTION WITH TILLAGE OPERATIONS AS DESCRIBED IN THE FOLLOWING PROCEDURES.
- III. FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES:
 - PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION - SECTION I - VEGETATIVE STABILIZATION METHODS AND MATERIALS.
- IV. FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES:
 - ON SOIL MEETING TOPSOIL SPECIFICATIONS. OBTAIN TEST RESULTS DICTATING FERTILIZER AND LIME AMENDMENTS REQUIRED TO BRING THE SOIL INTO COMPLIANCE WITH THE FOLLOWING:
 - PH FOR TOPSOILS SHALL BE BETWEEN 6.0 AND 7.5. IF THE TESTED SOIL DEMONSTRATES A PH OF LESS THAN 6.0, SUFFICIENT LIME SHALL BE PERSCRIBED TO RAISE THE pH TO 6.5 OR HIGHER.
 - b. ORGANIC CONTENT OF TOPSOIL SHALL BE NOT LESS THAN 1.5 PERCENT BY WEIGHT. c. TOPSOIL HAVING SOLUBLE SALT CONTENT GREATER THAN 500 PARTS PER MILLION SHALL NOT BE USED.
 - d. NO SOD OR SEED SHALL 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.
 - NOTE: 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
 - ii. PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION - SECTION I - VEGETATIVE STABILIZATION METHODS AND MATERIALS.
- V. TOPSOIL APPLLICATION

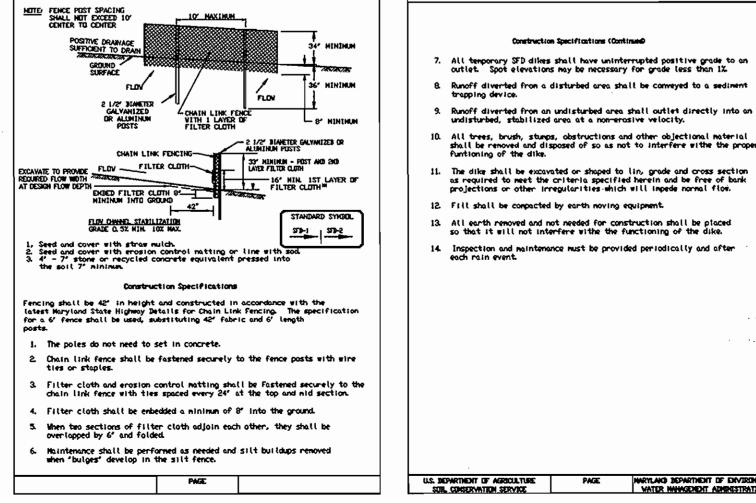
DETAIL - SUPER FENCE DIVERSION

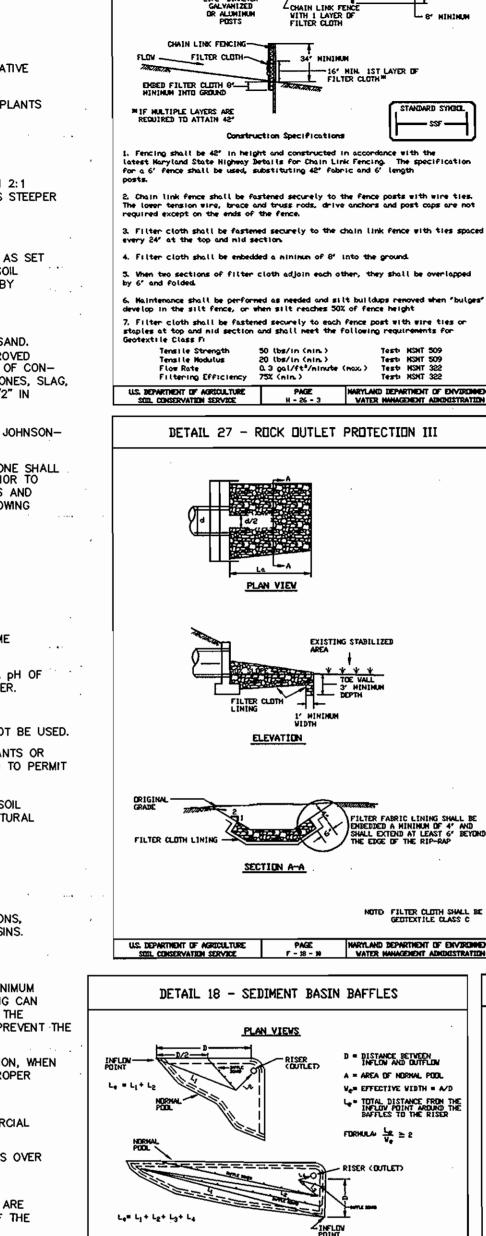
- WHEN TOPSOILING, MAINTAIN NEEDED EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, EARTH DIKES, SLOPE SILT FENCE AND SEDIMENT TRAPS AND BASINS.
- ii. GRADES ON THE AREAS TO BE TOPSOILED, WHICH HAVE BEEN PREVIOUSLY ESTABLISHED, SHALL BE MAINTAINED, ALBEIT 4" - 8" HIGHER IN ELEVATION.
- iii. TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 4" TO 8" LAYER AND LIGHTLY COMPACTED TO A MINIMUM THICKNESS OF 4". SPREADING SHALL 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 SHALL BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
- IV. TOPSOIL SHALL NOT BE PLACED WHILE 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
- ALTERNATIVE FOR PERMANENT SEEDING INSTEAD OF APPLYING THE FULL AMOUNTS OF LIME AND COMMERCIAL FERTILIZER, COMPOSTED SLUDGE AND AMENDMENTS MAY BE APPLIED AS SPECIFIED BELOW:
 - COMPOSTED SLUDGE MATERIAL FOR USE AS A SOIL CONDITIONER FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES SHALL BE TESTED TO PRESCRIBE AMENDMENTS AND FOR SITES HAVING AREAS UNDER 5 ACRES SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:
 - a. COMPOSTED SLUDGE SHALL BE SUPPLIED BY, OR ORIGINATE FROM, A PERSON OR PERSONS WHO ARE PERMITTED (AT THE TIME OF ACQUISITION OF THE COMPOST) BY THE MARYLAND DEPARTMENT OF THE
 - b. COMPOSTED SLUDGE SHALL CONTAIN AT LEASE 1 PERCENT NITROGEN, 1.5 PERCENT PHOSPHOURUS, AND 0.2 PERCENT POTASSIUM AND HAVE A Ph OF 7.0 TO 8.0. IF COMPOST DOES NOT MEET THESE REQUIREMENTS, THE APPROPRIATE CONSTITUENTS MUST BE ADDED TO MEET THE REQUIREMENTS PRIOR TO USE.

SUPER FENCE DIVERSION

- c. COMPOSTED SLUDGE SHALL BE APPLIED AT A RATE OF 1 TON/1,000 SQUARE FEET.
- iv. COMPOSTED SLUDGE SHALL BE AMENDED WITH A POTASSIUM FERTILLIZER APPLIED AT THE RATE OF 4 LB/1,000 SQUARE FEET, AND 1/3 THE NORMAL LIME APPLICATION RATE.

REFERENCES: GUIDELINE SPECIFICATIONS, SOIL PREPARATION AND SODDING. MD-VA, PUB. #1, COOPERATIVE EXTENSION SERVICE, UNIVERSITY OF MARYLAND AND VIRGINIA POLYTECHNIC INSTITUTES. REVISED 1973.





BETAIL 33 - SUPER SILT FENCE

EXISTING STABILIZED AREA

DISTANCE BETVEEN INFLOW AND DUTFLOW

A = AREA OF NORMAL POOL

FORHULA LE > 2

V.= EFFECTIVE VIDTH = A

L. TOTAL DISTANCE FROM THE INFLOW POINT AROUND THE BAFFLES TO THE RISER

EROSION AND SEDIMENT CONTROL NOTES

BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.

CONTROL IN DEVELOPING AREAS.

1. ALL SEDIMENT CONTROL OPERATIONS ARE TO BE DONE IN ACCORDANCE WITH SECTION 219 OF THE

3. ALL EXCAVATED MATERIALS SHALL BE STOCKPILED ON THE UPGRADE SIDE OF THE MAIN TRENCH.

HOWARD COUNTY VOLUME IV DESIGN MANUAL AND THE STANDARDS AND SPECIFICATIONS FOR SEDIMENT

4. EXCAVATION AND BACKFILL SHALL BE LIMITED TO THAT WHICH CAN BE STABILIZED WITHIN ONE WORKING DAY.

2. ALL EROSION AND SEDIMENT CONTROL DEVICES SHALL BE INSTALLED AS THE FIRST ORDER OF BUSINESS.

5. IMMEDIATELY FOLLOWING BACKFILL OF THE SEWER TRENCH, ALL DISTURBED AREAS ARE TO BE STABILIZED

6. THROUGHOUT THE PROJECT, THE CONTRACTOR SHALL REGULARLY INSPECT ALL SEDIMENT CONTROL DEVICES

7. ALL SEDIMENT CONTROL FACILITIES SHALL REMAIN IN PLACE UNTIL PERMISSION FOR THEIR REMOVAL HAS

AND PROVIDE ALL NECESSARY MAINTENANCE TO INSURE THAT ALL DEVICES ARE IN OPERATIVE CONDITION.

IN ACCORDANCE WITH THE PERMANENT STABILIZATION AND SEEDING NOTES SHOWN ON THIS SHEET.

SECTION A-A

CONSTRUCTION SPECIFICATIONS 1. The subgrade for the filter, rip-rap, or gabion shall be prepared to the required lines and grades. Any fill required in the subgrade shall be -EXISTING GROUND compacted to a density of approximately that of the surrounding undisturbed The rock or gravel shall conform to the specified grading limits when installed respectively in the rip-rap or filter. 3. Geotextile shall be protected from punching, cutting, or tearing. Any damage other damage other than an occasional small hole shall be repaired by placing another piece of geotextile over the damaged part or by completely replacing the geotextile. All overlaps whether for repairs or for joining two places of geotextile shall be a minimum of one foot. 4. Stone for the rip-rap or gabion outlets may be placed by equipment. They shall be constructed to the full course thickness in one operation and in such a monner as to avoid displacement of underlying materials. The stone for rip-rap or gabion outlets shall be delivered and placed in a manner to prevent danage to the filter blanket or geotextile. Hand placement will JOSHY2 GRADNAT2

ROCK DUTLET PROTECTION III

PAGE INARYLAND DEPARTMENT OF ENVIRONM
H - 26 - 3A VATER NANAGEMENT ADMONSTRATED

SUPER SILT FENCE

(nex)nun)

200 feet

100 feet

100 feet

50 feet

(maximum)

1,500 feet

1,000 feet

500 feet

250 feet

Design Criteria

Steepness

10-1 - 5-1

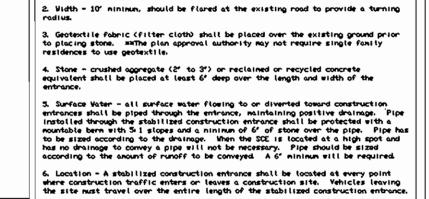
51-31

2:1+

The stone shall be placed so that it blends in with the existing ground. If the stone is placed too high then the flow will be forced out of the channel and scour adjacent to the stone will occur.

REMOVABLE PUMP STATION

ELEVATION



BETAIL 22 - SILT FENCE

O lbs/in (nin.)
3 gal ft1/ ninute (nax.)

MINIMUM 6' DF 2'-3' AGGREGATE OVER LENGTH AND VIDTH OF STRUCTURE

PROFILE

PLAN VIE

1. Length – minimum of 50' (#30' for single residence lot).

PERSPECTIVE VIEW

■ GEDTEXTILE CLASS 'C'-

SPECIFICATIONS FOR REMOVABLE PUMP STATION REMOVABLE PUMPING STATION escription of Practic A temporary stuncture which is used to remove water from exacvated areas, sediment traps and basins. The pumping station will be used to devater sediment traps and basins for maintenance or removal.

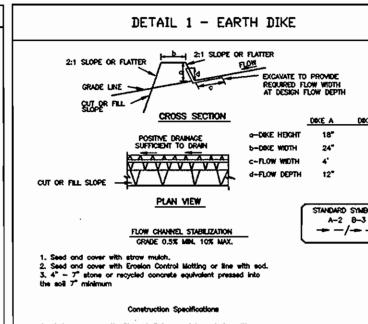
A design is not requierd but construction must conform to the general criteria outlined on the next page. Water pumped from the standpipe should discharge into a sediment traap, sediment basin of stabilized area. If water from the sump pit will be pumped directley to a storm drainage system, geotextile fabric and wire mesh must be wrapped around the standpipe to ensure clean water discharge. Water pumped from the standpipe should discharge into a sediment trap, sediment basin or stabilized area.

1. the inner pipe shall be constructed by perforating a 12" to 36" diameter pipe with a waterlight cap on the bottom end and erapping it with 1/2" hordware cloth and Geotexnile Class E. The perforations shall be 1/2"X6" slits or 1" diameter holes 6" on center. Filter material ranging from clean gravet (minimum fines) to #57 stone
 1/2" maximum diameter) should be backfilled around the outer pipe. 4. The suction hose from the pump shall be placed inside the inner pipe to begin devatering, the discharge hose shall be placed in a stabilized areas downslope of unstabilized areas to prevent erosion. Headow or wooded areas are preferred discharge locations but storm drain and paved areas ore acceptable. Maintenance- The inner pipe can easily be removed to facilitate changing the geotextile when it clogs. Maintenance must be performed when the pump runs dry abd backed up water remains.

EXECUTIVE CENTER PARCEL D LIMITED PARTNERSHIP 1205 YORK ROAD, PENT HOUSE LUTHERVILLE, MARYLAND 21093 (410) 825-8400 ATTN: LOUIS MANGIONE

Silt Fence Besign Criteria Slope Length Silt Fence Length 1,000 feet 750 feet 60 feet 5-1 to 3-1 31 to 21 & 1 and steepe system, soil Class A) maximum slope length and silt fence length will be unlimited. In these areas a silt fence may be the only perimeter control ----\$F----1. Fence posts shall be a minimum of 36' long driven 16' minimum into the Nood posts shall be 11/2" x 11/2" square (minimum) cut, or 13/4" diameter num) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pond per linear foot. or staples at top and mid-section and shall meet the following requirements for Geotextile Class Fi . Where ends of geotextile fabric cone together, they shall be overlapped Silt Fence shall be inspected after each rainfall event and naintained whe bulges occur or when sediment accumulation reached 50% of the fabric height. DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE DETAIL 1 - EARTH DIKE 2:1 SLOPE OR FLATTER EARTH FILL STING PAVENENT ----PIPE AS NECESSARY

SILT FENCE



 All temporary earth dikes shall have uninterrupted positive grade to an outlet. Spot elevations may be necessary for grades less than 1%. . Runoff diverted from a disturbed area shall be conveyed to a sediment

Runoff diverted from an undisturbed area shall outlet directly into an undisturbed, stabilized area at a non-erosive velocity. shall be removed and disposed of so as not to interfers with the proper functioning of the dise.

5. The dike shall be excavated or shaped to line, grade and cross section as required to meet the criteria specified herein and be free of bank projections or other irregularities which will impede normal flow. All earth removed and not needed for construction shall be placed so that it will not interfere with the functioning of the dike.

i. Inspection and maintenance must be provided periodically and after

S. DEPARTMENT OF AGRICULTURE PAGE HARYLAND DEPARTM SUIL CONSERVATION SERVICE A -- 1 - 6 VATER MANAGEM

AS-BUILT CERTIFICATION I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SIGNATURE CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE INSPECTIONS AND MATERIAL TESTS

THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OF MPLY A GUARANTEE BY THE ENGINEER NOR DOES AND ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED II HE 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 SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCT AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIOD ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

BY THE ENGINEER:

CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

PRINTED NAME OF ENGINEER THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION,

DEPARTMENT OF PLANNING AND ZONING CHIEF, DIVISION OF LAND DEVELOPMENT

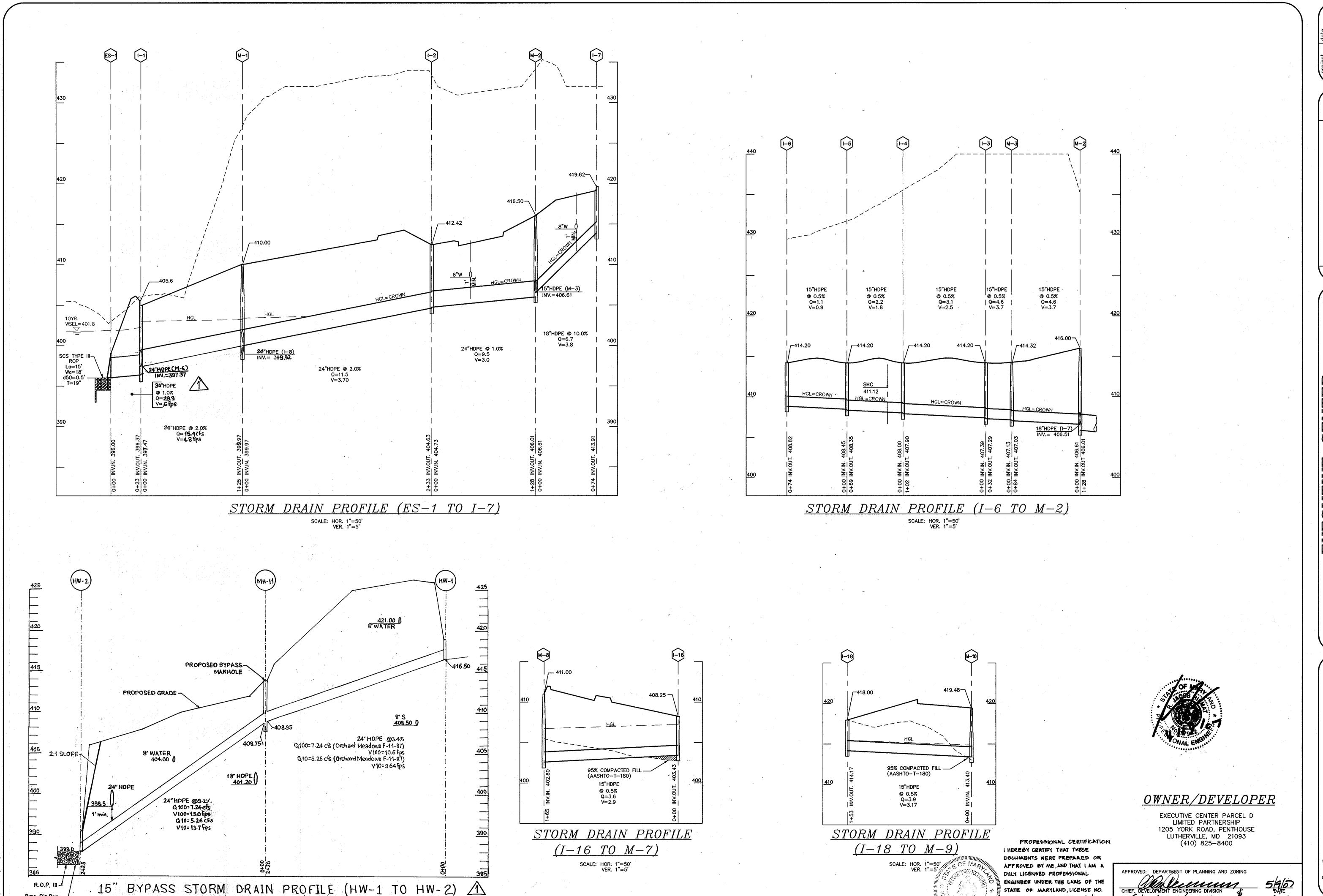
DET.

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LDEN

OF '



15" BYPASS STORM DRAIN PROFILE (HW-1 TO HW-2)

SCALE: HOR. 1"=50" VER. 1"=5"

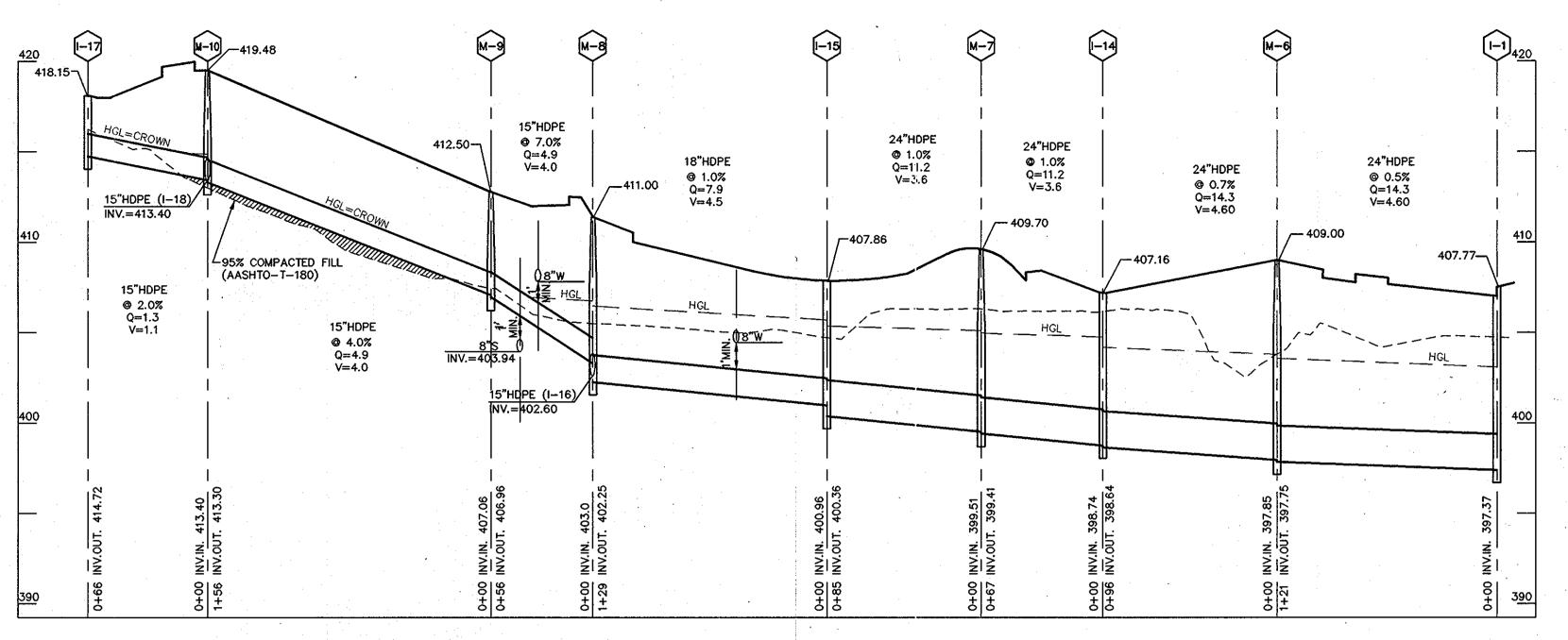
R.O.P. 111 -

Prop. Rip Rap --Class III Dso= 1" T=32"

STATE OF MARYLAND, LICENSE NO.

3818, EXPIRATION DATE 10/17/12.

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STORM DRAIN PROFILE (I-17 TO I-1) SCALE: HOR. 1"=50" VER. 1"=5"

430	-13 (-	-12 			-9 M-5	M-4 (1-	8) M-	4 <u>30</u>
420	15"HDPE © 0.5% Q=1.02 V=0.80	15**HDPE @ 0.5% Q=2.0 V=1.6	15"HDPE © 0.5% Q=3.0 V=2.4	15"HDPE ⊚ 0.5% Q=4.0 V=3.3	⊗ 0.5%⊗ 0.5%Q=5.3Q	"HDPE	24 HDPE © 0.5% Q= 13.7 cfs V= 4.25 fps	4 <u>20</u>
410	-409.20	SHC 406.65	409.20	-409.20 408.20-	408.50	109.50		410
400	INV.OUT. 404.00	403.51 PH		V.IN. 402.20	0+42 INV.OUT. 401.95 0+00 INV.IN. 401.74 0+46 INV.OUT. 401.64	24"HDPE(HW-1)/	HGL 24"HDPE (I-2) INV.=399.97	400
	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	0+00	0+70 1= 0+00 1= 0+80	= 0 0 +	0+42	0+47 ====================================	1+32 = 0+00 = 0	

STORM DRAIN PROFILE (I-13 TO M-1)

1' TYP. -W TOP VIEW

HDPE END SECTION
(PART NO. 2410 NP)
NOT TO SCALE

END VIEW

A STRUCTURE SCHEDULE

NO.	LOCATION	TOP	INV. IN	INV. OUT	COMMENTS
ES-1	. -			396.00	30" Ø ADS END SECTION
HW-1	-		· 	· 416.50	24" Ø HEAD WALL (HO. CO STD. SD 5.11)
HW-2	N 589,017 E 1,362,644	_	-	388.00	24" Ø HEADWALL (HO. CO. STD D 5.11)
1-1	N589137.8, E1362498.4	407.77	397.47 397.37	396.37	INLET TYPE A-10 (HO. CO. STD SD 4.02)
I-2	N589475.9, E1362607.4	412.42	404.73	404.63	INLET TYPE A-10 (HO. CO. STD SD 4.02)
I3	N589608.7, E1362780.7	404.12	407.39	407.29	YARD INLET (HO. CO. STD SD 4.14)
I-4	N589507.2, E1362792.4	414.20	4008.00	407.90	YARD INLET (HO. CO. STD SD 4.14)
I-5	N589438.1, E1362794.3	414.20	408.45	408.35	YARD INLET (HO. CO. STD SD 4.14)
I–6	N589364.1, E136796.5	414.20	-	408.82	YARD INLET (HO. CO. STD SD 4.14)
I-7	N589669.5, E1362679.6	419.62	_	415.39	INLET TYPE A-10 (HO. CO. STD SD 4.02)
I-8	N589249.8, E1362677.9	412.00	401.08	400 .58	INLET TYPE A-10 (HO. CO. STD SD 4.02)
I-9	N589208.6, E1362794.9	408.20	402.20	401.95	YARD INLET (HO. CO. STD SD 4.14)
I-10	N589129.6, E1362814.2	409.20	402.70	402.60	YARD INLET (HO. CO. STD SD 4.14)
i–11	N589064.9, E1362839.9	409.20	403.15	403.05	YARD INLET (HO. CO. STD SD 4.14)
I-12	N588996.7, E1362863.2	409.20	403.61	403.51	YARD INLET (HO. CO. STD SD 4.14)
I-13	N588922.2., E1362883.4	409.20	· -	404.00	YARD INLET (HO. CO. STD SD 4.14)
I—14	N589044.9, E1362658.9	407.16	398.74	398.64	INLET TYPE A-10 (HO. CO. STD SD 4.02)
I–15	N588913.7, E1362722.3	407.86	400.96	400.36	INLET TYPE A-10 (HO. CO. STD SD 4.02)
I – 16	N588688.3, E1362700.9	406.68	<u>-</u>	403.43	INLET TYPE A-5 (HO. CO. STD SD 4.01)
i–17	N588904.0, E1363035.9	418.15	-	414.72	INLET TYPE A-10 (HO. CO. STD SD 4.02)
I – 18	N589023.6, E1362969.2	418.00		414.17	INLET TYPE A-10 (HO. CO. STD SD 4.02)
M-1	N589258.4, E1362544.6	410.00	39 9 .92 399.97	39 9 .97	MANHOLE (HO. CO. STD G 5.03)
M-2		<u> </u>	399.97 406.61 406.51	406.01	MANHOLE (HO. CO. STD G 5.03)
M-3	N589589.7, E1362672.8 N589621.6, E1362750.0	416.50 414.36	406.51 407.13	407.03	MANHOLE (HO. CO. STD G 5.03)
M-4	N589218.0, E1362713.2	149.50	401.41	401.64	MANHOLE (HO. CO. STD G 5.03)
M-5	N589229.6, E1362758.2	408.50	401.74	401.64	MANHOLE (HO. CO. STD G 5.03)
M-6	N=89136.6, E1362616.3	409.00	397.85	397.75	MANHOLE (HO. CO. STD G 5.03)
M-7	N588992.5, E1362703.7	409.70	399.51	399.41	MANHOLE (HO. CO. STD G 5.03)
M-8	N588817.0, E1362809.7	411.00	402.60	402.25	MANHOLE (HO. CO. STD G 5.03)
M-9	N588777.0, E1362848.4	402.50	405.50	405.40	MANHOLE (HO. CO. STD G 5.03)
M-10		419.48	413.40	413.20	MANHOLE (HO. CO. STD G 5.03)
MH-11	N 589,258 E 1,362,693	414.00	40895	408.75	MANHOLE (HO. CO. STD G 5.12)
. 1-101-11	14 363,236 E 1,362,633	71100	TV 0-30	-105/3	Transce Go. Co. Ord Works

- NOTES:

 1. ALL CURB OPENING INLETS SHALL HAVE W = 2'-6" UNLESS OTHERWISE NOTED.

 2. TOP OF "S" INLETS = TOP OF GRATE.

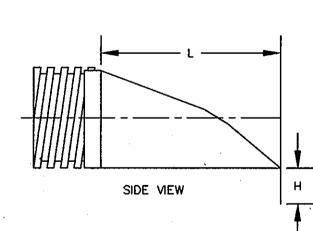
 3. HGL EQUALS TOP OF PIPE UNLESS OTHERWISE NOTED.

 4. INLET LOCATION= CENTER OF INLET AT FACE OF CURB

 5. MANHOLE LOCATION= CENTER OF THE MANHOLE

⚠ PIPE SCHEDULE

PIPE SIZE
15" HDPE
18" HDPE
24" HDPE
30" HDPE



			ļ			
PIPE DIAMETER	PART NO.	A, ±1	В МАХ	H,±1	L, ±1/2	W, ±2
15" HDPE	1210 NP	6.5"	10"	6.5"	25"	29"
18" HDPE	1810 NP	7.5"	15"	6.5"	32"	35*
24" HDPE	2410 NP	7.5*	18"	6.5"	36"	45*
36" HDPE	3610 NP	10.5"	NA	7.0"	53"	68*
39" HD PE	3015 NP	7.5"	12"	8.6"	5%"	63"

INSTALLATION INSTRUCTIONS

SPREAD THE END SECTION COLLAR AND PLACE IT OVER THE LAST PIPE CORRUGATION. MAKE SURE THE COLLAR SEATS PROPERLY IN THE CORRUGATION VALLEY.

- 2. INSERT THREADED ROD THROUGH THE PRE-DRILLED HOLES IN THE END SECTION COLLAR. TIGHTEN WING NUTS.
- 3. PLACE BACKFILL AROUND THE END SECTION AND OVER THE TOE PLATE. USE CARE DURING COMPACTION ALONG THE SIDES TO PREVENT DISTORTION.



PROFESSIONAL CERTIFICATION I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 8818, EXPIRATION DATE 10/17/12.



OWNER/DEVELOPER

EXECUTIVE CENTER PARCEL D LIMITED PARTNERSHIP 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MD 21093 (410) 825-8400

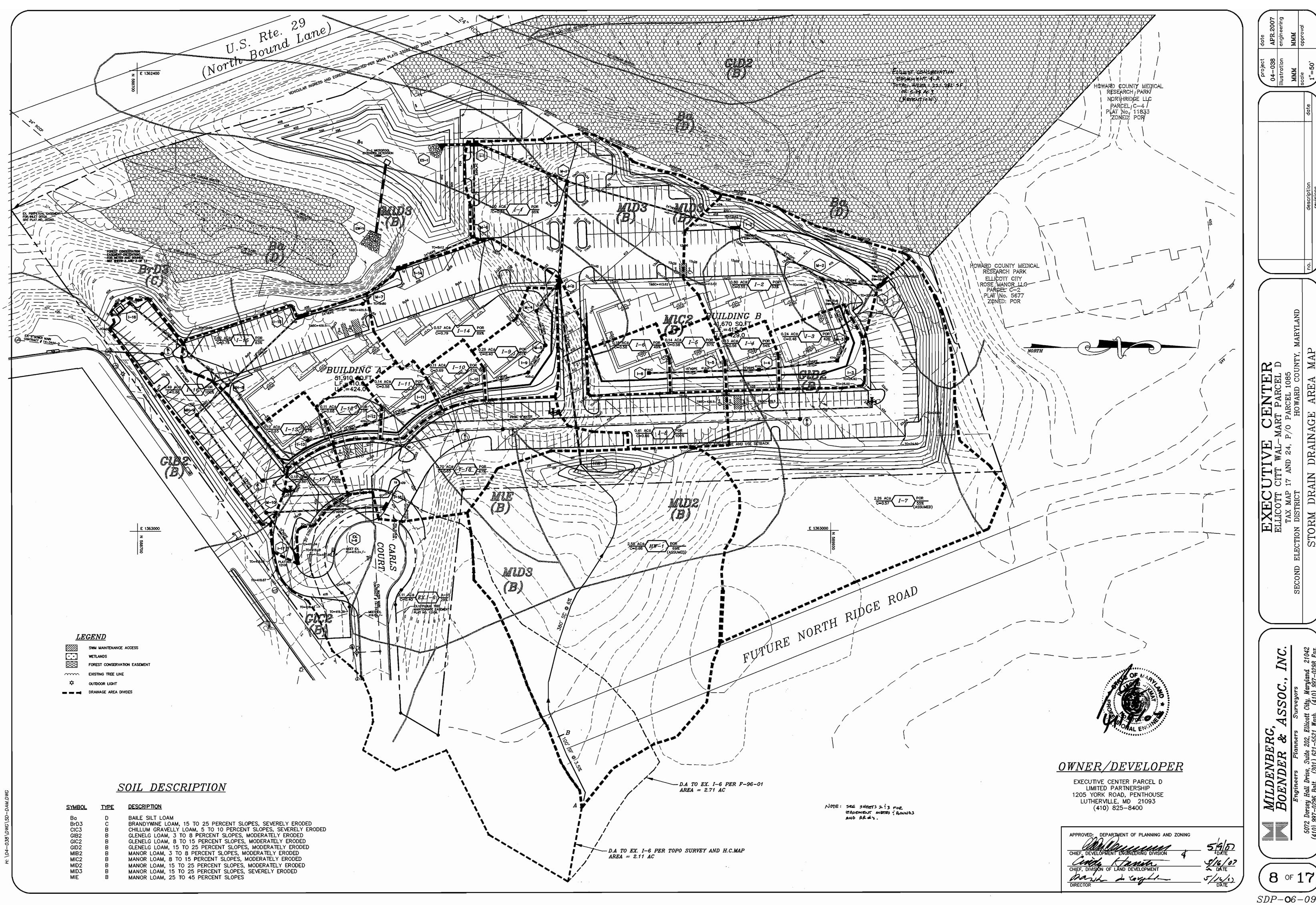
INC.

ASSOC.

MILDENBERG, BOENDER & A

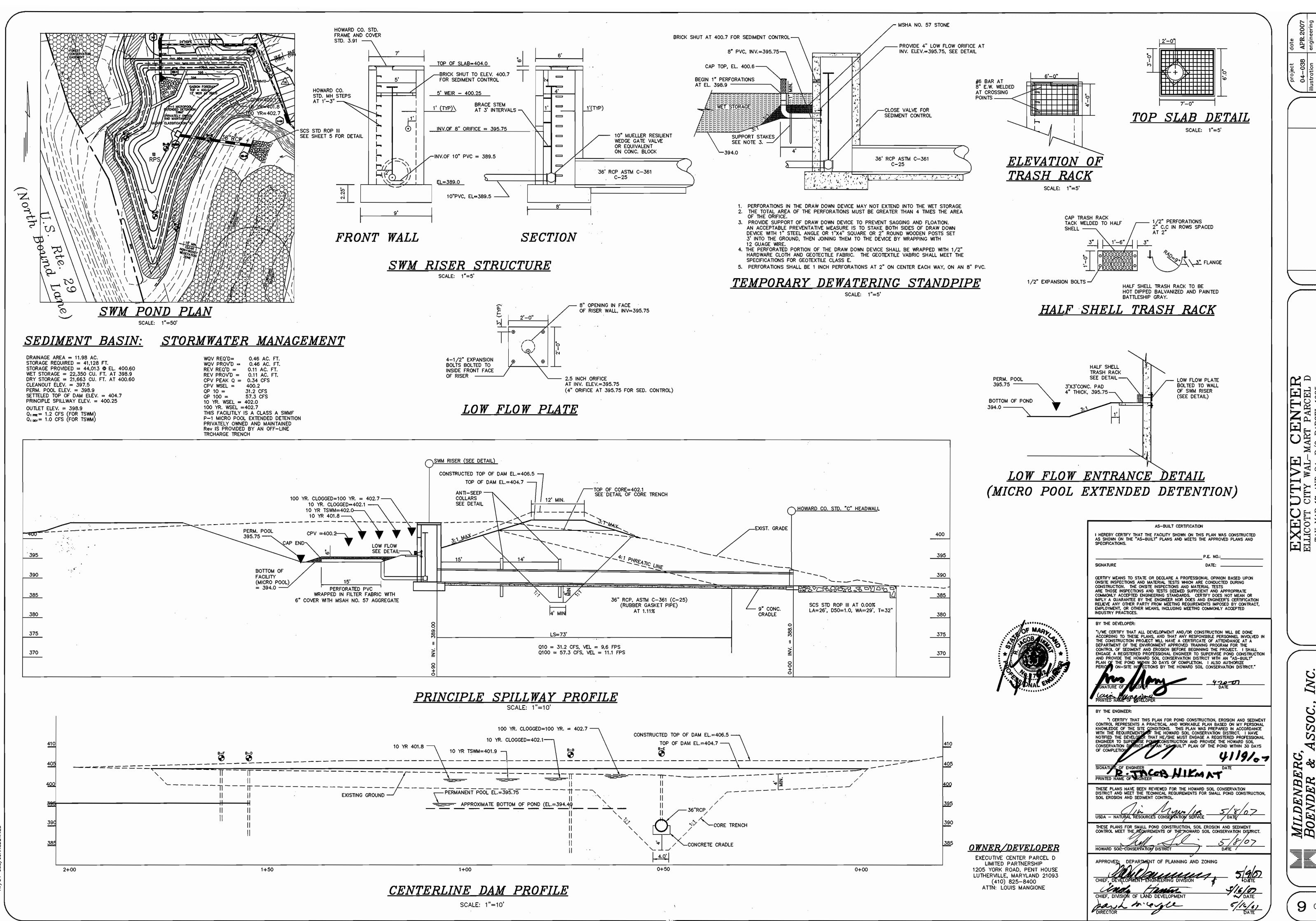
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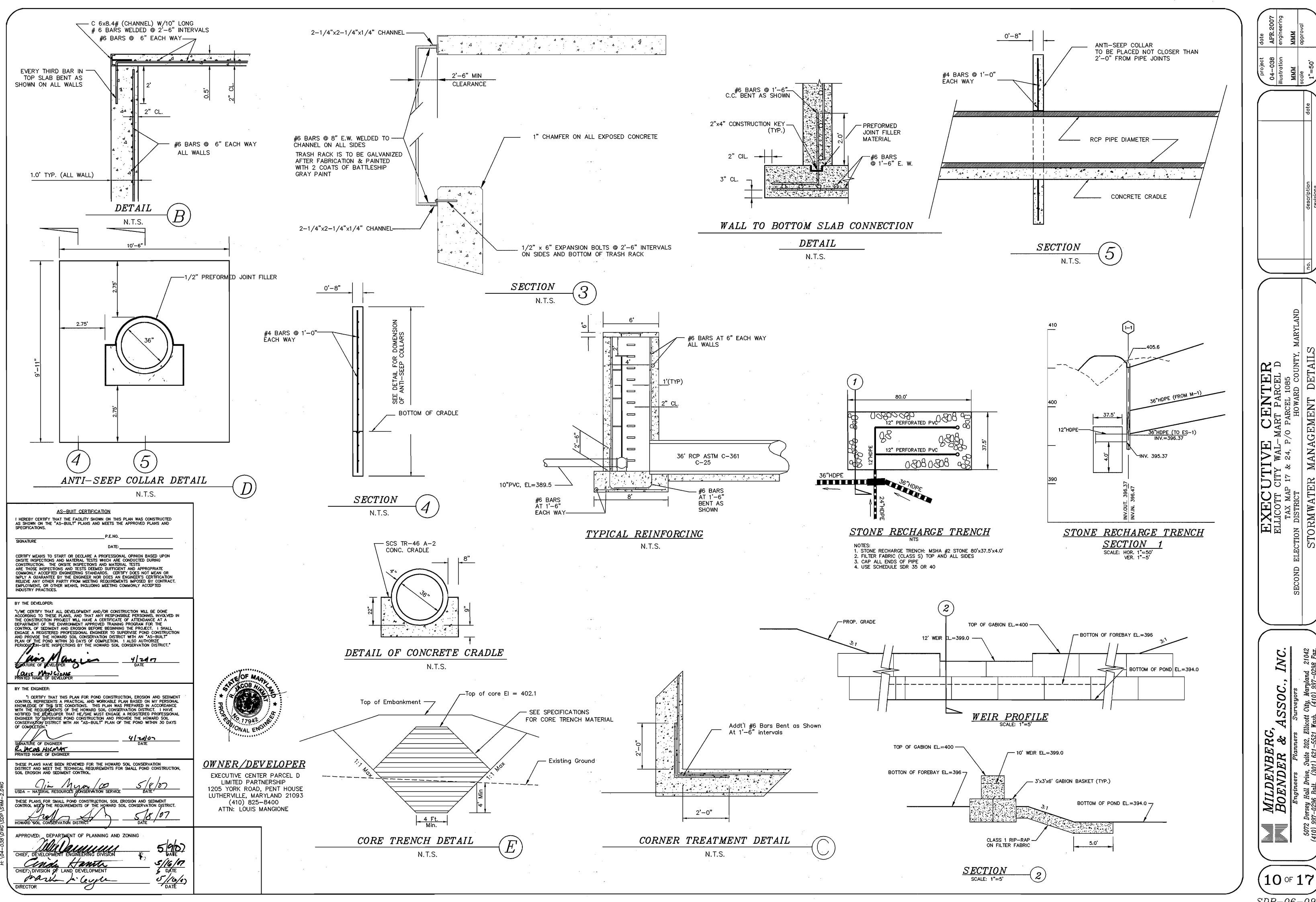


STORM STORM

INC.



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MD-378 POND SPECIFICATIONS (JANUARY 2000)

CONSTRUCTION SPECIFICATIONS

THESE SPECIFICATIONS ARE APPROPRIATE TO ALL PONDS WITHIN THE SCOPE OF THE STANDARD FO PRACTICE MD-378. ALL REFERENCES TO ASTM AND AASHTO SPECIFICATIONS APPLY TO THE MOST RECENT

SITE PREPARATION AREAS DESIGNATED FOR BORROW AREAS, EMBANKMENT, AND STRUCTURAL WORKS SHALL BE CLEARED. GRUBBED AND STRIPPED OF TOPSOIL. ALL TREES, VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED. CHANNEL BANKS AND SHARP BREAKS SHALL BE SLOPED TO NO STEEPER THAN 1:1. ALL TREES SHALL BE CLEARED AND GRUBBED WITHIN 15 FEET OF THE TOE OF THE

AREAS TO BE COVERED BY THE RESERVOIR WILL BE CLEARED OF ALL TREES, BRUSH, LOGS, FENCES, RUBBISH AND OTHER OBJECTIONABLE MATERIAL UNLESS OTHERWISE DESIGNATED ON THE PLANS. TREES, BRUSH, AND STUMPS SHALL BE CUT APPROXIMATELY LEVEL WITH THE GROUND SURFACE. FOR DRY STORM WATER MANAGEMENT PONDS, A MINIMUM OF A 25-FOOT RADIUS AROUND THE INLET STRUCTURE SHALL BE

ALL CLEARED AND GRUBBED MATERIAL SHALL BE DISPOSED OF OUTSIDE AND BELOW THE LIMITS OF THE DRAIN AND RESERVOIR AS DIRECTED BY THE OWNER OR HIS REPRESENTATIVE. WHEN SPECIFIED, A SUFFICIENT QUANTITY OF TOPSOIL WILL BE STOCKPILED IN A SUITABLE LOCATION FOR USE ON THE EMBANKMENT AND OTHER DESIGNATED AREAS.

MATERIAL - THE FILL MATERIAL SHALL BE TAKEN FROM APPROVED DESIGNATED BORROW AREAS. IT SHALL BE FREE OF ROOTS, STUMPS, WOOD, RUBBISH, STONES GREATER THAN 6", FROZEN OR OTHER OBJECTIONABLE MATERIALS. FILL MATERIAL FOR THE CENTER OF THE EMBANKMENT AND CUT OFF TRENCH SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION CC, SC, CH, OR CL AND MUST HAVE AT LEAST 30%, PASSING THE #200 SIEVE. CONSIDERATION MAY BE GIVEN TO THE USE OF OTHER MATERIALS IN THE EMBANKMENT IF DESIGNED BY A GEOTECHNICAL ENGINEER. SUCH SPECIAL DESIGNS MUST HAVE CONSTRUCTION SUPERVISED BY A GEOTECHNICAL ENGINEER. MATERIALS USED IN THE OUTER SHELL OF THE EMBANKMENT MUST HAVE THE CAPABILITY TO SUPPORT VEGETATION OF THE QUALITY REQUIRED TO PREVENT

PLACEMENT - AREAS ON WHICH FILL IS TO BE PLACED SHALL BE SCARIFIED PRIOR TO PLACEMENT OF FILL. FILL MATERIALS SHALL BE PLACED IN MAXIMUM 8 INCH THICK (BEFORE COMPACTION) LAYERS WHICH ARE TO BE CONTINUOUS OVER THE ENTIRE LENGTH OF THE FILL. THE MOST PERMEABLE BORROW MATERIAL SHALL BE PLACED IN THE DOWNSTREAM PORTIONS OF THE EMBANKMENT. THE PRINCIPAL SPILLWAY MUST BE INSTALLED CONCURRENTLY WITH FILL PLACEMENT AND NOT EXCAVATED INTO THE EMBANKMENT.

COMPACTION - THE MOVEMENT OF THE HAULING AND SPREADING EQUIPMENT OVER THE FILL SHALL BE CONTROLLED SO THAT THE ENTIRE SURFACE OF EACH LIFT SHALL BE TRAVERSED BY NOT LESS THAN ONE TREAD TRACK OF HEAVY EQUIPMENT OR COMPACTION SHALL BE ACHIEVED BY A MINIMUM OF FOUR COMPLETE PASSES OF A SHEEPSFOOT, RUBBER TIRED OR VIBRATORY ROLLER. FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SUCH THAT THE REQUIRED DEGREE OF COMPACTION WILL BE OBTAINED WITH THE EQUIPMENT USED. THE FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SO THAT IF FORMED INTO A BALL IT WILL NOT CRUMBLE, YET NOT BE SO WET THAT WATER CAN BE SQUEEZED OUT. WHEN REQUIRED BY THE REVIEWING AGENCY THE MINIMUM REQUIRED DENSITY SHALL NOT BE LESS THAN 95% OF MAXIMUM DRY DENSITY WITH A MOISTURE CONTENT WITHIN 2% OF THE OPTIMUM. EACH LAYER OF FILL SHALL BE COMPACTED AS NECESSARY TO OBTAIN THAT DENSITY, AND IS TO BE CERTIFIED BY THE ENGINEER AT THE TIME OF CONSTRUCTION. ALL COMPACTION IS TO BE DETERMINED BY AASHTO METHOD T-99 (STANDARD

CUT OFF TRENCH - THE CUTOFF TRENCH SHALL BE EXCAVATED INTO IMPERVIOUS MATERIAL ALONG OR PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE BOTTOM WIDTH OF THE TRENCH SHALL BE GOVERNED BY THE EQUIPMENT USED FOR EXCAVATION, WITH THE MINIMUM WIDTH BEING FOUR FEET. THE DEPTH SHALL BE AT LEAST FOUR FEET BELOW EXISTING GRADE OR AS SHOWN ON THE PLANS. THE SIDE SLOPES OF THE TRENCH SHALL BE 1 TO 1 OR FLATTER. THE BACKFILL SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS, OR HAND TAMPERS TO ASSURE MAXIMUM DENSITY

EMBANKMENT CORE - THE CORE SHALL BE PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE TOP MOTH OF THE CORE SHALL BE A MINIMUM OF FOUR FEET. THE HEIGHT SHALL EXTEND UP TO AT LEAST THE 10 YEAR WATER ELEVATION OR AS SHOWN ON THE PLANS. THE SIDE SLOPES SHALL BE 1 TO 1 OR FLATTER. THE CORE SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS, OR HAND TAMPERS TO ASSURE MAXIMUM DENSITY AND MINIMUM PERMEABILITY. IN ADDITION, THE CORE SHALL BE PLACED CONCURRENTLY WITH THE OUTER SHELL OF THE EMBANKMENT.

STRUCTURAL BACKFILL

BACKFILL ADJACENT TO PIPES OR STRUCTURES SHALL BE OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED FOR THE ADJOINING FILL MATERIAL THE FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO COMPACTED BY HAND TAMPERS OR OTHER MANUALLY DIRECTED COMPACTION EQUIPMENT. THE MATERIAL NEEDS TO FILL COMPLETELY ALL SPACES UNDER AND ADJACENT TO THE PIPE. AT NO TIME DURING THE BACKFILLING OPERATION SHALL DRIVEN EQUIPMENT BE ALLOWED TO OPERATE CLOSER THAN FOUR FEET, MEASURED HORIZONTALLY, TO ANY PART OF A STRUCTURE. UNDER NO CIRCUMSTANCES SHALL EQUIPMENT BE DRIVEN OVER ANY PART OF A CONCRETE STRUCTURE OR PIPE, UNLESS THERE IS A COMPACTED FILL OF THE PROPERTY OF THE PROPERT 24" OR GREATER OVER THE STRUCTURE OR PIPE STRUCTURE BACKFILL MAY BE FLOWABLE FILL MEETING REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDAR SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 313 AS MODIFIED. THE MIXTURE SHALL HAVE A 100-200 PSI; 28 DAY UNCONFINED COMPRESSIVE STRENGTH. THE FLOWABLE FILL SHALL HAVE A MINIMUM PH OF 4.0 AND A MINIMUM RESISTIVITY OF 2,000 OHM-CM. MATERIAL SHALL BE PLACED SUCH THAT A MINIMUM OF 6" (MEASURED PERPENDICULAR TO THE OUTSIDE OF THE PIPE) OF FLOWABLE FILL SHALL BE UNDER (BEDDING), OVER AND, ON THE SIDES OF THE PIPE. IT ONLY NEEDS TO EXTEND UP TO THE SPRING LINE FOR RIGID CONDUITS. AVERAGE SLUMP OF THE FILL SHALL BE 7". TO ASSURE FLOWABILITY OF THE MATERIAL, ADEQUATE MEASURES SHALL BE TAKEN (SAND BAGS, ETC.). TO PREVENT FLOATING THE PIPE. WHEN USING FLOWABLE FILL, ALL METAL PIPE SHALL BE BITUMINOUS COATED. ANY ADJOINING SOIL FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED FOUR INCHES IN THICKNESS AND COMPACTED BY HAND TAMPER OR OTHER MANUALLY DIRECTED COMPACTION EQUIPMENT. THE MATERIAL SHALL COMPLETELY FILL ALL VOIDS ADJACENT TO THE FLOWABLE FILL ZONE. AT NO TIME DURING THE BACKFILLING OPERATION SHALL DRIVEN EQUIPMENT BE ALLOWED TO OPERATE CLOSER THAN FOUR FEET, MEASURED HORIZONTALLY, TO ANY PART OF A STRUCTURE, LINDER NO CIRCUMSTANCES SHALL FOLIPMENT RE DRIVEN OVER ANY PART OF A STRUCTURE OR PIPE LINESS THERE IS A COMPACTED FILL OF 24" OR GREATER OVER THE STRUCTURE OR PIPE. BACKFILL MATERIAL OUTSIDE THE STRUCTURAL BACKFILL CORE OF THE EMBANKMENT OR OTHER EMBANKMENT MATERIALS.

	P.E.NO
SIGNATURE	DATE:
ONSITE INSPECTIONS AND MATE CONSTRUCTION. THE ONSITE IS ARE THOSE INSPECTIONS AND COMMONLY ACCEPTED ENGINEE IMPLY A GUARANTEE BY THE IRELIEVE ANY OTHER PARTY FR	DECLARE A PROFESSIONAL OPINION BASED UPON ERIAL TESTS WHICH ARE CONDUCTED DURING INSPECTIONS AND MATERIAL TESTS TESTS DEEMED SUFFICIENT AND APPROPRIATE RING STANDARDS. CERTIFY DOES NOT MEAN OR ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION ROM MEETING REQUIREMENTS IMPOSED BY CONTRACT. IS, INCLUDING MEETING COMMONLY ACCEPTED
ACCORDING TO THESE PLANS, THE CONSTRUCTION PROJECT I DEPARTMENT OF THE ENMONI CONTROL OF SEDIMENT AND EL ENGAGE A REGISTERED PROFES AND PROVIDE THE HOWARD SC	ELOPMENT AND/OR CONSTRUCTION WILL BE DONE AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED II WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MENT APPROVED TRAINING PROGRAM FOR THE ROSION BEFORE BEGINNING THE PROJECT. I SHALL SSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION DIL CONSERVATION DISTRICT WITH AN "AS-BUILL" DI DAYS OF COMPLETION. I ALSO AUTHORIZE

AS-BUIT CERTIFICATION

BY THE ENGINEER: "I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND DONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION." PRINTED NAME OF ENGINEER

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL USDA - MATURAL RESOURCES CONSERVATION SERVICE DATE THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET, THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

want prevole 5/16/0) BATE

PIPE CONDUIT ALL PIPES SHALL BE CIRCULAR IN CROSS SECTION.

CORRUGATED METAL PIPE - ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR CORRUGATED METAL PIPE: 1. MATERIALS - (POLYMER COATED STEEL PIPE) - STEEL PIPES WITH POLYMERIC COATINGS SHALL HAVE A MINIMUM COATING THICKNESS OF 0.01 INCH (10 MIL) ON BOTH SIDES OF THE PIPE. THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATIONS M-245 & M-246 WITH WATERTIGHT COUPLING

MATERIALS - (ALUMINUM COATED STEEL PIPE) - THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATION M-274 WITH WATERTIGHT COUPLING BANDS OR FLANGES. ALUMINUM COATED STEEL PIPE, WHEN USED WITH FLOWABLE FILL OR WHEN SOIL AND/OR WATER CONDITIONS WARRANT THE NEED FOR INCREASED DURABILITY, SHALL BE FULLY BITUMINOUS COATED PER REQUIREMENTS OF AASHTO SPECIFICATION M-190 TYPE A. ANY ALUMINUM COATING DAMAGED OR OTHERWISE REMOVED SHALL BE REPLACED WITH COLD APPLIED BITUMINOUS COATING COMPOUND. ALUMINUM SURFACES THAT ARE TO BE IN CONTACT WITH CONCRETE SHALL BE PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER OR TWO COATS OF ASPHALT.

MATERIALS - (ALUMINUM PIPE) - THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATION M-196 OR M-21 L WITH WATERTIGHT COUPLING BANDS OR FLANGES. ALUMINUM PIPE, WHEN USED WITH FLOWABLE FILL OR WHEN SOIL AND/OR WATER CONDITIONS WARRANT FOR INCREASED DURABILITY, SHALL BE FULLY BITUMINOUS COATED PER REQUIREMENTS OF AASHTO SPECIFICATION M-190 TYPE A. ALUMINUM SURFACES THAT ARE TO BE IN CONTACT WITH CONCRETE SHALL BE PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER OR TWO COATS OF ASPHALT. HOT DIP GALVANIZED BOLTS MAY BE USED FOR CONNECTIONS. THE PH OF THE SURROUNDING SOILS SHALL BE BETWEEN 4 AND 9.

2. COUPLING BANDS, ANTI-SEEP COLLARS, END SECTIONS, ETC., MUST BE COMPOSED OF THE SAME MATERIAL AND COATINGS AS THE PIPE. METALS MUST BE INSULATED FROM DISSIMILAR MATERIALS WITH USE OF RUBBER OR PLASTIC INSULATING MATERIALS AT LEAST 24 MILS IN THICKNESS.

3. CONNECTIONS - ALL CONNECTIONS WITH PIPES MUST BE COMPLETELY WATERTIGHT. THE DRAIN PIPE OR BARREL CONNECTION TO THE RISER SHALL BE WELDED ALL AROUND WHEN THE PIPE AND RISER ARE METAL. ANTI-SEEP COLLARS SHALL BE CONNECTED TO THE PIPE IN SUCH A MANNER AS TO BE COMPLETELY WATERTIGHT. DIMPLE

ALL CONNECTIONS SHALL USE A RUBBER OR NEOPRENE GASKET WHEN JOINING PIPE SECTIONS. THE END OF EACH PIPE SHALL BE RE-ROLLED AN ADEQUATE NUMBER OF CORRUGATIONS TO ACCOMMODATE THE BANDWIDTH. THE FOLLOWING TYPE CONNECTIONS ARE ACCEPTABLE FOR PIPES LESS THAN 24 INCHES IN DIAMETER: FLANGES ON BOTH ENDS OF THE PIPE WITH A CIRCULAR 3/8 INCH CLOSED CELL NEOPRENE GASKET, PRE-PUNCHED TO THE FLANGE BOLT CIRCLE, SANDWICHED BETWEEN ADJACENT FLANGES; A 12-INCH WIDE STANDARD LAP TYPE BAND WITH 12-INCH WIDE BY 3/8-INCH THICK CLOSED CELL CIRCULAR NEOPRENE GASKET; AND A 12-INCH WIDE HUGGER TYPE BAND WITH O-RING GASKETS HAVING A MINIMUM DIAMETER OF 1/2 INCH GREATER THAN THE CORRUGATION DEPTH. PIPES 24 INCHES IN DIAMETER AND LARGER SHALL BE CONNECTED BY A 24 INCH LONG ANNULAR CORRUGATED BAND USING A MINIMUM OF 4 (FOUR) RODS AND LUGS, 2 ON EACH CONNECTING PIPE END. A 24-INCH WIDE BY 3/8-INCH THICK CLOSED CELL CIRCULAR NEOPRENE GASKET WILL BE INSTALLED WITH 12 INCHES ON THE END OF EACH PIPE. FLANGED JOINTS WITH 3/8 INCH CLOSED CELL GASKETS THE FULL WIDTH OF THE

HELICALLY CORRUGATED PIPE SHALL HAVE EITHER CONTINUOUSLY WELDED SEAMS OR HAVE LOCK SEARNS WITH INTERNAL CAULKING OR A NEOPRENE BEAD.

4. BEDDING — THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS ENTIRE LENGTH. WHERE ROCK OR SOFT, SPONGY OR OTHER UNSTABLE SOIL IS ENCOUNTERED, ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE EARTH COMPACTED TO PROVIDE ADEQUATE SUPPORT.

5. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL"

6. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

REINFORCED CONCRETE PIPE - ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR REINFORCED CONCRETE PIPE: 1. MATERIALS - REINFORCED CONCRETE PIPE SHALL HAVE BELL AND SPIGOT JOINTS WITH RUBBER GASKETS AND SHALL EQUAL OR EXCEED ASTM C-361.

2. BEDDING - REINFORCED CONCRETE PIPE CONDUITS SHALL BE LAID IN A CONCRETE BEDDING/CRADLE FOR THEIR ENTIRE LENGTH. THIS BEDDING/CRADLE SHALL CONSIST OF HIGH SLUMP CONCRETE PLACED UNDER THE PIPE AND UP THE SIDES OF THE PIPE AT LEAST 50% OF ITS OUTSIDE DIAMETER WITH A MINIMUM THICKNESS OF 6 INCHES. WHERE A CONCRETE CRADLE IS NOT NEEDED FOR STRUCTURAL REASONS, FLOWABLE FILL MAY BE USED AS DESCRIBED IN THE "STRUCTURE BACKFILL" SECTION OF THIS STANDARD. GRAVEL BEDDING IS NOT PERMITTED.

3. LAYING PIPE — BELL AND SPIGOT PIPE SHALL BE PLACED WITH THE BELL END UPSTREAM. JOINTS SHALL BE MADE IN ACCORDANCE WITH RECOMMENDATIONS OF THE MANUFACTURER OF THE MATERIAL. AFTER THE JOINTS ARE SEALED FOR THE ENTIRE LINE, THE BEDDING SHALL BE PLACED SO THAT ALL SPACES UNDER THE PIPE ARE FILLED. CARE SHALL BE EXERCISED TO PREVENT ANY DEVIATION FROM THE ORIGINAL LINE AND GRADE OF THE PIPE. THE FIRST JOINT MUST BE LOCATED WITHIN 4 FEET FROM THE RISER.

4. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL."

5. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS. PLASTIC PIPE - THE FOLLOWING CRITERIA SHALL APPLY FOR PLASTIC PIPE:

1. MATERIALS - PVC PIPE SHALL BE PVC-1120 OR PVC-1220 CONFORMING TO ASTM D1785 OR ASTM D-2241 CORRUGATED HIGH DENSITY POLYETHYLENE (HDPE) PIPE, COUPLINGS AND FITTINGS SHALL CONFORM TO THE FOLLOWING: 4" - 10" INCH PIPE SHALL MEET THE REQUIREMENTS OF AASHTO M252 TYPE S, AND 12" THROUGH 24" INCH SHALL MEET THE REQUIREMENTS OF AASHTO M294 TYPE S.

2. JOINTS AND CONNECTIONS TO ANTI-SEEP COLLARS SHALL BE COMPLETELY WATERTIGHT.

3. BEDDING -THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS ENTIRE LENGTH. WHERE ROCK OR SOFT, SPONGY OR OTHER UNSTABLE SOIL IS ENCOUNTERED, ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE EARTH COMPACTED TO PROVIDE ADEQUATE SUPPORT. 4. BACKFILL SHALL CONFORM TO "STRUCTURE BACKFILL."

5. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS. DRAINAGE DIAPHRAGMS - WHEN A DRAINAGE DIAPHRAGM IS USED, A REGISTERED PROFESSIONAL ENGINEER WILL SUPERVISE THE DESIGN AND CONSTRUCTION INSPECTION.

CONCRETE SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION

ROCK RIPRAP SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS,

GEOTEXTILE SHALL BE PLACED UNDER ALL RIPRAP AND SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 921.09, CLASS C.

CARE OF WATER DURING CONSTRUCTION ALL WORK ON PERMANENT STRUCTURES SHALL BE CARRIED OUT IN AREAS FREE FROM WATER. THE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN ALL TEMPORARY DIKES, LEVEES, COFFERDAMS, DRAINAGE CHANNELS, AND STREAM DIVERSIONS NECESSARY TO PROTECT THE AREAS TO BE OCCUPIED BY THE PERMANENT WORKS. THE CONTRACTOR SHALL ALSO FURNISH, INSTALL, OPERATE, AND MAINTAIN ALL NECESSARY PUMPING AND OTHER EQUIPMENT REQUIRED FOR REMOVAL OF WATER FROM VARIOUS PARTS OF THE WORK AND FOR MAINTAINING THE EXCAVATIONS, FOUNDATION, AND OTHER PARTS OF THE WORK FREE FROM WATER AS REQUIRED OR DIRECTED BY THE ENGINEER FOR CONSTRUCTING EACH PART OF THE WORK. AFTER HAVING SERVED THEIR PURPOSE, ALL TEMPORARY PROTECTIVE WORKS SHALL BE REMOVED OR LEVELED AND GRADED TO THE EXTENT REQUIRED TO PREVENT OBSTRUCTION IN ANY DEGREE WHATSOEVER OF THE FLOW OF WATER TO THE SPILLWAY OR OUTLET WORKS AND SO AS NOT TO INTERFERE IN ANY WAY WITH THE OPERATION OR MAINTENANCE OF THE STRUCTURE. STREAM DIVERSIONS SHALL BE MAINTAINED UNTIL THE FULL FLOW CAN BE PASSED THROUGH THE PERMANENT WORKS. THE REMOVAL OF WATER FROM THE REQUIRED EXCAVATION AND THE FOUNDATION SHALL BE ACCOMPLISHED IN A MANNER AND TO THE EXTENT THAT WILL MAINTAIN STABILITY OF THE EXCAVATED SLOPES AND BOTTOM REQUIRED EXCAVATIONS AND WILL ALLOW SATISFACTORY PERFORMANCE OF ALL CONSTRUCTION OPERATIONS. DURING THE PLACING AND COMPACTING OF MATERIAL IN REQUIRED EXCAVATIONS, THE WATER LEVEL AT THE LOCATIONS BEING REFILLED SHALL BE MAINTAINED BELOW THE BOTTOM OF THE EXCAVATION AT SUCH LOCATIONS WHICH MAY REQUIRE DRAINING THE WATER SUMPS FROM WHICH THE WATER SHALL BE

STABILIZATION

ALL BORROW AREAS SHALL BE GRADED TO PROVIDE PROPER DRAINAGE AND LEFT IN A SIGHTLY CONDITION ALL EXPOSED SURFACES OF THE EMBANKMENT, SPILLWAY, SPOIL AND BORROW AREAS, AND BERMS SHALL BE STABILIZED BY SEEDING, LIMING, FERTILIZING AND MULCHING IN ACCORDANCE WITH THE NATURAL RESOURCES CONSERVATION SERVICE STANDARDS AND SPECIFICATIONS FOR CRITICAL AREA PLANTING (MD-342) OR AS SHOWN ON THE ACCOMPANYING DRAWINGS.

EROSION AND SEDIMENT CONTROL

CONSTRUCTION OPERATIONS WILL BE CARRIED OUT IN SUCH A MANNER THAT EROSION WILL BE CONTROLLED AND WATER AND AIR POLLUTION MINIMIZED. STATE AND LOCAL LAWS CONCERNING POLLUTION ABATEMENT WILL BE FOLLOWED. CONSTRUCTION PLANS SHALL DETAIL EROSION AND SEDIMENT CONTROL MEASURES.

<u>OWNER/DEVELOPER</u>

EXECUTIVE CENTER PARCEL D LIMITED PARTNERSHIP 1205 YORK ROAD, PENT HOUSE LUTHERVILLE, MARYLAND 21093 (410) 825-8400 ATTN: LOUIS MANGIONE

OPERATION. MAINTENANCE AND INSPECTION

INSPECTION OF THE POND(S) SHOWN HEREON SHALL BY PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USDA, SCS "STAND-ARDS AND SPECIFICATIONS FOR PONDS" (MD-378), THE POND OWNER(S) AND THE HEIRS SUCCESSORS OR ASSIGNS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION AND MAINTENANCE THEREOF. THE POND OWNER(S) SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY BE INDICATIONS OF DISTRESS SUCH AS EXCESSIVE SEEPAGE, TURBID SEEPAGE, SLIDING OR SLUMPING.

OPERATION AND MAINTENENCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED MICRO-POOL EXTENDED DETENTION PONDS

- 1. THE STORMWATER WETLAND FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE FACILITY IS FUNCTIONING PROPERLY.
- THE TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF TWICE PER YEAR, AND WHENEVER VEGETATION REACHES 12" IN HEIGHT OR AS NEEDED. THE FACILITY MAY BE DRAINED AS REQUIRED TO COMPLETE THE MOWING.
- 3. DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATION AND AS
- 4. VISIBLE SIGNS OF EROSION IN THE FACILITY SHALL BE REPAIRED AS SOON AS IT IS NOTICED.
- 5. REMOVE SILT WHEN IT EXCEEDS FOUR (4) INCHES DEEP IN THE FOREBAY.

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED STORMWATER INFILTRATION TRENCH

- 1. THE MONITORING WELLS AND STRUCTURES SHALL BE INSPECTED ON A QUARTERLY BASIS AND AFTER EVERY LARGE STORM EVENT.
- 2. WATER LEVEL AND SEDIMENT BUILD UP IN THE MONITORING WELLS SHALL BE RECORDED OVER PERIOD OF SEVERAL DAYS TO INSURE TRENCH DRAINAGE.
- 3. A LOG BOOK SHALL BE MAINTAINED TO DETERMINED THE RATE AT WHICH THE FACILITY
- 4. WHEN THE FACILITY BECOMES CLOGGED AS THAT IT DOES NOT DRAIN DOWN WITHIN 72 HOURS TIME PERIOD, CORRECTIVE ACTION SHALL BE TAKEN.
- 5. THE MAINTENANCE LOG BOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.
- 6. ONCE THE PERFORMANCE CHARACTERISTICS AF THE INFILTRATION FACILITY HAVE BEEN VERIFIED, THE MONITORING SCHEDULE CAN BE REDUCED TO AN ANNUAL BASIS UNLESS THE PERFORMANCE DATA INDICATES THAT A MORE FREQUENT SCHEDULE IS REQUIRED.

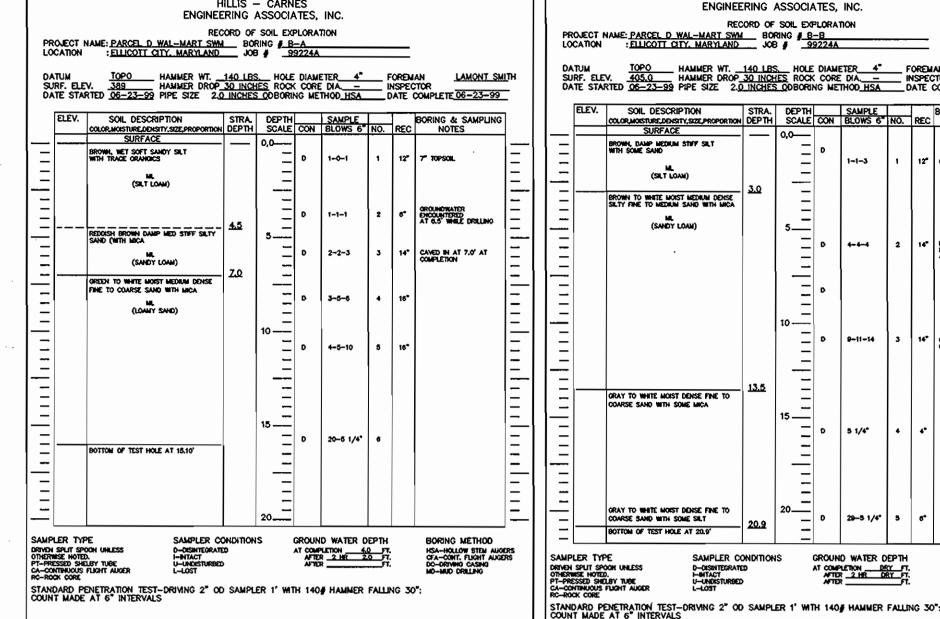
GEOTECHNICAL RECOMENDATIONS:

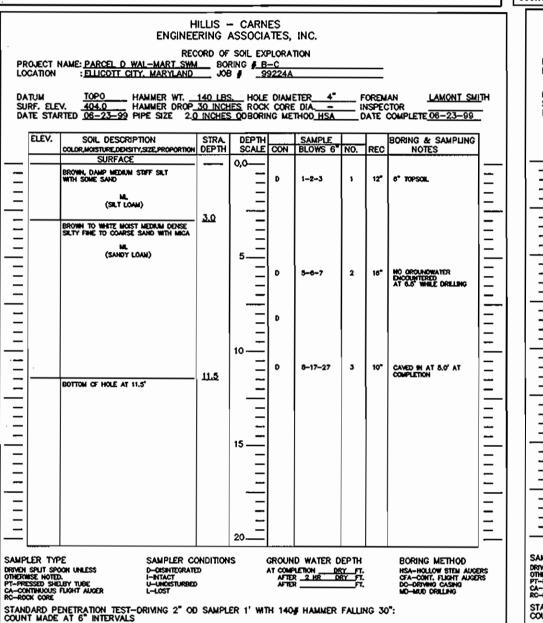
THE AREA OF THE PROPOSED SWM FACILITY SHOULD BE STRIPPED OF TOPSOIL AND ANY OTHER UNSUITABLE MATERIALS FROM THE EMBANKMENT OR STRUCTURE AREA IN ACCORDANCE WITH SOIL CONSERVATION GUIDELINES. AFTER STRIPPING OPERATIONS HAVE BEEN COMPLETED. THE EXPOSED SUBGRADE MATERIALS SHOULD BE PROOFROLLED WITH A LOADED DUMP TRUCK OR SIMILAR EQUIPMENT IN THE PRESENCE OF A GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE.

FOR AREAS THAT ARE NOT ACCESSIBLE TO A DUMP TRUCK, THE EXPOSED MATERIALS SHOULD BE OBSERVED AND TESTED BY A GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE UTILIZING A DYNAMIC CONE PENETROMETER. ANY EXCESSIVELY SOFT OR LOOSE MATERIALS IDENTIFIED BY PROOFROLLING OR PENETROMETER TESTING SHOULD BE EXCAVATED TO SUITABLE FIRM SOIL, AND THEN GRADES RE-ESTABLISHED BY BACKFILLING WITH SUITABLE SOIL.

A REPRESENTATIVE OF THE GEOTECHNICAL ENGINEER SHOULD BE PRESENT TO MONITOR PLACEMENT AND COMPACTION OF FILL FOR THE EMBANKMENT AND CUT-OF TRENCH. IN ACCORDANCE WITH MARYLAND SOIL CONSERVATION SPECIFICATIONS 378 SOILS CONSIDERED SUITABLE FOR CENTER OF EMBANKMENT AND CUT-OFF TRENCH SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION GC, SC, CH OR CL.

IT IS OUR PROFESSIONAL OPINION THAT IN ADDITION TO THE SOIL MATERIALS DESCRIBED ABOVE A FINE-GRAINED SOIL, INCLUDING SILT (ML) WITH A PLASTICITY INDEX OF 10 OR MORE CAN BE UTILIZED FOR THE CENTER OF THE EMBANKMENT AND CORE TRENCH. ALL FILL MATERIALS MUST BE PLACED AND COMPACTED IN ACCORDANCE WITH MD SCS 178 SPECIFICATIONS.





Brown to white moist densetine to coarse silty sand with some mick 14" CAVED IN AT 6.0" AT 10-15-27 DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT-PRESSED SHELBY TUBS CA-CONTINUOUS FLIGHT AUGER RC-ROCK CORE STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

SOIL DESCRIPTION STRA. DEPTH SAMPLE COLORUMOSTURE, DESTRY, SIZEL PROPORTION DEPTH SCALE CON BLOWS 6" NO. REC

GRAY TO WHITE MOIST DENSE FINE TO COARSE SAND WITH SOME MICA

GRAY TO WHITE MOIST DENSE FINE TO COARSE SAID WITH SOME SILT

BOTTOM OF TEST HOLE AT 20.9"

RECORD OF SOIL EXPLORATION

29-5 1/4" 5

LAMONT SMITH

ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

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um F. ele E stat	V. 402.0 HAMMER WT. HAMMER DROP. RTED 9-14-99 PIPE SIZE 2.0	30 INC	<u>kes</u> roch	DIAME CORE	TER 3" DIA THOD <u>HAND</u> A	<u> </u>	OREM NSPEC ATE (TOR K.EL-JALLA		0 8	AT UR
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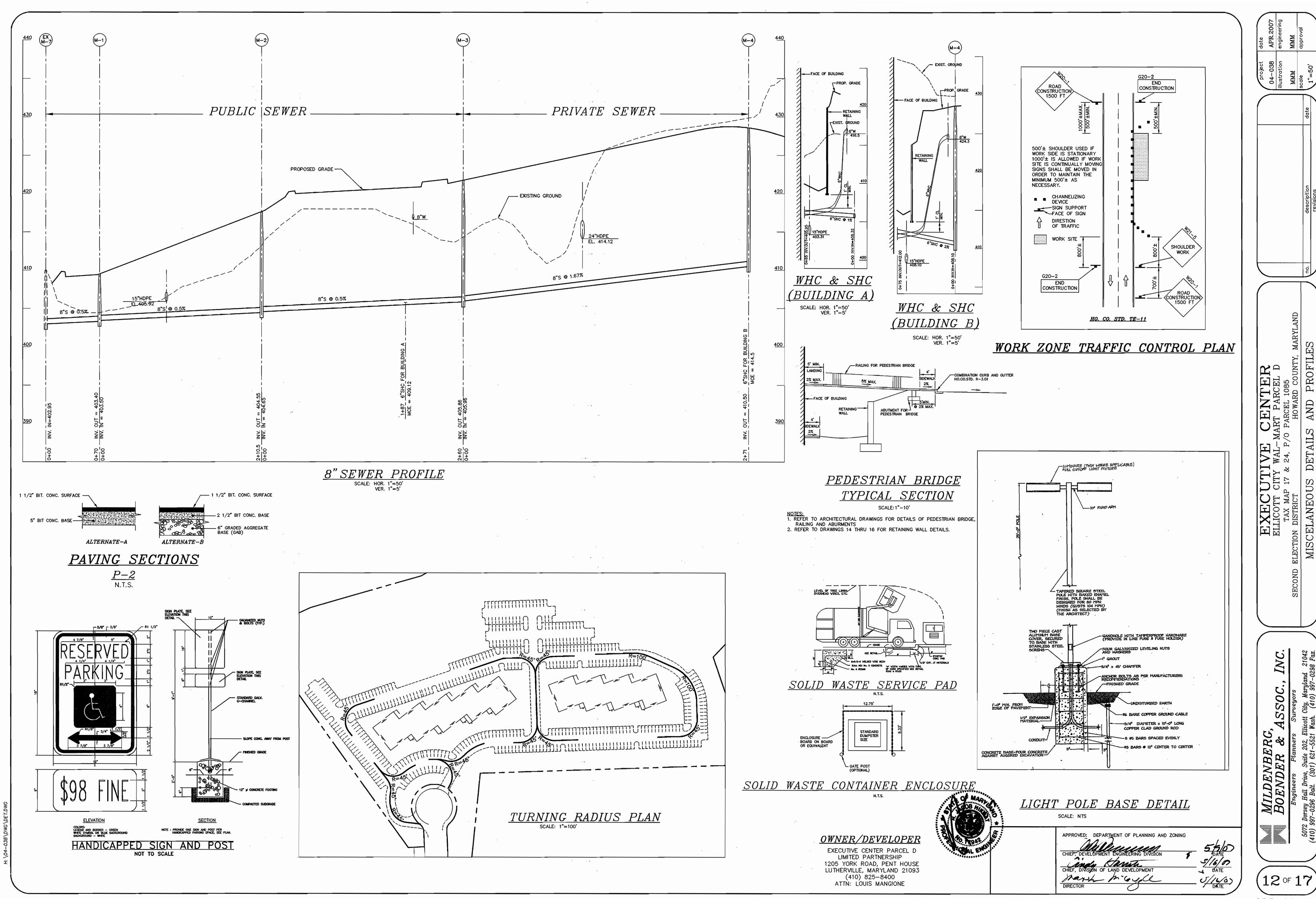
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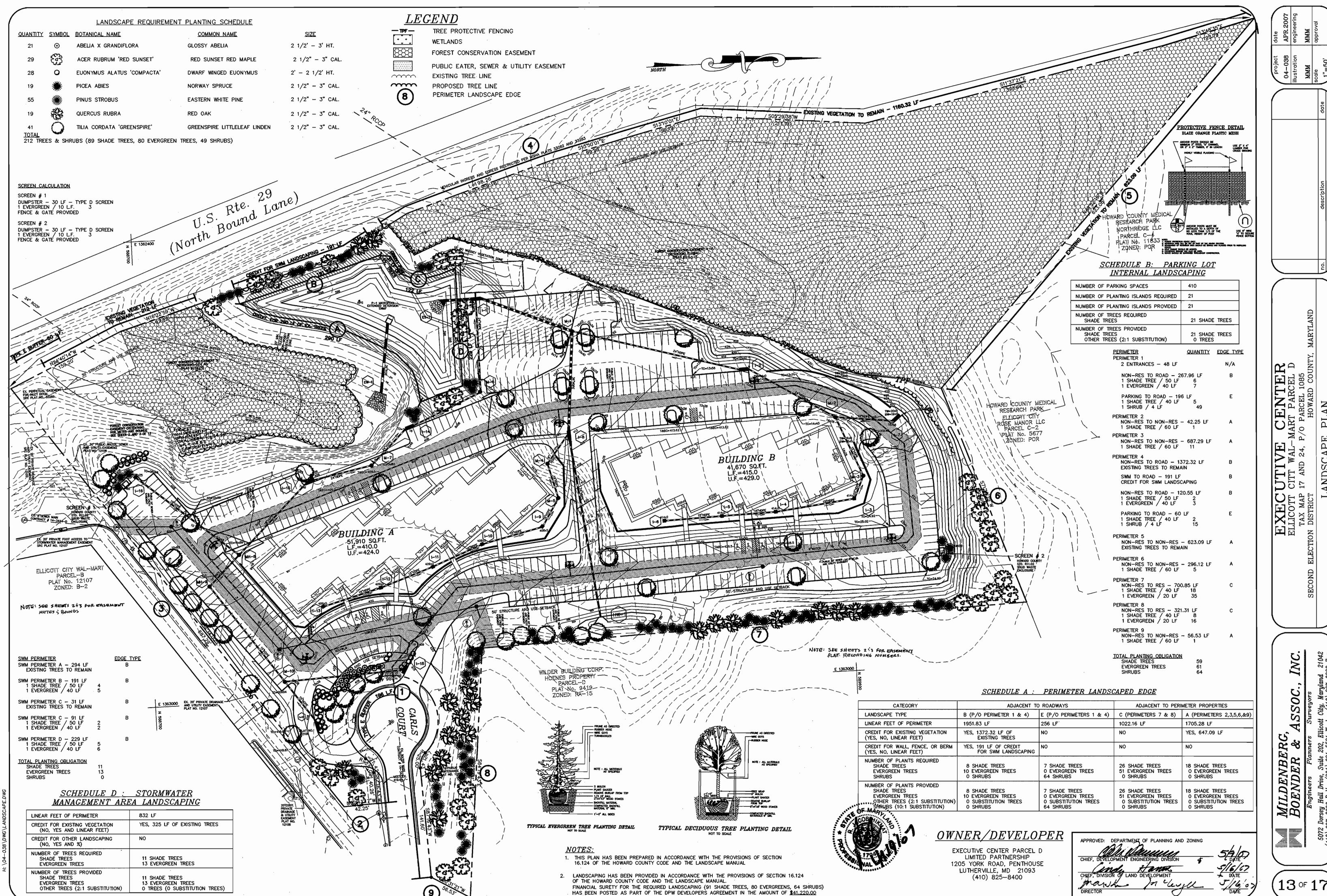
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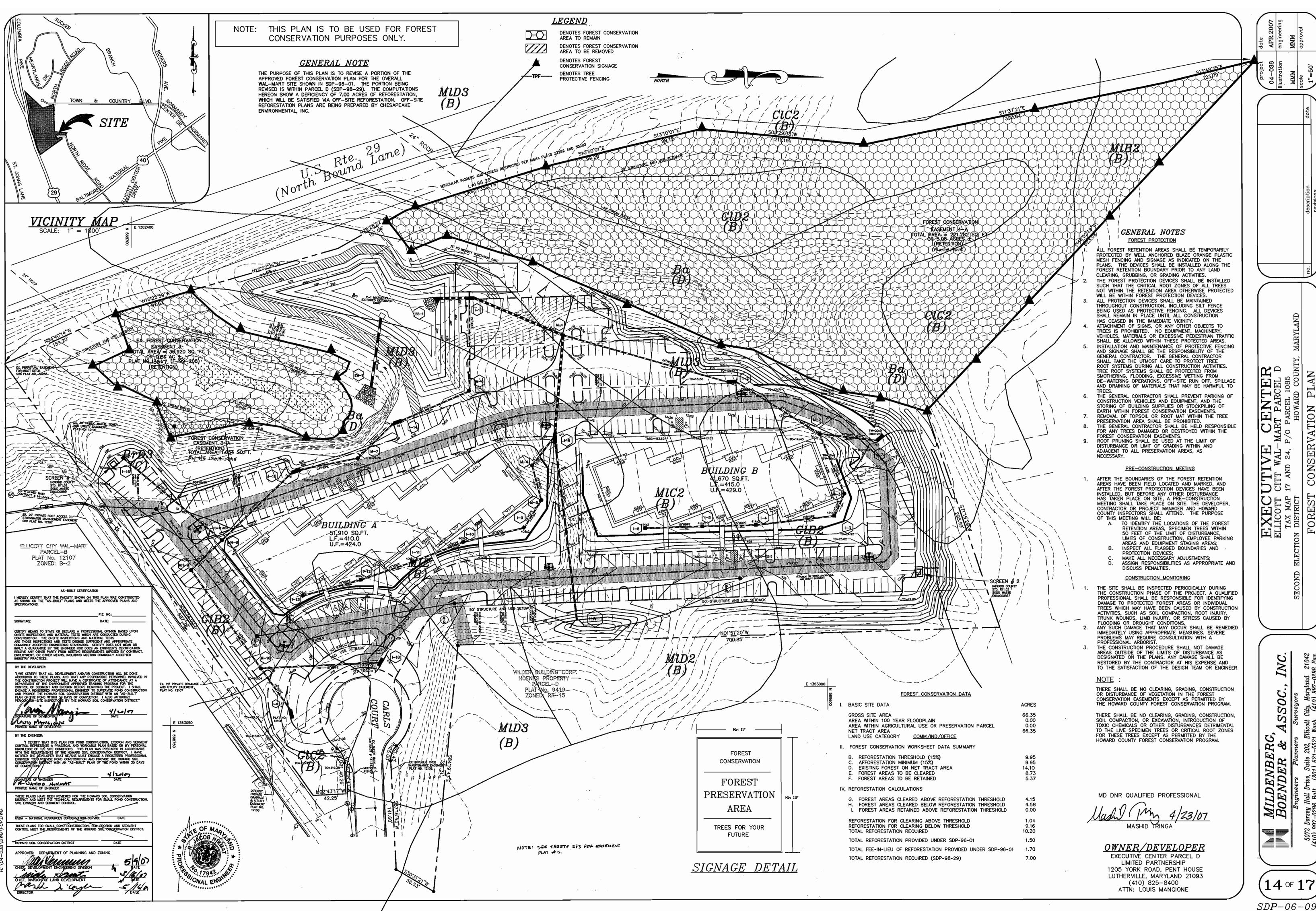
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SPECIFICATIONS

KEYSTONE MODULAR CONCRETE BLOCK RETAINING WALL

PART 1: GENERAL

 Description
 A. Work shall consist of furnishing and construction of a KEYSTONE Retaining Wall System in eccordance with these specifications and in reasonably close conformity with the lines, grades, design, and dimensions shown on the plans.

B. Work includes preparing foundation soil, furnishing and installing levaling pad, unit drainage fill and backfill to the lines and grades shown on the construction drawings. C. Work includes furnishing and installing geogrid soil reinforcement of the type, size, location, and lengths

designated on the construction drawings.

1.02 Delivery, Storage and Handling A. Contractor shall check all materials upon delivery to assura that the proper type, grade, color, and certification has been received.

B. Contractor shall protect all materials from damage due to job site conditions and in accordance with manufacturer's recommendations. Damaged materials shall not be incorporated into the work.

PART 2: PRODUCTS

A. Modular concrete units shall conform to the following architectural requirements: face color - concrete gray - standard manufacturers' color may be specified by the Owner. face finish - sculptured rock face in angular tri-planer configuration. Other face finishes will not be allowed without written approval of Owner.

2.01 Modular Concrete Retaining Wall Units

bond configuration - running with bonds nominally located at midpoint vertically adjacent units, in both straight and curved alignments. exposed surfaces of units shall be free of chips, cracks

- or other imperfections when viewed from a distance of 10 feet under diffused lighting. B. Modular concrete materials shall conform to the
- requirements of ASTM C1372 Standard Specifications for Segmental Retaining Wall Units. C. Modular concrete units shall conform to the following structural and geometric requirements measured in accordance with appropriate references: compressive strength = 3000 psi minimum;
- standard weight aggregates; dimensional tolerances = $\pm 1/8$ ^m from nominal unit dimensions not including rough split unit dimensions not including rough split face, ±1/16" unit height - top and

absorption = 8 % maximum (6% in northern states) for

unit size - 8" (H) x 18" (W) x 22" (D) minimum; unit weight - 100 lbs/unit minimum for standard weight aggregates; inter-unit shear strength - 600 plf minimum at 2 psi normal geogrid/unit peak connaction strength - 600 plf minimum

at 2 psi normal force. D. Modular concrete units shell conform to the following constructability requirements: vertical setback = 1/8"± per course (near vertical) or 1"+ per course per the design;

alignment and grid positioning mechanism - fiberglass pins, two per unit minimum; maximum horizontal gap between erected units shall be -1/2 inch.

2.02 Shear Connectors A. Shear connectors shall be 1/2 inch diameter thermoset

isopthalic polyester resin-protruded fiberglass reinforcement rods or equivalent to provide connection between verticelly and horizontally adjacent units. Strength of shear connectors between vertical adjacent units shall be applicable over a design temperature of 10 degrees F to + 100 degrees F.

B. Shear connectors shall be capable of holding the geogrid in the proper design position during grid pre-tensioning

2.03 Base Leveling Pad Material

A. Material shall consist of a compacted #57 crushed stone base as shown on the construction drawings.

2.04 Unit Drainage Fili A. Unit drainage fill shall consist of #57crushed stone

2.05 Reinforced Backfill

A. Reinforced backfill shall type SM, be free of debris and meet the following gradation tested in accordance with ASTM D-422 and meet other properties shown on the

Percent Passing 100-75 100-75 3/4 inch No. 40 No. 200

Plasticity Index (PI) <15 and Liquid Limit <40 per ASTM B. Material can be site excavated soils where the above

requirements can be mat. Unsuitable soils for backfill (high plastic clays or organic soils) shall not be used in the

2.06 Geogrid Soil Reinforcement

- A. Geosynthetic reinforcement shall consist of geogrids manufactured specifically for soil reinforcement applications and shall be manufactured from high tanacity
- 2.07 Drainage Pipe A. The drainage pipe shall be perforated corrugated HDPE pipe manufactured in eccordance with ASTM D-1248.

PART 3 EXECUTION

3.01 Excavation A. Contractor shall excavate to the lines and grades shown on the construction drawings. Owner's representative shall be responsible for inspecting and approving the excavation prior to placement of leveling material or fill

3.02 Base Leveling Pad

A. Leveling pad material shall be placed to the lines and grades shown on the construction drawings, to a minimum thickness of 6 inches and extend laterally a minimum of 6" in front and behind the modular wall unit. B. Leveling pad shall be prepared to insure full contact to the base surface of the concrete units.

3.03 Modular Unit Installation

A. First course of units shall be placed on the leveling pad at the appropriate line and grade. Alignment and level shall be checked in all directions and insure that all units are in

full contact with the base and properly seated. B. Place the front of units side-by-side. Do not leave geps between adjacent units. Layout of corners and curves shall be in accordance with manufacturer's

C. Install shear/connecting devices per manufacturer's recommendations.

D. Place and compact drainage fill within and behind wall units. Place and compact backfill soil behind drainage fill. Follow wall erection and drainage fill closely with structure

E. Maximum stacked vertical height of wall units, prior to unit drainage fill and backfill placement and compaction, shall not exceed three courses.

3.04 Structural Geogrid Installation

A. Geogrid shall be oriented with the highest strength axis perpendicular to the wall alignment. B. Geogrid reinforcement shall be placed at the strengths, lengths, and elevations shown on the construction design

drawings or as directed by the Engineer. C. The geogrid shall be laid horizontally on compacted backfill and attached to the modular wall units. Place the next course of modular concrete units over the geogrid. The geogrid shall be pulled taut, and anchored prior to

backfill placement on the geogrid. D. Geogrid reinforcements shall be continuous throughout their embedment langths and placed side-by-side to provide 100% coverage at each level. Spliced connections between shorter pieces of geogrid or gaps between adjacent pieces of geogrid are not permitted.

3.05 Reinforced Backfill Placement A. Reinforced backfill shall be placed, spread, and compacted in such a manner that minimizes the development of slack in the geogrid and installation

damage.

B. Reinforced backfill shall be placed and compacted in lifts not to exceed 6 inches where hand compaction is used, or 8 - 10 inches where heavy compaction equipment is used. Lift thickness shall be decreased to achieve the required

density as required. C. Reinforced backfill shall be compacted to 95 % of the maximum density as determined by ASTM D698. The moisture content of the backfill material prior to and during compaction shall be uniformly distributed throughout each

layer and shall be + 3% to - 3% of optimum. D. Only lightweight hand-operated equipment shall be allowed within 3 feet from the tail of the modular concrete

E. Tracked construction equipment shall not be operated directly upon the geogrid reinforcement. A minimum fill thickness of 6 inches is required prior to operation of tracked vehicles over the geogrid. Tracked vehicle turning should be kept to a minimum to prevent tracks from displacing the fill and damaging the geogrid.

F. Rubber tired equipment may pass over geogrid reinforcement at slow speeds, less than 10 MPH. Sudden braking and sharp turning shall be avoided. G. At the end of each day's operation, the Contractor shall slope the last lift of reinforced backfill away from the wall

units to direct runoff away from wall face. The Contractor

shall not allow surface runoff from adjacent areas to enter

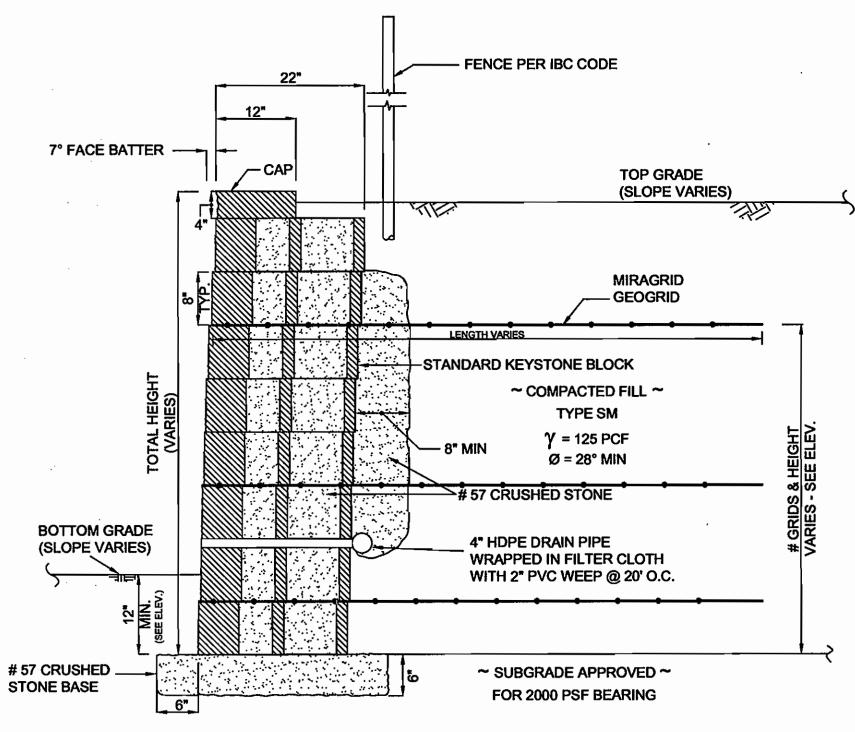
the wall construction site. 3.06 Cap Installation A. Cap units shall be glued to underlying units with an

all-weather adhesive recommended by the manufacturer. 3.07 Field Quality Control

 A. The Owner shall engage inspection and testing services, including independent laboratories, to provide quality assurance and testing services during construction. B. As a minimum, quality assurance testing should include foundation soil inspection, soil and backfill testing, verification of design parameters, and observation of construction for general compliance with design drawings and specifications.

certified soils technician. 3.) The required bearing pressure beneath the wall system shall be verified in the field by a certified soils technician. Testing documentation must be provided to the Howard County Inspector prior to start of construction. The required bearing test shall be the Dynamic Cone Penetrometer test

ASTM STP-399. 4.) The suitability of fill material shall be confirmed by the on-site soils technician. Each 8" lift must be compacted to a minimum 95% standard proctor density and the testing report shall be made available to the Howard County Inspector upon completion of construction.



TYPICAL WALL SECTION

N.T.S.

OWNER / DEVELOPER

EXECUTIVE CENTER PARCEL D LIMITED PARTNERSHIP 1205 YORK ROAD, PENTHOUSE **LUTHERVILLE, MD 21093** (410) 825-8400



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING DATE

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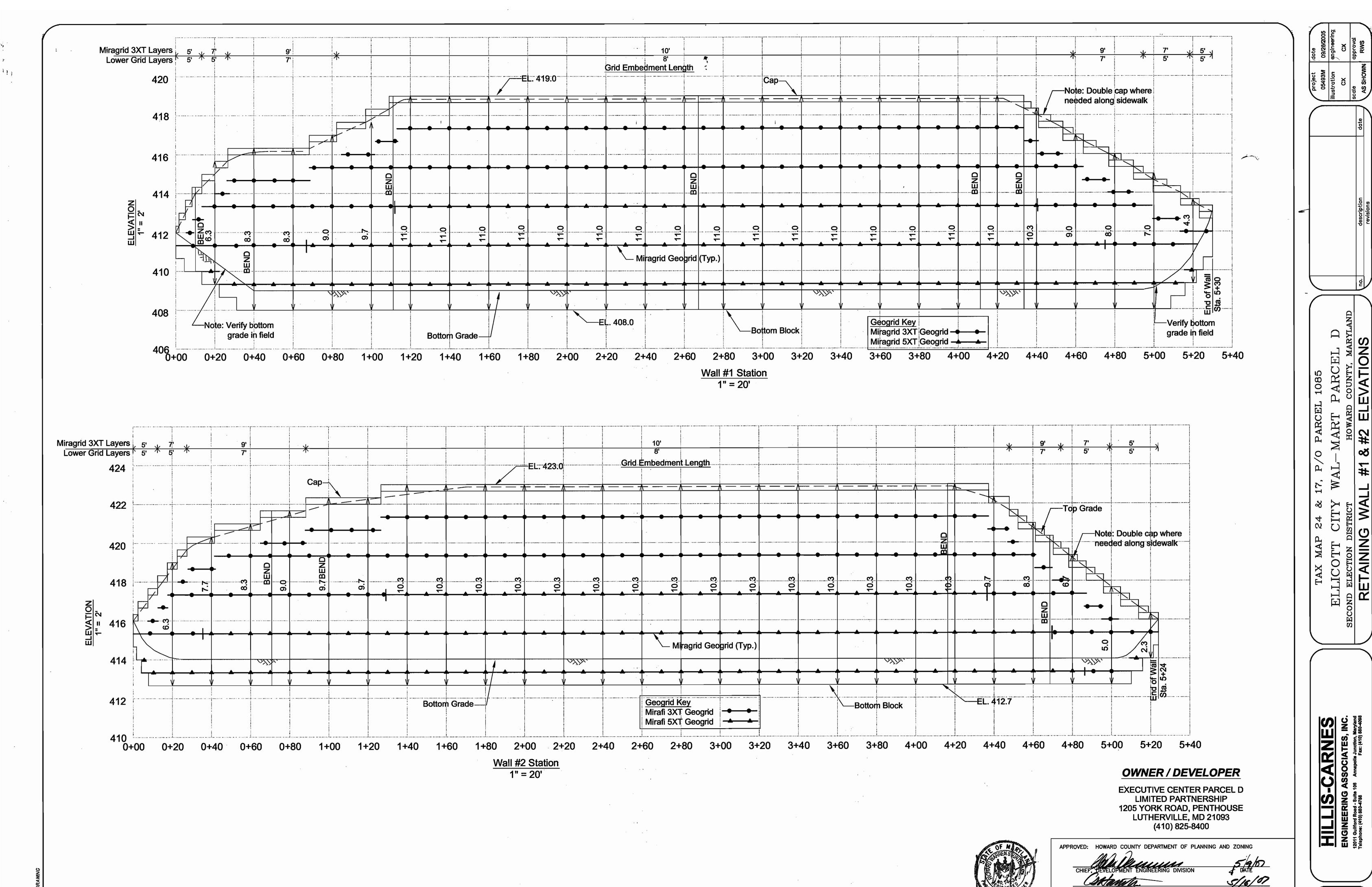
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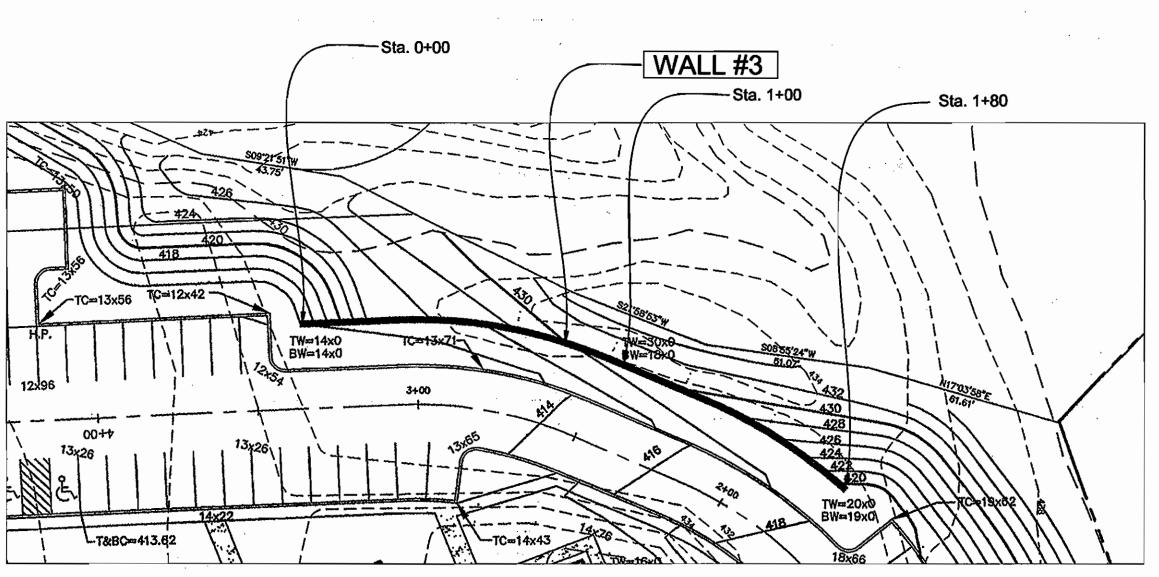
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MAP

RETAINING



SDP 06-094



WALL #3 LOCATION PLAN 1"=30'

OWNER / DEVELOPER

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EXECUTIVE CENTER PARCEL D LIMITED PARTNERSHIP 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MD 21093 (410) 825-8400



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