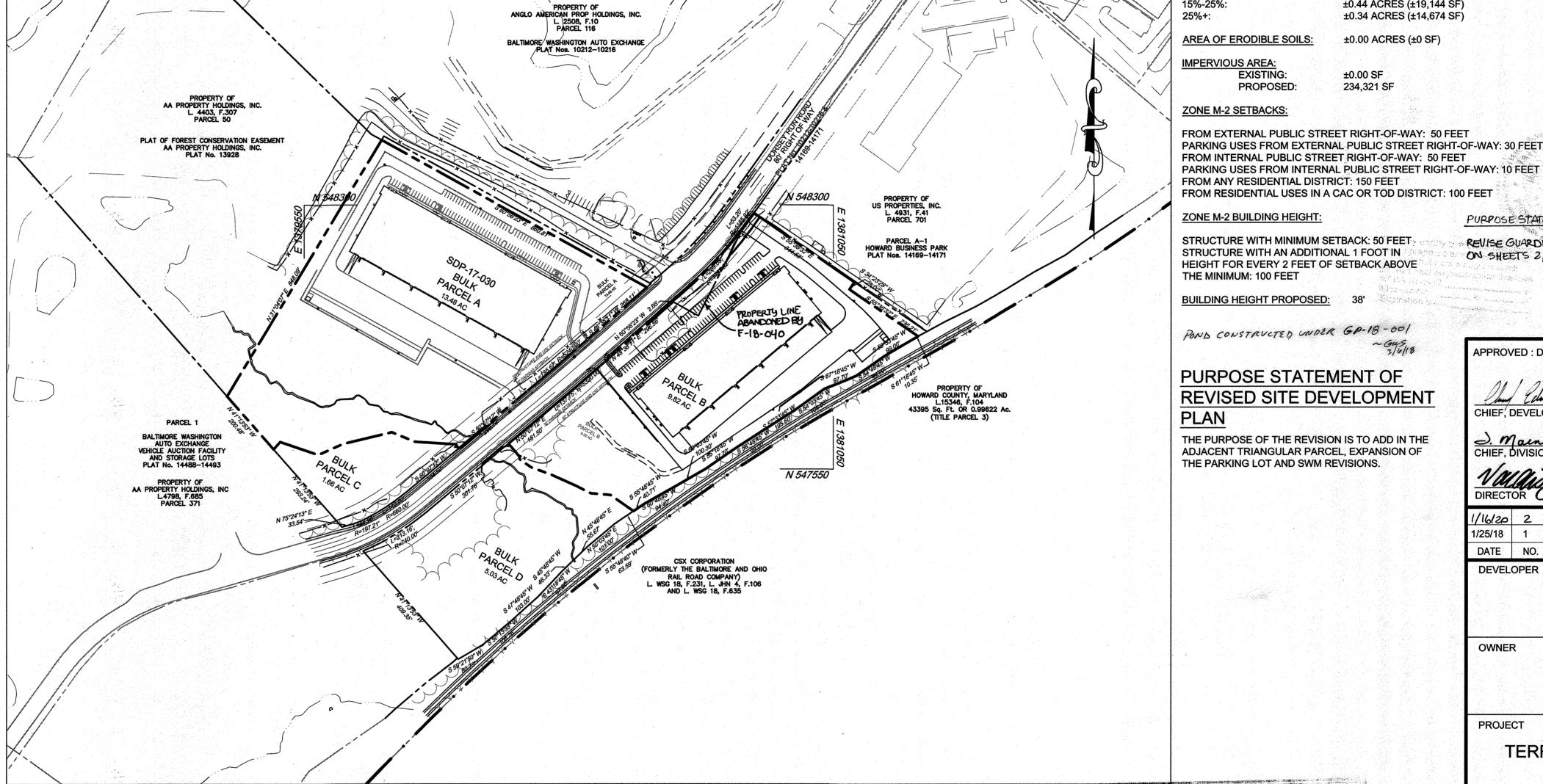
SHEET INDEX DESCRIPTION DESCRIPTION 1 COVER SHEET 19 STORMWATER MANAGEMENT PLAN 20 STORMWATER MANAGEMENT POND 1 DETAILS 2 OVERALL PLAN 3 EXISTING CONDITIONS PLAN 21 STORMWATER MANAGEMENT DETAILS 4 SITE DEVELOPMENT PLAN 22 STORMWATER MANAGEMENT DETAILS GRADING AND SEDIMENT CONTROL PLAN - PHASE I 23 STORMWATER MANAGEMENT DETAILS STORMWATER MANAGEMENT DETAILS GRADING AND SEDIMENT CONTROL PLAN - PHASE III 25 PAVING, STRIPING, AND SIGNAGE PLAN 8 | SEDIMENT CONTROL NOTES 26 FOREST CONSERVATION PLAN 27 FOREST CONSERVATION NOTES AND TABULATIONS SEDIMENT CONTROL DETAILS 28 LANDSCAPE PLAN SEDIMENT CONTROL DETAILS 29 LANDSCAPE NOTES AND DETAILS SEDIMENT CONTROL DETAILS 30 RETAINING WALL DETAILS 12 SEDIMENT CONTROL DETAILS 13 SITE DETAILS 31 RETAINING WALL DETAILS 14 UTILITY PLAN 32 ARCHITECTURAL ELEVATIONS STORM DRAIN DRAINAGE AREA MAP 33 SOIL BORING LOGS 34 | SOIL BORING LOGS STORM DRAIN PROFILES AND SCHEDULES 35 LIGHTING PLAN STORM DRAIN PROFILES AND SCHEDULES PRIVATE UTILITY PROFILES AND SCHEDULES 36 LIGHTING DETAILS

GENERAL NOTES

- 1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
- 2. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- 3. ALL PLAN DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED
- 4. THE EXISTING TOPOGRAPHY IS PROVIDED BY AN AERIAL SURVEY BY MAPPING RESOURCE GROUP, INC., DATED FEBRUARY 2016. AND HAS BEEN SUPPLEMENTED BY COUNTY GIS INFORMATION
- 5. THE BOUNDARY SURVEY IS PROVIDED BY AN ALTA TITLE SURVEY BY PENNONI ASSOCIATES, INC., DATED FEBRUARY 2016 AND HAS BEEN SUPPLEMENTED BY COUNTY GIS INFORMATION
- 6. THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM NAD 83/91. HOWARD COUNTY MONUMENT NOS. 0043 AND 38D8 WERE USED FOR THIS PROJECT.
- 7. WATER IS PUBLIC, CONTRACT 14-4679.
- 8. SEWER IS PUBLIC. CONTRACT 580-S-A
- APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE. EXISTING UTILITIES ARE SHOWN BASED ON THE BEST AVAILABLE INFORMATION.
- THE FLOODPLAIN SHOWN IS FROM A FLOODPLAIN STUDY PERFORMED FOR CAPITAL PROJECT J 4148.
- I. WETLANDS SHOWN ARE FROM URS MEMORANDUM DATED JULY 27, 2015 TO HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS, AND A SUPPLEMENTAL REPORT PREPARED BY BRAYHILL, LLC DATED MARCH 1, 2016.
- 12. SUBJECT PROPERTY ZONED M-2 PER THE OCTOBER 6, 2013 COMPREHENSIVE ZONING PLAN.
- 13. ALL ELEVATIONS SHOWN ARE BASED NAVD88.
- 14. ALL LIGHTING IS TO BE DIRECTED/REFLECTED DOWNWARD AWAY FROM ADJACENT PUBLIC ROADS AND RESIDENTIALLY ZONED PROPERTIES IN ACCORDANCE WITH SECTION 134.0 OF THE HOWARD COUNT ONTO ANY PROPERTY ZONED R-12 SHALL BE LIMITED TO 0.1 FOOT CANDLES.
- 15. A TRAFFIC STUDY WAS PERFORMED BY TRAFFIC CONCEPTS DATED APRIL 2016, AND WAS APPROVED ON MARCH 9, 2017.
- 16. NO BUILDINGS OR STRUCTURES EXIST ON THE PROPERTY.
- 17. BASED ON AVAILABLE COUNTY MAPS AND RECORDS, THERE ARE NO HISTORIC STRUCTURES OR KNOWN CEMETERIES LOCATED ON THE SUBJECT PROPERTY.
- 18. APPLICABLE DPZ FILE REFERENCES: ECP-16-056, F-16-105, WP-17-087, F-17-068
- 19. NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE LIMITS OF WETLANDS, STREAMS, OR THEIR REQUIRED BUFFERS, FLOODPLAIN AND FOREST CONSERVATION AREAS, EXCEPT AS SHOWN ON THIS PLAN AND APPROVED BY HOWARD COUNTY AND MDE.
- 20. FOREST CONSERVATION FOR THIS PROJECT HAS BEEN PROVIDED THROUGH THE PURCHASE OF CREDITS FOR 4.55 ACRES OF FOREST IN AN OFFSITE BANK. THE BANK IS IS KNOWN AS SDP-16-029, AFS FARM AND/OR F-13-070 QUARTZ HILL
- 1. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL. LANDSCAPE PLANTINGS FOR 51 SHADE TREES AND 10 EVERGREEN TREES HAVE BEEN PROVIDED UNDER THIS PLAN. A FINANCIAL SURETY IN THE AMOUNT OF \$16,800 WILL BE POSTED WITH THE DEVELOPERS
- 22. STORMWATER MANAGEMENT FOR THIS PROJECT WILL BE PROVIDED BY SEVEN (7) MICRO-BIORETENTION FACILITIES, AND A MICROPOOL EXTENDED DETENTION POND.
- 23. A NOISE STUDY IS NOT REQUIRED FOR THIS PROJECT.
- 24. A GEOTECHNICAL REPORT WAS PREPARED FOR THIS PROJECT BY PENNONI ASSOCIATED DATED JANUARY 2017.
- 25. A FOREST STAND DELINEATION FOR THIS PROPERTY WAS COMPLETED BY PENNONI ASSOCIATES, INC. AND APPROVED ON SEPTEMBER 2, 2016.
- 26. THE CONTRACTOR SHALL TEST PIT EXISTING UTILITIES AT LEAST (5) DAYS BEFORE STARTING WORK SHOWN ON THESE
- 27. CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, AND SAFETY PRECAUTIONS AND PROGRAMS. THE CONTRACTOR SHALL FOLLOW THE SEQUENCE OF CONSTRUCTION OUTLINED IN THESE PLANS.
- 28. PIPE SHALL NOT BE INSTALLED BY THE CONTRACTOR UNTIL THE LENGTH CALLED FOR AT EACH STATION HAS BEEN APPROVED BY THE ENGINEER IN THE FIELD.
- 29. NO PIPE SHALL BE LAID UNTIL LINES OF EXCAVATION HAVE BEEN BROUGHT WITHIN 6" OF FINISHED GRADE
- 30. ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS.
- 31. PROFILE STATIONS SHALL BE ADJUSTED AS NECESSARY TO CONFORM TO PLAN DIMENSIONS.
- 32. ALL FILL AREAS WITHIN ROADWAY AND UNDER STRUCTURES TO BE COMPACTED TO A MINIMUM OF 95% COMPACTION OF AASHTO T180.
- 33. ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED ("QUICK PUNCH" TYPE), SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) - 3' LONG. THE ANCHOR SHALL NOT EXTEND MORE THAN TWO "QUICK PUNCH" HOLES ABOVE GROUND LEVEL. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.

SITE DEVELOPMENT PLAN TERRAPIN COMMERCE CENTER-BUILDINGB

DORSEY RUN ROAD 1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND



34. AN ACCESSIBLE ROUTE SHALL BE PROVIDED BETWEEN HANDICAPPED PARKING OR PUBLIC RIGHT OF WAYS TO THE MAIN BUILDING ENTRANCE IN ACCORDANCE WITH CURRENT ADA AND LOCAL STANDARDS. ALL HANDICAPPED RAMPS SHALL BE CONSTRUCTED ACCORDING TO CURRENT ADA AND

LOCAL STANDARDS. EXCEPT AS SUPERSEDED IN CURRENT ADA AND LOCAL STANDARDS THE

C) ALL HANDICAPPED PARKING SHALL BE SLOPED NO GREATER THAN 2% IN ANY DIRECTION,

B) A MINIMUM 5'X 5' LANDING AREA WITH A MAXIMUM SLOPE IN ANY DIRECTION OF 2% SHALL BE

PROVIDED AT ALL CHANGES IN DIRECTION, TOPS AND BOTTOMS OF RAMPS, AND BUILDING EGRESS

D) AN ACCESS ROUTE FROM THE PARKING SPACE(S) TO THE MAIN BUILDING ENTRANCE SHALL BE

PROVIDED. ALL SLOPES ALONG THE DIRECTION OF TRAVEL SHALL NOT EXCEED 1:20 UNLESS THEY

FALL UNDER CONDITION B) ABOVE. SLOPES IN EXCESS OF 1:20 EXCEPT FOR CURB RAMPS, REQUIRE

A HANDRAIL MEETING ADA REQUIREMENTS. SEE SHEET 38 FOR DETAIL OF HANDICAPPED PARKING.

COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE

AND THE MARYLAND DEPARTMENT OF THE ENVIRONMENT (PERMIT # 201662029/16-NT-3361) FOR

DISTURBANCE IN THE FLOODPLAIN ASSOCIATED WITH THE SEWER MAIN EXTENSION AND DISTURBANCE

SITE DEVELOPMENT PLAN, WAIVER PETITION APPLICATION OR BUILDING/GRADING PERMIT APPLICATIONS.

35. THIS PROJECT IS SUBJECT TO COMPLIANCE WITH THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. DEVELOPMENT OR CONSTRUCTION ON THIS PROPERTY MUST

36. A PERMIT HAS BEEN ISSUED BY THE ARMY CORPS OF ENGINEERS (PERMIT # 2016-62029-M39)

FOLLOWING SHALL APPLY:

TO AN EPHEMERAL STREAM CHANNEL.

A) MAXIMUM SIDEWALK CROSS SLOPES SHALL BE 2%,

INCLUDING A 5' WIDE AREA BEHIND THE PARKING SPACES.

1. COMPLIANCE WITH ALL SRC AGENCY COMMENTS GENERATED WITH THE REVIEW OF THE SUBMITTED SITE DEVELOPMENT PLAN, SDP-17-037. 2. EIGHTEEN (18) 2.5-3" CALIPER, NATIVE SHADE TREES SHALL BE PROVIDED AS MITIGATION FOR THE

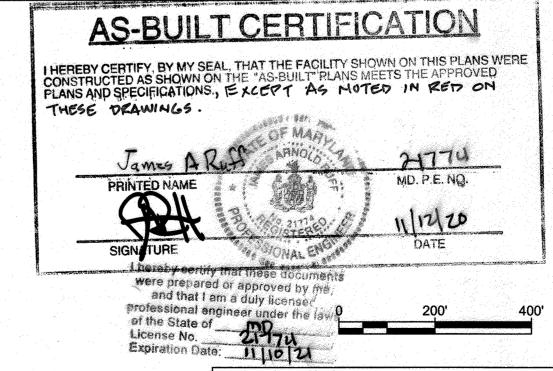
BE ADDED TO THE LANDSCAPE SURETY WITH SITE DEVELOPMENT PLAN, SDP-17-037, 3. INCLUDE THE ALTERNATIVE COMPLIANCE REQUEST NUMBER, DESCRIPTION, AND DECISION ON ALL ASSOCIATED PLANS, PLATS, AND ANY FUTURE SITE PLANS.

LOCATION PLAN

SCALE: 1" = 200'

37. AN ALTERNATIVE COMPLIANCE REQUEST (WP-17-087) FOR SECTION 16.1205(A)(7) ON-SITE RETENTION HAS BEEN APPROVED FOR THIS PROJECT BY LETTER DATED MARCH 30, 2017. THIS APPROVAL ALLOWS THE REMOVAL OF 9 SPECIMEN TREES ON THIS SITE. THIS APPROVAL IS SUBJECT TO THE FOLLOWING

REMOVAL OF THE 9 SPECIMEN TREES FROM THE PROPERTY. SURETY FOR THE MITIGATION TREES SHALL



ADDRESS CHART STREET ADDRESS PARCEL NUMBER 7171 DORSEY RUN ROAD SUBDIVISION NAME SECT./AREA PARCEL PARCEL 'B' PLAT NO. OR L/F TAX MAP NO. . DIST. CENSUS TRACT 16961/00350 OF THE STATE OF MARYLAND, LICENSE NO. 36896, EXPIRATIO

SITE ANALYSIS DATA 9.82 ACRES (427,686 SF) LIMIT OF DISTURBANCE 8.60 ACRES (374,601 SF) PRESENT ZONING: M-2 (INDUSTRIAL) VACANT, WOODED LOT PROPOSED USE: WAREHOUSE **EXISTING FLOOR AREA:**

VICINITY MAP

SCALE: 1"=2,000" **HOWARD COUNTY** ADC MAP 35 GRID A7 ADC MAP USE LICENSE #3652

BENCHMARKS

HOWARD COUNTY SURVEY CONTROL: 43CE ELEVATION 199.143 N 549,595.935 E 1,381,719.608 LOCATION IS 3' FROM FACE OF CURB ALONG

FI EVATION 157 933

PARKING USES FROM EXTERNAL PUBLIC STREET RIGHT-OF-WAY: 30 FEET FROM INTERNAL PUBLIC STREET RIGHT-OF-WAY: 50 FEET

FROM ANY RESIDENTIAL DISTRICT: 150 FEET FROM RESIDENTIAL USES IN A CAC OR TOD DISTRICT: 100 FEET

AREA OF FOREST WITHIN LOD: 7.75 ACRES (337,574 SF)

93,500 SF

UNKNOWN

107 SPACES

0 ACRES (0 SF)

0 ACRES (0 SF)

0.91 ACRES (39,431 SF)

8.92 ACRES (388,388 SF)

±0.44 ACRES (±19,144 SF)

±0.34 ACRES (±14,674 SF)

±0.00 ACRES (±0 SF)

±0.00 SF

234,321 SF

71 SPACES (0.75 SPACES/1,000 SF)

AREA OF SITE:

EXISTING USE:

PROPOSED FLOOR AREA:

PARKING REQUIRED:

PARKING PROPOSED:

AREA OF WETLANDS:

AREA OF FLOODPLAIN

EXISTING FOREST AREA:

MAXIMUM # OF EMPLOYEES:

AREA OF WETLAND BUFFERS

STRUCTURE WITH MINIMUM SETBACK: 50 FEET STRUCTURE WITH AN ADDITIONAL 1 FOOT IN HEIGHT FOR EVERY 2 FEET OF SETBACK ABOVE

PROPOSED:

POND CONSTRUCTED UNDER GP-18-001

PURPOSE STATEMENT OF REVISED SITE DEVELOPMENT

THE PURPOSE OF THE REVISION IS TO ADD IN THE ADJACENT TRIANGULAR PARCEL, EXPANSION OF THE PARKING LOT AND SWM REVISIONS.

REVISE GUARDRAIL LOCATION AND ADD GUARDRAIL DETAILS

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF! DEVELOPMENT ENGINEERING DIVISION IF

2. Mainhand for KS

3-29-18 DATE

3.19.18

3-28-18

ALC

ALC

ADD PURPOSE STATEMENT 1/25/18 1 ADDITION OF ADJACENT PARCEL DATE NO. REVISION DCT INDUSTRIAL DEVELOPER

12011 GUILFORD ROAD SUITE 102 ANNAPOLIS JUNCTION, MD 20701 ATTN: FRED FERRARO PHONE: 410-645-5020

DCT MEARS LLC OWNER 12011 GUILFORD ROAD SUITE 102

ANNAPOLIS JUNCTION, MD 20701 ATTN: FRED FERRARO PHONE: 410-645-5020

PROJECT

TERRAPIN COMMERCE CENTER - BUILDING B

AREA
TAX MAP 43, PARCEL 51 LOT PAR B PLAT 23793 ZONED M-2 **GRID NO. 11 1st ELECTION DISTRICT** 7200 DORSEY RUN ROAD **ELKRIDGE, MARYLAND 21075** HOWARD COUNTY, MARYLAND

TITLE

COVER SHEET



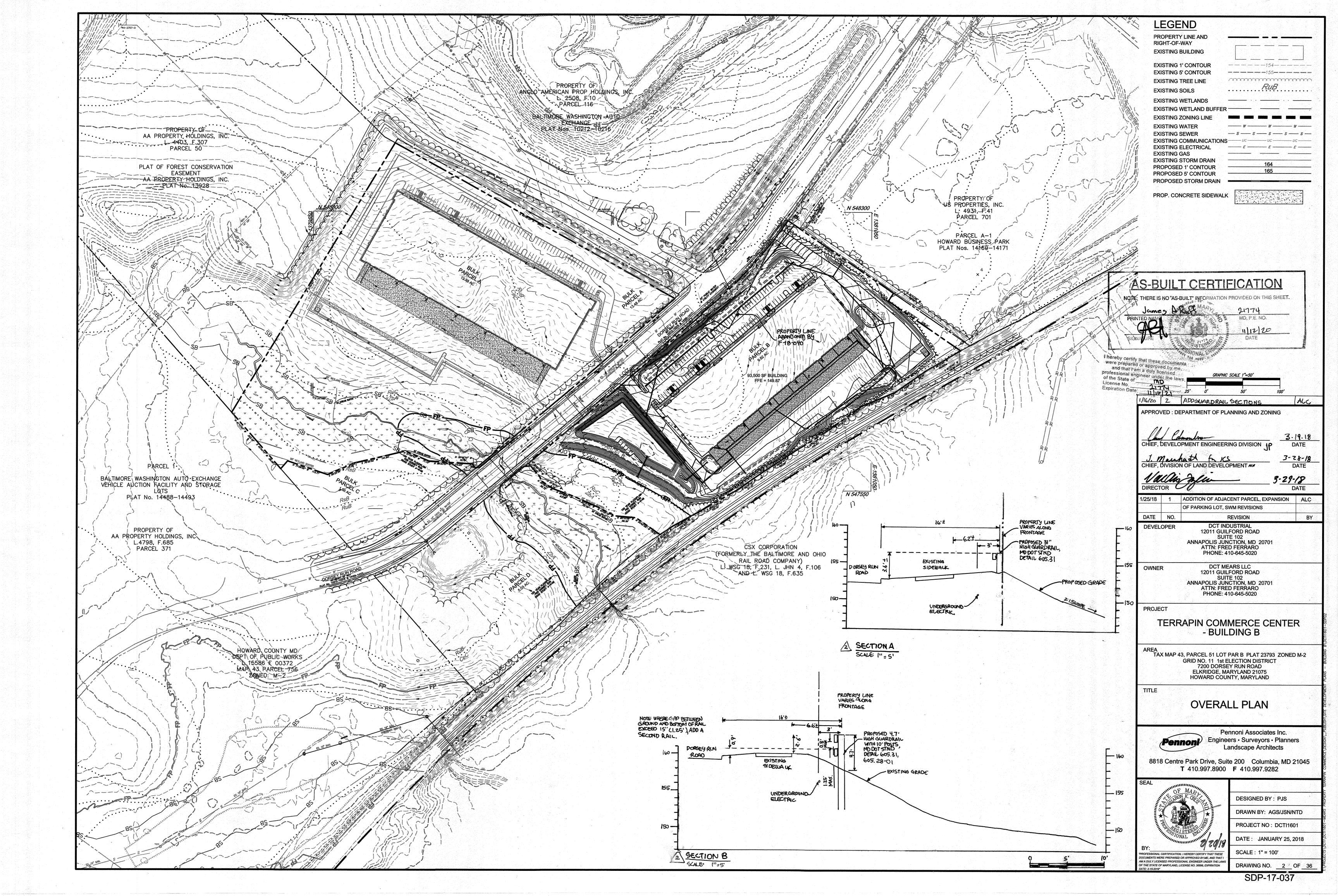
Pennoni Associates Inc. Engineers • Surveyors • Planners Landscape Architects

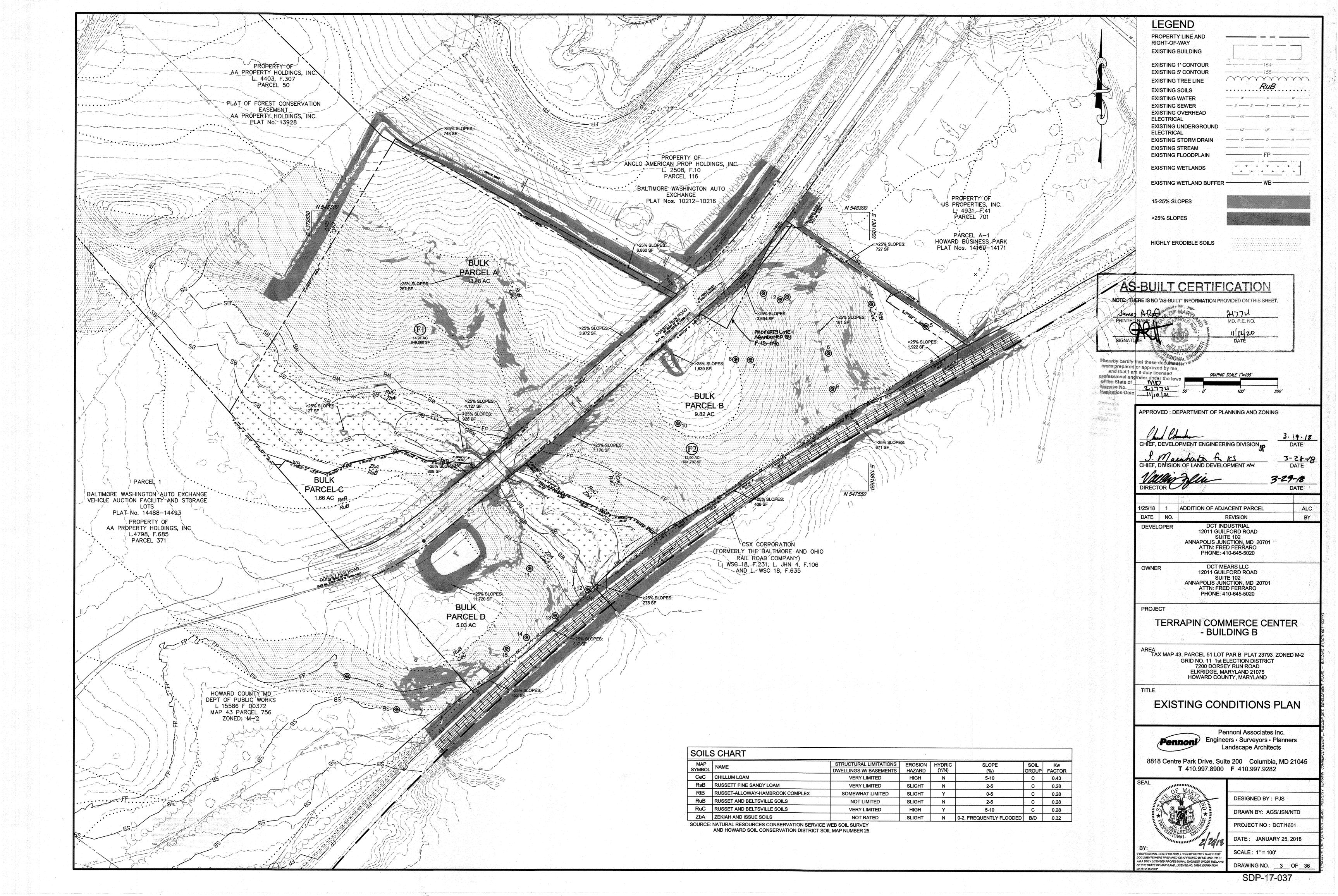
8818 Centre Park Drive, Suite 200 Columbia, MD 21045 T 410.997.8900 F 410.997.9282

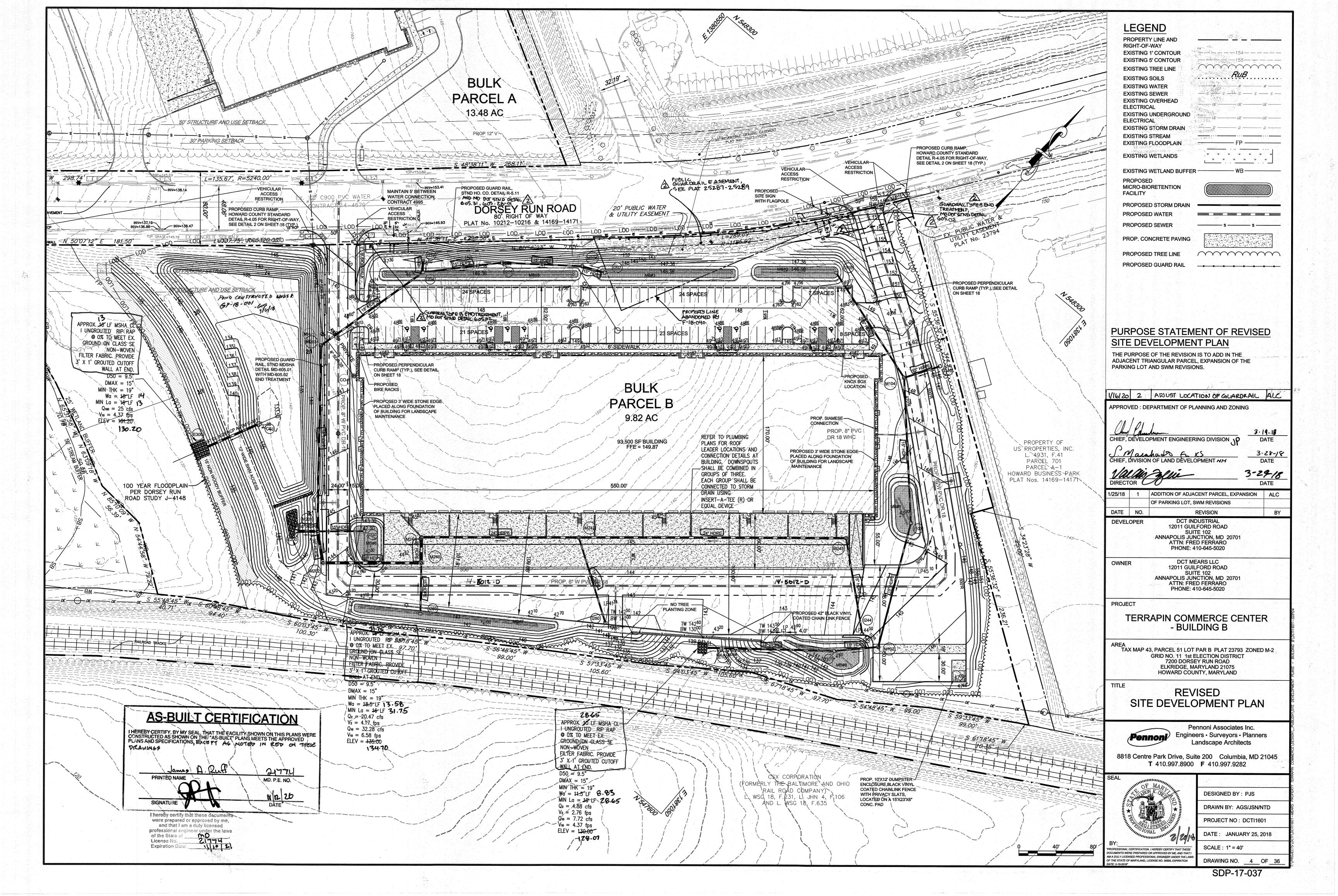


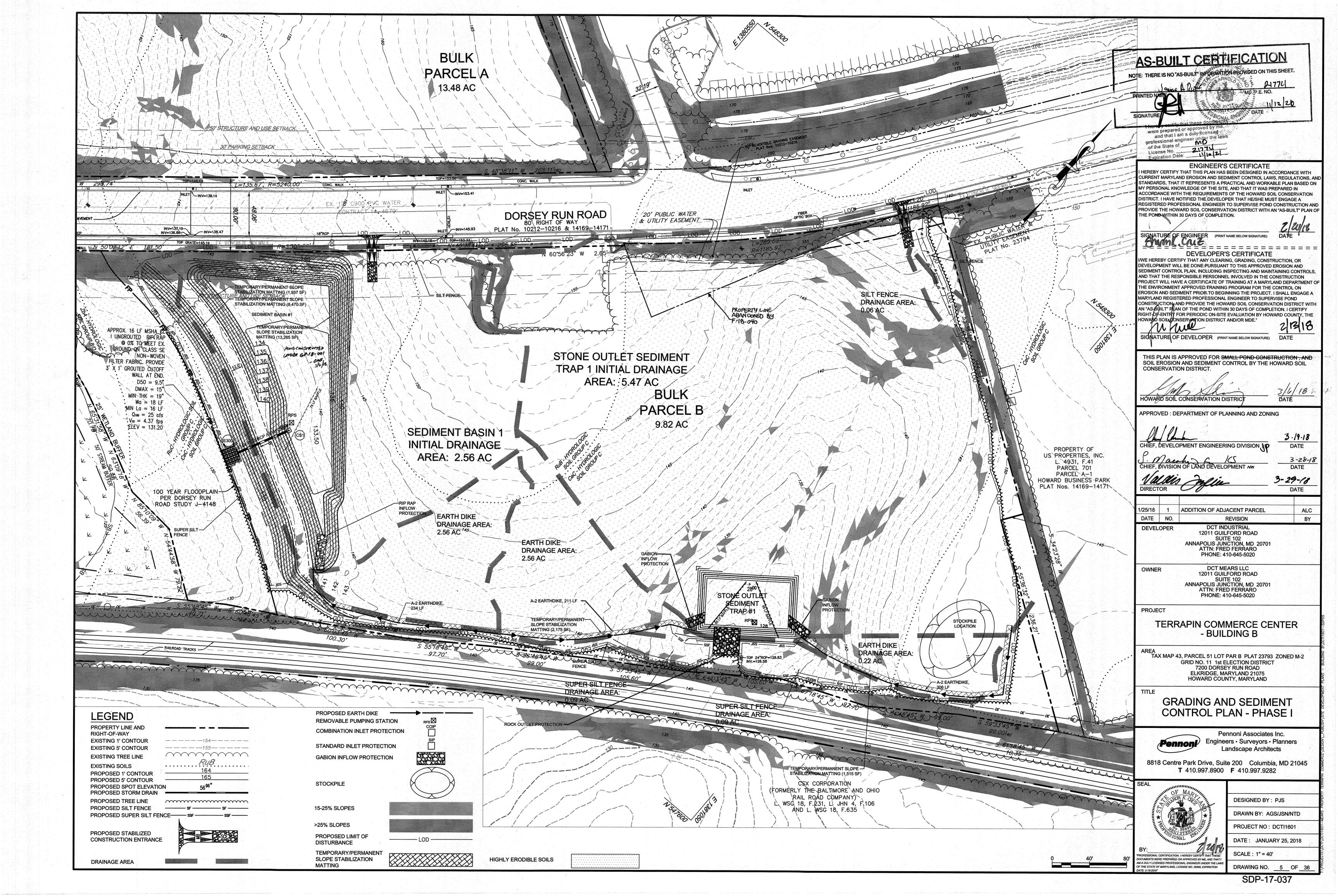
DESIGNED BY: PJS DRAWN BY: AGS/JSN/NTD PROJECT NO: DCTI1601

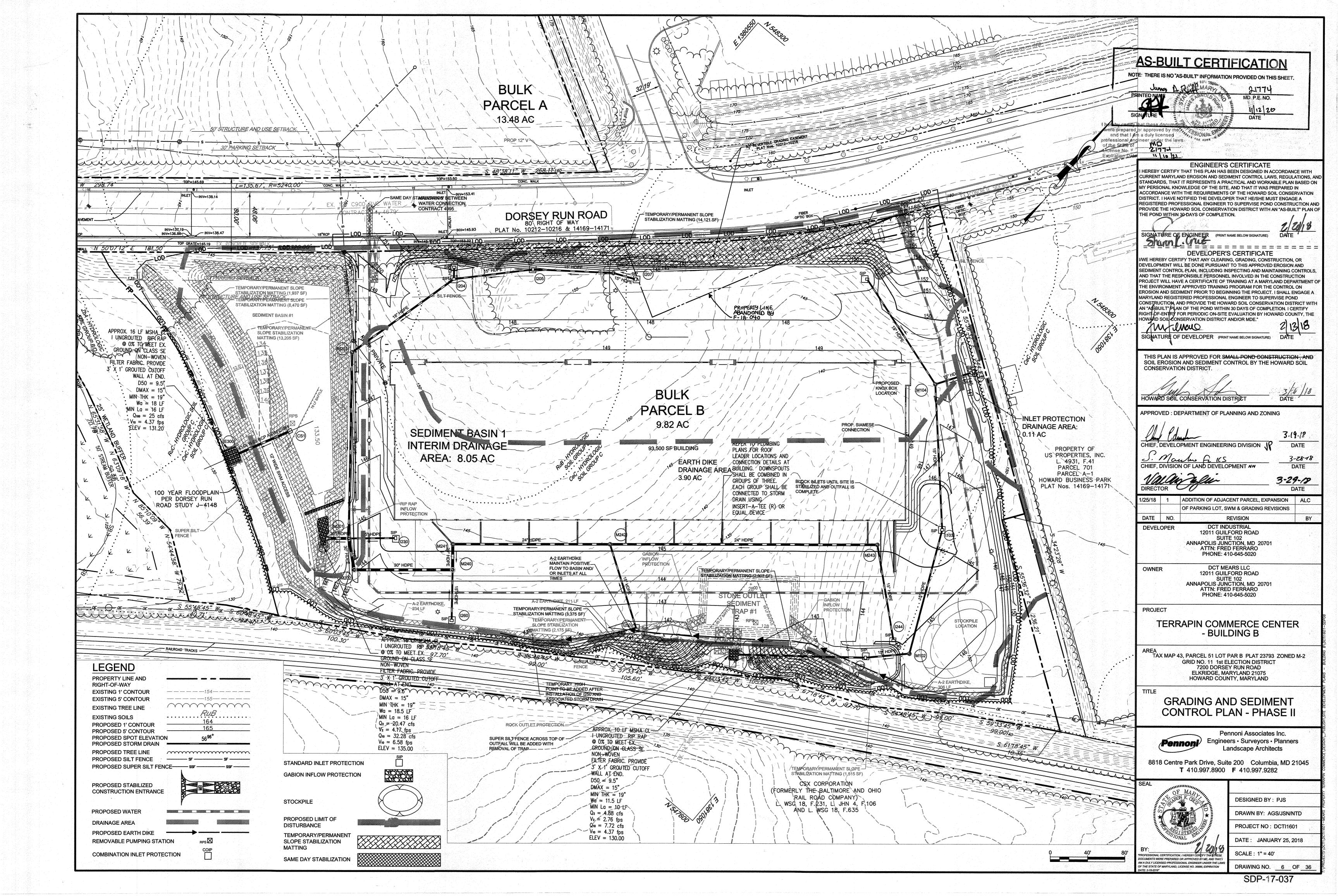
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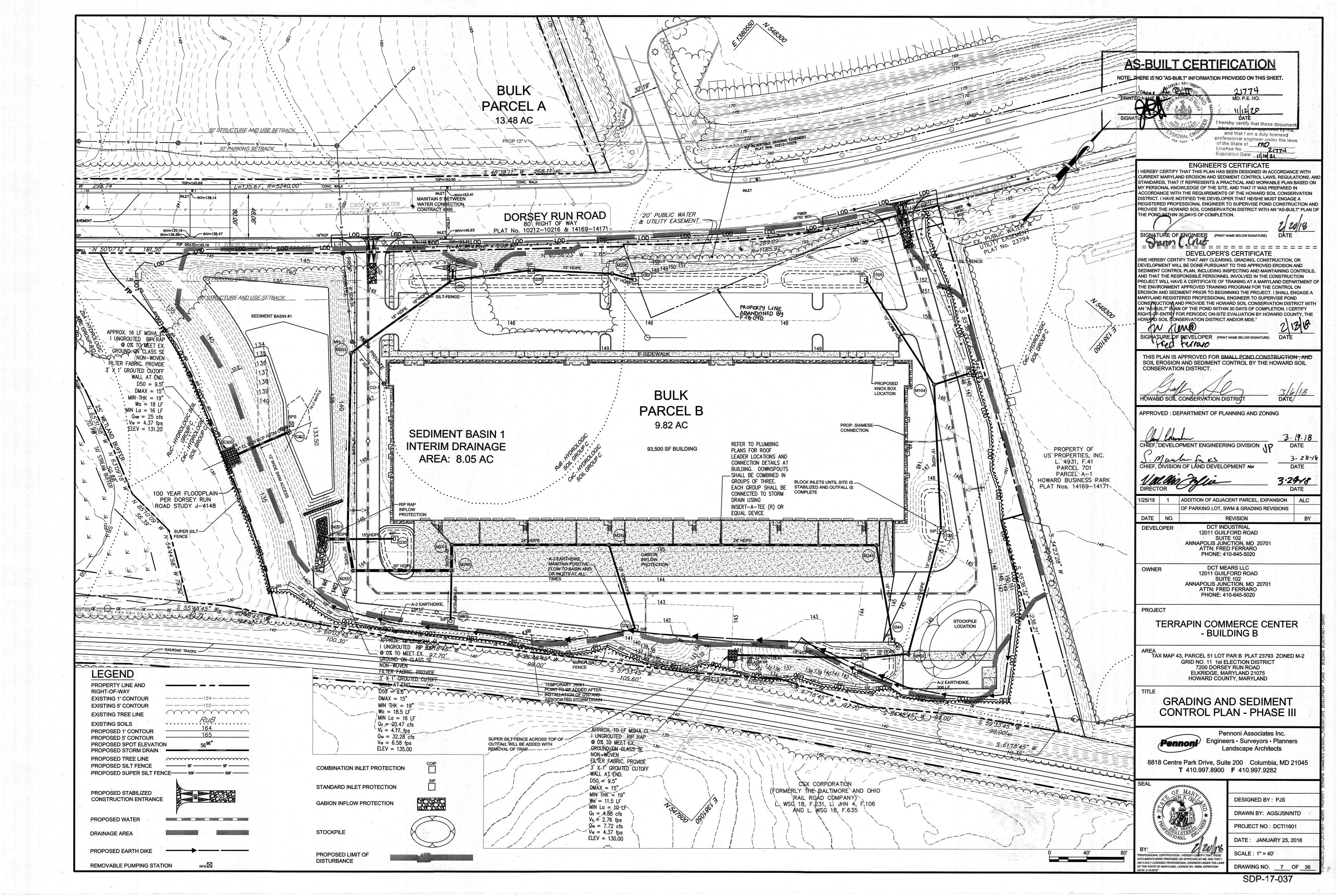












SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

THE PROCESS OF PREPARING THE SOILS TO SUSTAIN ADEQUATE VEGETATIVE STABILIZATION.

<u>PURPOSE</u>

TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH

CONDITIONS WHERE PRACTICE APPLIES

WHERE VEGETATIVE STABILIZATION IS TO BE ESTABLISHED.

A. SOIL PREPARATION

- 1. TEMPORARY STABILIZATION
- a. 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.
- b. APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.
- c. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
- 2. PERMANENT STABILIZATION
- a. A SOIL TEST IS REQUIRED FOR ANY EARTH DISTURBANCE OF 5 ACRES OR MORE. THE MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT ARE:
- i. SOIL PH BETWEEN 6.0 AND 7.0.
- II. SOLUBLE SALTS LESS THAN 500 PARTS PER MILLION (PPM).
- iii. 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 LOVEGRASS WILL BE PLANTED, THEN A SANDY SOIL (LESS THAN 30 PERCENT SILT PLUS CLAY) WOULD BE ACCEPTABLE.
- iv. SOIL CONTAINS 1.5 PERCENT MINIMUM ORGANIC MATTER BY WEIGHT.
- v. SOIL CONTAINS SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.
- b. APPLICATION OF AMENDMENTS OR TOPSOIL IS REQUIRED IF ON-SITE SOILS DO NOT MEET THE ABOVE CONDITIONS.
- c. Graded areas must be maintained in a true and even grade as specified ON THE APPROVED PLAN. THEN SCARIFIED OR OTHERWISE LOOSENED TO A DEPTH OF 3 TO 5 INCHES.
- d. APPLY SOIL AMENDMENTS AS SPECIFIED ON THE APPROVED PLAN OR AS INDICATED BY THE RESULTS OF A SOIL TEST.
- e. MIX SOIL AMENDMENTS INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS. RAKE LAWN 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.

B. TOPSOILING

- 1. 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 CONTENT, LOW NUTRIENT LEVELS, LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.
- 2. 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.
- 3. TOPSOILING 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 GROWTH.
- 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
- d. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.
- 4. AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND
- 5. TOPSOIL SPECIFICATIONS: SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING
- a. 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 11/2 INCHES IN DIAMETER.
- b. 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.
- c. 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.
- 6. TOPSOIL APPLICATION
- a. EROSION AND SEDIMENT CONTROL PRACTICES MUST BE MAINTAINED WHEN APPLYING TOPSOIL.
- b. 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 WATER
- c. 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 AND SEEDBED
- C. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)
- 1. 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.
- 2. 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 TO THE APPLICABLE LAWS AND MUST BEAR THE NAME, TRADE NAME OR TRADEMARK AND WARRANTY OF THE PRODUCER.
- 3. 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), LIMESTONE 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
- 4. 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.
- 5. 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.

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

DEFINITION

THE APPLICATION OF SEED AND MULCH TO ESTABLISH VEGETATIVE COVER. **PURPOSE**

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.

CRITERIA

A. SEEDING

- 1. SPECIFICATIONS
- a. 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.
- b. MULCH ALONE MAY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES ONLY IF THE GROUND IS FROZEN. THE APPROPRIATE SEEDING MIXTURE MUST BE
- c. 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 THAN 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.
- d. 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.

2. APPLICATION

- a. DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST
- i. INCORPORATE SEED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON TEMPORARY SEEDING TABLE B.1, PERMANENT SEEDING TABLE B.3, OR SITE-SPECIFIC SEEDING SUMMARIES.
- ii. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION. ROLL THE SEEDED AREA WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT
- b. Drill or cultipacker seeding: Mechanized seeders that apply and cover SEED WITH SOIL.
- i. 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
- ii. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
- c. HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER).
- i. 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; K20 (POTASSIUM), 200 POUNDS PER ACRE.
- ii. 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 USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.
- iii. MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT
- iv. WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL.

B. MULCHING

1. MULCH MATERIALS (IN ORDER OF PREFERENCE)

- a. 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 GRASS IS DESIRED.
- b. WOOD CELLULOSE FIBER MULCH (WCFM) CONSISTING OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.
- i. 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.
- ii. WCFM, INCLUDING DYE, MUST CONTAIN NO GERMINATION OR GROWTH INHIBITING
- III. 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 GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.
- IV. WCFM MATERIAL MUST NOT CONTAIN ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO-TOXIC.
- v. 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.
- a. APPLY MULCH TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.
- b. 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 PER ACRE.
- c. 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 CELLULOSE FIBER PER 100 GALLONS OF WATER.

3. ANCHORING

2. APPLICATION

- a. 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:
- i. 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 CONTOUR.
- ii. 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 FIBER WITH WATER AT A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
- iii. 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 MANUFACTURER, APPLICATION OF LIQUID BINDERS NEEDS TO BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CRESTS OF BANKS, USE OF ASPHALT BINDERS IS STRICTLY PROHIBITED.
- iv. 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

DEFINITION TO STABILIZE DISTURBED SOILS WITH VEGETATION FOR UP TO 6 MONTHS.

DURATION OF TIME, PERMANENT STABILIZATION PRACTICES ARE REQUIRED.

TO USE FAST GROWING VEGETATION THAT PROVIDES COVER ON DISTURBED SOILS.

PURPOSE

CONDITIONS WHERE PRACTICE APPLIES EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR A PERIOD OF 6 MONTHS OR LESS. FOR LONGER

CRITERIA

- 1. SELECT ONE OR MORE OF THE SPECIES OR SEED MIXTURES LISTED IN TABLE B.1 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.1 PLUS FERTILIZER AND LIME RATES MUST BE PUT ON THE PLAN.
- 2. FOR SITES HAVING SOIL TESTS PERFORMED, USE AND SHOW THE RECOMMENDED RATES BY THE TESTING AGENCY. SOIL TESTS ARE NOT REQUIRED FOR TEMPORARY
- 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.1.B AND MAINTAIN UNTIL THE NEXT SEEDING SEASON.

TEMPORARY SEEDING SUMMARY

	Handings Zone (from Eigens D 2):	6B		Fertilizer	
Hardiness Zone (from Figure B.3): Seed Mixture (from Table B.1):						Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	(10-20-20)	
	ANNUAL RYEGRASS	40	MAR 1 TO MAY 15; AUG 1 TO OCT 15	0.5		
	BARLEY	96	MAR 1 TO MAY 15; AUG 1 TO OCT 15	1.0	436 lb/ac	2 tons/ac
	OATS	72	MAR 1 TO MAY 15; AUG 1 TO OCT 15	1.0	(10 lb/1000 sf)	(90 lb/1000 sf)
	PEARL MILLET	20	MAY 16 TO JULY 31	0.5		2 2 2

B-4-5 STANDARDS AND SPECIFICATIONS

FOR PERMANENT STABILIZATION

DEFINITION

TO STABILIZE DISTURBED SOILS WITH PERMANENT VEGETATION.

TO USE LONG-LIVED PERENNIAL GRASSES AND LEGUMES TO ESTABLISH PERMANENT GROUND COVER

ON DISTURBED SOILS. CONDITIONS WHERE PRACTICE APPLIES

EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR 6 MONTHS OR MORE.

CRITERIA

1. GENERAL USE

A. SEED MIXTURES

- a. 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.
- b. 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.
- c. FOR SITES HAVING DISTURBED AREA OVER 5 ACRES, USE AND SHOW THE RATES RECOMMENDED BY THE SOIL TESTING AGENCY.
- d. FOR AREAS RECEIVING LOW MAINTENANCE, APPLY UREA FORM FERTILIZER (46-0-0) AT 3 1/2 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

2. TURFGRASS MIXTURES

- a. AREAS WHERE TURFGRASS MAY BE DESIRED INCLUDE LAWNS, PARKS. PLAYGROUNDS, AND COMMERCIAL SITES WHICH WILL RECEIVE A MEDIUM TO HIGH LEVEL OF MAINTENANCE.
- b. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED BELOW BASED ON THE SITE CONDITIONS OR PURPOSE. ENTER SELECTED MIXTURE(S), APPLICATION RATES. AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY THE SUMMARY IS TO BE PLACED ON THE PLAN.
- i. 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 WEIGHT.
- ii. KENTUCKY BLUEGRASS/PERENNIAL RYE: FULL SUN MIXTURE: FOR USE IN FULL SUN AREAS WHERE 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 bluegrass: 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 BLENDED.
- 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

SELECT TURFGRASS VARIETIES FROM THOSE LISTED IN THE MOST CURRENT UNIVERSITY OF MARYLAND 2. THE FOOTPRINT OF THE STOCKPILE MUST BE SIZED TO ACCOMMODATE THE ANTICIPATED

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,

c. IDEAL TIMES OF SEEDING FOR TURF GRASS MIXTURES

GRASSES WILL POSE NO DIFFICULTY.

WESTERN MD: MARCH 15 TO JUNE 1, AUGUST 1 TO OCTOBER 1 (HARDINESS ZONES: 5B, 6A)

PROVIDES A RELIABLE MEANS OF CONSUMER PROTECTION AND ASSURES A PURE GENETIC LINE

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

- (HARDINESS ZONES: 7A, 7B) d. 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
- e. 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 SITES.

PERMANENT SEEDING SUMMARY

	diness Zone (from Fi d Mixture (from Tab		6B			Fertilizer Rate (10-20-20)	•	Lime Ra
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	N	P205	K ₂ 0	
8	TALL FESCUE	100	MAR 1-MAY 15; AUG 15-OCT 15*	1/4 - 1/2 in				
9	TALL FESCUE KENTUCKY BLUEGRASS PERENNAL RYEGRASS	60 40 20	MAR 1-MAY 15; AUG 15-OCT 15*	1/4 - 1/2 in	45 pounds per acre (1.0 lb/ 1000 sf)	90 lb/ac (2 lb/1000 sf)	90 lb/ac (2 lb/1000 sf)	2 tons/ac (90 lb/1000
11	CREEPING RED FESCUE CHEWINGS FESCUE KENTUCKY BLUEGRASS	30 30 20	MAR 1-MAY 15; AUG 15-OCT 15*	1/4 - 1/2 in	(1.010/100051)			

B. SOD: TO PROVIDE QUICK COVER ON DISTURBED AREAS (2:1 GRADE OR FLATTER). 1. GENERAL SPECIFICATIONS

a. CLASS OF TURFGRASS SOD MUST BE MARYLAND STATE CERTIFIED. SOD LABELS MUST BE MADE AVAILABLE TO THE JOB FOREMAN AND INSPECTOR.

- b. 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.
- c. 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

- d. SOD MUST NOT BE HARVESTED OR TRANSPLANTED WHEN MOISTURE CONTENT (EXCESSIVELY DRY OR WET) MAY ADVERSELY AFFECT ITS SURVIVAL.
- e. 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.

2. SOD INSTALLATION

- a. DURING PERIODS OF EXCESSIVELY HIGH TEMPERATURE OR IN AREAS HAVING DRY SUBSOIL LIGHTLY IRRIGATE THE SUBSOIL IMMEDIATELY PRIOR TO LAYING THE SOD.
- b. LAY THE FIRST ROW OF SOD IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO IT AND TIGHTLY WEDGED AGAINST EACH OTHER. STAGGER LATERAL JOINTS TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH FINSURE 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.
- c. 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.
- d. 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.

3. SOD MAINTENANCE

- a. 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 PREVENT WILTING.
- b. AFTER THE FIRST WEEK, SOD WATERING IS REQUIRED AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE CONTENT.
- c. DO NOT MOW UNTIL THE SOD IS FIRMLY ROOTED. NO MORE THAN 1/3 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.

STANDARDS AND SPECIFICATIONS FOR STOCKPILE AREA

DEFINITION

A MOUND OR PILE OF SOIL PROTECTED BY APPROPRIATELY DESIGNED EROSION AND SEDIMENT CONTROL MEASURES.

TO PROVIDE A DESIGNATED LOCATION FOR THE TEMPORARY STORAGE OF SOIL THAT CONTROLS THE POTENTIAL FOR EROSION, SEDIMENTATION, AND CHANGES TO DRAINAGE PATTERNS.

CONDITIONS WHERE PRACTICE APPLIES

STOCKPILE AREAS ARE UTILIZED WHEN IT IS NECESSARY TO SALVAGE AND STORE SOIL FOR

1. THE STOCKPILE LOCATION AND ALL RELATED SEDIMENT CONTROL PRACTICES MUST BE CLEARLY INDICATED ON THE EROSION AND SEDIMENT CONTROL PLAN.

- BENCHING MUST BE PROVIDED IN ACCORDANCE WITH SECTION B-3 LAND GRADING.
- PRACTICE 4. ACCESS THE STOCKPILE AREA FROM THE UPGRADE SIDE.

STANDARD B-4-4 TEMPORARY STABILIZATION.

NON-EROSIVE MANNER.

THE DISCHARGE.

- 5. 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
- 6. WHERE RUNOFF CONCENTRATES ALONG THE TOE OF THE STOCKPILE FILL, AND APPROPRIATE EROSION/SEDIMENT CONTROL PRACTICE MUST BE SUED TO INTERCEPT
- 7. STOCKPILES MUST BE STABILIZED IN ACCORDANCE WITH THE 3/7 DAY STABILIZATION REQUIREMENT AS WELL AS STANDARD B-4-1 INCREMENTAL STABILIZATION AND
- 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.

MAINTENANCE

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 / 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

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 License No.

AS-BUILT CERTIFICATION NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET. PRINTED NAME MD. P.E. NO.

SIGNATURE

NOTE TO CONTRACTOR ALL SEDIMENT CONTROLS SHALL BE INSTALLED IN ACCORDANCE WITH THESE PLANS AND THE MDE INSPECTOR. ALL SEDIMENT CONTROL REQUIREMENTS SHALL BE STRICTLY ENFORCED.

ALL CONTROLS INTERCEPTED BY UTILITY INSTALLATIONS ARE TO BE REPAIRED IMMEDIATELY.

ENGINEER'S CERTIFICATE HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS, AND STANDARDS. THAT IT REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE, AND THAT IT 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 (PRINT NAME BELOW SIGNATURE)

DEVELOPER'S CERTIFICATE

I/WE HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTING AND MAINTAINING CONTROLS. AND THAT THE RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF TRAINING AT A MARYLAND DEPARTMENT O THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL ON EROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I SHALL ENGAGE A MARYLAND 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 CERTIFY

RIGHT-OF-ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE

OWARD SOIL CONSERVATION DISTRICT AND/OR MDE." arguelli Carelni SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE)

Jacqueline Carbona THIS PLAN IS APPROVED FOR SMALL POND CONSTRUCTION, AND SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL

8/150/17

9-21-17

DATE

BY

DATE



CONSERVATION DISTRICT.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF. DEVELOPMENT ENGINEERING DIVISION NO DATE 4-21-17 Kent Led wol CHIEF, DIVISION OF LAND DEVELOPMENT DATE

VOLUME OF MATERIAL AND BASED ON A SIDE SLOPE RATIO NO STEEPER THAN 2:1. DATE NO. REVISION

DCT INDUSTRIAL DEVELOPER . RUNOFF FROM THE STOCKPILE AREA MUST DRAIN TO A SUITABLE SEDIMENT CONTROL 12011 GUILFORD ROAD SUITE 102 ANNAPOLIS JUNCTION, MD 20701

ATTN: FRED FERRARO PHONE: 410-645-5020 DCT MEARS LLC OWNER

PROJECT TERRAPIN COMMERCE CENTER - BUILDING B

12011 GUILFORD ROAD

SUITE 102

ANNAPOLIS JUNCTION, MD 20701

ATTN: FRED FERRARO

PHONE: 410-645-5020

TAX MAP 43, PARCEL 51 LOT PAR B PLAT 23793 ZONED M-2 GRID NO. 11 1st ELECTION DISTRICT 7200 DORSEY RUN ROAD

ELKRIDGE, MARYLAND 21075

HOWARD COUNTY, MARYLAND

NOTES

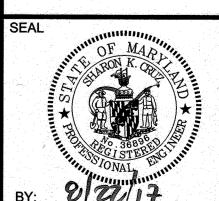
8818 Centre Park Drive, Suite 200 Columbia, MD 21045

T 410.997.8900 F 410.997.9282

TITLE SEDIMENT CONTROL



Pennoni Associates Inc. Engineers · Surveyors · Planners Landscape Architects



CUMENTS WERE PREPARED OR APPROVED BY ME, AND THA M A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LA

F THE STATE OF MARYLAND, LICENSE NO. 36896, EXPIRATION

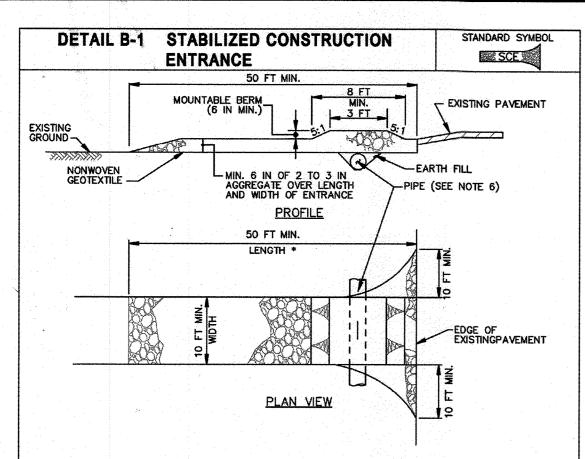
DESIGNED BY: PJS DRAWN BY: AGS/JSN/NTD

DATE: AUGUST 1, 2017 SCALE: AS SHOWN

PROJECT NO: DCTI1601

DRAWING NO. 8 OF 36

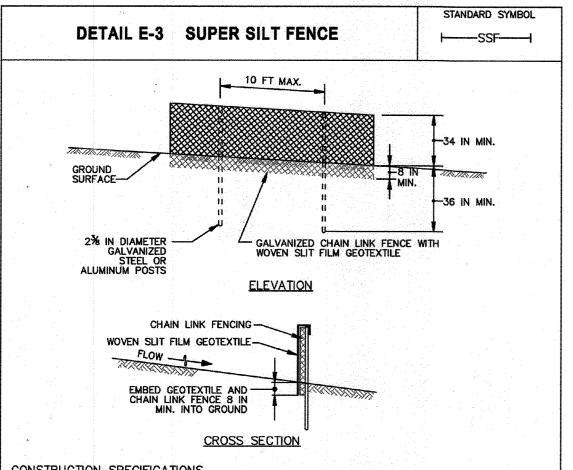
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CONSTRUCTION SPECIFICATIONS

- 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.
- . PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS. . PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT 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

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

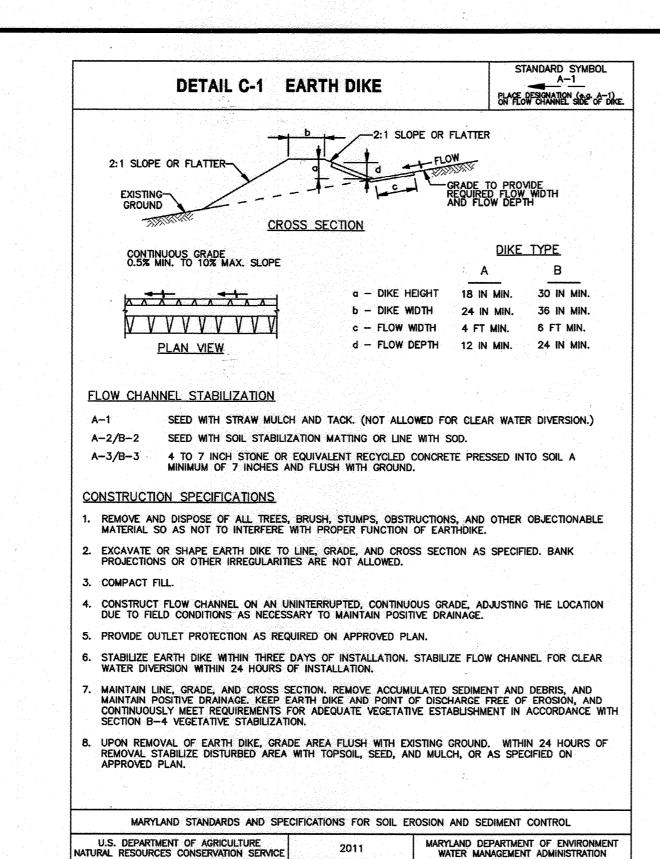


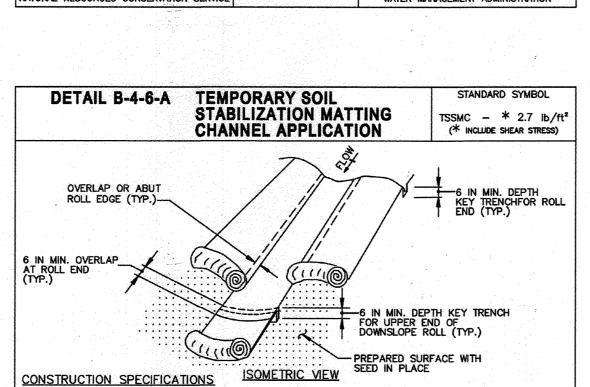
CONSTRUCTION SPECIFICATIONS

CHAIN LINK FENCING AND GEOTEXTILE.

- 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.
- 2. FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (23/8 INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS.
- 5. FASTEN WOVEN SLIT 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.
- 5. 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 AUTHORITY SHOWING THAT
- 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

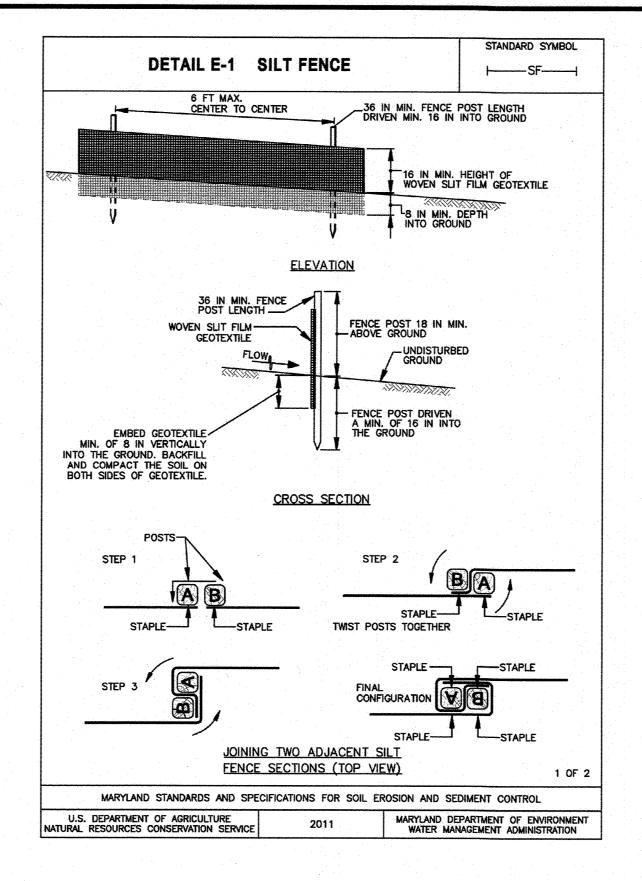
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE MARYLAND DEPARTMENT OF ENVIRONMENT

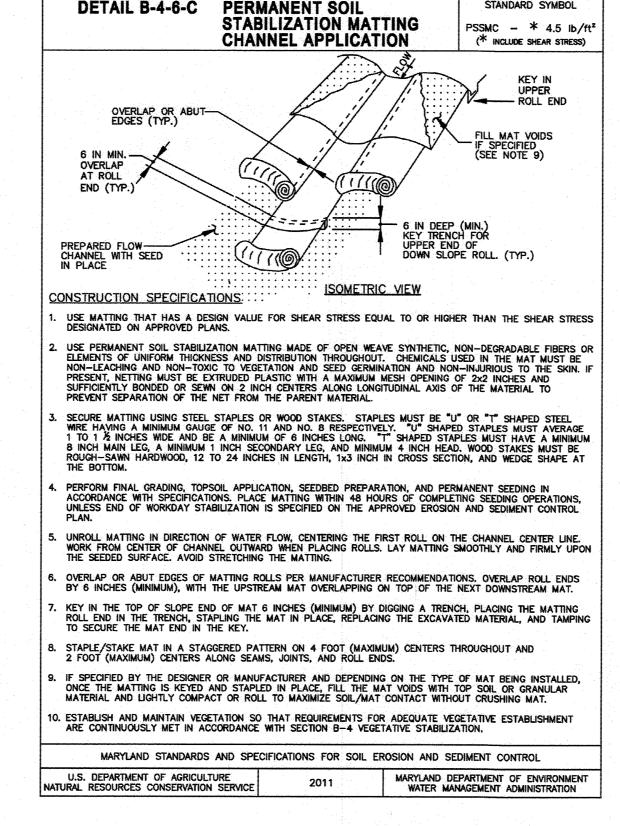


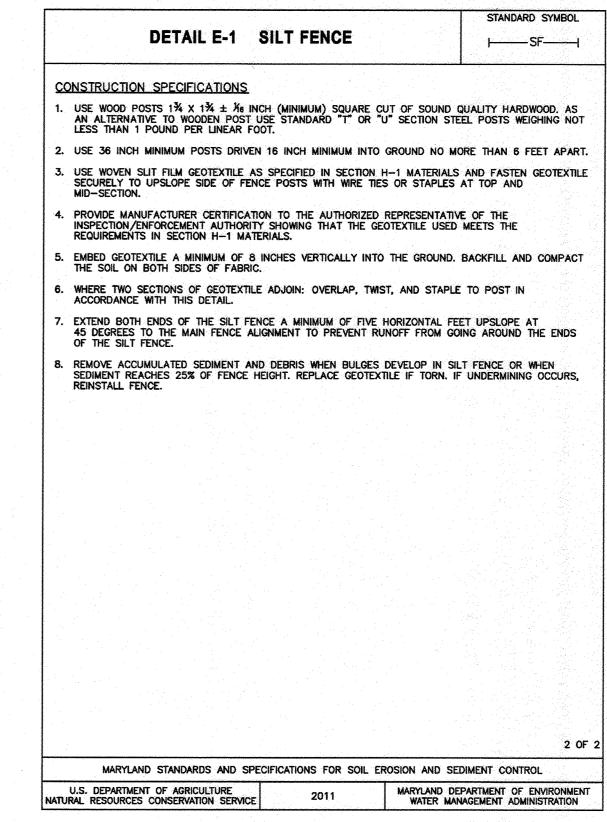


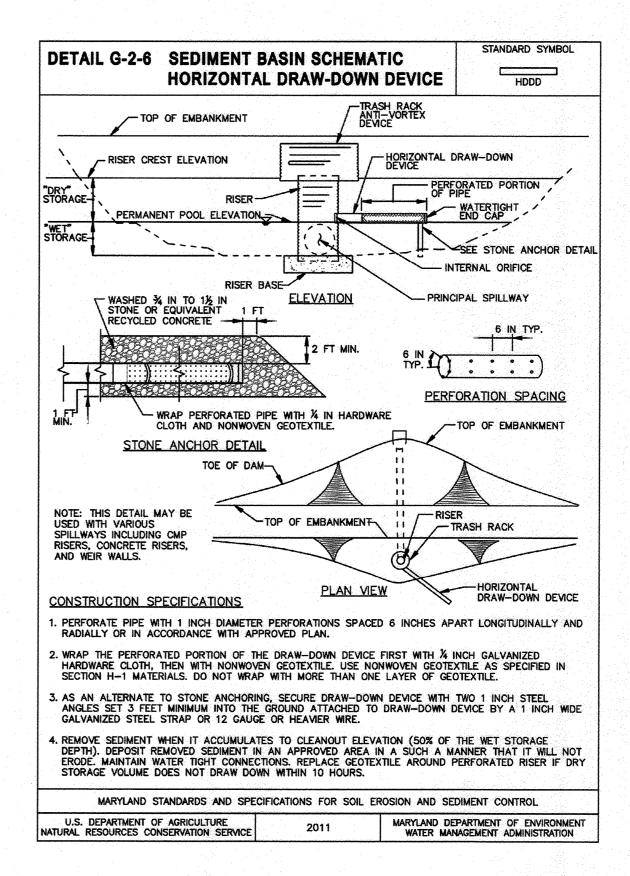
- USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
- USE TEMPORARY SOIL STABILIZATION MATTING MADE OF DEGRADABLE (LASTS 6 MONTHS MINIMUM) NATURAL OR MAN-MADE FIBERS (MOSTLY ORGANIC). MAT MUST HAVE UNIFORM THICKNESS AND DISTRIBUTION OF FIBERS THROUGHOUT AND BE SMOLDER RESISTANT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN 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, WOOD STAKES, OR BIODEGRADABLE EQUIVALENT. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1½ INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND A MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH—SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPED AT THE BOTTOM.
- PERFORM FINAL GRADING, TOPSOIL 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 EROSION AND SERVICE OF THE APPROVED EROSION AND SERVICE OF THE APPROVED BROWNESS AND SERVICE O
- UNROLL MATTING IN DIRECTION OF WATER FLOW, CENTERING THE FIRST ROLL ON THE CHANNEL CENTERLINE. WORK FROM CENTER OF CHANNEL OUTWARD WHEN PLACING ROLLS. LAY MAT SMOOTHLY AND FIRMLY ON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.
- KEY-IN UPSTREAM END OF EACH MAT ROLL BY DIGGING A 6 INCH (MINIMUM) TRENCH AT THE UPSTREAM END OF THE MATTING, PLACING THE ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END.
- OVERLAP OR ABUT THE ROLL EDGES PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE NEXT DOWNSTREAM MAT.
- STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
- ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE

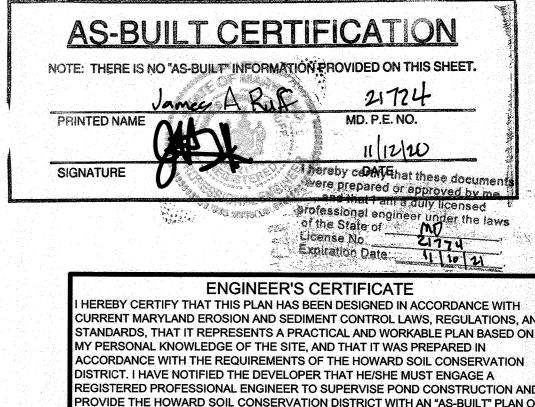
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL U.S. DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION











SIGNATURE OF ENGINEER (PR DEVELOPER'S CERTIFICATE WE HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND EDIMENT CONTROL PLAN. INCLUDING INSPECTING AND MAINTAINING CONTROLS THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL ON ROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I SHALL ENGAGE MARYLAND 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 CERTIFY RIGHT-OF-ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY. THE

(PRINT NAME RELOW SIGNATURE)

lacqueline Carboni

THIS PLAN IS APPROVED FOR SMALL POND CONSTRUCTION , AND SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRIC

THE POND WITHIN 30 DAYS OF COMPLETION.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF. DEVELOPMENT ENGINEERING DIVISION 12

9-21-17 DATE

9.8.17

9-21-17

DATE NO. REVISION

DCT INDUSTRIAL DEVELOPER 12011 GUILFORD ROAD SUITE 102

ANNAPOLIS JUNCTION, MD 20701 ATTN: FRED FERRARO PHONE: 410-645-5020

OWNER 12011 GUILFORD ROAD SUITE 102

ANNAPOLIS JUNCTION, MD 20701 ATTN: FRED FERRARO PHONE: 410-645-5020

TERRAPIN COMMERCE CENTER - BUILDING B

AREA
TAX MAP 43, PARCEL 51 LOT PAR B PLAT 23793 ZONED M-2 GRID NO. 11 1st ELECTION DISTRICT 7200 DORSEY RUN ROAD **ELKRIDGE, MARYLAND 21075**

HOWARD COUNTY, MARYLAND

DETAILS

TITLE SEDIMENT CONTROL



PROJECT

Pennoni Associates Inc. Engineers • Surveyors • Planners Landscape Architects

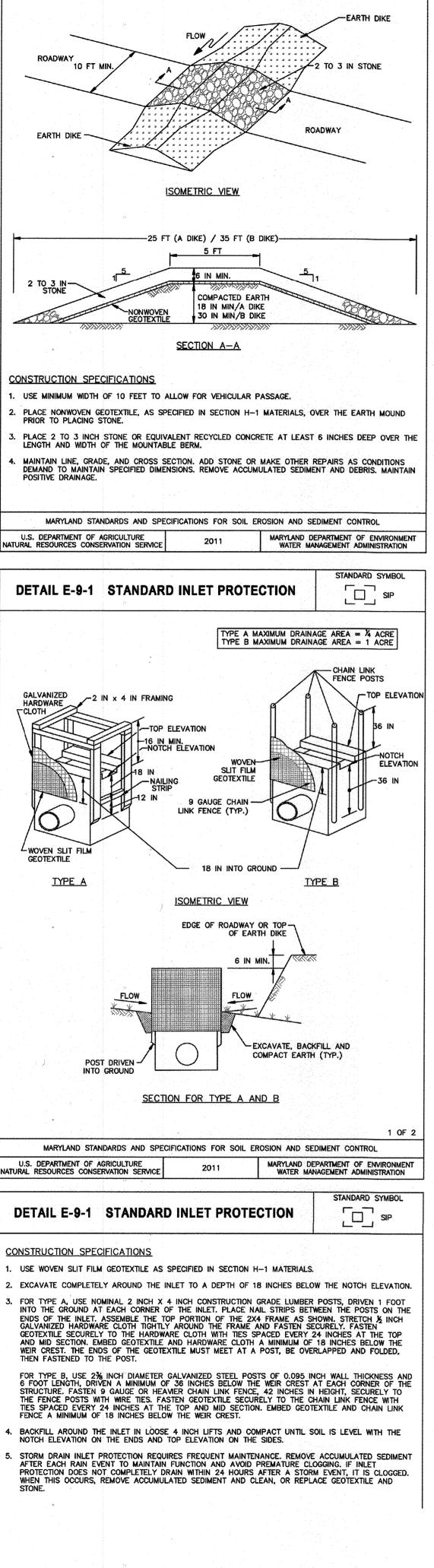
8818 Centre Park Drive, Suite 200 Columbia, MD 21045 T 410.997.8900 F 410.997.9282

DESIGNED BY: PJS DRAWN BY: AGS/JSN/NTD PROJECT NO: DCTI1601

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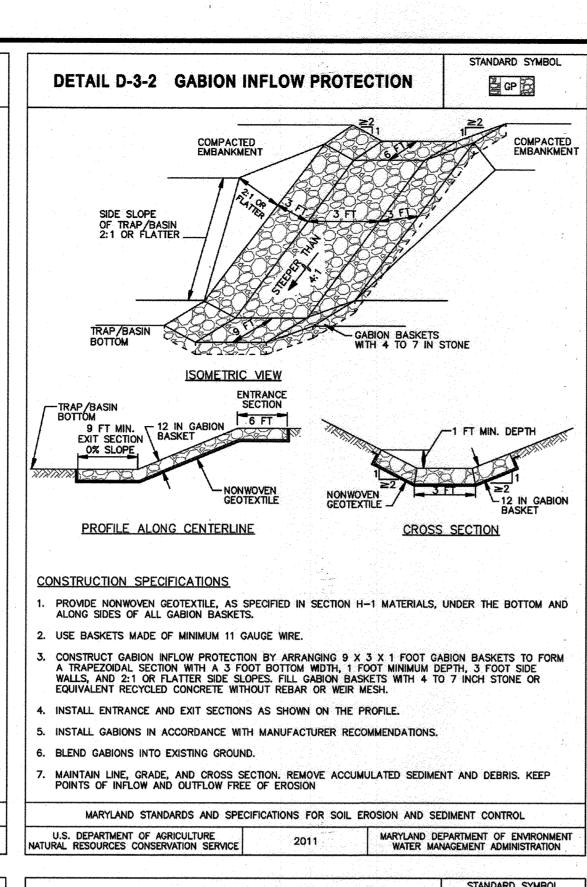
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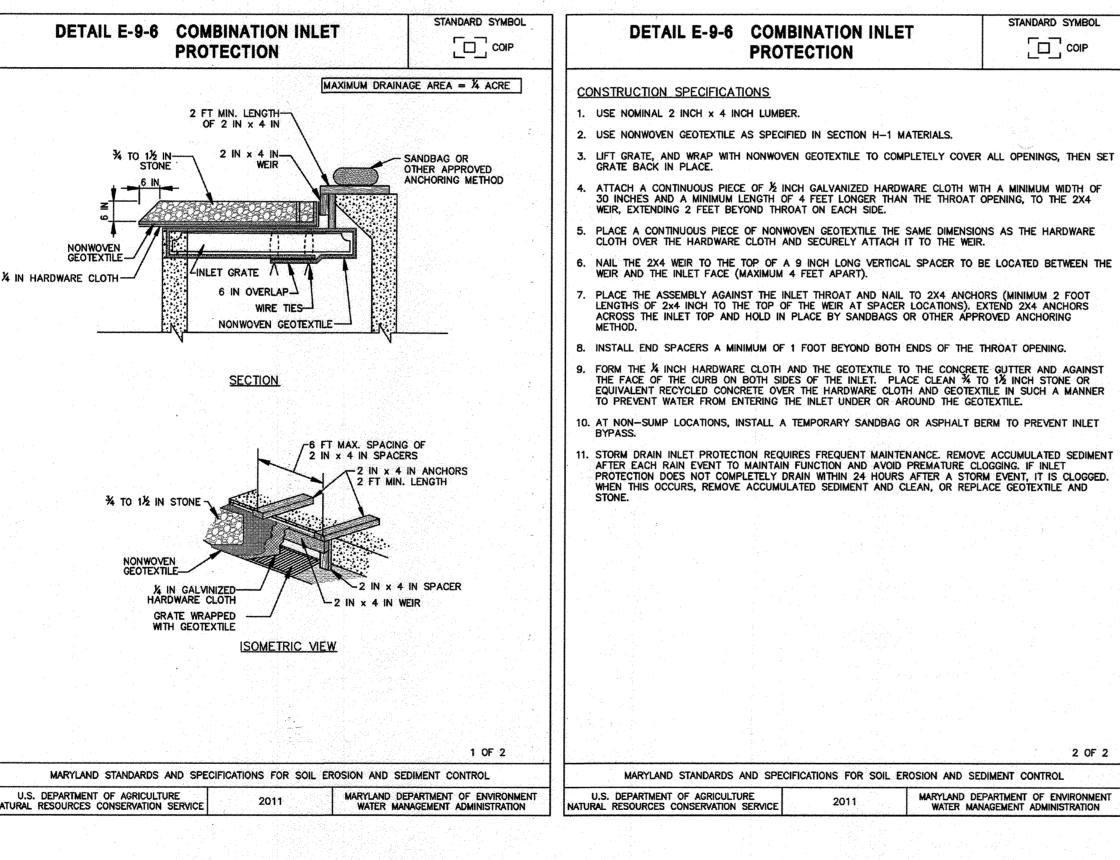
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MB

DETAIL C-8 MOUNTABLE BERM





DETAIL D-4-1-C ROCK OUTLET PROTECTION III

EXISTING STABILIZED

4 IN-

REQUIRED IN THE SUBGRADE TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

RIPRAP AND STONE MUST CONFORM TO THE SPECIFIED CLASS.

PLAN VIEW

NONWOVEN-

GEOTEXTILE

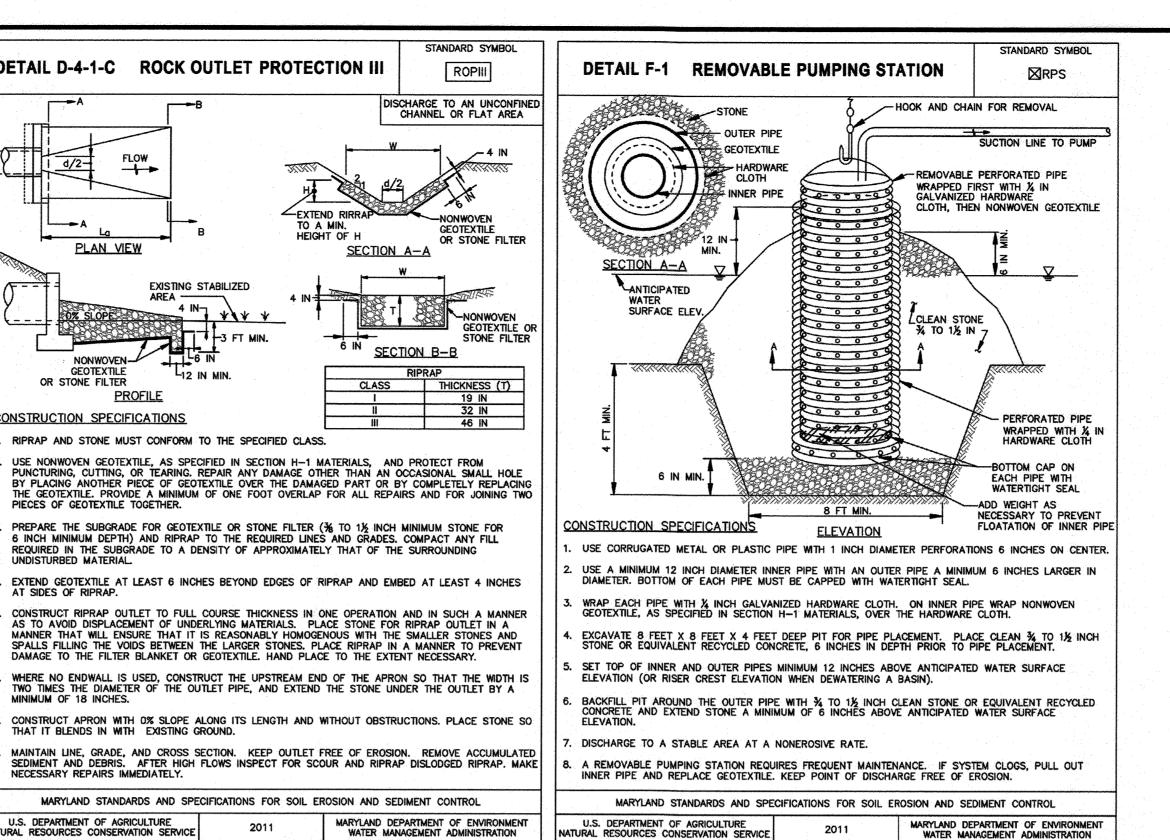
CONSTRUCTION SPECIFICATIONS

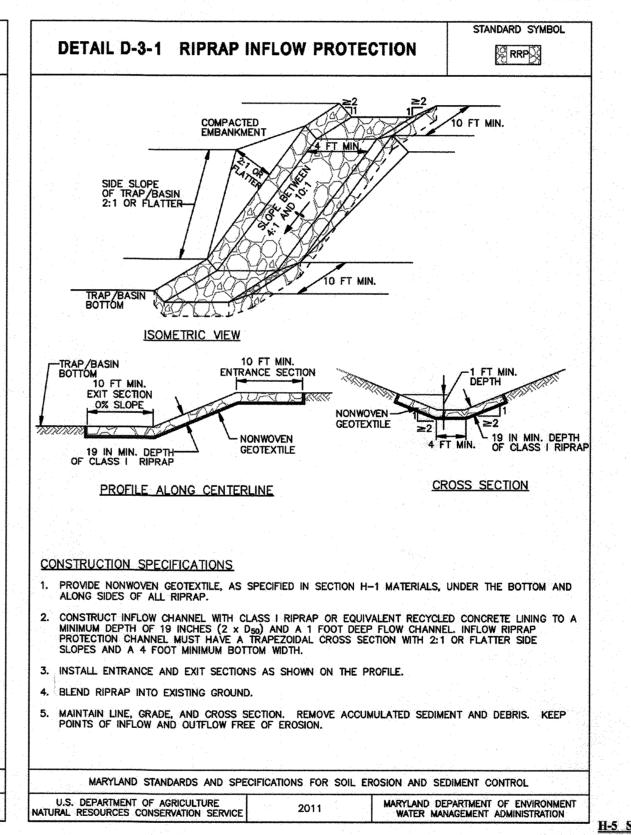
PIECES OF GEOTEXTILE TOGETHER.

MINIMUM OF 18 INCHES.

EXTEND RIRR

SECTION B-B





H-5 STANDARDS AND SPECIFICATIONS

DUST CONTROL

Definition

Controlling the suspension of dust particles from construction activities

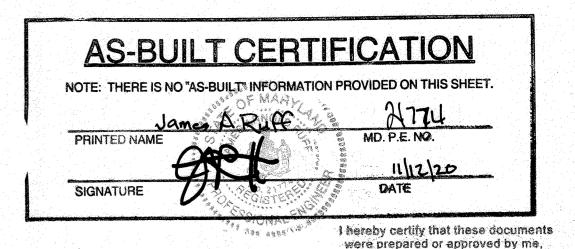
To prevent blowing and movement of dust from exposed soil surfaces to reduce on and off-site damage including health and traffic hazards.

Conditions Where Practice Applies

Areas subject to dust blowing and movement where on and off-site damage is likely without treatment.

Mulches: See Section B-4-2 Soil Preparation, Topsoiling, and Soil Amendments, Section B-4-3 Seeding and Mulching, and Section B-4-4 Temporary Stabilization. Mulch must be anchored to prevent blowing.

- Vegetative Cover: See Section B-4-4 Temporary Stabilization.
- Tillage: Till to roughen surface and bring clods to the surface. Begin plowing on windward side of site. Chisel-type plows spaced about 12 inches apart, spring-toothed harrows, and similar plows are examples of equipment that may produce the desired effect.
- Irrigation: Sprinkle site with water until the surface is moist. Repeat as needed. The site must not be irrigated to the point that runoff occurs.
- Barriers: Solid board fences, silt fences, snow fences, burlap fences, straw bales, and similar
- material can be used to control air currents and soil blowing. Chemical Treatment: Use of chemical treatment requires approval by the appropriate plan



professional engineer under the laws of the State of MO ENGINEER'S CERTIFICATE

and that I am a duly licensed

HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS, AN TANDARDS, THAT IT REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON IY PERSONAL KNOWLEDGE OF THE SITE, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION ISTRICT. 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.

IGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE)

DEVELOPER'S CERTIFICATE WE HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND AND THAT THE RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF TRAINING AT A MARYLAND DEPARTMENT (THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL ON EROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I SHALL ENGAGE A IARYLAND 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 CERTIFY RIGHT-OF-ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE

OWARD SOIL CONSERVATION DISTRICT AND/OR MDE." GNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE) DATE Jacqueline Carbone

THIS PLAN IS APPROVED FOR SMALL POND CONSTRUCTION, AND SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRY

CHIEF, DIVISION OF LAND DEVELOPMENT ***

APPROVED: DEPARTMENT OF PLANNING AND ZONING CHIĚF, DEVELOPMENT ENGINEERING DIVISION 🤘 DATE Ketsheline 8-21-17

DATE

BY

4-21-17

DCT INDUSTRIAL DEVELOPER 12011 GUILFORD ROAD SUITE 102 ANNAPOLIS JUNCTION, MD 20701 ATTN: FRED FERRARO

OWNER

DATE NO.

DCT MEARS LLC 12011 GUILFORD ROAD ANNAPOLIS JUNCTION, MD 20701 ATTN: FRED FERRARO PHONE: 410-645-5020

PHONE: 410-645-5020

REVISION

PROJECT

TITLE

TERRAPIN COMMERCE CENTER - BUILDING B

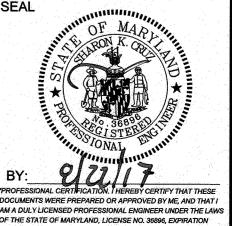
AREA
TAX MAP 43, PARCEL 51 LOT PAR B PLAT 23793 ZONED M-2 GRID NO. 11 1st ELECTION DISTRICT 7200 DORSEY RUN ROAD **ELKRIDGE, MARYLAND 21075** HOWARD COUNTY, MARYLAND

> SEDIMENT CONTROL DETAILS



Pennoni Associates Inc. Engineers · Surveyors · Planners Landscape Architects

8818 Centre Park Drive, Suite 200 Columbia, MD 21045 T 410.997.8900 F 410.997.9282



DESIGNED BY: PJS DRAWN BY: AGS/JSN/NTD PROJECT NO: DCTI1601

DATE: AUGUST 1, 2017 SCALE: AS SHOWN

SDP-17-037

DRAWING NO. 11 OF 36

inches in thickness and compacted by hand

tampers or other manually directed compac-

pletely 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. Under

no circumstances shall equipment be driven

over any part of a structure or pipe unless

there is a compacted fill of 24" or greater

over the structure or pipe. Backfill material

outside the structural backfill (flowable fill)

zone shall be of the type and quality conform-

ing to that specified for the core of the em-

bankment or other embankment materials.

All pipes shall be circular in cross section.

Corrugated Metal Pipe - All of the following

criteria shall apply for corrugated metal pipe:

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 con-

form to the requirements of AASHTO

Specifications M-245 & M-246 with wa-

Materials - (Aluminum Coated Steel

Pipe) - This pipe and its appurtenances

shall conform to the requirements of

AASHTO Specification M-274 with wa-

tertight coupling bands or flanges. Aluminum Coated Steel Pipe, when used

with flowable fill or when soil and/or wa-

ter conditions warrant the need for in-

creased durability, shall be fully bitumi-

nous 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 com-

pound. Aluminum surfaces that are to be

in contact with concrete shall be painted

MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

tertight coupling bands or flanges.

Pipe Conduits

tion equipment. The material shall com-

These specifications are appropriate to all ponds within the scope of the Standard for practice MD-378. All references to ASTM and AASHTO specifications apply to the most recent version.

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 em-

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 stormwater management ponds, a minimum of a 25-foot radius around the inlet structure shall be cleared.

All cleared and grubbed material shall be disposed of outside and below the limits of the dam 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.

Earth Fill

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 GC, 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 en-

NRCS - MARYLAND

Materials used in the outer shell of the empankment must have the capability to support vegetation of the quality required to prevent erosion of the embankment.

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

<u>Compaction</u> - 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 Proctor).

<u>Cut Off Trench</u> - 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, roll-

Pond MD-378-19

ers, or hand tampers to assure maximum density and minimum permeability.

Embankment Core - The core shall be parallel to the centerline of the embankment as shown on the plans. The top width 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 embank-

Structure 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 exceed four inches in thickness and 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 24" or greater over the structure or

Structure backfill may be flowable fill meeting the requirements of Maryland Department of Transportation, State Highway Administration Standard 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,

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etc.) to prevent floating the pipe. When using with one coat of zinc chromate primer or flowable fill, all metal pipe shall be bitumitwo coats of asphalt. nous coated. Any adjoining soil fill shall be placed in horizontal layers not to exceed four

Pond MD-378-16

Materials - (Aluminum Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-196 or M-211 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 con-

tact 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

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

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 bands are not considered to be watertight

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 oring 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 flange is also acceptable

Helically corrugated pipe shall have either continuously welded seams or have lock seams with internal caulking or a neo-

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.

Backfilling shall conform to "Structure

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

Materials - Reinforced concrete pipe shall have bell and spigot joints with rubber gaskets and shall equal or exceed ASTM

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.

JANUARY 2000

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.

Backfilling shall conform to "Structure

Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Plastic Pipe - The following criteria shall apply for plastic pipe:

Materials - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 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

Joints and connections to anti-seep collars shall be completely watertight.

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.

Backfilling shall conform to "Structure Backfill'

Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Drainage Diaphragms - When a drainage liaphragm is used, a registered professional engineer will supervise the design and construction inspection.

NRCS - MARYLAND

Concrete

Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 902.10, Mix No. 3.

Rock Riprap

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 SE (Non-Woven).

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 per-

JANUARY 2000

Pond MD-378-18

formance 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

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.

NRCS - MARYLAND JANUARY 2000 OPERATION AND MAINTENANCE

An operation and maintenance plan in accordance with Local or State Regulations will be prepared for all ponds. As a minimum, the dam inspection checklist located in Appendix A shall be included as part of the operation and maintenance plan and performed at least annually. Written records of maintenance and major repairs needs to be retained in a file. The issuance of a Maintenance and Repair Permit for any repairs or maintenance that involves the modification of the dam or spillway from its original design and specifications is required. A permit is also required for any repairs or reconstruction that involve a substantial portion of the structure. All indicated repairs are to be made as soon as practical.

NRCS - MARYLAND JANUARY 2000

STANDARD SYMBOL DETAIL G-2-4 BAFFLE BOARDS BAFFLES ARE REQUIRED TO PROVIDE A FLOW LENGTH BETWEEN INFLOW POINT AND OUTLET EQUAL TO TWICE THE (OUTLET) EFFECTIVE TRAP/BASIN WIDTH. POOL -RISER (OUTLET) designation of the second Le=L1+L2 RISER (OUTLE -BAFFLE BOARD PLAN VIEWS SET ELEVATION AT ½ OF THE DRY STORAGE (WET STORAGE ELEVATION + DRY STORAGE ELEVATION / 2) OR 6 IN BELOW WEIR CREST SHEETS OF 4 FT x 8 FT x ½ IN CDX EXTERIOR GRADE (OUTLET) WHICHEVER IS LOWER -PLYWOOD OR EQUIVALENT 4 IN SQUARE OF 5 IN ROUND SET AT LEAST 3 FT INTO THE GROUND -EXISTING GROUND 4 FT CENTER TO CENTER -BAFFLE DETAIL MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

SEQUENCE OF CONSTRUCTION

NRCS - MARYLAND

. OBTAIN GRADING PERMIT. (1 DAY) 2. STAKEOUT LIMITS OF DISTURBANCE. (1 DAY)

3. CONDUCT A PRE-CONSTRUCTION MEETING WITH COUNTY INSPECTOR. (1 DAY)

PHASE 1 - PERIMETER CONTROLS AND BASIN INSTALLATION

4. INSTALL STABILIZED CONSTRUCTION ENTRANCES. CLEAR AND GRUB AS NECESSARY TO INSTALL PERIMETER SUPER SILT FENCES. (

5. CONSTRUCT TRAP #1 AND INSTALL OUTLET PROTECTION, BAFFLES, RPS, AND INFLOW PROTECTION. ONCE TRAPS ARE FUNCTIONAL, AND UPON APPROVAL OF COUNTY INSPECTOR, INSTALL EARTHDIKES DRAINING TO TRAP. (1 WEEK)

6. CONCURRENT WITH TRAP INSTALLATION AND UPON APPROVAL OF PERIMETER CONTROL INSTALLATION BY COUNTY INSPECTOR. INSTALL SEDIMENT BASIN. ALL BASIN STRUCTURES, PIPE AND MATERIALS MUST BE ON SITE PRIOR TO PROCEEDING WITH STEP 5.

A. INSTALL SUPER SILT FENCE ALONG DOWNSTREAM TOE OF EMBANKMENT. OBTAIN PERMISSION FROM INSPECTOR BEFORE PROCEEDING. (1 DAY)

B. CLEAR POND AREA AND STRIP TOPSOIL FOR POND AREA AND STOCKPILE OUTSIDE OF EMBANKMENT AREA. (2 DAYS)

C. GRADE A SMALL AREA TO BOTTOM ELEVATION OF POND AND INSTALL A REMOVABLE PUMPING STATION TO BE USED TO DEWATER THE WORK AREA DURING CONSTRUCTION. DIRECT FLOWS TO THE PUMP STATION. (1 DAY) D. CONSTRUCT THE CUT-OFF TRENCH. CUTOFF AND CORE TRENCH BACKFILL MATERIAL IS TO MEET THE SPECIFICATIONS OF

MD-378 CRITERIA AND IS TO BE PLACED UNDER THE SUPERVISION OF A LISCENSED GEOTECHNICAL ENGINEER. (2 DAYS) E. CONSTRUCT RIP RAP OUTFALL, BARREL, CONCRETE CRADLE, ANTI SEEP COLLAR, AND RISER STRUCTURE. CONCRETE COLLARS

ARE TO BE CAST IN PLACE. ALL INSTALLATION IS TO BE OBSERVED BY PENNONI ENGINEER. (3 DAYS) F. CONSTRUCT EMBANKMENT IN 8" LIFTS, USING 4" LIFTS WITHIN 5' HORIZONTALLY OF BARREL OR RISER. CONSTRUCT CORE. (4

G. GRADE CHECK AND PERMANENTLY STABILIZE EMBANKMENT. (1 DAY)

H. INSTALL TEMPORARY DRAWDOWN DEVICE. (1 DAY) I. EXCAVATE SEDIMENT BASIN STORAGE AREA AS SHOWN ON SEDIMENT CONTROL PLAN SHEET 5. (3 DAYS)

J. UPON COMPLETION OF BASIN, STABILIZE WITH TEMPORARY SEEDING. (1 DAY)

K. OBTAIN INSPECTOR'S APPROVAL BEFORE PROCEEDING FURTHER. (1 DAY) 7. UPON COMPLETION OF THE SEDIMENT TRAP AND BASIN INSTALL EARTHDIKES DRAINING TO SEDIMENT TRAP AND BASIN. (3 DAYS)

PHASE 2 - BULDING B MASS GRADING

8. WITH APPROVAL OF SEDIMENT CONTROL INSPECTOR, BEGIN CLEARING AND GRADING. FOLLOW DUST CONTROL PRACTICES PER MDE DETAIL. (3 MONTHS)

9. WITH COMPLETION OF BUILDING PAD, BEGIN BUILDING CONSTRUCTION. (3 MONTHS)

10. UPON ESTABLISHMENT OF SUBGRADE, INSTALL WATER MAIN, PRIVATE SANITARY CONNECTIONS, WATER & SEWER HOUSE CONNECTIONS, AND STORM DRAIN. ANY CONTROLS INTERCEPTED BY UTILITY INSTALLATION ARE TO BE REPAIRED THE SAME DAY. INSTALL INLET PROTECTION AS NOTED ON PLANS. BLOCK STORM DRAIN FROM 1105 TO E100 UNTIL SITE IS STABILIZED. (1 MONTH)

II. AS GRADING PROCEEDS AND STORM DRAIN IS CONSTRUCTED, AND WITH APPROVAL OF INSPECTOR, MUCK OUT AND FILL TRAP AND CONSTRUCT A-2 EARTHDIKE ABOVE RETAINING WALL. REMOVAL OF TRAP SHALL OCCUR WITHIN A 3 DAY CLEAR WEATHER FORECAST FROM THE NATIONAL WEATHER SERVICE AND WITH PERMISSION OF INSPECTOR. CONSTRUCT SITE RETAINING WALL AFTER DIKE IS FULLY FUNCTIONAL AND POSITIVE DRAINAGE IS PROVIDED TO BASIN. TRAP MAY NOT BE REMOVED UNTIL AREAS DRAINING TO 1105 TO E100 ARE STABILIZED. UPON STABILIZATION OF THESE AREAS UNBLOCK STORM DRAIN FROM 1105 TO E100 AND REMOVE TRAP. (2 WEEKS)

PHASE 3 - FINAL GRADING

12. WITH COMPLETION OF SUBGRADE AND UTILITY INSTALLATION, INSTALL CURB AND GUTTER AND CONCRETE HEADER CURB. BEGIN CURB AND PARKING LOT CONSTRUCTION. CONSTRUCT THE STONE SUBGRADE OF THE ASPHALT AND CONCRETE PAVEMENT ON THE SITE. (15 DAYS)

13. INSTALL ASPHALT AND IMPERVIOUS PAVEMENT. (5 DAYS)

14. PERFORM FINE GRADING, CONSTRUCT SIDEWALKS, AND ANY OTHER CONSTRUCTION ACTIVITY. (28 DAYS)

15. STABILIZE ALL DISTURBED AREAS. WITH STABILIZATION AND APPROVAL OF INSPECTOR, REMOVE BLOCKING FROM STORM DRAIN 1105 TO E100 . (1 DAY)

16. CONSTRUCT MICRO BIORETENTION FACILITIES AND ALL ASSOCIATED UNDERDRAIN/OVERDRAINS. CONTACT PENNONI ENGINEER TO OBSERVE INSTALLATION OF SWM FACILITIES. UPON INSTALLATION OF FILTER MEDIA, INSTALL SILT FENCE AROUND FACILITIES. AND INLET PROTECTION AT OVERFLOW INLETS. (3 WEEKS) 17. COMPLETE PAVING AND LANDSCAPING ON THE SITE. PERMANENTLY STABILIZE ALL AREAS OF SITE. (2 WEEKS)

18. WITH APPROVAL OF THE INSPECTOR, CONVERT BASIN. MUCK OUT BASIN AND REGRADE BASED ON FINAL GRADING PLAN. REMOVE DRAWDOWN DEVICE AND REMOVAL PUMPING STATION. INSTALL LOW FLOW PIPE AND TRASH RACKS. (5 DAYS) 19. UPON PERMISSION OF COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE ALL REMAINING SEDIMENT CONTROL DEVICES AND STABILIZE DISTURBED AREAS IN ACCORDANCE WITH PERMANENT SEEDING NOTES. (2 DAYS)

20. SUBMIT AS-BUILT PLANS FOR APPROVAL.

<u>HOWARD SOIL CONSERVATION DISTRICT (HSCD) STANDARD SEDIMENT CONTROL NOTES</u> 1. A PRE-CONSTRUCTION MEETING MUST OCCUR WITH THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS, CONSTRUCTION INSPECTION DIVISION (CID). 410-313-1855 AFTER THE FUTURE LOD AND PROTECTED AREAS ARE MARKED CLEARLY IN THE FIELD. A MINIMUM OF 48 HOUR NOTICE TO CIT MUST BE GIVEN AT THE FOLLOWING STAGES: A PRIOR TO THE START OF FARTH DISTURBANCE

B. UPON COMPLETION OF THE INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH C. PRIOR TO THE START OF ANOTHER PHASE OF CONSTRUCTION OR OPENING OF ANOTHER GRADING UNIT,). PRIOR TO THE REMOVAL OR MODIFICATION OF SEDIMENT CONTROL PRACTICES.

OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE OTHER RELATED STATE AND FEDERAL PERMITS SHALL BE REFERENCED. TO ENSURE COORDINATION AND TO AVOID CONFLICTS WITH THIS PLAN.

2. 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 SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. AND REVISIONS THERETO DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROLS, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3

HORIZONTAL TO 1 VERTICAL (3:1); AND SEVEN (7) CALENDAR DAYS. AS TO ALL OTHER DISTURBED AREAS ON THE PROJECT SITE EXCEPT FOR THOSE AREAS UNDER ACTIVE GRADING. 4. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND 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 IF THE GROUND IS FROZEN. INCREMENTAL STABILIZATION (SEC. B-4-1) SPECIFICATIONS SHALL BE ENFORCED IN AREAS WITH

STEEP SLOPE, AND HIGHLY ERODIBLE AREAS SHALL RECEIVE SOIL STABILIZATION MATTING (SEC. B-4-6). 5. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE, AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR

>15' OF CUT AND/OR FILL, STOCKPILES (SEC. B-4-8) IN EXCESS OF 20 FT, MUST BE BENCHED WITH STABLE OUTLET, ALL CONCENTRATED FLOW.

THEIR REMOVAL HAS BEEN OBTAINED FROM THE CID. 6. SITE ANALYSIS: TOTAL AREA OF SITE: 9.59 ACRES

AREA DISTURBED: 8.58 ACRES AREA TO BE ROOFED OR PAVED: 5.51 ACRES AREA TO BE VEGETATIVELY STABILIZED: 3.07 ACRES TOTAL CUT: 24,974 CU. YDS. TOTAL FILL: 41,102 CU. YDS.

IS PART OF EVERY INSPECTION AND SHOULD INCLUDE

TOTAL BORROW: 16,428 CU. YDS. (TO COME FROM BLDG A, SDP-17-030) TOTAL EXPORT: 0 CU. YDS.

7. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.

PROJECT 8. ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE CID. THE SITE AND ALL CONTROLS SHALL BE INSPECTED BY THE CONTRACTOR WEEKLY: AND THE NEXT DAY AFTER EACH RAIN EVENT. A WRITTEN REPORT BY THE CONTRACTOR, MADE AVAILABLE UPON REQUEST

· INSPECTION DATE INSPECTION TYPE (ROUTINE, PRE-STORM EVENT, DURING RAIN EVENT)

 NAME AND TITLE OF INSPECTOR • WEATHER INFORMATION (CURRENT CONDITIONS AS WELL AS TIME AND AMOUNT OF LAST RECORDED PRECIPITATION) · BRIEF DESCRIPTION OF PROJECT'S STATUS (E.G., PERCENT COMPLETE) AND/OR CURRENT ACTIVITIES

· COMPLIANCE STATUS REGARDING THE SEQUENCE OF CONSTRUCTION AND STABILIZATION REQUIREMENTS

· EVIDENCE OF SEDIMENT DISCHARGES IDENTIFICATION OF PLAN DEFICIENCIES · IDENTIFICATION OF SEDIMENT CONTROLS THAT REQUIRE MAINTENANCE • IDENTIFICATION OF MISSING OR IMPROPERLY INSTALLED SEDIMENT CONTROLS

PHOTOGRAPHS MONITORING/SAMPLING MAINTENANCE AND/OR CORRECTIVE ACTION PERFORMED

PERMITS SHALL BE ON-SITE AND AVAILABLE WHEN THE SITE IS ACTIVE.

OTHER INSPECTION ITEMS AS REQUIRED BY THE GENERAL PERMIT FOR STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES (NPDES, MDE). 9. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN AND SHALL BE BACK-FILLED AND

STABILIZED BY THE END OF EACH WORKDAY, WHICHEVER IS SHORTER. 10. ANY MAJOR CHANGES OR REVISIONS TO THE PLAN OR SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE HSCD PRIOR TO PROCEEDING WITH CONSTRUCTION. MINOR REVISIONS MAY ALLOWED BY THE CID PER THE LIST OF HSCD-APPROVED FIELD CHANGES.

11. DISTURBANCE SHALL NOT OCCUR OUTSIDE THE L.O.D. 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 A SUBSEQUENT GRADING UNIT WHEN AT LEAST 50 PERCENT OF THE DISTURBED AREA IN THE PRECEDING GRADING UNIT HAS BEEN STABILIZED AND APPROVED BY THE CID. UNLESS OTHERWISE SPECIFIED AND APPROVED BY THE CID, NO MORE THAN 30 ACRES CUMULATIVELY MAY BE DISTURBED AT A GIVEN TIME.

12. WASH WATER FROM ANY EQUIPMENT, VEHICLES, WHEELS, PAVEMENT, AND OTHER SOURCES MUST BE TREATED IN A SEDIMENT BASIN OR OTHER APPROVED WASHOUT STRUCTURE

13. TOPSOIL SHALL BE STOCKPILED AND PRESERVED ON-SITE FOR REDISTRIBUTION ONTO FINAL GRADE.

15. STREAM CHANNELS MUST NOT BE DISTURBED DURING THE FOLLOWING RESTRICTED TIME PERIODS (INCLUSIVE):

14. ALL SILT FENCE AND SUPER SILT FENCE SHALL BE PLACED ON-THE-CONTOUR, AND BE IMBRICATED AT 25' MINIMUM INTERVALS, WITH LOWER ENDS CURLED UPHILL BY 2' IN ELEVATION.

• USE I AND IP MARCH 1 - JUNE 15 • USE III AND IIIP OCTOBER 1 - APRIL 30 • USE IV MARCH 1 - MAY 31

16. A COPY OF THIS PLAN, THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND ASSOCIATED

AS-BUILT CERTIFICATION NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET TIS A 21774 PRINTED NAME 旭 11/12/2D ther DAY Eartify that these document professional engineer under the law of the State of 277V MD Expiration Date: 11 10 2

ENGINEER'S CERTIFICATE HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS, AN STANDARDS, THAT IT REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE, AND THAT IT 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 AN PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE) DEVELOPER'S CERTIFICATE I/WE HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTING AND MAINTAINING CONTROLS AND THAT THE RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF TRAINING AT A MARYLAND DEPARTMENT O THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL ON EROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I SHALL ENGAGE A CONSTRUCTION, AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I CERTIFY

Jacqueliu Carline GNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE) Jacqueline Carbone THIS PLAN IS APPROVED FOR SMALL POND CONSTRUCTION, AND

9.21.17

SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

RIGHT-OF-ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE

HOWARD SOIL CONSERVATION DISTRICT APPROVED: DEPARTMENT OF PLANNING AND ZONING

9.8.17 CHIEF, DEVELOPMENT ENGINEERING DIVISION JP 9-21-17

VestBelion CHIEF, DIVISION OF LAND DEVELOPMENT ***

DATE NO. REVISION DCT INDUSTRIAL DEVELOPER

> SUITE 102 ANNAPOLIS JUNCTION, MD 20701 ATTN: FRED FERRARO PHONE: 410-645-5020

OWNER

DCT MEARS LLC 12011 GUILFORD ROAD SUITE 102 ANNAPOLIS JUNCTION, MD 20701 ATTN: FRED FERRARO PHONE: 410-645-5020

12011 GUILFORD ROAD

TERRAPIN COMMERCE CENTER - BUILDING B

AREA TAX MAP 43, PARCEL 51 LOT PAR B PLAT 23793 ZONED M-2 GRID NO. 11 1st ELECTION DISTRICT 7200 DORSEY RUN ROAD **ELKRIDGE, MARYLAND 21075** HOWARD COUNTY, MARYLAND

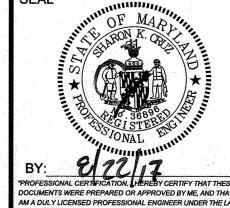
DETAILS

TITLE SEDIMENT CONTROL



Pennoni Associates Inc. Engineers · Surveyors · Planners Landscape Architects

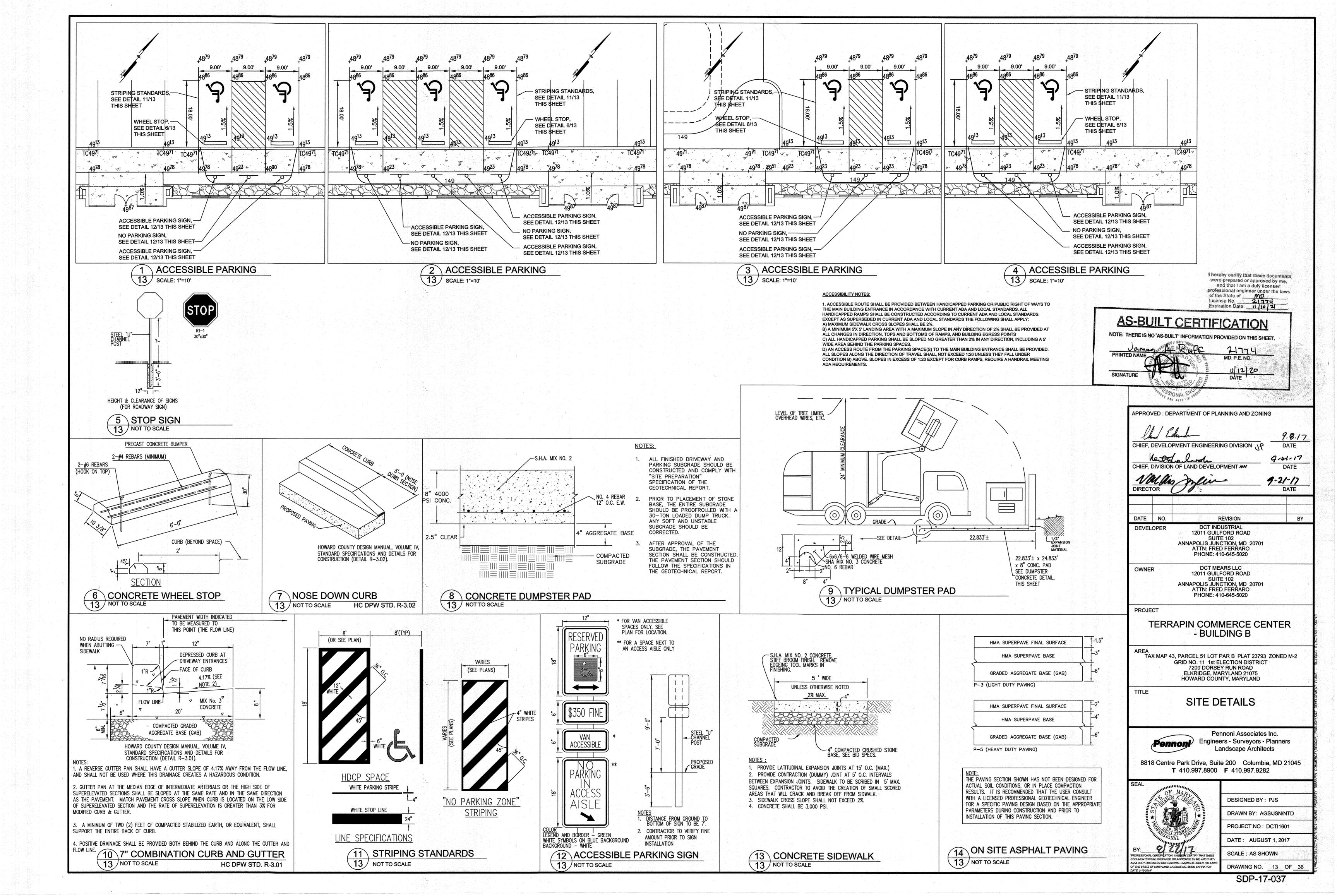
8818 Centre Park Drive, Suite 200 Columbia, MD 21045 T 410.997.8900 F 410.997.9282

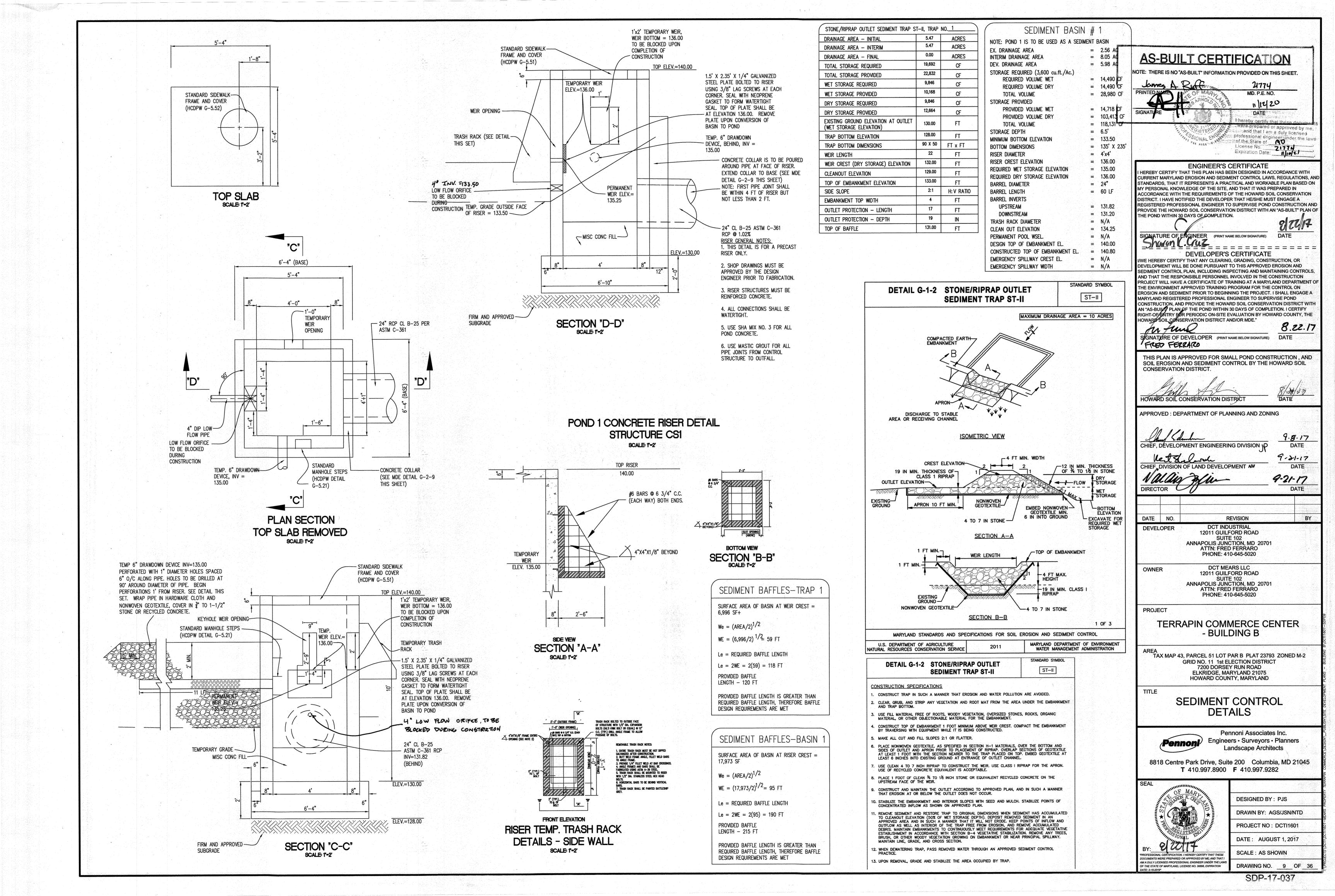


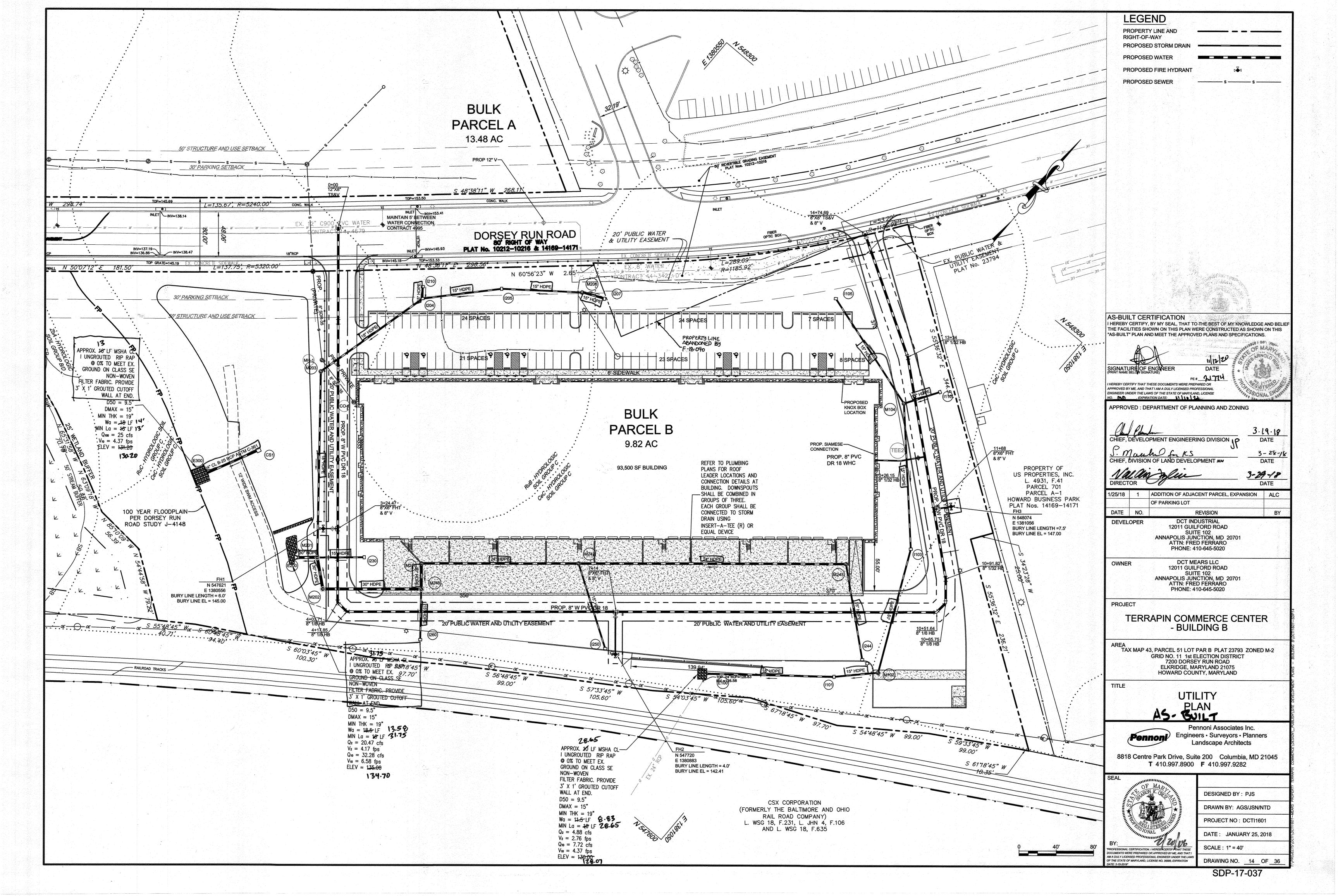
DESIGNED BY: PJS DRAWN BY: AGS/JSN/NTD

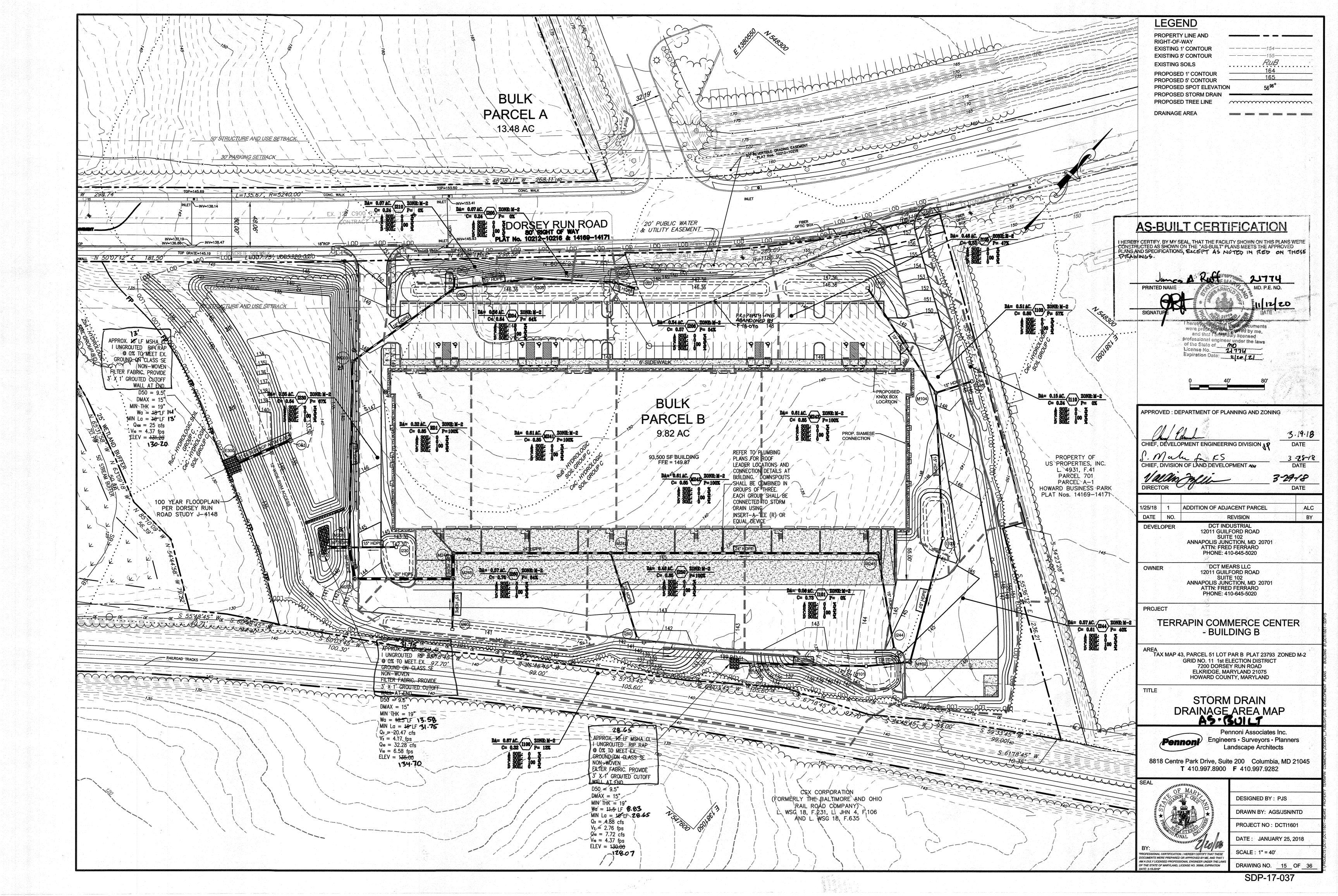
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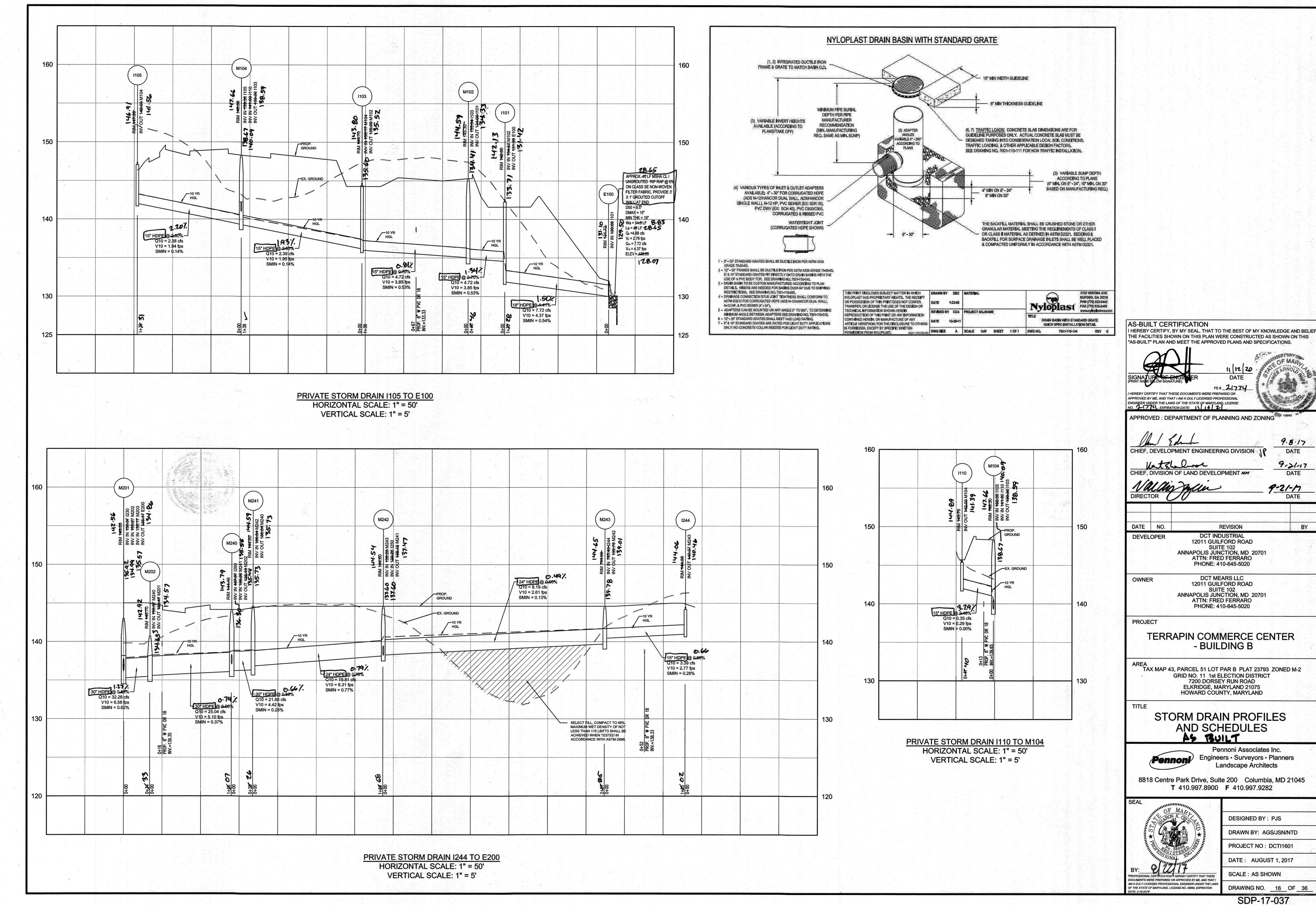
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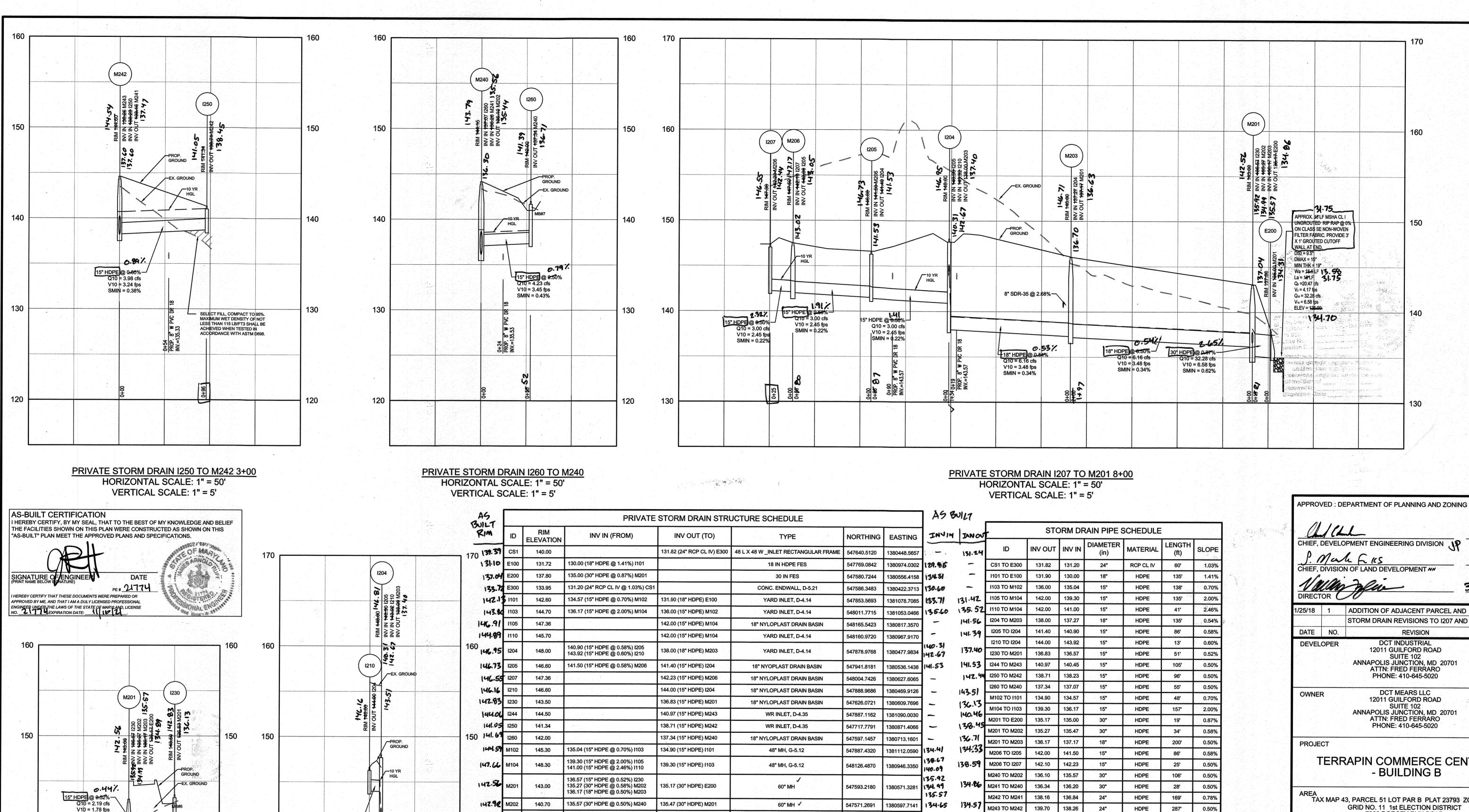


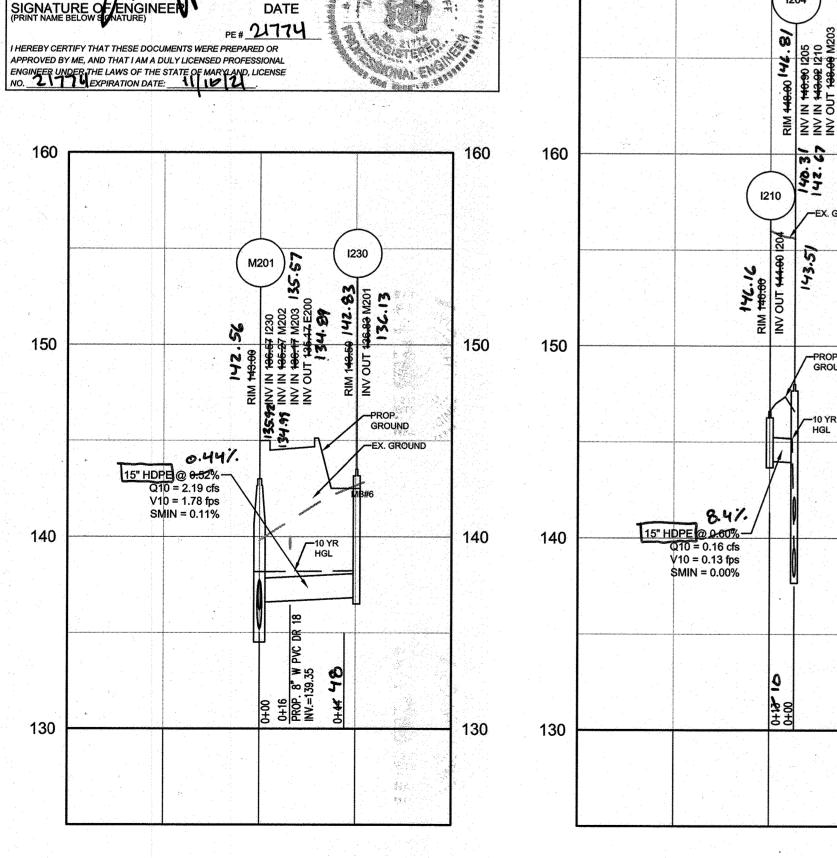












PRIVATE STORM DRAIN 1230 TO M202

HORIZONTAL SCALE: 1" = 50'

VERTICAL SCALE: 1" = 5'

PRIVATE STORM DRAIN	1210 TO 1204
HORIZONTAL SCALE	: 1" = 50'
VERTICAL SCALE:	1" = 5'

	RIM	ID	RIM ELEVATION	INV IN (FROM)	INV OUT (TO)	TYPE	NORTHING	EASTING	THUM	INOU	-
	170 139.39	CS1	140.00		131.82 (24" RCP CL IV) E300	48 L X 48 W _INLET RECTANGULAR FRAME	547640.5120	1380448.5657		131.24	
	131.10	E100	131.72	130.00 (18" HDPE @ 1.41%) I101		18 IN HDPE FES	547769.0842	1380974.0302	129.85		CS
	137.04	E200	137.80	135.00 (30" HDPE @ 0.87%) M201		30 IN FES	547580.7244	1380556.4158	13451		I10
	133.7	E300	133.95	131.20 (24" RCP CL IV @ 1.03%) CS1		CONC. ENDWALL, D-5.21	547586.3483	1380422.3713	130.60	-	I10
	142.1	3 1101	142.60	134.57 (15" HDPE @ 0.70%) M102	131.90 (18" HDPE) E100	YARD INLET, D-4.14	547853.5693	1381078.7085	133.71	131.42	I10
	143.8	1103	144.70	136.17 (15" HDPE @ 2.00%) M104	136.00 (15" HDPE) M102	YARD INLET, D-4.14	548011.7715	1381053.0466	135.60	135.52	
	146.91	1105	147.36		142.00 (15" HDPE) M104	18" NYLOPLAST DRAIN BASIN	548165.5423	1380817.3570	-	141.56	120
	144.89	I110	145.70		142.00 (15" HDPE) M104	YARD INLET, D-4.14	548160.9720	1380967.9170	-	141.39	120
	¹⁶⁰ IUC.95	1204	148.00	140.90 (15" HDPE @ 0.58%) I205 143.92 (15" HDPE @ 0.60%) I210	138.00 (18" HDPE) M203	YARD INLET, D-4.14	547878.9768	1380477.9834	142.67	137.40	I21 I23
	146.73	1205	146.60	141.50 (15" HDPE @ 0.58%) M206	141.40 (15" HDPE) I204	18" NYOPLAST DRAIN BASIN	547941.8181	1380536.1438	141.53	141.53	124
IND	146.5	1207	147.36		142.23 (15" HDPE) M206	18" NYLOPLAST DRAIN BASIN	548004.7426	1380627.6065	-	142.44	
	146.16	1210	146.60		144.00 (15" HDPE) I204	18" NYLOPLAST DRAIN BASIN	547888.9686	1380469.9126		143.51	1260
	142.83	1230	143.50		136.83 (15" HDPE) M201	18" NYLOPLAST DRAIN BASIN	547626.0721	1380609.7696	_	136.13	M10
West of the second seco	144.00	1244	144.50		140.97 (15" HDPE) M243	WR INLET, D-4.35	547887.1162	1381090.0030	-	140.46	M10
	141.05	1250	141.34		138.71 (15" HDPE) M242	WR INLET, D-4.35	547717.7791	1380871.4066		138.45	M20
	150 141.69	1260	142.00		137.34 (15" HDPE) M240	18" NYLOPLAST DRAIN BASIN	547597.1457	1380713.1601	_	136.71	M20
	144.59	M102	145.30	135.04 (15" HDPE @ 0.70%) I103	134.90 (15" HDPE) I101	48" MH, G-5.12	547887.4320	1381112.0590	134.41	134:33	M20
	147.66	M104	148.30	139.30 (15" HDPE @ 2.00%) I105 141.00 (15" HDPE @ 2.46%) I110	139.30 (15" HDPE) I103	48" MH, G-5.12	548126.4870	1380946.3350	138.67 140.09	138.59	M20
	142.5	M201	143.00	136.57 (15" HDPE @ 0.52%) I230 135.27 (30" HDPE @ 0.58%) M202 136.17 (18" HDPE @ 0.50%) M203	135.17 (30" HDPE) E200	60" MH	547593.2180	1380571.3281	135.92 134.99 135.57		M24 M24
	142.90	M202	140.70	135.57 (30" HDPE @ 0.50%) M240	135.47 (30" HDPE) M201	60" MH ✓	547571.2691	1380597.7141		134.57	M24
	146.71	M203	146.00	137.27 (18" HDPE @ 0.54%) I204	137.17 (18" HDPE) M201	48" MH, G-5.12	547748.4855	1380444.9521	136.70	134.57	IVIZ4
	140 147.17	M206	147.50	142.10 (15" HDPE @ 0.50%) I207	142.00 (15" HDPE) I205	48" MH, G-5.12	547994.3699	1380604.7504	143.02	143.05	
	143.79	M240	144.15	137.07 (15" HDPE @ 0.50%) I260 136.20 (30" HDPE @ 0.50%) M241	136.10 (30" HDPE) M202	60" MH 🗸	547639.4670	1380678.6862	136.30 135.56	135.44	
	144.54	M241	144.60	136.84 (24" HDPE @ 0.78%) M242	136.34 (30" HDPE) M240	60"48" MH, G-5. 12 ₹3	547660.6672	1380660.9915	135.73	135.73	
	144.54	M242	144.60	138.26 (24" HDPE @ 0.50%) M243 138.23 (15" HDPE @ 0.50%) I250	138.16 (24" HDPE) M241	48" MH, G-5.12	547769.3932	1380790.2742	137.60	137.47	
	14465	M243	144.60	140.45 (15" HDPE @ 0.50%) I244	139.70 (24" HDPE) M242	48" MH, G-5.12	547954.5183	1381010.0937	139.78	139.01	

1) ALL STRUCTURES ARE HOWARD COUNTY STANDARDS UNLESS NOTED OTHERWISE. CONTRACTOR MAY USE PRECAST STRUCTURE WHERE

2) STATIONS ARE GIVEN TO CENTER OF STRUCTURE AT FACE OF CURB FOR CURB INLETS AND TO CENTER OF STRUCTURE FOR ALL OTHER

4) PIPE LENGTHS ARE GIVEN TO THE CENTER OF THE STRUCTURE. CONTRACTOR SHALL ADJUST LENGTH TO OBTAIN ACTUAL PIPE LENGTHS.

6) THE PIPE SCHEDULE IS GIVEN FOR REFERENCE. IN THE EVENT OF A DISCREPANCY BETWEEN THE PIPE SCHEDULE AND THE PLAN, THE

3) ELEVATIONS ARE GIVEN TO TOP OF CURB FOR CURB INLETS, TOP OF GRATE FOR GRATE INLETS AND TOP OF LID FOR MANHOLES.

AVAILABLE TO MEET THE STANDARD STRUCTURE SPECIFIED.

INFORMATION ON THE PLAN SHALL TAKE PRIORITY.

5) ALL CLEANOUTS LOCATED IN PAVEMENT AREAS SHALL BE TRAFFIC BEARING.

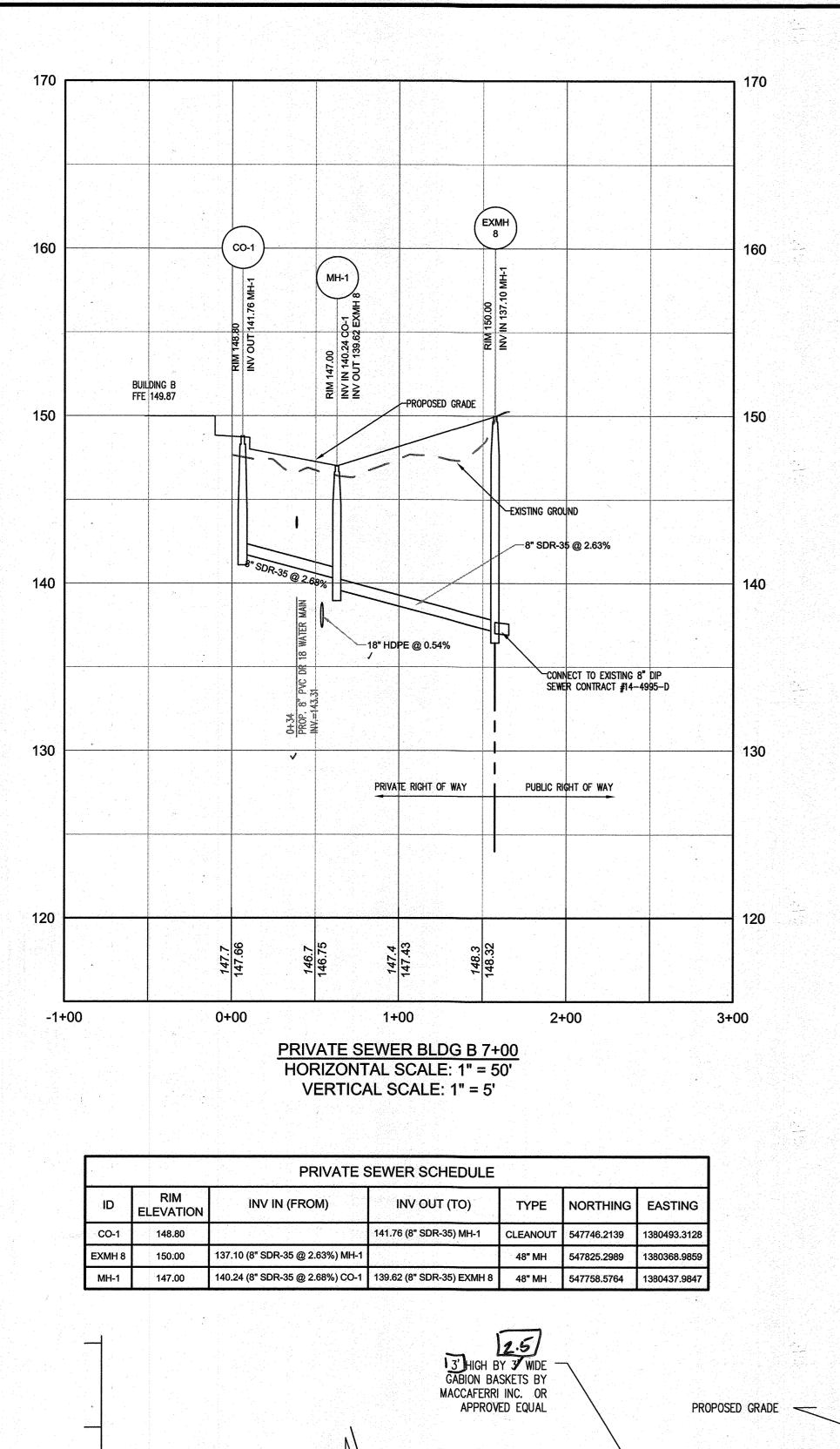
	PIPE SCHEDULI	
SIZE	TYPE	LINEAR FOOTAGE
4"	PVC	30
4"	PERFORATED PVC	762
15"	HDPE	1,029
18"	HDPE	465 458
24"	HDPE	476
30"	HDPE	190
24"	RCP CL IV	60)

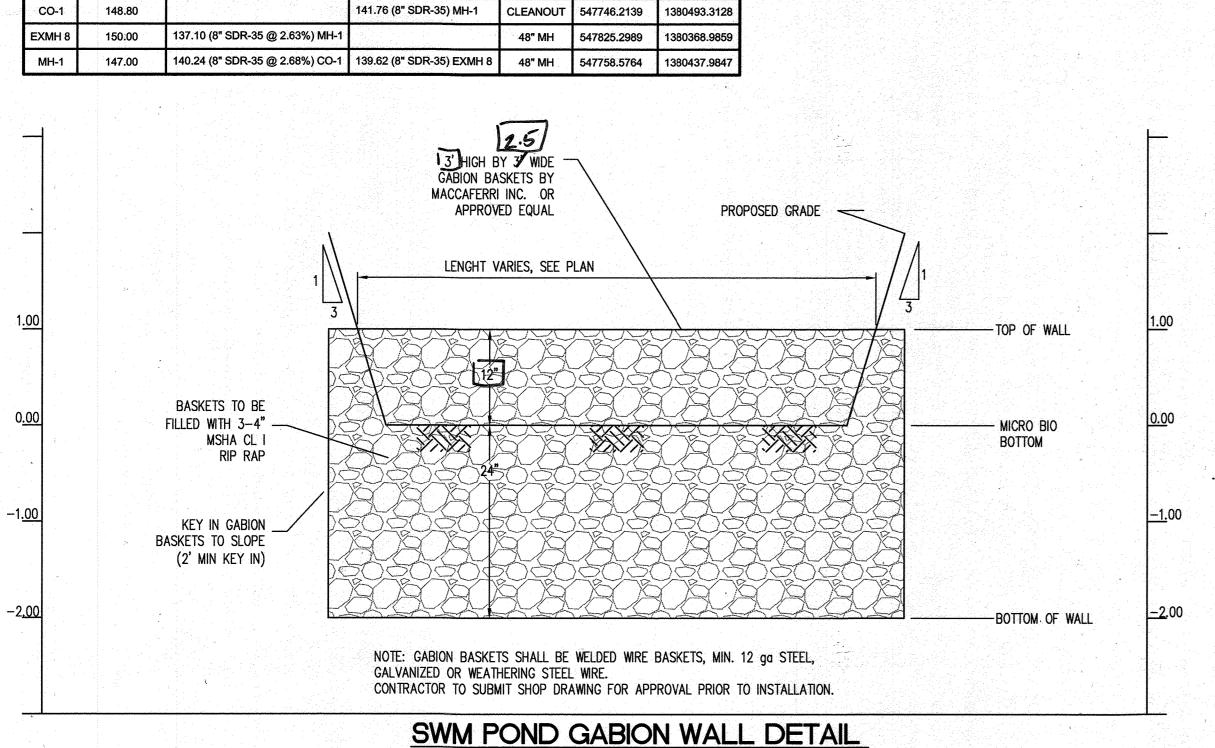
3-29-18 ADDITION OF ADJACENT PARCEL AND STORM DRAIN REVISIONS TO 1207 AND M206 SUITE 102 ANNAPOLIS JUNCTION, MD 20701 SUITE 102 ANNAPOLIS JUNCTION, MD 20701 ATTN: FRED FERRARO TERRAPIN COMMERCE CENTER AREA TAX MAP 43, PARCEL 51 LOT PAR B PLAT 23793 ZONED M-2 GRID NO. 11 1st ELECTION DISTRICT 7200 DORSEY RUN ROAD ELKRIDGE, MARYLAND 21075 HOWARD COUNTY, MARYLAND STORM DRAIN PROFILES AND SCHEDULES Pennoni Associates Inc. Engineers · Surveyors · Planners Landscape Architects 8818 Centre Park Drive, Suite 200 Columbia, MD 21045 T 410.997.8900 F 410.997.9282 DESIGNED BY : PJS DRAWN BY: AGS/JSN/NTD PROJECT NO: DCTI1601 DATE: JANUARY 25, 2018 SCALE: AS SHOWN "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 LAW DRAWING NO. __17_ OF __36 OF THE STATE OF MARYLAND, LICENSE NO. 36896, EXPIRATION

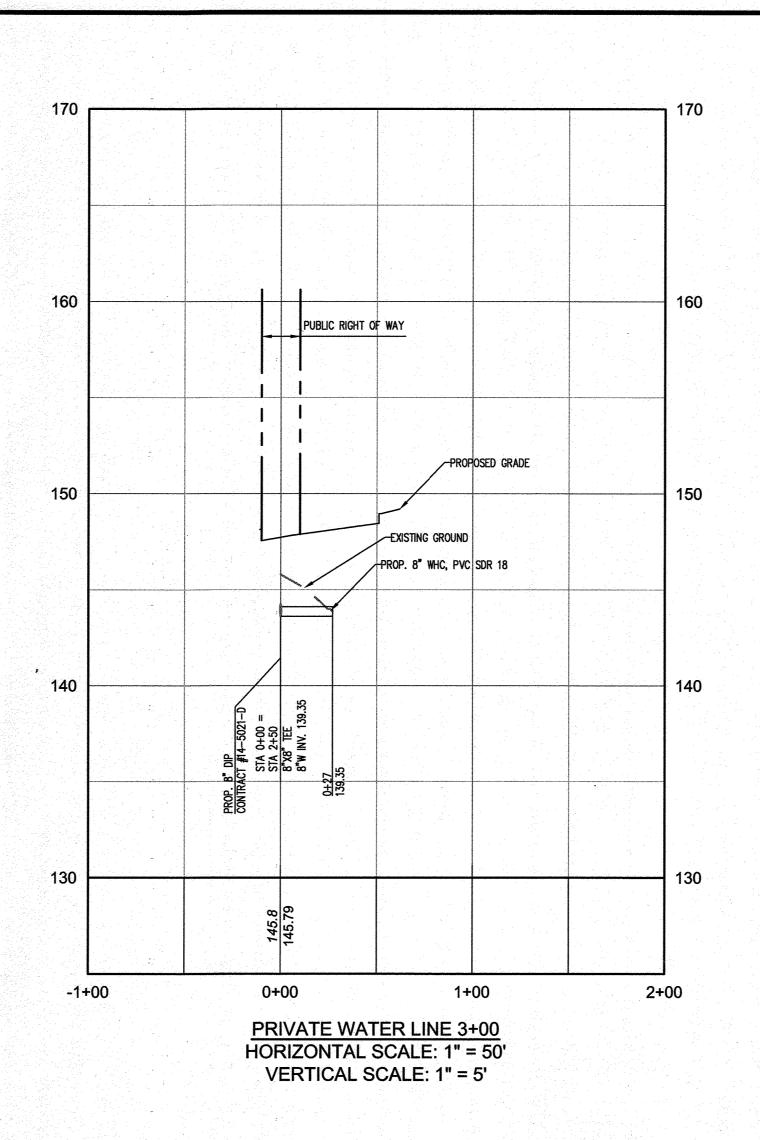
3-28-18

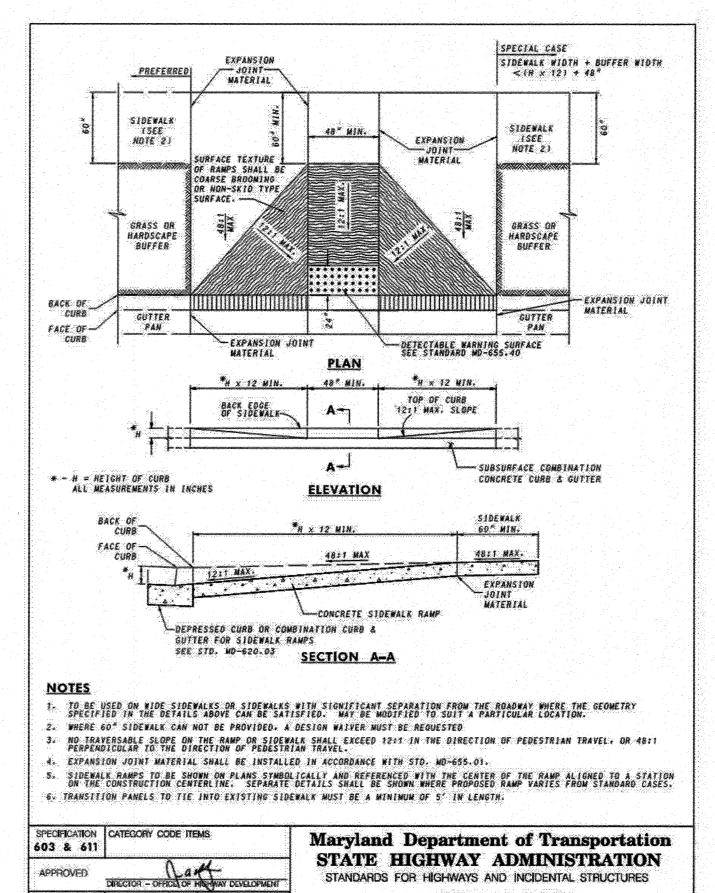
DATE

DATE



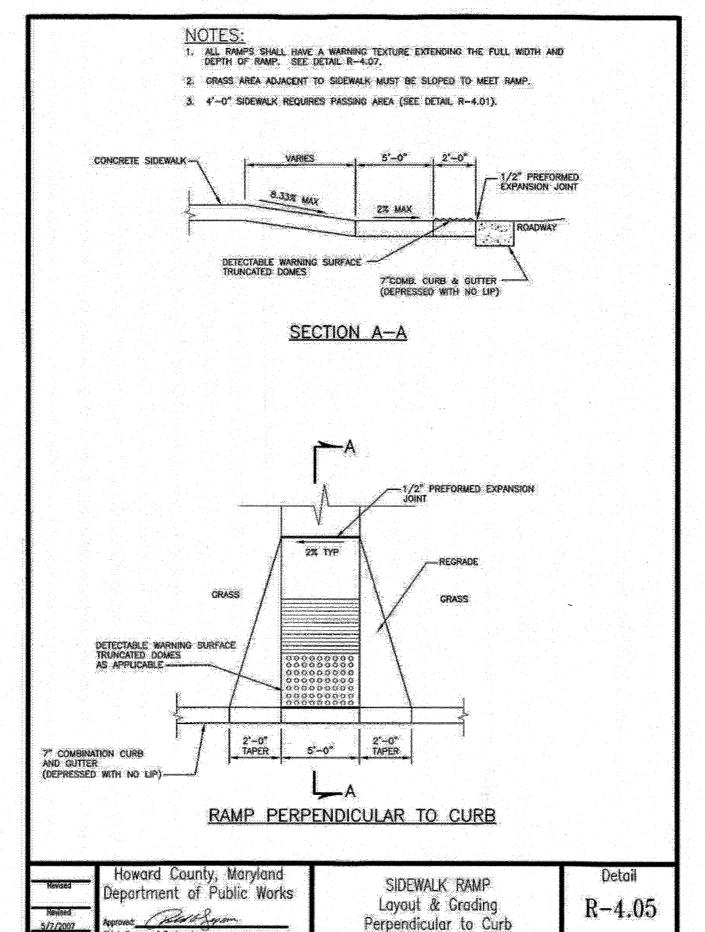




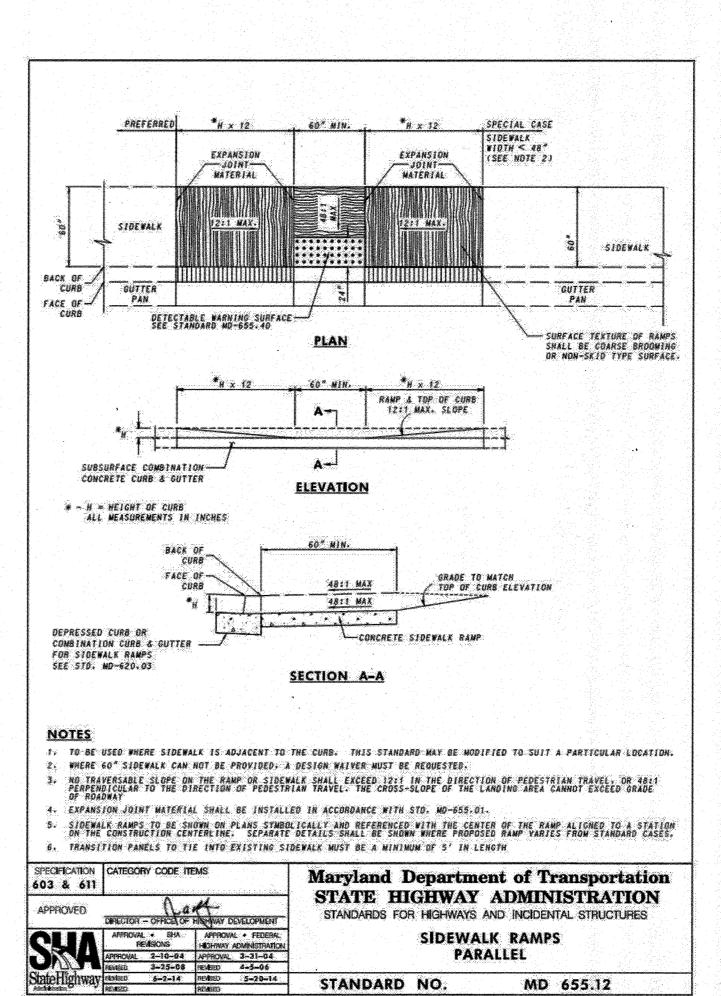


STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES SIDEWALK RAMPS PERPENDICULAR STANDARD NO. MD 655.11

PERPENDICULAR SIDEWALK RAMPS 18 NOT TO SCALE



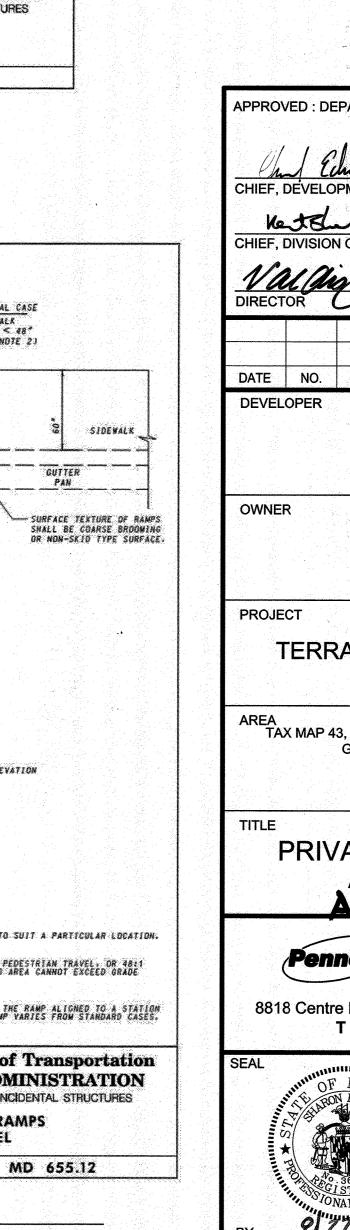
PERPENDICULAR SIDEWALK RAMPS FOR HOWARD COUNTY RIGHT-OF WAY NOT TO SCALE

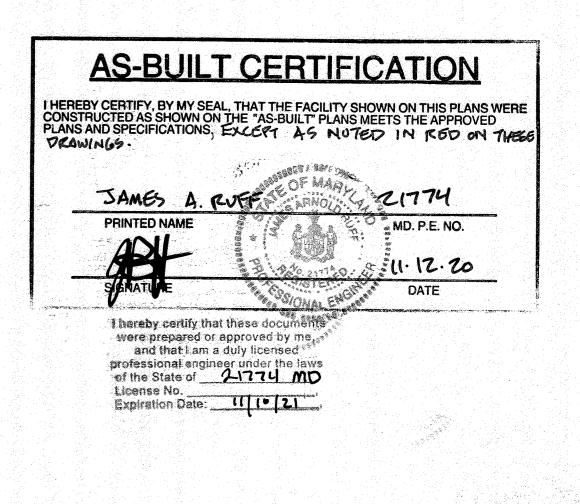


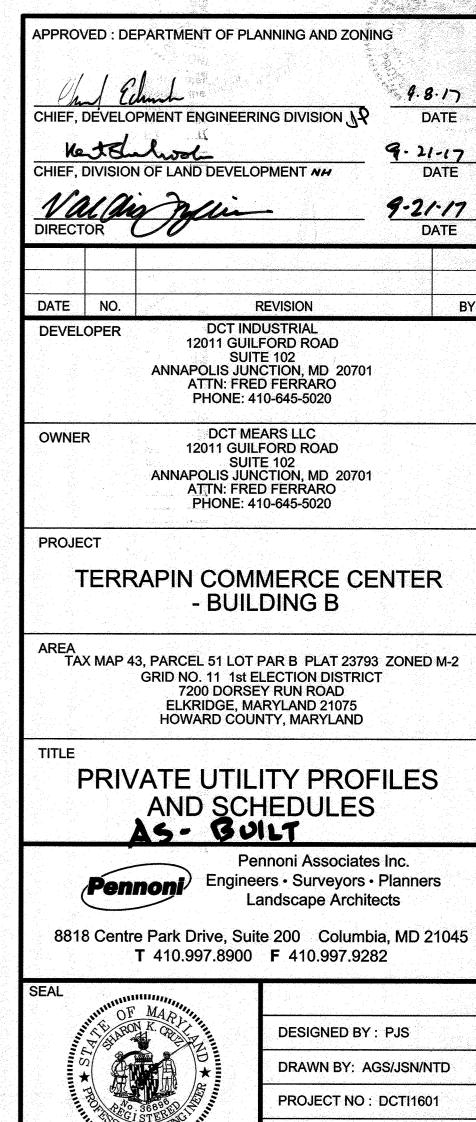
STANDARD NO.

3 PARALLEL SIDEWALK RAMPS

NOT TO SCALE







CUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LA

DRAWING NO. <u>18</u> OF <u>36</u>

DATE: AUGUST 1, 2017

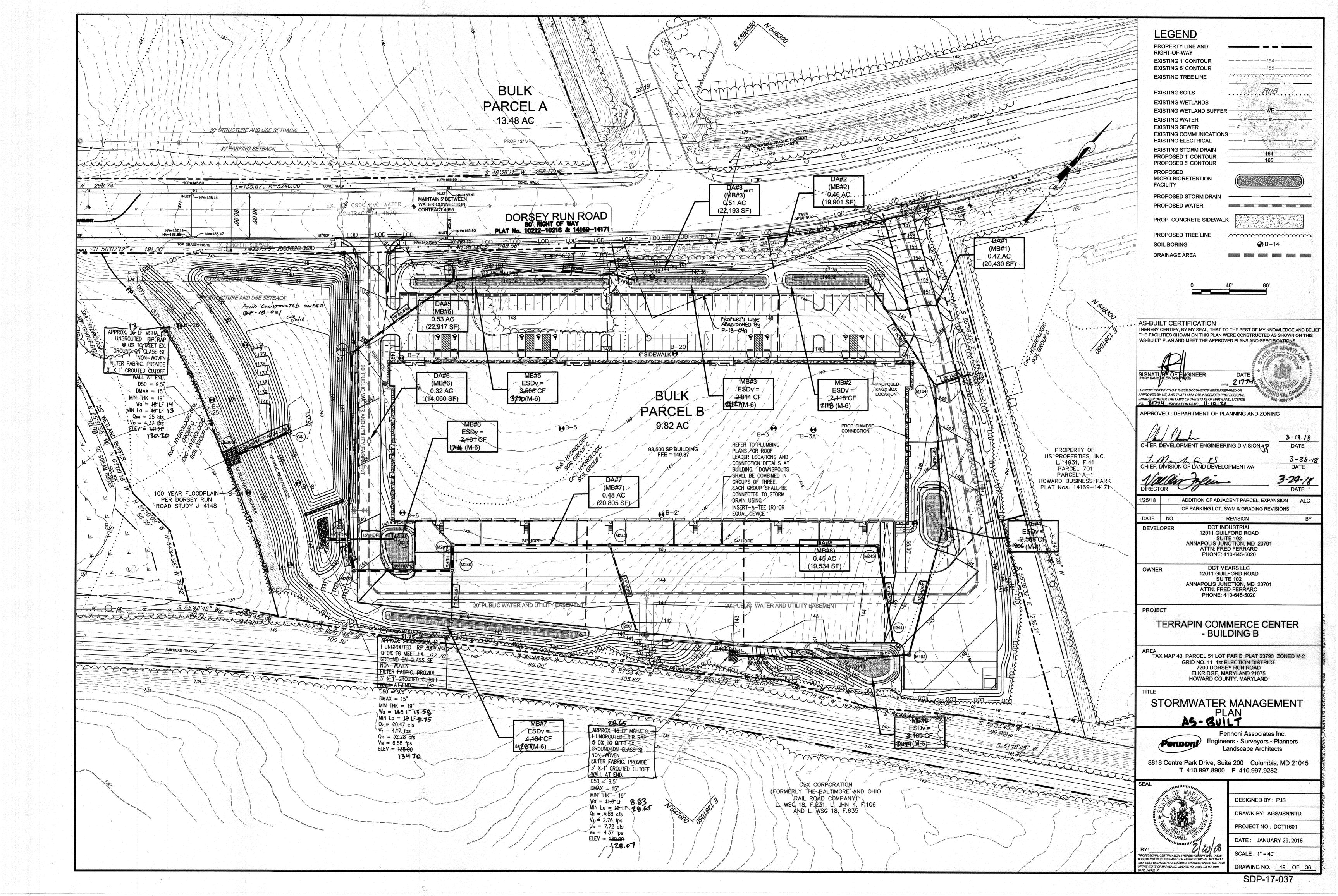
SCALE: AS SHOWN

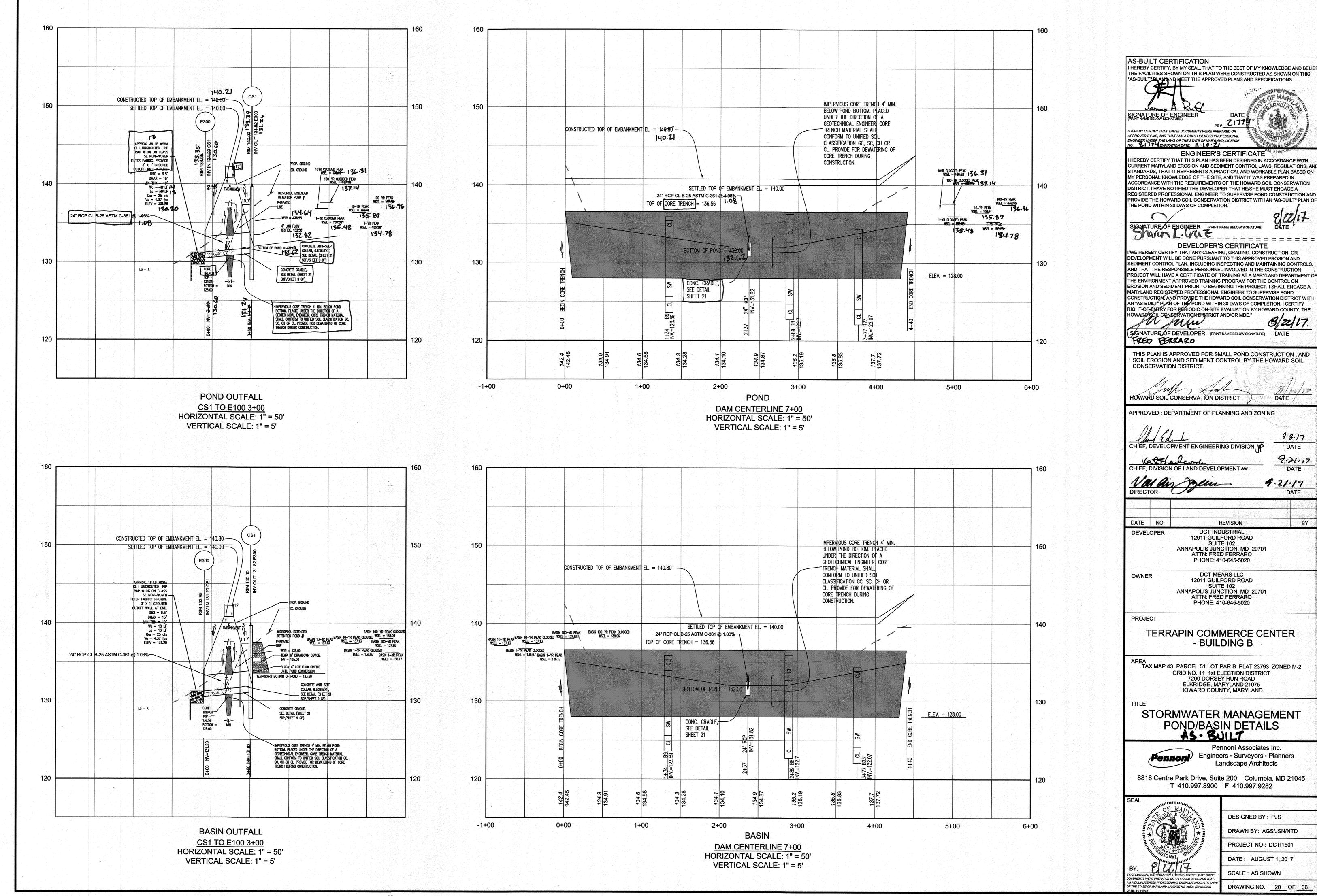
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DATE

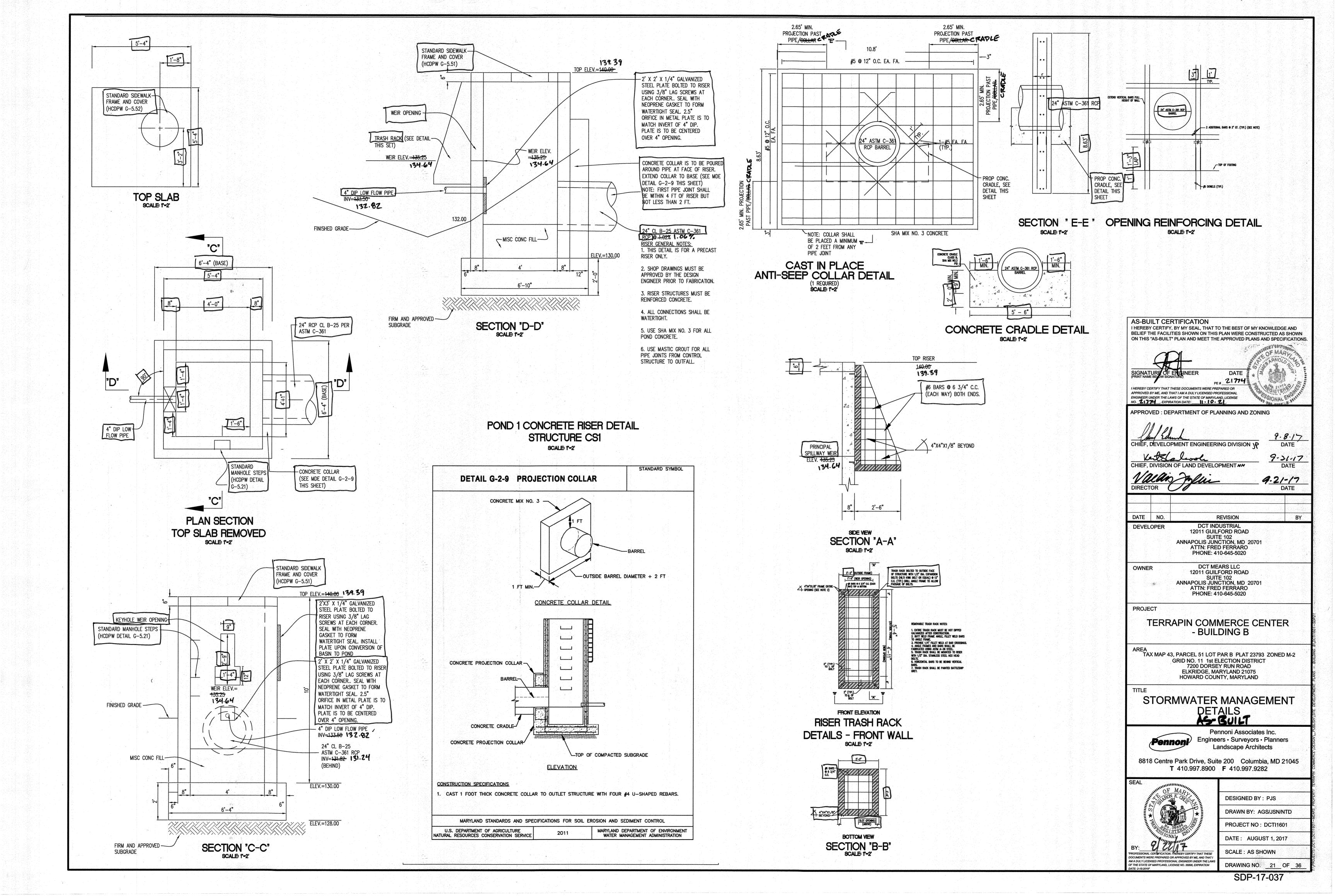
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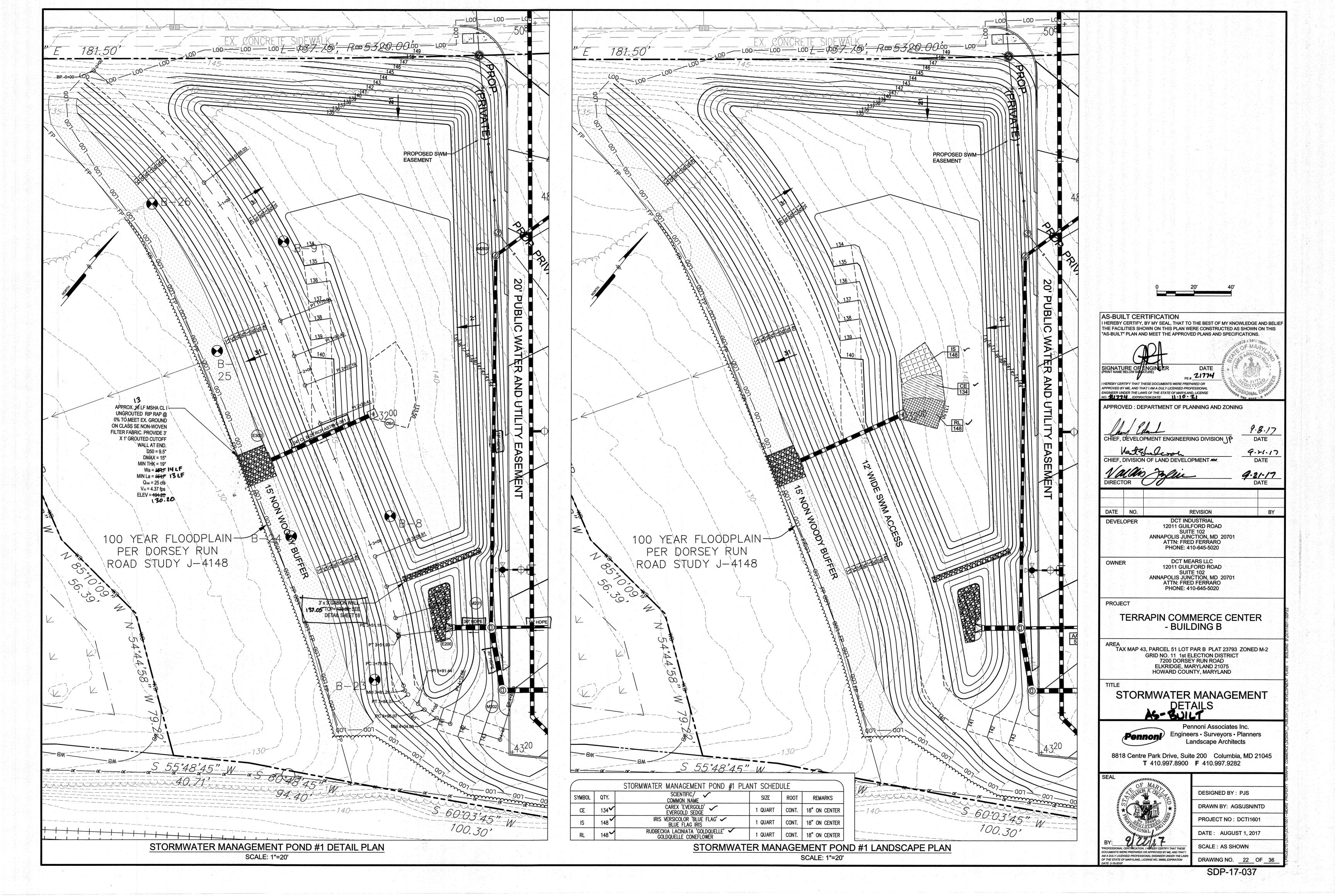
BY

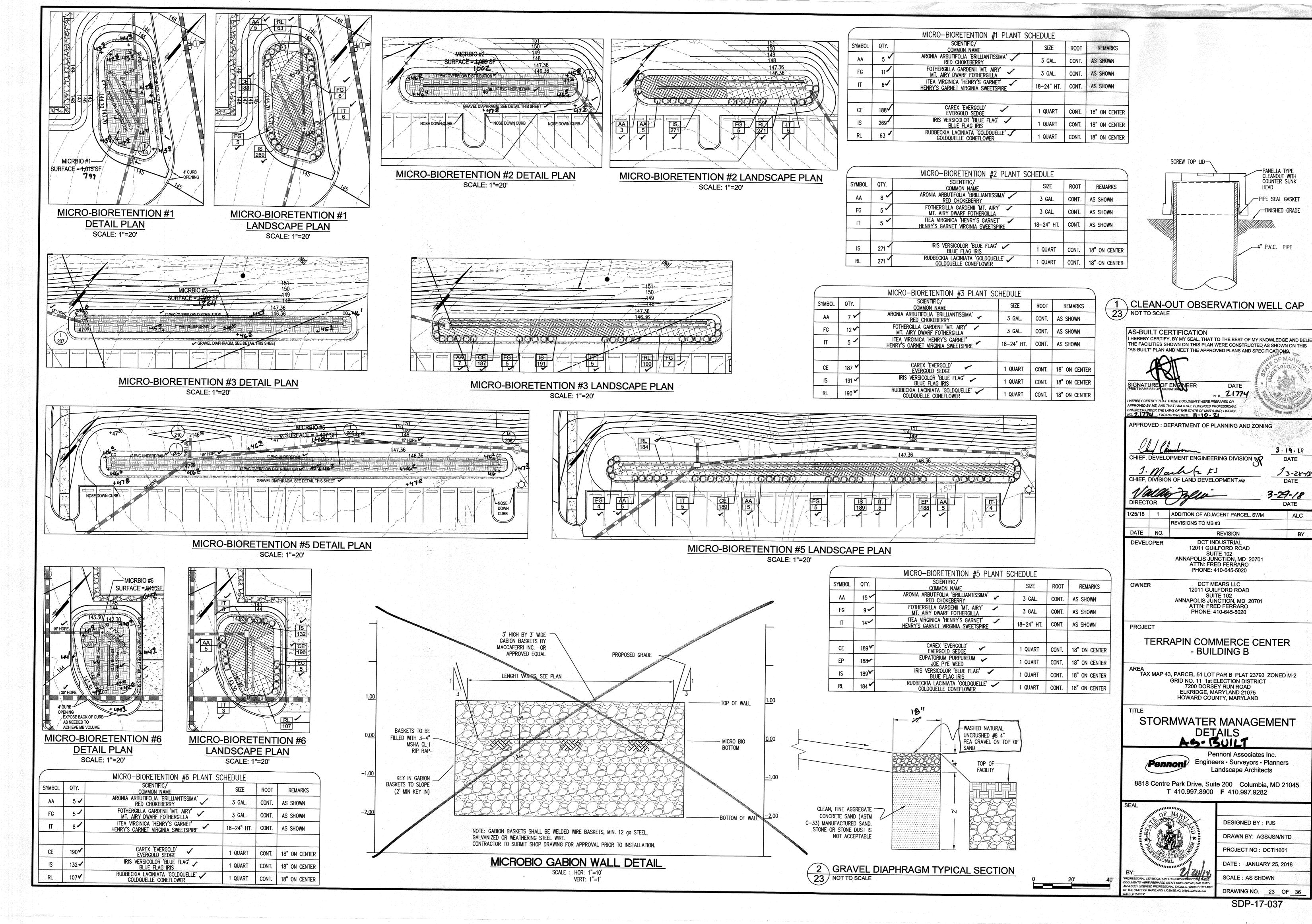




SDP-17-037







SDP-17-037

CLEANOUT WITH COUNTER SUNK

PIPE SEAL GASKET

✓4" P.V.C. PIPE

DATE

FINISHED GRADE

3.19.18

3-28-18

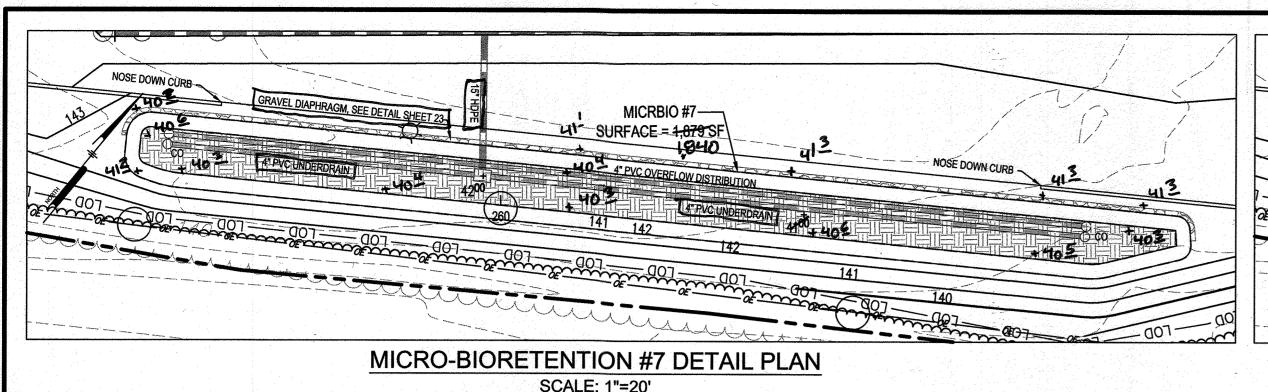
DATE

DATE

ALC

BY

3-29-18



OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY

1. FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE POND IS FUNCTIONING PROPERLY.

2. TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES PER YEAR.

ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND MAINTENANCE ACCÈSS SHALL BE

4. VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS THE RIPRAP OR GABION OUTLET AREA SHALL BE

1. STRUCTURAL COMPONENTS OF THE POND SUCH AS THE DAM, THE RISER, AND THE PIPES SHALL BE REPAIRED UPON THE DETECTION OF ANY DAMAGE. THE COMPONENTS SHALL BE INSPECTED DURING

THE POND. OR FOREBAY, IS HALF FULL OF SEDIMENT, OR, WHEN DEEMED NECESSARY FOR AESTHETIC

REASONS, UPON APPROVAL FROM THE DEPARTMENT OF PUBLIC WORKS.

. THE UNDERDRAIN PIPE MUST BE 4-INCH DIAMETER SCHEDULE 40 OR

GRAVEL MUST BE PLACED UNDER THE PIPE, WITH A MINIMUM OF 6

DIAMETER AND MUST BE LOCATED 4 INCHES ON CENTER, EVERY 90 DEGREES AROUND THE PIPE. PERFORATED PIPE MUST BEGIN AT LEAST 5FT. INSIDE THE FILTER MEDIA. FILTER FABRIC MUST NOT BE WRAPPED

2. 4" INCH CLEAN-OUTS SHOULD BE USED. CLEANOUTS FOR EACH PIPE

3. THE GRAVEL LAYER SURROUNDING THE UNDERDRAIN PIPES MUST MEET

AS INCHES COVER OVER THE PIPE, AND MINIMUM 3 INCHES UNDER THE PIPE.

4. A MINIMUM 6-INCH FINE AGGREGATE SAND LAYER SHALL BE PROVIDED BELOW THE SOIL FILTER/PLANTING MEDIA. THE SAND MUST BE ASTM C33

2,427 FINE AGGREGATE CONCRETE SAND. MANUFACTURED SAND OR STONE DUST

STANDARDS. THE SOIL SHALL MEET THE FOLLOWING MINIMUM CRITERIA: A

HOMOGENEOUS MIXTURE COMPOSED OF 5 PARTS COARSE SAND, 3 PARTS

INCHES. THE PLANTING MATERIAL SHALL BE FLOODED AFTER PLACEMENT.

BASE SOIL, AND 2 PARTS FINE BARK. THE SOIL SHALL BE FREE OF

6. THE SURFACE MULCH LAYER WILL CONSIST OF STANDARD FINE SHREDDED

OF 2 TO 3 INCHES. YEARLY REPLENISHING MAY BE NECESSARY. PINE

AGED HARDWOOD MULCH. THE MULCH SHOULD BE UNIFORMLY TO A DEPTH

32005. THE PLANTING MEDIA MIX SHALL MEET SHA BIORETENTION SOIL MIX

4267 STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN 2

ANY SETTLEMENT THAT OCCURS SHALL BE FILLED BACK TO THE DESIGN

MSHA SIZE #7 (TABLE 901A), AND MUST PROVIDE A MINIMUM OF 6

SHOULD EXTEND 6 INCHES ABOVE THE TOP OF THE PLANTING MEDIA AND

STRONGER PERFORATED PVC PIPE AT 0.00% SLOPE. THREE INCHES OF

INCHES OF GRAVEL OVER THE PIPE, PERFORATIONS MUST BF 3/8 INCH IN

MICROBIORETENTION SPECIFICATIONS

2. SEDIMENT SHALL BE REMOVED FROM THE POND, AND FOREBAY, NO LATER THAN WHEN THE CAPACITY OF

3. DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.

OWNED AND MAINTAINED STORMWATER PONDS

MICRO-BIORETENTION #7 LANDSCAPE PLAN SCALE: 1"=20'

(P-1 THROUGH P-5)

REPAIRED AS SOON AS IT IS NOTICED.

ROUTINE MAINTENANCE OPERATIONS.

AROUND THE UNDERDRAIN PIPE.

ESDV PROVIDED SOLT NO GEOTEXTILE OR FILTER FABRIC IS ALLOWED ANYWHERE WITHIN THE

FILTER MEDIA (STONE OR SAND).

IS NOT ACCEPTABLE.

BARK IS NOT ACCEPTABLE.

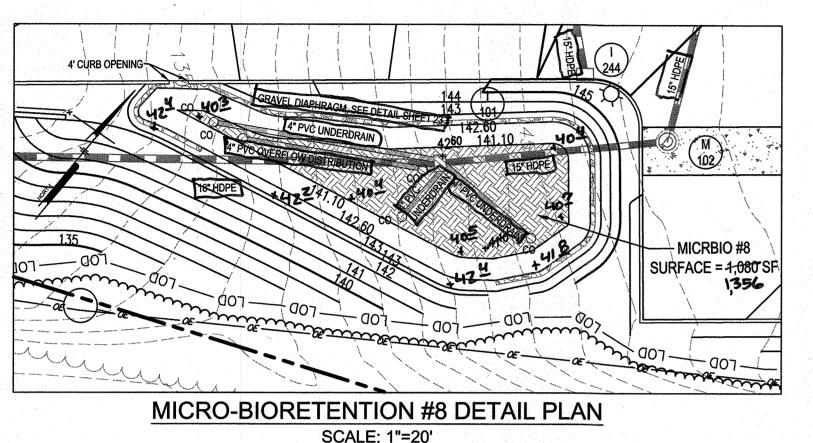
ELEVATION.

HAVE A REMOVABLE CAP.

NON-ROUTINE MAINTENANCE:

ROUTINE MAINTENANCE:

MOWED AS NEEDED.



1/4 INCH GALVANIZED

NOT TO SCALE

147.36 -

146.91

146.61

145.80

106Z

MICRO-BIORETENTION DESIGN DATA

147.36

146.55

146.61

24"

145.88

1,300

146.61

17"

29"

146.36

-1,474

1400

HARDWARE CLOTH.

143.80

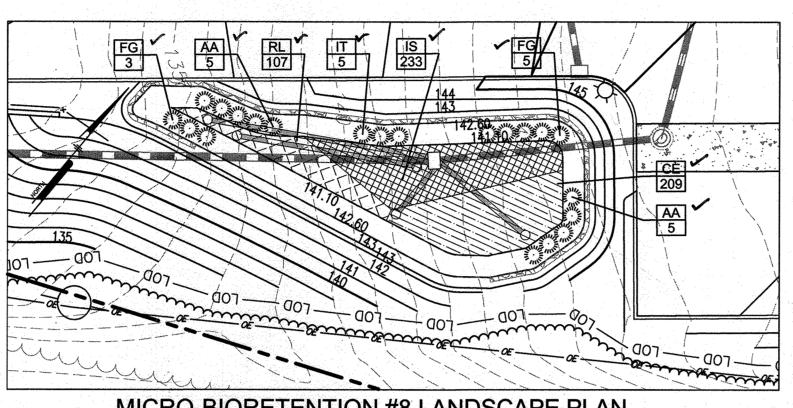
143.95

142.80

-1,015

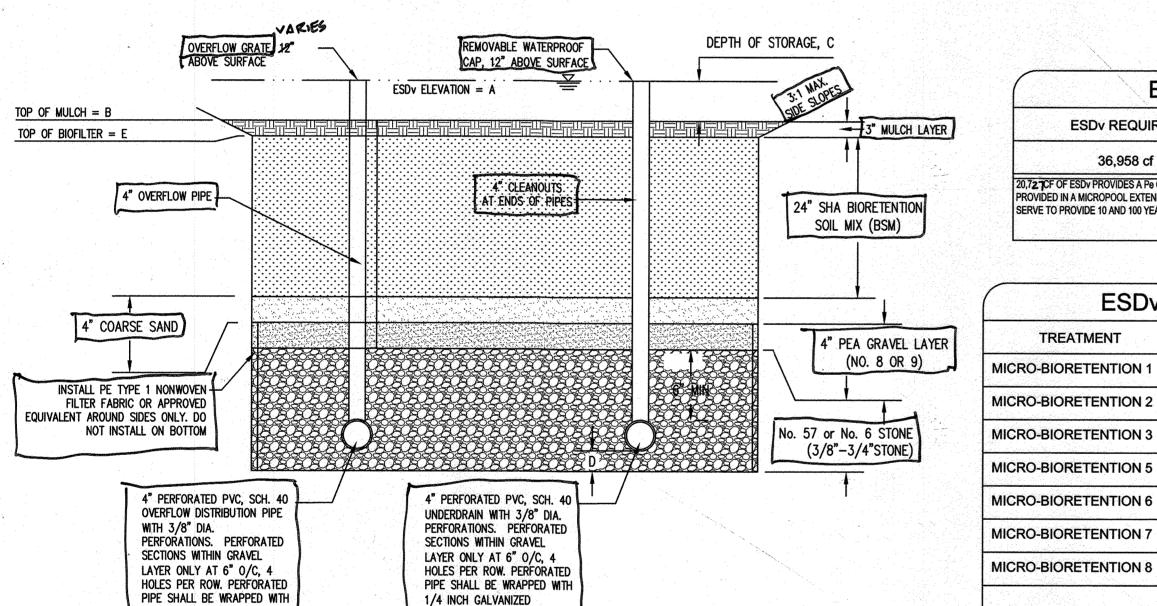
799

SURFACE AREA AT 'E'



MICRO-BIORETENTION #8 LANDSCAPE PLAN SCALE: 1"=20'

TREATMENT



HARDWARE CLOTH, CONNECT

MICROBIORETENTION TYPICAL SECTION

142.83

142.55

13"

36"

142.30

141.67

642

141.39

141.25

12"

31"

141.00

140.26

142.13

141.35

12"

141.10

141.15

1356

TO OVERFLOW STRUCTURE.

ESDv REQUIRED	ESDv REQUIRED TO MEET Cpv	ESDv REQUIRED TO MEET Wqv	ESDv PROVID
36,958 cf	36,958 cf	18,479 cf	-20,727cf
20,72,7CF OF ESDV PROVIDES A Pe OF 1.12. THE PROVIDED IN A MICROPOOL EXTENDED DETENT SERVE TO PROVIDE 10 AND 100 YEAR STORAGE	ION POND, WHICH ALSO		AS BUILT = 19,118 CF

ESDV DEVICE SUMMARY TABLE

2,588 cf

2,118 cf

2,811 cf

3,506 cf

2,265 cf

3,944 cf

3,476 cf

ESDv REQUIRED | ESDv REQUIRED

TO MEET Cpv TO MEET Wqv

OPER	RATION	AND	MAIN	TENANO	CE

TOTAL

MICRO-BIORETENTION (M-6)

SCHEDULE FOR

ANNUAL MAINTENANCE OF PLANT MATERIAL, MULCH LAYER AND SOIL LAYER IS REQUIRED. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL VOLUME II, TABLE A.4.1 AND 2.

- SCHEDULE OF PLANT INSPECTION WILL BE TWICE A YEAR IN SPRING AND FALL. THIS INSPECTION WILL INCLUDE REMOVAL OF DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, TREATMENT OF ALL DISEASED TREES AND SHRUBS AND REPLACEMENT OF ALL DEFICIENT STAKES AND
- MULCH SHALL BE INSPECTED EACH SPRING. REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER ONCE EVERY 2 TO 3 YEARS.
- SOIL EROSION TO BE ADDRESSED ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.

MICRO-BIORETENTION SEQUENCE OF CONSTRUCTION

784 cf

1,041 cf

1,299 cf

839 cf

1,647 cf

1,546 cf

1. DO NOT BEGIN BIORETENTION INSTALLATION UNTIL SITE UPSTREAM OF MICRO-BIORETENTION IS STABILIZED AND FINE GRADING HAS BEEN COMPLETED.

2,588 cf

2,118 cf

2,811 cf

3,506 cf

2,265 cf

4,134 cf

3,305 cf

20,727 cf

- 2. EXCAVATE MICRO-BIORETENTION. CONSTRUCTION SHALL BE PERFORMED WITH LIGHTWEIGHT, WIDE-TRACKED EQUIPMENT TO MINIMIZE DISTURBANCE AND COMPACTION. EXCAVATED MATERIALS SHALL BE PLACED IN A CONTAINED AREA.
- 3. PLACE STONE AND UNDERDRAINS. (1 DAY). 4. PLACE SAND LAYER IN LIFTS OF THREE INCHES. (0.5 DAY)
- 5. PLACE PLANTING SOIL AND OBSERVATION WELLS. (1 DAY)
- 6. PLACE MULCH. (0.5 DAY)
- 7. INSTALL PLANT MATERIAL. (1 DAY) 8. STABILIZE MICRO-BIORETENTION AREA. (0.5 DAY)

PROBABLY NOT ACCEPTABLE.

SAND SPECIFICATIONS WASHED ASTM C33 FINE AGGREGATE CONCRETE SAND IS UTILIZED FOR

STORMWATER MANAGEMENT APPLICATIONS. IN ADDITION TO THE ASTM C-33 SPECIFICATION, SAND MUST MEET ALL OF THE FOLLOWING CONDITIONS. 1. SAND MUST MEET GRADATION REQUIREMENTS FOR ASTM C-33 FINE

ACCEPTABLE. 2. SAND MUST BE SILICA BASED. NO LIMESTONE BASED PRODUCTS MAY BE USED. IF THE MATERIAL IS WHITE OR GRAY IN COLOR, IT IS

AGGREGATE CONCRETE SAND. AASHTO M-6 GRADATION IS ALSO

3. SAND MUST BE CLEAN. NATURAL, UNWASHED SAND DEPOSITS MAY NOT BE USED. LIKEWISE, SAND THAT HAS BECOME CONTAMINATED BY IMPROPER STORAGE OR INSTALLATION PRACTICES WILL BE REJECTED.

4. MANUFACTURED SAND OR STONE DUST IS NOT ACCEPTABLE UNDER ANY CIRCUMSTANCE.

5.8.1 SUBGRADE PREPARATION

SUBGRADE AREAS OF FILL EMBANKMENTS SHOULD BE CLEARED OF TREES, LOGS, STUMPS. ROOTS, BRUSH, BOULDERS, SOD, AND RUBBISH PRIOR TO FILL PLACEMENT. THE FOUNDATION AREA SHOULD BE THOROUGHLY SCARIFIED BEFORE PLACEMENT OF FILL TO ALLOW FOR BONDING OF THE FILL TO THE FOUNDATION.

FOR PORTIONS OF THE EMBANKMENT TO BE CONSTRUCTED IN FILL CONDITIONS, NEAR SURFACE SOILS OF STRATA A AND B CAN BE REUSED FOR EMBANKMENT CONSTRUCTION, PROVIDED ALL ORGANICS AND DEBRIS LARGER THAN 3 INCHES IN ITS GREATEST DIMENSION BE REMOVED PRIOR TO REUSE. IF NECESSARY, IMPORTED FILL SHOULD CONSIST OF WELL-GRADED MATERIAL WITH A MAXIMUM PARTICLE SIZE LESS THAN 3 INCHES, NOT MORE THAN 20 PERCENT PASSING THE NO. 200 SIEVE AND HAVE A PLASTICITY INDEX (PI) NOT GREATER THAN 8 PERCENT.

NEW FILLS CONSISTING OF ON-SITE SOIL (STRATA A AND B) OR IMPORTED GRANULAR SOIL SHOULD BE PLACED IN LAYERS NOT EXCEEDING 10 IN. LOOSE MEASURE. THIS CRITERION MIGHT BE ADJUSTED BY THE GEOTECHNICAL ENGINEER IN THE FIELD DEPENDING ON THE CONDITIONS PRESENT AT THE TIME OF CONSTRUCTION, ON THE COMPACTION EQUIPMENT USED, AND ON THE FILL MATERIAL SELECTED. FILL PLACED WITHIN THE EMBANKMENT SHOULD BE COMPACTED TO AT LEAST 98 PERCENT OF THE LABORATORY DETERMINED MAXIMUM DRY DENSITY, ASTM D 698. WHEN SMALL HAND OPERATED COMPACTION EQUIPMENT IS USED AND TO AT LEAST 95 PERCENT OF THE LABORATORY DETERMINED DRY DENSITY, ASTM D 1557, WHEN SELF-PROPELLED,

THE FIELD IS NOT THE ONLY CRITERIA TO BE USED FOR ASSESSING FILL COMPACTION. OBSERVATION OF THE BEHAVIOR OF THE FILL UNDER THE LOADS OF CONSTRUCTION EQUIPMENT SHOULD BE USED. IF THE TEST RESULTS INDICATE THAT THE PERCENTAGE OF COMPACTION IS BEING ACHIEVED, BUT THE SOIL MASS IS MOVING UNDER THE EQUIPMENT, PLACEMENT OF ADDITIONAL FILL SHOULD NOT BE CONTINUED UNTIL THE MOVEMENT IS STABILIZED. OTHERWISE, SETTLEMENT OF THE FILL MAY OCCUR.

5.8.3 CUTOFF TRENCH AND IMPERVIOUS CORE

NRCS -MD CODE NO. 378 POND STANDARDS/SPECIFICATIONS. TO PREVENT HORIZONTAL SEEPAGE THROUGH NEWLY COMPACTED FILL OR STATA A AND B SOILS THAT MAY BE EXPOSED ALONG THE SIDE SLOPES, WE RECOMMEND THAT A COMPACTED CLAY CUTOFF TRENCH AND IMPERVIOUS CORE BE UTILIZED. WE RECOMMEND THAT THE CUTOFF TRENCH BE PROVIDED A MINIMUM OF 4 FEET BELOW THE ENTIRE LENGTH OF THE DAM AND SHOULD BE LOCATED AT OR UPSTREAM FROM THE CENTERLINE OF THE DAM. THE CUTOFF SHOULD HAVE A BOTTOM WIDTH ADEQUATE TO ACCOMMODATE THE EQUIPMENT USED FOR EXCAVATION, BACKFILL, AND COMPACTION OPERATIONS, WITH THE MINIMUM WIDTH BEING 4 FEET AND SIDE SLOPES NO STEEPER THAN ONE HORIZONTAL TO ONE VERTICAL. THE IMPERVIOUS CORE SHOULD BE CONSTRUCTED WITHIN THE EMBANKMENT AT OR UPSTREAM FROM THE CENTERLINE OF THE DAM AND EXTENT UP THE ABUTMENTS TO THE 10-YEAR WATER SURFACE ELEVATION. THE IMPERVIOUS CORE SHOULD EXTEND VERTICALLY FROM THE CUTOFF TRENCH UP TO THE 10-YEAR WATER SURFACE ELEVATION THROUGHOUT THE EMBANKMENT.

THE MATERIALS SHOULD CONSIST OF CLAY COMPACTED TO AT LEAST 98 PERCENT OF THE LABORATORY DETERMINED MAXIMUM DRY DENSITY, ASTM D 698, WHEN SMALL HAND OPERATED COMPACTION EQUIPMENT IS USED AND TO AT LEAST 95 PERCENT OF THE LABORATORY DETERMINED DRY DENSITY, ASTM D 1557, WHEN SELF-PROPELLED, HEAVY DUTY COMPACTION EQUIPMENT IS THE ON-SITE CLAY MATERIAL (STRATUM A) APPEARS BE SUITABLE FOR USE AS A CUTOFF TRENCH AND IMPERVIOUS CORE PROVIDED THAT THE MATERIAL IS WITHIN THE REQUIRED MOISTURE CONTENT RANGE TO ACHIEVE THE SPECIFIED COMPACTION AND HAS A MINIMUM PLASTICITY INDEX OF 6. HOWEVER, CONDITIONING OF THE ON-SITE SOILS MAY BE

FILL LAYERS SHOULD BE PROPERLY ROUGHENED OR SCARIFIED USING A SHEEPSFOOT ROLLER OR SIMILAR EQUIPMENT PRIOR TO THE PLACEMENT OF THE NEXT LIFT OF FILL. ALTHOUGH IT IS DESIRABLE TO SEAL FILL OPERATIONS ON A DAILY BASIS USING A STEEL DRUM OR RUBBER TIRED ROLLER, THESE SURFACES SHOULD BE SCARIFIED THE FOLLOWING DAY PRIOR TO FILL ACTIVITIES TO MINIMIZE THE CREATION OF PLANES OF SEEPAGE WITHIN THE EMBANKMENT

5.8. STORMWATER MANAGEMENT PONDS

WE UNDERSTAND THAT THE PONDS ARE DESIGNED AS DRY PONDS. THE PONDS WILL REQUIRE DESIGN AND CONSTRUCTION IN ACCORDANCE WITH NRCS -MD CODE NO. 378 POND STANDARDS/SPECIFICATIONS.

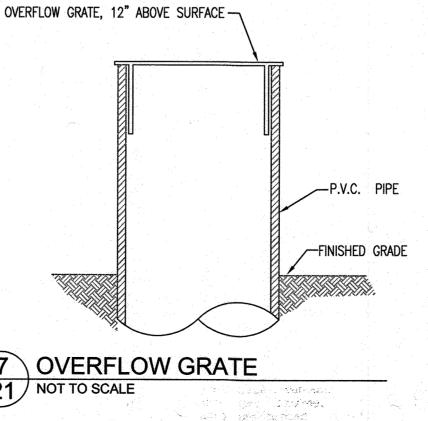
5.8.2 EMBANKMENT

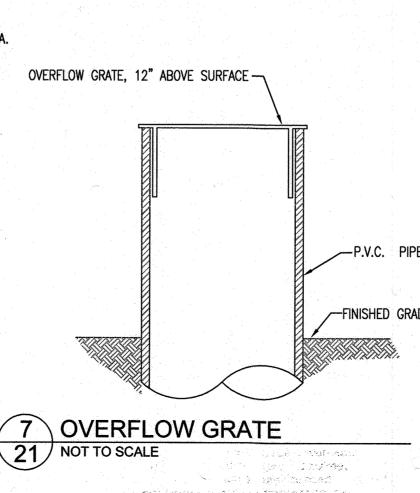
HEAVY DUTY COMPACTION EQUIPMENT IS USED.

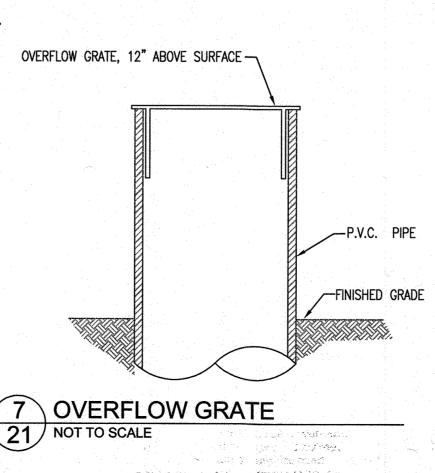
SPECIFICATIONS SHOULD INDICATE THAT THE PERCENTAGE OF MAXIMUM DRY DENSITY ATTAINED IN

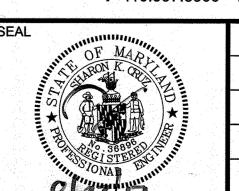
CUTOFF TRENCHES AND IMPERVIOUS CORES SHOULD BE CONSTRUCTED IN ACCORDANCE WITH

PROHIBITIVELY TIME CONSUMING OR COSTLY, WARRANTING IMPORTING OF OFF-SITE CLAY.









DESIGNED BY: PJS DRAWN BY: AGS/JSN/NTD PROJECT NO: DCTI1601 **DATE:** AUGUST 1, 2017 SCALE: AS SHOWN

DRAWING NO. 24 OF 36

ITEA VIRGINICA 'HENRY'S GARNET' CONT. | AS SHOWN HENRY'S GARNET VIRGINIA SWEETSPIRE 209 1 QUART CONT. | 18" ON CENTER **EVERGOLD SEDGE** IRIS VERSICOLOR 'BLUE FLAG' 233 1 QUART CONT. 18" ON CENTER BLUE FLAG IRIS RUDBECKIA LACINIATA 'GOLDQUELLE' 107 ₩ 1 QUART CONT. 18" ON CENTER GOLDQUELLE CONEFLOWER AS-BUILT CERTIFICATION I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELII THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN AND MEET THE APPROVED PLANS AND SPECIFICATIONS EREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL

NGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE O. 21774, EXPIRATION DATE: 11 · 10 · 21

APPROVED : DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION IN

MICRO-BIORETENTION #7 PLANT SCHEDULE

COMMON NAME ARONIA ARBUTIFOLIA 'BRILLIANTISSIMA'

RED CHOKEBERRY FOTHERGILLA GARDENII 'MT. AIRY'

MT. AIRY DWARF FOTHERGILLA

CAREX 'EVERGOLD'

JOE PYE WEED IRIS VERSICOLOR 'BLUE FLAG' 🗸

BLUE FLAG IRIS

GOLDQUELLE CONEFLOWER

SCIENTIFIC/

COMMON NAME ARONIA ARBUTIFOLIA 'BRILLIANTISSIMA'

RED CHOKEBERRY FOTHERGILLA GARDENII 'MT. AIRY'

MT. AIRY DWARF FOTHERGILLA

EUPATORIUM PURPUREUM

RUDBECKIA LACINIATA 'GOLDQUELLE'

MICRO-BIORETENTION #8 PLANT SCHEDULE

HENRY'S GARNET VIRGINIA SWEETSI

243 ✓

258 ✓

213

246

SYMBOL QTY.

ITEA VIRGINICA 'HENRY'S GARNET'

ROOT

CONT.

CONT.

18-24" HT. | CONT. | AS SHOWN

ROOT

CONT.

CONT.

3 GAL.

3 GAL.

1 QUART

1 QUART

1 QUART

1 QUART

3 GAL.

3 GAL.

REMARKS

AS SHOWN

AS SHOWN

CONT. 18" ON CENTER

CONT. 18" ON CENTER

CONT. 18" ON CENTER

CONT. 18" ON CENTER

REMARKS

4.8.17

9-21-17

AS SHOWN

AS SHOWN

ADDITION OF ADJACENT PARCEL, SWM REUISIONS TO MB #3 DATE NO. REVISION BY

DCT INDUSTRIAL DEVELOPER 12011 GUILFORD ROAD SUITE 102 ANNAPOLIS JUNCTION, MD 20701 ATTN: FRED FERRARO PHONE: 410-645-5020

> DCT MEARS LLC 12011 GUILFORD ROAD SUITE 102 ANNAPOLIS JUNCTION, MD 20701 ATTN: FRED FERRARO

PROJECT

TERRAPIN COMMERCE CENTER - BUILDING B

TAX MAP 43, PARCEL 51 LOT PAR B PLAT 23793 ZONED M-2 GRID NO. 11 1st ELECTION DISTRICT 7200 DORSEY RUN ROAD **ELKRIDGE, MARYLAND 21075**

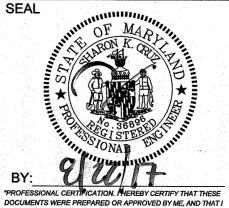
HOWARD COUNTY, MARYLAND

PHONE: 410-645-5020

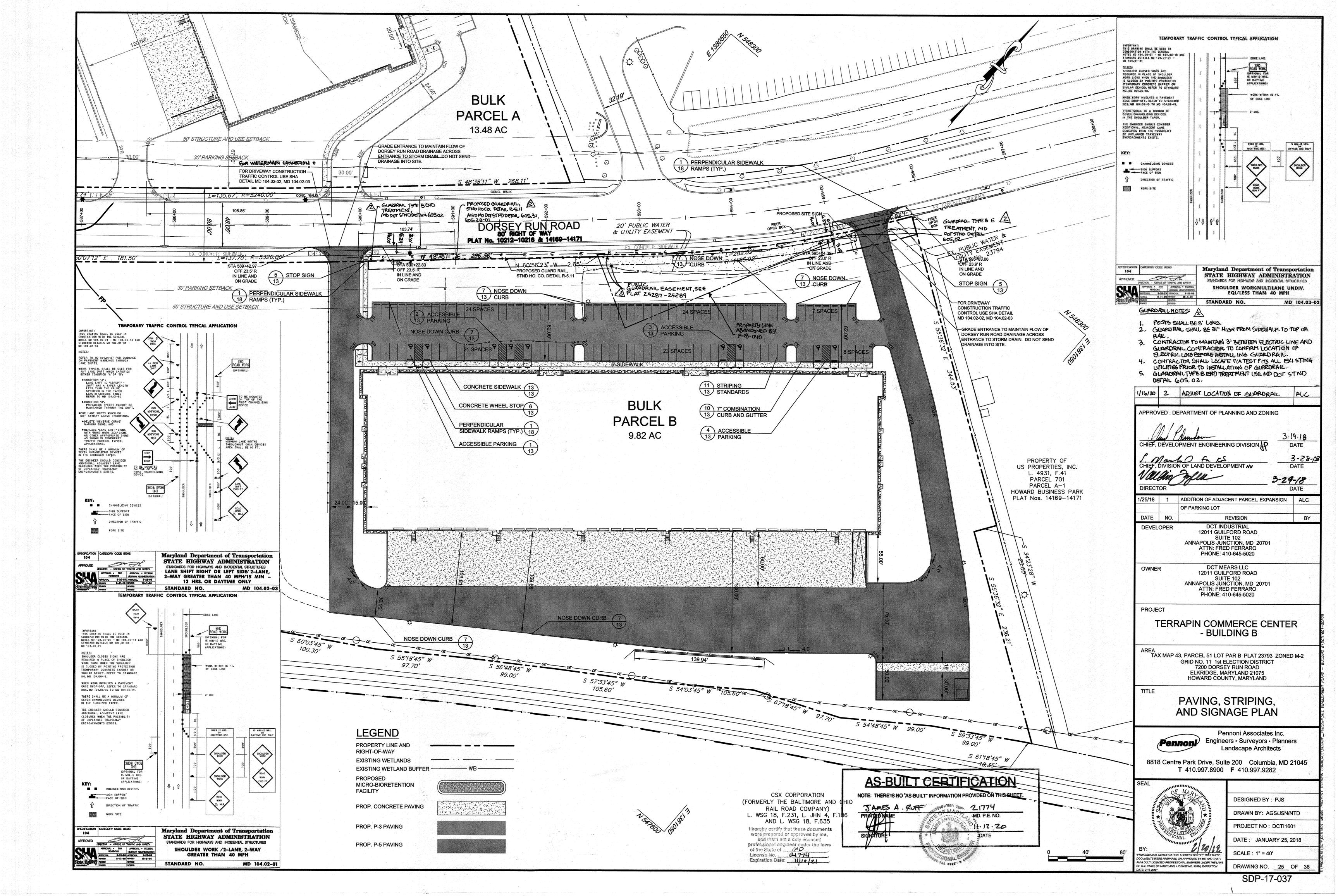
STORMWATER MANAGEMENT DETAILS

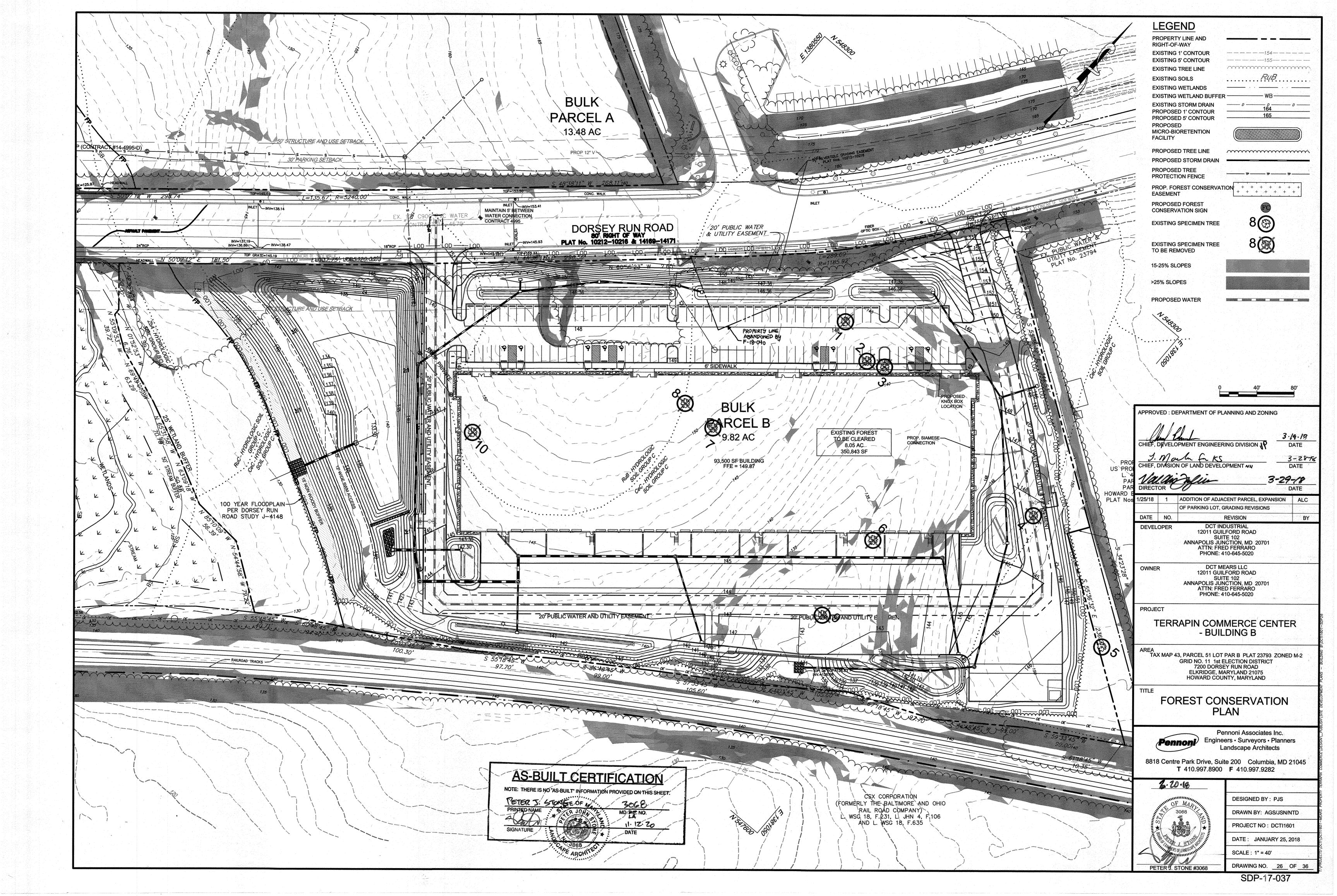
Pennoni Associates Inc. Engineers · Surveyors · Planners **Pennoni** Landscape Architects

8818 Centre Park Drive, Suite 200 Columbia, MD 21045 T 410.997.8900 F 410.997.9282



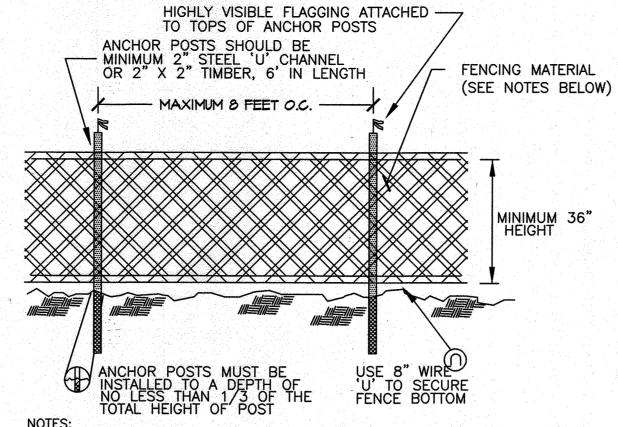
M A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE L





FOREST CONSERVATION PLAN GENERAL NOTES:

- 1. BOUNDARY INFORMATION PROVIDED BY PENNONI ASSOCIATES, DATED FEBRUARY 5, 2016. TOPOGRAPHIC INFORMATION PROVIDED BY RESOURCE MAPPING GROUP, DATED FEBRUARY 2016.
- 2. NO CRITICAL HABITATS OF RARE, THREATENED OR ENDANGERED SPECIES WERE OBSERVED.
- 3. NO TREES, SHRUBS, OR PLANTS IDENTIFIED AS RARE, THREATENED OR ENDANGERED SPECIES WERE OBSERVED.
- 4. THERE ARE NO KNOWN CEMETERIES OR BURIAL PLOTS LOCATED ON THE SITE.
- 5. THERE ARE NO STRUCTURES PRESENT ON THE SITE.
- 6. THE SOILS ON SITE ARE CHILLUM LOAM (5-10% SLOPES) CeC, RUSSET FINE SANDY LOAM (2-5% SLOPES) - RsB, RUSSET AND BELTSVILLE SOILS (2-5% SLOPES) - RuB, RUSSET AND BELTSVILLE SOILS (5-10% SLOPES) - RuC, AND ZEKIAH AND ISSUE SOILS (0-2% SLOPES) - ZbA ACCORDING TO THE NATURAL RESOURCES CONSERVATION SERVICE WEB SOIL SURVEY.
- 7. A FOREST STAND DELINEATION FOR THIS PROPERTY WAS COMPLETED BY PENNONI ASSOCIATES, INC. AND APPROVED ON SEPTEMBER 2, 2016 (SEE FILE # ECP-16-056).
- 8. THE HOWARD COUNTY FOREST CONSERVATION MANUAL SUPERCEDES ANY DISCREPANCIES BETWEEN THE MANUAL AND THESE PLANS.
- 9. THIS PROJECT COMPLIES WITH THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE FOR FOREST CONSERVATION.
- 10. THIS PROJECT COMPLIES WITH THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE FOR FOREST CONSERVATION BY THE PURCHASE OF CREDITS FOR 4.55 ACRES OF FOREST IN AN OFFSITE BANK. THE BANK IS IS KNOWN AS SDP-16-029, AFS FARM AND/OR F-13-070
- 11. THE FOREST CONSERVATION EASEMENT HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE AND FOREST CONSERVATION ACT. NO CLEARING, GRADING, OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT, HOWEVER FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.

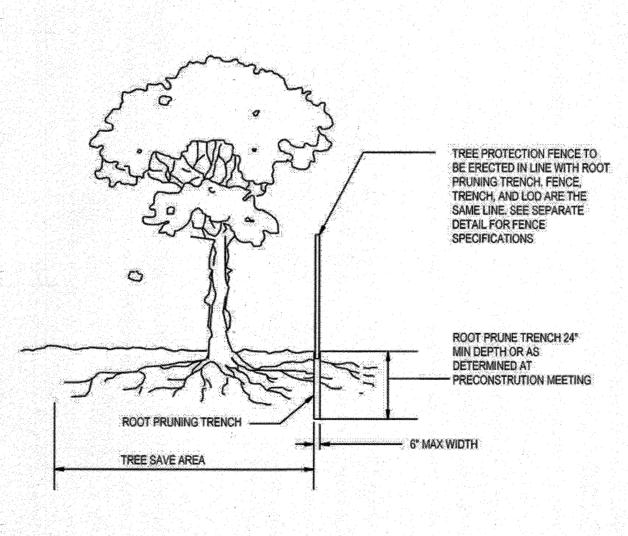


- 1. BLAZE ORANGE MESH OR SUPER SILT FENCE FOR TREE PROTECTION DEVICE, ONLY.
- 2. BOUNDARIES OF PROTECTION AREA WILL BE ESTABLISHED PRIOR TO GRADING AND SEDIMENT CONTROL.
- 3. AVOID DAMAGE TO CRITICAL ROOT ZONE. DO NOT DAMAGE OR SEVER LARGE ROOTS WHEN INSTALLING POSTS.
- 4. FENCING SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.

TREE PROTECTION FENCING NOT TO SCALE

Howard County Forest Conservation Worksheet

Project Name:	TERRAPIN COMMERCE CENTER				
County File #:	SDP-17-037				
Date:	February 16, 2017				
	나는 그를 보고 하는 물다는 그는 그릇을 보니 잘 찾아왔다면 살아보다는 이미 전투다는 이름이 되었다.				
Net Tract A				A	cres
Α.	Total Tract Area	Α	=		9.73
B. "	Existing Floodplain Area	В	=		0.91
C.	Net Tract Area Net Tract Area = (A-B-C)	С	=		8.82
Land Use C	ategory:Industrial Development Area				
D.	Afforestation Threshold (Net Tract Area X _ 15%	D	=		1.32
E.	Conservation Threshold (Net Tract Area X15%	Е	=		1.32
Existing Fo	rest Cover				
F	Existing Forest Cover within the Net Tract Area	F	=		8.92
G.	Area of Forest Above Conservation Threshold	G	=		7.60
	If the Existing Forest Cover (F) is greater than Conservation Threshold (G), then				7.:
	G = Existing Forest Cover (F) - Conservation Threshold (E); Otherwise G = 0				
Break Even	Point Point				
Н.	Break Even (Amount of forest that must be retained so that no mitigation is required)	Н	=		2.84
	(1) If the area of forest above the Conservation Threshold (G) is greater than zero, then				
	H = (0.2 X the area of forest above Conservation Threshold (G)) + the Conservation				
	Threshold (E)				
	(2) If the area of forest above the Conservation Threshold (G) is equal to zero, then				
	H = Existing Forest Cover (F)				
	Forest Clearing Permitted Without Mitigation	1	_		6.08
	I = Existing Forest Cover (F) - Break Even Point (H)				0.00
Proposed E	orest Clearing				
J.	Total Area of Forest to be Cleared				0.00
	Total Area of Forest to be Cleared Total Area of Forest to be Retained	J	=		8.92
⟨ .		K	=	<u> </u>	0.00
	K = Existing Forest Cover (F) - forest to be cleared (J)				
	quirements	wy Wasi			
	rea of Forest to be Cleared (K) is at or above the Breakeven Point (H), no planting is required and	no		1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	
	ations are necessary (L=0, M=0, N=0, P=0);				
f not, calcula	ate the planting requirement below:				
L.	Reforestation for Clearing Above the Conservation Threshold	L	=		1.90
	(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) X 0.25: or				
	(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) X 0.25				
VI.	Reforestation for Clearing Below the Conservation Threshold	М	=		2.65
	(1) if Existing Forest Cover (F) is greater than Conservation Threshold (E) and the				
	forest to be retained (K) is less than or equal to the Conservation Threshold (E), then				
	M = 2.0 X (the Conservation Threshold (E) - the forest to be retained (K))		í		
	(2) If Existing Forest (F) is less than or equal to the Conservation Threshold (E), then				
	M = 2.0 X Forest to be cleared (J).				
٧.	Credit for Retention Above the Conservation Threshold	N.I			0.00
٧.		N	=		0.00
	If the area of forest to be retained (K) is greater than the Conservation Threshold (E),				
_	then N = K - E	٠			
)	Total Reforestation Required P = L + M - N	Р	=		4.55
Q .	Total Afforestation Required	Q	=		0.00
	(1) If Existing Forest Cover (F) is less than the Afforestation Threshold (D) then				
	Q = the Afforestation Threshold (D) - the Existing Forest Cover (F)				
₹.	Total Planting Requirement R = P + Q	R	. =		4.55



1. RETENTION AREAS WILL BE SET AS PART OF THE REVIEW PROCESS AND PRECONSTRUCTION

2. BOUNDARIES OF RETENTION AREAS MUST BE STAKED AT THE PRECONSTRUCTION MEETING AND FLAGGED PRIOR TO TRENCHING.

3. EXACT LOCATION OF TRENCH SHALL BE DETERMINED IN THE FIELD IN COORDINATION WITH THE FOREST CONSERVATION (FC) INPECTOR.

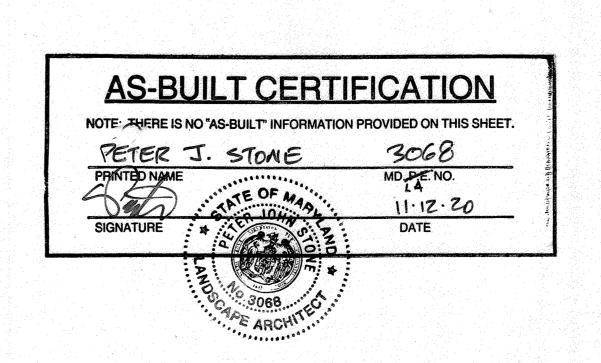
4. TRENCH SHOULD BE IMMEDIATELY BACKFILLED WITH EXCAVATED SOIL OR OTHER ORGANIC SOIL AS SPECIFIED PER PLAN OR BY THE FC INSPECTOR.

5. ROOTS SHALL BE CLEANLY CUT USING VIBRATORY KNIFE OR OTHER ACCEPTABLE EQUIPMENT.

6. ALL PRUNING MUST BE EXECUTED WITH LOD SHOWN ON PLANS OR AS AUTHORIZED IN WRITING BY THE FC INSPECTOR.

ROOT PRUNING DETAIL

KEY	SPECIES	SIZE	CONDITION	REMAIN/REMOVE
1	TULIP POPLAR (Liriodendron tulipifera)	31"	GOOD	REMOVE
2	TULIP POPLAR (Liriodendron tulipifera)	35"	GOOD	REMOVE
3	TULIP POPLAR (Liriodendron tulipifera)	35"	GOOD	REMOVE
4	NORTHERN RED OAK (Quercus rubra)	36"	GOOD	REMOVE
5	LOBLOLLY PINE (Pinus taeda)	33"	GOOD	REMAIN
6	TULIP POPLAR (Liriodendron tulipifera)	46"	GOOD	REMOVE
7	LOBLOLLY PINE (Pinus taeda)	31"	GOOD	REMOVE
8	LOBLOLLY PINE (Pinus taeda)	35"	GOOD	REMOVE
9	TULIP POPLAR (Liriodendron tulipifera)	32"	GOOD	REMOVE
10	NORTHERN RED OAK (Quercus rubra)	36"	DEAD	REMOVE



CHIEF, DEVELOPMENT ENGINEERING DIVISION CHIEF, DIVISION OF LAND DEVELOPMENT DATE NO. REVISION DCT INDUSTRIAL 12011 GUILFORD ROAD DEVELOPER SUITE 102 ANNAPOLIS JUNCTION, MD 20701 ATTN: FRED FERRARO PHONE: 410-645-5020 DCT MEARS LLC 12011 GUILFORD ROAD **OWNER** SUITE 102 ANNAPOLIS JUNCTION, MD 20701 ATTN: FRED FERRARO PHONE: 410-645-5020 **PROJECT** TERRAPIN COMMERCE CENTER - BUILDING B AREA
TAX MAP 43, PARCEL 51 LOT PAR B PLAT 23793 ZONED M-2
GRID NO. 11 1st ELECTION DISTRICT
7200 DORSEY RUN ROAD
ELKRIDGE, MARYLAND 21075
HOWARD COUNTY, MARYLAND FOREST CONSERVATION

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Engineers • Surveyors • Planners
Landscape Architects 8818 Centre Park Drive, Suite 200 Columbia, MD 21045 T 410.997.8900 F 410.997.9282

Pennoni Associates Inc.

NOTES AND TABULATIONS



DESIGNED BY : PJS DRAWN BY: AGS/JSN/NTD PROJECT NO: DCTI1601

DATE: AUGUST 1, 2017

9-21-17

SCALE: AS SHOWN DRAWING NO. <u>27</u> OF <u>36</u>

SDP-17-037

