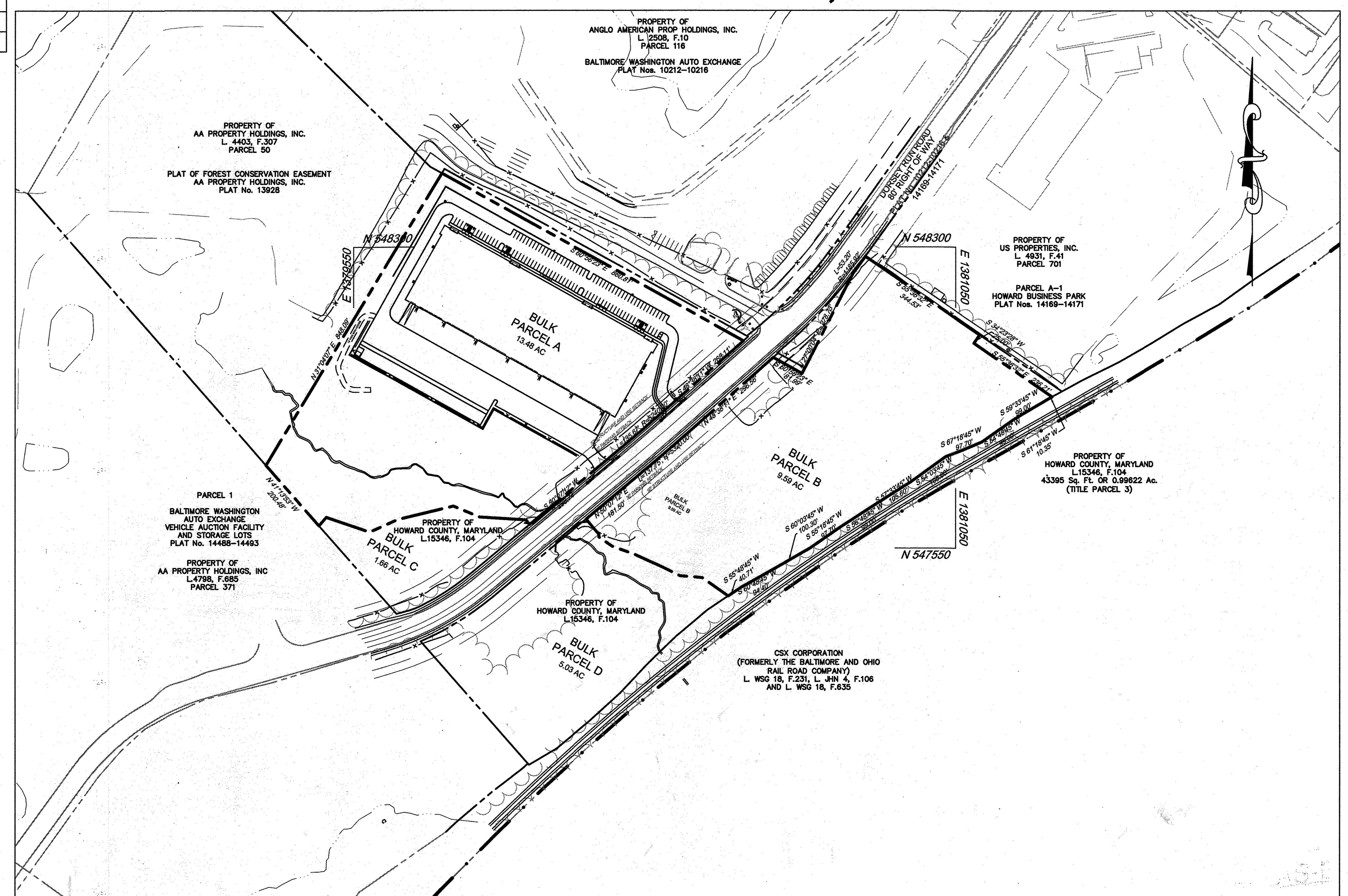
SHEET INDEX

SITE DEVELOPMENT PLAN
TERRAPIN COMMERCE CENTER - BUILDING A
DORSEY RUN ROAD
1ST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND



LOCATION PLAN
SCALE: 1" = 200'

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.
9. 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.
10. THE FLOODPLAIN SHOWN IS FROM A FLOODPLAIN STUDY PERFORMED FOR CAPITAL PROJECT J 4148.
11. 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 COUNTY ZONING REGULATIONS. LIGHT TRESPASS 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, 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 AS ESSENTIAL DISTURBANCE AND APPROVED BY HOWARD COUNTY AND MDE. ESSENTIAL DISTURBANCES FOR THIS PROJECT INCLUDE THE TEMPORARY DISTURBANCE OF APPROXIMATELY 5,950 FOR THE CONNECTION OF SEWER TO AN EXISTING SEWER MAIN. ADDITIONALLY THE PROJECT WILL ENTAIL THE CROSSING BENEATH A STREAM, FLOODPLAIN, AND WETLAND SYSTEM WITH A SEWER MAIN VIA JACK AND BORE CONSTRUCTION. NO IMPACTS TO THE STREAM, FLOODPLAIN, AND WETLANDS ARE PROPOSED AS THIS CONSTRUCTION WILL PASS UNDERNEATH THE STREAM AND ALL DISTURBANCE WILL BE LOCATED OUTSIDE OF THE FLOODPLAIN LIMITS.
20. FOREST CONSERVATION FOR THIS PROJECT HAS BEEN PROVIDED THROUGH THE RETENTION OF 2.67 ACRES OF ON-SITE FOREST AND THE PURCHASE OF CREDITS FOR 2.23 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 III. 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.
21. 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 43 SHADE TREES AND 16 EVERGREEN TREES HAVE BEEN PROVIDED UNDER THIS PLAN. A FINANCIAL SURETY IN THE AMOUNT OF $15,300 MUST BE POSTED WITH THE DEVELOPER AGREEMENT FOR THIS PROJECT.
22. STORMWATER MANAGEMENT FOR THIS PROJECT WILL BE PROVIDED BY THREE (3) MICRO-BIORETENTION FACILITIES, A GRASS SWALE, A SUBMERGED GRAVEL WETLAND, A DRY EXTENDED DETENTION POND, AND AN UNDERGROUND SWM FACILITY. SWM FACILITIES WILL HANDLE 10 AND 100 YEAR STORM EVENTS. ALL SWM DEVICES WILL BE PRIVATELY OWNED AND MAINTAINED.
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 DRAWINGS.
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. 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 FOLLOWING SHALL APPLY:
   A) MAXIMUM SIDEWALK CROSS SLOPES SHALL BE 2%,
   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 POINTS
   C) ALL HANDICAPPED PARKING SHALL BE SLOPED NO GREATER THAN 2% IN ANY DIRECTION, INCLUDING A 5' WIDE AREA BEHIND THE PARKING SPACES.
   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.
34. 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 COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE SITE DEVELOPMENT PLAN, WAIVER PETITION APPLICATION OR BUILDING/GRADING PERMIT APPLICATIONS.
35. THE FOLLOWING DESIGN MANUAL WAIVERS HAVE BEEN APPROVED FOR THIS PROJECT:

   CONSTRUCTION OF A RETAINING WALL IN FILL – WAIVER FROM SECTION 3.4.A.2.a OF THE HOWARD COUNTY DESIGN MANUAL VOLUME III, APPROVED ON FEBRUARY 16, 2017

   USE OF ALTERNATE INSTALLATION TECHNOLOGY FOR SEWER MAIN INSTALLATION – SECTION 5.14 OF THE HOWARD COUNTY DESIGN MANUAL VOLUME II, APPROVED ON FEBRUARY 23, 2017

   USE OF STOPPING SIGHT DISTANCE IN LIEU OF INTERSECTION SIGHT DISTANCE – SECTION 2.5.9 OF THE HOWARD COUNTY DESIGN MANUAL VOLUME III, APPROVED ON MAY 26, 2017.

   REDUCTION OF INTERSECTION SPACING – SECTION 2.6.D OF THE HOWARD COUNTY DESIGN MANUAL VOLUME III, APPROVED ON MAY 26, 2017. INTERSECTION SPACING WAS REDUCED FROM 250' TO 198'.
36. A PERMIT HAS BEEN ISSUED BY THE ARMY CORPS OF ENGINEERS (PERMIT # 2016-62029-M39) AND THE MARYLAND DEPARTMENT OF THE ENVIRONMENT (PERMIT # 201662029/16-NT-3361) FOR DISTURBANCE IN THE FLOODPLAIN ASSOICATED WTIH THE SEWER MAIN EXTENSION.

SITE ANALYSIS DATA

AREA OF SITE:	13.48 ACRES (587,102 SF)
LIMIT OF DISTURBANCE:	11.26 ACRES (490,340 SF)
PRESENT ZONING:	M-2 (INDUSTRIAL)
EXISTING USE:	VACANT, WOODED LOT
PROPOSED USE:	WAREHOUSE
EXISTING FLOOR AREA:	0 SF
PROPOSED FLOOR AREA:	±126,000 SF
MAXIMUM # OF EMPLOYEES:	UNKNOWN AT THIS TIME
PARKING REQUIRED:	95 SPACES (0.75 SPACES/1,000 SF)
PARKING PROPOSED:	~~108~~ 113 SPACES
AREA OF WETLANDS:	2.39 ACRES (104,236 SF)
AREA OF WETLAND BUFFERS:	0.76 ACRES (33,197 SF)
AREA OF FLOODPLAIN:	0.58 ACRES (25,229 SF)
EXISTING FOREST AREA:	12.70 ACRES (553,041 SF)
AREA OF FOREST WITHIN LOD:	10.80 ACRES (470,485 SF)
AREA OF STEEP SLOPES:	
15%-25%:	±0.00 ACRES (±00,000 SF)
25%+:	±0.00 ACRES (±00,000 SF)
AREA OF ERODIBLE SOILS:	±0.00 ACRES (±0 SF)
IMPERVIOUS AREA:	
EXISTING:	±0.00 SF
PROPOSED:	±280,860 SF

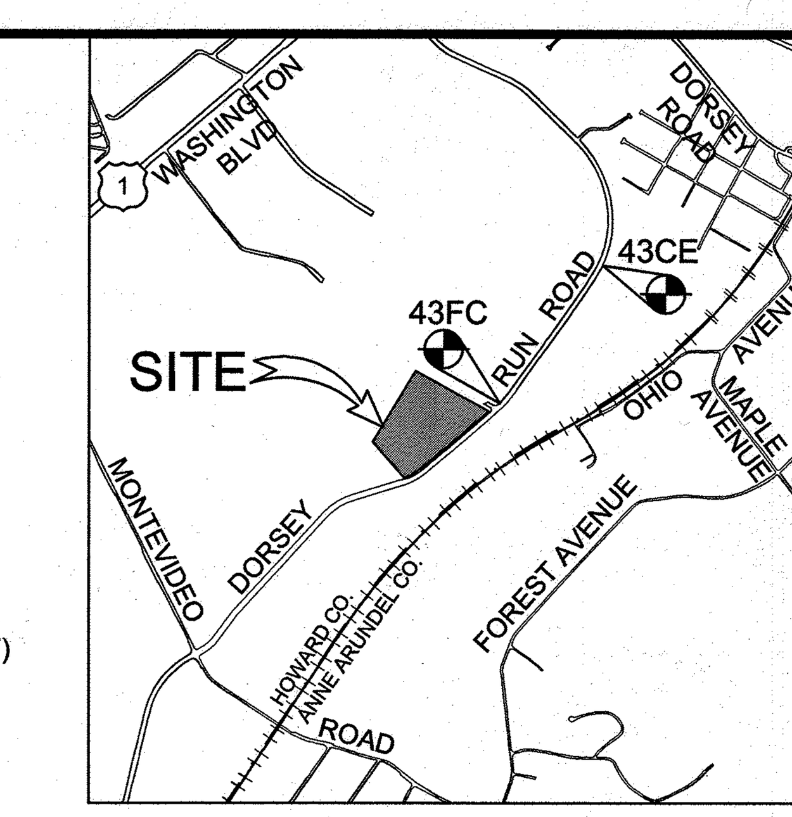
ZONE M-2 SETBACKS:

FROM EXTERNAL PUBLIC STREET RIGHT-OF-WAY: 50 FEET
PARKING USES FROM EXTERNAL PUBLIC STREET RIGHT-OF-WAY: 30 FEET
FROM INTERNAL PUBLIC STREET RIGHT-OF-WAY: 50 FEET
PARKING USES FROM INTERNAL PUBLIC STREET RIGHT-OF-WAY: 10 FEET
FROM ANY RESIDENTIAL DISTRICT: 150 FEET
FROM RESIDENTIAL USES IN A CAC OR TOD DISTRICT: 100 FEET

ZONE M-2 BUILDING HEIGHT:

STRUCTURE WITH MINIMUM SETBACK: 50 FEET
STRUCTURE WITH AN ADDITIONAL 1 FOOT IN HEIGHT FOR EVERY 2 FEET OF SETBACK ABOVE THE MINIMUM: 100 FEET

BUILDING HEIGHT PROPOSED: 38'



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 DORSEY RUN ROAD.

HOWARD COUNTY SURVEY CONTROL: 43FC
ELEVATION 157.933
N 548,199.445 E 1,380,681.244
LOCATION IS 3.1' FROM FACE OF CURB ALONG DORSEY RUN ROAD.

APPROVED : DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9.21.17
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9.27.17
DIRECTOR	DATE 10.2.17

DATE	NO.	REVISION	BY
10/20/23	3	Parking Lot Improvements	BH

DEVELOPER
DCT INDUSTRIAL
12011 GUILFORD ROAD
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

PROJECT
TERRAPIN COMMERCE CENTER

AREA
TAX MAP 43, PARCEL 51 LOT PAR A 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

AS-BUILT CERTIFICATION
... CERTIFY BY MY SEAL, THAT THE FACILITY SHOWN ON THIS PLANS WERE ... TED AS SHOWN ON THE "AS-BUILT" PLANS MEETS THE APPROVED ... AND SPECIFICATIONS.

Sharon K. Cruz — PRINTED NAME — 36896 — MD. P.E. NO.
SIGNATURE — 7/2/19 — DATE

0 200' 400'

ADDRESS CHART

PARCEL NUMBER	STREET ADDRESS
51	7200 DORSEY RUN ROAD

SUBDIVISION NAME			SECT./AREA		PARCEL
PARCEL 'A'			-		BUILDABLE BULK PARCEL 'A'
PLAT NO. OR L/F	GRID #	ZONING	TAX MAP NO.	ELECT. DIST.	CENSUS TRACT
24363 - 24366	11	M-2	43	1	601203

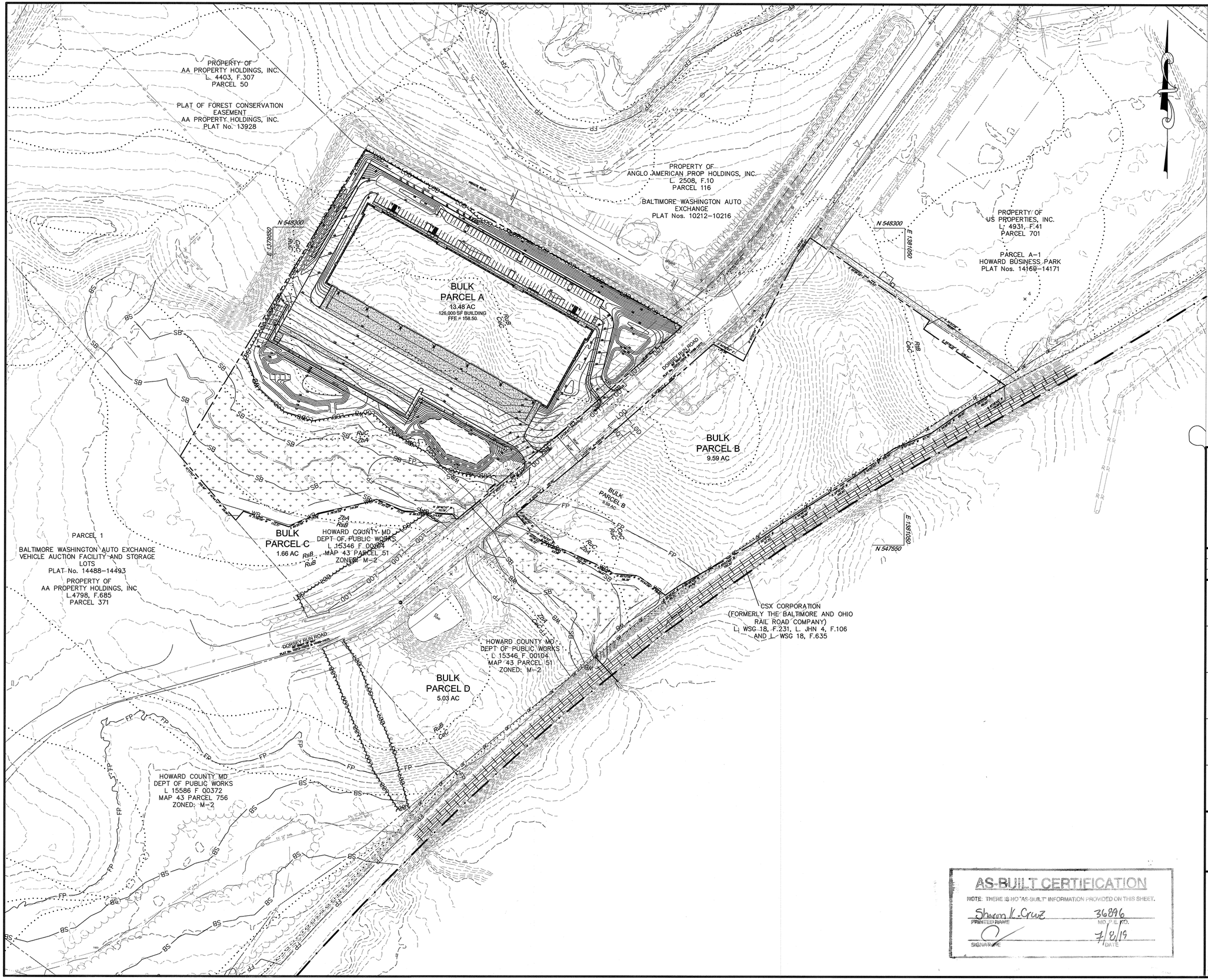
SEAL

BY: 9/22/17

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36896, EXPIRATION DATE: 2-15-2019"

DESIGNED BY :	PJS
DRAWN BY:	AGS/JSN
PROJECT NO :	DCTI1601
DATE :	JUNE 23, 2017
SCALE :	1" = 200'
DRAWING NO.	1 OF 43

T:\PROJECTS\DCTI\DCTI1601—MEARS PROPERTY TERRAPIN COMMERCE\DESIGN_PUBLISH\SITE DEVELOPMENT PLANS — BUILDING A\DCTI1601—SDP01



LEGEND

- PROPERTY LINE AND RIGHT-OF-WAY
- EXISTING BUILDING
- EXISTING 1' CONTOUR — 154
- EXISTING 5' CONTOUR — 155
- EXISTING TREE LINE
- EXISTING SOILS — RuB
- EXISTING WATER — W
- EXISTING SEWER — S
- EXISTING OVERHEAD ELECTRICAL — OE
- EXISTING UNDERGROUND ELECTRICAL — UE
- EXISTING STORM DRAIN — D
- EXISTING STREAM
- EXISTING FLOODPLAIN — FP
- EXISTING WETLANDS
- EXISTING WETLAND BUFFER — WB
- PROPOSED 1' CONTOUR — 164
- PROPOSED 5' CONTOUR — 165
- PROP. CONCRETE SIDEWALK

GRAPHIC SCALE 1"=100'
50' 0' 100' 200'

APPROVED : DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9.21.17

CHIEF, DIVISION OF LAND DEVELOPMENT AW — DATE 9.27.17

DIRECTOR — DATE 10-2-17

DATE	NO.	REVISION	BY

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TITLE
OVERALL PLAN

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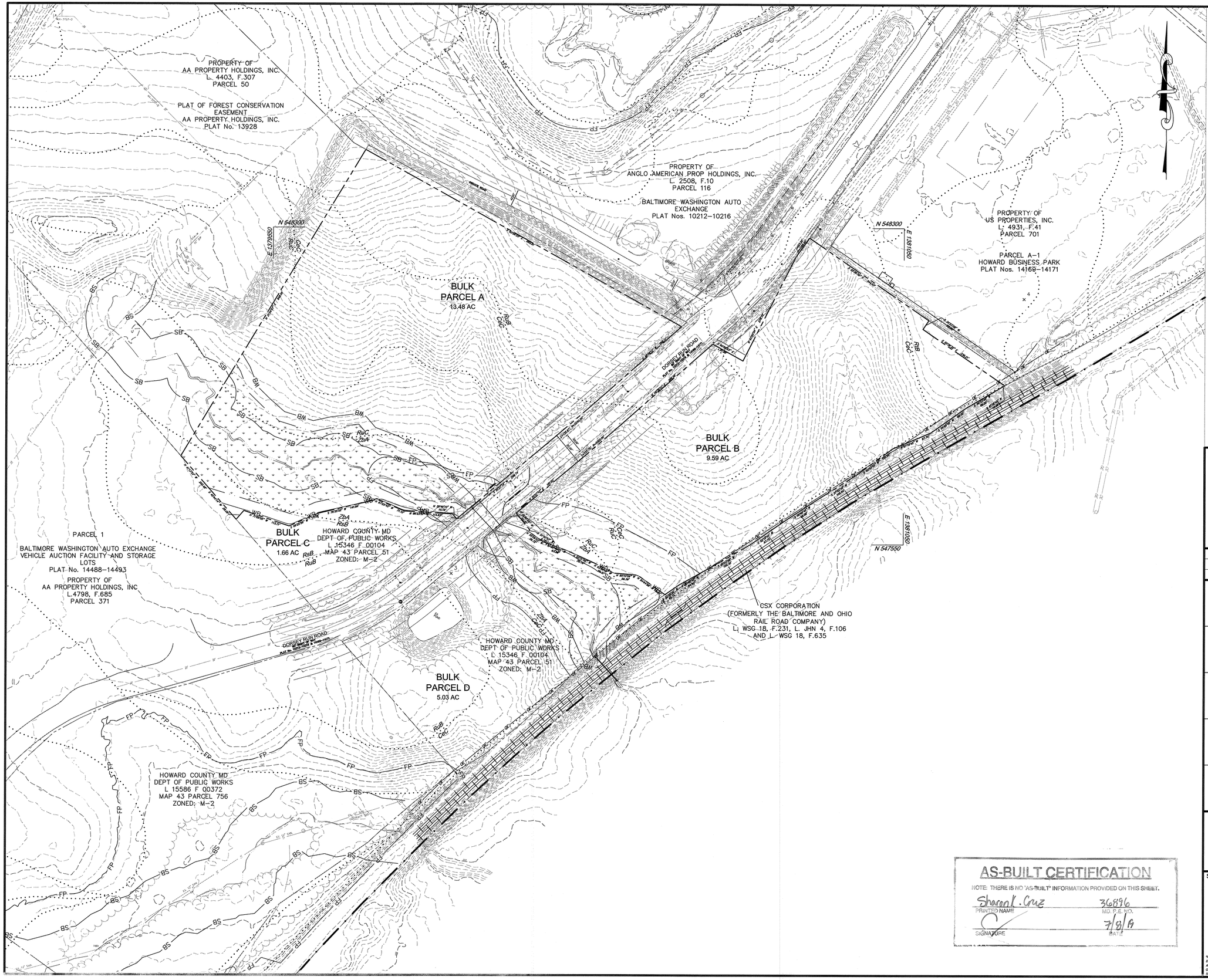
AS-BUILT CERTIFICATION
NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.
Sharon K. Cruz — PRINTED NAME
SIGNATURE
36896 — MD P.E. NO.
7/8/19 — DATE

SEAL
STATE OF MARYLAND
SHARON K. CRUZ
No. 36896
REGISTERED
PROFESSIONAL ENGINEER
BY: 9/22/17

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36896, EXPIRATION DATE: 2-15-2019"

DESIGNED BY :	PJS
DRAWN BY:	AGS/JSN
PROJECT NO :	DCTI1601
DATE :	JUNE 23, 2017
SCALE :	1" = 100'
DRAWING NO.	2 OF 43

SDP-17-030



LEGEND

- PROPERTY LINE AND RIGHT-OF-WAY
- EXISTING BUILDING
- EXISTING 1' CONTOUR — 154 —
- EXISTING 5' CONTOUR — 155 —
- EXISTING TREE LINE
- EXISTING SOILS — RuB
- EXISTING WATER — W — W — W —
- EXISTING SEWER — S — S — S — S — S —
- EXISTING OVERHEAD ELECTRICAL — OE — OE — OE —
- EXISTING UNDERGROUND ELECTRICAL — UE — UE — UE —
- EXISTING STORM DRAIN — D — D — D —
- EXISTING STREAM
- EXISTING STREAM BUFFER — SB —
- EXISTING FLOODPLAIN — FP —
- EXISTING WETLANDS
- EXISTING WETLAND BUFFER — WB —
- EXISTING RAILROAD TRACKS

GRAPHIC SCALE 1"=100'

50' 0' 100' 200'

APPROVED : DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	9.21.17 DATE
CHIEF, DIVISION OF LAND DEVELOPMENT	9.27.17 DATE
DIRECTOR	10.2.17 DATE

DATE	NO.	REVISION	BY

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ANNAPOLIS JUNCTION, MD 20701
ATTN: FRED FERRARO
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7200 DORSEY RUN ROAD
ELKRIDGE, MARYLAND 21075
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TITLE

EXISTING CONDITIONS PLAN

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AS-BUILT CERTIFICATION

NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.

Sharon K. Cruz — PRINTED NAME
36896 — MD. P.E. NO.
SIGNATURE
7/2/18 — DATE

SEAL

STATE OF MARYLAND
SHARON K. CRUZ
36896
REGISTERED
PROFESSIONAL ENGINEER

BY: 9/28/17

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36896, EXPIRATION DATE 7-15-2019"

DESIGNED BY :	PJS
DRAWN BY:	AGS/JSN
PROJECT NO :	DCTI1601
DATE :	JUNE 23, 2017
SCALE :	1" = 100'
DRAWING NO.	3 OF 43

SDP-17-030

Schedule

Symbol	Label	Quantity	Manufacturer	Catalog Number	Description	Number Lamps	Filename	Lumens Per Lamp	Light Loss Factor	Wattage
	B	20	Visionaire Lighting LLC	VLX-1-T4-96LC-7-4K-UNV	38 in. L x 17 in. W x 10 in. H	1	VLX_1_T4_96LC_7_4K.IES	23484	0.9	215
	C	4	Visionaire Lighting LLC	VLX-1-T4-96LC-5-4K-UNV	38 in. L x 17 in. W x 10 in. H	1	VLX_1_T4_96LC_5_4K.IES	18632	0.9	159

SIGN LEGEND

- PROPOSED SIGN
- PROPOSED SPEED BUMP
- PROPOSED CROSSWALK
- PROPOSED CONCRETE
- PROPOSED PARKING COUNT

ZONING INFORMATION

LOCATION: ELKRIDGE, HOWARD COUNTY, MARYLAND
ZONE: MANUFACTURING: HEAVY (M-2)
EXISTING/PROPOSED USE: MANUFACTURING, WAREHOUSING, INDUSTRIAL, BUSINESS (PERMITTED USE)
EXISTING PARKING SPACES: 109
PROPOSED PARKING SPACES: 120

REVISION 2

BL Companies
1100 First Avenue, Ste 104
King of Prussia, PA 19406
(610) 337-3630
(610) 337-3642 Fax

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the state of Maryland, license no. 26920, expiration date: July 16, 2021.

Redline Plan Purpose:
1. Modify sections of two (2) trailer aprons to eliminate excess cross-slope adjacent to drive aisle.
2. Revised canopy dimensions.

REVISION 3

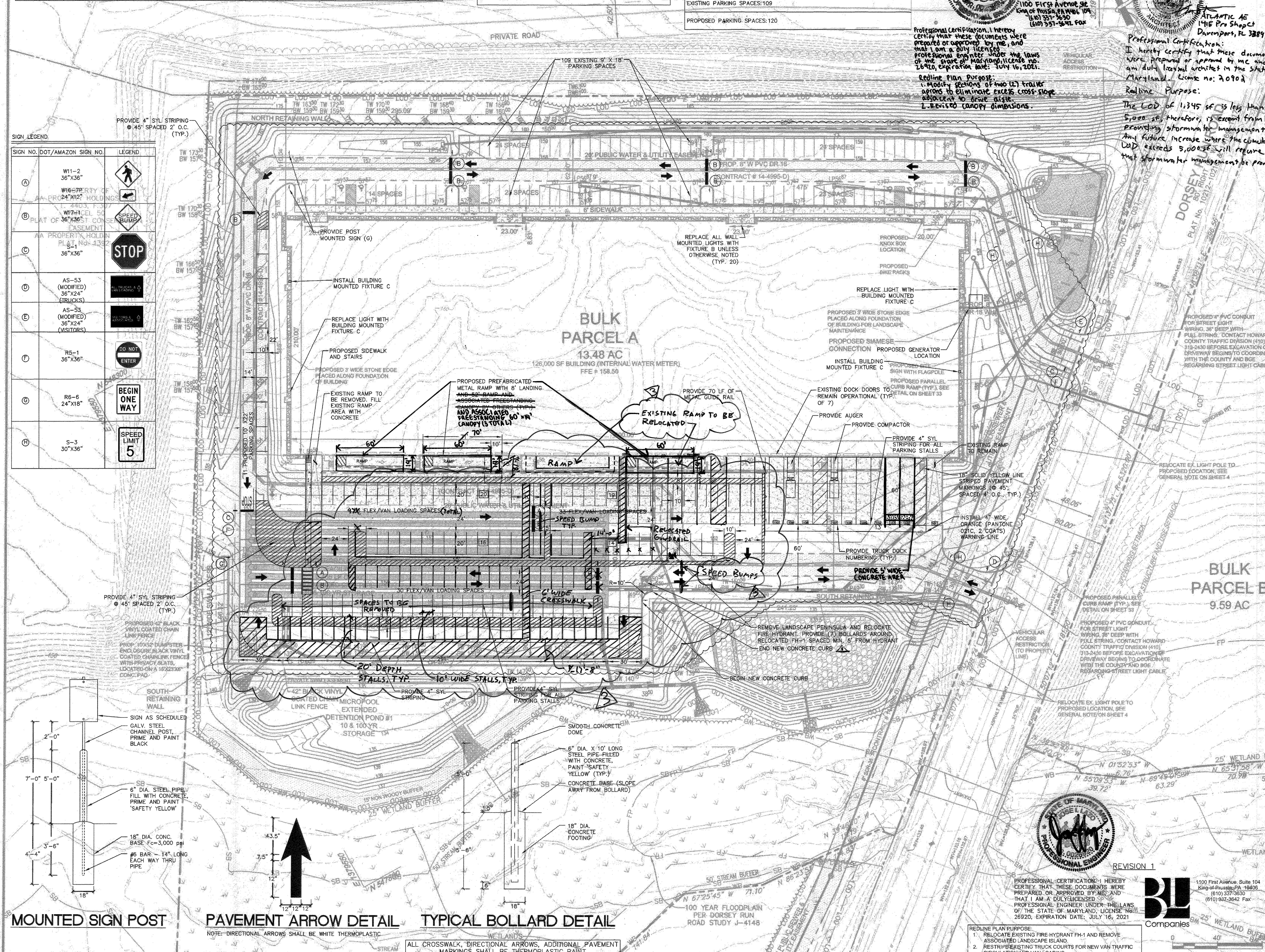
Atlantic AE
1415 Pro Shop Ct
Davenport, FL 33896

Professional Certification: I hereby certify that these documents were prepared or approved by me and I am duly licensed architect in the State of Maryland. License no: 20902

Redline Purpose:
The LOD of 1,345 sf is less than 5,000 sf, therefore, is exempt from providing stormwater management. Any future increase where the cumulative LOD exceeds 5,000 sf will require that stormwater management be provided.

SIGN LEGEND

SIGN NO.	DOT/AMAZON SIGN NO.	LEGEND
A	W11-2 36"x36"	
	W16-7P 24"x12"	
B	W17-1 36"x36"	SPEED BUMP
C	S-1 36"x36"	STOP
D	AS-53 (MODIFIED) 36"x24" (TRUCKS)	
E	AS-53 (MODIFIED) 36"x24" (VISITORS)	
F	R5-1 36"x36"	DO NOT ENTER
G	R6-6 24"x18"	BEGIN ONE WAY
H	S-3 30"x36"	SPEED LIMIT 5



PRIVATE ROAD
109 EXISTING 9' X 18' PARKING SPACES
PROVIDE 4" SYL STRIPING @ 45° SPACED 2' O.C. (TYP.)
NORTH RETAINING WALL
24 SPACES
20' PUBLIC WATER & UTILITY EASEMENT
PROP. 8" W PVC DR 18
CONTRACT # 14-4995-D
14 SPACES
23 SPACES
6' SIDEWALK
PROVIDE POST MOUNTED SIGN (G)
REPLACE ALL WALL MOUNTED LIGHTS WITH FIXTURE B UNLESS OTHERWISE NOTED (TYP. 20)
INSTALL BUILDING MOUNTED FIXTURE C
REPLACE LIGHT WITH BUILDING MOUNTED FIXTURE C
PROPOSED SIDEWALK AND STAIRS
BULK PARCEL A
13.48 AC
126,000 SF BUILDING (INTERNAL WATER METER)
FFE = 158.50
PROPOSED KNOX BOX LOCATION
PROPOSED BIKE RACKS
PROPOSED 3' WIDE STONE EDGE PLACED ALONG FOUNDATION OF BUILDING FOR LANDSCAPE MAINTENANCE
PROPOSED SIAMESE CONNECTION
PROPOSED GENERATOR LOCATION
INSTALL BUILDING MOUNTED FIXTURE C
PROPOSED PREFABRICATED METAL RAMP WITH 8' LANDING
AND ASSOCIATED FREESTANDING 60' x 14' CANOPY (3 TOTAL)
EXISTING RAMP TO BE REMOVED. FILL EXISTING RAMP AREA WITH CONCRETE
PROVIDE 70 LF OF METAL GUIDE RAIL
EXISTING RAMP TO BE RELOCATED
EXISTING DOCK DOORS TO REMAIN OPERATIONAL (TYP OF 7)
PROVIDE AUGER
PROVIDE COMPACTOR
PROVIDE 4" SYL STRIPING FOR ALL PARKING STALLS
EXISTING RAMP TO REMAIN
18" SOLID YELLOW LINE STRIPED PAVEMENT MARKINGS @ 45° SPACED 4' O.C., TYP.)
INSTALL 4" WIDE, ORANGE (PANTONE 021C, 2 COATS) WARNING LINE
97 FLEX/VAN LOADING SPACES (TOTAL)
33 FLEX/VAN LOADING SPACES
SPEED BUMP TYP
Relocated Guardrail
SPEED BUMPS
PROVIDE TRUCK DOCK NUMBERING (TYP.)
PROVIDE 5' WIDE CONCRETE AREA
30 FLEX/VAN LOADING SPACES
6' WIDE CROSSWALK
SPACES TO BE REMOVED
SOUTH RETAINING WALL
REMOVE LANDSCAPE PENINSULA AND RELOCATE FIRE HYDRANT. PROVIDE (7) BOLLARDS AROUND RELOCATED FH-1 SPACED MIN. 5' FROM HYDRANT
END NEW CONCRETE CURB
BEGIN NEW CONCRETE CURB
20' DEPTH STALLS, TYP
10' WIDE STALLS, TYP
PROVIDE 4" SYL STRIPING FOR ALL PARKING STALLS
MICROPOOL EXTENDED DETENTION POND #1 10 & 100 YR STORAGE
42" BLACK VINYL COATED CHAIN LINK FENCE
BULK PARCEL B
9.59 AC
DORSEY RUN ROAD
RELOCATE EX. LIGHT POLE TO PROPOSED LOCATION, SEE GENERAL NOTE ON SHEET 4
100 YEAR FLOODPLAIN PER DORSEY RUN ROAD STUDY J-4148
50' STREAM BUFFER
25' WETLAND BUFFER
SIGN AS SCHEDULED
GALV. STEEL CHANNEL POST, PRIME AND PAINT BLACK
6" DIA. STEEL PIPE FILL WITH CONCRETE, PRIME AND PAINT 'SAFETY YELLOW'
18" DIA. CONC. BASE Fc=3,000 psi
#5 BAR - 14" LONG EACH WAY THRU PIPE
SMOOTH CONCRETE DOME
6" DIA. X 10' LONG STEEL PIPE FILLED WITH CONCRETE, PAINT 'SAFETY YELLOW' (TYP.)
CONCRETE BASE (SLOPE AWAY FROM BOLLARD)
18" DIA. CONCRETE FOOTING

MOUNTED SIGN POST

PAVEMENT ARROW DETAIL

NOTE: DIRECTIONAL ARROWS SHALL BE WHITE THERMOPLASTIC

TYPICAL BOLLARD DETAIL

ALL CROSSWALK, DIRECTIONAL ARROWS, ADDITIONAL PAVEMENT MARKINGS SHALL BE THERMOPLASTIC PAINT

REVISION 1

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE No. 26920, EXPIRATION DATE: JULY 16, 2021

BL Companies
1100 First Avenue, Suite 104
King of Prussia, PA 19406
(610) 337-3630
(610) 337-3642 Fax

REDLINE PLAN PURPOSE:
1. RELOCATE EXISTING FIRE HYDRANT FH-1 AND REMOVE ASSOCIATED LANDSCAPE ISLAND.
2. RESTRIPE EXISTING TRUCK COURTS FOR NEW VAN TRAFFIC CIRCULATION AND VAN LOADING

LEGEND

- PROPERTY LINE AND RIGHT-OF-WAY
- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR
- EXISTING TREE LINE
- EXISTING SOILS
- EXISTING WATER
- EXISTING SEWER
- EXISTING OVERHEAD ELECTRICAL
- EXISTING UNDERGROUND ELECTRICAL
- EXISTING STORM DRAIN
- EXISTING STREAM
- EXISTING FLOODPLAIN
- EXISTING WETLANDS
- EXISTING WETLAND BUFFER
- PROPOSED MICRO-BIORETENTION FACILITY
- PROPOSED STORM DRAIN
- PROPOSED WATER
- PROPOSED SEWER
- PROP. CONCRETE SIDEWALK
- PROPOSED TREE LINE

GENERAL NOTE

1. HOWARD COUNTY WILL RELOCATE THE EXISTING STREET LIGHTS. CONTACT THE HOWARD COUNTY TRAFFIC DIVISION AT 410-313-2430 TO COORDINATE RELOCATIONS AND INSTALLATION OF STREET LIGHT CONDUITS.
2. REFER TO SHEET 29 FOR TRAFFIC CONTROL DETAILS.

APPROVED : DEPARTMENT OF PLANNING AND ZONING

CHEIF, DEVELOPMENT ENGINEERING DIVISION JP — DATE 10.11.19

CHEIF, DIVISION OF LAND DEVELOPMENT NH — DATE 10-18-19

DIRECTOR — DATE 10-18-19

01/27/21	2	Modification of trailer docks	BL
8/28/19	1	LOT STRIPING AND RELOCATION OF FIRE HYDRANT	BL
10/20/23	3	PARKING LOT IMPROVEMENTS	BH

DEVELOPER
DCT INDUSTRIAL
12011 GUILFORD ROAD
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

PROJECT
TERRAPIN COMMERCE CENTER

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

TITLE
REVISED SITE DEVELOPMENT PLAN

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

SEAL
BY: 9/12/17

DESIGNED BY : PJS
DRAWN BY: AGS/JSN
PROJECT NO.: DCTI1601
DATE: JUNE 23, 2017
SCALE: 1" = 40'
DRAWING NO. 4 OF 43

SDP-17-030

BASIN CONSTRUCTION MAY NOT BEGIN UNTIL ALL MATERIALS FOR CONSTRUCTION OF BASIN ARE ON SITE.

ALL BASIN CONSTRUCTION SHALL BE INSPECTED BY THE HOWARD COUNTY INSPECTOR.

ENGINEER'S CERTIFICATE

I 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.

SIGNATURE OF ENGINEER — DATE: 8/22/17

(PRINT NAME BELOW SIGNATURE)

Sharon L. Cruz

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 OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL ON EROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I CERTIFY RIGHT-OF-ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT AND/OR MDE.

SIGNATURE OF DEVELOPER — DATE: 8/1/17

(PRINT NAME BELOW SIGNATURE)

Jacqueline Carbone

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

HOWARD SOIL CONSERVATION DISTRICT — DATE: 8/30/17

APPROVED : DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE: 9.21.17

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE: 9.27.17

DIRECTOR — DATE: 10.2.17

DATE	NO.	REVISION	BY

DEVELOPER
DCT INDUSTRIAL
12011 GUILFORD ROAD
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

PROJECT

TERRAPIN COMMERCE CENTER

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

TITLE

GRADING AND SEDIMENT CONTROL PLAN - PHASE I

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

SEAL

STATE OF MARYLAND — SHARON L. CRUZ — 30896 — REGISTERED PROFESSIONAL ENGINEER

BY: — DATE: 6/27/17

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 30896, EXPIRATION DATE: 2-15-2019".

DESIGNED BY :	PJS
DRAWN BY:	AGS/JSN
PROJECT NO :	DCTI1601
DATE :	JUNE 23, 2017
SCALE :	1" = 40'
DRAWING NO.	5 OF 43

SDP-17-030

AS-BUILT CERTIFICATION

NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.

PRINTED NAME: Sharon L. Cruz — MD. P.E. NO.: 30896

SIGNATURE — DATE: 7/6/19

0 40' 80'

LEGEND

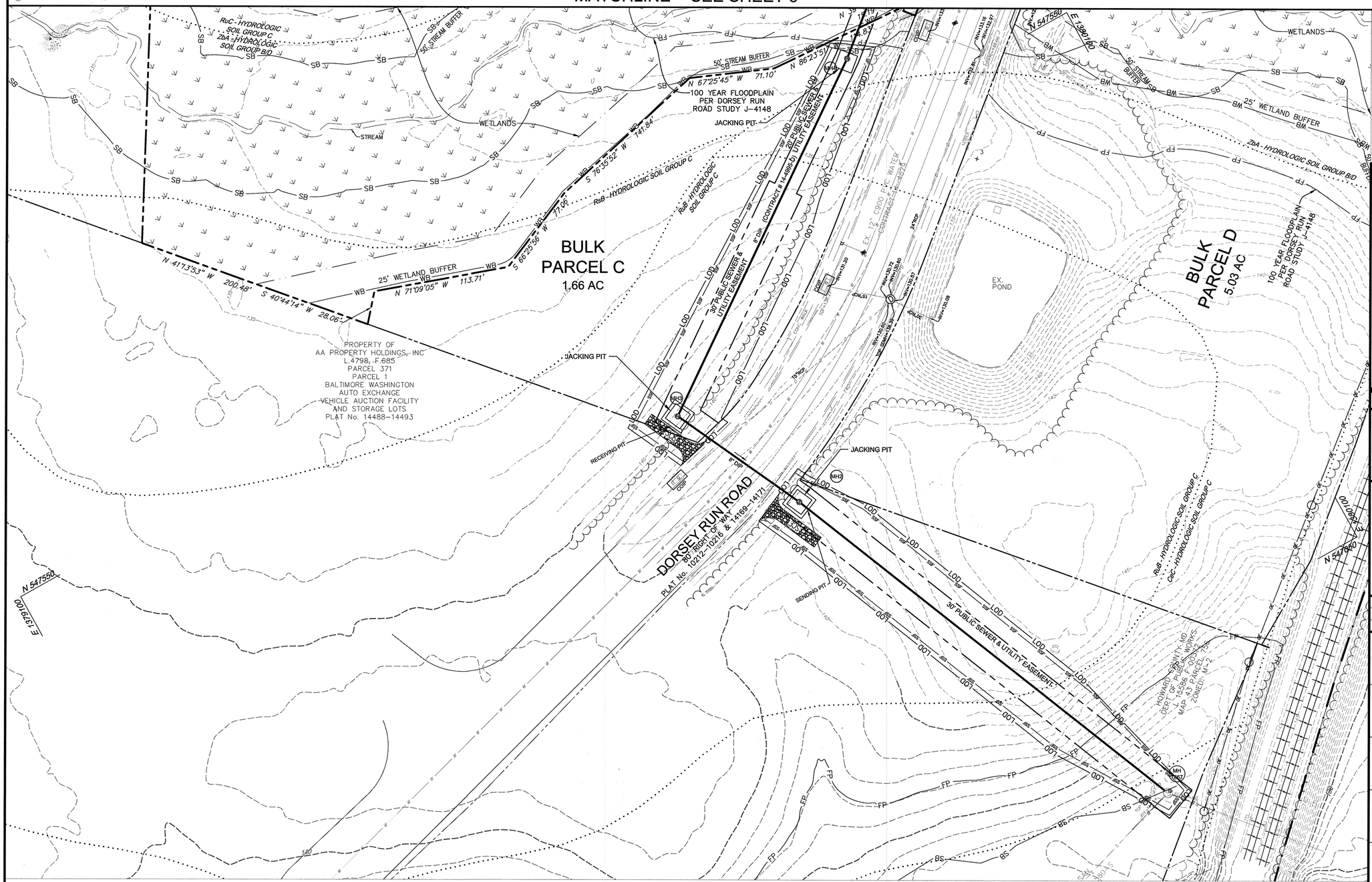
PROPERTY LINE AND RIGHT-OF-WAY
EXISTING 1' CONTOUR
EXISTING 5' CONTOUR
EXISTING TREE LINE
EXISTING SOILS
PROPOSED 1' CONTOUR
PROPOSED 5' CONTOUR
PROPOSED SPOT ELEVATION
PROPOSED STORM DRAIN

PROPOSED TREE LINE
PROPOSED SILT FENCE
PROPOSED SUPER SILT FENCE
PROPOSED STABILIZED CONSTRUCTION ENTRANCE

DRAINAGE AREA
PROPOSED EARTH DIKE
REMOVABLE PUMPING STATION
COMBINATION INLET PROTECTION
STANDARD INLET PROTECTION
GABION INFLOW PROTECTION
STOCKPILE

MATCHLINE - SEE SHEET 6

MATCHLINE - SEE SHEET 5



SOILS CHART

MAP SYMBOL	NAME	STRUCTURAL LIMITATIONS DWELLINGS W/ BASEMENTS	EROSION HAZARD	HYDRIC (Y/N)	SLOPE (%)	SOIL GROUP	Kw FACTOR
CeC	CHILLUM LOAM	VERY LIMITED	SLIGHT	N	5-10	C	0.43
RsB	RUSSETT FINE SANDY LOAM	VERY LIMITED	SLIGHT	N	2-5	C	0.28
RtB	RUSSET-ALLOWAY-HAMBROOK COMPLEX	SOMEWHAT LIMITED	SLIGHT	Y	0-5	C	0.28
RuB	RUSSET AND BELTSVILLE SOILS	NOT LIMITED	SLIGHT	N	2-5	C	0.28
RuC	RUSSET AND BELTSVILLE SOILS	VERY LIMITED	SLIGHT	Y	5-10	C	0.28
ZbA	ZEKIAH AND ISSUE SOILS	NOT RATED	SLIGHT	N	0-2, FREQUENTLY FLOODED	B/D	0.32

SOURCE: NATURAL RESOURCES CONSERVATION SERVICE WEB SOIL SURVEY AND HOWARD SOIL CONSERVATION DISTRICT SOIL MAP NUMBER 25

AS-BUILT CERTIFICATION

NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.

Sharon L. Cave — PRINTED NAME
36816 — MD. P.E. NO.
SIGNATURE
7/6/19 — DATE

0 40' 80'

LEGEND

SEE 'GRADING AND SEDIMENT CONTROL PLAN - PHASE I' FOR LEGEND

ENGINEER'S CERTIFICATE

I 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.

SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE) Sharon L. Cave — DATE 6/22/17

DEVELOPER'S CERTIFICATE

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SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE) Jacqueline Carbone — DATE 8/1/17

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 8/30/17

APPROVED : DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9.21.17

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9.27.17

DIRECTOR — DATE 10-2-17

DATE	NO.	REVISION	BY

DEVELOPER
DCT INDUSTRIAL
12011 GUILFORD ROAD
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

PROJECT
TERRAPIN COMMERCE CENTER

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

TITLE
GRADING AND SEDIMENT CONTROL PLAN - PHASE I

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

SEAL

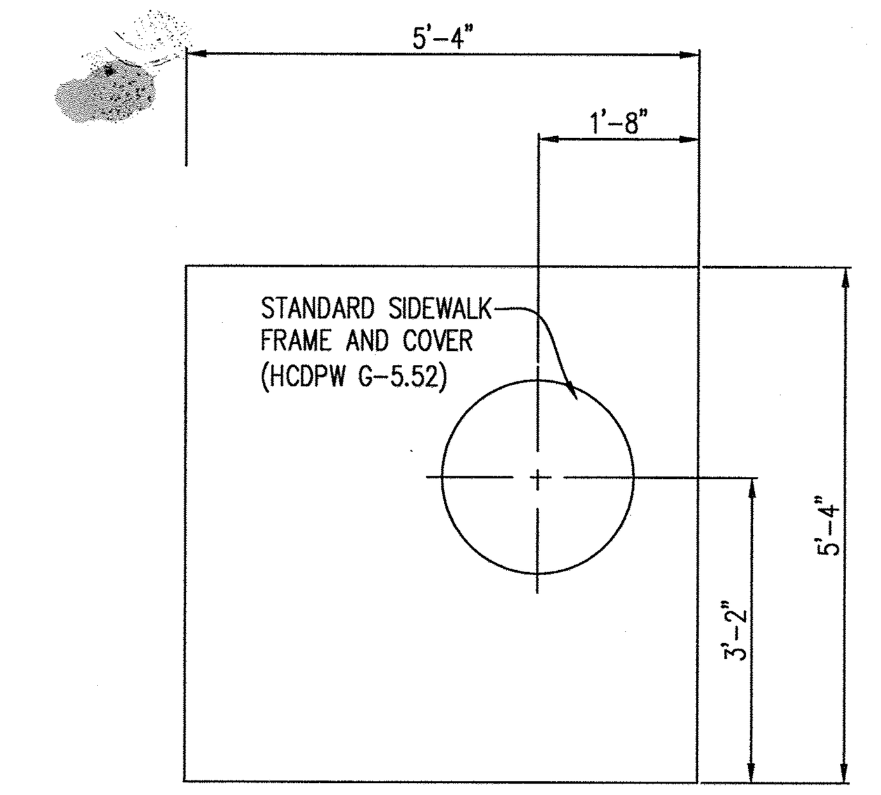
STATE OF MARYLAND — SHARON L. CAVE — 36816 — PROFESSIONAL ENGINEER

BY: — 6/22/17

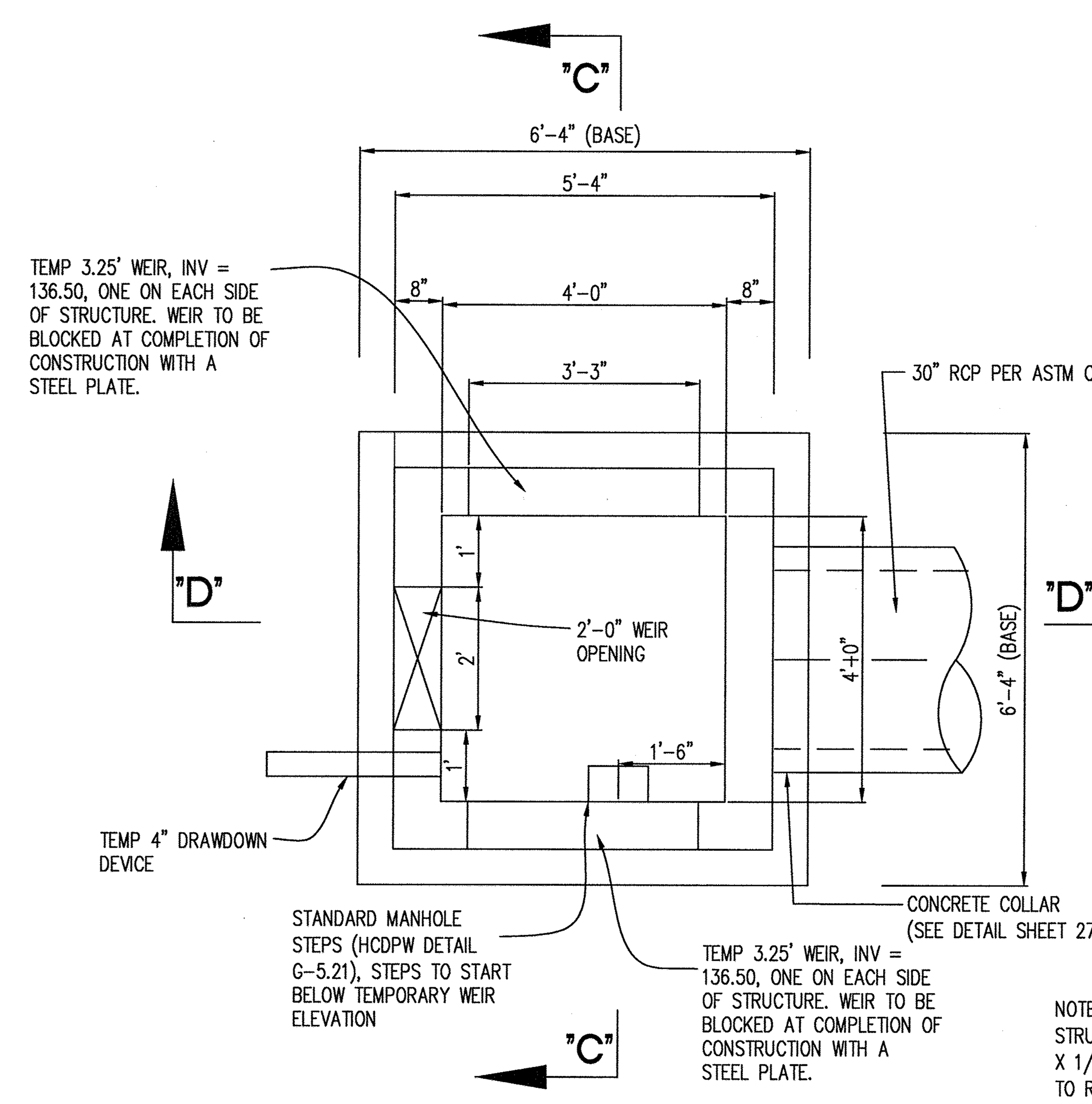
*"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36816, EXPIRATION DATE: 2-15-2019"

DESIGNED BY :	PJS
DRAWN BY:	AGS/JSN
PROJECT NO :	DCTI1601
DATE :	JUNE 23, 2017
SCALE :	1" = 40'
DRAWING NO.	6 OF 43

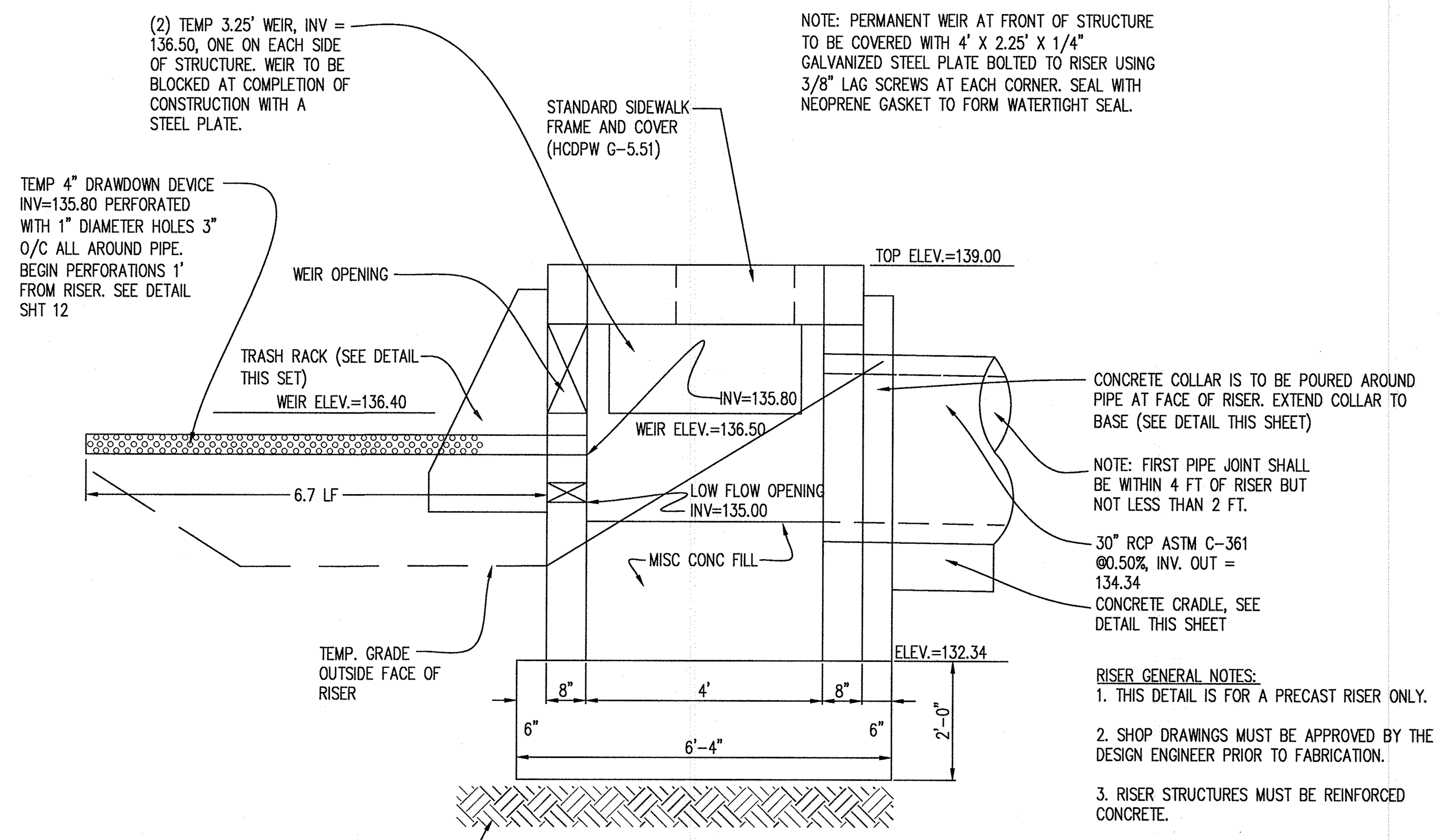
SDP-17-030



TOP SLAB
SCALE: 1"=2'

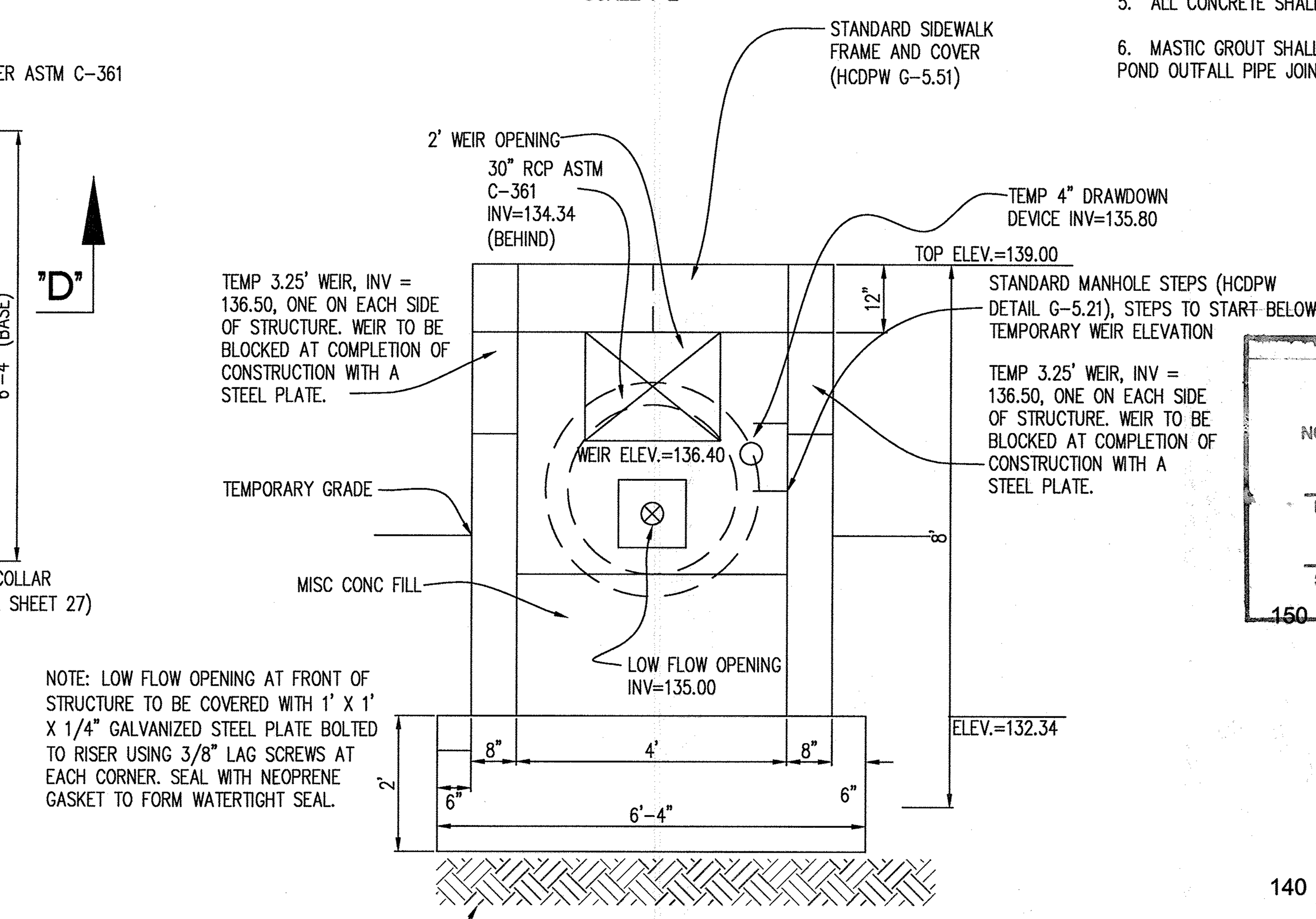


PLAN SECTION
TOP SLAB REMOVED
SCALE: 1"=2'



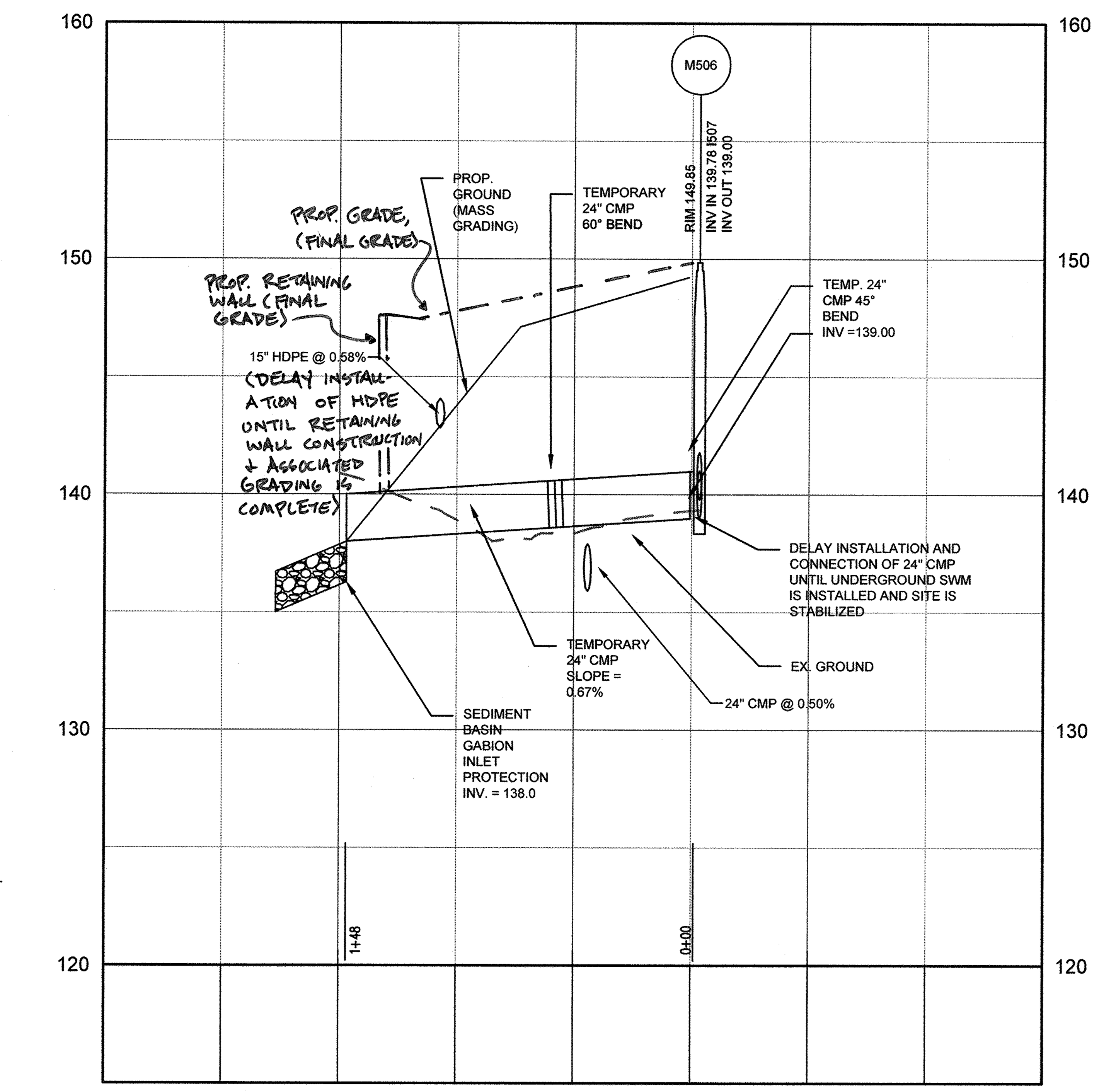
SECTION "D-D"
SCALE: 1"=2'

RISER GENERAL NOTES:
1. THIS DETAIL IS FOR A PRECAST RISER ONLY.
2. SHOP DRAWINGS MUST BE APPROVED BY THE DESIGN ENGINEER PRIOR TO FABRICATION.
3. RISER STRUCTURES MUST BE REINFORCED CONCRETE.
4. ALL CONNECTIONS SHALL BE WATERTIGHT.
5. ALL CONCRETE SHALL BE SHA MIX No. 3
6. MASTIC GROUT SHALL BE UTILIZED FOR ALL POND OUTFALL PIPE JOINTS.



SECTION "C-C"
SCALE: 1"=2'

POND 1 CONCRETE RISER DETAIL
STRUCTURE CS2
SCALE: 1"=2'



TEMP 24 CMP STORM DRAIN
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'

AS-BUILT CERTIFICATION
NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.
Sharon K. Cruz 36896
PRINTED NAME MD. P.E. No.
7/8/19
SIGNATURE DATE

SEDIMENT BAFFLES-BASIN 1

SURFACE AREA OF BASIN AT RISER CREST = 24,116 SF

$W_e = (AREA/2)^{1/2}$

$W_E = (17,635/2)^{1/2} = 110$ FT

Le = REQUIRED BAFFLE LENGTH

Le = 2WE = 2(110) = 220 FT

PROVIDED BAFFLE LENGTH = 227 FT

PROVIDED BAFFLE LENGTH IS GREATER THAN REQUIRED BAFFLE LENGTH, THEREFORE BAFFLE DESIGN REQUIREMENTS ARE MET

ENGINEER'S CERTIFICATE

I 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.

8/22/17
SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE) DATE
Sharon K. Cruz

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 OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL ON EROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I CERTIFY RIGHT-OF-ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT AND/OR MDE."

Jacqueline Carbone 8/1/17
SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE) DATE
Jacqueline Carbone

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

John R Robertson 8/30/17
HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED : DEPARTMENT OF PLANNING AND ZONING

9-22-17
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

9-27-17
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

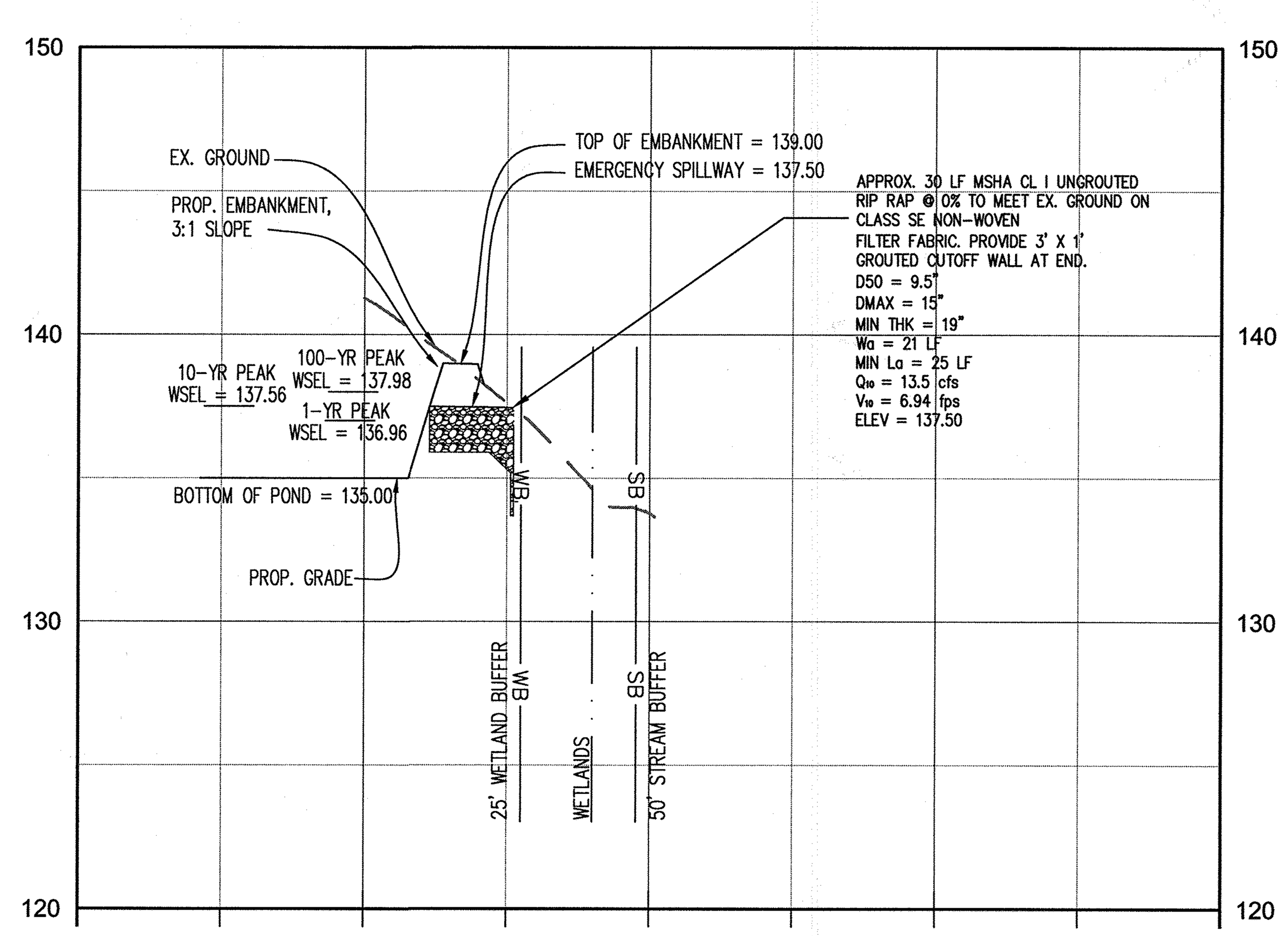
10-2-17
DIRECTOR DATE

DATE	NO.	REVISION	BY

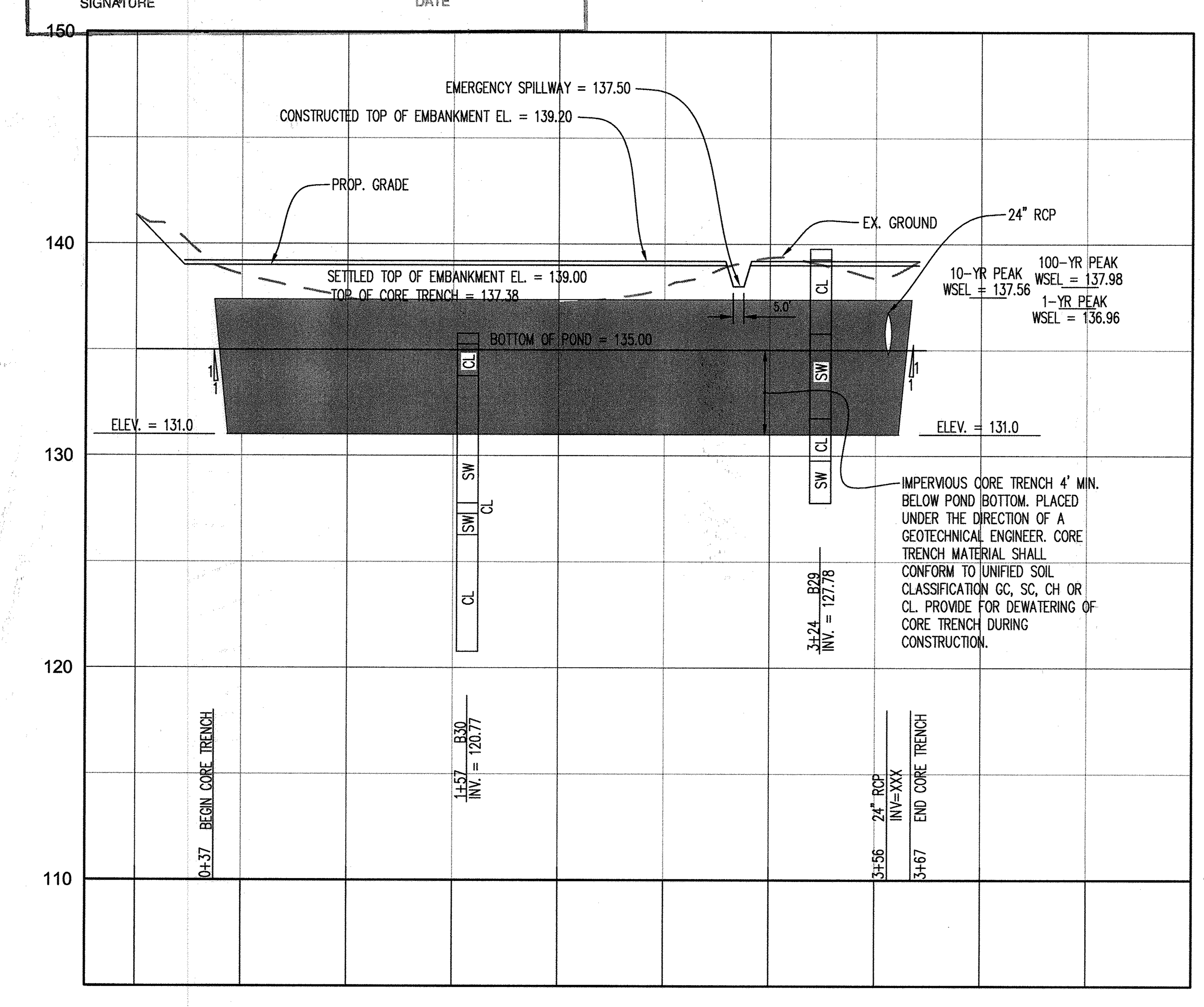
SEDIMENT BASIN # 1

NOTE: POND 1 IS TO BE USED AS A SEDIMENT BASIN

EX. DRAINAGE AREA	=	9.17 AC
INTERIM DRAINAGE AREA	=	9.40 AC
DEV. DRAINAGE AREA	=	9.40 AC
STORAGE REQUIRED (3,600 cu.ft./Ac.)		
REQUIRED VOLUME WET	=	16,920 CF
REQUIRED VOLUME DRY	=	16,920 CF
TOTAL VOLUME	=	33,840 CF
STORAGE PROVIDED		
PROVIDED VOLUME WET	=	17,680 CF
PROVIDED VOLUME DRY	=	82,109 CF
TOTAL VOLUME	=	99,789 CF
STORAGE DEPTH	=	4'
MINIMUM BOTTOM ELEVATION	=	135.00
BOTTOM DIMENSIONS	=	174' X 249'
RISER DIAMETER	=	4'X4'
RISER CREST ELEVATION	=	136.50
BARREL DIAMETER	=	30"
BARREL LENGTH	=	117 LF
BARREL INVERTS		
UPSTREAM	=	134.34
DOWNSTREAM	=	134.00
TRASH RACK DIAMETER	=	N/A
CLEAN OUT ELEVATION	=	135.40
PERMANENT POOL WSEL	=	135.80
DESIGN TOP OF EMBANKMENT EL.	=	139.00
CONSTRUCTED TOP OF EMBANKMENT EL.	=	139.20
EMERGENCY SPILLWAY CREST EL.	=	137.50
EMERGENCY SPILLWAY WIDTH	=	8'



SEDIMENT BASIN # 1 EMERGENCY SPILLWAY PROFILE
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'



SEDIMENT BASIN # 1 CENTERLINE EMBANKMENT PROFILE
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'

DEVELOPER
DCT INDUSTRIAL
12011 GUILFORD ROAD
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

PROJECT
TERRAPIN COMMERCE CENTER

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

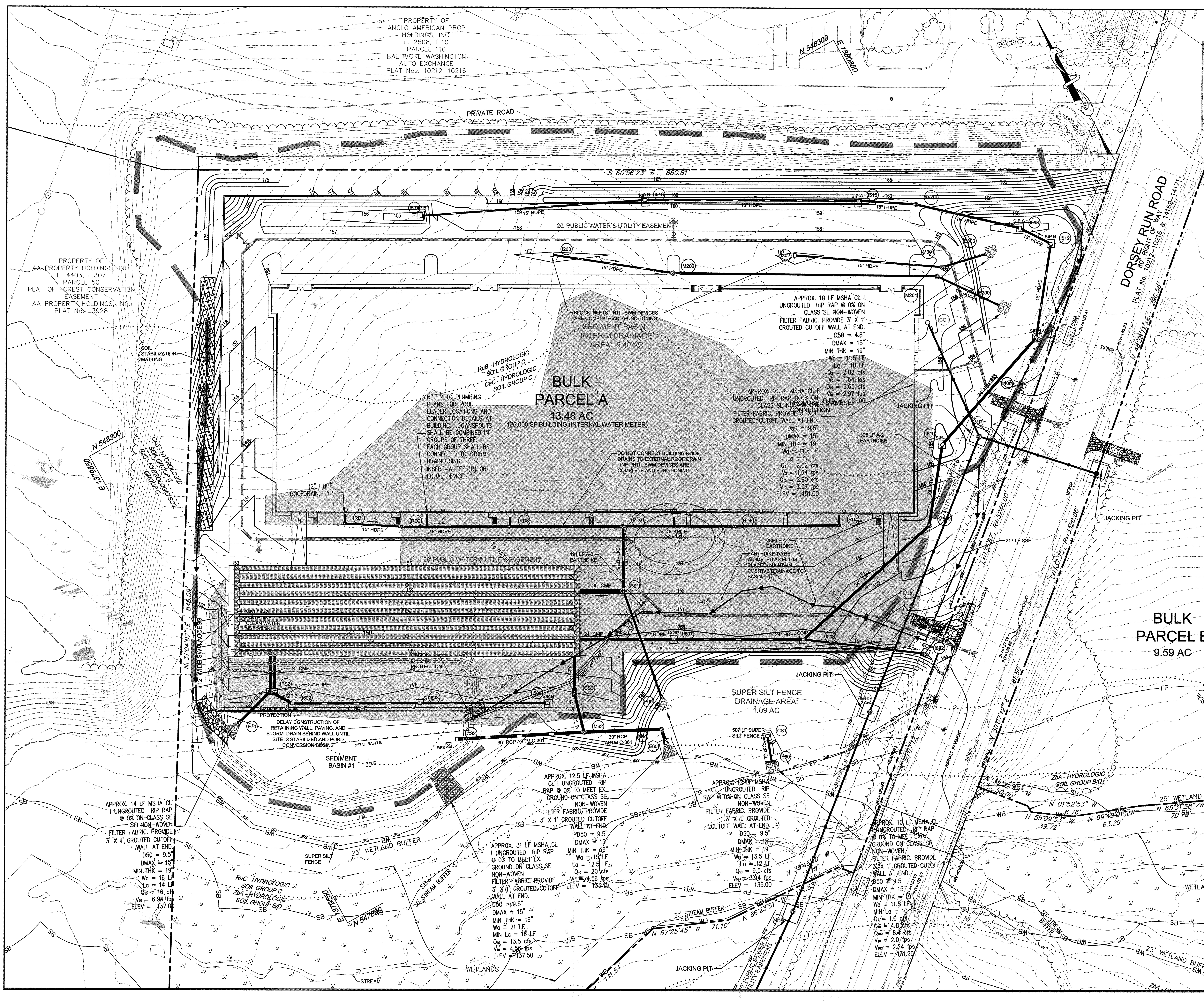
TITLE
SEDIMENT
CONTROL DETAILS

Pennoni
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

SEAL
STATE OF MARYLAND SHARON K. CRUZ PROFESSIONAL ENGINEER
BY: 8/22/17
"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36896, EXPIRATION DATE: 3-15-2019"

DESIGNED BY : PJS
DRAWN BY: AGS/JSN
PROJECT NO : DCTI1601
DATE : JUNE 23, 2017
SCALE : AS SHOWN
DRAWING NO. 7 OF 43

SDP-17-030



LEGEND

SEE 'GRADING AND SEDIMENT CONTROL PLAN - PHASE I' FOR LEGEND

AS-BUILT CERTIFICATION

NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.

Sharon K. Cruz — PRINTED NAME | 36896 — MD. P.E. NO.

SIGNATURE | 7/8/19 — DATE

0 | 40' | 80'

ENGINEER'S CERTIFICATE

I 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.

SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE) — DATE 9/22/17

Sharon K. Cruz

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 OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL ON EROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I CERTIFY RIGHT-OF-ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT AND/OR MDE."

SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE) — DATE 8/1/17

Jacqueline Carbone

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

John R Robertson — HOWARD SOIL CONSERVATION DISTRICT — DATE 8/30/17

APPROVED : DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9-22-17

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9-27-17

DIRECTOR — DATE 10-2-17

DATE	NO.	REVISION	BY

DEVELOPER
DCT INDUSTRIAL
12011 GUILFORD ROAD
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

PROJECT

TERRAPIN COMMERCE CENTER

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

TITLE

GRADING AND SEDIMENT CONTROL PLAN - PHASE II

Pennoni Associates Inc.
Engineers • Surveyors • Planners
Landscape Architects
8818 Centre Park Drive, Suite 200 Columbia, MD 21045
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SEAL

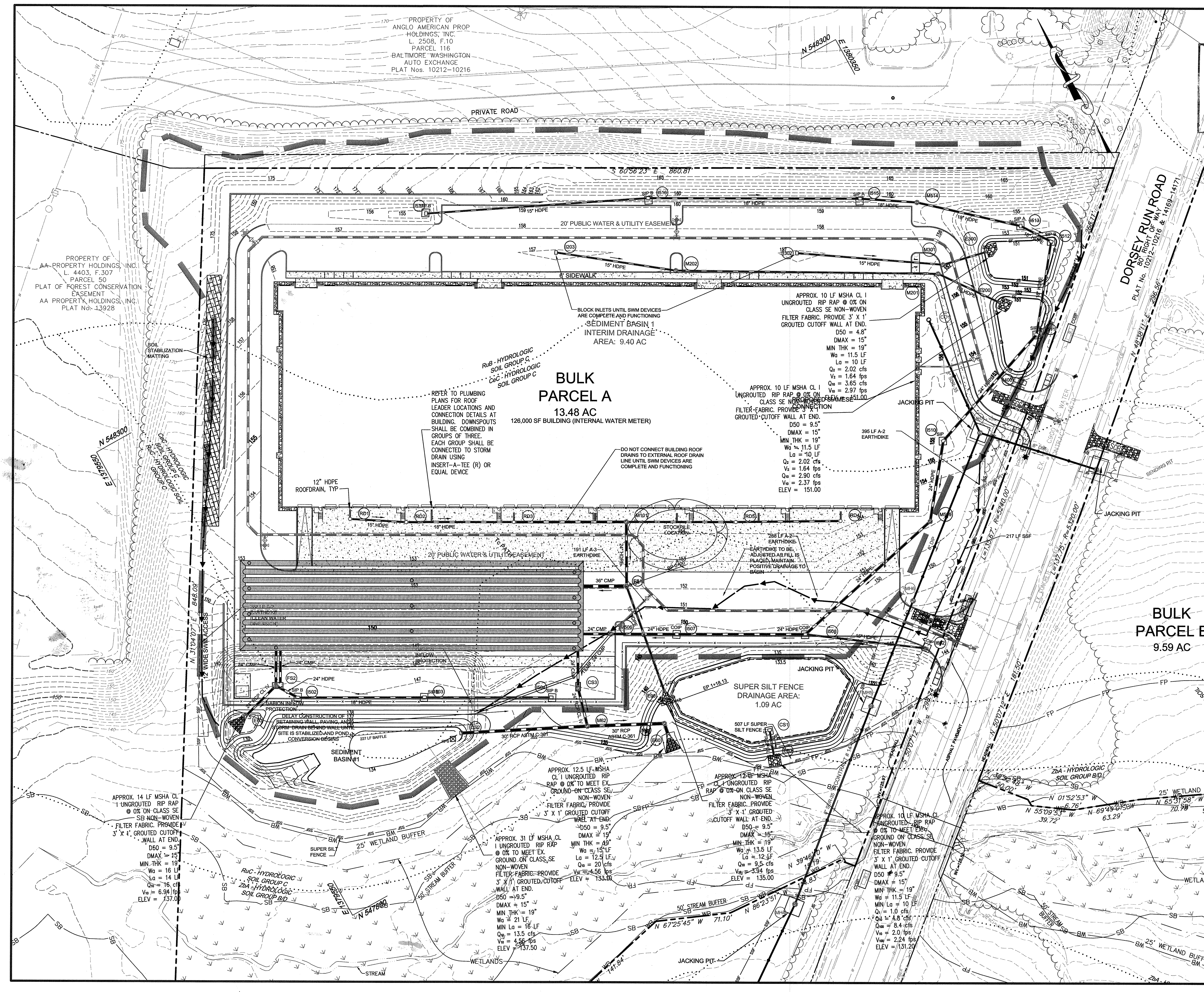
STATE OF MARYLAND — SHARON K. CRUZ — No. 36896 — REGISTERED PROFESSIONAL ENGINEER

BY: 8/22/17

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36896, EXPIRATION DATE: 2-15-2019"

DESIGNED BY : PJS
DRAWN BY: AGS/JSN
PROJECT NO : DCTI1601
DATE : JUNE 23, 2017
SCALE : 1" = 40'
DRAWING NO. 8 OF 43

SDP-17-030



LEGEND

SEE 'GRADING AND SEDIMENT CONTROL PLAN - PHASE I' FOR LEGEND

AS-BUILT CERTIFICATION

NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.

Sharon K. Cruz — PRINTED NAME
36896 — MD. P.E. NO.
SIGNATURE — 7/8/19 DATE

0 40' 80'

ENGINEER'S CERTIFICATE

I 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.

SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE) — 8/22/17 DATE
Sharon K. Cruz

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 OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL ON EROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I CERTIFY RIGHT-OF-ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT AND/OR MDE."

Jacqueline Carbone — 8/1/17
SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE) — DATE
Jacqueline Carbone

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

John R Robertson — 8/30/17
HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED : DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 9-22-17 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT NH — 9-27-17 DATE

DIRECTOR — 10-2-17 DATE

DATE	NO.	REVISION	BY

DEVELOPER: DCT INDUSTRIAL, 12011 GUILFORD ROAD, 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

PROJECT

TERRAPIN COMMERCE CENTER

AREA

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

TITLE

GRADING AND SEDIMENT CONTROL PLAN - PHASE III

Pennoni Associates Inc.
Engineers • Surveyors • Planners
Landscape Architects

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T 410.997.8900 **F** 410.997.9282

SEAL

STATE OF MARYLAND — SHARON K. CRUZ — No. 36896 — REGISTERED PROFESSIONAL ENGINEER

BY: 8/22/17

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36896, EXPIRATION DATE: 2-15-2019"

DESIGNED BY : PJS
DRAWN BY: AGS/JSN
PROJECT NO : DCTI1601
DATE : JUNE 23, 2017
SCALE : 1" = 40'
DRAWING NO. 9 OF 43

B-4-2 STANDARDS AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

DEFINITION

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

PURPOSE

TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH.

CONDITIONS WHERE PRACTICE APPLIES

WHERE VEGETATIVE STABILIZATION IS TO BE ESTABLISHED.

CRITERIA

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 GROWTH.

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 DESIGN.

5. TOPSOIL SPECIFICATIONS: SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING CRITERIA:

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 POCKETS.

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 PREPARATION.

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 SIEVE.

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 APPLIED WHEN THE GROUND THAWS.

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 SPREADERS.

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 AFTER PLANTING.

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 INTERRUPTION.

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 FACTORS.

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.

2. APPLICATION

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

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.

PURPOSE

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

CONDITIONS WHERE PRACTICE APPLIES

EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR A PERIOD OF 6 MONTHS OR LESS. FOR LONGER DURATION OF TIME, PERMANENT STABILIZATION PRACTICES ARE REQUIRED.

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 SEEDING.

3. WHEN STABILIZATION IS REQUIRED OUTSIDE OF A SEEDING SEASON, APPLY SEED AND MULCH OR STRAW MULCH ALONE AS PRESCRIBED IN SECTION B-4-3.A.1.B AND MAINTAIN UNTIL THE NEXT SEEDING SEASON.

TEMPORARY SEEDING SUMMARY

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

B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

DEFINITION

TO STABILIZE DISTURBED SOILS WITH PERMANENT VEGETATION.

PURPOSE

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

A. SEED MIXTURES

1. GENERAL USE

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: 1½ TO 3 POUNDS PER 1000 SQUARE FEET.

NOTES:

SELECT TURFGRASS VARIETIES FROM THOSE LISTED IN THE MOST CURRENT UNIVERSITY OF MARYLAND PUBLICATION, AGRONOMY MEMO #77, "TURFGRASS CULTIVAR RECOMMENDATIONS FOR MARYLAND"

CHOOSE CERTIFIED MATERIAL. CERTIFIED MATERIAL IS THE BEST GUARANTEE OF CULTIVAR PURITY. THE CERTIFICATION PROGRAM OF THE MARYLAND DEPARTMENT OF AGRICULTURE, TURF AND SEED SECTION, PROVIDES A RELIABLE MEANS OF CONSUMER PROTECTION AND ASSURES A PURE GENETIC LINE

c. IDEAL TIMES OF SEEDING FOR TURF GRASS MIXTURES

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

CENTRAL MD: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDINESS ZONE: 6B)

SOUTHERN MD, EASTERN SHORE: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (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 GRASSES WILL POSE NO DIFFICULTY.

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

Hardiness Zone (from Figure B.3): 6B Seed Mixture (from Table B.3):					Fertilizer Rate (10-20-20)			Lime Rate
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	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 sf)
9	TALL FESCUE KENTUCKY BLUEGRASS PERENNIAL RYEGRASS	60 40 20	MAR 1-MAY 15; AUG 15-OCT 15*	1/4 - 1/2 in				
11	CREEPING RED FESCUE CHEWINGS FESCUE KENTUCKY BLUEGRASS	30 30 20	MAR 1-MAY 15; AUG 15-OCT 15*	1/4 - 1/2 in				

* FOR MAY 1 TO AUGUST 14, PLANT WITH NURSE CROP OF PEARL MILLET BASED ON 5% OF THE PERMANENT SEED MIX APPLICATION RATE.

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. ENSURE THAT SOD IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE AIR DRYING OF THE ROOTS.

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.

PURPOSE

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 LATER USE.

CRITERIA

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

2. THE FOOTPRINT OF THE STOCKPILE MUST BE SIZED TO ACCOMMODATE THE ANTICIPATED VOLUME OF MATERIAL AND BASED ON A SIDE SLOPE RATIO NO STEEPER THAN 2:1. BENCHING MUST BE PROVIDED IN ACCORDANCE WITH SECTION B-3 LAND GRADING.

3. RUNOFF FROM THE STOCKPILE AREA MUST DRAIN TO A SUITABLE SEDIMENT CONTROL PRACTICE.

4. ACCESS THE STOCKPILE AREA FROM THE UPGRADE SIDE.

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 NON-EROSIVE MANNER.

6. WHERE RUNOFF CONCENTRATES ALONG THE TOE OF THE STOCKPILE FILL, AND APPROPRIATE EROSION/SEDIMENT CONTROL PRACTICE MUST BE SUED TO INTERCEPT THE DISCHARGE.

7. STOCKPILES MUST BE STABILIZED IN ACCORDANCE WITH THE 3/7 DAY STABILIZATION REQUIREMENT AS WELL AS STANDARD B-4-1 INCREMENTAL STABILIZATION AND STANDARD B-4-4 TEMPORARY STABILIZATION.

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 A STOCKPILE EXCEEDS 20 FEET FOR 2:1 SLOPES, 30 FEET FOR 3:1 SLOPES, OR 40 FEET FOR 4:1 SLOPES, BENCHING MUST BE PROVIDED IN ACCORDANCE WITH SECTION B-3 LAND GRADING.

AS-BUILT CERTIFICATION

NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.

Sharon K. Cruz — PRINTED NAME; 36896 — MD. P.E. NO.

SIGNATURE; 7/8/19 — DATE

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

I 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.

SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE) — DATE 8/22/17

Sharon K. Cruz

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 OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL ON EROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I CERTIFY RIGHT-OF-ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT AND/OR MDE."

SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE) — DATE 8/1/17

Jacqueline Carbone

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

John R Robertson — HOWARD SOIL CONSERVATION DISTRICT — DATE 8/30/17

APPROVED : DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9-21-17

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9-27-17

DIRECTOR — DATE 10-2-17

DATE	NO.	REVISION	BY

DEVELOPER: DCT INDUSTRIAL, 12011 GUILFORD ROAD, 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

PROJECT: TERRAPIN COMMERCE CENTER

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

TITLE: SEDIMENT CONTROL NOTES

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

SEAL: STATE OF MARYLAND — SHARON K. CRUZ — No. 36896 — REGISTERED PROFESSIONAL ENGINEER

BY: 8/22/17

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36896, EXPIRATION DATE: 2-15-2019"

DESIGNED BY : PJS

DRAWN BY: AGS/JSN

PROJECT NO : DCTI1601

DATE : JUNE 23, 2017

SCALE : AS SHOWN

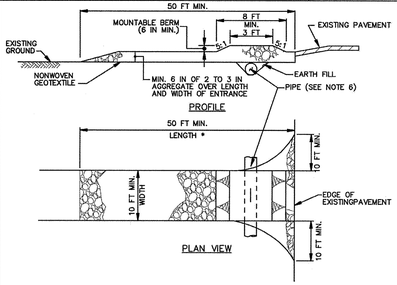
DRAWING NO. 10 OF 43

SDP-17-030

I:\PROJECTS\DCTI\DCTI1601-MEARS PROPERTY TERRAPIN COMMERCE\DESIGN_PUBLISH\SITE DEVELOPMENT PLANS - BUILDING A\DCTI1601-SDP10

DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE

STANDARD SYMBOL: SCE



CONSTRUCTION SPECIFICATIONS

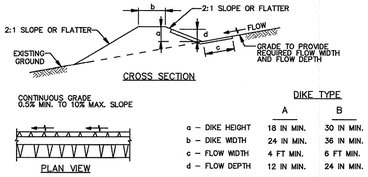
1. PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (*30 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
2. 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.
3. PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
4. 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.
5. MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL C-1 EARTH DIKE

STANDARD SYMBOL: A-1 (PLACE DESIGNATION (as A-1) ON FLOW CHANNEL SIDE OF DIKE)



DIKE TYPE	A	B
a – DIKE HEIGHT	18 IN MIN.	30 IN MIN.
b – DIKE WIDTH	24 IN MIN.	36 IN MIN.
c – FLOW WIDTH	4 FT MIN.	6 FT MIN.
d – FLOW DEPTH	12 IN MIN.	24 IN MIN.

FLOW CHANNEL STABILIZATION

A-1	SEED WITH STRAW MULCH AND TACK. (NOT ALLOWED FOR CLEAR WATER DIVERSION.)
A-2/B-2	SEED WITH SOIL STABILIZATION MATTING OR LINE WITH SOD.
A-3/B-3	4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE PRESSED INTO SOIL A MINIMUM OF 7 INCHES AND FLUSH WITH GROUND.

CONSTRUCTION SPECIFICATIONS

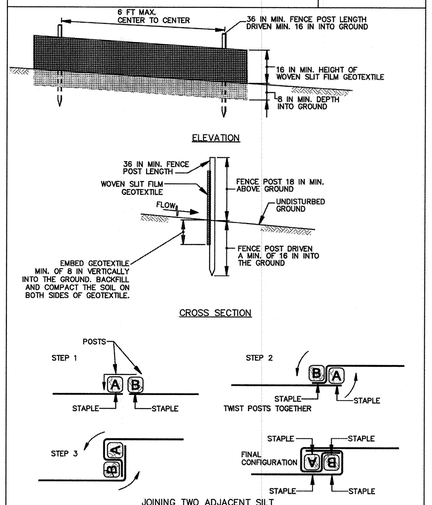
1. REMOVE AND DISPOSE OF ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SO AS NOT TO INTERFERE WITH PROPER FUNCTION OF EARTHDIKE.
2. EXCAVATE OR SHAPE EARTH DIKE TO LINE, GRADE, AND CROSS SECTION AS SPECIFIED. BANK PROJECTIONS OR OTHER IRREGULARITIES ARE NOT ALLOWED.
3. COMPACT FILL.
4. CONSTRUCT FLOW CHANNEL ON AN UNINTERRUPTED, CONTINUOUS GRADE, ADJUSTING THE LOCATION DUE TO FIELD CONDITIONS AS NECESSARY TO MAINTAIN POSITIVE DRAINAGE.
5. PROVIDE OUTLET PROTECTION AS REQUIRED ON APPROVED PLAN.
6. STABILIZE EARTH DIKE WITHIN THREE DAYS OF INSTALLATION. STABILIZE FLOW CHANNEL FOR CLEAR WATER DIVERSION WITHIN 24 HOURS OF INSTALLATION.
7. MAINTAIN LINE, GRADE, AND CROSS SECTION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS, AND MAINTAIN POSITIVE DRAINAGE. KEEP EARTH DIKE AND POINT OF DISCHARGE FREE OF EROSION, AND CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.
8. UPON REMOVAL OF EARTH DIKE, GRADE AREA FLUSH WITH EXISTING GROUND. WITHIN 24 HOURS OF REMOVAL STABILIZE DISTURBED AREA WITH TOPSOIL, SEED, AND MULCH, OR AS SPECIFIED ON APPROVED PLAN.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-1 SILT FENCE

STANDARD SYMBOL: SF



1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-1 SILT FENCE

STANDARD SYMBOL: SF

CONSTRUCTION SPECIFICATIONS

1. USE WOOD POSTS 1¾ X 1¾ ± ⅛ INCH (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD. AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT.
2. USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART.
3. USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION.
4. PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
5. EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND. BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC.
6. WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL.
7. EXTEND BOTH ENDS OF THE 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 SILT FENCE.
8. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

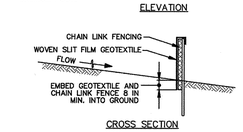
2 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-3 SUPER SILT FENCE

STANDARD SYMBOL: SSF



CONSTRUCTION SPECIFICATIONS

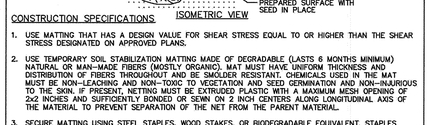
1. INSTALL 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
2. FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2⅜ INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS.
3. 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.
4. 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.
6. PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
7. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTEXTILE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL B-4-6-A TEMPORARY SOIL STABILIZATION MATTING CHANNEL APPLICATION

STANDARD SYMBOL: TSSMC – * 2.7 lb/ft² (* INCLUDE SHEAR STRESS)



CONSTRUCTION SPECIFICATIONS

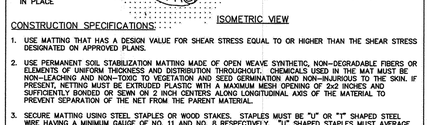
1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
2. USE TEMPORARY SOIL STABILIZATION MATTING MADE OF DEGRADABLE (LASTS 6 MONTHS MINIMUM) NATURAL OR MAN-MADE FIBERS (MOSTLY ORGANIC). MAT MUST HAVE UNIFORM THICKNESS AND DISTRIBUTION 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.
3. 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.
4. 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 SEDIMENT CONTROL PLAN.
5. 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.
6. 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.
7. 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.
8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
9. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL B-4-6-C PERMANENT SOIL STABILIZATION MATTING CHANNEL APPLICATION

STANDARD SYMBOL: PSSMC – * 4.5 lb/ft² (* INCLUDE SHEAR STRESS)



CONSTRUCTION SPECIFICATIONS:

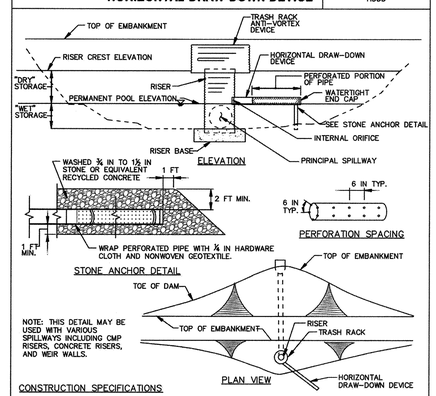
1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
2. USE PERMANENT SOIL STABILIZATION MATTING MADE OF OPEN WEAVE SYNTHETIC, NON-DEGRADABLE FIBERS OR ELEMENTS OF UNIFORM THICKNESS AND DISTRIBUTION THROUGHOUT. CHEMICALS USED IN 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.
3. SECURE MATTING USING STEEL STAPLES OR WOOD STAKES. 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 1 ½ 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 MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPE AT THE BOTTOM.
4. 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 SEDIMENT CONTROL PLAN.
5. UNROLL MATTING IN DIRECTION OF WATER FLOW, CENTERING THE FIRST ROLL ON THE CHANNEL CENTER LINE. WORK FROM CENTER OF CHANNEL OUTWARD WHEN PLACING ROLLS. LAY MATTING SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.
6. OVERLAP OR ABUT EDGES OF MATTING ROLLS PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE NEXT DOWNSTREAM MAT.
7. KEY IN THE TOP OF SLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY.
8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
9. IF SPECIFIED BY THE DESIGNER OR MANUFACTURER AND DEPENDING ON THE TYPE OF MAT BEING INSTALLED, ONCE THE MATTING IS KEYED AND STAPLED IN PLACE, FILL THE MAT VOIDS WITH TOP SOIL OR GRANULAR MATERIAL AND LIGHTLY COMPACT OR ROLL TO MAXIMIZE SOIL/MAT CONTACT WITHOUT CRUSHING MAT.
10. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL G-2-6 SEDIMENT BASIN SCHEMATIC HORIZONTAL DRAW-DOWN DEVICE

STANDARD SYMBOL: HDDD



CONSTRUCTION SPECIFICATIONS

1. PERFORATE PIPE WITH 1 INCH DIAMETER PERFORATIONS SPACED 6 INCHES APART LONGITUDINALLY AND RADIALLY OR IN ACCORDANCE WITH APPROVED PLAN.
2. WRAP THE PERFORATED PORTION OF THE DRAW-DOWN DEVICE FIRST WITH ¾ INCH GALVANIZED HARDWARE CLOTH, THEN WITH NONWOVEN GEOTEXTILE. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS. DO NOT WRAP WITH MORE THAN ONE LAYER OF GEOTEXTILE.
3. AS AN ALTERNATE TO STONE ANCHORING, SECURE DRAW-DOWN DEVICE WITH TWO 1 INCH STEEL ANGLES SET 3 FEET MINIMUM INTO THE GROUND ATTACHED TO DRAW-DOWN DEVICE BY A 1 INCH WIDE GALVANIZED STEEL STRAP OR 12 GAUGE OR HEAVIER WIRE.
4. REMOVE SEDIMENT WHEN IT ACCUMULATES TO CLEANOUT ELEVATION (50% OF THE WET STORAGE DEPTH). DEPOSIT REMOVED SEDIMENT IN AN APPROVED AREA IN A SUCH A MANNER THAT IT WILL NOT ERODE. MAINTAIN WATER TIGHT CONNECTIONS. REPLACE GEOTEXTILE AROUND PERFORATED RISER IF DRY STORAGE VOLUME DOES NOT DRAW DOWN WITHIN 10 HOURS.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

AS-BUILT CERTIFICATION

NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.

Sharon L. Cruz — 36976
PRINTED NAME — MD. P.E. NO.

SIGNATURE — 7/2/19 DATE

ENGINEER'S CERTIFICATE

I 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.

SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE) — 8/2/17 DATE

Sharon L. Cruz

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 OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL ON EROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I CERTIFY RIGHT-OF-ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT AND/OR MDE."

Jacqueline Corbine — 8/1/17
SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE) — DATE

Jacqueline Carbone

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

John R Robertson — 8/30/17
HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED : DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 9.21.17 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT AM — 9.27.17 DATE

DIRECTOR — 10.2.17 DATE

DATE	NO.	REVISION	BY

DEVELOPER
DCT INDUSTRIAL
12011 GUILFORD ROAD
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

PROJECT
TERRAPIN COMMERCE CENTER

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

TITLE
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

SEAL

STATE OF MARYLAND — SHARON L. CRUZ — 36976 — PROFESSIONAL ENGINEER

BY: — 7/2/19

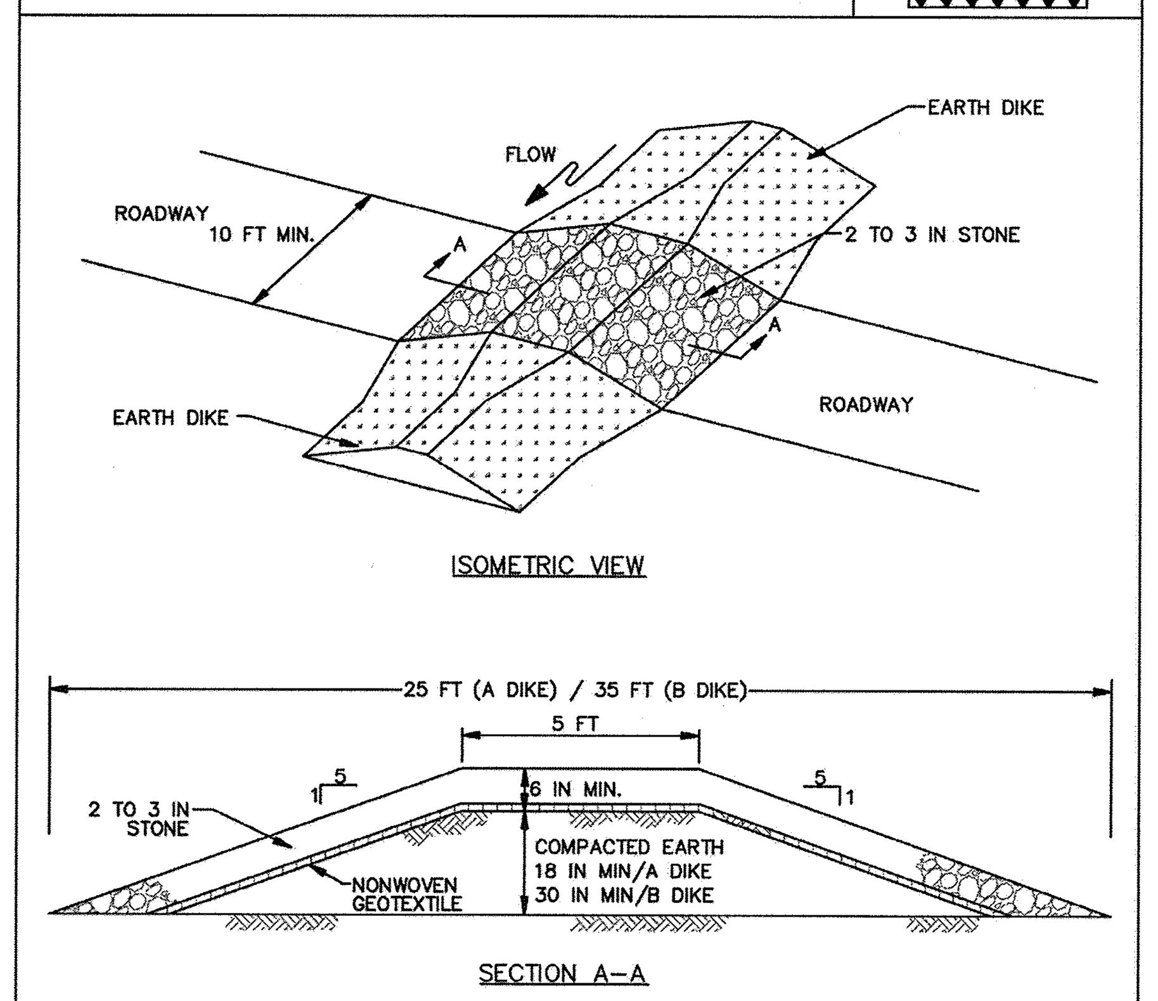
"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36976, EXPIRATION DATE: 2-15-2019"

DESIGNED BY :	PJS
DRAWN BY:	AGS/JSN
PROJECT NO :	DCTI1601
DATE :	JUNE 23, 2017
SCALE :	AS SHOWN
DRAWING NO.	11 OF 43

SDP-17-030

DETAIL C-8 MOUNTABLE BERM

STANDARD SYMBOL
MB



CONSTRUCTION SPECIFICATIONS

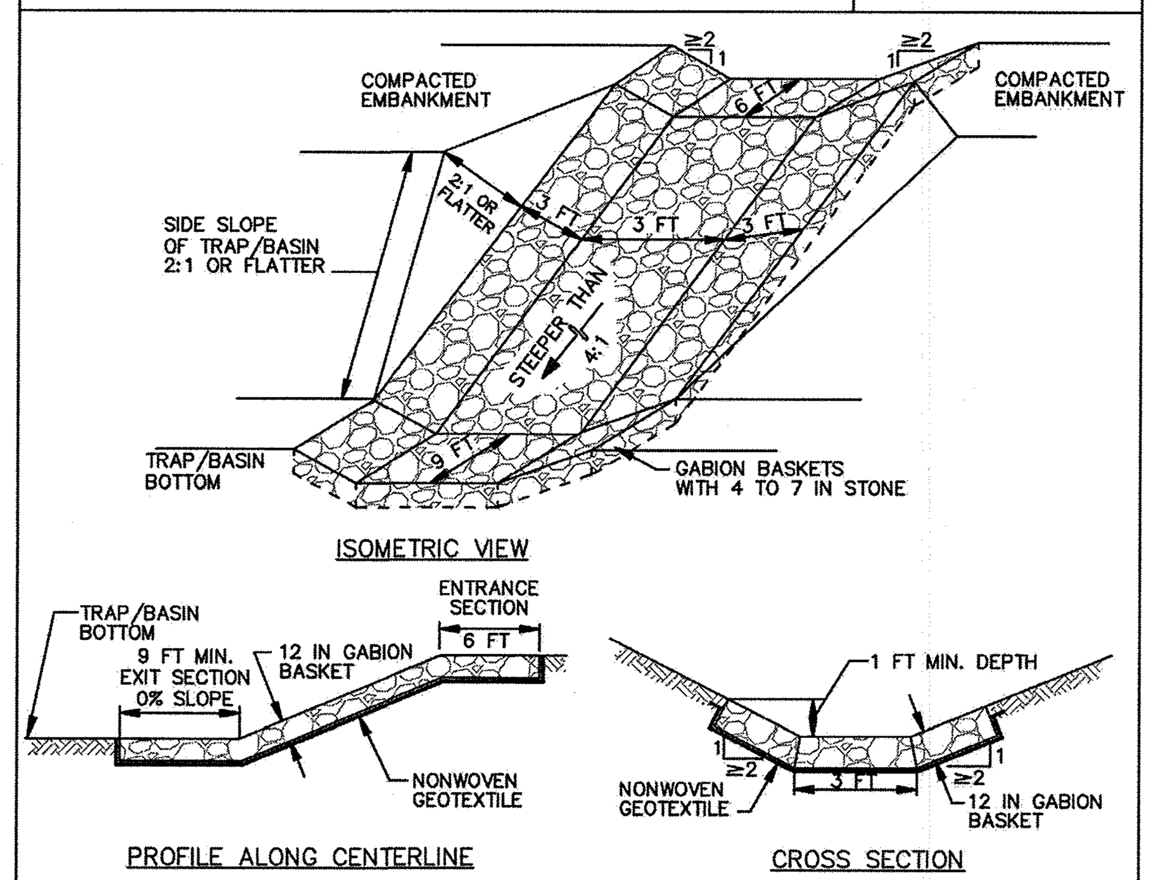
1. USE MINIMUM WIDTH OF 10 FEET TO ALLOW FOR VEHICULAR PASSAGE.
2. PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H–1 MATERIALS, OVER THE EARTH MOUND PRIOR TO PLACING STONE.
3. PLACE 2 TO 3 INCH STONE OR EQUIVALENT RECYCLED CONCRETE AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE MOUNTABLE BERM.
4. MAINTAIN LINE, GRADE, AND CROSS SECTION. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN SPECIFIED DIMENSIONS. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. MAINTAIN POSITIVE DRAINAGE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL D-3-2 GABION INFLOW PROTECTION

STANDARD SYMBOL
GP



CONSTRUCTION SPECIFICATIONS

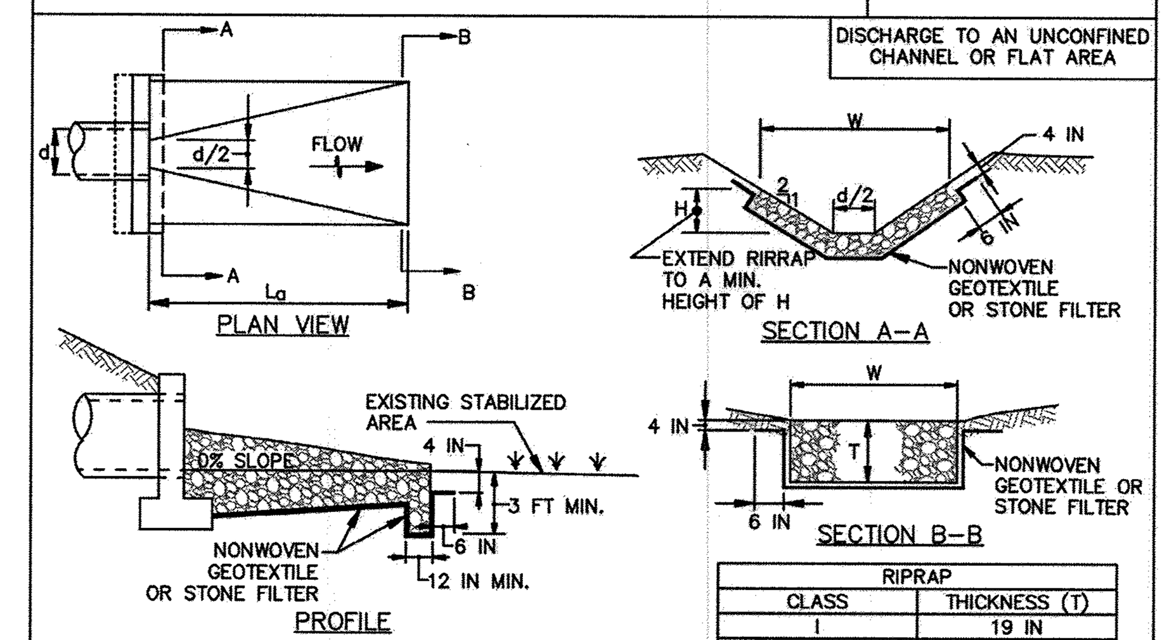
1. PROVIDE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H–1 MATERIALS, UNDER THE BOTTOM AND ALONG SIDES OF ALL GABION BASKETS.
2. USE BASKETS MADE OF MINIMUM 11 GAUGE WIRE.
3. CONSTRUCT GABION INFLOW PROTECTION BY ARRANGING 9 X 3 X 1 FOOT GABION BASKETS TO FORM A TRAPEZOIDAL SECTION WITH A 3 FOOT BOTTOM WIDTH, 1 FOOT MINIMUM DEPTH, 3 FOOT SIDE WALLS, AND 2:1 OR FLATTER SIDE SLOPES. FILL GABION BASKETS WITH 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE WITHOUT REBAR OR WEIR MESH.
4. INSTALL ENTRANCE AND EXIT SECTIONS AS SHOWN ON THE PROFILE.
5. INSTALL GABIONS IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.
6. BLEND GABIONS INTO EXISTING GROUND.
7. MAINTAIN LINE, GRADE, AND CROSS SECTION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. KEEP POINTS OF INFLOW AND OUTFLOW FREE OF EROSION

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

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

STANDARD SYMBOL
ROPIII



RIPRAP	
CLASS	THICKNESS (T)
I	19 IN
II	32 IN
III	46 IN

CONSTRUCTION SPECIFICATIONS

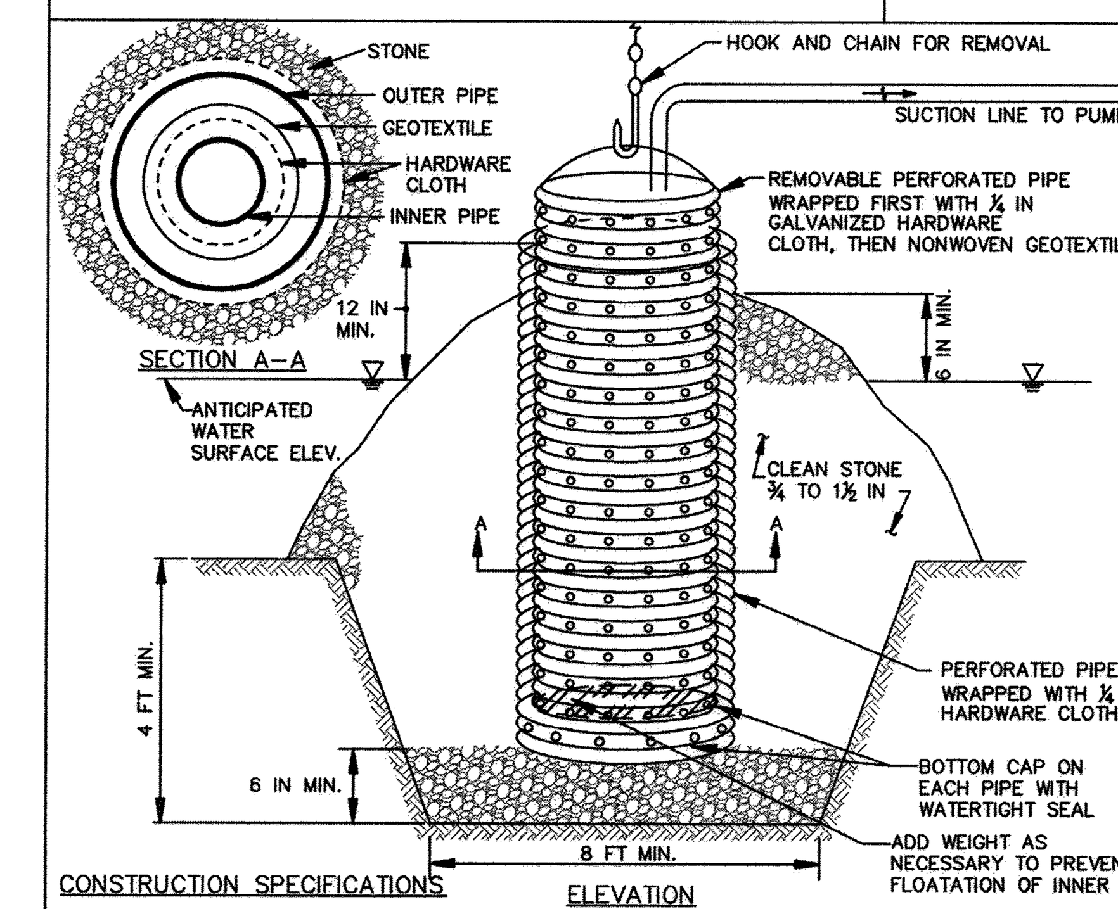
1. RIPRAP AND STONE MUST CONFORM TO THE SPECIFIED CLASS.
2. USE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H–1 MATERIALS, AND PROTECT FROM PUNCTURING, CUTTING, OR TEARING. REPAIR ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE. PROVIDE A MINIMUM OF ONE FOOT OVERLAP FOR ALL REPAIRS AND FOR JOINING TWO PIECES OF GEOTEXTILE TOGETHER.
3. PREPARE THE SUBGRADE FOR GEOTEXTILE OR STONE FILTER (⅜ TO 1½ INCH MINIMUM STONE FOR 6 INCH MINIMUM DEPTH) AND RIPRAP TO THE REQUIRED LINES AND GRADES. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
4. EXTEND GEOTEXTILE AT LEAST 6 INCHES BEYOND EDGES OF RIPRAP AND EMBED AT LEAST 4 INCHES AT SIDES OF RIPRAP.
5. CONSTRUCT RIPRAP OUTLET TO FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. PLACE STONE FOR RIPRAP OUTLET IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. PLACE RIPRAP IN A MANNER TO PREVENT DAMAGE TO THE FILTER BLANKET OR GEOTEXTILE. HAND PLACE TO THE EXTENT NECESSARY.
6. WHERE NO ENDWALL IS USED, CONSTRUCT THE UPSTREAM END OF THE APRON SO THAT THE WIDTH IS TWO TIMES THE DIAMETER OF THE OUTLET PIPE, AND EXTEND THE STONE UNDER THE OUTLET BY A MINIMUM OF 18 INCHES.
7. CONSTRUCT APRON WITH 0% SLOPE ALONG ITS LENGTH AND WITHOUT OBSTRUCTIONS. PLACE STONE SO THAT IT BLENDS IN WITH EXISTING GROUND.
8. MAINTAIN LINE, GRADE, AND CROSS SECTION. KEEP OUTLET FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. AFTER HIGH FLOWS INSPECT FOR SCOUR AND RIPRAP DISLODGED RIPRAP. MAKE NECESSARY REPAIRS IMMEDIATELY.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL F-1 REMOVABLE PUMPING STATION

STANDARD SYMBOL
RPS



CONSTRUCTION SPECIFICATIONS

1. USE CORRUGATED METAL OR PLASTIC PIPE WITH 1 INCH DIAMETER PERFORATIONS 6 INCHES ON CENTER.
2. USE A MINIMUM 12 INCH DIAMETER INNER PIPE WITH AN OUTER PIPE A MINIMUM 6 INCHES LARGER IN DIAMETER. BOTTOM OF EACH PIPE MUST BE CAPPED WITH WATERTIGHT SEAL.
3. WRAP EACH PIPE WITH ¼ INCH GALVANIZED HARDWARE CLOTH. ON INNER PIPE WRAP NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H–1 MATERIALS, OVER THE HARDWARE CLOTH.
4. EXCAVATE 8 FEET X 8 FEET X 4 FEET DEEP PIT FOR PIPE PLACEMENT. PLACE CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE, 6 INCHES IN DEPTH PRIOR TO PIPE PLACEMENT.
5. SET TOP OF INNER AND OUTER PIPES MINIMUM 12 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION (OR RISER CREST ELEVATION WHEN DEWATERING A BASIN).
6. BACKFILL PIT AROUND THE OUTER PIPE WITH ¾ TO 1½ INCH CLEAN STONE OR EQUIVALENT RECYCLED CONCRETE AND EXTEND STONE A MINIMUM OF 6 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION.
7. DISCHARGE TO A STABLE AREA AT A NONEROSIVE RATE.
8. A REMOVABLE PUMPING STATION REQUIRES FREQUENT MAINTENANCE. IF SYSTEM CLOGS, PULL OUT INNER PIPE AND REPLACE GEOTEXTILE. KEEP POINT OF DISCHARGE FREE OF EROSION.

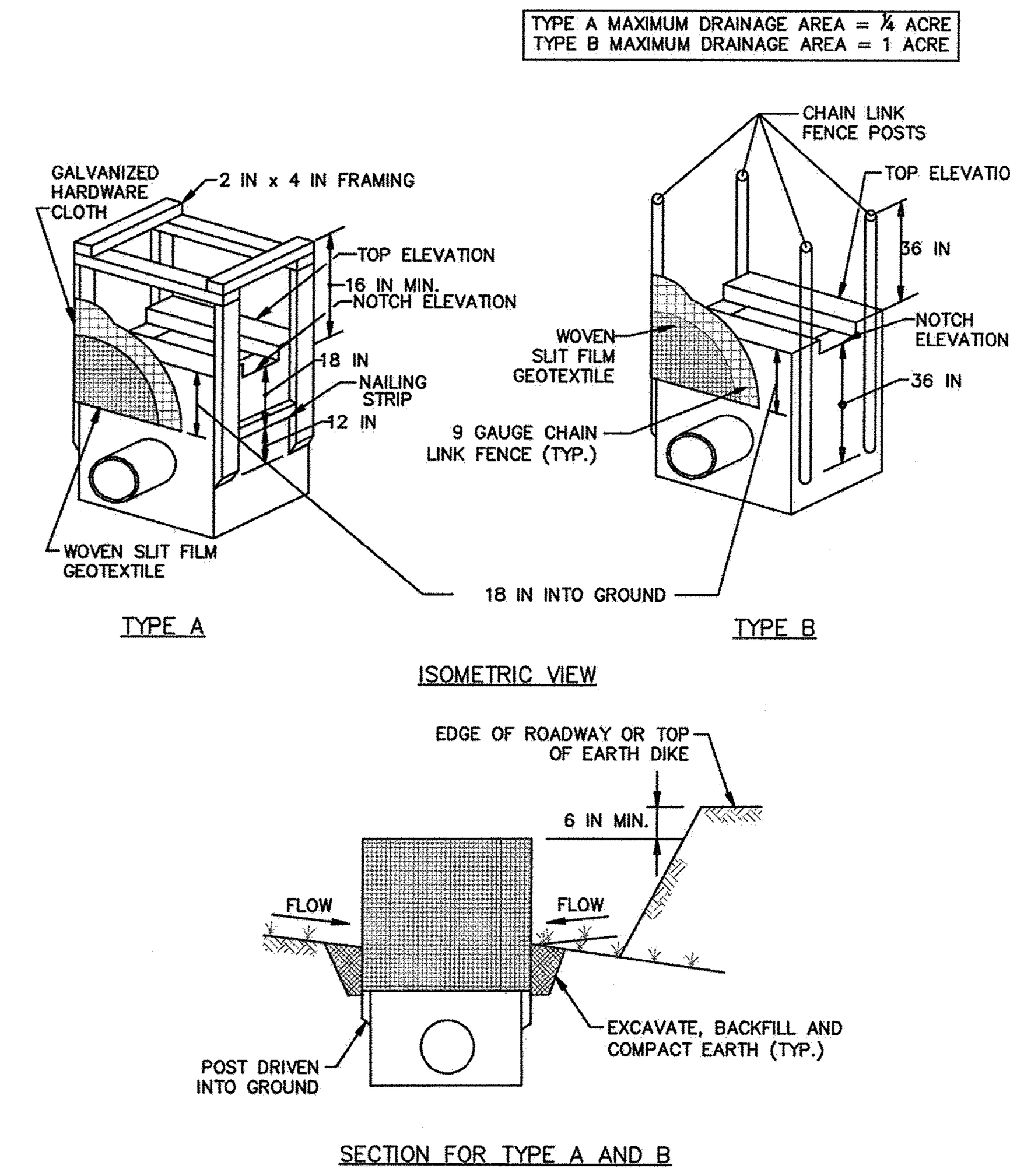
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-9-1 STANDARD INLET PROTECTION

STANDARD SYMBOL
SIP

TYPE A MAXIMUM DRAINAGE AREA = ¼ ACRE
TYPE B MAXIMUM DRAINAGE AREA = 1 ACRE



1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-9-1 STANDARD INLET PROTECTION

STANDARD SYMBOL
SIP

CONSTRUCTION SPECIFICATIONS

1. USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H–1 MATERIALS.
2. EXCAVATE COMPLETELY AROUND THE INLET TO A DEPTH OF 18 INCHES BELOW THE NOTCH ELEVATION.
3. FOR TYPE A, USE NOMINAL 2 INCH X 4 INCH CONSTRUCTION GRADE LUMBER POSTS, DRIVEN 1 FOOT INTO THE GROUND AT EACH CORNER OF THE INLET. PLACE NAIL STRIPS BETWEEN THE POSTS ON THE ENDS OF THE INLET. ASSEMBLE THE TOP PORTION OF THE 2X4 FRAME AS SHOWN. STRETCH ½ INCH GALVANIZED HARDWARE CLOTH TIGHTLY AROUND THE FRAME AND FASTEN SECURELY. FASTEN GEOTEXTILE SECURELY TO THE HARDWARE CLOTH WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND HARDWARE CLOTH A MINIMUM OF 18 INCHES BELOW THE WEIR CREST. THE ENDS OF THE GEOTEXTILE MUST MEET AT A POST, BE OVERLAPPED AND FOLDED, THEN FASTENED TO THE POST.

   FOR TYPE B, USE 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND 6 FOOT LENGTH, DRIVEN A MINIMUM OF 36 INCHES BELOW THE WEIR CREST AT EACH CORNER OF THE STRUCTURE. FASTEN 9 GAUGE OR HEAVIER CHAIN LINK FENCE, 42 INCHES IN HEIGHT, SECURELY TO THE FENCE POSTS WITH WIRE TIES. FASTEN GEOTEXTILE SECURELY TO THE CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 18 INCHES BELOW THE WEIR CREST.
4. BACKFILL AROUND THE INLET IN LOOSE 4 INCH LIFTS AND COMPACT UNTIL SOIL IS LEVEL WITH THE NOTCH ELEVATION ON THE ENDS AND TOP ELEVATION ON THE SIDES.
5. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

2 OF 2

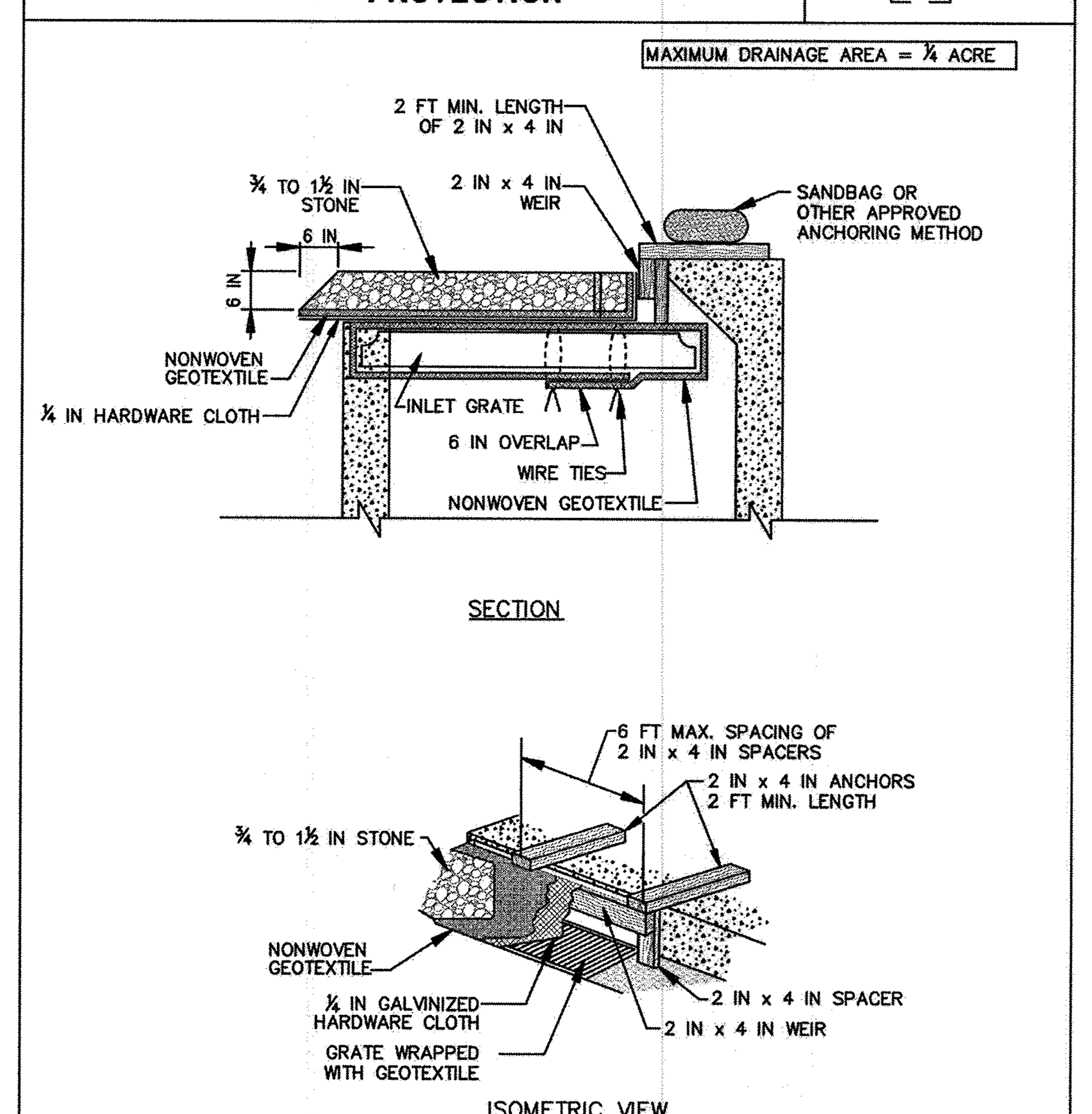
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-9-6 COMBINATION INLET PROTECTION

STANDARD SYMBOL
COIP

MAXIMUM DRAINAGE AREA = ¼ ACRE



1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-9-6 COMBINATION INLET PROTECTION

STANDARD SYMBOL
COIP

CONSTRUCTION SPECIFICATIONS

1. USE NOMINAL 2 INCH x 4 INCH LUMBER.
2. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H–1 MATERIALS.
3. LIFT GRATE, AND WRAP WITH NONWOVEN GEOTEXTILE TO COMPLETELY COVER ALL OPENINGS, THEN SET GRATE BACK IN PLACE.
4. ATTACH A CONTINUOUS PIECE OF ½ INCH GALVANIZED HARDWARE CLOTH WITH A MINIMUM WIDTH OF 30 INCHES AND A MINIMUM LENGTH OF 4 FEET LONGER THAN THE THROAT OPENING, TO THE 2X4 WEIR, EXTENDING 2 FEET BEYOND THROAT ON EACH SIDE.
5. PLACE A CONTINUOUS PIECE OF NONWOVEN GEOTEXTILE THE SAME DIMENSIONS AS THE HARDWARE CLOTH OVER THE HARDWARE CLOTH AND SECURELY ATTACH IT TO THE WEIR.
6. NAIL THE 2X4 WEIR TO THE TOP OF A 9 INCH LONG VERTICAL SPACER TO BE LOCATED BETWEEN THE WEIR AND THE INLET FACE (MAXIMUM 4 FEET APART).
7. PLACE THE ASSEMBLY AGAINST THE INLET THROAT AND NAIL TO 2X4 ANCHORS (MINIMUM 2 FOOT LENGTHS OF 2x4 INCH TO THE TOP OF THE WEIR AT SPACER LOCATIONS). EXTEND 2X4 ANCHORS ACROSS THE INLET TOP AND HOLD IN PLACE BY SANDBAGS OR OTHER APPROVED ANCHORING METHOD.
8. INSTALL END SPACERS A MINIMUM OF 1 FOOT BEYOND BOTH ENDS OF THE THROAT OPENING.
9. FORM THE ¼ INCH HARDWARE CLOTH AND THE GEOTEXTILE TO THE CONCRETE GUTTER AND AGAINST THE FACE OF THE CURB ON BOTH SIDES OF THE INLET. PLACE CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE OVER THE HARDWARE CLOTH AND GEOTEXTILE IN SUCH A MANNER TO PREVENT WATER FROM ENTERING THE INLET UNDER OR AROUND THE GEOTEXTILE.
10. AT NON–SUMP LOCATIONS, INSTALL A TEMPORARY SANDBAG OR ASPHALT BERM TO PREVENT INLET BYPASS.
11. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

2 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

AS-BUILT CERTIFICATION

NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.

Sharon K. Cruz — 36896
PRINTED NAME — MD P.E. NO.

SIGNATURE — 7/2/19
DATE

ENGINEER'S CERTIFICATE

I 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.

SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE) — DATE 8/22/17
Sharon K. Cruz

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 OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL ON EROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I CERTIFY RIGHT-OF-ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT AND/OR MDE."

Jacqueline Carbone — 8/1/17
SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE) — DATE
Jacqueline Carbone

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

John R Robertson — 8/31/17
HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED : DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9.21.17

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9.27.17

DIRECTOR — DATE 10.2.17

DATE	NO.	REVISION	BY

DEVELOPER
DCT INDUSTRIAL
12011 GUILFORD ROAD
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

PROJECT

TERRAPIN COMMERCE CENTER

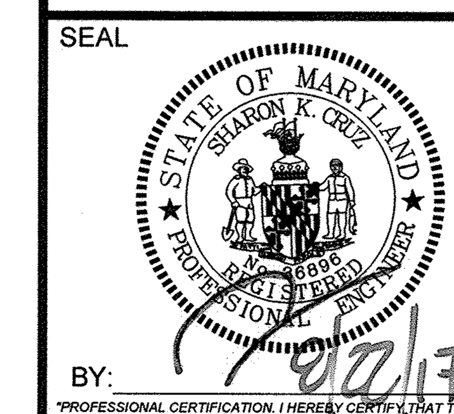
AREA
TAX MAP 43, PARCEL 51 LOT PAR A PLAT 23793 ZONED M-2
GRID NO. 11 1st ELECTION DISTRICT
7200 DORSEY RUN ROAD
ELKRIDGE, MARYLAND 21075
HOWARD COUNTY, MARYLAND

TITLE

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

SEAL



BY: 8/22/17

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36896, EXPIRATION DATE: 2-15-2019"

DESIGNED BY : PJS
DRAWN BY: AGS/JSN
PROJECT NO : DCTI1601
DATE : JUNE 23, 2017
SCALE : AS SHOWN
DRAWING NO. 12 OF 43

T:\PROJECTS\DCTI\DCTI1601–MEARS PROPERTY TERRAPIN COMMERCE\DESIGN_PUBLISH\SITE DEVELOPMENT PLANS – BUILDING A\DCTI1601–SDP12

SDP-17-030

CONSTRUCTION SPECIFICATIONS

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 embankment.

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 engineer.

Materials used in the outer shell of the embankment 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 into the embankment.

Compaction - The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed by not less than one tread track of heavy equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction will be obtained with the equipment used. The fill material shall contain sufficient moisture so that if formed into a ball it will not crumble, yet not be so wet that water can be squeezed out.

When required by the reviewing agency the minimum required density shall not be less than 95% of maximum dry density with a moisture content within ±2% of the optimum. Each layer of fill shall be compacted as necessary to obtain that density, and is to be certified by the Engineer at the time of construction. All compaction is to be determined by AASHTO Method T-99 (Standard Proctor).

Cut Off Trench - The cutoff trench shall be excavated into impervious material along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be governed by the equipment used for excavation, with the minimum width being four feet. The depth shall be at least four feet below existing grade or as shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter. The backfill shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density 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 embankment.

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 pipe.

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, etc.) to prevent floating the pipe. When using flowable fill, all metal pipe shall be bituminous coated. Any adjoining soil fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material shall completely fill all voids adjacent to the flowable fill zone. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. 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 conforming to that specified for the core of the embankment or other embankment materials.

Pipe Conduits

All pipes shall be circular in cross section.

Corrugated Metal Pipe - All of the following criteria shall apply for corrugated metal pipe:

1. Materials - (Polymer Coated steel pipe) - Steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. This pipe and its appurtenances shall conform to the requirements of AASHTO Specifications M-245 & M-246 with watertight coupling bands or flanges.

   Materials - (Aluminum Coated Steel Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-274 with watertight coupling bands or flanges. Aluminum Coated Steel Pipe, when used with flowable fill or when soil and/or water conditions warrant the need for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Any aluminum coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt.

   Materials - (Aluminum Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-196 or M-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 contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soils shall be between 4 and 9.

2. Coupling bands, anti-seep collars, end sections, etc., must be composed of the same material and coatings as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 mils in thickness.

3. Connections - All connections with pipes must be completely watertight. The drain pipe or barrel connection to the riser shall be welded all around when the pipe and riser are metal. Anti-seep collars shall be connected to the pipe in such a manner as to be completely watertight. Dimple 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 o-ring gaskets having a minimum diameter of 1/2 inch greater than the corrugation depth. Pipes 24 inches in diameter and larger shall be connected by a 24 inch long annular corrugated band using a minimum of 4 (four) rods and lugs, 2 on each connecting pipe end. A 24-inch wide by 3/8-inch thick closed cell circular neoprene gasket will be installed with 12 inches on the end of each pipe. Flanged joints with 3/8 inch closed cell gaskets the full width of the flange is also acceptable.

   Helically corrugated pipe shall have either continuously welded seams or have lock seams with internal caulking or a neoprene bead.

4. Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

5. Backfilling shall conform to "**Structure Backfill**".

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

Reinforced Concrete Pipe - All of the following criteria shall apply for reinforced concrete pipe:

1. Materials - Reinforced concrete pipe shall have bell and spigot joints with rubber gaskets and shall equal or exceed ASTM C-361.

2. Bedding - Reinforced concrete pipe conduits shall be laid in a concrete bedding / cradle for their entire length. This bedding / cradle shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 50% of its outside diameter with a minimum thickness of 6 inches. Where a concrete cradle is not needed for structural reasons, flowable fill may be used as described in the "Structure Backfill" section of this standard. Gravel bedding is not permitted.

3. Laying pipe - Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe. The first joint must be located within 4 feet from the riser.

4. Backfilling shall conform to "**Structure Backfill**".

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

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

1. Materials - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM 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 Type S.

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

3. Bedding -The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

4. Backfilling shall conform to "**Structure Backfill**".

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

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

Concrete

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, Section 311.

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 performance of all construction operations. During the placing and compacting of material in required excavations, the water level at the locations being refilled shall be maintained below the bottom of the excavation at such locations which may require draining the water sumps from which the water shall be pumped.

Stabilization

All borrow areas shall be graded to provide proper drainage and left in a sightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching in accordance with the Natural Resources Conservation Service Standards and Specifications for Critical Area Planting (MD-342) or as shown on the accompanying drawings.

Erosion and Sediment Control

Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures.

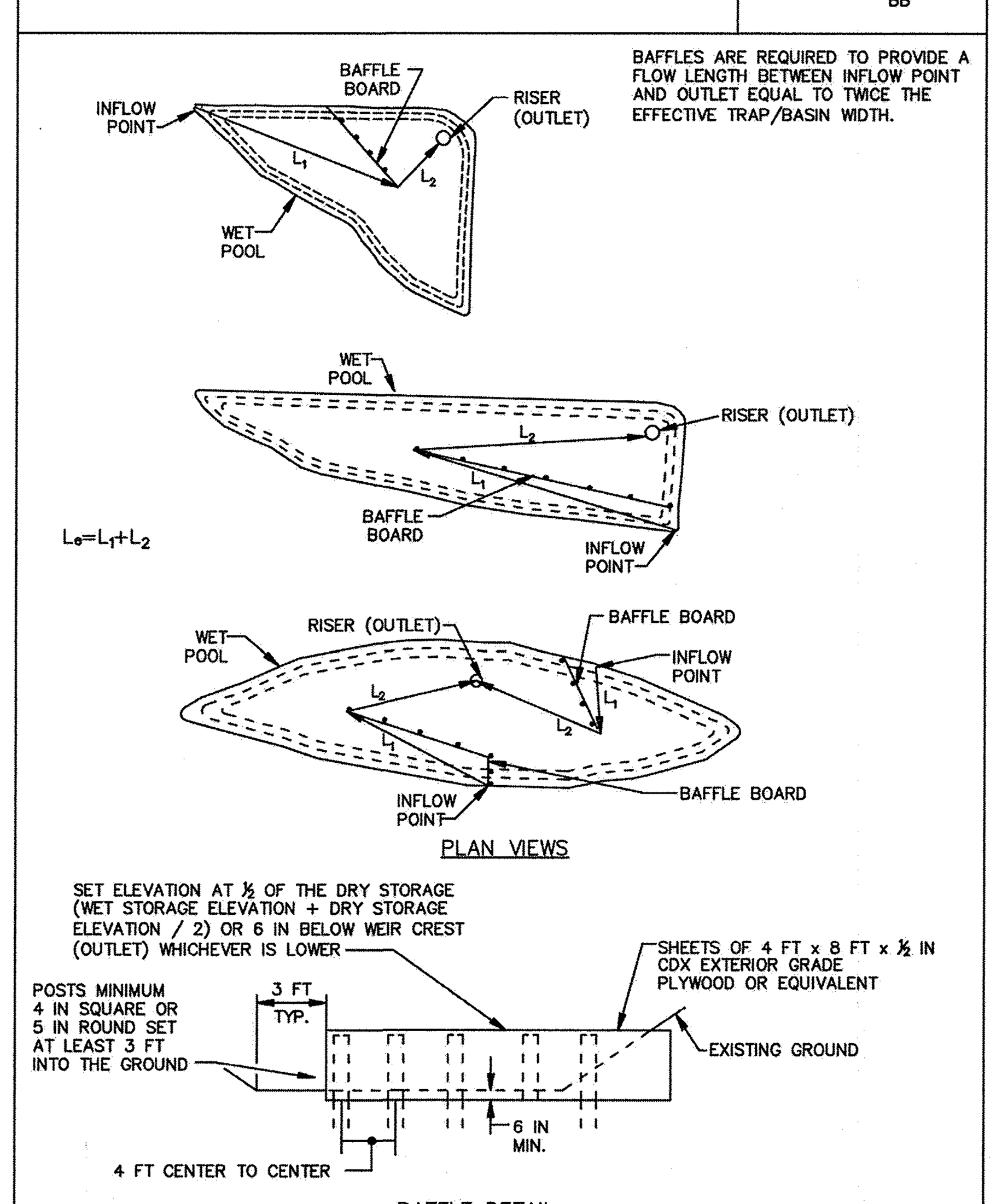
OPERATION AND MAINTENANCE

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.

DETAIL G-2-4 BAFFLE BOARDS

STANDARD SYMBOL: BB

BAFFLES ARE REQUIRED TO PROVIDE A FLOW LENGTH BETWEEN INFLOW POINT AND OUTLET EQUAL TO TWICE THE EFFECTIVE TRAP/BASIN WIDTH.



MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

SEQUENCE OF CONSTRUCTION

1. 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 – SEWER OUTFALL

4. INSTALL STABILIZED CONSTRUCTION ENTRANCES. CLEAR AND GRUB AS NECESSARY TO INSTALL PERIMETER SUPER SILT FENCES FOR SEWER CONSTRUCTION. (1 WEEK)
5. INSTALL SEWER OUTFALL (MH7867 TO MH8). (2 WEEKS)
6. UPON COMPLETION OF SEWER CONSTRUCTION, STABILIZE ALL DISTURBED AREAS. WITH STABILIZATION OF DISTURBED AREAS, AND APPROVAL OF SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROLS.
7. CONCURRENT WITH SEWER INSTALLATION, INSTALL REMAINING STABILIZED CONSTRUCTION ENTRANCES. CLEAR AND GRUB AS NECESSARY TO INSTALL PERIMETER SUPER SILT FENCES AND PERIMETER EARTH DIKES FOR CLEAN WATER DIVERSION. (1 WEEK)
8. 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 8.
   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 LICENSED 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 DAYS)
   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. INSTALL BAFFLE BOARDS. (5 DAYS)
   J. UPON COMPLETION OF BASIN, STABILIZE WITH TEMPORARY SEEDING. (1 DAY)
   K. OBTAIN INSPECTOR'S APPROVAL BEFORE PROCEEDING FURTHER. (1 DAY)
9. UPON COMPLETION OF THE SEDIMENT BASIN INSTALL EARTHDIKES DRAINING TO SEDIMENT BASIN. (3 DAYS)

PHASE 2 – BUILDING A MASS GRADING

10. WITH APPROVAL OF SEDIMENT CONTROL INSPECTOR, BEGIN CLEARING AND GRADING. FOLLOW DUST CONTROL PRACTICES PER MDE DETAIL. AS GRADING PROCEEDS, CONSTRUCT SITE RETAINING WALLS. DELAY CONSTRUCTION OF RETAINING WALL, PAVEMENT, AND STORM DRAIN FROM I504 TO FS2 IMMEDIATELY ADJACENT TO BASIN UNTIL SITE IS STABILIZED AND POND CONVERSION IS UNDERWAY. MAINTAIN FLOWS TO SEDIMENT BASIN DURING GRADING. (3 MONTHS)
11. WITH COMPLETION OF BUILDING PAD, BEGIN BUILDING CONSTRUCTION. (3 MONTHS)
12. 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 TEMPORARY 24" CMP PIPE FROM M506 TO BASIN TO DIRECT FLOWS TO SEDIMENT BASIN. BLOCK OPENINGS FROM M506 TO UNDERGROUND SWM SYSTEM. DO NOT CONNECT BUILDING ROOF DRAINS TO EXTERNAL ROOF DRAIN UNTIL SWM FACILITIES ARE FUNCTIONAL. BLOCK INLETS I302 AND I202 UNTIL MB#1 AND MB#2 ARE COMPLETE. MAINTAIN FLOWS TO SEDIMENT BASIN DURING UTILITY CONSTRUCTION. (1 MONTH)
13. INSTALL UNDERGROUND SWM SYSTEM AND OUTFALL FROM CS3 TO M61. CONTACT PENNONI ENGINEER TO OBSERVE INSTALLATION OF SWM FACILITIES. DO NOT CONNECT UNDERGROUND SWM SYSTEM TO STORM DRAIN UNTIL POND CONVERSION AND SITE STABILIZATION, (2 WEEKS)
14. MAINTAIN FLOWS TO SEDIMENT BASIN THROUGHOUT PHASE 2.

PHASE 3 – FINAL GRADING

15. WITH COMPLETION OF SUBGRADE AND UTILITY INSTALLATION, INSTALL CURB AND GUTTER. BEGIN PARKING LOT CONSTRUCTION. CONSTRUCT THE STONE SUBGRADE OF THE ASPHALT AND CONCRETE PAVEMENT ON THE SITE. (15 DAYS)
16. INSTALL ASPHALT AND CONCRETE PAVEMENT. (5 DAYS)
17. PERFORM FINE GRADING, CONSTRUCT SIDEWALKS, AND ANY OTHER CONSTRUCTION ACTIVITY. MAINTAIN FLOWS TO SEDIMENT BASIN DURING FINE GRADING AND PAVING OPERATIONS. (28 DAYS)
18. STABILIZE ALL DISTURBED AREAS. (1 DAY)
19. BEGIN POND CONVERSION AND FINAL POND GRADING TO ALLOW THE CONSTRUCTION RETAINING WALL, PAVEMENT, AND STORM DRAIN FROM STRUCTURE I504 TO FS1. REMOVE TEMPORARY 24" CMP UPON COMPLETION OF STORM DRAIN. (2 WEEKS)
20. CONSTRUCT MICRO BIORETENTION FACILITIES AND SUBMERGED GRAVEL WETLAND 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)
21. WITH APPROVAL OF THE INSPECTOR, FLUSH STORM DRAIN AND CONVERT BASIN. MUCK OUT BASIN AND COMPLETE BASIN REGRADING BASED ON FINAL GRADING PLAN. REMOVE DRAWDOWN DEVICE AND REMOVAL PUMPING STATION. INSTALL LOW FLOW PIPE AND TRASH RACKS. REMOVE BLOCKING FROM ALL INLETS AND STRUCTURES. (5 DAYS)
22. COMPLETE PAVING AND LANDSCAPING ON THE SITE. (2 WEEKS)
23. 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)

HOWARD SOIL CONSERVATION DISTRICT (HSCD) STANDARD SEDIMENT CONTROL NOTES

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 CID MUST BE GIVEN AT THE FOLLOWING STAGES:
A. PRIOR TO THE START OF EARTH DISTURBANCE,
B. UPON COMPLETION OF THE INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING,
C. PRIOR TO THE START OF ANOTHER PHASE OF CONSTRUCTION OR OPENING OF ANOTHER GRADING UNIT,
D. 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.

3. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION IS REQUIRED WITHIN THREE (3) CALENDAR 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 >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, 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 THEIR REMOVAL HAS BEEN OBTAINED FROM THE CID.

6. SITE ANALYSIS:
TOTAL AREA OF SITE: 13.50 ACRES
AREA DISTURBED: 9.70 ACRES
AREA TO BE ROOFED OR PAVED: 6.50 ACRES
AREA TO BE VEGETATIVELY STABILIZED: 3.20 ACRES
TOTAL CUT: 32,187 CU. YDS.
TOTAL FILL: 34,658 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.

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, IS PART OF EVERY INSPECTION AND SHOULD INCLUDE:
- 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
- EVIDENCE OF SEDIMENT DISCHARGES
- IDENTIFICATION OF PLAN DEFICIENCIES
- IDENTIFICATION OF SEDIMENT CONTROLS THAT REQUIRE MAINTENANCE
- IDENTIFICATION OF MISSING OR IMPROPERLY INSTALLED SEDIMENT CONTROLS
- COMPLIANCE STATUS REGARDING THE SEQUENCE OF CONSTRUCTION AND STABILIZATION REQUIREMENTS
- PHOTOGRAPHS
- MONITORING/SAMPLING
- MAINTENANCE AND/OR CORRECTIVE ACTION PERFORMED
- 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 HSCD, 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.

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.

15. STREAM CHANNELS MUST NOT BE DISTURBED DURING THE FOLLOWING RESTRICTED TIME PERIODS (INCLUSIVE):
- 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 PERMITS SHALL BE ON-SITE AND AVAILABLE WHEN THE SITE IS ACTIVE.

AS-BUILT CERTIFICATION

NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.

Sharon K. Cruz — PRINTED NAME | 36896 — MD. P.E. NO.

SIGNATURE | 7/2/19 — DATE

ENGINEER'S CERTIFICATE

I 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.

SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE) | DATE 8/22/17

Sharon K. Cruz

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 OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL ON EROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I CERTIFY RIGHT-OF-ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT AND/OR MDE."

Jacqueline Carbone — SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE) | DATE 8/1/17

Jacqueline Carbone

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

John R Robertson — HOWARD SOIL CONSERVATION DISTRICT | DATE 8/30/17

APPROVED : DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9.21.17
CHIEF, DIVISION OF LAND DEVELOPMENT NH	DATE 9.27.17
DIRECTOR	DATE 10.2.17

DATE	NO.	REVISION	BY

DEVELOPER: DCT INDUSTRIAL, 12011 GUILFORD ROAD, 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

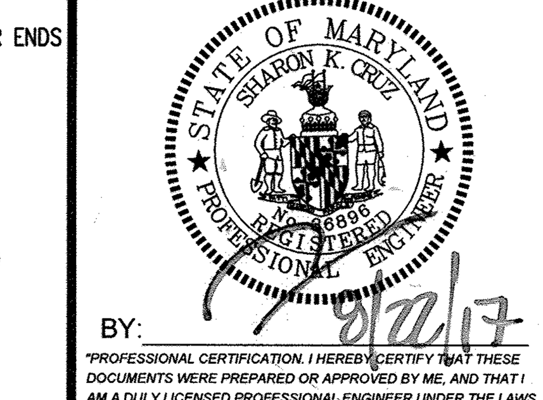
PROJECT: TERRAPIN COMMERCE CENTER

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

TITLE: 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

SEAL



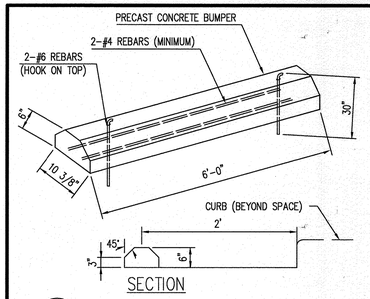
BY: 8/22/17

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36896, EXPIRATION DATE: 2-15-2019"

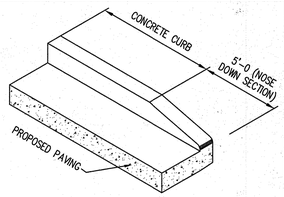
DESIGNED BY : PJS	
DRAWN BY: AGS/JSN	
PROJECT NO : DCTI1601	
DATE : JUNE 23, 2017	
SCALE : AS SHOWN	
DRAWING NO. 13 OF 43	

SDP-17-030

T:\PROJECTS\DCT\DCTI1601-MEARS PROPERTY TERRAPIN COMMERCE\DESIGN_PUBLISH\SITE DEVELOPMENT PLANS - BUILDING A\DCTI1601-SDP13

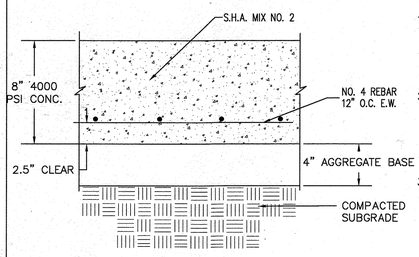


1/14 CONCRETE WHEEL STOP
NOT TO SCALE



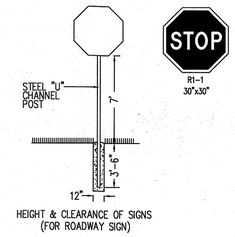
HOWARD COUNTY DESIGN MANUAL, VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (DETAIL R-3.02).

2/14 NOSE DOWN CURB
NOT TO SCALE HC DPW STD. R-3.02



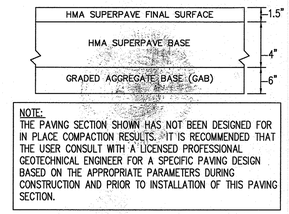
NOTES:
1. ALL FINISHED DRIVEWAY AND PARKING SUBGRADE SHOULD BE CONSTRUCTED AND COMPLY WITH "SITE PREPARATION" SPECIFICATION OF THE GEOTECHNICAL REPORT.
2. PRIOR TO PLACEMENT OF STONE BASE, THE ENTIRE SUBGRADE SHOULD BE PROOFROLLED WITH A 30-TON LOADED DUMP TRUCK. ANY SOFT AND UNSTABLE SUBGRADE SHOULD BE CORRECTED.
3. AFTER APPROVAL OF THE SUBGRADE, THE PAVEMENT SECTION SHALL BE CONSTRUCTED. THE PAVEMENT SECTION SHOULD FOLLOW THE SPECIFICATIONS IN THE GEOTECHNICAL REPORT.

3/14 CONCRETE PAVEMENT
NOT TO SCALE



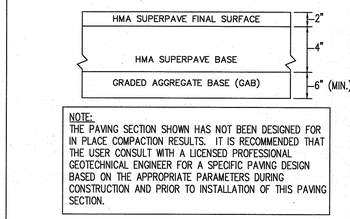
HEIGHT & CLEARANCE OF SIGNS (FOR ROADWAY SIGN)

4/14 STOP SIGN
NOT TO SCALE



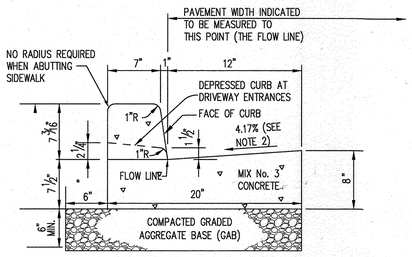
NOTE:
THE PAVING SECTION SHOWN HAS NOT BEEN DESIGNED FOR IN PLACE COMPACTION RESULTS. IT IS RECOMMENDED THAT THE USER CONSULT WITH A LICENSED PROFESSIONAL GEOTECHNICAL ENGINEER FOR A SPECIFIC PAVING DESIGN BASED ON THE APPROPRIATE PARAMETERS DURING CONSTRUCTION AND PRIOR TO INSTALLATION OF THIS PAVING SECTION.

5/14 LIGHT DUTY PAVING
NOT TO SCALE



NOTE:
THE PAVING SECTION SHOWN HAS NOT BEEN DESIGNED FOR IN PLACE COMPACTION RESULTS. IT IS RECOMMENDED THAT THE USER CONSULT WITH A LICENSED PROFESSIONAL GEOTECHNICAL ENGINEER FOR A SPECIFIC PAVING DESIGN BASED ON THE APPROPRIATE PARAMETERS DURING CONSTRUCTION AND PRIOR TO INSTALLATION OF THIS PAVING SECTION.

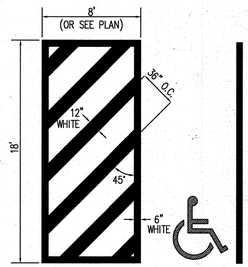
6/14 HEAVY DUTY PAVING
NOT TO SCALE



HOWARD COUNTY DESIGN MANUAL, VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (DETAIL R-3.01).

NOTES:
1. A REVERSE GUTTER PAN SHALL HAVE A GUTTER SLOPE OF 4.17% AWAY FROM THE FLOW LINE, AND SHALL NOT BE USED WHERE THIS DRAINAGE CREATES A HAZARDOUS CONDITION.
2. GUTTER PAN AT THE MEDIAN EDGE OF INTERMEDIATE ARTERIALS OR THE HIGH SIDE OF SUPERELEVATED SECTIONS SHALL BE SLOPED AT THE SAME RATE AND IN THE SAME DIRECTION AS THE PAVEMENT. MATCH PAVEMENT CROSS SLOPE WHEN CURB IS LOCATED ON THE LOW SIDE OF SUPERELEVATED SECTION AND THE RATE OF SUPERELEVATION IS GREATER THAN 3% FOR MODIFIED CURB & GUTTER.
3. A MINIMUM OF TWO (2) FEET OF COMPACTED STABILIZED EARTH, OR EQUIVALENT, SHALL SUPPORT THE ENTIRE BACK OF CURB.
4. POSITIVE DRAINAGE SHALL BE PROVIDED BOTH BEHIND THE CURB AND ALONG THE GUTTER AND FLOW LINE.

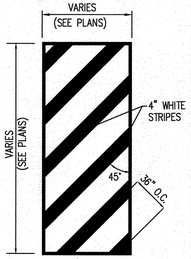
7/14 7" COMBINATION CURB AND GUTTER
NOT TO SCALE HC DPW STD. R-3.01



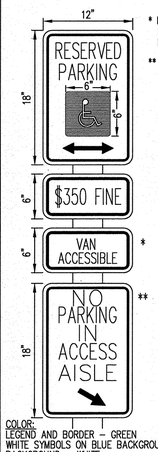
HDCP SPACE

LINE SPECIFICATIONS

8/14 STRIPING STANDARDS
NOT TO SCALE

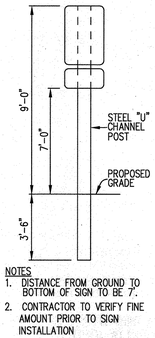


"NO PARKING ZONE" STRIPING



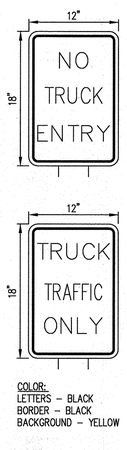
* FOR VAN ACCESSIBLE SPACES ONLY. SEE PLAN FOR LOCATION.
** FOR A SPACE NEXT TO AN ACCESS AISLE ONLY

COLOR:
LEGEND AND BORDER – GREEN
WHITE SYMBOLS ON BLUE BACKGROUND
BACKGROUND – WHITE

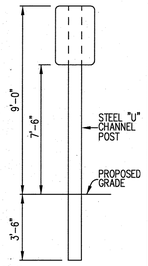


NOTES
1. DISTANCE FROM GROUND TO BOTTOM OF SIGN TO BE 7'.
2. CONTRACTOR TO VERIFY FINE AMOUNT PRIOR TO SIGN INSTALLATION

9/14 ACCESSIBLE PARKING SIGN
NOT TO SCALE

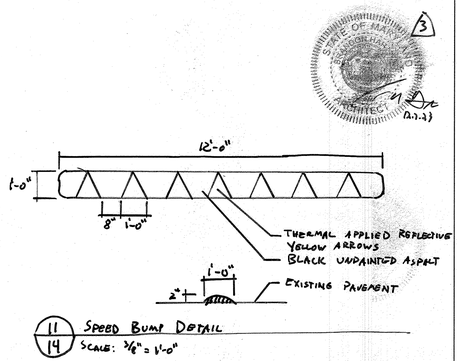


COLOR:
LETTERS – BLACK
BORDER – BLACK
BACKGROUND – YELLOW

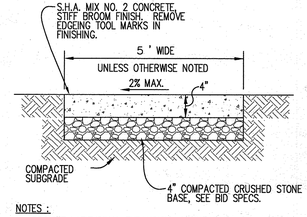


NOTES
1. DISTANCE FROM GROUND TO BOTTOM OF SIGN TO BE 7'.

10/14 TRAFFIC DESIGNATION SIGNS
NOT TO SCALE



11/14 SPEED BUMP DETAIL
SCALE: 3/16" = 1'-0"



NOTES :
1. PROVIDE LATITUDINAL EXPANSION JOINTS AT 15' O.C. (MAX.)
2. PROVIDE CONTRACTION (DUMMY) JOINT AT 5' O.C. INTERVALS BETWEEN EXPANSION JOINTS. SIDEWALK TO BE SCRIBED IN 5' MAX. SQUARES. CONTRACTOR TO AVOID THE CREATION OF SMALL SCORED AREAS THAT WILL CRACK AND BREAK OFF FROM SIDWALK.
3. SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%.
4. CONCRETE SHALL BE 3,000 PSI.

12/14 CONCRETE SIDEWALK
NOT TO SCALE

AS-BUILT CERTIFICATION

NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.

Sharon K. Cruz	36896
PRINTED NAME	MD. P.E. NO.
SIGNATURE	7/12/17 DATE

APPROVED : DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	9.21.17 DATE
CHIEF, DIVISION OF LAND DEVELOPMENT MW	9.27.17 DATE
DIRECTOR	10.2.17 DATE

DATE	NO.	REVISION	BY
10/20/23	3	PARKING LOT IMPROVEMENTS	BA

DEVELOPER
DCT INDUSTRIAL
12011 GUILFORD ROAD
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

PROJECT
TERRAPIN COMMERCE CENTER

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

TITLE
SITE DETAILS

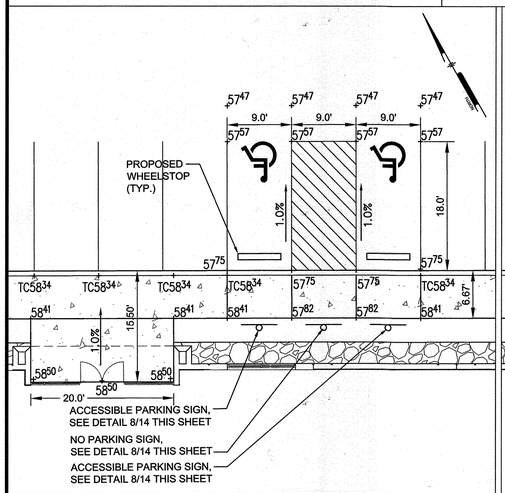
Pennoni Associates Inc.
Engineers • Surveyors • Planners
Landscape Architects
8818 Centre Park Drive, Suite 200 Columbia, MD 21045
T 410.997.8900 F 410.997.9282

SEAL

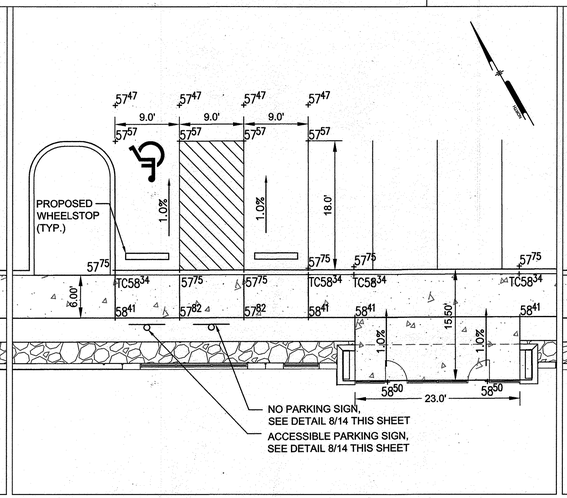
BY: 9/20/17

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36896, EXPIRATION DATE: 2-15-2019"

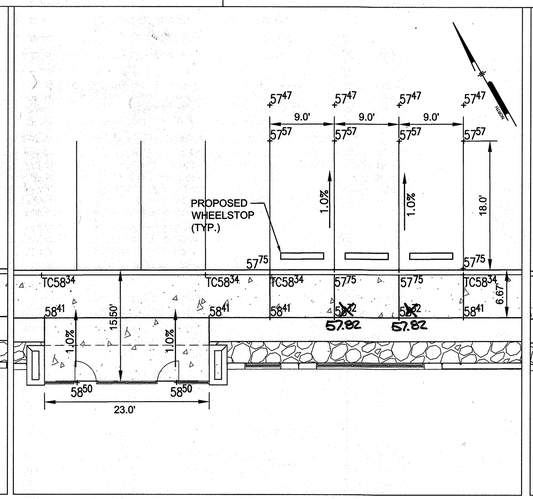
DESIGNED BY :	PJS
DRAWN BY:	AGS/JSN
PROJECT NO :	DCT1601
DATE :	JUNE 23, 2017
SCALE :	AS SHOWN
DRAWING NO.	14 OF 43



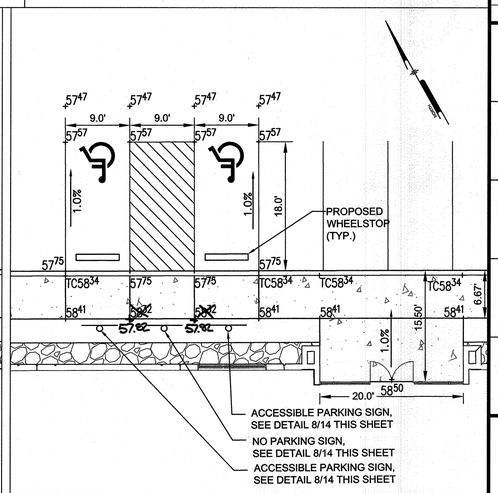
13/14 ACCESSIBLE PARKING
SCALE: 1"=10'



14/14 ACCESSIBLE PARKING
SCALE: 1"=10'



15/14 POTENTIAL ACCESSIBLE PARKING
SCALE: 1"=10'

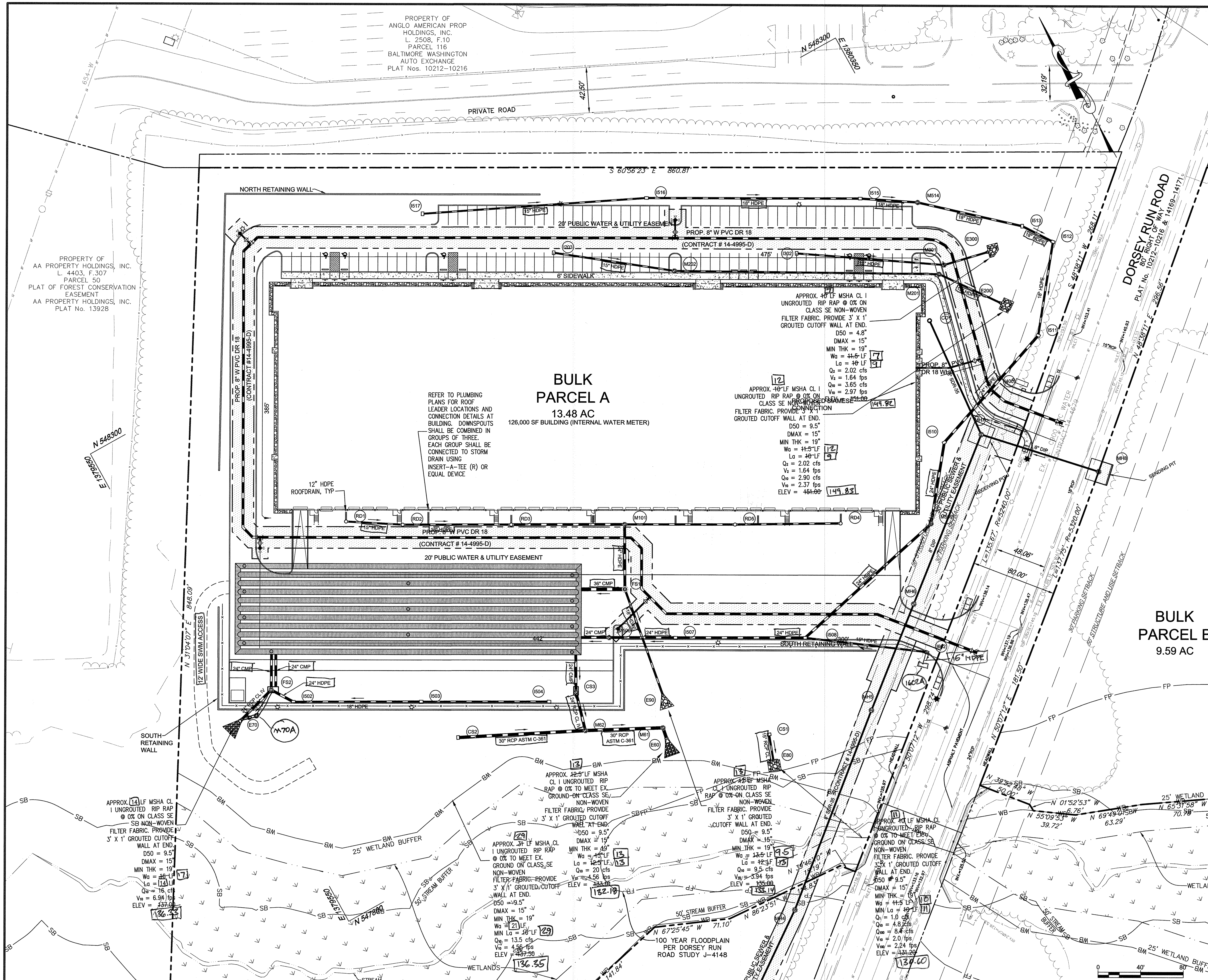


16/14 ACCESSIBLE PARKING
SCALE: 1"=10'

ACCESSIBILITY NOTES:

1. 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 FOLLOWING SHALL APPLY:
A) MAXIMUM SIDEWALK CROSS SLOPES SHALL BE 2%.
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 POINTS
C) ALL HANDICAPPED PARKING SHALL BE SLOPED NO GREATER THAN 2% IN ANY DIRECTION, INCLUDING A 5' WIDE AREA BEHIND THE PARKING SPACES.
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.

SDP-17-030



LEGEND

PROPERTY LINE AND RIGHT-OF-WAY
PROPOSED STORM DRAIN
PROPOSED WATER
PROPOSED FIRE HYDRANT
PROPOSED SEWER

AS-BUILT CERTIFICATION

I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN AND MEET THE APPROVED PLANS AND SPECIFICATIONS.

SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE) — DATE 7/8/19

Sharon K. Cruz — PE # 36896

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36896, EXPIRATION DATE: 2.15.21

STATE OF MARYLAND — SHARON K. CRUZ — No. 36896 — PROFESSIONAL ENGINEER

APPROVED : DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9.21.17
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9.27.17
DIRECTOR	DATE 10-2-17

DATE	NO.	REVISION	BY

DEVELOPER
DCT INDUSTRIAL
12011 GUILFORD ROAD
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

PROJECT
TERRAPIN COMMERCE CENTER

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

TITLE
UTILITY PLAN
AS-BUILT

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

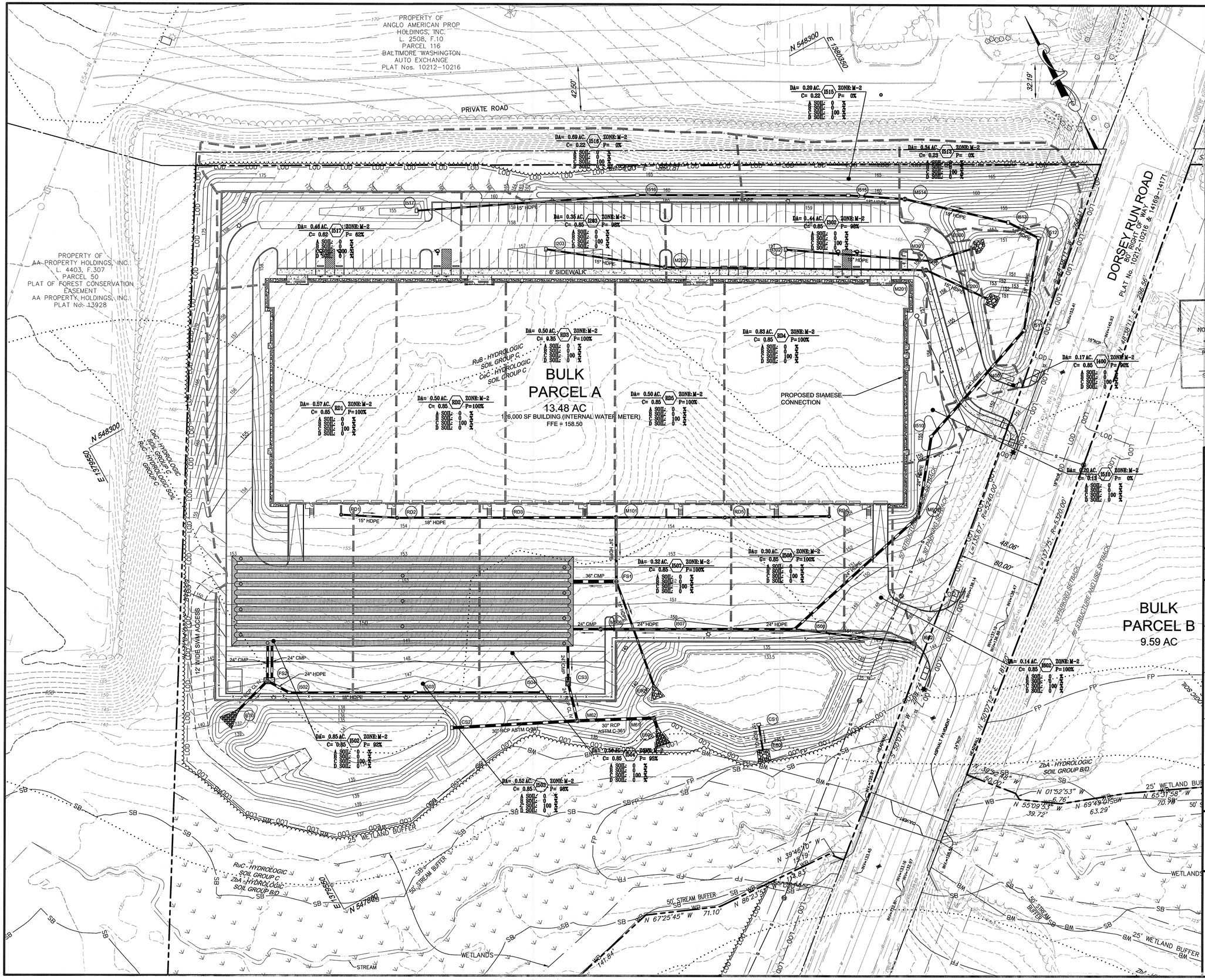
SEAL
STATE OF MARYLAND — SHARON K. CRUZ — No. 36896 — REGISTERED PROFESSIONAL ENGINEER

BY: 9/22/17

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36896, EXPIRATION DATE: 2-15-2019

DESIGNED BY :	PJS
DRAWN BY:	AGS/JSN
PROJECT NO :	DCTI1601
DATE :	JUNE 23, 2017
SCALE :	1" = 40'
DRAWING NO.	15 OF 43

SDP-17-030



LEGEND

- PROPERTY LINE AND RIGHT-OF-WAY
- EXISTING 1' CONTOUR — 154
- EXISTING 5' CONTOUR — 155
- EXISTING SOILS — RuB
- PROPOSED 1' CONTOUR — 164
- PROPOSED 5' CONTOUR — 165
- PROPOSED SPOT ELEVATION — 56.96+
- PROPOSED STORM DRAIN
- PROPOSED TREE LINE
- DRAINAGE AREA

AS-BUILT CERTIFICATION

NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.

Sharon K. Cruz — 36996
PRINTED NAME — MD. P.E. NO.

SIGNATURE — 7/2/19 DATE

0 40' 80'

APPROVED : DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 9.21.17 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT — 9.27.17 DATE

DIRECTOR — 10-2-17 DATE

DATE	NO.	REVISION	BY

DEVELOPER
DCT INDUSTRIAL
12011 GUILFORD ROAD
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

PROJECT
TERRAPIN COMMERCE CENTER

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

TITLE
STORM DRAIN
DRAINAGE AREA MAP

Pennoni Associates Inc.
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Landscape Architects
8818 Centre Park Drive, Suite 200 Columbia, MD 21045
T 410.997.8900 F 410.997.9282

SEAL

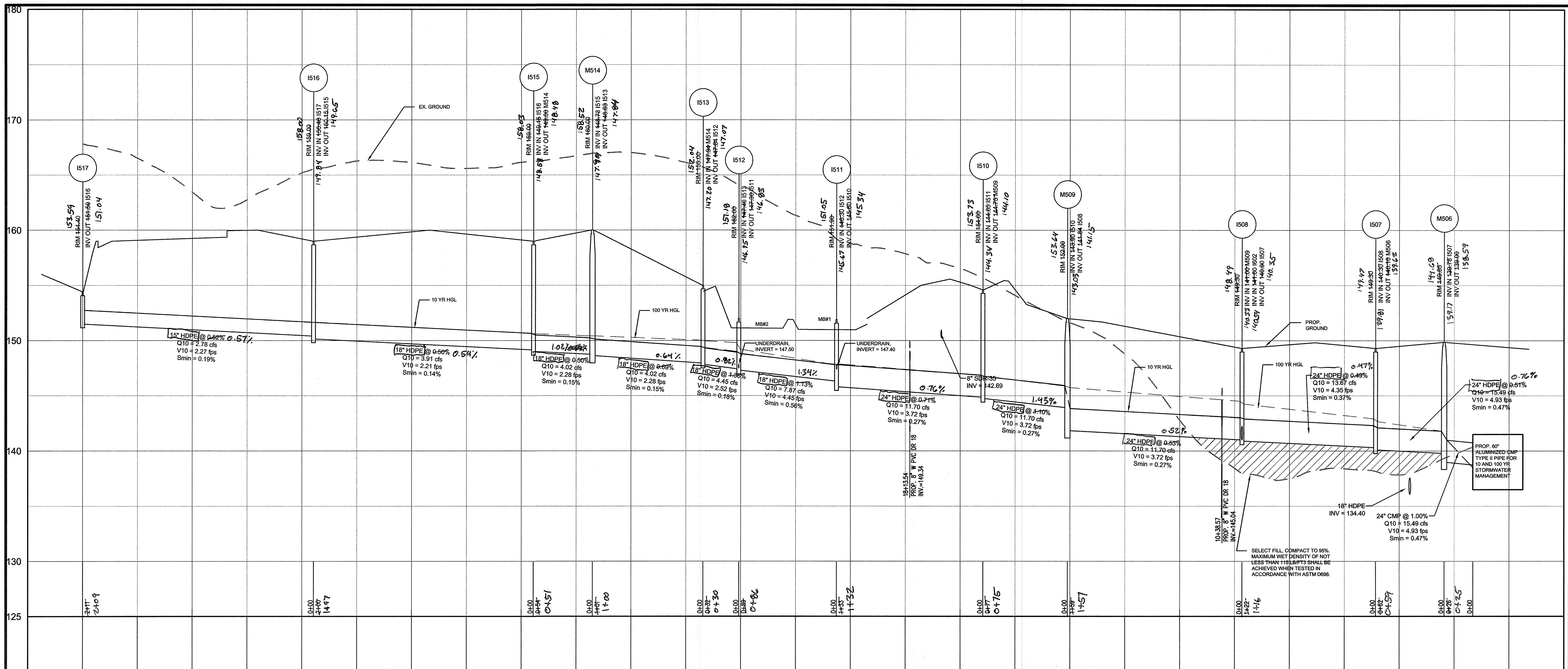
STATE OF MARYLAND — SHARON K. CRUZ — No. 36996 — REGISTERED PROFESSIONAL ENGINEER

BY: 9/22/17

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36996, EXPIRATION DATE: 7-1-2019"

DESIGNED BY :	PJS
DRAWN BY:	AGS/JSN
PROJECT NO :	DCTI1601
DATE :	JUNE 23, 2017
SCALE :	1" = 40'
DRAWING NO.	16 OF 43

SDP-17-030



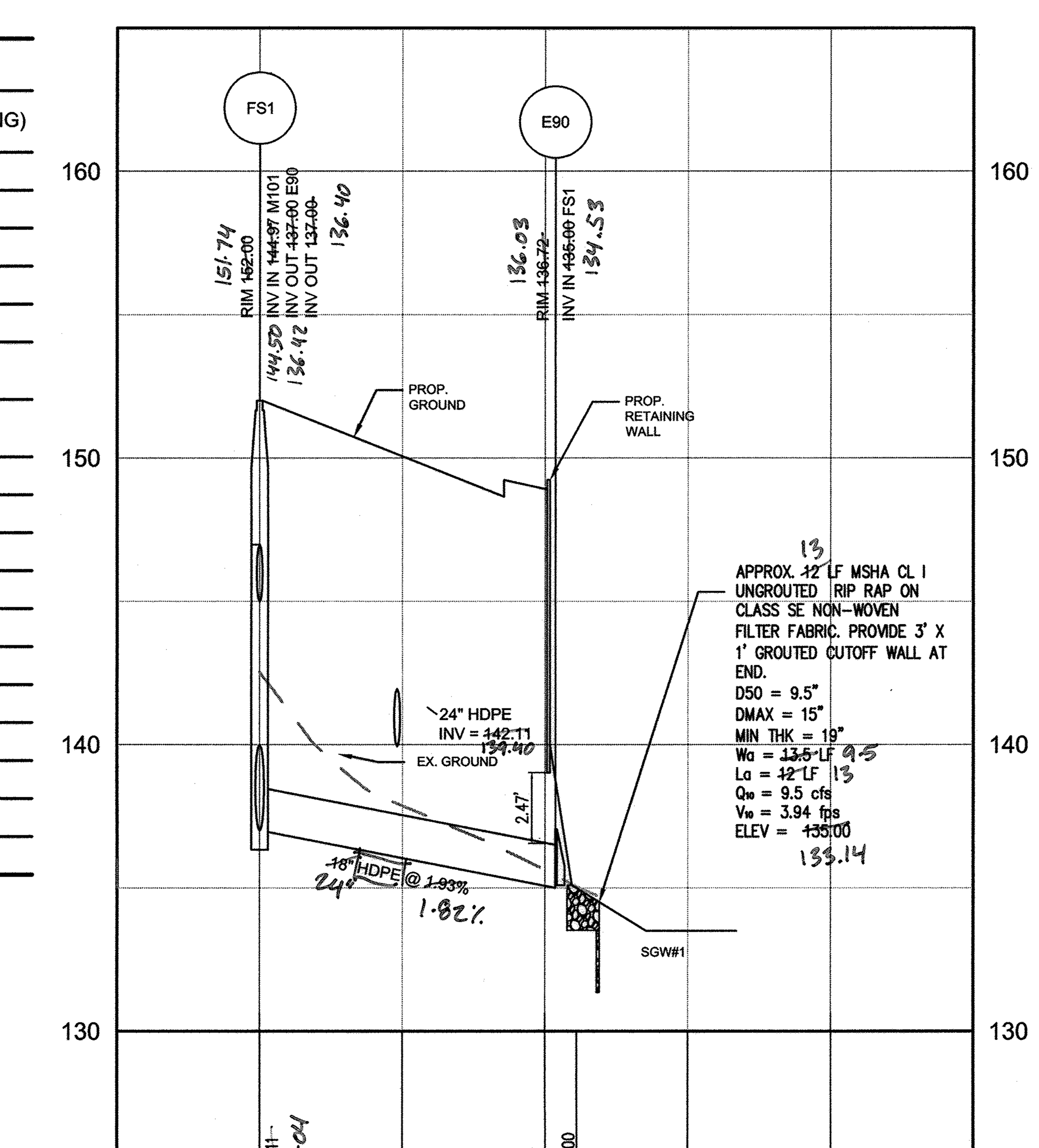
I517 TO M506
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'

STORM DRAIN STRUCTURE SCHEDULE

ID	RIM ELEVATION	INV IN (FROM)	INV OUT (TO)	TYPE	LOCATION (NORTHING/EASTING)
CS1	134.47		131.49 (15" RCP CL IV) E80	YARD INLET. D-4.14	547760.6645,1379979.6054
CS2	139.05		134.75 (30" RCP CL IV) M62	CONTROL STRUCTURE, SEE SWM DETAILS	547900.1476,1379723.0888
CS3	146.57	135.57 (24" CMP @ 0.29%)	134.00 (24" RCP CL IV) M62	CONTROL STRUCTURE, SEE SWM DETAILS	547883.2473,1379840.3293
E60	135.21	132.71 (30" RCP CL IV @ 0.50%) M61		30" CONC. FES, D-5.51	547804.9327,1379893.7792
E70	138.27	136.30 (24" RCP CL IV @ 2.45%) FS2		24" HDPE FLARED END SECTION	548014.0747,1379554.6248
E80	133.59	131.27 (15" RCP CL IV @ 0.75%) CS1		CONC. ENDWALL, D-5.21	547737.3994,1379971.3161
E90	136.53	134.53 (18" HDPE @ 1.93%) FS1		15" HDPE FLARED END SECTION	547842.9365,1379910.5244
E200	151.83	150.56 (15" HDPE @ 0.59%) M201		15" HDPE FLARED END SECTION	548009.2330,1380364.2839
E300	151.79	150.54 (15" HDPE @ 5.25%) M301		18" HDPE FLARED END SECTION	548055.9757,1380376.0475
FS1	151.74	144.50 (24" HDPE @ 1.05%) M101	136.42 (18" HDPE) E90 136.54 (36" CMP)	60" FLOWSPLITTER MH, G-5.13, SEE SWM DETAILS	547945.1406,1379927.1574
FS2	146.75	139.59 (24" HDPE @ 1.30%) I502	138.00 (24" RCP CL IV) E70 137.32 (24" CMP)	48" MH	548024.5245,1379591.4671
I203	156.45		152.85 (15" HDPE) M202	A-5 INLET, D-4.01	548252.8496,1380021.4608
I302	156.45		153.52 (15" HDPE) M301	A-5 INLET, D-4.01	548141.5970,1380220.4780
I400	151.75			4' WIDE CURB SLOT	547926.3787,1380344.6085
I502	145.82	140.38 (18" HDPE @ 1.00%) I503	139.84 (24" HDPE) FS2	WR INLET, D-4.35	548004.6574,1379604.2048
I503	145.83	141.80 (15" HDPE @ 0.58%) I504	141.62 (18" HDPE) I502	WR INLET, D-4.35	547946.4172,1379709.1232
I504	145.83		142.68 (15" HDPE) I503	WR INLET, D-4.35	547887.9609,1379813.9222
I507	149.47	139.81 (24" HDPE @ 0.49%) I508	139.62 (24" HDPE) M506	A-5 INLET, D-4.01	547882.3712,1379946.6485
I508	148.99	140.33 (24" HDPE @ 0.53%) M509 140.54 (15" HDPE @ 0.50%) I602	140.35 (24" HDPE) I507	A-5 INLET, D-4.01	547823.1663,1380052.9584
I510	153.73	144.34 (24" HDPE @ 0.71%) I511	144.10 (24" HDPE) M509	YARD INLET. D-4.14	547919.5086,1380255.6808
I511	151.05	145.67 (18" HDPE @ 1.13%) I512	145.34 (24" HDPE) I510	YARD INLET. D-4.14	547964.2116,1380381.3792
I512	151.18	146.95 (18" HDPE @ 1.36%) I513	146.83 (18" HDPE) I511	YARD INLET, D-4.14	548034.2721,1380436.0099
I513	152.04	147.20 (18" HDPE @ 0.69%) M514	147.07 (18" HDPE) I512	YARD INLET, D-4.14	548061.1313,1380417.9253

STORM DRAIN STRUCTURE SCHEDULE

ID	RIM ELEVATION	INV IN (FROM)	INV OUT (TO)	TYPE	LOCATION (NORTHING/EASTING)
I515	158.03	148.58 (18" HDPE @ 0.50%) I516	148.48 (18" HDPE) M514	YARD INLET, D-4.14	548157.4707,1380297.5337
I516	158.00	149.84 (15" HDPE @ 0.52%) I517	149.65 (18" HDPE) I515	YARD INLET, D-4.14	548255.2943,1380122.4506
I517	153.39		151.04 (15" HDPE) I516	YARD INLET, D-4.14	548344.7047,1379931.6663
I602	144.61		140.69 (15" HDPE) I508	A-5 INLET	547756.0300,1380146.2889
M61	138.39	132.98 (30" RCP CL IV @ 0.50%) M62	132.74 (30" RCP CL IV) E60	48" MH	547814.5104,1379895.5329
M62	138.82	133.26 (30" RCP CL IV @ 0.50%) CS2 133.68 (24" RCP CL IV @ 0.55%) CS3	133.22 (30" RCP CL IV) M61	48" MH	547847.6740,1379830.6436
M101	153.66	145.37 (24" HDPE @ 0.50%) RD3 148.59 (18" HDPE @ 1.16%) RD5	145.19 (24" HDPE) FS1	48" MH, G-5.12	547998.2164,1379956.2689
M201	167.71	150.86 (15" HDPE @ 0.48%) M202	150.76 (15" HDPE) E200	48" MH, G-5.12	548059.6115,1380327.8852
M202	157.50	152.19 (15" HDPE @ 0.50%) I203	152.12 (15" HDPE) M201	48" MH, G-5.12	548182.8420,1380112.2876
M301	156.95	152.75 (15" HDPE @ 0.50%) I302	152.70 (15" HDPE) E300	48" MH, G-5.12	548064.9154,1380336.0632
M506	149.68	139.17 (24" HDPE @ 0.51%) I507	138.59 (24" CMP)	96" ~~48"~~ MH, G-5.12	547912.8372,1379892.1789
M509	159.64	143.03 (24" HDPE @ 1.10%) I510	141.15 (24" HDPE) I508	48" MH, G-5.12	547859.0951,1380207.9009
M514	158.52	147.96 (18" HDPE @ 0.50%) I515	147.84 (18" HDPE) I513	48" MH, G-5.12	548128.2288,1380342.8336
RD1	153.69		150.54 (15" HDPE) RD2	18" NYLOPLAST DRAIN BASIN WITH SOLID COVER	548128.0192,1379729.1603
RD2	153.62	150.11 (15" HDPE @ 0.94%) RD1	150.00 (18" HDPE) RD3	18" NYLOPLAST DRAIN BASIN WITH SOLID COVER	548099.5093,1379774.1950
RD3	153.65	149.15 (18" HDPE @ 0.80%) RD2	145.90 (24" HDPE) M101	18" NYLOPLAST DRAIN BASIN WITH SOLID COVER	548049.9180,1379863.1750
RD4	153.85		150.60 (18" HDPE) RD5	18" NYLOPLAST DRAIN BASIN WITH SOLID COVER	547900.6018,1380133.9193
RD5	153.68	149.79 (18" HDPE @ 0.71%) RD4	149.79 (18" HDPE) M101	18" NYLOPLAST DRAIN BASIN WITH SOLID COVER	547947.8480,1380046.8061
M70A	142.06	136.33 (24" RCP)	136.30 (24" RCP)	48" MH	



FS1 TO E90
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'

AS-BUILT CERTIFICATION

I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN AND MEET THE APPROVED PLANS AND SPECIFICATIONS.

SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE): Sharon K. Cruz — DATE: 7/8/19 — PE # 36896

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36896, EXPIRATION DATE: 2.15.21.

STATE OF MARYLAND — SHARON K. CRUZ — No. 36896 — PROFESSIONAL ENGINEER

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9.21.17
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9.27.17
DIRECTOR	DATE 10-2-17

DATE	NO.	REVISION	BY

DEVELOPER: DCT INDUSTRIAL, 12011 GUILFORD ROAD, 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

PROJECT: TERRAPIN COMMERCE CENTER

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

TITLE: STORM DRAIN PROFILES AND SCHEDULES AS-BUILT

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

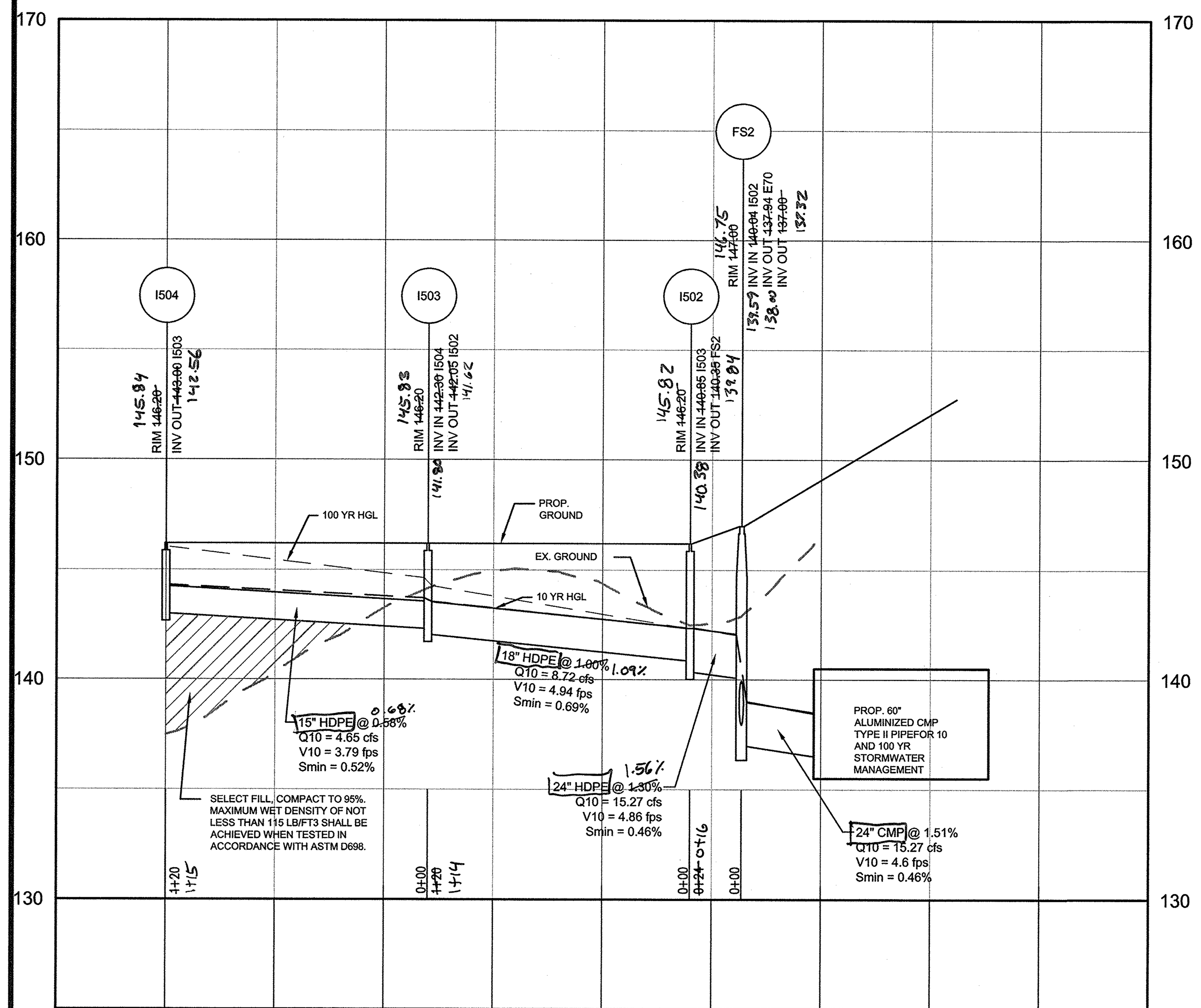
SEAL: STATE OF MARYLAND — SHARON K. CRUZ — No. 36896 — REGISTERED PROFESSIONAL ENGINEER

BY: 9/22/17

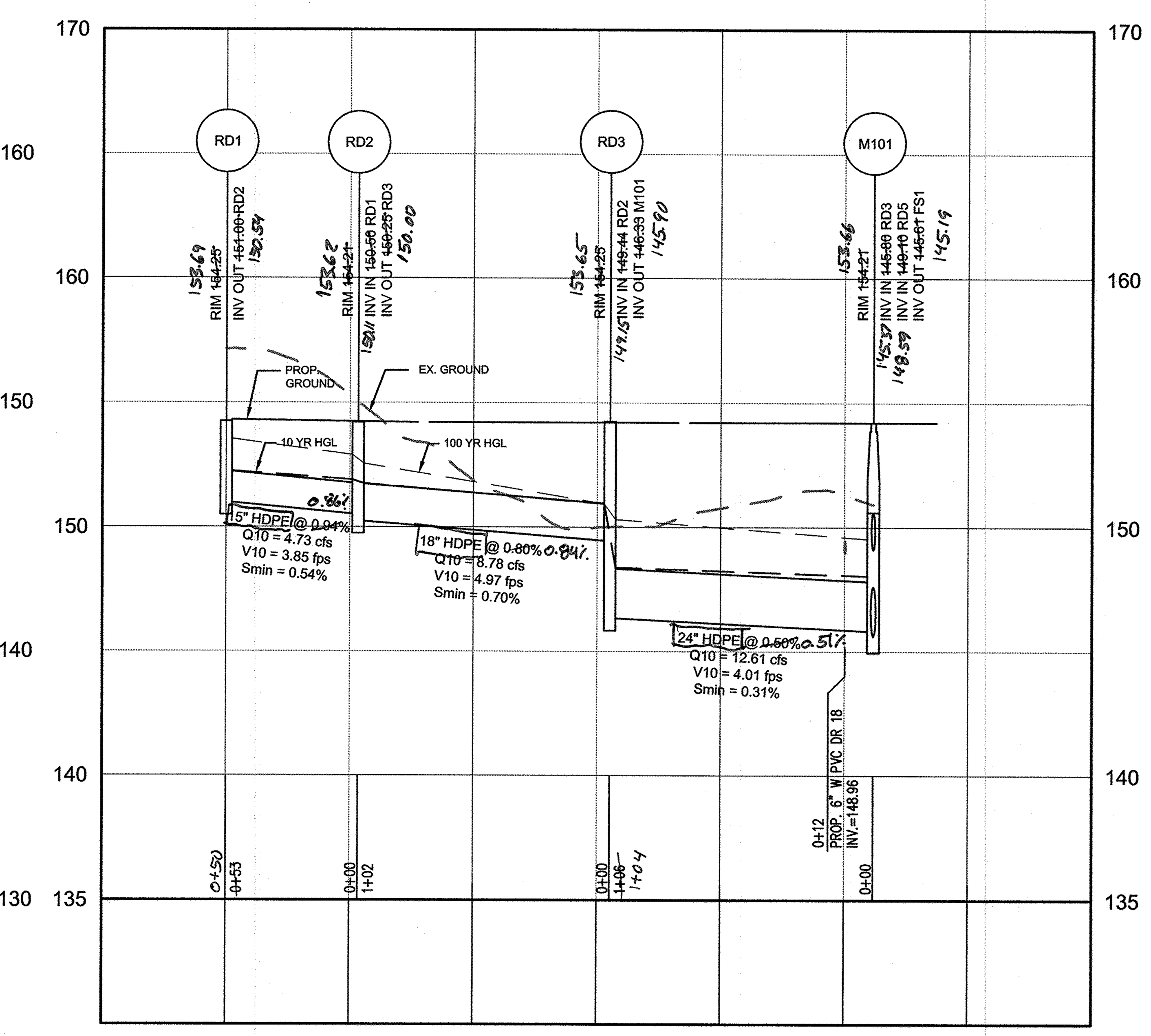
"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36896, EXPIRATION DATE: 2-15-2019"

DESIGNED BY: PJS
DRAWN BY: AGS/JSN
PROJECT NO: DCTI1601
DATE: JUNE 23, 2017
SCALE: AS SHOWN
DRAWING NO. 17 OF 43

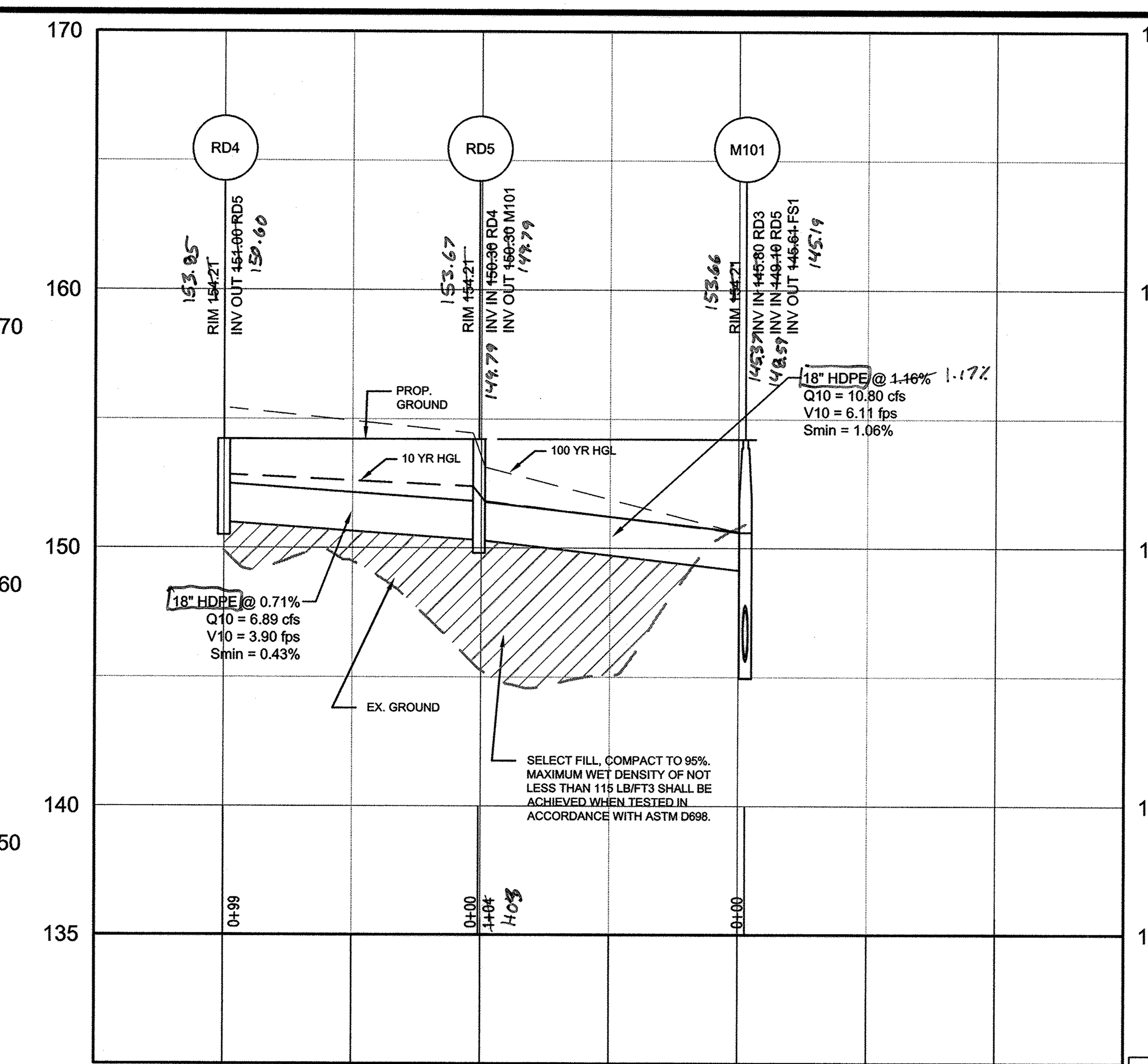
SDP-17-030



I504 TO FS2
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'



RD1 TO M101
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'



RD4 TO M101
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'

AS-BUILT CERTIFICATION
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SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE) — DATE 7/8/19
Sharon K. Cruz — PE # 36896
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36896, EXPIRATION DATE: 2-15-21

APPROVED : DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9-21-17
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-27-17
DIRECTOR	DATE 10-2-17

DATE	NO.	REVISION	BY

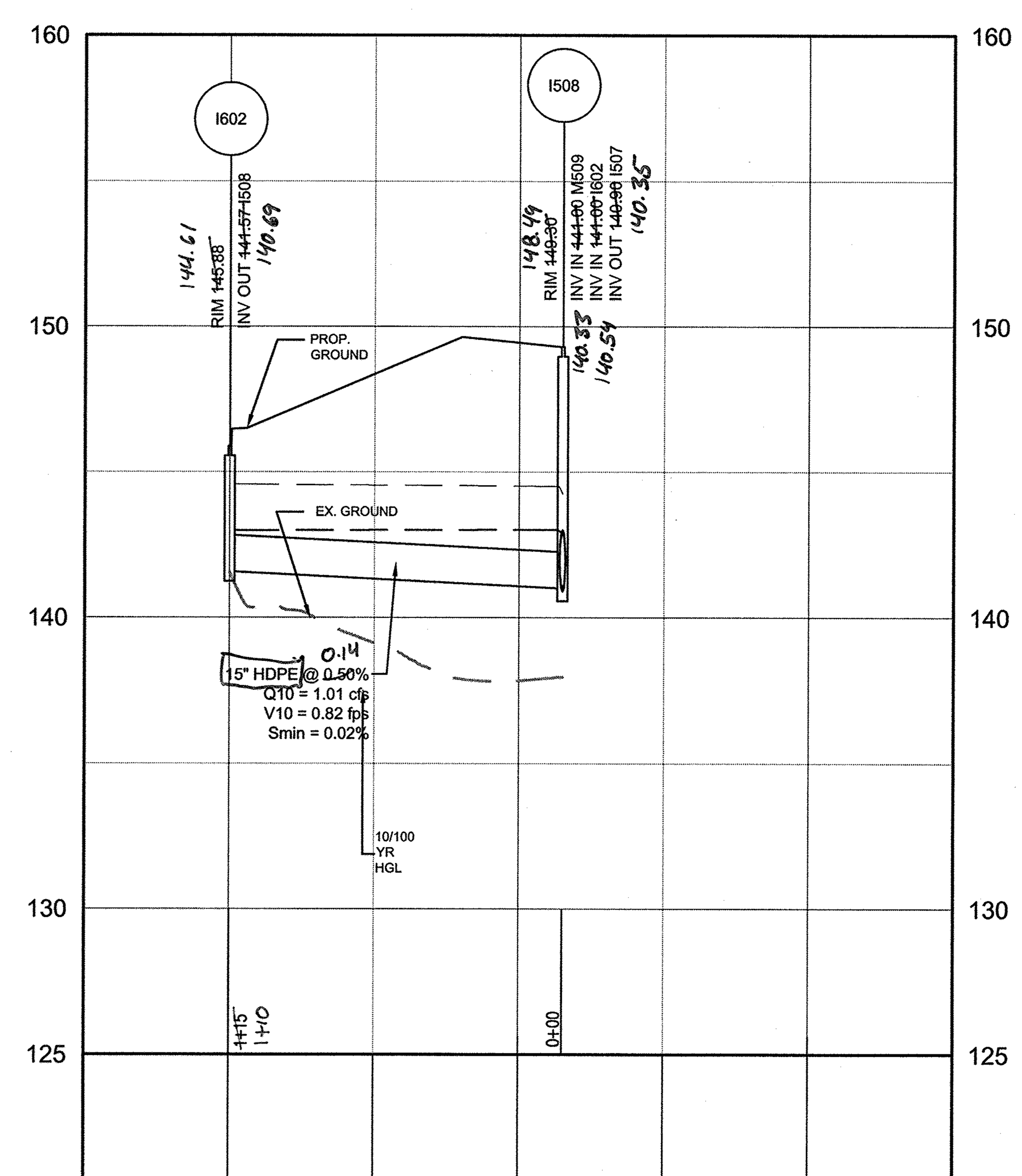
DEVELOPER
DCT INDUSTRIAL
12011 GUILFORD ROAD
SUITE 102
ANNAPOLIS JUNCTION, MD 20701
ATTN: FRED FERRARO
PHONE: 410-645-5020

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

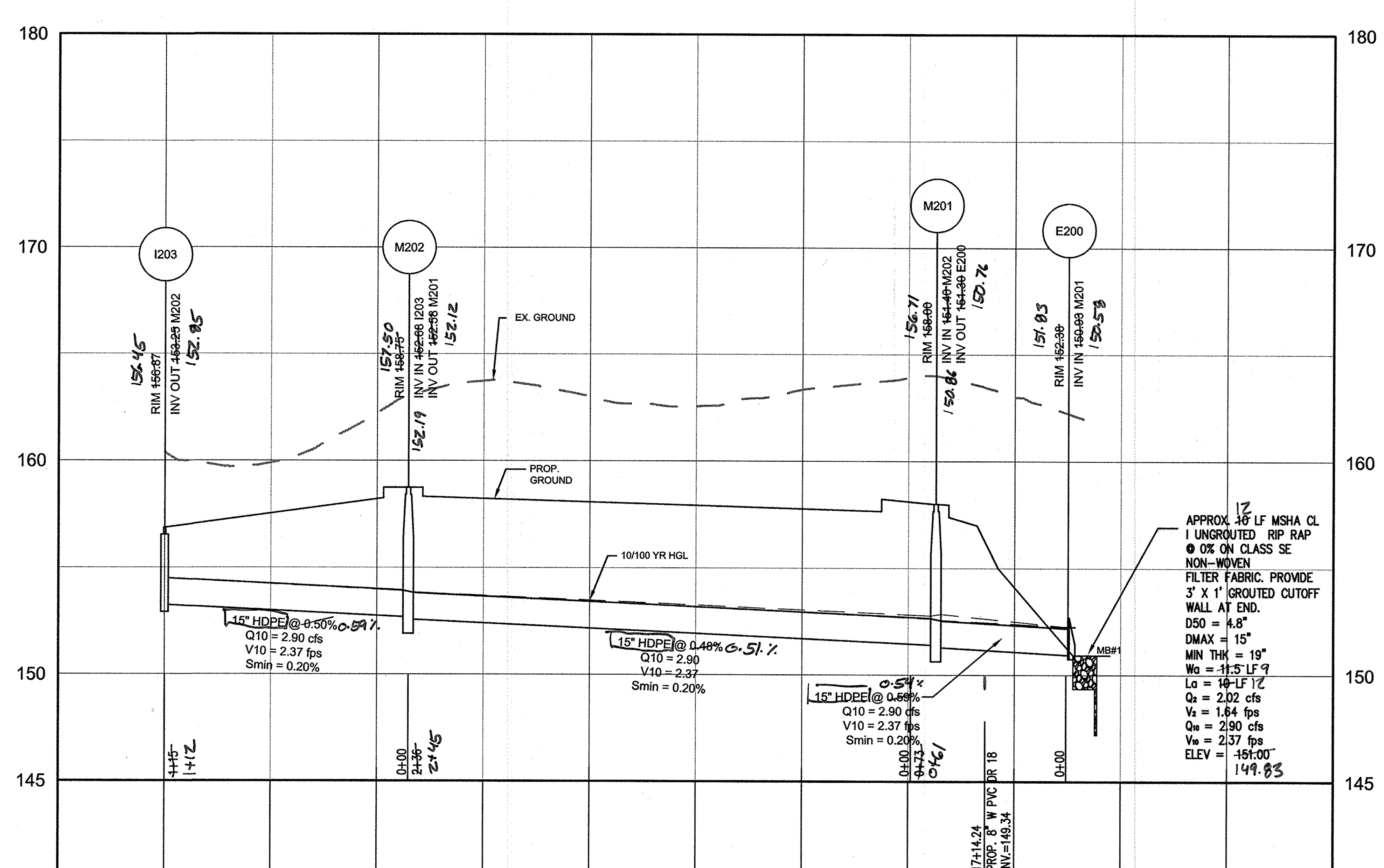
PROJECT
TERRAPIN COMMERCE CENTER

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

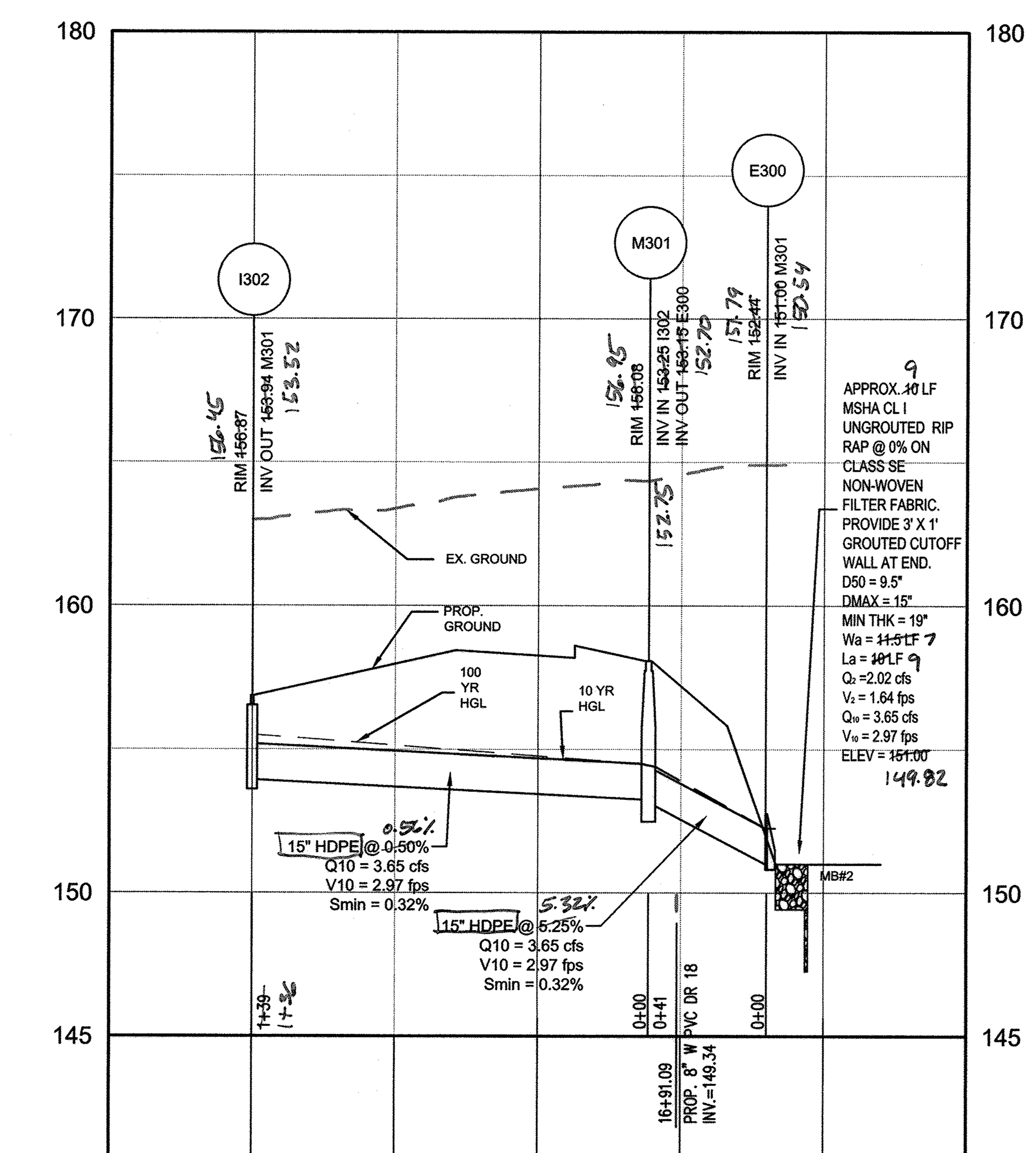
TITLE
STORM DRAIN PROFILES AND SCHEDULES
AS-BUILT



I602 TO E600
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'



I203 TO E200
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'



I302 TO E300
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'

Pennoni Associates Inc.
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SEAL

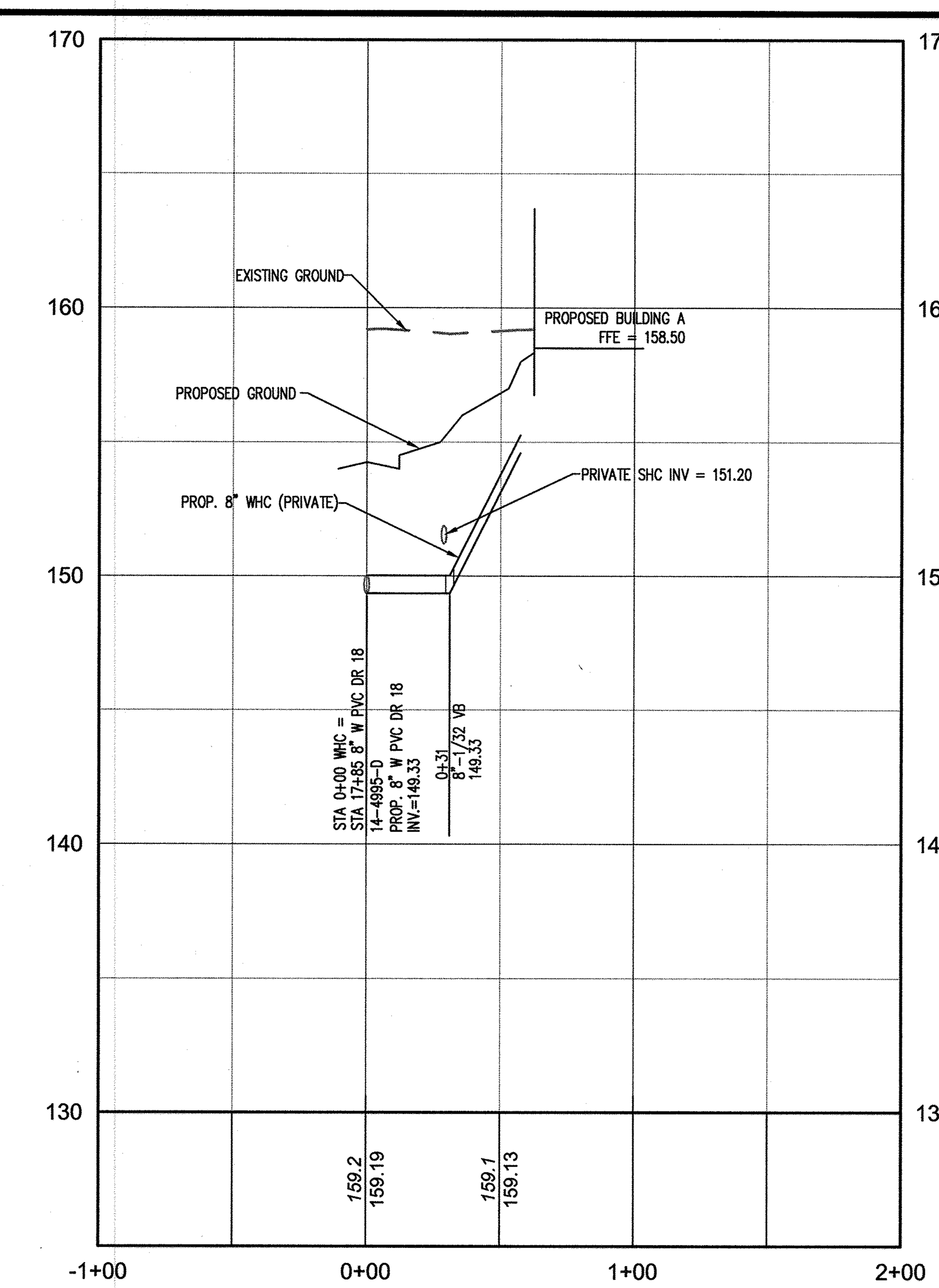
"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36896, EXPIRATION DATE: 2-15-2019"

DESIGNED BY :	PJS
DRAWN BY:	AGS/JSN
PROJECT NO :	DCTI1601
DATE :	JUNE 23, 2017
SCALE :	AS SHOWN
DRAWING NO.	18 OF 43

SDP-17-030

STORM DRAIN PIPE SCHEDULE						
ID	INV OUT	INV IN	DIAMETER (in)	MATERIAL	LENGTH (ft)	SLOPE
FS2 TO UG	137.00	136.50	24"	CMP	30'	1.66%
UG TO CS3	136.00	135.90	24"	CMP	35'	0.29%
CS1 TO E80	131.18	131.00	15"	RCP CL IV	25'	0.75%
CS2 TO M62	134.34	133.74	30"	RCP CL IV	120'	0.50%
CS3 TO M62	134.40	134.20	24"	RCP CL IV	37'	0.55%
FS1 TO UG	137.00	136.50	36"	CMP	41'	1.23%
FS1 TO E90	137.00	135.00	18"	HDPE	104'	1.93%
FS2 TO UG	137.00	136.50	24"	CMP	33'	1.51%
FS2 TO E70	137.94	137.00	24"	RCP CL IV	38'	2.45%
I203 TO M202	153.25	152.68	15"	HDPE	115'	0.50%
I302 TO M301	153.94	153.25	15"	HDPE	139'	0.50%
I502 TO FS2	140.35	140.04	24"	HDPE	24'	1.30%
I502 TO I503	140.85	142.05	18"	HDPE	120'	1.00%
I504 TO I503	143.00	142.30	15"	HDPE	120'	0.58%
I507 TO M506	140.10	139.78	24"	HDPE	62'	0.51%
I508 TO I507	140.90	140.30	24"	HDPE	122'	0.49%
I510 TO M509	144.75	143.90	24"	HDPE	77'	1.10%
I511 TO I510	145.80	144.85	24"	HDPE	133'	0.71%
I512 TO I511	147.30	146.30	18"	HDPE	89'	1.13%
I513 TO I512	147.84	147.40	18"	HDPE	32'	1.36%

STORM DRAIN PIPE SCHEDULE						
ID	INV OUT	INV IN	DIAMETER (in)	MATERIAL	LENGTH (ft)	SLOPE
I515 TO M514	149.00	148.73	18"	HDPE	54'	0.50%
I516 TO I515	150.15	149.15	18"	HDPE	201'	0.50%
I517 TO I516	151.50	150.40	15"	HDPE	211'	0.52%
I602 TO I508	141.57	141.00	15"	HDPE	115'	0.50%
M61 TO E60	133.15	133.10	30"	RCP CL IV	10'	0.50%
M62 TO M61	133.61	133.25	30"	RCP CL IV	73'	0.50%
M101 TO FS1	145.61	144.97	24"	HDPE	61'	1.05%
M101 TO RD5	149.10	150.30	18"	HDPE	104'	1.16%
M201 TO E200	151.30	150.93	15"	HDPE	62'	0.59%
M202 TO M201	152.58	151.40	15"	HDPE	248'	0.48%
M301 TO E300	153.15	151.00	15"	HDPE	41'	5.25%
M506 TO UG	139.00	138.74	24"	CMP	26'	1.00%
M509 TO I508	141.84	141.00	24"	HDPE	159'	0.53%
M514 TO I513	148.63	147.94	18"	HDPE	101'	0.69%
RD1 TO RD2	151.00	150.50	15"	HDPE	53'	0.94%
RD2 TO RD3	150.25	149.44	18"	HDPE	102'	0.80%
RD3 TO M101	146.33	145.80	24"	HDPE	106'	0.50%
RD5 TO RD4	150.30	151.00	18"	HDPE	99'	0.71%



WATER HOUSE CONNECTION
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'

WATER/SEWER PIPE SCHEDULE

SIZE	TYPE	LINEAR FOOTAGE
8"	PVC SDR-35	117
8"	C900 PVC	25

STORM DRAIN PIPE SCHEDULE

SIZE	TYPE	LINEAR FOOTAGE
6"	PVC	30
6"	PERFORATED PVC	200
4"	PERFORATED PVC	167
15"	RCP CL IV	18
24"	RCP CL IV	75
30"	RCP CL IV	203
15"	HDPE	1,112
18"	HDPE	901
24"	HDPE	744
60"	ALUMINIZED CMP – 10 GAUGE	3,465
24"	ALUMINIZED CMP – 10 GAUGE	124
36"	ALUMINIZED CMP – 10 GAUGE	41

NOTES:

1) ALL STRUCTURES ARE HOWARD COUNTY STANDARDS UNLESS NOTED OTHERWISE. CONTRACTOR MAY USE PRECAST STRUCTURE WHERE AVAILABLE TO MEET THE STANDARD STRUCTURE SPECIFIED.

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

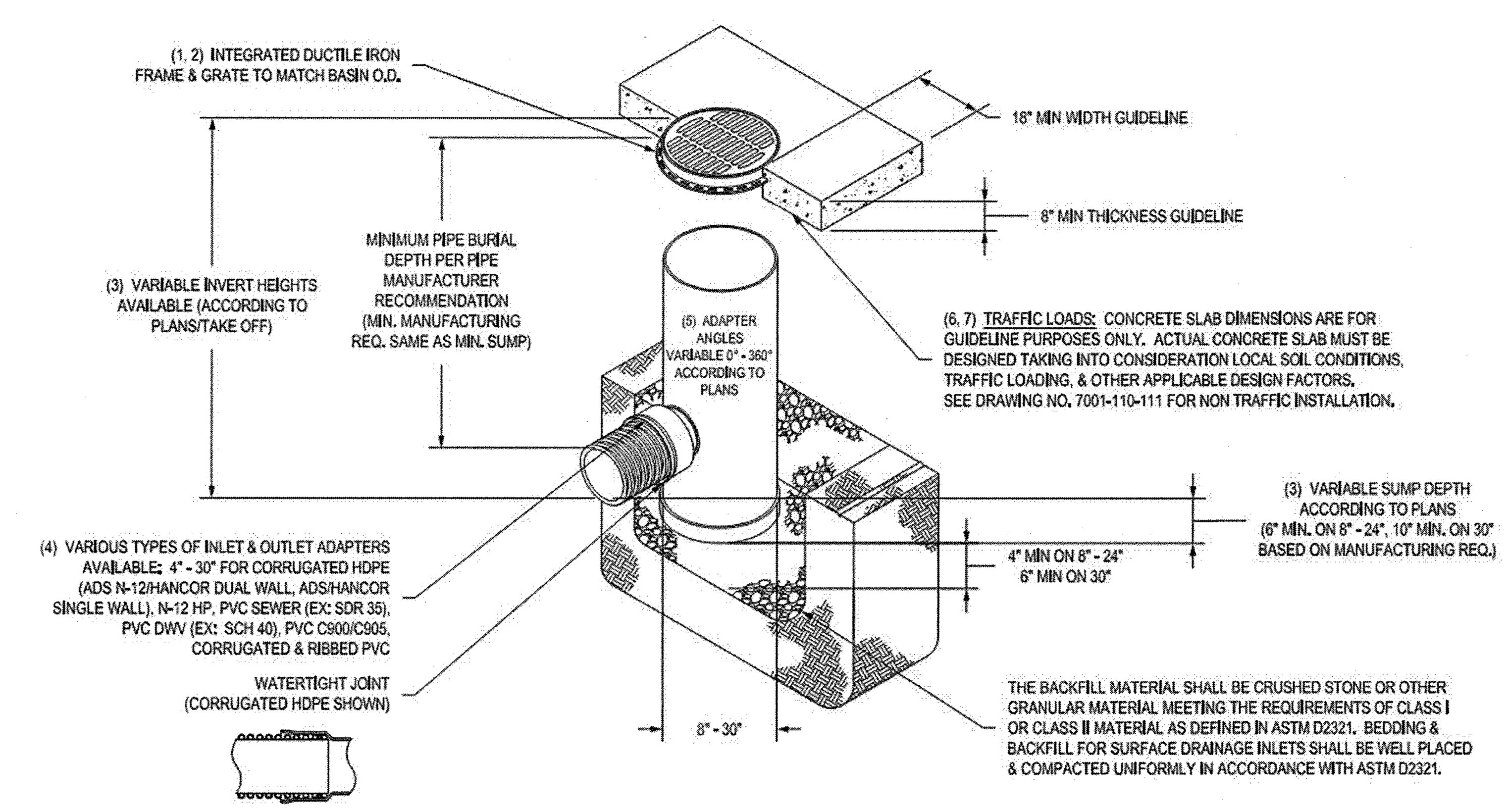
3) ELEVATIONS ARE GIVEN TO TOP OF CURB FOR CURB INLETS, TOP OF GRATE FOR GRATE INLETS AND TOP OF LID FOR MANHOLES.

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

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

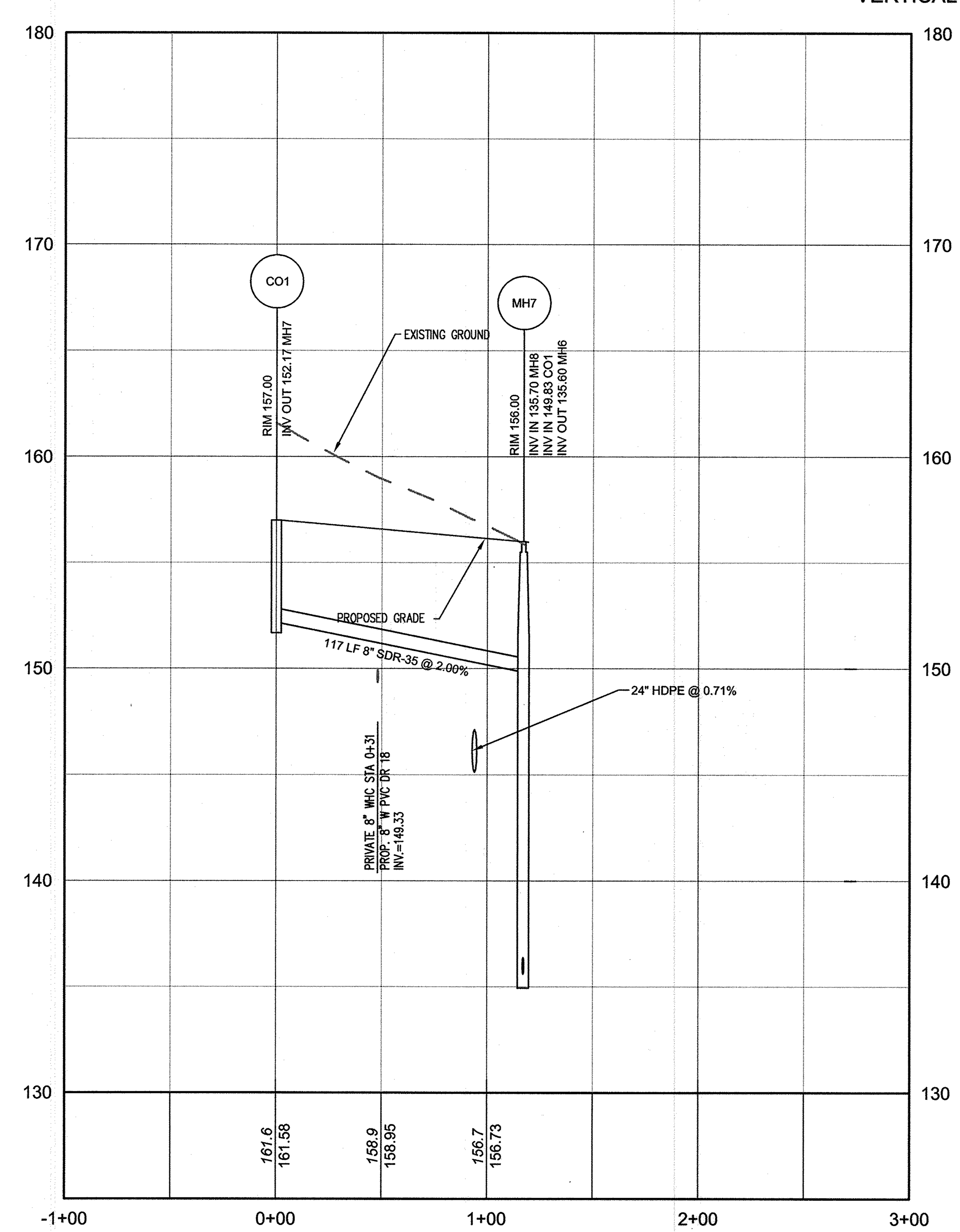
6) THE PIPE SCHEDULE IS GIVEN FOR REFERENCE. IN THE EVENT OF A DISCREPANCY BETWEEN THE PIPE SCHEDULE AND THE PLAN, THE INFORMATION ON THE PLAN SHALL TAKE PRIORITY.

NYLOPLAST DRAIN BASIN WITH STANDARD GRATE

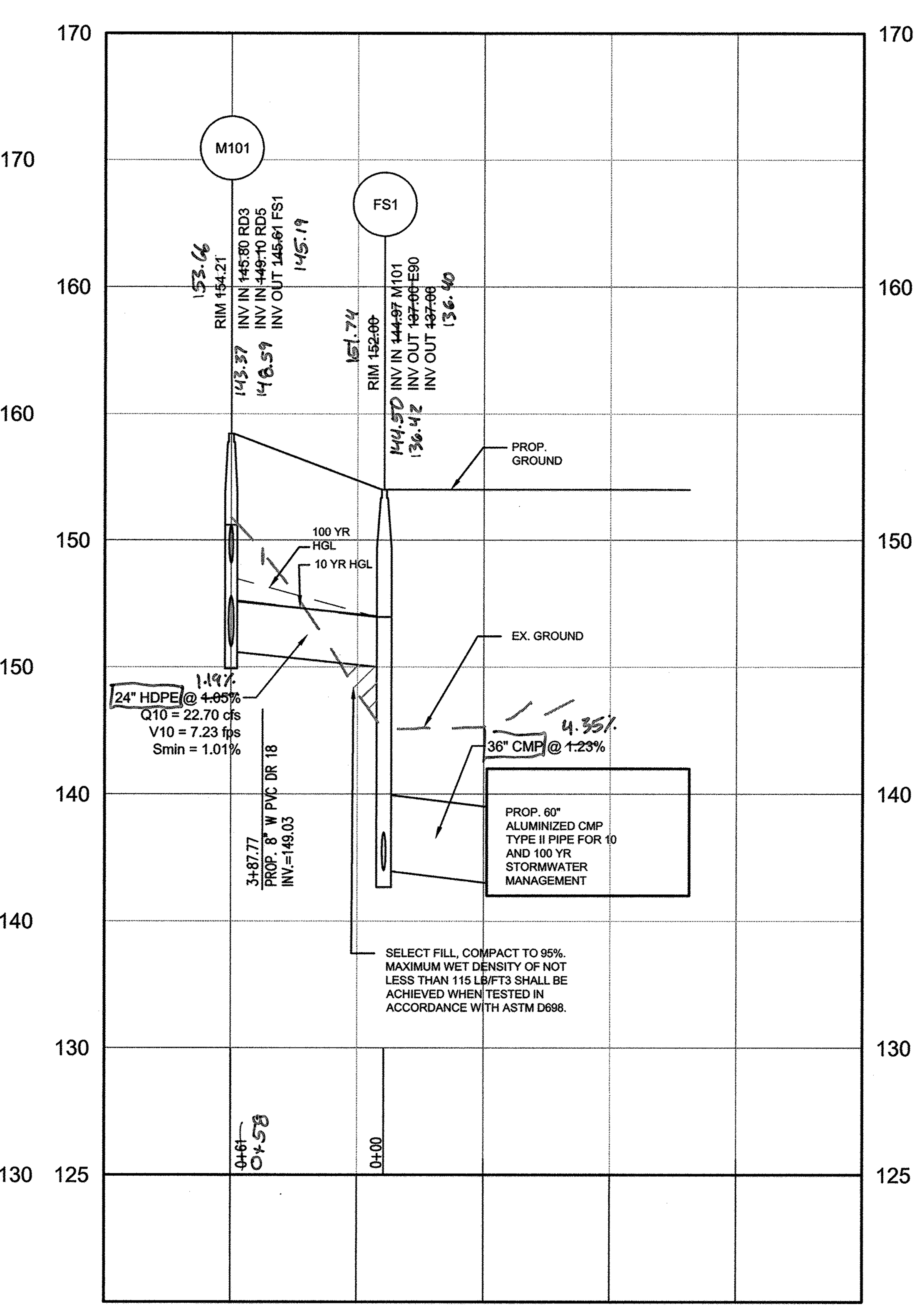


1 - 8" - 30" STANDARD GRATES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
2 - 12" - 30" FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05. 8" & 10" STANDARD GRATES FIT DIRECTLY ONTO DRAIN BASINS WITH THE USE OF A PVC BODY TOP. SEE DRAWING NO. 7001-110-045.
3 - DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS. RISERS ARE NEEDED FOR BASINS OVER 84" DUE TO SHIPPING RESTRICTIONS. SEE DRAWING NO. 7001-110-065.
4 - DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS N-12/HANCOR DUAL WALL), N-12 HP, & PVC SEWER (4" - 24").
5 - ADAPTERS CAN BE MOUNTED ON ANY ANGLE 0° TO 360°. TO DETERMINE MINIMUM ANGLE BETWEEN ADAPTERS SEE DRAWING NO. 7001-110-012.
6 - 12" - 30" STANDARD GRATES SHALL MEET H-20 LOAD RATING.
7 - 8" & 10" STANDARD GRATES ARE RATED FOR LIGHT DUTY APPLICATIONS ONLY; NO CONCRETE COLLAR NEEDED FOR LIGHT DUTY RATING.

DRAWN BY EBC	MATERIAL	Nyloplast	3130 VERONA AVE BUFORD, GA 30518 PHN (770) 932-2443 FAX (770) 932-2490 www.nyloplast-us.com
DATE 1-23-06			
REVISED BY CCA	PROJECT NO./NAME	TITLE DRAIN BASIN WITH STANDARD GRATE QUICK SPEC INSTALLATION DETAIL	
DATE 12-29-11			
DWG SIZE A	SCALE 1:40 SHEET 1 OF 1	DWG NO. 7001-110-144	REV G



PRIVATE SEWER
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'



M101 TO UG SWM 3+00
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'

AS-BUILT CERTIFICATION
I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN AND MEET THE APPROVED PLANS AND SPECIFICATIONS.

SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE) — Sharon K. Cruz — DATE 7/8/19 — PE # 36896

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36896, EXPIRATION DATE: 2.15.21

STATE OF MARYLAND — SHARON K. CRUZ — No. 36896 — PROFESSIONAL ENGINEER

APPROVED : DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9.21.17
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-22-17
DIRECTOR	DATE 10-2-17

DATE	NO.	REVISION	BY

DEVELOPER
DCT INDUSTRIAL
12011 GUILFORD ROAD
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

PROJECT
TERRAPIN COMMERCE CENTER

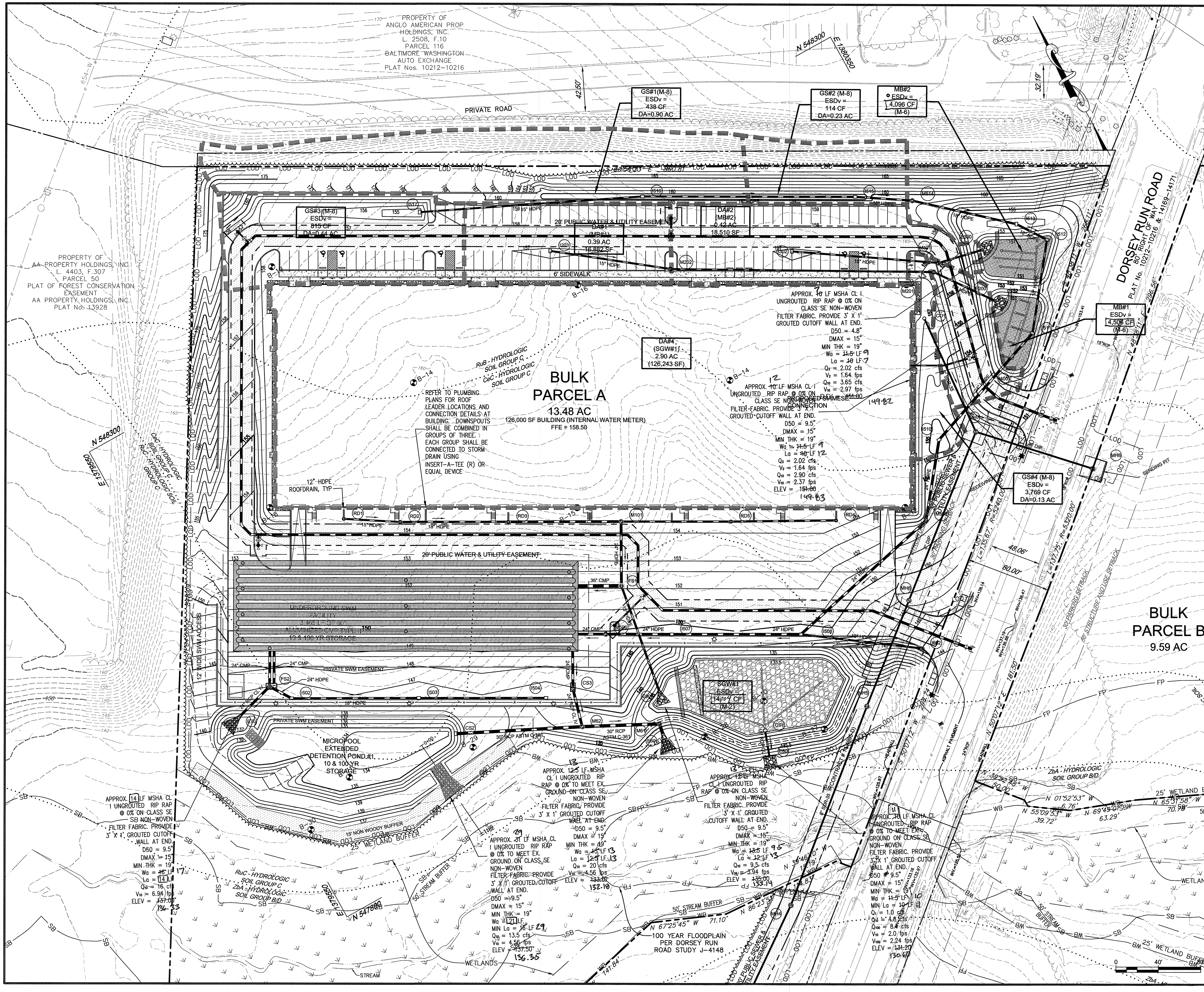
AREA
TAX MAP 43, PARCEL 51 LOT PAR A PLAT 23793 ZONED M-2
GRID NO. 11 1st ELECTION DISTRICT
7200 DORSEY RUN ROAD
ELKRIDGE, MARYLAND 21075
HOWARD COUNTY, MARYLAND

TITLE
PRIVATE UTILITY PROFILES AND SCHEDULES
AS- BUILT

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

SEAL
STATE OF MARYLAND — SHARON K. CRUZ — No. 36896 — REGISTERED PROFESSIONAL ENGINEER
BY: 8/22/17
"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36896, EXPIRATION DATE: 2-15-2019"

DESIGNED BY : PJS	
DRAWN BY: AGS/JSN	
PROJECT NO : DCTI1601	
DATE : JUNE 23, 2017	
SCALE : AS SHOWN	
DRAWING NO. 19 OF 43	



LEGEND

PROPERTY LINE AND RIGHT-OF-WAY	
EXISTING 1' CONTOUR	154
EXISTING 5' CONTOUR	155
EXISTING TREE LINE	
EXISTING SOILS	RuB
EXISTING WATER	W
EXISTING SEWER	S
EXISTING OVERHEAD ELECTRICAL	
EXISTING UNDERGROUND ELECTRICAL	UE
EXISTING STORM DRAIN	D
EXISTING STREAM	
PROPOSED 1' CONTOUR	164
PROPOSED 5' CONTOUR	165
PROPOSED MICRO-BIORETENTION FACILITY	
PROPOSED STORM DRAIN	
PROPOSED WATER	
PROP. CONCRETE SIDEWALK	
PROPOSED TREE LINE	
SOIL BORING	B-14
DRAINAGE AREA	

AS-BUILT CERTIFICATION

I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN AND MEET THE APPROVED PLANS AND SPECIFICATIONS.

SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE) Sharon K. Cruz — DATE 7/8/19

PE # 36896

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STATE OF MARYLAND — SHARON K. CRUZ — No. 36896 — PROFESSIONAL ENGINEER

APPROVED : DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9.21.17

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9.27.17

DIRECTOR — DATE 10.2.17

DATE	NO.	REVISION	BY

DEVELOPER
DCT INDUSTRIAL
12011 GUILFORD ROAD
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TERRAPIN COMMERCE CENTER

AREA
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TITLE
STORMWATER MANAGEMENT PLAN
AS-BUILT

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

SEAL
STATE OF MARYLAND — SHARON K. CRUZ — No. 36896 — REGISTERED PROFESSIONAL ENGINEER

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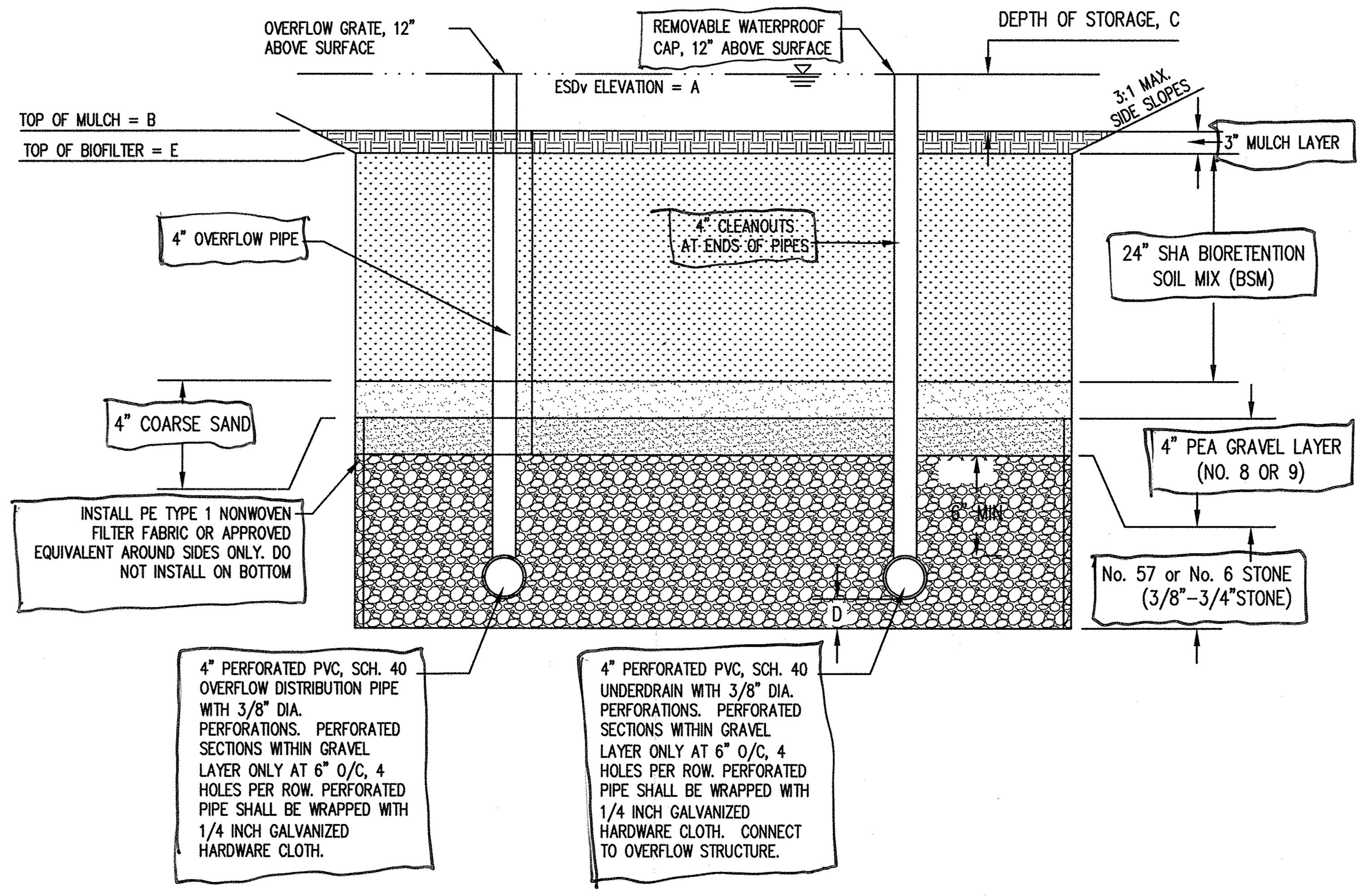
DESIGNED BY : PJS
DRAWN BY: AGS/JSN
PROJECT NO : DCTI1601
DATE : JUNE 23, 2017
SCALE : 1" = 40'
DRAWING NO. 20 OF 43

SDP-17-030



1/21 MICROBIORETENTION TYPICAL SECTION
NOT TO SCALE

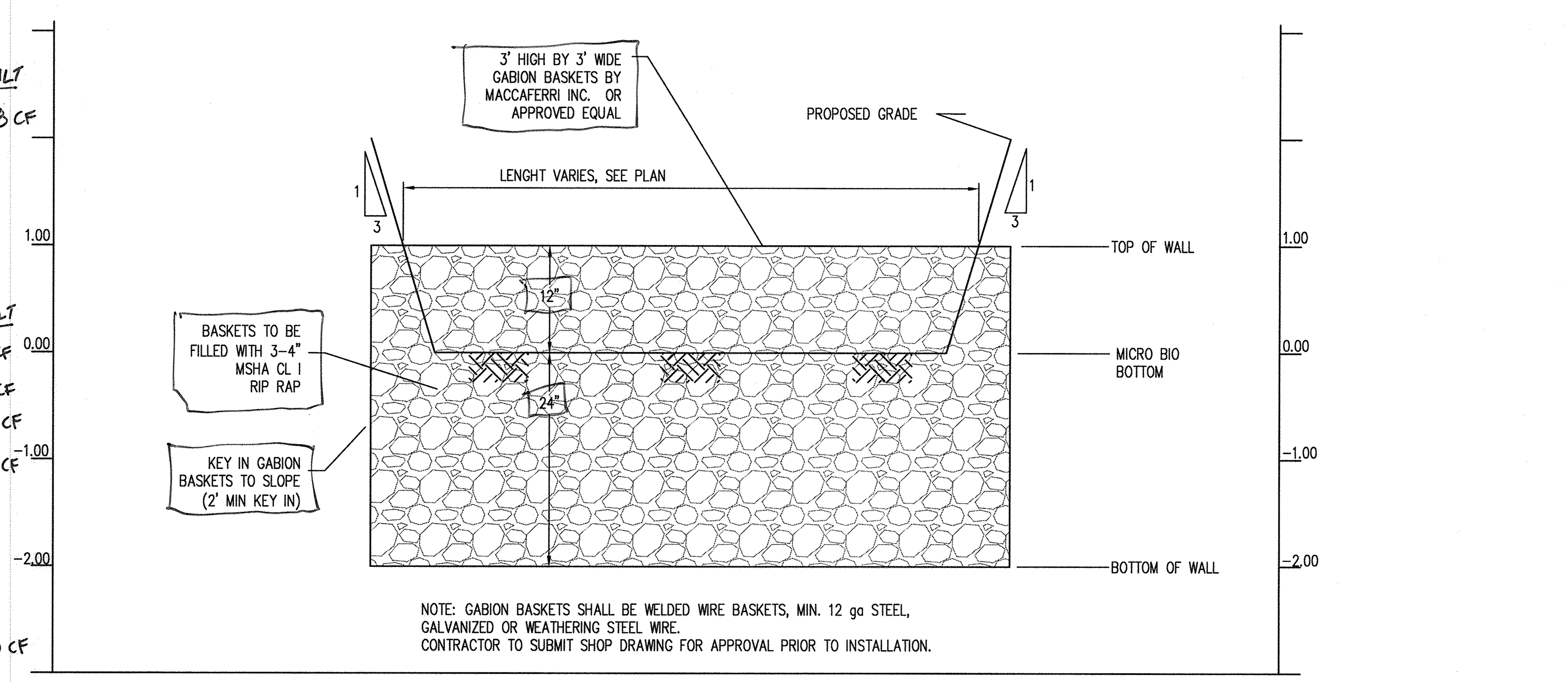
ESDv SUMMARY TABLE

ESDv REQUIRED	ESDv REQUIRED TO MEET Cpv	ESDv REQUIRED TO MEET Wqv	ESDv PROVIDED	AS-BUILT
44,256 cf	44,649 cf	22,128 cf	24,171 cf	23,818 CF

24,171 CF OF ESDv PROVIDES A Pe OF 1.21. THE REMAINING VOLUME IS PROVIDED IN AN UNDERGROUND STORMWATER SYSTEM AND A MICROPOOL EXTENDED DETENTION POND, WHICH ALSO SERVE TO PROVIDE 10 AND 100 YEAR STORAGE VOLUMES.

ESDv DEVICE SUMMARY TABLE

TREATMENT	ESDv REQUIRED TO MEET Cpv	ESDv REQUIRED TO MEET Wqv	ESDv PROVIDED	AS-BUILT
SUBMERGED GRAVEL WETLAND 1	26,984 cf	9,994 cf	14,356 cf	14,004 CF
GRASS SWALES	4,357 cf	1,614 cf	1,212 cf	1212 CF
MICRO-BIORETENTION 1	4,506 cf	1,669 cf	4,506 cf	4,506 CF
MICRO-BIORETENTION 2	4,096 cf	1,517 cf	4,096 cf	4,096 CF
TOTAL			24,171 cf	23,818 CF



MICROBIO GABION WALL DETAIL

SCALE : HOR: 1"=10'
VERT: 1"=1'

OPERATION AND MAINTENANCE SCHEDULE FOR MICRO-BIORETENTION (M-6)

1. 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.

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 WIRES.

3. MULCH SHALL BE INSPECTED EACH SPRING. REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER ONCE EVERY 2 TO 3 YEARS.

4. 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

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

SAND SPECIFICATIONS

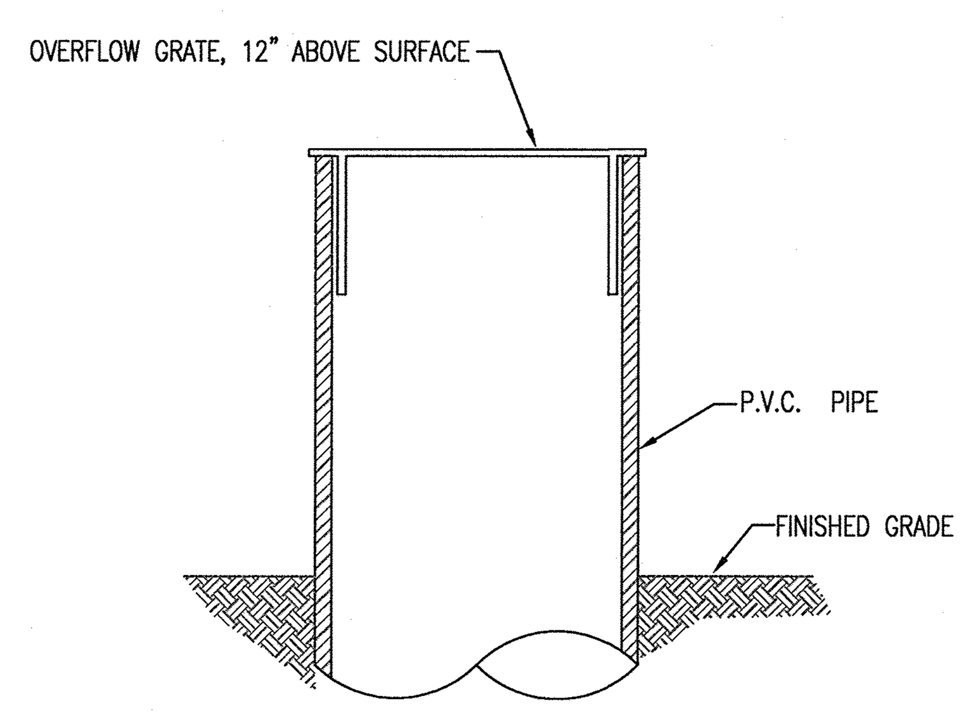
WASHED ASTM C33 FINE AGGREGATE CONCRETE SAND IS UTILIZED FOR STORMWATER MANAGEMENT APPLICATIONS. IN ADDITION TO THE ASTM C-33 SPECIFICATION, SAND MUST MEET ALL OF THE FOLLOWING CONDITIONS.

1. SAND MUST MEET GRADATION REQUIREMENTS FOR ASTM C-33 FINE AGGREGATE CONCRETE SAND. AASHTO M-6 GRADATION IS ALSO ACCEPTABLE.

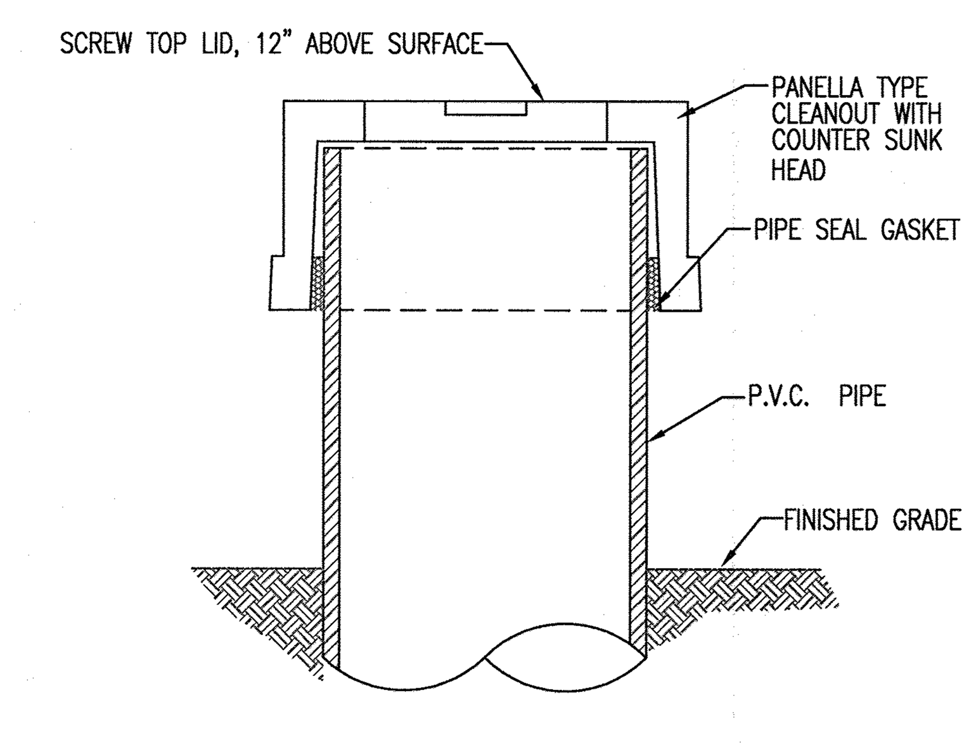
2. SAND MUST BE SILICA BASED. NO LIMESTONE BASED PRODUCTS MAY BE USED. IF THE MATERIAL IS WHITE OR GRAY IN COLOR, IT IS PROBABLY NOT ACCEPTABLE.

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.



7/21 OVERFLOW GRATE
NOT TO SCALE



6/21 CLEAN-OUT OBSERVATION WELL CAP
NOT TO SCALE

MICROBIORETENTION SPECIFICATIONS

1. THE UNDERDRAIN PIPE MUST BE 4-INCH DIAMETER SCHEDULE 40 OR STRONGER PERFORATED PVC PIPE AT 0.00% SLOPE. THREE INCHES OF GRAVEL MUST BE PLACED UNDER THE PIPE, WITH A MINIMUM OF 6 INCHES OF GRAVEL OVER THE PIPE. PERFORATIONS MUST BE 3/8 INCH IN 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 AROUND THE UNDERDRAIN PIPE.

2. 4" INCH CLEAN-OUTS SHOULD BE USED. CLEANOUTS FOR EACH PIPE SHOULD EXTEND 12 INCHES ABOVE THE TOP OF THE PLANTING MEDIA AND HAVE A REMOVABLE CAP. OVERFLOW PIPES SHALL HAVE A REMOVABLE RATE THAT FITS SNUGLY INSIDE THE PIPE.

3. THE GRAVEL LAYER SURROUNDING THE UNDERDRAIN PIPES MUST MEET MSHA SIZE #57 (TABLE 901A), AND MUST PROVIDE A MINIMUM OF 6 INCHES COVER OVER THE PIPE, AND MINIMUM 3 INCHES UNDER THE PIPE. NO GEOTEXTILE OR FILTER FABRIC IS ALLOWED ANYWHERE WITHIN THE FILTER MEDIA (STONE OR SAND).

4. A MINIMUM 4-INCH FINE AGGREGATE SAND LAYER SHALL BE PROVIDED BELOW THE SOIL FILTER/PLANTING MEDIA. THE SAND MUST BE ASTM C33 FINE AGGREGATE CONCRETE SAND. MANUFACTURED SAND OR STONE DUST IS NOT ACCEPTABLE.

5. A MINIMUM 4-INCH PEA GRAVEL LAYER SHALL BE PROVIDED BETWEEN THE SAND AND THE STONE.

6. THE PLANTING MEDIA MIX SHALL MEET SHA BIORETENTION SOIL MIX STANDARDS. THE SOIL SHALL MEET THE FOLLOWING MINIMUM CRITERIA: A HOMOGENEOUS MIXTURE COMPOSED OF 5 PARTS COARSE SAND, 3 PARTS BASE SOIL, AND 2 PARTS FINE BARK. THE SOIL SHALL BE FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN 2 INCHES. THE PLANTING MATERIAL SHALL BE FLOODED AFTER PLACEMENT. ANY SETTLEMENT THAT OCCURS SHALL BE FILLED BACK TO THE DESIGN ELEVATION.

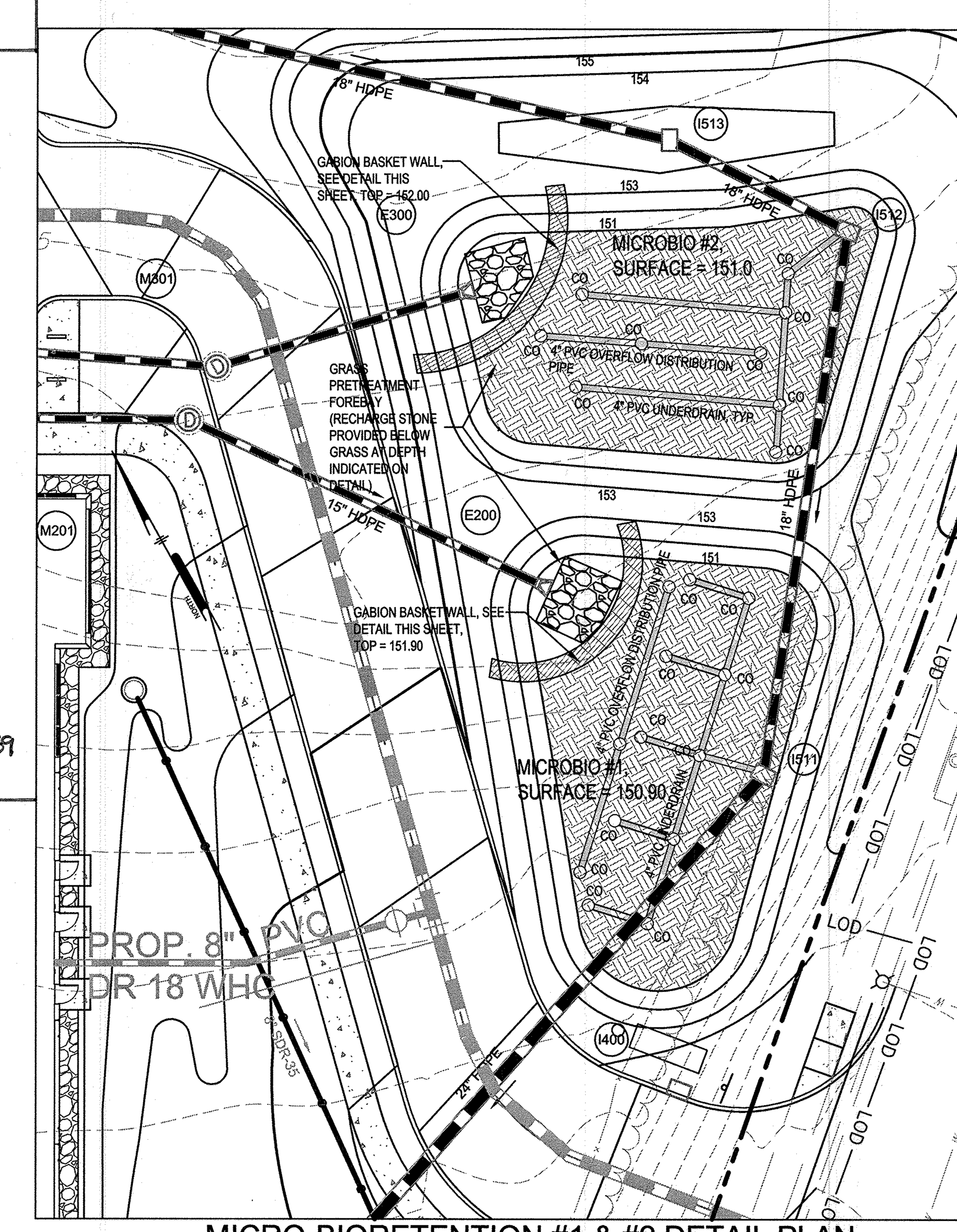
7. THE SURFACE MULCH LAYER WILL CONSIST OF STANDARD FINE SHREDDED AGED HARDWOOD MULCH. THE MULCH SHOULD BE UNIFORMLY TO A DEPTH OF 3 INCHES. YEARLY REPLENISHING MAY BE NECESSARY. PINE BARK IS NOT ACCEPTABLE.

MICRO-BIORETENTION DESIGN DATA

	1	2	AS-BUILT 1	AS-BUILT 2
A	151.90	152.00	150.70	150.92
B	151.00	150.90	150.14	150.25
C	12"	12"	6.75"	8"
D	30"	29"		
E	150.65	150.75	149.89	150.00
SURFACE AREA AT 'E' (SF)	2,131	1,978	2,072	1963
OVERFLOW STRUCTURE	I511	I512		
OVERFLOW RIM ELEVATION	151.90	152.00	151.05	151.20
UNDERDRAIN INVERT	147.40	147.50	146.97	146.89

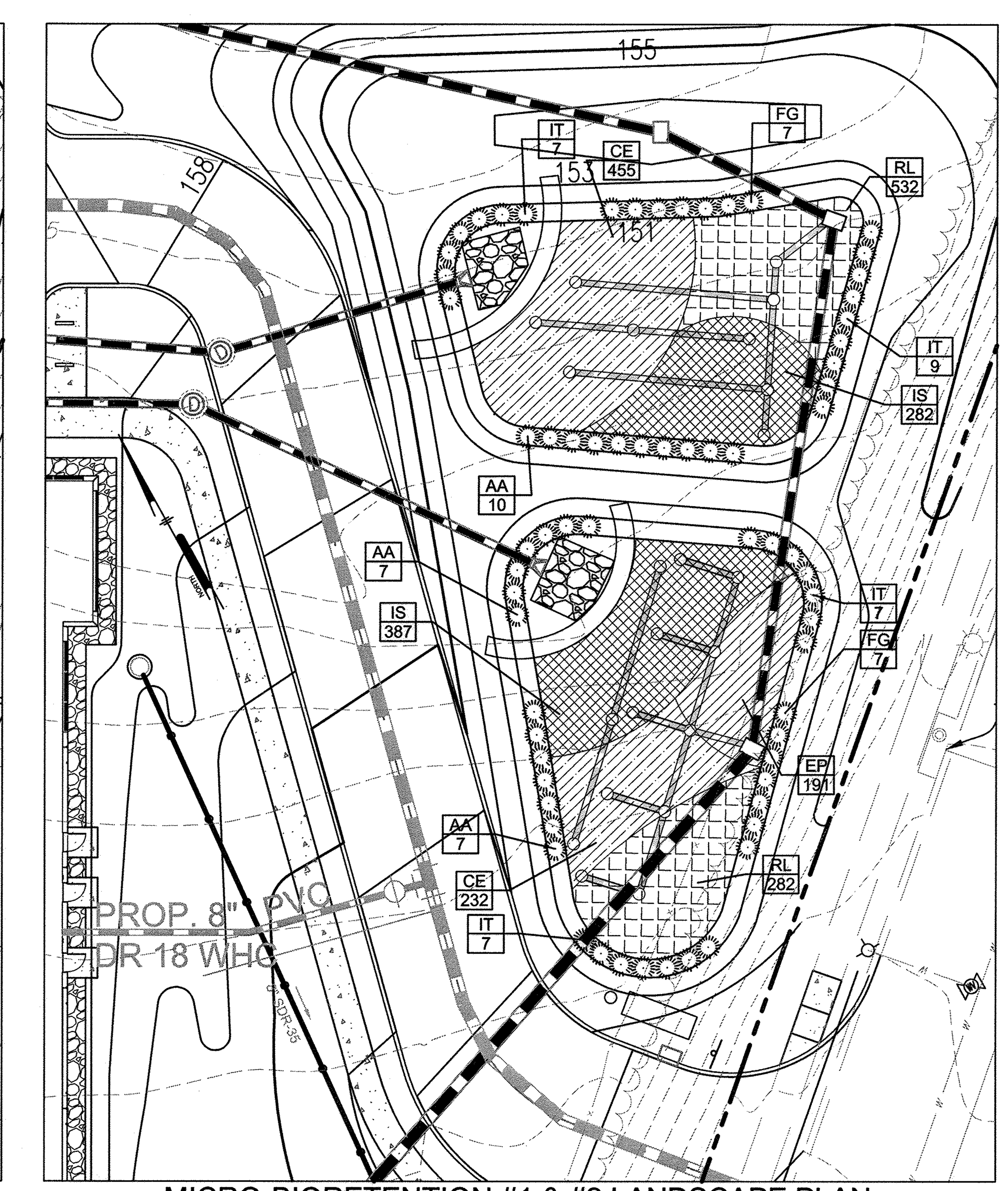
MICRO-BIORETENTION #1 AND #2 PLANT SCHEDULE

SYMBOL	QTY.	SCIENTIFIC/ COMMON NAME	SIZE	ROOT	REMARKS
AA	24	ARONIA ARBUTIFOLIA 'BRILLIANTISSIMA' RED CHOKEBERRY	3 GAL.	CONT.	AS SHOWN
FG	14	FOTHERGILLA GARDENII 'MT. AIRY' MT. AIRY DWARF FOTHERGILLA	3 GAL.	CONT.	AS SHOWN
IT	30	ITEA VIRGINICA 'HENRY'S GARNET' HENRY'S GARNET VIRGINIA SWEETSPIRE	18-24" HT.	CONT.	AS SHOWN
CE	687	CAREX 'EVERGOLD' EVERGOLD SEDGE	1 QUART	CONT.	18" ON CENTER
EP	191	EUPATORIUM PURPUREUM JOE PYE WEED	1 QUART	CONT.	18" ON CENTER
IS	669	IRIS VERSICOLOR 'BLUE FLAG' BLUE FLAG IRIS	1 QUART	CONT.	18" ON CENTER
RL	560	RUDBECKIA LACINIATA 'GOLDQUELLE' GOLDQUELLE CONEFLOWER	1 QUART	CONT.	18" ON CENTER



MICRO-BIORETENTION #1 & #2 DETAIL PLAN
SCALE: 1"=20'

0 20' 40'



MICRO-BIORETENTION #1 & #2 LANDSCAPE PLAN
SCALE: 1"=20'

AS-BUILT CERTIFICATION
I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN AND MEET THE APPROVED PLANS AND SPECIFICATIONS.

SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE) — Sharon K. Cruz — DATE 7/8/19
PE # 36896
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36896, EXPIRATION DATE: 2·15·21.

STATE OF MARYLAND — SHARON K. CRUZ — No. 36896 — PROFESSIONAL ENGINEER

APPROVED : DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9-21-17
CHIEF, DIVISION OF LAND DEVELOPMENT NH	DATE 9·27·17
DIRECTOR	DATE 10-2-17

DATE	NO.	REVISION	BY

DEVELOPER	DCT INDUSTRIAL 12011 GUILFORD ROAD 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

PROJECT
TERRAPIN COMMERCE CENTER

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

TITLE
MICRO-BIORETENTION DETAILS
AS-BUILT

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SEAL
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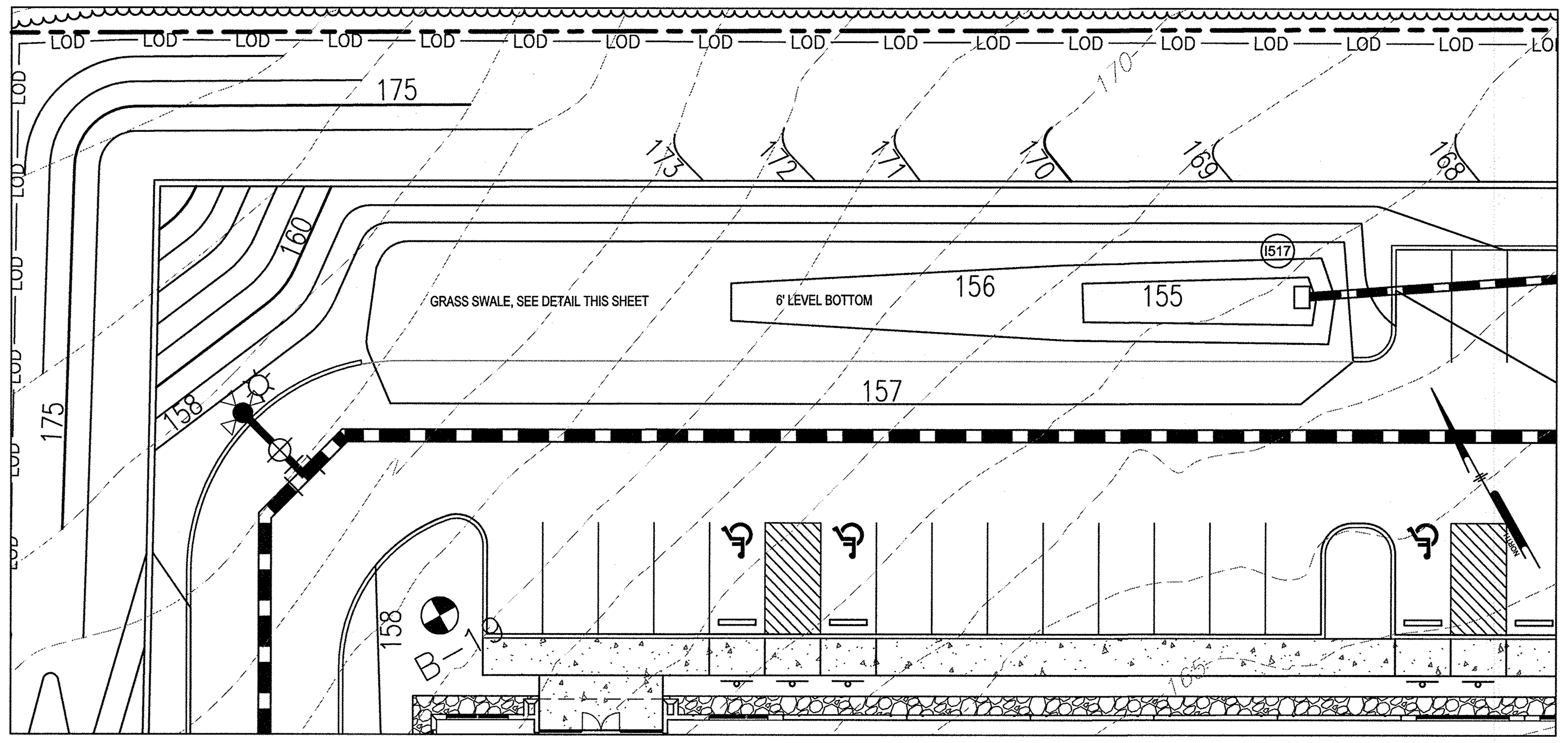
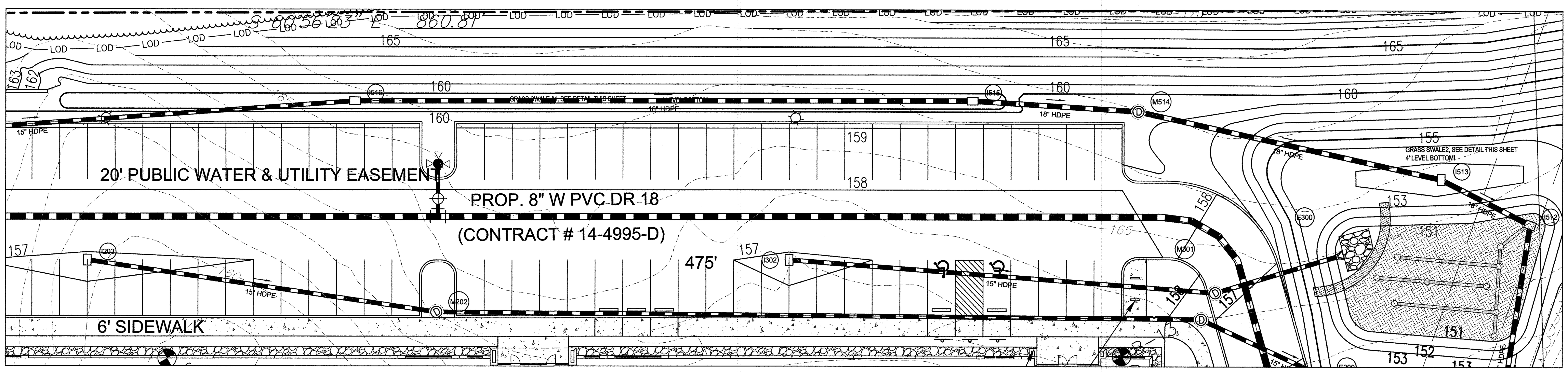
DESIGNED BY : PJS	
DRAWN BY: AGS/JSN	
PROJECT NO : DCTI1601	
DATE : JUNE 23, 2017	
SCALE : AS SHOWN	
DRAWING NO. 21 OF 43	

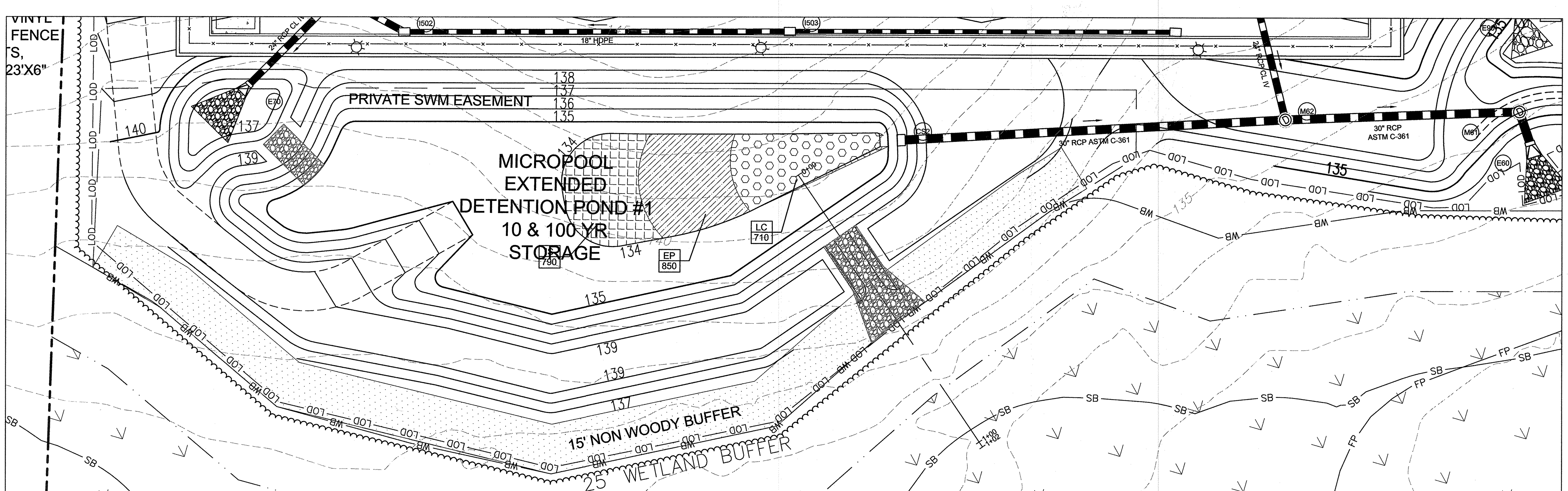


GRASS SWALE #3 DETAIL PLAN
SCALE: 1"=20'

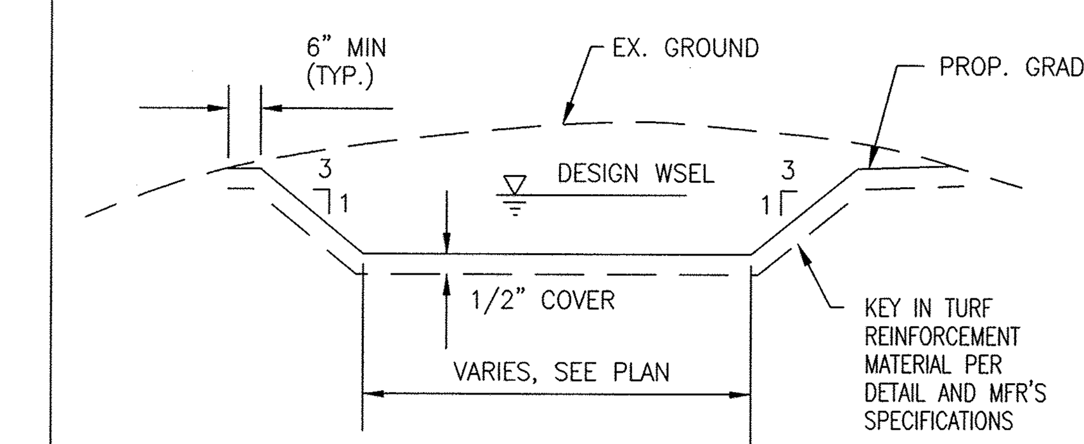
STORMWATER MANAGEMENT POND #1 PLANT SCHEDULE					
SYMBOL	QTY.	SCIENTIFIC/ COMMON NAME	SIZE	ROOT	REMARKS
EP	850	EUPATORIUM PURPUREUM JOE PYE WEED	1 QUART	CONT.	12" ON CENTER
IS	790	IRIS VERSICOLOR 'BLUE FLAG' BLUE FLAG IRIS	1 QUART	CONT.	12" ON CENTER
LC	710	LOBELIA CARDINALIS CARDINAL FLOWER	1 QUART	CONT.	12" ON CENTER



GRASS SWALE #1 & 2 DETAIL PLAN
SCALE: 1"=20'



STORMWATER MANAGEMENT POND #1 LANDSCAPE PLAN
SCALE: 1"=20'



NOTES

1. INSTALL THE MATERIAL PER THE MANUFACTURER'S INSTRUCTIONS INCLUDING SUFACE PREPARATION AND STAPLING. IT IS VERY IMPORTANT THAT THE MATERIAL BE INSTALLED IN GOOD CONTACT WITH THE GROUND WITH NO WRINKLES OR VOID SPACES BELOW THE FABRIC. STAPLES MUST BE PLACED IN A DIAMOND PATTERN APPOXIMATELY 18" APART.

2. FILL VOIDS IN THE MATERIAL WITH TOPSOIL BEFORE SODDING OR SEEDING DO NOT PLACE MORE THAN ONE HALF INCH (1/2") OF TOPSOIL OVER THE MATERIAL. THE MATERIAL MUST BE WITHIN THE ROOT ZONE FOR IT TO FUNCTION PROPERLY.

3. MATERIAL MUST BE ENKAMAT 7010, ENKAMAT 7020, TENSAR TM-3000, PYRAMAT, OR OTHER MCDPS APPROVED EQUIVALENT. TO BE CONSIDERED AS AN EQUIVALENT, THE MATERIAL MUST BE A SINGLE BONDED TURF REINFORCEMENT MATERIAL.

4. TURF REINFOREMENT IS NOT MEANT TO SERVE AS AN EROSION CONTROL MAT. IF NECESSARY, A BIOGRADABLE MATERIAL SUCH AS EXVELSIOR MAY BE PLACE OVER THE PREPATED SEED BED TO HOLD THE SEED IN PLACE. THE PURPOSE OF THE TURF REINFOREMENT MATERAIL IS TO ADD STRENGTH TO THE ROOT SYSTEM AFTER GERMINATION.

GRASS SWALE TYPICAL SECTION
NOT TO SCALE

AS-BUILT CERTIFICATION

I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN AND MEET THE APPROVED PLANS AND SPECIFICATIONS.

SIGNATURE OF ENGINEER — DATE 7/8/19
(PRINT NAME BELOW SIGNATURE)
Sharon K. Cruz — PE # 36896

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36896, EXPIRATION DATE: 2.15.21.

STATE OF MARYLAND SHARON K. CRUZ No. 36896 PROFESSIONAL ENGINEER

APPROVED : DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9.21.17

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9.27.17

DIRECTOR — DATE 10-2-17

DATE	NO.	REVISION	BY

DEVELOPER
DCT INDUSTRIAL
12011 GUILFORD ROAD
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

PROJECT
TERRAPIN COMMERCE CENTER

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

TITLE
STORMWATER MANAGEMENT DETAILS
AS-BUILT

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

SEAL
STATE OF MARYLAND SHARON K. CRUZ No. 36896 REGISTERED PROFESSIONAL ENGINEER

BY: 9/22/17

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36896, EXPIRATION DATE: 2-15-2019"

DESIGNED BY : PJS
DRAWN BY: AGS/JSN
PROJECT NO : DCTI1601
DATE : JUNE 23, 2017
SCALE : AS SHOWN
DRAWING NO. 22 OF 43

SDP-17-030

T:\PROJECTS\DCTI\DCTI1601-MEARS PROPERTY TERRAPIN COMMERCE\DESIGN_PUBLISH\SITE DEVELOPMENT PLANS - BUILDING A\DCTI1601-SDP22

GRAVEL WETLAND SEQUENCE OF CONSTRUCTION

1. DO NOT BEGIN GRAVEL WETLAND INSTALLATION UNTIL SITE UPSTREAM OF GRAVEL WETLAND IS STABILIZED AND FINE GRADING HAS BEEN COMPLETED.
2. EXCAVATE GRAVEL WETLAND. WETLAND CONSTRUCTION SHALL BE PERFORMED WITH LIGHTWEIGHT, WIDE-TRACKED EQUIPMENT TO MINIMIZE DISTURBANCE AND COMPACTION. EXCAVATED MATERIALS SHALL BE PLACED IN A CONTAINED AREA. ANY PUMPING OPERATIONS SHALL DISCHARGE FILTERED WATER TO A STABLE OUTLET. (1 DAY)
3. PLACE STONE, OBSERVATION WELL AND UNDERDRAINS. (1 DAY).
4. PLACE PLANTING SOIL. (0.5 DAY)
5. INSTALL PLANT MATERIAL. (1 DAY)
6. STABILIZE GRAVEL WETLAND AREA. (0.5 DAY)

GRAVEL WETLAND OPERATION AND MAINTENANCE SCHEDULE

1. 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.

2. SCHEDULE OF PLANTING INSPECTION WILL BE TWICE A YEAR IN SPRING AND FALL. THIS INSPECTION WILL INCLUDE REMOVAL OF DEAD AND DISEASE VEGETATION CONSIDERED BEYOND TREATMENT, TREATMENT OF ALL DISEASED TREES AND SHRUBS AND REPLACEMENT OF ALL DEFICIENT STAKES AND WIRES.

3. SOIL EROSION TO BE ADDRESSED ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE A MONTH AND AFTER HEAVY STORMS.

GRAVEL WETLAND SPECIFICATIONS

1. THE UNDERDRAIN PIPE MUST BE 6-INCH DIAMETER SCHEDULE 40 OR STRONGER PERFORATED PVC PIPE AT 0.00% SLOPE. THREE INCHES OF GRAVEL MUST BE PLACED UNDER THE PIPE. PERFORATIONS MUST BE 3/8 INCH IN 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 AROUND THE UNDERDRAIN PIPE.

2. 6" INCH CLEAN-OUTS SHOULD BE USED. CLEANOUTS FOR EACH PIPE SHOULD EXTEND 6 INCHES ABOVE THE TOP OF THE PLANTING MEDIA AND HAVE A REMOVABLE CAP.

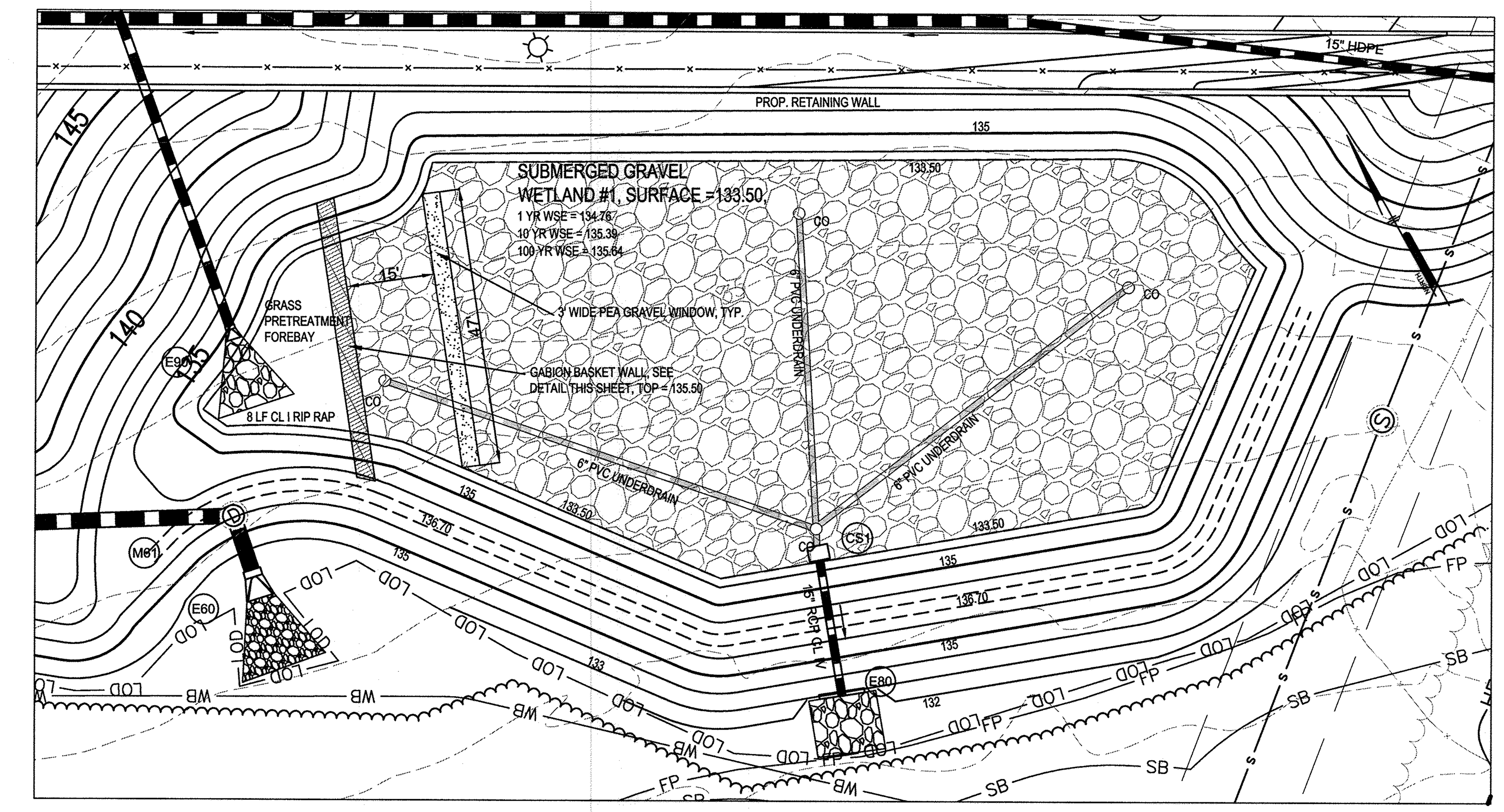
3. THE GRAVEL LAYER SURROUNDING THE UNDERDRAIN PIPES MUST BE CLEAN, WASHED ROUNDED BANK RUN GRAVEL ASTM D448 SIZE #6, AND A MINIMUM OF 3 NCHES UNDER THE PIPE. NO GEOTEXTILE OR FILTER FABRIC IS ALLOWED ANYWHERE WITHIN THE FILTER MEDIA.

4. THE UNDERDRAIN SHALL BE TURNED UP INSIDE THE OUTFALL STRUCTURE AS SHOWN ON THE OUTFALL STRUCTURE DETAILS AT THE ELEVATION SHOWN. THE UNDERDRAIN WITHIN THE OUTFALL STRUCTURE SHALL BE SOLID PVC.

5. THE PLANTING MEDIA SHALL CONFORM TO MDE SPECIFICATIONS AS SHOWN IN APPENDIX B3 OF THE MARYLAND STORMWATER DESIGN MANUAL, VOL. I & II. THE SOIL SHALL BE FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN 2 INCHES. THE FIRST LAYER OF THE PLANTING MEDIA SHALL BE LIGHTLY TILLED TO MIX IT INTO THE SAND LAYER, SO NOT TO CREATE A DEFINITIVE BOUNDARY. THE PLANTING MATERIAL SHALL BE FLOODED AFTER PLACEMENT. ANY SETTLEMENT THAT OCCURS SHALL BE FILLED BACK TO THE DESIGN ELEVATION.

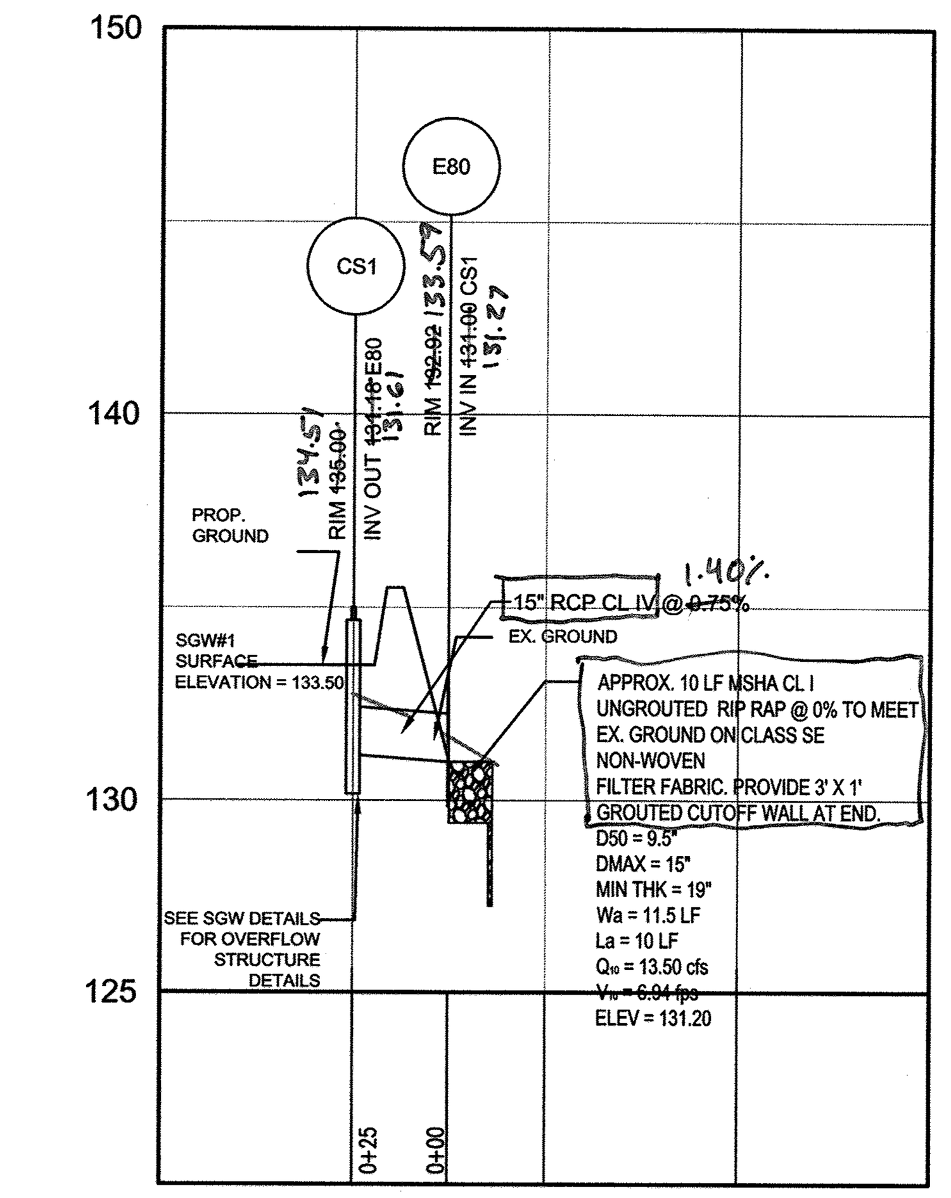
6. PEA GRAVEL SHALL BE CLEAN WASHED #8 OR #9 STONE.

7. A LINER SHALL BE INSTALLED AROUND THE BOTTOM AND SIDES OF THE FACILITY. THE LINER SHALL BE COMPRISED OF EITHER 45 MIL EPDM SHEETING, BENTONITE MATERIAL 4" THICK, OR SUITABLE ON-SITE CLAY 4" THICK.



SUBMERGED GRAVEL WETLANDS DETAIL PLAN

SCALE: 1"=20'



CS1 TO E80

HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'

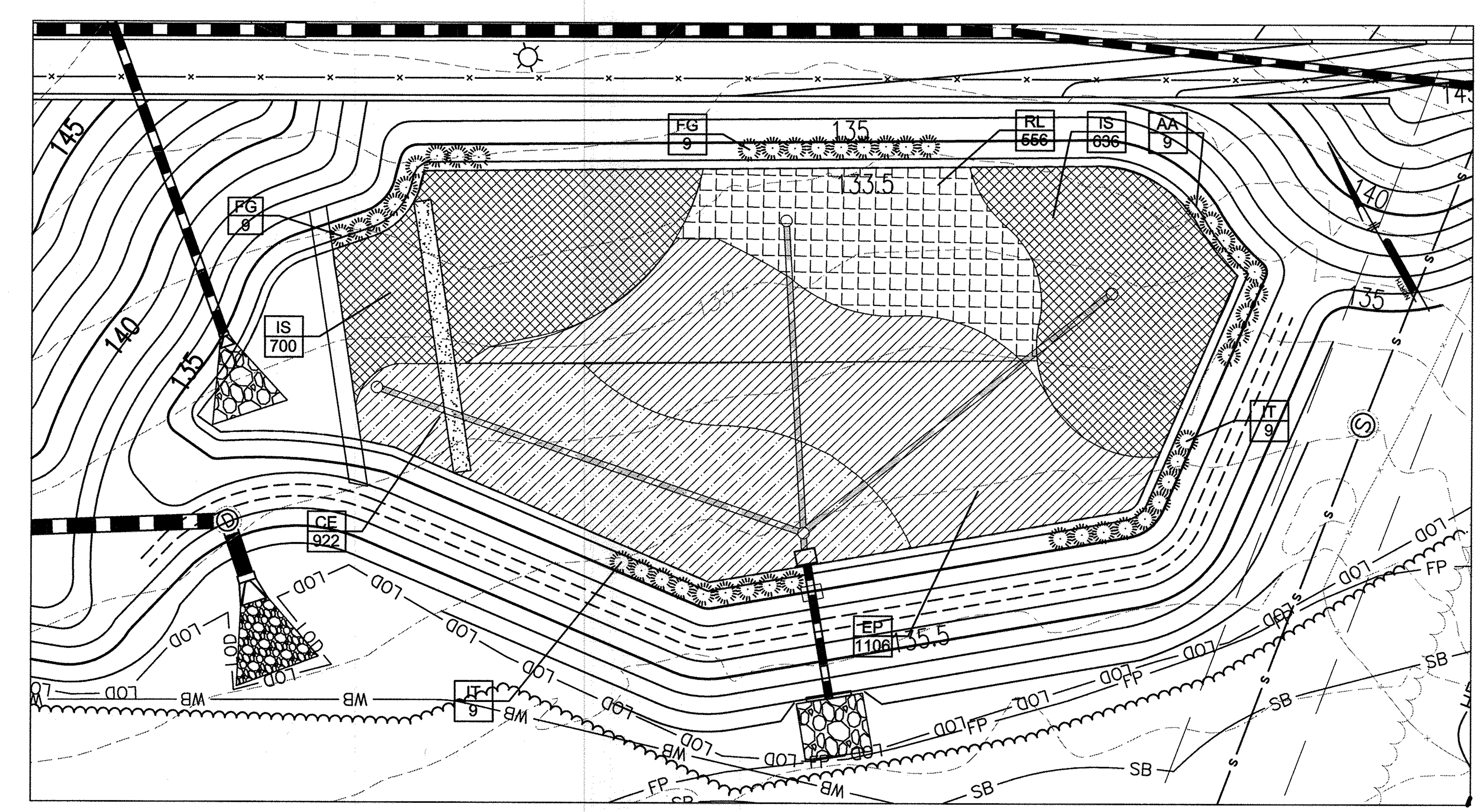
AS-BUILT CERTIFICATION

I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN AND MEET THE APPROVED PLANS AND SPECIFICATIONS.

SIGNATURE OF ENGINEER 7/2/19 DATE
(PRINT NAME BELOW SIGNATURE) Sharon Cruz PE# 36896

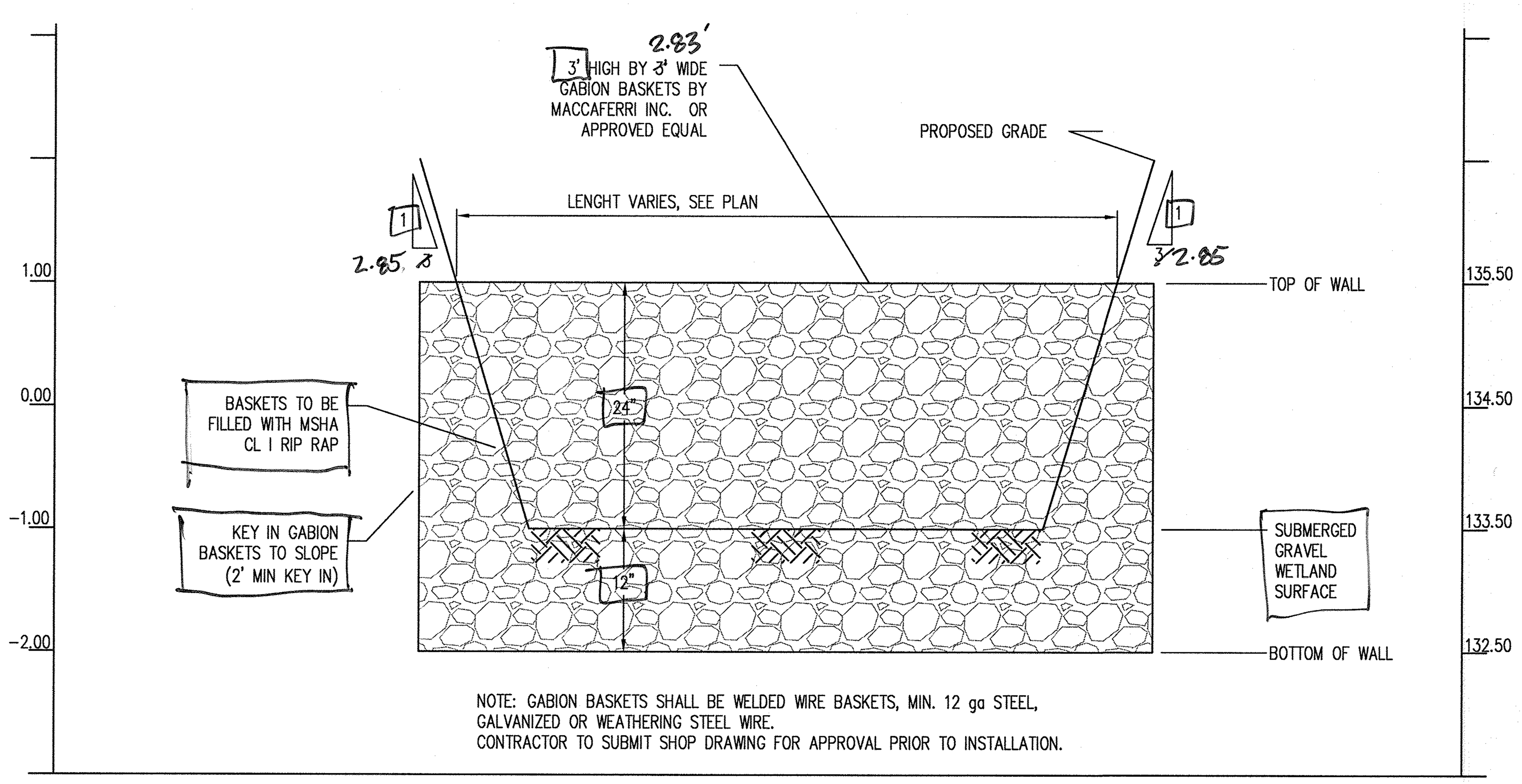
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36896 EXPIRATION DATE: 6-15-21

STATE OF MARYLAND SHARON K. CRUZ No. 36896 PROFESSIONAL ENGINEER



SUBMERGED GRAVEL WETLANDS LANDSCAPE PLAN

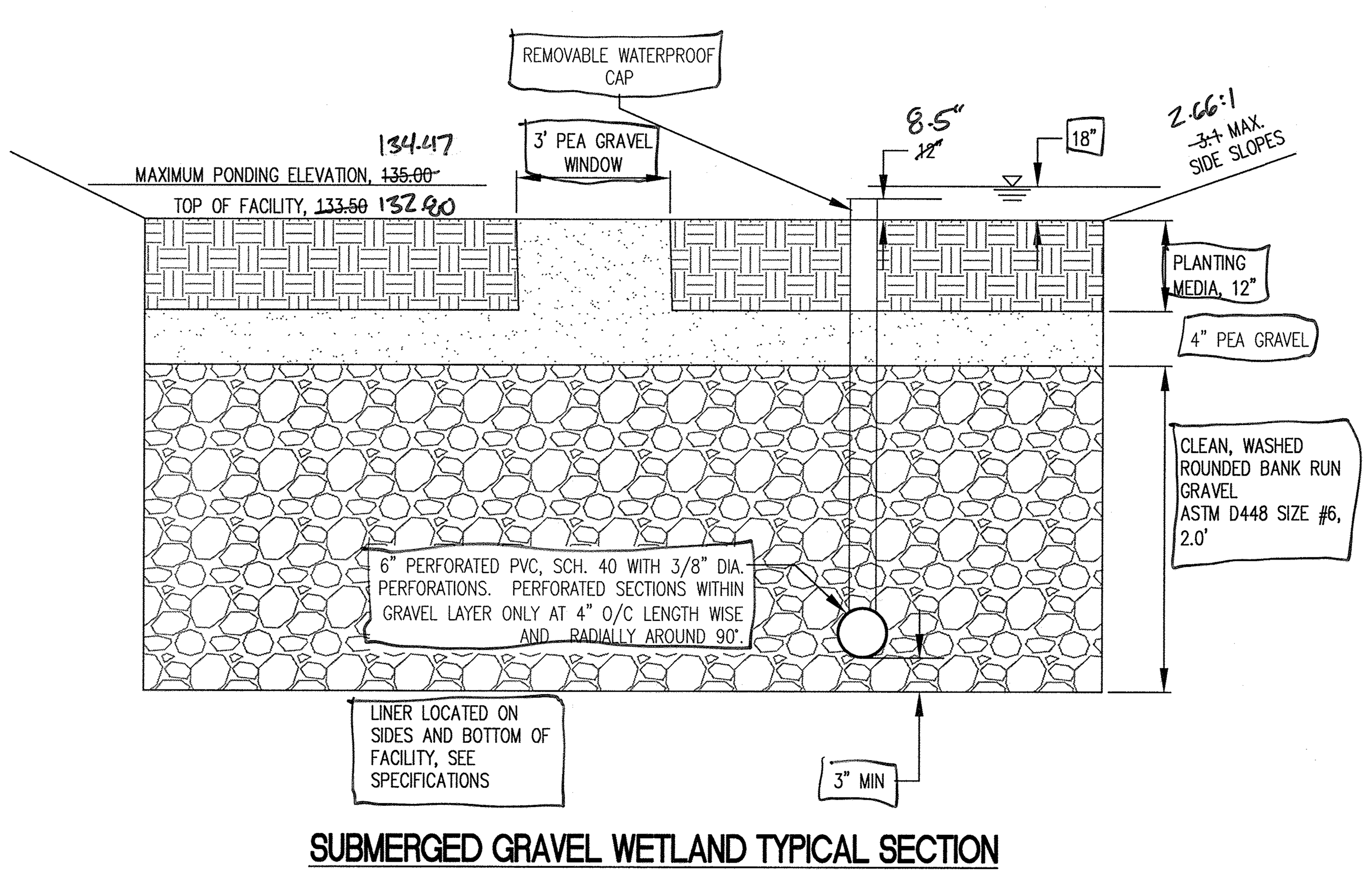
SCALE: 1"=20'



NOTE: GABION BASKETS SHALL BE WELDED WIRE BASKETS, MIN. 12 ga STEEL, GALVANIZED OR WEATHERING STEEL WIRE. CONTRACTOR TO SUBMIT SHOP DRAWING FOR APPROVAL PRIOR TO INSTALLATION.

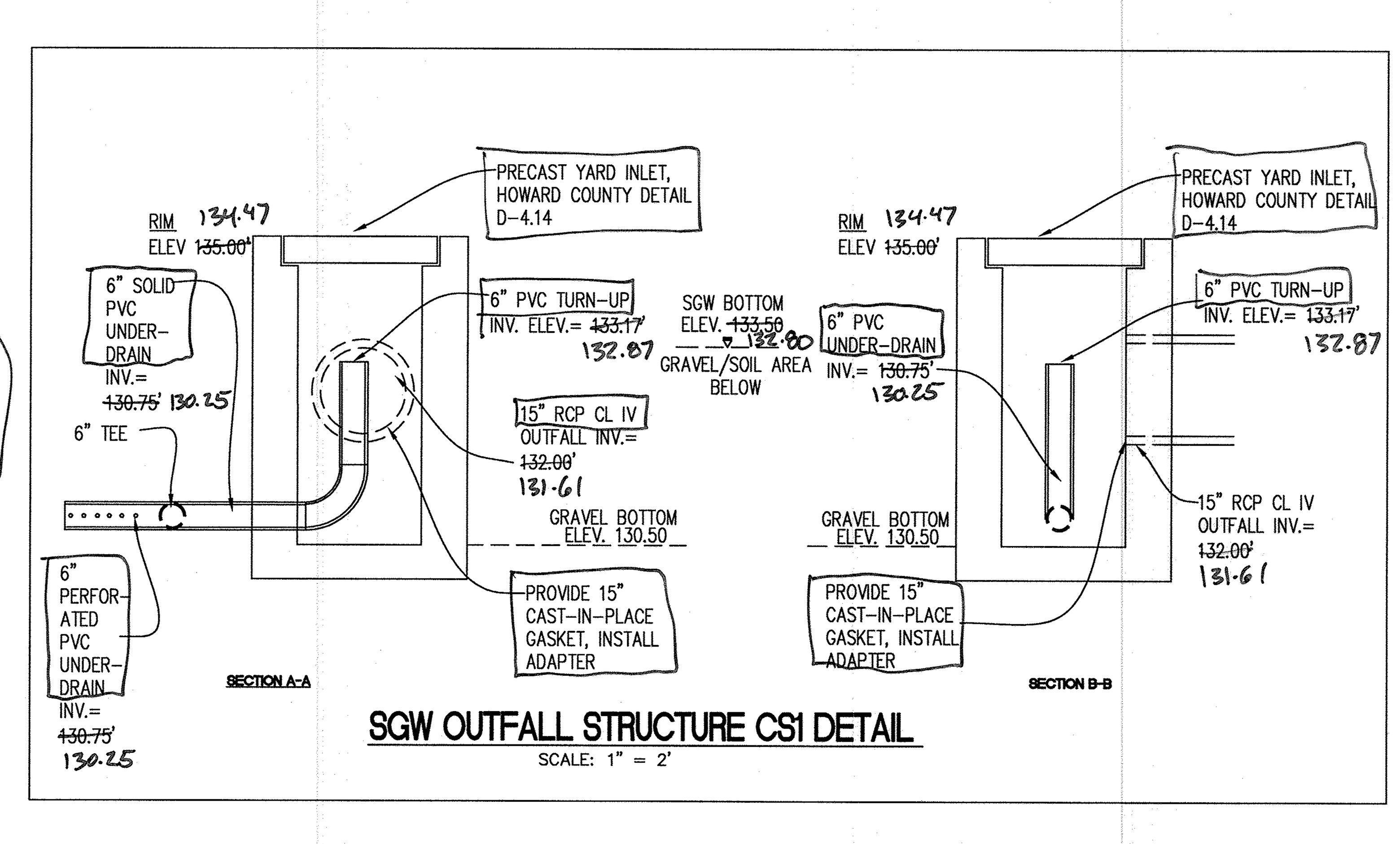
SUBMERGED GRAVEL WETLAND GABION WALL DETAIL

SCALE : HOR: 1"=10'
VERT: 1"=1'



SUBMERGED GRAVEL WETLAND TYPICAL SECTION

NOT TO SCALE



SGW OUTFALL STRUCTURE CS1 DETAIL

SCALE: 1" = 2'

SUBMERGED GRAVEL WETLANDS PLANT SCHEDULE					
SYMBOL	QTY.	SCIENTIFIC/ COMMON NAME	SIZE	ROOT	REMARKS
AA	9	ARONIA ARBUTIFOLIA 'BRILLIANTISSIMA' RED CHOKEBERRY	3 GAL.	CONT.	AS SHOWN
FG	18	FOTHERGILLA GARDENII 'MT. AIRY' MT. AIRY DWARF FOTHERGILLA	3 GAL.	CONT.	AS SHOWN
IT	18	ITEA VIRGINICA 'HENRY'S GARNET' HENRY'S GARNET VIRGINIA SWEETSPIRE	18-24" HT.	CONT.	AS SHOWN
CE	922	CAREX 'EVERGOLD' EVERGOLD SEDGE	1 QUART	CONT.	18" ON CENTER
EP	1106	EUPATORIUM PURPUREUM JOE PYE WEED	1 QUART	CONT.	18" ON CENTER
IS	1336	IRIS VERSICOLOR 'BLUE FLAG' BLUE FLAG IRIS	1 QUART	CONT.	18" ON CENTER
RL	556	RUDBECKIA LACINIATA 'GOLDQUELLE' GOLDQUELLE CONEFLOWER	1 QUART	CONT.	18" ON CENTER

APPROVED : DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9-22-17
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9-27-17
DIRECTOR — DATE 10-2-17

DATE	NO.	REVISION	BY

DEVELOPER: DCT INDUSTRIAL, 12011 GUILFORD ROAD, 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

PROJECT: TERRAPIN COMMERCE CENTER

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

TITLE: SUBMERGED GRAVEL WETLANDS DETAILS AS-BUILT

Pennoni Associates Inc.
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Landscape Architects
8818 Centre Park Drive, Suite 200 Columbia, MD 21045
T 410.997.8900 F 410.997.9282

SEAL: STATE OF MARYLAND — REGISTERED PROFESSIONAL ENGINEER

BY:

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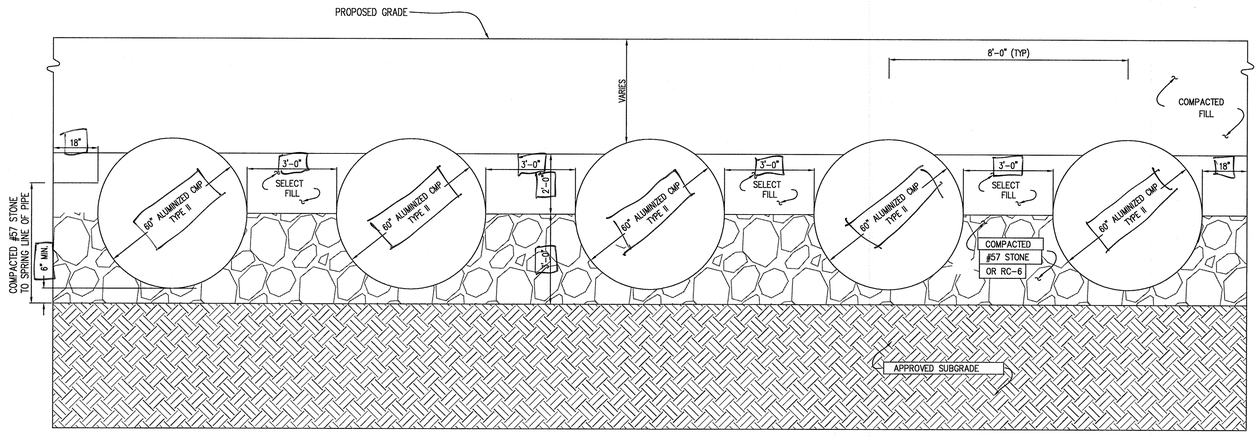
DESIGNED BY : PJS
DRAWN BY: AGS/JSN
PROJECT NO : DCTI1601
DATE : JUNE 23, 2017
SCALE : AS SHOWN

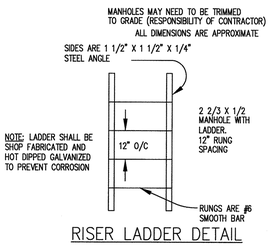


▽ 100 YR WSEL = 139.91
▽ 10 YR WSEL = 138.97
▽ 1 YR WSEL = 137.60

NOTE: SEE PLAN VIEW FOR NUMBER OF PIPES

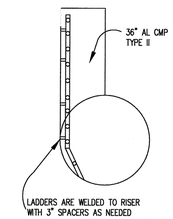
UNDERGROUND WATER QUANTITY STORAGE PIPES
TYPICAL SECTION
SCALE: 1"=2'

ALL PIPE ENDS MUST BE MATCHED AND NUMBERED BY THE MANUFACTURER



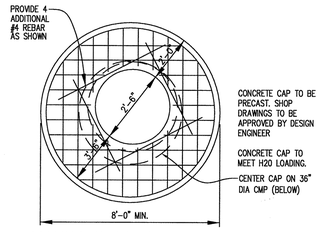
RISER LADDER DETAIL

NOT TO SCALE



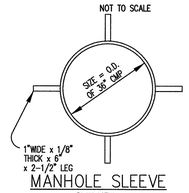
ACCESS RISER DETAIL

NOT TO SCALE

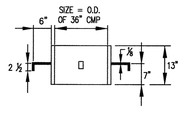


MANHOLE CONCRETE CAP

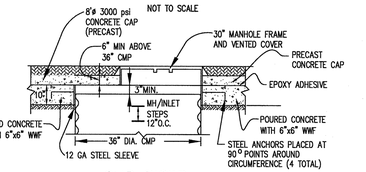
NOT TO SCALE



MANHOLE SLEEVE
PLAN VIEW
NO SCALE



MANHOLE SLEEVE
SIDE VIEW
NO SCALE



CMP RISER
MANHOLE SLEEVE DETAIL

NO SCALE

UNDERGROUND STORMWATER MANAGEMENT CONSTRUCTION SPECIFICATIONS

A. SITE PREPARATION

AREAS UNDER THE CULVERTS AND STRUCTURAL WORKS SHALL BE CLEARED, GRUBBED, AND THE TOPSOIL STRIPPED TO REMOVE ALL TREES, VEGETATION, ROOTS, OR OTHER OBJECTIONABLE MATERIAL.

B. SPECIFICATION FOR CORRUGATED STEEL PIPE

DESCRIPTION:

THE ALUMINIZED CMP TYPE II CORRUGATED STEEL SHALL BE FABRICATED IN ACCORDANCE WITH AASHTO DESIGNATION M-274 FROM A BASE METAL MANUFACTURED IN ACCORDANCE WITH ASTM A-525 COATED UNIFORMLY ON BOTH SIDES WITH 1.00 OZ/SQ.FT. OF PURE ALUMINUM.

MATERIAL:

THE 60" DIAMETER CORRUGATED METAL PIPE SHALL BE OF THE CORRUGATION DESIGN AND GAGE INDICATED. THE STEEL PIPE , COUPLERS AND FITTINGS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-36 WITH THE PIPE HAVING A 5"X1" CORRUGATION PROFILE AND SHALL BE A MINIMUM 10 GAGE. THE COUPLING BANDS SHALL BE THE SAME MATERIAL AS THE PIPE AND SHALL BE A MINIMUM OF 24 INCHES WIDE. THE CORRUGATED METAL PIPE SHALL BE MANUFACTURED WITH CONTINUOUS LOCKSEAM OR BUTT WELDED HELICAL CORRUGATIONS AND HAVING NO LESS THAN TWO ANNULAR CORRUGATIONS REROLLED AT BOTH ENDS OF ANY LENGTH OF PIPE. COUPLING BANDS SHALL BE FORMED WITH TWO CORRUGATIONS THAT ARE SPACED TO PROVIDE SEATING IN THE SECOND REROLLED CORRUGATION OF EACH PIPE END, AND PIPE ENDS SHALL BE MATCHED AND NUMBERED. ALL ALUMINIZED SURFACES THAT WILL BE IN CONTACT WITH CONCRETE SHALL BE PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER.

C. INSTALLATION

THE CORRUGATED METAL PIPE SHALL BE HANDLED IN A MANNER NOT TO DAMAGE THE PIPE OR COATING. BEDDING AND BACKFILL MATERIAL SHALL BE SELECTED, GRANULAR MATERIAL AND SHALL BE FREE OF ROCKS AND HARD CLODS LARGER THAN 3-INCHES IN SIZE. THE BEDDING AND BACKFILL MATERIAL SHALL BE CAREFULLY PLACED AND CONSOLIDATED EVENLY ON BOTH SIDES OF THE PIPE IN MAXIMUM 8-INCH LOOSE LIFTS. THE PH OF THE SURROUNDING SOIL SHALL BE LESS THAN (9) AND GREATER THAN (4).

THE MATERIAL MUST COMPLETELY FILL ALL SPACES UNDER AND ADJACENT TO THE STRUCTURE OR 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 THE STRUCTURE. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR DRIVE EQUIPMENT OVER A CONCRETE STRUCTURE OR PIPE UNLESS THERE IS A COMPACTED FILL OF 24-INCHES OR GREATER OVER THE STRUCTURE OR PIPE.

CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE SHORING OF TRENCH WALLS TO PREVENT FAILURE DURING CONSTRUCTION.

D. CONNECTIONS

ALL CONNECTIONS SHALL BE COMPLETELY WATERTIGHT. THIS INCLUDES ALL ENDCAPS, PIPES, CONNECTIONS TO AND FROM CONCRETE CONTROL STRUCTURE AND ALL CONNECTIONS FROM STORM DRAINAGE SYSTEM. SEE MATERIAL SPECIFICATIONS ABOVE.

GENERAL NOTES:

1. ALL CONSTRUCTION SHALL MEET HOWARD COUNTY AND MARYLAND STATE HIGHWAY ADMINISTRATION STANDARDS AND SPECIFICATIONS.

2. CONCRETE STRENGTH SHALL BE 4,000 PSI MIN. AT 28 DAYS.

3. REINFORCEMENT SHALL BE CLEAN AND FREE OF RUST AND MEET ASTM-615 GRADE 60.

4. ALL REINFORCEMENT SHALL HAVE 2" MIN. COVER.

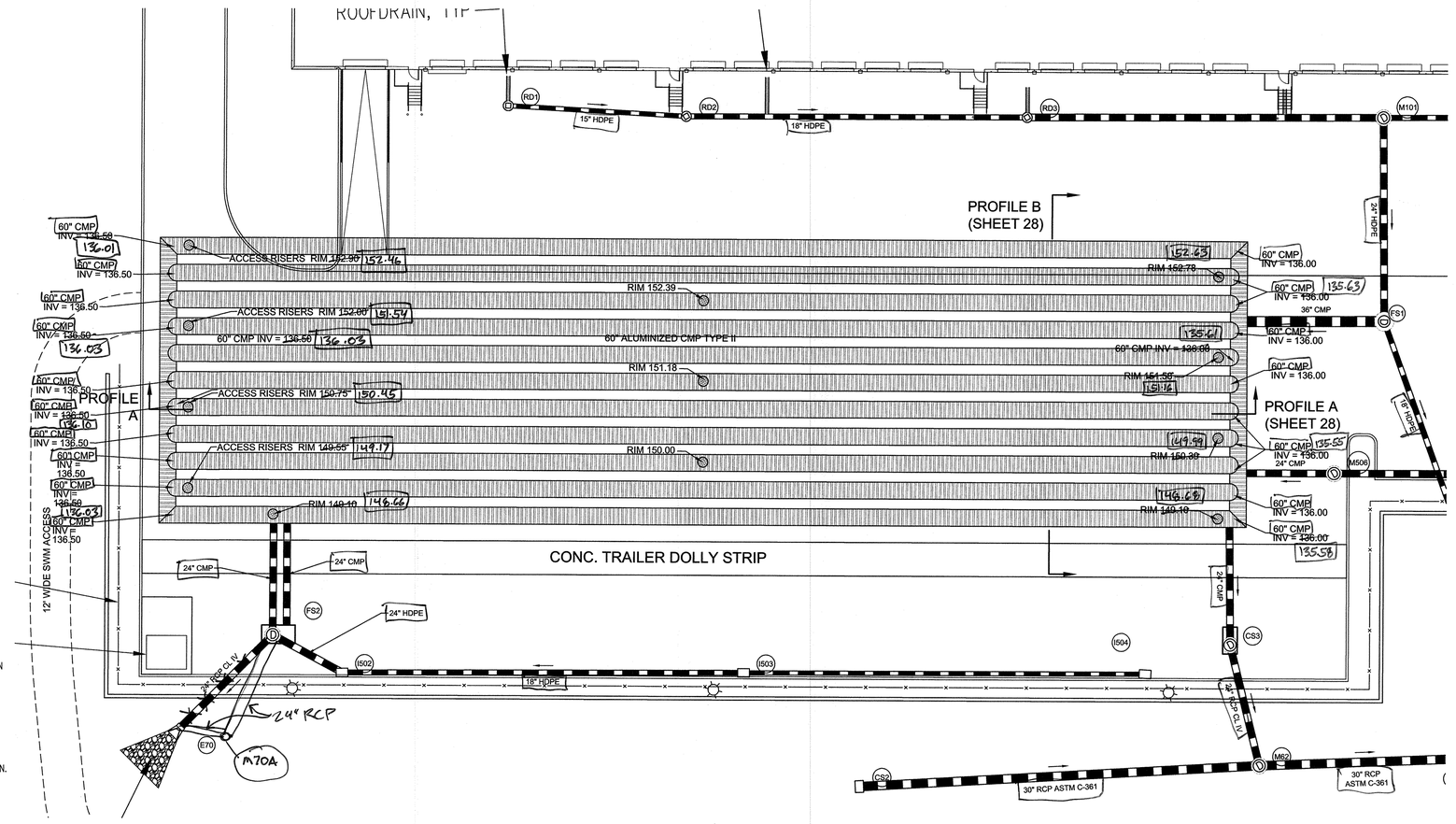
5. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR REVIEW PRIOR TO FABRICATION.

6. THE STRUCTURE FOUNDATION AND PIPE BEDDING SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO INSTALLATION.

7. CMP PIPE INSTALLATION PER MANUFACTURER'S RECOMMENDATION.

8. CONTRACTOR SHALL EXERCISE CARE DURING CONSTRUCTION SO AS NOT TO DAMAGE UNDERGROUND S.W.M.F. ANY DAMAGE TO CMP, MANHOLES, ETC. SHALL BE REPAIRED BY CONTRACTOR AT HIS/HER EXPENSE TO SATISFACTION OF ENGINEER.

9. ALL DEBRIS SHALL BE KEPT OUT OF THE FACILITY DURING AND AFTER CONSTRUCTION.



UNDERGROUND STORMWATER MANAGEMENT FACILITY PLAN

1"=20'

AS-BUILT CERTIFICATION

I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN AND MEET THE APPROVED PLANS AND SPECIFICATIONS.

7/2/19
SIGNATURE OF ENGINEER — DATE
(PRINT NAME BELOW SIGNATURE)
SHARON K. GRUNDY PE # 36996

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36996 EXPIRATION DATE: 2-15-21

STATE OF MARYLAND · SHARON K. GRUNDY · NO. 36996 · PROFESSIONAL ENGINEER

APPROVED : DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 9.22.17 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT — 9.27.17 DATE

DIRECTOR — 10-2-17 DATE

DATE	NO.	REVISION	BY

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

OWNER
DCT MEARS LLC
12011 GUILFORD ROAD
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PROJECT
TERRAPIN COMMERCE CENTER

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

TITLE
UNDERGROUND SWM DETAILS
AS-BUILT

Pennoni Associates Inc.
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Landscape Architects
8818 Centre Park Drive, Suite 200 Columbia, MD 21045
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SEAL

STATE OF MARYLAND · SHARON K. GRUNDY · NO. 36996 · PROFESSIONAL ENGINEER

BY: _____

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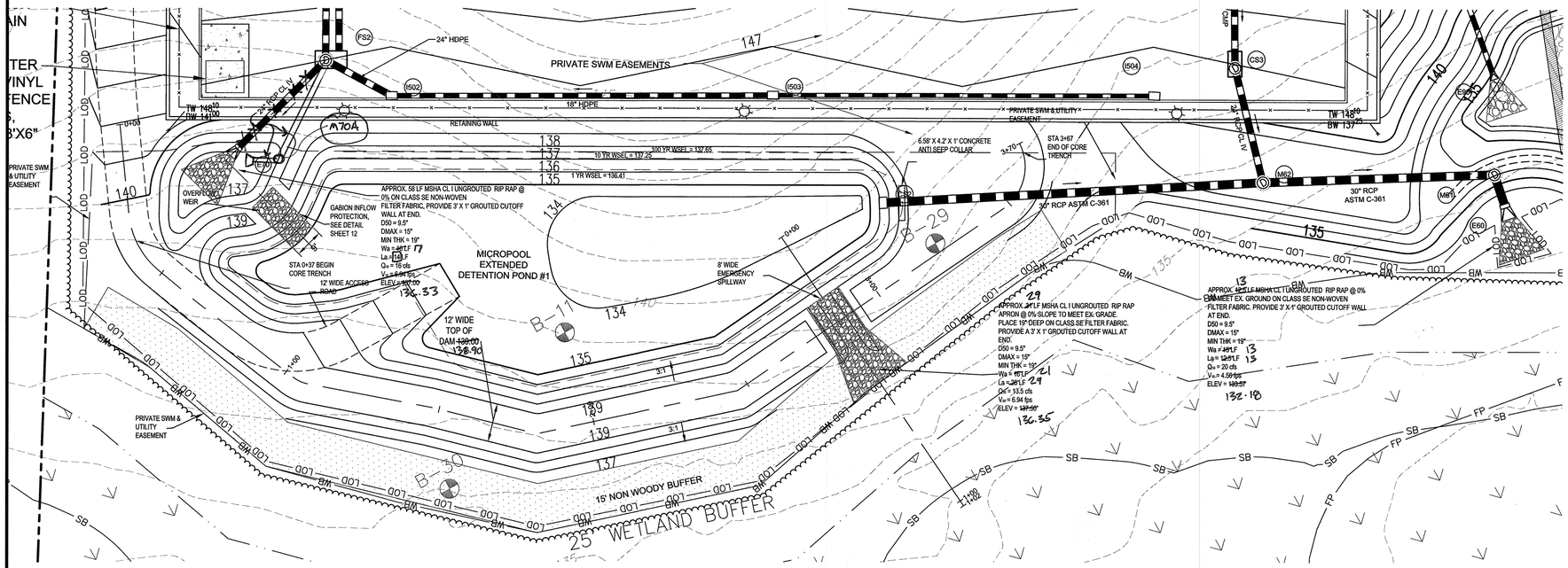
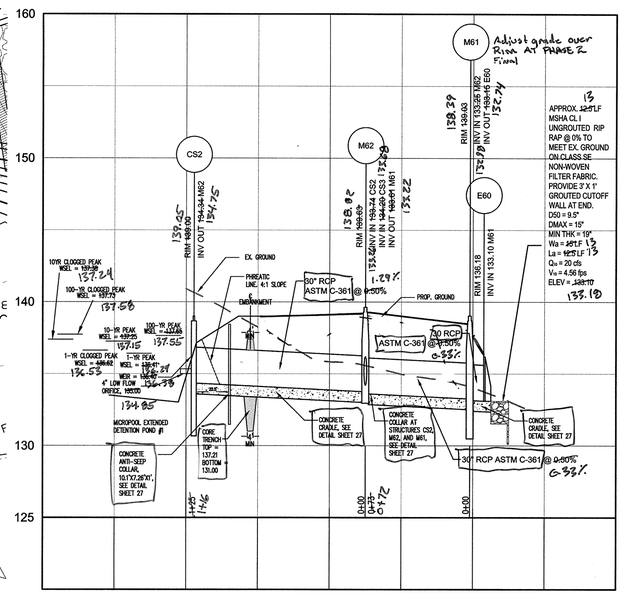
DESIGNED BY :	PJS
DRAWN BY:	AGS/JSN
PROJECT NO :	DCTI1601
DATE :	JUNE 23, 2017
SCALE :	AS SHOWN
DRAWING NO.	24 OF 43

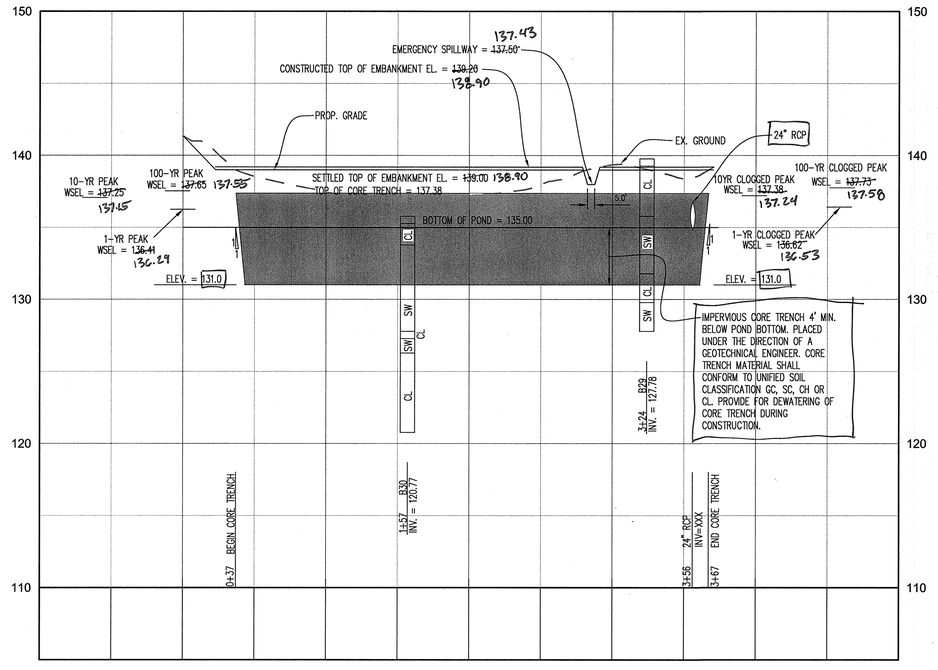
SDP-17-030



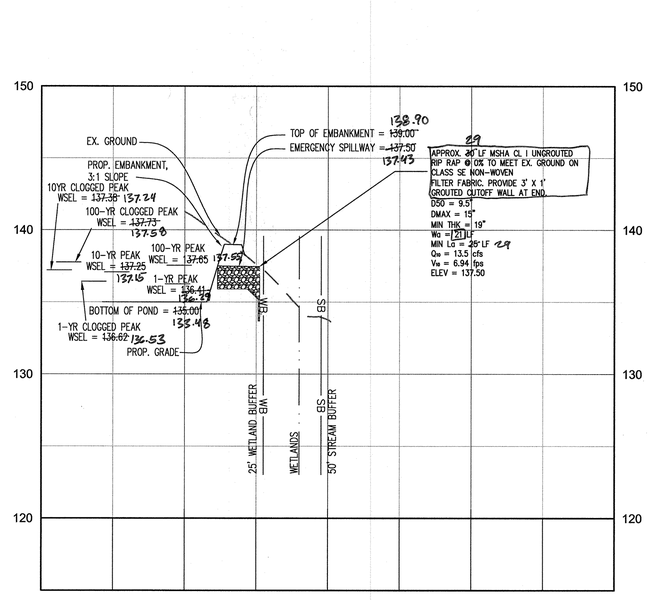
POND PLAN
1"=20'



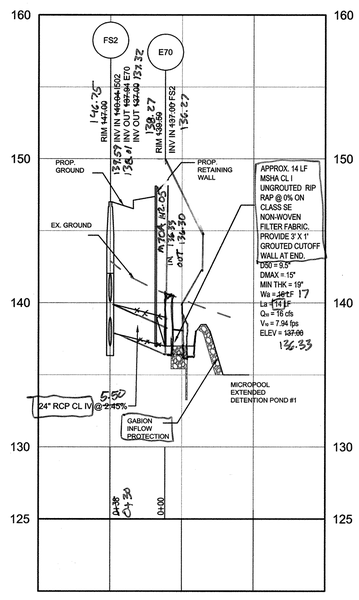
CS2 TO E60 (POND OUTFALL)
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'



SWM POND 1 CENTERLINE EMBANKMENT PROFILE
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'



POND 1 EMERGENCY SPILLWAY
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'



FS2 TO E70
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'

AS-BUILT CERTIFICATION
I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN AND MEET THE APPROVED PLANS AND SPECIFICATIONS.

7/9/19
SIGNATURE OF ENGINEER DATE
(PRINT NAME BELOW SIGNATURE)
Sharon K. Cruz PE # 36896
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36896 EXPIRATION DATE: 2.15.21

STATE OF MARYLAND · SHARON K. CRUZ · No. 36896 · PROFESSIONAL ENGINEER

APPROVED : DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9.22.17

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9.27.17

DIRECTOR — DATE 10.2.17

DATE	NO.	REVISION	BY

DEVELOPER
DCT INDUSTRIAL
12011 GUILFORD ROAD
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

PROJECT
TERRAPIN COMMERCE CENTER

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

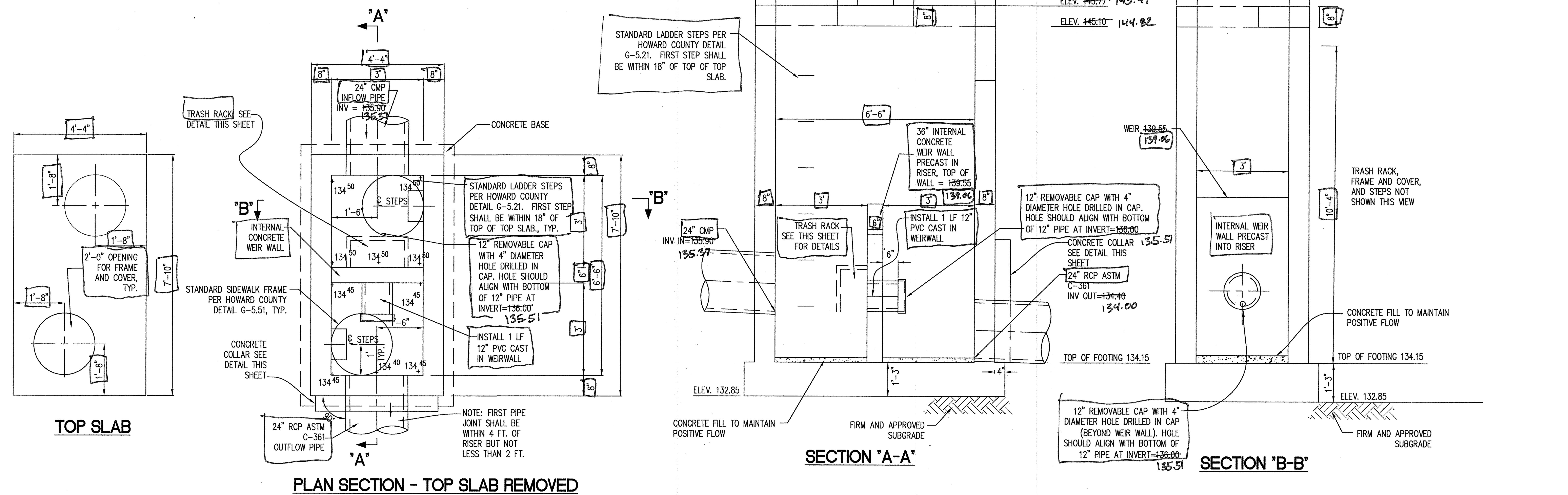
TITLE
STORMWATER MANAGEMENT POND 1 DETAILS
AS-BUILT

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

SEAL
STATE OF MARYLAND · SHARON K. CRUZ · No. 36896 · REGISTERED PROFESSIONAL ENGINEER
BY: 9/27/17
"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36896, EXPIRATION DATE: 2-15-2019"

DESIGNED BY :	PJS
DRAWN BY:	AGS/JSN
PROJECT NO :	DCTI1601
DATE :	JUNE 23, 2017
SCALE :	AS SHOWN
DRAWING NO.	25 OF 43

SDP-17-030

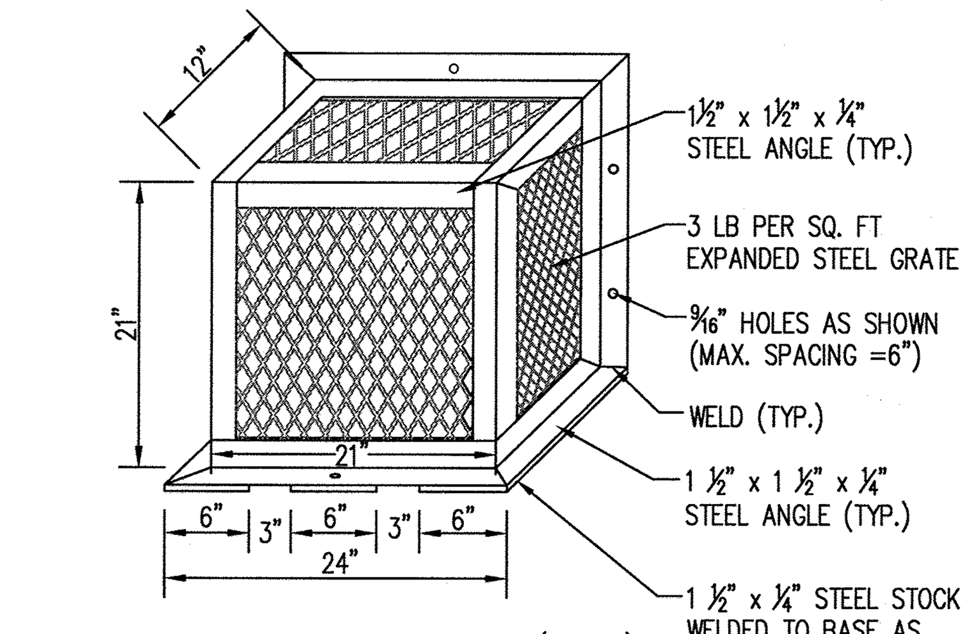


CONTROL STRUCTURE DETAIL CS3

SCALE: 1"=2'

GENERAL NOTES FOR TRASH RACK (CS3)

1. STEEL TO CONFORM TO ASTM A-36.
2. ALL SURFACES OF TRASH RACK(S) MUST BE HOT DIPPED GALVANIZED AFTER FABRICATION.
3. TRASH RACK TO BE FASTENED TO WALL WITH ½" MASONRY ANCHORS. TRASH RACK TO BE REMOVABLE.
4. TRASH RACK TO BE HORIZONTALLY CENTERED OVER OPENING.
5. FABRICATOR MAY MODIFY COMPONENTS OF TRASH RACK FRAME TO IMPROVE CONSTRUCTABILITY OF TRASH RACK. SHOP DRAWINGS SHOWING MODIFICATIONS MUST BE APPROVED BY BALTIMORE COUNTY DEPRM PRIOR TO FABRICATION

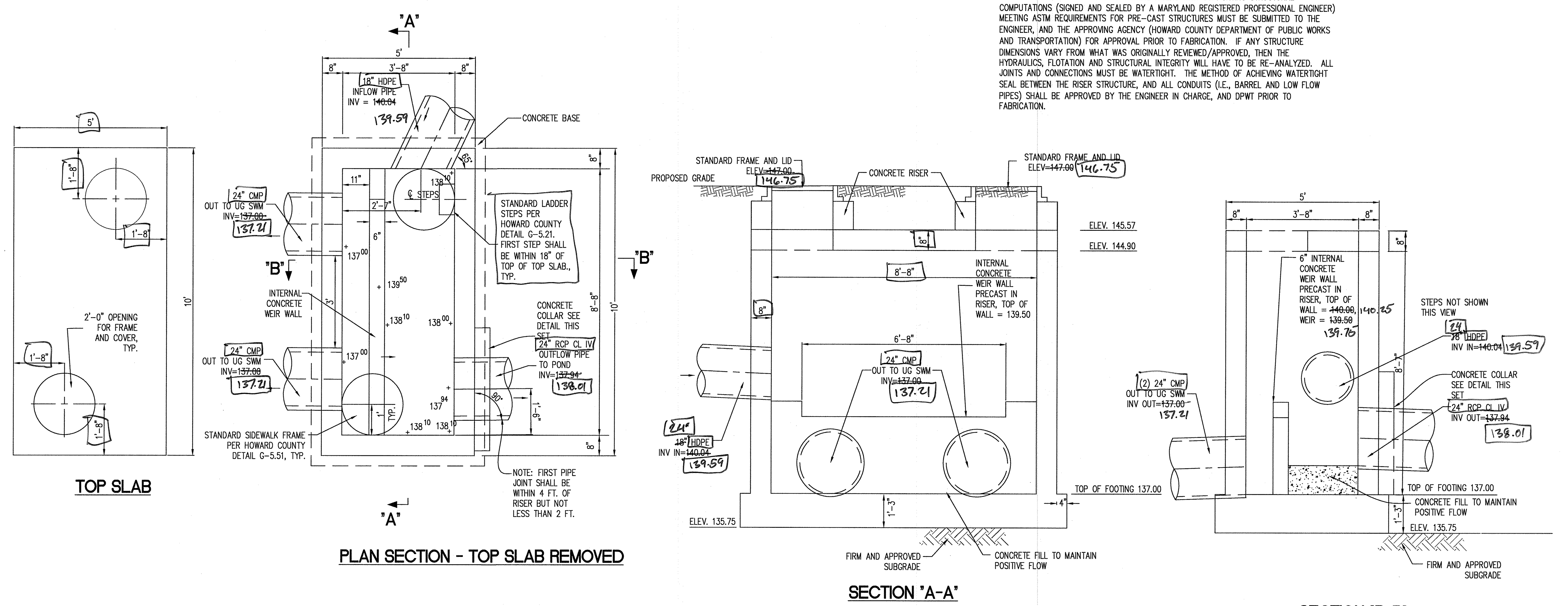


TRASH RACK DETAIL (CS3)

(NOT TO SCALE)

PRECAST RISER NOTE:

SHOP DRAWING FOR PRE-CAST CONCRETE RISERS WITH SUPPORTING STRUCTURAL COMPUTATIONS (SIGNED AND SEALED BY A MARYLAND REGISTERED PROFESSIONAL ENGINEER) MEETING ASTM REQUIREMENTS FOR PRE-CAST STRUCTURES MUST BE SUBMITTED TO THE ENGINEER, AND THE APPROVING AGENCY (HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION) FOR APPROVAL PRIOR TO FABRICATION. IF ANY STRUCTURE DIMENSIONS VARY FROM WHAT WAS ORIGINALLY REVIEWED/APPROVED, THEN THE HYDRAULICS, FLOTATION AND STRUCTURAL INTEGRITY WILL HAVE TO BE RE-ANALYZED. ALL JOINTS AND CONNECTIONS MUST BE WATERTIGHT. THE METHOD OF ACHIEVING WATERTIGHT SEAL BETWEEN THE RISER STRUCTURE, AND ALL CONDUITS (I.E., BARREL AND LOW FLOW PIPES) SHALL BE APPROVED BY THE ENGINEER IN CHARGE, AND DPWT PRIOR TO FABRICATION.



CONTROL STRUCTURE DETAIL FS2

SCALE: 1"=2'

AS-BUILT CERTIFICATION

I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN AND MEET THE APPROVED PLANS AND SPECIFICATIONS.

SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE) — DATE 7/8/19

Sharon K. Cruz — PE# 36896

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36896 EXPIRATION DATE: 2-15-21

APPROVED : DEPARTMENT OF PLANNING AND ZONING

	DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION	9-21-17
CHIEF, DIVISION OF LAND DEVELOPMENT	9-27-17
DIRECTOR	10-2-17

DATE	NO.	REVISION	BY

DEVELOPER: DCT INDUSTRIAL, 12011 GUILFORD ROAD, 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

PROJECT: TERRAPIN COMMERCE CENTER

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

TITLE: STORMWATER MANAGEMENT DETAILS AS-BUILT

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

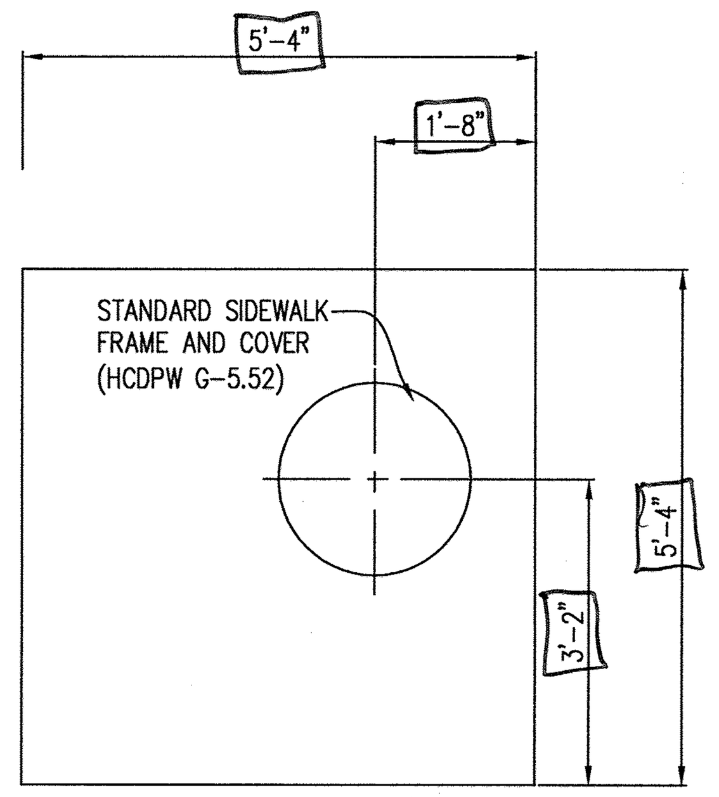
SEAL

BY: 9/26/17

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36896, EXPIRATION DATE: 2-15-2019

DESIGNED BY :	PJS
DRAWN BY:	AGS/JSN
PROJECT NO :	DCTI1601
DATE :	JUNE 23, 2017
SCALE :	AS SHOWN
DRAWING NO.	26 OF 43

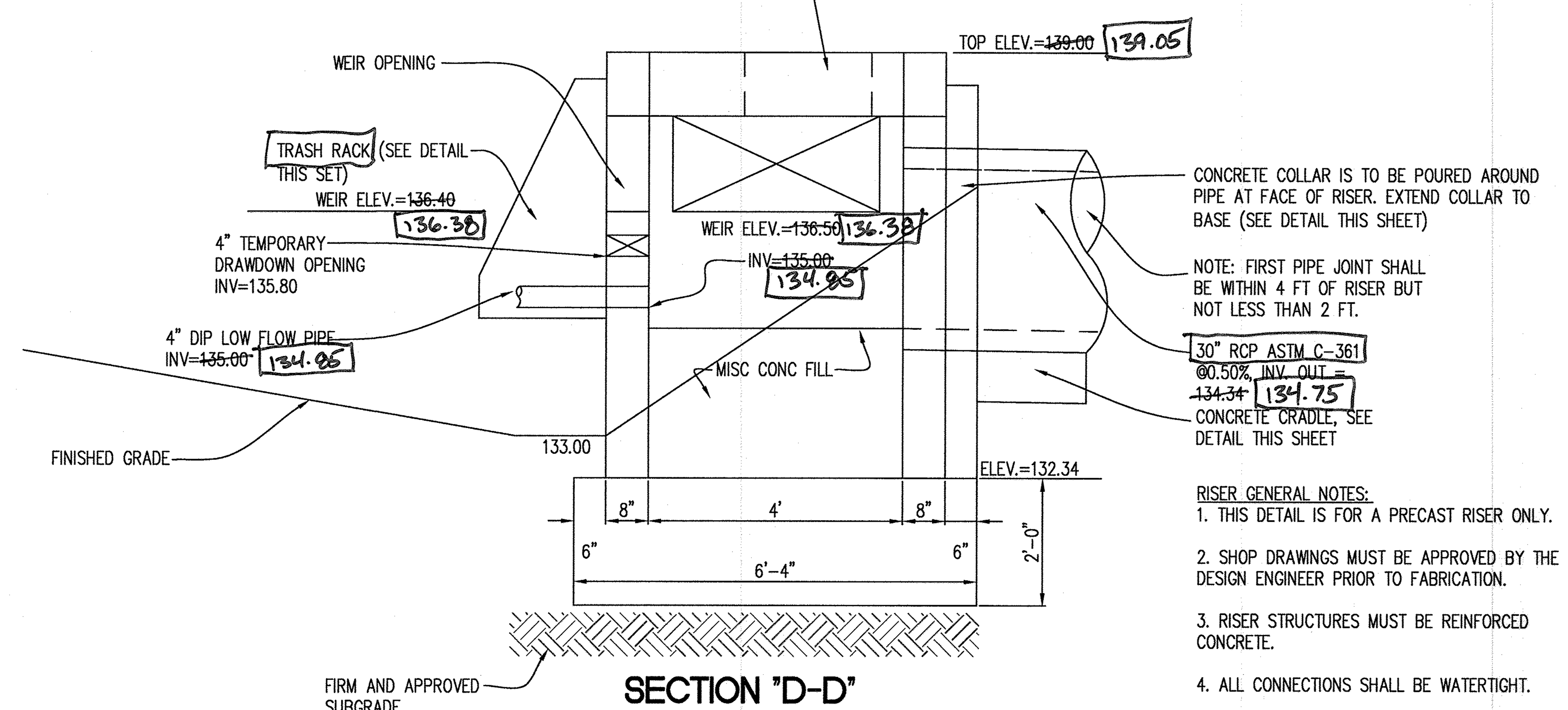
SDP-17-030



TOP SLAB

SCALE: 1"=2'

NOTE: TEMPORARY SEDIMENT CONTROL WEIRS (2) AT SIDE OF STRUCTURE TO BE COVERED WITH 4' X 2.25' X 1/4" GALVANIZED STEEL PLATE BOLTED TO RISER USING 3/8" LAG SCREWS AT EACH CORNER. SEAL WITH NEOPRENE GASKET TO FORM WATERTIGHT SEAL.

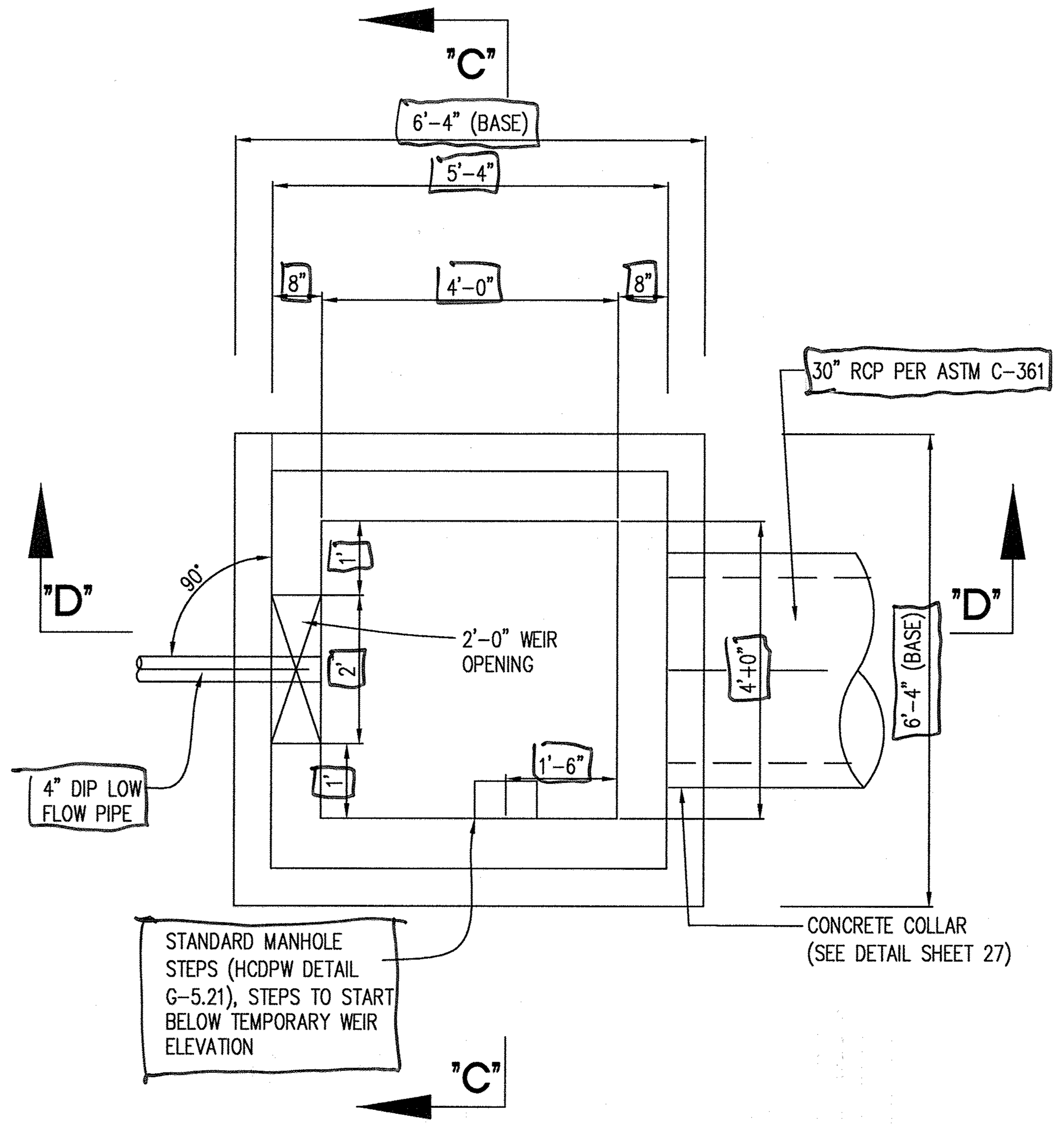


SECTION "D-D"

SCALE: 1"=2'

RISER GENERAL NOTES:

1. THIS DETAIL IS FOR A PRECAST RISER ONLY.
2. SHOP DRAWINGS MUST BE APPROVED BY THE DESIGN ENGINEER PRIOR TO FABRICATION.
3. RISER STRUCTURES MUST BE REINFORCED CONCRETE.
4. ALL CONNECTIONS SHALL BE WATERTIGHT.
5. ALL CONCRETE SHALL BE SHA MIX No. 3
6. MASTIC GROUT SHALL BE UTILIZED FOR ALL POND OUTFALL PIPE JOINTS.

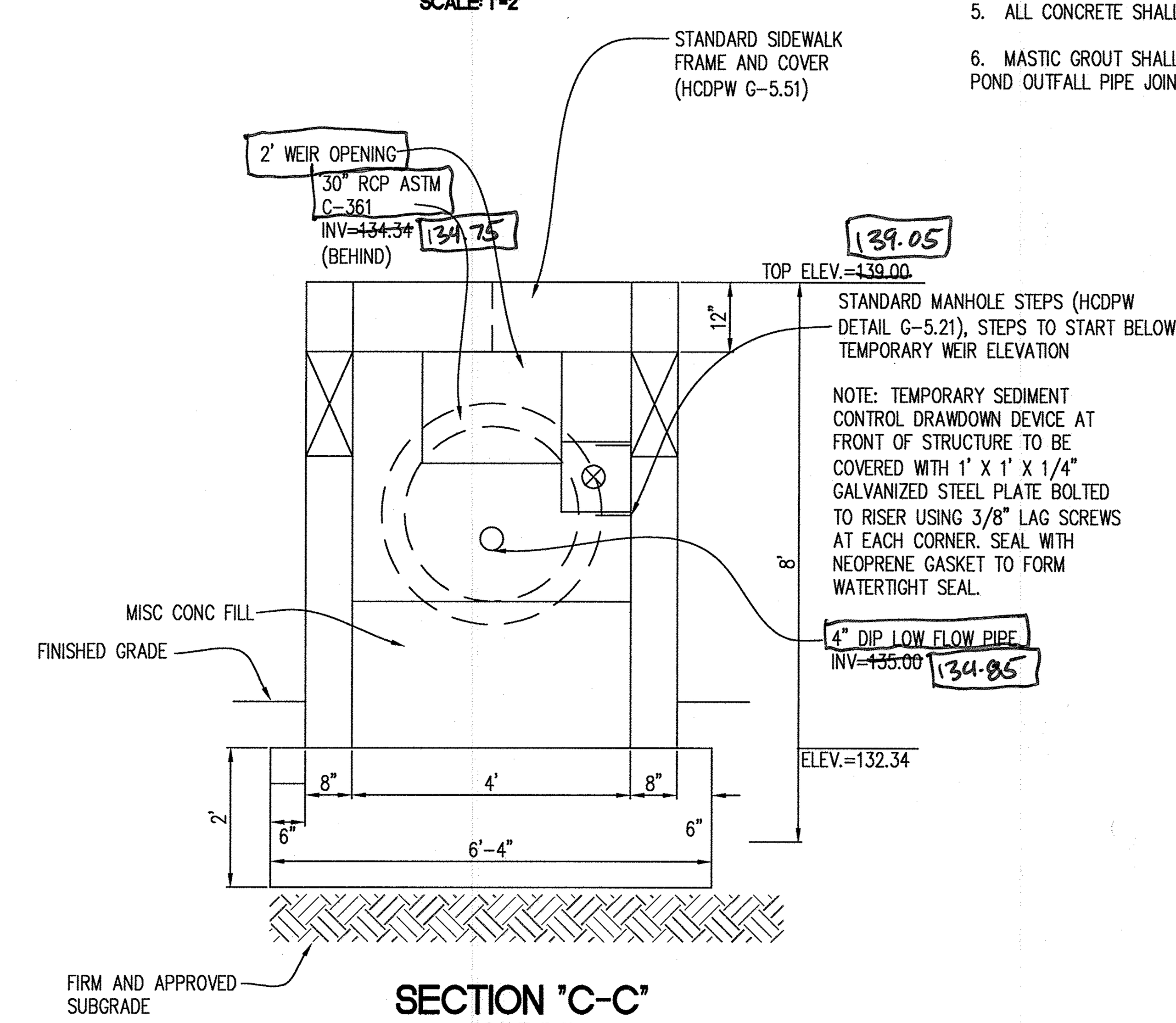


PLAN SECTION TOP SLAB REMOVED

SCALE: 1"=2'

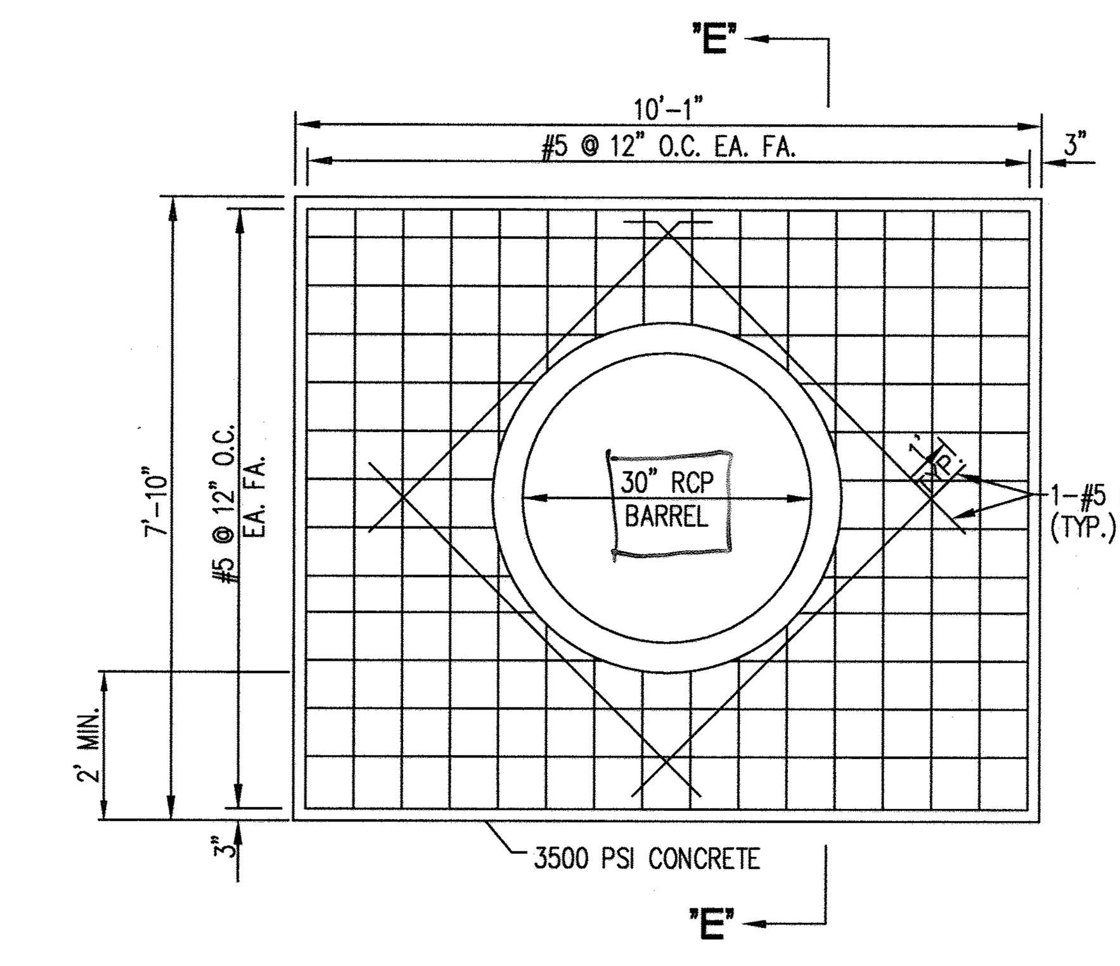
POND 1 CONCRETE RISER DETAIL STRUCTURE CS2

SCALE: 1"=2'



SECTION "C-C"

SCALE: 1"=2'

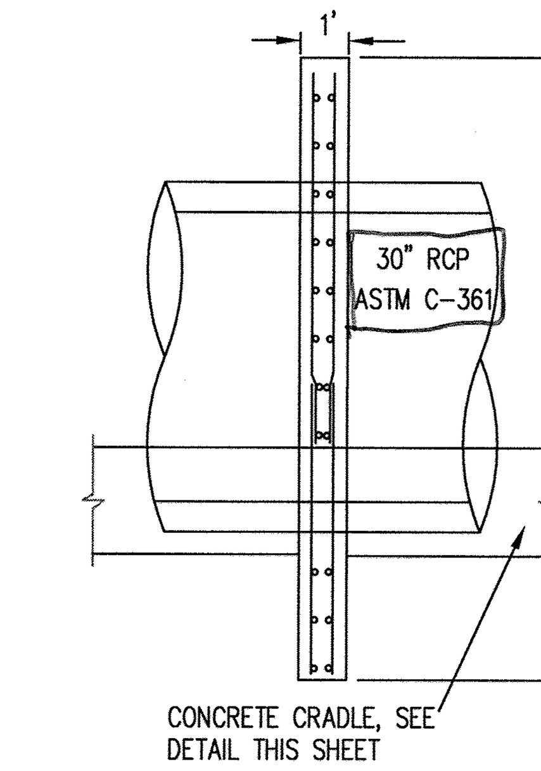


NOTE: COLLAR SHALL BE PLACED A MINIMUM OF 2 FEET FROM ANY PIPE JOINT

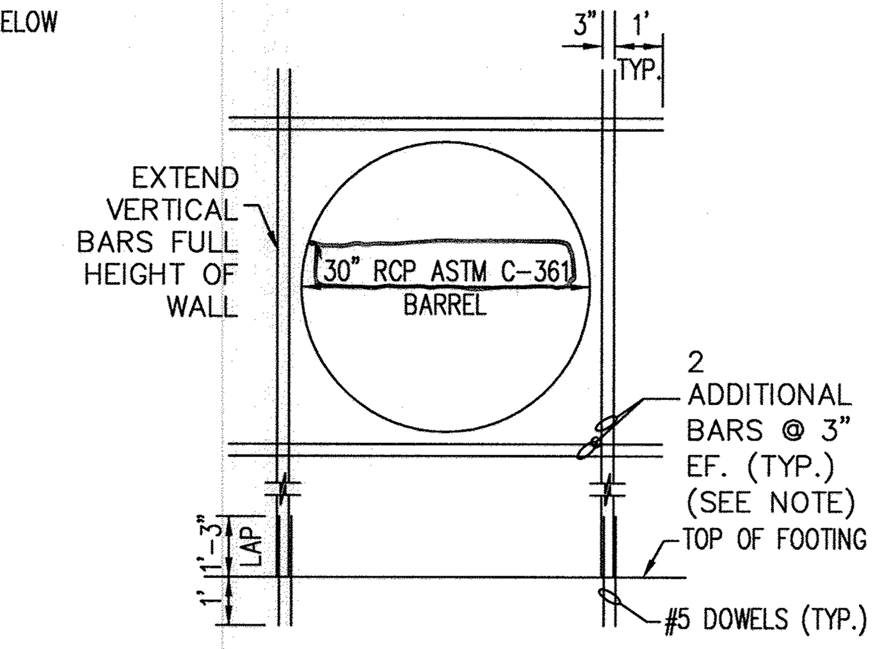
CAST IN PLACE ANTI-SEEP COLLAR DETAIL

(1 REQUIRED)

NOT TO SCALE

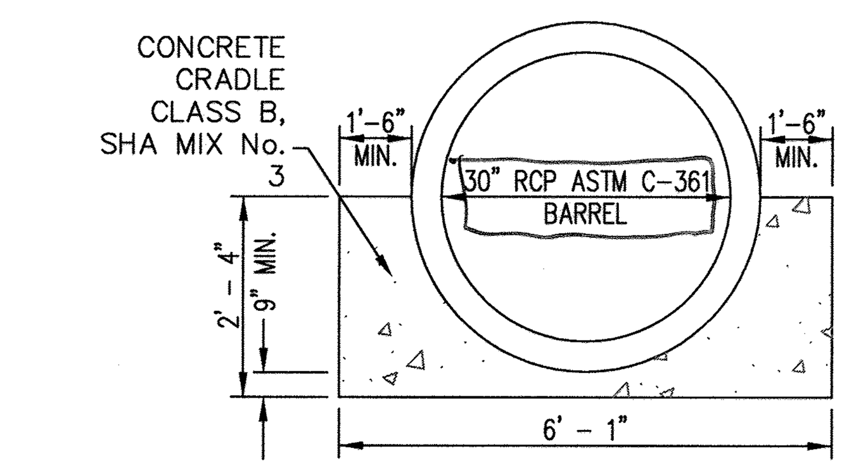


SECTION 'E-E'



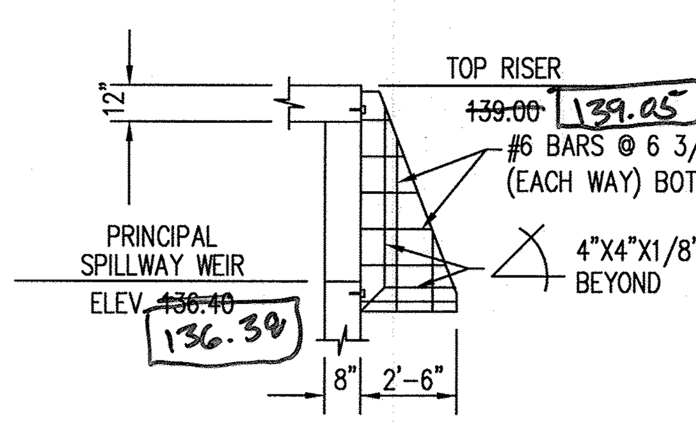
OPENING REINFORCING DETAIL

NOT TO SCALE

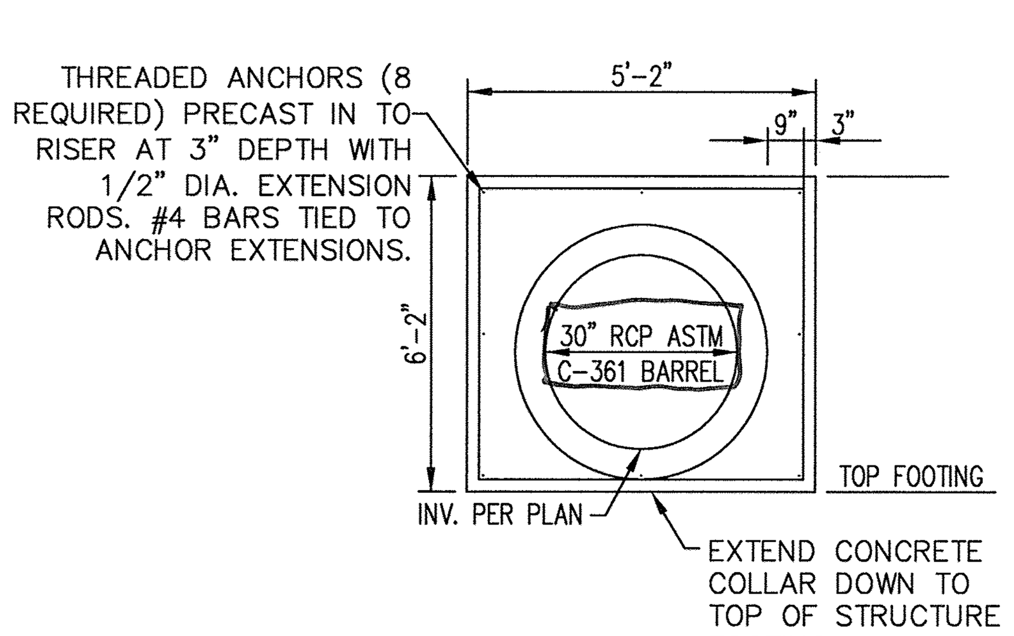


30" CONCRETE CRADLE DETAIL

NOT TO SCALE

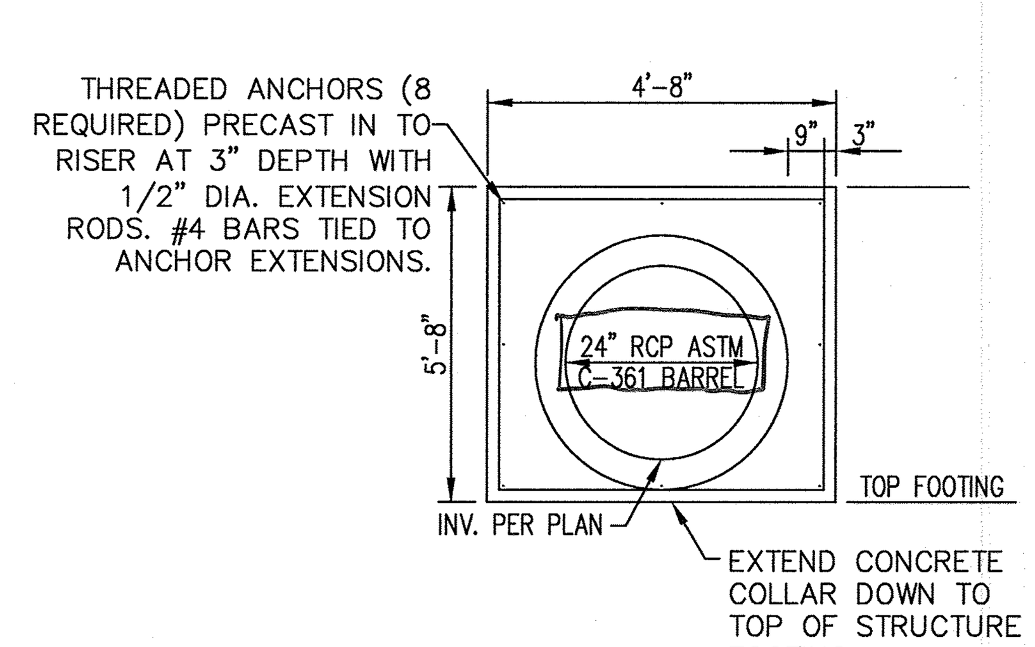


SECTION 'A-A' SIDE VIEW



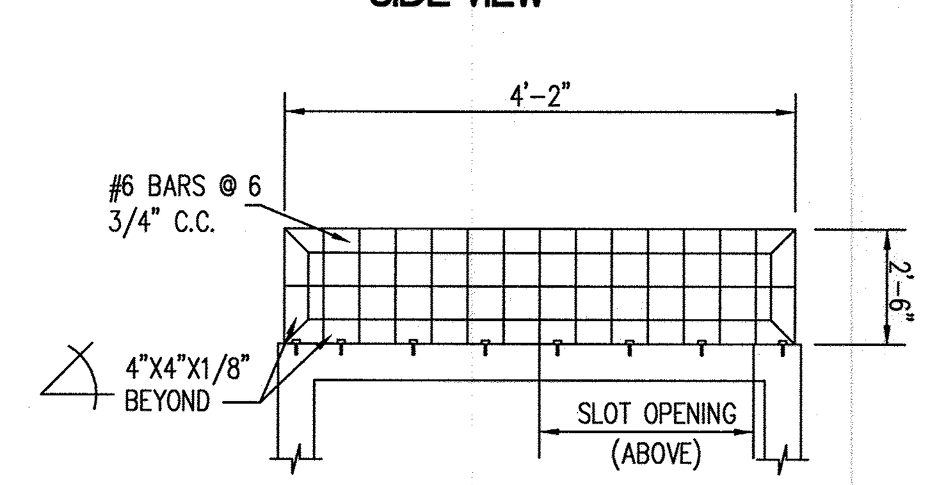
CONCRETE COLLAR DETAIL AT 30" RCP BARREL CONNECTION TO CS2, M62, AND M61

NOT TO SCALE

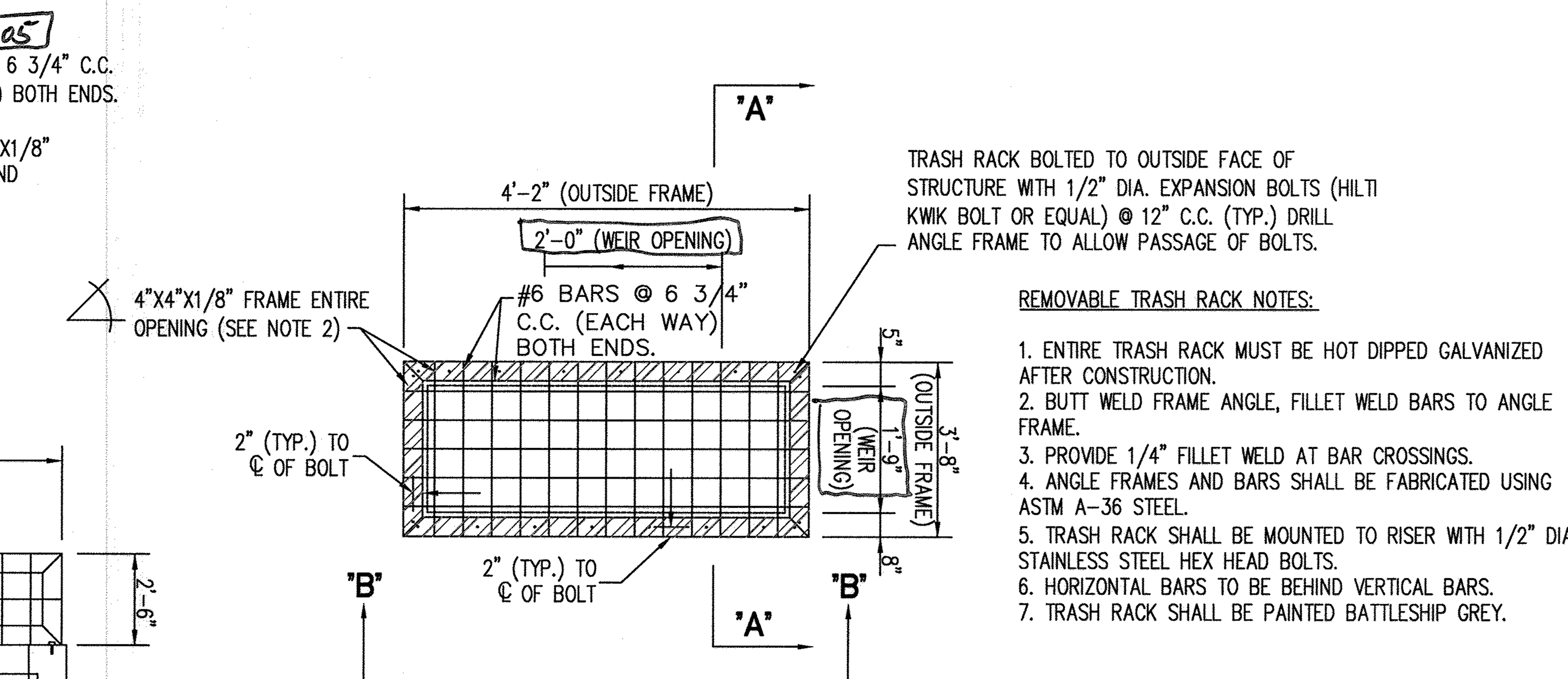


CONCRETE COLLAR DETAIL AT 24" RCP BARREL CONNECTION TO CS3

NOT TO SCALE



SECTION 'B-B' BOTTOM VIEW



FRONT ELEVATION

TRASH RACK BOLTED TO OUTSIDE FACE OF STRUCTURE WITH 1/2" DIA. EXPANSION BOLTS (HILTI KWIK BOLT OR EQUAL) @ 12" C.C. (TYP.) DRILL ANGLE FRAME TO ALLOW PASSAGE OF BOLTS.

REMOVABLE TRASH RACK NOTES:

1. ENTIRE TRASH RACK MUST BE HOT DIPPED GALVANIZED AFTER CONSTRUCTION.
2. BUTT WELD FRAME ANGLE, FILLET WELD BARS TO ANGLE FRAME.
3. PROVIDE 1/4" FILLET WELD AT BAR CROSSINGS.
4. ANGLE FRAMES AND BARS SHALL BE FABRICATED USING ASTM A-36 STEEL.
5. TRASH RACK SHALL BE MOUNTED TO RISER WITH 1/2" DIA. STAINLESS STEEL HEX HEAD BOLTS.
6. HORIZONTAL BARS TO BE BEHIND VERTICAL BARS.
7. TRASH RACK SHALL BE PAINTED BATTLESHIP GREY.

RISER TRASH RACK DETAILS - FRONT WALL

NOT TO SCALE

AS-BUILT CERTIFICATION

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SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE) Sharon K. Cruz — DATE 7/8/19 — PE # 36896

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36896 EXPIRATION DATE: 2-15-21

APPROVED : DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9-21-17
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-27-17
DIRECTOR	DATE 10-2-17

DATE	NO.	REVISION	BY

DEVELOPER: DCT INDUSTRIAL, 12011 GUILFORD ROAD, 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

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TITLE: STORMWATER MANAGEMENT DETAILS

AS-BUILT

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

SEAL

BY: 8/2/19

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36896, EXPIRATION DATE: 2-15-2019"

DESIGNED BY : PJS

DRAWN BY: AGS/JSN

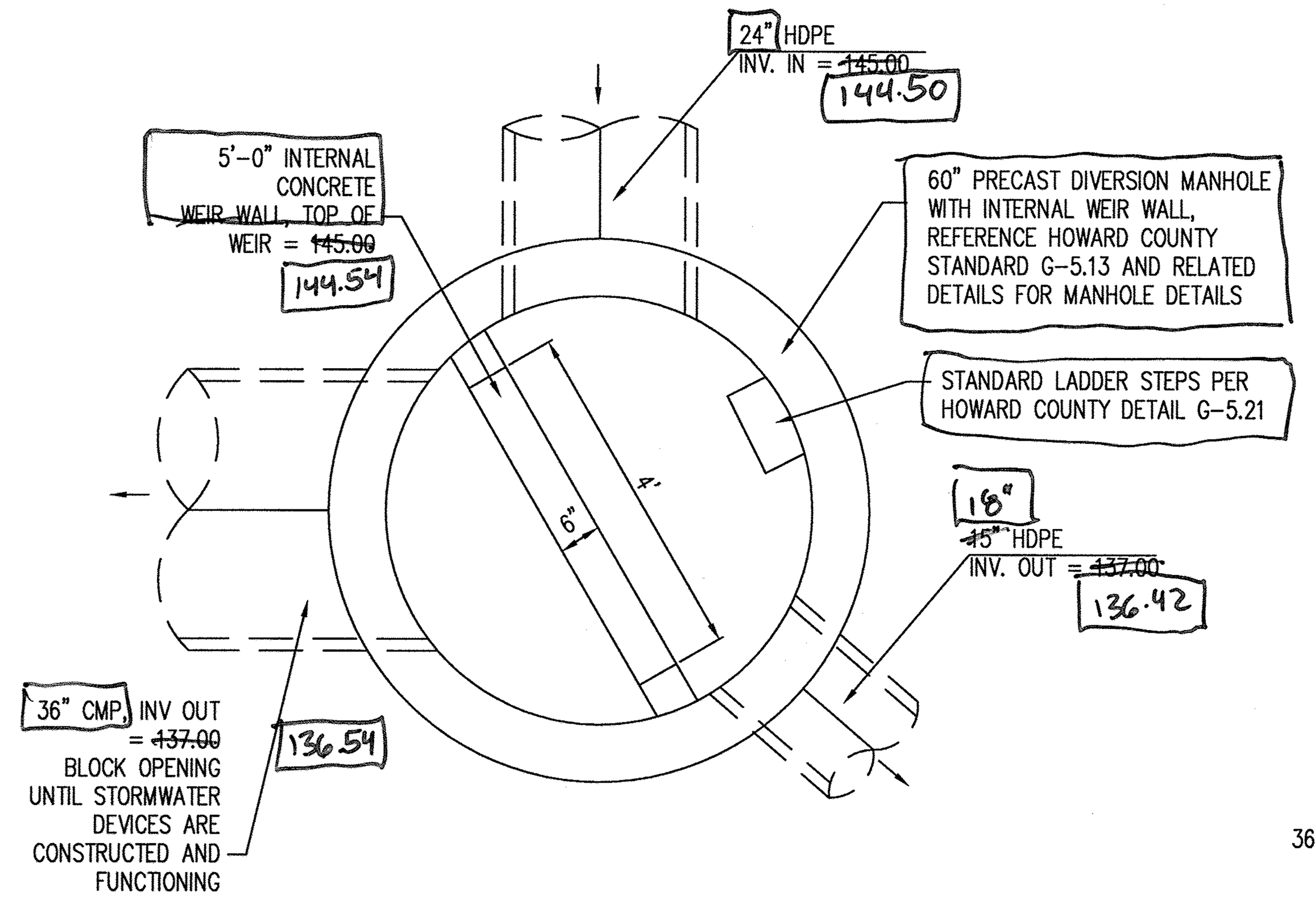
PROJECT NO : DCTI1601

DATE : JUNE 23, 2017

SCALE : AS SHOWN

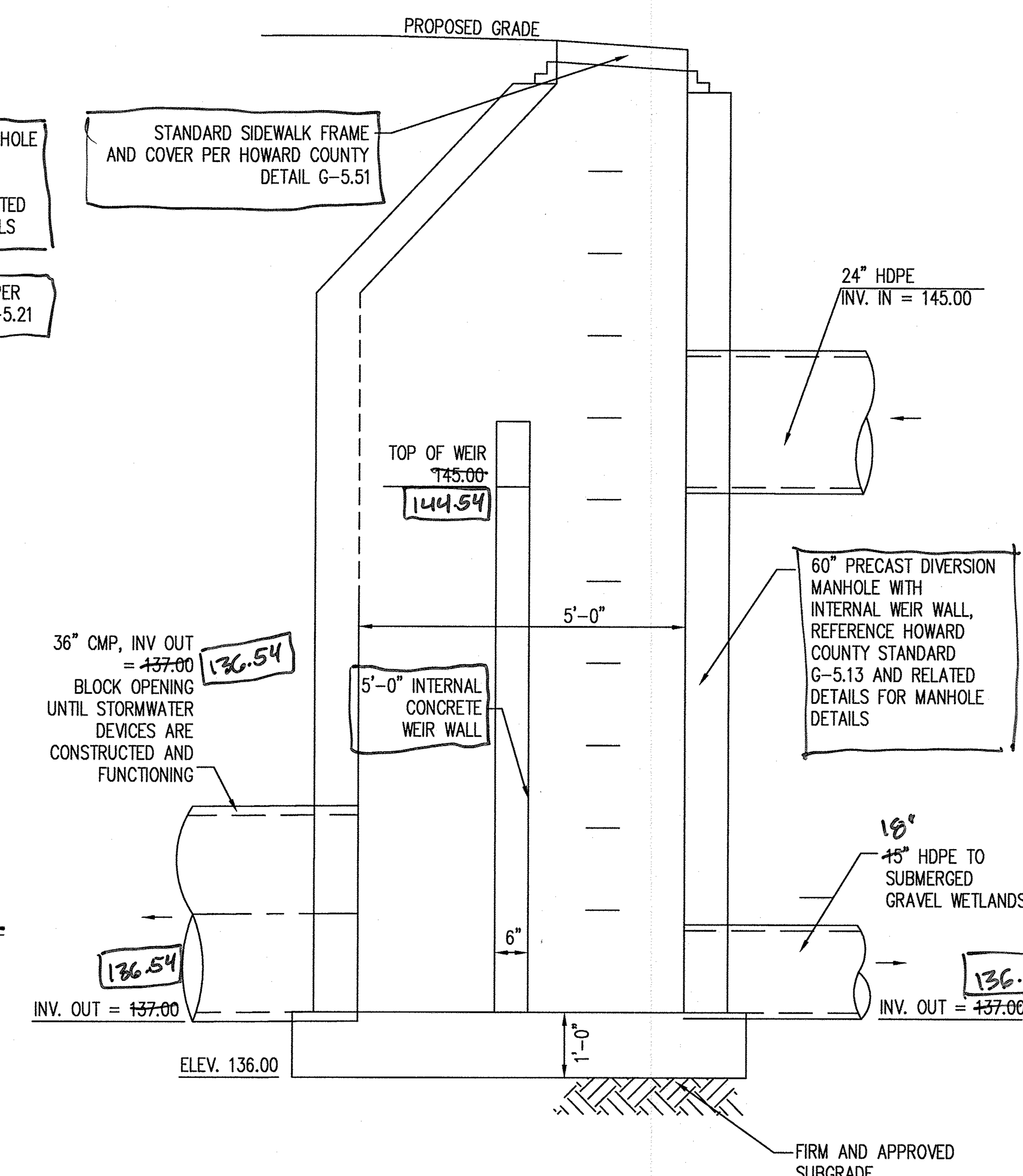
DRAWING NO. 27 OF 43

SDP-17-030



PLAN SECTION

SCALE: 1"=2'



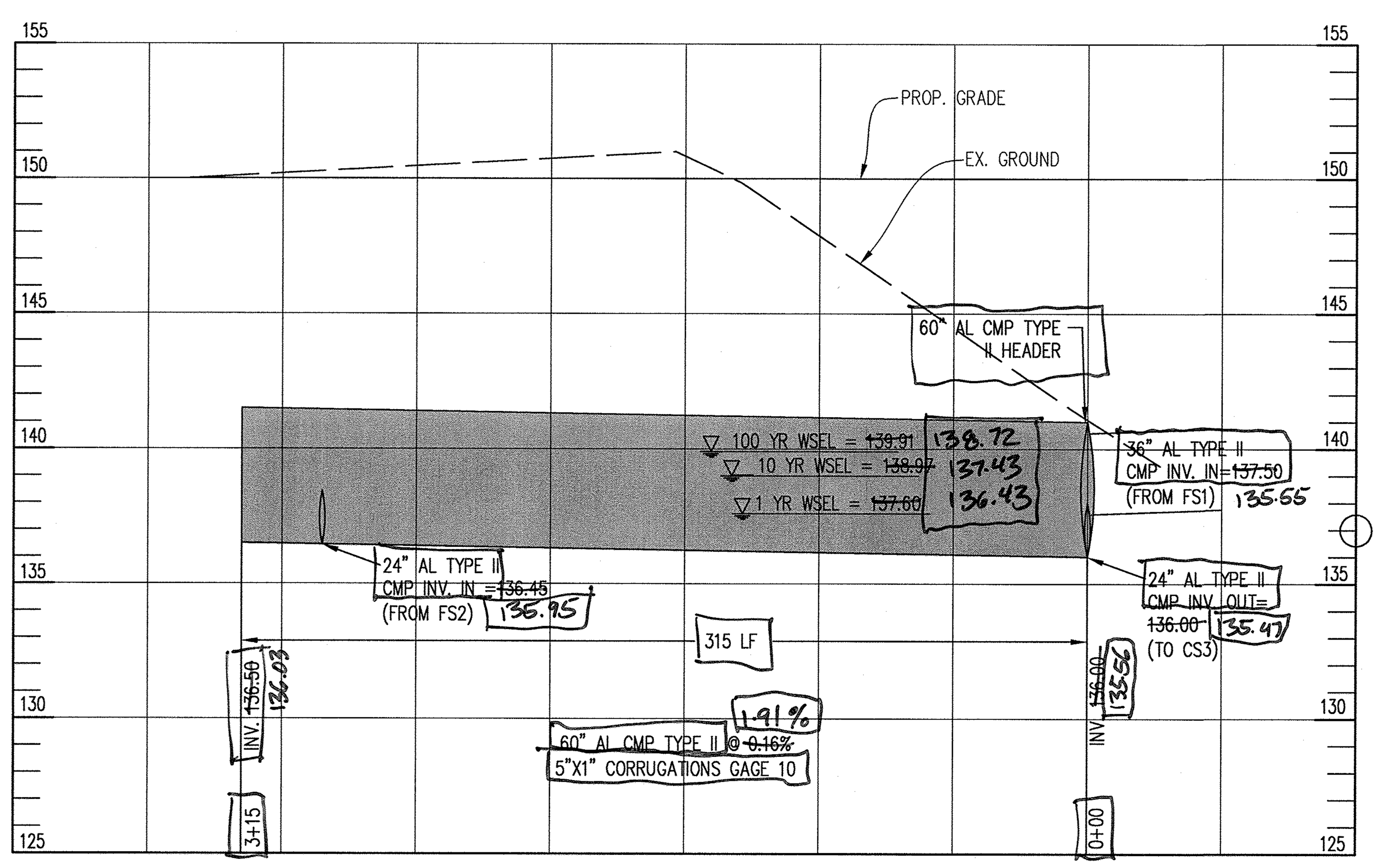
FLOW SPLITTER MANHOLE DETAIL STRUCTURE FS-1

SECTION "A-A"

SCALE: 1"=2'

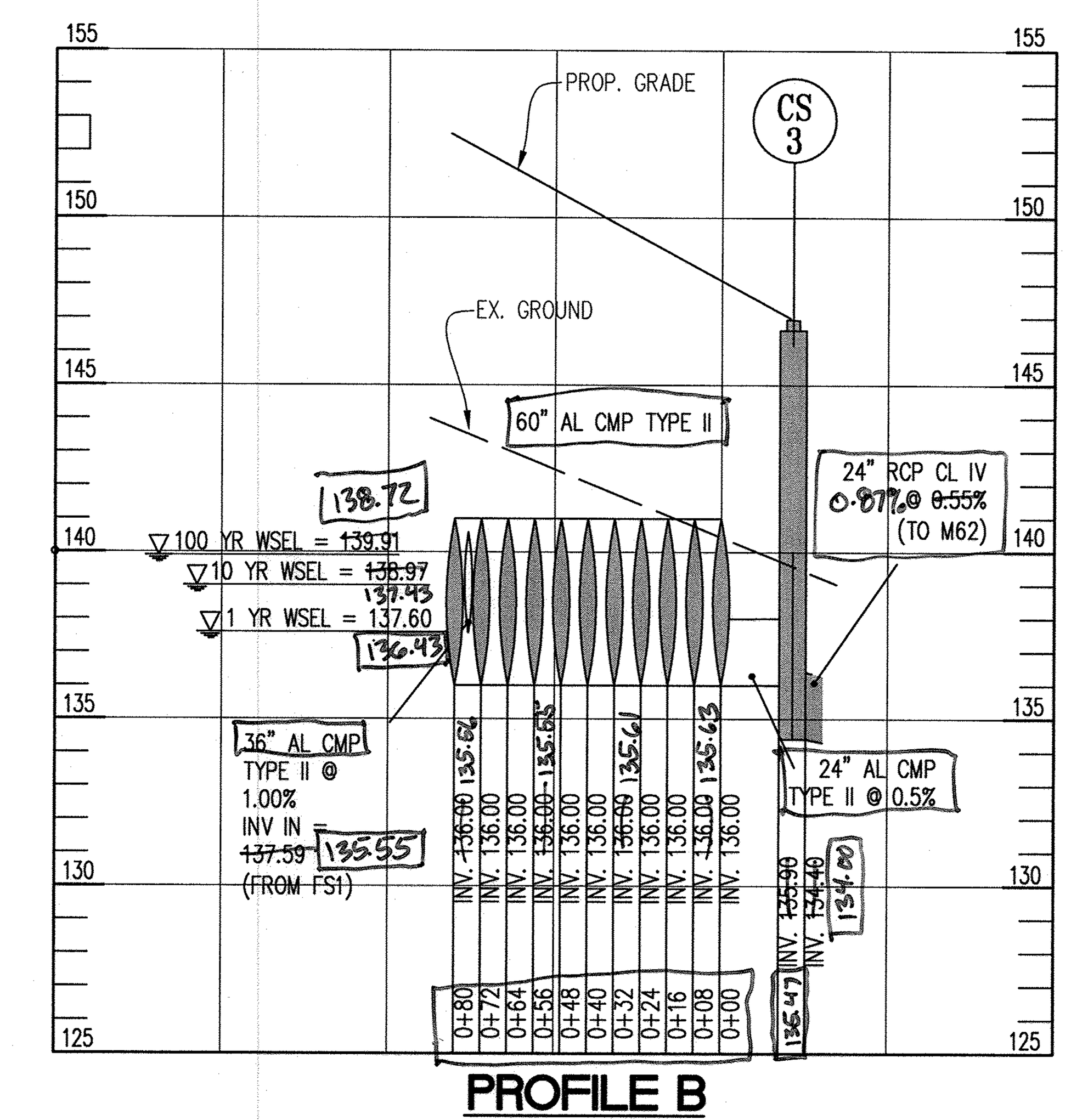
PRECAST RISER NOTE:

SHOP DRAWING FOR PRE-CAST CONCRETE RISERS WITH SUPPORTING STRUCTURAL COMPUTATIONS (SIGNED AND SEALED BY A MARYLAND REGISTERED PROFESSIONAL ENGINEER) MEETING ASTM REQUIREMENTS FOR PRE-CAST STRUCTURES MUST BE SUBMITTED TO THE ENGINEER, FOR APPROVAL PRIOR TO FABRICATION. IF ANY STRUCTURE DIMENSIONS VARY FROM WHAT WAS ORIGINALLY REVIEWED/APPROVED, THEN THE HYDRAULICS, FLOTATION AND STRUCTURAL INTEGRITY WILL HAVE TO BE RE-ANALYZED. ALL JOINTS AND CONNECTIONS MUST BE WATERTIGHT. THE METHOD OF ACHIEVING WATERTIGHT SEAL BETWEEN THE RISER STRUCTURE, AND ALL CONDUITS (I.E., BARREL AND LOW FLOW PIPES) SHALL BE APPROVED BY THE ENGINEER IN CHARGE PRIOR TO FABRICATION.



PROFILE A

SCALE : HOR: 1"=50' VERT: 1"=5'



PROFILE B

SCALE : HOR: 1"=50' VERT: 1"=5'

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.

5.8.1 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.

5.8.2 EMBANKMENT

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, HEAVY DUTY COMPACTION EQUIPMENT IS USED.

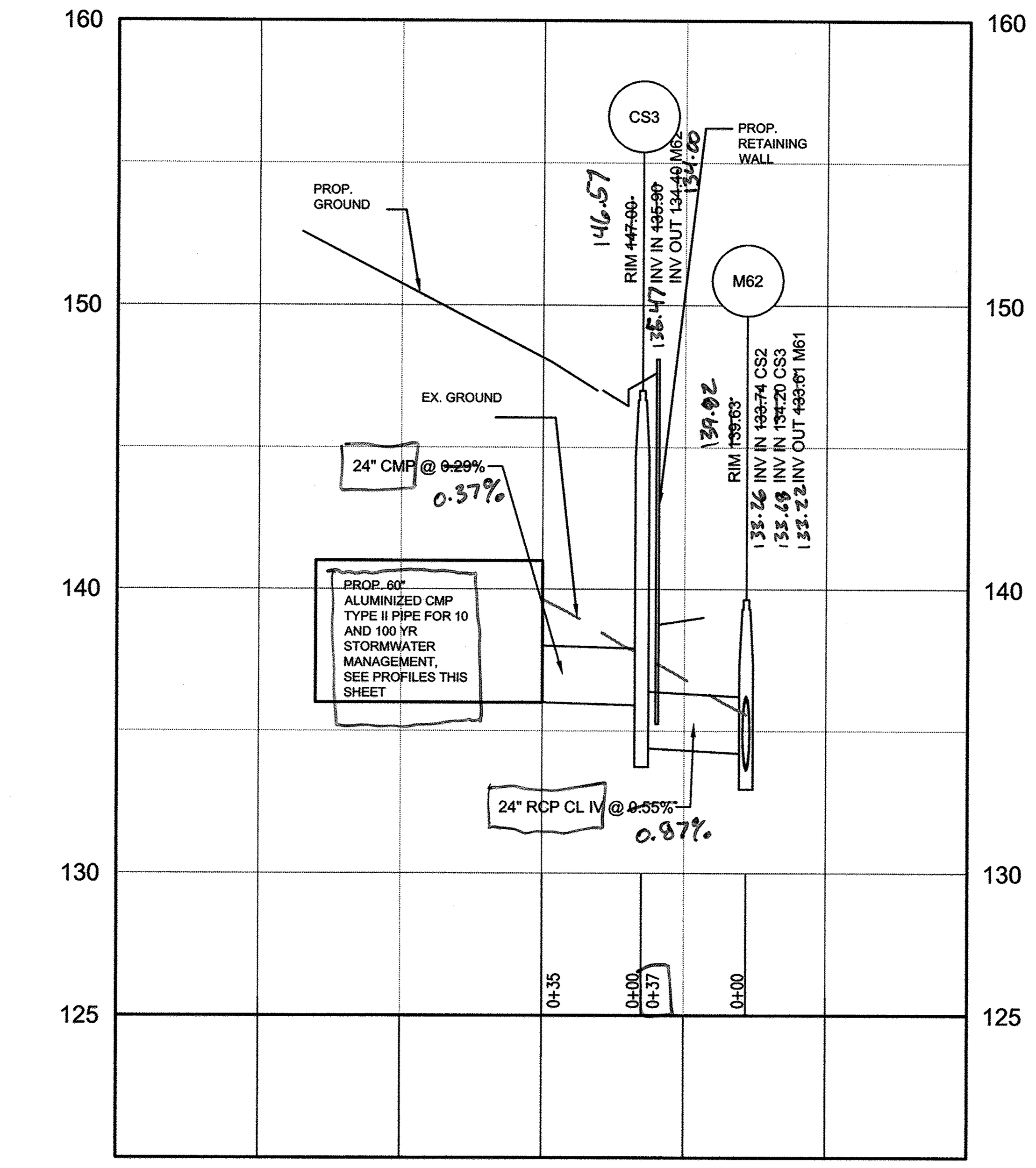
SPECIFICATIONS SHOULD INDICATE THAT THE PERCENTAGE OF MAXIMUM DRY DENSITY ATTAINED IN THE FIELD IS NOT THE ONLY CRITERIA TO BE USED FOR ASSESSING FILL COMPACTION. OBSERVATION OF THE BEHAVIOR OF THE FILL UNDER THE LOADS OF CONSTRUCTION EQUIPMENT SHOULD BE USED. IF THE TEST RESULTS INDICATE THAT THE PERCENTAGE 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

CUTOFF TRENCHES AND IMPERVIOUS CORES SHOULD BE CONSTRUCTED IN ACCORDANCE WITH 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 PROHIBITIVELY TIME CONSUMING OR COSTLY, WARRANTING IMPORTING OF OFF-SITE CLAY.

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 STRUCTURE.



CS3 TO M62 (UNDERGROUND SWM OUTFALL)
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'

AS-BUILT CERTIFICATION

I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN AND MEET THE APPROVED PLANS AND SPECIFICATIONS.

SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE) Sharon K. Cruz — DATE 7/8/19

PE # 36896

STATE OF MARYLAND SHARON K. CRUZ No. 36896 PROFESSIONAL ENGINEER

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36896, EXPIRATION DATE: 2·15·21.

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED STORMWATER PONDS (P-1 THROUGH P-5)

ROUTINE MAINTENANCE:

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 ACCESS SHALL BE MOWED AS NEEDED.

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

4. VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS THE RIPRAP OR GABION OUTLET AREA SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

NON-ROUTINE MAINTENANCE:

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 ROUTINE MAINTENANCE OPERATIONS.

2. SEDIMENT SHALL BE REMOVED FROM THE POND, AND FOREBAY, NO LATER THAN WHEN THE CAPACITY OF THE POND, OR FOREBAY, IS HALF FULL OF SEDIMENT, OR, WHEN DEEMED NECESSARY FOR AESTHETIC REASONS, UPON APPROVAL FROM THE DEPARTMENT OF PUBLIC WORKS.

APPROVED : DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9-21-17
CHIEF, DIVISION OF LAND DEVELOPMENT NH	DATE 9-27-17
DIRECTOR	DATE 10-2-17

DATE	NO.	REVISION	BY

DEVELOPER
DCT INDUSTRIAL
12011 GUILFORD ROAD
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

PROJECT
TERRAPIN COMMERCE CENTER

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

TITLE
STORMWATER MANAGEMENT DETAILS
AS-BUILT

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

SEAL
STATE OF MARYLAND SHARON K. CRUZ No. 36896 REGISTERED PROFESSIONAL ENGINEER

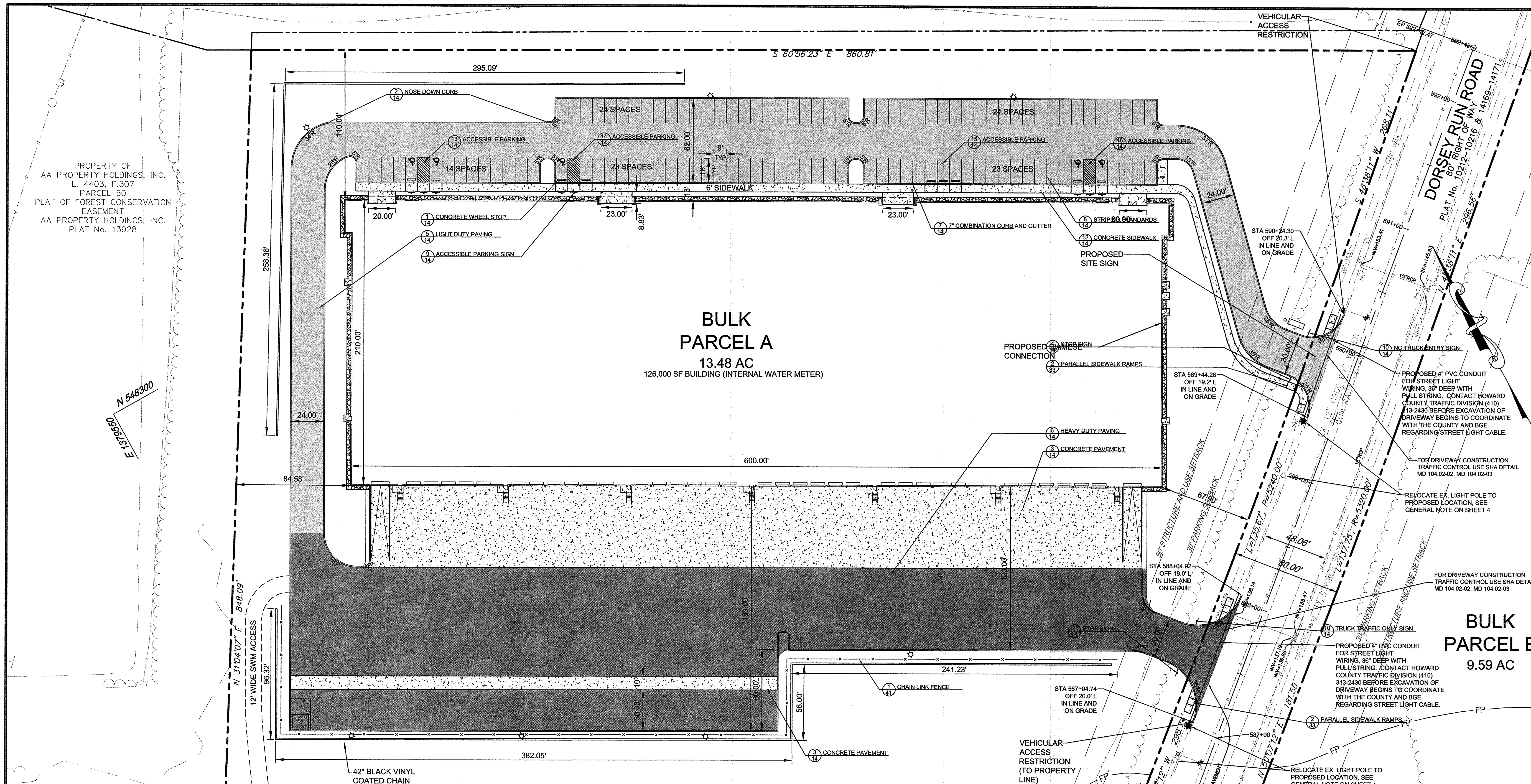
BY: 9/21/17

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36896, EXPIRATION DATE: 2-15-2019"

DESIGNED BY :	PJS
DRAWN BY:	AGS/JSN
PROJECT NO :	DCTI1601
DATE :	JUNE 23, 2017
SCALE :	AS SHOWN
DRAWING NO.	28 OF 43

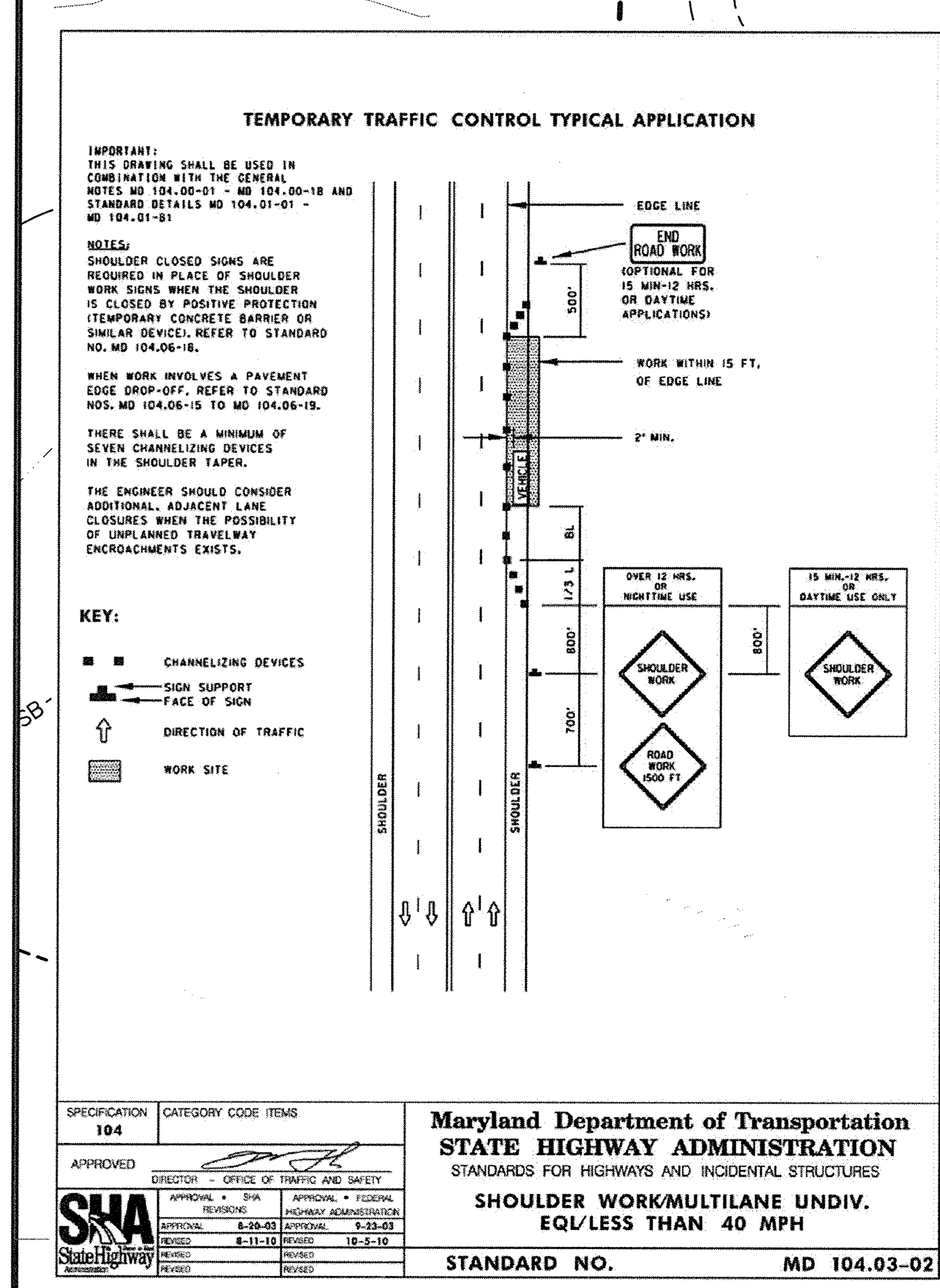
SDP-17-030

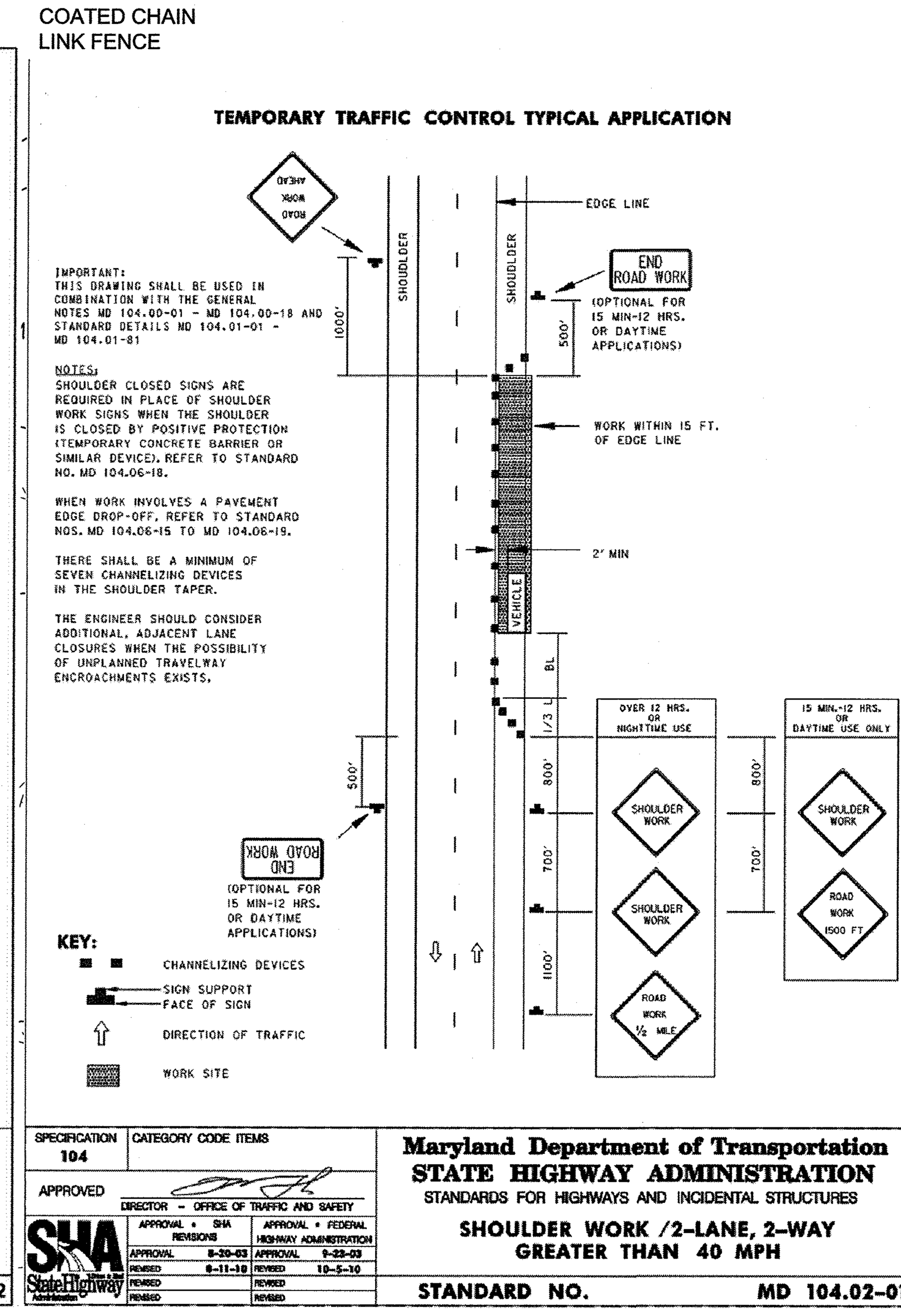
I:\PROJECTS\DCTI\DCTI1601-MEARS PROPERTY TERRAPIN COMMERCE\DESIGN_PUBLISH\SITE DEVELOPMENT PLANS – BUILDING A\DCTI1601-SDP28

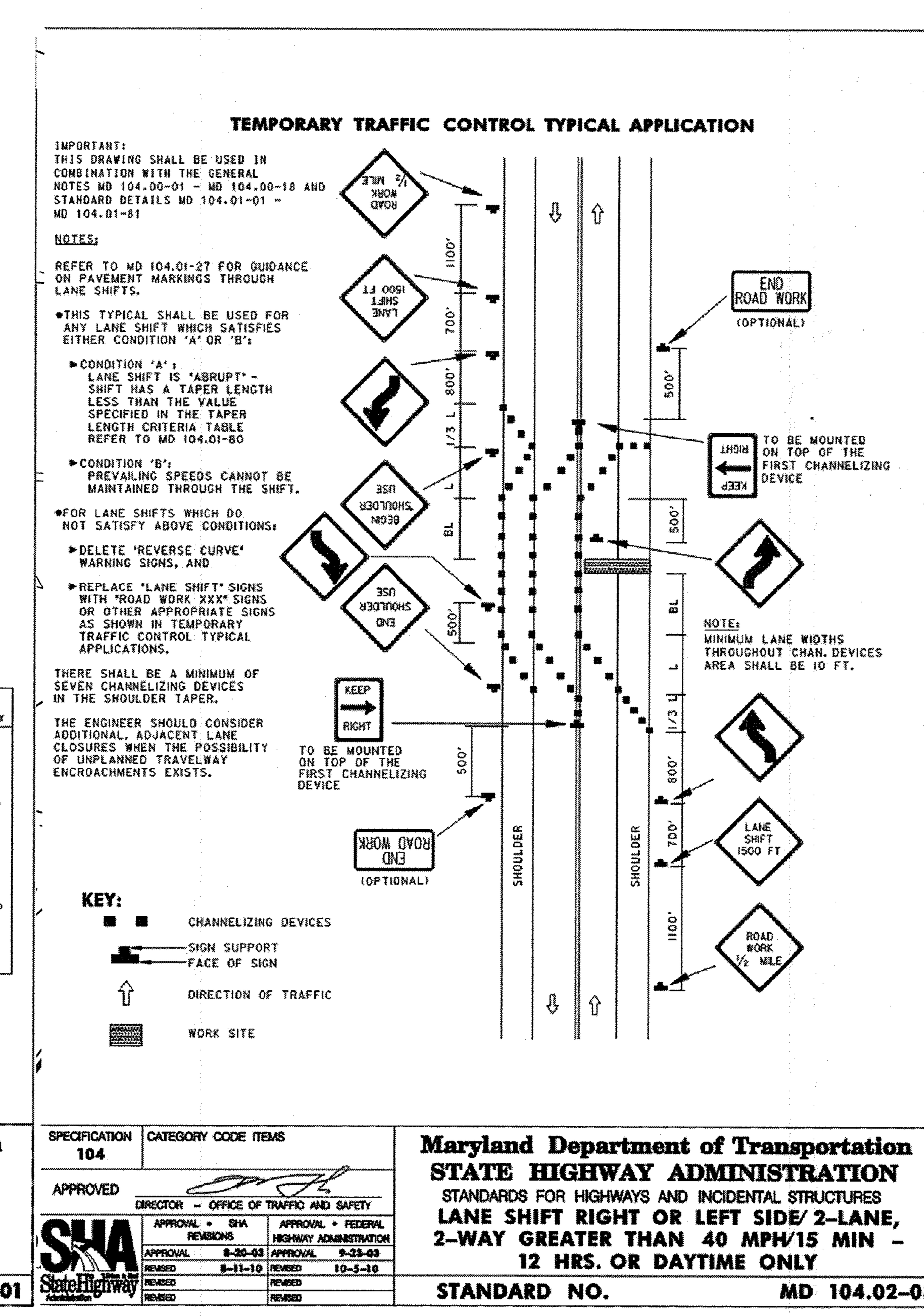


LEGEND

- PROPERTY LINE AND RIGHT-OF-WAY
- PROP. CONCRETE SIDEWALK
- PROP. CONCRETE PAVEMENT
- PROP. P-3 PAVING
- PROP. P-5 PAVING







APPROVED : DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	9-21-17 DATE
CHIEF, DIVISION OF LAND DEVELOPMENT	9-27-17 DATE
DIRECTOR	10-2-17 DATE

DATE	NO.	REVISION	BY

DEVELOPER
DCT INDUSTRIAL
12011 GUILFORD ROAD
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

PROJECT

TERRAPIN COMMERCE CENTER

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

TITLE

PAVING, STRIPING, AND SIGNAGE PLAN

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

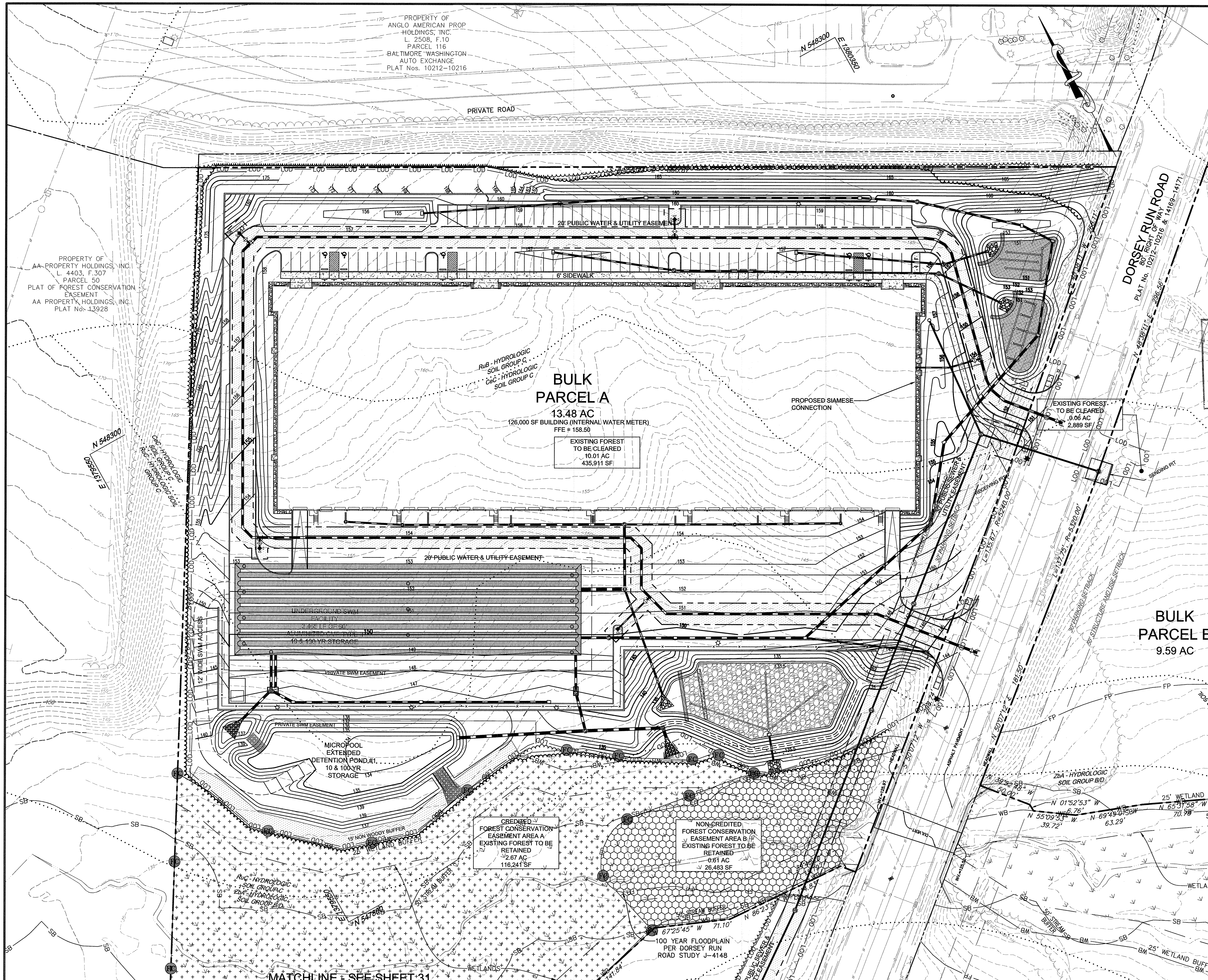
SEAL
STATE OF MARYLAND — SHARON K. CRUZ — No. 36896 — REGISTERED PROFESSIONAL ENGINEER

BY: 8/12/17

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36896, EXPIRATION DATE: 2-15-2019"

DESIGNED BY : PJS
DRAWN BY: AGS/JSN
PROJECT NO : DCTI1601
DATE : JUNE 23, 2017
SCALE : 1" = 40'
DRAWING NO. 29 OF 43

SDP-17-030


PROPERTY OF
ANGLO AMERICAN PROP
HOLDINGS, INC.
L. 2508, F.10
PARCEL 116
BALTIMORE WASHINGTON
AUTO EXCHANGE
PLAT Nos. 10212-10216
PRIVATE ROAD
N 548300
E 1380350
PROPERTY OF
AA PROPERTY HOLDINGS, INC.
L. 4403, F.307
PARCEL 50
PLAT OF FOREST CONSERVATION
EASEMENT
AA PROPERTY HOLDINGS, INC.
PLAT No. 13928
N 548300
E 1379550
20' PUBLIC WATER & UTILITY EASEMENT
6' SIDEWALK
RuB - HYDROLOGIC
SOIL GROUP C
CaC - HYDROLOGIC
SOIL GROUP C
BULK
PARCEL A
13.48 AC
126,000 SF BUILDING (INTERNAL WATER METER)
FFE = 158.50
EXISTING FOREST
TO BE CLEARED
10.01 AC
435,911 SF
PROPOSED SIAMESE
CONNECTION
EXISTING FOREST
TO BE CLEARED
0.06 AC
2,889 SF
DORSEY RUN ROAD
80' RIGHT OF WAY
PLAT No. 10212-10216 & 14169-14171
SENDING PIT
RECEIVING PIT
20' PUBLIC WATER & UTILITY EASEMENT
UNDERGROUND SWM
FACILITY
19 & 100 YR STORAGE
PRIVATE SWM EASEMENT
12' WIDE SWM ACCESS
PRIVATE SWM EASEMENT
MICROPOOL
EXTENDED
DETENTION POND #1
10 & 100 YR
STORAGE
BULK
PARCEL B
9.59 AC
30' PARKING SETBACK
30' STRUCTURE AND USE SETBACK
ZbA - HYDROLOGIC
SOIL GROUP B/D
25' WETLAND BUFFER
15' NON WOODY BUFFER
CREDITED
FOREST CONSERVATION
EASEMENT AREA A
EXISTING FOREST TO BE
RETAINED
2.67 AC
116,241 SF
NON-CREDITED
FOREST CONSERVATION
EASEMENT AREA B
EXISTING FOREST TO BE
RETAINED
0.61 AC
26,483 SF
RuC - HYDROLOGIC
SOIL GROUP C
ZbA - HYDROLOGIC
SOIL GROUP B/D
50' STREAM BUFFER
N 547880
100 YEAR FLOODPLAIN
PER DORSEY RUN
ROAD STUDY J-4148
WETLANDS
50' STREAM BUFFER
25' WETLAND BUFFER
MATCHLINE - SEE SHEET 31

LEGEND

PROPERTY LINE AND RIGHT-OF-WAY	
EXISTING 1' CONTOUR	154
EXISTING 5' CONTOUR	155
EXISTING TREE LINE	
EXISTING SOILS	RuB
EXISTING WETLANDS	
EXISTING WETLAND BUFFER	WB
EXISTING STORM DRAIN	
PROPOSED 1' CONTOUR	164
PROPOSED 5' CONTOUR	165
PROPOSED MICRO-BIORETENTION FACILITY	
PROPOSED TREE LINE	
PROPOSED STORM DRAIN	
PROPOSED TREE PROTECTION FENCE	TP
CREDITED FOREST CONSERVATION EASEMENT	
NON-CREDITED FOREST CONSERVATION EASEMENT	
PROPOSED FOREST CONSERVATION SIGN	FC

AS-BUILT CERTIFICATION

NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.

Sharon L. Cruz — PRINTED NAME
36896 — MD. P.E. NO.
SIGNATURE
7/8/19 — DATE

0 40' 80'

APPROVED : DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	9-21-17 DATE
CHIEF, DIVISION OF LAND DEVELOPMENT	9-27-17 DATE
DIRECTOR	10-2-17 DATE

DATE	NO.	REVISION	BY

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

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

PROJECT
TERRAPIN COMMERCE CENTER

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

TITLE
FOREST CONSERVATION PLAN

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

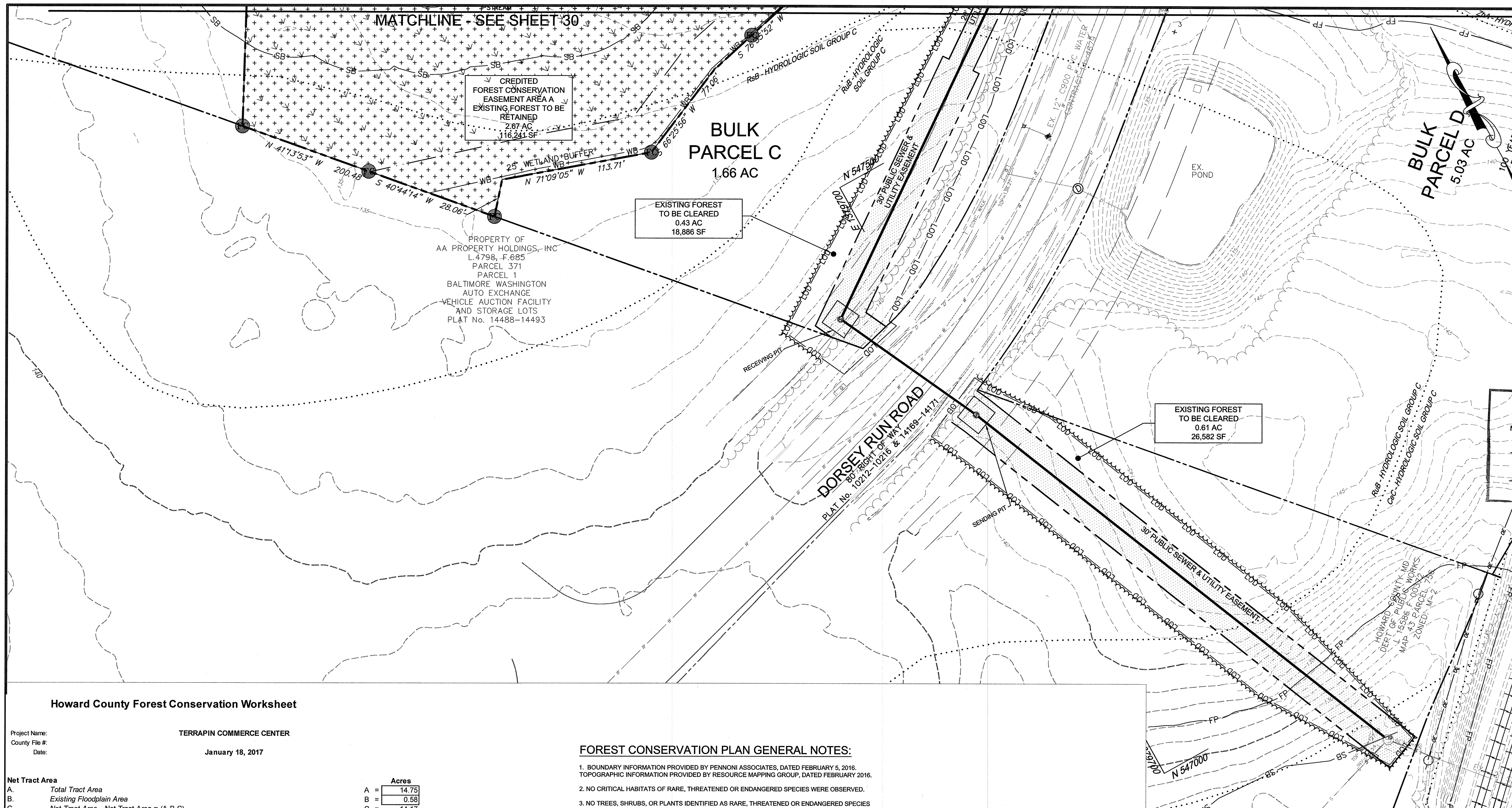
9-22-17

STATE OF MARYLAND 3068 PETER J. STONE BOARD OF EXAMINERS OF LANDSCAPE ARCHITECTS

PETER J. STONE #3068

DESIGNED BY :	PJS
DRAWN BY:	AGS/JSN
PROJECT NO :	DCTI1601
DATE :	JUNE 23, 2017
SCALE :	1" = 40'
DRAWING NO.	30 OF 43

SDP-17-030



LEGEND

PROPERTY LINE AND RIGHT-OF-WAY	
EXISTING 1' CONTOUR	154
EXISTING 5' CONTOUR	155
EXISTING TREE LINE	
EXISTING SOILS	RuB
EXISTING WETLANDS	
EXISTING WETLAND BUFFER	WB
EXISTING STORM DRAIN	
PROPOSED 1' CONTOUR	164
PROPOSED 5' CONTOUR	165
PROPOSED MICRO-BIORETENTION FACILITY	
PROPOSED TREE LINE	
PROPOSED STORM DRAIN	
PROPOSED TREE PROTECTION FENCE	TP
PROP. FOREST CONSERVATION EASEMENT	
PROPOSED FOREST CONSERVATION SIGN	FC

0 40' 80'

AS-BUILT CERTIFICATION

NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.

Sharon D. Cruz — PRINTED NAME 36996 — MD. P.E. NO.

SIGNATURE 7/8/19 — DATE

APPROVED : DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9.21.17
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9.27.17
DIRECTOR	DATE 10.2.17

DATE	NO.	REVISION	BY

DEVELOPER: DCT INDUSTRIAL, 12011 GUILFORD ROAD, 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

PROJECT

TERRAPIN COMMERCE CENTER

AREA

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

TITLE

FOREST CONSERVATION PLAN, NOTES AND DETAILS

Howard County Forest Conservation Worksheet

Project Name: TERRAPIN COMMERCE CENTER
County File #:
Date: January 18, 2017

			Acres
Net Tract Area			
A.	*Total Tract Area*	A =	14.75
B.	*Existing Floodplain Area*	B =	0.58
C.	*Net Tract Area* Net Tract Area = (A-B-C)	C =	14.17
Land Use Category:____Industrial Development Area			
D.	*Afforestation Threshold* (Net Tract Area X _ 15%	D =	2.13
E.	*Conservation Threshold* (Net Tract Area X__ 15%	E =	2.13
Existing Forest Cover			
F.	***Existing Forest Cover within the Net Tract Area***	F =	13.78
G.	*Area of Forest Above Conservation Threshold* If the Existing Forest Cover (F) is greater than Conservation Threshold (G), then G = Existing Forest Cover (F) - Conservation Threshold (E); Otherwise G = 0	G =	11.65
Break Even Point			
H.	*Break Even* (Amount of forest that must be retained so that no mitigation is required) (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)	H =	4.46
I.	*Forest Clearing Permitted Without Mitigation* I = Existing Forest Cover (F) - Break Even Point (H)	I =	9.32
Proposed Forest Clearing			
J.	***Total Area of Forest to be Cleared***	J =	11.11
K.	*Total Area of Forest to be Retained* K = Existing Forest Cover (F) - forest to be cleared (J)	K =	2.67
Planting Requirements			
If the Total Area of Forest to be Cleared (K) is at or above the Breakeven Point (H), no planting is required and no further calculations are necessary (L=0, M=0, N=0, P=0); If not, calculate the planting requirement below:			
L.	*Reforestation for Clearing Above the Conservation Threshold* (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	L =	2.78
M.	*Reforestation for Clearing Below the Conservation Threshold* (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)) (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).	M =	0.00
N.	*Credit for Retention Above the Conservation Threshold* If the area of forest to be retained (K) is greater than the Conservation Threshold (E), then N = K - E	N =	0.54
P.	*Total Reforestation Required* P = L + M - N	P =	2.23
Q.	*Total Afforestation Required* (1) If Existing Forest Cover (F) is less than the Afforestation Threshold (D) then Q = the Afforestation Threshold (D) - the Existing Forest Cover (F)	Q =	0.00
R.	*Total Planting Requirement* R = P + Q	R =	2.23

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.

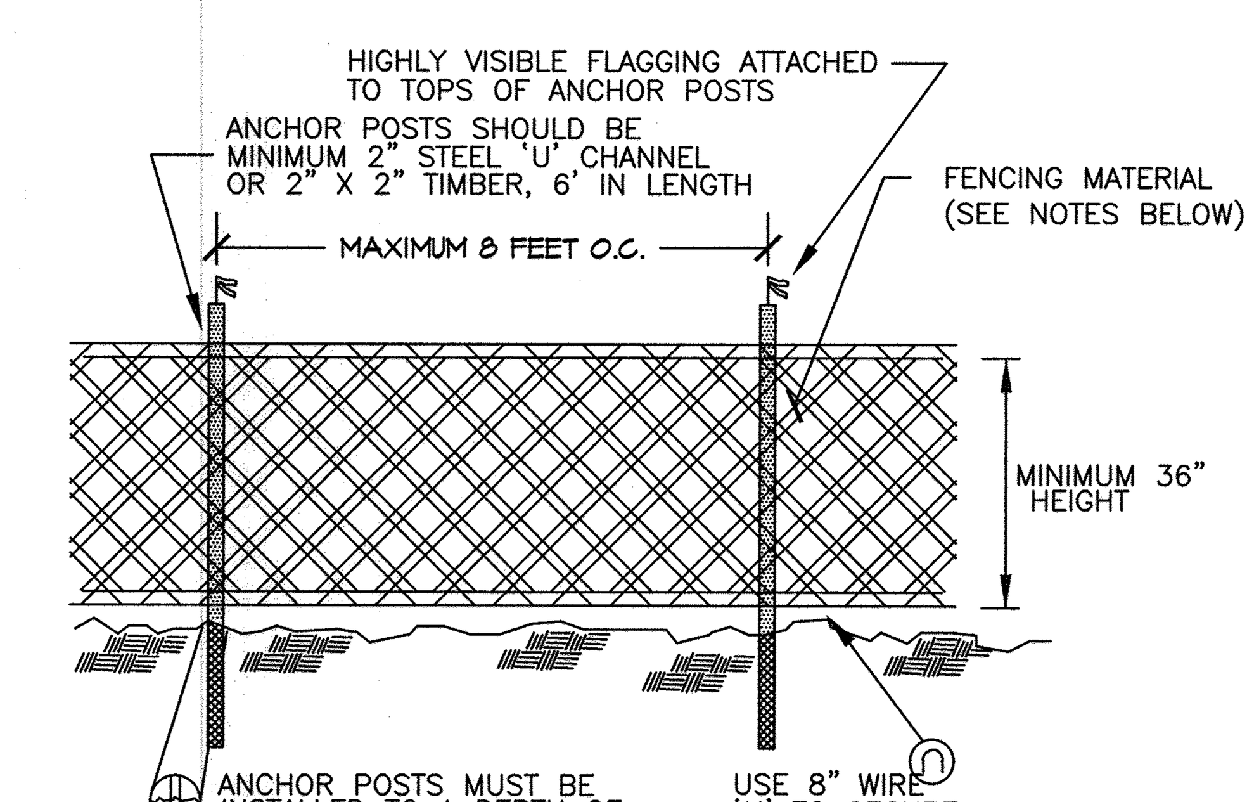
9. THIS PROJECT COMPLIES WITH THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE FOR FOREST CONSERVATION.

10. THIS PROJECT COMPLIES WITH THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE FOR FOREST CONSERVATION BY 2.67 ACRES OF ON-SITE RETENTION AND THE PURCHASE OF CREDITS FOR 2.23 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 III.

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.

FOREST CONSERVATION EASEMENT TABLE

CONSERVATION TYPE	AREA	ACRES	SF
ON-SITE RETENTION	A	2.67	116,241
TOTAL RETENTION		2.67	116,241

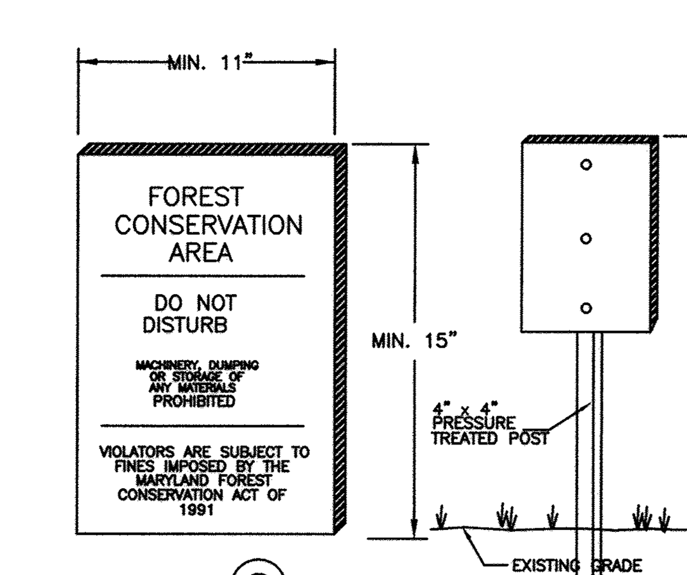


NOTES:

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



NOTES:

1. SIGNAGE SHALL BE LOCATED ON FOREST CONSERVATION / REFORESTATION / AFFORESTATION EASEMENT BORDER.
2. SEE PLAN FOR SPACING.

FOREST CONSERVATION & REFORESTATION SIGN DETAIL

NOT TO SCALE

Pennoni Associates Inc.
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Landscape Architects
8818 Centre Park Drive, Suite 200 Columbia, MD 21045
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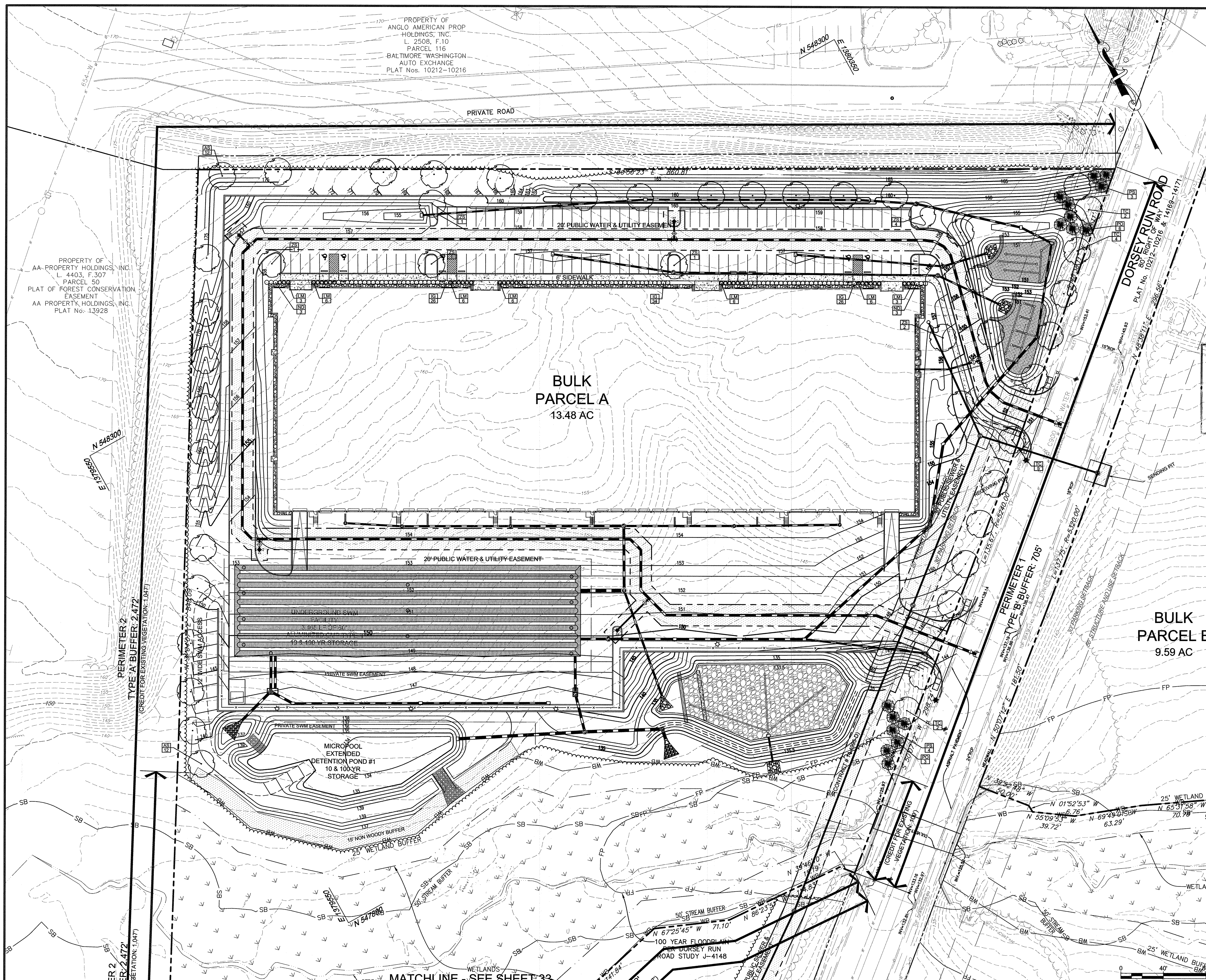
8.22.17

STATE OF MARYLAND 3068 PETER J. STONE BOARD OF EXAMINERS OF LANDSCAPE ARCHITECTS

PETER J. STONE #3068

DESIGNED BY :	PJS
DRAWN BY:	AGS/JSN
PROJECT NO :	DCTI1601
DATE :	JUNE 23, 2017
SCALE :	1" = 40'
DRAWING NO.	31 OF 43

SDP-17-030



LEGEND

- PROPOSED TREE LINE
- PROPOSED SHADE TREE
- PROPOSED EVERGREEN TREE
- PROPOSED SHRUBS

AS-BUILT CERTIFICATION

NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.

Sharon L. Cruz	36896
PRINTED NAME	MD. P.E. NO.
[signature]	7/8/19
SIGNATURE	DATE

APPROVED : DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	9-21-17 DATE
CHIEF, DIVISION OF LAND DEVELOPMENT	9-27-17 DATE
DIRECTOR	10-2-17 DATE

DATE	NO.	REVISION	BY

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

OWNER
DCT MEARS LLC
12011 GUILFORD ROAD
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ATTN: FRED FERRARO
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PROJECT
TERRAPIN COMMERCE CENTER

AREA
TAX MAP 43, PARCEL 51 LOT PAR A PLAT 23793 ZONED M-2
GRID NO. 11 1st ELECTION DISTRICT
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HOWARD COUNTY, MARYLAND

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LANDSCAPE PLAN

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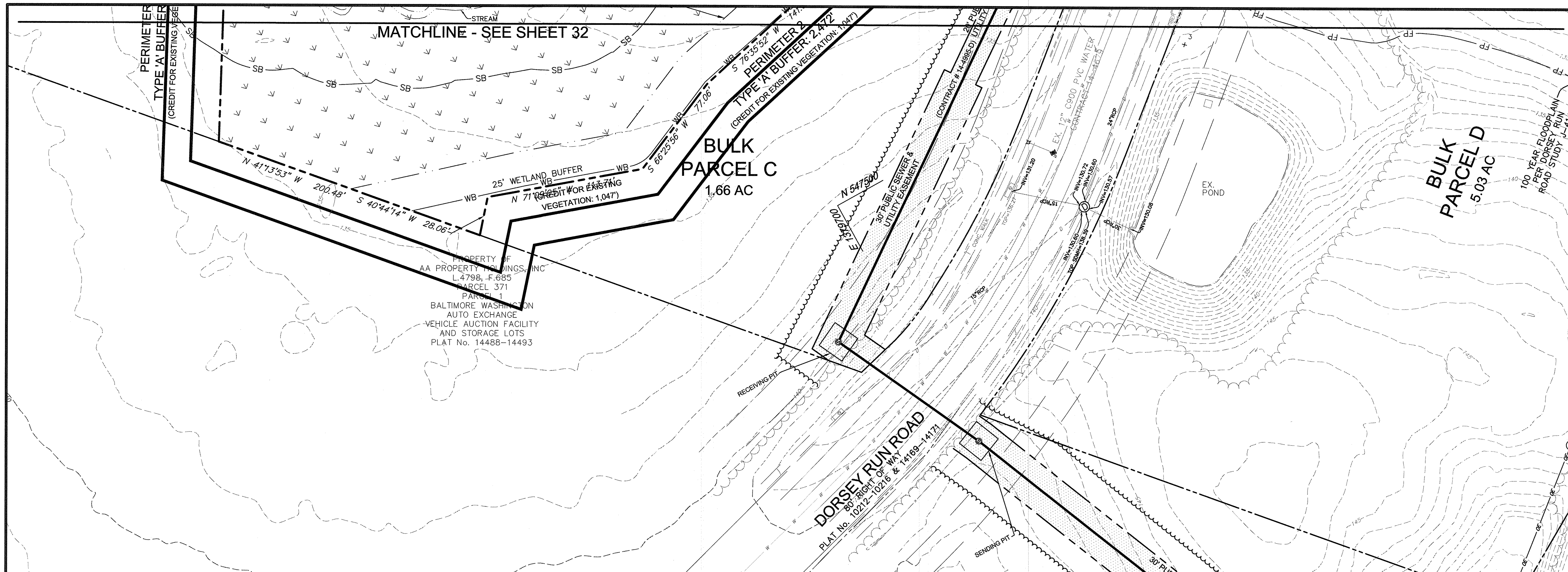
8.22.17

STATE OF MARYLAND 3068 PETER J. STONE BOARD OF EXAMINERS OF LANDSCAPE ARCHITECTS

PETER J. STONE #3068

DESIGNED BY : PJS
DRAWN BY: AGS/JSN
PROJECT NO : DCTI1601
DATE : JUNE 23, 2017
SCALE : 1" = 40'
DRAWING NO. 32 OF 43

SDP-17-030



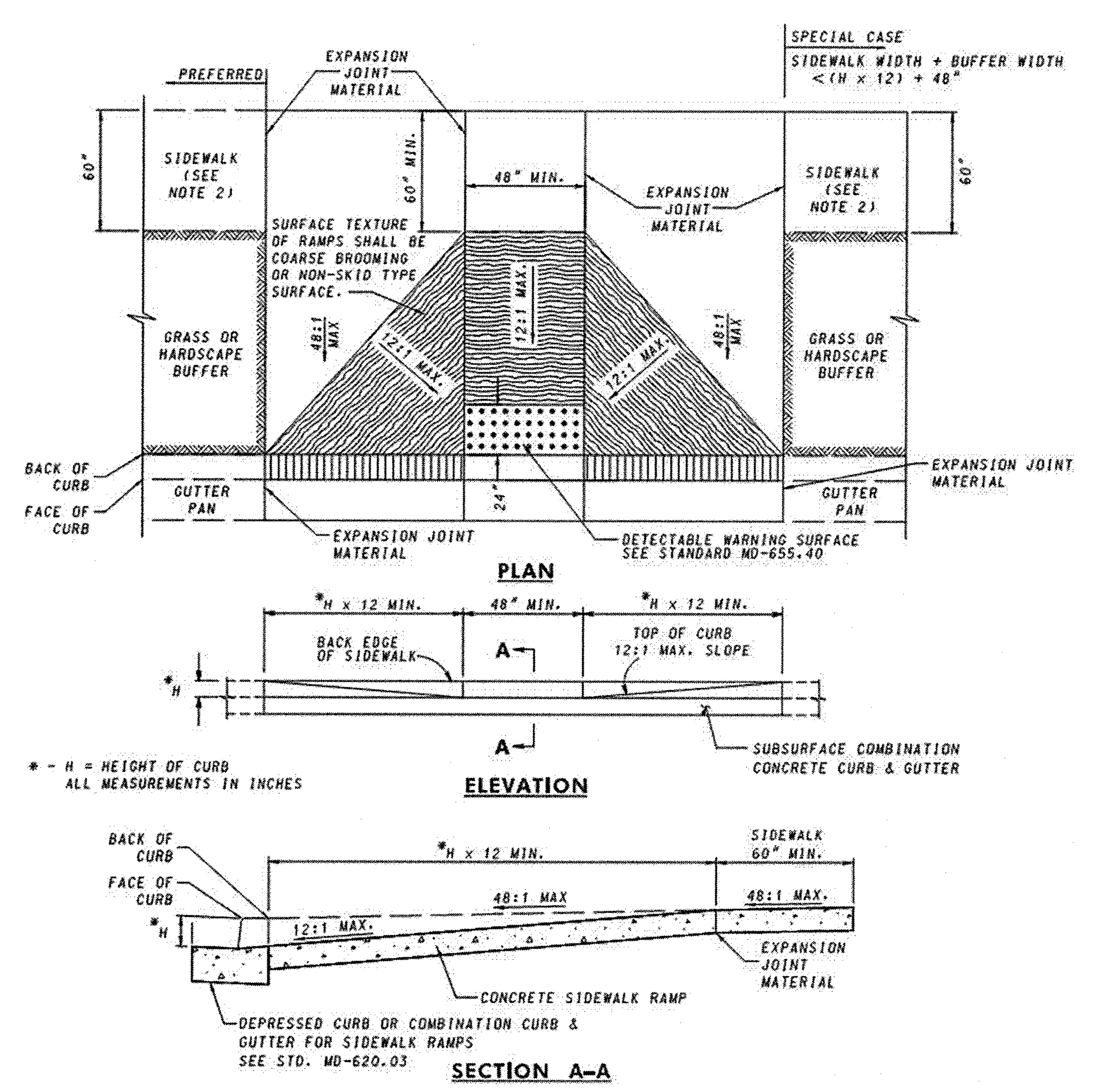
LEGEND

PROPOSED TREE LINE

PROPOSED SHADE TREE

PROPOSED EVERGREEN TREE

PROPOSED SHRUBS

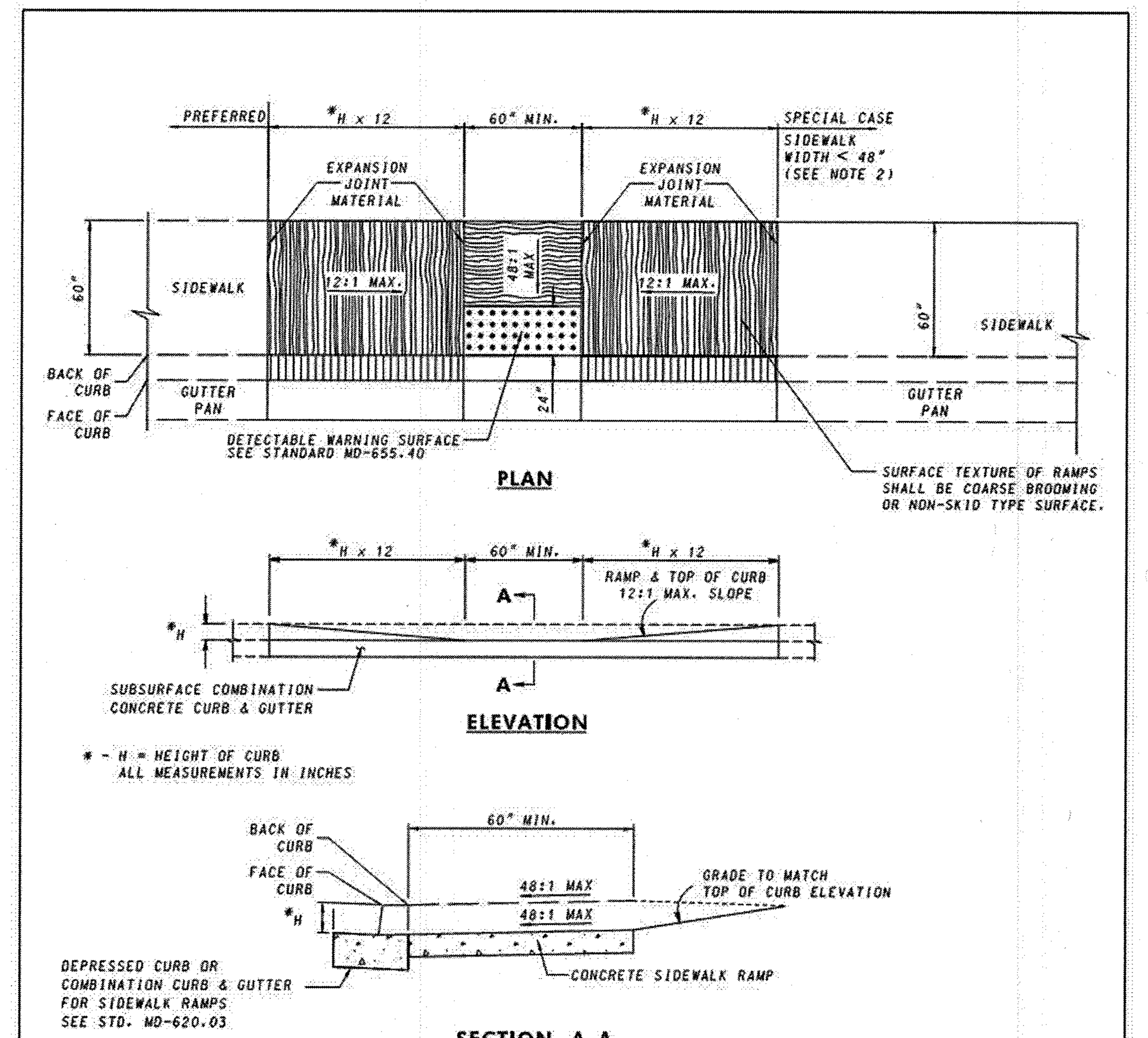


NOTES

1. TO BE USED ON WIDE SIDEWALKS OR SIDEWALKS WITH SIGNIFICANT SEPARATION FROM THE ROADWAY WHERE THE GEOMETRY SPECIFIED IN THE DETAILS ABOVE CAN BE SATISFIED. MAY BE MODIFIED TO SUIT A PARTICULAR LOCATION.
2. WHERE 60" SIDEWALK CAN NOT BE PROVIDED, A DESIGN WAIVER MUST BE REQUESTED
3. NO TRAVERSABLE SLOPE ON THE RAMP OR SIDEWALK SHALL EXCEED 12:1 IN THE DIRECTION OF PEDESTRIAN TRAVEL, OR 48:1 PERPENDICULAR TO THE DIRECTION OF PEDESTRIAN TRAVEL.
4. EXPANSION JOINT MATERIAL SHALL BE INSTALLED IN ACCORDANCE WITH STD. MD-655.01.
5. SIDEWALK RAMPS TO BE SHOWN ON PLANS SYMBOLICALLY AND REFERENCED WITH THE CENTER OF THE RAMP ALIGNED TO A STATION ON THE CONSTRUCTION CENTERLINE. SEPARATE DETAILS SHALL BE SHOWN WHERE PROPOSED RAMP VARIES FROM STANDARD CASES.
6. TRANSITION PANELS TO TIE INTO EXISTING SIDEWALK MUST BE A MINIMUM OF 5' IN LENGTH.

SPECIFICATION 603 & 611	CATEGORY CODE ITEMS		Maryland Department of Transportation STATE HIGHWAY ADMINISTRATION STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
APPROVED	DIRECTOR – OFFICE OF HIGHWAY DEVELOPMENT		SIDEWALK RAMPS PERPENDICULAR
SHA State Highway Administration	APPROVAL • SHA REVISIONS	APPROVAL • FEDERAL HIGHWAY ADMINISTRATION	
	APPROVAL 2-10-04	APPROVAL 3-31-04	
	REVISED 3-25-08	REVISED 4-5-06	
	REVISED 6-2-14	REVISED 5-20-14	STANDARD NO. MD 655.11
	REVISED	REVISED	

1/33 PERPENDICULAR SIDEWALK RAMPS
NOT TO SCALE



DEPRESSED CURB OR COMBINATION CURB & GUTTER FOR SIDEWALK RAMPS SEE STD. MD-620.03

NOTES

1. TO BE USED WHERE SIDEWALK IS ADJACENT TO THE CURB. THIS STANDARD MAY BE MODIFIED TO SUIT A PARTICULAR LOCATION.
2. WHERE 60" SIDEWALK CAN NOT BE PROVIDED, A DESIGN WAIVER MUST BE REQUESTED.
3. NO TRAVERSABLE SLOPE ON THE RAMP OR SIDEWALK SHALL EXCEED 12:1 IN THE DIRECTION OF PEDESTRIAN TRAVEL, OR 48:1 PERPENDICULAR TO THE DIRECTION OF PEDESTRIAN TRAVEL. THE CROSS-SLOPE OF THE LANDING AREA CANNOT EXCEED GRADE OF ROADWAY
4. EXPANSION JOINT MATERIAL SHALL BE INSTALLED IN ACCORDANCE WITH STD. MD-655.01.
5. SIDEWALK RAMPS TO BE SHOWN ON PLANS SYMBOLICALLY AND REFERENCED WITH THE CENTER OF THE RAMP ALIGNED TO A STATION ON THE CONSTRUCTION CENTERLINE. SEPARATE DETAILS SHALL BE SHOWN WHERE PROPOSED RAMP VARIES FROM STANDARD CASES.
6. TRANSITION PANELS TO TIE INTO EXISTING SIDEWALK MUST BE A MINIMUM OF 5' IN LENGTH

SPECIFICATION 603 & 611	CATEGORY CODE ITEMS		Maryland Department of Transportation STATE HIGHWAY ADMINISTRATION STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
APPROVED	DIRECTOR – OFFICE OF HIGHWAY DEVELOPMENT		SIDEWALK RAMPS PARALLEL
SHA State Highway Administration	APPROVAL • SHA REVISIONS	APPROVAL • FEDERAL HIGHWAY ADMINISTRATION	
	APPROVAL 2-10-04	APPROVAL 3-31-04	
	REVISED 3-25-08	REVISED 4-5-06	
	REVISED 6-2-14	REVISED 5-20-14	STANDARD NO. MD 655.12
	REVISED	REVISED	

2/33 PARALLEL SIDEWALK RAMPS
NOT TO SCALE

AS-BUILT CERTIFICATION
NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.
Sharon L. Cruz 36896
PRINTED NAME
7/2/19
SIGNATURE

0 40' 80'

APPROVED : DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	9-21-17 DATE
CHIEF, DIVISION OF LAND DEVELOPMENT	9-27-17 DATE
DIRECTOR	10-2-17 DATE

DATE	NO.	REVISION	BY

DEVELOPER: DCT INDUSTRIAL, 12011 GUILFORD ROAD, 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

PROJECT

TERRAPIN COMMERCE CENTER

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

TITLE

LANDSCAPE PLAN

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

8-22-17
STATE OF MARYLAND 3068 PETER J. STONE
PETER J. STONE #3068

DESIGNED BY : PJS
DRAWN BY: AGS/JSN
PROJECT NO : DCTI1601
DATE : JUNE 23, 2017
SCALE : 1" = 40'
DRAWING NO. 33 OF 43

SDP-17-030

PLANT SCHEDULE

SYMBOL	QTY.	SCIENTIFIC/ COMMON NAME	SIZE	ROOT	REMARKS
SHADE TREES					
AS	24	ACER SACCHARUM 'GREEN MOUNTAIN' GREEN MOUNTAIN SUGAR MAPLE	2.5-3" CAL.	B&B	AS SHOWN
TC	13	TILIA CORDATA 'GREENSPIRE' GREENSPIRE LITTLELEAF LINDEN	2.5-3" CAL.	B&B	AS SHOWN
ZS	10	ZELKOVA SERRATA 'VILLAGE GREEN' VILLAGE GREEN JAPANESE ZELKOVA	2.5-3" CAL.	B&B	AS SHOWN
EVERGREEN TREES					
PS	7	PINUS STROBUS EASTERN WHITE PINE	6-8' HT.	B&B	AS SHOWN
PO	9	PICEA OMORIKA SERBIAN SPRUCE	6-8' HT.	B&B	AS SHOWN
SHRUBS					
IG	85	ILEX GLABRA 'SHAMROCK' INKBERRY	18-24" HT.	B&B	AS SHOWN
LM	36	LIRIOPE MUSCARI BIG BLUE LILYTURF	1 GAL.	CONT.	AS SHOWN
ND	6	NANDINA DOMESTICA SACRED BAMBOO	18-24" HT.	B&B	AS SHOWN

SCHEDULE A - PERIMETER LANDSCAPE EDGE

	ADJACENT TO ROADWAYS	ADJACENT TO PERIMETER PROPERTIES
PERIMETER	1	2
LANDSCAPE TYPE	B	A
LINEAR FEET OF ROADWAY FRONTAGE/ PERIMETER	705' ±	2,472' ±
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	YES 100'	YES 1,047'
CREDIT FOR WALL, FENCE, BERM OR DRIVE AISLE (YES/NO/LINEAR FEET)	NO –	NO –
LINEAR FEET REMAINING	605' ±	1,425' ±
NUMBER OF PLANTS REQUIRED SHADE TREES EVERGREEN TREES SHRUBS	 13 16 0	 24 0 0
NUMBER OF PLANTS PROVIDED SHADE TREES EVERGREEN TREES SMALL FLOWERING TREES SHRUBS	 13 16 0 0	 24 0 0 0

SCHEDULE B - PARKING LOT INTERNAL LANDSCAPING

PARKING LOT	1
NUMBER OF PARKING SPACES	111
NUMBER OF SHADE TREES REQUIRED (1/20 SPACES)	6
NUMBER OF TREES PROVIDED SHADE TREES OTHER TREES (2:1 SUBSTITUTION)	 6 0
NUMBER OF ISLANDS PROVIDED	4

PLANTING SPECIFICATIONS

1. Plants, related material, and operations shall meet the detailed description, as given on the plans and as described herein. Where discrepancies exist between Standards & Guidelines referenced within these specifications and the Howard County Landscape Manual, the latter takes precedence.

2. All plant material, unless otherwise specified, that is not nursery grown, uniformly branched, does not have a vigorous root system, and does not conform to the most recent edition of the American Association of Nurserymen (AAN) Standards will be rejected. Plant material that is not healthy, vigorous, free from defects, decay, disfiguring roots, sunscald injuries, abrasions of the bark, plant disease, insect pest eggs, borers and all forms of insect infestations or objectionable disfigurements will be rejected. Plant material that is weak or which has been cut back from larger grades to meet specified requirements will be rejected. Trees with forked leaders will be rejected. All B & B plants shall be freshly dug; no healed-in plants or plants from cold storage will be accepted.

3. Unless otherwise specified, all general conditions, planting operations, details and planting specifications shall conform to the most recent edition of the "Landscape Specification Guidelines by the Landscape Contractors Association of MD, DC, & VA", (hereinafter "Landscape Guidelines") approved by the Landscape Contractors Association of Metropolitan Washington and the Potomac Chapter of the American Society of Landscape Architects.

4. Contractor shall guarantee all plant material for a period of one year after date of acceptance in accordance with the appropriate section on the Landscape Guidelines. Contractor's attention is directed to the maintenance requirements found within the one year specifications including watering and replacement of specified plant material.

5. Contractor shall be responsible for notifying all relevant and appropriate utility companies, utility contractors, and "Miss Utility" a minimum of 48 hours prior to the beginning of any work. Contractor may make minor adjustments in spacing and location of plant material to avoid conflicts with utilities. Major changes will require the approval of the landscape architect. Damage to existing structure and utilities shall be repaired at the expense of the Contractor.

6. Protection of existing vegetation to remain shall be accomplished via the temporary installation of 4 foot high snow fence at the drip line, see detail.

7. Contractor is responsible for installing all material in the proper planting season for each plant type. All planting is to be completed within growing season of completion of site construction. Do not plant Pinus strobus or XCupressacyparis leylandii between November 15 and March 15. Landscape plants are not to be installed before site is graded to final grade.

8. Contractor to regrade, fine grade, sod, hydroseed and straw mulch all areas disturbed by their work.

9. Bid shall be based on actual site conditions. No extra payment shall be made for work arising from actual site conditions differing from those indicated on drawings and specifications.

10. Plant quantities are provided for the convenience of the contractor only. If discrepancies exist between quantities shown on plan and those shown on the plant list, the quantities on the plan take precedence. Where discrepancies on the plan exist between the symbols and the callout leader, the number of symbols take precedence.

11. All shrubs and groundcover areas shall be planted in continuous planting beds, prepared as specified, unless otherwise indicated on plans. (See Specification 13). Beds to be mulched with minimum 2" and maximum 3" of composted, double-shredded hardwood mulch throughout.

12. Positive drainage shall be maintained on planting beds (minimum 2 percent slope).

13. Bed preparation shall be as follows: Till into a minimum depth of 6" 1 yard of Compro or Leafgro per 200 SF of planting bed, and 1 yard of topsoil per 100 SF of bed. Add 3 lbs of standard 5-10-5 fertilizer per cubic yard of planting mix and till. Ericaceous plants (Azaleas, Rhododendrons, etc.): top dress after planting with iron sulfate or comparable product according to package directions. Taxus baccata 'Repandens' (English weeping yews): Top dress after planting with 1/4 to 1/2 cup lime each.

14. Planting mix: For trees not in a prepared bed, mix 50% Compro or Leafgro with 50% soil from tree hole to use as backfill, see tree planting detail.

15. Weed & insect control: Incorporate a pre-emergent herbicide into the planting bed following recommended rates on the label. For tree planting, apply a pre-emergent on top of soil and root ball before mulching. Caution: For areas to be planted with a ground cover, be sure to carefully check the chemical used to assure its adaptability to the specific groundcover to be treated. Maintain the mulch weed-free for the extent of the warranty period. Under no circumstances is a pesticide containing chlorpyrifos to be used as a means of pest control.

16. Water: All plant material planted shall be watered thoroughly the day of planting. All plant material not yet planted shall be properly protected from drying out until planted. At a minimum, water unplanted plant material daily and as necessary to avoid dessication.

17. Pruning: Do not heavily prune trees and shrubs at planting. Prune only broken, dead, or diseased branches.

18. All areas within contract limits disturbed during or prior to construction not designated to receive plants and mulch shall be fine graded, grass seed planted, and covered with straw mulch.

GENERAL NOTES:

1. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
2. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING MUST BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF $15,300.00.
   - 43 SHADE TREES @ $300 = $12,900.00
   - 0 ORNAMENTAL TREES @ $150 = $0
   - 16 EVERGREEN TREES @ $150 = $2,400
   - 0 SHRUBS @ $30 = $0
3. THIS PLAN IS FOR LANDSCAPING PURPOSES ONLY.
4. CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, AND SAFETY PRECAUTIONS AND PROGRAMS.
5. ALL MATERIAL SELECTED SHALL BE EQUAL TO OR BETTER THAN THE REQUIREMENTS OF THE "USA STANDARD FOR NURSERY STOCK", LATEST EDITION, AS PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
6. ALL MATERIAL SHALL BE PLANTED IN ACCORDANCE WITH THE MINIMUM STANDARDS CITED IN THE LATEST EDITION OF "LANDSCAPE SPECIFICATION GUIDELINES" PUBLISHED BY THE LANDSCAPE CONTRACTORS ASSOCIATION.
7. AT THE TIME OF INSTALLATION, ALL SHRUBS AND OTHER PLANTINGS SHALL BE OF THE PROPER HEIGHT AND/OR SPREAD REQUIREMENTS IN ACCORDANCE WITH THIS PLAN AND THE HOWARD COUNTY LANDSCAPE MANUAL.
8. NO SUBSTITUTIONS OR RELOCATION OF PLANTS MAY BE MADE WITHOUT PRIOR APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING OF HOWARD COUNTY. ANY DEVIATION FROM THIS LANDSCAPE PLAN MAY RESULT IN A REQUIREMENT FOR SUBMITTAL OF AN OFFICIAL "REDLINE REVISION" TO THE SITE DEVELOPMENT PLAN(S) AND/OR DENIAL IN THE RELEASE OF LANDSCAPE SURETY.

DEVELOPER'S/BUILDER'S CERTIFICATE:

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION, A LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

Jacqueline Carlune 8/1/17
SIGNATURE DATE

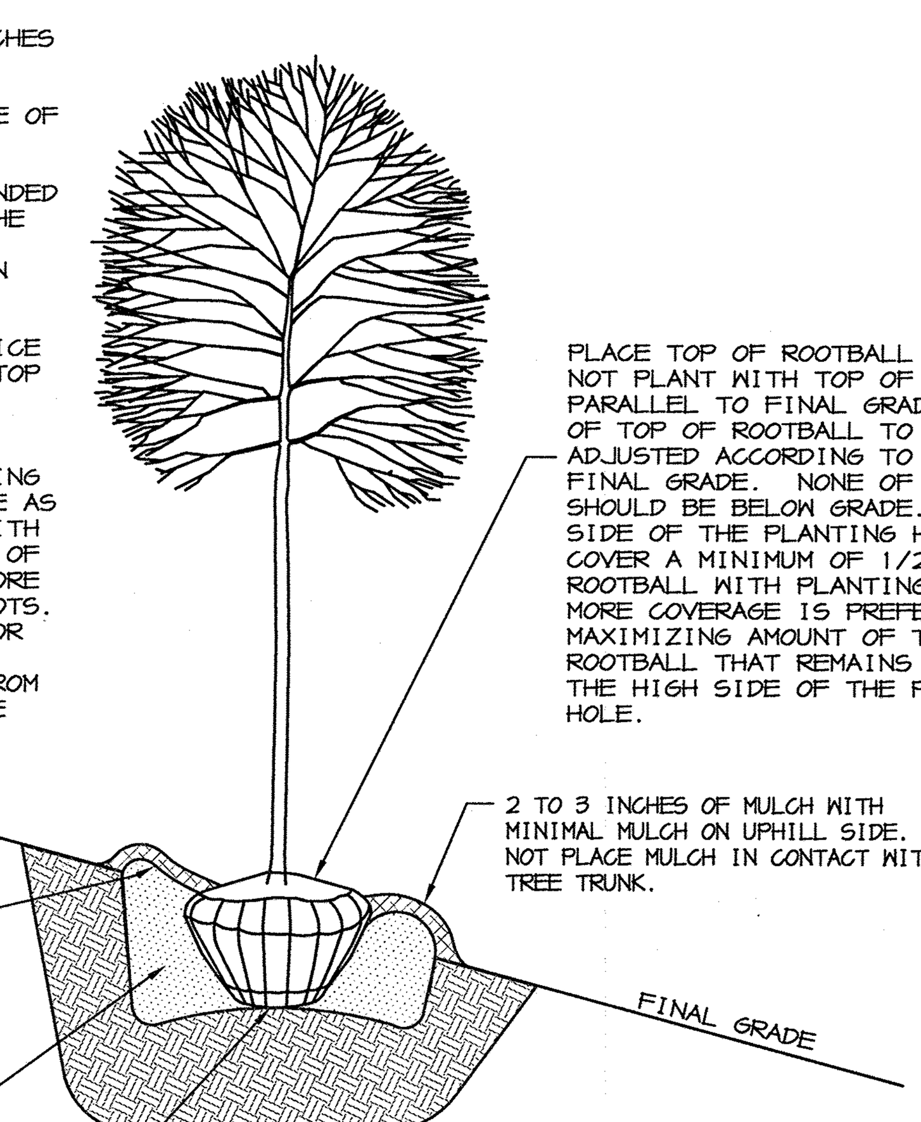
NOTES:

1. DO NOT HEAVILY PRUNE THE TREE AT PLANTING. PRUNE ONLY CROSSOVER LIMBS, CO-DOMINANT LEADERS, AND BROKEN OR DEAD BRANCHES. SOME INTERIOR TWIGS AND LATERAL BRANCHES MAY BE PRUNED; HOWEVER, DO NOT REMOVE THE TERMINAL BUDS OF BRANCHES THAT EXTEND TO THE EDGE OF THE CROWN.

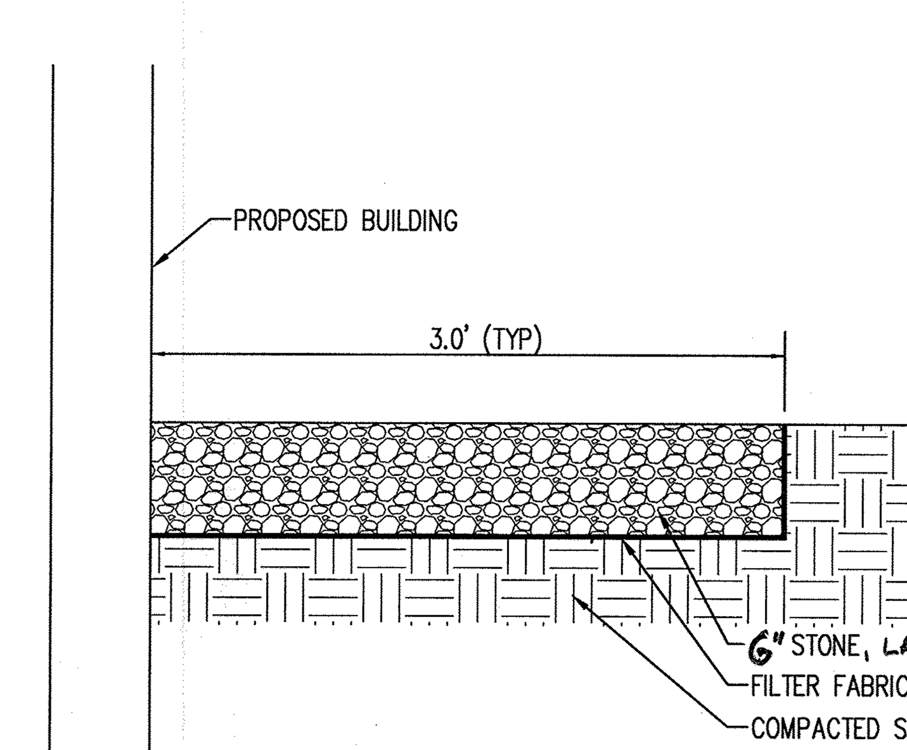
2. STAKE TREES ONLY IF RECOMMENDED ON THE PLANT SCHEDULE OR UPON THE APPROVAL OF THE LANDSCAPE ARCHITECT. STAKING DETAIL SHOWN ONLY IF RECOMMENDED.

B&B TREES: DIG PLANTING PIT TWICE AS WIDE AS THE DIAMETER OF THE TOP OF THE ROOT BALL WITH A MINIMUM PLANTING PIT DIAMETER OF 5'.

CONTAINERIZED TREES: DIG PLANTING PIT TWO AND A HALF TIMES AS WIDE AS THE DIAMETER OF THE CONTAINER WITH A MINIMUM PLANTING PIT DIAMETER OF 30". REMOVE CONTAINER JUST BEFORE PLANTING. INSPECT HEALTH OF ROOTS. REJECT MATERIAL WITH UNHEALTHY OR INSUFFICIENT ROOTS. REMOVE ALL TWINE, ROPE, WIRE, AND BURLAP FROM TOP OF ROOT BALL. DO NOT REMOVE WIRE BASKET. BEND TOP OF WIRE BASKET DOWN INTO PLANTING PIT.



1/26 DECIDUOUS B&B AND CONTAINERIZED TREE PLANTING DETAIL FOR STEEP SLOPES
NOT TO SCALE



2/26 BUILDING FOUNDATION STONE
NOT TO SCALE

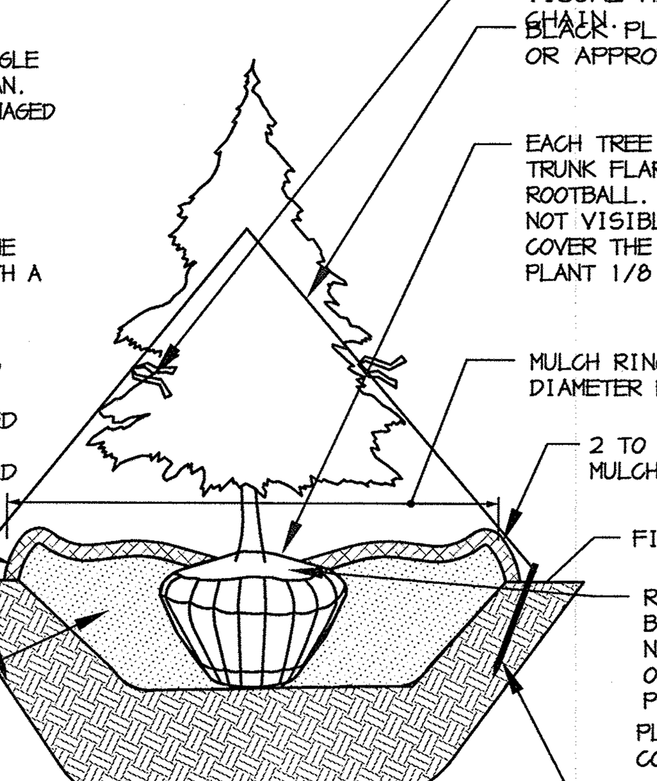
NOTES:

1. SELECT ONLY NURSERY STOCK WITH A SINGLE LEADER UNLESS OTHERWISE SPECIFIED ON PLAN. PLANTS WITH CO-DOMINANT, MISSING, OR DAMAGED LEADERS SHALL BE REJECTED.

2. STAKE TREES AS SHOWN.

3. DIG PLANTING PIT TWICE AS WIDE AS THE DIAMETER OF THE TOP OF THE ROOT BALL WITH A MINIMUM PLANTING PIT DIAMETER OF 5'.

4. CONTRACTOR TO REMOVE AND GRADE OUT PLANTING SAUCER AT END OF ONE YEAR MAINTENANCE PERIOD. AREA AROUND TREES SHALL BE GRADED SMOOTH TO ELIMINATE MOUNDING. CONTRACTOR TO REMULCH AREA AROUND TREE WHEN GRADING IS COMPLETE.



3/26 EVERGREEN B&B TREE PLANTING DETAIL
NOT TO SCALE

NOTES:

1. DO NOT HEAVILY PRUNE THE TREE AT PLANTING. PRUNE ONLY CROSSOVER LIMBS, CO-DOMINANT LEADERS, AND BROKEN OR DEAD BRANCHES. SOME INTERIOR TWIGS AND LATERAL BRANCHES MAY BE PRUNED; HOWEVER, DO NOT REMOVE THE TERMINAL BUDS OF BRANCHES THAT EXTEND TO THE EDGE OF THE CROWN.

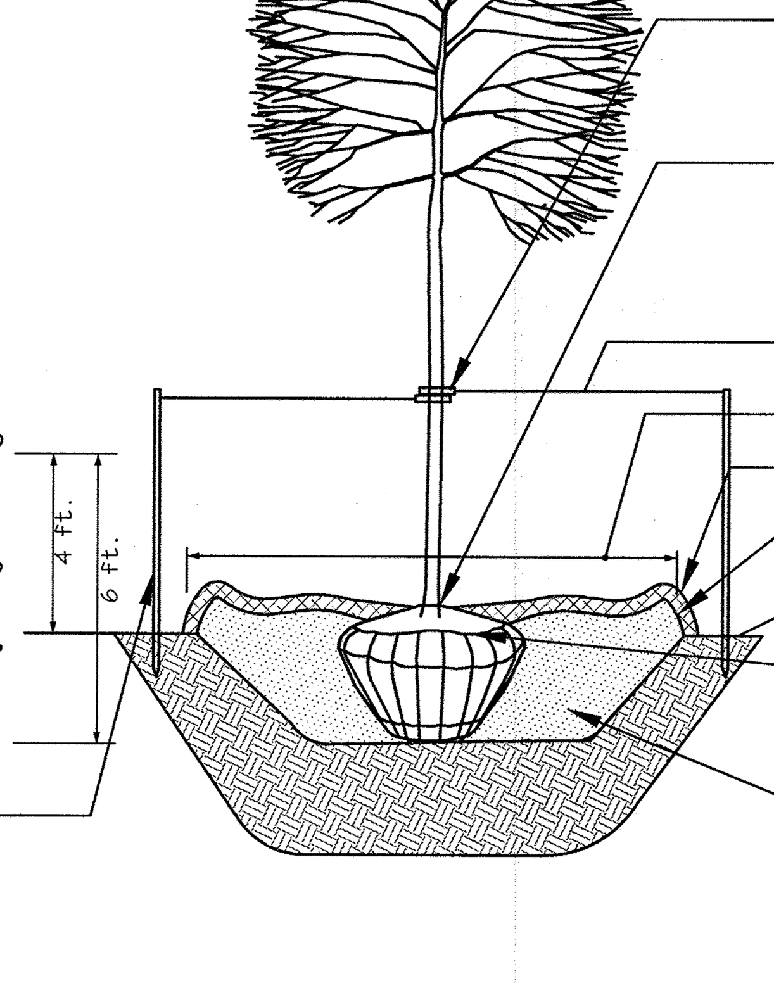
2. STAKE TREES AS SHOWN.

3. DIG PLANTING PIT TWICE AS WIDE AS THE DIAMETER OF THE TOP OF THE ROOT BALL WITH A MINIMUM PLANTING PIT DIAMETER OF 5'.

4. TIGHTEN GUYS ONLY ENOUGH TO KEEP FROM SLIPPING. ALLOW FOR SOME TRUNK MOVEMENT. GUYS SHALL BE LONG ENOUGH TO ACCOMMODATE 1.5 IN. OF GROWTH AND BUFFER ALL BRANCHES.
5. TUCK ANY LOOSE ENDS OF THE GUY SO THAT NO LOOSE ENDS ARE EXPOSED.

6. CONTRACTOR TO REMOVE AND GRADE OUT PLANTING SAUCER AT END OF ONE YEAR MAINTENANCE PERIOD. AREA AROUND TREES SHALL BE GRADED SMOOTH TO ELIMINATE MOUNDING. CONTRACTOR TO REMULCH AREA AROUND TREE WHEN GRADING IS COMPLETE.

INSTALL TWO STAKES ON OPPOSITE SIDES OF TREE, PARALLEL TO THE DIRECTION OF THE PREVAILING WINTER WINDS, UNLESS OTHERWISE DIRECTED BY LANDSCAPE ARCHITECT. ALL STAKES SHALL BE DRIVEN OUTSIDE THE EDGE OF THE ROOT BALL INTO PREFERABLY UNEXCAVATED SOIL.



4/26 DECIDUOUS B&B TREE PLANTING DETAIL (TREES 3" CAL. OR SMALLER)
NOT TO SCALE

AS-BUILT CERTIFICATION
NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.
Sharon K. Cruz 36896
PRINTED NAME MD P.E. NO.
SIGNATURE 7/2/19 DATE

APPROVED : DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9-21-17
CHIEF, DIVISION OF LAND DEVELOPMENT NN — DATE 9-27-17
DIRECTOR — DATE 10-2-17

DATE	NO.	REVISION	BY

DEVELOPER: DCT INDUSTRIAL, 12011 GUILFORD ROAD, 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

PROJECT: TERRAPIN COMMERCE CENTER

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

TITLE: LANDSCAPE NOTES AND 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

8-22-17
STATE OF MARYLAND 3068 PETER J. STONE BOARD OF EXAMINERS OF LANDSCAPE ARCHITECTS
PETER J. STONE #3068

DESIGNED BY : PJS
DRAWN BY: AGS/JSN
PROJECT NO : DCTI1601
DATE : JUNE 23, 2017
SCALE : AS SHOWN
DRAWING NO. 34 OF 43

I:\PROJECTS\DCTI\DCTI1601-MEARS PROPERTY TERRAPIN COMMERCE\DESIGN_PUBLISH\SITE DEVELOPMENT PLANS - BUILDING A\DCTI1601-SDP34

SDP-17-030

LOG OF BORING No. B-10

PROJECT: Mears Property | PROJECT NO.: DCTI1501
PROJECT LOCATION: Elkridge, MD
DRILLING FIRM: Connelly and Associates | ELEVATION: +/-133.13ft NAVD88
FOREMAN: Tom Chew | LOGGED BY: S. Corcoran
DRILLING METHOD: HSA Auger 3 1/4"
DATE STARTED: 05-05-16 | DATE COMPLETED: 05-05-16
DEPTH TO WATER> INITIAL: NE | AFTER 24 HOURS: NM | CAVING> 8

Depth to base (ft)	Description	Stratum
0.58	7" TOPSOIL	T
5.5	Tan CLAY, little fine sand, little organics; Gray CLAY, little fine sand; Gray CLAY, and fine to medium to coarse sand, trace fine gravel	A
8	Gray fine to medium SAND, some to little silt; Tan to brown fine to medium SAND, little to some silt	B
10	Orange to gray CLAY, some fine sand	C
	Boring terminated at 10 ft.	

Sample No.	Recovery (in.)	Blow Counts	Remarks
S-1	20	1-WOH-1-2	
S-2	16	3-4-6-7	
S-3	16	3-4-11-7	
S-4	16	3-3-8-13	
S-5	15	2-3-4-5	

NM - Not Measured, NE - Not Encountered.
Referenced elevation provided by Pennoni Associates, INC. surveying department.

PAGE 1 of 1

LOG OF BORING No. B-11

PROJECT: Mears Property | PROJECT NO.: DCTI1501
PROJECT LOCATION: Elkridge, MD
DRILLING FIRM: Connelly and Associates | ELEVATION: +/-139.25ft NAVD88
FOREMAN: Tom Chew | LOGGED BY: S. Corcoran
DRILLING METHOD: HSA Auger 3 1/4"
DATE STARTED: 05-05-16 | DATE COMPLETED: 05-05-16
DEPTH TO WATER> INITIAL: 7.5 | AFTER 24 HOURS: NM | CAVING> 5

Depth to base (ft)	Description	Stratum
0.33	4" TOPSOIL	T
4.5	Tan to brown CLAY, little fine sand; Tan to white CLAY, and fine sand; Black to gray CLAY, some fine to medium sand	A
10	Brown to yellow medium to fine SAND, trace silt; Medium to coarse to fine SAND, trace silt, trace fine gravel; Orange medium to coarse to fine SAND, trace silt (wet)	B
	Boring terminated at 10 ft.	

Sample No.	Recovery (in.)	Blow Counts	Remarks
S-1	14	1-1-2-2	
S-2	18	3-4-4-3	
S-3	20	3-4-4-5	
S-4	24	6-8-20-31	Mottling at 7 feet.
S-5	20	4-8-8-11	

NM - Not Measured, NE - Not Encountered.
Referenced elevation provided by Pennoni Associates, INC. surveying department.
Groundwater at 4.5 feet following removal of augers.

PAGE 1 of 1

LOG OF BORING No. B-12

PROJECT: Mears Property | PROJECT NO.: DCTI1501
PROJECT LOCATION: Elkridge, MD
DRILLING FIRM: Connelly and Associates | ELEVATION: +/-152.06ft NAVD88
FOREMAN: Tom Chew | LOGGED BY: S. Corcoran
DRILLING METHOD: HSA Auger 3 1/4"
DATE STARTED: 05-04-16 | DATE COMPLETED: 05-04-16
DEPTH TO WATER> INITIAL: 13 | AFTER 24 HOURS: NM | CAVING> 10

Depth to base (ft)	Description	Stratum
0.33	4" TOPSOIL	T
7	Red to tan CLAY, trace fine sand; Red to tan CLAY, some fine to medium to coarse sand, trace fine gravel; Red to tan to gray CLAY, some fine sand; Reddish black CLAY, little fine sand	A
20	Tannish gray to orange fine SAND, little to some silt, trace fine gravel; Brown to black medium to coarse to fine SAND, little to trace silt; Medium to coarse to fine SAND, trace fine gravel, trace silt (wet); Yellow to tan medium to coarse to fine SAND, little fine gravel, trace silt	B
	Boring terminated at 20 ft.	

Sample No.	Recovery (in.)	Blow Counts	Remarks
S-1	12	1-1-2-3	
S-2	18	3-6-7-8	
S-3	22	4-5-9-10	
S-4	24	5-7-8-13	
S-5	18	11-11-11-9	
S-6	24	4-12-19-33	
S-7	24	5-9-16-13	

NM - Not Measured, NE - Not Encountered.
Referenced elevation provided by Pennoni Associates, INC. surveying department.
Infiltration pipe (I-2) installed to a depth of 1.5 feet (elev 150.5 feet) and was offset 5 feet from the original borehole location.

PAGE 1 of 1

LOG OF BORING No. B-13

PROJECT: Mears Property | PROJECT NO.: DCTI1501
PROJECT LOCATION: Elkridge, MD
DRILLING FIRM: Connelly and Associates | ELEVATION: +/-163.20ft NAVD88
FOREMAN: Tom Chew | LOGGED BY: S. Corcoran
DRILLING METHOD: HSA Auger 3 1/4"
DATE STARTED: 05-04-16 | DATE COMPLETED: 05-04-16
DEPTH TO WATER> INITIAL: NE | AFTER 24 HOURS: NM | CAVING> 20.5

Depth to base (ft)	Description	Stratum
0.5	6" TOPSOIL	T
9	Tan to brown SILT, little fine sand; Brown CLAY, some fine sand; Brown CLAY, and fine sand; Grayish tan CLAY, trace fine sand (moist)	A
13	Yellow medium to coarse to fine SAND, trace fine gravel, trace silt	B
14.75	Gray CLAY, trace fine to medium to coarse sand (high plasticity)	C
25	Gray to tan medium to fine SAND, trace silt; Brown to red to black medium to coarse to fine SAND, trace silt; Tan to gray medium to coarse to fine SAND, some to little fine gravel, little silt	B
	Boring terminated at 25 ft.	

Sample No.	Recovery (in.)	Blow Counts	Remarks
S-1	18	1-1-1-2	
S-2	24	3-5-10-10	
S-3	20	2-5-7-9	
S-4	24	5-10-15-13	
S-5	24	3-10-11-23	
S-6	12	12-50/5"	
S-7	20	4-8-20-35	

NM - Not Measured, NE - Not Encountered.
Referenced elevation provided by Pennoni Associates, INC. surveying department.
Infiltration pipe (I-3) installed to a depth of 12.5 feet (elev 150.5 feet) and was offset 5 feet from the original borehole location.

PAGE 1 of 1

LOG OF BORING No. B-14

PROJECT: Mears Property | PROJECT NO.: DCTI1501
PROJECT LOCATION: Elkridge, MD
DRILLING FIRM: Connelly and Associates | ELEVATION: +/-157.80ft NAVD88
FOREMAN: Tom Chew | LOGGED BY: S. Corcoran
DRILLING METHOD: HSA Auger 3 1/4"
DATE STARTED: 05-05-16 | DATE COMPLETED: 05-05-16
DEPTH TO WATER> INITIAL: 19 | AFTER 24 HOURS: NM | CAVING> 28

Depth to base (ft)	Description	Stratum
0.33	4" TOPSOIL	T
8	Tan CLAY, trace fine sand; Orange to tan CLAY, and fine to medium to coarse sand, trace fine gravel	A
23	Orange to yellow medium to coarse to fine SAND, trace fine gravel, trace silt (moist to wet); Orange to yellow medium to coarse to fine SAND, trace fine gravel, trace silt (wet)	B
28	Gray CLAY, and fine to medium sand	C
	SAPROLITE: Gray fine to medium sand, little silt; SAPROLITE: Gray fine to medium sand, trace silt	D

Sample No.	Recovery (in.)	Blow Counts	Remarks
S-1	24	1-1-3-3	
S-2	17	3-4-4-6	
S-3	17	2-2-5-7	
S-4	16	4-12-19-14	
S-5	20	10-35-37-29	
S-6	13	13-18-17-20	
S-7	16	5-6-9-6	
S-8	6	7-4-8-40	
S-9	4	50/4"	

NM - Not Measured, NE - Not Encountered.
Referenced elevation provided by Pennoni Associates, INC. surveying department.

PAGE 1 of 2

LOG OF BORING No. B-15

PROJECT: Mears Property | PROJECT NO.: DCTI1501
PROJECT LOCATION: Elkridge, MD
DRILLING FIRM: Connelly and Associates | ELEVATION: +/-152.77ft NAVD88
FOREMAN: Tom Chew | LOGGED BY: S. Corcoran
DRILLING METHOD: HSA Auger 3 1/4"
DATE STARTED: 05-05-16 | DATE COMPLETED: 05-05-16
DEPTH TO WATER> INITIAL: NE | AFTER 24 HOURS: NM | CAVING> 13

Depth to base (ft)	Description	Stratum
0.17	2" TOPSOIL	T
1	Tan CLAY, and fine sand	A
15	Tan medium to fine SAND, little to trace silt; Tan to brown medium to coarse to fine SAND, little silt, trace fine gravel; White medium to fine SAND, trace to little silt; Medium to coarse to fine SAND, some coarse to fine gravel, trace silt	B
	Boring terminated at 15 ft.	

Sample No.	Recovery (in.)	Blow Counts	Remarks
S-1	24	1-4-4-5	
S-2	16	4-4-5-9	
S-3	20	7-10-12-14	
S-4	24	3-8-15-45	
S-5	18	11-18-18-20	

NM - Not Measured, NE - Not Encountered.
Referenced elevation provided by Pennoni Associates, INC. surveying department.

PAGE 1 of 1

LOG OF BORING No. B-16

PROJECT: Mears Property | PROJECT NO.: DCTI1501
PROJECT LOCATION: Elkridge, MD
DRILLING FIRM: Connelly and Associates | ELEVATION: +/-158.61ft NAVD88
FOREMAN: Tom Chew | LOGGED BY: S. Corcoran
DRILLING METHOD: HSA Auger 3 1/4"
DATE STARTED: 05-04-16 | DATE COMPLETED: 05-04-16
DEPTH TO WATER> INITIAL: NE | AFTER 24 HOURS: NM | CAVING> 18

Depth to base (ft)	Description	Stratum
0.42	5" TOPSOIL	T
5.5	Brown CLAY, some to little fine sand; Brown CLAY, trace fine sand	A
6	Brown fine to medium SAND, little silt	B
9	Purple to yellow CLAY, trace fine to medium to coarse sand; White to gray CLAY, trace fine sand	C
18	Medium to coarse to fine SAND, some to little fine gravel, trace silt; Gray to light brown coarse to medium to fine SAND, little to some fine gravel, trace silt, trace coarse gravel	B
20	SAPROLITE: Gray fine to medium sand, some silt	D
	Boring terminated at 20 ft.	

Sample No.	Recovery (in.)	Blow Counts	Remarks
S-1	18	1-1-1-2	
S-2	14	1-2-3-4	
S-3	15	3-5-6-4	
S-4	16	3-4-8-11	
S-5	18	14-44-50/5"	
S-6	18	16-32-50/5	
S-7	24	5-10-15-16	

NM - Not Measured, NE - Not Encountered.
Referenced elevation provided by Pennoni Associates, INC. surveying department.
Infiltration pipe (I-4) installed to a depth of 6.5 feet (elev 152 feet) and was offset 5 feet from the original borehole location.

PAGE 1 of 1

LOG OF BORING No. B-17

PROJECT: Mears Property | PROJECT NO.: DCTI1501
PROJECT LOCATION: Elkridge, MD
DRILLING FIRM: Connelly and Associates | ELEVATION: +/-160.41ft NAVD88
FOREMAN: Tom Chew | LOGGED BY: S. Corcoran
DRILLING METHOD: HSA Auger 3 1/4"
DATE STARTED: 05-04-16 | DATE COMPLETED: 05-04-16
DEPTH TO WATER> INITIAL: NE | AFTER 24 HOURS: NM | CAVING> 16.9

Depth to base (ft)	Description	Stratum
0.33	4" TOPSOIL	T
5	Tan to brown to gray CLAY, little fine sand	A
8.5	Yellow to tan to white medium to fine to coarse SAND, some clay, trace fine gravel, trace mica; Gray fine to medium SAND, little silt	B
13	Purple CLAY, some fine to medium sand	C
19.75	Yellow to tan medium to coarse to fine SAND, trace silt, trace mica	B
20	Gray CLAY, trace fine sand	C
	Boring terminated at 20 ft.	

Sample No.	Recovery (in.)	Blow Counts	Remarks
S-1	18	1-1-3-8	
S-2	18	5-8-9-13	
S-3	14	13-16-50/5"	
S-4	24	8-10-16-32	
S-5	17	8-20-19-31	
S-6	18	4-13-19-15	

NM - Not Measured, NE - Not Encountered.
Referenced elevation provided by Pennoni Associates, INC. surveying department.

PAGE 1 of 1

AS-BUILT CERTIFICATION

NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.

Sharon K. Cruz — PRINTED NAME | 36896 — MD. P.E. NO.
SIGNATURE | 7/8/19 — DATE

APPROVED : DEPARTMENT OF PLANNING AND ZONING

Title	Date
CHIEF, DEVELOPMENT ENGINEERING DIVISION	9-21-17
CHIEF, DIVISION OF LAND DEVELOPMENT	9-27-17
DIRECTOR	10-2-17

DATE	NO.	REVISION	BY

DEVELOPER: DCT INDUSTRIAL, 12011 GUILFORD ROAD, 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

PROJECT: TERRAPIN COMMERCE CENTER

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

TITLE: SOIL BORING LOGS

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

SEAL: STATE OF MARYLAND, SHARON K. CRUZ, No. 36896, REGISTERED PROFESSIONAL ENGINEER
BY: 8/2/17
"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36896, EXPIRATION DATE: 2-15-2019"

DESIGNED BY : PJS
DRAWN BY: AGS/JSN
PROJECT NO : DCTI1601
DATE : JUNE 23, 2017
SCALE : AS SHOWN
DRAWING NO. 35 OF 43

LOG OF BORING No. B-18

PROJECT: Mears Property **PROJECT NO.:** DCTI1501
PROJECT LOCATION: Elkridge, MD
DRILLING FIRM: Connelly and Associates **ELEVATION:** +/-157.00ft NAVD88
FOREMAN: Tom Chew **LOGGED BY:** S. Corcoran
DRILLING METHOD: HSA Auger 3 1/4"
DATE STARTED: 05-05-16 **DATE COMPLETED:** 05-05-16
DEPTH TO WATER> INITIAL: NE **AFTER 24 HOURS:** NM **CAVING>** NM

Description	Bottom depth (ft)	Stratum
4" TOPSOIL	0.33	T
Yellow to tan CLAY, little fine sand, trace mica		A
Yellow to tan CLAY, some fine to medium to coarse sand, trace fine gravel	5	A
Tan to brown fine to medium SAND, little to trace clay		B
Tan medium to coarse to fine SAND, trace clay, trace fine gravel		B
Brown medium to fine sand, some silt, some fine gravel, trace mica	19	B
Gray to brown CLAY, and fine sand, trace mica	20	C
Boring terminated at 20 ft.		

Sample No.	Recovery (in.)	Blow Counts	Remarks
S-1	20	1-1-3-4	
S-2	9	4-8-10-12	
S-3	24	3-7-18-10	
S-4	18	11-24-38-31	
S-5	21	13-42-48-48	
S-6	20	21-26-16-10	

NM - Not Measured, NE - Not Encountered.
Referenced elevation provided by Pennoni Associates, INC. surveying department.

PAGE 1 of 1

LOG OF BORING No. B-19

PROJECT: Mears Property **PROJECT NO.:** DCTI1501
PROJECT LOCATION: Elkridge, MD
DRILLING FIRM: Connelly and Associates **ELEVATION:** +/-171.57ft NAVD88
FOREMAN: Tom Chew **LOGGED BY:** S. Corcoran
DRILLING METHOD: HSA Auger 3 1/4"
DATE STARTED: 05-04-16 **DATE COMPLETED:** 05-04-16
DEPTH TO WATER> INITIAL: 31 **AFTER 24 HOURS:** NM **CAVING>** 27.5

Description	Bottom depth (ft)	Stratum
5" TOPSOIL	0.42	T
Tan to brown CLAY, trace fine sand (moist)		A
Purple to brown to gray CLAY, some to little fine sand	8	A
Gray to brown fine to medium SAND, some silt		B
Tan to brown medium to coarse to fine SAND, some fine gravel, trace silt	19	B
Gray CLAY, trace fine sand	20	C
Yellow to tan fine to medium to coarse SAND, and silt	22	B
Gray CLAY, little fine sand, trace fine gravel	24	C
Gray fine to medium to coarse SAND, some to little silt	33	B
SAPROLITE: Gray fine to medium sand, trace clay		

Sample No.	Recovery (in.)	Blow Counts	Remarks
S-1	18	1-1-2-3	
S-2	24	8-8-11-12	
S-3	24	11-9-13-18	
S-4	22	13-14-21-25	
S-5	15	11-24-30-35	
S-6	20	5-10-12-10	
S-7	18	5-8-11-13	
S-8	22	10-13-18-18	
S-9	24	7-17-25-27	
S-10	18	17-24-50/5	
S-11	5	50/5"	

NM - Not Measured, NE - Not Encountered.
Referenced elevation provided by Pennoni Associates, INC. surveying department.
Infiltration pipe (I-5) installed to a depth of 20 feet (elev 157.5 feet) and was offset 5 feet from the original borehole location.

PAGE 1 of 2

LOG OF BORING No. B-19

PROJECT: Mears Property **PROJECT NO.:** DCTI1501
PROJECT LOCATION: Elkridge, MD
DRILLING FIRM: Connelly and Associates **ELEVATION:** +/-171.57ft NAVD88
FOREMAN: Tom Chew **LOGGED BY:** S. Corcoran
DRILLING METHOD: HSA Auger 3 1/4"
DATE STARTED: 05-04-16 **DATE COMPLETED:** 05-04-16
DEPTH TO WATER> INITIAL: 31 **AFTER 24 HOURS:** NM **CAVING>** 27.5

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

Description	Bottom depth (ft)	Stratum
SAPROLITE: Gray fine to medium sand, trace clay	40	D
Boring terminated at 40 ft.		

Sample No.	Recovery (in.)	Blow Counts	Remarks
S-12	2	50/2"	

NM - Not Measured, NE - Not Encountered.
Referenced elevation provided by Pennoni Associates, INC. surveying department.
Infiltration pipe (I-5) installed to a depth of 20 feet (elev 157.5 feet) and was offset 5 feet from the original borehole location.

PAGE 2 of 2

LOG OF BORING No. B-27

PROJECT: Terrapin Commerce Center **PROJECT NO.:** DCTI1601
PROJECT LOCATION: Dorsey Run Road, Howard County, MD
DRILLING FIRM: Connelly & Associates **ELEVATION:** 131.93 ft. NAVD88
FOREMAN: Ron Mesa **LOGGED BY:** C. Bugher
DRILLING METHOD: 3 1/4 HSA
DATE STARTED: 12/9/16 **DATE COMPLETED:** 12/9/16
DEPTH TO WATER> INITIAL: NE **AFTER 24 HOURS:** NM **CAVING>** 8 ft.

Description	Bottom depth (ft)	Stratum
6" TOPSOIL	0.5	T
Light brown to gray silty CLAY, trace fine sand	6	A
Gray to orange fine to coarse SAND, trace gravel, little silty clay	8.33	B
Blue to green silty CLAY, some to and fine sand		C
Boring terminated at 12 ft.		

Sample No.	Recovery (in.)	Blow Counts	Remarks
S-1	23	2-2-4-9	
S-2	20	9-14-17-19	
S-3	24	6-7-9-10	
S-4	11	8-7-7-9	
S-5	20	8-10-12-10	
S-6	17	6-7-12-11	

NE = Not Encountered
NM = Not Measured
Referenced elevation provided by Pennoni Associates, INC. surveying department.

PAGE 1 of 1

LOG OF BORING No. B-28

PROJECT: Terrapin Commerce Center **PROJECT NO.:** DCTI1601
PROJECT LOCATION: Dorsey Run Road, Howard County, MD
DRILLING FIRM: Connelly & Associates **ELEVATION:** 132.42 ft. NAVD88
FOREMAN: Ron Mesa **LOGGED BY:** C. Bugher
DRILLING METHOD: 3 1/4 HSA
DATE STARTED: 12/9/16 **DATE COMPLETED:** 12/9/16
DEPTH TO WATER> INITIAL: NE **AFTER 24 HOURS:** NM **CAVING>** 12 ft.

Description	Bottom depth (ft)	Stratum
5" TOPSOIL	0.42	T
Brown to gray to orange silty CLAY, trace fine sand		A
Gray silty CLAY, trace fine sand		A
Blue to green silty CLAY, trace to little fine sand		A
Blue to green to gray to red to brown silty CLAY		A
Boring terminated at 15 ft.		

Sample No.	Recovery (in.)	Blow Counts	Remarks
S-1	20	2-2-3-6	
S-2	18	4-7-11-19	
S-3	24	4-6-7-8	
S-4	6	2-4-6-8	
S-5	19	4-7-9-9	
S-6	22	15-15-31-26	Wet on spoon

NE = Not Encountered
NM = Not Measured
Referenced elevation provided by Pennoni Associates, INC. surveying department.

PAGE 1 of 1

LOG OF BORING No. B-29

PROJECT: Terrapin Commerce Center **PROJECT NO.:** DCTI1601
PROJECT LOCATION: Dorsey Run Road, Howard County, MD
DRILLING FIRM: Connelly & Associates **ELEVATION:** 139.78 ft. NAVD88
FOREMAN: Ron Mesa **LOGGED BY:** C. Bugher
DRILLING METHOD: 3 1/4 HSA
DATE STARTED: 12/9/16 **DATE COMPLETED:** 12/9/16
DEPTH TO WATER> INITIAL: 10 ft. **AFTER 24 HOURS:** NM **CAVING>** 10 ft.

Description	Bottom depth (ft)	Stratum
3" TOPSOIL	0.25	T
Orange to brown silty CLAY and fine SAND		A
Red to brown silty CLAY and fine SAND, trace fine gravel	4	A
Red to brown fine to medium SAND and silty CLAY, little fine gravel		B
Red to brown fine to coarse SAND, little to some fine to coarse gravel, trace silty clay		B
Tan to orange medium to fine SAND, trace silty clay	8	B
Gray CLAY and orange medium to coarse SAND , trace coarse gravel (moist)	10	C
Gray medium to coarse to fine SAND, little fine to coarse gravel, trace clay		B
Boring terminated at 12 ft.		

Sample No.	Recovery (in.)	Blow Counts	Remarks
S-1	23	1-2-4-8	
S-2	12	5-8-12-17	
S-3	7	2-2-1-2	
S-4	20	15-17-14-16	
S-5	10	4-8-6-6	
S-6	24	14-12-28-24	Rock in shoe

NE = Not Encountered
NM = Not Measured
Referenced elevation provided by Pennoni Associates, INC. surveying department.

PAGE 1 of 1

LOG OF BORING No. B-30

PROJECT: Terrapin Commerce Center **PROJECT NO.:** DCTI1601
PROJECT LOCATION: Dorsey Run Road, Howard County, MD
DRILLING FIRM: Connelly & Associates **ELEVATION:** 135.77 ft. NAVD88
FOREMAN: Ron Mesa **LOGGED BY:** C. Bugher
DRILLING METHOD: 3 1/4 HSA
DATE STARTED: 12/9/16 **DATE COMPLETED:** 12/9/16
DEPTH TO WATER> INITIAL: 7 ft. **AFTER 24 HOURS:** NM **CAVING>** 13 ft.

Description	Bottom depth (ft)	Stratum
6" TOPSOIL	0.5	T
Gray silty CLAY	2	A
Gray fine to medium to coarse SAND, little clay, trace silt		B
Orange to gray fine to medium to coarse SAND, little silty clay	8	B
Gray CLAY, little fine to coarse sand	8.5	C
Orange to brown to black coarse SAND, some silty clay, little fine to coarse gravel	9.5	B
Blue to green silty CLAY, little to and fine sand		C
Boring terminated at 15 ft.		

Sample No.	Recovery (in.)	Blow Counts	Remarks
S-1	21	2-2-2-2	
S-2	15	4-5-7-8	
S-3	10	6-8-7-9	
S-5	22	9-9-5-7	
S-6	18	14-16-21-28	

NE = Not Encountered
NM = Not Measured
Referenced elevation provided by Pennoni Associates, INC. surveying department.

PAGE 1 of 1

LOG OF BORING No. B-31

PROJECT: Terrapin Commerce Center **PROJECT NO.:** DCTI1601
PROJECT LOCATION: Dorsey Run Road, Howard County, MD
DRILLING FIRM: Connelly & Associates **ELEVATION:** 139.11 ft. NAVD88
FOREMAN: Ron Mesa **LOGGED BY:** C. Bugher
DRILLING METHOD: 3 1/4 HSA
DATE STARTED: 12/9/16 **DATE COMPLETED:** 12/9/16
DEPTH TO WATER> INITIAL: 13 ft. **AFTER 24 HOURS:** NM **CAVING>** 21.2 ft.

Description	Bottom depth (ft)	Stratum
4" TOPSOIL	0.33	T
Red to brown silty CLAY (dry to moist)	8	A
Orange to brown coarse to medium SAND, trace silty clay, trace mica (damp)		B
Gray coarse to medium SAND and GRAVEL, little silty clay, trace mica (wet)	18	B
Gray to green to blue silty CLAY, trace fine sand (damp)		C
Blue to gray silty CLAY, little fine sand		C
Boring terminated at 25 ft.		

Sample No.	Recovery (in.)	Blow Counts	Remarks
S-1	18	3-3-5	
S-2	17	12-26-38	
S-3	6	7-16-25	
S-4	16	10-17-13	
S-5	24	8-16-19-16	
S-6	12	3-3-7-13	
S-7	10	2-WOH-14-39	

NE = Not Encountered
NM = Not Measured
Referenced elevation provided by Pennoni Associates, INC. surveying department.

PAGE 1 of 1

APPROVED : DEPARTMENT OF PLANNING AND ZONING

Signature	Title	Date
[signature]	CHIEF, DEVELOPMENT ENGINEERING DIVISION	9-21-17
[signature]	CHIEF, DIVISION OF LAND DEVELOPMENT	9-27-17
[signature]	DIRECTOR	10-2-17

DATE	NO.	REVISION	BY

DEVELOPER
DCT INDUSTRIAL
12011 GUILFORD ROAD
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

PROJECT
TERRAPIN COMMERCE CENTER

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

TITLE
SOIL BORING LOGS

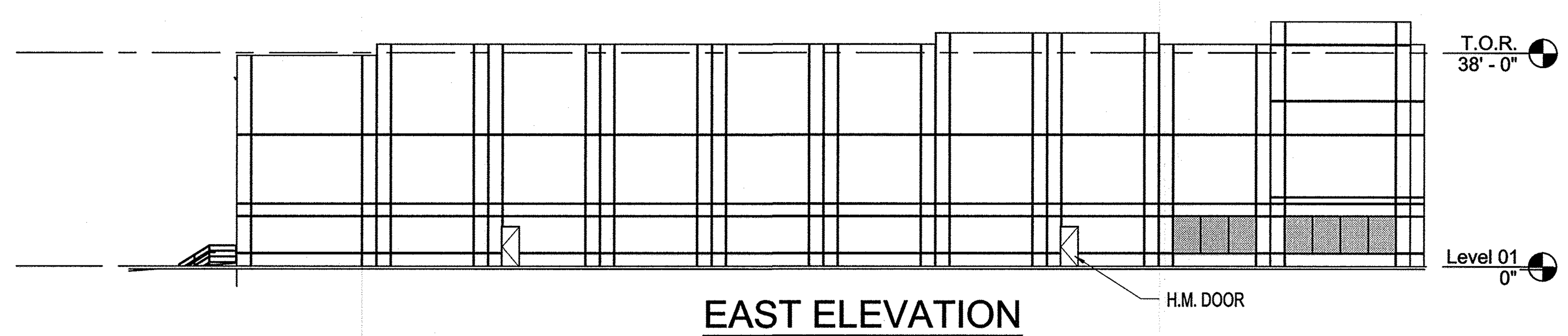
Pennoni Associates Inc.
Engineers • Surveyors • Planners
Landscape Architects
8818 Centre Park Drive, Suite 200 Columbia, MD 21045
T 410.997.8900 F 410.997.9282

SEAL
STATE OF MARYLAND — SHARON K. CRUZ — No. 36896 — REGISTERED PROFESSIONAL ENGINEER
BY: [signature] 9/22/17
"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36896, EXPIRATION DATE: 2-15-2019"

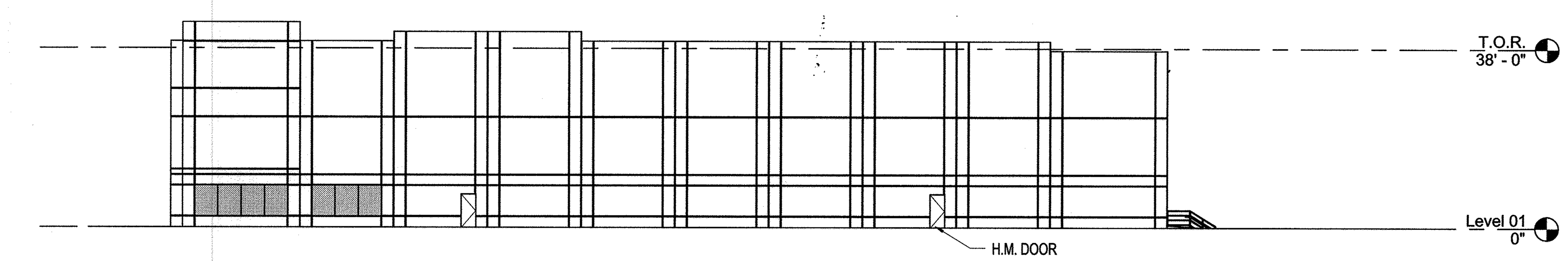
DESIGNED BY : PJS
DRAWN BY: AGS/JSN
PROJECT NO : DCTI1601
DATE : JUNE 23, 2017
SCALE : AS SHOWN
DRAWING NO. 36 OF 43

AS-BUILT CERTIFICATION
NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.
Sharon K. Cruz — PRINTED NAME
36896 — MD. P.E. NO.
[signature] — SIGNATURE
7/8/19 — DATE

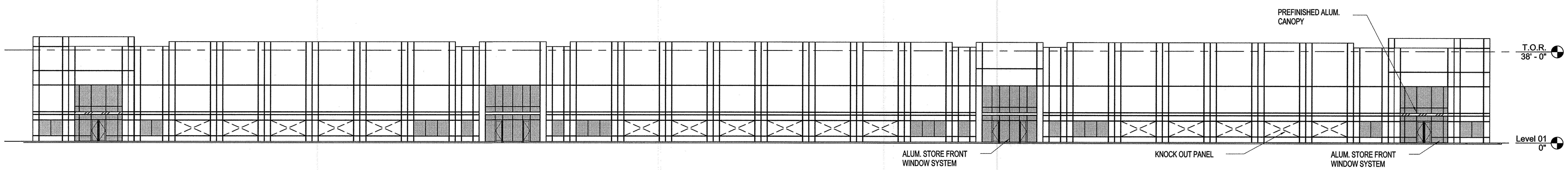
SDP-17-030



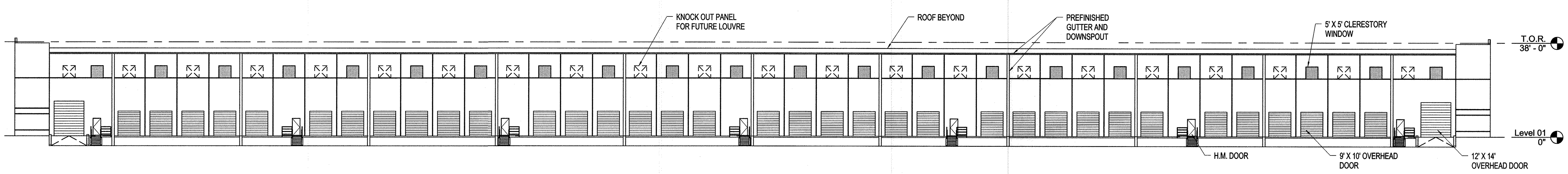
EAST ELEVATION
NOT TO SCALE



WEST ELEVATION
NOT TO SCALE



NORTH ELEVATION (FRONT)
NOT TO SCALE



SOUTH ELEVATION (REAR)
NOT TO SCALE

AS-BUILT CERTIFICATION
NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.
Sharon K. Cruz 36896
PRINTED NAME MD. P.E. NO.
SIGNATURE 7/2/19
DATE

APPROVED : DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	9.13.17 DATE
CHIEF, DIVISION OF LAND DEVELOPMENT	9-27-17 DATE
DIRECTOR	10-2-17 DATE

DATE	NO.	REVISION	BY

DEVELOPER
DCT INDUSTRIAL
12011 GUILFORD ROAD
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
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PROJECT
TERRAPIN COMMERCE CENTER

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

TITLE
ARCHITECTURAL ELEVATIONS

Pennoni Associates Inc.
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Landscape Architects
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SEAL
STATE OF MARYLAND
SHARON K. CRUZ
No. 36896
REGISTERED
PROFESSIONAL ENGINEER
BY: 9-7-17
"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36896, EXPIRATION DATE: 2-15-2019"

DESIGNED BY : PJS
DRAWN BY: AGS/JSN
PROJECT NO : DCTI1601
DATE : JUNE 23, 2017
SCALE : NOT TO SCALE
DRAWING NO. 37 OF 43

SDP-17-030

SEGMENTAL RETAINING WALL SPECIFICATIONS

PART 1 - GENERAL

1.1 WORK INCLUDES

WORK INCLUDES FURNISHING AND INSTALLING SEGMENTAL RETAINING WALL UNITS, GEOGRID REINFORCEMENT, WALL FILL, AND BACKFILL TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS PRODUCED BY PENNONI ASSOCIATES, INC.. AND AS SPECIFIED HEREIN. THE CONTRACT ALSO INCLUDES THE FURNISHING AND INSTALLING OF ALL APPURTENANT MATERIALS, EQUIPMENT, AND LABOR REQUIRED FOR CONSTRUCTION OF THE GEOGRID REINFORCED, SEGMENTAL RETAINING WALLS. THE GEOTECHNICAL EXPLORATION FOR THIS SITE WAS PERFORMED BY PENNONI ASSOCIATES INC., AS SUMMARIZED IN THEIR REPORT DATED JUNE 2, 2016.

1.2 REFERENCE STANDARDS

A. ASTM C90-75 (1981 REV) – HOLLOW LOAD BEARING MASONRY UNITS.
B. ASTM C140-75 (1981 REV) – SAMPLING AND TESTING CONCRETE MASONRY UNITS.
C. ASTM C145-75 (1981 REV) – SOLID LOAD BEARING CONCRETE MASONRY UNITS.
D. GEOSYNTHETIC RESEARCH INSTITUTE (GRI). GRI-GG4 – DETERMINATION OF LONG TERM DESIGN STRENGTH OF GEOGRIDS.
E. ASTM D 638 – TEST METHOD FOR TENSILE PROPERTIES OF PLASTIC.
F. ASTM D 1248 – SPECIFICATION OF POLYETHYLENE PLASTICS MOLDING AND EXTRUSION MATERIALS.
G. ASTM D 4218 – TEST METHOD FOR CARBON BLACK CONTENT IN POLYETHYLENE COMPOUNDS BY THE MUFFLE FURNACE TECHNIQUE.
H. ASTM D 3034 – SPECIFICATION FOR POLYVINYL CHLORIDE (PVC) PIPE.
I. ASTM C 1372 – SPECIFICATIONS FOR SEGMENTAL RETAINING WALL UNITS.

1.3 DELIVERY, STORAGE AND HANDLING

A. CONTRACTOR SHALL CHECK THE MATERIALS UPON DELIVERY TO ENSURE THAT THE PROPER MATERIAL HAS BEEN RECEIVED.
B. CONTRACTOR SHALL PREVENT EXCESSIVE MUD, WET CEMENT, EPOXY, AND LIKE MATERIALS WHICH MAY AFFIX THEMSELVES, FROM COMING IN CONTACT WITH THE MATERIALS.
C. CONTRACTOR SHALL PROTECT THE MATERIALS FROM DAMAGE. DAMAGED MATERIAL SHALL NOT BE INCORPORATED INTO THE REINFORCED RETAINING WALL.
D. GEOGRIDS SHALL BE STORED ABOVE -20°F

1.4 SUBMITTALS/CERTIFICATION

THE CONTRACTOR SHALL SUBMIT A MANUFACTURER'S CERTIFICATION, PRIOR TO THE START OF THE WORK, THAT THE RETAINING WALL SYSTEM COMPONENTS MEET THE REQUIREMENTS OF ASTM C 1372 AND OTHER REQUIREMENTS SPECIFIED HEREIN. THIS CERTIFICATION SHOULD BE PROVIDED TO THE GEOTECHNICAL ENGINEER FOR REVIEW AND APPROVAL PRIOR TO WALL CONSTRUCTION.

PART 2 - PRODUCTS

2.1 DEFINITIONS

A. GEOGRID IS A HIGH DENSITY POLYETHYLENE, POLYESTER, OR POLYPROPYLENE GRID, SPECIFICALLY FABRICATED FOR USE AS A SOIL REINFORCEMENT.
B. CONCRETE RETAINING WALL UNITS ARE AS DETAILED ON THE DRAWINGS AND AS SPECIFIED HEREIN.
C. BACKFILL IS THE SOIL WHICH IS USED AS FILL FOR THE REINFORCED SOIL MASS.
D. FOUNDATION SOIL IS THE IN-SITU SOIL OR CONTROLLED COMPACTED FILL PLACED BELOW THE BOTTOM OF THE RETAINING WALL AND GEOGRID ZONE.

2.2 MATERIALS

THE CONTRACTOR SHALL SUBMIT MANUFACTURER'S CATALOG AND SAMPLES OF THE PROPOSED MATERIALS FOR APPROVAL BY THE PROJECT GEOTECHNICAL ENGINEER A MINIMUM OF SEVEN DAYS BEFORE THE START OF CONSTRUCTION. MATERIALS SHALL BE TRANSPORTED TO THE SITE ONLY AFTER APPROVAL OF THE PROPOSED MATERIALS BY THE PROJECT GEOTECHNICAL ENGINEER.

A. CONCRETE UNITS

1. MASONRY UNITS SHALL BE KEYSTONE COMPAC III UNITS. SUBSTITUTION OF OTHER CONCRETE UNITS MAY BE ALLOWED WITH THE PRIOR APPROVAL OF THE GEOTECHNICAL ENGINEER.
2. CONCRETE WALL UNITS SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI, IN ACCORDANCE WITH ASTM C-90. THE CONCRETE SHALL HAVE ADEQUATE FREEZE/THAW PROTECTION WITH A MAXIMUM MOISTURE ABSORPTION OF 6 PERCENT.
3. MODULAR CONCRETE MATERIALS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C 1372 – STANDARD SPECIFICATIONS FOR SEGMENTAL RETAINING WALL UNITS.
4. THE UNITS SHALL PASS 100 FREEZE/THAW CYCLES IN WATER WITH LESS THAN 1% WEIGHT LOSS IN ACCORDANCE WITH ASTM C 1372.
5. EXTERIOR DIMENSIONS MAY VARY. UNITS ARE REQUIRED TO HAVE A MINIMUM OF 1.0 SQUARE FOOT OF FACE AREA EACH.
6. UNITS SHALL HAVE ANGLED SIDES AND BE CAPABLE OF ATTAINING CONCAVE AND CONVEX ALIGNMENT CURVES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
7. UNITS SHALL BE INTERLOCKED WITH NON-CORROSIVE REINFORCED FIBERGLASS PINS.
8. UNITS SHALL BE INTERLOCKED AS TO PROVIDE A MAXIMUM OF 1.25-INCH OF SETBACK PER BLOCK.

B. LEVELING PAD

MATERIAL FOR LEVELING PAD/FOOTING SHALL CONSIST OF COMPACTED FREE-DRAINING COARSE AGGREGATES MEETING THE REQUIREMENTS OF ASTM #57 STONE. A COMPACTED LEVELING PAD A MINIMUM OF 6 INCHES THICK AND 24 INCHES WIDE IS REQUIRED.

C. FIBERGLASS CONNECTING PINS

1. THERMOSET ISOPTHALIC POLYESTER RESIN PULTRUDED FIBERGLASS REINFORCEMENT RODS, A MINIMUM ONE-HALF INCH IN DIAMETER.
2. PINS SHALL HAVE A MINIMUM FLEXURAL STRENGTH OF 128,000 PSI AND SHORT BEAM SHEAR OF 6,400PSI.
3. FOR SUBSTITUTE OF CONCRETE UNITS, USE OF OTHER COMPATIBLE CONNECTOR SYSTEMS MAY BE ALLOWED WITH THE PRIOR APPROVAL OF THE GEOTECHNICAL ENGINEER.

D. GEOGRID

1. GEOSYNTHETIC REINFORCEMENT SHALL CONSIST OF HIGH PERFORMANCE WOVEN POLYESTER GEOGRIDS MANUFACTURED BY TENCATE INTERNATIONAL FOR SOIL REINFORCEMENT APPLICATIONS. THE TYPE, STRENGTH AND PLACEMENT LOCATION OF THE REINFORCING GEOSYNTHETIC SHALL BE AS SHOWN ON THE PLANS. DETAILED TEST DATA SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION AND SHALL INCLUDE TENSILE STRENGTH (ASTM D 4595 OR ASTM D 6637), CREEP (ASTM D 5262), SITE DAMAGE AND DURABILITY (GRI GG-4), PULLOUT (ASTM D 6706), AND CONNECTION (ASTM D6638) TEST DATA.
2. INCLUDED WITH THE TEST DATA SHALL BE A REPORT THAT WILL SHOW THAT THE MIRAFI 3XT SHALL HAVE AN ULTIMATE TENSILE STRENGTH OF 3,500 POUNDS PER LINEAR FOOT (MARV), A LONG-TERM DESIGN STRENGTH OF 1,918 POUNDS PER LINEAR FOOT, IN ACCORDANCE WITH ASTM D 6637 AND A JUNCTION STRENGTH OF 975 POUNDS PER LINEAR FOOT (MARV) IN ACCORDANCE WITH GRI-GC2.
3. INCLUDED WITH THE TEST DATA SHALL BE A REPORT THAT WILL SHOW THAT THE MIRAFI 5XT SHALL HAVE AN ULTIMATE TENSILE STRENGTH OF 4,700 POUNDS PER LINEAR FOOT (MARV), A LONG-TERM DESIGN STRENGTH OF 2,575 POUNDS PER LINEAR FOOT, IN ACCORDANCE WITH ASTM D 6637 AND A JUNCTION STRENGTH OF 1,468 POUNDS PER LINEAR FOOT (MARV) IN ACCORDANCE WITH GRI-GC2.
4. TYPE OF FENCING SELECTED BY THE OWNER/DEVELOPER MAY INTERFERE WITH GEOGRID REINFORCEMENT. INSTALL SONOTUBES CONCURRENTLY WITH GEOGRID AND FILL PLACEMENT TO AVOID CONFLICTS OR DAMAGE TO GEOGRID. OWNER SHALL SELECT FENCING PRIOR TO START OF WALL CONSTRUCTION SO WALL AND FENCE CONTRACTORS CAN COORDINATE INSTALLATION.

E. REINFORCED ZONE

CONTROLLED FILL SOIL SHALL MEET THE REQUIREMENTS OF AASHTO GROUP CLASSIFICATION OF A-2-4 OR MORE GRANULAR. IF ADEQUATE QUANTITIES ARE NOT AVAILABLE ON-SITE, IMPORTED BACKFILL SHALL MEET THE ABOVE REQUIREMENTS AND SHOULD BE APPROVED BY GTA. BACKFILL MATERIAL AT I-502, I-503, AND I-504 SHALL BE CR6 OR RC6 FOR THE FULL WIDTH AND HEIGHT OF EACH INLET AS DETAILED IN THE DRAWINGS.

F. RETAINED FILL AND STRUCTURAL FILL

CONTROLLED FILL SOILS TO BE PLACED OUTSIDE THE REINFORCED BACKFILL AREA AND WHERE SPECIFIED SHALL CONSIST OF ON-SITE OR BORROW SOILS MEETING THE REQUIREMENTS OF USCS ML, SM, OR MORE GRANULAR. ALL FILL MATERIALS PROPOSED TO BE PLACED BEHIND THE REINFORCED BACKFILL SHALL BE PLACED AS CONTROLLED FILL COMPACTED TO 92 PERCENT OF THE MAXIMUM DRY DENSITY IN ACCORDANCE WITH THE MODIFIED PROCTOR, ASTM D-1557.

G. UNIT FILL / DRAINAGE LAYER

THE UNIT FILL AND DRAINAGE LAYER SHALL CONSIST OF ASTM #57 STONE AND BE PLACED WITHIN THE BLOCK AS UNIT FILL AND BEHIND THE BLOCK AS THE DRAINAGE LAYER WITH A MINIMUM THICKNESS OF 12 INCHES.

H. DRAINAGE PIPE

THE DRAINAGE PIPES SHALL BE PERFORATED HDPE OR SOLID PVC PIPE AS INDICATED.

I. FILTER FABRIC

FILTER FABRIC SHALL BE NON-WOVEN, POLYPROPYLENE GEOTEXTILE, 140N MANUFACTURED BY NICOLON MIRAFI GROUP OR APPROVED EQUIVALENT.

J. SLEEVE-IT OR SONOTUBE

SLEEVE-IT OR SONOTUBE SHALL BE INSTALLED DURING WALL CONSTRUCTION AT FENCE POST HOLDERS AT 8 FEET ON CENTER UNLESS OTHERWISE SPECIFIED BY THE FENCE DESIGNER/INSTALLER.

K. DRAINAGE COMPOSITE

THE DRAINAGE GEOCOMPOSITE SHOULD BE TENDRAIN 700 DOUBLE SIDED MANUFACTURED BY TENAX CORPORATION, OR APPROVED EQUIVALENT

PART 3 - EXECUTION

A. EARTHWORK

1. THE CONTRACTOR SHALL EXCAVATE TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS. UNDER NO CIRCUMSTANCES SHOULD THE EXCAVATION LINES AND GRADES BE EXCEEDED, EXCEPT WITH OWNER'S APPROVAL. THE CONTRACTOR SHALL PROTECT THE EXCAVATION FROM SLOUGHING BY EXCAVATING TO THE APPROPRIATE GRADE FOR THE GIVEN SOIL TYPE AND COVERING THE EXCAVATED FACE WITH THE STONE DRAINAGE LAYER.
2. THE BOTTOM OF WALL EXCAVATION SHALL BE SLOPED AT A MINIMUM GRADE OF 2% TOWARDS THE WALL FACE.
3. THE CONTRACTOR IS RESPONSIBLE FOR STABILITY OF ALL EXCAVATION AND FILL SLOPES REQUIRED TO CONSTRUCT THE WALL. PERFORM ALL EXCAVATION IN ACCORDANCE WITH THE APPLICABLE OSHA AND COUNTY STANDARDS.
4. PRIOR TO RETAINING WALL CONSTRUCTION AND THE PLACEMENT OF FILL, ALL TOPSOIL SHALL BE STRIPPED AND REMOVED FROM THE WALL AREA.
5. INSTALL ALL UTILITIES WITHIN 20 FEET OF WALL FACE CONCURRENTLY WITH WALL CONSTRUCTION.
6. PRIOR TO WALL CONSTRUCTION INSTALL STORM DRAIN RUN FROM FS1 TO E90 AND CS3 TO M62 INCLUDING THE ASSOCIATED PIPE.
7. CONCURRENTLY WITH WALL CONSTRUCTION, INSTALL STORM DRAIN FROM FS2 TO E70 AND ASSOCIATED PIPE. PIPE SHALL BE BACKFILLED WITH #57 STONE UP TO THE LEVEL OF THE FIRST COURSE. WHERE THE PIPE INTERSECTS THE WALL FACE, CUT AND GROUT BLOCKS USING GROUT WITH A MINIMUM 28-DAY STRENGTH OF 3,000 PSI. ALLOW GROUTED BLOCKS TO CURE FOR A MINIMUM OF 3 DAYS PRIOR TO CONTINUING WALL CONSTRUCTION AT THIS LOCATION.
8. UTILITY TRENCH BACKFILL SHALL BE PERFORMED AS SPECIFIED IN PART 3, ITEM F.
9. CONCURRENTLY WITH WALL CONSTRUCTION, INSTALL FS2, E70, AND ASSOCIATED PIPE. CUT AND GROUTED BLOCKS AS WHERE PIPE INTERSECTS WALL FACE AND AS DETAILED IN THE DRAWINGS. GROUT SHALL HAVE A MINIMUM 28-DAY STRENGTH OF 3,000 PSI, AND SHALL BE ALLOWED TO CURE FOR A MINIMUM OF 3 DAYS BEFORE WALL CONSTRUCTION CAN CONTINUE ABOVE GROUTED AREAS.

B. FOUNDATION SUBGRADE PREPARATION

1. FOUNDATION SOIL SHALL BE EXCAVATED AS REQUIRED FOR INSTALLATION OF LEVELING PAD, GEOGRID, STRUCTURAL FILL, AND OTHER ELEMENTS AND AS SHOWN ON THE CONSTRUCTION DRAWINGS.
2. THE EXPOSED SUBGRADE SHALL BE THOROUGHLY PROOFROLLED. THE SURFICIAL SOFT/LOOSE SOILS, AND TOPSOIL SHALL BE REMOVED TO A STABLE SUBGRADE AS DIRECTED BY GTA.
3. ALL FILL REQUIRED TO ACHIEVE THE WALL BOTTOM ELEVATION SHALL CONSIST OF STRUCTURAL FILL THAT MEETS THE REQUIREMENTS OF PART 2, ITEM E. THE FILL SHALL BE PREPARED, PLACED, COMPACTED, AND TESTED IN ACCORDANCE WITH PART 3, ITEM F. PLACEMENT OF STRUCTURAL FILL SHALL NOT PROCEED UNTIL THE SUBGRADE HAS BEEN APPROVED BY GTA.
4. FOUNDATION SOIL SHOULD BE EXAMINED BY GTA TO ASSURE THAT THE ACTUAL FOUNDATION SOIL STRENGTH MEETS OR EXCEEDS ASSUMED DESIGN STRENGTH. SOILS NOT MEETING REQUIRED STRENGTH SHOULD BE REMOVED AND REPLACED WITH CONTROLLED, COMPACTED MATERIAL.
5. ALLOWABLE BEARING PRESSURE FOR NATURAL AND CONTROLLED, COMPACTED STRUCTURAL FILL SHALL BE AS SPECIFIED IN PART 5, FOUNDATION SOIL.

C. LEVELING PAD

1. THE LEVELING PAD SHALL BE PLACED AS SHOWN ON THE CONSTRUCTION DRAWINGS WITH A MINIMUM THICKNESS OF 6 INCHES AND 24 INCHES WIDE.
2. BELOW THE PROPOSED CONCRETE COLLARS OR GROUTED BLOCKS, INSTALL A LEVELING PAD WITH A MINIMUM THICKNESS OF 6 INCHES AND ENSURE THAT THE STONE EXTENDS A MINIMUM OF 6 INCHES ON EACH SIDE OF THE CONCRETE COLLARS.
3. LEVELING PAD MATERIALS SHALL BE INSTALLED ON UNDISTURBED IN-SITU SOILS OR CONTROLLED, COMPACTED BACKFILL.
4. LEVELING PAD SHALL BE PREPARED TO ENSURE COMPLETE CONTACT OF RETAINING WALL UNIT WITH BASE. GAPS SHALL NOT BE ALLOWED.
5. THE LEVELING PAD SHALL BE CONSTRUCTED WITH THE MATERIALS DESCRIBED IN PART 2.

D. UNIT INSTALLATION

1. FIRST COURSE OF CONCRETE WALL UNITS SHALL BE PLACED ON THE LEVELING PAD. THE UNITS SHALL BE CHECKED FOR LEVEL AND ALIGNMENT. THE FIRST COURSE IS THE MOST IMPORTANT TO PROVIDE ACCURATE AND ACCEPTABLE RESULTS.
2. ENSURE THAT UNITS ARE IN FULL CONTACT WITH BASE.
3. UNITS ARE PLACED SIDE BY SIDE FOR FULL LENGTH OF WALL ALIGNMENT. ALIGNMENT MAY BE DONE BY MEANS OF A STRING LINE OR OFFSET FROM BASE LINE.
4. INSTALL FIBERGLASS CONNECTING PIN.
5. LAY UP EACH COURSE ENSURING THAT THE CONNECTING PINS ARE INSERTED THROUGH FRONT SLOT OF THE UNIT, AND INTO THE RECEIVING SLOT IN THE COURSE BENEATH. REPEAT PROCEDURE TO THE EXTENT OF WALL HEIGHT.
6. AT THE END OF EACH COURSE WHERE THE WALL CHANGES ELEVATION, UNITS SHALL BE TURNED INTO THE BACKFILL. UNITS SHALL BE LAID AS TO CREATE THE MINIMUM RADIUS POSSIBLE. UNLESS OTHERWISE SHOWN ON THE DRAWINGS, A MINIMUM OF ONE UNIT SHALL BE INSTALLED INTO THE GRADE. ONLY THE FRONT FACE OF THE UNITS SHALL BE VISIBLE FROM THE SIDE OF THE WALL.
7. CAP UNITS SHALL BE INSTALLED AND BONDED WITH CONSTRUCTION ADHESIVE OR EPOXY CEMENT AS REQUIRED BY MANUFACTURER.
8. CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE FOR THE BACK OF THE RETAINING WALL DURING CONSTRUCTION.

E. GEOGRID INSTALLATION

1. THE GEOGRID SOIL REINFORCEMENT SHALL BE LAID HORIZONTALLY ON COMPACTED BACKFILL AND CONNECTED TO THE CONCRETE WALL UNITS. HOOK GRID OVER THE FIBERGLASS CONNECTING PIN, PULL TAUT, AND ANCHOR BEFORE BACKFILL IS PLACED ON THE GEOGRID.
2. SLACK IN THE GEOGRID AT THE WALL UNIT CONNECTIONS SHALL BE REMOVED IN A MANNER, AND TO SUCH A DEGREE, AS APPROVED BY THE ENGINEER.
3. GEOGRID SHALL BE LAID AT THE PROPER ELEVATION AND ORIENTATION AS SHOWN ON THE CONSTRUCTION DRAWINGS OR AS DIRECTED BY THE ENGINEER.
4. CORRECT ORIENTATION (ROLL DIRECTION) OF THE GEOGRID SHALL BE VERIFIED BY THE CONTRACTOR.
5. GEOGRID SHALL BE SECURED IN-PLACE WITH STAPLES, PINS, SAND BAGS, OR BACKFILL AS REQUIRED BY FILL PROPERTIES, FILL PLACEMENT PROCEDURES, OR WEATHER CONDITIONS, OR AS DIRECTED BY THE ENGINEER.
6. OVERLAPS.
   a. UNIAXIAL GEOGRID DOES NOT NEED TO BE OVERLAPPED IN THE ACROSS THE ROLL DIRECTION, EXCEPT TO CONTAIN THE FILL AT THE SLOPE FACE WHEN WRAP-AROUND FACING IS USED. UNIAXIAL GRID SHOULD BE OVERLAPPED 48" IN THE ROLLED DIRECTION.
   b. A LAYER OF SOIL A MINIMUM OF 4 INCHES IN THICKNESS SHALL BE SPREAD BETWEEN UNIAXIAL GEOGRID LAYERS IN THE AREA TO BE OVERLAPPED, OR AS DIRECTED.

F. PLACEMENT OF FILL AND BACKFILL

1. FILL MATERIALS SHALL BE PLACED IN LIFTS NOT EXCEEDING 8 INCHES IN LOOSE THICKNESS.
2. AT THE TIME OF COMPACTION, FILL MATERIALS SHALL BE WITHIN -2% TO +4% OF THE OPTIMUM MOISTURE CONTENT, AND SHALL BE COMPACTED TO A MINIMUM OF 92% OF THE MAXIMUM DRY DENSITY AS DETERMINED IN ACCORDANCE WITH ASTM SPECIFICATION D-1557, THE MODIFIED PROCTOR METHOD.
3. BACKFILL SHALL BE PLACED, SPREAD, AND COMPACTED IN SUCH A MANNER THAT MINIMIZES THE DEVELOPMENT OF WRINKLES IN AND/OR MOVEMENT OF THE GEOGRID. PLACE BACKFILL FROM FRONT OF GEOGRID AND SPREAD TO BACK OF GEOGRID.
4. THE LIFT OF BACKFILL IMMEDIATELY BELOW A LAYER OF GEOGRID SHALL BE SCARIFIED TO A DEPTH OF 2 INCHES IMMEDIATELY AFTER COMPLETION OF LIFT COMPACTION. THE GEOGRID SHALL BE PLACED AND THE SUBSEQUENT LIFT OF SOIL PLACED AND COMPACTED THE SAME DAY AS THE UNDERLYING LIFT IS SCARIFIED.
5. ONLY HAND-OPERATED COMPACTION EQUIPMENT SHALL BE ALLOWED WITHIN 4 FEET OF THE WALL FACE.
6. BACKFILL SHALL BE PLACED FROM THE WALL OUTWARD TO ENSURE THAT THE GEOGRID REMAINS TAUT.
7. TRACKED CONSTRUCTION EQUIPMENT SHALL NOT BE OPERATED WITHIN THE REINFORCED ZONE BEHIND THE WALL.
8. RUBBER-TIRED EQUIPMENT MAY PASS OVER THE GEOGRID REINFORCEMENT AT SLOW SPEEDS, LESS THAN 10 MPH. SUDDEN BRAKING AND SHARP TURNING SHOULD BE AVOIDED.
9. ALL FILL AND BACKFILL OPERATIONS SHALL BE OBSERVED ON A FULL-TIME BASIS BY A QUALIFIED SOIL TECHNICIAN TO DETERMINE IF MINIMUM COMPACTION REQUIREMENTS ARE BEING MET AND THAT MATERIALS MEETING OR EXCEEDING THE SPECIFICATION REQUIREMENTS ARE USED.
10. IN-PLACE DENSITY TESTS SHALL BE PERFORMED WITH A MINIMUM OF 1 TEST PER 2,000 SQUARE FEET OF FILL AREA FOR EACH LIFT OF FILL PLACED. THE ELEVATION AND LOCATION OF THE TESTS SHALL BE CLEARLY IDENTIFIED AT THE TIME OF FILL PLACEMENT.
11. THE BACKFILL MATRIX MUST BE CONSTRUCTED SO THAT FINE GRAIN SOILS DO NOT TRAP WATER.

G. DRAINAGE

1. DRAINAGE FILL SHALL BE PLACED BEHIND THE WALL TO THE LIMITS SHOWN. THE DRAINAGE FILL SHALL BE A MINIMUM OF 12-INCHES THICK AND SHALL MEET THE REQUIREMENTS OF ASTM #57 STONE. THE DRAINAGE FILL SHALL BE WRAPPED IN FILTER FABRIC (MIRAFI 140N OR EQUAL) AS SHOWN ON THE DRAWINGS.
2. AT WALL #2, WRAP ALL #57 STONE WITH FILTER FABRIC BELOW EL. 138 FROM STA. 6+00 TO STA. 7+67.
3. POSITIVE DRAINAGE SHALL BE MAINTAINED DURING AND AFTER CONSTRUCTION. SOILS WITHIN THE REINFORCED ZONE THAT BECOME WET DURING CONSTRUCTION SHALL BE DRIED OR REMOVED.
4. INSTALL THE PERFORATED DRAINAGE PIPES, LATERAL DRAINAGE PIPES, AND DRAINAGE GEOCOMPOSITE, IF REQUIRED, INCREMENTALLY ALONG WITH THE INSTALLATION OF CONCRETE UNITS AND PLACEMENT OF FILL.

H. FENCE

SLEEVE-ITS OR SONOTUBES SHALL BE INSTALLED BEHIND THE BLOCK CELLS AT 8 FEET ON CENTER. SLEEVE-ITS OR SONOTUBES SHALL BE FILLED WITH GROUT OR CONCRETE TO A MIN. DEPTH OF 28".

Note:
1. The leveling pad is to be constructed of crushed stone or 2000 psi ± unreinforced concrete.

PART 4 - CONSTRUCTION OBSERVATION AND TESTING

A. THE RETAINING WALL SHOULD ONLY BE CONSTRUCTED UNDER THE OBSERVATION OF GTA TO CONFIRM THAT THE SOIL AND MATERIALS USED DURING CONSTRUCTION MEET THE REQUIREMENTS SPECIFIED HEREIN. IF GTA IS NOT CONTRACTED TO PROVIDED CONSTRUCTION OBSERVATION AND TESTING SERVICES DURING WALL CONSTRUCTION, GTA IS RELIEVED OF ALL RESPONSIBILITY FOR THE PERFORMANCE OF THE WALL.
B. THE REQUIRED BEARING PRESSURE BENEATH THE FOOTING OF THE WALL SHALL BE VERIFIED IN THE FIELD BY A CERTIFIED SOILS TECHNICIAN. TESTING DOCUMENTATION MUST BE PROVIDED TO THE GEOTECHNICAL ENGINEER PRIOR TO THE START OF WALL CONSTRUCTION. THE REQUIRED TEST PROCEDURE SHALL BE THE DYNAMIC CONE PENETROMETER (DCP) TEST ASTM STP-399.
C. THE SUITABILITY OF FILL MATERIAL SHALL BE CONFIRMED BY THE ON-SITE SOILS TECHNICIAN.

PART 5 - DESIGN PARAMETERS

WALL GEOMETRY	WALL #1	WALL #2
MAXIMUM EXPOSED WALL HEIGHT (FT.):	15.0	14.8
ANGLE OF FACE (DEG.):	NEAR VERTICAL	8°
BLOCK EMBEDMENT (FT.):	VARIES	VARIES
MAXIMUM BACKFILL SLOPE ANGLE (DEG.):	8°	5°
MAXIMUM TOE SLOPE ANGLE (DEG.):	26.6°	18.4°
REINFORCED FILL ZONE		
DENSITY OF BACKFILL (PCF):	130	130
PHI (DEG.):	32	32
COHESION (PSF):	0	0
RETAINED ZONE		
DENSITY (PCF):	125	125
PHI (DEG.):	28	28
COHESION (PSF):	0	0
FOUNDATION SOIL		
DENSITY (PCF):	125	125
PHI (DEG.):	28	28
COHESION (PSF):	0	0
LEVELING PAD MATERIAL:	NO. 57 STONE	
ALLOWABLE BEARING PRESSURE (PSF):	2,500	
MODULAR BLOCK DATA		
KEYSTONE BLOCKS:	COMPAC III UNITS	
KEYSTONE CAP BLOCKS:	4" HIGH CAP UNITS	
UNIT FILL:	AGGREGATE, AASHTO NO. 57	
GEOGRID DATA		
GEOGRID TYPE:	MIRAFI 3XT AND 5XT	
COVERAGE OF GEOGRIDS:	100	
WALL/SOIL INTERACTION COEFFICIENT:	0.8	
DIRECT SHEAR COEFFICIENT:	0.8	
CONSTRUCTION DAMAGE BASED ON:	CRUSHED STONE	
GEOGRID LENGTH (FT.):	4 TO 13 FEET	
GEOTEXTILE:	MIRAFI 140 N, OR APPROVED EQUIVALENT	

PART 6 - DESIGN CRITERIA

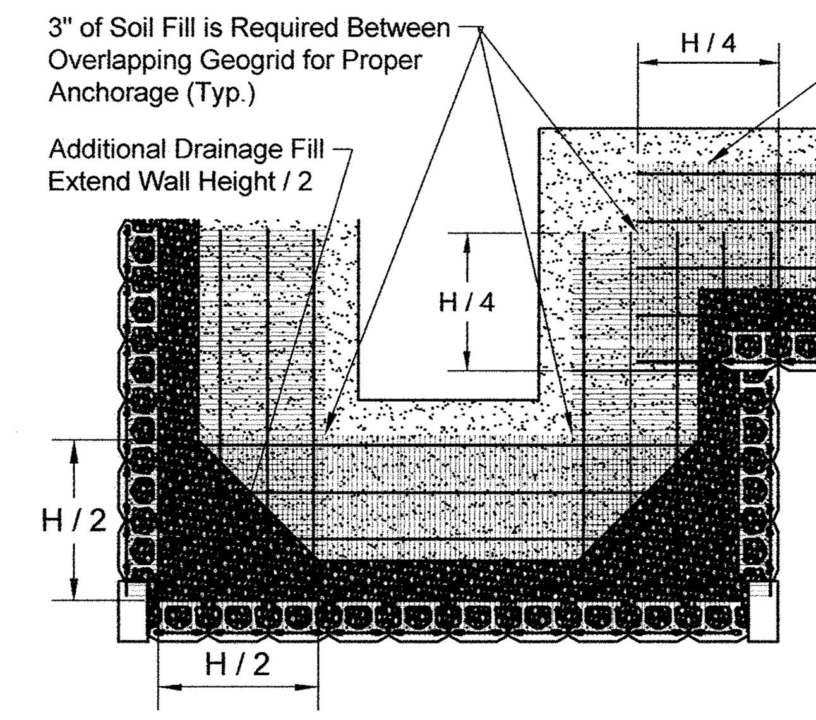
1. DESIGN PARAMETERS

MIN. F.S. FOR SLIDING:	1.5	GEOGRID INSTALLATION DAMAGE REDUCTION FACTOR	1.15
MIN. F.S. FOR OVERTURNING:	2.0	GEOGRID DURABILITY REDUCTION FACTOR	1.1
MIN. F.S. FOR UNCERTAINTIES:	1.5	GEOGRID OVERALL SAFETY FACTOR	1.5
MIN. F.S. FOR GLOBAL STABILITY:	1.3	MIN. F.S. FOR BEARING	2.0

2. THIS WALL IS LOCATED ENTIRELY ON PRIVATE PROPERTY AND IS TO BE PRIVATELY MAINTAINED BY THE PROPERTY OWNER.
3. THE STRUCTURAL DESIGN OF THE FENCE IS TO BE PERFORMED BY OTHERS PER LOCAL CODE.
4. STOCKPILES SHALL NOT BE PLACED ON TOP OF ANY RETAINING WALL WITHIN THE REINFORCED OR RETAINED ZONES AT ANY TIME. STOCKPILES SHALL NOT BE PLACED AT THE BASE OF ANY RETAINING WALL WITHIN 20 FEET OF THE WALL FACE AT ANY TIME. STOCKPILE MATERIALS INCLUDE, BUT ARE NOT LIMITED TO SOIL, SNOW, AND LANDSCAPING MATERIAL.

PART 7 - CONSTRUCTION SEQUENCE

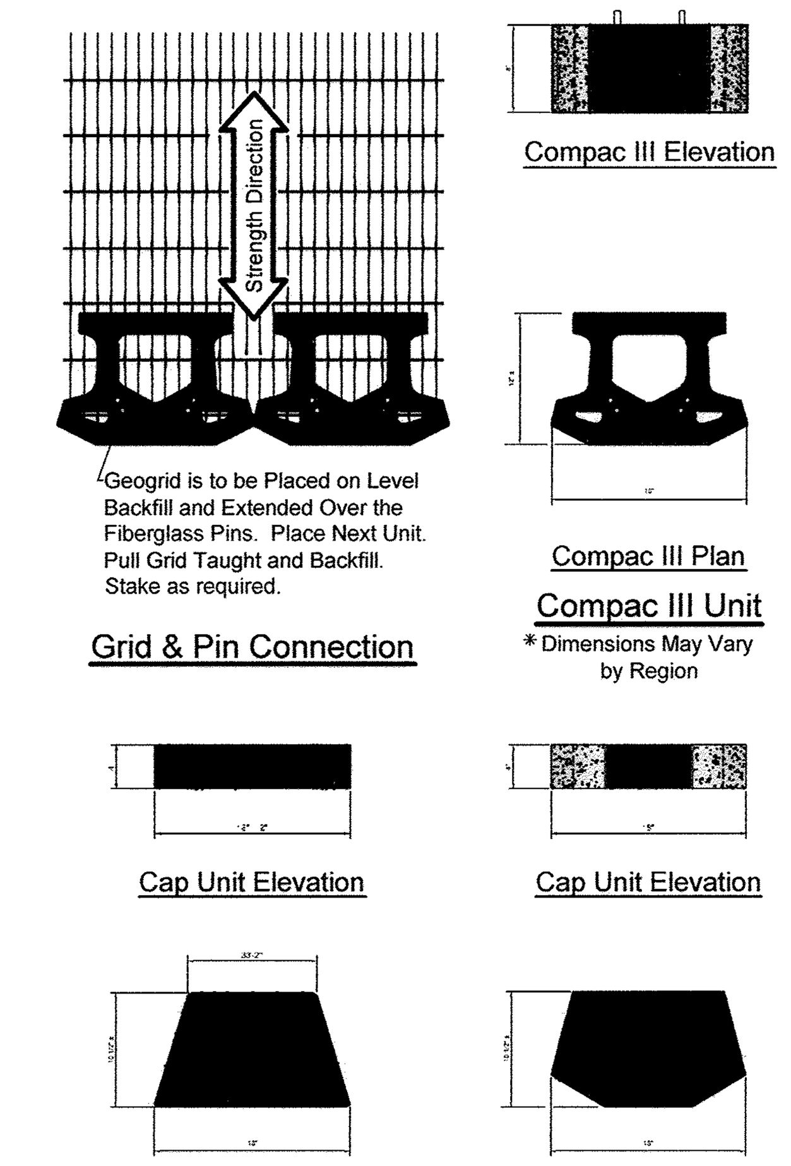
A. OBTAIN BUILDING PERMITS AND INSTALL SEDIMENT AND EROSION CONTROL DEVICES.
B. GRADE AREAS BELOW AND BEHIND THE WALLS.
C. INSTALL STORM DRAIN RUNS FROM CS3 TO M62 AND FS1 TO E90 PRIOR TO WALL CONSTRUCTION AND BACKFILL IN ACCORDANCE WITH PART 3, ITEM F AND AS DETAILED IN THE DRAWINGS.
D. INSTALL STORM DRAIN RUN FROM FS2 TO E70 CONCURRENTLY WITH WALL CONSTRUCTION. CUT AND GROUT BLOCK WHERE PIPE INTERSECTS WALL FACE. GROUT SHALL HAVE A MINIMUM 28-DAY STRENGTH OF 3,000 PSI. GROUT SHALL CURE A MINIMUM OF 3 DAYS BEFORE CONTINUING WALL CONSTRUCTION.
E. CONSTRUCT LEVELING PAD.
F. CONSTRUCT WALL INCLUDING BLOCK, GEOGRID, AND REINFORCED FILL.
G. INSTALL SLEEVE-ITS OR SONOTUBES BEHIND THE BLOCK CELLS AS DETAILED. SONOTUBES OR SLEEVE-ITS SHALL BE INSTALLED WITH A MINIMUM DEPTH OF 28 INCHES AND BACKFILLED WITH GROUT OR CONCRETE.
H. INSTALL CAP UNITS.



Note:
1. Check with manufacturer specifications on correct direction of orientation for geogrid to obtain proper strength.
2. Corner units recommended for outside corners. Availability May Vary.

GEORGRID INSTALLATION AT CORNERS

SCALE AS SHOWN



Geogrid is to be Placed on Level Backfill and Extended Over the Fiberglass Pins. Place Next Unit. Pull Grid Taught and Backfill. Stake as required.

Grid & Pin Connection

Compac III Elevation

Compac III Plan

Compac III Unit

* Dimensions May Vary by Region

Cap Unit Elevation

Cap Unit Elevation

Cap Unit Plan

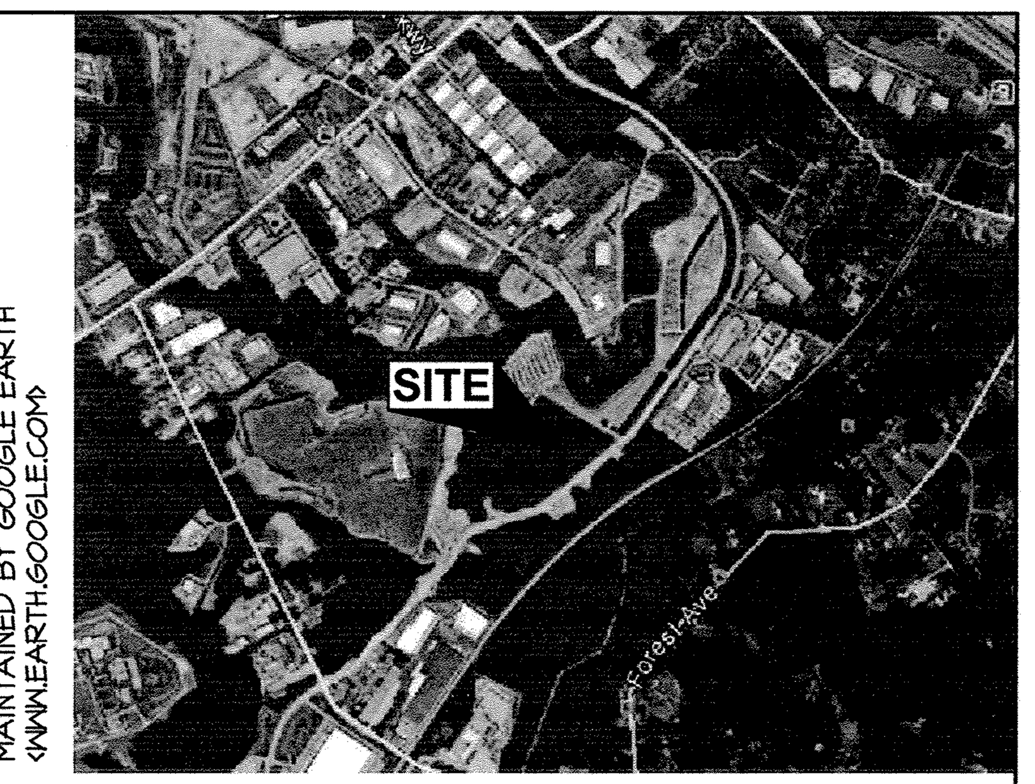
Universal Cap Unit Option

* Dimensions & Availability Will Vary by Region

Cap Unit Plan

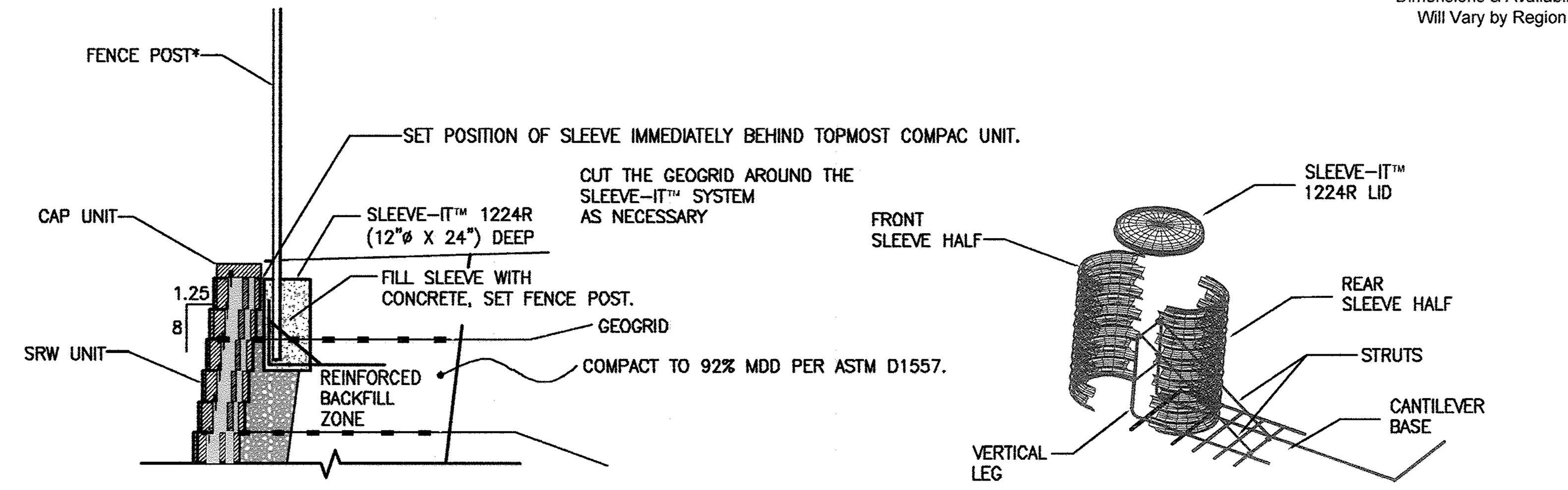
3-Plane Split Cap Unit Option

* Dimensions & Availability Will Vary by Region



SOURCE: PLAN ADAPTED FROM A 2016 AERIAL PHOTOGRAPH OF HOWARD COUNTY, MARYLAND MAINTAINED BY GOOGLE EARTH <WWW.EARTH.GOOGLE.COM>

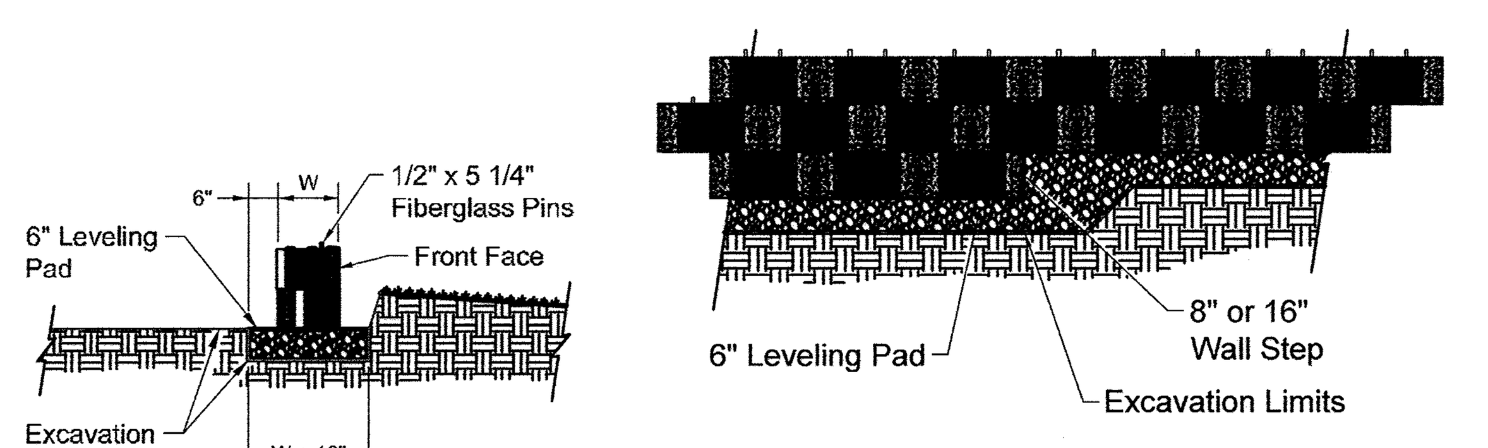
VICINITY MAP
SCALE: 1" = 2000'



*FENCING SYSTEMS APPROVED FOR USE WITH THE SLEEVE-IT™ 1224R ARE LIMITED TO THE FOLLOWING HEIGHTS: CHAIN LINK – UP TO 8-FT, PRIVACY – UP TO 6-FT (WOODEN, PVC, METAL). POST SIZE 4"X4" MAX.

DETAIL OF FENCE POST INSTALLATION USING SLEEVE-IT™ 1224R

NOT TO SCALE

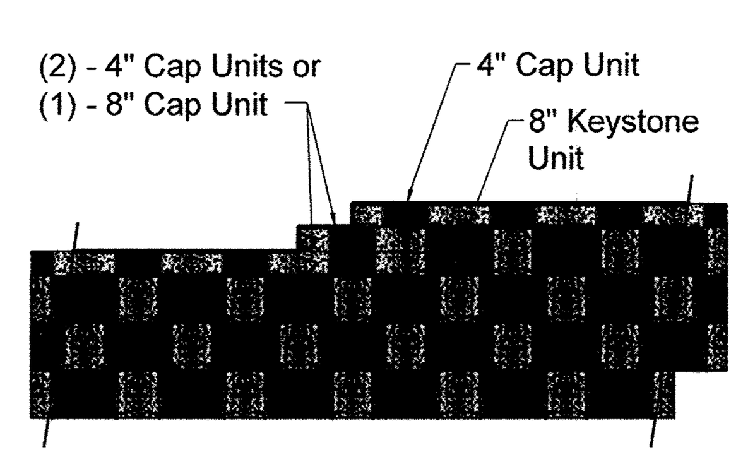


SECTION

ELEVATION

LEVELING PAD DETAIL-COMPAC III UNIT

NOT TO SCALE



Note:
1. Secure all cap units with Keystone Kapseal or equal.

Top of Wall Steps

AS-BUILT CERTIFICATION

NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.

Sharon K. Cruz — 36896
PRINTED NAME — MD. P.E. NO.

SIGNATURE — 7/8/19
DATE

STATE OF MARYLAND — THOMAS MICHAEL WIRTH — No. 33973 — PROFESSIONAL ENGINEER

GEO-TECHNOLOGY ASSOCIATES, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
3445-A BOX HILL CORPORATE CENTER DRIVE
ABINGDON, MARYLAND 21009
410-515-9446
FAX: 410-515-4895
WWW.GTAENG.COM

L:\Shared\Geo\2010 Project\100778 Retaining Wall Design Projects\Terrapin Commerce\CAD\PLOT\100778-Terrapin Commerce Wall

APPROVED : DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9.13.17
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9.27.17
DIRECTOR	DATE 10-2-17

DATE	NO.	REVISION	BY
8/23/17	2	REVISED TITLE BLOCK	TMW
8/15/17	1	REVISED WALL #2	TMW

DEVELOPER
DCT INDUSTRIAL
12011 GUILFORD ROAD
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

PROJECT
TERRAPIN COMMERCE CENTER

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

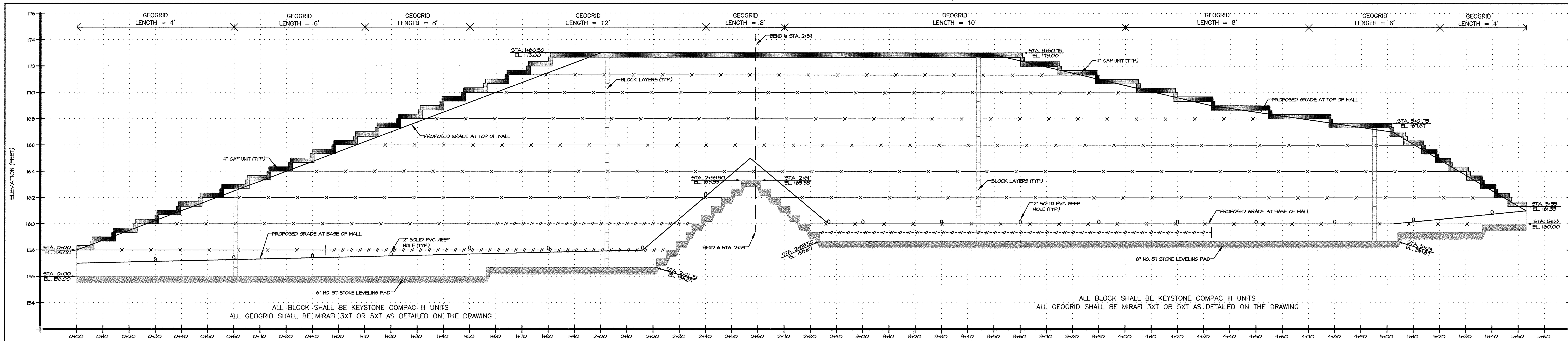
TITLE
NOTES AND DETAILS

GEO-TECHNOLOGY ASSOCIATES, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
3445-A BOX HILL CORPORATE CENTER DRIVE
ABINGDON, MARYLAND 21009
410-515-9446
FAX: 410-515-4895
WWW.GTAENG.COM
© 2017 GEO-TECHNOLOGY ASSOCIATES, INC.

STATE OF MARYLAND — THOMAS MICHAEL WIRTH — No. 33973 — PROFESSIONAL ENGINEER

DESIGNED BY : EBC
DRAWN BY: KDJ/EBC
PROJECT NO : DCTI1601
DATE : JUNE 2017
SCALE : AS SHOWN
DRAWING NO. 38 OF 43

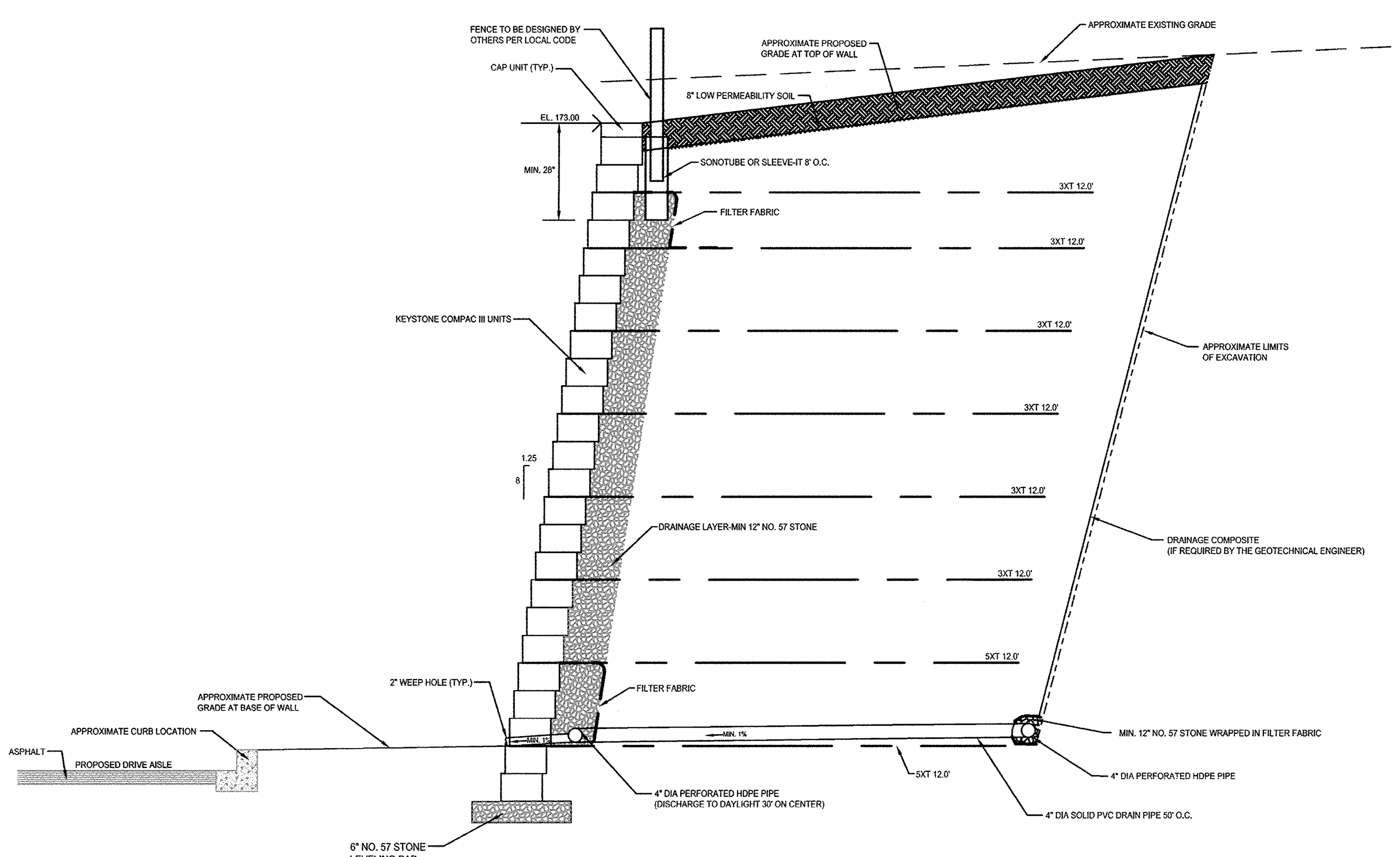
SDP-17-030



RETAINING WALL #1 PROFILE

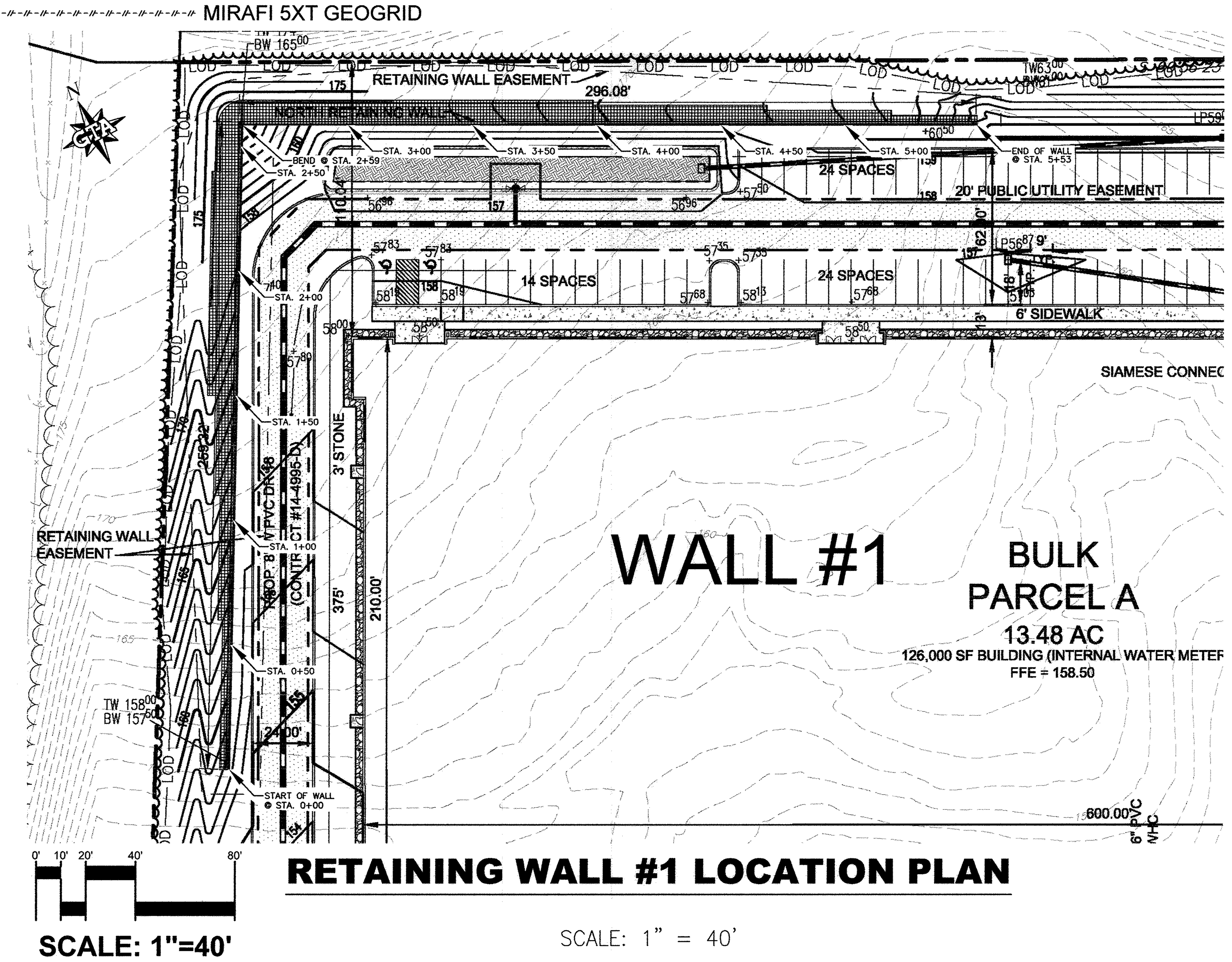
SCALE: HORZ. 1" = 20'
VERT. 1" = 4'

——x——x—— MIRAFI 3XT GEOGRID
- -ᵖ- -ᵖ- - MIRAFI 5XT GEOGRID



RETAINING WALL #1 CROSS SECTION VIEW @ STA. 2+00 (TYP.)

SCALE: NOT TO SCALE



RETAINING WALL #1 LOCATION PLAN

SCALE: 1" = 40'

APPROXIMATE GRID LOCATION

SOURCE: BASE PLAN ADAPTED FROM AN EXISTING PLAN TITLED "SITE DEVELOPMENT PLAN, PRODUCED BY PENNONI ASSOCIATES, INC., AND DATED JANUARY 19, 2017.

L:\Shared\Geo\2010 Project\100778 Retaining Wall Design Projects\Terrapin Commerce\CAD\PLOT\100778-Terrapin Commerce Wall

AS-BUILT CERTIFICATION
NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.
Sharon L. Cruz — PRINTED NAME
36896 — MD. P.E. NO.
SIGNATURE
7/2/19 — DATE

APPROVED : DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	9.13.17 DATE
CHIEF, DIVISION OF LAND DEVELOPMENT	9.27.17 DATE
DIRECTOR	10-2-17 DATE

DATE	NO.	REVISION	BY
8/23/17	2	REVISED TITLE BLOCK	TMW
8/15/17	1	REVISED WALL #2	TMW

DEVELOPER
DCT INDUSTRIAL
12011 GUILFORD ROAD
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

PROJECT
TERRAPIN COMMERCE CENTER

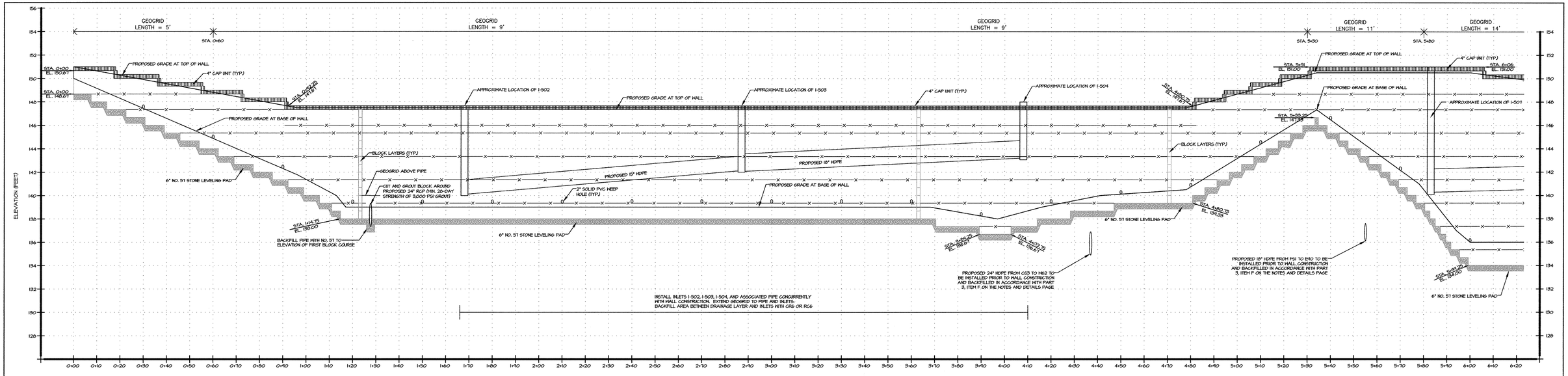
AREA
TAX MAP 43, PARCEL 51 LOT PAR A PLAT 23793 ZONED M-2
GRID NO. 11 1st ELECTION DISTRICT
7200 DORSEY RUN ROAD
ELKRIDGE, MARYLAND 21075
HOWARD COUNTY, MARYLAND

TITLE
RETAINING WALL #1 PROFILE VIEW, CROSS SECTION VIEW, AND LOCATION MAP

GEO-TECHNOLOGY ASSOCIATES, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
3445-A BOX HILL CORPORATE CENTER DRIVE
ABINGDON, MARYLAND 21009
410-515-9446
FAX: 410-515-4895
WWW.GTAENG.COM

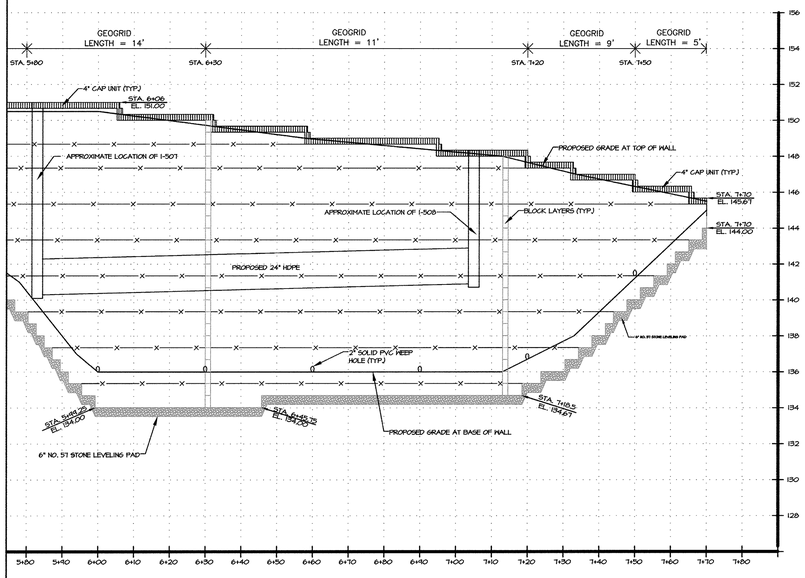
STATE OF MARYLAND — THOMAS MICHAEL WIRTH — NO. 33973 — PROFESSIONAL ENGINEER

DESIGNED BY : EBC
DRAWN BY: KDJ/EBC
PROJECT NO : DCTI1601
DATE : JUNE 2017
SCALE : AS SHOWN



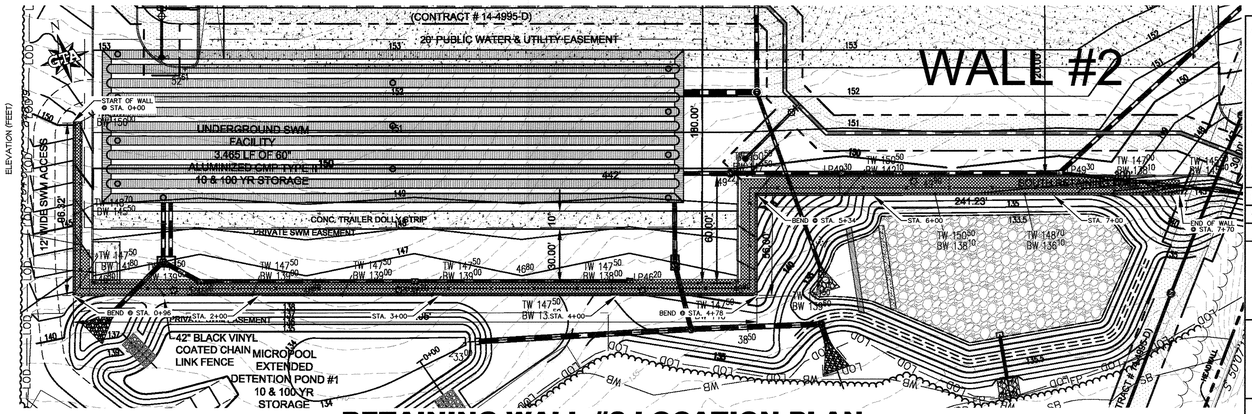
RETAINING WALL #2 PROFILE

SCALE: HORZ. 1" = 20'
VERT. 1" =4'
——x——x——x—— MIRAFI 3XT GEOGRID



RETAINING WALL #2 PROFILE (CONT'D)

SCALE: HORZ. 1" = 20'
VERT. 1" =4'
——x——x——x—— MIRAFI 3XT GEOGRID



RETAINING WALL #2 LOCATION PLAN

SCALE: 1" = 40'

APPROXIMATE GRID LOCATION

0' 10' 20' 40' 80'

SCALE: 1"=40'

AS-BUILT CERTIFICATION

NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.

Sharon K. Cruz — PRINTED NAME
36896 — MD. P.E. NO.
Signature
7/6/19 — DATE

STATE OF MARYLAND · THOMAS MICHAEL WITT · No. 33973 · PROFESSIONAL ENGINEER

APPROVED : DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9.13.17
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9.27.17
DIRECTOR — DATE 10.2.17

DATE	NO.	REVISION	BY
8/23/17	2	REVISED TITLE BLOCK	TMW
8/15/17	1	REVISED WALL #2	TMW

DEVELOPER
DCT INDUSTRIAL
12011 GUILFORD ROAD
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

PROJECT
TERRAPIN COMMERCE CENTER

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

TITLE
RETAINING WALL #2 PROFILE VIEW, CROSS SECTION VIEW, AND LOCATION MAP

GEO-TECHNOLOGY ASSOCIATES, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
3445-A BOX HILL CORPORATE CENTER DRIVE
ABINGDON, MARYLAND 21009
410-515-9446
FAX: 410-515-4895
WWW.GTAENG.COM

DESIGNED BY :	PJS
DRAWN BY:	AGS/JSN
PROJECT NO :	DCTI1601
DATE :	JUNE 23, 2017
SCALE :	AS SHOWN
DRAWING NO.	40 OF 43

SDP-17-030

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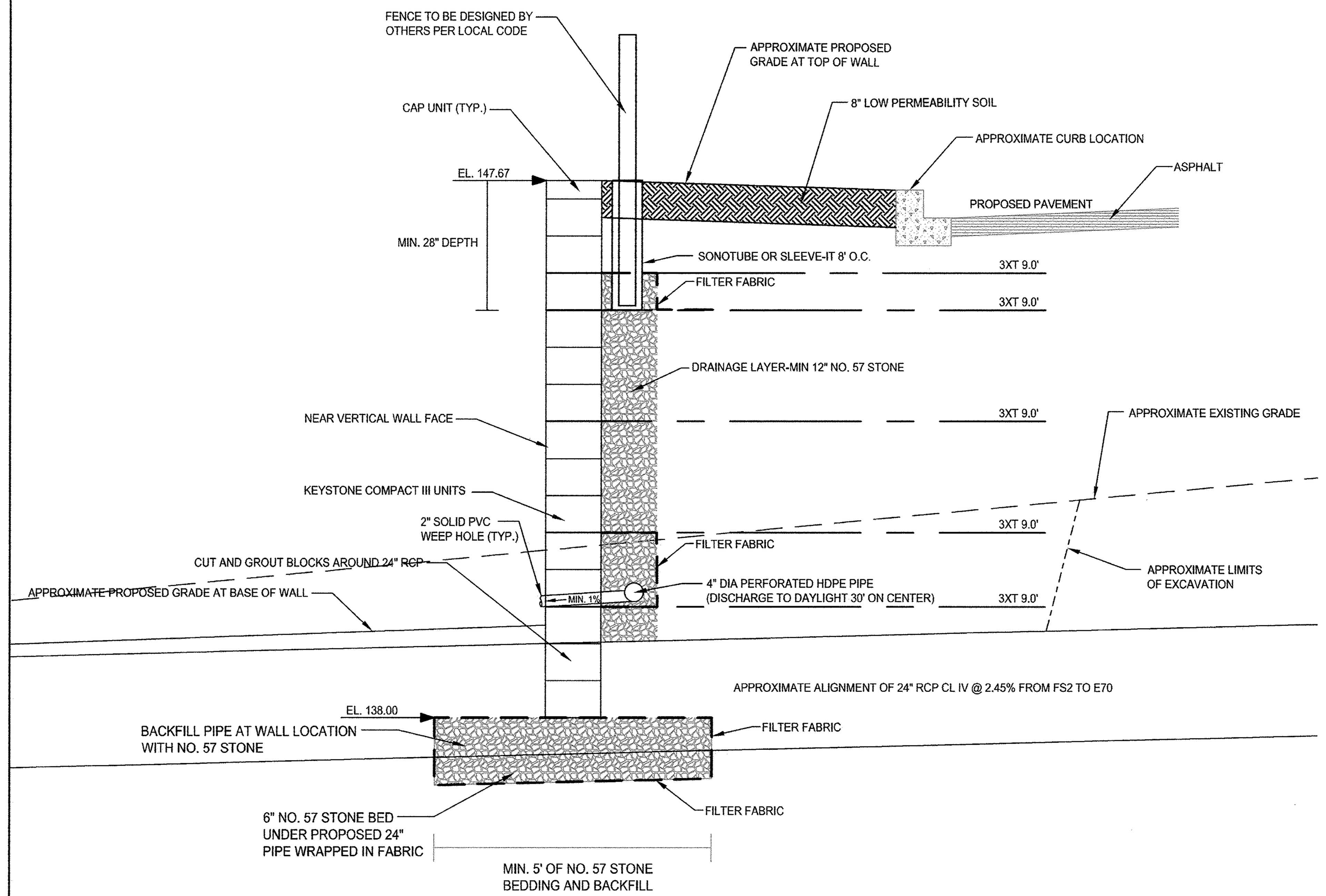
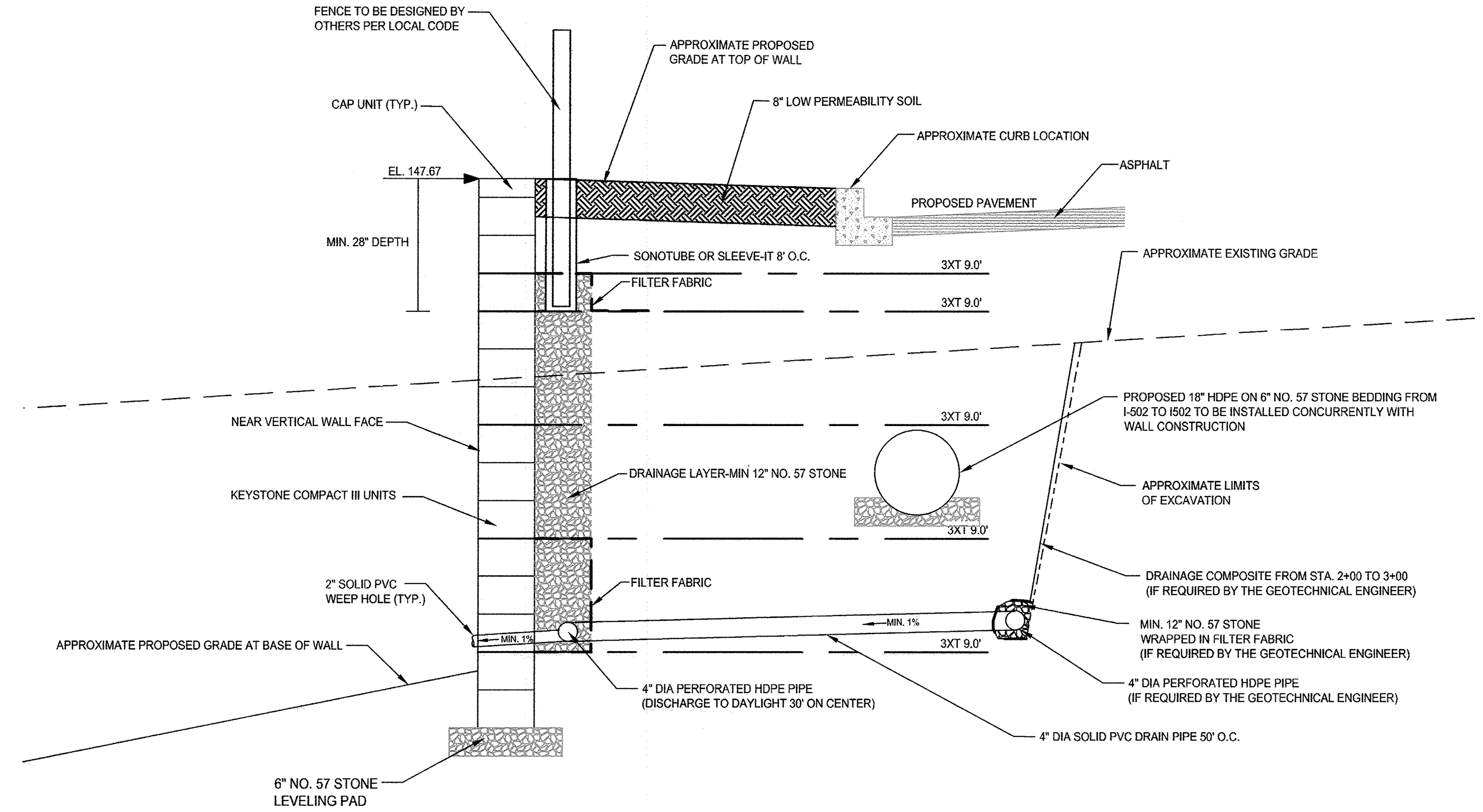


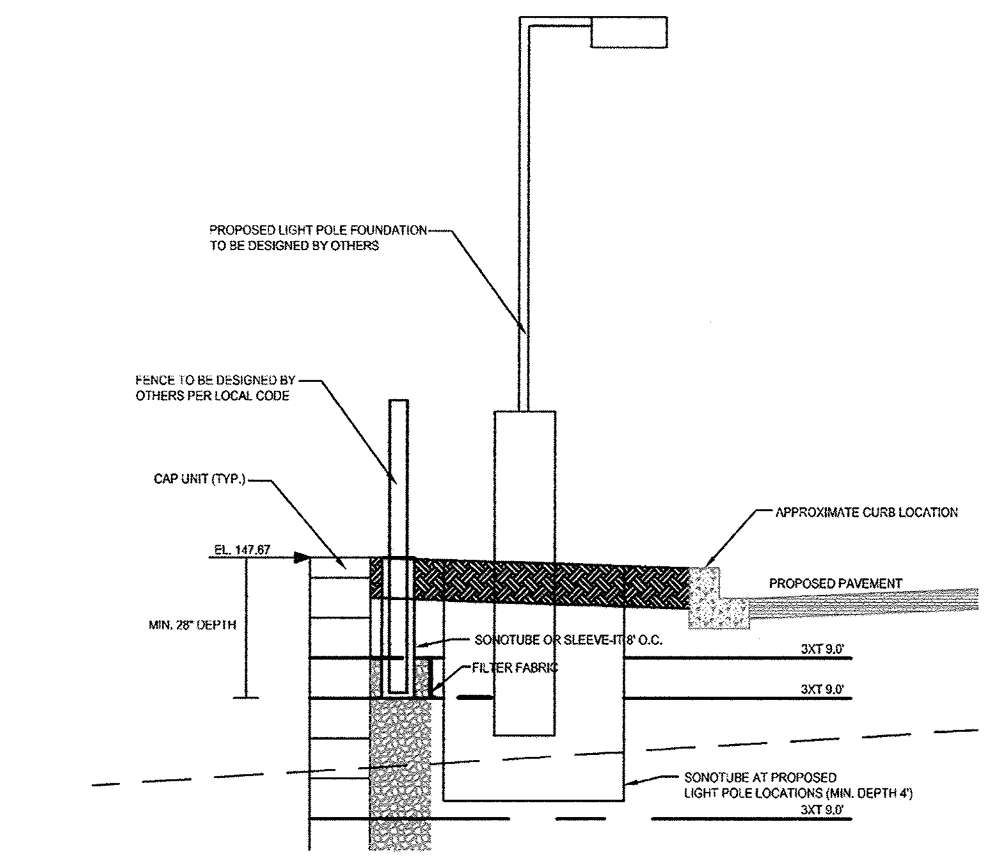
RETAINING WALL #2 CROSS SECTION VIEW @ STA. 1+27.70

SCALE: NOT TO SCALE



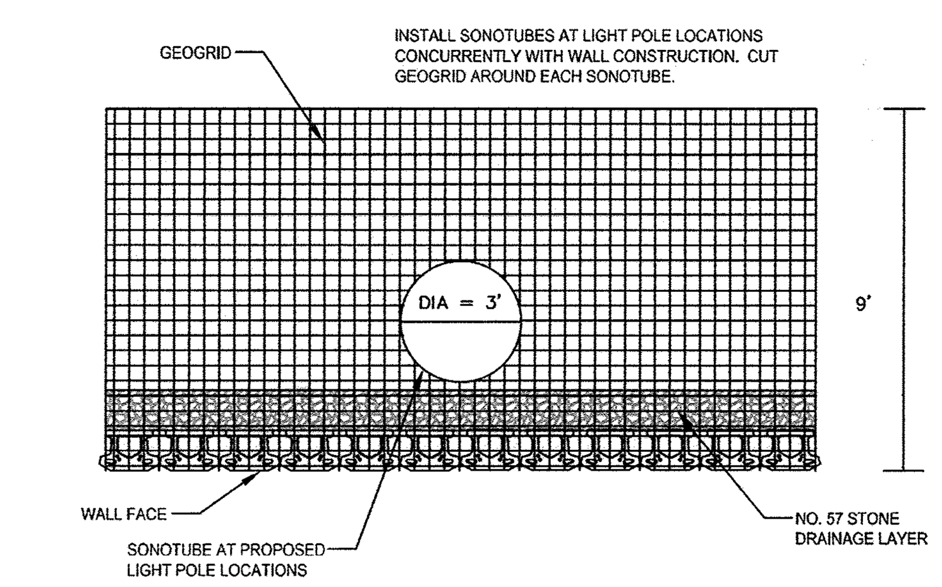
RETAINING WALL #2 CROSS SECTION VIEW @ STA. 2+50

SCALE: NOT TO SCALE



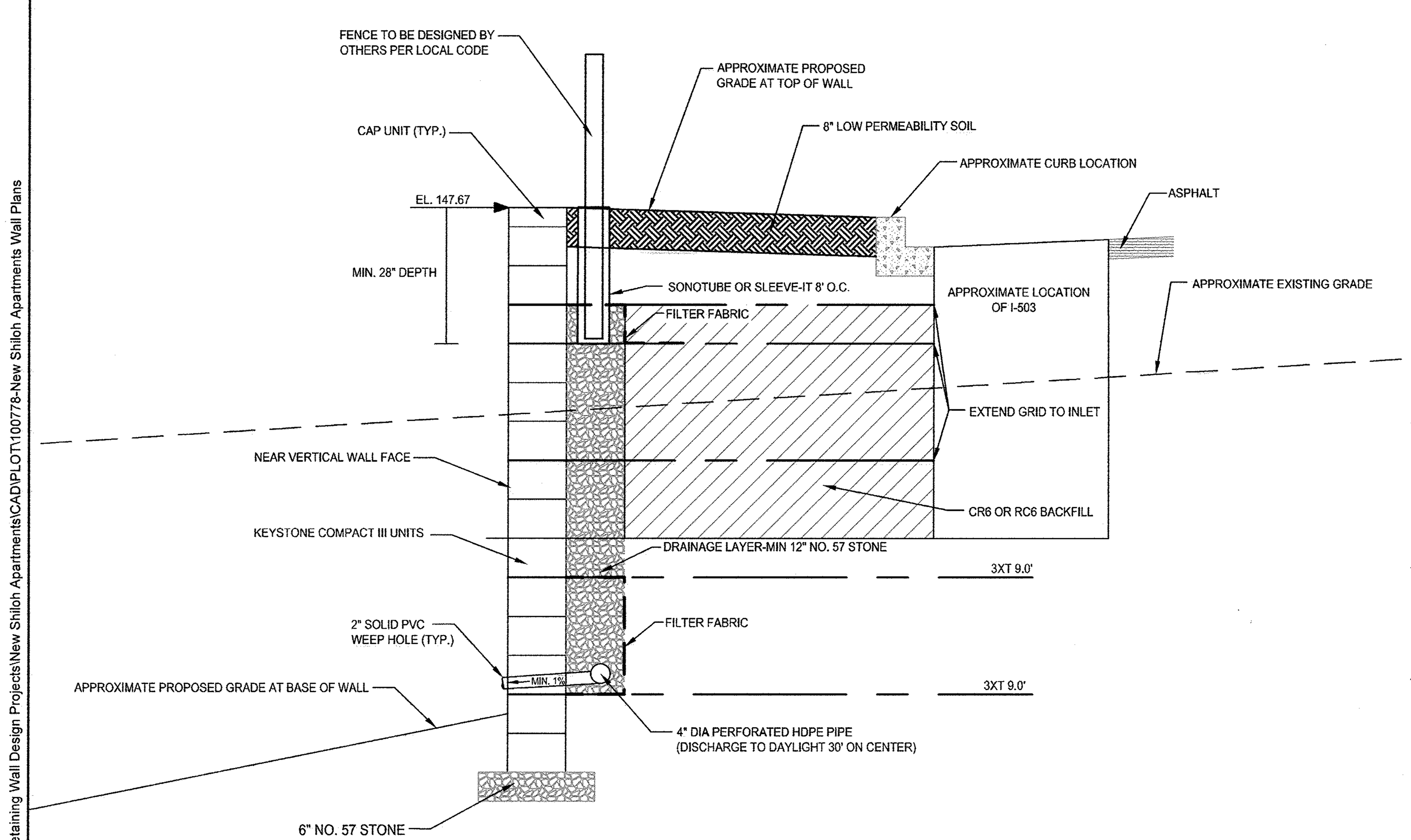
RETAINING WALL #2 CROSS SECTION VIEW @ LIGHT POLE LOCATIONS (SEE BELOW)

SCALE: NOT TO SCALE



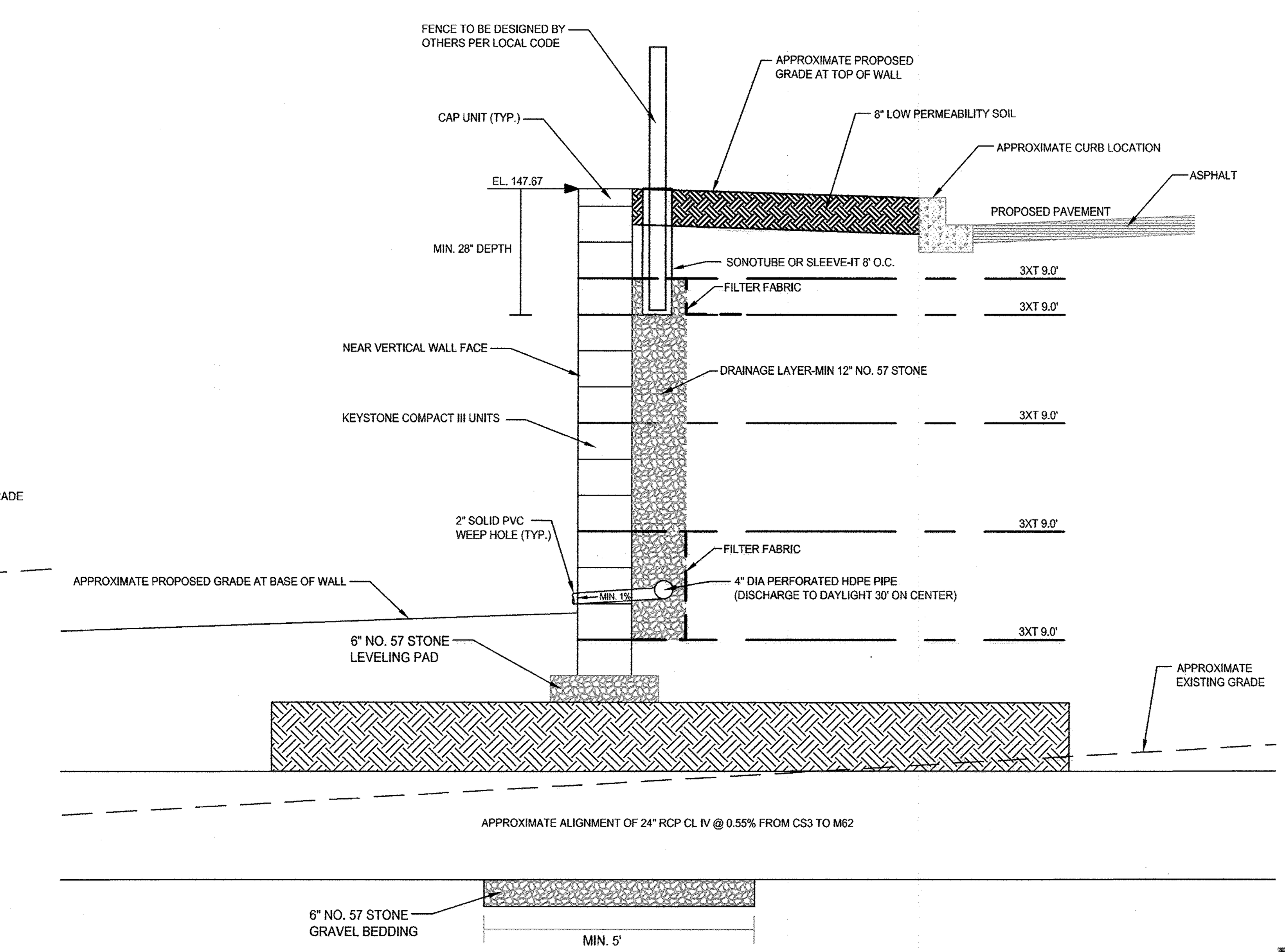
SONOTUBE INSTALLATION AT LIGHT POLE LOCATIONS (TYP.)

SCALE: NOT TO SCALE



RETAINING WALL #2 CROSS SECTION VIEW @ STA. 2+87

SCALE: NOT TO SCALE



RETAINING WALL #2 CROSS SECTION VIEW @ STA. 4+37

SCALE: NOT TO SCALE

LEGEND

STRUCTURAL BACKFILL PLACED IN ACCORDANCE WITH PART 3, ITEM F OF THE "NOTES AND DETAILS" PAGE

AS-BUILT CERTIFICATION

NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.

Sharon K. Cruz — PRINTED NAME — 36896 — MD P.E. NO.

SIGNATURE — 7/8/19 — DATE

STATE OF MARYLAND — THOMAS MICHAEL WIRTH — NO. 33973 — PROFESSIONAL ENGINEER

APPROVED : DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9.13.17

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9.27.17

DIRECTOR — DATE 10.2.17

DATE	NO.	REVISION	BY
8/23/17	2	REVISED TITLE BLOCK	TMW
8/15/17	1	REVISED WALL #2	TMW

DEVELOPER: DCT INDUSTRIAL, 12011 GUILFORD ROAD, 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

PROJECT: TERRAPIN COMMERCE CENTER

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

TITLE: RETAINING WALL #2 CROSS SECTION VIEWS AND DETAILS

GEO-TECHNOLOGY ASSOCIATES, INC.

GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

3445-A BOX HILL CORPORATE CENTER DRIVE, ABINGDON, MARYLAND 21009, 410-515-9446, FAX: 410-515-4895, WWW.GTAENG.COM

STATE OF MARYLAND — THOMAS MICHAEL WIRTH — NO. 33973 — PROFESSIONAL ENGINEER

DESIGNED BY : PJS

DRAWN BY: AGS/JSN

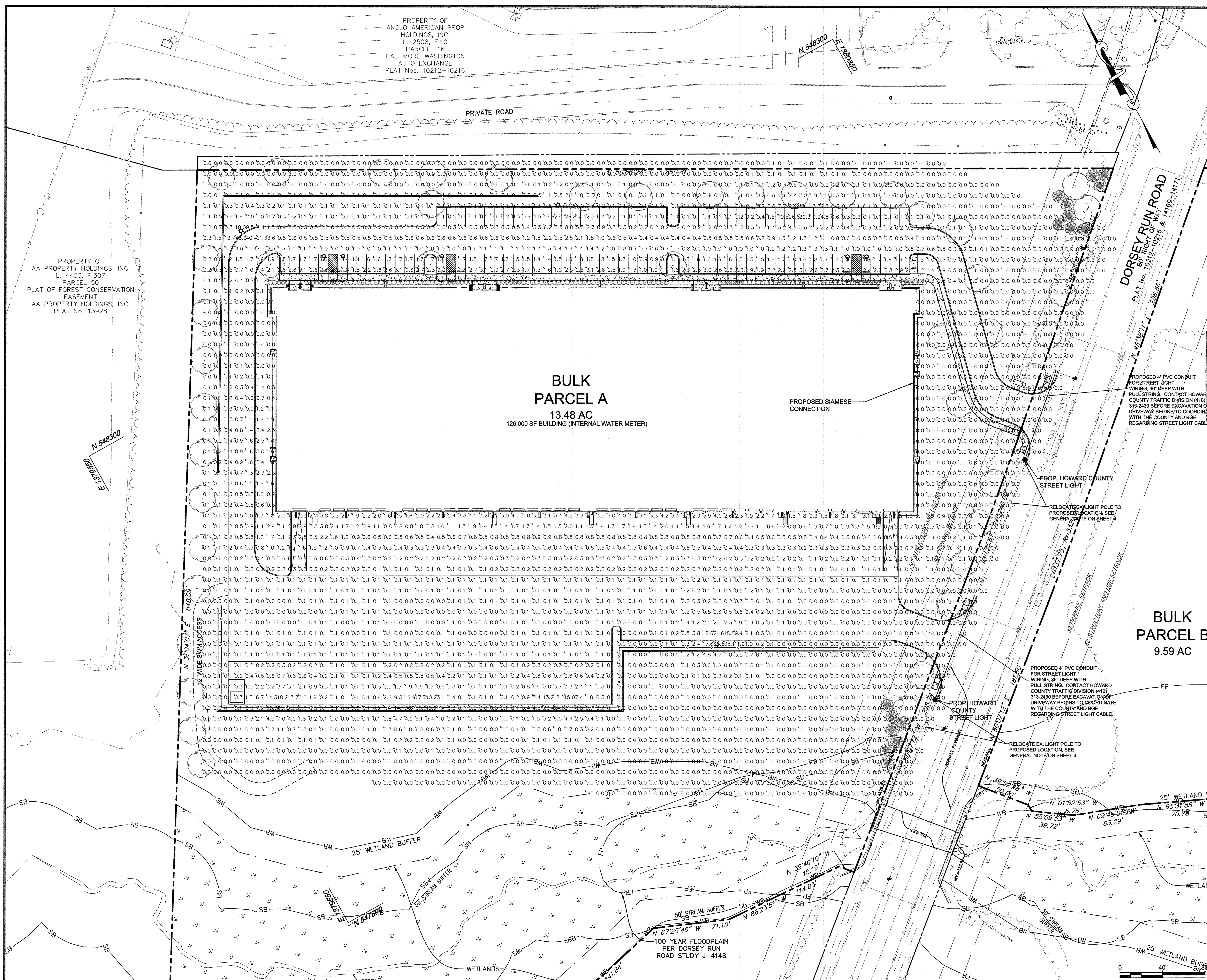
PROJECT NO : DCTI1601

DATE : JUNE 23, 2017

SCALE : AS SHOWN

DRAWING NO. 41 OF 43

SDP-17-030



LEGEND

- PROPERTY LINE AND RIGHT-OF-WAY
- PROPOSED POLE (ON-SITE) MOUNTED LIGHT
- PROPOSED BUILDING MOUNTED LIGHT
- PROPOSED HOWARD COUNTY STREET LIGHT
- PROPOSED SHADE TREE
- PROPOSED EVERGREEN TREE
- PROPOSED SHRUBS

AS-BUILT CERTIFICATION

NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.

Sharon K. Cruz — PRINTED NAME
36896 — MD. P.E. NO.
SIGNATURE
7/8/19 — DATE

APPROVED : DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9-21-17
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-22-17
DIRECTOR	DATE 10-2-17

DATE	NO.	REVISION	BY

DEVELOPER
DCT INDUSTRIAL
12011 GUILFORD ROAD
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

PROJECT
TERRAPIN COMMERCE CENTER

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

TITLE
LIGHTING PLAN

Pennoni
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

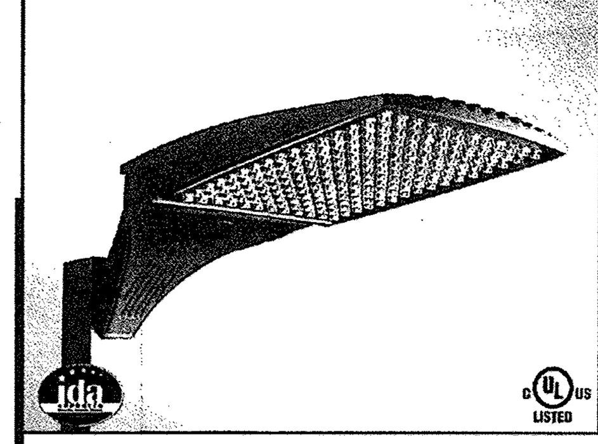
8-22-17
STATE OF MARYLAND 3068 PETER J. STONE BOARD OF EXAMINERS OF LANDSCAPE ARCHITECTS
PETER J. STONE #3068

DESIGNED BY : PJS
DRAWN BY: AGS/JSN
PROJECT NO : DCTI1601
DATE : JUNE 23, 2017
SCALE : 1" = 40'
DRAWING NO. 42 OF 43

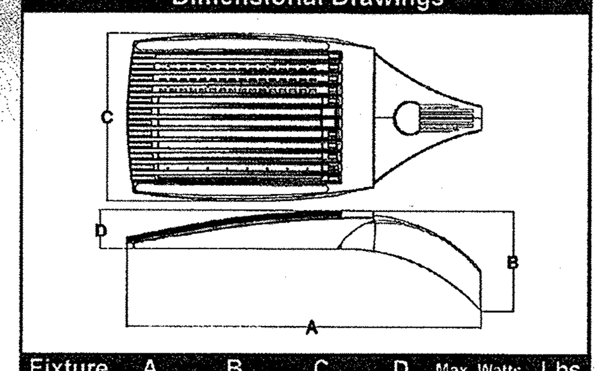
SDP-17-030

VLX™ LED

Project Name:	Catalog Number:	Type
hanover whse	VLX1T3128LC74KUNVAMBK	A ✓



Dimensional Drawings



Fixture	A	B	C	D	Max. Watts	Lbs
VLX-1	36"	14"	15.5"	4"	448W	50

The new VLX™ LED Series offers clean, functional styling that is defined by its sleek low profile design and rugged construction. It combines LED performance and advanced LED thermal management technology and provides outdoor lighting that is both energy efficient and aesthetically pleasing.

The LED's performance and the driver's life are maximized by enclosing them in two separate die cast aluminum housings. Easy tool-less access for mounting and maintenance.

The LED light assemblies come with 64 to 192 LED's. Six optical distribution patterns are available. Choose between 4000 or 5500 Kelvin temperature of the LEDs.

A durable polyester powder coat finish is guaranteed for five years; and is available in standard or custom colors.

The VLX™ LED series is an exceptional choice for commercial parking lots, office complexes, architectural projects, and other general lighting projects.

Model	Optics	Source	Current	Kelvin	Voltage	Mounting	Finish	Options
VLX-1	Type II (T2) Type III (T3) Type IV (T4) Type IV-A (T4A) Type V (T5) Type V-W (T5W)	# of LEDs 64 (64LC) 96 (96LC) 128* (128LC) 160* (160LC) 192* (192LC)	mA 350 (3) 530 (5) 700 (7) 1000* (10) *1000 mA NOT AVAILABLE FOR 128LC, 160LC OR 192LC	4000K *Neutral white (4K) 5500K *Cool white (55K)	120-277 *Universal voltage (UNV) 480 (5) 347 (8)	Arm Mount (AM) Wall Mount *Cast Wall Plate (BAWP) to be ordered separately (WM) Round Pole Plate Adaptors (RPP) are to be ordered separately	Bronze (BZ) Black (BK) Smooth Black (SBK) White (WH) Smooth White (SWH) Graphite (GP) Grey (GY) Silver Metallic (SL) Custom Color (CC)	Photocell & Receptacle *Specify voltage (PCR120) (PCR208) (PCR240) (PCR277) Photo Receptacle (PER) *With shorting cap Round Pole Plate Adaptor For 4"Ø Pole (RPP4) For 5"Ø Pole (RPP5) Cast Wall Plate (BAWP) 0-10v Dimming Driver No Controls (DIM) Motion Sensor (MS)

VLX™ LED

Housing
• Die cast aluminum LED housing with integral cooling fins for thermal management.

Mounting Arm/Driver Compartment
•Durable two-piece die cast aluminum driver compartment opens for easy access to removable driver(s) for ease of maintenance, and cooler driver operation; and sealed with one-piece silicone gasket.

Thermal Management
• The VLX™ series provides excellent thermal management by mounting the LED's to the substantial heat sink of the housing. This enables the Luminaire to withstand higher ambient temperatures and driver currents without degrading LED life.
• The L70 test determines the point in an LEDs life when it reaches 70 percent of its initial output. The VLX™ series LED's have been determined to last 80,000+ hours in 40° C environments when driven at 350 mA.

Optical System
• The highest lumen output, Evo/C LEDs are utilized in the VLX™ series. IES distribution Types II, III, IV, IV-A , V and V-W are available. . The optical system qualifies as IES full cutoff; and is Dark-Sky certified to restrict light trespass, glare and light pollution.
• CRI values are 70 for 4000K and 75 for 5500K.

Quali-Guard® Finish
• The finish is a Quali-Guard® textured, chemically pretreated through a multiple-stage washer, electrostatically applied, thermoset polyester powder coat finish, with a minimum of 3-5 millimeter thickness. Finish is oven-baked at 400° F to promote maximum adherence and finish hardness. All finishes are available in standard and custom colors.
• Finish is guaranteed for five (5) years.

Electrical Assembly
• The VLX™ LED series is supplied with a choice of 350,530, 700 or 1000 mA high-performance LED drivers that accept 120v thru 480v, 50 Hz to 60 Hz, input. Power factor of 90%. Rated for -40 oC operations.
• 10 kV surge protector supplied as standard.

Warranty
• Five (5) year Limited Warranty on entire system, including finish. For full warranty information, please visit VisionaireLighting.com.

Options
• Photocell & receptacle
• Photo receptacle
• Round pole plate adapter
• Cast Wall Plate
• 0-10v Dimming Driver
• Motion Sensor

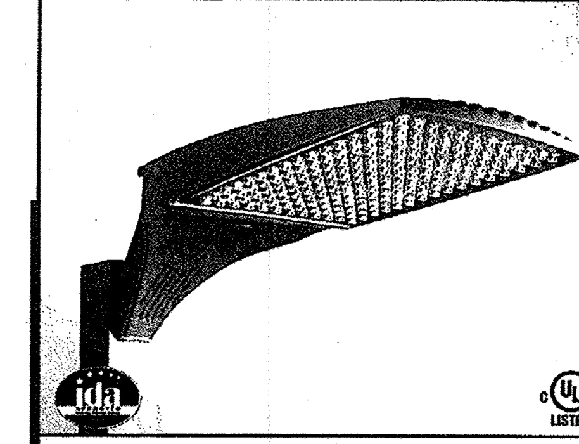
Listings
* The VLX™ is ETL listed, suitable for wet locations.
* Dark-Sky Friendly, full cutoff certified by the international Dark-Sky Association.
* Powder Coated Tough.

PRODUCT NAME	NUMBER OF LEDS	DRIVE CURRENT (mA)	TOTAL LUMENS (lm) TYPE 3 OPTICS	TOTAL LUMENS (lm) TYPE 5W OPTICS	WATTAGE (W)
VLX-1	64	350	5,831	6,396	75
		530	8,829	9,685	113
		700	11,661	12,792	149
		1000	17,492	19,188	213
	96	350	8,746	9,594	112
		530	13,244	14,528	170
		700	17,492	19,188	224
		1000	26,237	28,782	320
	128	350	11,661	12,792	149
		530	17,658	19,371	226
		700	23,322	25,584	299
	160	350	14,576	15,990	187
		530	22,073	24,213	283
		700	29,153	31,980	373
	192	350	17,492	19,188	224
		530	26,487	29,056	339
		700	34,983	38,376	448

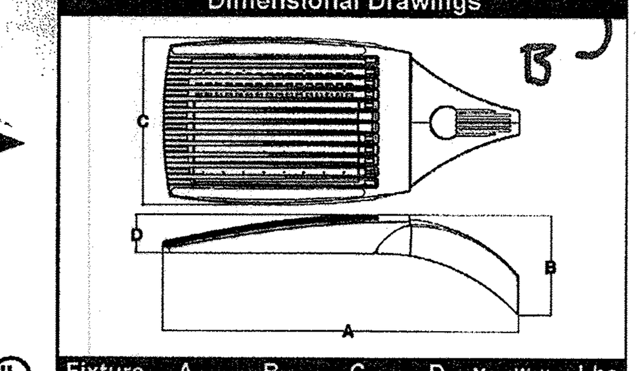
Visit www.VisionaireLighting.com for up-to-the-minute chart information, including types not listed here.
* For 4000K multiply values by 0.90

VLX™ LED

Project Name:	Catalog Number:	Type
HANOVER WHSE	VLX1T364LC54KUNVWMBK	B



Dimensional Drawings



Fixture	A	B	C	D	Max. Watts	Lbs
VLX-1	36"	14"	15.5"	4"	448W	50

The new VLX™ LED Series offers clean, functional styling that is defined by its sleek low profile design and rugged construction. It combines LED performance and advanced LED thermal management technology and provides outdoor lighting that is both energy efficient and aesthetically pleasing.

The LED's performance and the driver's life are maximized by enclosing them in two separate die cast aluminum housings. Easy tool-less access for mounting and maintenance.

The LED light assemblies come with 64 to 192 LED's. Six optical distribution patterns are available. Choose between 4000 or 5500 Kelvin temperature of the LEDs.

A durable polyester powder coat finish is guaranteed for five years; and is available in standard or custom colors.

The VLX™ LED series is an exceptional choice for commercial parking lots, office complexes, architectural projects, and other general lighting projects.

Model	Optics	Source	Current	Kelvin	Voltage	Mounting	Finish	Options
VLX-1	Type II (T2) Type III (T3) Type IV (T4) Type IV-A (T4A) Type V (T5) Type V-W (T5W)	# of LEDs 64 (64LC) 96 (96LC) 128* (128LC) 160* (160LC) 192* (192LC)	mA 350 (3) 530 (5) 700 (7) 1000* (10) *1000 mA NOT AVAILABLE FOR 128LC, 160LC OR 192LC	4000K *Neutral white (4K) 5500K *Cool white (55K)	120-277 *Universal voltage (UNV) 480 (5) 347 (8)	Arm Mount (AM) Wall Mount *Cast Wall Plate (BAWP) to be ordered separately (WM) Round Pole Plate Adaptors (RPP) are to be ordered separately	Bronze (BZ) Black (BK) Smooth Black (SBK) White (WH) Smooth White (SWH) Graphite (GP) Grey (GY) Silver Metallic (SL) Custom Color (CC)	Photocell & Receptacle *Specify voltage (PCR120) (PCR208) (PCR240) (PCR277) Photo Receptacle (PER) *With shorting cap Round Pole Plate Adaptor For 4"Ø Pole (RPP4) For 5"Ø Pole (RPP5) Cast Wall Plate (BAWP) 0-10v Dimming Driver No Controls (DIM) Motion Sensor (MS)

For more detailed information on mounting, wiring or installation instructions, please consult factory. If poles are not ordered with fixtures, please specify mounting requirements. This document contains proprietary information of Visionaire Lighting LLC. Any use of this information requires the written approval of Visionaire Lighting, LLC. In keeping with our TQM policy of continuous improvement, Visionaire reserves the right to change any specifications contained herein without prior notice.

VISIONAIRE LIGHTING
Performance In A Whole New Light

VLX™ LED

Housing
• Die cast aluminum LED housing with integral cooling fins for thermal management.

Mounting Arm/Driver Compartment
•Durable two-piece die cast aluminum driver compartment opens for easy access to removable driver(s) for ease of maintenance, and cooler driver operation; and sealed with one-piece silicone gasket.

Thermal Management
• The VLX™ series provides excellent thermal management by mounting the LED's to the substantial heat sink of the housing. This enables the Luminaire to withstand higher ambient temperatures and driver currents without degrading LED life.
• The L70 test determines the point in an LEDs life when it reaches 70 percent of its initial output. The VLX™ series LED's have been determined to last 80,000+ hours in 40° C environments when driven at 350 mA.

Optical System
• The highest lumen output, Evo/C LEDs are utilized in the VLX™ series. IES distribution Types II, III, IV, IV-A , V and V-W are available. . The optical system qualifies as IES full cutoff; and is Dark-Sky certified to restrict light trespass, glare and light pollution.
• CRI values are 70 for 4000K and 75 for 5500K.

Quali-Guard® Finish
• The finish is a Quali-Guard® textured, chemically pretreated through a multiple-stage washer, electrostatically applied, thermoset polyester powder coat finish, with a minimum of 3-5 millimeter thickness. Finish is oven-baked at 400° F to promote maximum adherence and finish hardness. All finishes are available in standard and custom colors.
• Finish is guaranteed for five (5) years.

Electrical Assembly
• The VLX™ LED series is supplied with a choice of 350,530, 700 or 1000 mA high-performance LED drivers that accept 120v thru 480v, 50 Hz to 60 Hz, input. Power factor of 90%. Rated for -40 oC operations.
• 10 kV surge protector supplied as standard.

Warranty
• Five (5) year Limited Warranty on entire system, including finish. For full warranty information, please visit VisionaireLighting.com.

Options
• Photocell & receptacle
• Photo receptacle
• Round pole plate adapter
• Cast Wall Plate
• 0-10v Dimming Driver
• Motion Sensor

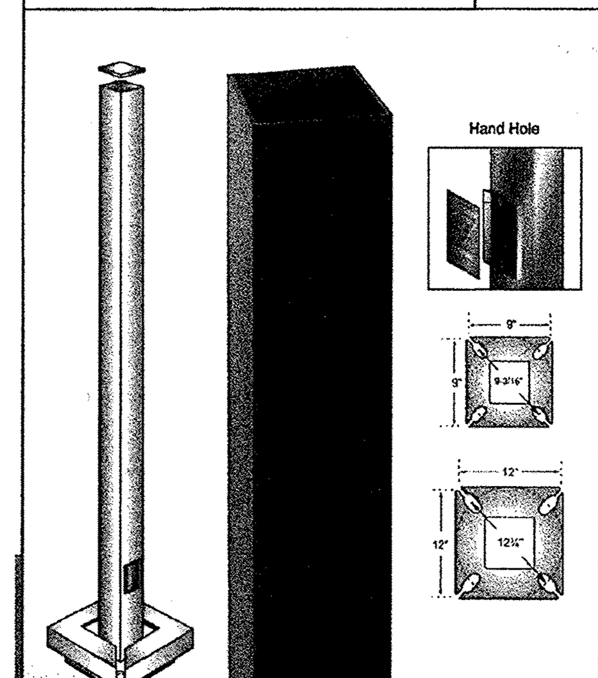
Listings
* The VLX™ is ETL listed, suitable for wet locations.
* Dark-Sky Friendly, full cutoff certified by the international Dark-Sky Association.
* Powder Coated Tough.

PRODUCT NAME	NUMBER OF LEDS	DRIVE CURRENT (mA)	TOTAL LUMENS (lm) TYPE 3 OPTICS	TOTAL LUMENS (lm) TYPE 5W OPTICS	WATTAGE (W)
VLX-1	64	350	5,831	6,396	75
		530	8,829	9,685	113
		700	11,661	12,792	149
		1000	17,492	19,188	213
	96	350	8,746	9,594	112
		530	13,244	14,528	170
		700	17,492	19,188	224
		1000	26,237	28,782	320
	128	350	11,661	12,792	149
		530	17,658	19,371	226
		700	23,322	25,584	299
	160	350	14,576	15,990	187
		530	22,073	24,213	283
		700	29,153	31,980	373
	192	350	17,492	19,188	224
		530	26,487	29,056	339
		700	34,983	38,376	448

Visit www.VisionaireLighting.com for up-to-the-minute chart information, including types not listed here.
* For 4000K multiply values by 0.90

SNTS

Project Name:	Catalog Number:	Type
HANOVER WHSE	SNTS305SQ11G12BC136S1BK	ABPOLE ✓



Specifications

Square Non Tapered Steel Pole

Pole Shaft
• ASTM A500 Grade B tubing with minimum yield strength of 46,000 PSI. Shaft is furnished with ground lug inside pole, opposite hand hole opening. Center line of hand hole is 12" from base plate.

Base Plate
• Steel Plate base is ASTM-A36 hot rolled steel, meets or exceeds minimum yield strength of 36,000 PSI.
• Base templates provided with order. Do not pre-pour.

Base Cover
• Die-formed from heavy gauge quality aluminum. Two piece cover for easy installation.

Pole Cap
• Color-impregnated polymer snap-to-close pole cap provided in black.

Finish
• All poles are shot-blasted and cleaned to a near-white finish prior to painting. A Quali-Guard® textured thermoset polyester powder coat is then applied to a minimum of 3 millimeters and then oven-baked at a temperature of 400 °F to promote exceptional adherence and finish hardness. Pole finish is warranted for a full two (2) years. An optional five (5) year extended warranty is also available (external prime coat and internal rust inhibiting coating).

Anchor Bolts
• Poles are provided with hot-dip galvanized anchor bolts, with a J band on one end and two hex nuts and two flat washers per bolt. Anchor bolts conform to ASTM-A36, meets or exceeds a minimum yield strength 36,000 PSI. Anchor bolts conform to ASTM F1554 Grade 55 and are provided.

Model	Shaft Size	Gauge	Height	Base	Anchorage	Mounting	Finish	Options
SNTS	4" × 4" (4S)	11 (11) 7 (7)	10' 12' 14' 16' 18' 20'	9" Base *9-3/16" BC (9BC)	¾" × 30" (343)	Bolt-On Arm Single (S1) D180 (D2) D90 (D9) T90 (T9) Quad (QD) Tenon Options 2⅜" (T238R) 3" (T3R)	Bronze (BZ) Black (BK) White (WH) Tennis Green (GN) Forest Green (FG) Grey (GY) Silver Metallic (SL) Custom Color (CC) Galvanized *No paint (GAL)	GFI Receptacle *Standard location is in hand hole (GFI) Coupling *Specify size and location (CUP) Custom Bolt Circle *Consult factory (CBC) Rust-Inhibiting Internal Coating & Primer (RCR) Single Banner Arm (SBA) Double Banner Arms (DBA)
			22' 25' 28'	12" Base *12¾" BC (12BC)	1" × 36" (136)			
	5" × 5" (5S)	11 (11) 7 (7)	20' 22' 25' 28' 30' ✓	12" Base *12¾" BC (12BC)	1" × 36" (136)			
	6" × 6" (6S)	7 (7)	28' 30' ✓ 35'	12" Base *12¾" BC (12BC) Custom Base *Consult factory (CB) Direct Burial *Specify below-grade length in the form of DB-xx, where "xx" = feet. (DB-___) NOTE: CUP and/or HHC Options required	1" × 36" (136)			Direct Burial Coupling *Specify Size and Location as CUP_S-xx_L-yy, "xx" = ½" or ¾" "yy" = feet from bottom of pole (CUP_S-__L-__) Hand Hole *Specify cover and location as HHC_C-xx_L-yy, "xx" = Y for yes, or N for no "yy" = feet from bottom of pole (HHC_C-__L-__)

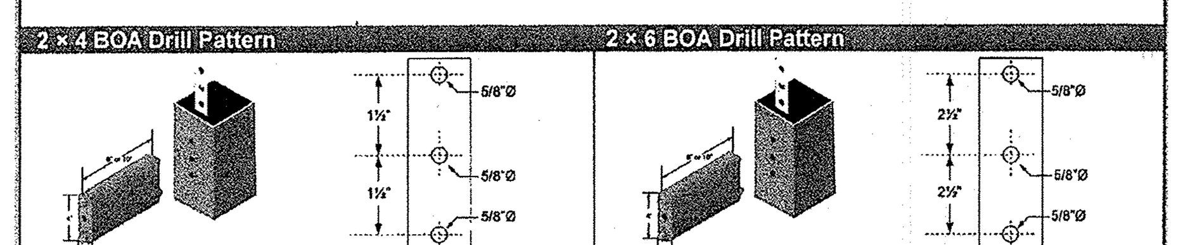
SNTS

Pole EPA for Square Non-Tapered Steel Poles

Pole Height	80 mph	90 mph	100 mph	110 mph	120 mph	130 mph	140 mph	O.D.	Pole Gauge	Base Plate	Bolt Circle	Anchor Bolts
	Maximum Allowable EPA (ft²) with 1.3 gust factor											
10'	30.1	23.5	18.4	11.0	10.3	7.6	6.1	4"	11	9"sq × ¾"	9"	¾" × 30"
12'	23.0	17.4	13.7	8.5	7.4	5.7	4.4	4"	11	9"sq × ¾"	9"	¾" × 30"
14'	18.6	13.9	10.6	6.6	5.7	4.3	3.1	4"	11	9"sq × ¾"	9"	¾" × 30"
16'	15.0	10.9	10.1	4.8	3.9	3.1	1.9	4"	11	9"sq × ¾"	9"	¾" × 30"
18'	11.7	8.4	6.0	3.4	2.8	1.9	-	4"	11	9"sq × ¾"	9"	¾" × 30"
20'	9.3	6.4	4.3	2.4	1.7	1.3	-	4"	11	9"sq × ¾"	9"	¾" × 30"
20'	15.8	10.9	8.2	5.0	4.2	3.1	2.0	4"	7	9"sq × ¾"	9"	¾" × 30"
20'	17.1	12.3	8.9	5.0	4.1	3.0	1.4	5"	11	12"sq × 1"	12"	1" × 36"
20'	27.4	22.1	16.7	13.2	8.3	6.0	3.9	5"	7	12"sq × 1"	12"	1" × 36"
22'	6.3	3.7	1.9	1.3	-	-	-	4"	11	12"sq × 1"	12"	1" × 36"
22'	11.8	8.0	5.4	3.5	2.3	2.0	-	4"	7	12"sq × 1"	12"	1" × 36"
22'	12.6	8.4	5.4	3.2	1.9	1.6	-	5"	11	12"sq × 1"	12"	1" × 36"
22'	21.4	15.4	11.1	6.9	5.0	4.3	2.3	5"	7	12"sq × 1"	12"	1" × 36"
25'	5.0	2.9	1.3	-	-	-	-	4"	11	12"sq × 1"	12"	1" × 36"
25'	10.9	7.4	5.2	2.1	1.3	1.0	-	4"	7	12"sq × 1"	12"	1" × 36"
25'	10.2	6.6	4.0	1.6	-	-	-	5"	11	12"sq × 1"	12"	1" × 36"
25'	18.8	13.0	9.5	4.8	3.7	2.7	-	5"	7	12"sq × 1"	12"	1" × 36"
28'	5.6	3.1	1.4	1.1	-	-	-	4"	7	12"sq × 1"	12"	1" × 36"
28'	5.5	3.0	1.3	-	-	-	-	5"	11	12"sq × 1"	12"	1" × 36"
28'	12.0	7.6	4.4	2.8	1.3	1.1	-	5"	7	12"sq × 1"	12"	1" × 36"
28'	20.9	14.1	9.4	5.7	3.6	3.1	-	6"	7	12"sq × 1"	12"	1" × 36"
30'	5.0	2.2	-	-	-	-	-	5"	11	12"sq × 1"	12"	1" × 36"
30'	11.4	6.8	4.0	1.7	-	-	-	5"	7	12"sq × 1"	12"	1" × 36"
30'	18.9	12.8	8.4	4.3	3.0	1.9	-	6"	7	12"sq × 1"	12"	1" × 36"
35'	6.7	2.3	1.8	-	-	-	-	5"	7	12"sq × 1"	12"	1" × 36"
35'	12.1	7.0	3.8	-	-	-	-	6"	7	12"sq × 1"	12"	1" × 36"

*9" bolt circle is 9- 3/16", 12" bolt circle is 12-3/4".
For Direct Burial EPA, consult factory

2 × 4 BOA Drill Pattern **2 × 6 BOA Drill Pattern**



SCHEDULE									
SYMBOL	LABEL	QTY	CATALOG NUMBER	DESCRIPTION	LAMP	NUMBER LAMPS	LUMENS PER LAMP	LLF	WATTAGE
☼	A	7	VLX-1-L-T3-128LC-7-4K	37-1/4"L X 17"W X 10-3/4"H LED LUMINAIRE LEDS WITH OPTICS		1	21398.21	1	287
▯	B	21	VLX-1-L-T3-128LC-7-4K	37-1/4"L X 17"W X 10-3/4"H LED LUMINAIRE LEDS WITH OPTICS		1	9411.8	1	104.74
✹	-	2	-	HOWARD COUNTY STREET LIGHT		-	-	-	-

GENERAL NOTE:

FOR OFF-SITE LIGHTING, USE HOWARD COUNTY STREET LIGHTS PER DEPARTMENT OF PUBLIC WORKS SPECIFICATIONS. SEE PLAN FOR LOCATION OF TWO (2) REQUIRED LIGHTS.

APPROVED : DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9.21.17

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9-27-17

DIRECTOR — DATE 10-2-17

DATE	NO.	REVISION	BY

DEVELOPER
DCT INDUSTRIAL
12011 GUILFORD ROAD
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

PROJECT

TERRAPIN COMMERCE CENTER

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

TITLE

LIGHTING 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

8.22.17

STATE OF MARYLAND 3068 PETER J. STONE BOARD OF EXAMINERS OF LANDSCAPE ARCHITECTS

PETER J. STONE #3068

DESIGNED BY : PJS
DRAWN BY: AGS/JSN
PROJECT NO : DCTI1601
DATE : JUNE 23, 2017
SCALE : N.T.S.
DRAWING NO. 43 OF 43

AS-BUILT CERTIFICATION

NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.

Sharon K. Cruz — PRINTED NAME — 36896 MD. P.E. NO.

SIGNATURE — 7/8/19 DATE

SDP-17-030