GENERAL NOTES

- ALL GRADING FOR THIS PROJECT SHALL BE THE FULL RESPONSIBILITY OF THE CONTRACTOR.
- THERE IS A 10 WIDE DRAINAGE AND UTILITIES EASEMENT ALONG ALL FRONT LOT LINES AND AN 8 WIDE DRAINAGE AND UTILITIES EASEMENT ALONG ALL SIDE AND REAR LOT LINES HEREBY RESERVED UNLESS OTHERWISE SHOWN HEREON. A PUBLIC WORKS AGREEMENT AND PERFORMANCE SECURITY WILL BE REQUIRED FOR ALL IMPROVEMENTS WITHIN THE COUNTY RIGHT-OF-WAY THAT ARE NOT OTHERWISE REGULATED UNDER A UTILITY PERMIT OR ENTRANCE PERMIT.
- . A UTILITY PERMIT WILL BE REQUIRED FOR ANY PROPOSED UTILITY WORK LOCATED WITHIN THE COUNTY RIGHT-OF-WAY. . A COMPLETE SET OF APPROVED PLANS AND A COPY OF THE GRADING PERMIT MUST BE ON SITE AND AVAILABLE FOR USE BY THE INSPECTOR, OR OTHER
- REPRESENTATIVE OF WASHINGTON COUNTY DIVISION OF ENGINEERING & CONSTRUCTION. PLEASE BE ADVISED THAT ANY PROJECT WHICH CREATES A DISTURBANCE OF ONE (1) ACRE OR MORE WILL REQUIRE A NOTICE OF INTENT TO COMPLY WITH THE GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY (NOI). THE NOI IS REQUIRED UNDER THE CLEAN WATER ACT AS STATED IN 40 CFR 122.26 AND CODE OF MARYLAND REGULATIONS COMAR 26.08.04.09A AND IS REGULATED BY THE MARYLAND DEPARTMENT OF ENVIRONMENT (MDE). THE NOI IS TO BE SUBMITTED WITH THE APPROPRIATE FEES DIRECTLY TO THE MDE PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITY. NO LAND DISTURBING ACTIVITY THAT REQUIRES A GRADING PERMIT FROM WASHINGTON COUNTY SHOULD PROCEED UNTIL THE GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY (MDR10) HAS BEEN ISSUED BY MDE.
- NO PERMANENT STRUCTURES (FENCES, SHEDS, PLAY EQUIPMENT, RETAINING WALLS, ETC.) SHALL BE PERMITTED WITHIN ANY STORM DRAINAGE EASEMENT EITHER SHOWN OR DESCRIBED ON THE FINAL PLAT OF SUBDIVISION.
- DEVELOPER/CONTRACTOR MUST CONTACT THE CERTIFYING ENGINEER AND THE COUNTY AT LEAST 5 DAYS PRIOR TO THE START OF CONSTRUCTION OF THE STORM WATER MANAGEMENT SYSTEM TO SCHEDULE AND COORDINATE INSPECTION TIME TABLES.
- IN CONFORMANCE WITH THE STORM WATER MANAGEMENT ORDINANCE OF WASHINGTON COUNTY, A PERFORMANCE SECURITY AND EXECUTED MAINTENANCE AND ACCESS AGREEMENT SHALL BE REQUIRED FROM THE DEVELOPER PRIOR TO ISSUANCE OF ANY BUILDING OR GRADING PERMIT FOR CONSTRUCTION PER THESE PLANS. O. CONTRACTOR IS RESPONSIBLE FOR CONTACTING "MISS UTILITY" AT 1-800-257-7777, 48 HOURS PRIOR TO ANY EXCAVATION WORK.
- I. MAXIMUM SLOPES SHALL BE NOT GREATER THAN THREE (3) FEET HORIZONTAL TO ONE (1) FOOT VERTICAL OUT SIDE THE ROAD RIGHT—OF—WAY. SLOPES WITHIN THE ROAD RIGHT-OF-WAY SHALL BE NOT GREATER THAN TWO (2) FEET HORIZONTAL TO ONE (1) FOOT VERTICAL, OR UNLESS SPECIFIED ON THE PLANS. 2. CERTIFIED COMPACTION TESTS ARE REQUIRED FOR ALL TRENCH/FILL WORK IN ACCORDANCE WITH THE LATEST EDITION OF THE SPECIFICATIONS MANUAL AND GRADING
- ORDINANCE. FINAL REPORTS AND CERTIFICATIONS SHALL BE PROVIDED PRIOR TO PRE-FINAL INSPECTIONS 13. CERTIFIED COMPACTION TESTS AND GEOTECHNICAL REPORTS SHALL BE SUBMITTED ON A REGULAR BASIS THROUGHOUT THE COURSE OF CONSTRUCTION AS REQUIRED BY THE SPECIFICATIONS MANUAL
- 14. AS-BUILT PLANS SHALL BE SUBMITTED PRIOR TO PRE-FINAL INSPECTIONS FOR ALL DISCIPLINES. 15. WITH APPROVAL FROM THE WCSCD, ALL EROSION AND SEDIMENT CONTROL STRUCTURES MUST BE REMOVED PRIOR TO THE RELEASE OF BONDS
- 16. MHT FOUND THAT THERE ARE NO KNOWN HISTORIC SITES LOCATED WITHIN THIS SITE. 7. OBSTRUCTIONS SHOWN ON THIS DRAWING ARE FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. THE CONTRACTOR MUST VERIFY ALL SUCH INFORMATION TO HIS OWN SATISFACTION. IN THE EVENT THAT INFORMATION IS IN CONFLICT WITH INFORMATION OUTLINED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT
- 18. ADJUST TOP OF CURB GRADES TO SMOOTH TRANSITION. 19. STRIP AND RESURFACE EXISTING PAVING AS NEEDED TO PROVIDE SMOOTH TRANSITION TO EXISTING SURFACE. 20. IT SHALL BE DISTINCTLY UNDERSTOOD THAT FAILURE TO MENTION SPECIFICALLY ANY WORK WHICH WOULD NORMALLY BE REQUIRED TO COMPLETE THIS PROJECT
- SHALL NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY TO COMPLETE SUCH WORK. 1. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY WCSCD AND WASHINGTON COUNTY OF ANY DEVIATION FROM THIS PLAN PRIOR TO ANY CHANGE BEING MADE. ANY DEVIATION FROM THIS PLAN WITHOUT WRITTEN AUTHORIZATION FROM THE COUNTY WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- 22. SHOULD THE CONTRACTOR DISCOVER DISCREPANCIES BETWEEN THE PLANS AND FIELD CONDITIONS. THE ENGINEER IS TO BE NOTIFIED IMMEDIATELY TO RESOLVE THE SITUATION. SHOULD THE CONTRACTOR MAKE FIELD CORRECTIONS OR ADJUSTMENTS WITHOUT NOTIFYING THE ENGINEER, THEN THE CONTRACTOR ASSUMES ALL RESPONSIBILITY FOR THOSE CHANGES. 23. PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL VERIFY ALL TIE—IN ELEVATIONS.
- 24. FILL IN STRUCTURAL AND PAVEMENT AREAS SHALL BE PLACED IN HORIZONTAL, EIGHT-INCH MAXIMUM LOOSE LIFTS AND COMPACTED TO AT LEAST 95 PERCENT OF THE MODIFIED PROCTOR, MAXIMUM DRY DENSITY PER ASTM D-1557, IN AREAS TO SUPPORT FLOOR SLABS AND PAVEMENTS THE UPPERMOST ONE FOOT (AFTER COMPACTION) SHALL BE COMPACTED TO 98 PERCENT OF THE MAXIMUM DRY DENSITY. THE MOISTURE CONTENT OF THE FILL SHALL BE PROPERLY CONTROLLED DURING PLACEMENT. IN BUILDING AREAS FILL SHALL EXTEND A MINIMUM OF 10 FEET BEYOND THE BUILDING LIMITS AND FILL SLOPES NO STEEPER THAN 2:1 SHALL BE USED. SEE THE PROJECT SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- 25. CONTRACTOR WILL ADJUST ALL FRAMES, GRATES AND COVERS OF ALL EXISTING UTILITIES WITHIN THE LIMITS OF THE CONTRACT TO THE PROPOSED GRADES, AS 26. THE CONTRACTOR WILL MAINTAIN POSITIVE DRAINAGE TO SWALES AND/OR STORM DRAIN SYSTEMS AT ALL TIMES
- 27. ALL EXCESS SOILS ARE TO BE DISPOSED OF ON SITE. 28. BOUNDARY INFORMATION SHOWN HEREON IS BASED ON AVAILABLE RECORD PLATS AND A FIELD RUN SURVEY PERFORMED BY KCI TECHNOLOGIES INC. DATED AUGUST
- THE EXISTING TOPOGRAPHY IS TAKEN FROM FIELD RUN SURVEY WITH ONE FOOT CONTOUR INTERVALS PREPARED BY KCI TECHNOLOGIES DATED AUGUST 2017. 30. CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF EXISTING UTILITIES SHOWN HEREON BEFORE STARTING ANY WORK ON THESE PLANS. CONTRACTOR AGREES TO BE FULLY RESPONSIBLE FOR THE COST OF ANY AND ALL DAMAGES WHICH OCCUR AS A RESULT OF A FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL EXISTING UTILITIES TO REMAIN.
- WATER IS PUBLIC (CITY OF HAGERSTOWN). EXISTING USAGE=200G/D(TO BE ABANDONED). PROPOSED=UP TO 1,500GPM 32. SEWER IS PUBLIC (WASHINGTON COUNTY). 33. IT SHALL BE DISTINCTLY UNDERSTOOD THAT FAILURE TO MENTION SPECIFICALLY ANY WORK WHICH WOULD NORMALLY BE REQUIRED TO COMPLETE THIS PROJECT
- SHALL NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY TO COMPLETE SUCH WORK. 34. TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
- 35. ALL PLAN DIMENSIONS ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED. 36. THE CONTRACTOR SHALL NOTE THAT IN CASE OF A DISCREPANCY BETWEEN THE SCALED AND THE FIGURED DIMENSIONS SHOWN ON THESE PLANS, THE FIGURED
- 37. TRENCH BACKFILL IN GRASS AREAS SHALL BE COMPACTED TO A MINIMUM 90% OF MAXIMUM DRY DENSITY IN ACCORDANCE WITH A.A.S.H.T.O. VERIFY DESIGNATION T-180, METHOD C. TRENCH BACKFILL IN STRUCTURAL AND PAVEMENT AREAS SHALL BE PLACED IN EIGHT INCH LOOSE LIFTS AND COMPACTED TO AT LEAST 95% OF
- THE MODIFIED PROCTOR MAXIMUM DRY DENSITY (ASTM D-1557). IN PAVED AREAS, FILL BELOW THE TOP 12 INCHES SHOULD BE COMPACTED TO 97%. 38. THE CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE AWAY FROM BUILDING STRUCTURES AT ALL TIMES. 39. CONTRACTOR SHALL COORDINATE ALL DISCONNECTIONS AND REMOVAL OF EXISTING GAS, ELECTRIC AND TELEPHONE SERVICES AND EQUIPMENT WITH POTOMAC EDISON
- 40. CONTRACTOR SHALL INSTALL SEDIMENT CONTROLS PRIOR TO BEGINNING ANY WORK AND MAINTAIN SEDIMENT CONTROLS THROUGHOUT THE ENTIRE DURATION OF
- DEMOLITION AND CONSTRUCTION ACTIVITIES. 41. ALL EXCAVATION SHALL BE BACKFILLED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS. IN THE EVENT THAT A PORTION OF A UTILITY IS TO BE REMOVED THE
- CONTRACTOR SHALL TERMINATE AND CAP TO THE LIMITS INDICATED IN ACCORDANCE WITH ALL STATE AND LOCAL REQUIREMENTS. 42. SHOULD THE CONTRACTOR DISCOVER DISCREPANCIES BETWEEN THE PLANS AND FIELD CONDITIONS, THE ENGINEER IS TO BE NOTIFIED IMMEDIATELY TO RESOLVE THE SITUATION. SHOULD THE CONTRACTOR MAKE FIELD CORRECTIONS OR ADJUSTMENTS WITHOUT NOTIFYING THE ENGINEER, THEN THE CONTRACTOR ASSUMES ALL
- RESPONSIBILITY FOR THOSE CHANGES. 43. STORMWATER MANAGEMENT QUANTITY AND QUALITY HAS BEEN PROVIDED IN ACCORDANCE WITH THE 2010 MARYLAND STORMWATER MANAGEMENT ORDINANCE AND
- REVISED 2010 STORMWATER MANAGEMENT DESIGN MANUAL. ALL PRACTICES WILL BE PRIVATELY OWNED AND MAINTAINED IN THEIR ENTIRETY. EXISTING UTILITIES ARE BASED ON AVAILABLE EXISTING PLANS AND FIELD RUN TOPOGRAPHY PERFORMED BY KCI TECHNOLOGIES ON OR ABOUT A 45. A GEOTECHNICAL REPORT, PREPARED BY ECS MID-ATLANTIC, LLC, IS INCLUDED IN THE PLAN SUBMITTAL.
- 46. A WATERWAY AND WETLAND DELINEATION WAS COMPLETED BY KCI TECHNOLOGIES, INC. IN AUGUST 2017. NO WATERWAYS OR WETLANDS WERE IDENTIFIED.

 47. MDE PREFORMED A SITE REVIEW ON AUGUST 14, 2017 AND CONCURRED THAT NO JURISDICTIONAL WETLAND OR WATERWAY RESOURCES EXIST ONSITE. THEREFORE NO AUTHORIZATION IS NEEDED FROM MDE'S WATERWAY CONSTRUCTION DIVISION FOR ANY WORK AT THE SITE.
- 48. THE 100-YR FLOODPLAIN IS SOUTH OF LAPPANS ROAD, WHICH IS APPROXIMATELY 4,200' SOUTH OF THE SITE. FEMA PANEL NUMBER 240070 0155 A.
 49. FOREST STANDS WERE DELINEATED BY KCI TECHNOLOGIES, INC. DURING AUGUST 2017. 5 FOREST STANDS WERE FOUND WITHIN THE STUDY AREA FOR COUNTY FILE
- 50. THE SITE IS LOCATED WITHIN AN AREA OF KARST LIMESTONE GEOLOGY WITH MAPPED SINKHOLES AND CLOSED DEPRESSIONS BEING MAPPED IN THE VICINITY OF THE SITE. REPAIR OF KARST FEATURES DURING CONSTRUCTION SHOULD BE EXPECTED AND BUDGETED FOR.
- 51. STORMWATER MANAGEMENT REQUIREMENTS (QUALITY AND QUANTITY) WILL BE ADDRESSED THROUGH MULTIPLE PRACTICES WHICH INCLUDE BIORETENTION, SWALES, AND NON-ROOFTOP DISCONNECTION.
- 52. GROUNDWATER WAS ENCOUNTERED 15-20 FEET BELOW FINISHED GRADE SO GROUNDWATER SHOULD NOT BE EXPECTED DURING CONSTRUCTION 53. THE ONSITE LOW PLASTICITY CLAY, SILT, AND SAND SOILS MAY BE SUITABLE FOR REUSE AS ENGINEERED FILL DEPENDING ON MOISTURE CONDITIONING. THE HIGHER PLASTICITY CLAY SOILS (CH, CL/CH) MAY BE SUITABLE FOR REUSE IN NON-STRUCTURAL AREAS. NO SOILS ARE TO BE HAULED OFF SITE. SEE GEOTECH REPORT
- 54. HIGH PLASTIC CLAY (CL/CH, CH) SOILS ARE EXPECTED TO BE ENCOUNTERED AT FOOTING SUBGRADE ELEVATIONS IN SOME AREAS. WHEN ENCOUNTERED, SUBGRADE WILL REQUIRE UNDERCUTTING TO COMPETENT MATERIAL OR UNDERCUT AND RESTORED TO FOUNDATION ELEVATIONS WITH LEAN CONCRETE. 55. ALL LIGHTING SHALL BE DIRECTED SO AS TO AVOID GLARE AND LIGHT TRESPASS ON ADJACENT PROPERTIES AND ROADS. APPROVED FOREST CLEARING ON THE SITE
- CURRENTLY FALLS BELOW FOREST CLEARING PERMITTED W/O MITIGATION. ADDITIONAL FOREST CLEARING BEYOND PERMITTED LINES DURING THIS PHASE OF THE PROJECT MAY NECESSITATE MITIGATION UNDER THE WASHINGTON COUNTY FOREST CONSERVATION ORDINANCE. FUTURE PHASES OF SITE DEVELOPMENT SHALL BASE FOREST MITIGATION ON THE CUMULATIVE AMOUNT OF FOREST CLEARING WHICH HAS OCCURRED AND UTILIZE THE ORIGINAL TRACT AREA TO DETERMINE MITIGATION REQUIREMENTS. A PERMANENT FOREST EASEMENT MUST BE ESTABLISHED WHEN CUMULATIVE PERMITTED FOREST CLEARING EXCEEDS THE CUMULATIVE PERMITTED
- 56. A VARIANCE WAS GRANTED BY THE WASHINGTON COUNTY PLANNING COMMISSION AT THEIR MARCH 4TH, 2019 MEETING FOR THE REMOVAL OF 2 SPECIMEN TREES (#1 AND 2 IN THE TABLE), DESCRIBED AS A 35" WHITE MULBERRY AND A 34" BLACK CHERRY.

OWNER/DEVELOPER CERTIFICATION - EROSION CONTROL

"I/WE CERTIFY ALL/ANY PARTIES RESPONSIBLE FOR CLEARING, GRADING, CONSTRUCTION, AND/OR DEVELOPMENT WILL; BE DONE PURSUANT TO THIS PLAN AND RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF TRAINING AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT APPROVAL TRAINING PROGRAM FOR THE CONTROL OF SOIL EROSION AND SEDIMENT"

PRINTED NAME OF DEVELOPER

ENGINEER AS-BUILT STORM WATER MANAGEMENT CERTIFICATION

VERIFY AND AFFIRM THAT THE CONSTRUCTION FOR THE STORM WATER MANAGEMENT FACILITIES AS PERFORMED EITHER MEETS OR EXCEEDS THE REQUIREMENTS AND DESIGN INTENT OF THIS PLAN. INCLUDING ALL THE SPECIFICATIONS AND REFERENCED STANDARDS, AND HAS BEEN COMPLETED IN ACCORDANCE WITH GOOD CONSTRUCTION INSPECTION DOCUMENTATION AND THE AS-BUILT INFORMATION; THAT IT HAS BEEN DONE IN ACCORDANCE WITH WASHINGTON COUNTY REQUIREMENTS AND AT A LEVEL DISCREPANCIES BETWEEN THE AS-BUILT INFORMATION AND APPROVED PLANS HAVE BEEN NOTED AND ARE CONSIDERED ACCEPTABLE TO THE CONSULTANT.

PRINTED NAME

<u>APPROVED</u>

SIGNATURE

WASHINGTON COUNTY DIVISION OF PLAN REVIEW & PERMITTING

SIGNATURE

ENGINEER CERTIFICATION - EROSION CONTROL

HEREBY CERTIFY THAT THIS PLAN FOR SOIL EROSION AND SEDIMENT CONTROL AND POND CONSTRUCTION HAS BEEN DESIGNED IN ACCORDANCE WITH LOCAL ORDINANCES, COMAR 26.17.01.07, MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL AND EROSION AND SEDIMENT CONTROL

33772 REG. NO. SIGNATURE DATE

OWNER/DEVELOPER CERTIFICATION—WASHINGTON COUNTY

I/WE HEREBY CERTIFY THAT ALL CLEARING, GRADING, CONSTRUCTION, AND/OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS PLAN AND IN ACCORDANCE WITH THE STORM WATER MANAGEMENT ORDINANCE OF WASHINGTON COUNTY AND THE POLICY ON CONSTRUCTION OF SUBDIVISION INFRASTRUCTURE FOR ACCEPTANCE AND OWNERSHIP BY WASHINGTON COUNTY (S-3)

Scott Hobbs PRINTED NAME

Scott Hobbs SIGNATURE

WASHINGTON COUNTY SAFETY TRAINING CENTER

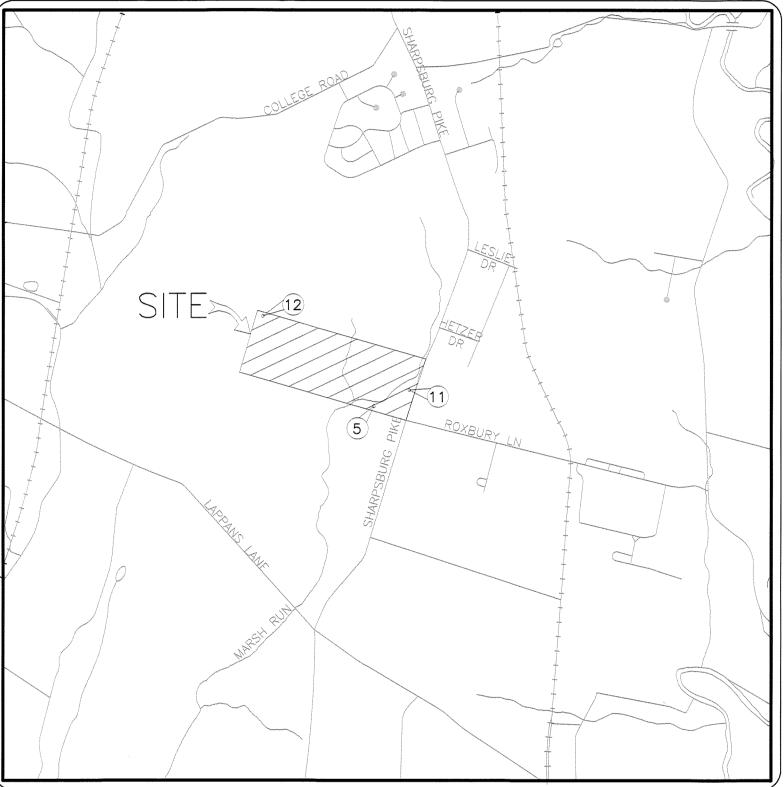
WASHINGTON COUNTY MARYLAND

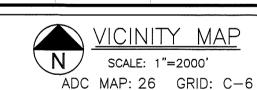
18350 PUBLIC SAFETY PLACE, HAGERSTOWN MARYLAND 21740

WASHINGTON COUNTY BOARD OF COMMISSIONERS 100 W. WASHINGTON STREET HAGERSTOWN, MD 21740 PHONE: (240) 313-2200 CONTACT: BRENNAN GARRETT

KCI TECHNOLOGIES, INC. 11830 WEST MARKET PLACE, SUITE F FULTON, MARYLAND 20759 PHONE: (410) 792-8086 CONTACT: TIMOTHY H. MILLER

ADDRESS: 9238 SHARPSBURG PIKE HAGERSTOWN, MD 21740 TAX IDENTIFICATION NO.: 018579 TAX MAP/GRID: 0062/0010 PARCEL: 05374/00077 ELECTION DISTRICT: COUNTY SEWER WATER





POINT	NORTHING	EASTING	ELEVATION
KCI#11	693147.85	1106438.79	492.68
KCI#12	693777.99	1104456.26	491.79
KCI#5	692636.73	1105640.07	482.60

SITE ANALYSIS DATA CHART

- A. TOTAL SITE AREA: 49.29 AC. OR 2,147,072 SQ.FT AREA OF PLAN SUBMISSION: 49.29 AC. OR 2,147,072 SQ.FT LIMIT OF DISTURBED AREA: 10.81 AC OR 470,978 SQ.FT
- D. EXISTING IMPERVIOUS AREA: 0.00 AC PROPOSED IMPERVIOUS AREA: 4.30 AC OR 187,310 SQ.FT PRESENT ZONING DESIGNATION: R-T
- G. PROPOSED USES FOR SITE AND STRUCTURES: TRAINING CENTER H. OPEN SPACE ON SITE: 5.05 ACRES AND 54% OF DISTURBED AREA. BASE BID BUILDING AREA: 28,450 SF
- J. POTENTIAL BUILDING AREA: 44,165 SF K. HOURS OF OPERATION: 7AM TO 10PM M-F. 830M TO 330PM SAT/SUN. L. BUILDING ADDRESS: 18350 PUBLIC SAFETY PLACE

DISTURBED AREA QUANTITIES

THE TOTAL AREA TO BE DISTURBED SHOWN ON THESE

PLANS HAS BEEN DETERMINED TO BE APPROXIMATELY

AND FILL AS SHOWN ON THESE PLANS HAS BEEN

COMPUTED TO BE APPROXIMATELY 27,050 C.Y. OF

EXCAVATION AND 42,350 C.Y. OF FILL

10.81 ACRES AND THE TOTAL AMOUNT OF EXCAVATION

SWM SUMMARY TABLE AREA OF ESD VOLUME EX. IMP. PROP. IMP. DISTURBANCE AREA (Ac.) (CF) AREA (Ac.) REQUIRED | PROVIDED 10.81 0.00 4.30 28,504

WASHINGTON COUNTY SOIL CONSERVATION DISTRICT SOIL

EROSION AND SEDIMENT CONTROL PLAN APPROVAL

enur henry

(PLAN IS VALID FOR TWO YEARS FROM DATE OF APPROVAL)

PARKING TABULATION

PARKING SPACE REQUIREMENT RATIONALE: 1. TOTAL SEATS SHOWN IN BUILDING DESIGN = 507 COLLEGE AND CONFERENCE CENTERS ARE PARKED AT 1 PARKING SPACE PER 3 SEATS RESULTING IN 169 SPACES

2. BASED ON THE ORGANIZATIONAL CHARTS FOR THE WASHINGTON COUNTY SHERIFFS OFFICE, JUDICIAL SYSTEM AND DETENTION CENTER, THERE ARE CURRENTLY 258 EMPLOYEES. IF \(\frac{1}{3}\) OF THE EMPLOYEES ARE ON THE JOB AT ONE TIME AND A COMBINED CLASS IS HELD FOR THE REST, THEN THIS EQUATES TO 170 IN ATTENDANCE RESULTING IN 170 PARKING SPACES REQUIRED.

SHEET INDEX

SHEET NUMBER

1 | C-0.00 | TITLE SHEET

3 C-1.00 OVERALL SITE PLAN

4 | C-1.01 | DETAILED SITE PLAN

5 | C-1.02 | DETAILED SITE PLAN

6 | C-1.03 | DETAILED SITE PLAN

7 | C-1.04 | DETAILED SITE PLAN

10 | C-1.07 | UTILITY PLAN

11 | C-1.08 | WATER PROFILES

12 | C-1.09 | SEWER PROFILES

17 C-1.14 LANDSCAPE PLAN

19 | C-1.16 | PHOTOMETRIC PLAN

38 | C-3.07 | SOIL BORING LOGS

39 C-3.08 SOIL BORING LOGS

ALTERNATE

ADDITION

TOWER

13 C-1.10 STORM DRAIN PROFILES

14 C-1.11 CONSTRUCTION DETAILS

15 C-1.12 CONSTRUCTION DETAILS

16 C-1.13 CONSTRUCTION DETAILS

18 C-1.15 LANDSCAPE DETAILS AND NOTES

20 | C-2.00 | STORMWATER MANAGEMENT PLAN

21 C-2.01 OVERALL EXISTING DRAINAGE AREA MAP

22 | C-2.02 | OVERALL PROPOSED DRAINAGE AREA MAP

23 | C-2.03 | STORMWATER MANAGEMENT FACILITY PLAN

24 C-2.04 STORMWATER MANAGEMENT FACILITY PLAN

25 | C-2.05 | STORMWATER MANAGEMENT FACILITY PLAN

26 | C-2.06 | STORMWATER MANAGEMENT FACILITY PLAN 27 | C-2.07 | STORMWATER MANAGEMENT FACILITY PLAN

28 | C-2.08 | STORMWATER MANAGEMENT FACILITY PLAN

29 | C-2.09 | STORMWATER MANAGEMENT DETAILS & NOTES

30 | C-2.10 | STORMWATER MANAGEMENT DETAILS & NOTES

31 C-3.00 OVERALL EROSION AND SEDIMENT CONTROL PLAN

32 C-3.01 FINAL GRADING, EROSION AND SEDIMENT CONTROL PLAN

33 | C-3.02 | FINAL GRADING, EROSION AND SEDIMENT CONTROL PLAN

34 | C-3.03 | FINAL GRADING, EROSION AND SEDIMENT CONTROL PLAN

35 | C-3.04 | FINAL GRADING, EROSION AND SEDIMENT CONTROL NOTES & DETAILS

37 | C-3.06 | FINAL GRADING, EROSION AND SEDIMENT CONTROL NOTES & DETAILS

BASE BID=28,450 SF

MAX HEIGHT=38'-4'

C-3.05 | FINAL GRADING, EROSION AND SEDIMENT CONTROL NOTES & DETAILS

8 C-1.05 ROAD PROFILES AND DETAILS

9 C-1.06 ROAD PROFILES AND DETAILS

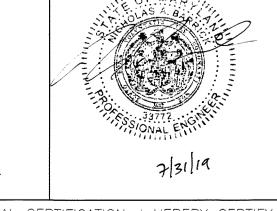
2 C-0.01 EXISTING CONDITIONS / DEMOLITION PLAN

SHEET DESCRIPTION

PARKING SPACES PROVIDED: 176 SPACES TOTAL = 6 SPACES HANDICAP = NORMAL SPOTS= 170 SPACES BIKE SPACES= BIKE RACK FOR 7

SHA NOTE
THE FOLLOWING SHA STANDARDS ARE REQUIRED FOR THIS PROJECT:
MD-104.02-01 - SHOULDER WORK/ 2-LANE, 2-WAY GREATER THAN 40
MD-104.02-03 - LANE SHIFT GREATER THAN 40 MPH
MD-104.02-09 - FLAGGING OPERATION 2-LANE,2 WAY GREATER THAN 40 MPH
MD-387.11 - LONGITUDINAL UNDERDRAIN LOCATED AT SHOULDER
FOR ALL STANDARDS REFERRED TO ON THE PLANS THE CONTRACTOR MUST GO TO
THE BOOK OF STANDARDS WHICH WILL HAVE THE MOST CURRENT VERSION. ALL
ITEMS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT VERSION OF
THE REFERENCED STANDARD AT THE TIME OF CONSTRUCTION.

CALL "MISS UTILITY" AT 1-800-257-7777, 48 HOURS PRIOR TO THE START OF WORK, THE EXCAVATOR MUST NOTIFY ALL PUBLIC UTILITY COMPANIES WITH UNDERGROUND FACILITIES IN THE AREA OF PROPOSED EXCAVATION AND HAVE THOSE FACILITIES LOCATED BY THE UTILITY COMPANIES PRIOR TO COMMENCING EXCAVATION



FUTURE

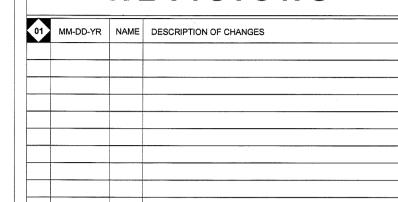
ADDITION

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 33772 EXP. DATE: 06/16/2021



ALL REPORTS, PLANS SPECIFICATIONS AND COMPUTER FILES RELATING TO THIS PROJECT ARE THE PROPERTY OF CRABTREE, ROHRBAUGH & ASSOCIATES THER RESERVED RIGHTS INCLUDING THE COPYRIGHT THERETO. REPRODUCTION OF THE MATERIAL HERIN OR SUBSTANTIAL USE WITHOUT WRITTEN PERMISSION CRABTREE, ROHRBAUGH & ASSOCIATES VIOLATES THE COPYRIGHT LAWS OF THE UNITED STATES AND WILL BE SUBJECT TO LEGAL PROSECUTION.
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CIVIL KCI TECHNOLOGIES **COUNTY BOARD OF** INC. 11830 W. MARKET

PLACE, SUITE F **FULTON. MD 20759** 410-792-8086 (P) 410-792-7419 (F)

PROJECT 3089

PLOT SCALE: KCI# 271703606

WASHINGTON

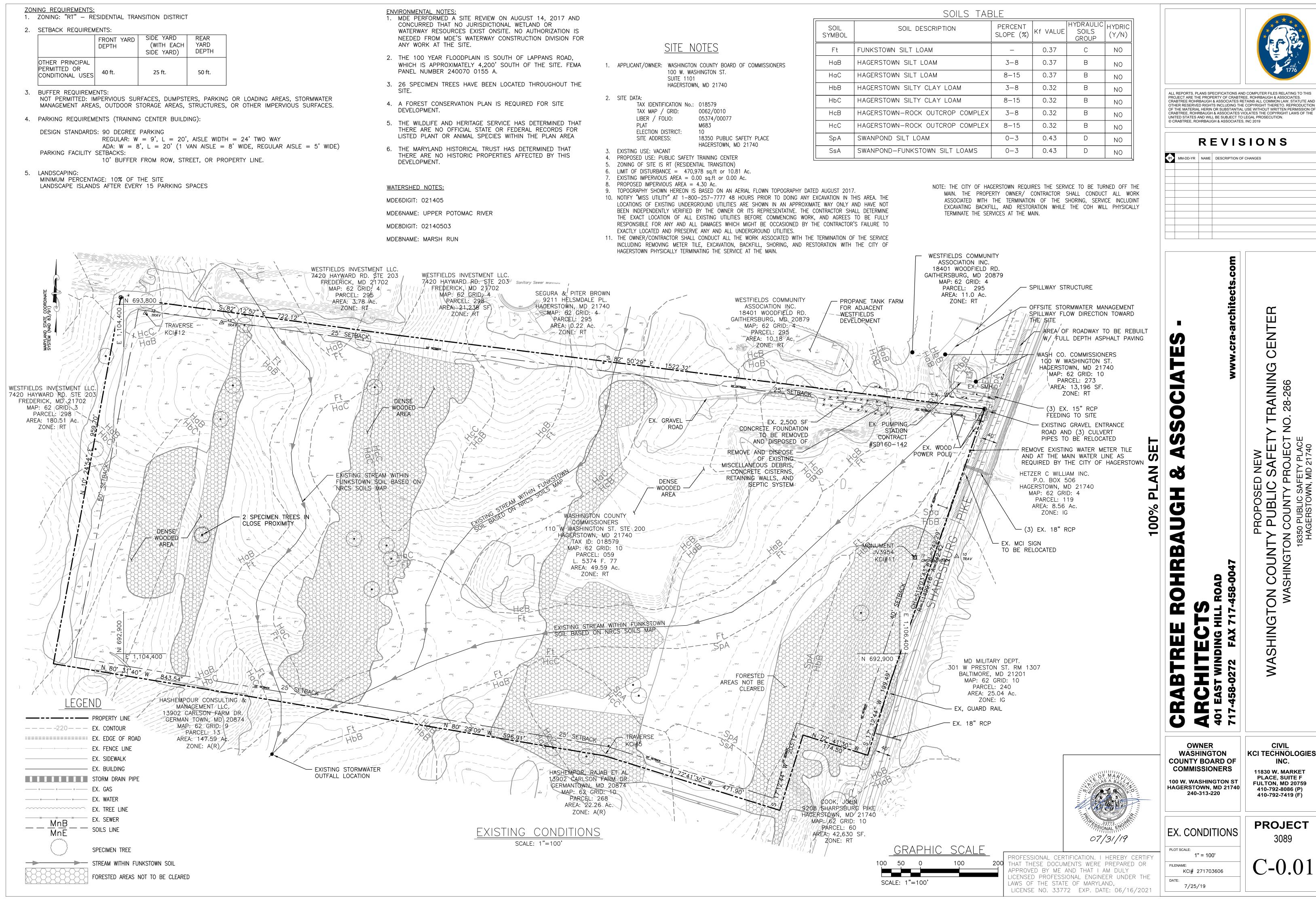
COMMISSIONERS

100 W. WASHINGTON ST

HAGERSTOWN, MD 21740

240-313-220

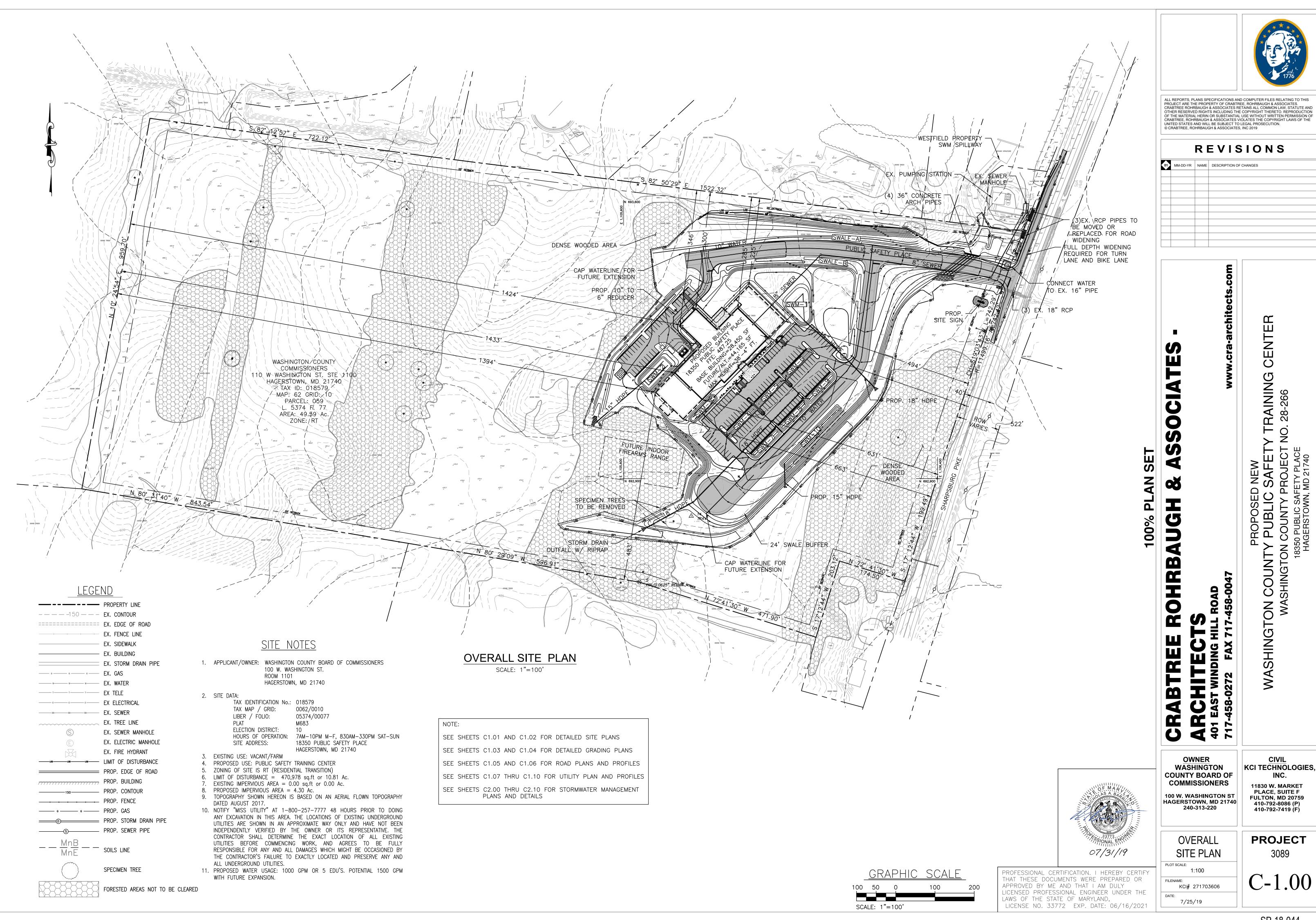
7/25/19

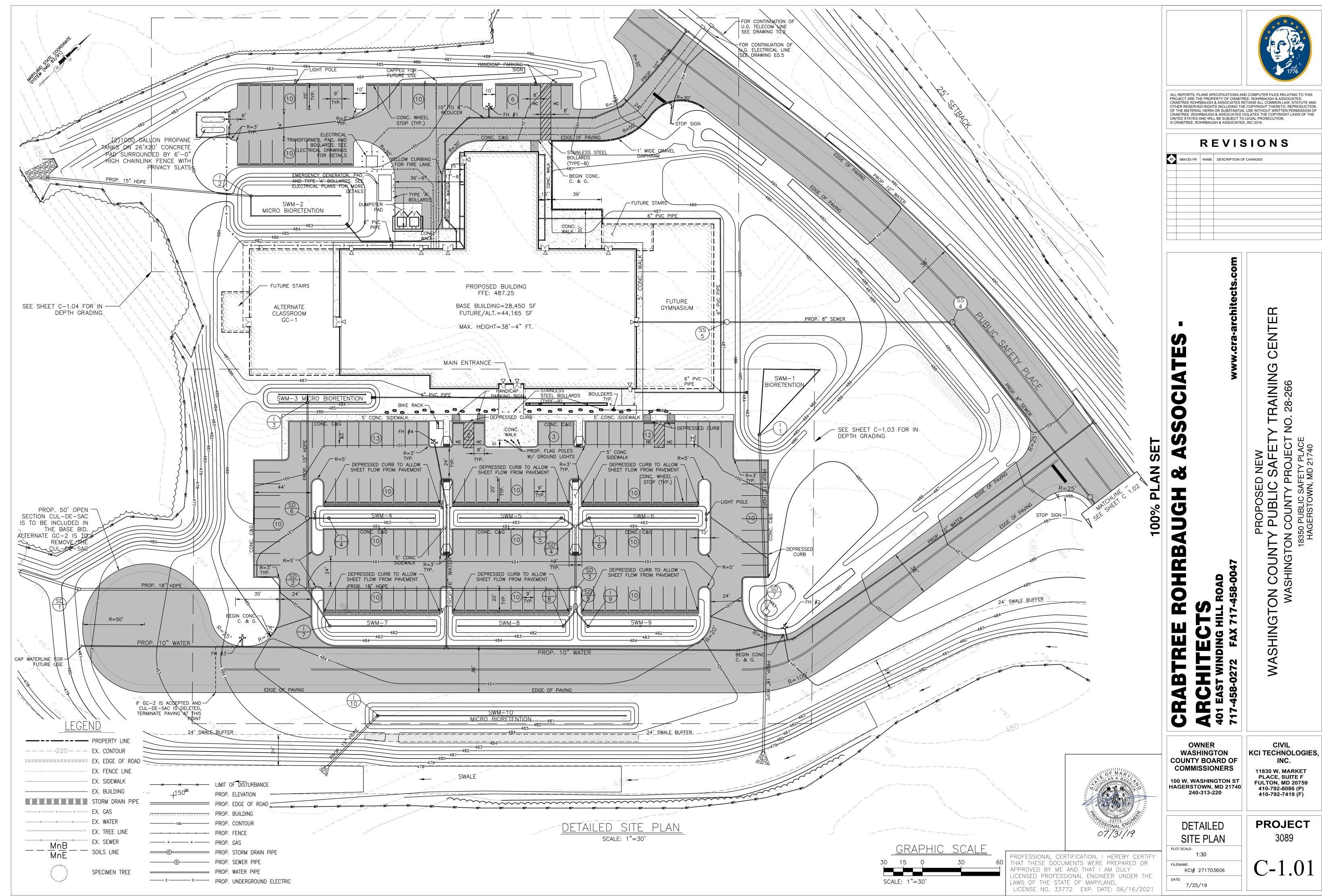


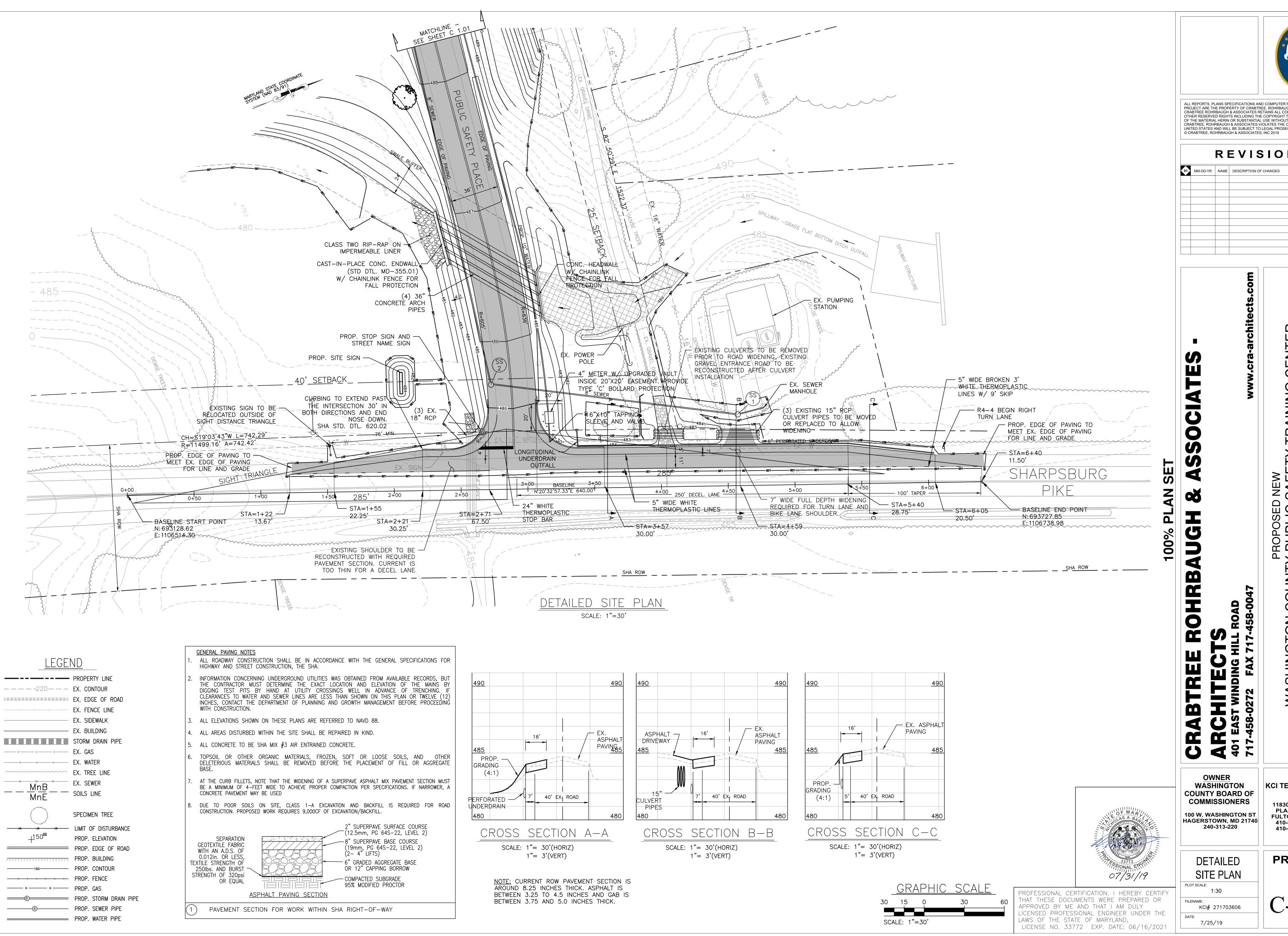
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01	MM-DD-YR	NAME	DESCRIPTION OF CHANGES
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PROJECT









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CRABTREE ROHRBAUGH & ASSOCIATES RETAINS ALL COMMON LAW, STATUTE AND OF THE MATERIAL HERIN OR SUBSTANTIAL USE WITHOUT WRITTEN PERMISSION OF CRABTREE, ROHRBAUGH & ASSOCIATES VIOLATES THE COPYRIGHT LAWS OF THE UNITED STATES AND WILL BE SUBJECT TO LEGAL PROSECUTION.

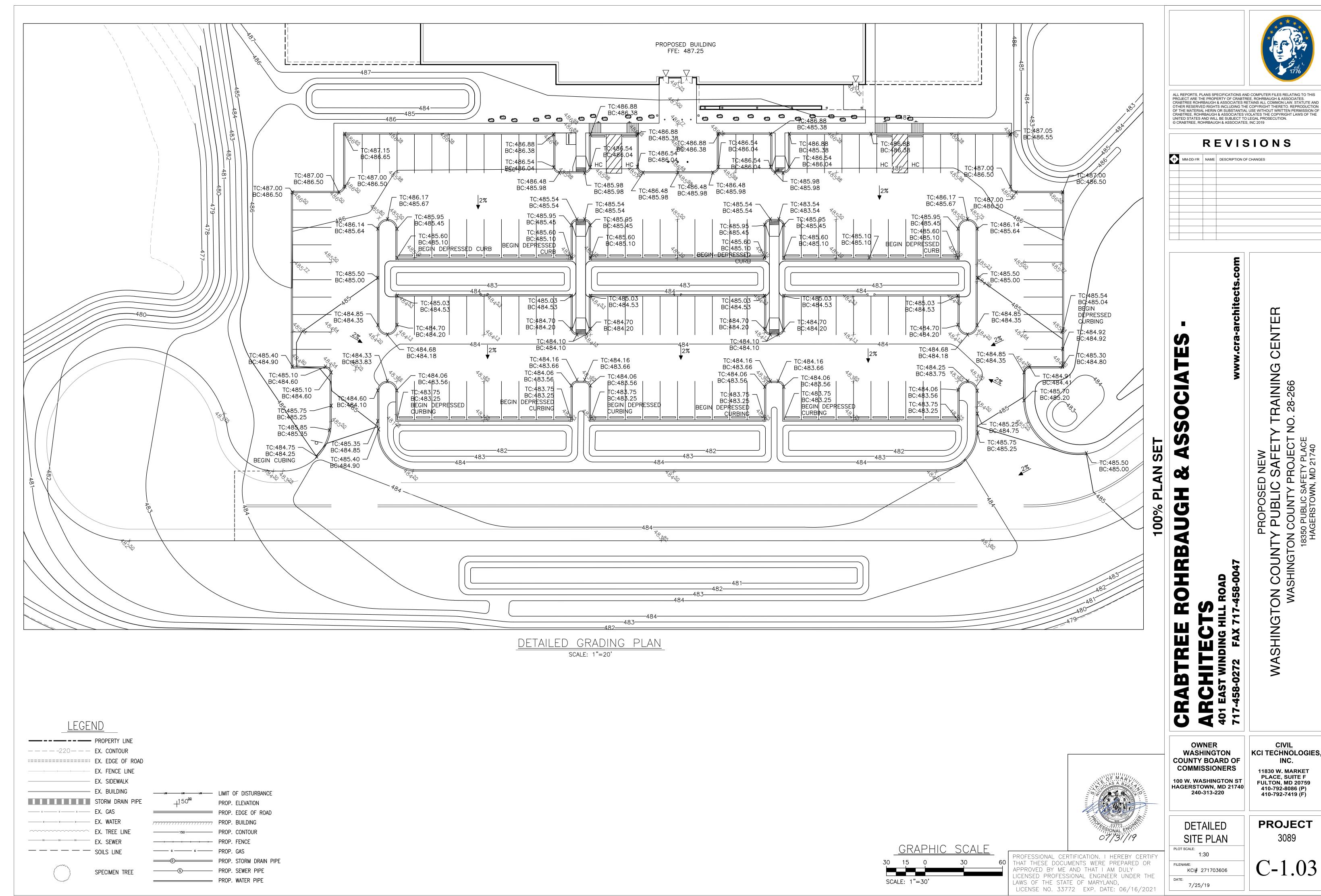
01	MM-DD-YR	NAME	DESCRIPTION OF CHANGES

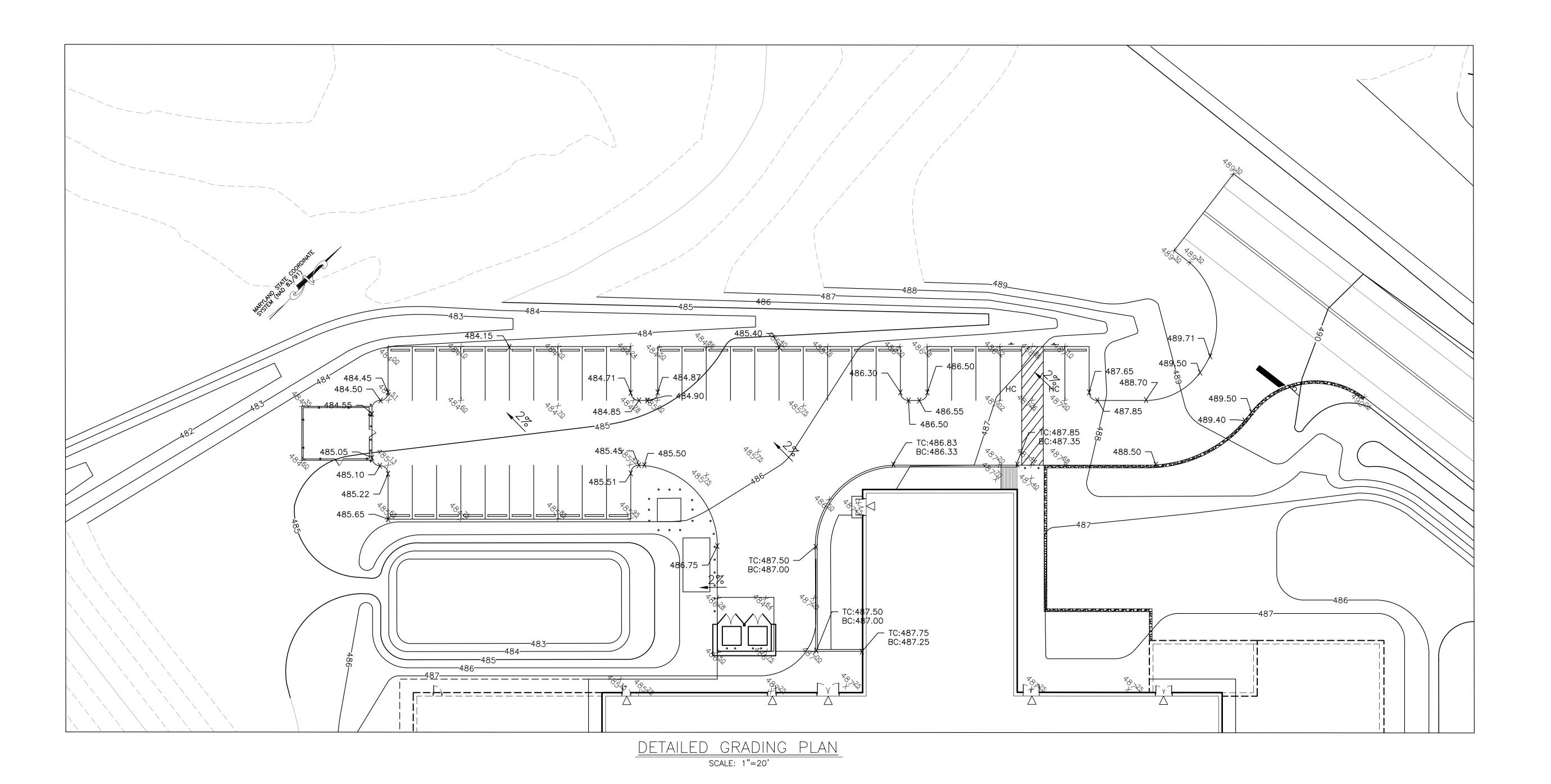
CIVIL KCI TECHNOLOGIES,

11830 W. MARKET PLACE, SUITE F **FULTON**, **MD** 20759 410-792-8086 (P) 410-792-7419 (F)

PROJECT 3089

C-1.02





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REVISIONS

01 MM-DD-YR NAME DESCRIPTION OF CHANGES

WASHINGTON COUNTY BOARD OF COMMISSIONERS 100 W. WASHINGTON ST HAGERSTOWN, MD 21740 240-313-220 DETAILED

FILENAME:

DATE:

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY
THAT THESE DOCUMENTS WERE PREPARED OR
APPROVED BY ME AND THAT I AM DULY

LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND,

LICENSE NO. 33772 EXP. DATE: 06/16/2021

OWNER

CIVIL KCI TECHNOLOGIES,

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PROJECT

C-1.04

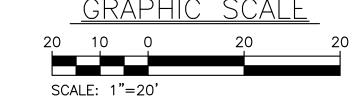
3089 SITE PLAN 1:20 KCI# 271703606 7/25/19

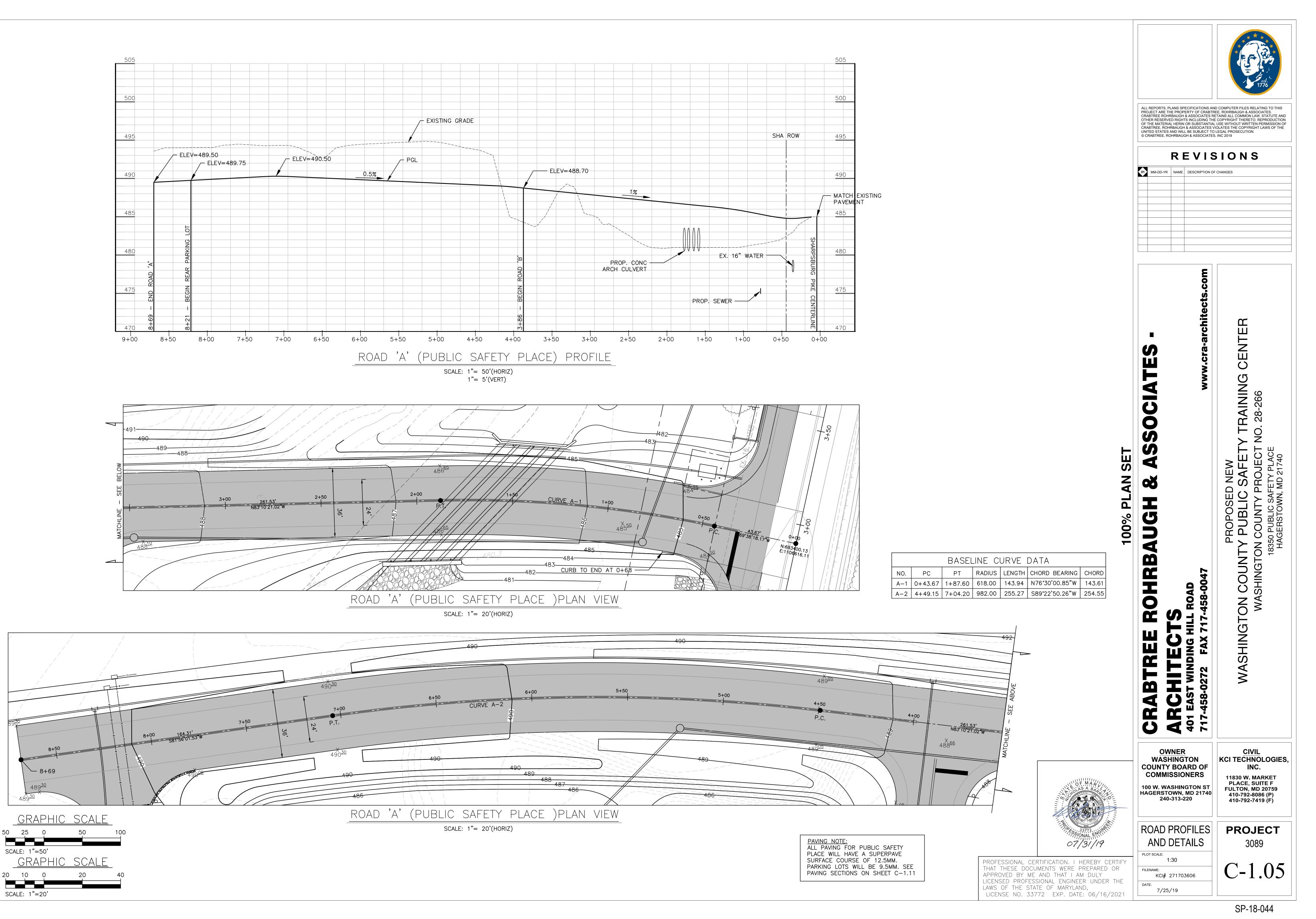
PROP. ELEVATION _____ PROP. EDGE OF ROAD PROP. BUILDING PROP. CONTOUR

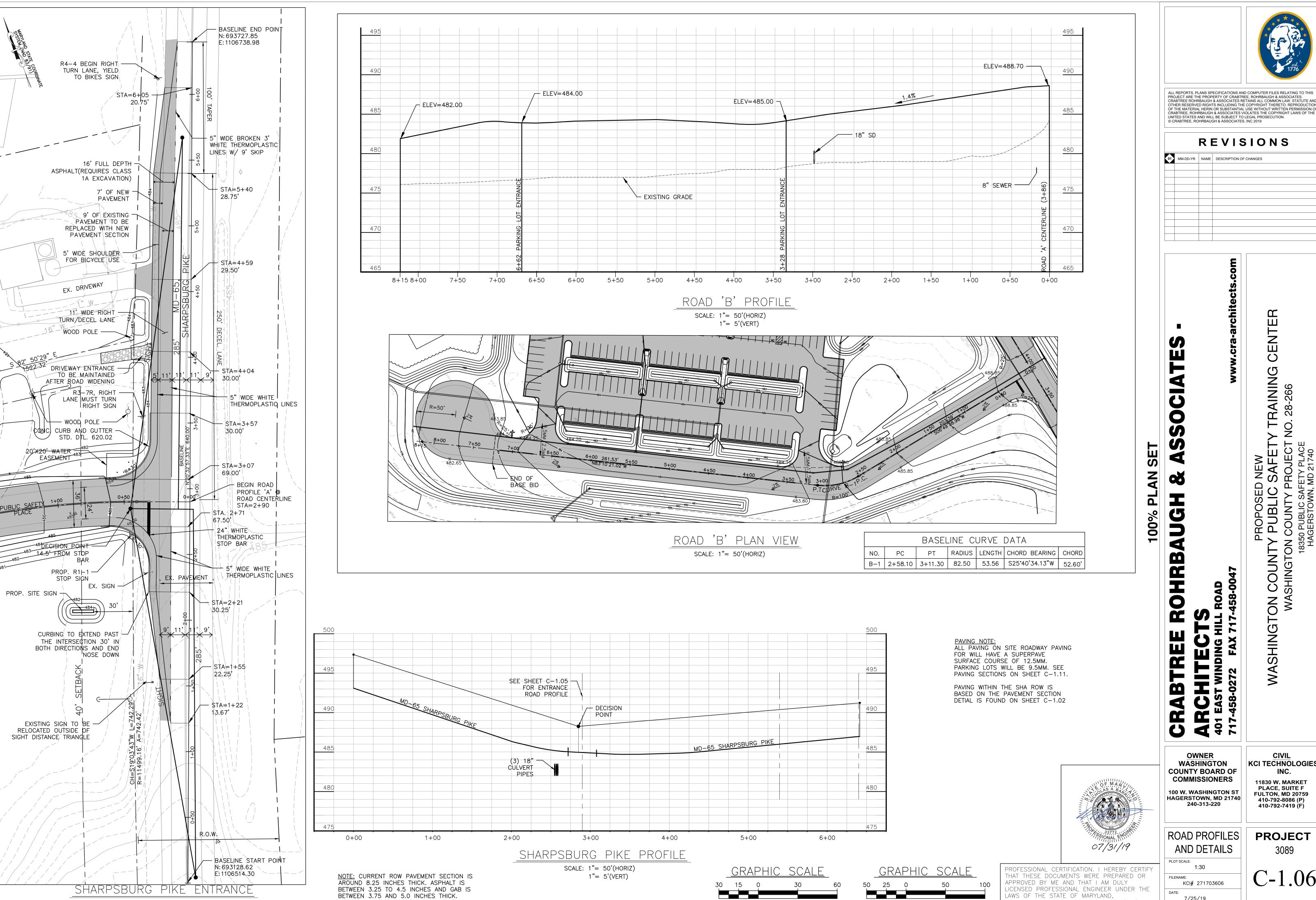
<u>LEGEND</u>

PROPERTY LINE

_____ **EX. CONTOUR**







SCALE: 1"=30'

SCALE: 1"=50'

BETWEEN 3.75 AND 5.0 INCHES THICK.

SCALE: 1"= 30'

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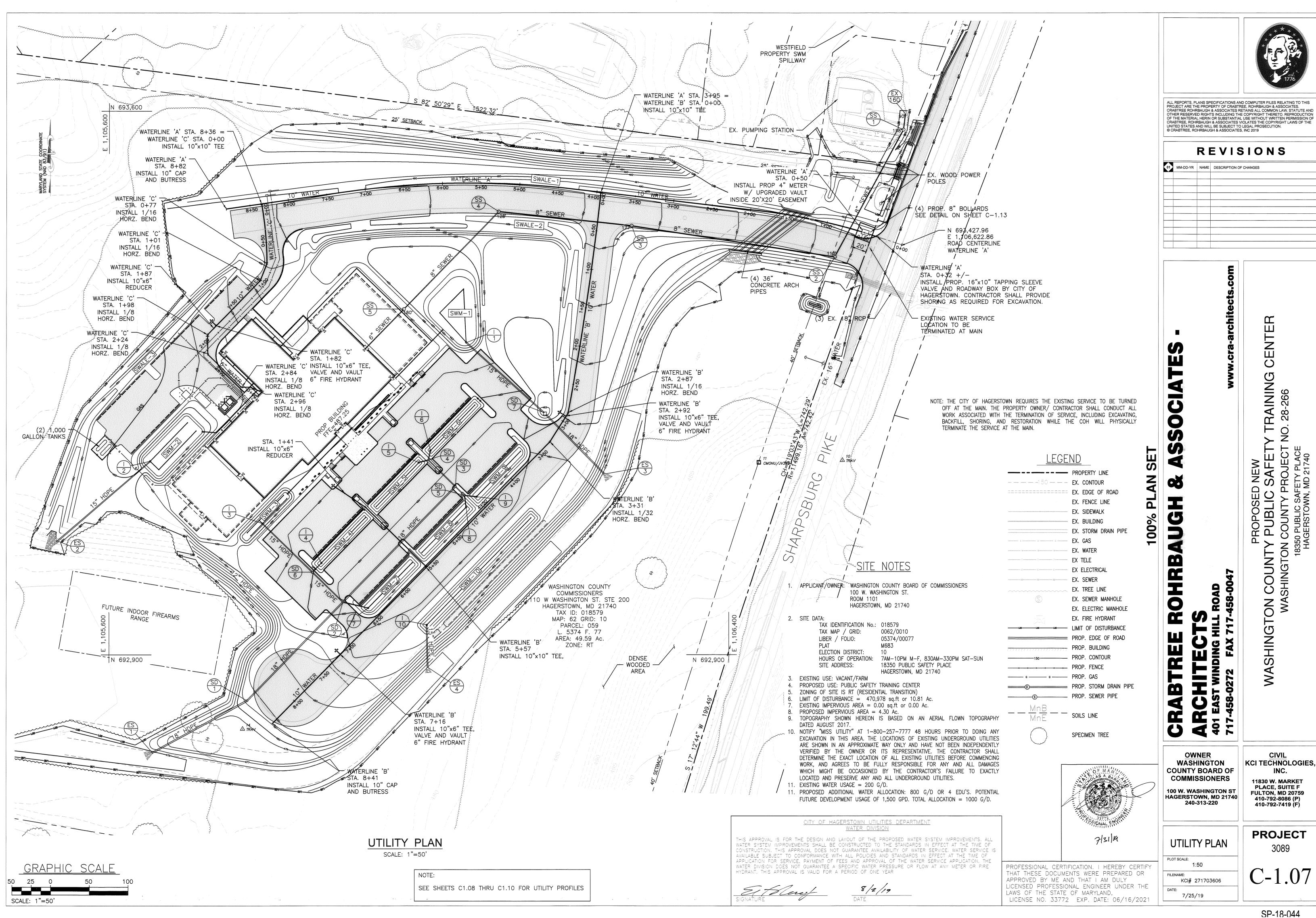
11830 W. MARKET PLACE, SUITE F FULTON, MD 20759 410-792-8086 (P) 410-792-7419 (F)

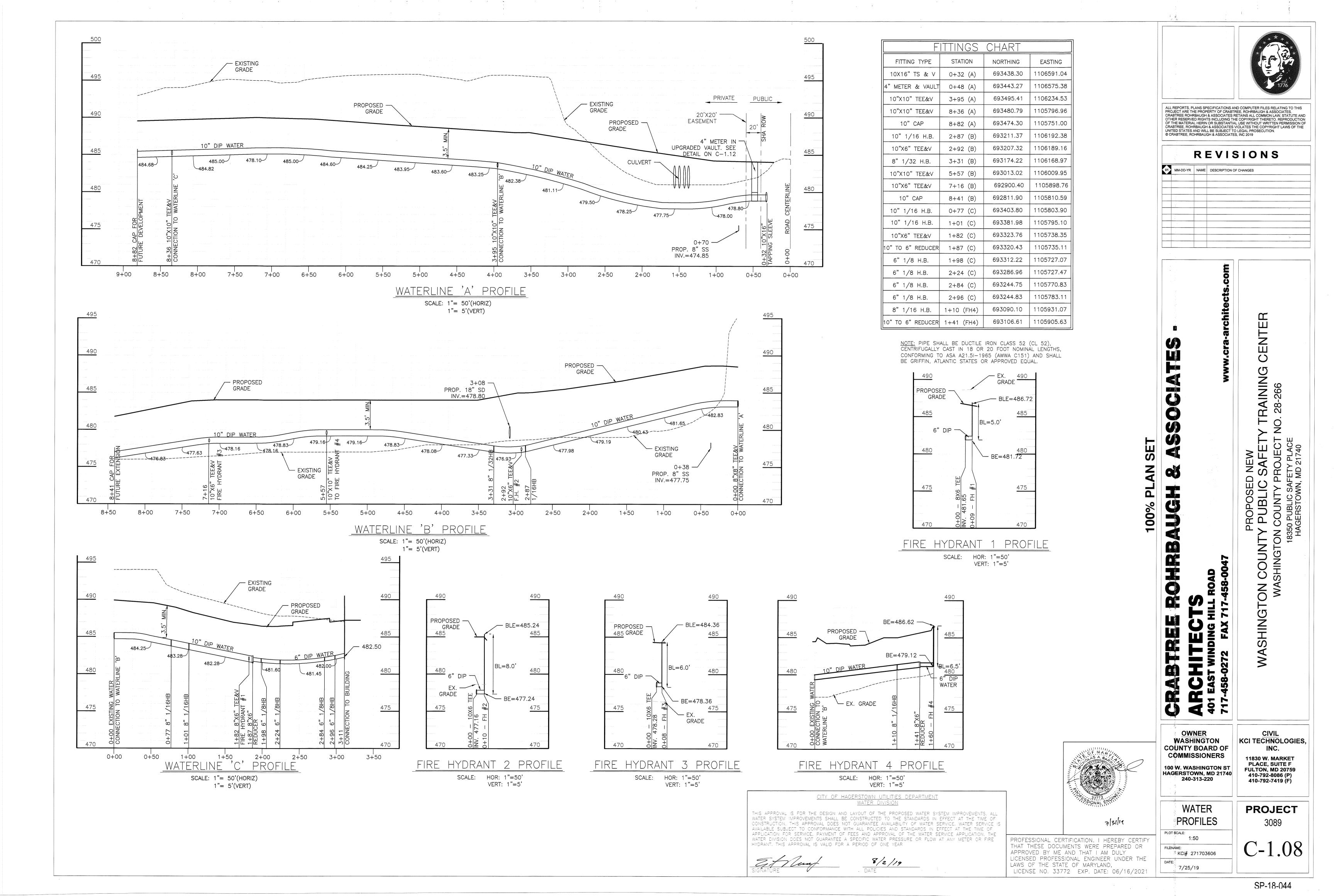
PROJECT 3089

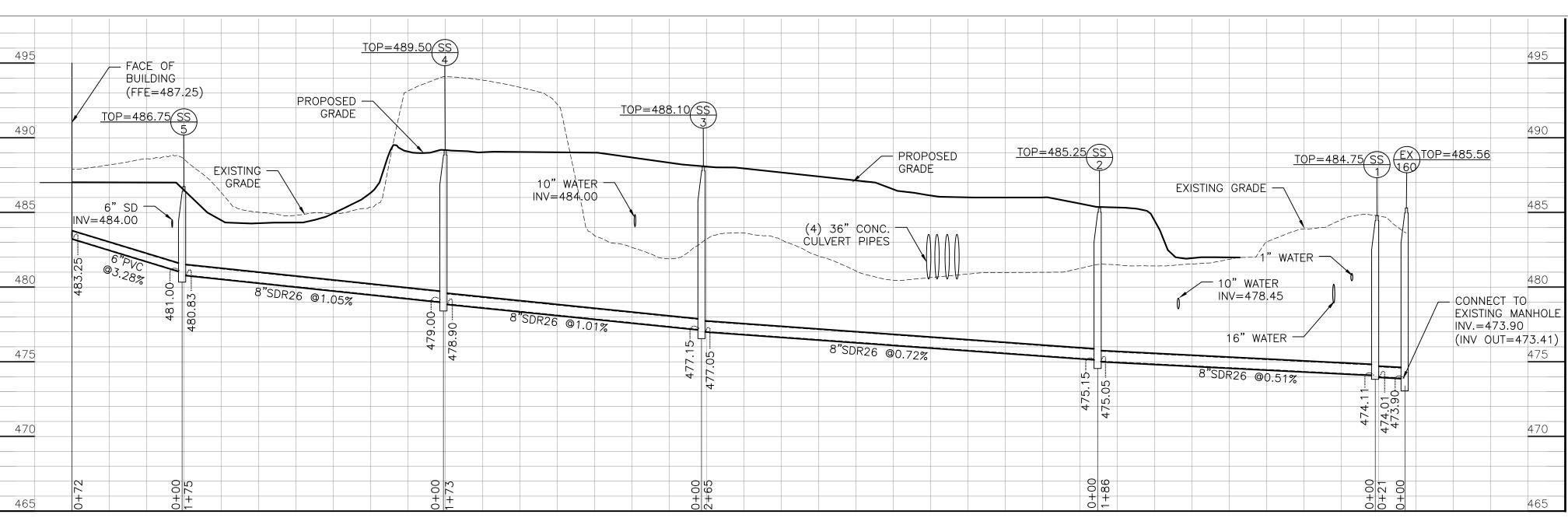
DATE:

LICENSE NO. 33772 EXP. DATE: 06/16/2021

7/25/19







SEWER LINE PROFILE SCALE: 1"= 50'(HORIZ) 1"= 5'(VERT)

-BRUSH FINISH

TROWEL FINISH

NO SCALE

Plans of Flow Channels (Typical)

RADIUS (R) EQUAL TO 1/2 D MINIMUM

Detail

Washington County, MD Div.of

Environmental Management

CHANNELS

EVENLY TAPER CHANNEL WIDTHS

FROM INVERT IN TO INVERT OUT

Washington County, MD Div.of

FOR DIFFERING PIPE DIAMETERS.

REVISED

REVISED

BENCHES

SEWER STRUCTURE TABLE

STRUCTURE NAME	TOP ELEVATION	INVERT IN	INVERT OUT	NORTHING	EASTING	DESCRIPTION
EX-160	485.56	473.90	_	693597.31	1106627.88	EX. MANHOLE AT PUMP STATION
SS-1	484.75	474.11	474.01	693576.02	1106625.00	48" STD. MANHOLE (S-2.1)
SS-2	485.25	475.15	475.05	693412.37	1106536.85	48" STD. MANHOLE (S-2.1)
SS-3	488.10	477.15	477.05	693452.42	1106274.45	48" STD. MANHOLE (S-2.1)
SS-4	489.50	479.00	478.90	693470.63	1106102.52	48" STD. MANHOLE (S-2.1)
SS-5	486.75	481.00	480.83	693345.24	1105980.36	48" STD. MANHOLE (S-2.1)

MANHOLE

AT 3/4 DIAMETER OF

PIPE, BEGIN 2" RADIUS ROUNDING —

REVISED

Washington County, MD Div.of

Environmental Management

SEE NOTE 1

SECTION A-A

NO SCALE

Typical Bench and Flow

Channel Section Precast Base

1. ALL BENCHES SHALL SLOPE AT 1/4" /FT. TOWARD FLOW

SLOPE 0.1 FT. FROM INVERT IN

SHALL MATCH GRADE FOR

PIPE ROUNDNESS & DIAMETER.

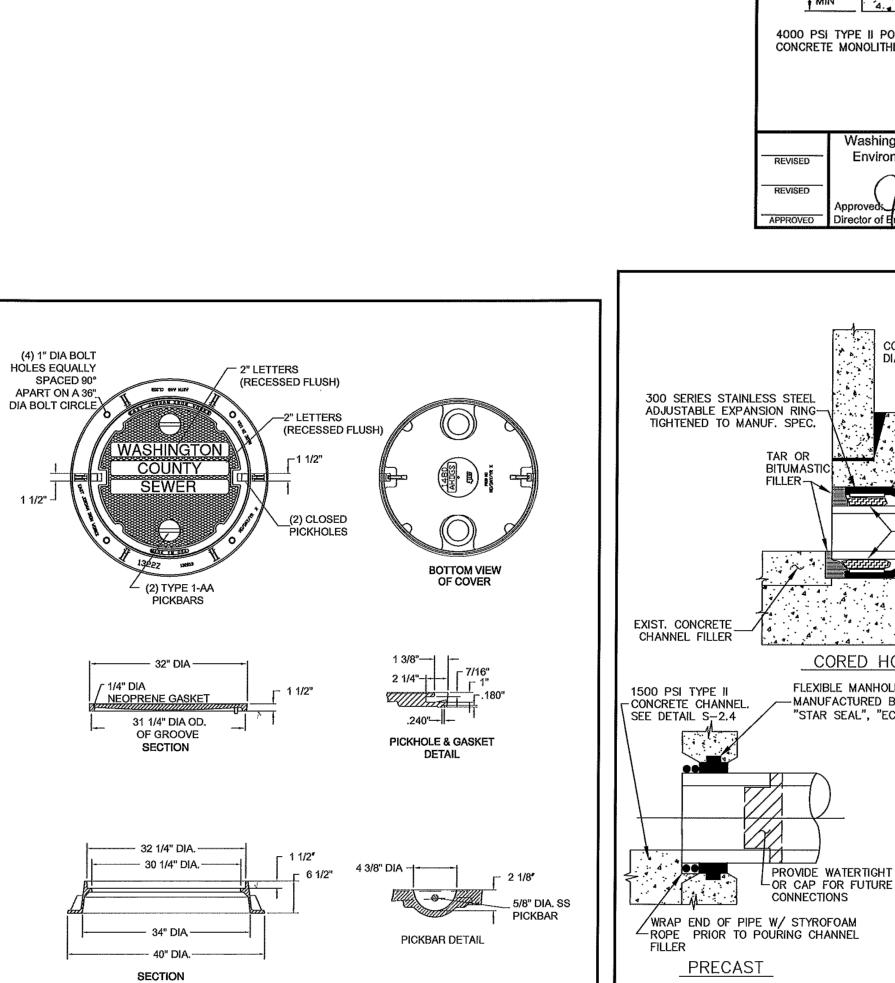
DIFFERING DIAMETERS.

I. SEE DETAIL S-2.5 FOR TYPICAL CONFIGURATIONS.

3. CHANNEL SHALL CONFORM

TO INVERT OUT OR PIPE CROWN

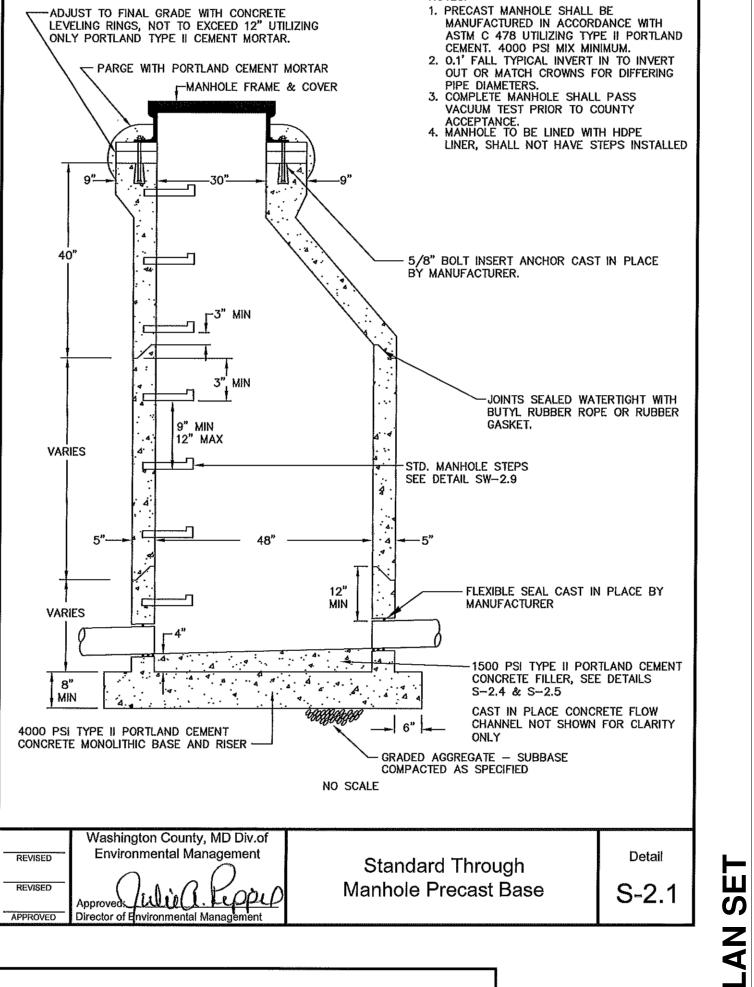
2. FLOW CHANNELS SHALL



Standard Manhole

Frame & Cover

Detail



CORE DRILL MANUF. SPECIFIED DIAMETER, NORMAL TO WALL "KOR-N-SEAL I - WEDGE -KORBAND" OR EQUAL, 0.35 INCH MIN. THICKNESS ALL STAINLESS STEEL TIGHTENING BAND & HARDWARE PACKING PER SPEC. CORED HOLE FLEXIBLE MANHOLE SEAL AS MANUFACTURED BY FLEXIBLE MANHOLE SEAL AS -MANUFACTURED BY "A-LOK", "A-LOK", "STAR SEAL", "STAR SEAL", "ECONOSEAL", OR EQUAL "ECONOSEAL", OR EQUAL WATERTIGHT PUSH PLUG PROVIDE WATERTIGHT PLUG OR CAP FOR FUTURE PRE-CAST PRECAST **FUTURE CONNECTION** NO SCALE Washington County, MD Div.of **Environmental Management** Manhole Pipe Connections SW-2.10

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OWNER

COUNTY BOARD OF

COMMISSIONERS

100 W. WASHINGTON ST

HAGERSTOWN, MD 21740

240-313-220

1:50

KCI# 271703606

7/25/19

PLOT SCALE:

DATE:

WASHINGTON

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7	MM-DD-YR	NAME	DESCRIPTION OF CHANGES
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PROJECT SEWER PROFILE 3089

CIVIL

11830 W. MARKET

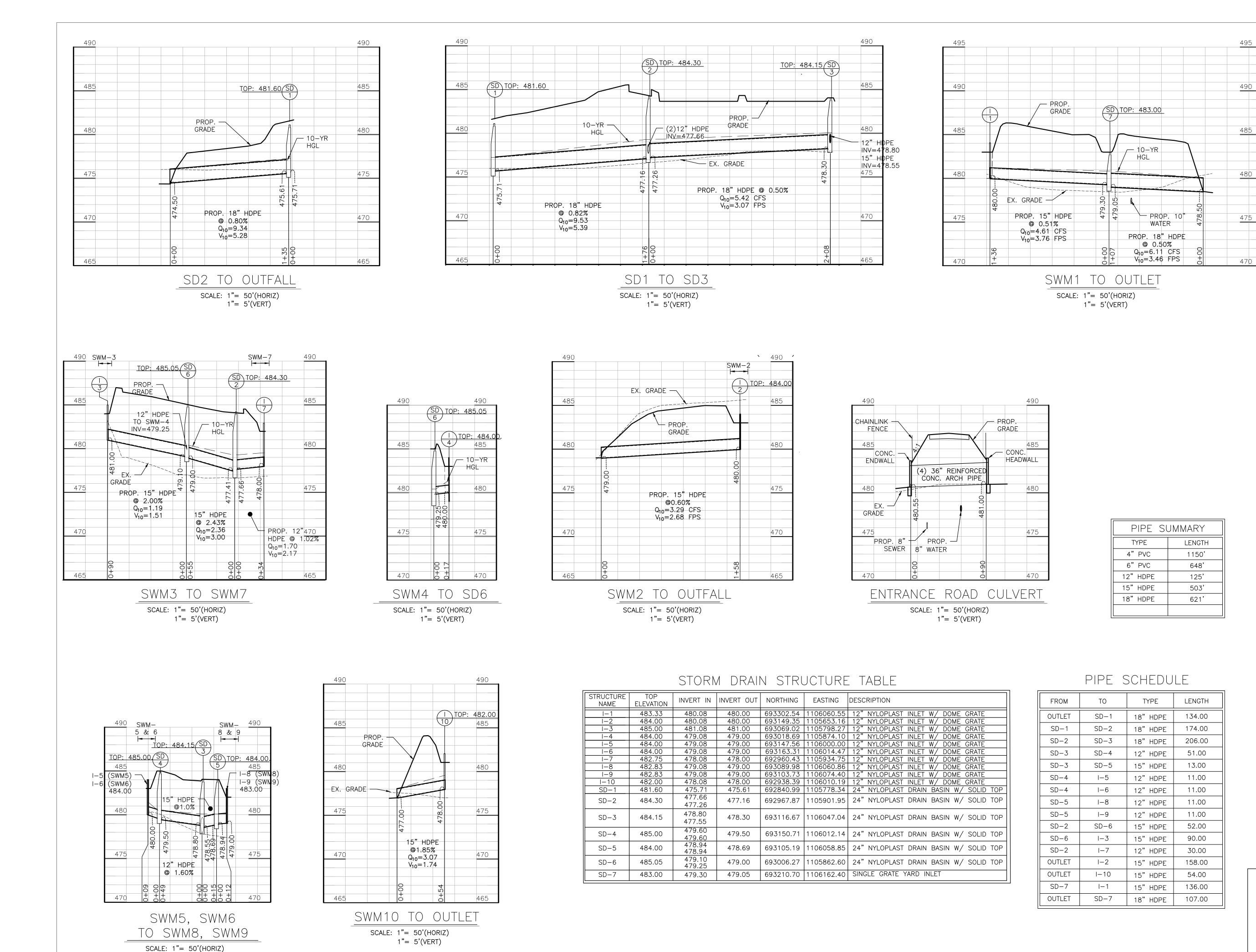
PLACE, SUITE F

FULTON, MD 20759

410-792-8086 (P)

410-792-7419 (F)

KCI TECHNOLOGIES,



NOTE: STORM DRAIN PIPE FLOW AND HGL CALCULATIONS

ARE BASED ON WORST CASE SCENARIO WHERE BIORETETNION FACILITIES TO NOT INFILTRATE AND THE

STORMWATER RUNS DIRECTLY INTO THE INLET PIPES.
FLOWS WHEN THE FACULTIES RUN CORRECTLY WILL BE

MUCH LOWER

1"= 5'(VERT)

NOTE: STORM DRAIN PIPE SHALL BE PLACED ON 95% COMPACTED FILL ACCORDING TO AASHTO T180A STANDARDS

GRAPHIC SCALE

50 25 0

SCALE: 1"= 50'(HORIZ)

1"= 5'(VERT)

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HRB/ O ď CRABTREE **OWNER** WASHINGTON **COUNTY BOARD OF COMMISSIONERS** 100 W. WASHINGTON ST **HAGERSTOWN, MD 21740** 240-313-220

PLOT SCALE:

DATE:

7/25/19

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PROPOSED NEW ON COUNTY PUBLIC SAFI WASHINGTON COUNTY PROJE 4 6 7 1 CIVIL KCI TECHNOLOGIES, INC. 11830 W. MARKET PLACE, SUITE F **FULTON**, MD 20759 410-792-8086 (P)

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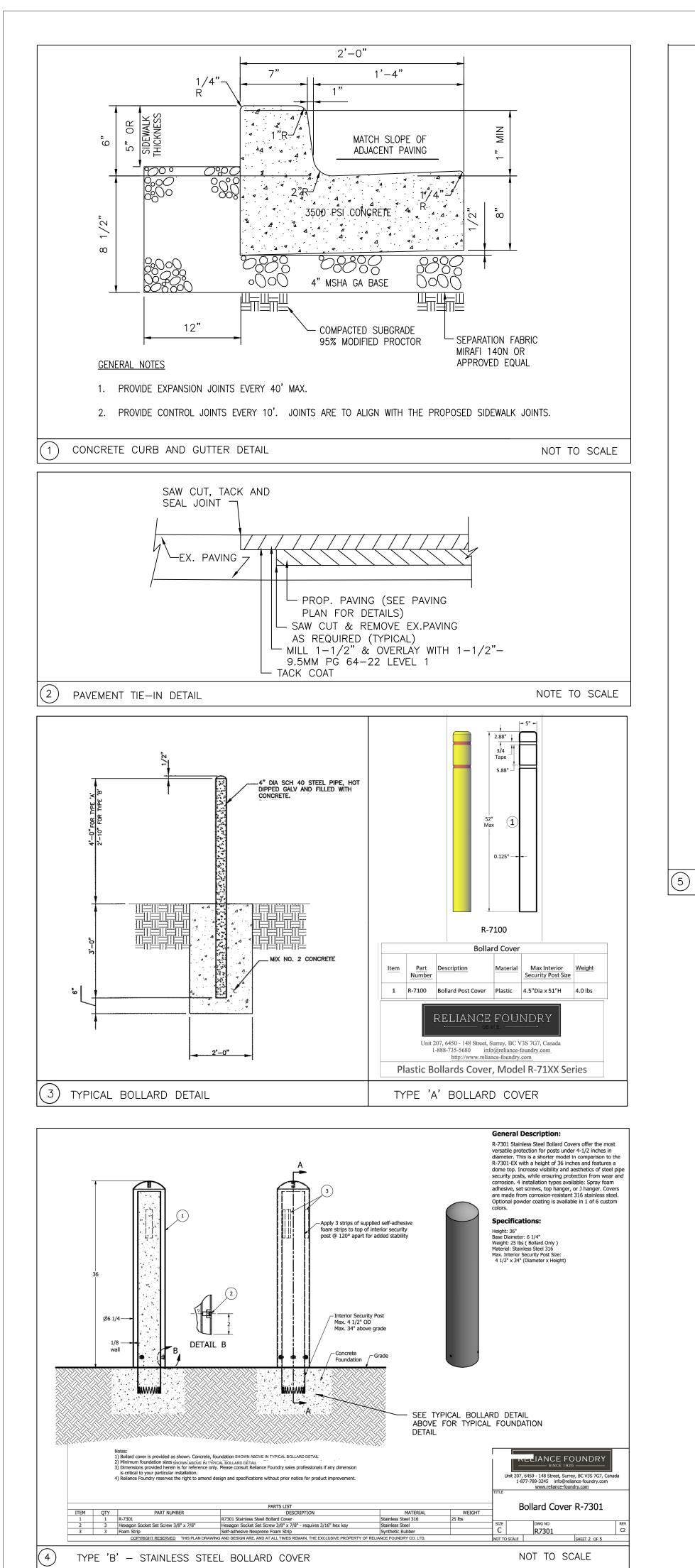
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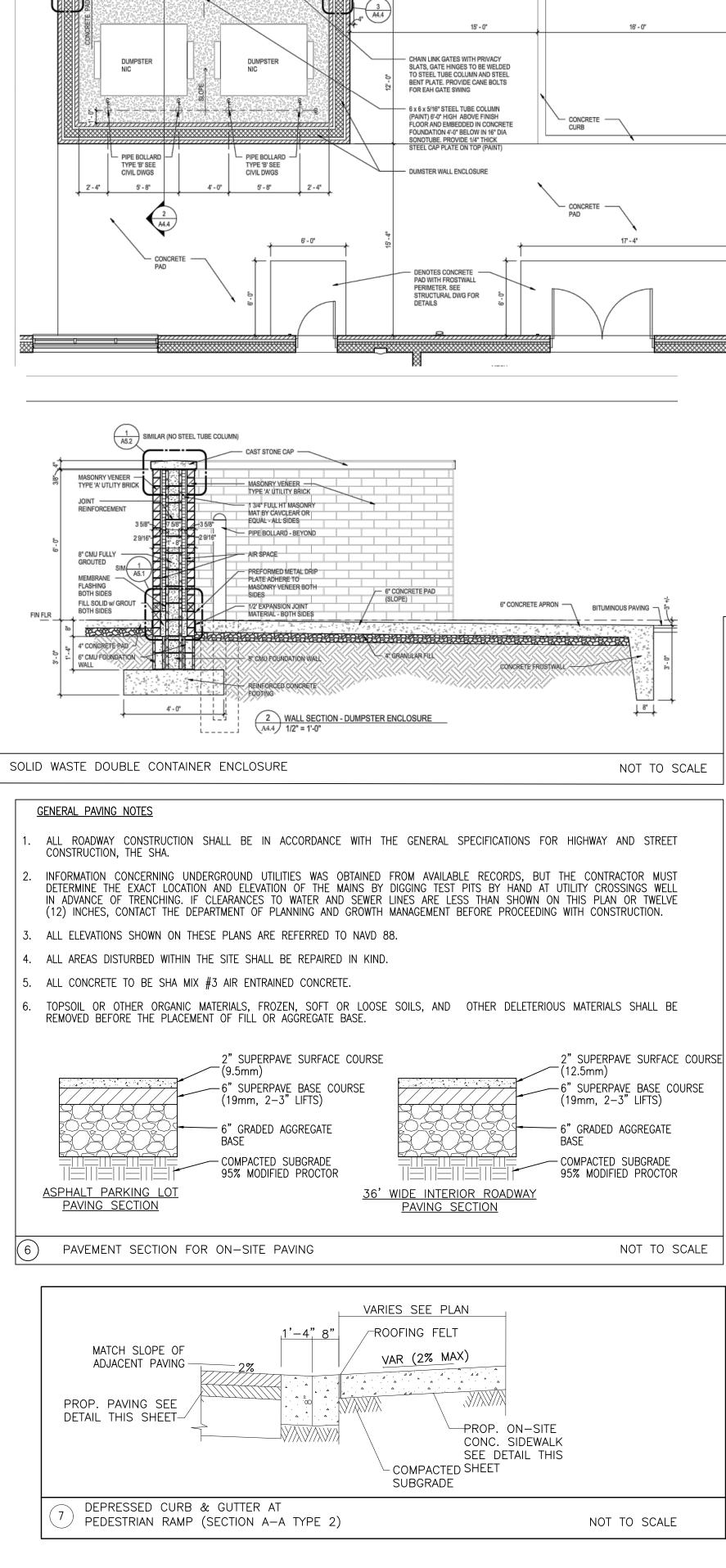
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01 MM-DD-YR NAME DESCRIPTION OF CHANGES

SWM OUTFALL **PROJECT PROFILES** 3089 1:50 KCI# 271703606

410-792-7419 (F)

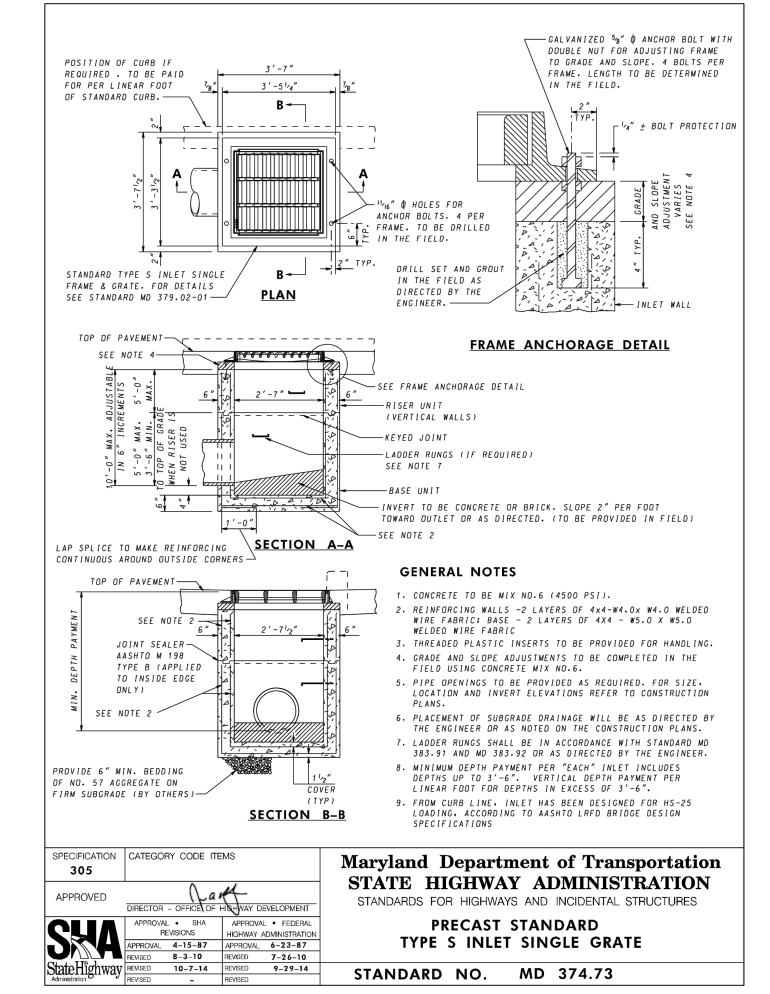


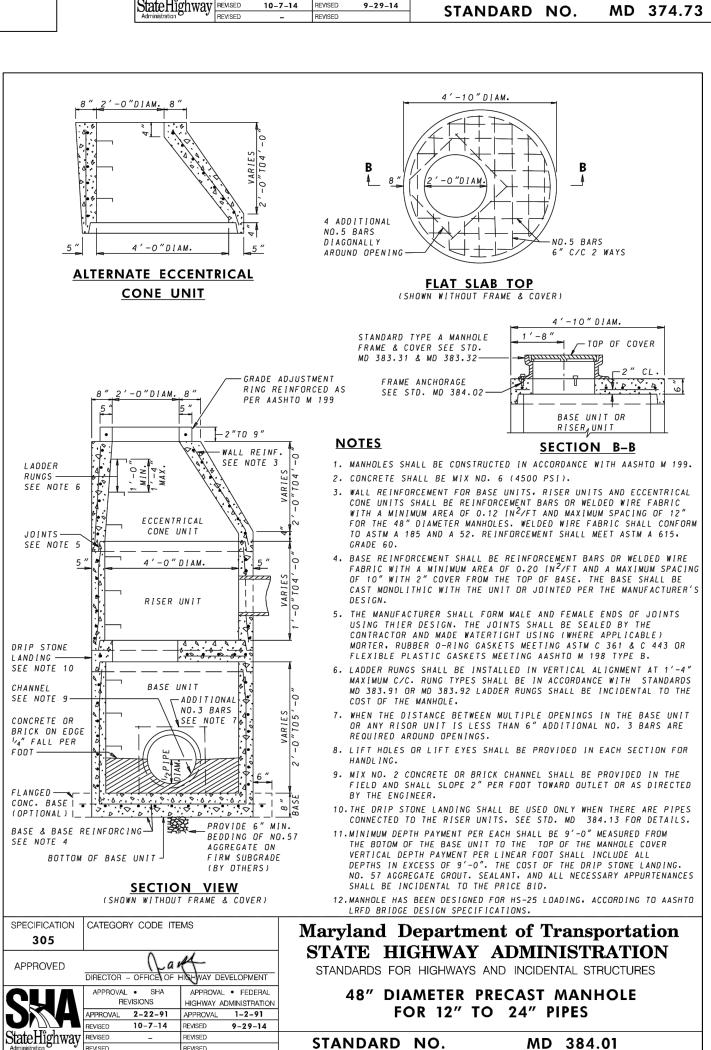


CONCRETE APRON FLUSH WITH PAVING

CONCRETE APRON WITH FROSTWALL

ALIGN FACE OF STEEL TUBE COLUMN WITH FACE OF STEEL BENT PLATE





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OWNER WASHINGTON **COUNTY BOARD OF** COMMISSIONERS 100 W. WASHINGTON ST **HAGERSTOWN, MD 21740** 240-313-220

CIVIL KCI TECHNOLOGIES, 11830 W. MARKET PLACE, SUITE F **FULTON, MD 20759** 410-792-8086 (P) 410-792-7419 (F)

PROJECT

3089

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APPROVED BY ME AND THAT I AM DULY

LAWS OF THE STATE OF MARYLAND,

PLOT SCALE: KCI# 271703606 7/25/19

CONSTRUCTION

SP-18-044

0 03 RB 0 **m**

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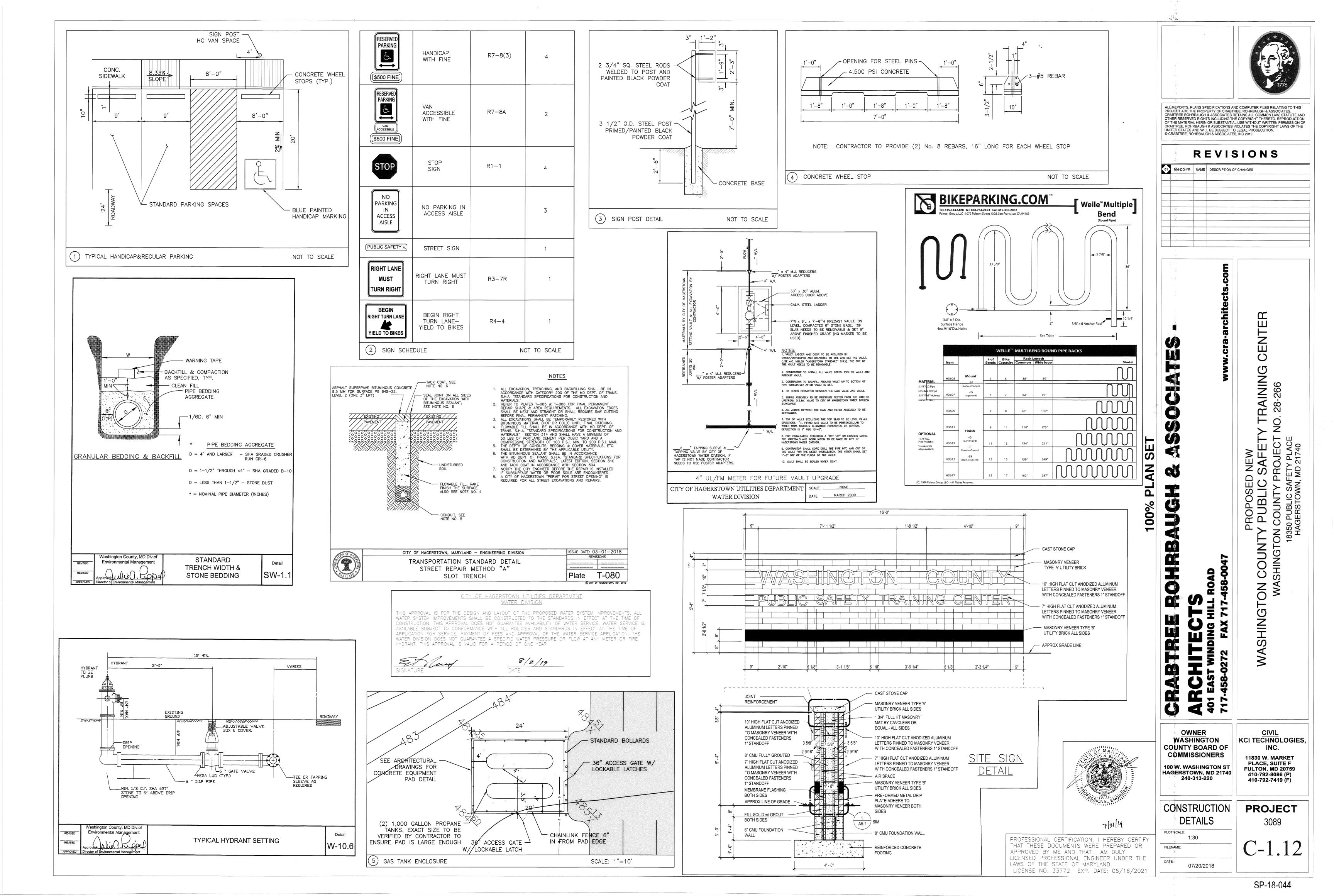
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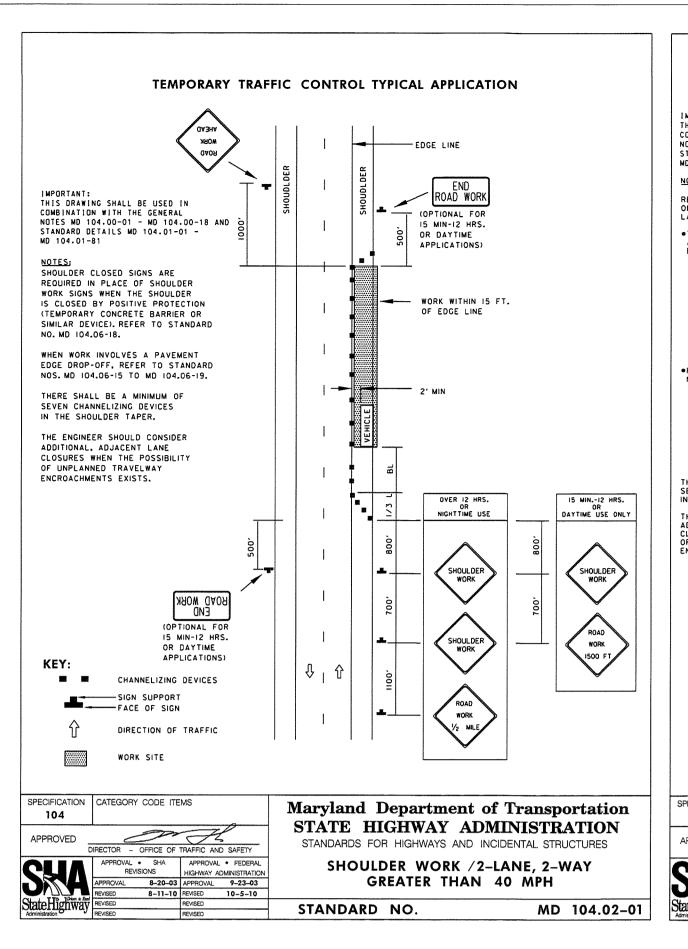
REVISIONS

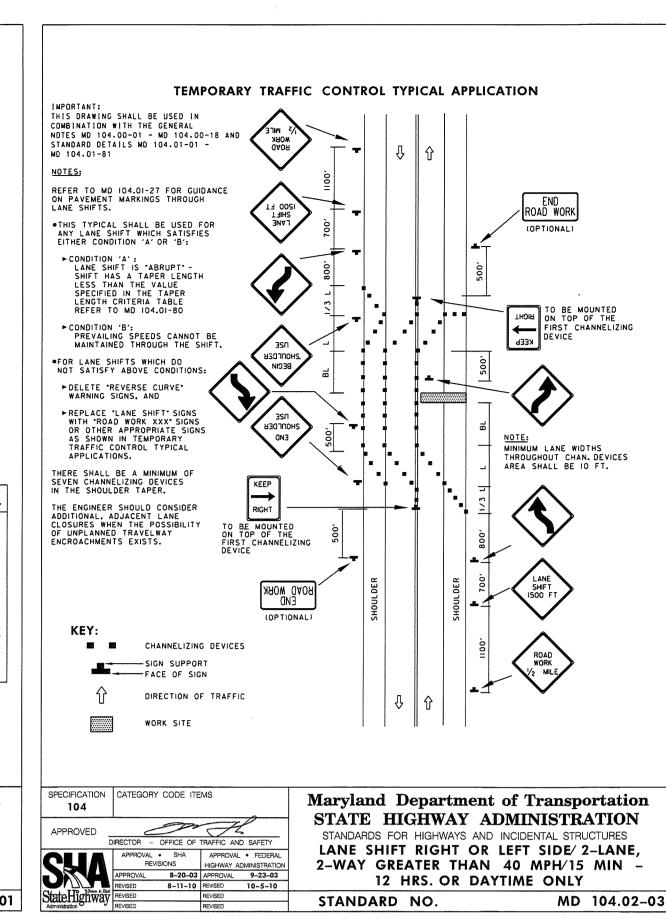
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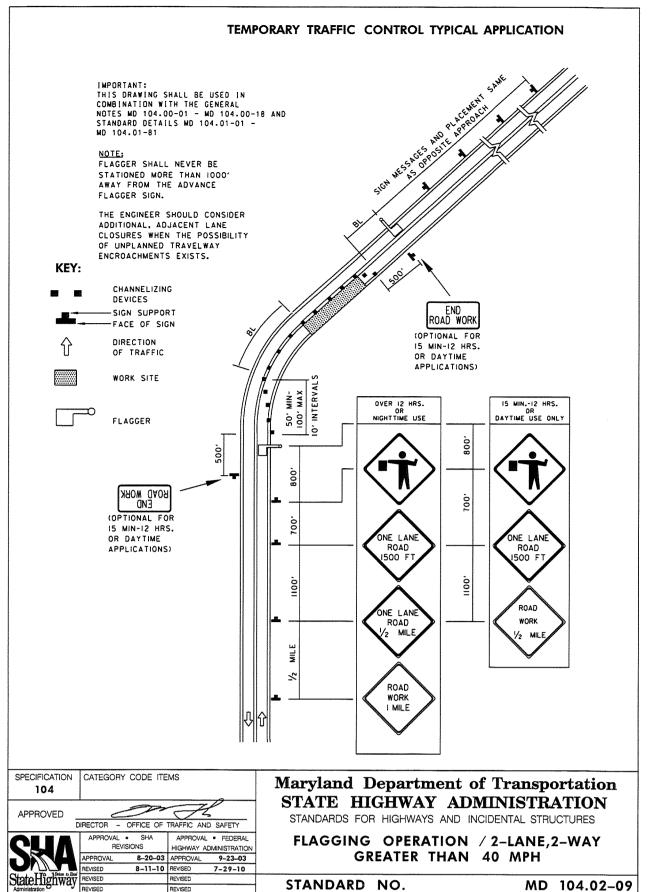
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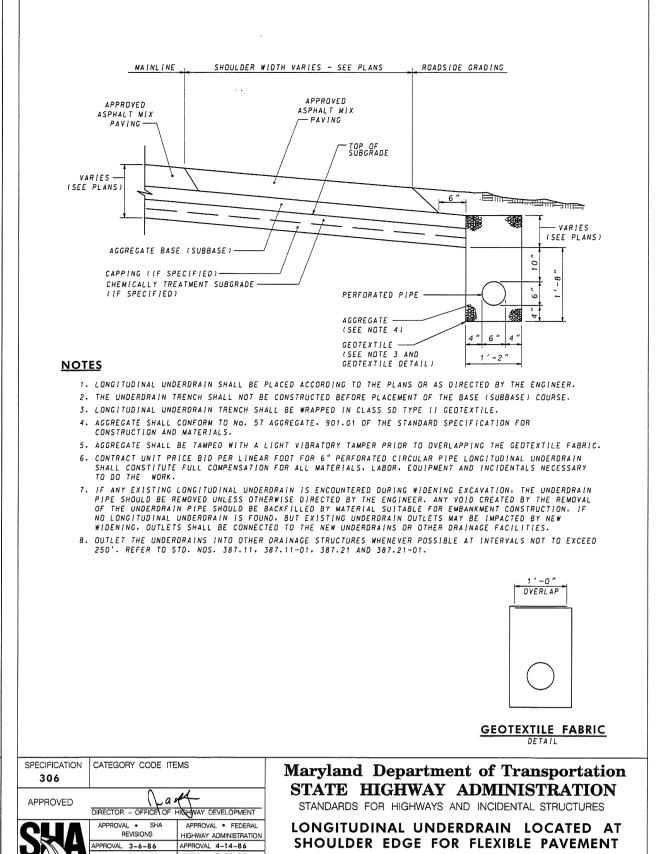
01 MM-DD-YR NAME DESCRIPTION OF CHANGES





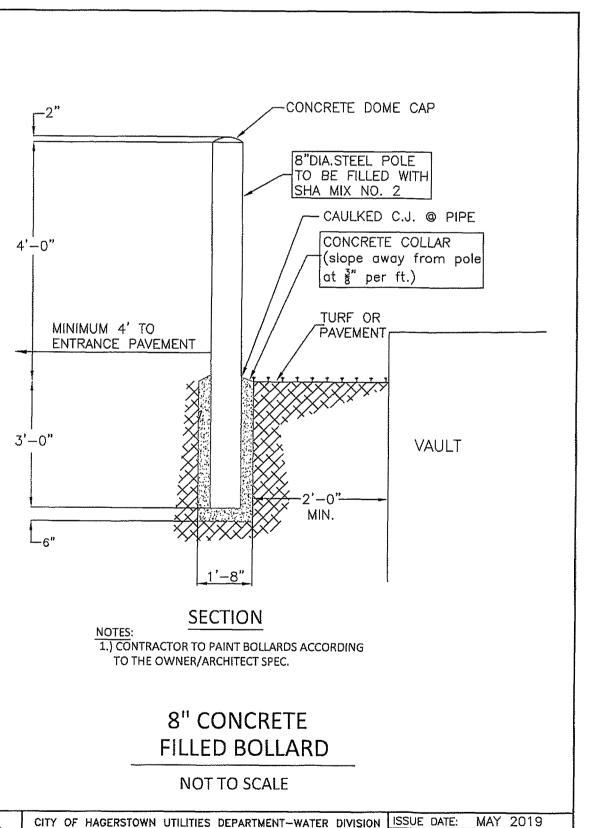




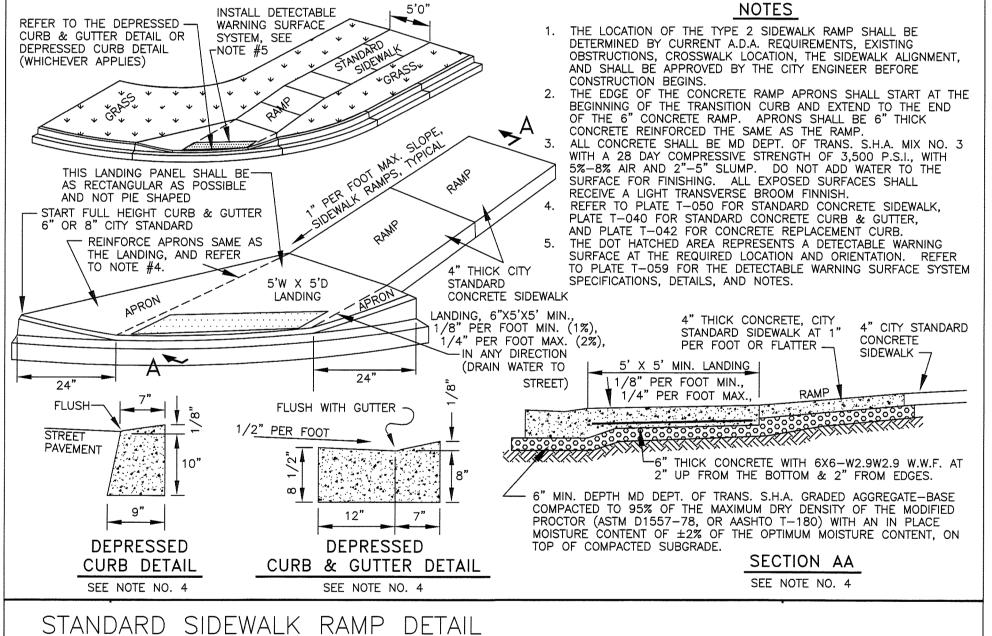


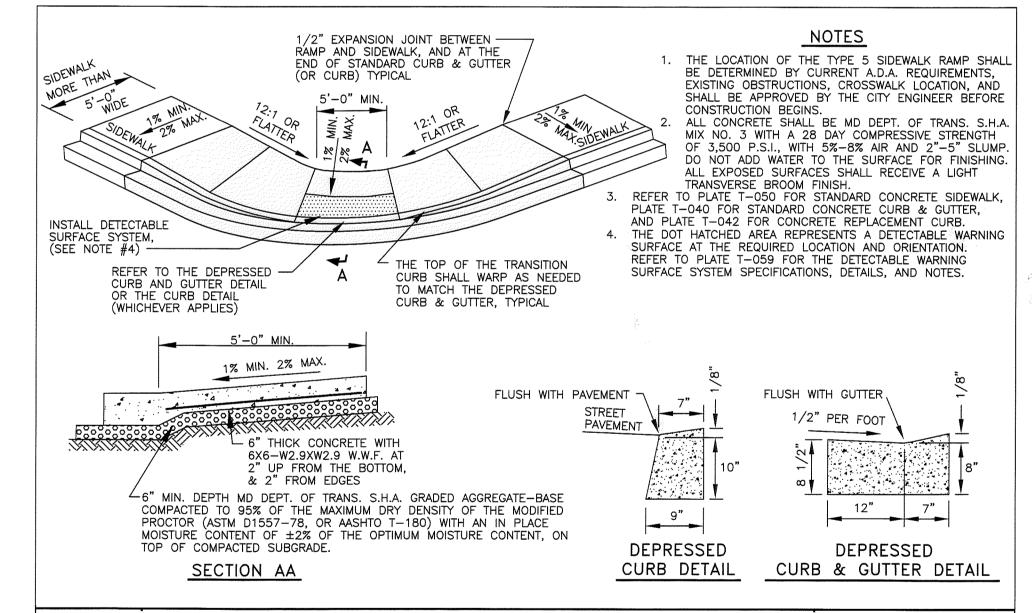
STANDARD NO.

MD 387.11



BOLLARD DETAIL FOR WATER METER VAULT PROTECTION

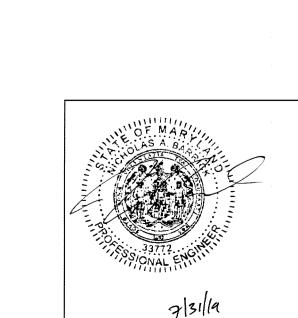




STANDARD SIDEWALK RAMP DETAIL

HYDRANT. THIS APPROVAL IS VALID FOR A PERIOD OF ONE YEAR

CITY OF HAGERSTOWN UTILITIES DEPARTMENT <u>Water Division</u>



THIS APPROVAL IS FOR THE DESIGN AND LAYOUT OF THE PROPOSED WATER SYSTEM IMPROVEMENTS. ALL WATER SYSTEM IMPROVEMENTS SHALL BE CONSTRUCTED TO THE STANDARDS IN EFFECT AT THE TIME OF CONSTRUCTION, THIS APPROVAL DOES NOT GUARANTEE AVAILABILITY OF WATER SERVICE, WATER SERVICE I AVAILABLE SUBJECT TO CONFORMANCE WITH ALL POLICIES AND STANDARDS IN EFFECT AT THE TIME OF APPLICATION FOR SERVICE, PAYMENT OF FEES AND APPROVAL OF THE WATER SERVICE APPLICATION, TI WATER DIVISION DOES NOT GUARANTEE A SPECIFIC WATER PRESSURE OR FLOW AT ANY METER OR FIRE

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> OWNER WASHINGTON

PLOT SCALE:

FILENAME:

DATE:

COUNTY BOARD OF COMMISSIONERS

07/20/2018

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KCI TECHNOLOGIES,

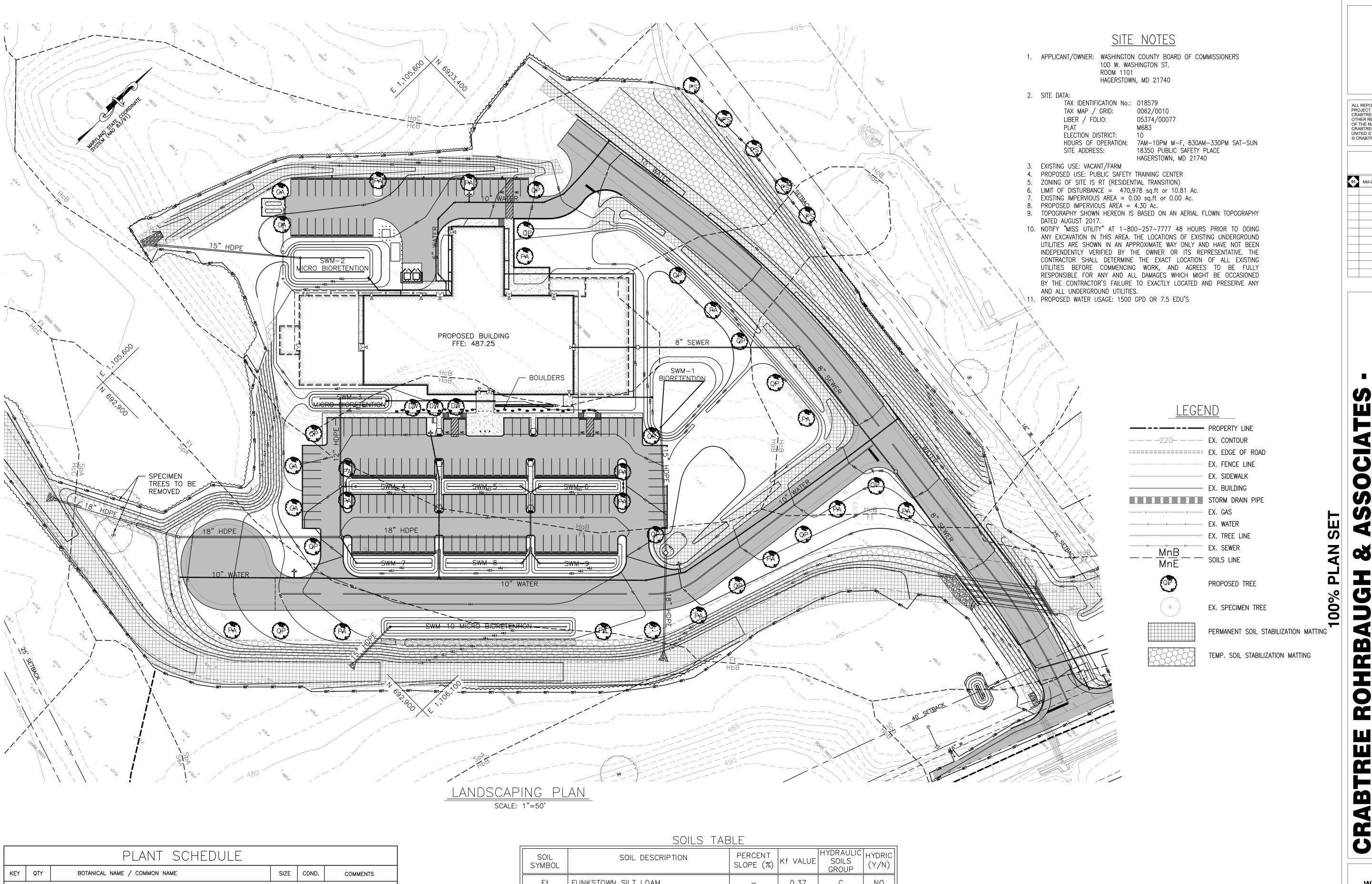
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01	MM-DD-YR	NAME	DESCRIPTION OF CHANGES
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PLACE, SUITE F 100 W. WASHINGTON ST **FULTON, MD 20759** HAGERSTOWN, MD 21740 410-792-8086 (P) 240-313-220 410-792-7419 (F) CONSTRUCTION **PROJECT DETAILS** 3089 1:30



TREES 16 PLATANUS X ACERIFOLIA 'COLUMBIA' / COLUMBIA PLANETREE 2" CAL. B&B FULL CROWN QP 14 QUERCUS PHELLOS / WILLOW OAK " CAL. B&B | FULL CROWN 4 THUJA STANDISHII x PLICATA / GREEN GIANT ARBORVITAE HGT. B&B SHEAR TO GROUND 5 PINUS STROBUS/ EASTERN WHITE PINE HGT. B&B SHEAR TO GROUND 3 CORNUS FLORIDA/ DOGWOOD ' HGT. B&B SHEAR TO GROUND

NOTE: SEE SHEET C-2.03 TO 2.08 FOR PLANTINGS WITHIN STORMWATER FACILITIES

	00120 1712	<u> </u>			
SOIL SYMBOL	SOIL DESCRIPTION	PERCENT SLOPE (%)	Kf VALUE	HYDRAULIC SOILS GROUP	HYDRIC (Y/N)
Ft	FUNKSTOWN SILT LOAM	_	0.37	С	NO
HaB	HAGERSTOWN SILT LOAM	3-8	0.37	В	NO
НаС	HAGERSTOWN SILT LOAM	8-15	0.37	В	NO
HbB	HAGERSTOWN SILTY CLAY LOAM	3-8	0.32	В	NO
НЬС	HAGERSTOWN SILTY CLAY LOAM	8-15	0.32	В	NO
НсВ	HAGERSTOWN-ROCK OUTCROP COMPLEX	3-8	0.32	В	NO
HcC	HAGERSTOWN-ROCK OUTCROP COMPLEX	8–15	0.32	В	NO
SpA	SWANPOND SILT LOAM	0-3	0.43	D	NO
SsA	SWANPOND-FUNKSTOWN SILT LOAMS	0-3	0.43	D	NO



SCALE: 1"=50'

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01	MM-DD-YR	NAME	DESCRIPTION OF CHANGES

OWNER CIVIL WASHINGTON KCI TECHNOLOGIES, COUNTY BOARD OF **COMMISSIONERS**

11830 W. MARKET PLACE, SUITE F FULTON, MD 20759 410-792-8086 (P) 410-792-7419 (F)

PROJECT LANDSCAPING PLAN 1:50

100 W. WASHINGTON ST HAGERSTOWN, MD 21740

240-313-220

3089 KCI# 271703606 7/25/19

PLANTING NOTES

- 1. PLANT MATERIAL SHALL BE FURNISHED AND INSTALLED AS INDICATED, INCLUDING ALL LABOR, MATERIALS, PLANTS, EQUIPMENT, INCIDENTALS, AND CLEAN-UP.
- 2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PLANTING AT CORRECT GRADES AND ALIGNMENT. LAYOUT TO BE APPROVED BY OWNERS' REPRESENTATIVE PRIOR TO INSTALLATION.
- PLANTS SHALL BE TYPICAL OF THEIR SPECIES AND VARIETY; HAVE NORMAL GROWTH HABITS, WELL-DEVELOPED DENSELY FOLIATED BRANCHES, AND VIGOROUS ROOT SYSTEMS; AND BE FREE FROM DEFECTS AND INJURIES.
- 4. CONTRACTOR SHALL REPORT ANY SOIL OR DRAINAGE CONDITIONS CONSIDERED DETRIMENTAL TO GROWTH OF PLANT
- 5. ALL PLANT MATERIAL SHALL BE GUARANTEED BY THE CONTRACTOR TO BE IN VIGOROUS GROWING CONDITION. PROVISION SHALL BE MADE FOR A GROWTH GUARANTEE OF AT LEAST ONE YEAR FROM THE DATE OF ACCEPTANCE FOR TREES AND SHRUBS. REPLACEMENTS SHALL BE MADE AT THE BEGINNING OF THE FIRST SUCCEEDING PLANTING SEASON. ALL REPLACEMENTS SHALL HAVE A GUARANTEE EQUAL TO THAT STATED ABOVE.
- 6. PLANT MATERIAL SHALL BE PLANTED ON THE DAY OF DELIVERY IF/WHEN PRACTICAL. IN THE EVENT THAT THIS IS NOT POSSIBLE. THE CONTRACTOR SHALL PROTECT STOCK NOT PLANTED. PLANTS SHALL NOT REMAIN UNPLANTED FOR LONGER THAN A THREE-DAY PERIOD AFTER DELIVERY. ANY PLANTS NOT INSTALLED DURING THIS PERIOD SHALL BE REJECTED, UNLESS OWNER AND CONTRACTOR PROVIDE OTHERWISE BY WRITTEN AGREEMENT.
- 7. QUALITY AND SIZE OF PLANTS, SPREAD OF ROOTS, AND SIZE OF ROOTBALL SHALL BE IN ACCORDANCE WITH THE RECENT VERSION OF ANSI Z60 "AMERICAN STANDARD FOR NURSERY STOCK" PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN, INC.
- 8. ALL PLANTS SHALL BE PLANTED IN AMENDED TOP SOIL THAT IS THOROUGHLY WATERED AND TAMPED AS BACK-FILLING PROGRESSES. PLANTING MIX TO BE AS SHOWN ON PLANTING DETAILS. LARGE PLANTING AREAS TO INCORPORATE FERTILIZER AND SOIL CONDITIONERS AS STATED IN PLANTING SPECIFICATIONS.
- 9. PLANTS SHALL NOT BE BOUND WITH WIRE OR ROPE AT ANY TIME SO AS TO DAMAGE THE BARK OR BREAK BRANCHES. PLANTS SHALL BE HANDLED FORM THE BOTTOM OF THE BALL ONLY.
- 10. PLANTING OPERATIONS SHALL BE PERFORMED DURING PERIODS WITHIN THE PLANTING SEASON WHEN WEATHER AND SOIL CONDITIONS ARE SUITABLE AND IN ACCORDANCE WITH ACCEPTED LOCAL PRACTICE. PLANTS SHALL NOT BE INSTALLED IN TOP SOIL THAT IS IN A MUDDY OR FROZEN CONDITION. ALL PLANT MATERIAL SHALL BE SPRAYED WITH "WILT-PRUF" OR EQUAL AS PER MANUFACTURERS INSTRUCTIONS.
- 11. NO PLANT, EXCEPT GROUNDCOVERS, SHALL BE PLANTED LESS THAN TWO FEET FROM EXISTING STRUCTURES AND
- 12. SET ALL PLANTS PLUMB AND STRAIGHT. SET AT SUCH LEVEL THAT A NORMAL OR NATURAL RELATIONSHIP TO THE GROUND IF THE PLANT WITH THE GROUND SURFACE WILL BE ESTABLISHED. LOCATE THE PLANT IN THE CENTER OF
- 13. ALL INJURED ROOTS SHALL BE PRUNED TO MAKE CLEAN ENDS BEFORE PLANTING UTILIZING CLEAN, SHARP TOOLS. IT IS ADVISABLE TO PRUNE APPROXIMATELY 1/3 OF THE GROWTH OF LARGE TREES (2" CALIPER AND GREATER) BY THE REMOVAL OF SUPERFLUOUS BRANCHES, THOSE WHICH CROSS, THOSE WHICH RUN PARALLEL, ETC. MAIN LEADER OF TREES SHALL NOT BE CUT BACK. LONG SIDES BRANCHES SHALL BE SHORTENED.
- 14. EACH TREE AND SHRUB SHALL BE PRUNED IN ACCORDANCE WITH STANDARD HORTICULTURAL PRACTICE TO PRESERVE THE NATURAL CHARACTER OF PLANT. PRUNING SHALL BE DONE WITH CLEAN, SHARP TOOLS.
- 15. TREES SHALL BE SUPPORTED IMMEDIATELY AFTER PLANTING. ALL TREES 6" AND GREATER IN CALIPER SHALL BE GUYED, SMALLER TREES SHALL BE STAKED, GUYING WIRES AND STAKES SHALL BE INSTALLED AS INDICATED, THE LANDSCAPE CONTRACTOR SHALL REMOVE STAKING, GUYING AND TREE WRAP AT THE END OF ONE YEAR MAINTENANCE AND GUARANTEE PERIOD.
- 16. ALL PLANTING BEDS SHALL BE MULCHED WITH 3" LAYER OF DOUBLE SHREDDED HARDWOOD BARK MULCH.
- 17. NEW PLANTING AREAS AND SOD SHALL BE ADEQUATELY IRRIGATED OR WATERED TO ESTABLISH THE PROPOSED PLANTS AND LAWN.
- 18. ALL PLANTS SHOWN ON THE APPROVED LANDSCAPE PLAN SHALL BE INSTALLED, INSPECTED AND APPROVED BY THE LANDSCAPE ARCHITECT OR HIS REPRESENTATIVE. THE LANDSCAPE ARCHITECT SHALL TAKE INTO ACCOUNT SEASONAL CONSIDERATIONS IN THIS REGARD. TREES, SHRUBS, VINES AND GROUNDCOVER AS REQUIRED BY OR ASSOCIATED WITH A SUBDIVISION OR SITE PLAN APPROVED BY THE PLANNING AUTHORITIES SHALL BE INSTALLED DURING THE FOLLOWING PLANTING SEASONS: <u>TYPE</u>

03/15 TO 12/15 PLANTS 03/15 TO 06/15 09/15 TO 12/01

THE FOLLOWING TREE VARIETIES SHALL NOT BE PLANTED DURING THE FALL PLANTING SEASON DUE TO THE ASSOCIATED WITH PLANTING THESE TREES IN THIS SEASON:

ACER RUBRUM POPULUS SPP. BETULA SPP. PRUNUS SPP. CARPINUS SPP PYRUS SPP. CRATECUS SPP. QUERCUS SPP KOELREUTERIA PANICULATA SALIX SPP. LIQUIDAMBAR STYRACIFILIA TILIA TOMENTOSA LIRIODENDRON TULIPIFERA ZELKOVA

PLATANUS ACERIFOLIA ANY PLANTING INSTALLED IN CONFLICT WITH THIS REQUIREMENT MUST RECEIVE WRITTEN APPROVAL OF THE LANDSCAPE ARCHITECT PRIOR TO PLANTING. FAILURE TO COMPLY WITH THESE REQUIREMENTS WILL REQUIRE THE REMOVAL OF THE PLANTING IN QUESTION. THIS REQUIREMENT DOES NOT APPLY TO SEEDING OR SODDING OR PLANTINGS SPECIFICALLY FOR SOIL STABILIZATION PURPOSES. PLANTINGS ASSOCIATED WITH ANY LOT GIVEN A CERTIFICATE OF OCCUPANCY OUTSIDE THESE PERIODS SHALL BE PROVIDED DURING THE PREVIOUS OR NEXT

19. ALL DISTURBED AREAS SHALL BE TREATED WITH 4" TOP SOIL AND SEEDED IN ACCORDANCE WITH PERMANENT STABILIZATION METHODS INDICATED ON SOIL EROSION AND SEDIMENT CONTROL SHEET.

LANDSCAPE MAINTENANCE

- A. ALL PLANTING AREAS, INCLUDING LAWNS, BUFFERS, AND PARKING LOTS, SHALL BE PERIODICALLY INSPECTED A MINIMUM OF ONCE PER MONTH, EVERY TWO (2) WEEKS DURING THE GROWING SEASON, OR AFTER EACH MOWING SESSION. A FALL CLEAN-UP SHALL BE PERFORMED EACH YEAR.
- REMOVE ALL LITTER, DEBRIS AND WEEDS. MAINTAIN A MINIMUM OF A 2-INCH DEPTH OF ORGANIC HARDWOOD MULCH OR EQUAL IN ALL PLANTING BEDS.

II. IRRIGATION (IF APPLICABLE)

- A. AUTOMATIC SPRINKLERS SHALL BE CLEANED OUT AND TURNED OFF IN THE FALL PRIOR TO THE FIRST FROST, AND TESTED WHEN TURNED ON IN THE SPRING
- B. EVALUATE SUCCESS OF IRRIGATION SYSTEM AND MODIFY AS NECESSARY. WATER REQUIREMENTS:

NEW TURF: KEEP MOIST UNTIL ALL SEED GERMINATES AND BECOMES AN ESTABLISHED STAND OF TURF. EXISTING TURF: DURING DRY PERIODS, WATER TWICE A WEEK FOR 20 MINUTES AT A TIME, OR SET IRRIGATION FOR COVERAGE OF 1-2 INCHES OF WATER PER WEEK.

III. SEASONAL FLOWERS

ANNUAL FLOWER BEDS SHALL BE PERIODICALLY MULCHED AND THE SOIL AMENDED ANNUALLY. NEW PLANTINGS SHALL BE PROVIDED IN MAY OF EACH YEAR. DURING THE GROWING SEASON, ALL BEDS SHALL RECEIVE PERIODIC INSPECTIONS PER NOTE I, IRRIGATION AND WEEDING TO MAINTAIN A NEAT APPEARANCE.

- A. LAWN AREAS SHALL NOT EXCEED A HEIGHT OF 4 INCHES. APPROXIMATELY 12-15 MOWINGS PER YEAR WILL BE REQUIRED. FERTILIZER AND SOIL AMENDMENTS SHOULD BE ADDED A NECESSARY AND/OR ON A SEASONAL BASIS.
- FERTILIZER IS OPTIMALLY APPLIED TO LAWN AND TURF AREAS THREE TUNES PER SEASON. TIMING, FREQUENCY AND RATE OF APPLICATION SHALL BE ADJUSTED ACCORDING TO WEATHER AND TO HORTICULTURAL AND SOIL TEST CONDITIONS FOR EACH SPECIFIC SITE. FERTILIZER SHALL BE APPLIED BY ACCEPTED METHODS ONLY. SAFETY SHALL BE OF PRIME CONSIDERATION. CARE SHALL BE TAKEN NOT TO APPLY FERTILIZER WHEN THE GROUND IS WET.
- SOIL AMENDMENTS SUCH AS LIME, GYPSUM OR PEAT MOSS MAY BE TO BE ADDED TO THE SOILS OF LAWNS, TURF OR PLANITNG AREAS PERIODICALLY. THE NEED FOR SUCH SOIL AMENDMENTS SHALL BE ANALYZED DURING THE
- PERIODIC INSPECTIONS AND IN CONJUNCTION WITH SOIL TESTS. SOIL AMENDMENTS SHALL BE APPLIED IN ACCORDANCE WITH MANUFACTURERS' SPECIFICATIONS OR BASED UPON SOIL TEST RESULTS.
- APPLY A 3-1-2 (21-7-14, 10-4-6, OR 24-4-B) 50% ORGANIC FERTILIZER TWICE A YEAR BETWEEN MARCH 15 TO APRIL 15 AND SEPTEMBER 1 TO OCTOBER 1. IF NECESSARY, TWO ADDITIONAL APPLICATIONS MAY BE MADE IN MAY AND NOVEMBER. DO NOT APPLY FERTILIZER OR SOIL AMENDMENTS WHILE TURF IS EITHER WET OR UNDER EXTREME STRESS, IN

WINDY CONDITIONS, OR WHEN CHILDREN ARE PRESENT. PRUNING

REMOVAL OF DEAD, DISEASED, INSECT INFESTED OR WEAK WOOD SHALL TAKE PLACE IN THE DORMANT SEASON OR AFTER FLOWERING. EXCESSIVE SHOOTS AND SUCKERS SHALL BE REMOVED.

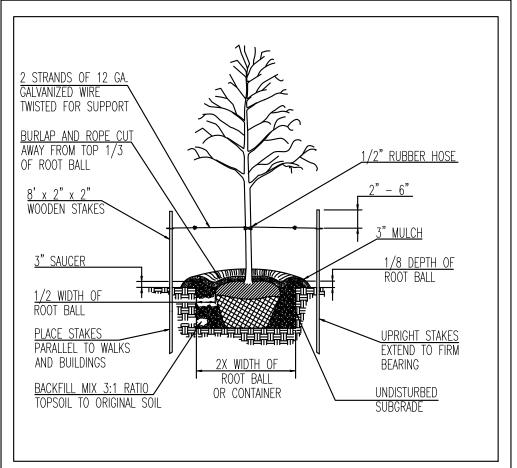
SHRUB MATERIAL USED AS A SCREEN SHALL BE PRUNED AS A MASS TO ENHANCE THEIR NATURAL FORM. HEDGES ROOT PRUNING OF TREES ADJACENT TO CURBS OR SIDEWALKS SHALL OCCUR DURING PERIODIC INSPECTIONS WITH KNOWLEDGE OF MOST RECENT PRUNING. NO MORE THAN 1/3 OF ROOT SYSTEM SHALL BE PRUNED DURING A YEAR.

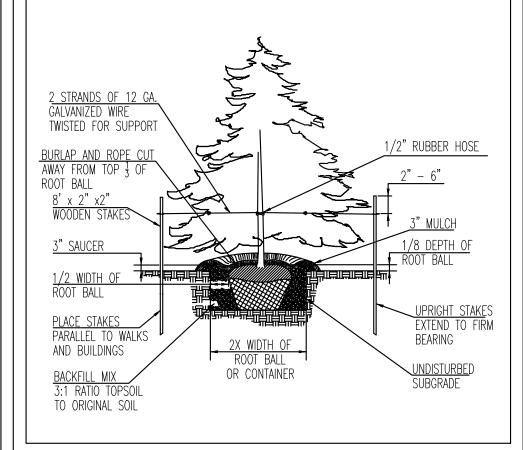
VI. INSECT AND DISEASE CONTROL

THE CONTROL OF INSECTS AND DISEASE ASSOCIATED WITH ALL PLANTING AREAS SHALL ALWAYS BE A MAINTENANCE PRIORITY. ALL PLANTINGS, INCLUDING EXISTING MATURE TREES, SHALL BE PERIODICALLY INSPECTED FOR INSECT OR DISEASE INFESTATION. METHODS UTILIZED TO CONTROL INSECTS OR DISEASE MAY RANGE FROM SPRAYING AND PRUNING TO PLANT REMOVAL. WHATEVER METHOD IS UTILIZED, SAFETY AND CONTROL SHALL BE OF PRIME CONCERN. TRAINED AND CERTIFIED PERSONNEL SHALL PERFORM THESE TASKS.

VII. RENOVATION

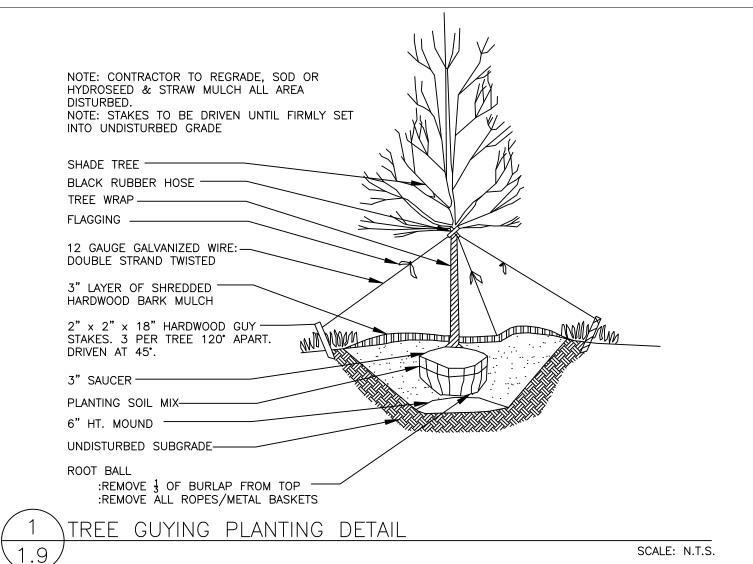
- RENOVATION INCLUDES THE RESEEDING OR REPLANTING OF LANDSCAPE AREAS DAMAGED, DESTROYED OR
- FAILING DUE TO INSECTS, DISEASE, WEATHER OR PHYSICAL DAMAGE. LAWN -- ALL AREAS WHERE SOIL HAS BEEN EXPOSED SHALL BE RENOVATED DURING THE NEXT PLANNING SEASON. PROPER HORTICULTURAL AND SOIL EROSION PREVENTION METHODS SHALL BE UTILIZED. IF SOIL EROSION
- OCCURRED, THE AREA SHALL BE REPAIRED WITH A SEED MIXTURE COMPATIBLE TO EXISTING PLANTINGS SHALL BE UTILIZED. PLANTINGS -- ALL PLANTINGS WHICH ARE DAMAGED OR DESTROYED SHALL BE REPLACED DURING THE NEXT
- GROWING SEASON. A FAILING, DAMAGED OR DESTROYED LANDSCAPE SCREEN OR BUFFER MUST BE RENOVATED OR REPLACED WITHIN A REASONABLE PERIOD OF TIME, BUT NOT TO EXCEED THE SUBSEQUENT GROWING SEASON.
- VIII. SITE AMENITIES
- BENCHES, PATHS, BICYCLE RACKS, TRASH RECEPTACLES AND SIGNS SHALL BE INSPECTED AT LEAST TWICE A YEAR, ONCE IN MARCH AND ONCE IN AUGUST, TO DETERMINE THEIR CONDITION. ANY DAMAGED, WORN OR UNSAFE CONDITIONS SHALL BE RECTIFIED IMMEDIATELY.
- IX. PAVED SURFACES
- ALL PAVED SURFACES, CONCRETE SIDEWALKS, ASPHALT PAVEMENT AND DECORATIVE PAVEMENT SHALL BE INSPECTED ON A REGULAR BASIS. ALL SÚCH SURFACES SHALL BE INSPECTED AT LEAST ONCE PER MONTH.
- TRASH, STAINS AND/OR OBSTRUCTIONS SHALL BE REMOVED IMMEDIATELY. PAVEMENT SHALL BE INSPECTED FOR CRACKS, AND/OR POT HOLES, AND RETURNED TO THEIR ORIGINAL CONDITIONS.
- SNOW SHALL BE REMOVED DURING AND FOLLOWING EVERY STORM. SIDEWALKS AND PARKING AREAS SHALL BE KEPT ICE AND SNOW DURING BUSINESS HOURS.





DECIDUOUS TREE PLANTING DETAIL NOT TO SCALE

EVERGREEN TREE PLANTING DETAIL NOT TO SCALE

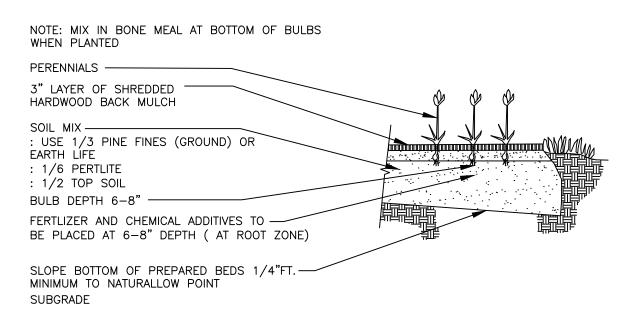


: PLANT SPACING VARIES (SEE PLANS) PRUNE ALL BROKEN, DISEASED & WEAK BRANCHES : ALL SHRUB BEDS TO BE COMPLETED EXCAVATED OF ALL EXISTING SOIL TO DEPTH REQUIRED FOR SOIL MIX BACKFILL. : REMOVE ALL STRINGS, RIBBONS & TAGS FROM PLANTS SPECIMEN SHRUBS ---3" LAYER OF SHREDDED -HARDWOOD BARK MULCH SOIL MIX ROOT BALL-:REMOVE 3 OF BURLAP FROM TOP :REMOVE ALL ROPES/METAL BASKETS TAMP EXISTING SOIL AT 85% OPTIMUM MOISTURE CONTENT SHRUB PLANTING DETAII

SCALE: N.T.S

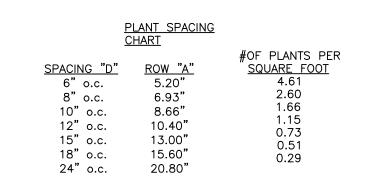
SCALE: N.T.S.

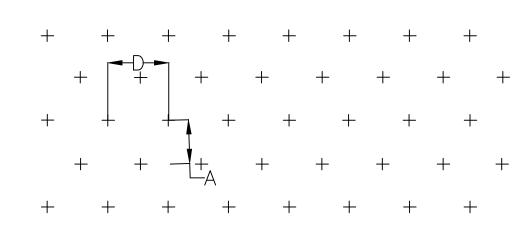
SCALE: N.T.S.



ANNUALS AND PERENNIALS PLANTING

: SCARIFY ROOTS OF ROOT BOUND PLANTS





TRIANGULAR SPACING FOR SHRUBS. GROUND COVERS, BULBS AND PERENNIALS



PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND LICENSE NO. 33772 EXP. DATE: 06/16/2021



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01	MM-DD-YR	NAME	DESCRIPTION OF CHANGES
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RB

OWNER

WASHINGTON

COUNTY BOARD OF COMMISSIONERS

KCI# 271703606

7/25/19

DATE:

CIVIL KCI TECHNOLOGIES, 11830 W. MARKET PLACE, SUITE F

100 W. WASHINGTON ST **FULTON, MD 20759 HAGERSTOWN, MD 21740** 410-792-8086 (P) 240-313-220 410-792-7419 (F)

PROJECT LANDSCAPING **DETAILS** 1:50

3089



* The light loss factor (LLF) is a product of many variables, only lamp lumen depreciation (LLD) has been applied to the calculated results unless otherwise noted. The LLD is the result (quotient)

* Illumination values shown (in footcandles) are the predicted results for planes of calculation either horizontal, vertical or inclined as designated in the calculation summary. Meter orientation

* The calculated results of this lighting simulation represent an anticipated prediction of system

performance. Actual measured results may vary from the anticipated performance and are subject

* Mounting height determination is job site specific, our lighting simulations assume a mounting

mounted luminaires and at the bottom of the symbol for all other luminaire mounting configurations.

* It is the Owner's responsibility to confirm the suitability of the existing or proposed poles and bases

to support the proposed fixtures, based on the weight and EPA of the proposed fixtures and the owner's

site soil conditions and wind zone. It is recommended that a professional engineer licensed to practice

height (insertion point of the luminaire symbol) to be taken at the top of the symbol for ceiling

* The landscape material shown hereon is conceptual, and is not intended to be an accurate

representation of any particular plant, shrub, bush, or tree, as these materials are living objects,

and subject to constant change. The conceptual objects shown are for illustrative purposes only.

* Photometric model elements such as buildings, rooms, plants, furnishings or any architectural

details which impact the dispersion of light must be detailed by the customer documents for inclusion

information on the part of the customer, and reserves the right to use best judgement when translating

* RAB Lighting Inc. luminaire and product designs are protected under U.S. and International intellectual

in the RAB lighting design model. RAB is not responsible for any inaccuracies caused by incomplete

of mean lumens / initial lumens per lamp manufacturers' specifications.

to means and methods which are beyond the control of RAB Lighting Inc.

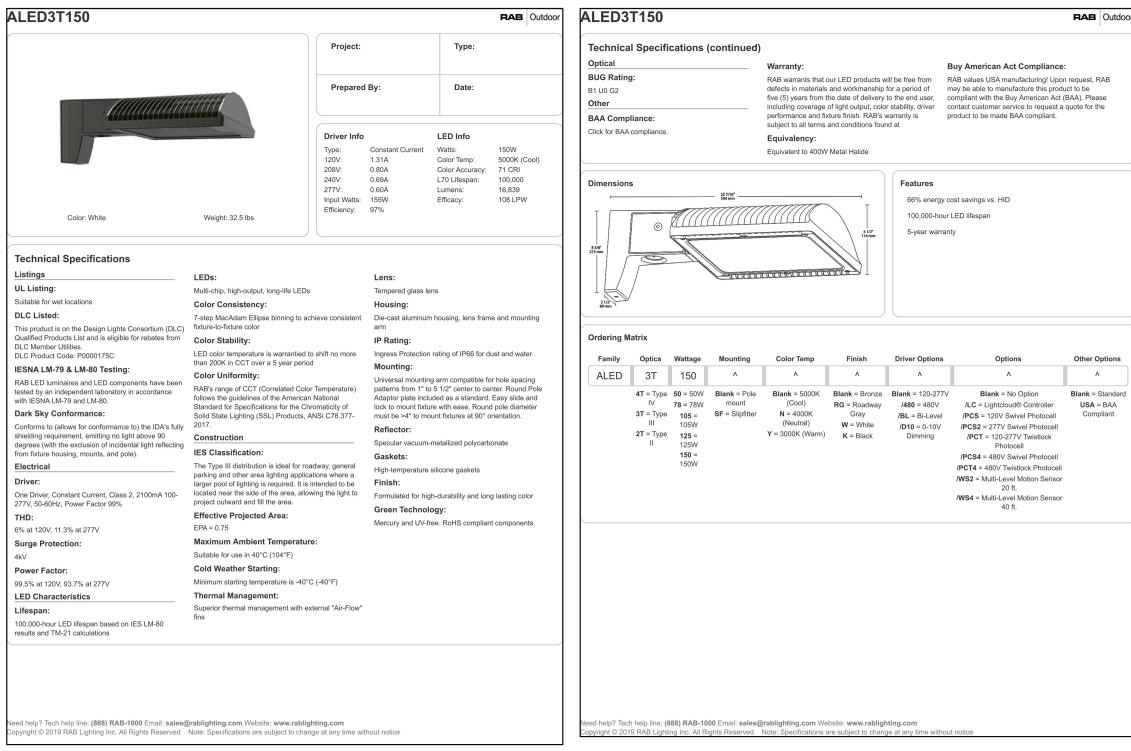
in the state the site is located be engaged to assist in this determination.

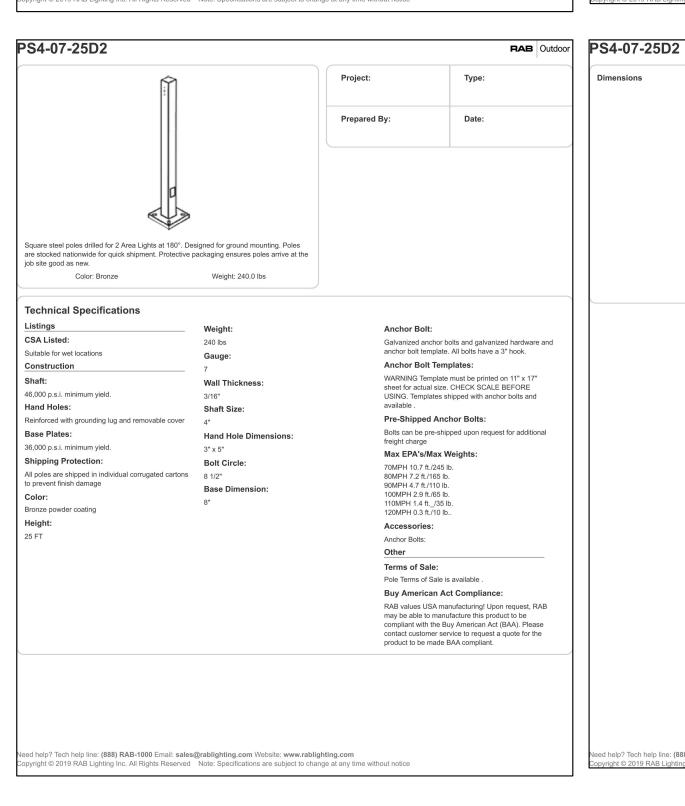
The actual illumination values measured in the field will vary.

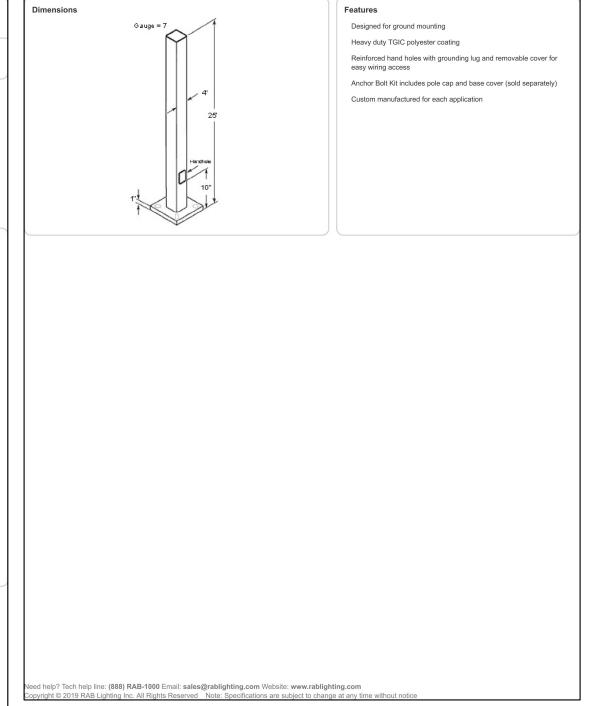
customer requests into photometric studies.

property laws. Patents issued or pending apply.

is normal to the plane of calculation.









RAB Outdoor

02 RB 0 M

ALL REPORTS PLANS SPECIFICATIONS AND COMPUTER FILES RELATING TO THIS

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OF THE MATERIAL HERIN OR SUBSTANTIAL USE WITHOUT WRITTEN PERMISSION OI

REVISIONS

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01 MM-DD-YR NAME DESCRIPTION OF CHANGES

OWNER WASHINGTON **COUNTY BOARD OF** COMMISSIONERS 100 W. WASHINGTON ST HAGERSTOWN, MD 21740 240-313-220

PHOTOMETRIC

1:30

KCI# 271703606

7/25/19

PLOT SCALE:

FILENAME:

DATE:

CIVIL KCI TECHNOLOGIES, 11830 W. MARKET

PLACE, SUITE F **FULTON, MD 20759** 410-792-8086 (P) 410-792-7419 (F)

PROJECT 3089

C-1.16

1/2" - 45° REQUIRE EXPANSI ALL AROI SEALER I BITUMING LOCATED GROUNDING ROD 3/4" DIA X 10'-0" INSTALLED 2'-0" FIELD TIE FOR PRO FORM WO PLACEME

> 3500 PSI MIN 28 DAY COMPRESSIVE STRENGTH CONCRETE WITH GRADE 60 REINFORCING STEEL. SET POLES 3' MINIMUM FROM EDGE OF PAVEMENT

PARKING LOT LIGHT STANDARD BASE

	Expande	d Lumb	naire Locatio	n Summary
R BOLTS PER LIGHTING FIXTURE ACTURER'S RECOMMENDATIONS	LumNo	Tag	X	Υ
9 BEVEL	1	Α	150.118	416.056
ATION IN CONCRETE	2	Α	220.44	487.511
RES CONTINUOUS 1/2"	3	Α	279.757	548.347
SION JOINT MATERIAL DUND, SEAL WITH JOINT	4	Α	522.432	220.921
R PER SPECS NOUS SEALER WITHIN	5	Α	592.655	292.137
ED IN A PAVED AREA	6	A2	401.244	191.173
₹	6	A2	398.416	194.001
Ţ	7	A2	464.107	269.577
5' LONG BARS EQUALLY SPACED	7	A2	461.163	272.285
	8	A2	535,667	340.491
18" SQUARE TIES WITH 1'-6"	8	A2	532.695	343.167
P.) ON 20" VERTICAL SPACING	9	A2	615.458	410.202
	9	A2	612.706	413.106
ULE 40 PVC CONDUIT PER PLAN	Total Qua	antity: 1	3	378
	<u> </u>			
AL AND HORIZONTAL BARS TO BE IED SUPPORT REINFORCEMENT OPER LOCATION FROM THE				
VORK DURING CONCRETE	Calculation S	Summary	Ú.	
	53.23 (See 1962)		921-901-007/795	2200000

culation Summary Units Avg Max Min Avg/Min Max/Min Description PtSpcLr PtSpcTb Meter Type 2.65 5.7 0.5 5.30 11.40 Readings Taken at 0'-0"AFG 10 10 Horizontal CalcPts Back Lot 2.85 6.5 0.3 9.50 21.67 Readings Taken at 0'-0"AFG 10 10 Horizontal

Luminaire Schedule		dule	All quotes/orde	ers generated from t	his layout n	nust be forwarded to the Local Rep Age	ncy
Symbol	Qty	Tag	Label	Arrangement	LLF	Description	BUG Rating
	5	Α	ALED3T150	SINGLE	1.000	Pole Mount (Type 3)	B1-U0-G3
	4	A2	ALED3T150 2 @ 180	BACK-BACK	1.000	Pole Mount (Type 3)	B1-U0-G3

314.851

316.889

138.82

140.134

315.008

135.008

317.384

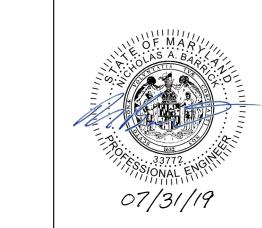
137.384

318.006

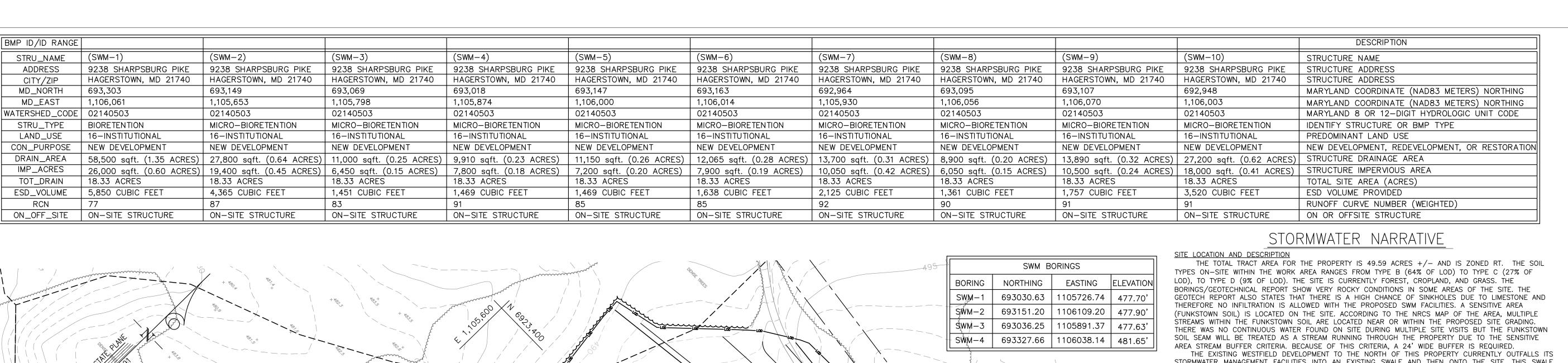
138.006

313.455

133.455



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LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND,
LICENSE NO. 33772 EXP. DATE: 06/16/2021

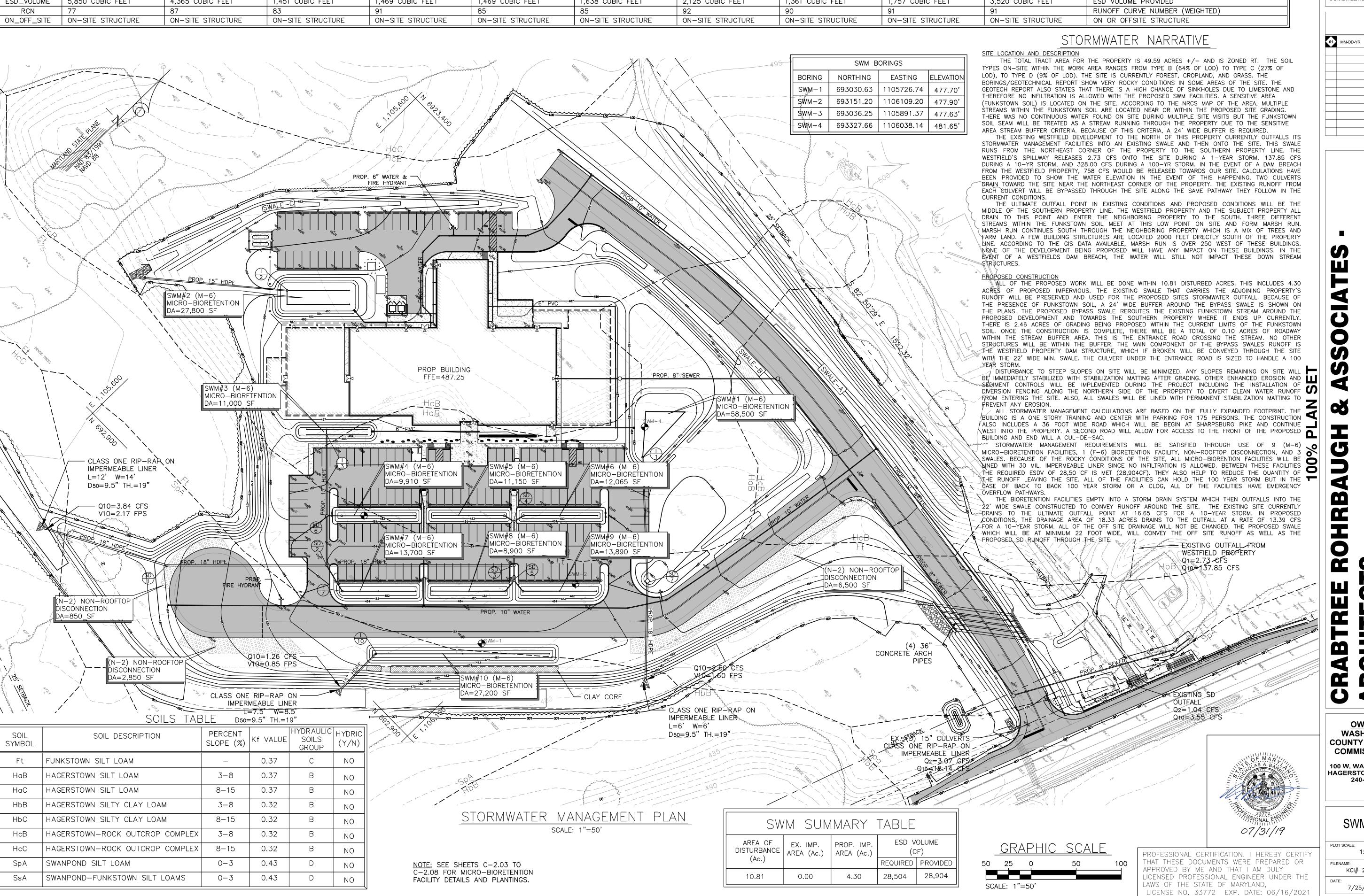


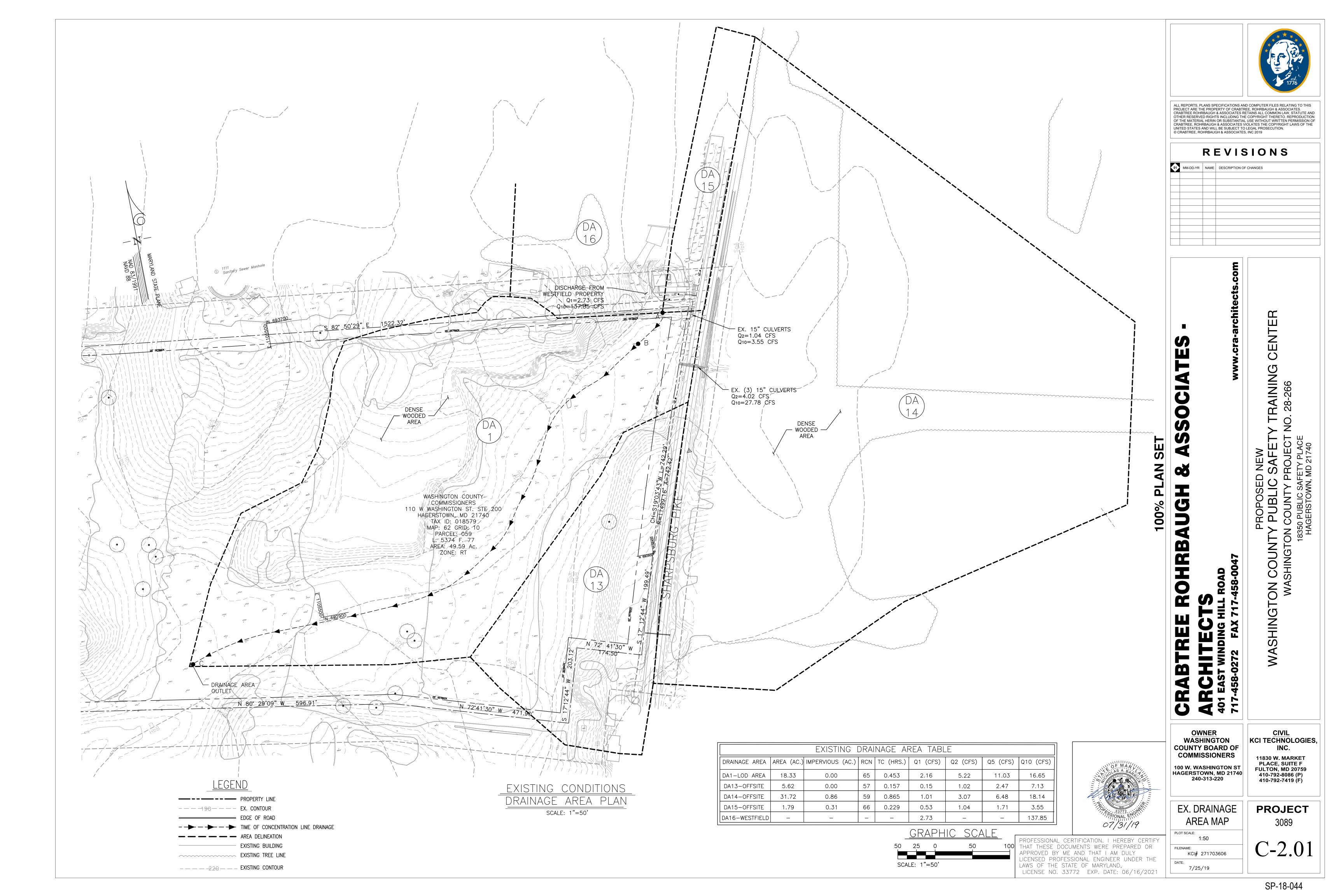


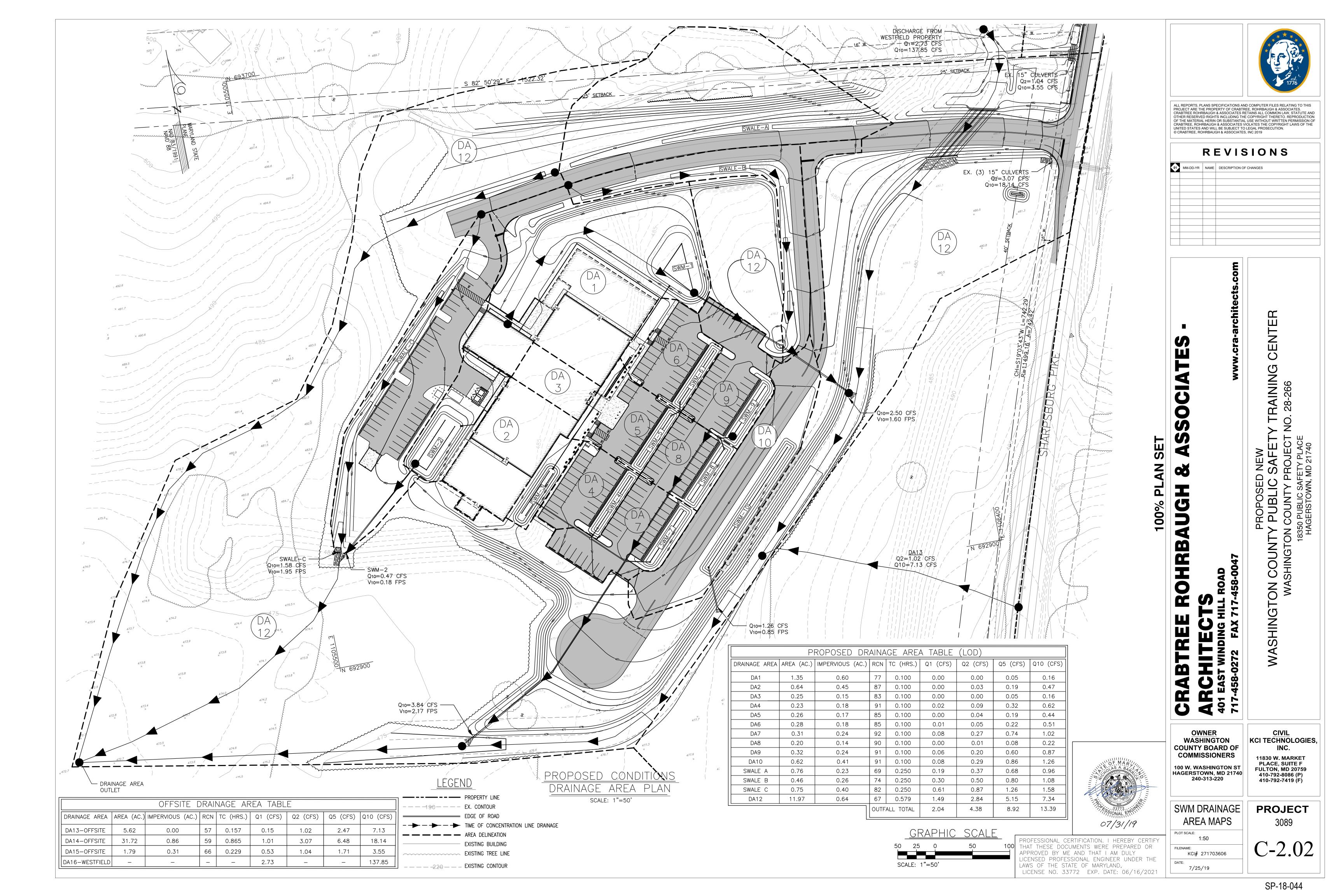
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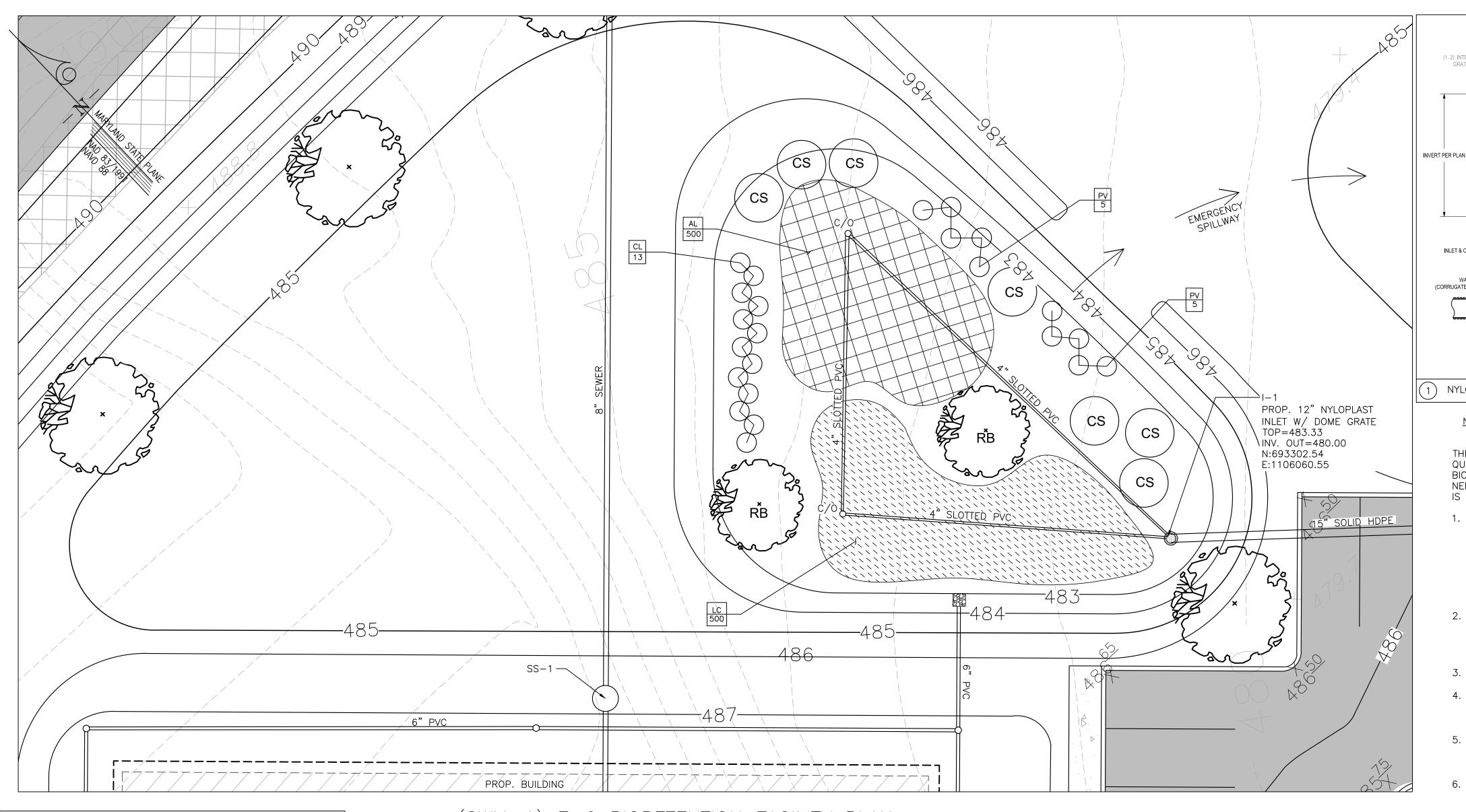
01	MM-DD-YR	NAME	DESCRIPTION OF CHANGES

RB **OWNER** CIVIL WASHINGTON KCI TECHNOLOGIES **COUNTY BOARD OF COMMISSIONERS** 11830 W. MARKET PLACE, SUITE F 100 W. WASHINGTON ST **FULTON, MD 20759 HAGERSTOWN, MD 21740** 410-792-8086 (P) 240-313-220 410-792-7419 (F) **PROJECT** SWM PLAN 3089 1:50 KCI# 271703606 DATE: 7/25/19 SP-18-044









(SWM-1) F-6 BIORETENTION FACILITY PLAN SCALE: 1" = 10'

ELEV.=480.00

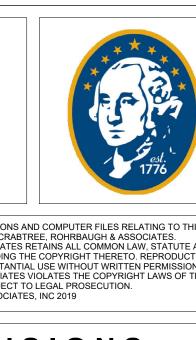
4" SLOTTED PVC-

INV.=480.09 @ 0%

15" HDPE OUTFALL

INV.=480.00

(SWM-1) F-6 BIORETENTION FACILITY SECTION



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NYLOPLAST DRAIN BASIN WITH DOME GRATE

(5) ADAPTER ANGLES VARIABLE 0° - 360° ACCORDING TO PLANS

> THE BACKFILL MATERIAL SHALL BE CRUSHED STONE OR OTHER GRANULAR MATERIAL MEETING THE REQUIREMENTS OF CLASS II SURFACE DRAINAGE INLETS SHALL BE PLACED & COMPACTED

> > NOT TO SCALE

(1, 2) INTEGRATED DUCTILE IRON GRATE TO MATCH BASIN O.D.

INLET & OUTLET ADAPTER —

WATERTIGHT JOINT

DEPTH PER PLAN

1 - 8" DOME GRATES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05

NYLOPLAST DRAIN BASIN WITH DOME GRATE

IS REQUIRED AT THE START OF EACH STAGE.

OF FACILITY BASE IS MINIMIZED.

3" GRAVEL COVER.

CALLING 240-313-2400.

6 - 8" DOME GRATES HAS NO LOAD RATING.

2 - 8" DOME GRATES FIT ONTO THE 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.
4 - DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE.
5 - ADAPTERS CAN BE MOUNTED ON ANY ANGLE 0° TO 360°. TO DETERMINE MINIMUM ANGLE BETWEEN ADAPTERS SEE

NOTICE OF REQUIRED STORMWATER MANAGEMENT INSPECTIONS SAND FILTERS,

THE FOLLOWING INSPECTIONS ARE REQUIRED TO BE PERFORMED BY THE

QUALIFIED PROFESSIONAL FOR THE CONSTRUCTION OF ANY SAND FILTER, BIORETENTION OR RAIN GARDEN FACILITY. ADDITIONAL INSPECTIONS MAY BE NEEDED BASED ON PROFESSIONAL ENGINEERING JUDGEMENT. EACH INSPECTION

1. EXCAVATION OF FACILITY- PRIOR TO EXCAVATION, VERIFY SEDIMENT AND

VERIFY ALL FLAGGING REQUIRED IN THE AREA FOR SENSITIVE AREA

PLACEMENT OF FILTER CLOTH (TRENCHES)— ENSURE FILTER FABRIC IS OVERLAPPING SIX (6) INCHES BETWEEN STRIPS OF CLOTH. ENSURE TREE ROOTS OR OTHER OBSTACLES ARE REMOVED FROM FACILITY WALLS OR SIDES

3. PLACEMENT OF SAND FILTER LAYER OR GRAVEL DIAPHRAGM- VERIFY DEPTH AND WIDTH OF SSAND AND/OR DIAPHRAGM LATER. VERIFY FILL MATERIAL. 4. PLACEMENT OF FILTERING MEDIA - VERIFY BOTTOM LAYER MATERIAL AND THICKNESS, VERIFY SAND AND/OR FILTER MEDIA LAYER MATERIAL AND THICKNESS. VERIFY FILTER FABRIC OR PEA GRAVEL USED BETWEEN SAND

PLACEMENT OF UNDERDRAINS AND OBSERVATION WELLS- LOCATION, SIZE AND MATERIAL OF UNDER DRAIN AND OBSERVATION WELLS SHALL BE

VERIFIED PRIOR TO STONE PLACEMENT. VERIFY PIPE ENDS CAPPED. VERIFY

MORE THAN 1/8 INCH ROOT BALL EXPOSED. VERIFY PLANTING STOCK KEPT

STABILIZATION AND LANDSCAPING- VERIFY SITE TOP SOILED, SEEDED AND MULCHED. VERIFY EMBANKMENT TOP SOILED AND SEEDED. VERIFY LOCATION, SIZE, TYPE AND NUMBER OF PLANTED LANDSCAPE MATERIAL. VERIFY NO

MOIST DURING ON-SITE STORAGE. VERIFY INSTALLATION LOCATION, SIZE,

THE QUALIFIED PROFESSIONAL MAY REQUEST THE PRESENCE OF A COUNTY

CONSTRUCTION STANDARDS INSPECTOR AT LEAST 24 HOURS IN ADVANCE BY

MATERIAL TYPE OF FENCING OR OTHER SAFETY BARRIERS.

AND BASE TO PREVENT TEARING. VERIFY THAT UPHILL FABRIC ROLL

OVERLAPPS TWO (2) FEET OVER DOWNHILL ROLL.

LAYERS. VERIFY TOP FILTER MEDIA LAYER.

EROSION CONTROL FEATURES ARE IN PLACE TO PREVENT SEDIMENT INFLOW.

PROTECTION. VERIFY GRADING IS ACCURATELY STAKED-OUT AND RE-STAKED AS NEEDED. FACILITY DIMENSIONS SHALL BE VERIFIED AND SOILS CHECKED FOR INFILTRATION. VERIFY CONTRIBUTING AREA IS PERMANENTLY STABILIZED. VERIFY THAT WATER IS NOT PRESENT. ENSURE ROUGHENING OF SIDE WALLS IF SHEARED AND SEALED BY HEAVY EQUIPMENT. VERIFY THAT COMPACTION

BIORETENTION AND RAIN GARDEN FACILITIES

REVISIONS				
01	MM-DD-YR	NAME	DESCRIPTION OF CHANGES	

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4 6 5 **OWNER** WASHINGTON **COUNTY BOARD OF COMMISSIONERS** 100 W. WASHINGTON ST **HAGERSTOWN, MD 21740**

240-313-220

1:10

KCI# 271703606

7/25/19

DATE:

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY

LICENSED PROFESSIONAL ENGINEER UNDER THE

LICENSE NO. 33772 EXP. DATE: 06/16/2021

THAT THESE DOCUMENTS WERE PREPARED OR

APPROVED BY ME AND THAT I AM DULY

LAWS OF THE STATE OF MARYLAND,

CIVIL KCI TECHNOLOGIES, 11830 W. MARKET PLACE, SUITE F

FULTON, **MD** 20759 410-792-8086 (P) 410-792-7419 (F)

SWM FACILITY PROJECT SECTION 3089

- GRASS OVERLAND FLOW 1' WIDE GRAVEL DIAPHRAGM ALONG ROAD AND CONCRETE WALK - 30 MIL (MIN.) PVC GEOMEMBRANE IMPERMEABLE 30 MIL (MIN.) PVC GEOMEMBRANE -IMPERMEABLE LINER ON ALL SIDES AND BOTTOM. KEY TOP INTO SOIL AT LINER ON ALL SIDES AND BOTTOM. KEY TOP INTO SOIL ELEV. 483.71 AT ELEV. 483.71 EM<u>BANKMENT</u> TOP:486.00 TOP:486.00 PROP. 12" NYLOPLAST INLET W/ DOME GRATE $\sqrt{}$ 10-YEAR= 483.71 TOP=483.33 WIDE GRAVEL DIAPHRAGM ALONG ROAD AND CONCRETE WALK ELEV.=482.92 3" MULCH ////////3" MULCH ELEV.=482.67 PRETREATMENT AREAS 24" PLANTING 24" PLANTING MATERIAL MATERIAL ELEV.=480.67 8" NO. 8 STONE

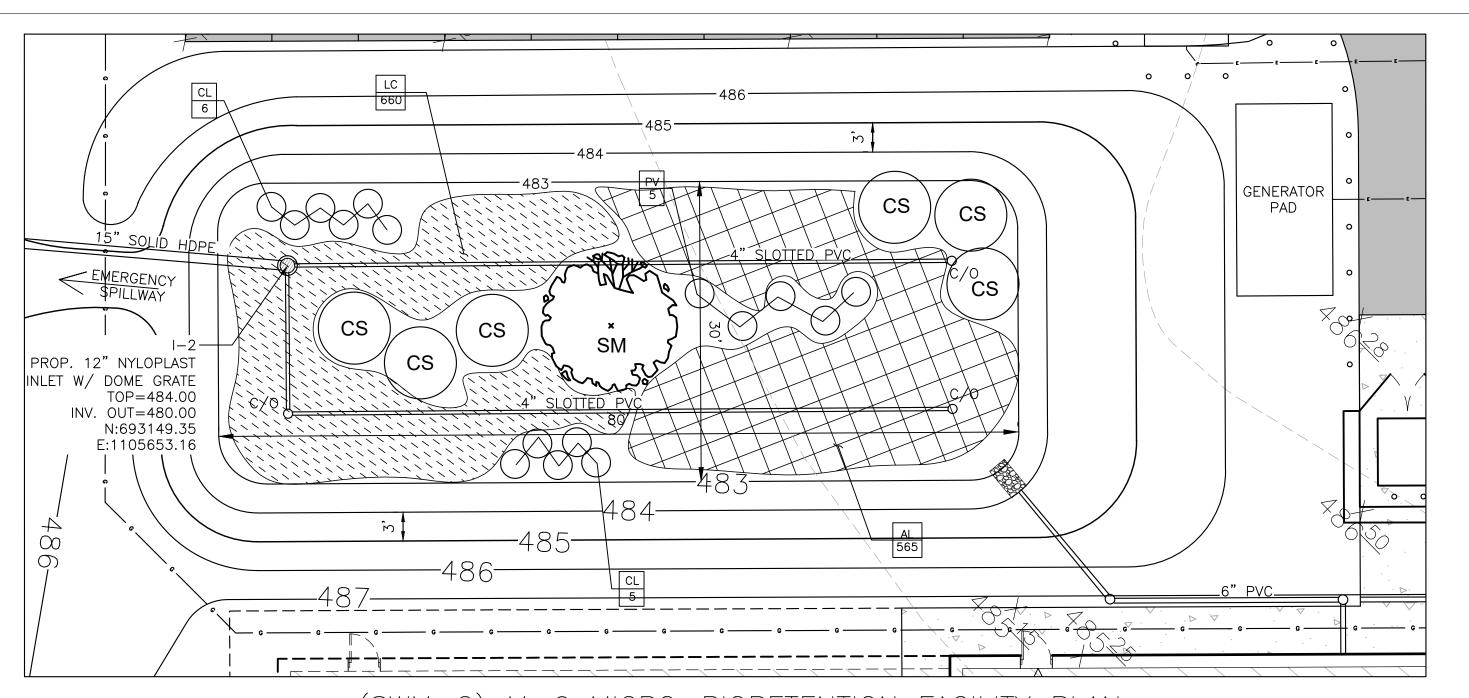
4" SLOTTED PVC

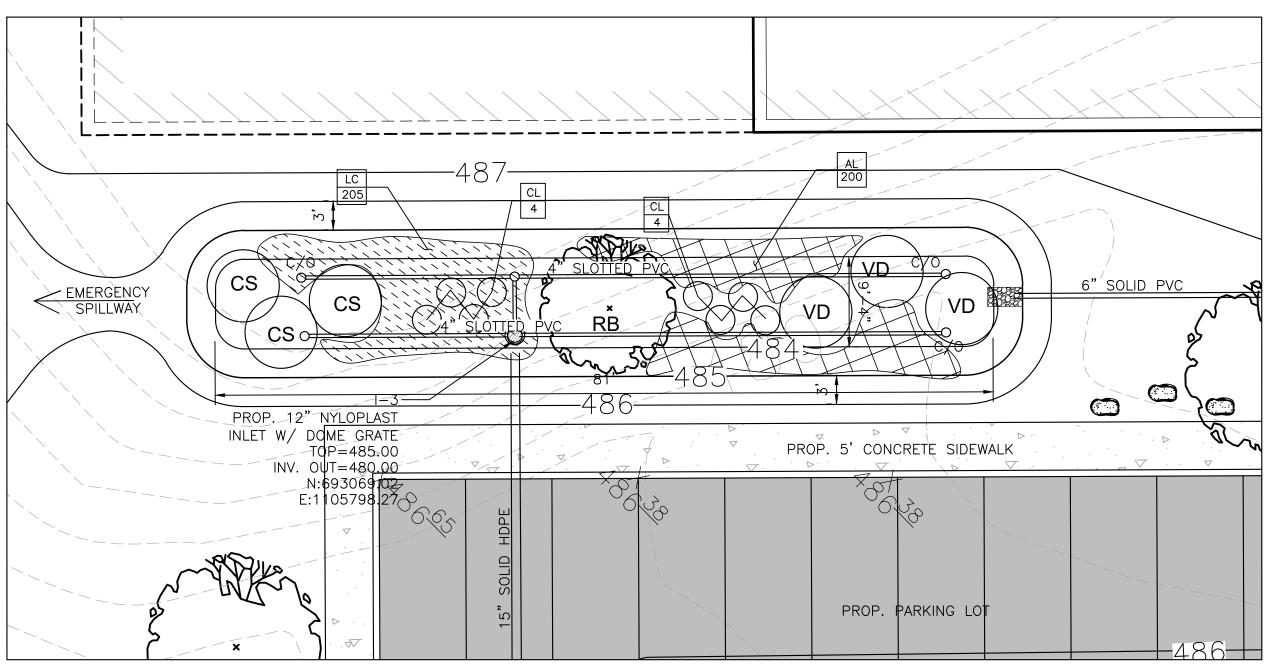
INV.=480.09 @ 0%

DESIGN SUMMARY

- 1. FACILITY NUMBER: SWM-1
- 2. FACILITY TYPE: F-6 BIORETENTION FACILITY
- 3. DRAINAGE AREA: 58,850 SQ. FT
- 4. BOTTOM ELEVATION: 482.67
- 5. TOP OF BANK ELEVATION: 486.00 6. STORAGE VOLUME PROVIDED: 5,850 CU. FT
- WATER SURFACE ELEVATION:
- 10-YEAR: 483.71 8. DISCHARGE:
- 10-YEAR: 0.16 cfs
- 9. OVERFLOW INLET SIZE & TYPE: 12" NYLOPLAST INLET WITH DOME GRATE
- 10. CLEANOUT 6" ABOVE GRADE WITH WATERTIGHT SCREW LID.
- 11. 30 MIL GEOTEXTILE FABRIC LINER ADDED ON SIDES AND BOTTOM OF FACILITY.
- 12. MAINTENANCE RESPONSIBILITY: THIS IS A PRIVATE FACILITY TO BE OWNED & MAINTAINED BY THE OWNER. 13. THIS FACILITY IS EXEMPT FROM MD378 GUIDELINES IN THAT
- THE IMPOUNDED DESIGN HIGHWATER DEPTH IS LESS THAN 3 FEET AT THE EMBANKMENT
- 14. IF ROCK IS ENCOUNTERED, UNDERCUT POND 18" AND BACKFILL WITH CL TYPE SOIL.

PLANT SCHEDULE SIZE COND. KEY QTY BOTANICAL NAME / COMMON NAME COMMENTS SHRUBS 18" HT. CONT. PLANT AT 5' O.C. CS 7 CORNUS SERICEA / REDOSIER DOGWOOD PERENNIALS / ORNAMENTAL GRASSES AL | 500 | ASCLEPIAS TUBEROSA / BUTTERFLY MILKWEED 2"HT. | PLUG | PLANT AT 18"O.C CL | 13 | CHASMANTHIUM LATIFOLIUM / NORTHERN SEA OATS GAL. | CONT. | PLANT AT 3' O.C. LC 500 LOBELIA CARDINALIS / CARDINAL FLOWER 2"HT. | PLUG | PLANT AT 18"O.C PV | 10 | PANICUM VIRGATUM 'HEAVY METAL' / SWITCHGRASS GAL. | CONT. | PLANT AT 3' O.C. TREES 6' HT. | B&B 2 BETULA NIGRA/ RIVER BIRCH





(SWM-2) M-6 MICRO-BIORETENTION FACILITY PLAN SCALE: 1" = 10'— 30 MIL (MIN.) PVC GEOMEMBRANE IMPERMEABLE 30 MIL (MIN.) PVC -LINER ON ALL SIDES AND BOTTOM. KEY TOP GEOMEMBRANE IMPERMEABLE INTO SOIL AT ELEV. 484.10 LINER ON ALL SIDES AND EMBANKMENT BOTTOM. KEY TOP INTO SOIL **EMBANKMENT** PROP. 12" NYLOPLAST TOP:486.00 AT 10-YR ELEV. TOP:486.00 INLET W/ DOME GRATE TOP=484.25 $\sqrt{}$ 10-YEAR= 484.10 ELEV.=483.25 ELEV.=483.00 24" PLANTING MATERIAL ELEV.=481.00 4" NO. 8 STONE ELEV.=480.67 ELEV.=480.00 NO. 2 STONE -`15" HDPE OUTFALL -4" SLOTTED PVC INV.=480.00INV.=480.09 @ 0% (SWM-2) M-6 MICRO-BIORETENTION FACILITY SECTION

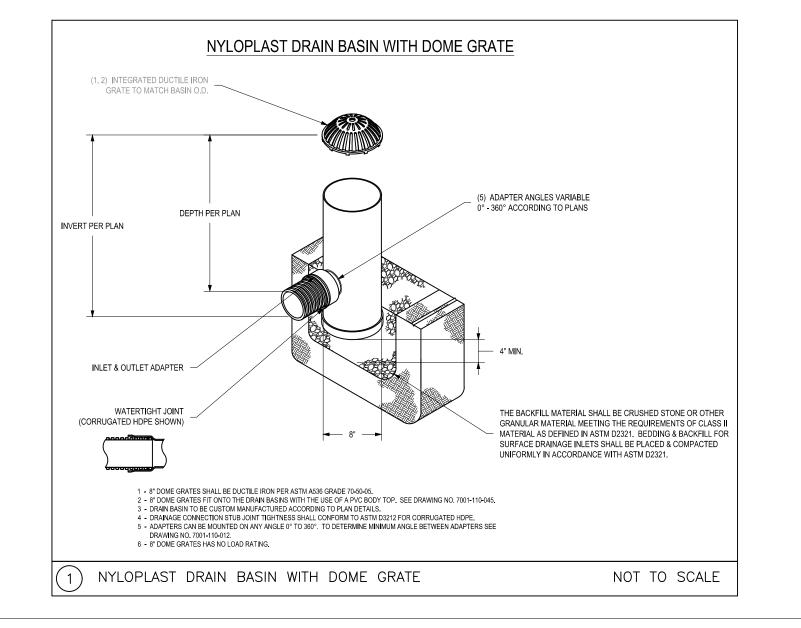
	N.T.S						
		PLANT SCHEDULE SWM-	-2				
KEY	QTY	BOTANICAL NAME / COMMON NAME	SIZE	COND.	COMMENTS		
SHRU	BS						
cs	6	CORNUS SERICEA / REDOSIER DOGWOOD	18" HT.	CONT.	PLANT AT 5' O.C.		
PERENNIALS / ORNAMENTAL GRASSES							
AL	565	ASCLEPIAS TUBEROSA / BUTTERFLY MILKWEED	2" HT.	PLUG	PLANT AT 18" O.C.		
CL	11	CHASMANTHIUM LATIFOLIUM / NORTHERN SEA OATS	1 GAL.	CONT.	PLANT AT 3' O.C.		
LC	505	LOBELIA CARDINALIS / CARDINAL FLOWER	2" HT.	PLUG	PLANT AT 18" O.C.		
PV	5	PANICUM VIRGATUM 'HEAVY METAL' / SWITCHGRASS	1 GAL.	CONT.	PLANT AT 3' O.C.		
TREES	5						
SM	1	MAGNOLIA VIRINGIANA / SWEETBAY MAGNOLIA	1 ½" CAL	CONT.			

DESIGN SUMMARY

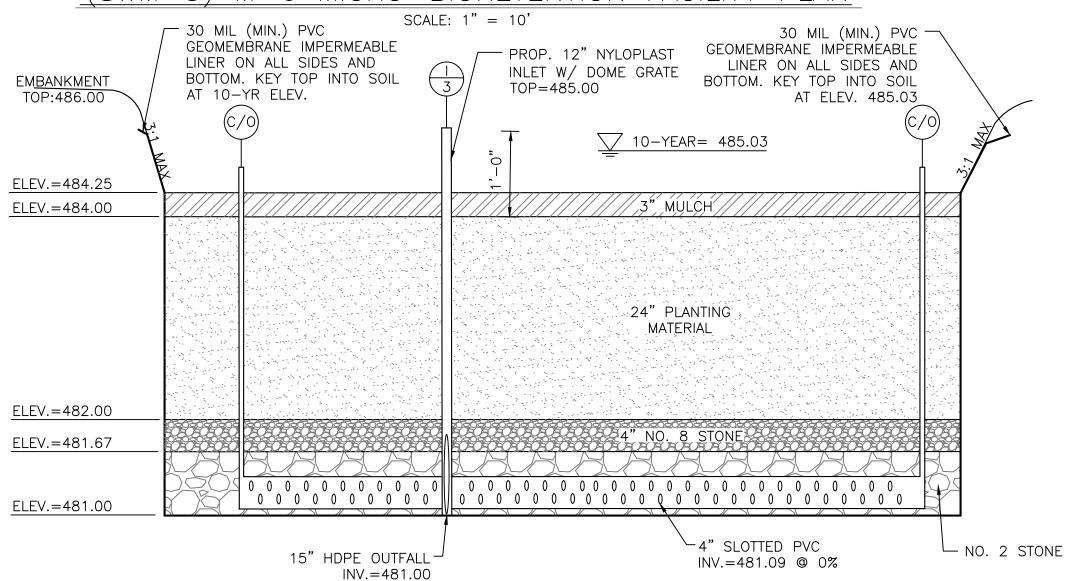
- . FACILITY NUMBER: SWM-2
- 2. FACILITY TYPE: M-6 MICRO-BIORETENTION FACILITY
- 3. DRAINAGE AREA: 27,800 SQ. FT
- 4. BOTTOM ELEVATION: 483.00
- 5. TOP OF BANK ELEVATION: 486.00 6. STORAGE VOLUME PROVIDED: 4,365 CU. FT
- 7. WATER SURFACE ELEVATION:
- 10-YEAR: 484.10
- 8. DISCHARGE:
- 10-YEAR: 0.47 cfs
- 9. OVERFLOW INLET SIZE & TYPE: 12" NYLOPLAST INLET WITH DOME GRATE
- 10. CLEANOUT 6" ABOVE GRADE WITH WATERTIGHT SCREW LID. 11. 30 MIL (MIN.) PVC GEOMEMBRANE IMPERMEABLE LINER ON
- ALL SIDES AND BOTTOM. KEY TOP INTO SOIL.
- 12. MAINTENANCE RESPONSIBILITY: THIS IS A PRIVATE FACILITY TO BE OWNED & MAINTAINED BY THE OWNER.
- 13. IF ROCK IS ENCOUNTERED, UNDERCUT POND 18" AND BACKFILL WITH CL TYPE SOIL

- NOTICE OF REQUIRED STORMWATER MANAGEMENT INSPECTIONS SAND FILTERS, BIORETENTION AND RAIN GARDEN FACILITIES
- THE FOLLOWING INSPECTIONS ARE REQUIRED TO BE PERFORMED BY THE QUALIFIED PROFESSIONAL FOR THE CONSTRUCTION OF ANY SAND FILTER, BIORETENTION OR RAIN GARDEN FACILITY. ADDITIONAL INSPECTIONS MAY BE NEEDED BASED ON PROFESSIONAL ENGINEERING JUDGEMENT. EACH INSPECTION IS REQUIRED AT THE START OF EACH STAGE.
- 1. EXCAVATION OF FACILITY- PRIOR TO EXCAVATION, VERIFY SEDIMENT AND EROSION CONTROL FEATURES ARE IN PLACE TO PREVENT SEDIMENT INFLOW. VERIFY ALL FLAGGING REQUIRED IN THE AREA FOR SENSITIVE AREA PROTECTION. VERIFY GRADING IS ACCURATELY STAKED-OUT AND RE-STAKED AS NEEDED. FACILITY DIMENSIONS SHALL BE VERIFIED AND SOILS CHECKED FOR INFILTRATION. VERIFY CONTRIBUTING AREA IS PERMANENTLY STABILIZED. VERIFY THAT WATER IS NOT PRESENT. ENSURE ROUGHENING OF SIDE WALLS IF SHEARED AND SEALED BY HEAVY EQUIPMENT. VERIFY THAT COMPACTION OF FACILITY BASE IS MINIMIZED
- 2. PLACEMENT OF FILTER CLOTH (TRENCHES)— ENSURE FILTER FABRIC IS OVERLAPPING SIX (6) INCHES BETWEEN STRIPS OF CLOTH. ENSURE TREE ROOTS OR OTHER OBSTACLES ARE REMOVED FROM FACILITY WALLS OR SIDES AND BASE TO PREVENT TEARING. VERIFY THAT UPHILL FABRIC ROLL OVERLAPPS TWO (2) FEET OVER DOWNHILL
- 3. PLACEMENT OF SAND FILTER LAYER OR GRAVEL DIAPHRAGM- VERIFY DEPTH AND WIDTH OF SSAND AND/OR DIAPHRAGM LATER. VERIFY FILL MATERIAL.
- 4. PLACEMENT OF FILTERING MEDIA- VERIFY BOTTOM LAYER MATERIAL AND THICKNESS. VERIFY SAND AND/OR FILTER MEDIA LAYER MATERIAL AND THICKNESS. VERIFY FILTER FABRIC OR PEA GRAVEL USED BETWEEN SAND LAYERS. VERIFY TOP FILTER MEDIA LAYER.
- 5. PLACEMENT OF UNDERDRAINS AND OBSERVATION WELLS-LOCATION, SIZE AND MATERIAL OF UNDER DRAIN AND OBSERVATION WELLS SHALL BE VERIFIED PRIOR TO STONE PLACEMENT. VERIFY PIPE ENDS CAPPED. VERIFY 3" GRAVEL COVER.
- 6. STABILIZATION AND LANDSCAPING- VERIFY SITE TOP SOILED, SEEDED AND MULCHED. VERIFY EMBANKMENT TOP SOILED AND SEEDED. VERIFY LOCATION, SIZE, TYPE AND NUMBER OF PLANTED LANDSCAPE MATERIAL. VERIFY NO MORE THAN 1/8 INCH ROOT BALL EXPOSED. VERIFY PLANTING STOCK KEPT MOIST DURING ON-SITE STORAGE. VERIFY INSTALLATION LOCATION, SIZE, MATERIAL TYPE OF FENCING OR OTHER SAFETY BARRIERS.

THE QUALIFIED PROFESSIONAL MAY REQUEST THE PRESENCE OF A COUNTY CONSTRUCTION STANDARDS INSPECTOR AT LEAST 24 HOURS IN ADVANCE BY CALLING 240-313-2400.





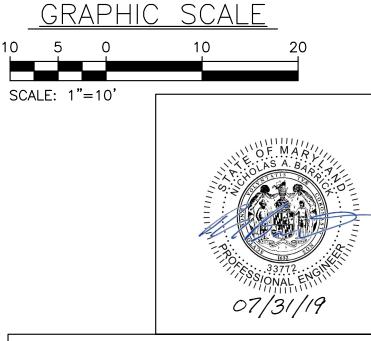


		PLANT SCHEDULE SWM-3	,)		
KEY	QTY	BOTANICAL NAME / COMMON NAME	SIZE	COND.	COMMENTS
SHRU	3S				
CS	3	CORNUS SERICEA / REDOSIER DOGWOOD	18" HT.	CONT.	PLANT AT 5' O.C.
VD	3	VIBURNUM DENTATUM 'BLUE MUFFIN' / ARROWWOOD	18" HT.	CONT.	PLANT AT 5' O.C.
PEREN	INIALS	/ ORNAMENTAL GRASSES			
AL	200	ASCLEPIAS TUBEROSA / BUTTERFLY MILKWEED	2" HT.	PLUG	PLANT AT 18" O.C
CL	8	CHASMANTHIUM LATIFOLIUM / NORTHERN SEA OATS	1 GAL.	CONT.	PLANT AT 3' O.C.
LC	205 LOBELIA CARDINALIS / CARDINAL FLOWER 2" HT. PLUG PLANT				
TREES	5				
RB	1	BETULA NIGRA / RIVER BIRCH	6' HT.	В&В	

(SWM-3) M-6 MICRO-BIORETENTION FACILITY SECTION

DESIGN SUMMARY

- 1. FACILITY NUMBER: SWM-3
- 2. FACILITY TYPE: M-6 MICRO-BIORETENTION FACILITY
- 3. DRAINAGE AREA: 11,000 SQ. FT 4. BOTTOM ELEVATION: 484.00
- 5. TOP OF BANK ELEVATION: 486.00
- 6. STORAGE VOLUME PROVIDED: 1,451 CU. FT 7. WATER SURFACE ELEVATION:
- 10-YEAR: 485.03
- 8. DISCHARGE:
- 10-YEAR: 0.16 cfs 9. OVERFLOW INLET SIZE & TYPE: 12" NYLOPLAST INLET WITH DOME GRATE
- 10. CLEANOUT 6" ABOVE GRADE WITH WATERTIGHT SCREW LID. 11. 30 MIL (MIN.) PVC GEOMEMBRANE IMPERMEABLE LINER ON
- ALL SIDES AND BOTTOM. KEY TOP INTO SOIL. 12. MAINTENANCE RESPONSIBILITY: THIS IS A PRIVATE FACILITY TO
- BE OWNED & MAINTAINED BY THE OWNER. 13. IF ROCK IS ENCOUNTERED, UNDERCUT POND 18" AND BACKFILL WITH CL TYPE SOIL



PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 33772 EXP. DATE: 06/16/2021

ALL REPORTS OF ANS SPECIFICATIONS AND COMPLITER FILES RELATING TO THIS PROJECT ARE THE PROPERTY OF CRABTREE, ROHRBAUGH & ASSOCIATES. CRABTREE ROHRBAUGH & ASSOCIATES RETAINS ALL COMMON LAW. STATUTE AND THER RESERVED RIGHTS INCLUDING THE COPYRIGHT THERETO. REPRODUCTION OF THE MATERIAL HERIN OR SUBSTANTIAL USE WITHOUT WRITTEN PERMISSION OF CRABTREE, ROHRBAUGH & ASSOCIATES VIOLATES THE COPYRIGHT LAWS OF THE UNITED STATES AND WILL BE SUBJECT TO LEGAL PROSECUTION. © CRABTREE, ROHRBAUGH & ASSOCIATES, INC 2019

1 MM-DD-YR	NAME	DESCRIPTION OF CHANGES

02

RB

0

M

PLOT SCALE:

DATE:

404

OWNER

WASHINGTON

COUNTY BOARD OF

COMMISSIONERS

100 W. WASHINGTON ST

HAGERSTOWN, MD 21740

240-313-220

1:10

KCI# 271703606

7/25/19

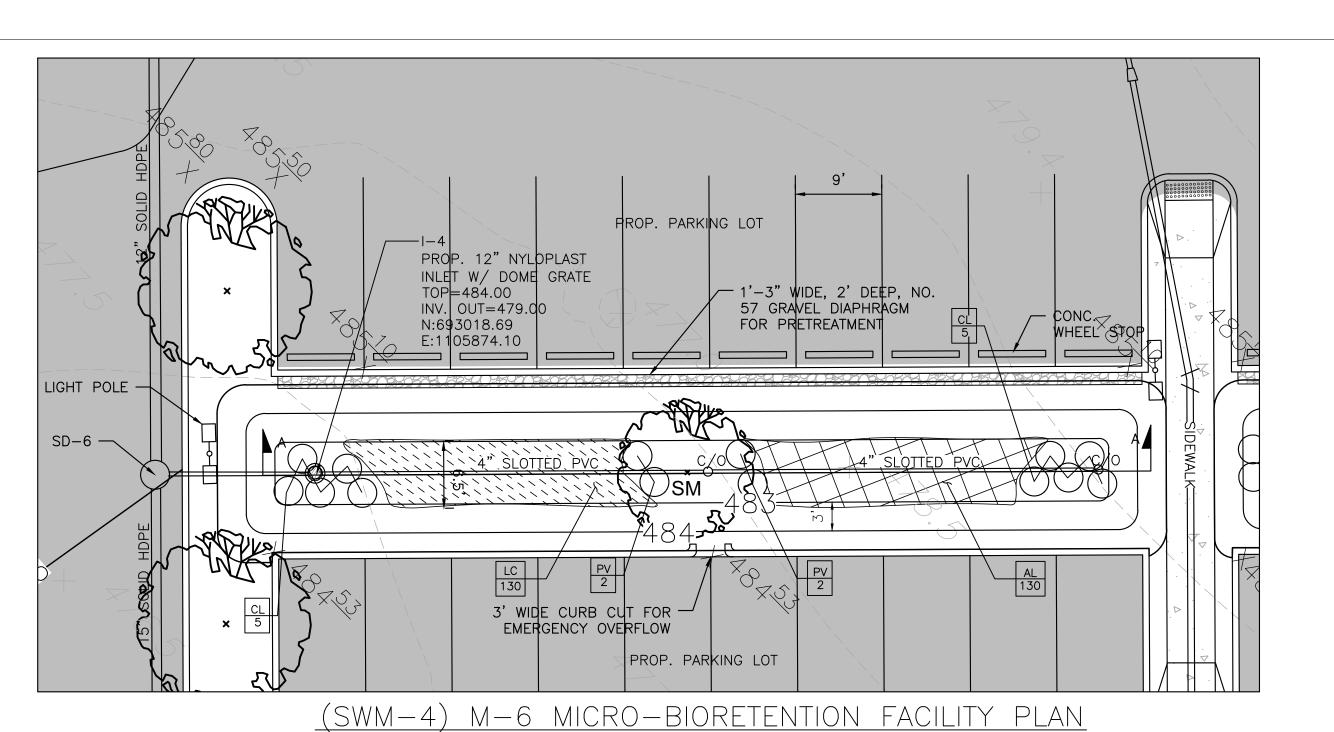
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CIVIL KCI TECHNOLOGIES, 11830 W. MARKET PLACE, SUITE F **FULTON, MD 20759** 410-792-8086 (P) 410-792-7419 (F)

SWM FACILITY PROJECT SECTION 3089

C-2.04



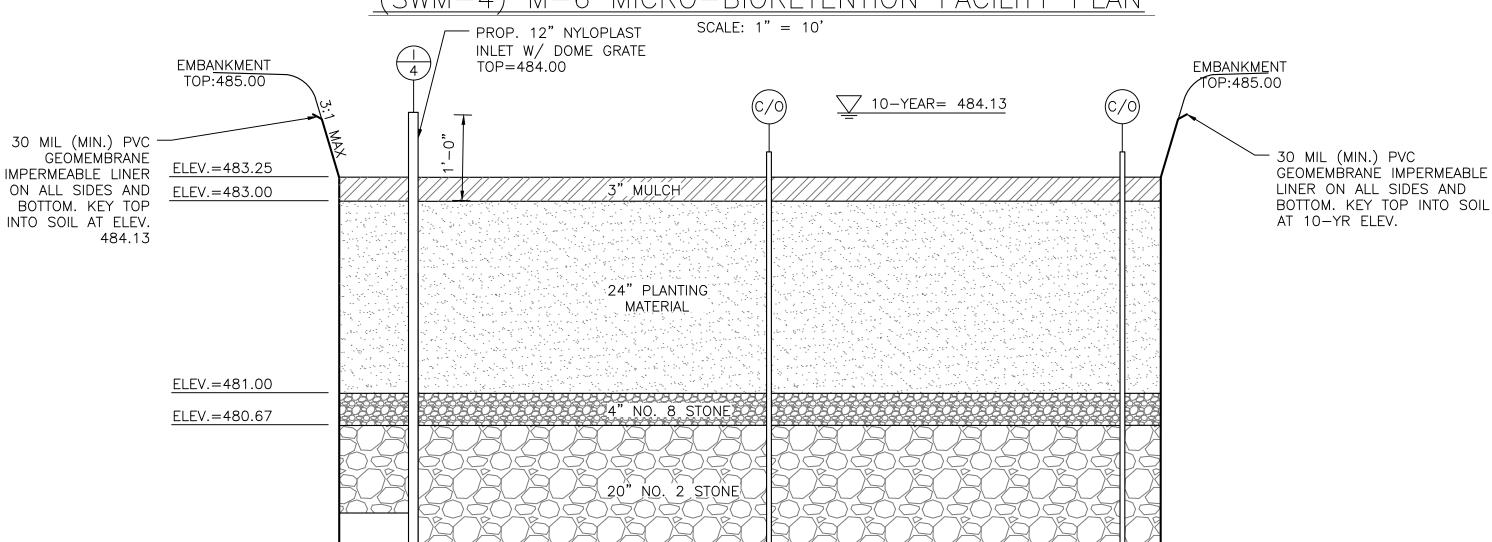
PROP. 12" NYLOPLAST INLET W/ DOME GRATE −3" WIDE, 2' |DEEP, NO. TOP = 484.0057 GRAVEL DIAPHRAGM FOR JIGHT POLE PROP. PARKING LOT VV. OUT = 479.00PRETREATMENT N:693147.56 E:11060\(\phi 0.00 3' WIDE CURB CUT FOR -EMERGENCY OVERFLOW PROP. PARKING LOT

(SWM-5) M-6 MICRO-BIORETENTION FACILITY PLAN

SCALE: 1" = 10'

PROP. 12" NYLOPLAST

INLET W/ DOME GRATE



87'

TOP:485.00 70P:485.00 TOP=484.00 √ 10-YEAR= 484.09 ELEV.=483.25 ELEV.=483.00 //3" MULCH/ 24" PLANTING MATERIAL ELEV.=481.00 ELEV.=480.67 ELEV.=479.00 85'

12" HDPE OUTFALL INV.=479.00	4" SLOTTED PVC INV.=479.09 @ 0%	4" SLOTTED PVC 12" HDPE OUTFALL INV.=479.09 @ 0% INV.=479.00
SWM-4) M-6 MICRO-BIORE	TENTION FACILITY SECTION_	(SWM-5) M-6 MICRO-BIORETENTION FACILITY SECTION
N.T.S	5	N.T.S

		PLANT SCHEDULE SWM-4	_		
KEY	QTY	BOTANICAL NAME / COMMON NAME	SIZE	COND.	COMMENTS
PEREI	PERENNIALS / ORNAMENTAL GRASSES				
AL	130	ASCLEPIAS TUBEROSA / BUTTERFLY MILKWEED	2" HT.	PLUG	PLANT AT 18" O.C.
CL	10	CHASMANTHIUM LATIFOLIUM / NORTHERN SEA OATS	1 GAL.	CONT.	PLANT AT 3' O.C.
LC	130	LOBELIA CARDINALIS / CARDINAL FLOWER	2" HT.	PLUG	PLANT AT 18" O.C.
PV	4	PANICUM VIRGATUM 'HEAVY METAL' / SWITCHGRASS	1 GAL.	CONT.	PLANT AT 3' O.C.
TREES	5				
SM	1	MAGNOLIA VIRINGIANA / SWEETBAY MAGNOLIA	1 ½" CAI	CONT.	

DESIGN SUMMARY

1. FACILITY NUMBER: SWM-4

ELEV.=479.00

- 2. FACILITY TYPE: M-6 MICRO-BIORETENTION FACILITY
- 3. DRAINAGE AREA: 9,910 SQ. FT
- 4. BOTTOM ELEVATION: 483.00
- 5. TOP OF BANK ELEVATION: 485.00 6. STORAGE VOLUME PROVIDED: 1,469 CU. FT
- 7. WATER SURFACE ELEVATION:

BACKFILL WITH CL TYPE SOIL.

- 10-YEAR: 484.13 8. DISCHARGE:
- 10-YEAR: 0.62 cfs 9. OVERFLOW INLET SIZE & TYPE: 12" NYLOPLAST INLET WITH DOME GRATE
- 10. CLEANOUT 6" ABOVE GRADE WITH WATERTIGHT SCREW LID. 11. 30 MIL (MIN.) PVC GEOMEMBRANE IMPERMEABLE LINER ON
- ALL SIDES AND BOTTOM. KEY TOP INTO SOIL. 12. MAINTENANCE RESPONSIBILITY: THIS IS A PRIVATE FACILITY TO
- BE OWNED & MAINTAINED BY THE OWNER. 13. IF ROCK IS ENCOUNTERED, UNDERCUT POND 18" AND

CALLING 240-313-2400.

NOTICE OF REQUIRED STORMWATER MANAGEMENT INSPECTIONS SAND FILTERS, BIORETENTION AND RAIN GARDEN FACILITIES

EMBANKMENT

THE FOLLOWING INSPECTIONS ARE REQUIRED TO BE PERFORMED BY THE QUALIFIED PROFESSIONAL FOR THE CONSTRUCTION OF ANY SAND FILTER, BIORETENTION OR RAIN GARDEN FACILITY. ADDITIONAL INSPECTIONS MAY BE NEEDED BASED ON PROFESSIONAL ENGINEERING JUDGEMENT. EACH INSPECTION IS REQUIRED AT THE START OF EACH STAGE.

- 1. EXCAVATION OF FACILITY- PRIOR TO EXCAVATION, VERIFY SEDIMENT AND EROSION CONTROL FEATURES ARE IN PLACE TO PREVENT SEDIMENT INFLOW. VERIFY ALL FLAGGING REQUIRED IN THE AREA FOR SENSITIVE AREA PROTECTION. VERIFY GRADING IS ACCURATELY STAKED-OUT AND RE-STAKED AS NEEDED. FACILITY DIMENSIONS SHALL BE VERIFIED AND SOILS CHECKED FOR INFILTRATION. VERIFY CONTRIBUTING AREA IS PERMANENTLY STABILIZED. VERIFY THAT WATER IS NOT PRESENT. ENSURE ROUGHENING OF SIDE WALLS IF SHEARED AND SEALED BY HEAVY EQUIPMENT. VERIFY THAT COMPACTION
- OF FACILITY BASE IS MINIMIZED. 2. PLACEMENT OF FILTER CLOTH (TRENCHES)- ENSURE FILTER FABRIC IS OVERLAPPING SIX (6) INCHES BETWEEN STRIPS OF CLOTH. ENSURE TREE ROOTS OR OTHER OBSTACLES ARE REMOVED FROM FACILITY WALLS OR SIDES AND BASE TO PREVENT TEARING. VERIFY THAT UPHILL FABRIC ROLL
- OVERLAPPS TWO (2) FEET OVER DOWNHILL ROLL. 3. PLACEMENT OF SAND FILTER LAYER OR GRAVEL DIAPHRAGM- VERIFY DEPTH AND WIDTH OF SSAND AND/OR DIAPHRAGM LATER. VERIFY FILL MATERIAL.
- 4. PLACEMENT OF FILTERING MEDIA- VERIFY BOTTOM LAYER MATERIAL AND THICKNESS. VERIFY SAND AND/OR FILTER MEDIA LAYER MATERIAL AND THICKNESS. VERIFY FILTER FABRIC OR PEA GRAVEL USED BETWEEN SAND
- LAYERS. VERIFY TOP FILTER MEDIA LAYER. 5. PLACEMENT OF UNDERDRAINS AND OBSERVATION WELLS- LOCATION, SIZE AND MATERIAL OF UNDER DRAIN AND OBSERVATION WELLS SHALL BE VERIFIED PRIOR TO STONE PLACEMENT. VERIFY PIPE ENDS CAPPED. VERIFY 3" GRAVEL COVER.
- 6. STABILIZATION AND LANDSCAPING- VERIFY SITE TOP SOILED, SEEDED AND MULCHED. VERIFY EMBANKMENT TOP SOILED AND SEEDED. VERIFY LOCATION, SIZE, TYPE AND NUMBER OF PLANTED LANDSCAPE MATERIAL. VERIFY NO MORE THAN 1/8 INCH ROOT BALL EXPOSED. VERIFY PLANTING STOCK KEPT MOIST DURING ON-SITE STORAGE. VERIFY INSTALLATION LOCATION, SIZE, MATERIAL TYPE OF FENCING OR OTHER SAFETY BARRIERS.

THE QUALIFIED PROFESSIONAL MAY REQUEST THE PRESENCE OF A COUNTY CONSTRUCTION STANDARDS INSPECTOR AT LEAST 24 HOURS IN ADVANCE BY

	PLANT SCHEDULE SWM-5							
KEY	QTY	BOTANICAL NAME / COMMON NAME SIZE COND. COMMENT						
PEREN	NIALS	/ ORNAMENTAL GRASSES						
AL	145	ASCLEPIAS TUBEROSA / BUTTERFLY MILKWEED	2" HT.	PLUG	PLANT AT 18" O.C.			
CL	6	CHASMANTHIUM LATIFOLIUM / NORTHERN SEA OATS	1 GAL.	CONT.	PLANT AT 3' O.C.			
LC	145	LOBELIA CARDINALIS / CARDINAL FLOWER	2" HT.	PLUG	PLANT AT 18" O.C.			
PV	PV 4 PANICUM VIRGATUM 'HEAVY METAL' / SWITCHGRASS				PLANT AT 3' O.C.			
TREES	3							
RB	1	BETULA NIGRA / RIVER BIRCH	6' HT.	B&B				

DESIGN SUMMARY

- 1. FACILITY NUMBER: SWM-5
- 2. FACILITY TYPE: M-6 MICRO-BIORETENTION FACILITY
- 3. DRAINAGE AREA: 11,150 SQ. FT
- 4. BOTTOM ELEVATION: 483.00
- 5. TOP OF BANK ELEVATION: 485.00 6. STORAGE VOLUME PROVIDED: 1,469 CU. FT
- 7. WATER SURFACE ELEVATION:

BACKFILL WITH CL TYPE SOIL

- 10-YEAR: 484.09 8. DISCHARGE:
- 10-YEAR: 0.44 cfs 9. OVERFLOW INLET SIZE & TYPE: 12" NYLOPLAST INLET WITH DOME GRATE
- 10. CLEANOUT 6" ABOVE GRADE WITH WATERTIGHT SCREW LID.
- 11. 30 MIL (MIN.) PVC GEOMEMBRANE IMPERMEABLE LINER ON
- ALL SIDES AND BOTTOM. KEY TOP INTO SOIL. 12. MAINTENANCE RESPONSIBILITY: THIS IS A PRIVATE FACILITY TO BE OWNED & MAINTAINED BY THE OWNER.

13. IF ROCK IS ENCOUNTERED, UNDERCUT POND 18" AND

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 33772 EXP. DATE: 06/16/2021

GRAPHIC SCALE

SCALE: 1"=10'

EMBANKMENT



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REVISIONS						
01	MM-DD-YR	NAME	DESCRIPTION OF CHANGES			

0

02

RB

m

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%00

4 6 5 OWNER WASHINGTON **COUNTY BOARD OF** COMMISSIONERS 100 W. WASHINGTON ST

HAGERSTOWN, MD 21740

240-313-220

KCI# 271703606

7/25/19

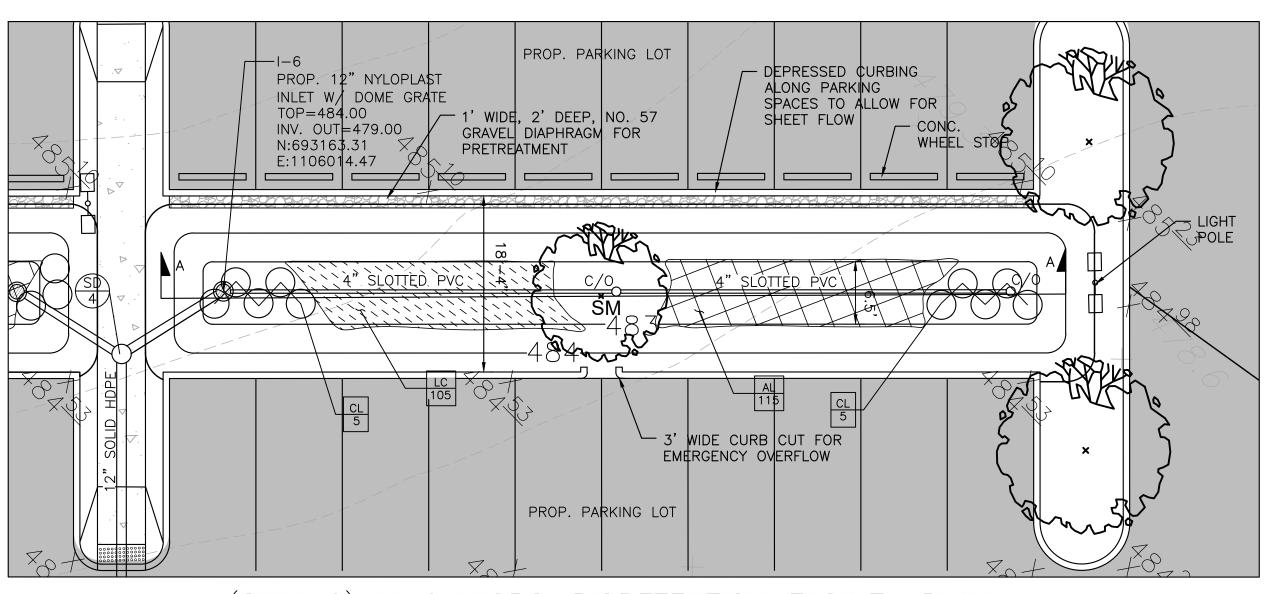
DATE:

CIVIL KCI TECHNOLOGIES, 11830 W. MARKET

PLACE, SUITE F

FULTON, MD 20759 410-792-8086 (P) 410-792-7419 (F)

SWM FACILITY PROJECT SECTION 3089 PLOT SCALE: 1:10

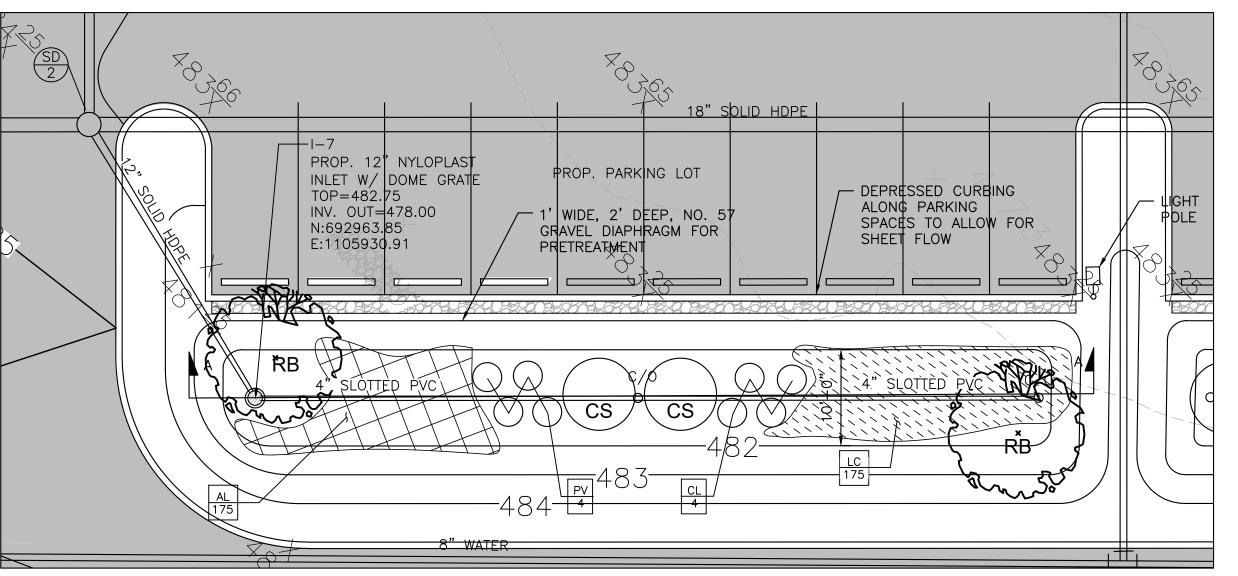


(SWM-6) M-6 MICRO-BIORETENTION FACILITY PLAN SCALE: 1" = 10'

√ 10-YEAR= 484.11

~4" SLOTTED PVC

INV.=479.09 @ 0%



(SWM-7) M-6 MICRO-BIORETENTION FACILITY PLAN

SCALE: 1" = 10'

— PROP. 12" NYLOPLAST INLET W/ DOME GRATE EMBANKMENT TOP = 482.75TOP:484.00 √ 10-YEAR= 482.96 30 MIL (MIN.) PVC GEOMEMBRANE IMPERMEABLE LINER ON ALL SIDES AND ELEV.=482.00 BOTTOM. KEY TOP INTO SOIL ELEV.=481.75 AT 10-YR ELEV. 24" PLANTING MATERIAL ELEV.=479.75 4" NO. 8 STONE ELEV.=479.42 17" NO. 2 STONE ELEV.=478.00 90' -12" HDPE OUTFALL INV.=478.00

(SWM-6) M-6 MICRO-BIORETENTION FACILITY SECTION

90'

4" NO. 8 STONE

	PLANT SCHEDULE SWM-6								
KEY	QTY	BOTANICAL NAME / COMMON NAME	SIZE	COND.	COMMENTS				
PEREN	PERENNIALS / ORNAMENTAL GRASSES								
AL	135	ASCLEPIAS TUBEROSA / BUTTERFLY MILKWEED	2" HT.	PLUG	PLANT AT 18" O.C.				
CL	10	CHASMANTHIUM LATIFOLIUM / NORTHERN SEA OATS	1 GAL.	CONT.	PLANT AT 3' O.C.				
LC	135	LOBELIA CARDINALIS / CARDINAL FLOWER	2" HT.	PLUG	PLANT AT 18" O.C.				
TREES	TREES								
SM	1	MAGNOLIA VIRINGIANA / SWEETBAY MAGNOLIA	1 ½" CAL	CONT.					

`−12" HDPE OUTFALL

INV.=479.00

— PROP. 12" NYLOPLAST

TOP = 484.00

EMBANKMENT TOP:485.00

ELEV.=483.25

ELEV.=483.00

ELEV.=481.00

ELEV.=480.67

ELEV.=479.00

30 MIL (MIN.) PVC GEOMEMÉRANE

IMPERMEABLE LINER

BOTTOM. KEY TOP

INTO SOIL AT ELEV.

484.11

ON ALL SIDES AND

INLET W/ DOME GRATE

///3" MULCH //

24" PLANTING

MATERIAL

20" NO. 2 STONE

DESIGN SUMMARY

- 1. FACILITY NUMBER: SWM-6
- 2. FACILITY TYPE: M-6 MICRO-BIORETENTION FACILITY
- 3. DRAINAGE AREA: 12,065 SQ. FT
- 4. BOTTOM ELEVATION: 483.25 5. TOP OF BANK ELEVATION: 485.00
- 6. STORAGE VOLUME PROVIDED: 1,638 CU. FT
- 7. WATER SURFACE ELEVATION:
- 10-YEAR: 484.11 8. DISCHARGE:
- 10-YEAR: 0.51 cfs
- 9. OVERFLOW INLET SIZE & TYPE: 12" NYLOPLAST INLET WITH DOME GRATE
- 10. CLEANOUT 6" ABOVE GRADE WITH WATERTIGHT SCREW LID.
- 11. 30 MIL (MIN.) PVC GEOMEMBRANE IMPERMEABLE LINER ON ALL SIDES AND BOTTOM. KEY TOP INTO SOIL.
- 12. MAINTENANCE RESPONSIBILITY: THIS IS A PRIVATE FACILITY TO BE OWNED & MAINTAINED BY THE OWNER.
- 13. IF ROCK IS ENCOUNTERED, UNDERCUT POND 18" AND BACKFILL WITH CL TYPE SOIL

NOTICE OF REQUIRED STORMWATER MANAGEMENT INSPECTIONS SAND FILTERS, BIORETENTION AND RAIN GARDEN FACILITIES

THE FOLLOWING INSPECTIONS ARE REQUIRED TO BE PERFORMED BY THE QUALIFIED PROFESSIONAL FOR THE CONSTRUCTION OF ANY SAND FILTER, BIORETENTION OR RAIN GARDEN FACILITY. ADDITIONAL INSPECTIONS MAY BE NEEDED BASED ON PROFESSIONAL ENGINEERING JUDGEMENT. EACH INSPECTION IS REQUIRED AT THE START OF EACH STAGE.

EMBANKMENT

10P:485.00

- 1. EXCAVATION OF FACILITY- PRIOR TO EXCAVATION, VERIFY SEDIMENT AND EROSION CONTROL FEATURES ARE IN PLACE TO PREVENT SEDIMENT INFLOW. VERIFY ALL FLAGGING REQUIRED IN THE AREA FOR SENSITIVE AREA PROTECTION. VERIFY GRADING IS ACCURATELY STAKED-OUT AND RE-STAKED AS NEEDED. FACILITY DIMENSIONS SHALL BE VERIFIED AND SOILS CHECKED FOR INFILTRATION. VERIFY CONTRIBUTING AREA IS PERMANENTLY STABILIZED. VERIFY THAT WATER IS NOT PRESENT. ENSURE ROUGHENING OF SIDE WALLS IF SHEARED AND SEALED BY HEAVY EQUIPMENT. VERIFY THAT COMPACTION OF FACILITY BASE IS MINIMIZED.
- 2. PLACEMENT OF FILTER CLOTH (TRENCHES)- ENSURE FILTER FABRIC IS OVERLAPPING SIX (6) INCHES BETWEEN STRIPS OF CLOTH. ENSURE TREE ROOTS OR OTHER OBSTACLES ARE REMOVED FROM FACILITY WALLS OR SIDES AND BASE TO PREVENT TEARING. VERIFY THAT UPHILL FABRIC ROLL OVERLAPPS TWO (2) FEET OVER DOWNHILL
- 3. PLACEMENT OF SAND FILTER LAYER OR GRAVEL DIAPHRAGM- VERIFY DEPTH AND WIDTH OF SSAND AND/OR DIAPHRAGM LATER. VERIFY FILL
- 4. PLACEMENT OF FILTERING MEDIA- VERIFY BOTTOM LAYER MATERIAL AND THICKNESS. VERIFY SAND AND/OR FILTER MEDIA LAYER MATERIAL AND THICKNESS. VERIFY FILTER FABRIC OR PEA GRAVEL USED BETWEEN SAND LAYERS. VERIFY TOP FILTER MEDIA LAYER.
- 5. PLACEMENT OF UNDERDRAINS AND OBSERVATION WELLS— LOCATION, SIZE AND MATERIAL OF UNDER DRAIN AND OBSERVATION WELLS SHALL BE VERIFIED PRIOR TO STONE PLACEMENT. VERIFY PIPE ENDS CAPPED. VERIFY 3" GRAVEL COVER.
- 6. STABILIZATION AND LANDSCAPING- VERIFY SITE TOP SOILED, SEEDED AND MULCHED. VERIFY EMBANKMENT TOP SOILED AND SEEDED. VERIFY LOCATION, SIZE, TYPE AND NUMBER OF PLANTED LANDSCAPE MATERIAL. VERIFY NO MORE THAN 1/8 INCH ROOT BALL EXPOSED. VERIFY PLANTING STOCK KEPT MOIST DURING ON-SITE STORAGE. VERIFY INSTALLATION LOCATION, SIZE, MATERIAL TYPE OF FENCING OR OTHER SAFETY BARRIERS.

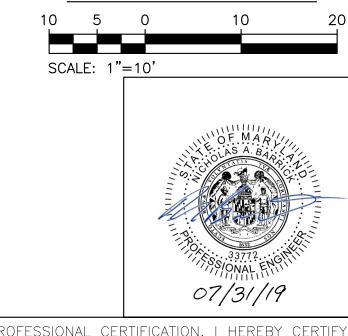
THE QUALIFIED PROFESSIONAL MAY REQUEST THE PRESENCE OF A COUNTY CONSTRUCTION STANDARDS INSPECTOR AT LEAST 24 HOURS IN ADVANCE BY CALLING 240-313-2400.

SWM	1-7)	M - 6	MIC	RO-BIORE	ETENTION	J FA	<u> CILI</u>	TY	SECTION	<u>\</u>
				N.T.	S					
		PLAN	IT S	CHEDULE	SWM-7					
 	_		_ /]

	PLANT SCHEDULE SWM-/							
KEY	QTY	BOTANICAL NAME / COMMON NAME	SIZE	COND.	COMMENTS			
SHRU	SHRUBS							
cs	2	CORNUS SERICEA / REDOSIER DOGWOOD	18" HT.	CONT.	PLANT AT 5' O.C.			
PERENNIALS / ORNAMENTAL GRASSES								
AL	175	ASCLEPIAS TUBEROSA / BUTTERFLY MILKWEED	2" HT.	PLUG	PLANT AT 18" O.C.			
CL	4	CHASMANTHIUM LATIFOLIUM / NORTHERN SEA OATS	1 GAL.	CONT.	PLANT AT 3' O.C.			
LC	175	LOBELIA CARDINALIS / CARDINAL FLOWER	2" HT.	PLUG	PLANT AT 18" O.C.			
PV	4	PANICUM VIRGATUM 'HEAVY METAL' / SWITCHGRASS	1 GAL.	CONT.	PLANT AT 3' O.C.			
TREES	5							
RB	2	BETULA NIGRA / RIVER BIRCH	6'HT.	В&В				

DESIGN SUMMARY

- 1. FACILITY NUMBER: SWM-7
- 2. FACILITY TYPE: M-6 MICRO-BIORETENTION FACILITY
- 3. DRAINAGE AREA: 13,700 SQ. FT
- 4. BOTTOM ELEVATION: 482.00
- 5. TOP OF BANK ELEVATION: 484.00
- 6. STORAGE VOLUME PROVIDED: 2,125 CU. FT EACH
- 7. WATER SURFACE ELEVATION: 10-YEAR: 482.96
- 8. DISCHARGE:
- 10-YEAR: 1.02 cfs 9. OVERFLOW INLET SIZE & TYPE: 12" NYLOPLAST INLET WITH DOME GRATE
- 10. CLEANOUT 6" ABOVE GRADE WITH WATERTIGHT SCREW LID. 11. 30 MIL (MIN.) PVC GEOMEMBRANE IMPERMEABLE LINER ON
- ALL SIDES AND BOTTOM. KEY TOP INTO SOIL. 12. MAINTENANCE RESPONSIBILITY: THIS IS A PRIVATE FACILITY TO
- BE OWNED & MAINTAINED BY THE OWNER. 13. IF ROCK IS ENCOUNTERED, UNDERCUT POND 18" AND BACKFILL WITH CL TYPE SOIL



GRAPHIC SCALE

OP:484.00

-4" SLOTTED PVC

INV.=478.09 @ 0%

30 MIL (MIN.) PVC

IMPERMEABLE LINER

ON ALL SIDES AND

INTO SOIL AT ELEV.

0

02

RB

M

%00

BOTTOM. KEY TOP

GEOMEMBRANE

482.96

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 33772 EXP. DATE: 06/16/2021

ALL REPORTS, PLANS SPECIFICATIONS AND COMPUTER FILES RELATING TO THIS PROJECT ARE THE PROPERTY OF CRABTREE, ROHRBAUGH & ASSOCIATES.

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01	MM-DD-YR	NAME	DESCRIPTION OF CHANGES
\dashv			

4 OWNER CIVIL WASHINGTON KCI TECHNOLOGIES, **COUNTY BOARD OF** COMMISSIONERS 11830 W. MARKET PLACE, SUITE F

100 W. WASHINGTON ST

HAGERSTOWN, MD 21740

240-313-220

SECTION

1:10

KCI# 271703606

7/25/19

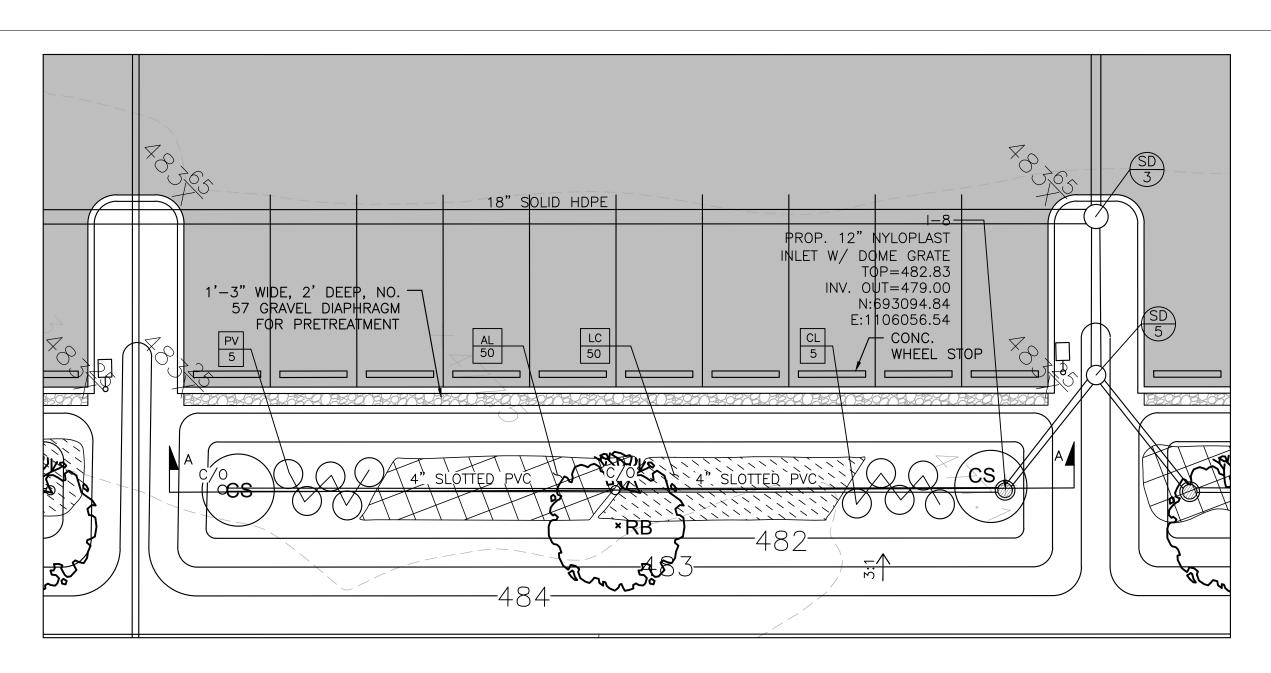
PLOT SCALE:

DATE:

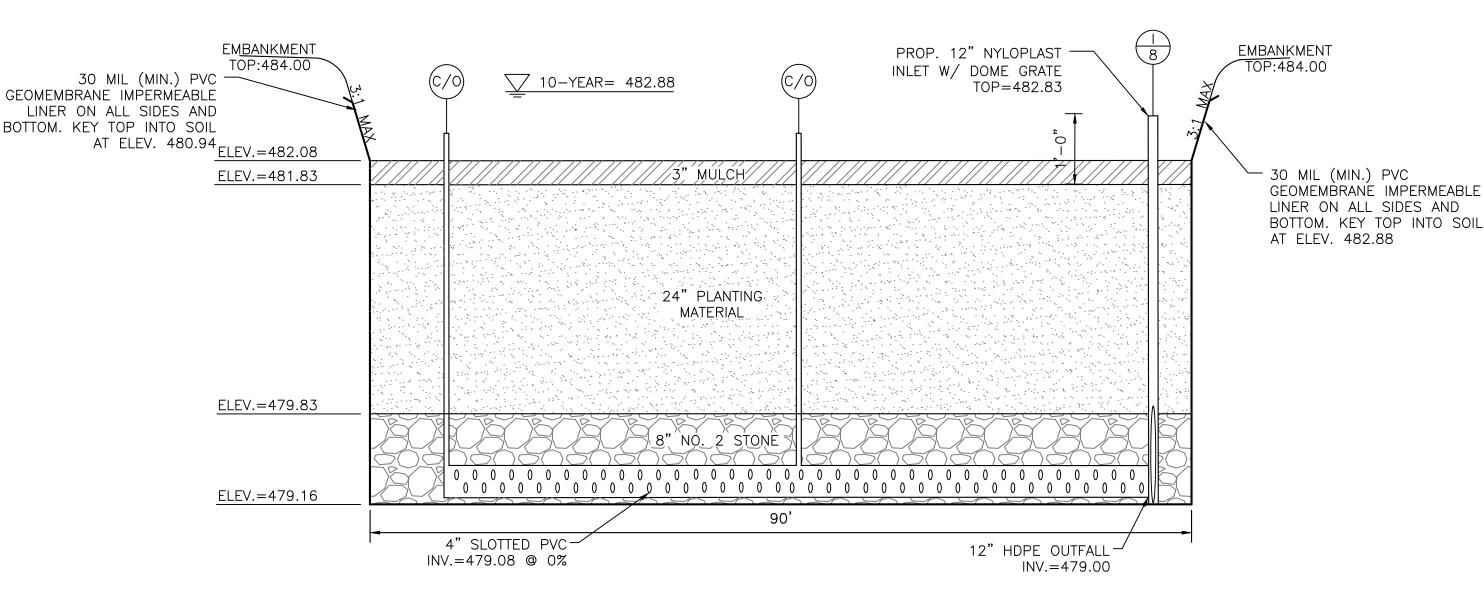
410-792-7419 (F) **SWM FACILITY PROJECT** 3089

FULTON, MD 20759

410-792-8086 (P)



(SWM-8) M-6 MICRO-BIORETENTION FACILITY PLAN SCALE: 1" = 10'



(SWM-8) M-6 MICRO-BIORETENTION FACILITY SECTION

	PLANT SCHEDULE SWM-8								
KEY	QTY	BOTANICAL NAME / COMMON NAME	SIZE	COND.	COMMENTS				
SHRU	SHRUBS								
cs	2	CORNUS SERICEA / REDOSIER DOGWOOD	18" HT.	CONT.	PLANT AT 5' O.C.				
PEREI	PERENNIALS / ORNAMENTAL GRASSES								
AL	50	ASCLEPIAS TUBEROSA / BUTTERFLY MILKWEED	2" HT.	PLUG	PLANT AT 18" O.C.				
CL	5	CHASMANTHIUM LATIFOLIUM / NORTHERN SEA OATS	1 GAL.	CONT.	PLANT AT 3' O.C.				
LC	50	LOBELIA CARDINALIS / CARDINAL FLOWER	2" HT.	PLUG	PLANT AT 18" O.C.				
PV	5	PANICUM VIRGATUM 'HEAVY METAL' / SWITCHGRASS	1 GAL.	CONT.	PLANT AT 3' O.C.				
TREES	3			-					
RB	1	BETULA NIGRA / RIVER BIRCH	6'HT.	В&В					

DESIGN SUMMARY

- FACILITY NUMBER: SWM-8
- 2. FACILITY TYPE: M-6 MICRO-BIORETENTION FACILITY 3. DRAINAGE AREA: 8,900 SQ. FT
- 4. BOTTOM ELEVATION: 481.83
- 5. TOP OF BANK ELEVATION: 483.25
- 6. STORAGE VOLUME PROVIDED: 1,361 CU. FT EACH
- 7. WATER SURFACE ELEVATION:
- 10-YEAR: 482.88 8. DISCHARGE:

DOME GRATE

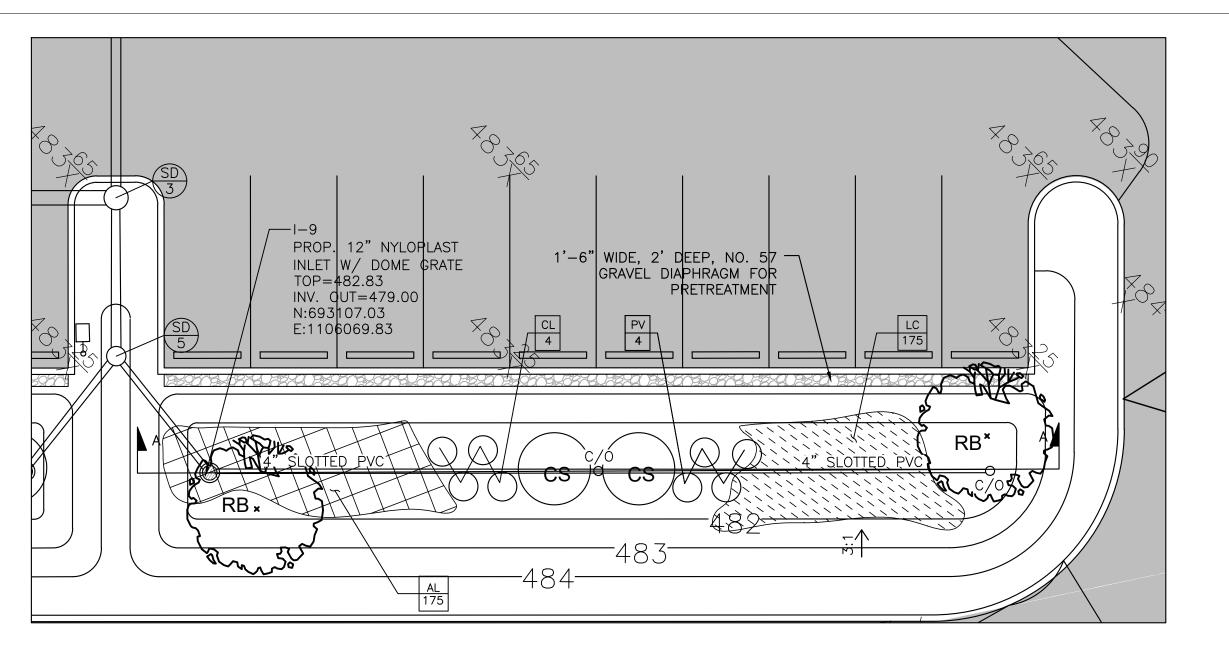
- 10-YEAR: 0.22 cfs 9. OVERFLOW INLET SIZE & TYPE: 12" NYLOPLAST INLET WITH
- 10. CLEANOUT 6" ABOVE GRADE WITH WATERTIGHT SCREW LID.
- 11. 30 MIL (MIN.) PVC GEOMEMBRANE IMPERMEABLE LINER ON ALL SIDES AND BOTTOM. KEY TOP INTO SOIL.
- 12. MAINTENANCE RESPONSIBILITY: THIS IS A PRIVATE FACILITY TO BE OWNED & MAINTAINED BY THE OWNER.
- 13. IF ROCK IS ENCOUNTERED, UNDERCUT POND 18" AND BACKFILL WITH CL TYPE SOIL

NOTICE OF REQUIRED STORMWATER MANAGEMENT INSPECTIONS SAND FILTERS, BIORETENTION AND RAIN GARDEN FACILITIES

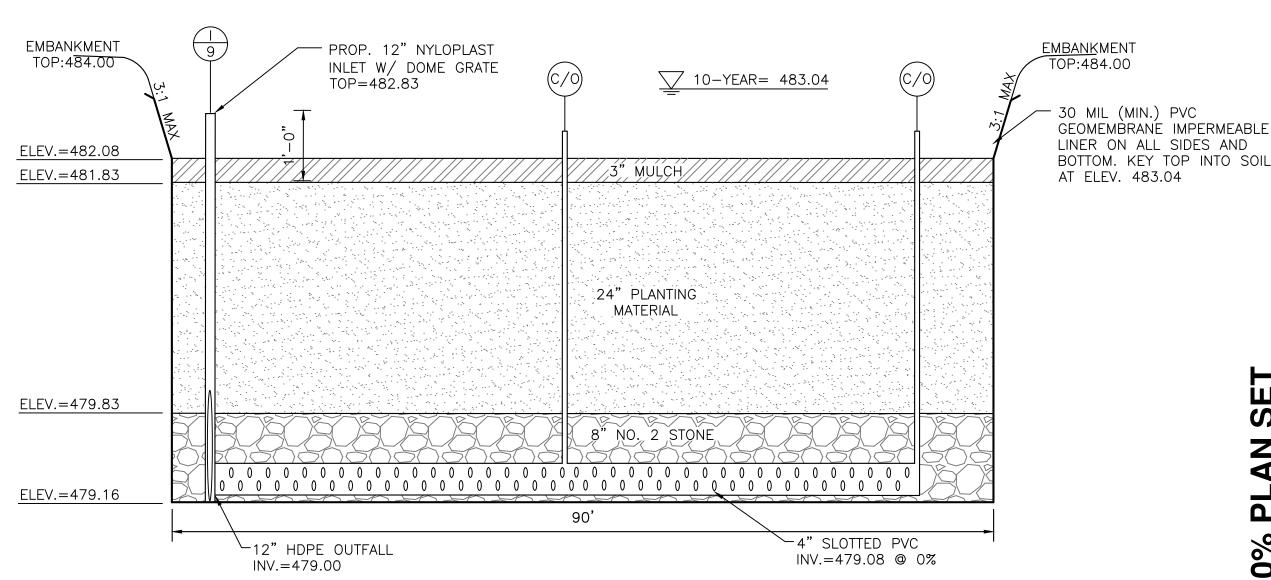
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- 1. EXCAVATION OF FACILITY- PRIOR TO EXCAVATION, VERIFY SEDIMENT AND EROSION CONTROL FEATURES ARE IN PLACE TO PREVENT SEDIMENT INFLOW. VERIFY ALL FLAGGING REQUIRED IN THE AREA FOR SENSITIVE AREA PROTECTION. VERIFY GRADING IS ACCURATELY STAKED-OUT AND RE-STAKED AS NEEDED. FACILITY DIMENSIONS SHALL BE VERIFIED AND SOILS CHECKED FOR INFILTRATION. VERIFY CONTRIBUTING AREA IS PERMANENTLY STABILIZED. VERIFY THAT WATER IS NOT PRESENT. ENSURE ROUGHENING OF SIDE WALLS IF SHEARED AND SEALED BY HEAVY EQUIPMENT. VERIFY THAT COMPACTION OF FACILITY BASE IS MINIMIZED.
- 2. PLACEMENT OF FILTER CLOTH (TRENCHES)— ENSURE FILTER FABRIC IS OVERLAPPING SIX (6) INCHES BETWEEN STRIPS OF CLOTH. ENSURE TREE ROOTS OR OTHER OBSTACLES ARE REMOVED FROM FACILITY WALLS OR SIDES AND BASE TO PREVENT TEARING. VERIFY THAT UPHILL FABRIC ROLL OVERLAPPS TWO (2) FEET OVER DOWNHILL
- 3. PLACEMENT OF SAND FILTER LAYER OR GRAVEL DIAPHRAGM- VERIFY DEPTH AND WIDTH OF SSAND AND/OR DIAPHRAGM LATER. VERIFY FILL
- 4. PLACEMENT OF FILTERING MEDIA VERIFY BOTTOM LAYER MATERIAL AND THICKNESS. VERIFY SAND AND/OR FILTER MEDIA LAYER MATERIAL AND THICKNESS. VERIFY FILTER FABRIC OR PEA GRAVEL USED BETWEEN SAND LAYERS. VERIFY TOP FILTER MEDIA LAYER.
- 5. PLACEMENT OF UNDERDRAINS AND OBSERVATION WELLS- LOCATION, SIZE AND MATERIAL OF UNDER DRAIN AND OBSERVATION WELLS SHALL BE VERIFIED PRIOR TO STONE PLACEMENT. VERIFY PIPE ENDS CAPPED. VERIFY 3" GRAVEL COVER.
- 6. STABILIZATION AND LANDSCAPING- VERIFY SITE TOP SOILED, SEEDED AND MULCHED. VERIFY EMBANKMENT TOP SOILED AND SEEDED. VERIFY LOCATION, SIZE, TYPE AND NUMBER OF PLANTED LANDSCAPE MATERIAL. VERIFY NO MORE THAN 1/8 INCH ROOT BALL EXPOSED. VERIFY PLANTING STOCK KEPT MOIST DURING ON-SITE STORAGE. VERIFY INSTALLATION LOCATION, SIZE, MATERIAL TYPE OF FENCING OR OTHER SAFETY BARRIERS.

THE QUALIFIED PROFESSIONAL MAY REQUEST THE PRESENCE OF A COUNTY CONSTRUCTION STANDARDS INSPECTOR AT LEAST 24 HOURS IN ADVANCE BY CALLING 240-313-2400.



(SWM-9) M-6 MICRO-BIORETENTION FACILITY PLAN SCALE: 1" = 10



(SWM-9) M-6 MICRO-BIORETENTION FACILITY SECTION

	PLANT SCHEDULE SWM-9								
KEY	QTY	BOTANICAL NAME / COMMON NAME	SIZE	COND.	COMMENTS				
SHRUBS									
cs	2	CORNUS SERICEA / REDOSIER DOGWOOD	18" HT.	CONT.	PLANT AT 5' O.C.				
PEREN	PERENNIALS / ORNAMENTAL GRASSES								
AL	175	ASCLEPIAS TUBEROSA / BUTTERFLY MILKWEED	2" HT.	PLUG	PLANT AT 18" O.C.				
CL	4	CHASMANTHIUM LATIFOLIUM / NORTHERN SEA OATS	1 GAL.	CONT.	PLANT AT 3' O.C.				
LC	175	LOBELIA CARDINALIS / CARDINAL FLOWER	2" HT.	PLUG	PLANT AT 18" O.C.				
PV	4	PANICUM VIRGATUM 'HEAVY METAL' / SWITCHGRASS	1 GAL.	CONT.	PLANT AT 3' O.C.				
TREES	5								
RB	2	BETULA NIGRA / RIVER BIRCH	6'HT.	B&B					

DESIGN SUMMARY

- 1. FACILITY NUMBER: SWM-9
- 2. FACILITY TYPE: M-6 MICRO-BIORETENTION FACILITY
- 3. DRAINAGE AREA: 13,800 SQ. FT
- 4. BOTTOM ELEVATION: 481.83
- 5. TOP OF BANK ELEVATION: 483.25
- 6. STORAGE VOLUME PROVIDED: 1,757 CU. FT EACH 7. WATER SURFACE ELEVATION:
- 10-YEAR: 483.04
- 8. DISCHARGE:
- 10-YEAR: 0.87 cfs 9. OVERFLOW INLET SIZE & TYPE: 12" NYLOPLAST INLET WITH DOME GRATE
- 10. CLEANOUT 6" ABOVE GRADE WITH WATERTIGHT SCREW LID.
- 11. 30 MIL (MIN.) PVC GEOMEMBRANE IMPERMEABLE LINER ON ALL SIDES AND BOTTOM. KEY TOP INTO SOIL. 12. MAINTENANCE RESPONSIBILITY: THIS IS A PRIVATE FACILITY TO
- BE OWNED & MAINTAINED BY THE OWNER. 13. IF ROCK IS ENCOUNTERED, UNDERCUT POND 18" AND BACKFILL WITH CL TYPE SOIL



PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 33772 EXP. DATE: 06/16/2021



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01	MM-DD-YR	NAME	DESCRIPTION OF CHANGES			

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02

RB

M

DATE:

7/25/19

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240-313-220

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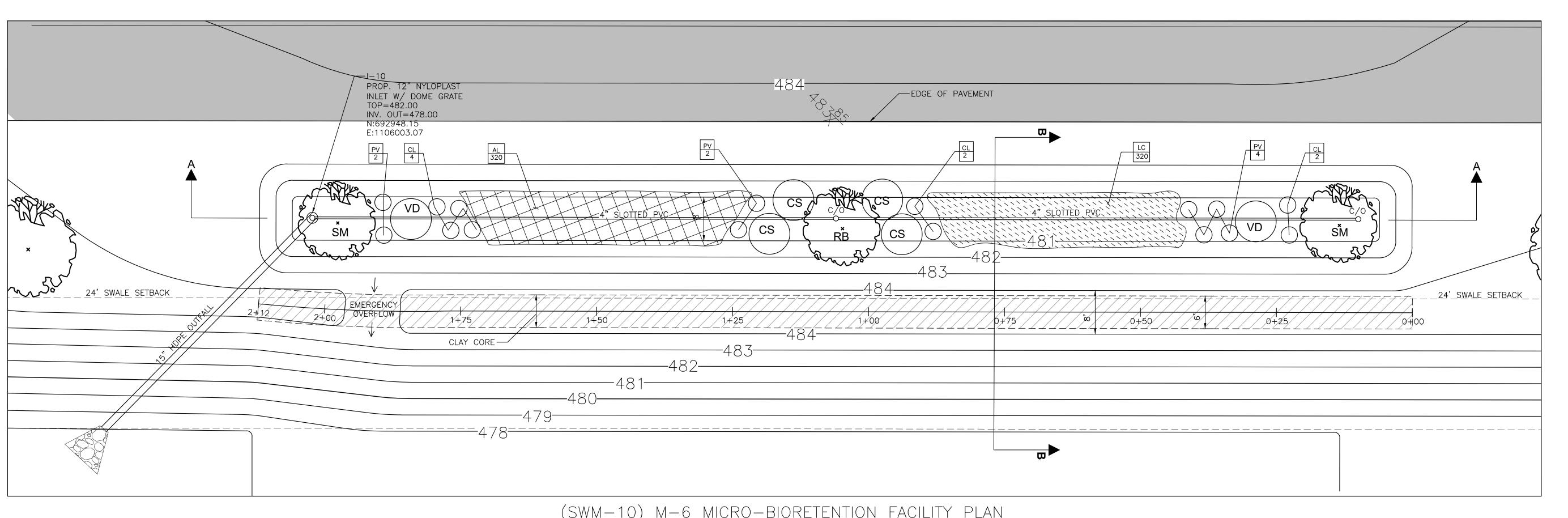
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OWNER CIVIL WASHINGTON KCI TECHNOLOGIES, **COUNTY BOARD OF** COMMISSIONERS 11830 W. MARKET PLACE, SUITE F 100 W. WASHINGTON ST **FULTON, MD 20759 HAGERSTOWN, MD 21740**

410-792-7419 (F) **SWM FACILITY PROJECT**

410-792-8086 (P)

SECTION 3089 PLOT SCALE: 1:10 KCI# 271703606



(SWM-10) M-6 MICRO-BIORETENTION FACILITY PLAN SCALE: 1" = 10'

30 MIL (MIN.) PVC -GEOMEMBRANE IMPERMÉABLE PROP. 12" NYLOPLAST LINER ON ALL SIDES AND INLET W/ DOME GRATE BOTTOM. KEY TOP INTO SOIL TOP=482.00 **EMBANKMENT** AT ELEV. 482.29 TOP:484.00 30 MIL (MIN.) PVC — 7 10-YEAR= 482.29 GEOMEMBRANE IMPERMEABLE LINER ON ALL SIDES AND BOTTOM. KEY TOP INTO SOIL AT ELEV. 482.29 ELEV.=481.25 ////////////////////3" MULCH// ///ʒ" MULCH/ ELEV.=481.00 24" PLANTING 24" PLANTING MATERIAL MATERIAL ELEV.=479.00 4" NO. 8 STONE ELEV.=478.67 8" NO. 8 STONE ELEV.=478.00 -15" HDPE OUTFALL 4" SLOTTED PVC INV.=478.00 INV.=478.09 @ 0%

> (SWM-10) M-6 MICRO-BIORETENTION FACILITY SECTION A-A

DESIGN SUMMARY

- 1. FACILITY NUMBER: SWM-10
- 2. FACILITY TYPE: M-6 MICRO-BIORETENTION FACILITY
- 3. DRAINAGE AREA: 27,200 SQ. FT
- 4. BOTTOM ELEVATION: 481.00 5. TOP OF BANK ELEVATION: 484.00
- 6. STORAGE VOLUME PROVIDED: 3,520 CU. FT EACH
- WATER SURFACE ELEVATION: 10-YEAR: 482.29
- 8. DISCHARGE: 10-YEAR: 1.26 cfs

NOTICE OF REQUIRED STORMWATER MANAGEMENT INSPECTIONS SAND FILTERS, BIORETENTION AND RAIN GARDEN FACILITIES

THE FOLLOWING INSPECTIONS ARE REQUIRED TO BE PERFORMED BY THE QUALIFIED PROFESSIONAL FOR THE CONSTRUCTION OF ANY SAND FILTER, BIORETENTION OR RAIN GARDEN FACILITY.

PROFESSIONAL ENGINEERING JUDGEMENT. EACH INSPECTION IS

1. EXCAVATION OF FACILITY- PRIOR TO EXCAVATION, VERIFY

TO PREVENT SEDIMENT INFLOW. VERIFY ALL FLAGGING REQUIRED IN THE AREA FOR SENSITIVE AREA PROTECTION.

SEDIMENT AND EROSION CONTROL FEATURES ARE IN PLACE

VERIFY GRADING IS ACCURATELY STAKED-OUT AND RE-STAKED AS NEEDED. FACILITY DIMENSIONS SHALL BE VERIFIED AND

SOILS CHECKED FOR INFILTRATION. VERIFY CONTRIBUTING AREA

PRESENT. ENSURE ROUGHENING OF SIDE WALLS IF SHEARED AND SEALED BY HEAVY EQUIPMENT. VERIFY THAT COMPACTION

IS PERMANENTLY STABILIZED. VERIFY THAT WATER IS NOT

2. PLACEMENT OF FILTER CLOTH (TRENCHES)- ENSURE FILTER FABRIC IS OVERLAPPING SIX (6) INCHES BETWEEN STRIPS OF

CLOTH. ENSURE TREE ROOTS OR OTHER OBSTACLES ARE

REMOVED FROM FACILITY WALLS OR SIDES AND BASE TO

3. PLACEMENT OF SAND FILTER LAYER OR GRAVEL DIAPHRAGM-

VERIFY DEPTH AND WIDTH OF SSAND AND/OR DIAPHRAGM

PREVENT TEARING. VERIFY THAT UPHILL FABRIC ROLL

4. PLACEMENT OF FILTERING MEDIA- VERIFY BOTTOM LAYER

5. PLACEMENT OF UNDERDRAINS AND OBSERVATION WELLS-

LOCATION, SIZE AND MATERIAL OF UNDER DRAIN AND

OBSERVATION WELLS SHALL BE VERIFIED PRIOR TO STONE

6. STABILIZATION AND LANDSCAPING- VERIFY SITE TOP SOILED,

SEEDED. VERIFY LOCATION, SIZE, TYPE AND NUMBER OF

MOIST DURING ON-SITE STORAGE. VERIFY INSTALLATION

LOCATION, SIZE, MATERIAL TYPE OF FENCING OR OTHER

COUNTY CONSTRUCTION STANDARDS INSPECTOR AT LEAST 24

HOURS IN ADVANCE BY CALLING 240-313-2400.

PLANTED LANDSCAPE MATERIAL. VERIFY NO MORE THAN 1/8

THE QUALIFIED PROFESSIONAL MAY REQUEST THE PRESENCE OF A

INCH ROOT BALL EXPOSED. VERIFY PLANTING STOCK KEPT

PLACEMENT. VERIFY PIPE ENDS CAPPED. VERIFY 3" GRAVEL

SEEDED AND MULCHED. VERIFY EMBANKMENT TOP SOILED AND

MATERIAL AND THICKNESS. VERIFY SAND AND/OR FILTER

MEDIA LAYER MATERIAL AND THICKNESS. VERIFY FILTER FABRIC

OR PEA GRAVEL USED BETWEEN SAND LAYERS. VERIFY TOP

OVERLAPPS TWO (2) FEET OVER DOWNHILL ROLL.

ADDITIONAL INSPECTIONS MAY BE NEEDED BASED ON

REQUIRED AT THE START OF EACH STAGE.

OF FACILITY BASE IS MINIMIZED.

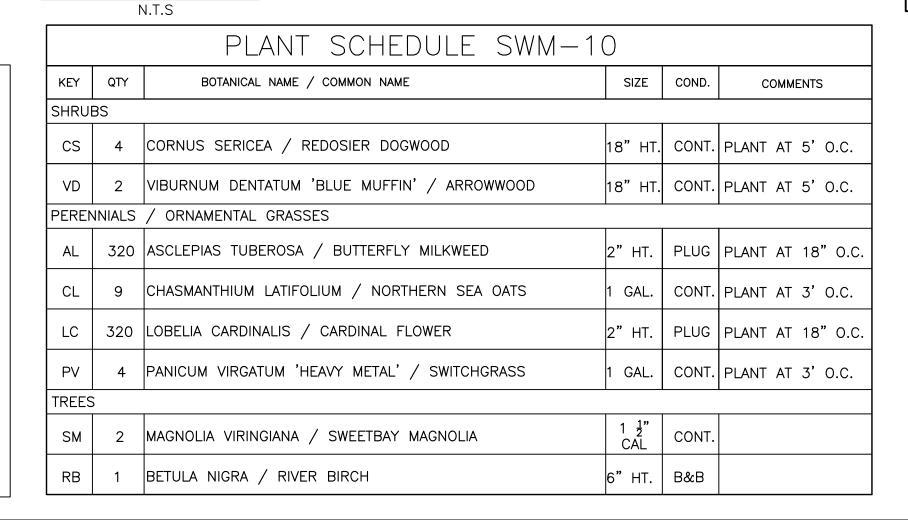
LATER. VERIFY FILL MATERIAL

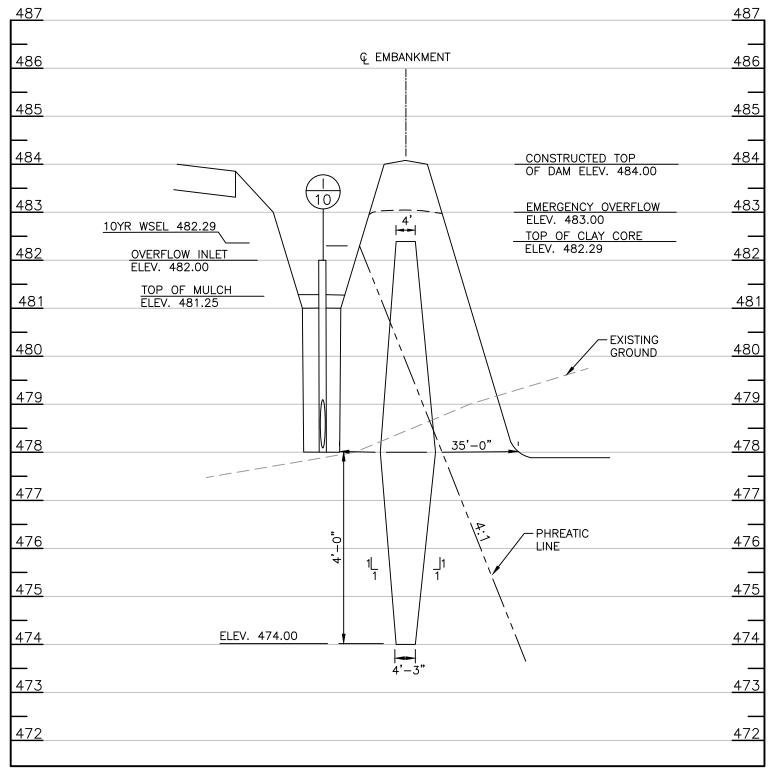
FILTER MEDIA LAYER.

SAFETY BARRIERS.

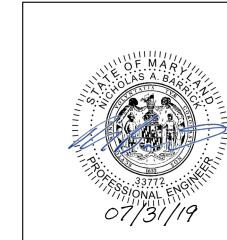
COVER.

- 9. OVERFLOW INLET SIZE & TYPE: 12" NYLOPLAST INLET WITH DOME GRATE
- 10. CLEANOUT 6" ABOVE GRADE WITH WATERTIGHT SCREW LID. 11. 30 MIL (MIN.) PVC GEOMEMBRANE IMPERMEABLE LINER ON
- ALL SIDES AND BOTTOM. KEY TOP INTO SOIL. 12. MAINTENANCE RESPONSIBILITY: THIS IS A PRIVATE FACILITY TO BE OWNED & MAINTAINED BY THE OWNER.
- 13. IF ROCK IS ENCOUNTERED, UNDERCUT POND 18" AND BACKFILL WITH CL TYPE SOIL





SWM 10 EMBANKMENT SECTION (B-B) SCALE: HOR: 1"=20' VERT: 1"=2"



PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 33772 EXP. DATE: 06/16/2021

05

%00

OWNER CIVIL WASHINGTON KCI TECHNOLOGIES, **COUNTY BOARD OF** COMMISSIONERS 11830 W. MARKET PLACE, SUITE F 100 W. WASHINGTON ST **FULTON**, **MD** 20759

404

HAGERSTOWN, MD 21740

240-313-220

SWM FACILITY PROJECT SECTION

3089 C-2.08

1:10 KCI# 271703606 7/25/19

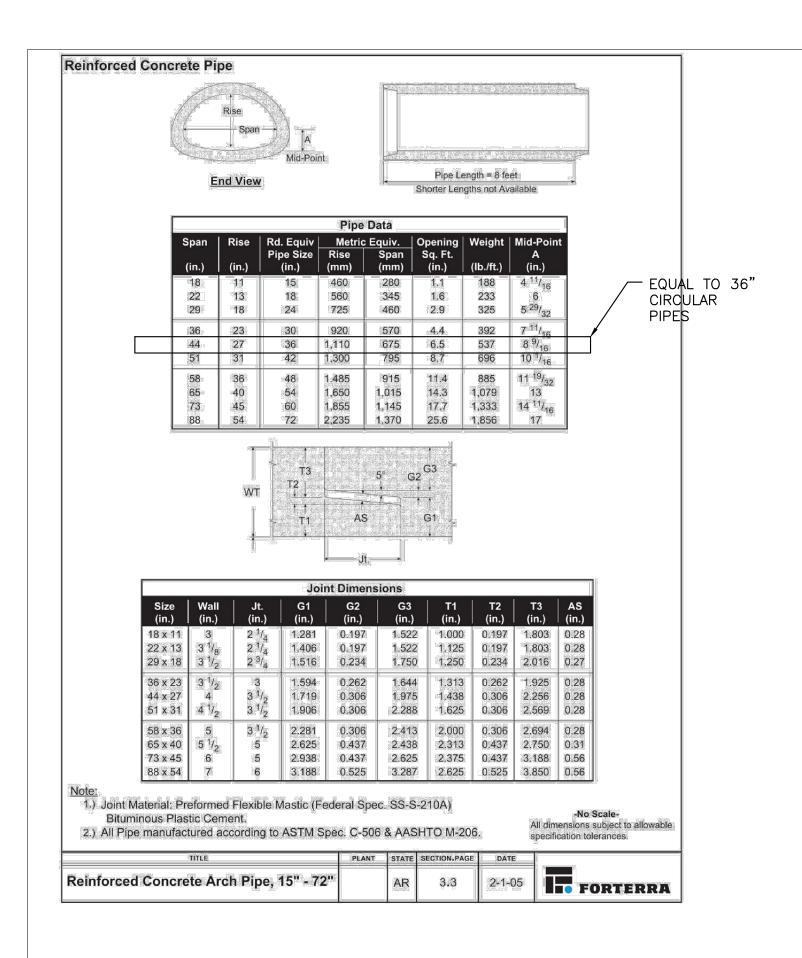
SP-18-044

410-792-8086 (P)

410-792-7419 (F)

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REVISIONS 01 MM-DD-YR NAME DESCRIPTION OF CHANGES



DISPOSITION OF BARS DETAIL

NO.4 STRAIGHT BARS HORIZONTAL @ 1'-7" MAX. C/C BOTH FACES-TOP AND BOTTOM BARS TO BE FULL LENGTH-ALL ENDWALLS.

SECTION A-A

SPECIFICATIOINS: LATEST S.H.A.
CONCRETE SHALL BE MIX NO.2
REINFORCING: DEFORMED STEEL BARS NO.4
CHAMFER: ALL EXPOSED EDGES 1"x1" OR AS DIRECTED.

GENERAL NOTES

Maryland Department of Transportation

STATE HIGHWAY ADMINISTRATION

STANDARD TYPE C ENDWALL

METAL PIPE ARCH

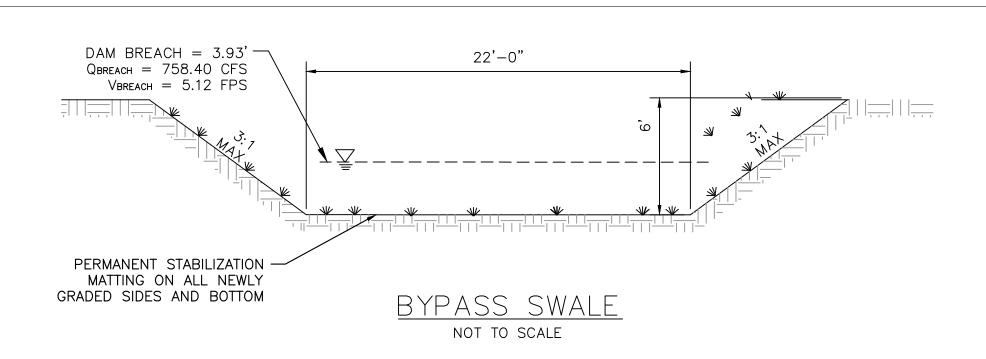
2-NO.4 STRAIGHT BARS
HORIZONTAL FOR 49"x33"
TO 71"x47" PIPE ENDWALLS
INCLUSIVE.

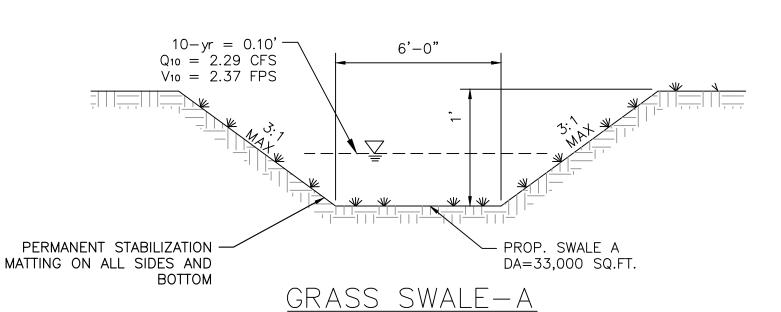
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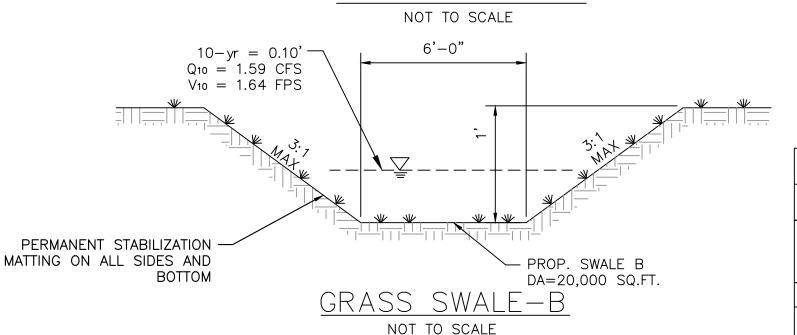
ELEVATION

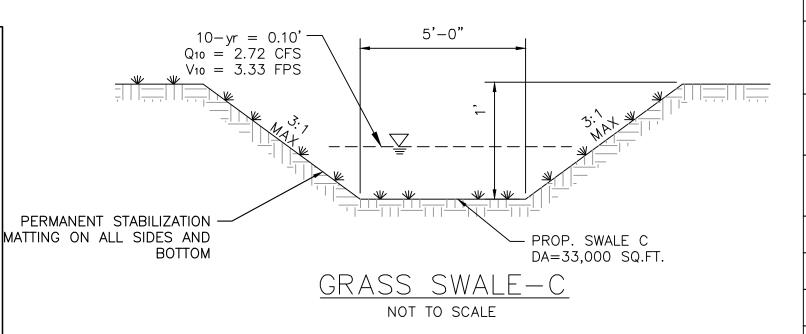
OUANTITIES FOR ESTIMATING PURPOSES ONLY

APPROVED Kit G. Mª Call









MATERIAL SPECIFICATIONS FOR STORMWATER MANAGEMENT FACILITIES

MATERIAL	SPECIFICATION	SIZE	NOTES
PLANTINGS	SEE APPENDIX A, TABLE A.4 IN MD 2000 SWM DESIGN MANUAL	N/A	(BIORETENTION) PLANTINGS ARE SITE SPECIFIC
PLANTING SOIL (2'TO 4'DEEP)	SAND (50%-85%) SILT (0%-50%) CLAY (10-20%) ORGANIC MATTER (1.5%-10%)	N/A	(BIORETENTION) SHA BSM SPECIFICATION. USDA TEXTURAL CLASSIFICATION FOR BSM IS LOAMY SAND OR SANDY LOAM. MIXTURE SHOULD BE 30% PLANTING SOIL, 20% SHREDDED HARDWOOD MULCH AND 50% SAND.
ORGANIC CONTENT	MIN. 10% BY DRY WEIGHT (ASTM D2974)	N/A	(BIORETENTION)
MULCH	SHREDDED HARDWOOD	N/A	(BIORETENTION) AGED 6 MONTHS, MINIMUM
PEA GRAVEL	PEA GRAVEL ASTM D448	NO.8 OR NO.9 (1/8"-3/8")	(BIORETENTION AND DRYWELLS)
GEOTEXTILE	CLASS "C" — APPARENT OPENING SIZE (ASTM D-4751), GRAB TENSILE STRENGTH (ASTM D-4632) PUNCTURE RESISTANCE (ASTM D-4883)	N/A	(BIORETENTION) FOR USE ON SIDES AND AROUND UNDERDRAINS
UNDERDRAIN GRAVEL	AASHTO M-43	NO. 57 OR NO. 2 AGGREGATE (3/8"-3/4")	(BIORETENTION)
UNDERDRAIN PIPING	F 758, TYPE PS 28 OR ASSHTO M-278	4" TO 6" RIGID SCHEDULE 40 PVC OR SDR35	(BIORETENTION) 3/8" PERF. @ 6" ON CENTER, 4 HOLES PER ROW. PERFORATED PIPE SHALL BE WRAPPED WITH FILTER FABRIC
OBSERVATION WELL	RIDGID SCHEDULE 40, NON PERFORATED WITH SCREW CAP LID.	4" TO 6" RIGID SCHEDULE 40 PVC	(BIORETENTION) LID TO EXTEND MIN. 6" ABOVE SURFACE

STORMWATER MAINTENANCE SCHEDULE

INSPECTION ITEM	FREQUENCY OF INSPECTION	INSPECTION REQUIREMENTS	REMEDIAL ACTION
GRASS WETLANDS	SEASONALLY AND AFTER A MAJOR STORM		
MULCH LAYER		CHECK MULCH FOR ADEQUATE COVER, SEDIMENT ACCUMULATION, OR DISCOLORATION.	REPLACE AND REMOVE OLD MULCH AND EXCESS SEDIMENTS. PROVIDE ADEQUATE MULCH COVER ACCORDING TO APPROVED DESIGN.
VEGETATIVE SURFACES	MONTHLY		
PLANT COMPOSITION AND HEALTH		COMPARE PLANT COMPOSITION WITH APPROVED PLANS. CHECK FOR INVASIVE SPECIES OR WEEDS. CHECK FOR DEAD OR DYING VEGETATION.	REMOVE AND REPLACE PLANTS IN ACCORDANCE WITH PLAN SPECIFICATIONS.
VEGETATIVE COVER AND EROSION		CHECK FOR EVIDENCE OF EROSION, RUNOFF CHANNELIZING, OR BARE SPOTS.	RE-SEED OR RE-PLANT IN ACCORDANCE WITH APPROVED LANDSCAPING PLANS. RE-GRADING MAY BE REQUIRED WHEN CONCENTRATED FLOW CAUSES RILLS OR GULLYING THROUGH THE FACILITY.
DEBRIS AND TRASH CLEANOUT	MONTHLY	CHECK THAT THE FACILITY IS CLEAN OF TRASH AND DEBRIS. INLETS, OUTLETS, AND CONTRIBUTING AREAS AROUND THE FACILITY MUST BE CHECKED.	TRASH AND DEBRIS MUST BE DISPOSED OF IN AN ACCEPTABLE MANNER ACCORDING TO CURRENT REGULATIONS.
STRUCTURAL COMPONANTS	ANNUALLY	CHECK FOR EVIDENCE OF STRUCTURAL DETERIORATION, SPALLING, OR CRACKING. INLET AND OUTLET STRUCTURES MUST BE IN GOOD CONDITION.	REPAIR TO GOOD CONDITION ACCORDING TO SPECIFICATIONS ON THE APPROVED PLANS.
OUTLETS	SEASONALLY AND AFTER MAJOR STORM	CHECK FOR EVIDENCE OF EROSION, RILLS, OR GULLYING.	STABILIZE ALL ERODED AREAS AND GRADE TO PROVIDE STABLE CONVEYANCE.
		RIPRAP OUTLET MUST BE MAINTAINED IN GOOD FUNCTIONAL CONDITION.	REPAIR ACCORDING TO APPROVED PLAN.
GRASS CHANNEL CONVEYANCE	SEASONALLY AND AFTER MAJOR STORM	CHECK FOR EROSION, FLOW BLOCKAGES, AND STABLE CONVEYANCE.	STABILIZE AND GRADE ACCORDING TO APPROVED PLAN.
OVERALL FUNCTION OF THE FACILITY	ANNUALLY	CHECK THAT FLOW SPLITTERS ARE FUNCTIONING AS DESIGNED AND THAT BYPASS IS OPERATING AS DESIGNED.	CONSTRUCTION MUST BE IN ACCORDANCE WITH APPROVED PLANS.

STORMWATER MANAGEMENT FACILITY INSPECTION SCHEDULE/AS-BUILT

IT IS THE OWNER'S/CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE ENGNIEER/INSPECTOR OF AN APPROXIMATE TIME FOR INSPECTION ON THE FOLLOWING ITEMS:

A. DURING EXCAVATION TO SUBGRADE

B. DURING PLACEMENT OF UNDERDRAIN SYSTEM AND OBSERVATION WELLS. C. DURING PLACEMENT OF GEOTEXTILE AND ALL FILTER MEDIA. D. DURING CONSTRUCTION OF APPURTENANT CONVEYANCE SYSTEMS SUCH AS FLOW DIVERSION STRUCTURES, PRE-TREATMENT, INLETS, OUTLETS, ORIFICES, AND FLOW DISTRIBUTION STRUCTURES; AND

E. UPON COMPLETION OF FINAL GRADING AND ESTABLISHMENT OF PERMANENT STABILIZATION.

-NON-SHRINK ONCE CONSTRUCTION IS COMPLETE, AS-BUILT PLAN CERTIFICATION MUST BE SUBMITTED TO THE COUNTY BY EITHER A PROFESSIONAL ENGINEER OR A PROFESSIONAL LAND SURVEYOR TO ENSURE THAT CONSTRUCTED STORMWATER MANAGEMENT PRACTICES AND CONVEYANCE SYSTEMS COMPLY WITH THE APPROVED PLANS. AT A MINIMUM, THE "AS-BUILT" SUBMITTAL MUST INCLUDE A SIGNED AS-BUILT CERTIFICATION, COMPLETED AS-BUILT DATA TABLE. AND A SET OF "AS-BUILT" DRAWINGS WHICH COMPARE THE APPROVED STORMWATER MANAGEMENT PLAN WITH WHAT WAS CONSTRUCTED. THE COUNTY MAY REQUIRE ADDITIONAL INFORMATION. FOR A PROJECT TO BE CLOSED OUT BY THE COUNTY, AS-BUILT CERTIFICATION MUST BE RECEIVED.



PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 33772 EXP. DATE: 06/16/2021

HRB/ 0

OWNER	CIVIL
WASHINGTON	KCI TECHNOLOGIES,
COUNTY BOARD OF	INC.
COMMISSIONERS	
COMMISSIONERS	11830 W. MARKET
	PLACE, SUITE F
400 M/ M/A OLUMOTONI OT	

ALL REPORTS, PLANS SPECIFICATIONS AND COMPUTER FILES RELATING TO THIS PROJECT ARE THE PROPERTY OF CRABTREE, ROHRBAUGH & ASSOCIATES.

CRABTREE ROHRBAUGH & ASSOCIATES RETAINS ALL COMMON LAW, STATUTE AND OTHER RESERVED RIGHTS INCLUDING THE COPYRIGHT THERETO. REPRODUCTION

OF THE MATERIAL HERIN OR SUBSTANTIAL USE WITHOUT WRITTEN PERMISSION C CRABTREE, ROHRBAUGH & ASSOCIATES VIOLATES THE COPYRIGHT LAWS OF THE UNITED STATES AND WILL BE SUBJECT TO LEGAL PROSECUTION.

REVISIONS

01 MM-DD-YR NAME DESCRIPTION OF CHANGES

100 W. WASHINGTON ST **FULTON**, MD 20759 HAGERSTOWN, MD 21740 410-792-8086 (P) 240-313-220 410-792-7419 (F)

PROJECT
3089
$\alpha \sim \alpha$

KCI# 271703606

7/25/19

DATE:

3089

STANDARD NO. MD 355.01 STANDARD NO. MD 352.01 ENTRANCE ROAD ELEV: 486.50 -COMPACTED BACKFILL REINFORCED CONCRETE ARCH PIPE

STATE HIGHWAY ADMINISTRATION STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES STANDARD HEADWALLS

CAST IRON GRATE-

AND FRAME

11/2:1. 2:1 OR 4:1 SLOPE-

SECTION A-A

#4 BENT BARS @ 1'-0" C/C BOTH

#4 STRAIGHT BARS HORIZONTAL
#1'-0" C/C @ BOTH SIDES

SECTION B_B

OF OPENING

Maryland Department of Transportation

B-48 B-54 B-60

2 #4 STRAIGHT BARS HORIZONTAL. 1 EACH WINGWALL

#4 BARS HORIZONTAL @ 1'-0" C/C BELOW OPENING

#4 BARS HORIZONTAL @ 1'-7" MAX. C/C BOTH FACES BOTTOM BARS BENT ALONG ENDWALL OTHERS STRAIGHT.

SPECIFICATIONS: LATEST S.H.A.
CONCRETE SHALL BE MIX NO.2
REINFORCING: DEFORMED STEEL BARS #4 & #6
CHAMFER: ALL EXPOSED EDGES 1"X1" OR AS DIRECTED

DIMENSIONS

VOL. STEEL CONC. LBS.

O AREA INCHES SO.FT. B C E F G H J K L M N O C.Y.

48 | 12.57 | 1'-4" | 10" | 3'-2" | 2'-9" | 7'-034" | 5'-0" | 4'-10" | 6'-31-2" | 6'-81-2" | 5'-9" | 2'-1034" | 5'-6" | 4.3 | 262

54 15.9 1'-8" 1'-0" 3'-8" 3'-0" 7'-8½" 5'-6" 5'-4" 6'-10½" 7'-3½" 6'-2½" 3'-1½" 6'-2" 5.3 301

60 | 19.64 | 1'-8" | 1'-0" | 3'-8" | 3'-3" | 8'-5" | 6'-0" | 5'-10" | 7'-7'-4" | 8'-0'-4" | 6'-11" | 3'-7'-2" | 6'-8" | 6.0 | 361 | QUANTITIES IN TABLE TO BE USED FOR ESTIMATING ONLY

1 #4 BENT BAR HORIZONTAL -

1 #4 BENT BAR HORIZONTAL —

<u>NOTES</u>

ELEVATION

#4 STRAIGHT BARS VERTICAL
@ 1'-6"MIN.TO 2'-0"MAX.
FRONT FACE

DISPOSITION OF

BARS DETAIL

Kit G. M. Call

WALL PIPE (12" - 30")-ENSURE BACKFILL IS PROPERLY COMPACTED

MANHOLE CONNECTION

NOT TO SCALE

PERFORMANCE HIGHLY DEPENDENT ON INSTALLATION. CONTRACTOR MUST ENSURE MANHOLE GASKET IS UNIFORMLY SEATED AROUND STRUCTURE ADAPTER. EXTRA PRECAUTIONS MUST BE TAKEN TO PREVENT DIFFERENTIAL SETTLEMENT BETWEEN THE PIPE AND MANHOLE. PLACED UNDER PIPE AND INSTALLATION RECOMMENDATIONS ARE ALSO SPECIFIED IN INSTALLATION GUIDE 1.05: WATERSTOP INSTALLATION 12-60" STORM WATERSTOP GROUTED

HP STORM DUAL

-FILL VOID SPACE

WITH ACCEPTABLE

GROUT MATERIAL

STAINLESS STEEL

TAKE-UP CLAMP

 $(2 \sim PLACES)$

DETAILED CONNECTION VIEW

STAINLESS STEEL TAKE-UP

CLAMP SCREWS WILL BE

PLACED 180 FROM EACH

-STRUCTURE WALL

SWM #1 - (F-6)BIORETENTION	SWM #2 - (M-6)MICRO-BIORETENTION	SWM #3 - (M-6)MICRO-BIORETENTION	SWM #4 - (M-6)MICRO-BIORETENTION				
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EXCAVATION OF FACILITY — Prior to excavation, verify sediment and erosion control features are in place to prevent sediment inflow. Verify all flagging required in the area for sensitive area protection. Verify grading is accurately staked-out and re-staked as needed. Facility dimensions shall be verified and soils checked for infiltration. Verify contributing area is permanently stabilized. Verify that water is not present. Ensure roughening of side walls if sheared and sealed by heavy equipment. Verify that	Engineer Date Inspector Date EXCAVATION OF PACILITY — Prior to excavation, verify sediment and crossion control features are in place to prevent sediment inflow. Verify all flagging required in the area for sensitive area protection. Verify grading is accurately staked-out and re-staked as needed. Facility dimensions shall be verified and soits checked for infiltration. Verify contributing area is permanently stabilized. Verify that water is not present. Ensure roughening of side walls if sheared and sealed by heavy equipment. Verify that	TYPE NO. DA (ACRES) (F-6) BIORETENTION SWM1 1.35	ACTICES SUMMARY TABLE				
compaction of facility base is minimized. PLACEMENT OF FILTER CLOTH (Trenches)— Ensure filter fabric is overlapping six (6) inches between strips of cloth. Ensure tree roots or other obstacles are removed from facility walls or sides and base to prevent tearing. Verify that uphill fabric roll overlaps two (2) feet over downhill roll.	compaction of facility base is minimized. PLACEMENT OF FILTER CLOTH (Trenches) — Ensure filter fabric is overlapping six (6) inches between strips of cloth. Ensure tree roots or other obstacles are removed from facility walls or sides and base to prevent tearing. Verify that uphill fabric roll overlaps two (2) feet over downhill roll.	(M-6) MICRO-BIORETENTION SWM2 0.64 (M-6) MICRO-BIORETENTION SWM3 0.25 (M-6) MICRO-BIORETENTION SWM4 0.23	0.45 87 4365 0.47 0.1002 0.15 83 1451 0.16 0.0333 0.18 91 1469 0.62 0.0337				
PLACEMENT OF SAND FILTER LAYER OR GRAVEL DIAPHRAGM - Verify depth and width	PLACEMENT OF SAND FILTER LAYER OR GRAVEL DIAPHRAGM.— Verify depth and width of sand and/or diaphragm layer. Verify fill material.	(M-6) MICRO-BIORETENTION SWM5 0.26	0.13 31 1469 0.02 0.0337 0.17 85 1469 0.44 0.0337				
of sand and/or diaphragm layer. Verify fill material. PLACEMENT OF FILTERING MEDIA — Verify bottom layer material and thickness. Verify sand	PLACEMENT OF FILTERING MEDIA – Verify bottom layer material and thickness, Verify sand	(M-6) MICRO-BIORETENTION SWM6 0.28	0.18 85 1638 0.51 0.0376				
and/or filter media layer material and thickness. Verify filter fabric or pea gravel used between sand	and/or filter media layer material and thickness. Verify filter fabric or pea gravel used between sand.	(M-6) MICRO-BIORETENTION SWM7 0.31	0.24 92 2125 1.02 0.0507				

layers. Verify top filter media layer.

PLACEMENT OF UNDERDRAINS AND

OBSERVATION WELLS—Location, size and material of under drain and observation wells shall be

verified prior to stone placement. Verify pipe ends capped. Verify 3" gravel cover.

STABILIZATION AND LANDSCAPING - Verify site top soiled, seeded and mulched. Verify embankment top soiled and seeded. Verify location,

size, type and number of planted landscape material.

Verify no more than 1/8 inch root ball exposed. Verify planting stock kept moist during on-site storage. Verify installation location, size, material

by calling 240-313-2400.

type of fencing or other safety barriers.

The Qualified Professional may request the presence of a County Construction Standards Inspector at least 24 hours in advance

layers. Verify top filter media layer.

capped. Verify 3" gravel cover.

PLACEMENT OF UNDERDRAINS AND

OBSERVATION WELLS – Location, size and material of under drain and observation wells shall be

verified prior to stone placement. Verify pipe ends

STABILIZATION AND LANDSCAPING - Verify site top soiled, seeded and mulched. Verify embankment top soiled and seeded. Verify location, size, type and number of planted landscape material.

Verify no more than 1/8 inch root ball exposed.

Verify planting stock kept moist during on-site storage. Verify installation location, size, material

type of fencing or other safety barriers.

The Qualified Professional may request the presence of a County Construction Standards Inspector at least 24 hours in advance.

0.20

0.32

0.62

0.76

0.46

0.75

0.23

SWM9

SWALE A

SWALE B

SWALE C

(M-6) MICRO-BIORETENTION

(M-6) MICRO-BIORETENTION

(M-6) MICRO-BIORETENTION

(M-8) SWALE

(M-8) SWALE

(M-8) SWALE

(N-2) NON-ROOFTOP DISC.

0.14

0.24

0.41

0.23

0.26

0.40

0.23

90 | 1361

1757

3520

674

1373

1045

808

91

69

74

82

95

0.22

0.87

1.26

2.29

1.59

2.72

0.0312

0.0403

0.0808

0.0155

0.0315

0.0240

0.0185



PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 33772 EXP. DATE: 06/16/2021

00 **V** 4 100% 4 ROHRB BTREE **OWNER** WASHINGTON **COUNTY BOARD OF**

ARCHITECT 401 EAST WINDING H

ALL REPORTS, PLANS SPECIFICATIONS AND COMPUTER FILES RELATING TO THIS

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		RI	EVISIONS
01	MM-DD-YR	NAME	DESCRIPTION OF CHANGES

PROPOSED NEW
TON COUNTY PUBLIC SAFI
WASHINGTON COUNTY PROJE
18350 PUBLIC SAFETY PLA
HAGERSTOWN, MD 2174

CIVIL KCI TECHNOLOGIES, 11830 W. MARKET PLACE, SUITE F 100 W. WASHINGTON ST **FULTON**, **MD** 20759 HAGERSTOWN, MD 21740 410-792-8086 (P)

410-792-7419 (F) **PROJECT**

SWM NOTES & DETAILS 3089 NTS

COMMISSIONERS

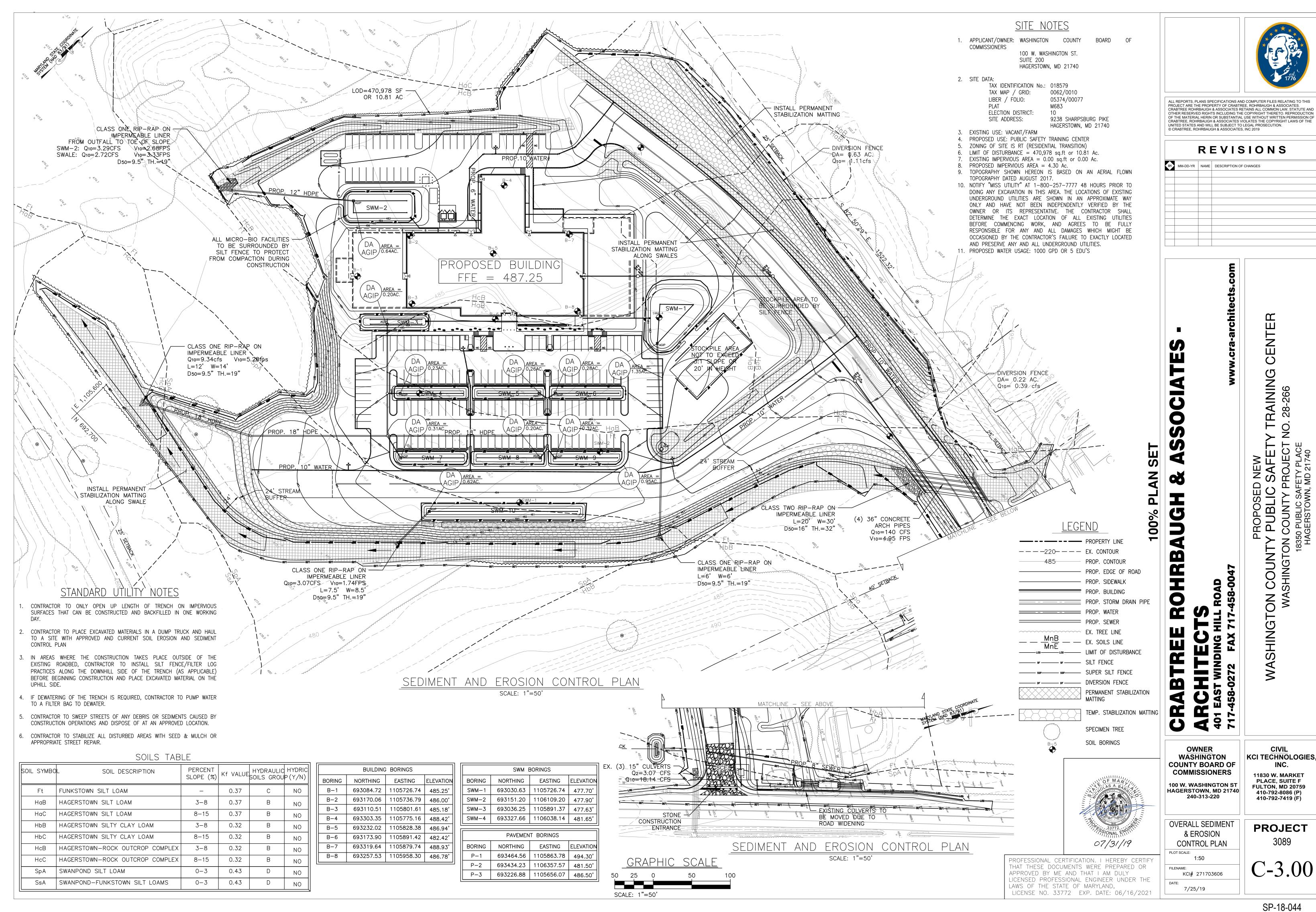
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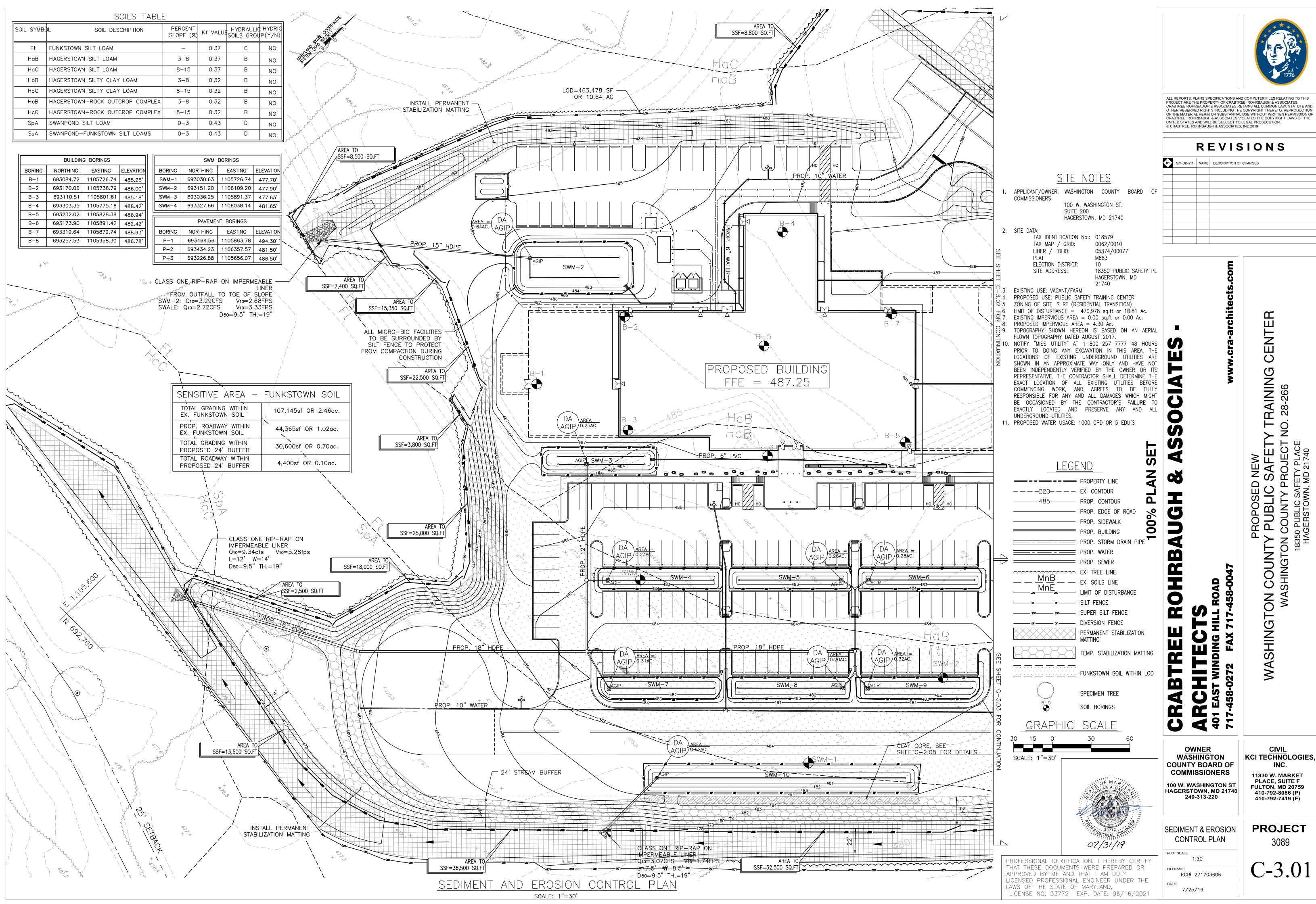
KCI# 271703606

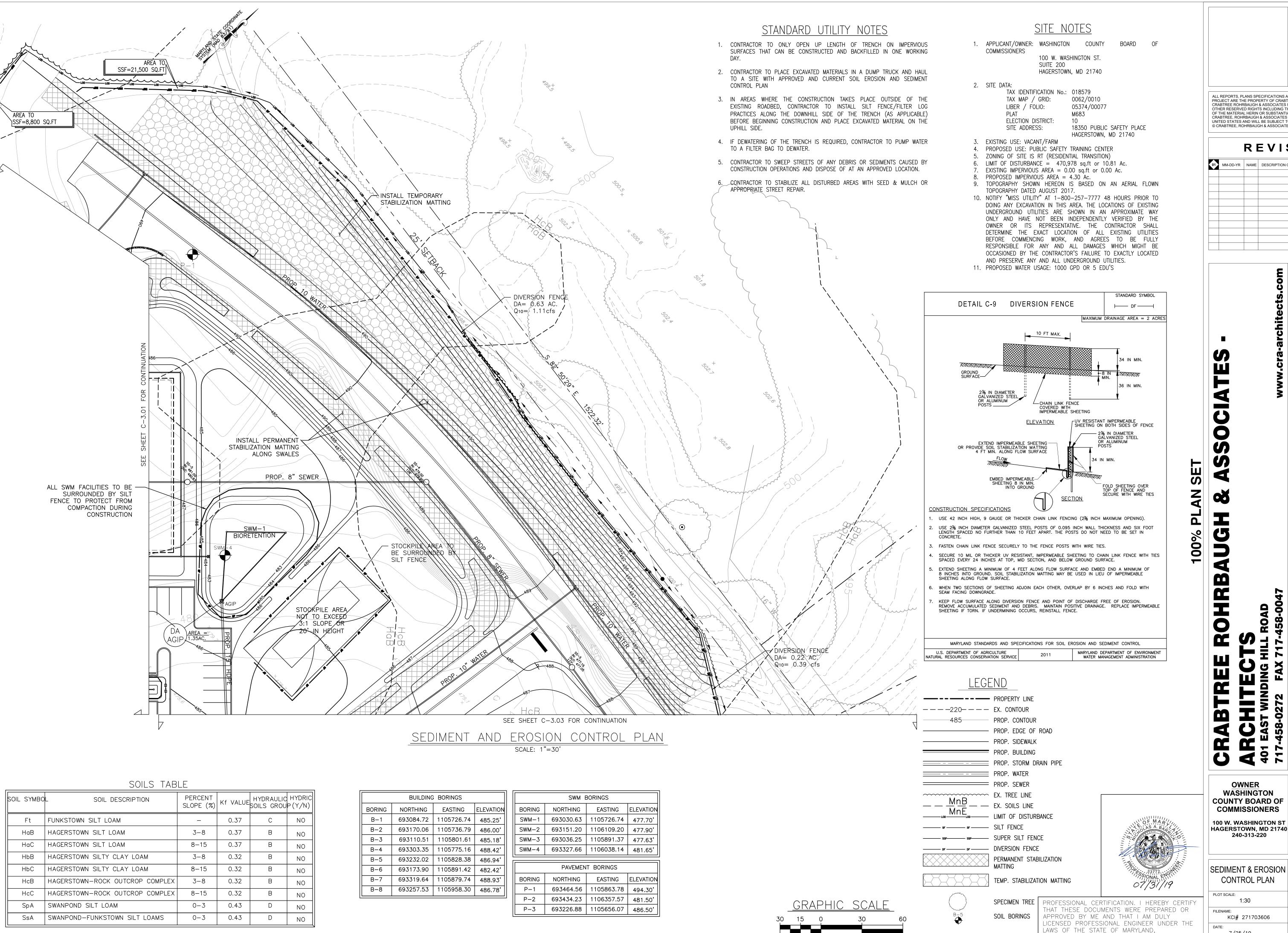
7/25/19

PLOT SCALE:

DATE:







SCALE: 1"=30'

LAWS OF THE STATE OF MARYLAND, LICENSE NO. 33772 EXP. DATE: 06/16/2021



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		RI	EVISIONS
01	MM-DD-YR	NAME	DESCRIPTION OF CHANGES

OWNER CIVIL KCI TECHNOLOGIES, WASHINGTON **COUNTY BOARD OF COMMISSIONERS**

240-313-220

CONTROL PLAN

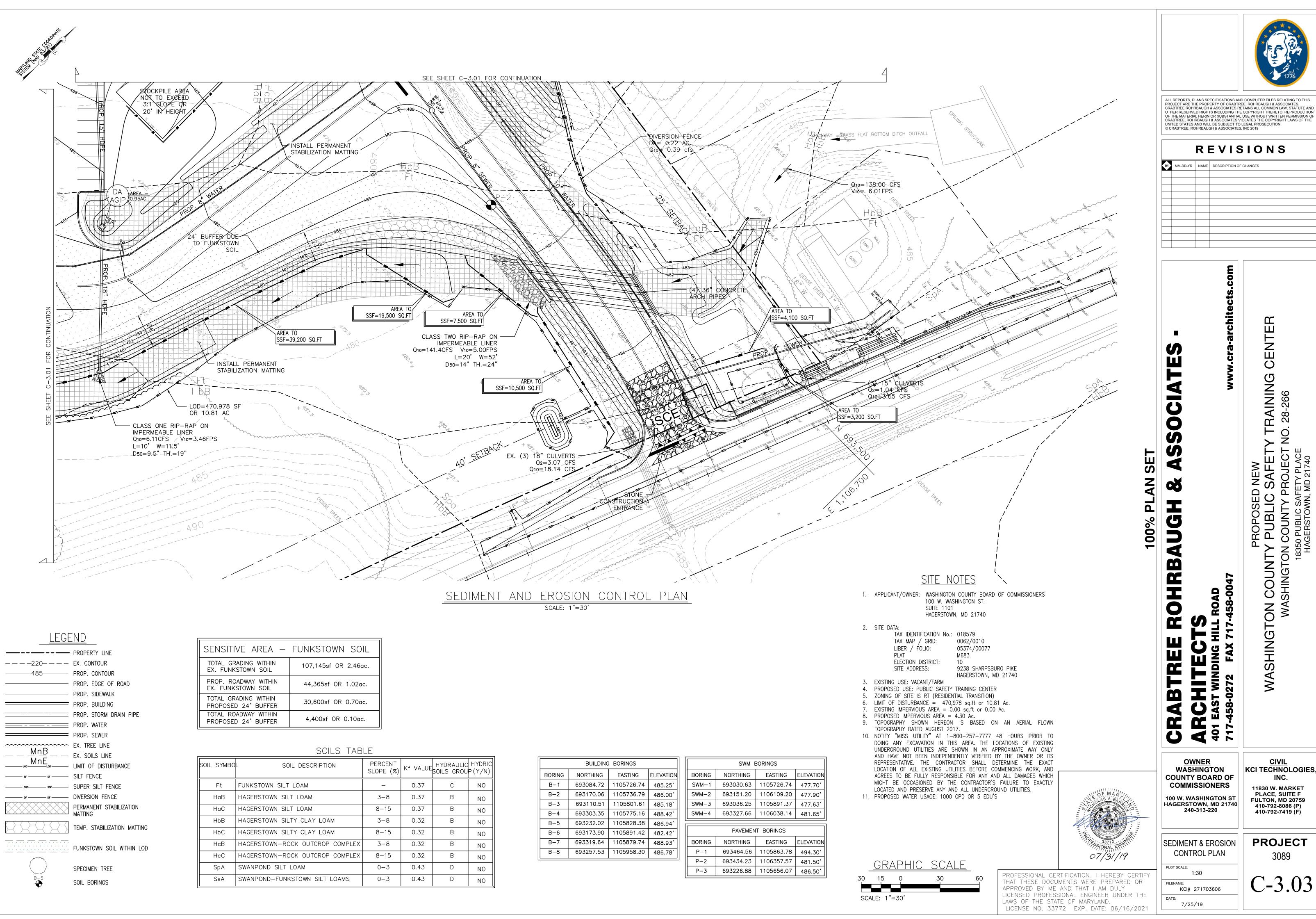
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KCI# 271703606

7/25/19

11830 W. MARKET PLACE, SUITE F **FULTON, MD 20759** 410-792-8086 (P) 410-792-7419 (F)

PROJECT 3089



STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING

<u>PURPOSE</u>

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

SEEDING A. 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.

B. APPLICATION

COVER SEED WITH SOIL.

- a. DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS. INCORPORATE SEED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON TEMPORARY SEEDING TABLE B.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
- 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.

MULCHING

- A. 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.

B. APPLICATION a. APPLY MULCH TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.

CONTOUR.

- 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.
- C. 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
 - 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, PFTROSET. 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.

STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION

<u>PURPOSE</u>

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. <u>CRITERIA</u>

- 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
- 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 TABLE

HARE	DINESS ZONE (FROM	FERTILIZER RATE	LIME RATE			
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS	(10-20-20)	LIME RATE
1	BARLEY	96	2/15-4/30 8/15-11/30	1.0"		
2	CEREAL RYE	112	2/15-4/30 8/15-12/15	1.0"	436 LB/AC (10LB/1000SF)	2 TONS/AC (90LB/1000SF
3	FOXTAIL MILLET	30	5/1-8/14	0.5"		

STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

<u>PURPOSE</u>

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.

<u>CRITERIA</u>

1. SEED MIXTURES A. 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 ½ POUNDS PER 1000 SQUARE FEET (150 POUNDS PER ACRE) AT THE TIME OF SEEDING IN ADDITION TO THE SOIL AMENDMENTS SHOWN IN THE
- PERMANENT SEEDING SUMMARY. 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. KENTUCKY BLUEGRASS: FULL SUN MIXTURE: FOR USE IN AREAS THAT RECEIVE INTENSIVE MANAGEMENT. IRRIGATION REQUIRED IN THE AREAS OF CENTRAL MARYLAND AND EASTERN SHORE. RECOMMENDED CERTIFIED KENTUCKY BLUEGRASS CULTIVARS SEEDING RATE: 1.5 TO 2.0 POUNDS PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.
- ii. KENTUCKY BLUEGRASS/PERENNIAL RYE: FULL SUN MIXTURE: FOR USE IN FULL SUN AREAS WHERE RAPID ESTABLISHMENT IS NECESSARY AND WHEN TURF WILL RECEIVE MEDIUM TO INTENSIVE MANAGEMENT. CERTIFIED PERENNIAL RYEGRASS CULTIVARS/CERTIFIED KENTUCKY BLUEGRASS SEEDING RATE: 2 POUNDS MIXTURE PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.
- iii. TALL FESCUE/KENTUCKY BLUEGRASS: FULL SUN MIXTURE: FOR USE IN DROUGHT PRONE AREAS AND/OR FOR AREAS RECEIVING LOW TO MEDIUM MANAGEMENT IN FULL SUN TO MEDIUM SHADE. RECOMMENDED MIXTURE INCLUDES; CERTIFIED TALL FESCUE CULTIVARS 95 TO 100 PERCENT, CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 0 TO 5 PERCENT. SEEDING RATE: 5 TO 8 POUNDS PER 1000 SQUARE FEET. ONE OR MORE CULTIVARS MAY BE BLENDED.
- iv. KENTUCKY BLUEGRASS/FINE FESCUE: SHADE MIXTURE: FOR USE IN AREAS WITH SHADE IN BLUEGRASS LAWNS. FOR ESTABLISHMENT IN HIGH QUALITY, INTENSIVELY MANAGED TURF AREA. MIXTURE INCLUDES; CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 30 TO 40 PERCENT AND CERTIFIED FINE FESCUE AND 60 TO 70 PERCENT. SEEDING RATE: 11/2 TO 3 POUNDS PER 1000 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 TABLE HARDINESS ZONE (FROM FIGURE B.3): 7A FERTILIZER RATE (10-20-20)LIME RATE APPLICATION | SEEDING | SEEDING SPECIES P205 K20 DATES DEPTHS RATE (LB/AC) DEERTONGUE 15 3/1-5/15| 0.5" CREEPING RED 8/15-10/15 FESCUE VIRGINIA WILD R TALL FESCUE 3/1-5/15 0.5" 45LB/AC | 90LB/AC | 90LB/AC | 2 TONS/AC PERENNIAL 8/15-10/15 (2LB/ | (2LB/ (90LB/ RYEGRASS 1000SF) 1000SF) | 1000SF) 1000SF) WHITE CLOVER TALL FESCUE 60 3/1-5/15 0.5" KENTUCKY 8/15-10/15 **BLUEGRASS**

- 2. SOD: TO PROVIDE QUICK COVER ON DISTURBED AREAS (2:1 GRADE OR FLATTER) A. 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 34 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. B. 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.
- C. 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.

TABLE H.1 — GEOTEXTILE FABRICS							
	SILT	VEN FILM EXTILE	WOVEN MONOFILAMENT GEOTEXTILE		NONWOVEN GEOTEXTILE		
			MININ	IUM AVE	RAGE RO	DLL VAL ¹ U	JE
PROPERTY	TEST METHOD	MD	CD	MD	CD	MD	CD
GRAB TENSILE STRENGTH	ASTM D-4632	200 LB	200 LB	370 LB	250 LB	200 LB	200 LB
GRAB TENSILE ELONGATION	ASTM D-4632	15%	10%	15%	15%	50%	50%
TRAPEZOIDAL TEAR STRENGTH	ASTM D-4533	75 LB	75 LB	100 LB	60 LB	80 LB	80 LB
PUNCTURE STRENGTH ASTM D-6241		450 LB 900 LB		0 LB	450 LB		
APPARENT OPENING SIZE ² ASTM D-4		U.S. SIEVE 30 (0.59 mm)		U.S. SIEVE 70 (0.21 mm)		U.S. SIEVE 70 (0.21 mm)	
PERMITTIVITY ASTM D-4491		0.05 SEC ¹		0.28 SEC ¹		1.1 SEC ¹	
ULTRAVIOLET RESISTEANCE ASTM D-4355 RETAINED AT 500 HOURS		70% S	TRENGTH	70% S	TRENGTH	70% STRENGTH	

 1 ALL NUMERIC VALUES EXCEPT APPARENT OPENING SIZE (AOS) REPRESENT MINIMUM AVERAGE ROLL VALUES (MARV). MARV IS CALCULATED AS THE TYPICAL MINUS TWO STANDARD DEVIATIONS. MD IS MACHINE DIRECTION; CD IS CROSS DIRECTION.

VALUES FOR AOS REPRESENT THE AVERAGE MAXIMUM OPENING.

GEOTEXTILES MUST BE EVALUATED BY THE NATIONAL TRANSPORTATION PRODUCT EVALUATION PROGRAM (NTPEP) AND CONFORM TO THE VALUES IN TABLE H.1.

THE GEOTEXTILE MUST BE INERT TO COMMONLY ENCOUNTERED CHEMICALS AND HYDROCARBONS AND MUST BE ROT AND MILDEW RESISTANT. THE GEOTEXTILE MUST BE MANUFACTURED FROM FIBERS CONSISTING OF LONG CHAIN SYNTHETIC POLYMERS AND COMPOSED OF A MINIMUM OF 95 PERCENT BY WEIGHT OF POLYOLEFINS OR POLYESTERS. AND FORMED INTO A STABLE NETWORK SO THE FILAMENTS OR YARNS RETAIN THEIR DIMENSIONAL STABILITY RELATIVE TO EACH OTHER, INCLUDING SELVAGES.

WHEN MORE THAN ONE SECTION OF GEOTEXTILE IS NECESSARY, OVERLAP THE SECTIONS BY AT LEAST ONE FOOT. THE GEOTEXTILE MUST BE PULLED TAUT OVER THE APPLIED SURFACE. EQUIPMENT MUST NOT RUN OVER EXPOSED FABRIC. WHEN PLACING RIPRAP ON GEOTEXTILE, DO NOT EXCEED A ONE FOOT DROP HEIGHT

-	P HEIGHT.	TABLE H	.2: STONE	SIZE		
	TYPE	SIZE RANGE	D50	D100	AASHTO	MIDSIZE WEIGHT³
	NUMBER 57	3/8 TO 1-1/2 INCH	1/2 IN	1-1/2 IN	M-43	N/A
	NUMBER 1	2 TO 3 INCH	2-1/2 IN	3 IN	M-43	N/A
	RIPRAP ³ (CLASS 0)	4 TO 7 INCH	5-1/2 IN	7 IN	N/A	N/A
	CLASS I	N/A	9-1/2 IN	15 IN	N/A	40 LB
	CLASS II	N/A	16 IN	24 IN	N/A	200 LB
	CLASS III	N/A	23 IN	34 IN	N/A	600 LB

1 THIS CLASSIFICATION IS TO BE USED ON THE UPSTREAM FACE OF STONE OUTLETS AND

2 THIS CLASSIFICATION IS TO BE USED FOR GABIONS.

3 OPTIMUM GRADATION IS 50 PERCENT OF THE STONE BEING ABOVE AND 50 PERCENT BELOW THE MIDSIZE.

STONE MUST BE COMPOSED OF A WELL GRADED MIXTURE OF STONE SIZED SO THAT FIFTY (50) PERCENT OF THE PIECES BY WEIGHT ARE LARGER THAN THE SIZE DETERMINED BY USING THE CHARTS. A WELL GRADED MIXTURE, AS USED HEREIN, IS DEFINED AS A MIXTURE COMPOSED PRIMARILY OF LARGER STONE SIZES BUT WITH A SUFFICIENT MIXTURE OF OTHER SIZES TO FILL THE SMALLER VOIDS BETWEEN THE STONES. THE DIAMETER OF THE LARGEST STONE IN SUCH A MIXTURE MUST NOT EXCEED THE RESPECTIVE D100 SELECTED FROM TABLE H.2. THE D50 REFERS TO THE MEDIAN DIAMETER OF THE STONE. THIS IS THE SIZE FOR WHICH 50 PERCENT, BY WEIGHT, WILL BE SMALLER AND 50 PERCENT WILL BE LARGER.

NOTE: RECYCLED CONCRETE EQUIVALENT MAY BE SUBSTITUTED FOR ALL STONE CLASSIFICATIONS FOR TEMPORARY CONTROL MEASURES ONLY. CONCRETE BROKEN INTO THE SIZES MEETING THE APPROPRIATE CLASSIFICATION, CONTAINING NO STEEL REINFORCEMENT, AND HAVING A MINIMUM DENSITY OF 150 POUNDS PER CUBIC FOOT MAY BE USED AS AN EQUIVALENT.

	TABLE H.3 - COMPOST
PARAMETERS	ACCEPTABLE RANGE
рН	5.0 - 8.5
MOISTURE CONTENT	30% - 60%, WET WEIGHT BASIS
ORGANIC MATTER CONTENT	25% - 65%, DRY WEIGHT BASIS
PARTICLE SIZE	% PASSING A SELECTED MESH SIZE, DRY WEIGHT BASIS 3 IN (75MM), 100% PASSING 1 IN (25MM), 90 - 100% PASSING 0.75 IN (19MM), 70 - 100% PASSING 0.25 IN (6.4MM), 30 - 60% PASSING 0.04 IN (1MM), 30% MIN. PASSING
PHYSICAL CONTAMINANTS (MANMADE INERTS)	<1% DRY WEIGHT BASIS

ADAPTED FROM AASHTO STANDARDS SPECS FOR COMPOST FILTER SOCKS AND EPA EXAMPLE COMPOST FILTER PARAMETERS

RECOMMENDED TEST METHODOLOGIES ARE PROVIDED IN TEST METHODS FOR THE EXAMINATION OF COMPOSTING AND COMPOST (TMEC, THE U.S. COMPOSTING COUNCIL)

WASHINGTON COUNTY <u>EROSION, SEDIMENT CONTROL</u> & SEEDING NOTES

- 1. ALL SOIL EROSION/SEDIMENT CONTROL MEASURES SHALL COMPLY WITH THE "2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL" AND THE PROVISIONS OF THE APPROVED PLAN.
- 2. ALL GRADING AND STABILIZATION SHALL COMPLY WITH THE "2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL", "SECTION B - GRADING AND STABILIZATION" AND THE PROVISIONS OF THE APPROVED PLAN.
- 3. ALL SOIL EROSION AND SEDIMENT CONTROL PRACTICES (BMP'S) ARE TO BE CONSTRUCTED AND/OR INSTALLED PRIOR TO OR AT THE INITIATION OF GRADING IN ACCORDANCE WITH "2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL", AND THE APPROVED PLAN.
- 4. A GRADING UNIT IS THE MAXIMUM CONTIGUOUS AREA ALLOWED TO BE GRADED AT A GIVEN TIME AND IS LIMITED TO 20 ACRES. 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 ENFORCEMENT AUTHORITY AND/OR THE WASHINGTON COUNTY SOIL CONSERVATION DISTRICT (APPROVAL AUTHORITY). UNLESS OTHERWISE SPECIFIED AND APPROVED BY THE APPROVAL AUTHORITY, NO MORE THAN 30 ACRES CUMULATIVELY MAY BE DISTURBED AT A GIVEN
- 5. FOR INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, TEMPORARY OR PERMANENT STABILIZATION MUST BE COMPLETED WITHIN: a) THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND b) SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.
- 6. STOCKPILES MUST BE STABILIZED IN ACCORDANCE WITHIN THE 7 DAY STABILIZATION REQUIREMENT, AS WELL AS, STANDARD B-4-1 INCREMENTAL STABILIZATION AND STANDARD B-4-4 TEMPORARY STABILIZATION (AS APPLICABLE).
- 7. ALL CONSTRUCTED CHANNELS AND SWALES SHALL HAVE SPECIFIED TREATMENT INSTALLED TO THE DESIGN FLOW DEPTH COMPLETED DOWNSTREAM TO UPSTREAM AS CONSTRUCTION PROGRESSES. AN INSTALLATION DETAIL SHALL BE SHOWN ON THE PLANS. 8. ALL STORM DRAIN AND SANITARY SEWER LINES NOT IN PAVED AREAS ARE
- TO BE MULCHED AND SEEDED WITHIN 3 DAYS OF INITIAL BACKFILL UNLESS OTHERWISE SPECIFIED ON PLANS. 9. ELECTRIC POWER, TELEPHONE, AND GAS LINES ARE TO BE COMPACTED,
- SEEDED, AND MULCHED WITHIN 3 DAYS AFTER INITIAL BACKFILL UNLESS OTHERWISE SPECIFIED ON PLANS. 10. NO SLOPE SHALL BE GREATER THAN 2:1.
- 11. AS REQUIRED BY SECTION B, OF THE MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, "ADEQUATE VEGETATIVE STABILIZATION". IS DEFINED AS 95 PERCENT GROUND COVER. THE WASHINGTON COUNTY SOIL CONSERVATION DISTRICT REQUIRES THE PROJECT ADHERE TO THIS FOR SCHEDULING OF THE FINAL SITE CLOSEOUT REVIEW. AND/OR RELEASE OF THE SITE FOR SOIL EROSION AND SEDIMENT CONTROL.
- FOR SITES 1.0 ACRE OR MORE, THE FOLLOWING ARE REQUIRED: 12. MARYLAND DEPARTMENT OF THE ENVIRONMENT, GENERAL PERMIT FOR STORMWATER ASSOCIATED WITH A CONSTRUCTION ACTIVITY, NPDES PERMIT NUMBER MDRC, STATE DISCHARGE PERMIT NUMBER 14GP, OR AN INDIVIDUAL PFRMIT
- 13. THE MARYLAND DEPARTMENT OF THE ENVIRONMENT (GENERAL/INDIVIDUAL PERMIT - NOTICE OF INTENT- NOI) APPLICATION AND PERMIT SHALL BE POSTED AND/OR AVAILABLE ON-SITE AT ALL TIMES.
- 14. DURING CONSTRUCTION, ALL SOIL EROSION AND SEDIMENT CONTROL PRACTICES (BMP'S) SHALL BE INSPECTED AND RECORDED ON THE "STANDARD INSPECTION FORM", "GENERAL PERMIT FOR STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITY" PER THE MARYLAND DEPARTMENT OF THE ENVIRONMENT (GENERAL/INDIVIDUAL PERMIT - NOTICE OF INTENT - NOI).
- 15. FOLLOWING CONSTRUCTION AND RELEASE OF THE SITE FOR SOIL EROSION AND SEDIMENT CONTROL BY THE WASHINGTON COUNTY SOIL CONSERVATION DISTRICT, I.E., ALL PORTIONS OF A SITE HAVE BEEN PERMANENTLY STABILIZED, AND ALL STORMWATER DISCHARGES FROM CONSTRUCTION SITES THAT ARE AUTHORIZED BY THE PERMIT ARE ELIMINATED, THE AUTHORIZED PERMITTEE SHALL SUBMIT THE MARYLAND DEPARTMENT OF THE ENVIRONMENT, GENERAL/INDIVIDUAL PERMIT - NOTICE OF TERMINATION-NOT.

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY

THAT THESE DOCUMENTS WERE PREPARED OR

LICENSED PROFESSIONAL ENGINEER UNDER THE

LICENSE NO. 33772 EXP. DATE: 06/16/2021

APPROVED BY ME AND THAT I AM DULY

LAWS OF THE STATE OF MARYLAND,



ALL REPORTS OF ANS SPECIFICATIONS AND COMPLITER FILES RELATING TO THIS PROJECT ARE THE PROPERTY OF CRABTREE, ROHRBAUGH & ASSOCIATES. CRABTREE ROHRBAUGH & ASSOCIATES RETAINS ALL COMMON LAW, STATUTE AND OTHER RESERVED RIGHTS INCLUDING THE COPYRIGHT THERETO. REPRODUCTION OF THE MATERIAL HERIN OR SUBSTANTIAL USE WITHOUT WRITTEN PERMISSION C CRABTREE, ROHRBAUGH & ASSOCIATES VIOLATES THE COPYRIGHT LAWS OF THE UNITED STATES AND WILL BE SUBJECT TO LEGAL PROSECUTION.

	REVISIONS						
01	MM-DD-YR	NAME	DESCRIPTION OF CHANGES				

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OWNER WASHINGTON **COUNTY BOARD OF** COMMISSIONERS 100 W. WASHINGTON ST HAGERSTOWN, MD 21740

CIVIL KCI TECHNOLOGIES, 11830 W. MARKET

SEC NOTES AND **DETAILS**

240-313-220

PLOT SCALE: KCI# 271703606 DATE: 7/25/19

PROJECT 3089

PLACE, SUITE F

FULTON, MD 20759

410-792-8086 (P)

410-792-7419 (F)

STANDARDS AND SPECIFICATIONS FOR LAND GRADING

DESIGN CRITERIA

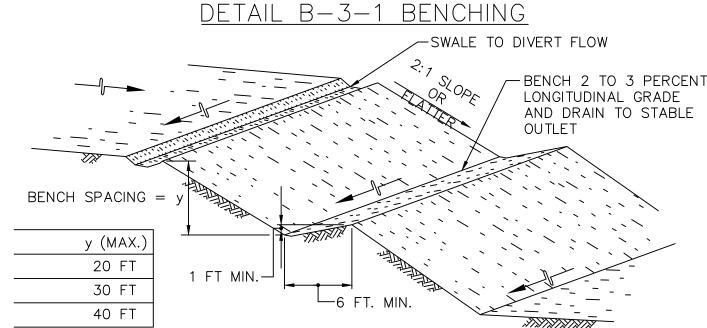
THE GRADING PLAN SHOULD BE BASED ON THE INCORPORATION OF BUILDING DESIGNS AND STREET LAYOUTS THAT FIT AND UTILIZE EXISTING TOPOGRAPHY AND DESIRABLE NATURAL SURROUNDINGS TO AVOID EXTREME GRADE MODIFICATIONS. INFORMATION SUBMITTED MUST PROVIDE SUFFICIENT TOPOGRAPHIC SURVEYS AND SOIL INVESTIGATIONS TO DETERMINE LIMITATIONS THAT MUST BE IMPOSED ON THE GRADING OPERATION RELATED TO SLOPE STABILITY, ADJACENT PROPERTIES, DRAINAGE PATTERNS, MEASURES FOR WATER REMOVAL, AND VEGETATIVE TREATMENT, ETC.

MANY JURISDICTIONS HAVE REGULATIONS AND DESIGN PROCEDURES ALREADY ESTABLISHED FOR LAND GRADING THAT MUST BE FOLLOWED. THE PLAN MUST SHOW EXISTING AND PROPOSED CONTOURS FOR THE AREA(S) TO BE GRADED INCLUDING PRACTICES FOR EROSION CONTROL, SLOPE STABILIZATION, AND SAFE CONVEYANCE OF RUNOFF (E.G., WATERWAYS, LINED CHANNELS, REVERSE BENCHES, GRADE STABILIZATION STRUCTURES). THE GRADING/CONSTRUCTION PLANS ARE TO INCLUDE THE PHASING OF THESE PRACTICES AND CONSIDERATION OF THE FOLLOWING:

- 1. PROVISIONS TO SAFELY CONVEY SURFACE RUNOFF TO STORM DRAINS. PROTECTED OUTLETS OR STABLE WATER COURSES TO ENSURE THAT SURFACE RUNOFF WILL NOT DAMAGE SLOPES OR OTHER GRADED AREAS.
- 2. CUT AND FILL SLOPES, STABILIZED WITH GRASSES, NO STEEPER THAN 2:L. (WHERE THE SLOPE IS TO BE MOWED, THE SLOPE SHOULD BE NO STEEPER THAN 3:L, BUT 4:L IS PREFERRED BECAUSE OF SAFETY FACTORS RELATED TO MOWING STEEP SLOPES.) SLOPES STEEPER THAN 2:L REQUIRE SPECIAL DESIGN AND STABILIZATION CONSIDERATIONS TO BE SHOWN ON THE PLANS.
- 3. BENCHING PER DETAIL B-3-1 WHENEVER THE VERTICAL INTERVAL (HEIGHT) OF ANY 2:L SLOPE EXCEEDS 20 FEET; FOR 3:L SLOPES, WHEN IT EXCEEDS 30`FEET; AND FOR 4:L SLOPES, WHEN IT EXCEEDS 40 FEET. LOCATE BENCHES TO DIVIDE THE SLOPE FACE AS EQUALLY AS POSSIBLE AND TO CONVEY THE WATER TO A STABLE OUTLET. SOILS, SEEPS, ROCK OUTCROPS, ETC. ARE TO BE TAKEN INTO CONSIDERATION WHEN DESIGNING BENCHES.
 - PROVIDE BENCHES WITH A MINIMUM WIDTH OF SIX FEET FOR EASE OF MAINTENANCE. DESIGN BENCHES WITH A REVERSE SLOPE OF 6:L OR FLATTER TO THE TOE OF THE UPPER SLOPE AND WITH A MINIMUM OF ONE FOOT IN DEPTH. GRADE THE LONGITUDINAL SLOPE OF THE BENCH BETWEEN 2 PERCENT AND 3 PERCENT, UNLESS ACCOMPANIED BY APPROPRIATE DESIGN AND COMPUTATIONS.
- THE MAXIMUM ALLOWABLE FLOW LENGTH WITHIN A BENCH IS 800 FEET UNLESS ACCOMPANIED BY APPROPRIATE DESIGN AND COMPUTATIONS.
- 4. DIVERSION OF SURFACE WATER FROM THE FACE OF ALL CUT AND FILL SLOPES USING EARTH DIKES OR SWALES. CONVEY SURFACE WATER DOWN SLOPE USING A DESIGNED STRUCTURE, AND:
- A. PROTECT THE FACE OF ALL GRADED SLOPES FROM SURFACE RUNOFF UNTIL THEY ARE STABILIZED.
- DO NOT SUBJECT THE SLOPE'S FACE TO ANY CONCENTRATED FLOW OF SURFACE WATER SUCH AS FROM NATURAL DRAINAGE WAYS, GRADED SWALES, DOWNSPOUTS,
- PROTECT THE FACE OF THE SLOPE BY SPECIAL EROSION CONTROL MATERIALS TO INCLUDE, BUT NOT BE LIMITED TO, APPROVED VEGETATIVE STABILIZATION PRACTICES, RIPRAP OR OTHER APPROVED STABILIZATION METHODS.
- 5. SERRATED SLOPE AS SHOWN IN DETAIL B-3-2. THE STEEPEST ALLOWABLE SLOPE FOR RIPABLE ROCK IS 1.5:1. FOR NON ROCK SURFACES, THE SLOPES ARE TO BE 2:1 OR FLATTER. THESE STEPS WILL WEATHER AND ACT TO HOLD MOISTURE, LIME, FERTILIZER AND SEED THUS PRODUCING A MUCH QUICKER AND LONGER LIVED VEGETATIVE COVER AND BETTER SLOPE STABILIZATION.
- 6. SUBSURFACE DRAINAGE PROVISIONS. PROVIDE SUBSURFACE DRAINAGE WHERE NECESSARY TO INTERCEPT SEEPAGE THAT WOULD OTHERWISE ADVERSELY AFFECT SLOPE STABILITY OR CREATE EXCESSIVELY WET SITE CONDITIONS.
- 7. PROXIMITY TO ADJACENT PROPERTY. SLOPES MUST NOT BE CREATED CLOSE TO PROPERTY LINES WITHOUT ADEQUATE PROTECTION AGAINST SEDIMENTATION, EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE, OR OTHER RELATED DAMAGES.
- 8. QUALITY OF FILL MATERIAL. FILL MATERIAL MUST BE FREE OF BRUSH, RUBBISH, LOGS, STUMPS, BUILDING DEBRIS, AND OTHER OBJECTIONABLE MATERIAL, DO NOT PLACE FROZEN MATERIALS IN THE FILL NOR PLACE THE FILL MATERIAL ON A FROZEN FOUNDATION.
- 9. STABILIZATION. STABILIZE ALL DISTURBED AREAS STRUCTURALLY OR VEGETATIVELY IN COMPLIANCE WITH SECTION B-4 STANDARDS AND SPECIFICATIONS FOR STABILIZATION PRACTICES.

<u>MAINTENANCE</u>

THE LINE, GRADE, AND CROSS SECTION OF BENCHING AND SERRATED SLOPES MUST BE MAINTAINED. BENCHES AND SERRATED SLOPES MUST CONTINUOUSLY MEET THE REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

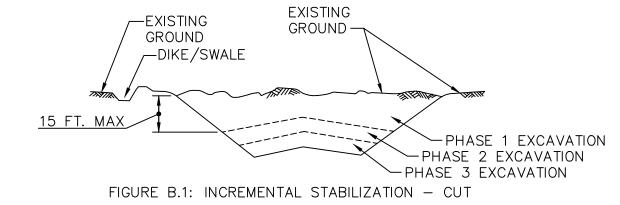


CONSTRUCTION SPECIFICATIONS

- 1. USE FILL MATERIAL FREE OF BRUSH, RUBBISH, ROCKS, LOGS, STUMPS, BUILDING DEBRIS, AND OR OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY FILLS.
- 2. DO NOT INCORPORATE FROZEN, SOFT, MUCKY, OR HIGHLY COMPRESSIBLE MATERIALS INTO FILL SLOPES OR STRUCTURAL FILLS. DO NOT PLACE FILL ON A FROZEN FOUNDATION.
- 3. PLACE ALL FILL IN LOOSE LIFTS NOT TO EXCEED 8 INCHES AND THEN COMPACT.
- 4. COMPACT ALL FILLS AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, OR OTHER RELATED PROBLEMS. COMPACT FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES, CONDUITS, ETC., IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.
- 5. HANDLE SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION IN ACCORDANCE WITH SECTION H-2 SUBSURFACE DRAINS OR OTHER APPROVED MEII-IODS.
- 6. MAINTAIN LINE, GRADE, AND CROSS SECTION OF BENCHING. STABILIZE IN ACCORDANCE WITH THE 3/7 DAY STABILIZATION CRITERIA OR AS SPECIFIED ON II-IE APPROVED EROSION AND SEDIMENT CONTROL PLAN. INSTALLATION OF EROSION CONTROL MATTING MAY BE NECESSARY IN BENCH/SWALE INVERTS. CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.
- 7. KEEP ALL BENCHES FREE OF SEDIMENT DURING ALL PHASES OF DEVELOPMENT.

PERFORM FINAL PHASE EXCAVATION, PREPARE SEEDBED, AND STABILIZE. OVERSEED PREVIOUSLY SEEDED AREAS AS NECESSARY.

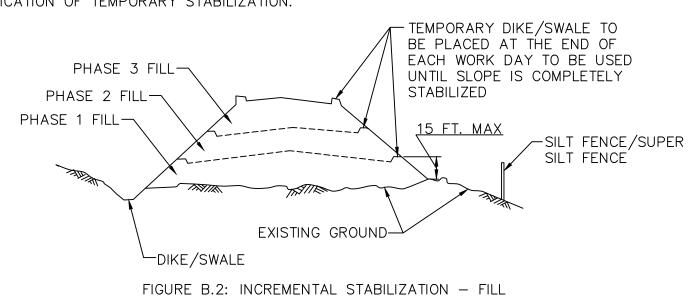
NOTE: ONCE EXCAVATION HAS BEGUN THE OPERATION SHOULD BE CONTINUOUS FROM GRUBBING THROUGH THE COMPLETION OF GRADING AND PLACEMENT OF TOPSOIL (IF REQUIRED) AND PERMANENT SEED AND MULCH. ANY INTERRUPTIONS IN THE OPERATION OR COMPLETING THE OPERATION OUT OF THE SEEDING SEASON WILL NECESSITATE THE APPLICATION OF TEMPORARY STABILIZATION.



1. INCREMENTAL STABILIZATION - FILL SLOPES

- A. CONSTRUCT AND STABILIZE FILL SLOPES IN INCREMENTS NOT TO EXCEED 15 FEET IN HEIGHT. PREPARE SEEDBED AND APPLY SEED AND MULCH ON ALL SLOPES AS THE
- STABILIZE SLOPES IMMEDIATELY WHEN THE VERTICAL HEIGHT OF A LIFT REACHES 15 FEET, OR WHEN THE GRADING OPERATION CEASES AS PRESCRIBED IN THE PLANS.
- C. AT THE END OF EACH DAY, INSTALL TEMPORARY WATER CONVEYANCE PRACTICE(S), AS NECESSARY, TO INTERCEPT SURFACE RUNOFF AND CONVEY IT DOWN THE SLOPE IN A NON-EROSIVE MANNER.
- D. CONSTRUCTION SEQUENCE EXAMPLE (REFER TO FIGURE B.2):
- a. CONSTRUCT AND STABILIZE ALL TEMPORARY SWALES OR DIKES THAT WILL BE USED TO DIVERT RUNOFF AROUND THE FILL. CONSTRUCT SILT FENCE ON LOW SIDE OF FILL UNLESS OTHER METHODS SHOWN ON THE PLANS ADDRESS THIS AREA.
- b. AT THE END OF EACH DAY, INSTALL TEMPORARY WATER CONVEYANCE PRACTICE(S). AS NECESSARY, TO INTERCEPT SURFACE RUNOFF AND CONVEY IT
- DOWN THE SLOPE IN A NON-EROSIVE MANNER. PLACE PHASE 1 FILL, PREPARE SEEDBED, AND STABILIZE
- PLACE PHASE 2 FILL, PREPARE SEEDBED, AND STABILIZE.
- PLACE FINAL PHASE FILL, PREPARE SEEDBED, AND STABILIZE. OVERSEED PREVIOUSLY SEEDED AREAS AS NECESSARY.

NOTE: ONCE THE PLACEMENT OF FILL HAS BEGUN THE OPERATION SHOULD BE CONTINUOUS FROM GRUBBING THROUGH THE COMPLETION OF GRADING AND PLACEMENT OF TOPSOIL (IF REQUIRED) AND PERMANENT SEED AND MULCH. ANY INTERRUPTIONS IN THE OPERATION OR COMPLETING THE OPERATION OUT OF THE SEEDING SEASON WILL NECESSITATE THE APPLICATION OF TEMPORARY STABILIZATION.



STANDARDS AND SPECIFICATIONS FOR SOIL

PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

<u>PURPOSE</u>

TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH.

CONDITIONS WHERE PRACTICE APPLIES

WHERE VEGETATIVE STABILIZATION IS TO BE ESTABLISHED.

<u>CRITERIA</u>

1. SOIL PREPARATION A. 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.
- APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.
- INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.

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
 - SOIL PH BETWEEN 6.0 AND 7.0. SOLUBLE SALTS LESS THAN 500 PARTS PER MILLION (PPM).
 - SOIL CONTAINS LESS THAN 40 PERCENT CLAY BUT ENOUGH FINE GRAINED MATERIAL (GREATER THAN 30 PERCENT SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION: IF LOVEGRASS WILL BE PLANTED, THEN A SANDY SOIL (LESS THAN 30 PERCENT SILT PLUS CLAY) WOULD BE ACCEPTABLE
 - d. SOIL CONTAINS 1.5 PERCENT MINIMUM ORGANIC MATTER BY WEIGHT. SOIL CONTAINS SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT
- PENETRATION. APPLICATION OF AMENDMENTS OR TOPSOIL IS REQUIRED IF ON-SITE SOILS DO NOT MEET THE ABOVE CONDITIONS.
- GRADED AREAS MUST BE MAINTAINED IN A TRUE AND EVEN GRADE AS SPECIFIED ON THE APPROVED PLAN, THEN 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.
- 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.

- A. 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.
- B. 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.
- C. 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. e. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS.
- THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.

ÅREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN.

- E. 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
 - 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.
- F. TOPSOIL APPLICATION a. EROSION AND SEDIMENT CONTROL PRACTICES MUST BE MAINTAINED WHEN APPLYING
- 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 GRADINGAND SEEDBED PREPARATION.
- 3. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)
- A. SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER ON SITES HAVING DISTURBED AREAS OF 5 ACRES OR MORE. SOIL ANALYSIS MAY BE PERFORMED BY A RECOGNIZED PRIVATE OR COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSES.
- FERTILIZERS MUST BE UNIFORM IN COMPOSITION, FREE FLOWING AND SUITABLE FOR ACCURATE APPLICATION BY APPROPRIATE EQUIPMENT. MANURE MAY BE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE APPROPRIATE APPROVAL AUTHORITY. FERTILIZERS MUST ALL BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO THE APPLICABLE LAWS AND MUST BEAR THE NAME, TRADE NAME OR TRADEMARK AND WARRANTY OF THE PRODUCER
- C. 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. D. 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.
- E. WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, SPREAD GROUND LIMESTONE AT THE
- F. RATE OF 4 TO 8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL

SEQUENCE OF CONSTRUCTION

- 1. NOTIFY WCSCD AT 301-797-6821 (EXT. 3) AT LEAST (5) DAYS PRIOR TO THE START OF CONSTRUCTION TO SCHEDULE A PRE-CONSTRCUTION MEETING. NOTIFY THE WASHINGTON COUNTY ENGINEERING DEPARTMENT (240-313-2460) AT LEAST (5) DAYS PRIOR TO THE START OF CONSTRUCTION TO SCHEDULE A PRE CONSTRUCTION MEETING.
- 2. NOTIFY NOTIFY MISS UTILITY (1-800-257-7777) AT LEAST 48 HOURS PRIOR TO STARTING WORK AT THE SITE.
- 3. INSTALL STABILIZED CONSTRUCTION ENTRANCE (SCE)
- 8. PRIOR TO ANY CLEARING AND GRUBBING, THE LIMITS OF CLEARING MUST BE CLEARLY MARKED IN THE FIELD.
- 9. INSTALL ALL PERIMETER SUPER SILT FENCE, SILT FENCE, AND DIVERSION FENCING.
- 10. TEMPORARY SEED AND MULCH ALL TOPSOIL STOCKPILES IN ACCORDANCE WITH THE SOIL EROSION, SEDIMENT CONTROL. & SEEDING NOTES AND SUMMARIES.
- 11. UPON THE INSTALLATION OF THE SEDIMENT CONTROL MEASURES. BEGIN GRADING FOR ENTRANCE ROAD AND INSTALL CULVERT PIPES. ONCE CULVERT PIPES ARE INSTALLED, GRADE BYPASS SWALE SO THAT RUNOFF IS DIRECTED AROUND THE SITE. DURING THE GRADING OF THE BYPASS SWALE, INSTALL CLAY CORE ALONG THE LOCATION OF SWM-10 SINCE THE FACILITY IS IN A FILL CONDITION.GRADING DONE WITHIN THE SWALE CHANNEL IS TO BE LINED WITH PERMANENT STABILIZATION MATTING.
- 12. ONCE THE BYPASS SWALE IS STABILIZED, GRADING FOR THE NEW BUILDING, PARKING AND ENTRANCE ROADS IS TO BE COMPLETED. ALL SLOPES GREATER THAN 4:1 ARE TO BE STABILIZED WITH TEMPORARY STABILIZATION MATTING. ALL GRADING DONE WITHIN A SWALE NEEDS PERMANENT STABILIZATION MATTING. STORMWATER FACILITIES ARE TO BE SURROUNDED BY SILT FENCE AND PROTECTED FROM COMPACTION DURING CONSTRUCTION.
- 13. CONSTRUCT PROPOSED UTILITIES FROM MD-65 ONTO THE SITE, EXCAVATING ONLY WHAT IS REQUIRED FOR INSTALLATION EACH DAY. BACKFILL TRENCH ONCE PIPE HAS BEEN INSTALLED AND INSPECTED. USE STEEL PLATES AS NECESSARY WITH PROPER TRAFFIC CONTROLS. NO STOCKPILING ALLOWED WITHIN RIGHT-OF-WAY.
- 14. PERFORM PERMANENT SEEDING AND MULCHING IN ACCORDANCE WITH THE SOIL EROSION, SEDIMENT CONTROL, & SEEDING NOTES AND SUMMARIES.
- 15. NOTIFY THE WASHINGTON COUNTY SOIL CONSERVATION DISTRICT AT 301-797-6821, EXT 3 AND THE WASHINGTON COUNTY ENGINEERING DEPARTMENT AT 240-313-2460 AT LEAST (5) DAYS PRIOR TO THE CONSTRUCTION OF WATER QUALITY PRACTICES TO SCHEDULE AN INTERIM
- 16. ONCE ALL DISTURBED AREAS ARE STABILIZED, CONSTRUCT THE 9 MICRO-BIORETENTION FACILITES AND THE ONE BIORETENTION FACILITY.
- 17. NOTIFY THE WASHINGTON COUNTY SOIL CONSERVATION DISTRICT AT 301-797-6821, EXT 3 AND THE WASHINGTON COUNTY ENGINEERING DEPARTMENT AT 240-313-2460 AT LEAST (5) DAYS PRIOR TO THE REMOVAL OF ANY SOIL EROSION AND SEDIMENT CONTROL FEATURES TO SCHEDULE A FINAL SITE CLOSEOUT REVIEW MEETING. VEGETATION MUST MEET THE 95% OVERALL STABILIZATION REQUIREMENT PER THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL PRIOR TO SCHEDULING MEETING.
- 18. APPLY FINAL SURFACE PAVING TO ALL PAVED AREAS. INSTALL ALL FEATURES PER THE SITE PLAN.
- STABILIZE AREAS OF SOIL EROSION AND SEDIMENT CONTROL REMOVAL



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OWNER

PROFESSIONAL CERTIFICATION, I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 33772 EXP. DATE: 06/16/2021

WASHINGTON **COUNTY BOARD OF** COMMISSIONERS 100 W. WASHINGTON ST HAGERSTOWN, MD 21740 240-313-220 SEC NOTES

410-792-8086 (P) 410-792-7419 (F) **PROJECT** 3089

CIVIL

KCI TECHNOLOGIES

11830 W. MARKET

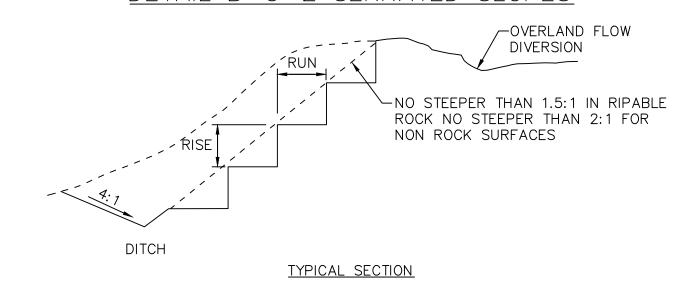
PLACE, SUITE F

FULTON, MD 20759

AND DETAILS KCI# 271703606

7/25/19

DETAIL B-3-2 SERRATED SLOPES



CONSTRUCTION SPECIFICATIONS

- 1. DIVERT OVERLAND FLOW FROM THE TOP OF ALL SERRATED CUT SLOPES AND CARRY TO A SUITABLE OUTLET.
- 2. MAKE SERRATIONS AS THE EXCAVATION PROGRESSES.
- 3. CONSTRUCT EACH STEP OR SERRATION ON THE CONTOUR. RISE & RUN DIMENSIONS WILL VARY DEPENDING ON THE FINAL SLOPE RATIO. FOR RIPABLE ROCK SURFACES, MAKE TWO FOOT VERTICAL (RISE) AND THREE FOOT HORIZONTAL (RUN) SERRATIONS AT A SLOPE RATIO NO STEEPER THAN 1.5:1. FOR NON ROCK SURFACES, MAKE TWO FOOT VERTICAL (RISE) AND FOUR FOOT HORIZONTAL (RUNS) SERRATIONS AT A SLOPE RAIIO NO STEEPER
- 4. KEEP ALL BENCHES FREE OF SEDIMENT DURING ALL PHASES OF CONSTRUCTION.
- 5. HANDLE SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION IN ACCORDANCE WITH SECTION H-2 SUBSURFACE DRAINS OR OTHER APPROVED METHODS.
- MAINTAIN LINE, GRADE, AND CROSS SECTION OF SERRATED SLOPES. TEMPORARILY OR PERMANENTLY STABILIZE ALL GRADED, NON ROCK SURFACES IN ACCORDANCE WITH THE 3/7 DAY STABILIZATION REQUIREMENTS OR AS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN. CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION. MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL U.S. DEPARTMENT OF AGRICULTURE NATURAL.

STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

<u>PURPOSE</u>

TO PROMOTE THE ESTABLISHMENT OF VEGETATION ON EXPOSED SOIL.

CONDITIONS WHERE PRACTICE APPLIES

ON ALL DISTURBED AREAS NOT STABILIZED BY OTHER METHODS. THIS SPECIFICATION IS DIVIDED INTO SECTIONS ON INCREMENTAL STABILIZATION; SOIL PREPARATION, SOIL AMENDMENTS AND TOPSOILING; SEEDING AND MULCHING; TEMPORARY STABILIZATION; AND PERMANENT STABILIZATION.

EFFECTS ON WATER QUALITY AND QUANTITY

STABILIZATION PRACTICES ARE USED TO PROMOTE THE ESTABLISHMENT OF VEGETATION ON EXPOSED SOIL. WHEN SOIL IS STABILIZED WITH VEGETATION, THE SOIL IS LESS LIKELY TO ERODE AND MORE LIKELY TO ALLOW INFILTRATION OF RAINFALL, THEREBY REDUCING SEDIMENT LOADS AND RUNOFF TO DOWNSTREAM AREAS. PLANTING VEGETATION IN DISTURBED AREAS WILL HAVE AN EFFECT ON THE WATER BUDGET, ESPECIALLY ON VOLUMES AND RATES OF RUNOFF, INFILTRATION, EVAPORATION, TRANSPIRATION, PERCOLATION, AND GROUNDWATER RECHARGE OVER TIME, VEGETATION WILL INCREASE ORGANIC MATTER CONTENT AND IMPROVE THE WATER HOLDING CAPACITY OF THE SOIL AND SUBSEQUENT PLANT GROWTH. VEGETATION WILL HELP REDUCE THE MOVEMENT OF SEDIMENT, NUTRIENTS, AND OTHER CHEMICALS CARRIED BY RUNOFF TO RECEIVING WATERS. PLANTS WILL ALSO HELP PROTECT GROUNDWATER SUPPLIES BY ASSIMILATING THOSE SUBSTANCES PRESENT WITHIN THE ROOT ZONE. SEDIMENT CONTROL PRACTICES MUST REMAIN IN PLACE DURING GRADING, SEEDBED PREPARATION, SEEDING, MULCHING, AND VEGETATIVE ESTABLISHMENT.

ADEQUATE VEGETATIVE ESTABLISHMENT

INSPECT SEEDED AREAS FOR VEGETATIVE ESTABLISHMENT AND MAKE NECESSARY REPAIRS, REPLACEMENTS, AND RESEEDINGS WITHIN THE PLANTING SEASON.

- 1. ADEQUATE VEGETATIVE STABILIZATION REQUIRES 95 PERCENT GROUNDCOVER.
- 2. IF AN AREA HAS LESS THAN 40 PERCENT GROUNDCOVER, RESTABILIZE FOLLOWING THE ORIGINAL RECOMMENDATIONS FOR LIME, FERTILIZER, SEEDBED PREPARATION, AND SEEDING.
- 3. IF AN AREA HAS BETWEEN 40 AND 94 PERCENT GROUNDCOVER, OVER-SEED AND FERTILIZE USING HALF OF THE RATES ORIGINALLY SPECIFIED.
- 4. MAINTENANCE FERTILIZER RATES FOR PERMANENT SEEDING ARE SHOWN IN TABLE B.6.

STANDARDS AND SPECIFICATIONS FOR INCREMENTAL STABILIZATION

<u>PURPOSE</u>

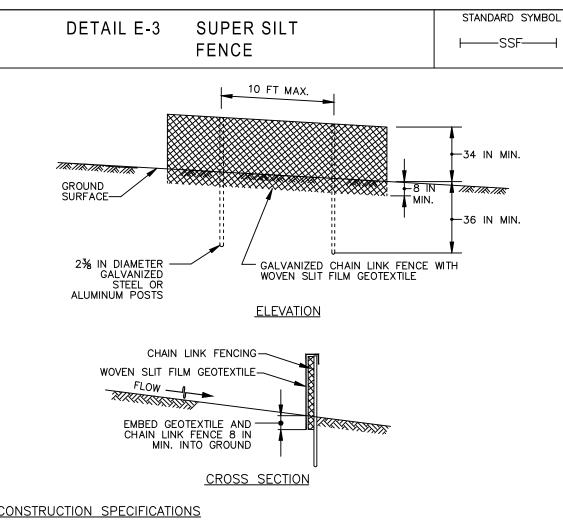
TO PROVIDE TIMELY VEGETATIVE COVER ON CUT AND FILL SLOPES AS WORK PROGRESSES.

CONDITIONS WHERE PRACTICE APPLIES

ANY CUT OR FILL SLOPE GREATER THAN 15 FEET IN HEIGHT. THIS PRACTICE ALSO APPLIES TO STOCKPILES.

<u>CRITERIA</u>

- 1. INCREMENTAL STABILIZATION CUT SLOPES
- A. EXCAVATE AND STABILIZE CUT SLOPES IN INCREMENTS NOT TO EXCEED 15 FEET IN HEIGHT. PREPARE SEEDBED AND APPLY SEED AND MULCH ON ALL CUT SLOPES AS THE WORK PROGRESSES.
- B. CONSTRUCTION SEQUENCE EXAMPLE (REFER TO FIGURE B.1):
- a. CONSTRUCT AND STABILIZE ALL TEMPORARY SWALES OR DIKES THAT WILL BE
- USED TO CONVEY RUNOFF AROUND THE EXCAVATION.
- b. PERFORM PHASE 1 EXCAVATION, PREPARE SEEDBED, AND STABILIZE.
- c. PERFORM PHASE 2 EXCAVATION, PREPARE SEEDBED, AND STABILIZE. OVERSEED
- PHASE 1 AREAS AS NECESSARY.



CONSTRUCTION SPECIFICATIONS

U.S. DEPARTMENT OF AGRICULTURE

NATURAL RESOURCES CONSERVATION SERVICE

DETAIL E-9-3

- INSTALL 23/6 INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
- FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (23/4 INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS.
- FASTEN WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, SECURELY TO THE UPSLOPE SIDE OF CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID

SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 8 INCHES INTO THE GROUND.

- WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS.
- . EXTEND BOTH ENDS OF THE SUPER SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS
- OF THE SUPER SILT FENCE. PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT
- GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

CURB INLET

PROTECTION

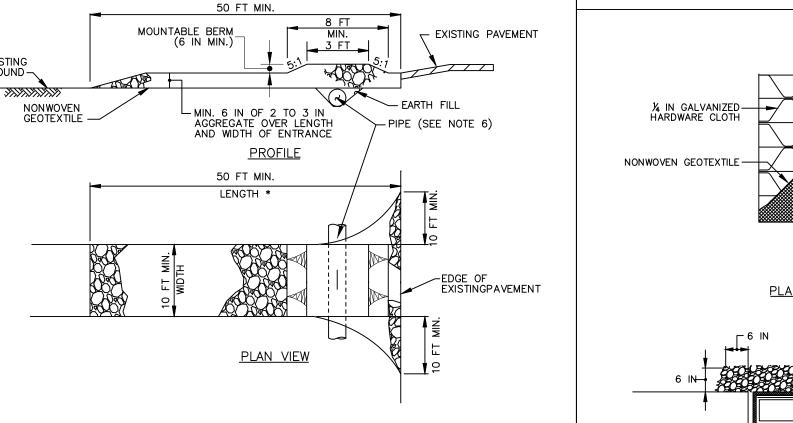
2 IN x 4 IN ANCHORS, 2 FT MIN. LENGTH

2 IN x 4 IN WEIR-

¾ TO 1½ STONE -

NONWOVEN -GEOTEXTILE 7





STANDARD SYMBO

SCE SCE

CONSTRUCTION SPECIFICATIONS

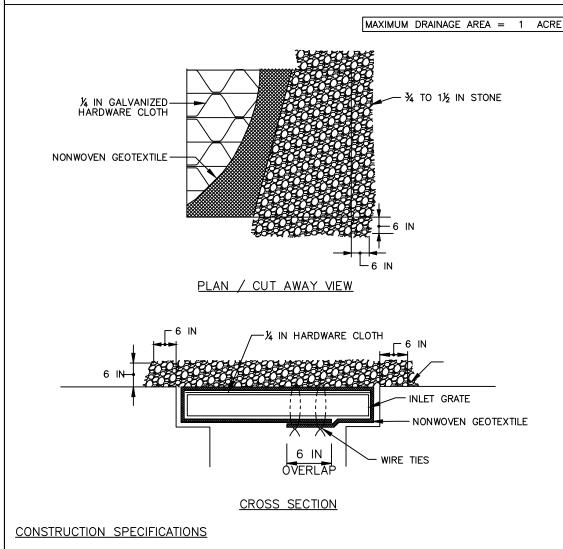
DETAIL B-1

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.

STABILIZED CONSTRUCTION

ENTRANCE

- 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 CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT
- PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
- PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE.
- MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.



AT-GRADE INLET

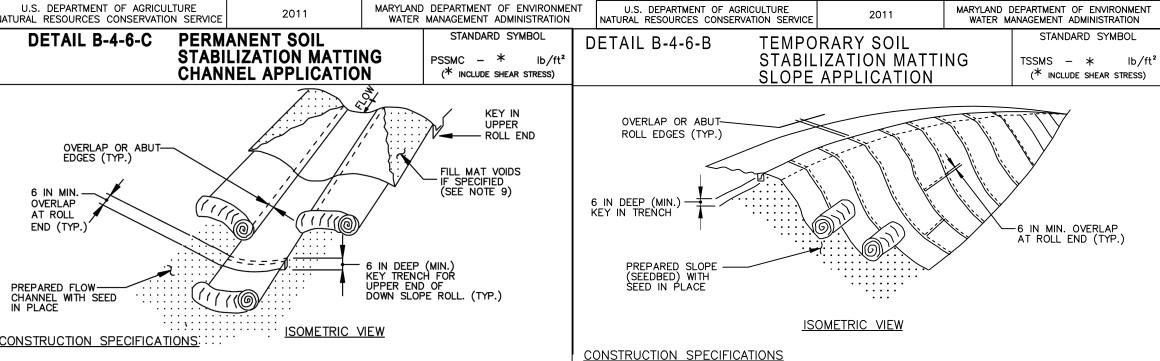
PROTECTION

USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.

DETAIL E-9-2

- LIFT GRATE AND WRAP WITH NONWOVEN GEOTEXTILE TO COMPLETELY COVER ALL OPENINGS. SECURE
- PLACE CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE 6 INCHES THICK ON THE
- 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

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL



MARYLAND DEPARTMENT OF ENVIRONMENT

WATER MANAGEMENT ADMINISTRATION

MAXIMUM DRAINAGE AREA = 1/4 ACRE

SECTION A-A

MARYLAND DEPARTMENT OF ENVIRONMENT

WATER MANAGEMENT ADMINISTRATION

STANDARD SYMBOL

— 2 FT MIN. LENGTH OF 2 IN x 4 IN

SANDBAG OR OTHER APPROVED

ANCHORING METHOD

-2 IN x 4 IN SPACEF

— GALVANIZED

HARDWARE

CLOTH

ے CIP

ISOMETRIC CONSTRUCTION SPECIFICATIONS

U.S. DEPARTMENT OF AGRICULTURE

NATURAL RESOURCES CONSERVATION SERVICE

NONWOVEN —

GEOTEXTILE

GAI VANIZED

HARDWARE

- 1. USE NOMINAL 2 INCH x 4 INCH LUMBER
- 2. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.

∠ 2 IN × 4 IN WEIR

∠EDGE OF GUTTER PAN

3. NAIL THE 2x4 WEIR TO 9 INCH LONG VERTICAL SPACERS (MAXIMUM 6 FEET APART).

T MAX. SPACING OF

4. ATTACH A CONTINUOUS PIECE OF 1/4 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 IT 2 FEET BEYOND THROAT ON EACH SIDE.

-2 IN x 4 IN SPACER

- . PLACE A CONTINUOUS PIECE OF NONWOVEN GEOTEXTILE OF THE SAME DIMENSIONS AS THE HARDWARE CLOTH OVER THE HARDWARE CLOTH AND SECURELY ATTACH TO THE 2x4 WEIR.
- 5. PLACE THE ASSEMBLY AGAINST THE INLET THROAT AND NAIL TO 2×4 ANCHORS (MINIMUM 2 FEET LENGTH). EXTEND THE ANCHORS ACROSS THE INLET TOP AND HOLD IN PLACE BY SANDBAGS OR OTHER APPROVED ANCHORING METHOD.
- INSTALL END SPACERS A MINIMUM OF 1 FOOT BEYOND THE ENDS OF THE THROAT OPENING.
- 8. FORM THE HARDWARE CLOTH AND THE GEOTEXTILE TO THE CONCRETE GUTTER AND FACE OF CURB TO SPAN THE INLET OPENING. COVER THE HARDWARE CLOTH AND GEOTEXTILE WITH CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE.
- 9. AT NON-SUMP LOCATIONS, INSTALL A TEMPORARY SANDBAG OR ASPHALT BERM TO PREVENT INLET
- 10. 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 CLOCGED WHEN THIS OCCURS REMOVE ACCUMULATED SEDIMENT AND CLEAN OR REPLACE

GEOTEXTILE AND STONE.	ARE CONTINUOUSLY MET
	MARYLAND STAND
	U.S. DEPARTMENT OF AGI NATURAL RESOURCES CONSERV
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL	

LANDLOK 435 TURF REINFORCEMENT MAT OR APPROVED EQUAL (8 LB/FT^2 SHEER STRENGTH, 12 FT/SEC VELOCITY, 225X175 LBS/FT TENSILE STRENGTH, 50% ELONGATION, 80% RESILIENCY

- USE PERMANENT SOIL STABILIZATION MATTING MADE OF OPEN WEAVE SYNTHETIC, NON-DEGRADABLE FIBERS OF 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 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
- 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
- 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.
- 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
- ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING
- . STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.

TO SECURE THE MAT END IN THE KEY.

- . 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 STAND

B.40

DARDS AND SPE	CIFICATIONS FOR	SOIL ERC	SION	AND	SEDIMENT	CONTR	ROL	
GRICULTURE RVATION SERVICE	2011						ENVIRONMEI INISTRATION	

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.
- . SECURE MATTING USING STEEL STAPLES, WOOD STAKES, OR BIODEGRADABLE EQUIVALENT. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY.
 "U" SHAPED STAPLES MUST AVERAGE 1 TO 1½ INCHES WIDE AND BE A MINIMUM OF
 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND A MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD,
- 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPED AT THE BOTTOM. . PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION &
- SEDIMENT CONTROL PLAN. . UNROLL MATTING DOWNSLOPE. LAY MAT SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.
- S. OVERLAP OR ABUT ROLL EDGES PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSLOPE MAT OVERLAPPING ON TOP OF THE DOWNSLOPE MAT. KEY IN THE UPSLOPE 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
- 3. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
- . ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.
- MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL U.S. DEPARTMENT OF AGRICULTURE MARYLAND DEPARTMENT OF ENVIRONMENT NATURAL RESOURCES CONSERVATION SERVICE WATER MANAGEMENT ADMINISTRATION



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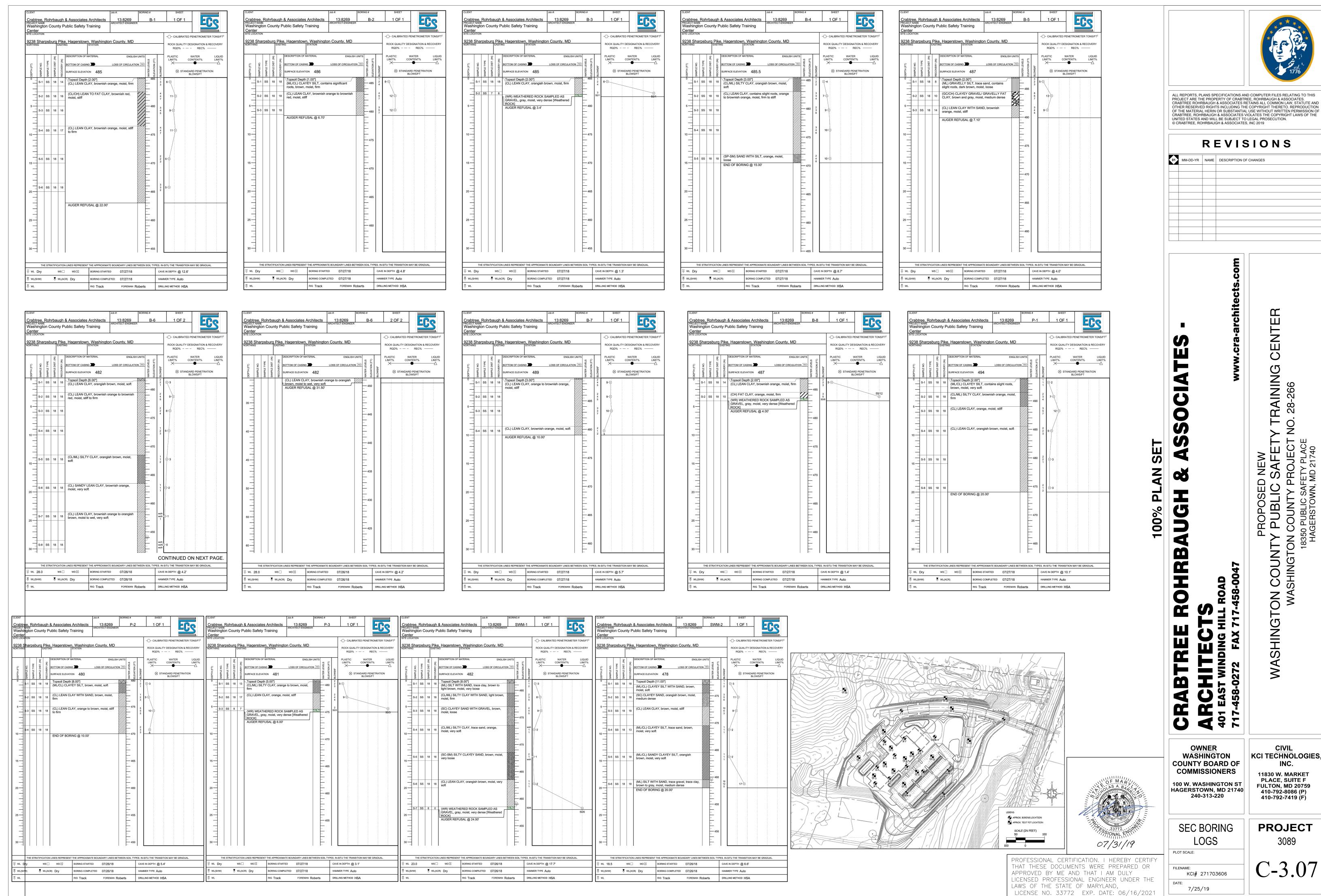
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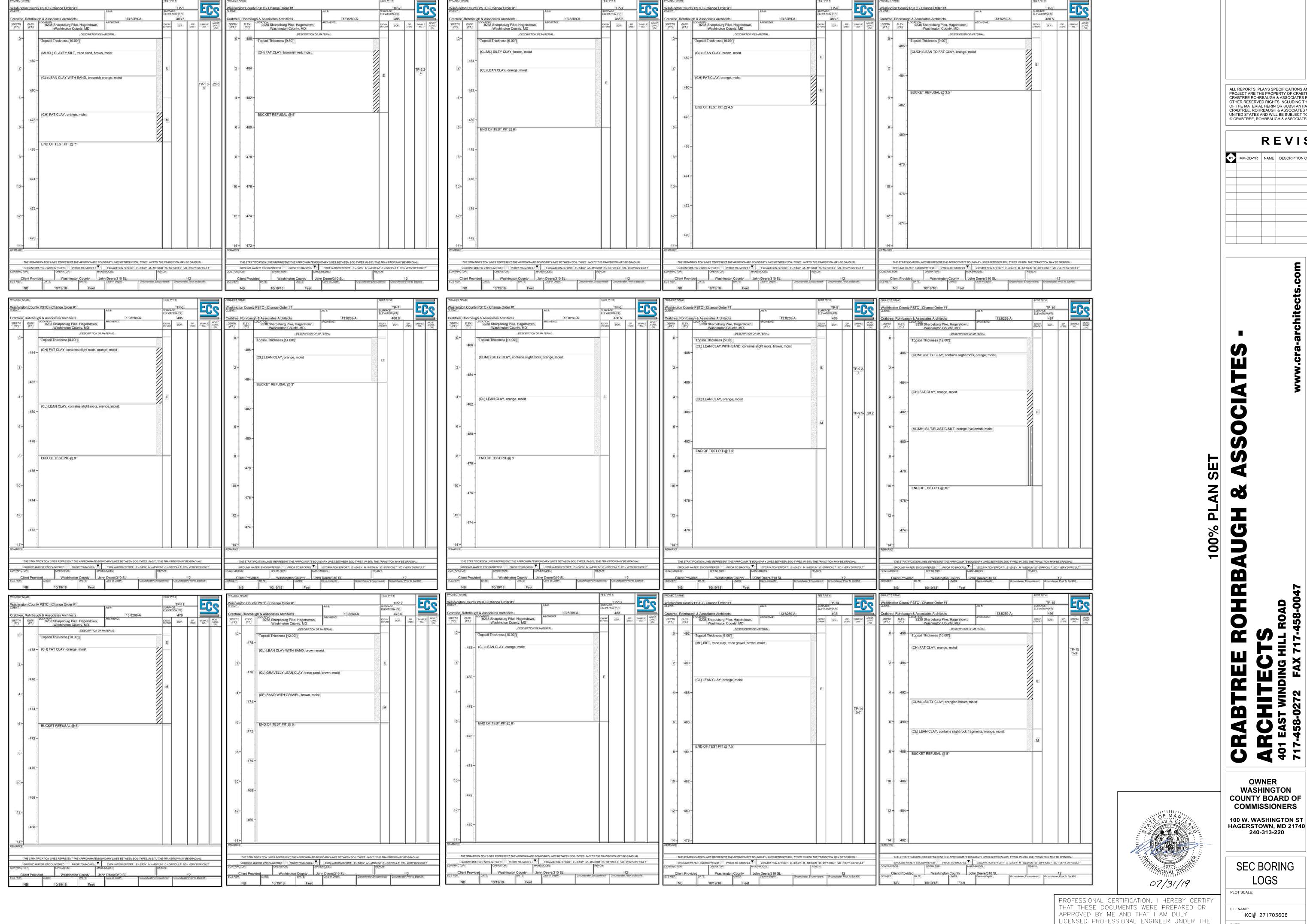
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