



# Public Notice

U.S. Army Corps  
of Engineers  
Baltimore District  
PN-18-35

In Reply to Application Number CENAB-2018-60478-P30  
(CL DPW/Eden Farm/Willow Pond)

Comment Period: June 20, 2018 to July 20, 2018

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**THE PURPOSE OF THIS PUBLIC NOTICE IS TO SOLICIT COMMENTS FROM THE PUBLIC REGARDING THE WORK DESCRIBED BELOW. NO DECISION HAS BEEN MADE AS TO WHETHER OR NOT A PERMIT WILL BE ISSUED AT THIS TIME.**

This District has received an application for a Department of the Army permit pursuant to Section 10 of the Rivers and Harbors Act of 1899 and/or Section 404 of the Clean Water Act (33 U.S.C. 1344) as described below:

**APPLICANT:** Gale Engles  
Carroll County Bureau of Resource Management  
225 North Center Street  
Westminster, Maryland 21157

**WATERWAY AND LOCATION OF THE PROPOSED WORK:** The project is located in non-tidal waters, including an unnamed tributary (UNT) to the West Branch North Branch Patapsco River (WBNBPR) and adjacent wetlands, in Westminster, Carroll County, Maryland.

**PROJECT WORK DESCRIPTION:** The applicant proposes, in accordance with the attached plans, to retrofit an existing stormwater management facility to meet state and county standards and to reconnect the UNT to WBNBPR to its floodplain. The facility is located near the Eden Farms subdivision, which is located near the intersection of Sunshine Way and Eden Farms Circle in Westminster, Carroll County, Maryland.

Components of the retrofit project will include the excavation and re-grading of the existing facility and adjacent wetlands; filling three existing stormwater basins; construction of a new embankment, weir system and spillway; and reconstruction of the existing UNT to WBNBPR to provide stream sinuosity and floodplain reconnection.

The proposed project will result in 2,112 linear feet of permanent stream impact; 84,901 square feet of permanent impact to palustrine emergent (PEM) wetland; 40,684 square feet of permanent palustrine scrub-shrub (PSS) wetland; and 1,360 square feet (0.03 acres) of permanent palustrine forested (PFO) wetlands. The applicant is proposing to off-set stream impacts with the relocation and reconstruction of the UNT to WBNBPR. To off-set the permanent wetland impacts, the applicant proposes to pay a fee into an in lieu fee program.

The applicant has stated they have avoided and minimized impacts to aquatic resources to the maximum extent. No other pond location would allow for water quality improvements to this watershed. The pond must be deepened and increased in size to increase the capacity of the facility and treat stormwater to improve water quality.



Excavated material will be disposed of at an off-site fill location.

All work will be completed in accordance with the enclosed plan(s). If you have any questions concerning this matter, please contact Mr. Shawn Gill at [shawn.r.gill@usace.army.mil](mailto:shawn.r.gill@usace.army.mil), 570-835-4263 or U.S. Army Corps of Engineers, Baltimore District, Tioga Regulatory Field Office, 710 Ives Run Lane, Tioga, PA 16946.

The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit, which reasonable may be expected to accrue from the proposal, must be balanced against its reasonably foreseeable detriments. All factors, which may be relevant to the proposal will be considered, including the cumulative effects thereof; among those are conservation, economic, aesthetics, general environmental concerns, wetlands, cultural values, fish and wildlife values, flood hazards, flood plain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, and consideration of property ownership and in general, the needs and welfare of the people.

The Corps of Engineers is soliciting comments from the public; federal, state, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments provided will become part of the public record for this action. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity. Written comments concerning the work described above related to the factors listed above or other pertinent factors must be received by the District Engineer, U.S. Army Corps of Engineers, Baltimore District, Tioga Regulatory Field Office, 710 Ives Run Lane, Tioga, Pennsylvania 16946, within the comment period specified above.

**ESSENTIAL FISH HABITAT:** The Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 04-267), requires all federal agencies to consult with the National Marine Fisheries Service on all actions, or proposed actions, permitted, funded, or undertaken by the agency that may adversely effect Essential Fish Habitat. The Corps has determined this project will not affect any Essential Fish Habitat.

**WATER QUALITY CERTIFICATION:** The applicant is required to obtain a water quality certification in accordance with Section 401 of the Clean Water Act from the Maryland Department of the Environment. Any written comments concerning the work described above which relate to



water quality certification must be received by the Wetlands and Waterways Program, Maryland Department of the Environment, Montgomery Park Business Center, 1800 Washington Boulevard, Suite 430, Baltimore, Maryland 21230-1708 within the comment period as specified above to receive consideration. The Section 401 certifying agency has a statutory limit of one year from the date of this public notice to make its decision.

**COASTAL ZONE MANAGEMENT PROGRAMS:** Where applicable, the applicant has certified in this application that the proposed activity complies with and will be conducted in a manner consistent with the approved Coastal Zone Management Program. By this public notice, we are requesting the state concurrence or objection to the applicant's consistency statement. It should be noted that the Coastal Zone Management Program has a statutory limit of 6 months to make its consistency determination.

The applicant must obtain any state or local government permits which may be required.

A preliminary review of this application indicates that the proposed work could potentially affect federal listed threatened or endangered species or their critical habitat, pursuant to Section 7 of the Endangered Species Act, as amended. As the evaluation of this application continues, additional information may become available which could modify this preliminary determination.

Review of the latest published version of the National Register of Historic Places indicates that no registered properties listed as eligible for inclusion, therein, are located at the site of the proposed work. Currently unknown archeological, scientific, prehistoric, or historical data may be lost or destroyed by the work to be accomplished under the request permit.

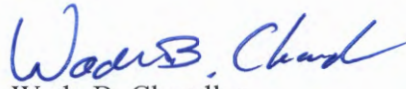
The evaluation of the impact of this project on the public interest will include application of the guidelines promulgated by the Administrator, U.S. Environmental Protection Agency, under authority of Section 404 of the Clean Water Act.

Any person who has an interest which may be adversely affected by the issuance of this permit may request a public hearing. The request, which must be in writing, must be received by the District Engineer, U.S. Army Corps of Engineers, Tioga Regulatory Field Office, 710 Ives Run Lane, Tioga, Pennsylvania 16946, within the comment period as specified above to receive consideration. Also it must clearly set forth the interest which may be adversely affected by this activity and the manner in which the interest may be adversely affected.

It is requested that you communicate this information concerning the proposed work to any persons know by you to be interested and not being known to this office, who did not receive a copy of this notice.



FOR THE DISTRICT ENGINEER:



Wade B. Chandler  
Chief, Pennsylvania Section  
Regulatory Branch



PLOTTED: Thursday, March 22, 2018 AT 10:46 PM  
 PLOTTER: HP DesignJet T1100E

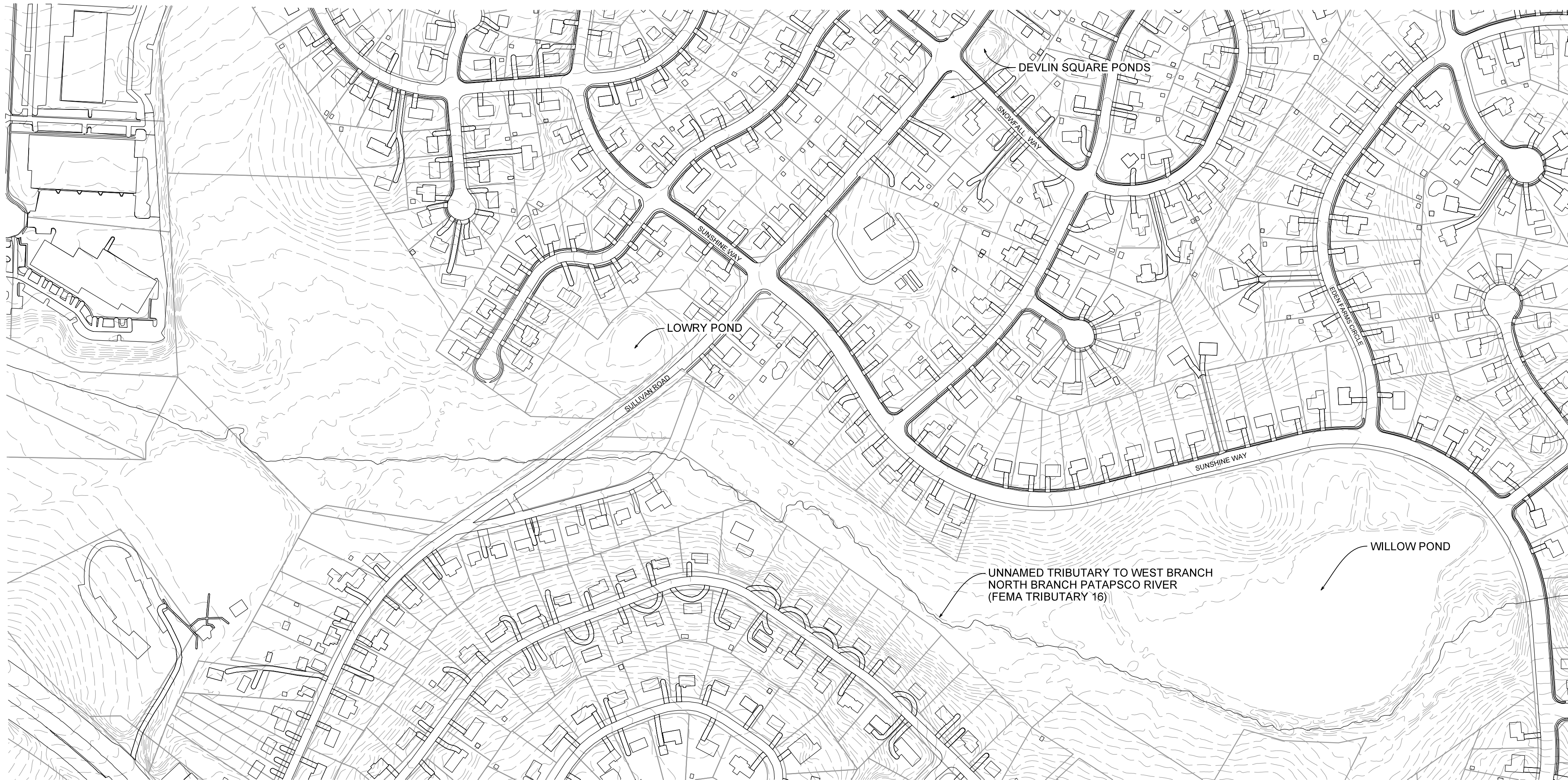
# CONSTRUCTION PLANS

for

# WILLOW POND WATERSHED

# IMPROVEMENTS

7th ELECTION DISTRICT \* CARROLL COUNTY, MD.



## LOCATION MAP

SCALE: 1"= 200'

## PROJECT CERTIFICATIONS

**OWNER / DEVELOPER**  
COMMISSIONERS OF CARROLL COUNTY  
225 NORTH CENTER STREET  
WESTMINSTER, MD 21157  
PHONE #: 410-386-2043



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

DATE: \_\_\_\_\_

ENGINEER

I CERTIFY THAT THIS PLAN OF SEDIMENT CONTROL IS DESIGNED  
WITH MY PERSONAL KNOWLEDGE OF THE SITE CONDITION AND  
HAS BEEN DESIGNED TO THE STANDARDS AND SPECIFICATIONS  
ADOPTED BY THE CARROLL SOIL CONSERVATION DISTRICT.

<NAME>  
Professional Engineer Registration No. XXXX

Date \_\_\_\_\_

DEVELOPER

I CERTIFY THAT THIS PLAN OF SEDIMENT CONTROL WILL BE IMPLEMENTED  
TO THE FULLEST EXTENT, AND ALL STRUCTURES WILL BE INSTALLED TO THE  
DESIGN AND SPECIFICATIONS AS SPELLED OUT IN THIS PLAN, AND THAT ANY  
RESPONSIBLE PERSONNEL INVOLVED IN THIS CONSTRUCTION PROJECT WILL HAVE  
A CERTIFICATION OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT  
APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION  
BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE  
EVALUATION BY THE CARROLL SOIL CONSERVATION DISTRICT PERSONNEL AND  
COOPERATING AGENCIES.

DEVELOPER

DATE \_\_\_\_\_

OWNERS CERTIFICATION

I/WE HEREBY CERTIFY THAT ALL PROPOSED  
WORK SHOWN ON THESE CONSTRUCTION  
DRAWING(S) HAS BEEN REVIEWED BY ME/US  
AND THAT I/WE FULLY UNDERSTAND WHAT IS  
NECESSARY TO ACCOMPLISH THIS WORK AND  
THAT THE WORK WILL BE CONDUCTED IN STRICT  
ACCORDANCE WITH THESE PLANS. I/WE ALSO  
UNDERSTAND THAT ANY CHANGES TO THESE PLANS  
WILL REQUIRE AN AMENDED PLAN TO BE  
REVIEWED AND APPROVED BY THE CARROLL COUNTY  
PLANNING AND ZONING COMMISSION BEFORE  
ANY CHANGE IN THE WORK IS MADE.

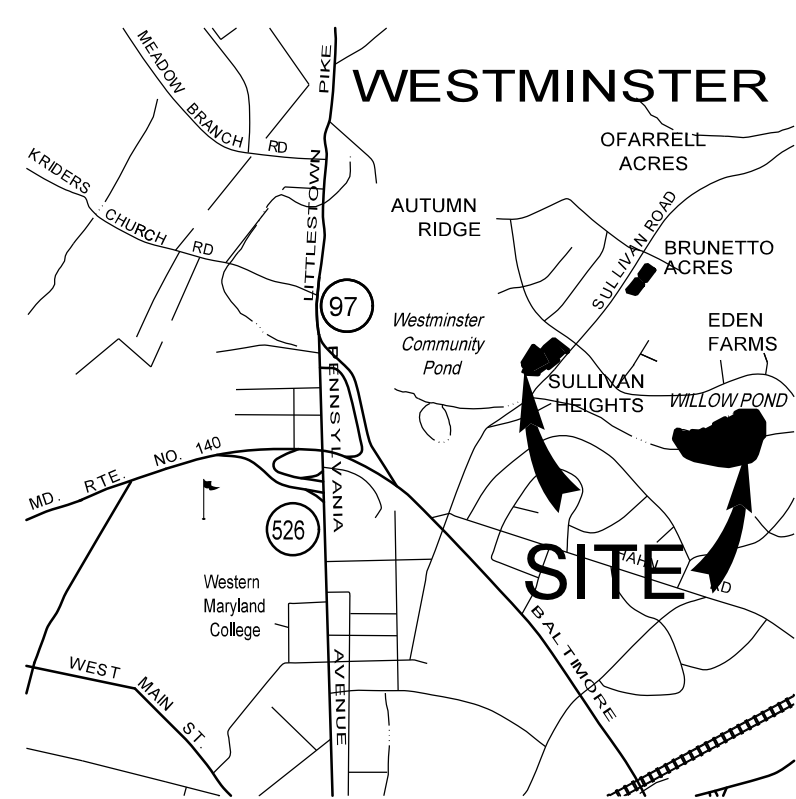
OWNER

DATE \_\_\_\_\_

Revisions

## VICINITY MAP

SCALE: 1" = 2000'



## LIST OF DRAWINGS

SHEET NO.	SHEET TITLE
1	TITLE SHEET
2	GENERAL NOTES/KEY SHEET
3	STORMWATER MANAGEMENT PLAN
4	STORMWATER MANAGEMENT PLAN
5	STORMWATER MANAGEMENT PLAN
6	STORMWATER MANAGEMENT DETAILS
7	STORMWATER MANAGEMENT DETAILS
8	STORMWATER MANAGEMENT DETAILS
9	STORMWATER MANAGEMENT DETAILS
10	STORMWATER MANAGEMENT DETAILS
11	STORMWATER MANAGEMENT DETAILS
12	STORMWATER MANAGEMENT DETAILS
13	STORMWATER MANAGEMENT DETAILS
14	MAINTENANCE OF TRAFFIC PLAN
13	MAINTENANCE OF TRAFFIC PLAN
13	EROSION AND SEDIMENT CONTROL PLAN
14	EROSION AND SEDIMENT CONTROL PLAN
15	EROSION AND SEDIMENT CONTROL PLAN
16	EROSION AND SEDIMENT CONTROL PLAN
17	EROSION AND SEDIMENT CONTROL PLAN
18	EROSION AND SEDIMENT CONTROL PLAN
19	EROSION AND SEDIMENT CONTROL PLAN
20	EROSION AND SEDIMENT CONTROL PLAN
21	EROSION AND SEDIMENT CONTROL DETAILS
22	EROSION AND SEDIMENT CONTROL DETAILS
23	STREAM PROFILE
24	STREAM PROFILE
25	STORM DRAIN DRAINAGE PROFILES
26	STORM DRAIN DRAINAGE PROFILES
27	STORM DRAIN DRAINAGE PROFILES
28	STORM DRAIN DRAINAGE PROFILES
29	LANDSCAPE PLAN
30	LANDSCAPE DETAILS

## BENCHMARKS:

B.M.#1: N: 701473.3128, E: 1314553.7192, EL. 708.94  
TRAVERSE NAIL FOUND, PT#: TC2  
B.M.#2: N: 701601.7179, E: 1315009.4502  
TRAVERSE NAIL SET, PT#: TC38

REVISIONS		
#	DATE	REVISIONS

<ENGINEER NAME>

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED OR  
APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF  
THE STATE OF MARYLAND, LICENSE NO. 23427, EXPIRATION DATE: DEC. 31, 2014.

CARROLL COUNTY DEPARTMENT OF PUBLIC WORKS FOR BUREAU OF ENGINEERING

DATE: \_\_\_\_\_

CARROLL COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF UTILITIES

DATE: \_\_\_\_\_

## CARROLL COUNTY, MARYLAND

WILLOW POND WATERSHED IMPROVEMENTS

## TITLE SHEET

Drawn By : JG

Contract No : 75-F-9-1516

Designed By : BM

Scale : AS SHOWN

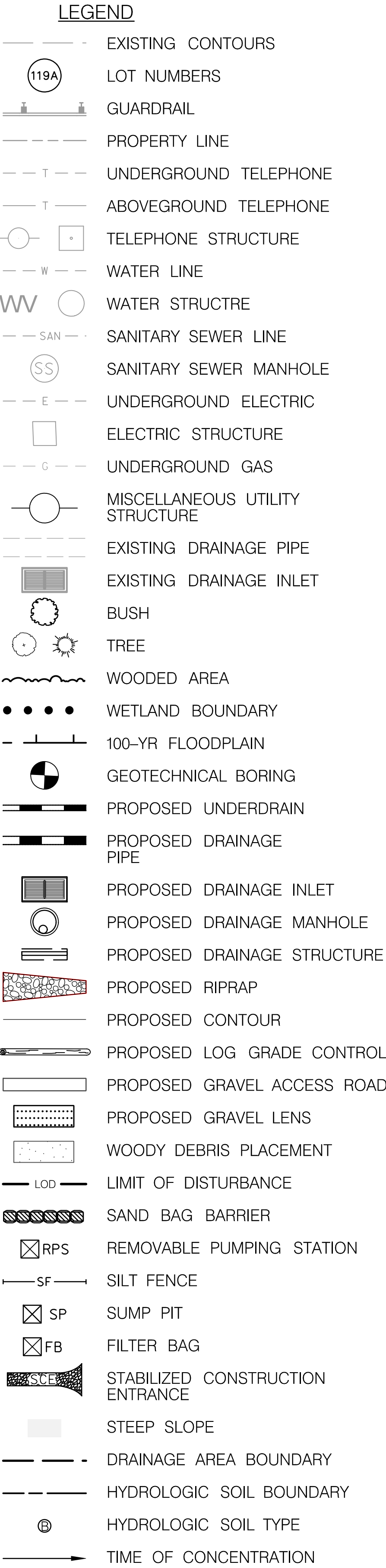
Reviewed By : LT

Sheet 1 Of 30

Date : MARCH 2018



EXISTING ZONING: R-10,000 AND CONSERVATION  
2. TOTAL AREA OF SITE: XXX AC.  
3. TOTAL DEVELOPED AREA: XXX S.F.  
4. THE PROPERTY SHOWN HEREON IS OWNED BY:  
PHASE III-A  
PARCEL: E (16.5824 AC.)  
OWNER: CITY OF WESTMINSTER  
DEED REFERENCE: L 732 F. 452  
DATE: JANUARY 31, 1979  
GRANTORS: HOMERIDGE CONSTRUCTION COMPANY, INC. & KEY WEST FINANCIAL CORPORATION  
PARCEL: B (0.6853 AC.)  
OWNER: COMMISSIONERS OF CARROLL COUNTY  
DEED REFERENCE: L 4096, F. 489  
DATE: AUGUST 10, 2004  
GRANTOR: B H H D CORPORATION  
PARCEL: A (1.45 AC.)  
OWNER: COMMISSIONERS OF CARROLL COUNTY  
DEED REFERENCE: L 5582, F. 410  
DATE: JULY 24, 2008  
GRANTOR: B H H D CORPORATION  
PHASE III-B  
PARCELS: B & C  
OWNER: COMMISSIONERS OF CARROLL COUNTY  
DEED REFERENCE: RD BK: 009, PG. 001  
DATE: NOVEMBER 25, 1968  
GRANTOR: REISTERSTOWN FARMER SAVINGS AND LOAN ASSOCIATES  
5. TAX MAP: 39 & 38, BLOCK: 13 & 06, PARCEL: 737 (E) 749 (A & B) & PARCEL 776 (B & C)  
6. TOPOGRAPHY SHOWN HEREON IS A COMBINATION OF CARROLL COUNTY GIS TOPOGRAPHY AND FIELD RUN TOPOGRAPHY PERFORMED BY CLSI IN JANUARY, 2012 AND BY CORNERSTONE IN AUGUST 2016.  
7. THIS SITE IS IN COMPLIANCE WITH THE CODE OF PUBLIC LOCAL LAWS & ORDINANCES OF CARROLL COUNTY AND THE CARROLL COUNTY FOREST CONSERVATION ORDINANCE.  
8. THE LOCATION OF EXISTING UTILITIES SHOWN HEREON ARE APPROXIMATE ONLY. CONTRACTOR SHALL VERIFY THE EXISTENCE, LOCATION, AND DEPTH OF ANY EXISTING UTILITIES AND SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO BEGINNING WORK.  
9. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 THREE (3) WORKING DAYS PRIOR TO BEGINNING ANY DIGGING AND TO THE VICINITY OF EXISTING UTILITIES.  
10. THE CONTRACTOR SHALL NOTE THAT IN CASE OF A DISCREPANCY BETWEEN THE SCALED AND FIGURED DIMENSIONS SHOWN ON THESE PLANS, THE FIGURED DIMENSIONS SHALL GOVERN.  
11. THIS CONTRACT WILL BE CONSTRUCTED UNDER PROVISIONS OF THE MD. DEPT. OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION (S.H.A.) "STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS," DATED JULY 2008, AND ALL SUBSEQUENT ADDENDA (THE MD SHA STD'S AND SPECIFICATIONS OF CARROLL COUNTY "DESIGN MANUAL FOR ROADS AND STORM DRAINS" DATED APRIL 14, 1994, AND ALL SUBSEQUENT ADDENDA AND THE "CARROLL COUNTY SUPPLEMENT TO THE 2000 MD SWMM DESIGN MANUAL VOLUMES 1 & II" DATED MAY 2010 AND ALL SUBSEQUENT ADDENDA (THE SUPPLEMENT), SHALL BE USED ONLY FOR ITEMS NOT IN THE MD SHA STD'S AND SPECS OR AS STATED IN THE SPECIAL PROVISIONS.  
12. REFERENCE MADE TO STANDARDS ARE TAKEN FROM THE MD. S.H.A. "BOOK OF STANDARDS - HIGHWAY AND STRUCTURAL STRUCTURES" AND FROM THE CARROLL COUNTY "DESIGN MANUAL FOR ROADS AND STORM DRAINS" DATED APRIL 14, 1994 AND THE "CARROLL COUNTY SUPPLEMENT TO THE 2000 MD SWMM DESIGN MANUAL VOLUMES 1 & II" DATED MAY 2010 AND ALL SUBSEQUENT ADDENDA (THE SUPPLEMENT). IT WILL BE THE CONTRACTOR'S RESPONSIBILITY THAT THE STANDARD DRAWINGS IN HIS POSSESSION ARE THE LATEST REVISED STANDARDS UP TO DATE, INCLUDING THE LATEST REVISIONS OF THE ADVERTISED STANDARD.  
13. THE CONTRACTOR SHALL TAKE CAUTION NOT TO DISTURB THE EXISTING VEGETATION OUTSIDE THE LIMITS OF CONSTRUCTION. SOIL STABILIZATION WILL CONFORM TO SOIL CONSERVATION SERVICE, 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL" PUBLISHED JOINTLY BY MARYLAND DEPARTMENT OF THE ENVIRONMENT, WATER MANAGEMENT ADMINISTRATION IN ASSOCIATION WITH NATURAL RESOURCES CONSERVATION SERVICE AND THE UNITED STATES DEPARTMENT OF AGRICULTURE.  
14. CLEARING TO BE LIMITED TO THE "LIMITS OF DISTURBANCE" AS SHOWN ON THE PLANS. GRADING SHALL BE DONE IN SUCH A MANNER AS TO PROVIDE POSITIVE DRAINAGE. CONTRACTOR TO SEED AND MULCH ALL DISTURBED AREAS EXCEPT WHERE OTHERWISE DIRECTED.  
15. IN CONSTRUCTION - ALL EXCESS SALVAGED MATERIALS INCLUDING EXCESS ROCK AND SOIL SHALL BECOME PROPERTY OF THE CONTRACTOR, AND DISPOSAL OF ANY SUCH MATERIALS WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.  
16. ALL PIPE CULVERTS, THEIR LOCATION, LENGTH AND INVERTS, SHALL BE DEFINITELY DETERMINED IN THE FIELD BEFORE ORDERING. EXCEPT WHERE SPECIFICALLY NOTED OTHERWISE, PIPE CULVERTS, INLETS AND HEADWALLS SHALL BE LAID ON A "MINIMUM FOUNDATION BEDDING COURSE OF MSHA NO. 57 AGGREGATE COMPACTED BY VIBRATOR  
17. CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE ENGINEER @ (410) 848-1790 IN THE EVENT OF ANY DISCREPANCIES IN THE PLANS OR IN THE RELATIONSHIPS OF FINISHED GRADES TO EXISTING GRADES PRIOR TO BEGINNING WORK.  
18. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF ALL TRAFFIC ON ANY EXISTING ROADS.  
19. IT SHALL BE DISTINCTLY UNDERSTOOD THAT FAILURE TO MENTION SPECIFICALLY ANY WORK WHICH WOULD NATURALLY BE REQUIRED TO COMPLETE THE PROJECT SHALL NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY TO PERFORM SUCH WORK.  
20. THE CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE (5) DAYS BEFORE STARTING WORK AS SHOWN ON THESE DRAWINGS:  
BALTIMORE GAS & ELECTRIC ..... 410-234-6313  
VERIZON ..... 410-879-5900  
21. ALL UTILITIES SHALL BE CLEARED BY A MINIMUM OF 4' ALL UTILITY POLES SHALL BE CLEARED BY A MINIMUM OF 2'-0" OR TUNNELED UNDER IF REQUIRED. COST FOR TUNNELING OR BRACING POLES SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR THE COMPLETE PROJECT.  
22. CONTRACTOR SHALL NOT INTERRUPT EXISTING UTILITY SERVICES WITHOUT WRITTEN PERMISSION FROM THE OWNER OF THE UTILITY.  
23. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MEASUREMENT DURING THE CONSTRUCTION OF THIS PROJECT ARE THE RESPONSIBILITY OF THE CONTRACTOR.  
24. THE HORIZONTAL CONTROL SHOWN HEREON IS BASED ON THE "MARYLAND COORDINATE SYSTEM" (NAD-83). THE VERTICAL CONTROL IS BASED ON "THE NORTH AMERICAN VERTICAL DATUM OF 1988" (NAVD-88).  
25. ALL CUT/FILL QUANTITIES AS SHOWN HEREON ARE FOR INFORMATIONAL PURPOSES ONLY AS REQUIRED BY THE SEDIMENT CONTROL AUTHORITY HAVING JURISDICTION. THE CONTRACTOR SHALL VERIFY SUCH CALCULATIONS TO HIS OWN SATISFACTION FOR CONTRACT BID PURPOSES.  
26. THIS PROJECT SHALL BE BID ON LUMP SUM BASIS AND WILL INCLUDE ALL MATERIALS, CONSTRUCTION, LABOR AND INCIDENTALS NECESSARY TO COMPLETE THE WORK SHOWN ON THE PLANS. ENGINEER IS RESPONSIBLE FOR CONSTRUCTION STAKE-OUT AND GEOTECHNICAL CONSTRUCTION INSPECTION. DESIGN ENGINEER SHALL SIGN AND DATE THE RELEVANT ITEMS ON THE SWMM CHECKLIST ARE INSPECTED AND SIGNED BY THE GEOTECHNICAL ENGINEER.  
27. CONTRACTOR WILL BE RESPONSIBLE TO CONTACT CERTIFYING ENGINEER PRIOR TO BEGINNING WORK. CONTRACTOR SHALL MAKE SURE ALL RELEVANT ITEMS ON THE SWMM CHECKLIST ARE INSPECTED AND SIGNED BY THE CERTIFYING ENGINEER AS COMPLETED. THE ENGINEER WILL BE RESPONSIBLE FOR SUBMITTING AS-BUILT PLANS TO THE COUNTY WITHIN 30 DAYS OF RECEIVING THE SIGNED SWMM CHECKLIST.  
28. FINAL PAYMENT TO THE CONTRACTOR WILL NOT BE MADE UNTIL THE INSPECTION CHART IS COMPLETE AND THE AS-BUILTS ARE SUBMITTED AND ACCEPTED BY CARROLL COUNTY BUREAU OF RESOURCE MANAGEMENT.  
29. UNSUITABLE MATERIAL BELOW THE SPECIFIED SECTION SHALL BE REMOVED AND REPLACED AS CLASS -1A EXCAVATION PER MD STANDARD SECTION 201.03.09. NO PAYMENT SHALL BE MADE FOR THIS EXCAVATION OR FOR ADDITIONAL TO THE GRADING AND FILLING OPERATION.  
30. IF ROCK IS ENCOUNTERED, COUNTY AND CONTRACTOR SHALL JOINTLY DETERMINE WHEN ROCK IS RIPRAPABLE OR BLASTING IS REQUIRED. THE CONTRACTOR SHALL BID A CONTINGENCY ITEM FOR 1000 CUBIC YARDS OF BLASTING AND REMOVAL OF NON-RIPRAPABLE ROCK, PERFORMED IN ACCORDANCE WITH MDOT SHA STANDARDS AND SPECIFICATIONS TC-6.07. BLASTING AND REMOVAL OF NON-RIPRAPABLE ROCK IS NECESSARY SHALL BE PAID FOR ON A PER CUBIC YARD BASIS. ALL RIPRAPABLE ROCK SHALL BE REMOVED AND DEPOSITED AT THE SITE OF NORMAL EXCAVATION, AND INCLUDED IN THE LUMP SUM BID.  
31. IN ACCORDANCE WITH SECTIONS 19-21 & 22 OF THE CARROLL COUNTY CODE OF PUBLIC LOCAL LAWS AND ORDINANCES, AS PART OF THE DESIGN CONTRACT, THE DESIGN ENGINEER HAS BEEN HIRED TO PERFORM THOSE CONSTRUCTION INSPECTIONS NOTED ON THE PLANS, AND TO PREPARE AND CERTIFY THE AS-BUILT DRAWINGS. UNLESS PRIOR WRITTEN PERMISSION IS OBTAINED, THE CONTRACTOR MUST OBTAIN THE DESIGN ENGINEER TO PERFORM CONSTRUCTION STAKEOUT EXISTING SWM PONDS SHALL BE FILLED WITH COMMON BORROW WITH A UNIFIED SOILS CLASSIFICATION OF GW, GP, GM, GC, SW, SP, SM, SC, ML, OR CL. FILL SHOULD BE COMPACTED TO AT LEAST 92 PERCENT OF THE MODIFIED PROCTOR OPTIMUM MAXIMUM DRY DENSITY.



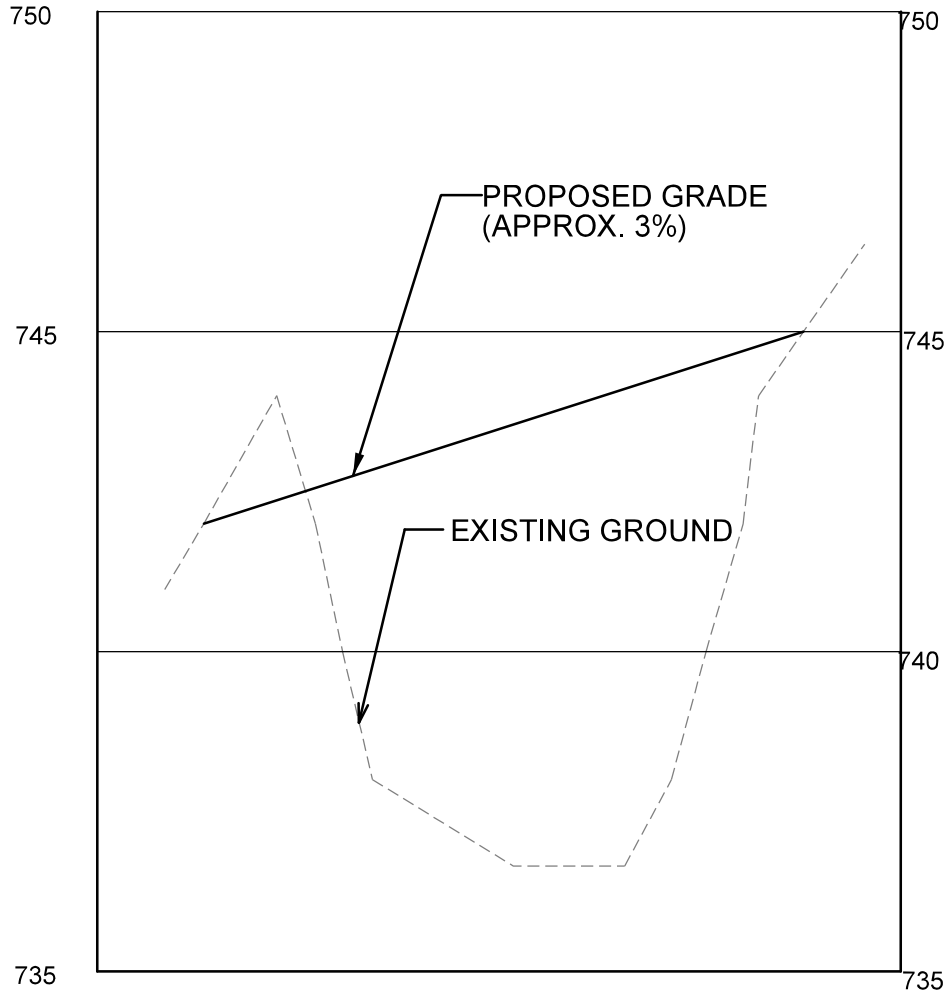
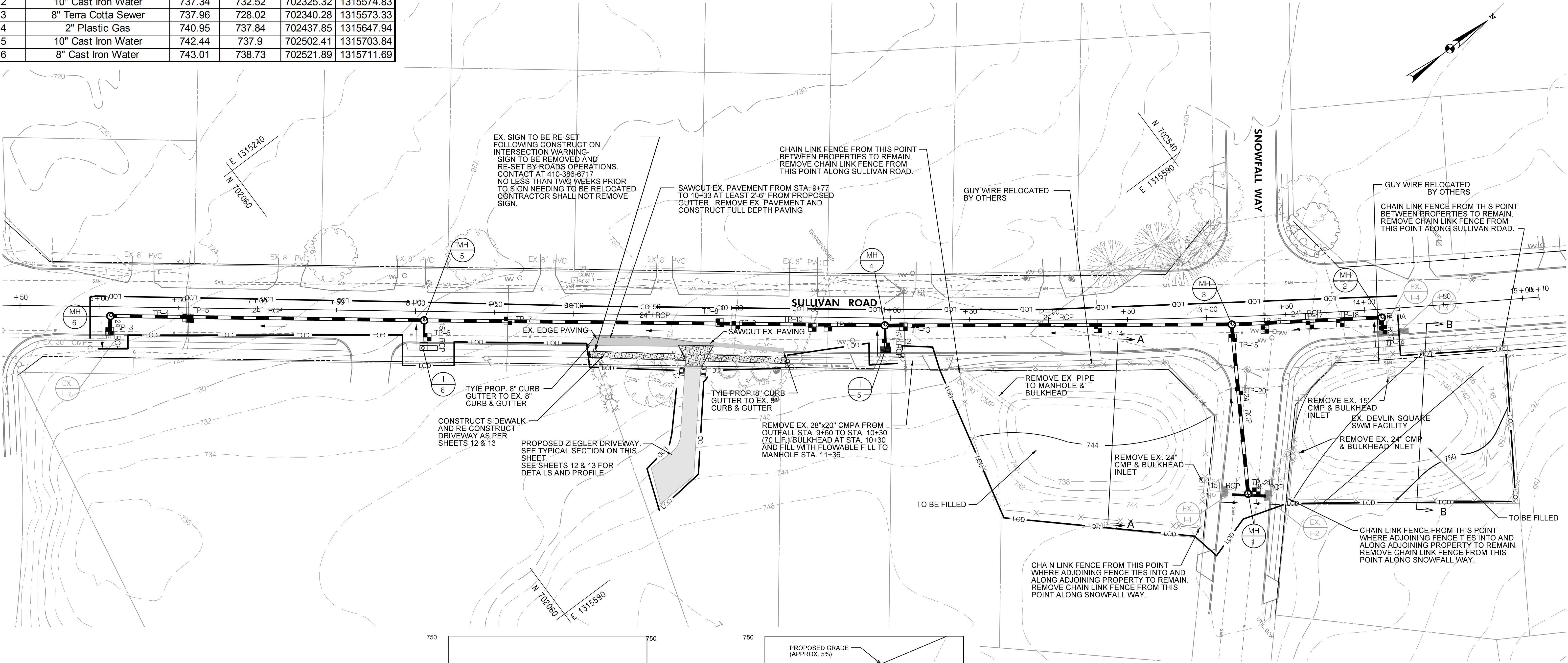
SCALE: 1"= 200'

Revisions	<h1 style="text-align: center;">CARROLL COUNTY, MARYLAND</h1> <h2 style="text-align: center;">WILLOW POND WATERSHED IMPROVEMENTS</h2> <h3 style="text-align: center;">GENERAL NOTES/KEY SHEET</h3>	
	Drawn By : <u>          JG          </u> Designed By : <u>         BM         </u> Reviewed By : <u>         LT         </u>	Contract No : <u>         75-F-9-1516         </u> Scale : <u>  1"=200'  </u> Sheet <u>  2  </u> Of <u>  30  </u> Date : <u>  MARCH 2018  </u>

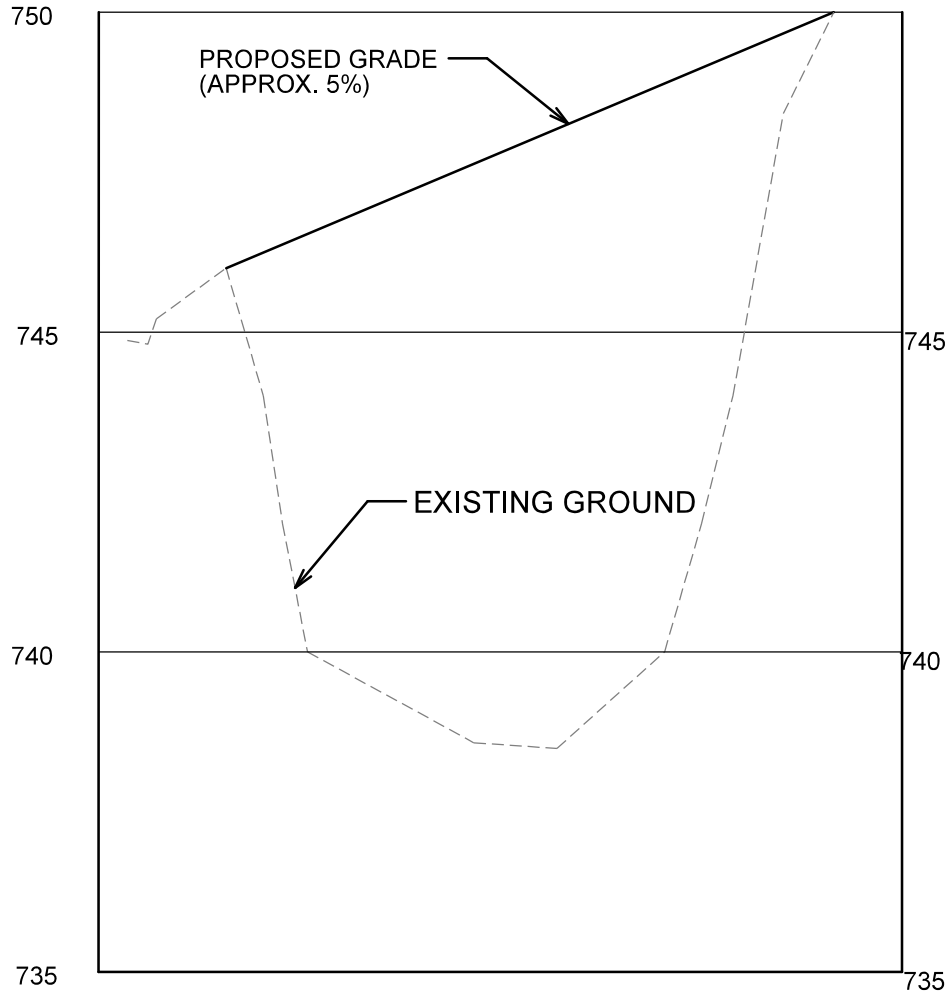


Test Pit	Utility Type	Ground Elevation	Top of Utility Elevation	Coordinates	
				North	East
6	10" Cast Iron Water	730.38	725.88	702095.52	1315398.16
7	8" Plastic Sewer	731.61	722.51	702142.49	1315420.37
8	Sewer not found- Depth of pit = 7.88'			702248.92	1315501.61
9	(2) 1/2" Electric Cables	735.22	731.91	702256.07	1315508.84
10	(2) 1/2" Electric Cables (2) 1/2" Communication Cables	736.45	732.81	702293.92	1315539.19
11	1/2" Plastic Gas	736.66	733.54	702301.94	1315545.09
12	10" Cast Iron Water	737.34	732.52	702325.32	1315574.83
13	8" Terra Cotta Sewer	737.96	728.02	702340.28	1315573.33
14	2" Plastic Gas	740.95	737.84	702437.85	1315647.94
15	10" Cast Iron Water	742.44	737.9	702502.41	1315703.84
16	8" Cast Iron Water	743.01	738.73	702521.89	1315711.69

Test Pit	Utility Type	Ground Elevation	Top of Utility Elevation	Coordinates	
				North	East
17	2" Plastic Gas	743.51	741.71	702546.41	1315726.42
18	1/2" Plastic Communication	743.94	739.96	702562.54	1315737.15
19	1" Unknown Cable	744.35	741.42	702583.24	1315754.19
19A	10" Cast Iron Water	744.73	740.63	702581.27	1315756.89
20	4" Plastic Communication	742.64	738.94	702485.49	1315732.91
20	3" Plastic Electric	742.64	738.86	702485.49	1315732.91
21	10" Ductile Iron Water	744.18	739.92	702456.22	1315790.47



SECTION A-A  
1"=30'H 1"=3'V



SECTION B-B  
1"=30'H 1"=3'V

OWNER / DEVELOPER  
COUNTY COMMISSIONERS  
OF CARROLL COUNTY  
225 NORTH CENTER STREET  
WESTMINSTER, MD 21157  
PHONE #: 410-386-2043

30' 0 30' 60'  
SCALE: 1"=30'

Revisions

# CARROLL COUNTY, MARYLAND

## WILLOW POND WATERSHED IMPROVEMENTS

### STORMWATER MANAGEMENT PLAN

Drawn By : JG

Designed By : BM

Reviewed By : LT

Contract No : 75-F-9-1516

Scale : 1"=30'

Sheet 3 Of 30

Date : MARCH 2018

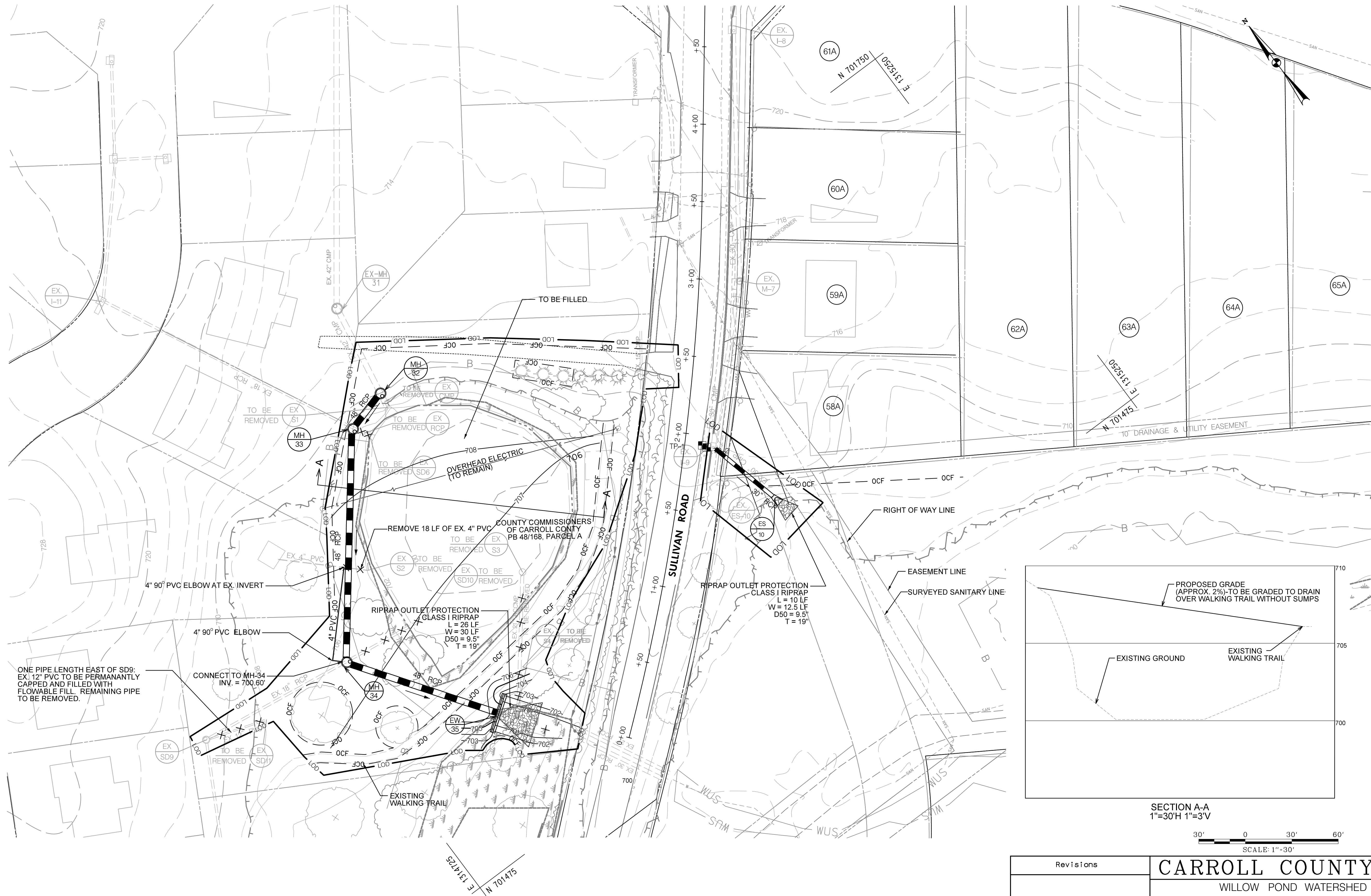


PLOTTED: Thursday, March 22, 2018 AT 10:42 PM  
PLOTTER: HP DesignJet 2400 Plotter  
PLOT FILE: C:\Users\jshelton\OneDrive\Documents\2400 Plot\Shelton\SDM-P102\_MW.mxd Print-04.dgn



**Rummel, Klepper & Kahl, LLP**  
700 EAST PRATT STREET BALTIMORE, MD 21202  
Ph: (410) 728-2300 FAX: (410) 728-3160

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SECTION A-A  
1"=30'H 1"=3'V

30' 0 30' 60'  
SCALE: 1"=30'

Revisions

## CARROLL COUNTY, MARYLAND

WILLOW POND WATERSHED IMPROVEMENTS

### STORMWATER MANAGEMENT PLAN

Drawn By : JG

Contract No : 75-F-9-1516

Designed By : BM

Scale : 1"=30'

Reviewed By : LT

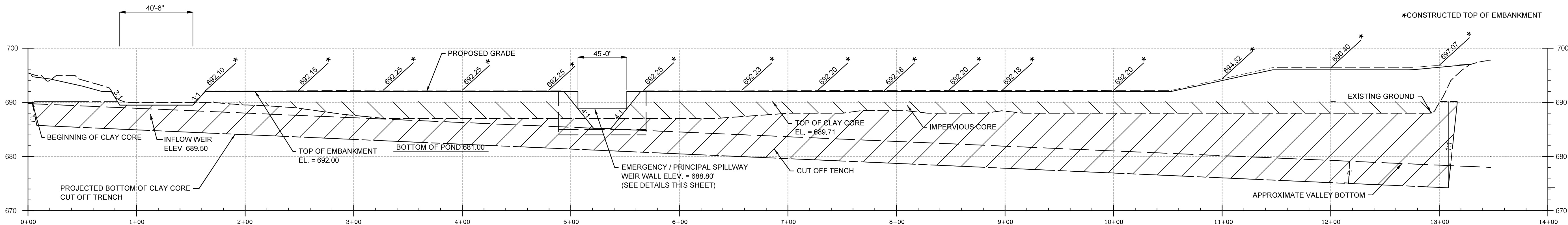
Sheet 4 Of 30

Date : MARCH 2018



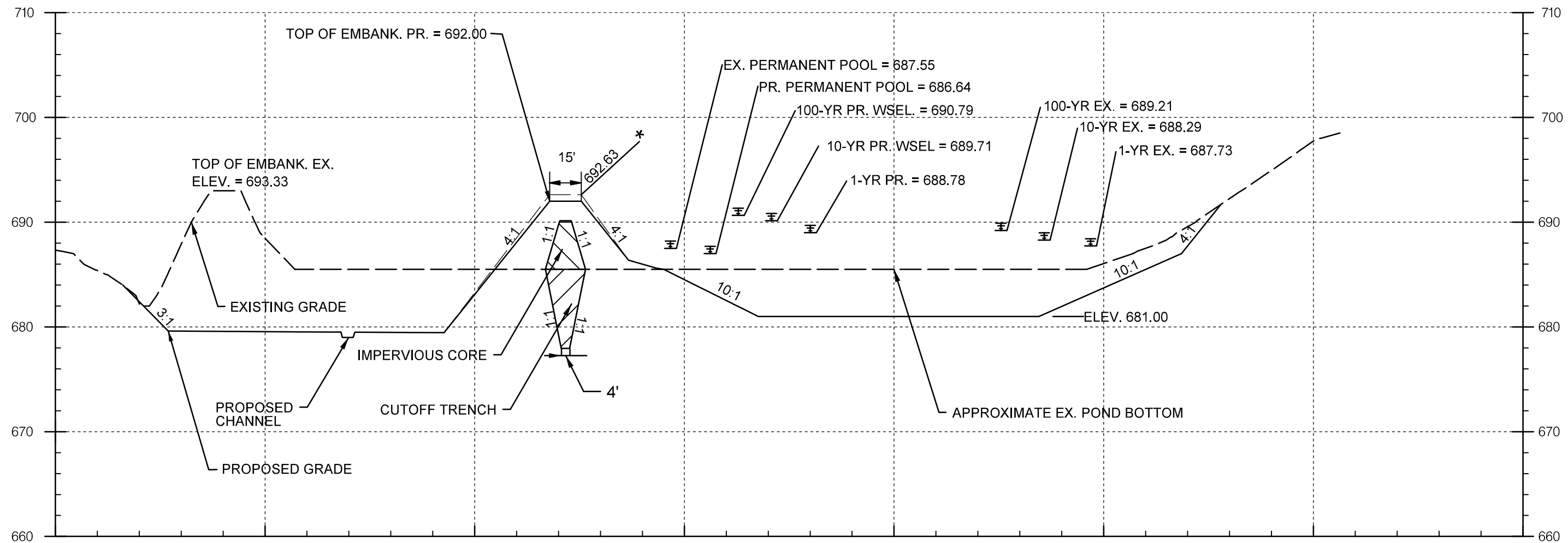






PROFILE ALONG CENTERLINE OF EMBANKMENT AND SPILLWAY

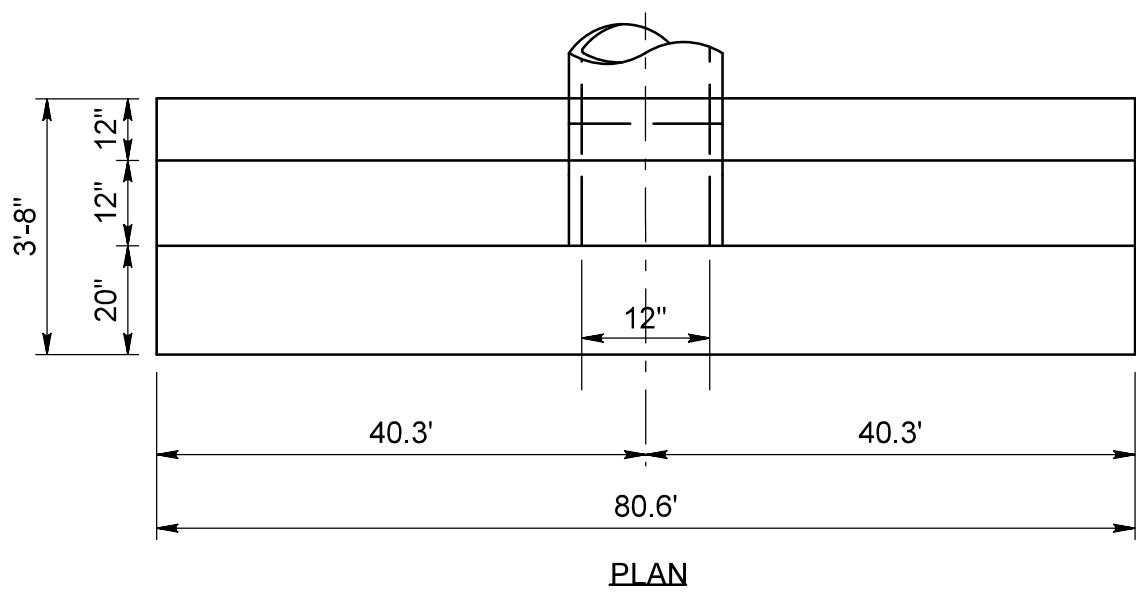
HORIZ. SCALE: 1"=50'  
VERT. SCALE: 1"=10'



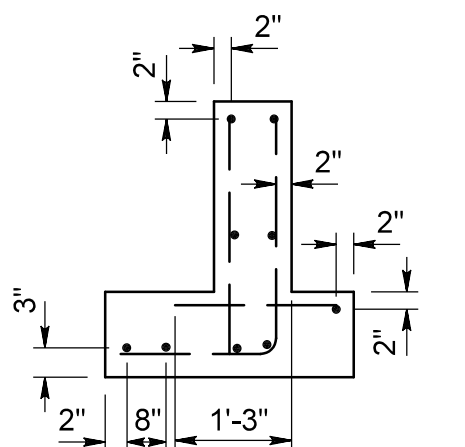
SECTION A-A

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VERT. SCALE: 1"=10'

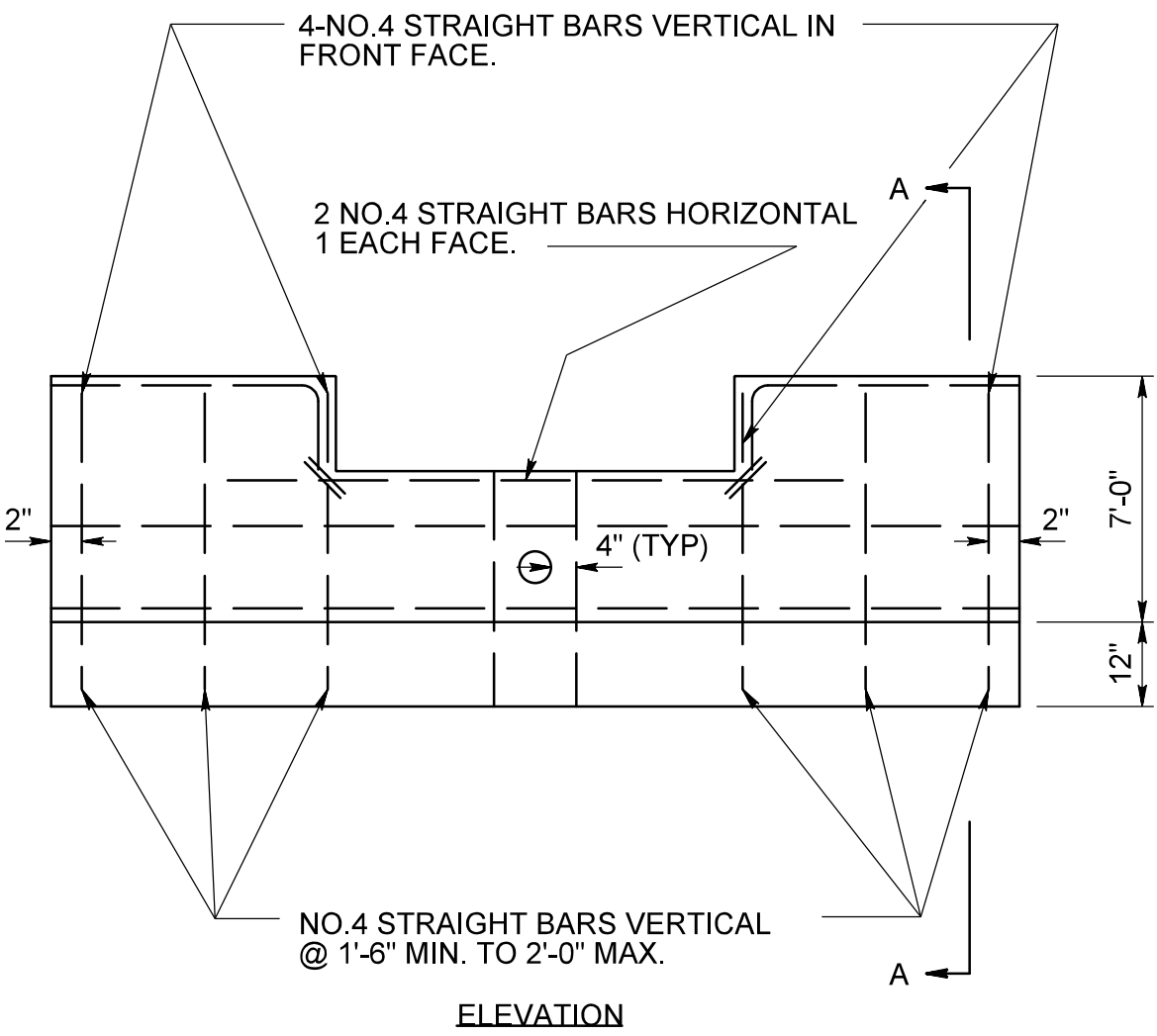
NOTE:  
FOR PLAN VIEW LOCATION,  
SEE SHEET 5



PLAN



DISPOSITION OF BARS DETAIL



ELEVATION

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

NO.4 BENT BARS  
@ 1'-0" C/C.

NO.4 STRAIGHT BARS  
HORIZONTAL @ 1'-0"  
C/C.

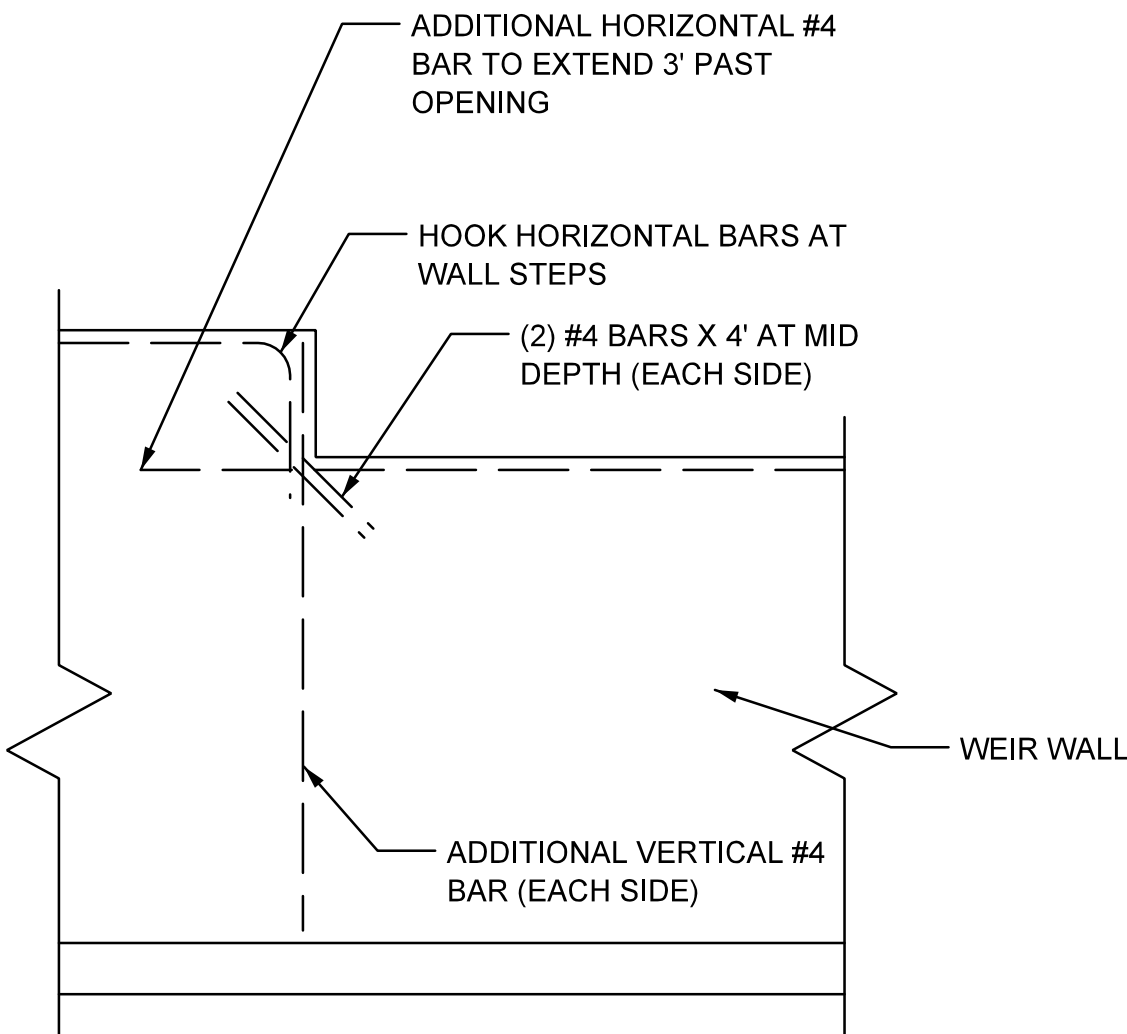
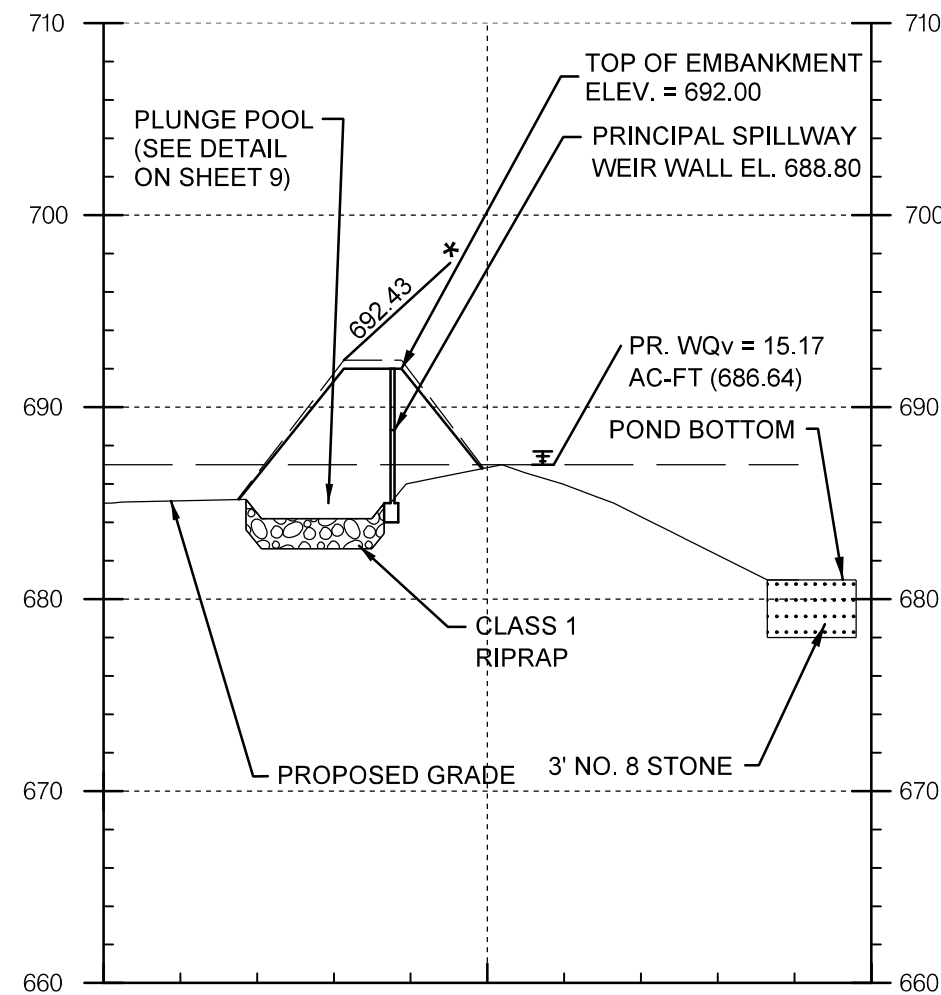
1-NO.4 STRAIGHT  
BAR HORIZONTAL.

2-NO.4 STRAIGHT BARS  
HORIZONTAL.

SECTION A-A

PROFILE ALONG CENTERLINE OF  
EMERGENCY / PRINCIPAL SPILLWAY WEIR  
WALL - WILLOW POND

HORIZ. SCALE: 1"=50'  
VERT. SCALE: 1"=10'



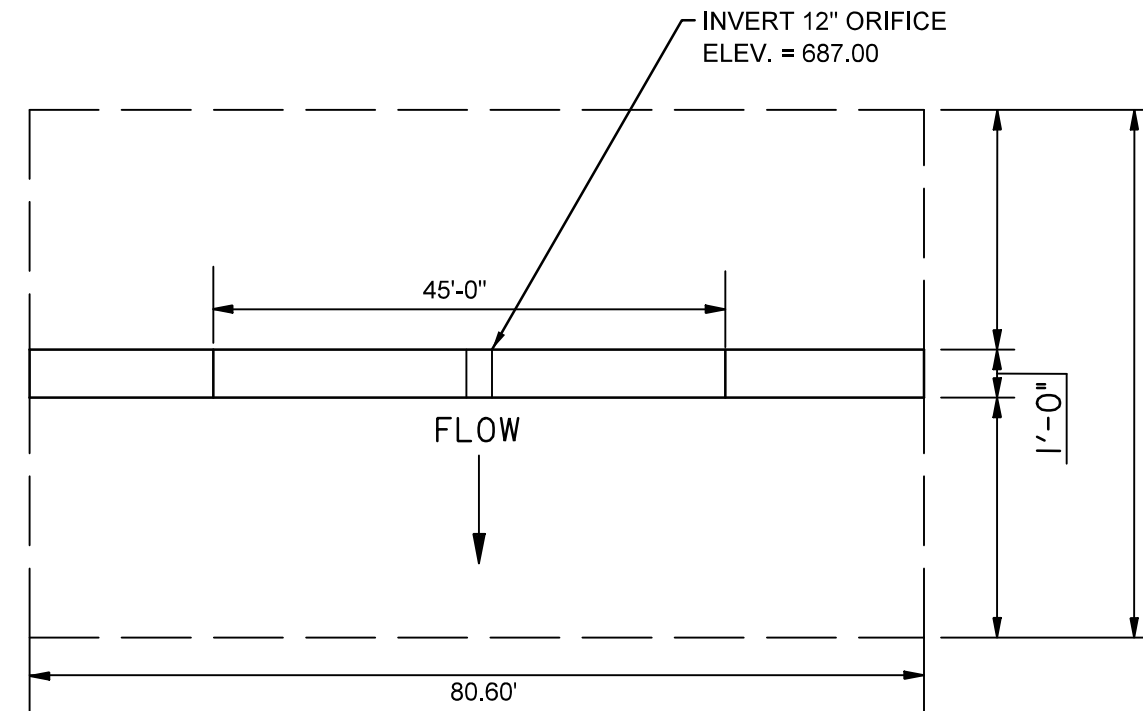
GENERAL NOTES

SPECIFICATIONS: 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

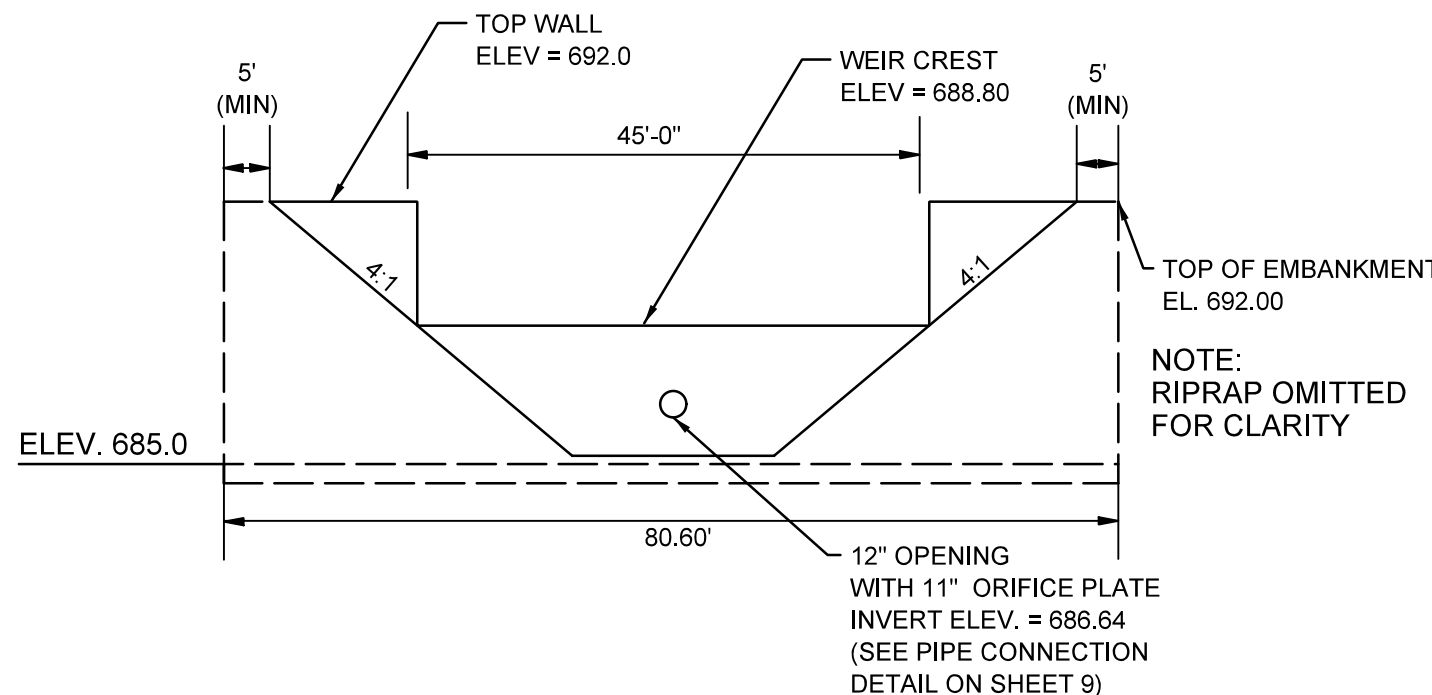
NOTES FOR CORE AND CUT-OFF TRENCH

1. CORE TRENCH AND CUT-OFF TRENCH ARE TO BE CONSTRUCTED WITH FILL MATERIAL THAT CONFORMS TO UNIFIED SOIL CLASSIFICATION CL OR CH AND MUST HAVE AT LEAST 30% MATERIAL PASSING #200 SIEVE. THIS MATERIAL MUST BE APPROVED BY GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT.

2. CUT-OFF TRENCH TIES INTO BOTTOM OF WEIR WALL FOOTER ON BOTH SIDES OF WEIR WALL. CUT-OFF TRENCH STARTS AT TOP OF FOOTER THROUGH WEIR WALL. THE INSTALLATION OF THE CORE TRENCH, CUT-OFF TRENCH IS TO BE UNDER THE SUPERVISION OF GEOTECHNICAL ENGINEER. ACTUAL DEPTHS AND THICKNESS MAY VARY AS DETERMINED BY THE GEOTECHNICAL ENGINEER IN THE FIELD.



PLAN VIEW



PROFILE VIEW

EMERGENCY/PRINCIPAL SPILLWAY WEIR WALL DETAIL  
NOT TO SCALE

Revisions

CARROLL COUNTY, MARYLAND

WILLOW POND WATERSHED IMPROVEMENTS

STORMWATER MANAGEMENT DETAILS

Drawn By : JG

Contract No : 75-F-9-1516

Designed By : BM

Scale : NOT TO SCALE

Reviewed By : LT

Sheet 6 Of 30

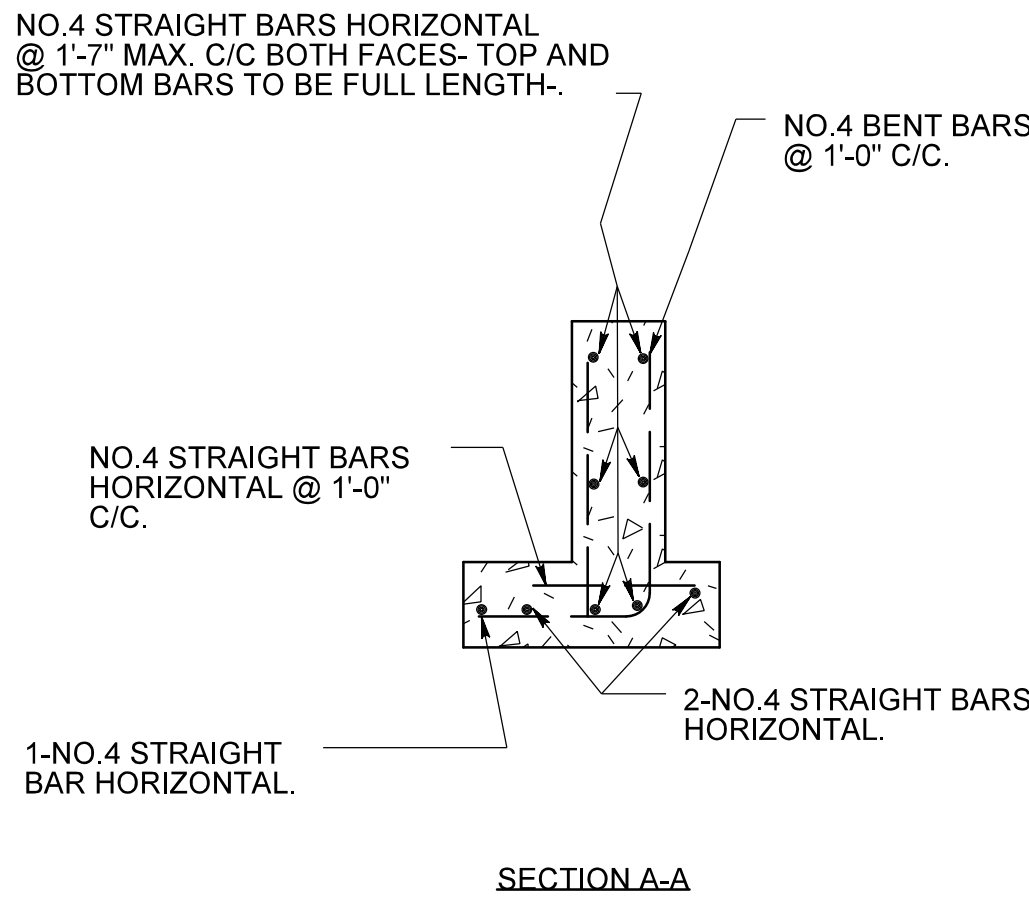
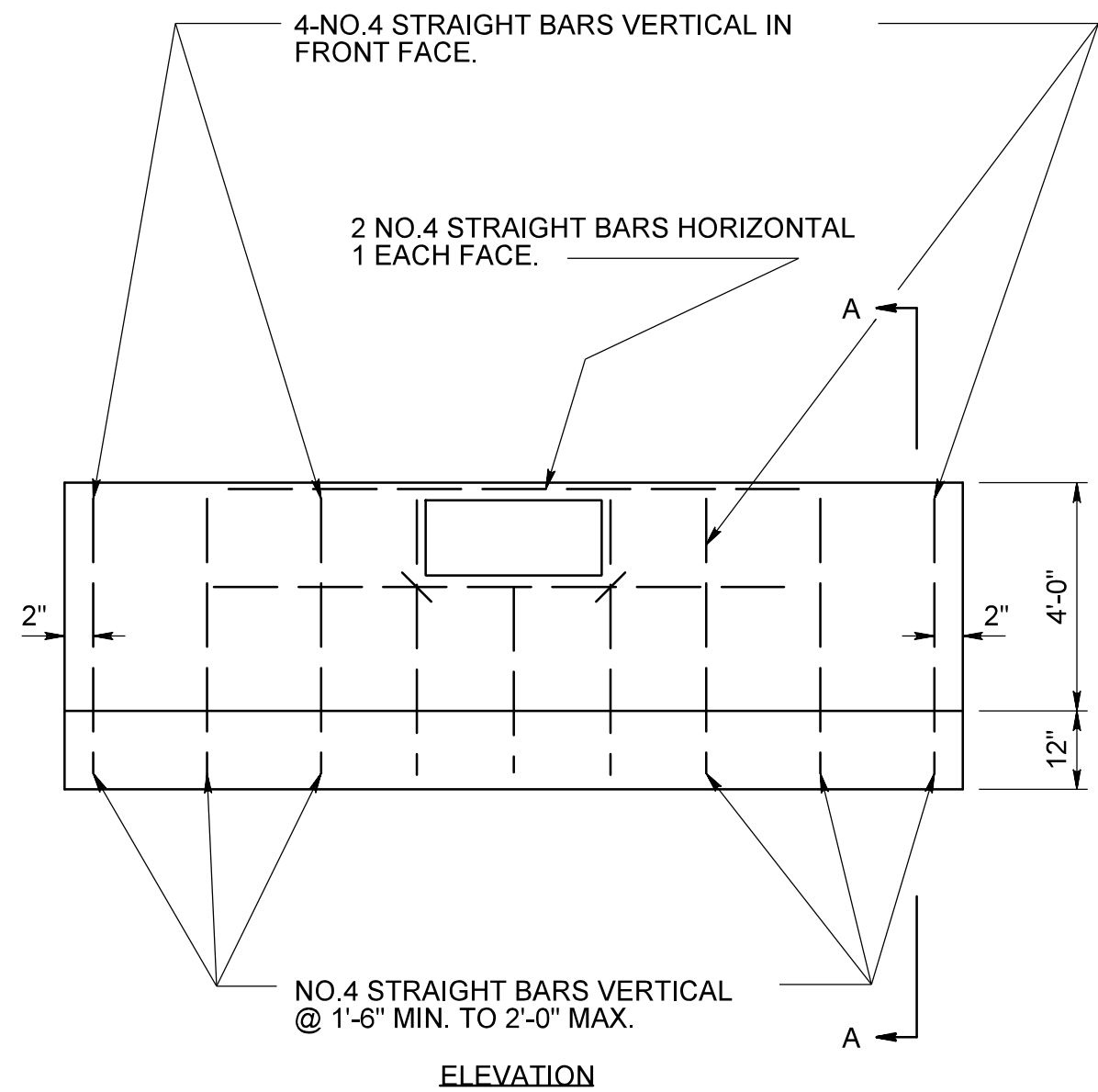
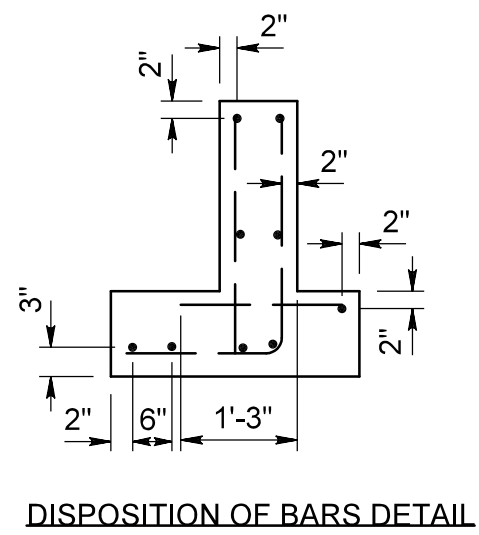
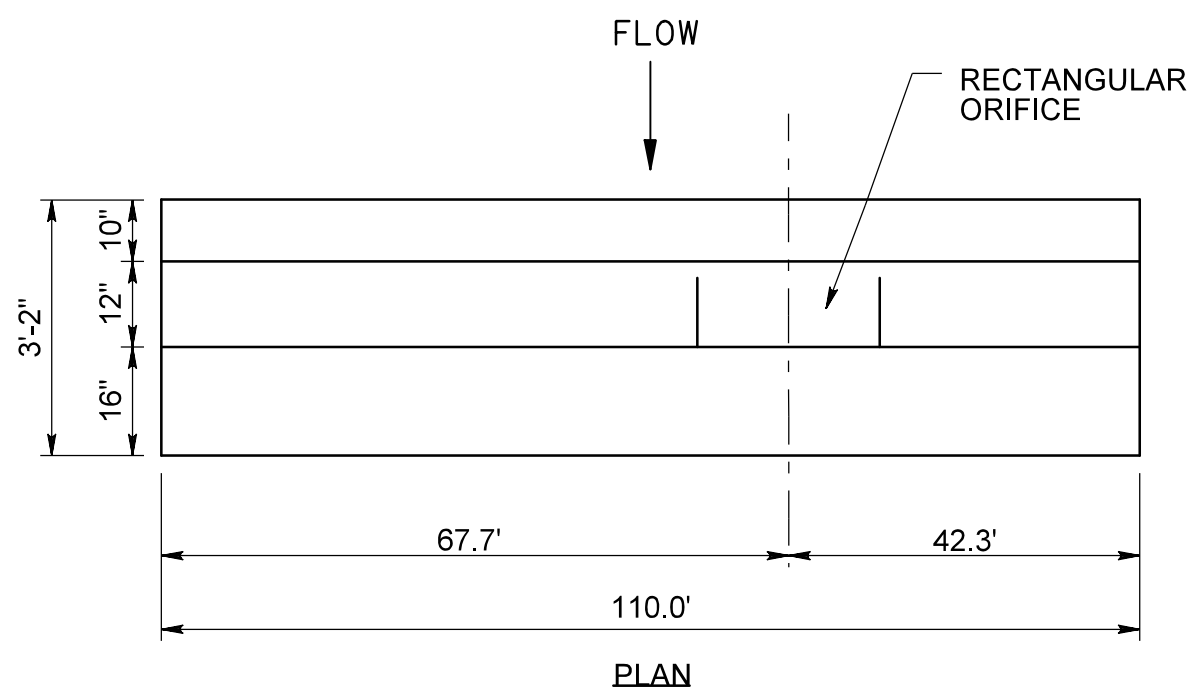
Date : MARCH 2018

RK&K

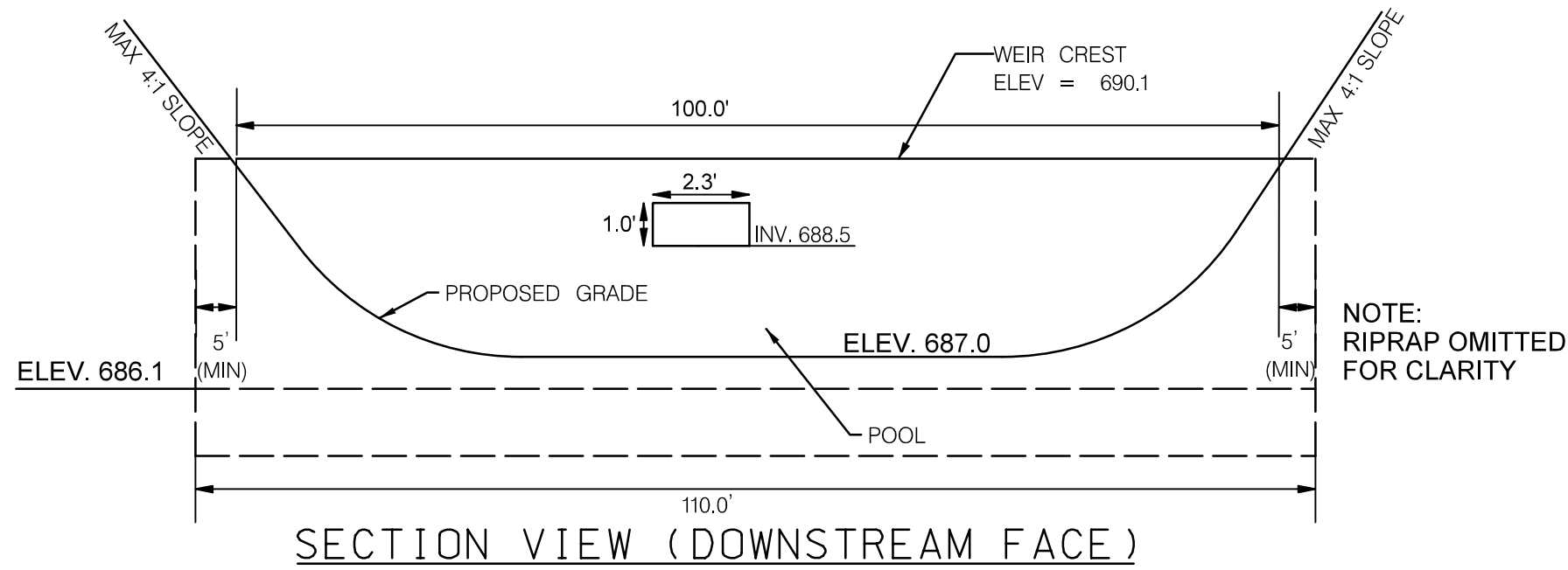
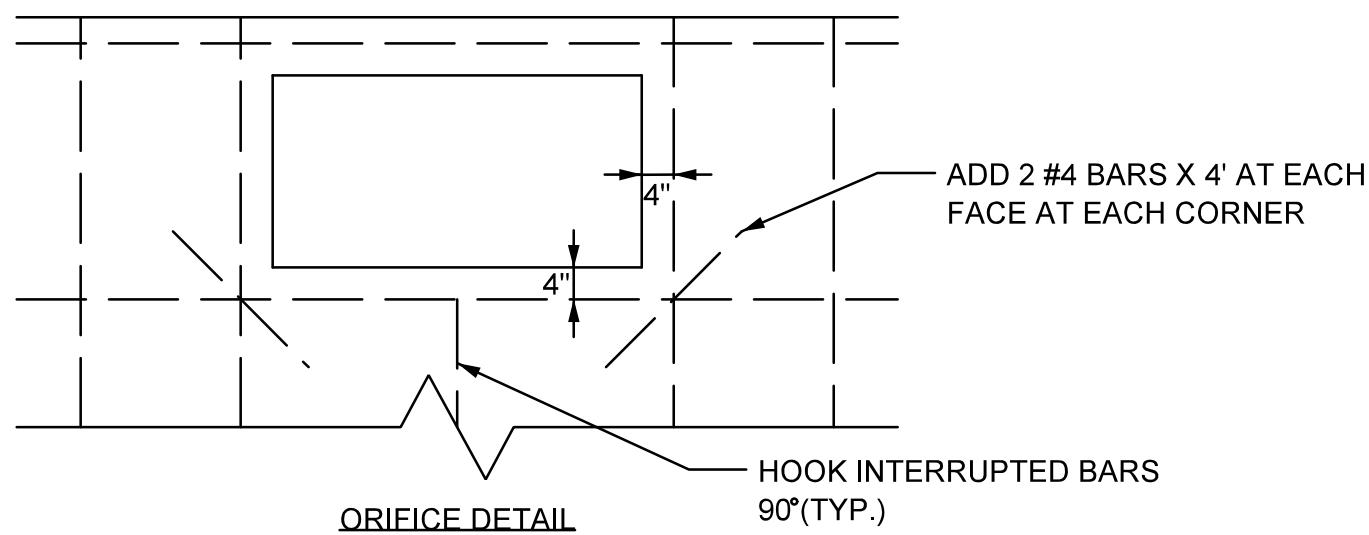
Rummel, Klepper & Kahl, LLP  
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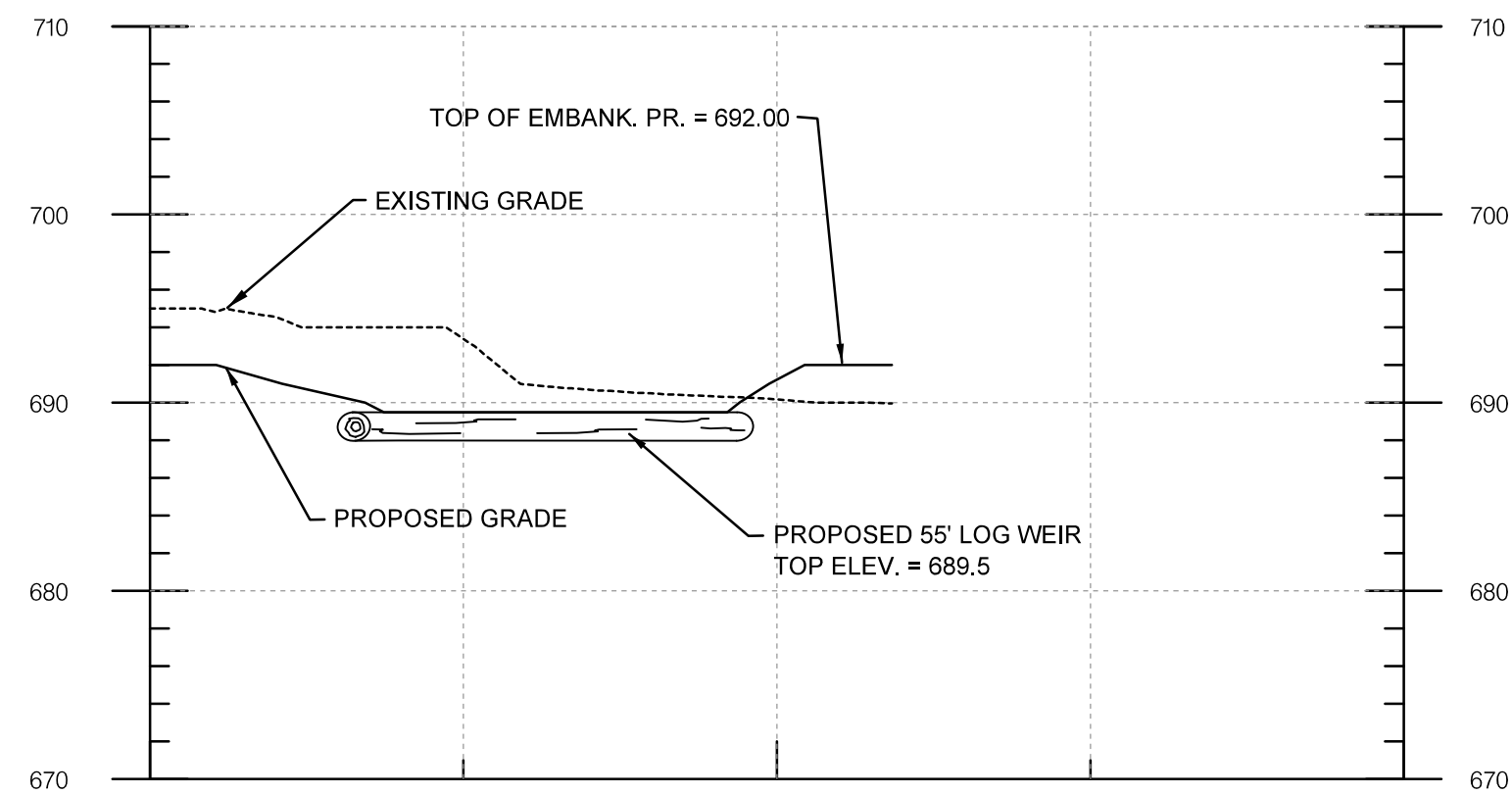


GENERAL NOTES  
SPECIFICATIONS: LATEST S.H.A.  
CONCRETE SHALL BE MIX NO.2  
REINFORCING: DEFORMED STEEL BARS-NO.4  
CHAMFER: ALL EXPOSED EDGES 1"x1" OR AS DIRECTED



SECTION VIEW (DOWNSTREAM FACE)

WEIR DIVERSION STRUCTURE DETAIL  
NOT TO SCALE



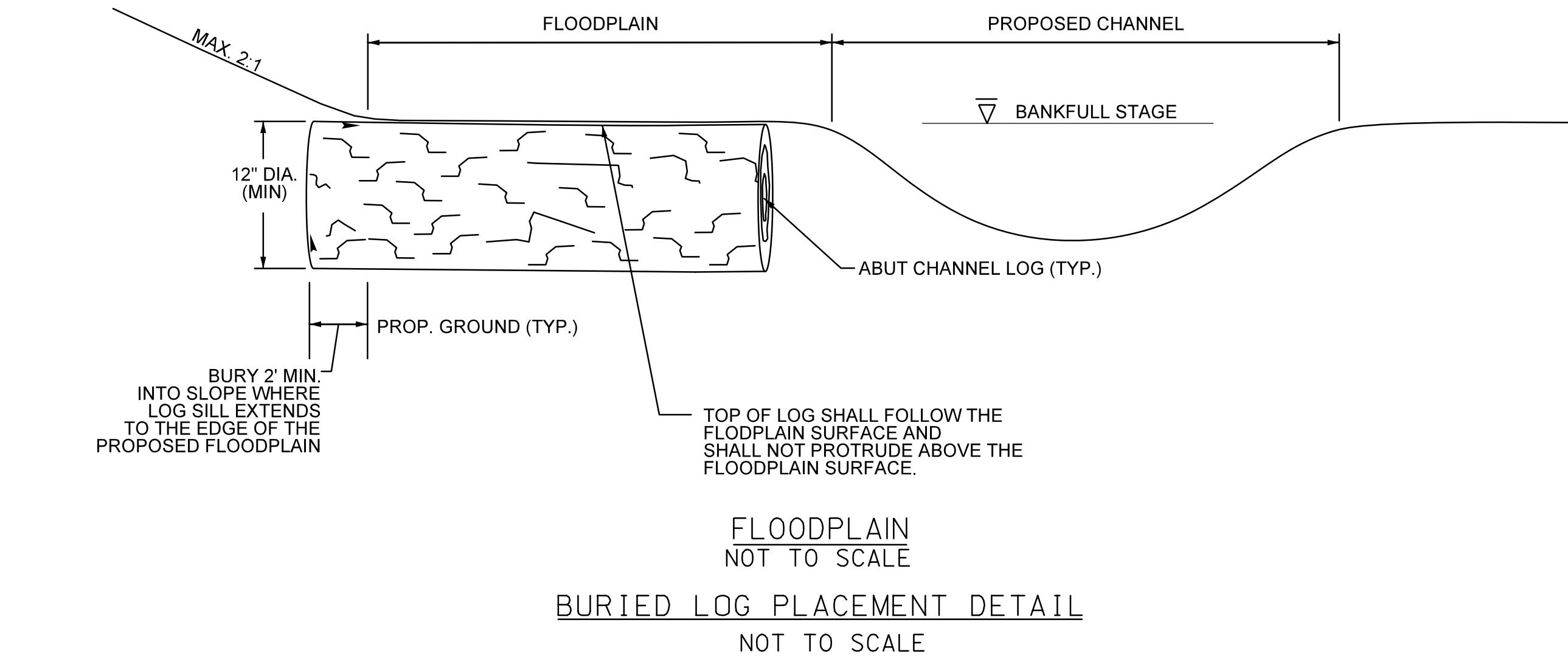
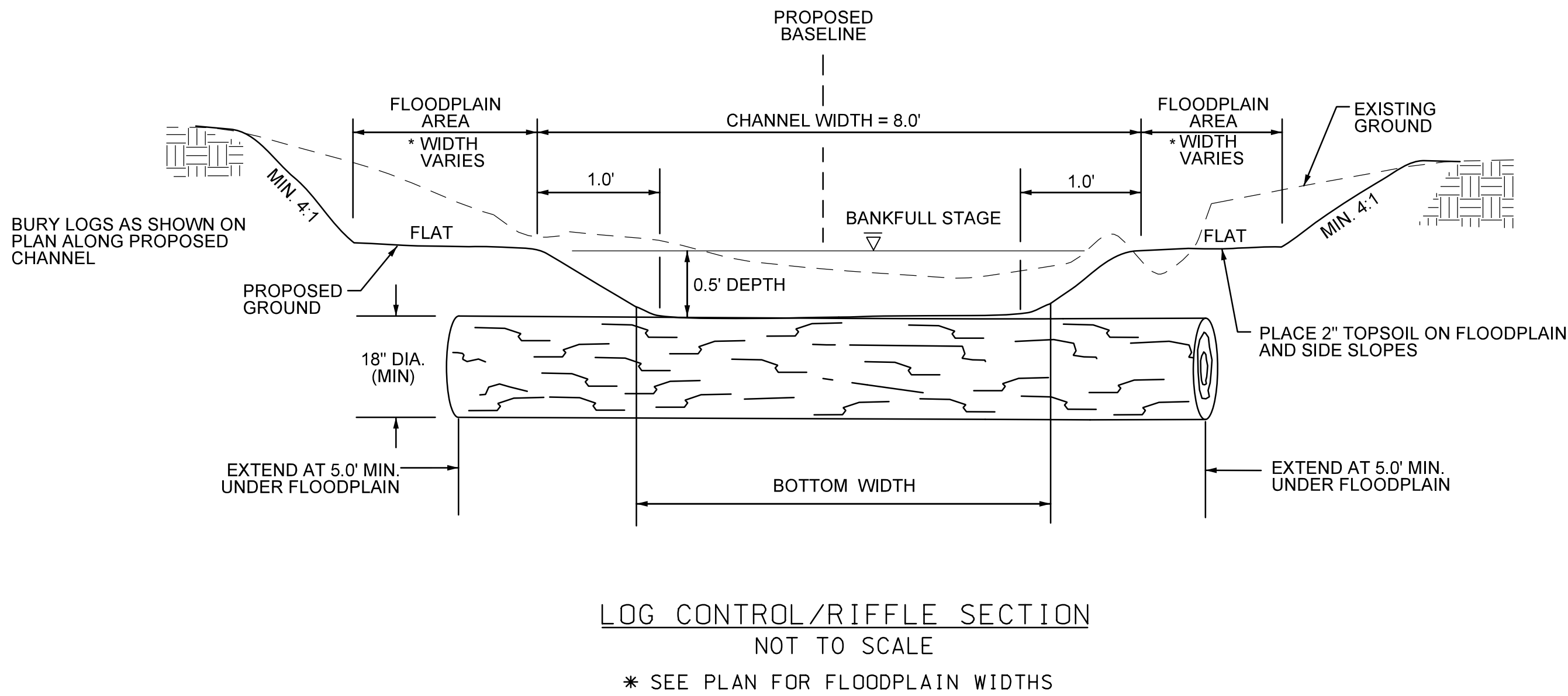
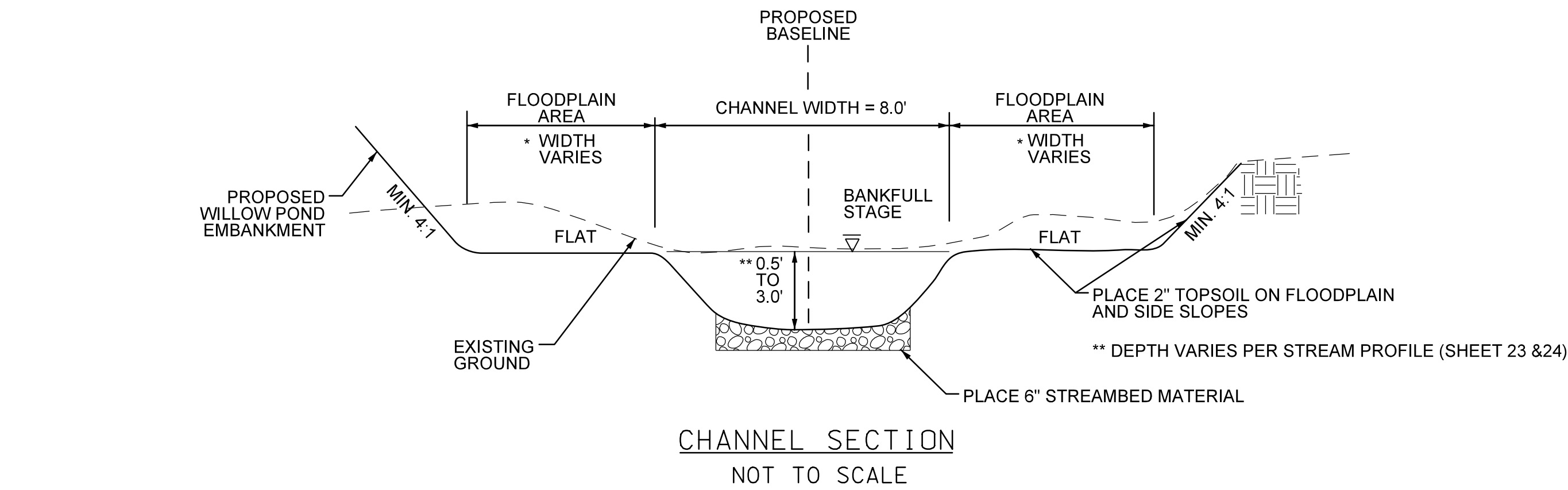
SECTION B-B  
HORIZ. SCALE: 1"=50'  
VERT. SCALE: 1"=10'

NOTE:  
FOR PLAN VIEW LOCATION,  
SEE SHEET 5

Revisions		CARROLL COUNTY, MARYLAND	
		WILLOW POND WATERSHED IMPROVEMENTS	
		STORMWATER MANAGEMENT DETAILS	
Drawn By : JG		Contract No : 75-F-9-1516	
Designed By : BM		Scale : NOT TO SCALE	
Reviewed By : LT		Sheet 7 Of 30	
		Date : MARCH 2018	

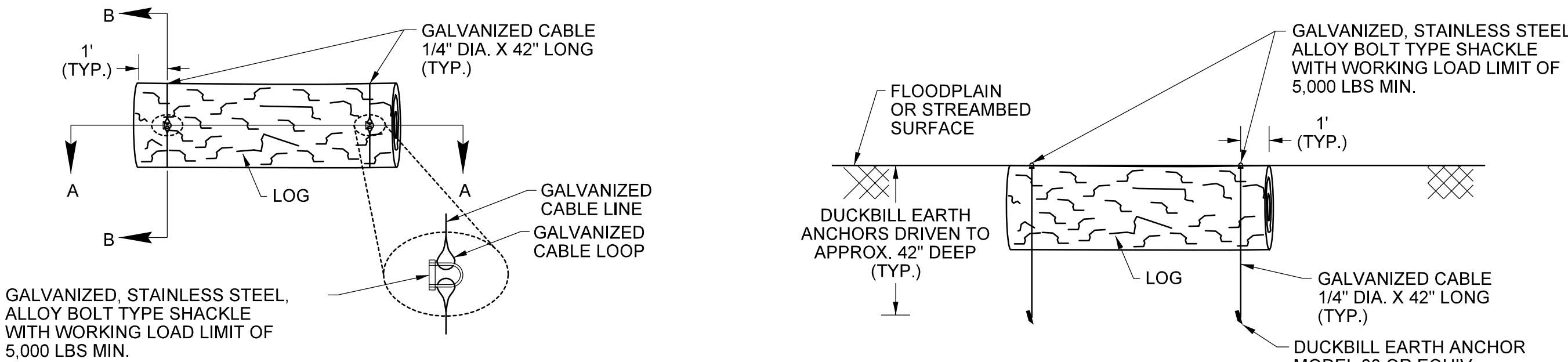


TYPICAL SECTIONS

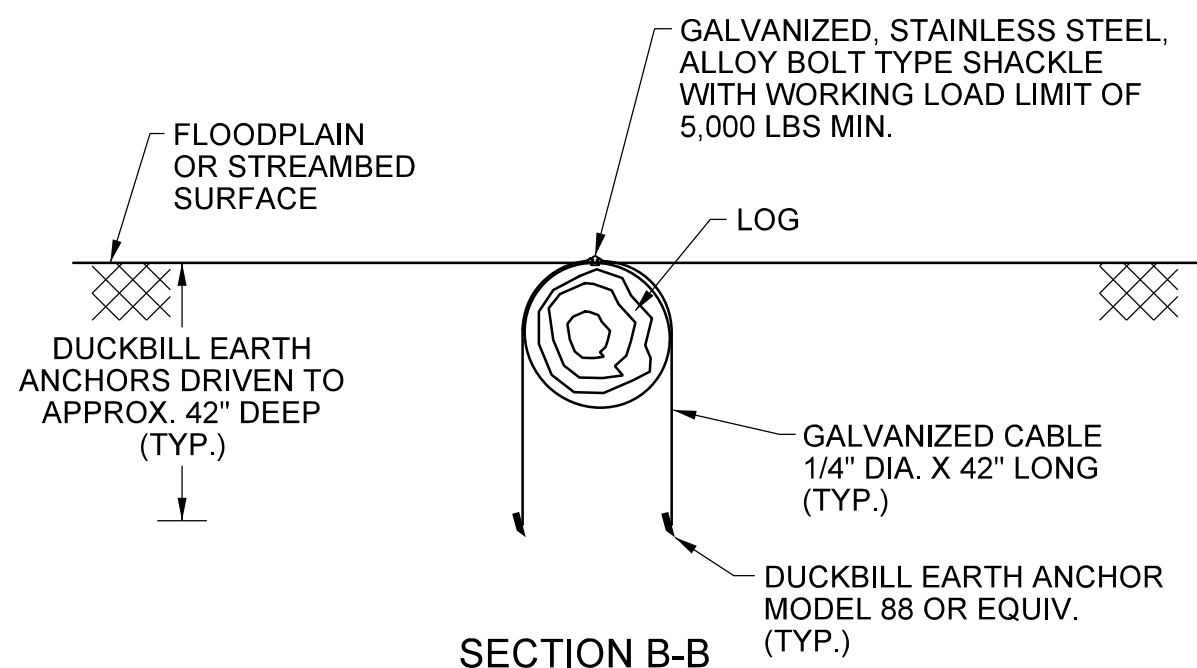


CONSTRUCTION NOTES FOR BURIED LOG PLACEMENT

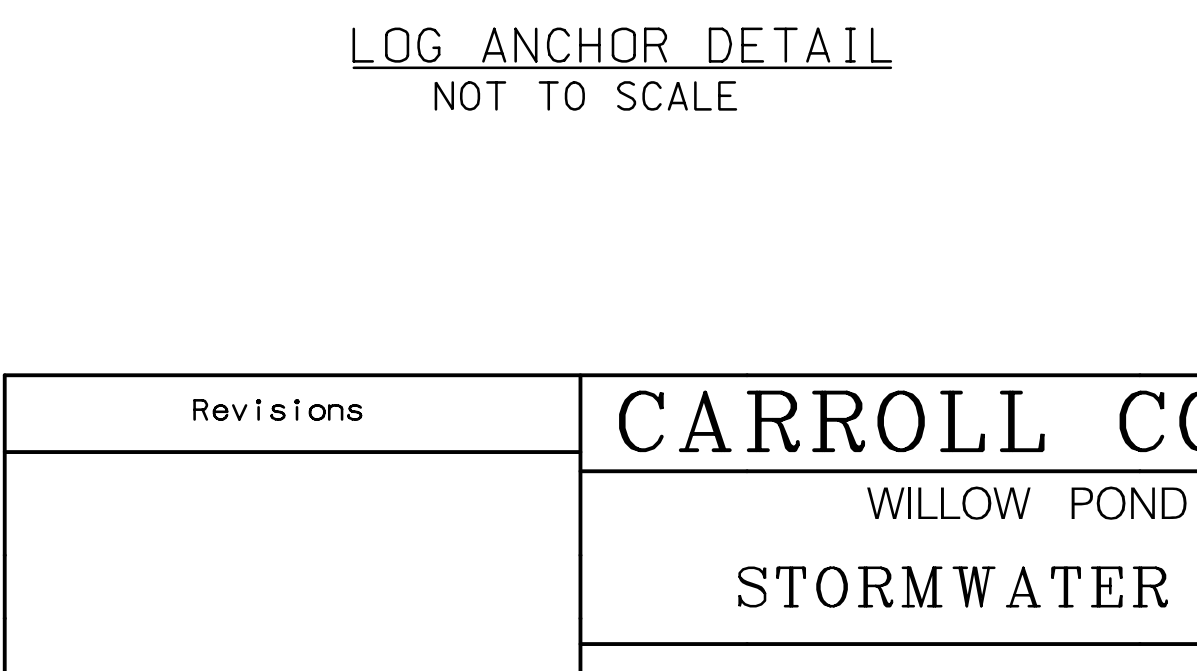
- BURIED LOGS PLACED IN A CHANNEL WILL HAVE DIAMETERS EQUAL TO OR GREATER THAN EIGHTEEN INCHES (18"). BURIED LOGS PLACED IN THE FLOODPLAIN WILL HAVE DIAMETERS EQUAL TO OR GREATER THAN TWELVE INCHES (12"). THE LENGTH OF LOGS WILL RANGE DEPENDING ON SPECIFIC NEEDS SHOWN ON THE PLANS. LOGS SHALL BE FREE OF BRANCHES AND/OR ROOTS THAT MAY PROTRUDE ABOVE THE PROPOSED FINISHED SURFACE. BRANCHES FROM LARGER TREES MEETING THESE REQUIREMENTS MAY ALSO BE USED.
- HARVEST LOGS FROM TREES REMOVED DURING CLEARING AND GRUBBING, WITHIN THE PERMITTED LIMIT OF DISTURBANCE (LOD). USE ONLY SALVAGED TREES WITH THE STRAIGHTEST TRUNKS AND HARDEST AND HEALTHIEST WOOD VARIETIES. USE FRESH GREEN TIMBER THAT HAS BEEN HARVESTED WITHIN FOUR (4) MONTHS OF INSTALLATION.
- IF THERE IS A SHORTAGE OF LOGS HARVESTED ON-SITE MEETING THE ABOVE REQUIREMENTS, COORDINATE WITH THE ENGINEER TO IDENTIFY ADDITIONAL LOGS OUTSIDE OF THE ABOVE REQUIREMENTS THAT CAN BE APPROVED TO MEET THE NECESSARY LOG QUANTITIES. HARVESTED LOGS NOT MEETING THESE REQUIREMENTS MUST BE APPROVED BY THE ENGINEER BEFORE INSTALLATION.
- EXCAVATION FOR THE BURIED LOGS SHALL CONSIST OF DIGGING A TRENCH IN FLOODPLAIN/BANKFULL BENCH AREA OR UNDER THE CONSTRUCTED STREAMBED THAT WILL ACCOMMODATE THE LOG TO BE PLACED. THE LOGS WILL BE LAID HORIZONTALLY IN THE EXCAVATED TRENCH WITH THE TOP EDGE OF THE BURIED LOG CONFORMING TO THE LINES AND GRADES SPECIFIED IN THE CONTRACT DOCUMENTS.
- LOGS SHALL BE UTILIZED IN A MANNER SUCH THAT A SINGLE LOG WILL SPAN THE PROPOSED FLOODPLAIN WIDTH AT THE LOCATIONS INDICATED ON THE PLANS. SINGLE LOGS THAT CANNOT SPAN THE REQUIRED DISTANCE, BUT ARE OF PROPER DIAMETER, WILL BE PLACED IMMEDIATELY UPSTREAM OR DOWNSTREAM OF A PREVIOUSLY PLACED LOG WITH A TWO FOOT (2') OVERLAP TO FORM A CONTINUOUS SILL THAT SPANS THE ENTIRE FLOODPLAIN LIMITS. LOGS MAY BE RE-CUT PRIOR TO INSTALLATION TO MEET LOCAL SITE CONDITIONS.
- THE ADJACENT ENDS OF THE BURIED LOGS SHALL BE INSTALLED A MINIMUM OF TWO FEET (2') INTO THE PROPOSED TRANSITION SLOPES ALONG THE LIMITS OF THE PROPOSED FLOODPLAIN AND EMBEDDED TWO FEET (2') INTO THE ROCK UNDERLAYMENT AS SHOWN IN THE CONSTRUCTION DOCUMENT DETAILS.
- BURIED LOGS SHALL BE INSTALLED IN A MANNER TO WHICH THE TOP EDGE OF THE LOG IS FLUSH WITH THE LEVEL OF THE PROPOSED FLOODPLAIN ELEVATION IF INSTALLED PROPERLY. LOGS WILL NOT BE PERMITTED TO PROTRUDE ABOVE THE LEVEL OF THE FLOODPLAIN ELEVATION.
- BURIED LOGS THAT ARE UTILIZED AS IN-STREAM GRADE CONTROL STRUCTURES IN THE PROPOSED STREAM CHANNELS SHALL BE SINGLE LOGS SPANNING THE PROPOSED STREAMBED AND STREAM. RE-CUT LOGS TO MEET LOCAL SITE CONDITIONS PRIOR TO INSTALLATION. INSTALL BURIED LOGS SUCH THAT THE TOP EDGE OF THE LOG IS FLUSH WITH THE LEVEL OF THE PROPOSED FLOODPLAIN OR PROPOSED STREAMBED ELEVATION.
- BURIED LOGS SHALL BE ANCHORED USING ANCHORS. ANCHORS SHALL BE SET AT A DEPTH OF 42 INCHES BELOW GROUND SURFACE. SET FOUR ANCHORS PER LOG IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS. ONE ANCHOR SHALL BE SET TO EACH SIDE OF THE LOG, ONE FOOT FROM THE END OF THE LOG AS SHOWN ON THE PLANS. CONNECT THE TWO CABLES FROM EACH SIDE OF THE LOG WITH SHACKLE AT THE TOP OF LOG. CONTRACTOR SHALL ENSURE THAT THE ANCHOR IS IN LOCKED POSITION PRIOR TO CONNECTING TO THE SHACKLE.
- USE DUCKBILL EARTH ANCHOR MODEL 88 OR EQUIVALENT, WITH A MINIMUM OF 3,000-POUND HOLDING CAPACITY. HOLDING CABLES SHALL BE GALVANIZED AND HAVE A MINIMUM HOLDING CAPACITY OF 6,000 POUNDS. GALVANIZED, STAINLESS STEEL BOLT-TYPE SHACKLE SHALL HAVE WORKING LOAD LIMIT OF 5,000 POUNDS.



PLAN VIEW



SECTION A-A  
NOT TO SCALE



SECTION B-B  
NOT TO SCALE

LOG ANCHOR DETAIL  
NOT TO SCALE

Plotted: Thursday, March 22, 2018 at 10:42 PM  
Plotted by: Rummel, Klepper & Kahl, LLP  
Plotted for: Carroll County, Maryland  
Plotted as: Rummel, Klepper & Kahl, LLP  
Plotted by: Rummel, Klepper & Kahl, LLP  
Plotted for: Carroll County, Maryland  
Plotted as: Rummel, Klepper & Kahl, LLP

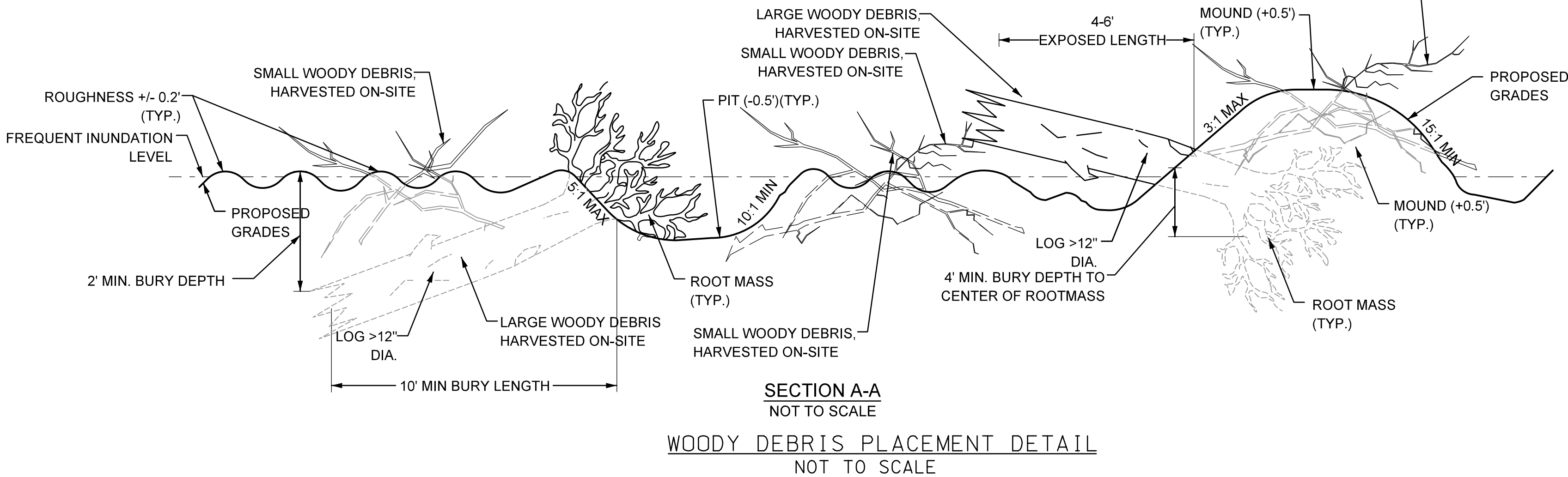
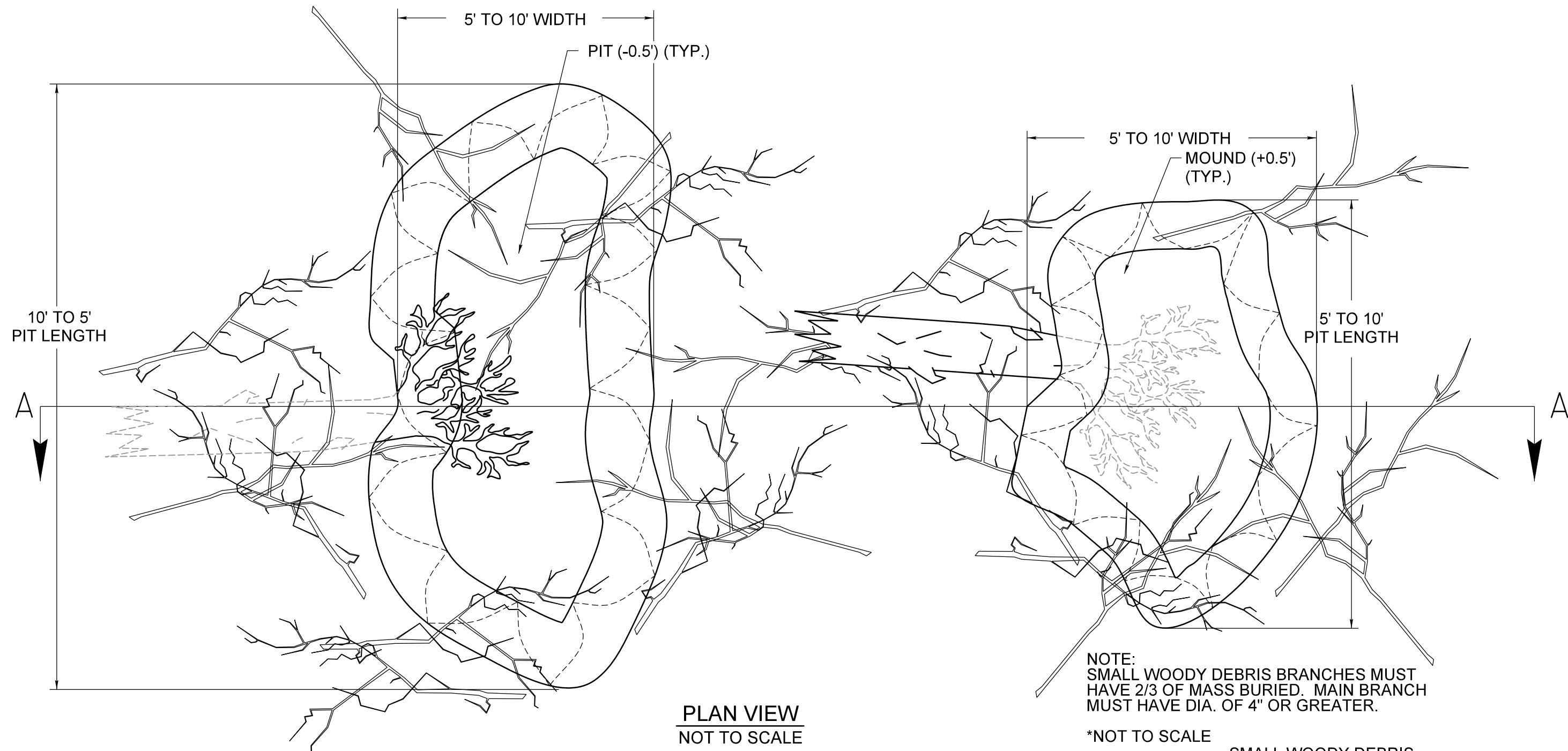
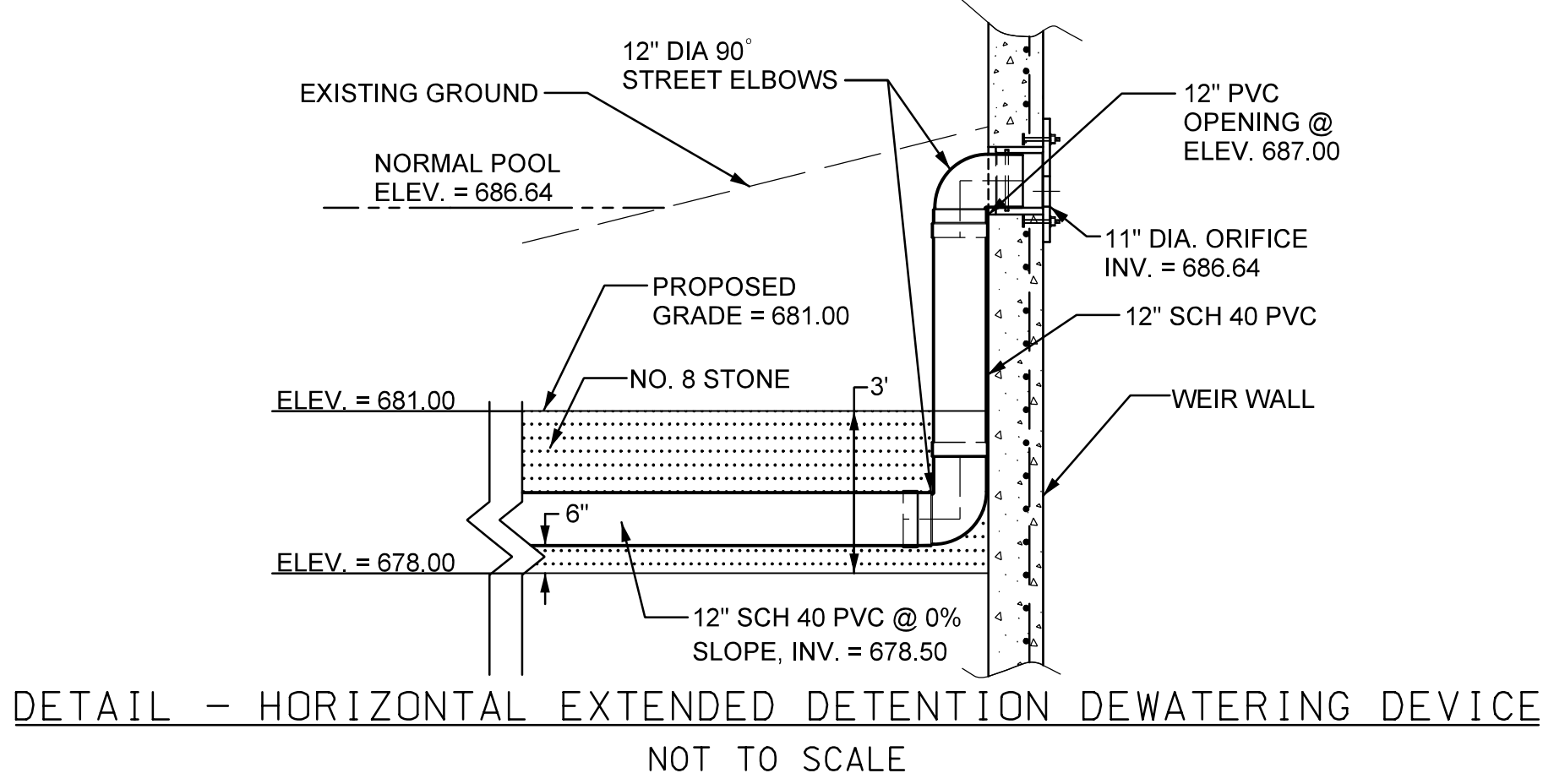


**Rummel, Klepper & Kahl, LLP**  
700 EAST PRAIRIE STREET BALTIMORE, MD 21202  
Ph: (410) 728-2900 FAX: (410) 728-3160

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Revisions	CARROLL COUNTY, MARYLAND	
	WILLOW POND WATERSHED IMPROVEMENTS	
	STORMWATER MANAGEMENT DETAILS	
	Drawn By : JG	Contract No : 75-F-9-1516
	Designed By : BM	Scale : NOT TO SCALE
	Reviewed By : LT	Sheet 8 Of 30
		Date : MARCH 2018





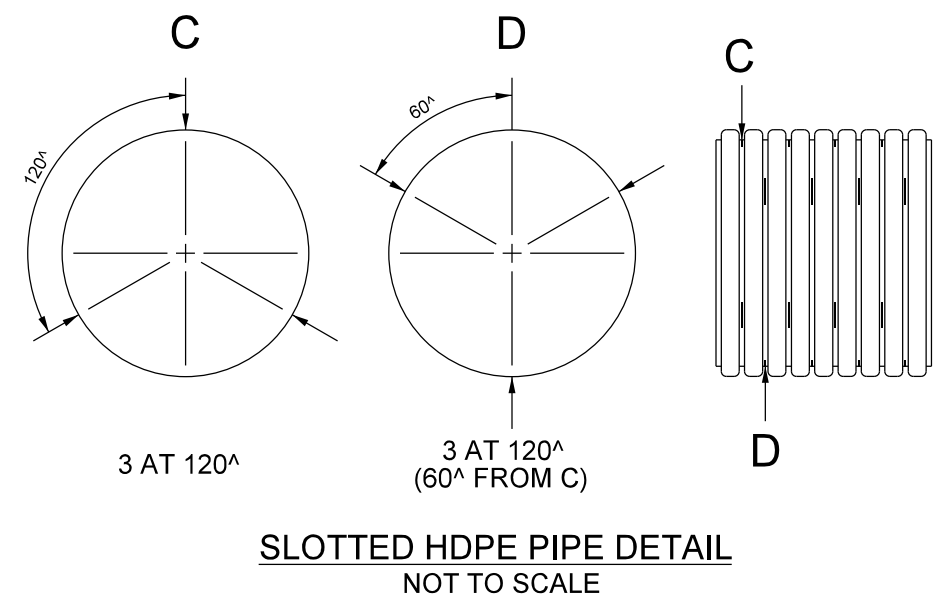
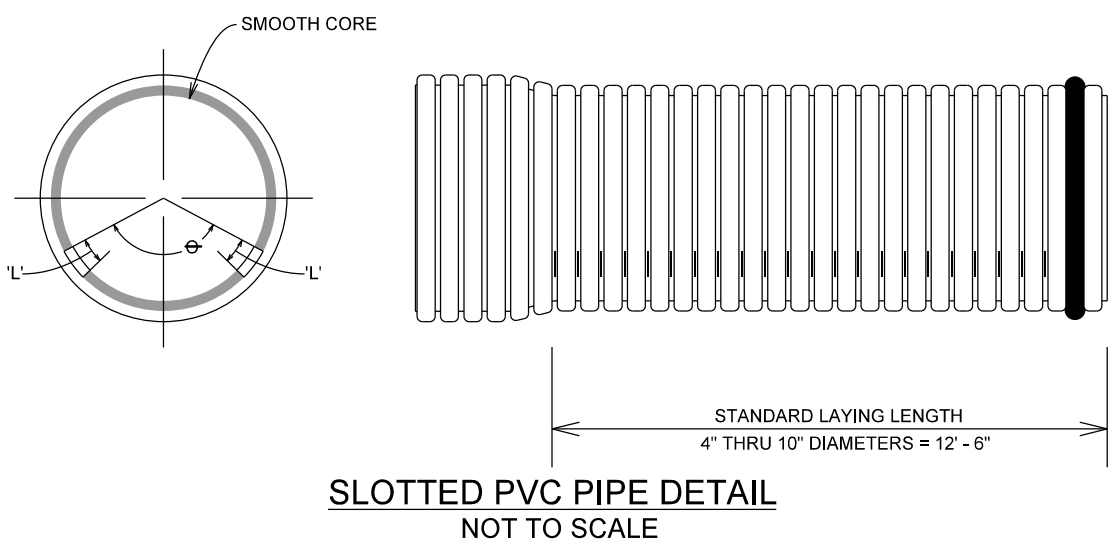
CONSTRUCTION NOTES FOR WOODY DEBRIS PLACEMENT

1. LARGE WOODY DEBRIS TO HAVE A MINIMUM TREE TRUNK DIAMETER OF TWELVE INCHES (12") AND A MAXIMUM TRUNK DIAMETER OF EIGHTEEN INCHES (18") AND A LOG OR TRUNK LENGTH, NOT INCLUDING THE ROOT MASS, BETWEEN SEVEN FEET AND TWELVE FEET (7'-12').
2. SMALL WOODY DEBRIS CONSISTS OF TREE BRANCHES AND TWIGS WITH A DIAMETER OF THE MAIN BRANCH OF FOUR INCHES (4") OR GREATER.
3. TREE BRANCHES AND TWIGS ARE TO BE SALVAGED DURING CLEARING AND GRUBBING FROM WITHIN THE APPROVED LIMIT OF DISTURBANCE (LOD)
4. CONDUCT MICRO-TOPOGRAPHY GRADING TO CREATE SURFACE ROUGHNESS, SMALL PITS, AND SMALL SOIL MOUNDS IN A CONTINUOUS RANDOM PATTERN IN DESIGNATED AREAS. CREATE SURFACE ROUGHNESS WITH HIGH AND LOW POINTS IN THE TOPOGRAPHY RANGING IN ELEVATION FROM PLUS OR MINUS TWO TENTHS (0.2) OF A FOOT OF THE PROPOSED FINISH GRADE.
5. PITS SHALL HAVE A LENGTH OF TEN TO FIFTEEN FEET (10'-15'), A WIDTH OF FIVE TO TEN FEET (5'-10'), SLOPES OF TEN TO ONE TO FIVE TO ONE (10:1-5:1), AND A DEPTH OF HALF A FOOT (0.5'). MOUNDS SHALL HAVE A LENGTH OF FIVE TO TEN FEET (5'-10'), A WIDTH OF FIVE TO TEN FEET (5'-10'), SLOPES OF FIFTEEN TO ONE TO THREE TO ONE (15:1-3:1), AND A HEIGHT OF HALF A FOOT (0.5')
6. USE FRESH GREEN TIMBER THAT HAS BEEN HARVESTED WITHIN FOUR MONTHS OF INSTALLATION.
7. ORIENT EXPOSED ROOT WADS IN RANDOM HORIZONTAL DIRECTIONS. EXPOSED ROOT WAD LOGS SHALL HAVE A MINIMUM BURIED TRUNK LENGTH OF 10 FEET. NO MORE THAN 1 FOOT OF EXPOSED TRUNK SHALL PROTRUDE ABOVE THE SURFACE.
8. ORIENT EXPOSED TREE TRUNKS WITH ROOT WADS BURIED IN RANDOM HORIZONTAL DIRECTIONS. ROOT WADS SHALL BE BURIED TO A MINIMUM DEPTH OF 4 FEET TO THE CENTER OF ROOT MASS.
9. WOODY DEBRIS TO BE EVENLY DISTRIBUTED IN RANDOM DIRECTION ORIENTATION
10. ROOT WADS WILL BE PLACED WITH A DENSITY OF APPROXIMATELY 22 ROOT WADS PER ACRE WITHIN THE WOODY DEBRIS COVERAGE AREA NOTED ON THE CONSTRUCTION PLANS. THIS EQUATES TO APPROXIMATELY ONE ROOT WAD WITH A BURIED ROOT MASS OR BURIED LOG EVERY FORTY FIVE FOOT BY FORTY FIVE FOOT (45'X45') BLOCK OF RESTORED FLOODPLAIN AREA INDICATED FOR WOODY DEBRIS PLACEMENT.
11. IT IS THE INTENT TO RE-USE ALL AVAILABLE WOOD REMOVED DURING CLEARING, AND MEETING THE ABOVE SPECIFICATIONS, IN THE PROPOSED FLOODPLAIN. IF MORE OR LESS WOODY MATERIAL IS AVAILABLE, COORDINATE WITH THE ENGINEER BEFORE REMOVAL OF WOODY DEBRIS FROM THE SITE.
12. RANDOMLY PLACE SMALL WOODY DEBRIS THROUGHOUT THE MICRO-TOPOGRAPHY GRADING ZONE. INSTALL SMALL WOODY DEBRIS BRANCHES WITH AT LEAST TWO THIRDS (2/3) OF THEIR MASS BURIED BELOW THE FINISHED GRADE.
13. DO NOT ACCESS COMPLETED AREAS WITH HEAVY EQUIPMENT AFTER THE MICRO-TOPOGRAPHY GRADING HAS BEEN COMPLETED EXCEPT FOR REMOVING EROSION AND SEDIMENT CONTROLS WITH APPROVAL AND OVERSIGHT FROM THE ENGINEER.

APPROVED UNDERDRAIN PIPES FOR CARROLL COUNTY  
STORMWATER MANAGEMENT FACILITIES

CONTECH A-2000 SLOTTED PVC UNDERDRAIN PIPE						
SLOT SIZE						
NOMINAL SIZE	DEGREES	ROW OF SLOTS	WIDTH	L'	SLOT SPACING	PERFORATION OPEN AREA (SQ. IN./FT. OF PIPE)
4"	152	2	.032	1-1/16"	0.416	1.62"
6"	134	2	.032	1-3/8"	0.516	1.99"
8"	132	2	.032	1-3/4"	0.689	1.90"
10"	114	2	.032	2-3/16"	0.926	1.96"
12"	122	2	.051	1-1/16"	1.033	2.00"
15"	124	2	.051	2-1/4"	1.377	3.00"
18"	120	2	.051	2-1/4"	1.377	3.00"

ADS N-12 SLOTTED HDPE TYPE "SP" UNDERDRAIN PIPE								
SLOT SIZE								
NOMINAL I.D.		PERFORATION TYPE	MAXIMUM SLOT LENGTH		MAXIMUM SLOT WIDTH		MINIMUM INLET AREA PER FT. OF PIPE	
IN.	MM.		IN.	MM.	IN.	MM.	IN./FT.	CM./M.
4"	100	SLOT	0.875	22	0.125	3	1.0	21
6"	150	SLOT	0.875	22	0.125	3	1.0	21
8"	200	SLOT	1.18	30	0.125	3	1.0	21
10"	250	SLOT	1.18	30	0.125	3	1.0	21



PLAN & PROFILE NOTATION:  
" SLOTTED PIPE  
SEE DETAIL SHEET \_\_\_\_

- NOTES:
1. ALL PIPES MUST BE CORRUGATED DOUBLE WALLED (SMOOTH CORE)
  2. ALL PIPES MUST BE SLOTTED (NO CIRCULAR HOLES)
  3. ENGINEER APPROVED EQUIVALENTS MAY BE SUBSTITUTED WITH PRIOR CARROLL COUNTY BUREAU OF RESOURCE MANAGEMENT PERMISSION

Martin B. Covington III, PE  
SWM Program Engineer  
DISTRIBUTED FOR COMMENT  
C.C. SURVEYORS MTG. SEPT. 16, 2009  
EFFECTIVE DATE: NOVEMBER 18, 2009

STREAM DATA

1,890 LF. STREAM RESTORED  
18.90 AC. IMP. SURFACE TREATED

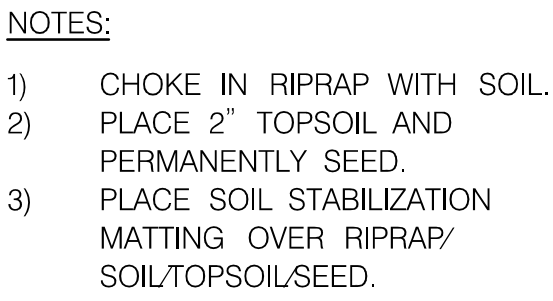
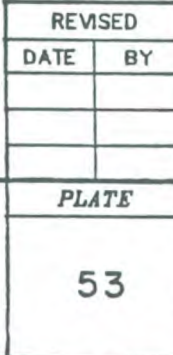
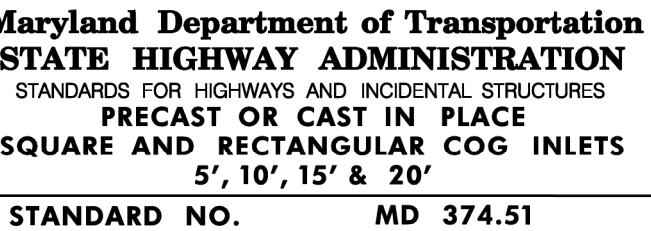
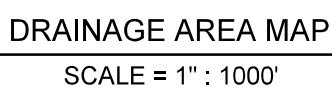
Revisions

**CARROLL COUNTY, MARYLAND**  
WILLOW POND WATERSHED IMPROVEMENTS  
STORMWATER MANAGEMENT DETAILS

Drawn By : JG  
Designed By : BM  
Reviewed By : LT

Contract No : 75-F-9-1516  
Scale : NOT TO SCALE  
Sheet 9 Of 30  
Date : MARCH 2018



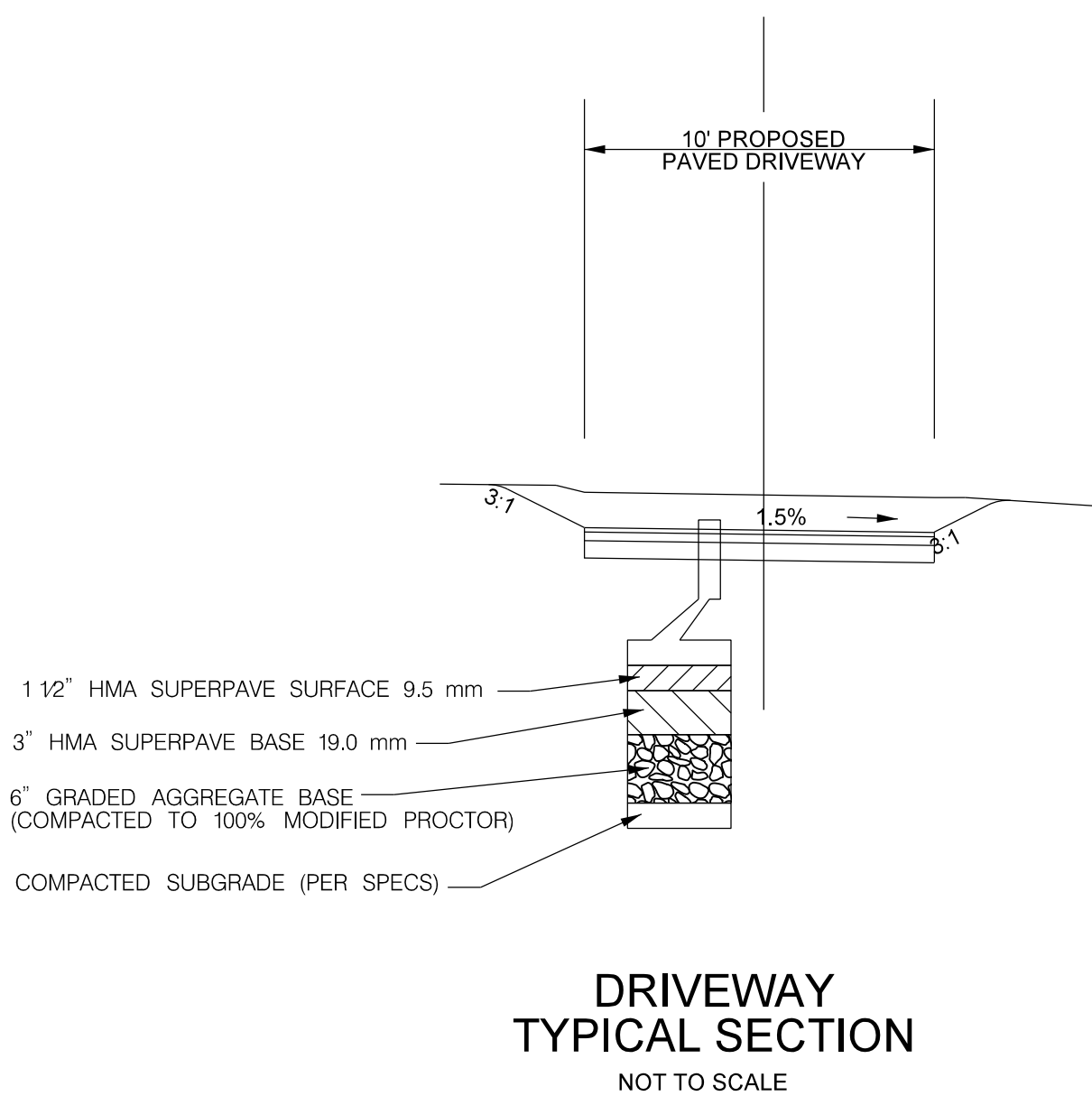
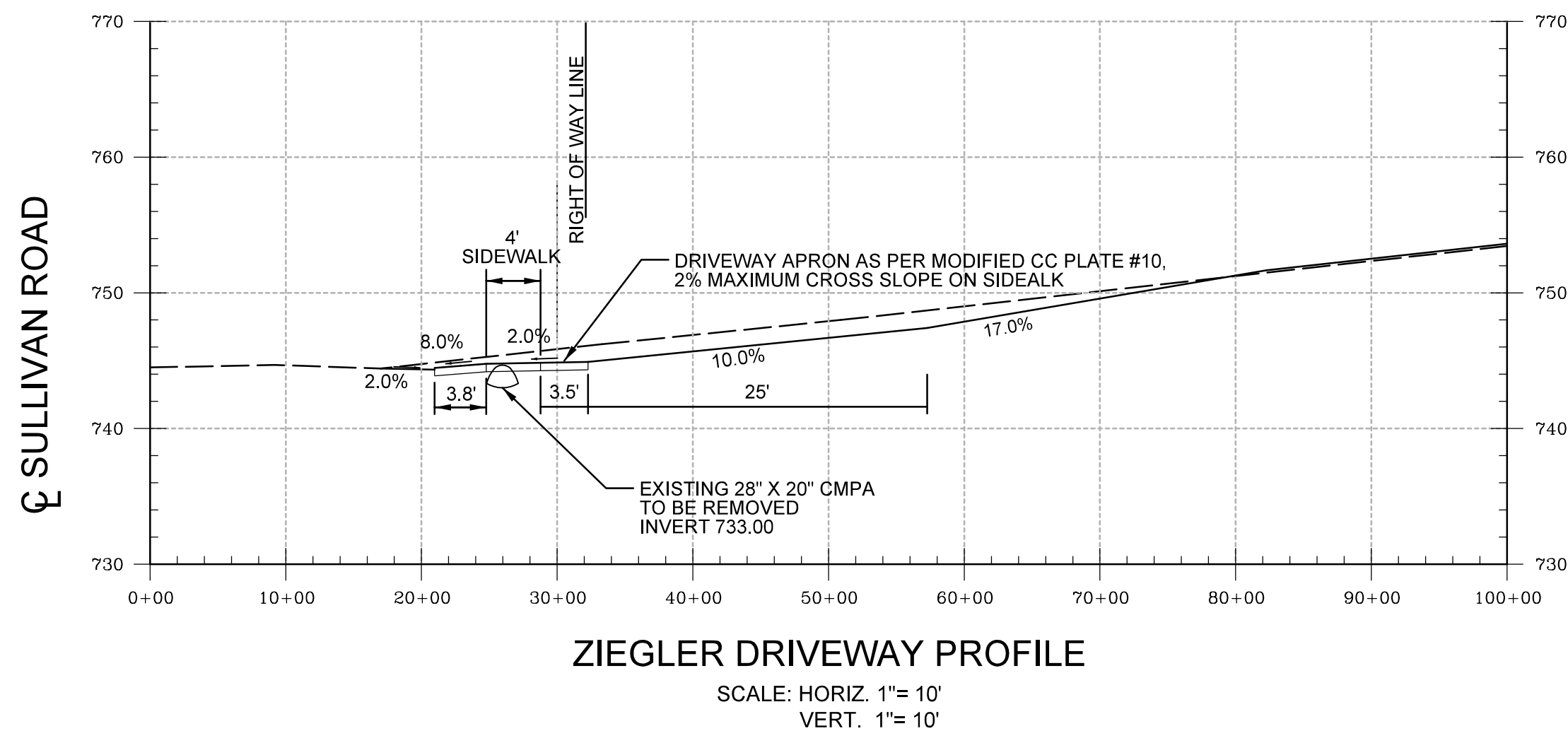


\* AT SUNSHINE WAY  
\*\* AT WILLOW POND

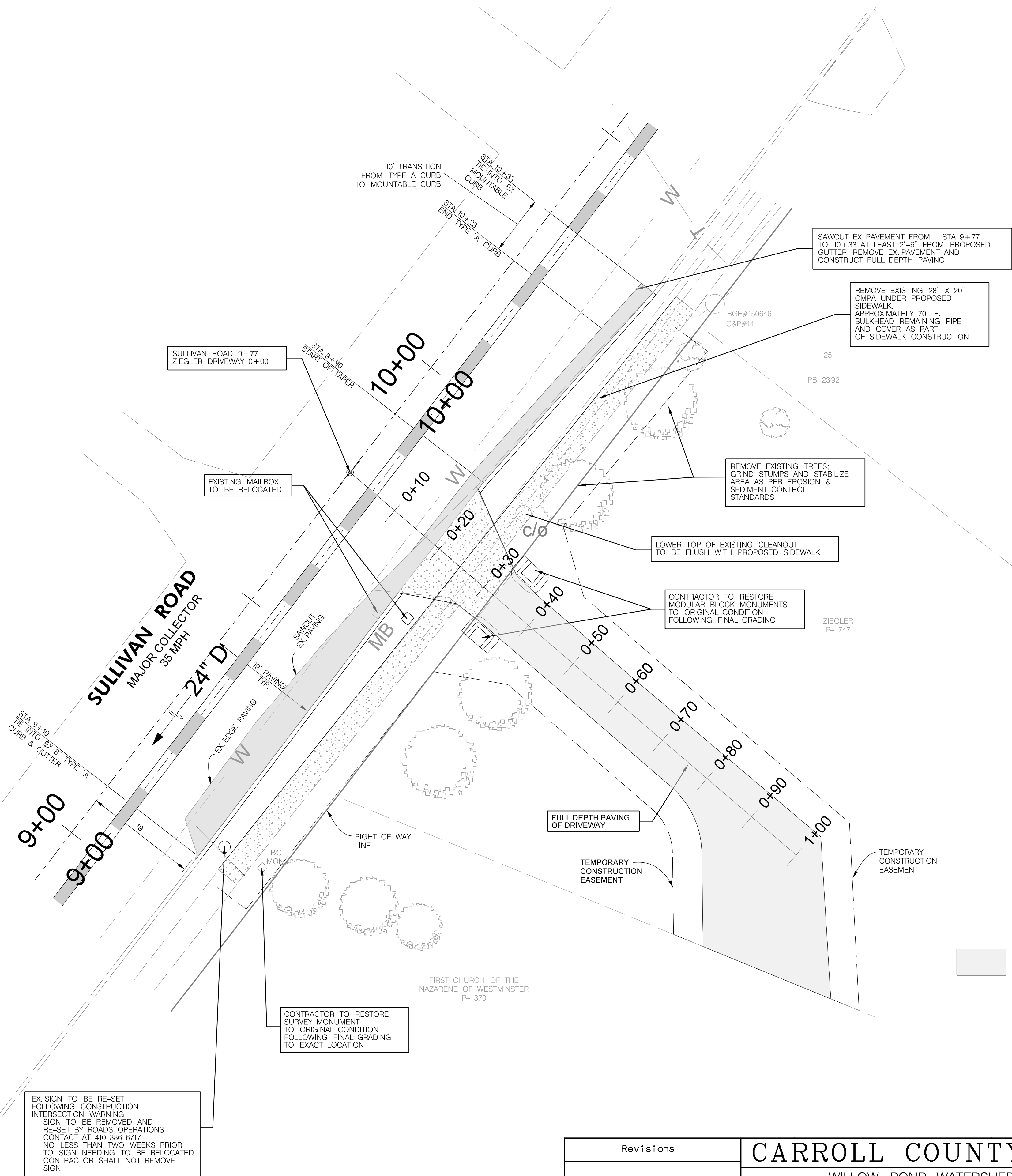








MODIFIED C.C. PLATE 10  
DRIVEWAY APRON  
NOT TO SCALE



EX SIGN TO BE RE-SET FOLLOWING CONSTRUCTION INTERSECTION WARNING- SIGN TO BE REMOVED AND RE-SET BY ROADS OPERATIONS. CONTACT AT 410-386-6717 NO LESS THAN TWO WEEKS PRIOR TO SIGN NEEDING TO BE RELOCATED CONTRACTOR SHALL NOT REMOVE SIGN.

OWNER /DEVELOPER  
COUNTY COMMISSIONERS  
OF CARROLL COUNTY  
225 NORTH CENTER STREET  
WESTMINSTER, MD 21157  
PHONE #: 410-386-2043

Revisions		CARROLL COUNTY, MARYLAND	
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		Date : MARCH 2018	

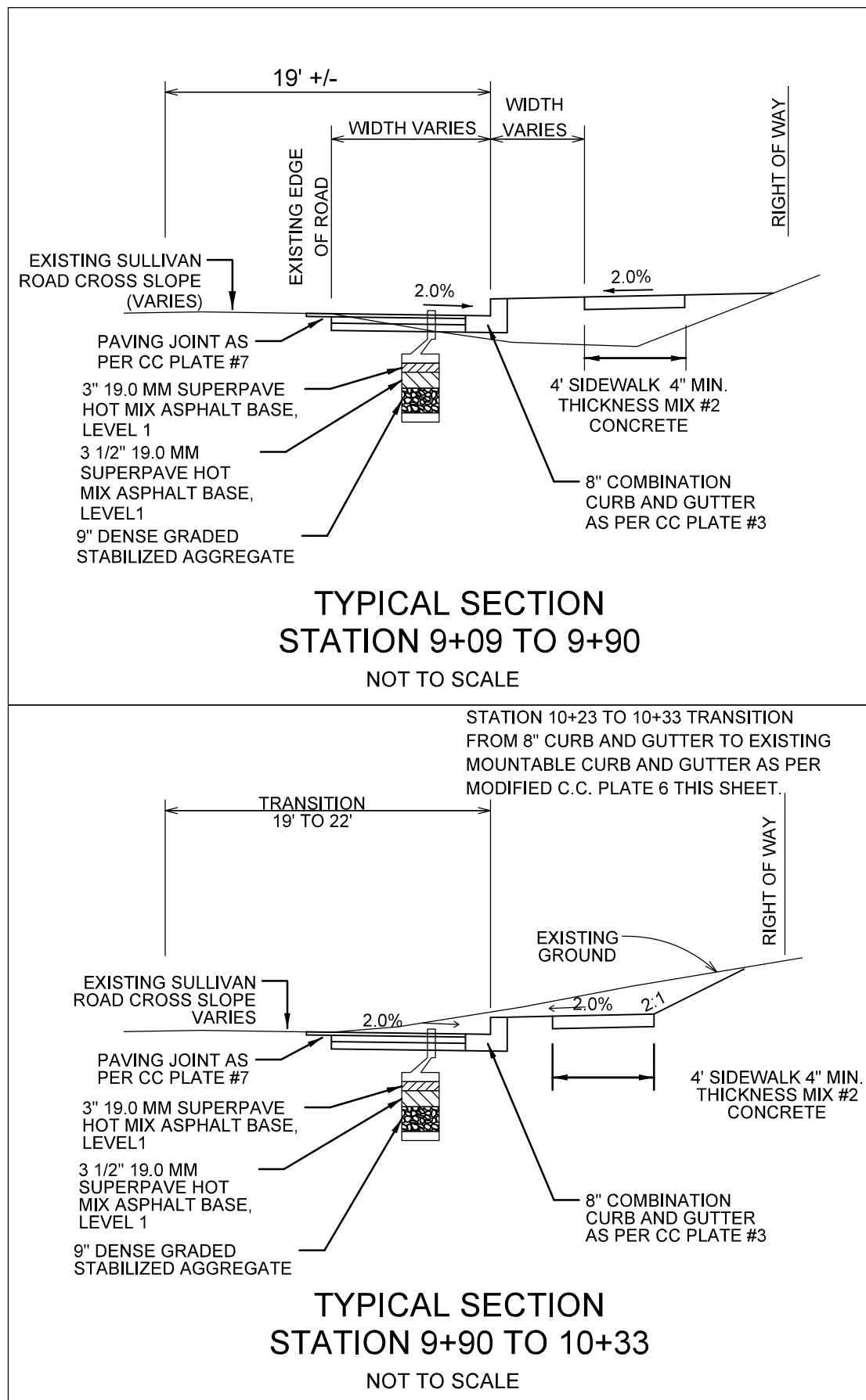
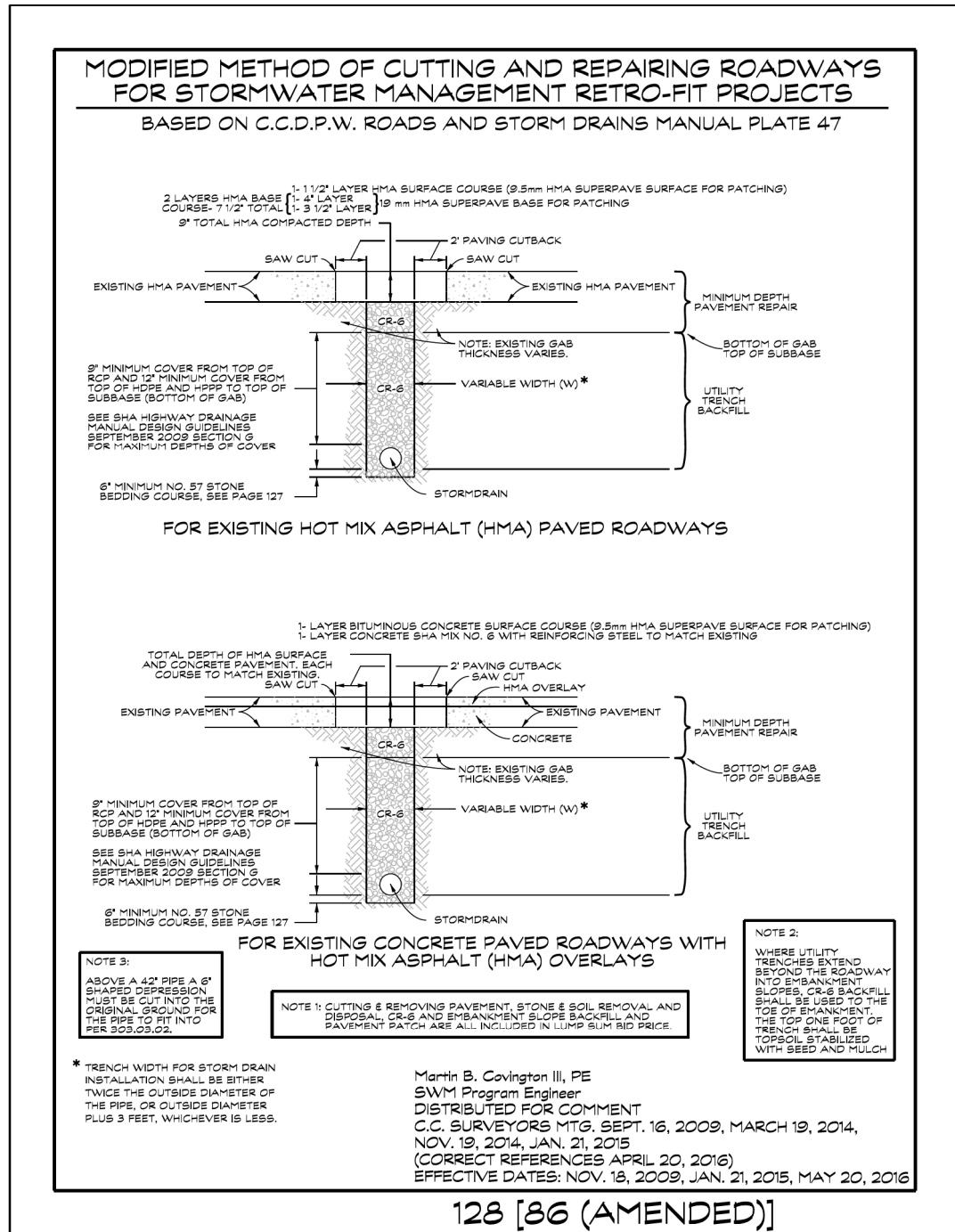
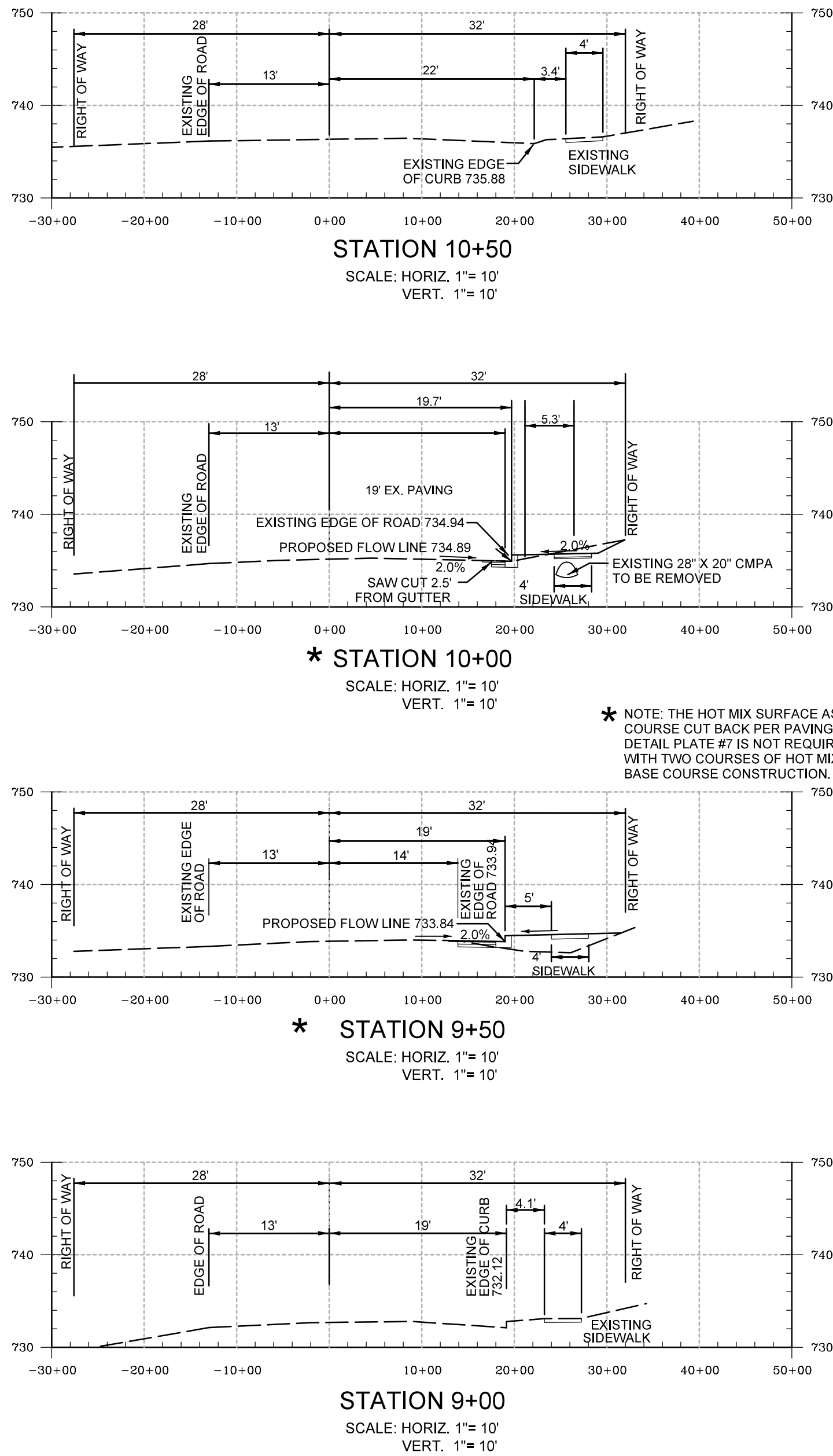


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## PUBLIC WORKS GENERAL NOTES

- CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITIONS OF THE FOLLOWING, INCLUDING ALL ADDENDA, SUPPLEMENTS OR UPDATES:
  - DESIGN MANUAL - VOLUME ONE - ROADS AND STORM DRAINS, 1994 EDITION, OF THE CARROLL COUNTY DEPARTMENT OF PUBLIC WORKS.
  - DESIGN GUIDE FOR FLEXIBLE PAVEMENT, 2004, OF THE CARROLL COUNTY DEPARTMENT OF PUBLIC WORKS.
  - BOOK OF STANDARDS, HIGHWAY AND INCIDENTAL STRUCTURES OF THE MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION.
  - STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, 2008 EDITION, OF THE MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION.
  - MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROLS DEVICES (MDMUTCD) 2009 EDITION OF THE MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION.
  - MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, 1994 EDITION, PUBLISHED JOINTLY BY WATER RESOURCES ADMINISTRATION, SOIL CONSERVATION SERVICE, AND STATE SOIL CONSERVATION COMMITTEE.
- ALL OF THE ABOVE NOTED PUBLICATIONS ARE INCLUDED BY REFERENCE AS PART OF THESE CONSTRUCTION PLANS.
- THE CONTRACTOR SHALL NOTIFY THE BUREAU OF RESOURCE MANAGEMENT AT (410-386 2210) AND GENE WARRENFELTZ, CARROLL COUNTY DEPARTMENT OF PUBLIC WORKS CONSTRUCTION INSPECTION DIVISION AT 410-386-2157 A MINIMUM OF THREE (3) WORKING DAYS BEFORE BEGINNING WORK. CONTRACTOR SHALL PROVIDE A MINIMUM OF TWO (2) WORKING DAYS NOTIFICATION BEFORE BEGINNING WORK ON OR IN THE IMMEDIATE VICINITY OF EXISTING WATER AND/OR SEWER TO THE CITY OF WESTMINSTER DEPARTMENT OF PUBLIC WORKS 410-848-9000.
- CONTRACTOR SHALL FURNISH, PLACE AND MAINTAIN TRAFFIC CONTROL MEASURES AS SHOWN IN THESE PLANS AND AS SPECIFIED IN THE MDMUTCD. CONTRACTOR SHALL IMMEDIATELY REMOVE AND REPLACE DEVICES WHICH ARE DAMAGED, DO NOT FUNCTION PROPERLY, OR ARE DETERMINED BY CONSTRUCTION INSPECTOR TO BE UNSUITABLE FOR THEIR PURPOSE. TRAFFIC CONTROL DEVICES MAY BE REMOVED ONLY UPON APPROVAL OF CONSTRUCTION INSPECTOR.
- LOCATIONS OF EXISTING UTILITIES ARE SHOWN ONLY AS NOTIFICATION TO CONTRACTOR OF THE PRESENCE OF UNDERGROUND UTILITIES. CARROLL COUNTY AND THE DESIGN ENGINEER DO NOT WARRANT OR GUARANTEE CORRECTNESS OR COMPLETENESS OF INFORMATION SHOWN. CONTRACTOR IS RESPONSIBLE FOR CONTACTING MISS UTILITY AT 1-800-257-7777 FOR VERIFYING EXISTENCE AND LOCATION OF ALL UTILITIES PRIOR TO BEGINNING WORK. ANY DAMAGE TO EXISTING UTILITIES DUE TO CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT CONTRACTOR'S EXPENSE.
- BUREAU OF RESOURCE MANAGEMENT IS RESPONSIBLE IN ALL REGARDS FOR RELOCATION OF ANY EXISTING UTILITIES. IN CASE OF DISCREPANCY BETWEEN SCALED AND FIGURED DIMENSIONS, FIGURED DIMENSIONS SHALL GOVERN.
- IF FOR ANY REASON PROPOSED FACILITIES CANNOT BE CONSTRUCTED IN ACCORDANCE WITH APPROVED PLANS, CONTRACTOR MUST IMMEDIATELY INFORM CONSTRUCTION INSPECTOR OR BUREAU OF RESOURCE MANAGEMENT (410-386-2210) AND SHALL NOT BEGIN OR CONTINUE WORK ON THOSE ITEMS, IF THE BUREAU OF RESOURCE MANAGEMENT DETERMINES PLAN REVISIONS ARE NECESSARY, NO WORK SHALL BE PERFORMED ON THE ITEM(S) IN QUESTION UNTIL REVISED PLANS ISSUED BY THE DESIGN ENGINEER ARE APPROVED AND ISSUED FOR CONSTRUCTION BY THE BUREAU OF DEVELOPMENT REVIEW ENGINEER (410-386-2668).
- FAILURE TO MENTION SPECIFICALLY THE PROVISION OF ANY ITEM(S), OR PERFORMANCE OF ANY WORK OR PROCEDURE WHICH WOULD NORMALLY BE REQUIRED TO COMPLETE THE PROJECT, SHALL NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY TO PROVIDE SUCH ITEM(S) OR TO PERFORM SUCH WORK OR PROCEDURE.
- CONSTRUCT EARTH FILLS FOR ROADS, EMBANKMENTS, AND STRUCTURES IN ACCORDANCE WITH SECTION 204 EMBANKMENT AND SUBGRADE OF THE MD SHA STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS. COMPACT THE MATERIAL THAT IS 1 FOOT BELOW THE TOP OF SUBGRADE TO AT LEAST 92.0% OF MAXIMUM DRY DENSITY USING AASHTO T-180 METHOD. COMPACTION OF TOP ONE FOOT OF FILL SHALL NOT BE LESS THAN 97.0% OF MAXIMUM DRY DENSITY USING THE SAME METHOD.
- CONTRACTOR IS RESPONSIBLE FOR PROVIDING SOIL, BASE AGGREGATE AND HOT MIX ASPHALT COMPACTION TESTING. A CERTIFIED TECHNICIAN MUST BE ONSITE AT ALL TIMES DURING FILL OPERATIONS. COMPACTION TESTS MUST BE CERTIFIED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF MARYLAND. COPIES OF SOIL COMPACTION TEST RESULTS MUST BE PROVIDED TO, AND APPROVED BY, THE CONSTRUCTION INSPECTION DIVISION PRIOR TO PLACEMENT OF CURBS AND/OR BASE AGGREGATE. COPIES OF BASE AGGREGATE COMPACTION TEST RESULTS MUST BE PROVIDED TO, AND APPROVED BY, THE CONSTRUCTION INSPECTION DIVISION PRIOR TO PLACEMENT OF BASE HOT MIX ASPHALT.
- INLET GRATES IN SUMPS SHALL BE CONSTRUCTED LEVEL AT ELEVATION GIVEN IN STRUCTURE SCHEDULE. INLETS ON GRADE SHALL BE ADJUSTED SO THAT SLOPE OF GRATE MATCHES FINISHED FLOW LINE OF CURB. TOP ELEVATION SHALL APPLY TO CENTERLINE OF GRATE AT FLOW LINE OF CURB. CROSS SLOPE OF THE GRATE SHALL MATCH THE ROAD CROSS SLOPE.
- PIPE ELEVATIONS SHOWN ON STORM DRAIN PROFILES ARE INVERT ELEVATIONS UNLESS OTHERWISE NOTED.
- WHERE DITCH OR WATERWAY STABILIZATION MATTING OF ANY TYPE IS SPECIFIED, INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. MATTING SHALL BE PLACED ON BOTTOM AND SIDE SLOPES TO PROVIDE EITHER 1.0' STABILIZED DEPTH, UNLESS OTHERWISE INDICATED ON PLANS.
- ALL EXISTING PAVING DISTURBED BY UTILITY CUTS SHALL BE REPLACED IN ACCORDANCE WITH CARROLL COUNTY STANDARD PLATE 47, OPTION 1 OR OPTION 3 IN THE DESIGN MANUAL, VOLUME 1 OR AS NOTED IN THE UTILITY PERMIT.
- ONCE BEGUN, ROAD CONSTRUCTION SHALL BE CONTINUED UNTIL FULL DEPTH OF AGGREGATE BASE AND PAVING AS SHOWN ON THE TYPICAL SECTION ARE PLACED, INCLUDING THE FINISHED SURFACE COURSE. AGGREGATE BASE COURSE AND HOT MIX ASPHALT BASE COURSE SHALL NOT REMAIN UNCOVERED FOR MORE THAN FIVE WORKING DAYS.
- OFF-SITE BORROW MATERIAL TO BE IMPORTED FOR EMBANKMENT CONSTRUCTION AND SUPPORT OF PAVEMENT IS TO MEET THE MINIMUM SUBGRADE SOIL SPECIFICATIONS IN TABLE 3 OF THE DESIGN GUIDE FOR FLEXIBLE PAVEMENTS. CBR TESTING OF OFF-SITE BORROW MATERIAL SHALL BE COMPLETED AND THE TEST RESULTS SUBMITTED TO AND APPROVED BY THE BUREAU OF DEVELOPMENT REVIEW ENGINEER (410-386-2668), PRIOR TO DELIVERY OF THE MATERIAL. THE PAVING DESIGN SECTIONS SHOWN ON THE APPROVED PLANS SHALL BE REVIEWED AND EVALUATED USING THE CBR TESTING RESULTS OF THE BORROW MATERIAL. ANY CHANGES TO THE PAVEMENT DESIGN SECTIONS BASED ON THE CBR TEST RESULTS SHALL BE INCORPORATED THROUGH THE RED-LINE REVISION PROCESS.
- THE DESIGN EQUIVALENT SINGLE AXLE LOADS (ESAL) AND THE DESIGN CBR VALUE SHALL BE NOTED ON THE CONSTRUCTION PLANS.
- PERMANENT SIGNAGE AND STRIPING SHALL BE FURNISHED AND INSTALLED BY THE CARROLL COUNTY BUREAU OF ROADS OPERATIONS. CONTRACTOR SHALL NOTIFY THE BUREAU OF ROADS OPERATIONS AT 410-386-6717 A MINIMUM OF THREE (3) WEEKS PRIOR TO STARTING WORK AND THEN AGAIN 48 HOURS PRIOR TO COMPLETION OF WORK.
- CONSTRUCTION VEHICLES, CONTRACTOR OR PRIVATE, OR CONSTRUCTION MATERIALS OR EQUIPMENT SHALL NOT BE PARKED, PLACED, OR STORED WITHIN ANY PUBLIC RIGHT-OF-WAY.

Revisions	CARROLL COUNTY, MARYLAND	
	WILLOW POND WATERSHED IMPROVEMENTS	
	STORMWATER MANAGEMENT DETAILS	
Drawn By : JG	Contract No : 75-F-9-1516	
Designed By : BM	Scale : NOT TO SCALE	
Reviewed By : LT	Sheet 13 Of 30	
	Date : MARCH 2018	









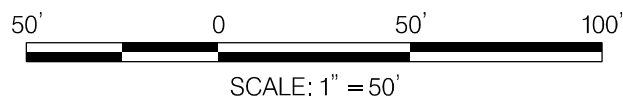
SEE SHEET 14 FOR SIGNAGE  
PLACEMENT DETAIL

Plotted: Thursday, March 22, 2018 at 10:48 PM  
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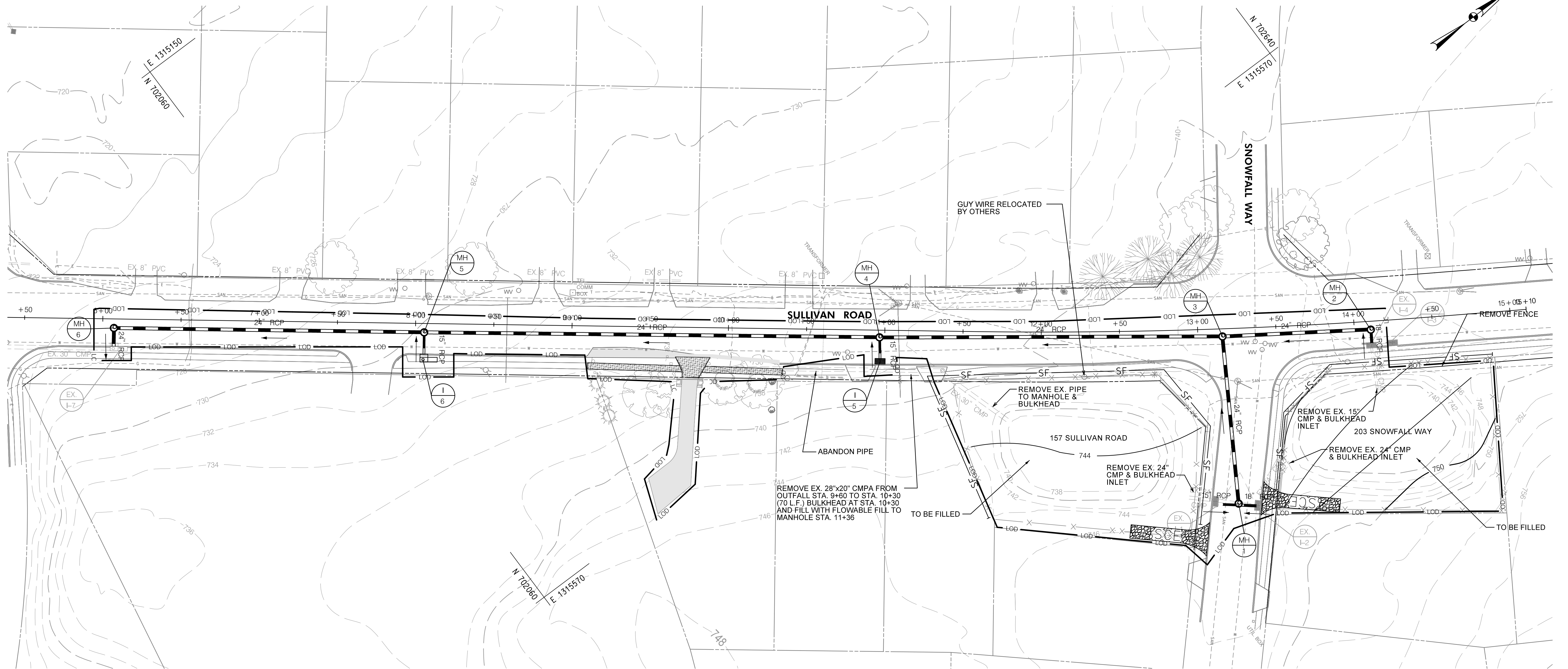
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Revisions		CARROLL COUNTY, MARYLAND	
		WILLOW POND WATERSHED IMPROVEMENTS	
		MAINTENANCE OF TRAFFIC PLAN	
Drawn By : JG		Contract No : 75-F-9-1516	
Designed By : BM		Scale : 1" = 50'	
Reviewed By : LT		Sheet 15 Of 30	
		Date : MARCH 2018	





NOTE: SEE SHEET 22 FOR  
SEQUENCE OF CONSTRUCTION

OWNER / DEVELOPER  
COUNTY COMMISSIONERS  
OF CARROLL COUNTY  
225 NORTH CENTER STREET  
WESTMINSTER, MD 21157  
PHONE #: 410-386-2043



**CARROLL COUNTY, MARYLAND**  
WILLOW POND WATERSHED IMPROVEMENTS  
EROSION AND SEDIMENT CONTROL PLAN

Drawn By : JG

Designed By : BM

Reviewed By : LT

Contract No : 75-F-9-1516

Scale : 1" = 30'

Sheet 16 Of 30

Date : MARCH 2018

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PLOTTER: HP DesignJet T1100E  
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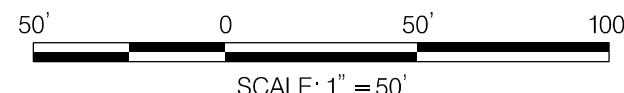




**VERTICAL STANDPIPE DETAIL**  
NOT TO SCALE

**NOTES:**

1. WRAP PERFORATED PIPE WITH 1/4" TO 1/2" HARDWARE CLOTH WIRE THEN GEOTEXTILE CLASS "E" FABRIC.
2. SECURE STAND PIPE WITH 10" STUDDED T-POST ON BOTH SIDES.
3. CONTRACTOR TO DRILL 12" HOLE INTO EX. RISER AND SECURE 12" PVC PIPE INTO STRUCTURE WITH A WATER TIGHT CONNECTION.



<b>Revisions</b>		<b>CARROLL COUNTY, MARYLAND</b>	
		WILLOW POND WATERSHED IMPROVEMENTS EROSION & SEDIMENT CONTROL PLAN PHASE 1	
Drawn By : JG		Contract No : 75-F-9-1516	
Designed By : BM		Scale : 1" = 50'	
Reviewed By : LT		Sheet 18 Of 30	
		Date : MARCH 2018	

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PLOTTED: Thursday, March 22, 2018 AT 10:48 PM  
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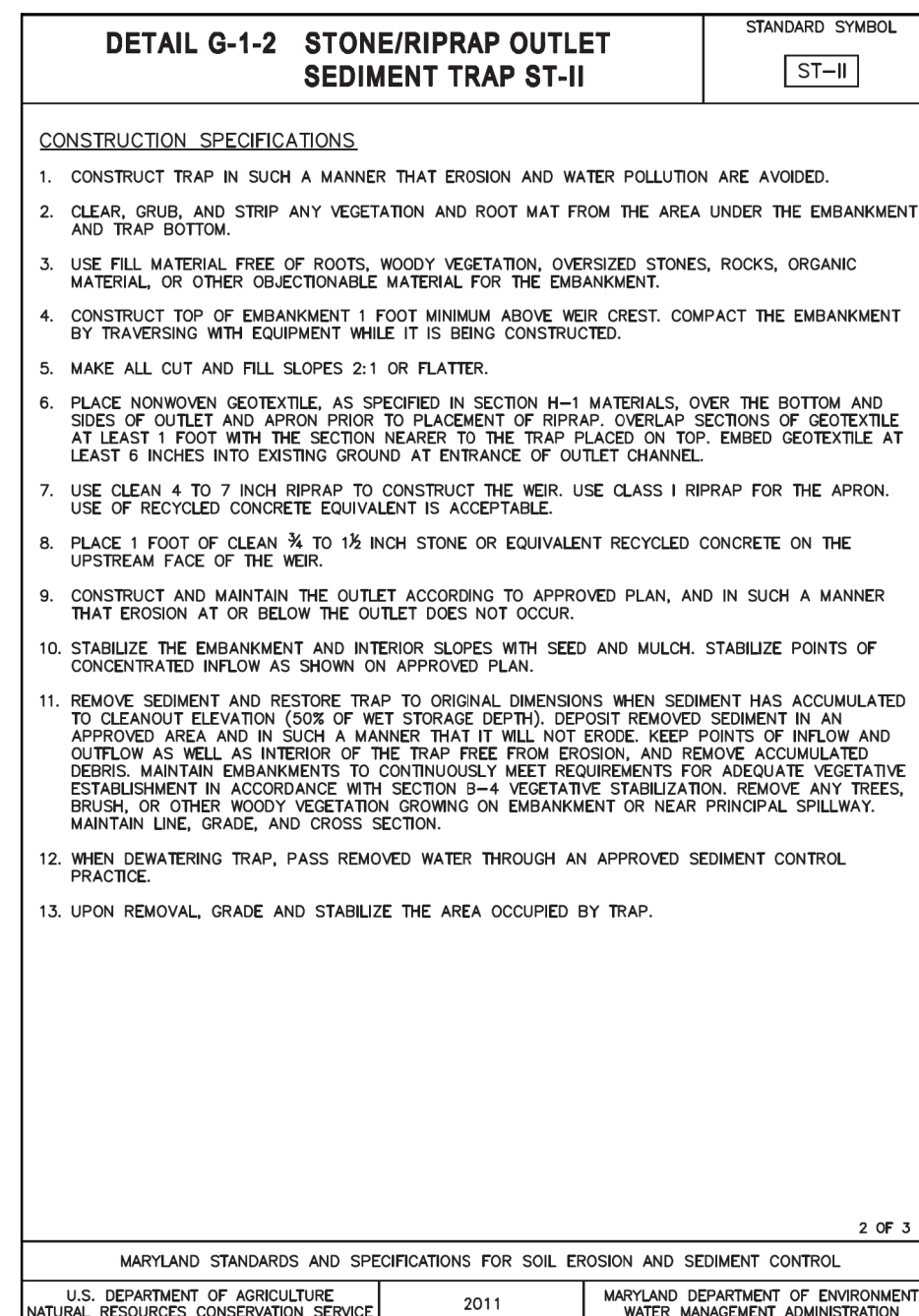
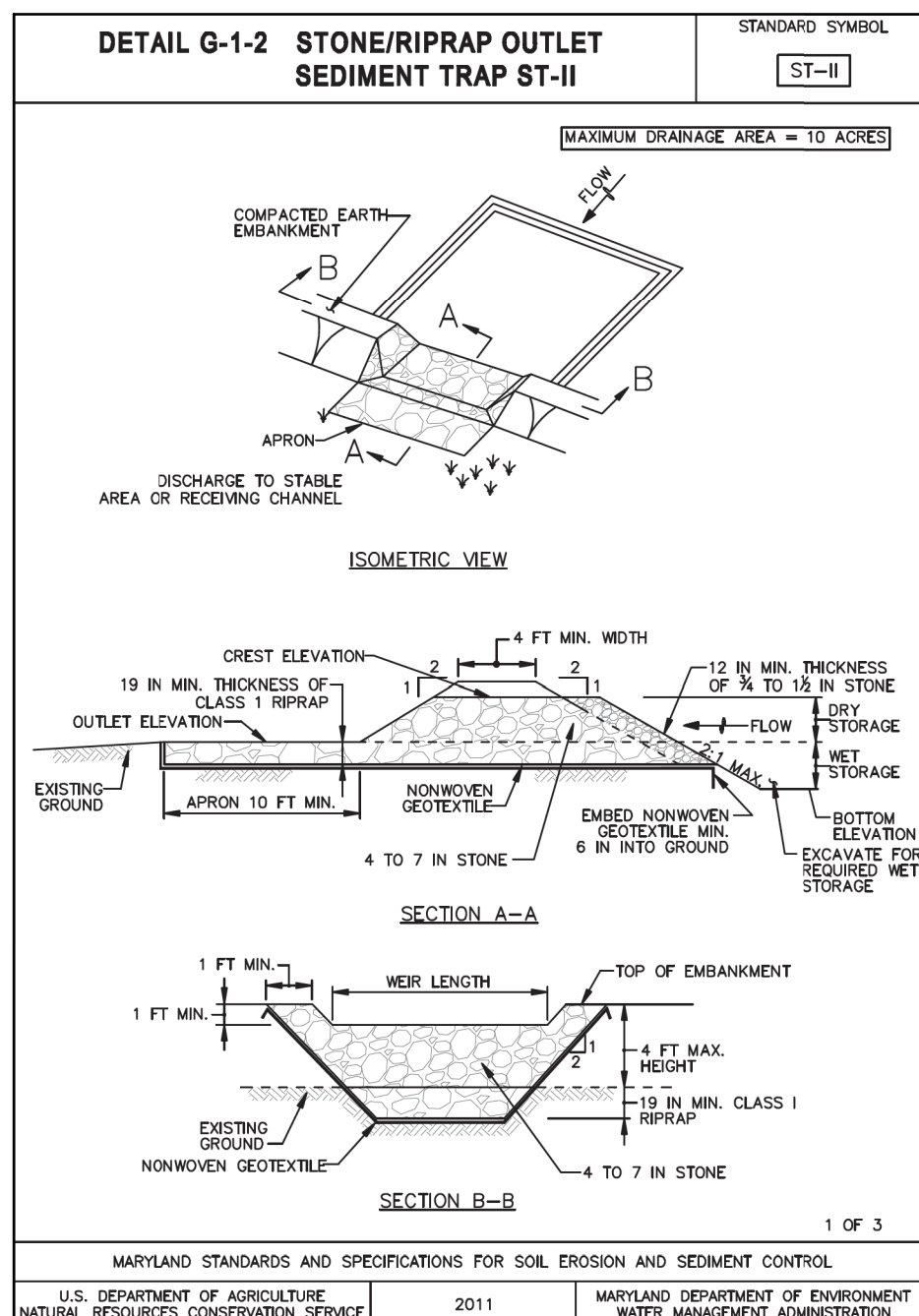
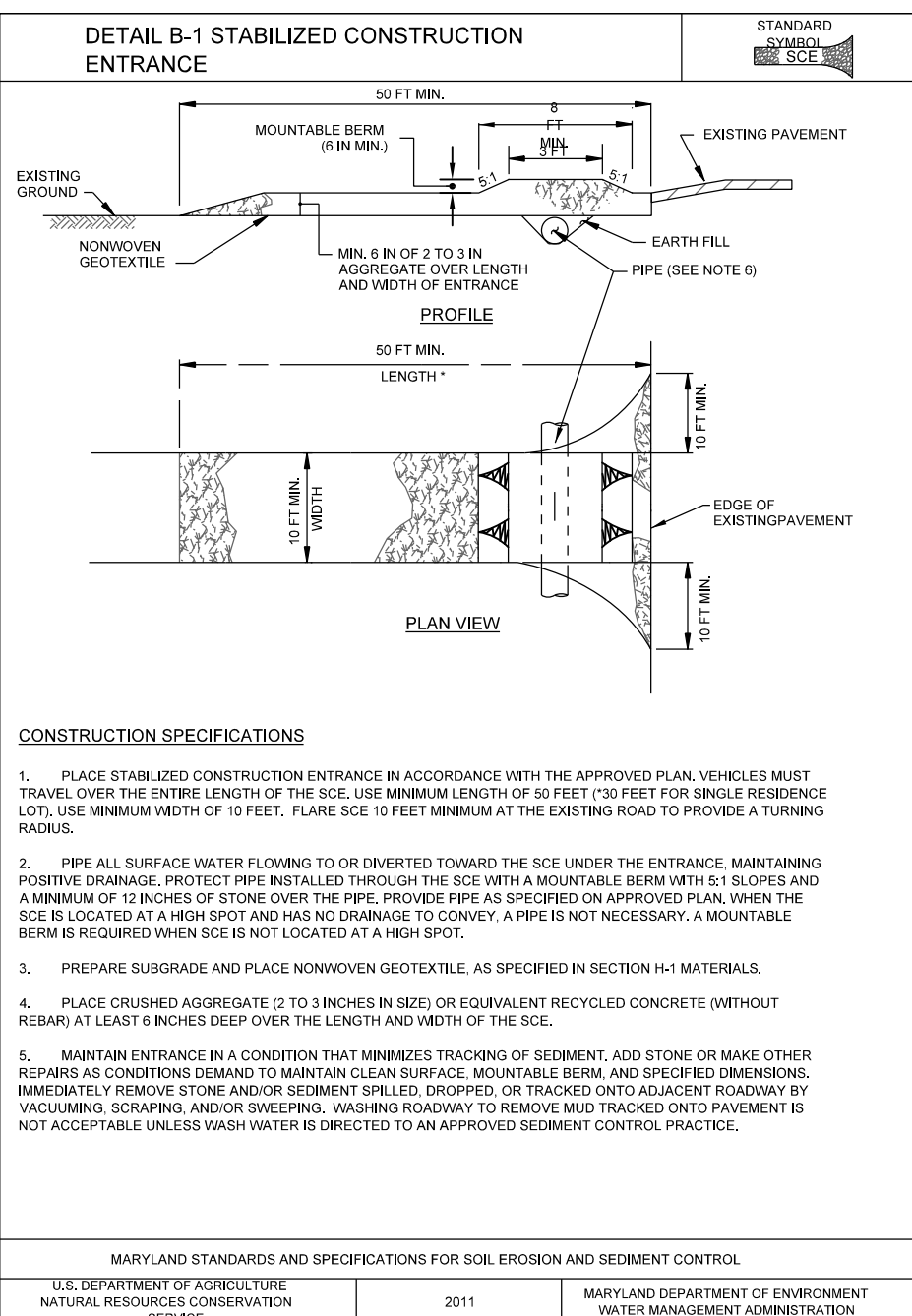
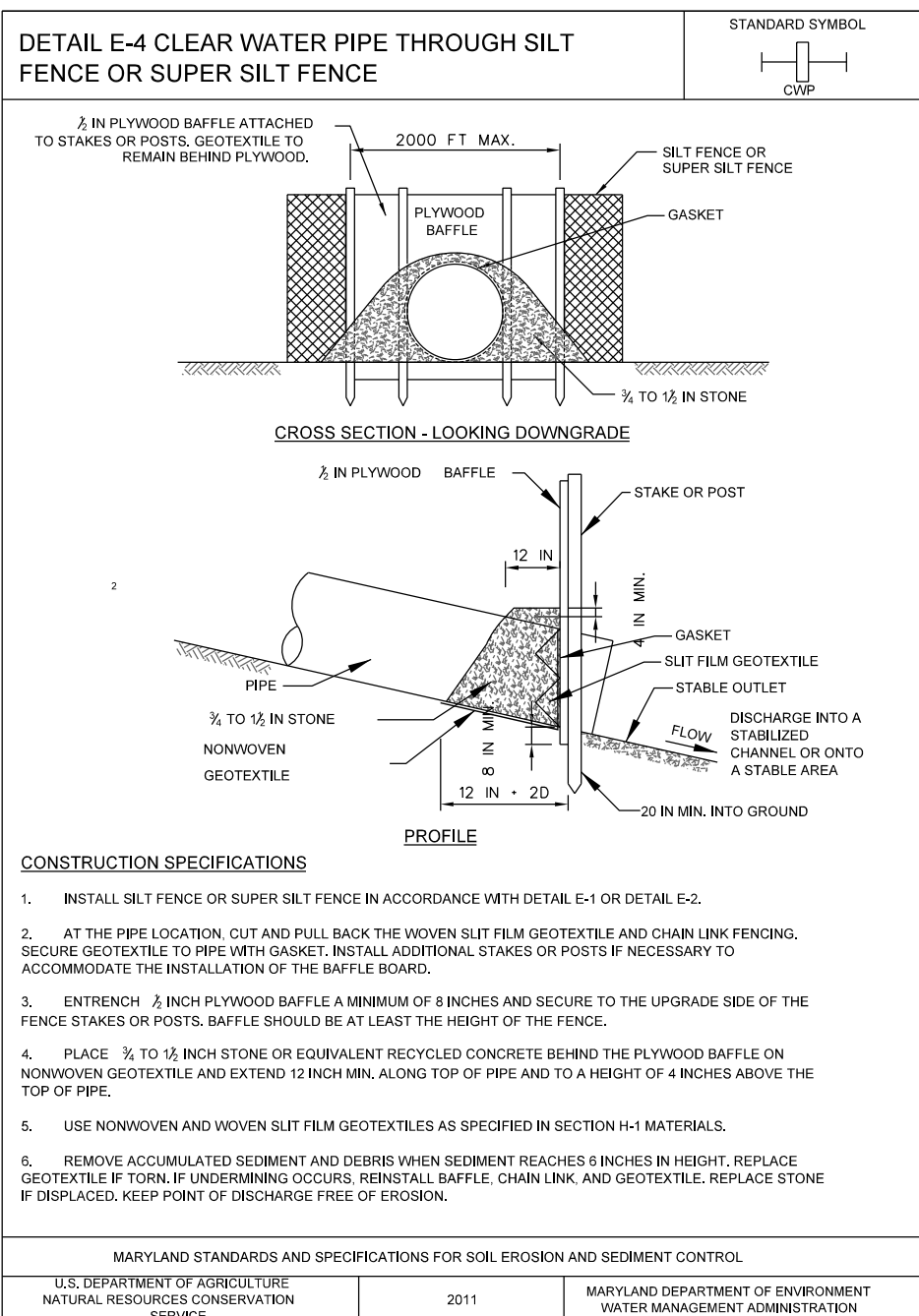
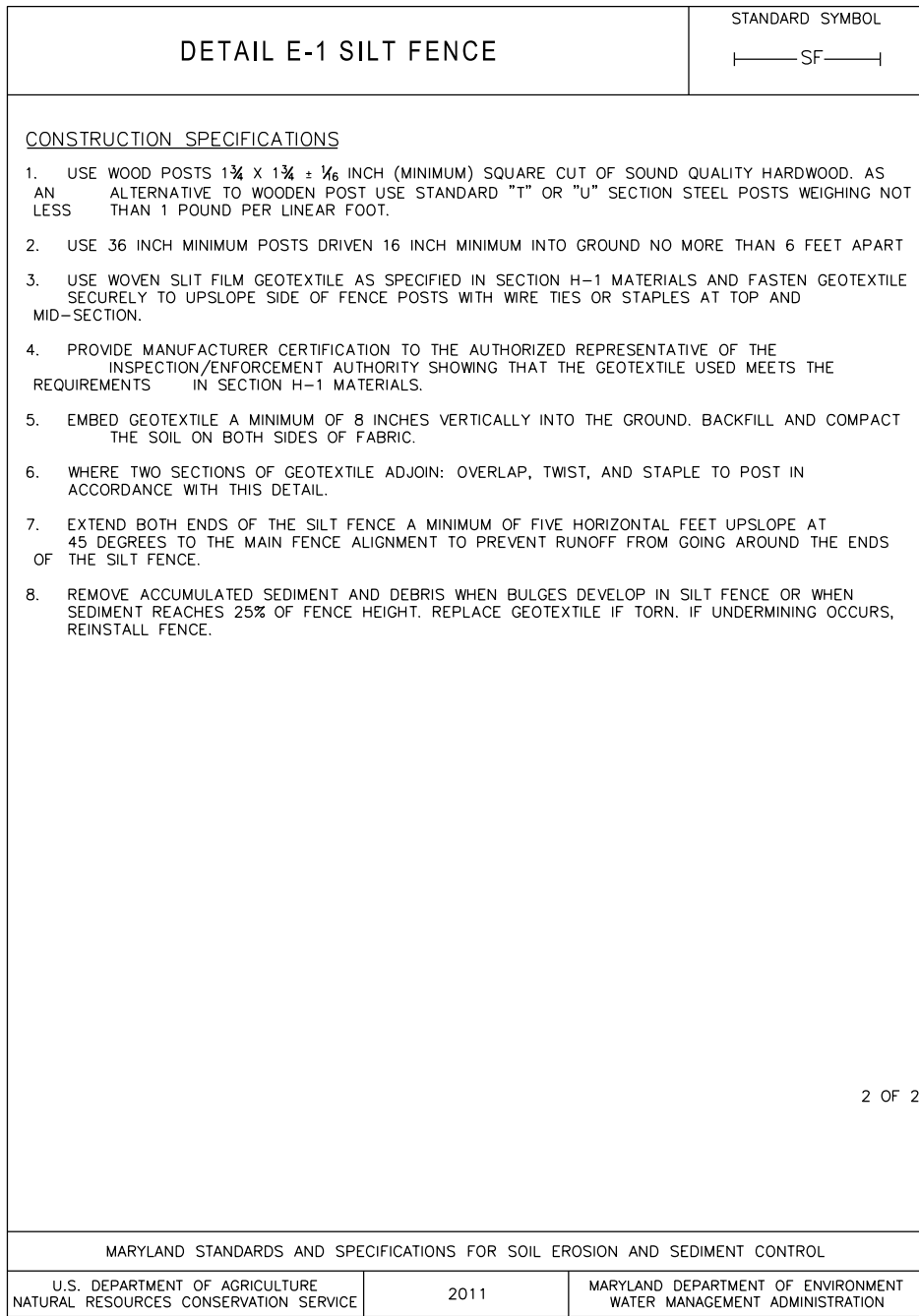
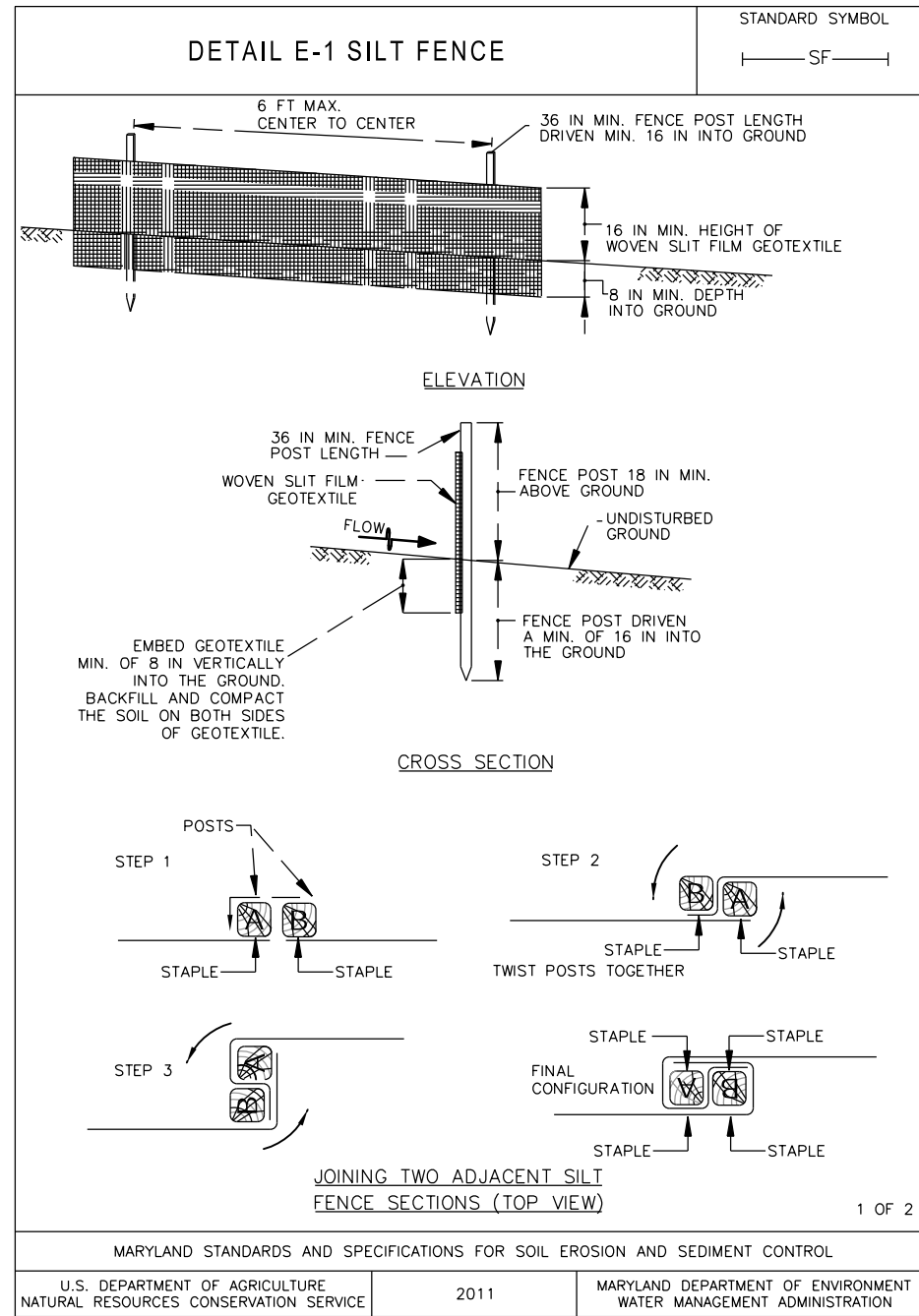
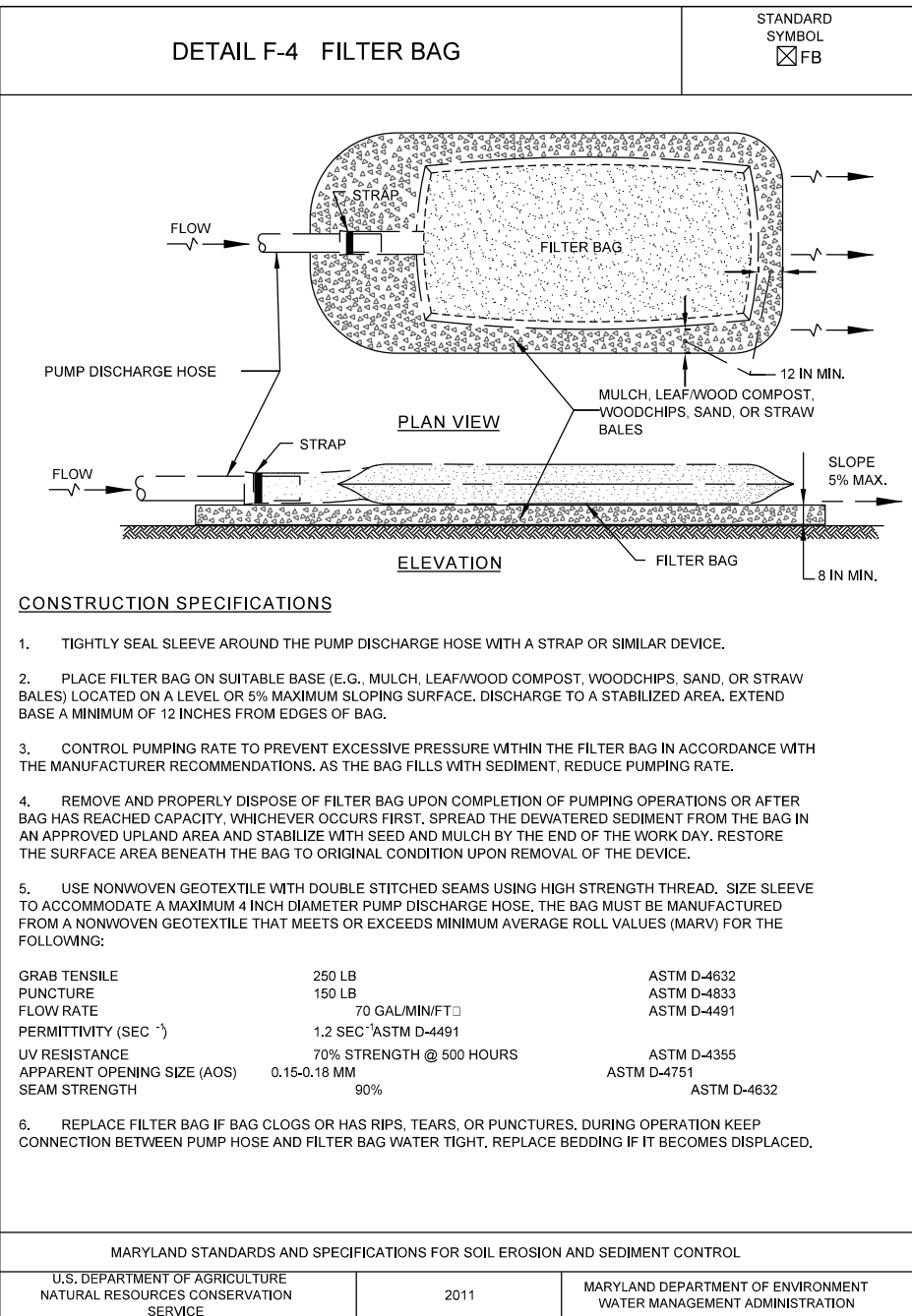
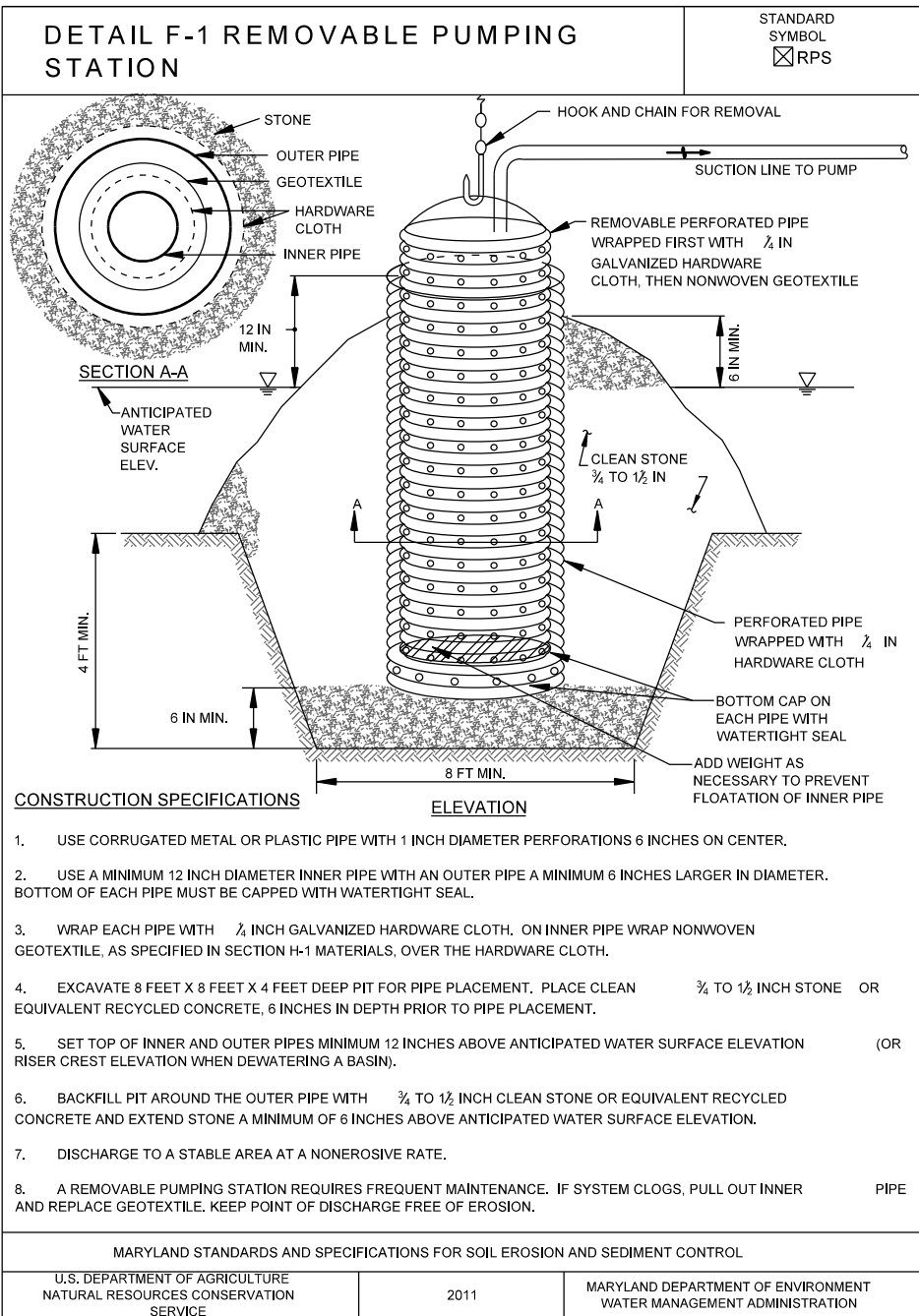












## VEGETATIVE STABILIZATION

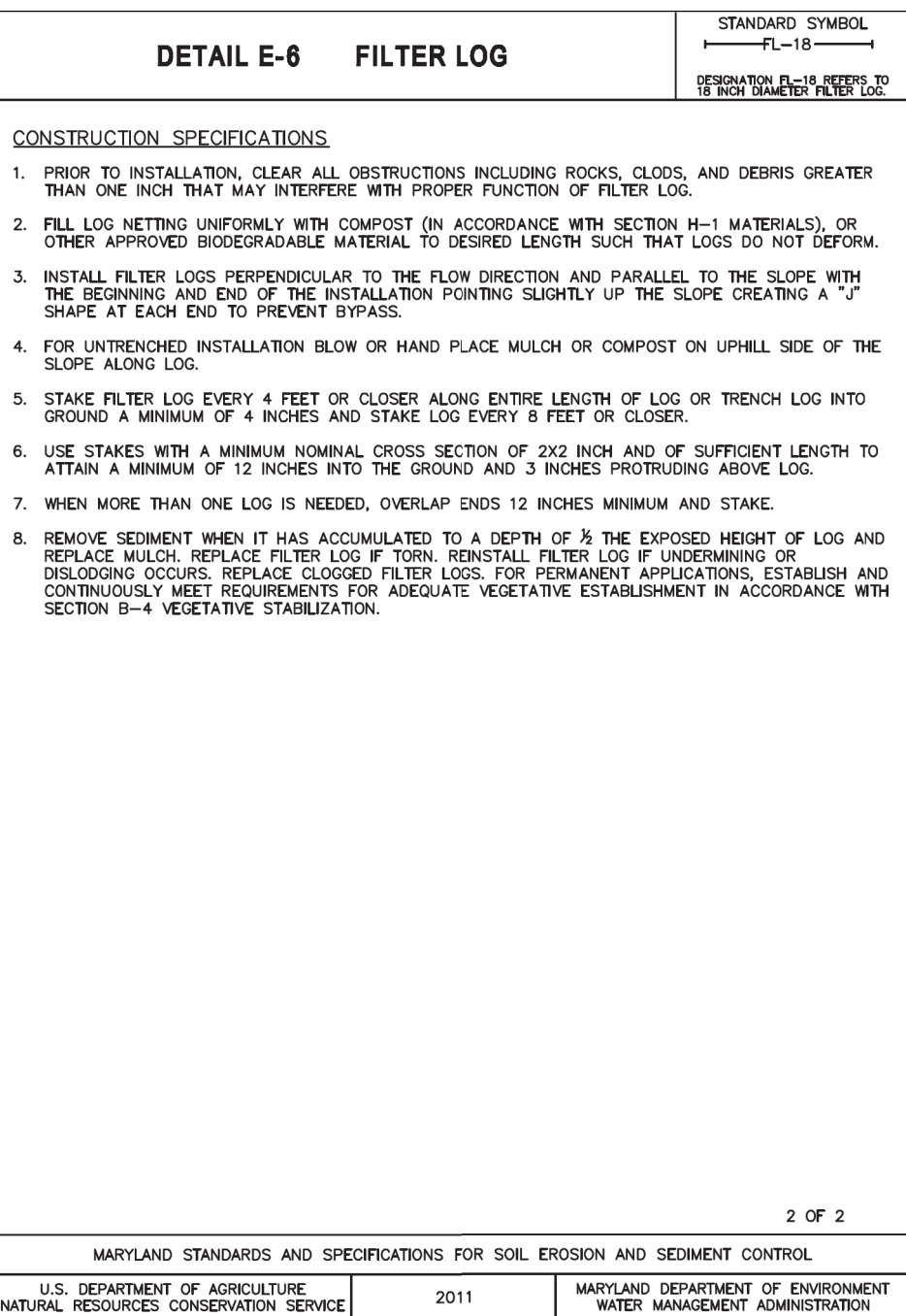
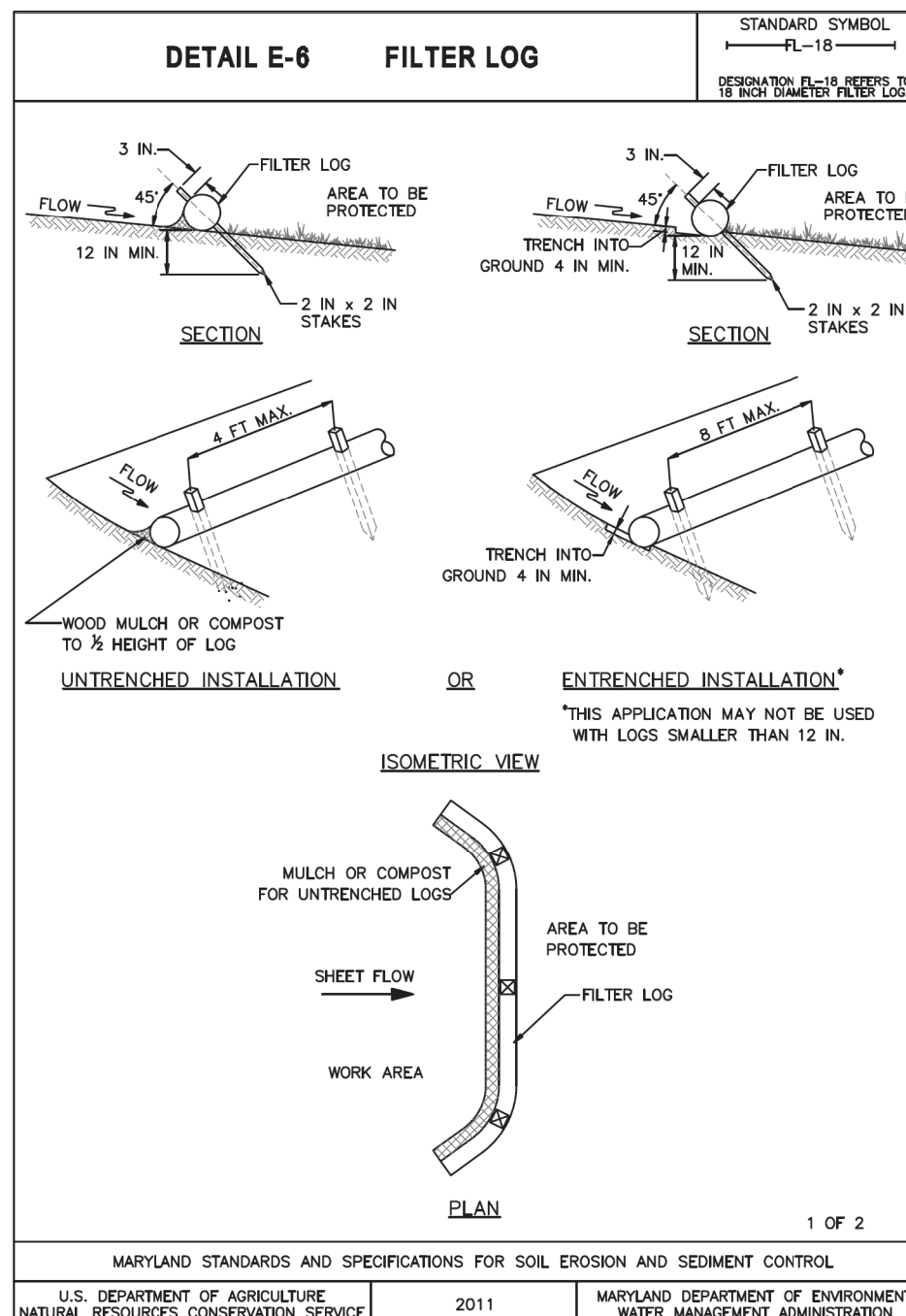
- SEEDBED PREPARATION: LOOSEN UPPER THREE INCH BY RAKING, DISCING, OR OTHER ACCEPTABLE MEANS AFTER SPREADING FOUR INCHES OF TOP SOIL.
- SOIL AMENDMENTS: APPLY 500 LBS. PER ACRE OF 10-10-10 FERTILIZER AND TWO TONS PER ACRE OF LIME.
- SEEDING\*  
FOR PERIODS MARCH 1 TO MAY 15 AND AUGUST 15 TO OCTOBER 15, SEED WITH 125 LBS. PER ACRE OF TALL FESCUE, 15 LBS. PER ACRE OF PERENNIAL RYEGRASS, AND 10 LBS. OF KENTUCKY BLUEGRASS.  
FOR PERIOD OF MAY 16 TO AUGUST 14, SEED WITH 110 LBS. PER ACRE OF TALL FESCUE AND 3 LBS. PER ACRE OF WEEPING LOVEGRASS.  
FOR PERIOD OF OCTOBER 16 TO FEBRUARY 28, PROTECT SITE BY: OPTIONS (1) 2 TONS PER ACRE OF WOOD CELLULOSE FIBER MULCH (WC FM) AND SEED AS SOON AS POSSIBLE IN THE SPRING. (2) USE SOD OR (3) SEED WITH 60 LBS. PER ACRE OF TALL FESCUE AND MULCH WITH 2 TONS PER ACRE OF WOOD CELLULOSE FIBER MULCH (WC FM). NOTE: FOR QUICK COVER WITH TALL FESCUE, ADD 2 LBS. OF SMALL GRAIN PER 1,000 SQ. FT.
- MULCHING SPECIFICATIONS  
MULCH SHALL BE WOOD CELLULOSE FIBER MULCH (WC FM) COMPLYING WITH SECTION B-4-5, B.1. OF THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS. THE WC FM SHALL BE APPLIED TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING AT A RATE OF 1500 LBS. PER ACRE (NET DRY WEIGHT).

\* IF OTHER SEED MIXES ARE TO BE SUBSTITUTED, THEY MUST COMPLY WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS, SECTION B-4-5, TABLE B.3.

## TEMPORARY VEGETATIVE STABILIZATION

- SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES BY DISCING, RAKING OR OTHER ACCEPTABLE MEANS.
- SOIL AMENDMENTS: APPLY 600 LBS. PER ACRE OF 10-10-10 FERTILIZER AND TWO TONS PER ACRE OF LIME.
- SEEDING:  
FOR PERIOD OF MARCH 1 TO APRIL 30 AND AUGUST 15 TO NOVEMBER 15, SEED WITH 2.5 BU PER ACRE OF CEREAL RYE PLUS 30 LBS. PER ACRE OF TALL FESCUE OR 5 LBS. PER ACRE OF REDTOP OR 20 LBS. PER ACRE OF PERENNIAL RYEGRASS.  
FOR PERIODS OF MAY 1 TO AUGUST 14, SEED WITH 3 LBS. PER ACRE OF WEEPING LOVEGRASS OR 40 LBS. PER ACRE OF JAPANESE OR FOXTAIL MILLET.  
FOR PERIODS OF NOVEMBER 16 TO FEBRUARY 28, PROTECT THE SITE BY APPLYING 1500 LBS. PER ACRE OF WOOD CELLULOSE FIBER MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOD.
- MULCHING SPECIFICATIONS  
MULCH SHALL BE WOOD CELLULOSE FIBER MULCH (WC FM) COMPLYING WITH SECTION B-4-5, B.1. OF THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS. THE WC FM SHALL BE APPLIED TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING AT A RATE OF 1500 LBS. PER ACRE (NET DRY WEIGHT).

\* IF OTHER SEED MIXES ARE TO BE SUBSTITUTED, THEY MUST COMPLY WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS, SECTION B-4-4, TABLE B.1.



## SEDIMENT & EROSION CONTROL NOTES

- ALL EROSION/SEDIMENT CONTROL MEASURES SHALL COMPLY WITH THE "MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL" BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT, WATER MANAGEMENT ADMINISTRATION IN ASSOCIATION WITH THE NATURAL RESOURCES CONSERVATION SERVICE AND MARYLAND ASSOCIATION OF SOIL CONSERVATION DISTRICTS (REFERENCED AS THE 2011 STANDARDS AND SPEC'S).
- AREAS THAT HAVE BEEN CLEARED AND/OR GRADED, BUT WILL NOT BE CONSTRUCTED ON OR PERMANENTLY VEGETATED FOR MORE THAN 5 DAYS (3 DAYS FOR SEDIMENT CONTROL MEASURES STEEP SLOPES) MUST BE STABILIZED WITH MULCH OR TEMPORARY STABILIZATION. ANY AREAS THAT ARE IN TEMPORARY VEGETATION FOR OVER 6 MONTHS WILL NEED TO BE PERMANENTLY VEGETATED.
- FOR SPECIFICATIONS ON PERMANENT OR TEMPORARY STABILIZATION SEE B-4-4 AND B-4-5.
- MULCHING CAN ONLY BE USED ON DISTURBED AREAS AS A TEMPORARY COVER WHERE VEGETATION IS NOT FEASIBLE OR WHERE SEEDING GERMINATION CANNOT BE COMPLETED BECAUSE OF WEATHER CONDITIONS. FOR SPECIFICATIONS SEE B-4-3, A.1.B.
- FOR SPECIFICATIONS ON THE STABILIZATION OF CUT AND FILL SLOPES GREATER THAN 3 HORIZONTAL TO 1 VERTICAL, SEE INCREMENTAL STABILIZATION B-4-1.
- THE EXISTING TOPSOIL FROM ON OR OFF SITE THAT IS USED MUST MEET THE MINIMUM SPECIFICATIONS IN B-4-2.
- THE REQUIRED SEQUENCE OF CONSTRUCTION MUST BE FOLLOWED DURING SITE DEVELOPMENT. ANY CHANGE IN THE SEQUENCE OF CONSTRUCTION MUST BE APPROVED BY THE SOIL CONSERVATION DISTRICT.
- ANY REVISIONS TO THE SEDIMENT CONTROL PLAN, NOT COVERED UNDER THE LIST OF PLAN MODIFICATIONS THAT CAN BE APPROVED BY THE SEDIMENT CONTROL INSPECTOR, NEED TO BE SUBMITTED TO THE SOIL CONSERVATION DISTRICT FOR APPROVAL.
- NO PROPOSED SLOPE THAT IS SEEDED AND/OR MULCHED SHALL BE GREATER THAN 2:1. SLOPES GREATER THAN 2:1 SHALL REQUIRE AN ENGINEERED DESIGN FOR STABILIZATION.
- ALL SEDIMENT CONTROL STRUCTURES WILL BE INSPECTED ONCE A WEEK AND AFTER EACH RAINFALL AND WILL BE REPAIRED, AS NEEDED, SO THAT THE STRUCTURE MEETS THE MINIMUM SPECIFICATIONS AS SHOWN IN THE 2011 STANDARDS AND SPEC'S.
- THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL SEDIMENT AND EROSION CONTROL MEASURES UNTIL THE DISTURBED AREAS ARE PERMANENTLY STABILIZED.
- THE DISTRICT APPROVAL FOR THIS SEDIMENT CONTROL PLAN IS GOOD FOR 2 YEARS. AT THE END OF 2 YEARS, IF CONSTRUCTION OF THE PLAN HAS NOT STARTED, THE PLAN WILL NEED TO BE RESUBMITTED TO THE SOIL CONSERVATION DISTRICT FOR REVIEW AND RE-APPROVAL. ANY PLANS THAT ARE CURRENTLY UNDER CONSTRUCTION AFTER 2 YEARS MAY BE REQUIRED TO BE RE-SUBMITTED TO THE SOIL CONSERVATION DISTRICT BY THE SEDIMENT CONTROL INSPECTOR.

## BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAINS

- NO EXCESS FILL, CONSTRUCTION MATERIAL, OR DEBRIS SHALL BE STOCKPILED OR STORED IN NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
- PLACE MATERIALS IN A LOCATION AND MANNER WHICH DOES NOT ADVERSELY IMPACT SURFACE OR SUBSURFACE WATER FLOW INTO OR OUT OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
- DO NOT USE THE EXCAVATED MATERIAL AS BACKFILL IF IT CONTAINS WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIALS, OR ANY OTHER DELETERIOUS SUBSTANCE. IF ADDITIONAL BACKFILL IS REQUIRED, USE CLEAN MATERIAL FREE OF WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE.
- PLACE HEAVY EQUIPMENT ON MATS OR SUITABLY OPERATE THE EQUIPMENT TO PREVENT DAMAGE TO NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
- REPAIR AND MAINTAIN ANY SERVICEABLE STRUCTURE OR FILL SO THERE IS NO PERMANENT LOSS OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, OR WATERWAYS, OR PERMANENT MODIFICATION OF THE 100 YEAR FLOODPLAIN IN EXCESS OF THAT LOST UNDER THE ORIGINALLY AUTHORIZED STRUCTURE OR FILL.
- RECTIFY ANY NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, OR 100-YEAR FLOODPLAIN TEMPORARILY IMPACTED BY ANY CONSTRUCTION.
- ALL STABILIZATION IN THE NONTIDAL WETLAND AND NONTIDAL WETLAND BUFFER SHALL CONSIST OF THE FOLLOWING SPECIES: ANNUAL RYEGRASS (*Lolium multiflorum*), MILLET (*Setaria italica*), BARLEY (*Hordeum sp.*), OATS (*Urtiola sp.*), AND/OR RYE (*Secale cereale*). THESE SPECIES WILL ALLOW FOR THE STABILIZATION OF THE SITE WHILE ALSO ALLOWING FOR THE VOLUNTARY REVEGETATION OF NATURAL WETLAND SPECIES. OTHER NON-PERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE NONTIDAL WETLANDS AND WATERWAYS DIVISION. KENTUCKY 31 FESCUE SHALL NOT BE UTILIZED IN WETLAND OR BUFFER AREAS. THE AREA SHOULD BE SEEDED AND MULCHED TO REDUCE EROSION AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.
- AFTER INSTALLATION HAS BEEN COMPLETED, MAKE POST-CONSTRUCTION GRADES AND ELEVATIONS THE SAME AS THE ORIGINAL GRADES AND ELEVATIONS IN TEMPORARILY IMPACTED AREAS.
- TO PROTECT AQUATIC SPECIES, IN-STREAM WORK IS PROHIBITED AS DETERMINED BY THE CLASSIFICATION OF THE STREAM: USE I-P WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH JUNE 15, INCLUSIVE, DURING ANY YEAR.
- STORMWATER RUNOFF FROM IMPERVIOUS SURFACES SHALL BE CONTROLLED TO PREVENT THE WASHING OF DEBRIS INTO THE WATERWAY.
- CULVERTS SHALL BE CONSTRUCTED AND ANY RIPRAP PLACED SO AS NOT TO OBSTRUCT THE MOVEMENT OF AQUATIC SPECIES, UNLESS THE PURPOSE OF THE ACTIVITY IS TO IMPOUND WATER.

## DUST CONTROL SCHEDULE

MAY-OCTOBER - ALL GRADED AREAS NOT BEING IMMEDIATELY STABILIZED AS NOTED IN THE "REQUIRED SEQUENCE OF CONSTRUCTION" SHALL BE WATERED ON A CONTINUING BASIS AS NECESSARY TO PROVIDE FOR DUST PROOFING. CONTRACTOR SHALL PROVIDE TANK TRUCK WITH SPRAY BAR ON SITE AT ANY TIME THE DISTURBED AREA EXCEEDS THREE (3) ACRES.

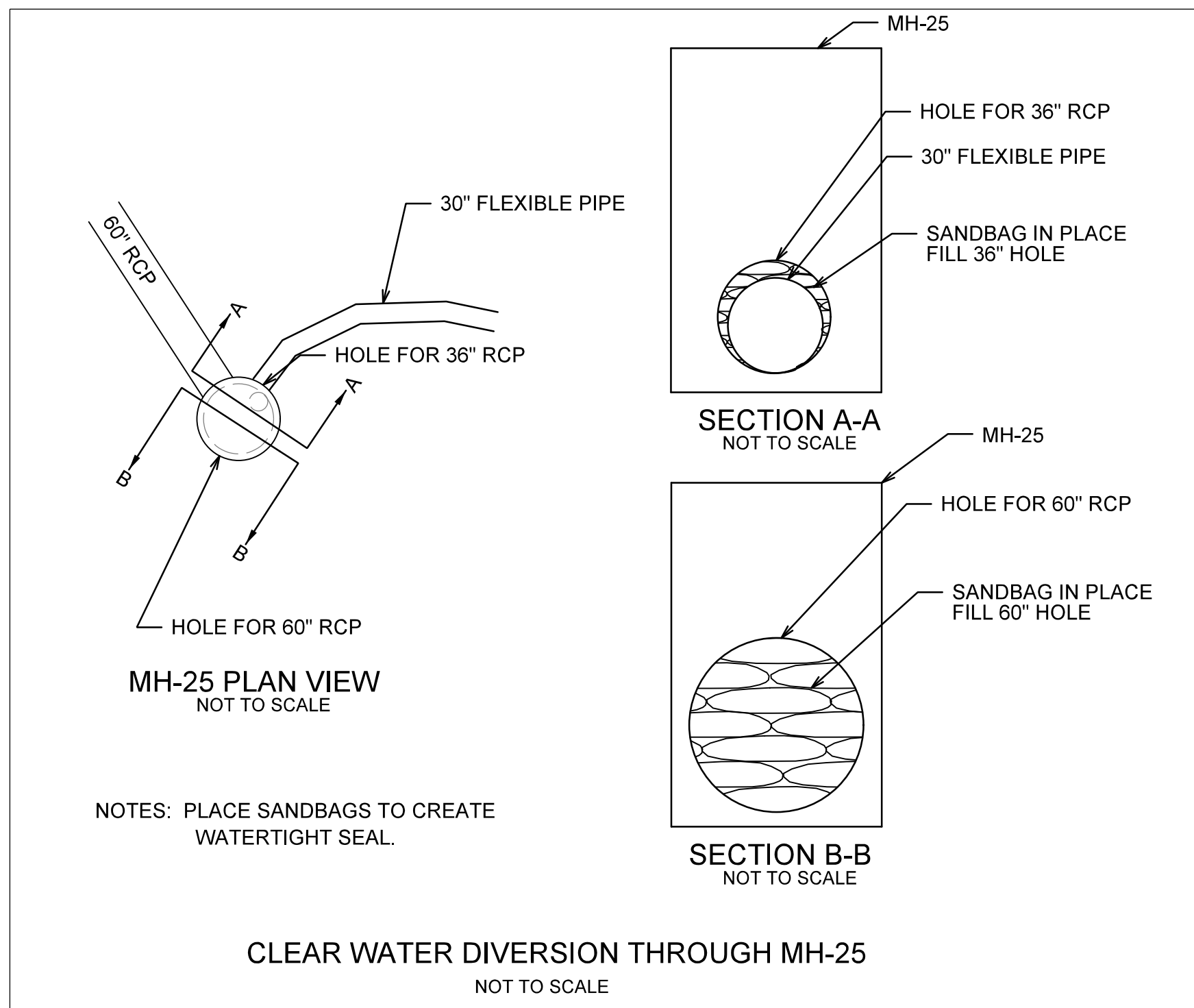
## SITE ANALYSIS

- TOTAL AREA OF SITE: 21 AC.
- AREA DISTURBED: 21 AC.
- TOTAL CUT: 82,410 CU YDS.
- TOTAL FILL: 14,410 CU YDS.

Revisions		CARROLL COUNTY, MARYLAND	
		WILLOW POND WATERSHED IMPROVEMENTS	
		EROSION AND SEDIMENT CONTROL DETAILS	
Drawn By :	JG	Contract No :	75-F-9-1516
Designed By :	BM	Scale :	1" = 30'
Reviewed By :	LT	Sheet	21 Of 30
		Date :	MARCH 2018



REQUIRED SEQUENCE OF CONSTRUCTION FOR WILLOW POND	CERTIFYING PROFESSIONAL'S APPROVAL		
	INITIALS	DATE	INSPECTING AGENT
<b>PHASE 1</b>			
1.NOTIFY THE CARROLL COUNTY BUREAU OF SEDIMENT CONTROL (410-386-2210) 24 HOURS PRIOR TO THE START OF CONSTRUCTION ACTIVITIES FOR A PRE-CONSTRUCTION MEETING.			COUNTY
2.DEWATER POND WITH REMOVABLE PUMPING STATION (RPS #1). CONTRACTOR TO LOCATE AND RE-LOCATE RPS AS NEEDED.			COUNTY
3.REMOVE EXISTING HOOD OF RISER AND PLACE SAND BAGS AROUND RISER. EXCAVATE TO INSTALL STANDPIPE THROUGH SAND BAGS AS SHOWN THE VERTICAL STANDPIPE DETAIL ON SHEET 18 AND REMOVE RPS #1.			COUNTY
4. INSTALL 36" FLEXIBLE CLEARWATER DIVERSION PIPE BETWEEN EXISTING 36" PIPE OUTFALL AND EXISTING RISER STRUCTURE AS SHOWN ON SHEET 18.			COUNTY
5.CONSTRUCT MH-26 AND GRADE TO INSTALL 30" HDPE CLEARWATER DIVERSION PER DETAIL ON THIS SHEET. CONNECT 30" HDPE PIPE TO EXISTING RISER STRUCTURE.			COUNTY
6.CONSTRUCT STORM DRAIN SYSTEM NORTH AND WEST OF MH-26 WORKING DOWNSTREAM TO UPSTREAM. REMOVE EXISTING STORM DRAIN PIPES.			COUNTY
7.WITH BASEFLOW IN THE EXISTING CHANNEL, CONSTRUCT WEIR DIVERSION STRUCTURE AND EMERGENCY/PRINCIPAL SPILLWAY WEIR WALL.			GEOTECH
8.CONSTRUCT NEW STREAM CHANNEL FROM STA. 101+00 TO 104+50.			COUNTY
9.CONSTRUCT NEW EMBANKMENT FROM STA. 0+00 TO APPROXIMATELY 10+50 AND TIE IN NEW EMBANKMENT TO EXISTING EMBANKMENT SO THAT THERE IS NO OBSTRUCTION OF FLOW BETWEEN THE POND AND THE STANDPIPE.			GEOTECH
10.INSTALL RPS #2 AND FILTER BAG AS NEEDED NEAR 9+75 RT.			COUNTY
11.GRADE POND AND FLOODPLAIN IN ACCORDANCE WITH THE PHASE 1 PLAN WHILE MAINTAINING BASEFLOW IN THE EXISTING STREAM CHANNEL.			COUNTY
<b>PHASE 2</b>			
1.INSTALL SANDBAG DIVERSION (SBD #1) AND RPS #3. CONSTRUCT STREAM TIE IN FROM STA. 100+00 TO 101+00 AND SAND BAG DIVERSION (SBD #2) IN THE EXISTING STREAM CHANNEL. CLOSE OFF LOW FLOW ORIFICE IN WEIR WALL WITH SAND BAGS AND REMOVE SBD #1 AND RPS #3 SUCH THAT ALL BASEFLOW IS DIVERTED TO THE POND. ALL STREAM BASEFLOW WILL PASS THROUGH THE POND AND OUT STANDPIPE STRUCTURE DURING PHASE 2.			COUNTY
2.DURING A 72-HOUR DRY WEATHER FORECAST INSTALL SEDIMENT TRAP (ST-II) AS SHOWN ON SHEET 19.			COUNTY
3.CONSTRUCT STREAM/FLOODPLAIN IMPROVEMENTS WORKING UPSTREAM TO DOWNSTREAM BETWEEN STA. 200+00 AND THE SEDIMENT TRAP.			COUNTY
<b>PHASE 3</b>			
1.WITH PHASE 2 STREAM IMPROVEMENTS STABLE, REMOVE SBD #2 AND SAND BAGS FROM LOW-FLOW ORIFICE OF THE DIVERSION WEIR SO THAT BASEFLOW IS TO THE STREAM CHANNEL AND DEWATER POND AS NECESSARY WITH RPS.			COUNTY
2.REMOVE CLEAR WATER DIVERSION PIPES FROM EXISTING 36" PIPE AND MH-25. CONSTRUCT MH-24, MH-25, EW-27 AND REMAINING STORM DRAIN SYSTEM.			COUNTY
3.DURING A 72-HOUR DRY WEATHER FORECAST GRADE PORTION OF POND TO FINAL GRADE IN VICINITY OF EW-27 TO CREATE SUMP AT EAST PORTION OF POND.			COUNTY
4.INSTALL RPS IN SUMP AND DEWATER POND THROUGH FILTER BAG UNTIL POND GRADING IS COMPLETE AND STABLE.			COUNTY
5.INSTALL SUPER SILT FENCE ALONG NORTH SIDE OF STREAM CHANNEL AND REMOVE STANDPIPE AND EXISTING RISER AND OUTFALL BARREL.			COUNTY
6.CONSTRUCT REMAINING PORTION OF EMBANKMENT FROM STA. 10+50 TO 13+10.			GEOTECH
7.COMPLETE FINAL GRADING OF POND AND PERMANENTLY STABILIZE THE POND ABOVE THE PROPOSED PERMANENT POOL ELEVATION.			COUNTY
8.WITH POND INTERIOR SIDE SLOPES STABILIZED, INSTALL FILTER LOGS PER DETAIL ON SHEET 21.			COUNTY
9.INSTALL GRAVEL LENS AND UNDERDRAIN SYSTEM.			COUNTY
10.INSTALL SANDBAG DIVERSION #3 AND RPS NEAR STA. 211+50 AND PUMP BASEFLOW TO THE SUNSHINE WAY CULVERT.			COUNTY
11.REMOVE SEDIMENT TRAP AND COMPLETE CONSTRUCTION OF REMAINING CHANNEL AND FLOODPLAIN IMPROVEMENTS USING SAME-DAY STABILIZATION.			COUNTY
12.PERMANENTLY STABILIZE REMAINING PORTIONS OF THE SITE.			COUNTY
13.WITH PERMISSION FROM THE INSPECTOR, REMOVE EROSION AND SEDIMENT CONTROLS.			COUNTY



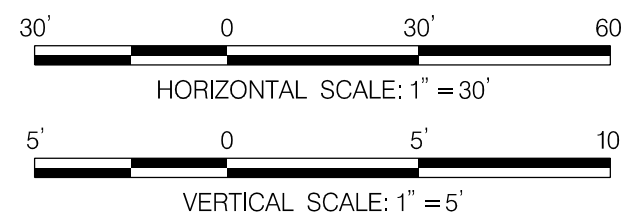
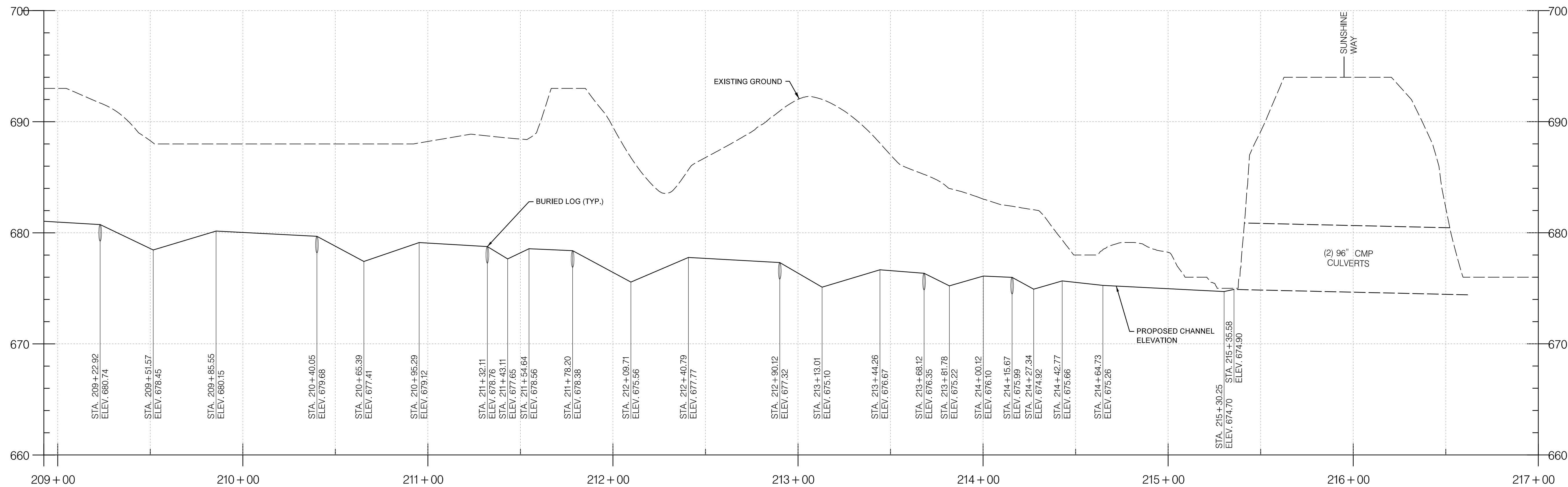
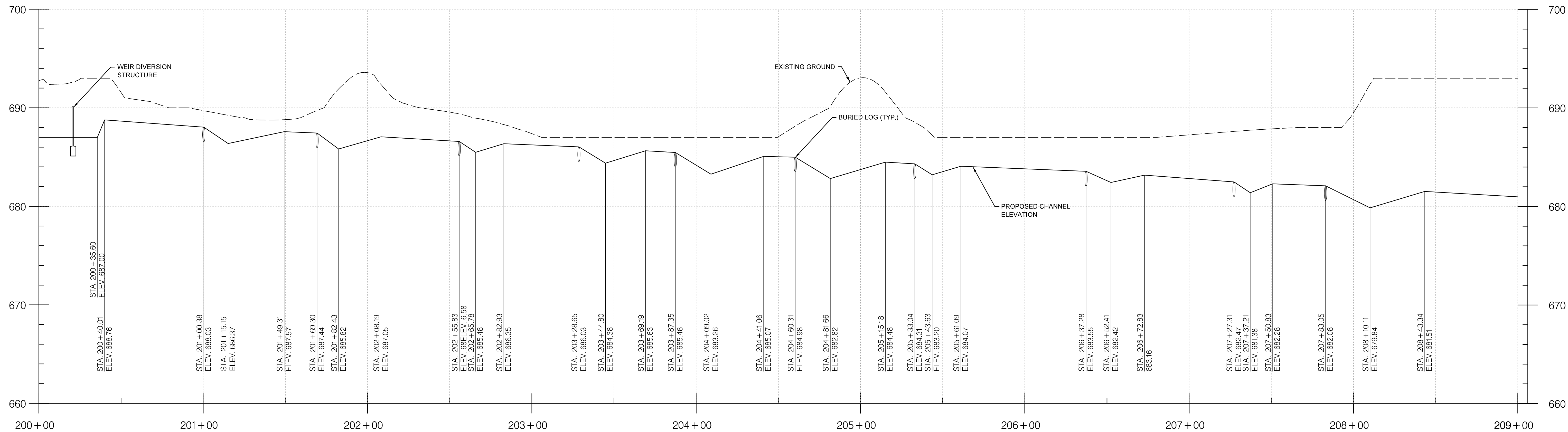
<u>REQUIRED SEQUENCE OF CONSTRUCTION FOR SULLIVAN ROAD</u>	CERTIFYING PROFESSIONAL'S APPROVAL		
	INITIALS	DATE	INSPECTING AGENT
1.NOTIFY THE CARROLL COUNTY BUREAU OF SEDIMENT CONTROL (410-386-2210) 24 HOURS PRIOR TO THE START OF CONSTRUCTION ACTIVITIES FOR A PRE-CONSTRUCTION MEETING.			COUNTY
2.MAINTENANCE OF TRAFFIC SHALL BE IN PLACE AS PER TRAFFIC CONTROL PLAN PRIOR TO WORKING WITHIN COUNTY RIGHT-OF-WAY.			COUNTY
3.CONSTRUCT RIPRAP APRON, PROPOSED END SECTION ES-10, AND REPLACE EXISTING 30" CMP FROM ES-10 TO EX I-9 WITH 30" RCP USING SAME-DAY STABILIZATION.			COUNTY
4.CONSTRUCT PROPOSED STORM DRAIN SYSTEM FROM EX I-7 TO M-3 AND CONSTRUCT PROPOSED STORM DRAIN SYSTEM FROM M-3 TO EX. I-4 AND M-3 TO EX. I-1 AND I-2. ALL STORM DRAIN WORK CUTTING AND REPAIRING ROADWAY IS TO BE COMPLETED PER DETAIL 86 MODIFIED AS SHOWN ON SHEET 13.			COUNTY
5.REMOVE PORTION OF EXISTING CHAIN LIKE FENCE AS SPECIFIED ON SHEET 3 AND INSTALL STABILIZED CONSTRUCTION ENTRANCES OFF OF SNOWFALL LANE.			COUNTY
6.IF WATER NEEDS TO BE REMOVED FROM THE EXISTING DEVLIN SQUARE STORMWATER MANAGEMENT PONDS, UTILIZE AN APPROVED DEWATERING PRACTICE SUCH AS FILTER BAG AND REMOVABLE PUMPING STATION AS PER SEDIMENT CONTROL INSPECTOR. FILTER BAGS MUST DISCHARGE TO STORM DRAIN SYSTEM.			COUNTY
7. REMOVE EXISTING STORM DRAIN FEATURES AS SHOWN ON SHEET 3.			COUNTY
8.REMOVE TOPSOIL, FILL, AND GRADE POND DEVLIN SQUARE STORMWATER PONDS USING SAME-DAY STABILIZATION. PERMANENTLY STABILIZE POND AREAS.			GEOTECH
9.PERMANENTLY STABILIZE POND AREAS.			COUNTY
10.CONSTRUCT CURBS AND SIDEWALKS AND RECONSTRUCT DRIVEWAY ALONG SULLIVAN ROAD USING SAME-DAY STABILIZATION.			COUNTY
11.INSTALL STABILIZED CONSTRUCTION ENTRANCE AT EXISTING AUTUMN RIDGE STORMWATER MANAGEMENT POND.			COUNTY
12.DEWATER EXISTING LOWRY STORMWATER MANAGEMENT POND USING A REMOVABLE PUMPING STATION AND FILTER BAG. THE RPS AND FILTER BAG WILL REMAIN AND BE UTILIZED IN SUCH MANNER FOLLOWING RAINFALL EVENTS UNTIL THE POND IS FILLED.			COUNTY
13.CONSTRUCT STORM DRAIN SYSTEM BEGINNING AT EW-35 AND WORKING IN AN UPSTREAM DIRECTION TO MH-32. DEWATER TRENCHES USING AN APPROVED DEWATERING PRACTICE SUCH AS FILTER BAG AND REMOVABLE PUMPING STATION AS PER SEDIMENT CONTROL INSPECTOR. FILL TRENCHES AND PERMANENTLY STABILIZE.			COUNTY
14.REMOVE EXISTING 21" BCCMP AND EX. S-4 AND CONSTRUCT RIPRAP APRON USING SAME-DAY STABILIZATION.			COUNTY
15.FILL POND PER GRADING PLAN USING SAME-DAY STABILIZATION.			GEOTECH
16.PERMANENTLY STABILIZE THE SITE.			COUNTY
17.WITH APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, REMOVE ANY REMAINING TEMPORARY SEDIMENT CONTROL MEASURES AND STABILIZE REMAINING DISTURBED AREAS.			COUNTY

TEMPORARY SEEDING SUMMARY						
HARDNESS ZONE (FROM FIGURE B.3): 6A SEED MIXTURE (FROM TABLE B.1)					FERTILIZER RATE (10-20-20)	LIME RATE
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS		
	CEREAL RYE	112 LB/ACRE	3/15 - 5/31 8/1 - 9/30	1.0"	436 LB/AC (10 LB/1000 SF)	2 TONS/AC (90 LB/1000 SF)
	FOXTAIL MILLET	30 LB/ACRE	6/1 - 7/31	1/2"		

PERMANENT SEEDING SUMMARY								
HARDINESS ZONE (FROM FIGURE B.3): 6A SEED MIXTURE (FROM TABLE B.3)					FERTILIZER RATE (10-20-20)			LIME RATE
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS	N	P205	K20	
4	DEERTONGUE CREEPING RED FESCUE VIRGINIA WILD RYE	15 20 5		1/4" - 1/2"	45 LB/AC (1.0 LB/1000 SF)	90 LB/AC (2 LB/1000 SF)	90 LB/AC (2 LB/1000 SF)	2 TONS/AC (90 LB/1000 SF)
II	CREEPING RED FESCUE CHEWINGS FESCUE KENTUCKY BLUEGRASS	30 30 20						

Revisions	<div> <div> <div>CARROLL COUNTY, MARYLAND</div> <div>WILLOW POND WATERSHED IMPROVEMENTS</div> <div>EROSION AND SEDIMENT CONTROL DETAILS</div> </div> <div> <div> <div> <div>Drawn By : JG</div> <div>Designed By : BM</div> <div>Reviewed By : LT</div> </div> <div> <div>Contract No : 75-F-9-1516</div> <div>Scale : 1" = 30'</div> <div>Sheet 22 Of 30</div> <div>Date : MARCH 2018</div> </div> </div> </div> </div>	
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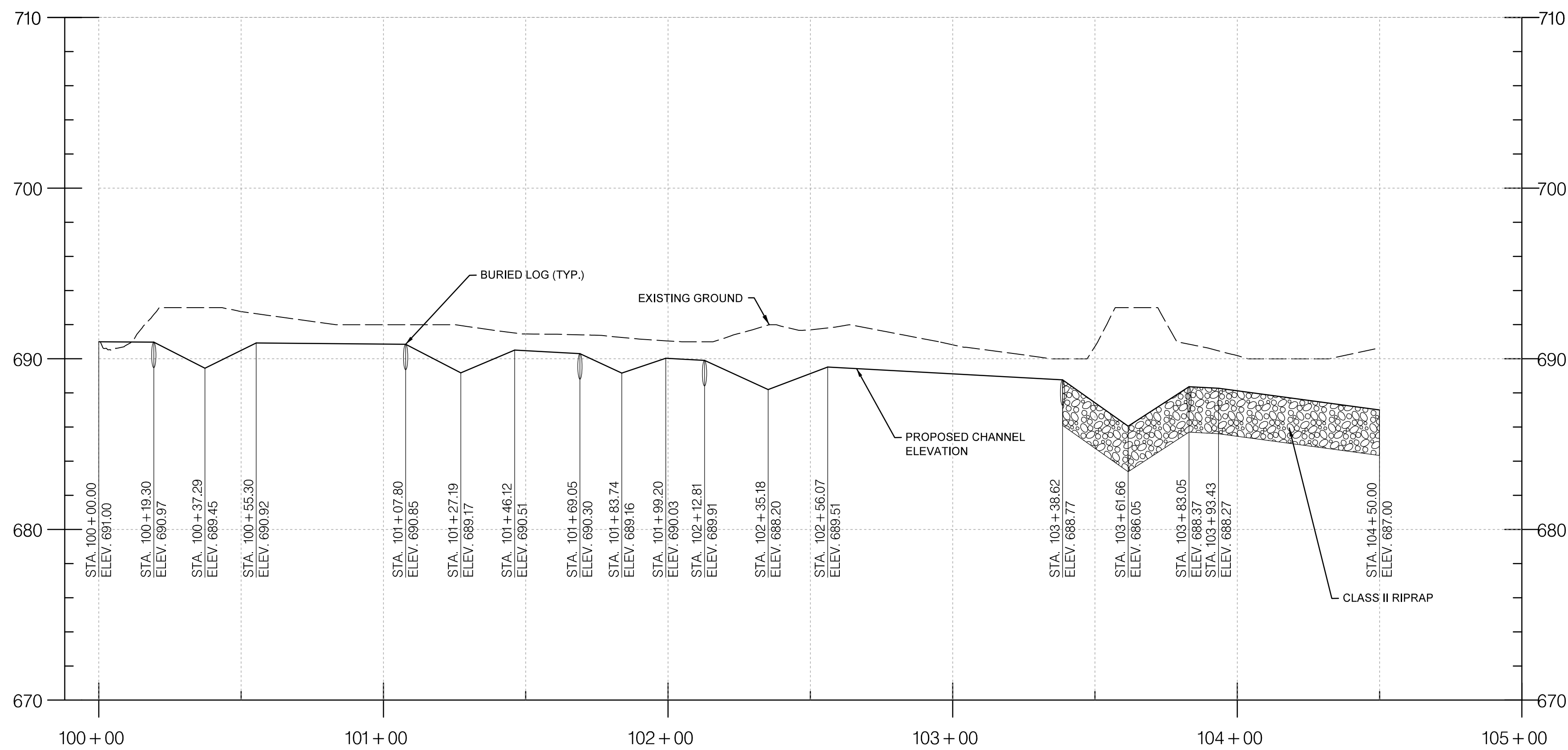




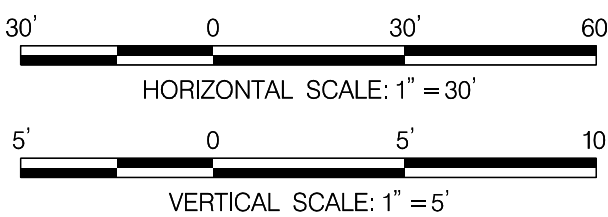
**CHANNEL  
BASELINE PROFILE**  
SCALE: 1" = 30' HORZ.  
1" = 5' VERT.

Revisions		CARROLL COUNTY, MARYLAND	
		WILLOW POND WATERSHED IMPROVEMENTS	
		STREAM PROFILES	
Drawn By : JG		Contract No : 75-F-9-1516	
Designed By : BM		Scale : 1" = 30'	
Reviewed By : LT		Sheet 23 Of 30	
		Date : MARCH 2018	





**CHANNEL  
BASELINE PROFILE**  
SCALE: 1" = 30' HORZ.  
1" = 5' VERT.



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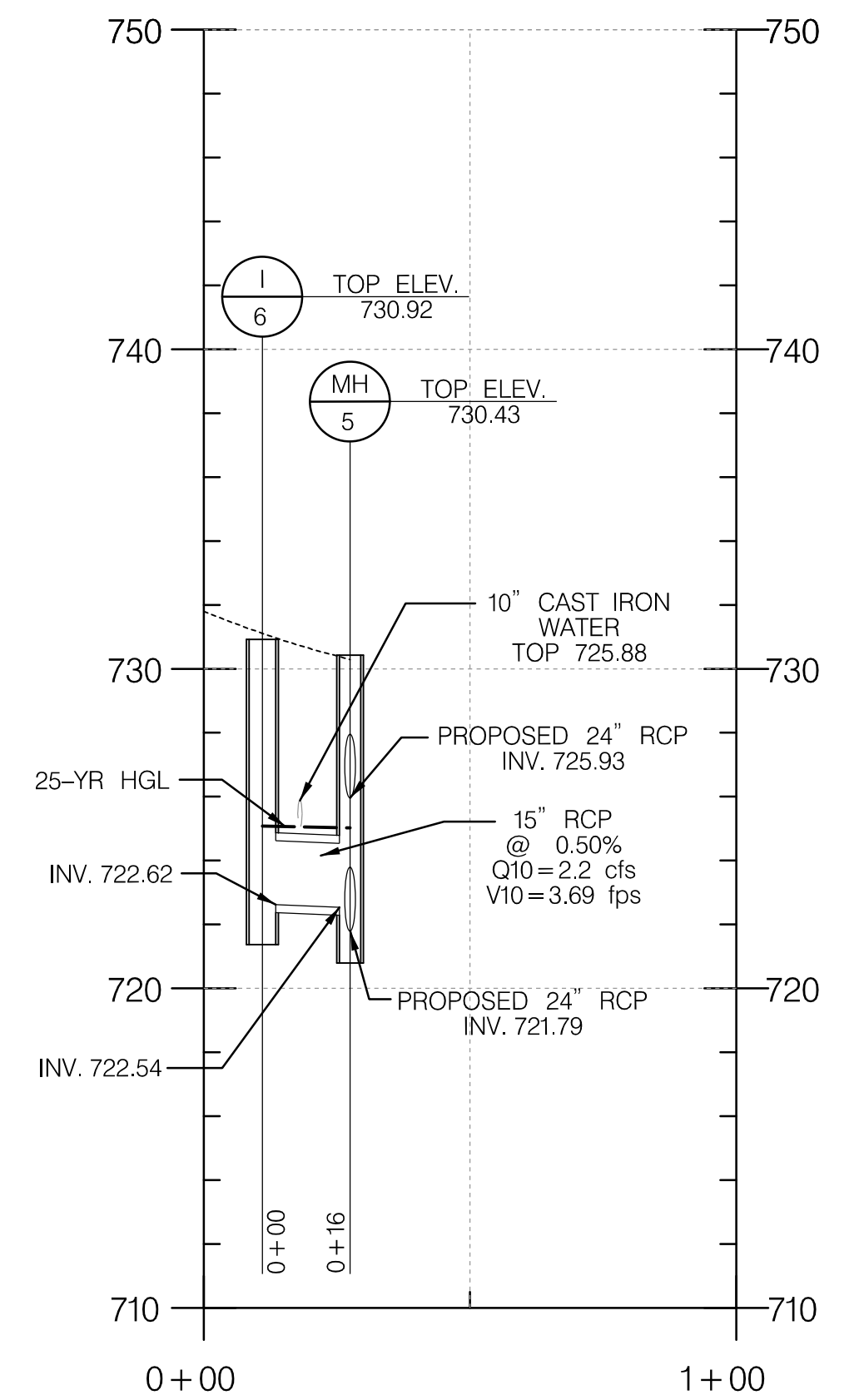
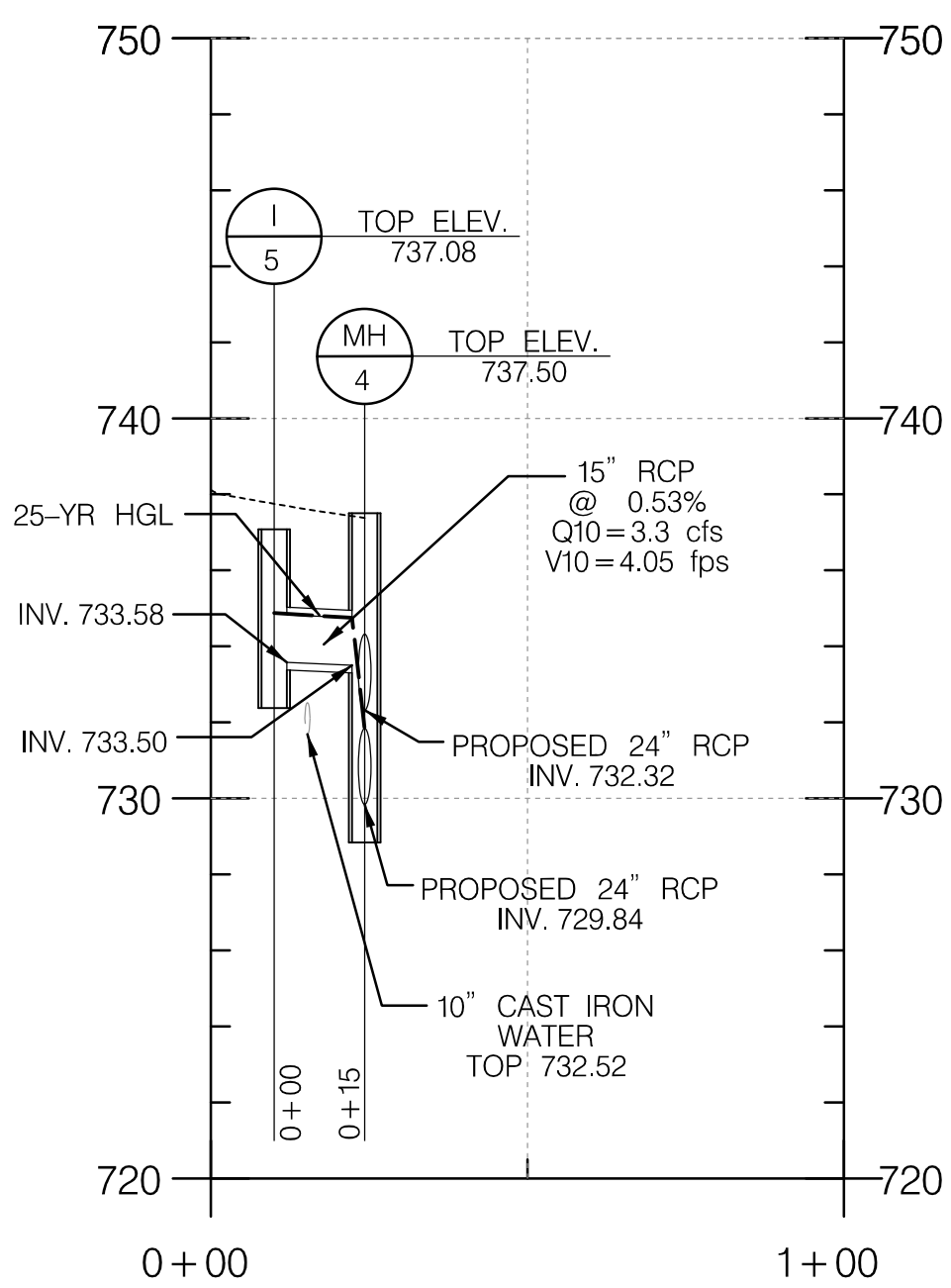
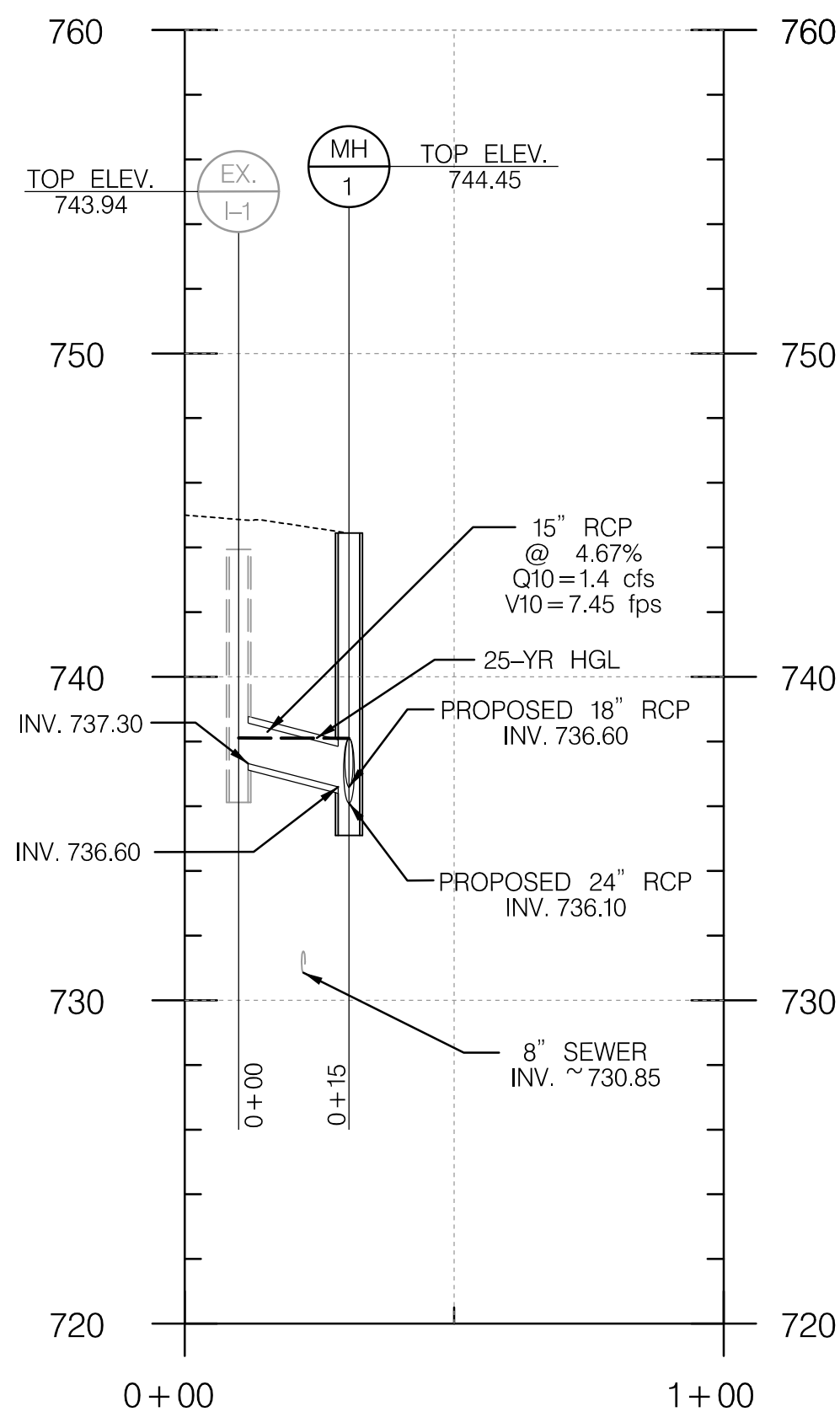
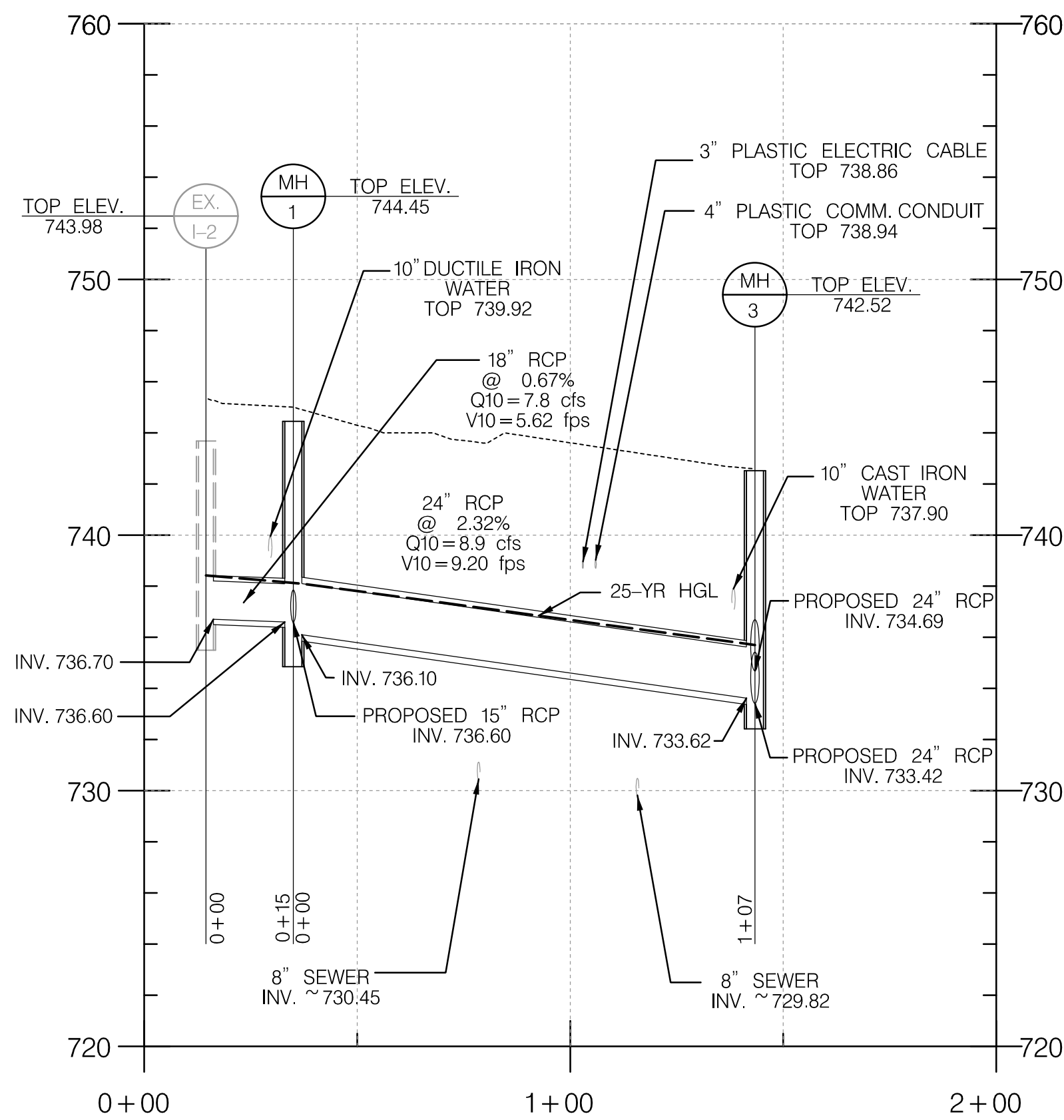
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Revisions		CARROLL COUNTY, MARYLAND	
		WILLOW POND WATERSHED IMPROVEMENTS	
		STREAM PROFILES	
Drawn By : JG		Contract No : 75-F-9-1516	
Designed By : BM		Scale : 1" = 30'	
Reviewed By : LT		Sheet 24 Of 30	
		Date : MARCH 2018	

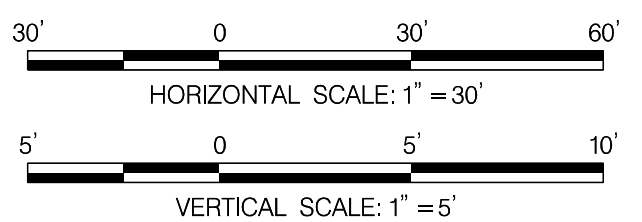




# **SULLIVAN ROAD STORM DRAIN PROFILES**

SCALE: 1" = 30' HORZ.  
1" = 5' VERT.

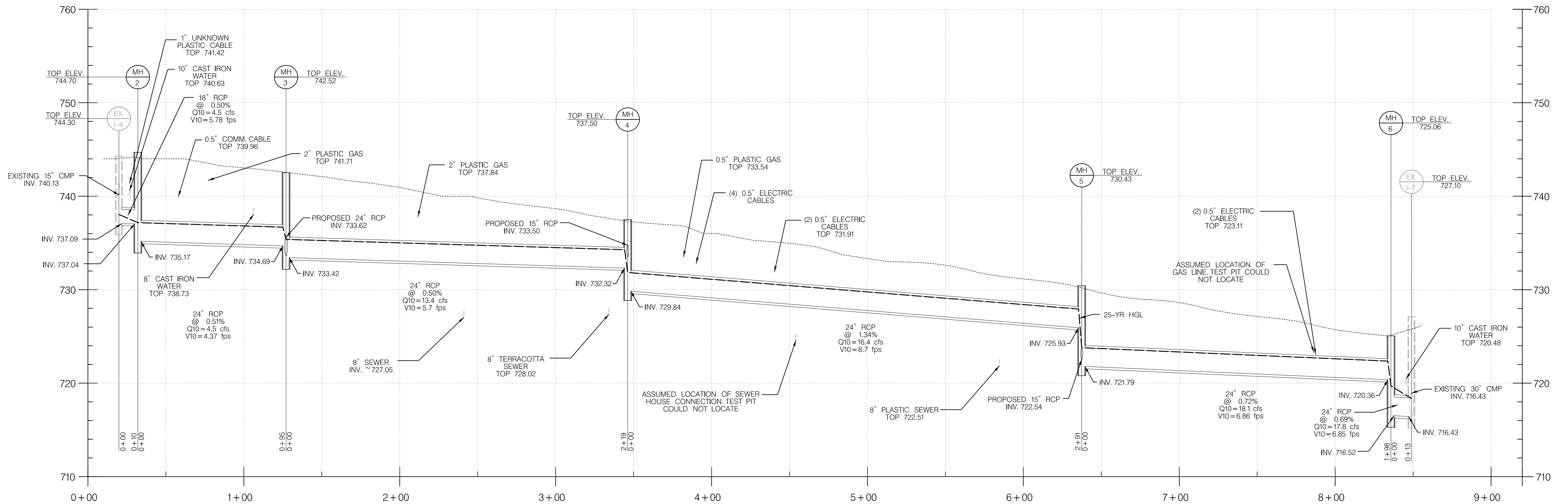
STORM DRAIN STRUCTURE SCHEDULE - SULLIVAN								
No.	Type	Plate	Top Grate/Top Curb	Invert Out	Invert In	Invert In	Coordinates	
							North	East
I-5	Standard S	65	737.08	733.58			702322.73	1315582.13
I-6	15" COG	MD-374.51	730.92	722.62			702093.28	1315402.00
MH-1	48" Dia MH	94	744.45	736.10	736.60		702452.67	1315791.08
MH-3	48" Dia MH	94	742.52	733.42	733.62	734.69	702508.49	1315699.35
MH-4	48" Dia MH	94	737.50	729.84	733.5	732.32	702332.73	1315568.27
MH-5	48" Dia MH	94	730.43	721.79	725.93	722.54	702101.71	1315391.04



Revisions		CARROLL COUNTY, MARYLAND	
		WILLOW POND WATERSHED IMPROVEMENTS	
		STORM DRAIN PROFILES	
Drawn By : JG		Contract No : 75-F-9-1516	
Designed By : BM		Scale : 1" = 30'	
Reviewed By : LT		Sheet 25 Of 30	
		Date : MARCH 2018	

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 Plot: 25 of 30

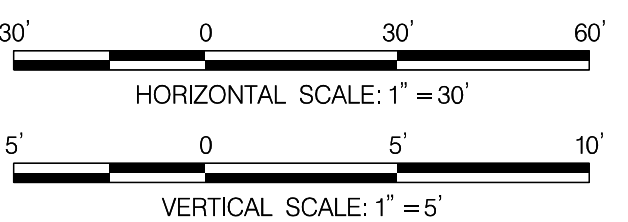




**SULLIVAN ROAD  
STORM DRAIN PROFILE**

SCALE: 1" = 30' HORZ.  
1" = 5' VERT.

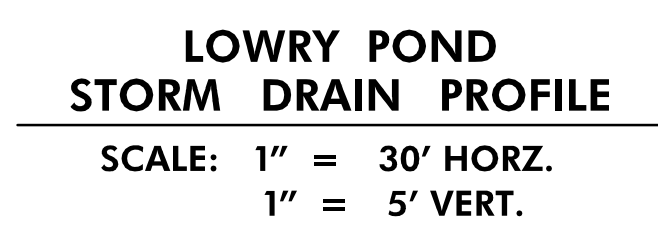
STORM DRAIN STRUCTURE SCHEDULE - SULLIVAN								
No.	Type	STD. NO.	Top Grate/Top Curb	Invert Out	Invert In	Invert In	Coordinates	
							North	East
MH-1	48" Dia MH	384.01	744.45	736.10	736.60	736.60	702452.7	1315791
MH-2	48" Dia MH	384.01	744.70	735.17	737.04	737.04	702452.7	1315791
MH-3	48" Dia MH	384.01	742.52	733.42	733.62	734.69	702508.5	1315699
MH-4	48" Dia MH	384.01	737.50	729.84	732.32	733.50	702332.7	1315568
MH-5	48" Dia MH	384.01	730.43	721.79	725.93	722.54	702101.7	1315391
MH-6	48" Dia MH	384.01	725.06	716.52	720.36		701944.7	1315270



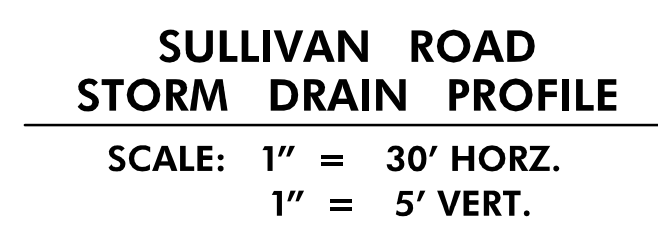
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Revisions		CARROLL COUNTY, MARYLAND	
		WILLOW POND WATERSHED IMPROVEMENTS	
		STORM DRAIN PROFILES	
Drawn By : JG		Contract No : 75-F-9-1516	
Designed By : BM		Scale : 1" = 30'	
Reviewed By : LT		Sheet 26 Of 30	
		Date : MARCH 2018	

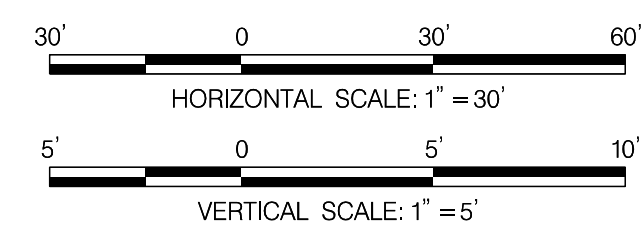




STORM DRAIN STRUCTURE SCHEDULE - LOWRY								
No.	Type	STD. NO.	Top Grate/Top Curb	Invert Out	Invert In	Invert In	Coordinates	
							North	East
MH-32	72" Dia MH	384.05	710.00	705.01	705.16		701769.67	1314864.75
MH-33	72" Dia MH	384.05	709.54	703.40	704.79	705.25	701760.82	1314837.05
MH-34	72" Dia MH	384.05	707.38	700.50	701.96	701.96	701642.6	1314742.36
EW-35	48" Type C Endwall		705.54	700.29	700.29		701557.85	1314801.89

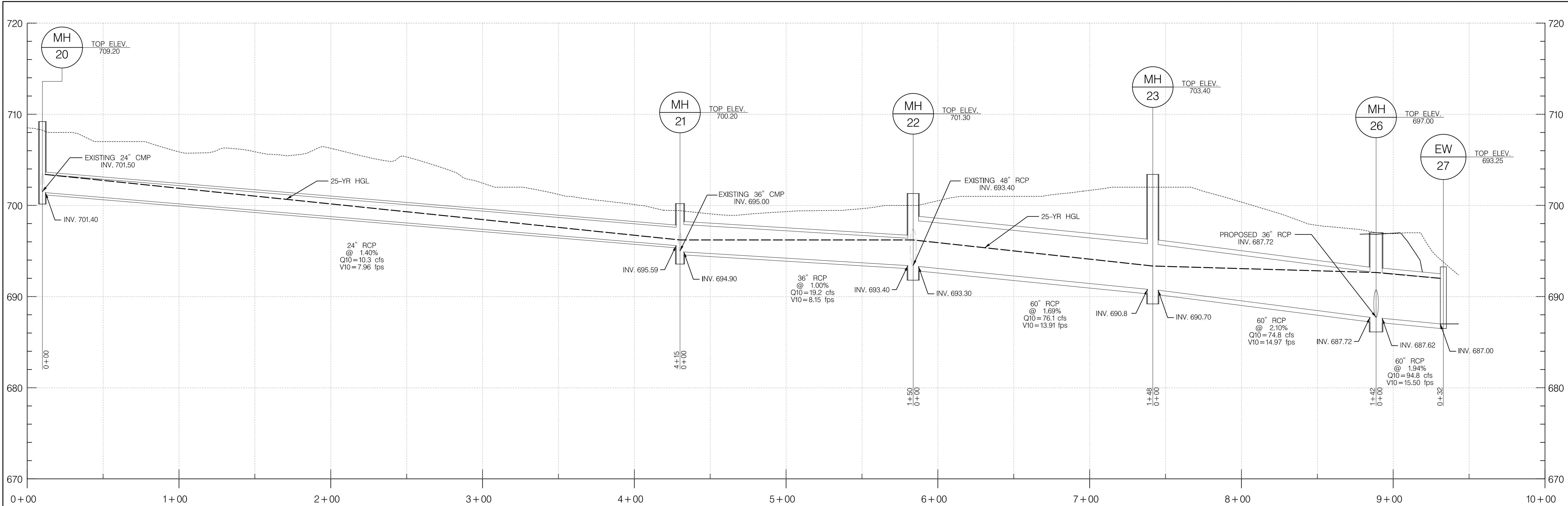


STORM DRAIN STRUCTURE SCHEDULE - SULLIVAN							
							Coordinates
No.	Type	Plate	Top Grate/Top Curb	Invert Out	Invert In	Invert In	North      East
ES-10	Concrete End Section	MD-368.01	705.82	709.09	709.09		701701.98    1315026



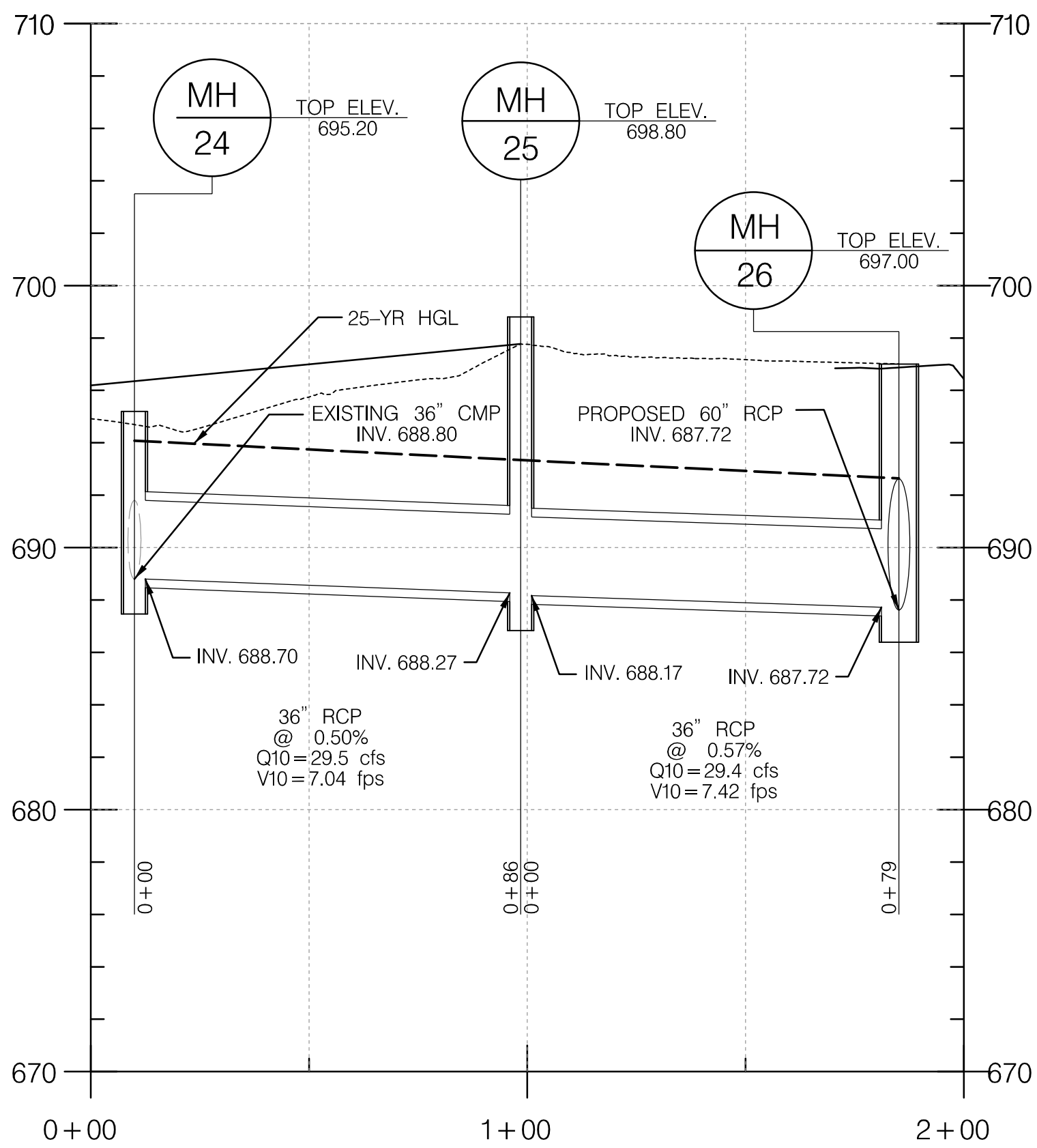
Revisions	<h1>CARROLL COUNTY, MARYLAND</h1> <h2>WILLOW POND WATERSHED IMPROVEMENTS</h2> <h3>STORM DRAIN PROFILES</h3>	
	Drawn By : <u>          JG          </u> Designed By : <u>          BM          </u> Reviewed By : <u>          LT          </u>	Contract No : <u>          75-F-9-1516          </u> Scale : <u>          1" = 30'          </u> Sheet <u>  27  </u> Of <u>  30  </u> Date : <u>  MARCH 2018  </u>



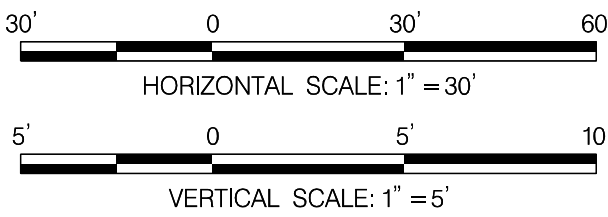


**SUNSHINE WAY  
STORM DRAIN PROFILES**

SCALE: 1" = 30' HORZ.  
1" = 5' VERT.



STORM DRAIN STRUCTURE SCHEDULE - SUNSHINE WAY								
No.	Type	STD. NO.	Top Grate/Top Curb	Invert Out	Invert In	Invert In	Coordinates	
							North	East
MH-20	48" Dia MH	384.01	709.20	701.40	701.50		701334.34	1316391.84
MH-21	60" Dia MH	384.03	700.20	694.90	695.59	695.00	701455.46	1316793.93
MH-22	84" Dia MH	384.07	701.30	693.30	693.40	693.40	701469.74	1316948.62
MH-23	84" Dia MH	384.07	703.40	690.70	690.80		701437.66	131700.14
MH-24	60" Dia MH	384.03	695.20	688.70	688.80		701289.77	1317294.8
MH-25	60" Dia MH	384.09	698.80	688.17	688.27		701337.81	1317218.25
MH-26	96" Dia MH	384.09	697.00	687.62	687.72	687.72	701295.29	1317143.13
EW-27	60" Type C Endwall	CC 120	693.25	687	687		701268.41	1317107.66



Revisions

CARROLL COUNTY, MARYLAND

WILLOW POND WATERSHED IMPROVEMENTS

STORM DRAIN PROFILES

Drawn By : JG

Contract No : 75-F-9-1516

Designed By : BM

Scale : 1" = 30'

Reviewed By : LT

Sheet 28 Of 30

Date : MARCH 2018

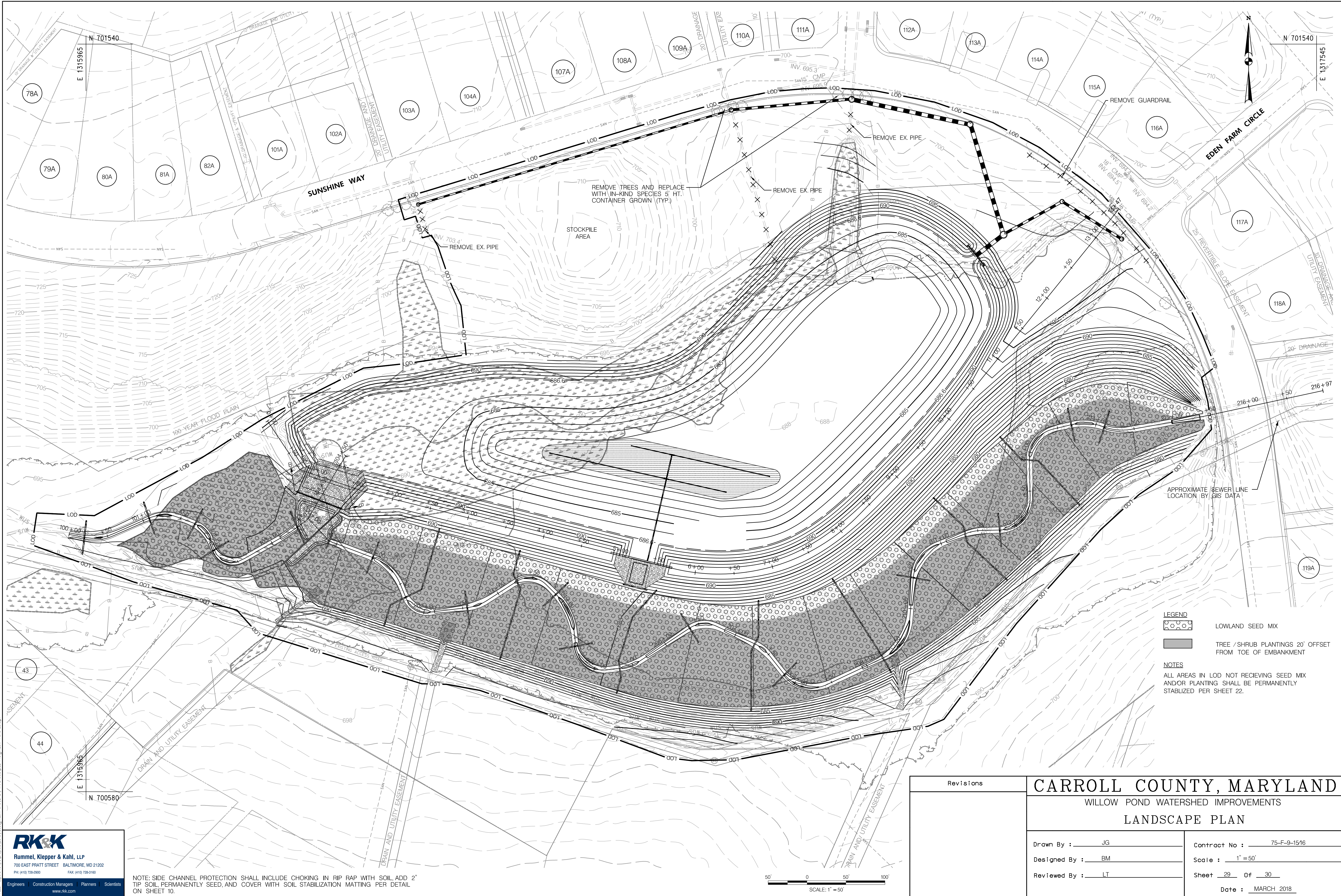


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LOWLAND MEADOW SEEDING SPECIFICATIONS

1. Establish lowland meadow in topsoil to provide permanent vegetation groundcover. Performance of lowland Meadow Establishment as specified herein complies with all requirements of the Maryland Department of the Environment for permanent seeding.
2. Perform operations in conformance with Table 1 when soil moisture and weather conditions are suitable, when the temperature is above 32 F, and the soil is not frozen. Cease operations when conditions are unsuitable.
3. Flexible Growth Medium (FGM) is a hydraulically applied, 100 percent biodegradable mixture consisting of 51% thermally processed wood fibers; 21.5% coconut fibers; 10% cross-linked hydro-colloidal tackifiers; 7.5% crimped, interlocking fibers; moisture content of 10%; phytosanitized; free from plastic netting, requiring no curing period, manufactured in the United States, and upon application forms an intimate bond with the soil surface to create a continuous, porous, absorbent, and flexible erosion resistant blanket that allows for rapid germination and accelerated plant growth. The FGM shall conform to the property values in Table 4 when uniformly applied at a rate of 3500 lb. per acre (3900 kilograms/hectare) under laboratory conditions.
4. Ensure that a representative of the FGM manufacturer is on-site for consultation during the initial FGM application. Use FGM in place of permanent straw mulch in areas identified on plans to receive Lowland Meadow seeding. Mix FGM in a mechanically agitated approved hydroseeder and apply using fan-type nozzle (50 degree angle tip). Apply FGM at a rate of 3500 lb. /ac. Apply FGM in a three-step process:
- A. Prior to FGM application, remove all temporary mulch.
- B. Fill 1/3 of mechanically agitated hydroseeder with water, turn pump on for 15 seconds, and purge and pre-wet lines. Turn pump off and turn agitator on and load seed.
- C. Continue slowly filling tank with water while loading fiber matrix into tank. Mix at a rate of 50 lb. of FGM per 125 gallons of water (23kg/475 liters). Completely load all FGM before water level reaches 75 percent of the top of the tank. Top off with water and mix a minimum of 10 minutes until all fiber is fully broken apart and hydrated, increase mixing time when applying in cold conditions. Add fertilizer according to the Nutrient Management Plan. Shut off recirculation valve to minimize potential for air entrainment within the slurry. Slow down agitator and apply with a 50 degree angle fan tip nozzle. Make two passes at 90 degrees to one another, ensure a minimum of 95% coverage of soil surface.

LOWLAND MEADOW ESTABLISHMENT TABLE 1 - SEEDING SEASONS AND SEED MIXES				
SEEDING SEASON - MONTH/DAY				
SPRING	SUMMER	FALL	LATE FALL	WINTER
3/1 TO 5/14	5/15 TO 7/31	8/1 TO 10/14	10/15 TO 11/30	12/1 TO 2/29
PLUS ADDITIVE A	PLUS ADDITIVE B*	PLUS ADDITIVE B*	PLUS ADDITIVE D	PLUS ADDITIVE A
PLUS ADDITIVE B*	PLUS ADDITIVE C*	PLUS ADDITIVE D	PLUS ADDITIVE E*	PLUS ADDITIVE E*
NOTES *				
ADDITIVE A = GARDEN COSMOS				
ADDITIVE B = PLAINS COREOPSIS				
ADDITIVE C = TALL FESCUE				
ADDITIVE D = CORN POPPY				
ADDITIVE E = COMMON OAT				

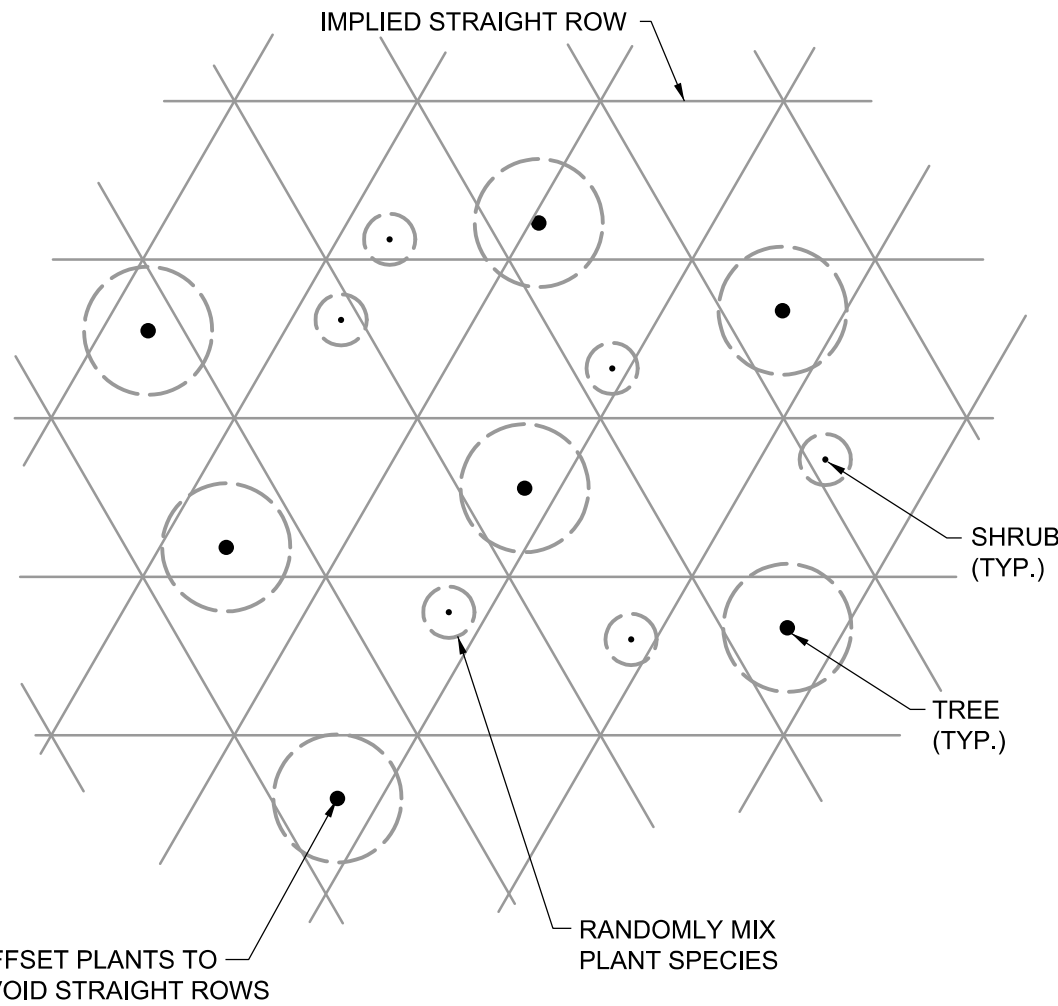
Floodplain Planting Table								
Quantity per acre	Frequency (%)	Species Quantity	Vegetation Strata/Species Name	Common Name	Wetland Indicator Status	Size	Type	Placement
200	Trees	TREES						
		31	<i>Acer saccharinum</i>	Silver maple	FACW	4' ht	#3 container	Naturalized @ 15' OC
		78	<i>Betula nigra</i>	River birch	FACW	4' ht	#3 container	Naturalized @ 15' OC
		78	<i>Platanus occidentalis</i>	American sycamore	FACW	4' ht	#3 container	Naturalized @ 15' OC
		31	<i>Quercus palustris</i>	Pin oak	FACW	4' ht	#3 container	Naturalized @ 15' OC
		78	<i>Quercus bicolor</i>	Swamp white oak	FACW	4' ht	#3 container	Naturalized @ 15' OC
		16	<i>Nyssa sylvatica</i>	Black gum	FAC	4' ht	#3 container	Naturalized @ 15' OC
	100	310	=total					
50	Shrubs	SHRUBS						
		105	<i>Sambucus nigra</i>	Black elderberry	FAC	2' ht.	#3 container	Naturalized @ 6' OC
		102	<i>Cornus amomum</i>	Silky dogwood	FACW	2' ht.	#3 container	Naturalized @ 6' OC
		102	<i>Viburnum dentatum</i>	Arrowwood	FAC	2' ht.	#3 container	Naturalized @ 6' OC
		310	=total					

MEADOW ESTABLISHMENT TABLE 2 - APPLICATION RATES		
MATERIAL	RATE	
INITIAL FERTILIZER (per Nutrient Management Plan <sup>a,b</sup> )	LB PER SY	LB PER ACRE
20-16-12 (83% UF with MAP & SOP) or one or more of the following <sup>c</sup>	0 to 0.041	0 to 200
38-0-0 (UF)	0 to 0.021	0 to 100
11-52-0 (MAP)	0 to 0.036	0 to 175
0-0-50 (SOP)	0 to 0.041	0 to 200
	RATE	
SEED MIX	GRAM PER SY	LB PER ACRE
Lowland Meadow Seed	Refer to Table 4 - Application Rates	
	GRAM PER SY	LB PER ACRE
ADDITIVE SEED per Table 1		
A = Garden Cosmos	0.028	0.3
B = Plains Coreopsis	0.028	0.3
C = Tall Fescue	2.345	25
D = Corn Poppy	0.028	0.3
E = Common Oat	4.69	50
F = Perennial Ryegrass	2.345	25
Notes:		
<sup>a</sup> For existing topsoil and salvaged topsoil, the application rates will be included in the Contract documents. For furnished topsoil, the application rates will be developed for the approved source of supply.		
<sup>b</sup> Apply 200 lb per acre of 20-16-12 initial fertilizer.		
<sup>c</sup> UF = Ureaform; MAP = Monoammonium Phosphate; SOP = Sulfate of Potash. When application rate of 20-16-12 fertilizer is below 200 lb. per acre, apply UF, MAP, and SOP per NMP.		

MEADOW ESTABLISHMENT TABLE 3 - LOWLAND MEADOW SEED					
FORBS	PURE LIVE SEED*		GRASSES, SEDGES and RUSHES	PURE LIVE SEED*	
Select 8	GRAM PER SY	LB PER ACRE	Include All	GRAM PER SY	LB PER ACRE
Common Boneset	0.019	0.2	Big Bluestem	0.188	2
Eastern Purple Coneflower	0.113	1.2	Eastern Gamagrass	0.188	2
Common Evening Primrose	0.019	0.2	Hard Fescue	1.876	20
Lanceleaf Tickseed	0.141	1.5	Indiangrass	0.188	2
Maximilian Sunflower	0.047	0.5	Kentucky Bluegrass	0.469	5
New England Aster	0.019	0.2	Switchgrass	0.094	1
New York Ironweed	0.019	0.2	Virginia Wildrye	0.047	0.5
Bearded Beggarticks	0.019	0.2	Note: *The rate shown is Pure Live Seed. Use germination and purity data from the seed tag to calculate the actual seeding rate needed to obtain the seeding rate in Pure Live Seed.		
Stiff Goldenrod	0.028	0.3			
Swamp Verbena	0.066	0.7			
Trumpetweed or Spotted Trumpetweed	0.019	0.2			

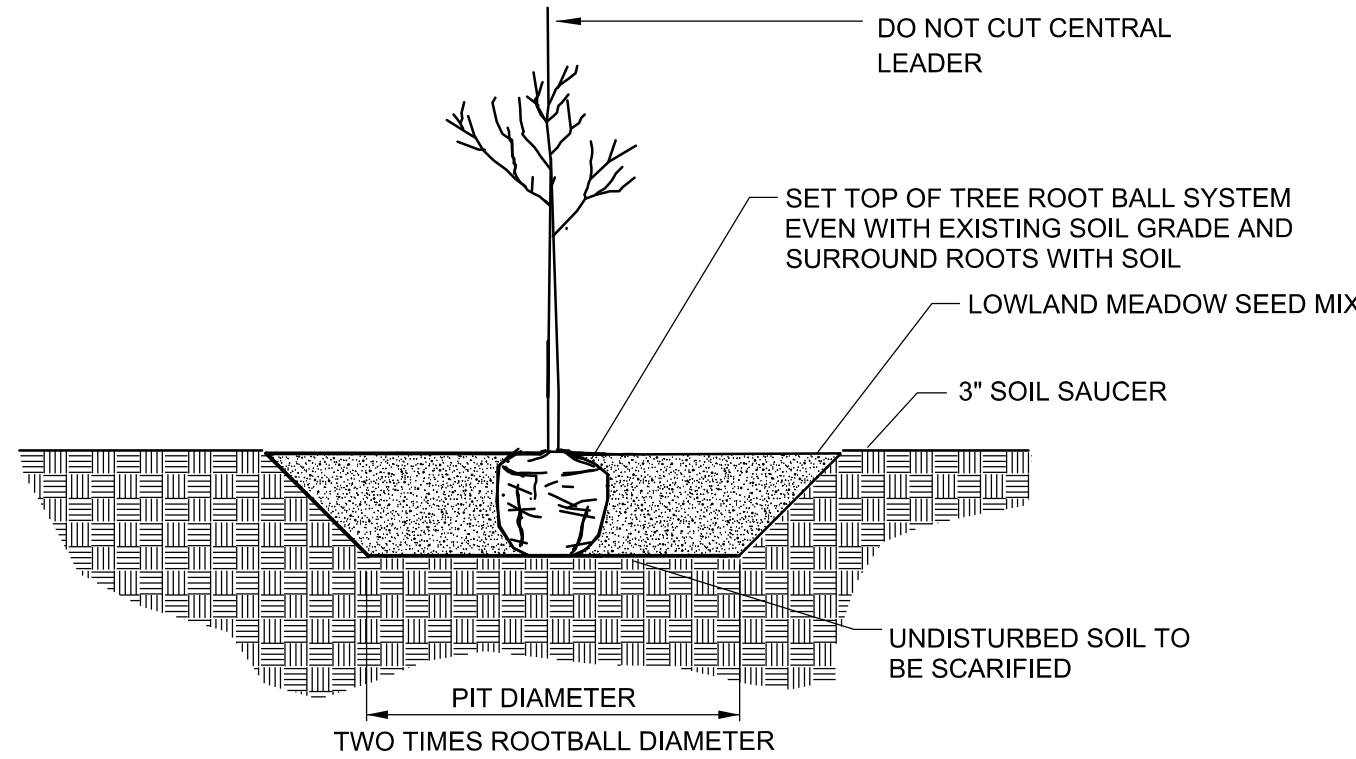
Table 4 – Flexible Growth Medium Material Requirements			
Property	Test Method	Req. Value (English)	Req. Value (SI)
Physical			
Mass Per Unit Area	ASTM D6566 <sup>1</sup>	11.5 oz./yd2 minimum2	390 g/m2
Thickness	ASTM D6525 <sup>1</sup>	0.23 inch	5.8 mm.
Ground Cover	ASTM D6567 <sup>1</sup>	99%	99%
Water-Holding Capacity	ASTM D736	1500%	1500%
Material Color	Observed	Green	Green
Cure Time	Observed	< 2 hours	< 2 hours
Performance			
Cover Factor <sup>2</sup> (6 in/hr. event)	ASTM D7101 <sup>1</sup>	0.1	0.1
% Effectiveness <sup>3</sup>	ASTM D7101 <sup>1</sup>	99%	99%
% Effectiveness <sup>3</sup>	Large Scale <sup>4</sup>	>99.99%	>99.99%
Shear Stress	ASTM D7207 <sup>1</sup>	1.6 lb./ft2	77 Pa
Vegetation Establishment	ASTM D7322 <sup>1</sup>	511%	511%
Cover Factor <sup>2</sup> (5 in/hr. event)	Large Scale <sup>4</sup>	0.0001	0.0001
Endurance			
Functional Longevity	Observed	≤ 24 months	≤ 24 months

1. ASTM test methods developed for Rolled Erosion Control Products and have been modified to accommodate Hydraulically Applied Erosion Control Products.
2. Cover Factor is calculated as soil loss ratio of treated surface versus an untreated control surface.
3. % Effectiveness = One minus Cover Factor multiplied by 100%.
4. Large scale testing conducted at Utah Water Research facility using rainfall simulator on 2.5H: 1V slope, sandy-loam soil, at a rate of 5" (13 cm) per hour for a duration of 60



NATURALIZED PLANT SPACING

NOT TO SCALE



TREE/SHRUB PLANTING

NOT TO SCALE

Revisions	CARROLL COUNTY, MARYLAND	
	WILLOW POND WATERSHED IMPROVEMENTS	
	LANDSCAPE PLAN	
	Drawn By : JG	Contract No : 75-F-9-1516
	Designed By : BM	Scale : N.T.S.
	Reviewed By : LT	Sheet 30 Of 30
		Date : MARCH 2018