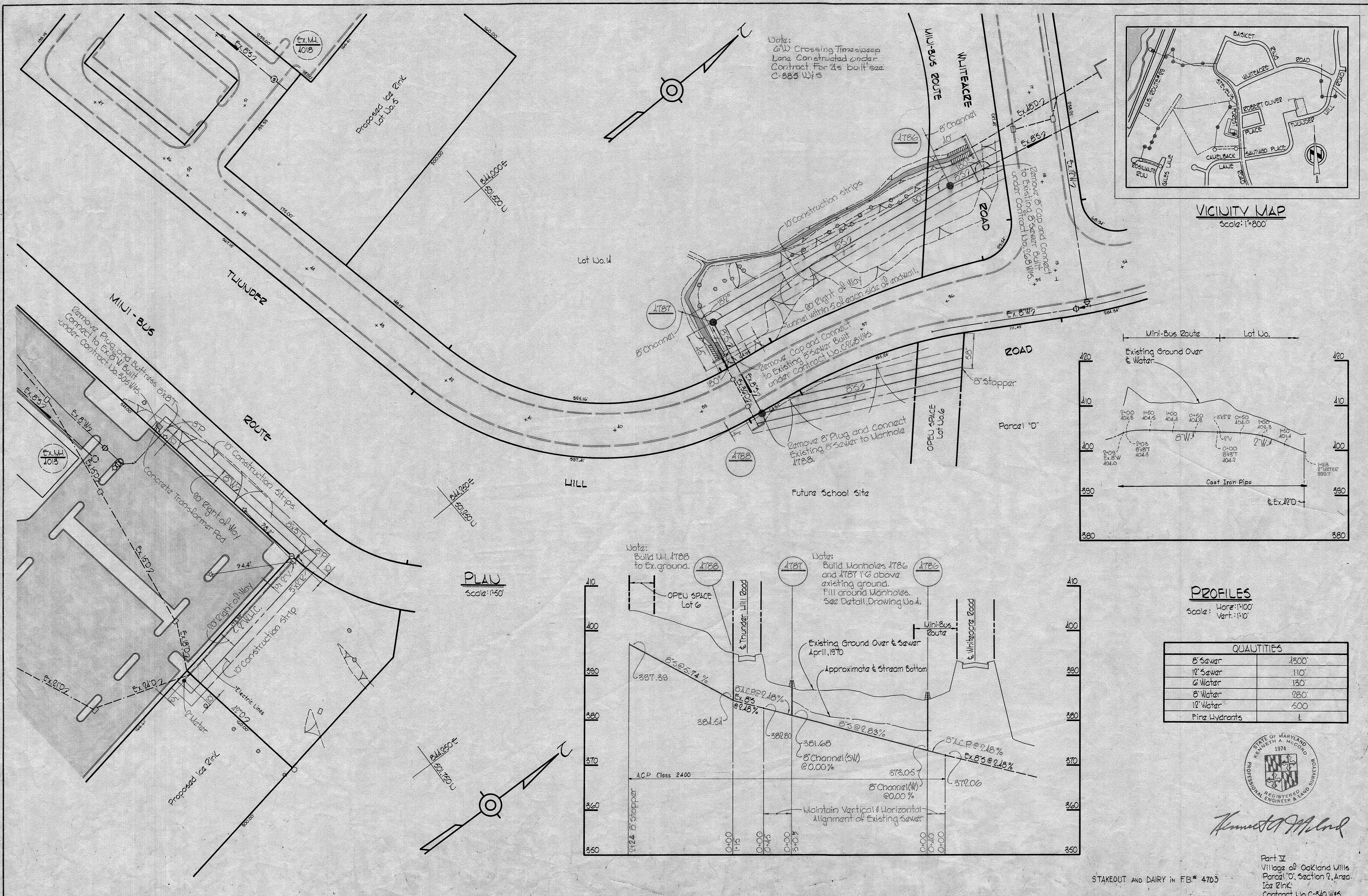
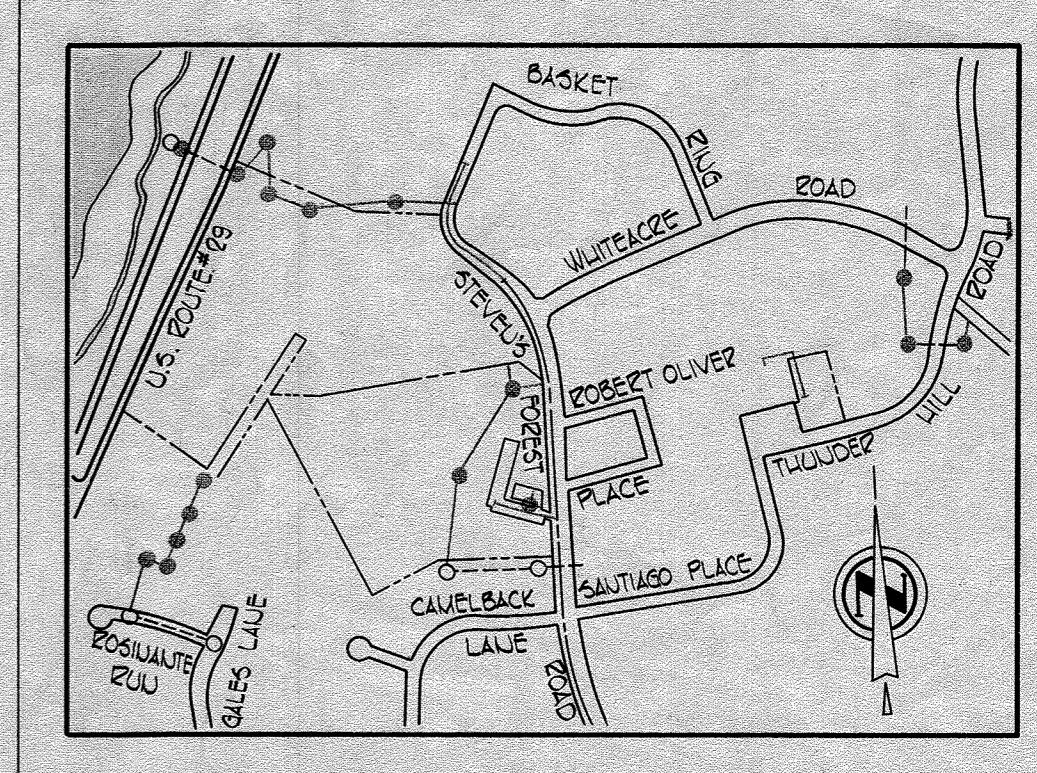


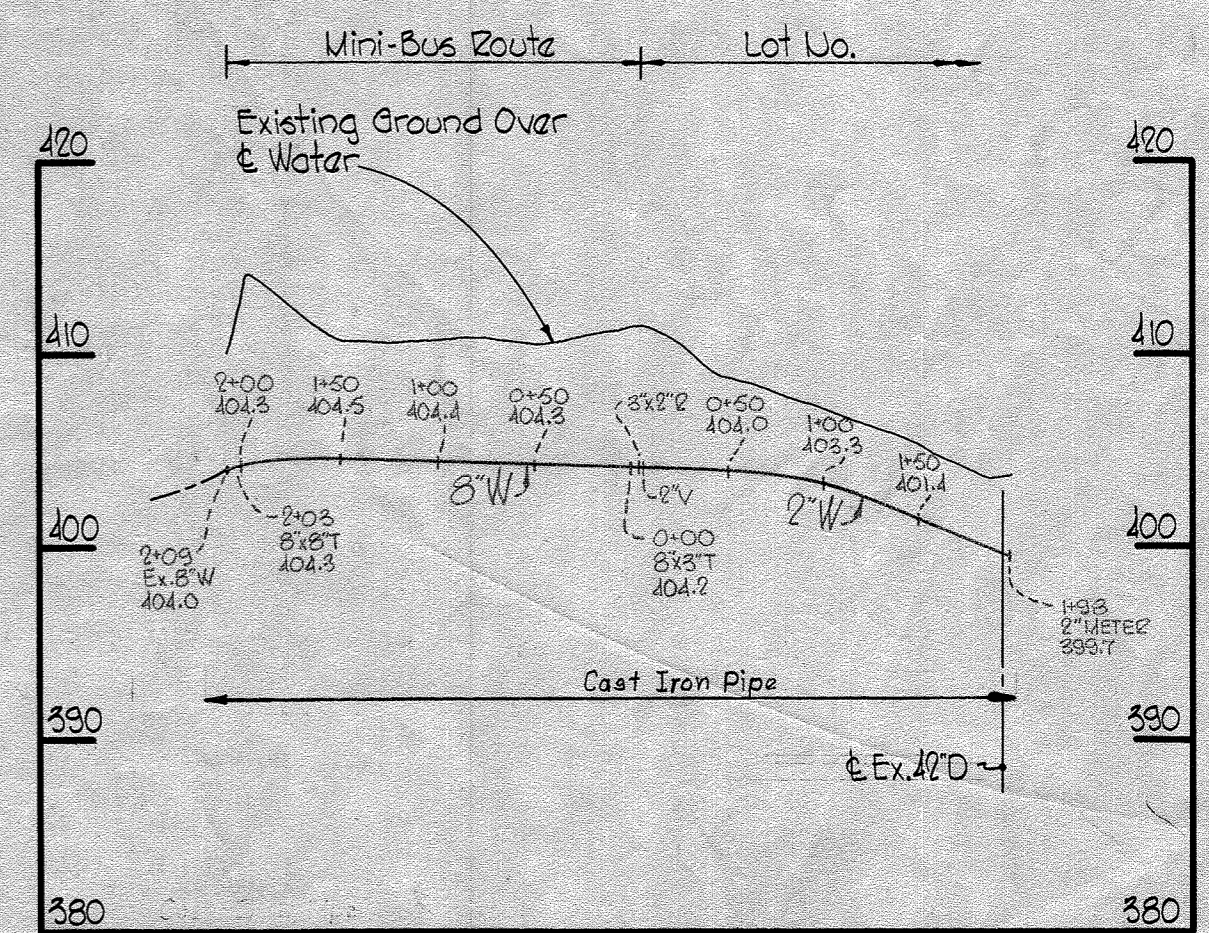
115 340 W-5 / 1



Notes:  
 1. Crossing Timesweep Lane Constructed under Contract for 4's built size C-385 W/S

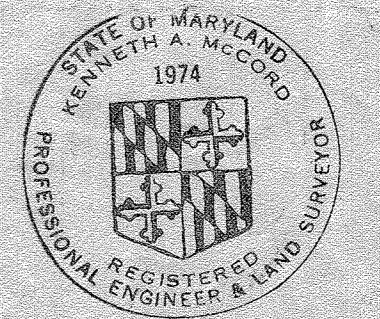


VICINITY MAP  
 Scale: 1"=800'



PROFILES  
 Scale: Horiz: 1"=100'  
 Vert: 1"=10'

QUANTITIES	
8" Sewer	4500'
12" Sewer	110'
6" Water	130'
8" Water	280'
12" Water	500'
Fire Hydrants	1



*Kenneth A. McLeod*

Part II  
 Village of Oakland Mills  
 Parcel 'D', Section 2, Area  
 Ice Tank  
 Contract No. C-340 W/S

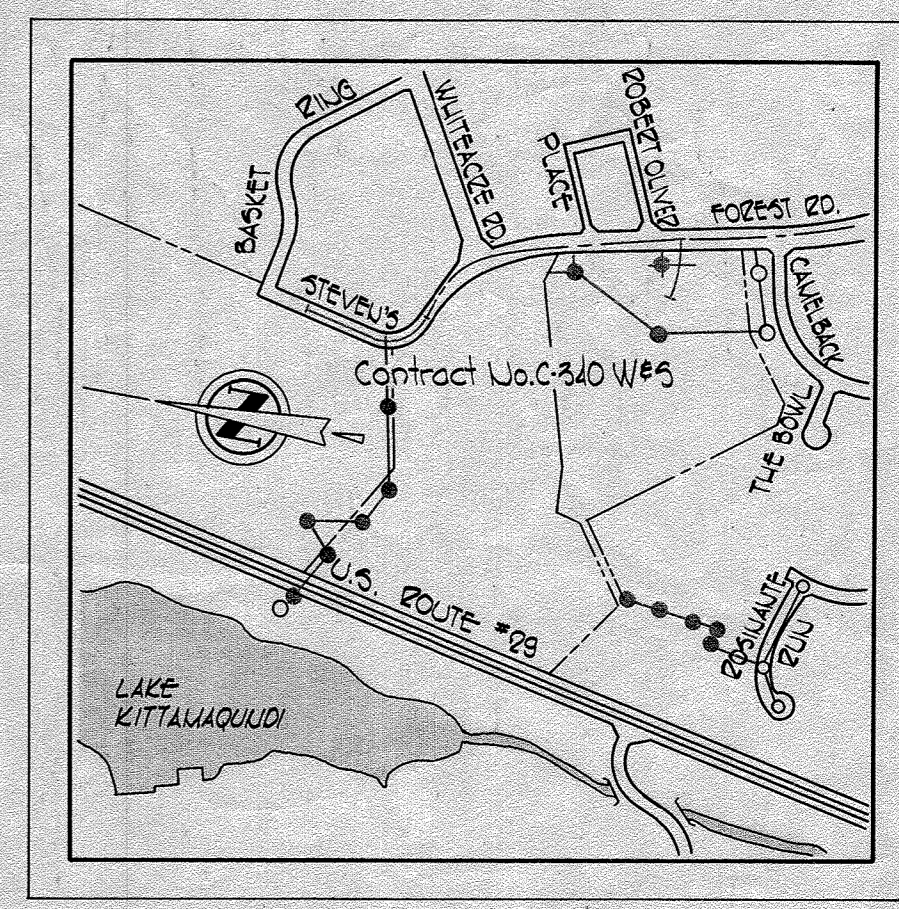
STAKEOUT AND DAIRY IN FB# 4703

WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 5-20-70 <i>W. O. Fulbert</i> CHIEF-BUREAU OF WATER AND SEWER	CONTRACT NO. C-340 W8S	PLAN AND PROFILE OF WATER & SEWER MAINS	COLUMBIA VILLAGE OF OAKLAND MILLS ELECTION DISTRICT GUILFORD No. 6	DRAWING NO. 1 OF 5 SCALE AS SHOWN
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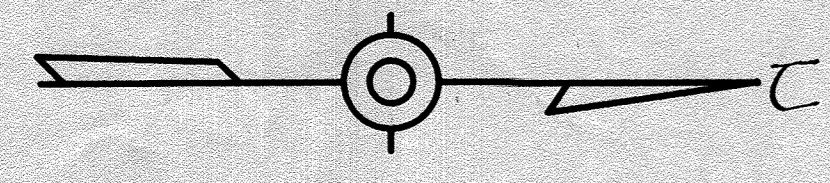
W. O. 6023-2

AS BUILT 22 September 1970

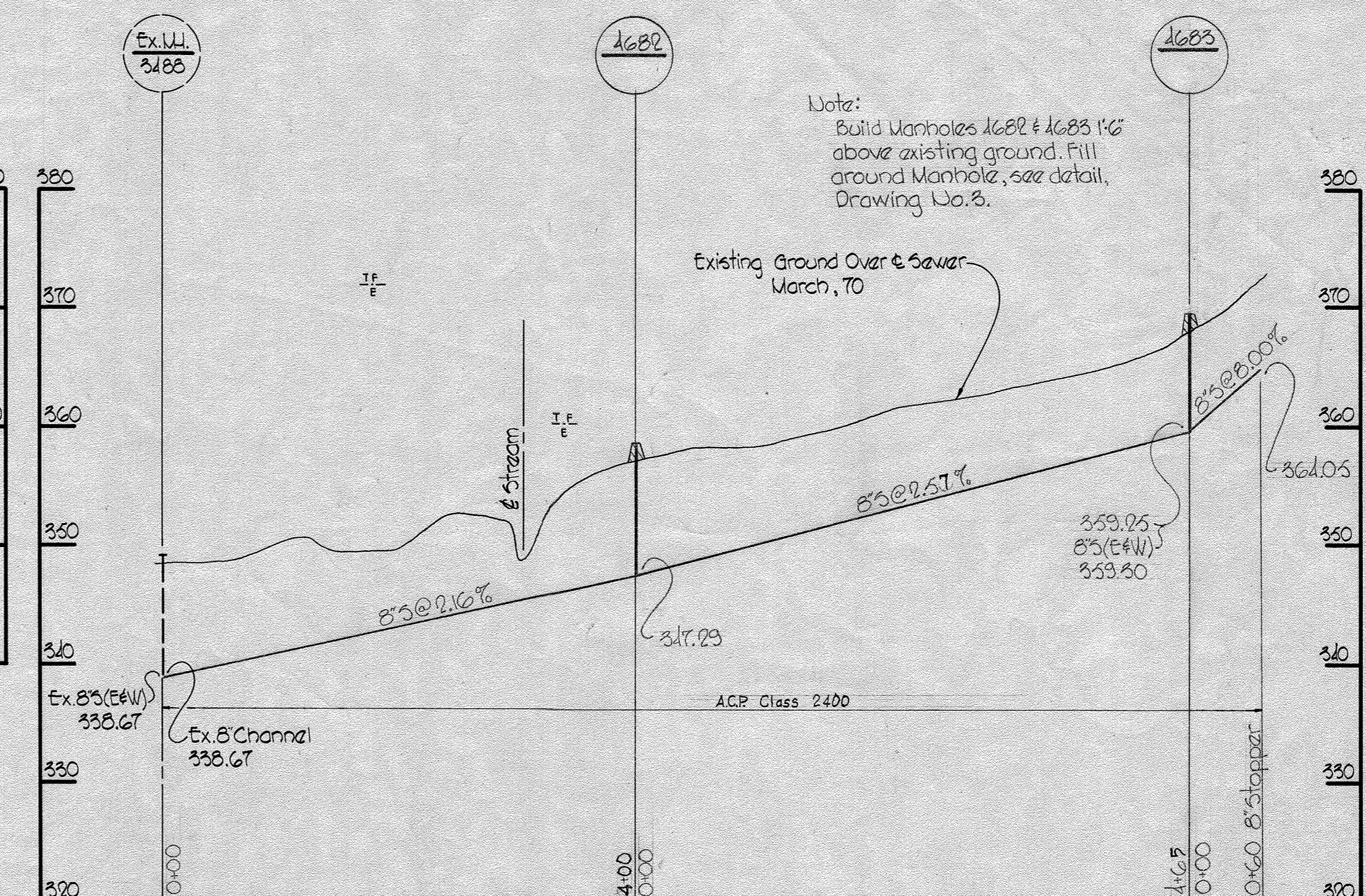
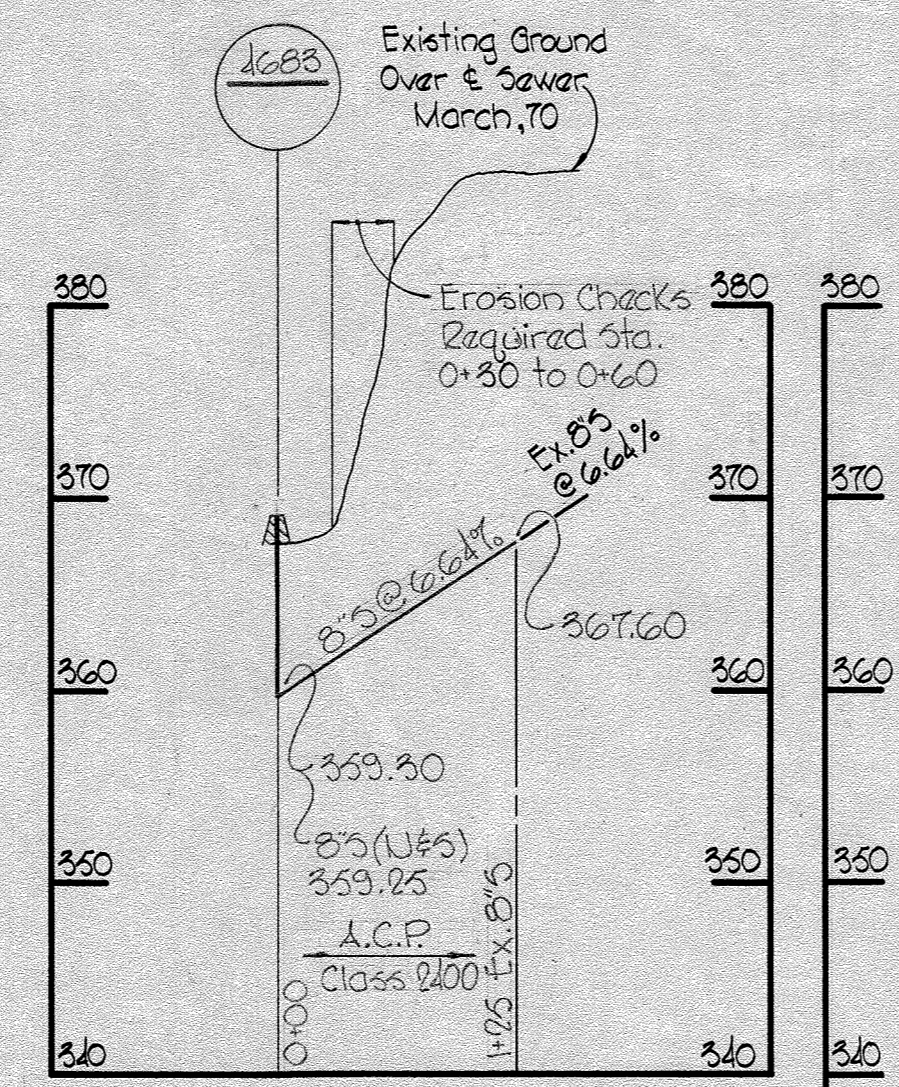
WS 340 W-5 / 2



VICINITY MAP  
Scale: 1"=800'

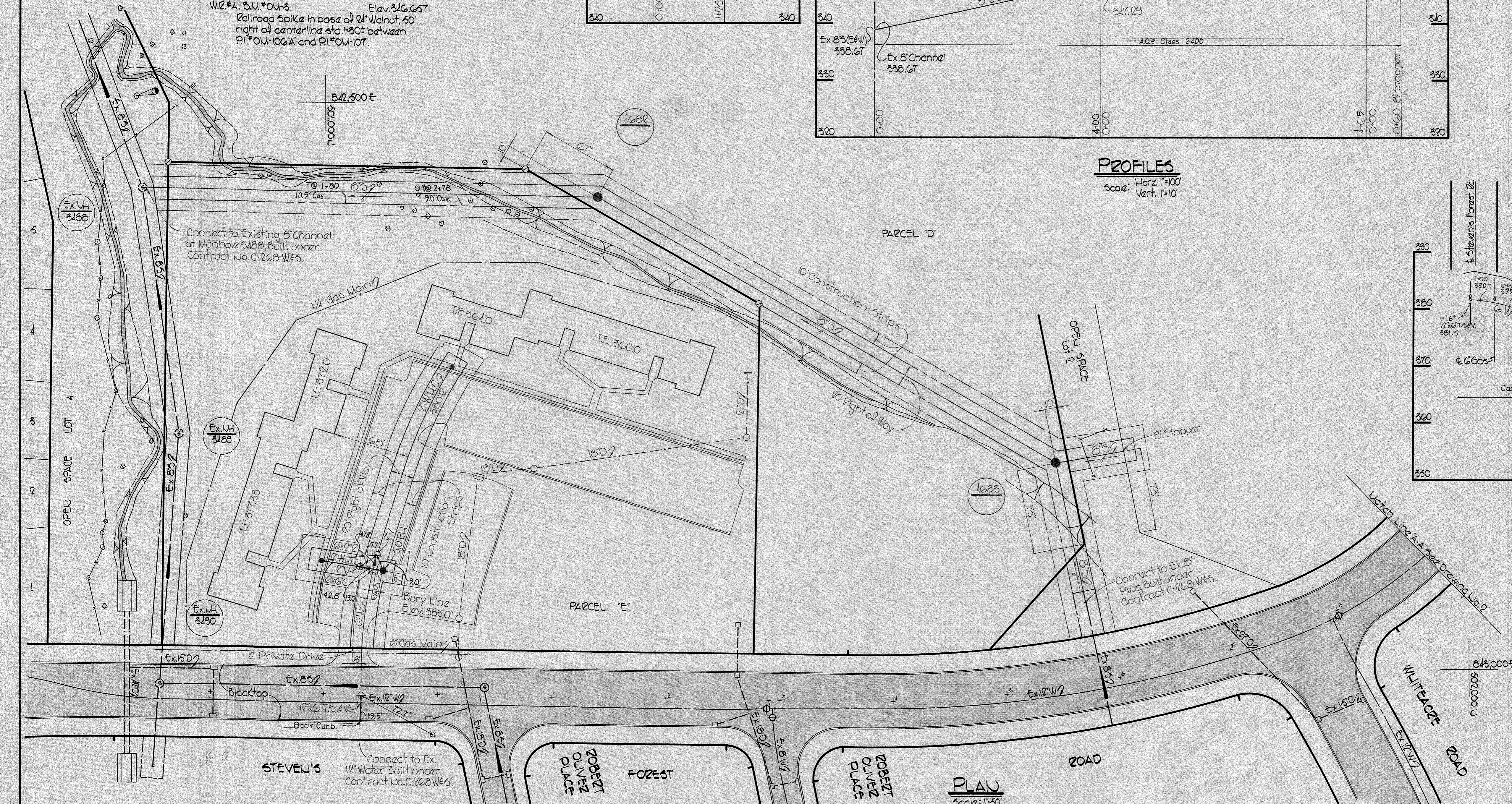
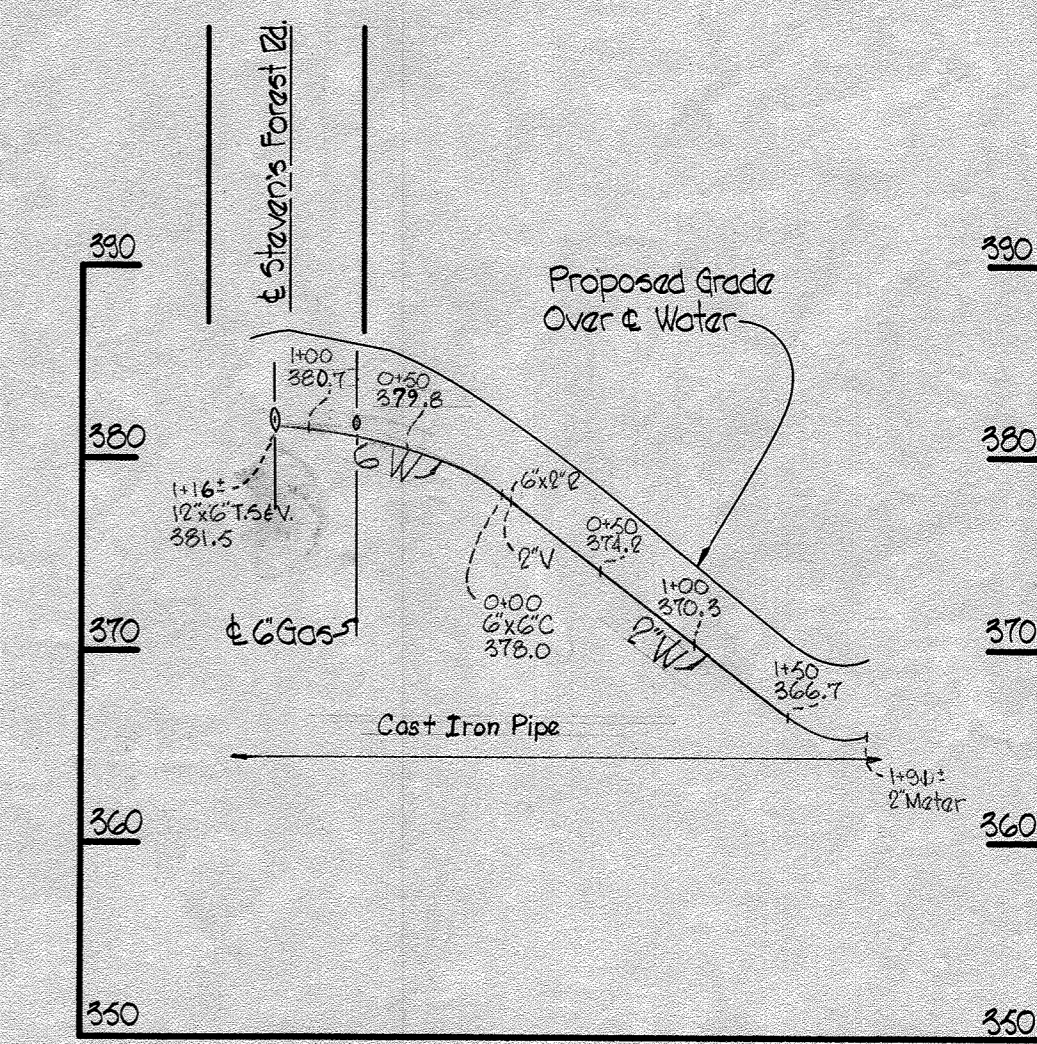


W.P.#A, B.M.#OU-3 Elev. 346.657  
Railroad spike in base of 24" Walnut, 30'  
right of centerline sta. 1+30.2 between  
P.I.#OU-106'A and P.I.#OU-107.

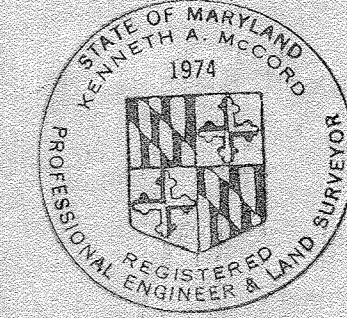


Note:  
Build Manholes 1688 & 1683 1'6"  
above existing ground. Fill  
ground Manhole, see detail,  
Drawing No. 3.

PROFILES  
Scale: Horiz. 1"=100'  
Vert. 1"=10'



PLAN  
Scale: 1"=50'



*Kenneth A. Milrod*

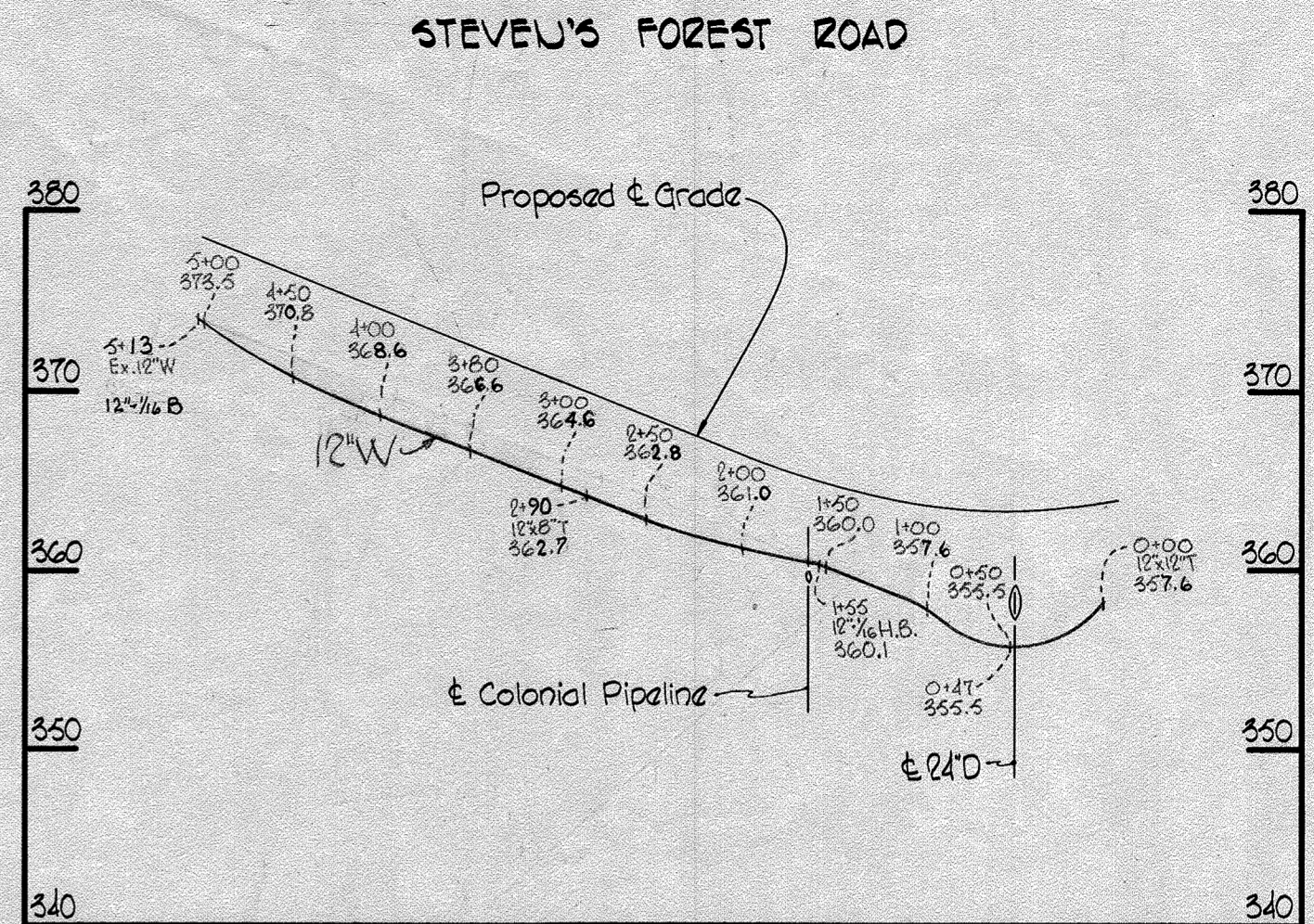
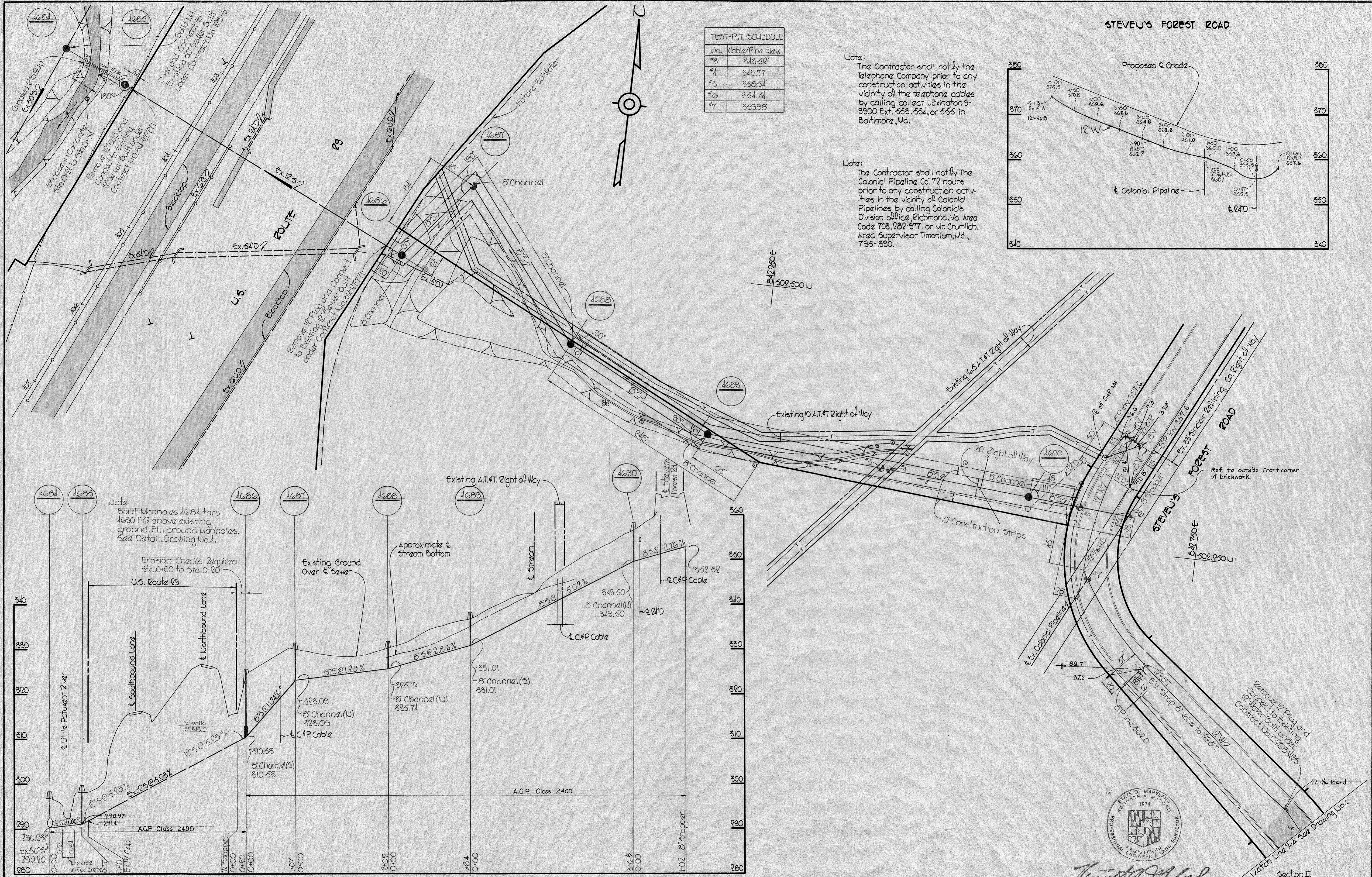
Section I  
Village of Oakland Mills  
Section 2 Area 3  
Tilbury III  
Contract No. C-340 W-5

<p>WHITMAN, REQUARDT &amp; ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND</p>	<p>DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 4-15-70 W. O. Felber CHIEF - BUREAU OF WATER AND SEWER</p>	<p>CONTRACT NO. C-340 W-5</p>	<p>PLAN AND PROFILE OF WATER &amp; SEWER MAINS</p>	<p>COLUMBIA VILLAGE OF OAKLAND MILLS ELECTION DISTRICT GUILFORD No. 6</p>	<p>DRAWING NO. 2 OF 5 SCALE AS SHOWN 450-162 501-162</p>
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W. O. 6023-2

AS BUILT 22 September 1970

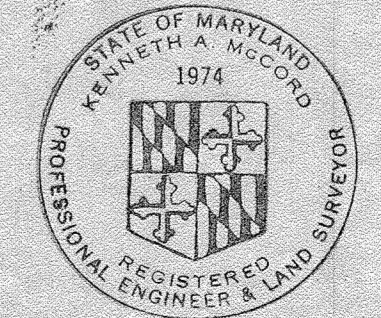
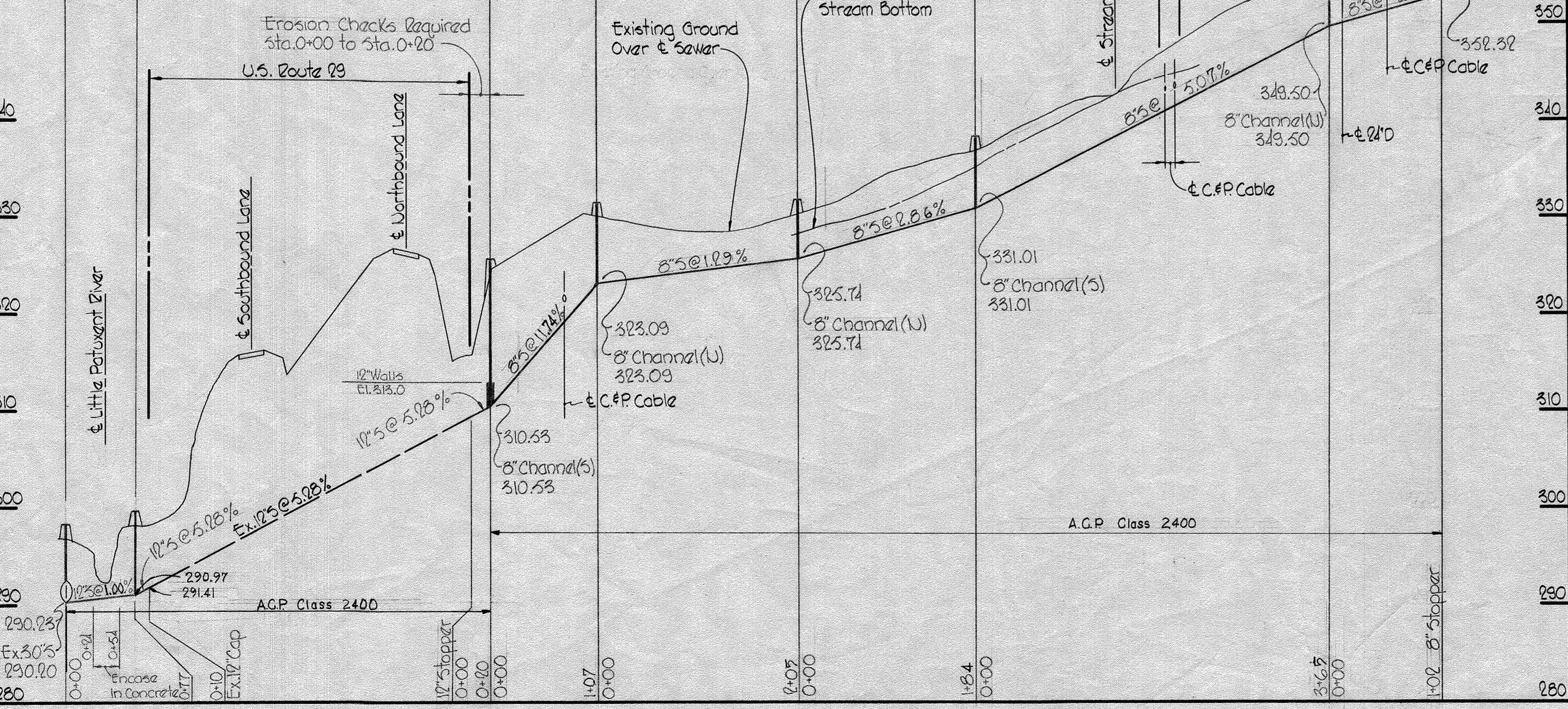
WS 340 W-S/3



Note:  
The Contractor shall notify the Telephone Company prior to any construction activities in the vicinity of the telephone cables by calling collect LExington 9-9300 Ext. 563, 564, or 565 in Baltimore, Md.

Note:  
The Contractor shall notify The Colonial Pipeline Co. 72 hours prior to any construction activities in the vicinity of Colonial Pipelines by calling Colonial's Division office, Richmond, Va. Area Code 703, 782-3771 or Mr. Crumlich, Area Supervisor Timonium, Md., 795-1350.

Note:  
Build Manholes 1604 thru 1608 1'0" above existing ground. Fill around Manholes. See Detail, Drawing No. 1.



*Kenneth A. McCord*

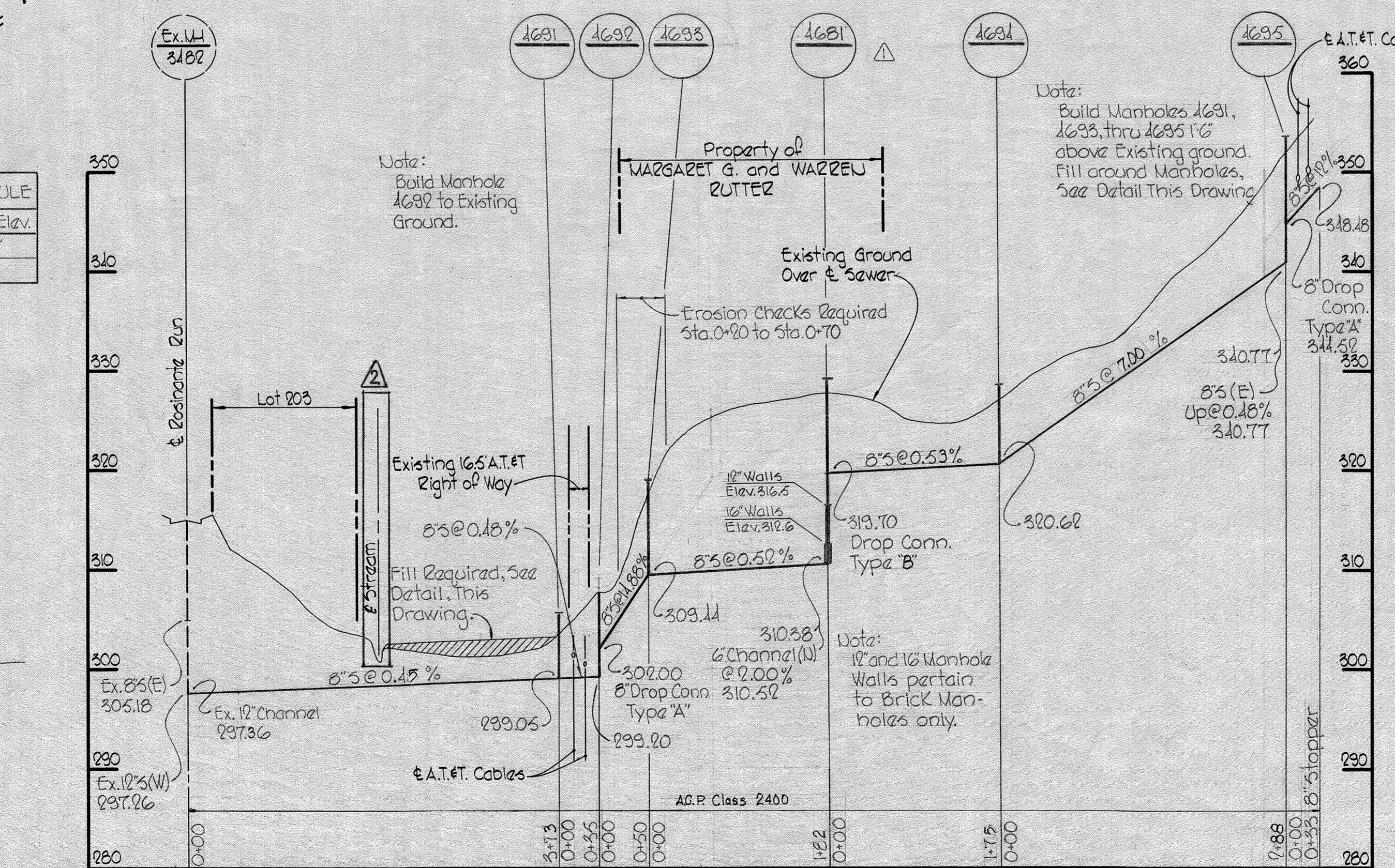
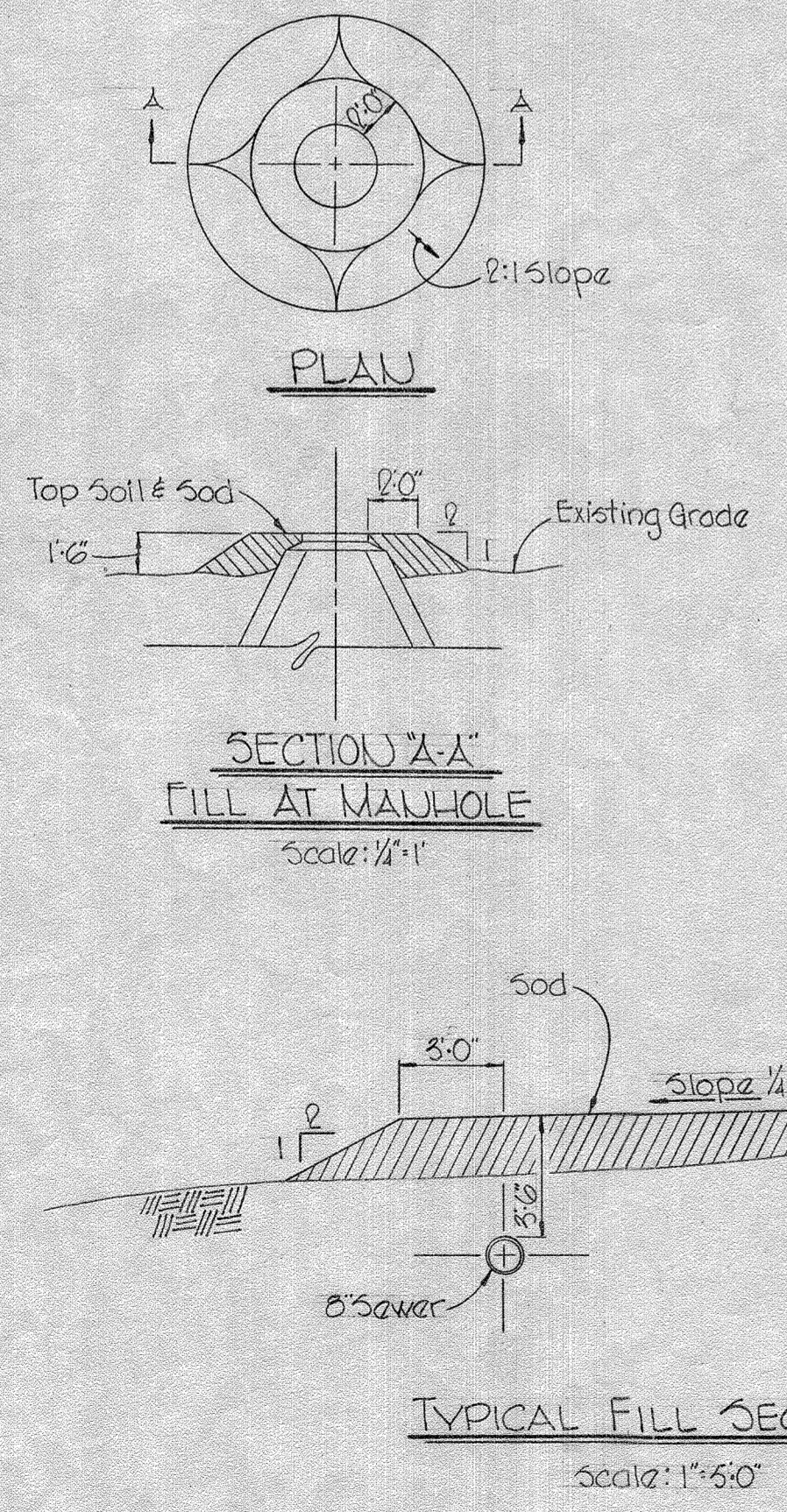
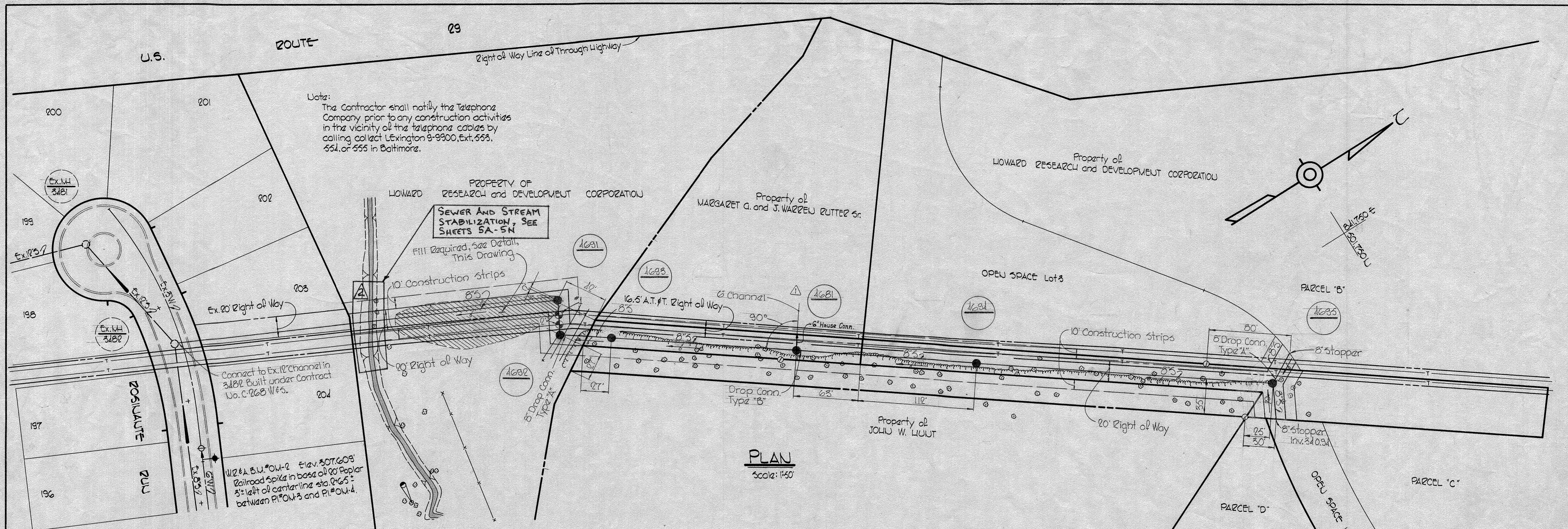
Section II  
V.O.M. Section 2, Area 3  
Contract No. C-340 W-S

<b>WHITMAN, REQUARDT &amp; ASSOCIATES</b> ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	<b>DEPARTMENT OF PUBLIC WORKS</b> HOWARD COUNTY, MARYLAND 4-15-70 <i>W. O. Falbert</i> CHIEF - BUREAU OF WATER AND SEWER	<b>CONTRACT NO. C-340W8S</b>	<b>PLAN AND PROFILE OF WATER &amp; SEWER MAINS</b>	<b>COLUMBIA</b> <b>VILLAGE OF OAKLAND MILLS</b> <b>ELECTION DISTRICT GUILFORD No. 6</b>	<b>DRAWING NO. 3 OF 5</b> <b>SCALE AS SHOWN</b> 501-482 501-481 501-482
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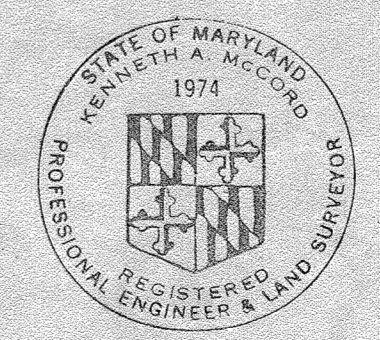
W. O. 6023-2

F.B.# 1608  
AS BUILT 22 September 1970

WS 340 W-5/4



- GENERAL NOTES**
1. Approximate location of existing mains are shown. The Contractor shall take all necessary precautions to protect existing mains and services and maintain uninterrupted supply. Any damage incurred shall be repaired immediately.
  2. All pipe elevations shown are invert elevations.
  3. The Contractor shall locate existing utilities a minimum of two weeks in advance of construction operations in vicinity of utilities.
  4. For all standard details see standards bound in specifications.
  5. All water mains to have a minimum of 3' cover.
  6. Block all fittings with concrete, see standards bound in specifications.
  7. Bury line elevations on fire hydrants shall be set to the elevations shown on the drawings.
  8. All fire hydrants shall be strapped to the tee and shall be buttressed with concrete in accordance with standard details.
  9. Clear all utilities by a minimum of 6'; Clear all poles 2'-0" minimum, or tunnel as required.
  10. The Contractor shall provide a joint in all sewer mains within 2'-0" of exterior manhole walls.
  11. All sewer pipe shall be V.C.P.X., C.S.P.X., or A.C.P. class 2400 unless otherwise noted.
  12. All horizontal and vertical controls are based on Maryland State Datum.



Kenneth A. McLeod

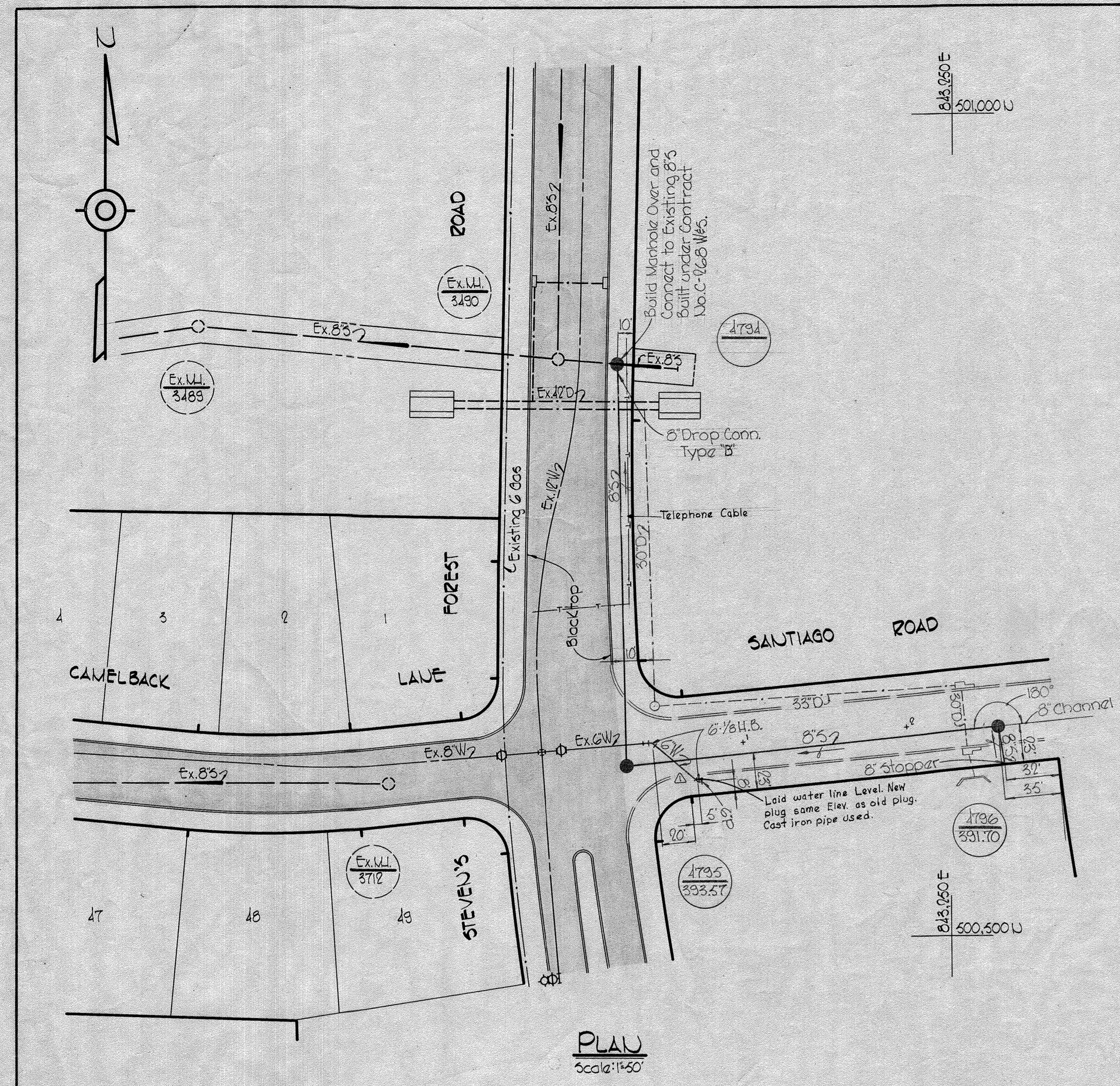
No.	Date	Description
5-2022		Grades Lane Sewer & Stream Stabilization, Sheets SA through 5N Added
5-28-70		Revised Sewer Between Manholes 4682 & 4683
		Revision

<b>WHITMAN, REQUARDT &amp; ASSOCIATES</b> ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	<b>DEPARTMENT OF PUBLIC WORKS</b> HOWARD COUNTY, MARYLAND DATE: 4-15-70 <i>W. O. Pulbert</i> CHIEF - BUREAU OF WATER AND SEWER	<b>CONTRACT NO. C-340W8S</b>	<b>PLAN AND PROFILE OF WATER &amp; SEWER MAINS</b>	<b>COLUMBIA</b> <b>VILLAGE OF OAKLAND MILLS</b> <b>ELECTION DISTRICT GUILFORD No. 6</b>	<b>DRAWING NO. 4</b> <b>OF 5</b>	<b>SCALE AS SHOWN</b>
					501482 501481 500481	

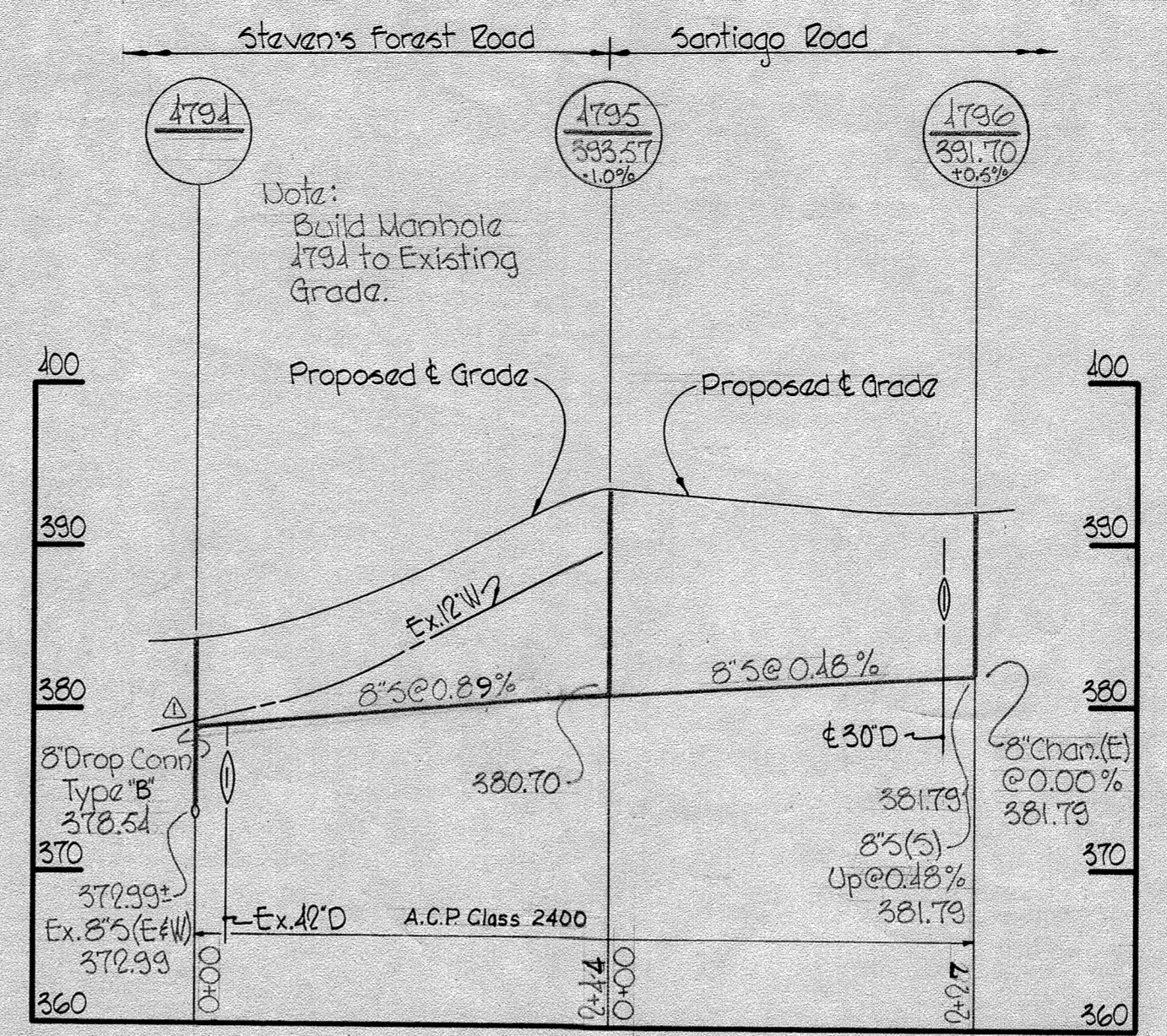
W. O. 6025-2

F.B. #4608  
AS BUILT 22 September 1970

WS 340 W-5/5

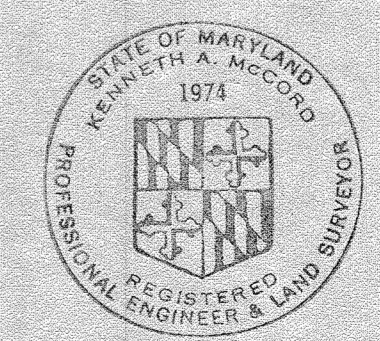


**PLAN**  
Scale: 1"=50'



**PROFILE**  
Scale: Horiz. 1"=100'  
Vert. 1"=10'

No.	Date	Revision
Δ 6-23-70		Revised Vertical Sewer Alignment between M.I.'s 1794 & 1795, Extended 6" Water.



*Kenneth A. McLeod*

Section IV  
V.O.M. Section 2, Area 4  
Contract No. C-340 W-5

<b>WHITMAN, REQUARDT &amp; ASSOCIATES</b> ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 5-20-70 <i>W. O. Palbert</i> CHIEF-BUREAU OF WATER AND SEWER	CONTRACT NO. C-340 W-5	PLAN AND PROFILE OF WATER & SEWER MAINS	COLUMBIA VILLAGE OF OAKLAND MILLS ELECTION DISTRICT GUILFORD NO. 6	DRAWING NO. 5	SCALE AS SHOWN	500-480
					OF 5		

W. O. 6023-2

AS BUILT 22 September 1970

# GALES LANE SEWER AND STREAM STABILIZATION

## PURPOSE OF PROJECT

THIS PROJECT WILL INSTALL STREAM BED AND BANK STABILIZATION STRUCTURES TO ADDRESS AN EXPOSED SEWER LINE CROSSING IN AN ERODING STREAM CHANNEL SITUATED BETWEEN GALES LANE AND ROSINANTE RUN. THE STABILIZATION WILL BEGUN UPSTREAM OF AND CONTINUE OVER THE EXPOSED SEWER, AND TIE INTO THE EXISTING CHANNEL GRADE AT A RELATIVELY STABLE LOCATION.

NO IMPROVEMENTS TO THE REACH DRAINAGE AREA ARE PROPOSED. THEREFORE, WATER QUALITY VOLUME REQUIREMENTS ARE NOT APPLICABLE. NO IMPERVIOUS AREA WITHIN THE SITE TO BE ALTERED. THEREFORE, IMPLEMENTATION OF ESD PRACTICES IS NOT APPLICABLE. COMPREHENSIVE EROSION AND SEDIMENT CONTROL WILL BE REQUIRED FOR THE DURATION OF THE PROJECT. WATER HANDLING MEASURES WILL INVOLVE DIVERTING BASEFLOW AROUND THE WORK AREA USING A COMBINATION OF SANDBAG DIKES AND PUMP-AROUND PRACTICES TO A FILTER BAG. PERIMETER CONTROLS WILL BE INSTALLED DIRECTLY DOWNSTREAM OF STAGING AND STOCKPILE AREAS AND CONSTRUCTION ACCESS ROADS. ACCESS WILL BE VIA A STABILIZED CONSTRUCTION ENTRANCE FROM ROSINANTE RUN.

## GENERAL NOTES

- APPROXIMATE LOCATIONS OF EXISTING MAINS ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING MAINS AND SERVICES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
- THE EXISTING TOPOGRAPHY IS FROM FIELD RUN SURVEY WITH ONE FOOT CONTOUR INTERVALS PREPARED BY KCI TECHNOLOGIES, INC., ON JULY 12 THROUGH JULY 19, AND JULY 31, 2018.
- HORIZONTAL AND VERTICAL SURVEY CONTROLS:  
THE COORDINATES SHOWN ON THE DRAWINGS ARE BASED ON MARYLAND STATE REFERENCE SYSTEM NAD 83/ 2011 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL. HOWARD COUNTY MONUMENT NUMBERS 47GC, 47H2, & 47HC WERE USED FOR THIS SITE. ALL VERTICAL CONTROLS ARE BASED ON NAVD 88.
- ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS UNLESS OTHERWISE NOTED ON THE PLANS.
- CLEAR ALL UTILITIES BY A MINIMUM OF 12 INCHES. CLEAR ALL POLES BY 5'-0" MINIMUM OR TUNNEL AS REQUIRED UNLESS OTHERWISE NOTED. THE OWNER HAS CONTACTED THE UTILITY COMPANIES AND HAS MADE ARRANGEMENTS FOR BRACING OF POLES AS SHOWN ON THE DRAWINGS. IN THE EVENT THE CONTRACTOR'S WORK REQUIRES THE BRACING OF ADDITIONAL POLES, ANY COST INCURRED BY THE OWNER FOR THE BRACING OF ADDITIONAL POLES OR DAMAGES SHALL BE DEDUCTED FROM MONIES OWED THE CONTRACTOR. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANIES TO SCHEDULE THE BRACING OF THE POLES.
- FOR DETAILS NOT SHOWN ON THE DRAWING, AND FOR MATERIALS AND CONSTRUCTION METHODS, USE HOWARD COUNTY DESIGN MANUAL, VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (LATEST EDITION). THE CONTRACTOR SHALL HAVE A COPY OF VOLUME IV ON THE JOB.
- WHERE TEST PITS HAVE BEEN MADE ON EXISTING UTILITIES, THEY ARE NOTED BY THE SYMBOL AT THE LOCATIONS OF THE TEST PITS. A NOTE OR NOTES CONTAINING THE RESULTS OF THE TEST PIT OR PITS ARE INCLUDED ON THE DRAWINGS. EXISTING UTILITIES IN THE VICINITY OF THE PROPOSED WORK FOR WHICH TEST PITS HAVE NOT BEEN DUG SHALL BE LOCATED BY THE CONTRACTOR TWO WEEKS IN ADVANCE OF CONSTRUCTION OPERATIONS AT HIS OWN EXPENSE.
- THE CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES OR AGENCIES AT LEAST FIVE WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:  
AT&T .....1-800-252-1133  
BGE (CONSTRUCTION SERVICES).....410-637-8713  
BGE (EMERGENCY).....410-685-0123  
BUREAU OF UTILITIES.....410-313-4900  
COLONIAL PIPELINE CO.....410-795-1390  
MISS UTILITY.....1-800-257-7777  
STATE HIGHWAY ADMINISTRATION.....410-531-5533  
VERIZON.....1-800-743-0033
- TREES AND SHRUBS ARE TO BE PROTECTED FROM DAMAGE TO THE MAXIMUM EXTENT. TREES AND SHRUBS LOCATED WITHIN THE CONSTRUCTION STRIP ARE NOT TO BE REMOVED OR DAMAGED BY THE CONTRACTOR.
- THE CONTRACTOR SHALL REMOVE TREES, STUMPS AND ROOTS ALONG THE LINE OF EXCAVATION. PAYMENT FOR SUCH REMOVAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONSTRUCTION OF THE MAIN.
- THE CONTRACTOR SHALL NOTIFY THE BUREAU OF HIGHWAYS, HOWARD COUNTY, AT (410)-313-7450 AT LEAST FIVE WORKING DAYS BEFORE OPEN CUTTING OR BORING/JACKING OF ANY COUNTY ROAD FOR LAYING WATER/SEWER MAINS OR HOUSE CONNECTIONS. THE APPROVAL OF THESE DRAWINGS WILL CONSTITUTE COMPLIANCE WITH DPW REQUIREMENTS PER SECTION 18.114(A) OF THE HOWARD COUNTY CODE.

## SEWER GENERAL NOTES

- ALL SEWER MAINS SHALL BE D.I.P. OR P.V.C. UNLESS OTHERWISE NOTED.
- ALL MANHOLES SHALL BE 4'-0" INSIDE DIAMETER UNLESS OTHERWISE NOTED.
- FORCE MAINS SHALL BE D.I.P. ONLY.
- MANHOLES SHOWN WITH 12" AND 16" WALLS ARE FOR BRICK MANHOLES ONLY.
- MANHOLES DESIGNATED W.T. IN PLAN AND PROFILE SHALL HAVE WATERTIGHT FRAME AND COVER, STANDARD DETAIL 05-52, WHERE WATERTIGHT MANHOLE FRAMES AND COVERS ARE USED, SET TOP OF FRAME 1'-6" ABOVE FINISHED GRADE UNLESS OTHERWISE NOTED ON THE DRAWINGS.
- HOUSE(S) WITH THE SYMBOL "C.N.S." INDICATES THAT THE CELLAR CANNOT BE SERVED.

ITEM	ESTIMATED	QUANTITIES		
		QUANTITIES	AS-BUILT	SUPPLIER

## PROPERTY OWNERS

OWNER	ADDRESS	PARCEL	LOT	INSTRUMENT OF PERMISSION
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS	6751 COLUMBIA GATEWAY DRIVE COLUMBIA, MD 21046	518		LETTER
COLUMBIA ASSOCIATION	N. GALES LANE COLUMBIA, 21045	518	1	LETTER
COLUMBIA ASSOCIATION INC.	N. ROSINANTE RUN COLUMBIA, 21045	315	209 S 5 AR2 ROSINANTE RUN VOM STEVENS FOREST	LETTER
ATT 16.5' UTILITY R/W	N. ROSINANTE RUN COLUMBIA, 21045	315	209 S 5 AR2 ROSINANTE RUN VOM STEVENS FOREST	RIGHT-OF-WAY

## PERMIT INFORMATION CHART

SUBDIVISION NAME	SECTION/AREA	PARCEL#
DISTRICT 6 SAVAGE, MD		518
PLAT# OF L.P.	GRID # ZONING	TAX MAP NO. ELECT. DISTR. CENSUS TRACT
L-1671	2 NT	36 6 6066.03
13764 E-69		
WATER CODE	SEWER CODE	
PUBLIC	PUBLIC	

## DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS DATE 5/11/22  
 CHIEF, BUREAU OF ENGINEERING DATE 5/11/22  
 CHIEF, UTILITY DESIGN DIVISION DATE 5/11/22

ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS  
936 Ragsdale Road Sparks, MD 21152  
Phone: (410) 316-7800 Fax: (410) 316-7817 www.kci.com

SHANNON C.P. LUCAS  
PROFESSIONAL ENGINEER  
No. 33079  
Expiration Date 01-16-2023

DES: SC					
DRN: CD, JS					
CHK: SL					
DATE: MAY 2022	BY	NO.	REVISION	DATE	

DESIGN CERTIFICATION  
"I hereby certify, by my seal, that to the best of my knowledge and belief the features shown on this plan were constructed as shown on this "AS-BUILT" plan meet the Approved Plans and Specifications."  
Designer/Consultant (print name) \_\_\_\_\_ License Number \_\_\_\_\_ Date \_\_\_\_\_  
Seal & Signature \_\_\_\_\_

## ADDENDUM TITLE SHEET

## GALES LANE SEWER AND STREAM STABILIZATION

CAPITAL PROJECT S6601  
CONTRACT No. C-340 W&S  
ELECTION DISTRICT NO. 6 HOWARD COUNTY, MARYLAND

TYPE OF BUILDING: N/A  
NUMBER OF PARCELS: N/A  
NUMBER OF SEWER HOUSE CONNECTIONS: N/A  
DRAINAGE AREA: LITTLE PATUXENT  
TREATMENT PLANT: LITTLE PATUXENT

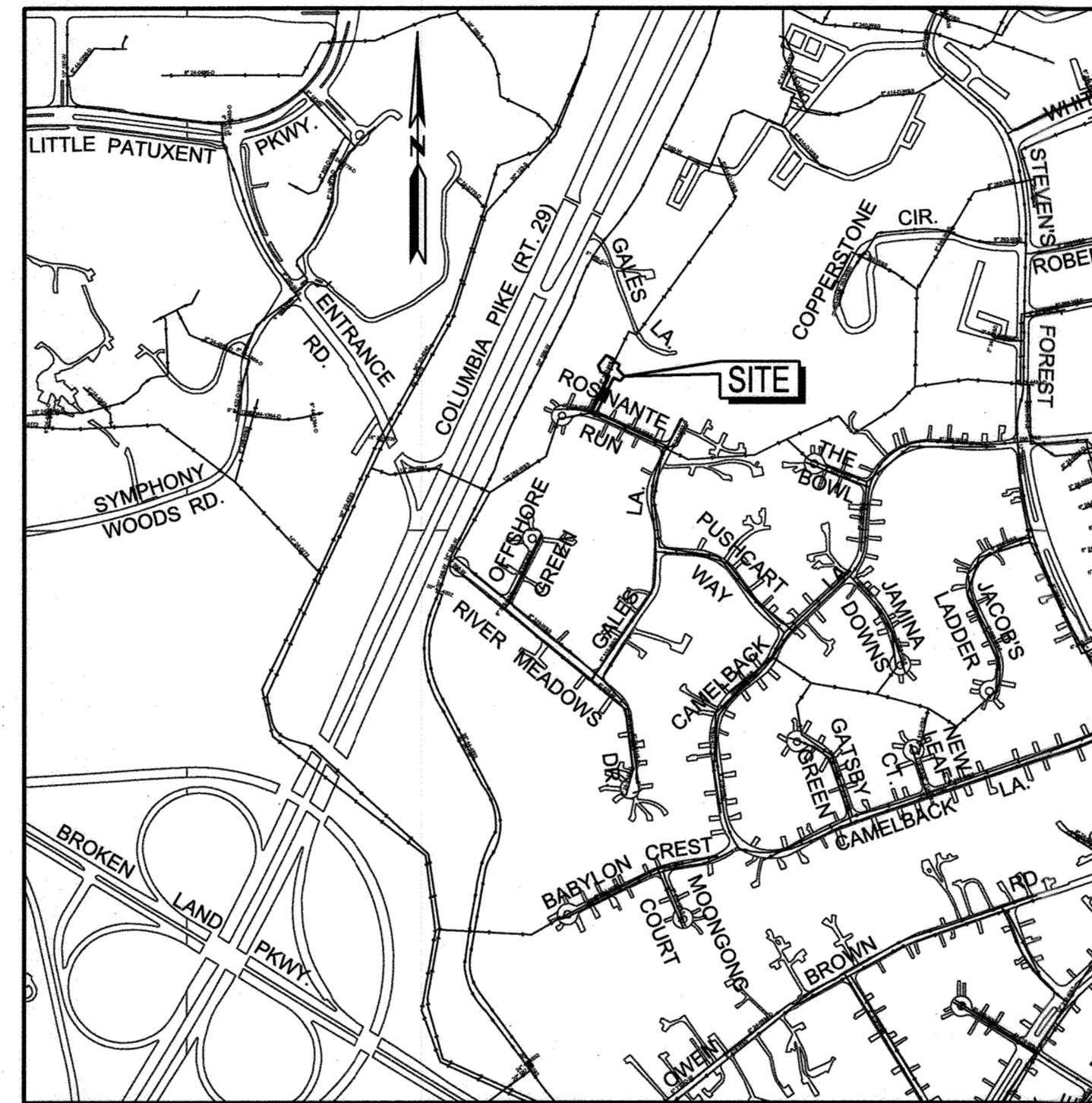
CONTROL NOTE:  
THE HORIZONTAL AND VERTICAL DATUM SHOWN HEREON ARE BASED ON GPS OBSERVATIONS FROM THE FOLLOWING HOWARD COUNTY SURVEY TRAVERSE POINTS:  
HORIZONTAL: NAD 1983/2011  
VERTICAL: NAVD 1988

DESIGNATION	NORTHING	EASTING	ELEVATION
36DB	559940.816	1350945.671	344.648
36BB	561504.228	1356203.715	409.248

## DESIGN INFORMATION

WATERSHED ID	021311050954
IMPERVIOUS AREA (AC)	42
IMPERVIOUS TREATED (AC)	0.00*
DRAINAGE AREA (AC)	77
* WATER QUALITY VOLUME (CF)	0.00*
% TREATED	0.00*

SEE DESIGN NARRATIVE THIS SHEET



VICINITY MAP  
SCALE: 1" = 600'

SITE ANALYSIS DATA	
SITE AREA (AC)	0.20
WETLAND AREA (AC)	0.00
WETLAND BUFFER (AC)	0.04
FLOODPLAIN AREA (AC)	0.16
FOREST LIMITS (AC)	0.09
STEEP SLOPE AREA >15% (AC)	0.02
ERODIBLE SOILS (AC)	0.16
LIMIT OF DISTURBANCE (AC)	0.20
PROPOSED SITE USE	SEWER AND STREAM STABILIZATION
PROPOSED IMPERVIOUS AREA (AC)	0.00

## OWNER'S/DEVELOPER'S CERTIFICATION

"I/WE CERTIFY THAT ALL CLEARING, GRADING, CONSTRUCTION OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTING AND MAINTAINING CONTROLS, AND THAT THE RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF TRAINING AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) APPROVED TRAINING PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENT PRIOR TO THE BEGINNING OF THE PROJECT. I CERTIFY RIGHT-OF-ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT AND/OR MDE."

SILVER CHAI PROJECT MANAGER  
PRINTED NAME & TITLE  
DATE 5.12.22

## HOWARD SOIL CONSERVATION DISTRICT CERTIFICATION

THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT  
EP-19-35  
 5/11/22  
HOWARD SOIL CONSERVATION DISTRICT DATE APPROVED

## SHEET INDEX

DWG. NO.	SHEET NO.	SHEET TITLE
TI-01	5A	TITLE SHEET
ER-01	5B	ENVIRONMENTAL RESOURCES MAP
GS-01	5C	GEOMETRY PLAN
GR-01	5D	GRADING PLAN
DE-01 - DE-02	5E-5F	STREAM DETAILS
PR-01	5G	PROFILE
ES-01	5H	EROSION & SEDIMENT CONTROL PLAN
ES-02 - ES-03	5I-5J	EROSION & SEDIMENT CONTROL DETAILS
ES-04 - ES-05	5K-5L	EROSION & SEDIMENT CONTROL NOTES
LS-01	5M	LANDSCAPE PLAN
LD-01	5N	LANDSCAPE DETAILS

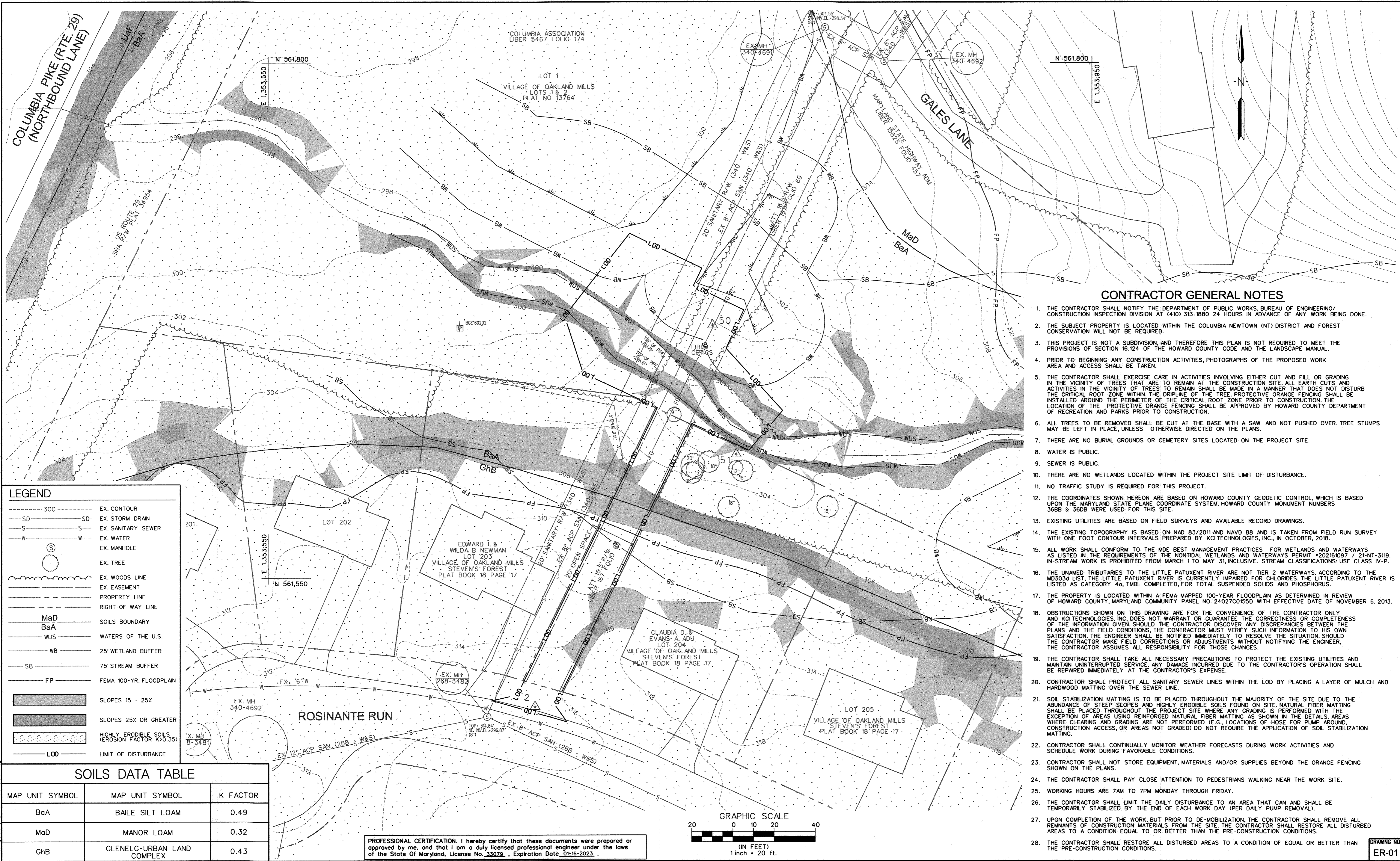
## LEGEND

	EX. CONTOUR		FILTER BAG
	EX. STORM DRAIN		SAND BAG DIKE
	EX. SANITARY SEWER		CURB INLET PROTECTION
	EX. FIBER OPTIC LINE		STABILIZED CONSTRUCTION ENTRANCE
	EX. MANHOLE		MULCH ACCESS ROAD
	EX. TREE		MULCH AND HARDWOOD MATTING ACCESS ROAD
	EX. WOODS LINE		RIFFLE GRADE CONTROL
	EX. EASEMENT		STEP CREST / POOL
	PROPERTY LINE		STONE TOE PROTECTION
	RIGHT-OF-WAY LINE		RIGHT OF ENTRY
	SOILS BOUNDARY		CURB INLET PROTECTION
	WATERS OF THE U.S.		TEMPORARY ACCESS BRIDGE
	NON-TIDAL WETLAND		TEMPORARY CONSTRUCTION EASEMENT
	25' WETLAND BUFFER		
	75' STREAM BUFFER		
	SLOPES 15 - 25%		
	SLOPES 25% OR GREATER		
	HIGHLY ERODIBLE SOILS (EROSION FACTOR >0.35)		
	PROP. CONTOUR		
	LIMIT OF DISTURBANCE		
	ORANGE SAFETY FENCE		
	SUPER SILT FENCE		
	PUMP AND HOSE		

## DESIGN CERTIFICATION

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

SHANNON C.P. LUCAS  
DESIGNER'S SIGNATURE DATE 5.11.2022  
PRINTED NAME MD REGISTRATION NO. 33079  
(P.E.) R.L.S. OR R.L.A. (CIRCLE ONE)



**CONTRACTOR GENERAL NOTES**

1. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS, BUREAU OF ENGINEERING/ CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 24 HOURS IN ADVANCE OF ANY WORK BEING DONE.
2. THE SUBJECT PROPERTY IS LOCATED WITHIN THE COLUMBIA NEWTOWN (NT) DISTRICT AND FOREST CONSERVATION WILL NOT BE REQUIRED.
3. THIS PROJECT IS NOT A SUBDIVISION, AND THEREFORE THIS PLAN IS NOT REQUIRED TO MEET THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
4. PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITIES, PHOTOGRAPHS OF THE PROPOSED WORK AREA AND ACCESS SHALL BE TAKEN.
5. THE CONTRACTOR SHALL EXERCISE CARE IN ACTIVITIES INVOLVING EITHER CUT AND FILL OR GRADING IN THE VICINITY OF TREES THAT ARE TO REMAIN AT THE CONSTRUCTION SITE. ALL EARTH CUTS AND ACTIVITIES IN THE VICINITY OF TREES TO REMAIN SHALL BE MADE IN A MANNER THAT DOES NOT DISTURB THE CRITICAL ROOT ZONE WITHIN THE DRIFLINE OF THE TREE. PROTECTIVE ORANGE FENCING SHALL BE INSTALLED AROUND THE PERIMETER OF THE CRITICAL ROOT ZONE PRIOR TO CONSTRUCTION. THE LOCATION OF THE PROTECTIVE ORANGE FENCING SHALL BE APPROVED BY HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS PRIOR TO CONSTRUCTION.
6. ALL TREES TO BE REMOVED SHALL BE CUT AT THE BASE WITH A SAW AND NOT PUSHED OVER. TREE STUMPS MAY BE LEFT IN PLACE, UNLESS OTHERWISE DIRECTED ON THE PLANS.
7. THERE ARE NO BURIAL GROUNDS OR CEMETERY SITES LOCATED ON THE PROJECT SITE.
8. WATER IS PUBLIC.
9. SEWER IS PUBLIC.
10. THERE ARE NO WETLANDS LOCATED WITHIN THE PROJECT SITE LIMIT OF DISTURBANCE.
11. NO TRAFFIC STUDY IS REQUIRED FOR THIS PROJECT.
12. THE COORDINATES SHOWN HEREON ARE BASED ON HOWARD COUNTY GEODETIC CONTROL, WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NUMBERS 36BB & 36DB WERE USED FOR THIS SITE.
13. EXISTING UTILITIES ARE BASED ON FIELD SURVEYS AND AVAILABLE RECORD DRAWINGS.
14. THE EXISTING TOPOGRAPHY IS BASED ON NAD 83/2011 AND NAVD 88 AND IS TAKEN FROM FIELD RUN SURVEY WITH ONE FOOT CONTOUR INTERVALS PREPARED BY KCI TECHNOLOGIES, INC. IN OCTOBER, 2018.
15. ALL WORK SHALL CONFORM TO THE MDE BEST MANAGEMENT PRACTICES FOR WETLANDS AND WATERWAYS AS LISTED IN THE REQUIREMENTS OF THE NONTIDAL WETLANDS AND WATERWAYS PERMIT #20216097 / 21-NT-3119. IN-STREAM WORK IS PROHIBITED FROM MARCH 1 TO MAY 31, INCLUSIVE. STREAM CLASSIFICATIONS: USE CLASS IV-P.
16. THE UNAMED TRIBUTARIES TO THE LITTLE PATUXENT RIVER ARE NOT TIER 2 WATERWAYS. ACCORDING TO THE MD303a LIST, THE LITTLE PATUXENT RIVER IS CURRENTLY IMPAIRED FOR CHLORIDES. THE LITTLE PATUXENT RIVER IS LISTED AS CATEGORY 4a, TMDL COMPLETED, FOR TOTAL SUSPENDED SOLIDS AND PHOSPHORUS.
17. THE PROPERTY IS LOCATED WITHIN A FEMA MAPPED 100-YEAR FLOODPLAIN AS DETERMINED IN REVIEW OF HOWARD COUNTY, MARYLAND COMMUNITY PANEL NO. 24027001550 WITH EFFECTIVE DATE OF NOVEMBER 6, 2013.
18. OBSTRUCTIONS SHOWN ON THIS DRAWING ARE FOR THE CONVENIENCE OF THE CONTRACTOR ONLY AND KCI TECHNOLOGIES, INC. DOES NOT WARRANT OR GUARANTEE THE CORRECTNESS OR COMPLETENESS OF THE INFORMATION GIVEN. SHOULD THE CONTRACTOR DISCOVER ANY DISCREPANCIES BETWEEN THE PLANS AND THE FIELD CONDITIONS, THE CONTRACTOR MUST VERIFY SUCH INFORMATION TO HIS OWN SATISFACTION. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY TO RESOLVE THE SITUATION. SHOULD THE CONTRACTOR MAKE FIELD CORRECTIONS OR ADJUSTMENTS WITHOUT NOTIFYING THE ENGINEER, THE CONTRACTOR ASSUMES ALL RESPONSIBILITY FOR THOSE CHANGES.
19. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO THE CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
20. CONTRACTOR SHALL PROTECT ALL SANITARY SEWER LINES WITHIN THE LOD BY PLACING A LAYER OF MULCH AND HARDWOOD MATTING OVER THE SEWER LINE.
21. SOIL STABILIZATION MATTING IS TO BE PLACED THROUGHOUT THE MAJORITY OF THE SITE DUE TO THE ABUNDANCE OF STEEP SLOPES AND HIGHLY ERODIBLE SOILS FOUND ON SITE. NATURAL FIBER MATTING SHALL BE PLACED THROUGHOUT THE PROJECT SITE WHERE ANY GRADING IS PERFORMED WITH THE EXCEPTION OF AREAS USING REINFORCED NATURAL FIBER MATTING AS SHOWN IN THE DETAILS. AREAS WHERE CLEARING AND GRADING ARE NOT PERFORMED (E.G., LOCATIONS OF HOSE FOR PUMP ARMOR, CONSTRUCTION ACCESS, OR AREAS NOT GRADED) DO NOT REQUIRE THE APPLICATION OF SOIL STABILIZATION MATTING.
22. CONTRACTOR SHALL CONTINUALLY MONITOR WEATHER FORECASTS DURING WORK ACTIVITIES AND SCHEDULE WORK DURING FAVORABLE CONDITIONS.
23. CONTRACTOR SHALL NOT STORE EQUIPMENT, MATERIALS AND/OR SUPPLIES BEYOND THE ORANGE FENCING SHOWN ON THE PLANS.
24. THE CONTRACTOR SHALL PAY CLOSE ATTENTION TO PEDESTRIANS WALKING NEAR THE WORK SITE.
25. WORKING HOURS ARE 7AM TO 7PM MONDAY THROUGH FRIDAY.
26. THE CONTRACTOR SHALL LIMIT THE DAILY DISTURBANCE TO AN AREA THAT CAN AND SHALL BE TEMPORARILY STABILIZED BY THE END OF EACH WORK DAY (PER DAILY PUMP REMOVAL).
27. UPON COMPLETION OF THE WORK, BUT PRIOR TO DE-MOBILIZATION, THE CONTRACTOR SHALL REMOVE ALL REMNANTS OF CONSTRUCTION MATERIALS FROM THE SITE. THE CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS TO A CONDITION EQUAL TO OR BETTER THAN THE PRE-CONSTRUCTION CONDITIONS.
28. THE CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS TO A CONDITION OF EQUAL OR BETTER THAN THE PRE-CONSTRUCTION CONDITIONS.

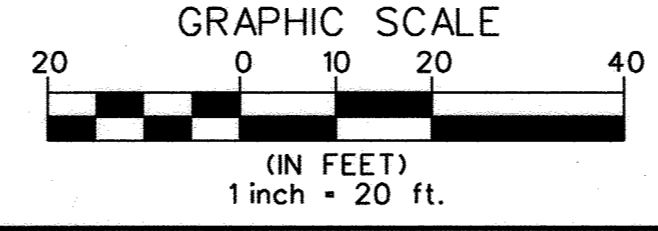
**LEGEND**

- 300 --- EX. CONTOUR
- SD --- SD EX. STORM DRAIN
- S --- S EX. SANITARY SEWER
- W --- W EX. WATER
- ⊙ EX. MANHOLE
- ⊙ EX. TREE
- EX. WOODS LINE
- EX. EASEMENT
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- MaD SOILS BOUNDARY
- BaA WATERS OF THE U.S.
- WB 25' WETLAND BUFFER
- SB 75' STREAM BUFFER
- FP FEMA 100-YR. FLOODPLAIN
- SLOPES 15 - 25%
- SLOPES 25% OR GREATER
- HIGHLY ERODIBLE SOILS (EROSION FACTOR K0.35)
- LOD LIMIT OF DISTURBANCE

**SOILS DATA TABLE**

MAP UNIT SYMBOL	MAP UNIT SYMBOL	K FACTOR
BaA	BAILE SILT LOAM	0.49
MaD	MANOR LOAM	0.32
GhB	GLENELG-URBAN LAND COMPLEX	0.43

PROFESSIONAL CERTIFICATION. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 33079 - Expiration Date 01-18-2023.



DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

Director of Public Works: *[Signature]* DATE: 5/22/2022

Chief, Bureau of Engineering: *[Signature]* DATE: 5/17/22

Chief, Utility Design Division: *[Signature]* DATE: 5/20/22

KCI TECHNOLOGIES

936 Roperwood Road  
Sparks, MD 21152  
Phone: (410) 316-7800  
Fax: (410) 316-7817  
www.kci.com

STATE OF MARYLAND  
PROFESSIONAL ENGINEER  
No. 33079  
5/11/2022

DES: SC					
DRN: CD, JS					
CHK: SL					
DATE: MAY 2022	BY	NO.	REVISION	DATE	600' SCALE MAP NO. 36 BLOCK NO. 02

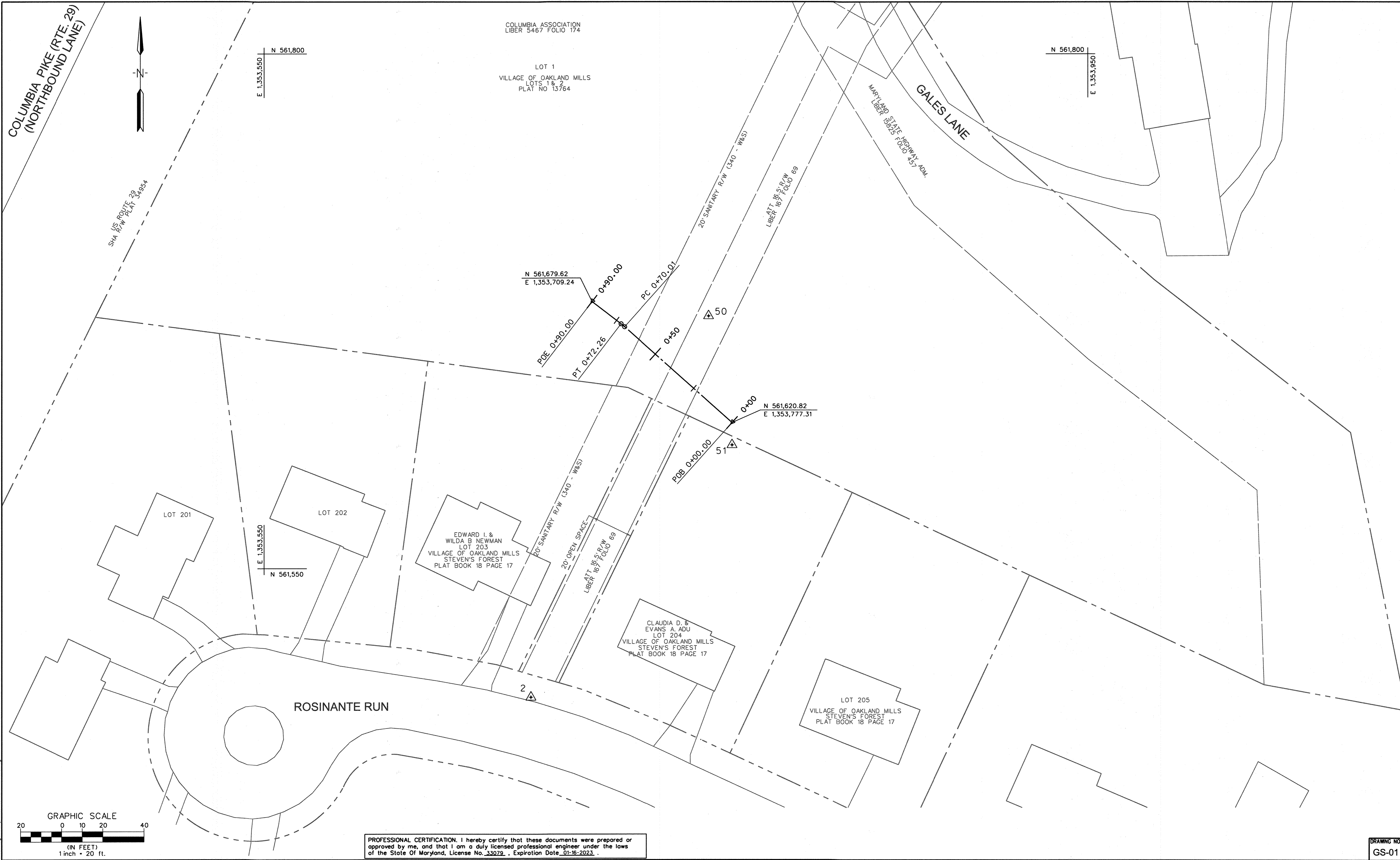
**ADDENDUM ENVIRONMENTAL RESOURCE MAP**

**GALES LANE SEWER AND STREAM STABILIZATION**

CAPITAL PROJECT S6601  
CONTRACT No. C-340 W&S  
ELECTION DISTRICT NO. 6 HOWARD COUNTY, MARYLAND

SCALE: 1" = 20'  
SHEET: SB OF 14

PLOTTED: 01:50 PM on Tuesday, May 10, 2022  
FILE: M:\2021\1880\266.DWG Drawings\02-PR-POD-Collis-Lane.dgn



COLUMBIA ASSOCIATION  
LIBER 5467 FOLIO 174

LOT 1  
VILLAGE OF OAKLAND MILLS  
LOTS 1 & 2  
PLAT NO 13764

COLUMBIA PIKE (RTE. 29)  
(NORTHBOUND LANE)

GALES LANE

SHA 1/2" ROUTE 29  
R/W PLAT 34954

MARYLAND STATE HIGHWAY ADM.  
LIBER 5625 FOLIO 157

N 561,800  
E 1,353,550

N 561,800  
E 1,353,950

N 561,679.62  
E 1,353,709.24

N 561,620.82  
E 1,353,777.31

E 1,353,550  
N 561,550

LOT 201

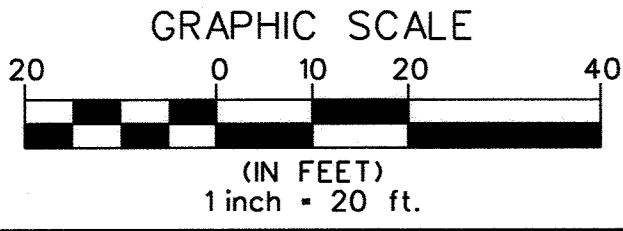
LOT 202

EDWARD I. &  
WILDA B. NEWMAN  
LOT 203  
VILLAGE OF OAKLAND MILLS  
STEVEN'S FOREST  
PLAT BOOK 18 PAGE 17

CLAUDIA D. &  
EVANS A. ADJU  
LOT 204  
VILLAGE OF OAKLAND MILLS  
STEVEN'S FOREST  
PLAT BOOK 18 PAGE 17

LOT 205  
VILLAGE OF OAKLAND MILLS  
STEVEN'S FOREST  
PLAT BOOK 18 PAGE 17

ROSINANTE RUN



PROFESSIONAL CERTIFICATION. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 33079, Expiration Date 01-16-2023.

PLOTTED: 01:50 PM on Tuesday, May 10, 2022  
FILE: M:\08\13802366\01\Drawings\03-p05-POOL-Gales\_Lane.dgn

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*[Signature]* 5/23/2022  
DIRECTOR OF PUBLIC WORKS DATE

*[Signature]* 5/20/22  
CHIEF, BUREAU OF UTILITIES DATE

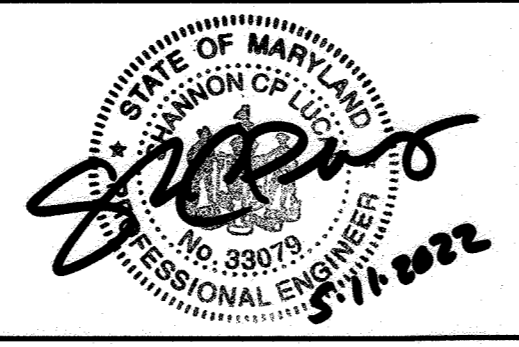
*[Signature]* 5/17/22  
CHIEF, BUREAU OF ENGINEERING DATE

*[Signature]* 5/13/22  
CHIEF, UTILITY DESIGN DIVISION DATE

**KCI**  
TECHNOLOGIES

ENGINEERS  
PLANNERS  
SCIENTISTS  
CONSTRUCTION MANAGERS

936 Ridgebrook Road  
Sparks, MD 21152  
Phone: (410) 316-7800  
Fax: (410) 316-7817  
www.kci.com



DES: SC					
DRN: CD, JS					
CHK: SL					
DATE: MAY 2022	BY	NO.	REVISION	DATE	

ADDENDUM  
GEOMETRY SHEET

600' SCALE MAP NO. 36 BLOCK NO. 02

GALES LANE  
SEWER AND STREAM STABILIZATION

CAPITAL PROJECT S6601  
CONTRACT No. C-340 W&S

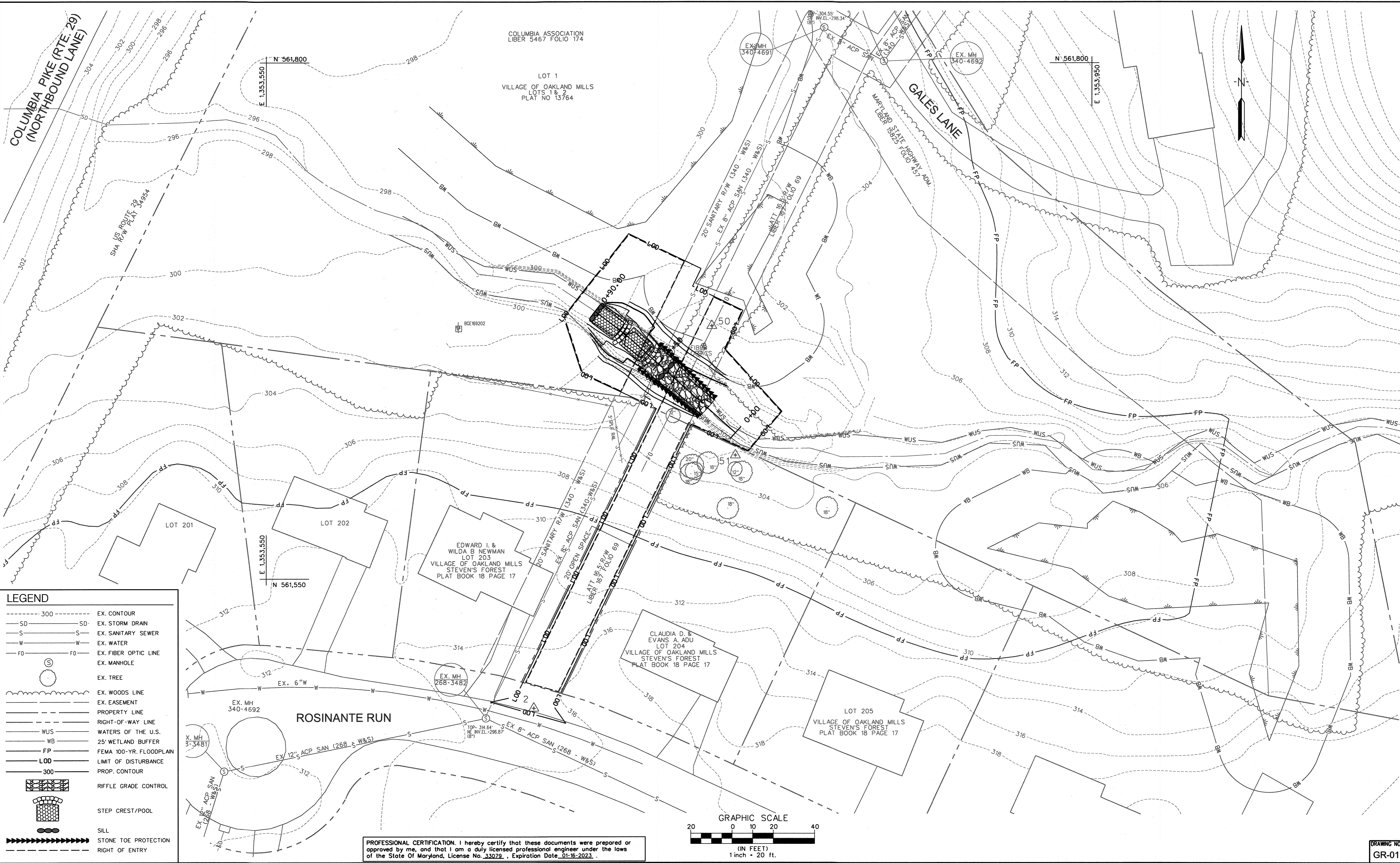
ELECTION DISTRICT NO. 6 HOWARD COUNTY, MARYLAND

DRAWING NO.  
GS-01

SCALE  
1" = 20'

SHEET  
5C OF 14

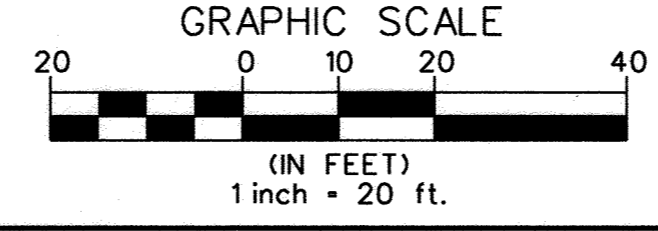




**LEGEND**

--- 300 ---	EX. CONTOUR
-SD-	EX. STORM DRAIN
-S-	EX. SANITARY SEWER
-W-	EX. WATER
-FO-	EX. FIBER OPTIC LINE
(S)	EX. MANHOLE
(T)	EX. TREE
~~~~~	EX. WOODS LINE
- - - - -	EX. EASEMENT
=====	PROPERTY LINE
-----	RIGHT-OF-WAY LINE
WUS	WATERS OF THE U.S.
WB	25' WETLAND BUFFER
FP	FEMA 100-YR. FLOODPLAIN
LOD	LIMIT OF DISTURBANCE
--- 300 ---	PROP. CONTOUR
[Hatched Box]	RIFFLE GRADE CONTROL
[Grid Box]	STEP CREST/POOL
[Dashed Line]	SILL
[Dashed Line]	STONE TOE PROTECTION
[Dashed Line]	RIGHT OF ENTRY

PROFESSIONAL CERTIFICATION. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 33079, Expiration Date 01-16-2023.



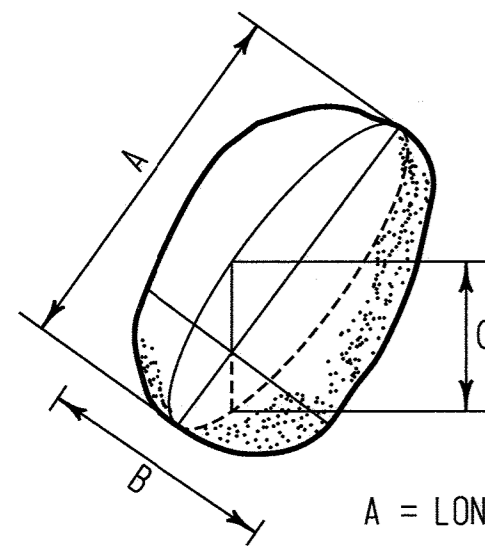
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FILE: M:\2018\131802\366\01\10\Drawings\04-pgr-POOL-Gales Lane.dgn

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND			ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS 936 Ridgebrook Road Sparks, MD 21152 Phone: (410) 316-7800 Fax: (410) 316-7817 www.kci.com	DES: SC																		
[Signature] 5/23/2022 DIRECTOR OF PUBLIC WORKS DATE	[Signature] 5/17/22 CHIEF, BUREAU OF ENGINEERING DATE			DRN: CD, JS																		
[Signature] 5-20-22 CHIEF, BUREAU OF UTILITIES DATE	[Signature] 5/10/2022 CHIEF, UTILITY DESIGN DIVISION DATE			CHK: SL																		
				DATE: MAY 2022	BY	NO.	REVISION	DATE	600' SCALE MAP NO. 36	BLOCK NO. 02												

**ADDENDUM**  
**GRADING PLAN**

**GALES LANE**  
**SEWER AND STREAM STABILIZATION**  
CAPITAL PROJECT S6601  
CONTRACT No. C-340 W&S  
ELECTION DISTRICT NO. 6  
HOWARD COUNTY, MARYLAND

DRAWING NO. GR-01  
SCALE 1" = 20'  
SHEET 50 OF 14



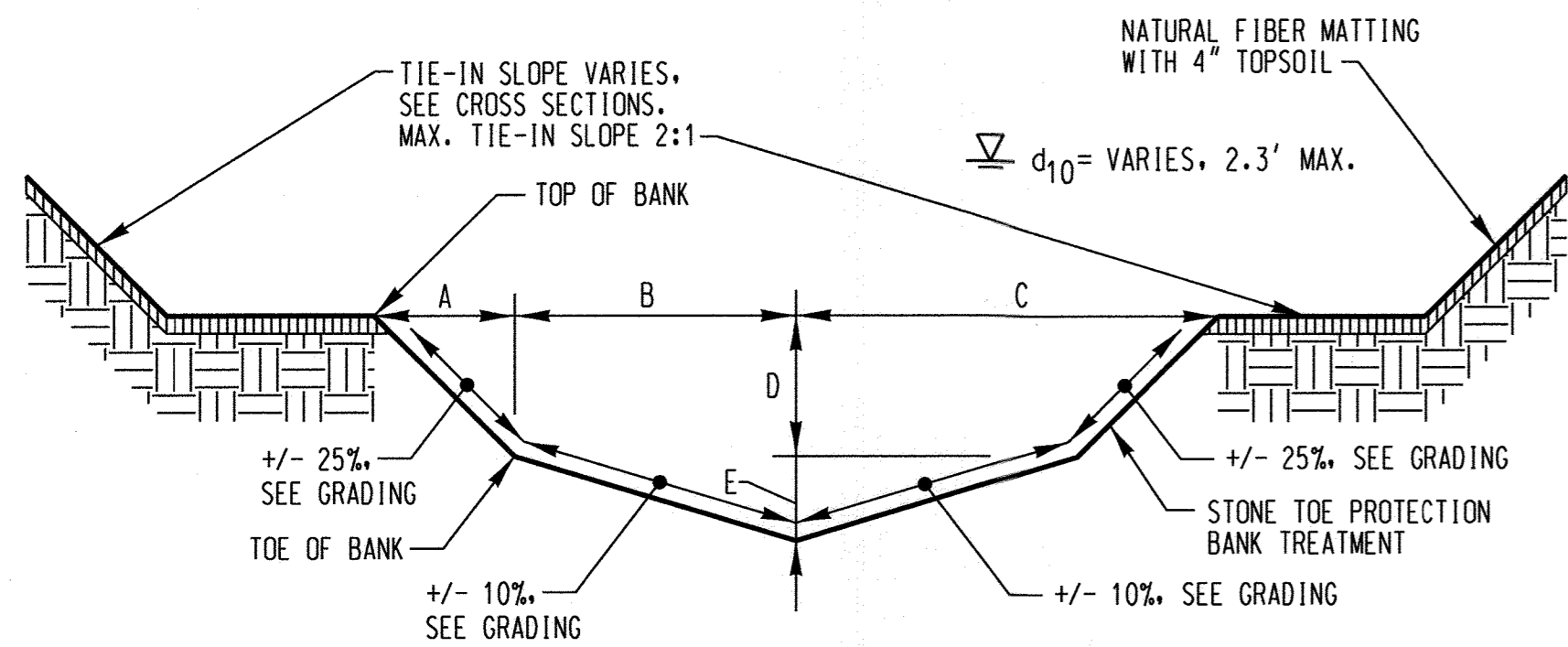
SIZES FOR STONE TYPES			
AXIS	A (LONGEST)	B (INTERMEDIATE)	C (SHORTEST)
STONE TYPE	MAX.	RANGE	MIN.
CREST AND FOOTER STONES*	3.0' - 5.0'	2.7' - 3.0'	1.5'
STONE TOE PROTECTION (CLASS I RIPRAP)	1.25'	0.75' - 1.0'	0.5'

\* CREST AND FOOTER STONES SHALL BE BLOCKY IN SHAPE. ALL STONES SHALL BE GREY OR BROWN IN COLOR.

A = LONGEST AXIS (LENGTH)  
B = INTERMEDIATE AXIS (WIDTH)  
C = SHORTEST AXIS (THICKNESS)

**ROCK AXIS DEFINITION**

NOT TO SCALE



**TYPICAL RIFFLE CROSS SECTION**

NOT TO SCALE

TYPICAL RIFFLE CROSS SECTION					
PROFILE FEATURE	A	B	C	D	E
RIFFLE	3.0'	5.0'	8.0'	0.8'	0.3'

GRANULAR FILTER MATERIAL	
% LESS THAN	DIAMETER (IN.)
100	2.5
84	1.0
60	0.5
50	NO. 10
30	NO. 40
10	NO. 200

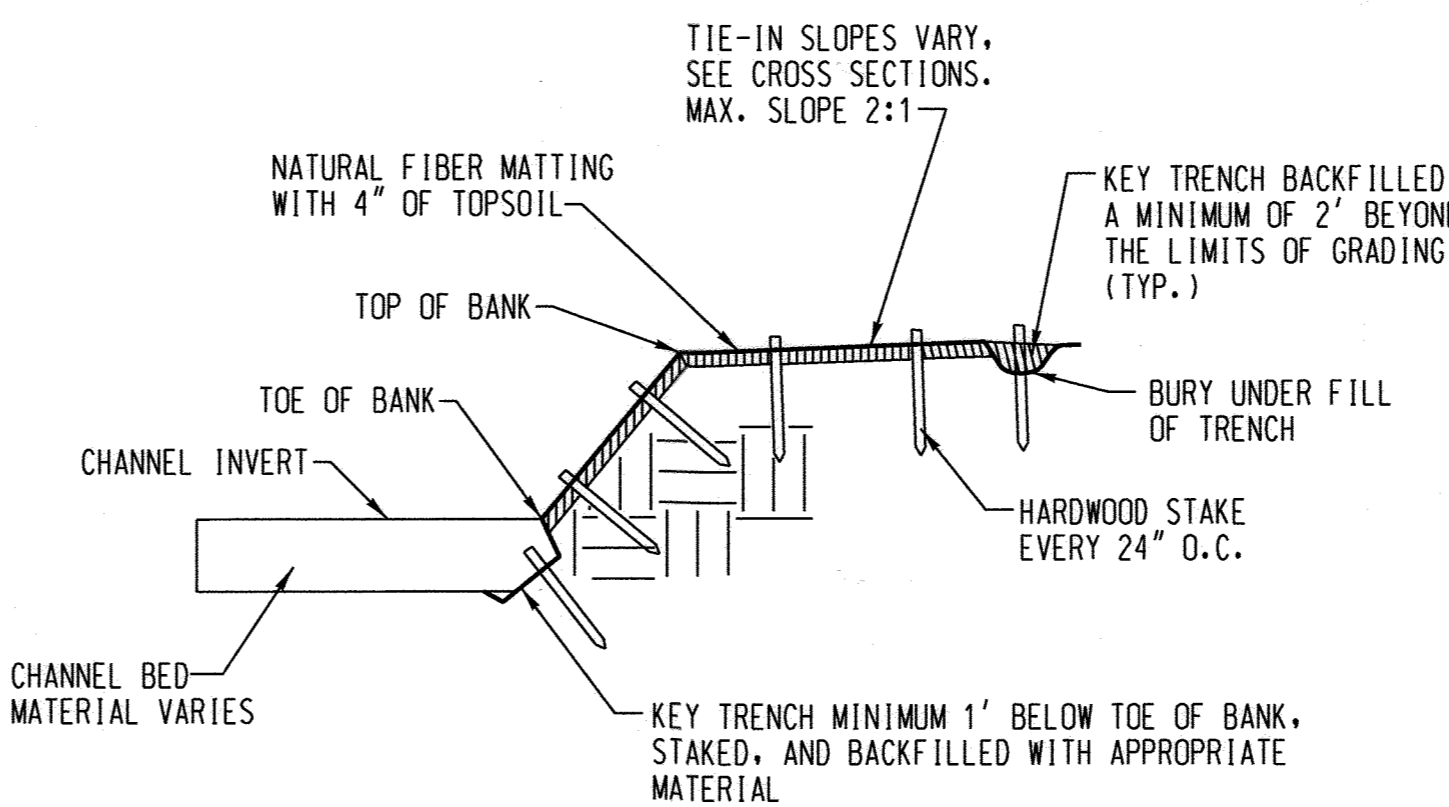
NOTE: MATERIAL SHALL BE SALVAGED WHEN POSSIBLE. ONLY FURNISH CHANNEL BED MATERIAL WHEN SALVAGED IS NOT AVAILABLE.

RIFFLE GRADE CONTROL AND CHANNEL BED MATERIAL	
% LESS THAN	DIAMETER (IN.)
100	12.5
84	11.0
60	9.0
50	8.0
30	5.5
10	1.5

NOTE: RIFFLE GRADE CONTROL AND CHANNEL BED MATERIAL SHALL BE SALVAGED WHEN POSSIBLE. ONLY FURNISH THIS MATERIAL WHEN SALVAGED IS NOT AVAILABLE. MATERIAL CAN BE COMPRISED OF CLASS 0 / CLASS I RIPRAP WELL MIXED IN A 30/70 (CLASS 0 / CLASS I) RATIO TO CONFORM TO THE SPECIFIED GRADATION.

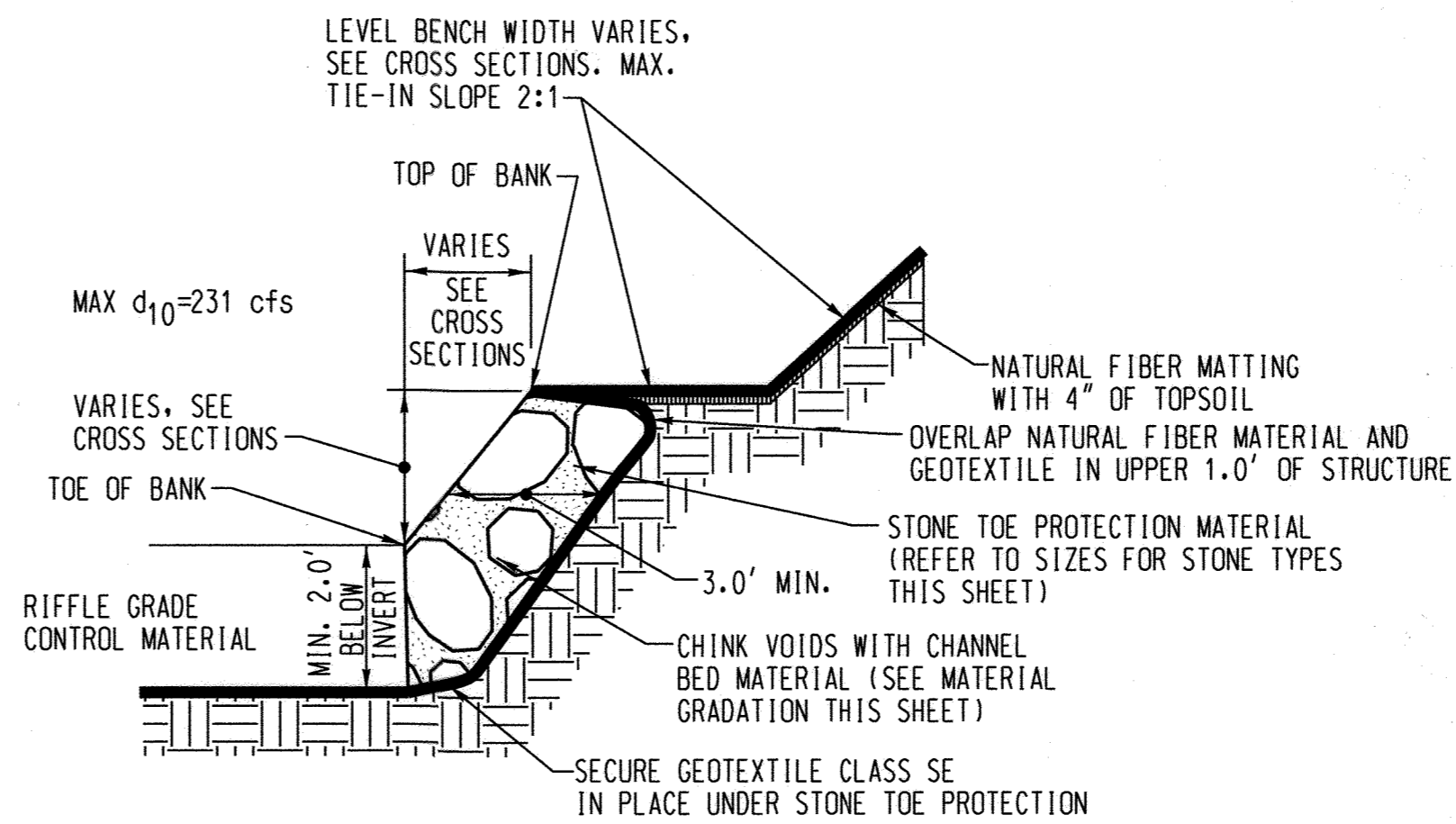
POOL PAVEMENT MATERIAL	
% LESS THAN	DIAMETER (IN.)
100	32.0
84	27.0
60	22.0
50	20.0
30	14.0
10	5.0

NOTE: POOL PAVEMENT MATERIAL SHALL BE SALVAGED WHEN POSSIBLE. ONLY FURNISH POOL PAVEMENT MATERIAL WHEN SALVAGED IS NOT AVAILABLE. MATERIAL CAN BE COMPRISED OF CLASS II / CLASS III RIPRAP WELL MIXED IN A 50/50 RATIO TO CONFORM TO THE SPECIFIED GRADATION.



**NATURAL FIBER MATTING CROSS SECTION**

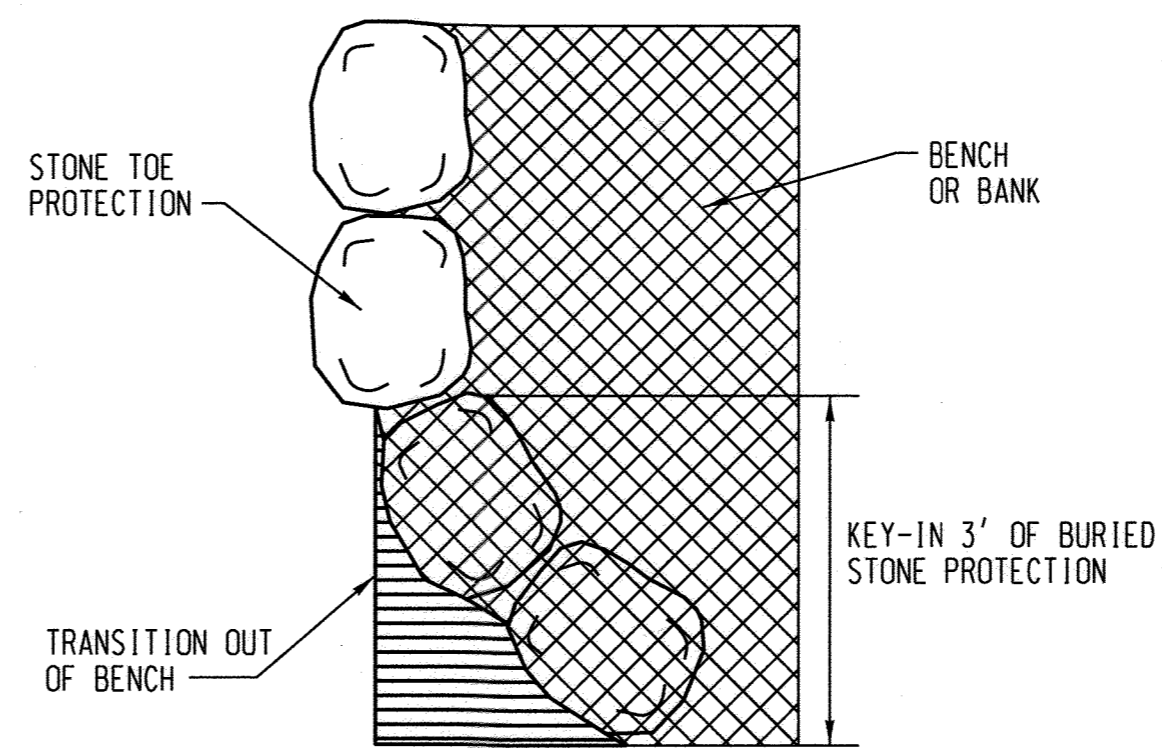
NOT TO SCALE



**TYPICAL STONE TOE PROTECTION BANK TREATMENT - CROSS SECTION**

NOT TO SCALE

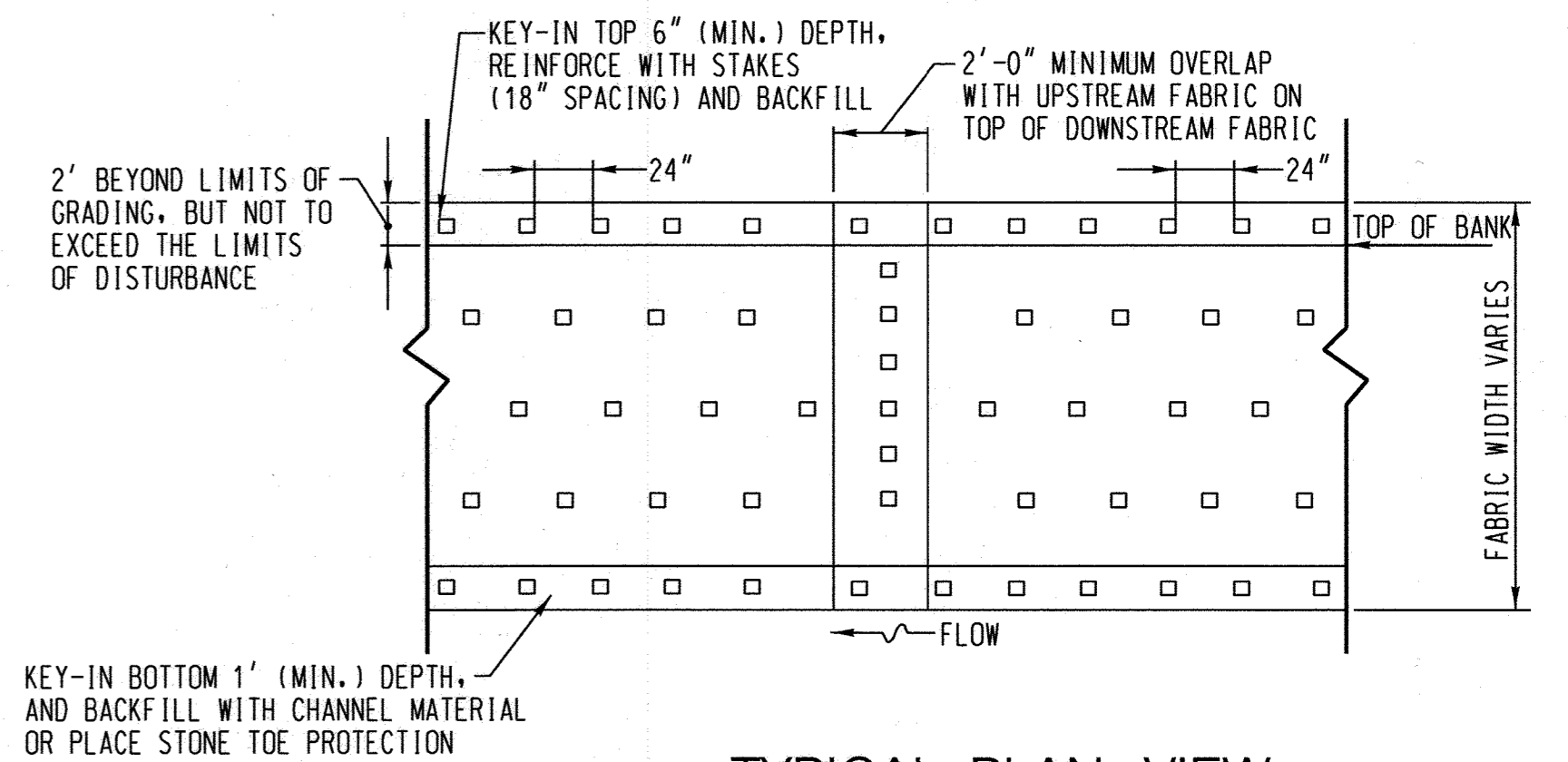
- NOTES:
- STONE TOE PROTECTION SHALL BE STACKED IN POOLS AND AS SIDE SLOPES PERMIT. DUMPED STONE TOE PROTECTION MAY BE ALLOWED IN RIFFLES WITH SIDE SLOPES OF 2:1 OR LESS.
  - KEY-IN STONES SHOULD ALSO BE ADDED TO STONE TOE PROTECTION AT ANY LOCATION WHERE NO OTHER BANK PROTECTION IS ABUTTING THE TREATMENT. 3 FEET OF KEY-IN STONE SHOULD BE USED AND TAPER BACK AND DOWN INTO THE BANK. ONE LESS STONE SHOULD BE USED WITH EACH TAPER STONE. SEE DETAIL THIS SHEET.



**STONE TOE PROTECTION KEY-IN**

NOT TO SCALE

NOTE: KEY-IN SHALL BE APPLIED AT UP AND DOWNSTREAM EXTENTS WHEN NO OTHER BANK TREATMENT IS PRESCRIBED. STONE TOE PROTECTION KEY IN ELEVATION SHALL BE TAPERED DOWN WITH GRADE WHEN NO OTHER BANK TREATMENT IS PRESCRIBED.



**TYPICAL PLAN VIEW NATURAL FIBER MATTING AND REINFORCED NATURAL FIBER MATTING**

NOT TO SCALE

NOTES FOR NATURAL AND REINFORCED NATURAL FIBER MATTING:

- NATURAL FIBER MATTING TO BE ROLLED LENGTHWISE ALONG STREAMBANK EXTENDING TO THE BOTTOM OF TOE PROTECTION AND A MINIMUM OF TWO FEET PAST THE LIMITS OF GRADING. IF MORE THAN ONE ROLL IS REQUIRED, MID-BANK OVERLAP SHOULD BE A MINIMUM OF ONE FOOT AND SECURELY FASTENED WITH STAKES. AT TRANSITION BETWEEN NATURAL FIBER MATTING AND REINFORCED NATURAL FIBER MATTING, MATTING SHOULD BE OVERLAPPED A MINIMUM OF ONE FOOT AND SECURELY FASTENED WITH STAKES.

- NATURAL FIBER MATTING IS TO BE INSTALLED ON ALL GRADED SLOPES, HIGHLY ERODIBLE SOILS (SEE SHEET 2), AND WETLAND AREAS.

- NATURAL FIBER MATTING. MATTING FOR THE BANK TREATMENT AREAS SHALL CONSIST OF A MACHINE PRODUCED MAT OF DEGRADABLE NATURAL FIBERS AND SHALL MEET THE FOLLOWING MINIMUM SPECIFICATIONS:

MATERIAL: WOVEN COIR FIBER YARN OR TWINE  
THICKNESS: 0.25 IN.  
ELONGATION (DRY/WET): 29%/35%  
WEIGHT: 20 OZ/SY  
OPEN AREA: 50%  
SIZE: 6 FT. WIDE X 150 FT IN LENGTH (100 SY PER ROLL)  
SHEAR STRESS: 3.0 PSF  
FLOW VELOCITY: 8 FT./SEC.  
LIFE EXPECTANCY: 3 YEARS

- REINFORCED NATURAL FIBER MATTING. MATTING FOR ALTERNATING ROUGHNESS AND WOODY TOE SHALL CONSIST OF A DOUBLE-LAYERED BIODEGRADABLE FABRIC: A BOTTOM LAYER OF JUTE FABRIC AND A TOP LAYER OF HIGH STRENGTH COIR MATTING, CONNECTED TOGETHER. REINFORCED NATURAL FIBER MATTING SHALL MEET THE FOLLOWING MINIMUM SPECIFICATIONS:

MATERIALS: WOVEN COIR FIBER (TOP LAYER) AND JUTE FABRIC (BOTTOM LAYER)  
THICKNESS: 0.35 IN.  
ELONGATION (DRY/WET): 30%/26% (TOP LAYER) AND 8%/9% (BOTTOM LAYER)  
WEIGHT: 33.3 OZ/SY  
SHEAR STRESS: 4.5 PSF  
FLOW VELOCITY: 12 FT/SEC  
PERMEABILITY: 1.03 IN/SEC

- REINFORCED NATURAL FIBER MATTING SHOULD BE PLACED AS INDICATED ABOVE AND AS SHOWN ON THE LANDSCAPE PLAN SHEET (ALL SLOPES EXCEEDING 2:1).

- MATTING STAKES. STAKES FOR SECURING THE MATTING ALONG OTHER PORTIONS OF THE MATTING MATERIAL ABOVE THE TOE TRENCH AND FOR THE KEY-IN TRENCH AT THE TOP OF THE SLOPE SHALL CONSIST OF 1-1/2" X 1-1/2" HARDWOOD STAKES, 18-INCHES IN LENGTH, TAPERED AT THE BOTTOM END FOR EASY INSERTION INTO THE SOIL AND FLAT AT THE TOP END FOR HAMMERING.

SHEAR STRESS: 4.5 PSF  
FLOW VELOCITY: 12 FT./SEC.  
LIFE EXPECTANCY: 3 YEARS IN REINFORCED NATURAL FIBER MATTING

- SEE DETAIL ON THIS SHEET FOR ADDITIONAL INFORMATION ON INSTALLATION.

CROSS SECTION DESIGN PARAMETERS AT Q10								
LOCATION	TREATMENT	Q <sub>10</sub> (cfs)	STONE SIZE		VELOCITY (fps)		SHEAR (lb/ft <sup>2</sup> )	
			D <sub>50</sub> (inches)	CLASS	MAXIMUM DESIGN	PERMISSIBLE #	MAXIMUM DESIGN	PERMISSIBLE #
STA. 0+18 to 0+54	RGC	231	8.0	CLASS 0/1*	5.7	6-10	2.3	2.5
STA. 0+56 to 0+71 & 0+73 to 0+88	POOL PAVEMENT	231	20	CLASS II/III**	5.7	12-18	7.8	10.1
VOIDS IN STONE TOE PROTECTION AND STEP-POOL CRESTS	CBM	231	8.0	CLASS 0/1*	5.7	6-10	2.3	2.5

\* WELL MIXED IN A 30 / 70 (CLASS 0 / CLASS I) RATIO  
\*\* WELL MIXED IN A 50 / 50 RATIO  
# FISCHENICH, CRAIG. 2001 STABILITY THRESHOLDS FOR STREAM RESTORATION MATERIALS. ERDC TN-EMRRP-SR-2

PROFESSIONAL CERTIFICATION. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State Of Maryland, License No. 33079, Expiration Date 01-16-2023.

PLOTTED: 01:50 PM on Tuesday, May 10, 2022. FILE: W:\2021\131802\366\01\Drawings\05-p05-0001-Gales Lane.dgn

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

5/23/2022  
DIRECTOR OF PUBLIC WORKS DATE

5-2022  
CHIEF, BUREAU OF UTILITIES DATE

5-17-22  
CHIEF, BUREAU OF ENGINEERING DATE

5/13/2022  
CHIEF, UTILITY DESIGN DIVISION DATE

ENGINEERS  
PLANNERS  
SCIENTISTS  
CONSTRUCTION MANAGERS

KCI TECHNOLOGIES

936 Rappahannock Road  
Sparks, MD 21152  
Phone: (410) 316-7800  
Fax: (410) 316-7817  
www.kci.com

STATE OF MARYLAND  
PROFESSIONAL ENGINEER  
NO. 33079  
EXPIRES 01-16-2023

DES: SC					
DRN: CD, JS					
CHK: SL					
DATE: MAY 2022	BY	NO.	REVISION	DATE	600' SCALE MAP NO. 36 BLOCK NO. 02

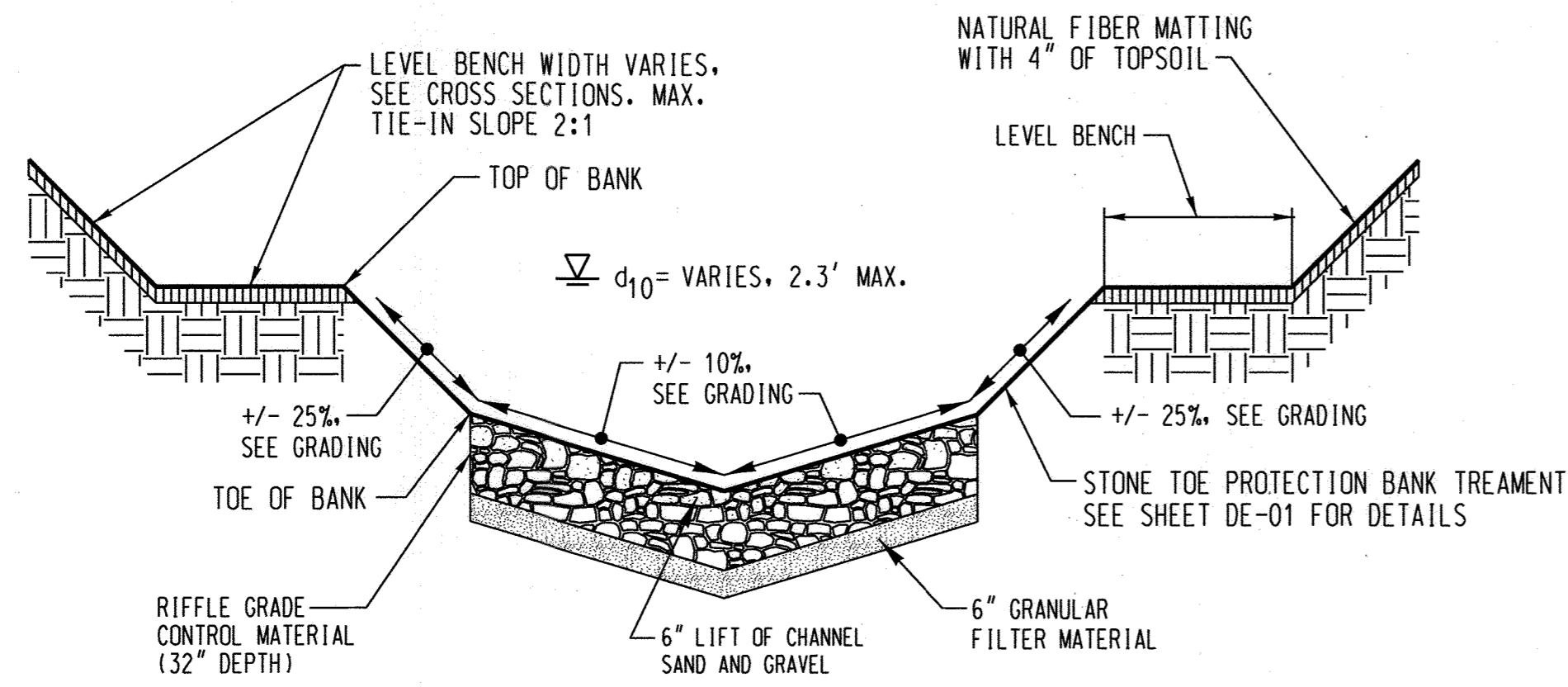
ADDENDUM  
DETAILS

GALES LANE  
SEWER AND STREAM STABILIZATION

CAPITAL PROJECT S6601  
CONTRACT No. C-340 W&S

ELECTION DISTRICT NO. 6 HOWARD COUNTY, MARYLAND

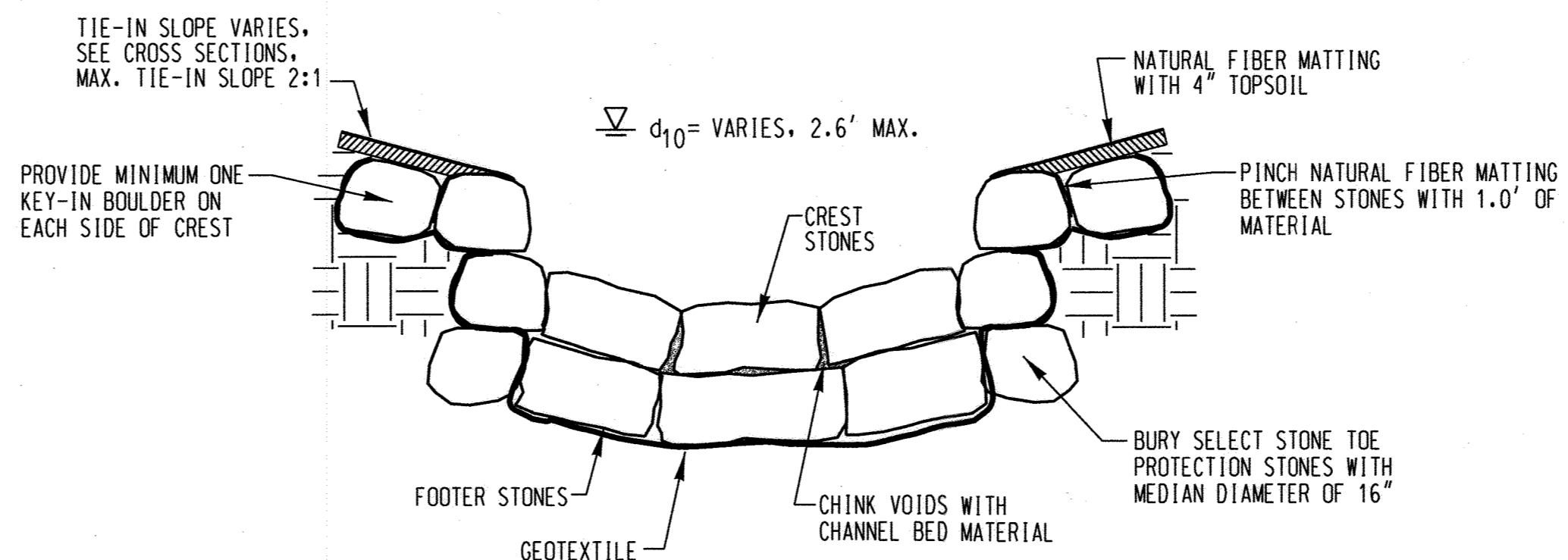
SCALE AS SHOWN  
SHEET SE OF 14



**RIFFLE GRADE CONTROL CROSS SECTION**

NOT TO SCALE

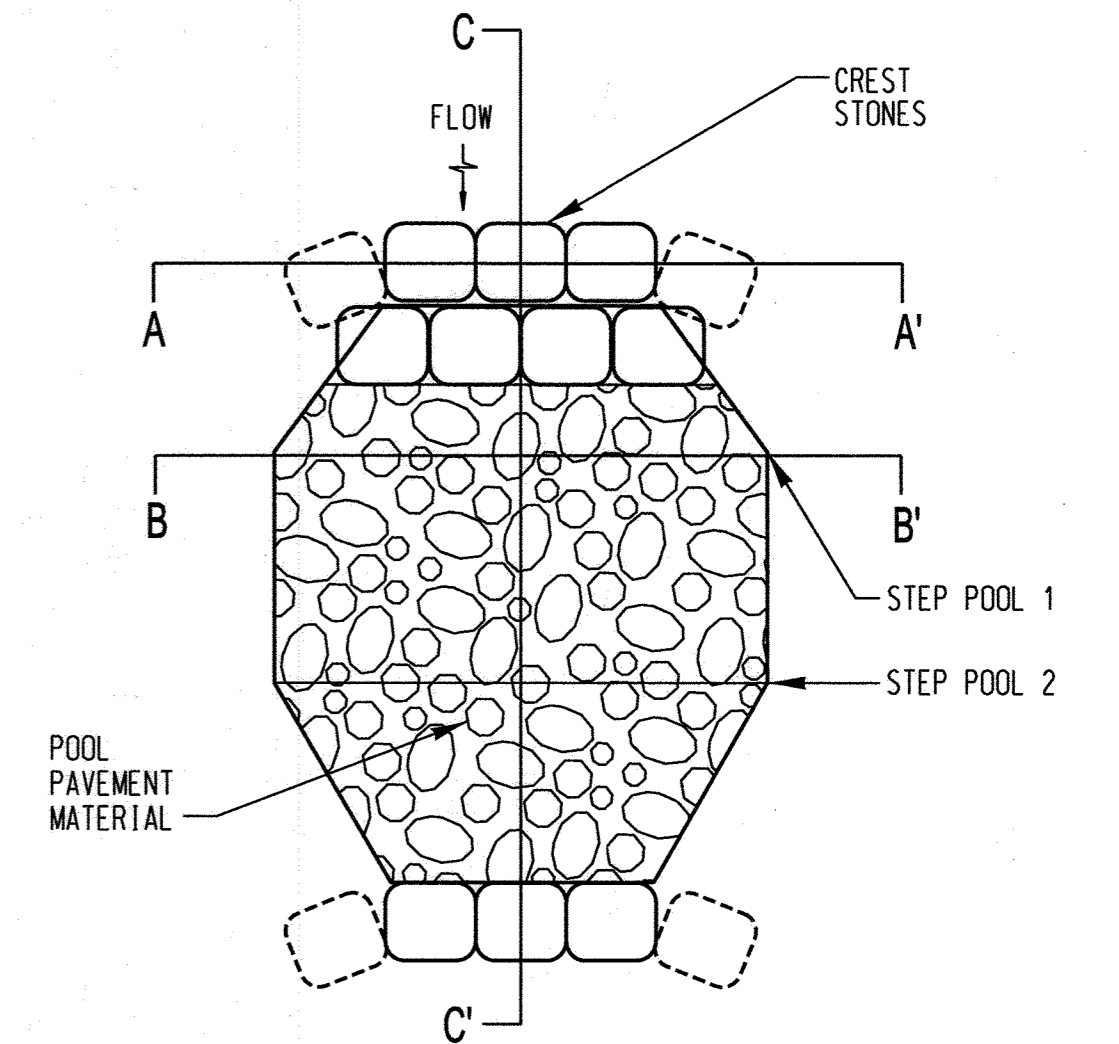
NOTE: FOR CROSS SECTION DIMENSIONS SEE TYPICAL RIFFLE CROSS SECTION DETAIL ON DRAWING DE-01



**STEP-POOL CREST A-A'  
STA. 00+54 AND 00+71**

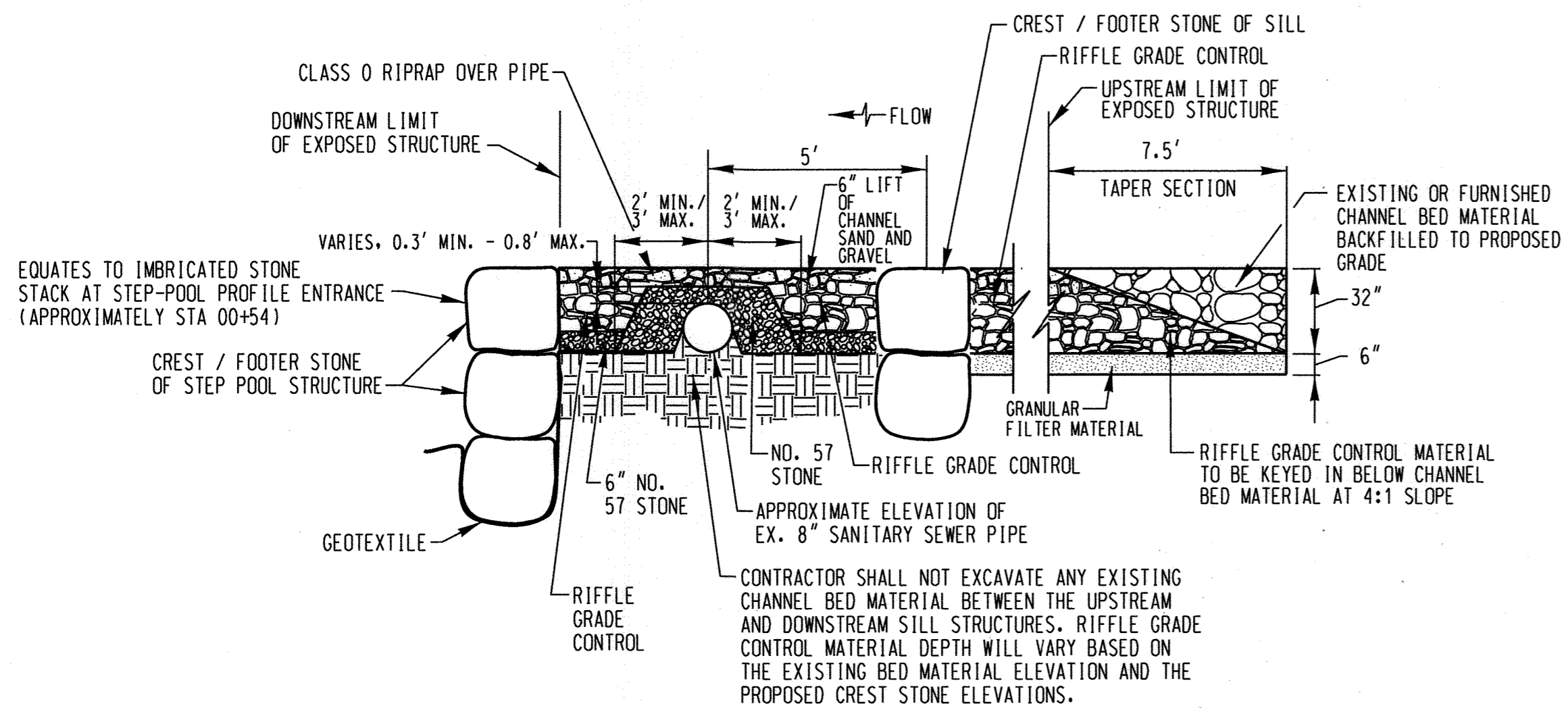
NOT TO SCALE

NOTES:  
1. FOR CROSS SECTION DIMENSIONS SEE TYPICAL RIFFLE CROSS SECTION DETAIL ON DRAWING DE-01.  
2. THE STEP-POOL CREST SHALL HAVE A U-SHAPE SUCH THAT THE INVERT STONE IN THE CENTER SHALL BE A MIN. 2' UPSTREAM OF THE STONES TYING INTO THE BANKS.



**TYPICAL PLAN VIEW OF STEP-POOL**

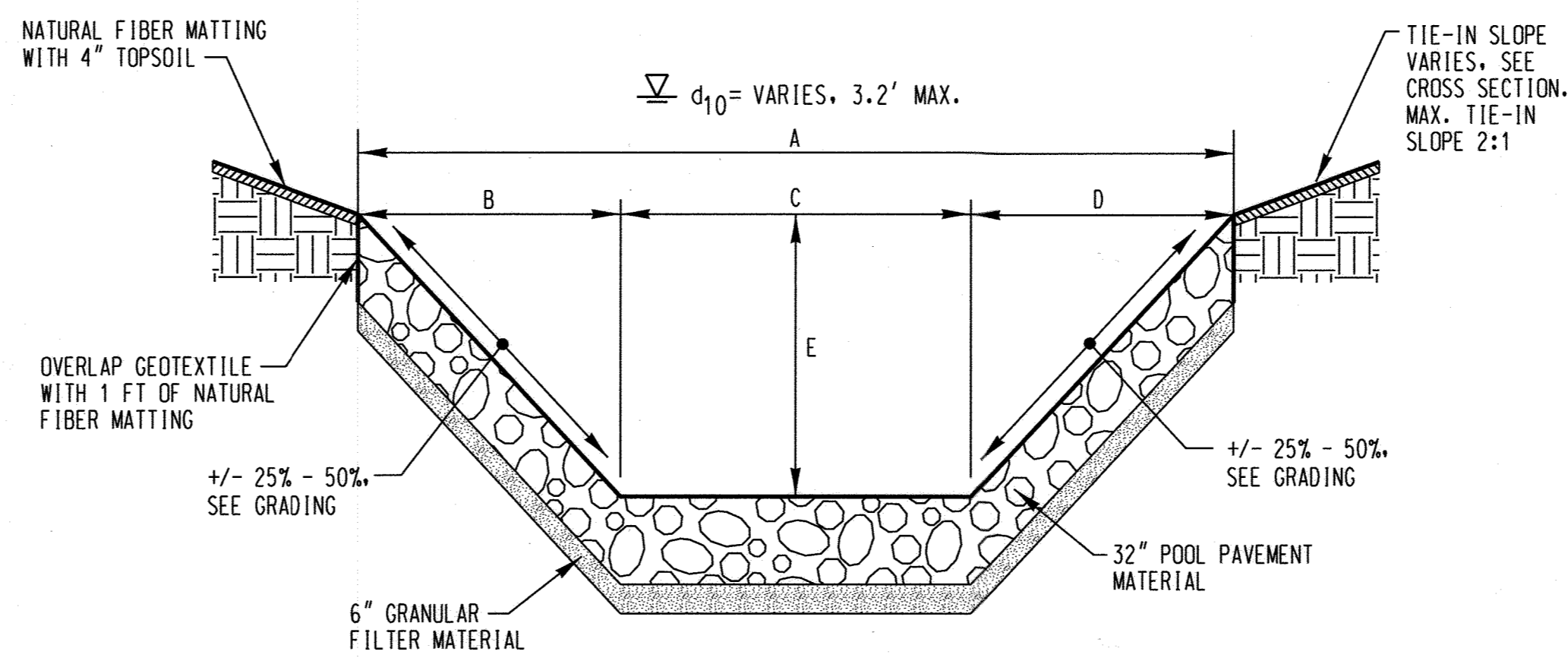
NOT TO SCALE



**RIFFLE GRADE CONTROL PROFILE WITH UTILITY PIPE PROTECTION FROM STA. 00+18 TO APPROX. STA. 00+54**

NOT TO SCALE

NOTE: BACKFILL EXCAVATION VOIDS AROUND THE INSTALLED SILL STONES WITH NO. 57 STONE.

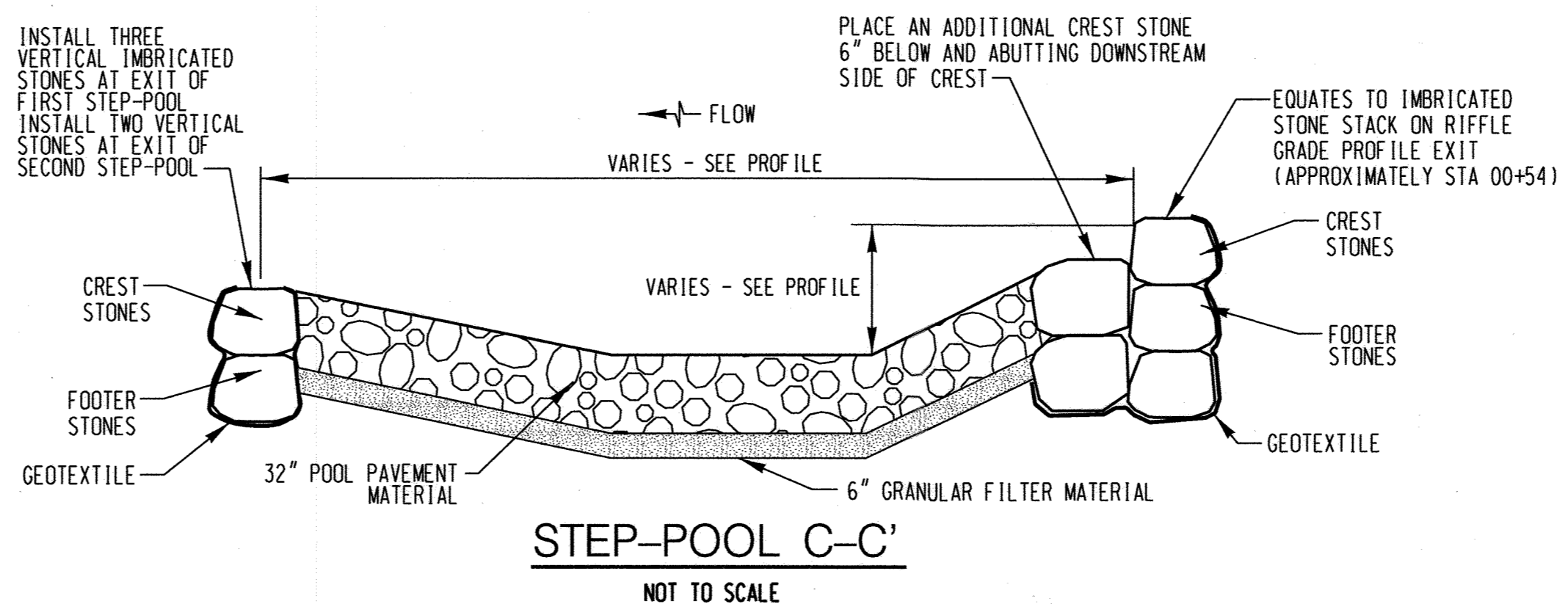


**STEP-POOL B-B'  
STA. 0+59 AND 0+76**

NOT TO SCALE

STEP-POOL					
PROFILE FEATURE	A	B	C	D	E
STEP-POOL STA. 0+59 AND STA. 0+76	16.0'	5.0'	6.0'	5.0'	2.7'

- NOTES:
1. ALL RIFFLE GRADE CONTROL STRUCTURES SHALL BE CONSTRUCTED FROM DOWNSTREAM TO UPSTREAM.
  2. THE RIFFLE GRADE CONTROL MATERIAL SHALL BE PLACED TO ITS FULL DEPTH MOVING FROM ONE BANK TO THE OPPOSING BANK.
  3. DO NOT EXCAVATE EXISTING SOIL BENEATH OR ON EITHER SIDE OF EXISTING UTILITY PIPE IF THE SOIL IS IN PLACE AND STABLE. VOIDS NEAR UTILITY PIPE TO BE FILLED WITH NO. 57 STONE.
  4. WHERE THE FINAL COVER OVER THE EXISTING UTILITY PIPE IS LESS THAN 1.0 FOOT THE FOLLOWING SPECIFICATIONS MUST BE MET:  
A. NO LESS THAN 0.3' FEET OF NO. 57 STONE SHALL COVER THE UTILITY PIPE AND THE REMAINING MATERIAL REQUIRED TO MEET THE PROPOSED GRADE SHALL CONSIST OF CLASS 0 RIPRAP.
  5. ANY DAMAGES TO THE EXISTING UTILITY PIPES WILL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. ALL FINES AND VIOLATIONS DUE TO PIPE DAMAGES AND/OR MATERIAL FLOW STOPPAGES WILL BE THE CONTRACTOR'S SOLE RESPONSIBILITY AND WILL BE PAID BY THE CONTRACTOR.
  6. THE UTILITY PIPE PROTECTION INSTALLATION AT THE PIPE CROSSING MUST BE COORDINATED WITH THE COUNTY DPW REPRESENTATIVE AND THE ENGINEER AT THE TIME OF THE INSTALLATION.



**STEP-POOL C-C'  
NOT TO SCALE**

PROFESSIONAL CERTIFICATION. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 33079, Expiration Date 01-16-2023.

PLOTTED: 01:50 PM on Tuesday, May 10, 2022  
FILE: M:\2019\131802\366\0\1\Drawings\06-p06-0002-Gales Lane.dgn

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*M. J. ...* 5/23/2022  
DIRECTOR OF PUBLIC WORKS DATE

*S. C. ...* 5-20-22  
CHIEF, BUREAU OF UTILITIES DATE

*S. C. ...* 5/17/22  
CHIEF, UTILITY DESIGN DIVISION DATE

ENGINEERS  
PLANNERS  
SCIENTISTS  
CONSTRUCTION MANAGERS

**KCI**  
TECHNOLOGIES

936 Rotenbark Road  
Sparks, MD 21152  
Phone: (410) 316-7800  
Fax: (410) 316-7817  
www.kci.com

STATE OF MARYLAND  
PROFESSIONAL ENGINEER

*S. C. ...* 5/17/22

DES: SC					
DRN: CD, JS					
CHK: SL					
DATE: MAY 2022	BY	NO.	REVISION	DATE	600' SCALE MAP NO. 36 BLOCK NO. 02

ADDENDUM  
DETAILS

GALES LANE  
SEWER AND STREAM STABILIZATION

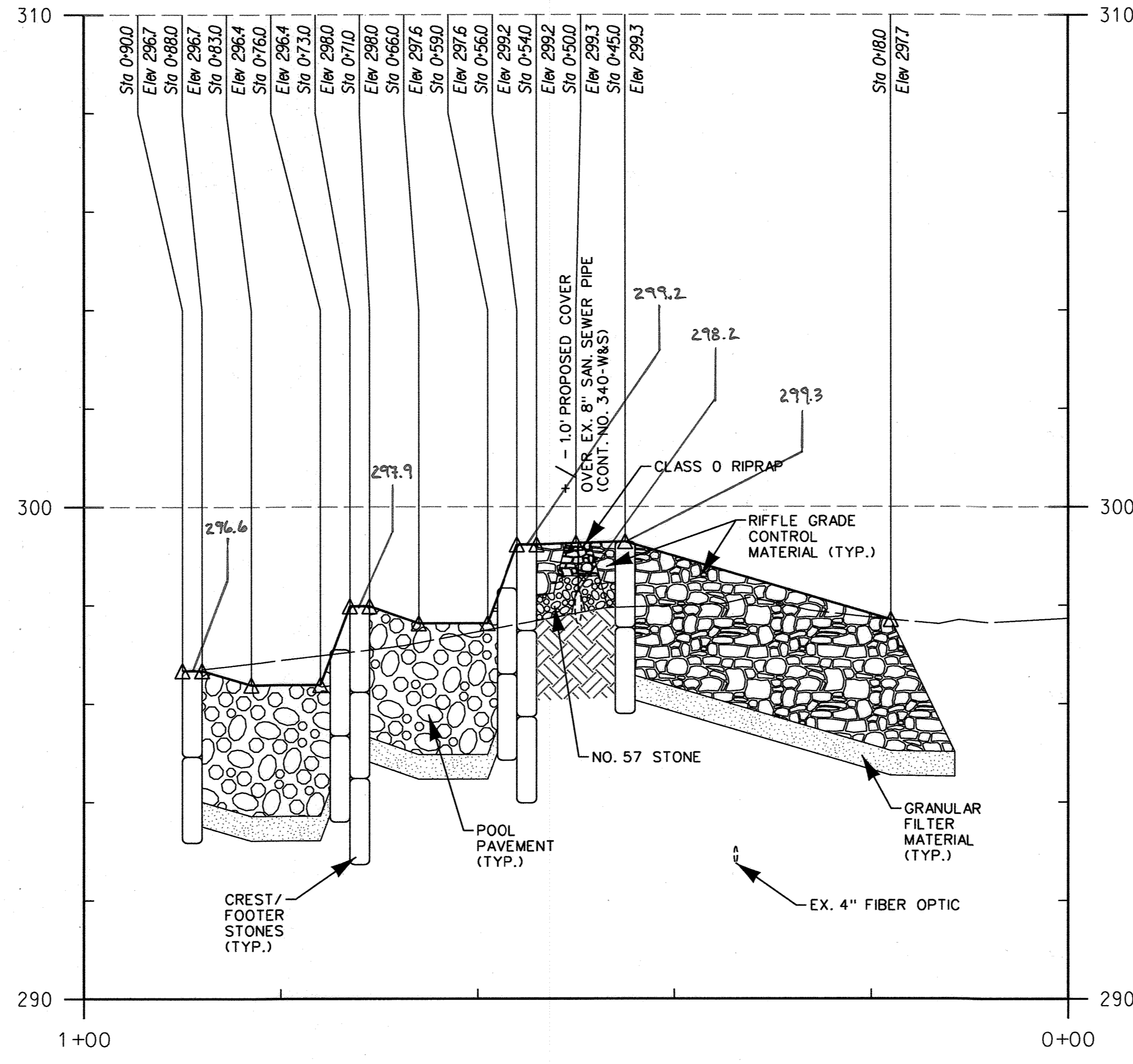
CAPITAL PROJECT S6601  
CONTRACT No. C-340 W&S

ELECTION DISTRICT NO. 6 HOWARD COUNTY, MARYLAND

DRAWING NO.  
DE-02

SCALE  
AS SHOWN

SHEET  
5E OF 14



NOTE:  
 UTILITIES HAVE BEEN LOCATED USING THE BEST AVAILABLE INFORMATION.  
 THE CONTRACTOR IS TO USE EXTREME CAUTION WHEN EXCAVATING IN THE  
 VICINITY OF ALL UTILITIES. TEST PIT IF REQUIRED.

LEGEND	
EXISTING GROUND	-----
PROPOSED GRADE	—————

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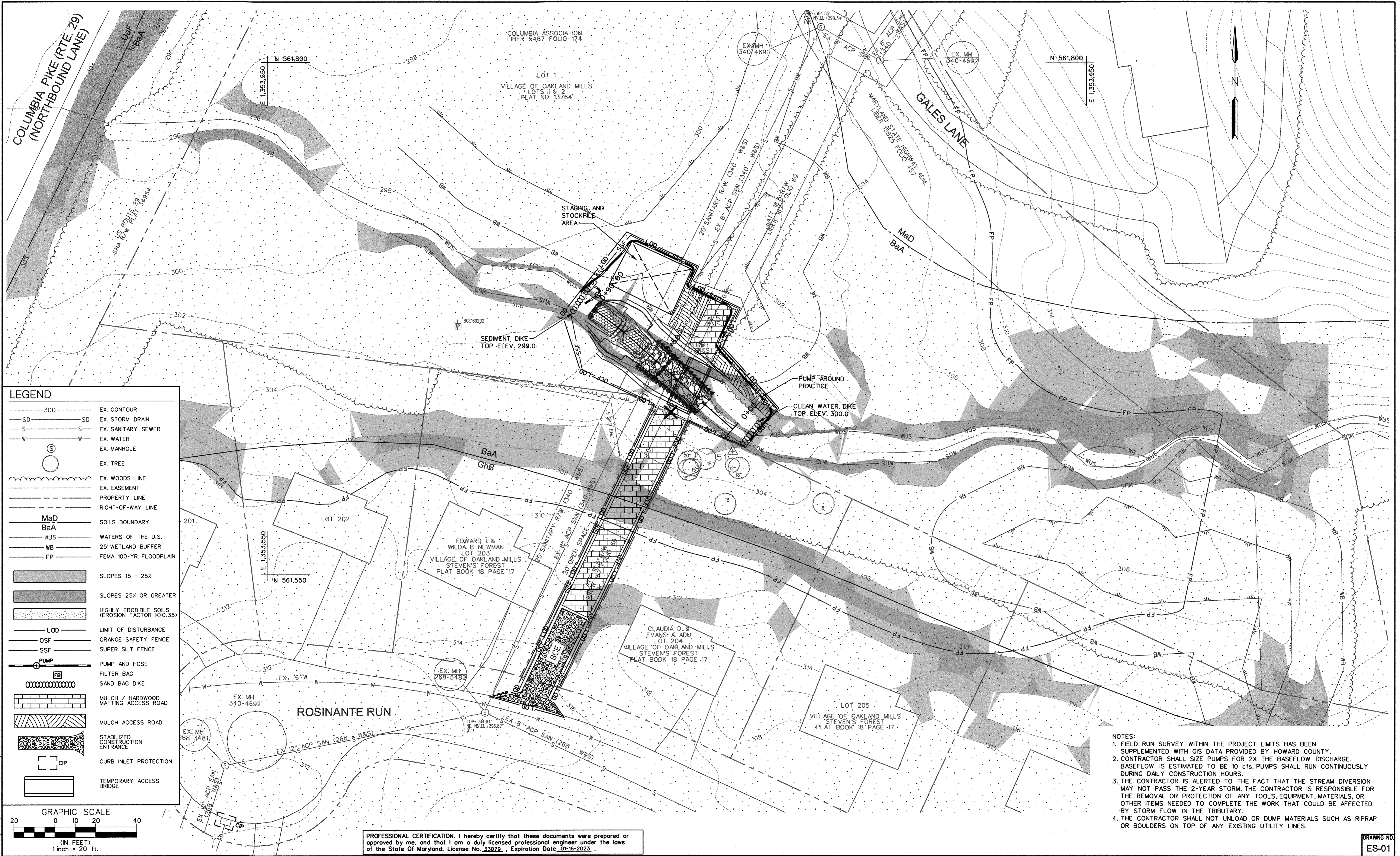
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DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND			
 DIRECTOR OF PUBLIC WORKS DATE: 5/23/2022	 CHIEF, BUREAU OF ENGINEERING DATE: 5-17-22	 SCOTT J. SMITH PROFESSIONAL ENGINEER	936 Ridgebrook Road Sparks, MD 21152 Phone: (410) 316-7800 Fax: (410) 316-7817 www.kci.com

DES: SC					
DRN: CD, JS					
CHK: SL					
DATE: MAY 2022	BY	NO.	REVISION	DATE	

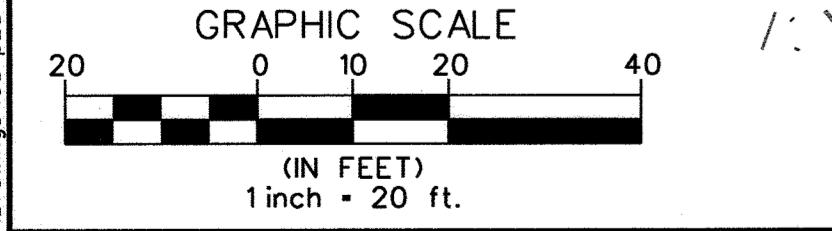
ADDENDUM  
 PROFILE  
 600' SCALE MAP NO. 36 BLOCK NO. 02

GALES LANE SEWER AND STREAM STABILIZATION CAPITAL PROJECT S6601 CONTRACT No. C-340 W&S ELECTION DISTRICT NO. 6 HOWARD COUNTY, MARYLAND		DRAWING NO. PR-01 SCALE HOR. 1"=10' VERT. 1"=2' SHEET 5G OF 14
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**LEGEND**

--- 300 ---	EX. CONTOUR
--- SD ---	EX. STORM DRAIN
--- S ---	EX. SANITARY SEWER
--- W ---	EX. WATER
○	EX. MANHOLE
○	EX. TREE
~	EX. WOODS LINE
---	EX. EASEMENT
---	PROPERTY LINE
---	RIGHT-OF-WAY LINE
MaD	SOILS BOUNDARY
BaA	WATERS OF THE U.S.
WUS	25' WETLAND BUFFER
WB	FEMA 100-YR. FLOODPLAIN
FP	
▬	SLOPES 15 - 25%
▬	SLOPES 25% OR GREATER
▬	HIGHLY ERODIBLE SOILS (EROSION FACTOR >0.35)
---	L.O.D. LIMIT OF DISTURBANCE
---	OSF ORANGE SAFETY FENCE
---	SSF SUPER SILT FENCE
⊕	PUMP AND HOSE
FB	FILTER BAG
⊕	SAND BAG DIKE
▬	MULCH / HARDWOOD MATTING ACCESS ROAD
▬	MULCH ACCESS ROAD
▬	STABILIZED CONSTRUCTION ENTRANCE
□	CIP CURB INLET PROTECTION
▬	TEMPORARY ACCESS BRIDGE



PROFESSIONAL CERTIFICATION. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 33079. Expiration Date 01-16-2023.

- NOTES:**
1. FIELD RUN SURVEY WITHIN THE PROJECT LIMITS HAS BEEN SUPPLEMENTED WITH GIS DATA PROVIDED BY HOWARD COUNTY.
  2. CONTRACTOR SHALL SIZE PUMPS FOR 2X THE BASEFLOW DISCHARGE. BASEFLOW IS ESTIMATED TO BE 10 cfs. PUMPS SHALL RUN CONTINUOUSLY DURING DAILY CONSTRUCTION HOURS.
  3. THE CONTRACTOR IS ALERTED TO THE FACT THAT THE STREAM DIVERSION MAY NOT PASS THE 2-YEAR STORM. THE CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL OR PROTECTION OF ANY TOOLS, EQUIPMENT, MATERIALS, OR OTHER ITEMS NEEDED TO COMPLETE THE WORK THAT COULD BE AFFECTED BY STORM FLOW IN THE TRIBUTARY.
  4. THE CONTRACTOR SHALL NOT UNLOAD OR DUMP MATERIALS SUCH AS RIPRAP OR BOULDERS ON TOP OF ANY EXISTING UTILITY LINES.

PLOTTED: 01:51 PM on Tuesday, May 10, 2022. FILE: M:\2018\131802\366\0\1\0\Drawings\08-pis-POOL-Gales Lane.dgn

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*Meyers* 5/22/2022  
DIRECTOR OF PUBLIC WORKS DATE

*Chapman* 5-20-22  
CHIEF, BUREAU OF UTILITIES DATE

*[Signature]* 5-17-22  
CHIEF, BUREAU OF ENGINEERING DATE

*[Signature]* 5/17/2022  
CHIEF, UTILITY DESIGN DIVISION DATE

**KCI TECHNOLOGIES**

ENGINEERS  
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936 Raintree Road  
Sparks, MD 21152  
Phone: (410) 316-7800  
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www.kci.com

DES: SC					
DRN: CD, JS					
CHK: SL					
DATE: MAY 2022	BY	NO.	REVISION	DATE	600' SCALE MAP NO. 36 BLOCK NO. 02

**ADDENDUM  
EROSION & SEDIMENT  
CONTROL PLAN**

**GALES LANE  
SEWER AND STREAM STABILIZATION**

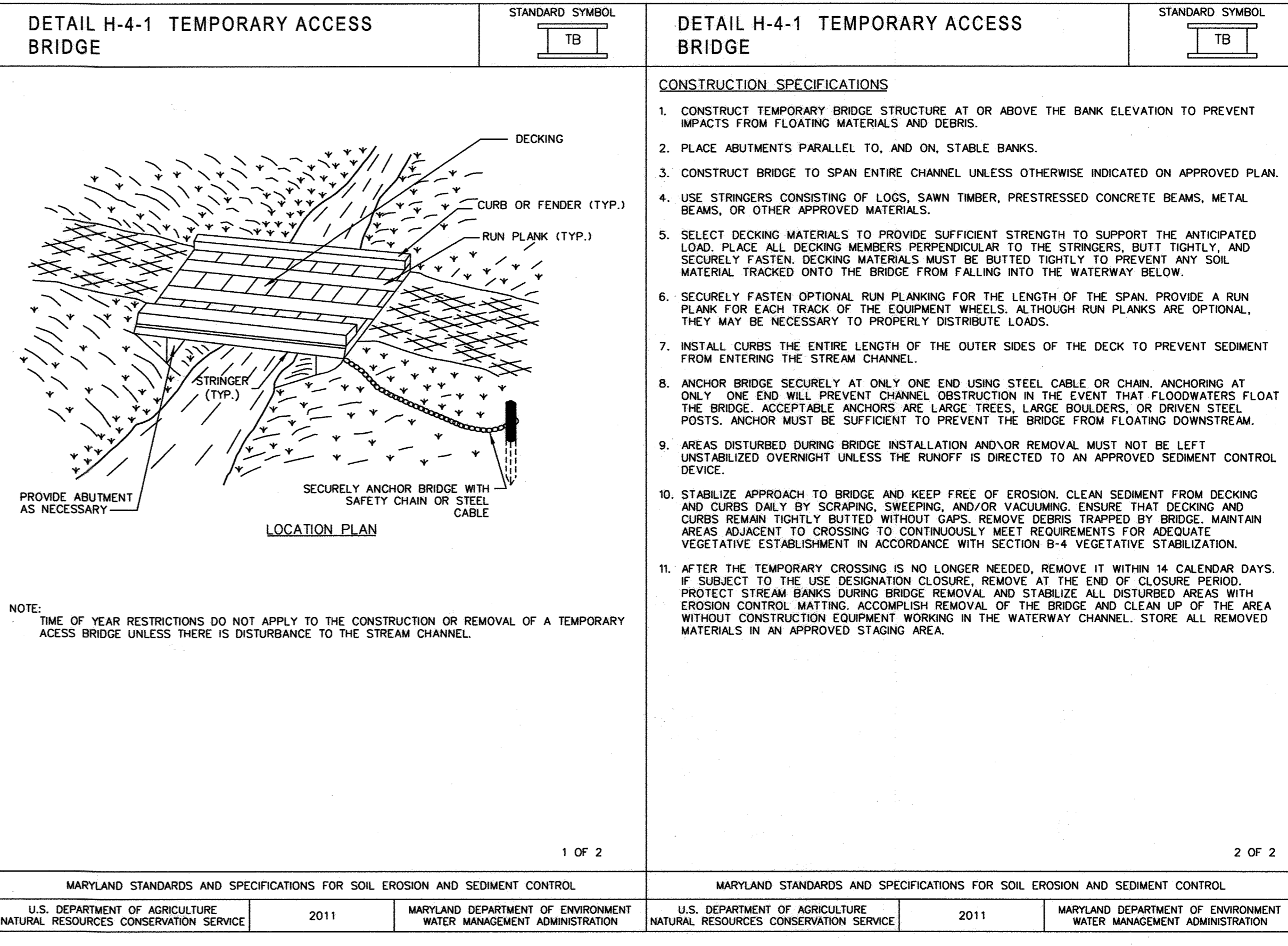
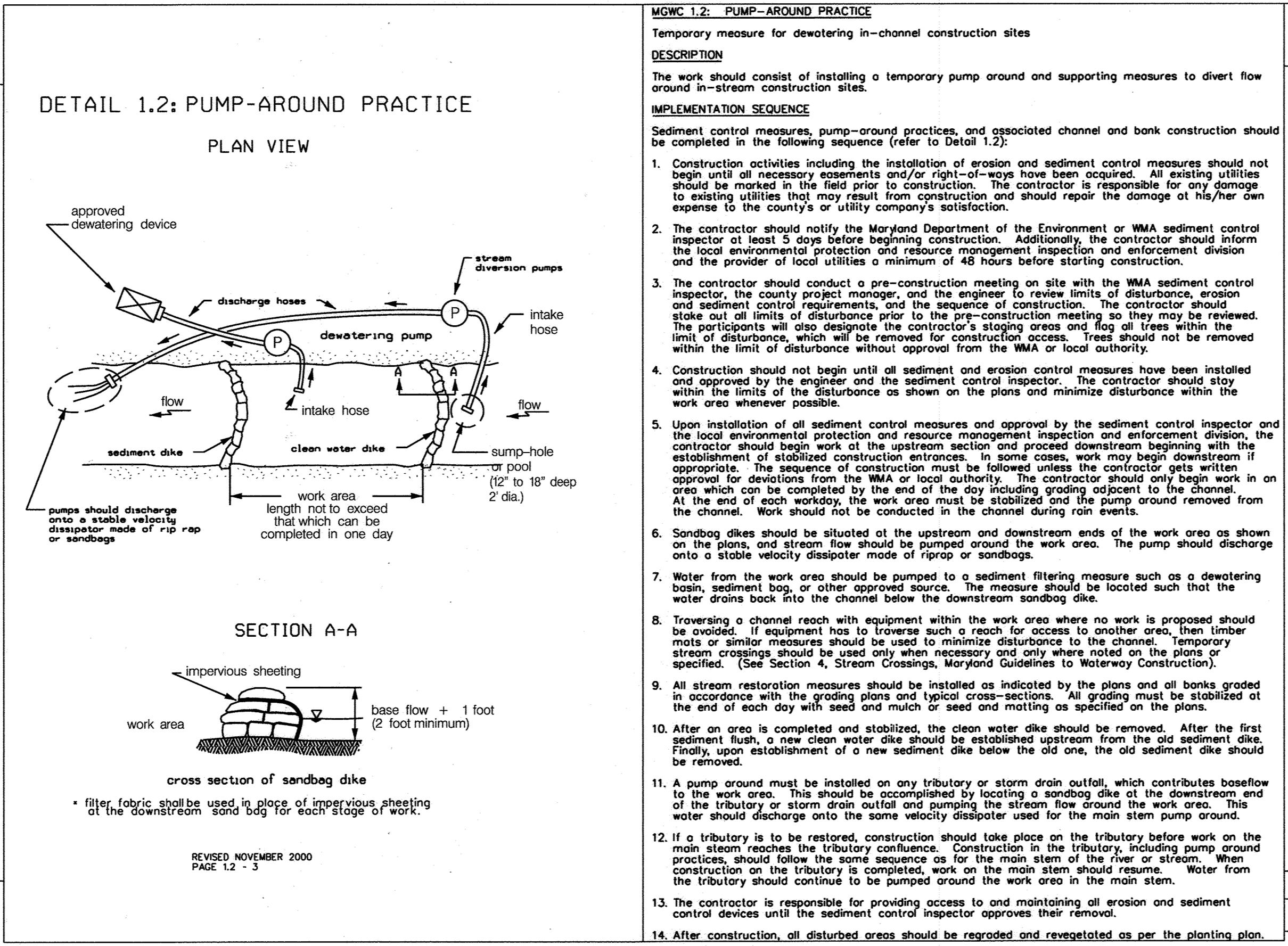
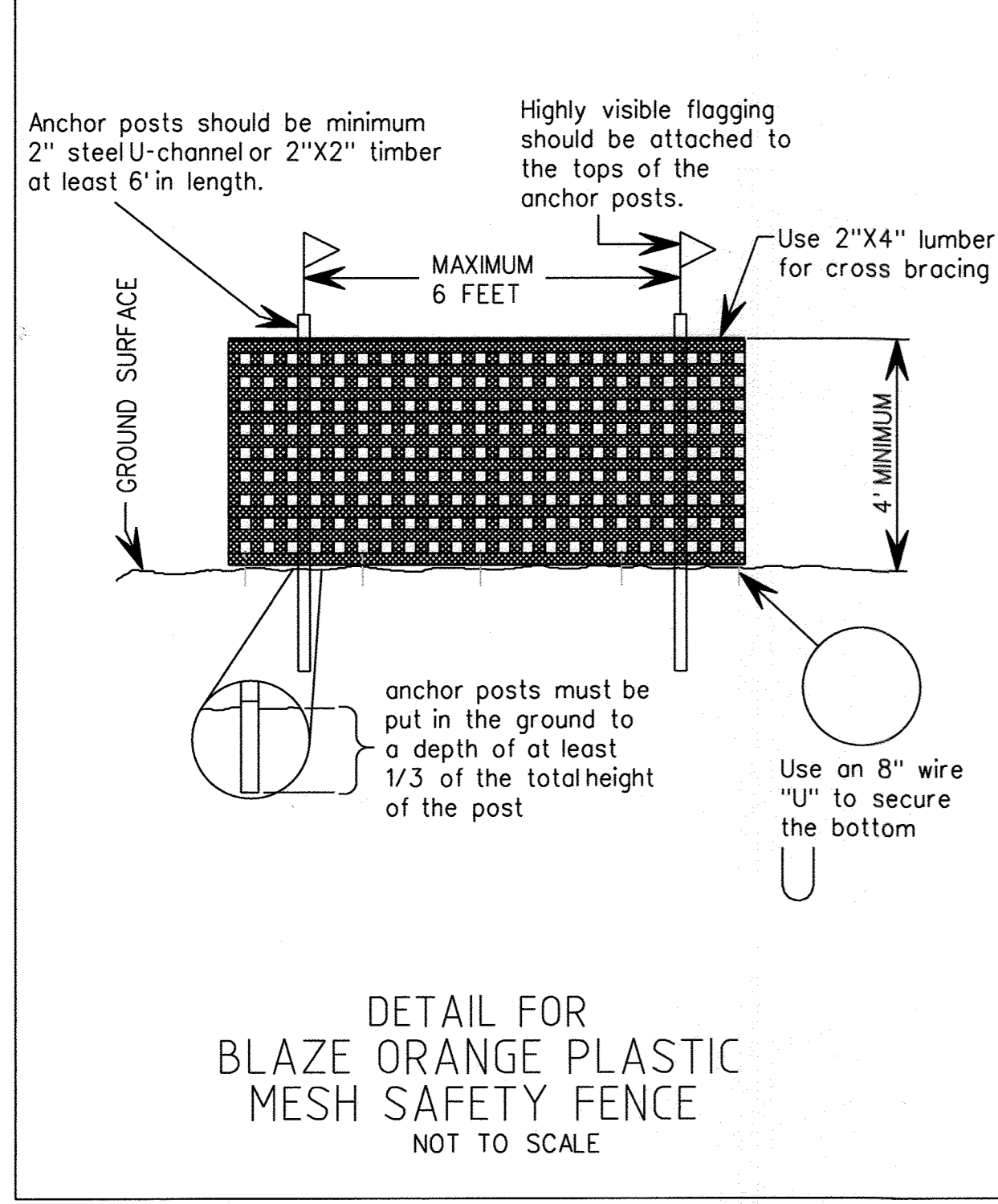
CAPITAL PROJECT S6601  
CONTRACT NO. C-340 W&S

ELECTION DISTRICT NO. 6 HOWARD COUNTY, MARYLAND

DRAWING NO. ES-01  
SCALE 1" = 20'  
SHEET 5H OF 14

<p><b>DETAIL F-4 FILTER BAG</b></p> <p>STANDARD SYMBOL: </p> <p><b>CONSTRUCTION SPECIFICATIONS</b></p> <ol style="list-style-type: none"> <li>TIGHTLY SEAL SLEEVE AROUND THE PUMP DISCHARGE HOSE WITH A STRAP OR SIMILAR DEVICE.</li> <li>PLACE FILTER BAG ON SUITABLE BASE (E.G., MULCH, LEAF/WOOD COMPOST, WOODCHIPS, SAND, OR STRAW BALES) LOCATED ON A LEVEL OR 5% MAXIMUM SLOPING SURFACE. DISCHARGE TO A STABILIZED AREA. EXTEND BASE A MINIMUM OF 12 INCHES FROM EDGES OF BAG.</li> <li>CONTROL PUMPING RATE TO PREVENT EXCESSIVE PRESSURE WITHIN THE FILTER BAG IN ACCORDANCE WITH THE MANUFACTURER RECOMMENDATIONS. AS THE BAG FILLS WITH SEDIMENT, REDUCE PUMPING RATE.</li> <li>REMOVE AND PROPERLY DISPOSE OF FILTER BAG UPON COMPLETION OF PUMPING OPERATIONS OR AFTER BAG HAS REACHED CAPACITY, WHICHEVER OCCURS FIRST. SPREAD THE DEWATERED SEDIMENT FROM THE BAG IN AN APPROVED UPLAND AREA AND STABILIZE WITH SEED AND MULCH BY THE END OF THE WORK DAY. RESTORE THE SURFACE AREA BENEATH THE BAG TO ORIGINAL CONDITION UPON REMOVAL OF THE DEVICE.</li> <li>USE NONWOVEN GEOTEXTILE WITH DOUBLE STITCHED SEAMS USING HIGH STRENGTH THREAD. SIZE SLEEVE TO ACCOMMODATE A MAXIMUM 4 INCH DIAMETER PUMP DISCHARGE HOSE. THE BAG MUST BE MANUFACTURED FROM A NONWOVEN GEOTEXTILE THAT MEETS OR EXCEEDS MINIMUM AVERAGE ROLL VALUES (MARV) FOR THE FOLLOWING: <ul style="list-style-type: none"> <li>GRAB TENSILE: 250 LB, ASTM D-4632</li> <li>PUNCTURE: 150 LB, ASTM D-4833</li> <li>FLOW RATE: 70 GAL/MIN/FT<sup>2</sup>, ASTM D-4491</li> <li>PERMITTIVITY (SEC<sup>-1</sup>): 1.2 SEC<sup>-1</sup>, ASTM D-4491</li> <li>UV RESISTANCE: 70% STRENGTH @ 500 HOURS, ASTM D-4355</li> <li>APPARENT OPENING SIZE (AOS): 0.15-0.18 MM, ASTM D-4751</li> <li>SEAM STRENGTH: 90%, ASTM D-4632</li> </ul> </li> <li>REPLACE FILTER BAG IF BAG CLOGS OR HAS RIPS, TEARS, OR PUNCTURES. DURING OPERATION KEEP CONNECTION BETWEEN PUMP HOSE AND FILTER BAG WATER TIGHT. REPLACE BEDDING IF IT BECOMES DISPLACED.</li> </ol> <p>MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011</p>	<p><b>DETAIL B-4-6-D PERMANENT SOIL STABILIZATION MATTING SLOPE APPLICATION</b></p> <p>STANDARD SYMBOL: </p> <p>PSMS - 4.5 lb/ft<sup>2</sup></p> <p><b>CONSTRUCTION SPECIFICATIONS</b></p> <ol style="list-style-type: none"> <li>USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.</li> <li>USE PERMANENT SOIL STABILIZATION MATTING MADE OF OPEN WEAVE SYNTHETIC, NON-DEGRADABLE FIBERS OR ELEMENTS OF UNIFORM THICKNESS AND DISTRIBUTION THROUGHOUT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-IRRITANT 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.</li> <li>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 1/2 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, 1 1/2 INCH IN CROSS SECTION, AND WEDGE SHAPE AT THE BOTTOM.</li> <li>PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS. UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.</li> <li>UNROLL MATTING DOWN SLOPE. LAY MATTING SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.</li> <li>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 DOWNSLOPE MAT.</li> <li>KEY IN THE TOP OF SLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STARTING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY.</li> <li>STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.</li> <li>IF SPECIFIED BY THE DESIGNER OR MANUFACTURER AND DEPENDING ON THE TYPE OF MAT BEING INSTALLED, ONCE THE MATTING IS KEYPED 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.</li> <li>ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.</li> </ol> <p>MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011</p>	<p><b>DETAIL B-4-6-B TEMPORARY SOIL STABILIZATION MATTING SLOPE APPLICATION</b></p> <p>STANDARD SYMBOL: </p> <p>TSSMS - 3.00 lb/ft<sup>2</sup></p> <p><b>CONSTRUCTION SPECIFICATIONS</b></p> <ol style="list-style-type: none"> <li>USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.</li> <li>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 SMOULDER RESISTANT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-IRRITANT 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.</li> <li>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 1 1/2 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, 1 1/2 INCH IN CROSS SECTION, AND WEDGE SHAPED AT THE BOTTOM.</li> <li>PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDED 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 &amp; SEDIMENT CONTROL PLAN.</li> <li>UNROLL MATTING DOWN SLOPE. LAY MAT SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.</li> <li>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.</li> <li>KEY IN THE UPSLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STARTING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY.</li> <li>STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.</li> <li>ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.</li> </ol> <p>MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011</p>	<p><b>DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE</b></p> <p>STANDARD SYMBOL: </p> <p><b>CONSTRUCTION SPECIFICATIONS</b></p> <ol style="list-style-type: none"> <li>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 TO FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.</li> <li>PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE. MAINTAIN POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT LOCATED AT A HIGH SPOT.</li> <li>PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.</li> <li>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.</li> <li>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 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.</li> </ol> <p>MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011</p>
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\* SEE SHEET 9, NATURAL FIBER MATTING DETAIL FOR ADDITIONAL INFORMATION ON THE SPECIFICATIONS OF THE MATTING REQUIRED.



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DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*[Signature]* 5/23/22  
DIRECTOR OF PUBLIC WORKS DATE

*[Signature]* 5-20-22  
CHIEF, BUREAU OF UTILITIES DATE

*[Signature]* SA-22  
CHIEF, BUREAU OF ENGINEERING DATE

*[Signature]* s.c.  
CHIEF, UTILITY DESIGN DIVISION DATE

ENGINEERS  
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KCI TECHNOLOGIES

936 Route 668  
Shawee, MD 21152  
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STATE OF MARYLAND  
PROFESSIONAL ENGINEER  
NO. 39079  
EXPIRES 12/31/2022

DES: SC	DATE: MAY 2022	BY: NO.	REVISION
DRN: CD, JS	DATE: 600' SCALE MAP NO. 36	BLOCK NO. 02	
CHK: SL			

ADDENDUM  
EROSION & SEDIMENT  
CONTROL DETAILS

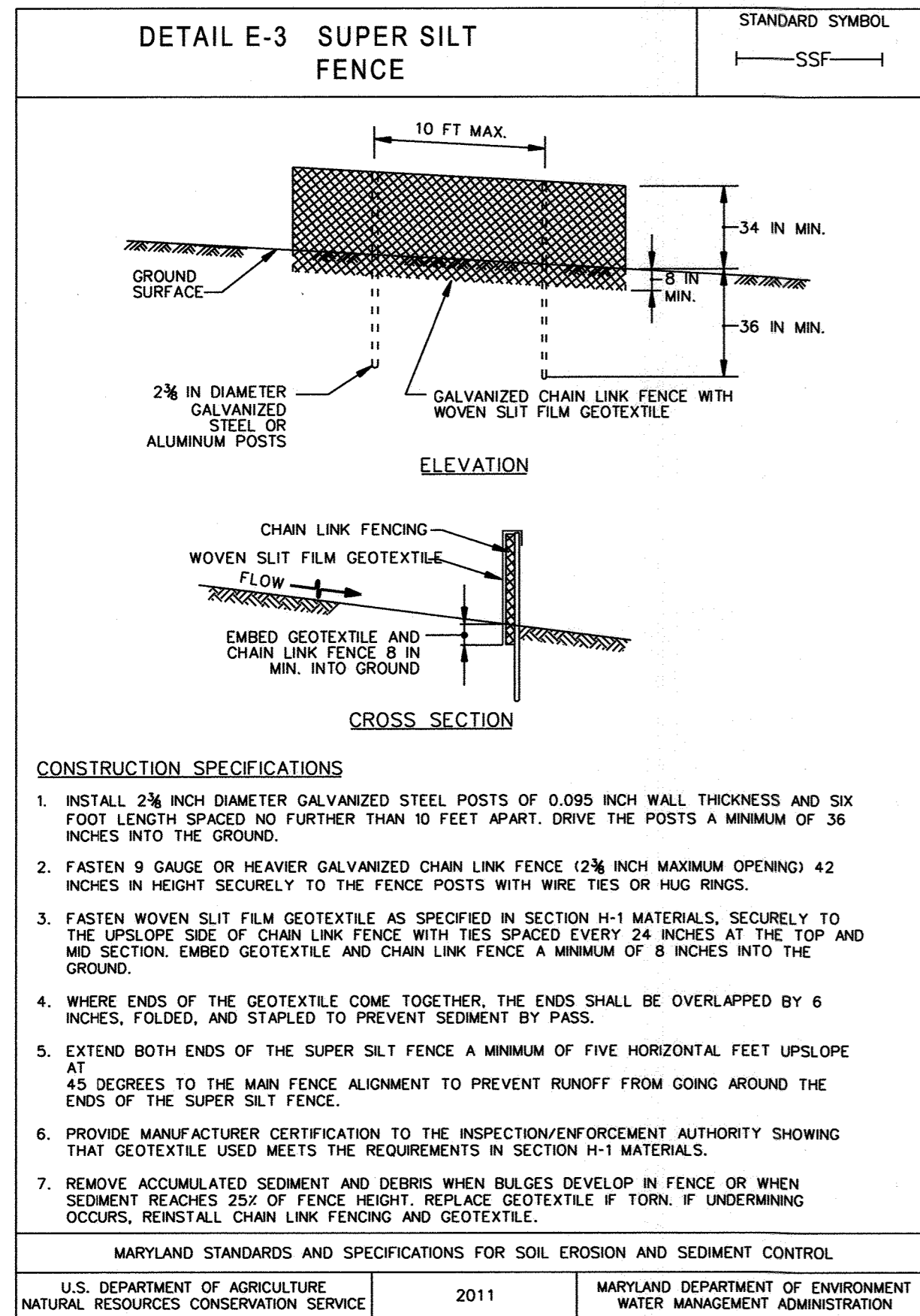
GALES LANE  
SEWER AND STREAM STABILIZATION

CAPITAL PROJECT S6601  
CONTRACT NO. C-340 W&S

ELECTION DISTRICT NO. 6 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 51 OF 14



**B-48 STANDARDS AND SPECIFICATIONS**

**FOR STOCKPILE AREA**

**Definition**  
A mound or pile of soil protected by appropriately designed erosion and sediment control measures.

**Purpose**  
To provide a designated location for the temporary storage of soil that controls the potential for erosion, sedimentation, and changes to drainage patterns.

**Conditions Where Practice Applies**  
Stockpile areas are utilized when it is necessary to salvage and store soil for later use.

**Criteria**

- The stockpile location and all related sediment control practices must be clearly indicated on the erosion and sediment control plan.
- The footprint of the stockpile must be sized to accommodate the anticipated volume of material and based on a side slope ratio no steeper than 2:1. Benching must be provided in accordance with Section B-3 Land Grading.
- Runoff from the stockpile area must drain to a suitable sediment control practice.
- Access the stockpile area from the upgrade side.
- Clear water runoff into the stockpile area must be minimized by use of a diversion device such as an earth dike, temporary swale or diversion fence. Provisions must be made for discharging concentrated flow in a non-erosive manner.
- Where runoff concentrates along the toe of the stockpile fill, an appropriate erosion/sediment control practice must be used to intercept the discharge.
- Stockpiles must be stabilized in accordance with the 377 day stabilization requirement as well as Standard B-4-1 Incremental Stabilization and Standard B-4-4 Temporary Stabilization.
- If the stockpile is located on an impervious surface, a liner should be provided below the stockpile to facilitate cleanup. Stockpiles containing contaminated material must be covered with impermeable sheeting.

**Maintenance**  
The stockpile area must continuously meet the requirements for Adequate Vegetative Establishment in accordance with Section B-4 Vegetative Stabilization. Side slopes must be maintained at no steeper than a 2:1 ratio. The stockpile area must be kept free of erosion. If the vertical height of a stockpile exceeds 20 feet for 2:1 slopes, 30 feet for 3:1 slopes, or 40 feet for 4:1 slopes, benching must be provided in accordance with Section B-3 Land Grading.

B.43

**B-47 STANDARDS AND SPECIFICATIONS**

**FOR HEAVY USE AREA PROTECTION**

**Definition**  
The stabilization of areas frequently and intensively used by surfacing with suitable materials (e.g., mulch and aggregate).

**Purpose**  
To provide a stable, non-eroding surface for areas frequently used and to improve the water quality from the runoff of these areas.

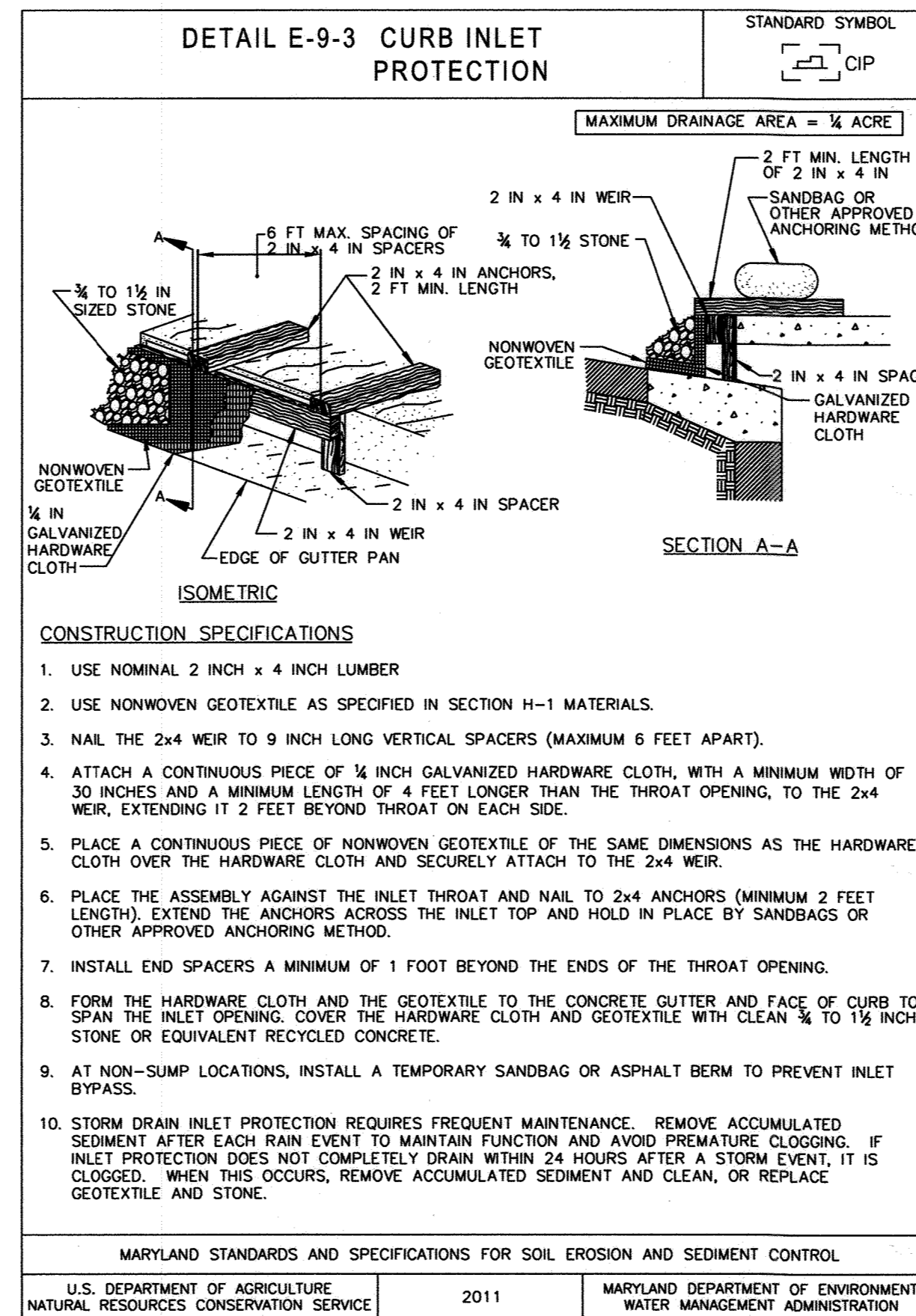
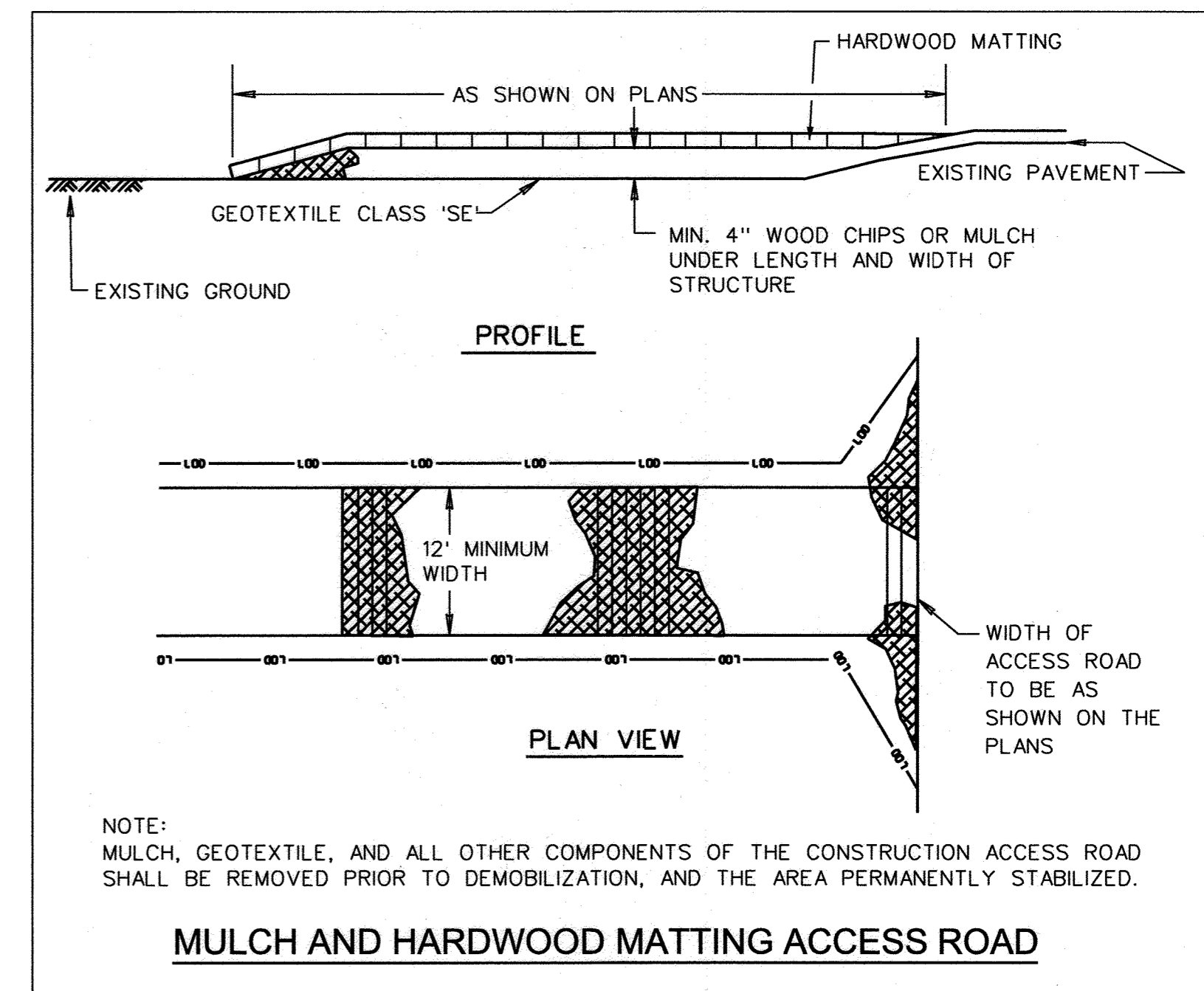
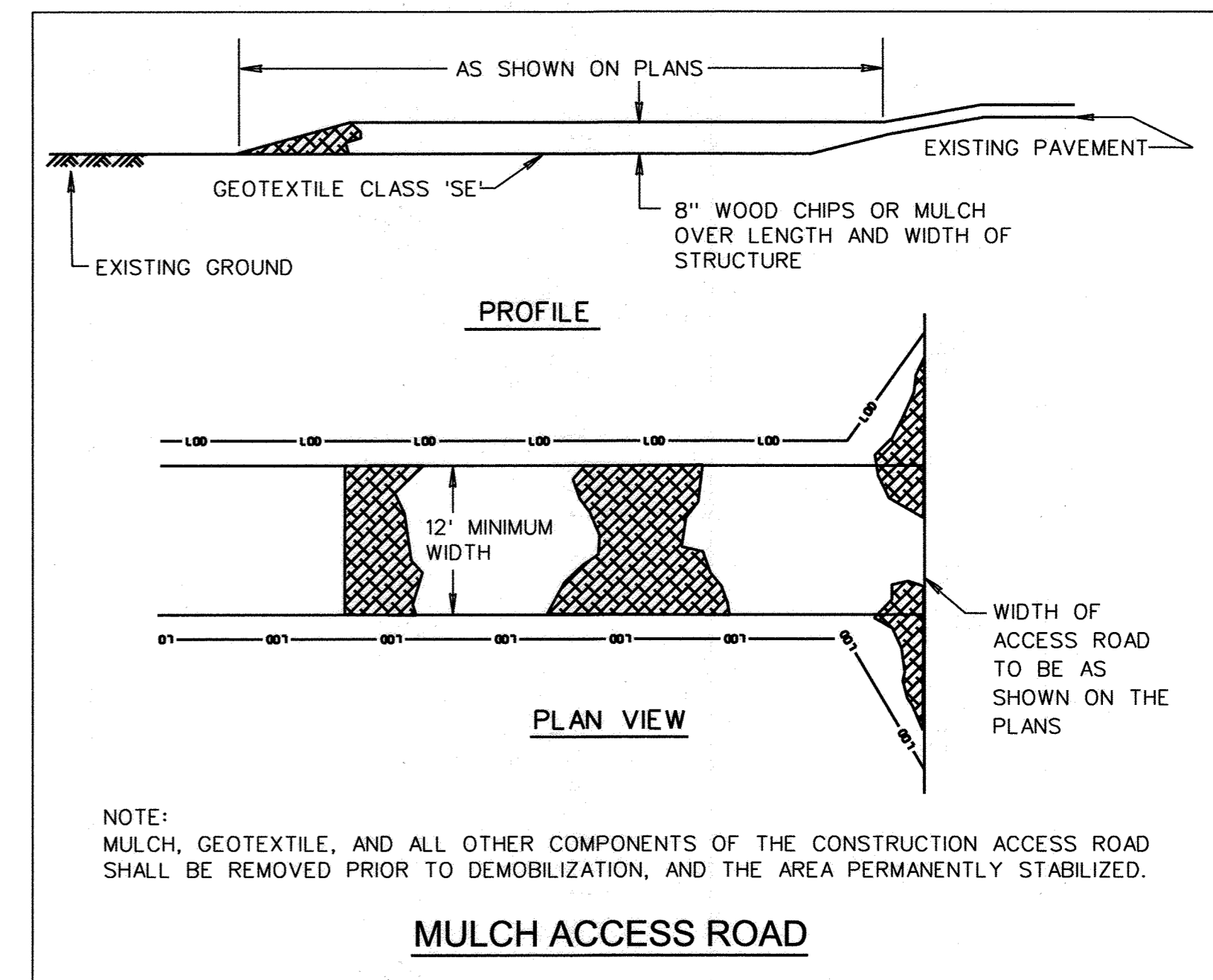
**Conditions Where Practice Applies**  
This practice applies to intensively used areas (e.g., equipment and material storage, staging areas, heavily used travel lanes).

**Criteria**

- A minimum 4-inch base course of crushed stone or other suitable materials including wood chips over nonwoven geotextile should be provided as specified in Section H-1 Materials.
- Select the stabilizing material based on the intended use, desired maintenance frequency, and runoff control.
- The transport of sediments, nutrients, oils, chemicals, particulate matter associated with vehicular traffic and equipment, and material storage needs to be considered in the selection of material. Additional control measures may be necessary to control some of these potential pollutants.
- Surface erosion can be a problem on large heavy use areas. In these situations, measures to reduce the flow length of runoff or erosive velocities need to be considered.

**Maintenance**  
The heavy use areas must be maintained in a condition that minimizes erosion. This may require adding suitable material, as specified on the approved plans, to maintain a clean surface.

B.42



PROFESSIONAL CERTIFICATION. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State Of Maryland, License No. 33079, Expiration Date 01-16-2023.

PLOTTED: 01:51 PM on Tuesday, May 10, 2022. FILE: M:\2018\13802366\DW\Drawings\10-PE5-0002\_Gales Lane.dgn

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*[Signature]* 5/23/2022  
DIRECTOR OF PUBLIC WORKS DATE

*[Signature]* 5-17-22  
CHIEF, BUREAU OF ENGINEERING DATE

*[Signature]* 5-20-22  
CHIEF, BUREAU OF UTILITIES DATE

*[Signature]* 5-17-22  
CHIEF, UTILITY DESIGN DIVISION DATE

ENGINEERS  
PLANNERS  
SCIENTISTS  
CONSTRUCTION MANAGERS

**KCI TECHNOLOGIES**

936 Retenook Road  
Sparks, MD 21152  
PHONE: (410) 316-7800  
FAX: (410) 316-7817  
www.kci.com

STATE OF MARYLAND  
DIVISION OF PROFESSIONAL ENGINEERING

*[Professional Seal]*

DES: SC					
DRN: CD, JS					
CHK: SL					
DATE: MAY 2022					
BY	NO.	REVISION	DATE	600' SCALE MAP NO. 36	BLOCK NO. 02

**ADDENDUM  
EROSION & SEDIMENT  
CONTROL DETAILS**

**GALES LANE  
SEWER AND STREAM STABILIZATION**

CAPITAL PROJECT S6601  
CONTRACT No. C-340 W&S

ELECTION DISTRICT NO. 6 HOWARD COUNTY, MARYLAND

DRAWING NO.  
ES-03

SCALE  
AS SHOWN

SHEET  
5J OF 14

B-4-1 STANDARDS AND SPECIFICATIONS

FOR INCREMENTAL STABILIZATION

Definition

Establishment of vegetative cover on cut and fill slopes.

Purpose

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.

Criteria

- A. Incremental Stabilization - Cut Slopes
1. 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.
2. 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.
d. 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.

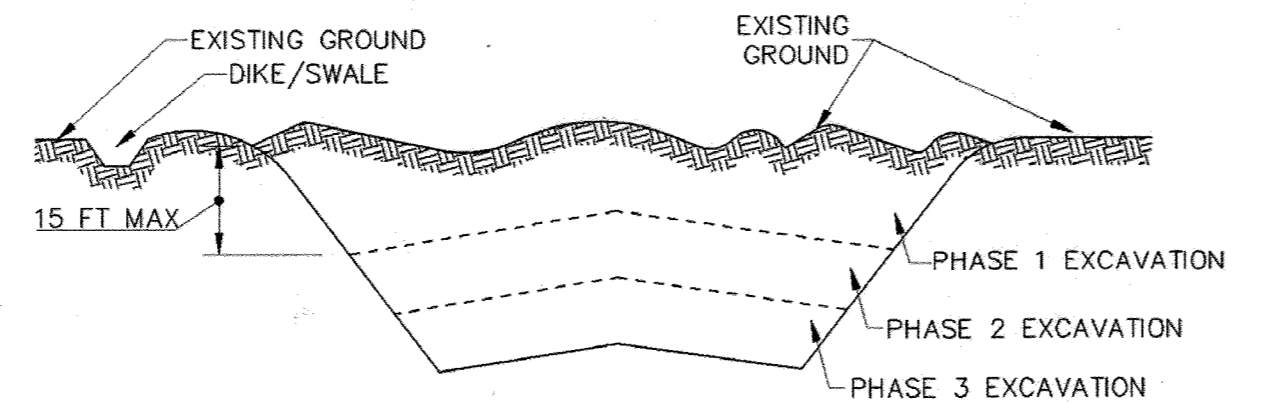


Figure B.1: Incremental Stabilization - Cut

B.10

- B. Incremental Stabilization - Fill Slopes
1. 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 work progresses.
2. Stabilize slopes immediately when the vertical height of a lift reaches 15 feet, or when the grading operation ceases as prescribed in the plans.
3. 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.
4. 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.
c. Place Phase 1 fill, prepare seedbed, and stabilize.
d. Place Phase 2 fill, prepare seedbed, and stabilize.
e. 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.

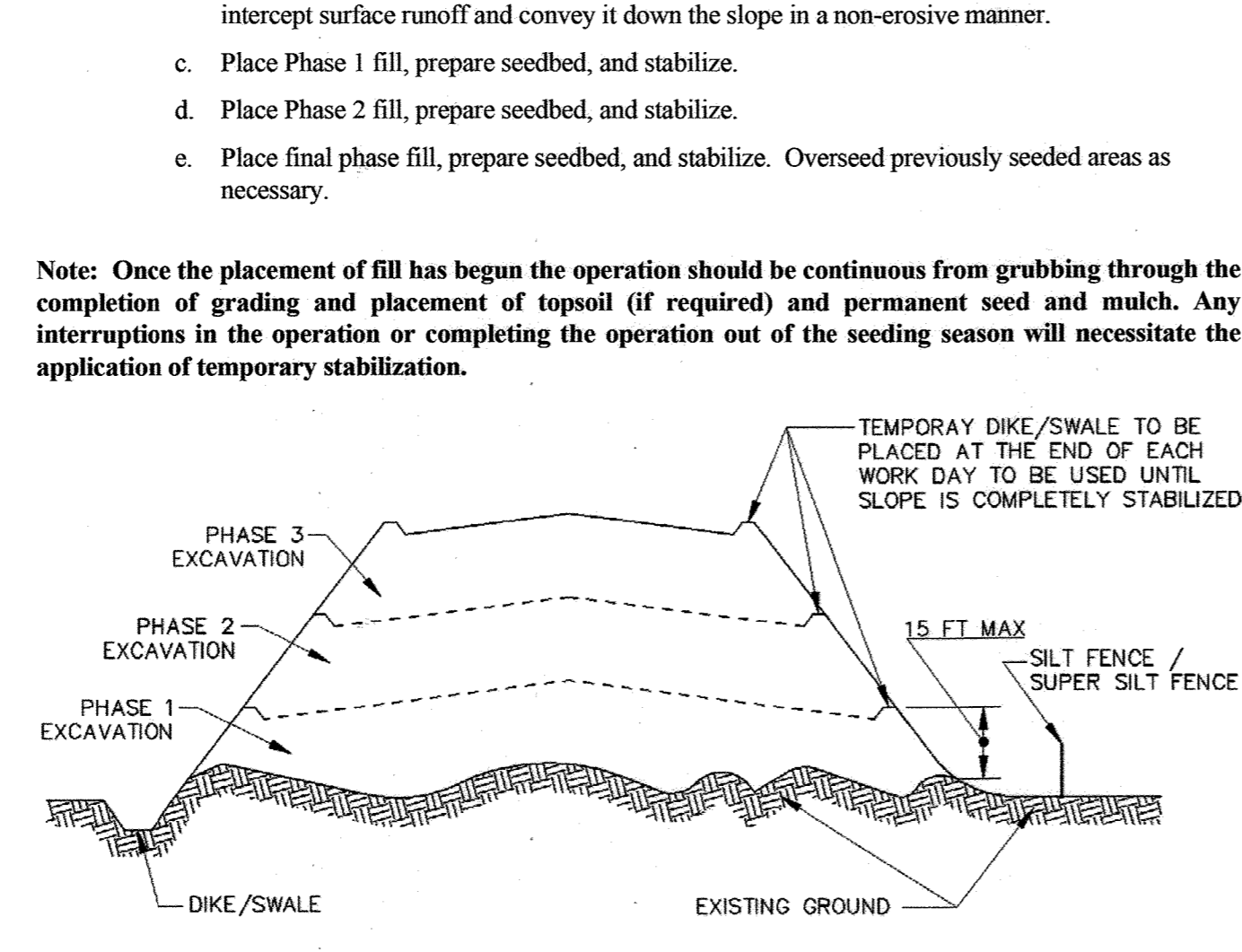


Figure B.2: Incremental Stabilization - Fill

PROFESSIONAL CERTIFICATION. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 33079, Expiration Date 01-16-2023.

B-4-2 STANDARDS AND SPECIFICATIONS

FOR SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

Definition

The process of preparing the soils to sustain adequate vegetative stabilization.

Purpose

To provide a suitable soil medium for vegetative growth.

Conditions Where Practice Applies

Where vegetative stabilization is to be established.

Criteria

- A. Soil Preparation
1. Temporary Stabilization
a. Seedbed preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened, it must not be rolled or dragged smooth but left in the roughened condition. Slopes 3:1 or flatter are to be tracked with ridges running parallel to the contour of the slope.
b. Apply fertilizer and lime as prescribed on the plans.
c. Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or other suitable means.
2. Permanent Stabilization
a. A soil test is required for any earth disturbance of 5 acres or more. The minimum soil conditions required for permanent vegetative establishment are:
i. Soil pH between 6.0 and 7.0.
ii. Soluble salts less than 500 parts per million (ppm).
iii. Soil contains less than 40 percent clay but enough fine grained material (greater than 30 percent silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception: if lovegrass will be planted, then a sandy soil (less than 30 percent silt plus clay) would be acceptable.
iv. Soil contains 1.5 percent minimum organic matter by weight.
v. Soil contains sufficient pore space to permit adequate root penetration.
b. Application of amendments or topsoil is required if on-site soils do not meet the above conditions.
c. Graded areas must be maintained in a true and even grade as specified on the approved plan, then scarified or otherwise loosened to a depth of 3 to 5 inches.

- d. Apply soil amendments as specified on the approved plan or as indicated by the results of a soil test.
e. Mix soil amendments into the top 3 to 5 inches of soil by disking or other suitable means. Rake lawn areas to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface where site conditions will not permit normal seedbed preparation. Track slopes 3:1 or flatter with tracked equipment leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. Leave the top 1 to 3 inches of soil loose and friable. Seedbed loosening may be unnecessary on newly disturbed areas.

B. Topsoiling

- 1. Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is to provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.
2. Topsoil salvaged from an existing site may be used provided it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-NRCS.
3. Topsoiling is limited to areas having 2:1 or flatter slopes where:

- a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
c. The original soil to be vegetated contains material toxic to plant growth.
d. The soil is so acidic that treatment with limestone is not feasible.
4. Areas having slopes steeper than 2:1 require special consideration and design.
5. Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:
a. Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1 1/2 inches in diameter.
b. Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified.
c. Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.

- 6. Topsoil Application
a. Erosion and sediment control practices must be maintained when applying topsoil.
b. Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations must be corrected in order to prevent the formation of depressions or water pockets.
c. Topsoil must not be placed if the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading

- C. Soil Amendments (Fertilizer and Lime Specifications)
1. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas of 5 acres or more. Soil analysis may be performed by a recognized private or commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses.
2. Fertilizers must be uniform in composition, free flowing and suitable for accurate application by appropriate equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers must all be delivered to the site fully labeled according to the applicable laws and must bear the name, trade name or trademark and warranty of the producer.
3. Lime materials must be ground limestone (hydrated or burnt lime may be substituted except when hydrosedimentation) which contains at least 50 percent total oxides (calcium oxide plus magnesium oxide). Limestone must be ground to such fineness that at least 50 percent will pass through a #100 mesh sieve and 98 to 100 percent will pass through a #20 mesh sieve.
4. Lime and fertilizer are to be evenly distributed and incorporated into the top 3 to 5 inches of soil by disking or other suitable means.
5. Where the subsoil is either highly acidic or composed of heavy clays, spread ground limestone at the rate of 4 to 8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil.

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

- 1) No excess fill, construction material, or debris shall be stockpiled or stored in nontidal wetlands, nontidal wetland buffers, waterways, or the 100-year floodplain.
2) 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.
3) Do not use the excavated material as backfill if it contains waste metal products, unsightly debris, toxic material, 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.
4) 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.
5) 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.
6) Rectify any nontidal wetlands, wetland buffers, waterways, or 100-year floodplain temporarily impacted by any construction.
7) 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 (Avena 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.
8) After installation has been completed, make post-construction grades and elevations the same as the original grades and elevations in temporarily impacted areas.
9) To protect aquatic species, in-stream work is prohibited as determined by the classification of the stream.
Use I waters: In-stream work shall not be conducted during the period March 1 through June 15, inclusive, during any year.
Use III waters: In-stream work shall not be conducted during the period October 1 through April 30, inclusive, during any year.
Use IV waters: In-stream work shall not be conducted during the period March 1 through May 31, inclusive, during any year.
10) Stormwater runoff from impervious surfaces shall be controlled to prevent the washing of debris into the waterway.
11) 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.

SEQUENCE OF CONSTRUCTION

- 1. OBTAIN GRADING PERMIT AND OTHER NECESSARY PERMITS FOR CONSTRUCTION FROM THE COUNTY AT THE PRE-CONSTRUCTION MEETING. STREAM IS USE CLASS IV-P WITH CLOSURE PERIOD FROM MARCH 1 TO MAY 31 INCLUSIVE. MDE PERMIT TRACKING NO. 202301097 / 21-NT-319. PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITIES, A VIDEO TAPE AND PHOTOGRAPHS OF THE PROPOSED WORK AREA SHALL BE TAKEN. (1 DAY)
2. CONTRACTOR SHALL COORDINATE AN ON-SITE PRE-CONSTRUCTION MEETING THAT SHALL INCLUDE, BUT NOT BE LIMITED TO, THE COUNTY PROJECT MANAGER, THE ENGINEER, AND A REPRESENTATIVE FROM HOWARD COUNTY CONSTRUCTION INSPECTION. THE LIMIT OF DISTURBANCE SHALL BE STAKED PRIOR TO THE MEETING. (1 DAY)
3. NOTIFY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT'S NONTIDAL WETLANDS AND WATERWAYS INSPECTIONS AND COMPLIANCE DIVISION AT LEAST FIVE (5) DAYS PRIOR TO ANY EARTH MOVING CONSTRUCTION WITHIN NONTIDAL WETLANDS AND/OR THEIR BUFFERS. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST FIVE (5) WORKING DAYS PRIOR TO ANY WORK BEING DONE. THE CONTRACTOR SHALL NOTIFY THE HOWARD COUNTY CONSTRUCTION INSPECTION DIVISION (410-313-1880) A MINIMUM OF 24 HOURS PRIOR TO THE START OF ANY CONSTRUCTION. (5 DAYS)
4. CONSTRUCT ORANGE SAFETY FENCE AS SHOWN ON THE PLANS. HOWARD COUNTY STORMWATER MANAGEMENT DIVISION SHALL REVIEW AND APPROVE THE LOCATION OF THE ORANGE SAFETY FENCE PRIOR TO ANY EARTH MOVING OR REMOVAL OF EXISTING TREES OR SHRUBS. (2 DAYS)
5. CLEAR AND GRUB ONLY AS NECESSARY FOR INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND DEVICES. INSTALL THE STABILIZED CONSTRUCTION ENTRANCE AT ROSINANTE RUN, AND SILT FENCE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE SEDIMENT CONTROL INSPECTOR. THE ACCESS PATH SHALL BE STABILIZED OR LINED WITH SILT FENCE AT THE INSPECTOR'S DISCRETION. WITH PERMISSION FROM INSPECTOR, CONTRACTOR SHALL PROCEED WITH THE WORK. (2 DAYS)
6. INSTALL PUMP-AROUND PRACTICE AS SHOWN ON SHEET ES-01. WITH APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, COMMENCE WORK. (1 DAY)
7. PERFORM BANK GRADING AND SEWER AND STREAM STABILIZATION WORK ON CHANNEL AS SHOWN ON PLANS, AND STABILIZE ALL DISTURBED AREAS AT FINAL GRADE. PUMP-AROUND MAY BE SHIFTED AS NECESSARY TO PERFORM GRADING AND STREAM WORK WITH APPROVAL OF THE SEDIMENT CONTROL INSPECTOR. CONTRACTOR SHALL DISTURB ONLY THAT MUCH AREA THAT CAN BE BROUGHT TO FINAL GRADE AND STABILIZED BY THE END OF EACH DAY. (1 WEEK)
8. PERMANENTLY STABILIZE WORK AREA. (2 DAYS)
9. WHEN VEGETATION IS ESTABLISHED AND WITH PERMISSION OF THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE ALL REMAINING EROSION AND SEDIMENT CONTROL MEASURES AND PERMANENTLY STABILIZE THOSE AREAS DISTURBED BY THIS PROCESS. (1 DAY)
10. CONDUCT FINAL "AS-BUILT" SURVEY OF SEWER AND STREAM STABILIZATION MEASURES, AND STREAM PROFILE WITHIN STABILIZATION AREA, AND SUBMIT "AS-BUILT" PLANS TO THE DEPARTMENT OF PUBLIC WORKS, UTILITY DIVISION WITHIN 30 DAYS OF COMPLETION OF CONSTRUCTION. (30 DAYS)

NOTES:

- 1. WORK AREAS SHALL BE PERMANENTLY STABILIZED DAILY BEFORE LEAVING THE WORKSITE.
2. THE CONTRACTOR IS TO REMOVE STONE, CONCRETE, AND GRAVEL AND STABILIZE THE SCE, ACCESS ROAD AND TEMPORARY STAGING / STOCKPILING AREAS AFTER CONSTRUCTION IS COMPLETED.
3. THE CONTRACTOR IS TO REMOVE ALL SEDIMENT CONTROL MEASURES ALONG THE TEMPORARY STAGING / STOCKPILING AREAS, ACCESS ROAD, STREAM CROSSING AND STREAM BANKS AFTER CONSTRUCTION IS COMPLETED.
4. PERMANENT STABILIZATION CONSISTING OF, AT A MINIMUM, NATURAL FIBER MATTING (TEMPORARY SOIL STABILIZATION MATTING, TSSM) AND SEEDING SHALL BE INSTALLED IN ALL AREAS DISTURBED BY THE WORK. NATURAL FIBER SHALL BE USED UNLESS REINFORCED NATURAL FIBER MATTING (PERMANENT SOIL STABILIZATION MATTING, PSSM) IS SPECIFICALLY CALLED FOR BASED ON THE CONTRACT DRAWINGS (I.E., IN SLOPES GREATER THAN H2:V1) AREAS WHERE CLEARING AND GRADING IS NOT PERFORMED (E.G., LOCATIONS OF HOSE FOR PUMP AROUNDS) DO NOT REQUIRE THE APPLICATION OF SOIL STABILIZATION MATTING.

- HOWARD SOIL CONSERVATION DISTRICT (HSCD) STANDARD SEDIMENT CONTROL NOTES
1. A pre-construction meeting must occur with the Howard County Department of Public Works, Construction Inspection Division (CID), 410-313-1855 after the future LOD and protected areas are marked clearly in the field. A minimum of 48 hour notice to CID must be given at the following stages:
a. Prior to the start of earth disturbance,
b. Upon completion of the installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading,
c. Prior to the start of another phase of construction or opening of another grading unit,
d. Prior to the removal or modification of sediment control practices.
Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made. Other related state and federal permits shall be referenced, to ensure coordination and to avoid conflicts with this plan.
2. All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, and revisions thereto.
3. Following initial soil disturbance or re-disturbance, permanent or temporary stabilization is required within three (3) calendar days as to the surface of all perimeter controls, dikes, swales, ditches, perimeter slopes, and all slopes steeper than 3 horizontal to 1 vertical (3:1); and seven (7) calendar days as to all other disturbed areas on the project site except for those areas under active grading.
4. All disturbed areas must be stabilized within the time period specified above in accordance with the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR TOPSOIL (Sec. B-4-2), permanent seeding (Sec. B-4-5), temporary seeding (Sec. B-4-4) and mulching (Sec. B-4-3). Temporary stabilization with mulch alone can only be applied between the fall and spring seeding dates if the ground is frozen. Incremental stabilization (Sec. B-4-1) specifications shall be enforced in areas with >15' of cut and/or fill. Stockpiles (Sec. B-4-8) in excess of 20 ft. must be benched with stable outlet. All concentrated flow, steep slope, and highly erodible areas shall receive soil stabilization matting (Sec. B-4-6).
5. All sediment control structures are to remain in place, and are to be maintained in operative condition until permission for their removal has been obtained from the CID.
6. Site Analysis:
Total Area of Site: 0.20 Acres
Area Disturbed: 0.20 Acres
Area to be roofed or paved: 0.0 Acres
Area to be vegetatively stabilized: 0.20 Acres
Total Cut: 38.5 Cu. Yds.
Total Fill: 32.1 Cu. Yds.
Offsite waste/borrow area location: TO SITE WITH AN ACTIVE GRADING PERMIT
7. Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
8. Additional sediment control must be provided, if deemed necessary by the CID. The site and all controls shall be inspected by the contractor weekly; and the next day after each rain event. A written report by the contractor, made available upon request, is part of every inspection and should include:
• Inspection date
• Inspection type (routine, pre-storm event, during rain event)
• Name and title of inspector
• Weather information (current conditions as well as time and amount of last recorded precipitation)
• Brief description of project's status (e.g., percent complete) and/or current activities
• Evidence of sediment discharges
• Identification of plan deficiencies
• Identification of sediment controls that require maintenance
• Identification of missing or improperly installed sediment controls
• Compliance status regarding the sequence of construction and stabilization requirements
• Photographs
• Monitoring/sampling
• Maintenance and/or corrective action performed
• Other inspection items as required by the General Permit for Stormwater Associated with Construction Activities (NPDES, MDE).
9. Trenches for the construction of utilities is limited to three pipe lengths or that which can and shall be back-filled and stabilized by the end of each workday, whichever is shorter.
10. Any major changes or revisions to the plan or sequence of construction must be reviewed and approved by the HSCD prior to proceeding with construction. Minor revisions may be allowed by the CID per the list of HSCD-approved field changes.
11. Disturbance shall not occur outside the L.O.D. A project is to be sequenced so that grading activities begin one grading unit (maximum acreage of 20 ac. per grading unit) at a time. Work may proceed to a subsequent grading unit when at least 50 percent of the disturbed area in the preceding grading unit has been stabilized and approved by the CID. Unless otherwise specified and approved by the CID, no more than 30 acres cumulatively may be disturbed at a given time.
12. Wash water from any equipment, vehicles, wheels, pavement, and other sources must be treated in a sediment basin or other approved washout structure.
13. Topsoil shall be stockpiled and preserved on-site for redistribution onto final grade.
14. All Silt Fence and Super Silt Fence shall be placed on-the-contour, and be imbricated at 25' minimum intervals, with lower ends curled uphill by 2' in elevation.
15. Stream channels must not be disturbed during the following restricted time periods (inclusive):
• Use I and IP March 1 - June 15
• Use III and IIP October 1 - April 30
• Use IV March 1 - May 31
16. A copy of this plan, the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, and associated permits shall be on-site and available when the site is active.

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND
Meynier 5/23/2022 DATE
CHIEF, BUREAU OF UTILITIES DATE
CHIEF, BUREAU OF ENGINEERING DATE
CHIEF, UTILITY DESIGN DIVISION DATE

ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS
KCI TECHNOLOGIES
936 Ridgecroft Road Sparks, MD 21152
PHONE: (410) 316-7800 FAX: (410) 316-7817 www.kci.com

STATE OF MARYLAND PROFESSIONAL ENGINEER License No. 33079 Expiration Date 01-16-2023

Table with columns: DES: SC, DRN: CD, JS, CHK: SL, DATE: MAY 2022, BY: NO., REVISION, DATE

ADDENDUM EROSION & SEDIMENT CONTROL NOTES
600' SCALE MAP NO. 36 BLOCK NO. 02

GALES LANE SEWER AND STREAM STABILIZATION
CAPITAL PROJECT S6601 CONTRACT NO. C-340 W&S
ELECTION DISTRICT NO. 6 HOWARD COUNTY, MARYLAND
DRAWING NO. ES-04
SCALE AS SHOWN
SHEET
5K OF 14



**B-4-3 STANDARDS AND SPECIFICATIONS**

**FOR**

**SEEDING AND MULCHING**

**Definition**

The application of seed and mulch to establish vegetative cover.

**Purpose**

To protect disturbed soils from erosion during and at the end of construction.

**Conditions Where Practice Applies**

To the surface of all perimeter controls, slopes, and any disturbed area not under active grading.

**Criteria**

- A. Seeding
  - 1. Specifications
    - a. All seed must meet the requirements of the Maryland State Seed Law. All seed must be subject to re-testing by a recognized seed laboratory. All seed used must have been tested within the 6 months immediately preceding the date of sowing such material on any project. Refer to Table B.4 regarding the quality of seed. Seed tags must be available upon request to the inspector to verify type of seed and seeding rate.
    - b. Mulch alone may be applied between the fall and spring seeding dates only if the ground is frozen. The appropriate seeding mixture must be applied when the ground thaws.
    - c. Inoculants: The inoculant for treating legume seed in the seed mixtures must be a pure culture of nitrogen fixing bacteria prepared specifically for the species. Inoculants must not be used later than the date indicated on the container. Add fresh inoculants as directed on the package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less effective.
    - d. Sod or seed must not be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phytotoxic materials.
  - 2. Application
    - a. Dry Seeding: This includes use of conventional drop or broadcast spreaders.
      - i. Incorporate seed into the subsoil at the rates prescribed on Temporary Seeding Table B.1, Permanent Seeding Table B.3, or site-specific seeding summaries.
      - ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction. Roll the seeded area with a weighted roller to provide good seed to soil contact.
    - b. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil.
      - i. Cultipacking seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seeded 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; P<sub>2</sub>O<sub>5</sub> (phosphorous), 200 pounds per acre; K<sub>2</sub>O (potassium), 200 pounds per acre.
      - ii. Lime: Use only ground agricultural limestone (up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding.
      - iii. Mix seed and fertilizer on site and seed immediately and without interruption.
      - iv. When hydroseeding do not incorporate seed into the soil.
- B. Mulching
  - 1. Mulch Materials (in order of preference)
    - a. Straw consisting of thoroughly threshed wheat, rye, oat, or barley and reasonably bright in color. Straw is to be free of noxious weed seeds as specified in the Maryland Seed Law and not musty, moldy, caked, decayed, or excessively dusty. Note: Use only sterile straw mulch in areas where one species of grass is desired.
    - b. Wood Cellulose Fiber Mulch (WCFM) consisting of specially prepared wood cellulose processed into a uniform fibrous physical state.
      - i. WCFM is to be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.
      - ii. WCFM, including dye, must contain no germination or growth inhibiting factors.
      - iii. WCFM materials are to be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material must form a blotter-like ground cover, on application, having moisture absorption and percolation properties and must cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.
      - iv. WCFM material must not contain elements or compounds at concentration levels that will be phytotoxic.
      - v. WCFM must conform to the following physical requirements: fiber length of approximately 10 millimeters, diameter approximately 1 millimeter, pH range of 4.0 to 8.5, ash content of 1.6 percent maximum and water holding capacity of 90 percent minimum.

2. Application

- a. Apply mulch to all seeded areas immediately after seeding.
- b. When straw mulch is used, spread it over all seeded areas at the rate of 2 tons per acre to a uniform loose depth of 1 to 2 inches. Apply mulch to achieve a uniform distribution and depth so that the soil surface is not exposed. When using a mulch anchoring tool, increase the application rate to 2.5 tons per acre.
- c. Wood cellulose fiber used as mulch must be applied at a net dry weight of 1500 pounds per acre. Mix the wood cellulose fiber with water to attain a mixture with a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.

3. Anchoring

- a. Perform mulch anchoring immediately following application of mulch to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon the size of the area and erosion hazard:
  - i. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of 2 inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should follow the contour.
  - ii. Wood cellulose fiber may be used for anchoring straw. Apply the fiber binder at a net dry weight of 750 pounds per acre. Mix the wood cellulose fiber with water at a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
  - iii. Synthetic binders such as Acrylic DLR (Agro-Tack), DCA-70, Petroset, Terra Tax II, Terra Tack AR or other approved equal may be used. Follow application rates as specified by the manufacturer. Application of liquid binders needs to be heavier at the edges where wind catches mulch, such as in valleys and on crests of banks. Use of asphalt binders is strictly prohibited.
  - iv. Lightweight plastic netting may be stapled over the mulch according to manufacturer recommendations. Netting is usually available in rolls 4 to 15 feet wide and 300 to 3,000 feet long.

**B-4-4 STANDARDS AND SPECIFICATIONS**

**FOR**

**TEMPORARY STABILIZATION**

**Definition**

To stabilize disturbed soils with vegetation for up to 6 months.

**Purpose**

To use fast growing vegetation that provides cover on disturbed soils.

**Conditions Where Practice Applies**

Exposed soils where ground cover is needed for a period of 6 months or less. For longer duration of time, permanent stabilization practices are required.

**Criteria**

- 1. Select one or more of the species or seed mixtures listed in Table B.1 for the appropriate Plant Hardiness Zone (from Figure B.3), and enter them in the Temporary Seeding Summary below along with application rates, seeding dates and seeding depths. If this Summary is not put on the plan and completed, then Table B.1 plus fertilizer and lime rates must be put on the plan.
- 2. For sites having soil tests performed, use and show the recommended rates by the testing agency. Soil tests are not required for Temporary Seeding.
- 3. When stabilization is required outside of a seeding season, apply seed and mulch or straw mulch alone as prescribed in Section B-4-3.A.1.b and maintain until the next seeding season.

**Temporary Seeding Summary**

HARDINESS ZONE (FROM FIGURE B.3): 6B SEED MIXTURE (FROM TABLE B.1)				FERTILIZER RATE (10-20-20)	LIME RATE
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS	
1	CEREAL RYE	112	3/15-5/15 8/1-11/15	1 INCH	2 tons/oc (90 LB/ 1000 SF)
2	FOXTAIL MILLET	20	5/16-7/31	1/2 INCH	

NOTES:

- 1/ Seeding rates for the warm-season grasses are in pounds of Pure Live Seed (PLS). Actual planting rates shall be adjusted to reflect percent seed germination and purity, as tested. Adjustments are usually not needed for the cool-season grasses.
- Seeding rates listed above are for temporary seedings, when planted alone. When planted as a nurse crop with permanent seed mixes, use 1/3 of the seeding rate listed above for barley, oats, and wheat. For smaller-seeded grasses (annual ryegrass, pearl millet, foxtail millet), do not exceed more than 5% (by weight) of the overall permanent seeding mix. Cereal rye generally should not be used as a nurse crop, unless planting will occur in very late fall beyond the seeding dates for other temporary seedings. Cereal rye has allelopathic properties that inhibit the germination and growth of other plants. If it must be used as a nurse crop, seed at 1/3 of the rate listed above.
- Oats are the recommended nurse crop for warm-season grasses.
- 2/ For sandy soils, plant seeds at twice the depth listed above.
- 3/ The planting dates listed are averages for each Zone and may require adjustment to reflect local conditions, especially near the boundaries of the zone.

**B-4-5 STANDARDS AND SPECIFICATIONS**

**FOR**

**PERMANENT STABILIZATION**

**Definition**

To stabilize disturbed soils with permanent vegetation.

**Purpose**

To use long-lived perennial grasses and legumes to establish permanent ground cover on disturbed soils.

**Conditions Where Practice Applies**

Exposed soils where ground cover is needed for 6 months or more.

**Criteria**

- A. Seed Mixtures
  - 1. General Use
    - a. Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardiness Zone (from Figure B.3) and based on the site condition or purpose found on Table B.2. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The Summary is to be placed on the plan.
    - b. Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical Field Office Guide, Section 342 - Critical Area Planting.
    - c. For sites having disturbed area over 5 acres, use and show the rates recommended by the soil testing agency.
    - d. For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at 3 1/2 pounds per 1000 square feet (150 pounds per acre) at the time of seeding in addition to the soil amendments shown in the Permanent Seeding Summary.

**Turfgrass Mixtures**

- a. Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance.
- b. Select one or more of the species or mixtures listed below based on the site conditions or purpose. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The summary is to be placed on the plan.
  - i. Kentucky Bluegrass: Full Sun Mixture: For use in areas that receive intensive management. Irrigation required in the areas of central Maryland and Eastern Shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.
  - ii. Kentucky Bluegrass/Perennial Rye: Full Sun Mixture: For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass Cultivars/Certified Kentucky Bluegrass Seeding Rate: 2 pounds mixture per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.
  - iii. Tall Fescue/Kentucky Bluegrass: Full Sun Mixture: For use in drought prone areas and/or for areas receiving low to medium management in full sun to medium shade. Recommended mixture includes; Certified Tall Fescue Cultivars 95 to 100 percent, Certified Kentucky Bluegrass Cultivars 0 to 5 percent. Seeding Rate: 5 to 8 pounds per 1000 square feet. One or more cultivars may be blended.
  - iv. Kentucky Bluegrass/Fine Fescue: Shade Mixture: For use in areas with shade in Bluegrass lawns. For establishment in high quality, intensively managed turf area. Mixture includes; Certified Kentucky Bluegrass Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 1 1/2 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 1 1/2 inches in diameter. The resulting seedbed must be in such condition that future mowing of grasses will pose no difficulty.
- e. If soil moisture is deficient, supply new seedings with adequate water for plant growth (1/2 to 1 inch every 3 to 4 days depending on soil texture) until they are firmly established. This is especially true when seedings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

**PERMANENT SEEDING SUMMARY**

HARDINESS ZONE (FROM FIGURE B.3): 6B SEED MIXTURE (FROM TABLE B.3)				FERTILIZER RATE (10-20-20)			LIME	
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS	N	P205	K2O	
1	SWITCH GRASS CREEPING RED FESCUE BUSH CLOVER	10 2	3/1-5/15 5/16-6/15	1/4-1/2 INCH	45 LB/AC (11.0 LB/ 1000 SF)	90 LB/OC (22.0 LB/ 1000 SF)	90 LB/OC (22.0 LB/ 1000 SF)	2 tons/oc (90 LB/ 1000 SF)
7	CREEPING RED FESCUE KENTUCKY BLUEGRASS	60 15	3/1-5/15 8/1-10/15	1/4-1/2 INCH	45 LB/AC (11.0 LB/ 1000 SF)	90 LB/OC (22.0 LB/ 1000 SF)	90 LB/OC (22.0 LB/ 1000 SF)	2 tons/oc (90 LB/ 1000 SF)
11	CREEPING RED FESCUE CHEWINGS FESCUE KENTUCKY BLUEGRASS	30 30 20	3/1-5/15 8/1-10/15	1/4-1/2 INCH	45 LB/AC (11.0 LB/ 1000 SF)	90 LB/OC (22.0 LB/ 1000 SF)	90 LB/OC (22.0 LB/ 1000 SF)	2 tons/oc (90 LB/ 1000 SF)
	ERNST SEED MIX ERNST-722 MD LOWER MIDLAND RIPARIAN MIX	15	2/15-10/31	1 INCH	NONE	NONE	NONE	NONE

NOTE: ERNST SEED MIX TO BE USED IN FORESTED AREAS AS SHOWN ON THE LANDSCAPE PLANS. THE REMAINING MIXES ARE SUITABLE OUTSIDE OF FOREST AND TURF ZONES.

- B. Sod: To provide quick cover on disturbed areas (2:1 grade or flatter).
  - 1. General Specifications
    - a. Class of turfgrass sod must be Maryland State Certified. Sod labels must be made available to the job foreman and inspector.
    - b. Sod must be machine cut at a uniform soil thickness of 3/4 inch, plus or minus 1/8 inch, at the time of cutting. Measurement for thickness must exclude top growth and thatch. Broken pads and torn or uneven ends will not be acceptable.
    - c. Standard size sections of sod must be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.
    - d. Sod must not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
    - e. Sod must be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period must be approved by an agronomist or soil scientist prior to its installation.
  - 2. Sod Installation
    - a. During periods of excessively high temperature or in areas having dry subsoil, lightly irrigate the subsoil immediately prior to laying the sod.
    - b. Lay the first row of sod in a straight line with subsequent rows placed parallel to it and tightly wedged against each other. Stagger lateral joints to promote more uniform growth and strength. Ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air drying of the roots.
    - c. Wherever possible, lay sod with the long edges parallel to the contour and with staggering joints. Roll and tamp, peg or otherwise secure the sod to prevent slippage on slopes. Ensure solid contact exists between sod roots and the underlying soil surface.
    - d. Water the sod immediately following rolling and tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet. Complete the operations of laying, tamping and irrigating for any piece of sod within eight hours.
  - 3. Sod Maintenance
    - a. In the absence of adequate rainfall, water daily during the first week or as often and sufficiently as necessary to maintain moist soil to a depth of 4 inches. Water sod during the heat of the day to prevent wilting.
    - b. After the first week, sod watering is required as necessary to maintain adequate moisture content.
    - c. Do not mow until the sod is firmly rooted. No more than 1/2 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.

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DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*M. Williams* 5/23/2022  
DIRECTOR OF PUBLIC WORKS DATE

*[Signature]* 5-17-22  
CHIEF, BUREAU OF ENGINEERING DATE

*[Signature]* 5/20/22  
CHIEF, UTILITY DESIGN DIVISION DATE

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936 Ridgecroft Road  
Sparks, MD 21152  
PHONE: (410) 316-7800  
FAX: (410) 316-7817  
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STATE OF MARYLAND  
DIVISION OF PUBLIC WORKS

*[Professional Seal]*

PROFESSIONAL ENGINEER  
No. 39979  
5/11/2022

DES: SC					
DRN: CD, JS					
CHK: SL					
DATE: MAY 2022	BY	NO.	REVISION	DATE	600' SCALE MAP NO. 36 BLOCK NO. 02

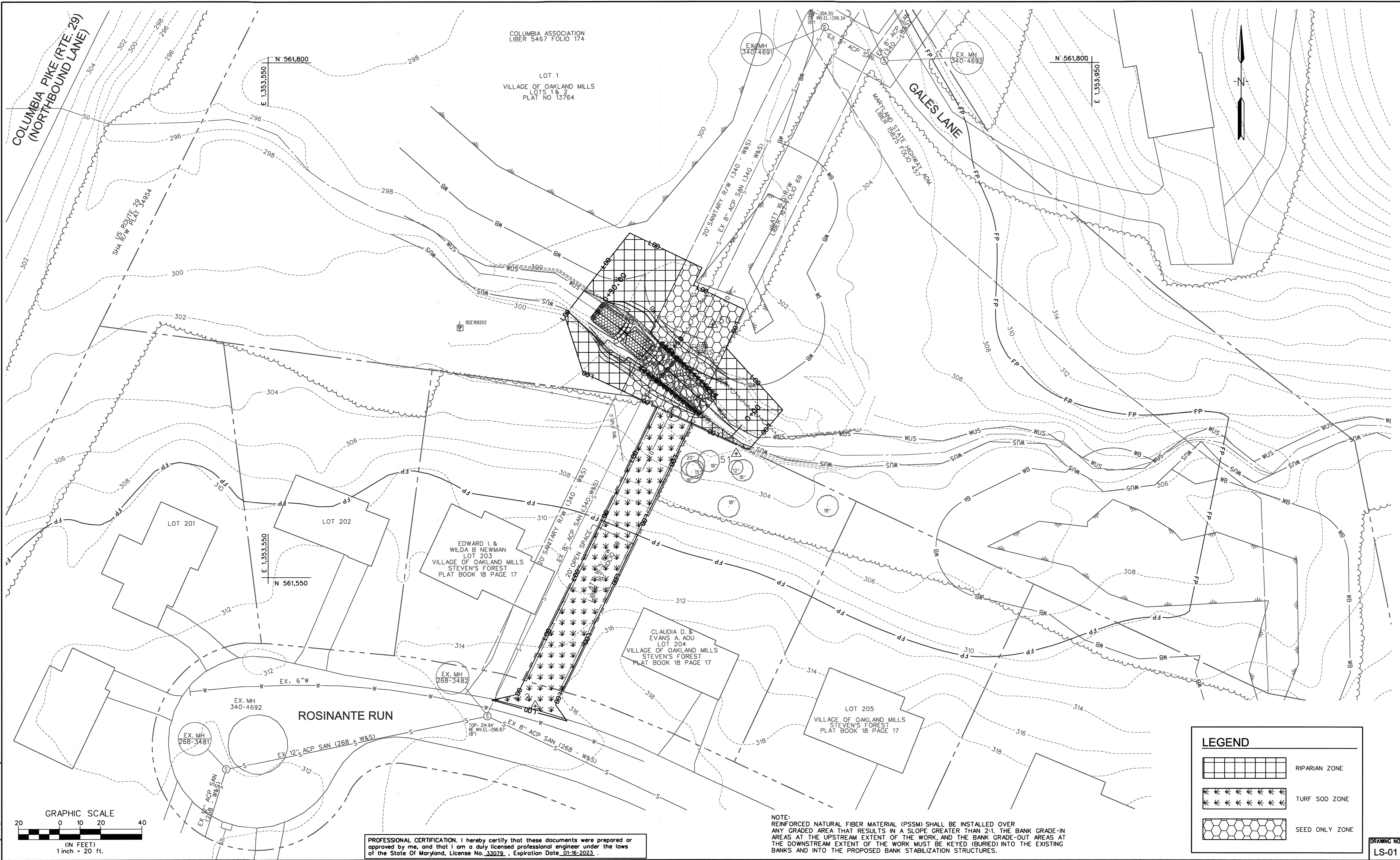
ADDENDUM  
EROSION & SEDIMENT  
CONTROL NOTES

GALES LANE  
SEWER AND STREAM STABILIZATION

CAPITAL PROJECT S6601  
CONTRACT NO. C-340 W&S

ELECTION DISTRICT NO. 6 HOWARD COUNTY, MARYLAND

DRAWING NO.	ES-05
SCALE	AS SHOWN
SHEET	5L OF 14



COLUMBIA ASSOCIATION  
LIBER 5467 FOLIO 174

LOT 1  
VILLAGE OF OAKLAND MILLS  
LOTS 1 & 2  
PLAT NO 13764

EDWARD I. &  
WILDA B. NEWMAN  
LOT 203  
VILLAGE OF OAKLAND MILLS  
STEVEN'S FOREST  
PLAT BOOK 18 PAGE 17

CLAUDIA D. &  
EVANS A. ADU  
LOT 204  
VILLAGE OF OAKLAND MILLS  
STEVEN'S FOREST  
PLAT BOOK 18 PAGE 17

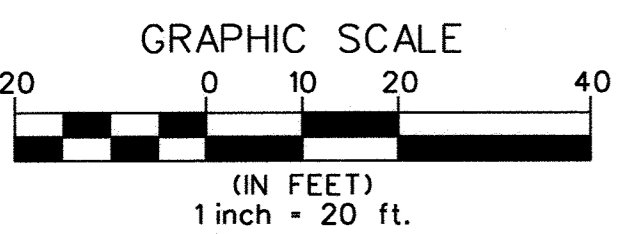
LOT 205  
VILLAGE OF OAKLAND MILLS  
STEVEN'S FOREST  
PLAT BOOK 18 PAGE 17

ROSIANTE RUN

LEGEND	
	RIPARIAN ZONE
	TURF SOD ZONE
	SEED ONLY ZONE

NOTE:  
REINFORCED NATURAL FIBER MATERIAL (PSSM) SHALL BE INSTALLED OVER ANY GRADED AREA THAT RESULTS IN A SLOPE GREATER THAN 2:1. THE BANK GRADE-IN AREAS AT THE UPSTREAM EXTENT OF THE WORK, AND THE BANK GRADE-OUT AREAS AT THE DOWNSTREAM EXTENT OF THE WORK MUST BE KEYED (BURIED) INTO THE EXISTING BANKS AND INTO THE PROPOSED BANK STABILIZATION STRUCTURES.

PROFESSIONAL CERTIFICATION. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 33079. - Expiration Date 01-16-2023.



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FILE: M:\2018\131802\366\01\Drawings\13-PL5-POOL\_Gales\_Lans.dwg

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HOWARD COUNTY, MARYLAND

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*Charles* 5-20-22  
CHIEF, BUREAU OF UTILITIES DATE

*Charles* 5-17-22  
CHIEF, BUREAU OF ENGINEERING DATE

*Charles* 5/12/22  
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Fax: (410) 316-7817  
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STATE OF MARYLAND  
PROFESSIONAL ENGINEER  
No. 33079  
EXPIRES 01-16-2023

DES: SC	BY	NO.	REVISION	DATE
DRN: CD, JS				
CHK: SL				
DATE: MAY 2022				

ADDENDUM

LANDSCAPE PLAN

600' SCALE MAP NO. 36	BLOCK NO. 02
-----------------------	--------------

GALES LANE  
SEWER AND STREAM STABILIZATION

CAPITAL PROJECT S6601  
CONTRACT NO. C-340 W&S

ELECTION DISTRICT NO. 6  
HOWARD COUNTY, MARYLAND

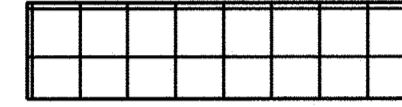
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SCALE AS SHOWN  
SHEET 5M OF 14

# MASTER PLANT SCHEDULE +



## RIPARIAN ZONE (2,669 SQ FT / 0.06 AC)

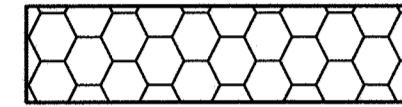
Qty	Botanical Name	Common Name	Size	Form	Spacing/Rate
<b>TREES</b>					
5	<i>Platanus occidentalis</i>	American sycamore	5' Height	Container	11' O.C.
5	<i>Quercus palustris</i>	Pin Oak	5' Height	Container	11' O.C.
5	<i>Quercus alba</i>	White Oak	5' Height	Container	11' O.C.
5	<i>Cornus florida</i>	Flowering Dogwood	5' Height	Container	11' O.C.
5	<i>Carpinus caroliniana</i>	Musclewood	3' Height	Container	7' O.C.
5	<i>Ilex verticillata</i>	Winterberry	3' Height	Container	7' O.C.



## PERMANENT SEEDING FOR RIPARIAN ZONE (4,450 SQ FT / 0.10 AC)

Qty(lbs)*	Seed Mix
1.5	ERNMX-722 OR EQUIVALENT

\*Seeding shall be applied at a 15 lbs/AC seeding rate.

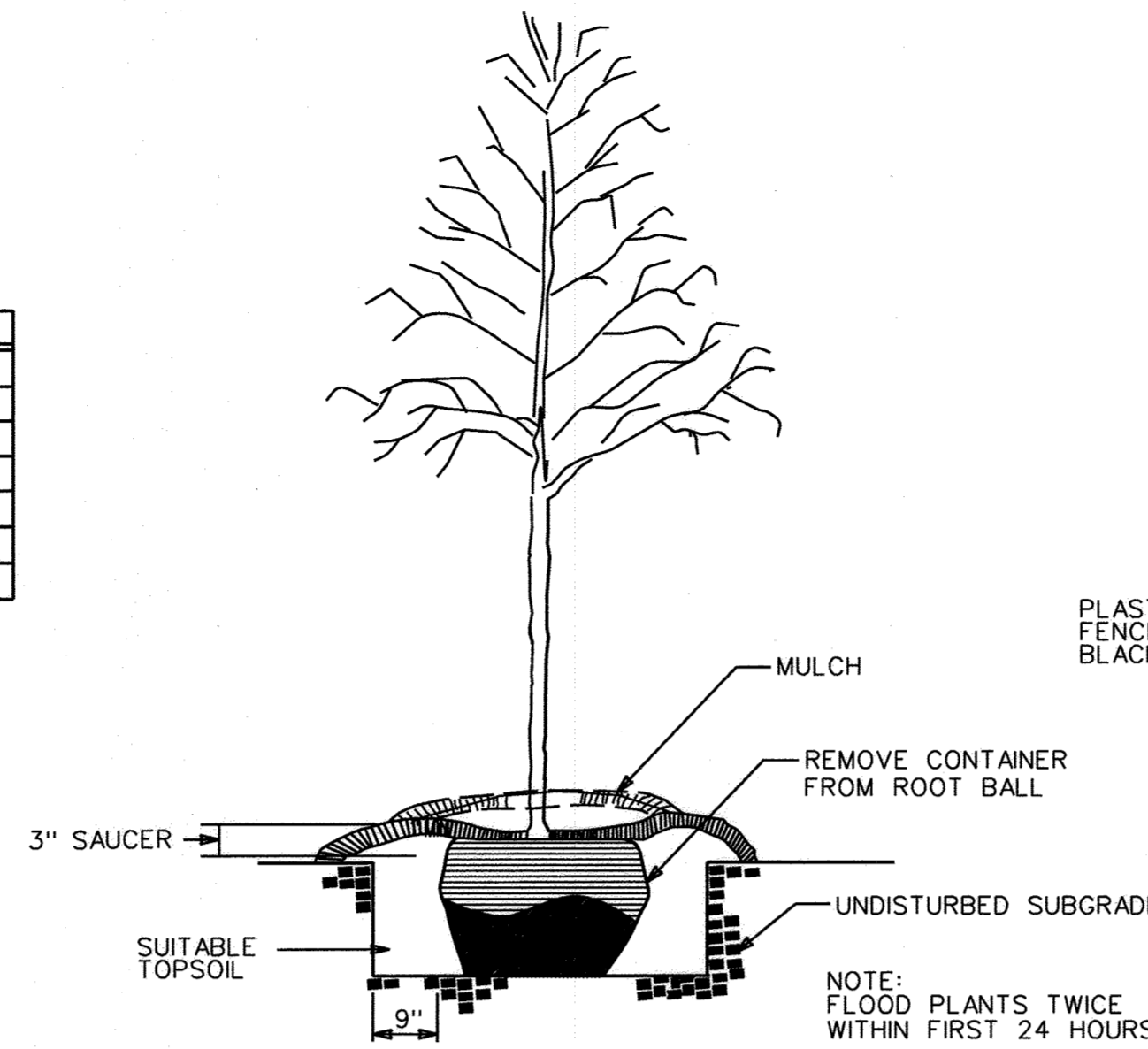


## TURF SOD ZONE (3,001 SQ FT / 0.07 AC)

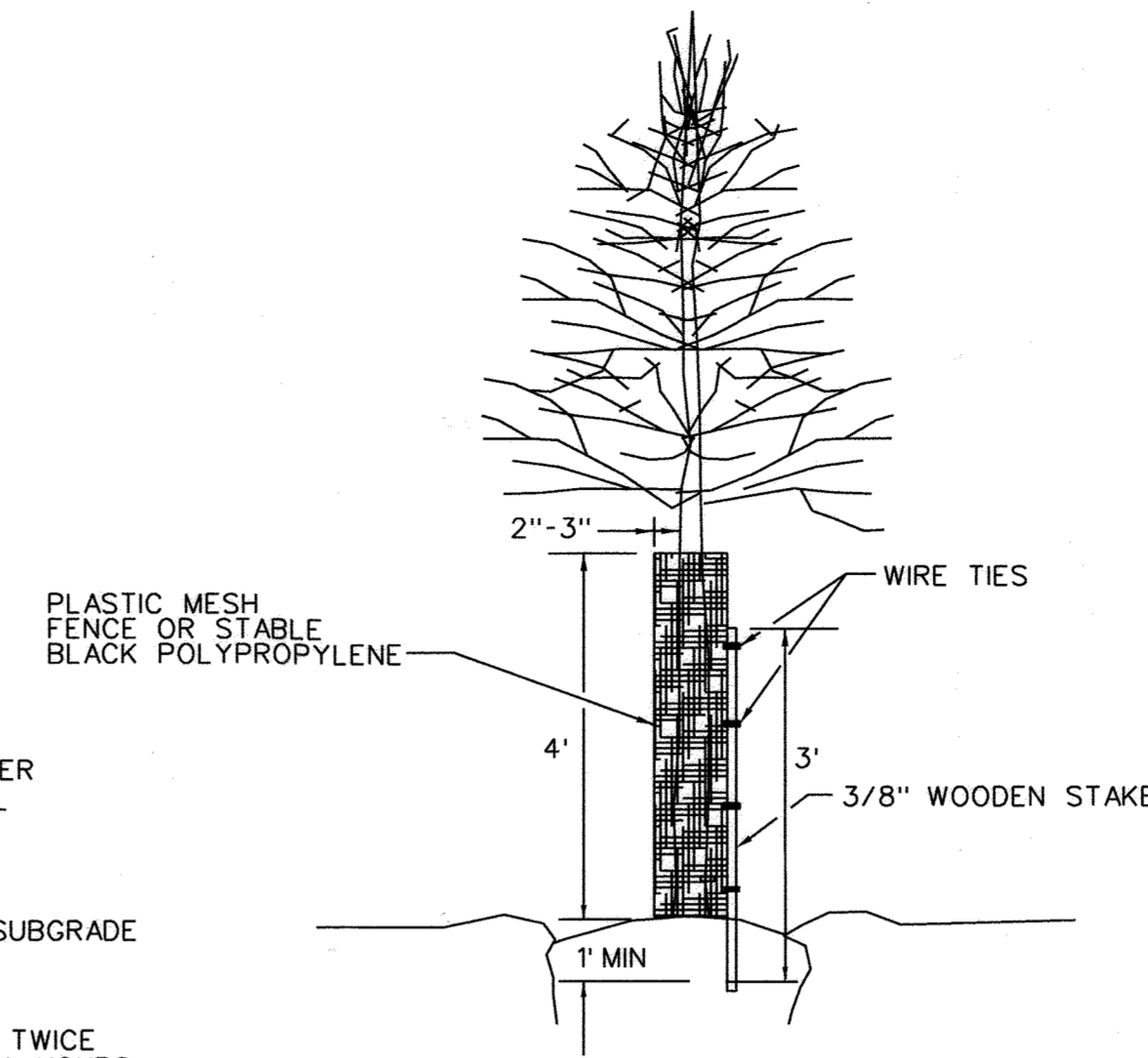
Qty( SF)	Seed Mix
3001	TALL FESCUE

### + NOTES:

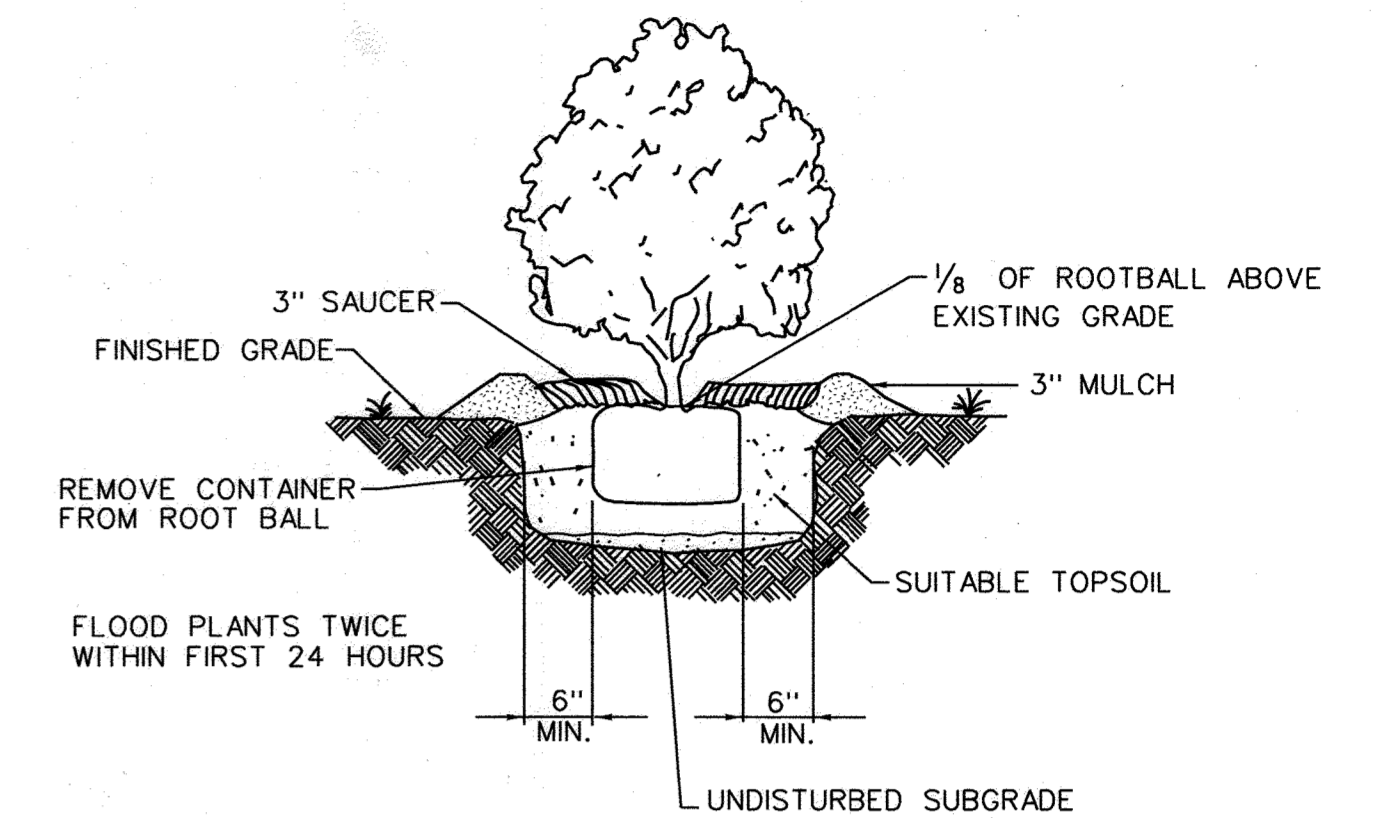
- 4 INCHES OF TOPSOIL SHALL BE PLACED THROUGHOUT THE SITE EXCEPT IN EXISTING WETLANDS TO INCREASE SOIL FERTILITY.
- ALL PLANT MATERIAL EXCEPT TEMPORARY SEEDING SHOULD BE INSTALLED AFTER CONSTRUCTION DURING THE DORMANT PERIOD (BEGINNING MID-AUGUST).



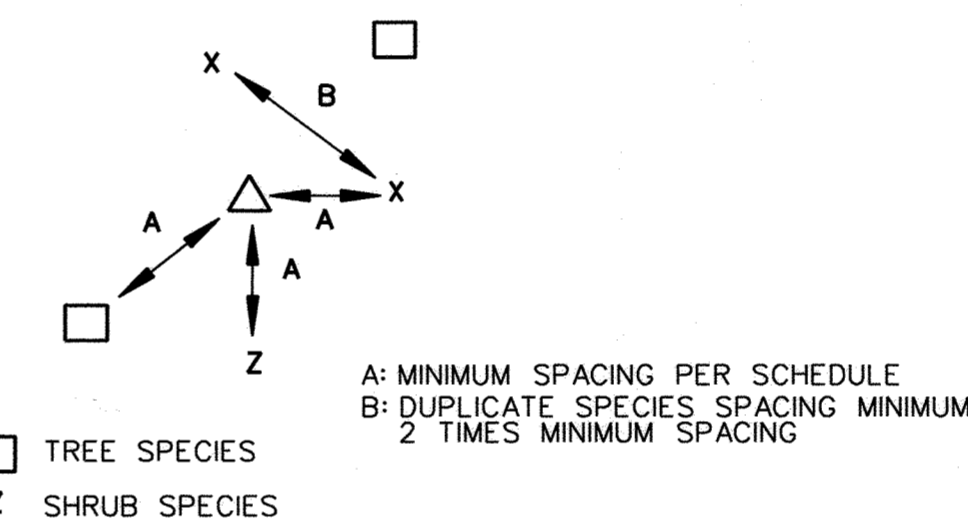
**TREE PLANTING DETAIL**  
NOT TO SCALE



**TREE SHELTER DETAIL**  
NOT TO SCALE



**SHRUB PLANTING DETAIL**  
NOT TO SCALE



**TREE AND SHRUB RANDOM SPACING**  
NOT TO SCALE

NOTE: TREES AND SHRUBS SHALL NOT BE PLANTED WITHIN 10 FT OF THE SANITARY LINES SHOWN ON THE PLANTING PLANS. ONLY SEEDING FOR THE INDICATED ZONE SHALL BE APPLIED.

PROFESSIONAL CERTIFICATION. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State Of Maryland, License No. 33079, Expiration Date 01-16-2023.

PLOTED: 01:52 PM on Tuesday, May 10, 2022. FILE: W:\2018\1380\366\1\Drawings\14-PLD-5000\_Land.dgn

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HOWARD COUNTY, MARYLAND

*[Signature]* 5/23/2022  
DIRECTOR OF PUBLIC WORKS DATE

*[Signature]* 5-17-22  
CHIEF, BUREAU OF ENGINEERING DATE

*[Signature]* 5/20/22  
CHIEF, UTILITY DESIGN DIVISION DATE

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STATE OF MARYLAND  
PROFESSIONAL ENGINEER  
No. 33079  
EXPIRES 01-16-2023

DES: SC					
DRN: CD, JS					
CHK: SL					
DATE: MAY 2022	BY	NO.	REVISION	DATE	

**ADDENDUM**

**LANDSCAPE DETAILS**

600' SCALE MAP NO. 36 BLOCK NO. 02

**GALES LANE  
SEWER AND STREAM STABILIZATION**

CAPITAL PROJECT S6601  
CONTRACT No. C-340 W&S

ELECTION DISTRICT NO. 6 HOWARD COUNTY, MARYLAND

DRAWING NO.	LD-01
SCALE	AS SHOWN
SHEET	
5th OF 14	