

UPPER FARNANDIS BRANCH STREAM RESTORATION

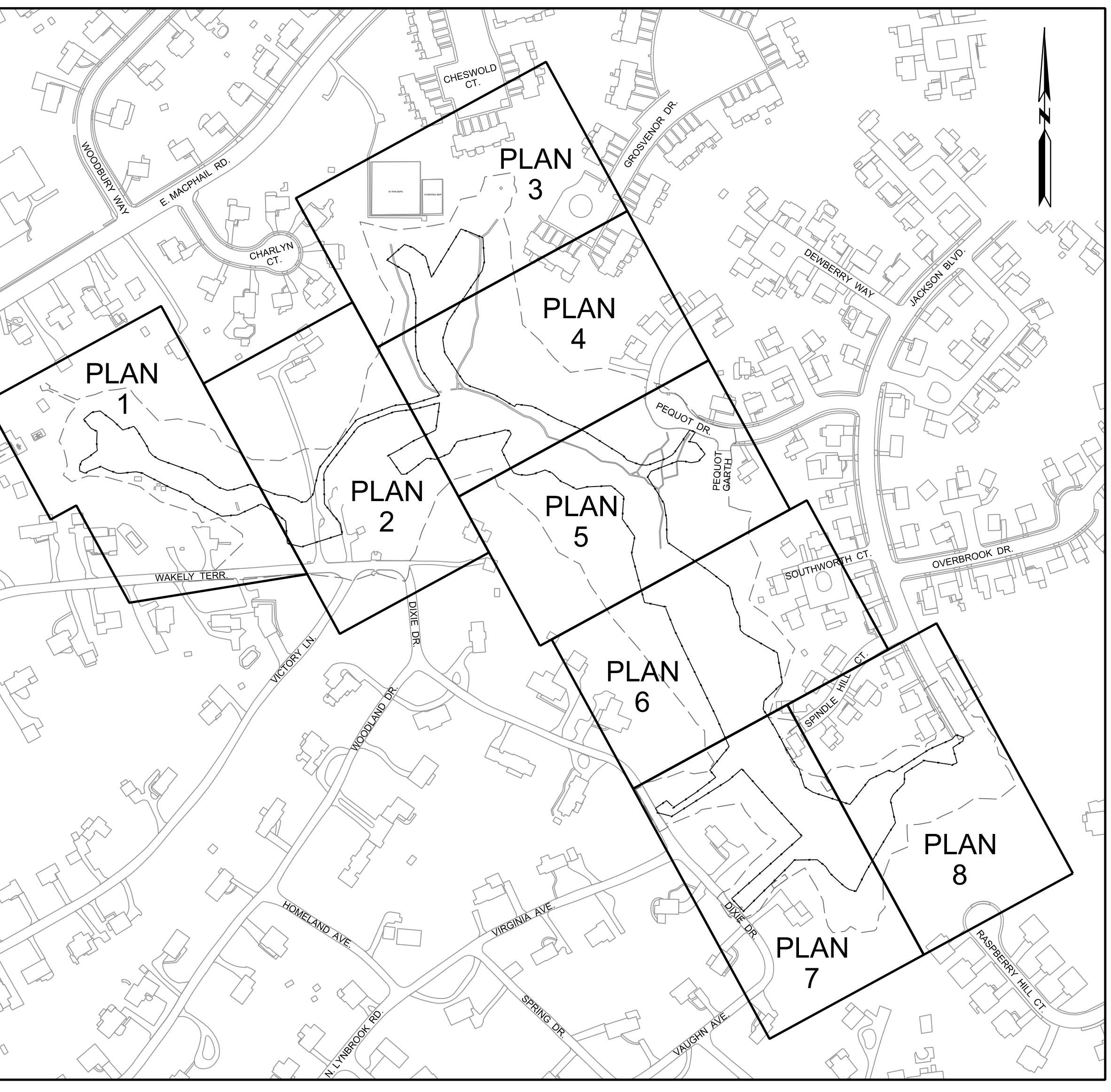
HARFORD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
WATERSHED PROTECTION AND RESTORATION

SHEET INDEX

DWG. NO.	SHEET NO.	SHEET TITLE
TI-01	1	TITLE SHEET
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GENERAL NOTES

1. THE EXISTING TOPOGRAPHY WITH ONE FOOT CONTOUR INTERVALS WAS PREPARED BY KCI TECHNOLOGIES, INC IN SEPTEMBER 2023 AND IS BASED ON NAD 83/91 & NAVD 88 DATUM.
2. PROPERTY BOUNDARY LINES ARE BASED ON PLATS AND DEED OF RECORD AND DO NOT REPRESENT A FIELD-RUN BOUNDARY SURVEY.
3. WETLANDS AND WATERWAYS WERE FIELD DELINEATED DURING MAY 31 THROUH JUNE 2, 2023 BY KCI TECHNOLOGIES, INC.
4. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH HARFORD COUNTY DEPARTMENT OF PUBLIC WORKS STANDARD DETAILS, AS CURRENTLY ACCEPTED OR AS OTHERWISE NOTED.
5. NECESSARY PRECAUTIONS SHALL BE TAKEN BY THE CONTRACTOR TO PROTECT EXISTING STRUCTURE OR PROPERTY, AND ANY DAMAGE TO THEM DUE TO NEGLIGENCE SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
6. THE EXISTING UTILITIES AND OBSTRUCTIONS SHOWN ARE FROM THE BEST AVAILABLE RECORDS AND SHALL BE VERIFIED BY THE CONTRACTOR TO HIS/HER OWN SATISFACTION BEFORE STARTING CONSTRUCTION. NEITHER THE OWNER NOR KCI TECHNOLOGIES, INC. WARRANT OR GUARANTEE THE COMPLETENESS OR CORRECTNESS OF THE INFORMATION GIVEN.
7. IT SHALL BE DISTINCTLY UNDERSTOOD THAT FAILURE TO SPECIFICALLY MENTION ANY WORK, WHICH WOULD NORMALLY BE REQUIRED TO COMPLETE THE PROJECT, SHALL NOT RELIEVE THE CONTRACTOR OF HIS/HER RESPONSIBILITY TO PERFORM SUCH WORK.
8. THE CONTRACTOR SHALL NOTIFY BGE, (410) 234-5691, FIVE (5) WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE DRAWINGS.
9. THE CONTRACTOR SHALL NOTIFY VERIZON, (410) 224-9497, FIVE (5) WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE DRAWINGS.
10. THE CONTRACTOR SHALL NOTIFY THE HARFORD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, (410) 638-3122, FIVE (5) WORKING DAYS BEFORE STARTING WORK SHOWN ON THE DRAWINGS SO THAT A PRECONSTRUCTION MEETING CAN BE SCHEDULED.
11. THE CONTRACTOR SHALL NOTIFY MISS UTILITY @ 1-800-357-7777 FIVE (5) WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE DRAWINGS.
12. PIPE ELEVATIONS REFER TO INVERTS UNLESS OTHERWISE NOTED.
13. LOCATION OF FEATURES SHOWN ON THE SITE PLAN HAVE BEEN FIELD VERIFIED.
14. STRUCTURES MAY BE FIELD ADJUSTED AT THE DIRECTION OF THE ENGINEER OR STREAM SPECIALIST TO MINIMIZE DISTURBANCE AND MAXIMIZE FUNCTIONAL UPLIFT.
15. THE PROJECT IS IN THE BYNUM RUN WATERSHED.
16. THE MARYLAND SURFACE WATER USE DESIGNATION IS USE III (NATURAL TROUT WATERS). IN STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD OCTOBER 1 THROUGH APRIL 30, INCLUSIVE, DURING ANY YEAR.
17. THE RESTORATION PROJECT SHALL BE CONSTRUCTED UNDER THE SUPERVISION OF AN APPROVED QUALIFIED RESTORATION SPECIALIST.



SITE LOCATION

SCALE: 1" = 200'

CONTROL NOTE:
THE HORIZONTAL AND VERTICAL DATUM SHOWN HEREON ARE BASED
ON THE FOLLOWING HARFORD COUNTY SURVEY CONTROL SYSTEM:

HORIZONTAL: NAD 1983/1991
VERTICAL: NAVD 1988

MONUMENTS:
FALLSTON N 675,445.19 E 1,477,585.69 ELEV. 455.79
FALLSTON AZ MK. N 676,752.37 E 1,477,595.25 ELEV. 464.98

OWNER / DEVELOPER:

HARFORD COUNTY DEPARTMENT OF PUBLIC WORKS
212 S. BOND STREET, 1ST FLOOR
BEL AIR, MD 21014
CONTACT: LYNDSEY SNYDER
(410) 638-3217 - EXT 1394

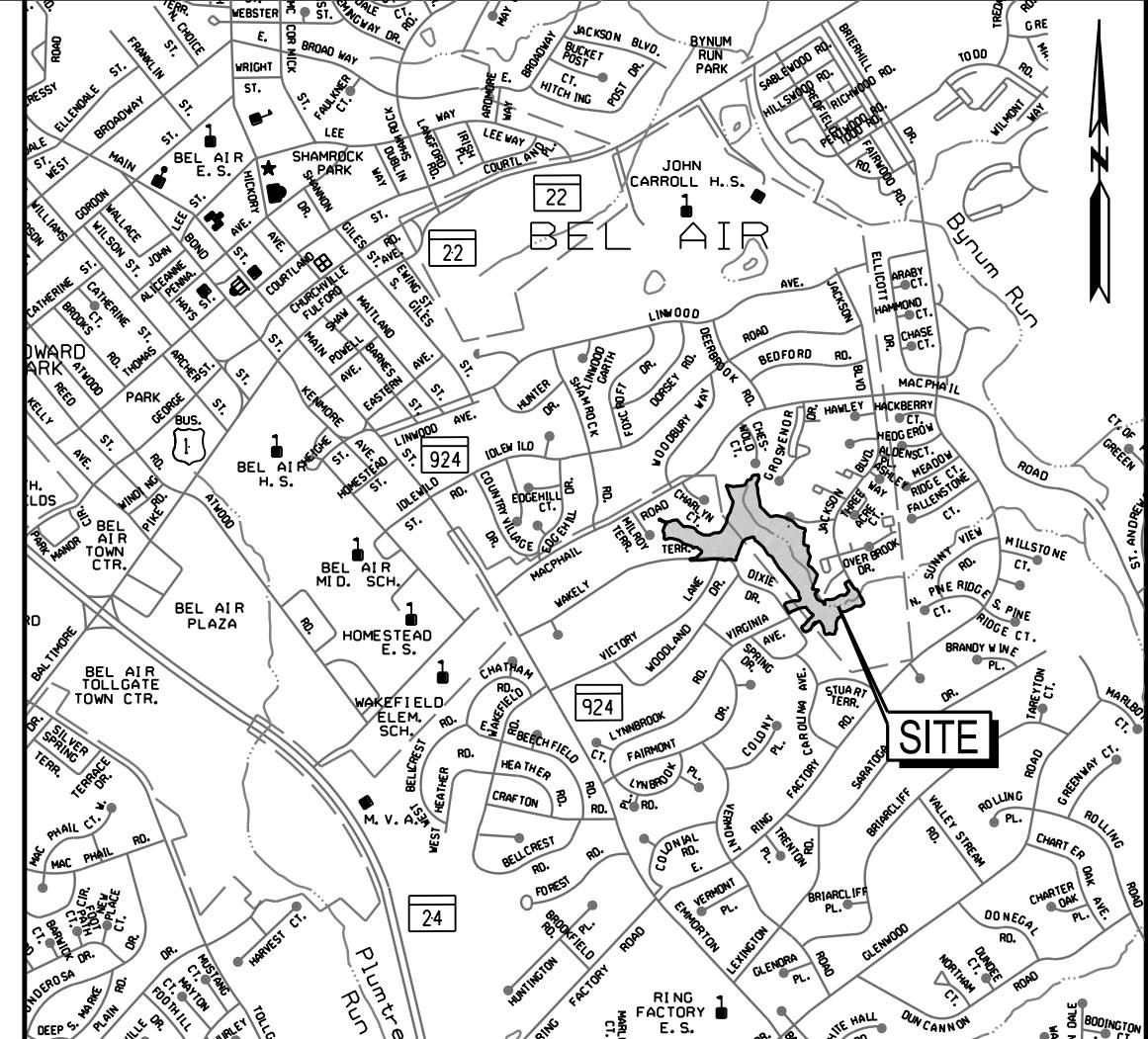
ENGINEER:

KCI TECHNOLOGIES, INC.
936 RIDGEBROOK ROAD
SPARKS, MD 21152
(410) 316-7800

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. [REDACTED]
Expiration Date [REDACTED]



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CONSTRUCTION



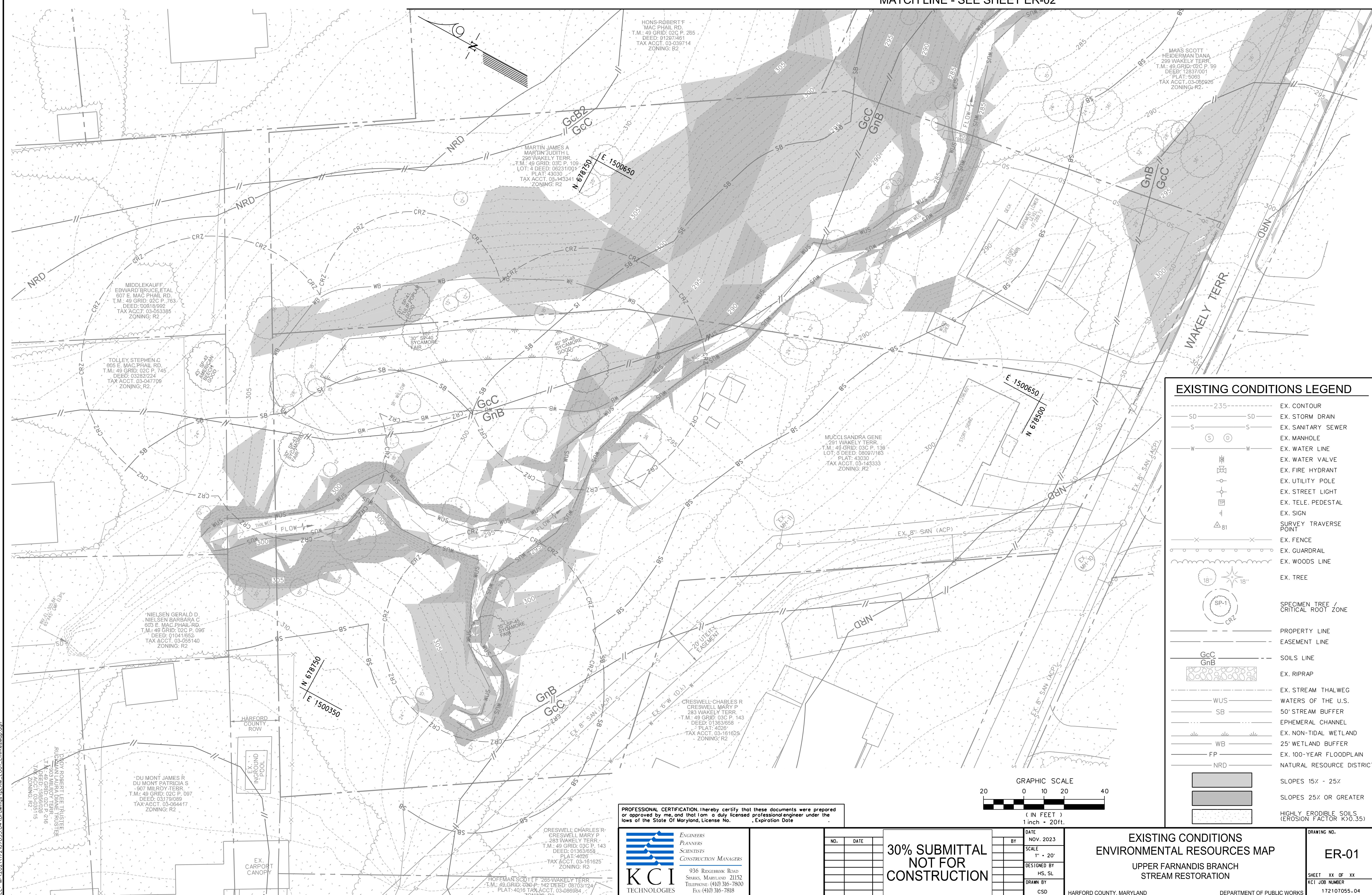
HARFORD COUNTY
ADC MAP: 17
GRID H-10, J-10
VICINITY MAP
SCALE: 1" = 2000'

EXISTING CONDITIONS LEGEND

-----235-----	EX. CONTOUR
SD SD	EX. STORM DRAIN
S S	EX. SANITARY SEWER
(S) (D)	EX. MANHOLE
W W	EX. WATER LINE
EX. WATER VALVE	EX. FIRE HYDRANT
EX. UTILITY POLE	EX. STREET LIGHT
EX. TELE. PEDESTAL	EX. SIGN
EX. SURVEY TRAVERSE POINT	EX. GUARDRAIL
81	EX. WOODS LINE
-----X-----X-----	EX. TREE
SP-1 CRZ	SPECIMEN TREE / CRITICAL ROOT ZONE
-----	PROPERTY LINE
-----	EASEMENT LINE
GcC GNB	SOILS LINE
EX. RIPRAP	EX. STREAM THALWEG
WUS	WATERS OF THE U.S.
SB	50' STREAM BUFFER
-----	EPHEMERAL CHANNEL
WB	EX. NON-TIDAL WETLAND
25' WETLAND BUFFER	25' WETLAND BUFFER
FP	EX. 100-YEAR FLOODPLAIN
NRD	NATURAL RESOURCE DISTRICT
SLOPES 15% - 25%	SLOPES 15% - 25%
SLOPES 25% OR GREATER	HIGHLY ERODIBLE SOILS (EROSION FACTOR K>0.35)

TITLE SHEET		DRAWING NO.
UPPER FARNANDIS BRANCH STREAM RESTORATION		TI-01
HARFORD COUNTY, MARYLAND		DEPARTMENT OF PUBLIC WORKS
FILE: M:\2024\11\20\2055.04\Drawings\SP-1\Title.dwg		172107055.04

MATCH LINE - SEE SHEET ER-02



PLOTTED: "01:44 PM on Friday, November 10, 2023"
FILE: M:\2021\172107055\DATA\BPM\5001\EnvBPM.dan

MATCH LINE - SEE SHEET ER-03

MATCH LINE - SEE SHEET ER-04

MATCH LINE - SEE SHEET ER-05

EXISTING CONDITIONS LEGEND

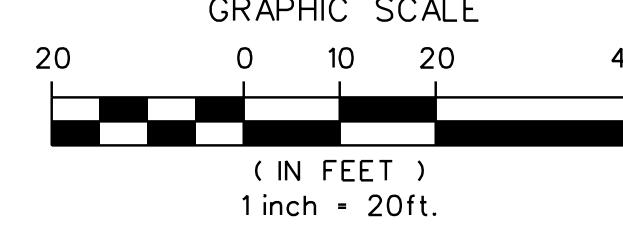
- EX. CONTOUR
- SD EX. STORM DRAIN
- S EX. SANITARY SEWER
- (S) EX. MANHOLE
- W EX. WATER LINE
- W EX. WATER VALVE
- EX. FIRE HYDRANT
- EX. UTILITY POLE
- EX. STREET LIGHT
- EX. TELE. PEDESTAL
- EX. SIGN
- SURVEY TRAVERSE POINT
- EX. FENCE
- EX. GUARDRAIL
- EX. WOODS LINE
- EX. TREE
- SPECIMEN TREE / CRITICAL ROOT ZONE
- PROPERTY LINE
- EASEMENT LINE
- GcC SOILS LINE
- GnB EX. RIPRAP
- WUS EX. STREAM THALWEG
- SB WATERS OF THE U.S.
- 50' STREAM BUFFER
- EPHEMERAL CHANNEL
- EX. NON-TIDAL WETLAND
- 25' WETLAND BUFFER
- EX. 100-YEAR FLOODPLAIN
- NRD NATURAL RESOURCE DISTRICT
- SLOPES 15% - 25%
- SLOPES 25% OR GREATER
- HIGHLY ERODIBLE SOILS (EROSION FACTOR K>0.35)

MATCH LINE - SEE SHEET ER-01

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EXISTING CONDITIONS
ENVIRONMENTAL RESOURCES MAP
UPPER FARNANDIS BRANCH
STREAM RESTORATION
HARFORD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS

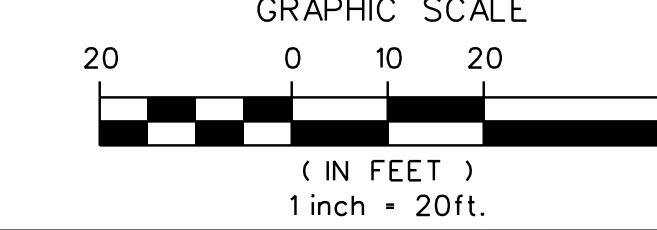
DRAWING NO.
ER-02
SHEET **XX** OF **XX**
KCI JOB NUMBER
172107055.04



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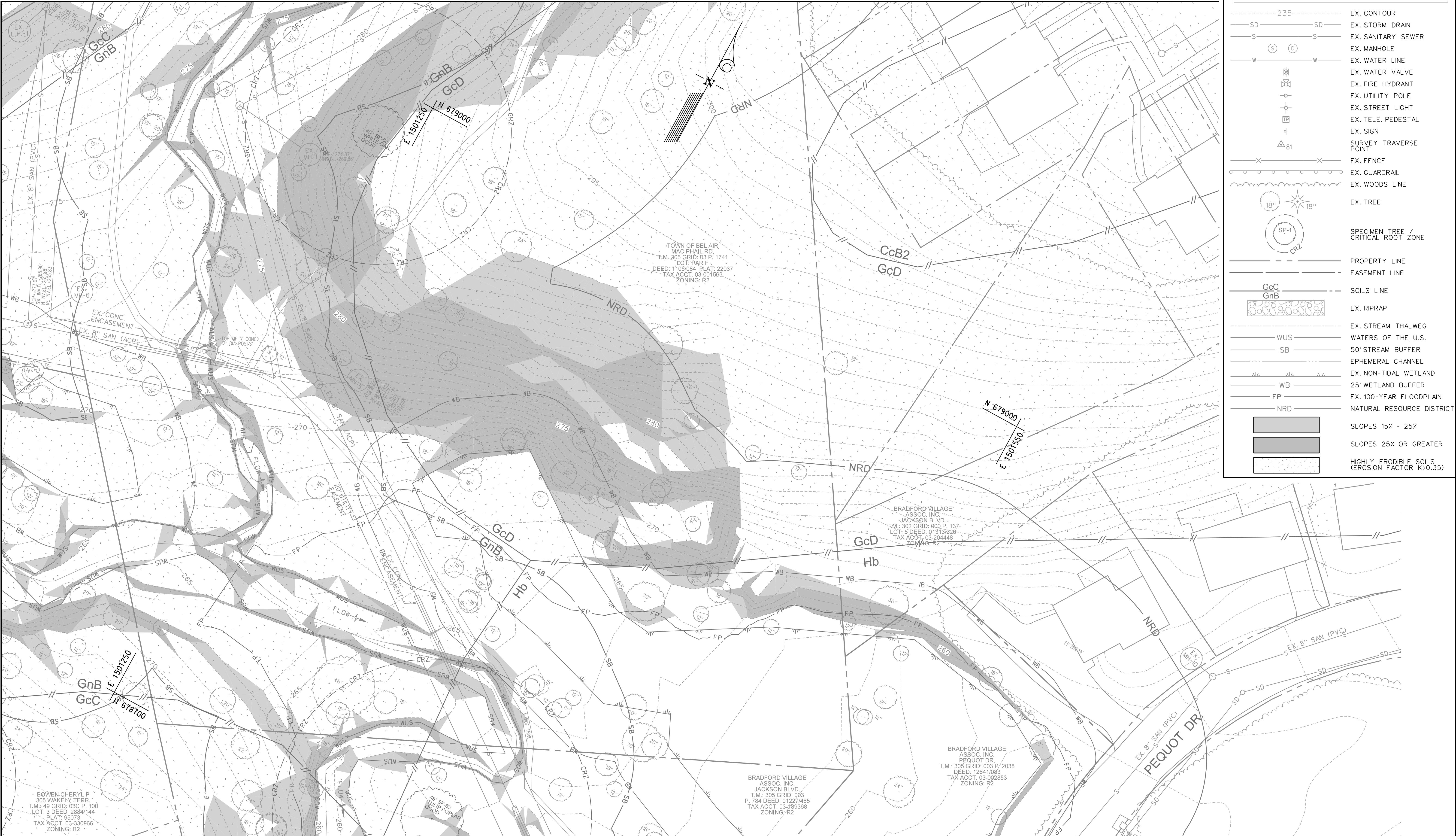


NO.	DATE	DATE	DRAWING NO.
BY	NOV. 2023	NOV. 2023	ER-03
SCALE	1" • 20'	1" • 20'	
DESIGNED BY	HS, SL	HS, SL	
DRAWN BY	CSD	CSD	
			SHEET XX OF XX
			KCI JOB NUMBER
			172107055.04

EXISTING CONDITIONS ENVIRONMENTAL RESOURCES MAP
UPPER FARNANDIS BRANCH STREAM RESTORATION
HARFORD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS

MATCH LINE - SEE SHEET ER-03

MATCH LINE - SEE SHEET ER-02



MATCH LINE - SEE SHEET ER-05

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ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS

I
ES 936 RIDGEBROOK ROAD
SPARKS, MARYLAND 21152
TELEPHONE: (410) 316-7811
FAX: (410) 316-7818

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EXISTING CONDITIONS ENVIRONMENTAL RESOURCES MAP

UPPER FARNANDIS BRANCH STREAM RESTORATION

RAWING NO.
ER-04
HEET XX OF XX
C1 JOB NUMBER
172107055.04

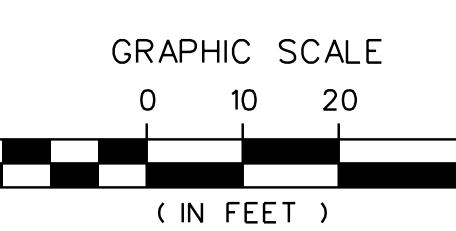
MATCH LINE - SEE SHEET ER-04

MATCH LINE - SEE SHEET ER-02

EXISTING CONDITIONS LEGEND

- 235 EX. CONTOUR
- SD SD EX. STORM DRAIN
- S S EX. SANITARY SEWER
- W W EX. MANHOLE
- EX. WATER LINE
- EX. WATER VALVE
- EX. FIRE HYDRANT
- EX. UTILITY POLE
- EX. STREET LIGHT
- EX. TELE. PEDESTAL
- EX. SIGN
- SURVEY TRAVERSE POINT
- EX. FENCE
- EX. GUARDRAIL
- EX. WOODS LINE
- EX. TREE
- SPECIMEN TREE / CRITICAL ROOT ZONE
- PROPERTY LINE
- EASEMENT LINE
- SOILS LINE
- EX. RIPRAP
- EX. STREAM THALWEG
- WATERS OF THE U.S.
- 50' STREAM BUFFER
- EPHEMERAL CHANNEL
- EX. NON-TIDAL WETLAND
- 25' WETLAND BUFFER
- EX. 100-YEAR FLOODPLAIN
- NRD
- SLOPES 15% - 25%
- SLOPES 25% OR GREATER
- HIGHLY ERODIBLE SOILS (EROSION FACTOR K>0.35)

MATCH LINE - SEE SHEET ER-06



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 KCI TECHNOLOGIES	
<small>ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS</small>	
<small>936 RIDGEBOOK ROAD SPARKS, MARYLAND 21152 TELEPHONE: (410) 316-7800 FAX: (410) 316-7818</small>	

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NO.	DATE
BY	NOV. 2023
SCALE	1" = 20'
DESIGNED BY	HS, SL
DRAWN BY	CSD

EXISTING CONDITIONS
ENVIRONMENTAL RESOURCES MAP
UPPER FARNANDIS BRANCH
STREAM RESTORATION

DRAWING NO.
ER-05
SHEET OF
KCI JOB NUMBER
172107055.04

235	EX. CONTOUR
SD	EX. STORM DRAIN
S	EX. SANITARY SEWER
(S) (D)	EX. MANHOLE
W	EX. WATER LINE
	EX. WATER VALVE
	EX. FIRE HYDRANT
	EX. UTILITY POLE
	EX. STREET LIGHT
	EX. TELE. PEDESTAL
	EX. SIGN
	SURVEY TRAVERSE POINT
	EX. FENCE
	EX. GUARDRAIL
	EX. WOODS LINE
	EX. TREE
	SPECIMEN TREE / CRITICAL ROOT ZONE
—	PROPERTY LINE
—	EASEMENT LINE
	SOILS LINE
	EX. RIPRAP
—	EX. STREAM THALWEG
—	WATERS OF THE U.S.
—	50' STREAM BUFFER
—	EPHEMERAL CHANNEL
	EX. NON-TIDAL WETLAND
—	25' WETLAND BUFFER
—	EX. 100-YEAR FLOODPL
—	NATURAL RESOURCE DIS
	SLOPES 15% - 25%
	SLOPES 25% OR GREAT
	HIGHLY ERODIBLE SOILS (EROSION FACTOR K>0)

MATCH LINE - SEE SHEET ER-05



MATCH LINE - SEE SHEET ER-07

MATCH LINE - SEE SHEET ER-08

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GRAPHIC SCALE

(IN FEET)

1 inch = 20ft.

EXISTING CONDITIONS ENVIRONMENTAL RESOURCES MAP

UPPER FARNANDIS BRANCH STREAM RESTORATION

RAWING NO.
ER-06
HEET XX OF XX
CI JOB NUMBER
172107055 04

MATCH LINE - SEE SHEET ER-08

MATCH LINE - SEE SHEET ER-06

EXISTING CONDITIONS LEGEND

- 235 EX. CONTOUR
- SD EX. STORM DRAIN
- S EX. SANITARY SEWER
- (S) EX. MANHOLE
- W EX. WATER LINE
- FP EX. FIRE HYDRANT
- EX. UTILITY POLE
- EX. STREET LIGHT
- EX. TELE. PEDESTAL
- EX. SIGN
- SURVEY TRAVERSE POINT
- EX. FENCE
- EX. GUARDRAIL
- EX. WOODS LINE
- EX. TREE
- SPECIMEN TREE / CRITICAL ROOT ZONE
- PROPERTY LINE
- EASEMENT LINE
- SOILS LINE
- GcC Gnb EX. RIPRAP
- EX. STREAM THALWEG
- WUS WATERS OF THE U.S.
- SB 50' STREAM BUFFER
- EPHEMERAL CHANNEL
- EX. NON-TIDAL WETLAND
- WB 25' WETLAND BUFFER
- FP EX. 100-YEAR FLOODPLAIN
- NRD NATURAL RESOURCE DISTR
- SLOPES 15% - 25%
- SLOPES 25% OR GREATER
- HIGHLY ERODIBLE SOILS (EROSION FACTOR K>0.35)

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EDGEBROOK ROAD
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(410) 316-7818



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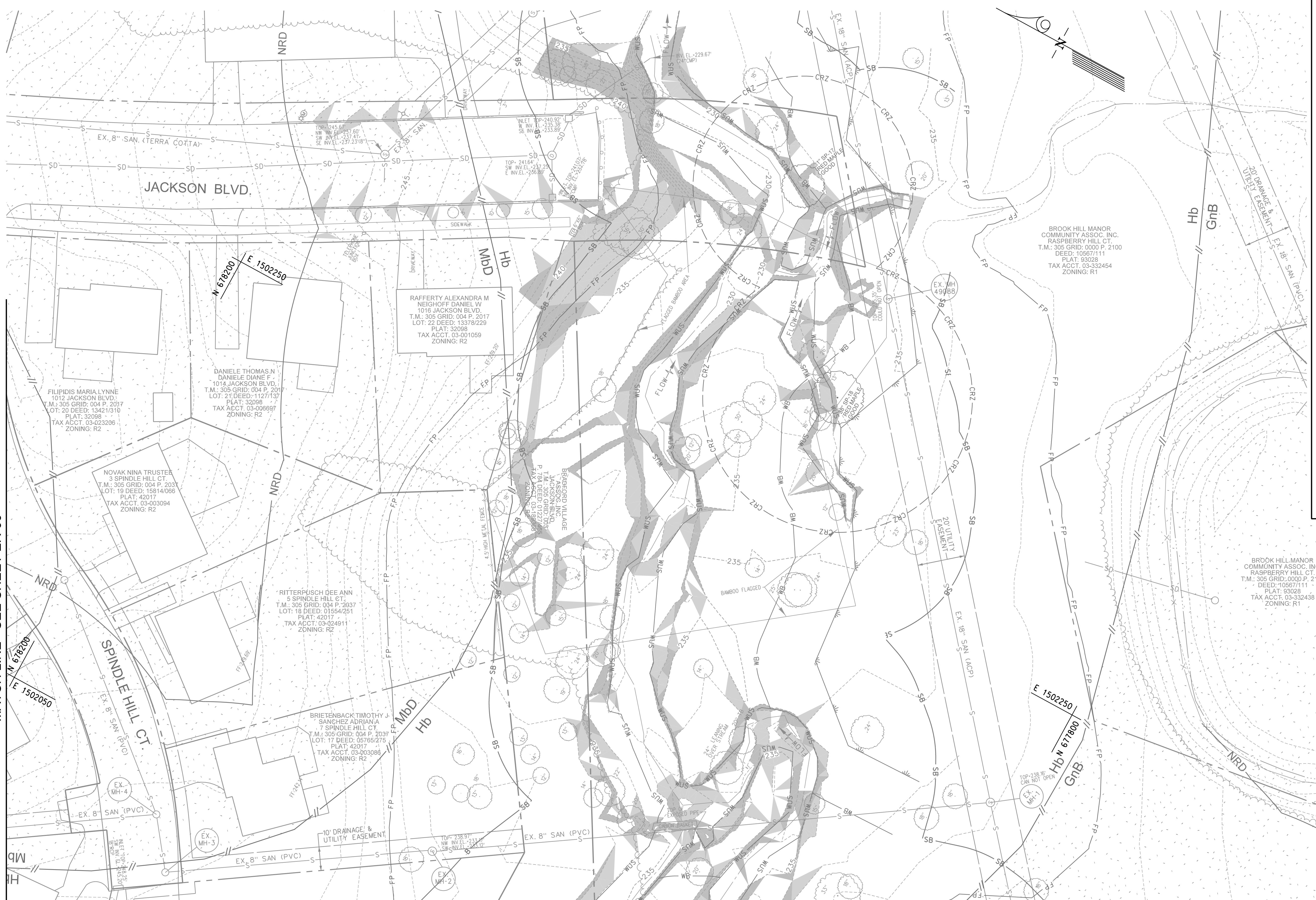
		DATE
	BY	NOV. 2023
	SCALE	
		1" = 20'
	DESIGNED BY	
		HS, SL
	DRAWN BY	
		CSD

EXISTING CONDITIONS ENVIRONMENTAL RESOURCES MAP

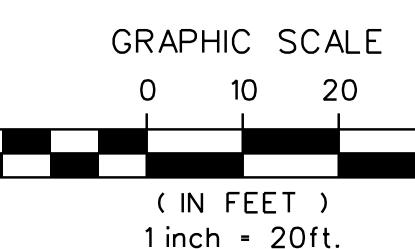
UPPER FARNANDIS BRANCH STREAM RESTORATION

RAWING NO.
ER-07
HEET XX OF XX
CI JOB NUMBER
172107055.04

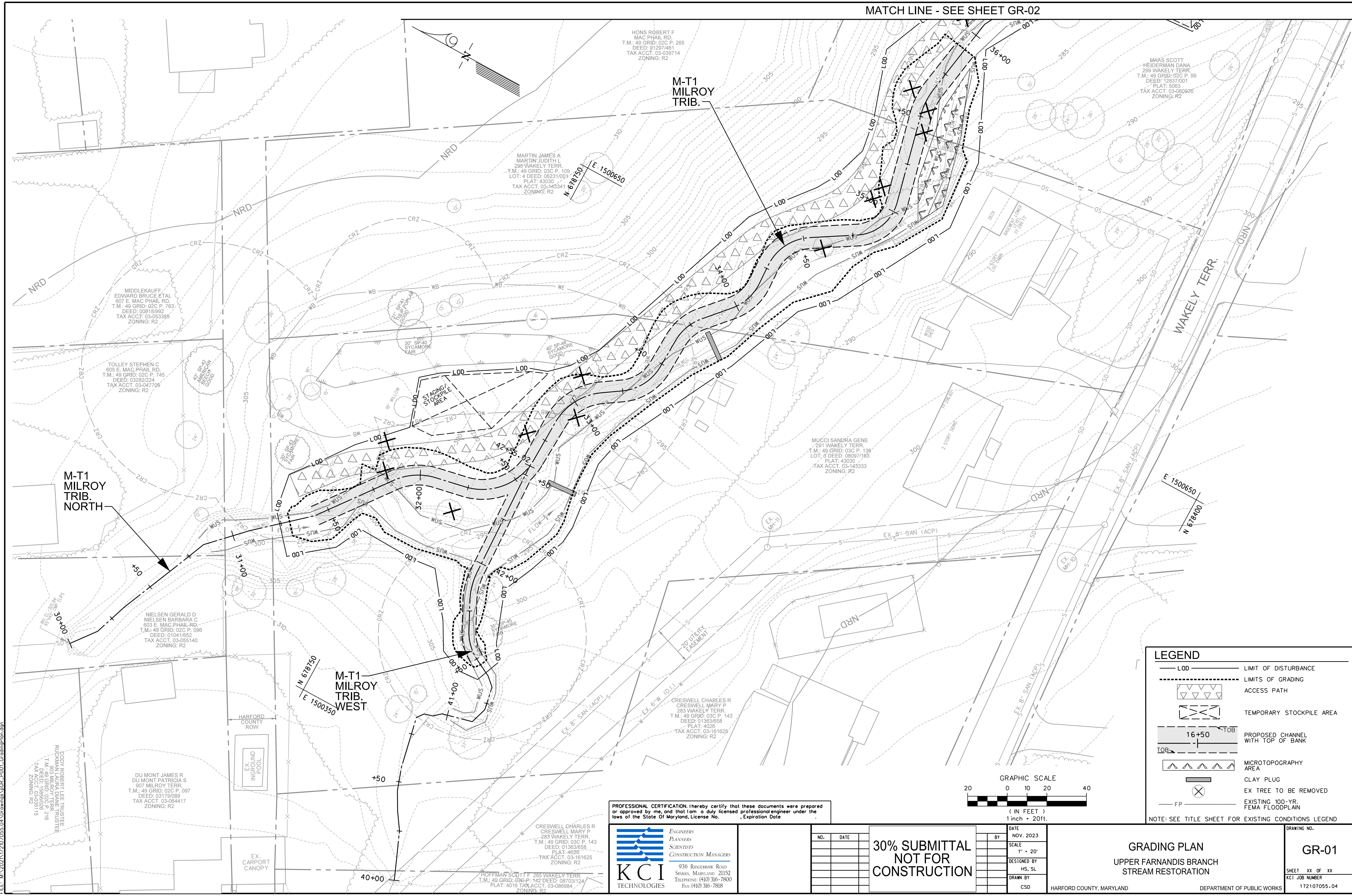
MATCH LINE - SEE SHEET ER-06



MATCH LINE - SEE SHEET ER-07



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 ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS KCI <small>TECHNOLOGIES</small>	
NO.	DATE
1	11/20/2023
2	11/20/2023
3	11/20/2023
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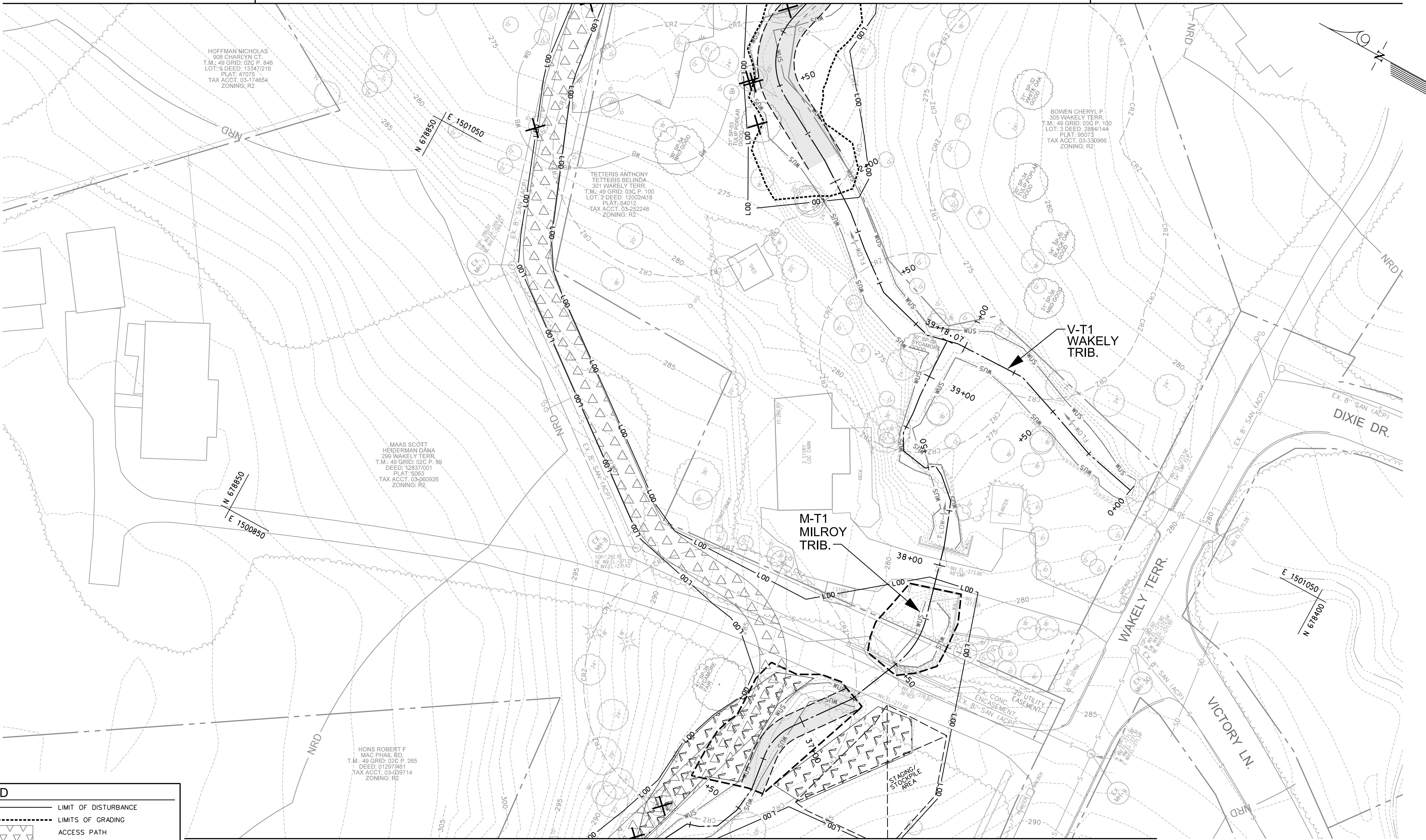


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MATCH LINE - SEE SHEET GR-03

MATCH LINE - SEE SHEET GR-04

MATCH LINE - SEE SHEET GR-05



MATCH LINE - SEE SHEET GR-01

FILE: M:\2024\11\17\2025.04\Drawings\GR_P002_GradingPlan.dwg
PLOTTED: 01:56 PM on Friday, November 10, 2023

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ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS 936 RIDGEBROOK ROAD SPARKS, MARYLAND 21152 TELEPHONE: (410) 316-7800 FAX: (410) 316-7818	<table border="1"> <tr> <td>NO.</td> <td>DATE</td> </tr> <tr> <td> </td> <td> </td> </tr> </table>	NO.	DATE									<table border="1"> <tr> <td>DATE NOV. 2023</td> <td>BY</td> </tr> <tr> <td>SCALE 1" • 20'</td> <td>DESIGNED BY HS, SL</td> </tr> <tr> <td>DRAWN BY CSD</td> <td>DRAWN BY CSD</td> </tr> </table>	DATE NOV. 2023	BY	SCALE 1" • 20'	DESIGNED BY HS, SL	DRAWN BY CSD	DRAWN BY CSD
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DRAWN BY CSD	DRAWN BY CSD																	
30% SUBMITTAL NOT FOR CONSTRUCTION																		

NOTE: SEE TITLE SHEET FOR EXISTING CONDITIONS LEGEND

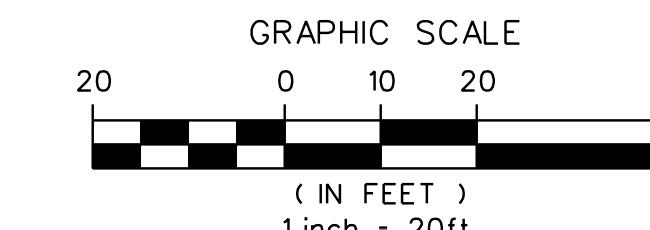
GRADING PLAN
UPPER FARNANDIS BRANCH
STREAM RESTORATION
DRAWING NO.
GR-02
SHEET *XX* OF *XX*
KCI JOB NUMBER
172107055-04

DEPARTMENT OF PUBLIC WORKS



MATCH LINE - SEE SHEET GR-02

MATCH LINE - SEE SHEET GR-04



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DATE	NOV. 2023
SCALE	1" • 20'
DESIGNED BY	HS, SL
DRAWN BY	CSD

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CONSTRUCTION**

GRADING PLAN
UPPER FARNANDIS BRANCH
STREAM RESTORATION

DRAWING NO. **GR-03**

SHEET **XX** OF **XX**
KCI JOB NUMBER **172107055.04**

DEPARTMENT OF PUBLIC WORKS

MATCH LINE - SEE SHEET GR-03

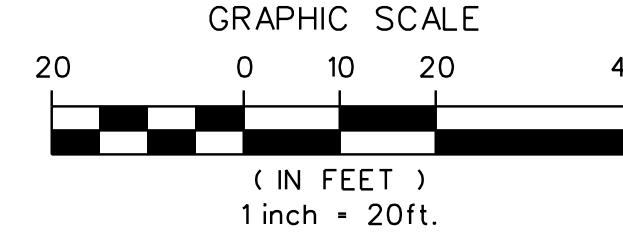


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SCIENTISTS
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KCI
TECHNOLOGIES
936 RIDGEBROOK ROAD
SPARKS, MARYLAND 21252
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FAX: (410) 316-7818

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GRAPHIC SCALE
(IN FEET)
1 inch = 20ft.

NO.	DATE	BY	DATE
			NOV. 2023
		SCALE	1" = 20'
		DESIGNED BY	HS, SL
		DRAWN BY	CSD

HARFORD COUNTY, MARYLAND

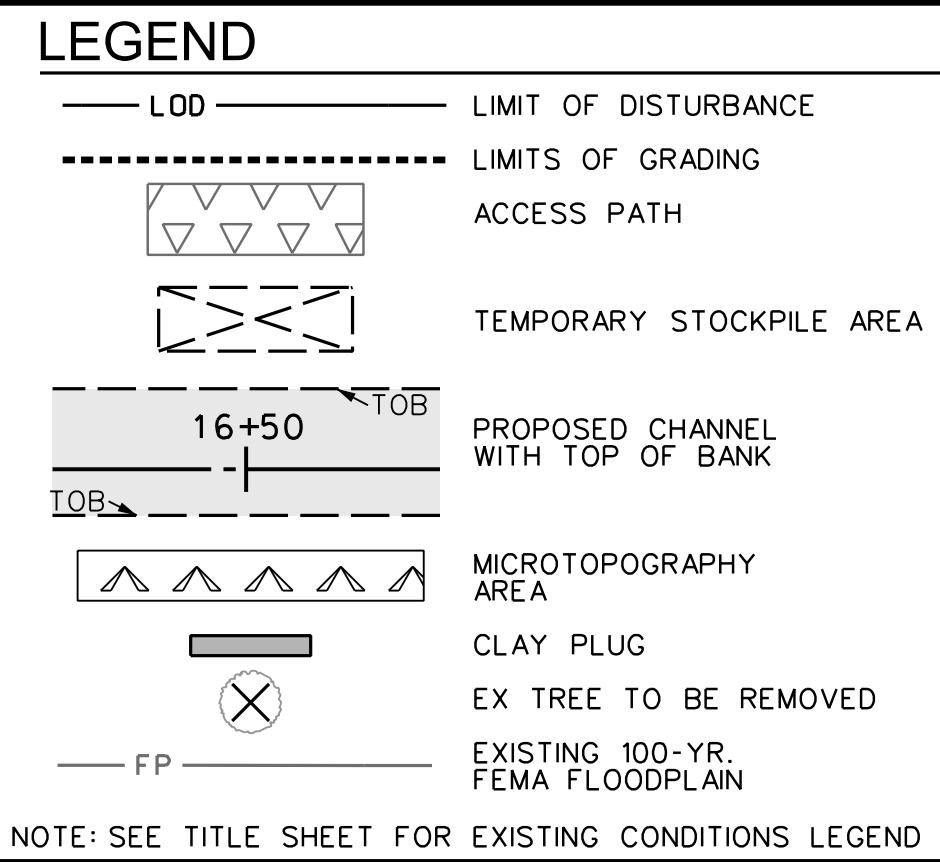
LEGEND

LOD	LIMIT OF DISTURBANCE
-----	LIMITS OF GRADING
▽▽▽▽	ACCESS PATH
□□□□	TEMPORARY STOCKPILE AREA
16+50	PROPOSED CHANNEL WITH TOP OF BANK
TOB	TOP OF BANK
△△△△	MICROTOPOGRAPHY AREA
CLAY PLUG	CLAY PLUG
EX TREE TO BE REMOVED	EX TREE TO BE REMOVED
FP	EXISTING 100-YR. FEMA FLOODPLAIN

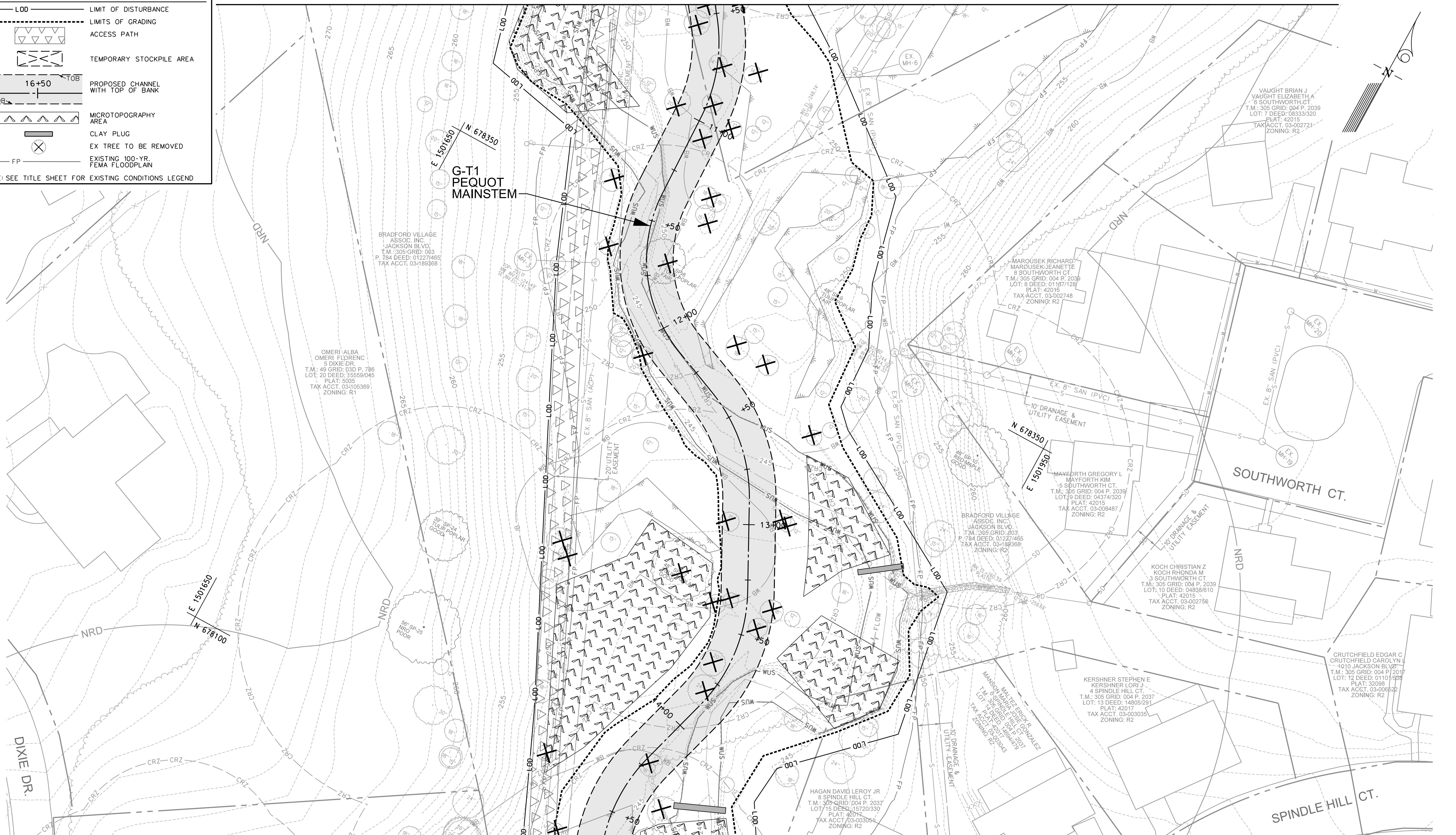
NOTE: SEE TITLE SHEET FOR EXISTING CONDITIONS LEGEND

GRADING PLAN		DRAWING NO.
UPPER FARNANDIS BRANCH STREAM RESTORATION		GR-04

SHEET **XX** OF **XX**
KCI JOB NUMBER
172107055.04



MATCH LINE - SEE SHEET GR-05



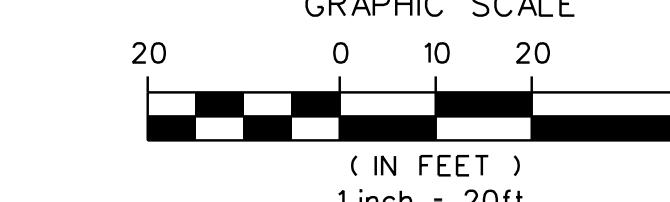
MATCH LINE - SEE SHEET GR-07

MATCH LINE - SEE SHEET GR-08

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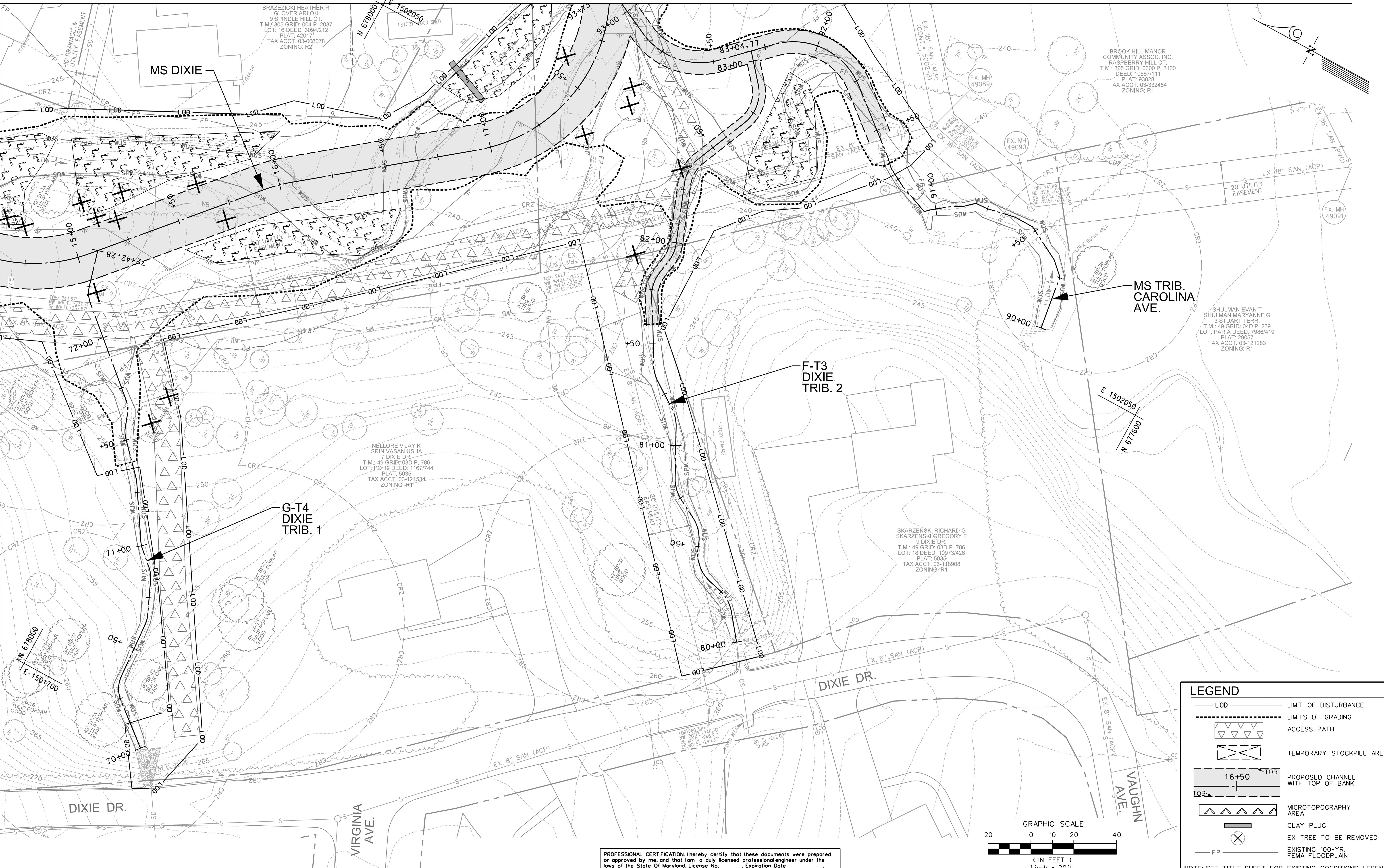
NO.	DATE	BY	DATE
		SCALE	NOV. 2023
		DESIGNED BY	1" • 20'
		DRAWN BY	HS, SL
		CSD	

GRADING PLAN
UPPER FARNANDIS BRANCH
STREAM RESTORATION

DRAWING NO.
GR-06
SHEET XX OF XX
KCI JOB NUMBER
172107055.04

MATCH LINE - SEE SHEET GR-08

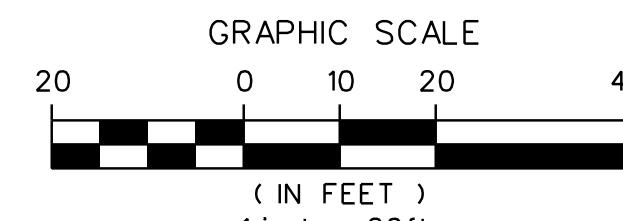
MATCH LINE - SEE SHEET GR-06



MATCH LINE - SEE SHEET GR-06



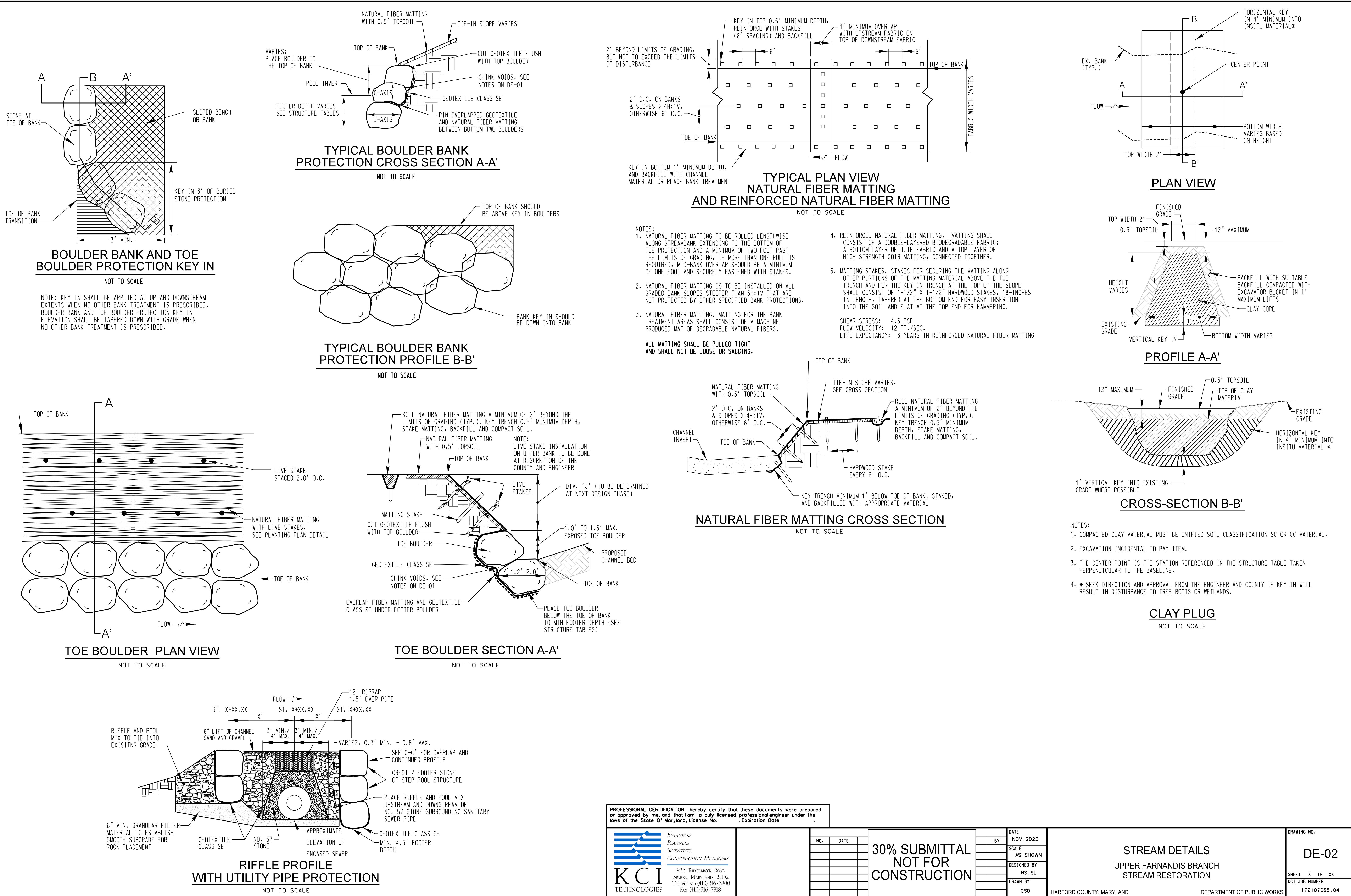
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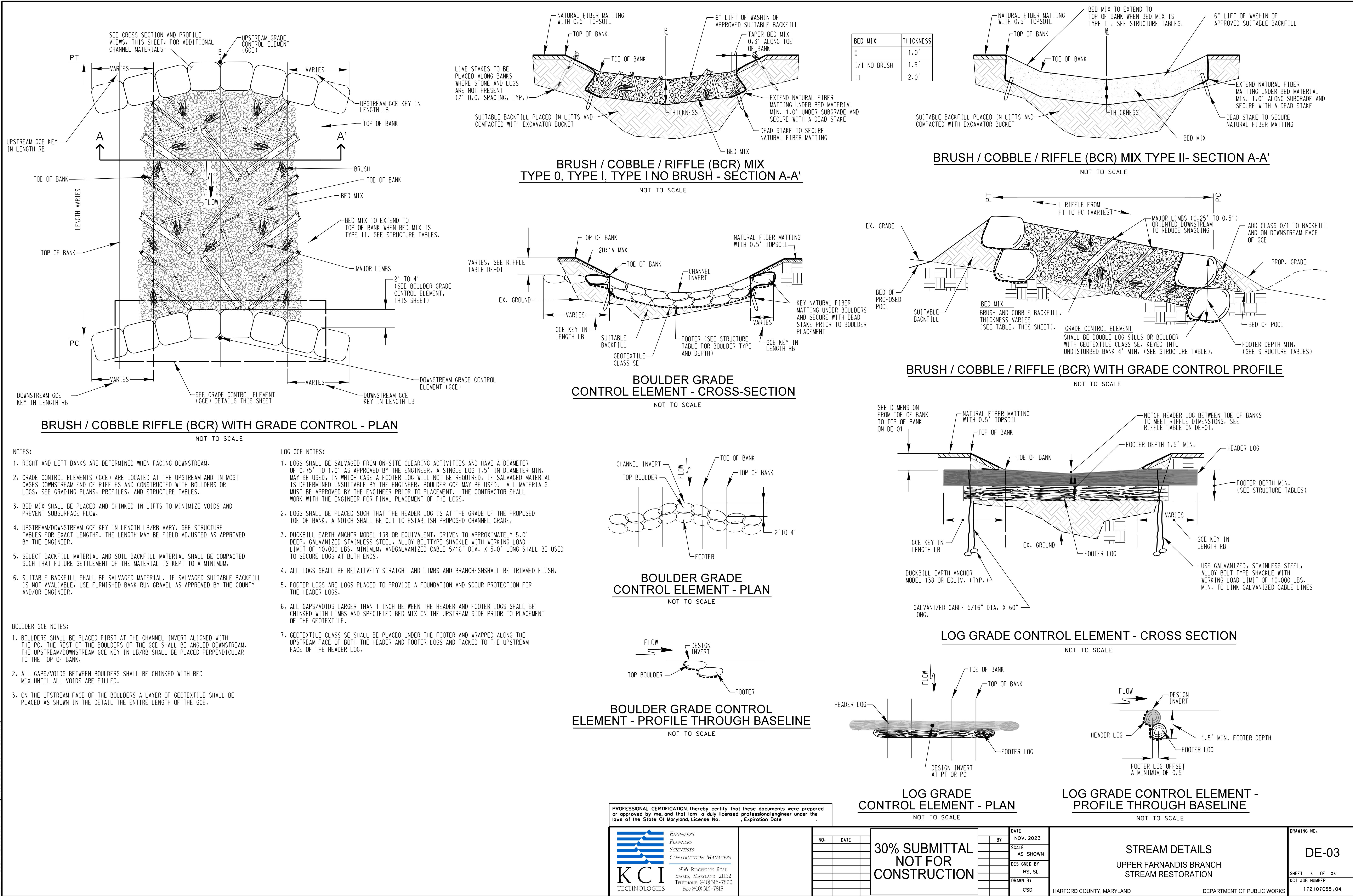


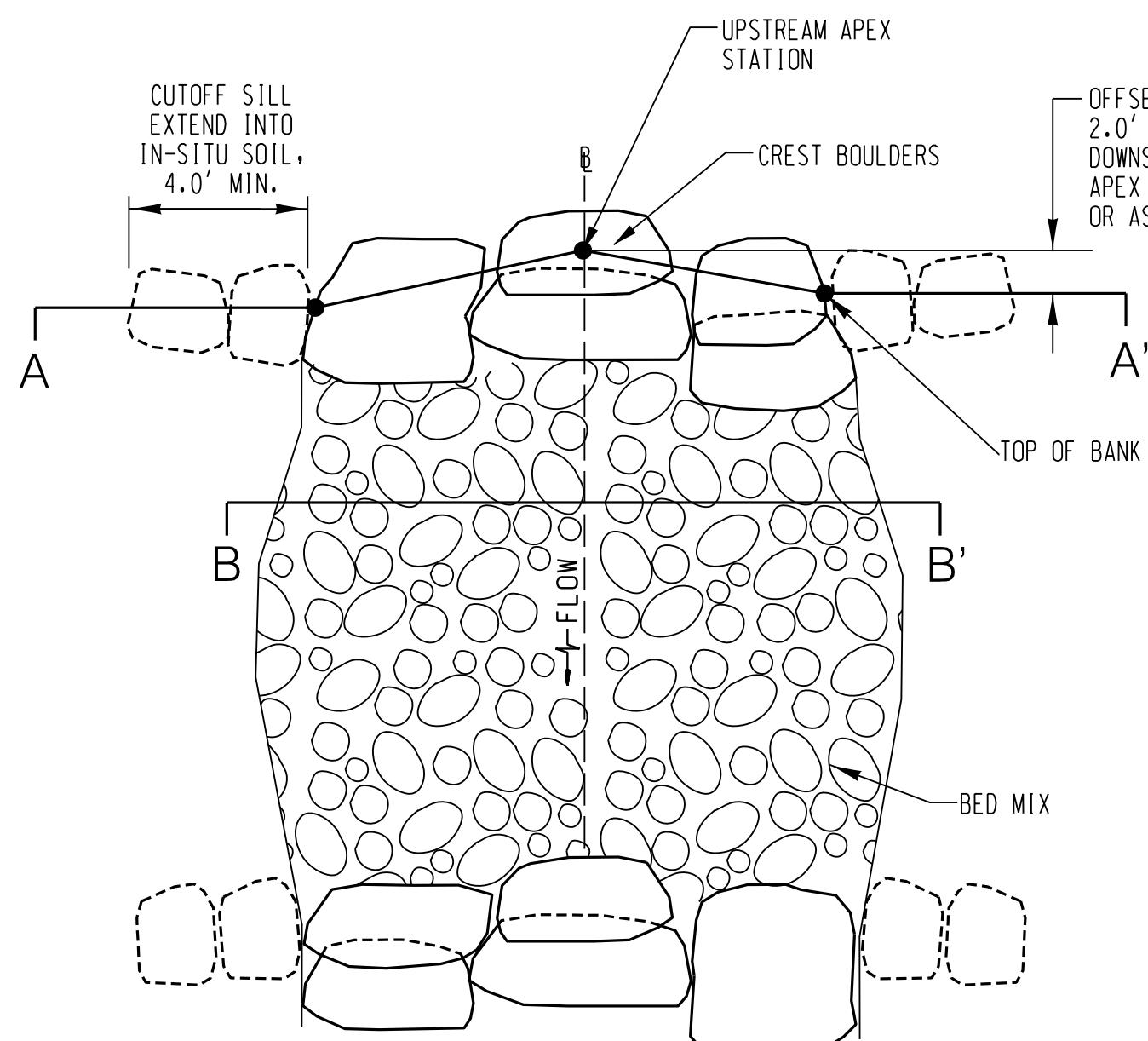
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NO.	DATE
30% SUBMITTAL NOT FOR CONSTRUCTION	
BY	DATE NOV. 2023
SCALE	SCALE 1" • 20'
DESIGNED BY	DESIGNED BY HS, SL
DRAWN BY	DRAWN BY CSD

GRADING PLAN
UPPER FARNANDIS BRANCH
STREAM RESTORATION

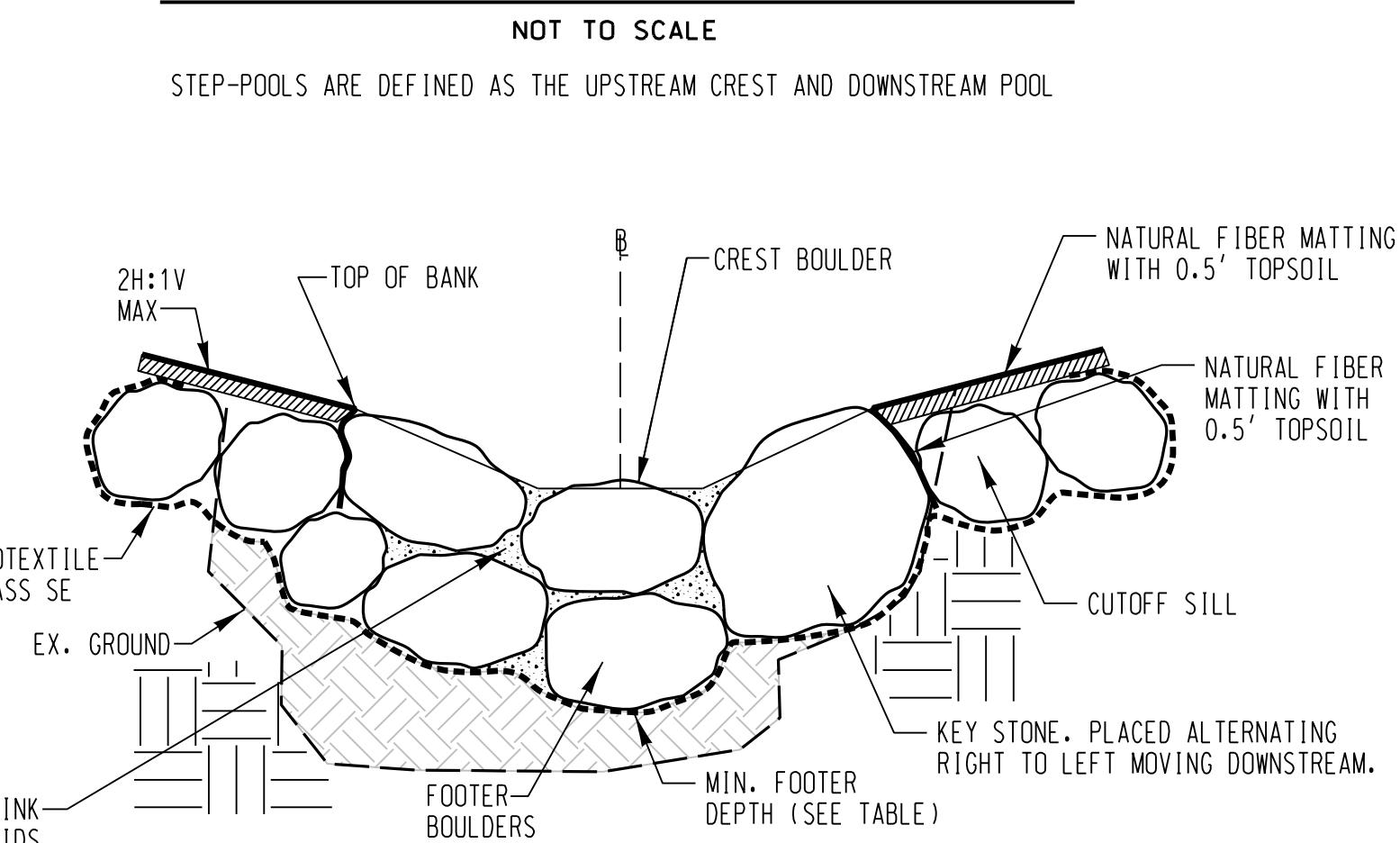
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SHEET XX OF XX
KCI JOB NUMBER
172107055.04



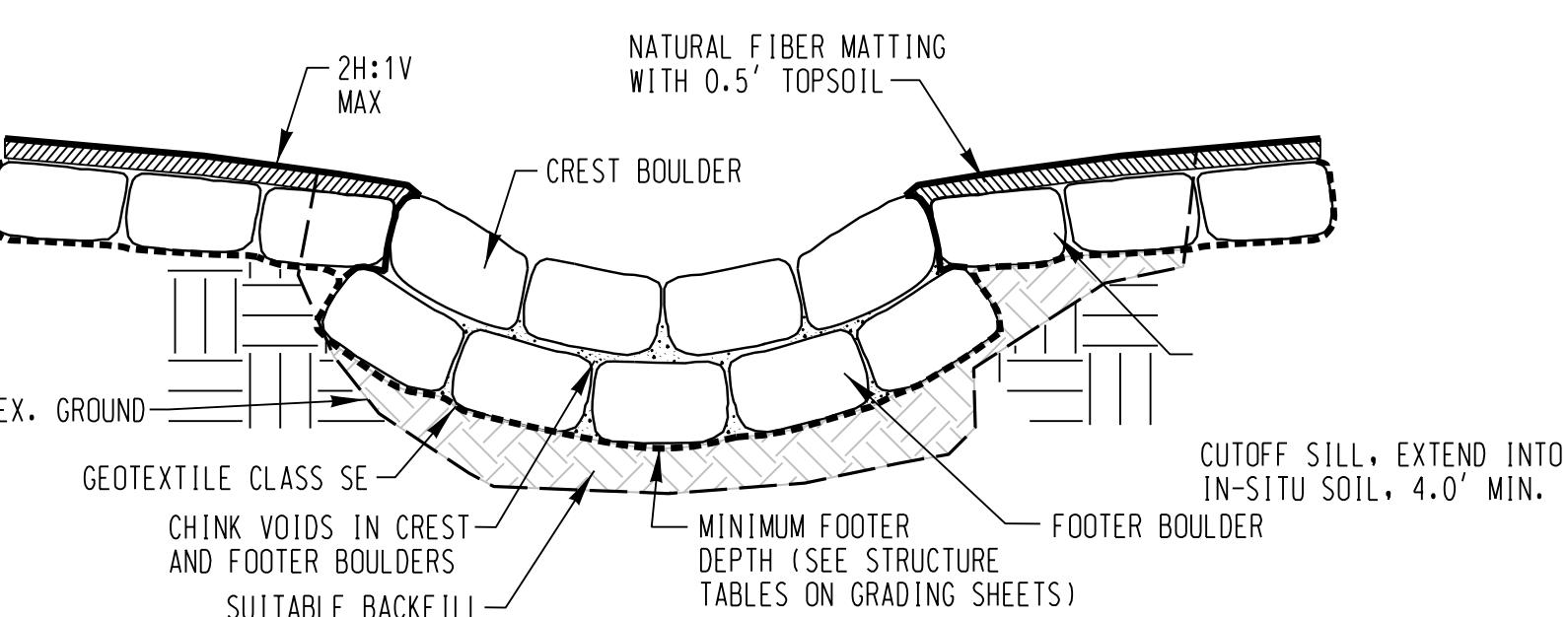




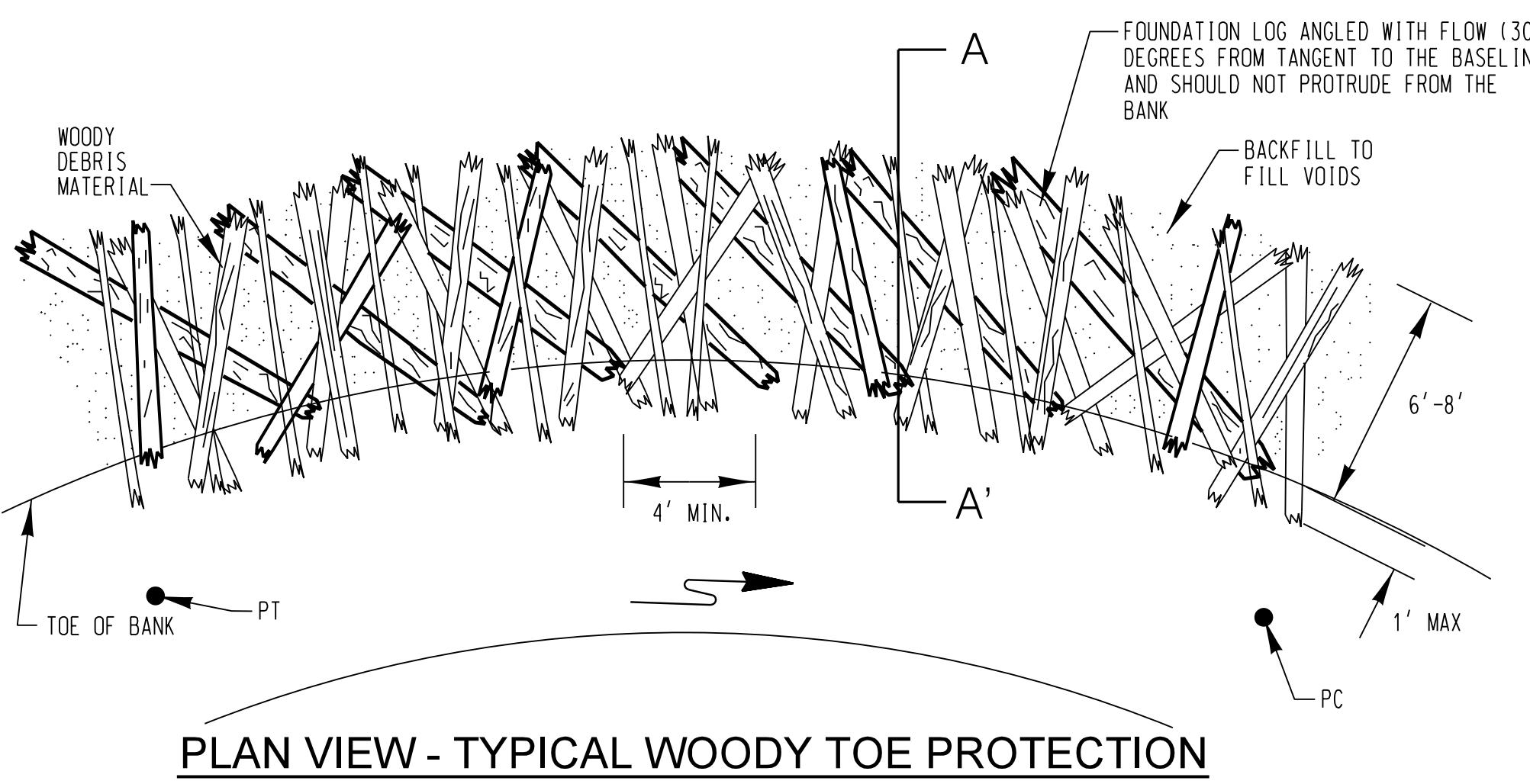
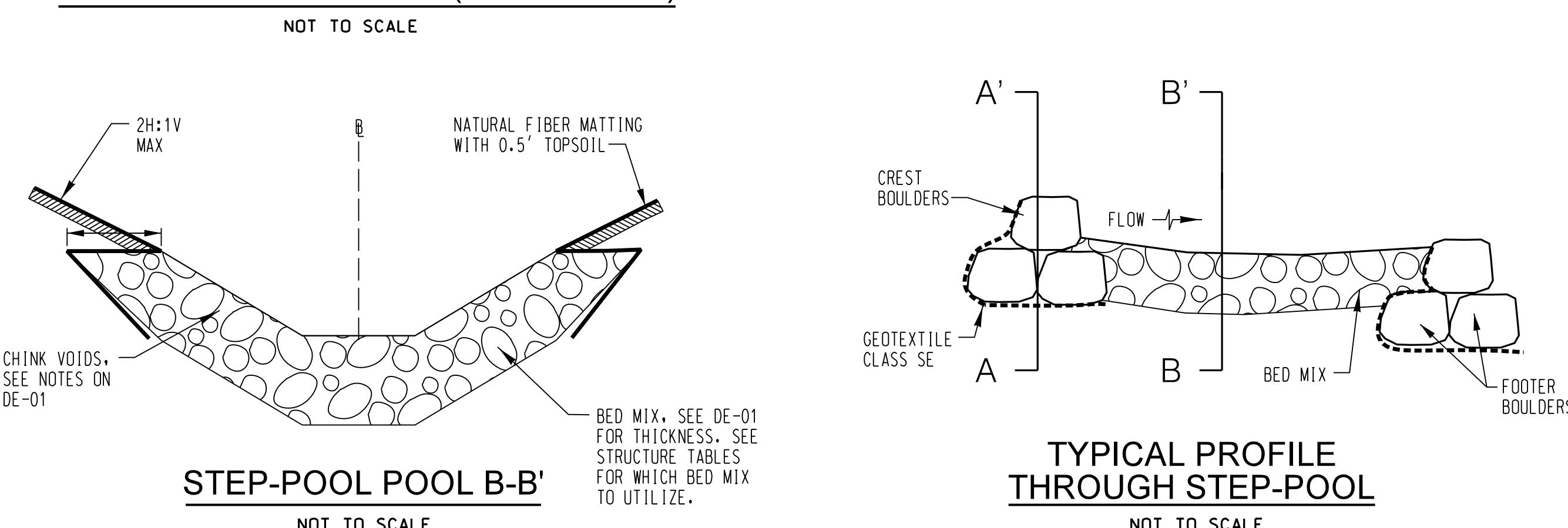
TYPICAL PLAN VIEW OF STEP-POOL



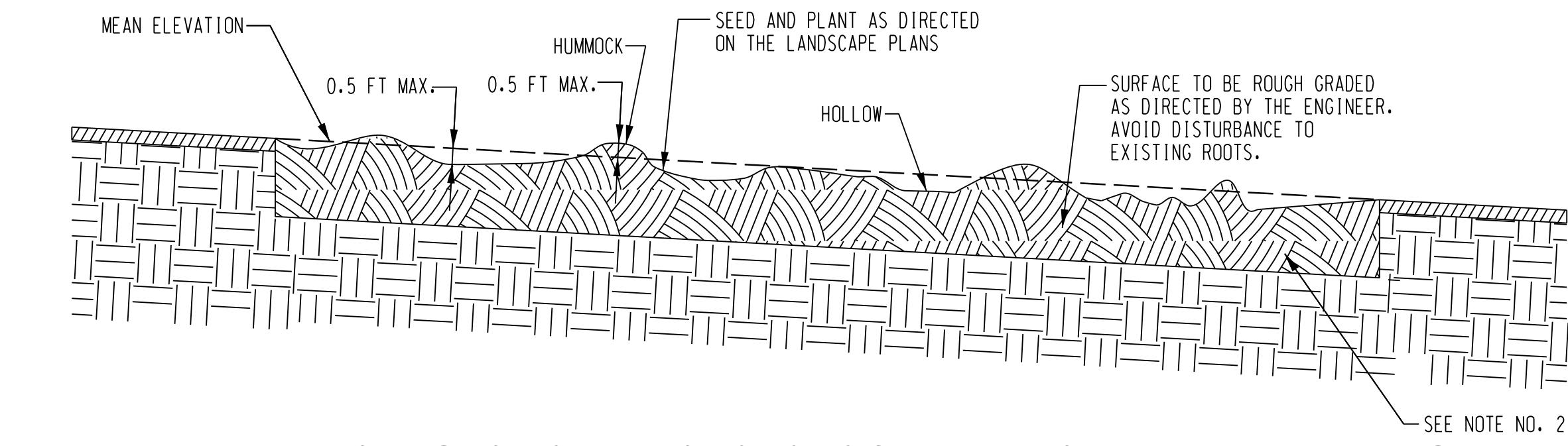
STEP-POOL CREST A-A' (CLASS II BOULDER)



STEP-POOL CREST A-A' (IMBRICATED)



PLAN VIEW - TYPICAL WOODY TOE PROTECTION

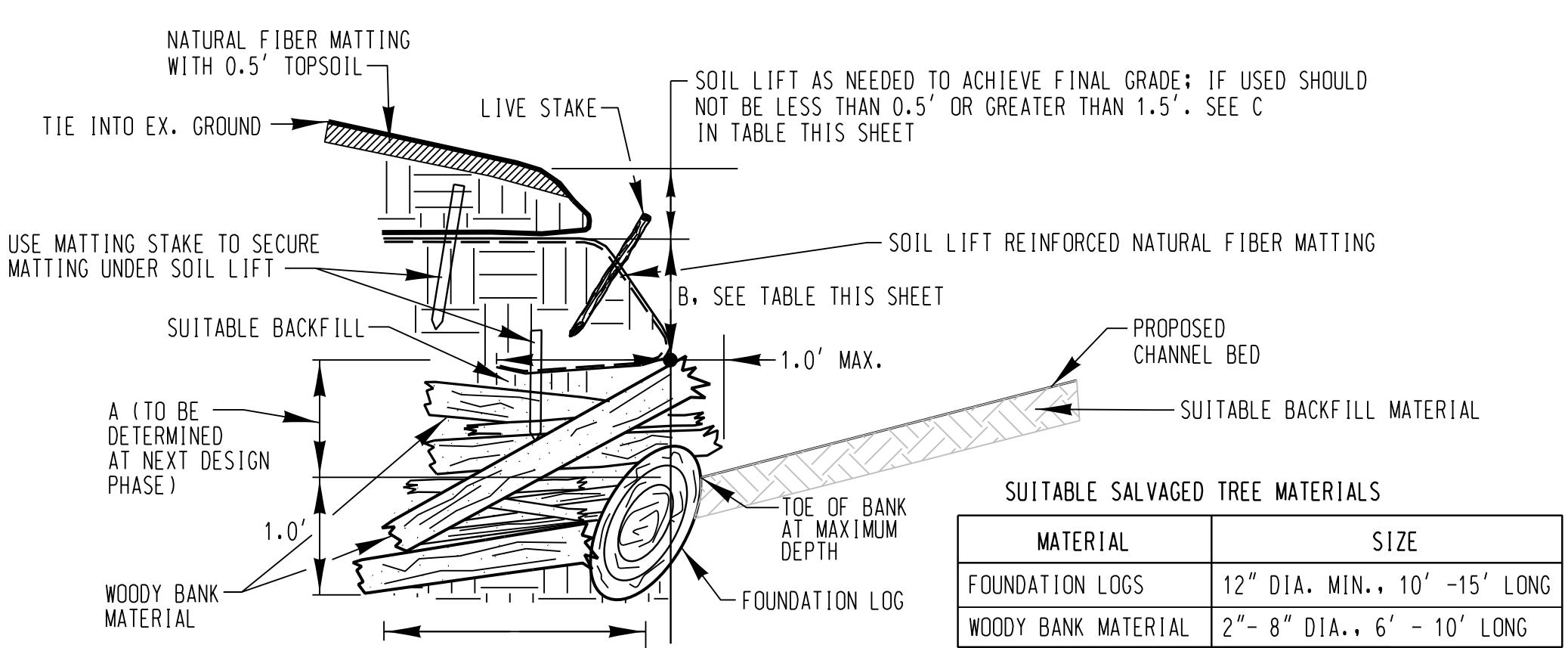


TYPICAL SECTION - MICROTOPOGRAPHY / CREATED WETLANDS

HUMMOCK-HOLLOW
NOT TO SCALE

NOTES FOR MICROTOPOGRAPHY:

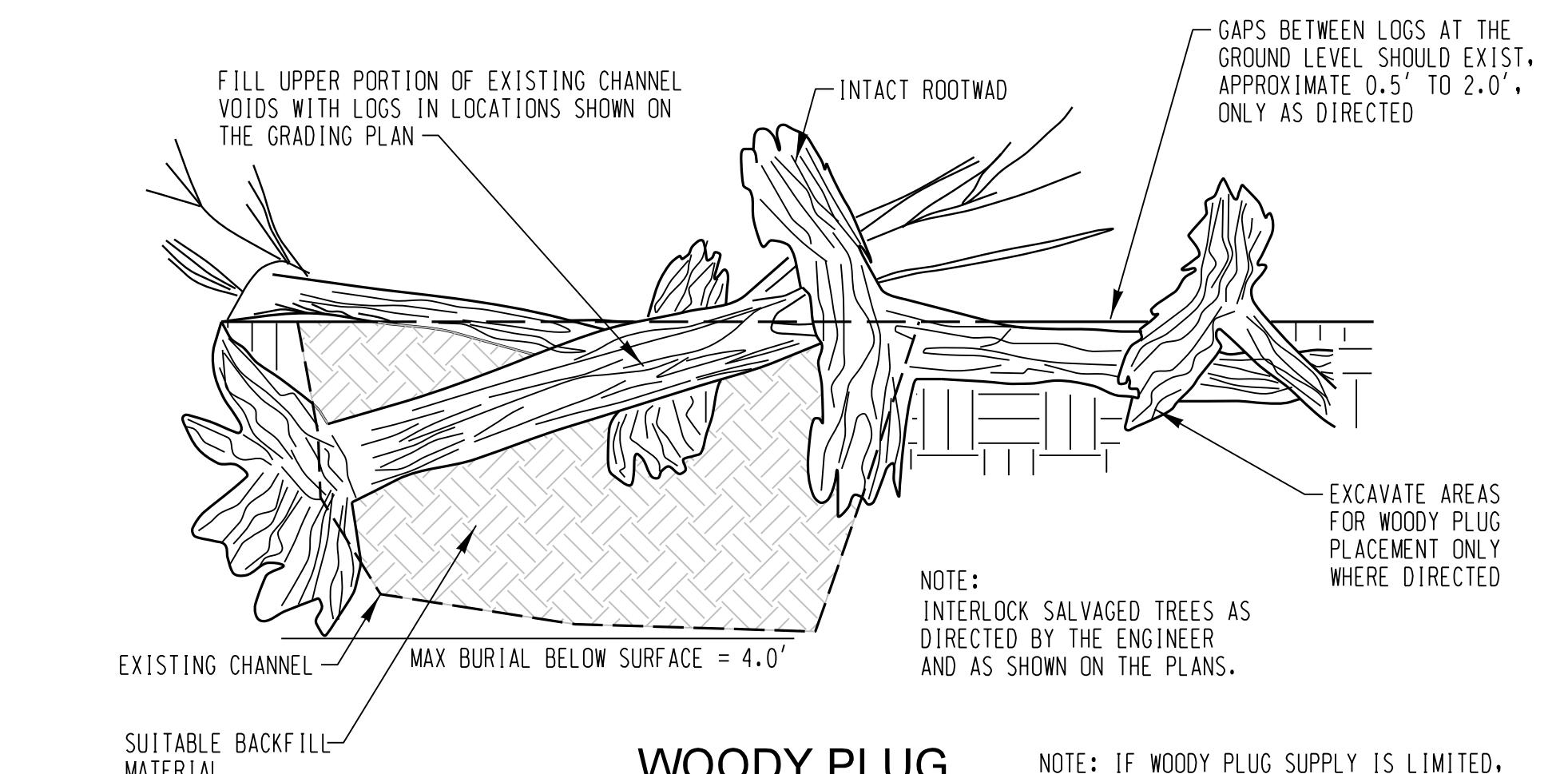
1. THE SURFACE OF THE SOIL MUST NOT BE COMPACTED TO THE EXTENT THAT IT LIMITS PLANT ESTABLISHMENT AND MICROBIAL ACTIVITY. UPON COMPLETION OF INITIAL GRADING (BEFORE ADDING TOPSOIL), THE SOIL MUST BE DISKED OR CHISEL PLOWED TO A DEPTH OF AT LEAST 0.7'.
2. PROVIDE TOPSOIL TO A DEPTH OF AT LEAST 0.5'. SALVAGED TOPSOIL SHOULD BE FREE FROM INVASIVE PLANT SPECIES. SITE SHOULD BE GRADED TO BELOW 0.5' OF FINAL GRADE, THEN 0.5' TOPSOIL SPREAD OVER THE SITE.
3. SOIL AND SUBSTRATE AMENDMENTS MAY BE NEEDED TO MEET HYDRIC SOIL CHARACTERISTICS AND MAINTAIN THE SPECIFIED PLANT SPECIES. A MINIMUM OF 60 CUBIC YARDS OF ORGANIC MATTER PER ACRE IS REQUIRED UNLESS PRE-CONSTRUCTION SOIL MONITORING DEMONSTRATES THAT THERE IS AN AMOUNT OF STABLE CARBON EQUIVALENT OR HIGHER TO THAT IN AN APPROPRIATE DEPARTMENT-APPROVED REFERENCE WETLAND.
4. MICROTOPOGRAPHY VARIATIONS ARE UP TO 0.5' FROM DESIGN ELEVATION, WITH NO MORE THAN 25 PERCENT OF EACH AREA REMAINING AT THE DESIGN ELEVATION. MICROTOPOGRAPHIC GRADING SHALL NOT DESTROY OR DISTURB ROOTS OF MATURE TREES.
5. SUPPLEMENTAL LARGE WOODY DEBRIS SHOULD BE ADDED. THIS MAY INCLUDE A COMBINATION OF LOGS, BRUSH PILES, OVERTURNED STUMPS, ETC.. DEAD WOODY MATERIAL ON SITE MAY BE USED. LIVE MATERIAL SALVAGED FROM ON SITE MUST BE FROM NATIVE SPECIES ONLY. MATERIAL WITH OR WITHOUT LEAVES IS ACCEPTABLE. LARGE WOODY DEBRIS SHOULD BE PLACED / PILED AT THE DIRECTION OF THE ENGINEER. MATERIAL SHOULD CONSIST OF A RANGE OF SIZES FROM 0.2' - 2.0' IN DIAMETER AND 4' - 8' IN LENGTH. PILES SHOULD RANGE FROM 2' - 4' IN HEIGHT.
6. AREAS INDICATED FOR MICROTOPOGRAPHY ARE MINIMUM AND CAN BE EXPANDED AT THE DIRECTION OF THE ENGINEER. MICROTOPOGRAPHY SHALL BE PERFORMED WITHIN THE ACTIVE WORK AREAS AND SHALL AVOID ADDITIONAL DISTURBANCE TO THE TREE ROOTS, WETLANDS, AND BUFFERS.



CROSS SECTION A-A' TYPICAL WOODY TOE PROTECTION

NOTES:

1. SUITABLE TREE MATERIALS, INCLUDING TRUNKS, TOPS, AND LIMBS (ENSURE NO INVASIVES), SHALL BE SALVAGED FOR USE IN TOE WOOD APPLICATIONS AS APPROVED BY THE ENGINEER.
2. FOUNDATION LOGS SHALL BE ANGLED WITH THE FLOW TO THE BANK AND EXTEND THE FULL WIDTH OF THE FILL SECTION. FOUNDATION LOGS SHALL BE PLACED UNIFORMLY AT THE MAX DEPTH WITH SUITABLE BACKFILL USED TO PROVIDE SMOOTH TRANSITION TO AND FROM THE RIFFLES.
3. WOODY BANK MATERIAL SHALL BE PLACED RANDOMLY ON FOUNDATION LOGS IN LIFTS, COMPACTED WITH EXCAVATOR BUCKET, AND CHINKED WITH SUITABLE BACKFILL TO FILL Voids UNTIL THE FINAL DEPTH OF MATERIAL IS REACHED (SEE SECTION A-A').
4. CONTINUE TO FILL Voids WITH SUITABLE BACKFILL MATERIAL.
5. INSTALL SOIL LIFT WITH REINFORCED NATURAL FIBER MATTING. STAKE THE BOTTOM OF THE REINFORCED NATURAL FIBER MATTING LIFT AT LEAST 3.0' INTO BANK.
6. IF WOODY BANK MATERIAL SUPPLY IS LIMITED, A TOE BOULDER MAY BE USED WITH PRIOR APPROVAL BY THE COUNTY AND ENGINEER.



WOODY PLUG

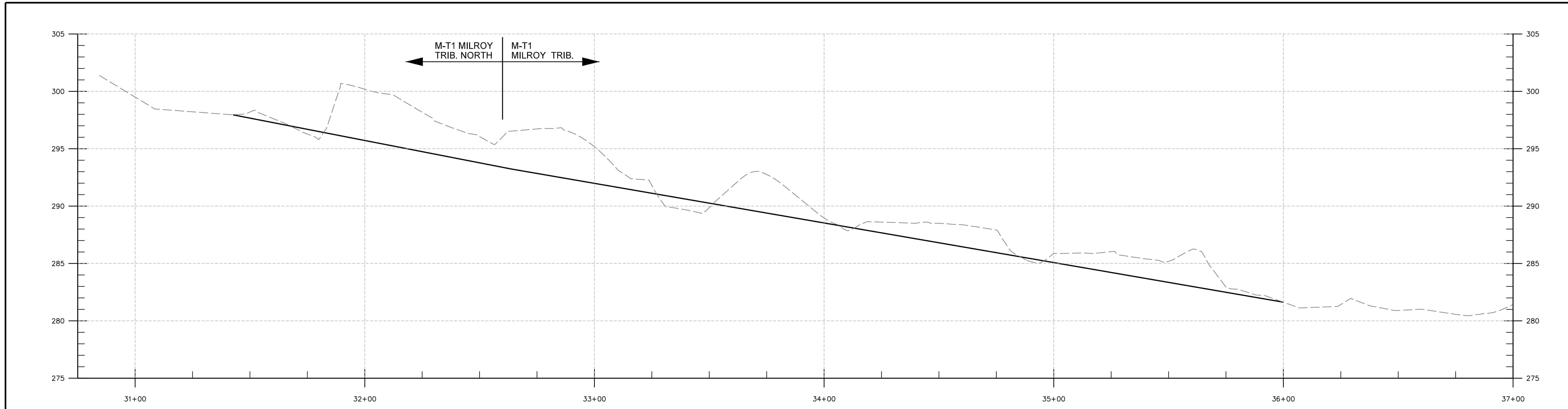
NOT TO SCALE
NOTE: IF WOODY PLUG SUPPLY IS LIMITED, A CLAY PLUG MAY BE USED WITH PRIOR APPROVAL BY THE COUNTY AND ENGINEER.

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 ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS 936 RIDGEBROOK ROAD SPARKS, MARYLAND 21252 TELEPHONE: (410) 316-7800 FAX: (410) 316-7818		<table border="1"> <tr> <td>NO.</td> <td>DATE</td> </tr> <tr> <td> </td> <td> </td> </tr> </table> <table border="1"> <tr> <td>BY</td> <td>DATE NOV. 2023</td> </tr> <tr> <td> </td> <td>SCALE AS SHOWN</td> </tr> <tr> <td> </td> <td>DESIGNED BY HS, SL</td> </tr> <tr> <td> </td> <td>DRAWN BY CSD</td> </tr> </table>		NO.	DATE									BY	DATE NOV. 2023		SCALE AS SHOWN		DESIGNED BY HS, SL		DRAWN BY CSD
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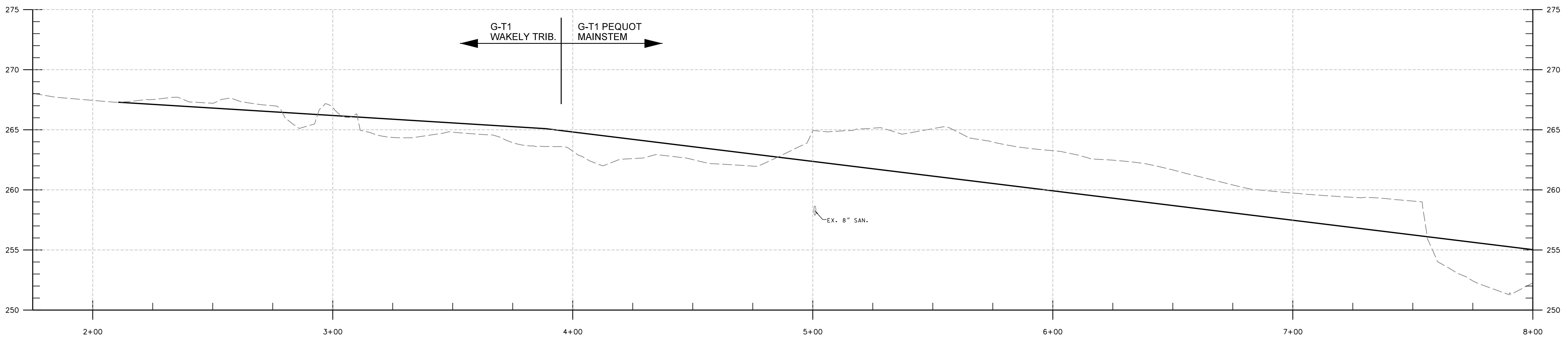
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STREAM DETAILS
UPPER FARNANDIS BRANCH
STREAM RESTORATION

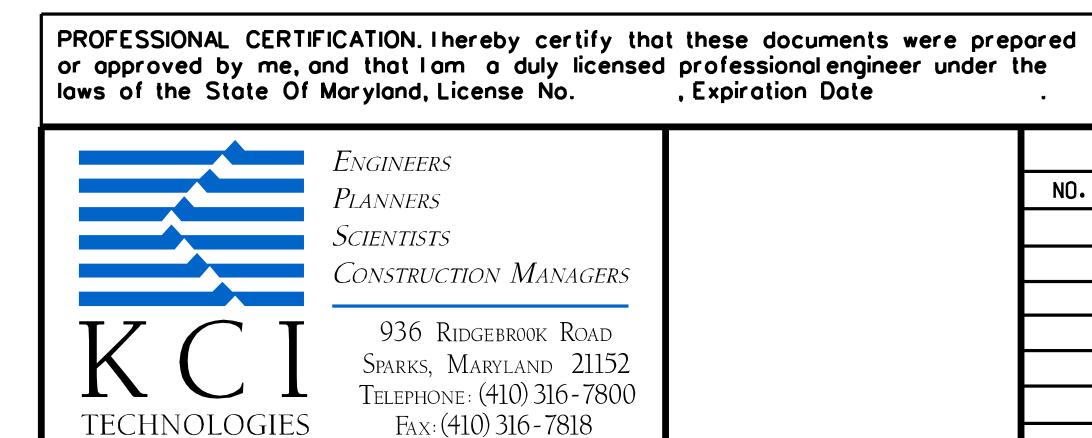
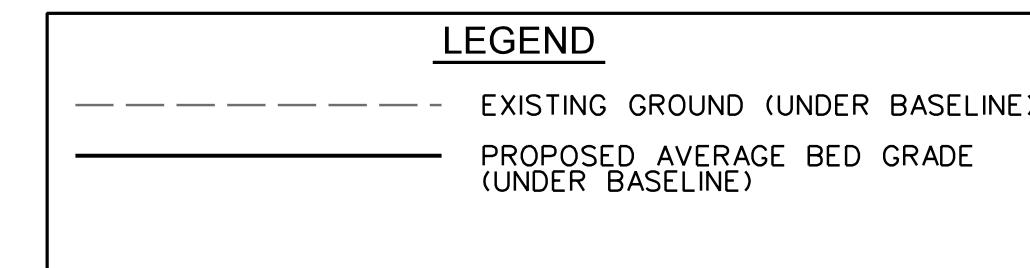
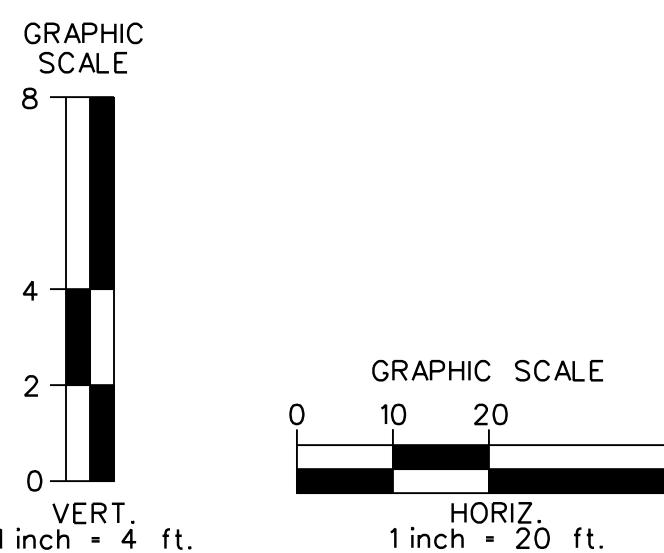
DE-04
DRAWING NO.
SHEET X OF XX
KCI JOB NUMBER
172107055.04
DEPARTMENT OF PUBLIC WORKS



M-T1 MILROY TRIB. NORTH & M-T1 MILROY TRIB.

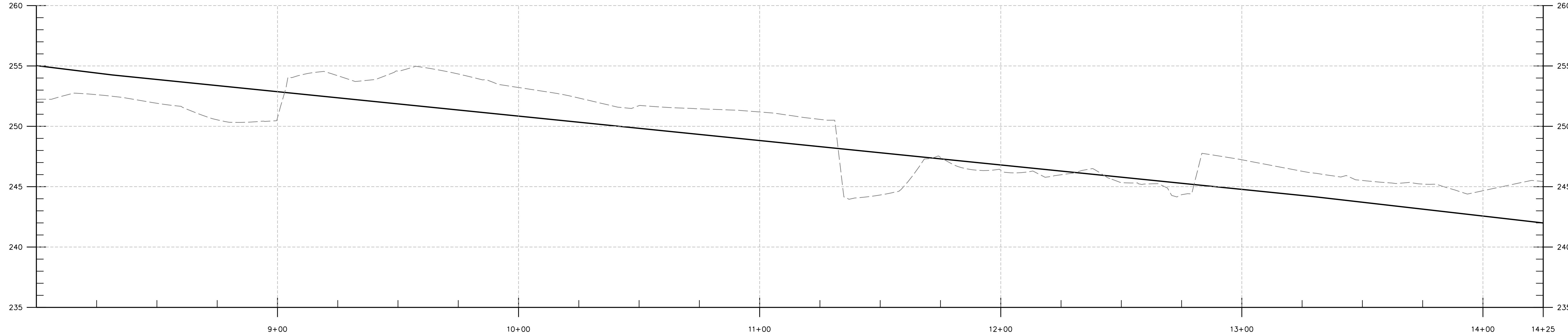


G-T1 WAKELY TRIB., G-T1 PEQUOT MAINSTEM, MS DIXIE, & MAINSTEM

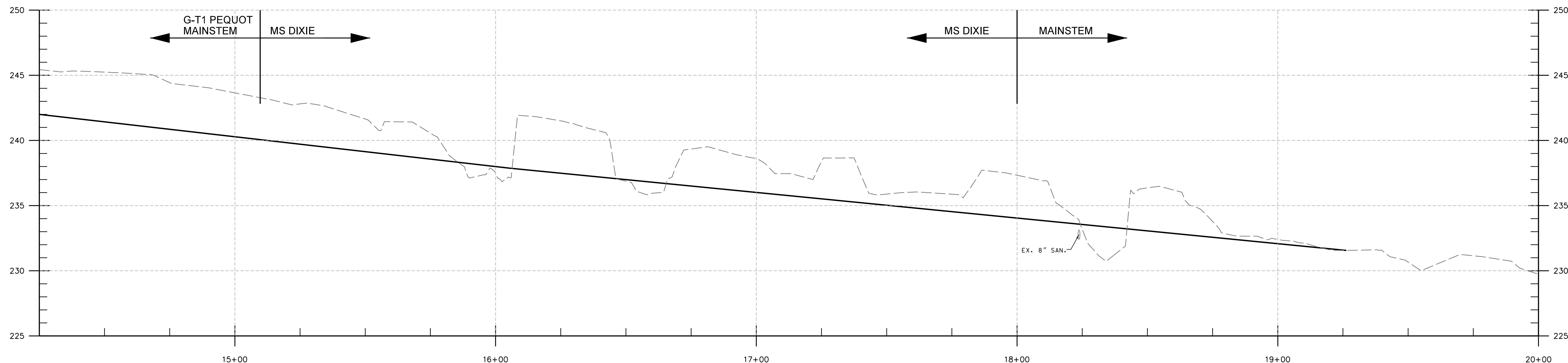


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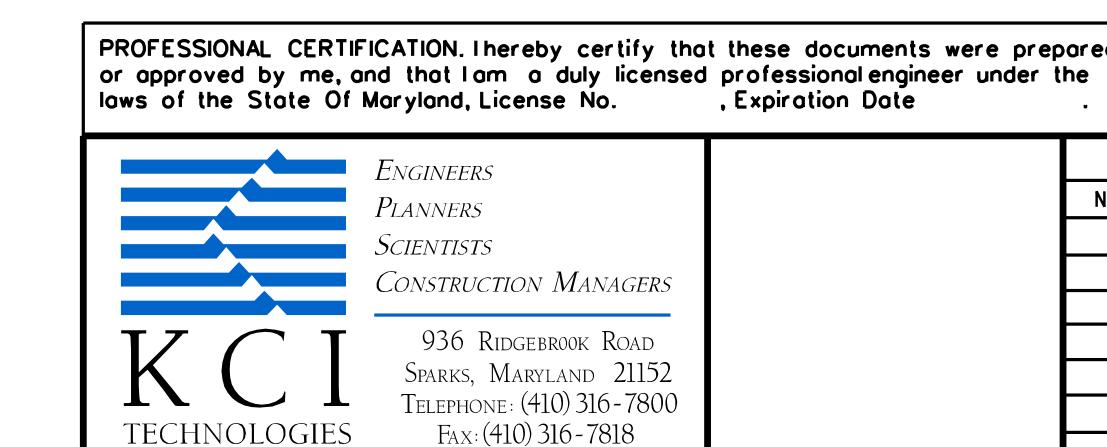
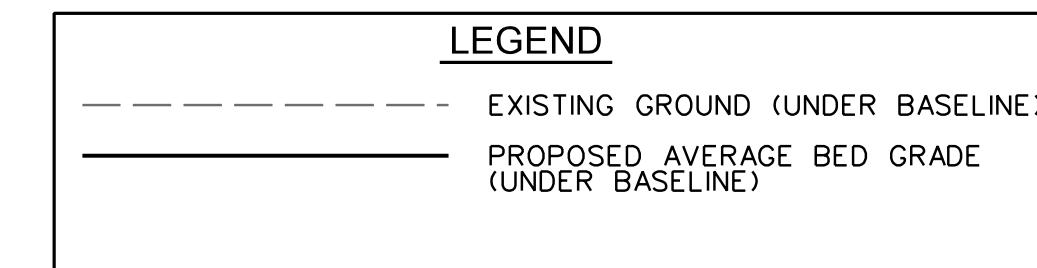
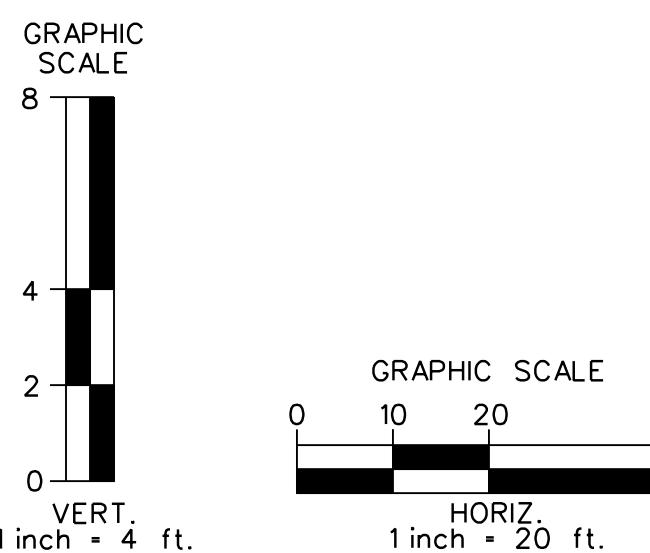
PROFILES
UPPER FARNANDIS BRANCH
STREAM RESTORATION
HARFORD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
DRAWING NO. PR-01
SHEET X OF XX
KCI JOB NUMBER 172107055.04



G-T1 WAKELY TRIB., G-T1 PEQUOT MAINSTEM, MS DIXIE, & MAINSTEM - CONT'D



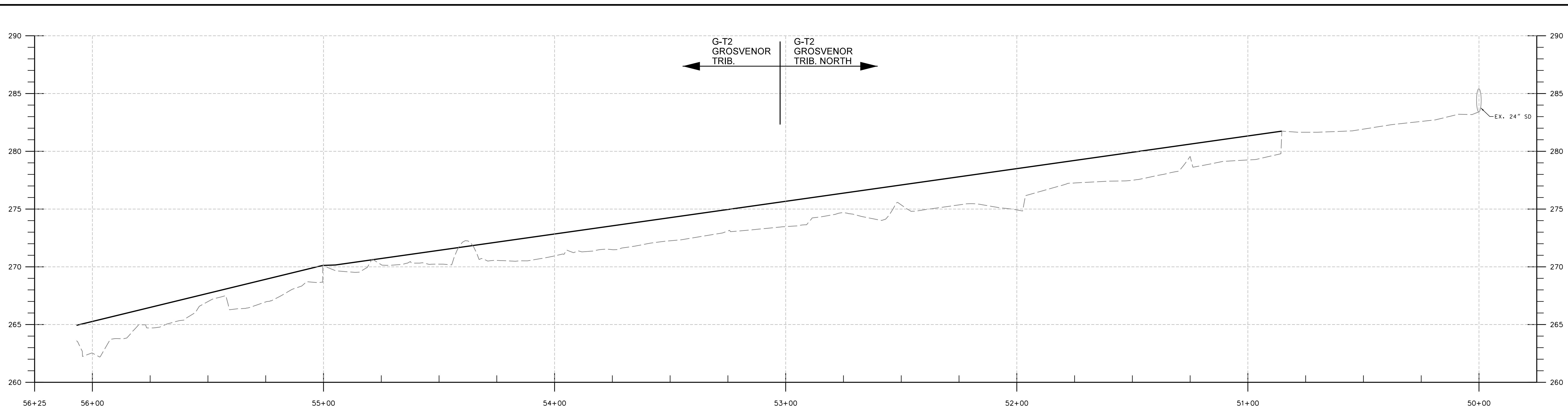
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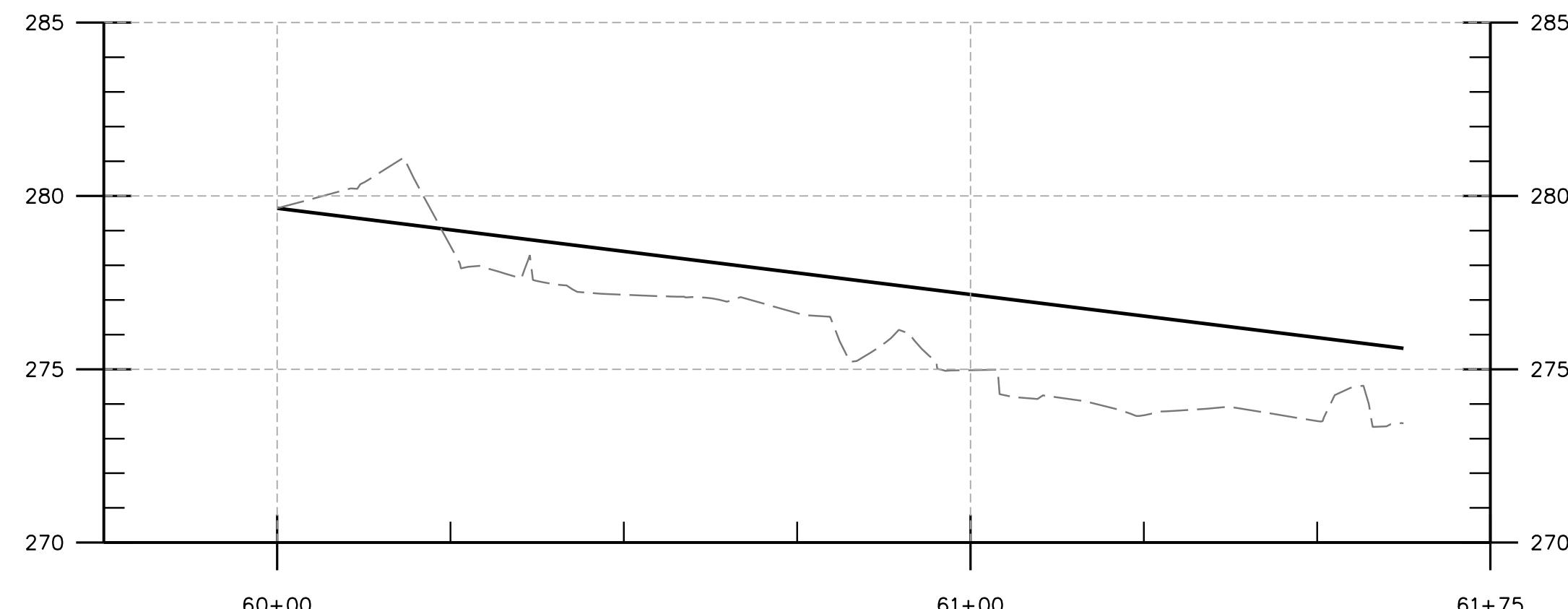
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PROFILES
UPPER FARNANDIS BRANCH
STREAM RESTORATION
HARFORD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS

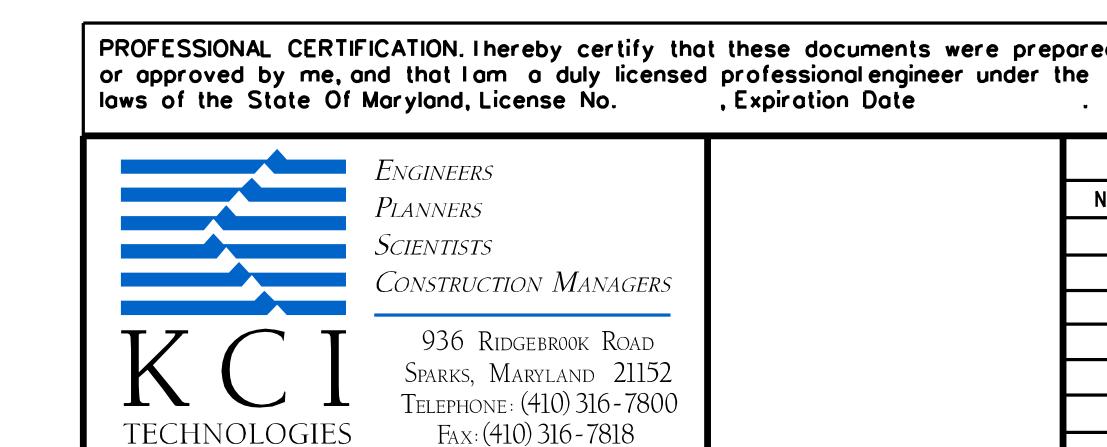
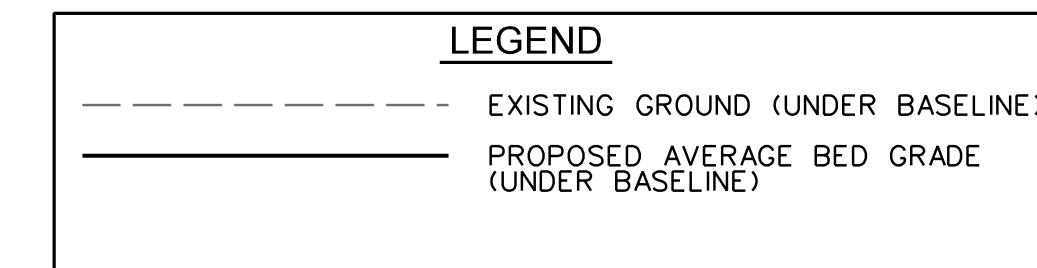
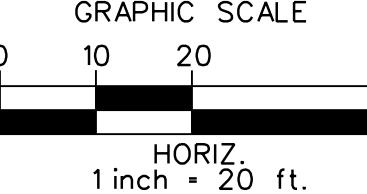
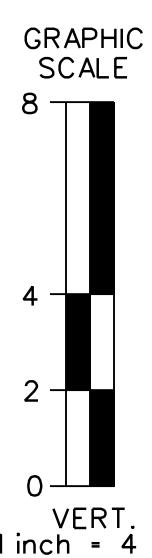
DRAWING NO. PR-02
SHEET X OF XX
KCI JOB NUMBER 172107055.04



G-T2 GROSVENOR TRIB. NORTH & G-T2 GROSVENOR TRIB.



G-T3 CHARLYN TRIB.



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CONSTRUCTION

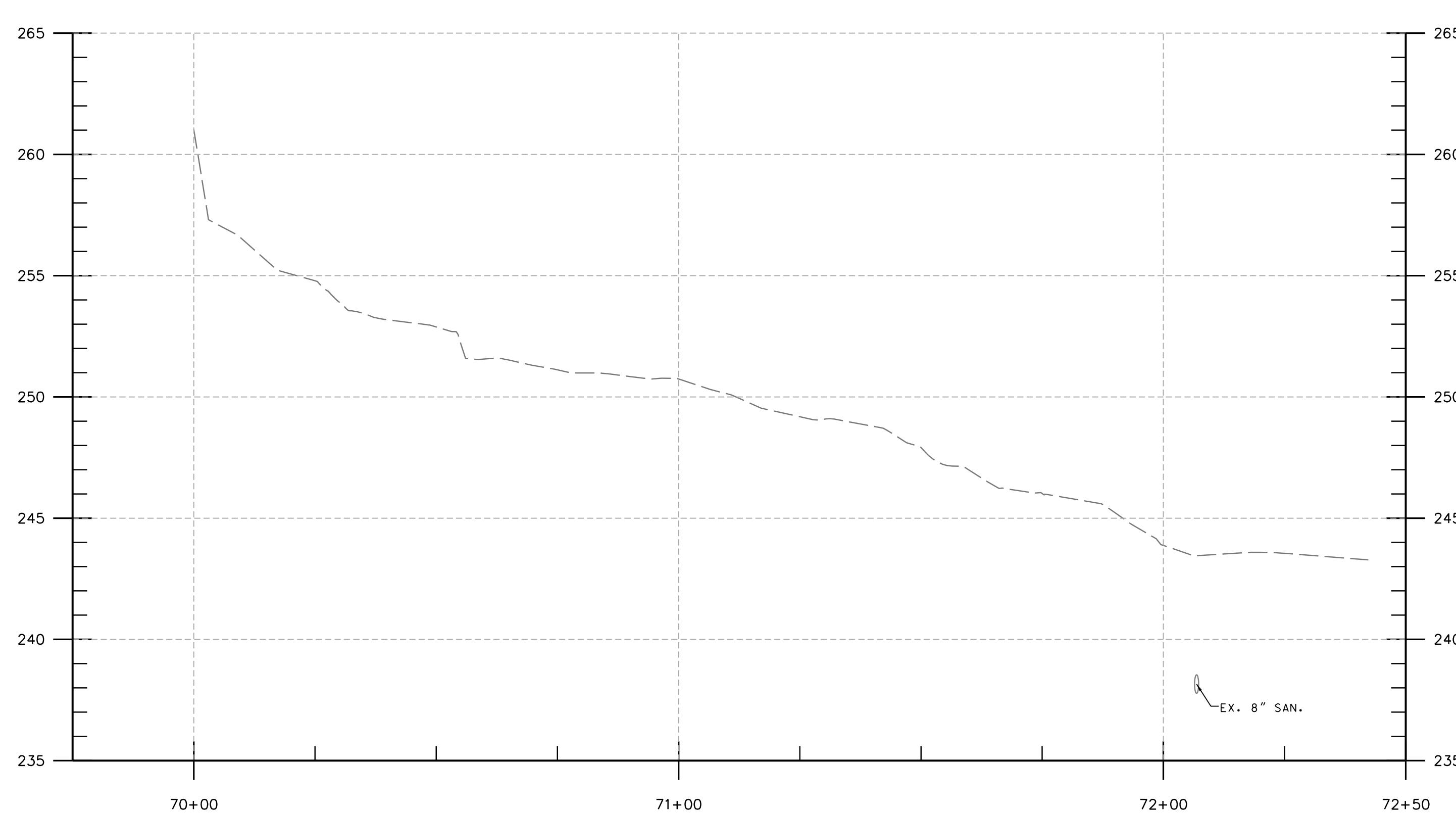
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BY HS, SL	DESIGNED BY HS, SL
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HARFORD COUNTY, MARYLAND	
DEPARTMENT OF PUBLIC WORKS	

PROFILES
UPPER FARNANDIS BRANCH
STREAM RESTORATION

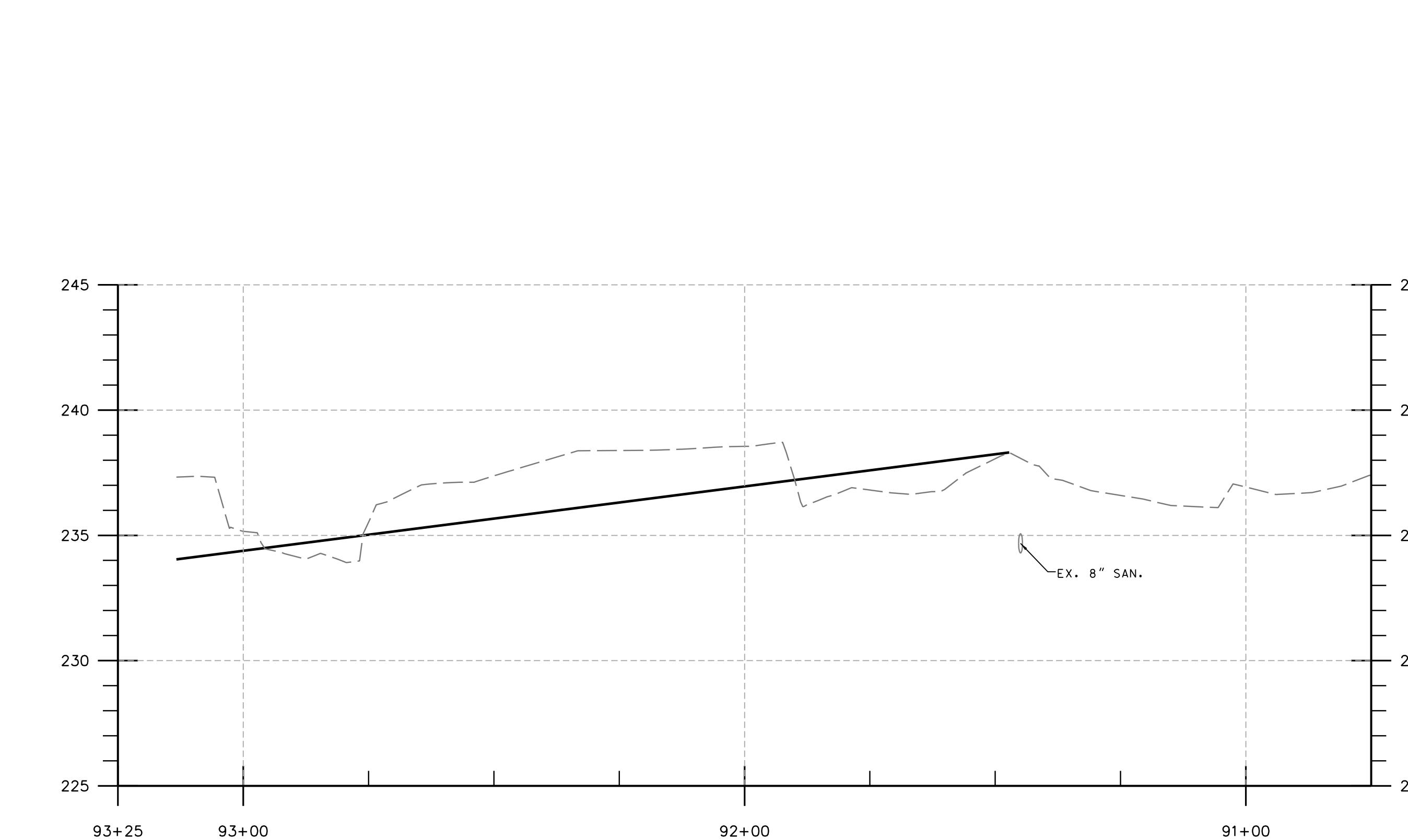
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PR-03

SHEET X OF XX

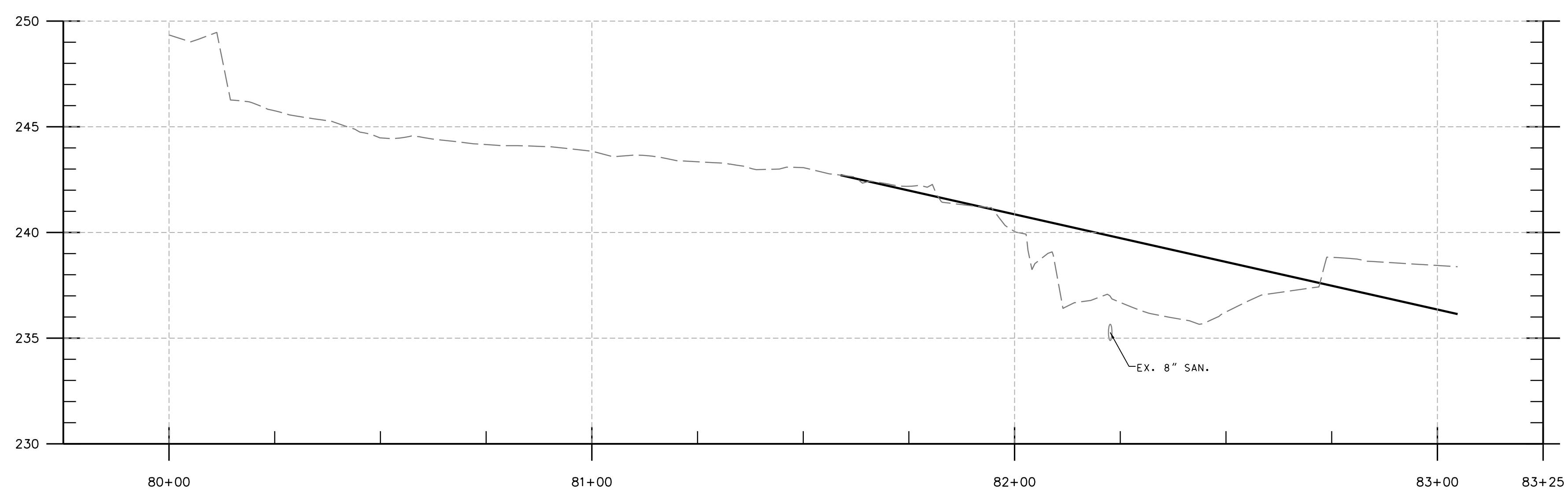
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172107055.04



G-T4 DIXIE TRIB. 1



MS TRIB. CAROLINA AVE.



F-T3 DIXIE TRIB. 2

