75% DESIGN PLANS
NOT FOR CONSTRUCTION

HARFORD COUNTY

Bid No. : TBA

Sunny View Road Stream Rehabilitation Project

Department Of Public Works
Water Resources Engineering

INDEX OF SHEETS

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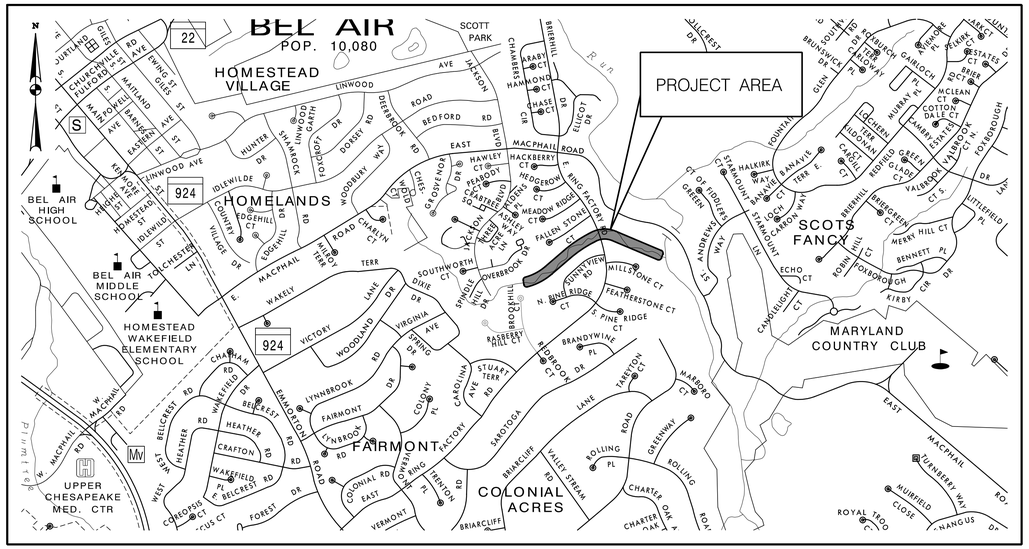
LEGEND

EXISTING ROADWAY
BASE OR SURVEY LINE
TRAVERSE POINT
RIGHT OF WAY LINE
EXISTING EASEMENT
LIMIT OF DISTURBANCE — LOD
GRADING ELEVATION CONTOURS (5') — 55
GRADING ELEVATION CONTOURS (1') — 54
EXISTING GROUND CONTOURS (5') — 55
EXISTING GROUND CONTOURS (1') — 54
EXISTING FENCE LINE
EXISTING PIPE/CULVERT
EXISTING DROP INLET
WETLAND
25' WETLAND BUFFER — B
WATERS OF THE US — WUS
HEDGE /TREE LINE
BUSH /TREE
SANITARY SEWER — SAN



NOTE: COORDINATES AND BEARINGS SHOWN HEREON ARE REFERRED TO THE MARYLAND COORDINATE SYSTEM (NAD 83/1991) AND ARE BASED ON THE FOLLOWING HARFORD COUNTY SURVEY CONTROL MONUMENTS:

FALLSTON	N 675,445.19	E 1,477,585.69
FALLSTON AZ MK.	N 676,752.37	E 1,477,595.25

NOTE: ALL ELEVATIONS SHOWN HEREON ARE REFERRED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD '88) WITH LOCAL REFERENCE TO THE FOLLOWING HARFORD COUNTY SURVEY CONTROL MONUMENTS:

FALLSTON	ELEV. 455.79
FALLSTON AZ MK.	ELEV. 464.98

NOTE: STATE STREAM USE CLASS DESIGNATION III (NATURAL TROUT WATERS) IN STREAM CLOSURE OCTOBER 1 THROUGH APRIL 1 INCLUSIVE OF ANY YEAR.

HORIZONTAL DATUM	NAD 83 / 91
VERTICAL DATUM	NAVD 88

SCALE: 1" = 1000'
1000 0 1000 2000 FEET

GENERAL NOTES

1. ALL WORK PERFORMED ON THIS PROJECT SHALL BE IN ACCORDANCE WITH MDOT SHA STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO AND MAINTENANCE AND PROTECTION OF EXISTING UTILITIES AND STRUCTURES. THIS IS TO INCLUDE ALL SEWER LINES AND SERVICE LINES.
3. PRIOR TO ANY ONSITE LAND DISTURBANCES, FORTY-EIGHT (48) HOURS ADVANCE NOTICE SHALL BE GIVEN TO THE D.P.W. INSPECTION SECTION BY CONTACTING THE CHIEF INSPECTOR AT 410–638–3128 AT WHICH TIME A PRECONSTRUCTION MEETING WILL BE SCHEDULED.
4. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROLS, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES GREATER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1), AND SEVEN (7) DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF TRAFFIC AND TRAFFIC CONTROL DURING CONSTRUCTION AND PRIOR TO ACCEPTANCE BY THE COUNTY; CONSISTENT WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
6. BEFORE THE START OF CONSTRUCTION, THE CONTRACTOR IS TO VERIFY THE LOCATION OF EXISTING UTILITIES BY CONTACTING "MISS UTILITY" (1–800–257–7777).

REVIEWED AND APPROVAL RECOMMENDED — DATE
PROJECT ENGINEER

REVIEWED AND APPROVAL RECOMMENDED — DATE
CHIEF ENGINEER

APPROVAL RECOMMENDED — DATE
DEPUTY DIRECTOR OF PUBLIC WORKS

APPROVED — DATE
DIRECTOR OF PUBLIC WORKS

McCORMICK TAYLOR
509 South Exeter Street
4th Floor
Baltimore, Maryland 21202
(410) 662-7400

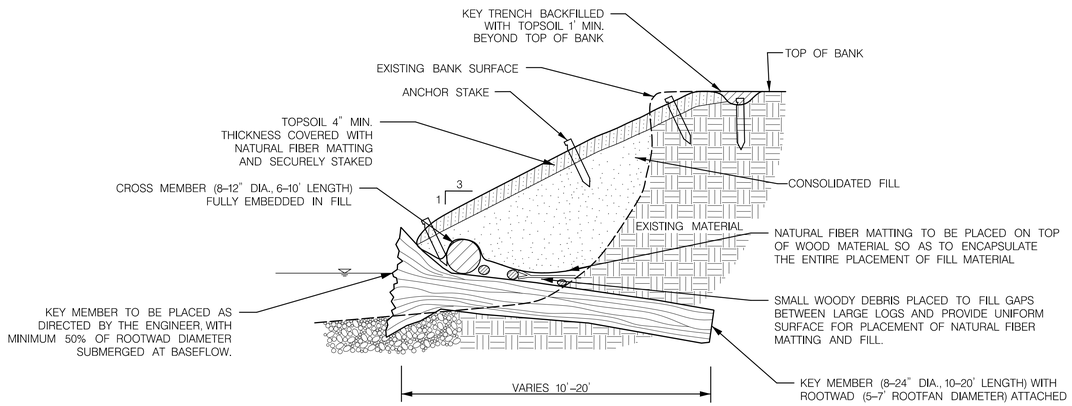
REV#	DATE	DESCRIPTION

REVISIONS

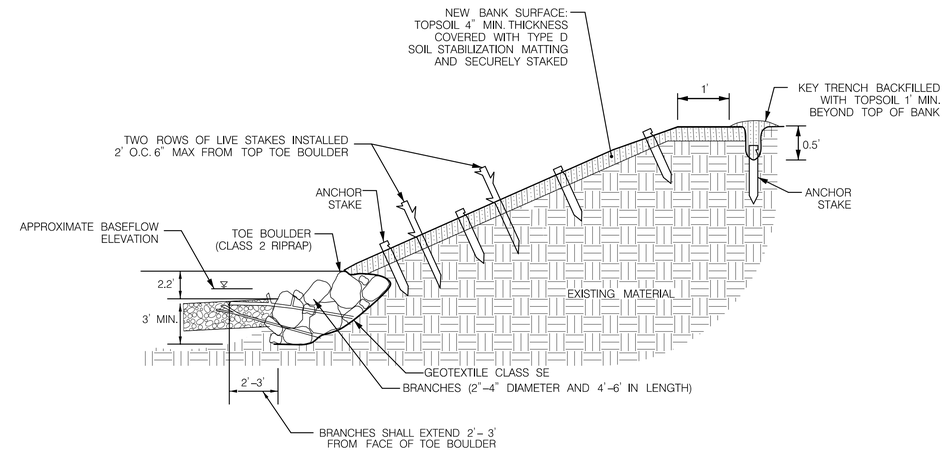
SUNNY VIEW ROAD STREAM REHABILITATION TITLE SHEET

HARFORD COUNTY DEPARTMENT OF PUBLIC WORKS
WATER RESOURCES ENGINEERING
212 SOUTH BOND STREET
2ND FLOOR
BEL AIR MARYLAND 21014
410-638-3545

DATE 11-27-19	DRAWING NO.
SCALE 1"= 1000'	
DESIGNED BY KRM/JBS	SHEET 1 OF 50
DRAWN BY WJW	FWA JOB NUMBER

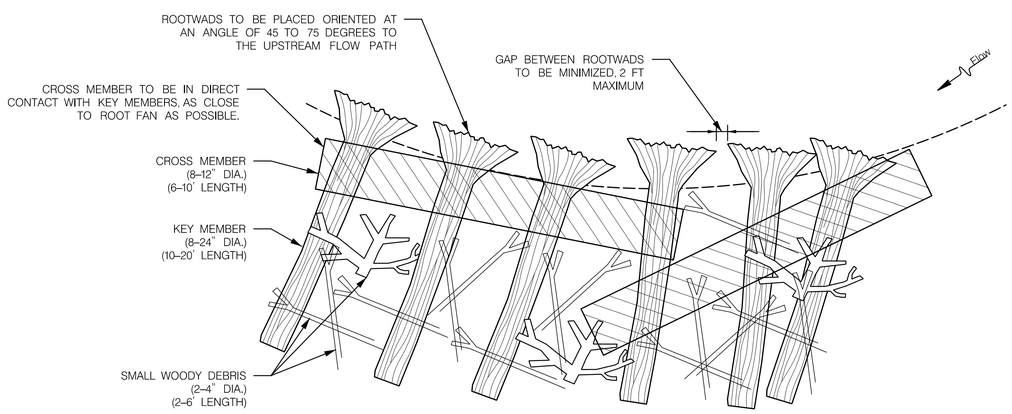


TYPICAL SECTION
WOOD TOE (WT)
NOT TO SCALE



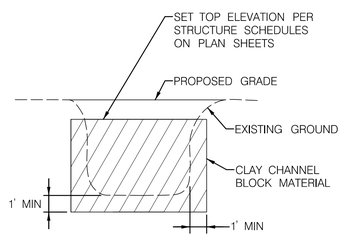
TYPICAL SECTION
TOE BOULDER PROTECTION WITH WOOD (TBPW)
NOT TO SCALE

NOTES:
1. TOP OF THE BRANCHES SHALL BE PLACED AT OR BELOW BASEFLOW ELEVATION.
2. MINIMIZE VOID SPACE IN TOE BOULDER
3. BRANCHES TO BE PLACED AT AN AVERAGE OF ONE BRANCH PER LINEAR FOOT OF BANK TREATMENT AND A MAXIMUM SPACING OF 2 LINEAR FEET BETWEEN BRANCHES

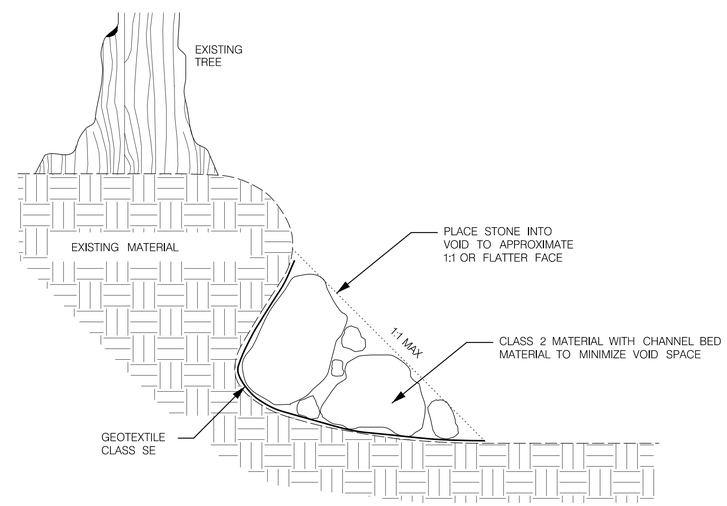


PLAN VIEW
WOOD TOE (WT)
NOT TO SCALE

NOTE: SPECIES OF SYCAMORE, WALNUT, AND OAK TO BE PREFERENTIALLY USED IN THE WOOD TOE.



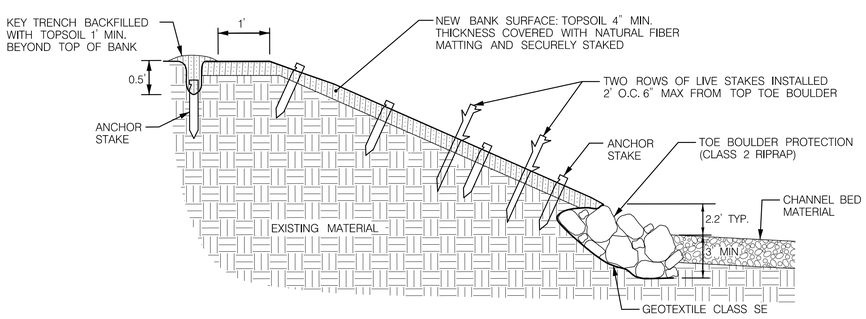
TYPICAL SECTION 'A–A'
CLAY CHANNEL BLOCK
NOT TO SCALE



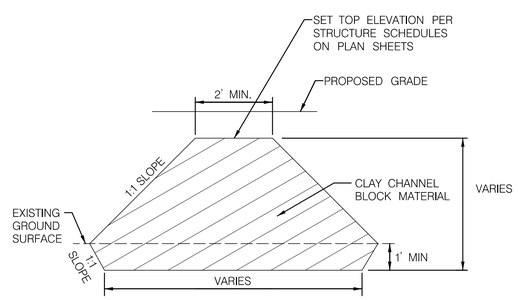
TYPICAL SECTION
ROCK ROOT PACK (RRP)
NOT TO SCALE

NOTE: LIMITS OF STONE AND BANK FACE SLOPE TO BE CONFIRMED BY ENGINEER IN FIELD

RP

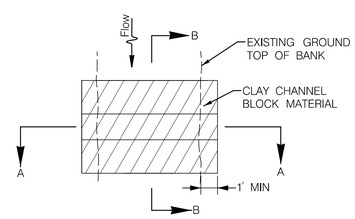


TYPICAL SECTION
TOE BOULDER PROTECTION (TBP)
NOT TO SCALE



TYPICAL SECTION 'B–B'
CLAY CHANNEL BLOCK
NOT TO SCALE

NOTE: CLAY CHANNEL BLOCK MATERIAL TO BE PLACED IN 8" COMPACTED LIFTS.



PLAN VIEW
CLAY CHANNEL BLOCK
NOT TO SCALE

NOTE:
LINES AND GRADES OF INDIVIDUAL STRUCTURES VARY. SEE STRUCTURE SCHEDULES, PROFILES AND CROSS-SECTIONS FOR PROPOSED LAYOUT AND DIMENSIONS.

509 South Exeter Street
4th Floor
Baltimore, Maryland 21202
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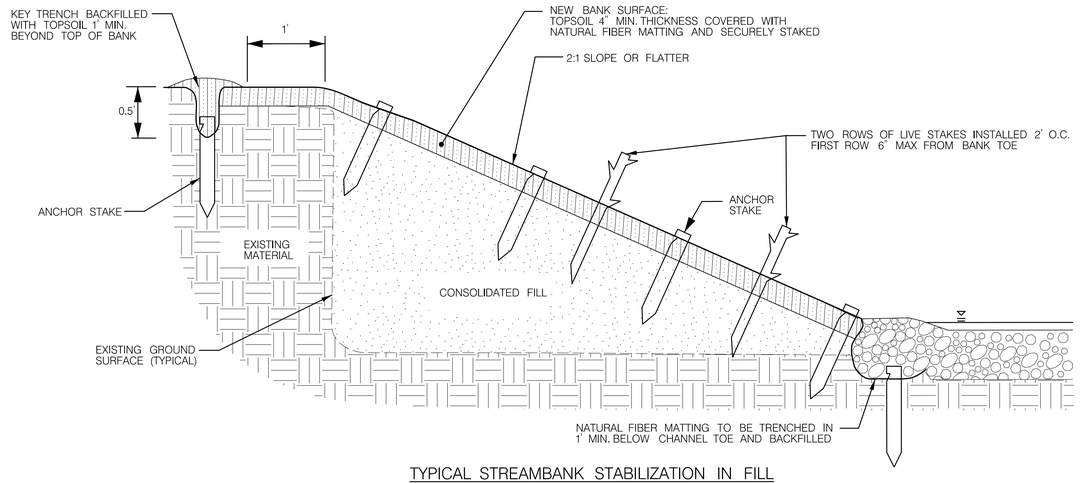
McCORMICK TAYLOR

REVISIONS		
REV#	DATE	DESCRIPTION

SUNNY VIEW ROAD
STREAM REHABILITATION
DETAIL SHEET

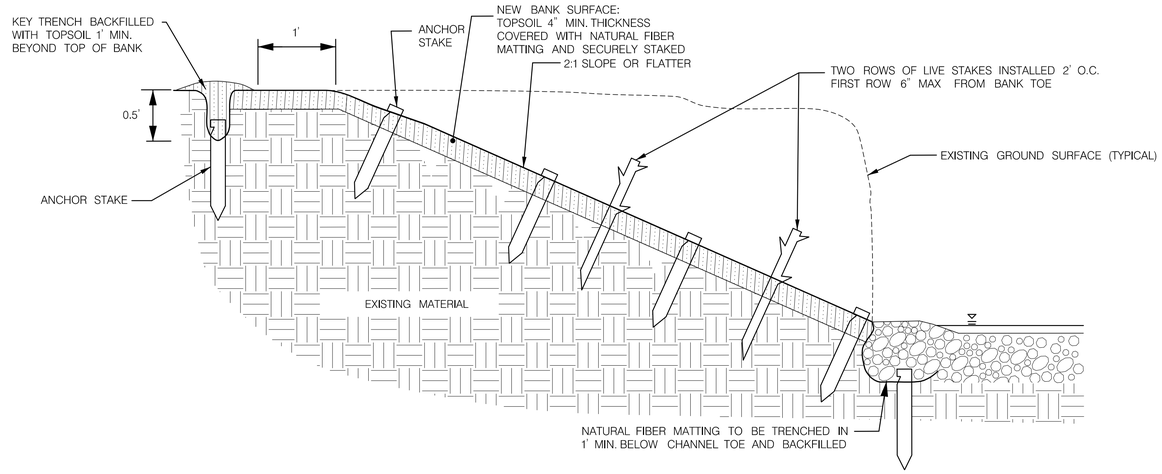
HARFORD COUNTY
DEPARTMENT OF
PUBLIC WORKS
WATER RESOURCES ENGINEERING
212 SOUTH BOND STREET
3RD FLOOR
BEL AIR MARYLAND 21014
410-638-3545

DATE 11-27-19	DRAWING NO.
SCALE NOT TO SCALE	
DESIGNED BY KRM/JBS	SHEET 5 OF 50
DRAWN BY WJW	FWA JOB NUMBER



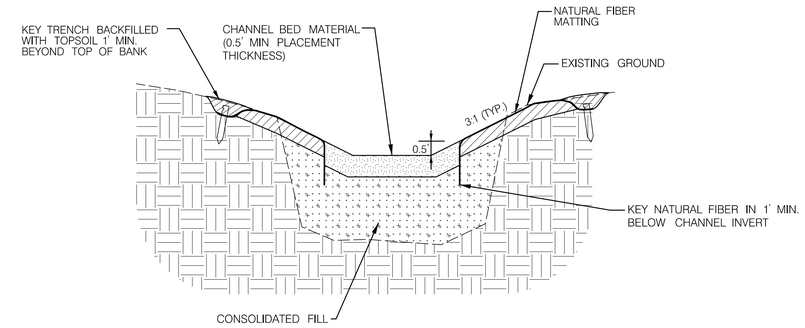
TYPICAL STREAMBANK STABILIZATION IN FILL

NOT TO SCALE



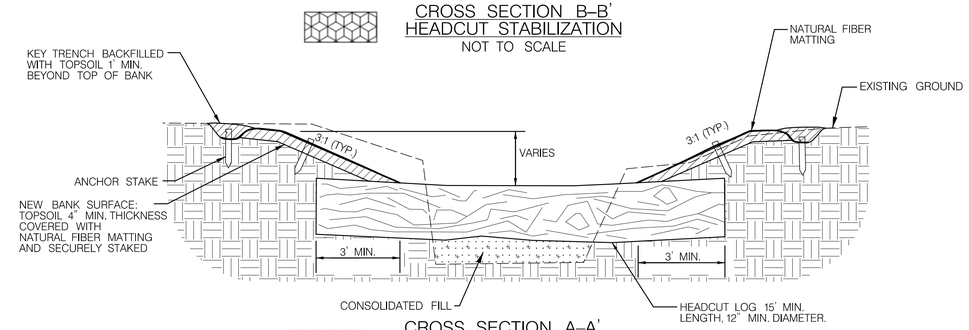
TYPICAL STREAMBANK STABILIZATION IN CUT

NOT TO SCALE



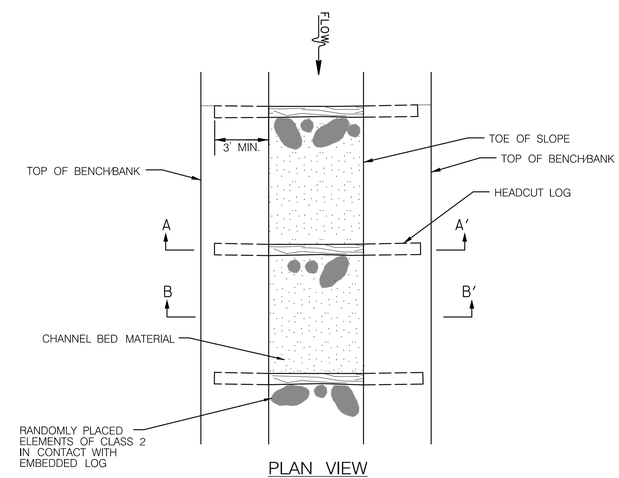
CROSS SECTION B–B'
HEADCUT STABILIZATION

NOT TO SCALE



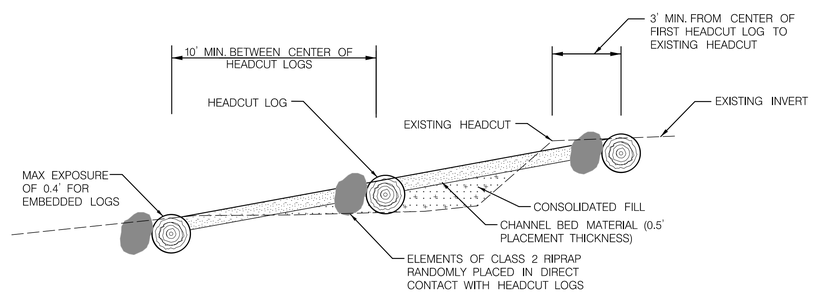
CROSS SECTION A–A'
HEADCUT STABILIZATION

NOT TO SCALE



PLAN VIEW
HEADCUT STABILIZATION

NOT TO SCALE



TYPICAL PROFILE
HEADCUT STABILIZATION

NOT TO SCALE

NOTE:
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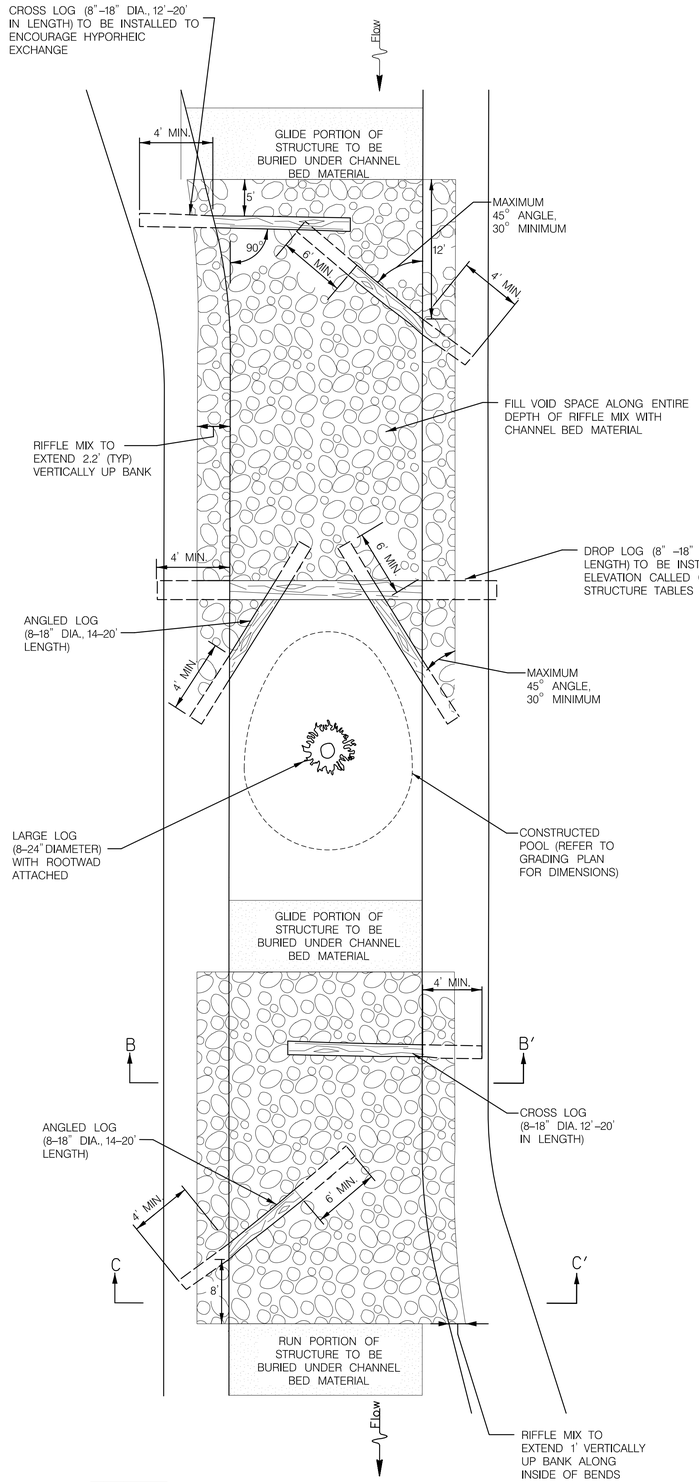
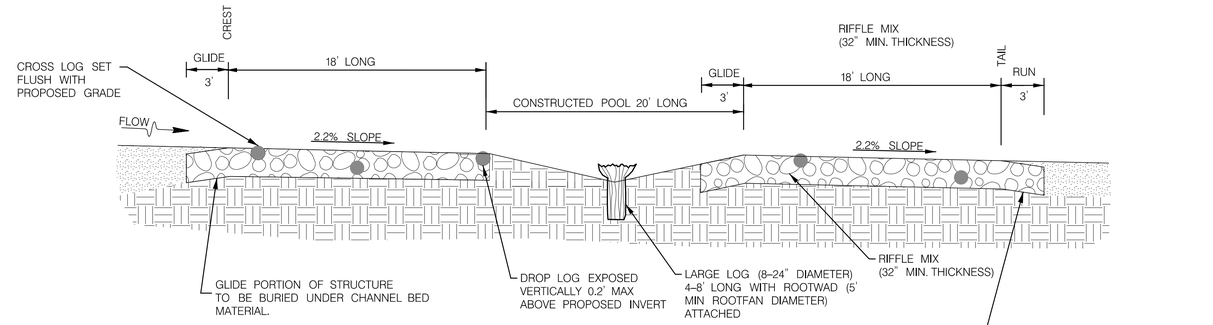
SUNNY VIEW ROAD
STREAM REHABILITATION
DETAIL SHEET

HARFORD COUNTY
DEPARTMENT OF
PUBLIC WORKS
WATER RESOURCES ENGINEERING
212 SOUTH BOND STREET
3RD FLOOR
BEL AIR MARYLAND 21014
410-638-3545

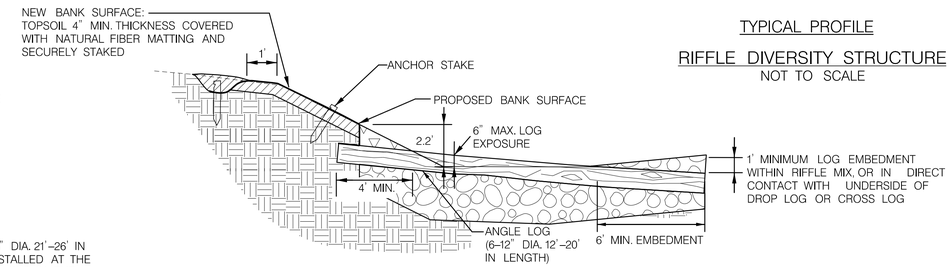
DATE 11-27-19	DRAWING NO.
SCALE NOT TO SCALE	
DESIGNED BY KRM/JBS	SHEET 6 OF 50
DRAWN BY WJW	FWA JOB NUMBER



PLAN VIEW
RIFFLE DIVERSITY STRUCTURE
NOT TO SCALE



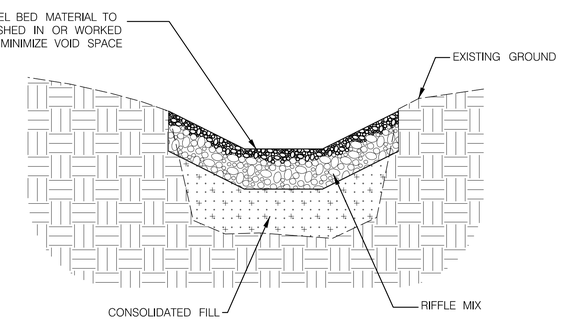
TYPICAL PROFILE
RIFFLE DIVERSITY STRUCTURE
NOT TO SCALE



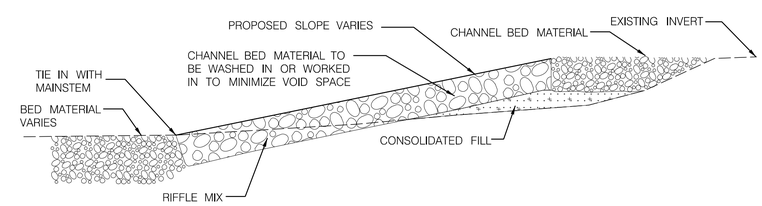
TYPICAL SECTION ANGLE LOG
RIFFLE DIVERSITY STRUCTURE
NOT TO SCALE

NOTE:

1. ORIENT ROOTWAD OF LARGE LOG UPSTREAM TO AN ANGLE OF 30–45 DEGREES FROM VERTICAL
2. USE DRIVING TECHNIQUES TO ENSURE LARGE LOG IS EMBEDDED INTO EXISTING CONDITIONS. TAPER END OF LOG TO AID IN DRIVING.
3. AT LEAST 70% OF ROOTWAD TO BE SUBMERGED DURING BASEFLOW. BASEFLOW ELEVATION TO BE APPROXIMATED BY ELEVATION OF DOWNSTREAM RIFFLE CREST.
4. ANGLE LOGS TO BE INSTALLED AT A SLOPE OF 1–2% RELATIVE TO VERTICAL, INCREASING IN ELEVATION DOWNSTREAM
5. REFER TO RIFFLE HABITAT STRUCTURE FOR TYPICAL CROSS SECTIONS B–B' AND C–C'



TYPICAL SECTION
TRIBUTARY CONFLUENCE STABILIZATION (TCS)
NOT TO SCALE



TYPICAL PROFILE
TRIBUTARY CONFLUENCE STABILIZATION (TCS)
NOT TO SCALE

NOTE:
LINES AND GRADES OF INDIVIDUAL STRUCTURES VARY. SEE STRUCTURE SCHEDULES, PROFILES AND CROSS-SECTIONS FOR PROPOSED LAYOUT AND DIMENSIONS.

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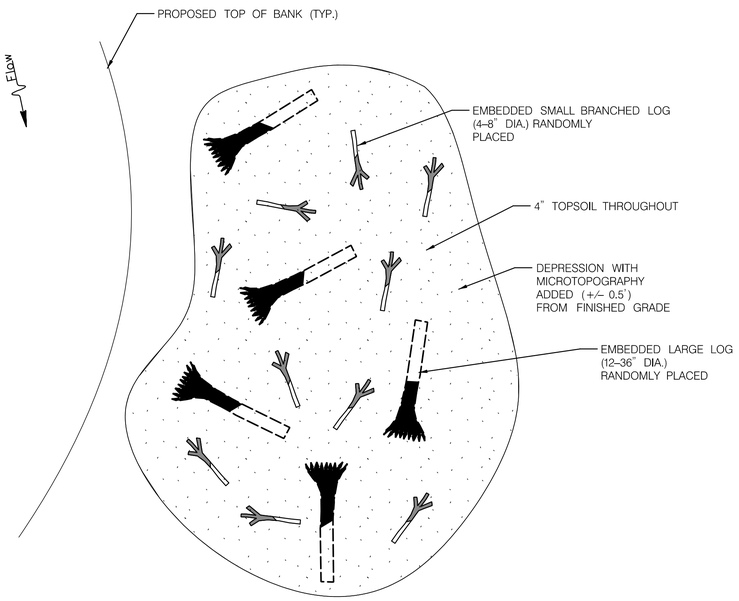
SUNNY VIEW ROAD
STREAM REHABILITATION
DETAIL SHEET

HARFORD COUNTY
DEPARTMENT OF
PUBLIC WORKS
WATER RESOURCES ENGINEERING
212 SOUTH BOND STREET
3RD FLOOR
BEL AIR MARYLAND 21014
410-638-3545

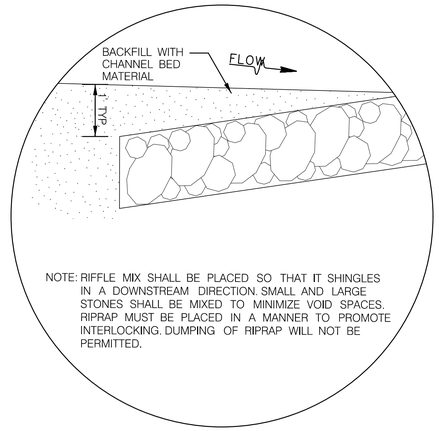
DATE 11-27-19	DRAWING NO.
SCALE NOT TO SCALE	
DESIGNED BY KRM/JBS	SHEET 7 OF 50
DRAWN BY WJW	FWA JOB NUMBER



TYPICAL PLAN VIEW
FLOODPLAIN ENHANCEMENT FEATURE
NOT TO SCALE

NOTES:

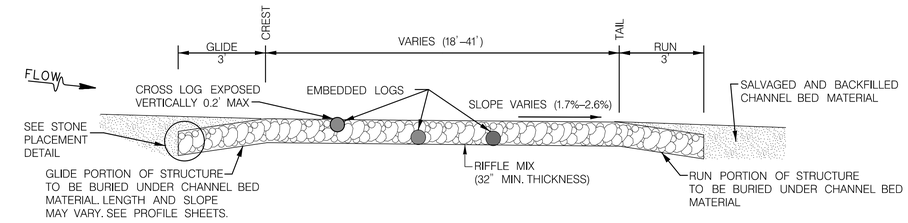
1. HARDWOOD SPECIES AND LOGS WITH INTACT ROOTWADS TO BE PREFERENTIALLY USED IN INSTREAM STRUCTURES
2. INCORPORATE MICROTOPOGRAPHY IN AREAS WHICH LIMIT IMPACTS TO EXISTING NATURAL RESOURCES AND EXISTING UTILITY RIGHT OF WAYS
3. ROUGH GRADE FINISHED SURFACE: MANIPULATE GROUND TO CREATE MICROTOPOGRAPHY WITH AREAS +/– 0.5' FROM PROPOSED GRADE.
4. MINIMUM OF FIVE (5) LARGE LOGS AND TEN (10) SMALL BRANCHES TO BE PLACED IN EACH FLOODPLAIN ENHANCEMENT FEATURE. ADDITIONAL WOODY DEBRIS CAN BE PLACED WITH APPROVAL OF THE ENGINEER.
5. PLACEMENT AND EMBEDMENT OF LARGE LOGS AND SMALL BRANCHES TO BE DETERMINED IN THE FIELD AT THE DIRECTION OF THE ENGINEER. ALL WOODY DEBRIS TO BE PARTIALLY EMBEDDED AT MIN.



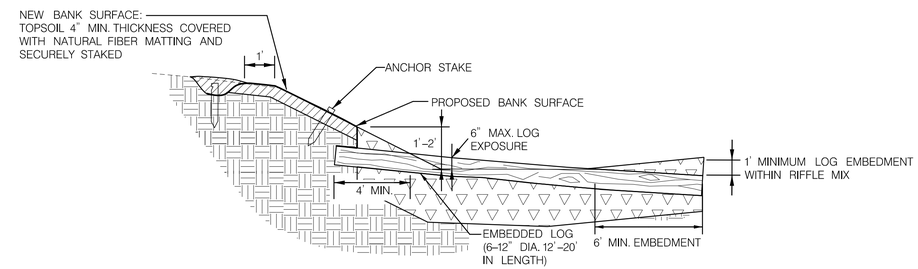
NOTE: RIFFLE MIX SHALL BE PLACED SO THAT IT SHINGLES IN A DOWNSTREAM DIRECTION. SMALL AND LARGE STONES SHALL BE MIXED TO MINIMIZE VOID SPACES. RIPRAP MUST BE PLACED IN A MANNER TO PROMOTE INTERLOCKING. DUMPING OF RIPRAP WILL NOT BE PERMITTED.

STONE PLACEMENT DETAIL
NOT TO SCALE

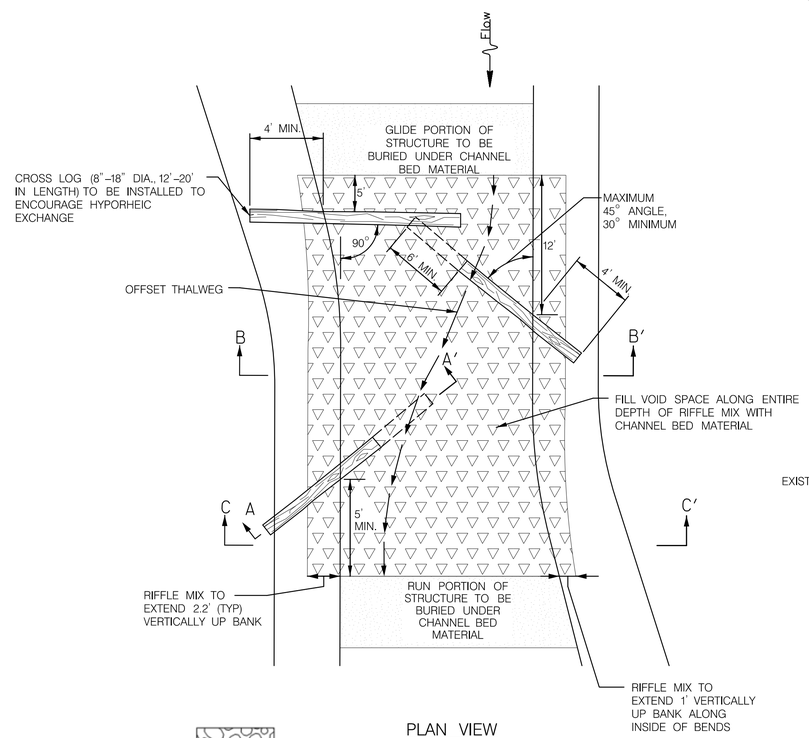
RIFFLE MIX	
AMOUNT OF STONE (%)	STONE TYPE
0	SHA CLASS 0
20	SHA CLASS 1
80	SHA CLASS 2
100	TOTAL



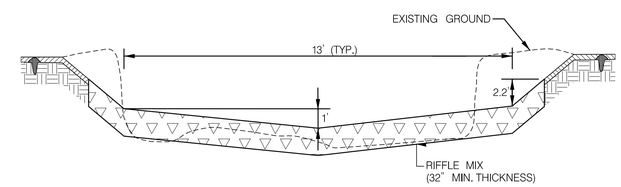
TYPICAL PROFILE
RIFFLE HABITAT STRUCTURE
NOT TO SCALE



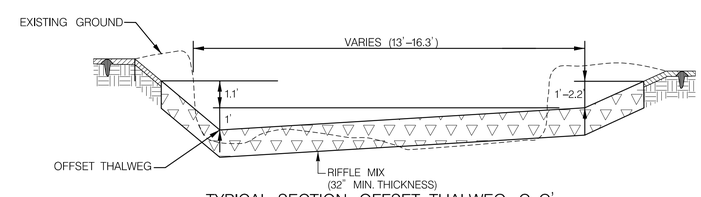
TYPICAL SECTION A–A'
RIFFLE HABITAT STRUCTURE
NOT TO SCALE



PLAN VIEW
RIFFLE HABITAT STRUCTURE (RHS)
NOT TO SCALE



TYPICAL SECTION B–B'
RIFFLE HABITAT STRUCTURE
NOT TO SCALE



TYPICAL SECTION OFFSET THALWEG C–C'
RIFFLE HABITAT STRUCTURE
NOT TO SCALE

NOTE:
LINES AND GRADES OF INDIVIDUAL STRUCTURES VARY. SEE STRUCTURE SCHEDULES, PROFILES AND CROSS-SECTIONS FOR PROPOSED LAYOUT AND DIMENSIONS.

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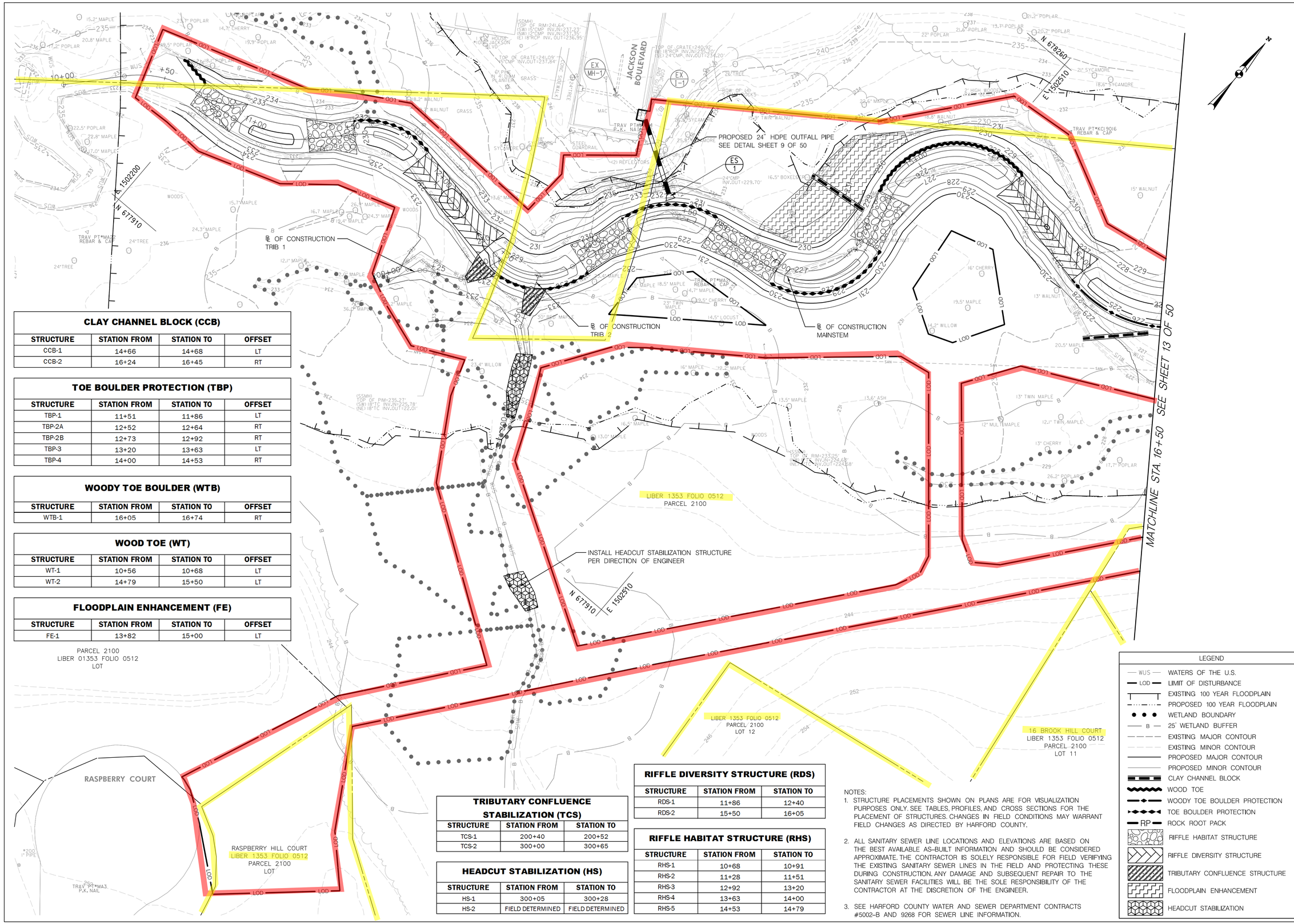
REVISIONS

SUNNY VIEW ROAD
STREAM REHABILITATION
DETAIL SHEET

HARFORD COUNTY
DEPARTMENT OF
PUBLIC WORKS
WATER RESOURCES ENGINEERING
212 SOUTH BOND STREET
2ND FLOOR
BEL AIR MARYLAND 21014
410-638-3545

DATE 11-27-19	DRAWING NO.
SCALE NOT TO SCALE	
DESIGNED BY KRM/JBS	SHEET 8 OF 50
DRAWN BY WJW	FWA JOB NUMBER



CLAY CHANNEL BLOCK (CCB)

STRUCTURE	STATION FROM	STATION TO	OFFSET
CCB-1	14+66	14+68	LT
CCB-2	16+24	16+45	RT

TOE BOULDER PROTECTION (TBP)

STRUCTURE	STATION FROM	STATION TO	OFFSET
TBP-1	11+51	11+86	LT
TBP-2A	12+52	12+64	RT
TBP-2B	12+73	12+92	RT
TBP-3	13+20	13+63	LT
TBP-4	14+00	14+53	RT

WOODY TOE BOULDER (WTB)

STRUCTURE	STATION FROM	STATION TO	OFFSET
WTB-1	16+05	16+74	RT

WOOD TOE (WT)

STRUCTURE	STATION FROM	STATION TO	OFFSET
WT-1	10+56	10+68	LT
WT-2	14+79	15+50	LT

FLOODPLAIN ENHANCEMENT (FE)

STRUCTURE	STATION FROM	STATION TO	OFFSET
FE-1	13+82	15+00	LT

TRIBUTARY CONFLUENCE STABILIZATION (TCS)

STRUCTURE	STATION FROM	STATION TO
TCS-1	200+40	200+52
TCS-2	300+00	300+65

HEADCUT STABILIZATION (HS)

STRUCTURE	STATION FROM	STATION TO
HS-1	300+05	300+28
HS-2	FIELD DETERMINED	FIELD DETERMINED

RIFFLE DIVERSITY STRUCTURE (RDS)

STRUCTURE	STATION FROM	STATION TO
RDS-1	11+86	12+40
RDS-2	15+50	16+05

RIFFLE HABITAT STRUCTURE (RHS)

STRUCTURE	STATION FROM	STATION TO
RHS-1	10+68	10+91
RHS-2	11+28	11+51
RHS-3	12+92	13+20
RHS-4	13+63	14+00
RHS-5	14+53	14+79

NOTES:

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3. SEE HARFORD COUNTY WATER AND SEWER DEPARTMENT CONTRACTS #5002-B AND 9268 FOR SEWER LINE INFORMATION.

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- B — 25' WETLAND BUFFER
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- TRIBUTARY CONFLUENCE STRUCTURE
- FLOODPLAIN ENHANCEMENT
- HEADCUT STABILIZATION

McCORMICK TAYLOR
509 South Exeter Street
4th Floor
Baltimore, Maryland 21202
(410) 662-7400

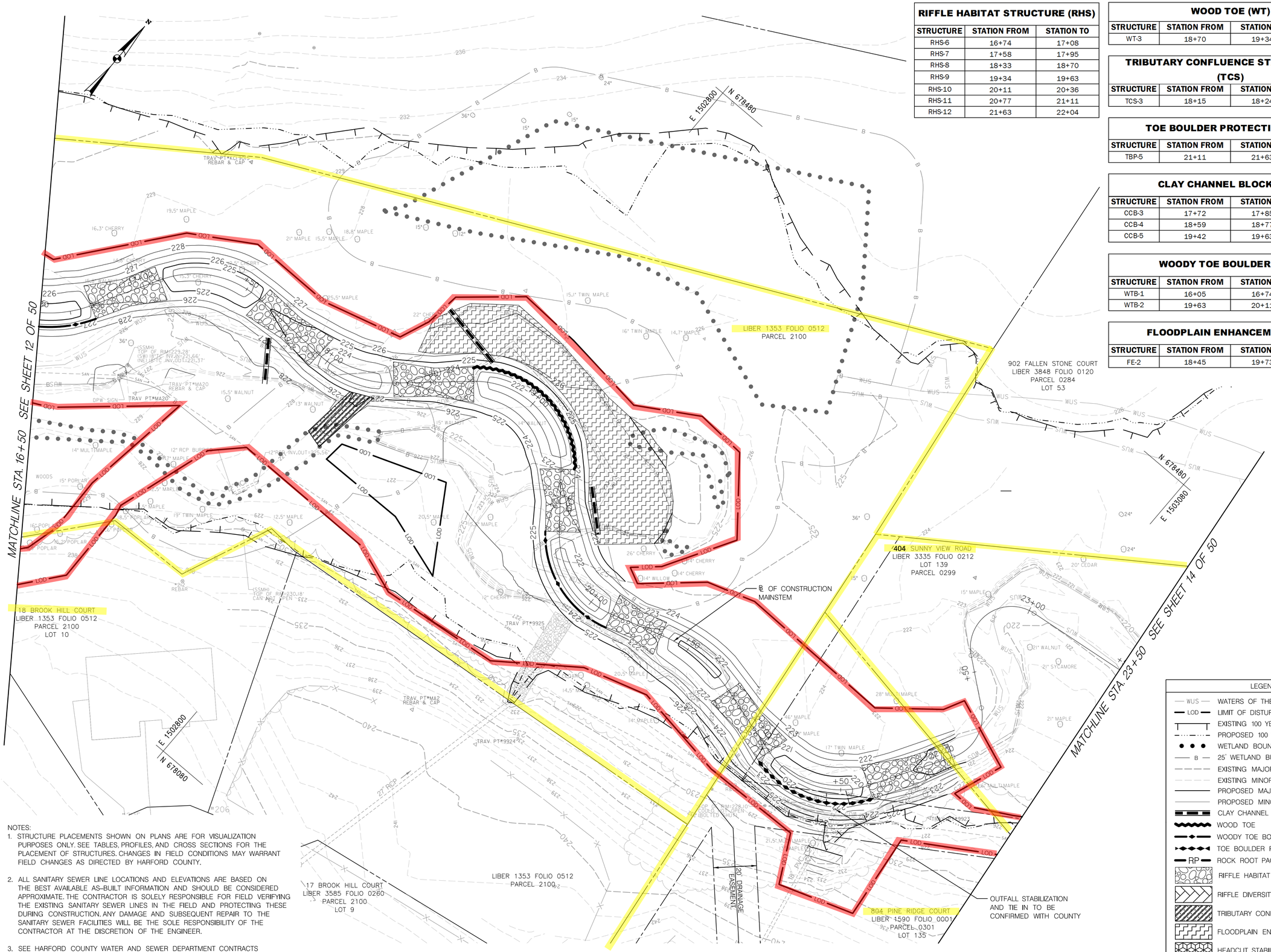
REV#	DATE	DESCRIPTION

REVISIONS

SUNNY VIEW ROAD
STREAM REHABILITATION
PLAN SHEET

HARFORD COUNTY
DEPARTMENT OF
PUBLIC WORKS
WATER RESOURCES ENGINEERING
212 SOUTH BOND STREET
BEL AIR MARYLAND 21014
410-638-3545

DATE 11-27-19	DRAWING NO.
SCALE 1"= 20'	
DESIGNED BY KRM/JBS	SHEET 12 OF 50
DRAWN BY WJW	FWA JOB NUMBER



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RIFFLE HABITAT STRUCTURE (RHS)

STRUCTURE	STATION FROM	STATION TO
RHS-6	16+74	17+08
RHS-7	17+58	17+95
RHS-8	18+33	18+70
RHS-9	19+34	19+63
RHS-10	20+11	20+36
RHS-11	20+77	21+11
RHS-12	21+63	22+04

WOOD TOE (WT)

STRUCTURE	STATION FROM	STATION TO	OFFSET
WT-3	18+70	19+34	LT

TRIBUTARY CONFLUENCE STABILIZATION (TCS)

STRUCTURE	STATION FROM	STATION TO	OFFSET
TCS-3	18+15	18+24	RT

TOE BOULDER PROTECTION (TBP)

STRUCTURE	STATION FROM	STATION TO	OFFSET
TBP-5	21+11	21+63	RT

CLAY CHANNEL BLOCK (CCB)

STRUCTURE	STATION FROM	STATION TO	OFFSET
CCB-3	17+72	17+85	RT
CCB-4	18+59	18+77	LT
CCB-5	19+42	19+63	LT

WOODY TOE BOULDER (WTB)

STRUCTURE	STATION FROM	STATION TO	OFFSET
WTB-1	16+05	16+74	RT
WTB-2	19+63	20+11	RT

FLOODPLAIN ENHANCEMENT (FE)

STRUCTURE	STATION FROM	STATION TO	OFFSET
FE-2	18+45	19+73	LT

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REVISIONS

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PLAN SHEET

HARFORD COUNTY
DEPARTMENT OF
PUBLIC WORKS
WATER RESOURCES ENGINEERING
212 SOUTH BOND STREET
BEL AIR MARYLAND 21014
410-638-3545

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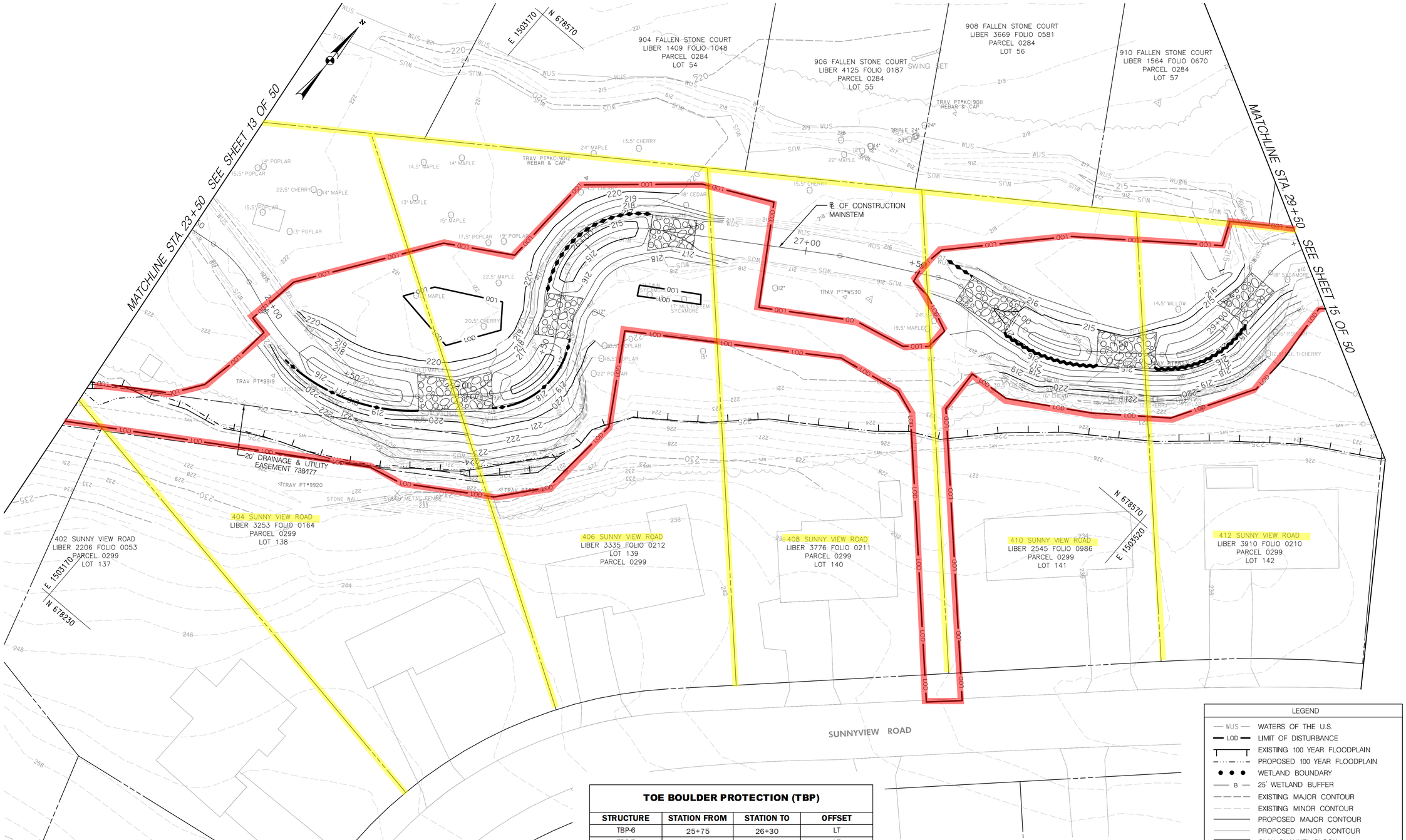

TOE BOULDER PROTECTION (TBP)

STRUCTURE	STATION FROM	STATION TO	OFFSET
TBP-6	25+75	26+30	LT
TBP-7	27+62	27+73	LT

WOODY TOE BOULDER (WTB)

STRUCTURE	STATION FROM	STATION TO	OFFSET
WTB-3	24+22	24+82	RT
WTB-4	25+15	25+56	RT

WOOD TOE (WT)

STRUCTURE	STATION FROM	STATION TO	OFFSET
WT-4	28+00	28+40	RT
WT-5	28+66	29+07	RT

RIFFLE HABITAT STRUCTURE (RHS)

STRUCTURE	STATION FROM	STATION TO
RHS-13	24+82	25+15
RHS-14	25+56	25+75
RHS-15	26+30	26+50
RHS-16	27+73	28+00
RHS-17	28+40	28+66
RHS-18	29+07	29+36

NOTES:

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PLAN SHEET

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PUBLIC WORKS
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2ND FLOOR
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410-638-3545

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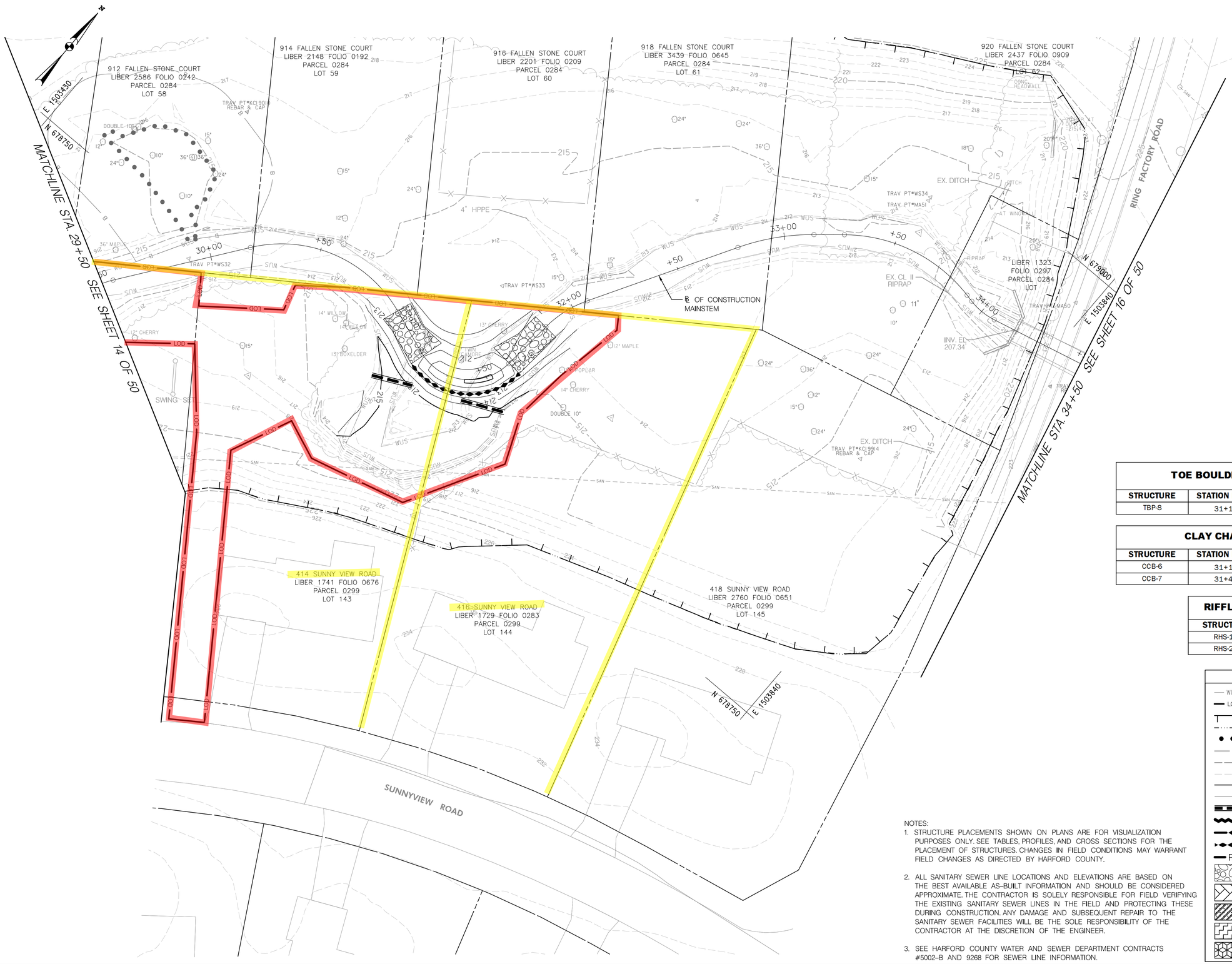

TOE BOULDER PROTECTION (TBP)

STRUCTURE	STATION FROM	STATION TO	OFFSET
TBP-8	31+18	31+62	RT

CLAY CHANNEL BLOCK (CCB)

STRUCTURE	STATION FROM	STATION TO	OFFSET
CCB-6	31+13	31+23	RT
CCB-7	31+40	31+52	RT

RIFFLE HABITAT STRUCTURE (RHS)

STRUCTURE	STATION FROM	STATION TO
RHS-19	30+95	31+18
RHS-20	31+62	31+85

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3RD FLOOR
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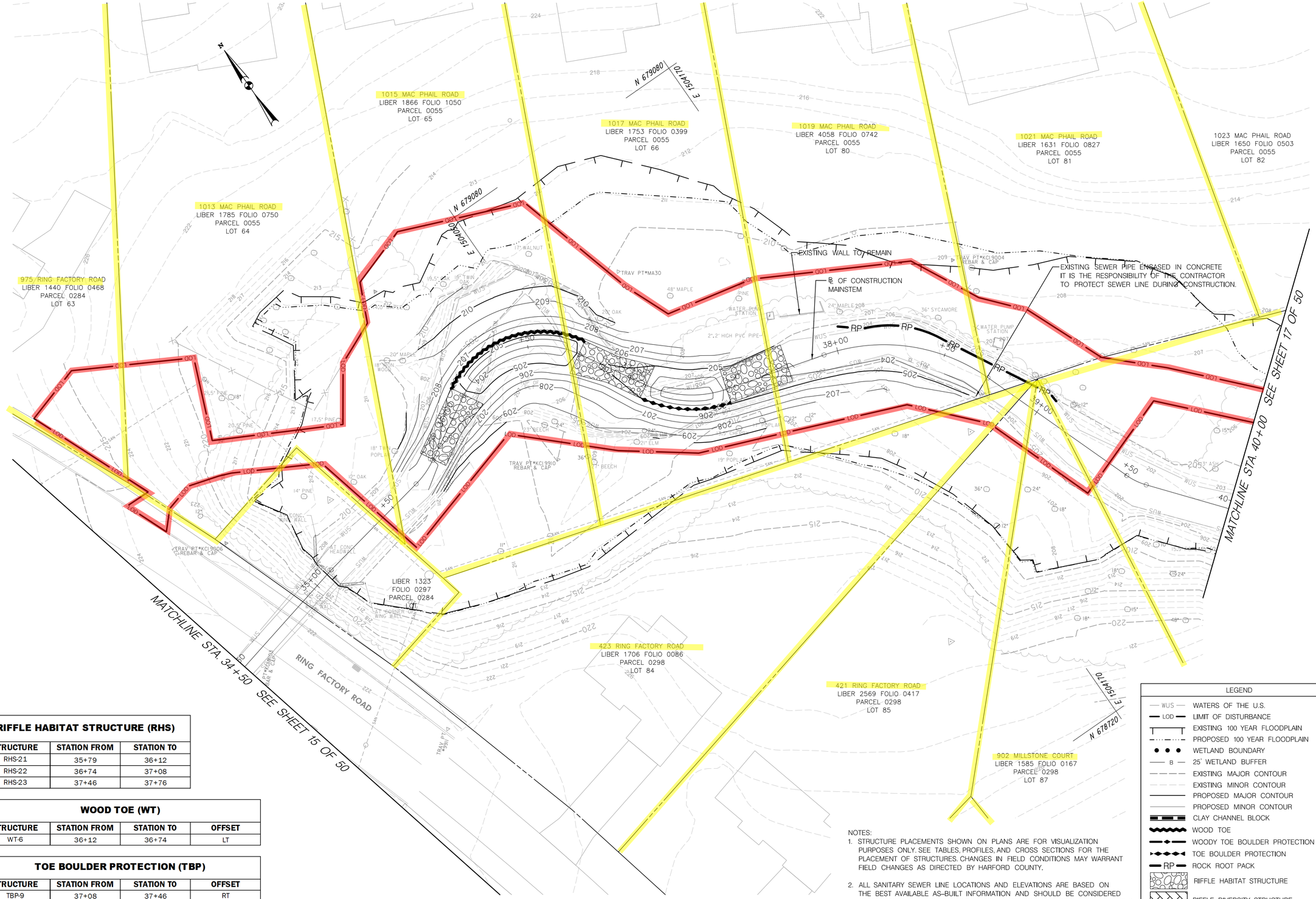

RIFFLE HABITAT STRUCTURE (RHS)

STRUCTURE	STATION FROM	STATION TO
RHS-21	35+79	36+12
RHS-22	36+74	37+08
RHS-23	37+46	37+76

WOOD TOE (WT)

STRUCTURE	STATION FROM	STATION TO	OFFSET
WT-6	36+12	36+74	LT

TOE BOULDER PROTECTION (TBP)

STRUCTURE	STATION FROM	STATION TO	OFFSET
TBP-9	37+08	37+46	RT

ROOT ROCK PACK (RRP)

STRUCTURE	STATION FROM	STATION TO	OFFSET
RRP-1	38+02	39+04	LT

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DATE 11-27-19	DRAWING NO.
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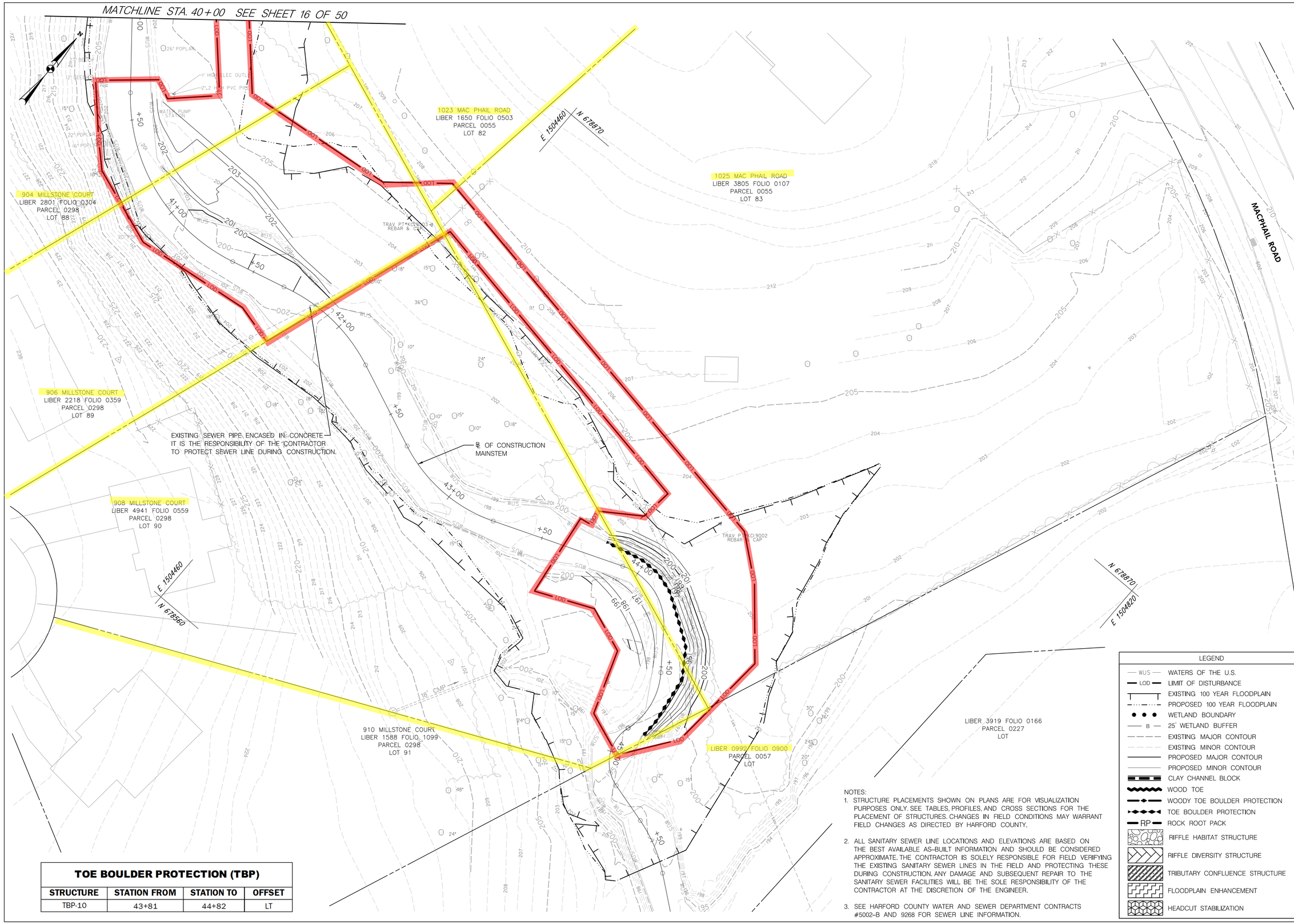

TOE BOULDER PROTECTION (TBP)

STRUCTURE	STATION FROM	STATION TO	OFFSET
TBP-10	43+81	44+82	LT

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