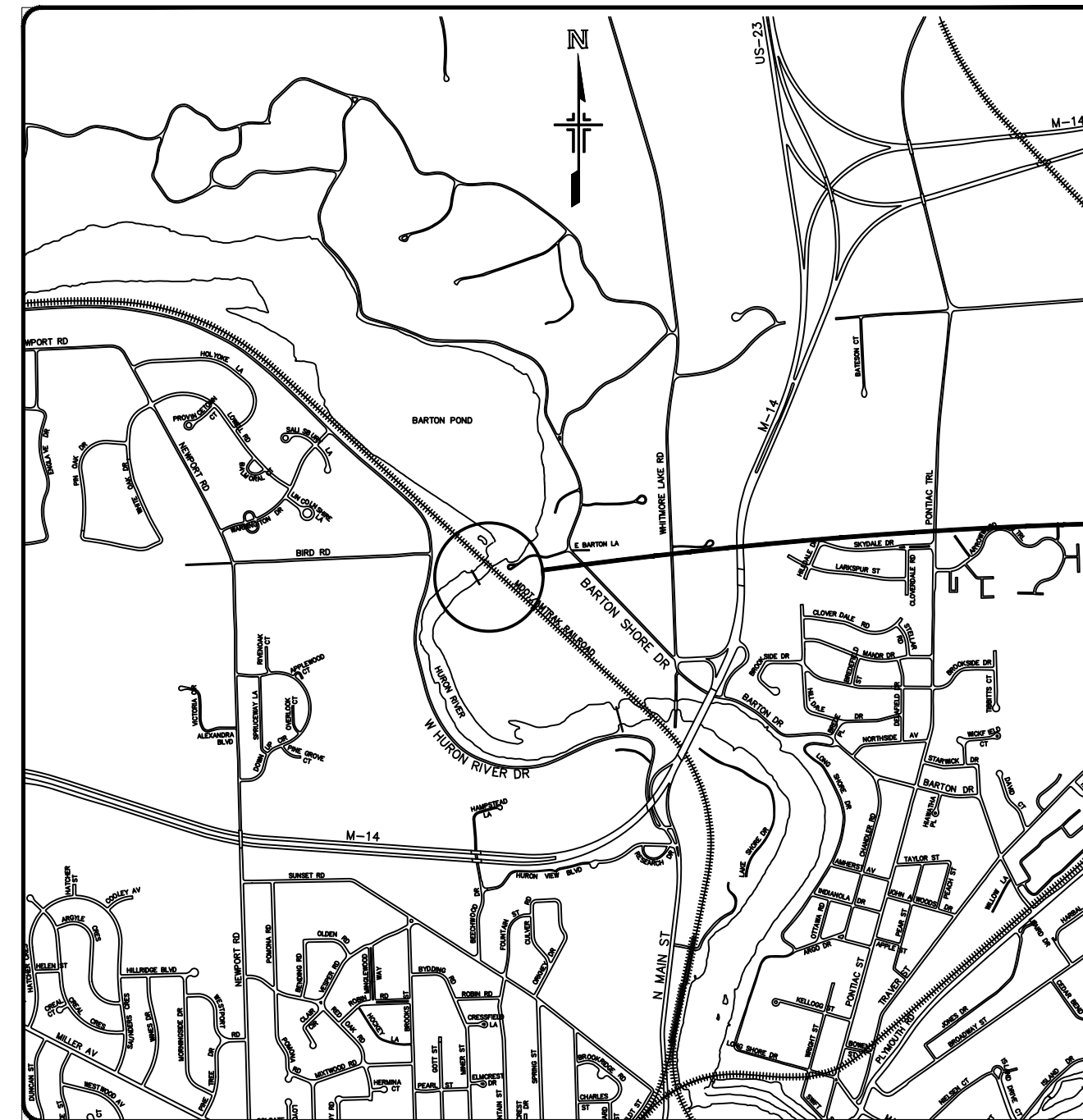


CITY OF ANN ARBOR

PUBLIC SERVICES AREA - WATER TREATMENT SERVICES UNIT



BARTON DAM (ID #3142) RIGHT EMBANKMENT REMEDIATION PROJECT ANN ARBOR, MICHIGAN



BARTON DAM
RIGHT EMBANKMENT
REMEDATION PROJECT.
ADDRESS: BARTON PUMP STATION
1010 HURON RIVER DRIVE
ANN ARBOR, MI 48103
FERC PROJECT #3142

DESIGN OF: EMBANKMENT IMPROVEMENTS, FILTER DESIGN, UNDERDRAINS,
DITCH RELOCATION, AND ACCESS PATH DESIGN.

PREPARED UNDER THE SUPERVISION OF

STEVEN A. McMANUS, # _____
FIRST LAST, MICHIGAN LICENSE NO. _____

DATE

DESIGN OF: UNDERPASS IMPROVEMENTS AND STAIRWAY IMPROVEMENTS.

PREPARED UNDER THE SUPERVISION OF

COREY VAN LUCHENE, # _____
FIRST LAST, MICHIGAN LICENSE NO. _____

DATE

SEAL

DRAWING NO.
2211050300
SHEET 1 OF 48

NOT FOR CONSTRUCTION

RFP #24-03
DRAFTED BID DRAWING
JANUARY 18, 2024



Know what's below.
Call before you dig.

FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 53, THE CONTRACTOR SHALL DIAL 1-800-482-7171 A MINIMUM OF THREE FULL WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS PRIOR TO BEGINNING EACH EXCAVATION IN AREAS WHERE PUBLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM.



NTH Consultants, Ltd.
Infrastructure Engineering
and Environmental Services



INDEX OF DRAWINGS

SHEET ID	SHEET NAME
2	GENERAL INFORMATION
3	OVERALL EXISTING SITE PLAN
4 - 8	PARTIAL EXISTING SITE PLANS
9	EXISTING COLLECTOR DITCH PLAN AND PROFILE
10	SESC PLAN
11	SESC DETAILS
12	SITE PREPARATION PLAN
13	SITE PREPARATION DETAILS
14	REGIONAL DETOUR PLAN
15	SITE DETOUR PLAN
16	DEMOLITION PLAN
17-19	DEMOLITION DETAILS
20-21	CONTROL POINT TABLES
22	PROPOSED WORK INDEX
23	OVERALL PROPOSED SITE PLAN
24-27	PARTIAL PROPOSED SITE PLANS
28	PROPOSED ACCESS PATH PLAN AND PROFILE
29	PROPOSED COLLECTOR DITCH PLAN AND PROFILE
30-31	TYPICAL CROSS SECTION COLLECTOR DITCH DETAIL
32-38	PROPOSED CROSS SECTIONS
39	TOE DRAIN GROUTING AND ABANDONMENT
40	UNDERPASS IMPROVEMENTS
41	RETAINING WALL REALIGNMENT PLAN AND SECTIONS
42	PROPOSED CULVERT PLAN, PROFILE, CROSS SECTION, AND DETAILS
43	STAIRWAY IMPROVEMENTS
44-46	MISCELLANEOUS DETAILS
47	SITE RESTORATION PLAN
48	ESTIMATED PROJECT QUANTITIES

BENCHMARKS			
POINT #	NORTHING	EASTING	ELEVATION
BM1	3543232.68	159465238.92	780.51
BM2	3542009.88	159459132.84	790.79

SURVEY NOTES

- HORIZONTAL AND VERTICAL CONTROL ARE BASED OFF OF CP2 AND CP4 AS SHOWN ON THE PLAN TITLED "2018 BATHYMETRIC AND MOVEMENT MONITORING SURVEY" PERFORMED BY SME ON AUGUST 6, 2018. THE PLAN WAS COMPLETED ON SEPTEMBER 21, 2018 AND WAS SUPPLIED BY THE CITY OF ANN ARBOR AS A MEANS TO ESTABLISH SITE CONTROL.
- ADDITIONAL POINTS WERE CONVENTIONALLY SET AND ADJUSTED USING THE LEAST SQUARES METHOD. ELEVATIONS WERE DERIVED BY LEVELING FROM POINTS CP2 AND CP4.
- THE PROVIDED HORIZONTAL CONTROL WAS DETERMINED TO BE ON MICHIGAN STATE PLANE COORDINATE SYSTEM SOUTH ZONE, US SURVEY FEET.
- THE PROVIDED VERTICAL CONTROL WAS DETERMINED TO BE ON NAVD 88.
- IN ORDER TO MATCH THE EXISTING CONTROL, ALL MEASUREMENTS SHOWN ARE US SURVEY FEET.
- FOR ADDITIONAL HISTORY ON THE ORIGINAL CONTROL SEE THE REFERENCED PLAN.
- RAILROAD CORRIDOR WAS LOCATED USING DRONE TECHNOLOGY.
- RAILROAD ACTIVELY ADDING AGGREGATE TO RAIL CORRIDOR DURING SURVEY PERFORMED ON 11/8/2022 (POST DRONE FLIGHT).

PROPOSED CONSTRUCTION SEQUENCE

THE CONTRACTOR IS SOLELY RESPONSIBLE FOR AND HAS CONTROL OVER ALL CONSTRUCTION MEANS, METHODS, MANNER, TECHNIQUES, SEQUENCES, AND PROCEDURES. THROUGHOUT THE PROJECT, DAM SAFETY IS OF THE UTMOST IMPORTANCE AND THE CONTRACTOR MUST COMPLY WITH ALL REQUIREMENTS OF THE FEDERAL ENERGY REGULATORY COMMISSION (FERC). THE PROPOSED CONSTRUCTION SEQUENCE PRESENTS A POSSIBLE METHOD OF PERFORMING THE WORK. THE CONTRACTOR HAS THE ABILITY TO MODIFY THE SEQUENCE TO SUIT THE SELECTED MEANS AND METHODS FOR THE CONSTRUCTION WHILE ADHERING TO ALL DEFINED CONSTRUCTION RESTRICTIONS. IF THE CONTRACTOR ELECTS TO MODIFY THIS SEQUENCE, MODIFICATIONS MUST BE SUBMITTED AND APPROVED BY THE CITY PRIOR TO CONSTRUCTION.

- INSTALL SESC MEASURES.
- PERFORM GROUTING OF TD-23 AND TD-43.
- PERFORM SITE PREPARATION AND PREPARE LAYDOWN AREA INCLUDING FENCING, CROSSING, SIGNAGE, TEMPORARY HAUL ROAD AS WELL AS NECESSARY CLEARING AND GRUBBING.
- REMOVE UNDERPASS CANOPY, RAILING, PAVEMENT AND GABIONS. INSTALL MODULAR BLOCK WALL SYSTEM FOR UNDERPASS WIDENING, PLACE BACKFILL, PLACE TEMPORARY WORKING SURFACE COURSE.
- REMOVE EXISTING RETAINING WALL NORTH OF UNDERPASS AND REPLACE WITH MODULAR BLOCK WALL.
- CLEAR AND GRUB THE PROPOSED WORK AREA.
- REGRADE THE EMBANKMENT CREST TO ELEVATION 802.0 FEET.
- RELOCATE EMERGENCY STOCKPILES OF SAND AND GRAVEL.
- INSTALL REVERSE FILTER DEWATERING SYSTEM, REMOVE EXISTING REVERSE FILTER AND UNSUITABLE SOILS, AND BACKFILL TO ORIGINAL GRADE.
- COLLECTOR DITCH POND FILLING - INSTALL DEWATERING SYSTEM, REMOVE UNSUITABLE MATERIAL, PREPARE SUBGRADE, BACKFILL COLLECTOR DITCH POND AND PLACE FILL ALONG EXISTING EMBANKMENT UPSLOPE OF THE COLLECTOR DITCH POND.
- CONSTRUCT PROPOSED COLLECTOR DITCH.
- INSTALL SURFACE WATER CONTROLS AND DEWATERING SYSTEM FOR THE EXISTING COLLECTOR DITCH.
- REMOVE EXISTING BLOCK RETAINING WALL, AGGREGATE BALLAST, CONCRETE-FILLED POSTS, AND STEEL C-CHANNEL POSTS FOR TD-12 THROUGH TD-59.
- ABANDON EXISTING TOE DRAINS TD-12 THROUGH TD-59. REMOVE LINING FROM EXISTING COLLECTOR DITCH AND BACKFILL DITCH
- STRIP TOPSOIL AND REMOVE UNSUITABLE SOILS WITHIN THE FOOTPRINT OF THE PROPOSED STABILIZATION BERM. PERFORM THE WORK IN "STRIPS" AND PLACE BACKFILL TO ORIGINAL GRADE SAME WORKDAY. "STRIPS" TO BE NO WIDER THAN 100 FEET AS MEASURED ALONG THE PROJECT BASELINE.
- PLACE STABILIZATION BERM WITH GRANULAR FILTER, MINERAL DRAIN, AND PERFORATED UNDERDRAIN.
- RAISE EXISTING PIEZOMETERS AND INSTALL LOCKING MONUMENTS.

SYMBOLS	
	HISTORIC BORING (2017)
	TEST BORING (TB) (2022)
	HAND AUGER BORING (HAB) (2022)
	FENCE
	EDGE OF GRAVEL
	EDGE OF RIP RAP
	TREELINE
	CONTOUR BELOW WATER
	EDGE OF WETLAND
	COLLECTOR DITCH CL
	SILT FENCE
	PROPOSED PERMANENT ACCESS PATH
	TEMPORARY CONSTRUCTION FENCE
	TURBIDITY CURTAIN
	REMOVE/DEMOLISH
	STEEL C-CHANNEL POST IDENTIFYING TOE DRAINS IN THE FIELD
	EXISTING PIEZOMETER
	TOE DRAIN WITH IDs
	CONCRETE-FILLED STEEL POST
	BENCHMARK
	EX. CULVERT
	EX. CONTOURS
	PR. CONTOURS
	EX. TREE
	EX. TREE TO BE REMOVED
	POINT OF INTERSECTION
	TREE PROTECTION FENCE
	PROJECT STATIONING
	TEMPORARY SIGNAGE
	UTILITY POLE
	PRIMARY GROUT HOLE
	SECONDARY GROUT HOLE
	TERTIARY GROUT HOLE
	4X4 POST WITH CONCRETE FOOTING
	4X4 POST ATTACHED TO STEPS
	MANHOLE
	4" STEEL POST (CONCRETE-FILLED) WITH 4" EMBEDMENT IN GROUND

ABBREVIATIONS	
AC	PLUS OR MINUS
B	BASELINE
BM	BENCHMARK
BRG.	BEARING
CCTV	CLOSED CIRCUIT TELEVISION
CH.	CHANGE
CJP	COMPLETE JOINT PENETRATION
CL	CENTERLINE
CY	CUBIC YARD
DIA.	DIAMETER
DR.	DRIVE
EA	EACH
ELEV	ELEVATION
ETC.	ET CETERA
EX.	EXISTING
FT	FOOT
H	HORIZONTAL
LF	LINEAR FEET
MAX.	MAXIMUM
MDOT	MICHIGAN DEPARTMENT OF TRANSPORTATION
MIN.	MINIMUM
N	NORTH
N.T.S.	NOT TO SCALE
NO.	NUMBER
PC	POINT OF CURVATURE
PI	POINT OF INTERSECTION
PR.	PROPOSED
PT	POINT
PZ	PIEZOMETER
REV.	REVISION
ROW	RIGHT OF WAY
RR	RAILROAD
SF	SQUARE FOOT
STA	STATION
SY	SQUARE YARD
TD	TOE DRAIN
TEMP.	TEMPORARY
TYP.	TYPICAL
UNO	UNLESS NOTED OTHERWISE
V	VERTICAL
W/	WITH
WSEL	WATER SURFACE ELEVATION

- REMOVE, RELOCATE, AND REPLACE EXISTING CULVERT.
- ALTERNATE BID WORK ITEM: REMOVE EXISTING GABIONS BETWEEN UNDERPASS AND SPILLWAY AND REPLACE WITH MODULAR BLOCK WALL.
- EXCAVATE COMPENSATORY CUT AND DISPOSE OF SPOILS OFF SITE.
- REVEGETATE STABILIZATION BERM AND WORKING AREAS.
- CONSTRUCT PROPOSED PERMANENT ACCESS PATH AND IMPROVEMENTS TO EXISTING ACCESS PATH.
- REMOVE AND REPLACE EXISTING STAIRS, RAILING ALONG HURON RIVER, AND FENCE ATOP THE SPILLWAY ABUTMENT WALL.
- REMOVE TEMPORARY WEARING COURSE AT UNDERPASS AND REPLACE WITH PERMANENT SLAB. CONSTRUCT UNDERPASS CANOPY AND RAILING.
- REMOVE TEMPORARY HAUL ROAD, SESC MEASURES, AND COMPLETE FINAL SITE RESTORATION.

GENERAL NOTES

- EXCEPT FOR UNDERPASS AT THE HURON RIVER, CROSSING THE RAILROAD TRACKS OR ENTRY INTO THE RAILROAD RIGHT-OF-WAY ANYWHERE IS PROHIBITED.
- DIMENSIONS AND LOCATION OF EXISTING STRUCTURES, INCLUDING, BUT NOT LIMITED TO, THE EXISTING RAILROAD BRIDGE AND THE EXISTING SPILLWAY, ARE APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY ALL WORK-CRITICAL DIMENSIONS AND ELEVATIONS PRIOR TO BEGINNING WORK OR ORDERING MATERIALS.
- UNLESS OTHERWISE SHOWN, THE CONTRACTOR SHALL NOT DISTURB ANY EXISTING DAM OR PARK FEATURES AND SHALL PROTECT THE EXISTING DAM FEATURES FROM DAMAGE DURING CONSTRUCTION, INCLUDING BUT NOT LIMITED TO, THE EXISTING SPILLWAY AND POWERHOUSE, CANOE/KAYAK SLIDE, WOOD DOCKS, CONCRETE BENCHES, PUMP STATION AND SURROUNDING FENCE LINE.
- NO LANE CLOSURES, OR OTHER MAINTENANCE OF TRAFFIC, SHALL BE ALLOWED ON ANY PUBLIC ROADS, INCLUDING WEST HURON RIVER DRIVE, THROUGHOUT THE CONSTRUCTION, UNLESS APPROVED BY THE CITY OF ANN ARBOR, WASHTENAW COUNTY ENGINEER'S OFFICE, AND ALL PERTINENT LOCAL AUTHORITIES. TRAFFIC SHALL BE MAINTAINED IN ACCORDANCE WITH APPLICABLE GOVERNING AUTHORITIES AND THE MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MMUTCD). THE CONTRACTOR SHALL MAINTAIN ALL ROADS REASONABLY CLEAN THROUGHOUT THE CONSTRUCTION. ANY DAMAGE TO THE EXISTING ROADS DUE TO CONSTRUCTION-RELATED TRUCKING AND HAULING SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
- CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE FROST LAWS. THE MICHIGAN DEPARTMENT OF TRANSPORTATION (MDOT) IMPOSES AND ENFORCES WEIGHT RESTRICTIONS ON ALL STATE TRUNKLINE HIGHWAYS. FOR WEIGHT RESTRICTION INFORMATION AND UPDATES, CALL 800-787-8960, OR ACCESS THIS INFORMATION ON MDOT'S WEBSITE AT WWW.MICHIGAN.GOV/TRUCKERS, UNDER "RESTRICTIONS AND CONDITIONS". ALL-SEASON ROUTES ARE DESIGNATED IN GREEN AND GOLD ON THE MDOT TRUCK OPERATORS MAP.
- EXISTING UTILITIES ARE SHOWN WITH REASONABLE ACCURACY BASED ON AVAILABLE INFORMATION. CONTRACTOR SHALL LOCATE AND PROTECT UTILITIES DURING CONSTRUCTION.
- THE CONTRACTOR SHALL PROTECT AND PRESERVE ALL EXISTING PIEZOMETERS (VIBRATING WIRE AND OPEN STANDPIPE) DURING CONSTRUCTION, AS NECESSARY. THE CONTRACTOR SHALL EXTEND EXISTING PIEZOMETERS AS DETAILED ON SHEET 45..
- APPROXIMATELY 40 CUBIC YARDS OF FINE TO COARSE AGGREGATE (NOMINAL 1-INCH TO 3-INCH PARTICLE SIZE) IS STORED ON SITE IN 2 STOCKPILES (1 EACH OF SAND AND GRAVEL) NEAR THE EXISTING REVERSE FILTER. THE CONTRACTOR SHALL MAINTAIN THIS MATERIAL ON SITE AND HAVE READILY AVAILABLE TO PLACE AS NECESSARY IN THE EVENT OF AN EMERGENCY CONDITION.
- ROAD AND TRAIL CLOSURES REQUIRE ADVANCE NOTICE. THE CONTRACTOR SHALL OPEN ROAD AND TRAIL CLOSURES AT THE END OF THE WORK DAY WHERE POSSIBLE. ALTERNATE CANOE PORTAGE WILL BE REQUIRED FOR PARTS OF THE PROJECT. THE LOCATION OF THE ALTERNATE CANOE PORTAGE MUST BE APPROVED BY THE CITY OR THE APPROVED REPRESENTATIVE.
- CONTRACTOR SHALL PROVIDE FLAGGING DURING WORK HOURS TO PROTECT PUBLIC SAFETY ON TRAILS AND PROVIDE PUBLIC ACCESS TO THE PUBLIC CANOE LIVERY LAUNCH.
 - LOADING FROM CONSTRUCTION TRAFFIC SHALL NOT EXCEED THE FOLLOWING LIMITS WITHOUT WRITTEN APPROVAL FROM THE ENGINEER:
 - RAILROAD UNDERPASS:
 - MAXIMUM GROUND BEARING PRESSURE: 500 POUNDS PER SQUARE FOOT
 - MAXIMUM GROSS VEHICLE WEIGHT (LOADED): 37 TONS
 - EMBANKMENT CREST:
 - MAXIMUM PRESSURE: 300 POUNDS PER SQUARE FOOT
 - MAXIMUM VEHICLE WEIGHT: 8 TONS
 - CONTRACTOR SHALL LIMIT ALL CONSTRUCTION TRAFFIC ON THE EMBANKMENT CREST TO THE GREATEST EXTENT POSSIBLE. THE EMBANKMENT CREST SHALL NOT BE USED AS PART OF THE TEMPORARY HAUL ROUTE FOR LOADED OR UNLOADED EQUIPMENT.
 - MAXIMUM GROUND BEARING PRESSURE SHALL BE CALCULATED BY DIVIDING THE PUBLISHED EQUIPMENT OPERATING WEIGHT PLUS THE WEIGHT OF ANY MATERIALS BEING TRANSPORTED BY THE GROUND-BEARING FOOTPRINT AREA OF THE EQUIPMENT. THE GROUND-BEARING FOOTPRINT AREA OF THE EQUIPMENT IS THE PRODUCT OF THE OVERALL GROUND BEARING WIDTH, INCLUDING TIRES OR TRACKS, AND THE GROUND BEARING WHEEL BASE (OR TRACK LENGTH) OF THE EQUIPMENT. OVERLOADED OR OVERSIZED EQUIPMENT IS NOT PERMITTED.
 - THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING SITE FEATURES FROM DAMAGE CAUSED BY CONSTRUCTION ACTIVITY AND IS RESPONSIBLE FOR ALL REPAIRS TO EXISTING SITE FEATURES. THE RAILROAD UNDERPASS AND EMBANKMENT CREST ARE PARTICULARLY CRITICAL AREAS. DISTRESS TO THESE AREAS IS GROUNDS FOR A MANDATORY STOP WORK ORDER THAT WILL REMAIN IN PLACE UNTIL THE OFFENDING ACTION IS HALTED AND FULL REPAIRS AND/OR RESTORATION IS COMPLETED TO THE SATISFACTION OF THE PROJECT OWNER AND ENGINEER, AND MAY ALSO RESULT IN REGULATORY INTERVENTION.
 - HISTORICAL RECORDS FOR PROTECTED EASTERN MASSASAUGA RATTLESNAKES EXIST WITHIN OR NEAR THIS PROJECT. THESE SPECIES WARRANT SPECIAL CONSIDERATION AS THEY ARE RARE IN MICHIGAN. NO PLASTIC MESH EROSION CONTROL PRODUCTS WILL BE USED ON THE PROJECT. TO INCREASE HUMAN SAFETY AND AWARENESS OF EMR, THE CONTRACTOR WILL WATCH THE MDNR "60-SECOND SNAKES: THE EASTERN MASSASAUGA RATTLESNAKES" VIDEO OR REVIEW THE EMR FACT SHEET. THE MDNR VIDEO IS AVAILABLE AT <https://youtube.com/watch?v=-PfnXe02w> AND THE EMR FACT SHEET IS AVAILABLE BY CALLING (517) 351-2555 OR AT <https://www.fws.gov/midwest/endangered/reptiles/eama/pdf/EMRfactsheetSept2016.pdf> ANY EMR OBSERVATIONS WILL BE REPORTED TO THE DNR WITHIN 24 HOURS.
 - NO TREE CUTTING WILL BE CONDUCTED BETWEEN APRIL 1 AND OCTOBER 15 AS A MITIGATION MEASURE TO AVOID POTENTIAL IMPACTS TO THE TRICOLORED BAT AND INDIANA BAT. TREES GREATER THAN 3 INCHES DIAMETER AT BREAST HEIGHT (DBH) SHALL NOT BE REMOVED AS PART OF VEGETATION CLEARING ACTIVITIES WITHIN THE ABOVE DATES.
 - ALL DESIGN AND CONSTRUCTION MUST BE IN COMPLIANCE WITH AMTRAK EP3014 (PROVIDED AS ATTACHMENT R TO THE REQUEST FOR PROPOSAL).
 - TYPICAL WATER SURFACE ELEVATIONS FOR THE WATERWAYS AND PIEZOMETERS ARE SHOWN ON THE DRAWINGS AND/OR SPECIFICATIONS. WATER LEVEL VARIATION OUTSIDE OF THE STATED RANGES IS POSSIBLE. THE CONTRACTOR IS RESPONSIBLE FOR SECURING THE WORK AND STAGING AREAS FOR CONDITIONS OUTSIDE OF THE NORMAL RANGE OF RIVER FLOWS AND STORM RUN-OFF.
 - CONTRACTOR SHALL STAKE RAILROAD RIGHT-OF-WAY AND WETLAND BOUNDARIES BEFORE ACTIVE CONSTRUCTION. CONTRACTOR SHALL MAINTAIN STAKES.
 - CONTRACTOR SHALL PROTECT ALL EXISTING TOE DRAINS. DAMAGE TO TOE DRAINS MUST BE PROMPTLY REPORTED TO THE ENGINEER.
 - WORK ITEMS IDENTIFIED AS "ALTERNATE BID" TO BE COMPLETED AT THE DISCRETION OF THE OWNER.
 - CONSTRUCTION OF THE BORDER-TO-BORDER TRAIL MAY BE ONGOING DURING THE WORK, CONTRACTORS SHALL COORDINATE OPERATIONS WITH OTHERS CONSTRUCTING THE BORDER-TO-BORDER TRAIL, AS NEEDED.



CHECKED	DRAWN	DATE
SAM	JEB	11/10/2023
SAM	JEB	01/18/2024

DESCRIPTION
 PERMIT SET
 BID SET

REV.
 INT: 100%



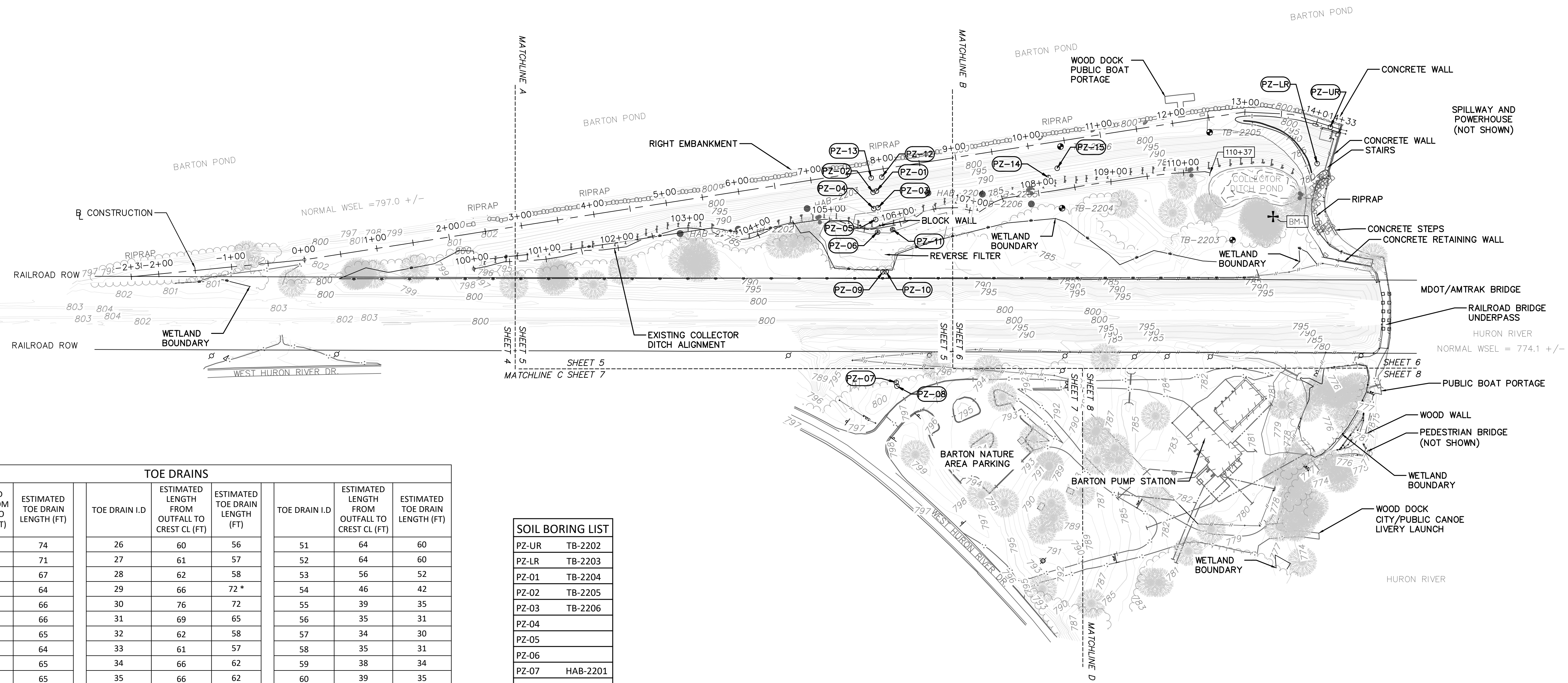
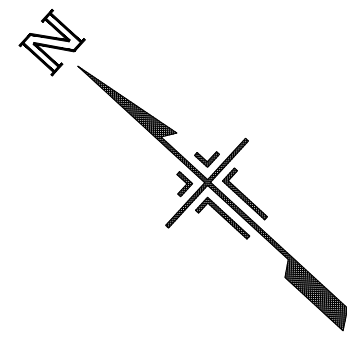
CITY OF ANN ARBOR
 PUBLIC SERVICES
 301 EAST HURON STREET
 ANN ARBOR, MI 48106-6647
 www.a2gov.org

BARTON DAM RIGHT EMBANKMENT REMEDIATION
GENERAL INFORMATION

SCALE
 SEE INDICATED

DRAWING No.
2211050300

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TOE DRAINS								
TOE DRAIN I.D	ESTIMATED LENGTH FROM OUTFALL TO CREST CL (FT)	ESTIMATED TOE DRAIN LENGTH (FT)	TOE DRAIN I.D	ESTIMATED LENGTH FROM OUTFALL TO CREST CL (FT)	ESTIMATED TOE DRAIN LENGTH (FT)	TOE DRAIN I.D	ESTIMATED LENGTH FROM OUTFALL TO CREST CL (FT)	ESTIMATED TOE DRAIN LENGTH (FT)
1	78	74	26	60	56	51	64	60
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19	60	56	44	54	50	69	45	41
20	61	57	45	54	50	70	46	42
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22	58	60 *	47	53	49	72	44	40
23	60	51 *	48	55	51	73	45	41
24	60	67 *	49	59	55	74	44	40
25	60	56	50	63	59	75	44	40

SOIL BORING LIST	
PZ-UR	TB-2202
PZ-LR	TB-2203
PZ-01	TB-2204
PZ-02	TB-2205
PZ-03	TB-2206
PZ-04	
PZ-05	
PZ-06	
PZ-07	HAB-2201
PZ-08	HAB-2202
PZ-09	HAB-2203
PZ-10	HAB-2204
PZ-11	HAB-2205
PZ-12	HAB-2206
PZ-13	
PZ-14	
PZ-15	

- NOTES**
- SEE SHEETS 5 THROUGH 8 FOR SOIL BORING LOCATIONS.
 - TOE DRAIN LENGTHS WERE ESTIMATED BASED ON SURVEYED OUTFALL LOCATIONS (DLZ BARTON DAM SURVEY, 2022), ESTIMATED UPSTREAM EXTENTS (PLANS FOR THE BARTON PLANT OF THE HURON RIVER DEVELOPMENT, 1912). LENGTHS ANNOTATED WITH AN ASTERISK WERE ESTIMATED FROM CCTV INSPECTION (STANTEC, 2023).

CITY OF ANN ARBOR - PUBLIC SERVICES
BARTON DAM RIGHT EMBANKMENT REMEDIATION
OVERALL EXISTING SITE PLAN

SCALE: 1"=80'
DRAWING No. _____

SHEET No. **3 OF 48**

811
Know what's below.
Call before you dig.

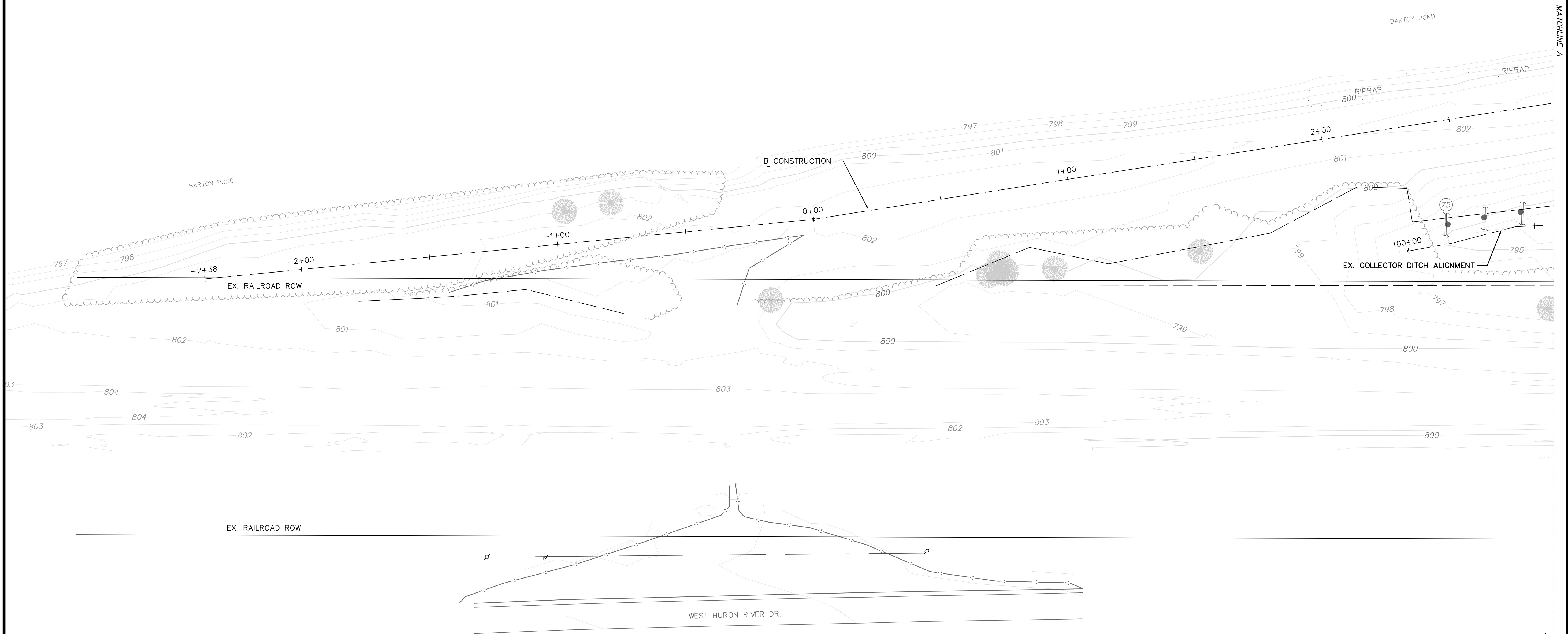
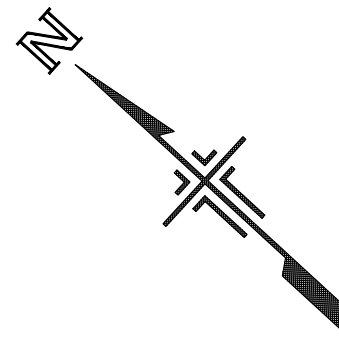
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DESCRIPTION PERMIT SET
DATE 11/10/2023
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CHECKED SAM

DATE 01/18/2024
BID SET
SAM

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CITY OF ANN ARBOR
PUBLIC SERVICES
301 EAST HURON STREET
P.O. BOX 8647
ANN ARBOR, MI 48107-8647
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MATCHLINE A SHEET 4 SHEET 5



REV.	INT.	DESCRIPTION	DATE	DRAWN	CHECKED
100%		PERMIT SET	11/10/2023	JEB	SAM
		BID SET	01/18/2024	JEB	SAM

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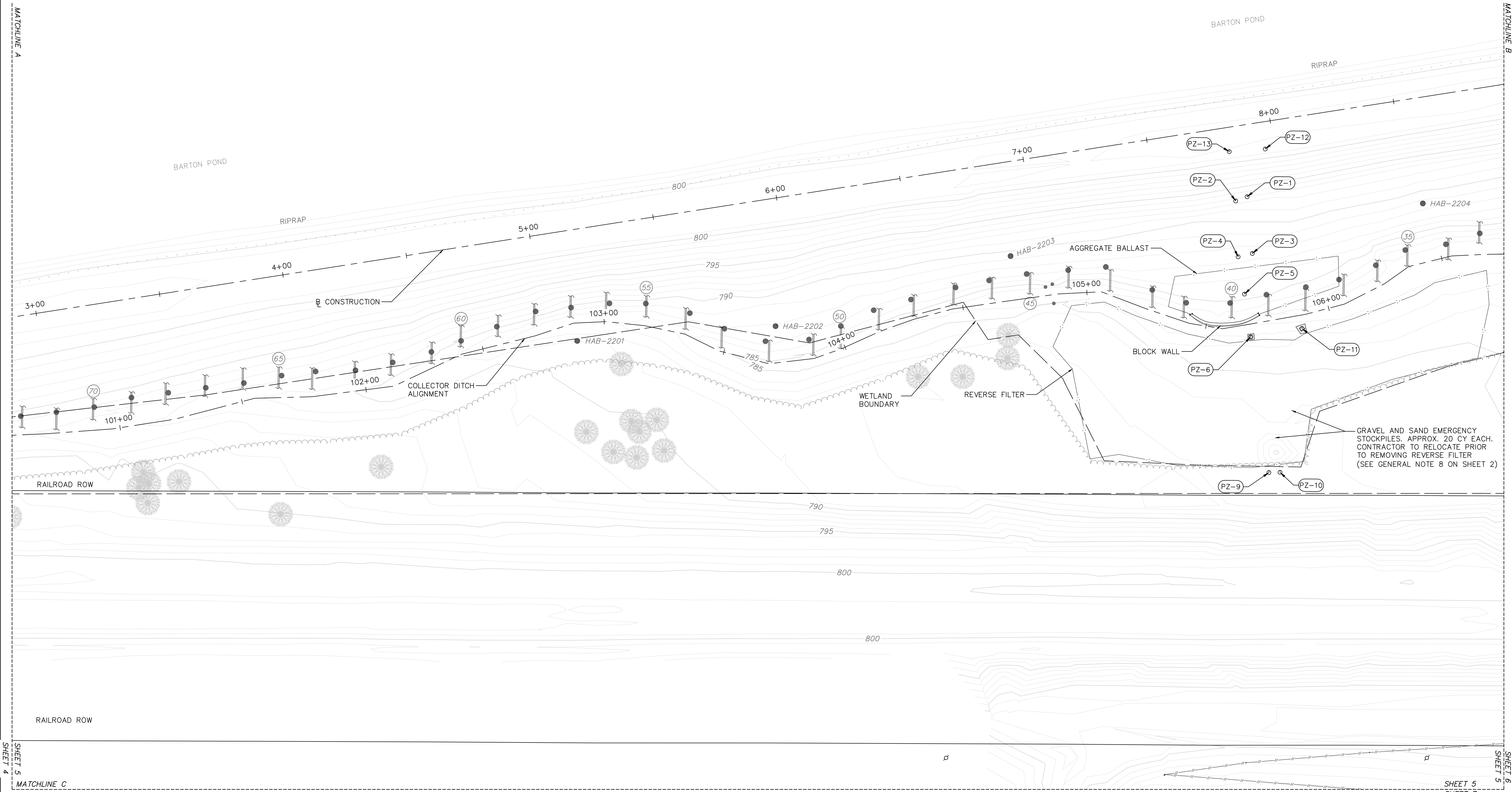
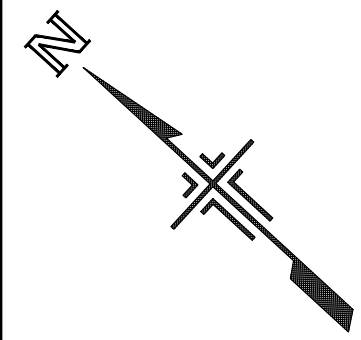
CITY OF ANN ARBOR - PUBLIC SERVICES
 BARTON DAM RIGHT EMBANKMENT REMEDIATION
 PARTIAL EXISTING SITE PLAN (1 OF 5)

SCALE: 1"=20'

DRAWING No.

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SHEET 5
SHEET 4
MATCHLINE C

SHEET 5
SHEET 6
SHEET 5
SHEET 7

CITY OF ANN ARBOR - PUBLIC SERVICES
BARTON DAM RIGHT EMBANKMENT REMEDIATION
PARTIAL EXISTING SITE PLAN (2 OF 5)

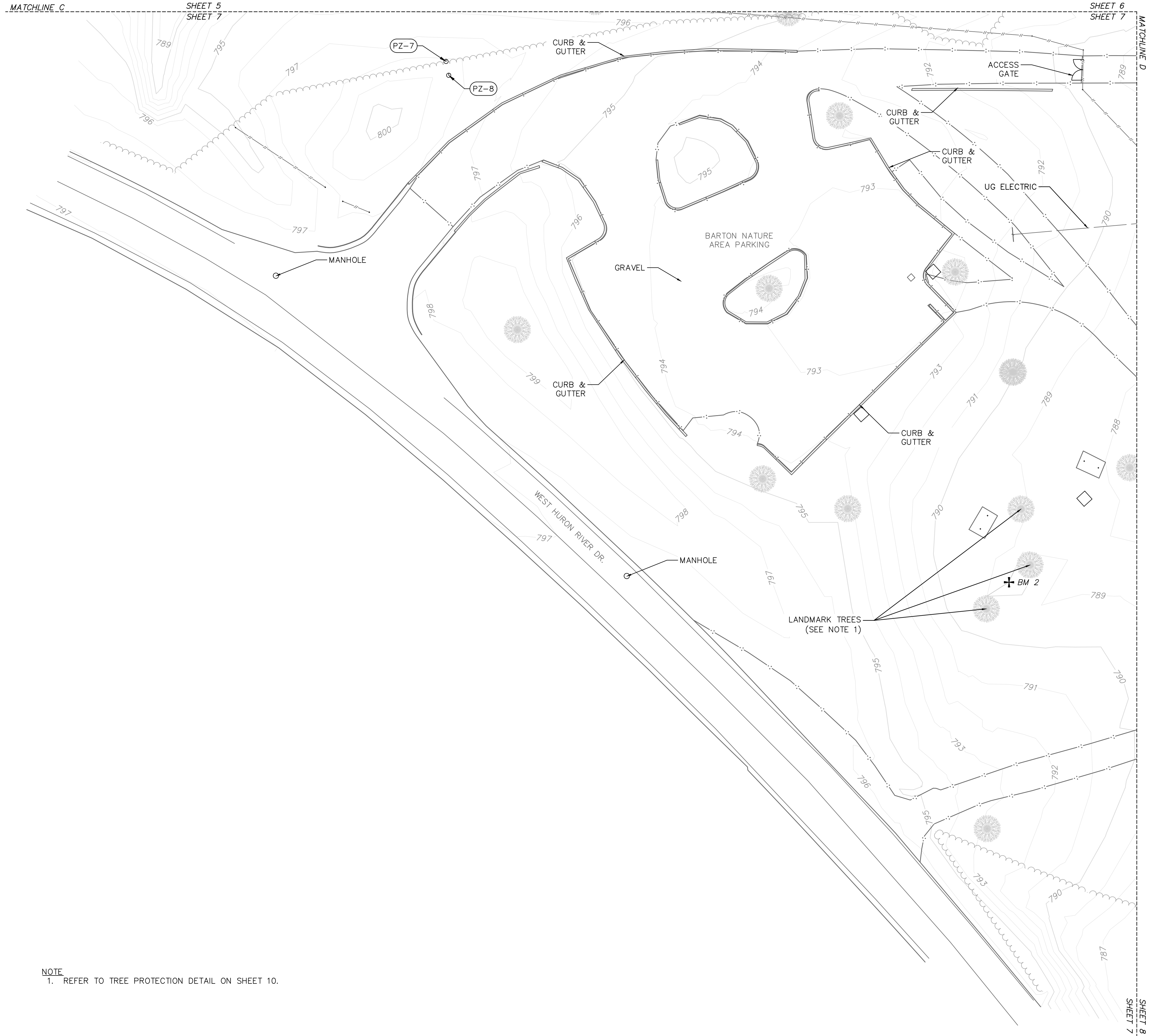
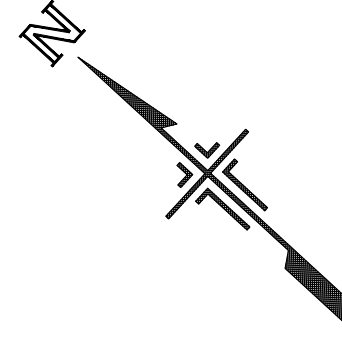
SCALE: 1"=20'
DRAWING No. 2211050300

811
Know what's below.
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REV.	INT.	DESCRIPTION	DATE	DRAWN	CHECKED
100%		PERMIT SET	11/10/2023	JEB	SAM
		BID SET	01/18/2024	JEB	SAM

NOT FOR CONSTRUCTION

CITY OF ANN ARBOR
PUBLIC SERVICES
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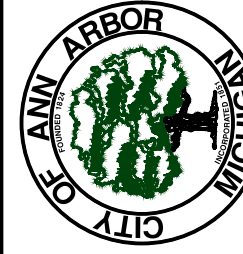
NOTE
1. REFER TO TREE PROTECTION DETAIL ON SHEET 10.



REV.	INT.	DESCRIPTION	DATE	DRAWN	CHECKED
	100%	PERMIT SET	11/10/2023	JEB	SAM
		BID SET	01/18/2024	JEB	SAM

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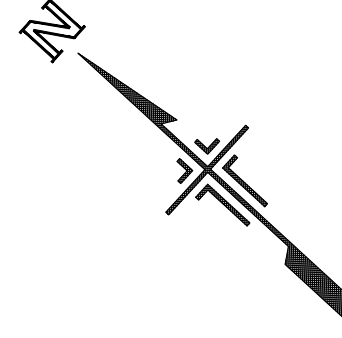


CITY OF ANN ARBOR - PUBLIC SERVICES
BARTON DAM RIGHT EMBANKMENT REMEDIATION
PARTIAL EXISTING SITE PLAN (4 OF 5)



SCALE: 1"=20'
DRAWING No. 36

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SHEET 8
SHEET 7

SHEET 6
SHEET 8



Know what's below.
Call before you dig.

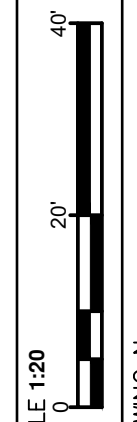
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100%		PERMIT SET	11/10/2023	JEB	SAM
		BID SET	01/18/2024	JEB	SAM

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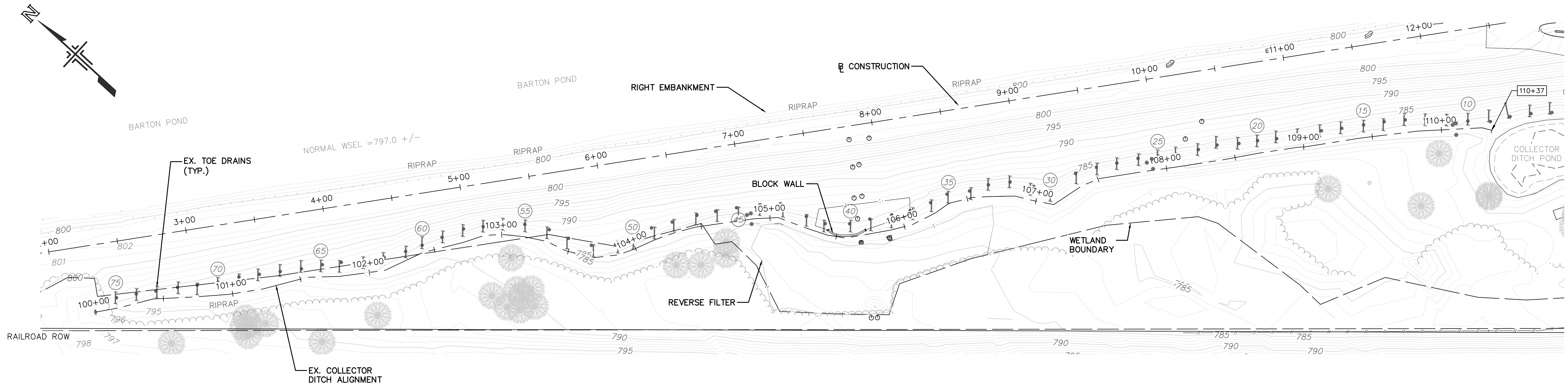


CITY OF ANN ARBOR - PUBLIC SERVICES
BARTON DAM RIGHT EMBANKMENT REMEDIATION
PARTIAL EXISTING SITE PLAN (5 OF 5)

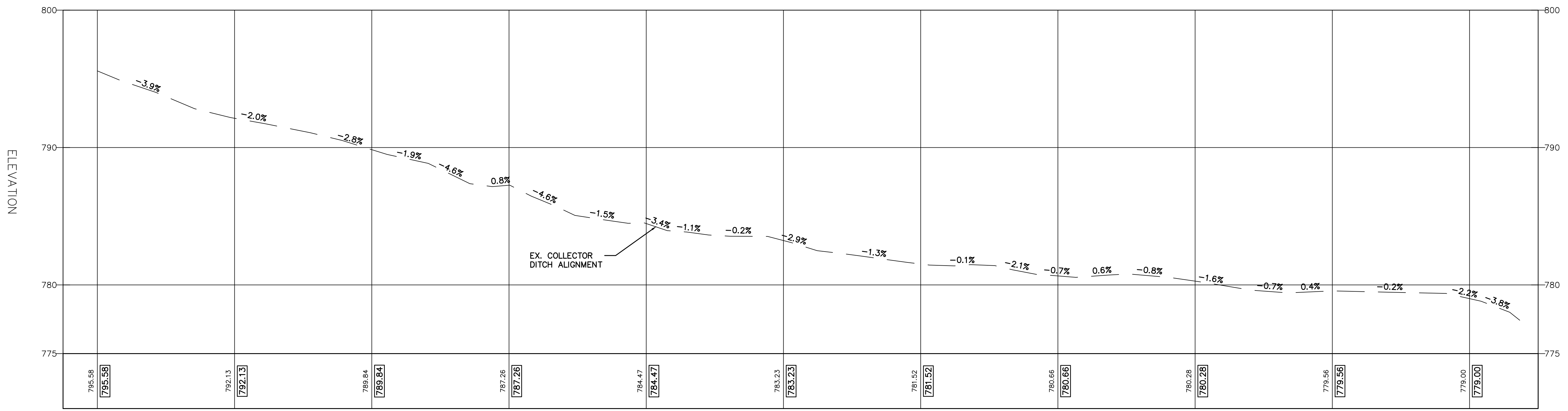


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EXISTING COLLECTOR DITCH PLAN
 SCALE: 1" = 40'
 0 40' 80'



EXISTING COLLECTOR DITCH PROFILE
 HORIZONTAL SCALE: 1" = 100'
 VERTICAL SCALE: 1" = 10'
 0 100' 200'
 0 10' 20'

CITY OF ANN ARBOR - PUBLIC SERVICES

BARTON DAM RIGHT EMBANKMENT REMEDIATION

EXISTING COLLECTOR DITCH PLAN AND PROFILE

SCALE AS NOTED

DRAWING No. _____

SHEET No. _____

811
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DATE: 11/10/2023
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CHECKED: SAM

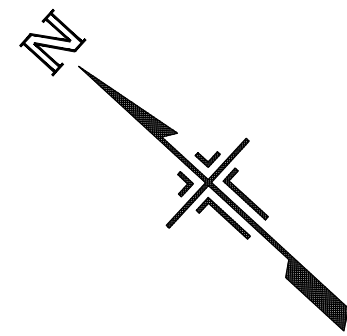
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DESCRIPTION: PERMIT SET
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CITY OF ANN ARBOR MICHIGAN

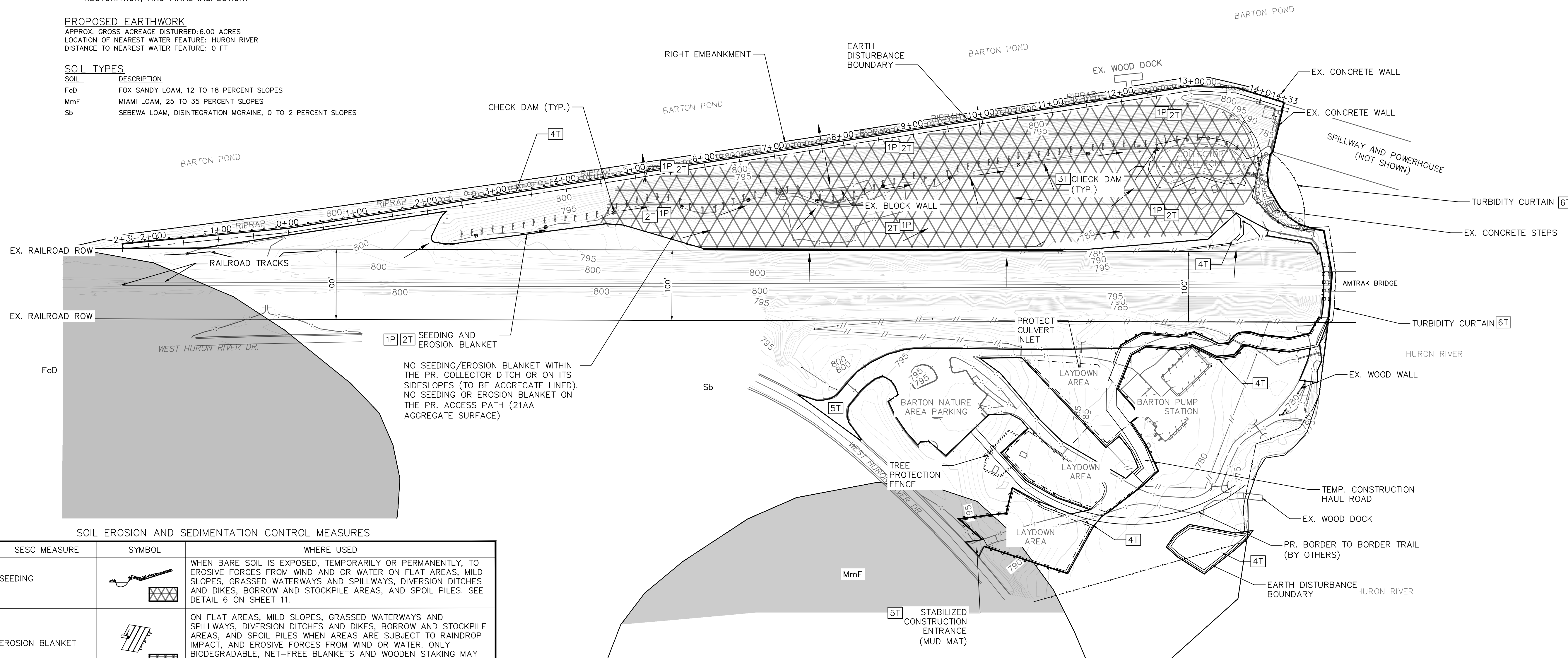


SOIL EROSION/SEDIMENTATION CONTROL CONSTRUCTION SEQUENCE

- A. INSTALL SESC MEASURES
- B. MAINTAIN SESC THROUGHOUT ENTIRE PROJECT
- C. CLEAN PAVEMENT, SEWERS/CULVERTS, SITE, AND SESC MEASURES AS NECESSARY. THIS WILL INCLUDE, BUT IS NOT LIMITED TO: SCRAPING HARD SURFACES DAILY, SWEEPING AT LEAST ONCE PER WEEK, AND REMOVING ACCUMULATED SEDIMENT FROM SESC MEASURES, AS NEEDED. PROVIDE A CHECK DAM DIRECTLY DOWNSTREAM FROM EARTH DISTURBANCE AS WORK SEQUENCES DOWN THE STREAM TOWARD THE OUTFALL.
- D. A CERTIFIED STORMWATER OPERATOR WILL INSPECT ALL SESC MEASURES ON A WEEKLY BASIS AND AFTER SIGNIFICANT RAIN EVENTS TO ENSURE THE SESC MEASURES ARE ADEQUATE.
- E. ADD OR RELOCATE SESC MEASURES AS NEEDED TO ACCOMMODATE CHANGING EXTENTS OF DISTURBANCE. FOR EXAMPLE: INSTALL OR RELOCATE ROCK CHECK DAMS TO CAPTURE SEDIMENT FROM UPSTREAM DISTURBED AREAS AND REMOVE ROCK CHECK DAMS ONCE UPSTREAM AREAS ARE STABILIZED. A CHECK DAM MUST ALWAYS BE PRESENT IN THE COLLECTOR DITCH AND/OR THE PROPOSED COLLECTOR DITCH DIRECTLY DOWNSTREAM FROM EARTH DISTURBANCE. THE CHECK DAM(S) MUST BE RELOCATED AS THE WORK SEQUENCES DOWNSTREAM TOWARD THE OUTFALL TO THE HURON RIVER.
- F. STABILIZE DISTURBED AREAS WITHIN 5 DAYS OF FINAL GRADING.
- G. REMOVE TEMPORARY SESC MEASURES FOLLOWING SITE CONSTRUCTION, FINAL STABILIZATION OF WORK, SITE RESTORATION, AND FINAL INSPECTION.

PROPOSED EARTHWORK
 APPROX. GROSS ACREAGE DISTURBED: 6.00 ACRES
 LOCATION OF NEAREST WATER FEATURE: HURON RIVER
 DISTANCE TO NEAREST WATER FEATURE: 0 FT

SOIL	DESCRIPTION
FoD	FOX SANDY LOAM, 12 TO 18 PERCENT SLOPES
MmF	MIAMI LOAM, 25 TO 35 PERCENT SLOPES
Sb	SEBEWA LOAM, DISINTEGRATION MORAINES, 0 TO 2 PERCENT SLOPES

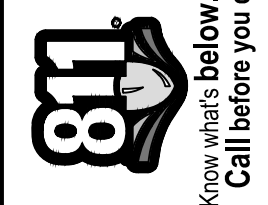


SOIL EROSION AND SEDIMENTATION CONTROL MEASURES

KEY	SESC MEASURE	SYMBOL	WHERE USED
1	SEEDING		WHEN BARE SOIL IS EXPOSED, TEMPORARILY OR PERMANENTLY, TO EROSION FORCES FROM WIND AND OR WATER ON FLAT AREAS, MILD SLOPES, GRASSED WATERWAYS AND SPILLWAYS, DIVERSION DITCHES AND DIKES, BORROW AND STOCKPILE AREAS, AND SPOIL PILES. SEE DETAIL 6 ON SHEET 11.
2	EROSION BLANKET		ON FLAT AREAS, MILD SLOPES, GRASSED WATERWAYS AND SPILLWAYS, DIVERSION DITCHES AND DIKES, BORROW AND STOCKPILE AREAS, AND SPOIL PILES WHEN AREAS ARE SUBJECT TO RAINDROP IMPACT, AND EROSION FORCES FROM WIND OR WATER. ONLY BIODEGRADABLE, NET-FREE BLANKETS AND WOODEN STAKING MAY BE USED.
3	TEMPORARY CHECK DAM		IN CONSTRUCTED AND EXISTING FLOW CORRIDORS TO REDUCE FLOW VELOCITIES. CONTRACTORS TO INSTALL ADDITIONAL CHECK DAMS AND RELOCATE AS NECESSARY. CHECK DAM LOCATIONS TO BE IDENTIFIED BY THE CONTRACTOR AND APPROVED BY THE CITY. (SEE SHEET 10, ITEM 2)
4	SILT FENCE		AS A TEMPORARY MEASURE USED TO CAPTURE SEDIMENT FROM SHEET FLOW. MAY ALSO DIVERT SMALL VOLUMES OF SHEET FLOW TO PROTECTED OUTLETS. (SEE SHEET 10, ITEM 1)
5	STONE CONSTRUCTION ACCESS		AT LOCATIONS WHERE CONSTRUCTION EQUIPMENT WILL ENTER AND EXIT THE PROJECT LIMITS AND TRACKING OF SOIL IS ANTICIPATED. (SEE SHEET 10, ITEM 3)
6	TURBIDITY CURTAIN		WITHIN THE HURON RIVER TO ENCOMPASS AREAS WHERE EARTH DISTURBANCE IS TAKING PLACE ALONG THE SHORELINE. SEE DETAIL 5 ON SHEET 11.

[2T] "T" NOTES TEMPORARY EROSION CONTROL MEASURE

[1P] "P" NOTES PERMANENT EROSION CONTROL MEASURE



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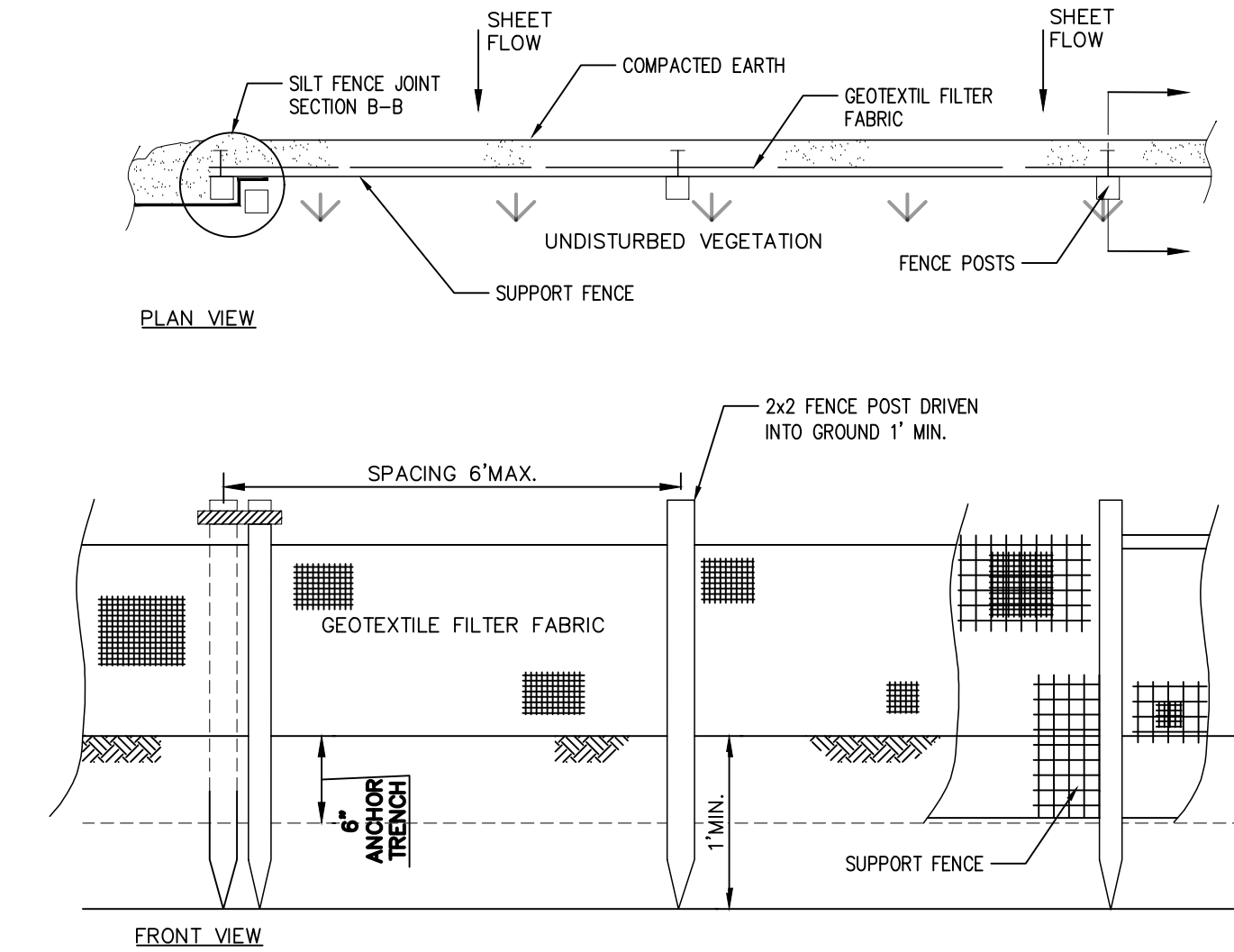
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SOIL EROSION AND SEDIMENTATION CONTROL PLAN
 BARTON DAM RIGHT EMBANKMENT REMEDIATION

CITY OF ANN ARBOR - PUBLIC SERVICES
 SCALE 1"=70'
 DRAWING No. 2211050300

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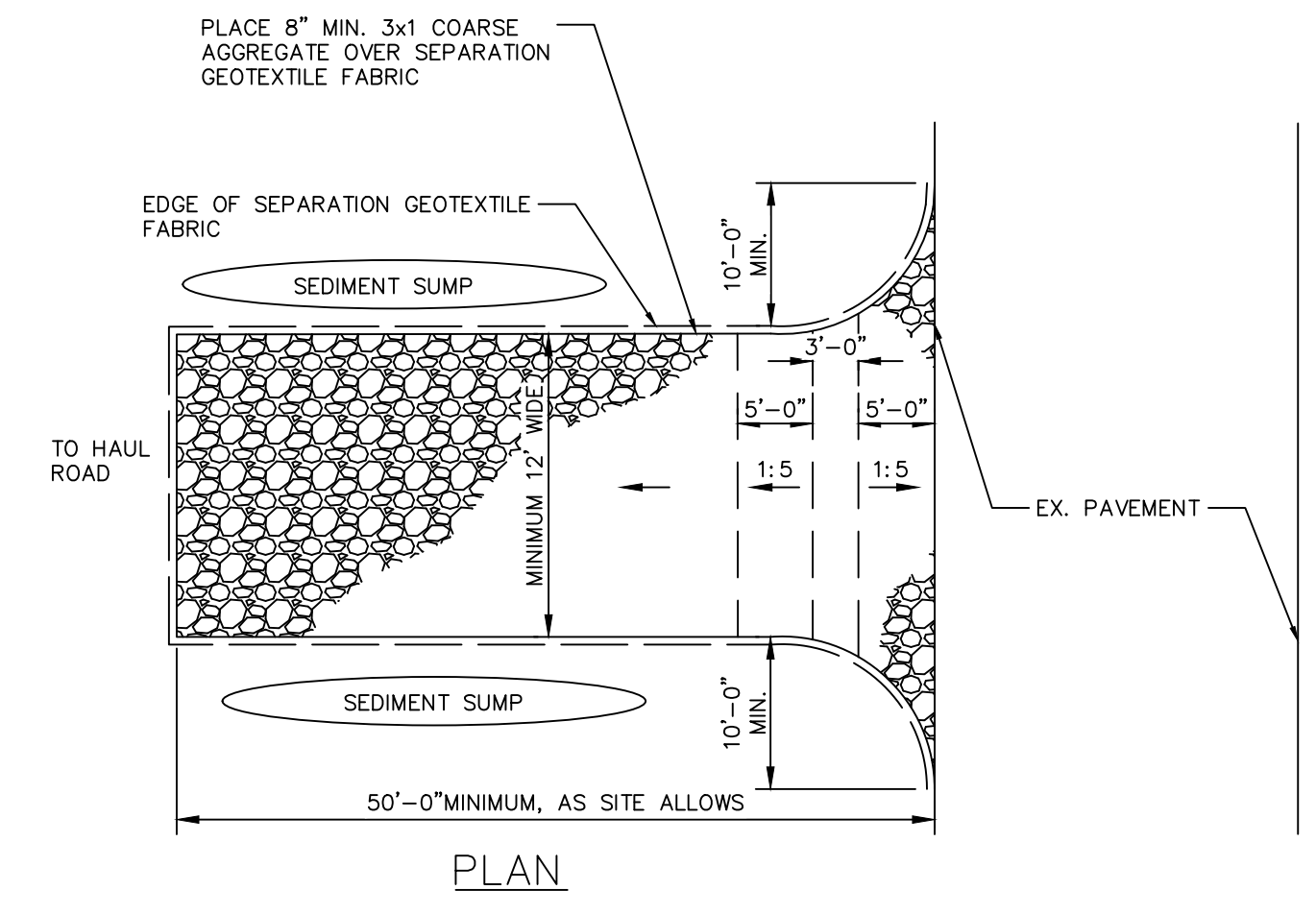


SILT FENCE DETAIL

1
10

SCALE: N.T.S.

- NOTES:
1. SELECT SILT FENCE FROM MDT QUALIFIED PRODUCT LIST. INSTALLATION SHALL BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
 2. INSTALL FENCING BY DIGGING A 6" DEEP TRENCH ALONG PROPOSED FENCE LINE. POUND STAKES IN TRENCH TO MINIMUM DEPTH OF 12". BE SURE TO STRETCH FABRIC TAUT WHEN POUNDING STAKES. DRAPE LOOSE END OF GEOTEXTILE FABRIC INTO TRENCH. BACKFILL AND COMPACT SOIL ON BOTH SIDES. TRENCHES SHALL NOT BE EXCAVATED WIDER OR DEEPER THAN NECESSARY FOR PROPER INSTALLATION.
 3. #2 HARDWOOD STAKES SHALL BE A MINIMUM SIZE OF 1 1/2"x36" LONG. GEOTEXTILE FABRIC SHALL BE ANCHORED BY 24" WOOD LATH, 3/8" THICK, FASTENED TO STAKE WITH HEAVY DUTY STAPLES, MIN. 5 PER LATH.
 4. SILT FENCE SHALL BE INSTALLED TO EXTEND ABOVE THE TOP OF THE OUTFALL STORM PIPE, WHEN PRESENT.
 5. SILT FENCE CONSTRUCTION AND GEOTEXTILE FABRIC SHALL CONFORM TO MDT 2020 STANDARD SPECIFICATIONS FOR CONSTRUCTIONS, TABLE 910-1 FOR SILT FENCE.
 6. JOIN FENCES BY PLACING THE END POST OF THE SECOND FENCE INSIDE THE END POST OF THE FIRST FENCE. ROTATE BOTH POSTS AT LEAST 180° IN A CLOCKWISE DIRECTION TO CREATE A TIGHT SEAL WITH THE FABRIC MATERIAL. DRIVE BOTH POSTS 12" INTO THE GROUND AND BURY FLAP.

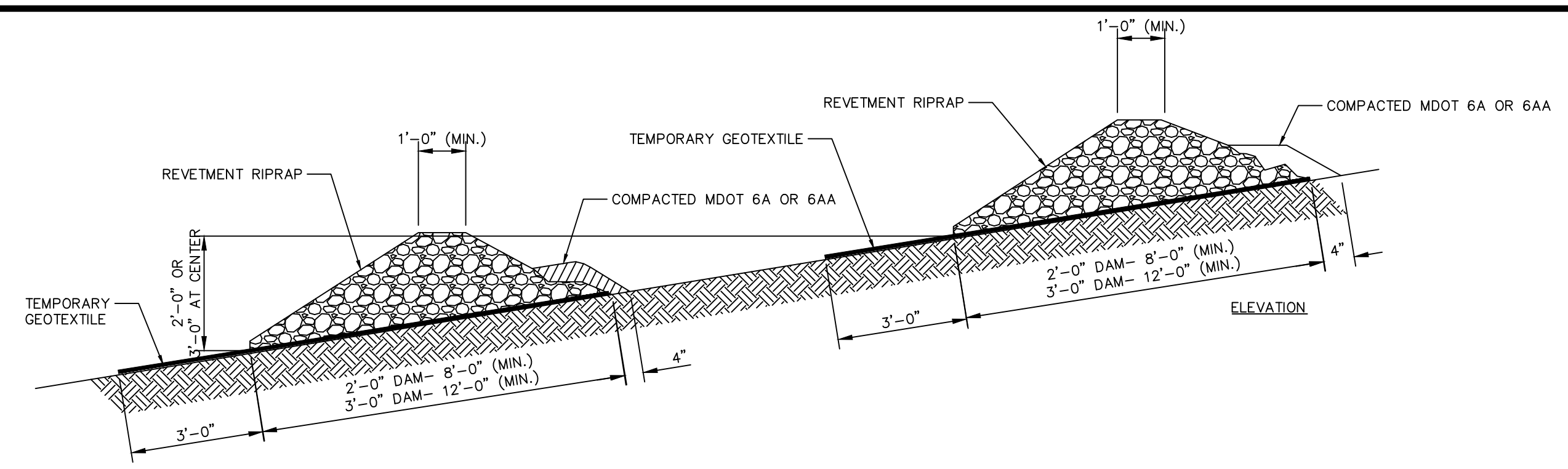


STABILIZED CONSTRUCTION ACCESS (MUD MAT) DETAIL

3
10

SCALE: N.T.S.

- NOTES:
1. CONTRACTOR TO VERIFY LOCATION WITH OWNER'S PROJECT REPRESENTATIVE. A STABILIZED CONSTRUCTION ACCESS SHALL BE LOCATED WHERE CONSTRUCTION TRAFFIC ENTERS AND/OR LEAVES THE CONSTRUCTION SITE. VEHICLES LEAVING THE SITE MUST TRAVEL OVER THE ENTIRE LENGTH OF THE TRACKING PAD.
 2. CONSTRUCTION ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO THE PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR THE WASHING AND REWORKING OF EXISTING STONE AS CONDITIONS DEMAND.
 3. IF CONDITIONS ON THE SITE ARE SUCH THAT THE MAJORITY OF THE MUD IS NOT REMOVED BY THE VEHICLES TRAVELING OVER THE STONE, THEN THE TIRES OF THE VEHICLES MUST BE WASHED BEFORE ENTERING THE PUBLIC ROAD. WASH WATER MUST BE CARRIED AWAY FROM THE ENTRANCE TO AN APPROVED SETTLING AREA TO REMOVE SEDIMENT.
 4. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES ONTO ROADWAYS MUST BE REMOVED IMMEDIATELY.
 5. THE USE OF WATER TRUCKS TO REMOVE MATERIALS DROPPED, WASHED OR TRACKED ONTO ROADWAYS WILL NOT BE PERMITTED.
 6. ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARDS CONSTRUCTION ENTRANCES SHALL BE PIPED THROUGH THE ENTRANCE. MAINTAINING POSITIVE DRAINAGE. PIPE INSTALLED THROUGH THE STABILIZED CONSTRUCTION ENTRANCE SHALL BE PROTECTED WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND MINIMUM OF 6" STONE OVER THE PIPE. PIPE SHALL BE SIZED ACCORDING TO THE DRAINAGE REQUIREMENTS. WHEN THE ENTRANCE IS LOCATED AT A HIGH POINT AND HAS NO DRAINAGE TO CONVEY, A PIPE SHALL NOT BE NECESSARY. THE MINIMUM PIPE DIAMETER SHALL BE 6". CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THIS PIPE THROUGHOUT CONSTRUCTION.

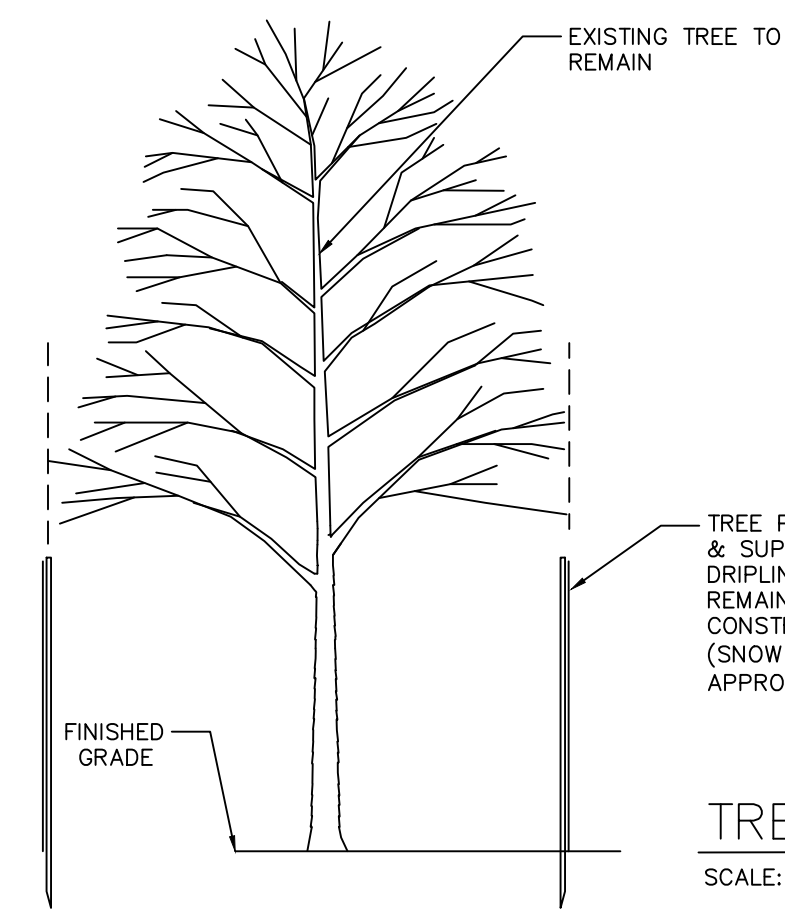


TEMPORARY CHECK DAM DETAIL

2
10

SCALE: N.T.S.

- NOTES:
1. RIPRAP CHECK DAMS SHALL BE SPACED SUCH THAT THE TOP OF DOWNSTREAM CHECK DAM IS AT THE SAME ELEVATION AS THE TOE OF THE ADJACENT UPSTREAM CHECK DAM.

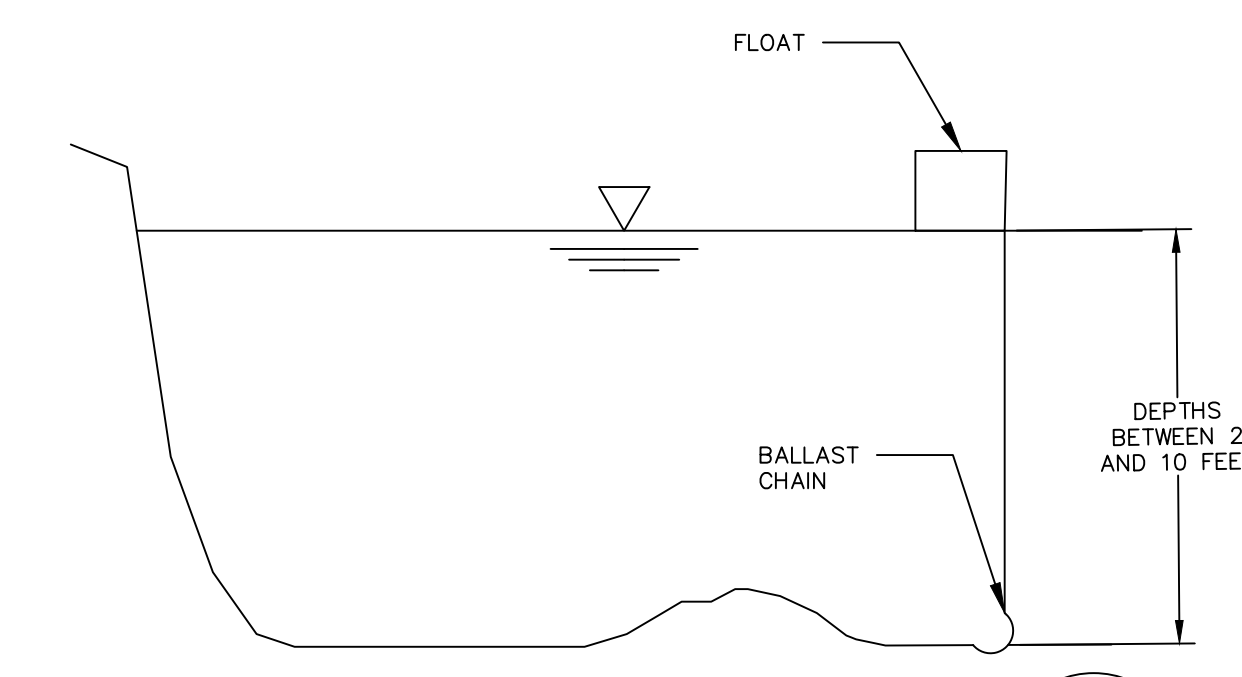


TREE PROTECTION DETAIL

4
10

SCALE: N.T.S.

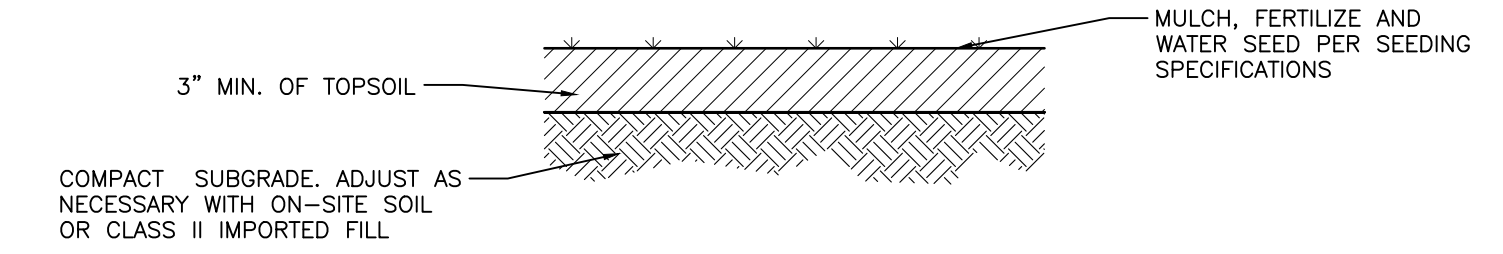
- NOTES:
1. IN AREAS WHERE FENCING IS NOT PRACTICAL, CUSHION ROOTING AREA WITH SIX INCHES OF WOOD CHIPS.
 2. AVOID SOIL COMPACTION IN TREE PROTECTION AREAS.
 3. DO NOT STORE SUPPLIES OR EQUIPMENT OR PARK VEHICLES WITHIN PROTECTION AREAS.
 4. INSPECT TREES AND FENCING FOR DAMAGE WEEKLY. REPAIR AS NEEDED.
 5. CONTRACTOR TO PROTECT ANY AND ALL TREES WITHIN THE CONSTRUCTION AREA THAT ARE NOT NECESSARY TO BE REMOVED FOR CONSTRUCTION ACTIVITIES, AS WELL AS ANY TREES OUTSIDE THE CONSTRUCTION AREA THAT MAY BE IMPACTED.



TURBIDITY CURTAIN DETAIL

5
10

SCALE: N.T.S.



LANDSCAPE RESTORATION DETAIL

6
10

SCALE: N.T.S.



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			PERMIT SET	11/10/2023	JEB	SAM
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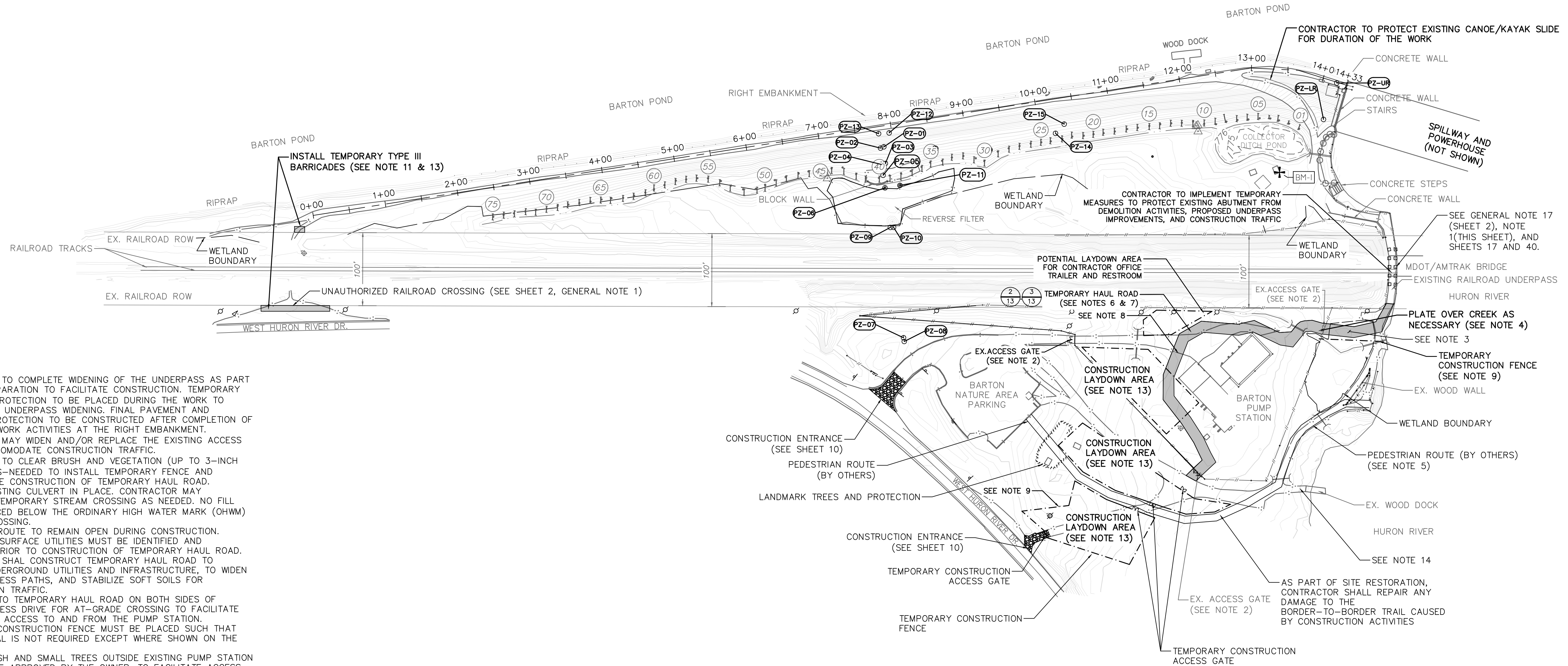
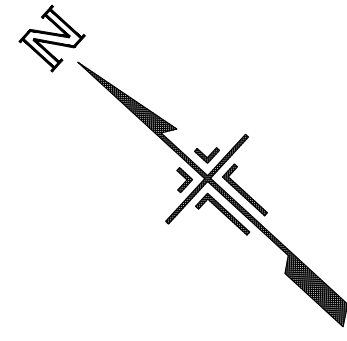
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CITY OF ANN ARBOR - PUBLIC SERVICES
BARTON DAM RIGHT EMBANKMENT REMEDIATION
SESC TYPICAL DETAILS

SCALE: SEE INDICATED
DRAWING No. 2211050300

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NOTES

1. CONTRACTOR TO COMPLETE WIDENING OF THE UNDERPASS AS PART OF SITE PREPARATION TO FACILITATE CONSTRUCTION. TEMPORARY SURFACING/PROTECTION TO BE PLACED DURING THE WORK TO PROTECT THE UNDERPASS WIDENING. FINAL PAVEMENT AND OVERHEAD PROTECTION TO BE CONSTRUCTED AFTER COMPLETION OF MASS EARTHWORK ACTIVITIES AT THE RIGHT EMBANKMENT.
2. CONTRACTOR MAY WIDEN AND/OR REPLACE THE EXISTING ACCESS GATE TO ACCOMMODATE CONSTRUCTION TRAFFIC.
3. CONTRACTOR TO CLEAR BRUSH AND VEGETATION (UP TO 3-INCH DIAMETER) AS-NEEDED TO INSTALL TEMPORARY FENCE AND ACCOMMODATE CONSTRUCTION OF TEMPORARY HAUL ROAD. PROTECT EXISTING CULVERT IN PLACE. CONTRACTOR MAY CONSTRUCT TEMPORARY STREAM CROSSING AS NEEDED. NO FILL MAY BE PLACED BELOW THE ORDINARY HIGH WATER MARK (OHWM) FOR THIS CROSSING.
5. PEDESTRIAN ROUTE TO REMAIN OPEN DURING CONSTRUCTION.
6. EXISTING SUBSURFACE UTILITIES MUST BE IDENTIFIED AND PROTECTED PRIOR TO CONSTRUCTION OF TEMPORARY HAUL ROAD.
7. CONTRACTOR SHALL CONSTRUCT TEMPORARY HAUL ROAD TO PROTECT UNDERGROUND UTILITIES AND INFRASTRUCTURE, TO WIDEN EXISTING ACCESS PATHS, AND STABILIZE SOFT SOILS FOR CONSTRUCTION TRAFFIC.
8. ADD RAMPS TO TEMPORARY HAUL ROAD ON BOTH SIDES OF EXISTING ACCESS DRIVE FOR AT-GRADE CROSSING TO FACILITATE OPERATIONAL ACCESS TO AND FROM THE PUMP STATION.
9. TEMPORARY CONSTRUCTION FENCE MUST BE PLACED SUCH THAT TREE REMOVAL IS NOT REQUIRED EXCEPT WHERE SHOWN ON THE DRAWINGS.
10. REMOVE BRUSH AND SMALL TREES OUTSIDE EXISTING PUMP STATION FENCE, WHERE APPROVED BY THE OWNER, TO FACILITATE ACCESS.
11. INSTALL AND MAINTAIN TYPE III BARRICADES FOR DURATION OF THE WORK.
12. THE CONTRACTOR SHALL PROVIDE A FULL-TIME FLAGGER AT THE SITE TO FACILITATE SAFE COORDINATION BETWEEN CONSTRUCTION TRAFFIC, PRIVATE VEHICLES, AND PEDESTRIANS.
13. THE DRAWINGS ARE PROVIDED AS GUIDANCE. FINAL REQUIREMENTS MAY DIFFER. ADDITIONAL SIGNAGE, BARRICADES, ETC. MAY BE NEEDED. CONTRACTOR SHALL SUBMIT PLAN AND DETAILS FOR APPROVAL.
14. PUBLIC ACCESS TO THE WOOD DOCK MUST BE MAINTAINED FOR THE DURATION OF THE WORK. THIS INCLUDES ORGANIZED (CANOE LIVERY) AND INDEPENDENT USERS. THE ANTICIPATED CANOE LIVERY ACCESS SCHEDULE IS PRESENTED ON THIS SHEET. CONTRACTOR'S FLAGGER SHALL COORDINATE CONSTRUCTION AND RECREATION TRAFFIC.

CANOE LIVERY APPROX. SCHEDULE FOR DROP OFFS AT THE EXISTING WOOD DOCK:

- MAY 4 - MAY 24
 - SATURDAY AND SUNDAY: 10:00 AM - 1:00 PM, EVERY HALF HOUR
- MAY 25 - SEPTEMBER 2
 - MONDAY THROUGH FRIDAY SATURDAY AND SUNDAY: 10:00 AM - 1:00 PM, EVERY HOUR
 - SATURDAY AND SUNDAY: 10:00 AM - 1:00 PM, EVERY HALF HOUR
- MAY 25 - AUGUST 18
 - MONDAY THROUGH FRIDAY SATURDAY AND SUNDAY: 9:00 AM, 9:30 AM, AND 10:00 AM - 1:00 PM, EVERY HOUR
 - SATURDAY AND SUNDAY: 9:00 AM - 1:00 PM, EVERY HALF HOUR
- SEPTEMBER 3 - SEPTEMBER 22
 - SATURDAY AND SUNDAY: 10:00 AM - 1:00 PM, EVERY HALF HOUR

LAYDOWN PLAN

1"=80'



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INT.	PERMIT SET	11/10/2023	JEB	SAM
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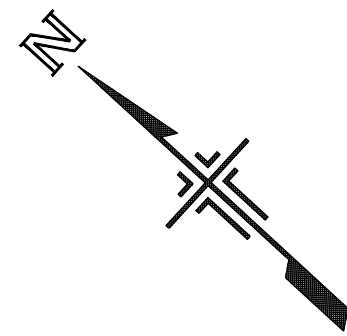
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CITY OF ANN ARBOR - PUBLIC SERVICES
BARTON DAM RIGHT EMBANKMENT REMEDIATION
SITE PREPARATION PLAN

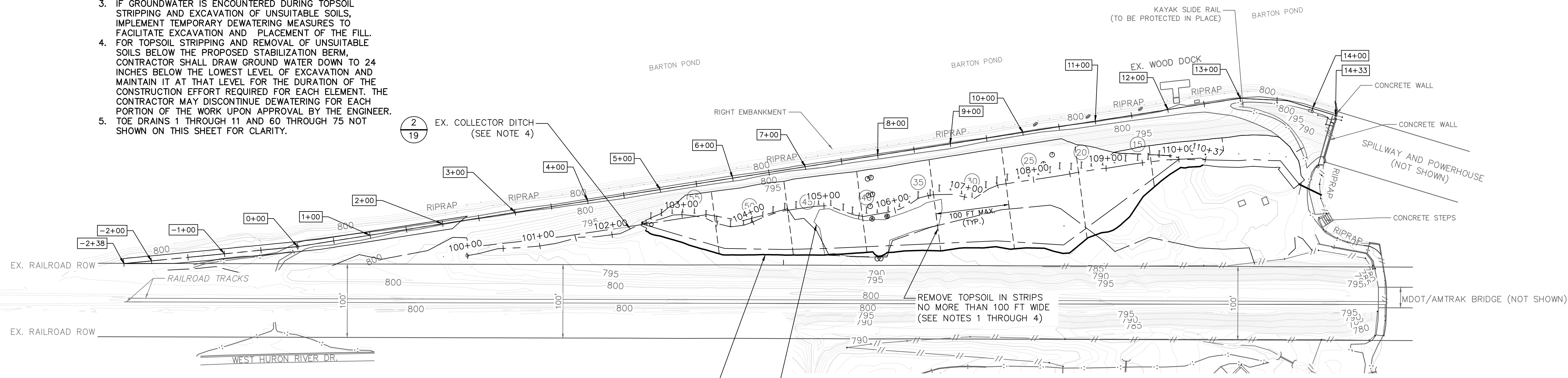
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NOTES

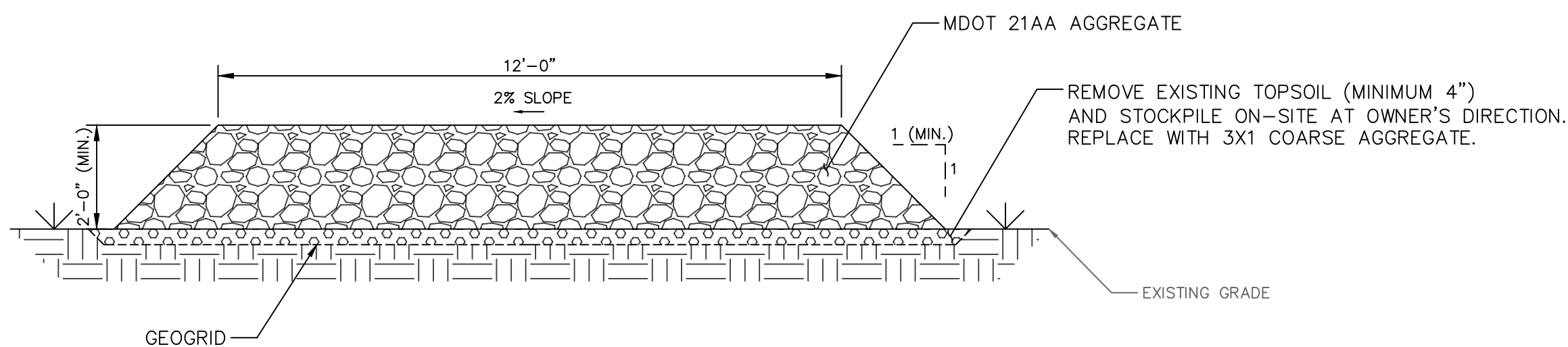
1. TOPSOIL STRIPPING WITHIN THE FOOTPRINT OF THE PROPOSED STABILIZATION BERM AND PROPOSED COLLECTOR DITCH TO BE COMPLETED IN STRIPS NO MORE THAN 100 FEET WIDE, AS MEASURED PARALLEL TO THE PROJECT BASELINE. EACH STRIP MUST BE BACKFILLED TO THE ORIGINAL GRADE, OR HIGHER, BEFORE BEGINNING THE ADJACENT STRIP. MORE THAN 1 STRIP MAY BE REMOVED CONCURRENTLY IF THEY ARE AT LEAST 200 FEET APART (EDGE TO EDGE). ALL TOPSOIL STRIPPING MUST BE BACKFILLED TO THE ORIGINAL GRADE, OR HIGHER, BEFORE THE END OF THE WORKDAY.
2. REMOVE UNSUITABLE SOILS BELOW THE PROPOSED STABILIZATION BERM AND PROPOSED COLLECTOR DITCH. BACKFILL THE RESULTING EXCAVATION WITH COMPACTED MDOT 2NS FINE AGGREGATE TO THE LEVEL OF THE SURROUNDING GROUND OR HIGHER THE SAME WORKDAY. NO EXCAVATIONS MAY BE LEFT OPEN OVERNIGHT.
3. IF GROUNDWATER IS ENCOUNTERED DURING TOPSOIL STRIPPING AND EXCAVATION OF UNSUITABLE SOILS, IMPLEMENT TEMPORARY DEWATERING MEASURES TO FACILITATE EXCAVATION AND PLACEMENT OF THE FILL.
4. FOR TOPSOIL STRIPPING AND REMOVAL OF UNSUITABLE SOILS BELOW THE PROPOSED STABILIZATION BERM, CONTRACTOR SHALL DRAW GROUND WATER DOWN TO 24 INCHES BELOW THE LOWEST LEVEL OF EXCAVATION AND MAINTAIN IT AT THAT LEVEL FOR THE DURATION OF THE CONSTRUCTION EFFORT REQUIRED FOR EACH ELEMENT. THE CONTRACTOR MAY DISCONTINUE DEWATERING FOR EACH PORTION OF THE WORK UPON APPROVAL BY THE ENGINEER.
5. TOE DRAINS 1 THROUGH 11 AND 60 THROUGH 75 NOT SHOWN ON THIS SHEET FOR CLARITY.



1 TOPSOIL STRIPPING PLAN
1" = 80'

FOOTPRINT OF TOPSOIL STRIPPING AND REMOVAL OF UNSUITABLE SOILS TO CONSTRUCT THE PR. STABILIZATION BERM, COLLECTOR DITCH, AND EMBANKMENT REGRADING

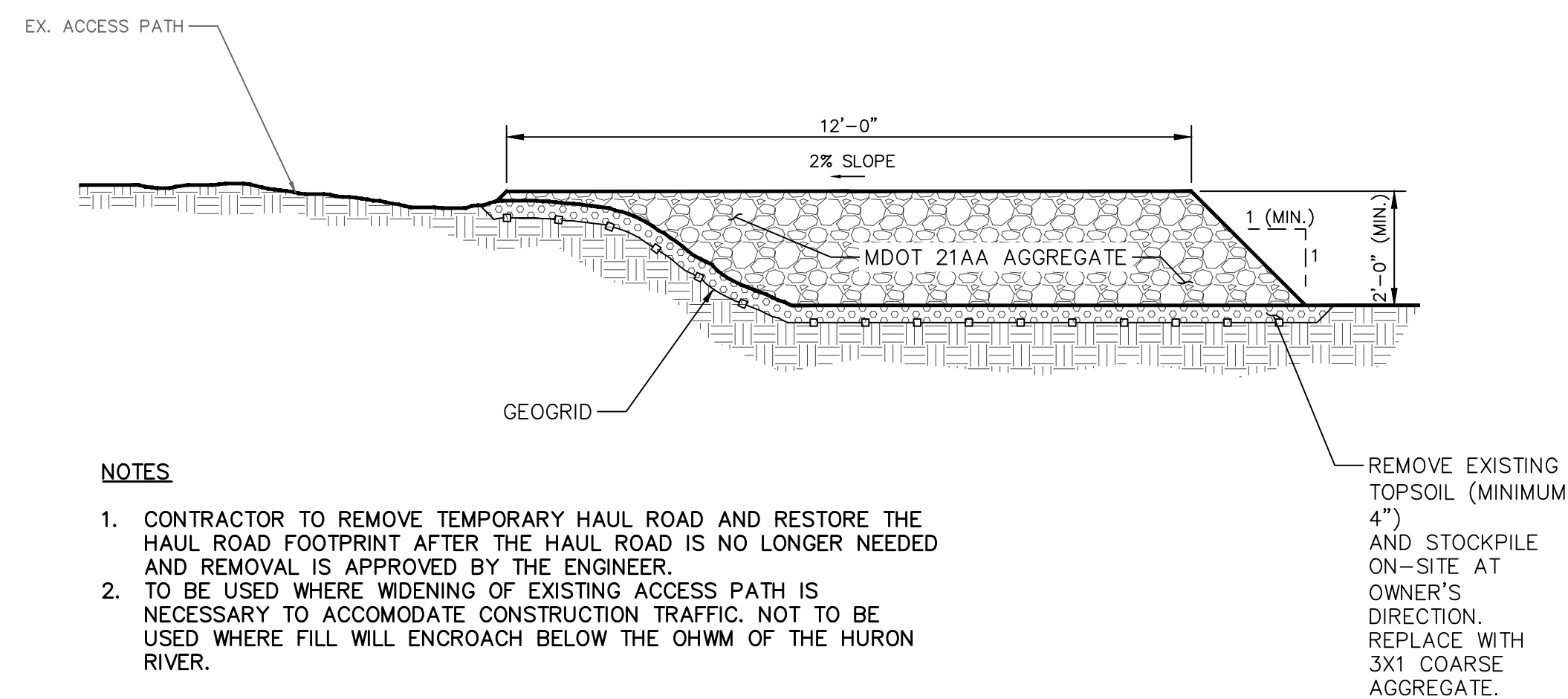
REMOVE REVERSE FILTER BEFORE STRIPPING TOPSOIL WITHIN THE FOOTPRINT OF THE STABILIZATION BERM



NOTES

1. CONTRACTOR TO REMOVE TEMPORARY HAUL ROAD AND RESTORE THE HAUL ROAD FOOTPRINT AFTER THE HAUL ROAD IS NO LONGER NEEDED AND REMOVAL IS APPROVED BY THE ENGINEER.
2. TO BE USED IN PUMP STATION YARD AND WHERE CROSSING EXISTING UTILITIES.

2 TEMPORARY HAUL ROAD TYPICAL CROSS SECTION A
N.T.S.



NOTES

1. CONTRACTOR TO REMOVE TEMPORARY HAUL ROAD AND RESTORE THE HAUL ROAD FOOTPRINT AFTER THE HAUL ROAD IS NO LONGER NEEDED AND REMOVAL IS APPROVED BY THE ENGINEER.
2. TO BE USED WHERE WIDENING OF EXISTING ACCESS PATH IS NECESSARY TO ACCOMMODATE CONSTRUCTION TRAFFIC. NOT TO BE USED WHERE FILL WILL ENCROACH BELOW THE OHWM OF THE HURON RIVER.

3 TEMPORARY HAUL ROAD TYPICAL CROSS SECTION B
N.T.S.



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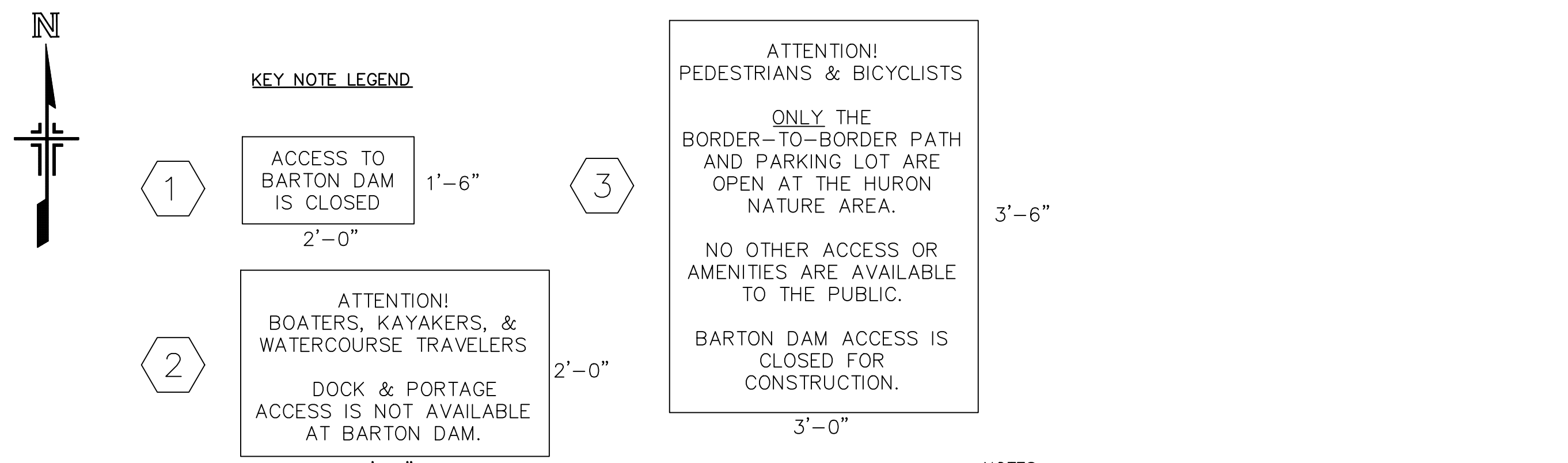
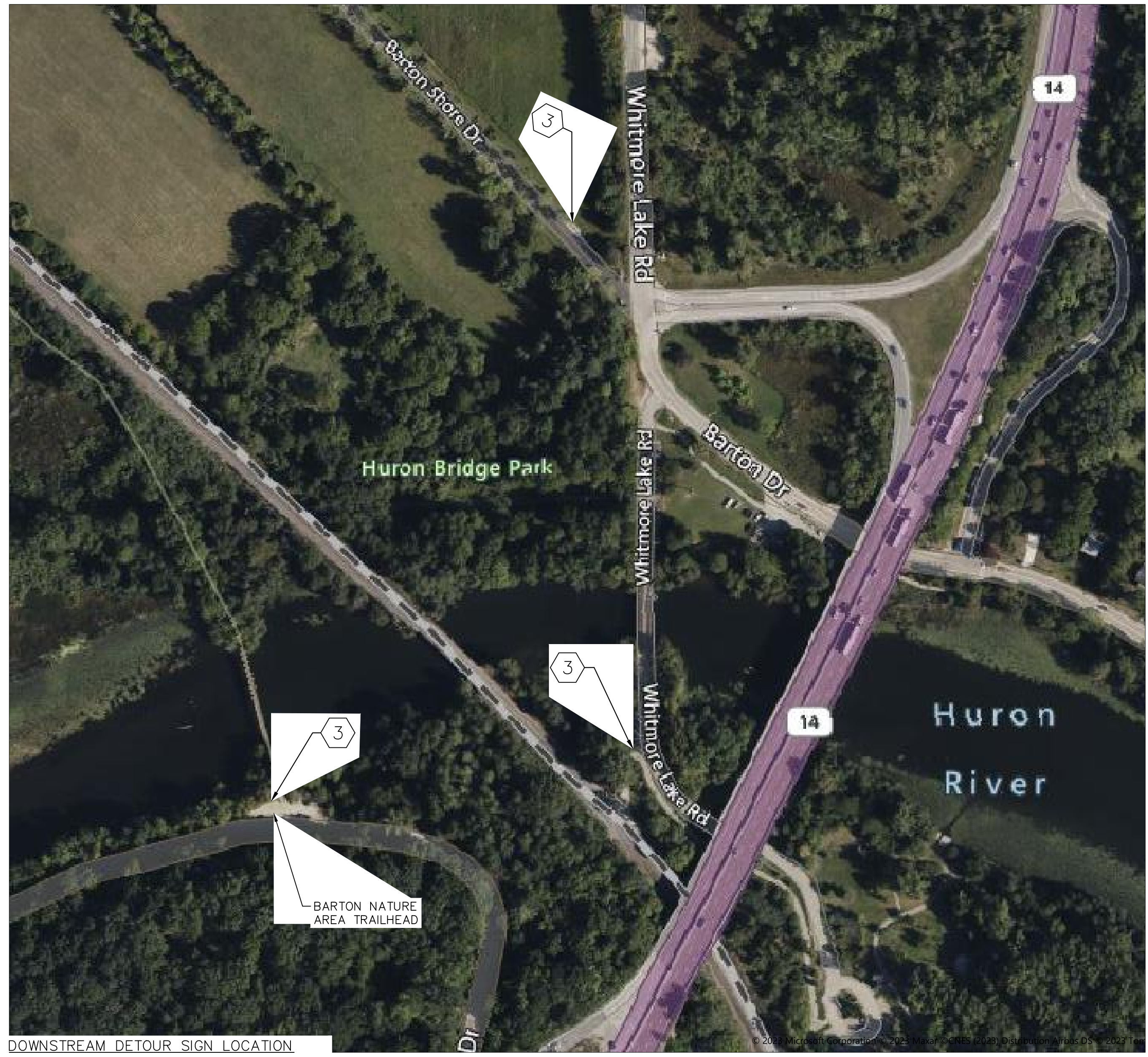
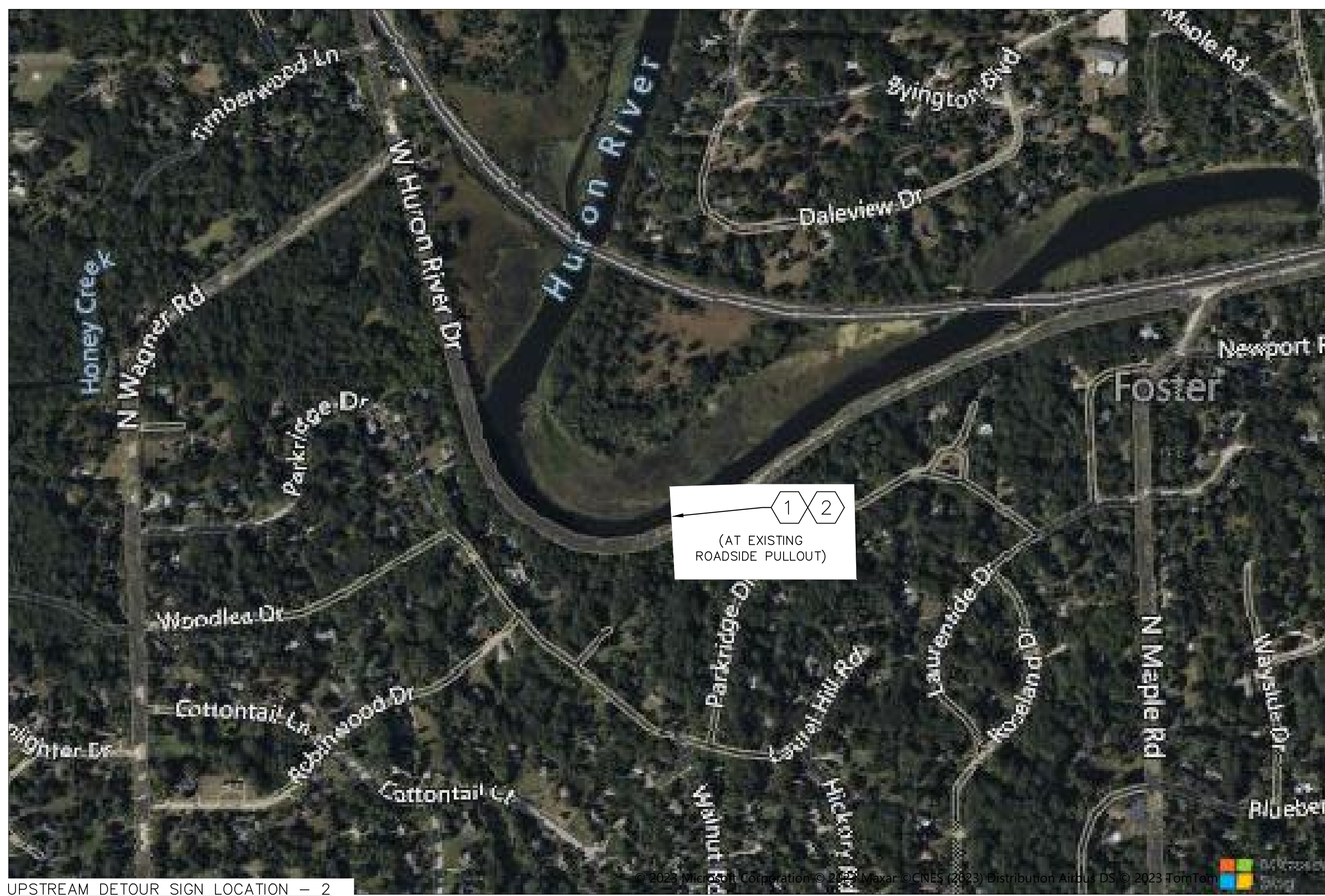
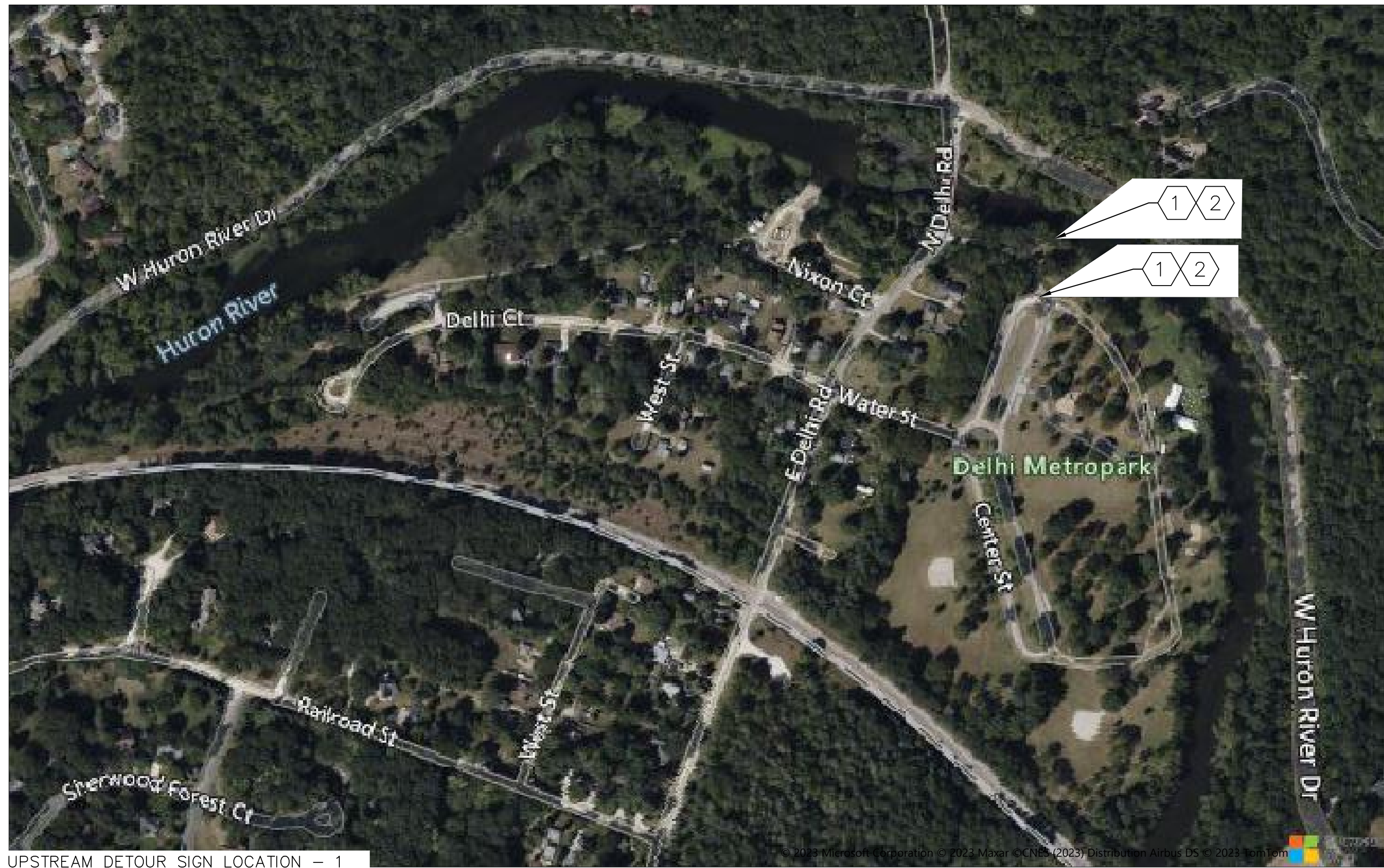


CITY OF ANN ARBOR - PUBLIC SERVICES
BARTON DAM RIGHT EMBANKMENT REMEDIATION
SITE PREPARATION DETAILS


SCALE	1" = 80'
DRAWING No.	2211050300

SHEET No.

X:\Projects\2022\211\050300 nth cons-barton da\CAD\Models\Barton Dam - 22110503 - C-101-R_Existing_DETOUR2_recover.dwg - _a2 standard bw.stb - Plot Date: 18/1/2024 12:15:37




- NOTES**
1. CONTRACTOR TO REMOVE ALL SIGNS AT COMPLETION OF THE WORK.
 2. THE DRAWINGS ARE PROVIDED AS GUIDANCE. FINAL REQUIREMENTS MAY DIFFER. ADDITIONAL SIGNAGE, BARRICADES, ETC. MAY BE NEEDED. CONTRACTOR SHALL SUBMIT PLAN AND DETAILS FOR APPROVAL.
 3. SIGNS TO BE MOUNTED ON 4"x4" POSTS. SET AT LEAST 24 INCHES INTO THE GROUND.
 4. PAINT ALL SIGNS ORANGE WITH BLACK LETTERING.



Know what's below.
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REV.	INT.	DATE	DESCRIPTION	DRAWN	CHECKED
100%		11/10/2023	PERMIT SET	JEB	SAM
		01/18/2024	BID SET	JEB	SAM

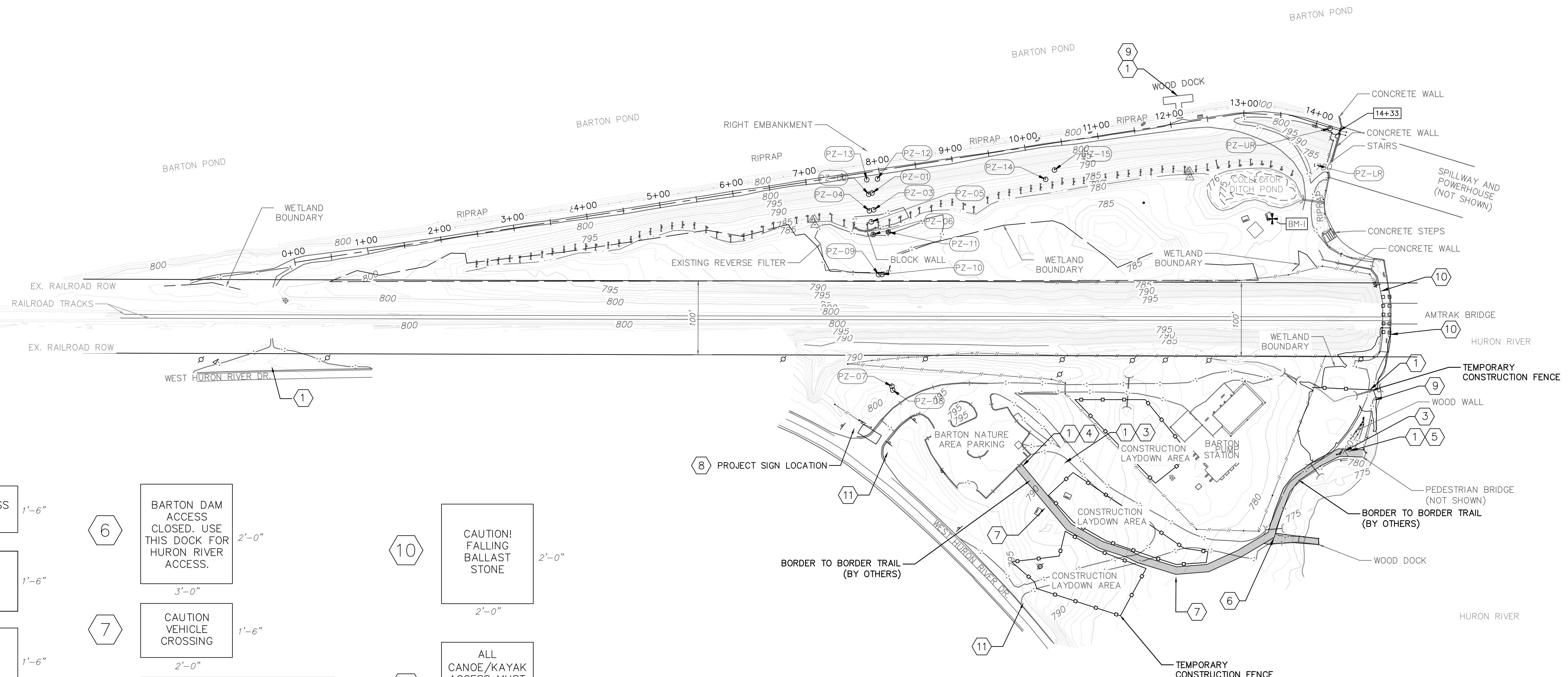
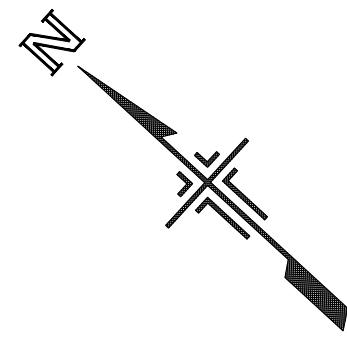
NOT FOR CONSTRUCTION



CITY OF ANN ARBOR - PUBLIC SERVICES
BARTON DAM RIGHT EMBANKMENT REMEDIATION
REGIONAL DETOUR PLAN

DRAWING No. 2211050300
SHEET No. 14 OF 48

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KEY NOTE LEGEND

1	DAM ACCESS CLOSED 1'-6"	6	BARTON DAM ACCESS CLOSED. USE THIS DOCK FOR HURON RIVER ACCESS. 2'-0"	10	CAUTION! FALLING BALLAST STONE 2'-0"
2	 DETOUR 1'-6"	7	CAUTION VEHICLE CROSSING 1'-6"	11	ALL CANOE/KAYAK ACCESS MUST BE ESCORTED BY CONSTRUCTION FLAGGER. 2'-0"
3	 DETOUR 1'-6"	8	BARTON DAM RIGHT EMBANKMENT REMEDIATION PROPOSED CONSTRUCTION SCHEDULE: XXXX 2024 TO XXXX 2025 NOTICE: PEDESTRIAN ACCESS TO BARTON DAM WILL BE CLOSED DUE TO CONSTRUCTION. PLEASE SEEK AN ALTERNATE ROUTE. FOR MORE INFORMATION, PLEASE CONTACT XXXX XXXX, CITY OF ANN ARBOR AT (734)794-6426 EXT. XXXXX OR XXXXXXX@GOV.ORG 3'-0"		
4	DETOUR 1'-6"	9	PORTAGE CLOSED 1'-6"		
5	BARTON DAM ACCESS CLOSED. USE PEDESTRIAN BRIDGE TO CROSS HURON RIVER. 3'-0"				

- NOTES**
1. THE DRAWINGS ARE PROVIDED AS GUIDANCE. FINAL REQUIREMENTS MAY DIFFER. ADDITIONAL SIGNAGE, BARRICADES, ETC. MAY BE NEEDED. CONTRACTOR SHALL SUBMIT PLAN AND DETAILS FOR APPROVAL.
 2. CONTRACTOR TO INSTALL FENCE AND SIGNAGE ON EAST SIDE OF BARTON DAM SPILLWAY CATWALK TO SECURE CONSTRUCTION SITE FROM PUBLIC ACCESS.
 3. CONTRACTOR TO REMOVE ALL SIGNS AT COMPLETION OF THE WORK.
 4. SIGNS TO BE MOUNTED ON 4"x4" POSTS. SET AT LEAST 42 INCHES INTO THE GROUND.
 5. SIGNS SHOWN IN THE KEY NOTE LEGEND ARE NOT TO SCALE.

CITY OF ANN ARBOR - PUBLIC SERVICES

BARTON DAM RIGHT EMBANKMENT REMEDIATION

SITE DETOUR PLAN

SCALE: 1"=80'

DRAWING No. 2211050300

SHEET No. 15 OF 48

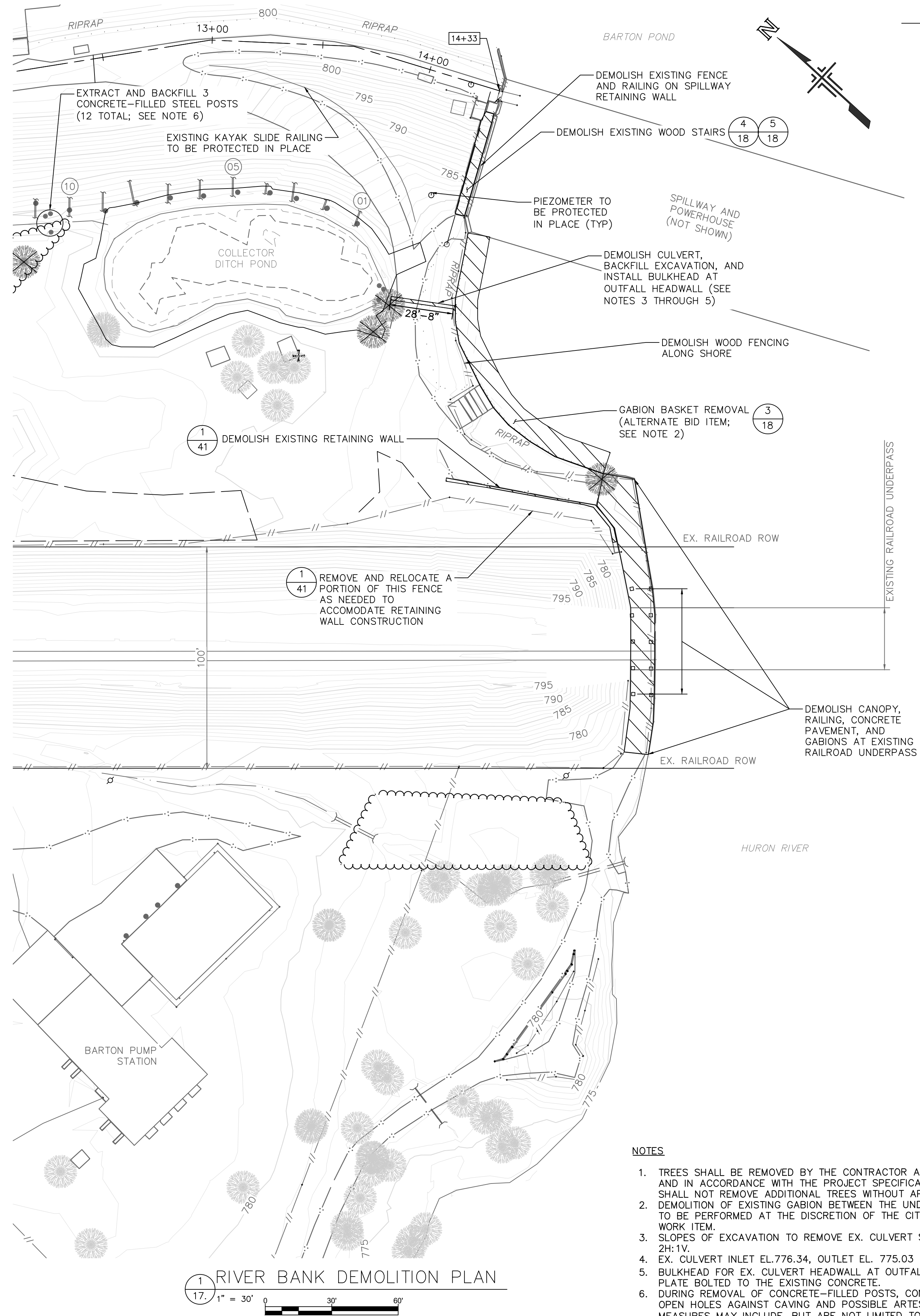
811
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100%	BID SET	01/18/2024	JEB	SAM

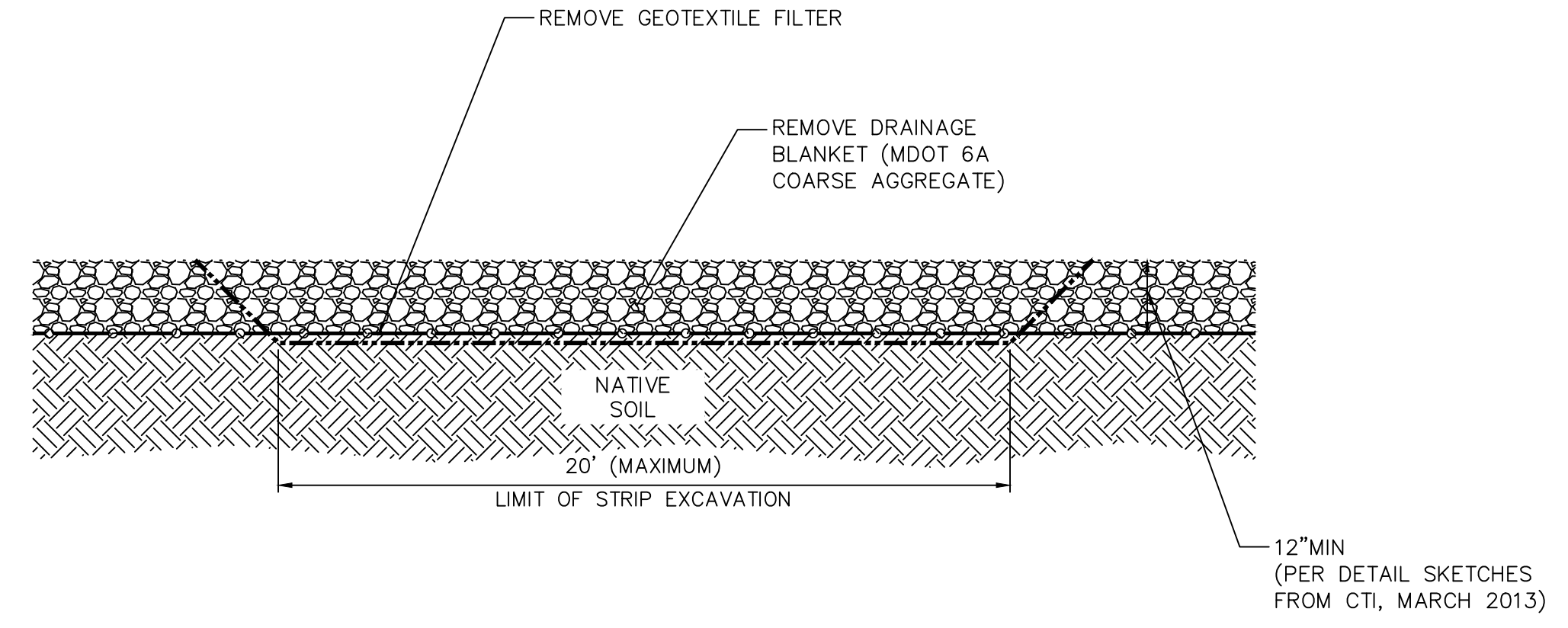
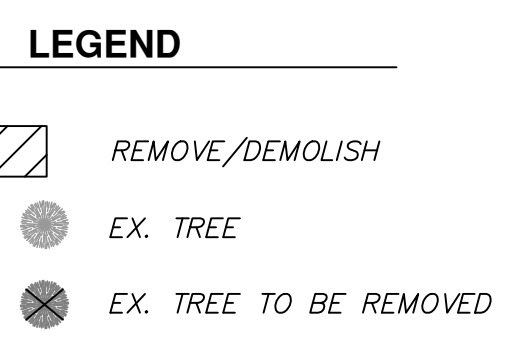
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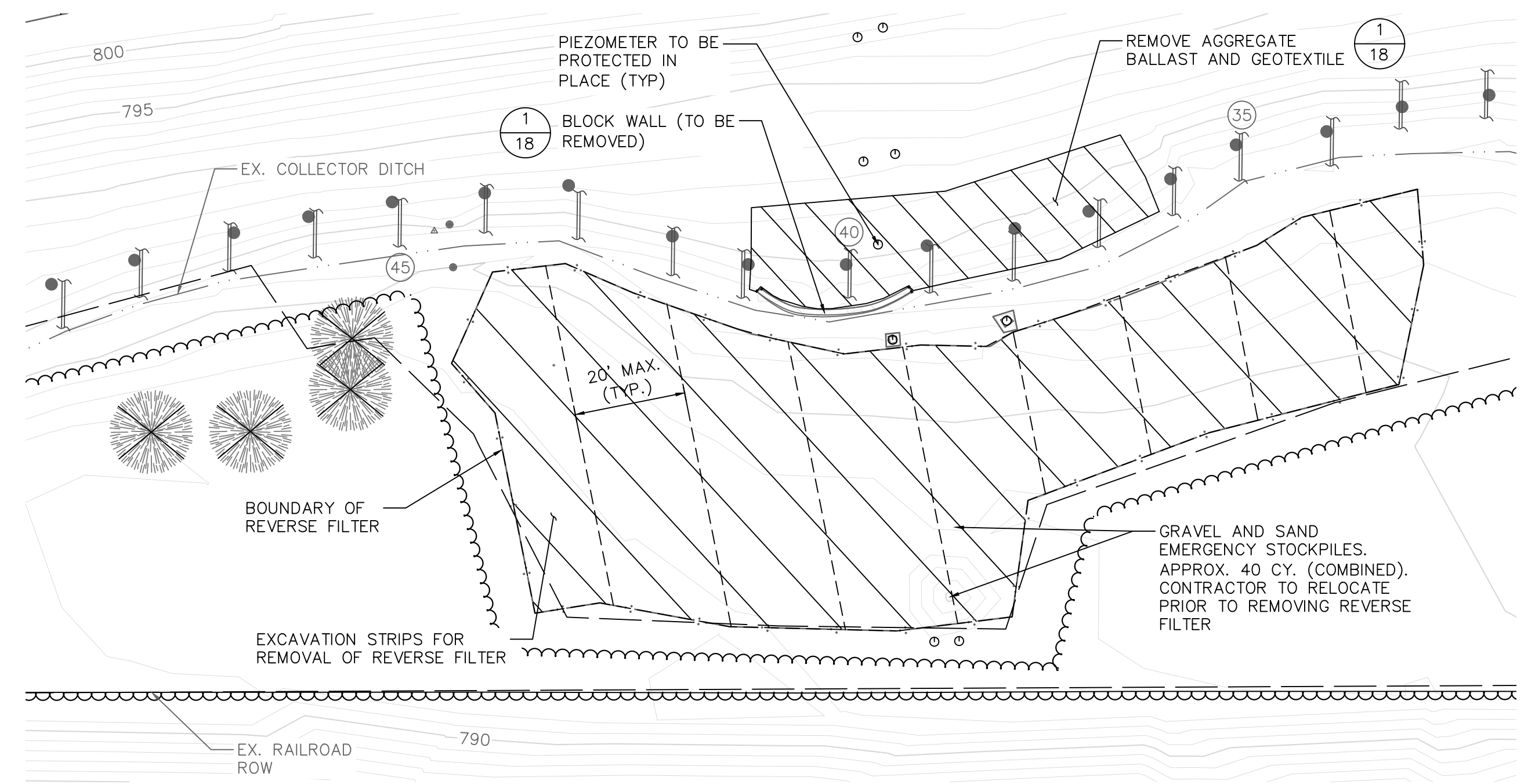
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- NOTES**
- TREES SHALL BE REMOVED BY THE CONTRACTOR AS IDENTIFIED BY THE CITY AND IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS. THE CONTRACTOR SHALL NOT REMOVE ADDITIONAL TREES WITHOUT APPROVAL BY THE CITY.
 - DEMOLITION OF EXISTING GABION BETWEEN THE UNDERPASS AND THE SPILLWAY TO BE PERFORMED AT THE DISCRETION OF THE CITY AS AN ALTERNATE BID WORK ITEM.
 - SLOPES OF EXCAVATION TO REMOVE EX. CULVERT SHALL BE NO STEEPER THAN 2H:1V.
 - EX. CULVERT INLET EL. 776.34, OUTLET EL. 775.03
 - BULKHEAD FOR EX. CULVERT HEADWALL AT OUTFALL SHALL BE A 1/4" STEEL PLATE BOLTED TO THE EXISTING CONCRETE.
 - DURING REMOVAL OF CONCRETE-FILLED POSTS, CONTRACTOR MUST PROTECT OPEN HOLES AGAINST CAVING AND POSSIBLE ARTESIAN FLOWS. PROTECTIVE MEASURES MAY INCLUDE, BUT ARE NOT LIMITED TO, TEMPORARY/SACRIFICIAL CASINGS, HEAVY DRILLING FLUID, AND TREMIE PLACEMENT OF CONCRETE. OTHER REQUIREMENTS ESTABLISHED IN THE DRILLING PROGRAM PLAN MAY ALSO APPLY.



2 REVERSE FILTER REMOVAL - TYPICAL SECTION
17 N.T.S.



3 REVERSE FILTER REMOVAL - PLAN
17 1" = 20'

- NOTES**
- FOR REMOVAL OF THE REVERSE FILTER AND ANY UNSUITABLE SOILS, CONTRACTOR SHALL DRAW GROUND WATER DOWN TO 24 INCHES BELOW THE LOWEST LEVEL OF EXCAVATION AND MAINTAIN IT AT THAT LEVEL FOR THE DURATION OF THIS PORTION OF THE WORK. THE CONTRACTOR MAY DISCONTINUE DEWATERING UPON APPROVAL BY THE ENGINEER.
 - REVERSE FILTER TO BE REMOVED IN 20-FT-WIDE (MAX) STRIPS AS MEASURED PARALLEL TO THE PROJECT BASELINE. EACH STRIP TO BE BACKFILLED TO GRADE BEFORE THE END OF THE WORKDAY AND BEFORE EXCAVATING THE ADJACENT STRIP.
 - MORE THAN 1 STRIP MAY BE EXCAVATED CONCURRENTLY IF THEY ARE AT LEAST 40 FEET APART (EDGE TO EDGE).
 - CONTRACTOR SHALL REMOVE UNSUITABLE SOILS BELOW THE REVERSE FILTER AND BACKFILL THE EXCAVATION WITH COMPACTED MDOT 2NS FINE AGGREGATE TO THE LEVEL OF THE SURROUNDING GROUND OR HIGHER. THE MAXIMUM FOOTPRINT OF OPEN EXCAVATION FOR REMOVAL OF UNSUITABLE SOILS MAY NOT EXCEED 250 SQUARE FEET AT ANY TIME.

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REV.	INT.	DATE	DESCRIPTION	CHECKED
100%		11/10/2023	PERMIT SET	JEB SAM
		01/18/2024	BID SET	JEB SAM

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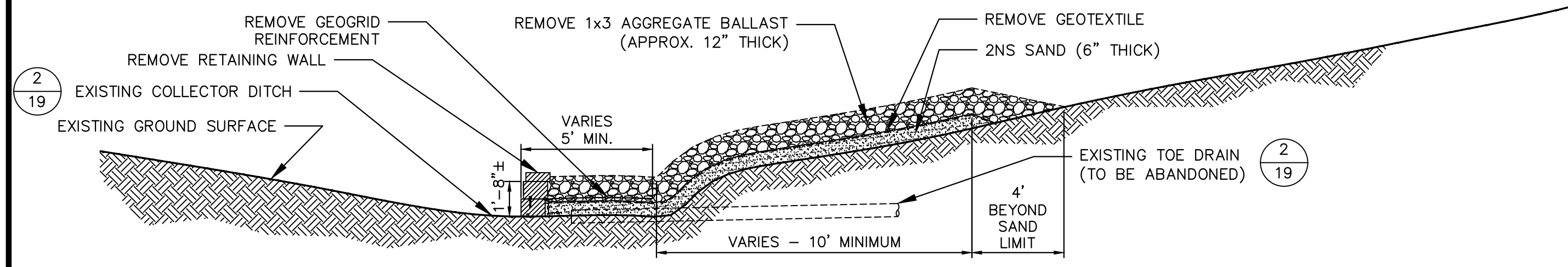
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CITY OF ANN ARBOR MICHIGAN

CITY OF ANN ARBOR - PUBLIC SERVICES
BARTON DAM RIGHT EMBANKMENT REMEDIATION
DEMOLITION DETAILS (1 OF 3)

SCALE AS NOTED
DRAWING No. 2211050300
SHEET No. 17 OF 48

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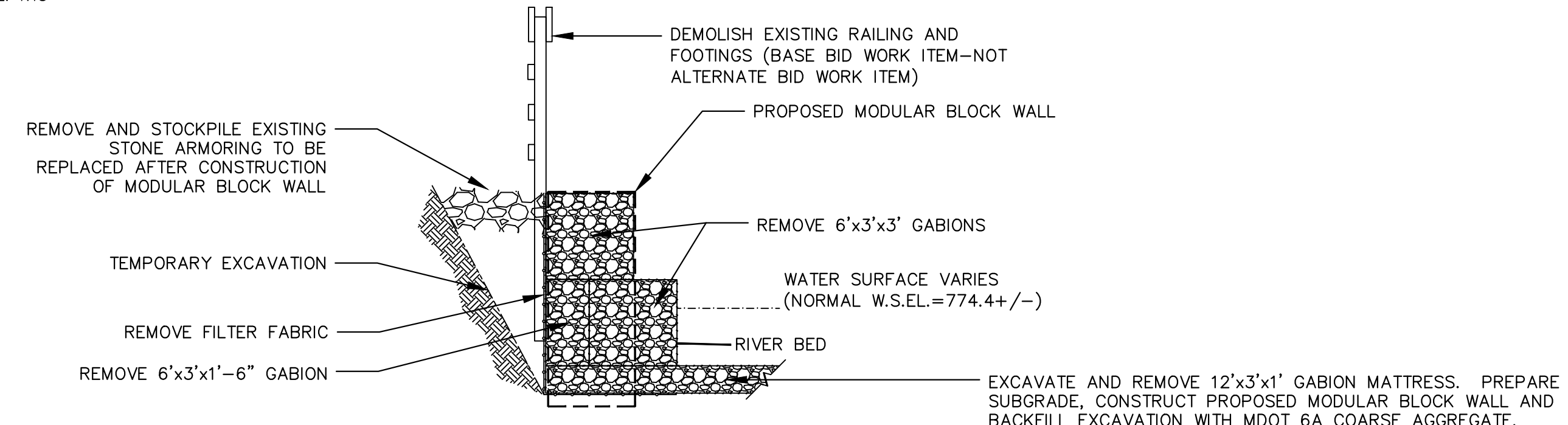


NOTES

1. DEMOLITION TO BE COMPLETED CONCURRENTLY WITH ADJACENT TOPSOIL STRIPPING AND SUBGRADE PREPARATION FOR THE STABILIZATION BERM.
2. CONTRACTOR TO IMPLEMENT APPROVED DEWATERING MEASURES AS NEEDED TO COMPLETE THE WORK.
3. CONTRACTOR SHALL PROTECT ALL EXISTING TOE DRAINS. DAMAGE TO TOE DRAINS MUST BE PROMPTLY REPORTED TO THE ENGINEER.

1 DEMOLITION OF BLOCK WALL, GEOGRID, & AGGREGATE BALLAST – TYPICAL SECTION

18 SCALE: NTS

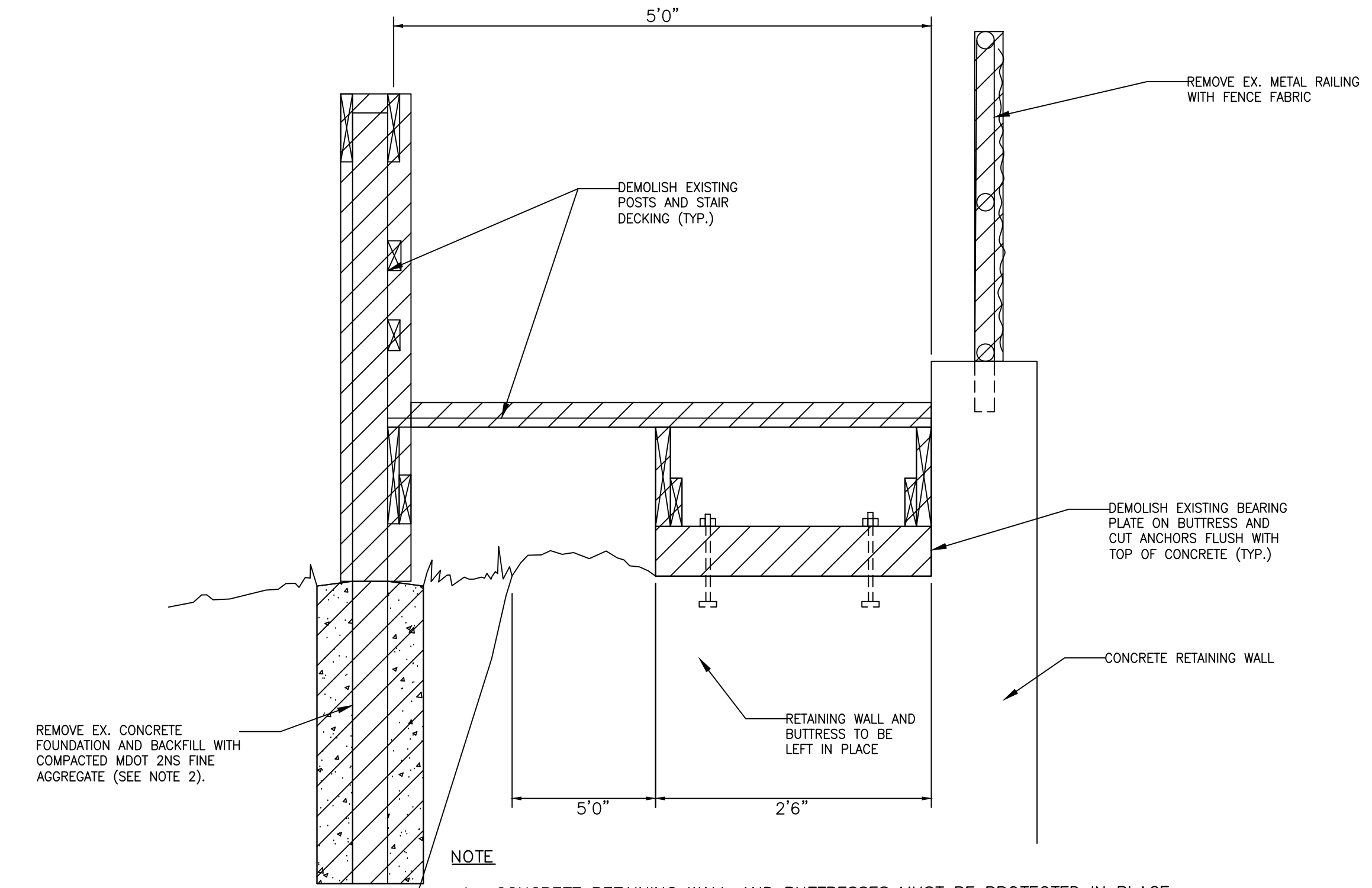


NOTE

1. REMOVAL OF EXISTING GABIONS BETWEEN THE UNDERPASS AND THE SPILLWAY TO BE PERFORMED AT THE DISCRETION OF THE CITY AS AN ALTERNATE BID WORK ITEM.

3 GABION BASKET REMOVAL (ALTERNATE BID) – TYPICAL SECTION

18 N.T.S.

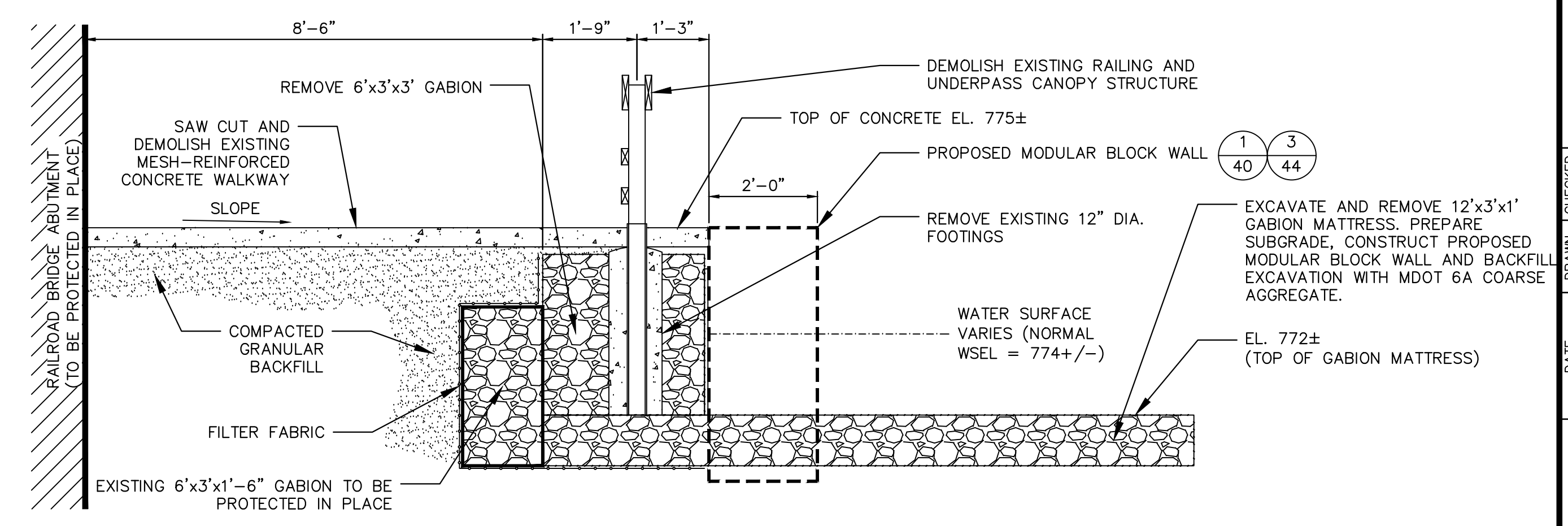


NOTE

1. CONCRETE RETAINING WALL AND BUTTRESSES MUST BE PROTECTED IN PLACE.
2. CONTRACTOR MUST PROTECT OPEN HOLES AGAINST CAVING AND POSSIBLE ARTESIAN FLOWS. PROTECTIVE MEASURES MAY INCLUDE, BUT ARE NOT LIMITED TO, TEMPORARY/SACRIFICIAL CASINGS, HEAVY DRILLING FLUID, AND TREMIE PLACEMENT OF FLOWABLE FILL (CONTROLLED LOW STRENGTH MATERIAL). OTHER REQUIREMENTS ESTABLISHED IN THE DRILLING PROGRAM PLAN MAY ALSO APPLY.

4 WOODEN STAIR DEMOLITION DETAIL – TYPICAL SECTION

18 N.T.S.

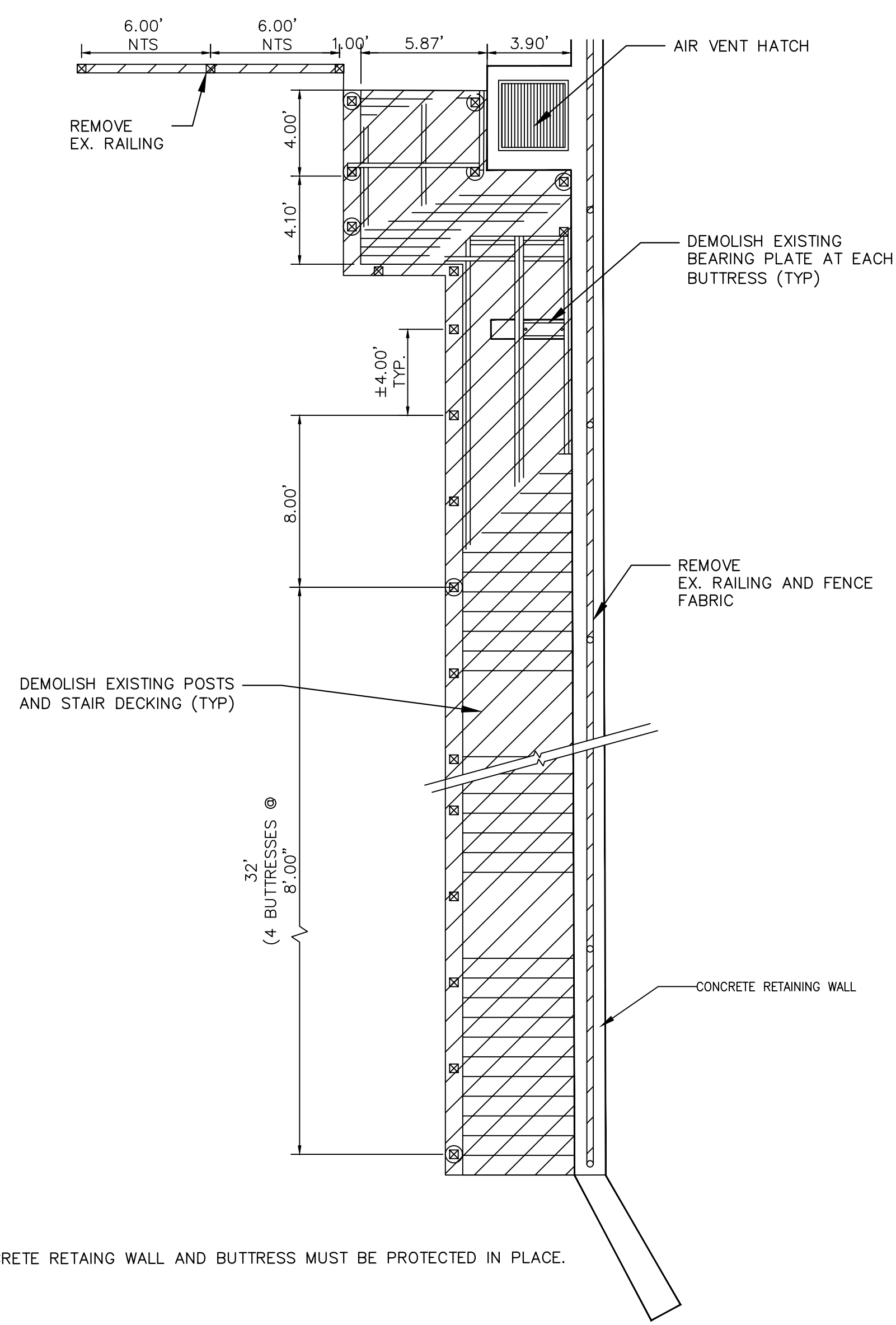


NOTE

1. CONTRACTOR TO CONSTRUCT THE PROPOSED MODULAR BLOCK WALL AND PLACE BACKFILL AS SOON AS FEASIBLE AFTER DEMOLITION OF GABIONS. THIS WORK SHOULD PROCEED CONCURRENTLY WITH THE DEMOLITION ACTIVITIES TO LIMIT, TO THE GREATEST EXTENT POSSIBLE, THE LENGTH OF UNSUPPORTED UNDERPASS AT ANY TIME.

2 UNDERPASS DEMOLITION – TYPICAL SECTION

18 N.T.S.




NOTE

1. CONCRETE RETAINING WALL AND BUTTRESS MUST BE PROTECTED IN PLACE.

5 WOODEN STAIR DEMOLITION PLAN

18 N.T.S.



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BARTON DAM RIGHT EMBANKMENT REMEDIATION
DEMOLITION DETAILS (2 OF 3)

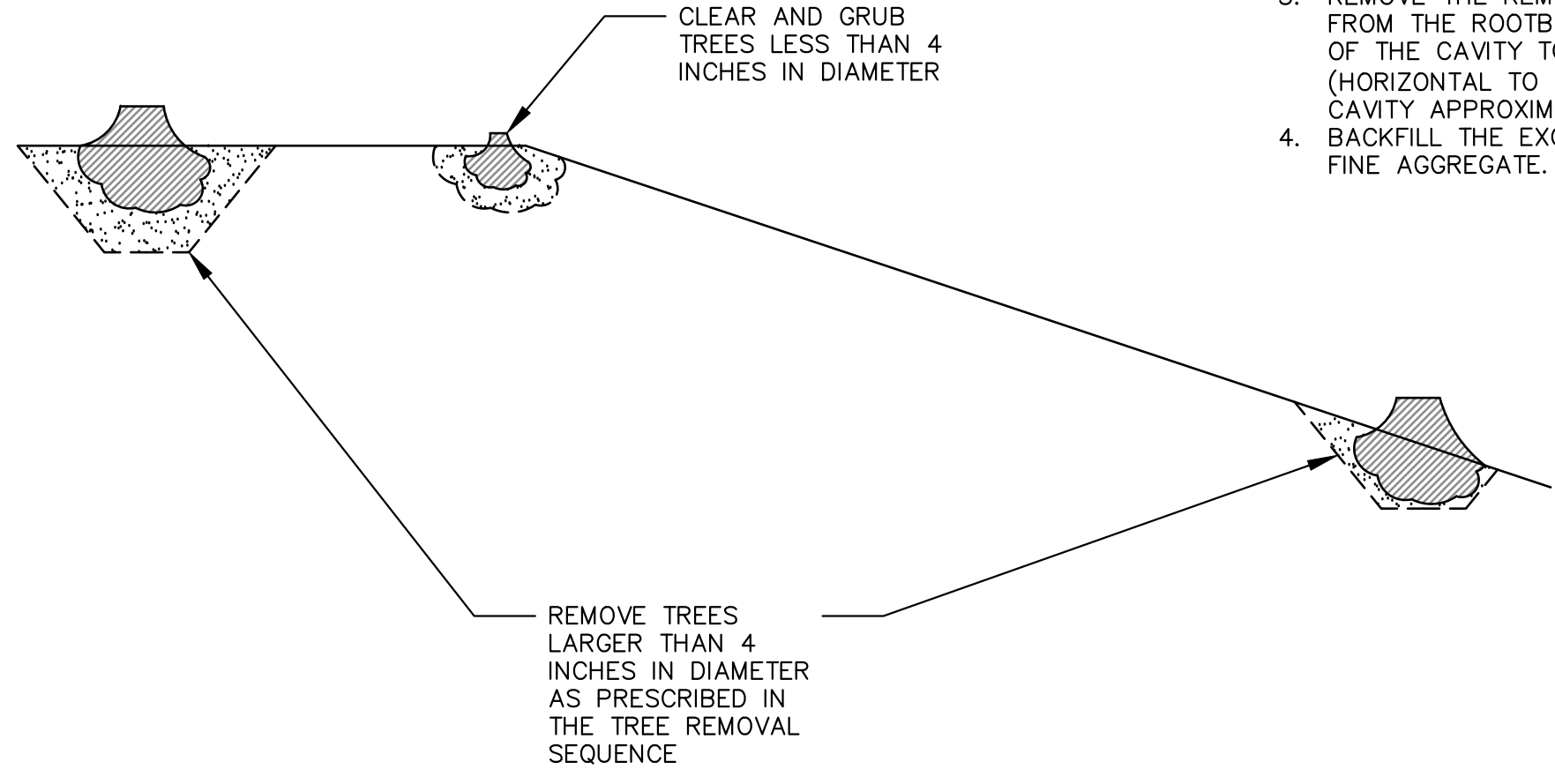
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DRAWING No. 2211050300

SHEET No. 18 OF 48

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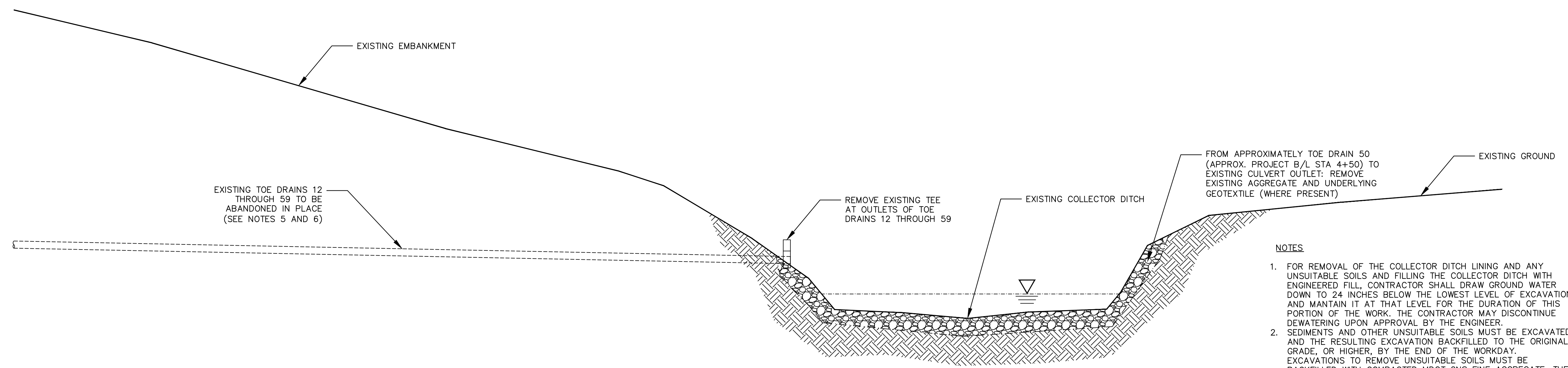


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1 TREE REMOVAL DETAIL
19 N.T.S.

- TREE REMOVAL SEQUENCE**
1. CUT THE TREE APPROXIMATELY TWO FEET ABOVE GROUND, LEAVING A WELL-DEFINED STUMP THAT CAN BE USED IN THE ROOTBALL REMOVAL PROCESS.
 2. REMOVE THE STUMP AND ROOTBALL BY PULLING THE STUMP, OR BY USING A TRACK-MOUNTED BACKHOE TO FIRST LOOSEN THE ROOTBALL BY PULLING ON THE STUMP AND THEN EXTRACTING THE STUMP AND ROOTBALL ALL TOGETHER.
 3. REMOVE THE REMAINING ROOT SYSTEM AND LOOSE SOIL FROM THE ROOTBALL CAVITY BY EXCAVATING THE SIDES OF THE CAVITY TO SLOPES NO STEEPER THAN 1:1 (HORIZONTAL TO VERTICAL) AND THE BOTTOM OF THE CAVITY APPROXIMATELY HORIZONTAL.
 4. BACKFILL THE EXCAVATION WITH COMPACTED MDOT 2NS FINE AGGREGATE.



2 COLLECTOR DITCH LINING REMOVAL AND TOE DRAIN ABANDONMENT - TYPICAL SECTION
19 N.T.S.

- NOTES**
1. FOR REMOVAL OF THE COLLECTOR DITCH LINING AND ANY UNSUITABLE SOILS AND FILLING THE COLLECTOR DITCH WITH ENGINEERED FILL, CONTRACTOR SHALL DRAW GROUND WATER DOWN TO 24 INCHES BELOW THE LOWEST LEVEL OF EXCAVATION AND MAINTAIN IT AT THAT LEVEL FOR THE DURATION OF THIS PORTION OF THE WORK. THE CONTRACTOR MAY DISCONTINUE DEWATERING UPON APPROVAL BY THE ENGINEER.
 2. SEDIMENTS AND OTHER UNSUITABLE SOILS MUST BE EXCAVATED AND THE RESULTING EXCAVATION BACKFILLED TO THE ORIGINAL GRADE, OR HIGHER, BY THE END OF THE WORKDAY. EXCAVATIONS TO REMOVE UNSUITABLE SOILS MUST BE BACKFILLED WITH COMPACTED MDOT 2NS FINE AGGREGATE. THE FOOTPRINT OF OPEN EXCAVATION TO REMOVE UNSUITABLE SOILS MAY NOT EXCEED 250 SF AT ANY TIME.
 3. CONTRACTOR TO PREPARE THE SUBGRADE BEFORE PLACING FILL.
 4. CONTRACTOR SHALL IMPLEMENT CONTROLS TO DIVERT SURFACE WATER, AS NEEDED TO PLACE BACKFILL.
 5. CONTRACTOR SHALL PERFORM CCTV INSPECTION OF TOE DRAINS BEFORE ABANDONMENT.
 6. TO ABANDON THE TOE DRAINS, CONTRACTOR SHALL FILL THE UNOBSTRUCTED LENGTH OF THE TOE DRAIN WITH PEA GRAVEL. THE UNOBSTRUCTED LENGTH AND CORRESPONDING QUANTITY OF PEA GRAVEL SHALL BE BASED ON THE CCTV INSPECTION.
 7. CONTRACTOR SHALL PROTECT ALL EXISTING TOE DRAINS. DAMAGE TO TOE DRAINS MUST BE PROMPTLY REPORTED TO THE ENGINEER.



REV.	DESCRIPTION	DATE	DRAWN	CHECKED
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CITY OF ANN ARBOR - PUBLIC SERVICES
BARTON DAM RIGHT EMBANKMENT REMEDIATION
DEMOLITION DETAILS (3 OF 3)

SCALE AS NOTED
DRAWING No. 2211050300

BOTTOM - GRANULAR FILTER CONTROL POINTS (BOTTOM LAYER)					
POINT #	STATIONING	NORTHING	EASTING	ELEVATION	DESCRIPTION

TOP - GRANULAR FILTER CONTROL POINTS (TOP LAYER)					
POINT #	STATIONING	NORTHING	EASTING	ELEVATION	DESCRIPTION

BOTTOM - MINERAL DRAIN CONTROL POINTS					
POINT #	STATIONING	NORTHING	EASTING	ELEVATION	DESCRIPTION

BOTTOM - MINERAL DRAIN CONTROL POINTS					
POINT #	STATIONING	NORTHING	EASTING	ELEVATION	DESCRIPTION

TOP - CLASS II STABILIZATION BERM FILL CONTROL POINTS					
POINT #	STATIONING	NORTHING	EASTING	ELEVATION	DESCRIPTION

NOTES:
1. CONTROL POINTS TO BE PROVIDED AS PART OF THE ISSUE FOR CONSTRUCTION DRAWINGS



REV.	DESCRIPTION	DATE	DRAWN	CHECKED
INT.	PERMIT SET	11/10/2023	JEB	SAM
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CITY OF ANN ARBOR - PUBLIC SERVICES
BARTON DAM RIGHT EMBANKMENT REMEDIATION
CONTROL POINT TABLES (1 OF 2)

SCALE: NO SCALE
DRAWING No: 2211050300

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COLLECTOR DITCH FINISHED GROUND CONTROL POINTS					
POINT #	STATIONING	NORTHING	EASTING	ELEVATION	DESCRIPTION

COLLECTOR DITCH POND FINISHED GROUND CONTROL POINTS					
POINT #	STATIONING	NORTHING	EASTING	ELEVATION	DESCRIPTION

EX. ACCESS PATH IMPROVEMENTS CONTROL POINTS				
POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION

PR. ACCESS PATH CENTERLINE ALIGNMENT HORIZONTAL COORDINATES CONTROL POINTS		
STATION	NORTHING	EASTING

PIEZOMETERS					
PZ-#	NORTHING	EASTING	EX. ELEVATION (TOP OF COVER)	PR. ELEVATION (TOP OF COVER)	DESCRIPTION
PZ-1	295660.20	13288393.30	795.27	798.00	OPEN STANDPIPE, PR. ABOVE-GROUND COVER
PZ-2	295662.01	13288388.78	795.16	798.00	OPEN STANDPIPE, PR. ABOVE-GROUND COVER
PZ-3	295642.00	13288379.56	789.81	793.38	OPEN STANDPIPE, PR. ABOVE-GROUND COVER
PZ-4	295644.86	13288374.47	790.20	793.38	OPEN STANDPIPE, PR. ABOVE-GROUND COVER
PZ-5	295632.11	13288366.30	786.45	792.70	OPEN STANDPIPE, PR. ABOVE-GROUND COVER
PZ-6	295617.75	13288356.65	785.89	791.91	OPEN STANDPIPE, PR. ABOVE-GROUND COVER
PZ-9	295572.72	13288325.47	790.47	786.60	VIBRATING WIRE, PR. FLUSH-MOUNT COVER
PZ-10	295569.80	13288328.83	790.30	786.66	VIBRATING WIRE, PR. FLUSH-MOUNT COVER
PZ-11	295606.39	13288374.06	786.49	792.29	VIBRATING WIRE, PR. ABOVE-GROUND COVER
PZ-14	295515.51	13288579.36	794.07	796.28	VIBRATING WIRE, PR. ABOVE-GROUND COVER
PZ-15	295516.82	13288596.64	796.28	794.07	VIBRATING WIRE, PR. ABOVE-GROUND COVER

UNDERDRAIN CONTROL POINTS					
POINT #	STATIONING	NORTHING	EASTING	ELEVATION	DESCRIPTION

NOTES:
1. CONTROL POINTS TO BE PROVIDED AS PART OF THE ISSUE FOR CONSTRUCTION DRAWINGS



REV.	INT.	100%	DESCRIPTION	DATE	DRAWN	CHECKED
			PERMIT SET	11/10/2023	JEB	SAM
			BID SET	01/18/2024	JEB	SAM

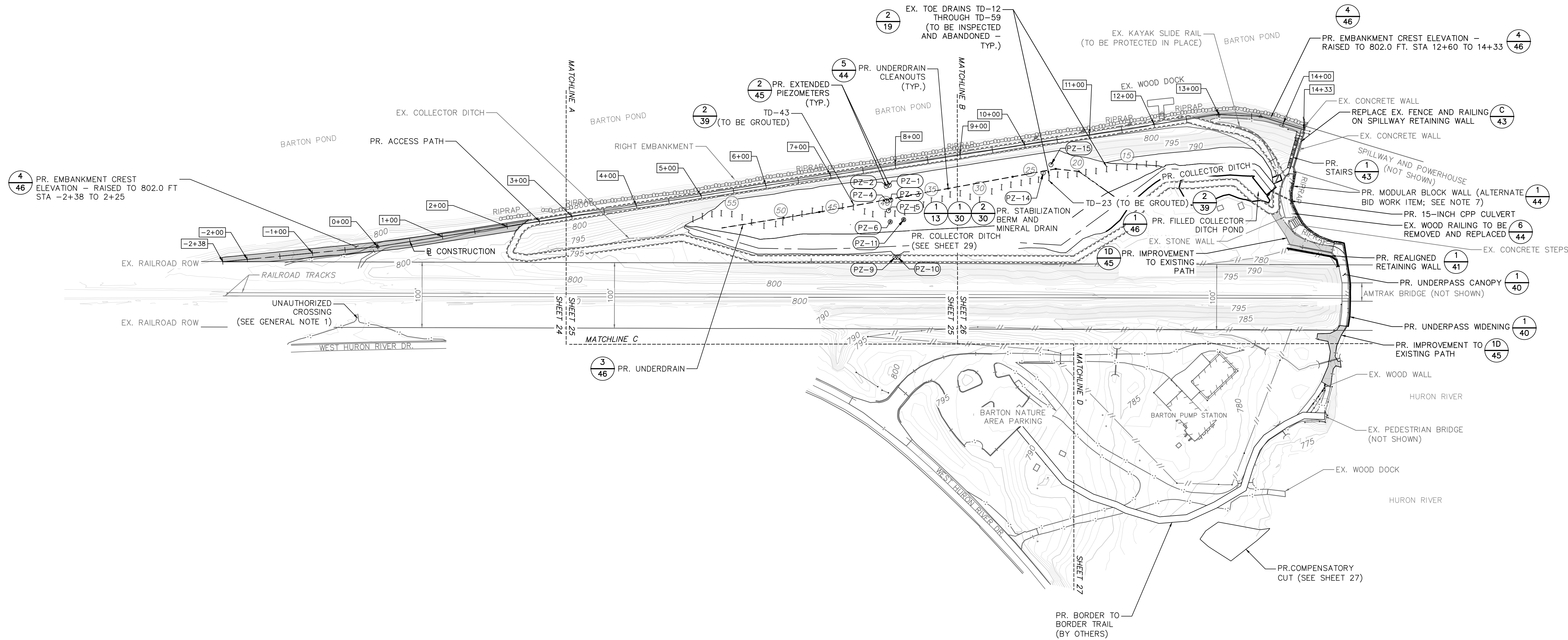
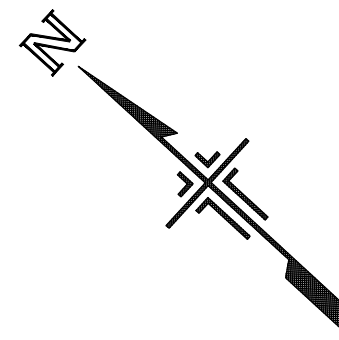
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CITY OF ANN ARBOR - PUBLIC SERVICES
BARTON DAM RIGHT EMBANKMENT REMEDIATION
CONTROL POINT TABLES (2 OF 2)

SCALE NO SCALE
DRAWING No. 2211050300

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PROJECT B/L ALIGNMENT HORIZONTAL COORDINATES		
STATIONING	NORTHING	EASTING

- NOTES:**
- TEMPORARY WORK NOT SHOWN.
 - EXISTING TOE DRAINS NOT DESIGNATED FOR ABANDONMENT NOT SHOWN ON THIS SHEET.
 - PZ-09 AND PZ-10 ARE TO BE EXTENDED WITH FLUSH MOUNT COVERS. ALL OTHER PEIZOMETERS WITHIN THE FOOTPRINT OF THE STABILIZATION BERM ARE TO BE EXTENDED WITH ABOVE GROUND COVERS. SEE SHEET 45 FOR DETAILS.
 - SEE GENERAL NOTE 17 (SHEET 2) FOR CONSTRUCTION EQUIPMENT LOADING RESTRICTIONS.
 - CONTRACTOR SHALL PROTECT ALL EXISTING TOE DRAINS. DAMAGE TO TOE DRAINS MUST BE PROMPTLY REPORTED TO THE ENGINEER.
 - CONSTRUCTION OF PROPOSED MODULAR BLOCK WALL BETWEEN THE UNDERPASS AND THE SPILLWAY TO BE PERFORMED AT THE DISCRETION OF THE CITY AS AN ALTERNATE BID WORK ITEM.

CITY OF ANN ARBOR - PUBLIC SERVICES
BARTON DAM RIGHT EMBANKMENT REMEDIATION
PROPOSED WORK INDEX

SCALE: 1"=80'
DRAWING No. 2211050300

SHEET No. 22 OF 48

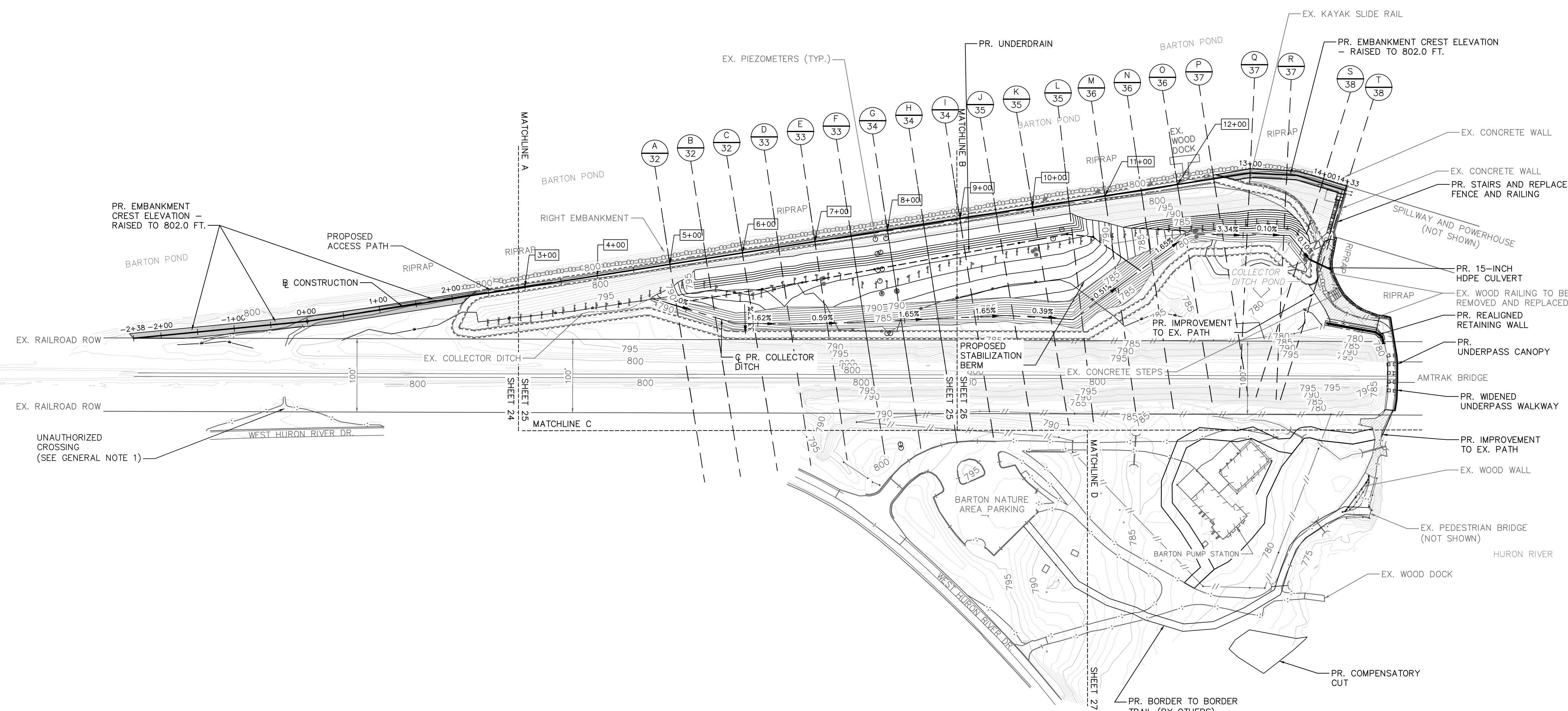
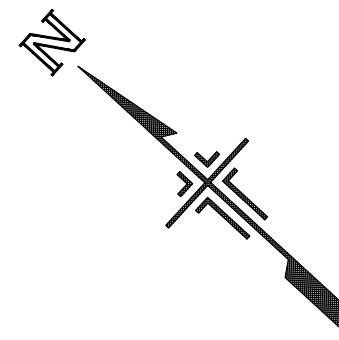
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100%	BID SET	01/18/2024	JEB	SAM

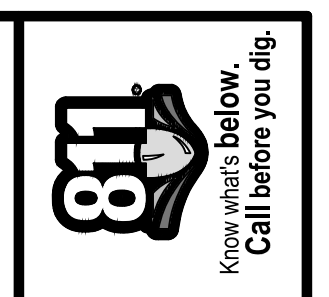
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- NOTES**
1. TOPSOIL STRIPPING WITHIN THE FOOTPRINT OF THE PROPOSED STABILIZATION BERM AND PROPOSED COLLECTOR DITCH TO BE COMPLETED IN STRIPS. SEE DETAIL ON SHEET 13.
 2. FOR TOPSOIL STRIPPING, REMOVAL OF UNSUITABLE SOILS BELOW THE PROPOSED STABILIZATION BERM AND COLLECTOR DITCH, AS WELL AS SUBGRADE PREPARATION AND BACKFILLING OF THE COLLECTOR DITCH POND, CONTRACTOR SHALL DRAW GROUND WATER DOWN TO 24 INCHES BELOW THE LOWEST LEVEL OF EXCAVATION AND MAINTAIN IT AT THAT LEVEL FOR THE DURATION OF THE CONSTRUCTION EFFORT REQUIRED FOR EACH ELEMENT. THE CONTRACTOR MAY DISCONTINUE DEWATERING FOR EACH PORTION OF THE WORK UPON APPROVAL BY THE ENGINEER.
 3. SEE GENERAL NOTE 17 (SHEET 2) FOR CONSTRUCTION EQUIPMENT LOADING RESTRICTIONS.
 4. CONTRACTOR SHALL PROTECT ALL EXISTING TOE DRAINS. DAMAGE TO TOE DRAINS MUST BE PROMPTLY REPORTED TO THE ENGINEER.



REV.	INT.	DATE	DESCRIPTION	DRAWN	CHECKED
	100%	11/10/2023	PERMIT SET	JEB	SAM
		01/18/2024	BID SET	JEB	SAM

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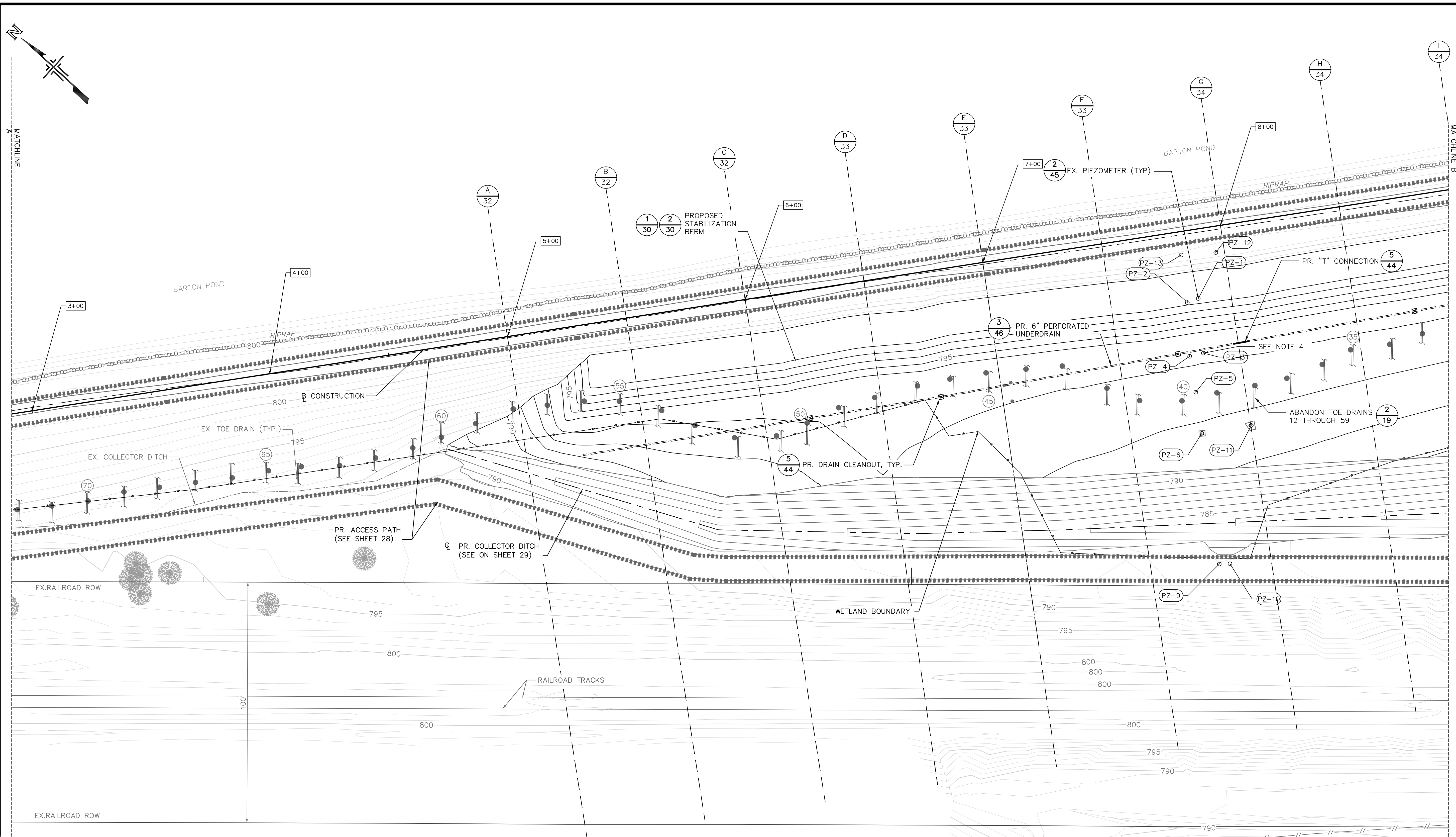
CITY OF ANN ARBOR - PUBLIC SERVICES
 BARTON DAM RIGHT EMBANKMENT REMEDIATION
OVERALL PROPOSED SITE PLAN

SCALE 1"=80'
 DRAWING No. 2211050300

SHEET No. 23 OF 48

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X:\Projects\2022\221105030 NTH Cons=Barton Dam\CAD Models\Barton Dam - 22110503 - C-101-R_Proposed.dwg - _a2 standard bw.stb - Plot Date: 18/1/2024 10:56:39



SHEET 25 MATCHLINE C

- NOTES**
1. TOPSOIL STRIPPING WITHIN THE FOOTPRINT OF THE PROPOSED STABILIZATION BERM AND PROPOSED COLLECTOR DITCH TO BE COMPLETED IN STRIPS. SEE DETAIL ON SHEET 13.
 2. REMOVE UNSUITABLE SOILS BELOW THE PROPOSED STABILIZATION BERM AND PROPOSED COLLECTOR DITCH. BACKFILL THE RESULTING EXCAVATION WITH COMPACTED MDOT 2NS FINE AGGREGATE TO THE LEVEL OF THE SURROUNDING GROUND OR HIGHER THE SAME WORKDAY. NO EXCAVATIONS MAY BE LEFT OPEN OVERNIGHT.
 3. FOR TOPSOIL STRIPPING, REMOVAL OF UNSUITABLE SOILS BELOW THE PROPOSED STABILIZATION BERM AND COLLECTOR DITCH, AS WELL AS SUBGRADE PREPARATION AND BACKFILLING OF THE COLLECTOR DITCH POND, CONTRACTOR SHALL DRAW GROUND WATER DOWN TO 24 INCHES BELOW THE LOWEST LEVEL OF EXCAVATION AND MAINTAIN IT AT THAT LEVEL FOR THE DURATION OF THE CONSTRUCTION EFFORT REQUIRED FOR EACH ELEMENT, THE CONTRACTOR MAY DISCONTINUE DEWATERING FOR EACH PORTION OF THE WORK UPON APPROVAL BY THE ENGINEER.
 4. INSTALL 6-INCH-DIAMETER FLEXIBLE DUAL-WALL HDPE PIPE FROM PZ-3 TO RELOCATED COLLECTOR DITCH TO CONVEY ARTESIAN FLOW.

SHEET 25 MATCHLINE B

811
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INT.	11/10/2023	PERMIT SET	SAM
100%	01/18/2024	BID SET	SAM

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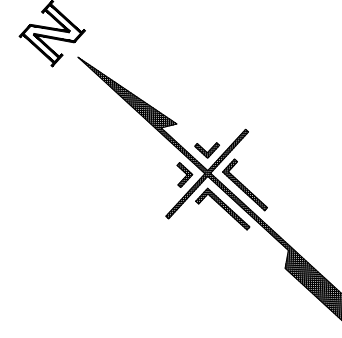
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BARTON DAM RIGHT EMBANKMENT REMEDIATION
PARTIAL PROPOSED SITE PLAN (2 OF 3)

SCALE: 1"=20'
DRAWING No. 2211050300

SHEET No. 25 OF 48



REV.	INT.	DESCRIPTION	DATE	DRAWN	CHECKED
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		BID SET	01/18/2024	JEB	SAM

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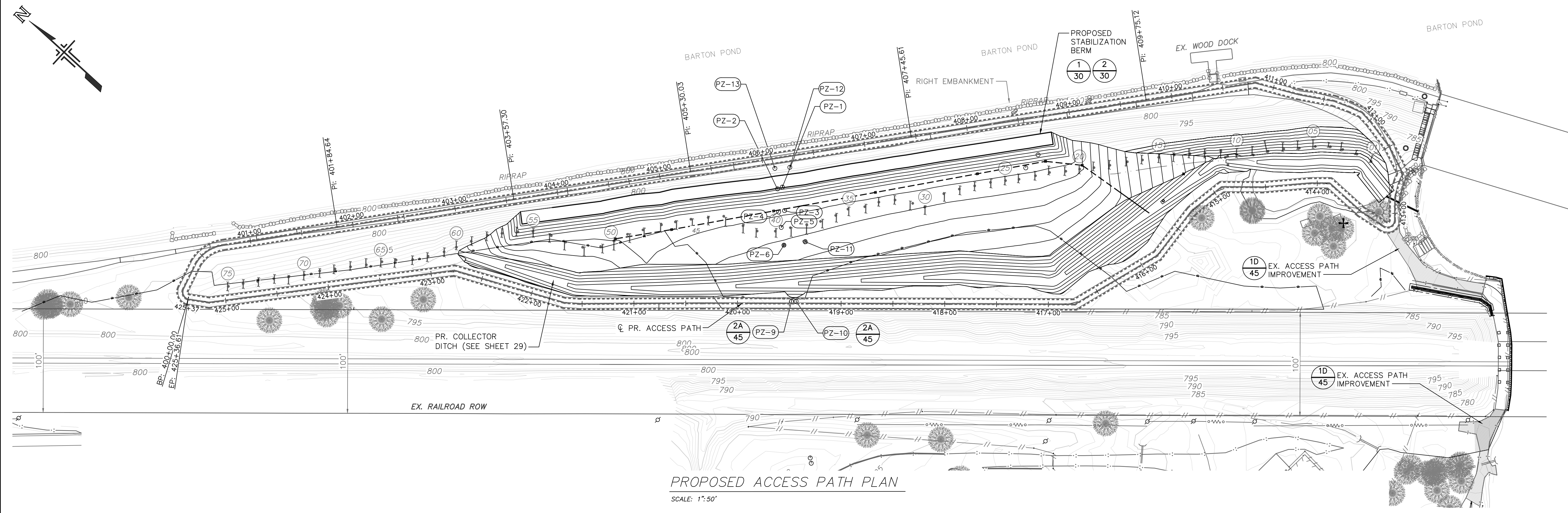
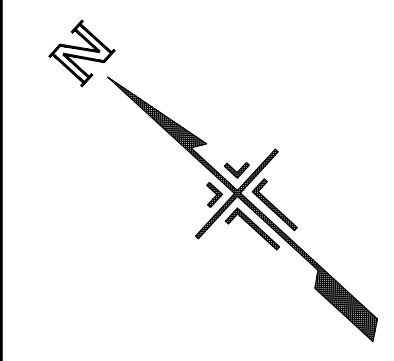
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CITY OF ANN ARBOR - PUBLIC SERVICES
BARTON DAM RIGHT EMBANKMENT REMEDIATION
PARTIAL PROPOSED SITE PLAN (4 OF 4)



X:\Projects\2022\221105030 NTH Cons=Barton Dam\CAD Models\Barton Dam - 22110503 - C-101-R-Proposed_ACCESS PATH P&F.dwg - _a2 standard bw.stb - Plot Date: 18/1/2024 12:39:19



PROPOSED ACCESS PATH PLAN
SCALE: 1"=50'

PROJECT B/L ALIGNMENT HORIZONTAL COORDINATES		
STATIONING	NORTHING	EASTING
400+00	295966.71	13287896.43
400+50	295989.18	13287934.93
401+00	295968.01	13287979.17
401+50	295940.45	13288020.89
402+00	295912.90	13288062.61
402+50	295885.34	13288104.33
403+00	295857.78	13288146.05
403+50	295830.23	13288187.77

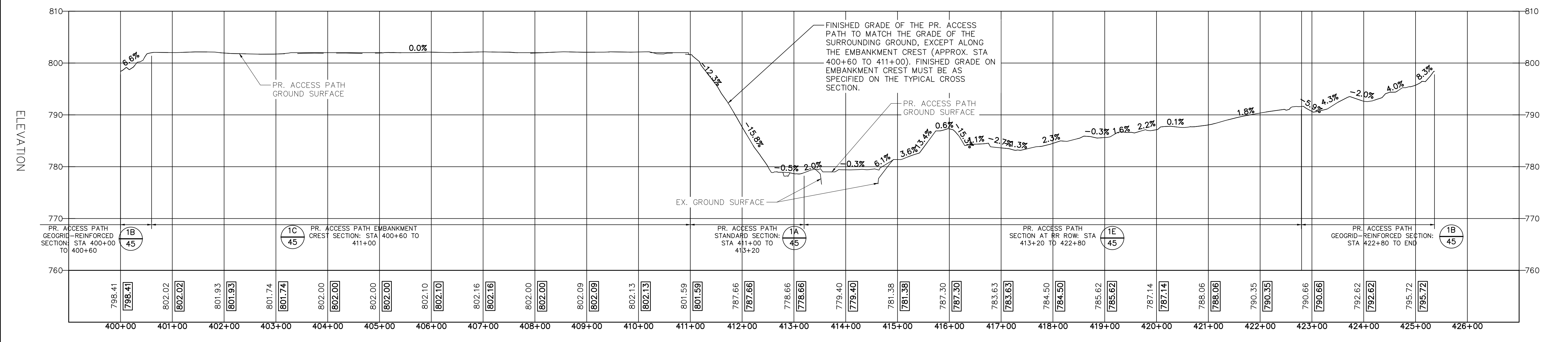
STATIONING	NORTHING	EASTING
404+00	295802.67	13288229.50
404+50	295775.12	13288271.22
405+00	295747.56	13288312.94
405+50	295720.01	13288354.66
406+00	295692.45	13288396.38
406+50	295664.90	13288438.11
407+00	295637.34	13288479.83
407+50	295609.79	13288521.55
408+00	295582.23	13288563.27
408+50	295554.68	13288604.99

STATIONING	NORTHING	EASTING
409+00	295527.12	13288646.71
409+50	295499.57	13288688.44
410+00	295472.01	13288730.16
410+50	295444.45	13288771.88
411+00	295411.58	13288808.25
411+50	295370.58	13288836.81
412+00	295325.38	13288855.33
412+50	295276.20	13288847.51
413+00	295242.79	13288813.03
413+50	295268.35	13288789.65

STATIONING	NORTHING	EASTING
414+00	295314.89	13288777.12
414+50	295345.83	13288737.86
415+00	295374.69	13288697.96
415+50	295372.95	13288648.31
416+00	295370.75	13288598.95
416+50	295380.95	13288550.00
417+00	295403.52	13288506.66
417+50	295437.39	13288469.88
418+00	295471.25	13288433.08
418+50	295505.04	13288396.24


STATIONING	NORTHING	EASTING
419+00	295538.84	13288359.39
419+50	295572.64	13288322.54
420+00	295606.43	13288285.69
420+50	295640.14	13288248.76
421+00	295673.66	13288211.66
421+50	295707.18	13288174.56
422+00	295747.52	13288145.47
422+50	295790.26	13288119.51
423+00	295826.92	13288086.57
423+50	295855.57	13288045.58

STATIONING	NORTHING	EASTING
424+00	295884.21	13288004.60
424+50	295912.85	13287963.61
425+00	295941.49	13287922.63
425+37	295966.71	13287896.43



PROPOSED ACCESS PATH PROFILE
HORIZONTAL SCALE: 1"=100'
VERTICAL SCALE: 1"=10'

NOTE:
1. THE PR. FINISHED GRADE AT THE CENTERLINE OF THE PR. ACCESS PATH SHALL MATCH EXISTING WHERE POSSIBLE.




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100%		PERMIT SET	11/10/2023	JEB	JEB
		BID SET	01/18/2024	JEB	JEB

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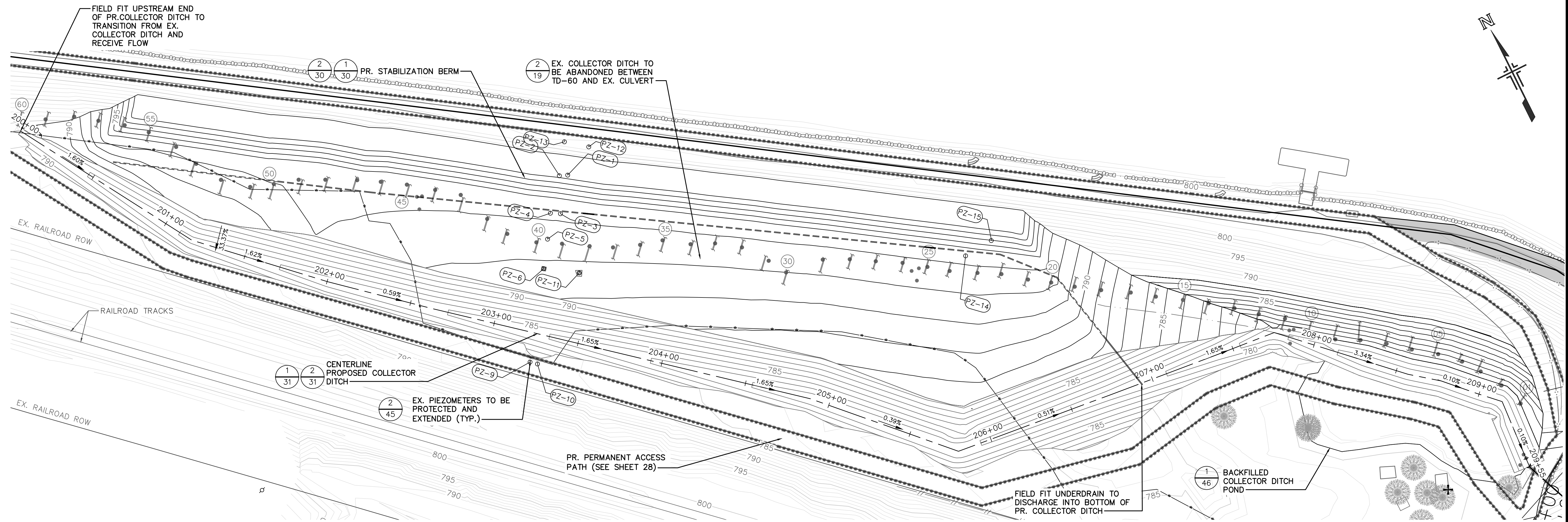
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BARTON DAM RIGHT EMBANKMENT REMEDIATION
PROPOSED ACCESS PATH
PLAN AND PROFILE

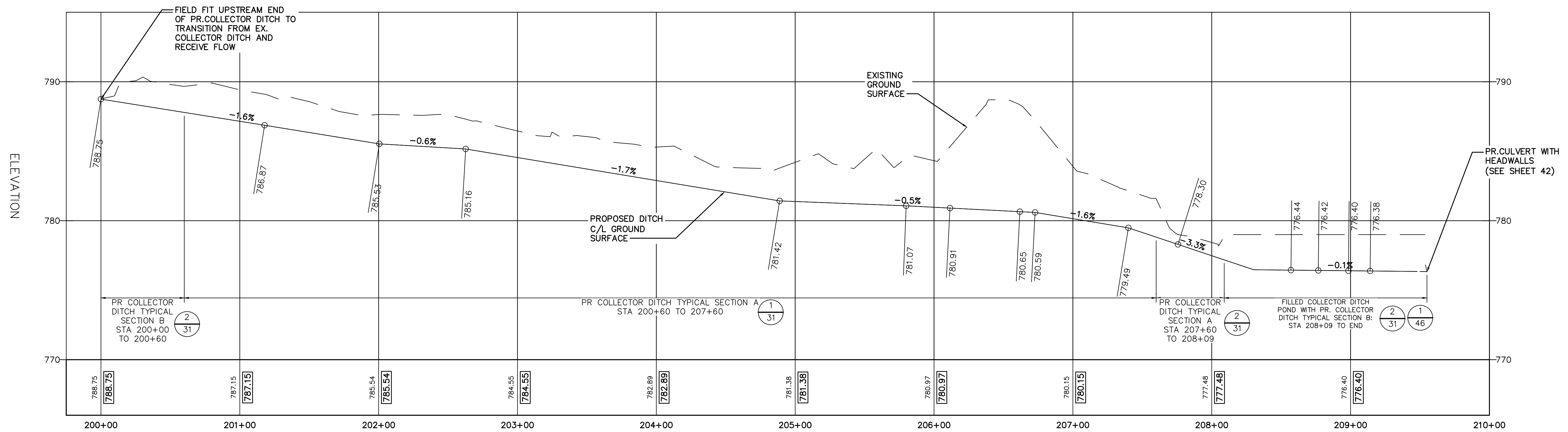
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SHEET NO. 28 OF 48

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PROPOSED COLLECTOR DITCH PLAN

SCALE: 1"=30'



PROPOSED COLLECTOR DITCH PROFILE

HORIZONTAL SCALE: 1"=40'
VERTICAL SCALE: 1"=4'



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BARTON DAM RIGHT EMBANKMENT REMEDIATION

PROPOSED COLLECTOR DITCH PLAN AND PROFILE

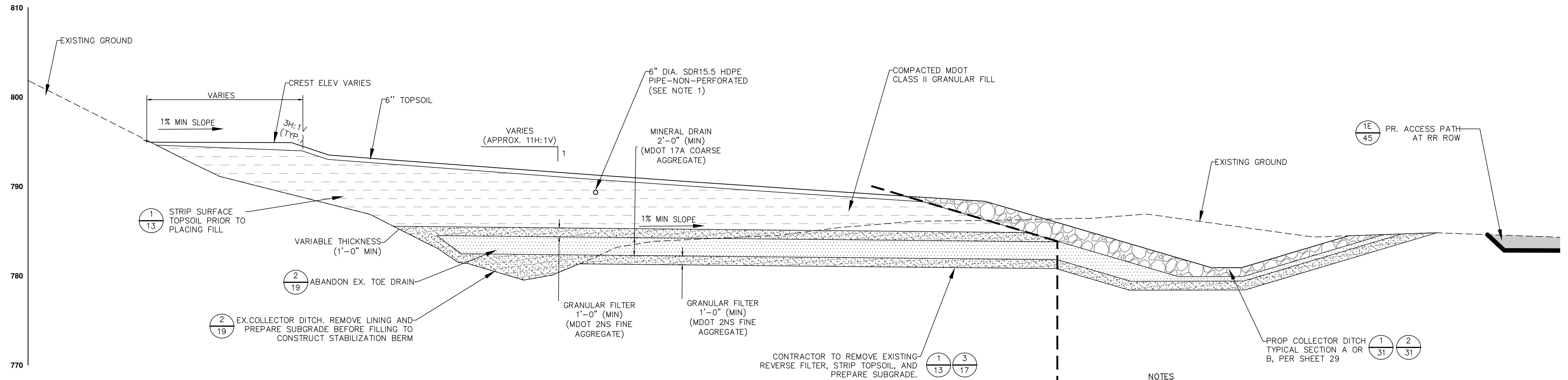
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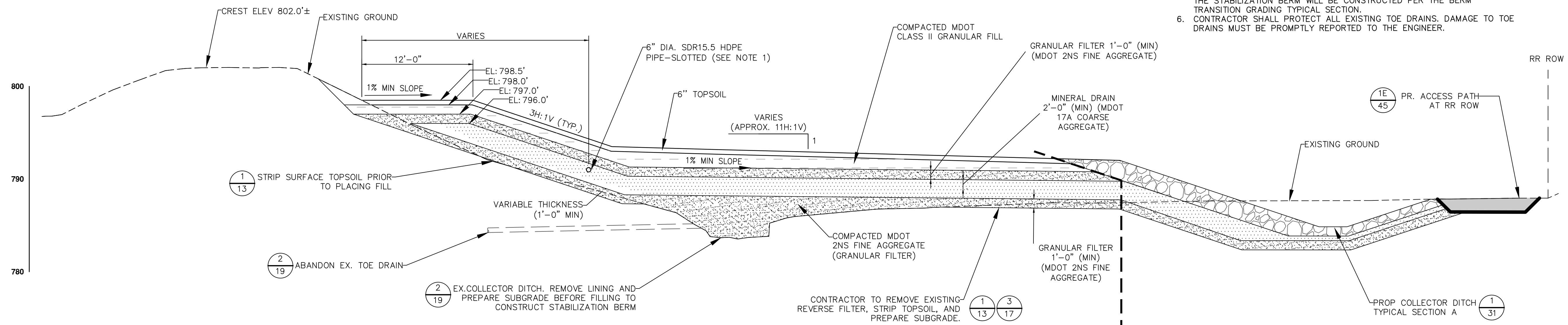
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DRAWING No. 2211050300
SHEET No. 29 OF 48

X:\Projects\2022\2211\050300 nth cons-barton da\CAD\Models\Barton Dam - 22110503 - collector ditch.dwg - _e2 standard bw.stb - Plot Date: 18/1/2024 14:00:42




BERM TRANSITION GRADING-TYPICAL CROSS SECTION 1
N.T.S. 30

- NOTES**
1. THE UNDERDRAIN SHALL BE PERFORATED, EXCEPT FOR THE PORTION BETWEEN THE FURTHEST DOWNSTREAM CLEANOUT AND THE PIPE OUTLET.
 2. TOPSOIL STRIPPING WITHIN THE FOOTPRINT OF THE PROPOSED STABILIZATION BERM AND PROPOSED COLLECTOR DITCH TO BE COMPLETED IN STRIPS. SEE DETAIL ON SHEET 13.
 3. REMOVE UNSUITABLE SOILS BELOW THE PROPOSED STABILIZATION BERM AND COLLECTOR DITCH. BACKFILL THE RESULTING EXCAVATION WITH COMPACTED MDOT 2NS FINE AGGREGATE TO THE LEVEL OF THE SURROUNDING GROUND, OR HIGHER, ON THE SAME WORKDAY. NO EXCAVATIONS MAY BE LEFT OPEN OVERNIGHT.
 4. FOR TOPSOIL STRIPPING, REMOVAL OF UNSUITABLE SOILS BELOW THE PROPOSED STABILIZATION BERM AND COLLECTOR DITCH, AS WELL AS SUBGRADE PREPARATION AND BACKFILLING OF THE COLLECTOR DITCH POND, GROUND WATER SHALL BE DRAWN DOWN TO 24 INCHES BELOW THE LOWEST LEVEL OF EXCAVATION AND MAINTAINED AT THAT LEVEL FOR THE DURATION OF EACH PORTION OF THE WORK. THE CONTRACTOR MAY DISCONTINUE DEWATERING FOR EACH PORTION OF THE WORK UPON APPROVAL BY THE ENGINEER.
 5. THE FULL HEIGHT PORTION OF THE STABILIZATION BERM WILL EXTEND FROM PROJECT BASELINE STATION 5+25 TO 10+42. THE REMAINDER OF THE STABILIZATION BERM WILL BE CONSTRUCTED PER THE BERM TRANSITION GRADING TYPICAL SECTION.
 6. CONTRACTOR SHALL PROTECT ALL EXISTING TOE DRAINS. DAMAGE TO TOE DRAINS MUST BE PROMPTLY REPORTED TO THE ENGINEER.



FULL HEIGHT BERM CROSS SECTION 2
N.T.S. 30




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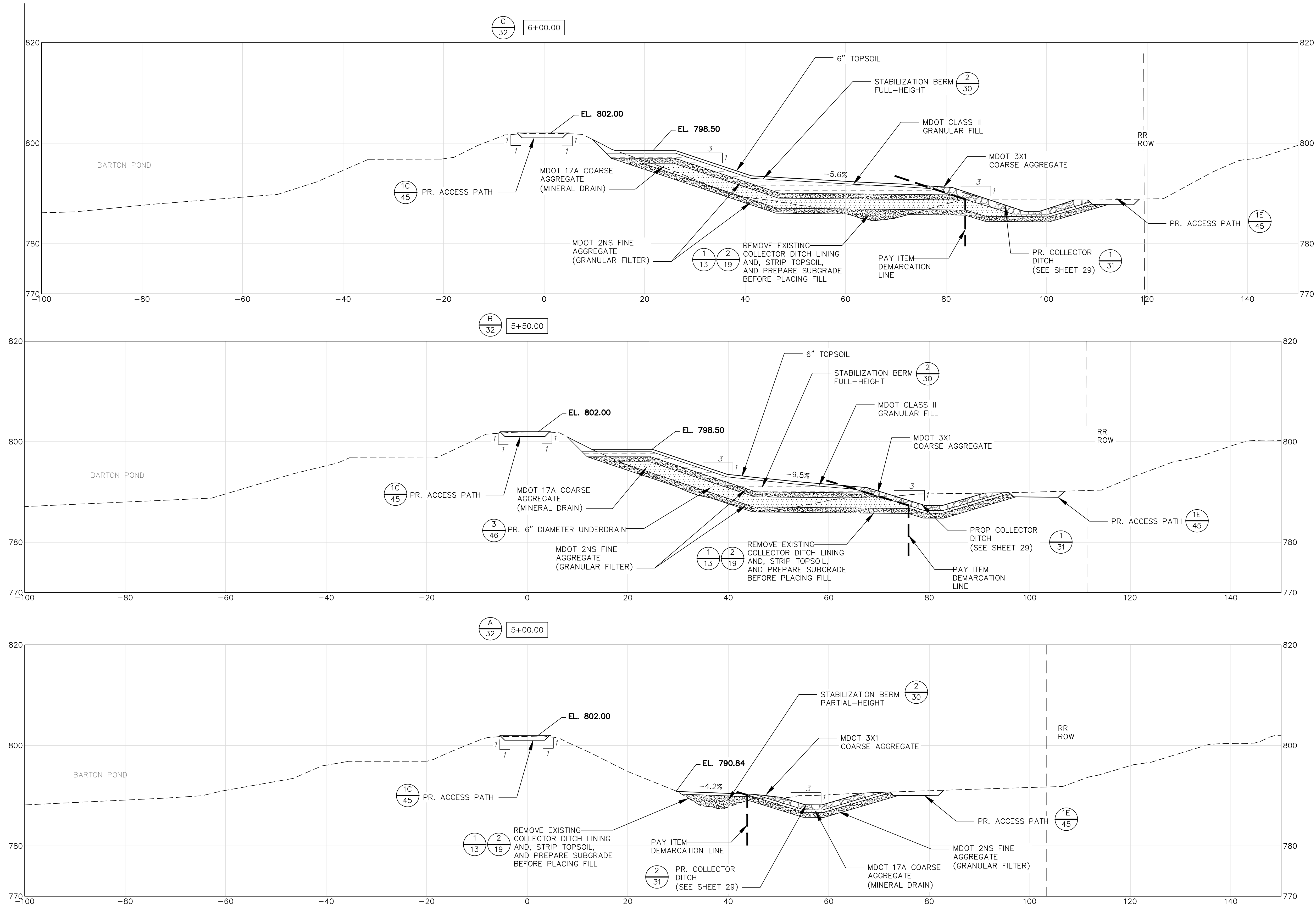


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BARTON DAM RIGHT EMBANKMENT REMEDIATION
TYPICAL CROSS SECTION (2 OF 2)
PROPOSED COLLECTOR DITCH DETAIL

SCALE: SEE INDICATED
DRAWING No.: 2211050300

SHEET No. **30 OF 48**

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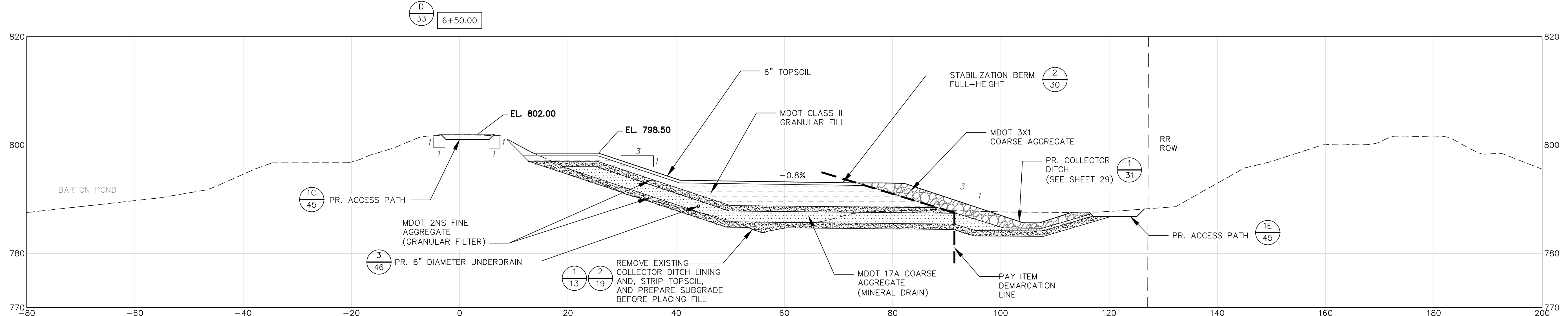
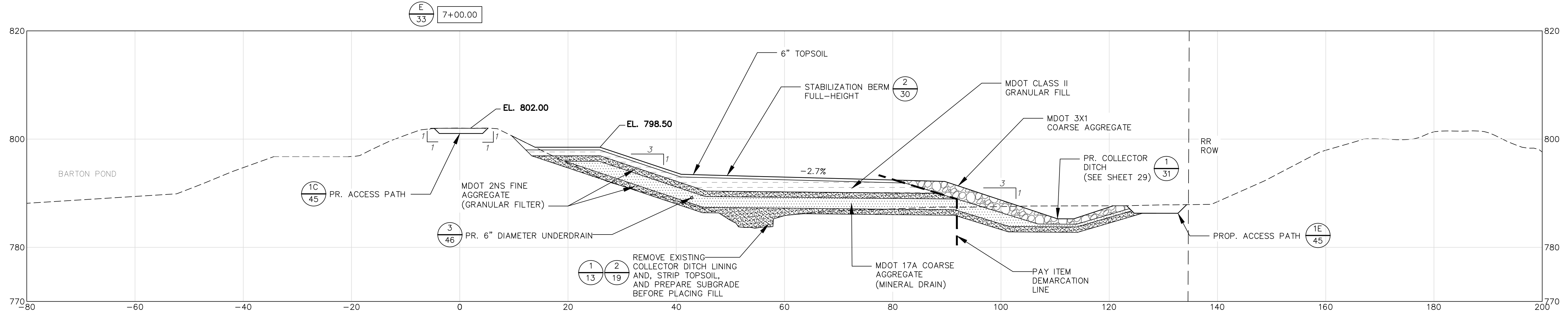
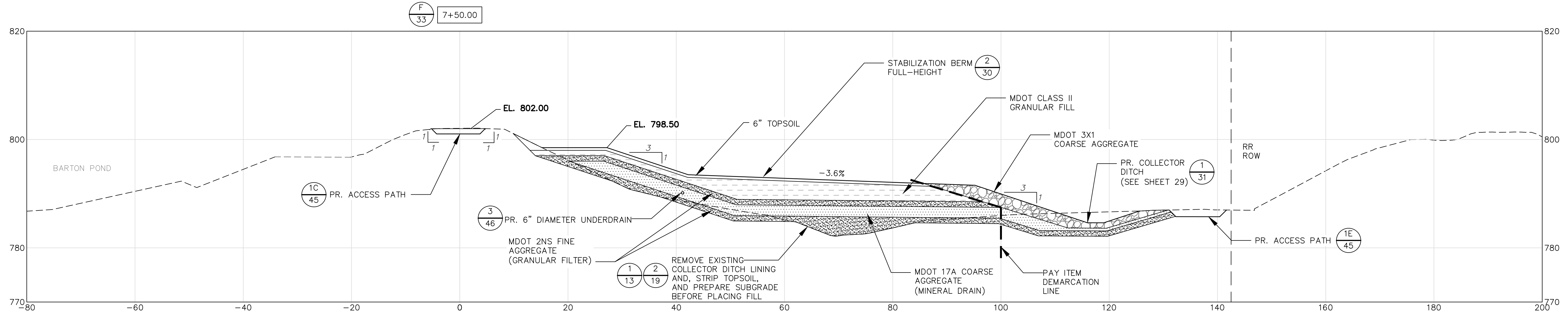
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BARTON DAM RIGHT EMBANKMENT REMEDIATION
PROPOSED CROSS SECTIONS
(1 OF 7)



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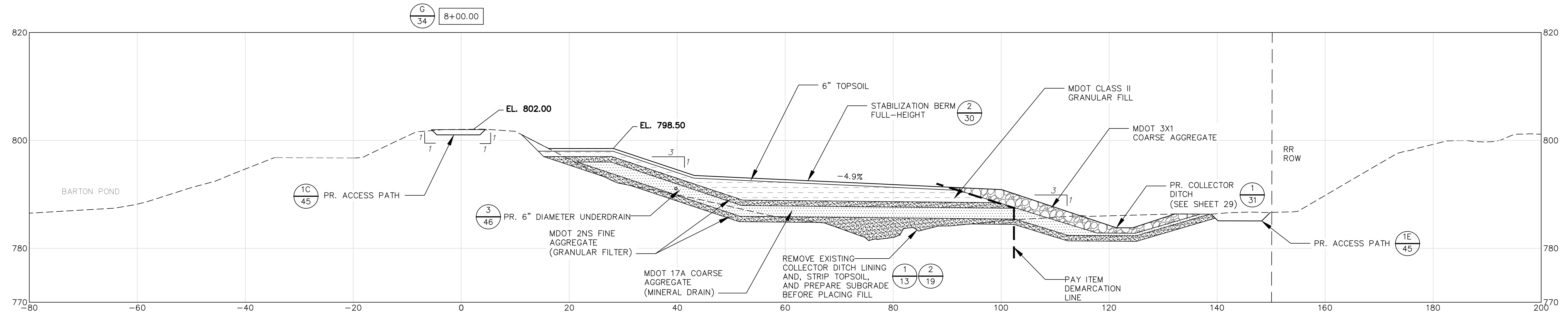
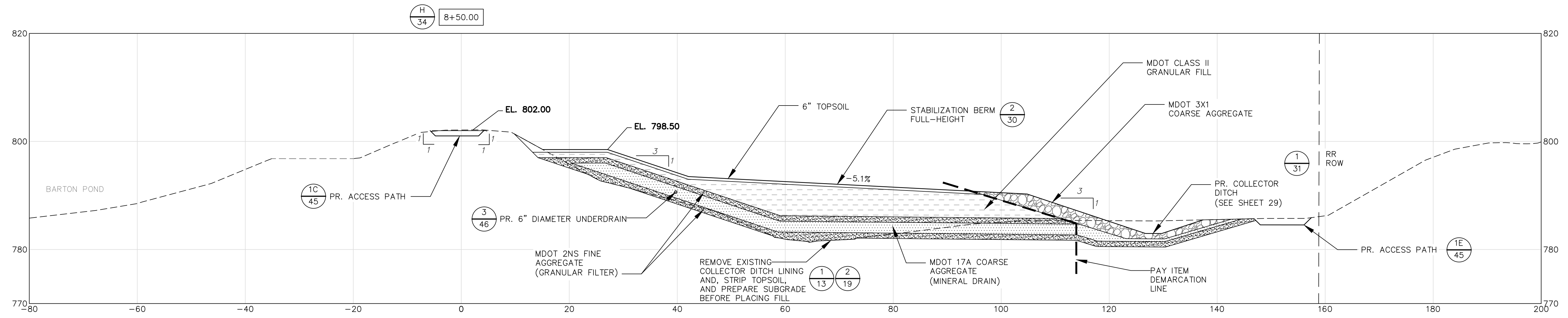
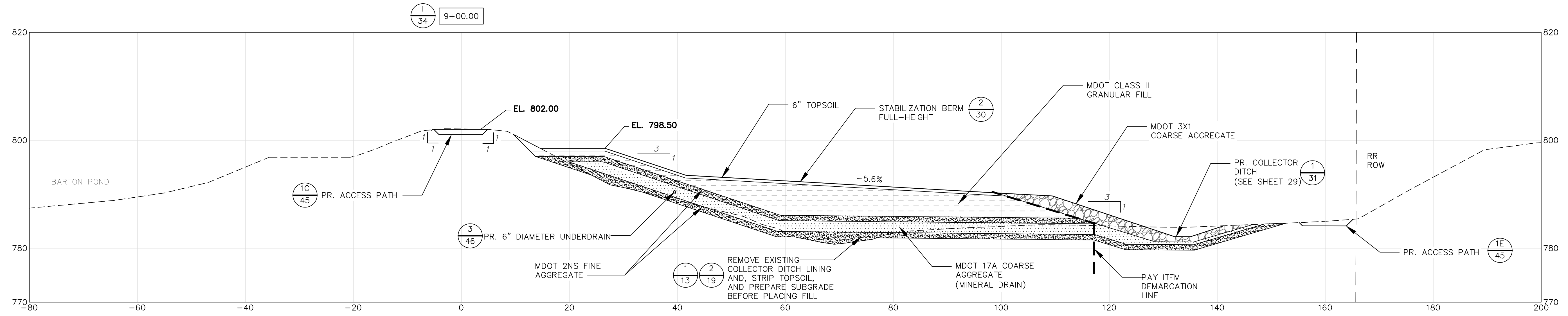
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PROPOSED CROSS SECTIONS
 (2 OF 7)

SCALE: 1" = 10'
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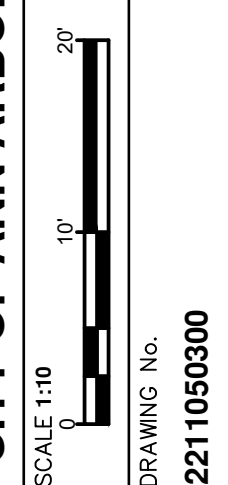
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100%	BID SET	01/18/2024	JEB	SAM

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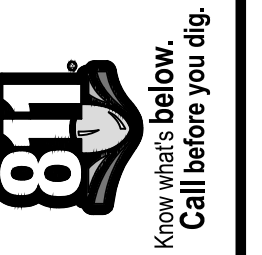
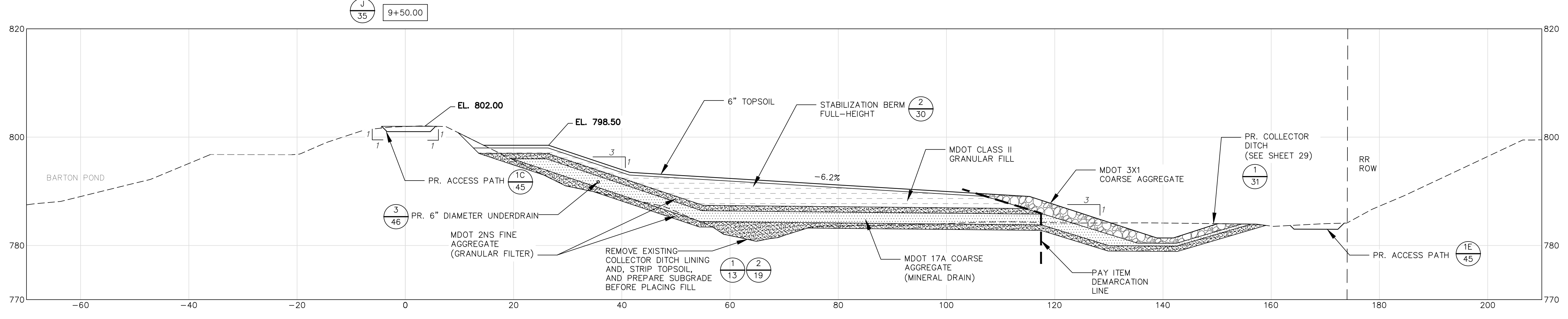
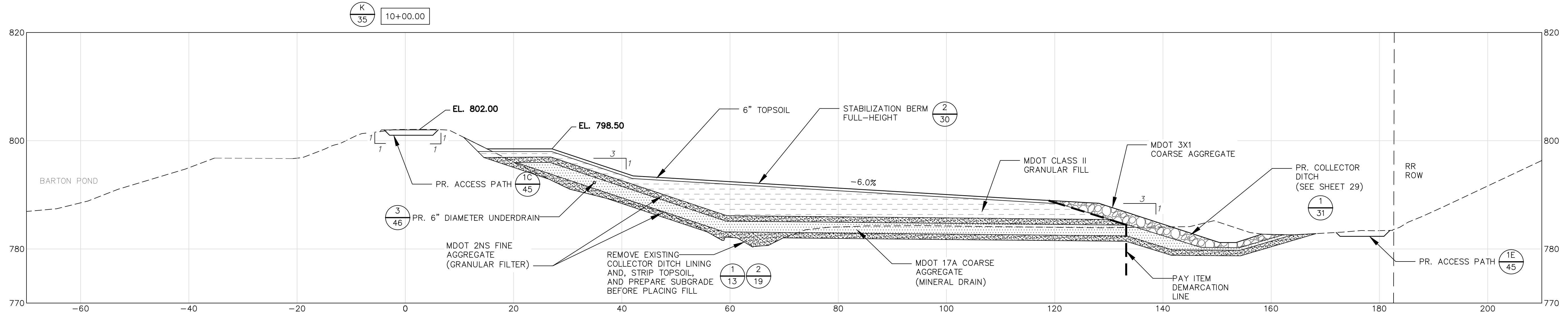
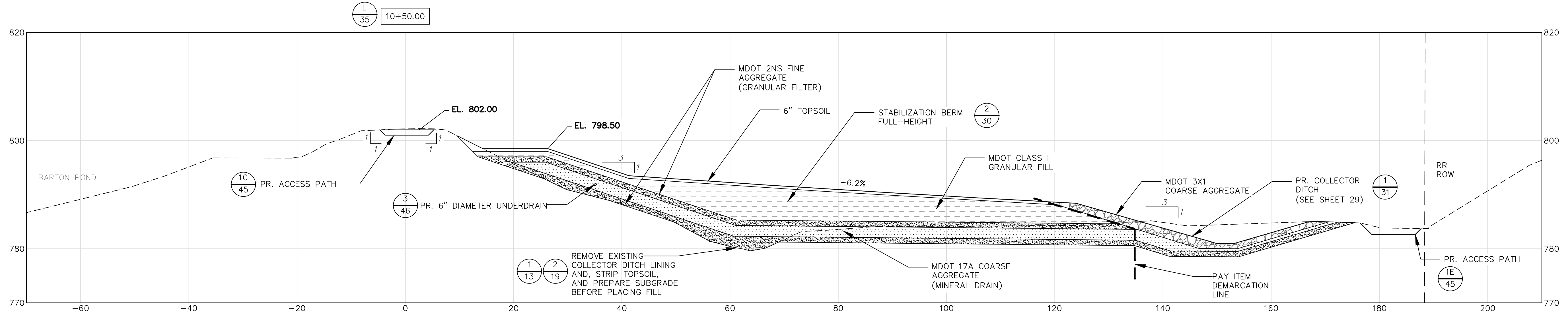
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PROPOSED CROSS SECTIONS
(3 OF 7)



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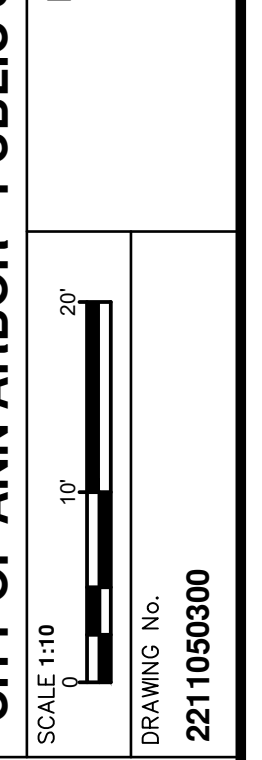


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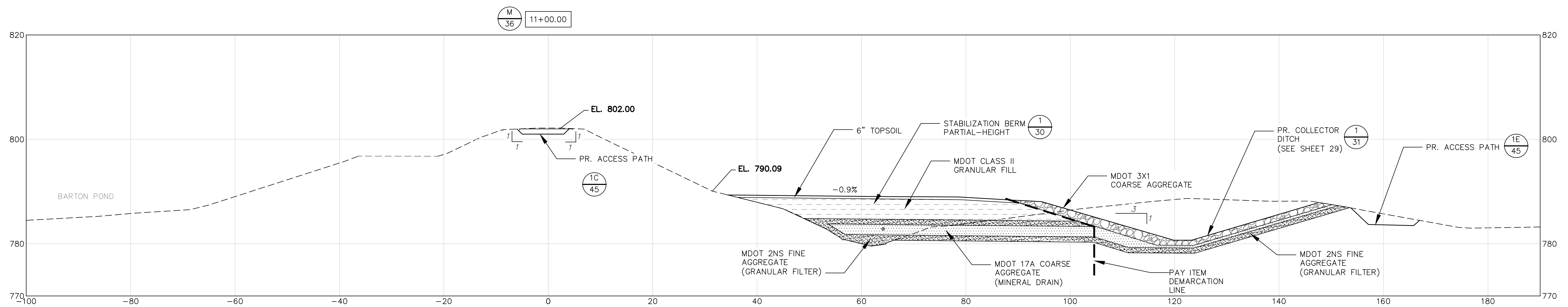
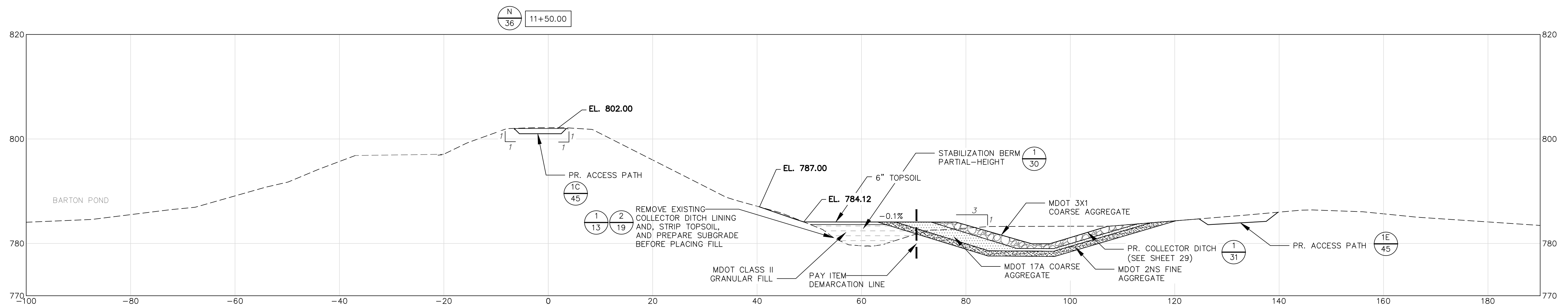
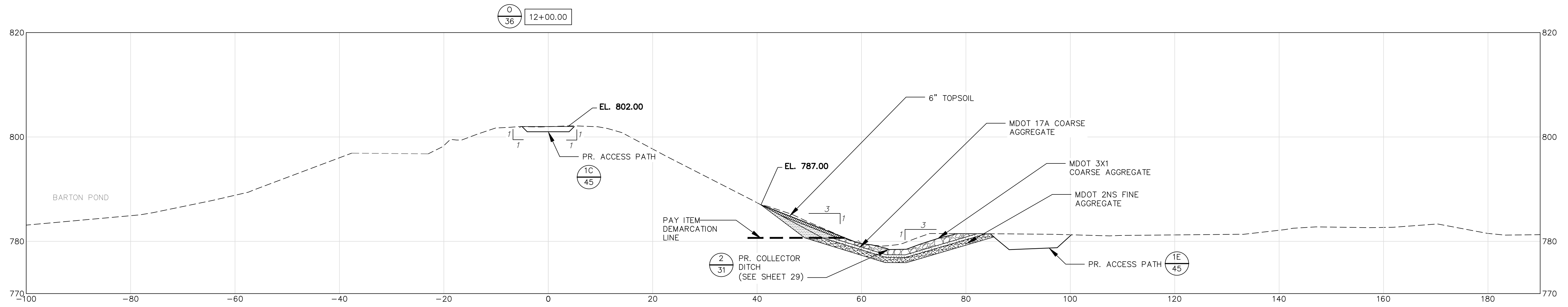


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 BARTON DAM RIGHT EMBANKMENT REMEDIATION
PROPOSED CROSS SECTIONS
 (4 OF 7)



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100%	BID SET	01/18/2024	JEB	SAM

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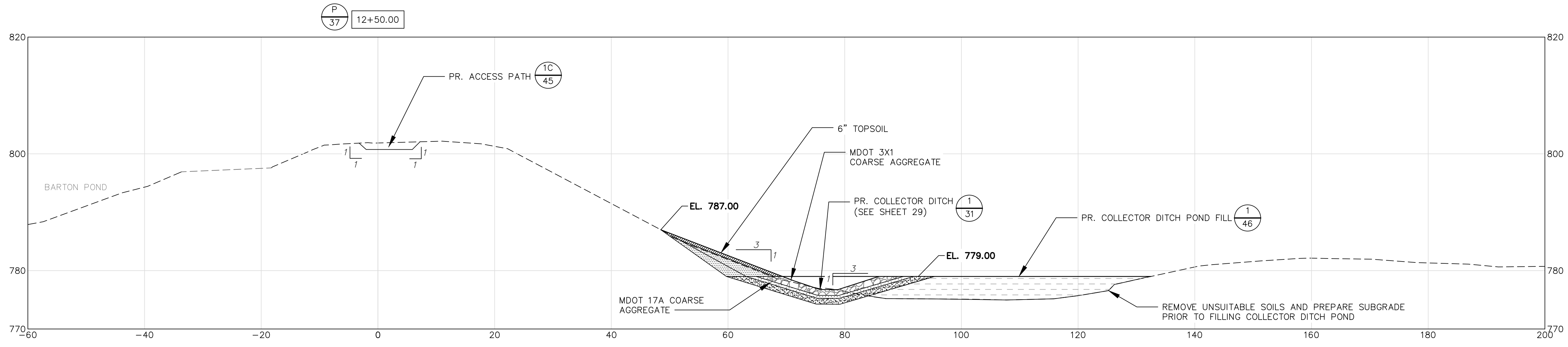
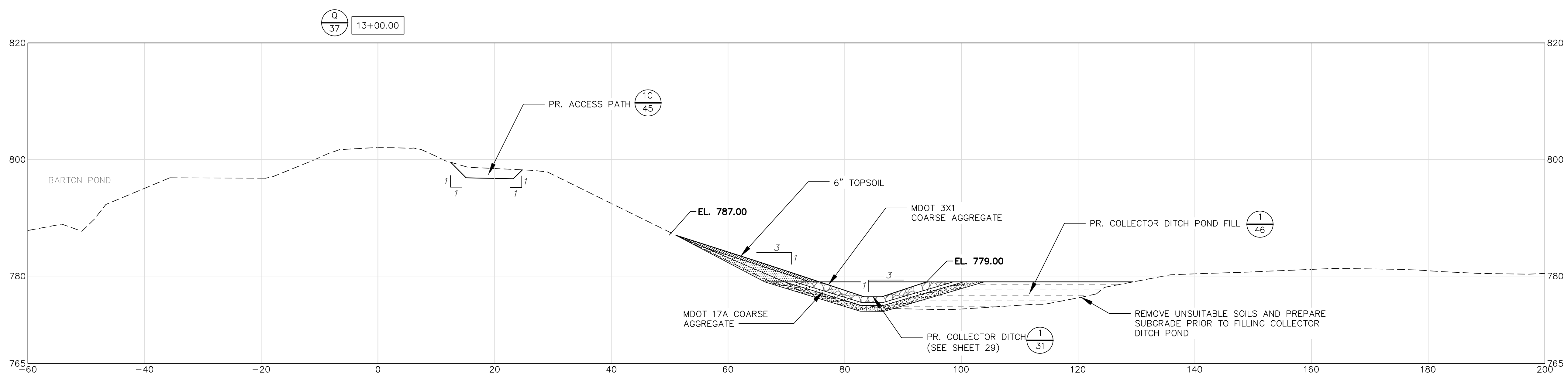
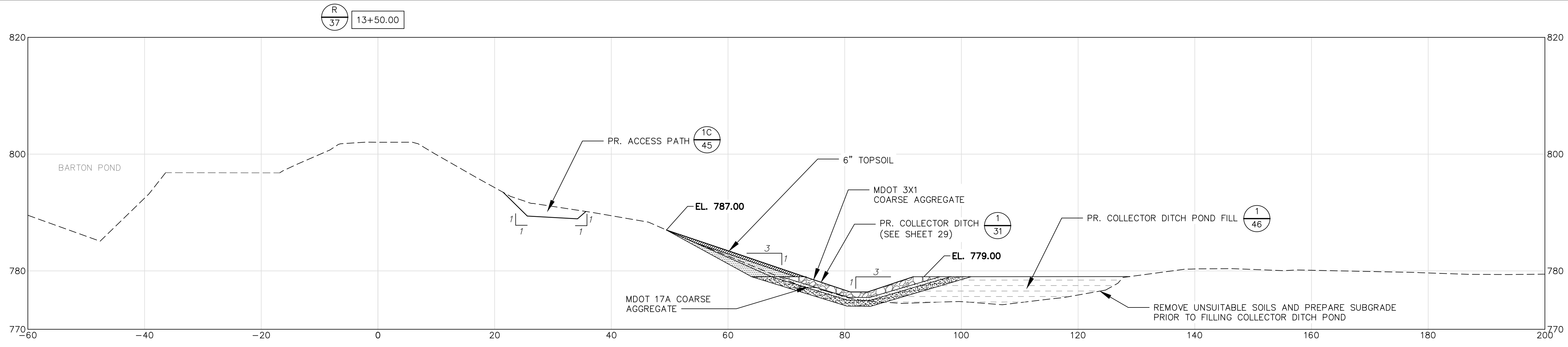


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BARTON DAM RIGHT EMBANKMENT REMEDIATION
PROPOSED CROSS SECTIONS
(5 OF 7)

SCALE: 1"=10'
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100%	BID SET	01/18/2024	JEB	SAM

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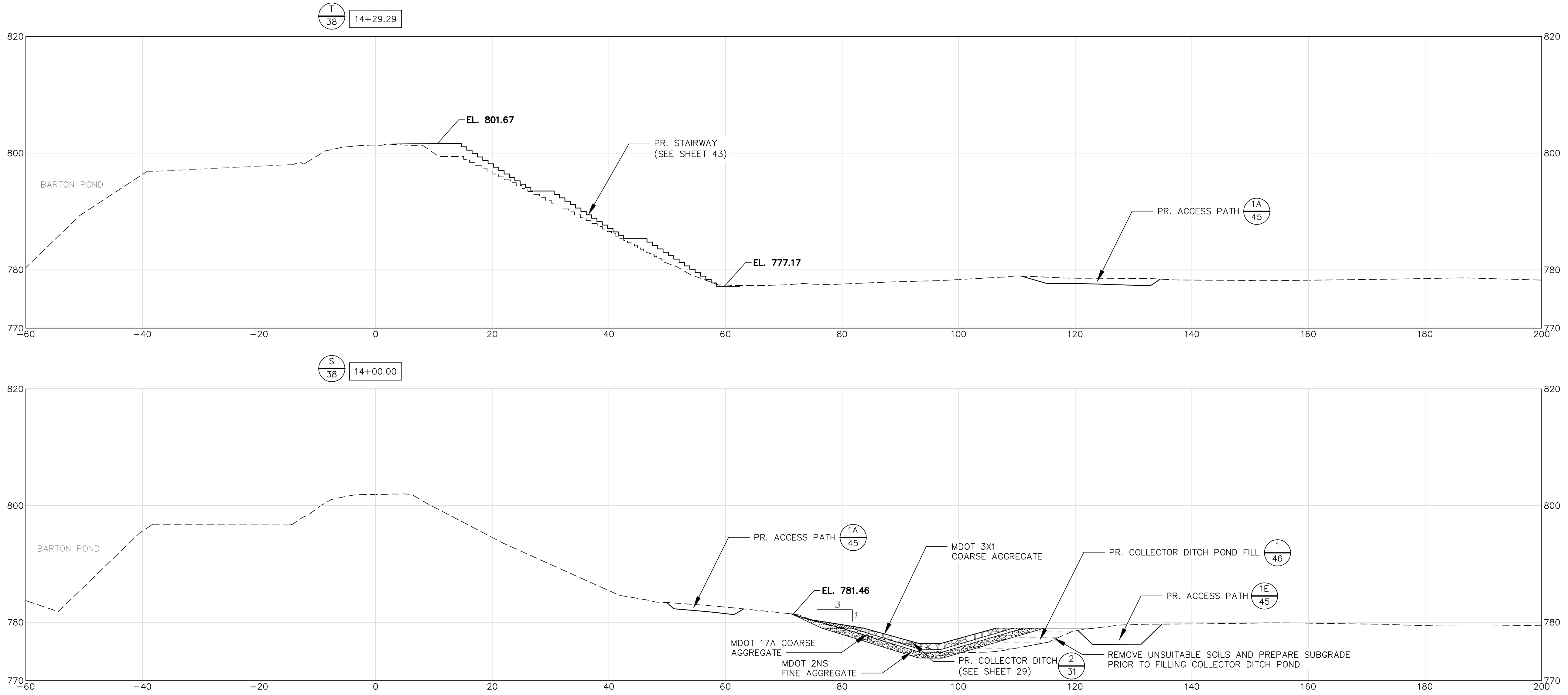


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 BARTON DAM RIGHT EMBANKMENT REMEDIATION
 PROPOSED CROSS SECTIONS
 (6 OF 7)

SCALE: 1"=20'

DRAWING No. 2211050300

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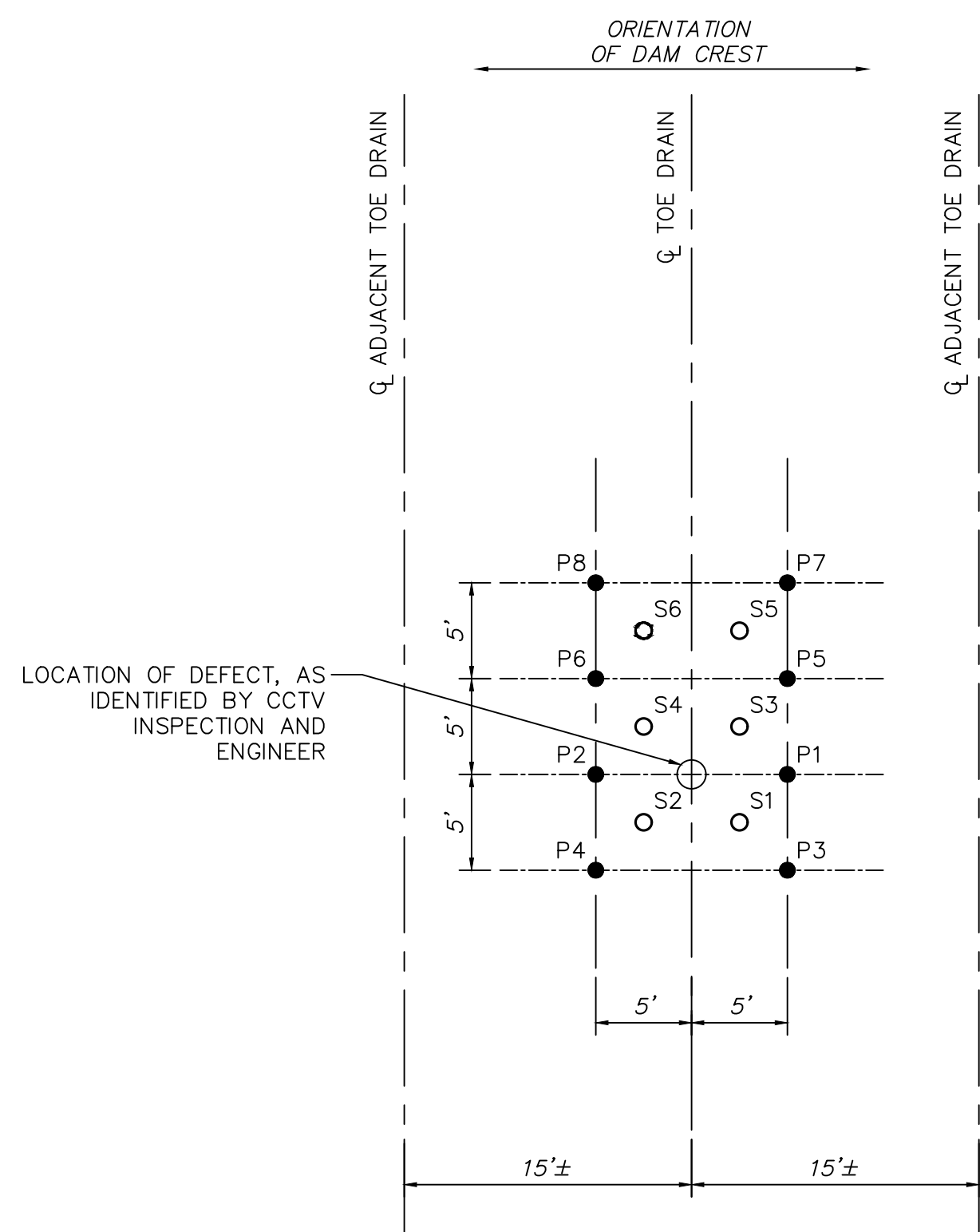
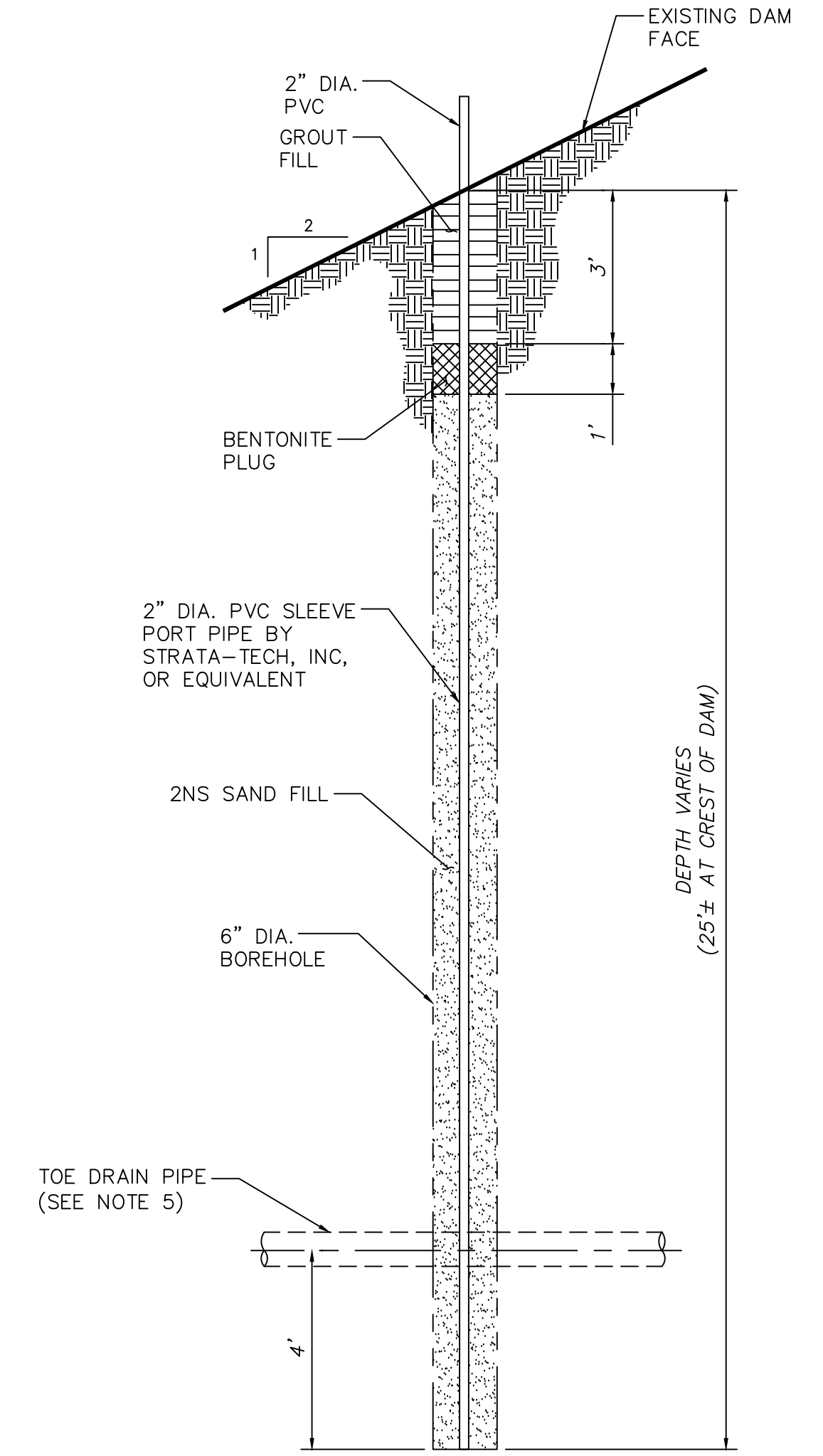
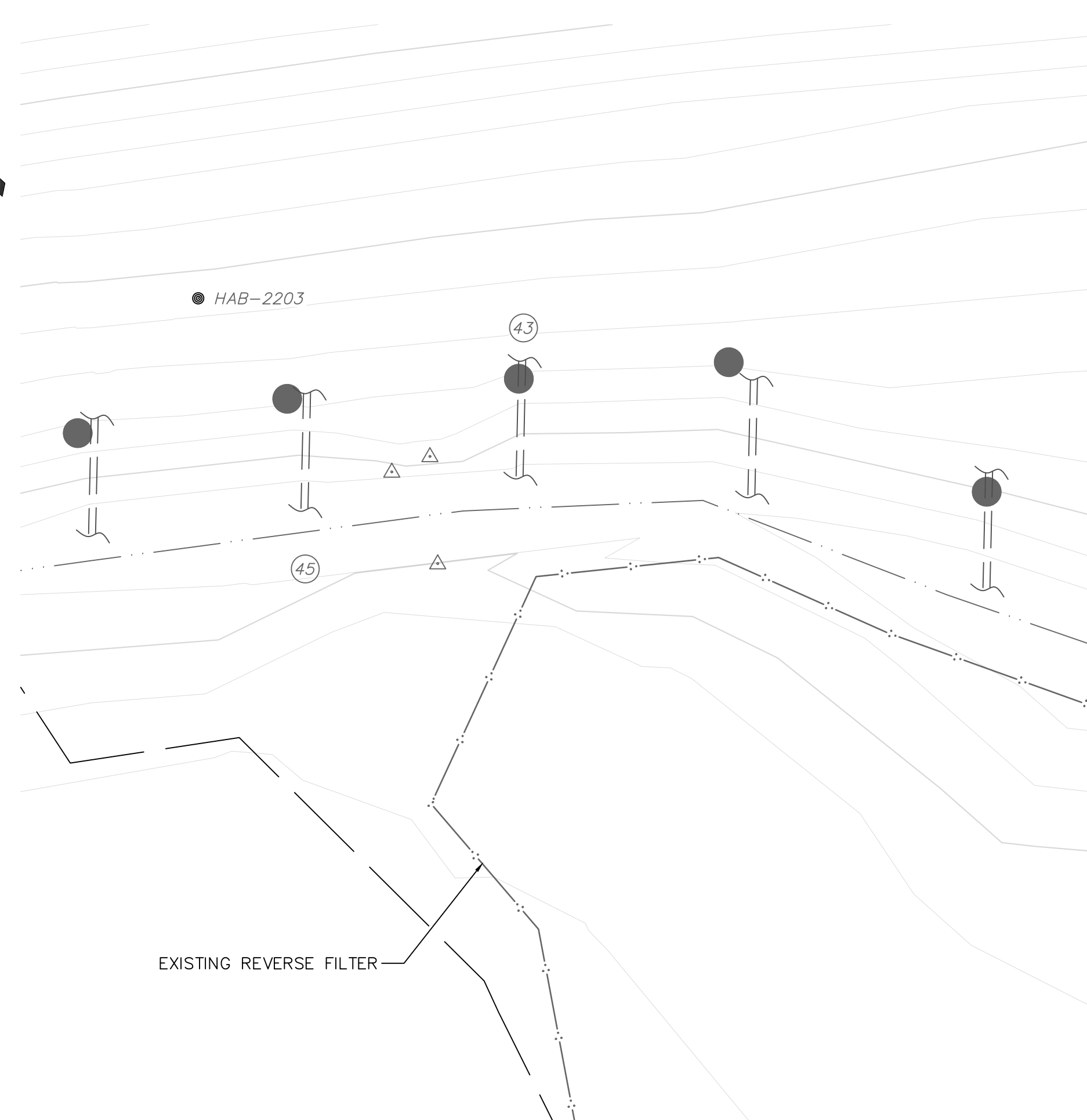
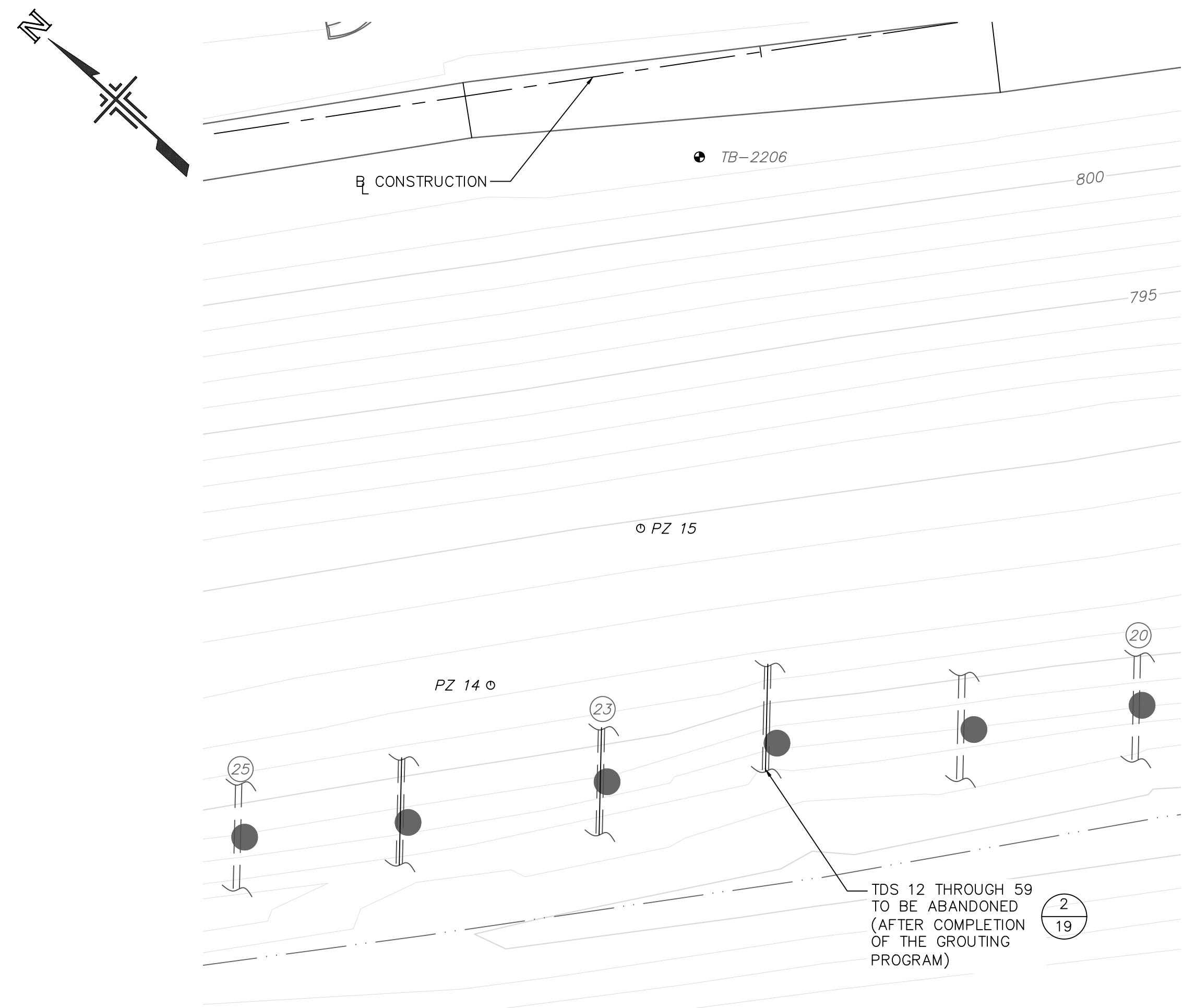
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 BARTON DAM RIGHT EMBANKMENT REMEDIATION
PROPOSED CROSS SECTIONS
 (7 OF 7)

SCALE: 1"=10'
 DRAWING No. 2211050300

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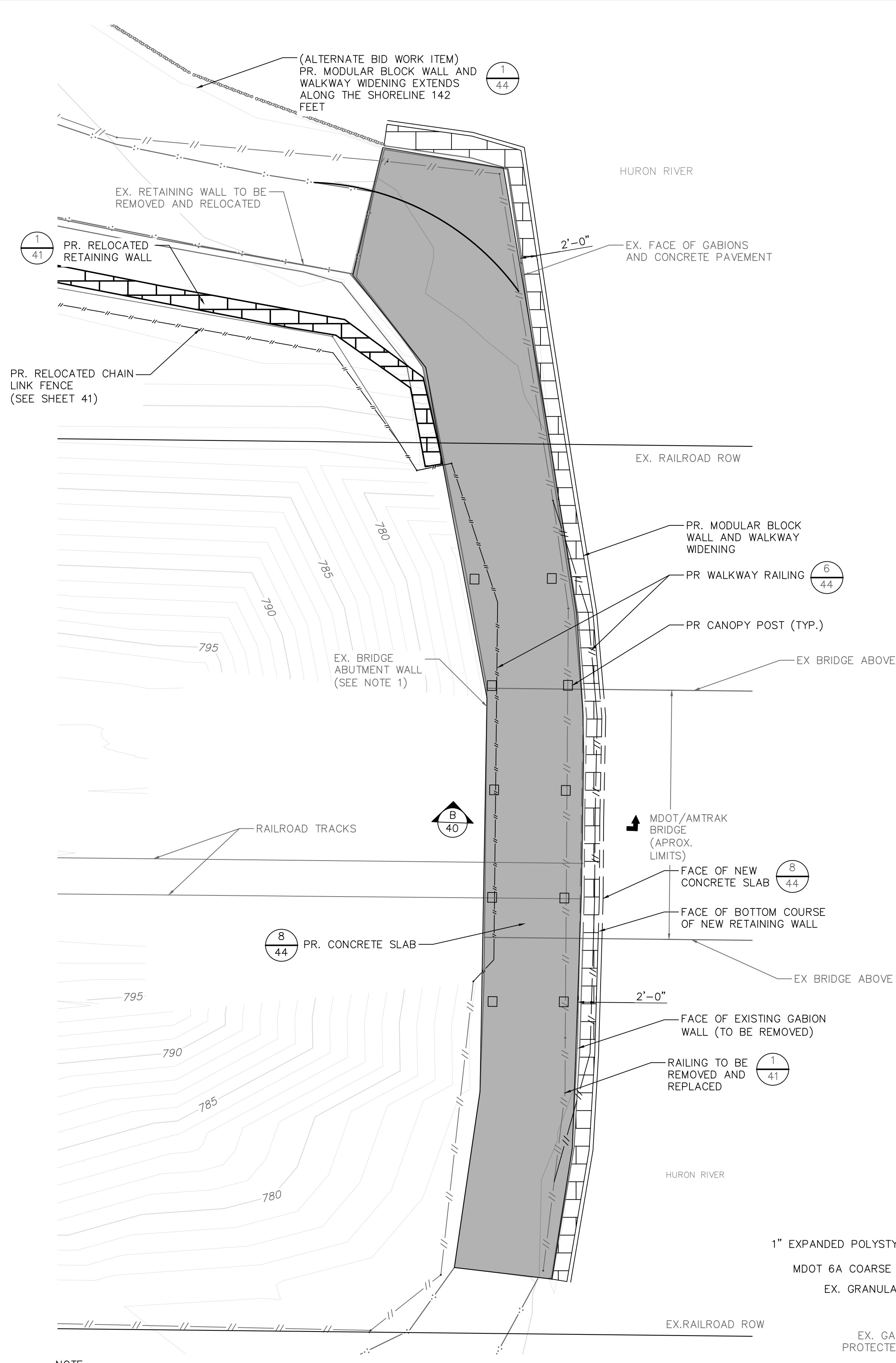


- LEGEND**
- P# PRIMARY GROUT HOLE
 - S# SECONDARY GROUT HOLE
 - △ T# TERTIARY GROUT HOLE LOCATION TO BE IDENTIFIED BY THE ENGINEER IF NEEDED

- NOTES**
- GROUTING SHALL BE PERFORMED AS REQUIRED IN THE PROJECT SPECIFICATIONS. THE CONTRACTOR SHALL PREPARE THE ENDS OF TD-22, TD-23, TD-24 AND TD-43 WITH A SWEEP WYE FITTING AND COUPLER AS NECESSARY AND THEN INSPECTED WITH A CLOSED-CIRCUIT TELEVISION (CCTV) CAMERA TO ESTABLISH PRE-CONSTRUCTION CONDITIONS AND IDENTIFY AREAS OF CONCERN. CCTV SHALL BE USED TO VERIFY THE LOCATION OF THE PACKER AS NECESSARY. CCTV SHALL BE PERFORMED UPON COMPLETION OF THE CHEMICAL GROUTING TO VERIFY FINAL CONDITIONS OF THE DRAIN.
 - THE LOCATION OF TD-23 AND TD-43 SHALL BE VERIFIED AND MARKED ON THE FACE OF THE EMBANKMENT USING UTILITY LOCATION TECHNOLOGY. ONCE LOCATED, THE TOE DRAIN SHALL BE FILLED WITH PEA GRAVEL CONFORMING TO MDOT 34R OPEN-GRADED AGGREGATE, OR APPROVED ALTERNATE. THE GRAVEL SHALL BE PLACED PNEUMATICALLY WITHIN 12-INCHES OF THE UPSTREAM END OF THE DRAIN. QUANTITY OF MATERIAL PLACED SHALL BE RECORDED.
 - LOW PRESSURE INJECTION GROUTING SHALL BE PERFORMED AS REQUIRED IN THE PROJECT SPECIFICATIONS.
 - DURING DRILLING AND GROUTING OPERATIONS, CONTRACTOR MUST PROTECT OPEN HOLES AGAINST CAVING AND POSSIBLE ARTESIAN FLOWS. PROTECTIVE MEASURES MAY INCLUDE, BUT ARE NOT LIMITED TO, TEMPORARY/SACRIFICIAL CASINGS, HEAVY DRILLING FLUID, AND TREMIE PLACEMENT OF CONCRETE. OTHER REQUIREMENTS ESTABLISHED IN THE DRILLING PROGRAM PLAN MAY ALSO APPLY.
 - CONTRACTOR SHALL PROTECT ALL EXISTING TOE DRAINS. DAMAGE TO TOE DRAINS MUST BE PROMPTLY REPORTED TO THE ENGINEER.

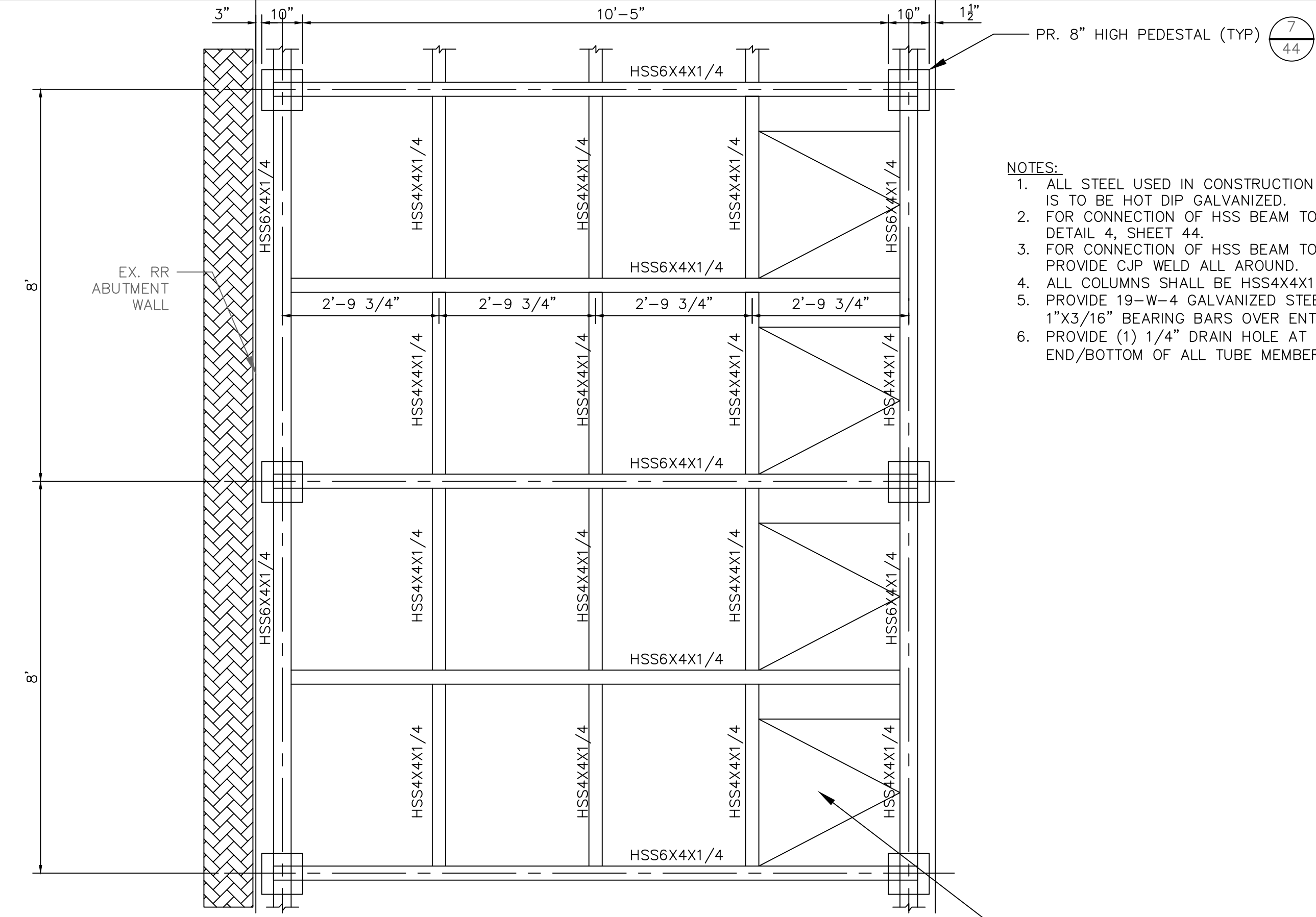
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NOT FOR CONSTRUCTION						
CITY OF ANN ARBOR PUBLIC SERVICES 301 EAST HURON STREET ANN ARBOR, MI 48106-6647 www.a2gov.org						
CITY OF ANN ARBOR - PUBLIC SERVICES BARTON DAM RIGHT EMBANKMENT REMEDIATION TOE DRAIN (TD-23 AND TD-43) ABANDONMENT						
SCALE	AS NOTED					
DRAWING No.	2211050300					
SHEET No.	39 OF 48					

X:\Projects\2022\2211\050300 NTH Cons-Barton Da\CAD Models\Barton Dam - 22110503 - UNDERPASS.dwg - _a2 standard bw.stb - Plot Date: 18/1/2024 13:57:49



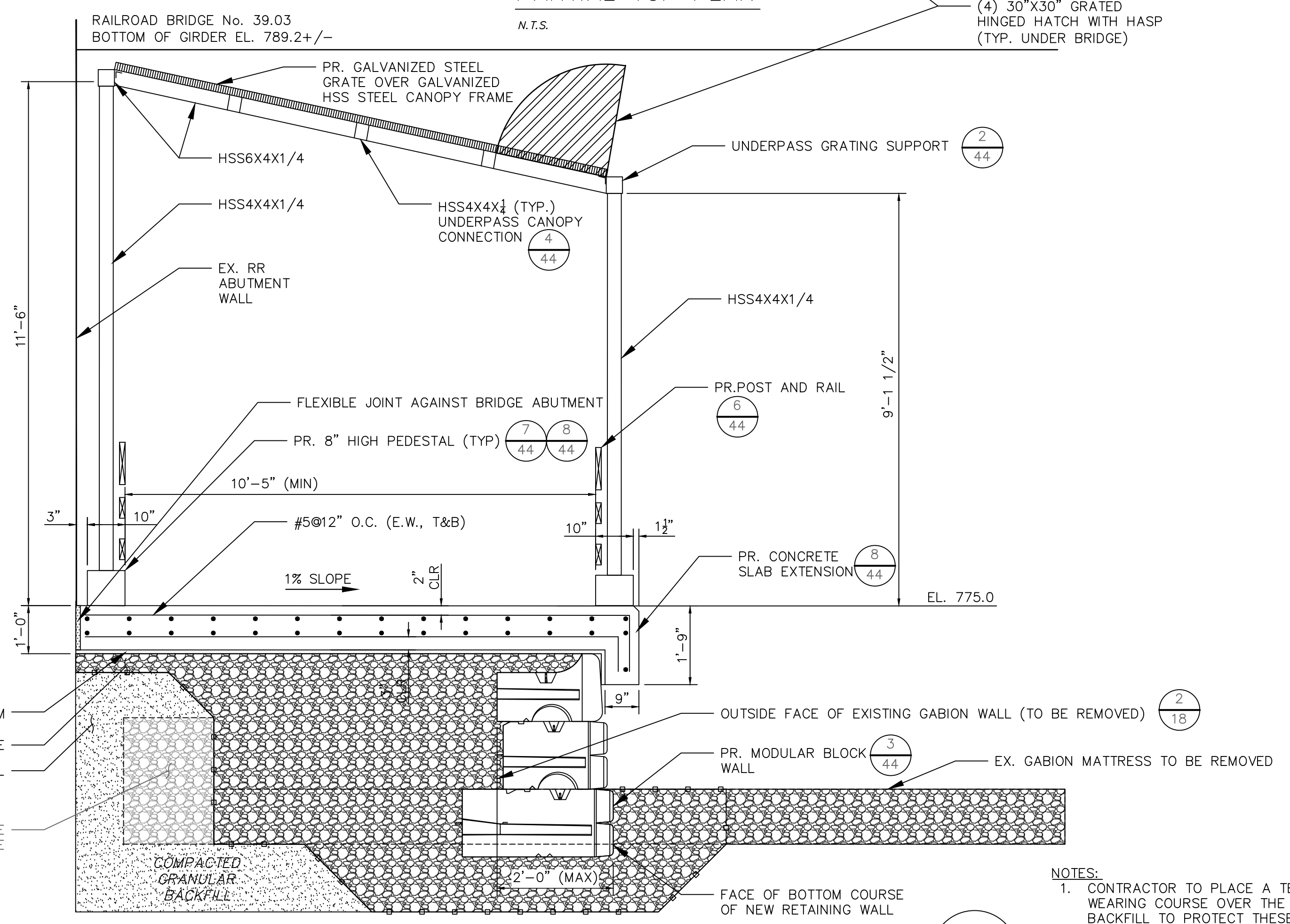
NOTE:
 1. CONTRACTOR TO IMPLEMENT TEMPORARY MEASURES TO PROTECT EXISTING ABUTMENT FROM DEMOLITION ACTIVITIES, CONSTRUCTION OF PROPOSED UNDERPASS IMPROVEMENT, AND CONSTRUCTION TRAFFIC.

PROPOSED MODULAR BLOCK WALL AND WALKWAY WIDENING PLAN
 N.T.S.




NOTES:
 1. ALL STEEL USED IN CONSTRUCTION OF THE CANOPY IS TO BE HOT DIP GALVANIZED.
 2. FOR CONNECTION OF HSS BEAM TO HSS BEAM, SEE DETAIL 4, SHEET 44.
 3. FOR CONNECTION OF HSS BEAM TO HSS COLUMN, PROVIDE CJP WELD ALL AROUND.
 4. ALL COLUMNS SHALL BE HSS4X4X1/4 UNO.
 5. PROVIDE 19-W-4 GALVANIZED STEEL GRATING WITH 1"X3/16" BEARING BARS OVER ENTIRE CANOPY.
 6. PROVIDE (1) 1/4" DRAIN HOLE AT THE LOW END/BOTTOM OF ALL TUBE MEMBERS

PARTIAL TOP PLAN
 N.T.S.



PROPOSED MODULAR BLOCK WALL AND WALKWAY WIDENING
 SCALE: 1"=2'

NOTES:
 1. CONTRACTOR TO PLACE A TEMPORARY WEARING COURSE OVER THE BLOCKS AND BACKFILL TO PROTECT THESE ELEMENTS FROM CONSTRUCTION ACTIVITIES DURING THE WORK. CONTRACTOR TO REMOVE TEMPORARY WEARING COURSE AND CONSTRUCT FINAL CONCRETE SLAB AND CANOPY AFTER COMPLETION OF MASS EARTHWORK.




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BARTON DAM RIGHT EMBANKMENT REMEDIATION

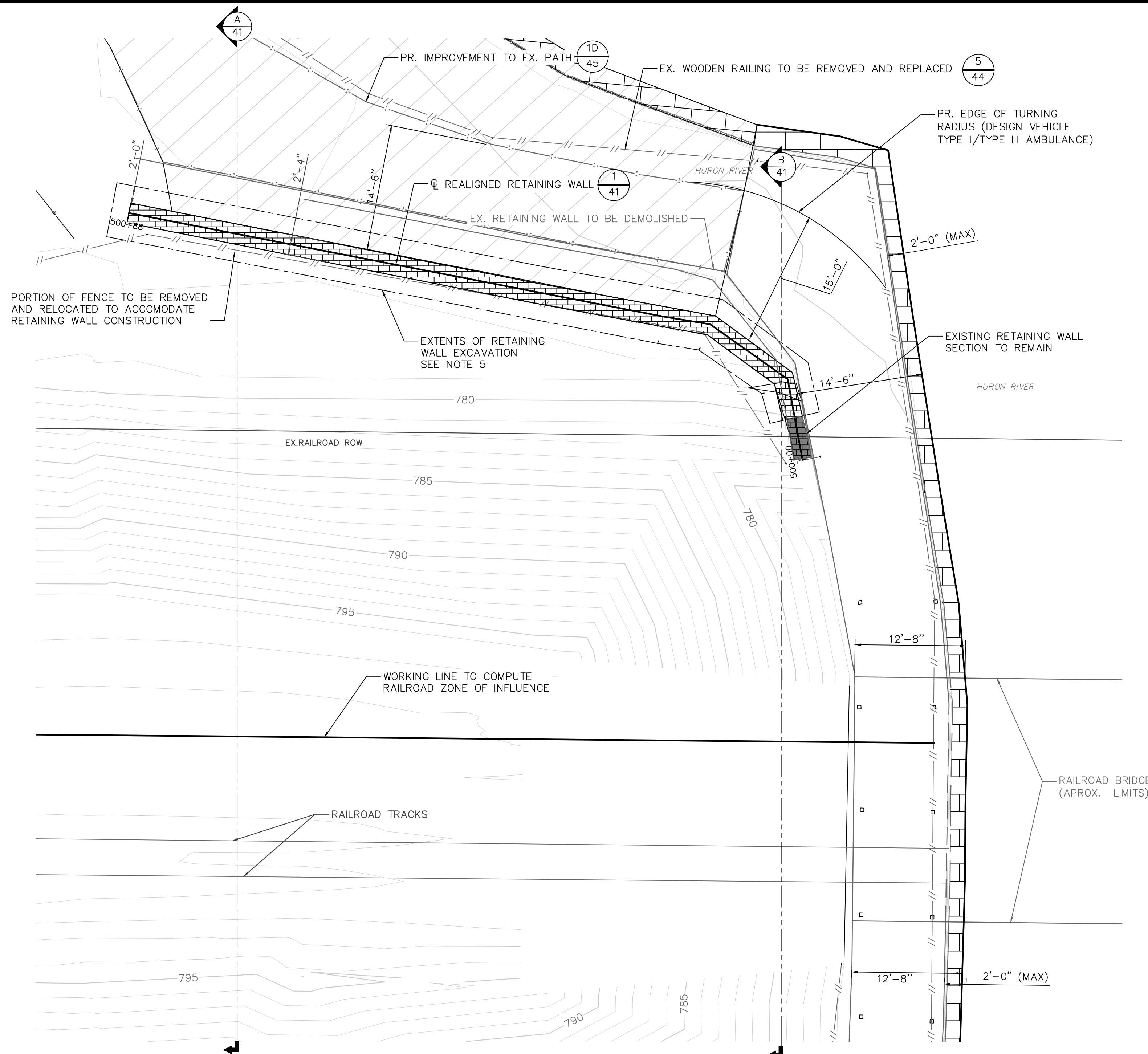
UNDERPASS IMPROVEMENT

SCALE: SEE INDICATED

DRAWING No. 2211050300

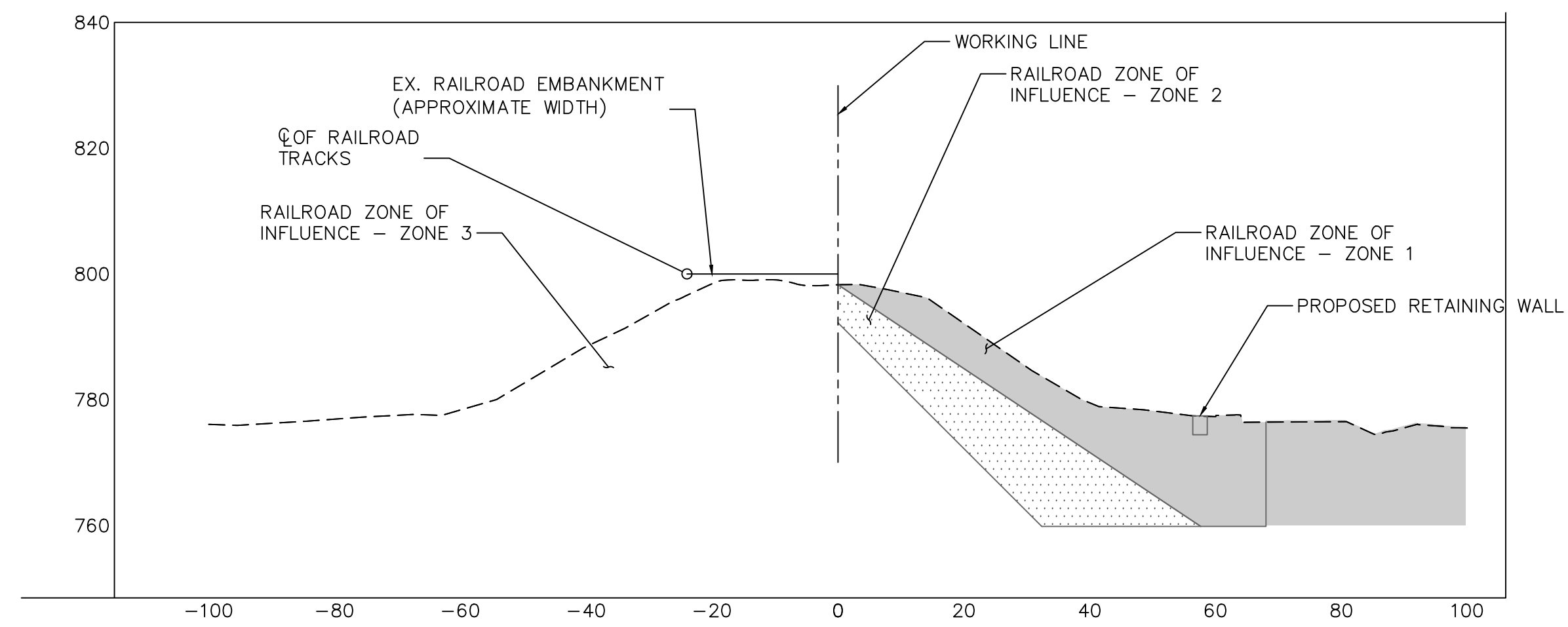
SHEET No. 40 OF 48

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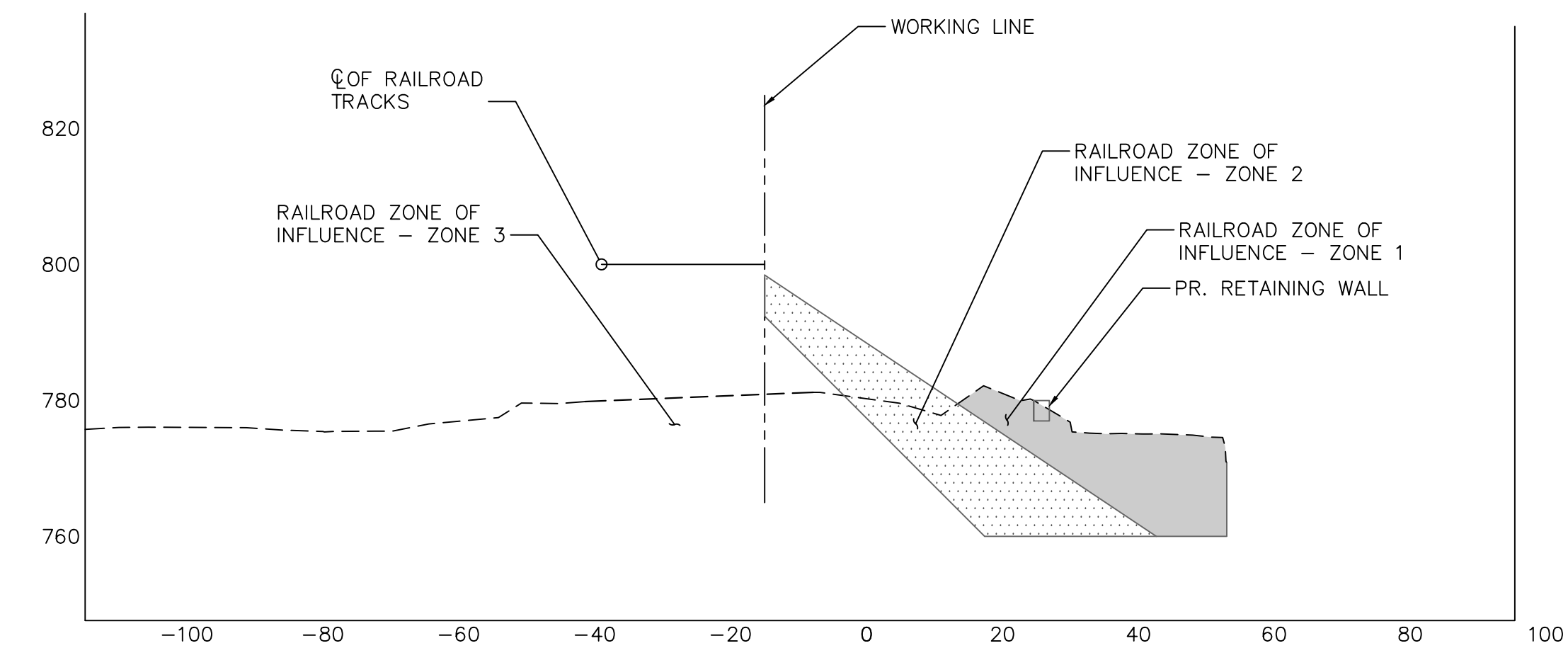


PROPOSED RETAINING WALL REALIGNMENT PLAN
 N.T.S.

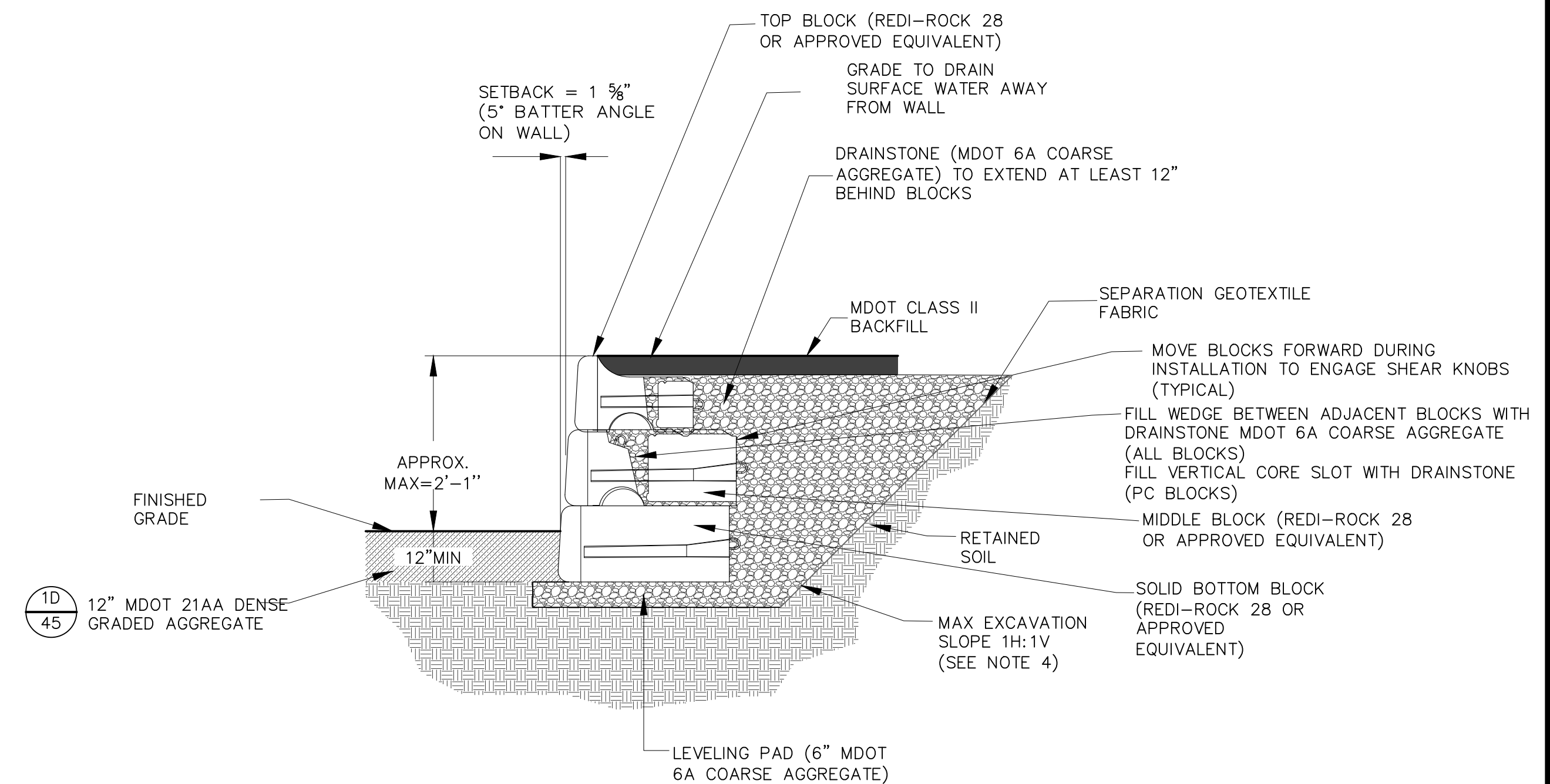
- NOTES:
- PROPOSED TYPICAL RETAINING WALL SECTION IS FROM REDI-ROCK. ALTERNATIVE MODULAR BLOCK WALL MANUFACTURERS ARE SUBJECT TO REVIEW AND APPROVAL BY THE ENGINEER.
 - APPROVAL APPROVED BY THE ENGINEER.
 - CONTRACTOR TO SUBMIT RETAINING WALL LAYOUT FOR REVIEW AND APPROVAL.
 - SLOPES OF THE EXCAVATION AROUND THE REALIGNED RETAINING WALL ARE NOT TO EXCEED 1H:1V.



A 41 RAILROAD ZONE OF INFLUENCE CROSS SECTION
 N.T.S.



B 41 RAILROAD ZONE OF INFLUENCE CROSS SECTION
 N.T.S.



1 41 TYPICAL RETAINING WALL CROSS SECTION
 N.T.S.

811
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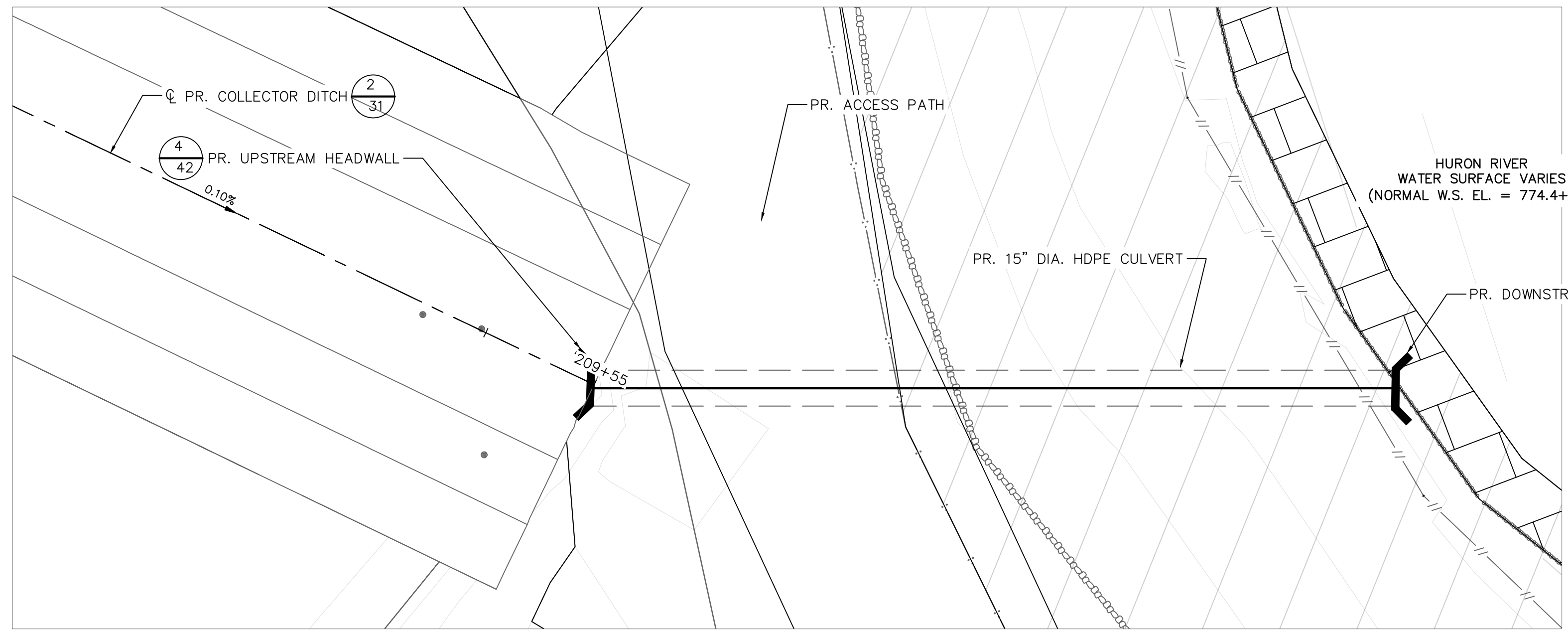
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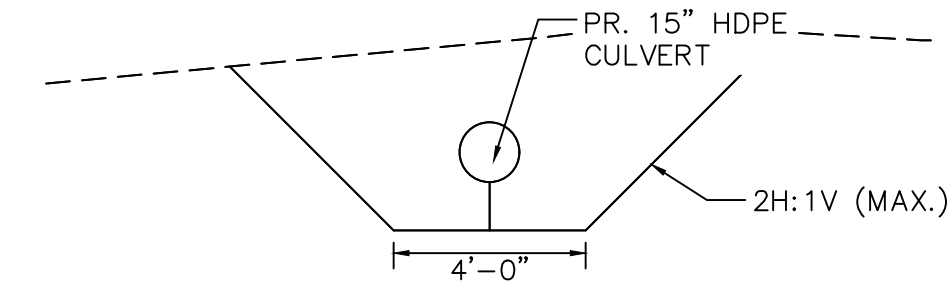
CITY OF ANN ARBOR - PUBLIC SERVICES
 BARTON DAM RIGHT EMBANKMENT REMEDIATION
 RETAINING WALL REALIGNMENT PLAN AND SECTIONS

SCALE AS NOTED
 DRAWING No. 2211050300
 SHEET No. 41 OF 48

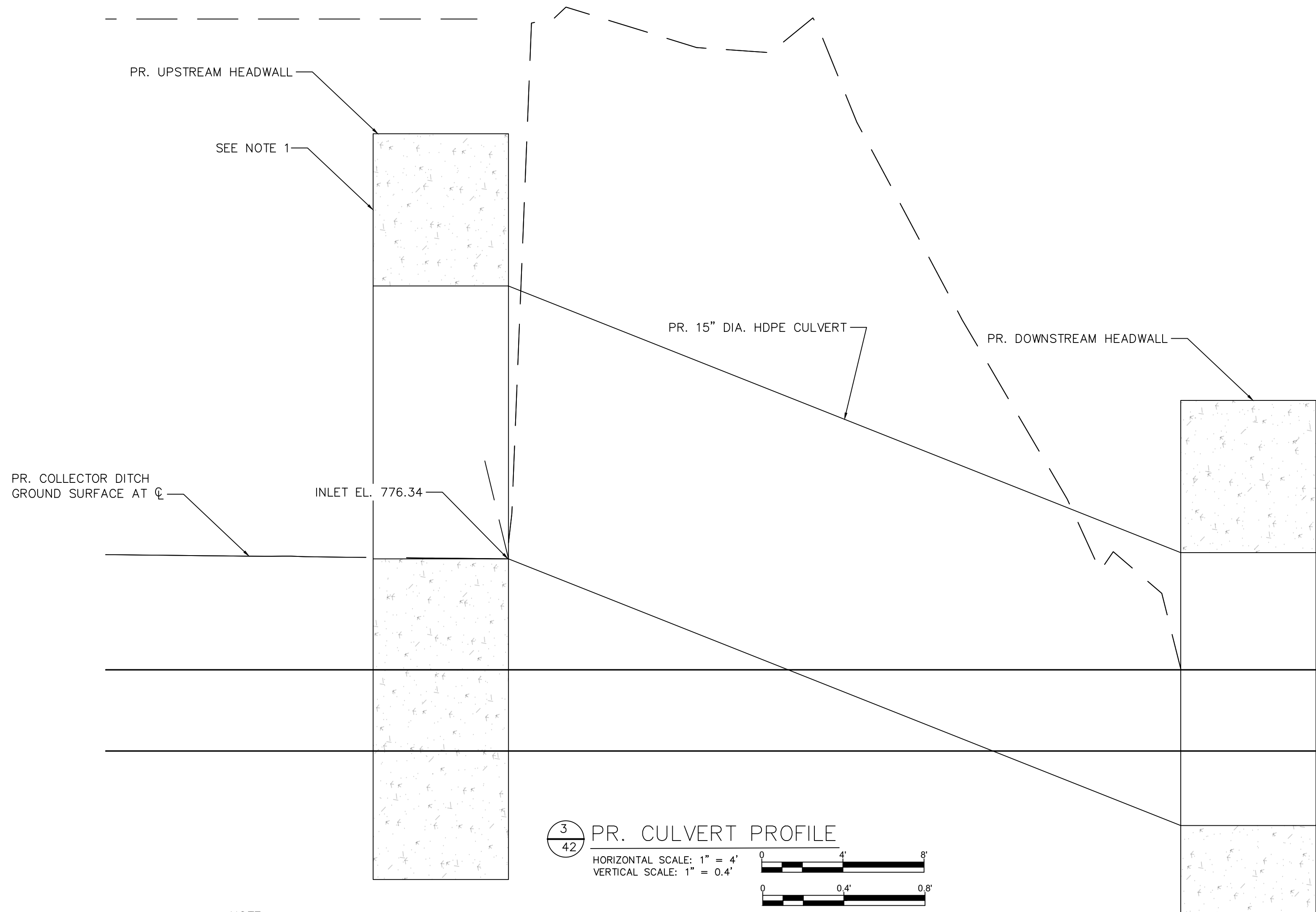
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1/42 PR. CULVERT PLAN
1" = 4'

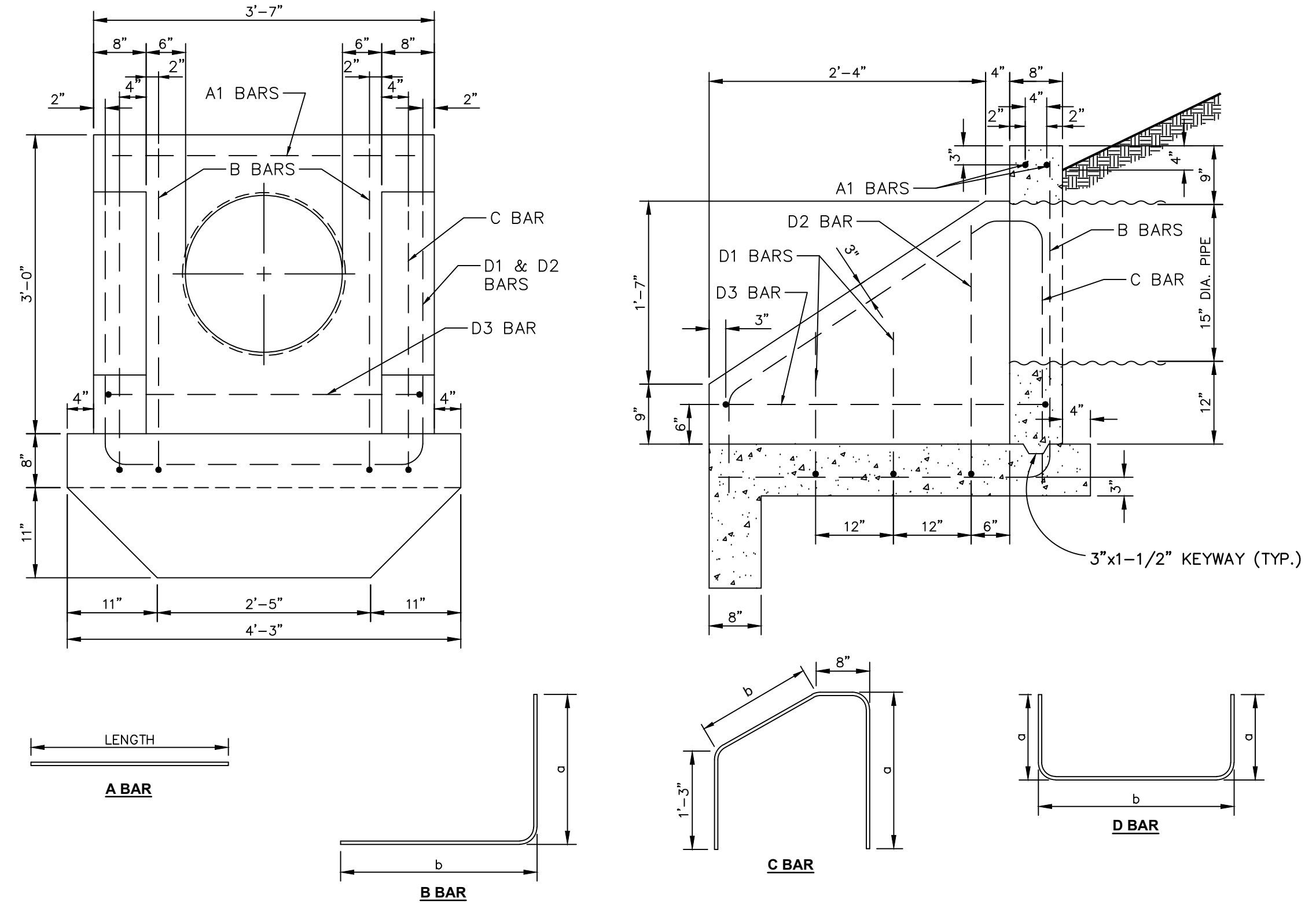


2/42 PR. CULVERT AND EXCAVATION CROSS SECTION
N.T.S.



3/42 PR. CULVERT PROFILE
HORIZONTAL SCALE: 1" = 4'
VERTICAL SCALE: 1" = 0.4'

NOTE
1. CONTRACTOR TO INSTALL STAFF GAGE ON UPSTREAM HEADWALL OF PR. CULVERT.



PIPE DIA.	OUTLET HEADWALL STEEL QUANTITIES														TOTAL WEIGHT OF BARS (LBS.)								
	A1 BAR		B BAR		C BAR		D1 BAR		D2 BAR		D3 BAR		NO.										
	TOTAL LENGTH	NO.	a	b	TOTAL LENGTH	NO.	a	b	TOTAL LENGTH	NO.	a	b		TOTAL LENGTH		NO.	a	b					
15"	3'-3"	2	3'-0"	3'-3"	6'-3"	2	2'-7"	2'-6"	7'-0"	2	1'-10"	3'-3"	6'-11"	2	2'-6"	3'-3"	8'-3"	1	2'-8"	3'-3"	8'-7"	1	43

4/42 PR. CULVERT OUTLET HEADWALL (MDOT STANDARD HEADWALL DETAIL R-D-85)
N.T.S.

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CITY OF ANN ARBOR - PUBLIC SERVICES

BARTON DAM RIGHT EMBANKMENT REMEDIATION

PROPOSED CULVERT

PLAN, PROFILE, CROSS SECTION, AND DETAILS

SCALE
SEE INDICATED

DRAWING No.
2211050300

SHEET No.

REV. INT. 100%

DESCRIPTION PERMIT SET BID SET

DATE 11/10/2023 01/18/2024

DRAWN JEB JEB

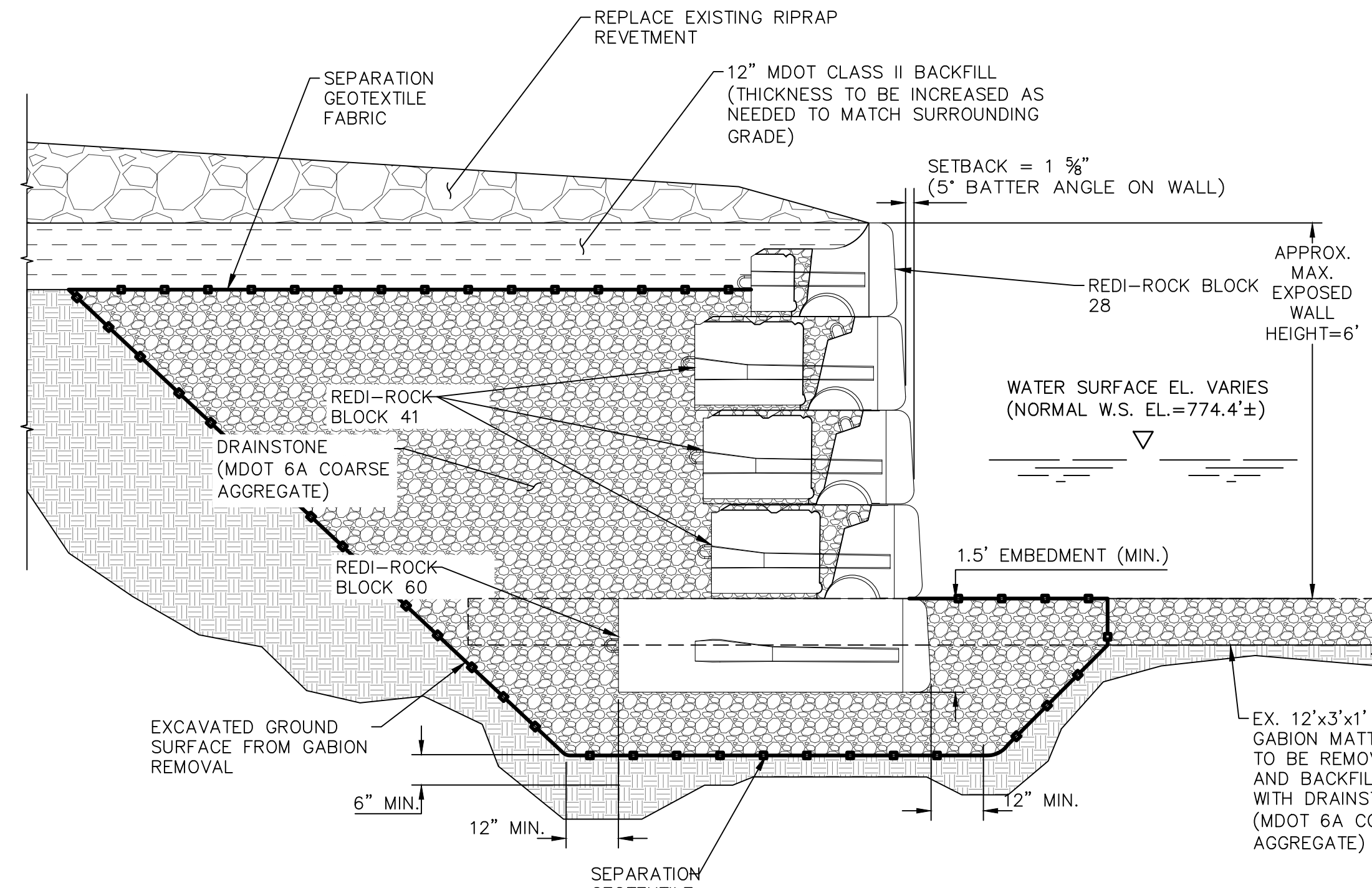
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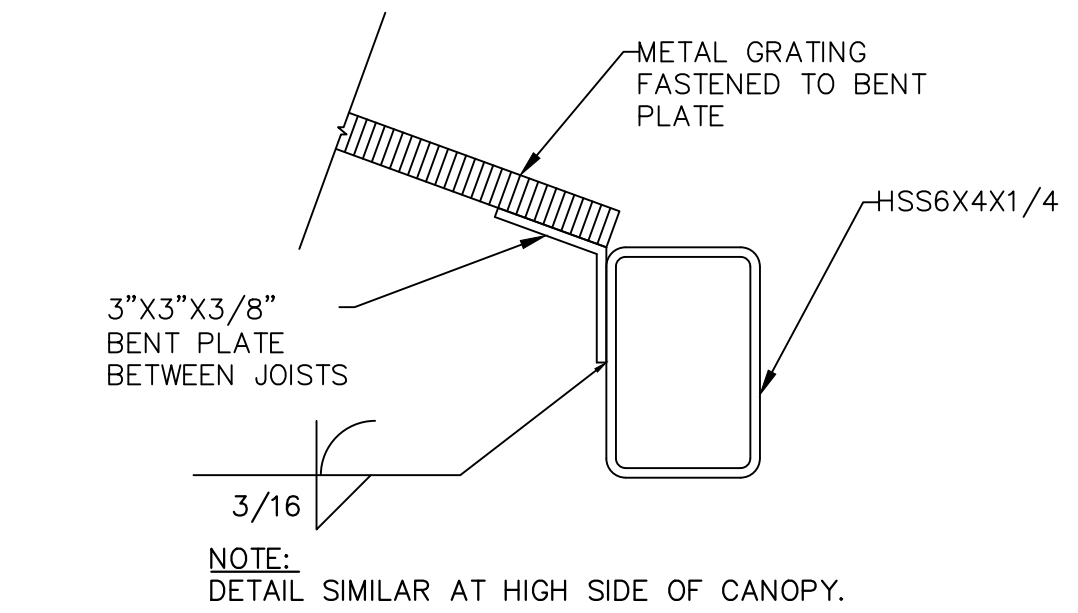
42 OF 48

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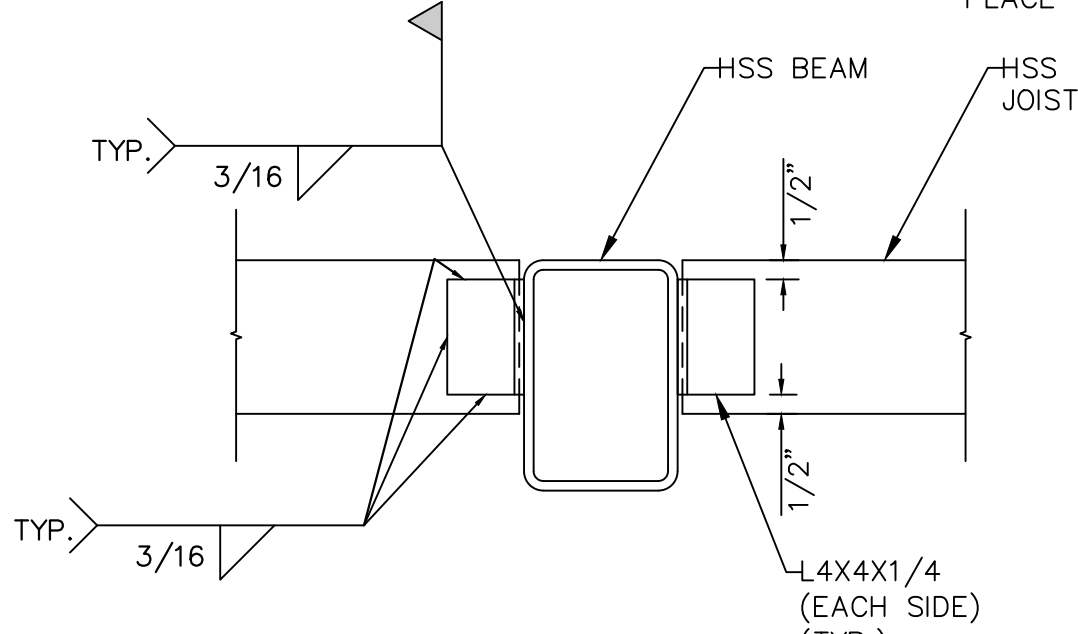


- NOTES**
1. USE MDOT 6A COARSE AGGREGATE TO INFILL BETWEEN BLOCKS.
 2. CONTRACTOR TO SUBMIT MODULAR BLOCK WALL LAYOUT PLAN FOR REVIEW AND APPROVAL.
 3. PROPOSED TYPICAL RETAINING WALL SECTION IS FROM REDI-ROCK. ALTERNATIVE MODULAR BLOCK WALL MANUFACTURERS ARE SUBJECT TO REVIEW AND APPROVAL BY THE ENGINEER.
 4. CONSTRUCTION OF THE MODULAR BLOCK WALL BETWEEN THE UNDERPASS AND THE SPILLWAY TO BE PERFORMED AT THE DISCRETION OF THE CITY AS AN ALTERNATE BID WORK ITEM.

1
44 N.T.S.
MODULAR BLOCK WALL FROM UNDERPASS TO SPILLWAY
(ALTERNATE BID ITEM) - TYPICAL CROSS SECTION

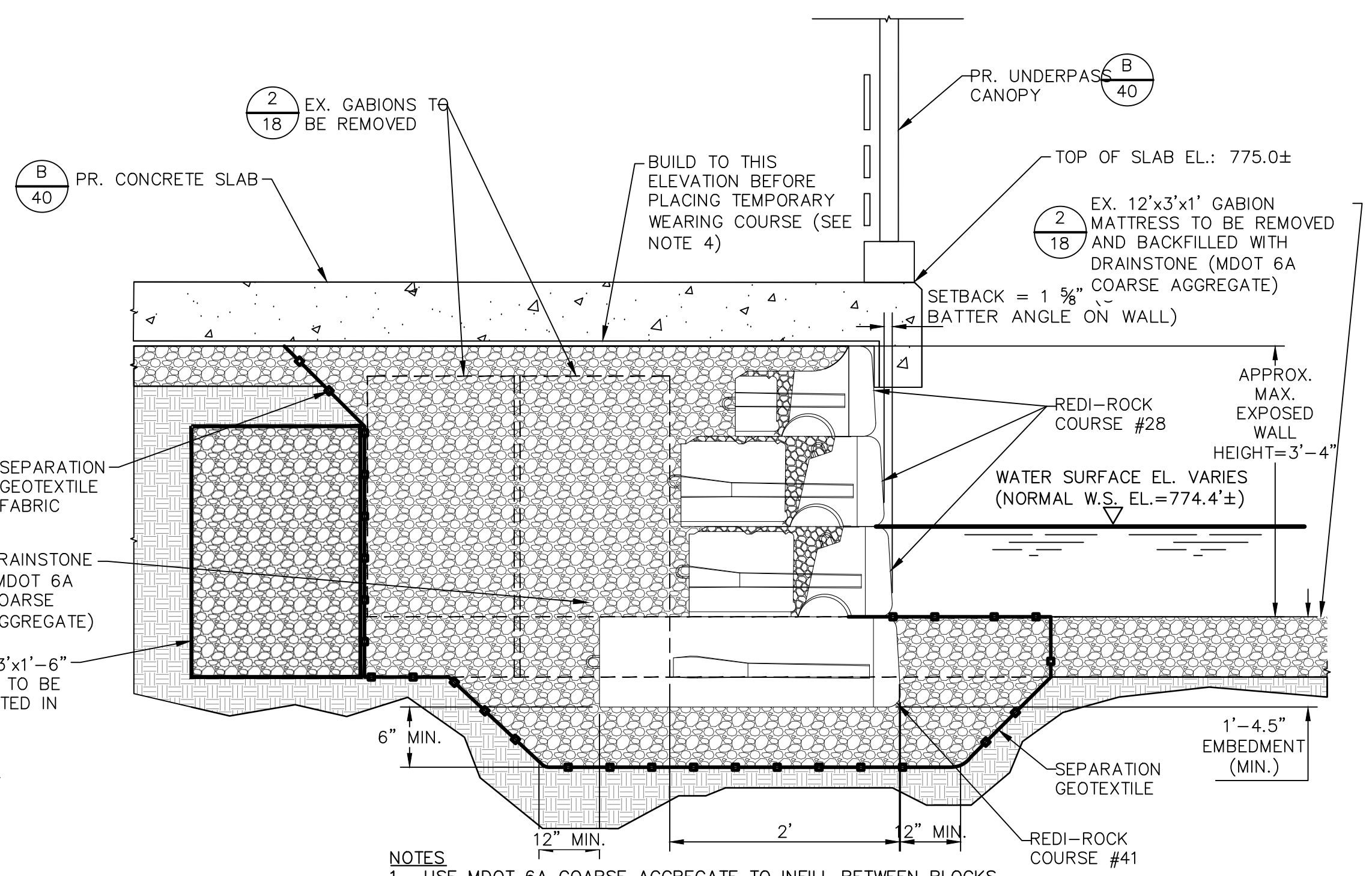


2
44 N.T.S.
UNDERPASS GRATING
SUPPORT DETAIL



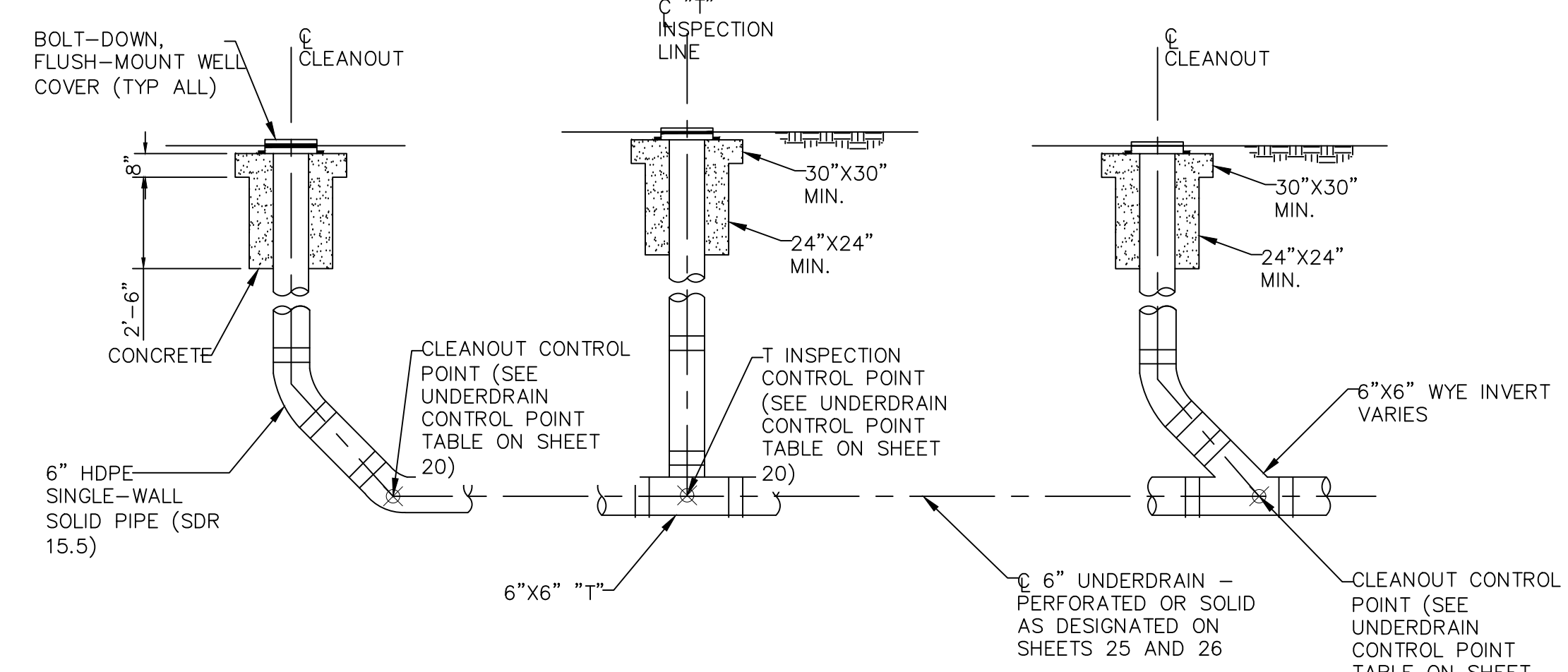
- NOTES**
1. DETAIL SIMILAR IN BEAM TO BEAM CONNECTION.
 2. TOUCHUP DAMAGED GALVANIZING AT ALL FIELD WELDS.

4
44 N.T.S.
UNDERPASS CANOPY
CONNECTION DETAIL

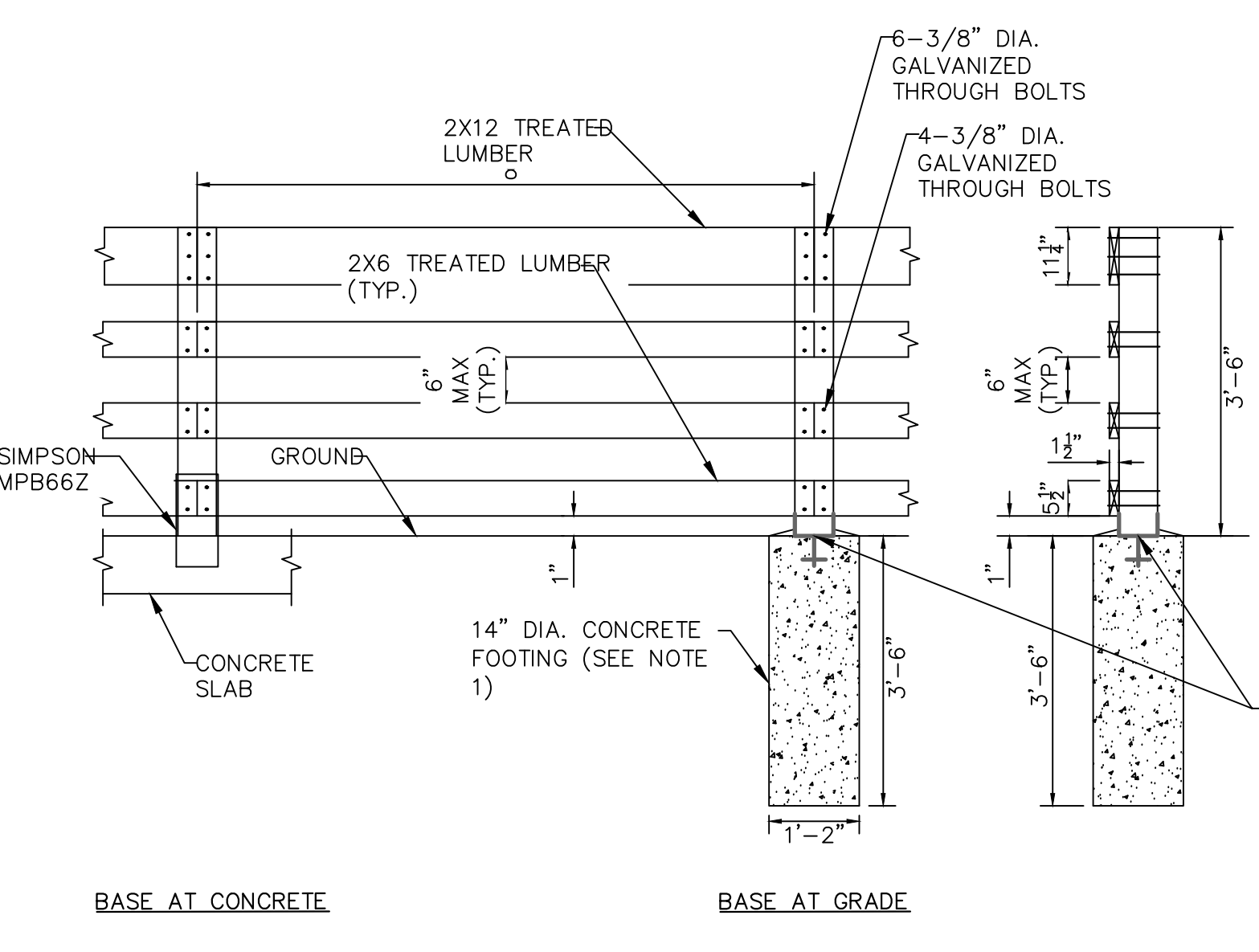


- NOTES**
1. USE MDOT 6A COARSE AGGREGATE TO INFILL BETWEEN BLOCKS.
 2. CONTRACTOR TO SUBMIT MODULAR BLOCK WALL LAYOUT PLAN FOR REVIEW AND APPROVAL.
 3. PROPOSED TYPICAL RETAINING WALL SECTION IS FROM REDI-ROCK. ALTERNATIVE MODULAR BLOCK WALL MANUFACTURERS ARE SUBJECT TO REVIEW AND APPROVAL BY THE ENGINEER.
 4. CONTRACTOR TO PLACE A TEMPORARY WEARING COURSE (MIN 2-FT-THICK) OVER THE BLOCKS AND BACKFILL TO PROTECT THESE ELEMENTS FROM CONSTRUCTION ACTIVITIES DURING THE WORK. CONTRACTOR TO REMOVE TEMPORARY WEARING COURSE AND CONSTRUCT FINAL CONCRETE SLAB AND CANOPY AFTER COMPLETION OF MASS EARTHWORK.

3
44 N.T.S.
UNDERPASS MODULAR BLOCK WALL
EXTENSION - TYPICAL CROSS SECTION

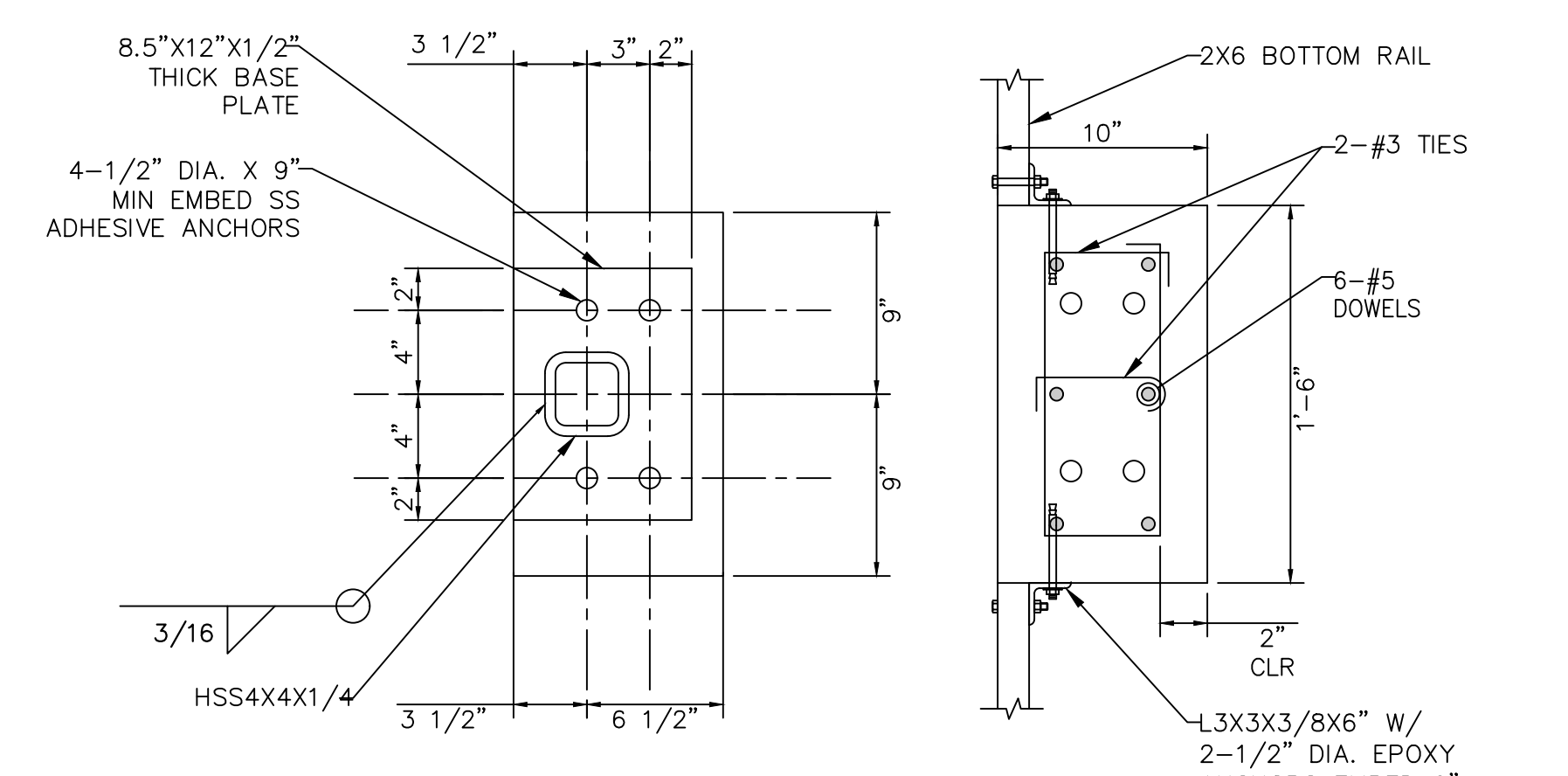


5
44 N.T.S.
TYPICAL CLEANOUT AND "T" INSPECTION LINE DETAIL

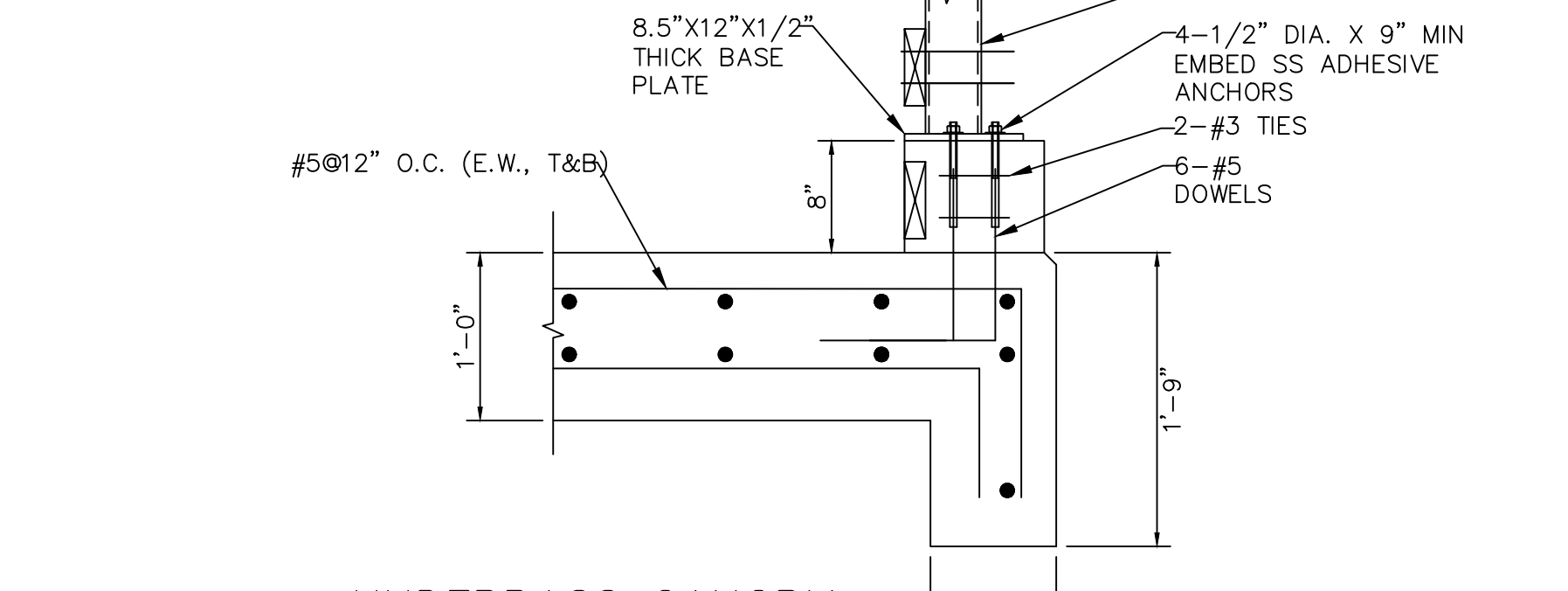


6
44 N.T.S.
WALKWAY RAILING DETAIL


- NOTES**
1. CONTRACTOR TO FORM CONCRETE ENTIRE HEIGHT OF FOOTING. PLACING CONCRETE DIRECTLY AGAINST EARTH IS NOT PERMITTED.
 2. ALL EDGES OF TOP RAIL TO BE SANDED SMOOTH.
 3. PROVIDE FOOTING WHERE POST IS OFF OF CONCRETE SLAB.
 4. PROVIDE CAST IN MOMENT POST BASE WHERE POST IS WITHIN THE CONCRETE SLAB.
 5. PROVIDE WASHERS AND COUNTERSINK ALL BOLTS.
 6. EXTEND NEW RAILING AND CONNECT TO EXISTING RAILING POSTS.



7
44 N.T.S.
UNDERPASS CANOPY
PEDESTAL DETAIL



8
44 N.T.S.
UNDERPASS CANOPY
PEDESTAL SECTION



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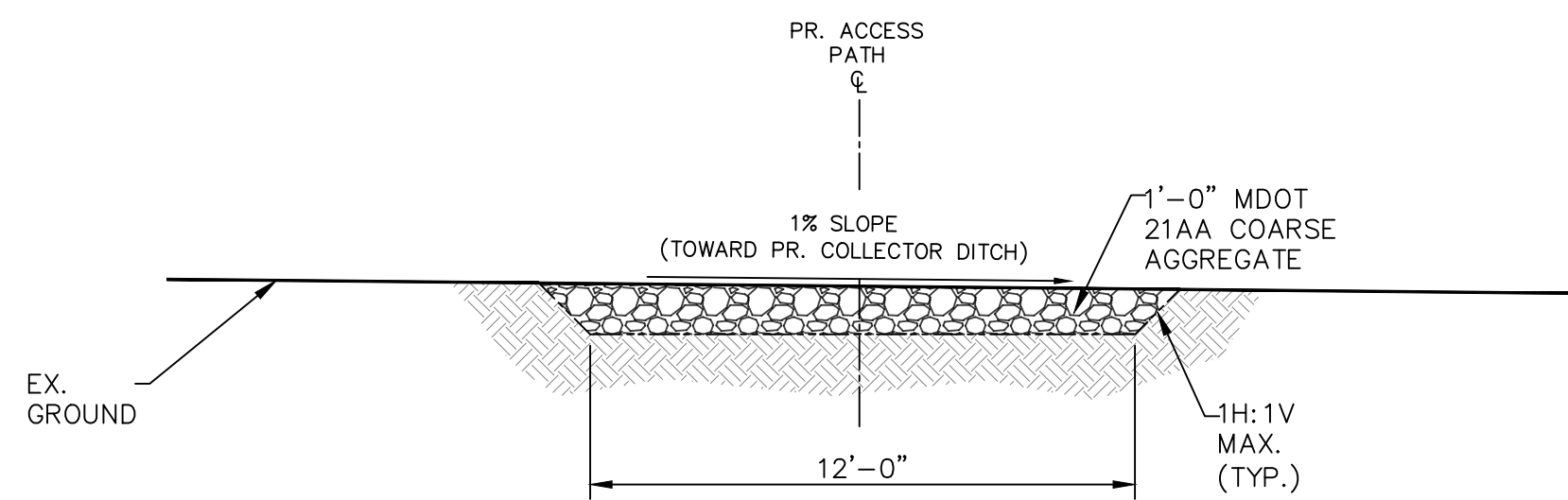
CITY OF ANN ARBOR PUBLIC SERVICES
BARTON DAM RIGHT EMBANKMENT REMEDIATION
MISCELLANEOUS DETAILS (1 OF 3)

SCALE: SEE INDICATED

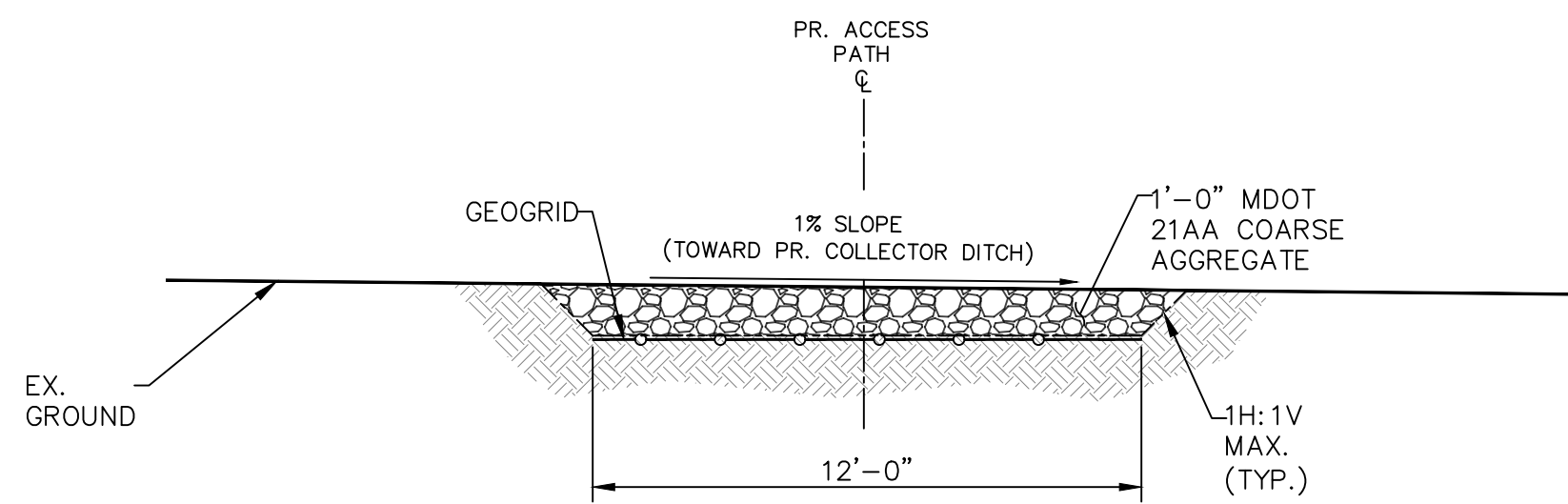
SHEET No. 44 OF 48

DRAWING No. 2211050300

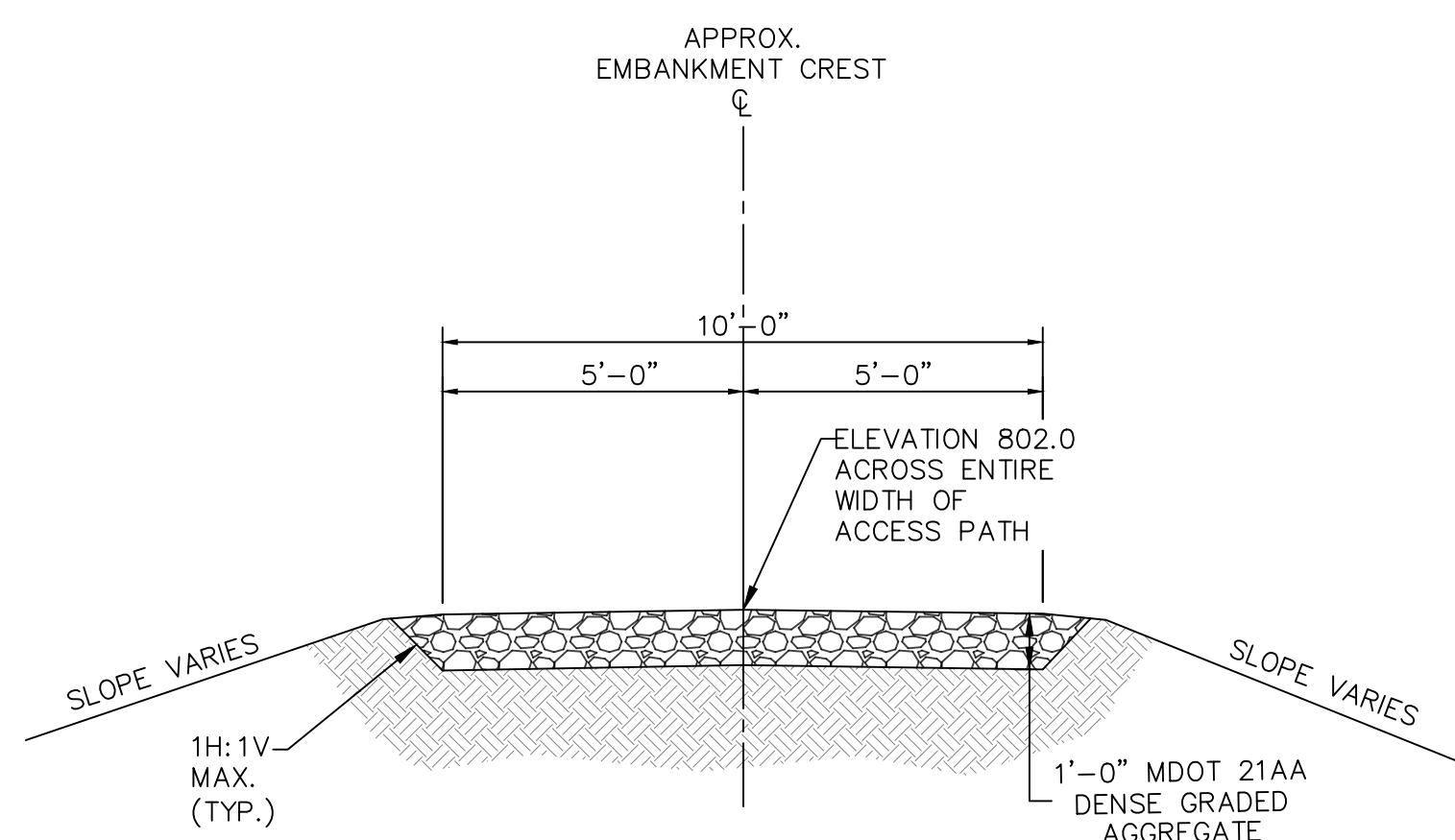
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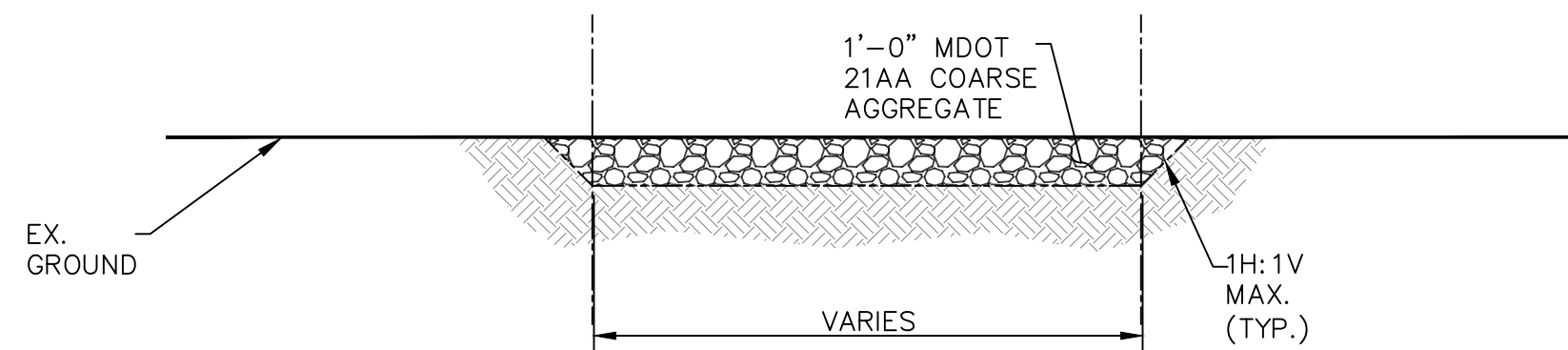
1A
45 N.T.S. PR. ACCESS PATH - TYPICAL STANDARD SECTION



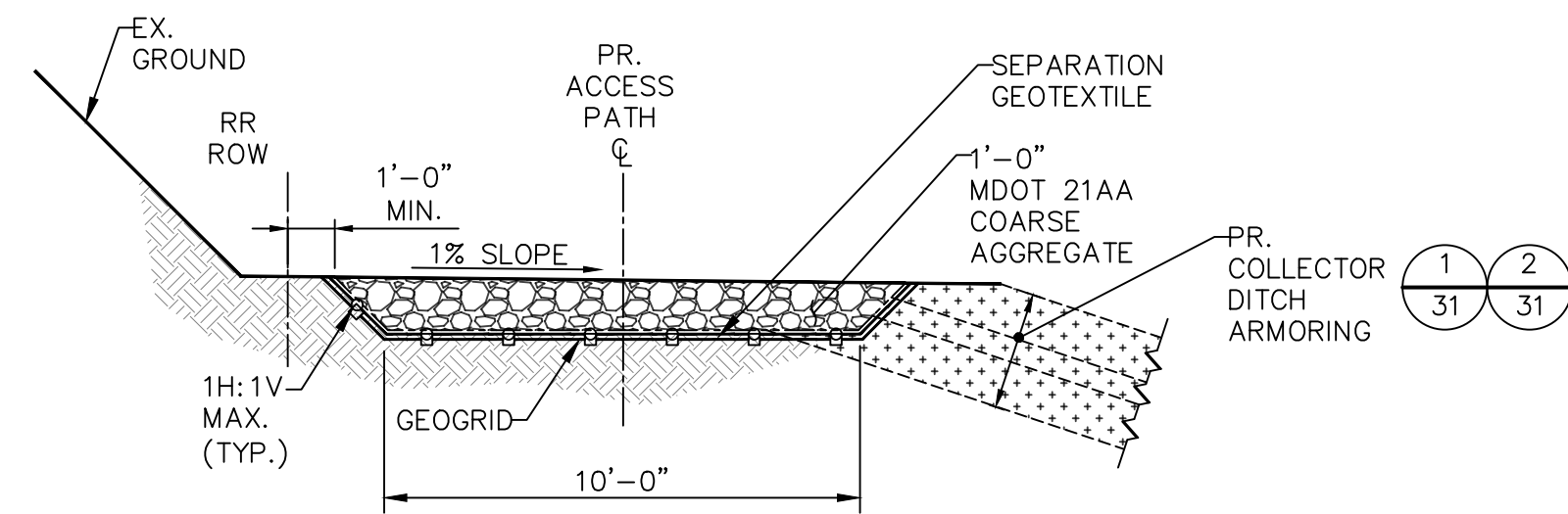
1B
45 N.T.S. PR. ACCESS PATH - TYPICAL GEOGRID-REINFORCED SECTION



1C
45 N.T.S. PR. ACCESS PATH AT EMBANKMENT CREST - TYPICAL SECTION

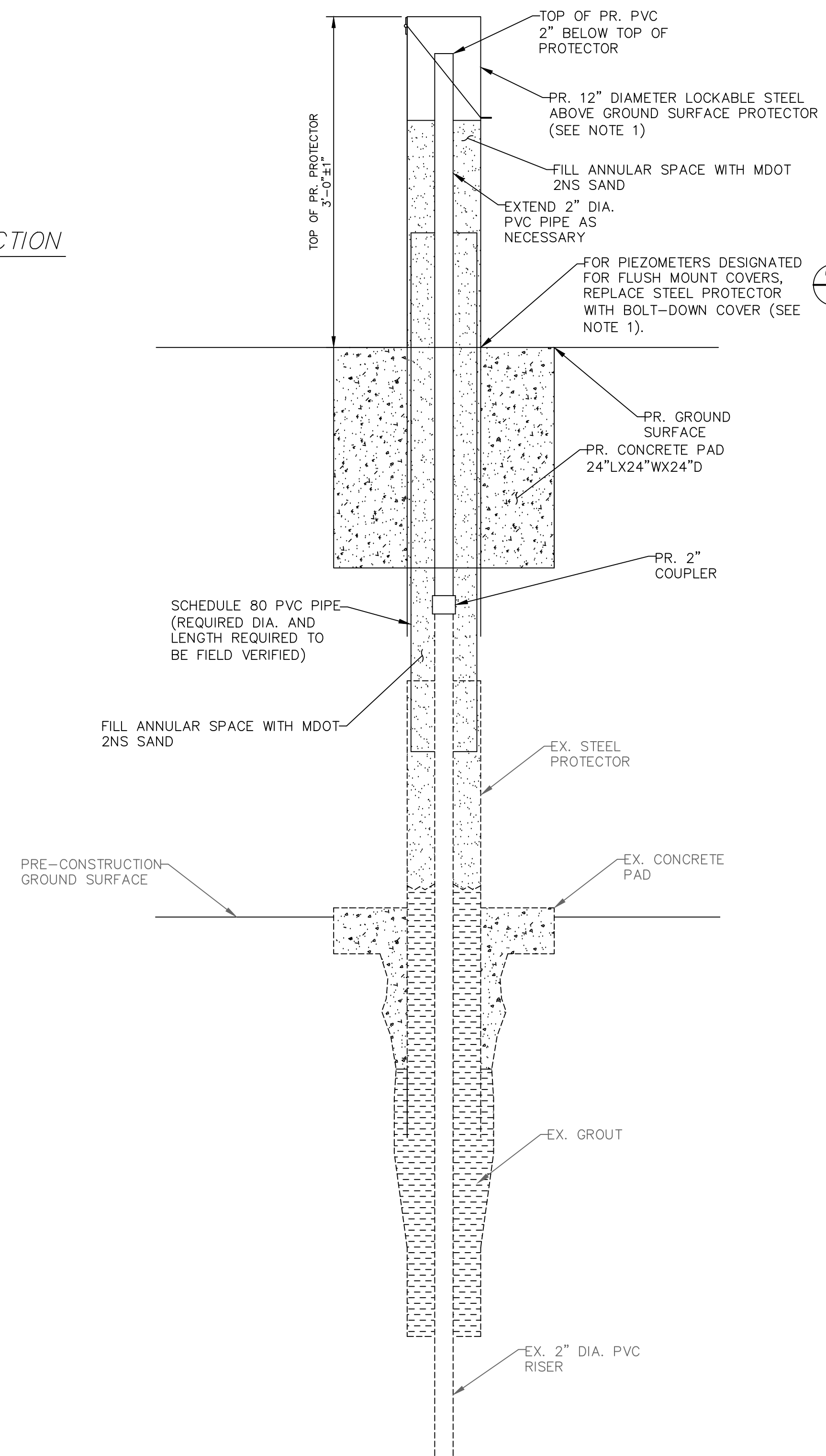


1D
45 N.T.S. EX. ACCESS PATH IMPROVEMENTS - TYPICAL SECTION

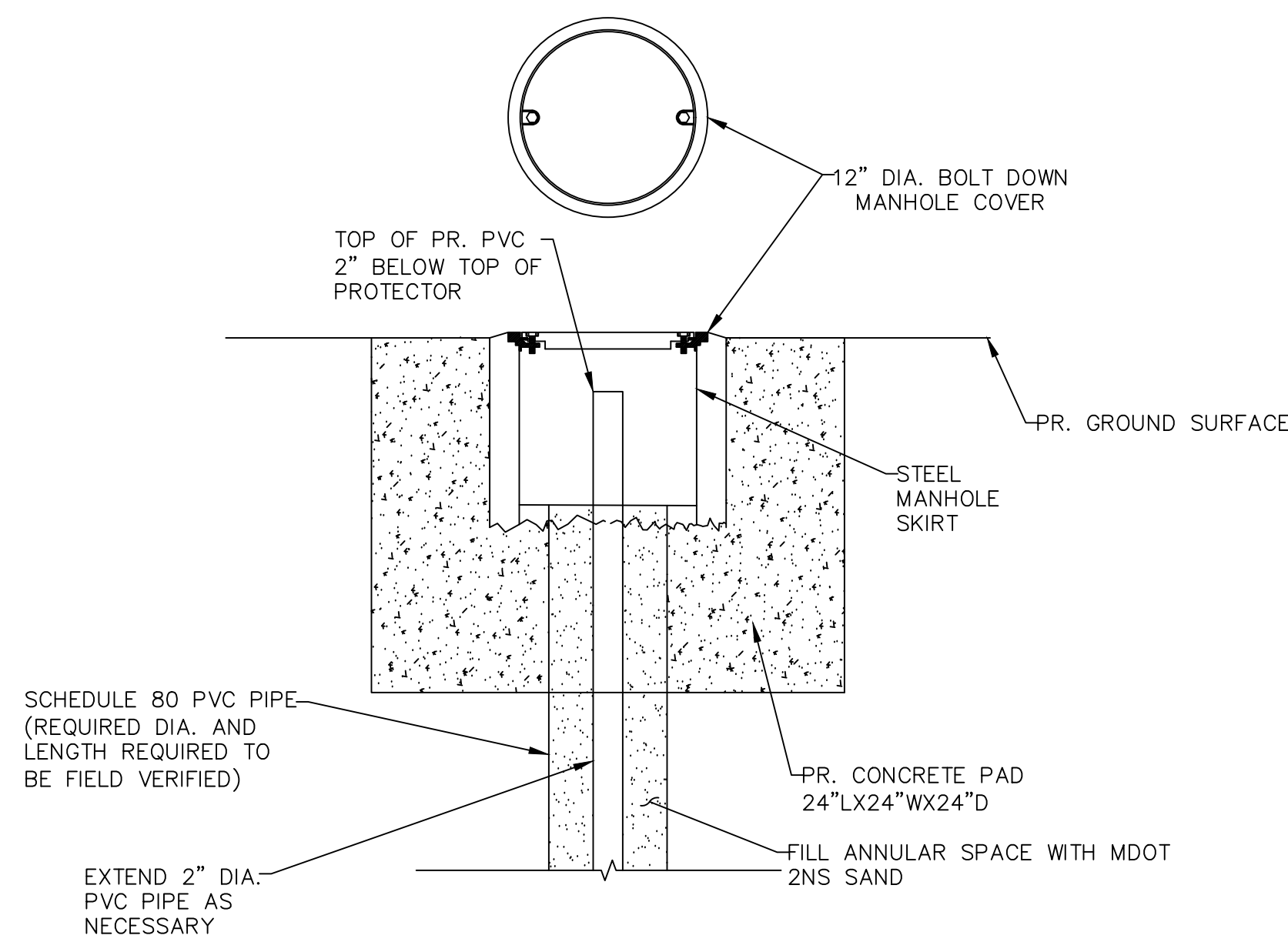


1E
45 N.T.S. PR. ACCESS PATH AT RR ROW - TYPICAL SECTION

NOTE
1. SEE SHEE 28 FOR EXTENTS ACCESS PATH TYPICAL SECTION.
2. CONTROL POINTS DEFINING THE HORIZONTAL EXTENTS OF THE EXISTING PATH IMPROVEMENTS ARE PRESENTED ON SHEET 21.



6A
45 N.T.S. PR. PIEZOMETER RAISE - RISER EXTENSION DETAIL



6A
45 N.T.S. PR. PIEZOMETER RAISE - FLUSH MOUNT COVER DETAIL

NOTE
1. SEE PIEZOMETERS TABLE ON SHEET 21 FOR THE PRESCRIBED COVER AND PIEZOMETER TYPE AT EACH PIEZOMETER LOCATION.
2. VIBRATING WIRE PIEZOMETER CABLES SHALL BE EXTENDED SO THE END OF THE CABLE IS ACCESSIBLE FROM THE EXTENDED TOP OF COVER ELEVATION.
3. BOTH RISERS INSTALLED AT THE LOCATIONS OF OPEN STANDPIPE PIEZOMETERS SHALL BE EXTENDED IN THE SAME MANNER AS SHOWN IN THE PR. PIEZOMETER RAISE - RISER EXTENSION DETAIL.
4. INSTALL 6-INCH DIA. FLEXIBLE, DUAL-WALL HDPE PIPE FROM PZ-3 TO PR. COLLECTOR DITCH TO CONVEY ARTESIAN FLOW.



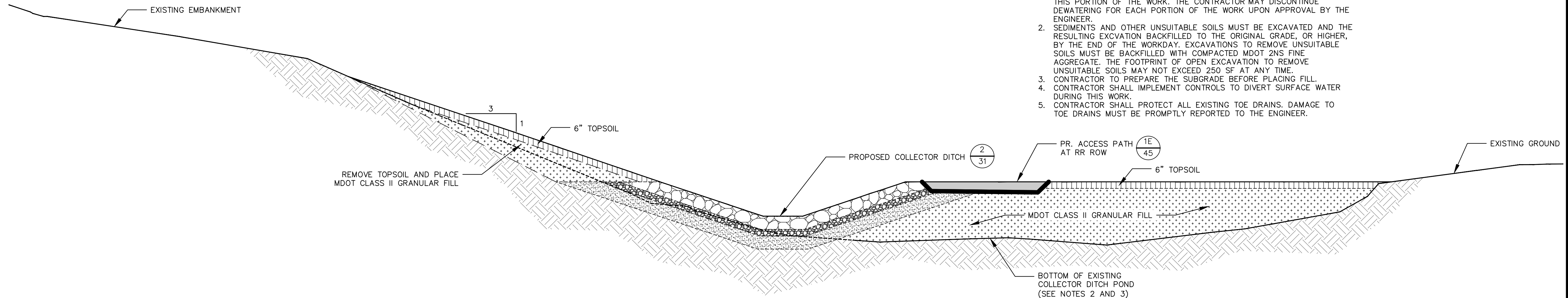
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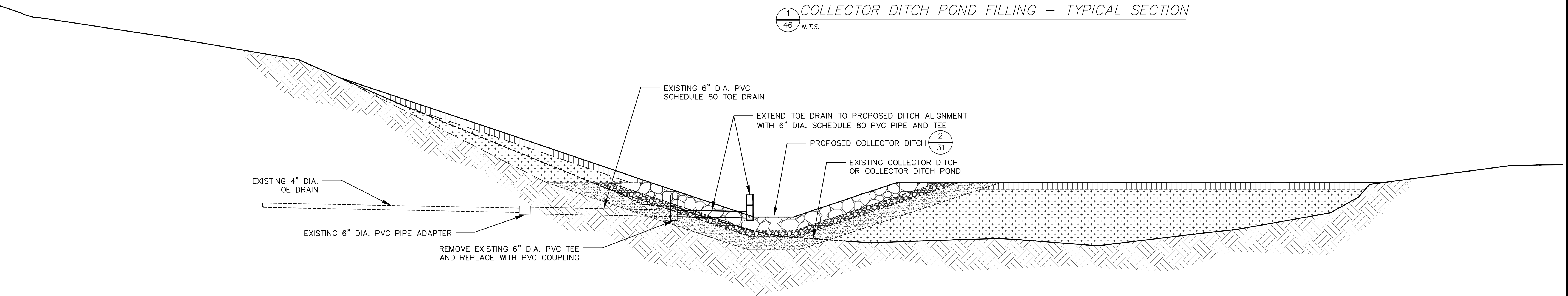


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BARTON DAM RIGHT EMBANKMENT REMEDIATION
MISCELLANEOUS DETAILS (2 OF 3)
SCALE: SEE INDICATED
DRAWING NO.: 2211050300

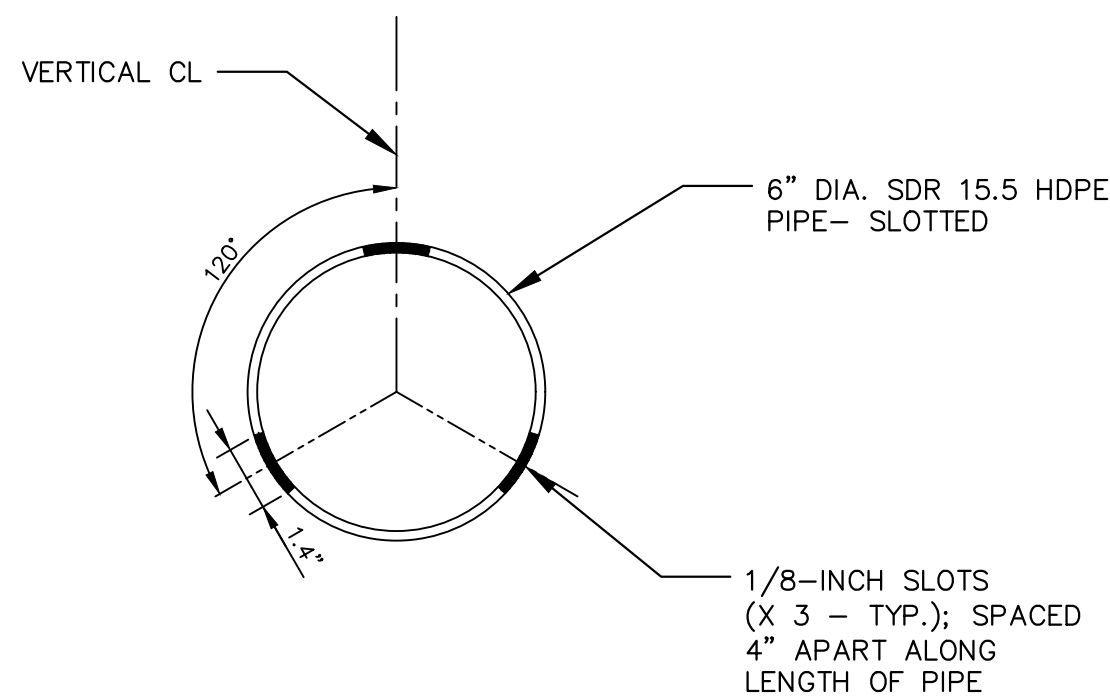
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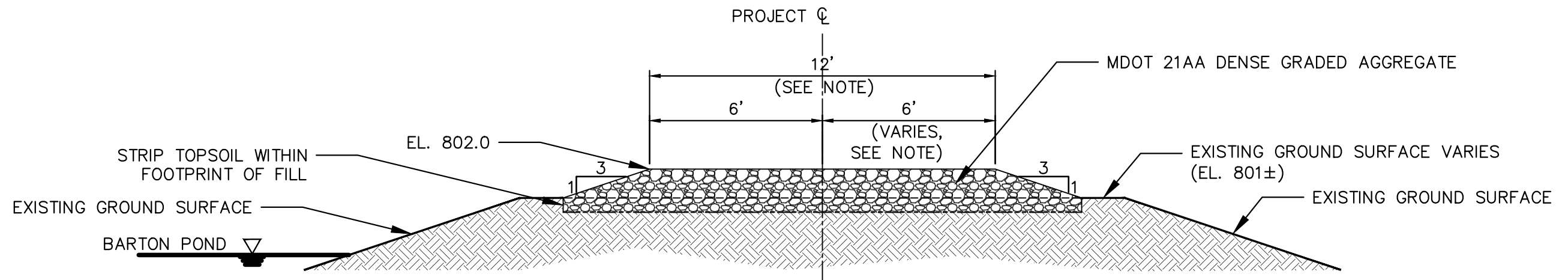
1 COLLECTOR DITCH POND FILLING - TYPICAL SECTION
46 N.T.S.



2 TOE DRAIN EXTENSION
46 N.T.S.



3 UNDERDRAIN PERFORATIONS - TYPICAL SECTION
46 N.T.S.




4 EMBANKMENT GRADE RAISE - TYPICAL SECTION
46 N.T.S.

- NOTES**
- FOR REMOVAL OF UNSUITABLE SOILS, SUBGRADE PREPARATION, AND BACKFILLING OF THE COLLECTOR DITCH POND, CONTRACTOR SHALL DRAW GROUND WATER DOWN TO 24 INCHES BELOW THE LOWEST LEVEL OF EXCAVATION AND MAINTAIN IT AT THAT LEVEL FOR THE DURATION OF THIS PORTION OF THE WORK. THE CONTRACTOR MAY DISCONTINUE DEWATERING FOR EACH PORTION OF THE WORK UPON APPROVAL BY THE ENGINEER.
 - SEDIMENTS AND OTHER UNSUITABLE SOILS MUST BE EXCAVATED AND THE RESULTING EXCAVATION BACKFILLED TO THE ORIGINAL GRADE, OR HIGHER, BY THE END OF THE WORKDAY. EXCAVATIONS TO REMOVE UNSUITABLE SOILS MUST BE BACKFILLED WITH COMPACTED MDOT 2NS FINE AGGREGATE. THE FOOTPRINT OF OPEN EXCAVATION TO REMOVE UNSUITABLE SOILS MAY NOT EXCEED 250 SF AT ANY TIME.
 - CONTRACTOR TO PREPARE THE SUBGRADE BEFORE PLACING FILL.
 - CONTRACTOR SHALL IMPLEMENT CONTROLS TO DIVERT SURFACE WATER DURING THIS WORK.
 - CONTRACTOR SHALL PROTECT ALL EXISTING TOE DRAINS. DAMAGE TO TOE DRAINS MUST BE PROMPTLY REPORTED TO THE ENGINEER.

- NOTE**
- CONTRACTOR SHALL PROTECT ALL EXISTING TOE DRAINS. DAMAGE TO TOE DRAINS MUST BE PROMPTLY REPORTED TO THE ENGINEER.

- NOTE**
- REDUCE WIDTH OF GRADE RAISE FROM APPROX. STA -2+38 TO -1+70 AS NEEDED TO PREVENT GROUND DISTURBANCE WITHIN THE RR ROW.




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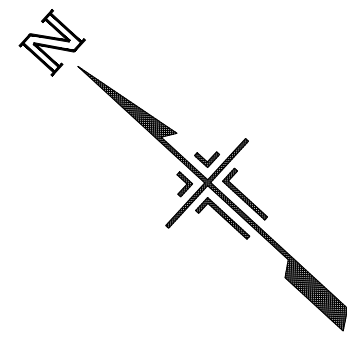


CITY OF ANN ARBOR - PUBLIC SERVICES
BARTON DAM RIGHT EMBANKMENT REMEDIATION
MISCELLANEOUS DETAILS (3 OF 3)



SCALE: SEE INDICATED
DRAWING No.: 2211050300

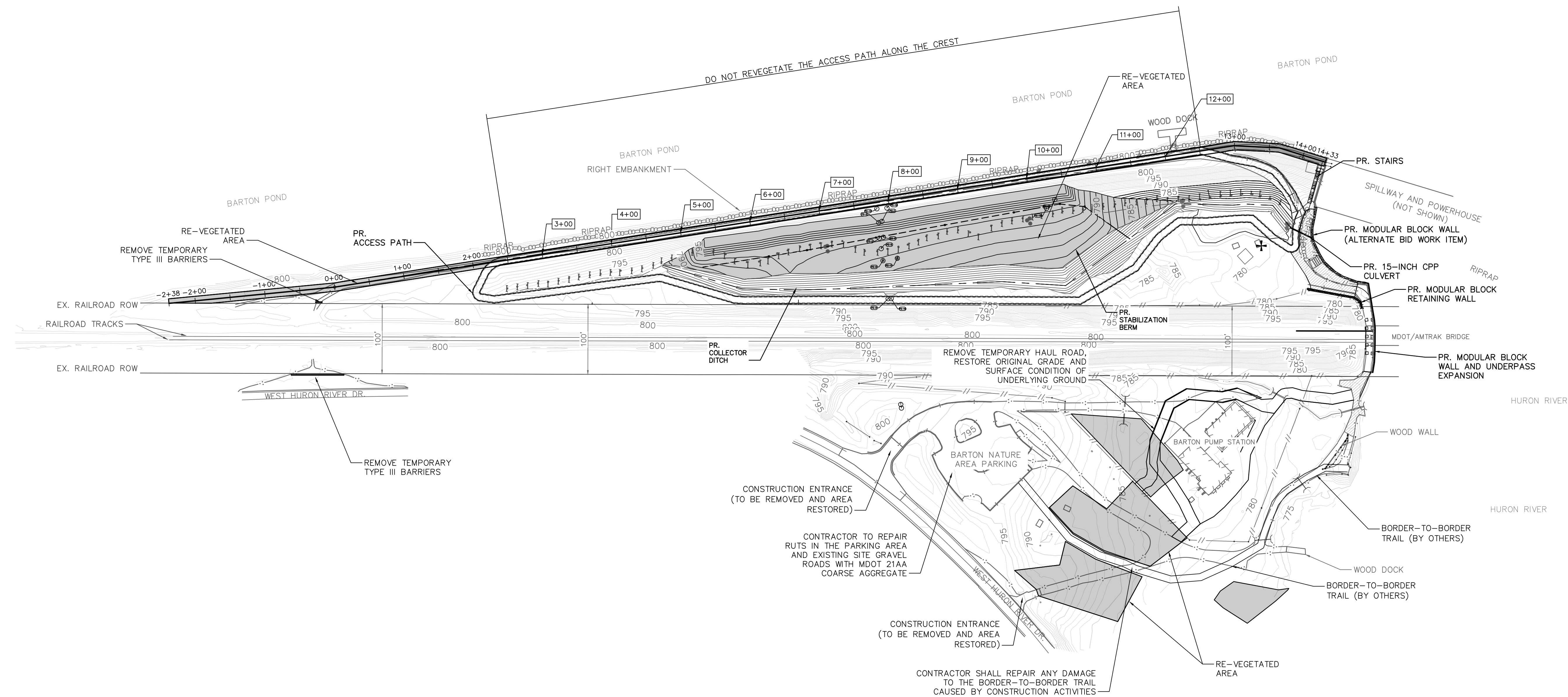
SHEET No.: 46 OF 48

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LEGEND

-  AGG SURFACING
-  RE-VEGETATED AREA



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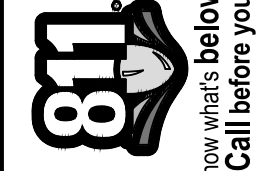


CITY OF ANN ARBOR - PUBLIC SERVICES
BARTON DAM RIGHT EMBANKMENT REMEDIATION
SITE RESTORATION PLAN

SCALE 1"=80'

DRAWING No. 2211050300

ESTIMATED PROJECT QUANTITIES		
DESCRIPTION	QUANTITY	UNIT
CLEARING AND GRUBBING	1.6	AC
TEMPORARY HAUL ROUTE CONSTRUCTION	540	LF
EMERGENCY STOCKPILES OF SAND AND GRAVEL (TO BE RELOCATED)	40	CY
DEMOLISH WOODEN RAILING ALONG HURON RIVER	175	LF
DEMOLISH REMNANT COLLECTOR DITCH WEIR POSTS	12	EA
DEMOLISH STEEL C-CHANNEL TOE DRAIN ID POSTS	48	EA
DEMOLISH BLOCK WALL NEAR TD-40	30	LF
REMOVE AGGREGATE BALLAST AND UNDERLYING GEOTEXTILE NEAR TD-40	138	SY
TOPSOIL STRIPPING	820	SY
RAISE GRADE OF EMBANKMENT AT STA -2+38 TO 2+25 AND 12+60 TO 14+33	670	SY
UNDERPASS WIDENING - REMOVE EXISTING PAVEMENT	170	SY
UNDERPASS WIDENING - REMOVE EXISTING CANOPY	440	SF
UNDERPASS WIDENING - REMOVE EXISTING RAILING	150	LF
UNDERPASS WIDENING - REMOVE EXISTING GABIONS	150	LF
UNDERPASS WIDENING - INSTALL MODULAR BLOCK WALL	640	SF
UNDERPASS WIDENING - TEMPORARY SURFACE COURSE	170	SY
DEMOLISH EXISTING RETAINING WALL NORTH OF UNDERPASS	90	LF
CONSTRUCT REPLACEMENT RETAINING WALL NORTH OF UNDERPASS	390	SF
FILL COLLECTOR DITCH POND	770	CY
REMOVE EXISTING CULVERT	29	LF
REPLACE EXISTING CULVERT	34	LF
DEMOLISH, RAISE, AND REPLACE EXISTING PIEZOMETER MONUMENTS	13	EA
INSTALL UNDERDRAIN (PERFORATED)	600	LF
INSTALL UNDERDRAIN (NON-PERFORATED)	40	LF
INSTALL CLEANOUTS	8	EA
INSTALL T INSPECTION LINES	2	EA
CONSTRUCT PERMANENT ACCESS PATH	2540	LF
IMPROVE EXISTING PATH AREAS SOUTH OF UNDERPASS	160	SY
IMPROVE EXISTING PATH AREAS NORTH OF UNDERPASS	180	SY
REMOVE AND REPLACE RAILING/FENCE AT TOP THE ADJACENT SPILLWAY RETAINING WALL	54	LF
CONSTRUCT FINAL PAVEMENT AT UNDERPASS	170	SY
REPLACE UNDERPASS CANOPY	200	SF
REPLACE UNDERPASS RAILING	150	LF
EXCAVATE AND DISPOSE OF COMPENSATORY CUT	210	CY
REVEGATION OF THE WORK AREA	1.7	AC
FINAL SITE RESTORATION	6.0	AC
REMOVE EXISTING GABIONS BETWEEN UNDERPASS AND SPILLWAY (ALTERNATE BID WORK ITEM)	142	LF
CONSTRUCT MODULAR BLOCK WALL BETWEEN UNDERPASS AND SPILLWAY (ALTERNATE BID WORK ITEM)	1100	SF
COLLECTOR DITCH FILTER VOLUME (MDOT 2NS)	1300	CY
COLLECTOR DITCH MINERAL DRAIN VOLUME (MDOT 17A)	1200	CY
COLLECTOR DITCH COARSE AGGREGATE VOLUME (MDOT 3X1)	1900	CY



REV.	DESCRIPTION	DATE	DRAWN	CHECKED
INT:	PERMIT SET	11/10/2023	JEB	SAM
100%	BID SET	01/18/2024	JEB	SAM

NOT FOR CONSTRUCTION

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CITY OF ANN ARBOR
PUBLIC SERVICES
301 EAST HURON STREET
ANN ARBOR MI 48106-1864
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CITY OF ANN ARBOR - PUBLIC SERVICES
BARTON DAM RIGHT EMBANKMENT REMEDIATION
ESTIMATED PROJECT QUANTITIES

SCALE: NO SCALE
DRAWING No. 2211050300

SHEET No.