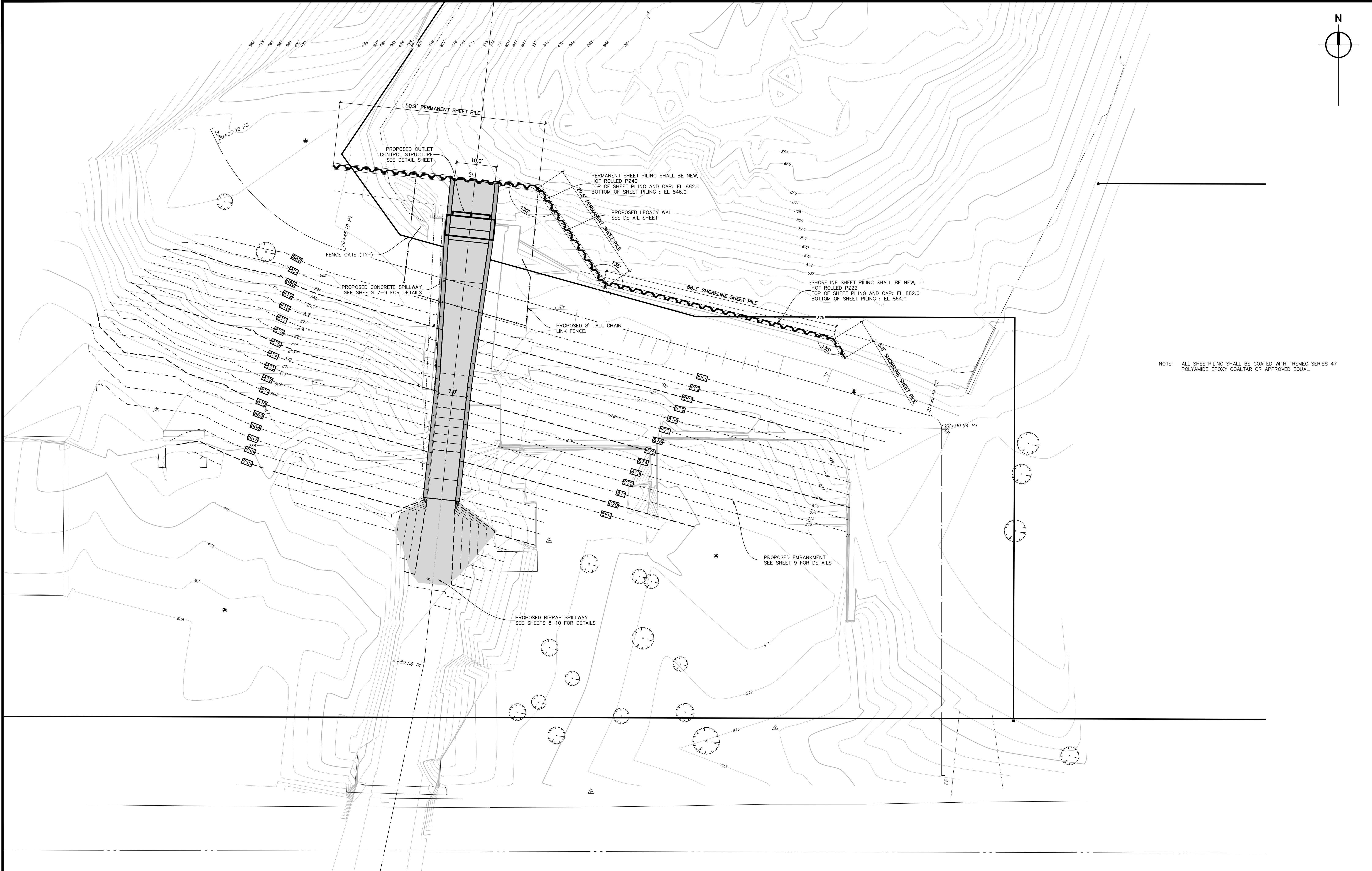
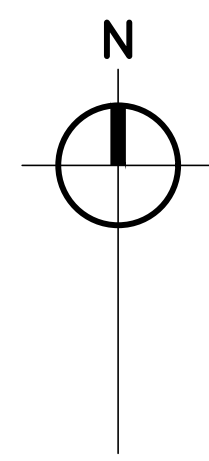


UTILITY LOCATIONS ARE DERIVED FROM ACTUAL MEASUREMENTS OR AVAILABLE RECORDS. THEY SHOULD NOT BE INTERPRETED TO BE EXACT LOCATIONS NOR SHOULD IT BE ASSUMED THAT THEY ARE THE ONLY UTILITIES IN THIS AREA.

NO.	R E V I S I O N S	BY	DATE	DRAWN
1	INTERNAL REVIEW	EES	11-21-19	E.E.S.
2	RELEASED FOR BIDS	EES	11-25-19	DATE 11/25/19
3	ADDENDUM #1	EES	12-12-19	CHECKED K.L.M.
				DATE 11/25/19

Prein & Newhof
Engineers • Surveyors • Environmental • Laboratory

GULL LAKE DAM ASSOCIATION
ROSS TOWNSHIP, KALAMAZOO COUNTY, MICHIGAN

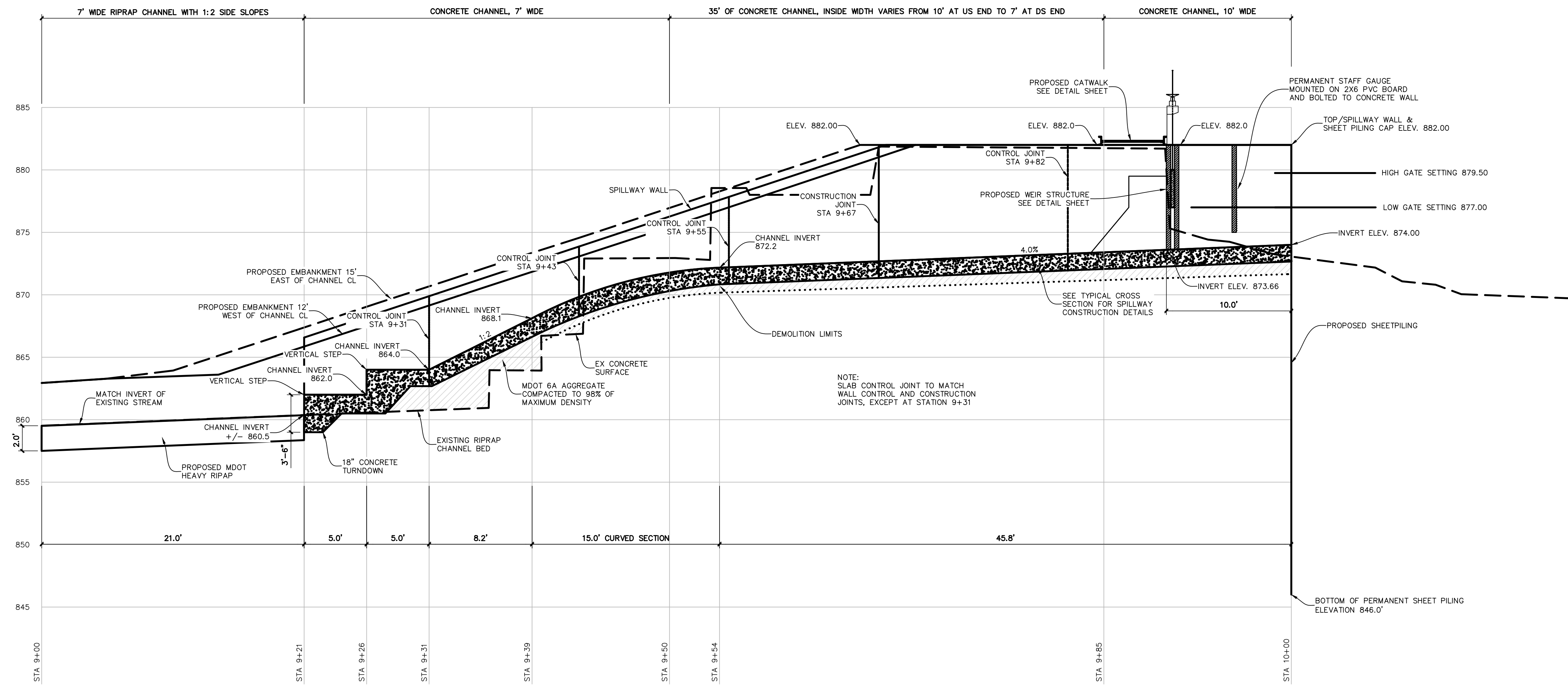
DAM IMPROVEMENTS

PROPOSED SITE PLAN

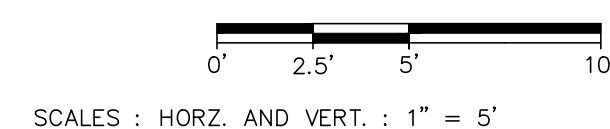
PROJECT NO.
2180455

SHEET NO.
6 OF **11**

EGLE-WED
10/26/2019 1.0
Approved
Issued On: 03/16/2020
Expires On: 03/16/2025



SPILLWAY PROFILE VIEW



UTILITY LOCATIONS ARE DERIVED FROM ACTUAL MEASUREMENTS OR AVAILABLE RECORDS. THEY SHOULD NOT BE INTERPRETED TO BE EXACT LOCATIONS NOR SHOULD IT BE ASSUMED THAT THEY ARE THE ONLY UTILITIES IN THIS AREA.

NO.	REVISIONS	BY	DATE	DRAWN
1	INTERNAL REVIEW	EES	11-21-19	E.E.S.
2	RELEASED FOR BIDS	EES	11-25-19	DATE 11/25/19
3	ADDENDUM #1	EES	12-12-19	CHECKED K.L.M.
				DATE 11/25/19

Prein & Newhof
Engineers • Surveyors • Environmental • Laboratory

GULL LAKE DAM ASSOCIATION
ROSS TOWNSHIP, KALAMAZOO COUNTY, MICHIGAN

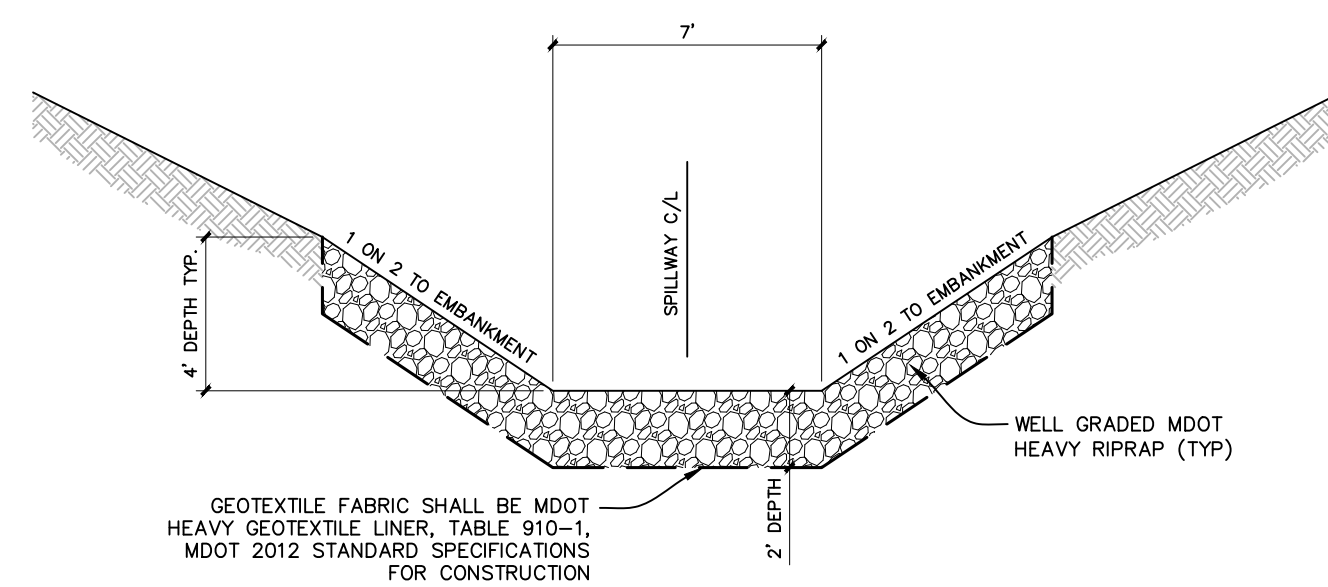
DAM IMPROVEMENTS
SPILLWAY PROFILE

PROJECT NO.
2180455

SHEET NO.

8 OF 11

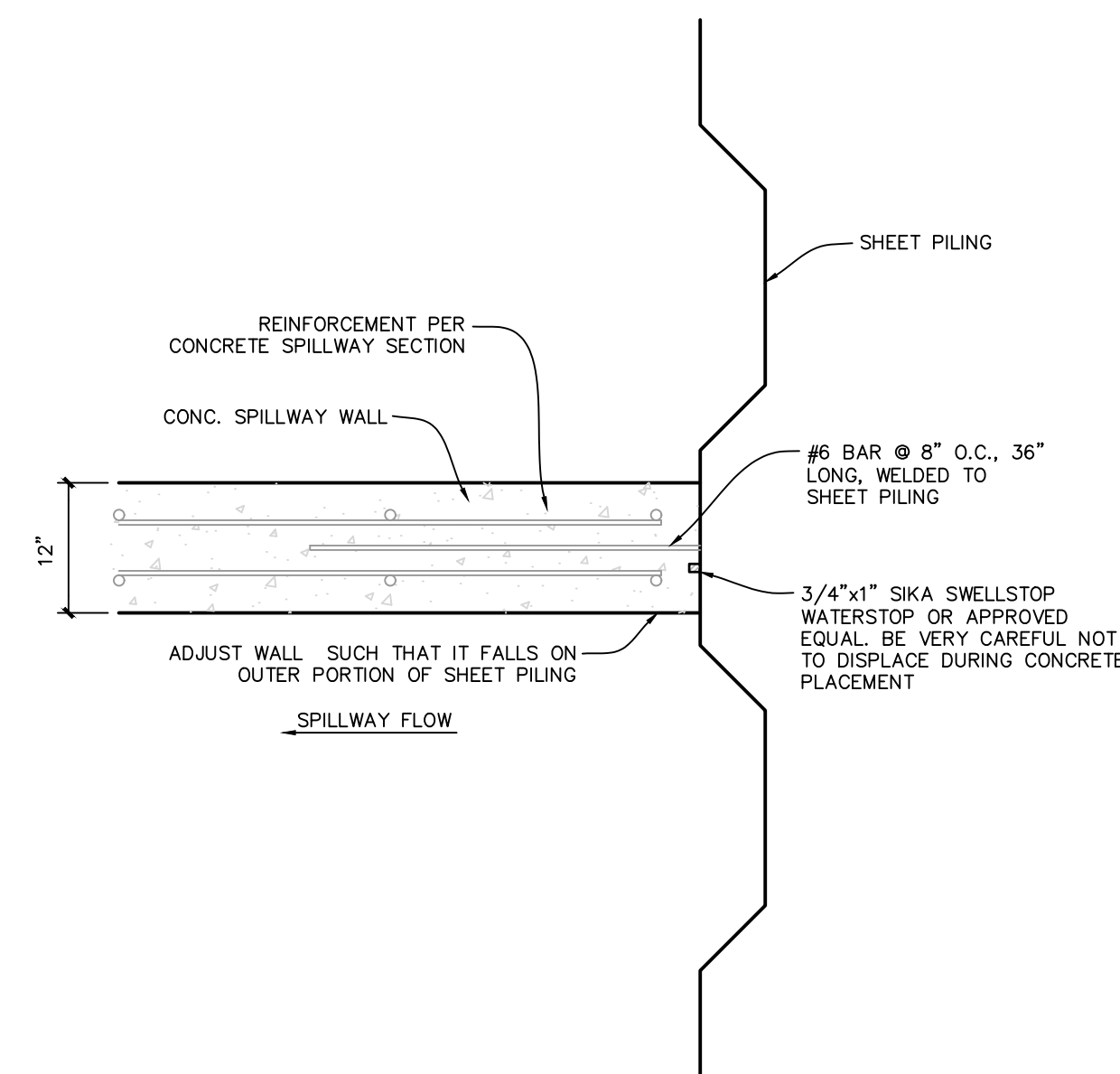
EGLE-WED
10/26/2019 1.0
Approved
Issued On: 03/16/2020
Expires On: 03/16/2022



EXISTING SUBSOILS

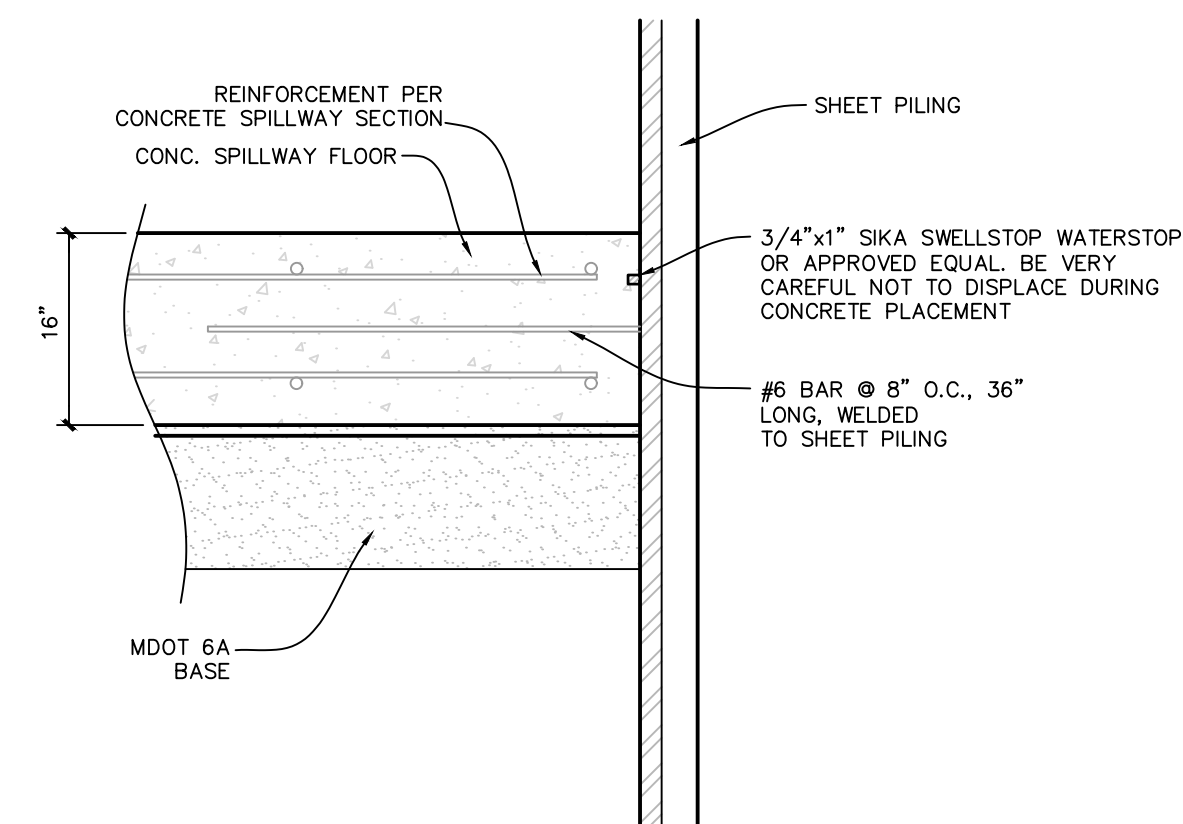
RIPRAP SPILLWAY

SCALE : NONE



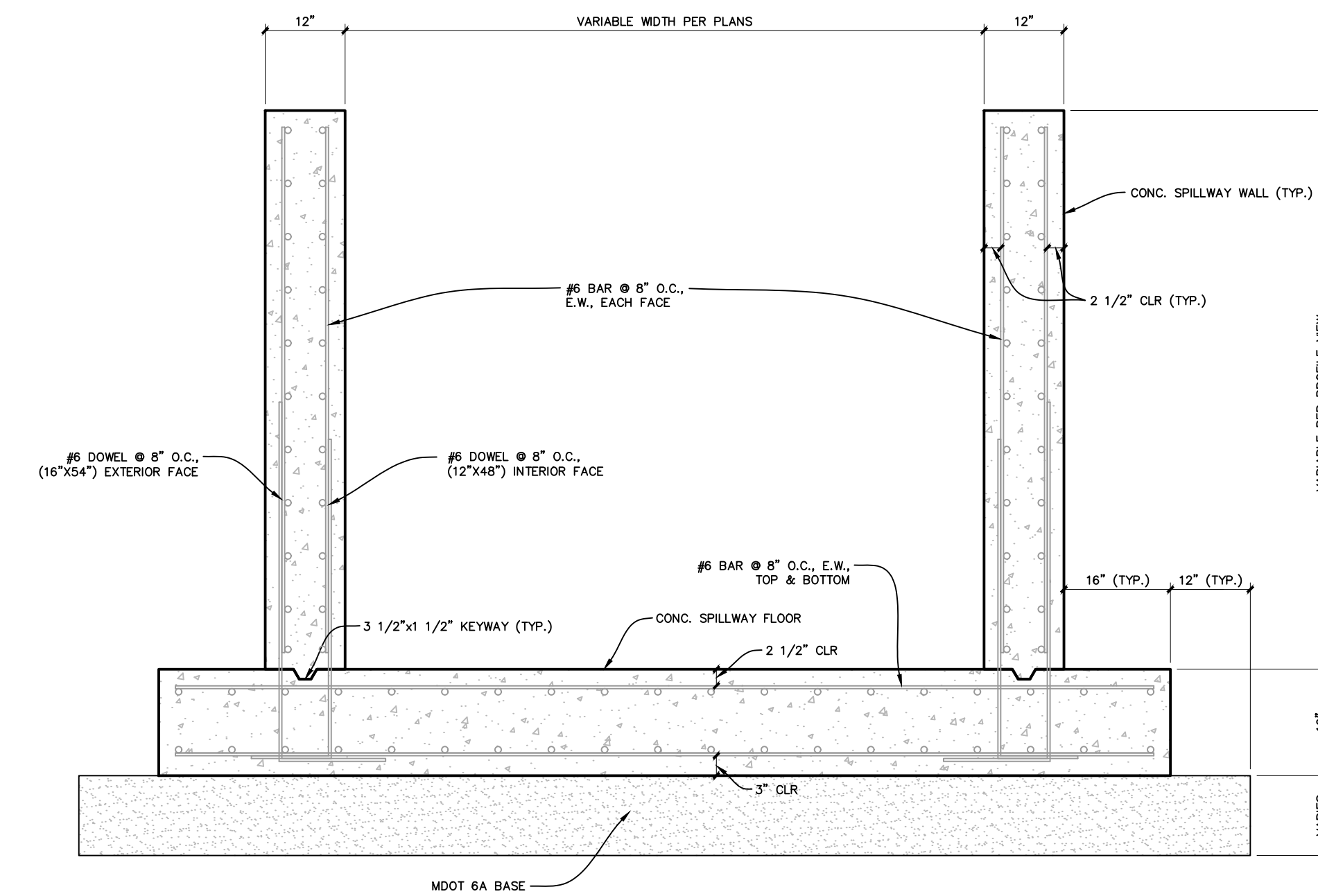
CONCRETE WALL/SHEET PILING CONNECTION

SCALE : NONE



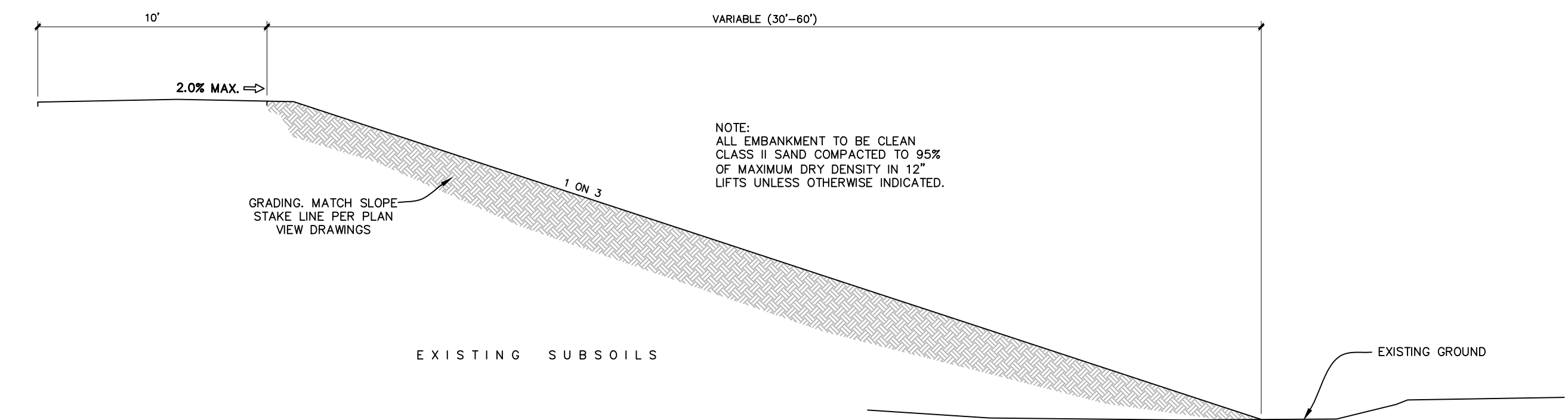
CONCRETE SLAB/SHEET PILING CONNECTION

SCALE : NONE



CONCRETE SPILLWAY

SCALE : NONE



EMBANKMENT DETAIL

SCALE : NONE



UTILITY LOCATIONS ARE DERIVED FROM ACTUAL MEASUREMENTS OR AVAILABLE RECORDS. THEY SHOULD NOT BE INTERPRETED TO BE EXACT LOCATIONS NOR SHOULD IT BE ASSUMED THAT THEY ARE THE ONLY UTILITIES IN THIS AREA.

NO.	REVISIONS	BY	DATE	DRAWN
1	INTERNAL REVIEW	EES	11-21-19	E.E.S.
2	RELEASED FOR BIDS	EES	11-25-19	DATE 11/25/19
				CHECKED K.L.M.
				DATE 11/25/19

Prein & Newhof
Engineers • Surveyors • Environmental • Laboratory

GULL LAKE DAM ASSOCIATION
ROSS TOWNSHIP, KALAMAZOO COUNTY, MICHIGAN

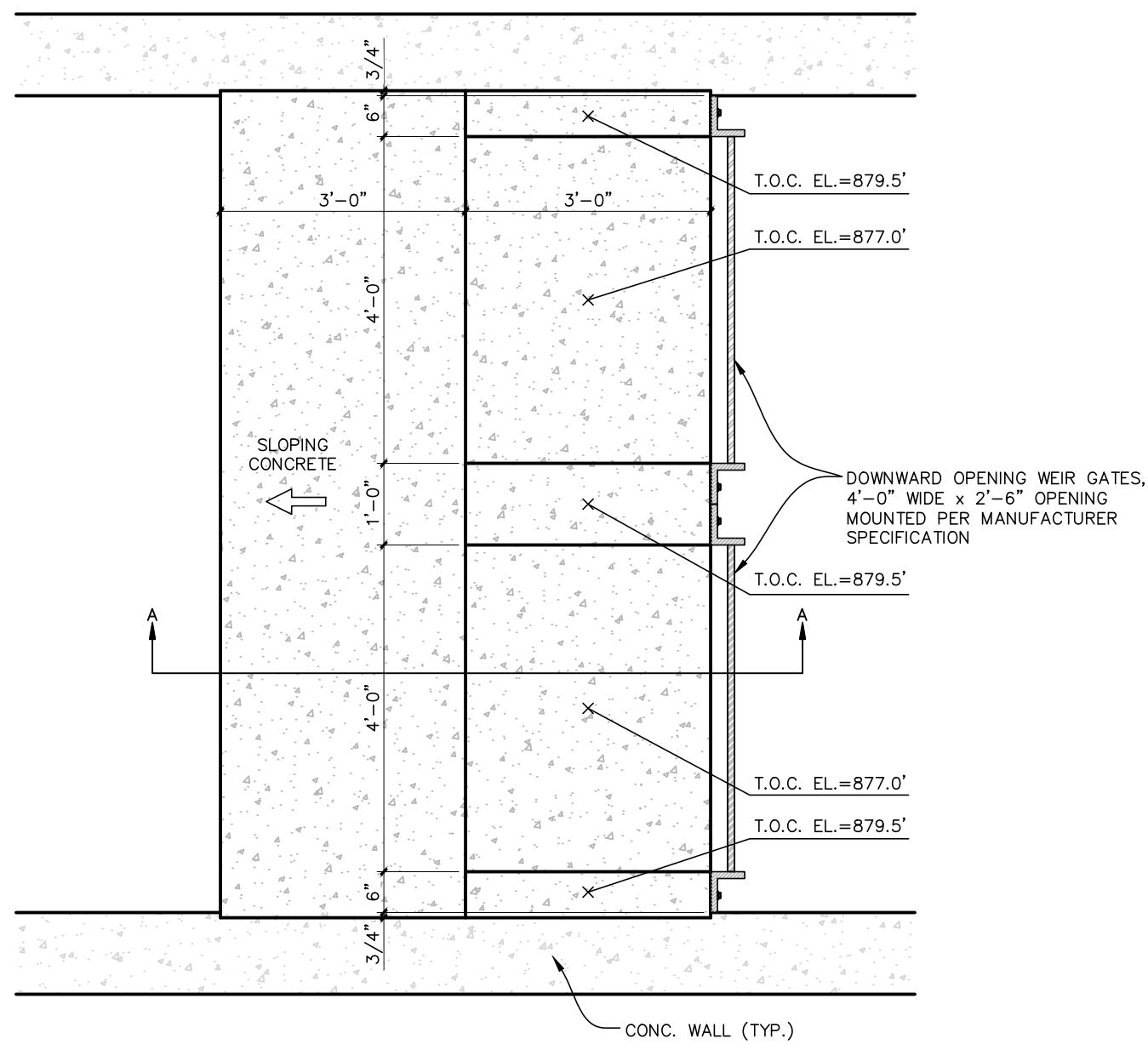
DAM IMPROVEMENTS
PROPOSED CROSS SECTIONS

PROJECT NO.
2180455

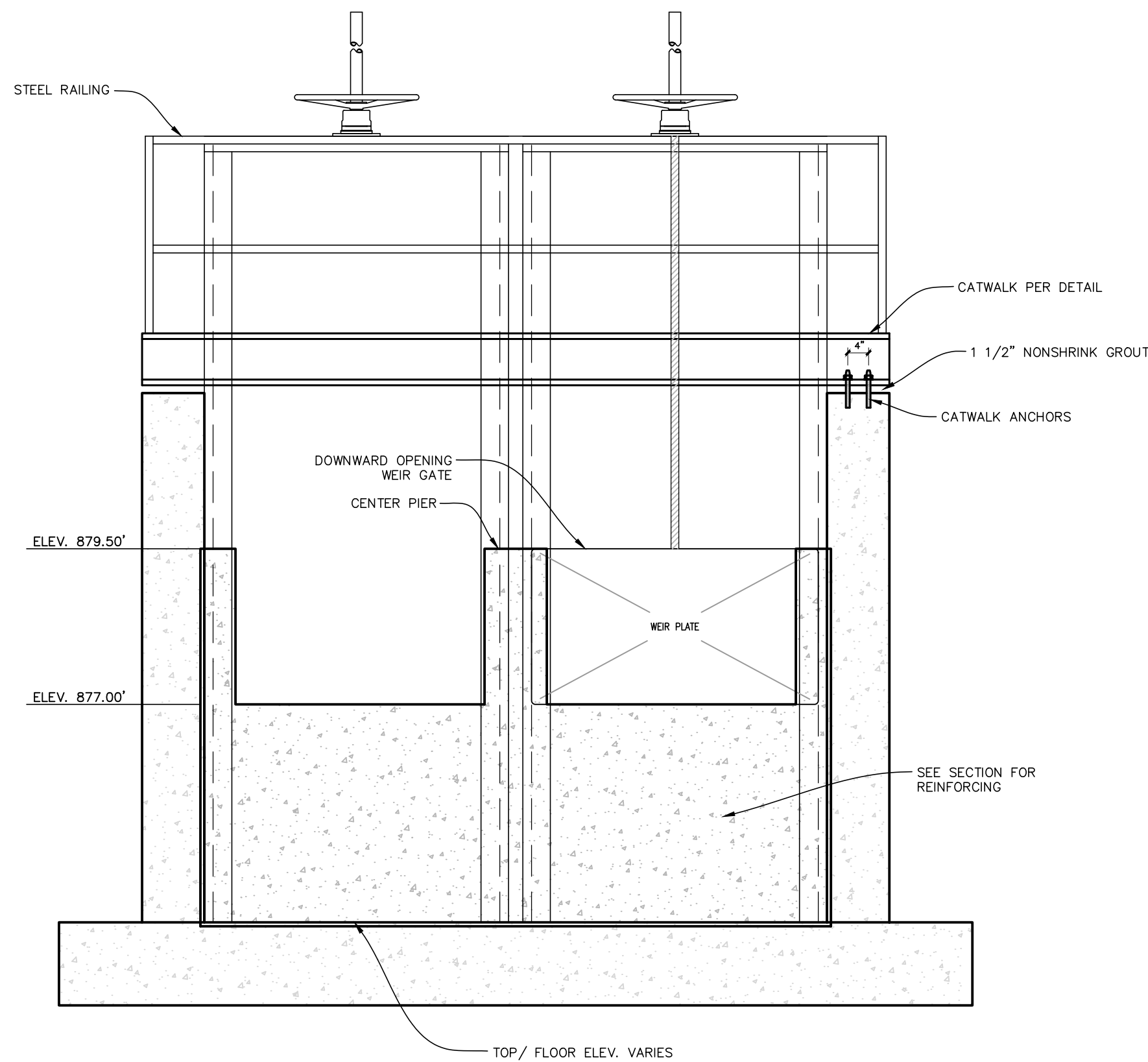
SHEET NO.

9 OF 11

EGLE-WED
10/26/2019 1.0
Approved
Issued On: 03/16/2020
Expires On: 03/16/2020

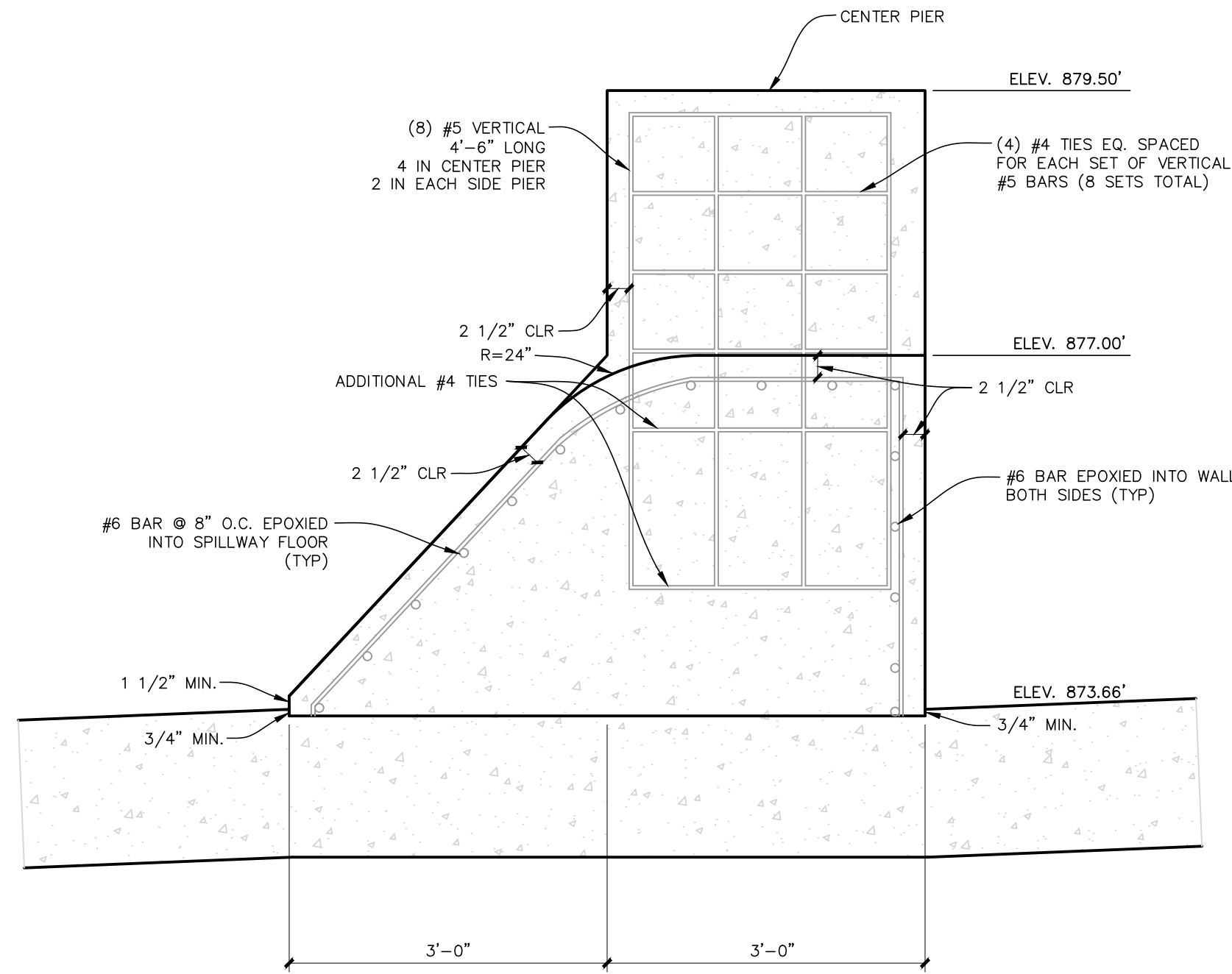


WEIR WALL PLAN DETAIL
SCALE : 3/4" = 1'-0"

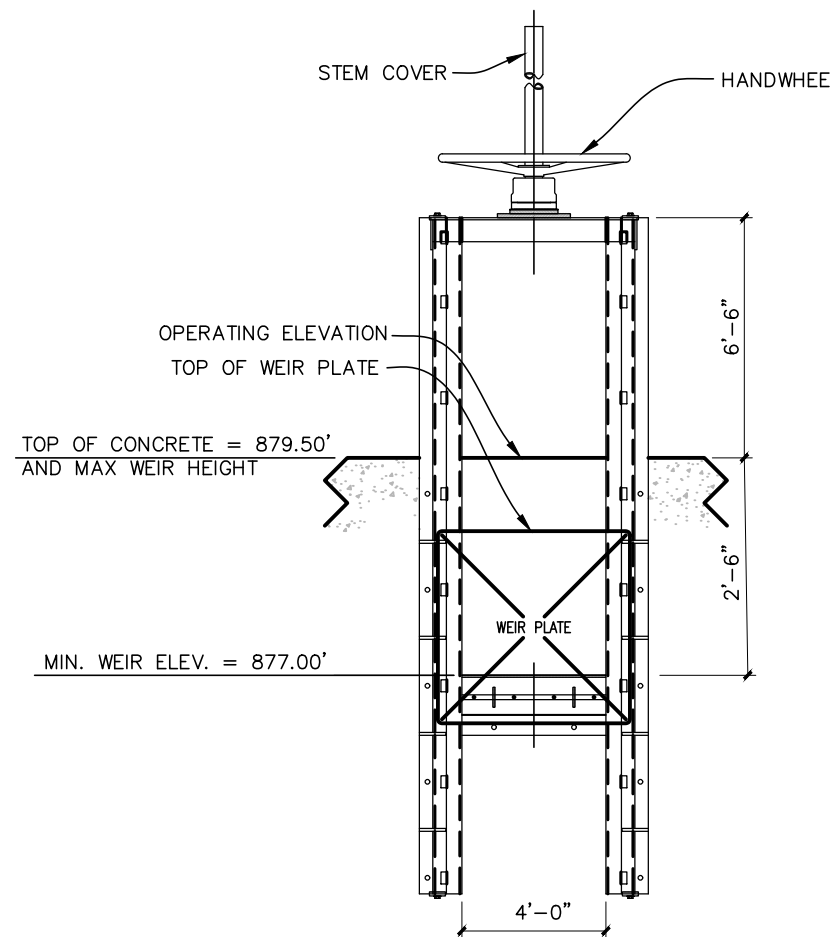


WEIR WALL ELEVATION DETAIL
SCALE : 3/4" = 1'-0"

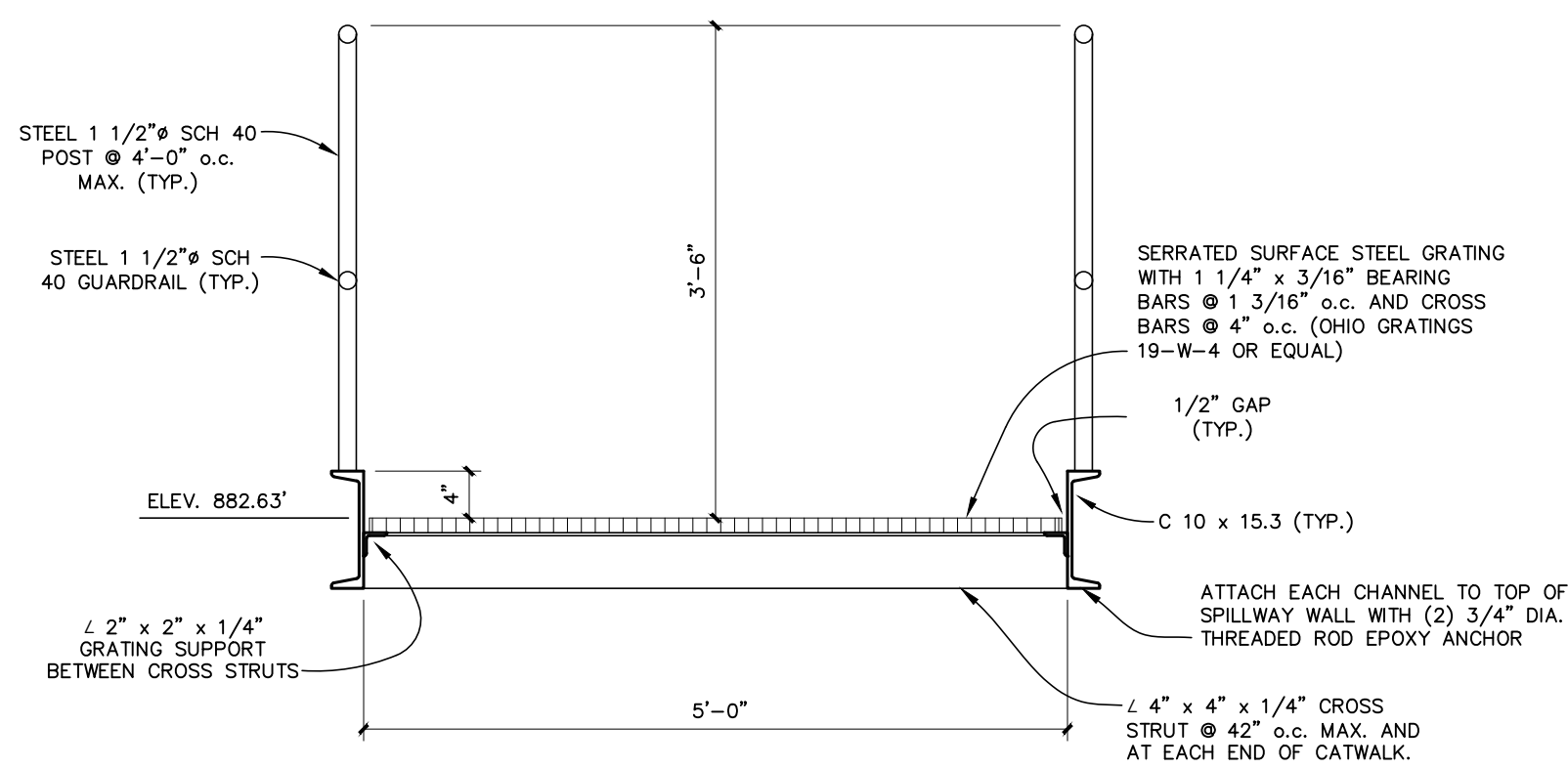
NOTE:
LEFT WEIR GATE NOT SHOWN FOR CLARITY.



WEIR WALL A-A CROSS SECTION
SCALE : 3/4" = 1'-0"



OPEN CHANNEL END-OF-WALL MOUNT
SCALE : NONE



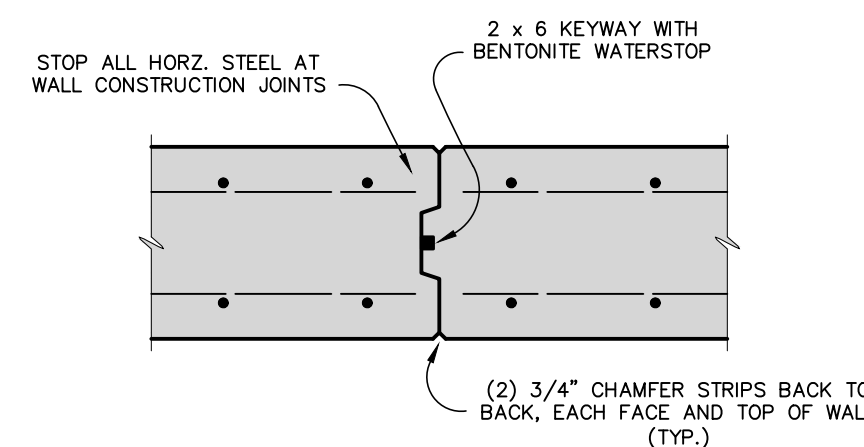
CATWALK CROSS SECTION
SCALE : 3/4" = 1'-0"

BAR SIZE	f'c = 4,000 psi	
	TOP BARS	OTHER BARS
#3	24"	19"
#4	32"	25"
#5	40"	31"
#6	48"	37"
#7	70"	54"
#8	80"	62"
#9	91"	70"

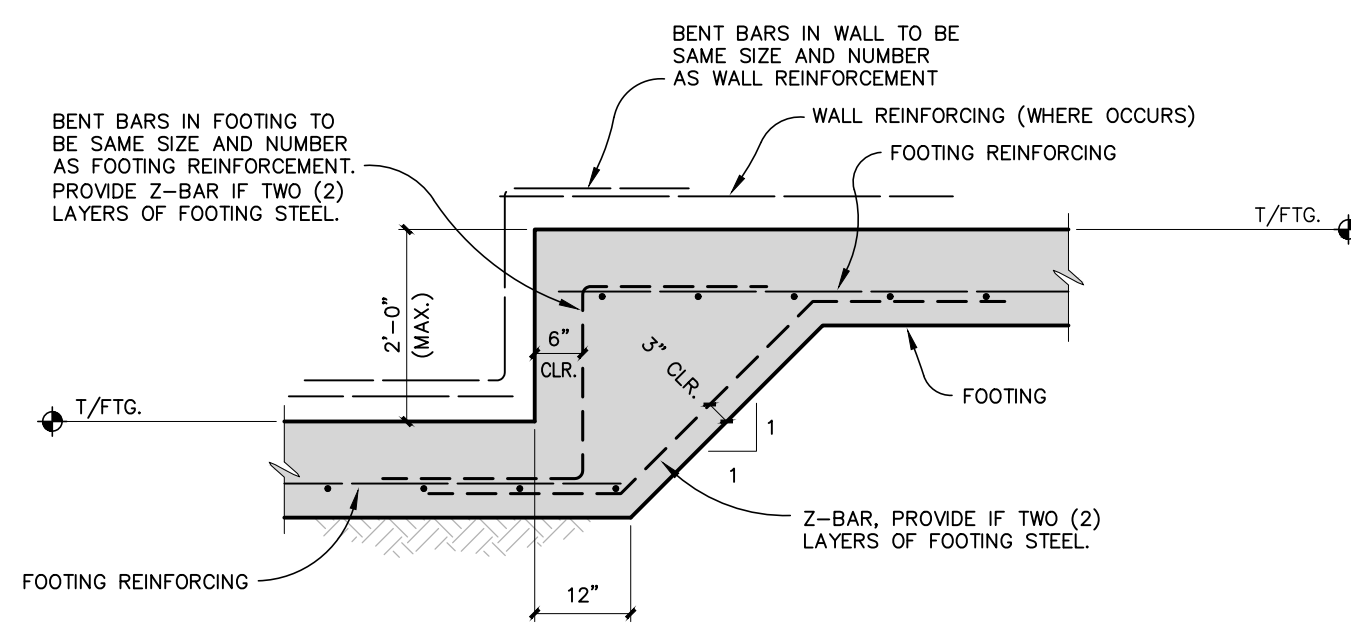
REINFORCING STEEL LAP SPLICE LENGTHS

NOTES

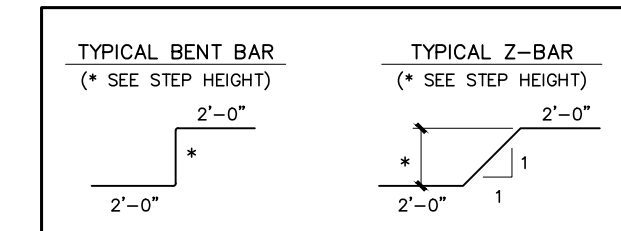
- TABLE VALUES ARE FOR ASTM A615 GRADE 60 UNCOATED REINFORCING AND NORMAL WEIGHT CONCRETE.
- CONCRETE CLEAR COVER 1" OR GREATER AND REINFORCING BAR CENTER TO CENTER SPACING IS AT LEAST THREE (3) BAR DIAMETERS.
- LAP SPLICE LENGTHS FOR OTHER CONDITIONS INCLUDING LIGHTWEIGHT CONCRETE, EPOXY COATED REINFORCING, AND BUNDLED BARS SHALL BE CALCULATED PER ACI 318.
- TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12" ON CONCRETE CAST BELOW THE BARS. HORIZONTAL REINFORCING IN WALLS ARE TOP BARS.



TYPICAL WALL CONSTRUCTION JOINT
SCALE : 3/4" = 1'-0"



TYPICAL STEP FOOTING
SCALE : 1/2" = 1'-0"



UTILITY LOCATIONS ARE DERIVED FROM ACTUAL MEASUREMENTS OR AVAILABLE RECORDS. THEY SHOULD NOT BE INTERPRETED TO BE EXACT LOCATIONS NOR SHOULD IT BE ASSUMED THAT THEY ARE THE ONLY UTILITIES IN THIS AREA.

NO.	REVISIONS	BY	DATE	DRAWN
1	INTERNAL REVIEW	EES	11-21-19	E.E.S.
2	RELEASED FOR BIDS	EES	11-25-19	DATE 11/25/19
				CHECKED K.L.M.
				DATE 11/25/19

Prein&Newhof
Engineers•Surveyors•Environmental•Laboratory

GULL LAKE DAM ASSOCIATION
ROSS TOWNSHIP, KALAMAZOO COUNTY, MICHIGAN

DAM IMPROVEMENTS
DETAILS

PROJECT NO.
2180455

SHEET NO.

10 OF 11

EGLE-WLD
1.0
Approved
Issued On:03/16/2020
Expires On:03/16/2020