

DESIGN DATA	
Clear Zone Distance: 3 FT	Design Speed: 12 MPH
Minimum Sight Dist. for Stopping: 88FT	Bridges: H10 / 90 PSF Ped. Live Load

JOB # 47

STATE	PROJECT NO.	PCN	SECTION NO.	SHEET NO.
ND	TAU-8-984(154)157	21690	1	1

CITY OF FARGO, NORTH DAKOTA

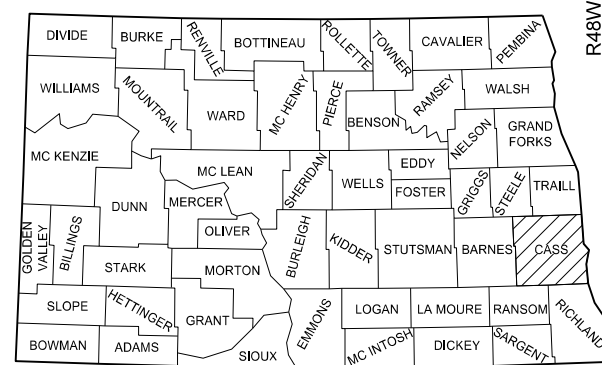
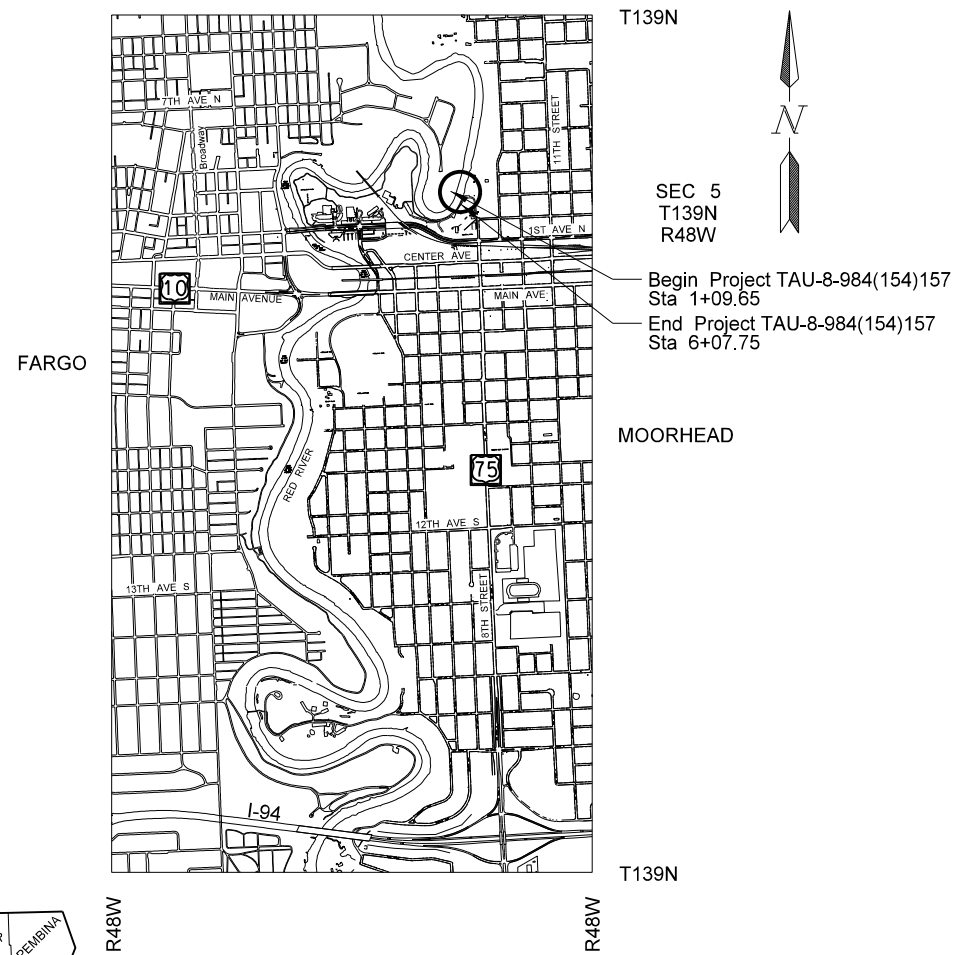
TAU-8-984(154)157 Oak Grove/Memorial Park Pedestrian Lift Bridge

Cass County, ND & Clay County, MN
 Oak Grove Park, Fargo, ND
 Memorial Park, Moorhead, MN
 Bridge Removal, Shared Use Path, Grading, Lighting
 Paving, Pedestrian Lift Bridge

GOVERNING SPECIFICATIONS:

2014 Standard Specifications adopted by the North Dakota Department of Transportation and the Supplemental Specifications effective on the date the project is advertised.

PROJECT NUMBER \ DESCRIPTION	NET MILES	GROSS MILES
TAU-8-984(154)157	0.125	0.125



STATE COUNTY MAP

DESIGNERS
Matthew J Cramer /s/
Steve McHenry /s/
Ezra Ballinger /s/

I hereby certify that the attached plans were prepared by me or under my direct supervision and that I am a duly registered professional engineer under the laws of the state of ND.

APPROVED DATE 09/08/17

Eric Laidley /s/
 SRF Consulting Group, Inc

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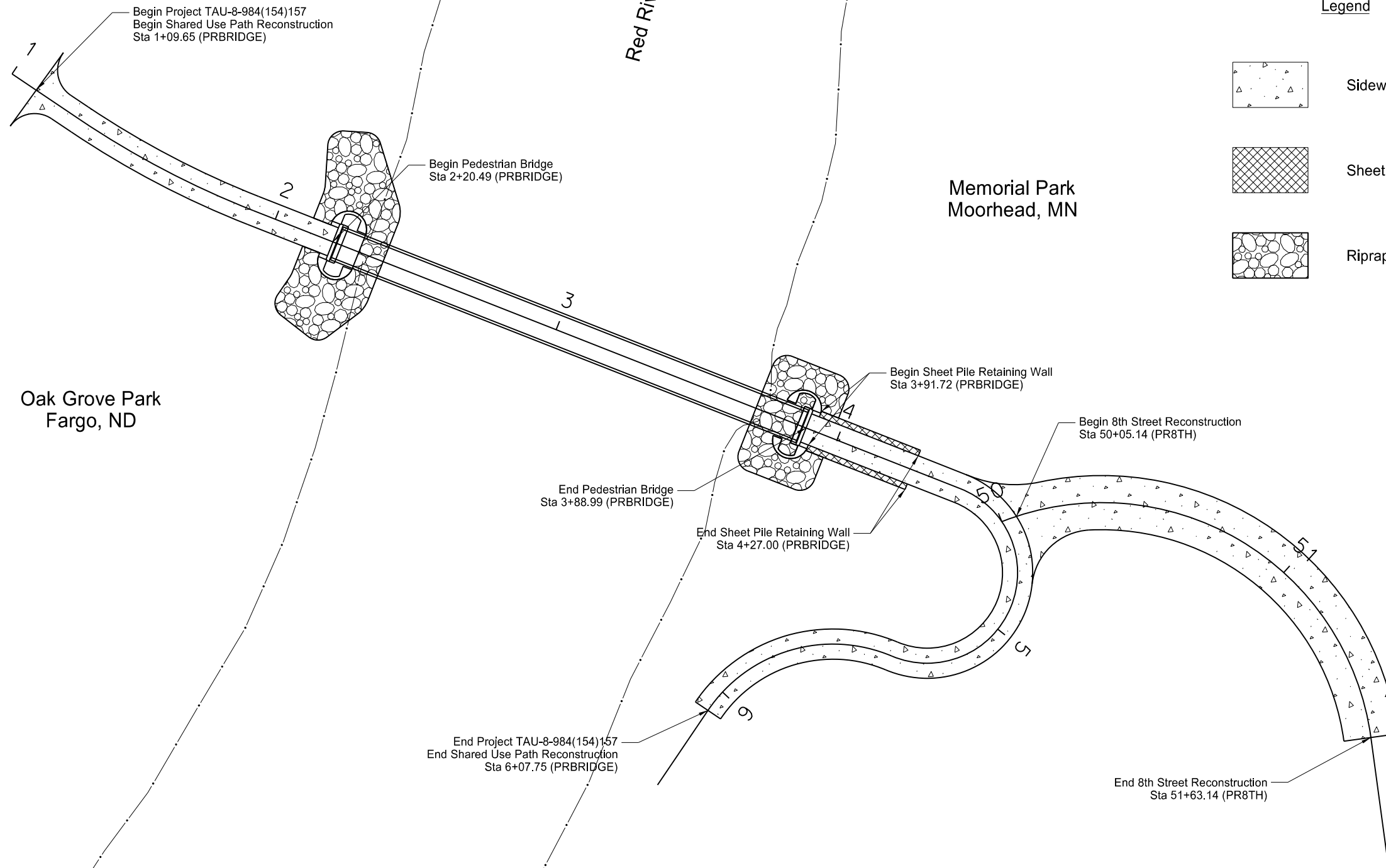
LIST OF STANDARD DRAWINGS

Number	Description
D-101-1, 2, 3	NDDOT Abbreviations
D-101-10	NDDOT Utility Company and Organization Abbreviations
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D-704-7	Breakaway Systems For Construction Zone Signs - Perforated Tube
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D-704-50	Portable Sign Support Assembly
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D-770-1	Concrete Foundations (Traffic Signals & Highway Lighting)
D-770-2	Feed Points (Roadway Lighting)
D-770-3	Pull Box Details
D-770-4	Lighting And Signal Details
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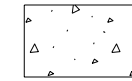
SPECIAL PROVISIONS

Number	Description
SP 003(14)	Temporary Erosion and Sediment Best Management Practices
SP 004(14)	Federal Migratory Bird Treaty Act
SP 5182(14)	Permits and Environmental Considerations
SP 553(14)	Architectural Finish and Stain
SP 554(14)	Anti-Graffiti Coating
SP 555(14)	Hoist System

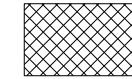
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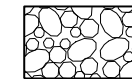
Legend



Sidewalk Concrete 4IN



Sheet Pile Retaining Wall



Riprap Grade II

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Scope of Work
Oak Grove/Memorial Park Pedestrian Lift Bridge
Fargo, ND
Moorhead, MN

NOTES

- 100-P01 NOISE RESTRICTION: Noise levels will be minimized by ensuring that construction equipment is equipped with a recommended muffler in good working order and by ensuring that construction activities with elevated noise levels are limited to between the hours of 7:00 a.m. and 7:00 p.m.
- 202-P01 REMOVAL OF BITUMINOUS SURFACING: The square yardage of "Removal of Bituminous Surfacing" includes the entire asphalt surfacing within the project work area and the entire aggregate base except the bottom two inches. The quantity of Removal of Bituminous Surfacing has been deducted from the excavation quantity. This work shall consist of removing the existing surfacing and any aggregate base encountered.
- 203-010 SHRINKAGE: 25 percent additional volume is included for shrinkage in earth embankment.
- 203-385 AVERAGE HAUL: No average haul has been computed for this project.
- 216-P01 WATER: Include costs for water required for dust control and compaction efforts in other bid items.
- 302-P01 AGGREGATE BASE COURSE CL 5: Measure aggregate base course as in-place compacted volume (CY). The measured volume will not be adjusted for compaction shrinkage.
- 622-P01 PILE DRIVING: Do not drive piling between the hours of 7:00 p.m. and 7:00 a.m.
- 624-P01 PEDESTRIAN FENCE: Furnish and install removable 3'-6" pedestrian fence to the retaining walls as described in the plans. Include all costs in "Pedestrian Fence".
- 708-P01 SEEDING CLASS III: Use Class III seed as follows:

Species	Pound Pure Live Seed/Acre
Kentucky Bluegrass	132
Creeping Red Fescue	22
Fine Leaf Perennial Ryegrass	66
	220

Apply seeding at a rate of 220 lb/acre. Use starter fertilizer with a mixture of 12-24-12 at an application rate of 220 pounds per acre. After eight weeks or when the grass has been evenly established to a height of 2", whichever occurs first, apply turf fertilizer at a rate of 110 pounds per acre, conforming to a mixture of 24-24-4. Include all costs, including fertilizing, in "Seeding Class III".

- 750-P01 SIDEWALK CONCRETE 4IN: Construct contraction joints every 5.0' on the paths. Place one-half-inch expansion joints at bituminous tie in locations. Seal all expansion joints with polymeric joint sealant. All sidewalks/paths will have a No. 3 deformed reinforcing bar placed 24" o.c. both ways. The bar will be six (6) inches shorter than the width of the slab and placed accurately at one-half the depth of the slab. Plastic chairs will be used. Saw all longitudinal and transverse joints. Saw a centerline longitudinal joint on the paths. Saw joints in a timely manner to prevent any uncontrolled random cracking. If random cracking occurs, the Contractor will be required to remove and replace all damaged panels at no cost. Include all costs in "Sidewalk Concrete 4IN".

- 750-P02 PIGMENTED IMPRINTED CONCRETE: Develop a mix design using any size coarse aggregate specified in Section 802.01 C.2, "Coarse Aggregate".

Provide a pigment from the list below or provide an approved equal. To be considered an approved equal, pigments must meet the requirements of ASTM C 979.

1. Number 366 Natural Red, produced by Soloman Colors, Inc.
[http://www.solomoncolors.com/;](http://www.solomoncolors.com/)
2. Brick Red pigment Number 160, produced by Davis Colors
[http://www.daviscolors.com/;](http://www.daviscolors.com/) or
3. Pigment R/M - Brick Red, produced by Southern Color Company
[http://www.southerncolor.com/.](http://www.southerncolor.com/)

Use the same supplier for all colored concrete placed under the contract.

Add pigment at the ratio recommended by the manufacturer directly into the mixer along with the aggregate, cement, and water. Add pigment while the mixer is operating at mixing speed. Continue mixing for 5 to 10 minutes or between 50 and 100 revolutions.

Form a pattern in the concrete using a roller to create a 4 inch x 8 inch brick pattern.

Cure concrete using curing compound that meets the requirements of ASTM C 309, Type 1.

Include all costs plus the cost of reinforcement shown in the plans in "Pigmented Imprinted Concrete."

- 772-P01 PADLOCKS: Contact Joe Moore to obtain padlocks for feed points from the city of Moorhead, MN.
Joe Moore
Electric Operations Manager
Moorhead Public Service
500 Center Avenue, PO Box 779
Moorhead, MN 56561
Office: 218-477-8083

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NOTES

930-P01 RELOCATE TRUSS BRIDGE: Cut the existing structure into three equal pieces and deliver to:

Fargo Park District
 South Shop
 4515 South University Drive
 Fargo, ND 58104

Contact Dave Leker to coordinate delivery

Dave Leker
 Deputy Director
 Fargo Park District
 701 Main Ave
 Fargo, ND 58103
 Office: 701-499-6073
dleker@fargoparks.com

Contact Sam DeMarais to coordinate placement of the trees.

Sam DeMarais
 City Forester
 Fargo Parks District
 701-212-0838
sdemarais@fargoparks.com

970-P01 TREES: Replace all impacted trees at a 2:1 ratio in their respective cities.

Moorhead:

Hire a reputable nursery to provide, stake, plant, and water trees of either Bur Oak, Triumph Elm, Hackberry, American Linden, or Kentucky Coffeetree species in Memorial and Riverfront Parks. Include all costs in item "Trees."

Contact Rod Eggiman to coordinate placement of the trees.

Rod Eggiman
 City Forester
 City of Moorhead, MN
 218-299-5430
rod.eggiman@ci.moorhead.mn.us

Fargo:

Hire a reputable nursery to provide, stake, plant, and water trees in accordance to City of Fargo Standard Specifications for Construction Section 7000 "Landscaping" of either Bur Oak, Triumph Elm, Hackberry, American Linden, or Kentucky Coffeetree species in Oak Grove Park. Include all costs in item "Trees."

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NOTES

770-P01 ELECTRICAL SERVICE: Include a hoist system with one hoist on each tower, lighting, electrical service connection, electrical feed point cabinet, pull boxes, sub-panel disconnects, and all conduit and circuitry in the item Electrical Service. Include all costs for furnishing, installing, and testing a complete and functional system. This system is paid for at the contract bid price for "Electrical Service" as shown on the plans and special provisions.

770-P08 HOIST SYSTEM: Hoist system will be as shown on the plans and special provisions. Include the Hoist system in the bid price for "Electrical Service."

770-P02 LIGHTING FIXTURES (TENON MOUNTED): Provide LED lighting fixtures furnished and installed for tenon mounting complete with integral driver operating at 120 volts and rated for outdoor use. Use one of the luminaires listed below or an approved equal. Include lighting fixtures in the bid price for "Electrical Service."

Conventional Luminaire	Catalog Number
American Electric Floodlight	ACP0LED PK4-MVOLT-WFL-30K-TM-BZSDP-NR
Eaton Galleon Floodlight	GAN-AF-04-LED-U-T4FT-BZ-8030
GE Evolve LED Floodlight	EFN-B-1-FW-7-30-1-S-DKBZ

770-P03 FEED POINT: Furnish and install feed point as shown on plans. Provide a 37.5 kVA NEMA 3R 240-480 step-up transformer pad mounted next to the feedpoint cabinet. Verify transformer size with hoist provider to meet the load of the hoist motors. Meter trim for lighting furnished by the contractor per the requirements of the local utility company. Include the Feed Point in the bid price for "Electrical Service."

770-P04 WIRE AND CABLE: Provide conduit utilizing single RHW conductors unless otherwise shown in the plans. Include Wire and Cable in the bid price for "Electrical Service."

770-P05 COMMUNICATONS CABLE: Communications cable will be rated for direct burial applications. The cable will be two 18 AWG Pairs bare copper conductors, polymer gel water-blocked. Install cable in conduit as shown in the plans. Include Communications Cable in the bid price for "Electrical Service."

770-P06 RIGID CONDUIT: UL listed PVC above grade and where shown on plans. UL listed HDPE will be allowed as an alternative in underground runs and where shown on plans. Conduit under the river will be directionally bored. All NMC (PVC or HDPE) conduit will be schedule 40 unless otherwise identified. Include Conduit in the bid price for "Electrical Service."

770-P07 PULL BOXES: Pull boxes will be polymer concrete, see standard drawing D-770-3. Pull boxes in landscaped areas will have the top of the box 0 to 1 inches above final grade and sloped to match the slope of the final grade on all 4 quadrants. Set pull boxes in concrete areas with the top of the box flush with the final grade at all 4 quadrants. Include Pull Boxes in the bid price for "Electrical Service."

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ENVIRONMENTAL NOTES

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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ENVIRONMENTAL NOTES (EN): The City of Fargo, FHWA, and the North Dakota Department of Transportation has made environmental commitments to secure approval of this project. The following environmental notes are requirements to comply with these commitments:

EN-1 SPAWNING RESTRICTION: Do not work within the Red River Channel from April 15 to July 1.

EN-2 AQUATIC NUISANCE SPECIES (ANS): Notify the North Dakota Game and Fish Department (NDGFD) at least 72 hours prior to any vehicles, vessels, pumps and equipment entering the water, to allow the NDGFD sufficient time to inspect any and all such equipment for ANS. Contact the NDGFD ANS Coordinator, Jessica Howell, by phone (701)368-8368 or e-mail jmhowell@nd.gov for equipment inspections, or any additional information regarding ANS prevention protocol. Supply the inspection report to the engineer prior to work taking place in the water.

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Spec	Code	Description	Unit	Quantity
103	0100	Contract Bond	L SUM	1
201	0370	Removal of Trees 10IN	EA	2
201	0380	Removal of Trees 18IN	EA	1
201	0390	Removal of Trees 30IN	EA	7
202	0105	Removal of Structure	L SUM	1
202	0132	Removal of Bituminous Surfacing	SY	1307
202	0310	Removal of Chain Link Fence	LF	872
203	0101	Common Excavation-Type A	CY	122
203	0109	Topsoil	CY	163
203	0119	Topsoil-Imported	CY	99
203	0140	Borrow-Excavation	CY	479
210	0101	Class I Excavation	L SUM	1
210	0201	Foundation Preparation	EA	1
251	0300	Seeding Class III	ACRE	0.32
251	2000	Temporary Cover Crop	ACRE	0.32
253	0101	Straw Mulch	ACRE	0.32
253	0201	Hydraulic Mulch	ACRE	0.32
256	0200	Riprap Grade II	CY	191
261	0112	Fiber Rolls 12IN	LF	684
261	0113	Remove Fiber Rolls 12IN	LF	684
262	0100	Flotation Silt Curtain	LF	266
262	0101	Remove Flotation Silt Curtain	LF	266
302	0121	Aggregate Base Course CL 5	CY	84
602	1130	Class AE-3 Concrete	CY	180
612	0115	Reinforcing Steel-Grade 60	LBS	7600
612	0116	Reinforcing Steel-Grade 60-Epoxy Coated	LBS	19720
616	0360	Structural Steel	LBS	55320
622	0020	Steel Piling HP 10 X 42	LF	2520
622	6760	Steel Sheet Piling	SF	1690
624	0124	Pedestrian Fence	LF	72
702	0100	Mobilization	L SUM	1
704	1000	Traffic Control Signs	UNIT	260
704	1052	Type III Barricade	EA	8
709	0600	Geotextile Fabric-Type RR	SY	375
750	0030	Pigmented Imprinted Concrete	SY	18
750	0115	Sidewalk Concrete 4IN	SY	698
752	0600	Fence Chain Link	LF	872
752	2100	Vehicle Gate	EA	2
752	2120	Remove Vehicle Gate	EA	2
930	3000	Bridge Bench Marks	SET	1
930	9677	Relocate Truss Bridge	L SUM	1
930	9750	Pedestrian Bridge - Pre - Fab	EA	1
930	9930	Anti-Graffiti Coating	SF	1520
970	1000	Trees	EA	20
990	0730	Electrical Service	L SUM	1

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Estimate of Quantities
Oak Grove/Memorial Park Pedestrian Lift Bridge
Fargo, ND
Moorhead, MN

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Earthwork Summary

Location	Common Excavation		Embankment		Balance
	Type - A	Roadway	Adjusted	Borrow Excavation	Pay Item
	Pay Item				
	CY	CY	CY	CY	CY
	A	B	C = B * 1.25	D = C - A	
Shared Use Path (Fargo)	6	272	340	334	
Shared Use Path (Moorhead)	38	37	46	8	
8th Street	78	172	215	137	
Totals	122	481	601	479	

Topsoil Summary

Location	Topsoil		Topsoil Embankment	Balance
	Pay Item	CY		
	CY	E	F	G = E - F
	E	F	G = E - F	
Shared Use Path (Fargo)	40	73	-33	
Shared Use Path (Moorhead)	40	25	15	
8th Street	83	80	3	
Totals	163	178	-15	

Pay Items

Common Excavation Type-A	122
Borrow Excavation	
Adjusted Embankment	601
- Common Excavation	122
	479
Topsoil	163
Topsoil - Imported	15

Shared Use Path (Fargo)

Station	End Area (SF)				Volume (CY)				Mass Ordinate	
	Topsoil		Embankment		Topsoil		Embankment		Topsoil	Embankment
	Excavation	Fill	Excavation	Fill	Excavation	Fill	Excavation	Fill*		
1+09.65	0.0	2.7	10.8	0.0						
1+19.14	0.0	2.2	5.0	0.0	0	1	3	0	-1	3
1+25.00	0.0	2.3	5.2	0.0	0	0	1	0	-1	4
1+50.00	11.7	17.1	0.0	19.3	5	9	2	12	-5	-6
1+75.00	12.4	17.7	0.0	48.7	11	16	0	39	-10	-45
2+00.00	9.0	23.6	0.1	106.6	10	19	0	90	-19	-135
2+17.76	14.5	27.6	0.0	171.1	8	17	0	114	-28	-249
2+39.17	0.0	0.0	0.0	0.0	6	11	0	85	-33	-334
Totals					40	73	6	340		

8th Street

Station	End Area (SF)				Volume (CY)				Mass Ordinate	
	Topsoil		Embankment		Topsoil		Embankment		Topsoil	Embankment
	Excavation	Fill	Excavation	Fill	Excavation	Fill	Excavation	Fill*		
50+06.50	9.7	3.7	22.6	0.1						
50+25.00	4.5	5.5	27.8	0.1	5	3	17	0	2	17
50+50.00	6.2	6.9	27.1	0.5	5	6	25	0	1	42
50+75.00	13.3	12.2	12.4	18.5	9	9	18	12	1	48
51+00.00	19.6	17.6	7.1	39.8	15	14	9	34	2	23
51+25.00	24.2	23.3	4.8	75.6	20	19	6	67	3	-38
51+50.00	18.8	19.6	0.6	50.5	20	20	3	73	3	-108
51+63.14	16.6	17.5	0.2	43.7	9	9	0	29	3	-137
Totals					83	80	78	215		

Shared Use Path (Moorhead)

Station	End Area (SF)				Volume (CY)				Mass Ordinate	
	Topsoil		Embankment		Topsoil		Embankment		Topsoil	Embankment
	Excavation	Fill	Excavation	Fill	Excavation	Fill	Excavation	Fill*		
3+91.72	0.0	0.0	0.0	38.6						
4+00.00	0.0	0.0	0.0	31.4	0	0	0	14	0	-14
4+25.00	0.0	0.0	0.0	6.9	0	0	0	23	0	-37
4+27.01	0.0	7.0	0.2	10.7	0	0	0	2	0	-39
4+50.00	0.0	4.7	13.5	0.0	0	5	6	7	-5	-40
4+75.00	6.4	1.1	4.6	0.0	3	3	8	0	-5	-32
5+00.00	9.1	3.9	1.7	0.6	7	2	3	0	0	-29
5+25.00	10.1	4.9	8.6	0.0	9	4	5	0	5	-24
5+50.00	8.1	2.9	3.3	0.0	8	4	6	0	9	-18
5+75.00	7.0	4.0	6.4	0.0	7	3	4	0	13	-14
6+00.00	3.1	2.8	4.5	0.0	5	3	5	0	15	-9
6+07.74	4.7	4.3	4.0	0.4	1	1	1	0	15	-8
Totals					40	25	38	46		

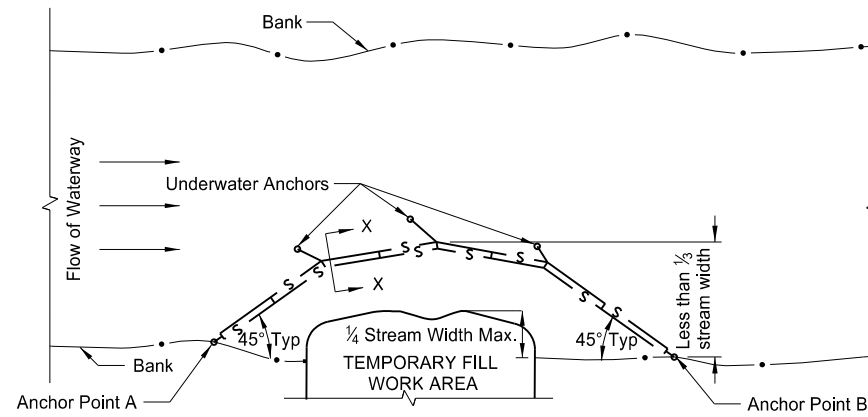
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Earthwork & Topsoil Summary
Oak Grove/Memorial Park Pedestrian Lift Bridge
Fargo, ND
Moorhead, MN

* 25% additional volume is included for shrinkage in earth embankment

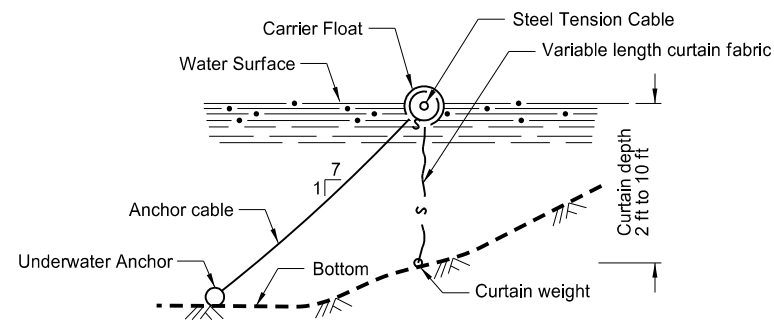
TYPICAL INSTALLATIONS
May vary with conditions

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PLAN VIEW
FLOTATION SILT CURTAIN - TYPE WORK AREA

DESIGN GUIDELINES:
When temporary work encroaches less than $\frac{1}{4}$ of the width of stream.



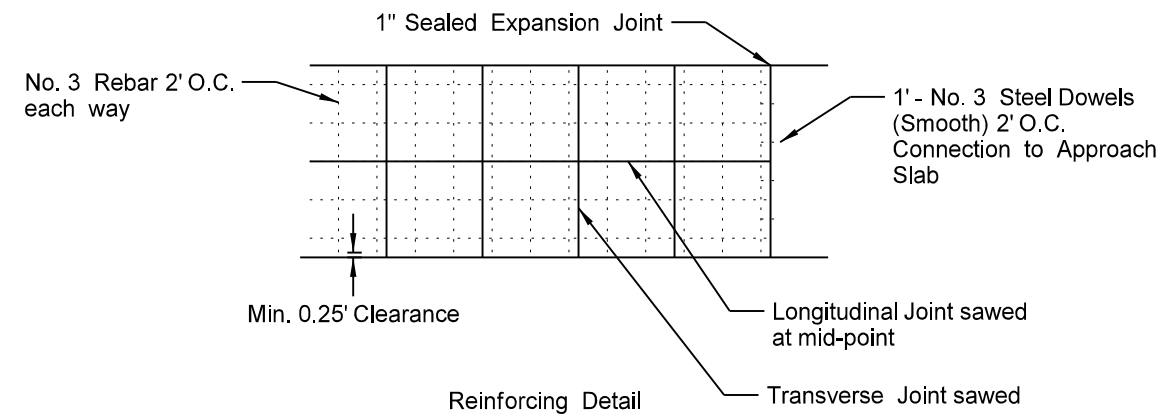
SECTION X-X
FLOTATION SILT CURTAINS

Note:
Maximum water velocity for moving water = 5 ft/sec

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Details
Oak Grove/Memorial Park Pedestrian Lift Bridge
Fargo, ND
Moorhead, MN
Temporary Erosion Control - Flotation Silt Curtain

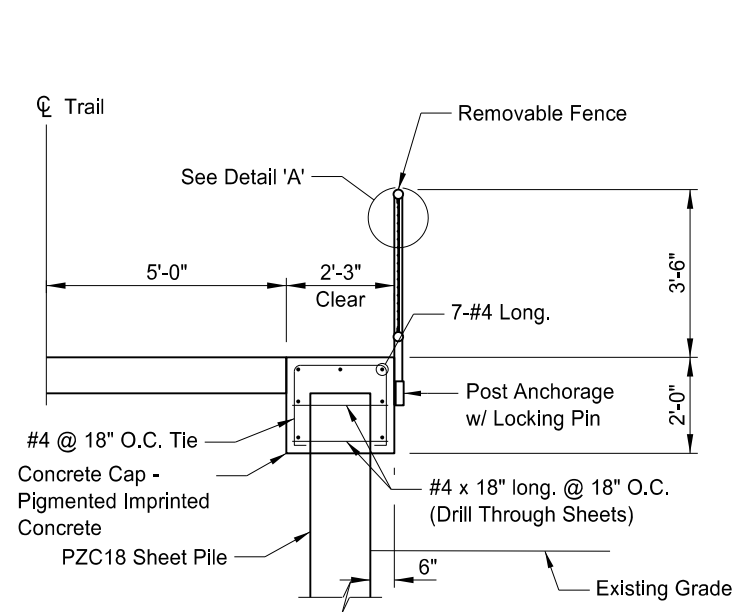
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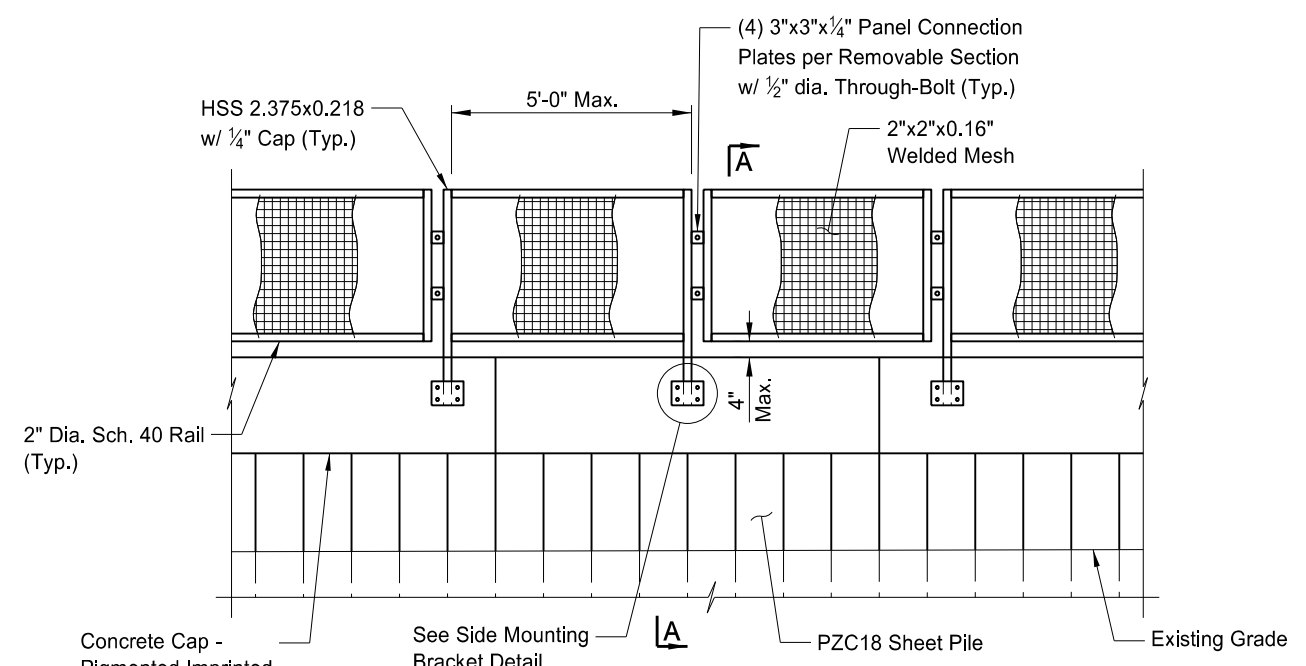
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Details
 Oak Grove/Memorial Park Pedestrian Lift Bridge
 Fargo, ND
 Moorhead, MN
 Sidewalk Pavement Joint & Reinforcement Details

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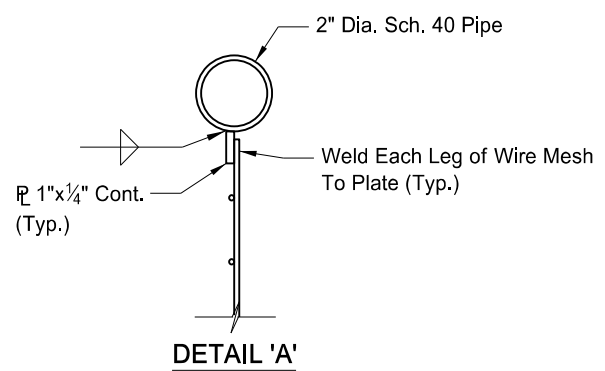


SECTION A-A

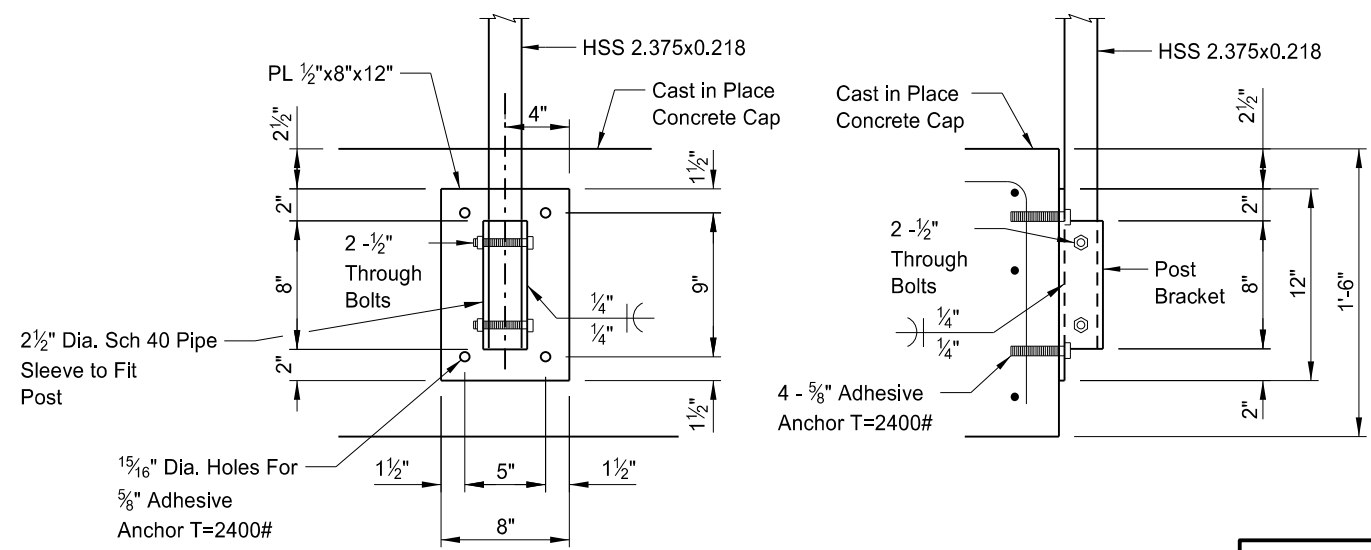


FENCE ELEVATION

- NOTES:**
1. All Reinforcing Steel Shall Conform to ASTM A615 Grade 60 and All Bars Shall be Epoxy Coated.
 2. All Railing Materials Including Mounting Bracket and Hardware, Shall be Hot Dip Galvanized After Fabrication.



DETAIL 'A'

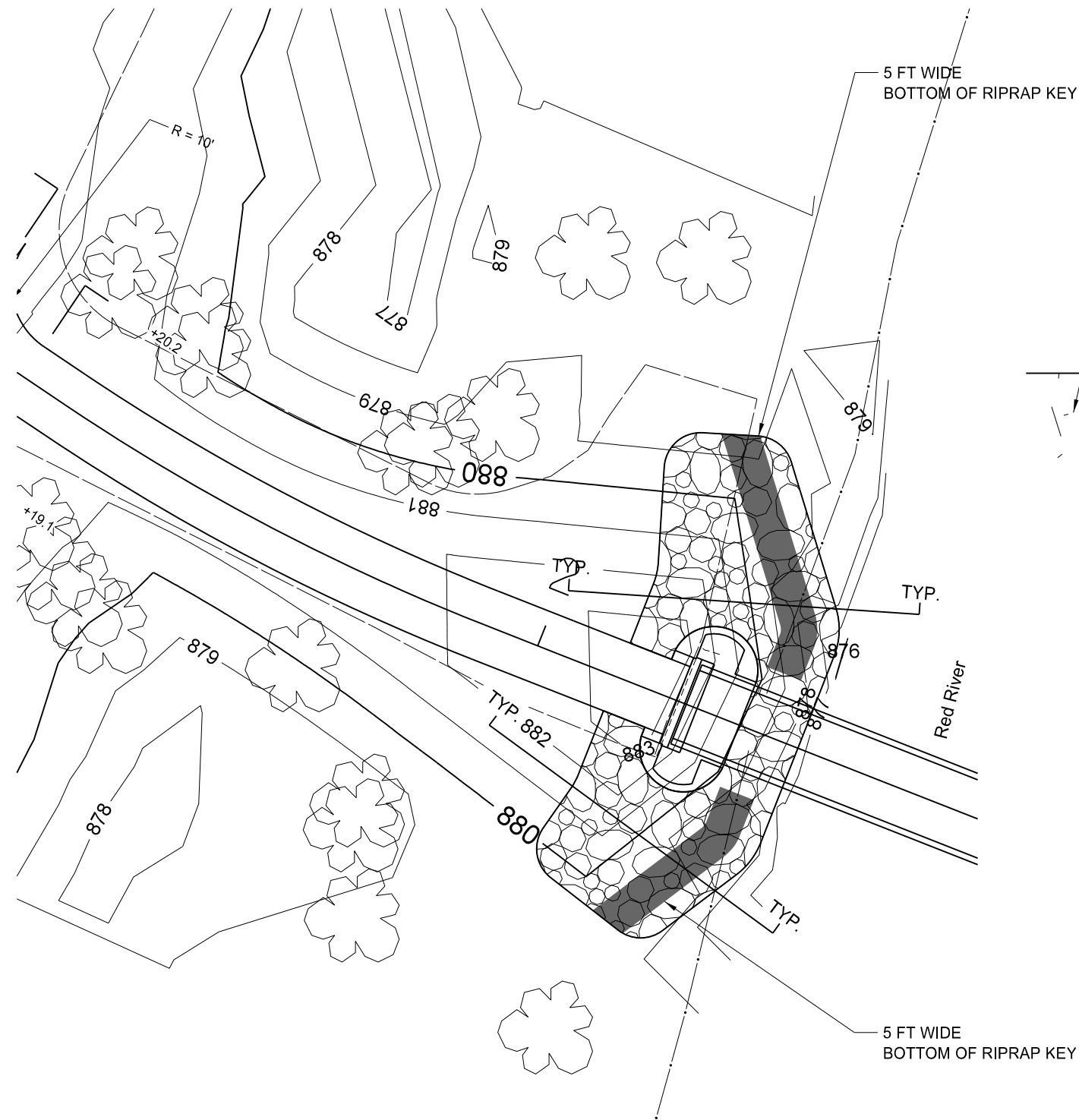


SIDE MOUNTING BRACKET FOR POST

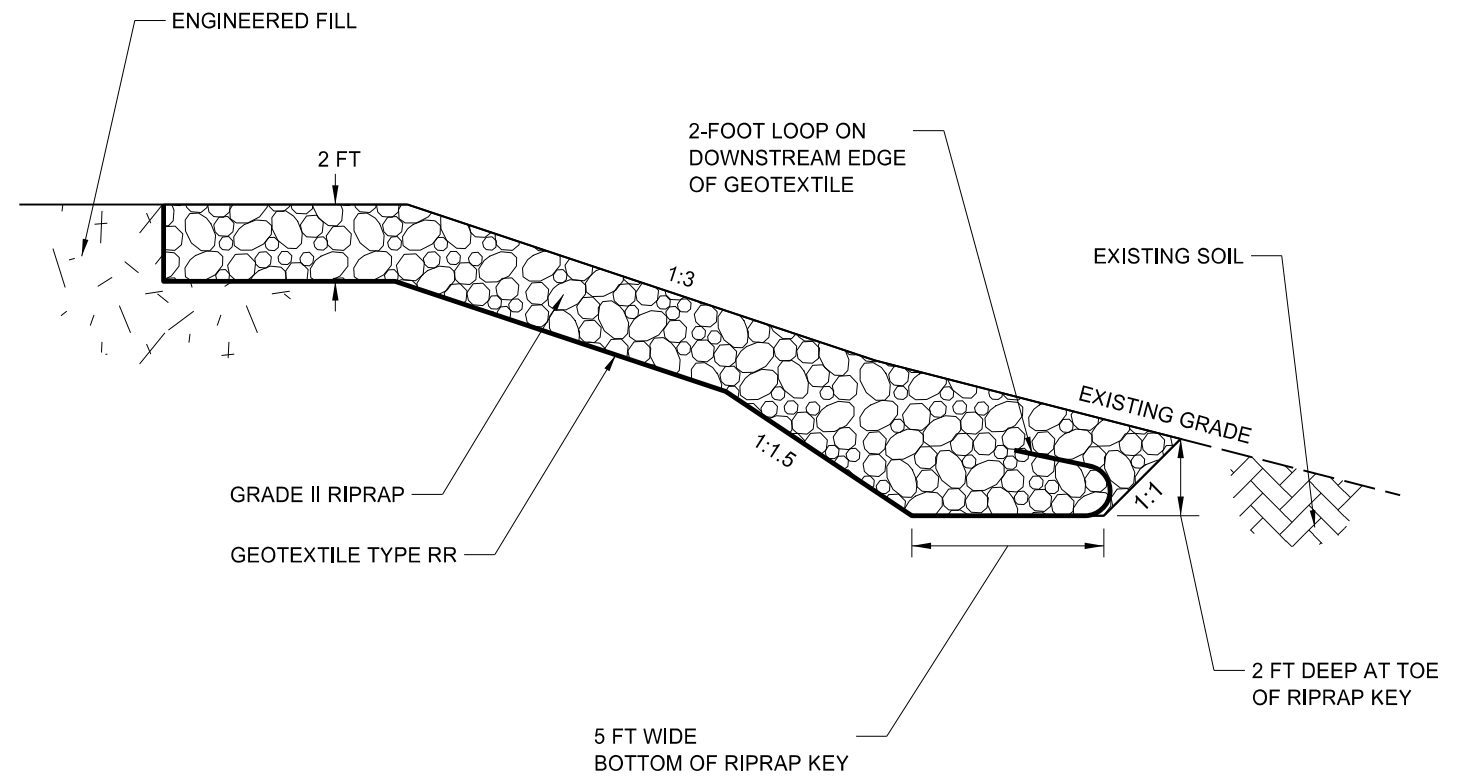
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Details
Oak Grove/Memorial park Pedestrian Lift Bridge
Fargo, ND
Moorhead, MN
Pedestrian Fence

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-8-984(154)157	20	4



PLAN VIEW
20 SCALE

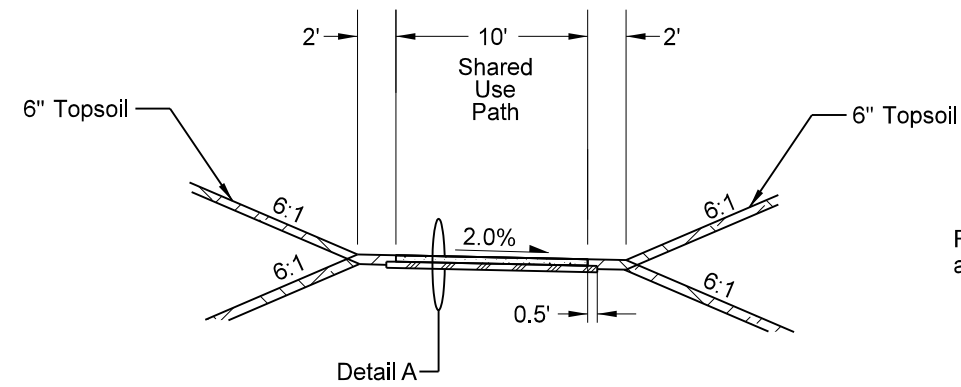


TYPICAL SECTION
NOT TO SCALE

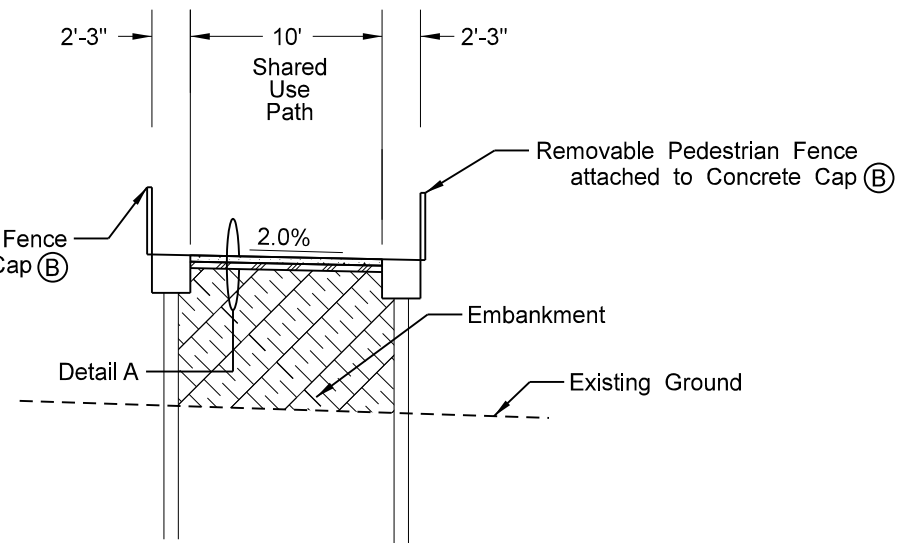
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Details
Oak Grove/Memorial Park Pedestrian Lift Bridge
Fargo, ND
Moorhead, MN
Riprap Key Detail

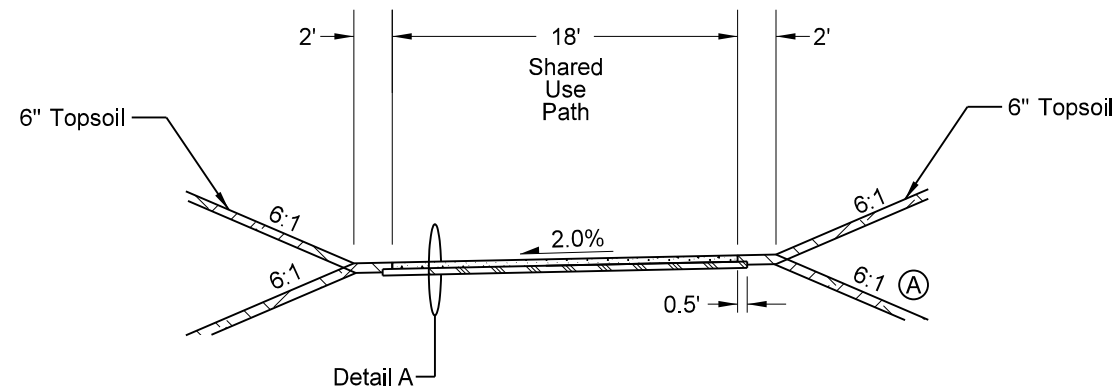
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-8-984(154)157	30	1



Shared Use Path
 Sta 1+09.65 to Sta 2+20.49 (PRBRIDGE)
 Sta 4+27.00 to Sta 6+07.75 (PRBRIDGE)



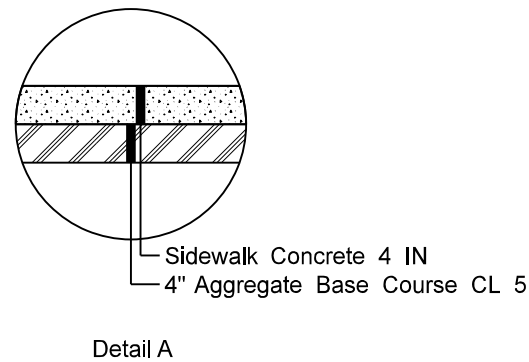
Shared Use Path with Retaining Walls
 Sta 3+91.72 to Sta 4+27.00 (PRBRIDGE)



8th Street
 Sta 50+05.14 to Sta 51+63.14 (PR8TH)

Notes: (A) Transition from 6:1 to 4:1 from Sta 51+33 to Sta 51+63

(B) See Pedestrian Fence detail in Section 20 for more information.

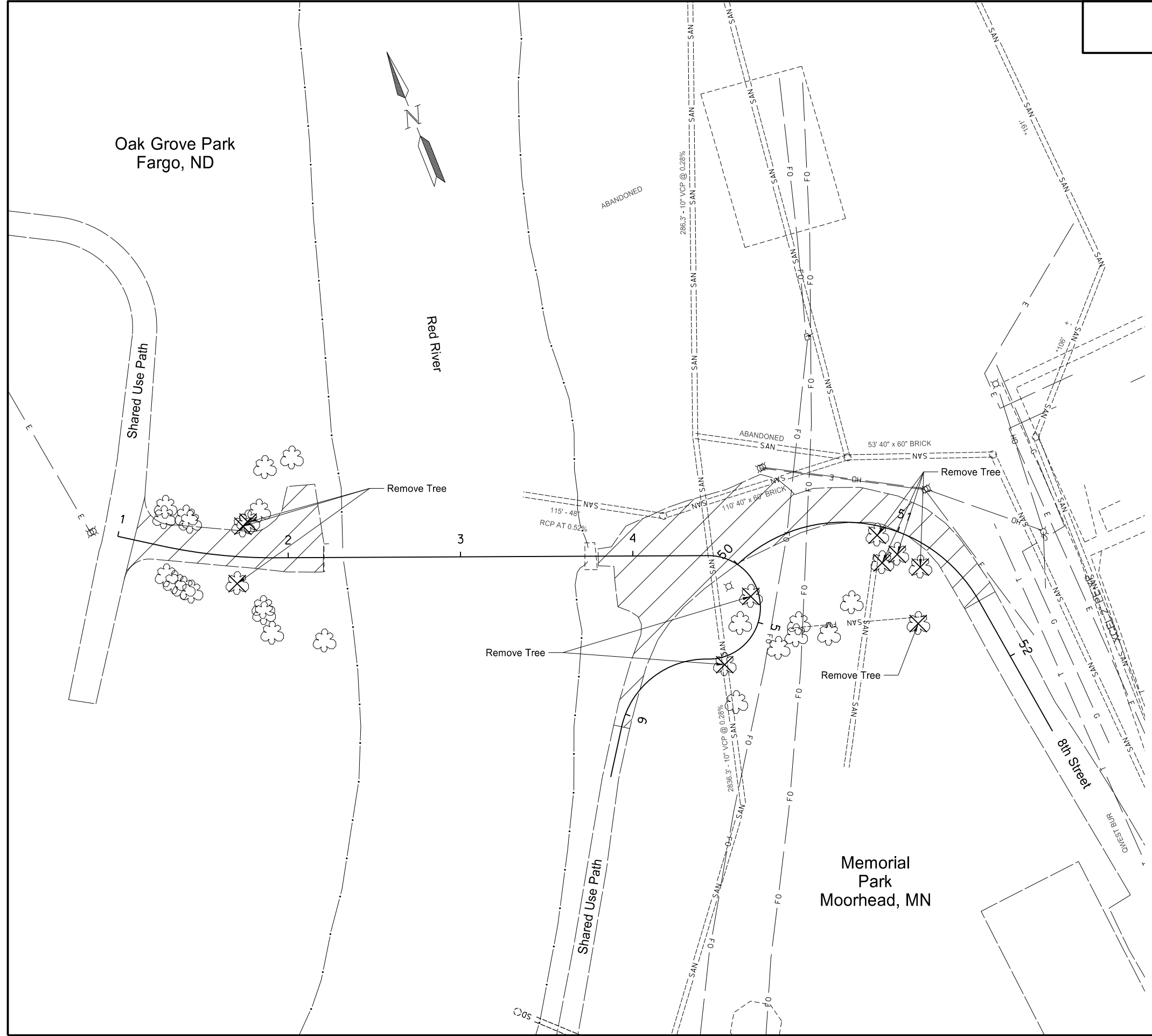


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Proposed Typical Sections
 Oak Grove/Memorial Park Pedestrian Lift Bridge
 Fargo, ND
 Moorhead, MN

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-8-984(154)157	40	1

201	0370	Removal of Trees 10IN		
		Sta 1+71 16' RT (PRBRIDGE)	1	EA
		Sta 1+73 18' LT (PRBRIDGE)	1	EA
		Total =	2	EA
201	0380	Removal of Trees 18IN		
		Sta 1+76 20' LT (PRBRIDGE)	1	EA
		Total =	1	EA
201	0390	Removal of Trees 30IN		
		Sta 4+84 5' RT (PRBRIDGE)	1	EA
		Sta 5+30 4' LT (PRBRIDGE)	1	EA
		Sta 50+89 5' RT (PR8TH)	1	EA
		Sta 50+97 20' RT (PR8TH)	1	EA
		Sta 51+05 12' RT (PR8TH)	1	EA
		Sta 51+23 12' RT (PR8TH)	1	EA
		Sta 51+53 37' RT (PR8TH)	1	EA
		Total =	7	EA
202	0132	Removal of Bituminous Surfacing		
		Sta 1+09 to Sta 2+21 (PRBRIDGE)	345	SY
		Sta 3+80 (PRBRIDGE) to Sta 51+63 (PR8TH)	962	SY
		Total =	1307	SY



LEGEND

✕ Remove Tree

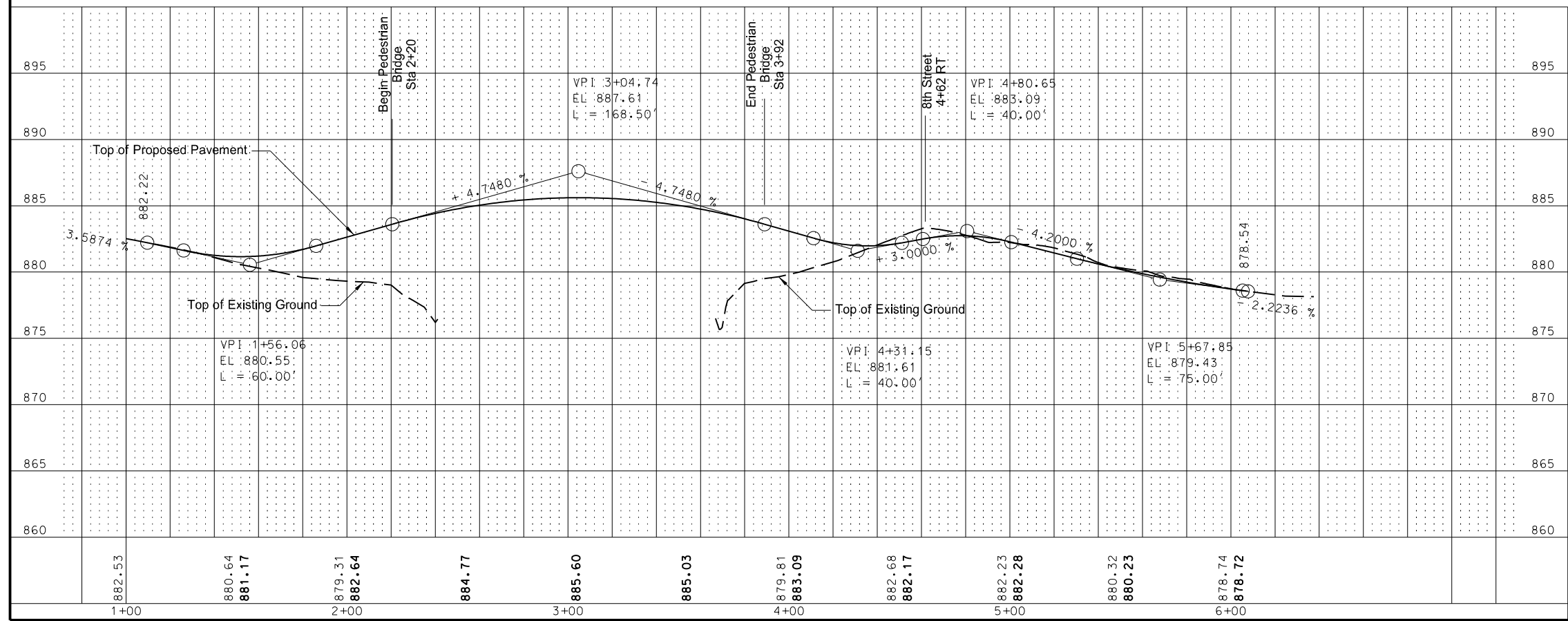
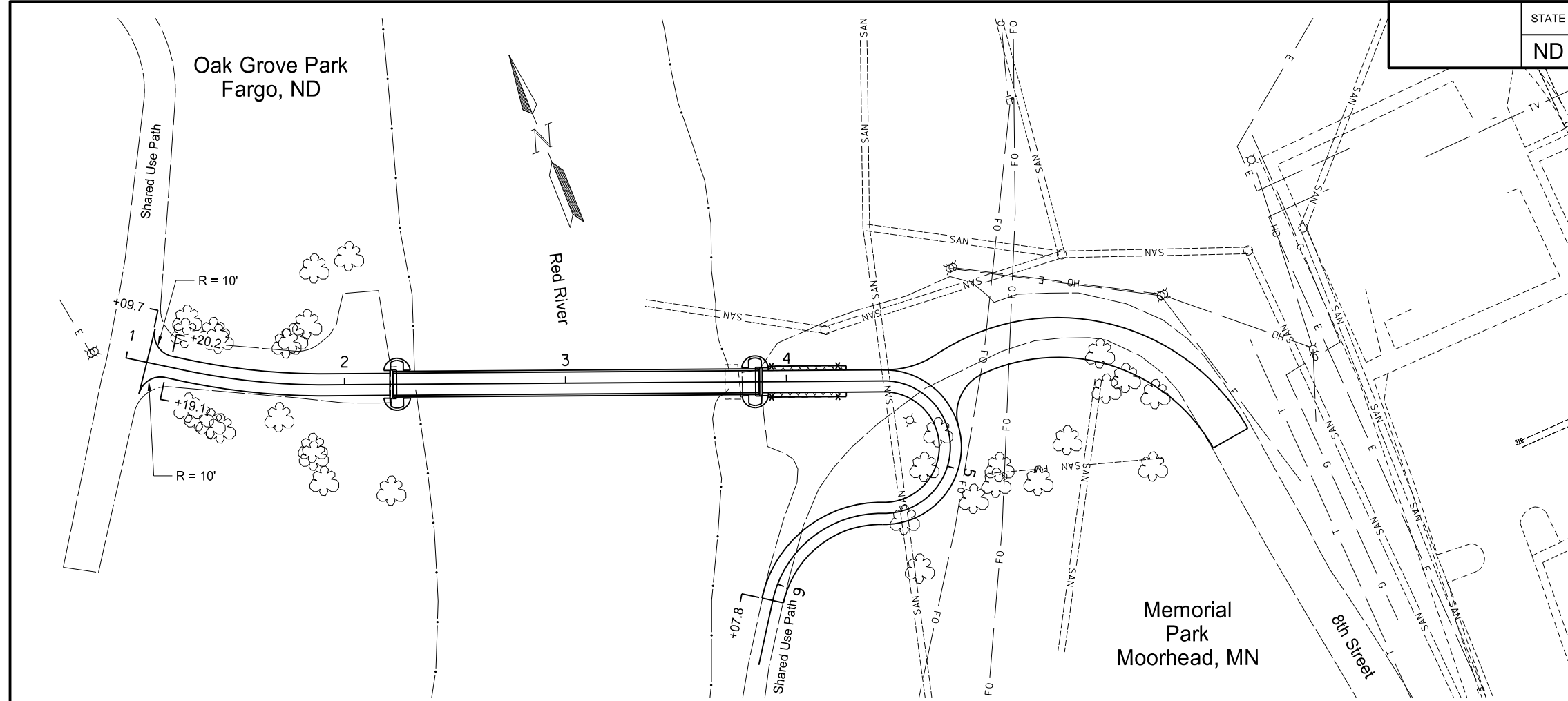
▨ Removal of Bituminous Surfacing

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Removals
Oak Grove/Memorial Park Pedestrian Lift Bridge
Fargo, ND
Moorhead, MN

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-8-984(154)157	60	1

203	0119 Topsoil-Imported		
	Sta 1+09 to Sta 2+20	7	CY
	Sta 3+89 to Sta 6+02	53	CY
	Total =	60	CY
302	0101 Salvaged Base Course		
	Sta 1+09 to Sta 2+21	16	CY
	Sta 3+89 to Sta 6+08	29	CY
	Total =	45	CY
750	0115 Sidewalk Concrete 4IN		
	Sta 1+09 to Sta 2+21	128	SY
	Sta 3+89 to Sta 6+08	243	SY
	Total =	371	SY

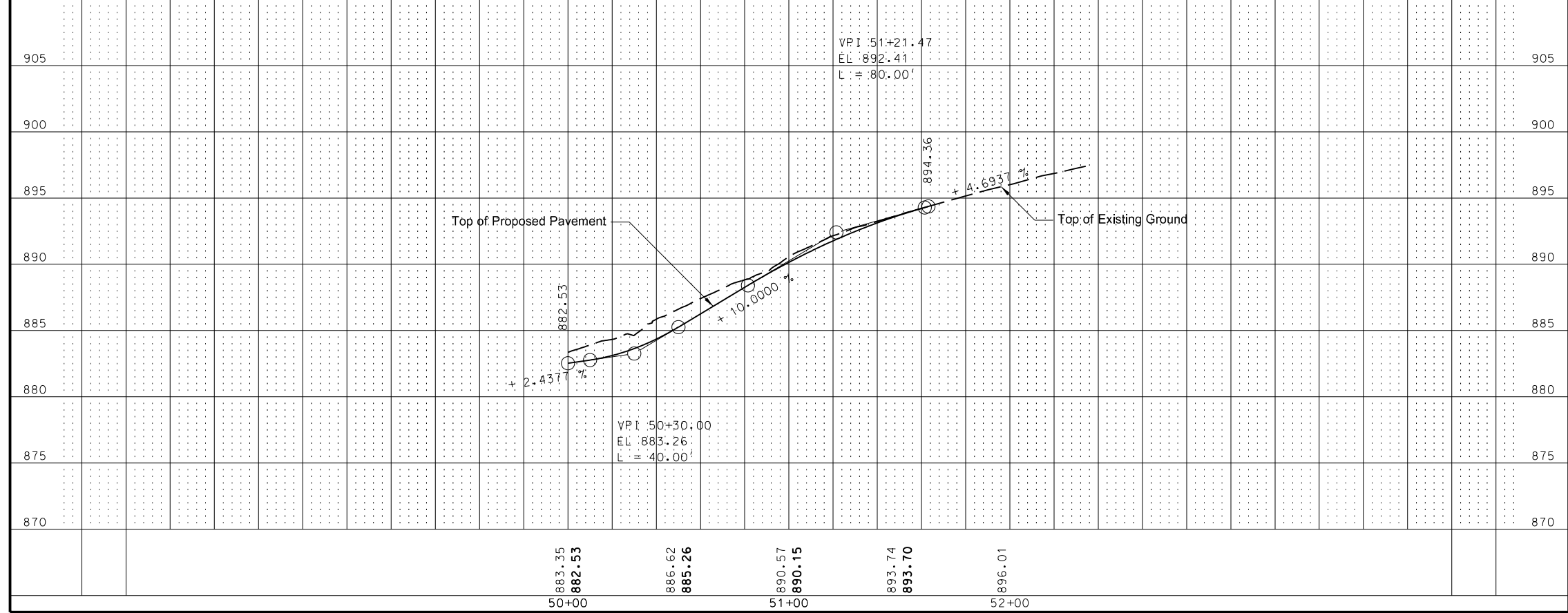
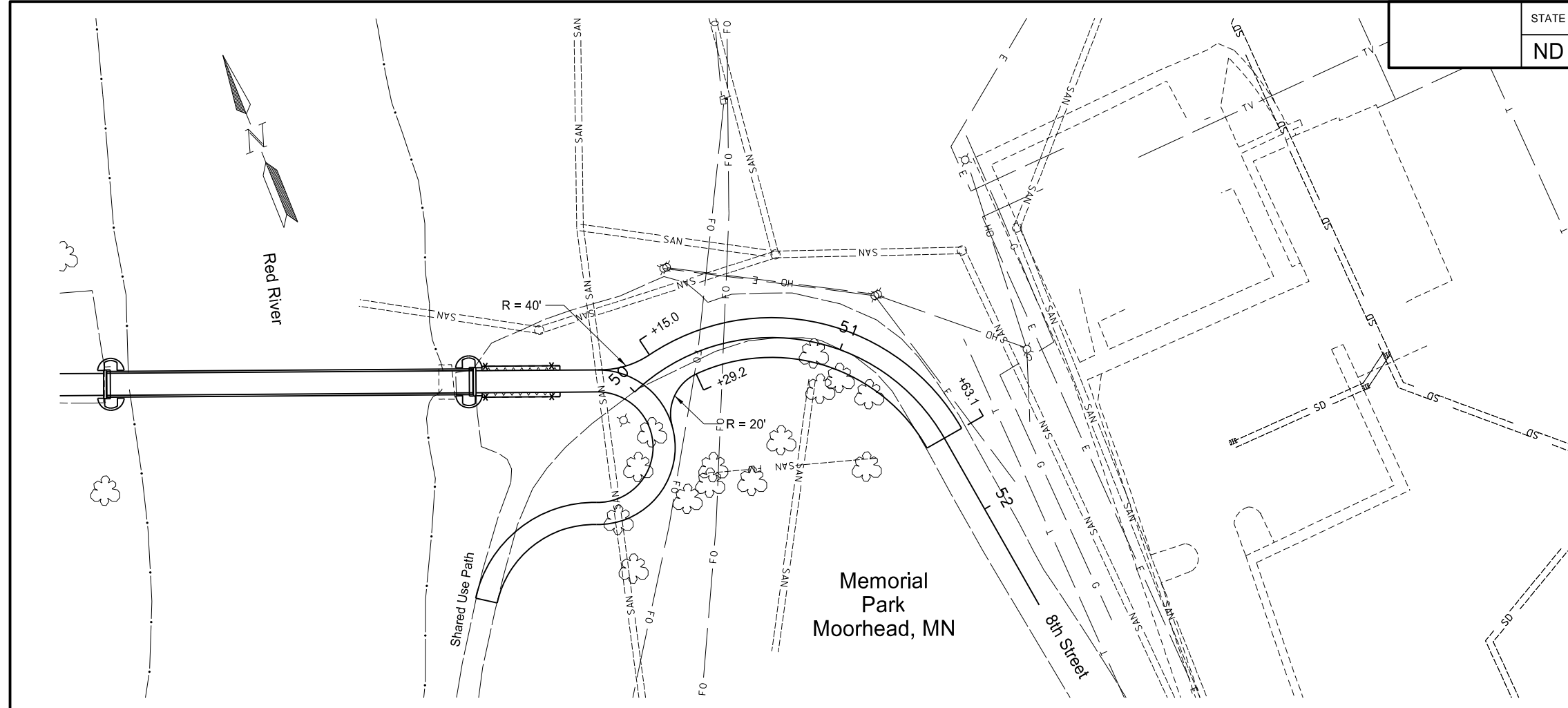


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Plan & Profile
Oak Grove/Memorial Park Pedestrian Lift Bridge
Fargo, ND
Moorhead, MN
Shared Use Path

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-8-984(154)157	60	2

203	0119	Topsoil-Imported		
		Sta 50+02 to Sta 51+63	24	CY
			Total =	24 CY
302	0101	Salvaged Base Course		
		Sta 50+05 to Sta 51+63	39	CY
			Total =	39 CY
750	0115	Sidewalk Concrete 4IN		
		Sta 50+05 to Sta 51+63	327	SY
			Total =	327 SY

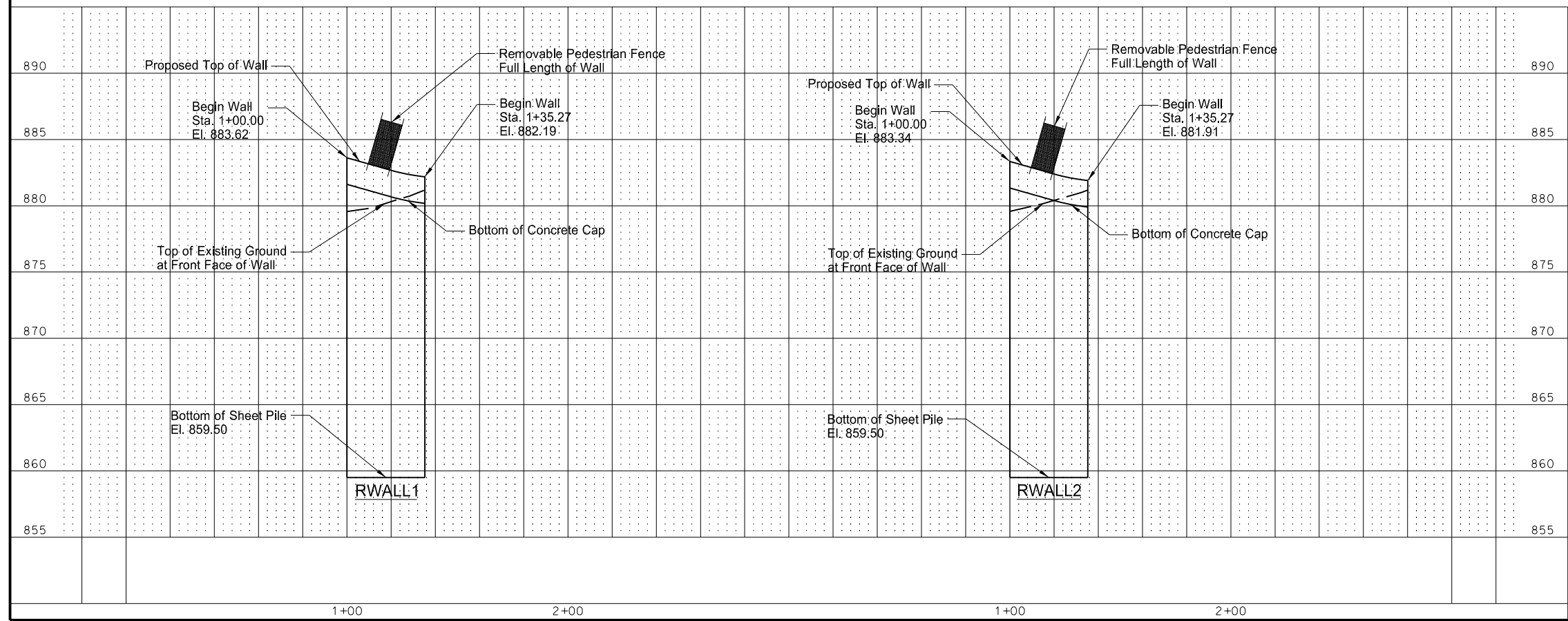
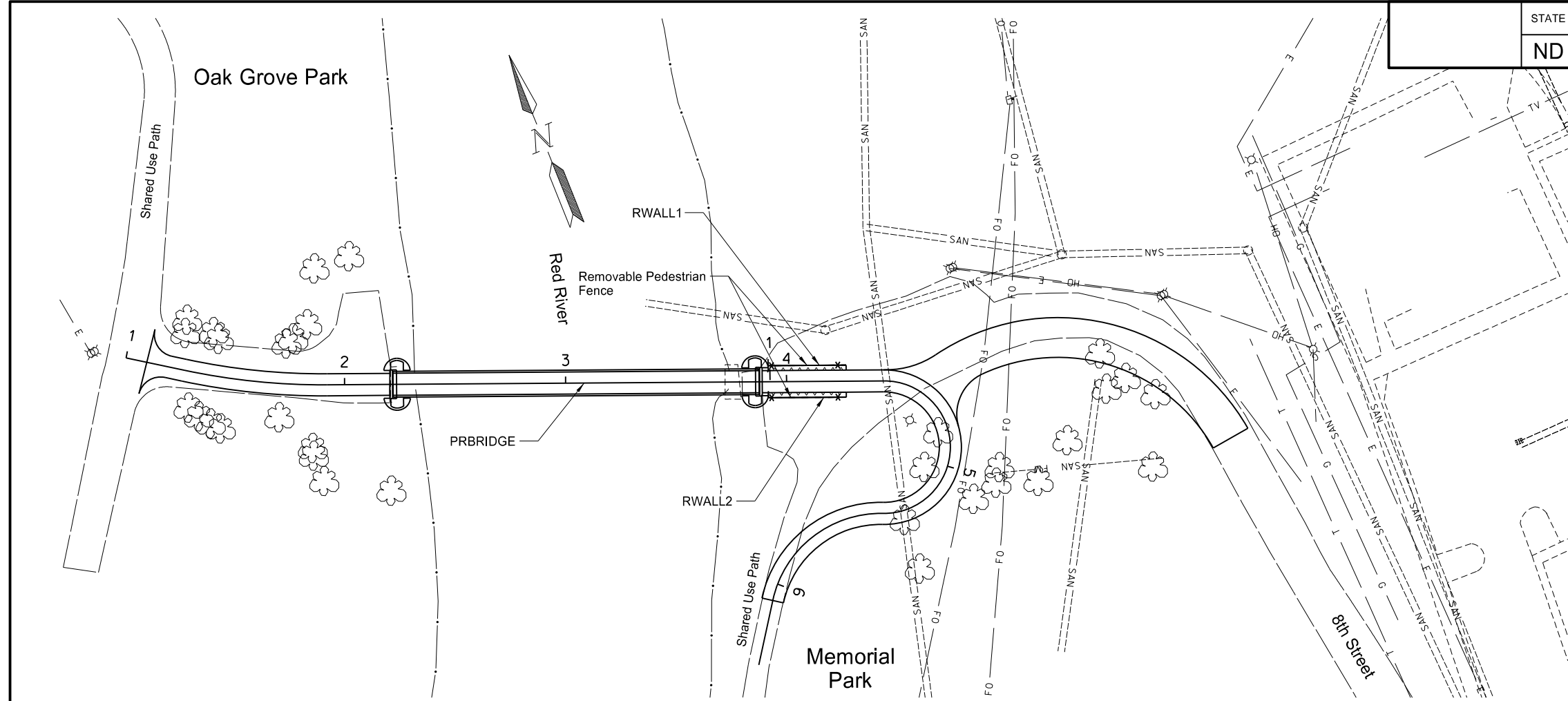


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Plan & Profile
 Oak Grove/Memorial Park Pedestrian Lift Bridge
 Fargo, ND
 Moorhead, MN
 8th Street

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-8-984(154)157	60	3

624	0124	Pedestrian Fence		
		Sta 3+92 to Sta 4+27 LT (PRBRIDGE)	36	LF
		Sta 3+92 to Sta 4+27 RT (PRBRIDGE)	36	LF
		Total =	72	LF
750	0030	Pigmented Imprinted Concrete		
		Sta 3+92 to Sta 4+27 LT (PRBRIDGE)	9	SY
		Sta 3+92 to Sta 4+27 RT (PRBRIDGE)	9	SY
		Total =	18	SY



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Plan & Profile
 Oak Grove/Memorial Park Pedestrian Lift Bridge
 Fargo, ND
 Moorhead, MN
 Sheet Pile Retaining Walls

Wetland Impact Table														
Wetland Number	Location	Type	Wetland Feature	USACE Jurisdictional Wetlands ¹	Wetland Impacts Acre(s)		USFWS Easement Impacts Acre(s)		Wetland Mitigation					
					Temp.	Perm.	Temp.	Perm.	Mitigation Required			11990 Bank		
									EO 11990	USACE	USFWS	Location	Acre(s)	
1	Sec.5, T139N, R48W	Floodplain	Natural	Yes	0.0	0.01	-	-	Y	N	N	Vollrath 16/17 11990	0.01	
2	Sec. 5, T139N, R48W	Floodplain	Natural	Yes	0.0	0.01	-	-	Y	N	N	Vollrath 16/17 11990	0.01	
3	Sec.5, T139N, R48W	Fringe	Natural	Yes	0.0	0.01	-	-	Y	N	N	Vollrath 16/17 11990	0.01	
Totals					0.0	0.03	0.0	0.0						0.03

Other Waters Impact Table																
Other Waters										Other Water Mitigation						
Number	Location	Type	Size		Feature	USACE Jurisdictional ¹	Impacts to Other Waters				Mitigation Required			Mitigation Location; ratio	Method	
			Acre(s)	Linear Feet			Acre(s)		Linear Feet		EO 11990	USACE	USFWS			
							Temp	Perm	Temp	Perm						
OW 6	Sec.5, T139N, R48W	Riverine	0.93	300	Natural	Yes	0.00	0.01	0.00	40.00	N	N	N	NA	NA	
Totals			0.93	300			0.00	0.01	0.00	40.00						

¹ A wetland Jurisdictional Determination was issued by the USACE on 1/20/2017; NWO-2009-0300-BIS.

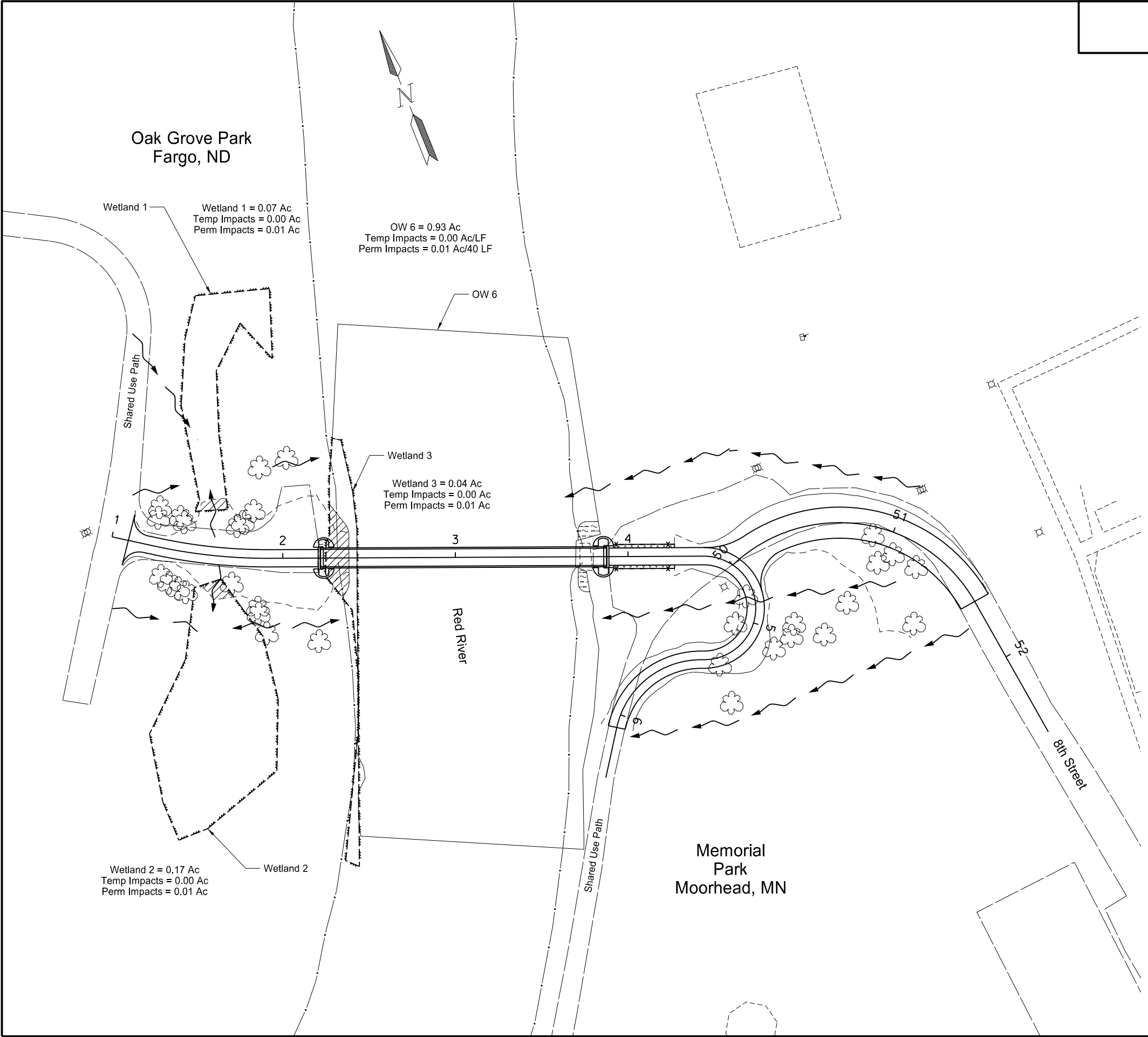
Impact Summary Table			
Permanent Impact Summary		Temporary Impacts and additional information	
Wetland Type	Total (Acres)	Wetland Type	Total (Acres/Lf)
Natural/JD	0.03	Temporary JD	0.00
Natural/Non-JD	0.00	Non-JD Temporary	0.00
Artificial/JD	0.00	Permanent JD > 0.10	0.00
Artificial /Non-JD	0.00	Permanent OW	0.01/40
Total	0.03	Temporary OW	0/0

Mitigation Summary Table			
	Location	Onsite Acre(s)	11990 Bank Acre(s)
EO 11990 Only	Vollrath16/17	0.00	0.03
	Total	Total	0.03

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Wetlands Mitigation and Environmental
Oak Grove/Memorial Park Pedestrian Lift Bridge
Fargo, ND
Moorhead, MN

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-8-984(154)157	75	2



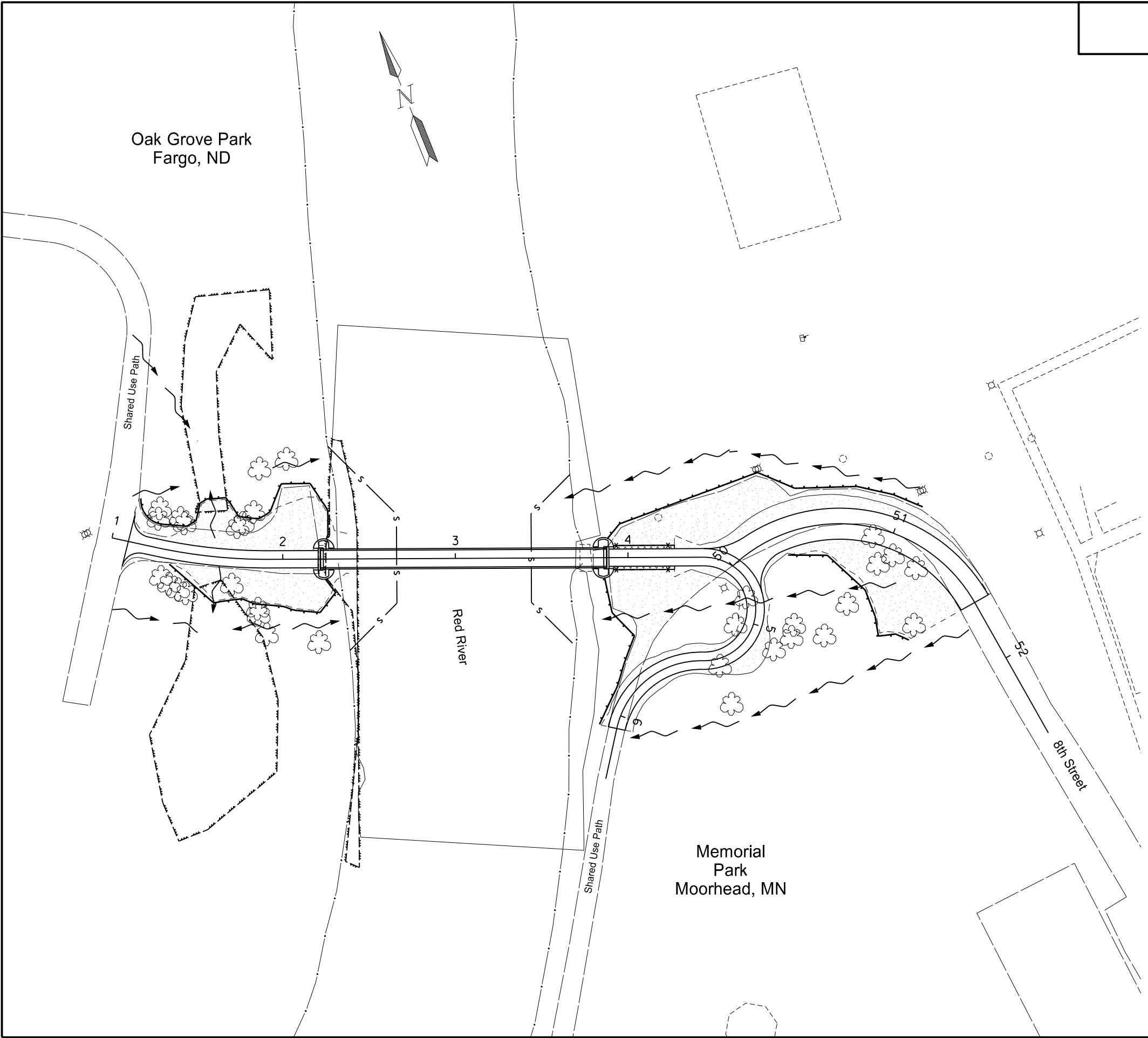
LEGEND

- Grading Limits - Cut
- - - - Grading Limits - Fill
- Grading Limits - Transition
- Wetland Delineated Existing
- Other Waters
- ~ Flow Lines
- ▨ Wetland Impacts Permanent
- ▩ Other Water Impacts Permanent

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Wetland Impacts
Oak Grove/Memorial Park Pedestrian Lift Bridge
Fargo, ND
Moorhead, MN

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-8-984(154)157	76	1



251	2000 Temporary Cover Crop		
	Sta 1+09 to Sta 2+27 LT (PRBRIDGE)	0.06	Acre
	Sta 1+09 to Sta 2+29 RT (PRBRIDGE)	0.04	Acre
	Sta 3+89 (PRBRIDGE) to Sta 51+63 (PR8TH) LT	0.09	Acre
	Sta 3+89 (PRBRIDGE) to Sta 51+63 (PR8TH) RT	0.13	Acre
	Total =	0.32	Acre
253	0101 Straw Mulch		
	Sta 1+09 to Sta 2+27 LT (PRBRIDGE)	0.06	Acre
	Sta 1+09 to Sta 2+29 RT (PRBRIDGE)	0.04	Acre
	Sta 3+89 (PRBRIDGE) to Sta 51+63 (PR8TH) LT	0.09	Acre
	Sta 3+89 (PRBRIDGE) to Sta 51+63 (PR8TH) RT	0.13	Acre
	Total =	0.32	Acre
261	0112 Fiber Rolls 12IN		
	Sta 1+12 26' LT to Sta 2+26 14' LT (PRBRIDGE)	171	LF
	Sta 1+35 8' RT to Sta 2+31 19' RT (PRBRIDGE)	122	LF
	Sta 3+88 11' LT to Sta 4+43 37' LT (PRBRIDGE)	62	LF
	Sta 3+86 12' RT to Sta 6+08 10' RT (PRBRIDGE)	95	LF
	Sta 50+10 44' LT to Sta 51+09 21' LT (PR8TH)	135	LF
	Sta 50+33 12' RT to Sta 51+63 44' RT (PR8TH)	99	LF
	Total =	684	LF
261	0113 Remove Fiber Rolls 12IN		
	Sta 1+12 26' LT to Sta 2+26 14' LT (PRBRIDGE)	171	LF
	Sta 1+35 8' RT to Sta 2+31 19' RT (PRBRIDGE)	122	LF
	Sta 3+88 11' LT to Sta 4+43 37' LT (PRBRIDGE)	62	LF
	Sta 3+86 12' RT to Sta 6+08 10' RT (PRBRIDGE)	95	LF
	Sta 50+10 44' LT to Sta 51+09 21' LT (PR8TH)	135	LF
	Sta 50+33 12' RT to Sta 51+63 44' RT (PR8TH)	99	LF
	Total =	684	LF
262	0100 Flotation Silt Curtain		
	Sta 2+26 65' LT to Sta 2+39 53' RT (PRBRIDGE)	146	LF
	Sta 3+67 48' LT to Sta 3+70 51' RT (PRBRIDGE)	120	LF
	Total =	266	LF
262	0101 Remove Flotation Silt Curtain		
	Sta 2+26 65' LT to Sta 2+39 53' RT (PRBRIDGE)	146	LF
	Sta 3+67 48' LT to Sta 3+70 51' RT (PRBRIDGE)	120	LF
	Total =	266	LF

LEGEND

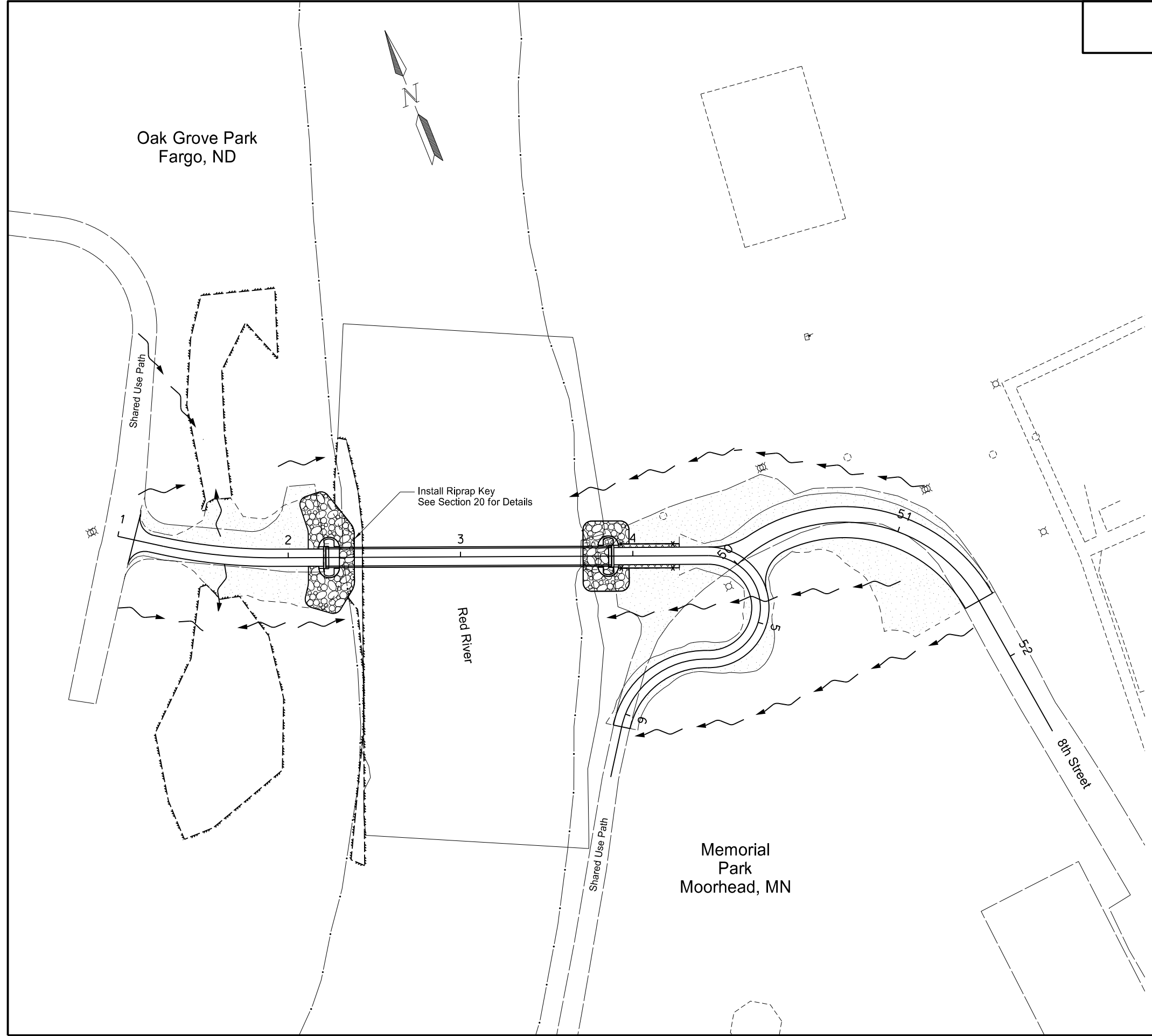
- Grading Limits - Cut
- - - - Grading Limits - Fill
- Grading Limits - Transition
- Other Waters
- s — Flotation Silt Curtain
- Fiber Roll
- Wetland Delineated Existing
- Flow Lines
- Temporary Cover Crop & Straw Mulch

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Temporary Erosion Control
Oak Grove/Memorial Park Pedestrian Lift Bridge
Fargo, ND
Moorhead, MN

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-8-984(154)157	77	1

251	0300	Seeding Class III		
		Sta 1+10 to Sta 2+29 (PRBRIDGE) LT	0.06	Acre
		Sta 1+09 to Sta 2+28 (PRBRIDGE) RT	0.04	Acre
		Sta 3+92 (PRBRIDGE) to Sta 51+63 (PR8TH) LT	0.09	Acre
		Sta 3+90 (PRBRIDGE) to Sta 51+63 (PR8TH) RT	0.13	Acre
		Total =	0.32	Acre
253	0201	Hydraulic Mulch		
		Sta 1+10 to Sta 2+29 (PRBRIDGE) LT	0.06	Acre
		Sta 1+09 to Sta 2+28 (PRBRIDGE) RT	0.04	Acre
		Sta 3+92 (PRBRIDGE) to Sta 51+63 (PR8TH) LT	0.09	Acre
		Sta 3+90 (PRBRIDGE) to Sta 51+63 (PR8TH) RT	0.13	Acre
		Total =	0.32	Acre



LEGEND

- Grading Limits - Cut
- - - - Grading Limits - Fill
- Grading Limits - Transition
- Wetland Delineated Existing
- ~ Flow Lines
- [Stippled Box] Seeding Class III and Hydraulic Mulch
- [Riprap Box] Riprap

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Permanent Erosion Control
 Oak Grove/Memorial Park Pedestrian Lift Bridge
 Fargo, ND
 Moorhead, MN

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-8-984(154)157	82	1

Beginning chain PRBRIDGE description
=====

Point 8000 X 2,900,997.65 Y 464,125.22 Sta 1+00.00

Course from 8000 to PC PRBRIDGE-1 S 56° 05' 45.87" E Dist 27.05

Curve Data

Curve PRBRIDGE-1
P.I. Station 1+59.71 X 2,901,047.21 Y 464,091.92
Delta = 12° 25' 30.66" (LT)
Degree = 19° 05' 54.94"
Tangent = 32.66
Length = 65.06
Radius = 300.00
External = 1.77
Long Chord = 64.93
Mid. Ord. = 1.76
P.C. Station 1+27.05 X 2,901,020.10 Y 464,110.13
P.T. Station 1+92.11 X 2,901,077.60 Y 464,079.96
C.C. X 2,901,187.44 Y 464,359.12
Back = S 56° 05' 45.87" E
Ahead = S 68° 31' 16.54" E
Chord Bear = S 62° 18' 31.20" E

Course from PT PRBRIDGE-1 to PC PRBRIDGE-2 S 68° 31' 16.54" E Dist 251.79

Curve Data

Curve PRBRIDGE-2
P.I. Station 27+63.08 X 2,899,153.78 Y 464,836.95
Delta = 181° 28' 56.02" (RT)
Degree = 190° 59' 09.35"
Tangent = 2,319.18
Length = 95.02
Radius = 30.00
External = 2,349.37
Long Chord = 59.99
Mid. Ord. = 30.39
P.C. Station 4+43.90 X 2,901,311.90 Y 463,987.76
P.T. Station 5+38.92 X 2,901,289.21 Y 463,932.23
C.C. X 2,901,300.91 Y 463,959.85
Back = S 68° 31' 16.54" E
Ahead = N 67° 02' 20.52" W
Chord Bear = S 22° 13' 11.47" W

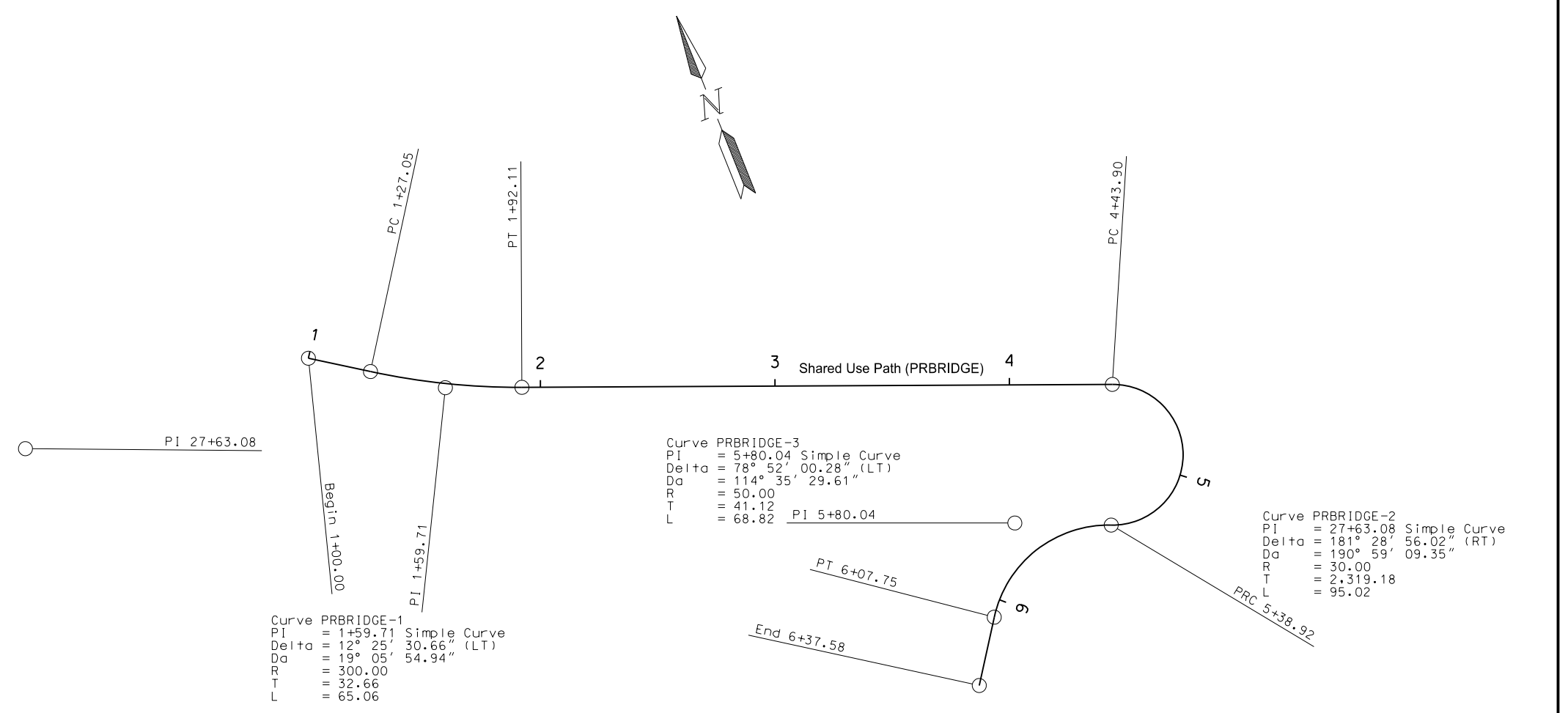
Curve Data

Curve PRBRIDGE-3
P.I. Station 5+80.04 X 2,901,251.35 Y 463,948.27
Delta = 78° 52' 00.28" (LT)
Degree = 114° 35' 29.61"
Tangent = 41.12
Length = 68.82
Radius = 50.00
External = 14.74
Long Chord = 63.52
Mid. Ord. = 11.38
P.C. Station 5+38.92 X 2,901,289.21 Y 463,932.23
P.T. Station 6+07.75 X 2,901,228.30 Y 463,914.21
C.C. X 2,901,269.71 Y 463,886.19
Back = N 67° 02' 20.52" W
Ahead = S 34° 05' 39.21" W
Chord Bear = S 73° 31' 39.35" W

Course from PT PRBRIDGE-3 to 8001 S 34° 05' 39.21" W Dist 29.83

Point 8001 X 2,901,211.58 Y 463,889.51 Sta 6+37.58

Ending chain PRBRIDGE description
=====



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Survey Data Layout
Oak Grove/Memorial Park Pedestrian Lift Bridge
Fargo, ND
Moorhead, MN
Shared Use Path

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-8-984(154)157	82	2

Beginning chain PR8TH description

Curve Data
 Curve PR8TH-1
 P.I. Station 51+14.90 X 2,901,432.51 Y 464,019.05
 Delta = 103° 51' 21.73" (RT)
 Degree = 63° 39' 43.12"
 Tangent = 114.90
 Length = 163.14
 Radius = 90.00
 External = 55.95
 Long Chord = 141.70
 Mid. Ord. = 34.50
 P.C. Station 50+00.00 X 2,901,325.67 Y 463,976.79
 P.T. Station 51+63.14 X 2,901,447.96 Y 463,905.20
 C.C. X 2,901,358.78 Y 463,893.10
 Back = N 68° 24' 56.27" E
 Ahead = S 7° 43' 42.01" E
 Chord Bear = S 59° 39' 22.87" E

Course from PT PR8TH-1 to 8011 S 7° 43' 42.01" E Dist 86.86

Point 8011 X 2,901,459.65 Y 463,819.13 Sta 52+50.00

Ending chain PR8TH description

Beginning chain RWALL1 description

Point 8105 X 2,901,266.00 Y 464,013.62 Sta 1+00.00

Course from 8105 to 8106 S 68° 31' 16.54" E Dist 35.27

Point 8106 X 2,901,298.82 Y 464,000.70 Sta 1+35.27

Ending chain RWALL1 description

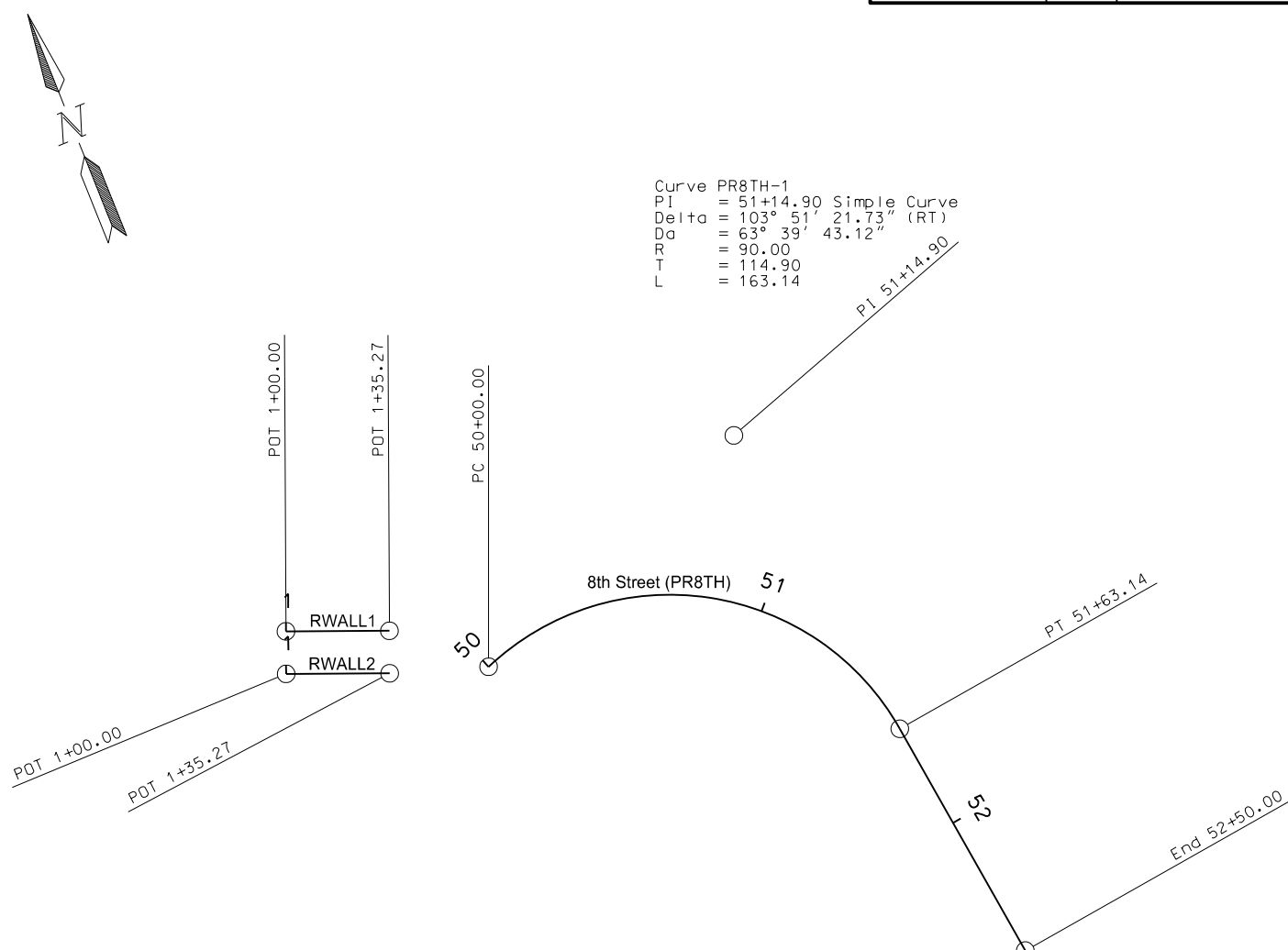
Beginning chain RWALL2 description

Point 8115 X 2,901,260.69 Y 464,000.12 Sta 1+00.00

Course from 8115 to 8116 S 68° 31' 16.54" E Dist 35.27

Point 8116 X 2,901,293.51 Y 463,987.21 Sta 1+35.27

Ending chain RWALL2 description



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Survey Data Layout
 Oak Grove/Memorial Park Pedestrian Lift Bridge
 Fargo, ND
 Moorhead, MN
 8th Street
 Retaining Walls

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
D3-36	36"x6"	STREET NAME SIGN (Sign and installation only)	3	6	18
G20-1-60	60"x24"	ROAD WORK NEXT ___ MILES		34	
G20-1b-60	60"x24"	WORK IN PROGRESS/ NO WORK IN PROGRESS (Sign and installation only)		26	
G20-2-48	48"x24"	END ROAD WORK		19	
G20-4-36	36"x18"	PILOT CAR FOLLOW ME (Mounted to back of pilot car)		18	
G20-10-108	108"x48"	CONTRACTOR SIGN		64	
G20-50a-72	72"x36"	ROAD WORK NEXT ___ MILES RT & LT ARROWS		37	
G20-52a-72	72"x24"	ROAD WORK NEXT ___ MILES RT or LT ARROW		30	
G20-55-96	96"x48"	SPEED LIMIT ENFORCED - MINIMUM FEE \$80 WHEN WORKERS PRESENT		59	
M1-1-36	36"x36"	INTERSTATE ROUTE MARKER (Post and installation only)		10	
M1-4-24	24"x24"	U.S. ROUTE MARKER (Post and installation only)		10	
M1-5-24	24"x24"	STATE ROUTE MARKER (Post and installation only)		10	
M3-1-24	24"x12"	NORTH (Mounted on route marker post)		7	
M3-2-24	24"x12"	EAST (Mounted on route marker post)		7	
M3-3-24	24"x12"	SOUTH (Mounted on route marker post)		7	
M3-4-24	24"x12"	WEST (Mounted on route marker post)		7	
M4-8-24	24"x12"	DETOUR (Mounted on route marker post)	3	7	21
M4-8a-24	24"x18"	END DETOUR	2	10	20
M4-9-30	30"x24"	DETOUR ARROW RIGHT or LEFT/AHD AND RT or LT		15	
M4-9a-30	30"x24"	BIKE/PEDESTRIAN DETOUR	5	15	75
M4-10-48	48"x18"	DETOUR ARROW RIGHT or LEFT		23	
M5-1-21	21"x15"	ARROW AHD AND RT or LT (Mounted on route marker post)		7	
M5-2-21	21"x15"	ARROW AHD UP & RT or LT (Mounted on route marker post)		7	
M6-1-21	21"x15"	ARROW RT or LT (Mounted on route marker post)		7	
M6-2-21	21"x15"	ARROW UP & RT or LT (Mounted on route marker post)		7	
M6-3-21	21"x15"	ARROW AHD (Mounted on route marker post)		7	
R1-1-48	48"x48"	STOP		32	
R1-1a-18	18"x18"	STOP and SLOW PADDLE Back to Back		5	
R1-2-60	60"x60"	YIELD		29	
R2-1-48	48"x60"	SPEED LIMIT ___		39	
R2-1a-24	24"x18"	MINIMUM FEE \$80 (Mounted on Speed Limit post)		10	
R3-7-48	48"x48"	LEFT or RIGHT LANE MUST TURN LEFT or RIGHT		35	
R4-1-48	48"x60"	DO NOT PASS		39	
R4-7-48	48"x60"	KEEP RIGHT SYMBOL		39	
R5-1-48	48"x48"	DO NOT ENTER		35	
R6-1-36	36"x12"	ONE WAY RIGHT or LEFT		13	
R7-1-12	12"x18"	NO PARKING		11	
R9-9-24	24"x12"	SIDEWALK CLOSED	2	7	14
R10-6-24	24"x36"	STOP HERE ON RED		16	
R11-2-48	48"x30"	ROAD CLOSED	1	28	28
R11-2-48	48"x30"	BRIDGE CLOSED	3	28	84
R11-2a-48	48"x30"	STREET CLOSED		28	
R11-3a-60	60"x30"	ROAD CLOSED ___ MILES AHEAD LOCAL TRAFFIC ONLY		31	
R11-3c-60	60"x30"	STREET CLOSED ___ MILES AHEAD LOCAL TRAFFIC ONLY		31	
R11-4a-60	60"x30"	STREET CLOSED TO THRU TRAFFIC		31	
W1-3-48	48"x48"	RIGHT or LEFT SHARP REVERSE CURVE ARROW		35	
W1-4-48	48"x48"	RIGHT or LEFT REVERSE CURVE ARROW		35	
W1-4b-48	48"x48"	DOUBLE RIGHT or LEFT REVERSE CURVE ARROW		35	
W1-6-48	48"x24"	LARGE ARROW		26	
W3-1-48	48"x48"	STOP AHEAD SYMBOL		35	
W3-3-48	48"x48"	SIGNAL AHEAD SYMBOL		35	
W3-4-48	48"x48"	BE PREPARED TO STOP		35	
W3-5-48	48"x48"	SPEED REDUCTION AHEAD		35	
W4-2-48	48"x48"	RIGHT or LEFT LANE TRANSITION SYMBOL		35	
W5-1-48	48"x48"	ROAD NARROWS		35	
W5-8-48	48"x48"	THRU TRAFFIC RIGHT LANE		35	
W5-9-48	48"x48"	ROAD WORK TRAFFIC ONLY DOWN & LT or RT ARROW		35	
W6-3-48	48"x48"	TWO WAY TRAFFIC SYMBOL		35	
W8-1-48	48"x48"	BUMP		35	
W8-3-48	48"x48"	PAVEMENT ENDS		35	
W8-7-48	48"x48"	LOOSE GRAVEL		35	
W8-9a-48	48"x48"	SHOULDER DROP-OFF		35	
W8-11-48	48"x48"	UNEVEN LANES		35	
W8-12-48	48"x48"	NO CENTER STRIPE		35	
W8-53-48	48"x48"	TRUCKS ENTERING HIGHWAY		35	
W8-54-48	48"x48"	TRUCKS ENTERING AHEAD or ___ FT.		35	
W8-55-48	48"x48"	TRUCKS CROSSING AHEAD or ___ FT.		35	
W8-56-48	48"x48"	TRUCKS EXITING HIGHWAY		35	
W9-3a-48	48"x48"	CENTER LANE CLOSED SYMBOL		35	
W12-2-48	48"x48"	LOW CLEARANCE SYMBOL		35	
W13-1-24	24"x24"	___ MPH ADVISORY SPEED PLATE (Mounted on warning sign post)		11	
W13-4-48	48"x60"	RAMP ARROW		39	
W14-3-48	48"x36"	NO PASSING ZONE		23	
W20-1-48	48"x48"	ROAD WORK AHEAD or ___ FT or ___ MILE		35	
W20-2-48	48"x48"	DETOUR AHEAD or ___ FT		35	
W20-3-48	48"x48"	ROAD or STREET CLOSED AHEAD or ___ FT.		35	
W20-4-48	48"x48"	ONE LANE ROAD AHEAD or ___ FT.		35	
W20-5-48	48"x48"	RIGHT or LEFT LANE CLOSED AHEAD or ___ FT.		35	
W20-7a-48	48"x48"	FLAGGING SYMBOL		35	
W20-7k-24	24"x18"	___ FEET (Mounted on warning sign post)		10	
W20-8-48	48"x48"	STREET CLOSED		35	
W20-51-48	48"x48"	EQUIPMENT WORKING		35	

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
W20-52-54	54"x12"	NEXT ___ MILES (Mounted on warning sign post)		12	
W21-1a-48	48"x48"	WORKERS SYMBOL		35	
W21-2-48	48"x48"	FRESH OIL		35	
W21-3-48	48"x48"	ROAD MACHINERY AHEAD or ___ FT		35	
W21-5-48	48"x48"	SHOULDER WORK		35	
W21-5a-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED		35	
W21-5b-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED AHEAD or ___ FT.		35	
W21-6a-48	48"x48"	SURVEY CREW AHEAD		35	
W21-50-48	48"x48"	BRIDGE PAINTING AHEAD or ___ FT.		35	
W21-51-48	48"x48"	MATERIAL ON ROADWAY		35	
W22-8-48	48"x48"	FRESH OIL LOOSE ROCK		35	
	24"x24"	TAKE TURNS (6" D letters) (Mounted on stop sign post)		11	

SPECIAL SIGNS

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL

SPEC & CODE

704-1000	TRAFFIC CONTROL SIGNS	TOTAL UNITS	260
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SPEC & CODE	DESCRIPTION	UNIT	QUANTITY
704-0100	FLAGGING	MHR	
704-1041	ATTENUATION DEVICE-TYPE B-55	EACH	
704-1043	ATTENUATION DEVICE-TYPE B-65	EACH	
704-1044	ATTENUATION DEVICE-TYPE B-70	EACH	
704-1050	TYPE I BARRICADES	EACH	
704-1051	TYPE II BARRICADES	EACH	
704-1052	TYPE III BARRICADES	EACH	8
704-1060	DELINEATOR DRUMS	EACH	
704-1065	TRAFFIC CONES	EACH	
704-1067	TUBULAR MARKERS	EACH	
704-1070	DELINEATOR	EACH	
704-1072	FLEXIBLE DELINEATORS	EACH	
704-1081	VERTICAL PANELS - BACK TO BACK	EACH	
704-1085	SEQUENCING ARROW PANEL - TYPE A	EACH	
704-1086	SEQUENCING ARROW PANEL - TYPE B	EACH	
704-1087	SEQUENCING ARROW PANEL - TYPE C	EACH	
704-1088	SEQUENCING ARROW PANEL - TYPE C - CROSSOVER	EACH	
704-1095	TYPE B FLASHERS	EACH	
704-1500	OBLITERATION OF PVMT MK	SF	
704-3501	PORTABLE PRECAST CONCRETE MED BARRIER	LF	
704-3510	PRECAST CONCRETE MED BARRIER - STATE FURNISHED	EACH	
762-0200	RAISED PAVEMENT MARKERS	EACH	
762-0420	SHORT TERM 4IN LINE - TYPE R	LF	
762-0430	SHORT TERM 4IN LINE - TYPE NR	LF	
772-2110	FLASHING BEACON - POST MOUNTED	EACH	

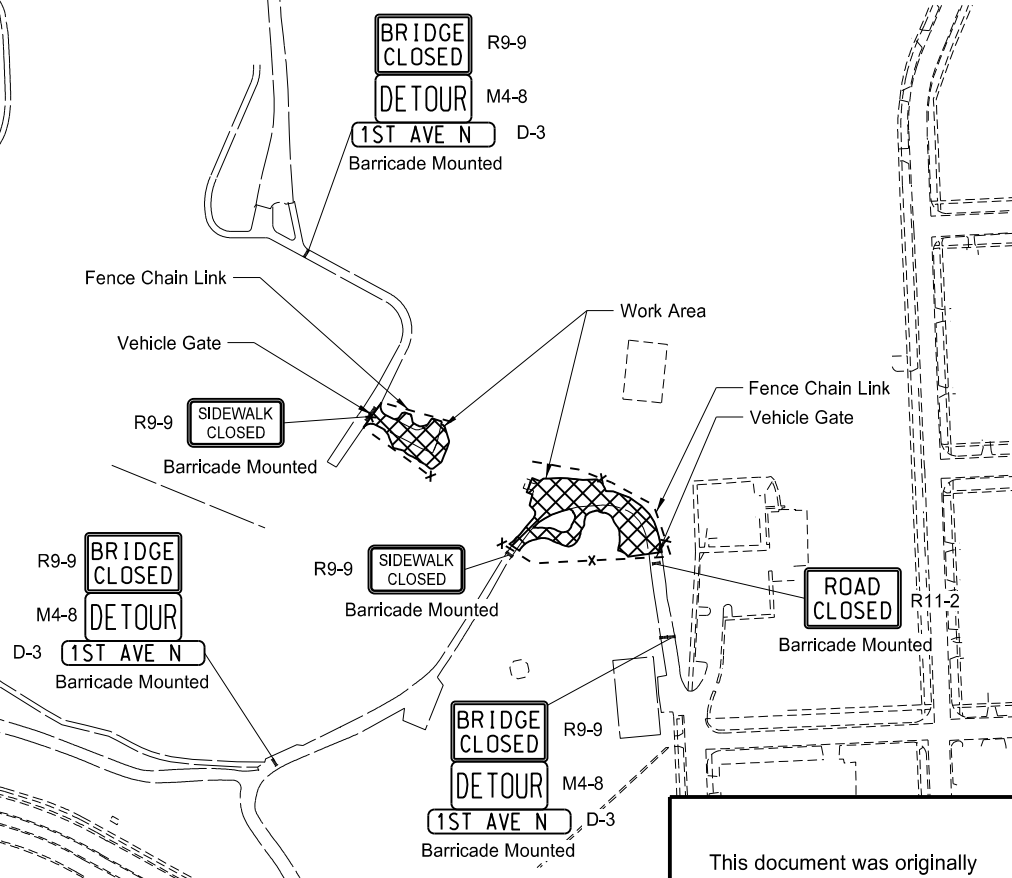
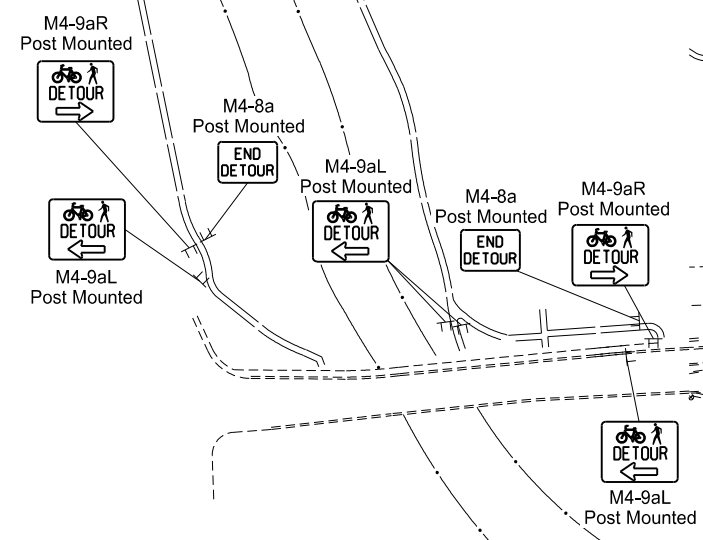
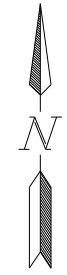
NOTE:
If additional signs are required, units will be calculated using the formula from Section III-19.06 of the Design Manual.
<http://www.dot.nd.gov/>

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Traffic Control Devices List
Oak Grove/Memorial Park
Pedestrian Lift Bridge
Fargo, ND
Moorhead, MN

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-8-984(154)157	100	2

202	0310	Removal of Chain Link Fence		
		Sta 1+09 to Sta 2+38 (PRBRIDGE)	300	LF
		Sta 3+68 (PRBRIDGE) to Sta 51+73 (PR8TH)	572	LF
		Total =	872	LF
752	0600	Fence Chain Link		
		Sta 1+09 to Sta 2+38 (PRBRIDGE)	300	LF
		Sta 3+68 (PRBRIDGE) to Sta 51+73 (PR8TH)	572	LF
		Total =	872	LF
752	2100	Vehicle Gate		
		Sta 1+09 (PRBRIDGE)	1	EA
		Sta 51+73 (PR8TH)	1	EA
		Total =	2	EA
752	2120	Remove Vehicle Gate		
		Sta 1+09 (PRBRIDGE)	1	EA
		Sta 51+73 (PR8TH)	1	EA
		Total =	2	EA







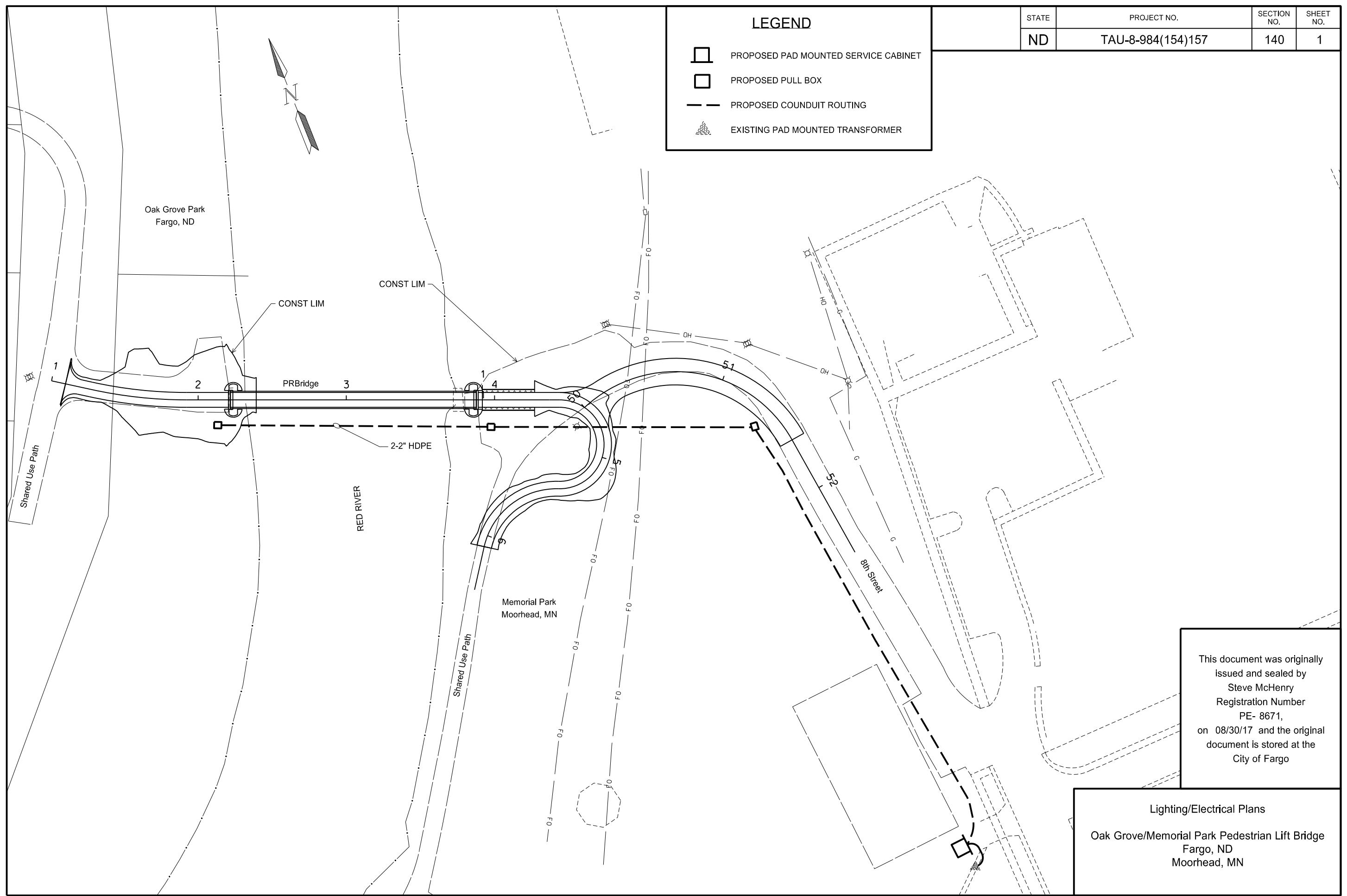
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Traffic Control and Detour Layout
Oak Grove/Memorial Park Pedestrian Lift Bridge
Fargo, ND
Moorhead, MN

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-8-984(154)157	140	1

LEGEND

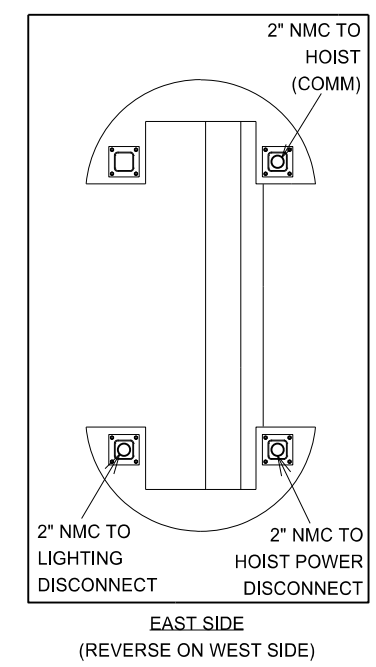
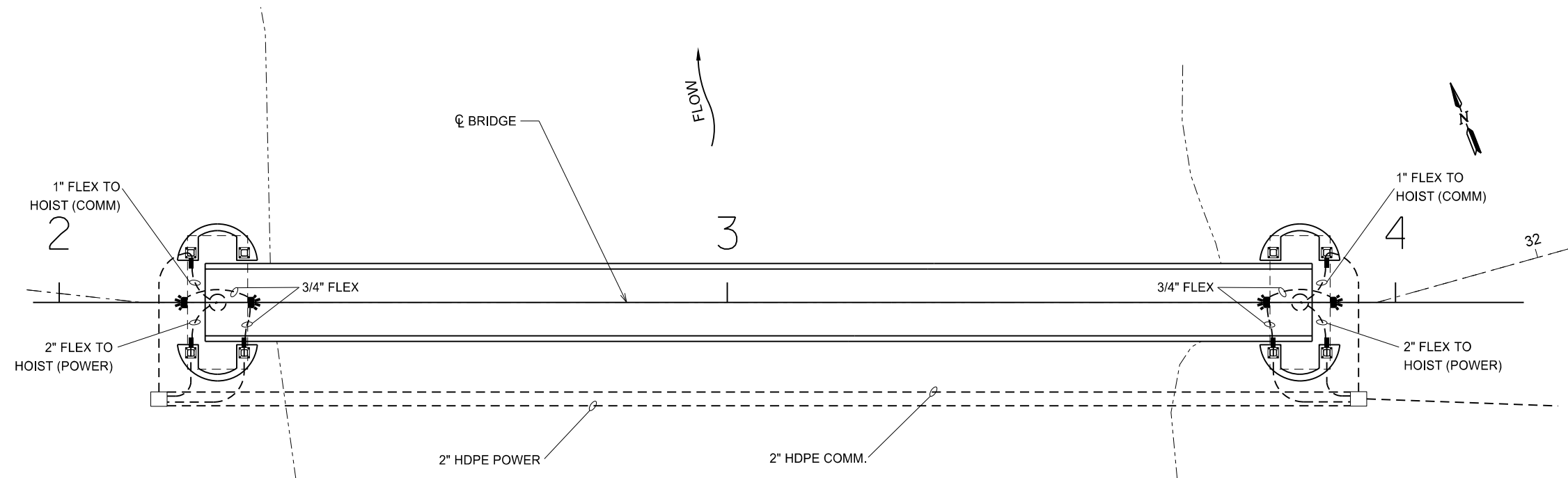
-  PROPOSED PAD MOUNTED SERVICE CABINET
-  PROPOSED PULL BOX
-  PROPOSED CONDUIT ROUTING
-  EXISTING PAD MOUNTED TRANSFORMER



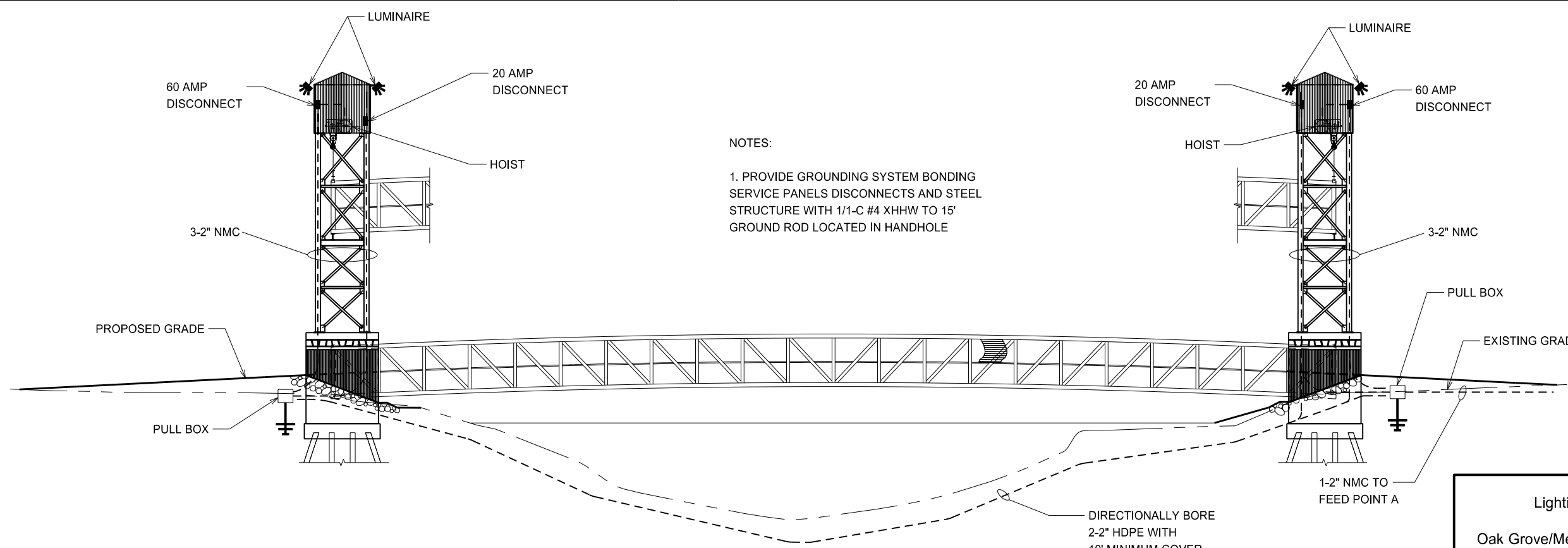
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Lighting/Electrical Plans
 Oak Grove/Memorial Park Pedestrian Lift Bridge
 Fargo, ND
 Moorhead, MN

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-8-984(154)157	140	2



PLAN



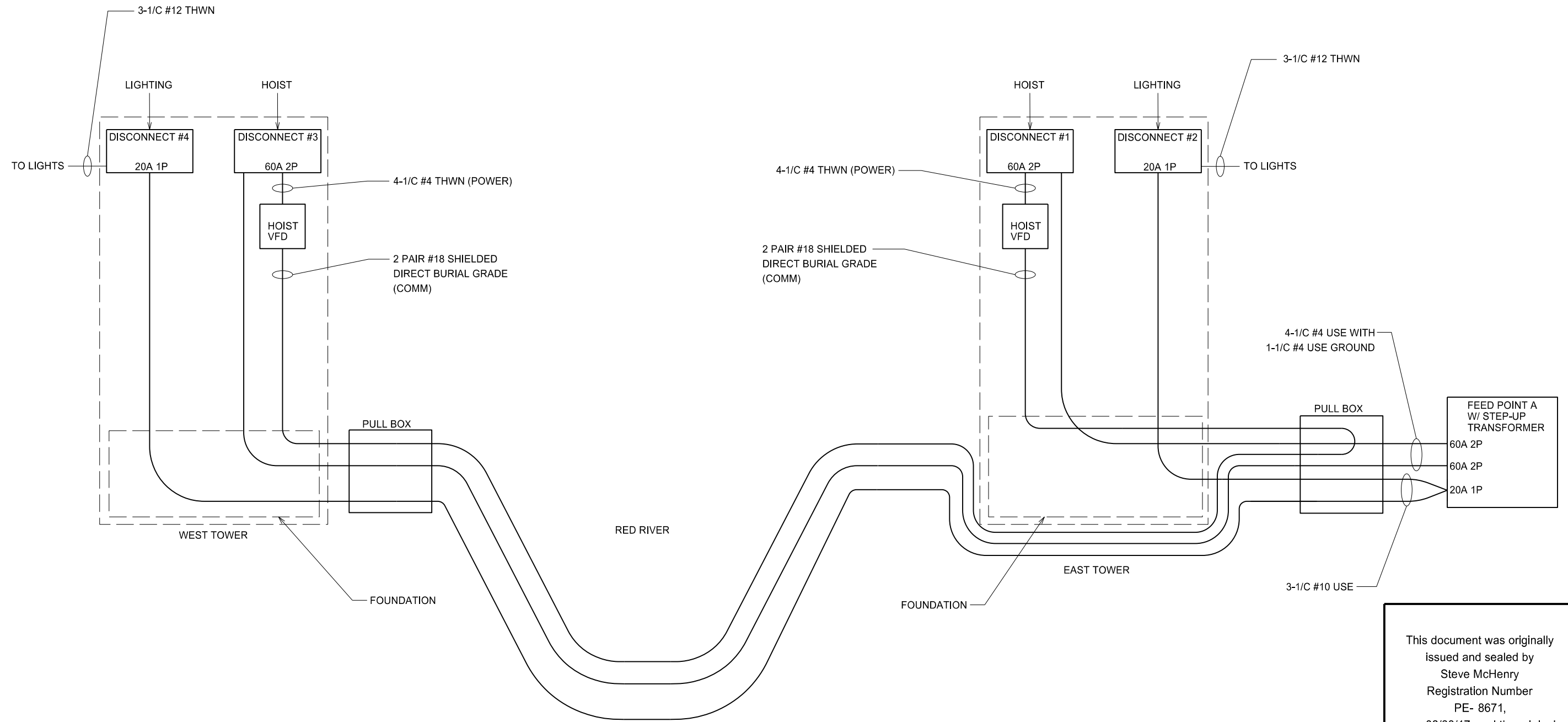
NOTES:
 1. PROVIDE GROUNDING SYSTEM BONDING SERVICE PANELS DISCONNECTS AND STEEL STRUCTURE WITH 1/1-C #4 XHHW TO 15' GROUND ROD LOCATED IN HANDHOLE

ELEVATION

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Lighting/Electrical Bridge Plans
 Oak Grove/Memorial Park Pedestrian Lift Bridge
 Fargo, ND
 Moorhead, MN

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-8-984(154)157	140	3



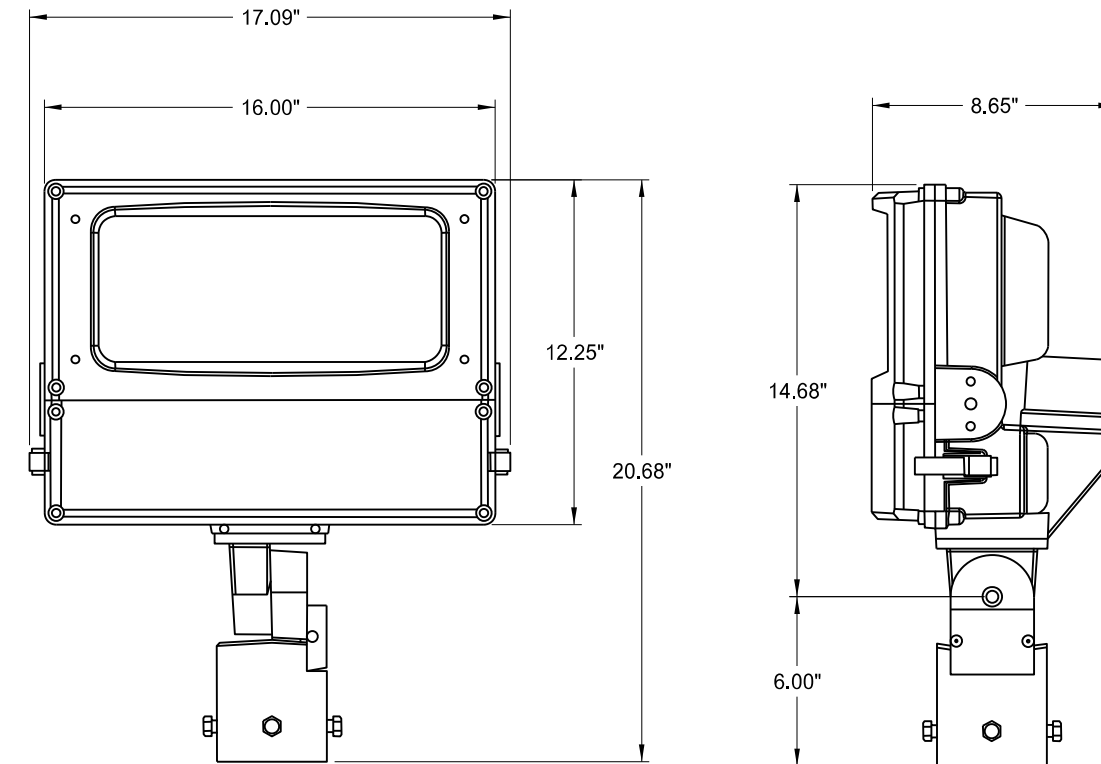
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Wiring Diagram
 Oak Grove/Memorial Park Pedestrian Lift Bridge
 Fargo, ND
 Moorhead, MN

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-8-984(154)157	140	4

PANEL SCHEDULE						
Panel Name:	Service Cabinet A	Source of Power			Moorhead Public Service	
Voltage & Phase:	120/240	1	Panel Amperage:			200
Mounting:	Pad Mounted	Panel A.I.C. Rating:			22k A.I.C.	
Description	Brk	Phase			Brk	Description
MN Tower Hoist VFD	100	1	A	2	100	ND Tower Hoist VFD
		3	B	4		
MN Tower Lighting	20	5	A	6	20	ND Tower Lighting

Note: Lighting circuits controlled via photocell and lighting controllers.



LED LUMINAIRE DETAIL

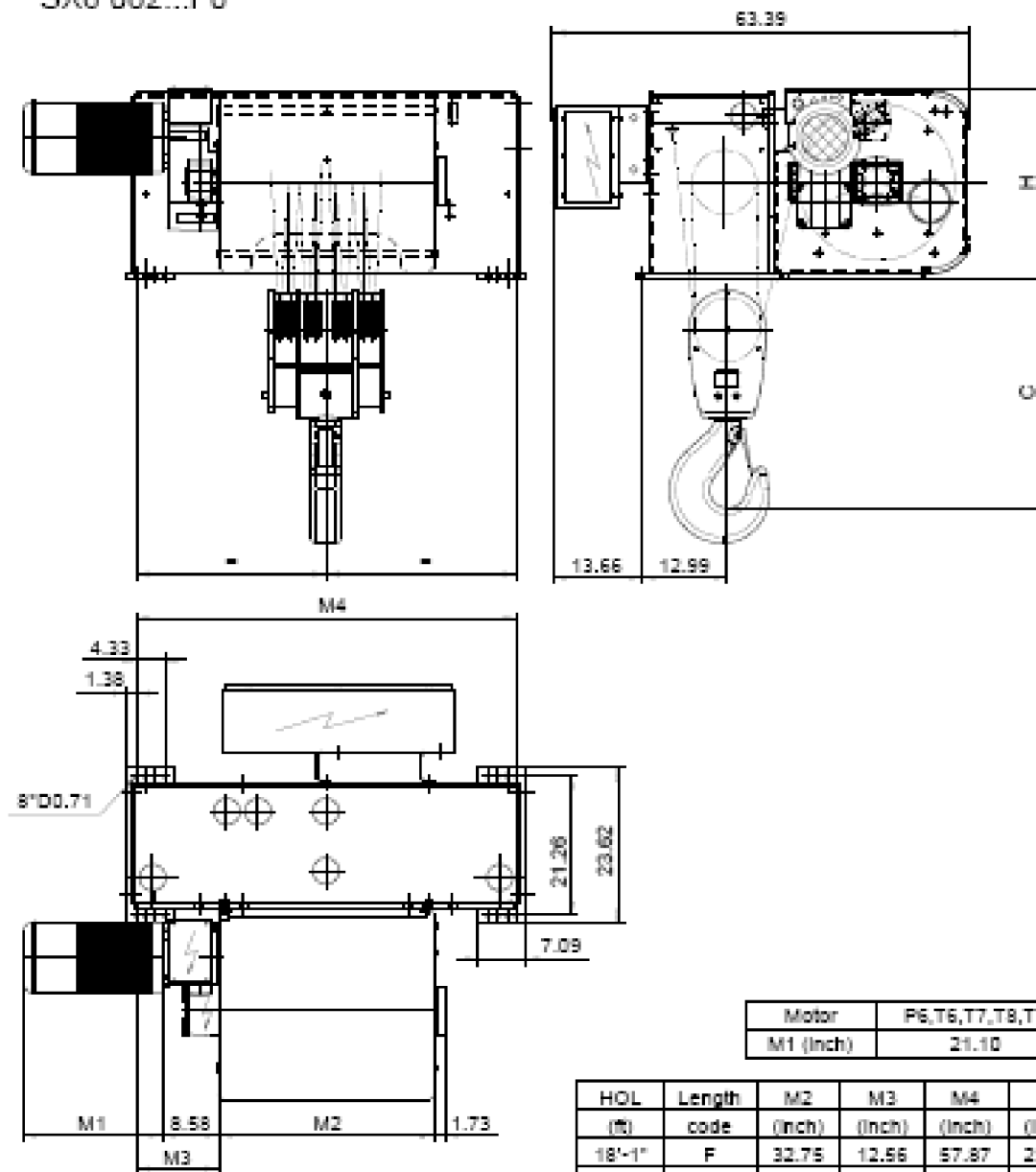
NOT TO SCALE

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Lighting Details
Oak Grove/Memorial Park Pedestrian Lift Bridge
Fargo, ND
Moorhead, MN

FOOT MOUNT, 8 PART DOUBLE
Hoist type:
SX6 082...F0

US-60Hz



RADIO BASED REMOTE PENDANT

Motor	P6,T6,T7,T8,T9	P7,TA	P8
M1 (Inch)	21.10	22.67	27.99

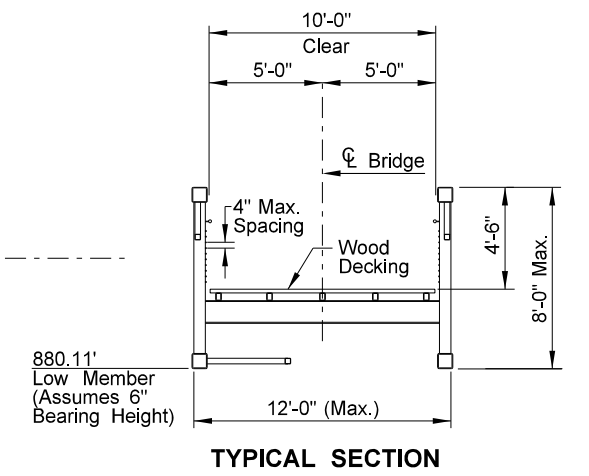
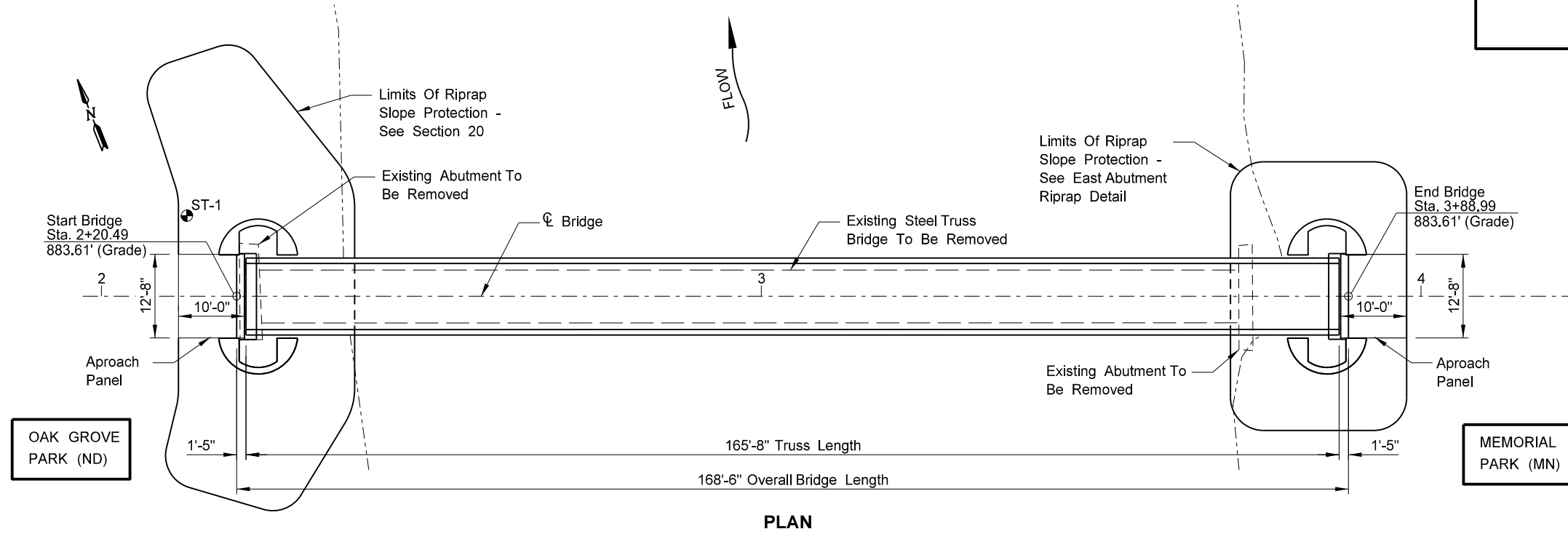
HOL (ft)	Length code	M2 (Inch)	M3 (Inch)	M4 (Inch)	H (Inch)	C (Inch)	Weight (lb)
18'-1"	F	32.75	12.56	57.87	28.74	35.03	3300
23'-0"	G	40.23	8.82	57.87	28.74	35.03	3400
31'-2"	H	50.07	23.58	97.24	28.74	41.33	4050
42'-8"	J	63.85	16.69	97.24	28.74	41.33	4250
50'-10"	K	75.66	10.79	97.24	28.74	41.33	4450
62'-4"	L	89.44	17.68	124.80	32.68	41.33	5350
70'-6"	M	99.29	12.76	124.80	32.68	41.33	5650
80'-5"	N	111.10	6.85	124.80	32.68	41.33	5770

Load (TON)	Class ASME	Hoisting motor					
		Hoisting speed (ft/min): Gear code					
30	H4	P6,T6	P7,T7	----	T8	T9	TA
40	H3	P6,T6	P7,T7	P8	T8	T9	TA

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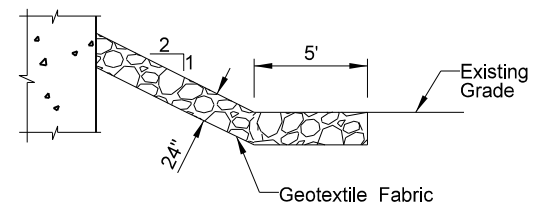
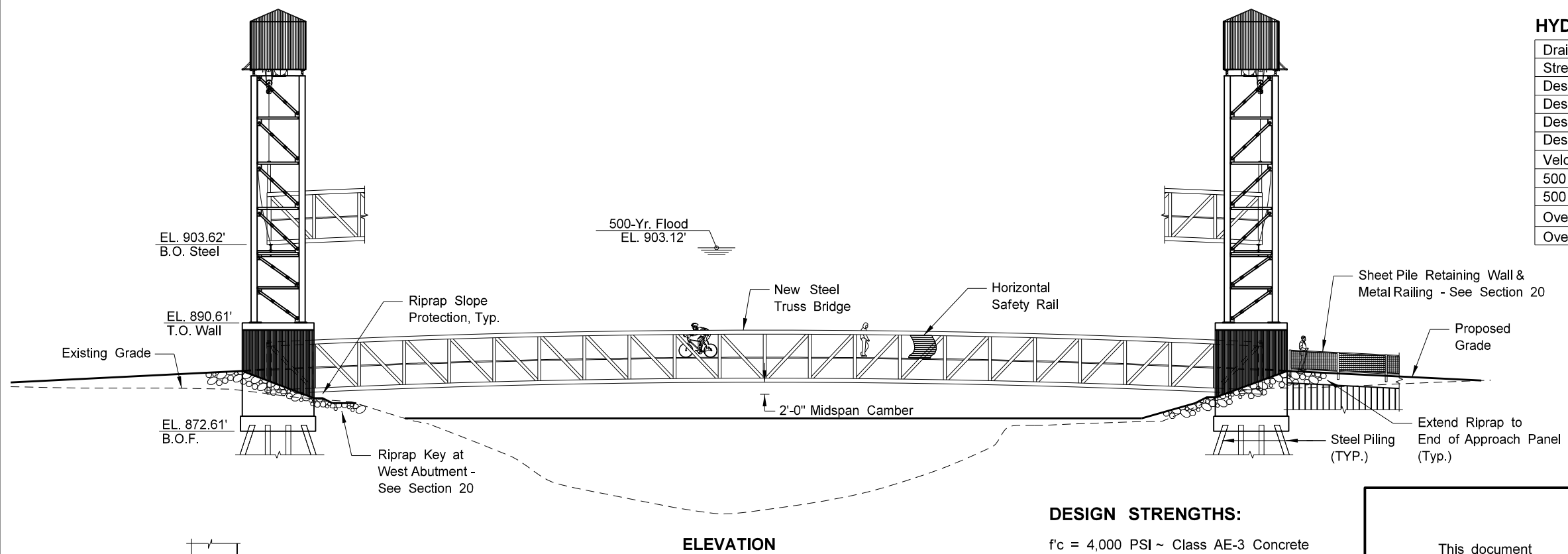
Hoist/Controller Detail
Oak Grove/Memorial Park Pedestrian Lift Bridge
Fargo, ND
Moorhead, MN

STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	TAU-8-984(154)157	170	1



HYDRAULIC DATA:

Drainage Area	6,650	sq mi
Stream Gradient	0.0000	ft/ft
Design Frequency	100	yr
Design Discharge	29,300	cfs
Design Headwater Stage	899.68	ft
Design Tailwater Stage	899.67	ft
Velocity Through Bridge	1.2	fps
500 - Year Frequency Discharge	50,000	cfs
500 - Year Frequency Headwater	903.11	ft
Overtopping Stage	881.30	ft
Overtopping Discharge	10,300	cfs



DESIGN STRENGTHS:

$f'_c = 4,000 \text{ PSI} \sim \text{Class AE-3 Concrete}$
 $f_y = 60,000 \text{ PSI} \sim \text{Reinforcing Steel}$
 $F_y = 50,000 \text{ PSI} \sim \text{Structural Steel}$

LRFD Design Method

ALL ELEVATIONS IN THESE PLANS ARE BASED ON NAVD 88 DATUM

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SRF CONSULTING GROUP, INC.

STANDARD DRAWINGS

D-622-01

D-900-01

90 PSF Pedestrian Live Load

H10 VEHICLE LOADING

CITY OF FARGO
PEDESTRIAN/BICYCLE BRIDGE AND LIFT TOWERS

BRIDGE LAYOUT

PROJECT: TAU-8-984(154)157
 STATION: 3+04.74
 CASS COUNTY

DATE _____ BRIDGE ENGINEER _____

STEEL PEDESTRIAN BRIDGE AND TOWER NOTES

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-8-984(154)157	170	2

- 100-P01 SCOPE OF WORK: This work shall consist of constructing the steel pedestrian bridge and lift towers.
- 100-P02 GENERAL: The cost of furnishing and placing preformed expansion joint filler, concrete inserts and other miscellaneous items shall be included in the price bid for Class AE-3 concrete. (Concrete stain to be applied to all exposed concrete surfaces on wingwalls.) The cost of architectural finish and staining treatment on walls shall be included in the price for class AE-3 concrete.
- 202-P01 REMOVAL OF STRUCTURE: The Contractor shall remove the existing steel truss per section 6, sheet 2. The Contractor shall remove the concrete at the existing bridge abutments and cut off existing pile 1-foot below new footing. All materials removed shall become the property of the Contractor and shall be disposed of properly off of the right of way. There are approximately 16 cubic yards of concrete to be removed.
- 210-P01 CLASS 1 EXCAVATION: The excavation at the abutments, as shown, shall be included in the lump sum bid item "Class 1 Excavation."
- 210-P02 SELECT BACKFILL: Select backfill shall meet the requirements of Section 816.03, Class 3. The backfill shall be placed in layers of not more than 6 inches, moistened or dried as required, and thoroughly compacted with mechanical tamping equipment.
- 602-P01 SURFACE FINISH "C": Surface finish "C" shall be required for the abutments.
- 612-P01 REINFORCING STEEL: The bar fabricator shall add a prefix to all bar designations to differentiate between the different structures on this project.
- 616-P01 STRUCTURAL STEEL: Bridge closure gate, metal bar grating, steel doors, pulley and winch system and standing seam metal siding shall be incidental to bid item "STRUCTURAL STEEL."
- 622-P02 PILING: Piling shall be driven with a steam, air, or diesel hammer with a rated energy not less than 33,798 foot-pounds-tons, as computed by the formula $W(E-9,494)+ 0.555E$ where W is the weight of the ram in tons and E is the rated hammer energy. In no case shall the ram weight be less than 3,200 pounds. For double acting or single acting diesel hammers, the safe bearing value of piles shall be determined by the following formula:
- $$P = \frac{4.5E}{S+0.2} * \frac{W+0.2M}{W+M}$$
- 900-P01 ELEVATION CHECK POINTS: 4 bolts shall be placed on top of wing walls in line with center of abutment to serve as elevation check points. The cost for this item shall be included in the unit price bid for AE-3 concrete.
- 930-P01 PEDESTRIAN BRIDGE - PREFAB:
 1. Scope
 The work included under this Item shall consist of furnishing fully engineered, fabricating, transporting, and erecting a steel truss bridge

superstructure including bearings, as shown in the plans and described herein. The intended usage is a shared use path with pedestrian, bicycle and occasional slow moving maintenance or emergency vehicles. Design and construction of substructures is not included in this item. The bearings shall be designed to attach to the substructure as shown in the plans. These specifications shall be regarded as minimum standards for design and construction.

2. Qualifications

The Bridge Manufacturer shall be currently certified by the American Institute of Steel Construction to have the personnel, organization, experience, capability, and commitment to produce fabricated structural steel for Major Steel Bridges as set forth in the AISC Certification Program.

Pre-approved Bridge Manufacturers: Wheeler Lumber, LLC 9330 James Avenue South Bloomington, MN 55431 (800) 328-3986	Contech Construction, Inc. Continental Bridge 8301 State Highway 29 North Alexandria, MN 56308 (800) 328-2047
Big R manufacturing, LLC PO Box 1290 Greeley, CO 80632-1290 (800) 234-0734	

Written request by the Contractor for acceptance of any proposed Bridge Manufacturer who is not pre-approved must be present to the Engineer at least 10 days prior to the bid. To insure the proposed substitution will comply with these specifications, the following documentation must be included:

- Proof of AISC Certification
- Representative design calculations
- Splicing and erection procedures
- Welding process
- References and list of projects

The Engineer will evaluate and verify the accuracy of the submittal. If the Engineer determines that the qualifying criteria have not been met, the Contractor's proposed Bridge Manufacturer shall be rejected. Bridge Manufacturer's other than those listed above may only be used if the Engineer provides written approval of the proposed Bridge Manufacturer five days prior to the bid. The Engineer's ruling shall be final.

3. Product Description Superstructure Loading:

Plans and Calculations Certification:

The Bridge Manufacturer shall design the prefabricated bridge and prepare shop drawings in accordance with these minimum requirements. All calculations and shop drawings shall be sealed by a Professional Engineer licensed in the State of North Dakota.

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STEEL PEDESTRIAN BRIDGE AND TOWER NOTES

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-8-984(154)157	170	3

Applicable Codes:

Design shall be governed by the current design specifications of the American Association of State Highway and Transportation Officials (AASHTO), supplemented with the current edition of American Institute of Steel Construction (AISC) including the Design Specification for Steel Hollow Structural Sections, further supplemented with the current edition of American Welding Society (AWS) D1.1 Structure Welding Code, as modified and further supplemented herein. Structural members shall be designed in accordance with recognized engineering practices and principles.

Truss Style:

The truss type shall be as determined by the Bridge Manufacturer with a web member style as determined by the Bridge Manufacturer.

Pratt or Howe style trusses with an odd number of bays shall have crossed diagonals in the middle bay. Any crossed diagonals shall be of equal dimension. Overhead (portal) bracing is prohibited.

Span length = 165'-8" measured out-to-out of bridge superstructure.

Max Gross Bridge Weight = 110,000 lbs.

Camber:

The bridge shall be cambered per sheet number 1 with additional camber to offset the calculated dead load deflection.

Deck Width:

Bridge clear deck width = 10'-0" as measured between the inside face of the railing or structural elements other than handrails.

Geometry Limitations:

Abutment backwall height = 4'-0"

Abutment bridge seat width = 1'-10"

Maximum Bridge Dimensions (O.D.) = 12'-0" W x 8'-0" H

Top of deck elevation (at Oak Grove) = 883.61'

Top of deck elevation (at Memorial) = 883.61'

Station at midpoint of bridge = 3+04.74

Superstructure Loading: In addition to dead, live (pedestrian), water (buoyancy and stream pressure), and wind loads as specified by AASHTO, the bridge shall be designed to accommodate the following loads:

- Point Load = 1000 lbs. plus impact, applied at a single point
- Vehicle Load AASHTO H10

For occasional slow moving maintenance or emergency vehicles impact is not required.

Vibration:

The vibration design for this bridge shall be a level two design. For level two design, the peak acceleration of the truss and of deck systems shall be limited to 5% gravity. Peak acceleration shall be computed based on a constant force of 92 pounds, and a damping ratio of 0.01. Peak acceleration of the truss and of deck systems may be computed independently without consideration of a combined effect. Peak acceleration in deck systems shall be computed with consideration of the combined effect of longitudinal components and floor beams.

Deflection:

Wind deflections of the truss, as measured at deck level, shall be limited to L/500. Deflections in transverse deck framing due to point or truck load shall be limited to L/300 or 0.1". Impact shall be included in deflection checks as applicable.

Deflection of the truss due to uniform live load shall be limited to L/500. Deflections in longitudinal deck members due to uniform live load shall be limited to L/500. No other service deflection limits need be considered.

Truss and Lift Tower Material:

All members of the truss and deck system shall be fabricated from square/rectangular hollow structural sections (HSS) with the exception that floor beams may be wide flange (W) shapes. Open ends of end posts and floor beams shall be capped. Open shaped (non-tubular) stringers will be allowed only when the Bridge Manufacturer warrants the stringer design for 50% overload.

Steel material shall be corrosion resistant high-strength low-alloy material meeting ASTM A242, A588, A606, or A847 with a minimum corrosion index of 5.8 per ASTM G101.

Minimum thickness of tubular steel members (not including railings) shall be 1/4-inch for primary truss members and 3/16-inch elsewhere. Where water collection inside of structural tubing is possible during construction or service, weep holes shall be provided at low points.

Steel Finish:

All exposed steel surfaces of lift towers and gate shall be painted after fabrication per section 616 of the NDDOT standard specification. Color to match federal color "Brown" number 30045, and shall meet federal standard no. 595B colors. All costs associated with painting shall be included in the unit price bid for Structural Steel. Bridge is uncoated.

Field Splice:

Field splices shall be fully bolted slip critical connections, and utilizing tension indicating washers is optional. Tack welding of high strength hardware is prohibited. Splices not immediately at or adjacent to panel points shall be designed for 100 percent of the member bending moment

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STEEL PEDESTRIAN BRIDGE AND TOWER NOTES

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capacity for primary compression members, and 75 percent for bracing members or tension members subject to load reversal, including slip resistance, and slip resistance shall further meet the same AASHTO required strength as with other failure modes.

Splices for truss members, bracing, and floor beams, shall be made with Type 3 bolts. Exposed portions of type 3 bolts shall be painted with like color of material being bolted.

Handrail:

Handrails shall be galvanized steel or aluminum. Actual outside diameter shall be 1 1/4-inch minimum, 1 1/2-inch maximum. The top of the handrail shall be 36-inches plus or minus 2-inches above the deck surface. The handrail shall have a minimum 1 1/2-inch knuckle space, shall not rotate within fittings, and shall have returns at each end.

Decking:

The bridge deck shall be ACQ pressure treated douglas fir with thickness and reinforcement to be determined by the bridge manufacturer. Deck fastening systems shall be designed to resist all uplift forces determined in accordance with AASHTO Specifications.

Bolting:

All bolts shall be 7/8" ϕ A325 Type 3 bolts unless noted otherwise.

Welding:

Welding and weld qualification tests shall conform to the provisions of AWS D1.1. The flux core arc welding (FCAW) process, utilizing E80 electrodes with similar weathering characteristics as the base material, shall be used. Welding operators shall be properly accredited experienced operators. Each shall have certification of satisfactorily passing AWS standard qualification tests for the 3G and/or 4F position(s), evidence of experience and skill in welding structural steel, and have demonstrated the ability to make acceptable welds of the type required.

Non-destructive weld testing is required. Testing will be performed by a independent ASNT Level II Technician or greater and paid for by the Bridge Manufacturer. All welds are to be 100 percent visually inspected. Ten percent (10%) of all fillet and partial penetration welds shall be magnetic particle tested. For arch type bridges, 100 percent of end of top chord to bottom chord connections shall be tested. Full penetration shop welds shall be Ultrasonic tested in accordance with AWS D1.1; Section 6. Base material certifications are to be supplied by the material suppliers. Inspection test results shall be submitted to the engineer.

Other requirements:

Self-tapping and self-drilling screws are not acceptable for any portion of the bridge structure.

Cover plates shall be provided to cover expansion gaps. Cover plates shall fit tight to the top of the abutment backwall without any bridge weight bearing on the backwall. Consider joint size and weight of vehicles when determining plate thickness.

Bridge bearing system shall be designed and supplied by the bridge manufacturer.

The anchor systems shall be designed and supplied by the Bridge Manufacturer. Cast in place anchors or drilled anchors installed with an approved chemical adhesive system shall be used for anchorage. Anchor bolts shall conform to ASTM A307, A193, or F1554.

All hardware (other than type 3 high strength) shall be hot-dip galvanized in accordance with ASTM A153.

Cementitious non-shrink grout, when applicable, shall meet ASTM C-1107, 7000 psi minimum.

Materials not specified shall conform to applicable ASTM or AASHTO specifications.

4. Submittals

The Bridge Manufacturer & Structural Steel fabricator shall prepare and submit six (6) sets of shop drawings and structural calculations (bridge only) for approval prior to beginning fabrication. Shop drawings shall be unique drawings prepared to illustrate the specific portion of the work to be done. All relative design information including but not omitted to governing codes, design details, dimensions related to substructures and general notes shall be clearly specified on the drawings. Shop drawings shall be accurately prepared by skilled drafters to be complete in every respect. Drawings shall have cross-referenced details and sheet numbers.

The Bridge Manufacturer & Structural Steel fabricator shall submit a certificate of compliance stating that all materials and fabrication are in compliance with the contract documents and applicable codes.

5. Delivery

The Contractor shall coordinate with the Bridge Manufacturer in the delivery and erection schedule. The Bridge Manufacturer shall provide detailed, written instruction procedures for proper lifting and splicing of bridge components.

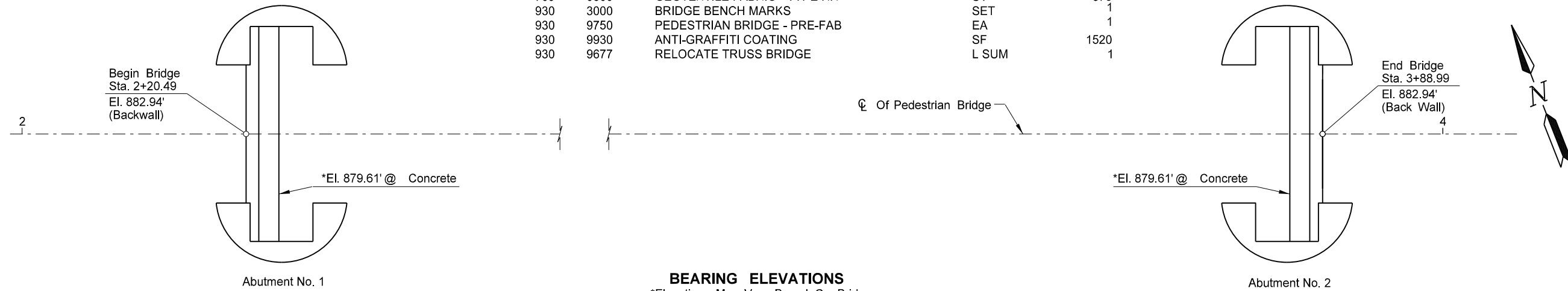
SHOP DRAWINGS: The Contractor shall submit the following shop drawings to the Engineer for review:

- 1. Bridge
- 2. Bridge Bearing

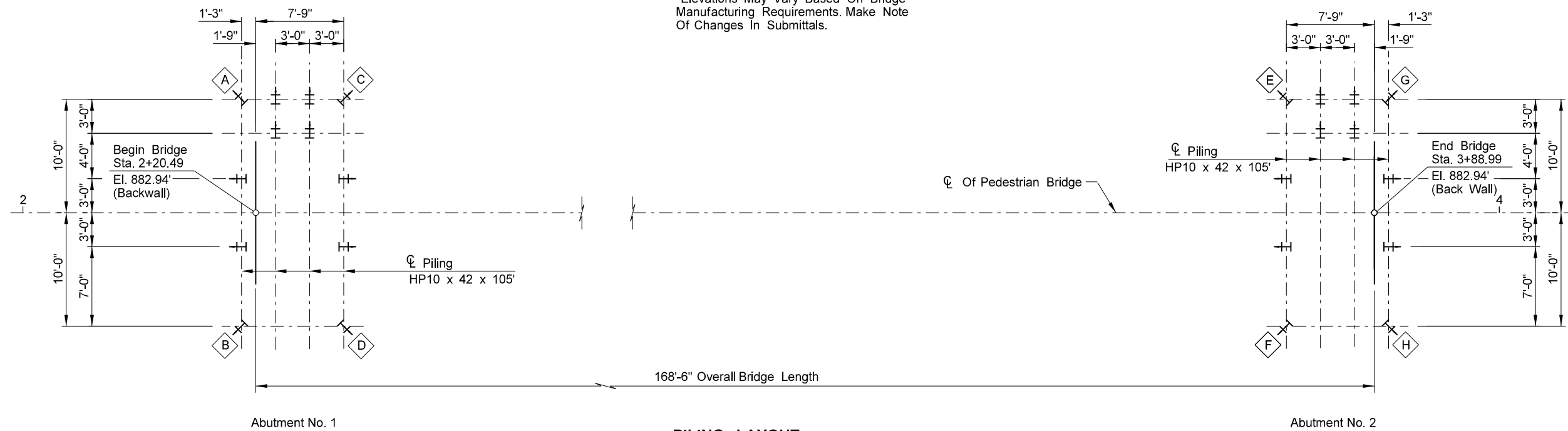
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SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
202	0105	REMOVAL OF STRUCTURE	L SUM	1
210	0101	CLASS I EXCAVATION	L SUM	1
210	0201	FOUNDATION PREPARATION	EA	1
256	0200	RIPRAP GRADE II	CY	191
602	0130	CLASS AE-3 CONCRETE	CY	180
612	0115	REINFORCING STEEL-GRADE 60	LBS	7600
612	0116	REINFORCING STEEL-GRADE 60-EPOXY COATED	LBS	19720
616	0360	STRUCTURAL STEEL	LBS	55320
622	0020	STEEL PILING HP 10 X 42	LF	2520
622	6760	STEEL SHEET PILING	SF	1690
709	0600	GEOTEXTILE FABRIC - TYPE RR	SY	375
930	3000	BRIDGE BENCH MARKS	SET	1
930	9750	PEDESTRIAN BRIDGE - PRE-FAB	EA	1
930	9930	ANTI-GRAFFITI COATING	SF	1520
930	9677	RELOCATE TRUSS BRIDGE	L SUM	1



BEARING ELEVATIONS
 *Elevations May Vary Based On Bridge Manufacturing Requirements. Make Note Of Changes In Submittals.



PILING LAYOUT

LEGEND
 I - HP10 x 42 Pile
 | Direction Of 4" Horizontal To 12" Vertical Batter

NOTE:
 HP10 x 42 Piles Shall Be Driven To 110 Tons.

PILE	NORTHING	EASTING
A	464079.33	2901106.50
B	464060.72	2901099.18
C	464076.04	2901114.88
D	464057.42	2901107.56
E	464020.01	2901257.25
F	464001.40	2901249.93
G	464016.72	2901265.63
H	463998.11	2901258.30

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Pedestrian/Bicycle Bridge Lift Towers

BEARING ELEVATIONS & PILING LAYOUT

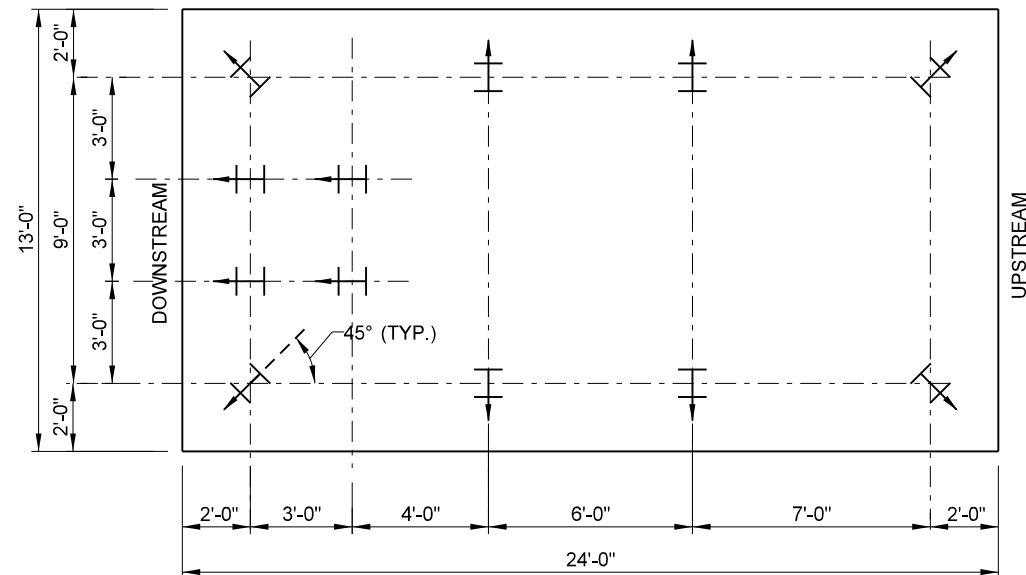
STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
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LEGEND:

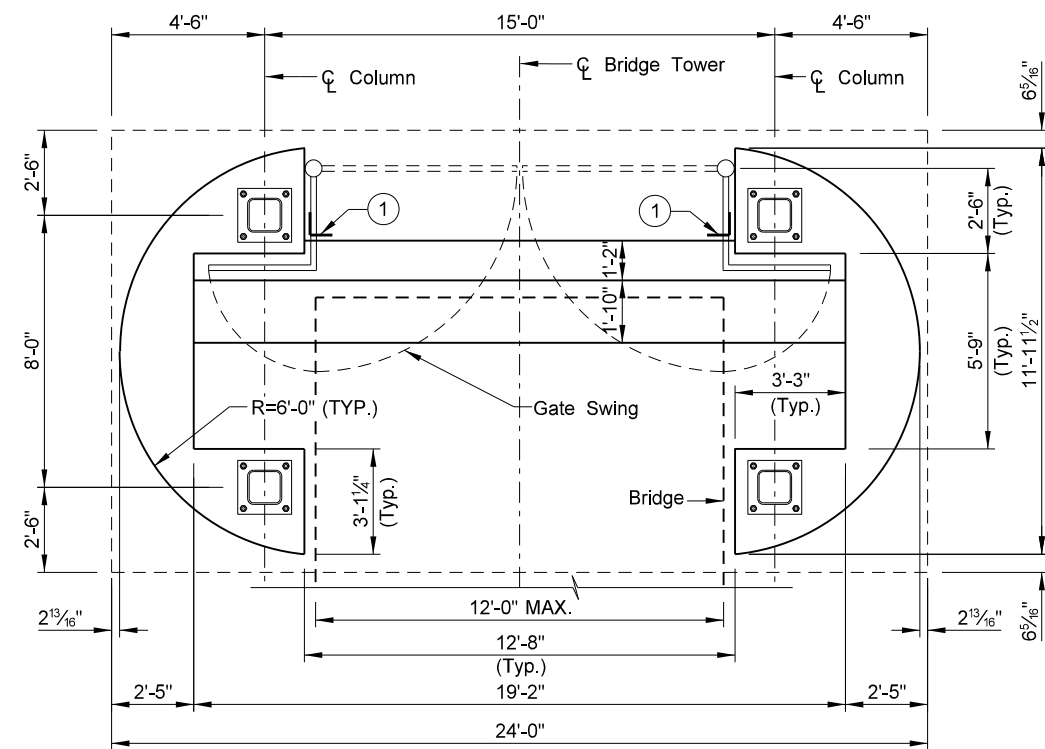
- HP10 x 42 Pile
- HP10 x 42 Pile With 4" Horizontal To 12" Vertical Batter In Direction Of Arrow

NOTES:

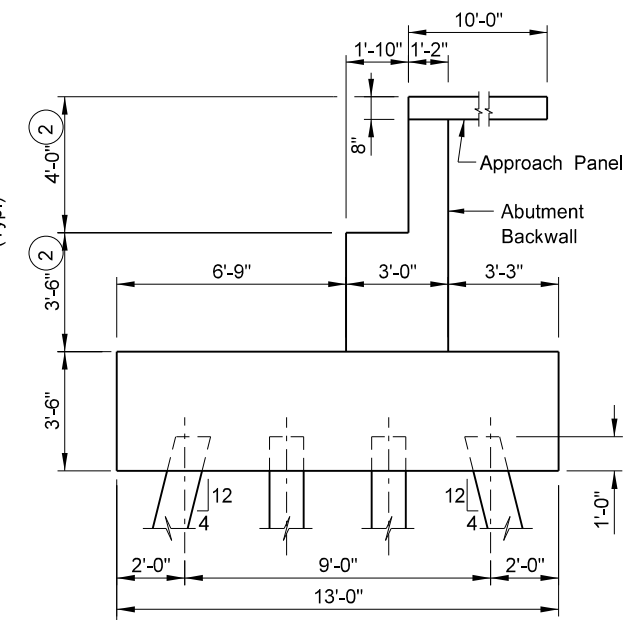
- ① Two Ply Fabric Waterproofing At Joint, Applied in Accordance With Section 740 Of The NDDOT Specifications All Material And Work Shall Be Included In The Pay Item "Class AE-3 Concrete"
- ② Dimensions May Vary Based On Bridge Manufacturing Requirements. Make Note Of Changes In Submittals.
- ③ Architectural Finish And Stain Color To Be Submitted To The City For Approval. Make Note Of Changes In Submittals.



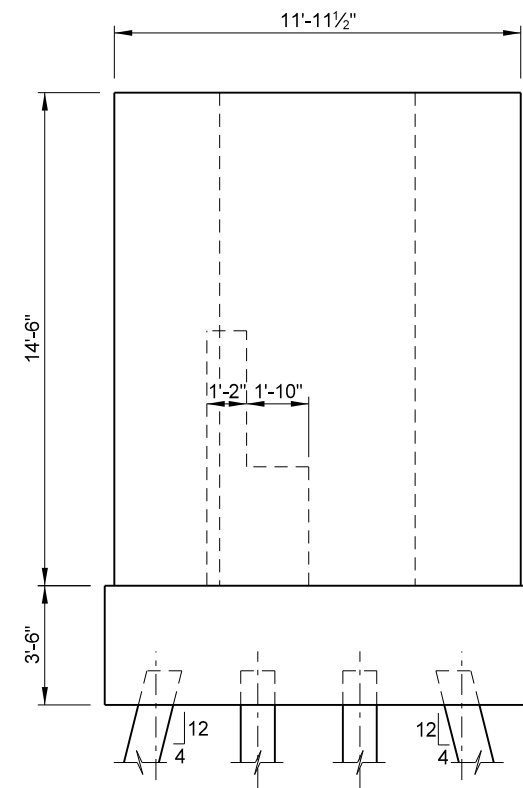
FOOTING PLAN
(SHOWING PILE LOCATIONS)



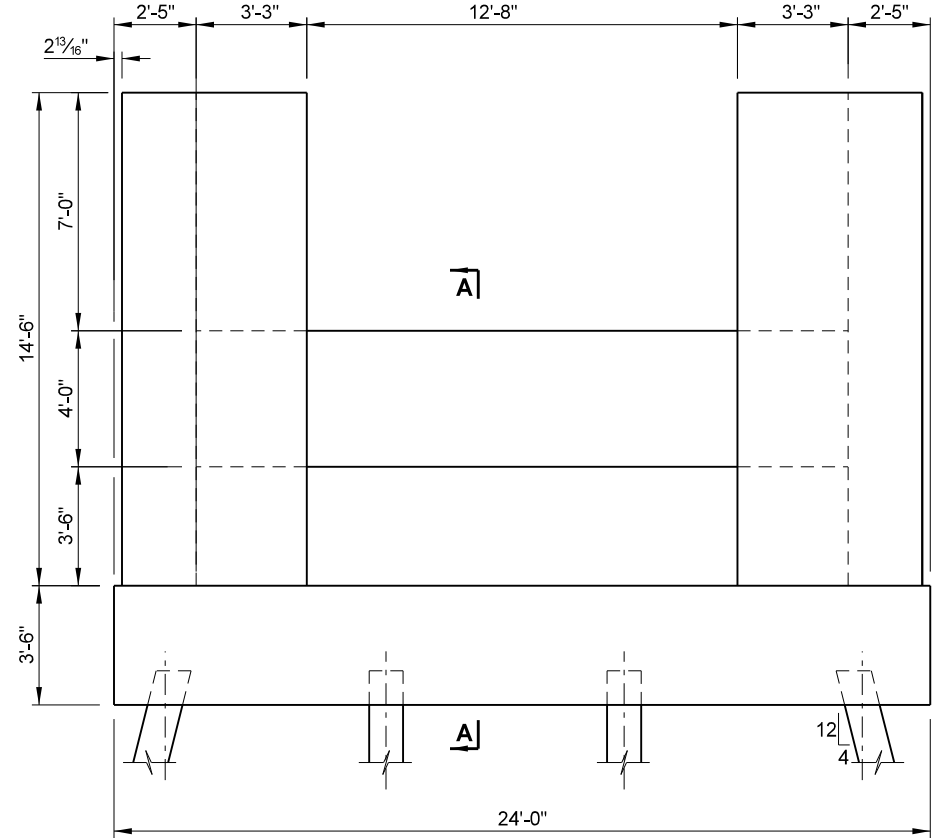
ABUTMENT PLAN
(SHOWING DIMENSIONS)



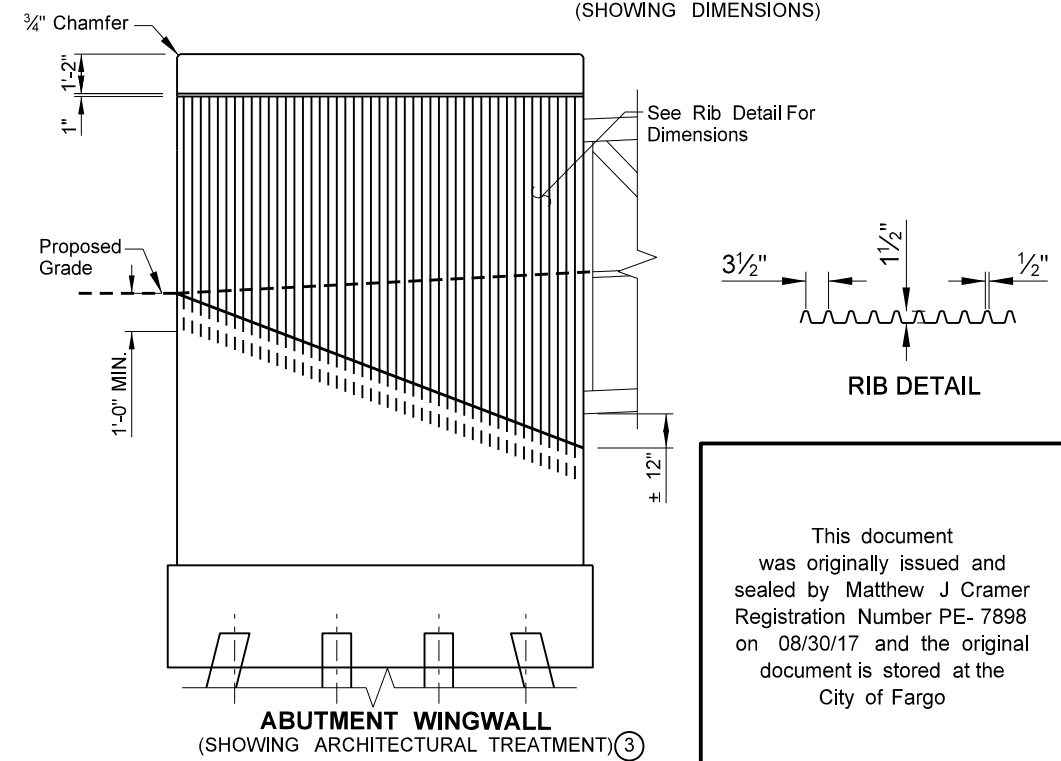
SECTION A-A
(SHOWING DIMENSIONS)



ABUTMENT WINGWALL
(SHOWING DIMENSIONS)



ABUTMENT ELEVATION
(SHOWING DIMENSIONS)



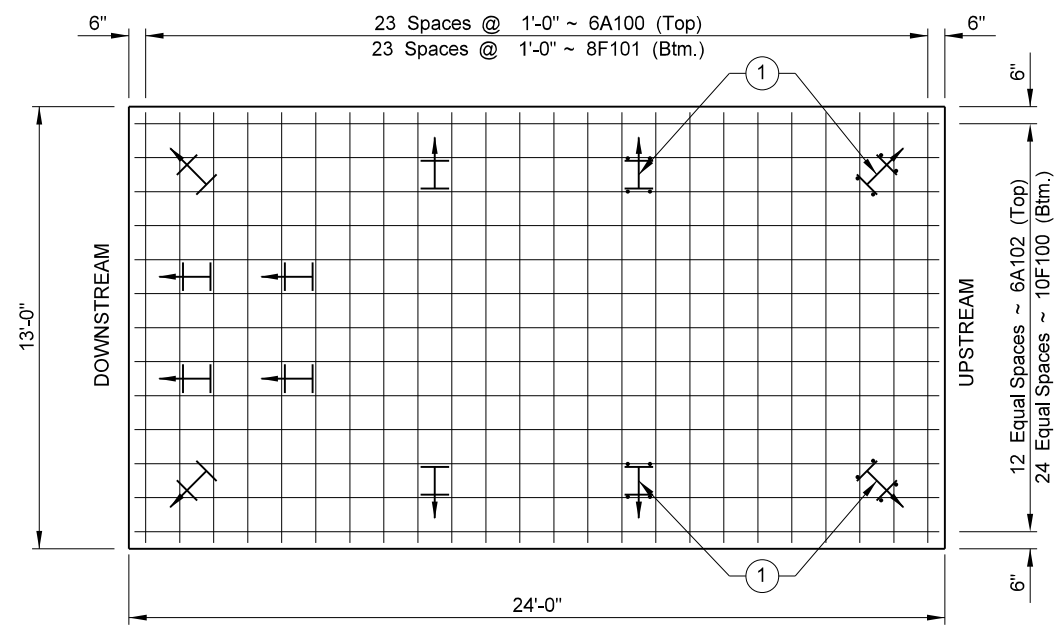
ABUTMENT WINGWALL
(SHOWING ARCHITECTURAL TREATMENT) ③

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Pedestrian/Bicycle Bridge Lift Towers

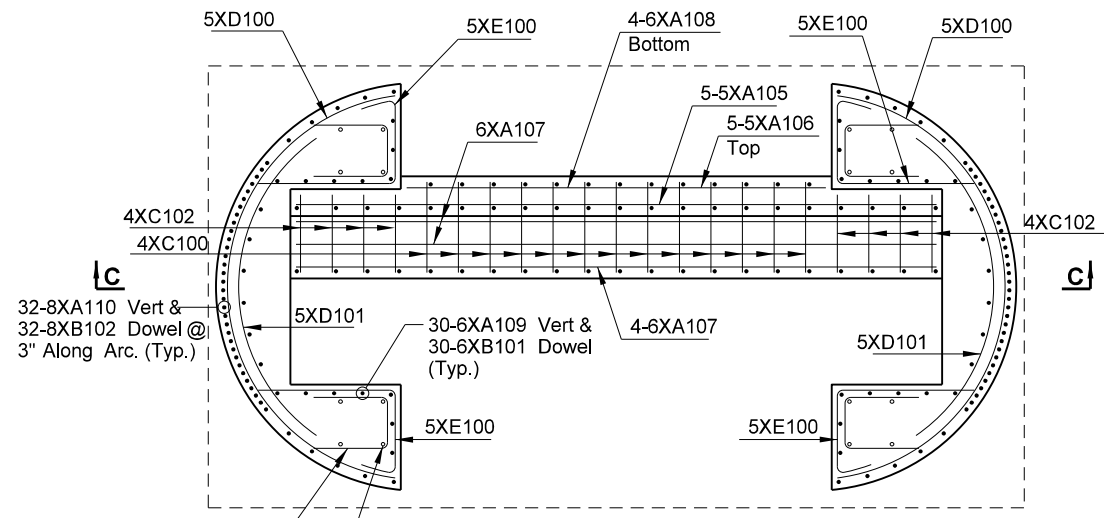
ABUTMENT NO. 1 & 2
SHOWING DIMENSIONS

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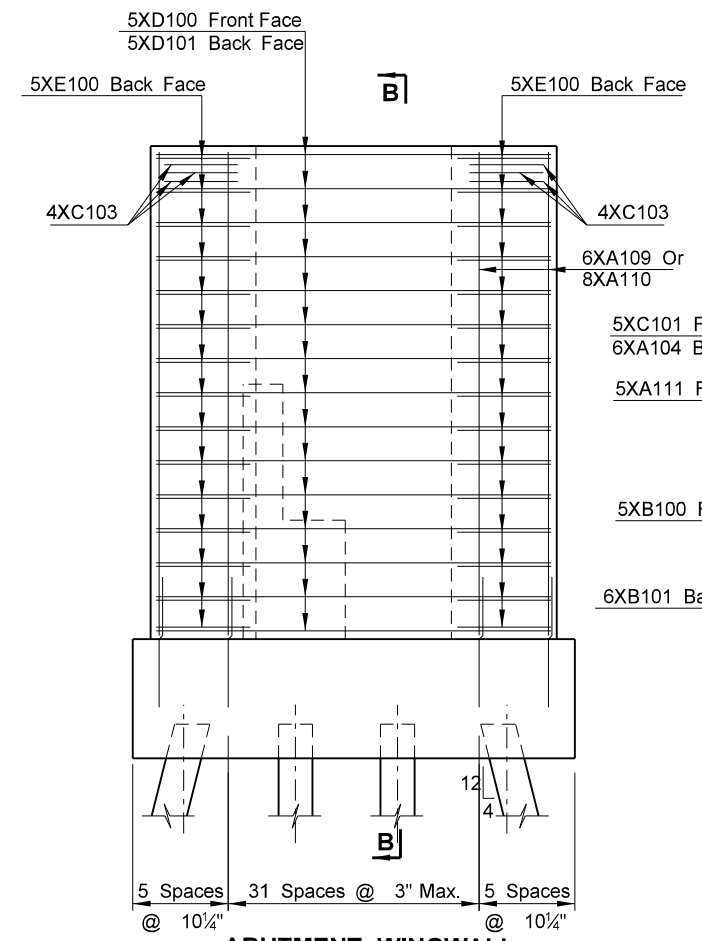


FOOTING PLAN
(SHOWING REINFORCEMENT)

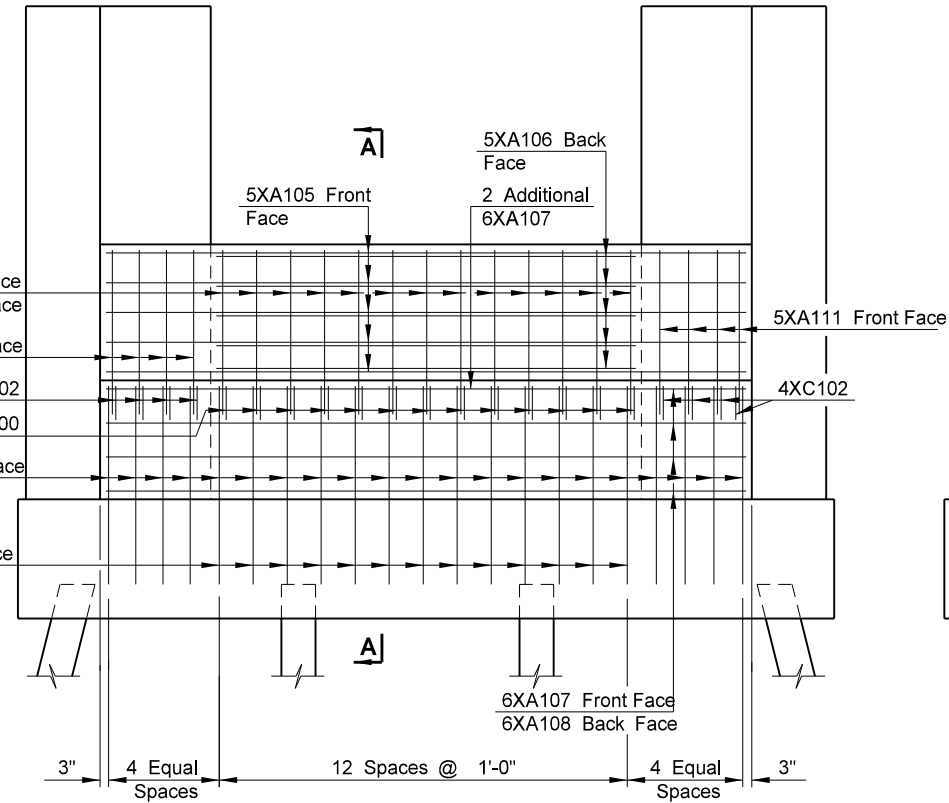
NOTES:
 ① Reinforced Piles. See Pile Reinforcement Detail On Sheet 8



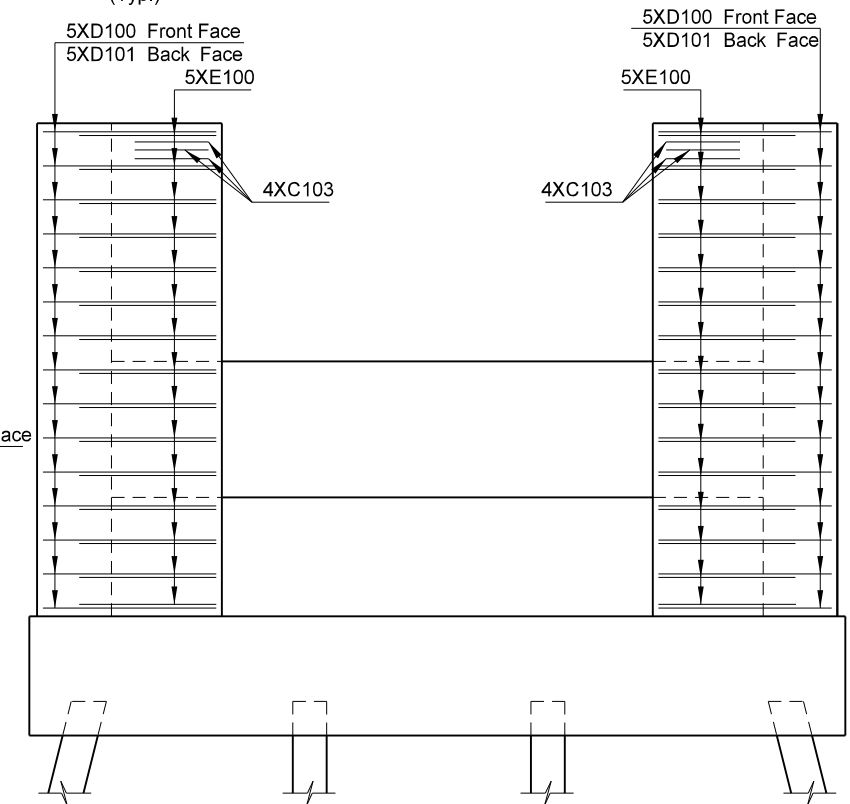
ABUTMENT PLAN
(SHOWING REINFORCEMENT)



ABUTMENT WINGWALL
(SHOWING REINFORCEMENT)



ABUTMENT ELEVATION C-C
(SHOWING STEM REINFORCEMENT)



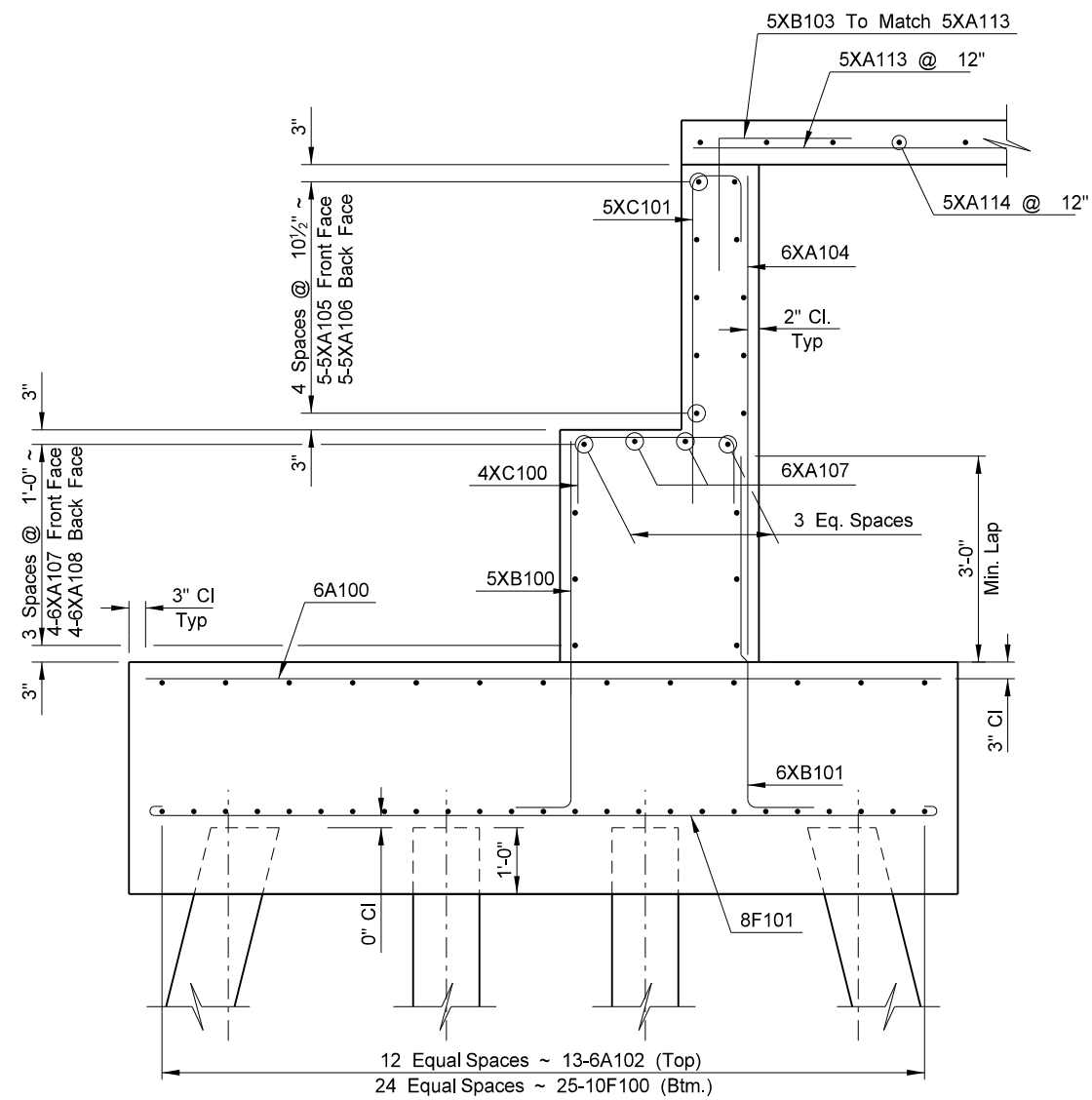
ABUTMENT ELEVATION
(SHOWING REINFORCEMENT)

Vertical Wall Reinforcement Not Shown For Clarity.

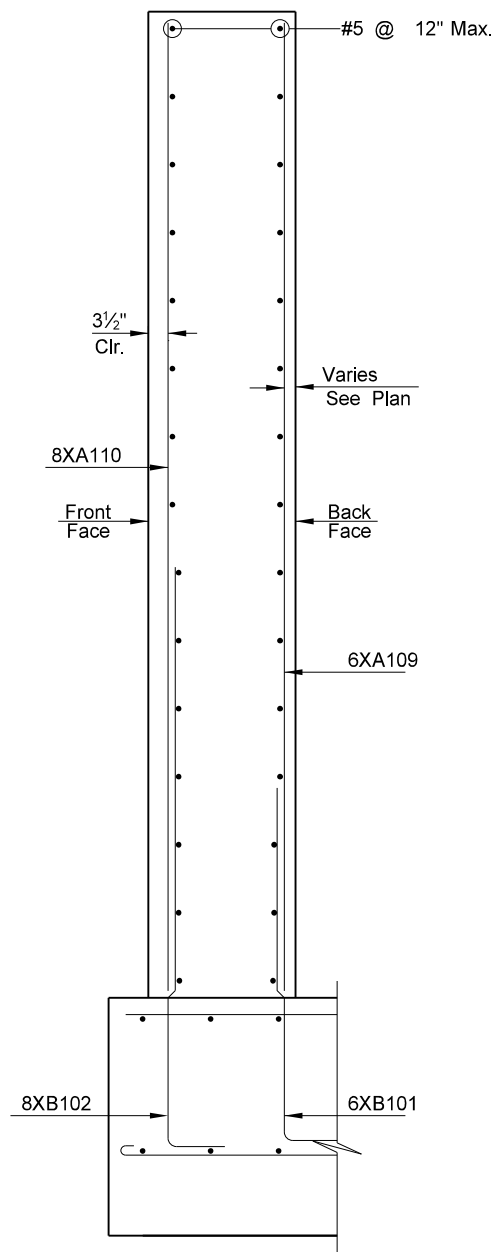
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Pedestrian/Bicycle Bridge Lift Towers
 ABUTMENT NO. 1 & 2
 SHOWING REINFORCEMENT

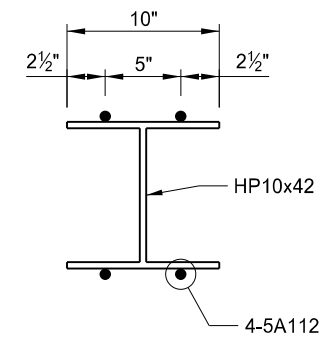
STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
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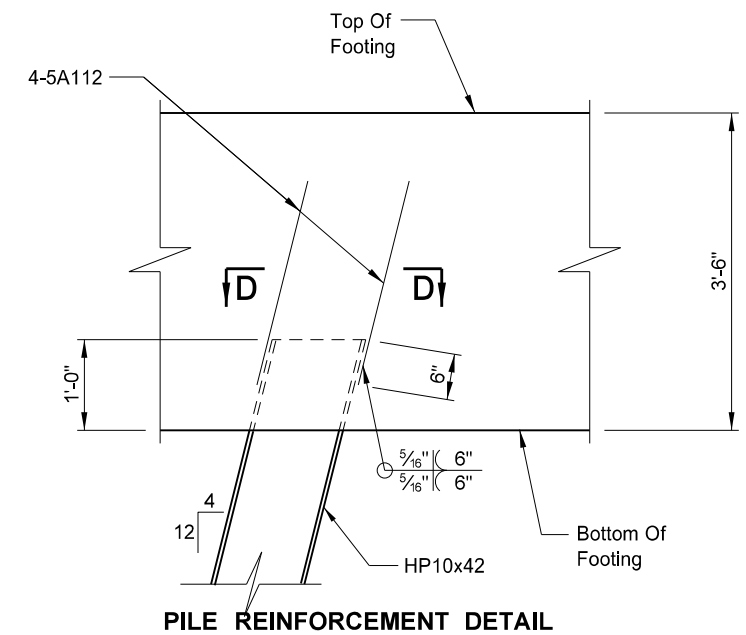
SECTION A-A
(SHOWING REINFORCEMENT)



SECTION B-B
(SHOWING REINFORCEMENT)



SECTION D-D



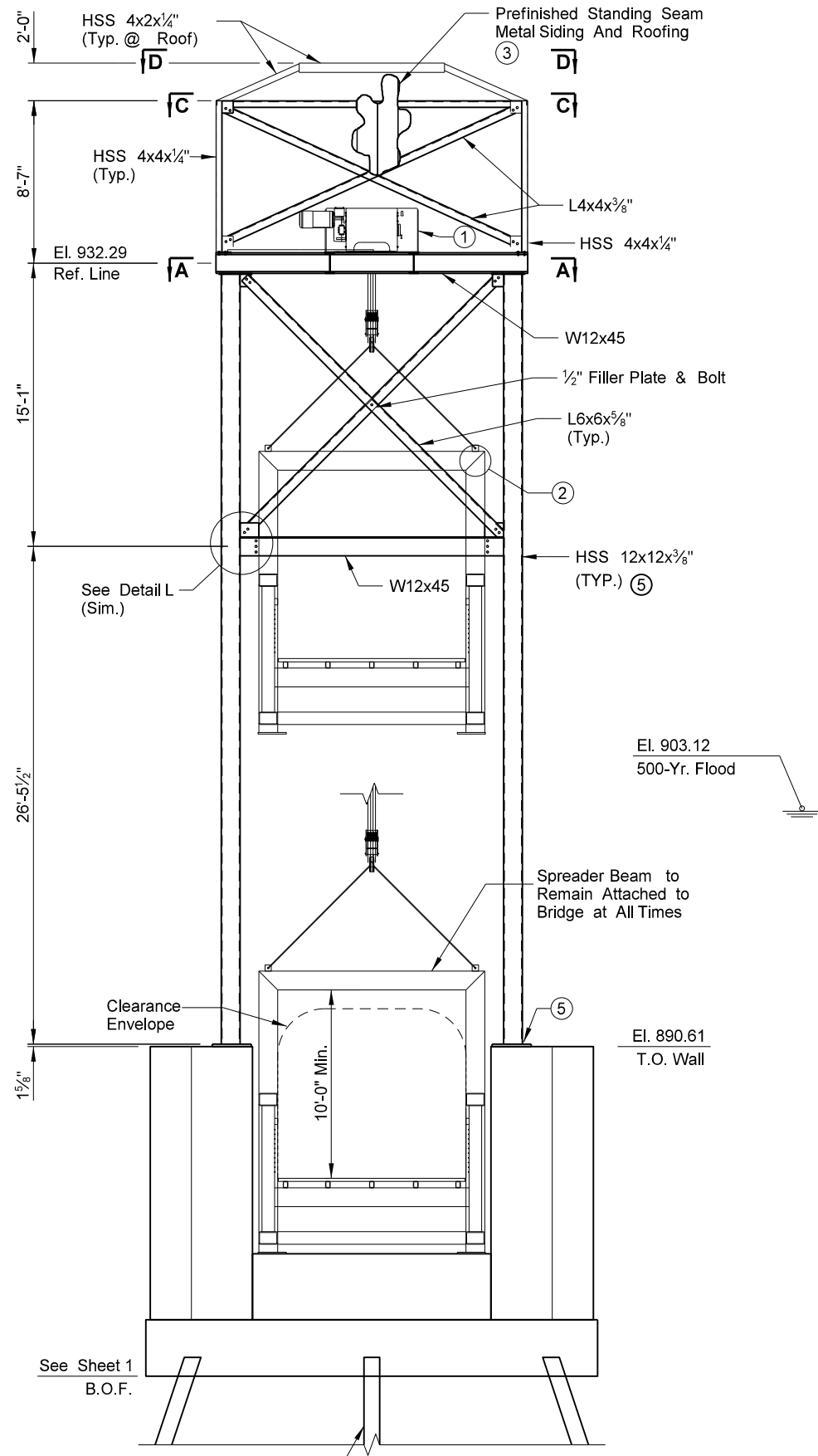
PILE REINFORCEMENT DETAIL

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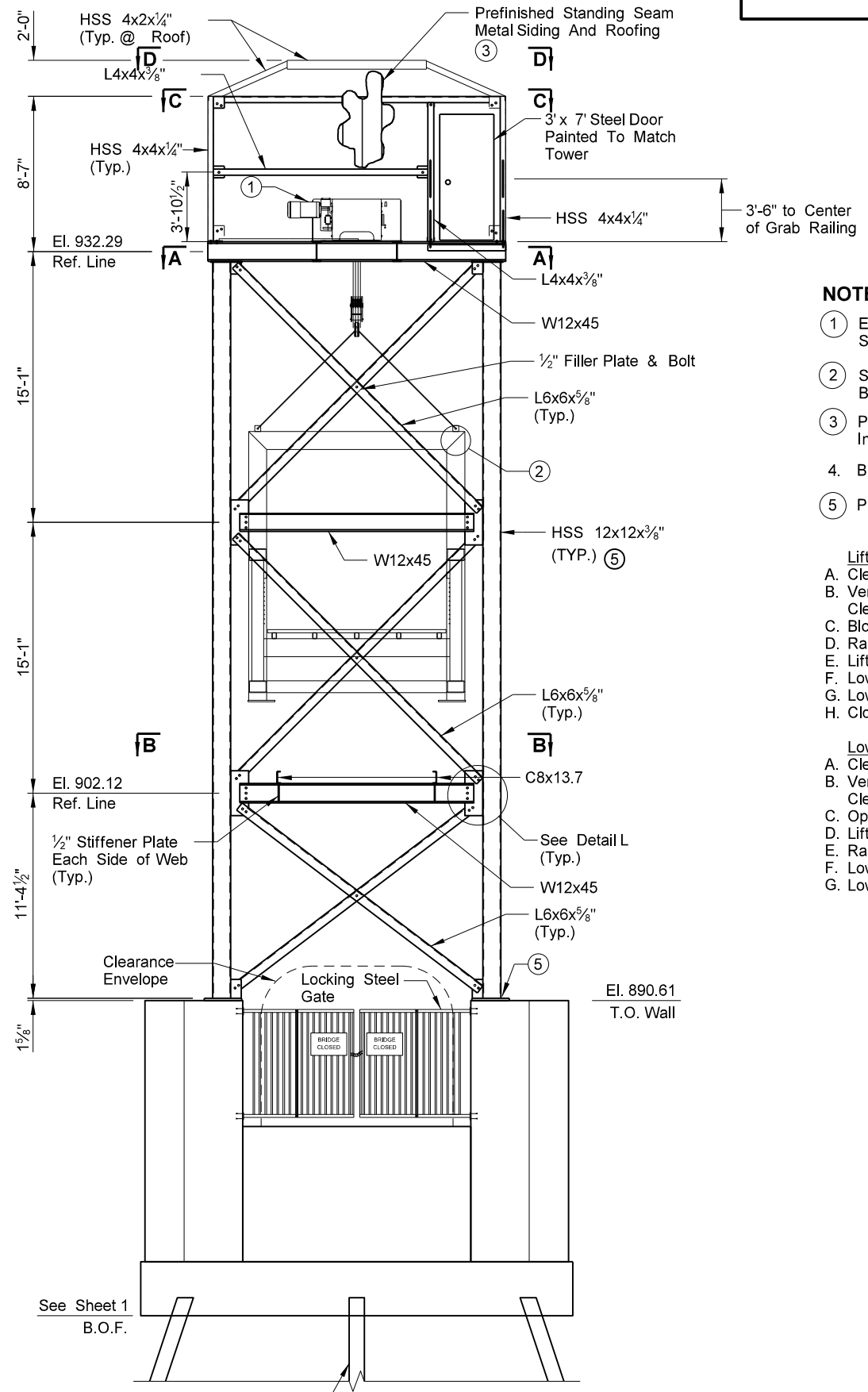
Pedestrian/Bicycle Bridge
Lift Towers

ABUTMENT NO. 1 & 2
SHOWING REINFORCEMENT

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FRONT ELEVATION



BACK ELEVATION

NOTES:

- ① Electric Cable Hoist With 40-Ton Operating Capacity See Electrical For Additional Requirements.
- ② Spreader Beam, Lift Cables And Attachment To Bridge Is By Contractor. Submit Details For Approval.
- ③ Prefinished Metal Siding Shall Be 1/2" Deep x 18" Wide Interlocking Sheets 22 Gauge, Grade 50 Material.
- 4. B.O.F. Denotes Bottom Of Footing
- ⑤ Provide Weep Holes At Base Of HSS Columns.

Lifting Procedure:

- A. Clear Bridge Of Snow And Ice.
- B. Verify Towers, Bridge, And Surrounding Area Are Clear Of Pedestrians And Other Obstructions.
- C. Block Entrance To Bridge At Each End.
- D. Raise Bridge Support Beam Using 2000lb Electric Cable Hoist.
- E. Lift Bridge Using Electric Hoist System.
- F. Lower Bridge Support Beam Once Bridge Has Cleared Beam.
- G. Lower Bridge Onto Support Beam.
- H. Close and Lock Steel Gates At Each End Of Bridge.

Lowering Procedure:

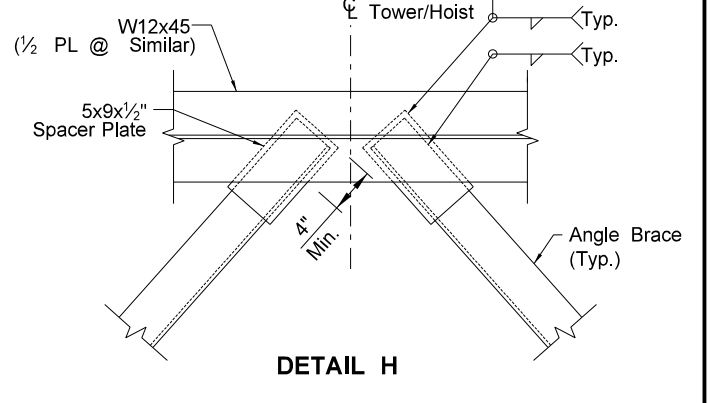
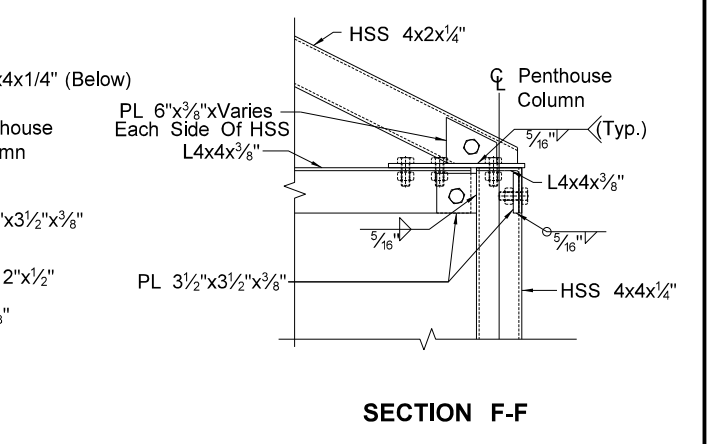
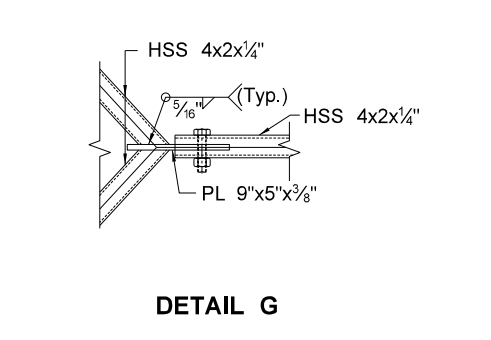
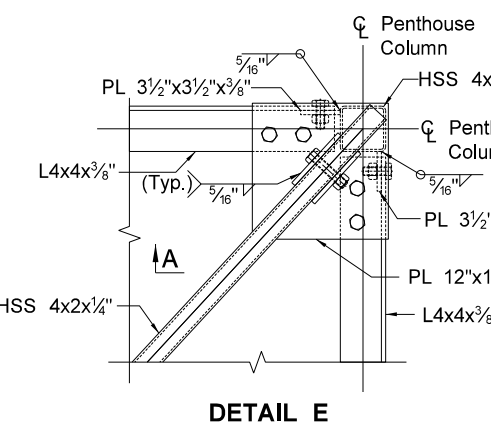
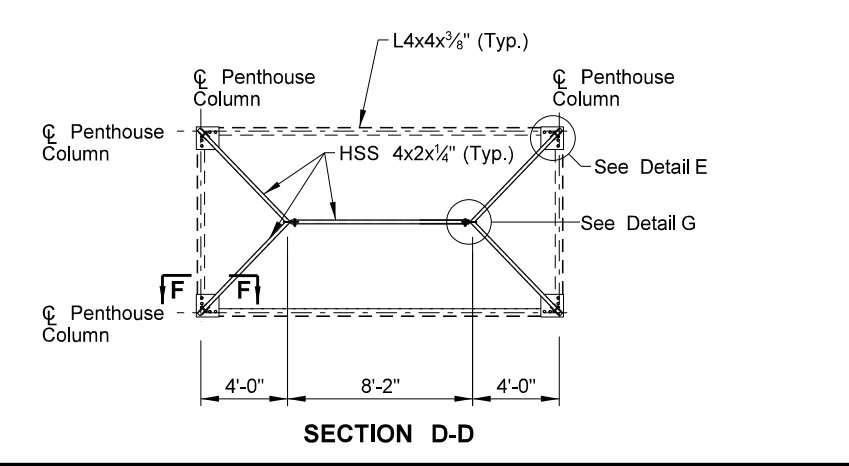
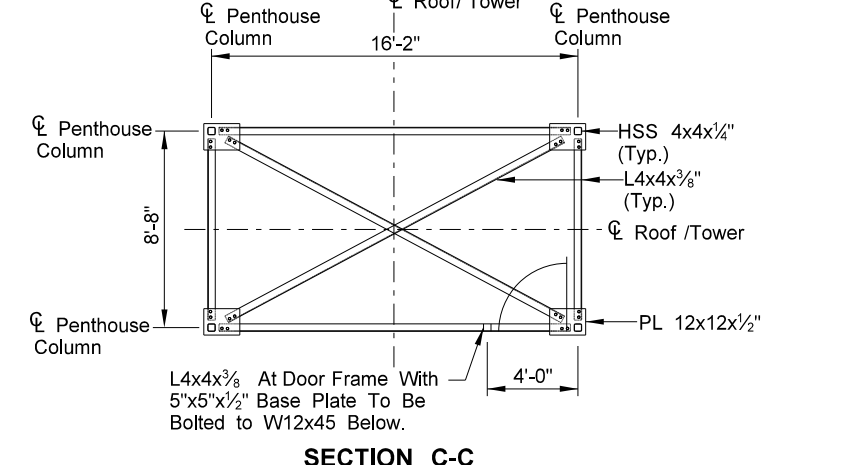
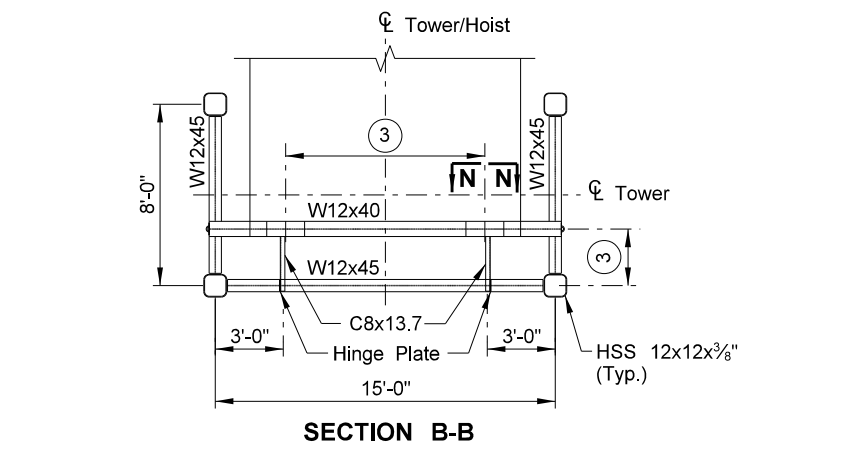
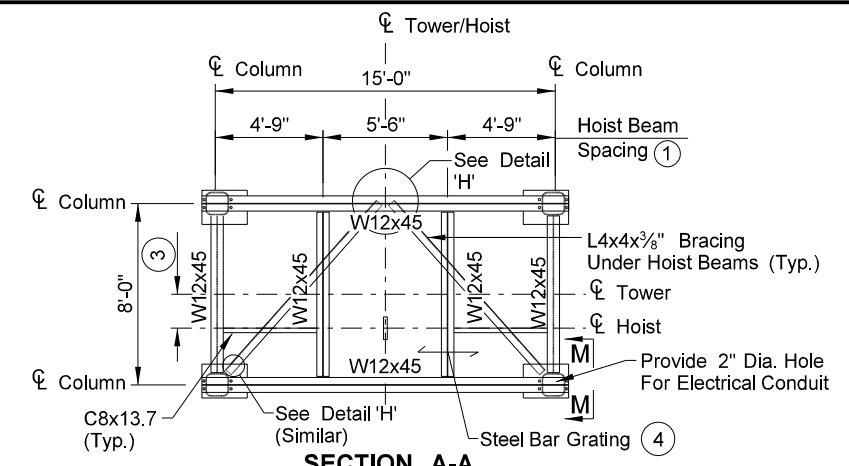
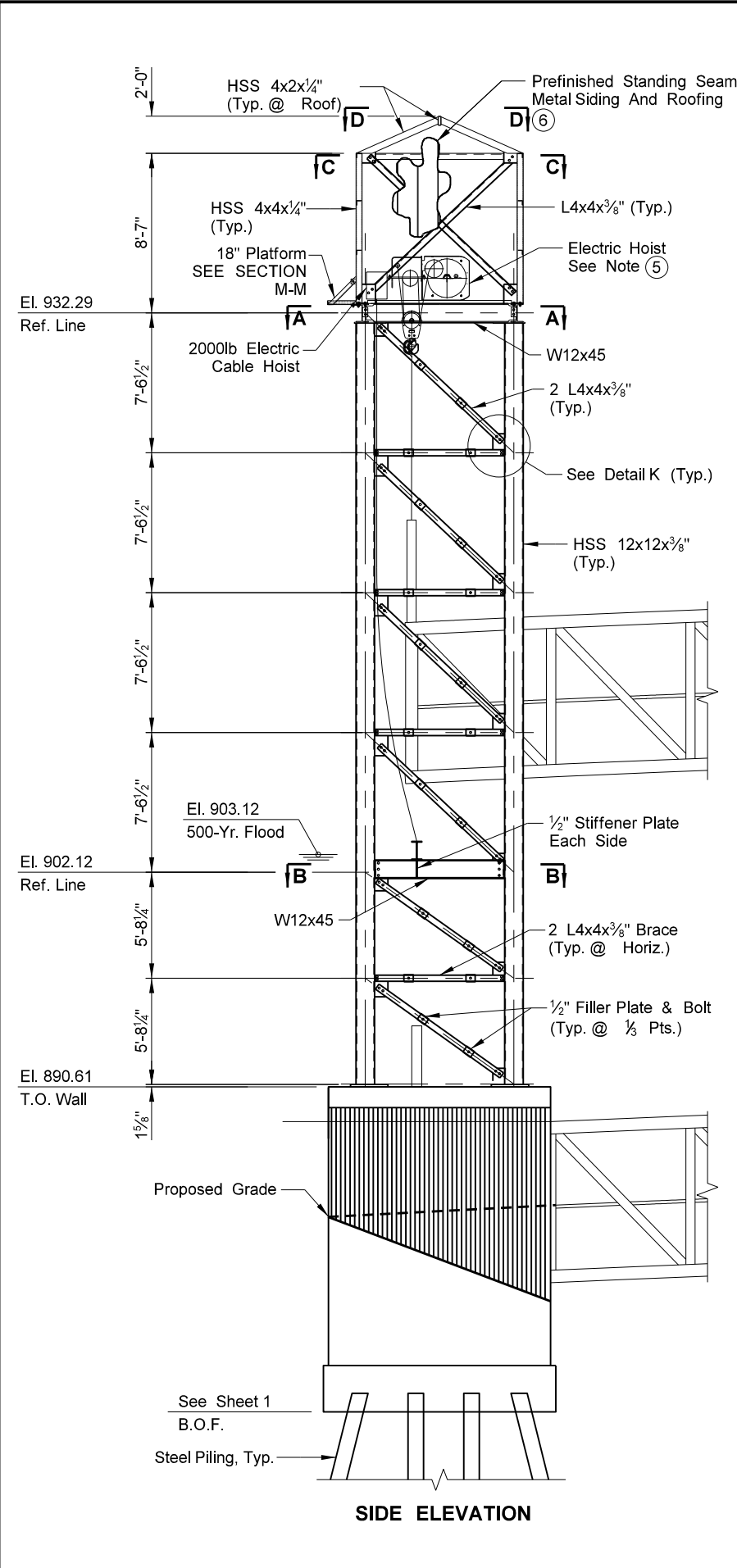
- A. Clear Bridge Of Snow And Ice.
- B. Verify Towers, Bridge, And Surrounding Area Are Clear Of Pedestrians And Other Obstructions.
- C. Open Gates And Block Entrances To Bridge At Each End.
- D. Lift Bridge To Provide Clearance For Support Beam To Rotate Up.
- E. Raise Support Beam Using 2000lb Electric Cable Hoist.
- F. Lower Bridge To The Abutment.
- G. Lower Bridge Support Beam to Rest on Tower Structure.

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Pedestrian/Bicycle Bridge Lift Towers

LIFT TOWER ELEVATIONS (Sheet 1 of 2)

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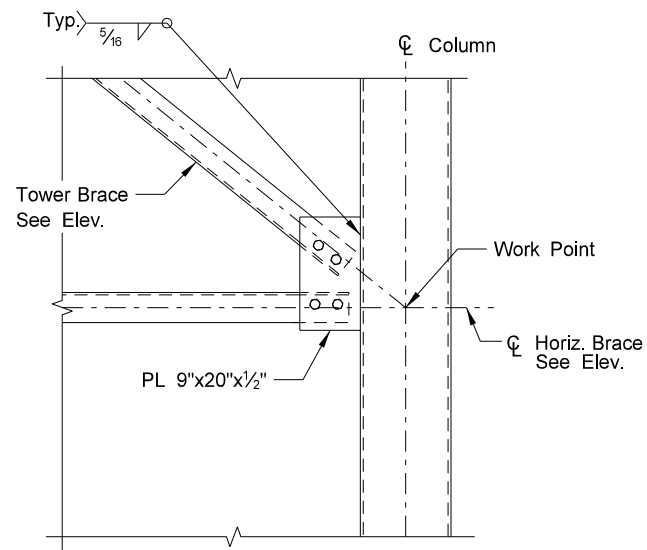
- NOTES:**
- Coordinate Hoist Support Beam Spacing With Hoist Supplier.
 - Spreader Beam, Lift Cables And Attachment To Bridge Is By Contractor. Submit Details For Approval.
 - Adjust Per Tower Bridge Bearing.
 - With 1 1/2" x 3/8" Bearing Bars Spaced @ 13/16" O.C. Fastened To Floor Beams Per Manufacturer's Recommendation.
 - Electric Cable Hoist With 40-Ton Operating Capacity See Electrical For Additional Requirements.
 - Prefinished Metal Siding Shall Be 1 1/2" Deep x 18" Wide Interlocking Sheets 22 Gauge, Grade 50 Material.
 - B.O.F. Denotes Bottom Of Footing

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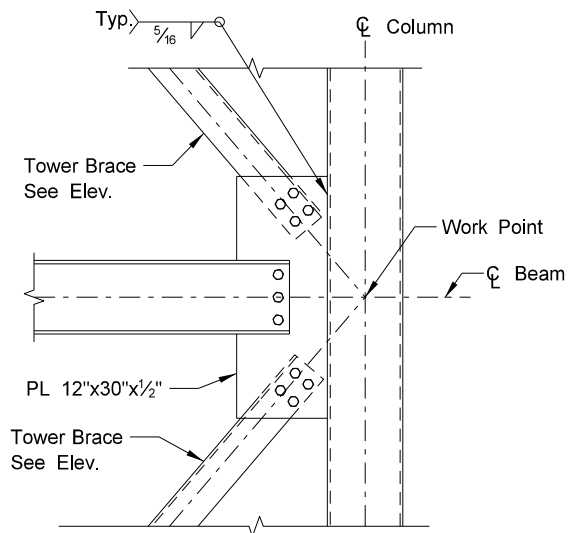
Pedestrian/Bicycle Bridge Lift Towers

LIFT TOWER ELEVATIONS (Sheet 2 of 2)

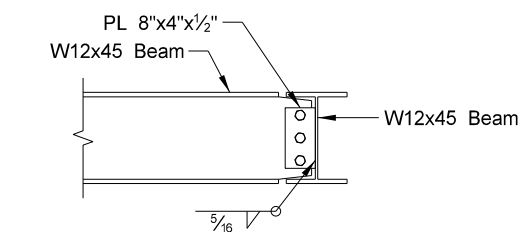
STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
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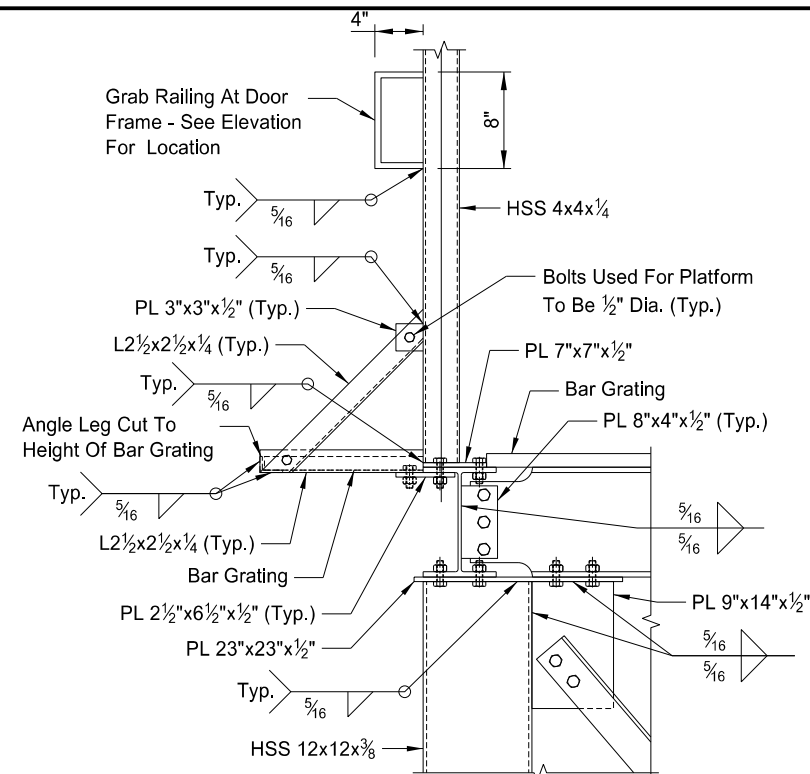
DETAIL K



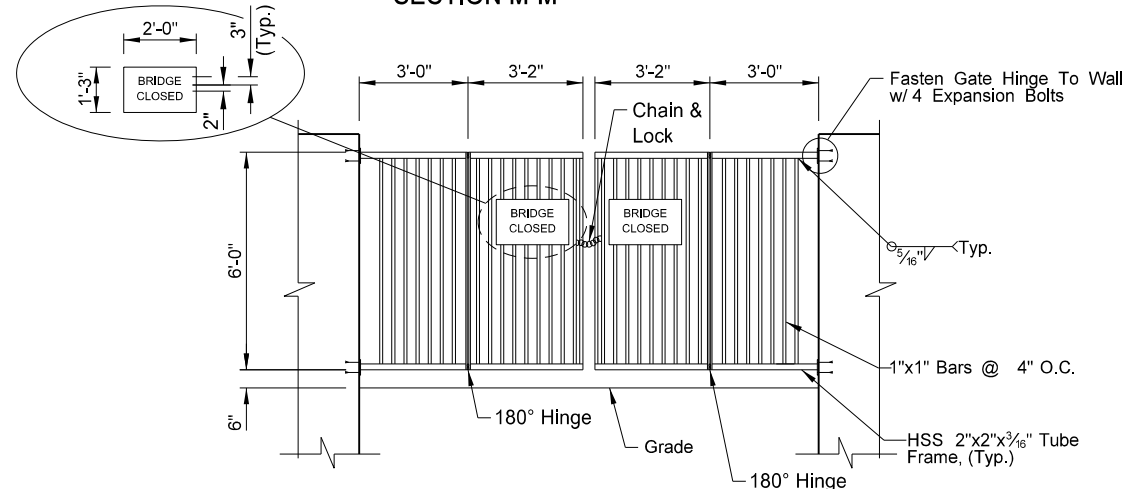
DETAIL L



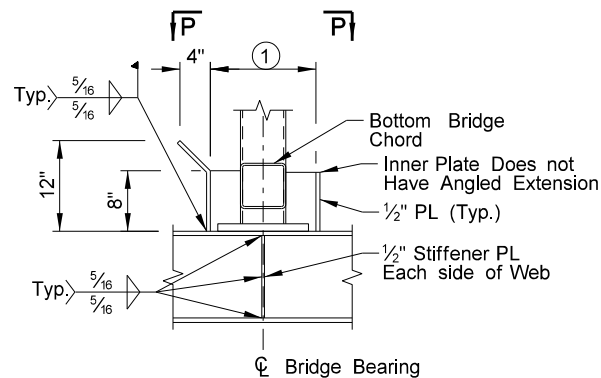
TYPICAL DETAIL @ HOIST BEAMS



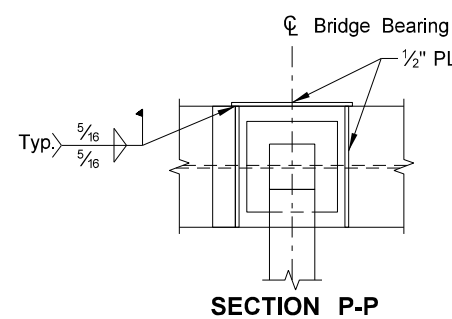
SECTION M-M



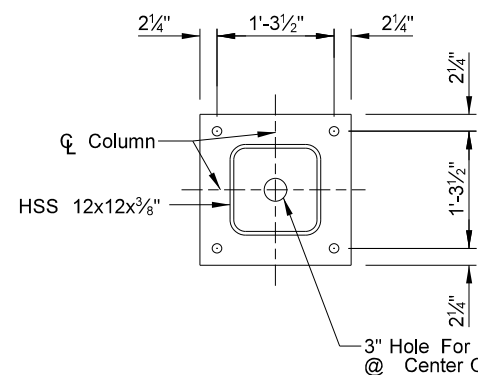
BI-FOLD GATE DETAIL



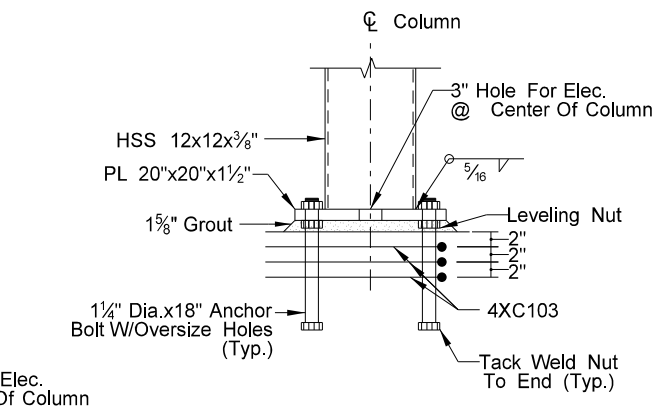
SECTION N-N



SECTION P-P

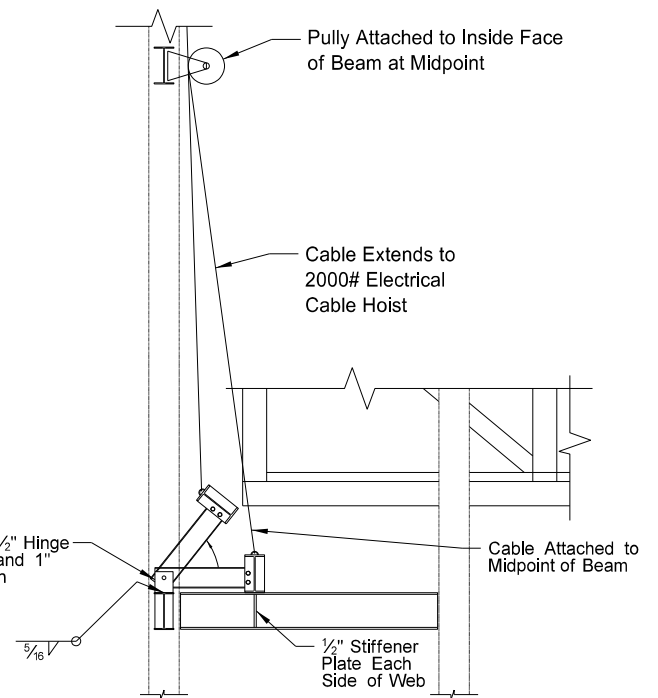


COLUMN BASE PLATE DETAIL



COLUMN BASE PLATE DETAIL

COLUMN BASE PLATE DETAIL



SWING ARM DETAIL

Notes:

- ① Bridge Bearing Plate Width +2". Dimensions May Vary Based On Bridge Manufacturing Requirements. Make Note Of Changes In Submittals.

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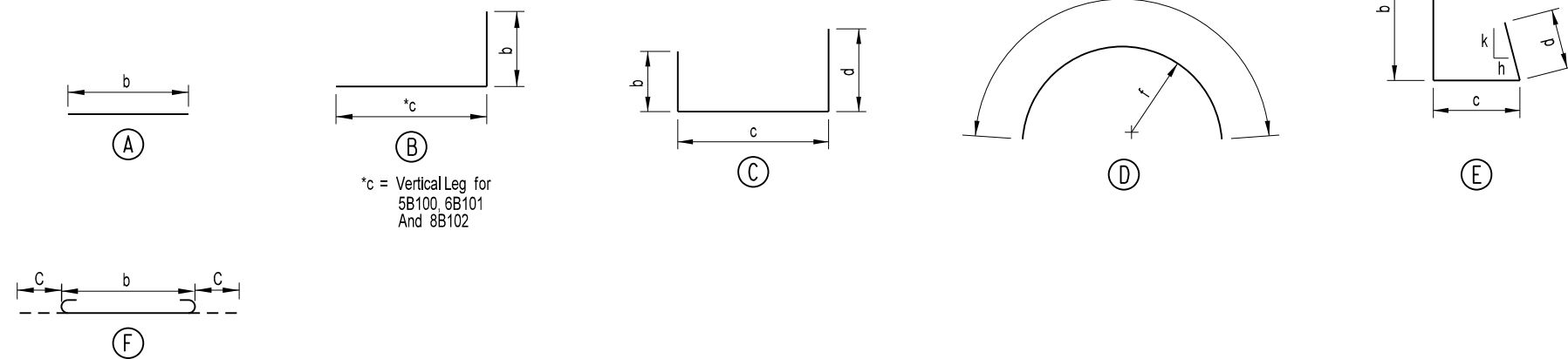
Pedestrian/Bicycle Bridge Lift Towers

MISCELLANEOUS DETAILS

BILL OF REINFORCING STEEL, GRADE 60

LETTER PREFIX OF BAR MARK DENOTES SHAPE ~ SEE BAR DETAILS (8)

LOCATION	SIZE	MXARK	NO EACH /SET	NOMINAL LENGTH	DETAILING DIMENSIONS											LOCATION	SIZE	MARK	NO EACH /SET	NOMINAL LENGTH	DETAILING DIMENSIONS										
					a	b	c	d	e	f	g	h	k	a	b						c	d	e	f	g	h	k				
ABUTMENT NO. 1	6	XA100	24	12' - 6"		12' - 6"									6	XA100	24	12' - 6"		12' - 6"											
		A101		NOT USED												A101		NOT USED													
	6	XA102	13	23' - 6"		23' - 6"									6	XA102	13	23' - 6"		23' - 6"											
		A103		NOT USED												A103		NOT USED													
	6	XA104	13	6' - 8"		6' - 8"									6	XA104	13	6' - 8"		6' - 8"											
	5	XA105	5	18' - 10"		18' - 10"									5	XA105	5	18' - 10"		18' - 10"											
	5	XA106	5	12' - 4"		12' - 4"									5	XA106	5	12' - 4"		12' - 4"											
	6	XA107	6	18' - 10"		18' - 10"									6	XA107	6	18' - 10"		18' - 10"											
	6	XA108	4	12' - 4"		12' - 4"									6	XA108	4	12' - 4"		12' - 4"											
	6	XA109	60	14' - 4"		14' - 4"									6	XA109	60	14' - 4"		14' - 4"											
	8	XA110	64	14' - 4"		14' - 4"									8	XA110	64	14' - 4"		14' - 4"											
	5	XA111	8	5' - 6"		5' - 6"									5	XA111	8	5' - 6"		5' - 6"											
	5	A112 (7)	16	2' - 4"		2' - 4"									5	A112 (7)	16	2' - 4"		2' - 4"											
	5	XA113	13	9' - 6"		9' - 6"									5	XA113	13	9' - 6"		9' - 6"											
	5	XA114	11	12' - 2"		12' - 2"									5	XA114	11	12' - 2"		12' - 2"											
	5	XB100	21	6' - 7"		5' - 9"	0' - 10"								5	XB100	21	6' - 7"		5' - 9"	0' - 10"										
	6	XB101	73	6' - 7"		5' - 7"	1' - 0"								6	XB101	73	6' - 7"		5' - 7"	1' - 0"										
	8	XB102	64	10' - 6"		9' - 2"	1' - 4"								8	XB102	64	10' - 6"		9' - 2"	1' - 4"										
	5	XB103	13	4' - 0"		2' - 0"	2' - 0"								5	XB103	13	4' - 0"		2' - 0"	2' - 0"										
	4	XC100	13	4' - 8"		1' - 0"	2' - 8"	1' - 0"							4	XC100	13	4' - 8"		1' - 0"	2' - 8"	1' - 0"									
	5	XC101	13	7' - 2"		0' - 10"	0' - 10"	5' - 6"							5	XC101	13	7' - 2"		0' - 10"	0' - 10"	5' - 6"									
	4	XC102	8	4' - 3"		1' - 0"	2' - 3"	1' - 0"							4	XC102	8	4' - 3"		1' - 0"	2' - 3"	1' - 0"									
	4	XC103	12	5' - 10"		2' - 0"	1' - 10"	2' - 0"							4	XC103	12	5' - 10"		2' - 0"	1' - 10"	2' - 0"									
	5	XD100	30	16' - 6"		16' - 6"				5' - 7"					5	XD100	30	16' - 6"		16' - 6"				5' - 7"							
	5	XD101	30	15' - 0"		15' - 0"				5' - 1"					5	XD101	30	15' - 0"		15' - 0"				5' - 1"							
	5	XE100	60	7' - 2"		3' - 11"	2' - 5"	0' - 10"				3.5"	12"		5	XE100	60	7' - 2"		3' - 11"	2' - 5"	0' - 10"			3.5"	12"					
	10	F100	25	26' - 4"		23' - 6"	1' - 5"								10	F100	25	26' - 4"		23' - 6"	1' - 5"										
	8	F101	24	14' - 4"		12' - 6"	0' - 11"								8	F101	24	14' - 4"		12' - 6"	0' - 11"										



NOTES:

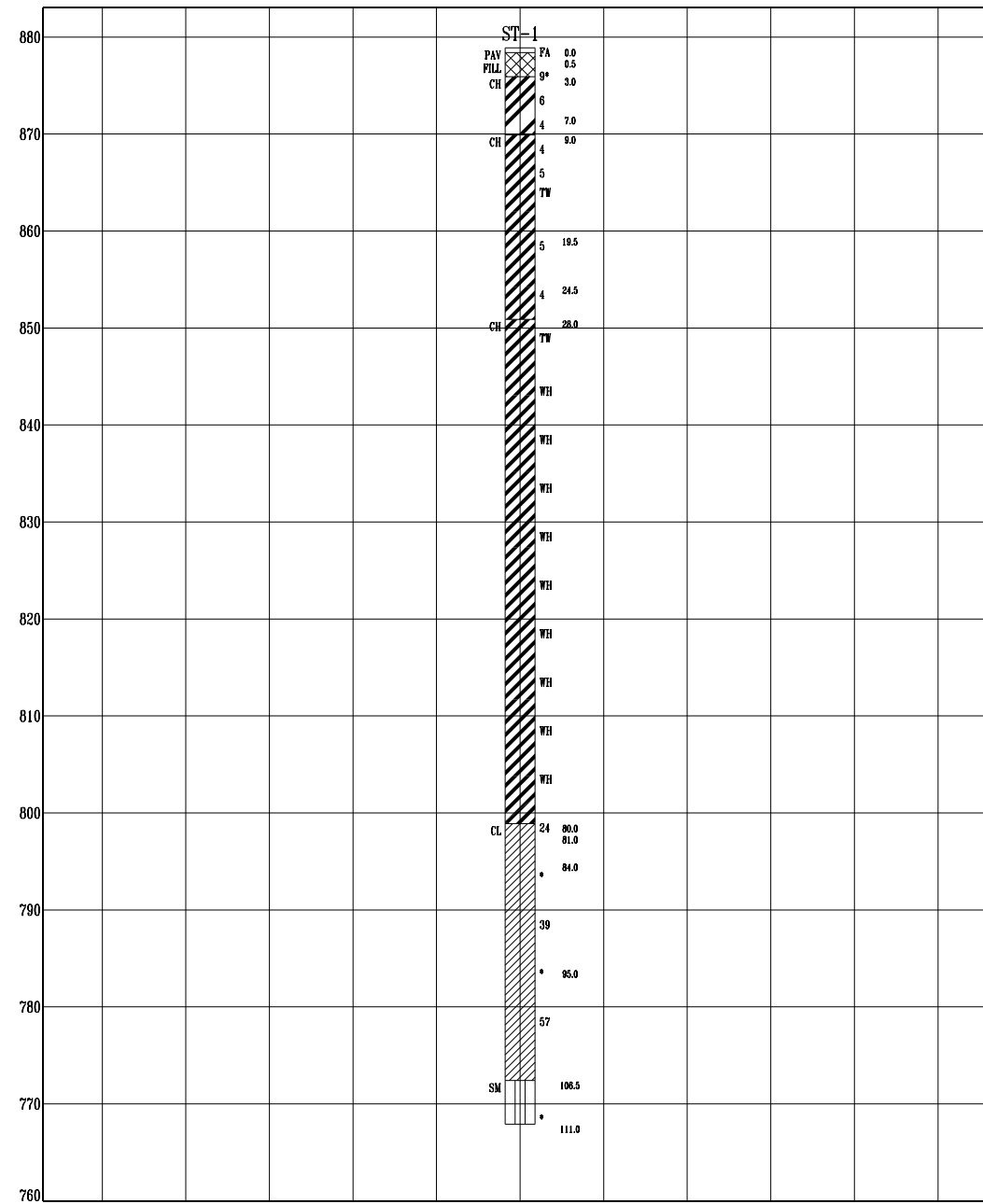
1. Fabrication and tolerances shall be in accordance with the CRSI Manual of Standard Practice.
2. All dimensions are out to out of bars.
3. Nominal length of each bent bar or cut bar is the sum total of the detailing dimensions for that bar, unless otherwise noted.
4. Adjacent "AA" bars shall be turned end for end so that the splice locations are staggered.
5. The "r" dimension indicates the inside radius unless otherwise noted.
6. All reinforcing steel shall conform to ASTM A615 grade 60 unless noted otherwise.
- (7) Bar mark A112 shall conform to ASTM A706.
- (8) An "X" preceding the letter prefix signifies an epoxy coated bar.

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Pedestrian/Bicycle Bridge
Lift Towers

REINFORCING BAR
LIST DETAILS

STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	TAU-8-984(154)157	170	13



SOIL BORING

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BORINGS