

ORDER OF SHEETS

Section No.	1	Title
Section No.	2	Typical Sections and Details
Section No.	3	Estimate of Quantities
Section No.	3	Miscellaneous Quantities
Section No.	4	Right of Way Plat
Section No.	5	Plan and Profile
Section No.	6	Standard Detail Drawings
Section No.	7	Sign Plates
Section No.	8	Structure Plans
Section No.	9	Computer Earthwork Data
Section No.	9	Cross Sections

TOTAL SHEETS = 236

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

TREMPEALEAU - FOUNTAIN CITY

MISSISSIPPI RVR TRIBUTARY/3 BRIDGES

STH 35

BUFFALO COUNTY

STATE PROJECT NUMBER  
7160-04-75

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
7160-04-75	WISC 2023119	1

PROJECT ID: 7160-04-75

COUNTY: BUFFALO



PROJECT LOCATION

DESIGN DESIGNATION

A.A.D.T.	2023	=	5,500
A.A.D.T.	2043	=	6,350
D.H.V.		=	10.0
D.D.		=	60/40
T.		=	8.2 %
DESIGN SPEED		=	60 MPH
ESALS		=	890,000

CONVENTIONAL SYMBOLS

PLAN	
CORPORATE LIMITS	
PROPERTY LINE	
LOT LINE	
LIMITED HIGHWAY EASEMENT	
EXISTING RIGHT OF WAY	
PROPOSED OR NEW R/W LINE	
SLOPE INTERCEPT	
REFERENCE LINE	
EXISTING CULVERT	
PROPOSED CULVERT (Box or Pipe)	
COMBUSTIBLE FLUIDS	
MARSH AREA	
WOODED OR SHRUB AREA	



END PROJECT 7160-04-75  
STA 454+00.00

STRUCTURE B-6-206

BEGIN CONSTRUCTION  
STA 449+80.00

END CONSTRUCTION  
STA 350+00.00

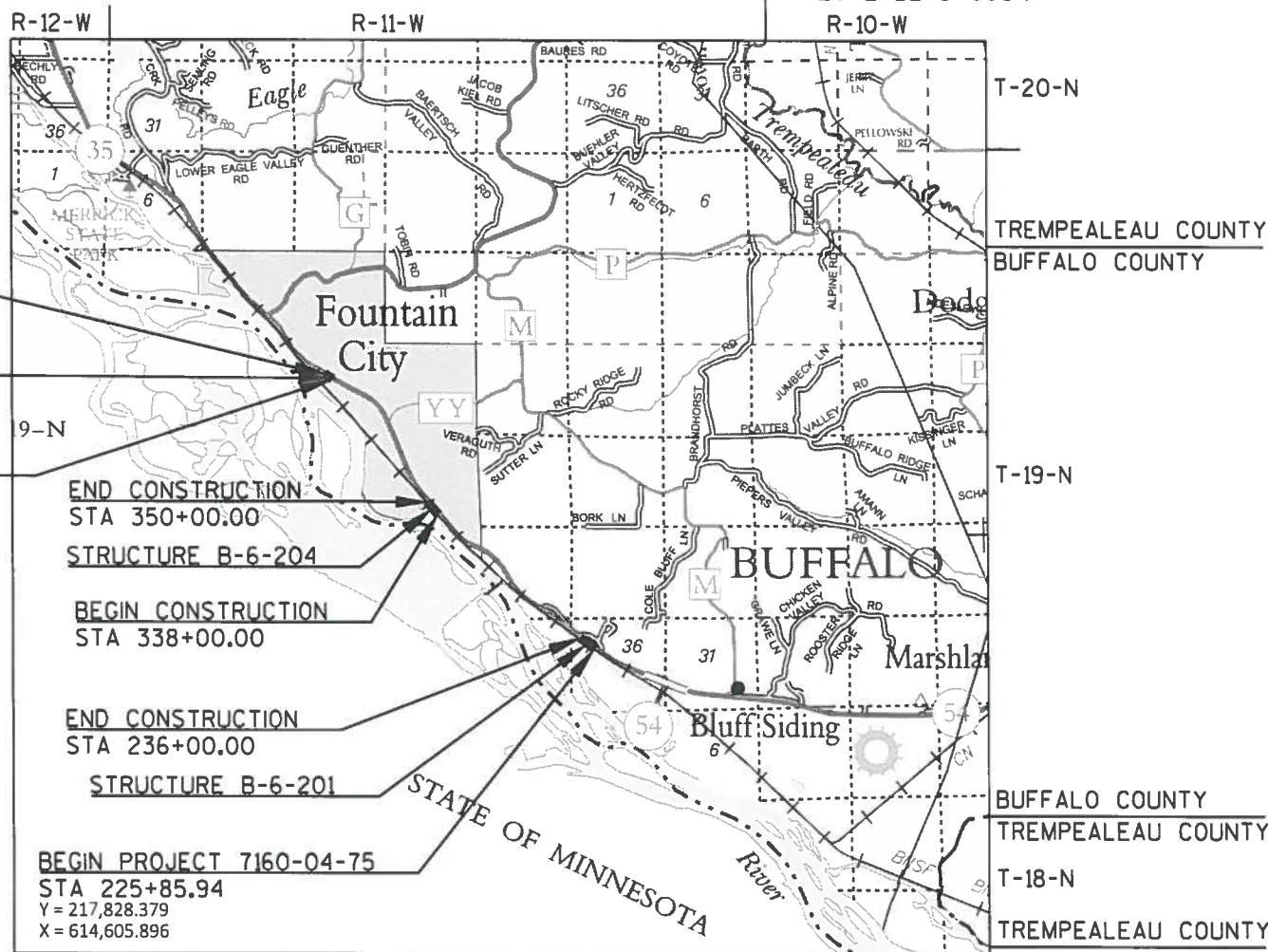
STRUCTURE B-6-204

BEGIN CONSTRUCTION  
STA 338+00.00

END CONSTRUCTION  
STA 236+00.00

STRUCTURE B-6-201

BEGIN PROJECT 7160-04-75  
STA 225+85.94  
Y = 217,828.379  
X = 614,605.896



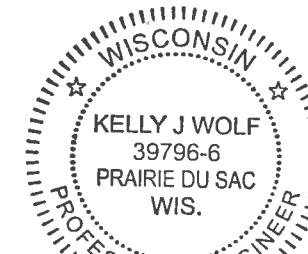
TOTAL NET LENGTH OF CENTERLINE = 0.000 MI.

COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), BUFFALO COUNTY NAD 83 (2011).

ELEVATIONS ON THIS PLAN ARE REFERENCED TO THE NATIONAL GEODETIC VERTICAL DATUM OF 1988 (NAVD 88).

ORIGINAL PLANS PREPARED BY

AECOM



*Kelly J Wolf*  
7-21-2022  
(Date) (Signature)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

PREPARED BY	
Surveyor	FAA ENGINEERS
Designer	AECOM
Project Manager	CAMERON SHIFFER
Regional Examiner	NW REGION
Regional Supervisor	TYLER RONGSTAD

APPROVED FOR THE DEPARTMENT  
DATE: 07/21/22 Tyler Rongstad  
(Signature)

E

**GENERAL NOTES**

1. THE LOCATION OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.
2. EXCAVATION BELOW SUBGRADE (EBS) IS NOT USED TO BALANCE YARDAGE AND IS NOT SHOWN ON THE CROSS SECTIONS. LOCATIONS FOR EBS, IF REQUIRED, WILL BE DETERMINED BY THE ENGINEER.
3. FILL AS SHOWN ON THE PLAN SHEETS PERTAINS TO EMBANKMENTS CONSTRUCTED FROM EXCAVATION COMMON OR BORROW. THE SHRINKAGE ALLOWANCE USED TO COMPUTE THE VOLUME OF MATERIAL NECESSARY TO COMPLETE THE FILL IS ESTIMATED AT 25 PERCENT.
4. THE 6.25" HMA PAVEMENT SHALL BE CONSTRUCTED IN 3 LAYERS. THE LOWER LAYER SHALL BE 2.25-INCHES HMA PAVEMENT 3 MT 58-28 S. THE MIDDLE LAYER SHALL BE 2.25-INCHES HMA PAVEMENT 3 MT 58-28 S. THE UPPER LAYER SHALL BE 1.75-INCHES HMA PAVEMENT 4 MT 58-34 S.
5. SEED ALL DISTURBED AREAS WITHIN 75 FEET OF WATER OR WETLANDS, EXCEPT THE AREA WITHIN FINISHED SHOULDER POINTS, WITH NATIVE SEEDING MIXTURE NO. 75 UPDATED AT A RATE OF 0.3 LB PER 1,000 SF.
6. WHERE RIPRAP IS PRESENT, INCLUDING AROUND STRUCTURE ABUTMENTS, COVER THE RIPRAP WITH 6 INCHES OF TOPSOIL PRIOR TO SEEDING.
7. COVER SEEDED TOPSOIL IN ALL DISTURBED AREAS WITH SOIL STABILIZER TYPE B AND EROSION MAT URBAN CLASS I TYPE B.
8. EROSION CONTROL FEATURES AS SHOWN ON THE PLANS ARE SUGGESTED LOCATIONS. EXACT LOCATIONS WILL BE ADJUSTED TO FIT FIELD CONDITIONS.
9. EXISTING SITE TOPOGRAPHIC INFORMATION OBTAINED FROM SURVEY BY FAA ENGINEERS.

**UTILITY CONTACTS**

**CENTURYLINK**  
(FIBER OPTIC & TELEPHONE)  
THOMAS MURRAY  
333 NORTH FRONT STREET  
LA CROSSE, WI 54601  
608-796-7969 (OFFICE)  
tom.murray@centurylink.com

**COCHRANE CO-OP TELEPHONE COMPANY**  
(FIBER OPTIC)  
MATT BIESTERVELD  
103 W 5TH STREET  
COCHRANE, WI 54622  
608-248-2323 (OFFICE)  
mbiesterfeld@cctcoop.com

**XCEL ENERGY, INC.**  
(ELECTRIC TRANSMISSION & DISTRIBUTION)  
BRUCE ZEMKE  
414 NICOLLET MALL  
5TH FLOOR  
MINNEAPOLIS, MN 55401  
612-330-7815 (OFFICE)  
651-214-2620 (MOBILE)  
bruce.m.zemke@xcelenergy.com

**CITY OF FOUNTAIN CITY**  
(SEWER)  
GIL ADAMS  
42 N MAIN STREET  
PO BOX 85  
608-687-8681 (OFFICE)  
507-429-9779 (MOBILE)  
gil@fountaincitywisconsin.com



**RUNOFF COEFFICIENT TABLE**

	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
LAND USE:	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS	.08	.16	.22	.12	.20	.27	.15	.24	.33	.19	.28	.38
	.22	.30	.38	.26	.34	.44	.30	.37	.50	.34	.41	.56
MEDIAN STRIP-TURF	.19	.20	.24	.19	.22	.26	.20	.23	.30	.20	.25	.30
	.24	.26	.30	.25	.28	.33	.26	.30	.37	.27	.32	.40
SIDE SLOPE-TURF			.25			.27			.28			.30
			.32			.34			.36			.38
PAVEMENT:												
ASPHALT	.70 - .95											
CONCRETE	.80 - .95											
BRICK	.70 - .80											
DRIVES, WALKS	.75 - .85											
ROOFS	.75 - .95											
GRAVEL ROADS, SHOULDERS	.40 - .60											

TOTAL PROJECT AREA = 4.952 ACRES  
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 4.952 ACRES

**DESIGN CONTACT**

**AECOM**  
ATTN: KEVIN HAGEN  
200 INDIANA AVENUE  
STEVENS POINT, WI 54481  
715-342-3053  
kevin.hagen@aecom.com

**WISDOT**  
ATTN: CAMERON SHIFFER  
1802 WARDEN STREET  
EAU CLAIRE, WI 54703  
715-495-2196  
cshiffer@correinc.com

**WDNR CONTACT**

AMY LESIK (WDNR)  
1300 CLAIREMONT AVENUE  
EAU CLAIRE, WI 54701  
715-836-6571  
Amy.Lesik@wisconsin.gov

ORDER OF SECTION 2 SHEETS  
PROJECT OVERVIEW  
TYPICAL SECTIONS  
CONSTRUCTION DETAILS  
EROSION CONTROL  
PAVEMENT MARKING  
TRAFFIC CONTROL STAGING  
TEMPORARY SIGNAL TIMING

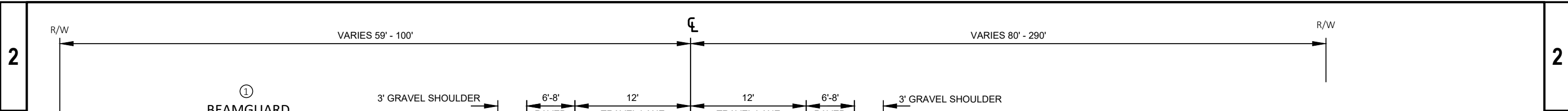




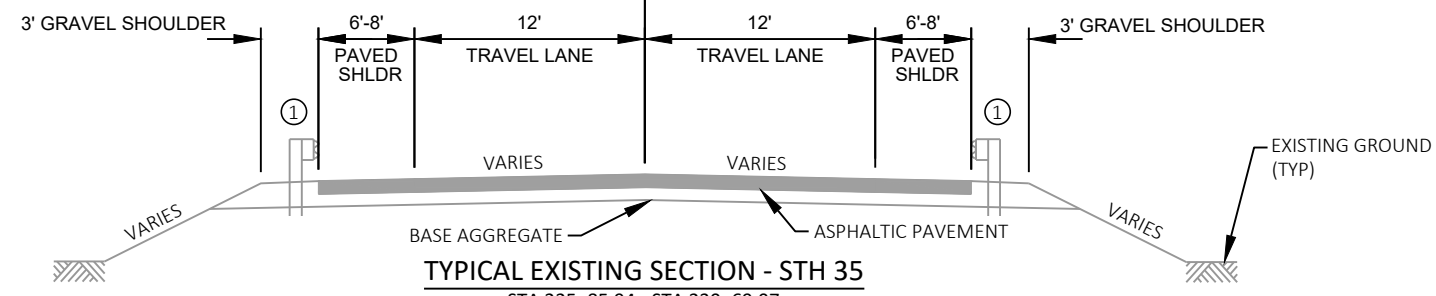
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2

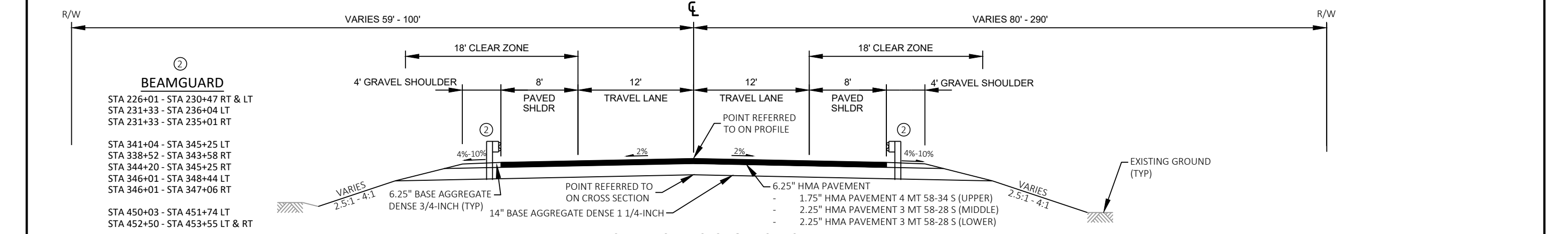
PROJECT NO: 7160-04-75	HWY: STH 35	COUNTY: BUFFALO	PROJECT OVERVIEW	SHEET	E
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**① BEAMGUARD**  
 STA 225+86 - STA 236+00 LT  
 STA 225+86 - STA 235+05 RT  
  
 STA 341+00 - STA 347+10 LT  
 STA 344+19 - STA 347+10 RT  
  
 STA 449+80 - STA 453+60 LT  
 STA 451+62 - STA 453+61 RT

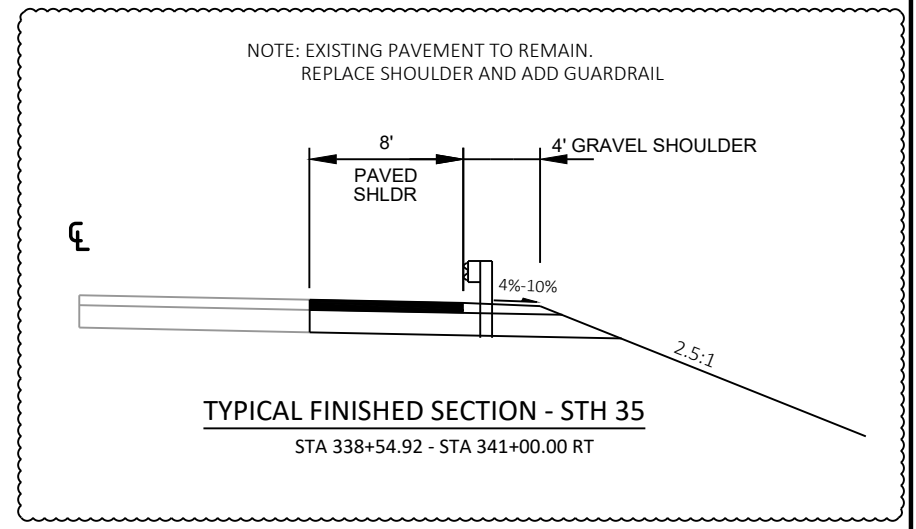


**TYPICAL EXISTING SECTION - STH 35**  
 STA 225+85.94 - STA 230+69.07 (B-6-013)  
 STA 231+10.48 - STA 236+00.00  
  
 STA 341+00.00 - STA 345+51.23 (B-6-016)  
 STA 345+77.57 - STA 350+00.00  
  
 STA 449+80.00 - STA 451+91.75 (B-6-018)  
 STA 452+28.41 - STA 454+00.00

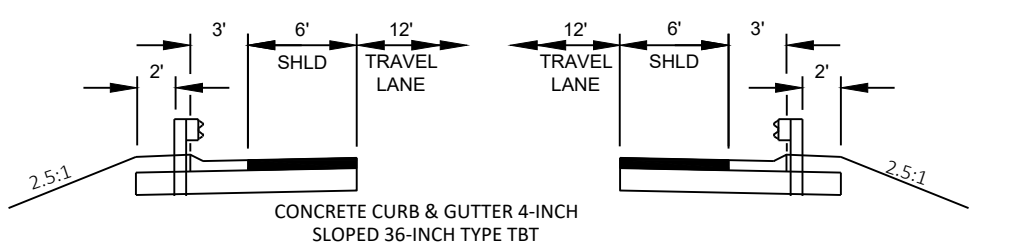


**② BEAMGUARD**  
 STA 226+01 - STA 230+47 RT & LT  
 STA 231+33 - STA 236+04 LT  
 STA 231+33 - STA 235+01 RT  
  
 STA 341+04 - STA 345+25 LT  
 STA 338+52 - STA 343+58 RT  
 STA 344+20 - STA 345+25 RT  
 STA 346+01 - STA 348+44 LT  
 STA 346+01 - STA 347+06 RT  
  
 STA 450+03 - STA 451+74 LT  
 STA 452+50 - STA 453+55 LT & RT

**TYPICAL FINISHED SECTION - STH 35**  
 STA 225+85.94 - STA 230+44.18 (B-6-201)  
 STA 231+35.68 - STA 236+00.00  
  
 STA 341+00.00 - STA 345+22.34 (B-6-204)  
 STA 346+03.84 - STA 350+00.00  
  
 STA 449+80.00 - STA 451+71.57 (B-6-206)  
 STA 452+52.32 - STA 454+00.00

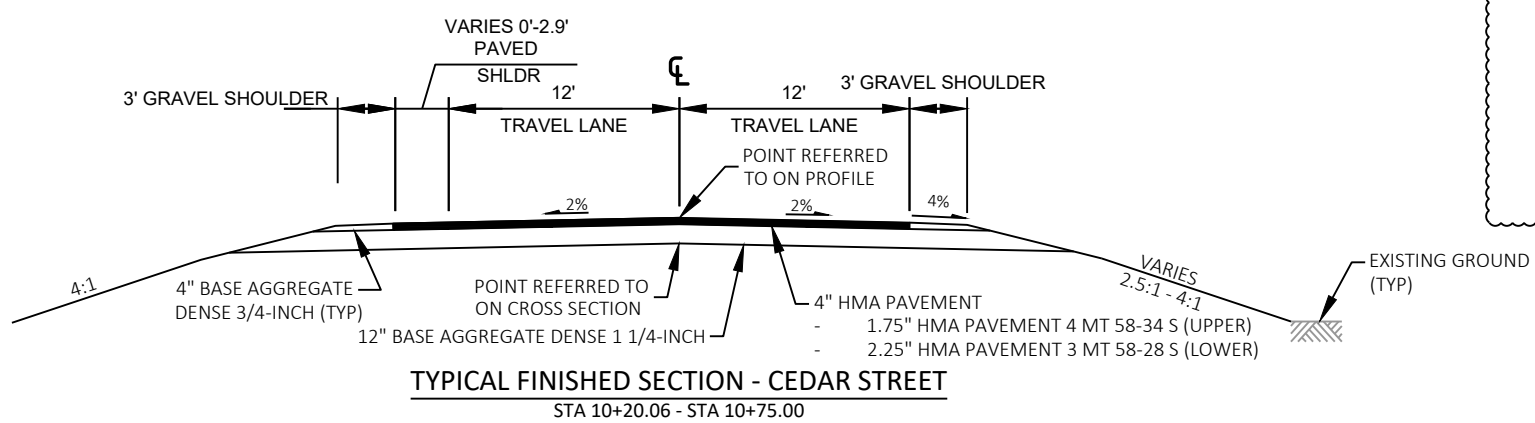


**TYPICAL FINISHED SECTION - STH 35**  
 STA 338+54.92 - STA 341+00.00 RT



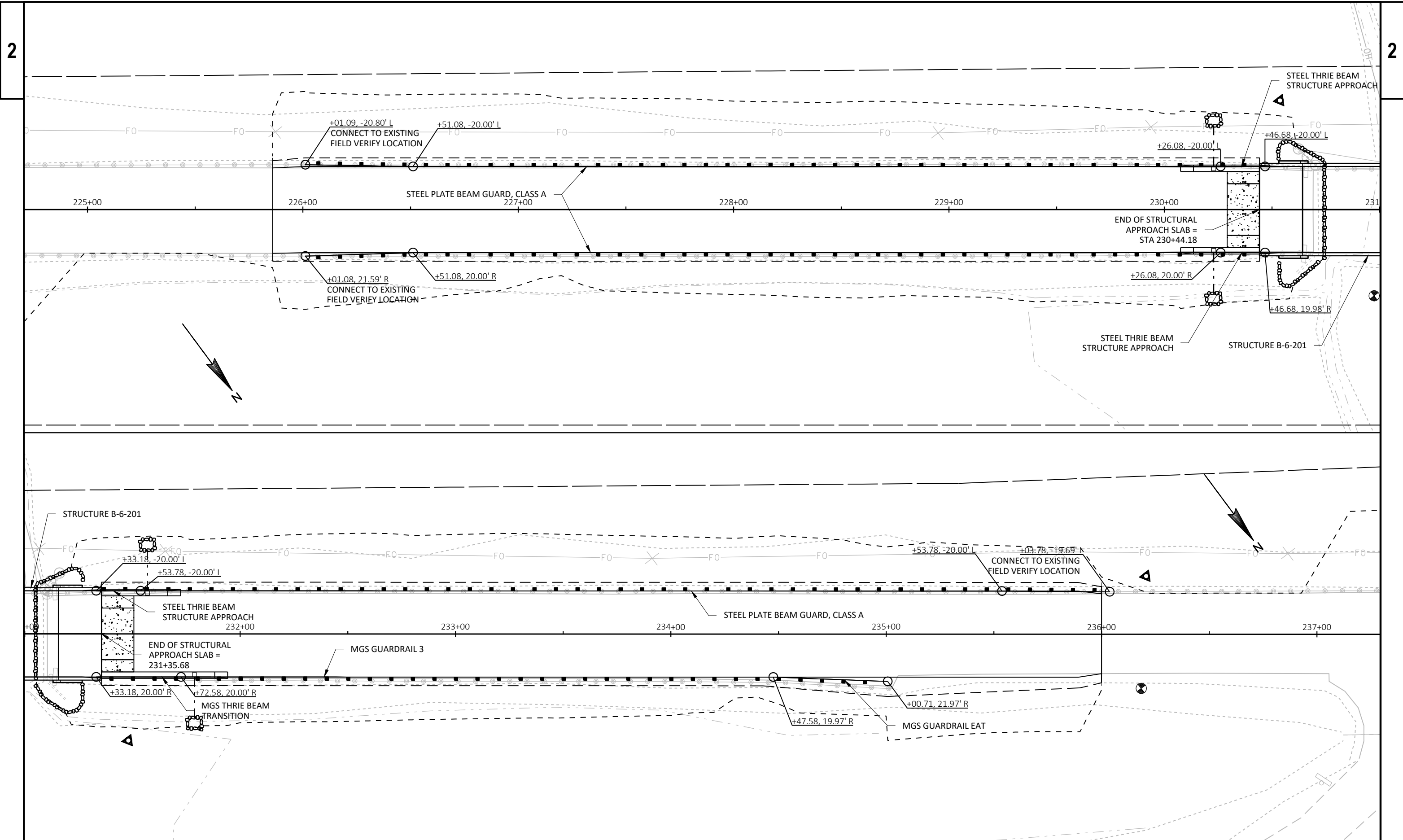
**CONCRETE CURB & GUTTER 4-INCH SLOPED 36-INCH TYPE TBT**  
 STA 230+07 - 230+29 LT  
 STA 230+07 - 230+29 RT  
 STA 231+51 - 231+73 LT  
 STA 231+51 - 231+94 RT  
 STA 346+19 - 346+63 LT  
 STA 346+19 - 346+63 RT  
 STA 451+35 - 451+57 LT  
 STA 452+67 - 453+11 LT  
 STA 452+67 - 453+11 RT

**CONCRETE CURB & GUTTER 4-INCH SLOPED 36-INCH TYPE TBT**  
 STA 230+29 - 230+44 LT  
 STA 230+29 - 230+44 RT  
 STA 231+36 - 231+51 LT  
 STA 231+36 - 231+51 RT  
 STA 346+04 - 346+19 LT  
 STA 346+04 - 346+19 RT  
 STA 451+57 - 451+72 LT  
 STA 452+52 - 452+67 LT  
 STA 452+52 - 452+67 RT

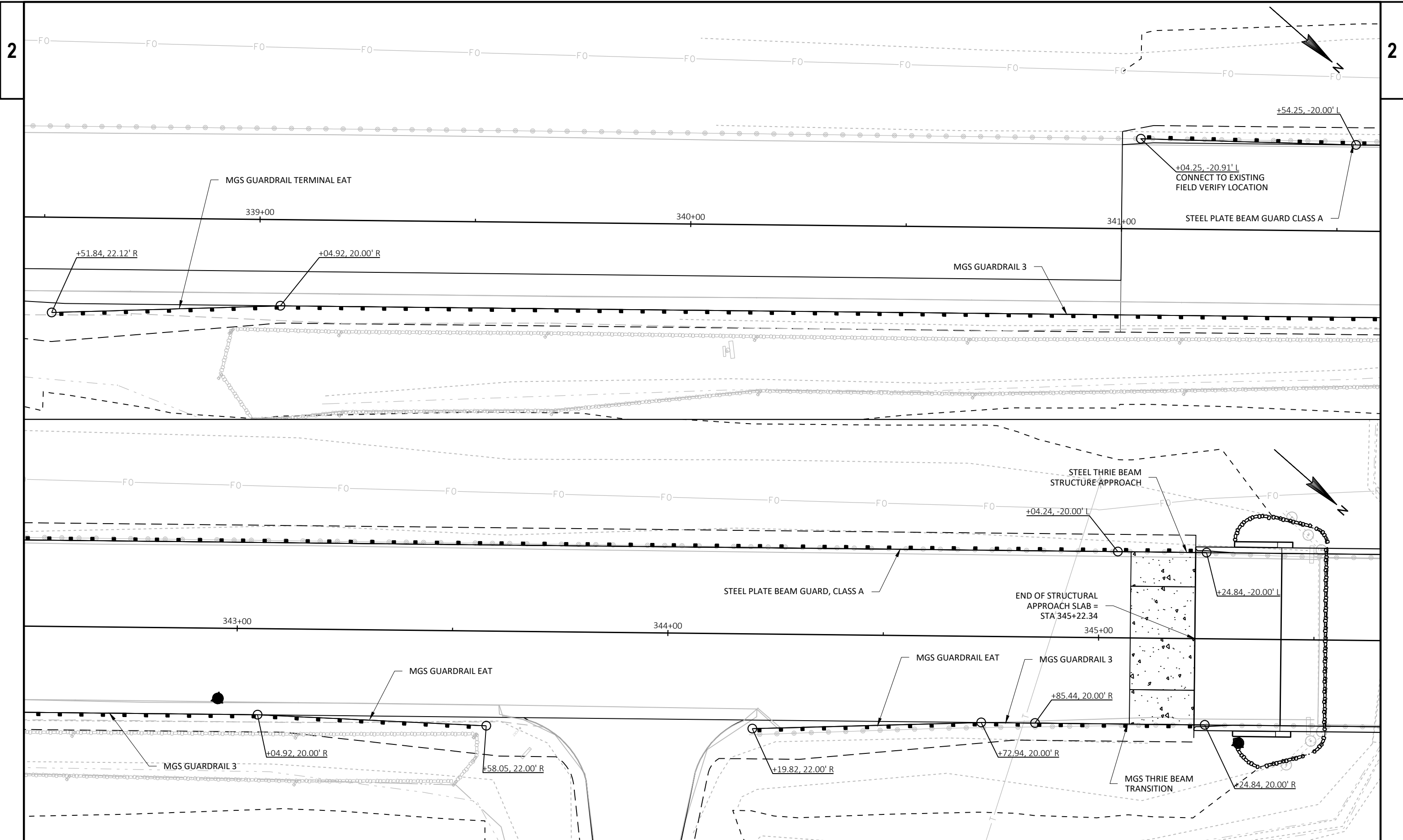


**TYPICAL FINISHED SECTION - CEDAR STREET**  
 STA 10+20.06 - STA 10+75.00



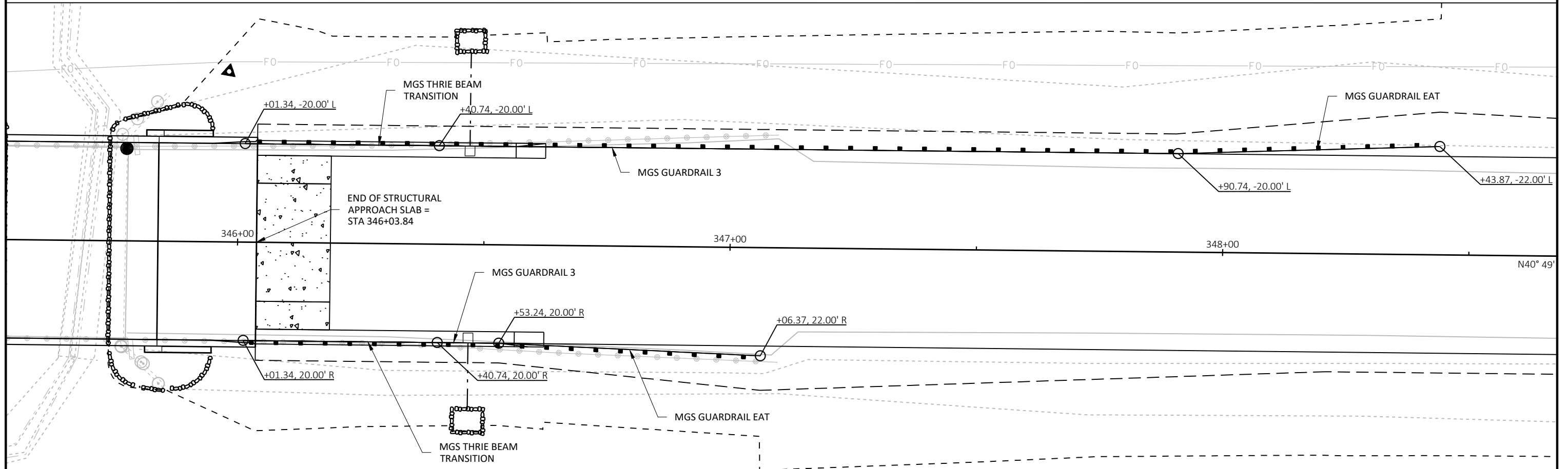
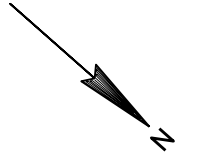


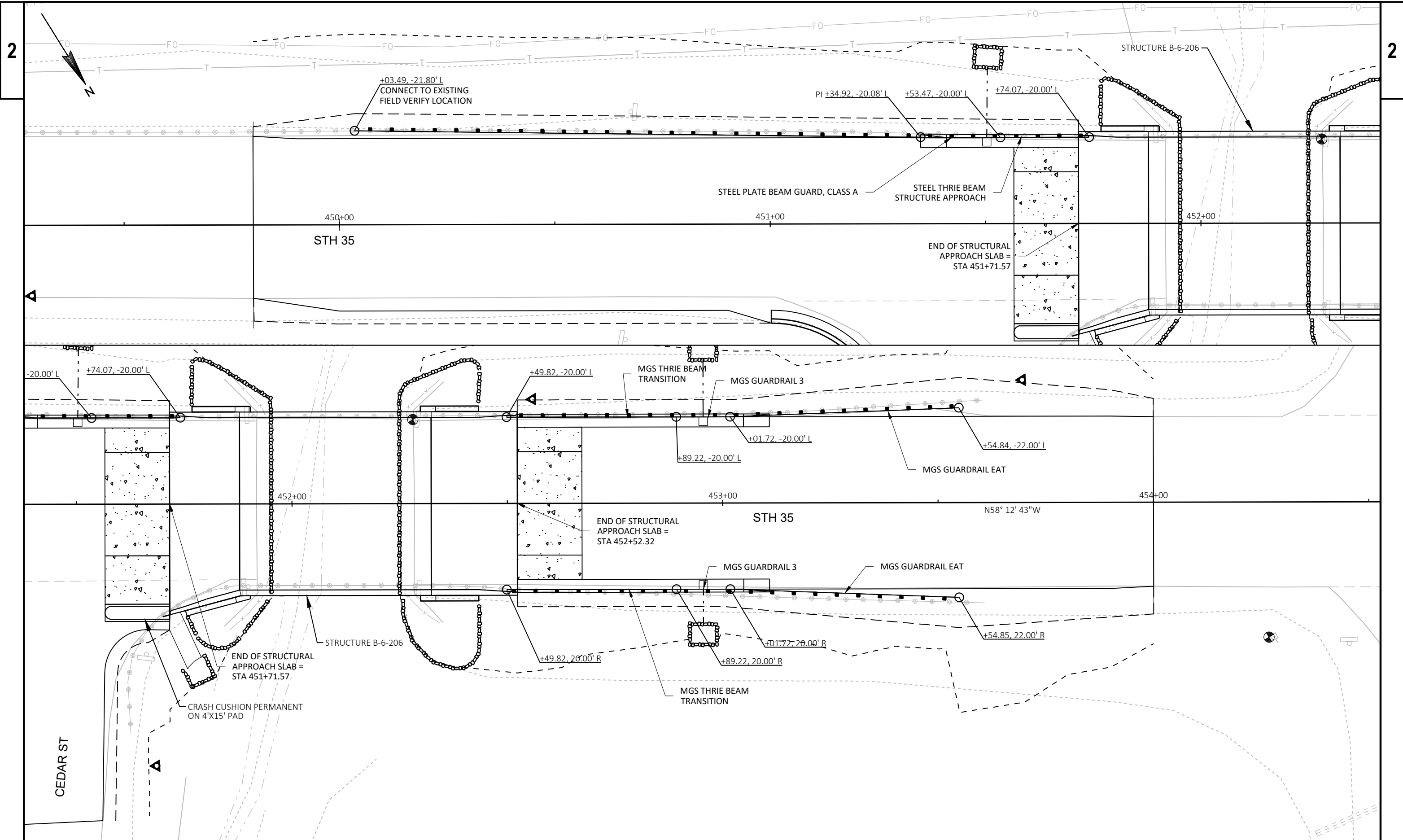
PROJECT NO: 7160-04-75	HWY: STH 35	COUNTY: BUFFALO	CONSTRUCTION DETAILS: B-6-201 BEAM GUARD LAYOUT	SHEET	<b>E</b>
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PROJECT NO: 7160-04-75	HWY: STH 35	COUNTY: BUFFALO	CONSTRUCTION DETAILS: B-6-204 BEAM GUARD LAYOUT	SHEET	<b>E</b>
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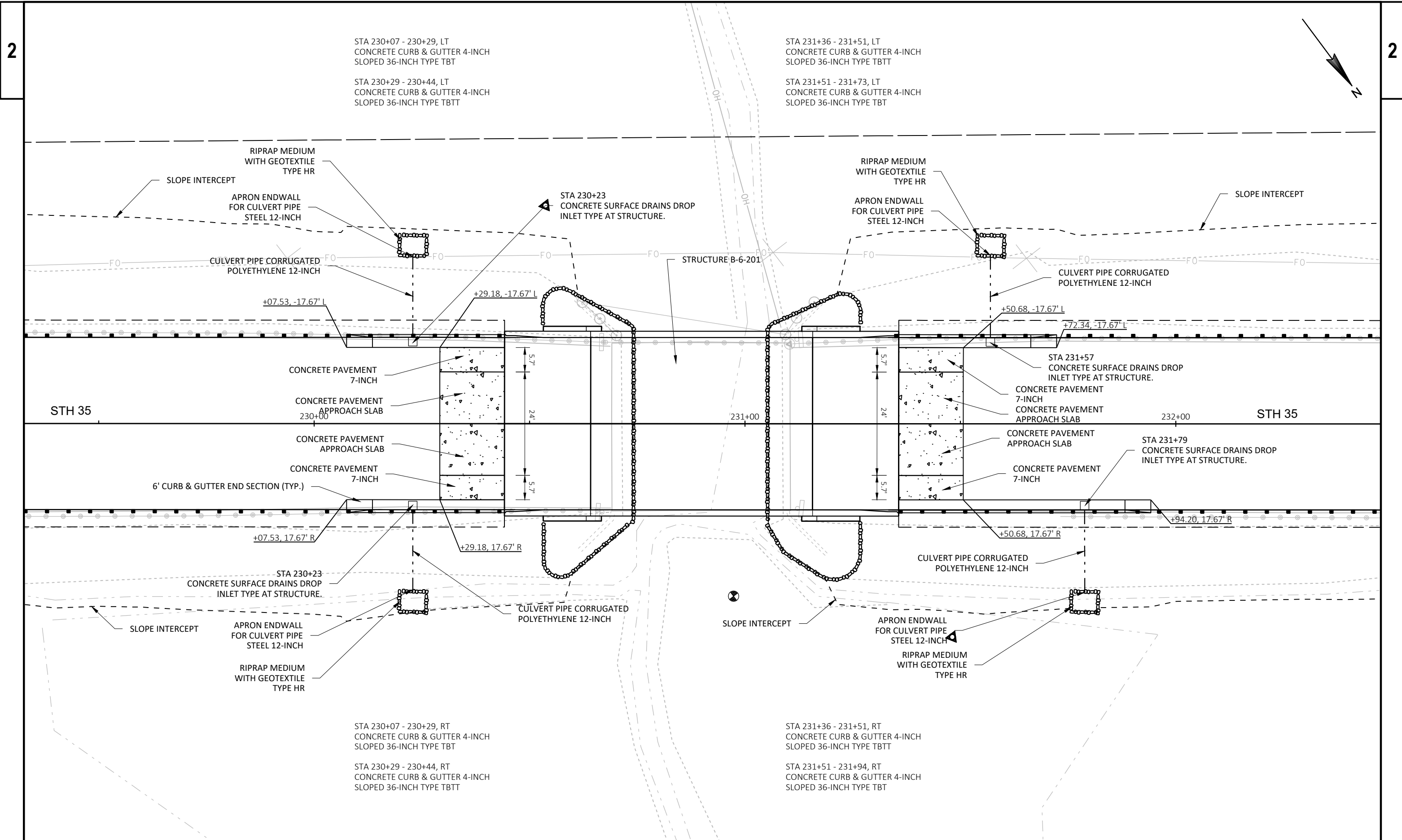






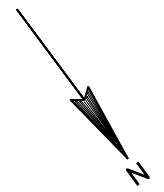
PROJECT NO: 7160-04-75	HWY: STH 35	COUNTY: BUFFALO	CONSTRUCTION DETAILS: B-6-206 BEAM GUARD LAYOUT	SHEET	<b>E</b>
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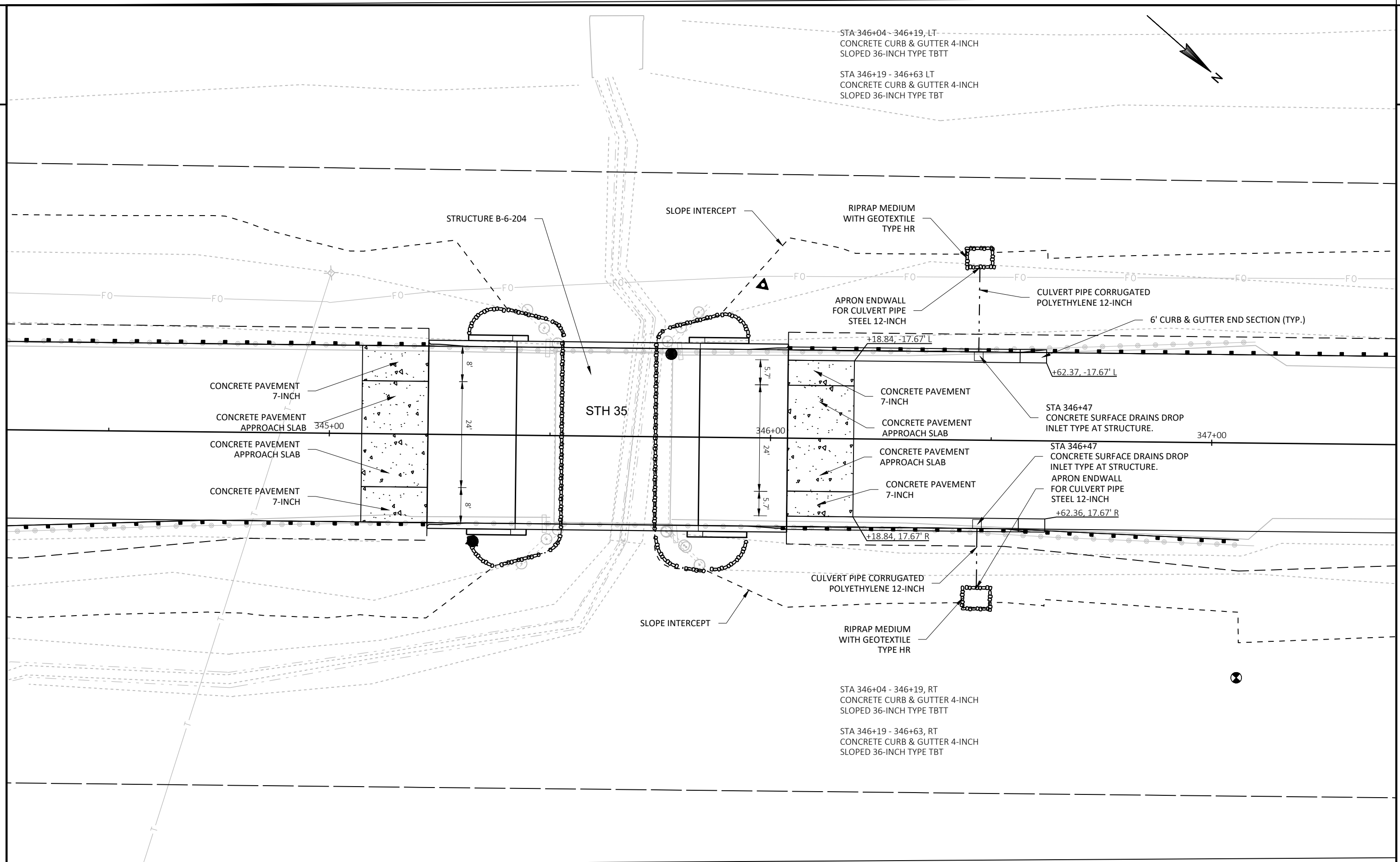


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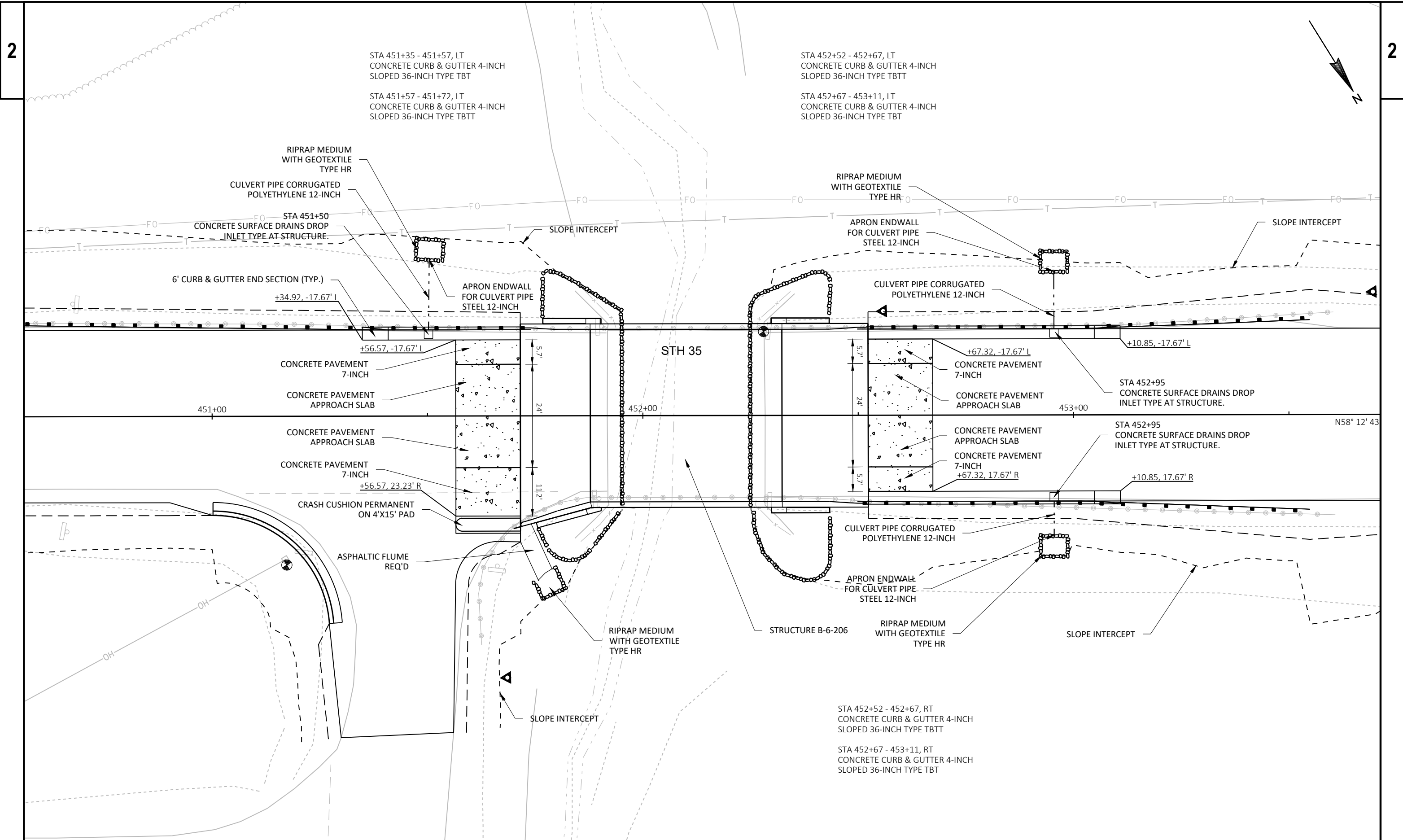
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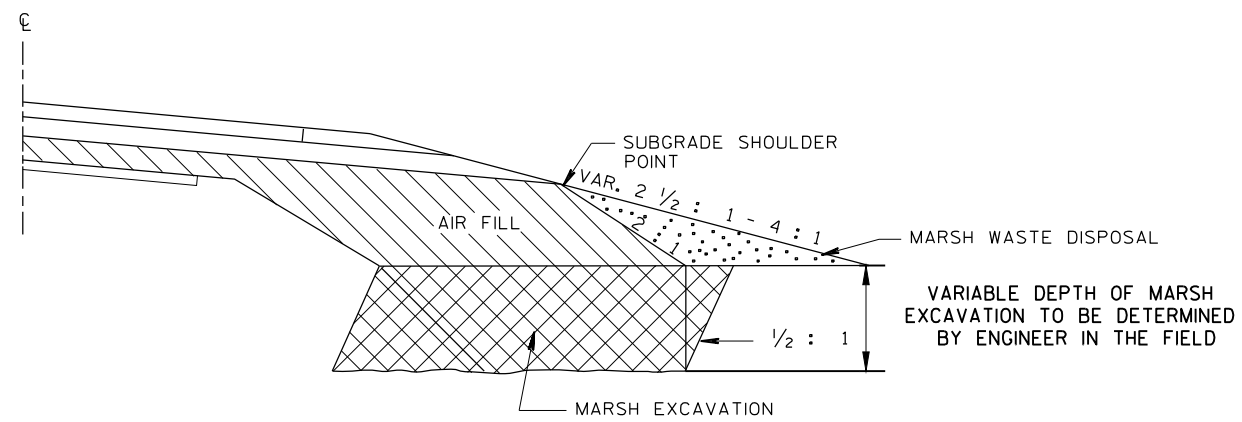
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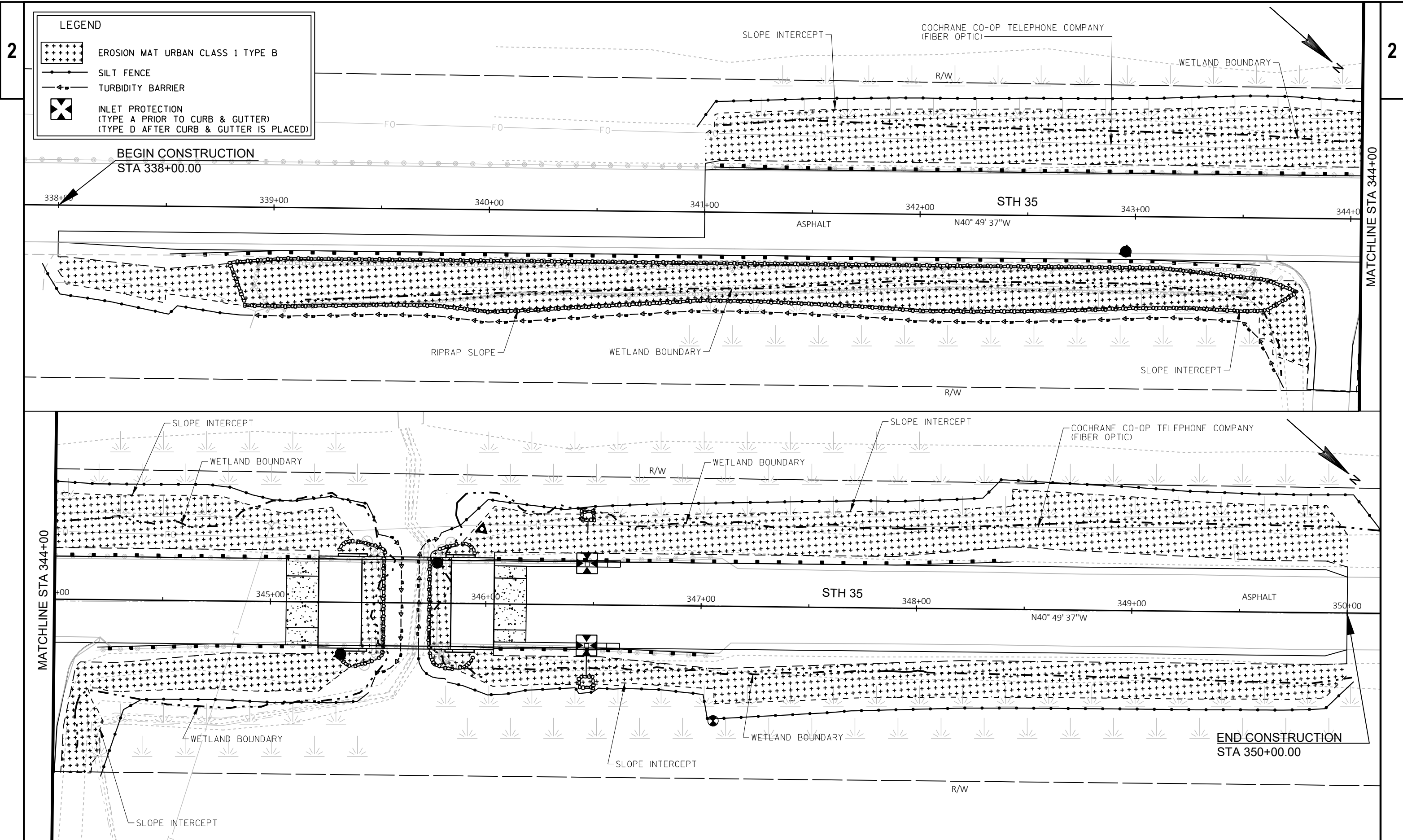
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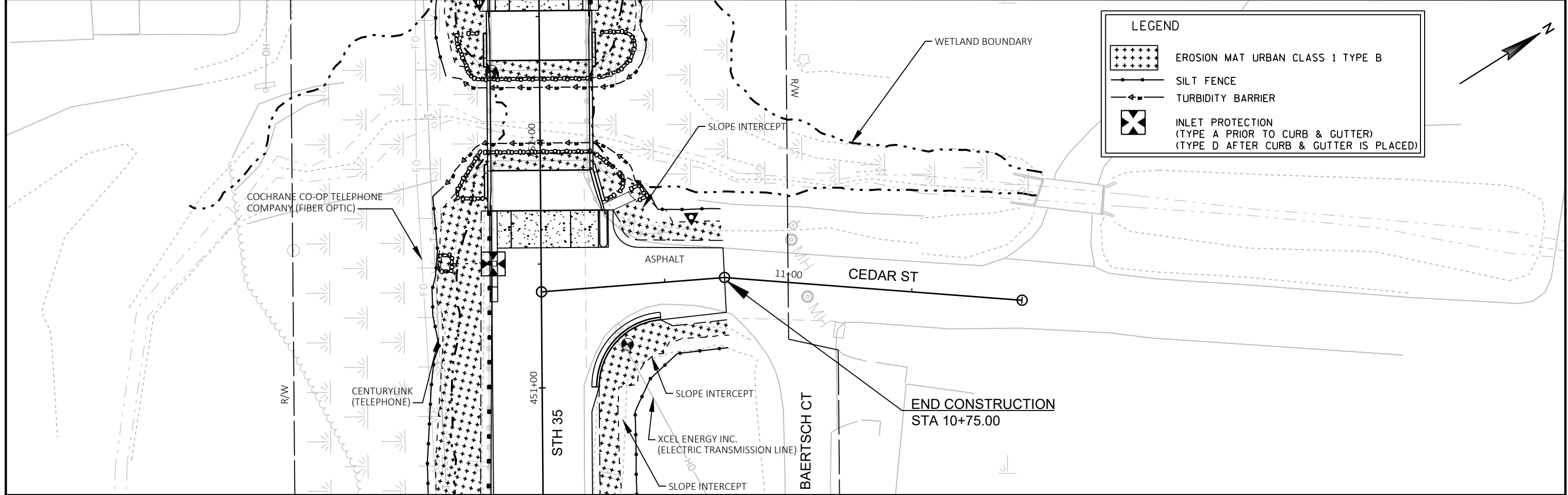
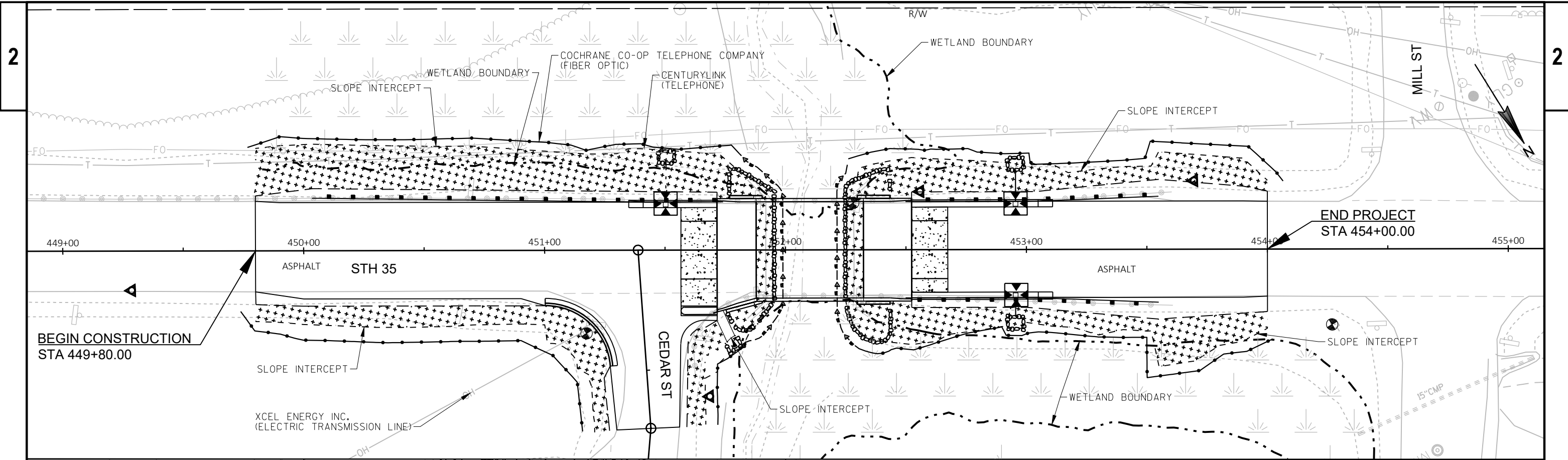
TYPICAL MARSH EXCAVATION FOR RECONSTRUCTION

NOTE:  
 MARSH EXCAVATION SHALL BE REPLACED WITH GRANULAR BACKFILL GRADE 1 IN AREAS WHERE WATER IS ENCOUNTERED. WHERE WATER IS ENCOUNTERED, PLACE GRANULAR BACKFILL GRADE 1 TO AN ELEVATION 1 FT ABOVE THE WATER LINE.







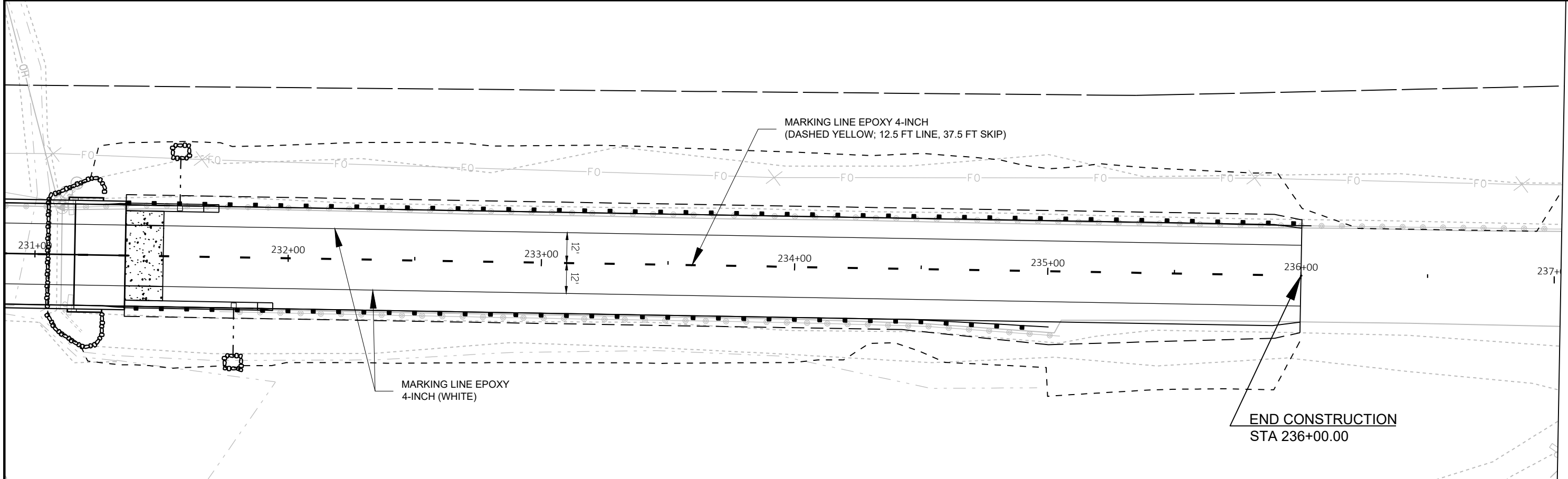
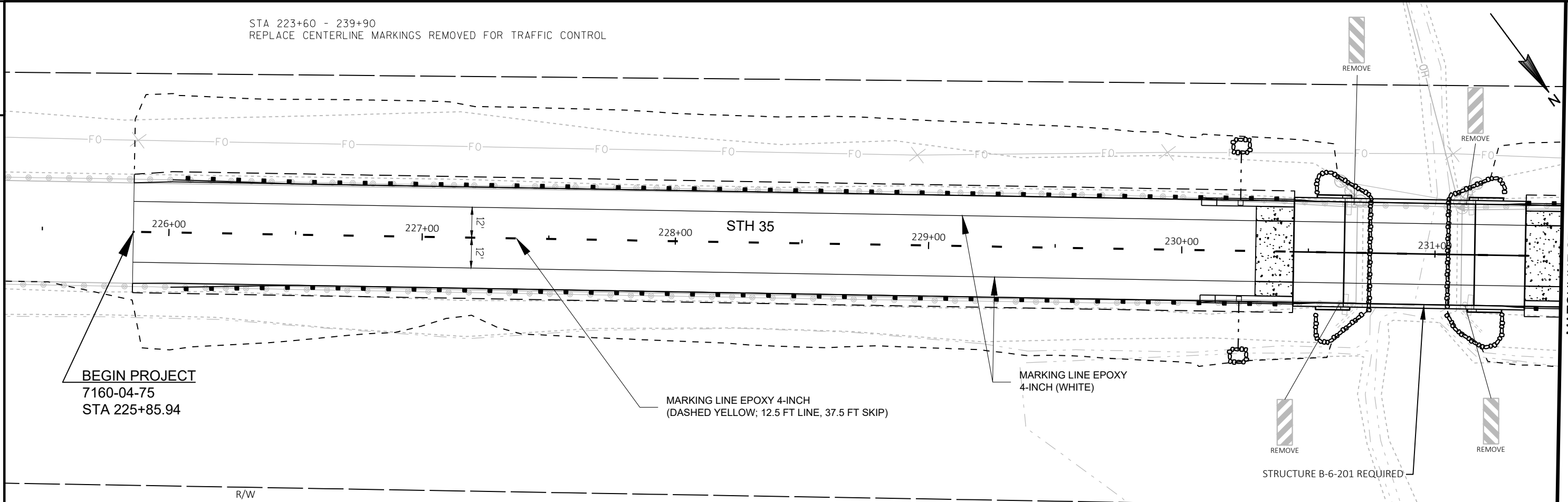


PROJECT NO: 7160-04-75      HWY: STH 35      COUNTY: BUFFALO      EROSION CONTROL: B-6-206      SHEET      E

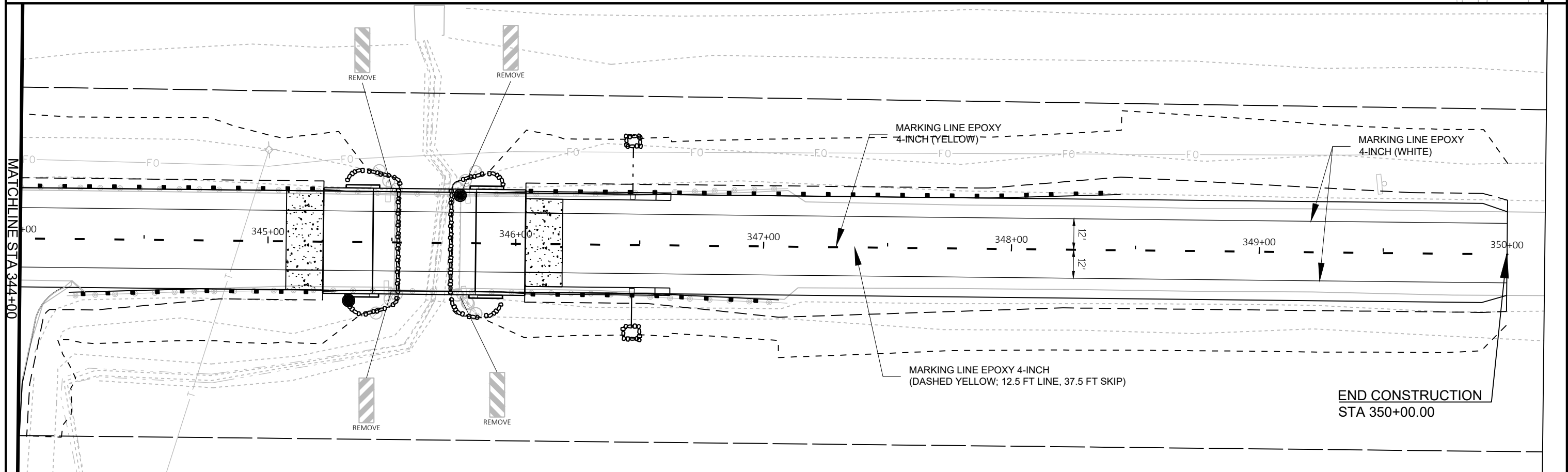
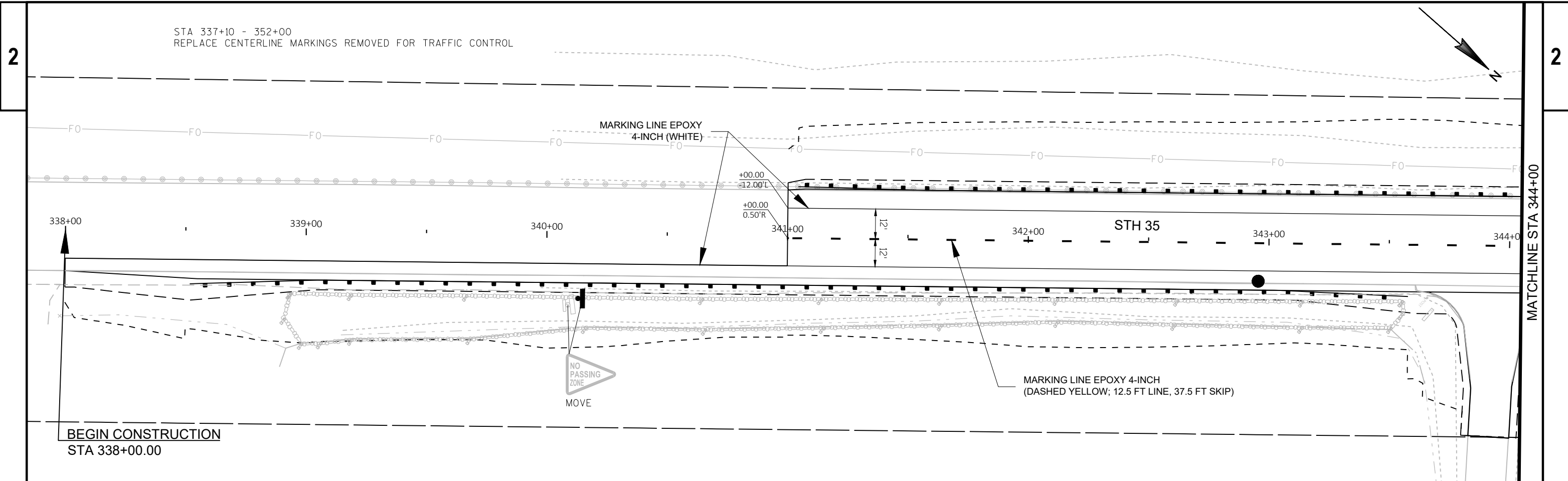
STA 223+60 - 239+90  
REPLACE CENTERLINE MARKINGS REMOVED FOR TRAFFIC CONTROL

2

2



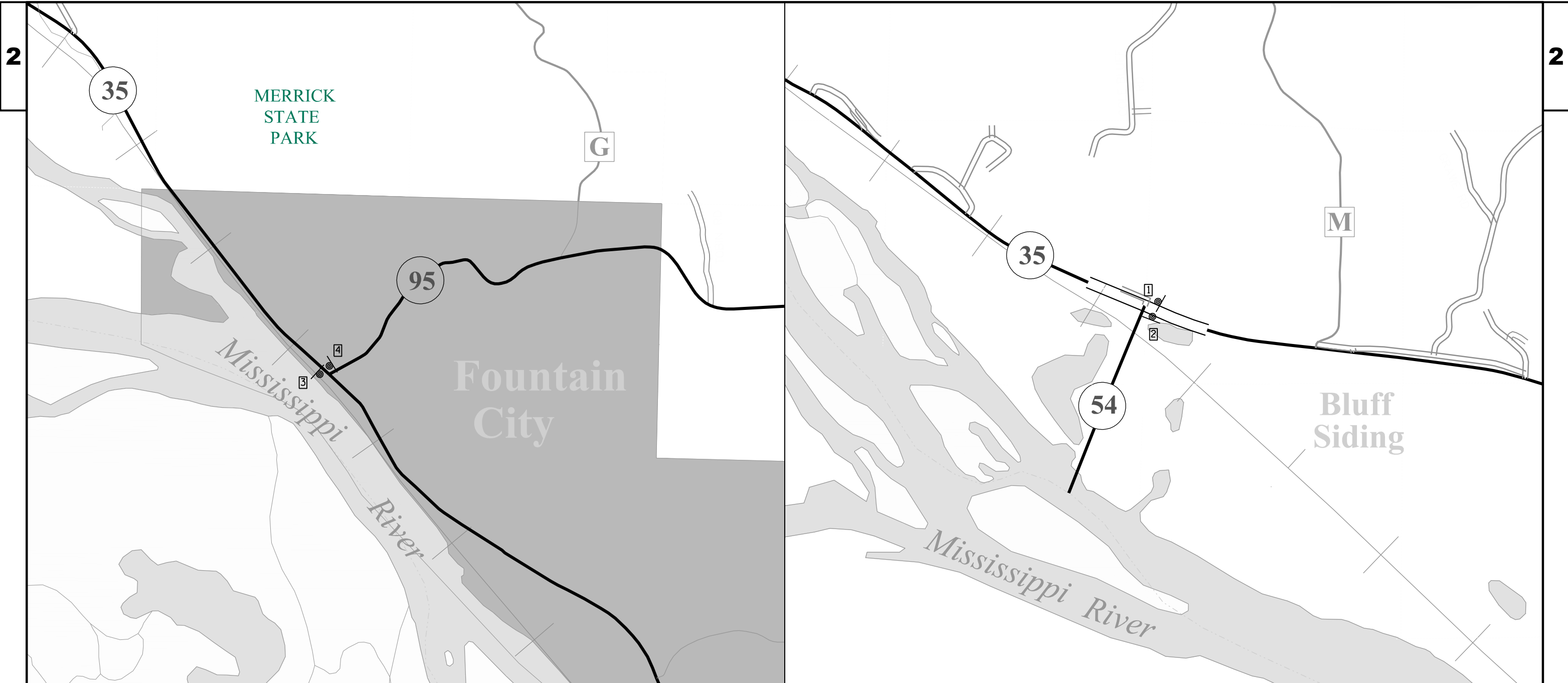
PROJECT NO: 7160-04-75	HWY: STH 35	COUNTY: BUFFALO	PAVEMENT MARKING AND SIGNING: B-6-201	SHEET	<b>E</b>
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PROJECT NO: 7160-04-75	HWY: STH 35	COUNTY: BUFFALO	PAVEMENT MARKING AND SIGNING: B-6-204	SHEET	E
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**NOTES**

ALL ASSEMBLIES TO BE PLACED ON NEW POSTS.

INCLUDE MI-4 AND EITHER M3-2 OR M3-4 OVER THE W12-52 AT ALL ASSEMBLIES NOT PLACED ON USH 2.

THE EXACT NUMBER, LOCATION AND SPACING OF DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.

**WIDTH RESTRICTION ADVANCE WARNINGS**

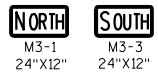
- 1: STH 35 @ STH 54 - 1 MILE
- 2: STH 54 @ STH 35 - 1 MILE
- 3: STH 35 @ STH 95 - 2 MILES
- 4: STH 95 @ STH 35 - 2 MILES



W12-52  
48"x48"



W57-52  
36"x24"

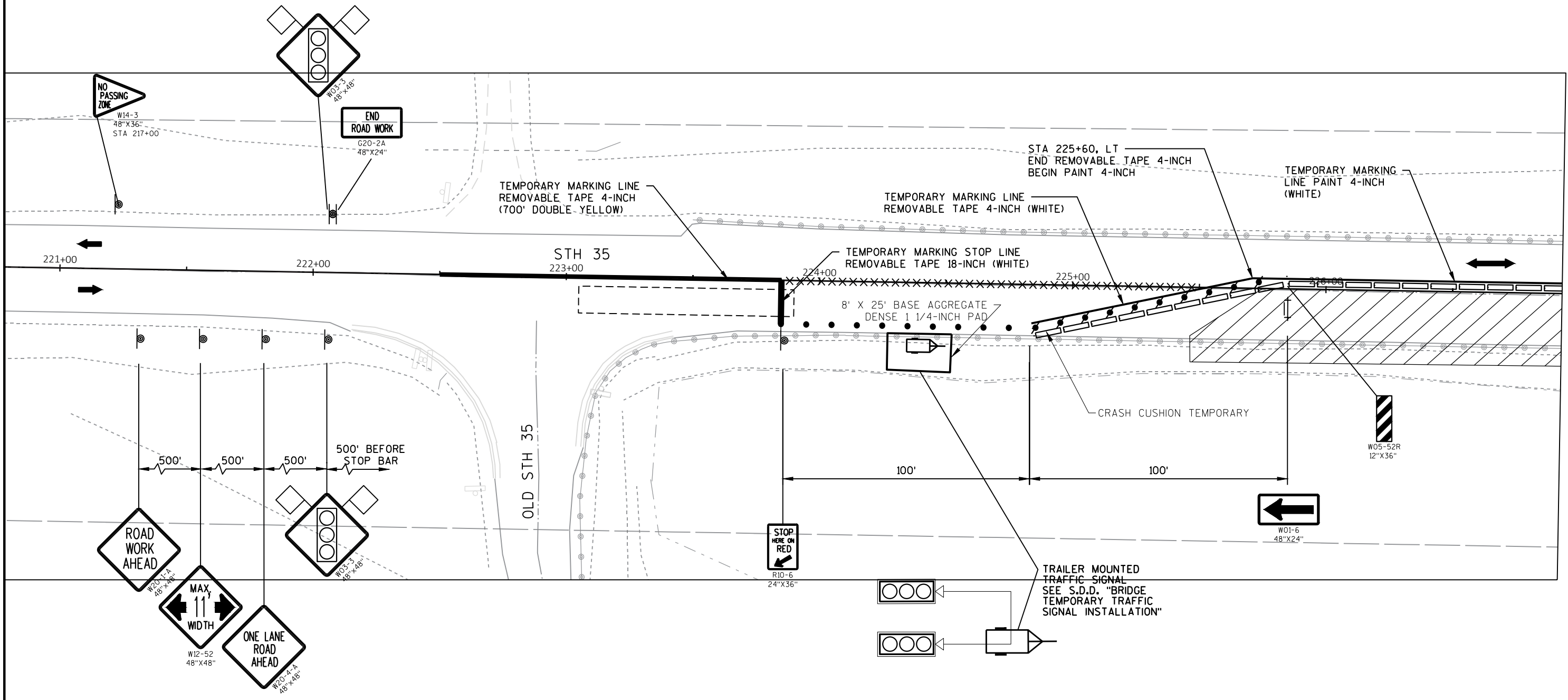
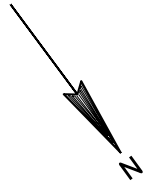


MI-6  
24"x24"

LEGEND

- ⊥ TYPE III BARRICADE
- ⊥ TYPE III BARRICADE WITH ATTACHED SIGN
- TRAFFIC CONTROL DRUM
- ⊙ TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- ⊥ SIGN ON TEMPORARY SUPPORT
- ⊙ TYPE C WARNING LIGHT (STEADY BURN)
- ▭ CONCRETE BARRIER TEMPORARY PRECAST
- ▨ WORK AREA
- DIRECTION OF TRAFFIC
- XXXXX PAVEMENT MARKING REMOVAL
- ▭ TRAILER MOUNTED TRAFFIC SIGNAL
- ⋯ NON-INTRUSIVE VEHICLE DETECTION AREA

NOTE:  
SEE CROSS SECTIONS FOR  
TEMPORARY SIGNAL PAD  
CONSTRUCTION.

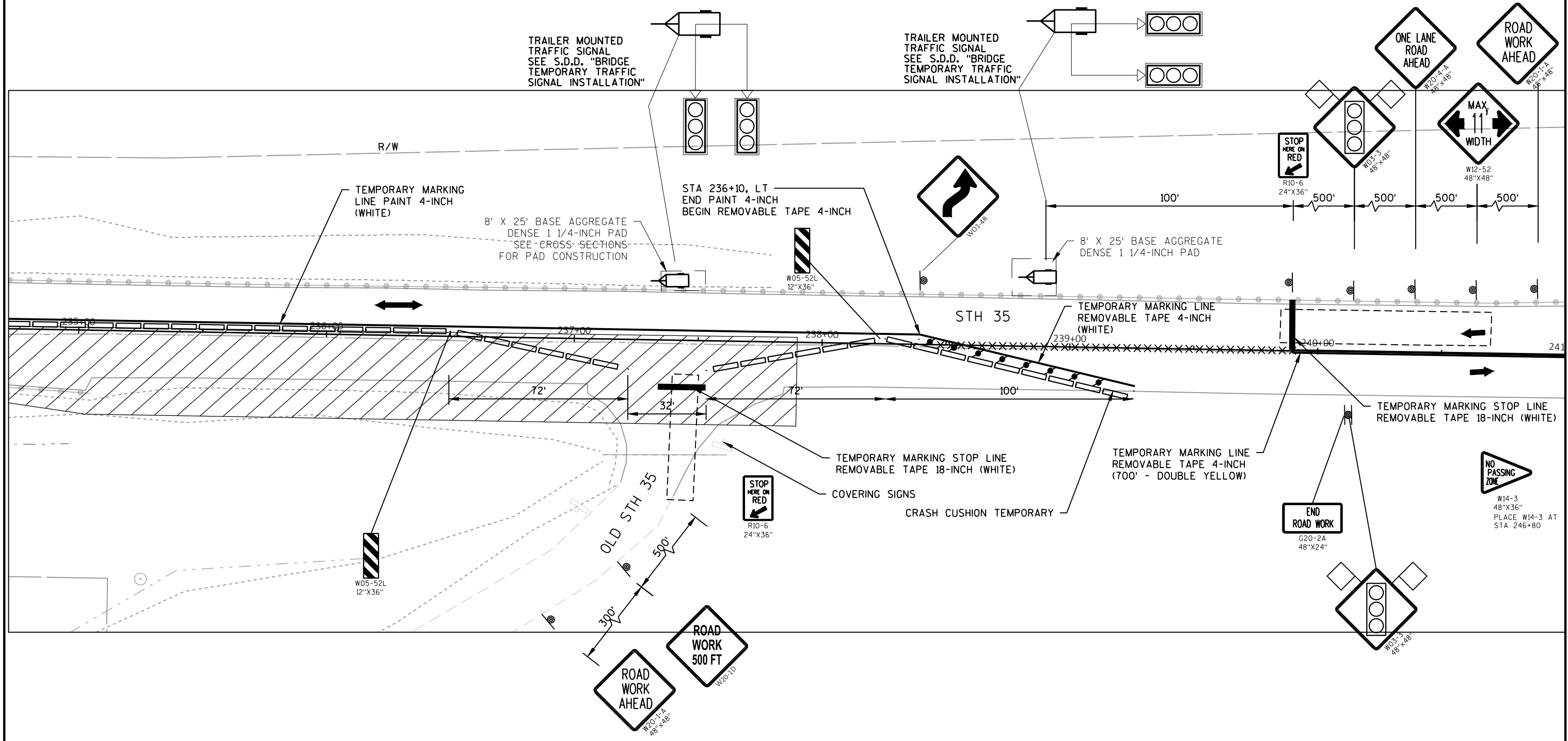
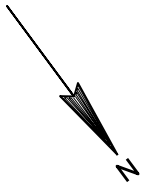


LEGEND

- ↑ TYPE III BARRICADE
- ↑↓ TYPE III BARRICADE WITH ATTACHED SIGN
- TRAFFIC CONTROL DRUM
- ⚡ TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- ⊥ SIGN ON TEMPORARY SUPPORT
- ⊙ TYPE C WARNING LIGHT (STEADY BURN)

- ▭ CONCRETE BARRIER TEMPORARY PRECAST
- ▨ WORK AREA
- DIRECTION OF TRAFFIC
- XXXXX PAVEMENT MARKING REMOVAL
- ▭ TRAILER MOUNTED TRAFFIC SIGNAL
- ⋮ NON-INTRUSIVE VEHICLE DETECTION AREA





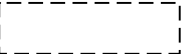
NOTE:  
SEE CROSS SECTIONS FOR  
TEMPORARY SIGNAL PAD  
CONSTRUCTION.



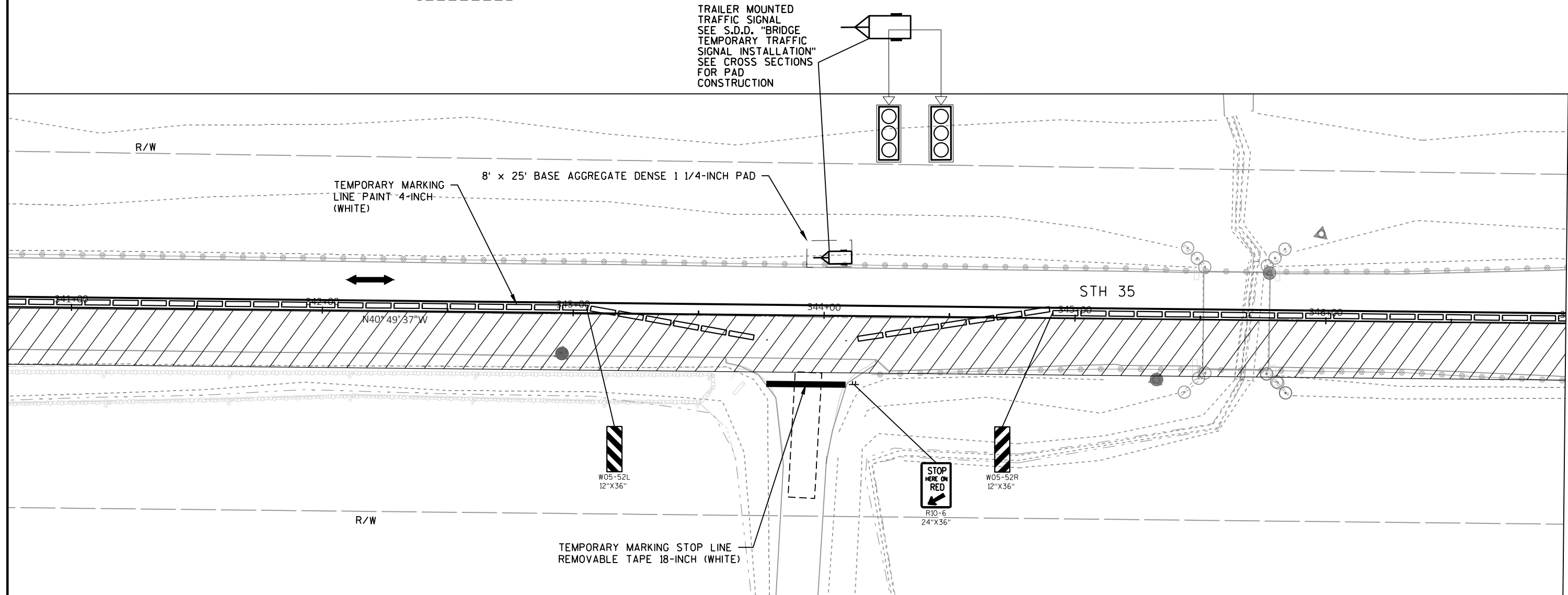
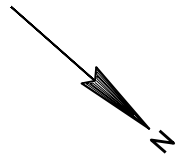




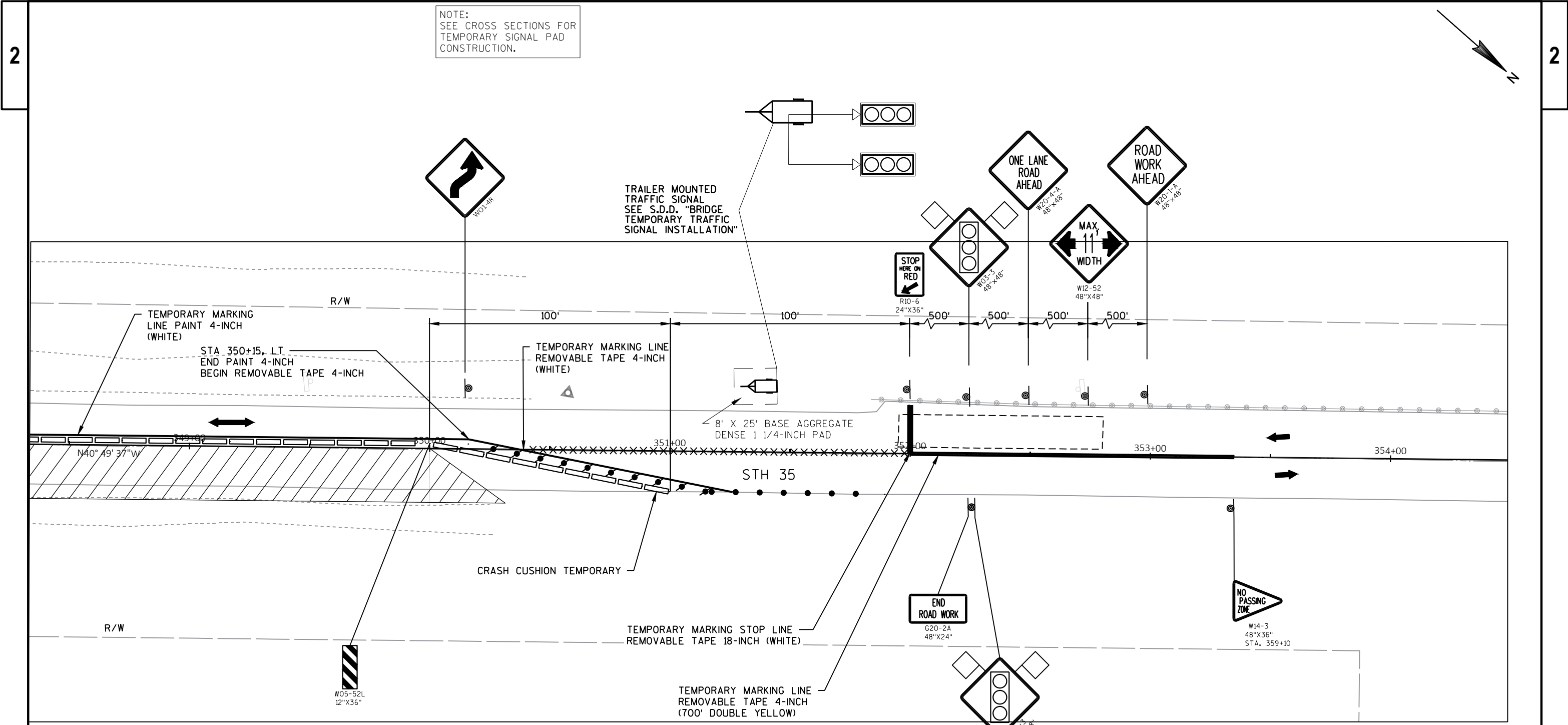
LEGEND

- ⏏ TYPE III BARRICADE WITH ATTACHED SIGN
- TRAFFIC CONTROL DRUM
- ⚡ TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- ⌚ SIGN ON TEMPORARY SUPPORT
- © TYPE C WARNING LIGHT (STEADY BURN)
-  DIRECTION OF TRAFFIC
-  DIRECTION OF TRAFFIC
-  PAVEMENT MARKING REMOVAL
-  TRAILER MOUNTED TRAFFIC SIGNAL
-  NON-INTRUSIVE VEHICLE DETECTION AREA

NOTE:  
SEE CROSS SECTIONS FOR  
TEMPORARY SIGNAL PAD  
CONSTRUCTION.



NOTE:  
SEE CROSS SECTIONS FOR  
TEMPORARY SIGNAL PAD  
CONSTRUCTION.

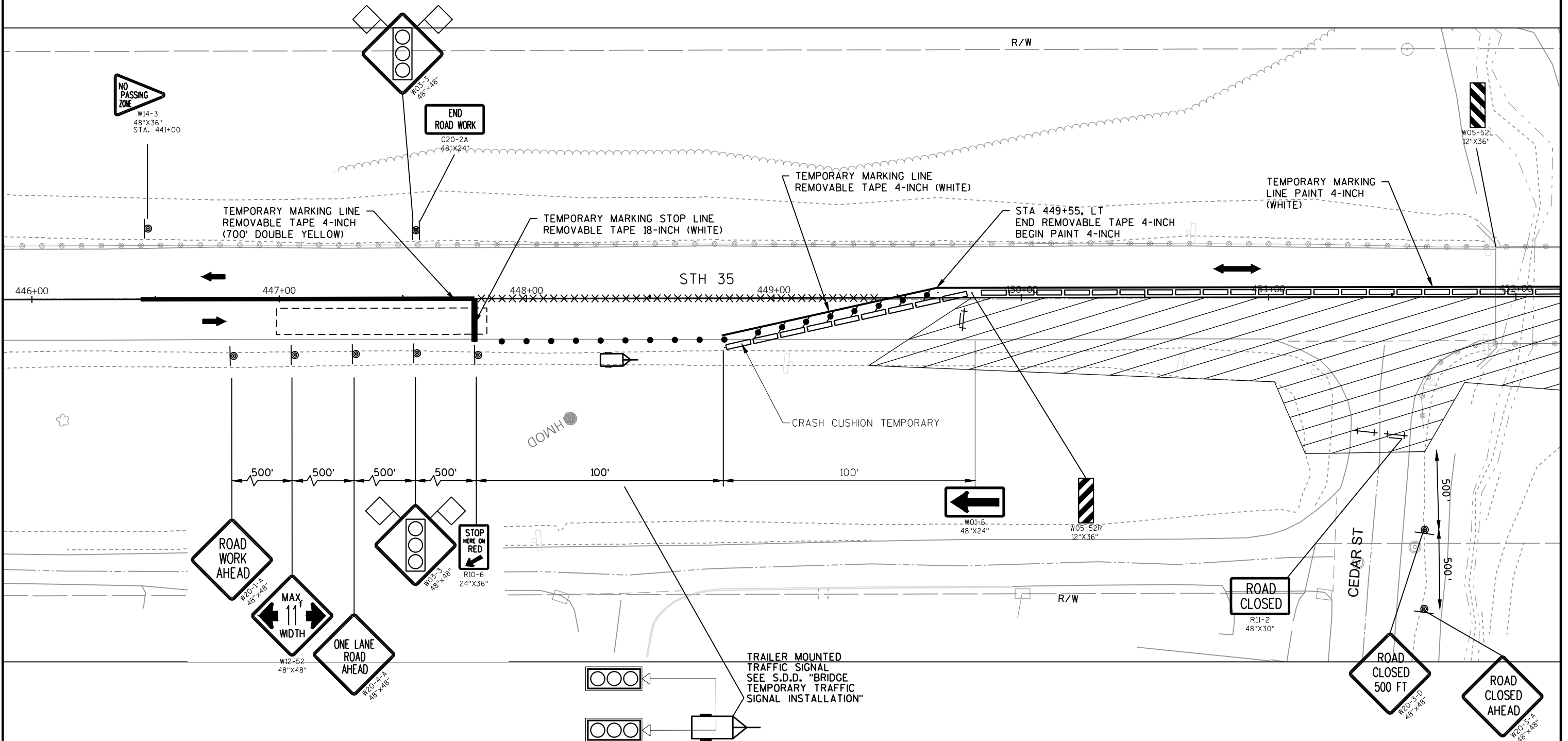
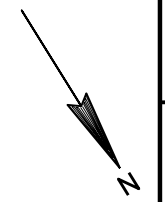


LEGEND

- |   |  |       |                                      |
|---|--|-------|--------------------------------------|
| ↑ | TYPE III BARRICADE                                 | ▭     | CONCRETE BARRIER TEMPORARY PRECAST   |
| ↑ | TYPE III BARRICADE WTH ATTACHED SIGN               | ▨     | WORK AREA                            |
| ● | TRAFFIC CONTROL DRUM                               | →     | DIRECTION OF TRAFFIC                 |
| ● | TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT | XXXXX | PAVEMENT MARKING REMOVAL             |
| ⊥ | SIGN ON TEMPORARY SUPPORT                          | ⊞     | TRAILER MOUNTED TRAFFIC SIGNAL       |
| © | TYPE C WARNING LIGHT (STEADY BURN)                 | ⊞     | NON-INTRUSIVE VEHICLE DETECTION AREA |

LEGEND

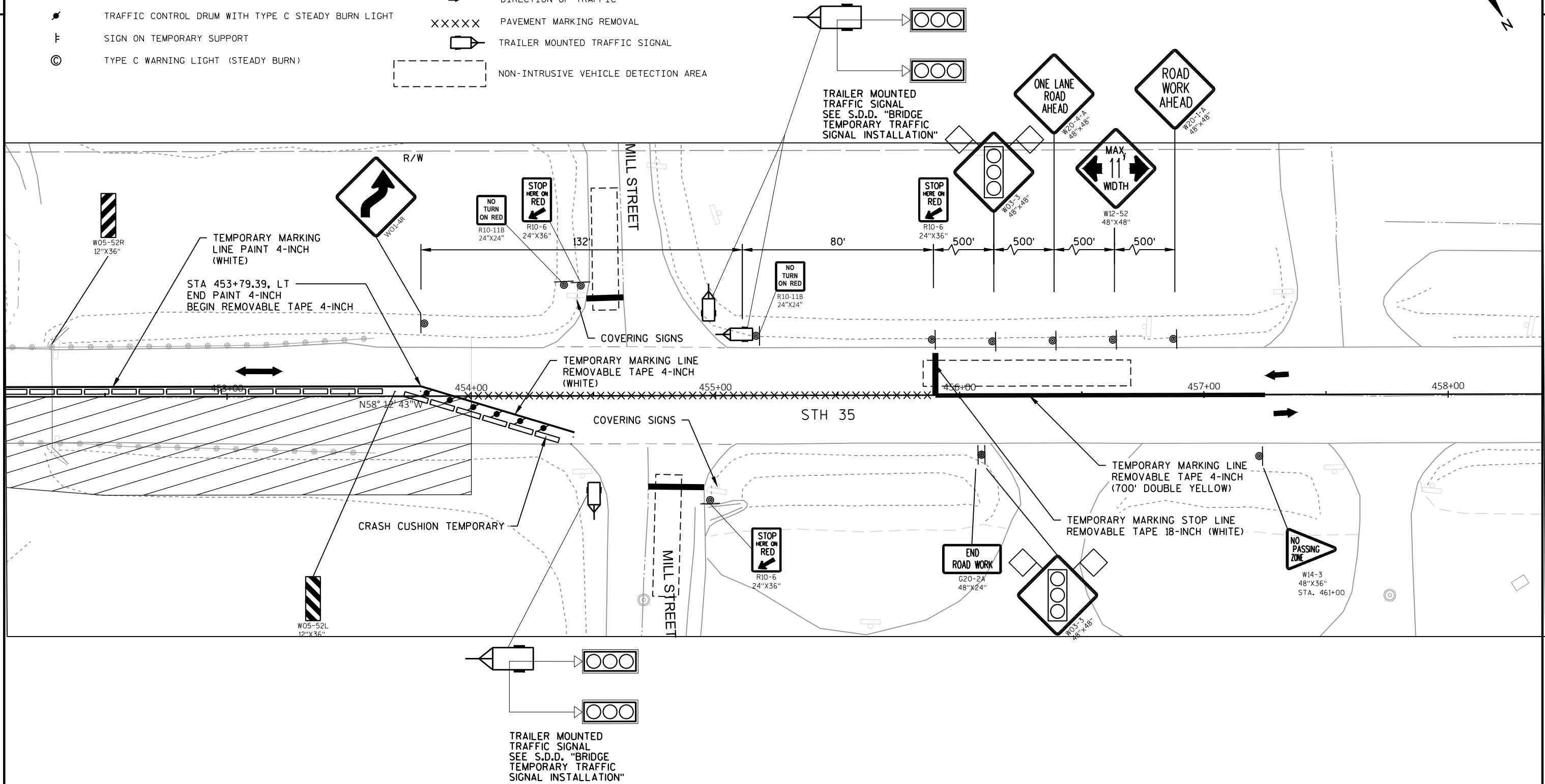
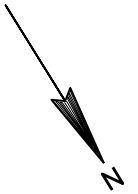
- ↑ TYPE III BARRICADE
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- ⊢ SIGN ON TEMPORARY SUPPORT
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PROJECT NO: 7160-04-75	HWY: STH 35	COUNTY: BUFFALO	TRAFFIC CONTROL STAGE 1 -B-6-206	SHEET	<b>E</b>
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LEGEND

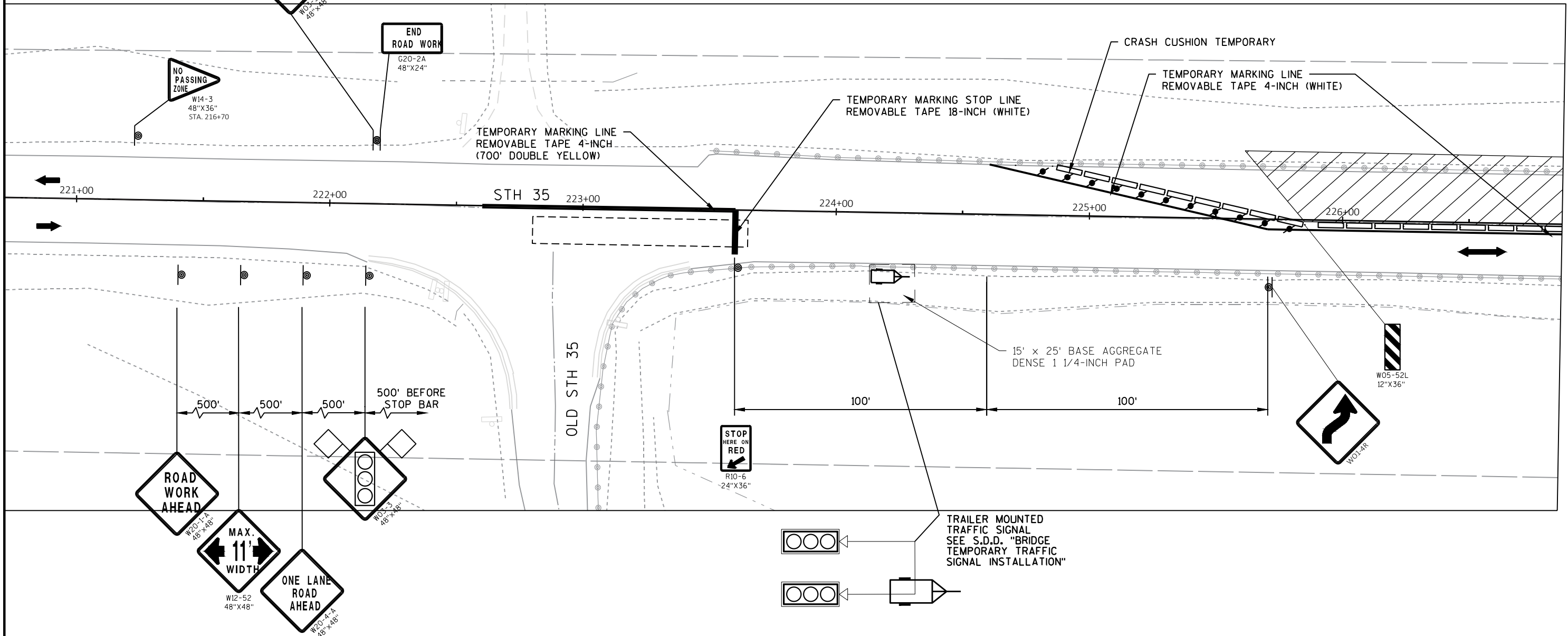
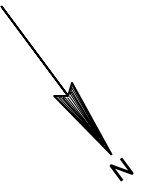
- ↑ TYPE III BARRICADE
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LEGEND

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- ⊥ TYPE III BARRICADE WITH ATTACHED SIGN
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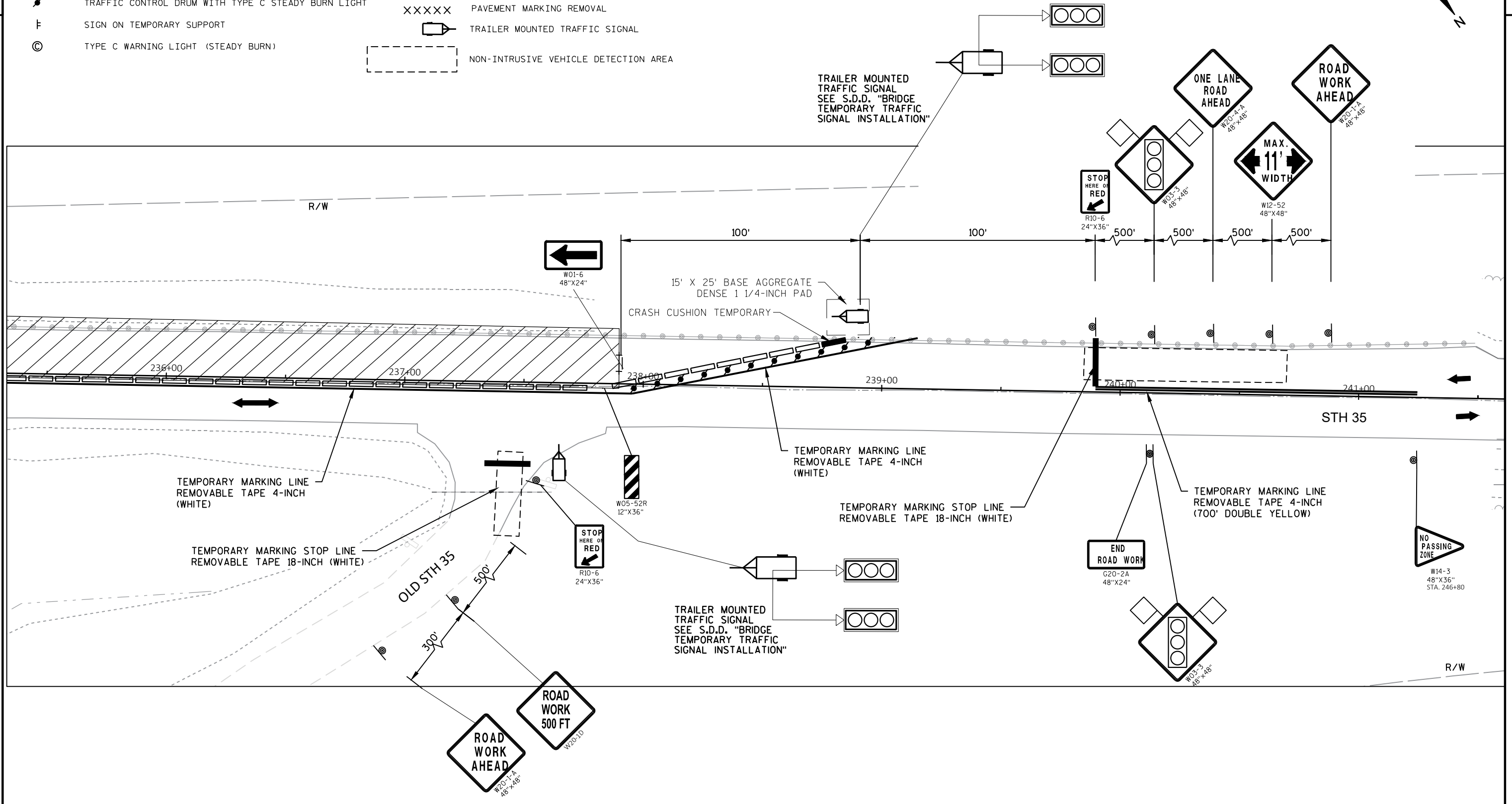
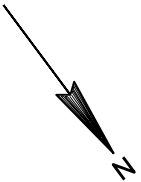
NOTE:  
SEE CROSS SECTIONS FOR  
TEMPORARY SIGNAL PAD  
CONSTRUCTION.



LEGEND

- ↑ TYPE III BARRICADE
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CONSTRUCTION.

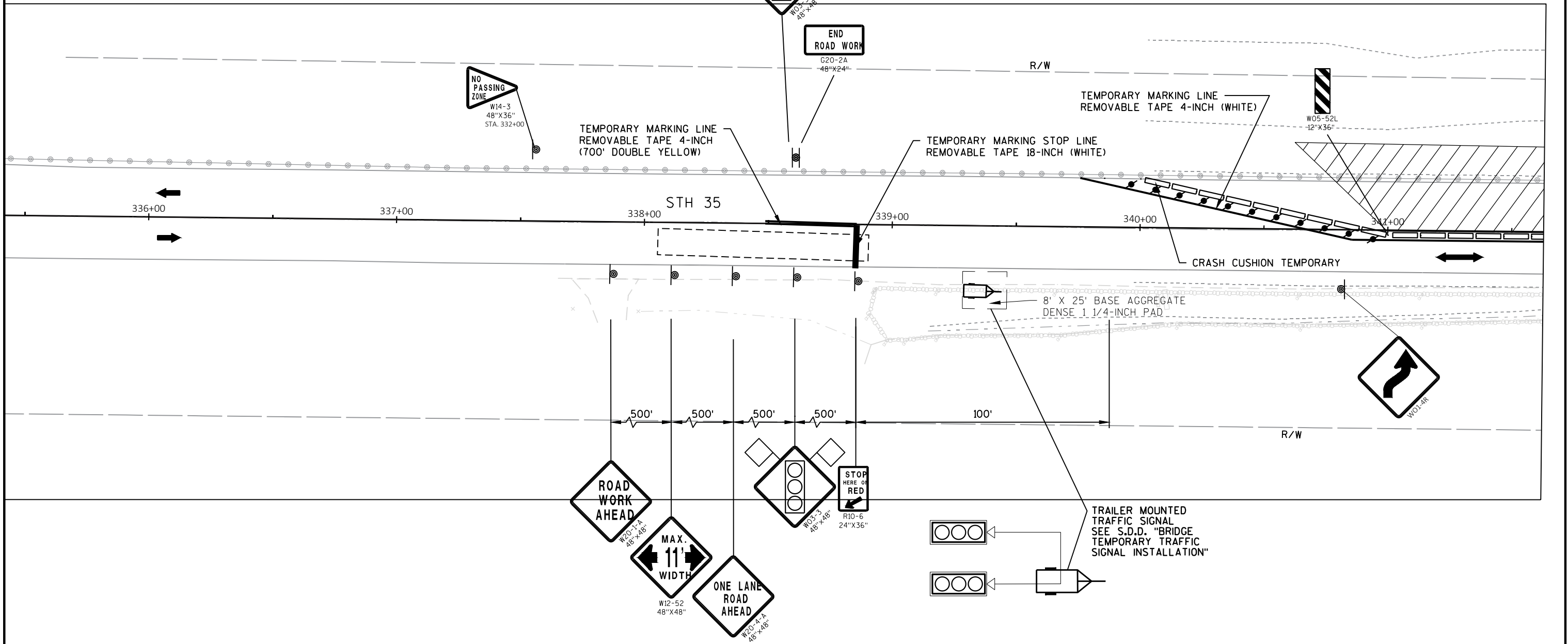
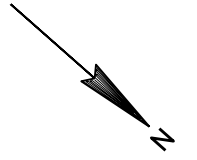




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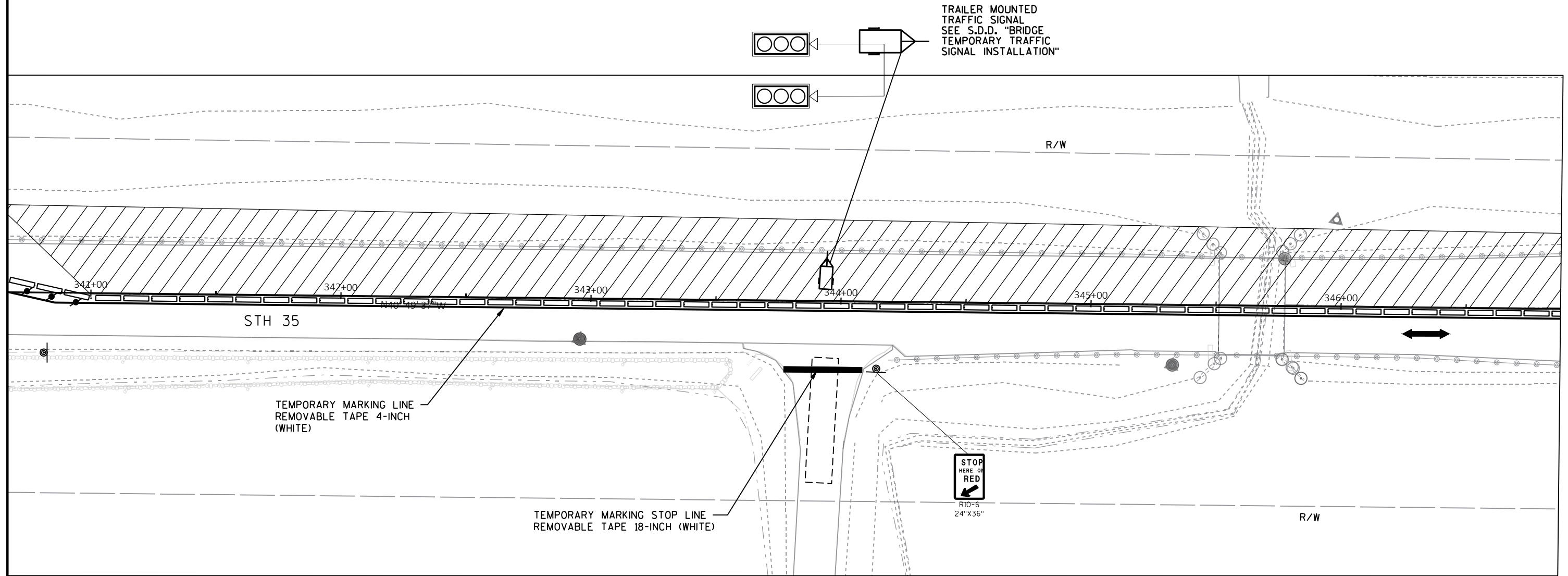
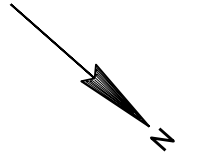
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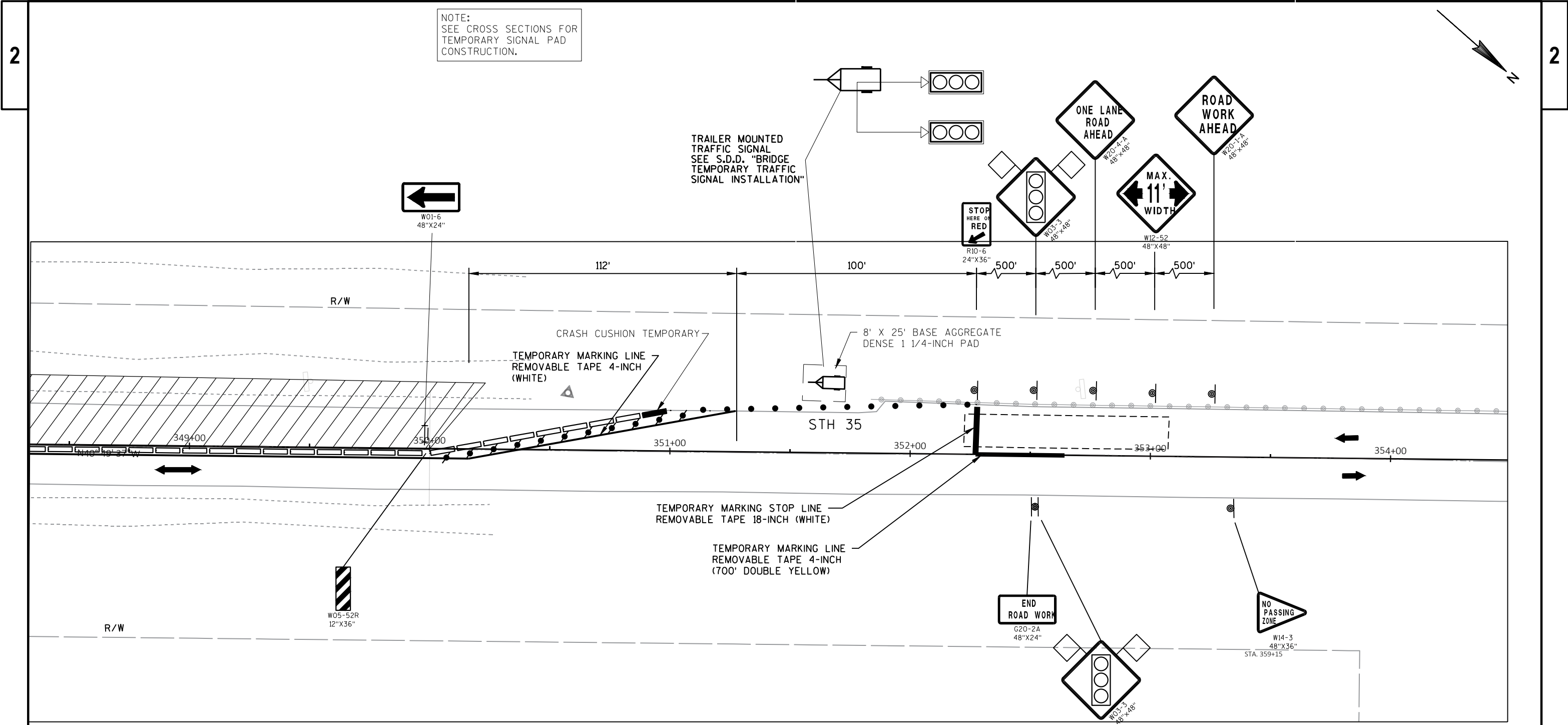


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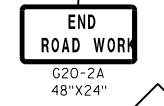
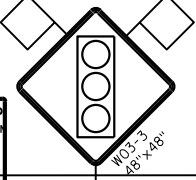
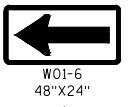
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NOTE:  
SEE CROSS SECTIONS FOR  
TEMPORARY SIGNAL PAD  
CONSTRUCTION.



TRAILER MOUNTED  
TRAFFIC SIGNAL  
SEE S.D.D. "BRIDGE  
TEMPORARY TRAFFIC  
SIGNAL INSTALLATION"

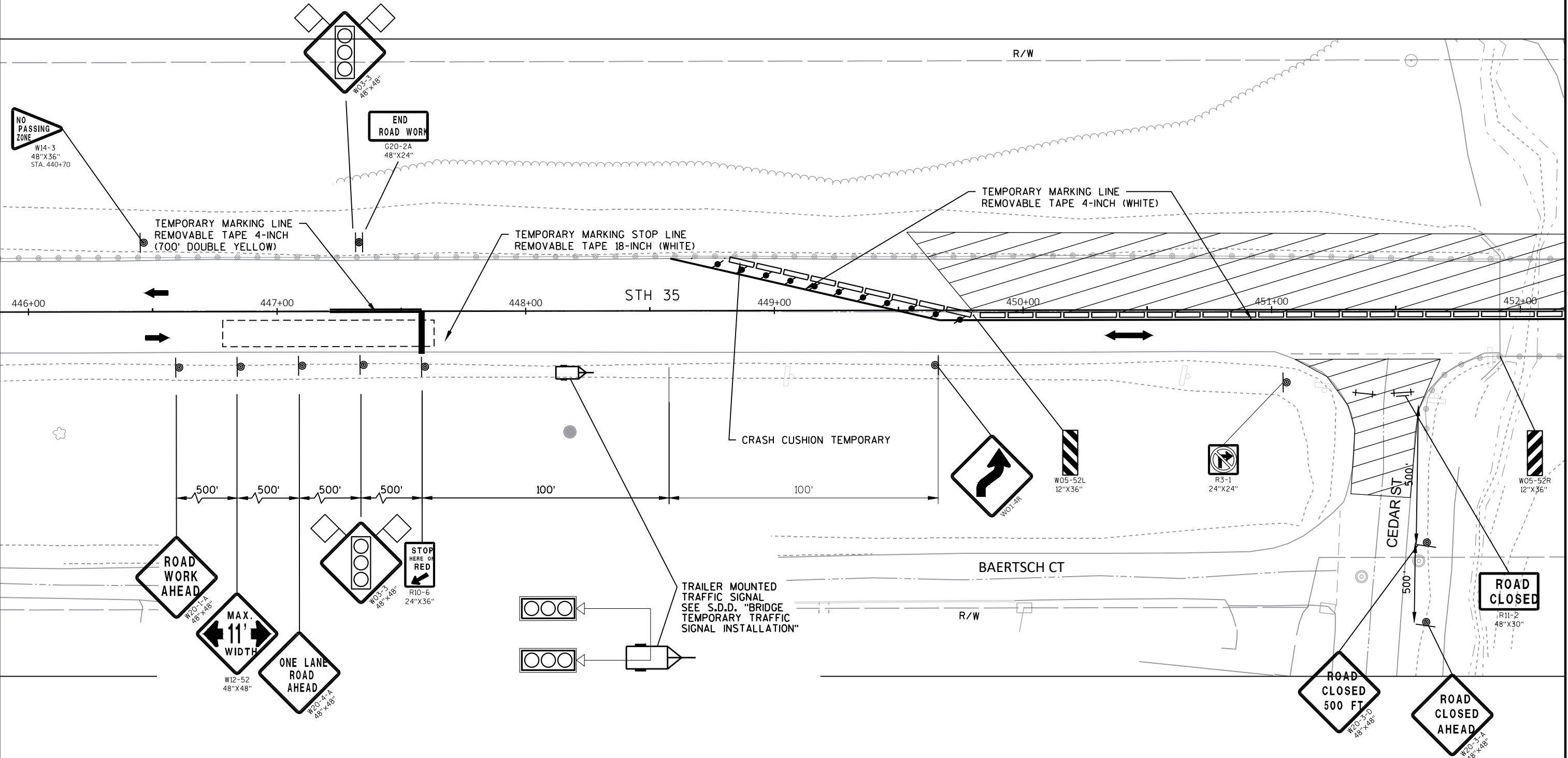
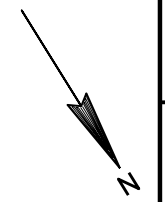


**LEGEND**

- † TYPE III BARRICADE
- †† TYPE III BARRICADE WTH ATTACHED SIGN
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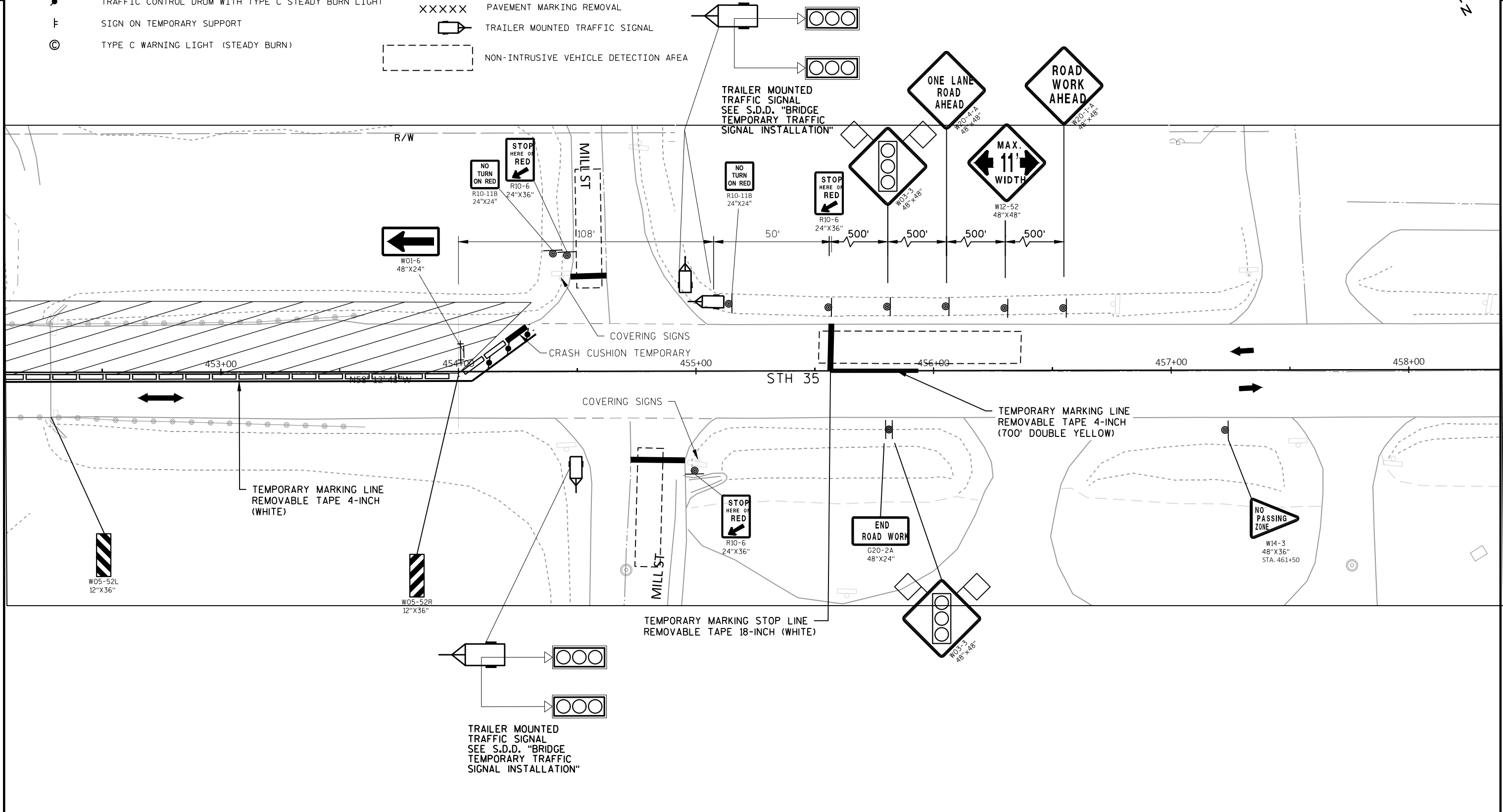
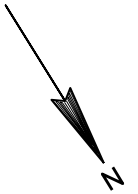
LEGEND

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PROJECT NO: 7160-04-75	HWY: STH 35	COUNTY: BUFFALO	TRAFFIC CONTROL STAGE 2 - B-6-206	SHEET E
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Estimate Of Quantities

7160-04-75

Line	Item	Item Description	Unit	Total	Qty
0002	203.0260	Removing Structure Over Waterway Minimal Debris (structure) 01. B-06-13	EACH	1.000	1.000
0004	203.0260	Removing Structure Over Waterway Minimal Debris (structure) 02. B-06-16	EACH	1.000	1.000
0006	203.0260	Removing Structure Over Waterway Minimal Debris (structure) 03. B-06-18	EACH	1.000	1.000
0008	204.0165	Removing Guardrail	LF	3,383.000	3,383.000
0010	205.0100	Excavation Common	CY	3,675.000	3,675.000
0012	205.0400	Excavation Marsh	CY	4,710.000	4,710.000
0014	206.1001	Excavation for Structures Bridges (structure) 01. B-06-201	EACH	1.000	1.000
0016	206.1001	Excavation for Structures Bridges (structure) 02. B-06-204	EACH	1.000	1.000
0018	206.1001	Excavation for Structures Bridges (structure) 03. B-06-206	EACH	1.000	1.000
0020	208.0100	Borrow	CY	3,429.000	3,429.000
0022	209.1100	Backfill Granular Grade 1	CY	4,710.000	4,710.000
0024	210.1500	Backfill Structure Type A	TON	675.000	675.000
0026	213.0100	Finishing Roadway (project) 01. 7160-04-75	EACH	1.000	1.000
0028	305.0110	Base Aggregate Dense 3/4-Inch	TON	1,140.000	1,140.000
0030	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	12,640.000	12,640.000
0032	415.0070	Concrete Pavement 7-Inch	SY	132.000	132.000
0034	415.0410	Concrete Pavement Approach Slab	SY	240.000	240.000
0036	450.4000	HMA Cold Weather Paving	TON	440.000	440.000
0038	455.0605	Tack Coat	GAL	950.000	950.000
0040	460.2000	Incentive Density HMA Pavement	DOL	2,250.000	2,250.000
0042	460.6223	HMA Pavement 3 MT 58-28 S	TON	2,500.000	2,500.000
0044	460.6244	HMA Pavement 4 MT 58-34 S	TON	1,010.000	1,010.000
0046	465.0315	Asphaltic Flumes	SY	5.000	5.000
0048	502.0100	Concrete Masonry Bridges	CY	909.000	909.000
0050	502.3200	Protective Surface Treatment	SY	1,220.000	1,220.000
0052	502.3210	Pigmented Surface Sealer	SY	270.000	270.000
0054	503.0128	Prestressed Girder Type I 28-Inch	LF	798.000	798.000
0056	505.0400	Bar Steel Reinforcement HS Structures	LB	16,700.000	16,700.000
0058	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	120,210.000	120,210.000
0060	505.0800.S	Bar Steel Reinforcement HS Stainless Structures	LB	4,420.000	4,420.000
0062	505.0905	Bar Couplers No. 5	EACH	244.000	244.000
0064	505.0906	Bar Couplers No. 6	EACH	102.000	102.000
0066	505.0908	Bar Couplers No. 8	EACH	114.000	114.000
0068	506.2605	Bearing Pads Elastomeric Non-Laminated	EACH	36.000	36.000
0070	506.4000	Steel Diaphragms (structure) 01. B-06-201	EACH	5.000	5.000
0072	506.4000	Steel Diaphragms (structure) 02. B-06-204	EACH	5.000	5.000
0074	506.4000	Steel Diaphragms (structure) 03. B-06-206	EACH	5.000	5.000
0076	511.1200	Temporary Shoring (structure) 01. B-06-201	SF	1,030.000	1,030.000
0078	511.1200	Temporary Shoring (structure) 02. B-06-204	SF	1,360.000	1,360.000
0080	511.1200	Temporary Shoring (structure) 03. B-06-206	SF	655.000	655.000
0082	516.0500	Rubberized Membrane Waterproofing	SY	74.000	74.000
0084	521.1012	Apron Endwalls for Culvert Pipe Steel 12-Inch	EACH	9.000	9.000
0086	530.0112	Culvert Pipe Corrugated Polyethylene 12-Inch	LF	180.000	180.000
0088	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	3,135.000	3,135.000
0090	601.0557	Concrete Curb & Gutter 6-Inch Sloped 36-Inch Type D	LF	42.000	42.000
0092	601.0588	Concrete Curb & Gutter 4-Inch Sloped 36-Inch Type TBT	LF	308.000	308.000
0094	601.0590	Concrete Curb & Gutter 4-Inch Sloped 36-Inch Type TBTT	LF	135.000	135.000
0096	603.8000	Concrete Barrier Temporary Precast Delivered	LF	3,523.000	3,523.000
0098	603.8125	Concrete Barrier Temporary Precast Installed	LF	6,848.000	6,848.000



Estimate Of Quantities

7160-04-75

Line	Item	Item Description	Unit	Total	Qty
0100	603.8500	Anchoring Concrete Barrier Temporary Precast	LF	2,316.000	2,316.000
0102	603.8505	Anchoring Concrete Barrier Temporary Precast on Bridge Decks	LF	104.000	104.000
0104	606.0200	Riprap Medium	CY	30.000	30.000
0106	606.0300	Riprap Heavy	CY	1,058.000	1,058.000
0108	611.0654	Inlet Covers Type V	EACH	9.000	9.000
0110	611.3220	Inlets 2x2-FT	EACH	9.000	9.000
0112	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	494.000	494.000
0114	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	11.000	11.000
0116	614.0200	Steel Thrie Beam Structure Approach	LF	103.000	103.000
0118	614.0305	Steel Plate Beam Guard Class A	LF	1,850.000	1,850.000
0120	614.0800	Crash Cushions Permanent	EACH	1.000	1.000
0122	614.0905	Crash Cushions Temporary	EACH	6.000	6.000
0124	614.2300	MGS Guardrail 3	LF	875.000	875.000
0126	614.2500	MGS Thrie Beam Transition	LF	236.400	236.400
0128	614.2610	MGS Guardrail Terminal EAT	EACH	8.000	8.000
0130	618.0100	Maintenance And Repair of Haul Roads (project) 01. 7160-04-75	EACH	1.000	1.000
0132	619.1000	Mobilization	EACH	1.000	1.000
0134	624.0100	Water	MGAL	185.000	185.000
0136	625.0100	Topsoil	SY	15,660.000	15,660.000
0138	628.1504	Silt Fence	LF	5,880.000	5,880.000
0140	628.1520	Silt Fence Maintenance	LF	5,880.000	5,880.000
0142	628.1905	Mobilizations Erosion Control	EACH	6.000	6.000
0144	628.1910	Mobilizations Emergency Erosion Control	EACH	6.000	6.000
0146	628.2008	Erosion Mat Urban Class I Type B	SY	14,355.000	14,355.000
0148	628.6005	Turbidity Barriers	SY	2,850.000	2,850.000
0150	628.6510	Soil Stabilizer Type B	ACRE	3.400	3.400
0152	628.7005	Inlet Protection Type A	EACH	9.000	9.000
0154	628.7020	Inlet Protection Type D	EACH	9.000	9.000
0156	629.0210	Fertilizer Type B	CWT	10.300	10.300
0158	630.0110	Seeding Mixture No. 10	LB	50.000	50.000
0160	630.0500	Seed Water	MGAL	158.000	158.000
0162	638.2102	Moving Signs Type II	EACH	2.000	2.000
0164	638.2602	Removing Signs Type II	EACH	12.000	12.000
0166	638.3000	Removing Small Sign Supports	EACH	12.000	12.000
0168	638.4000	Moving Small Sign Supports	EACH	2.000	2.000
0170	642.5001	Field Office Type B	EACH	1.000	1.000
0172	643.0300	Traffic Control Drums	DAY	15,019.000	15,019.000
0174	643.0420	Traffic Control Barricades Type III	DAY	1,045.000	1,045.000
0176	643.0715	Traffic Control Warning Lights Type C	DAY	10,469.000	10,469.000
0178	643.0900	Traffic Control Signs	DAY	14,413.000	14,413.000
0180	643.3105	Temporary Marking Line Paint 4-Inch	LF	2,970.000	2,970.000
0182	643.3150	Temporary Marking Line Removable Tape 4-Inch	LF	12,094.000	12,094.000
0184	643.3850	Temporary Marking Stop Line Removable Tape 18-Inch	LF	327.000	327.000
0186	643.5000	Traffic Control	EACH	1.000	1.000
0188	645.0111	Geotextile Type DF Schedule A	SY	339.000	339.000
0190	645.0120	Geotextile Type HR	SY	1,909.000	1,909.000
0192	646.1020	Marking Line Epoxy 4-Inch	LF	6,854.000	6,854.000
0194	646.6464	Cold Weather Marking Epoxy 4-Inch	LF	6,854.000	6,854.000
0196	646.7120	Marking Diagonal Epoxy 12-Inch	LF	23.000	23.000

Estimate Of Quantities

7160-04-75

Line	Item	Item Description	Unit	Total	Qty
0198	646.9000	Marking Removal Line 4-Inch	LF	3,542.000	3,542.000
0200	650.4000	Construction Staking Storm Sewer	EACH	18.000	18.000
0202	650.4500	Construction Staking Subgrade	LF	2,434.000	2,434.000
0204	650.5000	Construction Staking Base	LF	2,434.000	2,434.000
0206	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	485.000	485.000
0208	650.6501	Construction Staking Structure Layout (structure) 01. B-06-201	EACH	1.000	1.000
0210	650.6501	Construction Staking Structure Layout (structure) 02. B-06-204	EACH	1.000	1.000
0212	650.6501	Construction Staking Structure Layout (structure) 03. B-06-206	EACH	1.000	1.000
0214	650.9911	Construction Staking Supplemental Control (project) 01. 7160-04-75	EACH	1.000	1.000
0216	650.9920	Construction Staking Slope Stakes	LF	2,434.000	2,434.000
0218	661.0101	Temporary Traffic Signals for Bridges (structure) 01. B-06-201	EACH	1.000	1.000
0220	661.0101	Temporary Traffic Signals for Bridges (structure) 02. B-06-204	EACH	1.000	1.000
0222	661.0101	Temporary Traffic Signals for Bridges (structure) 03. B-06-206	EACH	1.000	1.000
0224	690.0150	Sawing Asphalt	LF	576.000	576.000
0226	715.0502	Incentive Strength Concrete Structures	DOL	5,454.000	5,454.000
0228	715.0720	Incentive Compressive Strength Concrete Pavement	DOL	500.000	500.000
0230	999.2000.S	Installing and Maintaining Bird Deterrent System (station) 01. 230+90	EACH	1.000	1.000
0232	999.2000.S	Installing and Maintaining Bird Deterrent System (station) 02. 345+60	EACH	1.000	1.000
0234	999.2000.S	Installing and Maintaining Bird Deterrent System (station) 03. 452+10	EACH	1.000	1.000
0236	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	800.000	800.000
0238	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	630.000	630.000
0240	SPV.0005	Special 01. Pre-Planting Vegetation Treatment	ACRE	1.510	1.510
0242	SPV.0005	Special 02. Seed Bed Preparation	ACRE	3.420	3.420
0244	SPV.0060	Special 01. Steel Plate Beam Guard Connection	EACH	5.000	5.000
0246	SPV.0060	Special 02. Special Habitat Vegetation Removal And Site Monitoring (B-06-201)	EACH	1.000	1.000
0248	SPV.0060	Special 03. Special Habitat Vegetation Removal And Site Monitoring (B-06-204)	EACH	1.000	1.000
0250	SPV.0060	Special 04. Special Habitat Vegetation Removal And Site Monitoring (B-06-206)	EACH	1.000	1.000
0252	SPV.0060	Special 05. Native Seed Surveillance And Care Cycle	EACH	8.000	8.000
0254	SPV.0085	Special 01. Native Seeding Mixture No. 75 Updated	LB	49.000	49.000

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Division	From/To Station	Location	Common Excavation (item # 205.0100)		Salvaged/Unusable Pavement Material (4)	Available Material (5)	Marsh Excavation (10)	Unexpanded Fill	Expanded Fill (6)	Mass Ordinate +/- (7)	Waste (8)	Borrow (9)	Comment:
			Cut (2)	EBS Excavation (3)									
	1 225+85 to 236+00	Mainline	1390	0	457	933	2060	1941	2426	-1493	2517	1493	
B-6-201 Subtotal			1390	0	457	933	2060	1941	2426	-1493		1493	
	2 338+54 to 350+00	Mainline	1397	0	410	987	2100	2338	2923	-1936	2510	1936	
B-6-204 Subtotal			1397	0	410	987	2100	2338	2923	-1936		1936	
	3 449+80 to 454+00	Mainline	808	0	180	628	550	214	268	360	730	0	
	4 10+20 to 10+74	Cedar St	80	0	21	59		8	10	49	21	0	
B-6-206 Subtotal			888	0	201	686	550	222	277	409	751	0	
Grand Total			3674	0	1068	2606	4710	4501	5626	-3020	751	3429	
Total Common Excavation				3675									

- 1) Common Excavation is the sum of the Cut and EBS Excavation columns. Item number 205.0100
- 2) Salvaged/Unusable Pavement Material is included in Cut.
- 3) EBS Excavation to be backfilled with Available Material or Borrow material. All EBS material is assumed to be wasted offsite.
- 4) Salvaged/Unusable Pavement Material
- 5) Available Material = Cut - Salvaged/Unusable Pavement Material
- 6) Expanded Fill = Unexpanded Fill \* Fill Factor
- 7) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material within the Division. Minus indicates a shortage of material within the Division
- 8) Waste = EBS Qty + Salvaged/Unusable Pavement Material + Marsh Excavation.
- 9) Borrow = The negative Mass Ordinate Qty calculated for the Division. Item number 208.0100.
- 10) Marsh Excavation to be backfilled with Available Material or Borrow material. All Marsh Excavation material is assumed to be wasted offsite. Item #205.0400.

\*\*\*ALL ITEMS CATEGORY 0010 UNLESS OTHERWISE NOTED.

**REMOVING GUARDRAIL**

STRUCTURE	STATION - STATION	OFFSET	204.0165 REMOVING GUARDRAIL	
			LF	
<b>B-6-201</b>				
	226+01 - 236+04	LT	1,003	
	226+01 - 235+05	RT	904	
B-6-201 SUBTOTAL			1,907	
<b>B-6-204</b>				
	341+04 - 347+10	LT	606	
	344+20 - 347+10	RT	291	
B-6-204 SUBTOTAL			897	
<b>B-6-206</b>				
	450+03 - 453+60	LT	357	
	451+63 - 453+61	RT	222	
B-6-206 SUBTOTAL			579	
<b>TOTAL</b>			<b>3,383</b>	

**SUBSURFACE**

STRUCTURE	STATION - STATION	OFFSET	205.0400 MARSH EXCAVATION		209.1100 BACKFILL GRANULAR GRADE 1	
			CY		CY	
<b>B-6-201</b>						
	225+85 - 236+00	STH 35,NORTHBOUND	1,030		1,030	
	225+85 - 236+00	STH 35, SOUTHBOUND	1,030		1,030	
<b>B-6-204</b>						
	338+54 - 350+00	STH 35, NORTHBOUND	1,190		1,190	
	341+00 - 350+00	STH 35, SOUTHBOUND	910		910	
<b>B-6-206</b>						
	452+52 - 454+00	STH 35, NORTHBOUND	170		170	
	449+80 - 454+00	STH 35, SOUTHBOUND	380		380	
<b>TOTALS</b>			<b>4,710</b>		<b>4,710</b>	

**BASE AGGREGATE DENSE**

STRUCTURE	STATION - STATION	LOCATION	305.0110 3/4-INCH		305.0120 1 1/4-INCH		624.0100 WATER	
			TON		TON		MGAL	
<b>B-6-201</b>								
	225+86 - 230+44	STH 35 SHOULDER, LT	91	---	---	---	1	
	225+86 - 230+44	STH 35 SHOULDER, RT	92	---	---	---	1	
	225+86 - 230+44	STH 35 MAINLINE	---	---	2,240	---	23	
	231+36 - 236+00	STH 35 SHOULDER, LT	92	---	---	---	1	
	231+36 - 236+00	STH 35 SHOULDER, RT	106	---	---	---	1	
	231+36 - 236+00	STH 35 MAINLINE	---	---	2,262	---	22	
	UNDISTRIBUTED		48	---	453	---	6	
B-6-201 SUBTOTAL			430	---	4,955	---	55	
<b>B-6-204</b>								
	338+00 - 345+22	STH 35 SHOULDER, RT	175	---	---	---	2	
	338+00 - 345+22	STH 35 MAINLINE	---	---	2,544	---	25	
	341+00 - 345+22	STH 35 SHOULDER, LT	83	---	---	---	1	
	346+04 - 350+00	STH 35 SHOULDER, RT	124	---	---	---	1	
	346+04 - 350+00	STH 35 SHOULDER, LT	95	---	---	---	1	
	346+04 - 350+00	STH 35 MAINLINE	---	---	1,928	---	20	
	UNDISTRIBUTED		52	---	448	---	50	
B-6-204 SUBTOTAL			530	---	4,920	---	100	
<b>B-6-206</b>								
	449+80 - 451+72	STH 35 MAINLINE	---	---	902	---	10	
	449+80 - 451+00	STH 35 SHOULDER, RT	19	---	---	---	1	
	449+80 - 451+72	STH 35 SHOULDER, LT	45	---	---	---	1	
	452+52 - 454+00	STH 35 MAINLINE	---	---	684	---	7	
	452+52 - 454+00	STH 35 SHOULDER, RT	42	---	---	---	1	
	452+52 - 454+00	STH 35 SHOULDER, LT	41	---	---	---	1	
	10+20 - 10+74	Cedar St	---	---	246	---	3	
	10+20 - 10+74	Cedar St	12	---	---	---	1	
	UNDISTRIBUTED		22	---	163	---	5	
B-6-206 SUBTOTAL			180	---	1,995	---	30	
<b>TOTALS</b>			<b>1,140</b>	<b>---</b>	<b>11,870</b>	<b>---</b>	<b>185</b>	

\*\*\*ALL ITEMS CATEGORY 0010 UNLESS OTHERWISE NOTED.

**CONCRETE PAVEMENT**

STRUCTURE	STATION - STATION	OFFSET		415.0070	415.0410
				7-INCH SY	APPROACH SLAB SY
<b>B-6-201</b>					
	230+29 - 230+44		STH 35,APPROACH AND SHOULDER	19	40
	231+36 - 231+51		STH 35,APPROACH AND SHOULDER	19	40
B-6-201 SUBTOTAL				<b>38</b>	<b>80</b>
<b>B-6-204</b>					
	345+07 - 345+22		STH 35,APPROACH AND SHOULDER	27	40
	346+04 - 346+19		STH 35,APPROACH AND SHOULDER	19	40
B-6-204 SUBTOTAL				<b>46</b>	<b>80</b>
<b>B-6-206</b>					
	451+57 - 451+72		STH 35,APPROACH AND SHOULDER	29	40
	452+52 - 452+67		STH 35,APPROACH AND SHOULDER	19	40
B-6-206 SUBTOTAL				<b>48</b>	<b>80</b>
<b>TOTALS</b>				<b>132</b>	<b>240</b>

**CONCRETE SURFACE DRAINS**

STRUCTURE	STATION	OFFSET	521.1012	530.0112	611.0654	611.3220	628.7005	628.7020	650.4000
			APRON ENDWALLS FOR CULVERT PIPE STEEL 12-INCH EACH	CULVERT PIPE CORRUGATED POLYETHYLENE 12-INCH LF	INLET COVERS TYPE V EACH	INLETS 2X2 - FT EACH	INLET PROTECTION TYPE A EACH	INLET PROTECTION TYPE D EACH	CONSTRUCTION STAKING STORM SEWER EACH
<b>B-6-201</b>									
	230+23	LT	1	20	1	1	1	1	2
	230+23	RT	1	20	1	1	1	1	2
	231+57	LT	1	20	1	1	1	1	2
	231+79	RT	1	20	1	1	1	1	2
B-6-201 SUBTOTAL			<b>4</b>	<b>80</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>8</b>
<b>B-6-204</b>									
	346+47	LT	1	15	1	1	1	1	2
	346+47	RT	1	15	1	1	1	1	2
B-6-204 SUBTOTAL			<b>2</b>	<b>30</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>4</b>
<b>B-6-206</b>									
	451+50	LT	1	20	1	1	1	1	2
	452+95	LT	1	25	1	1	1	1	2
	452+95	RT	1	25	1	1	1	1	2
B-6-206 SUBTOTAL			<b>3</b>	<b>70</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>6</b>
<b>TOTALS</b>			<b>9</b>	<b>180</b>	<b>9</b>	<b>9</b>	<b>9</b>	<b>9</b>	<b>18</b>

\*\*\*ALL ITEMS CATEGORY 0010 UNLESS OTHERWISE NOTED.

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ASPHALT PAVEMENT ITEMS

STRUCTURE	STATION - STATION	LOCATION	450.4000	455.0605	460.6223	460.6244	465.0315
			HMA COLD WEATHER PAVING TON	TACK COAT GAL	HMA PAVEMENT 3 MT 58-28 S TON	HMA PAVEMENT 4 MT 58-34 S TON	ASPHALTIC FLUMES SY
<b>B-6-201</b>							
	225+86 - 230+29	STH 35	90	200	520	210	-
	231+51 - 236+00	STH 35	90	200	530	210	-
SUBTOTAL B-6-201			180	400	1,050	420	0
<b>B-6-204</b>							
	338+00 - 345+07	STH 35	110	230	600	240	-
	346+19 - 350+00	STH 35	80	170	450	180	-
B-6-204 SUBTOTAL			190	400	1,050	420	0
<b>B-6-206</b>							
	449+80 - 451+57	STH 35	40	80	210	80	-
	451+71 - 451+79	STH 35	---	-	-	-	5
	452+67 - 454+00	STH 35	30	60	160	70	-
	10+20 - 10+74	Cedar St	---	10	30	20	-
B-6-206 SUBTOTAL			70	150	400	170	5
<b>TOTALS</b>			<b>440</b>	<b>950</b>	<b>2,500</b>	<b>1,010</b>	<b>5</b>

CONCRETE CURB & GUTTER

STRUCTURE	STATION - STATION	LOCATION	601.0557	601.0588	601.0590
			CONCRETE CURB & GUTTER 6-INCH SLOPED 36-INCH TYPE D LF	CONCRETE CURB & GUTTER 4-INCH SLOPED 36-INCH TYPE TBT LF	CONCRETE CURB & GUTTER 4-INCH SLOPED 36-INCH TYPE TBT LF
<b>B-6-201</b>					
	230+07 - 230+44	LT	--	22	15
	230+07 - 230+44	RT	--	22	15
	231+35 - 231+72	LT	--	22	15
	231+35 - 231+94	RT	--	44	15
B-6-201 SUBTOTAL			0	110	60
<b>B-6-204</b>					
	346+03 - 346+62	LT	--	44	15
	346+03 - 346+62	RT	--	44	15
B-6-204 SUBTOTAL			0	88	30
<b>B-6-206</b>					
	451+35 - 451+72	LT	--	22	15
	452+52 - 453+11	LT	--	44	15
	452+52 - 453+11	RT	--	44	15
	10+24 - 10+74	CEDAR, RT	42	--	--
B-6-206 SUBTOTAL			42	110	45
<b>PROJECT TOTAL</b>			<b>42</b>	<b>308</b>	<b>135</b>

RIPRAP

STRUCTURE	STATION	LOCATION	606.0200	606.0300	645.0120
			RIPRAP MEDIUM CY	RIPRAP HEAVY CY	GEOTEXTILE TYPE HR SY
<b>B-6-201</b>					
	230+23	STH 35, LT	3	---	10
	230+23	STH 35, RT	3	---	10
	231+57	STH 35, LT	3	---	10
	231+79	STH 35, RT	3	---	10
SUBTOTAL B-6-201			12	0	40
<b>B-6-204</b>					
	338+80 - 343+75	STH 35, RT	---	705	1060
	346+47	STH 35, LT	3	---	10
	346+47	STH 35, RT	3	---	10
B-6-204 SUBTOTAL			6	705	1080
<b>B-6-206</b>					
	451+50	STH 35, LT	3	---	10
	451+78	STH 35, RT	3	---	10
	452+95	STH 35, LT	3	---	10
	452+95	STH 35, RT	3	---	10
B-6-206 SUBTOTAL			12	0	40
<b>TOTALS</b>			<b>30</b>	<b>705</b>	<b>1160</b>

\*\*\*ALL ITEMS CATEGORY 0010 UNLESS OTHERWISE NOTED.



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**GUARDRAIL**

STRUCTURE	STATION	STATION	OFFSET	614.0200 STEEL THRIE BEAM STRUCTURE APPROACH LF	614.0305 STEEL PLATE BEAM GUARD CLASS A LF	SPV.0060.01 STEEL PLATE BEAM GUARD CONNECTION EACH	614.2300 MGS GUARDRAIL 3 LF	614.2500 MGS THRIE BEAM TRANSITION LF	614.2610 MGS GUARDRAIL TERMINAL EAT EACH
<b>B-6-201</b>	226+01	- 230+47	LT	20.6	425	1	---	---	---
	226+01	- 230+47	RT	20.6	425	1	---	---	---
	231+33	- 236+04	LT	20.6	450	1	---	---	---
	231+33	- 235+01	RT	---	---	---	275	39.4	1
<b>B-6-201 SUBTOTAL</b>				61.8	1,300	3	275	39.4	1
<b>B-6-204</b>	338+52	- 343+58	RT	---	---	---	400	---	2
	341+04	- 345+25	LT	20.6	400	1	---	---	---
	344+20	- 345+25	RT	---	---	---	12.5	39.4	1
	346+01	- 347+06	RT	---	---	---	12.5	39.4	1
	346+01	- 348+44	LT	---	---	---	150	39.4	1
<b>B-6-204 SUBTOTAL</b>				20.6	400	1	575	118.2	5
<b>B-6-206</b>	450+03	- 451+74	LT	20.6	150	1	---	---	---
	452+50	- 453+55	LT	---	---	---	12.5	39.4	1
	452+50	- 453+55	RT	---	---	---	12.5	39.4	1
<b>B-6-206 SUBTOTAL</b>				20.6	150	1	25	78.8	2
<b>TOTALS</b>				<b>103.0</b>	<b>1850</b>	<b>5</b>	<b>875</b>	<b>236.4</b>	<b>8</b>

**CRASH CUSHIONS**

STRUCTURE	STAGE	STATION	LOCATION	BACK WIDTH FT	OBJECT MARKING PATTERN	CRASH TEST LEVEL	TRAFFIC DIRECTION	TRAFFIC LOCATION	CRASH CUSHION SHIELDS	614.0800 CRASH CUSHIONS PERMANENT EACH	614.0905 CRASH CUSHIONS TEMPORARY EACH
<b>B-6-201</b>	1	224+85	RT	2	OM3-R (WO5-58R)	TL-3	UNIDIRECTIONAL	LT	TEMP BARRIER	--	1
	2	238+80	LT	2	OM3-L (WO5-58L)	TL-3	UNIDIRECTIONAL	RT	TEMP BARRIER	--	1
<b>B-6-204</b>	1	338+09	RT	2	OM3-R (WO5-58R)	TL-3	UNIDIRECTIONAL	LT	TEMP BARRIER	--	1
	2	350+94	LT	2	OM3-L (WO5-58L)	TL-3	UNIDIRECTIONAL	RT	TEMP BARRIER	--	1
<b>B-6-206</b>	1	448+80	RT	2	OM3-R (WO5-58R)	TL-3	UNIDIRECTIONAL	LT	TEMP BARRIER	--	1
	2	454+25	LT	2	OM3-L (WO5-58L)	TL-3	UNIDIRECTIONAL	RT	TEMP BARRIER	--	1
	-	451+57	RT	2	OM3-R (WO5-58R)	TL-2	UNIDIRECTIONAL	LT	PARAPET	1	--
<b>TOTALS</b>										<b>1</b>	<b>6</b>

\*\*\*ALL ITEMS CATEGORY 0010 UNLESS OTHERWISE NOTED.

**LANDSCAPING**

STRUCTURE	STATION	- STATION	LOCATION	625.0100	628.6510	629.0210	630.0110	630.0500	SPV.0005.01	SPV.0005.02	SPV.0085.01
				TOPSOIL	SOIL STABILIZER	FERTILIZER	SEEDING	SEED	PRE-PLANTING	SEED BED	NATIVE SEEDING MIXTURE
				SY	TYPE B ACRE	TYPE B CWT	MIXTURE NO. 10 LB	WATER MGAL	VEGETATION TREATMENT ACRE	PREPARATION ACRE	NO. 75 UPDATED LB
<b>B-6-201</b>											
	225+86	- 230+60	RT	1210	0.2	0.8	4	27	0.25	0.25	4
	225+86	- 230+61	LT	1720	0.4	1.1	5	0	---	0.36	5
	231+19	- 236+00	RT	1190	0.2	0.7	4	27	0.25	0.25	4
	231+21	- 236+00	LT	1420	0.3	0.9	4	0	---	0.30	4
	UNDISTRIBUTED			1,108	0.3	0.9	3	11	0.12	0.29	3
B-6-201 SUBTOTAL				6,648	1.4	4.4	20	65	0.62	1.45	20
<b>B-6-204</b>											
	337+82	- 339+00	RT	1590	0.3	1.0	5	36	0.33	0.33	5
	341+00	- 345+45	LT	1500	0.3	0.9	5	0	---	0.31	5
	344+00	- 345+46	RT	440	0.1	0.3	2	10	0.09	0.09	2
	345+81	- 350+00	LT	1290	0.3	0.8	4	0	---	0.27	4
	345+84	- 350+00	RT	990	0.2	0.6	3	22	0.20	0.21	3
	UNDISTRIBUTED			1162	0.3	0.9	4	6	0.07	0.30	3
B-6-204 SUBTOTAL				6,972	1.5	4.6	23	74	0.69	1.51	22
<b>B-6-206</b>											
	449+80	- 451+80	RT	410	0.1	0.3	2	9	0.08	0.09	2
	449+80	- 451+80	LT	560	0.1	0.4	2	0	---	0.12	2
	452+30	- 454+00	LT	360	0.1	0.2	1	0	---	0.08	1
	452+42	- 454+00	RT	370	0.1	0.2	1	8	0.08	0.08	1
	UNDISTRIBUTED			340	0.1	0.3	1	2	0.04	0.09	1
B-6-206 SUBTOTAL				2,040	0.4	1.4	7	19	0.20	0.46	7
<b>TOTALS</b>				<b>15,660</b>	<b>3.4</b>	<b>10.3</b>	<b>50</b>	<b>158</b>	<b>1.51</b>	<b>3.42</b>	<b>49</b>

\*\*\*ALL ITEMS CATEGORY 0010 UNLESS OTHERWISE NOTED.

**EROSION CONTROL MOBILIZATION**

STAGE	619.1905 MOBILIZATIONS EROSION CONTROL EACH	619.1910 MOBILIZATION EMERGENCY EROSION CONTROL EACH
<b>B-6-201</b>	1	1
UNDISTRIBUTED	1	1
B-6-201 SUBTOTAL	2	2
<b>B-6-204</b>	1	1
UNDISTRIBUTED	1	1
B-6-204 SUBTOTAL	2	2
<b>B-6-206</b>	1	1
UNDISTRIBUTED	1	1
B-6-206 SUBTOTAL	2	2
<b>TOTALS</b>	<b>6</b>	<b>6</b>

**EROSION CONTROL**

STRUCTURE	STATION - STATION	LOCATION	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF	628.2008 EROSION MAT URBAN CLASS I TYPE B SY	628.6005 TURBIDITY BARRIER SY
<b>B-6-201</b>						
	225+86 - 230+62	RT	735	735	---	---
	225+86 - 230+66	LT	508	508	---	---
	225+86 - 230+60	RT	---	---	1,210	---
	225+86 - 230+61	LT	---	---	1,720	---
	230+66 - 230+79	LT/RT	---	---	---	440
	231+00 - 231+18	LT/RT	---	---	---	460
	231+17 - 236+00	LT	945	945	---	---
	231+18 - 236+00	RT	513	513	---	---
	231+19 - 236+00	RT	---	---	1,190	---
	231+21 - 236+00	LT	---	---	1,420	---
	UNDISTRIBUTED		270	270	554	90
<b>B-6-201 SUBTOTALS</b>			<b>2,971</b>	<b>2,971</b>	<b>6,094</b>	<b>990</b>
<b>B-6-204</b>						
	337+77 - 338+83	RT	103	103	---	---
	338+00 - 345+38	RT	---	---	1,590	---
	338+85 - 343+70	RT	---	---	---	504
	344+31 - 345+38	RT	---	---	440	---
	344+20 - 345+50	RT	151	151	---	---
	340+95 - 345+50	LT	470	470	---	---
	341+00 - 345+50	LT	---	---	1,500	---
	345+50 - 345+61	LT/RT	---	---	---	77
	345+69 - 345+79	LT/RT	---	---	---	230
	345+69 - 350+05	RT	436	436	---	---
	345+80 - 351+90	LT	679	679	---	---
	345+80 - 350+00	RT	---	---	990	---
	345+81 - 350+00	LT	---	---	1,290	---
	UNDISTRIBUTED		184	184	581	81
<b>B-6-204 SUBTOTALS</b>			<b>2,023</b>	<b>2,023</b>	<b>6,391</b>	<b>892</b>

\*\*\*ALL ITEMS CATEGORY 0010 UNLESS OTHERWISE NOTED.

**EROSION CONTROL (CONTINUED)**

STRUCTURE	STATION - STATION	LOCATION	628.1504	628.1520	628.2008	628.6005
			SILT FENCE	SILT FENCE MAINTENANCE	EROSION MAT URBAN CLASS I TYPE B	TURBIDITY BARRIER
			LF	LF	SY	SY
<b>B-6-206</b>						
	449+75 - 451+10	RT	170	170	---	---
	449+75 - 451+78	LT	203	203	---	---
	449+80 - 451+80	LT	---	---	560	---
	449+80 - 451+80	RT	---	---	410	---
	451+70 - 451+86	RT	43	43	---	---
	451+78 - 451+99	LT/RT	---	---	---	460
	452+21 - 452+34	LT/RT	---	---	---	420
	452+26 - 454+01	LT	197	197	---	---
	452+30 - 454+00	LT	---	---	360	---
	452+36 - 454+02	RT	192	192	---	---
	452+42 - 454+00	RT	---	---	370	---
	UNDISTRIBUTED		81	81	170	88
B-6-206 SUBTOTALS			886	886	1,870	968
<b>TOTALS</b>			<b>5,880</b>	<b>5,880</b>	<b>14,355</b>	<b>2,850</b>

**MOVING AND REMOVING SIGNS**

STRUCTURE	STATION	OFFSET	638.2102	638.2602	638.3000	638.4000	REMARKS
			MOVING SIGNS TYPE II	REMOVING SIGNS TYPE II	REMOVING SMALL SIGN SUPPORTS	MOVING SMALL SIGN SUPPORTS	
			EACH	EACH	EACH	EACH	
<b>B-6-201</b>	230+60	RT	----	1	1	----	BRIDGE HASH MARKS
	230+68	LT	----	1	1	----	BRIDGE HASH MARKS
	231+12	LT	----	1	1	----	BRIDGE HASH MARKS
	231+12	RT	----	1	1	----	BRIDGE HASH MARKS
B-6-201 SUBTOTALS			0	4	4	0	
<b>B-6-204</b>							
	340+09	RT	1	----	---	1	NO PASSING ZONE
	345+50	LT	----	1	1	----	BRIDGE HASH MARKS
	345+50	RT	----	1	1	----	BRIDGE HASH MARKS
	345+78	LT	----	1	1	----	BRIDGE HASH MARKS
	345+78	RT	----	1	1	----	BRIDGE HASH MARKS
B-6-204 SUBTOTALS			1	4	4	1	
<b>B-6-206</b>							
	451+66	RT	1	----		1	STOP SIGN
	451+90	LT	----	1	1	----	BRIDGE HASH MARKS
	451+90	RT	----	1	1	----	BRIDGE HASH MARKS
	451+30	LT	----	1	1	----	BRIDGE HASH MARKS
	451+30	RT	----	1	1	----	BRIDGE HASH MARKS
B-6-206 SUBTOTALS			1	4	4	1	
<b>PROJECT 7160-04-70 TOTAL</b>			<b>2</b>	<b>12</b>	<b>12</b>	<b>2</b>	

\*\*\*ALL ITEMS CATEGORY 0010 UNLESS OTHERWISE NOTED.

**TRAFFIC CONTROL**

LOCATION	DAYS IN SERVICE	603.8000	603.8125	603.8500	603.8505	643.0300		643.0420		643.0715		643.0900		661.0101
		CONCRETE BARRIER TEMPORARY PRECAST DELIVERED LF	CONCRETE BARRIER TEMPORARY PRECAST INSTALLED LF	ANCHORING CONCRETE BARRIER TEMPORARY PRECAST LF	ANCHORING CONCRETE BARRIER TEMPORARY PRECAST ON BRIDGE DECKS LF	TRAFFIC CONTROL DRUMS NO.	DAY	TRAFFIC CONTROL BARRICADES TYPE III NO.	DAY	TRAFFIC CONTROL WARNING LIGHTS TYPE C NO.	DAY	TRAFFIC CONTROL SIGNS NO.	DAY	TRAFFIC SIGNALS FOR BRIDGES EACH
<b>B-6-201</b>														
STAGE 1	100	1,416	1,416	959	41	28	2,800	1	100	18	1,800	21	2,100	1
STAGE 2	100	0	1,410	0	0	22	2,200	1	100	22	2,200	21	2,100	---
UNDISTRIBUTED	15	142	283	---	---	3	42	1	15	2	27	4	63	---
B-6-201 SUBTOTAL		1,558	3,109	959	41		5,042		215		4,027		4,263	1
<b>B-6-204</b>														
STAGE 1	100	1,272	1,272	969	27	27	2,700	1	100	15	1,500	22	2,200	1
STAGE 2	100	0	1,104	0	0	34	3,400	1	100	22	2,200	20	2,000	---
UNDISTRIBUTED	15	127	238	---	---	3	41	1	15	2	23	4	63	---
B-6-204 SUBTOTAL		1,399	2,614	969	27		6,141		215		3,723		4,263	1
<b>B-6-206</b>														
STAGE 1	100	566	566	388	36	24	2,400	3	300	13	1,300	29	2,900	1
STAGE 2	100	0	560	0	0	14	1,400	3	300	14	1,400	29	2,900	---
UNDISTRIBUTED	15	---	---	---	---	2	36	1	15	1	20	6	87	---
B-6-206 SUBTOTAL		566	1,126	388	36		3,836		615		2,720		5,887	1
<b>TOTALS</b>		<b>3,523</b>	<b>6,848</b>	<b>2,316</b>	<b>104</b>		<b>15,019</b>		<b>1,045</b>		<b>10,469</b>		<b>14,413</b>	<b>3</b>

\*\*\*ALL ITEMS CATEGORY 0010 UNLESS OTHERWISE NOTED.

**TEMPORARY MARKING**

STRUCTURE	STATION	- STATION	LOCATION	646.9000	643.3105	643.3150	643.3850
				MARKING REMOVAL LINE 4-INCH LF	TEMPORARY MARKING LINE PAINT 4-INCH WHITE LF	TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH WHITE LF	MARKING STOP LINE REMOVABLE TAPE 18-INCH WHITE LF
<b>B-6-201 STAGE 1</b>							
	216+85	- 223+85	DOUBLE YELLOW CENTERLINE	---	---	---	1400
		223+85	STOP BAR	---	---	---	18
	223+85	- 225+72	CENTERLINE SKIPS	50	---	---	---
	224+84	- 225+71	EDGELINE	---	---	89	---
	225+71	- 238+40	EDGELINE	1360	1,360	---	---
		237+44	STOP BAR	---	---	---	18
	238+40	- 239+27	EDGELINE	---	---	89	---
	238+40	239+90	CENTERLINE SKIPS	38	---	---	---
		239+90	STOP BAR	---	---	---	20
	239+90	- 246+90	DOUBLE YELLOW CENTERLINE	---	---	---	1400
B-6-201 STAGE 1 SUBTOTAL				1,448	1,360	178	2,800
<b>B-6-201 STAGE 2</b>							
		223+60	STOP BAR	---	---	---	18
	223+60	- 223+95	CENTERLINE SKIPS	13	---	---	---
	224+60	- 225+71	EDGELINE	---	---	113	---
	225+71	- 237+95	EDGELINE	---	---	1,225	---
	237+35	- 237+51	STOP BAR	---	---	---	16
	237+95	- 239+15	EDGELINE	---	---	122	---
	237+95	- 239+90	CENTERLINE SKIPS	50	---	---	---
		239+90	STOP BAR	---	---	---	21
B-6-201 STAGE 2 SUBTOTAL				63	0	1460	55
<b>B-6-204 STAGE 1</b>							
	330+10	- 337+10	DOUBLE YELLOW CENTERLINE	---	---	---	1400
		337+10	STOP BAR	---	---	---	18
	337+10	- 338+38	CENTERLINE SKIPS	38	---	---	---
	338+03	- 338+47	EDGELINE	---	---	48	---
	338+47	- 350+16	EDGELINE	1169	1,169	---	---
	343+77	- 344+09	STOP BAR	---	---	---	32
	350+16	- 351+26	EDGELINE	---	---	112	---
	350+37	- 352+00	CENTERLINE SKIPS	50	---	---	---
		352+00	STOP BAR	---	---	---	20
	352+00	- 359+00	DOUBLE YELLOW CENTERLINE	---	---	---	1400
B-6-204 STAGE 1 SUBTOTAL				1,257	1,169	160	2,800

\*\*\*ALL ITEMS CATEGORY 0010 UNLESS OTHERWISE NOTED.

**TEMPORARY MARKING (CONTINUED)**

STRUCTURE	STATION	- STATION	LOCATION	646.9000	643.3105	643.3150		643.3850
				MARKING REMOVAL LINE 4-INCH LF	TEMPORARY MARKING LINE PAINT 4-INCH WHITE LF	TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH WHITE	REMOVABLE TAPE 4-INCH YELLOW	MARKING STOP LINE REMOVABLE TAPE 18-INCH WHITE LF
<b>B-6-204 STAGE 2</b>								
	338+86		STOP BAR	---	---	---	---	18
	338+86	- 340+69	CENTERLINE SKIPS	50	---	---	---	---
	339+76	- 340+86	EDGELINE	---	---	112	---	---
	340+86	- 350+16	EDGELINE	---	---	931	---	---
	343+77	- 344+09	STOP BAR	---	---	---	---	32
	350+16	- 351+27	EDGELINE	---	---	113	---	---
	350+37	- 352+27	CENTERLINE SKIPS	50	---	---	---	---
	352+27		STOP BAR	---	---	---	---	20
B-6-204 STAGE 2 SUBTOTAL				100	0	1,156	0	70
<b>B-6-206 STAGE 1</b>								
	440+79	- 447+79	DOUBLE YELLOW CENTERLINE	---	---	---	1400	---
	447+79		STOP BAR	---	---	---	---	18
	447+79	- 449+48	CENTERLINE SKIPS	50	---	---	---	---
	448+79	- 449+66	EDGELINE	---	---	89	---	---
	449+66	- 454+07	EDGELINE	441	441	---	---	---
	453+79	- 454+43	EDGELINE	---	---	66	---	---
	454+14	- 455+90	CENTERLINE SKIPS/SOLID	151	---	---	---	---
	455+90		STOP BAR	---	---	---	---	20
	455+90	- 462+90	DOUBLE YELLOW CENTERLINE	---	---	---	1,400	---
B-6-206 STAGE 1 SUBTOTAL				642	441	155	2,800	38
<b>B-6-206 STAGE 2</b>								
	447+58		STOP BAR	---	---	---	---	18
	447+58	- 447+90	CENTERLINE SKIPS	32	---	---	---	---
	448+58	- 449+66	EDGELINE	---	---	112	---	---
	449+66	- 454+06	EDGELINE	---	---	440	---	---
	454+06	- 454+33	EDGELINE	---	---	33	---	---
	455+56		STOP BAR	---	---	---	---	20
B-6-206 STAGE 2 SUBTOTAL				32	0	585	0	38
PROJECT SUBTOTAL						3,694	8,400	
<b>TOTALS</b>				<b>3542</b>	<b>2,970</b>	<b>12,094</b>		<b>327</b>

\*\*\*ALL ITEMS CATEGORY 0010 UNLESS OTHERWISE NOTED.



**CONSTRUCTION STAKING**

STRUCTURE	STATION	- STATION	LOCATION	650.4500	650.5000	650.5500	650.9911	650.9920
				CONSTRUCTION STAKING SUBGRADE LF	CONSTRUCTION STAKING BASE LF	CONSTRUCTION STAKING CURB & GUTTER LF	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL 7160-04-75 EACH	CONSTRUCTION STAKING SLOPE STAKES LF
<b>B-6-201</b>								
	225+86	- 230+44		458	458	74	---	458
	231+36	- 236+00		464	464	96	---	464
B-6-201 SUBTOTAL				922	922	170	---	922
<b>B-6-204</b>								
	338+00	- 345+22		722	722	---	---	722
	346+04	- 350+00		396	396	118	---	396
B-6-204 SUBTOTAL				1118	1118	118	---	1118
<b>B-6-206</b>								
	449+80	- 451+72		192	192	37	---	192
	452+52	- 454+00		148	148	118	---	148
	10+20	- 10+74		54	54	42	---	54
B-6-206 SUBTOTAL				394	394	197	---	394
<b>TOTALS</b>				<b>2,434</b>	<b>2,434</b>	<b>485</b>	<b>1</b>	<b>2,434</b>

**PAVEMENT MARKING ITEMS**

STRUCTURE	STATION	- STATION	TYPE	646.1020	646.7120	646.6464
				MARKING LINE EPOXY 4-INCH LF	MARKING DIAGONAL EPOXY 12-INCH LF	COLD WEATHER MARKING EPOXY 4-INCH LF
<b>B-6-201</b>						
	225+86	- 236+00	LEFT EDGELINE SOLID (WHITE)	1,020	--	1,020
	223+60	- 239+90	CENTERLINE DASHED (YELLOW)	410	--	410
	225+86	- 236+00	RIGHT EDGELINE SOLID (WHITE)	1,020	--	1,020
B-6-201 SUBTOTAL				2,450	0	2,450
<b>B-6-204</b>						
	337+10	- 340+10	CENTERLINE SOLID/DASHED (YELLOW)	375	--	375
	338+00	- 350+00	RIGHT EDGELINE SOLID (WHITE)	1,200	--	1,200
	340+10	- 352+00	CENTERLINE DASHED (YELLOW)	298	--	298
	341+00	- 350+00	LEFT EDGELINE SOLID (WHITE)	900	--	900
B-6-204 SUBTOTAL				2,773	0	2,773
<b>B-6-206</b>						
	449+80	- 454+00	LEFT EDGELINE SOLID (WHITE)	420	--	420
	449+80	- 451+00	RIGHT EDGELINE SOLID (WHITE)	120	--	120
	447+58	- 450+70	CENTERLINE DASHED (YELLOW)	78	--	78
	450+70	- 455+56	CENTERLINE SOLID/DASHED (YELLOW)	608	--	608
	451+52	- 454+00	RIGHT EDGELINE SOLID (WHITE)	248	--	248
	10+20	- 10+74	CENTERLINE DOUBLE (YELLOW)	108	--	108
	10+24	- 10+74	LEFT EDGELINE SOLID (WHITE)	50	--	50
	10+24	- 10+74	LEFT 12-INCH DIAGONAL (WHITE)	--	23	--
B-6-206 SUBTOTAL				1,632	23	1,632
<b>TOTAL</b>				<b>6,854</b>	<b>23</b>	<b>6,854</b>

\*\*\*ALL ITEMS CATEGORY 0010 UNLESS OTHERWISE NOTED.

3

3

**SAWING PAVEMENT**

STRUCTURE	STATION	LOCATION	690.0150 SAWING ASPHALT LF
<b>B-6-201</b>			
	225+86	STH 35, CROSS	40
	236+00	STH 35, CROSS	37
B-6-201 SUBTOTAL			77
<b>B-6-204</b>			
	338+00	STH 35, RT	8
	338+00 - 341+00	STH 35, RT	300
	341+00	STH 35, CROSS	32
	343+83 - 344+00	DRIVEWAY, RT	17
	350+00	STH 35, CROSS	40
B-6-204 SUBTOTAL			397
<b>B-6-206</b>			
	449+80	STH 35, CROSS	38
	454+00	STH 35, CROSS	40
	10+75	CEDAR ST, CROSS	24
B-6-206 SUBTOTAL			102
<b>TOTAL</b>			<b>576</b>

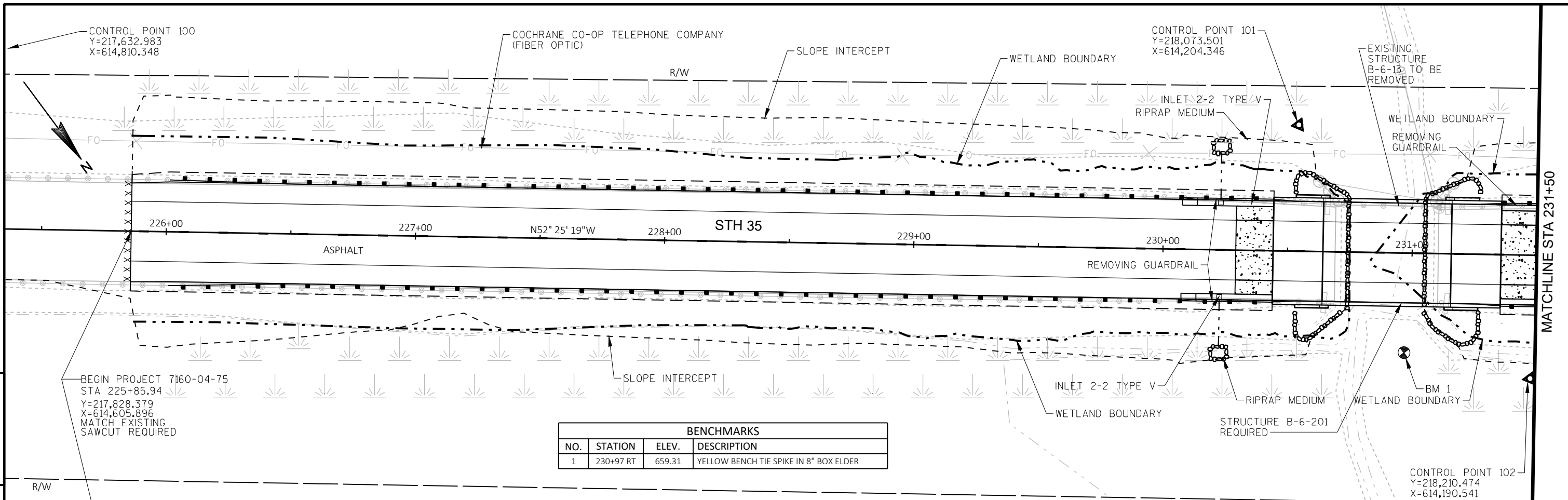
**SPECIAL HABITAT VEGETATION REMOVAL AND SITE MONITORING**

LOCATION	SPV.0060.02 SPECIAL HABITAT VEGETATION REMOVAL AND SITE MONITORING (B-06-201) EACH	SPV.0060.03 SPECIAL HABITAT VEGETATION REMOVAL AND SITE MONITORING (B-06-204) EACH	SPV.0060.04 SPECIAL HABITAT VEGETATION REMOVAL AND SITE MONITORING (B-06-206) EACH
B-6-201	1	--	--
B-6-204	--	1	--
B-6-206	--	--	1
<b>TOTALS</b>	<b>1</b>	<b>1</b>	<b>1</b>

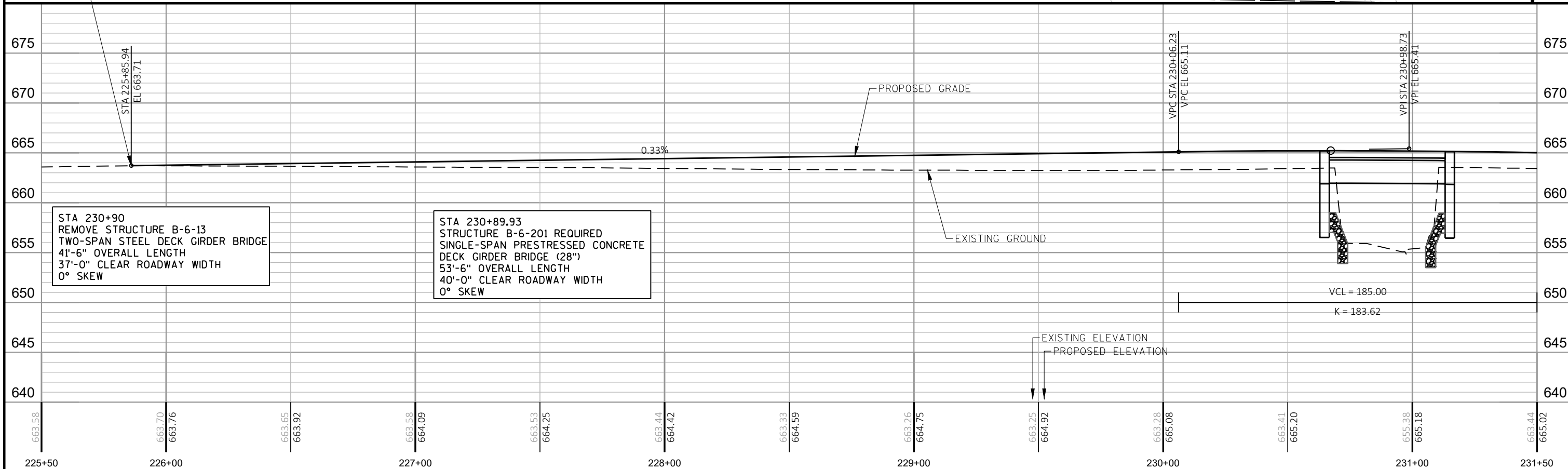
**NATIVE SEEDING SURVEILLANCE AND CARE CYCLES**

LOCATION	SPV.0060.05 NATIVE SEED SURVEILLANCE AND CARE CYCLE EACH
7160-04-75 PROJECT LIMIT:	8
<b>TOTALS</b>	<b>8</b>

\*\*\*ALL ITEMS CATEGORY 0010 UNLESS OTHERWISE NOTED.

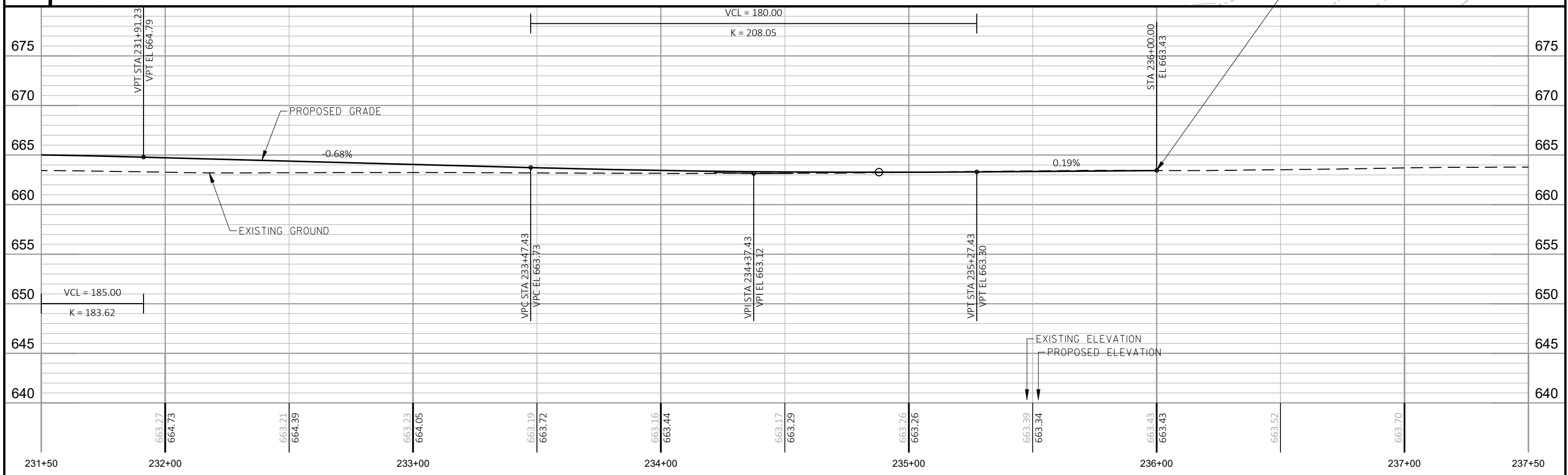
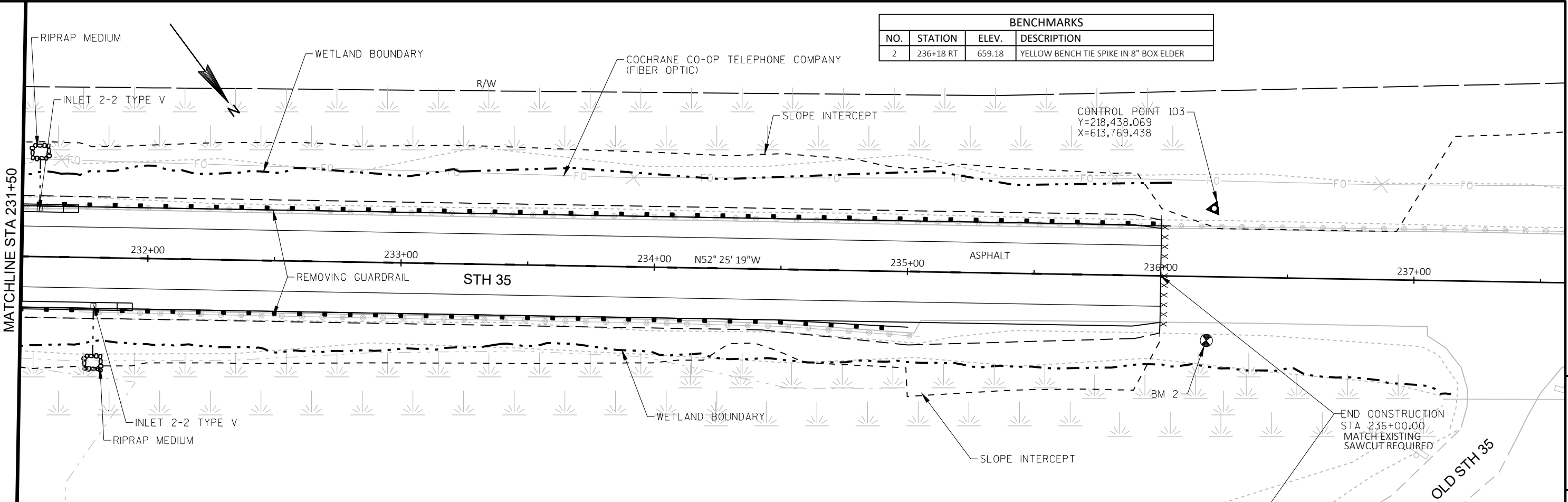


BENCHMARKS			
NO.	STATION	ELEV.	DESCRIPTION
1	230+97 RT	659.31	YELLOW BENCH TIE SPIKE IN 8" BOX ELDER

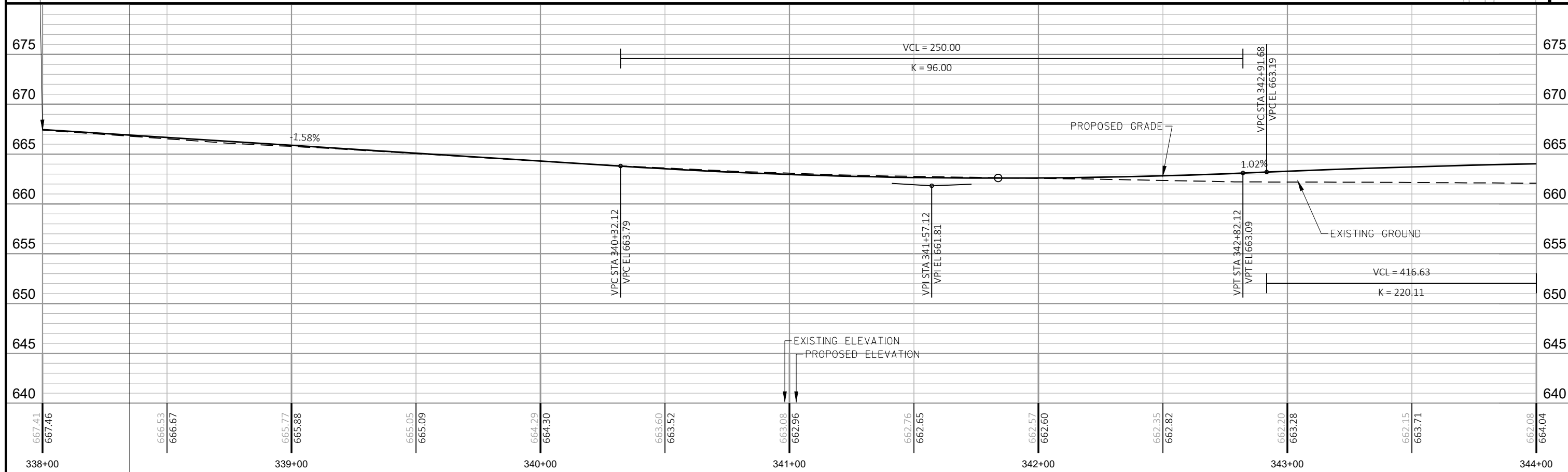
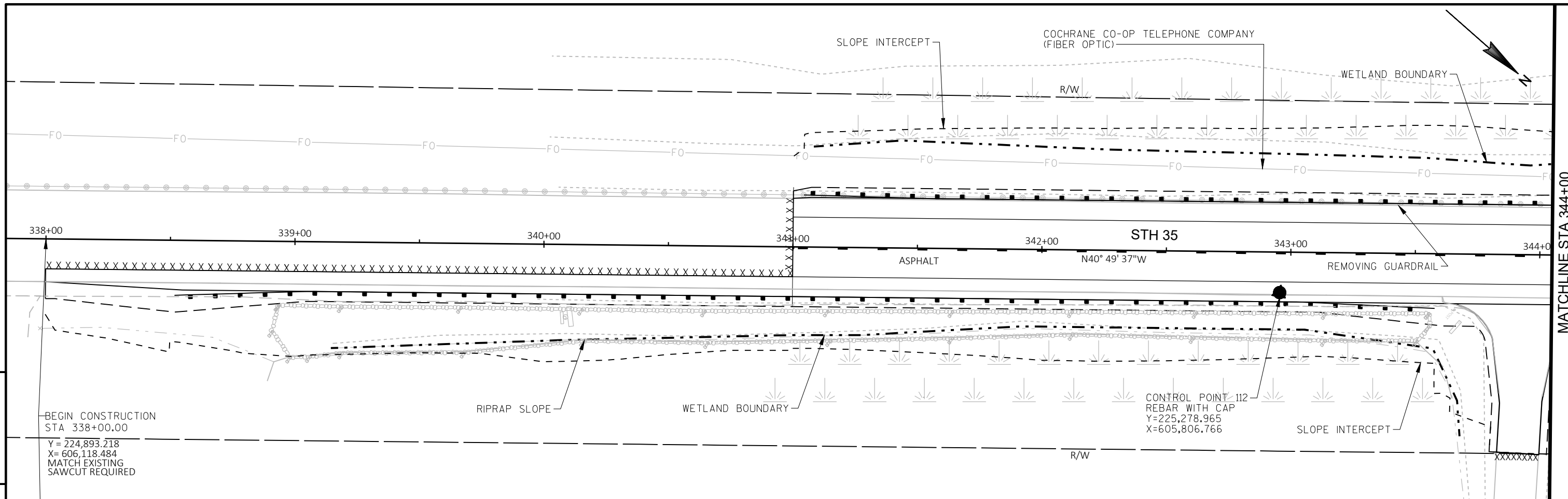


PROJECT NO: 7160-04-75      HWY: STH 35      COUNTY: BUFFALO      PLAN AND PROFILE: B-6-201      SHEET: 5

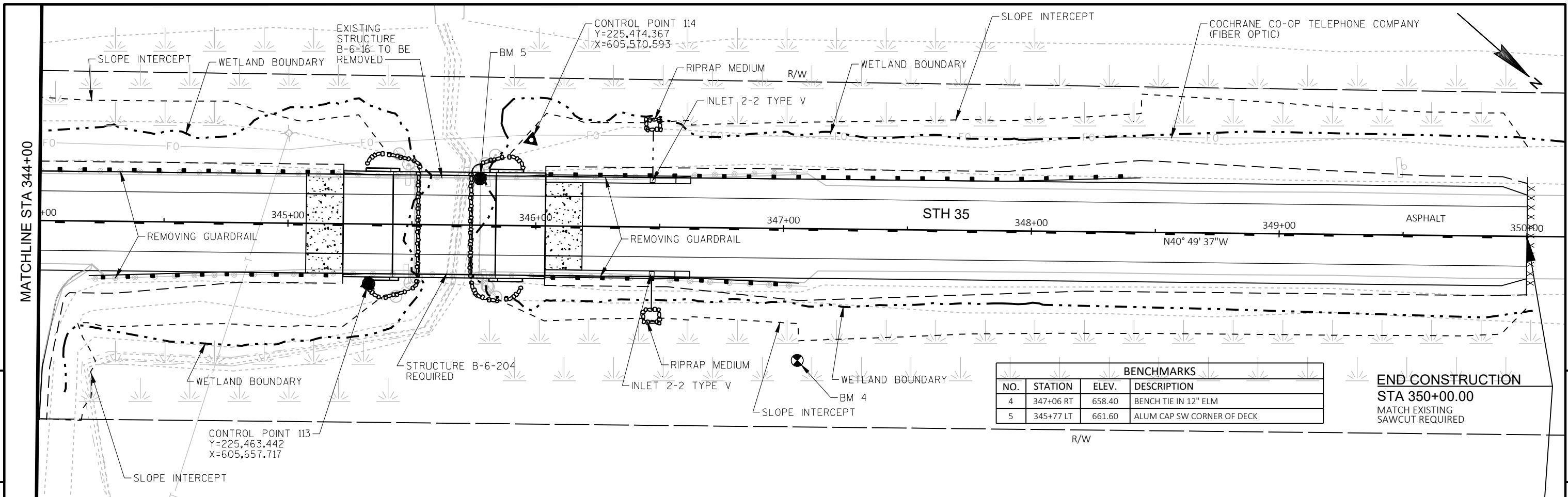
BENCHMARKS			
NO.	STATION	ELEV.	DESCRIPTION
2	236+18 RT	659.18	YELLOW BENCH TIE SPIKE IN 8" BOX ELDER



PROJECT NO: 7160-04-75	HWY: STH 35	COUNTY: BUFFALO	PLAN AND PROFILE: B-6-201	SHEET	<b>E</b>
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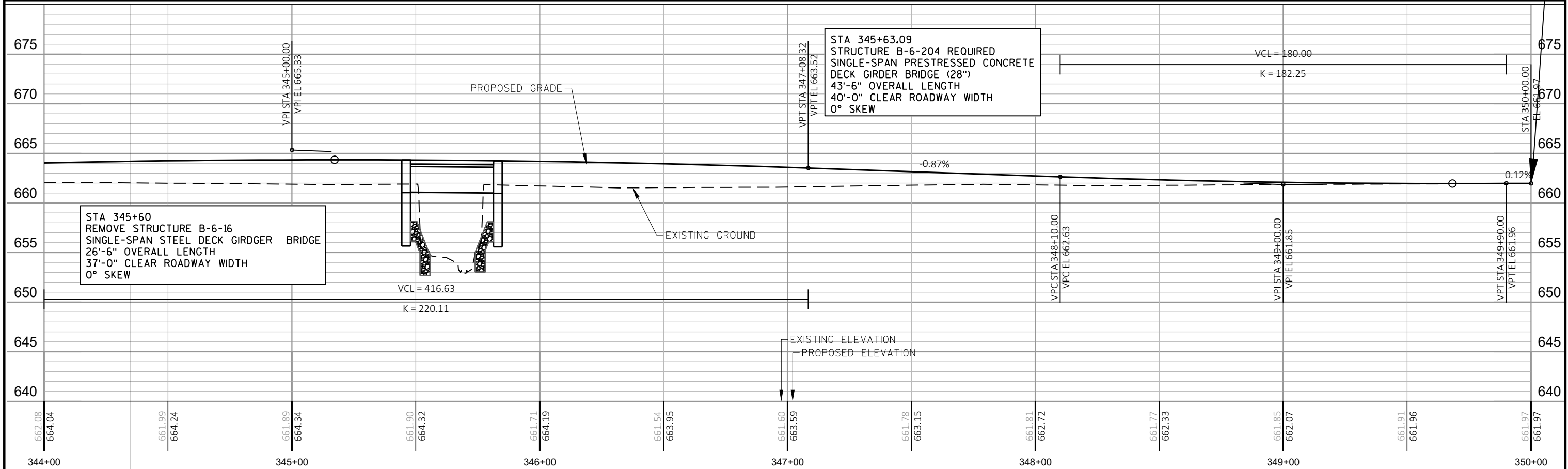


PROJECT NO: 7160-04-75      HWY: STH 35      COUNTY: BUFFALO      PLAN AND PROFILE: B-6-204      SHEET: 5

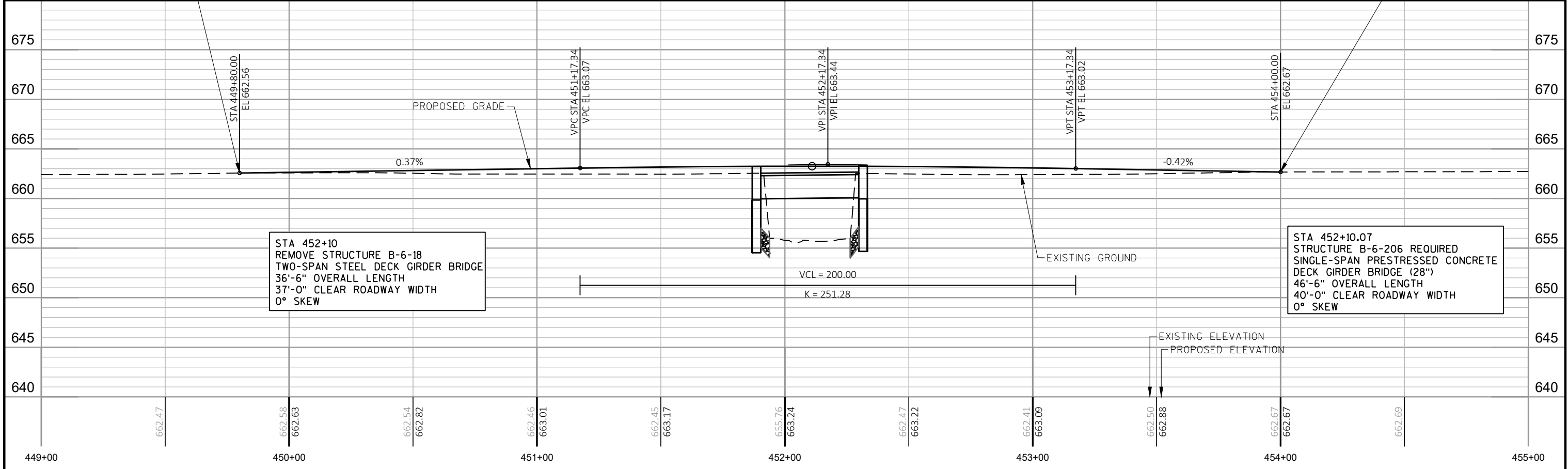
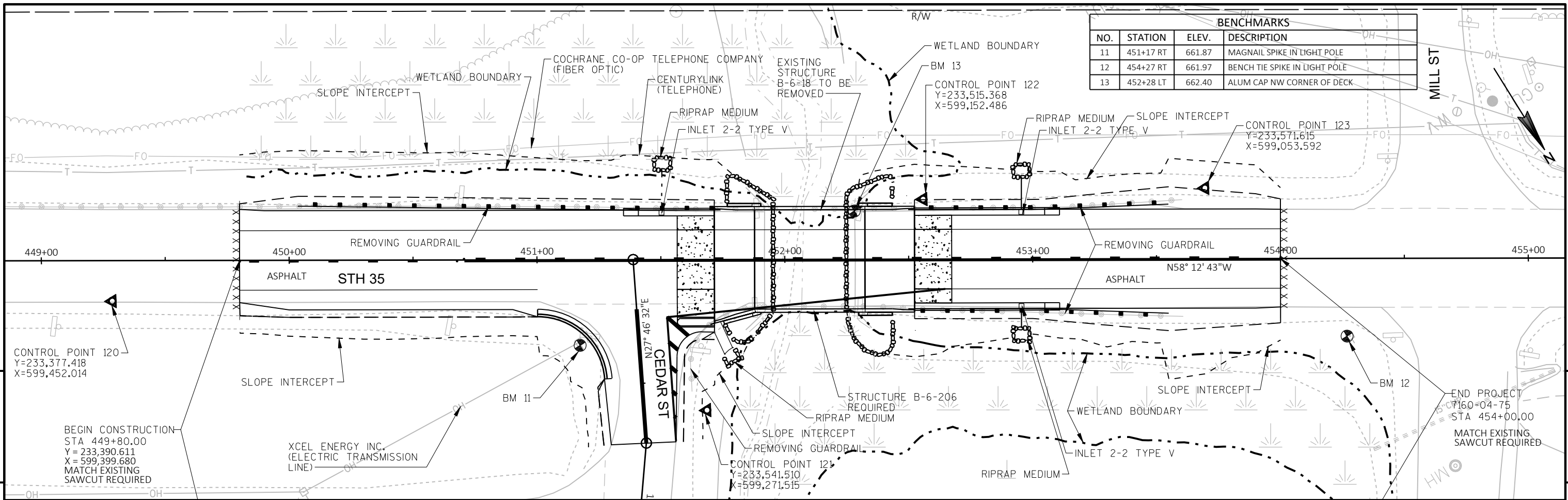


BENCHMARKS			
NO.	STATION	ELEV.	DESCRIPTION
4	347+06 RT	658.40	BENCH TIE IN 12" ELM
5	345+77 LT	661.60	ALUM CAP SW CORNER OF DECK

**END CONSTRUCTION**  
 STA 350+00.00  
 MATCH EXISTING  
 SAWCUT REQUIRED



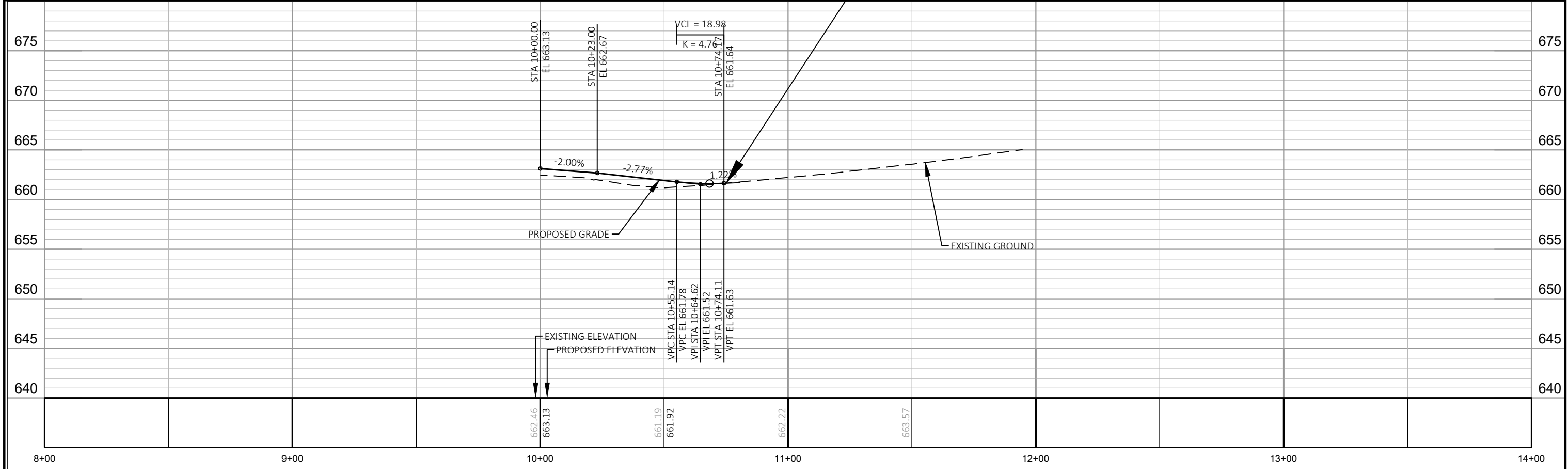
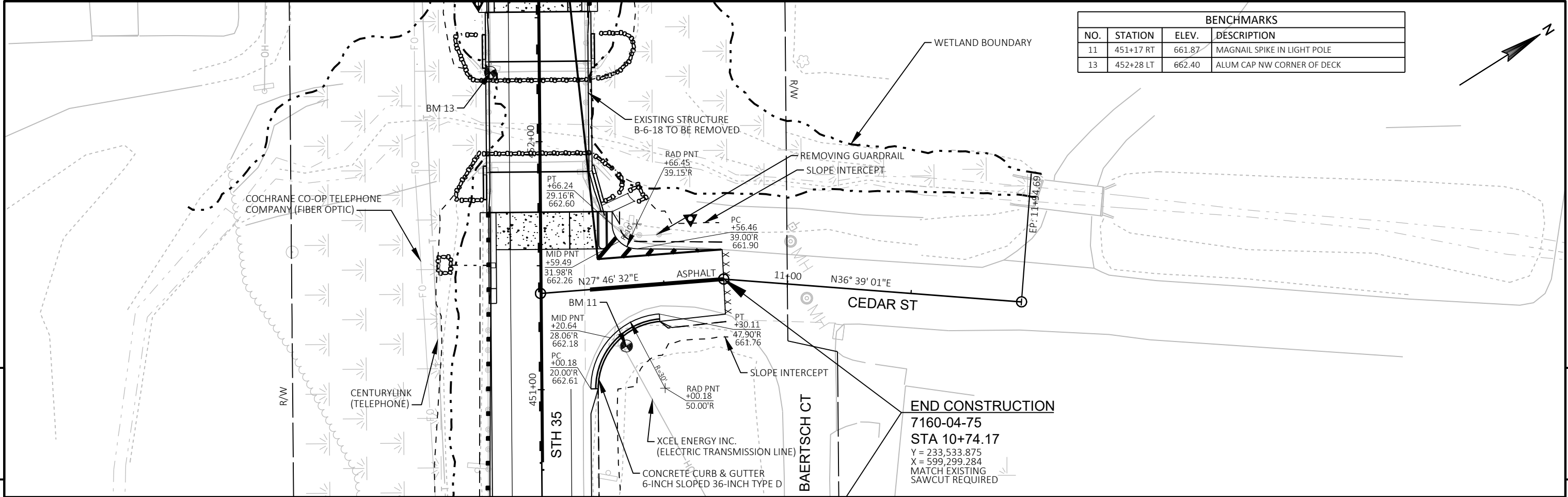
PROJECT NO: 7160-04-75	HWY: STH 35	COUNTY: BUFFALO	PLAN AND PROFILE: B-6-204	SHEET	<b>E</b>
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PROJECT NO: 7160-04-75      HWY: STH 35      COUNTY: BUFFALO      PLAN AND PROFILE: B-6-206      SHEET: E



BENCHMARKS			
NO.	STATION	ELEV.	DESCRIPTION
11	451+17 RT	661.87	MAGNAIL SPIKE IN LIGHT POLE
13	452+28 LT	662.40	ALUM CAP NW CORNER OF DECK



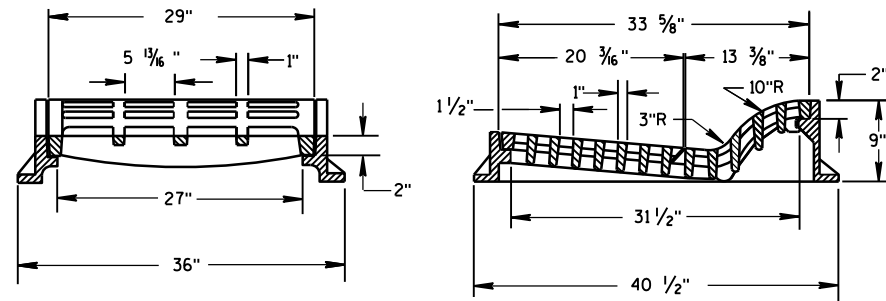
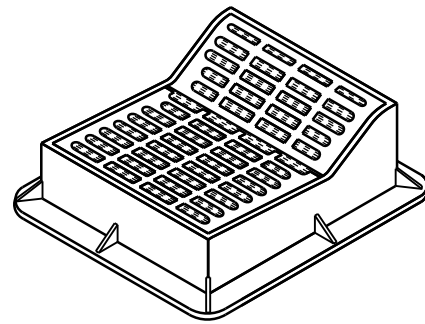
PROJECT NO: 7160-04-75	HWY: STH 35	COUNTY: BUFFALO	PLAN AND PROFILE: CEDAR ST	SHEET	<b>E</b>
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## Standard Detail Drawing List

08A05-19C	INLET COVERS TYPE F, HM, HM-S, S, T, V, HM-GJ, & HM-GJ-S
08C07-02	INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT
08D03-08A	CONCRETE SURFACE DRAINS DROP INLET TYPE AT STRUCTURES
08D03-08B	CONCRETE SURFACE DRAINS DROP INLET TYPE AT STRUCTURES
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08E11-02	TURBIDITY BARRIER
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
09G02-05A	BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION
09G02-05B	BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION
09G02-05C	BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION
12A03-10	NAME PLATE (STRUCTURES)
13A03-06	CONCRETE PAVEMENT SHOULDERS
13B02-09A	CONCRETE PAVEMENT APPROACH SLAB
13B02-09B	STRUCTURAL APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB
13C01-19	CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES
13C19-03	HMA LONGITUDINAL JOINTS
14B07-16A	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-16B	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-16C	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-16D	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-16E	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-16F	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-16G	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-16H	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-16I	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-16J	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-16K	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-16L	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-16M	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B08-02A	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02B	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02C	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02D	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02E	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B15-11A	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-11B	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-11C	STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS
14B20-11A	STEEL THREE BEAM STRUCTURE APPROACH
14B20-11D	STEEL THREE BEAM STRUCTURE APPROACH, CONNECTION TO SLOPED END PARAPETS
14B20-11G	STEEL THREE BEAM STRUCTURE APPROACH, CONNECTOR PLATE DETAIL
14B42-07A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-04A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-05A	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05B	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05C	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05D	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05F	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B53-02A	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-02B	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-02C	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-02D	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-02E	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-02F	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-02G	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-02H	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-02I	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
15C02-08A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-08B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C02-08F	ADVANCED WIDTH RESTRICTION SIGNING
15C08-21A	LONGITUDINAL MARKING (MAINLINE)
15C08-21B	TEMPORARY LONGITUDINAL PAVEMENT MARKING

## Standard Detail Drawing List

15C11-09A	CHANNELIZING DEVICES FLEXIBLE TUBULAR MARKER POST
15C11-09B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15D33-07	TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS



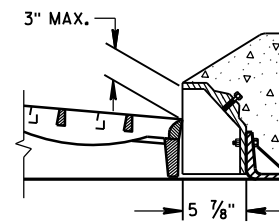
**TYPE "F"**

USE WITH TYPES A & D CONCRETE CURB & GUTTER, 36 INCH.

**GENERAL NOTES**

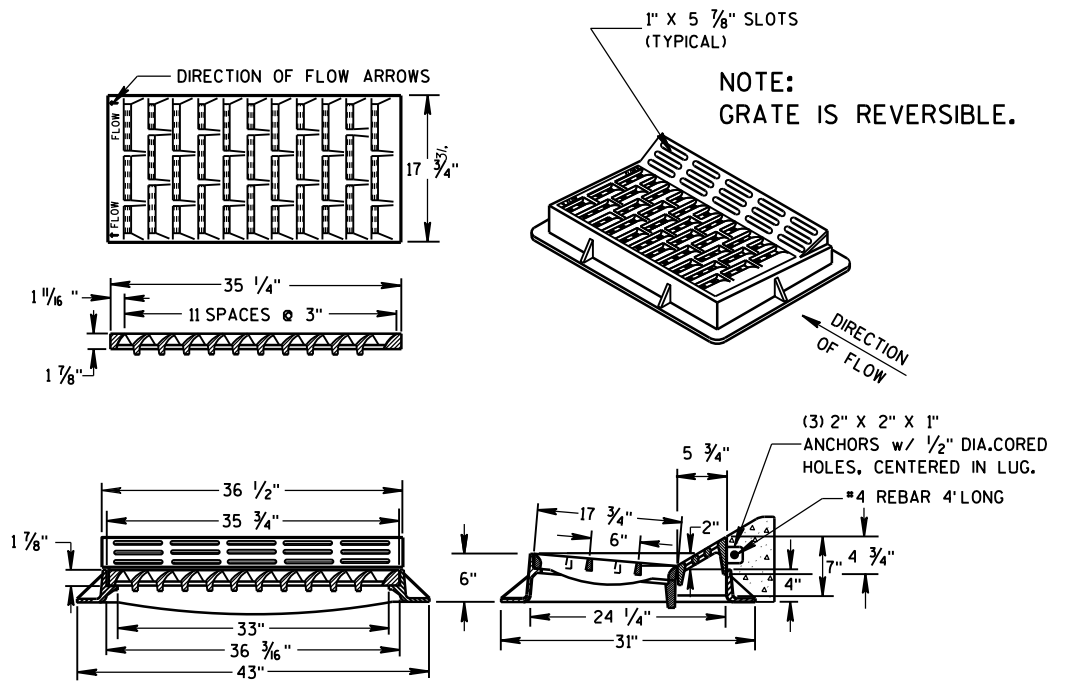
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.



**ALTERNATIVE CURB BOX FOR TYPE "HM" COVER**

USE WITH TYPES G & J CONCRETE CURB & GUTTER, 30 INCH NOTED AS TYPE HM-GJ ON DRAINAGE TABLE



**TYPE "HM"**

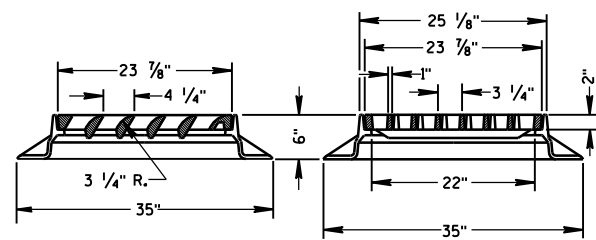
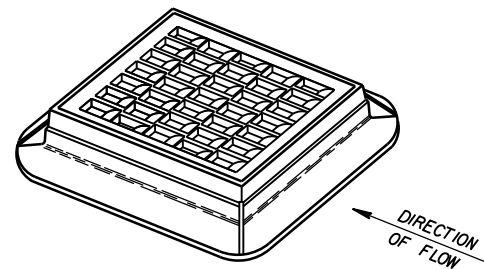
USE WITH TYPES A & D CONCRETE CURB & GUTTER, 36 INCH.

NOTE: SPECIAL GRATE FOR THE TYPE "H" COVER MAY ALSO BE USED FOR THE TYPE "HM" COVER NOTED AS TYPE HM-S ON DRAINAGE TABLE

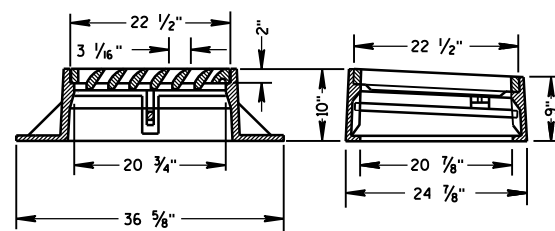
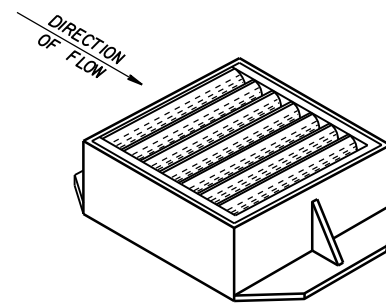
NOTE: SPECIAL GRATE FOR THE TYPE "H" COVER MAY ALSO BE USED FOR THE TYPE "HM-GJ" COVER NOTED AS TYPE HM-GJ-S ON DRAINAGE TABLE

6

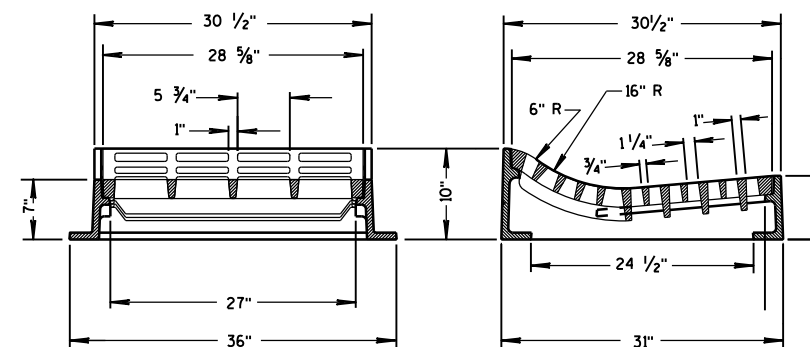
6



**TYPE "S"**

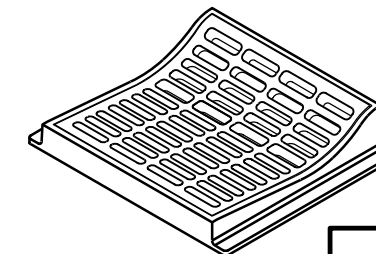


**TYPE "V"**



**TYPE "T"**

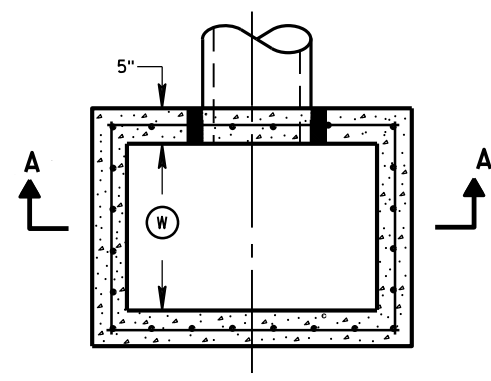
USE WITH TYPES R & T CONCRETE CURB & GUTTER, 36 INCH.



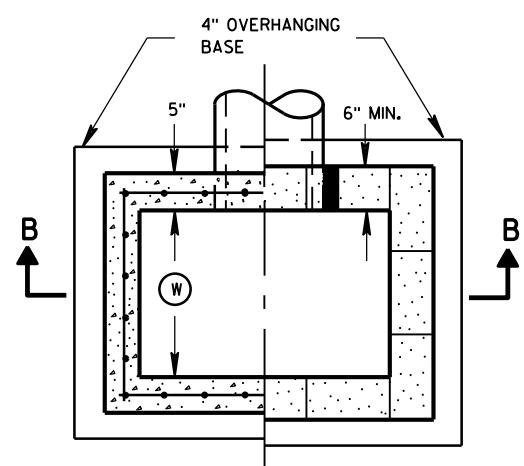
**INLET COVERS**  
TYPE F, HM, HM-S, S, T, V,  
HM-GJ, & HM-GJ-S

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

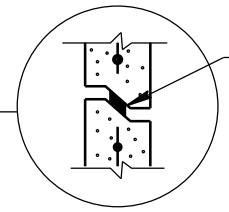
APPROVED  
11/27/2013 DATE /s/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT ENGINEER  
FHWA



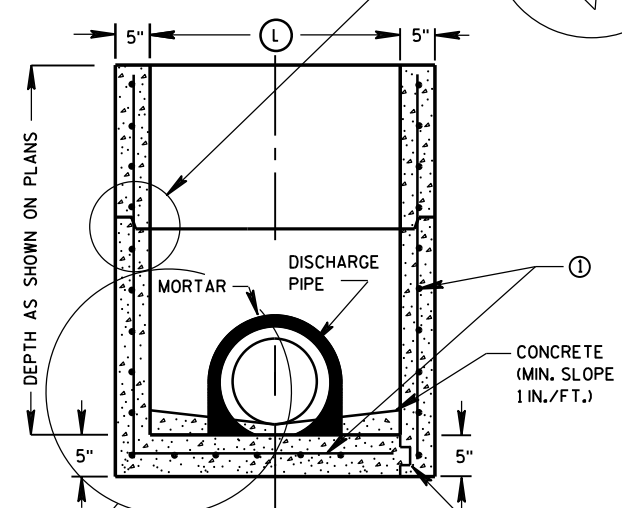
PLAN VIEW



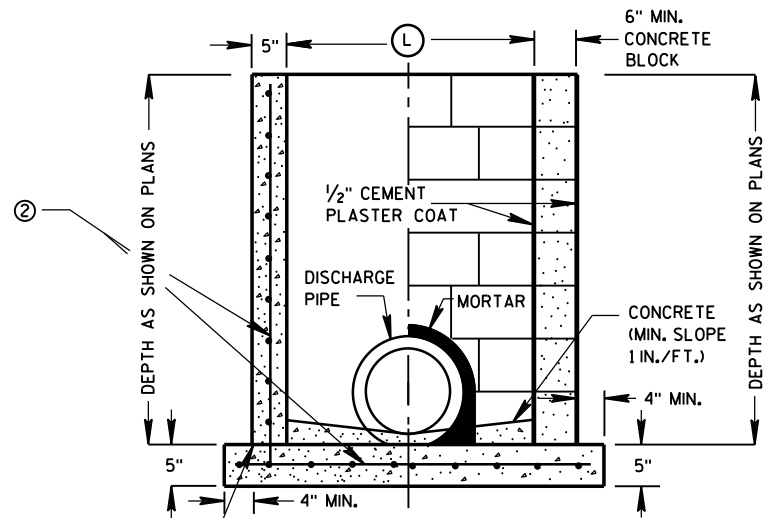
PLAN VIEW



RISER JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C 990 (TYP)



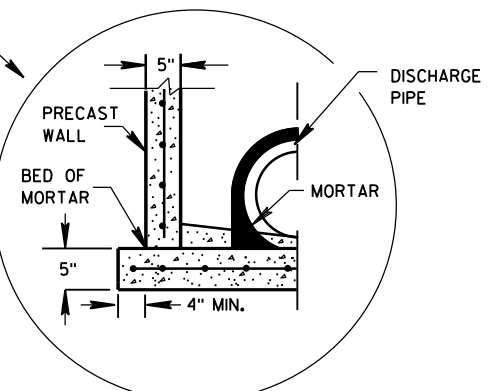
SECTION A-A



SECTION B-B

PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE  
 PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE  
 KEYWAY

CONSTRUCTION JOINT  
 CAST-IN-PLACE REINFORCED CONCRETE  
 CONCRETE BLOCK WITH CAST-IN-PLACE OR PRECAST REINFORCED CONCRETE BASE ①



SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

**GENERAL NOTES**

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST INLET UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR UNDERGROUND DRAINAGE STRUCTURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF ASTM C 913.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-L", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATES THE SIZE OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF FOUNDATION BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

ALL BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

4" OVERHANGING BASES ARE REQUIRED FOR CAST-IN-PLACE REINFORCED CONCRETE AND CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPARATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

MAXIMUM INSIDE PIPE DIAMETER DETERMINED BY 3 INCH CLEARANCE ON EACH SIDE OF THE OUTSIDE WALL OF THE PIPE. SEE DETAIL "A". ASSUMES PIPE ENTERS PERPENDICULAR TO THE STRUCTURE.

① FOR PRECAST INLETS PROVIDE REINFORCING STEEL IN ACCORDANCE TO ASTM C 913.

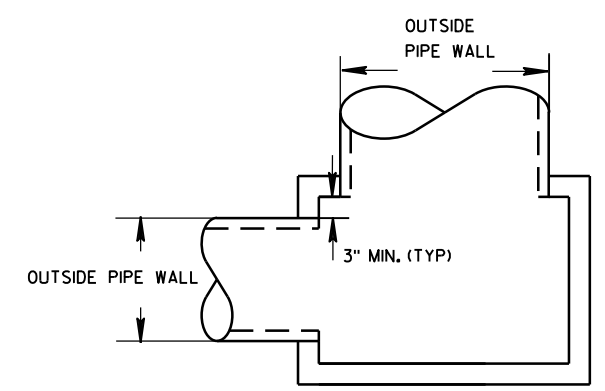
② CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES.

**INLET COVER MATRIX**

INLET SIZE	INLET COVER TYPE		ALL A'S	ALL B'S	BW	F	ALL H'S	S	T	V	WM
	WIDTH ① (FT)	LENGTH ② (FT)									
2X2-FT	2	2	X	X				X		X	
2X2.5-FT	2	2.5			X			X	X	X	X
2X3-FT	2	3					X				
2.5X3-FT	2.5	3				X					

**PIPE MATRIX**

INLET SIZE	MAXIMUM INSIDE PIPE DIAMETER	
	WIDTH (IN)	LENGTH (IN)
2X2-FT	12	12
2X2.5-FT	12	18
2X3-FT	12	24
2.5X3-FT	18	24



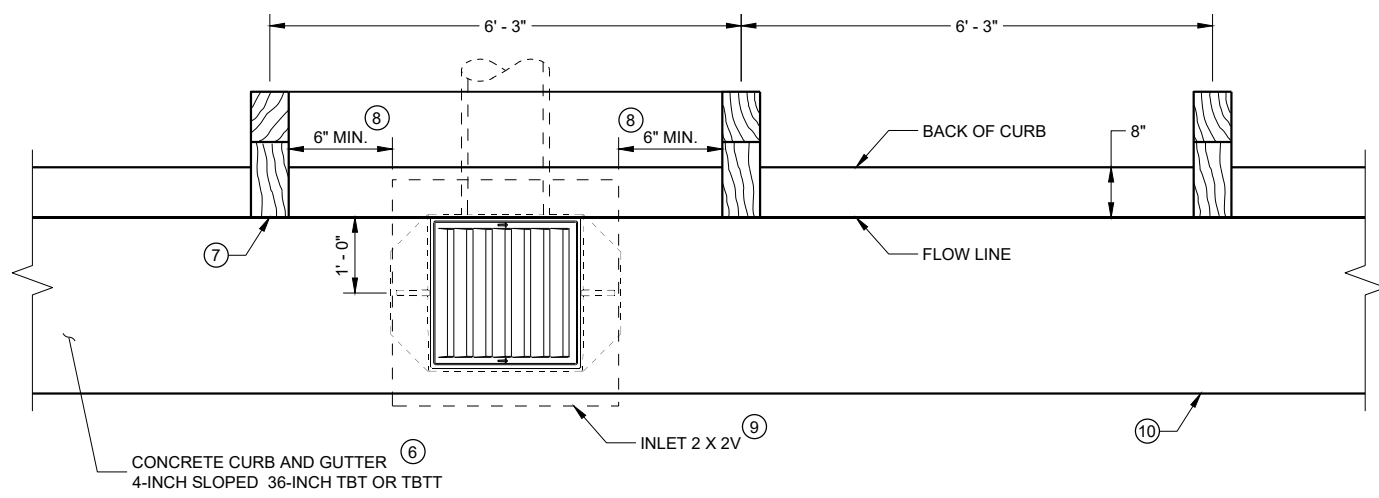
DETAIL "A"

**INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT**

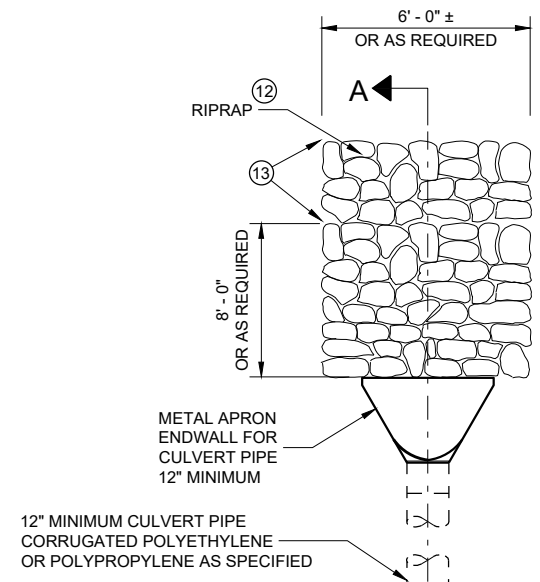
**INLETS 2X2-FT, 2X2.5-FT,  
2X3-FT AND 2.5X3-FT**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
 Sep 1, 2016 /S/ Rodney Taylor  
 DATE ROADWAY STANDARDS DEVELOPMENT  
 FHWA UNIT SUPERVISOR



**INLET PLAN VIEW**  
(NOTE: RAIL NOT SHOWN FOR CLARITY)

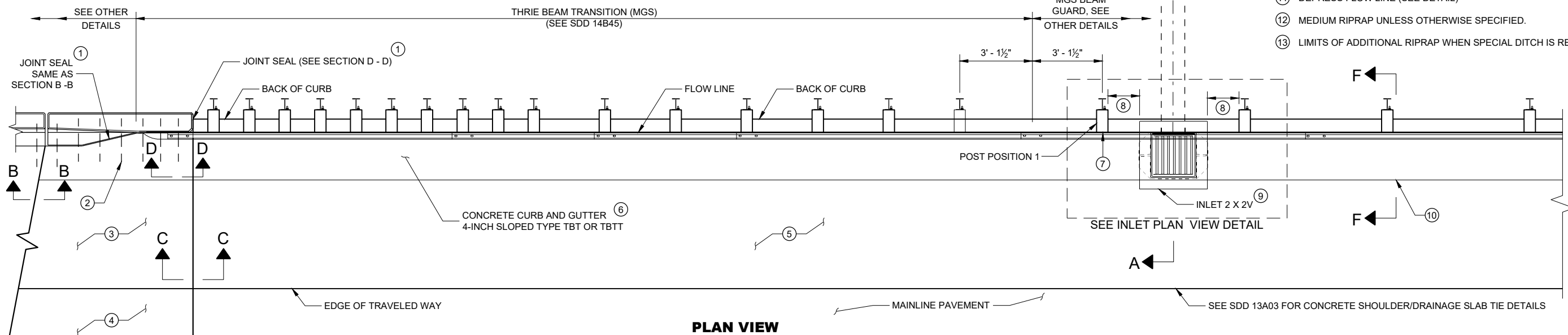


**GENERAL NOTES**

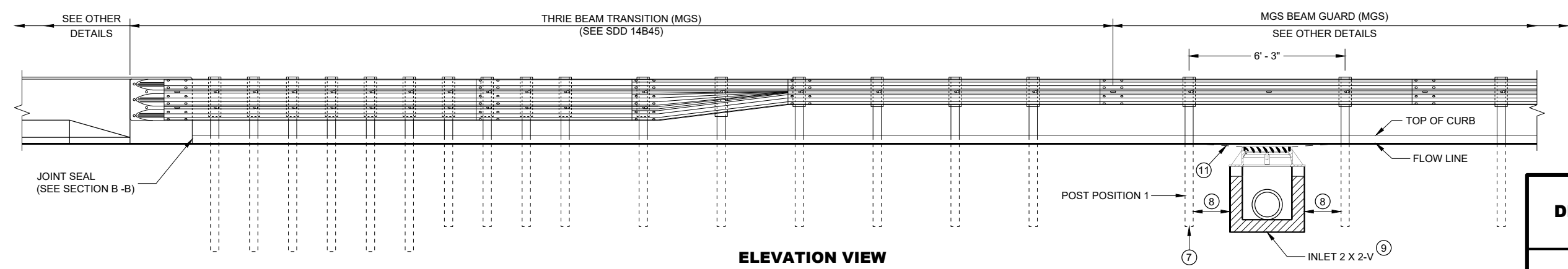
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

ALL STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

- ① USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
- ② NO. 4 X 2' - 0" TIE BARS SPACED AT 12" C-C TO BE PLACED BY BRIDGE CONTRACTOR OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.
- ③ PAVED CONCRETE SHOULDER (SDD 13A03) OR CONCRETE DRAINAGE SLAB.
- ④ CONCRETE PAVEMENT APPROACH SLAB (SHOWN) OR STRUCTURE APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB. SEE SDD 13B02.
- ⑤ PAVED CONCRETE SHOULDER (SDD 13A03) OR ASPHALT SHOULDER.
- ⑥ CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE TBT OR TBTT. USE TYPE TBTT CURB WITH NO. 4 X 2' - 0" TIE BARS SPACED AT 3' - 0" C-C ONLY WHEN ADJACENT TO CONCRETE PAVEMENTS.
- ⑦ PLACE DRAINAGE STRUCTURE BEFORE MSG THRIE BEAM TRANSITION POST 1 (SEE SDD 14B45)
- ⑧ CENTER DRAINAGE STRUCTURE BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE WALL OF DRAINAGE STRUCTURE TO POSTS.
- ⑨ SEE SDD 08A05 AND 08C07 FOR DETAILS. SEE ROADWAY PLANS FOR LOCATION.
- ⑩ START CURB AND GUTTER TRANSITION OR END SECTION.
- ⑪ DEPRESS FLOW LINE (SEE DETAIL)
- ⑫ MEDIUM RIPRAP UNLESS OTHERWISE SPECIFIED.
- ⑬ LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH IS REQUIRED.



**PLAN VIEW**



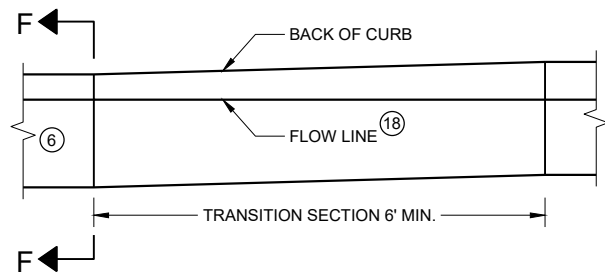
**ELEVATION VIEW**

**CONCRETE SURFACE  
DRAINS DROP INLET TYPE  
AT STRUCTURES**

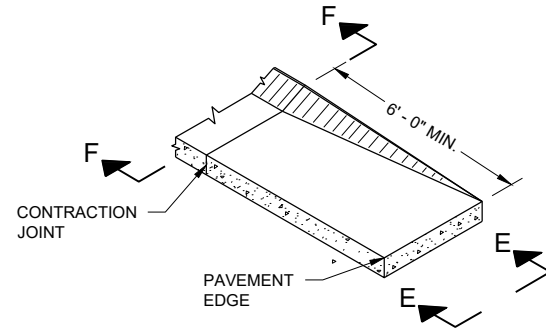
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

SDD 08D03 - 08a

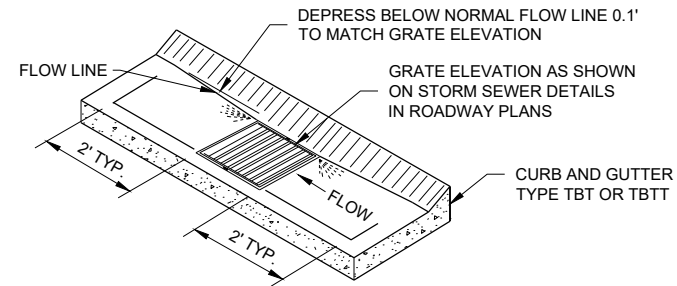
SDD 08D03 - 08a



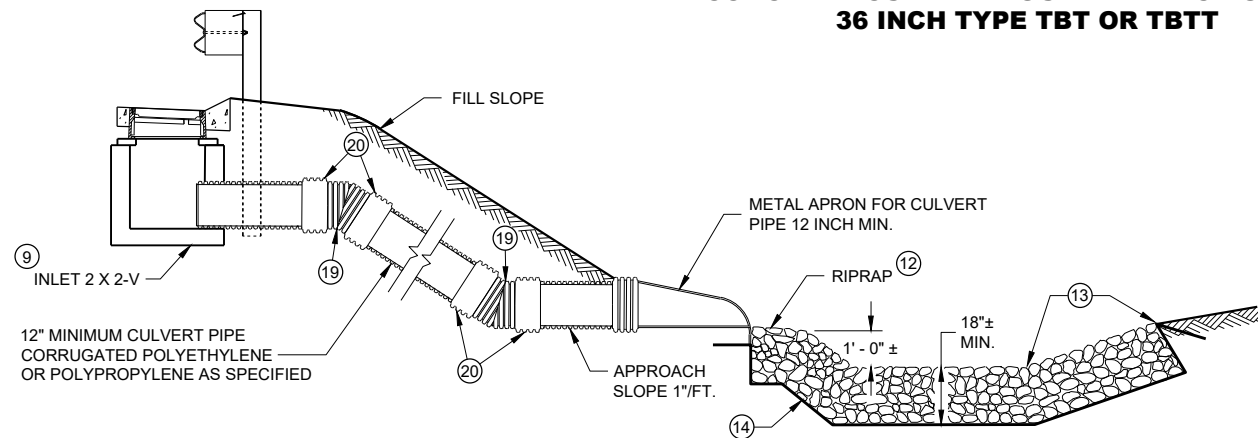
**CURB AND GUTTER TRANSITION SECTION  
CONCRETE CURB AND GUTTER 4-INCH SLOPED  
36 INCH TYPE TBT OR TBTT**



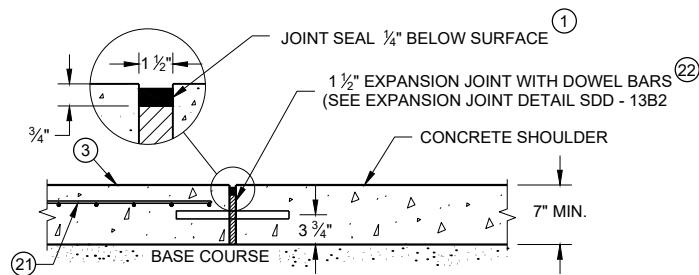
**CURB AND GUTTER END SECTION  
CONCRETE CURB AND GUTTER 4-INCH SLOPED  
36 INCH TYPE TBT OR TBTT**



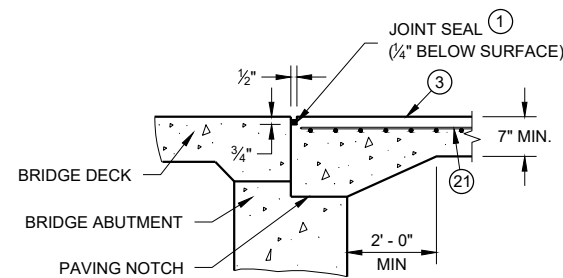
**CURB AND GUTTER FLOW LINE DEPRESSION  
AT INLETS CONCRETE CURB AND GUTTER  
4-INCH SLOPED 36 INCH TYPE TBT OR TBTT**



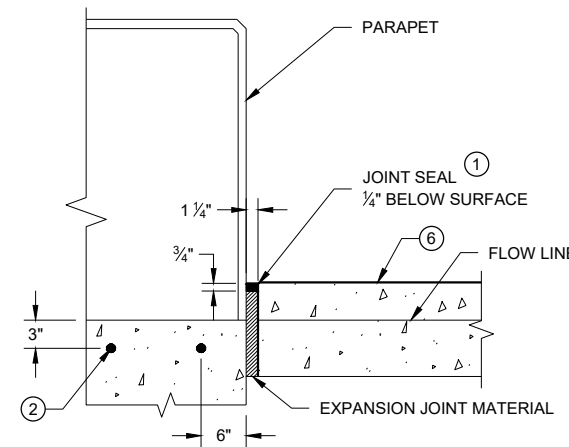
**SECTION A - A**



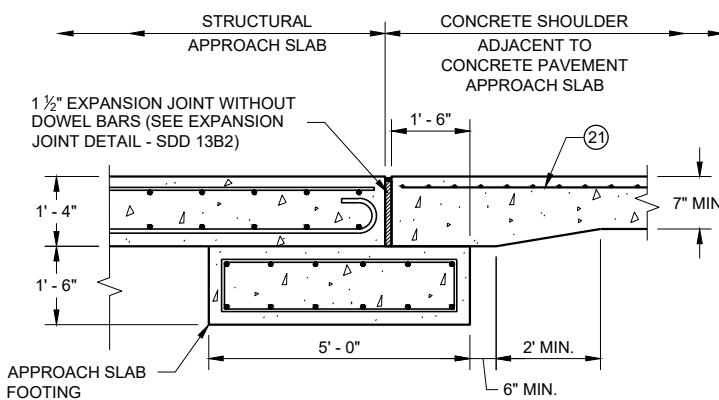
**SECTION C - C  
JOINT DETAIL FOR BRIDGE APPROACH  
WITH CONCRETE SHOULDERS**



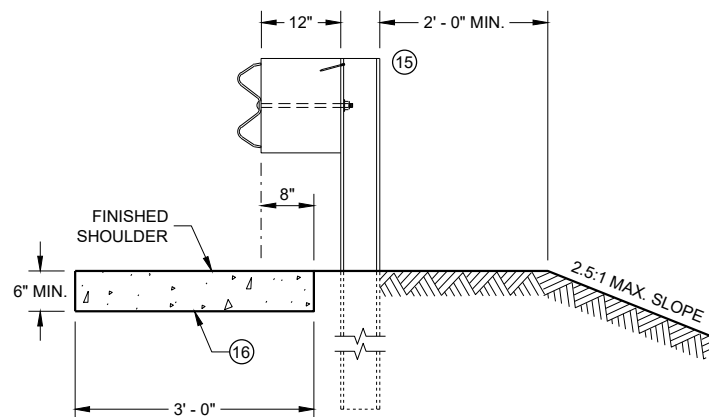
**SECTION B - B**



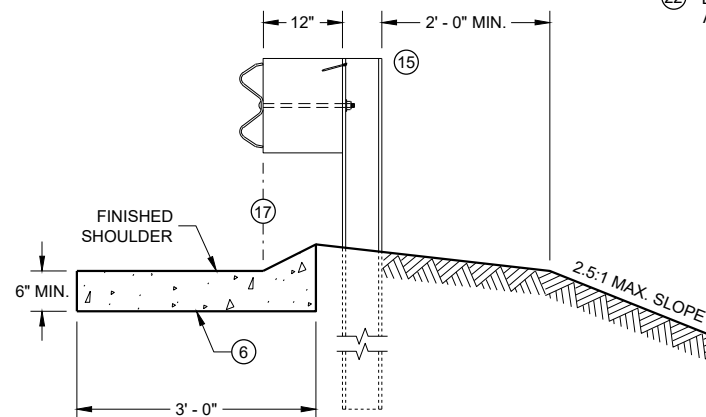
**SECTION D - D**



**SECTION C - C  
JOINT DETAIL FOR BRIDGE WITH STRUCTURAL  
APPROACH SLAB AND CONCRETE APPROACH SLAB**



**SECTION E - E**



**SECTION F - F**

**GENERAL NOTES**

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

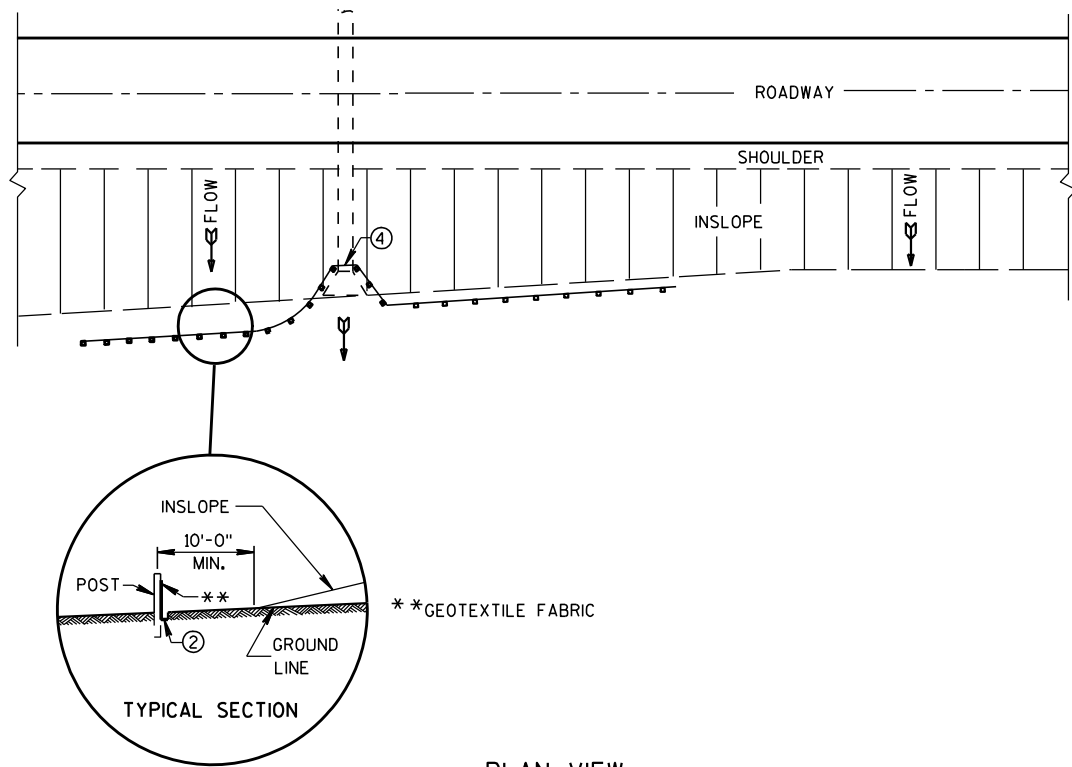
ALL STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

- ① USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
- ② NO. 4 X 2' - 0" TIE BARS SPACED AT 12" C-C TO BE PLACED BY BRIDGE CONTRACTOR OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.
- ③ PAVED CONCRETE SHOULDER (SDD 13A03) OR CONCRETE DRAINAGE SLAB.
- ④ CONCRETE PAVEMENT APPROACH SLAB (SHOWN) OR STRUCTURE APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB. SEE SDD 13B02 AND STRUCTURE PLANS.
- ⑤ PAVED CONCRETE SHOULDER (SDD 13A03) OR ASPHALT SHOULDER.
- ⑥ CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE TBT OR TBTT. USE TYPE TBTT CURB WITH NO. 4 X 2' - 0" TIE BARS SPACED AT 3' - 0" C-C ONLY WHEN ADJACENT TO CONCRETE PAVEMENTS.
- ⑦ PLACE DRAINAGE STRUCTURE BEFORE MSG THRIE BEAM TRANSITION POST 1 (SEE SDD 14B45)
- ⑧ CENTER DRAINAGE STRUCTURE BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE WALL OF DRAINAGE STRUCTURE TO POSTS.
- ⑨ SEE SDD 08A05 AND 08C07 FOR DETAILS. SEE ROADWAY PLANS FOR LOCATION.
- ⑩ START CURB AND GUTTER TRANSITION OR END SECTION.
- ⑪ DEPRESS FLOW LINE (SEE DETAIL)
- ⑫ MEDIUM RIPRAP UNLESS OTHERWISE SPECIFIED.
- ⑬ LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH IS REQUIRED.
- ⑭ GEOTEXTILE FABRIC TYPE HR.
- ⑮ MSG THRIE BEAM TRANSITION POST 1. SEE SDD 14B45 FOR ADDITIONAL CONSTRUCTION DETAILS AND ACCEPTABLE MATERIALS.
- ⑯ MAINTAIN WIDTH, THICKNESS AND CROSS SLOPE OF ADJACENT TYPE TBT OR TBTT CURB. SEE NOTE 6 FOR TIE BAR SPACING.
- ⑰ ALIGN FACE OF POST BLOCK WITH FLOW LINE.
- ⑱ MAINTAIN FLOW LINE AT EDGE OF PAVEMENT/FACE OF BEAM GUARD AS APPLICABLE.
- ⑲ MANUFACTURER SUPPLIED BEND.
- ⑳ MANUFACTURER SUPPLIED EXTERNAL MECHANICAL COUPLING OR A MANUFACTURER RECOMMENDED COUPLING WITH A MASTIC IMPREGNATED GEOTEXTILE WRAP AND MECHANICAL FASTENING BANDS.
- ㉑ MINIMUM REINFORCEMENT SHALL BE 6" X 6" - W4.0 X W4.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C - C.
- ㉒ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING HMA PAVEMENTS.

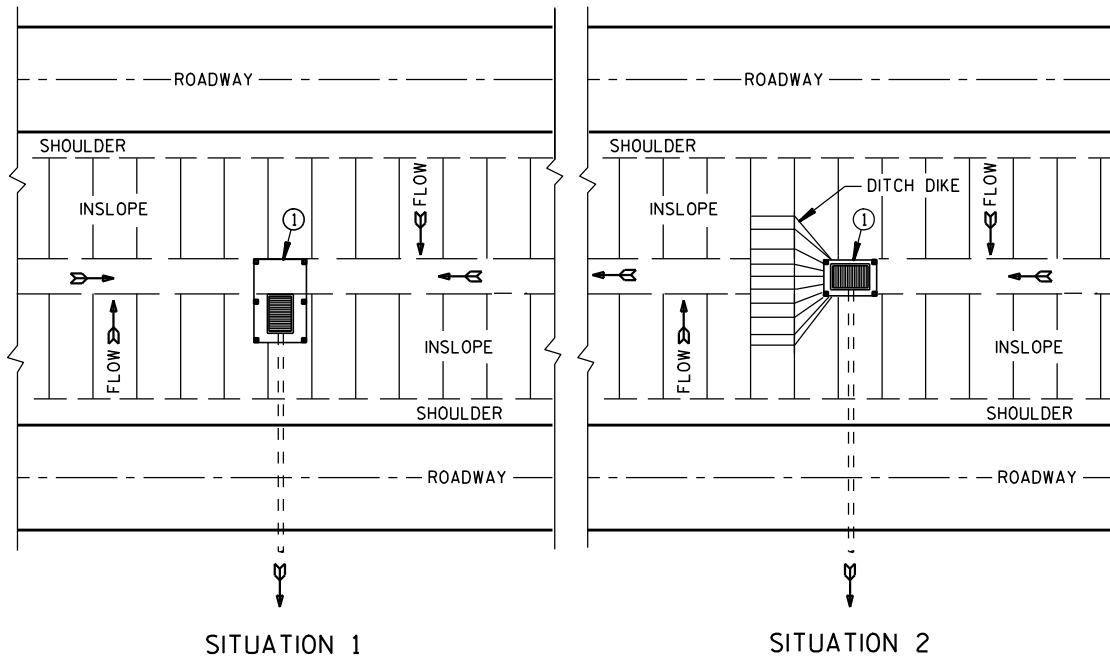
**CONCRETE SURFACE  
DRAINS DROP INLET TYPE  
AT STRUCTURES**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
February 2020 /S/ Rodney Taylor  
DATE ROADWAY STANDARDS DEVELOPMENT  
ENGINEER  
FHWA



PLAN VIEW  
TYPICAL APPLICATION OF SILT FENCE

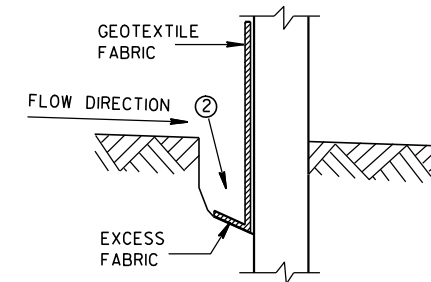


SITUATION 1 SITUATION 2  
PLAN VIEW  
SILT FENCE AT MEDIAN SURFACE DRAINS

**GENERAL NOTES**

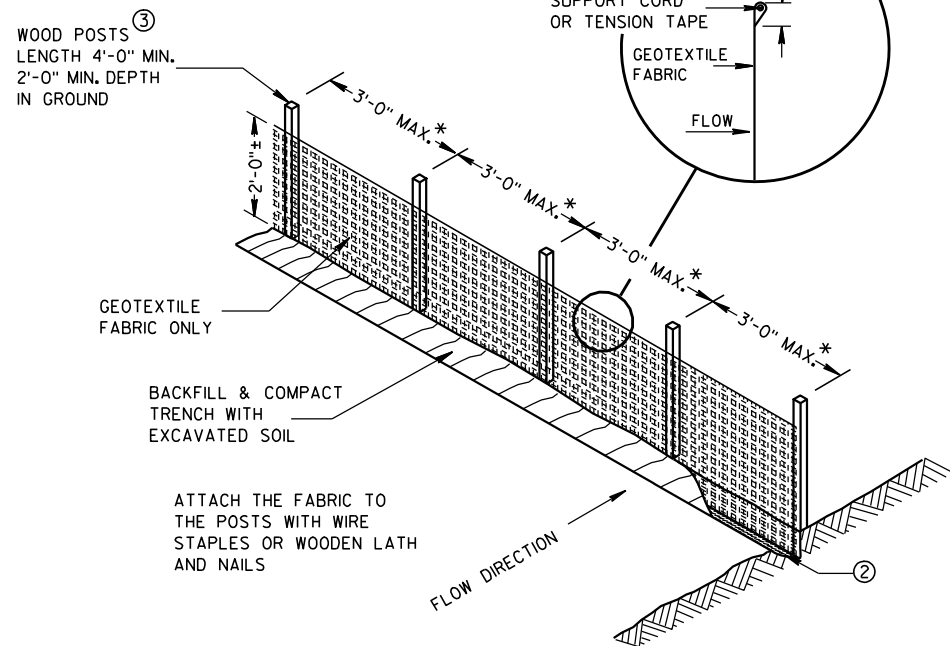
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 1 1/8" X 1 1/8" OF OAK OR HICKORY.
- ④ SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
- ⑤ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



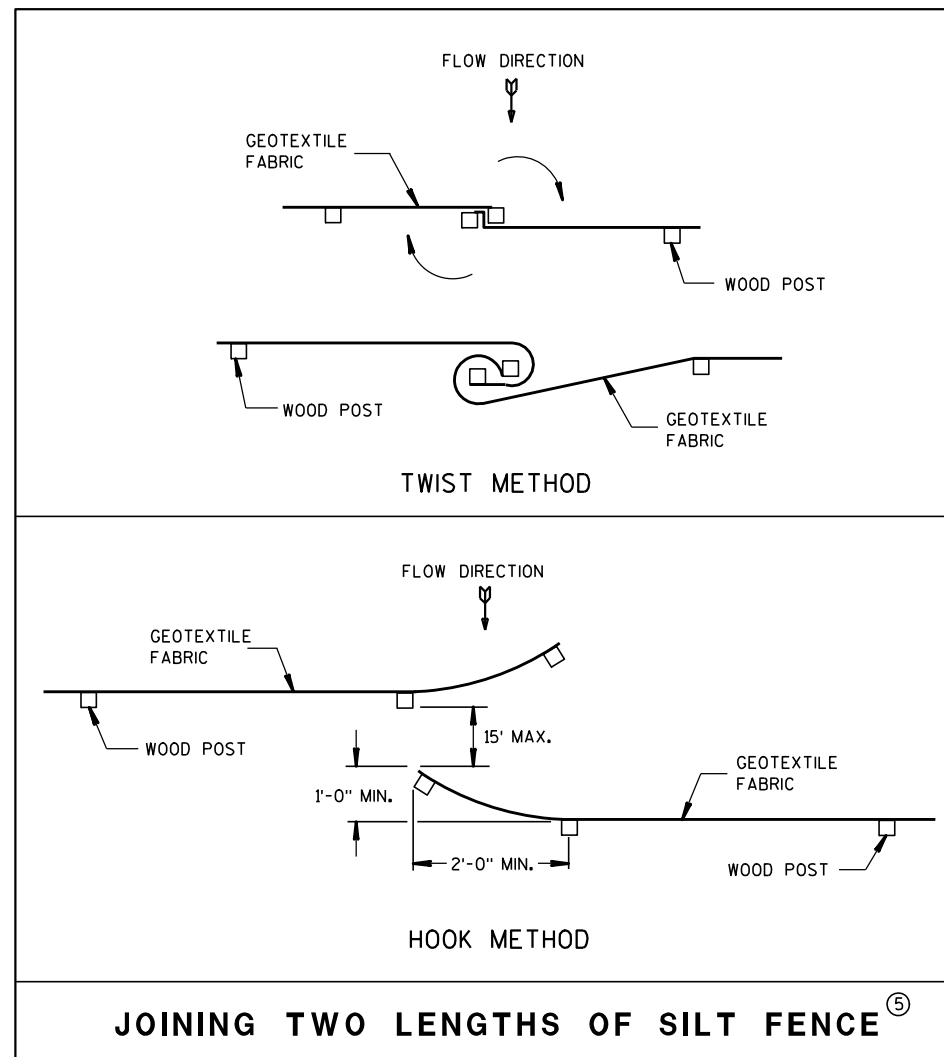
TRENCH DETAIL

NOTE: ADDITIONAL POST DEPTH OR TIE BACKS MAY BE REQUIRED IN UNSTABLE SOILS

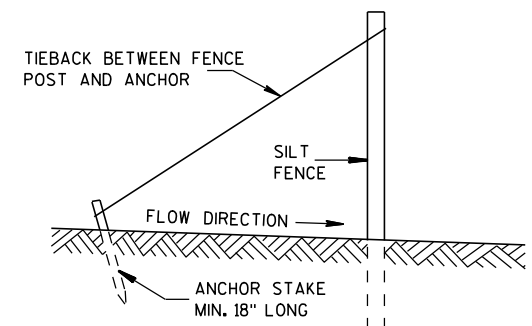


SILT FENCE

\* NOTE: 8'-0" POST SPACING ALLOWED IF A WOVEN GEOTEXTILE FABRIC IS USED.



JOINING TWO LENGTHS OF SILT FENCE ⑤



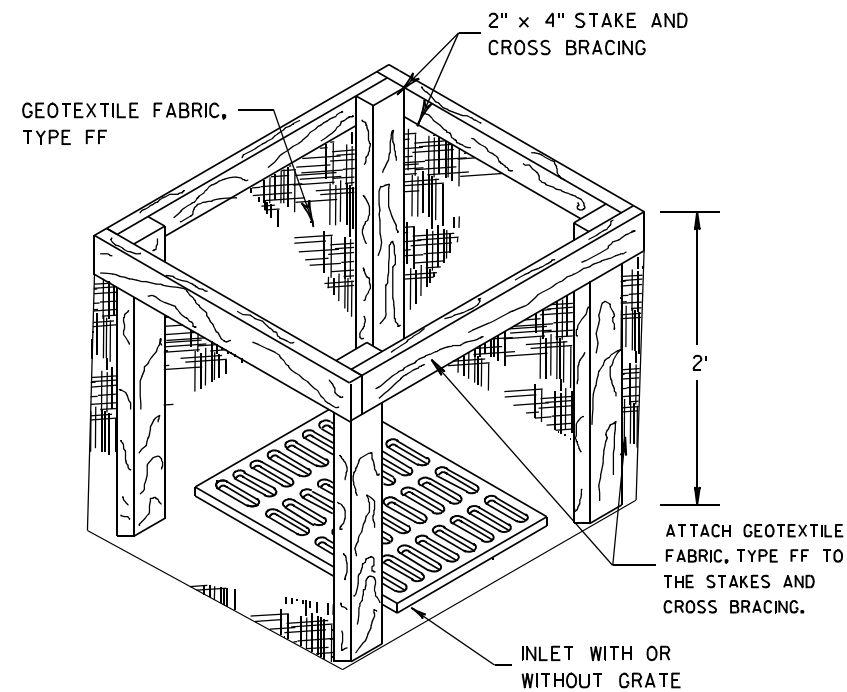
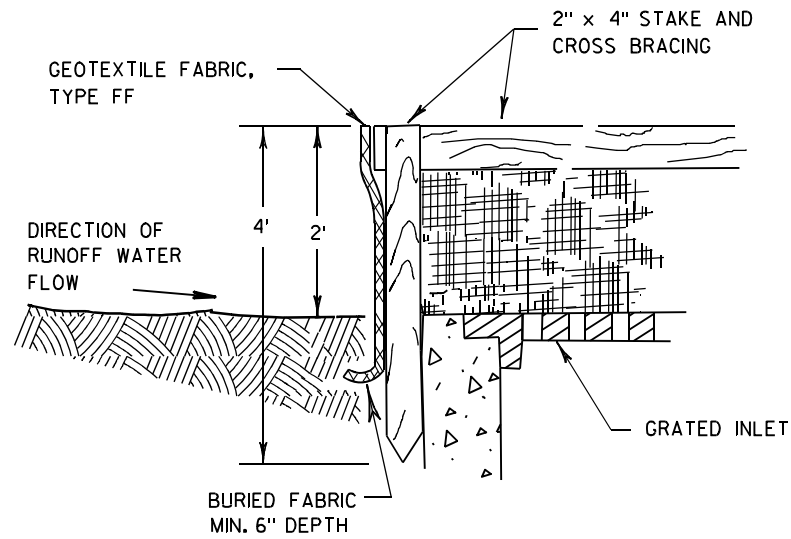
SILT FENCE TIE BACK  
(WHEN REQUIRED BY THE ENGINEER)

**SILT FENCE**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
4-29-05 /S/ Beth Canestra  
DATE CHIEF ROADWAY DEVELOPMENT ENGINEER  
FHWA





**INLET PROTECTION, TYPE A**

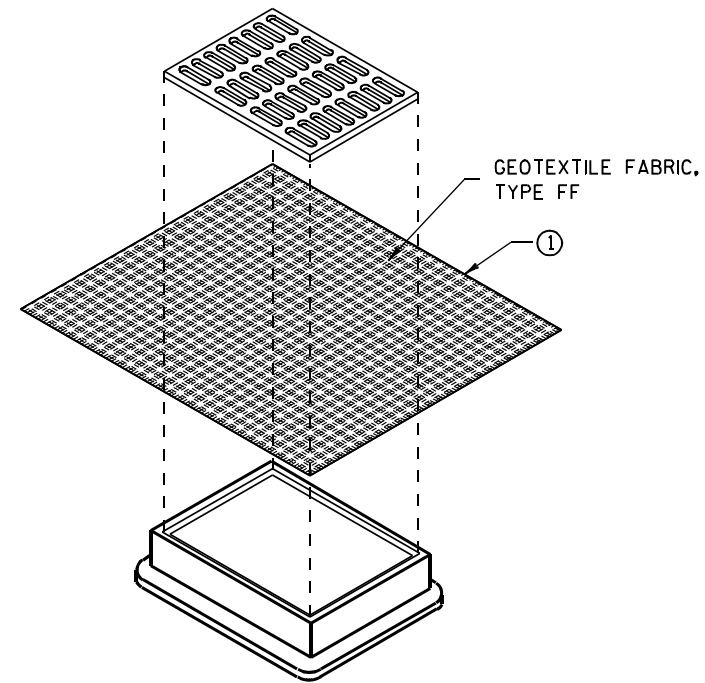
**GENERAL NOTES**

INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER.

MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.

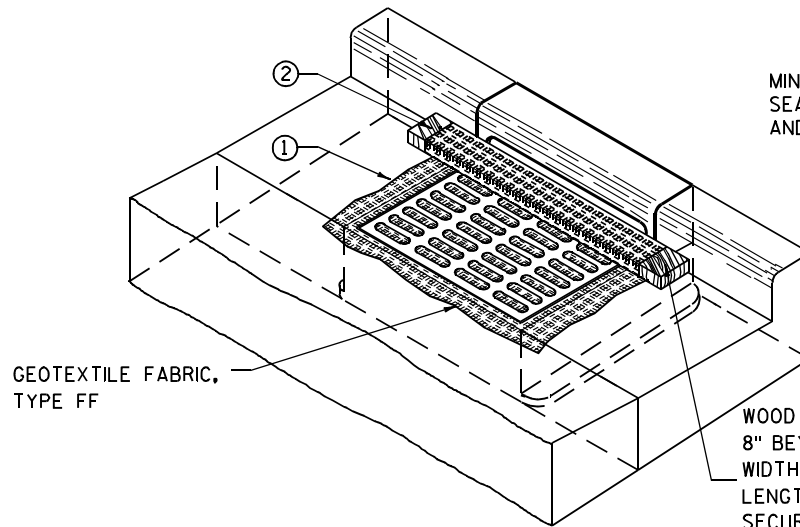
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

- ① FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
- ② FOR INLET PROTECTION, TYPE C (WITH CURB BOX), AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.
- ③ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2X4.



**INLET PROTECTION, TYPE B  
(WITHOUT CURB BOX)**

(CAN BE INSTALLED IN ANY INLET WITHOUT A CURB BOX)



**INLET PROTECTION, TYPE C (WITH CURB BOX)**

**INSTALLATION NOTES**

**TYPE B & C**

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

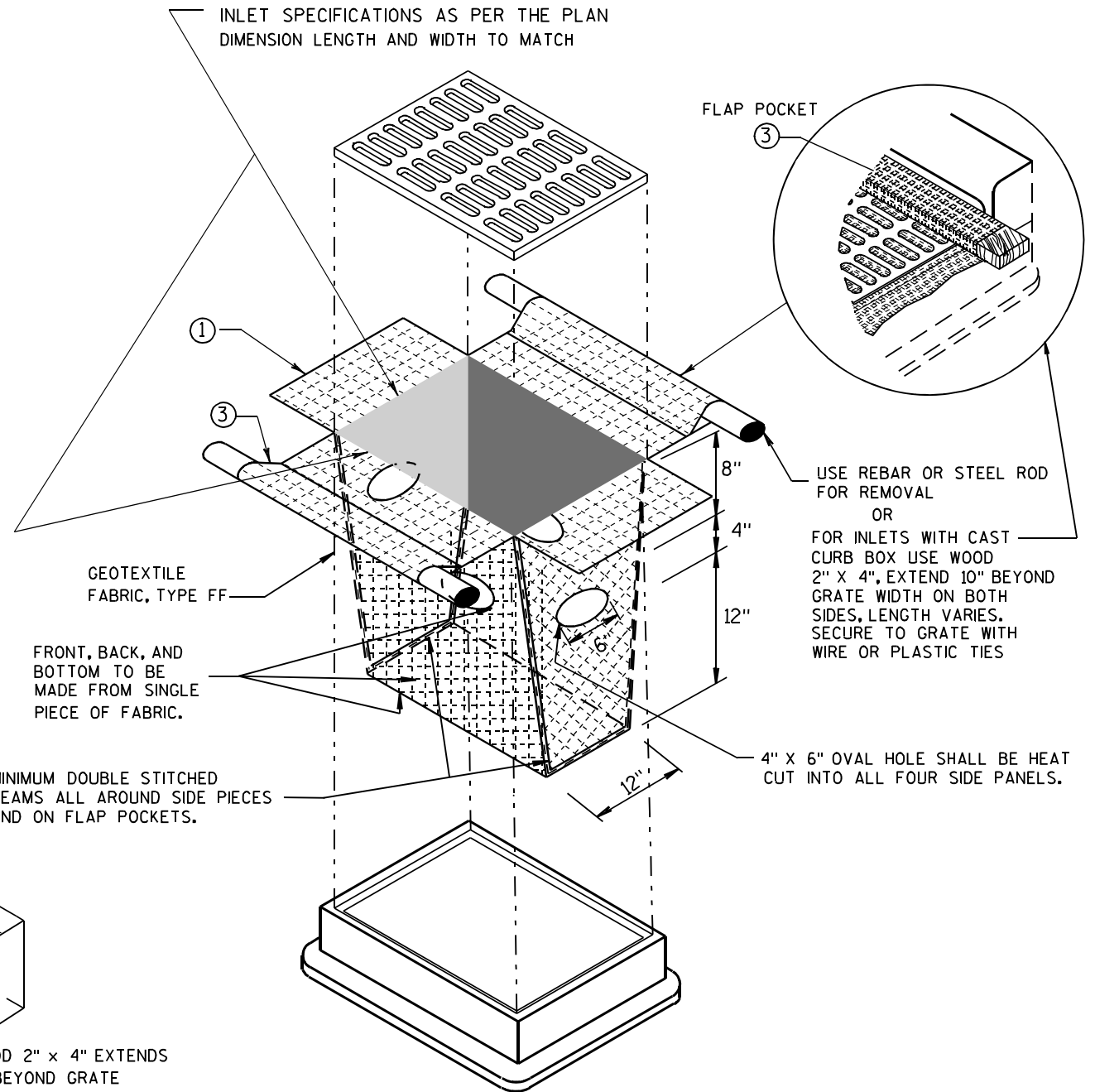
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

**TYPE D**

DO NOT INSTALL INLET PROTECTION TYPE D IN INLETS SHALLOWER THAN 30", MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

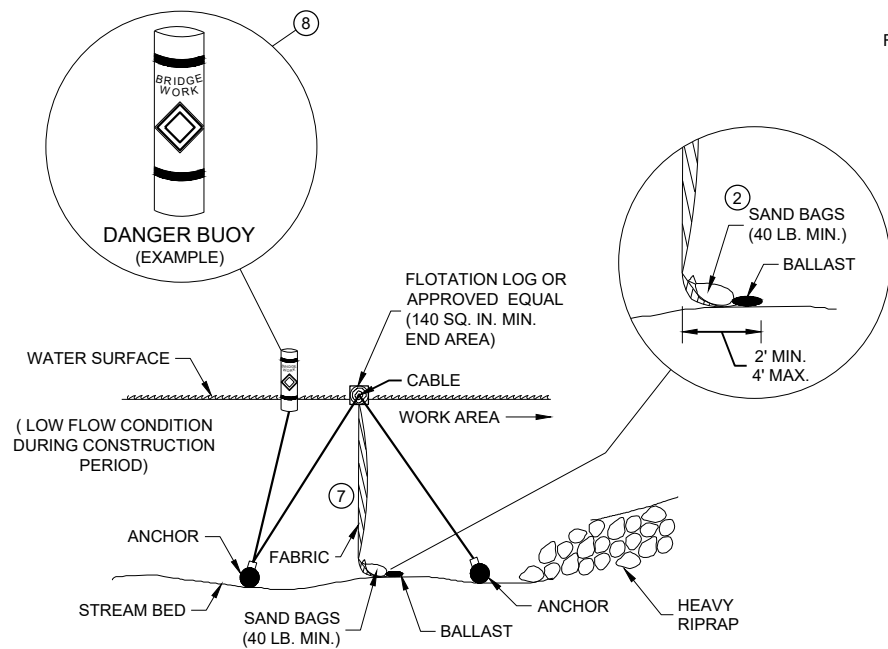
THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE BOTTOM OF THE BAG.



**INLET PROTECTION, TYPE D**

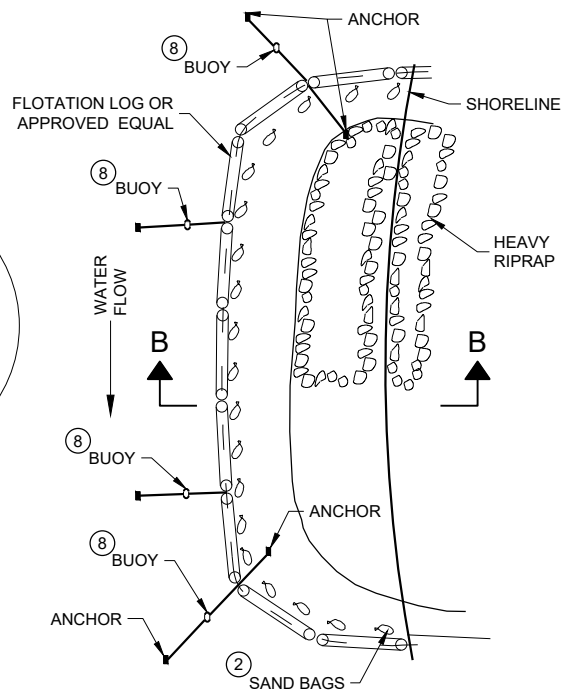
(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX AS PER NOTE ②)

<b>INLET PROTECTION TYPE A, B, C, AND D</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 10/16/02 DATE	/S/ Beth Conestra CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	

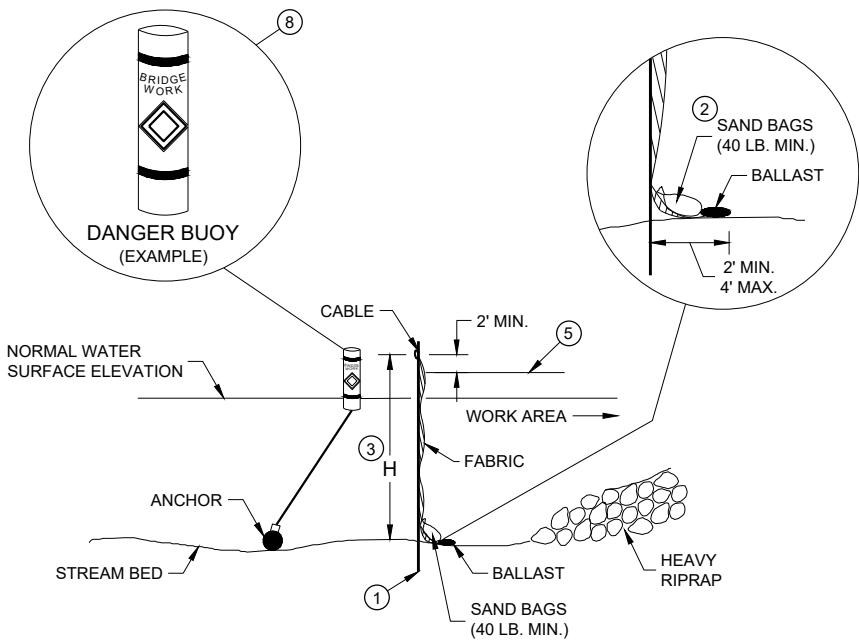


**SECTION B - B**

**TURBIDITY BARRIER - FLOAT ALTERNATIVE  
CAUTION - SEE NOTE 6**

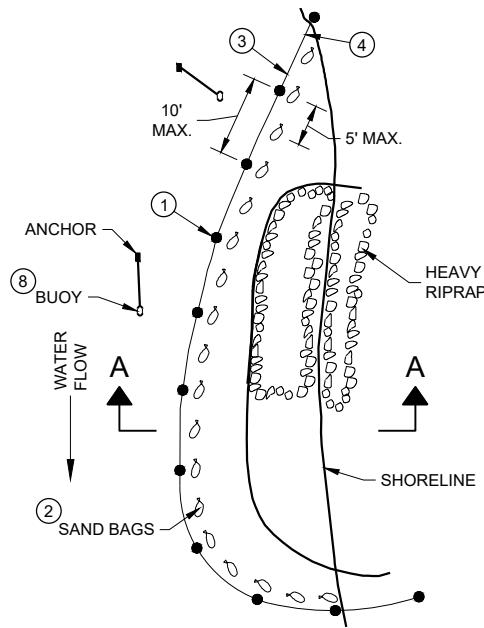


**PLAN VIEW**



**SECTION A - A**

**TURBIDITY BARRIER - STANDARD POST INSTALLATION**



**PLAN VIEW**

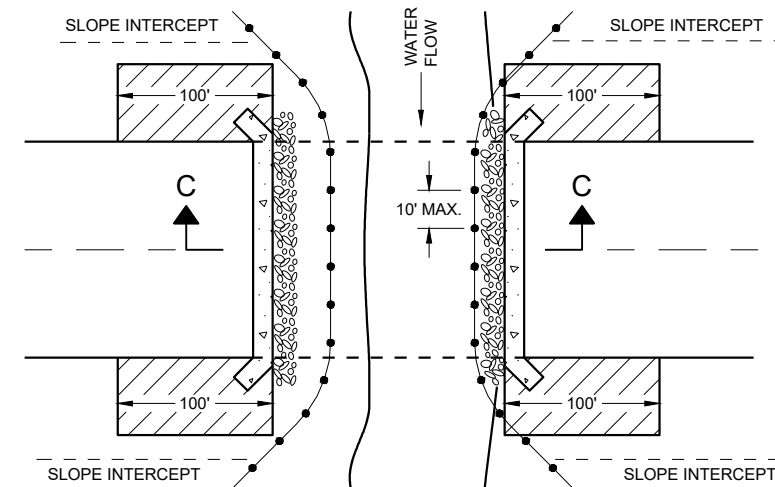
**TURBIDITY BARRIER PLACEMENT DETAILS**

**GENERAL NOTES**

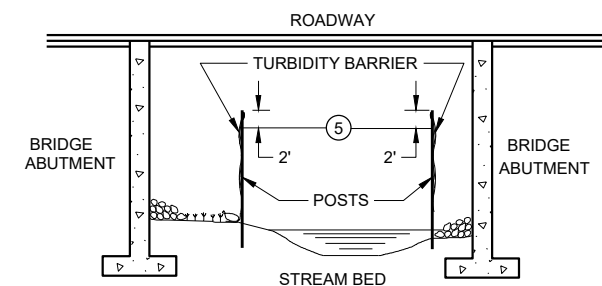
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

TURBIDITY BARRIER MAY BE REMOVED AT THE ENGINEERS DISCRETION, WHEN PERMANENT EROSION CONTROL MEASURES HAVE BEEN ESTABLISHED.

- ① DRIVEN STEEL POSTS, PIPES, OR CHANNELS. LENGTH SHALL BE SUFFICIENT TO SECURELY SUPPORT BARRIER AT HIGH WATER ELEVATIONS.
- ② SAND BAGS TO BE USED AS ADDITIONAL BALLAST WHEN ORDERED BY THE ENGINEER TO MEET ADVERSE FIELD CONDITIONS. SPACE AS APPROPRIATE FOR SITE CONDITIONS.
- ③ WHEN BARRIER HEIGHT "H" EXCEEDS 8 FEET, POST SPACING MAY NEED TO BE DECREASED.
- ④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.
- ⑤ ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD. MINIMUM BARRIER HEIGHT SHALL BE 2' GREATER THAN EITHER THE Q2 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WHICHEVER IS GREATER.
- ⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BEDROCK PREVENTS THE INSTALLATION OF POSTS.
- ⑦ ALLOW SUFFICIENT SLACK VERTICALLY AND HORIZONTALLY SO THAT SEDIMENT BUILD UP WILL NOT SEPARATE OR LOWER THE TURBIDITY BARRIER.
- ⑧ USE AS DIRECTED BY COAST GUARD OR DNR PERMIT WHEN WORKING IN NAVIGABLE WATERWAYS.



**PLAN VIEW**



**SECTION C - C**

**TURBIDITY BARRIER DETAIL SHOWING  
TYPICAL PLACEMENT AT STRUCTURES**

**TURBIDITY BARRIER**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
6/4/02 DATE /S/ Beth Cannestra  
DATE CHIEF ROADWAY DEVELOPMENT  
ENGINEER

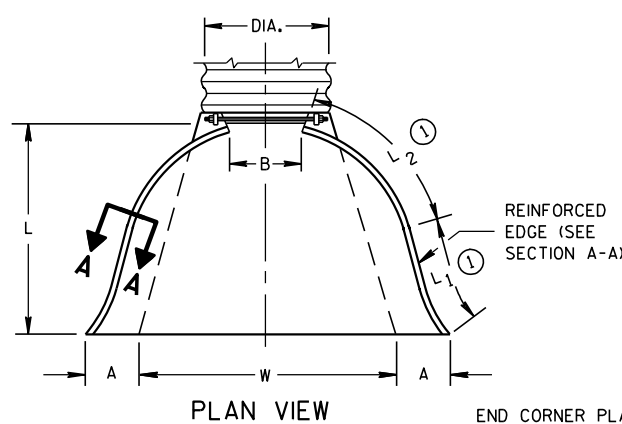
FHWA

METAL APRON ENDWALLS											
PIPE DIA. (IN.)	MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1	L2	W (±2")		
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4	36	2 1/2 to 1	1 Pc.
21	.064	.060	9	12	6	36	18	29 5/8	42	2 1/2 to 1	1 Pc.
24	.064	.075	10	13	6	41	18	37 1/4	48	2 1/2 to 1	1 Pc.
30	.079	.075	12	16	8	51	18	52 1/4	60	2 1/2 to 1	1 Pc.
36	.079	.105	14	19	9	60	24	59 3/4	72	2 1/2 to 1	2 Pc.
42	.109	.105	16	22	11	69	24	75 5/8	84	2 1/2 to 1	2 Pc.
48	.109	.105	18	27	12	78	24	81	90	2 1/4 to 1	3 Pc.
54	.109	.105	18	30	12	84	30	85 1/2	102	2 1/4 to 1	3 Pc.
60	.109x	.105x	18	33	12	87	—	—	114	2 to 1	3 Pc.
66	.109x	.105x	18	36	12	87	—	—	120	2 to 1	3 Pc.
72	.109x	.105x	18	39	12	87	—	—	126	2 to 1	3 Pc.
78	.109x	.105x	18	42	12	87	—	—	132	1 1/2 to 1	3 Pc.
84	.109x	.105x	18	45	12	87	—	—	138	1 1/2 to 1	3 Pc.
90	.109x	.105x	18	37	12	87	—	—	144	1 1/2 to 1	3 Pc.
96	.109x	.105x	18	35	12	87	—	—	150	1 1/2 to 1	3 Pc.

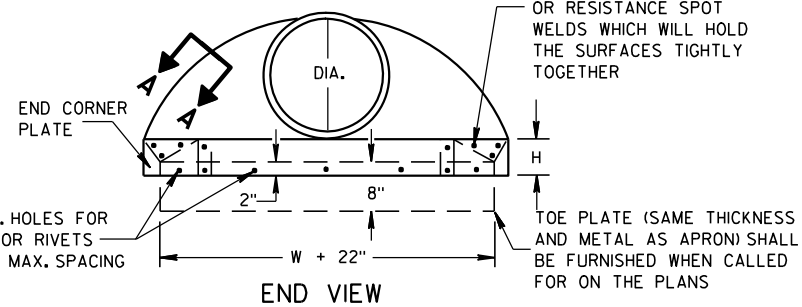
\* EXCEPT CENTER PANEL SEE GENERAL NOTES

REINFORCED CONCRETE APRON ENDWALLS									
PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE	
	T	A	B	C	D	E	G		
12	2	4	24	48 1/8	72 1/8	24	2	3 to 1	
15	2 1/4	6	27	46	73	30	2 1/4	3 to 1	
18	2 1/2	9	27	46	73	36	2 1/2	3 to 1	
21	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	3 to 1	
24	3	9 1/2	43 1/2	30	73 1/2	48	3	3 to 1	
27	3 1/4	10 1/2	49 1/2	24	73 1/2	54	3 1/4	3 to 1	
30	3 1/2	12	54	19 3/4	73 1/2	60	3 1/2	3 to 1	
36	4	15	63	34 3/4	97 3/4	72	4	3 to 1	
42	4 1/2	21	63	35	98	78	4 1/2	3 to 1	
48	5	24	72	26	98	84	5	3 to 1	
54	5 1/2	27	65	33 1/4-35	98 1/4-100	90	5 1/2	2 1/2 to 1	
60	6	30-35	60	39	99	96	5	2 to 1	
66	6 1/2	30-35	72-78	21-27	99	102	5 1/2	2 to 1	
72	7	30-35	78	21	99	108	6	2 to 1	
78	7 1/2	30-35	78	21	99	114	6 1/2	2 to 1	
84	8	36	90 1/2	21	111 1/2	120	6 1/2	1 1/2 to 1	
90	8 1/2	41	87 1/2	24	111 1/2	132	6 1/2	1 1/2 to 1	

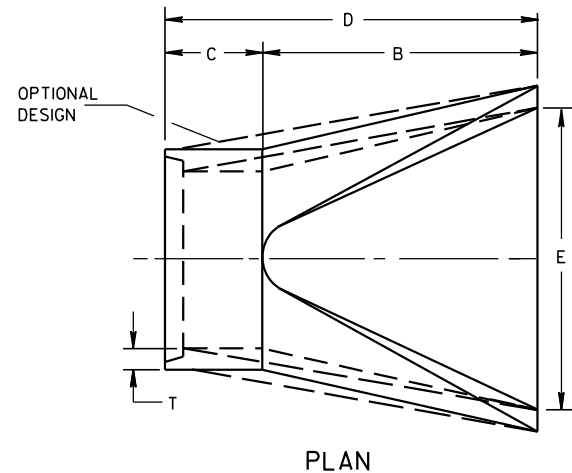
\* MINIMUM  
\*\* MAXIMUM



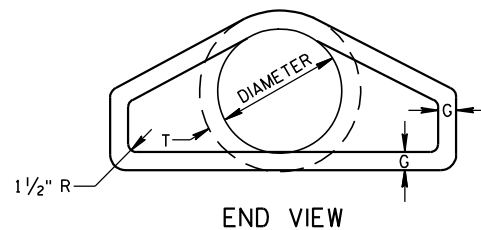
END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER



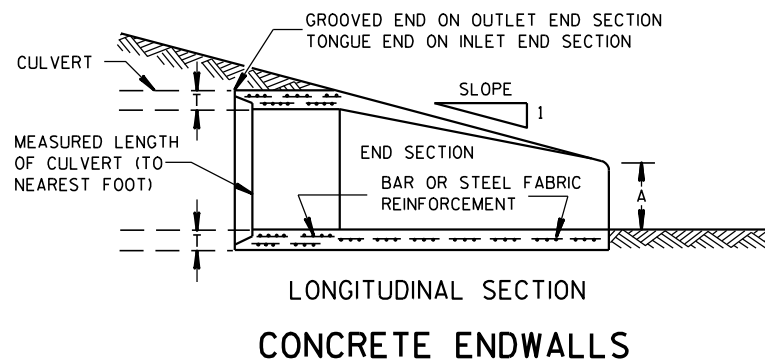
SIDE ELEVATION  
METAL ENDWALLS



PLAN

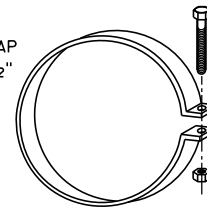


END VIEW

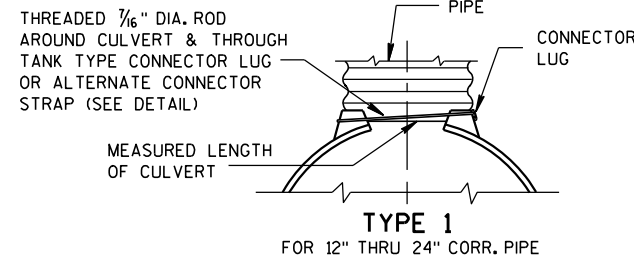


LONGITUDINAL SECTION  
CONCRETE ENDWALLS

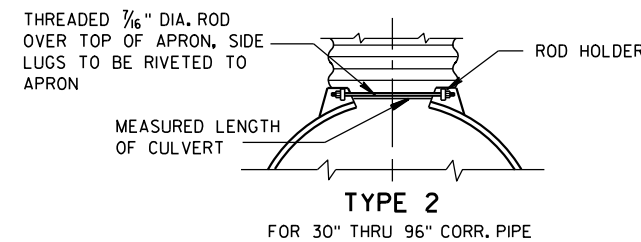
1" WIDE, 12 GA. (0.109" THICK) GALVANIZED STRAP WITH STANDARD 6" X 1/2" BAND BOLT AND NUT



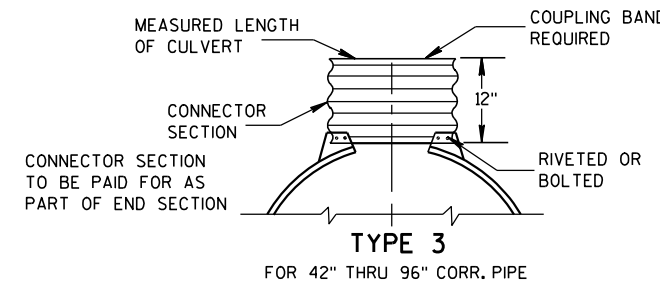
ALTERNATE FOR TYPE 1 CONNECTION  
END SECTION CONNECTOR STRAP



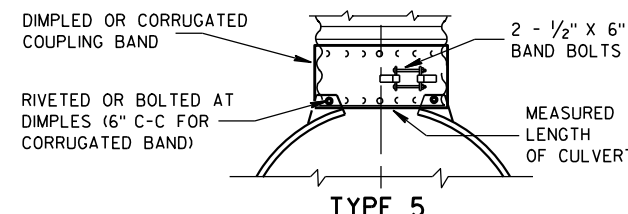
TYPE 1  
FOR 12" THRU 24" CORR. PIPE



TYPE 2  
FOR 30" THRU 96" CORR. PIPE



TYPE 3  
FOR 42" THRU 96" CORR. PIPE



TYPE 5  
ALTERNATE FOR:  
ALL SIZES CORRUGATED CIRCULAR PIPE

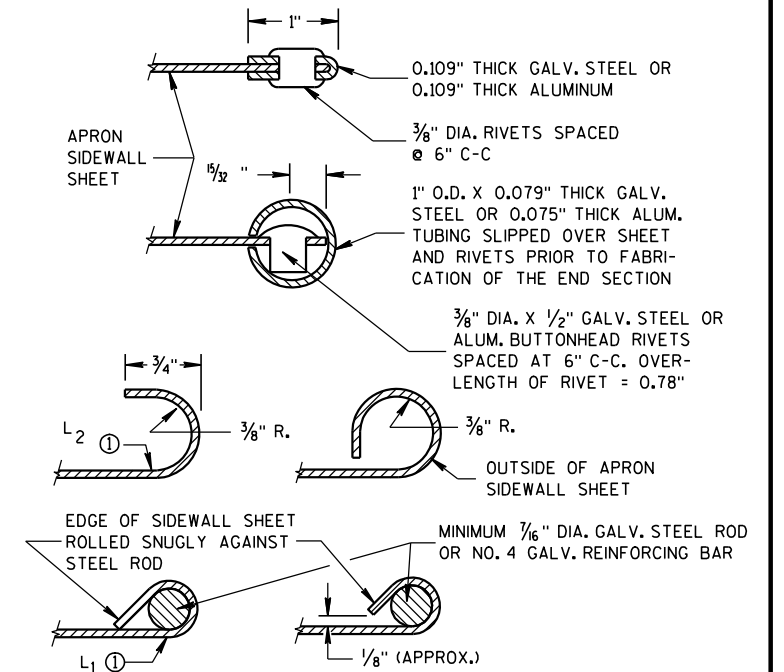
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

FOR CIRCUMFERENTIALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2, 3 OR 5 AS APPLICABLE.

FOR HELICALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2 OR 5.

FOR HELICALLY CORRUGATED PIPES WITH TWO CIRCUMFERENTIAL CORRUGATIONS AT EACH END USE ENDWALL CONNECTION DETAILS 1, 2 OR 3.

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

CONCRETE CULVERT ENDWALLS MAY NOT BE USED WITH GALVANIZED STEEL OR ALUMINUM CULVERT PIPE OR VICE VERSA. GALVANIZED STEEL OR ALUMINUM ENDWALLS SHALL NORMALLY BE INSTALLED ON CULVERT PIPE OF THE SAME METAL.

ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT OF THE PIPE PERIMETER.

LAP SEAMS SHALL BE TIGHTLY JOINED BY GALVANIZED RIVETS OR BOLTS FOR STEEL UNITS AND ALUMINUM RIVETS AND BOLTS FOR ALUMINUM UNITS. FOR THE 60" THROUGH 96" DIAMETER APRON ENDWALL SIZES, THE REINFORCED EDGES AND CENTER PANEL SEAMS SHALL BE FURTHER REINFORCED WITH GALVANIZED STEEL OR ALUMINUM STIFFENER ANGLES. THE ANGLES SHALL BE ATTACHED BY GALVANIZED NUTS AND BOLTS FOR STEEL UNITS AND ALUMINUM NUTS AND BOLTS FOR ALUMINUM UNITS.

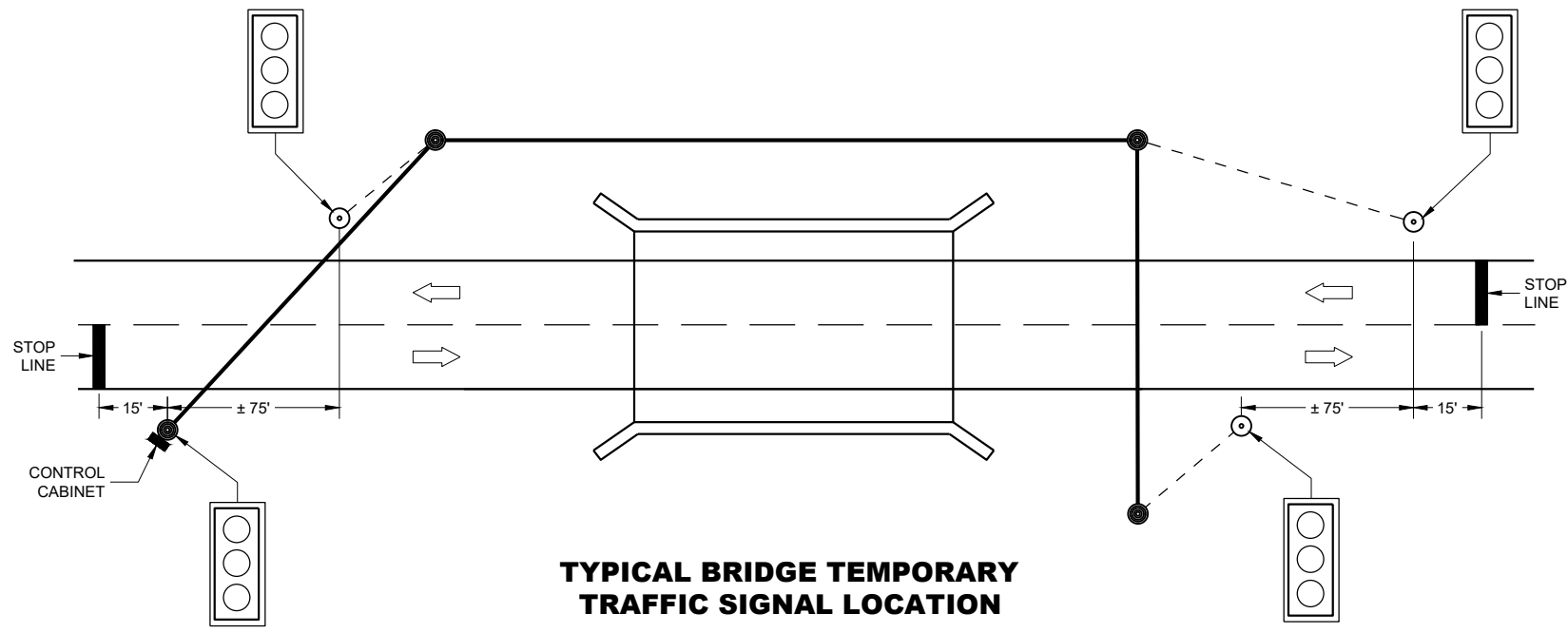
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR  
CULVERT PIPE

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
11/30/94 DATE /S/ Rory L. Rhinesmith  
DATE CHIEF ROADWAY DEVELOPMENT ENGINEER  
FHWA



**TYPICAL BRIDGE TEMPORARY TRAFFIC SIGNAL LOCATION**

**LEGEND**

- WOOD POLE (NON-BREAKAWAY)
- WOOD POST (BREAKAWAY)
- - - SIGNAL CABLE
- SIGNAL CABLE W/MESSENGER
- ➔ DIRECTION OF TRAFFIC
- LED TRAFFIC SIGNAL WITH BACKPLATE  
3-12"

**GENERAL NOTES**

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

POLE MOUNTED TRAFFIC SIGNAL CONTROL CABINET MAY BE MOUNTED ON THE SERVICE POLE IF THE ELECTRICAL UTILITY ALLOWS THE INSTALLATION.

WHEN UTILITY POLES ARE USED TO SPAN THE TEMPORARY OVERHEAD CABLE, WRITTEN PERMISSION MUST BE OBTAINED FROM THE OWNER OF THE POLES AND GIVEN TO THE PROJECT MANAGER. ALL PERTINENT UTILITY AND CODE CLEARANCES SHALL BE MAINTAINED.

WOOD POLES (NON-BREAKAWAY) SHALL BE NO CLOSER TO EDGE OF PAVEMENT THAN OFFSET DISTANCE CHART ALLOWS OR 4 FEET BEHIND PROTECTIVE BARRIER (BEAM GUARD, ETC.).

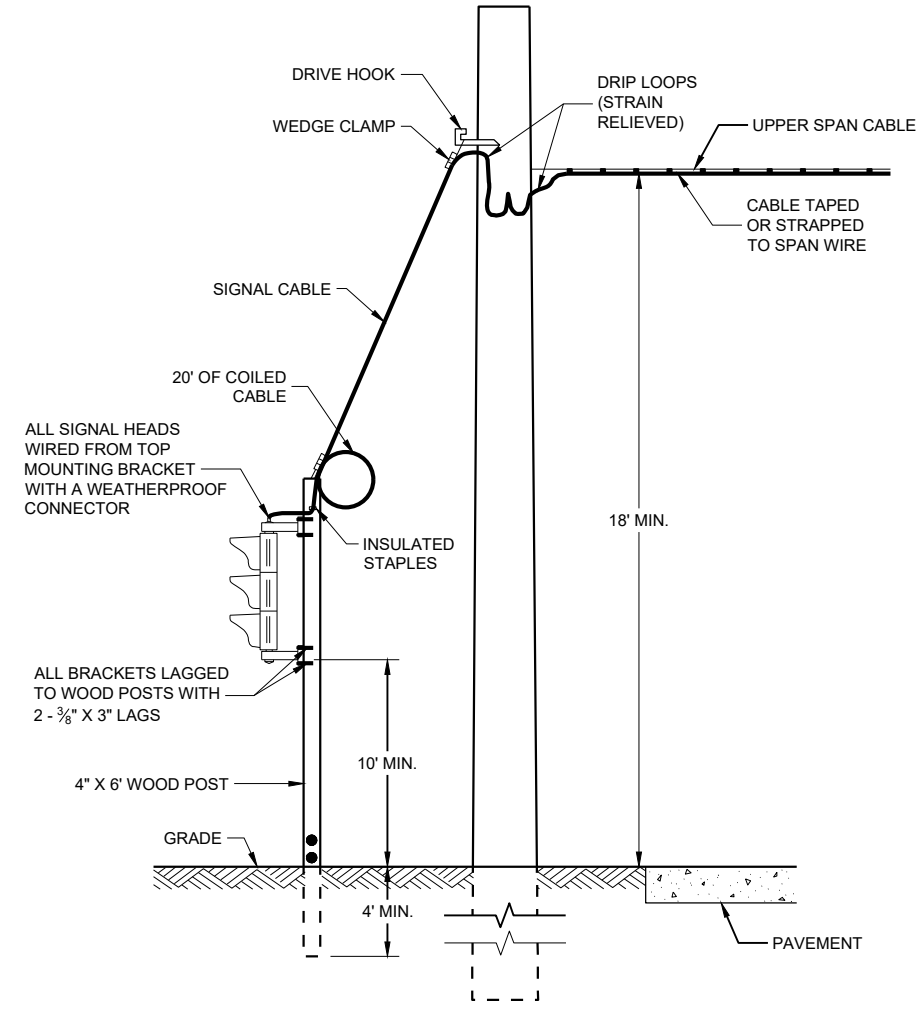
WOOD POSTS (BREAKAWAY) SHALL BE NO CLOSER THAN 2 FEET OUTSIDE OF SHOULDER.

VERTICAL CLEARANCE ETC. PER NEC.

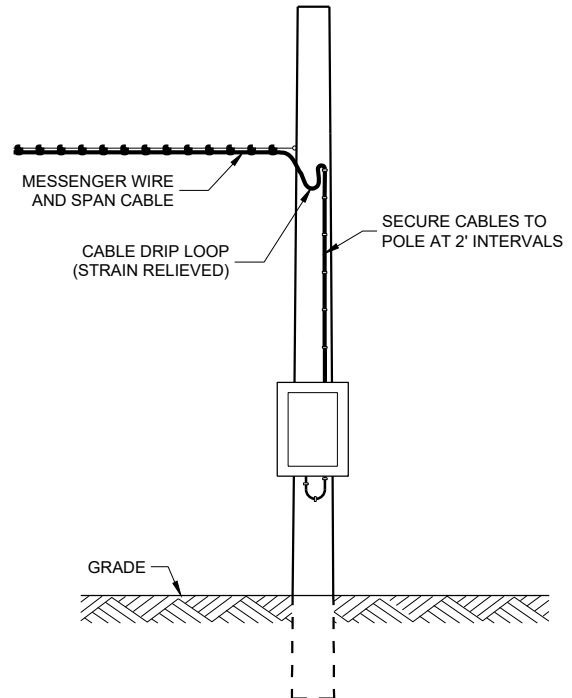
TRAFFIC SIGNAL FACES SHALL BE TYPICALLY PLACED 12 FEET FROM EDGE OF PAVEMENT.

EACH TRAFFIC SIGNAL SHALL HAVE A BACKPLATE.

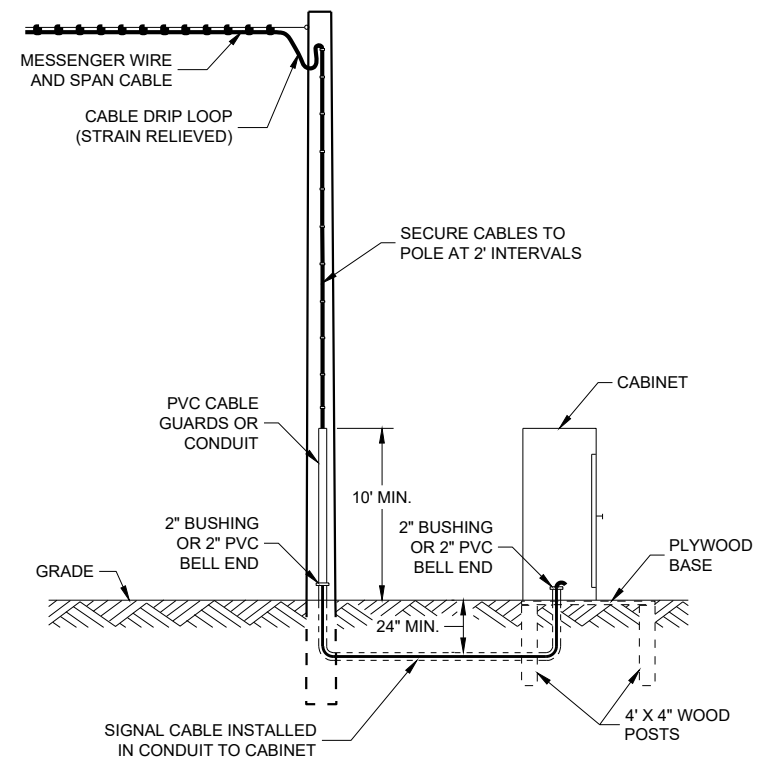
SIGNING, PAVEMENT MARKING AND LANE CONTROL REQUIREMENTS SHALL CONFORM TO STANDARD DETAIL DRAWING 15D33.



**TYPICAL DROP TO TRAFFIC SIGNAL FACE**



**POLE MOUNT CABINET INSTALLATION**



**GROUND MOUNT CABINET INSTALLATION**

MINIMUM POLE LENGTHS	CLASS	POLE BURIAL DEPTHS
25'	V	5'
30'	V	6'
35'	IV	7'
40'	IV	8'
45'	IV	9'

OFFSET DISTANCES FOR TEMPORARY NON-BREAKAWAY POLES	
SPEED LIMIT	OFFSET DISTANCE*
GREATER THAN 45 MPH	18 FT
45 MPH OR LESS	12 FT
45 MPH OR LESS W/CURBS	2 FT

\* NOTE: OFFSET MEASURED FROM OUTER EDGE OF OUTSIDE THRU LANE.

**BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
March 2018 /S/ Ahmet Demirelek  
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA

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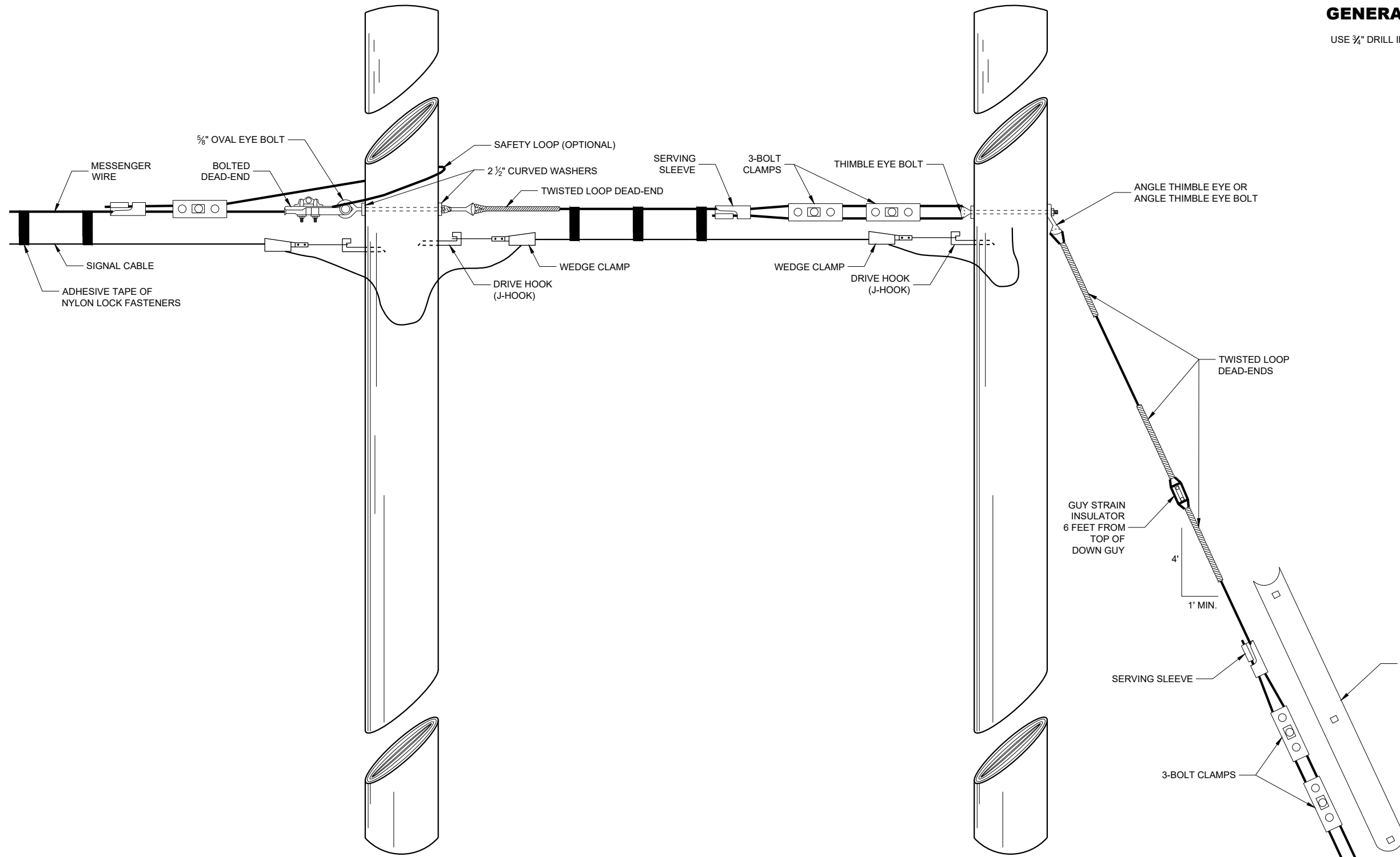
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SDD09G02 - 05a

SDD09G02 - 05a

**GENERAL NOTES**

USE 3/4" DRILL IN WOOD POLE TO PROVIDE FOR 5/8" BOLTS.



**SPAN WIRE POLE**

**GUY POLE**

**TYPICAL DEAD-ENDINGS OR GUYING**

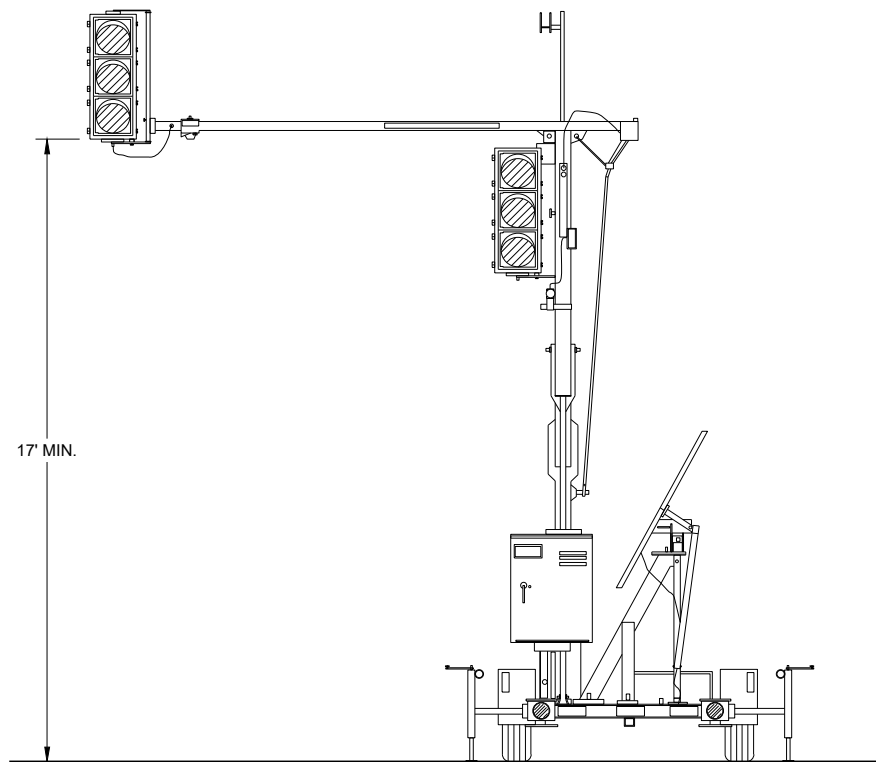
<b>BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2015 DATE	/S/ Ahmet Demerbilek ROADWAY STANDARDS DEVELOPMENT ENGINEER
<small>FHWA</small>	

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SDD09G02 - 05b

SDD09G02 - 05b

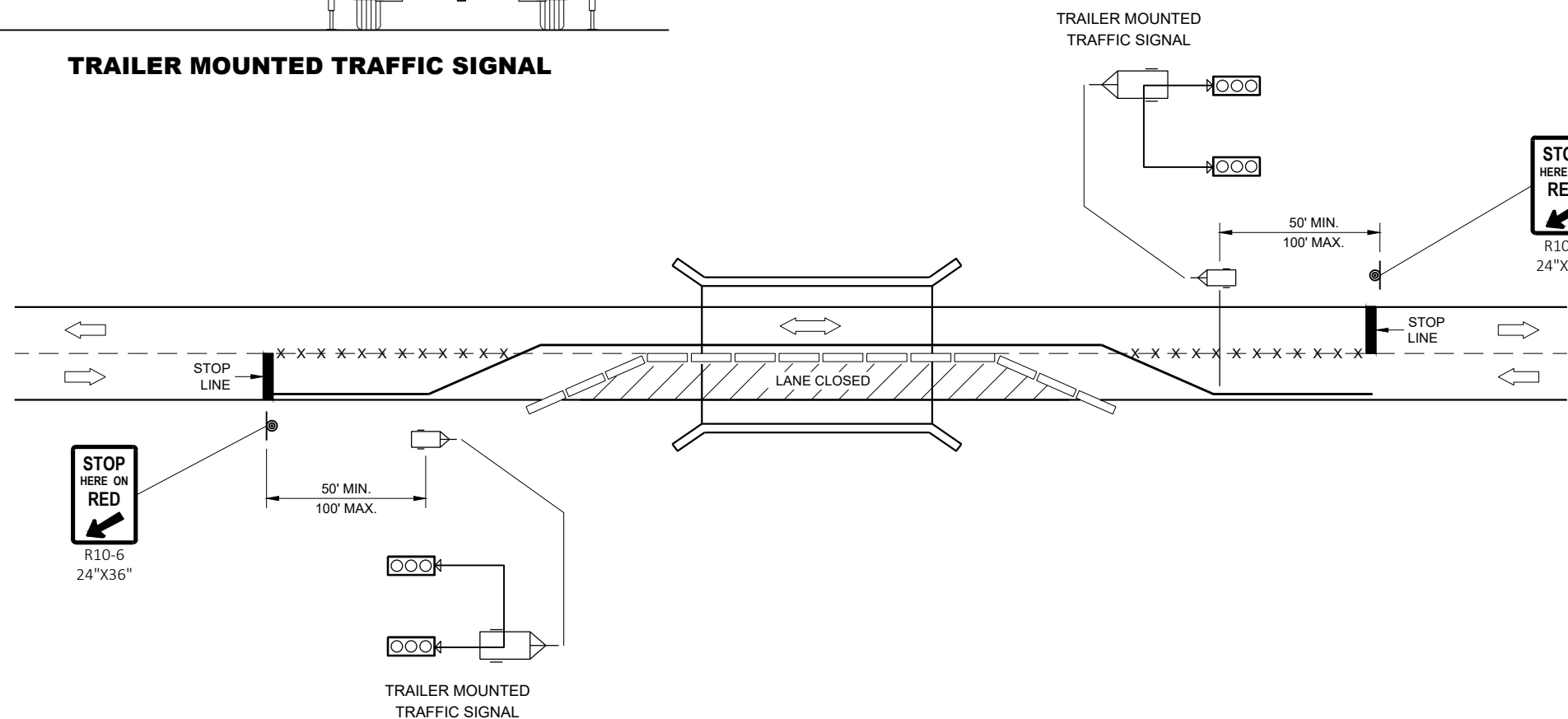


**TRAILER MOUNTED TRAFFIC SIGNAL**

**GENERAL NOTES**




DETAIL OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

SIGNING, PAVEMENT MARKING AND LANE CONTROL REQUIREMENTS SHALL CONFORM TO STANDARD DETAIL DRAWING 15D33.



**TYPICAL TRAILER MOUNTED TRAFFIC SIGNAL LOCATION**

**LEGEND**

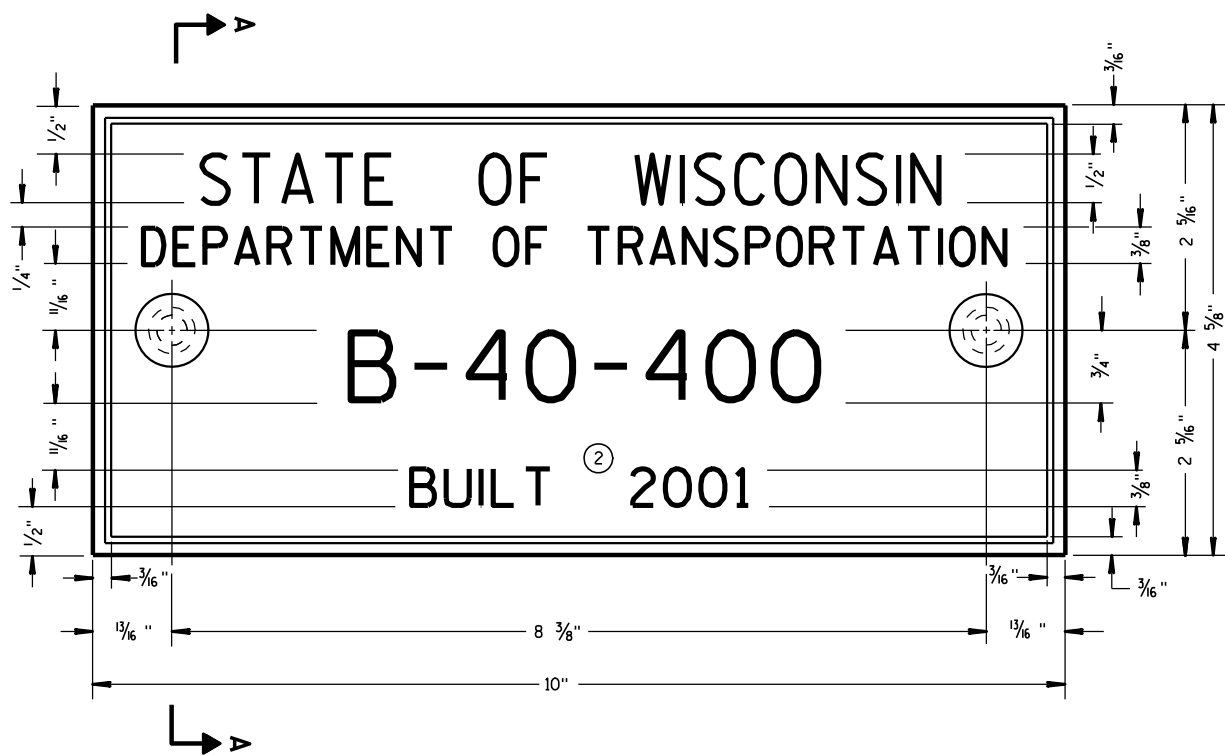
-  POST MOUNTED SIGN
-  TEMPORARY PRECAST CONCRETE BARRIER
-  TRAILER MOUNTED TRAFFIC SIGNAL
-  REMOVE PAVEMENT MARKINGS
-  DIRECTION OF TRAFFIC

**BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
June 2015 /S/ Ahmet Demerbilek  
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA



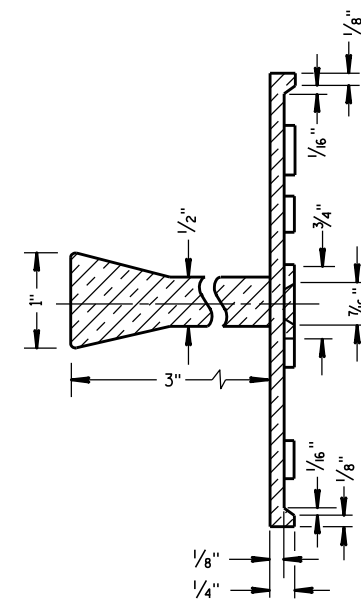
**TYPICAL NAME PLATE**  
(BRIDGES, CULVERTS, AND RETAINING WALLS)

**GENERAL NOTES**

NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

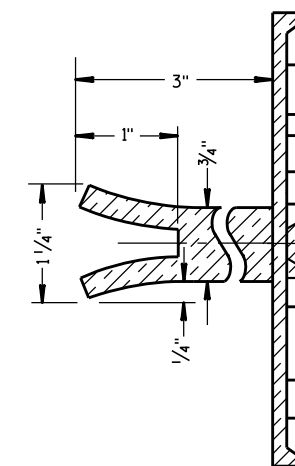
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

- ① EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- ② REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.

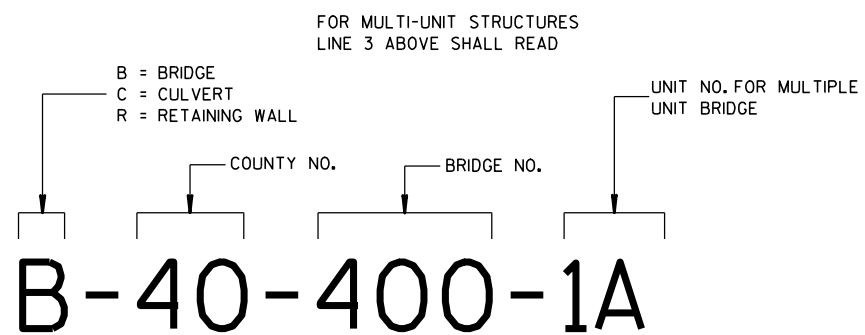


**SECTION A-A**

SPREAD OPEN SO THE TOP OF LUG IS 1 1/4" WIDE

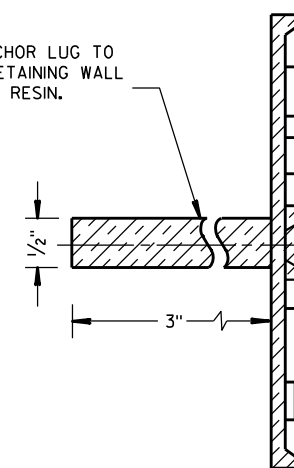


**ALTERNATE LUG**



**NUMBERING DESIGNATION  
MULTI-UNIT STRUCTURES**

- ① ADHERE ANCHOR LUG TO PRECAST RETAINING WALL WITH EPOXY RESIN.

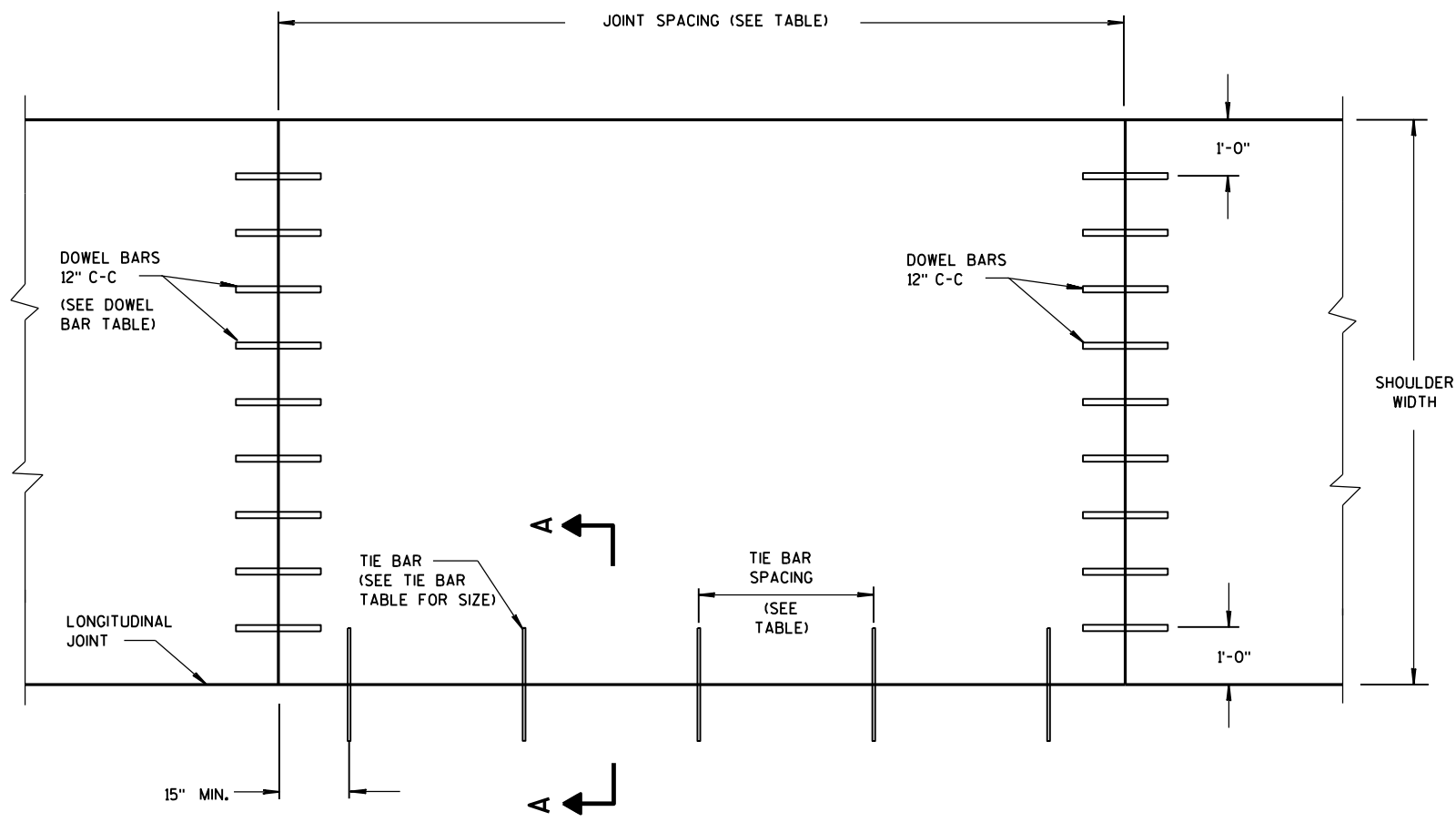


**ALTERNATE LUG**  
(FOR ATTACHMENT TO PRECAST STRUCTURES)

**NAME PLATE  
(STRUCTURES)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
DATE 3/26/10 /S/ Scot Becker  
CHIEF STRUCTURAL DEVELOPMENT ENGINEER  
FHWA



PLAN VIEW  
CONCRETE PAVEMENT SHOULDER

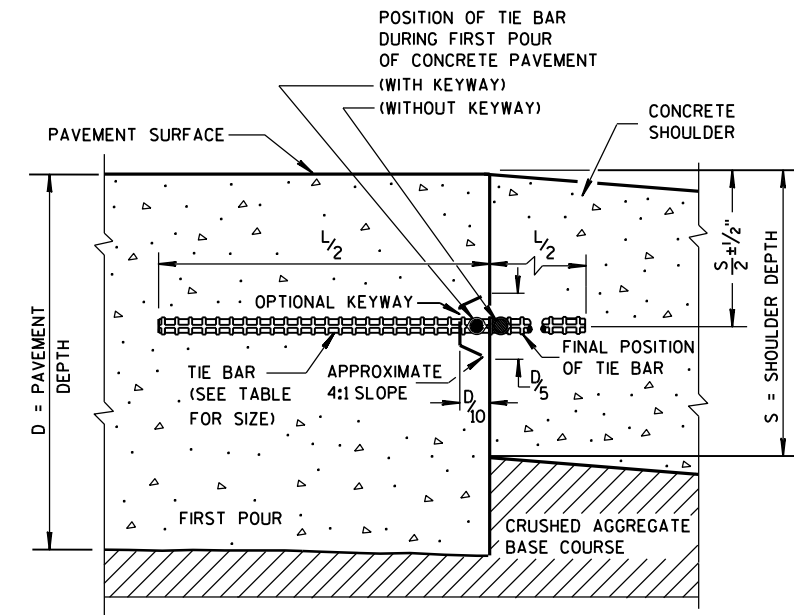
**GENERAL NOTES**

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

TRANSVERSE JOINT DETAILS ARE SHOWN ELSEWHERE IN THE PLAN.

FINISH THE SHOULDER PAVEMENT CONFORMING TO SUBSECTION 415.3.8 OF THE STANDARD SPECIFICATIONS.

TIE BARS SHALL CONFORM TO SUBSECTION 505.2.4 OF THE STANDARD SPECIFICATIONS.



SECTION A-A  
LONGITUDINAL CONSTRUCTION JOINT

**TIE BAR TABLE**

PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 1/2"	NO. 4	30"	36"
≥ 10 1/2"	NO. 5	36"	36"
	NO. 4*	30"	24"**

\* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES)

\*\* CONFORM TO 15" MINIMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.

**PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE**

PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER***	CONTRACTION JOINT SPACING
5 1/2", 6", 6 1/2"	NONE	12'
7", 7 1/2"	1"	14'
8", 8 1/2"	1 1/4"	15'
9", 9 1/2"	1 1/4"	15'
10" & ABOVE	1 1/2"	15'

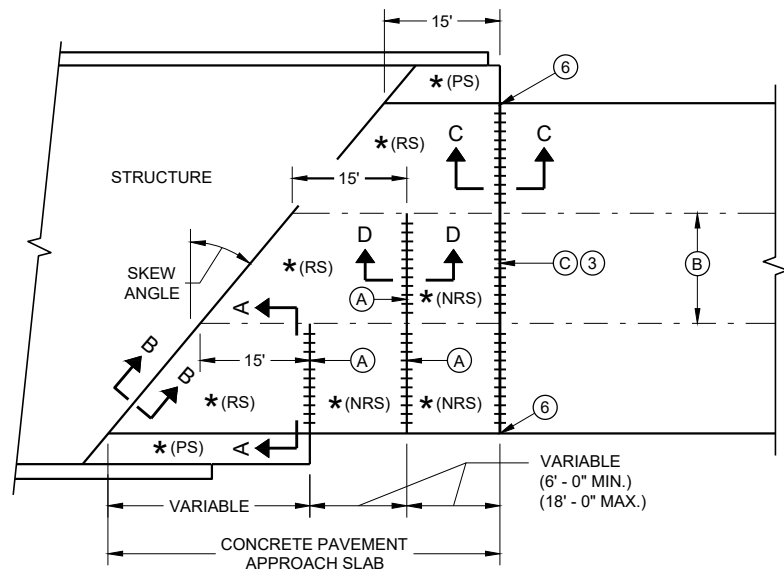
\*\*\* FOR DOWELED CONCRETE SHOULDERS WITH TRAPEZOIDAL CROSS SECTIONS, CHOSE THE APPROPRIATE DOWEL BAR DIAMETER BASED ON THE SMALLER PAVEMENT DEPTH (LIKELY THE OUTSIDE EDGE OF THE SHOULDER). IF USING BASKETS, USE BASKETS FOR THE AVERAGE THICKNESS OF THE CROSS SECTION.

**CONCRETE PAVEMENT SHOULDERS**

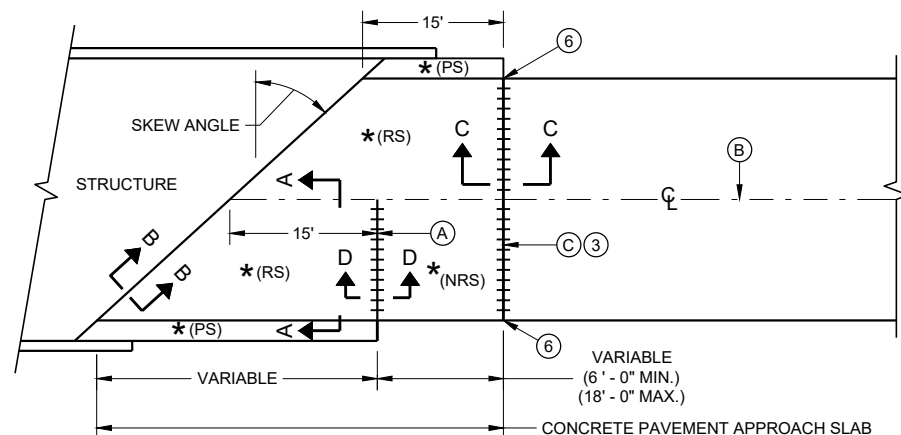
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
June, 2015 /S/ Peter Kemp, P.E.  
DATE PAVEMENT SUPERVISOR  
FHWA

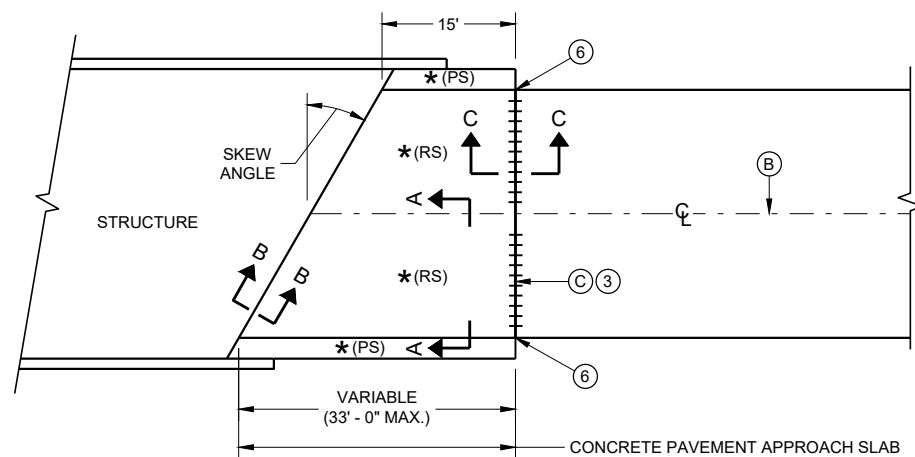




**SKewed APPROACH  
(PAVEMENT MORE THAN TWO LANES)**

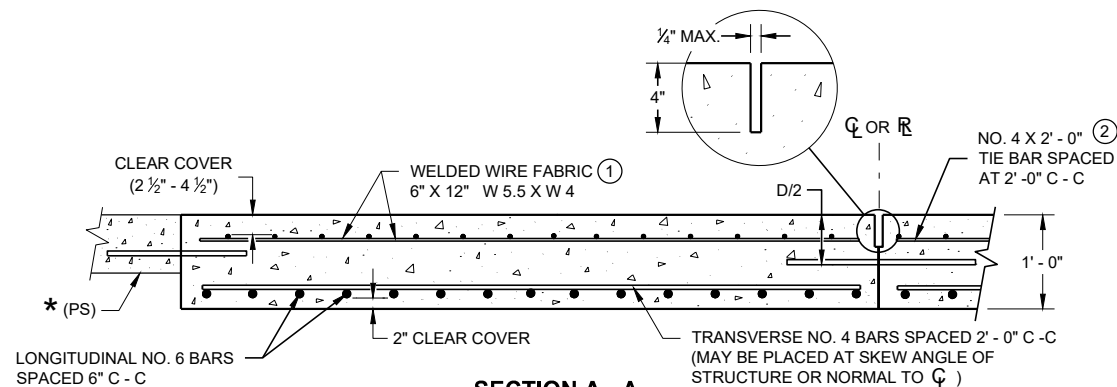


**SKews > 20°  
(PAVEMENT WIDTH ≤ 30')**

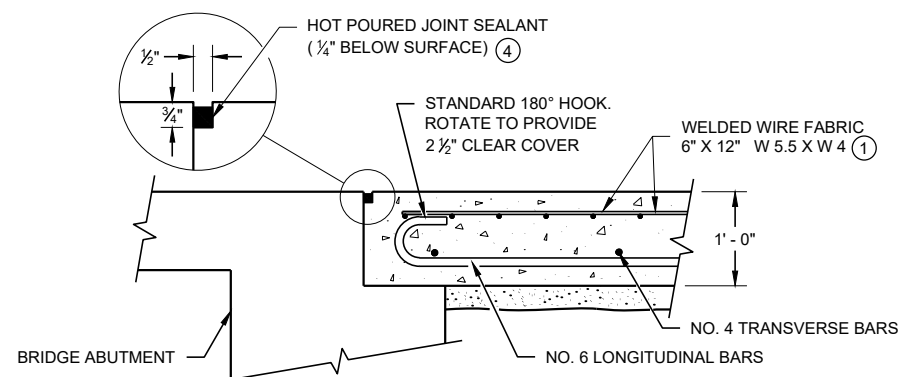


**SKews ≤ 20°  
(PAVEMENT WIDTH ≤ 30')**  
**APPROACH SLAB AND ADJACENT PAVEMENT**

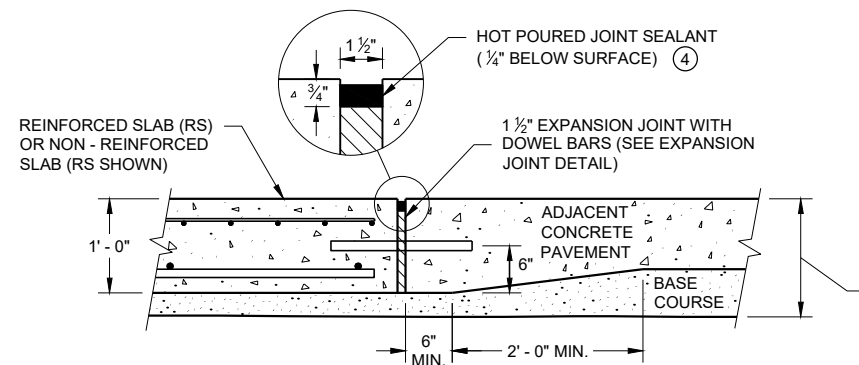
- \* (RS) = REINFORCED CONCRETE SLAB
- \* (PS) = PAVED CONCRETE SHOULDER OR CONCRETE DRAINAGE SLAB
- \* (NRS) = NON - REINFORCED CONCRETE SLAB
- \*\*\* STANDARD DOWEL BAR DIAMETER (SEE SDD 13C11 AND SDD 13C13)



**SECTION A - A  
REINFORCEMENT POSITIONING DETAIL**



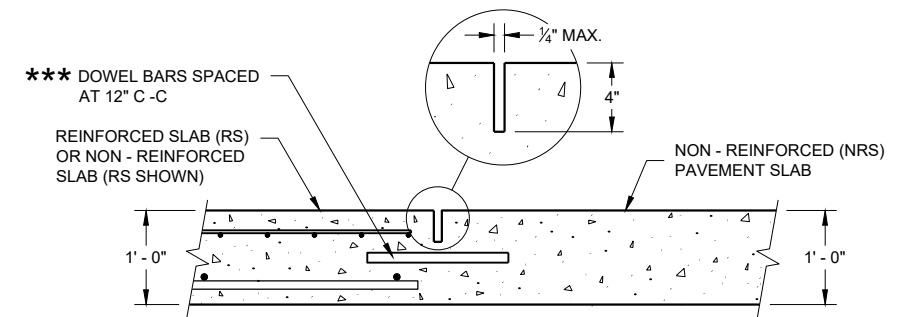
**SECTION B - B  
BEND DETAIL  
BOTTOM REINFORCEMENT**



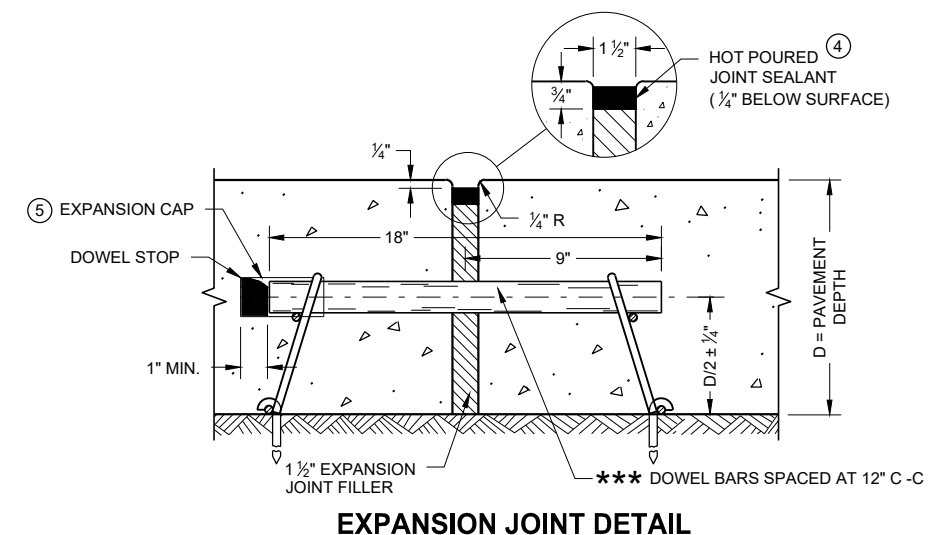
**SECTION C - C  
TRANSITION DETAIL  
APPROACH SLAB TO ADJACENT PAVEMENT**

**GENERAL NOTES**

- THE CONTRACTOR MAY SPLICE NO. 6 BARS IN THE APPROACH SLAB FOR SKEWED STRUCTURES ONLY. STAGGER SPLICES WITH A MAXIMUM OF ONE SPLICE PER BAR. THE LENGTH OF LAP IS 20 INCHES.
- TACK WELD DOWEL BARS TO THE BASKETS ON ALTERNATE ENDS.
- ① THE CONTRACTOR MAY USE NO. 4 BARS SPACED AT 2' - 0" C - C IN BOTH THE LONGITUDINAL AND TRANSVERSE DIRECTIONS FOR TOP REINFORCEMENT AS AN ALTERNATIVE TO THE WELDED WIRE FABRIC.
  - ② THE CONTRACTOR MAY OMIT THE BARS BETWEEN REINFORCED SLABS WHERE SLAB REINFORCEMENT BARS EXTEND ACROSS THE CENTERLINE OR REFERENCE LINE.
  - ③ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING AN HMA PAVEMENT.
  - ④ USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
  - ⑤ PLACE EXPANSION CAP ON THE END OF THE DOWEL THAT IS NOT TACK WELDED TO THE BASKET. DO NOT FORCE DOWEL BAR PAST THE DOWEL STOP.
  - ⑥ EXTEND EXPANSION JOINT THROUGH ANY ADJACENT TIED CONCRETE.
  - (A) STANDARD CONTRACTION JOINT NORMAL TO  $\bar{C}$  OR  $\bar{R}$ .
  - (B) STANDARD LONGITUDINAL JOINT WITH TIE BARS.
  - (C) 1 1/2" EXPANSION JOINT WITH DOWEL BARS NORMAL TO  $\bar{C}$  OR  $\bar{R}$ .



**SECTION D - D  
CONTRACTION JOINT**



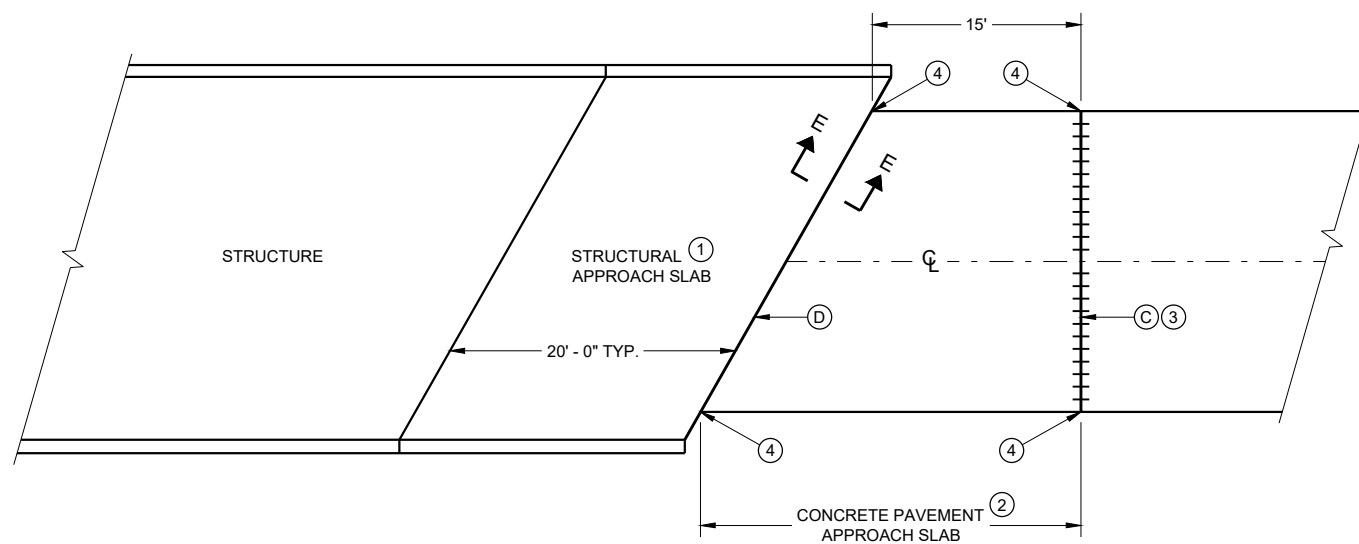
**EXPANSION JOINT DETAIL**

**CONCRETE PAVEMENT  
APPROACH SLAB**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
November 2018 /S/ Peter Kemp, P.E.  
DATE DATE PAVEMENT SUPERVISOR

FHWA

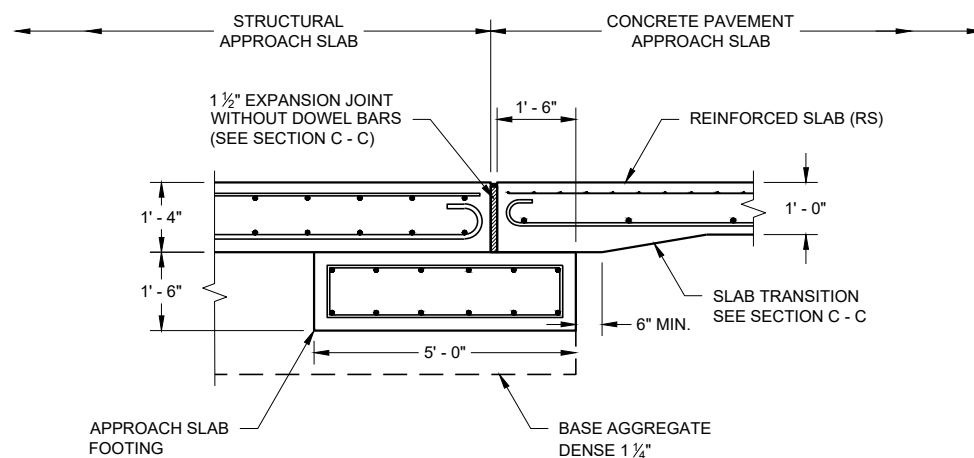


**GENERAL NOTES**

ALL PROJECTS THAT INVOLVE A STRUCTURAL APPROACH SLAB WILL ALSO HAVE A CONCRETE PAVEMENT APPROACH SLAB.

- ① SEE BRIDGE PLAN.
- ② CONFORM TO SDD 13B02 SHEET A FOR CONCRETE PAVEMENT APPROACH SLAB DETAILS
- ③ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING AN HMA PAVEMENT.
- ④ EXTEND EXPANSION JOINT THROUGH ANY ADJACENT TIED CONCRETE.
- Ⓒ 1½" EXPANSION JOINT WITH DOWEL BARS NORMAL TO  $\text{CL}$  OR  $\text{RL}$ .
- Ⓓ 1½" EXPANSION JOINT (NO DOWELS)

**BRIDGE APPROACHES**



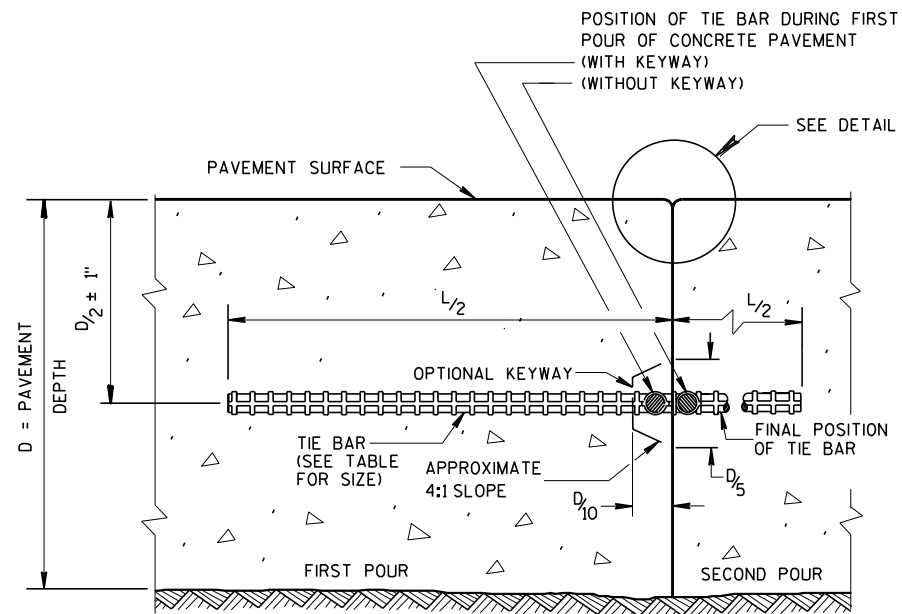
**SECTION E - E  
FOOTING DETAIL  
STRUCTURAL APPROACH SLAB TO CONCRETE BRIDGE APPROACH**

**STRUCTURAL APPROACH SLAB  
AND CONCRETE PAVEMENT  
APPROACH SLAB**

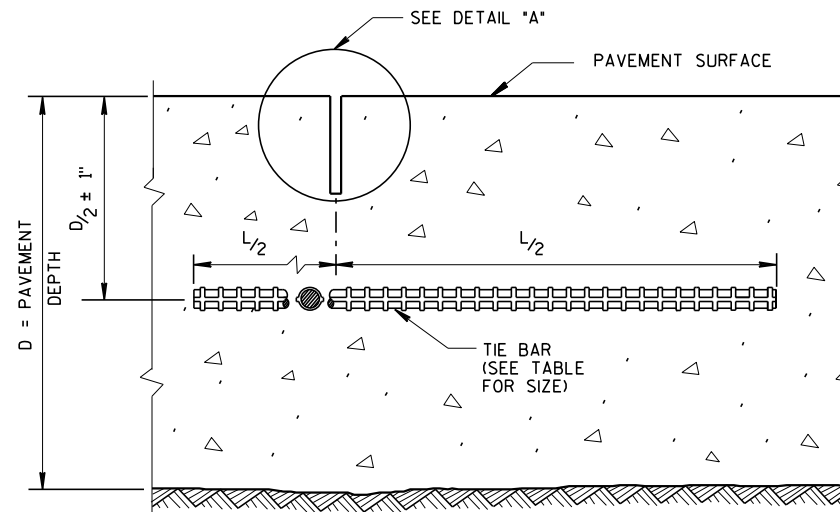
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
November 2018 /S/ Peter Kemp P.E.  
DATE PAVEMENT SUPERVISOR

FHWA



**CONSTRUCTION JOINT**



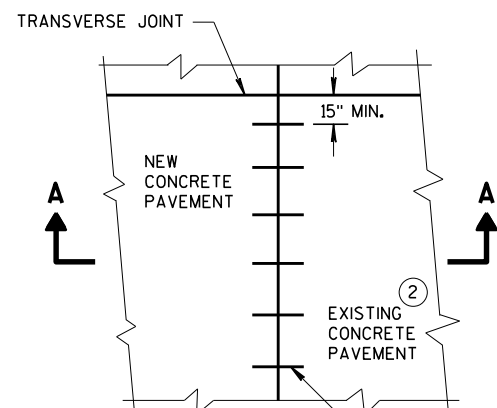
**SAWED JOINT**

**GENERAL NOTES**

CREATE A LONGITUDINAL JOINT FOR PAVEMENT WIDTHS GREATER THAN 15 FEET.

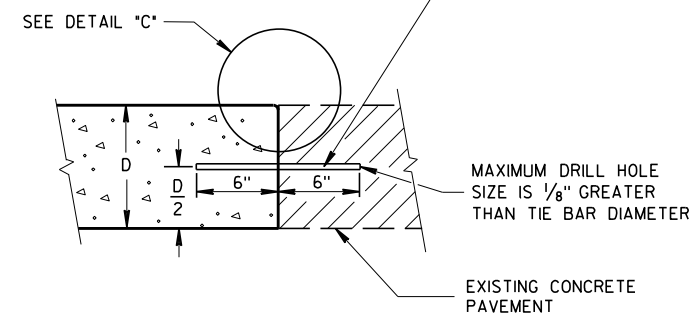
CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.

- ① ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.
- ② PAVEMENT THAT WAS IN PLACE PRIOR TO THE CONTRACT.

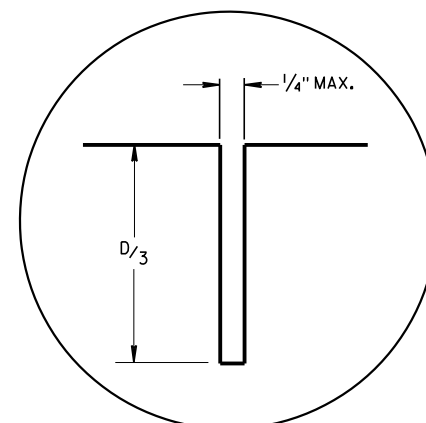


**PLAN VIEW**

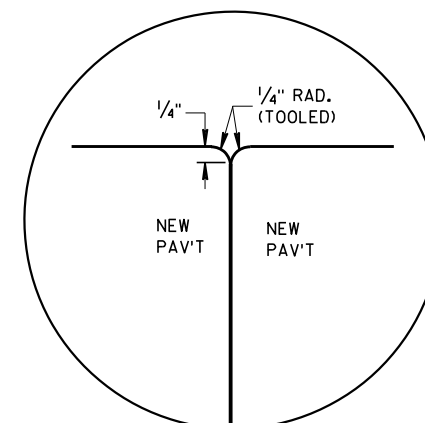
NO. 6 TIE BARS SPACED 30" C-C, INSTALLED PERPENDICULAR TO THE LONGITUDINAL JOINT. ①



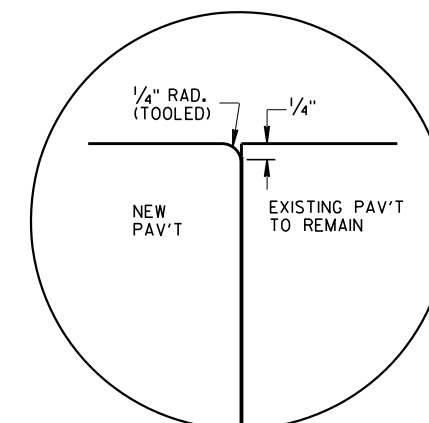
**SECTION A-A  
LONGITUDINAL CONSTRUCTION JOINT  
TIE BARS ANCHORED  
INTO EXISTING PAVEMENT**



**DETAIL "A"**



**DETAIL "B"**



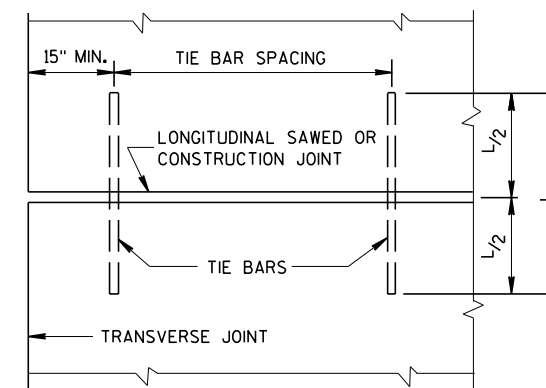
**DETAIL "C"**

**TIE BAR TABLE**

PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 1/2"	NO. 4	30"	36"
≥ 10 1/2"	NO. 5	36"	36"
	NO. 4 *	30"	24" **

\* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES)

\*\* CONFORM TO 15" MINIMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.

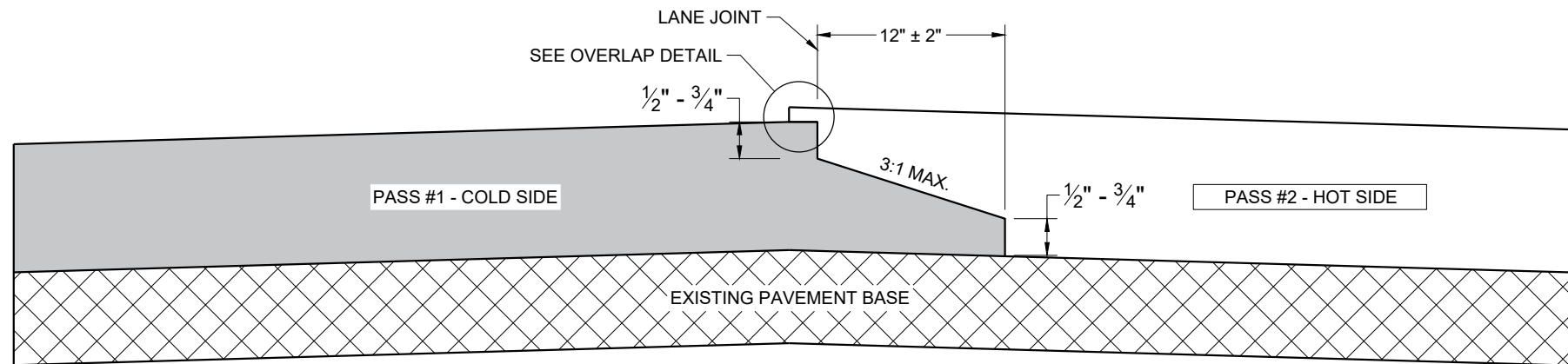


**PLAN VIEW  
SHOWING LOCATION OF TIE BARS**

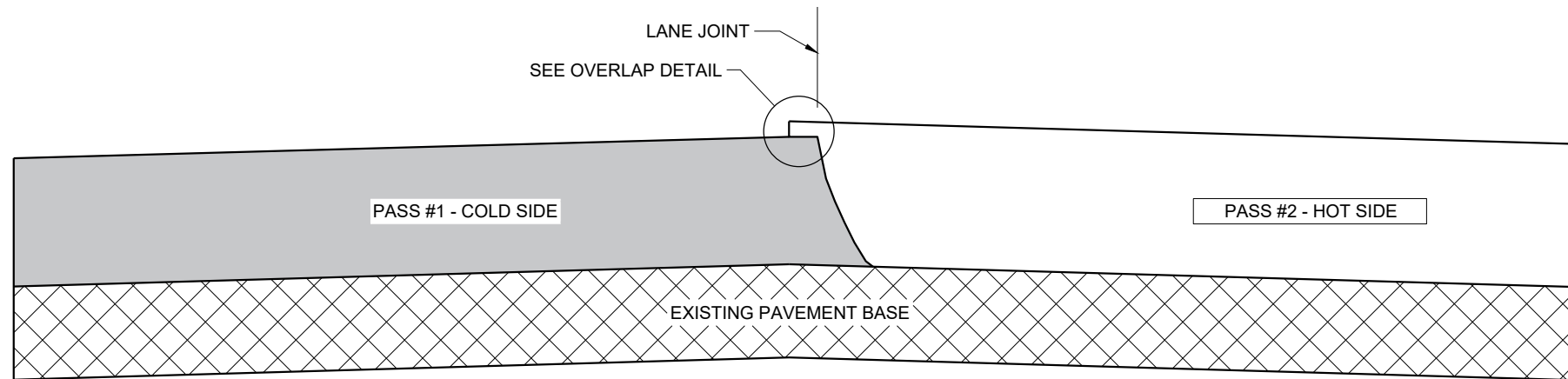
**CONCRETE PAVEMENT  
LONGITUDINAL JOINTS AND TIES**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

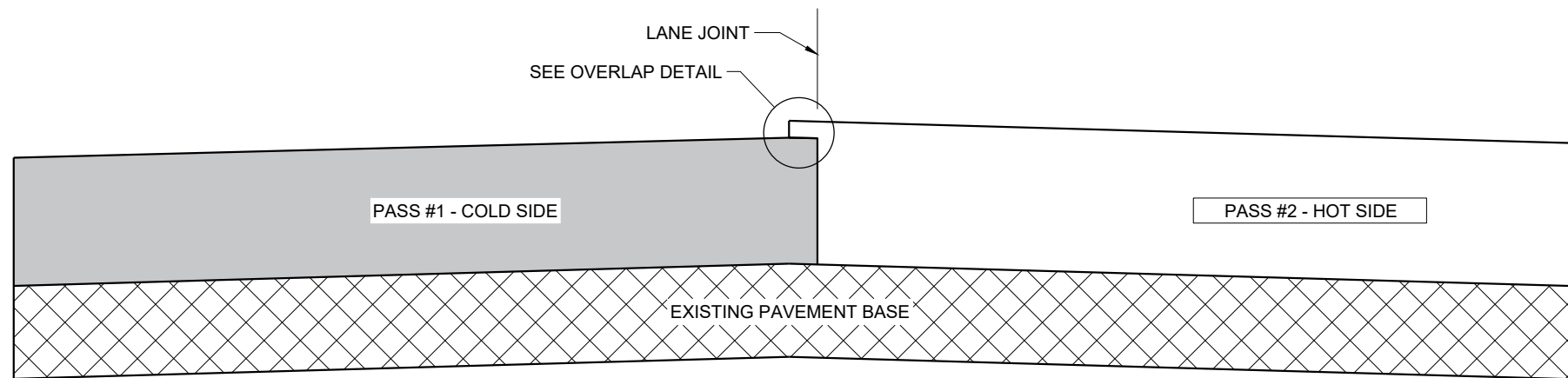
APPROVED  
March 2018 /S/ Peter Kemp, P.E.  
DATE PAVEMENT SUPERVISOR  
FHWA



**TYPICAL PAVEMENT CROSS SECTION  
NOTCHED WEDGE JOINT**



**TYPICAL PAVEMENT CROSS SECTION  
VERTICAL JOINT**



**TYPICAL PAVEMENT CROSS SECTION  
VERTICAL JOINT (MILLED)**

**GENERAL NOTES**

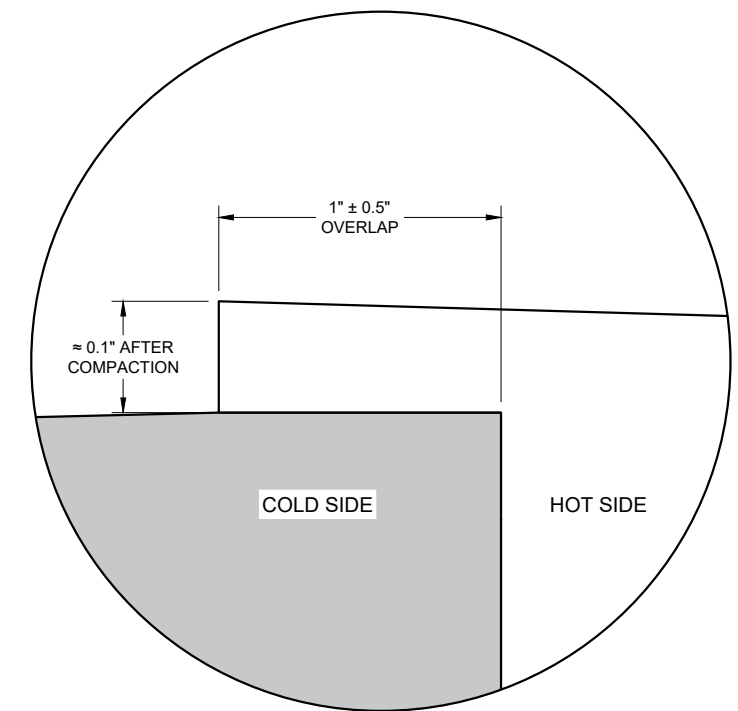
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

FOR ALL LONGITUDINAL JOINTS, ENSURE THE PAVER SCREED OVERLAPS THE PREVIOUSLY PLACED PAVEMENT BY  $1" \pm 0.5"$  AND THE HOT SIDE OF THE JOINT REMAINS HIGHER THAN THE COLD SIDE BY APPROXIMATELY 0.1" AFTER FINAL COMPACTION. (IT WILL BE FLUSH WHEN PAVING IN ECHELON.)

ONLY REMOVE THE LONGITUDINAL NOTCHED WEDGE JOINT FOR SMA PAVEMENT OR AS DIRECTED BY THE ENGINEER TO ADDRESS SPECIFIC LENGTHS OF JOINT DAMAGED BY TRAFFIC.

WHEN MILLING BACK OR REMOVING ANY LONGITUDINAL JOINT, LIMIT THE MATERIAL REMOVED TO 2" FROM THE TOP NOTCH OR FROM THE VERTICAL JOINT EDGE ON THE COLD SIDE OF THE JOINT.

USE LONGITUDINAL MILLED JOINT AS PLANS SHOW OR THE AS THE ENGINEER DIRECTS.



**OVERLAP DETAIL (TYPICAL)**

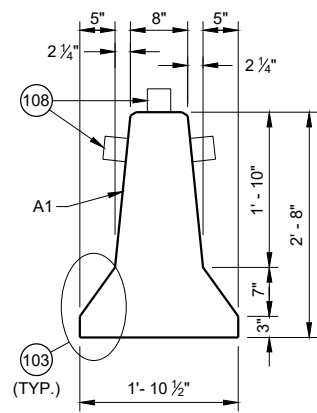
6

6

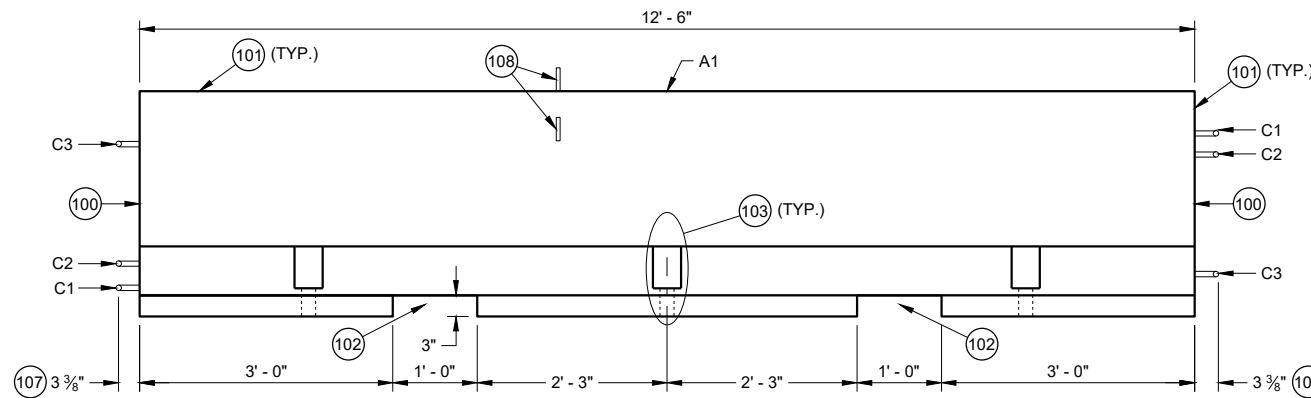
SDD 13C19 - 03

SDD 13C19 - 03

<b>HMA LONGITUDINAL JOINTS</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED November 2020 DATE	/S/ Steven Hefel HMA PAVEMENT ENGINEER
FHWA	



**CROSS SECTION**



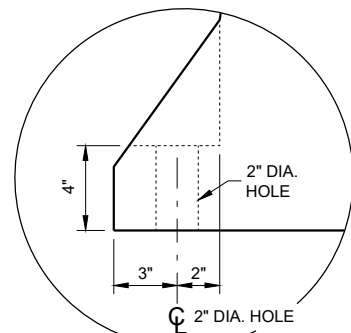
**PROFILE VIEW**

**GENERAL NOTES**

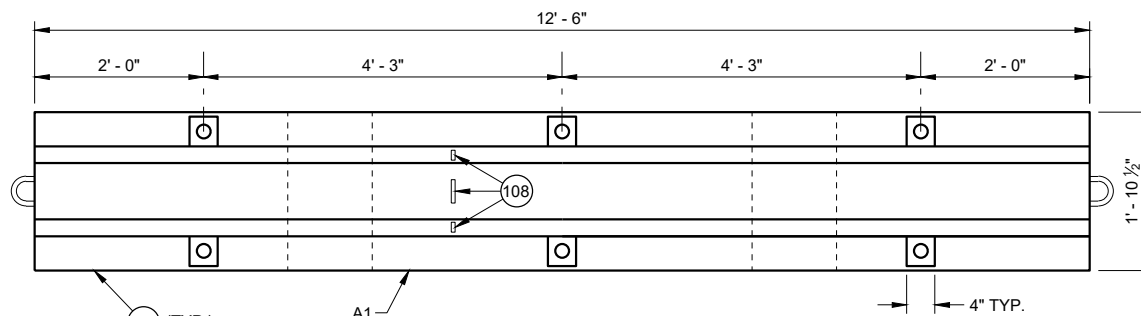
PLACE BARRIER ON PAVED SURFACE. BEFORE PLACEMENT OF TEMPORARY BARRIER, REMOVE ALL LOOSE MATERIAL FROM PAVED SURFACE.

LOOP BARS C1, C2 AND C3 ARE NOT FOR PLACEMENT OR MOVEMENT OF BARRIER.

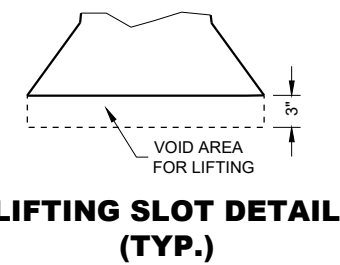
- (100) PERMANENTLY FORM INTO ONE END OF BARRIER THE FOLLOWING INFORMATION:  
A. TYPE OF BARRIER: WI-CBTP  
B. MANUFACTURER  
C. DATE OF MANUFACTURE (MONTH AND YEAR)
- (101) 1" OPTIONAL CHAMFER
- (102) SEE LIFTING SLOT DETAIL
- (103) SEE ANCHOR BLOCK DETAIL
- (104) 1 3/4" MIN. CLEAR COVER
- (105) 2" MIN. CLEAR COVER
- (106) 1" MIN. CLEAR COVER
- (107) ± 1/8" MEASURED FROM FACE OF CONCRETE BARRIER TO OUTSIDE OF LOOP BAR (TYP.)
- (108) USE DELINEATORS CONFORMING TO SECTION 633 OF THE STANDARD SPECIFICATIONS. CONTRACTOR MY USE ALTERNATE SHAPES AND HOUSING. INSTALL DELINEATORS ACCORDING TO MANUFACTURERS INSTRUCTION. INSTALL YELLOW REFLECTORS WHEN BARRIER IS LOCATED LEFT OF TRAFFIC AND WHITE WHEN BARRIER IS LOCATED RIGHT OF TRAFFIC. SPACE DELINEATORS A MAXIMUM OF 25 FEET APART, PROVIDE TO MOUNTED DELINEATORS IN ADDITION TO SIDE MOUNTED DELINEATORS ON BARRIER INSTALLATIONS LOCATED ON A CURVED ALIGNMENT LONGER THAT 200 FEET AND ON BARRIERS USED TO SEPARATE OPPOSING TRAFFIC.



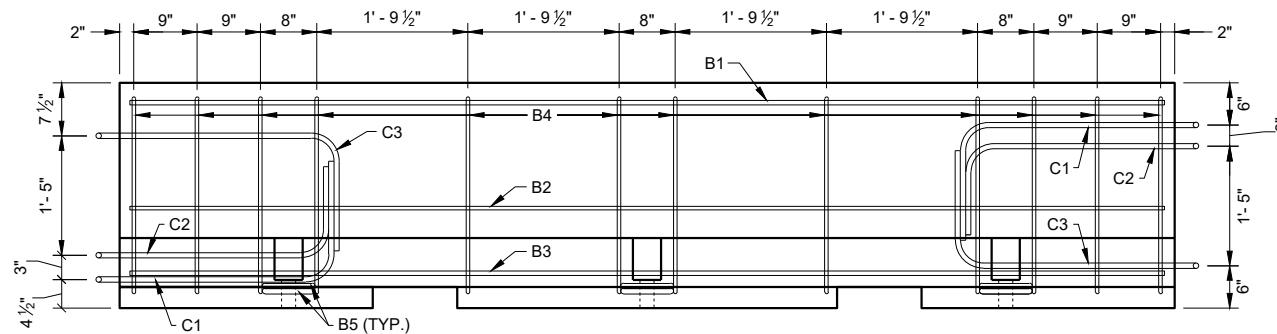
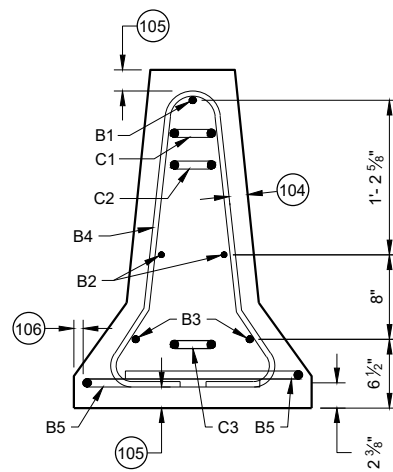
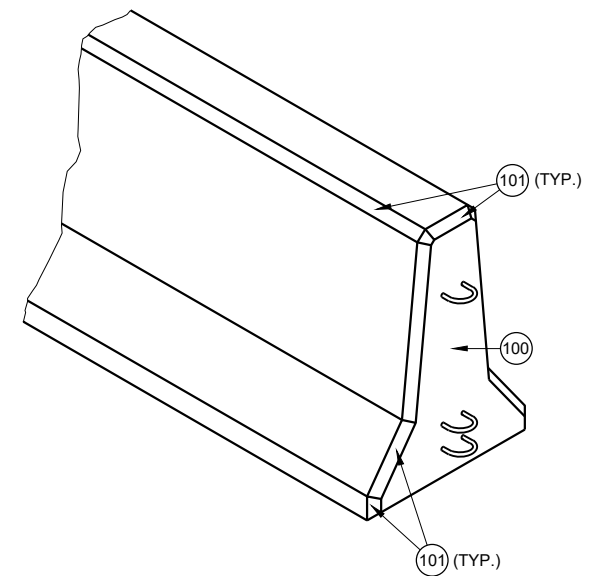
**ANCHOR BLOCK DETAIL**



**PLAN VIEW  
TEMPORARY BARRIER**



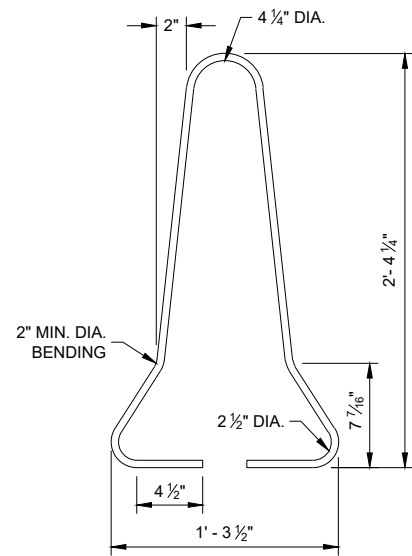
**LIFTING SLOT DETAIL  
(TYP.)**



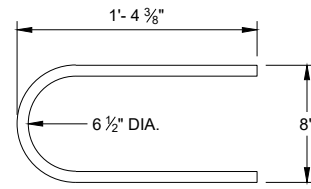
**PROFILE VIEW  
TEMPORARY BARRIER REINFORCEMENT**

**CONCRETE BARRIER  
TEMPORARY PRECAST,  
12' - 6"**

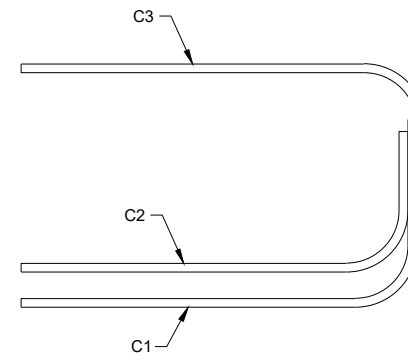
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



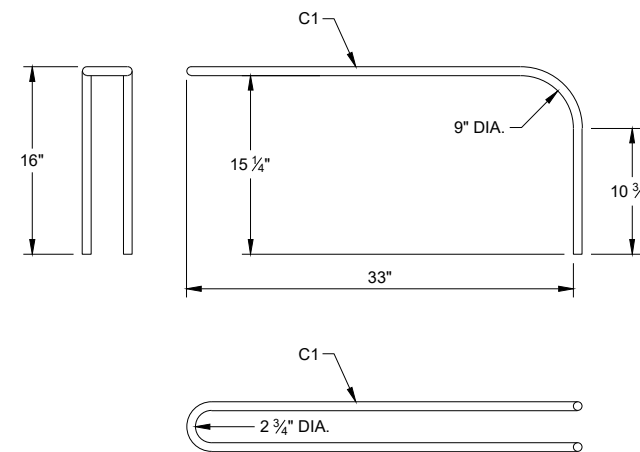
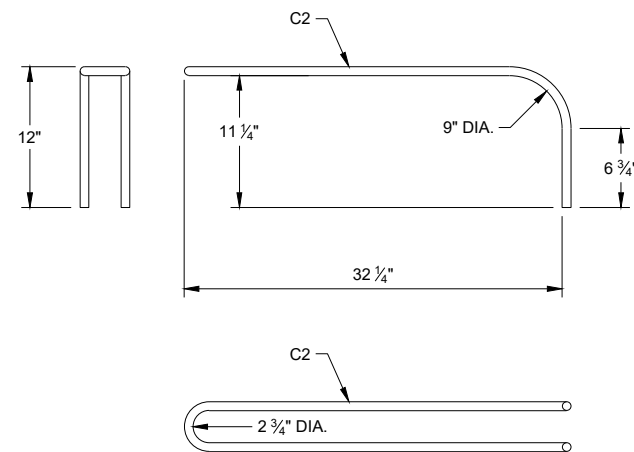
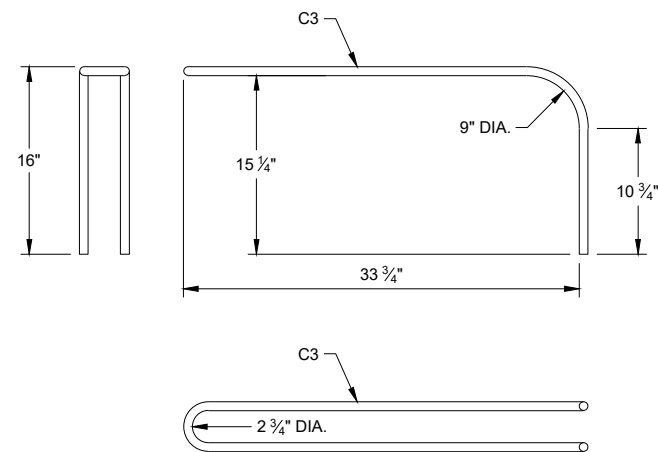
**B4 BAR DETAIL**



**B5 BAR DETAIL**



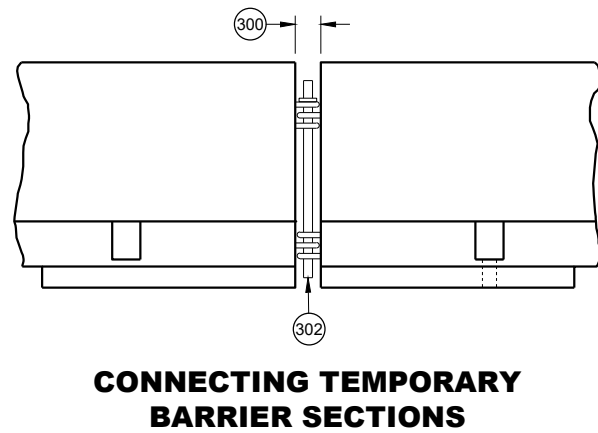
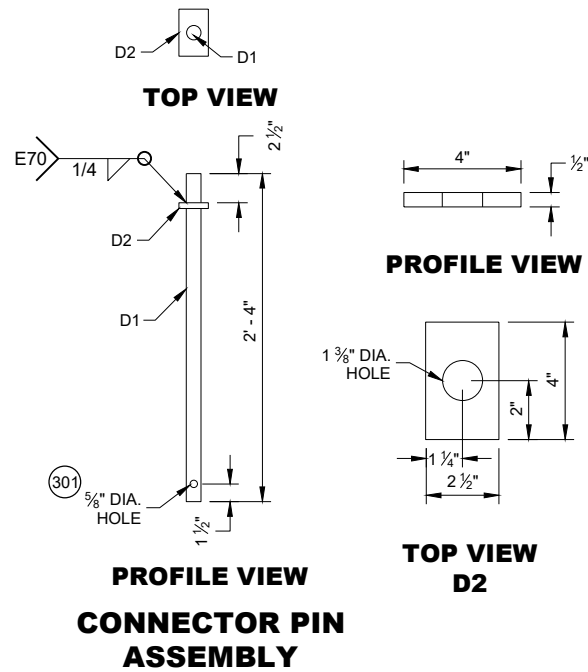
**PROFILE VIEW  
LOOP BAR ASSEMBLY**



**C BAR DETAILS**

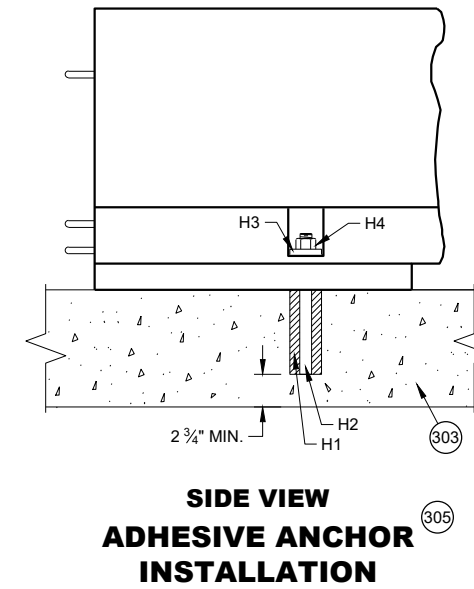
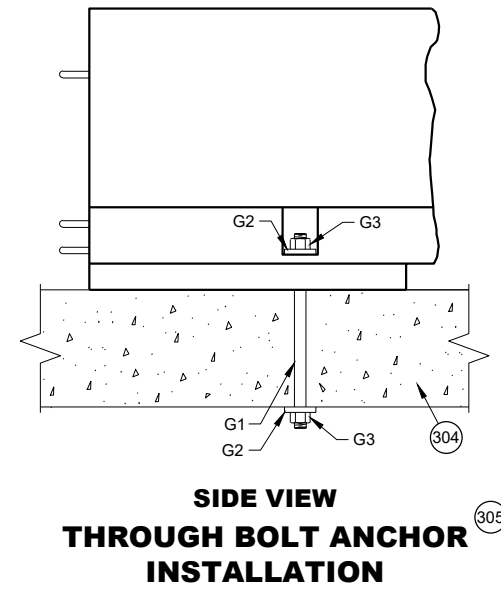
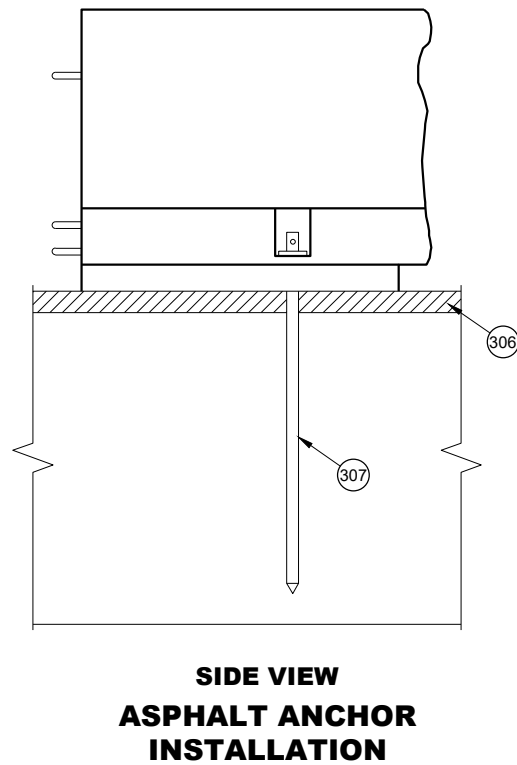
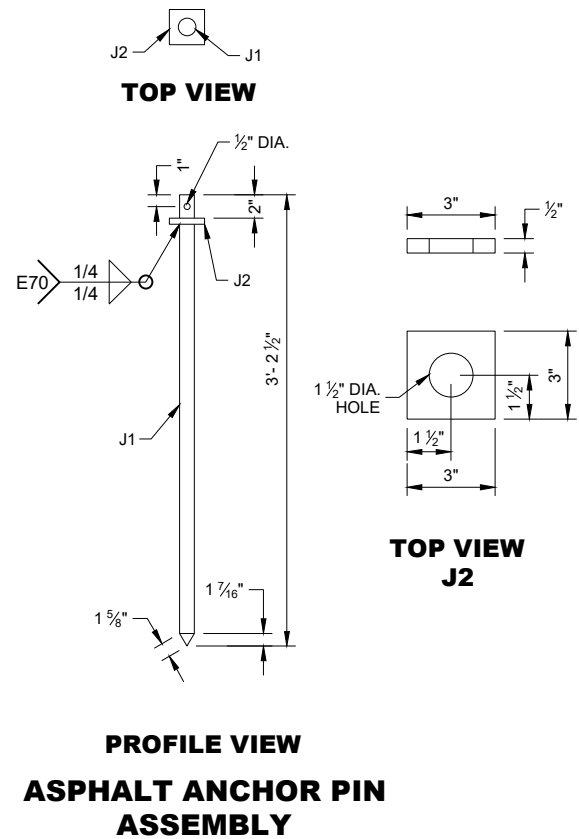
**CONCRETE BARRIER  
TEMPORARY PRECAST,  
12' - 6"**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



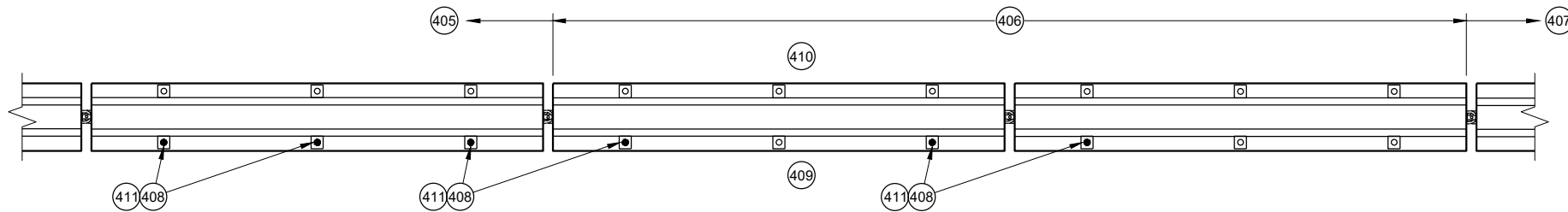
**GENERAL NOTES**

- (300) SET WITH 3 5/8" WOOD BLOCK.
- (301) HOLE IS OPTIONAL.
- (302) CONNECTOR PIN ASSEMBLY.
- (303) CONCRETE PAVEMENT, APPROACH SLAB, OR DECK.
- (304) CONCRETE DECK.
- (305) DO NOT USE ON CONCRETE BRIDGE DECK WITH ASPHALT OVERLAY OR CONCRETE PAVEMENT WITH ASPHALT OVERLAY.
- (306) MINIMUM OF 2" OF ASPHALT.
- (307) ASPHALT ANCHOR PIN ASSEMBLY

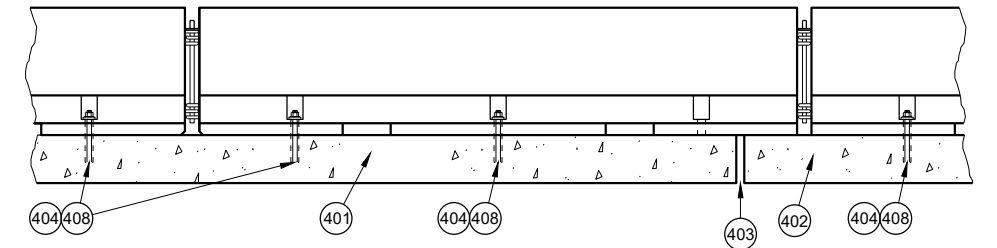


**CONCRETE BARRIER  
TEMPORARY PRECAST,  
12' - 6"**

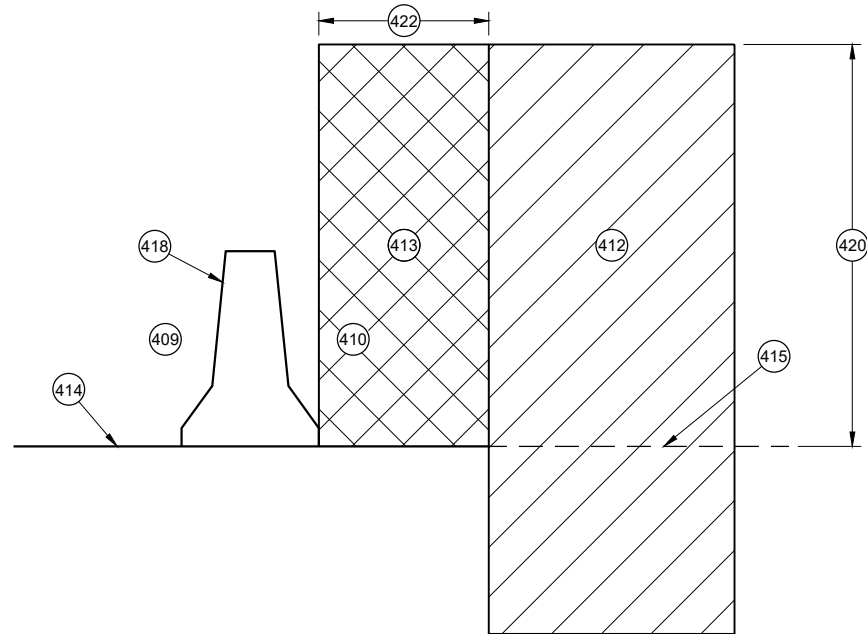
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



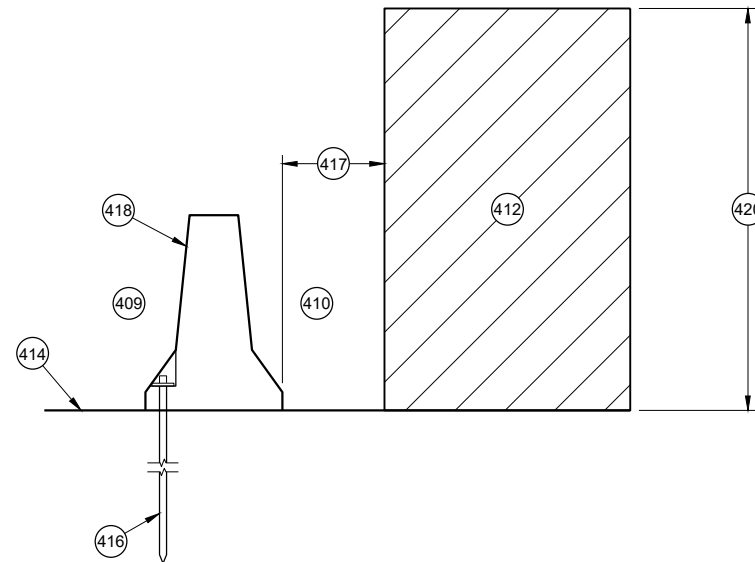
**PLAN VIEW**  
**TRANSITION FROM FREE STANDING TO ANCHORED BARRIER**



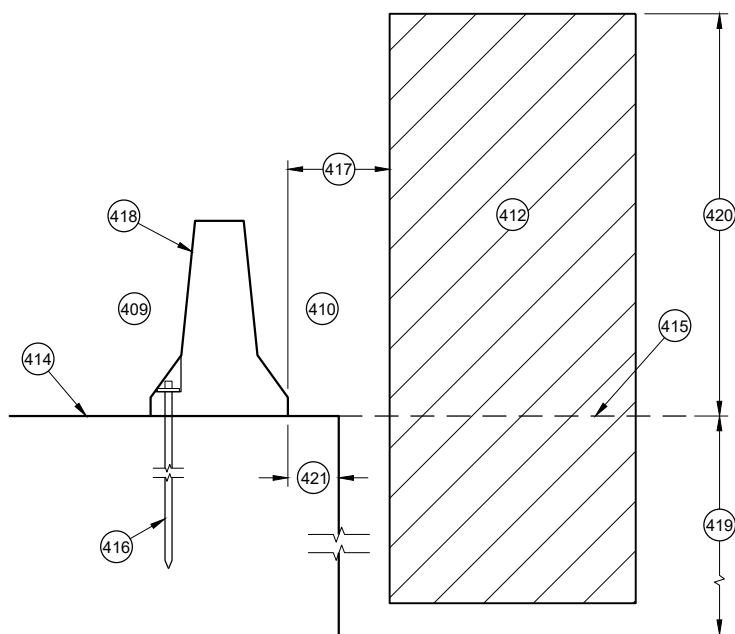
**PROFILE VIEW**  
**ANCHORED BARRIER NEAR EXPANSION JOINT**



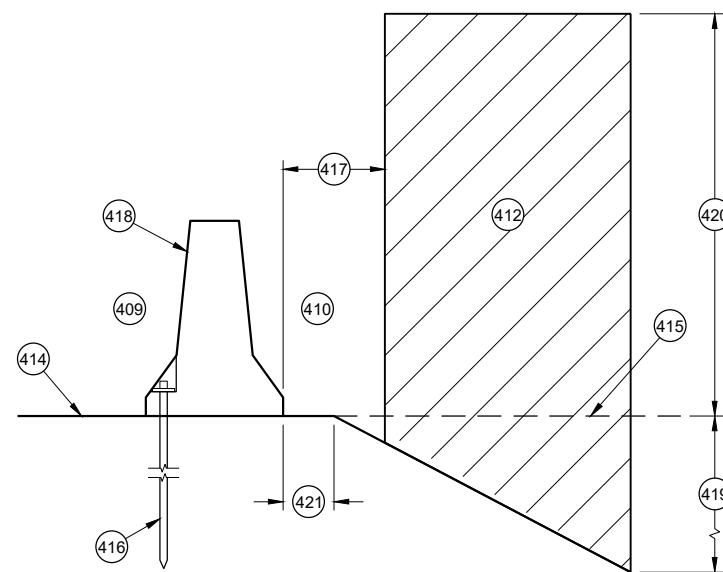
**CROSS SECTION**  
**FREE STANDING BARRIER**



**CROSS SECTION**  
**ANCHORED BARRIER FOR OBJECTS ABOVE THE GRADE LINE AND NEAR THE BARRIER**



**CROSS SECTION**  
**ANCHORED BARRIER NEAR VERTICAL DROP OFF**



**CROSS SECTION**  
**ANCHORED BARRIER NEAR A SLOPE**

**GENERAL NOTES**

- 400 NO SINGLE CONCRETE BARRIER SECTION SHALL BE ANCHORED TO BOTH THE BRIDGE DECK AND THE APPROACH SLAB. ALL ANCHOR BOLT LOCATIONS SHALL BE ANCHORED TO THE DECK IN ACCORDANCE WITH THE DETAIL. NO MORE THAN ONE ANCHOR BOLT SHALL BE ELIMINATED FROM A BARRIER SECTION WHEN SPANNING AN EXPANSION JOINT.
- 401 CONCRETE DECK
- 402 CONCRETE DECK OR APPROACH SLAB.
- 403 EXPANSION JOINT
- 404 ADHESIVE ANCHOR SHOWN. SEE ANCHOR DETAILS.
- 405 ANCHORED TEMPORARY BARRIER
- 406 TRANSITION FROM ANCHORED TEMPORARY BARRIER TO FREE STANDING
- 407 FREE STANDING BARRIER
- 408 REMOVE ALL ANCHORS WHEN NO LONGER NEEDED. FILL CONCRETE PAVEMENTS, DECKS AND APPROACH SLABS WITH NON-SHRINK COMMERCIAL GROUT FROM THE APPROVED PRODUCT LIST. FILL ASPHALT PAVEMENTS WITH ASTM D6690 TYPE II RUBBERIZED CRACK FILLER.
- 409 TRAFFIC SIDE
- 410 NON-TRAFFIC SIDE
- 411 ANCHOR LOCATION. SEE ANCHORING DETAILS.
- 412 WORK AREA
- 413 AREA FREE OF OBJECTS AND WORKERS
- 414 GRADE LINE
- 415 EXTENDED GRADE LINE
- 416 ANCHORED TEMPORARY BARRIER. SEE BOLT THROUGH DECK, REMOVABLE ADHESIVE ANCHOR, OR AN ASPHALT ANCHOR ROD DETAILS FOR MORE INFORMATION. ASPHALT ANCHOR ROD SHOWN.
- 417 WHEN OBJECTS EXTEND ABOVE THE GRADE, A MINIMUM OF 1 FOOT IS REQUIRED FROM BACK OF BARRIER TO OBJECT.
- 418 OBJECTS ARE NOT TO BE PLACED ON, MOUNTED TO, OR ALLOWED TO LEAN AGAINST THE BARRIER WITHOUT WRITTEN PERMISSION OF THE PROJECT ENGINEER.
- 419 DEPTHS OF 3 FEET OR MORE.
- 420 Y = 6.5'
- 421 OFFSET FROM BACK OF BARRIER EDGE:  
CONCRETE PAVEMENT 0.5'  
ASPHALT 0.5'
- 422 POSTED SPEED (MPH):  
45 OR GREATER 4.0'  
40 OR LOWER 2.0'

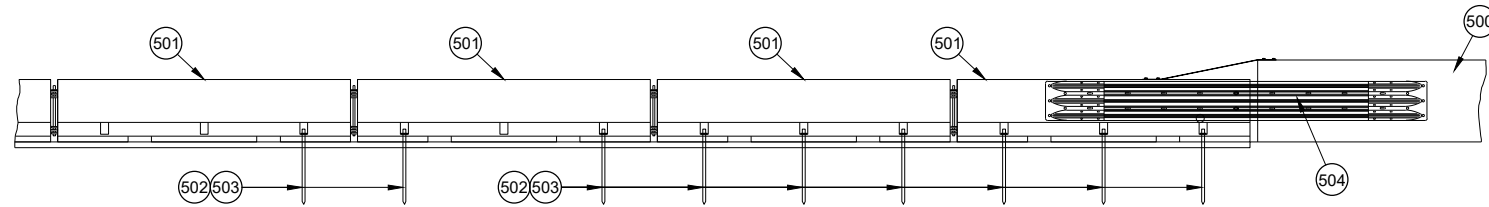
**CONCRETE BARRIER**  
**TEMPORARY PRECAST,**  
**12' - 6"**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

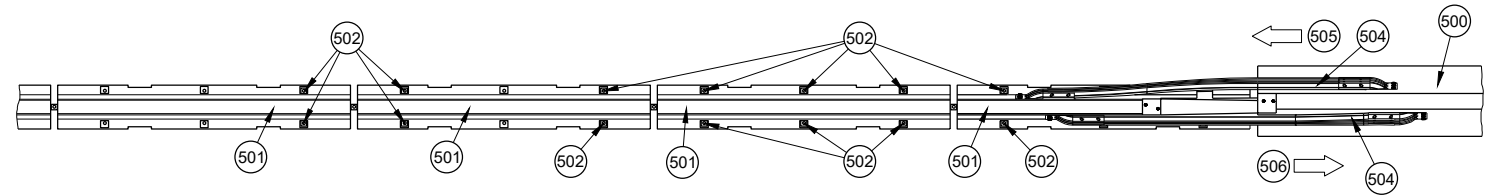


**GENERAL NOTES**

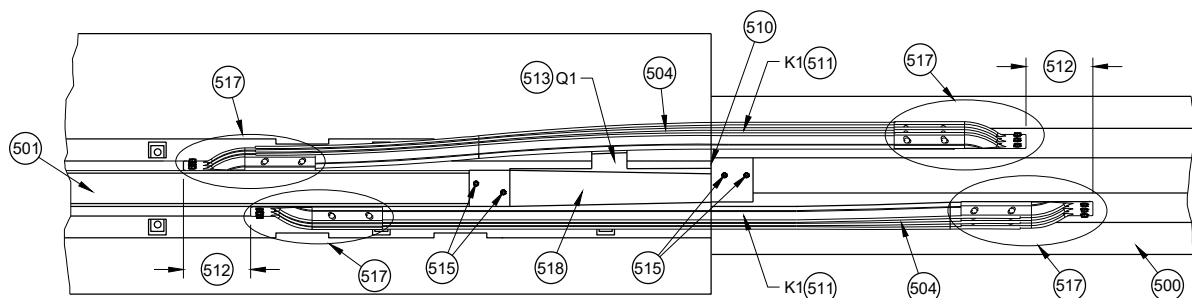
- (500) EXISTING RIGID BARRIERS (VARIES)
- (501) TEMPORARY BARRIER
- (502) SEE OTHER DETAIL ON HOW TO ANCHOR TEMPORARY BARRIER (BARRIER ASPHALT ANCHOR SHOWN).
- (503) ANCHORS ARE REQUIRED ON BOTH SIDE OF THE TEMPORARY BARRIER.
- (504) NESTED RAILS ARE REQUIRED ON BOTH SIDES OF THE TEMPORARY BARRIER FOR ALL INSTALLATIONS.
- (505) TRAFFIC TRAVELS FROM PERMANENT BARRIER TO TEMPORARY BARRIER.
- (506) TRAFFIC TRAVELS FROM TEMPORARY BARRIER TO PERMANENT BARRIER.
- (507) VERTICAL BARRIER
- (508) SAFETY SHAPE BARRIER
- (509) SINGLE SLOPE BARRIER
- (510) CAP END PLATE PLACED FLUSH WITH UPSTREAM END OF RIGID BARRIER.
- (511) BENT THRIE BEAM TO FIT.
- (512) THRIE BEAM PIECES ARE OFFSET 15 1/4" TO PREVENT INTERFERENCE FROM THE ANCHORS ON OPPOSING SIDES.
- (513) TWO (2) P1, P2 AND P3 ARE REQUIRED
- (514) FIVE (5) N1, N2 AND N3 ARE REQUIRED
- (515) TWO (2) R1, R2 AND R3 ARE REQUIRED
- (516) CUT WOOD BLOCK TO FIT.
- (517) SEE THRIE BEAM RAIL TERMINAL CONNECTOR DETAIL ASSEMBLY.
- (518) CAP ASSEMBLY
- (519) 4" MAX. GAP BETWEEN TEMPORARY BARRIER AND RIGID BARRIER.
- (520) ALL TWELVE SPLICE HOLES REQUIRE M1 AND M2



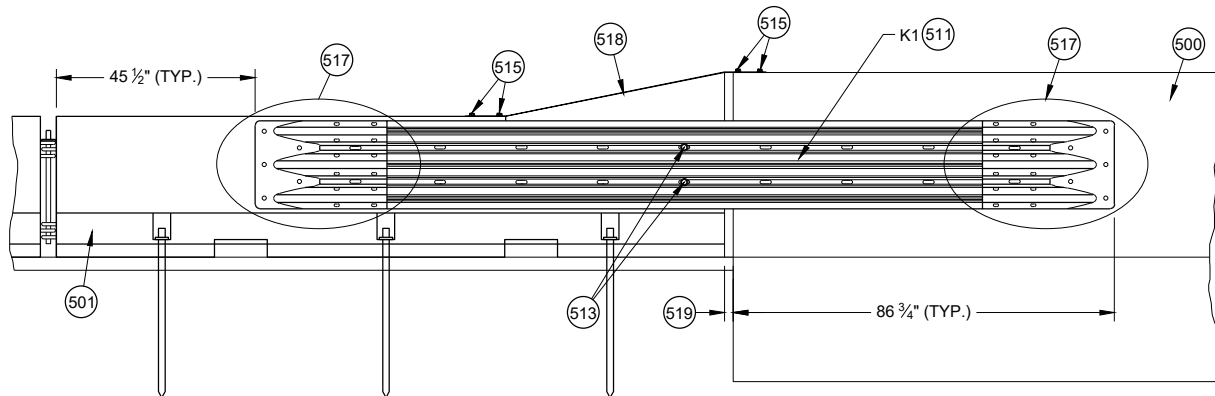
**PROFILE VIEW**



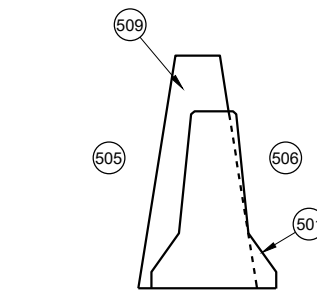
**PLAN VIEW  
TRANSITION TO RIGID BARRIER**



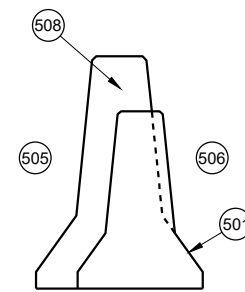
**PLAN DETAIL VIEW  
TRANSITION TO RIGID BARRIER**



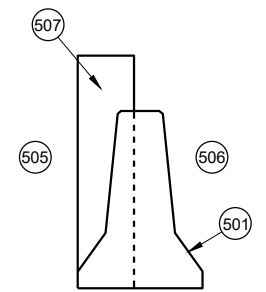
**FRONT DETAIL VIEW  
TRANSITION TO RIGID BARRIER**



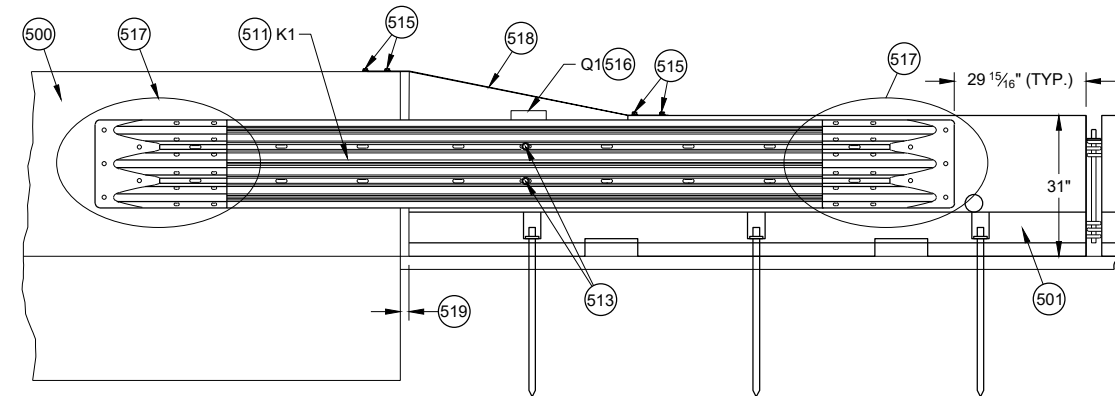
**CROSS SECTION  
TEMPORARY BARRIER  
PLACEMENT SINGLE SLOPE**



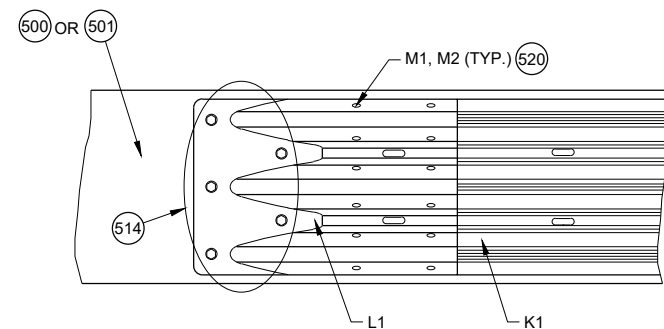
**CROSS SECTION  
TEMPORARY BARRIER  
PLACEMENT SAFETY SHAPE**



**CROSS SECTION  
TEMPORARY BARRIER  
PLACEMENT VERTICAL**



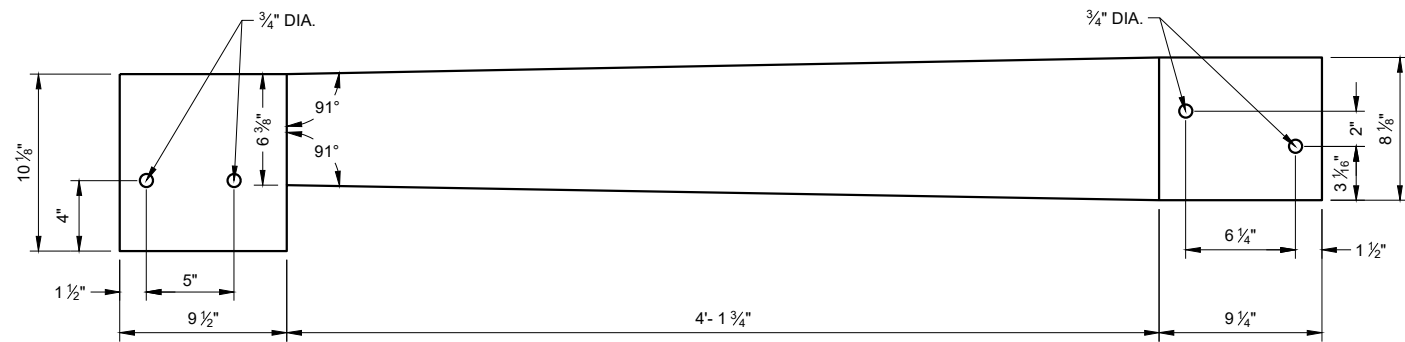
**BACK DETAIL VIEW  
TRANSITION TO RIGID BARRIER**



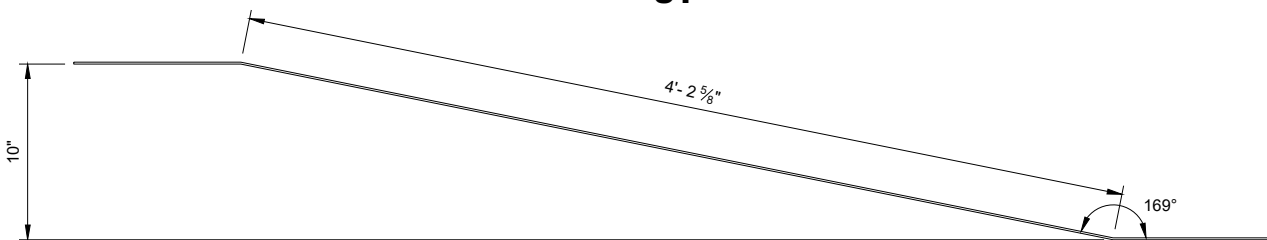
**(517) DETAIL PLAN VIEW  
THRIE BEAM RAIL TERMINAL CONNECTOR ASSEMBLY**

**CONCRETE BARRIER  
TEMPORARY PRECAST,  
12' - 6"**

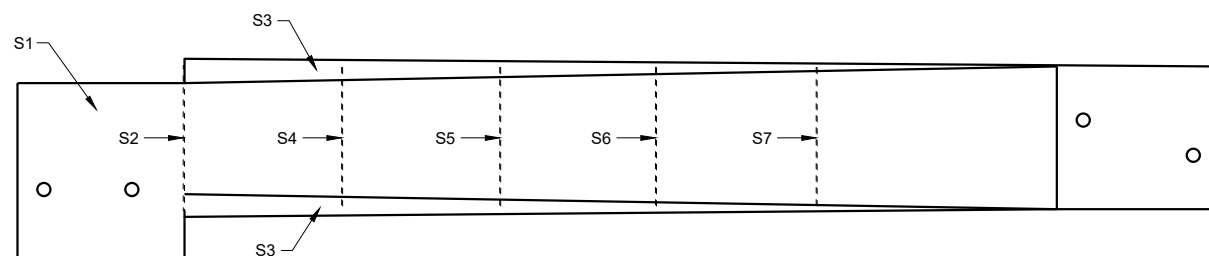
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



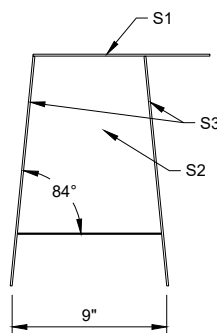
**TOP VIEW  
S1**



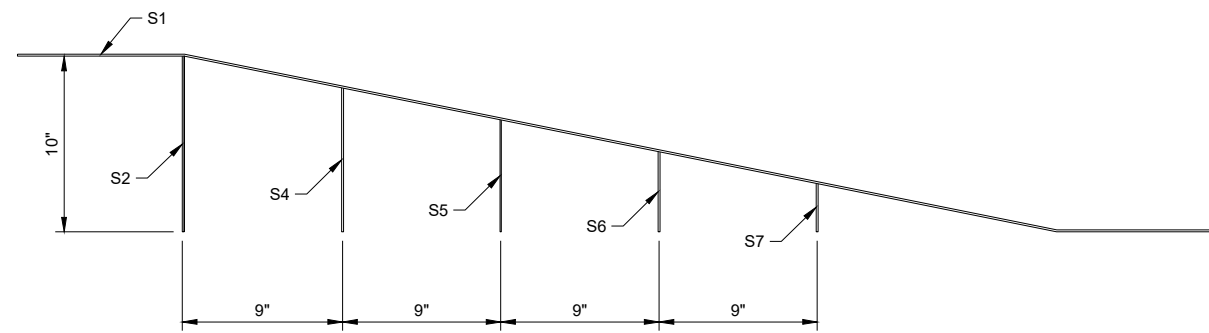
**ELEVATION VIEW  
S1**



**PLAN VIEW**

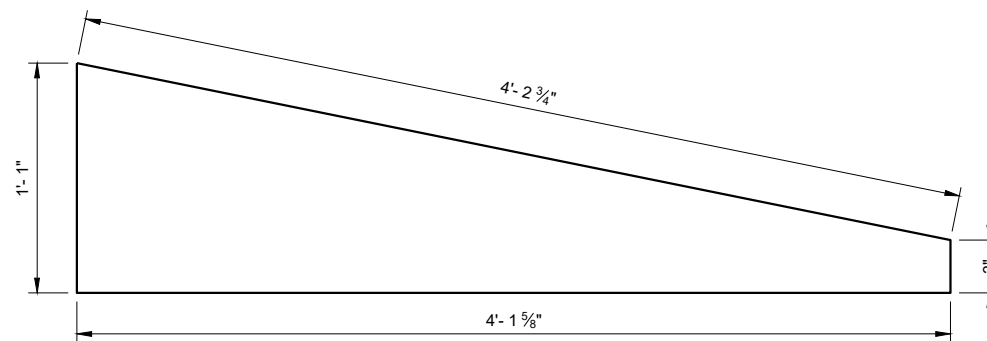


**BACK VIEW**

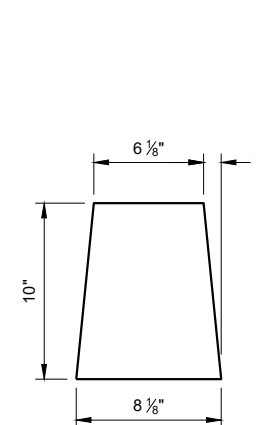


**SIDE VIEW (600)**

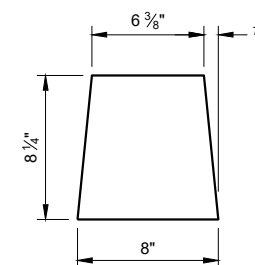
**42\"/>**



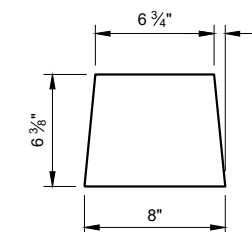
**SIDE VIEW  
S3**



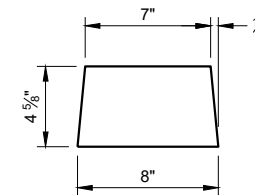
**S2**



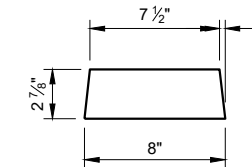
**S4**



**S5**



**S6**



**S7**

**GENERAL NOTES**

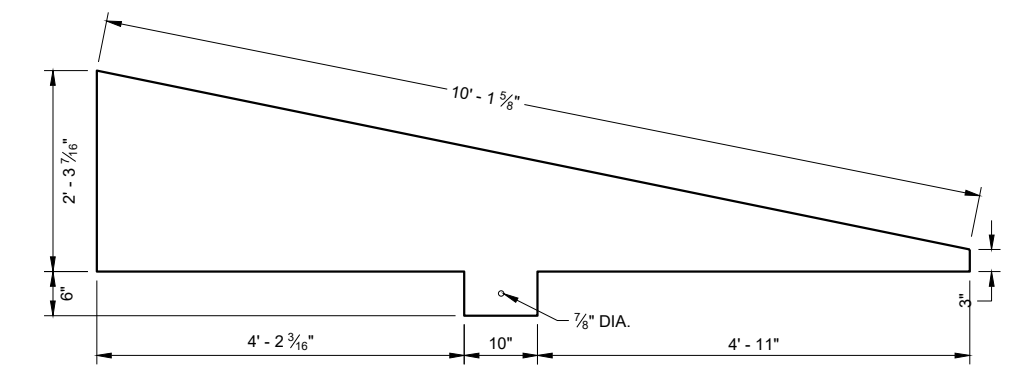
STITCH WELD GUSSET PLATES AND END PLATES ON THREE SIDES

STITCH WELD TWO SIDE PLATES TO TOP PLATE, END PLATE AND GUSSETS.

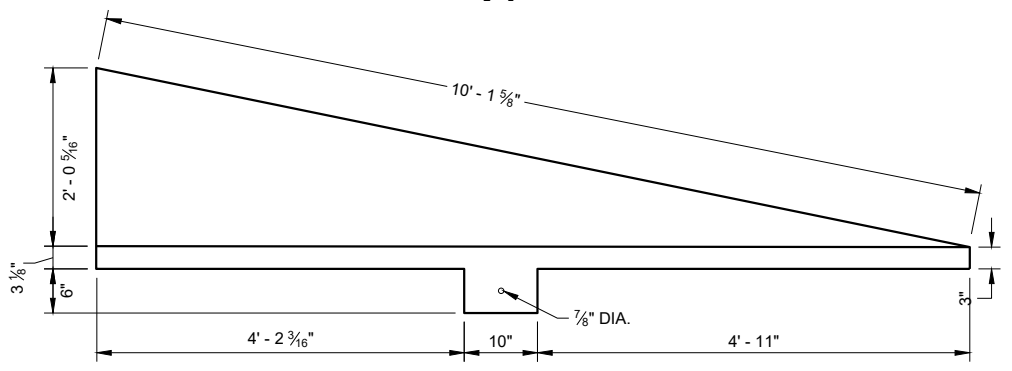
(600) SIDE PLATES (S3) NOT SHOWN FOR CLARITY.

**CONCRETE BARRIER  
TEMPORARY PRECAST,  
12' - 6"**

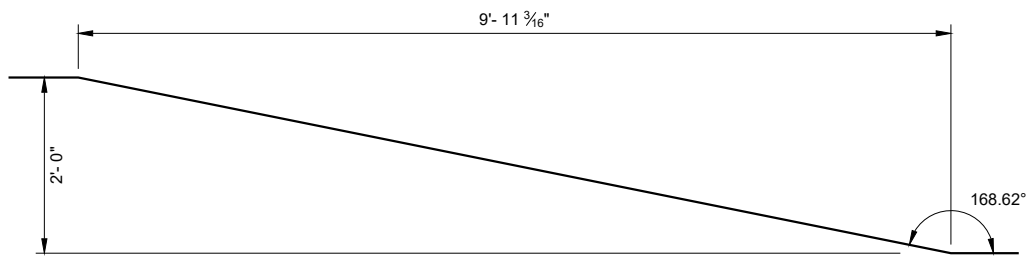
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



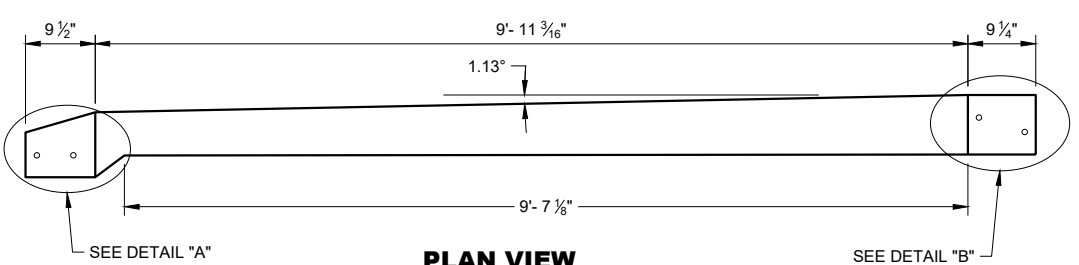
**SIDE VIEW  
T4**



**SIDE VIEW  
T3**



**SIDE VIEW  
TOP PLATE T1**



**PLAN VIEW  
TOP PLATE T1**

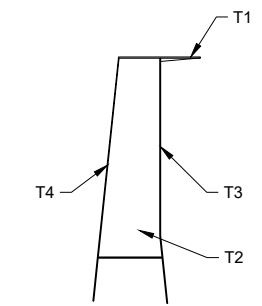
**END  
VIEW**



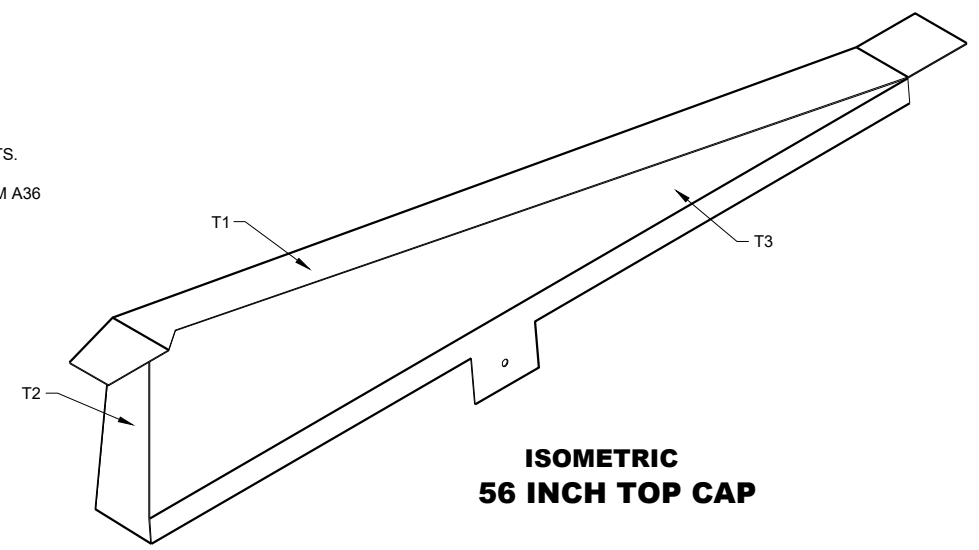
**END  
VIEW**

**GENERAL NOTES**

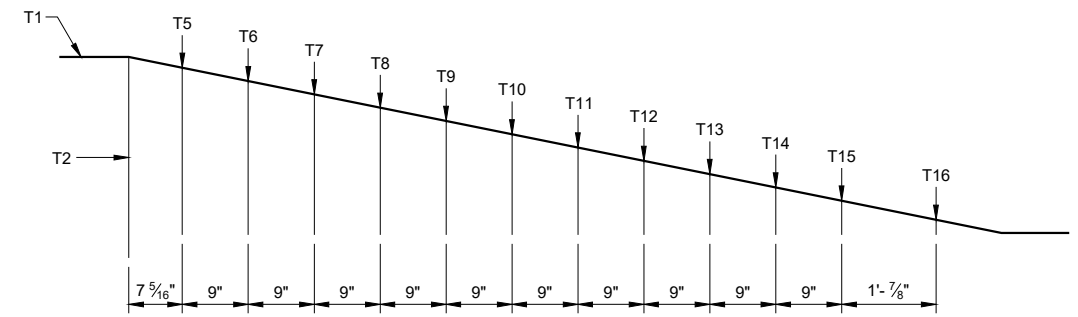
- STITCH WELD GUSSET PLATES AND END PLATES ON THRIE SIDES
- STITCH WELD TWO SIDE PLATES TO TOP PLATE, END PLATE AND GUSSETS.
- SIDE PLATES, TOP PLATE, END PLATE AND GUSSETS ARE 12 GAUGE ASTM A36 GALVANIZED STEEL.
- (700) SIDE PLATES (T3 AND T4) NOT SHOWN FOR CLARITY.



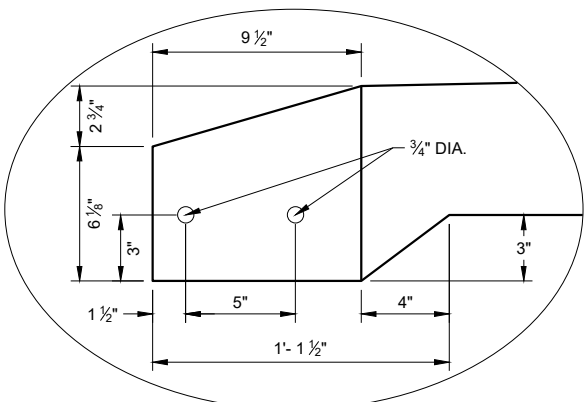
**END VIEW  
56 INCH TOP CAP**



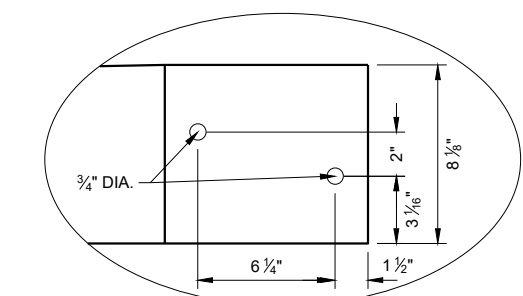
**ISOMETRIC  
56 INCH TOP CAP**



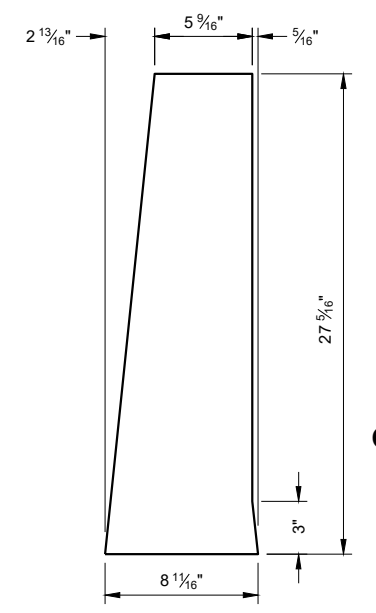
**SIDE VIEW  
56 INCH TOP CAP (700)**



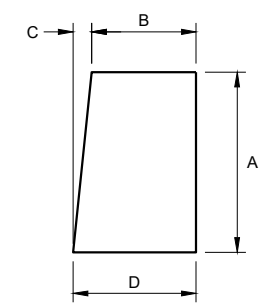
**DETAIL "A"**



**DETAIL "B"**



**END PLATE T2**

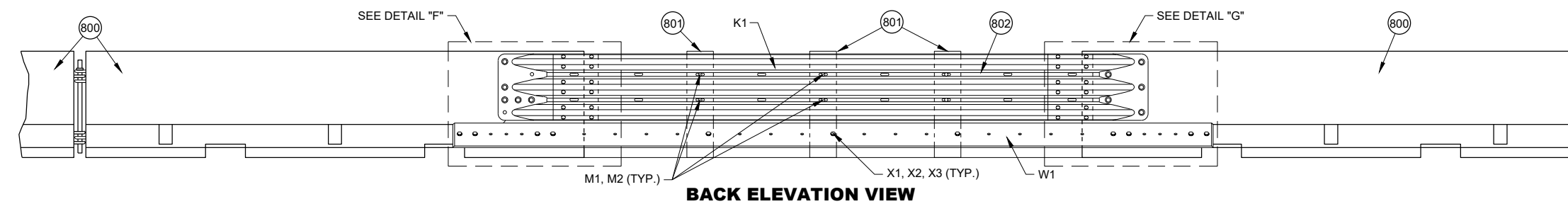
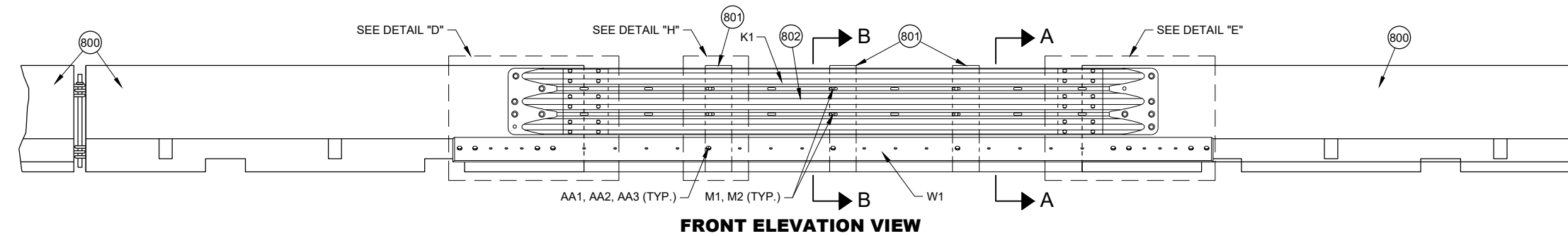
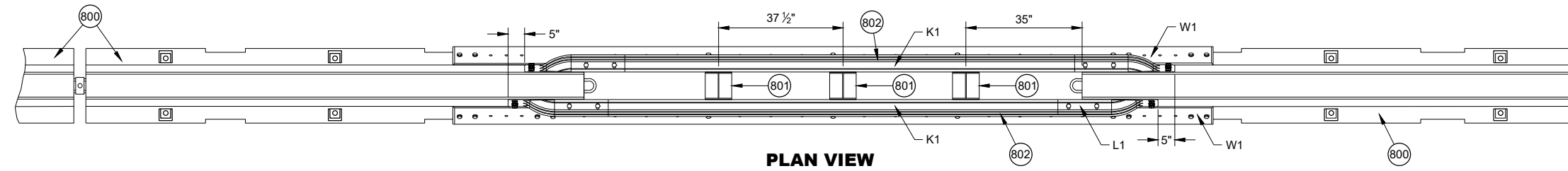
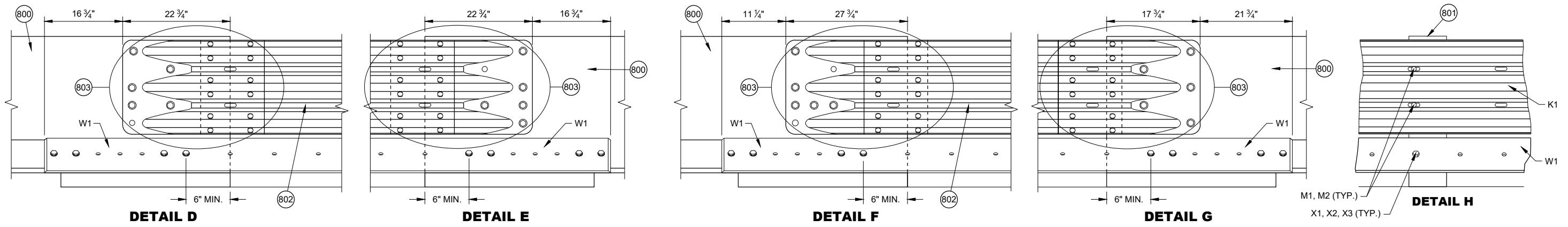


**GUSSET PLATES  
T5 - T16**

GUSSET DIMENSIONS				
GUSSET NO.	A	B	C	D
T5	22 13/16"	5 1/16"	2 5/16"	8 1/16"
T6	21"	5 7/8"	2 3/16"	8 1/16"
T7	19 3/16"	6 1/16"	1 13/16"	8 1/16"
T8	17 3/8"	6 1/4"	1 13/16"	8 1/16"
T9	15 9/16"	6 7/16"	1 1/16"	8 1/16"
T10	13 3/4"	6 5/8"	1 7/16"	8 1/16"
T11	11 15/16"	6 13/16"	1 1/4"	8 1/16"
T12	10 1/8"	7"	1 1/16"	8 1/16"
T13	8 5/16"	7 3/16"	7/8"	8 1/16"
T14	6 1/2"	7 3/8"	1 1/16"	8 1/16"
T15	4 1/16"	7 1/16"	1/2"	8"
T16	2 7/8"	7 3/4"	1/4"	8"

**CONCRETE BARRIER  
TEMPORARY PRECAST,  
12' - 6"**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

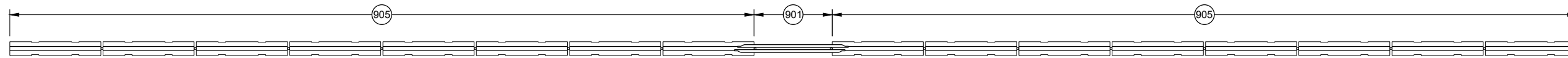


**PORTABLE CONCRETE BARRIER GAP THRIE BEAM COVER**

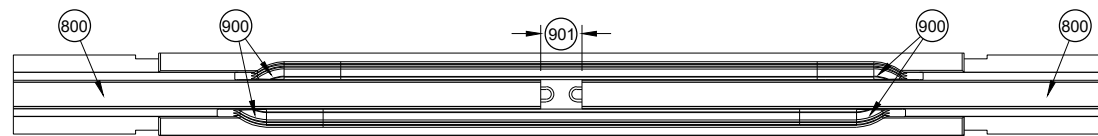
- GENERAL NOTES**
- 800 FREE STANDING TEMPORARY BARRIER
  - 801 GAP STIFFENER ASSEMBLY
  - 802 THRIE BEAMS ARE NESTED ON BOTH SIDES OF THE TEMPORARY BARRIER.
  - 803 SEE THRIE BEAM RAIL TERMINAL CONNECTOR DETAIL

**CONCRETE BARRIER  
TEMPORARY PRECAST,  
12' - 6"**

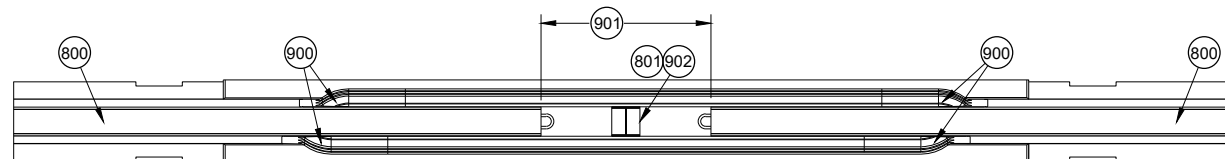
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



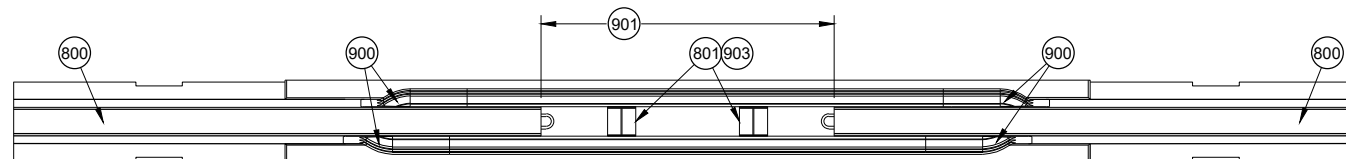
**PLAN VIEW  
GAP WITHIN SPACING**



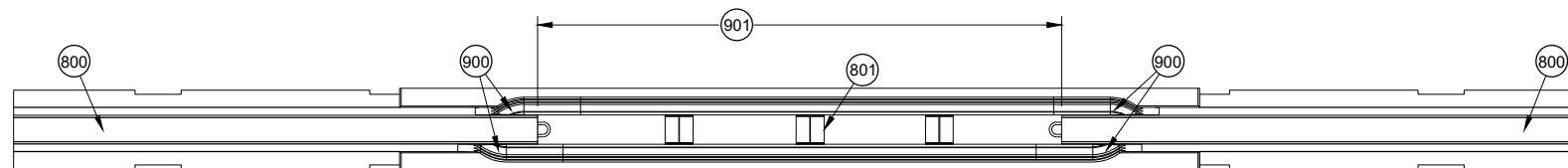
**PLAN VIEW  
TEMPORARY BARRIER GAP OVER 4" TO 1' MAX. 904**



**PLAN VIEW  
TEMPORARY BARRIER GAP OVER 1' TO 4' MAX. 904**



**PLAN VIEW  
TEMPORARY BARRIER GAP OVER 4' TO 7' MAX. 904**



**PLAN VIEW  
TEMPORARY BARRIER GAP OVER 7' TO 12.5' MAX. 904**

**GENERAL NOTES**

- 900 SEE OTHER DETAILS FOR TEMPORARY GAP HARDWARE (TYP.)
- 901 TEMPORARY BARRIER GAP
- 902 GAP STIFFENER ASSEMBLY CENTERED IN THE GAP.
- 903 GAP STIFFENER ASSEMBLY IS OFFSET 18 3/4" FROM CENTER
- 904 MINIMUM NUMBER OF GAP STIFFENERS SHOWN FOR THE GAP RANGE SHOWN.
- 905 MINIMUM OF 8 CONTINUOUS FREE STANDING TEMPORARY BARRIERS

6

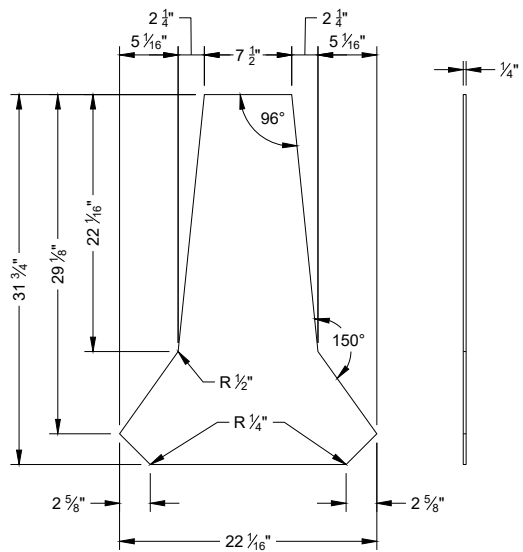
6

SDD 14B07 - 16i

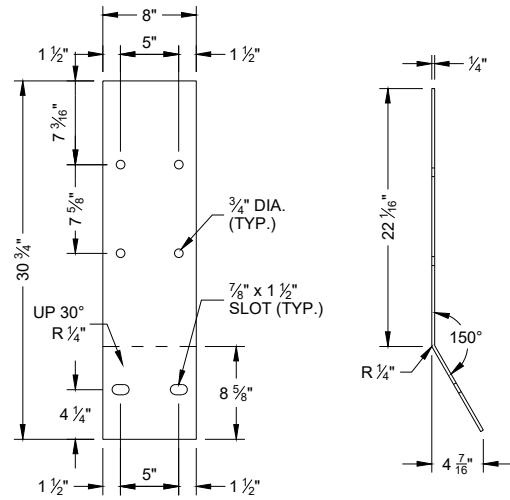
SDD 14B07 - 16i

**CONCRETE BARRIER  
TEMPORARY PRECAST,  
12' - 6"**

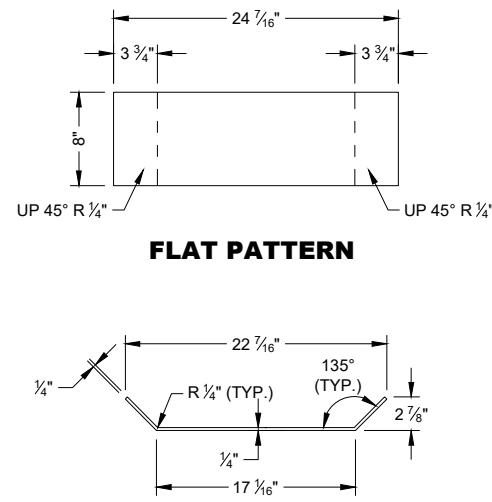
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



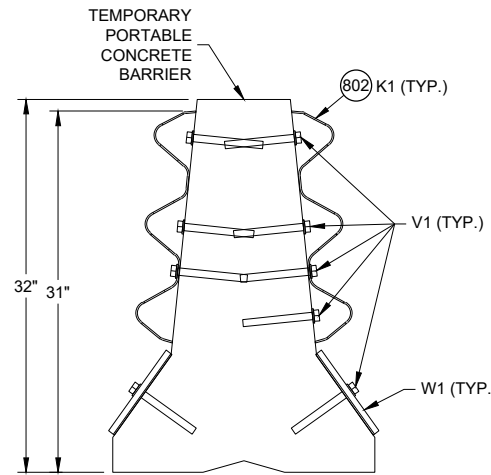
**PROFILE VIEW** **SIDE VIEW**  
**STIFFENER ASSEMBLY**  
**CENTER PANEL U1**



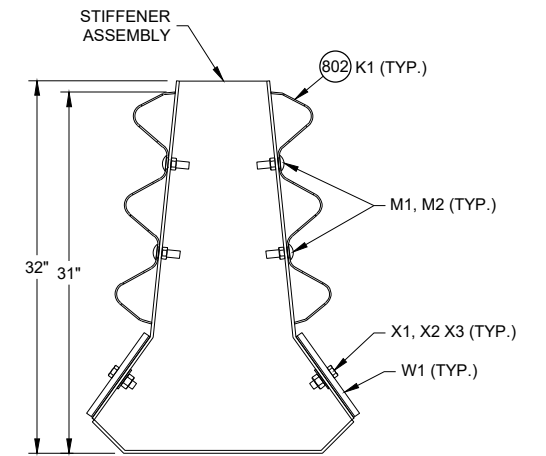
**FLAT PATTERN** **SIDE VIEW**  
**STIFFENER ASSEMBLY**  
**SIDE PANEL U2**



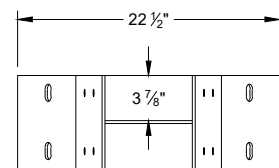
**PROFILE VIEW**  
**STIFFENER ASSEMBLY**  
**BOTTOM PANEL U3**



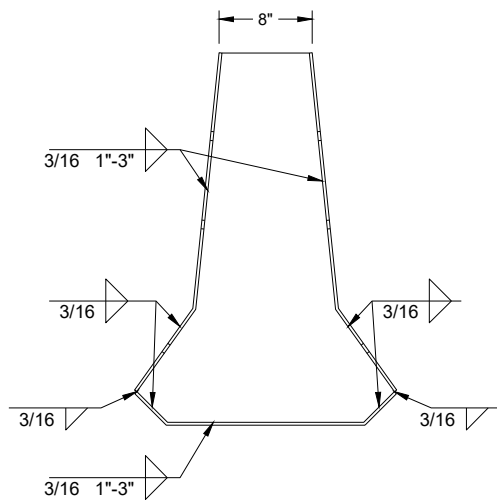
**SECTION A - A**



**SECTION B - B**

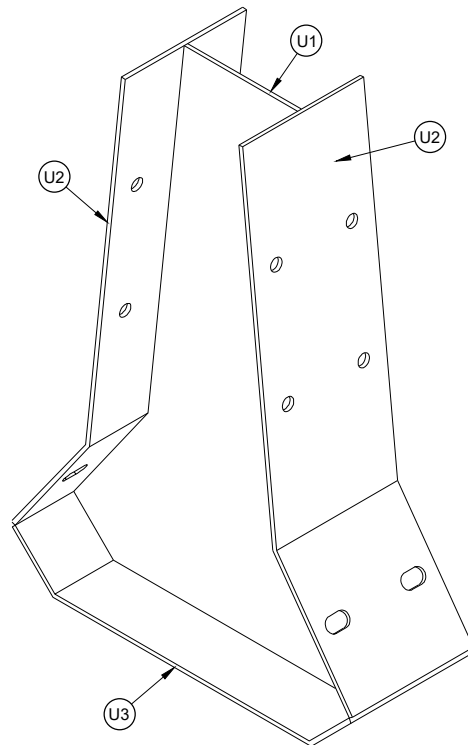


**PLAN VIEW**

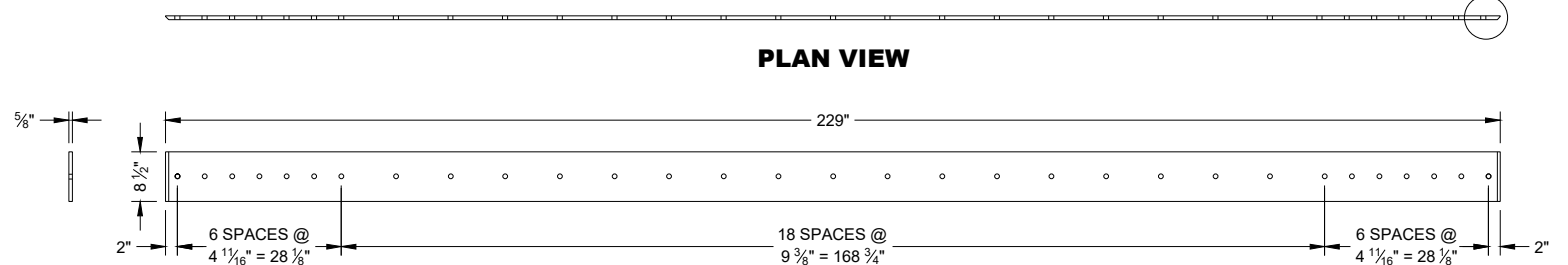
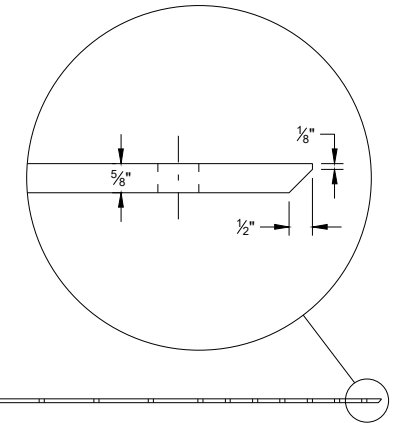


**PROFILE VIEW** **SIDE VIEW**

**GAP STIFFENER ASSEMBLY**



**ISOMETRIC**

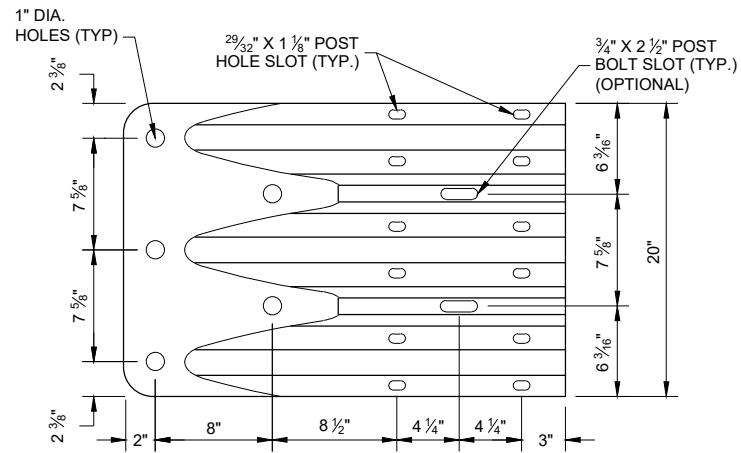


**SIDE VIEW**

**PLAN VIEW**  
**ELEVATION VIEW**  
**W1 TOE PLATE**

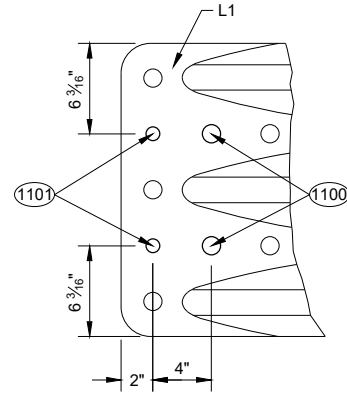
**CONCRETE BARRIER**  
**TEMPORARY PRECAST,**  
**12' - 6"**

STATE OF WISCONSIN  
 DEPARTMENT OF TRANSPORTATION



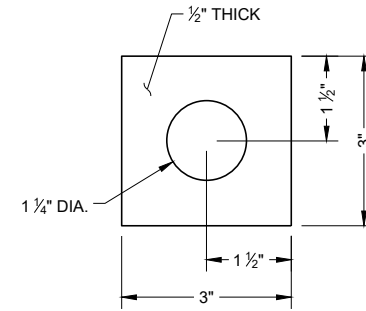
**ELEVATION VIEW**

**THRIE BEAM  
TERMINAL CONNECTOR**



**ELEVATION VIEW**

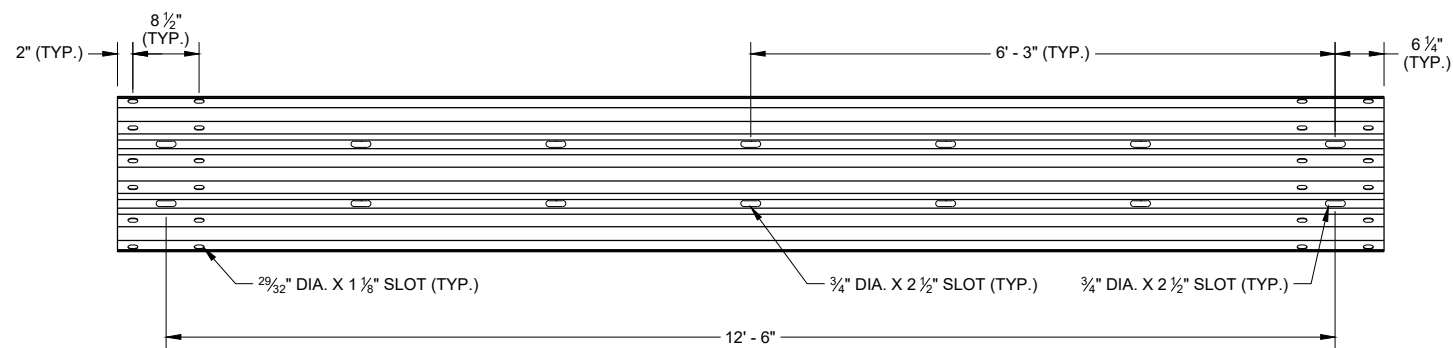
**ADDITIONAL THRIE BEAM  
TERMINAL CONNECTOR HOLE DETAIL**



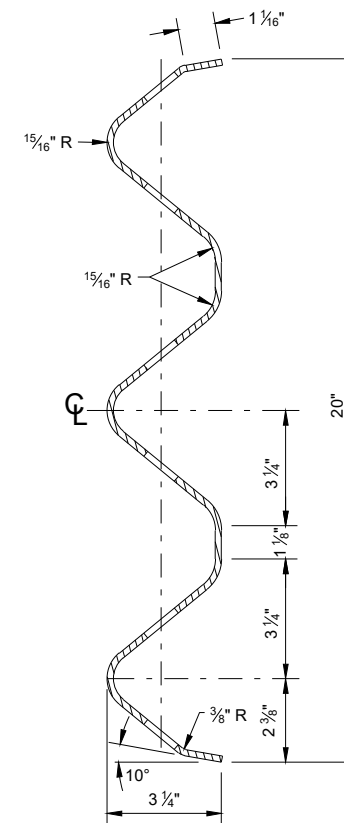
**PLATE WASHER DETAIL  
G2, H3**

**GENERAL NOTES**

- (1100) 1" DIA. HOLE
- (1101) 3/4" DIA. HOLE
- (1102) PROVIDE HOLES IN THRIE BEAM TERMINAL CONNECTOR TO LIMIT STEEL REINFORCEMENT OR LOOP BAR CONFLICT. CONTRACTOR MAY FIELD DRILL ADDITIONAL HOLE OR PROVIDE THRIE BEAM TERMINAL CONNECTOR WITH ADDITIONAL HOLES FROM SUPPLIER.



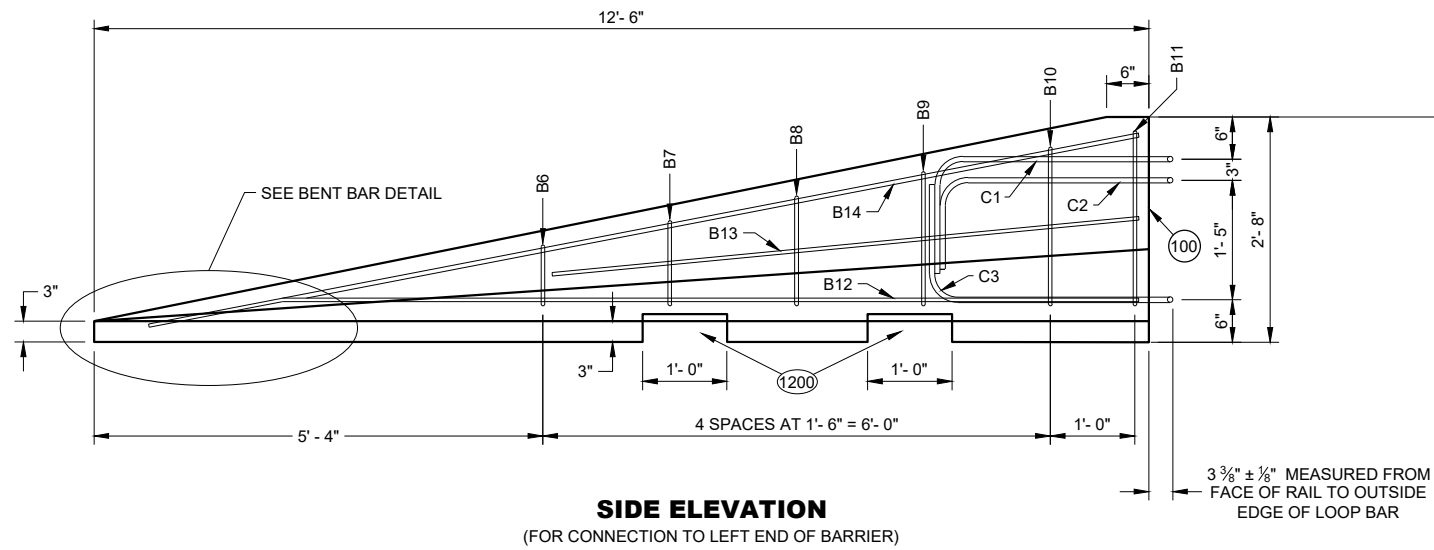
**SLOTTED THRIE BEAM RAIL K1**



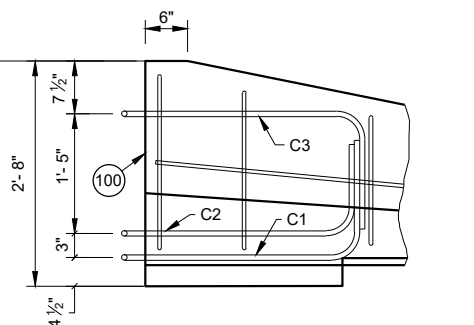
**SECTION THROUGH  
BEAM K1**

**CONCRETE BARRIER  
TEMPORARY PRECAST,  
12' - 6"**

STATE OF WISCONSIN  
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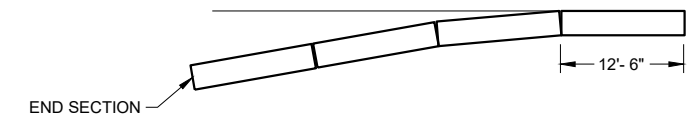
**SIDE ELEVATION**  
(FOR CONNECTION TO LEFT END OF BARRIER)



**SIDE ELEVATION**  
LOOP BAR ASSEMBLY INVERTED FOR OPPOSITE END  
(FOR CONNECTION TO RIGHT END OF BARRIER)

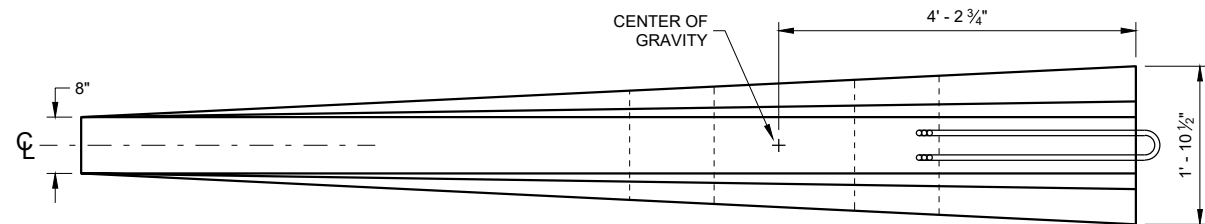
**GENERAL NOTES**

(1200) SEE LIFTING SLOT DETAIL. LOCATION OF LIFTING SLOTS DETERMINED BY CONTRACTOR.

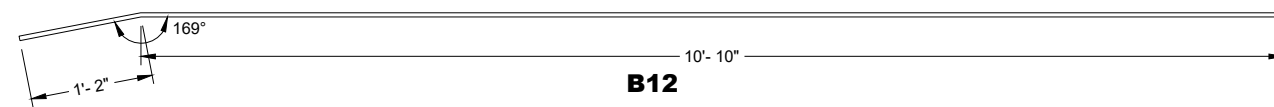


**FLARE AT BARRIER END**

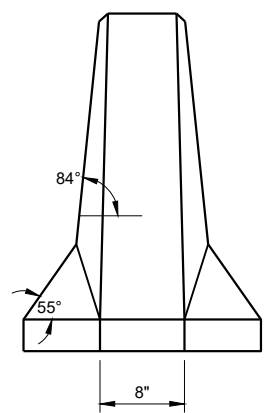
POSTED SPEED, (MPH)	FLARE RATE
40 OR LESS	6:1
45 OR GREATER	8:1



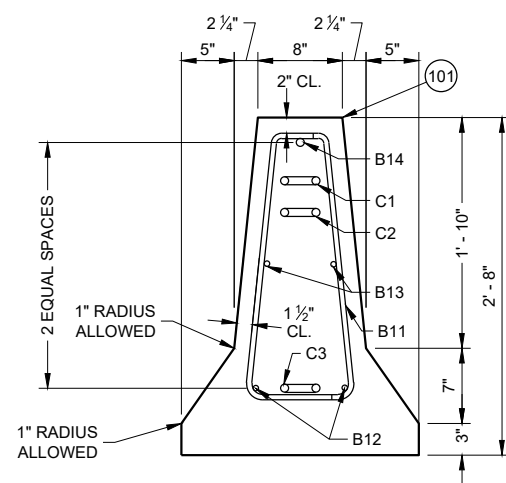
**PLAN VIEW**



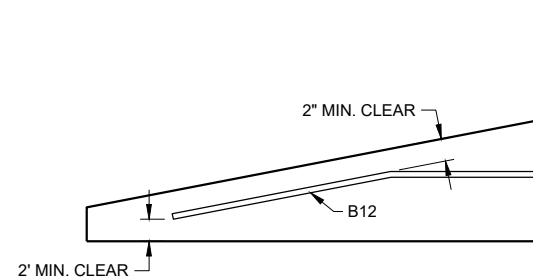
**B12**



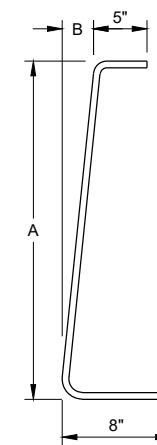
**FRONT ELEVATION**



**END SECTION**



**BENT BAR DETAIL**



BAR	A	B
B6	10"	1"
B7	1'- 1"	1 1/4"
B8	1'- 5"	1 5/8"
B9	1'- 8"	1 7/8"
B10	2'- 0 1/2"	2 3/8"
B11	2'- 3"	2 3/4"

**B BARS**

2 OF EACH SIZE REQUIRED FOR STIRRUP ASSEMBLY

**DETAILS OF BARRIER TAPER SECTION**

**CONCRETE BARRIER  
TEMPORARY PRECAST,  
12' - 6"**

STATE OF WISCONSIN  
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**BILL OF MATERIALS - CONCRETE BARRIER PRECAST**

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
A1	PRECAST TEMPORARY BARRIER - CONCRETE	MIN. = f <sub>c</sub> 5000 PSI	
B1	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#5 REBAR, LENGTH 12'-2"
B2	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 12'-2"
B3	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#5 REBAR, LENGTH 12'-2"
B4	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 6'-0"
B5	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#6 REBAR, LENGTH 2'-11"
B6	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 1'-11"
B7	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 2'-2"
B8	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 2'-6"
B9	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 2'-9"
B10	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 3'-2"
B11	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 3'-4"
B12	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 12'-0"
B13	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 7'-9"
B14	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#5 REBAR, LENGTH 11'-9"
C1	LOOP BAR	ASTM A709 GRADE 70 SMOOTH BAR OR ASTM A706 GRADE 60 REBAR UNCOATED	¾" DIA.
C2	LOOP BAR	ASTM A709 GRADE 70 SMOOTH BAR OR ASTM A706 GRADE 60 REBAR UNCOATED	¾" DIA.
C3	LOOP BAR	ASTM A709 GRADE 70 SMOOTH BAR OR ASTM A706 GRADE 60 REBAR UNCOATED	¾" DIA.
D1	CONNECTION PIN - ROD	ASTM A36 MIN. STRENGTH 36 KSI / ASTM A529 MAX. STRENGTH 50 KSI / ASTM A572 MAX STRENGTH 50 KSI / ASTM A709 MAX STRENGTH 50 KSI / ASTM A992 MAX STRENGTH 50 KSI	1 ½" DIA.
D2	CONNECTION PIN - TOP PLATE	ASTM A36 MIN. STRENGTH 36 KSI / ASTM A529 MAX. STRENGTH 50 KSI / ASTM A572 MAX STRENGTH 50 KSI / ASTM A709 MAX STRENGTH 50 KSI / ASTM A992 MAX STRENGTH 50 KSI	
G1	BOLT THROUGH ANCHOR - THREADED ROD	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 A307 GRADE A OR SAE J429 GRADE 2 UNC	1 ½" DIA.
G2	BOLT THROUGH ANCHOR - WASHER, SQUARE	ASTM A36 MIN. STRENGTH 36 KSI / ASTM A529 MAX. STRENGTH 50 KSI / ASTM A572 MAX STRENGTH 50 KSI / ASTM A709 MAX STRENGTH 50 KSI / ASTM A992 MAX STRENGTH 50 KSI	
G3	BOLT THROUGH ANCHOR - NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	
H1	ADHESIVE ANCHOR - ADHESIVE	ICC-ES-AC308 5 ½" EMBEDMENT WITH A MIN. STRENGTH OF 1,800 PSI. SEE 603.2 AND 603.3.1.2 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.	
H2	ADHESIVE ANCHOR - THREADED ROD	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 A307 GRADE A / SAE J429 GRADE 2 UNC	1 ½" DIA.
H3	ADHESIVE ANCHOR - WASHER, SQUARE	ASTM A36 MIN. STRENGTH 36 KSI / ASTM A529 MAX. STRENGTH 50 KSI / ASTM A572 MAX STRENGTH 50 KSI / ASTM A709 MAX STRENGTH 50 KSI / ASTM A992 MAX STRENGTH 50 KSI	
H4	ADHESIVE ANCHOR - NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	
J1	ASPHALT ANCHOR PIN - ROD	ASTM A36 MIN. STRENGTH 36 KSI / ASTM A529 MAX. STRENGTH 50 KSI / ASTM A572 MAX STRENGTH 50 KSI / ASTM A709 MAX STRENGTH 50 KSI / ASTM A992 MAX STRENGTH 50 KSI	1 ½" DIA.
J2	ASPHALT ANCHOR PIN - STOP PLATE	ASTM A36 MIN. STRENGTH 36 KSI / ASTM A529 MAX. STRENGTH 50 KSI / ASTM A572 MAX STRENGTH 50 KSI / ASTM A709 MAX STRENGTH 50 KSI / ASTM A992 MAX STRENGTH 50 KSI	
K1	THRIE BEAM RAIL	AASHTO M180 CLASS A TYPE 2 APPROVED PRODUCER	12 GAUGE
L1	THRIE BEAM RAIL - TERMINAL	AASHTO M180 CLASS A TYPE 2 APPROVED PRODUCER	12 GAUGE

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
M1	SPLICE BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 UNC AASHTO M180 HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36	¾" DIA.
M2	SPLICE BOLT - NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 AASHTO M180 RECESSED HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	
N1	THRIE BEAM RAIL TERMINAL - MECHANICAL ANCHOR	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 AASHTO M180 RECESSED HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	¾" DIA. LENGTH 6"
N2	THRIE BEAM RAIL TERMINAL - WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 F436 TYPE 1	
N3	THRIE BEAM RAIL TERMINAL MECHANICAL OR ADHESIVE ANCHOR	MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 17.9 KIPS AND ULTIMATE SHEAR LOAD 21.96 KIPS. SEE 603.2 AND 603.3.1.2 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.	
P1	THRIE BEAM RAIL CONNECTION 1-BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 AASHTO M180 RECESSED HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	¾" DIA.
P2	THRIE BEAM RAIL CONNECTION 1-WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 F436 TYPE 1	
P3	THRIE BEAM RAIL CONNETION 1- MECHANICAL OR ADHESIVE ANCHOR	MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 9.48 KIPS AND ULTIMATE SHEAR LOAD 10.48 KIPS. SEE 603.2 AND 603.3.1.2 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.	
Q1	BLOCK WOOD	SEE STANDARD SPEC. 614	
R1	CAP - BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 AASHTO M180 RECESSED HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	¾" DIA.
R2	CAP - BOLT - WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 F436 TYPE 1	
R3	CAP - BOLT - MECHANICAL ANCHOR	MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS ULTIMATE TENSILE LOAD 12.14 KIPS AND ULTIMATE SHEAR LOAD 17.5 KIPS. SEE 603.2 AND 603.3.1.2 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.	12 GAUGE
S1	CAP 42-INCH TOP PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
S2	CAP 42-INCH END PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
S3	CAP 42-INCH SIDE PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
S4	CAP 42-INCH GUSSET 1	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
S5	CAP 42-INCH GUSSET 2	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
S6	CAP 42-INCH GUSSET 3	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
S7	CAP 42-INCH GUSSET 4	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE

6

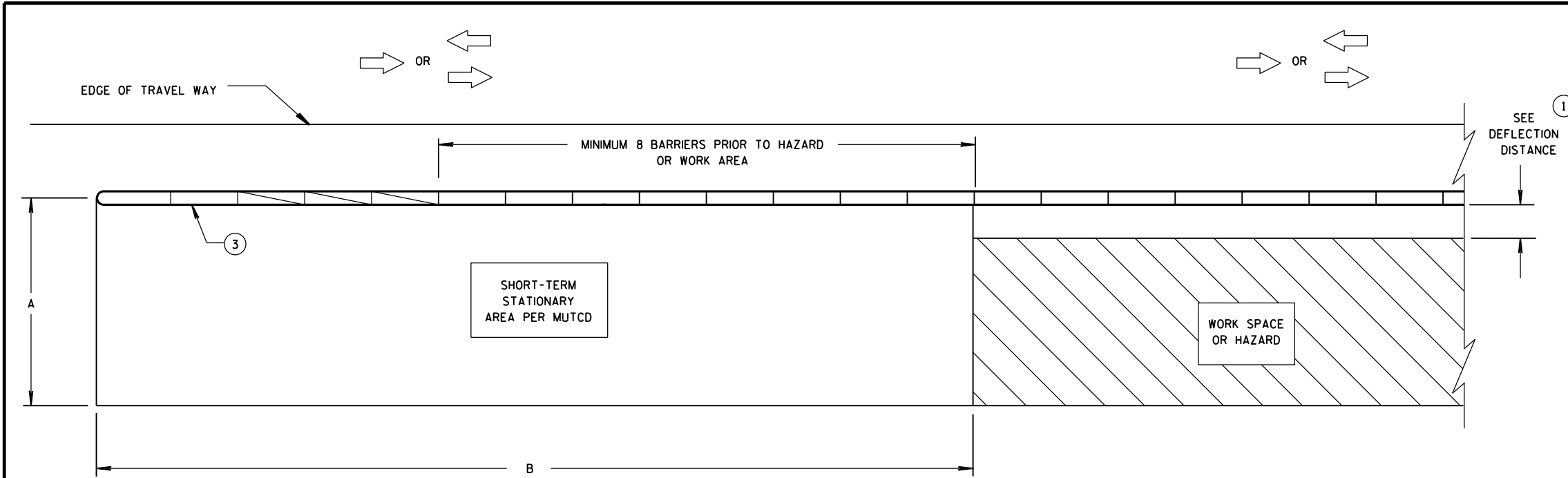
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SDD14B07 - 16m

SDD14B07 - 16m

**MIDWEST GUARDRAIL  
SYSTEM (MGS)  
TYPE 2 TERMINAL**

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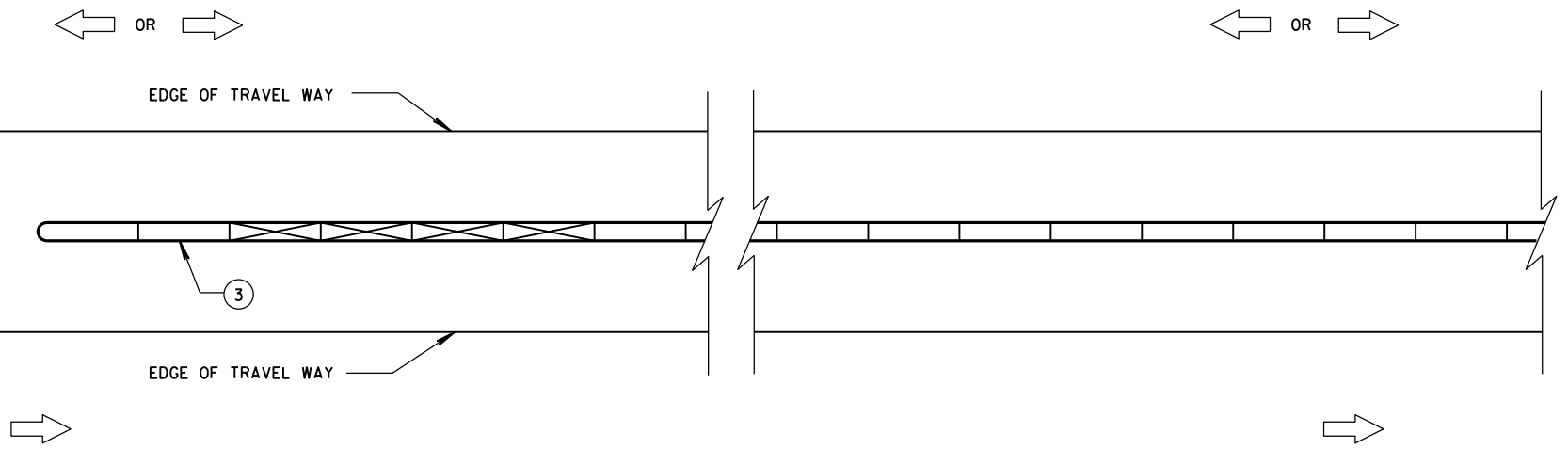
**DIMENSION A TABLE** <sup>②</sup>

FACILITY	POSTED SPEED MPH	DIMENSION A	
		MIN. FT	MAX. FT
FREEWAY/EXPRESSWAY	ALL	15	20
NON-FREEWAY/EXPRESSWAY	GREATER THAN OR EQUAL TO 45	10	15
NON-FREEWAY/EXPRESSWAY	LESS THAN 45	8	10
AADT LESS THAN 1,500	ALL	8	10

**CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER  
INSTALLATION FOR TRAFFIC ON ONE SIDE OF BARRIER**

**DIMENSION B TABLE** <sup>②</sup>

POSTED SPEEDS MPH	DIMENSION B FT
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645



**CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER  
INSTALLATION FOR TRAFFIC ON BOTH SIDES OF BARRIER**

**LEGEND**

- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

**GENERAL NOTES**

SEE STANDARD DETAIL DRAWING 14B7 FOR MORE INFORMATION.

DETAILS PROVIDE A GENERAL LAYOUT OF TEMPORARY CONCRETE BARRIER, CRASH CUSHIONS, SAND BARREL ARRAYS AND TIE DOWN TRANSITIONS. DETAILS PROVIDED MAY NOT FIT ALL POSSIBLE SITUATIONS OR SITE CONDITIONS. SEE OTHER SECTIONS OF THE CONTRACT OR PROJECT ENGINEER FOR MORE DETAILS.

ADDITIONAL TEMPORARY BARRIER MAY BE REQUIRED TO PROTECT TRAVELING PUBLIC FROM HAZARDS, CONTRACTOR'S OPERATIONS OR TO CONTROL TRAFFIC.

TEMPORARY BARRIER MAY BE REQUIRED TO BE ANCHORED TO PAVEMENT OR BRIDGE DECK.

- ① FOR DEFLECTION INFORMATION SEE STANDARD DETAIL DRAWING 14B7.
- ② VALUES PROVIDED MAY NOT FIT ALL POSSIBLE SITUATIONS OR SITE CONDITIONS. SEE OTHER SECTIONS OF THE CONTRACT OR PROJECT ENGINEER FOR MORE DETAILS.
- ③ ANCHOR TEMPORARY BARRIER ACCORDING TO CRASH CUSHION OR SAND BARREL MANUFACTURER'S RECOMMENDATIONS. IF MANUFACTURER'S RECOMMENDATIONS ARE NOT PROVIDED, ANCHOR 3 PINS ON TRAFFIC SIDE.

**CRASH CUSHION/SAND BARREL  
ARRAY AND OTHER TEMPORARY  
BARRIER LAYOUT DETAILS**

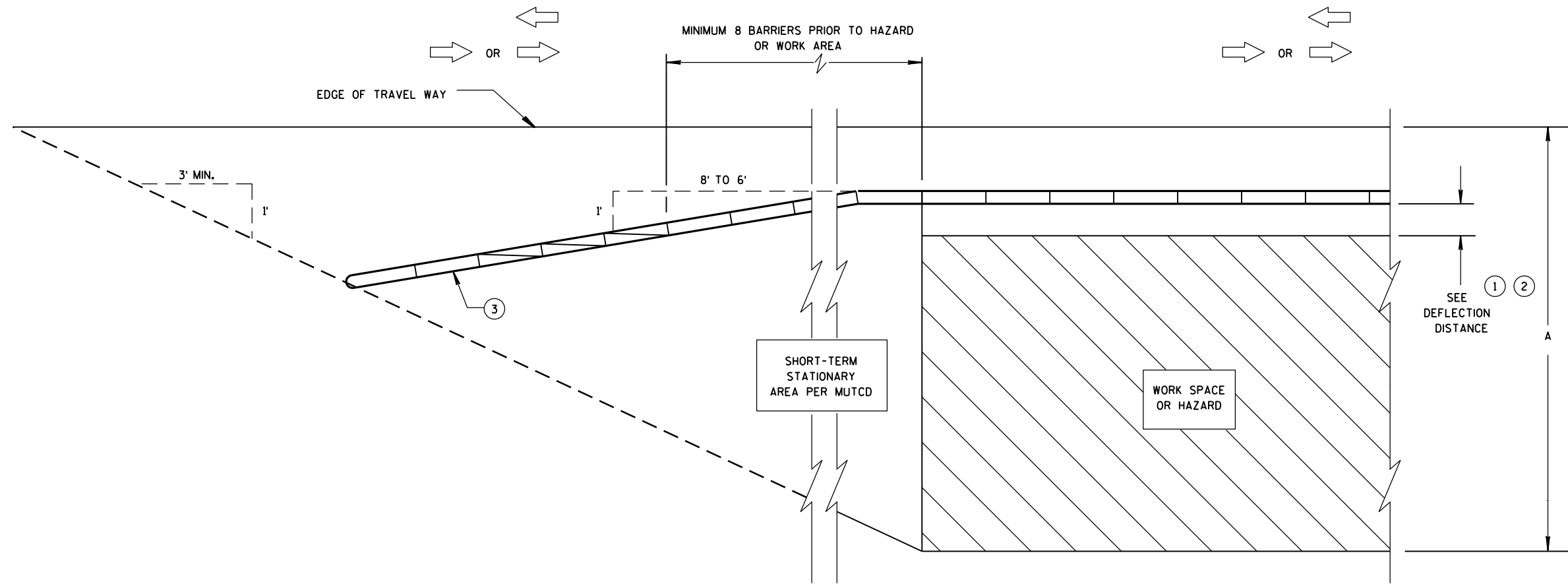
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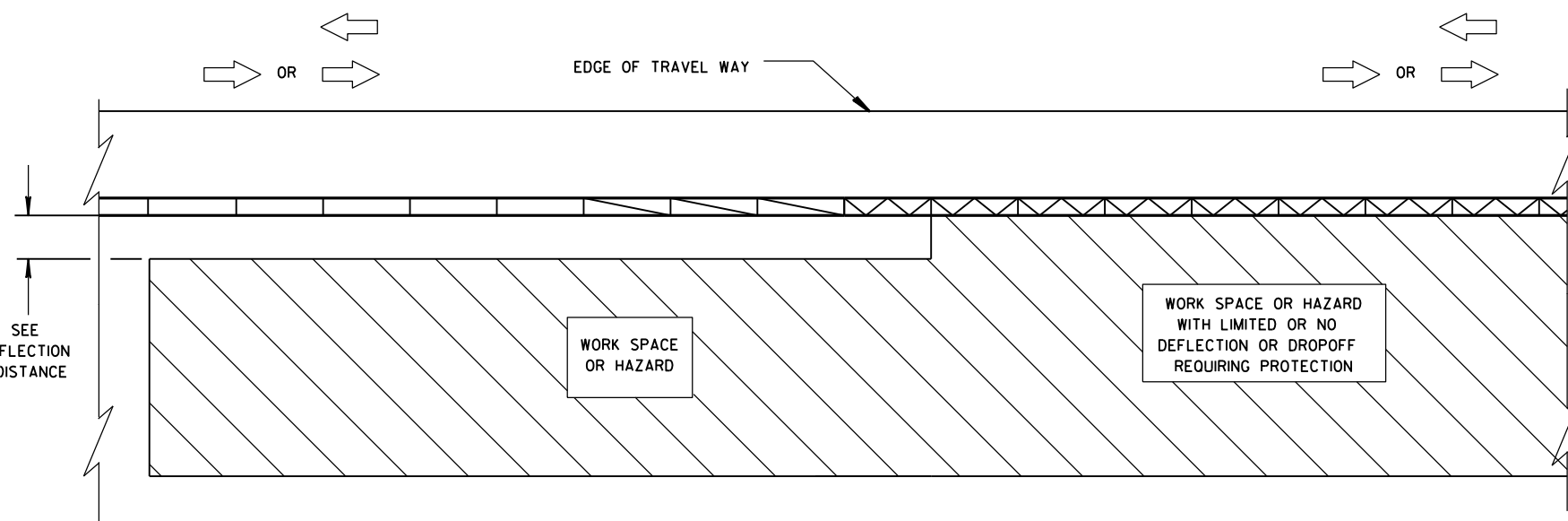
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S.D.D. 14 B 8-2a

S.D.D. 14 B 8-2a



**CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER  
INSTALLATION FOR TRAFFIC ON ONE SIDE - FLARED INSTALLATION**



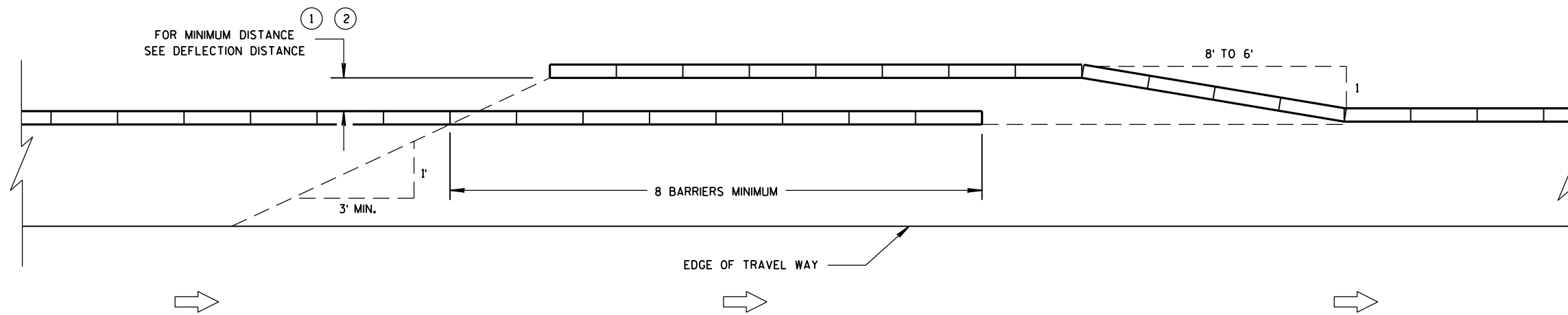
**TRANSITION FROM FREE STANDING TEMPORARY BARRIER  
TO ANCHORED BARRIER**

**LEGEND**

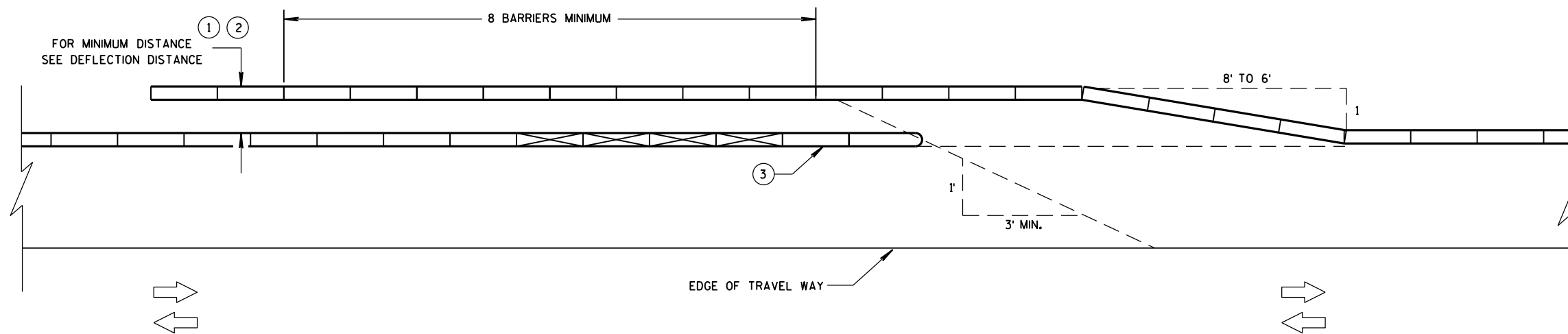
- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

**CRASH CUSHION/SAND BARREL  
ARRAY AND OTHER TEMPORARY  
BARRIER LAYOUT DETAILS**

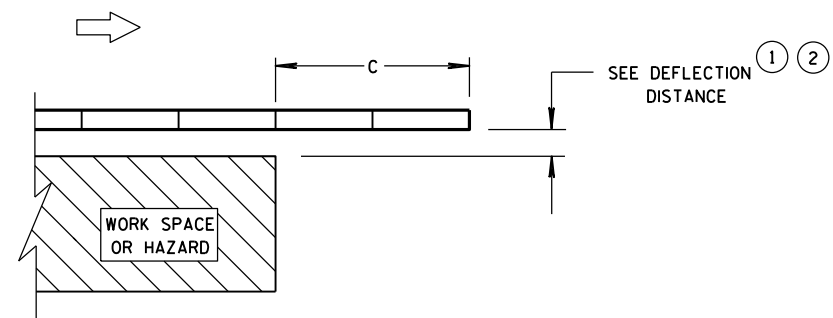
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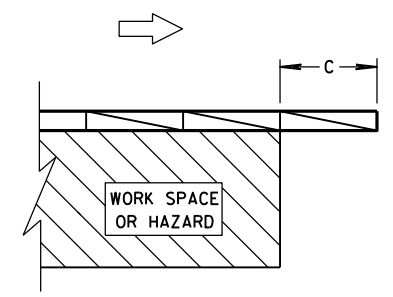
**TEMPORARY BARRIER OVERLAP - ONE-WAY TRAFFIC**



**TEMPORARY BARRIER OVERLAP - TWO-WAY TRAFFIC**



**ENDING TEMPORARY BARRIER  
DOWNSTREAM - UNANCHORED**



**ENDING TEMPORARY BARRIER  
DOWNSTREAM - ANCHORED**

**LEGEND**

- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

**CRASH CUSHION/SAND BARREL  
ARRAY AND OTHER TEMPORARY  
BARRIER LAYOUT DETAILS**

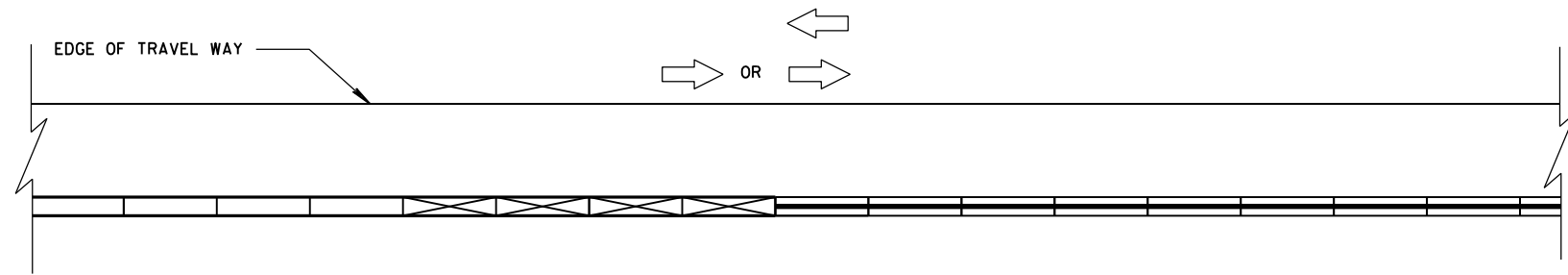
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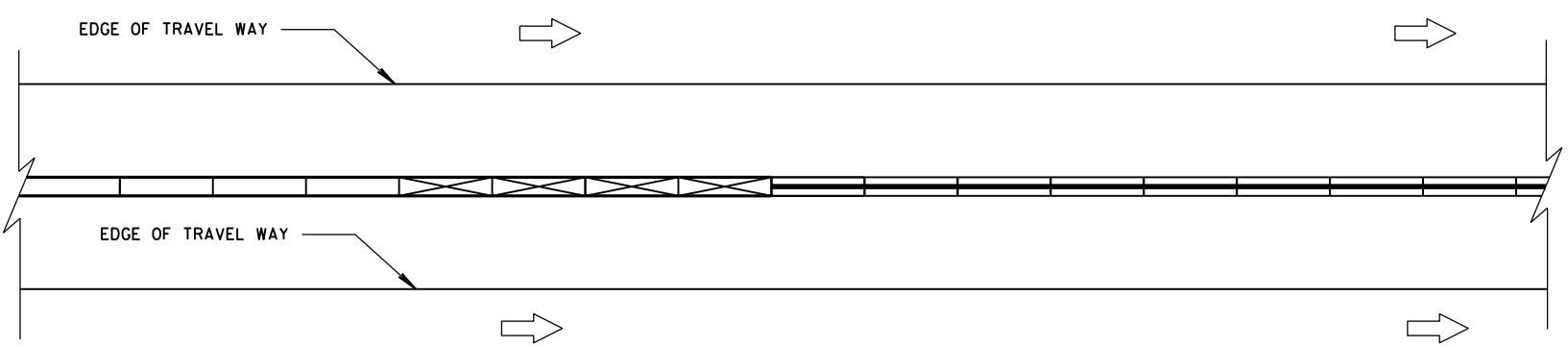
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S.D.D. 14 B 8-2c

S.D.D. 14 B 8-2c



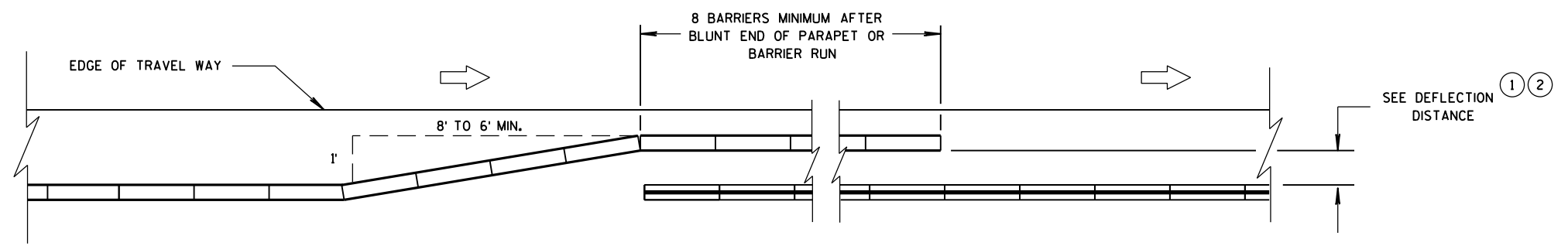
**CONNECTING TEMPORARY BARRIER TO PERMANENT CONCRETE BARRIER-TRAFFIC ON ONE SIDE**



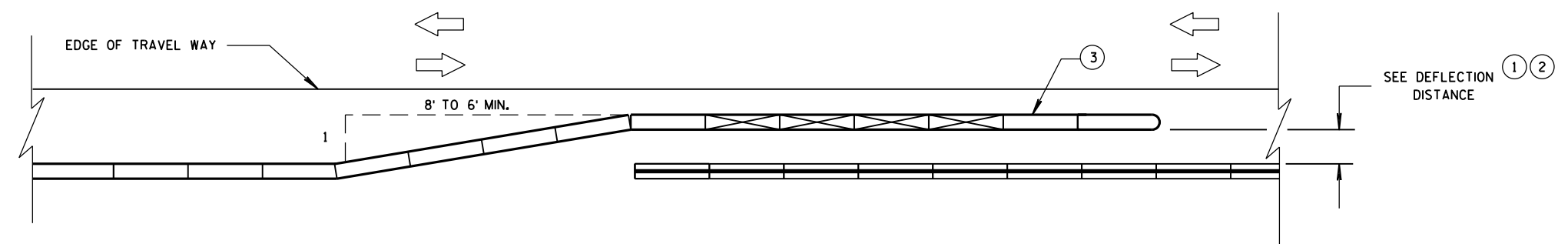
**CONNECTING TEMPORARY BARRIER TO PERMANENT CONCRETE BARRIER-TRAFFIC ON BOTH SIDES**

**LEGEND**

- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER



**OVERLAPPING TEMPORARY BARRIER AND PERMANENT BARRIER - ONE WAY TRAFFIC**



**OVERLAPPING TEMPORARY BARRIER AND PERMANENT BARRIER - TWO WAY TRAFFIC**

**CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS**

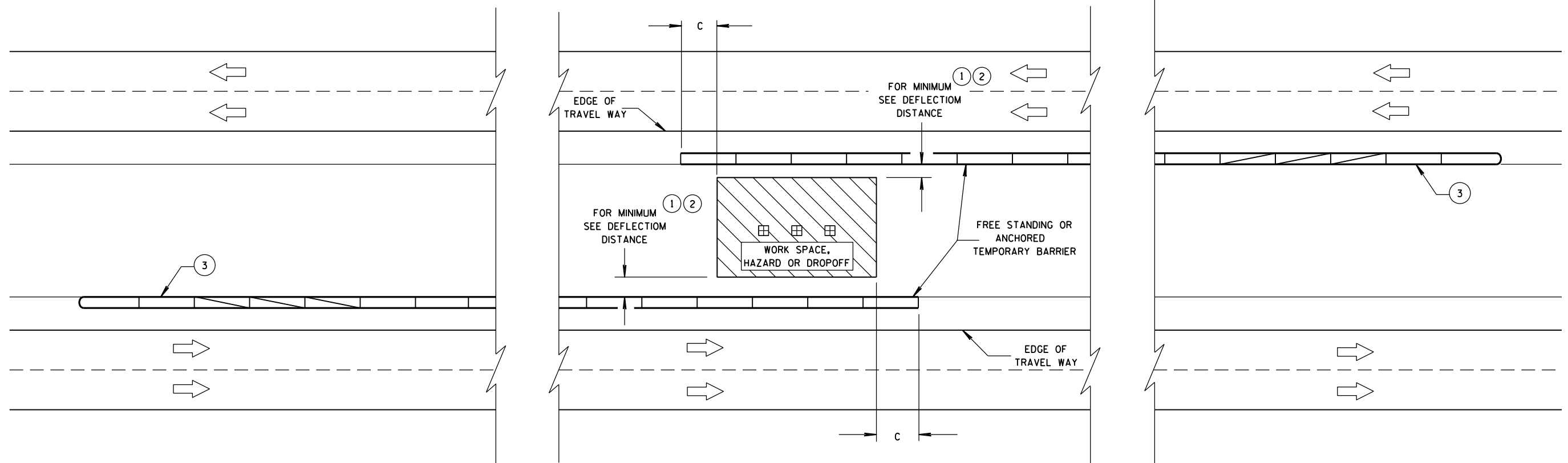
STATE OF WISCONSIN  
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**LEGEND**

- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

**DIMENSION C TABLE** <sup>2</sup>

AVAILABLE DEFLECTION DISTANCE	MINIMUM LENGTH OF BARRIER BEYOND HAZARD FT
GREATER THAN 8'	12.5
LESS THAN OR EQUAL TO 8' BUT GREATER THAN 4'	50
LESS THAN OR EQUAL TO 4'	100



6

6

S.D.D. 14 B 8-2e

S.D.D. 14 B 8-2e

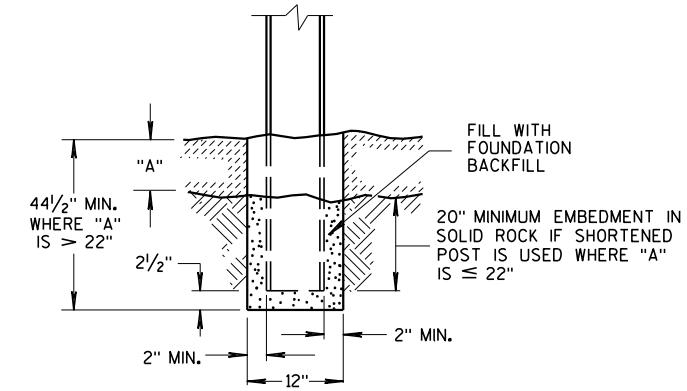
**CRASH CUSHION/SAND BARREL  
ARRAY AND OTHER TEMPORARY  
BARRIER LAYOUT DETAILS**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

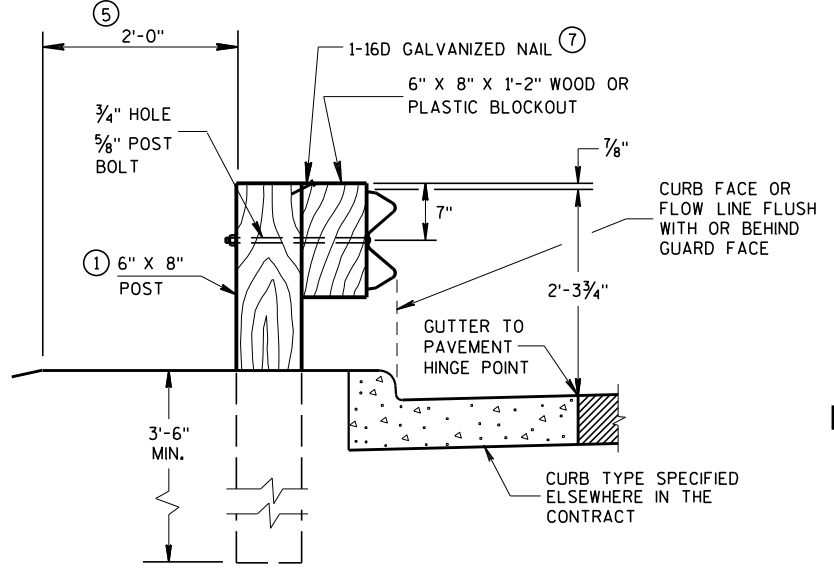
APPROVED  
June, 2015 /S/ Jerry H. Zogg  
DATE ROADWAY STANDARDS DEVELOPMENT  
FHWA ENGINEER

**GENERAL NOTES**

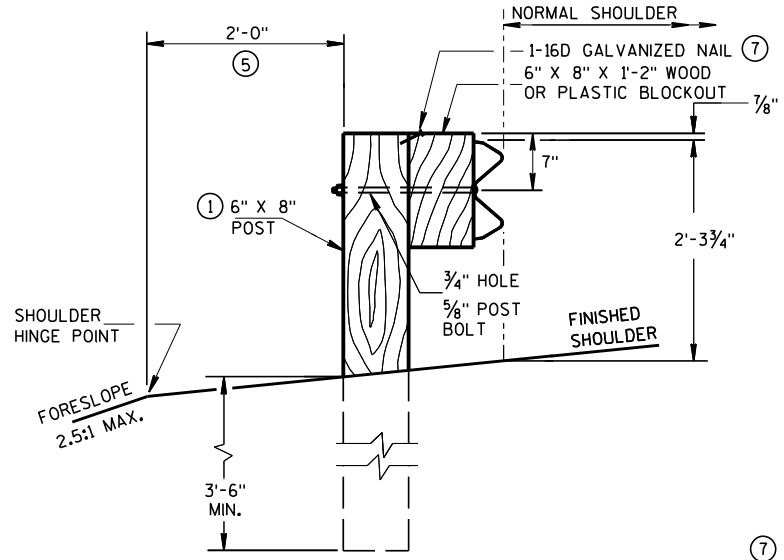
- ① W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POSTS WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS. APPROVED PLASTIC BLOCKOUT DESIGNS MAY VARY FROM THIS TYPICAL DETAIL WHEN USED IN CONJUNCTION WITH STEEL POSTS. DO NOT MIX STEEL POSTS AND WOOD POSTS IN A SINGLE INSTALLATION.
  - ② USE STRUCTURAL STEEL POSTS CONFORMING TO ASTM A 36. GALVANIZED POSTS ACCORDING TO AASHTO M 111. EITHER SET THE POSTS IN DRILLED HOLES OR DRIVE TO GRADE. REMOVE MUSHROOMING CAUSED BY DRIVING AND REPAIR DAMAGED SPELTER COATING ON GALVANIZED POSTS.
  - ③ INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
  - ④ USE EITHER WOOD OR APPROVED PLASTIC BLOCKOUTS ON WOOD POSTS.
  - ⑤ IF THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING, W BEAM (LHW).
  - ⑥ IF ROCK IS ENCOUNTERED DURING EXCAVATION, THE ENGINEER MAY APPROVE USING A 12 INCH DIAMETER POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE APPROXIMATELY 2 1/2 INCHES DEEP. CUT THE POSTS TO LENGTH AND PLACE IN THE HOLE. BACKFILL WITH MATERIAL EXCAVATED FROM THE HOLE AND COMPACT ADEQUATELY.
  - ⑦ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- INSTALL BEAM GUARD SECTIONS AND ALL NECESSARY HARDWARE ACCORDING TO THE APPLICABLE PLAN AND CURRENT STANDARD AND SUPPLEMENTAL SPECIFICATIONS. ALL DIMENSIONS ARE SUBJECT TO MANUFACTURER'S TOLERANCES EXCEPT WHERE ALLOWABLE TOLERANCES ARE SHOWN.



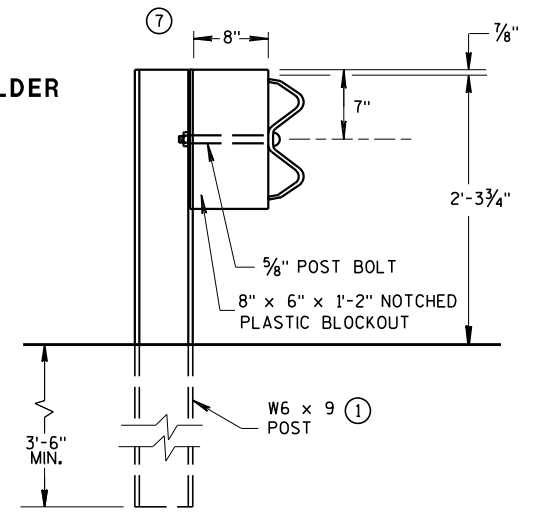
**END VIEW SETTING STEEL OR WOOD POST IN ROCK** ⑥



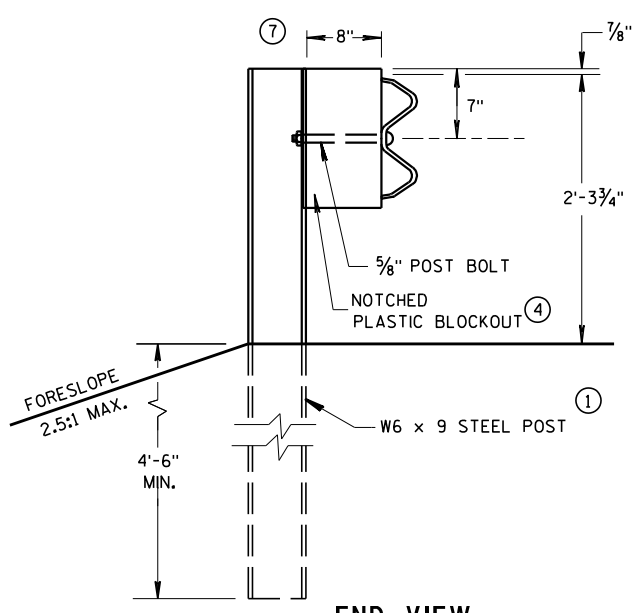
**END VIEW LOCATED ALONG A CURBED ROADWAY**



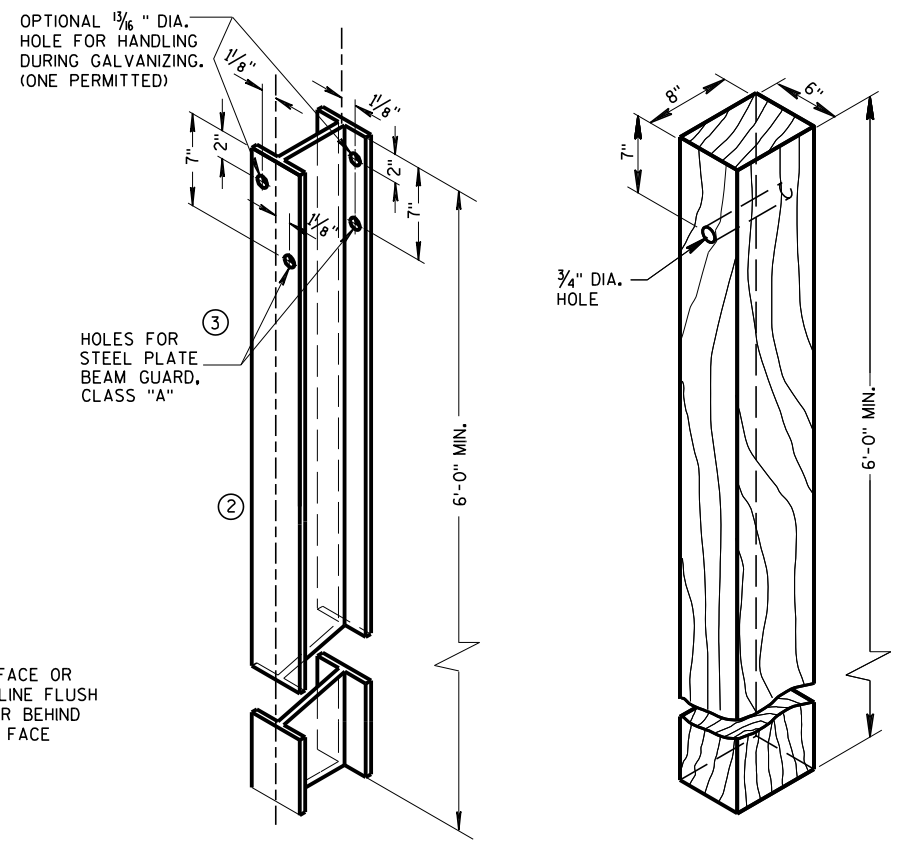
**END VIEW LOCATED ALONG A ROADWAY SHOULDER STANDARD INSTALLATION**



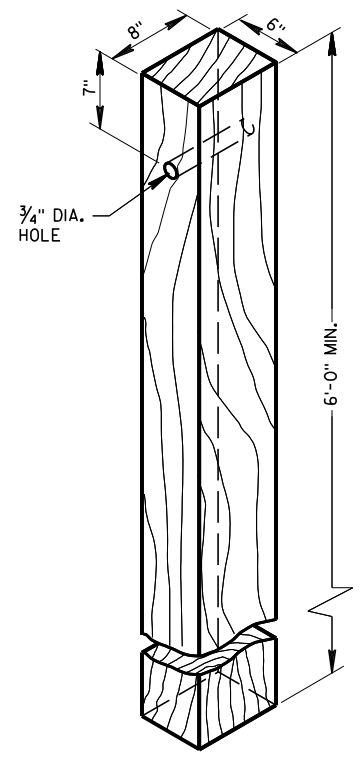
**END VIEW STEEL POST & NOTCHED PLASTIC BLOCKOUT ALTERNATIVE STANDARD INSTALLATION**



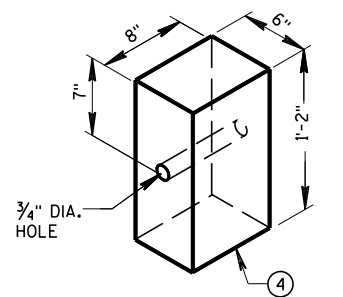
**END VIEW LONGER POST AT HALF POST SPACING W BEAM (LHW)**



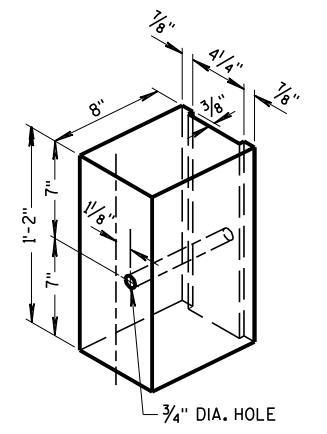
**STEEL POST & HOLE PUNCHING DETAIL (W6 X 9)** ①  
ALL HOLES 3/8" DIAMETER EXCEPT AS NOTED



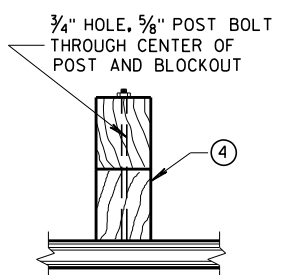
**WOOD POST (6" X 8") NOMINAL**



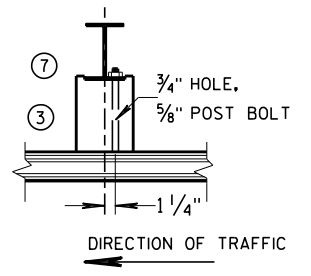
**WOOD OR PLASTIC BLOCKOUT FOR WOOD POSTS**



**TYPICAL NOTCHED PLASTIC BLOCKOUT FOR STEEL POSTS** ①



**PLAN VIEW WOOD POST, BLOCKOUT & BEAM**



**PLAN VIEW STEEL POST, NOTCHED PLASTIC BLOCKOUT & BEAM**

**STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS**

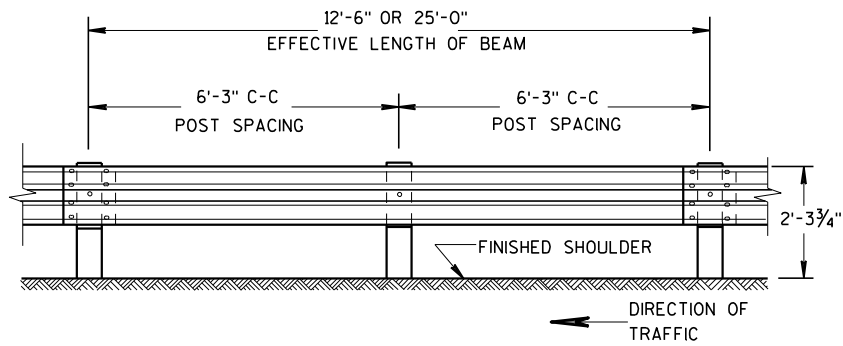
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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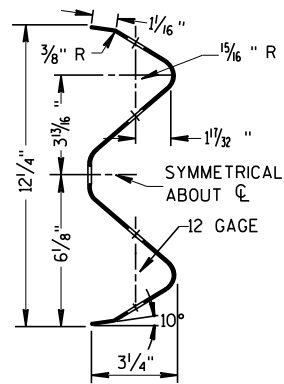
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S.D.D. 14 B 15-11a

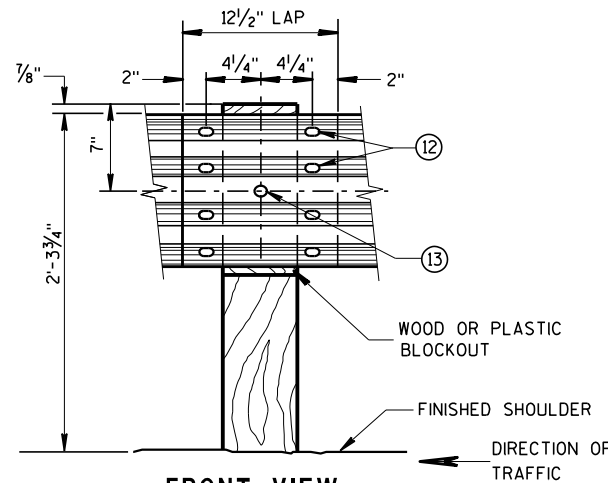
S.D.D. 14 B 15-11a



**FRONT VIEW  
POST SPACING STANDARD INSTALLATION**



**SECTION THRU W BEAM**

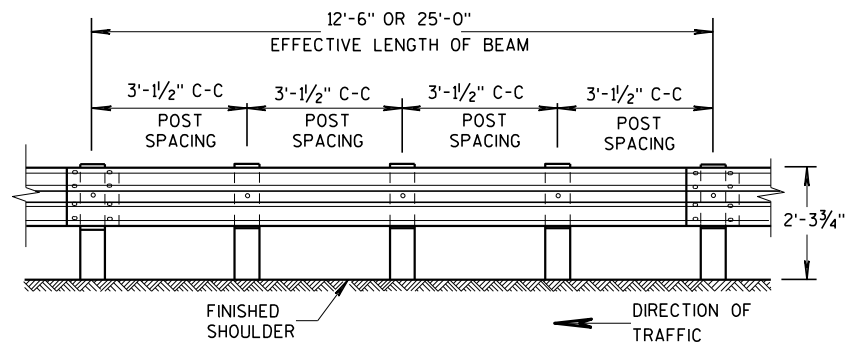


**FRONT VIEW  
BEAM SPLICE AT WOOD POST  
AND POST MOUNTING DETAIL**

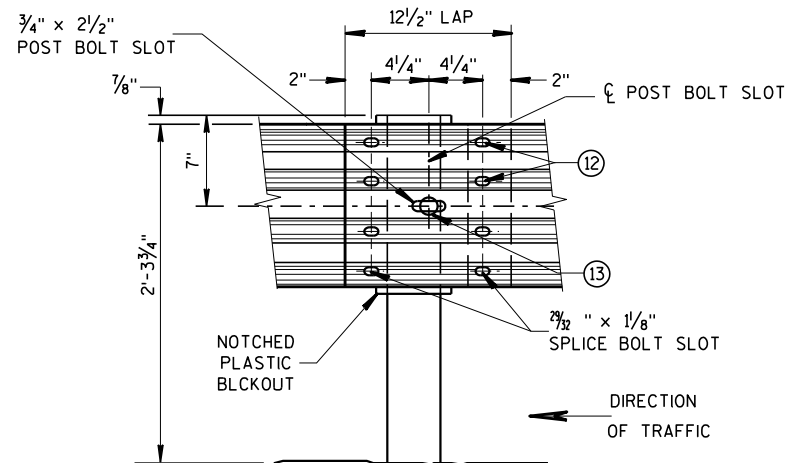
**GENERAL NOTES**

FURNISH GUARDRAIL DEFLECTORS FROM APPROVED PRODUCTS LIST.

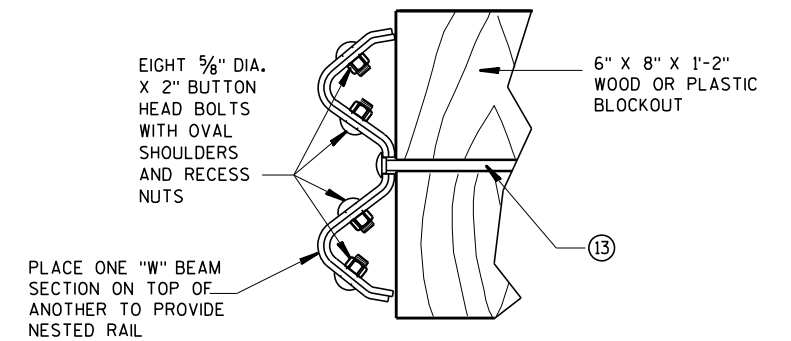
- ⑨ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINA. START REFLECTORS AT POST #9 AND SPACE EVENLY EVERY 100 FEET (MAX.) TO THE END OF GUARDRAIL RUN, USING A MINIMUM OF 3 REFLECTORS.
- ⑫ 8 - 5/8"  $\phi$  X 2" BUTTON HEAD BOLTS WITH OVAL SHOULDERS & RECESS NUTS.
- ⑬ 5/8" DIA. BUTTON HEAD BOLT AND RECESS NUT WITH 5/8" DIA. F844 FLAT WASHER UNDER NUT.



**FRONT VIEW  
POST SPACING FOR LONGER POST  
AT HALF POST SPACING W BEAM (LHW)**



**FRONT VIEW  
BEAM SPLICE AT STEEL POST  
TYPICAL SPLICING DETAILS  
OF STEEL PLATE BEAM GUARD**

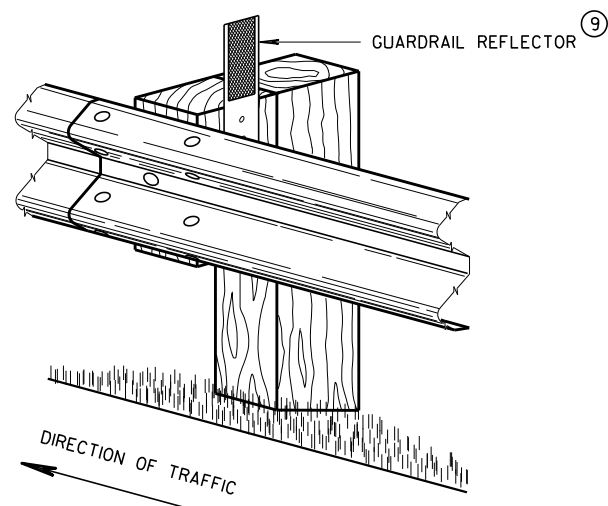


**NESTED W BEAM (NW)**  
USE ALL OTHER STANDARD BEAM GUARD DETAILS FOR  
CONSTRUCTING NESTED W BEAM (NW)

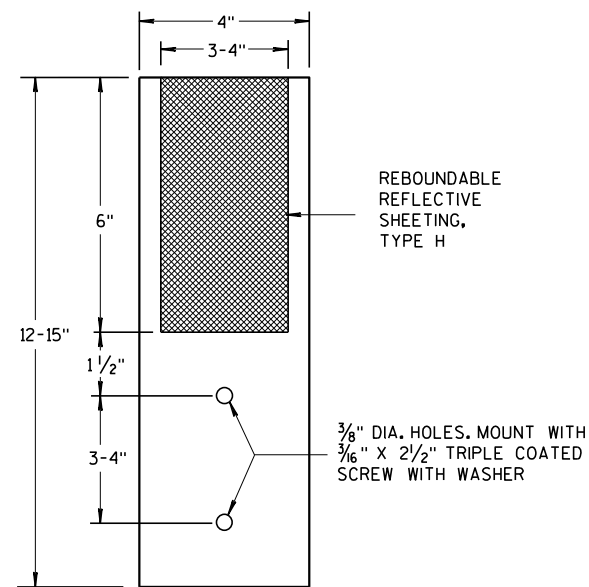
6

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\* USE DOUBLE SIDED WHITE GUARDRAIL REFLECTORS ON ROADWAYS WITH BI-DIRECTIONAL TRAFFIC (NO MEDIAN). USE SINGLE SIDED WHITE (RIGHT SIDE) AND SINGLE SIDED YELLOW (LEFT SIDE) ON ROADWAYS WITH MEDIAN SEPARATION.



**4" X 12" GUARDRAIL REFLECTOR DETAIL  
AND TYPICAL INSTALLATION \***

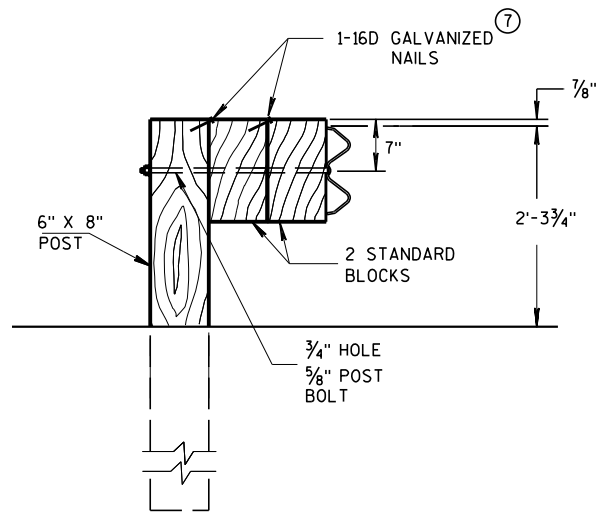


**4" x 12" GUARDRAIL REFLECTOR**

**STEEL PLATE BEAM GUARD,  
CLASS "A",  
INSTALLATION & ELEMENTS**

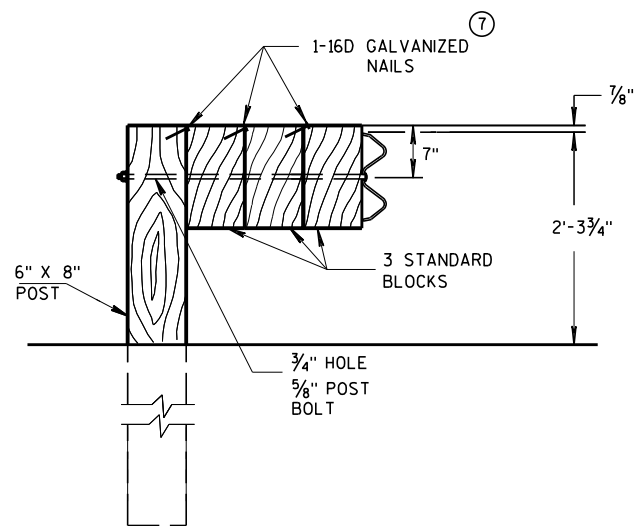
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION





**DETAIL FOR DOUBLE BLOCKS**

THE NUMBER OF DOUBLE BLOCK POSTS WITHIN A BARRIER RUN IS UNLIMITED

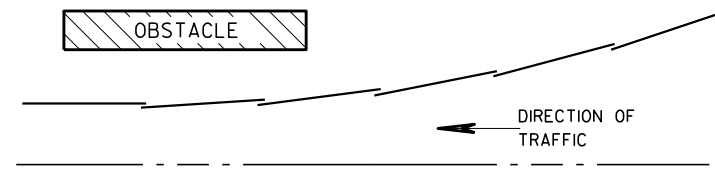


**DETAIL FOR TRIPLE BLOCKS**

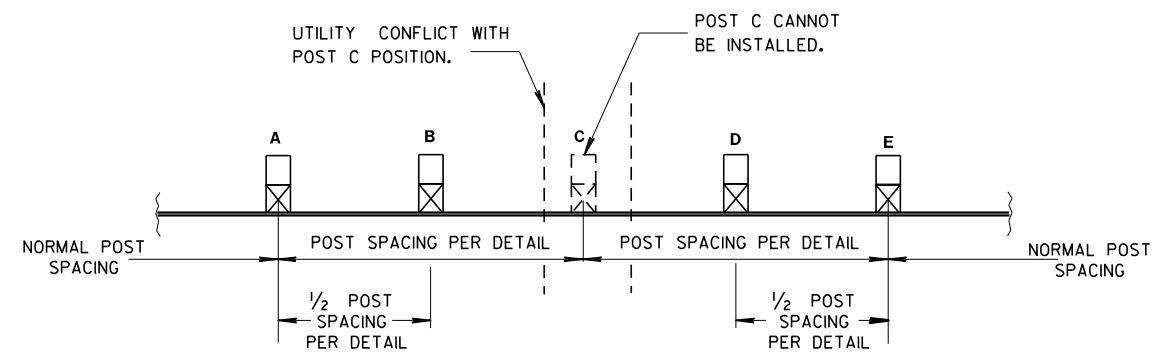
TRIPLE BLOCK DETAIL IS LIMITED TO ONE LOCATION WITHIN A BEAM GUARD RUN.

NOTES: USE DOUBLE OR TRIPLE BLOCKS WHEN UNDERGROUND OBSTACLES PREVENT THE POST FROM BEING INSTALLED.

DO NOT USE EXTRA BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

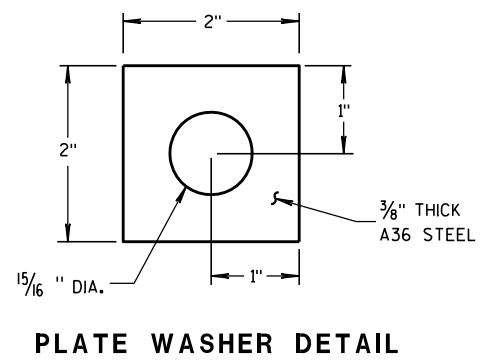
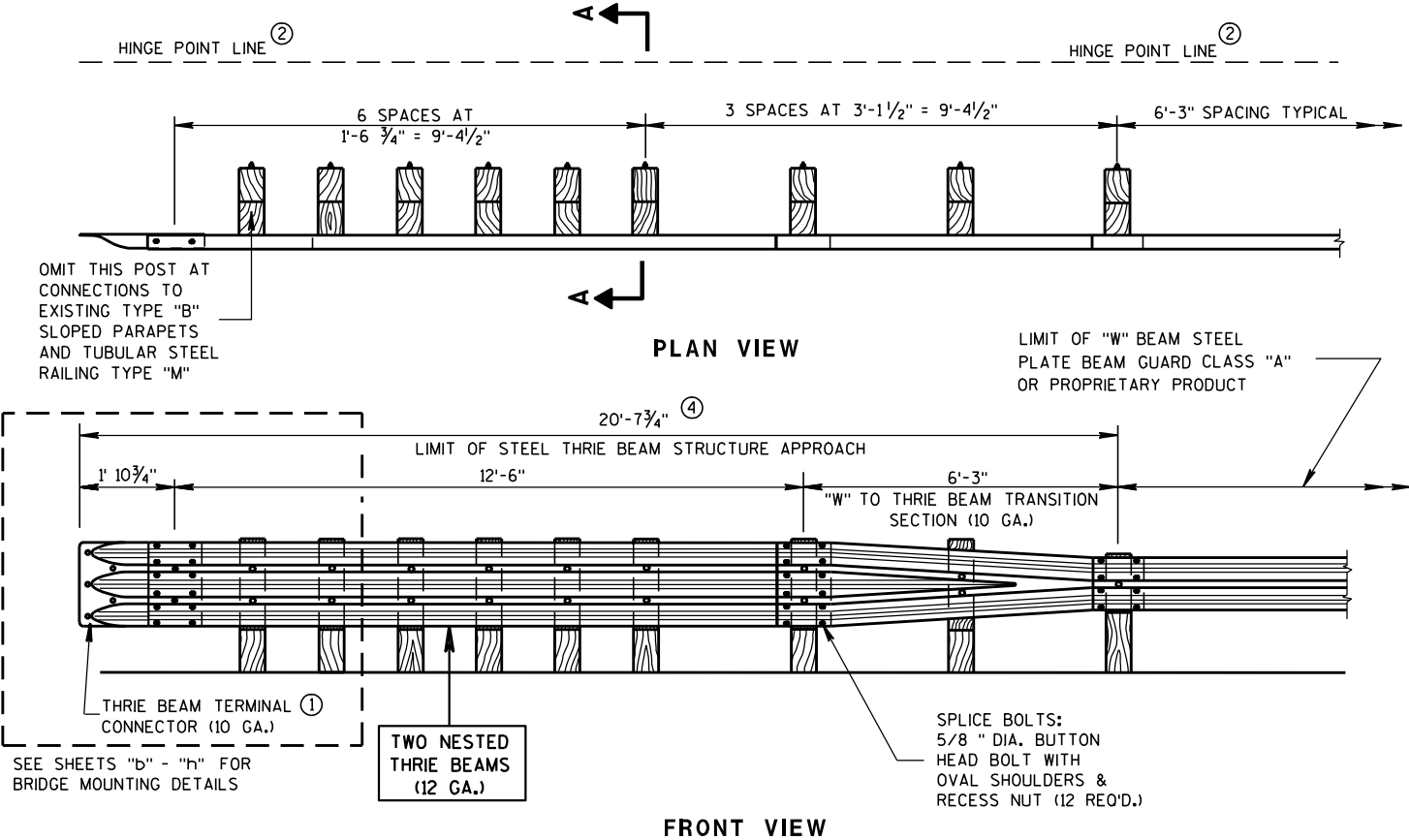


**PLAN VIEW  
BEAM LAPPING DETAIL**



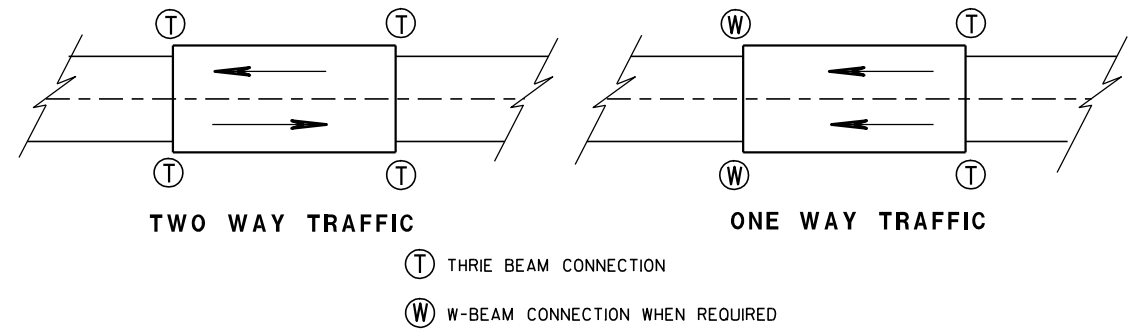
**POST DRIVING FOR CONTINUOUS  
UNDERGROUND OBSTRUCTION**

<b>STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION &amp; ELEMENTS</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2017	/s/ Rodney Taylor
DATE	ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA	

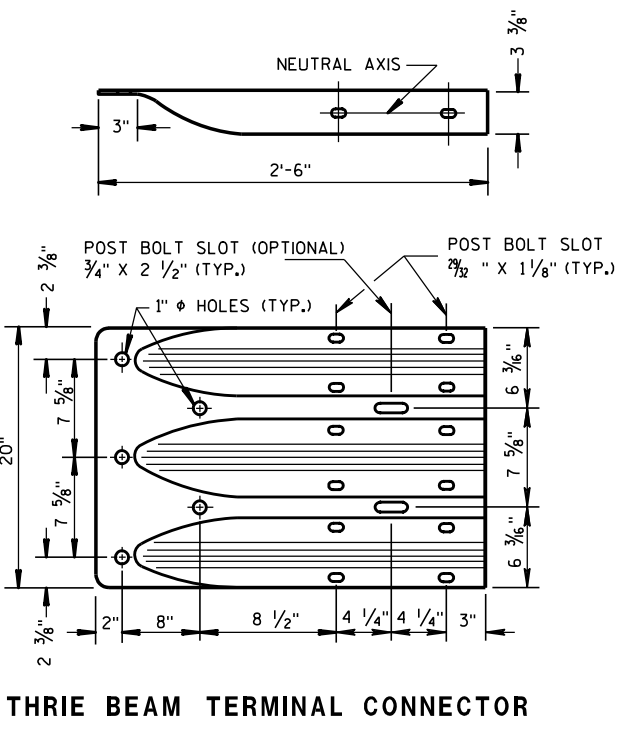


**GENERAL NOTES**

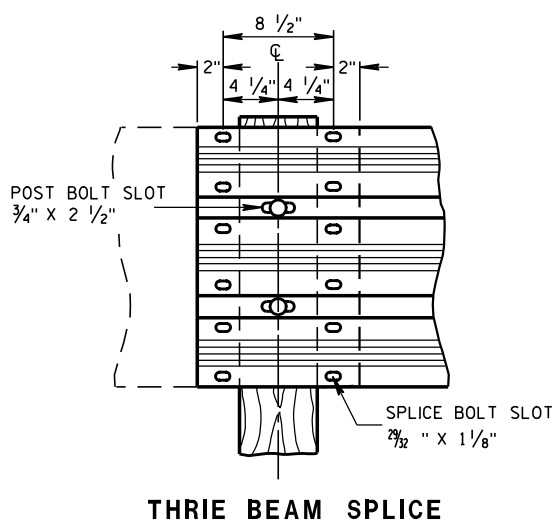
- BOLT THE THRIE BEAM TO ALL POSTS AND BLOCKOUTS, DRILL OR PUNCH BOLT HOLES IN THE BEAM IF THE POST SPACING IS LESS THAN 6'-3".
  - DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.
  - IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B15 FOR MORE DETAILS.
- ① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.
  - ② MINIMUM EMBEDMENT SHALL BE 4'-0". WHERE EXISTING CONDITIONS DO NOT PERMIT THE APPROPRIATE EARTHWORK SHOWN ON THE PLAN TYPICAL SECTIONS OR DETAILS, THE ENGINEER MAY ALLOW THE REDUCTION OR ELIMINATION OF THE 2 FOOT DISTANCE TO THE HINGE POINT. OTHERWISE BUILD AS THE PLAN SHOWS OR AS THE ENGINEER DIRECTS. IF THE 2 FOOT DISTANCE TO THE HINGE POINT IS REDUCED OR ELIMINATED, INCREASE THE POST EMBEDMENT DEPTH TO 4'-6" OR MORE.
  - ③ POST BOLTS ARE 5/8" DIAMETER ASTM A307 BUTTON HEAD BOLT. A POST BOLT REQUIRES A 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX AND A 5/8" DIAMETER F844 FLAT WASHER. LENGTH OF POST BOLT MAY VARY.
  - ④ ALL WOOD POSTS MUST BE 6" X 8" AND AT LEAST 7'-0" LONG.



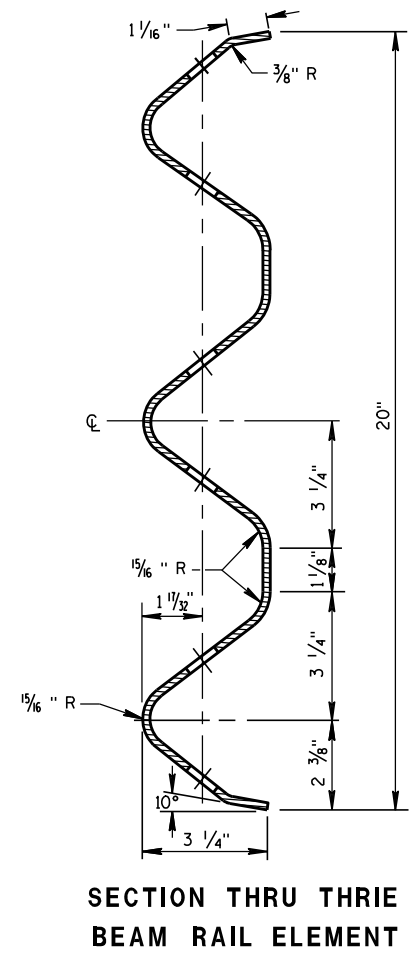
**TYPICAL LOCATIONS OF THRIE BEAM AND W-BEAM CONNECTIONS TO BRIDGE**



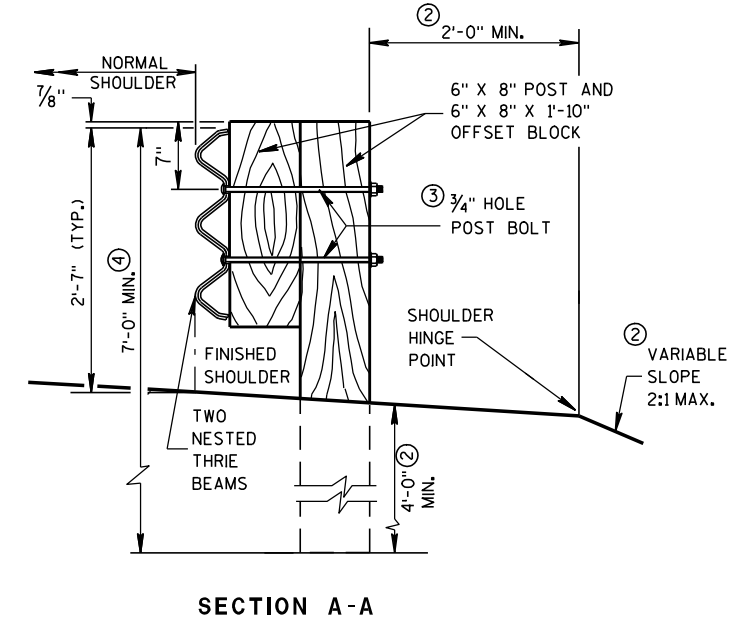
**THRIE BEAM TERMINAL CONNECTOR**



**THRIE BEAM SPLICE**



**SECTION THRU THRIE BEAM RAIL ELEMENT**

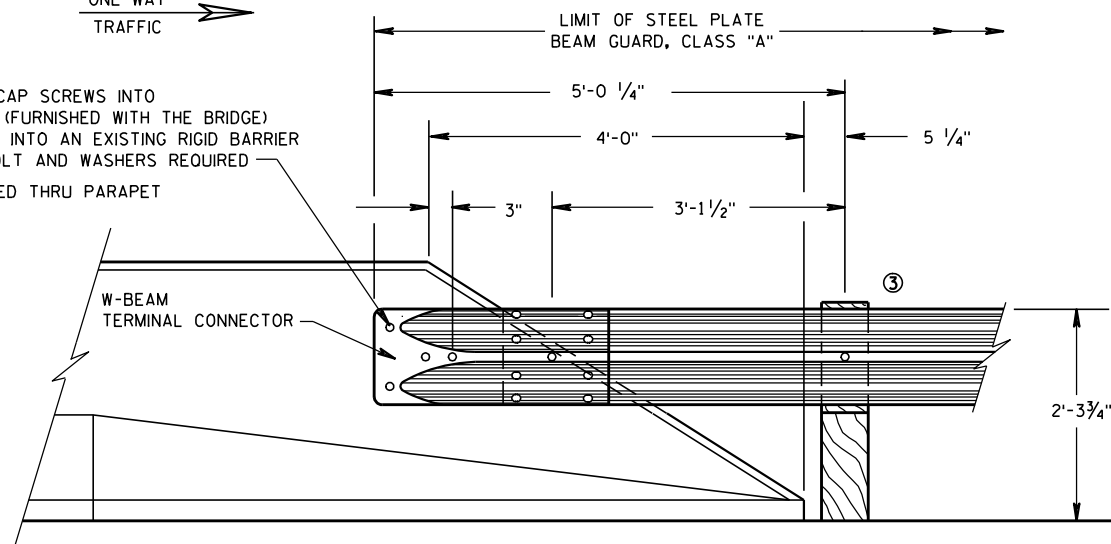


**SECTION A-A**

<b>STEEL THRIE BEAM STRUCTURE APPROACH</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 8/31/2012 DATE	/s/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	

ONE WAY  
TRAFFIC →

- ① ② 7/8" DIA. HEX HEAD CAP SCREWS INTO  
THREADED INSERTS (FURNISHED WITH THE BRIDGE)  
WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER  
7/8" DIA. H.S. HEX BOLT AND WASHERS REQUIRED  
1" DIA. HOLES DRILLED THRU PARAPET  
(4 REQ'D.)



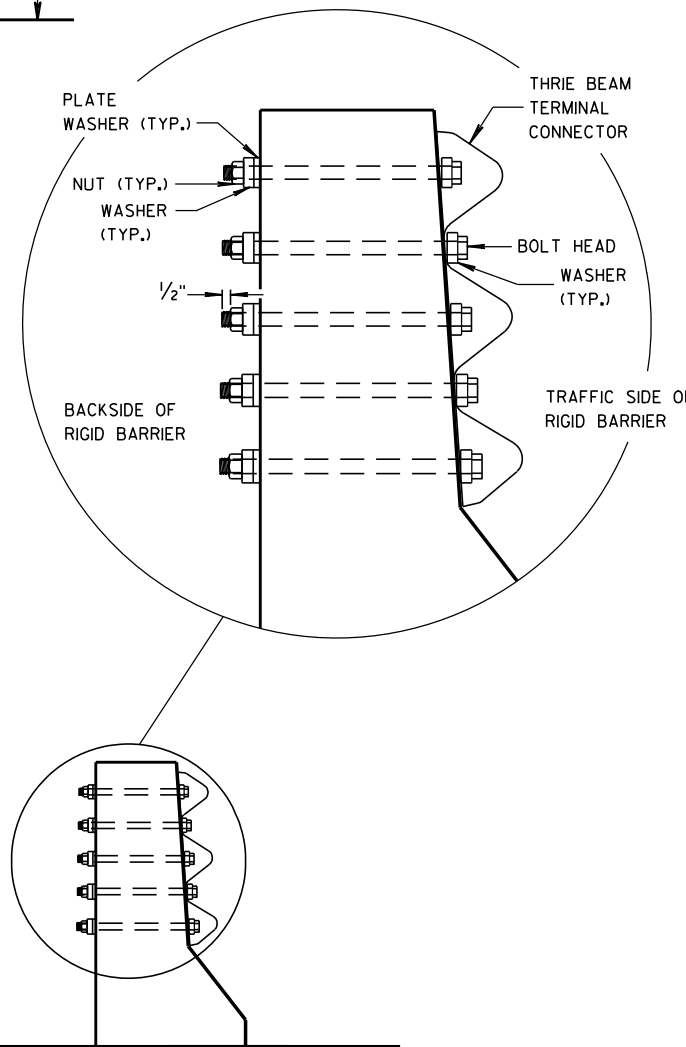
**FRONT VIEW**  
**W BEAM CONNECTION TO**  
**PARAPETS WITH SLOPED ENDS**  
(USE ONLY AT TRAFFIC EXIT END OF ONE WAY BRIDGE)

**GENERAL NOTES**

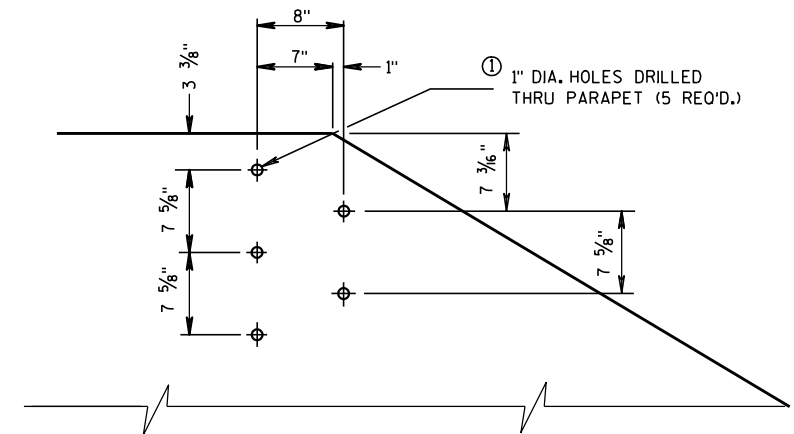
THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSITION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A325, A449 AND GALVANIZED PER STANDARD SPECIFICATIONS 614.

- ① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ② BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM TERMINAL CONNECTOR. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
- ③ W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POST WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.
- DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.



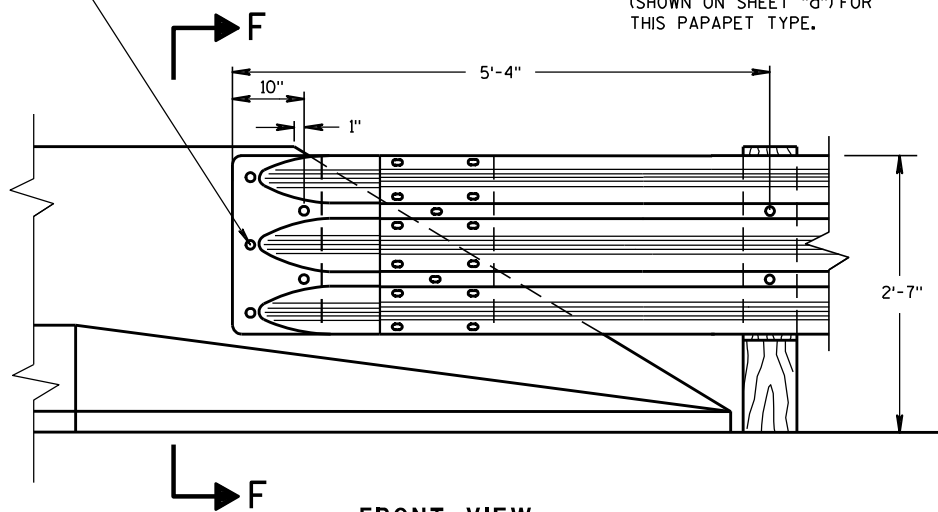
**SECTION F-F**



**DRILL HOLE LOCATION AND PATTERN**  
**FOR THRIE BEAM CONNECTION**

- ① ② 7/8" DIA. HEX HEAD CAP SCREWS INTO  
THREADED INSERTS (FURNISHED WITH THE BRIDGE)  
WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER  
7/8" DIA. H.S. HEX BOLT AND WASHERS REQUIRED  
1" DIA. HOLES DRILLED THRU PARAPET  
(5 REQ'D.)

NOTE:  
OMIT THE FIRST POST  
(SHOWN ON SHEET "a") FOR  
THIS PARAPET TYPE.



**FRONT VIEW**  
**THRIE BEAM CONNECTION TO BRIDGE**  
**PARAPETS WITH SLOPED ENDS**

<b>STEEL THRIE BEAM STRUCTURE</b> <b>APPROACH, CONNECTION TO</b> <b>SLOPED END PARAPETS</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 8/31/2012 DATE	/s/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	

### GENERAL NOTES

COVER PLATE PANELS ARE  $\frac{3}{16}$ " THICK.

ALL STIFFENERS ARE  $\frac{1}{4}$ " THICK.

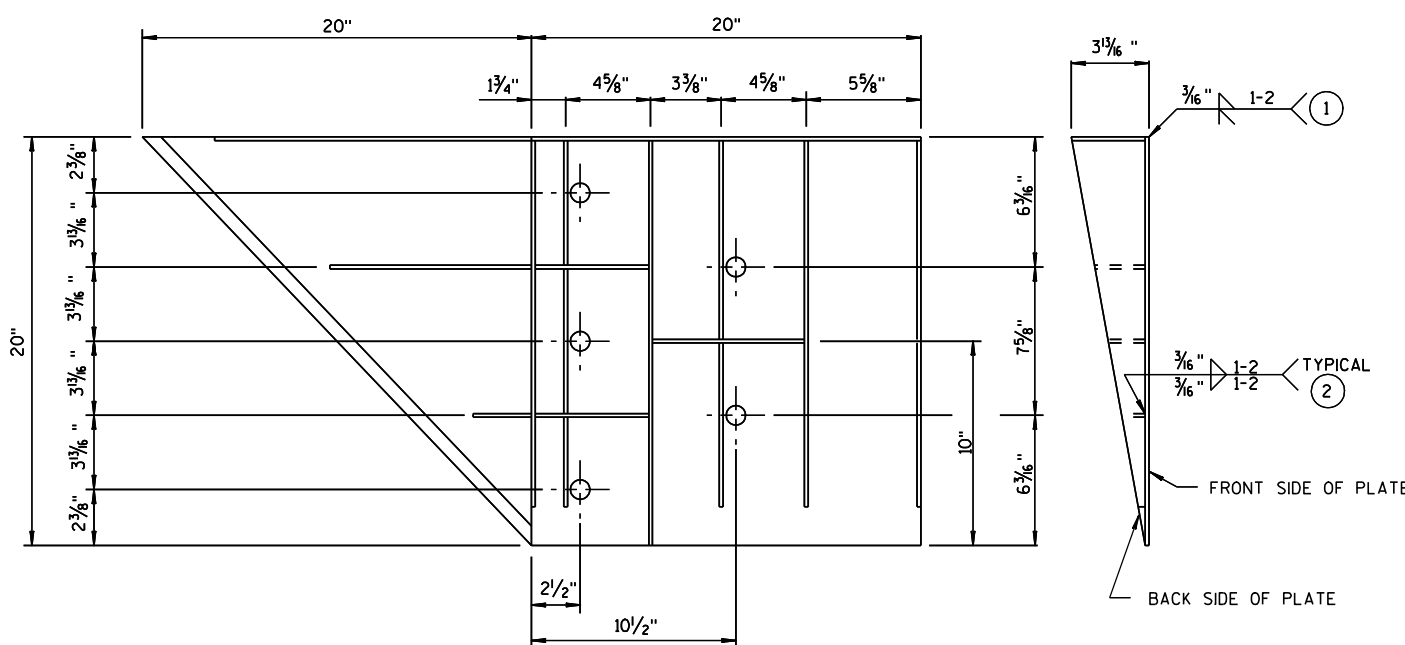
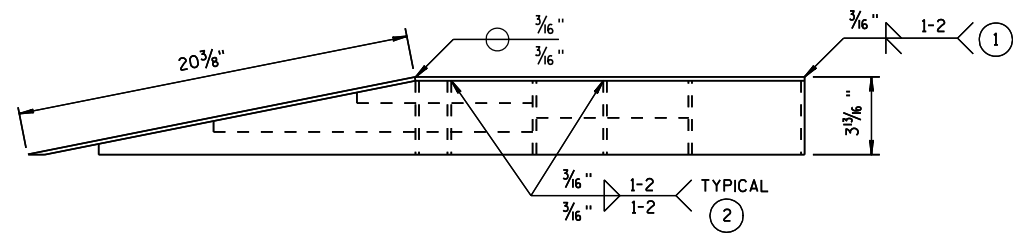
CONNECTOR PLATE SHALL BE FABRICATED FROM ASTM GRADE A36 STEEL AND GALVANIZED.

FOR GALVANIZED REQUIREMENTS, SEE SECTION 614 OF THE STANDARD SPECIFICATIONS.

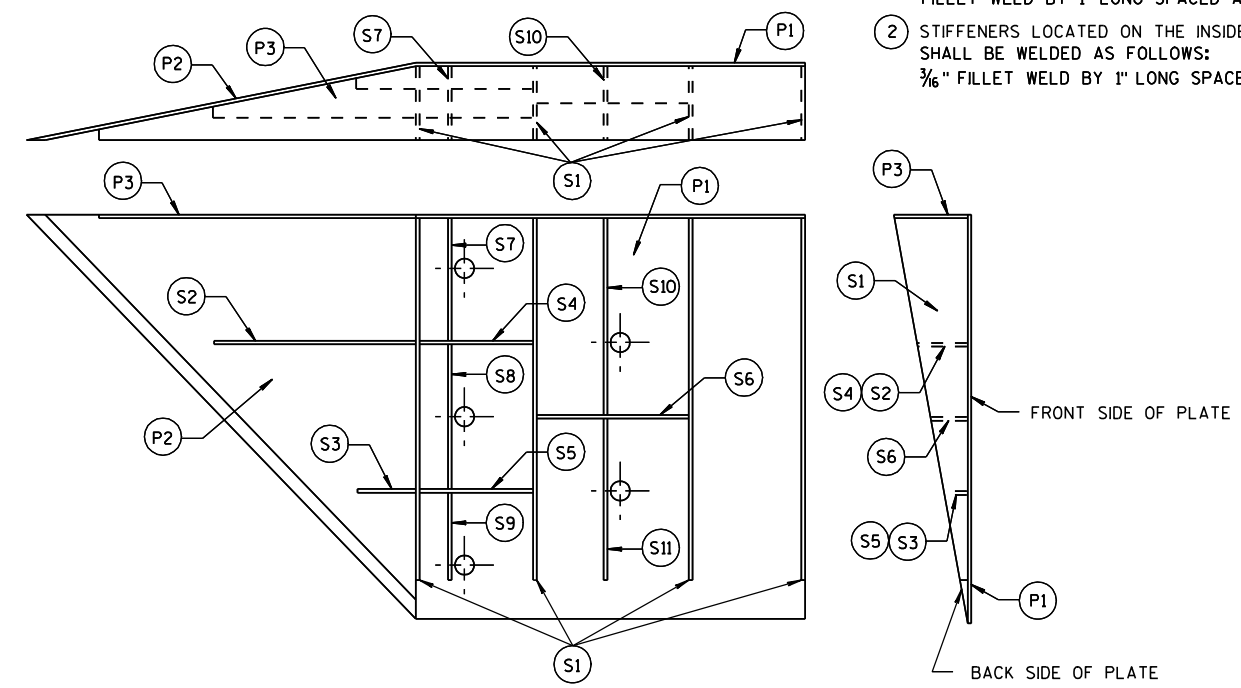
ALL HOLE DIAMETERS SHALL BE 1".

FOR OPPOSITE SIDE INSTALLATION MIRROR DRAWINGS.

- ① STIFFENERS LOCATED AT THE OUTSIDE EDGES OF THE COVER PLATES SHALL BE WELDED AS FOLLOWS:  
SINGLE BEVEL GROOVE WELD ON EXTERNAL SIDES AND  $\frac{3}{16}$ " FILLET WELD BY 1" LONG SPACED AT 2" ON INTERNAL SIDES.
- ② STIFFENERS LOCATED ON THE INSIDE OF THE COVER PLATE SHALL BE WELDED AS FOLLOWS:  
 $\frac{3}{16}$ " FILLET WELD BY 1" LONG SPACED AT 2".



**WELDING INSTRUCTION**  
(VIEWED FROM BACK SIDE OF PLATE)



**PLATE AND STIFFENER IDENTIFICATION**  
(VIEWED FROM BACK SIDE OF PLATE)

CONNECTOR PLATE DIMENSION (PER ASSEMBLY)				
PLATE	QUANTITY	SHAPE	SIZE (A x B x C x D)	THICKNESS
P1	1		20" x 20"	$\frac{3}{16}$ "
P2	1		20" x 20" x 28 $\frac{3}{16}$ "	$\frac{3}{16}$ "
P3	1		39" x 3 $\frac{5}{8}$ " x 20" x 19 $\frac{5}{16}$ "	$\frac{3}{16}$ "
S1	4		18 $\frac{7}{16}$ " x 3 $\frac{5}{8}$ " x 18 $\frac{3}{4}$ "	$\frac{1}{4}$ "
S2	1		10 $\frac{1}{4}$ " x 2 $\frac{7}{16}$ " x 10 $\frac{3}{8}$ " x $\frac{1}{2}$ "	$\frac{1}{4}$ "
S3	1		3" x 1 $\frac{1}{16}$ " x 3 $\frac{3}{8}$ " x $\frac{1}{2}$ "	$\frac{1}{4}$ "
S4	1		6 $\frac{1}{8}$ " x 2 $\frac{7}{16}$ "	$\frac{1}{4}$ "
S5	1		6 $\frac{1}{8}$ " x $\frac{1}{16}$ "	$\frac{1}{4}$ "
S6	1		7 $\frac{3}{4}$ " x 1 $\frac{3}{4}$ "	$\frac{1}{4}$ "
S7	1		2 $\frac{3}{16}$ " x 6" x 3 $\frac{5}{8}$ " x 5 $\frac{7}{8}$ "	$\frac{1}{4}$ "
S8	1		1 $\frac{7}{32}$ " x 7 $\frac{1}{2}$ " x 2 $\frac{1}{2}$ " x 7 $\frac{3}{8}$ "	$\frac{1}{4}$ "
S9	1		6 $\frac{1}{16}$ " x 6 $\frac{7}{16}$ " x 1 $\frac{7}{32}$ "	$\frac{1}{4}$ "
S10	1		1 $\frac{7}{8}$ " x 9 $\frac{7}{8}$ " x 3 $\frac{5}{8}$ " x 9 $\frac{1}{16}$ "	$\frac{1}{4}$ "
S11	1		8 $\frac{1}{2}$ " x 8 $\frac{3}{4}$ " x 1 $\frac{1}{16}$ "	$\frac{1}{4}$ "

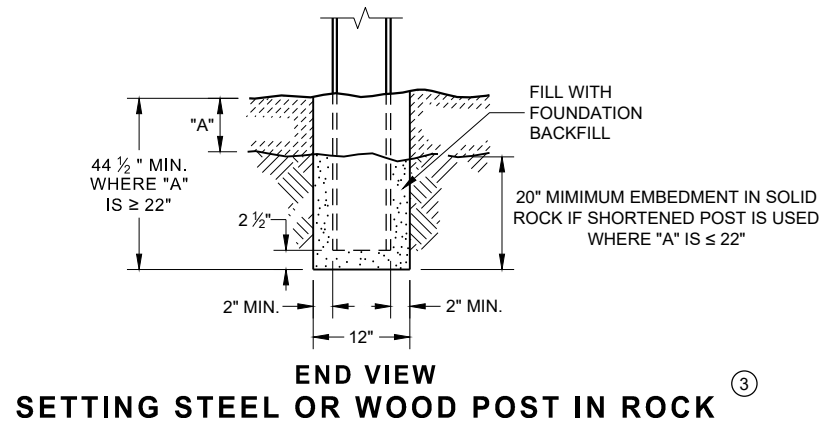
**STEEL THRIE BEAM STRUCTURE APPROACH**

**STEEL THRIE BEAM  
STRUCTURE APPROACH,  
CONNECTOR PLATE DETAIL**

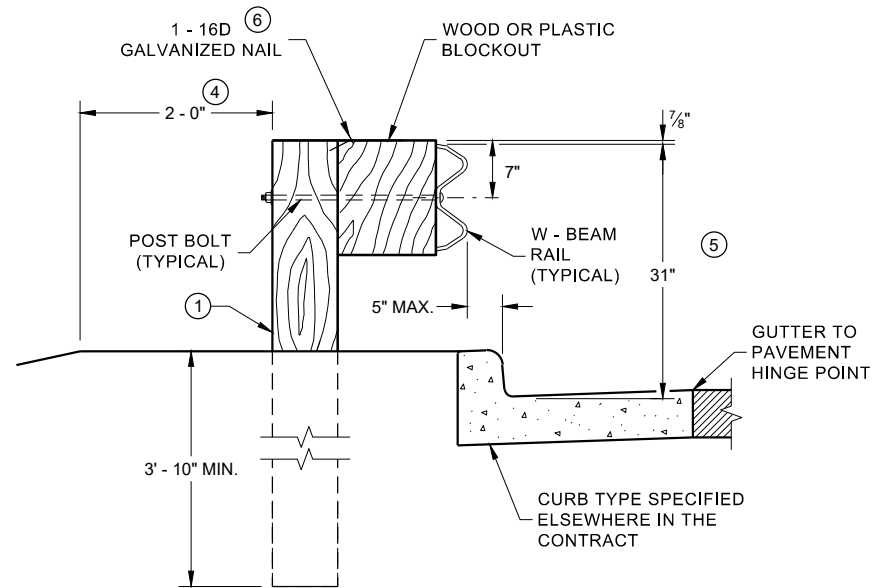
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
8/31/2012 DATE /S/ Jerry H. Zogg  
DATE ROADWAY STANDARDS DEVELOPMENT  
ENGINEER  
FHWA

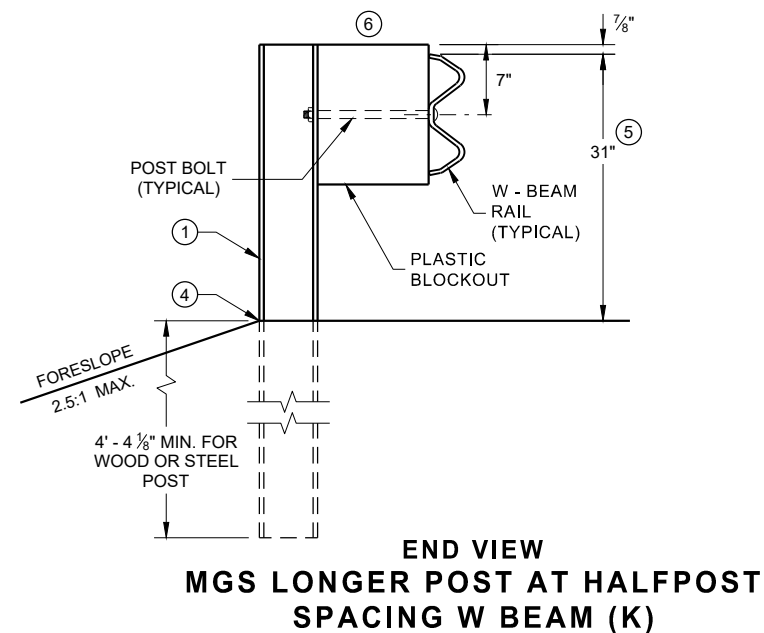
- ① WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.
- ③ IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2 1/2" INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AND INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.
- ④ WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).
- ⑤ FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ±1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 3/4" TO 32".
- ⑥ WHEN USING STEEL POST AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- ⑦ TOTAL POST LENGTH FOR TYPE K IS 7' - 0". TOTAL POST LENGTH FOR OTHER MGS TYPES IS 6' - 0".



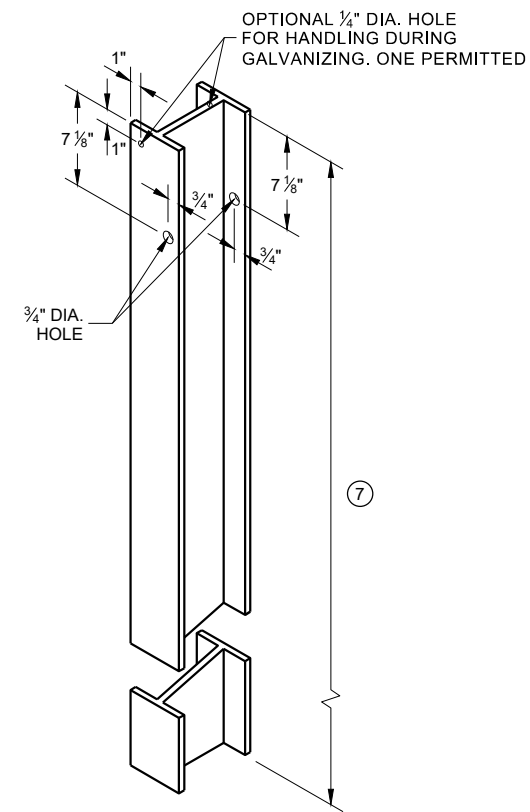
**END VIEW  
SETTING STEEL OR WOOD POST IN ROCK** ③



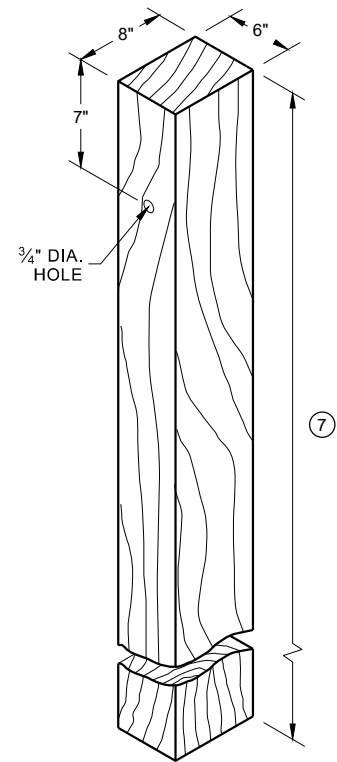
**END VIEW  
LOCATED ALONG A CURBED ROADWAY**



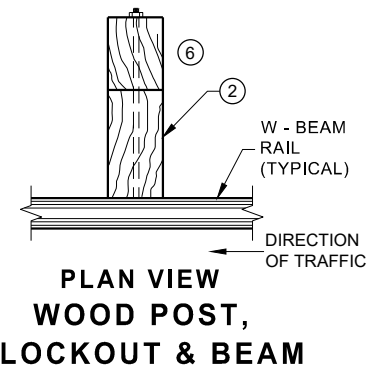
**END VIEW  
MGS LONGER POST AT HALFPST  
SPACING W BEAM (K)**



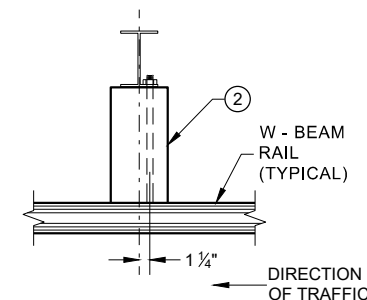
**STEEL POST & HOLE  
PUNCHING DETAIL  
(W 6 X 9)** ①



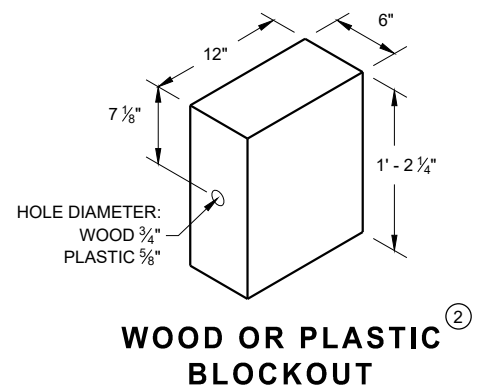
**WOOD POST  
(6" X 8") NOMINAL** ①



**PLAN VIEW  
WOOD POST,  
BLOCKOUT & BEAM**



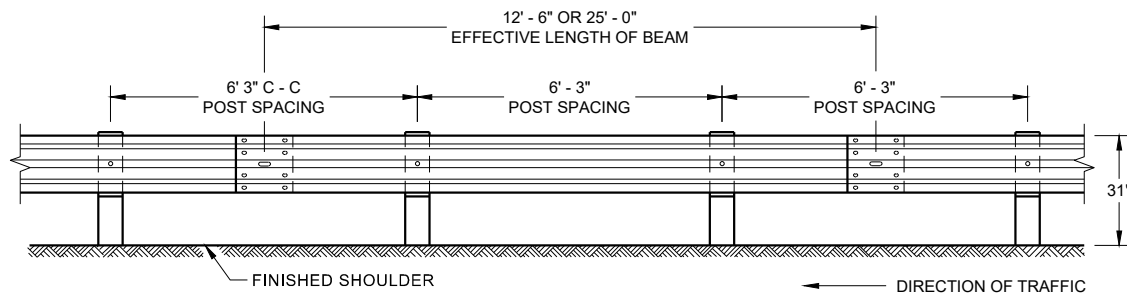
**PLAN VIEW  
STEEL POST,  
PLASTIC BLOCKOUT & BEAM**



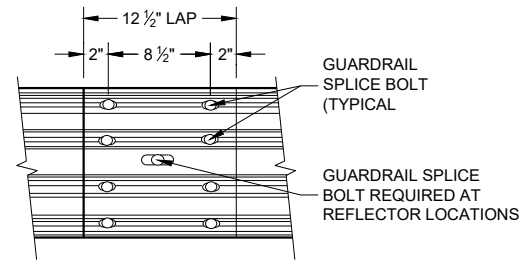
**WOOD OR PLASTIC  
BLOCKOUT** ②

**MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



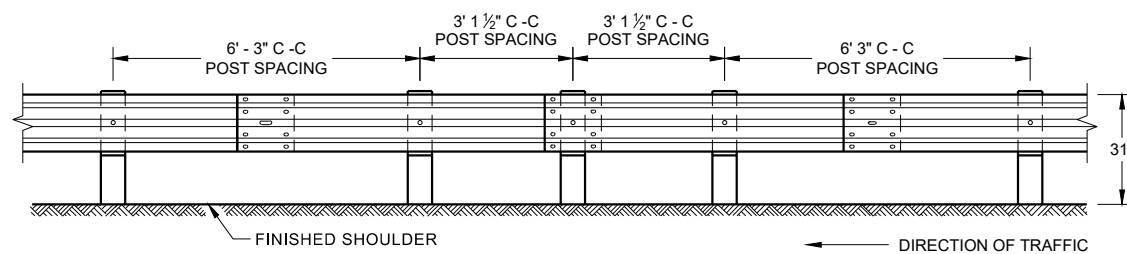
**FRONT VIEW  
POST SPACING STANDARD INSTALLATION**



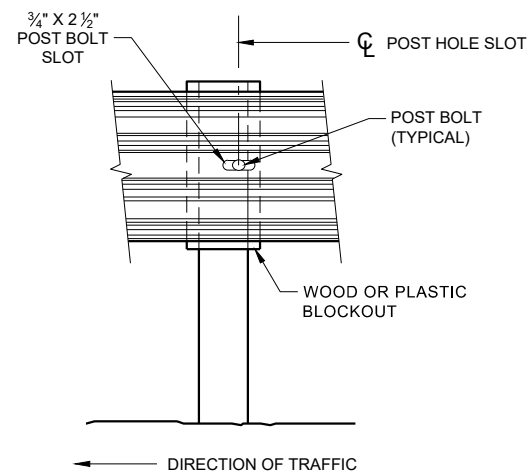
**FRONT VIEW  
MID-SPAN BEAM SPLICE**

**GENERAL NOTES**

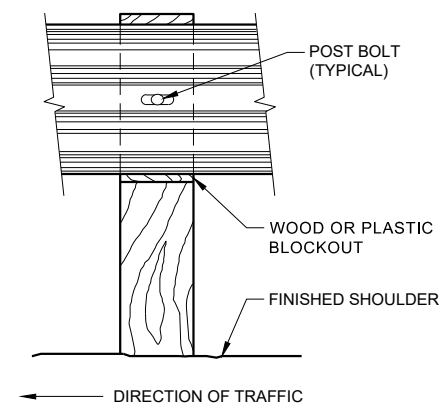
- ⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
  - ⑨ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.
- POST BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 3/4" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 3/8" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.
- GUARD RAIL SPLICE BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 3/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



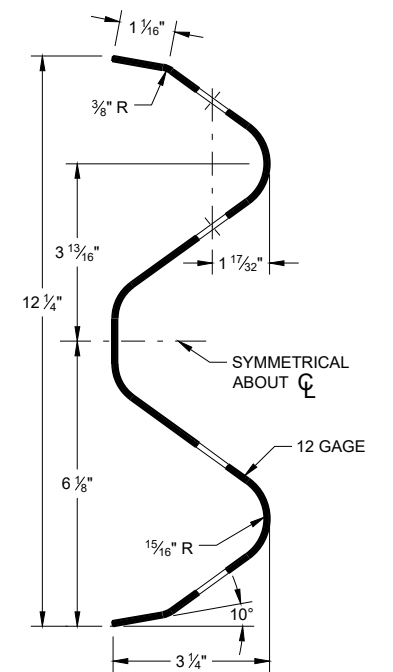
**FRONT VIEW  
HALF POST SPACING (HS) AND  
HALF POST SPACING WITH LONGER POSTS (K)**



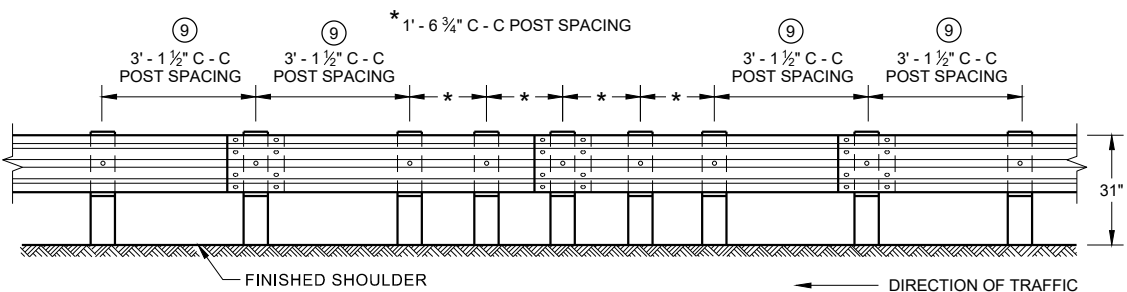
**FRONT VIEW AT STEEL POST**



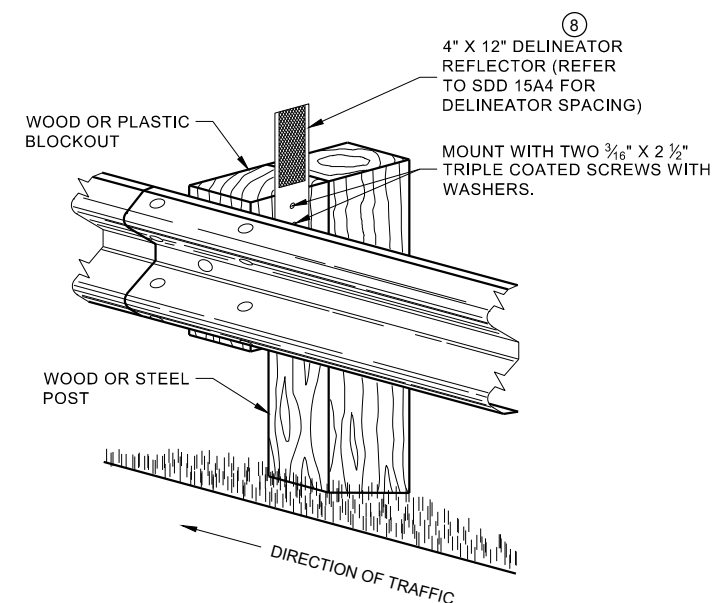
**FRONT VIEW AT WOOD POST**



**SECTION THRU W-BEAM RAIL**



**FRONT VIEW  
QUARTER POST SPACING (QS)**



**ONE SIDED REFLECTOR DETAIL  
AND TYPICAL INSTALLATION**

**MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL**

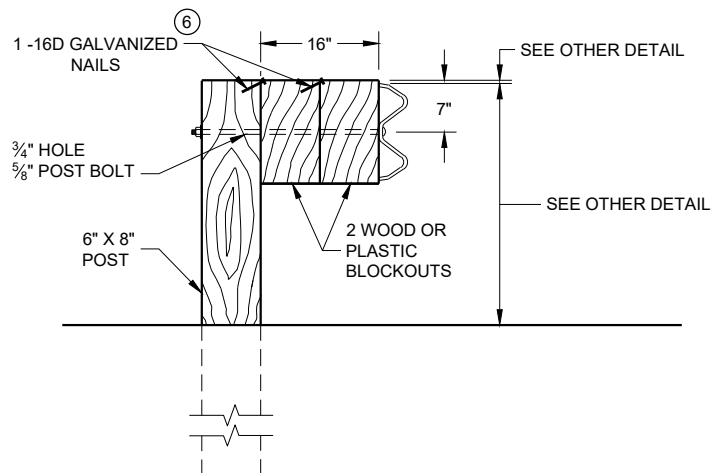
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

6

6

SDD 14B42 - 07b

SDD 14B42 - 07b

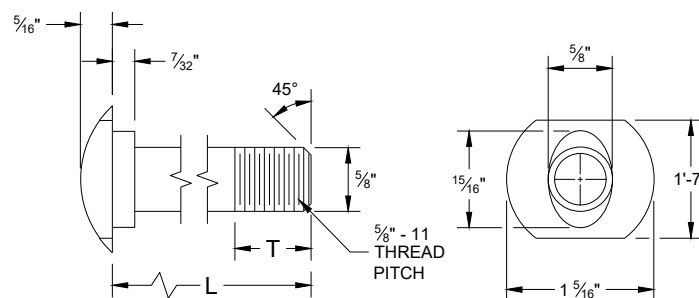


**DETAIL FOR 16" BLOCKOUT DEPTH**

IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.

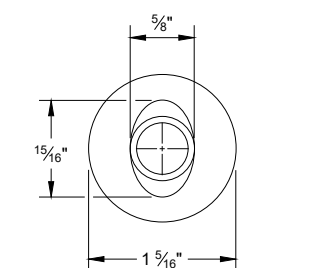
**NOTE:**

1. ALL FILLETS SHALL HAVE A MINIMUM RADIUS OF 3/16".
2. IF THE BOLT EXTENDS MORE THAN 1/4" FROM THE NUT THE BOLT SHOULD BE TRIMMED BACK.

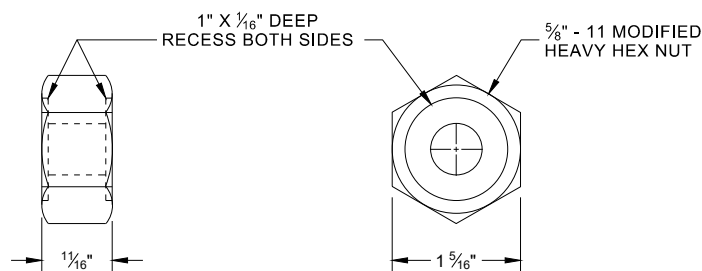


**POST BOLT TABLE**

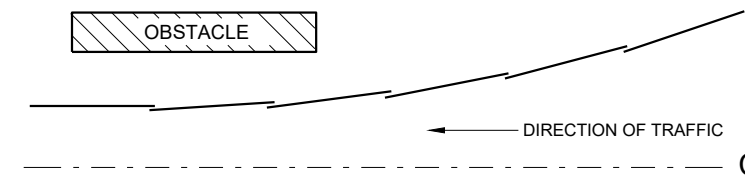
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



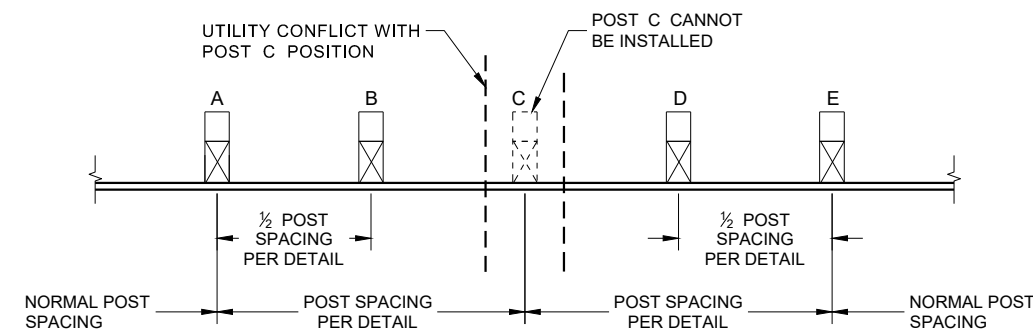
**ALTERNATE BOLT HEAD**



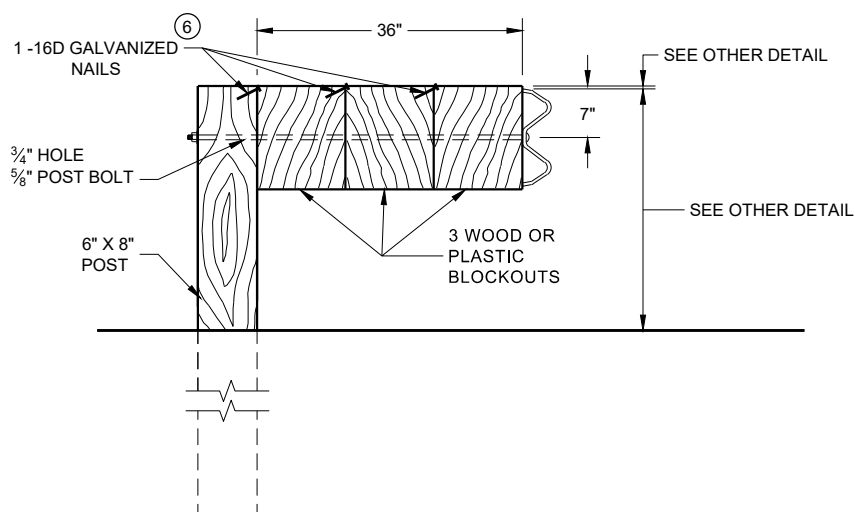
**POST BOLT, SPLICE BOLT AND RECESS NUT**



**PLAN VIEW BEAM LAPPING DETAIL**

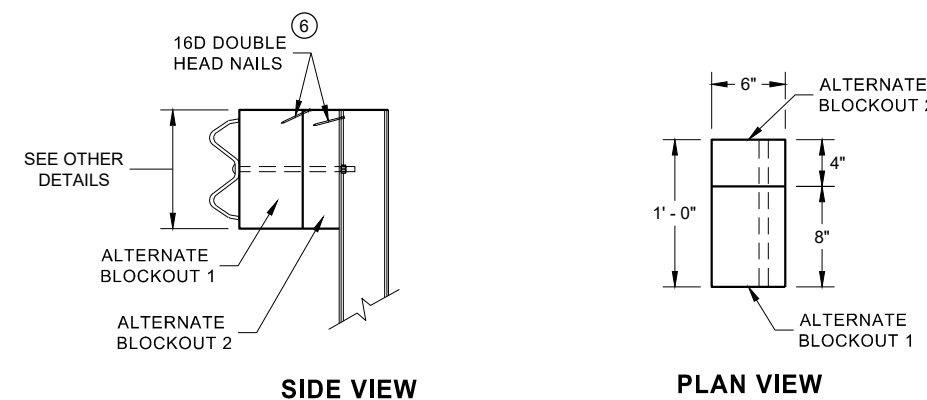


**POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION**



**DETAIL FOR 36" BLOCKOUT DEPTH**

NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL. DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

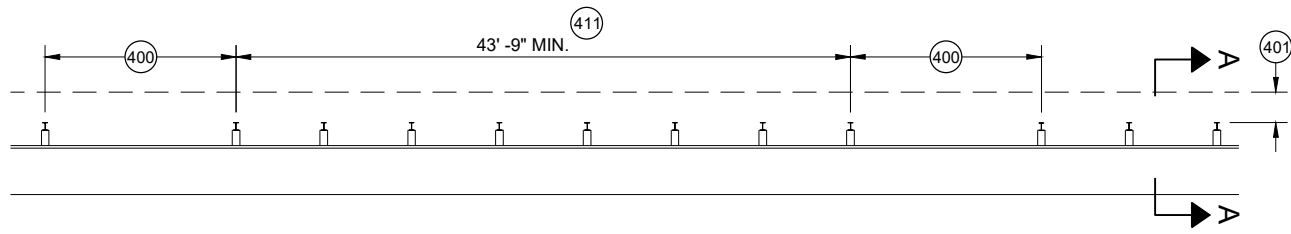


**ALTERNATE WOOD BLOCKOUT DETAIL**

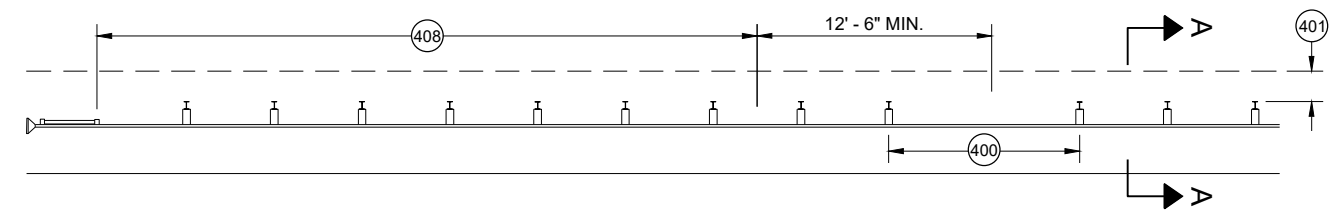
6 WHEN USING STEEL POST AND WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

**MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL**

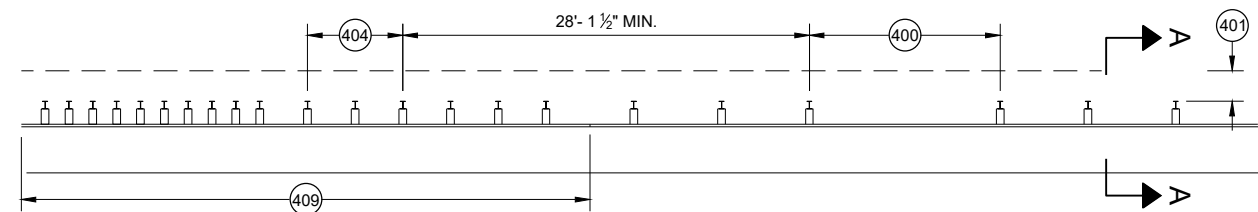
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



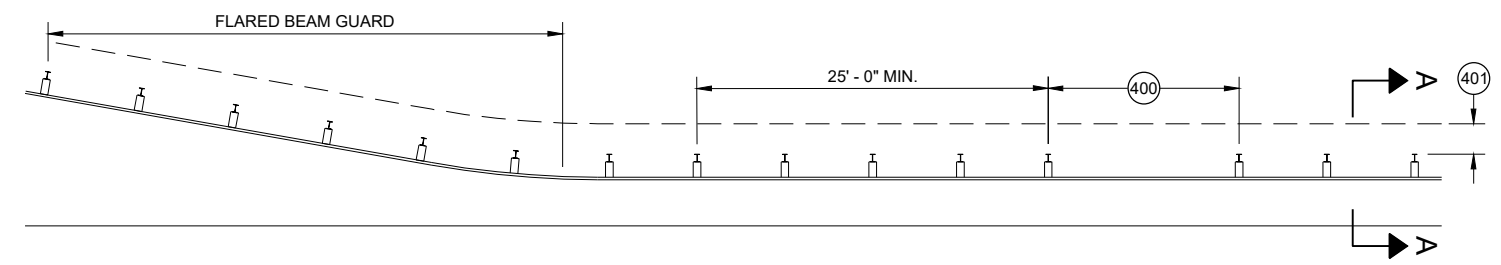
**MISSING POST IN MGS GUARDRAIL**



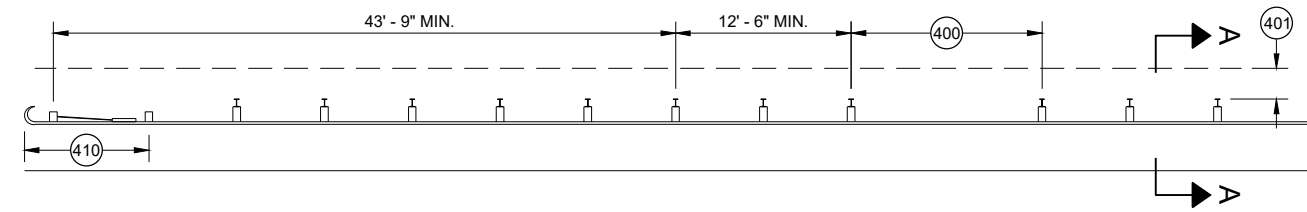
**MISSING POST IN MGS GUARDRAIL NEAR EAT**



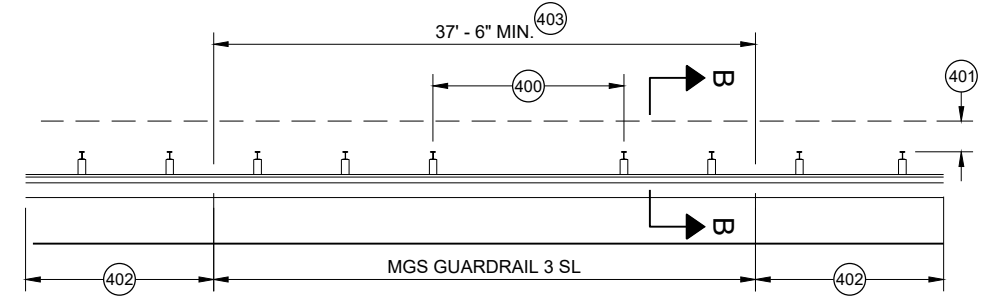
**MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION**



**MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD**

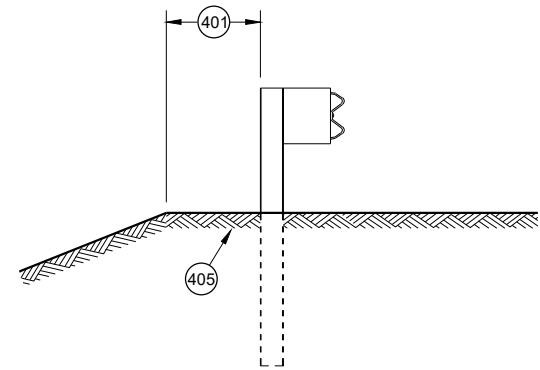


**MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL**

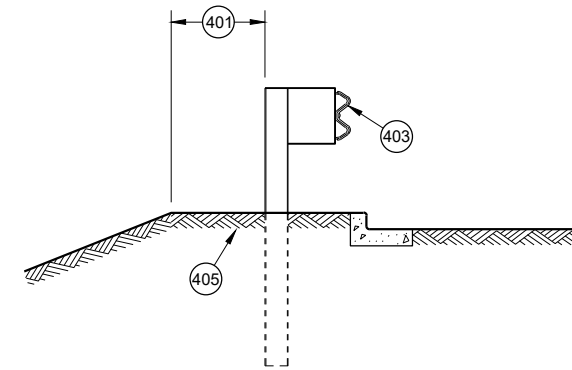


**MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL)**

- 400 MAX SPAN 12' - 6"
- 401 2' MIN.
- 402 MGS GUARDRAIL 3
- 403 NESTING BEAM GUARD
- 404 ASYMMETRIC TRANSITION
- 405 SOIL WELL DRAINED AND COMPACTED
- 406 SEE OTHER DRAWINGS IN THIS SDD
- 407 SEE OTHER DRAWINGS FOR MIN. SPACING BETWEEN SPANS
- 408 SEE SDD 14B44
- 409 SEE SDD 14B45
- 410 SEE SDD 14B47
- 411 MINIMUM DISTANCE BETWEEN MISSING POST SPANS.



**SECTION A - A**



**SECTION B - B**

<b>MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2021 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
<small>FHWA</small>	



**GENERAL NOTES**

- (A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
  - (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED
  - (C) DIFFERENT MANUFACTURERS REQUIRE DIFFERENT PERFORATED W - BEAM RAIL END PANELS. SEE MANUFACTURER'S INFORMATION.
  - (D) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF - TAPPING SCREWS. ONE SCREW PER CORNER.
  - (E) HARDWARE MAY VARY BETWEEN MANUFACTURER. SEE MANUFACTURER'S DRAWING FOR INFORMATION.
- DIMENSIONS MAY VARY, MANUFACTURER'S INFORMATION.

SEE SDD 14B42 FOR MORE INFORMATION.

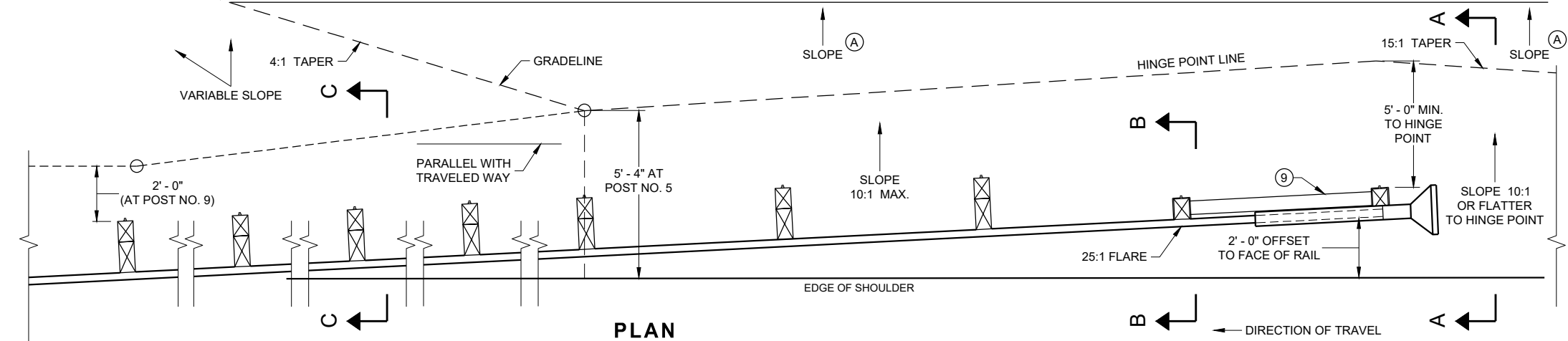
\* DO NOT ATTACH BLOCKOUTS TO POST 1 AND 2.

DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

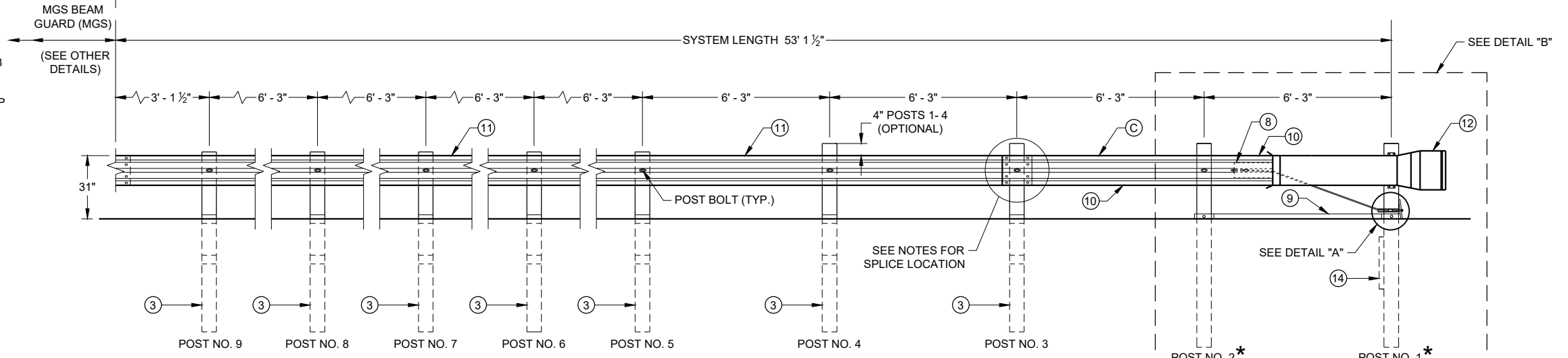
SEE MANUFACTURER'S DRAWING FOR SPLICE LOCATION, HARDWARE DIMENSIONS AND INSTALLATION INSTRUCTIONS.

THE CENTER OF THE UPPER 3 1/2" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE. WOOD BLOCKS ON POSTS NUMBERED 3 THROUGH 9 MAY BE ADJUSTED UP TO 3" ABOVE THE TOP OF POST.

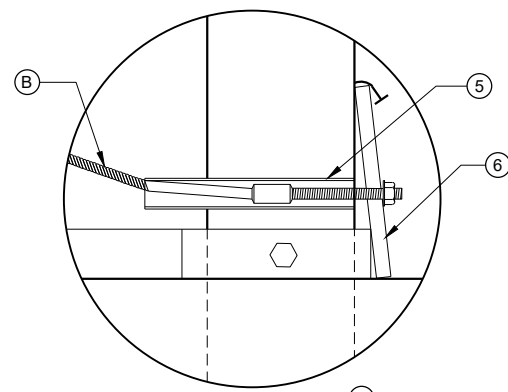
CLEAR ZONE LIMITS, EITHER AS SHOWN ELSEWHERE IN THE PLANS OR, IF NOT SHOWN ELSEWHERE IN THE PLANS, 15 FEET BEYOND THE HINGE POINT LINE



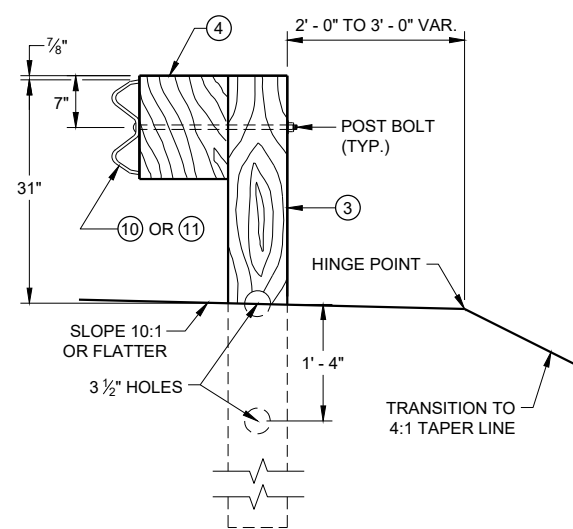
**PLAN**



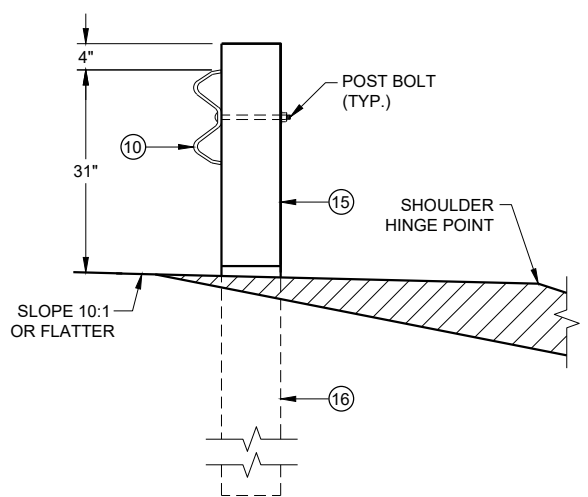
**ELEVATION**



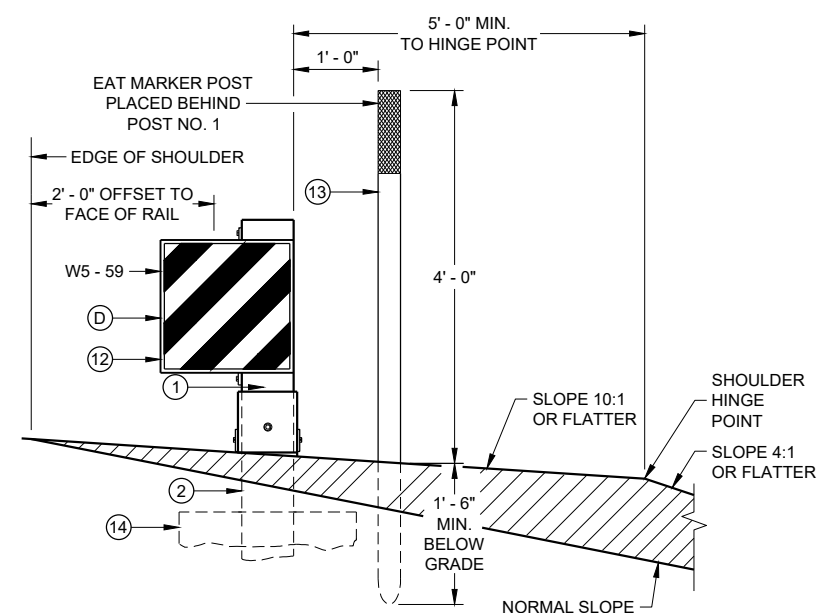
**DETAIL "A"**



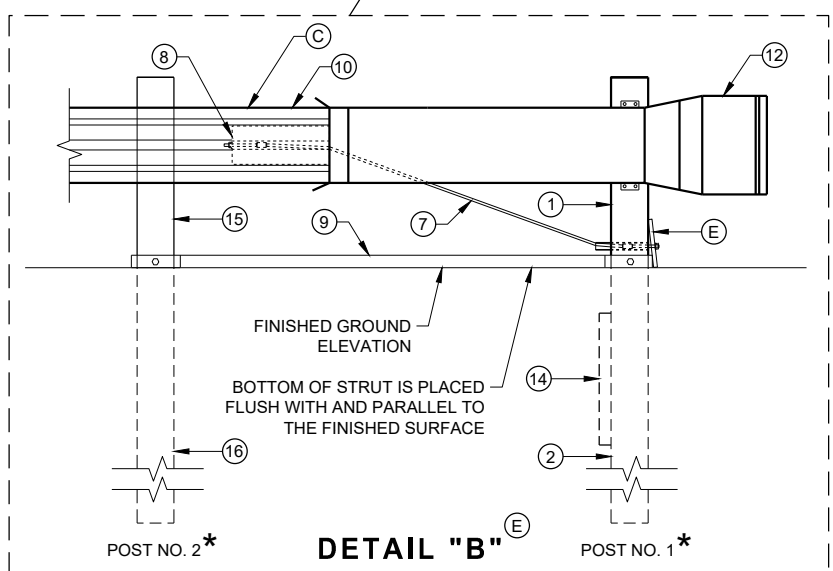
**SECTION C - C  
TYPICAL AT POST NOS. 3 - 9**



**SECTION B - B  
TYPICAL AT POST NO. 2\***



**SECTION A - A  
TYPICAL AT POST NO. 1\***



**DETAIL "B"**

**MIDWEST GUARDRAIL SYSTEM  
ENERGY ABSORBING TERMINAL  
(MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

6

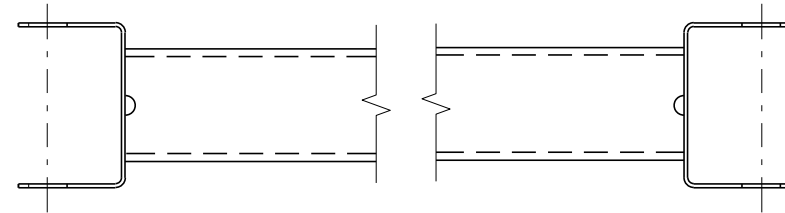
6

SDD 14B44 - 04a

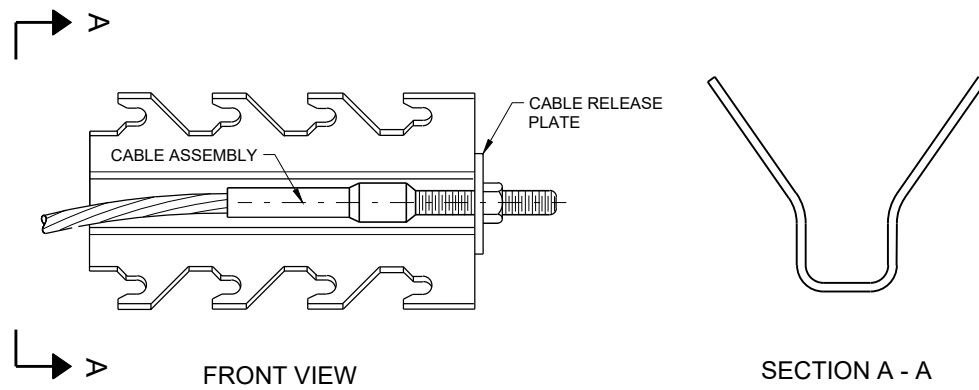
SDD 14B44 - 04a

**BILL OF MATERIALS**

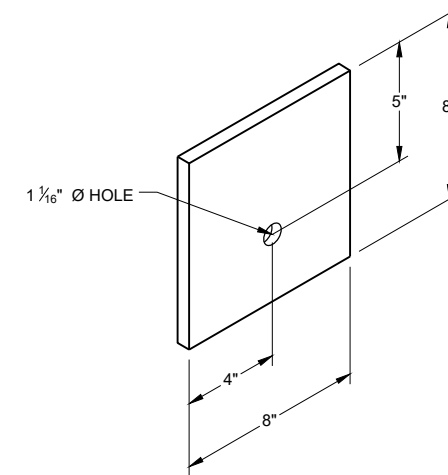
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
①	UPPER POST NO. 1 6" X 6" TUBE
②	LOWER POST NO. 1
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED W-BEAM RAIL END PANEL, 12'-6" LONG.
⑪	STANDARD W-BEAM RAIL. MULTIPLE SECTIONS REQUIRED. SECTIONS VARY IN LENGTH.
⑫	IMPACT HEAD
⑬	EAT MARKER POST - YELLOW (SEE APPROVED PRODUCTS LIST)
⑭	SOIL PLATE
⑮	UPPER POST NO. 2
⑯	LOWER POST NO. 2



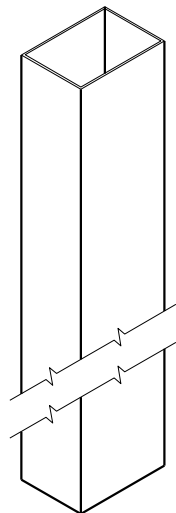
**GENERIC GROUND STRUT** ⑨ ⑤



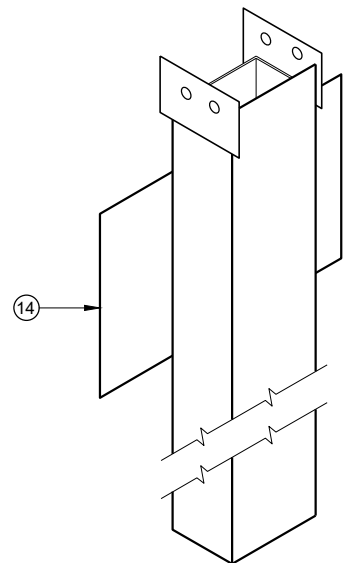
**GENERIC ANCHOR CABLE BOX** ⑨ ⑤



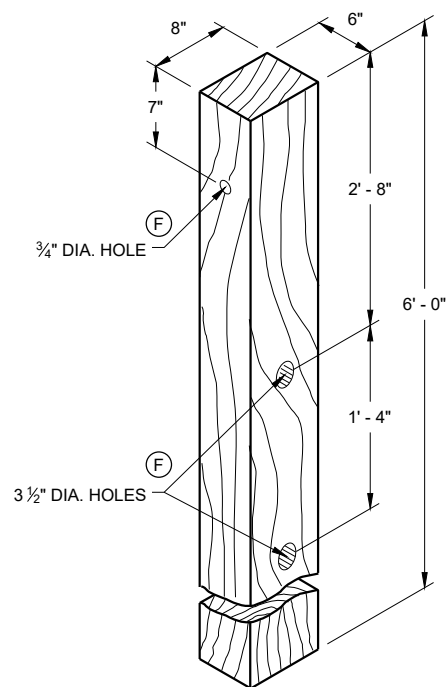
**BEARING PLATE** ⑥ ⑤



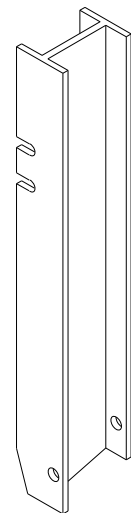
UPPER POST NO. 1 <sup>(1)</sup> (E)



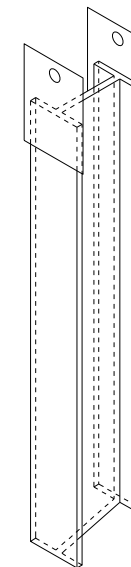
LOWER POST NO. 1 <sup>(2)</sup> (E)



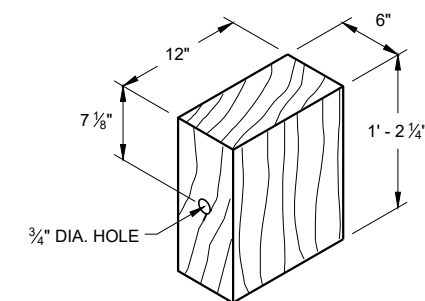
WOOD CRT POST <sup>(3)</sup> (E)  
POSTS NUMBER 3-9



UPPER POST NO. 2 <sup>(15)</sup> (E)

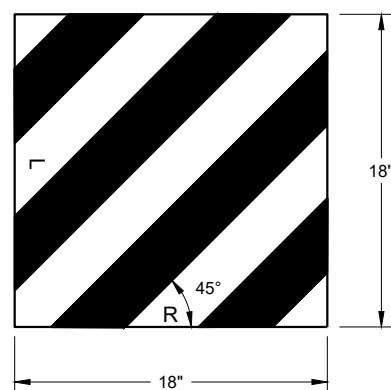


LOWER POST NO. 2 <sup>(16)</sup> (E)



WOOD BLOCKOUT <sup>(4)</sup>  
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2

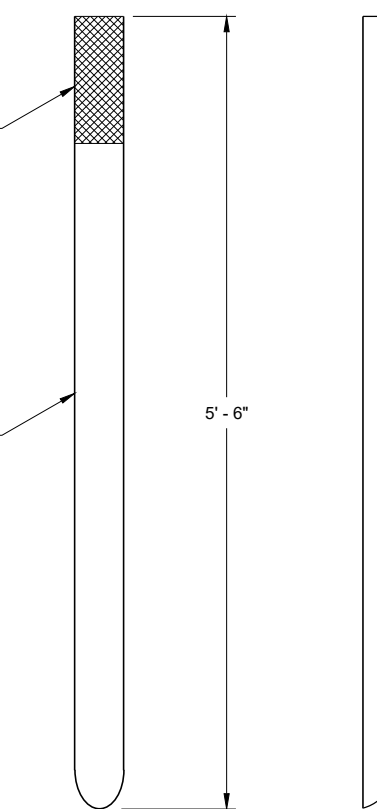
6



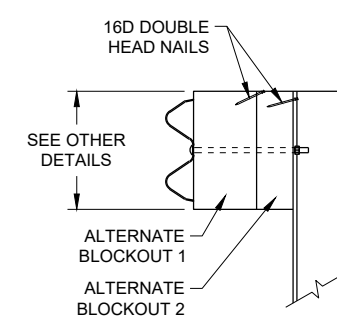
REFLECTIVE SHEETING DETAIL <sup>(E)</sup>

TYPE H  
YELLOW REFLECTIVE  
SHEETING 3" X 9".  
SEE STANDARD  
SPECIFICATION 637.

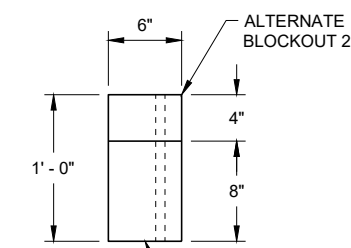
E.A.T. MARKER  
POST (YELLOW)



FRONT VIEW SIDE VIEW  
E.A.T. MARKER POST <sup>(13)</sup>



SIDE VIEW



TOP VIEW

ALTERNATE WOOD  
BLOCKOUT DETAIL

6

SDD 14B44 - 04c

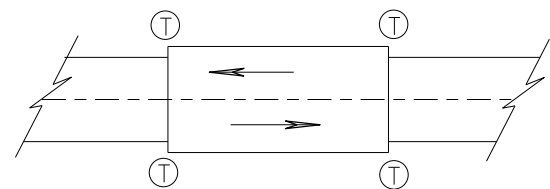
SDD 14B44 - 04c

**MIDWEST GUARDRAIL SYSTEM  
ENERGY ABSORBING TERMINAL  
(MGS)**

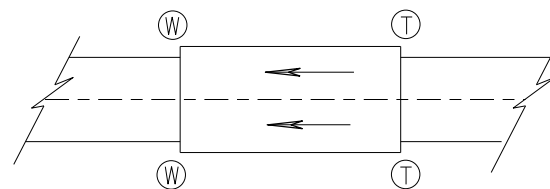
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
7/2018 DATE /S/ Rodney Taylor  
ROADWAY STANDARDS DEVELOPMENT  
UNIT SUPERVISOR

FHWA



**TWO WAY TRAFFIC**



**ONE WAY TRAFFIC**

(T) THRIE BEAM CONNECTION

(W) W-BEAM CONNECTION WHEN REQUIRED

**TYPICAL LOCATIONS OF THRIE BEAM AND W-BEAM CONNECTIONS TO BRIDGE**

**GENERAL NOTES**

IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

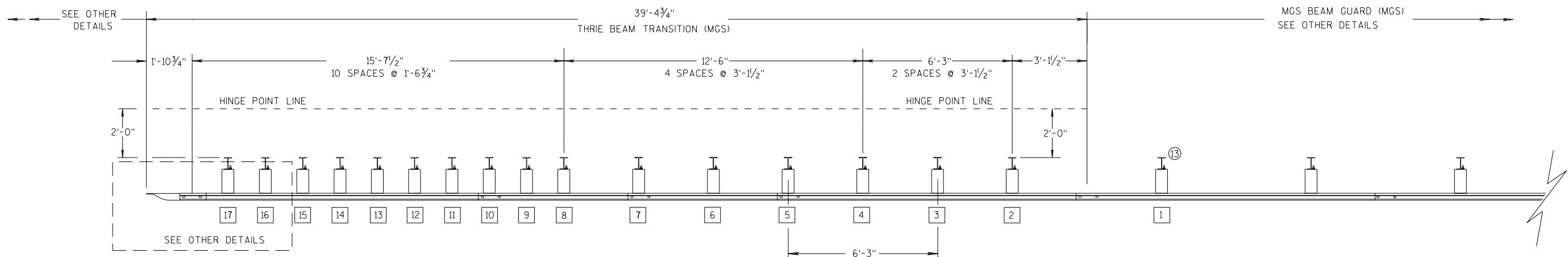
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

POST 2 THROUGH 17 USES STEEL POST ONLY

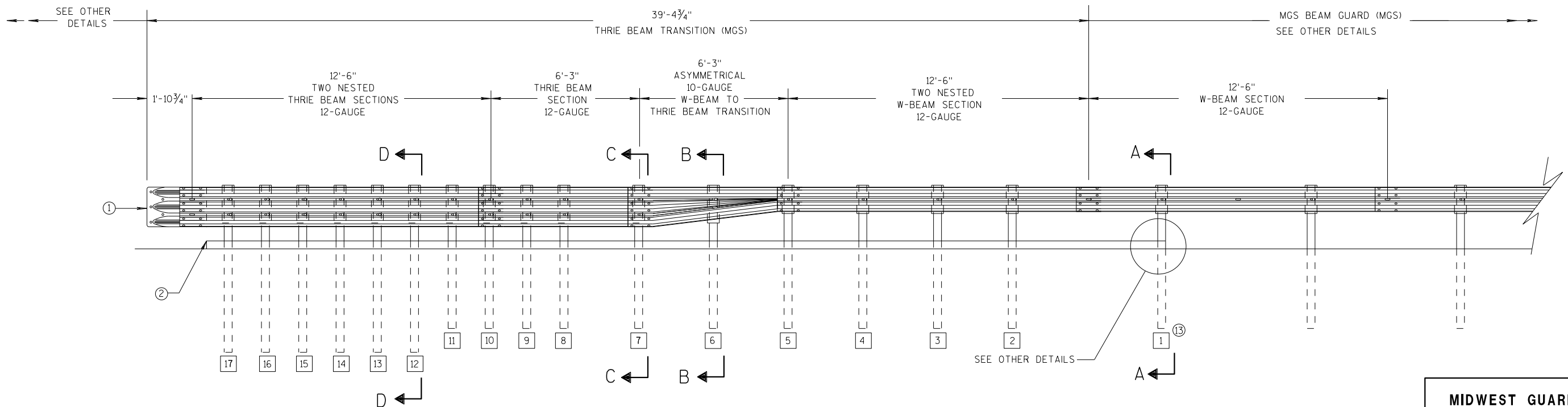
① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.

② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

⑬ STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD14B42



**PLAN VIEW**



**ELEVATION VIEW**

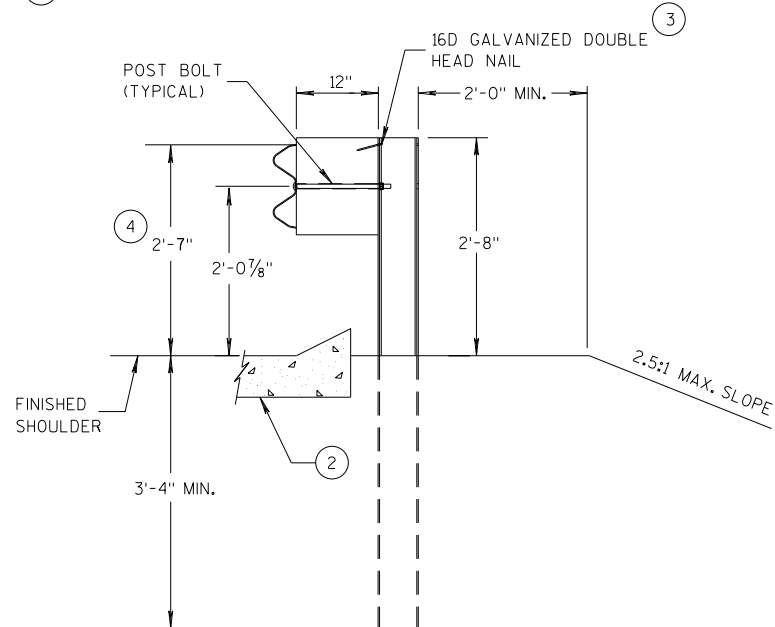
**MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION**

**MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)**

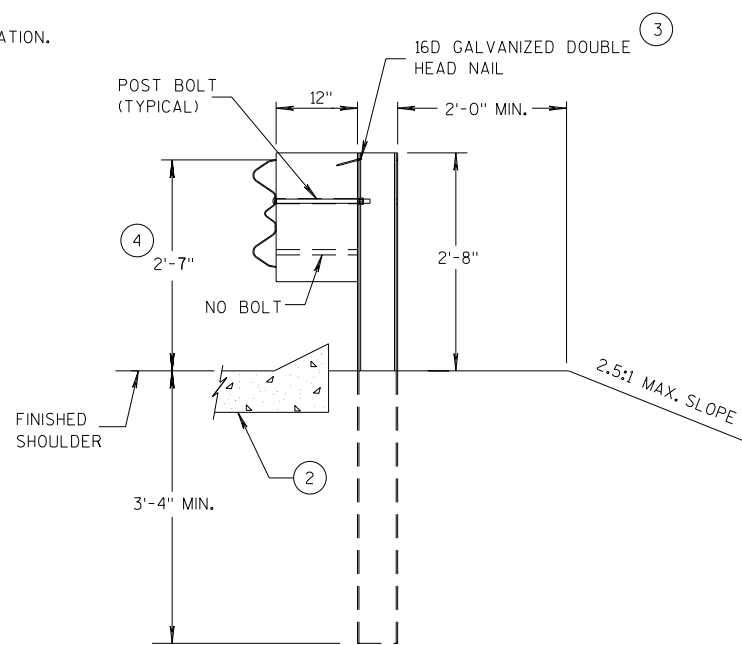
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

**GENERAL NOTES**

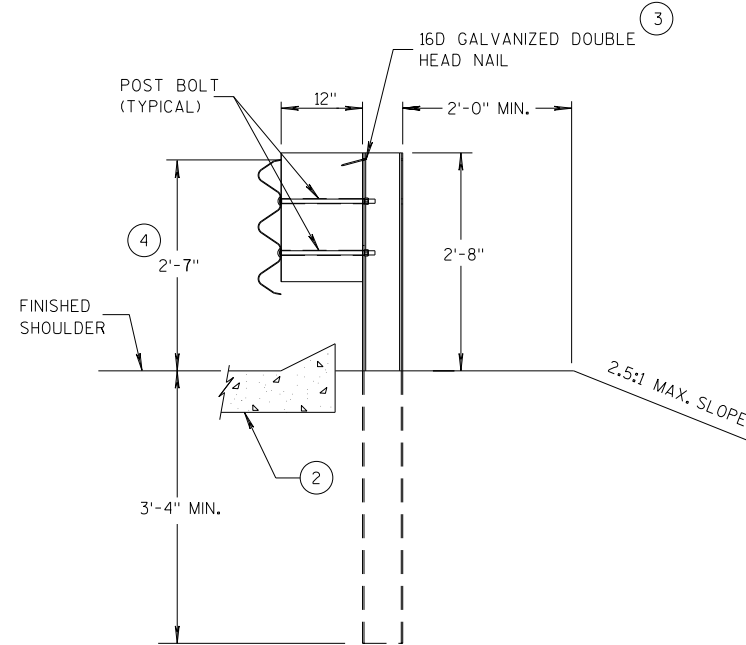
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ③ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- ④ TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".
- ⑬ STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42



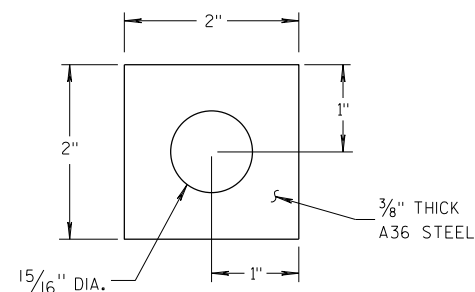
**SECTION A-A  
POSTS 1-5**



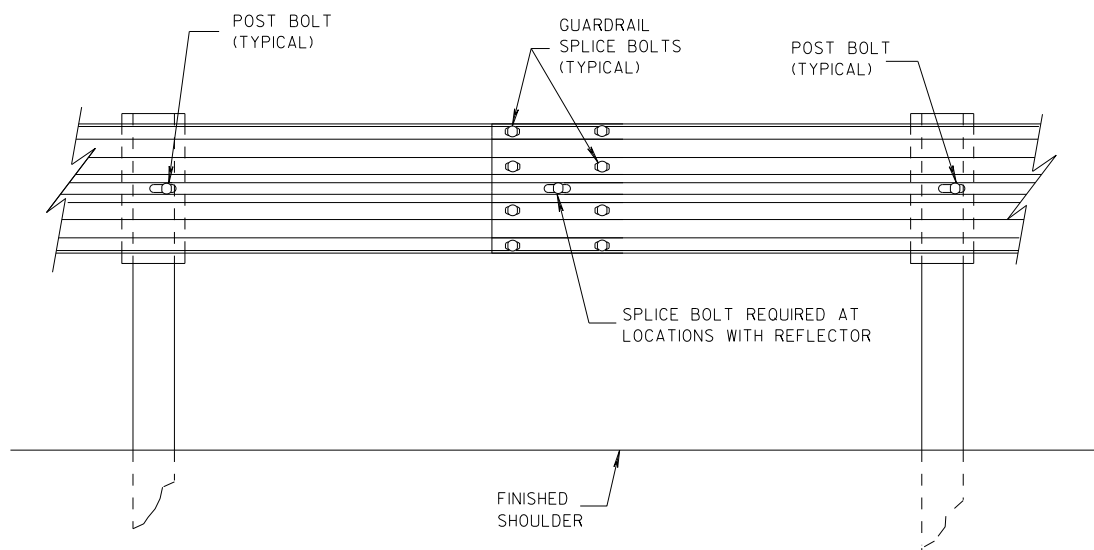
**SECTION B-B  
POST 6**



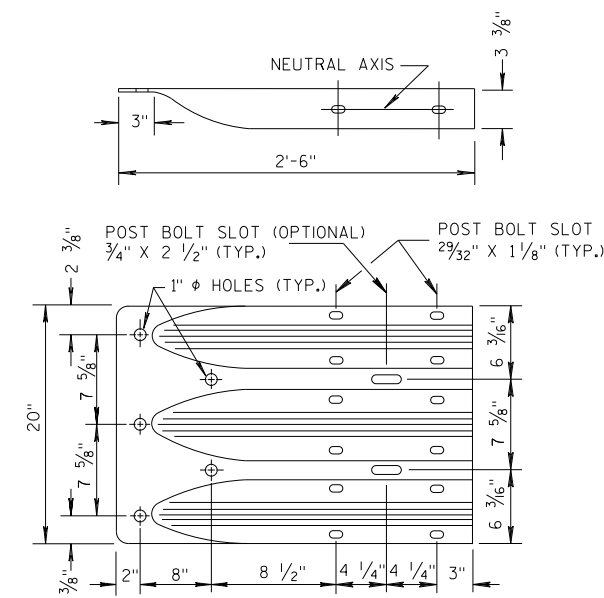
**SECTION C-C  
POSTS 7-11**



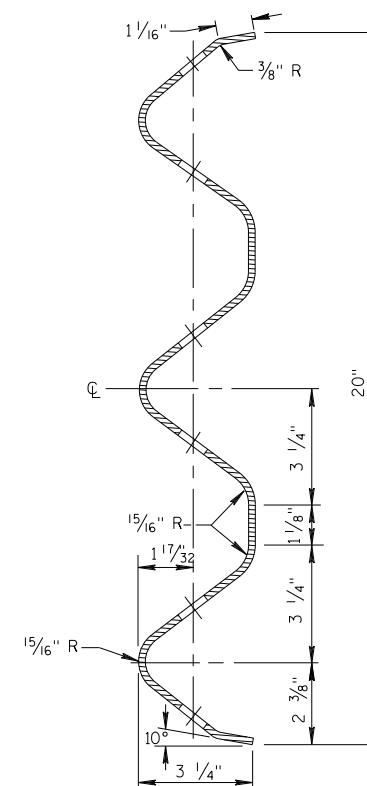
**PLATE WASHER DETAIL**



**SPLICE DETAIL**



**THRIE BEAM  
TERMINAL CONNECTOR**

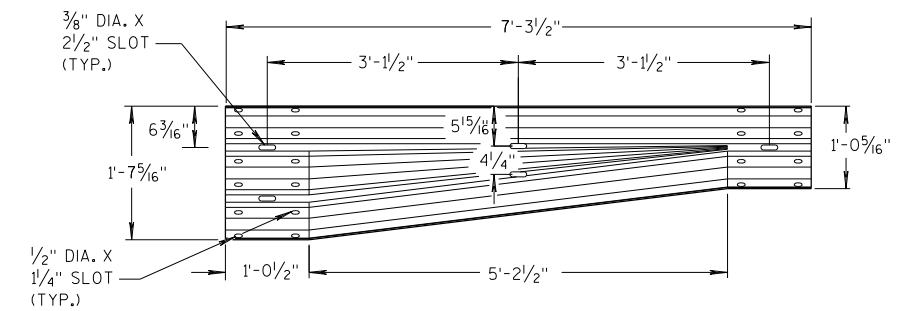


**SECTION THRU THRIE  
BEAM RAIL ELEMENT**

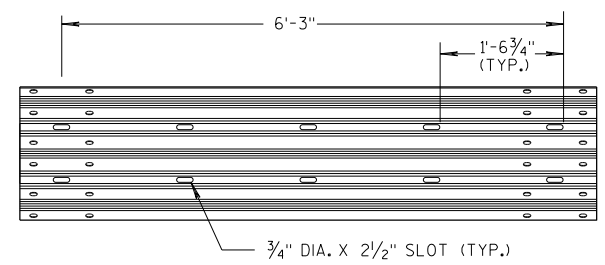
**MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

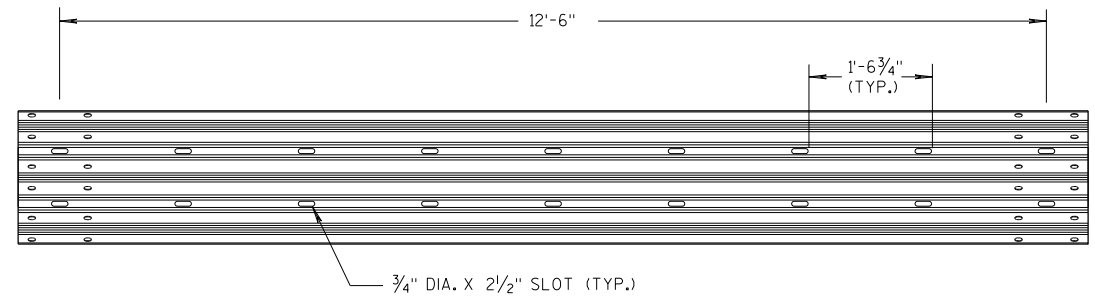
**SECTION D-D  
POSTS 12-17**



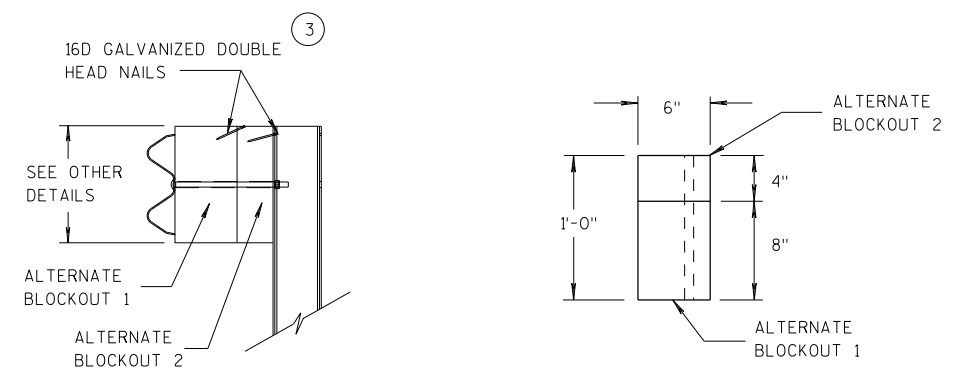
**W-BEAM TO THRIE BEAM TRANSITION SECTION**



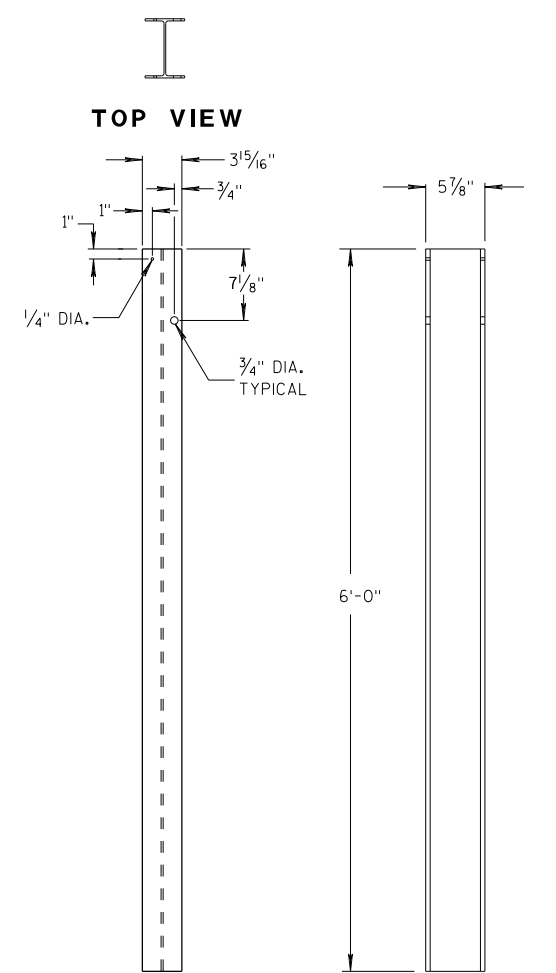
**6'-3\"/>**



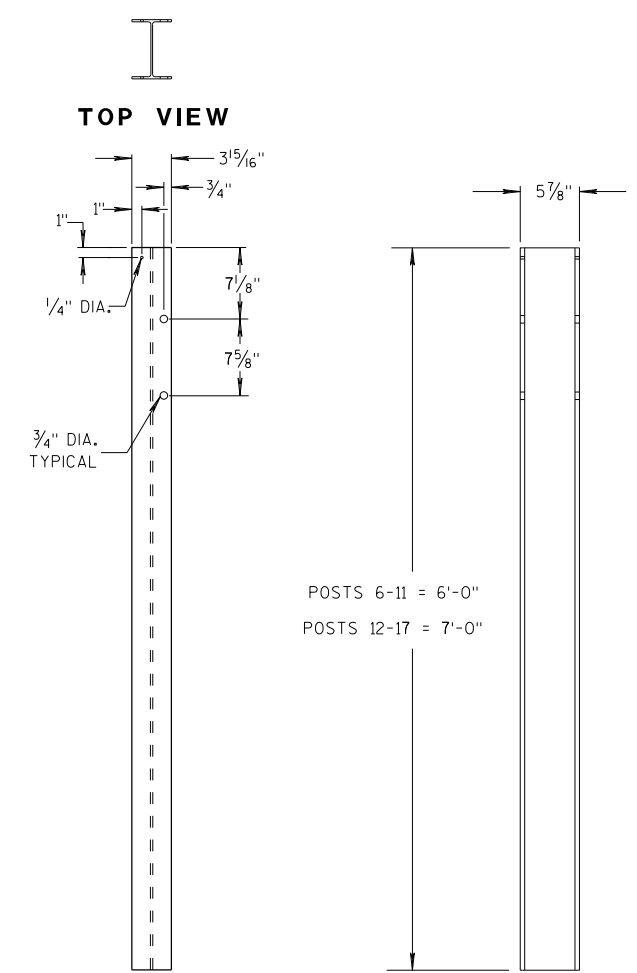
**12'-6\"/>**



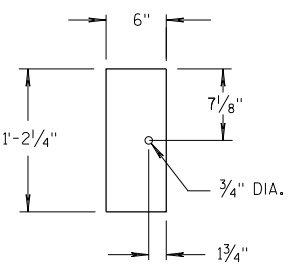
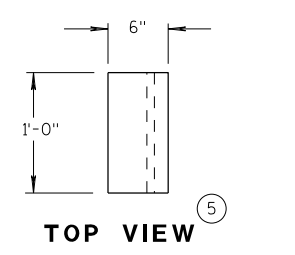
**ALTERNATE WOOD BLOCKOUT DETAIL**



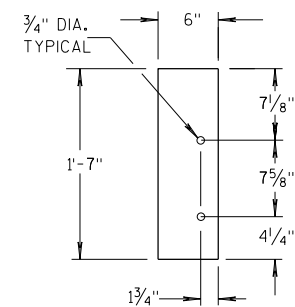
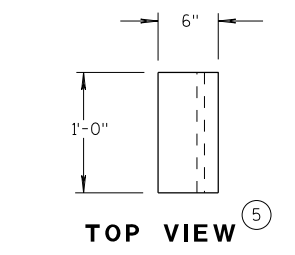
**STEEL POSTS 1-5**



**STEEL POSTS 6-17**



**BLOCKOUT POSTS 1-5**



**BLOCKOUT POSTS 6-17**

**GENERAL NOTES**

- STEEL POSTS ARE W6X9 OR W6X8.5.
- BOLT HOLES FOR POST ARE ON FRONT AND OF SIDE OF POST.
- (3) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- (5) WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.
- (13) STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42.

**MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)**

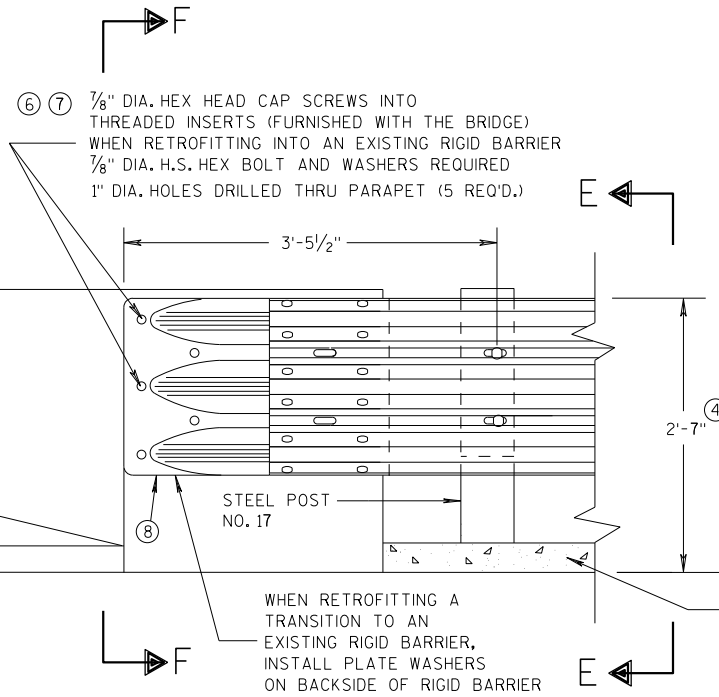
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

6

6

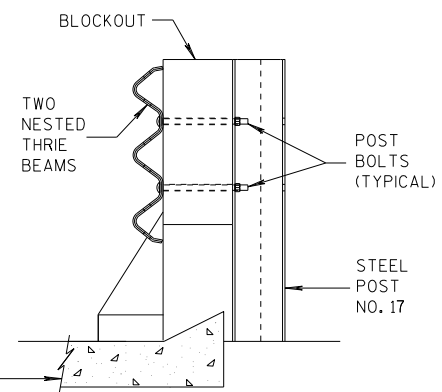
S.D.D. 14 B 45-5c

S.D.D. 14 B 45-5c



FRONT VIEW

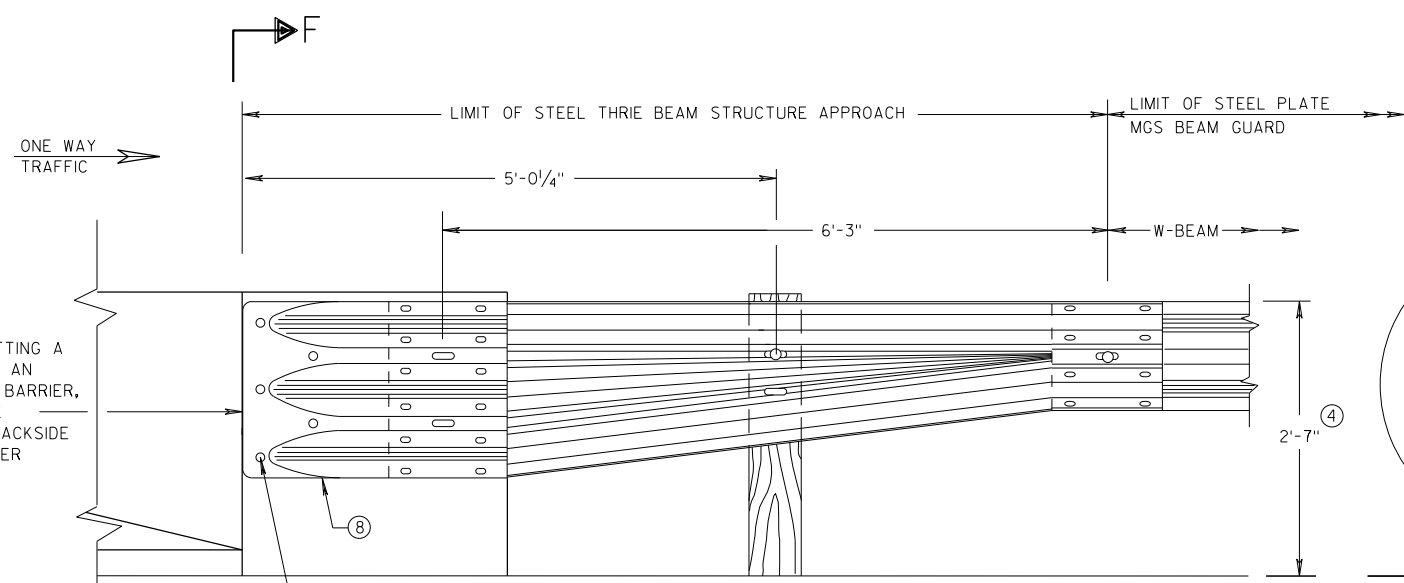
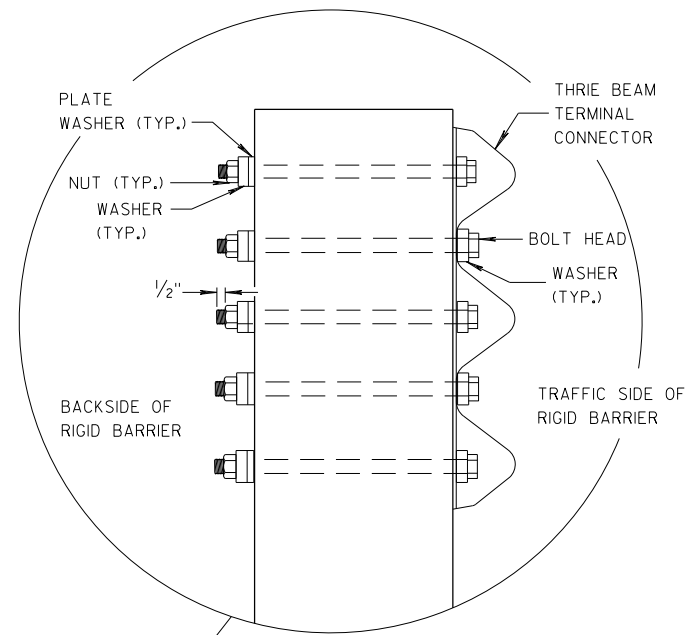
**THRIE BEAM CONNECTION TO BRIDGE PARAPET WITH SQUARE ENDS**



SECTION E-E

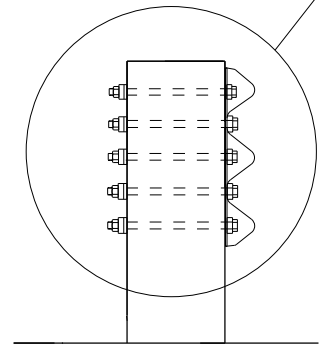
**GENERAL NOTES**

- THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSITION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.
- (2) OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- (4) TOLERANCE FOR TOP OF BEAM IS  $\pm 1"$ .
- (6) DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- (7) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
- (8) THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".

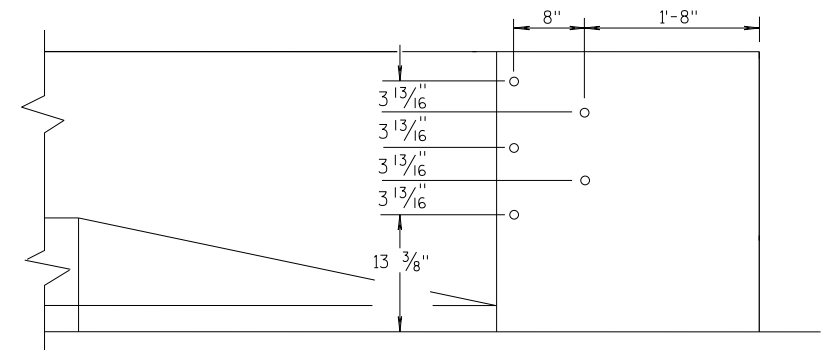


FRONT VIEW

**W BEAM TRANSITION AND CONNECTION TO BRIDGE PARAPETS WITH SQUARE ENDS  
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)**



SECTION F-F



DRILL HOLE LOCATION

6

6

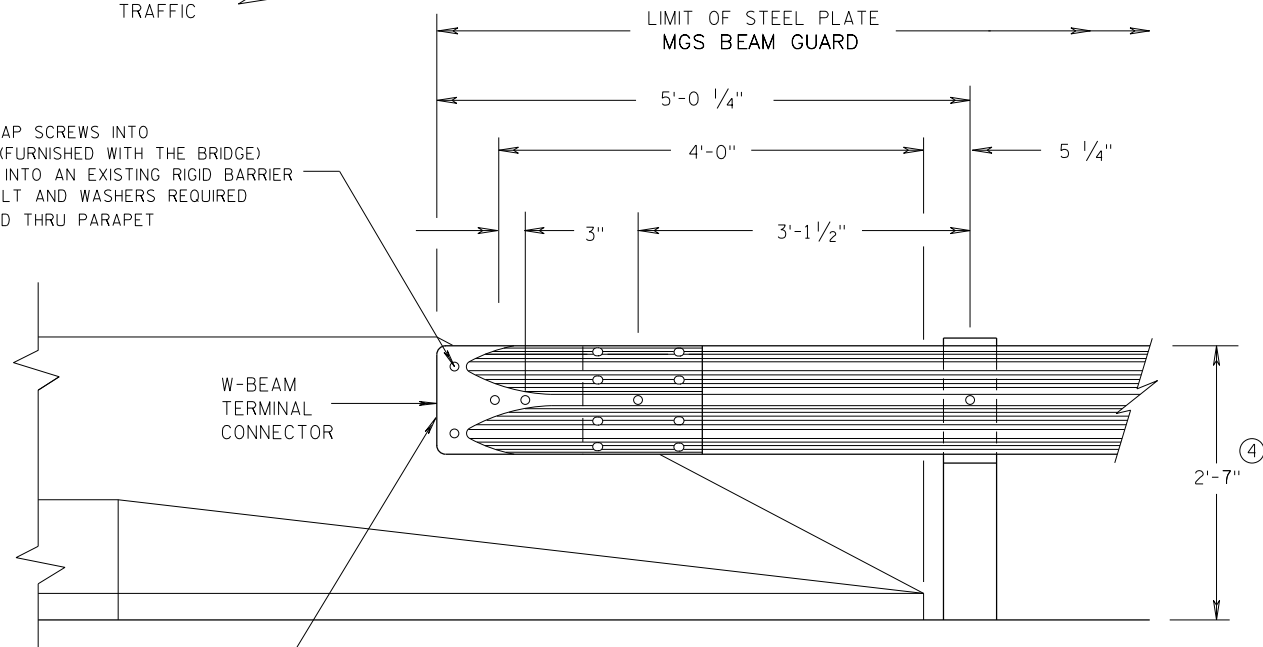
S.D.D. 14 B 45-5d

S.D.D. 14 B 45-5d

<b>MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 07/2018 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA	

ONE WAY  
TRAFFIC

⑥ ⑦ 7/8" DIA. HEX HEAD CAP SCREWS INTO  
THREADED INSERTS (FURNISHED WITH THE BRIDGE)  
WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER  
7/8" DIA. H.S. HEX BOLT AND WASHERS REQUIRED  
1" DIA. HOLES DRILLED THRU PARAPET  
(4 REQ'D.)



W-BEAM  
TERMINAL  
CONNECTOR

WHEN RETROFITTING A TRANSITION  
TO AN EXISTING RIGID BARRIER,  
INSTALL PLATE WASHERS ON  
BACKSIDE OF RIGID BARRIER.

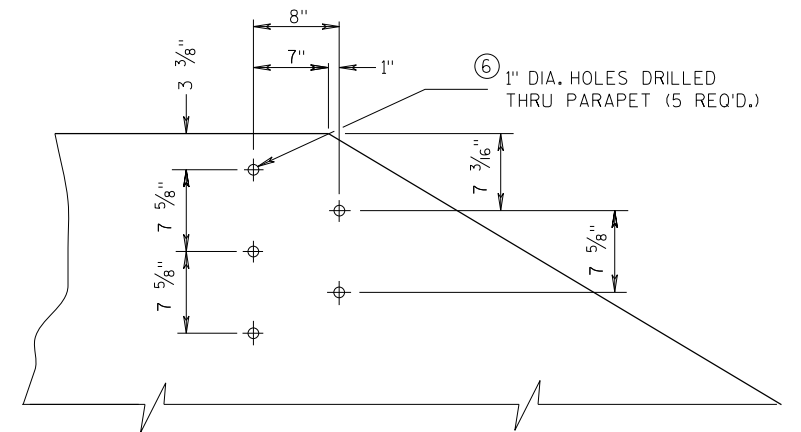
FRONT VIEW

**W BEAM CONNECTION TO  
PARAPETS WITH SLOPED ENDS**

(USE ONLY AT TRAFFIC EXIT END OF ONE WAY BRIDGE)

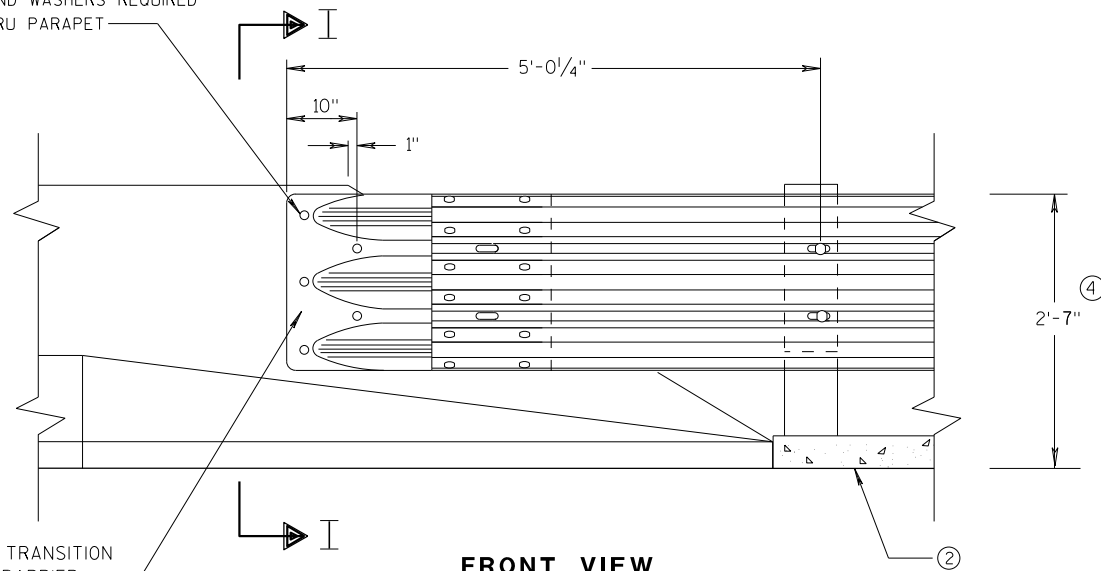
**GENERAL NOTES**

- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④ TOLERANCE FOR TOP OF BEAM IS  $\pm 1"$ .
- ⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



DRILL HOLE LOCATION AND PATTERN  
FOR THRIE BEAM CONNECTION

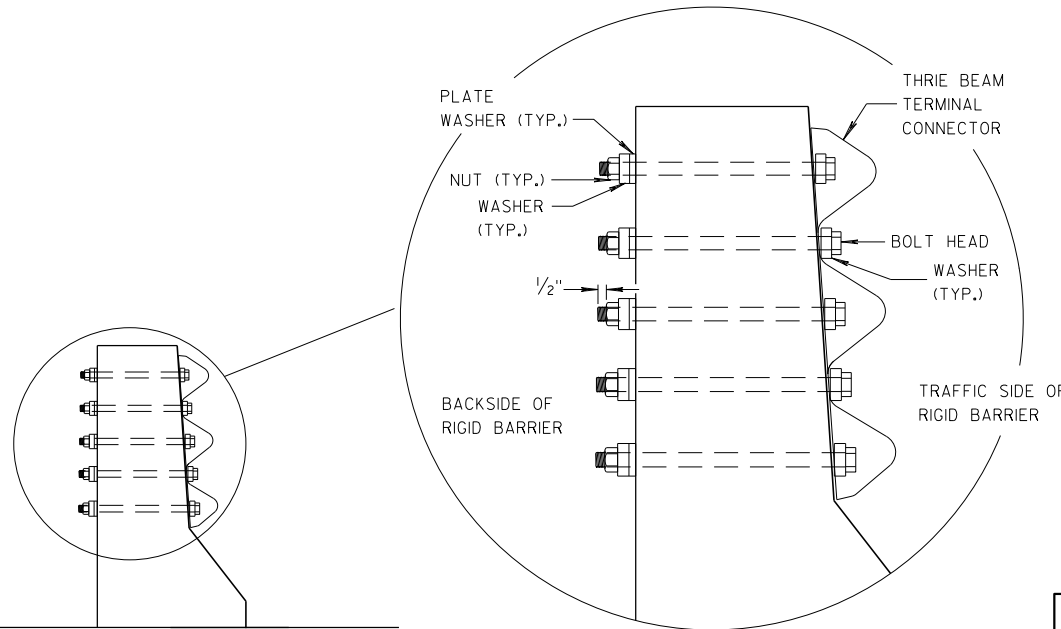
⑥ ⑦ 7/8" DIA. HEX HEAD CAP SCREWS INTO  
THREADED INSERTS (FURNISHED WITH THE BRIDGE)  
WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER  
7/8" DIA. H.S. HEX BOLT AND WASHERS REQUIRED  
1" DIA. HOLES DRILLED THRU PARAPET  
(5 REQ'D.)



FRONT VIEW

**THRIE BEAM CONNECTION TO BRIDGE  
PARAPETS WITH SLOPED ENDS**

WHEN RETROFITTING A TRANSITION  
TO AN EXISTING RIGID BARRIER,  
INSTALL PLATE WASHERS ON  
BACKSIDE OF RIGID BARRIER.



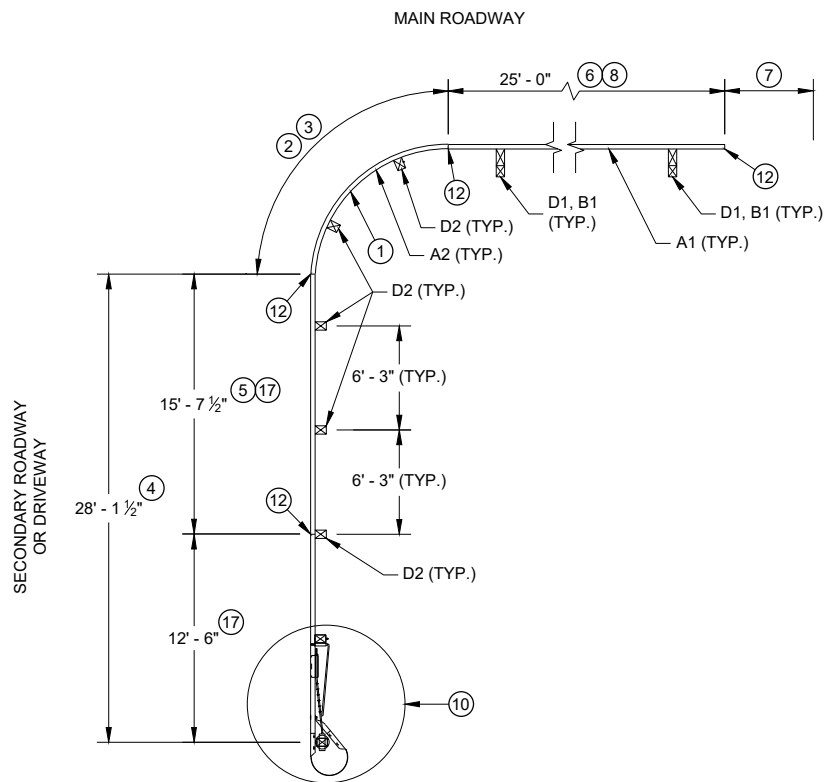
SECTION I-I

**MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)**

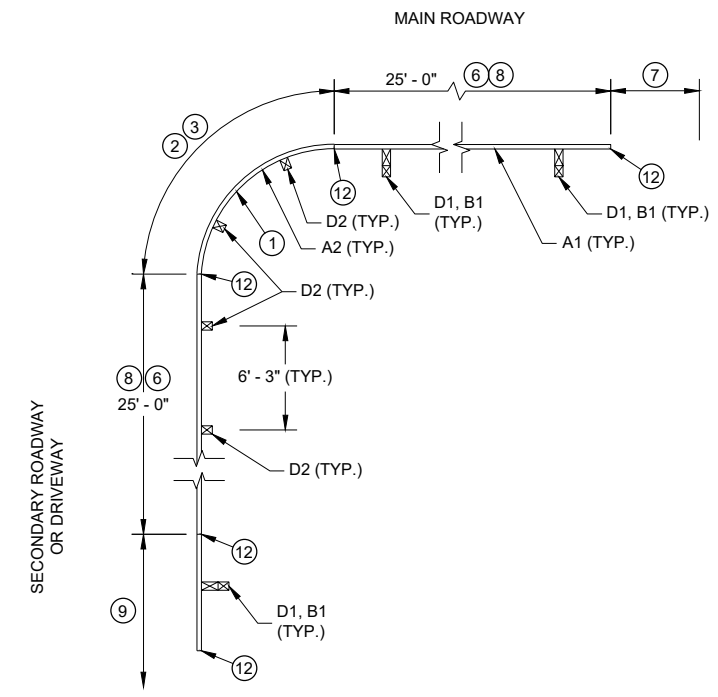
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
DATE 07/2018 /S/ Rodney Taylor  
ROADWAY STANDARDS DEVELOPMENT  
UNIT SUPERVISOR  
FHWA





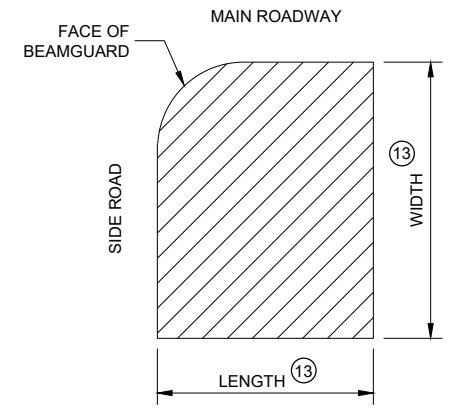
**PLAN VIEW**  
**SHORT RADIUS BEAM GUARD WITH**  
**SHORT RADIUS TERMINAL ON**  
**SECONDARY ROAD OR DRIVEWAY**



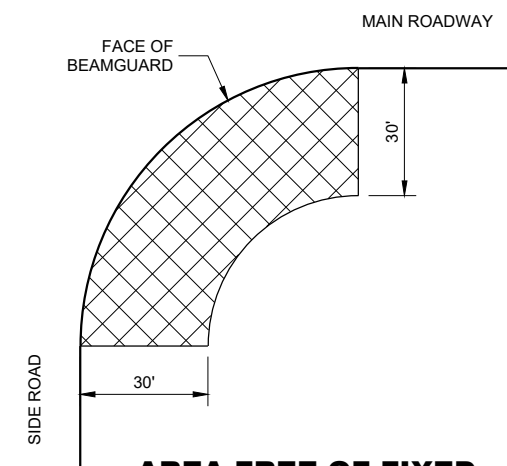
**PLAN VIEW**  
**SHORT RADIUS BEAM GUARD WITH**  
**EAT, ADDITIONAL BEAM GUARD**  
**OR**  
**TRANSITION TO RIGID BARRIER ON**  
**SECONDARY ROAD OR DRIVEWAY**

**TABLE FOR RADIUS OF 32' AND LESS**

RADIUS (FT)	LENGTH (FT)	WIDTH (FT)
8	25	15
16	30	15
24	40	20
32	50	30



**AREA FREE OF FIXED**  
**OBJECTS FOR RADIUS**  
**32' AND LESS**

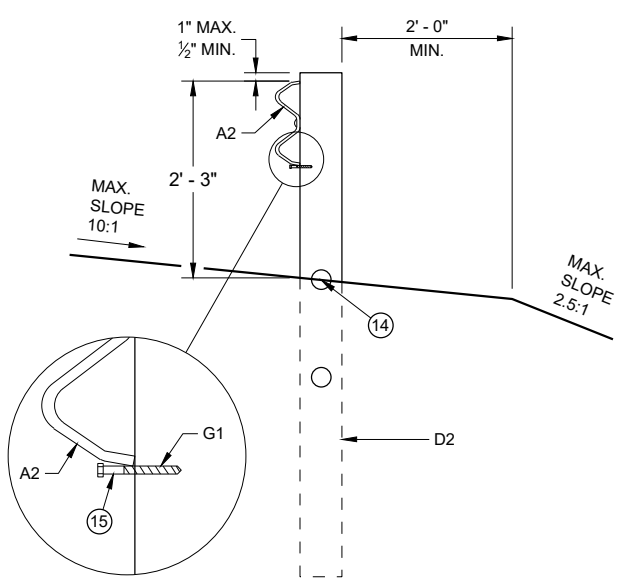


**AREA FREE OF FIXED**  
**OBJECTS FOR RADIUS**  
**GREATER THAN 32'**

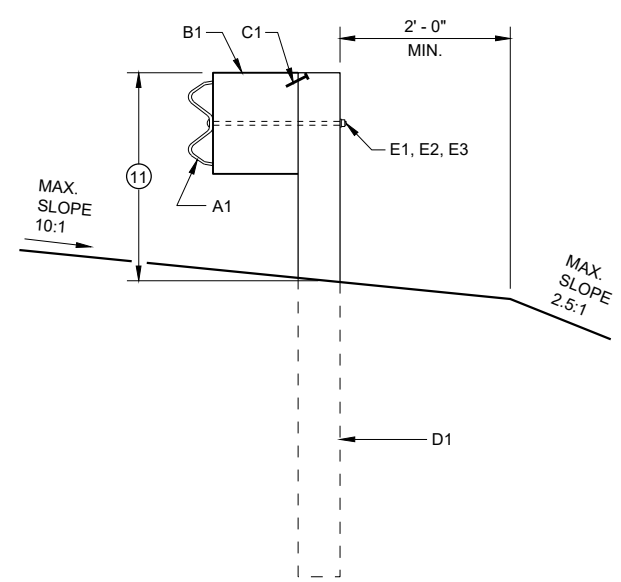
**GENERAL NOTES**

- SEE PLANS FOR OTHER BARRIER SYSTEM AND LOCATION SPECIFICS.
- SEE SDD 14B42 FOR MORE INFORMATION ON BEAM GUARD INSTALLATION, PARTS, MATERIALS, AND INSTALLATION INFORMATION.
- GALVANIZE PARTS AFTER FABRICATION.
- WELDING TO FOLLOW CURRENT REQUIREMENTS OF THE AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE ANSI / AWS D1.1.
- UNLESS NOTED OTHERWISE, ALL PLATES ARE FLAT AND FREE OF WARP.
- UNLESS NOTED OTHERWISE, ALL EDGES ARE SMOOTH, STRAIGHT AND VERTICAL.
- ALL CUTS AND HOLES, EXCEPT IN BEAM GUARD RAIL ARE TO BE MACHINED OR MACHINE FLAME CUT.
- UNLESS NOTED OTHERWISE, CUT OR PROVIDE BOLTS THAT ARE 1/4" TO 1/2" BEYOND THE NUT.
- DRAWINGS ARE NOT TO SCALE.

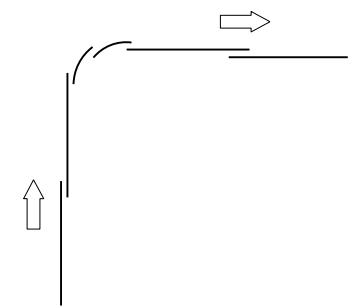
- ① RADIUS MEASURE FROM INSIDE OF RAIL. LENGTH OF BEAM GUARD SHORT RADIUS GUARD MEASURED ALONG TRAFFIC SIDE OF RAIL. RADIUS BETWEEN 8 FEET TO 150 FEET. SEE PLAN FOR REQUIRED RADIUS. BEAM GUARD RAIL IN RADIUS IS SHOP BENT. ODD RAIL LENGTH OR FIELD CUTS MAY BE REQUIRED.
- ② CONTROLLED RELEASE TERMINAL (CRT) POSTS ARE USED IN THE RADIUS. CONTROLLED RELEASE TERMINAL (CRT) POSTS ARE SPACED 6' - 3". SEE PLAN FOR NUMBER OF CONTROLLED RELEASE (CRT) POSTS.
- ③ WITHIN RADIUS BEAM GUARD RAILS ARE NOT BOLTED TO POSTS. BEAM GUARD RAIL IS RESTED ON TOP OF LAG SCREW.
- ④ MINIMUM LENGTH OF BEAM GUARD ALONG SIDE ROAD OR DRIVEWAY TO INSTALL SHORT RADIUS TERMINAL. BEAM GUARD IS PAID WITH BEAM GUARD ITEM.
- ⑤ ODD LENGTH OF BEAM GUARD REQUIRED TO INSTALL SHORT RADIUS TERMINAL.
- ⑥ MINIMUM AMOUNT OF BEAM GUARD TO BE INSTALLED PRIOR TO TRANSITION TO RIGID BARRIER, ADDITIONAL BEAM GUARD, OR EAT. BEAM GUARD PAID FOR WITH BEAM GUARD ITEM. SEE PLANS FOR MORE DETAIL.
- ⑦ BEAM GUARD, EAT, OR TRANSITION TO RIGID BARRIER. SEE PLAN.
- ⑧ TOP OF BEAM GUARD BY THE RADIUS IS 27". HEIGHT OF BEAM GUARD IS 31" BY TRANSITION TO RIGID BARRIER, ADDITIONAL BEAM GUARD OR EAT.
- ⑨ ADDITIONAL BEAM GUARD, EAT OR TRANSITION TO RIGID BARRIER. BEAM GUARD SHOWN. SEE PLAN FOR DETAILS.
- ⑩ SHORT RADIUS TERMINAL (SEE OTHER DETAILS).
- ⑪ HEIGHT VARIES. SEE NOTE ⑧ AND ⑧.
- ⑫ BEAM GUARD RAIL SPLICE LOCATION. SPLICE LOCATION REQUIRES PART F1 AND F2. SEE SDD 14B42 FOR DETAILS.
- ⑬ SEE TABLE FOR VALUES.
- ⑭ MAXIMUM HEIGHT FOR CENTER OF HOLE IS 3/4" ABOVE FINISHED GROUND ±1".
- ⑮ DRILL POST 1 5/8" DIA. PILOT HOLE. DO NOT HAMMER LAG SCREW INTO POST.
- ⑯ SMALL SIGNS ON BREAKAWAY HARDWARE ARE ACCEPTABLE.
- ⑰ TOP OF RAIL HEIGHT IS 27" WHEN USING A SHORT RADIUS TERMINAL (CRT).



**CONTROLLED RELEASE**  
**TERMINAL POST (CRT) IN RADIUS**



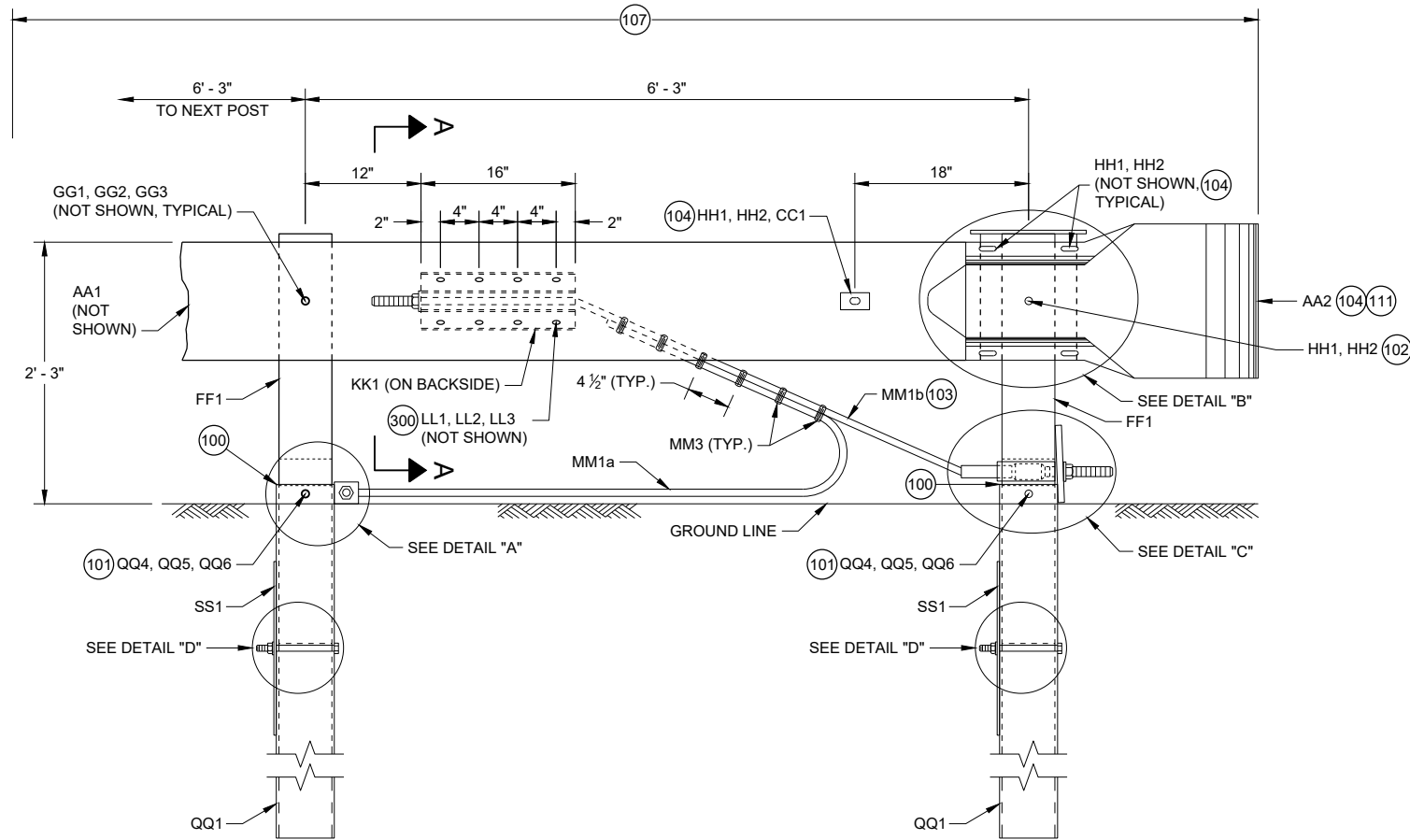
**BEAM GUARD POSTS**  
**IN HEIGHT TRANSITION**



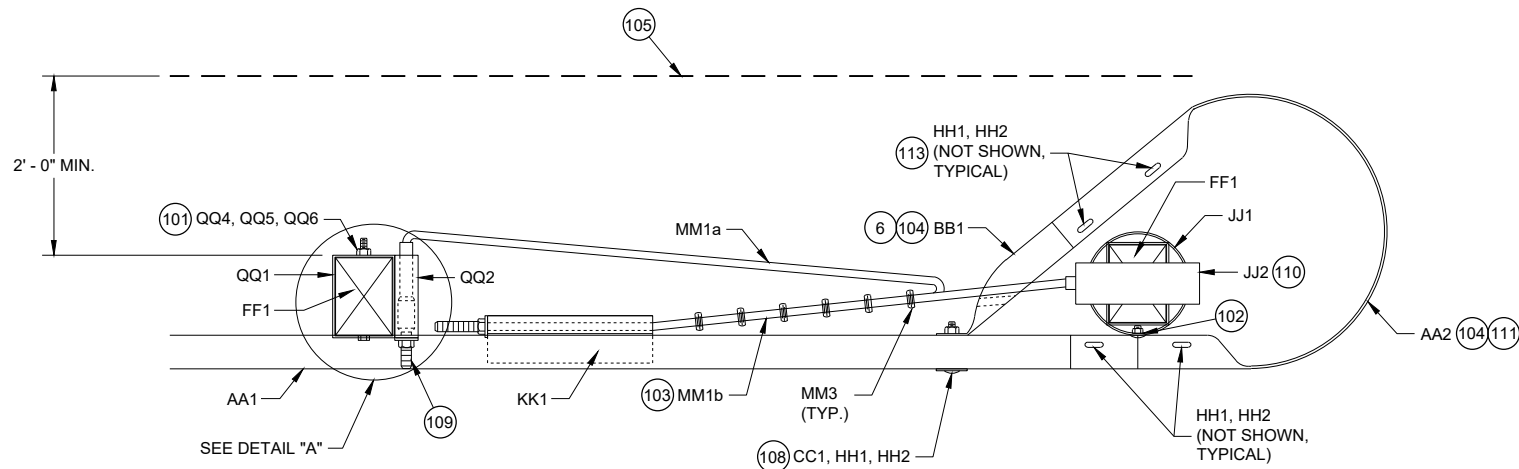
**LAP SPLICE DETAIL**

**SHORT RADIUS BEAM**  
**GUARD (MGS) SHORT**  
**RADIUS TERMINAL (MGS)**

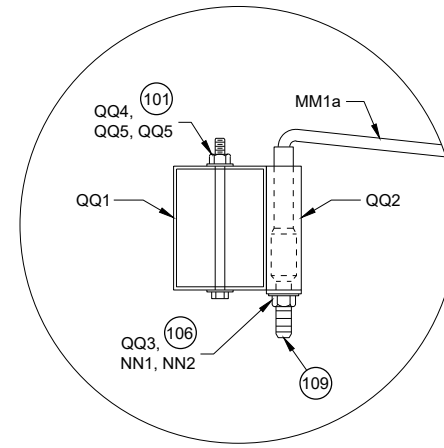
STATE OF WISCONSIN  
 DEPARTMENT OF TRANSPORTATION



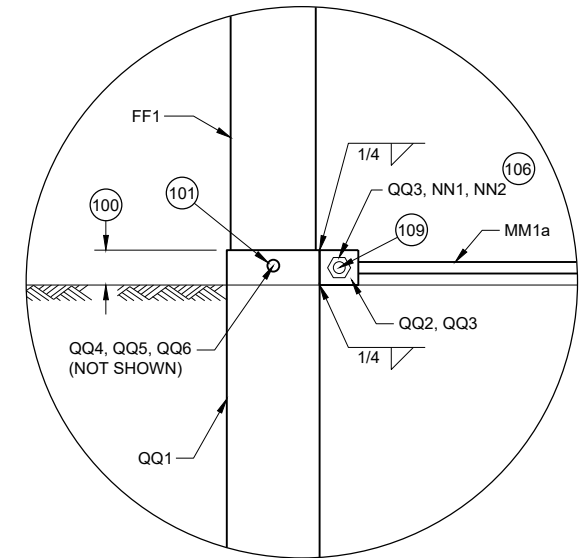
**PROFILE VIEW  
SHORT RADIUS TERMINAL**



**TOP VIEW  
SHORT RADIUS TERMINAL**



**TOP VIEW  
DETAIL "A"  
(WOOD BREAKAWAY AND BEAM  
GUARD RAIL POSTS NOT SHOWN)**



**PROFILE VIEW  
DETAIL "A"**

**GENERAL NOTES**

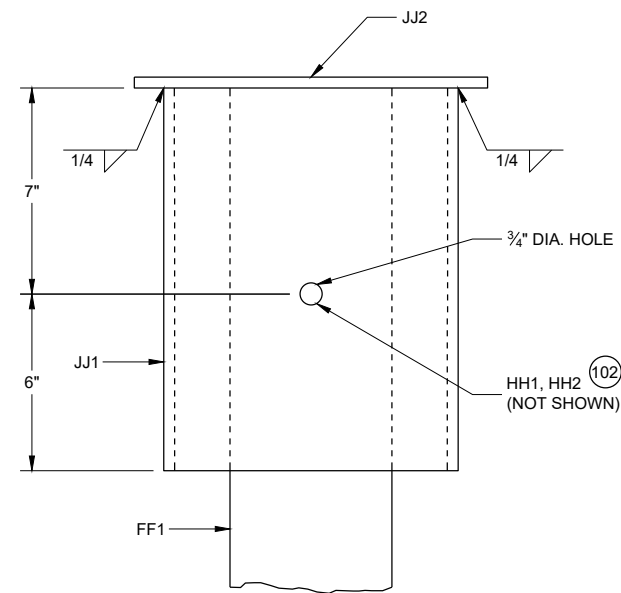
- (100) TOP OF FOUNDATION TUBE 2 INCHES MAXIMUM ABOVE FINISHED GROUND.
- (101) WASHERS REQUIRED BETWEEN BOLT HEAD AND FOUNDATION TUBE AND BETWEEN NUT AND FOUNDATION TUBE.
- (102) SPLICE BOLT AND NUT CONNECTS BEAM GUARD RAIL, W-BEAM SECTION BUFFER, AND STEEL PIPE ASSEMBLY. NO WASHER REQUIRED. SEE DETAIL "B".
- (103) CABLE IS TAUT.
- (104) ADJUST AA2 AND BB1 TO FIT.
- (105) BREAK POINT OF SHOULDER.
- (106) TACK WELD CABLE CONNECTOR TUBE PLATE TO CABLE CONNECTION TUBE. SEE DETAIL "A" PROFILE VIEW.
- (107) PAY LIMIT FOR BEAM GUARD.
- (108) SQUARE WASHER BETWEEN HEAD OF BOLT AND TRAFFIC FACE OF BEAM GUARD. ROUND WASHER REQUIRED BETWEEN NUT AND BB1.
- (109) CUT OR PROVIDE THREADED STUD THAT IS FLUSH WITH FACE OF BEAM GUARD RAIL KK1 (PLUS OR MINUS 1/2" TOLERANCE). DEBURR AFTER CUTTING.
- (110) SEE STEEL PIPE ASSEMBLY DETAILS.
- (111) ATTACH UU2 WITH UU3. SHOP APPLY UU1 TO UU2.
- (112) FOUR (4) HH1 AND HH2 REQUIRED TO ATTACH AA1 TO AA2.
- (113) FOUR (4) HH1 AND HH2 REQUIRED TO ATTACH AA2 TO BB1.

**SHORT RADIUS BEAM  
GUARD (MGS) SHORT  
RADIUS TERMINAL (MGS)**

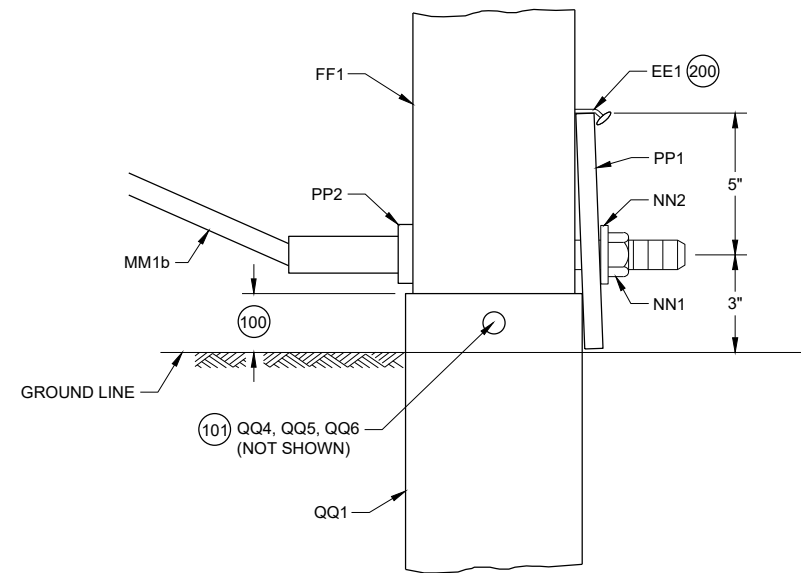
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

**GENERAL NOTES**

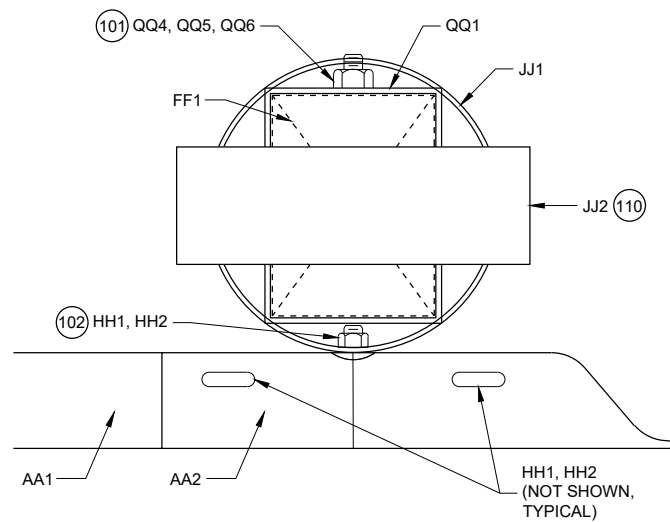
(200) TWO (2) NAILS SPACED 4 INCHES CENTER TO CENTER.



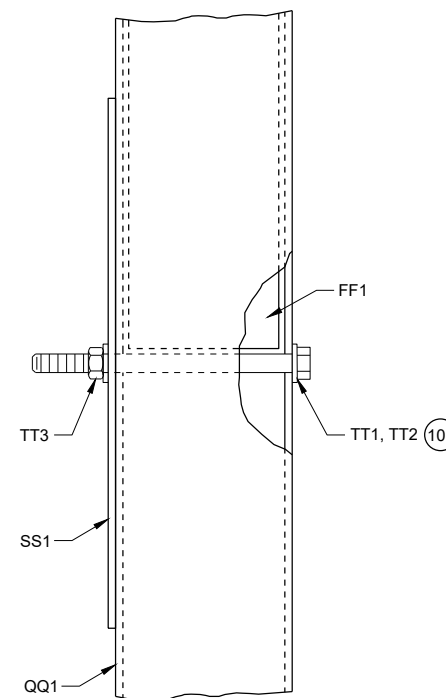
**PROFILE VIEW  
DETAIL "B"  
STEEL PIPE ASSEMBLY  
(BEAM GUARD AND W BEAM  
END SECTION NOT SHOWN)**



**PROFILE VIEW  
DETAIL "C"**



**PLAN VIEW  
DETAIL "B"  
STEEL PIPE ASSEMBLY**



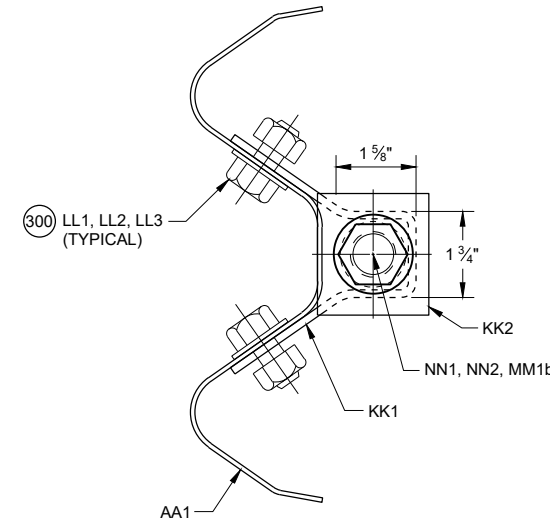
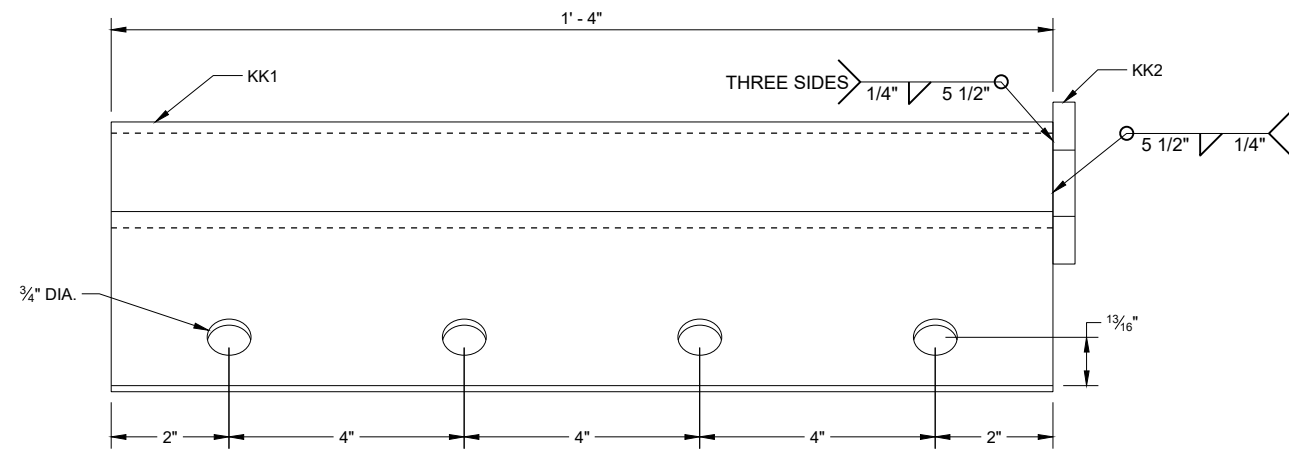
**PROFILE VIEW  
DETAIL "D"**

**SHORT RADIUS BEAM  
GUARD (MGS) SHORT  
RADIUS TERMINAL (MGS)**

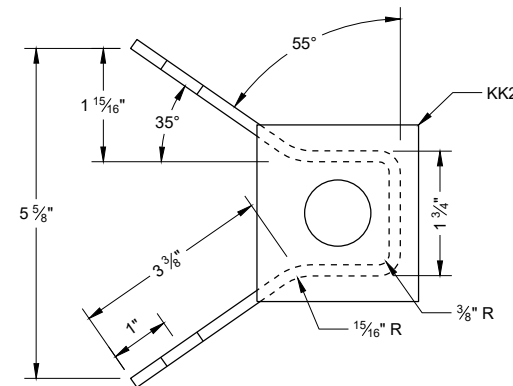
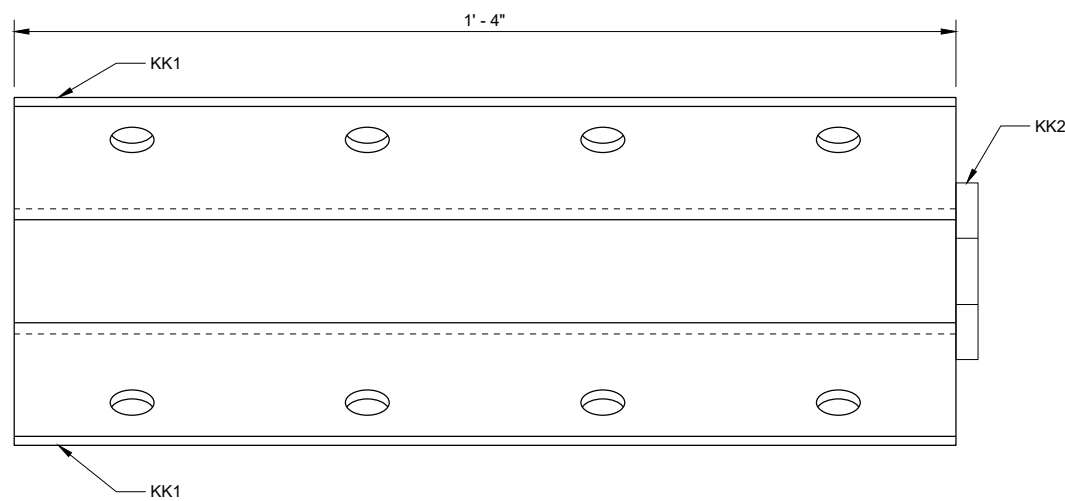
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

**GENERAL NOTES**

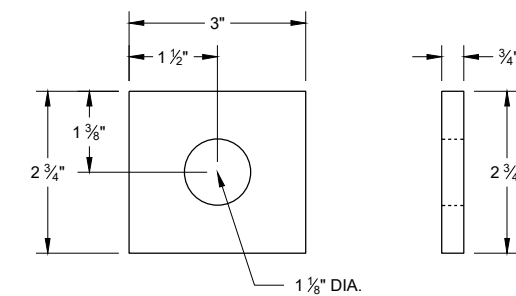
300 WASHERS REQUIRED BETWEEN BOLT HEAD AND BEAM GUARD RAIL AND BETWEEN NUT AND ANCHOR BRACKET. EIGHT (8) LL1 AND LL3 REQUIRED. SIXTEEN (16) LL2 REQUIRED.



**SECTION A - A**



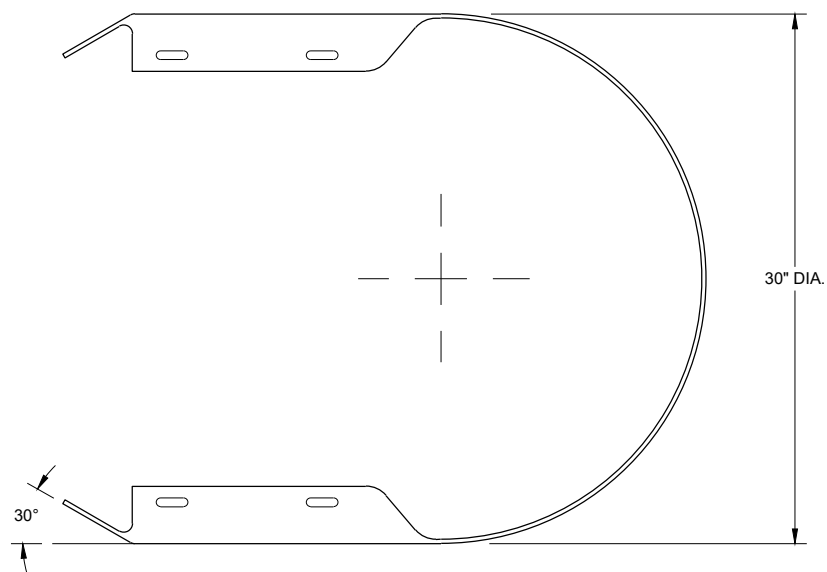
**ANCHOR BRACKET BEARING PLATE (KK2)**



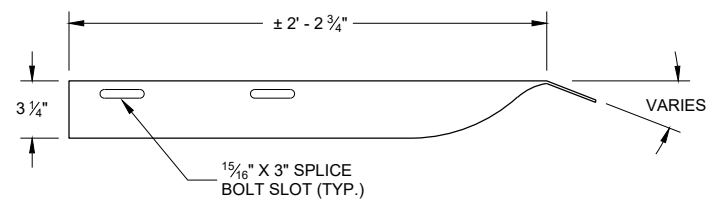
**ANCHOR BRACKET (KK1, KK2)**

**SHORT RADIUS BEAM  
GUARD (MGS) SHORT  
RADIUS TERMINAL (MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



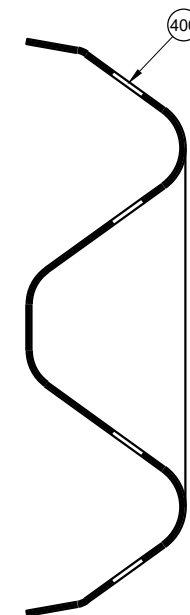
**TOP VIEW**



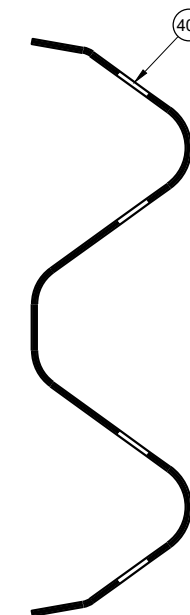
**TOP VIEW**

**GENERAL NOTES**

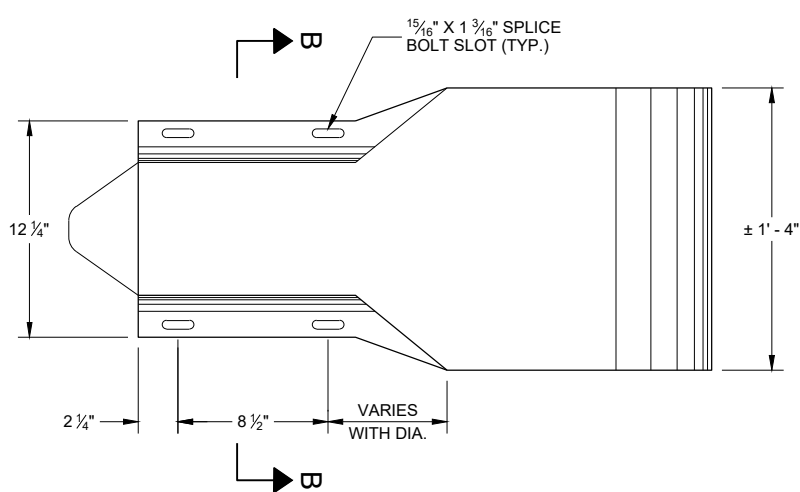
- (400) CROSS SECTION OF PART IS TO FIT OVER AA1 .
- (401) CROSS SECTION OF PART IS TO FIT OVER OR UNDER AA1 .



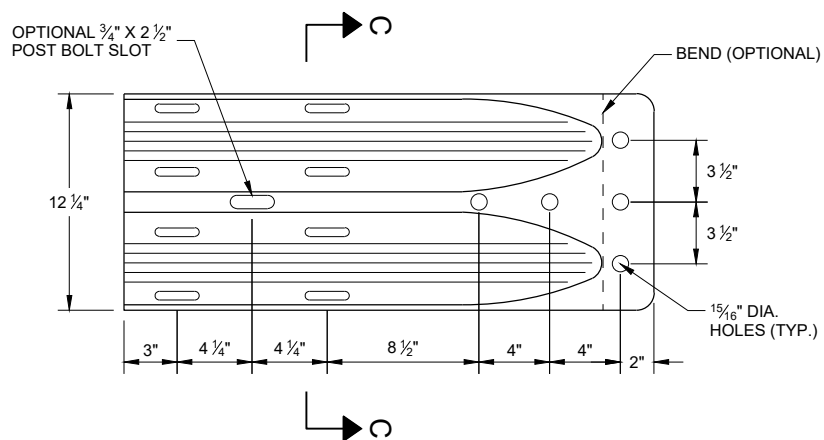
**SECTION B - B**



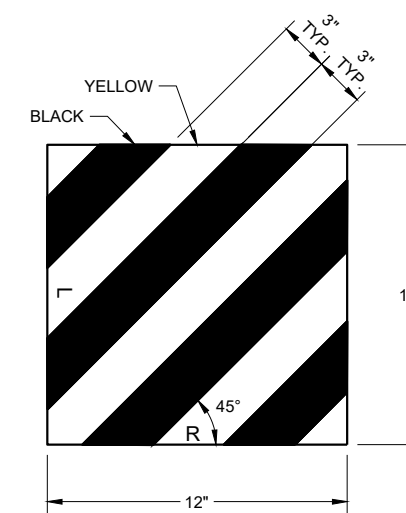
**SECTION C - C**



**PROFILE VIEW  
W BEAM  
END SECTION BUFFER (AA2)**



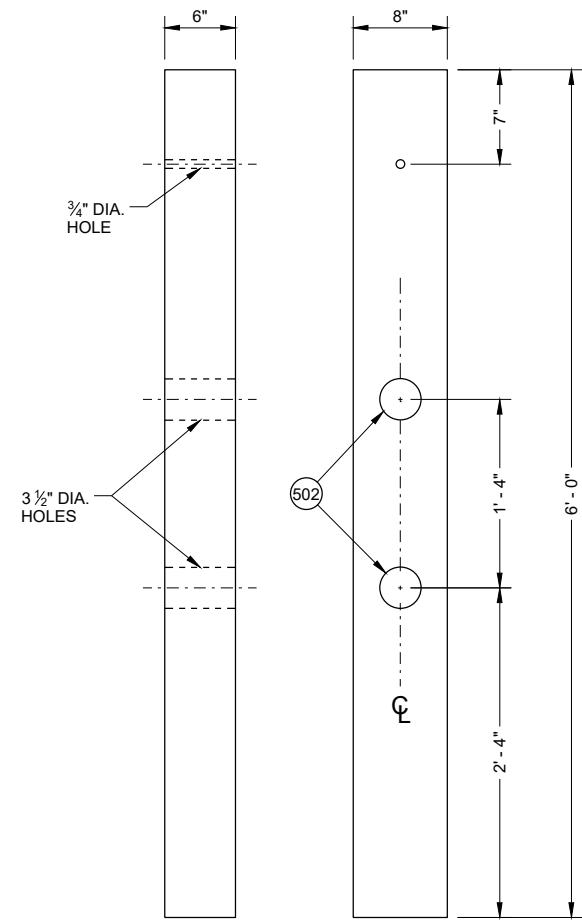
**PROFILE VIEW  
W BEAM  
TERMINAL CONNECTOR (BB1)**



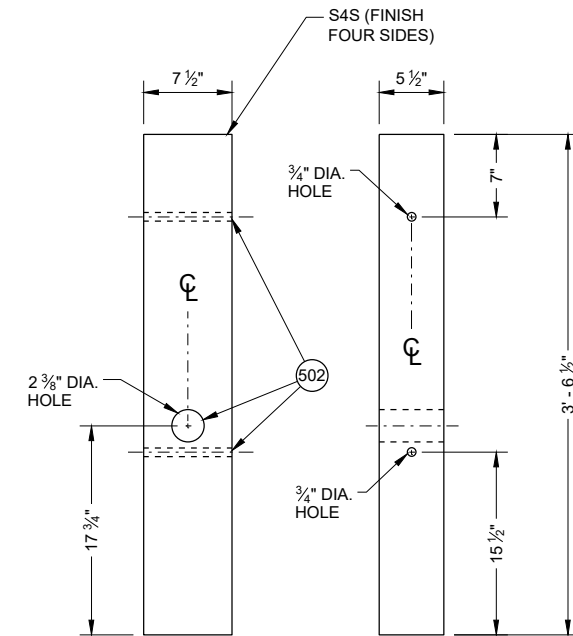
**REFLECTIVE SHEETING (UU1, UU2)**

**SHORT RADIUS BEAM  
GUARD (MGS) SHORT  
RADIUS TERMINAL (MGS)**

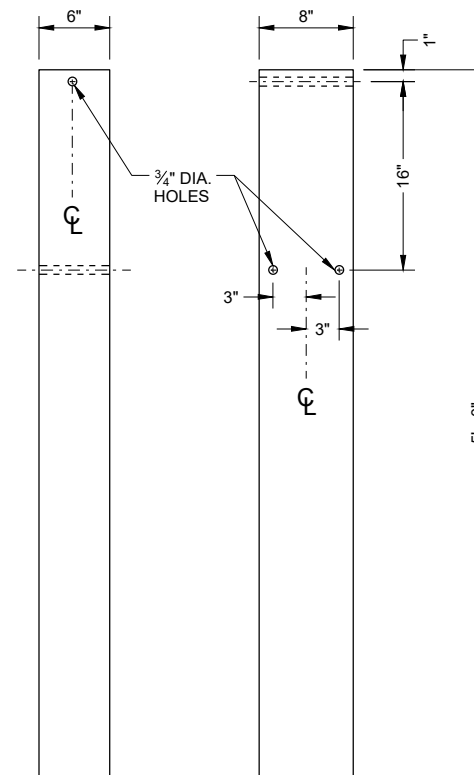
STATE OF WISCONSIN  
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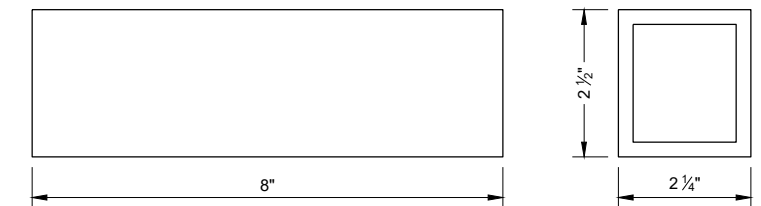
**FRONT VIEW SIDE VIEW  
CONTROLLED RELEASE  
POST (CRT) (DD2)**



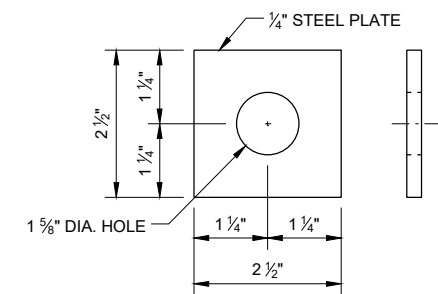
**FRONT VIEW SIDE VIEW  
WOOD BREAKAWAY POST (FF1)**



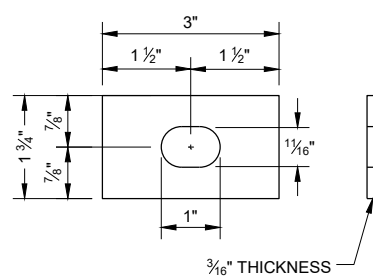
**FRONT VIEW SIDE VIEW  
FOUNDATION TUBE (QQ1)**



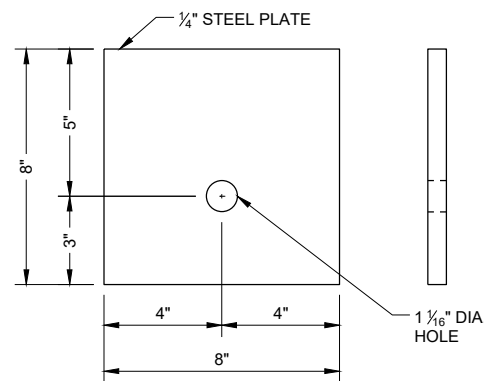
**FOUNDATION TUBE -  
ANCHOR CABLE TUBE (QQ2)**



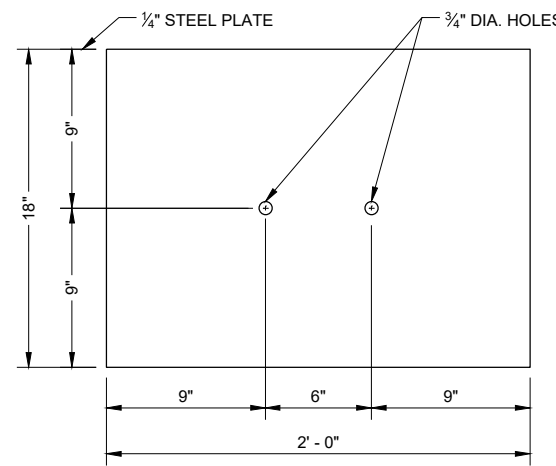
**ANCHOR CABLE TUBE  
END PLATE (QQ3)**



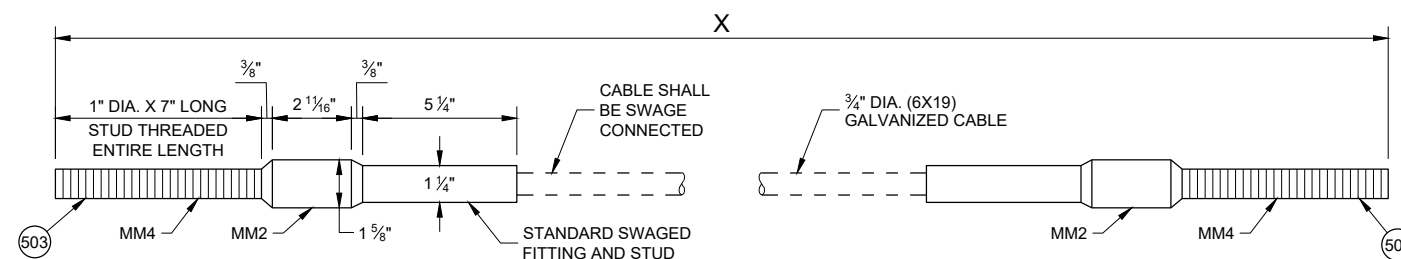
**RECTANGULAR PLATE  
WASHER (CC1)**



**BEARING PLATE (PP1)**



**SOIL PLATE (SS1)**



**CABLE ASSEMBLY (MM1a, MM1b)**

**"X" LENGTH**

MM1b	9' - 0"
MM1b	6' - 8"

- GENERAL NOTES**
- (500) SEE DETAIL "D" FOR LOCATION AND ATTACHMENT OF SS1.
  - (501) FOR MM1a THREADED STUD ONLY REQUIRED ON ONE END. SWAGED FITTING REQUIRED.
  - (502) LOCATE HOLES ON THE CENTERLINE OF THE SIDE OF THE POST.
  - (503) MM1a MAY HAVE ONE THREADED STUD 4 INCHES LONG. SEE NOTE (109).

**SHORT RADIUS BEAM  
GUARD (MGS) SHORT  
RADIUS TERMINAL (MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

**BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)**

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
A1	BEAM GUARD RAIL	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
A2	BEAM GUARD RAIL - SHOP BENT	INDICATE ON BACK OF RAIL THE RADIUS THAT RAIL WAS BENT TO. SHOP BEND RADIUS IS TO THE NEAREST FOOT. FOLLOW AASHTO M180 ON HOW TO MARK RADIUS INFORMATION.	
		AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
B1	BLOCK - WOOD	WISDOT SPEC. 614	SEE SDD 14B42
C1	NAIL	ASTM A153 HOT DIP CLASS D	
		ASTM F1667 TYPE 1 STYLE 12 (16 DOUBLE HEAD)	
D1	POST-STRONG POST-WOOD	WISDOT SPEC. 614	SEE SDD 14B42
D2	POST-CRT-WOOD	WISDOT SPEC. 614	
E1	POST BOLT	ASTM A307 GRADE A OR SAE J429 GRADE 2	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
E2	POST BOLT - WASHER	ASTM F436 TYPE 1 (HARDEN TYPICALLY USED WITH STEEL) OR ASTM F844 (UNHARDENED TYPICALLY WITH WOOD)	5/8" DIA.
		GALV. AASHTO M111 / ASTM A 123 OR GALV. HOT DIP. TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
E3	POST BOLT - NUT	AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		ASTM A563 GRADE A HEAVY HEX HEAD	
F1	SPLICE BOLT	GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		ASTM A307 GRADE A OR SAE J429 GRADE 2	
		UNC	
		AASHTO M180	

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
F2	SPLICE BOLT - NUT	ASTM A563 GRADE A	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		UNC	
G1	LAG SCREW	ASTM A308 GRADE A ASTM A153 CLASS D	1/2" DIA. 6" LONG
H1	DELINEATOR - BEAM GUARD		SEE SDD 14B42 FOR MORE INFORMATION
H2	DELINEATION - SHEETING	YELLOW OR WHITE	
		WISDOT SPEC 637 TYPE SH	
		APPROVED PRODUCT LIST	
J1	FOUNDATION BACKFILL	STANDARD SPEC. 614	
AA1	BEAM GUARD RAIL - PUNCHED	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
AA2	BEAM GUARD RAIL - END SECTION BUFFER	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
BB1	BEAM GUARD RAIL - TERMINAL CONNECTOR MODIFIED	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
CC1	SHORT RADIUS - SQUARE WASHER	AASHTO M180	
		GALV. AASHTO M111 / ASTM A123	
EE1	NAIL	ASTM A153 HOT DIP CLASS D	
		ASTM F1667 TYPE 1 STYLE 12 (16 DOUBLE HEADED)	
FF1	POST - BCT - WOOD	S4S FINISH ON 4 SIDES	
		WISDOT SPEC. 614	
GG1	POST BOLT	ASTM A307 GRADE A OR SAE J429 GRADE 2	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		UNC	
GG2	POST BOLT - WASHER	ASTM F436 TYPE 1 (HARDEN TYPICALLY USED WITH STEEL) OR ASTM F844 (UNHARDENED TYPICALLY WITH WOOD)	5/8" DIA.
		GALV. AASHTO M111 / ASTM A 123 OR GALV. HOT DIP. TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329	

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SDD 14B53 - 02g

SDD 14B53 - 02g

**SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

**BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)**

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
GG3	POST BOLT - NUT	ASTM A563 GRADE A	3/8" DIA. SEE 14B42 FOR GEOMETRY
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
ASTM A563 GRADE A HEAVY HEX HEAD			
HH1	SPLICE BOLT	GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	3/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		ASTM A307 GRADE A OR SAE J429 GRADE 2	
		UNC	
		AASHTO M180 HEAD GEOMETRY	
HH2	SPLICE BOLT - NUT	ASTM A563 GRADE A	3/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		UNC	
JJ1	PIPE - STEEL	ASTM A53 GALVANIZED GRADE B SCHEDULE 40	10" O.D.
JJ2	TOP PLATE	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	DIMENSIONS 3/8" X 4" X 1' - 0"
		GALV. AASHTO M111 / ASTM A123	
KK1	ANCHOR BRACKET	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
KK2	ANCHOR BRACKET - BEARING PLATE	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
LL1	ANCHOR BRACKET - BOLT	ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	3/8" DIA.
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
LL2	ANCHOR BRACKET - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	3/8" DIA.
		GALV. AASHTO M111 / ASTM A123 OR GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
LL3	ANCHOR BRACKET - NUT	ASTM A563 GRADE A	3/8" DIA.
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		UNC	
MM1a	ANCHOR CABLE	AASHTO M30 / ASTM A741 INDEPENDENT WIRE CORE (IWRC) OR WIRE STRAND CORE (WCS), IMPROVED PLOW STEEL (IPS), 6X19, TYPE II OR IIc CLASS C ZINC COATED	
MM1b	ANCHOR CABLE	AASHTO M30 / ASTM A741 INDEPENDENT WIRE CORE (IWRC) OR WIRE STRAND CORE (WCS), IMPROVED PLOW STEEL (IPS), 6X19, TYPE II OR IIc CLASS C ZINC COATED	
MM2	ANCHOR CABLE - SWAGE FITTING	ASTM A576 GRADE 1035	
		SWAGE FITTINGS ARE TO BE FACTORY SWEDGED. WITH A BREAKING STRENGTH 40,000 LBS.	
		GALV. AASHTO M111 / ASTM A123	
		ASME B30.26 FORGED, CAST, OR DIE STAMPED WITH THE FOLLOWING INTO CONNECTION: NAME OF MANUFACTURER OR TRADEMARK OF CONNECTION'S MANUFACTURER, SIZE OR RATED LOAD, GRADE.	
MM3	WIRE ROPE CABLE CLAMPS	FF-C-450D TYPE 1 CLASS 1	3/4"
		ASTM A153 HOT DIP CLASS D	
MM4	ANCHOR CABLE - SWAGE FITTING - STUD	ASTM F3125 GRADE A325 TYPE 1 OR SAE GRADE 5 OR ASTM A449 TYPE 1 HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
NN1	ANCHOR CABLE - NUT	ASTM A563 GRADE A	1" DIA.
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
NN2	ANCHOR CABLE - NUT - WASHER	UNC	1" DIA.
		ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	
		GALV. AASHTO M111 / ASTM A123 OR GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	

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SDD 14B53 - 02h

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**SHORT RADIUS BEAM  
GUARD (MGS) SHORT  
RADIUS TERMINAL (MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



**BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)**

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
PP1	BEARING PLATE AT POST	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
PP2	PIPE - STEEL	ASTM A53 GALVANIZED GRADE B SCHEDULE 40	2" DIA. x 6" LONG
QQ1	FOUNDATION TUBE	ASTM A500 GRADE B	8" X 6" X 3/8"
		GALV. AASHTO M111 / ASTM A123	
QQ2	SHORT RADIUS - FOUNDATION TUBE - ANCHOR CABLE - TUBE	ASTM A500 GRADE B	DIMENSIONS 2 1/2" X 2 1/4" X 1/4" X 8"
		GALV. AASHTO M111 / ASTM A123	
QQ3	SHORT RADIUS - SOIL TUBE - ANCHOR CABLE - TUBE - END PLATE	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	DIMENSIONS 2 1/2" X 2 1/2" X 1/4"
		GALV. AASHTO M111 / ASTM A123	
QQ4	GROUND STRUT AND YOKE - BOLT	GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	5/8 DIA.
		ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	
		UNC	
QQ5	GROUND PLATE AND YOKE - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	5/8 DIA.
		GALV. AASHTO M111 / ASTM A123 OR GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
QQ6	GROUND STRUT AND YOKE - NUT	HEAVY HEX	5/8 DIA.
		UNC	
		ASTM A563 GRADE A	
		OVER TAPPED NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
SS1	SOIL PLATE	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / A123	
TT1	SOIL PLATE - BOLT	ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	5/8 DIA.
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
TT2	SOIL PLATE - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	5/8 DIA.
		GALV. AASHTO M111 / ASTM A123 OR GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
TT3	SOIL PLATE - NUT	GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	5/8 DIA.
UU1	OBJECT MARKER - SHEETING	MUTCD / WISDOT OBJECT MARKER TYPE 3	PATTERN AND COLOR FOR SHEETING. SHEETING TYPE FOR MARKER.
		WISDOT SPEC 637 TYPE F	
		APPROVED PRODUCT LIST	
UU2	OBJECT MARKER - ALUMINUM PLATE	WISDOT SPEC 637 ALUMINUM PLATE	MATERIAL AND THICKNESS OF MATERIALS
UU3	OBJECT MARKER - SCREWS	STAINLESS SELF-TAPPING SCREWS	
VV1	FOUNDATION BACKFILL	WISDOT SPEC 614	

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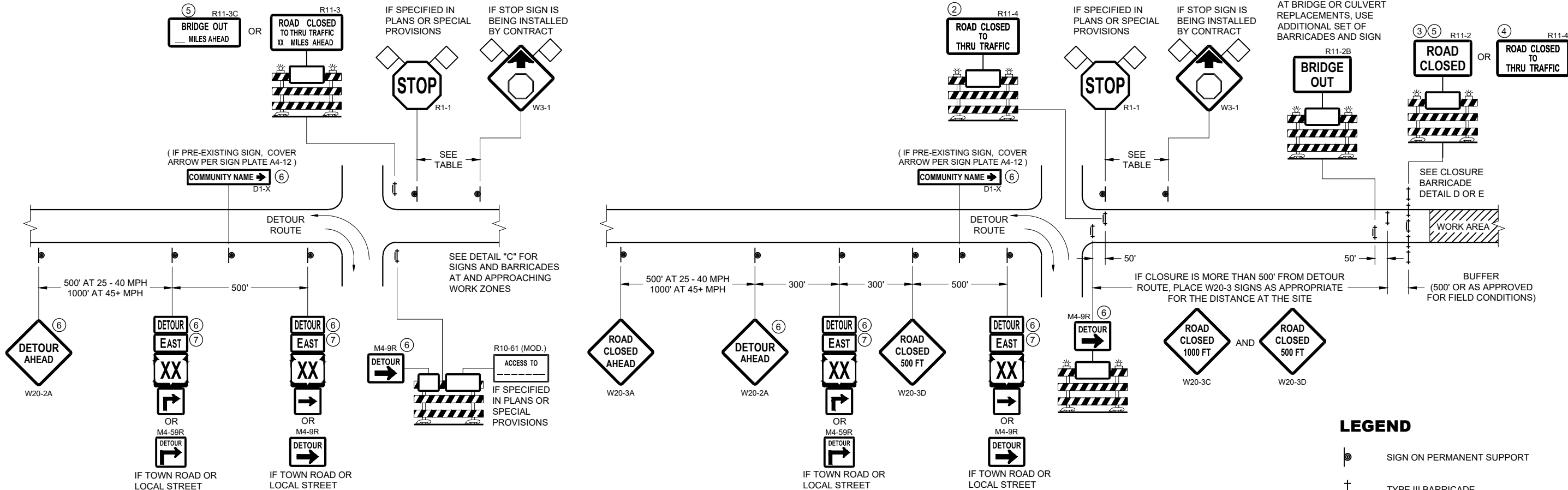
SDD 14B53 - 02i

**SHORT RADIUS BEAM  
GUARD (MGS) SHORT  
RADIUS TERMINAL (MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
May 2022 /S/ Rodney Taylor  
DATE ROADWAY STANDARDS DEVELOPMENT  
ENGINEER

FHWA



**DETAIL A  
MAINLINE CLOSURE WITH POSTED DETOUR**

WORK ZONE GREATER THAN OR EQUAL TO 1/2 MILE FROM  
DETOUR ROUTE ( 1000 FEET IF URBAN )

**DETAIL B  
MAINLINE CLOSURE WITH POSTED DETOUR**

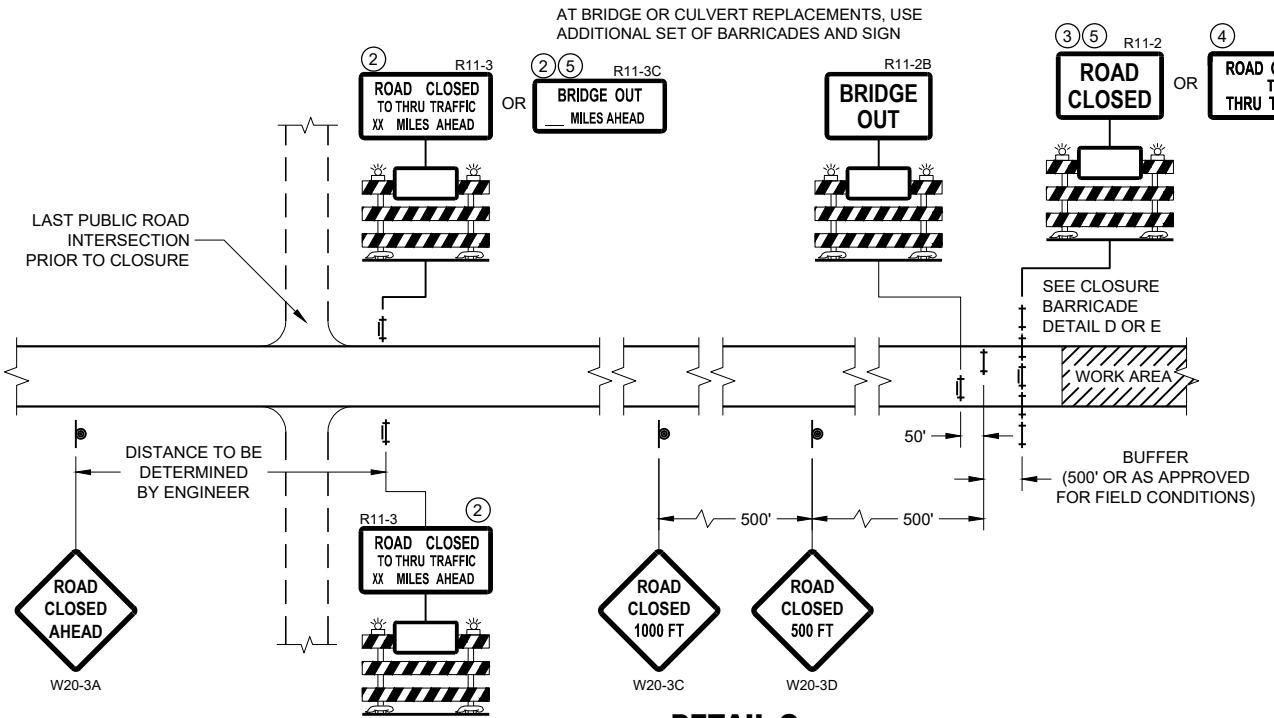
WORK ZONE LESS THAN 1/2 MILE FROM  
DETOUR ROUTE ( 1000 FEET IF URBAN )

**LEGEND**

- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- WORK AREA
- FLAGS, 16" X 16" MIN. (ORANGE)
- M4 - 8
- M3 - X
- M1 - 4 OR M1 - 6 OR M1 - 5A
- M05 - 1 OR M06 - 1

SPEED LIMIT (MPH)	"STOP AHEAD" ADVANCE WARNING DISTANCE (FT)
25	200
30	200
35	350
40	350
45	500
50	550
55	750

SEE SDD 15C2-SHEET "b"  
FOR GENERAL NOTES  
AND FOOTNOTES ① THROUGH ⑦

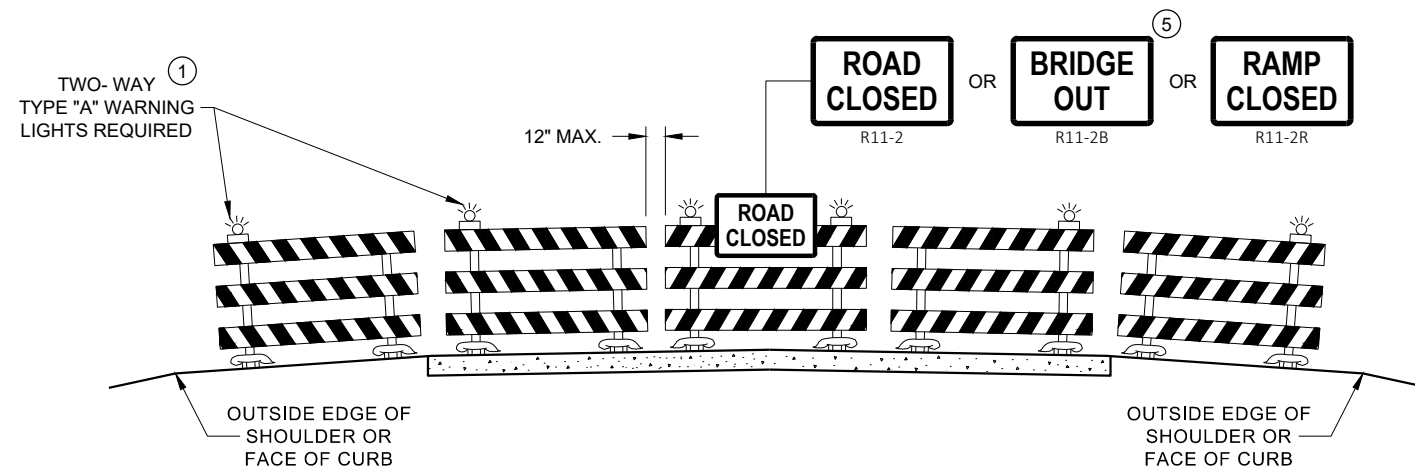


**DETAIL C  
MAINLINE CLOSURE, NO POSTED DETOUR**

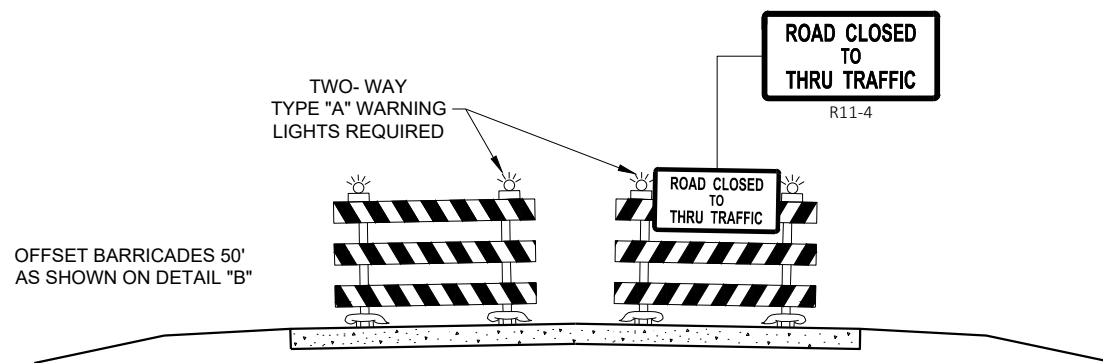
**BARRICADES AND SIGNS  
FOR MAINLINE CLOSURES**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
February 2020 /S/ Andrew Heidtke  
DATE DATE WORK ZONE ENGINEER  
FHWA



**DETAIL D  
ROAD CLOSURE BARRICADE DETAIL  
APPROACH VIEW**



**DETAIL E  
LANE CLOSURE BARRICADE DETAIL  
APPROACH VIEW**

SEE SDD 15C2 - SHEET "a" FOR LEGEND

**GENERAL NOTES**

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND BARRICADES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE", SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

BARRICADES THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY RE-ESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

ALL TYPE III BARRICADES SHALL HAVE RAILS REFLECTORIZED ON BOTH FACES. STRIPES SHALL BE PROPERLY SLOPED DOWN TOWARD THE TRAFFIC SIDE OR AS SHOWN IN THE ROAD CLOSURE BARRICADE DETAIL "D" FOR FULL ROAD CLOSURES.

TYPE "A" LOW - INTENSITY FLASHING WARNING LIGHTS SHALL BE VISIBLE ON BOTH SIDES OF THE BARRICADE.

THE R11 - 2, R11 - 3, M4 - 9, R11 - 4, AND R10 - 61 SIGNS PLACED ON THE BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE RAIL OR BOTTOM RAILS.

"WO" AND "MO" SIGNS ARE THE SAME AS "W" AND "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:

- R11 - 2 SHALL BE 48" X 30"
- R11 - 3 SHALL, R11 - 4 AND R10 - 61 SHALL BE 60" X 30"
- M4 - 9 SHALL BE 30" X 24"
- M3 - X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M4 - 8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M1 - 4, M1 - 5A AND M1 - 6 SHALL BE 24" X 24" (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS)
- MO5 - 1 AND MO6 - 1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)
- D1 - X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.
- R1 - 1 SHALL BE 36" X 36"

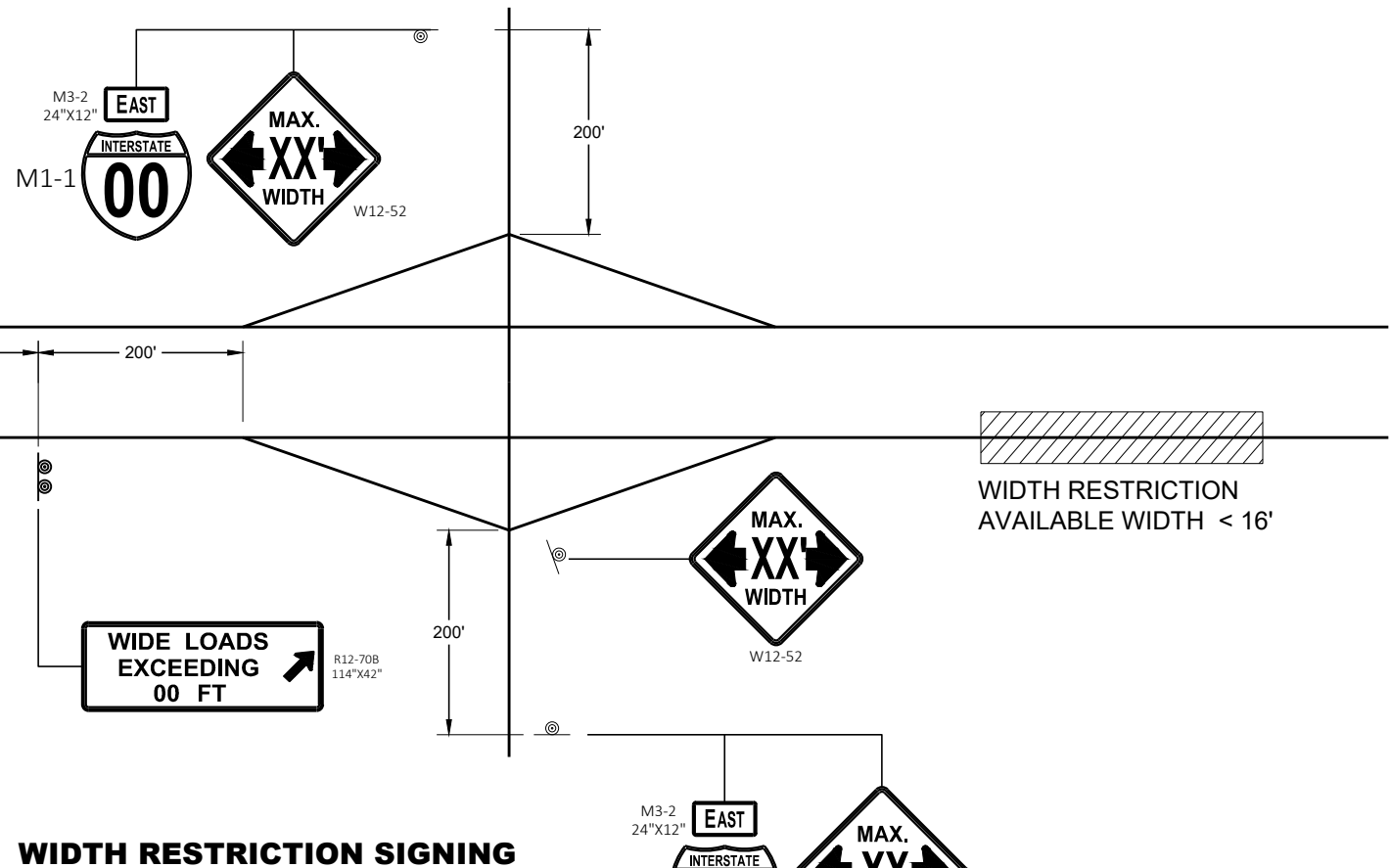
- ① TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING).
- ② THESE SIGNS AND BARRICADES ARE NOT REQUIRED IF ROAD CLOSURE BEGINS AT AN INTERSECTION.
- ③ FOR ROAD CLOSURE WITHOUT LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL "D".
- ④ FOR ROAD CLOSURE WITH LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL "E".
- ⑤ FOR BRIDGE OR CULVERT REPLACEMENTS, SUBSTITUTE "BRIDGE OUT" INSTEAD OF "ROAD CLOSED" ON R11 - 2 AND R11 - 3 SIGNS.
- ⑥ INSTALL DETOUR AND COMMUNITY GUIDE SIGNS AND ARROWS ONLY IF SPECIFIED IN THE CONTRACT. IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. MODIFY EXISTING SIGNS WHERE POSSIBLE. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. IF DETOUR SIGNS ARE BEING INSTALLED BY OTHERS, PLACE THE CONTRACTED TRAFFIC CONTROL SIGNS TO ALLOW FOR PLACEMENT OF ALL WARNING, DETOUR AND GUIDE SIGNS AS SHOWN.
- ⑦ "EAST" CARDINAL DIRECTION MARKERS AND RIGHT TURN ARROWS ARE SHOWN. USE OTHER CARDINAL DIRECTIONS AND ARROWS AS APPROPRIATE.

**BARRICADES AND SIGNS  
FOR  
VARIOUS CLOSURES**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
February 2020 /S/ Andrew Heidtke  
DATE WORK ZONE ENGINEER

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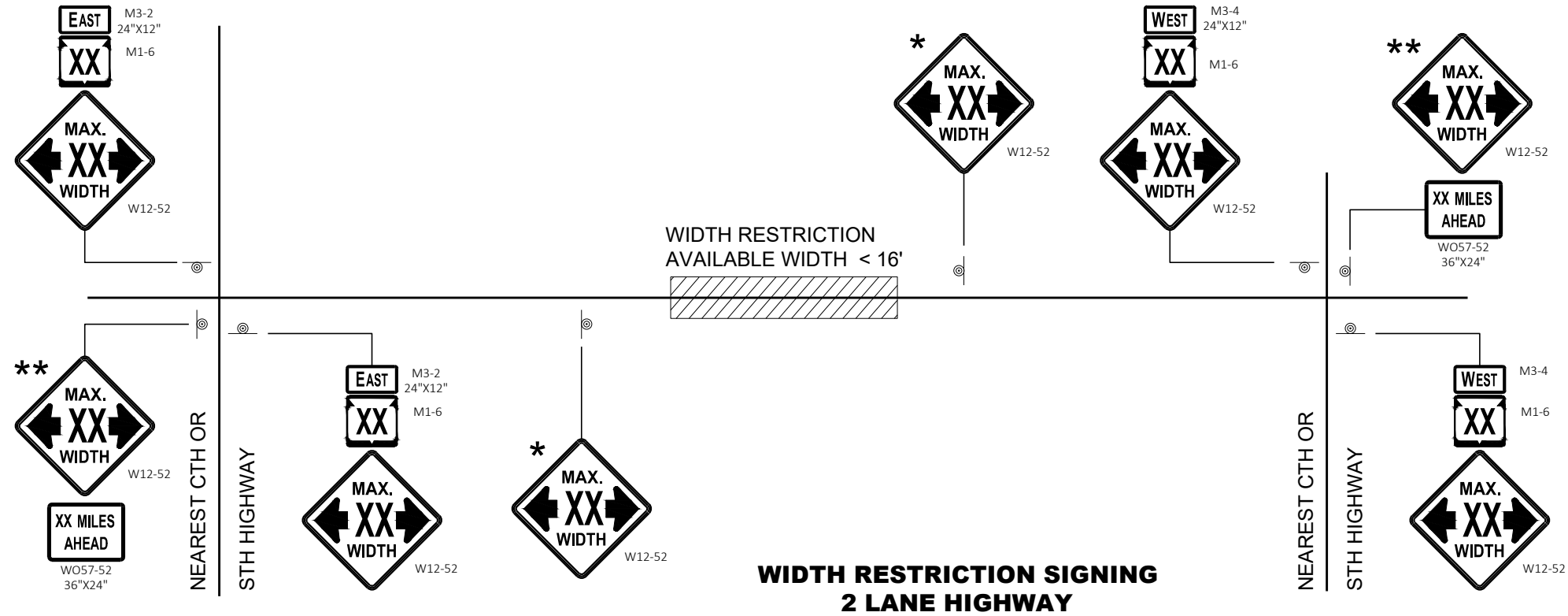
**WIDTH RESTRICTION SIGNING**

**LEGEND**

⊙ SIGN ON PERMANENT SUPPORT

**GENERAL NOTES**

- THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.
- THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.
- ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.
- ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.
- "WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.
- WIDTH ON SIGN TO BE APPROXIMATELY ONE FOOT LESS THAN AVAILABLE WIDTH.
- \* PLACE 500 FEET AFTER THE W20 - 1A AND 500 FEET BEFORE ADDITIONAL SIGNS FOR ROADWAYS WITH A PRE - CONSTRUCTION SPEED LIMIT OF 45 MPH OR MORE. FOR 35-40 MPH, USE 350 FOOT TYPICAL SPACING. FOR 25-30 MPH, USE 200 FOOT TYPICAL SPACING.
- \*\* SIGN SHALL BE VISIBLE FROM ROADWAY.
- \*\*\* ADDITIONAL SIGNS NEEDED IF THERE IS AN ON RAMP BETWEEN SIGNS.



**WIDTH RESTRICTION SIGNING  
2 LANE HIGHWAY**

**ADVANCED WIDTH RESTRICTION SIGNING**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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DATE WORK ZONE ENGINEER




FHWA

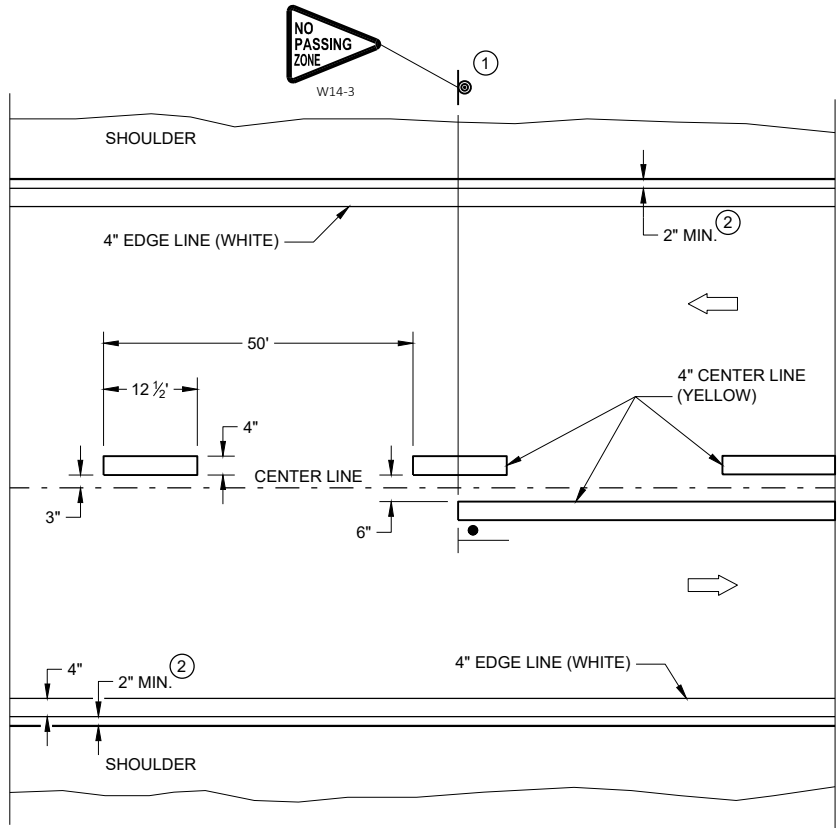
**GENERAL NOTES**

DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

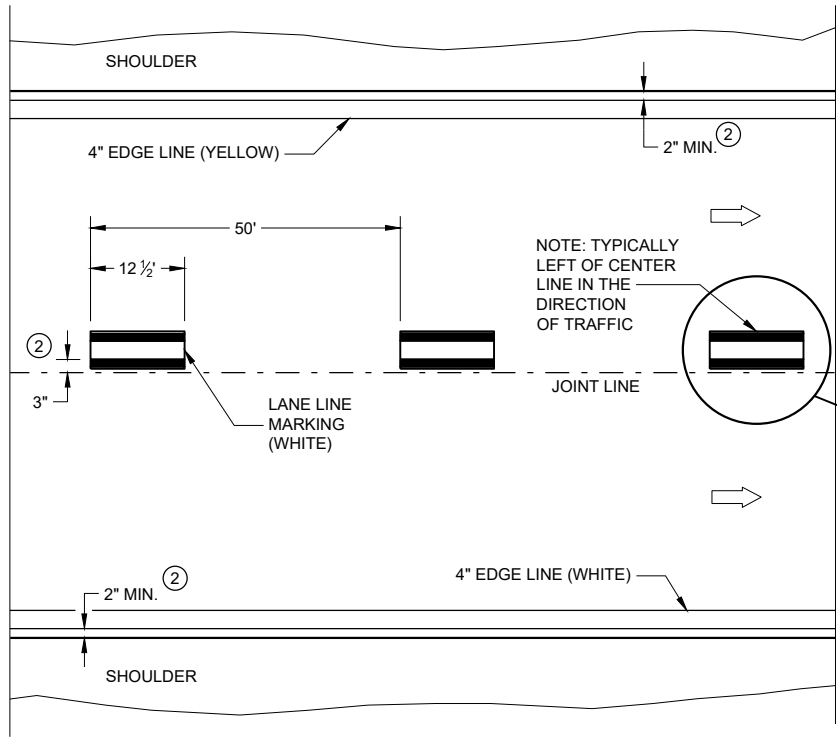
- ① LOCATE THE NO PASSING ZONE W14-3 SIGN WITHIN 50 FEET OF THE "T" MARKING
- ② MEASURE FROM EDGE OF MARKING TO JOINT LINE. THIS DOES NOT INCLUDE SPACE NEEDED FOR GROOVING OPERATIONS.

**LEGEND**

-  "T" MARKING
-  SIGN ON PERMANENT SUPPORT
-  DIRECTION OF TRAFFIC

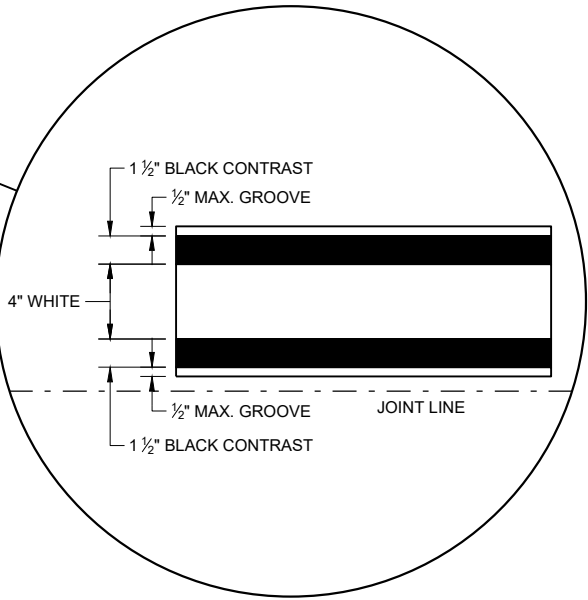


**TWO WAY TRAFFIC**



**ONE WAY TRAFFIC**

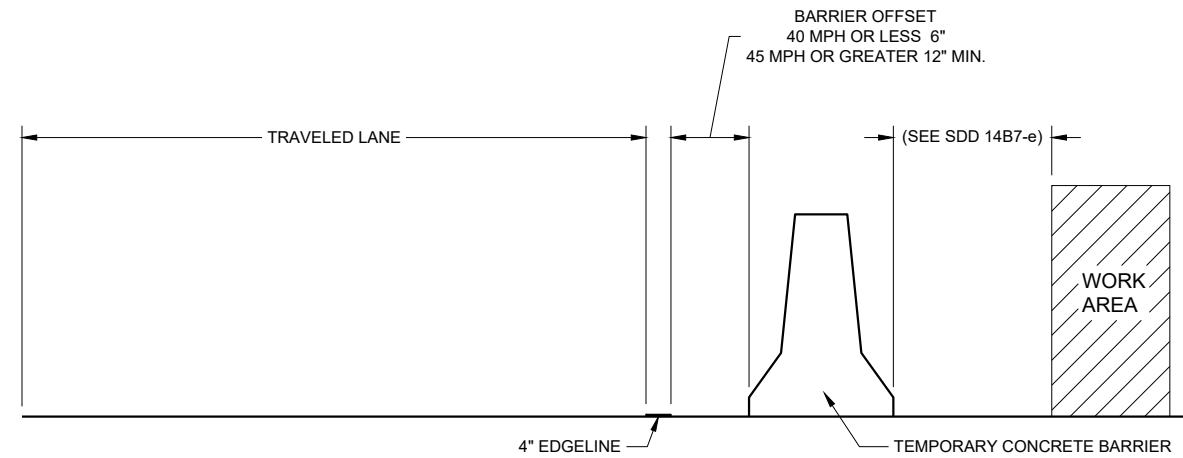
**PERMANENT PAVEMENT MARKING**



**PERMANENT LONGITUDINAL PAVEMENT MARKINGS**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
DATE: May 2022 /S/ Jeannie Silver  
STATEWIDE SIGNING AND MARKING ENGINEER



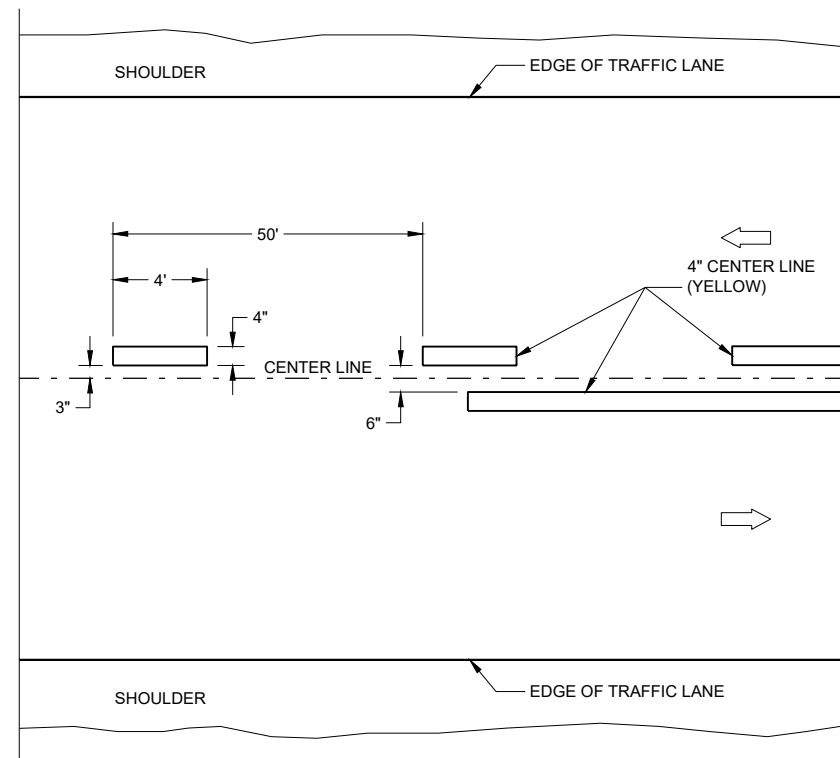
**TEMPORARY BARRIER OFFSET FROM EDGELINE**

**GENERAL NOTES**

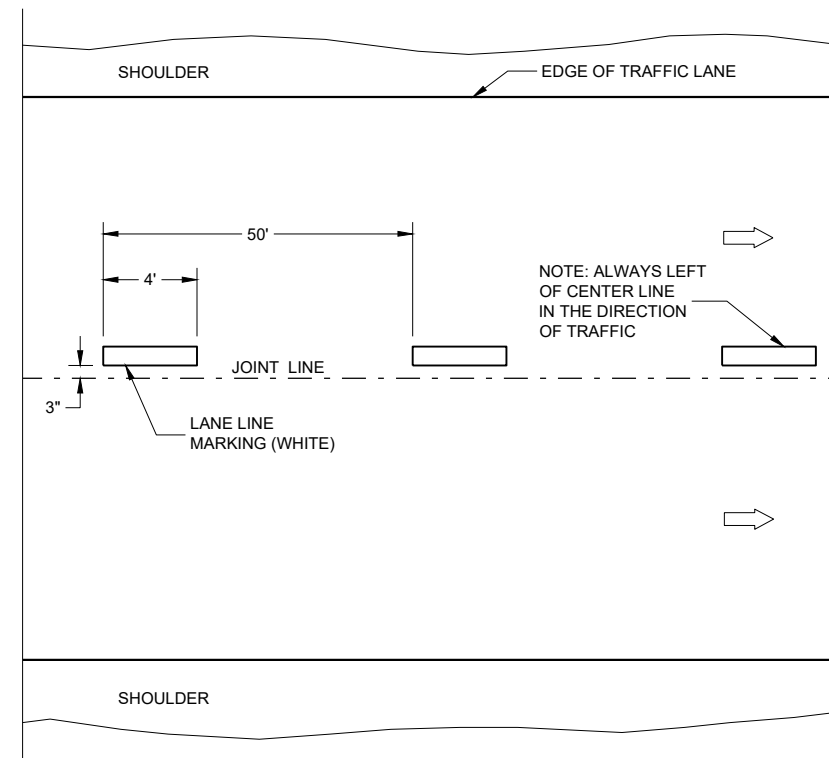
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

**LEGEND**

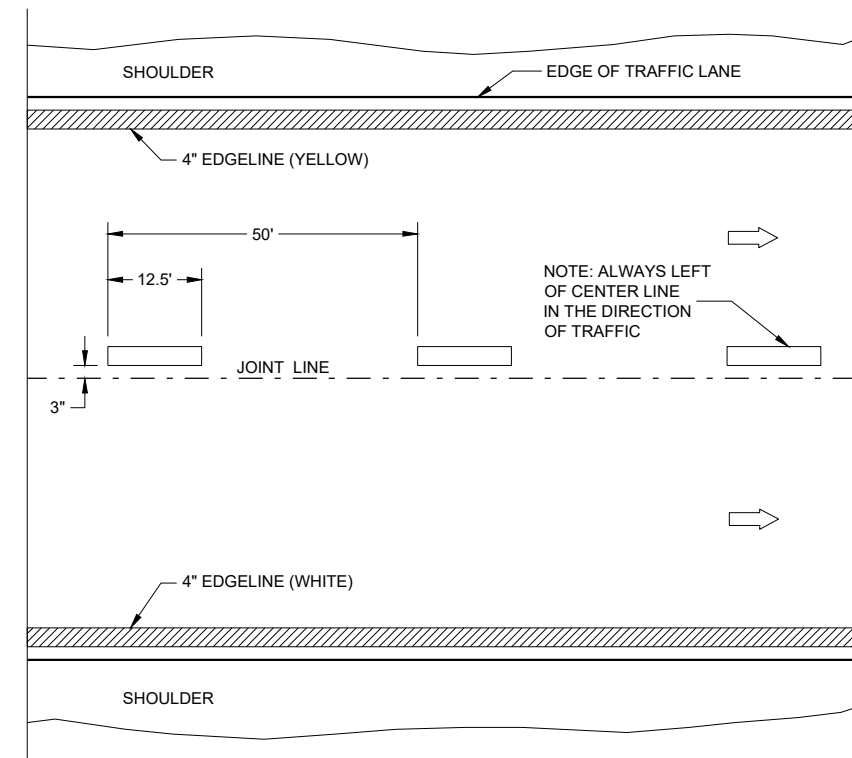
➡ DIRECTION OF TRAFFIC



**TWO WAY TRAFFIC**



**ONE WAY TRAFFIC**



**FREEWAYS AND EXPRESSWAYS**

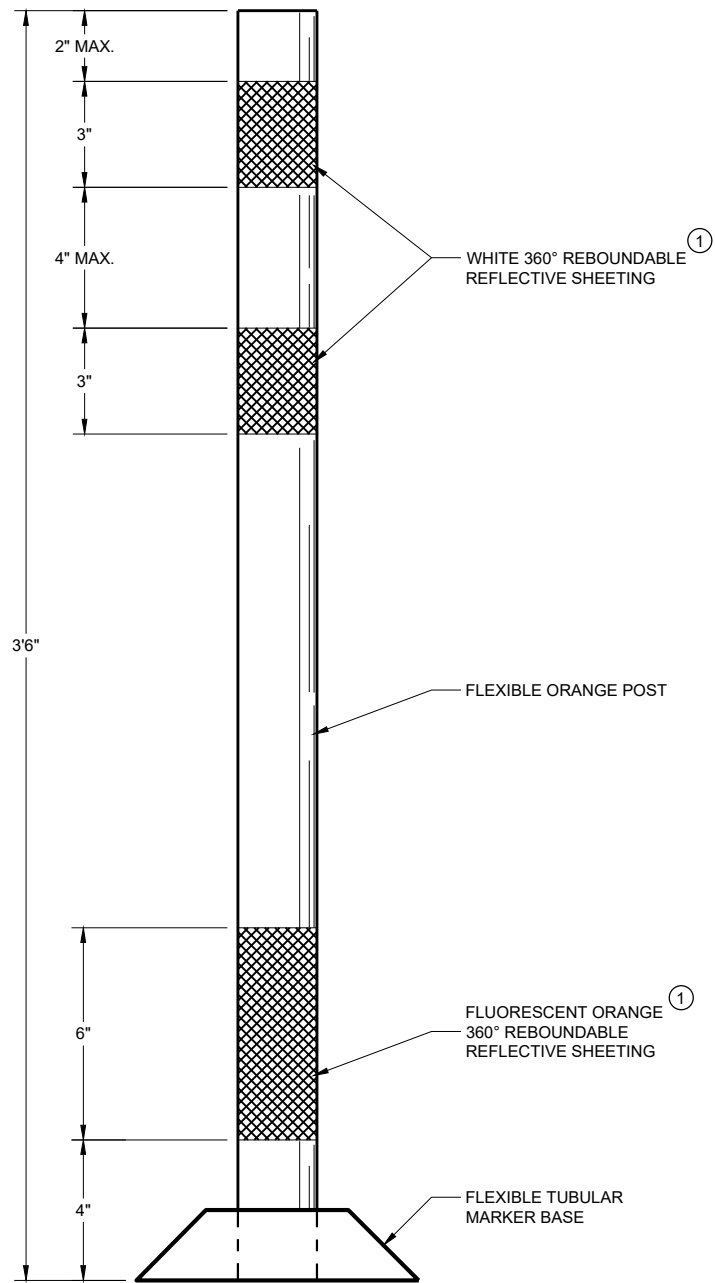
**TEMPORARY PAVEMENT MARKING**

**TEMPORARY LONGITUDINAL PAVEMENT MARKING**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
May 2022 /S/ Jeannie Silver  
DATE STATEWIDE SIGNING AND MARKING ENGINEER

FHWA



FLEXIBLE TUBULAR MARKER POST WORK ZONE

**GENERAL NOTES**

DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

SURFACE MOUNTED BASES SHALL BE FURNISHED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS TO BE COMPATIBLE WITH FLEXIBLE TUBULAR MARKER POSTS TO A SIZE AND SHAPE THAT WILL PROVIDE A STABLE POST FOUNDATION WHEN SECURED TO THE PAVEMENT.

THE ASPHALTIC ADHESIVE OR BUTYL PAD FURNISHED SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS, UNLESS DIRECTED BY THE ENGINEER TO USE BOLTS.

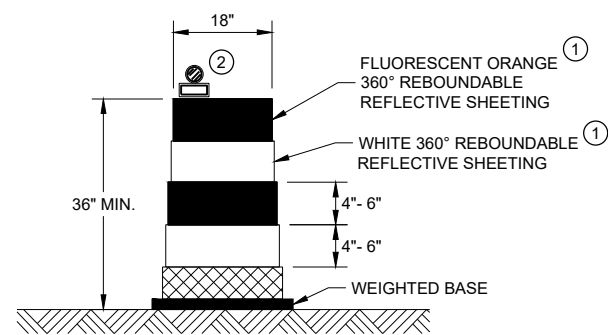
① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.

**CHANNELIZING DEVICES  
FLEXIBLE TUBULAR  
MARKER POST**

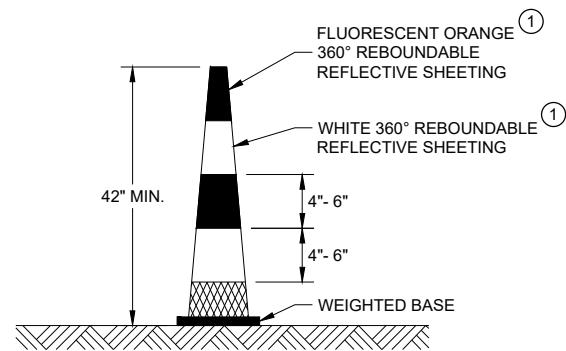
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
May 2021 /S/ Andrew Heidtke  
DATE WORK ZONE ENGINEER

FHWA



**DRUM**

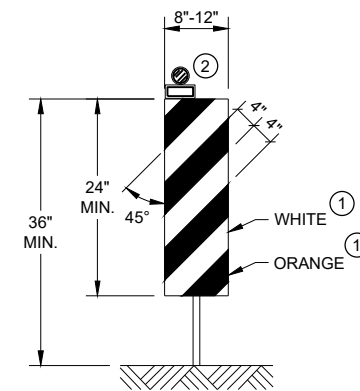


**42" CONE**

DO NOT USE IN TAPERS  
½ SPACING OF DRUMS

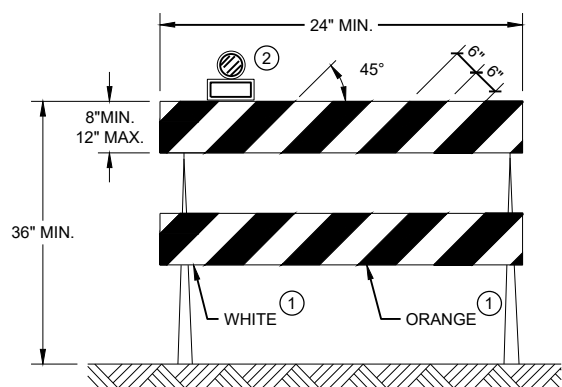
**GENERAL NOTES**

- ① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.
- ② LOCATION OF WARNING LIGHTS WHEN SHOWN ON THE PLAN.



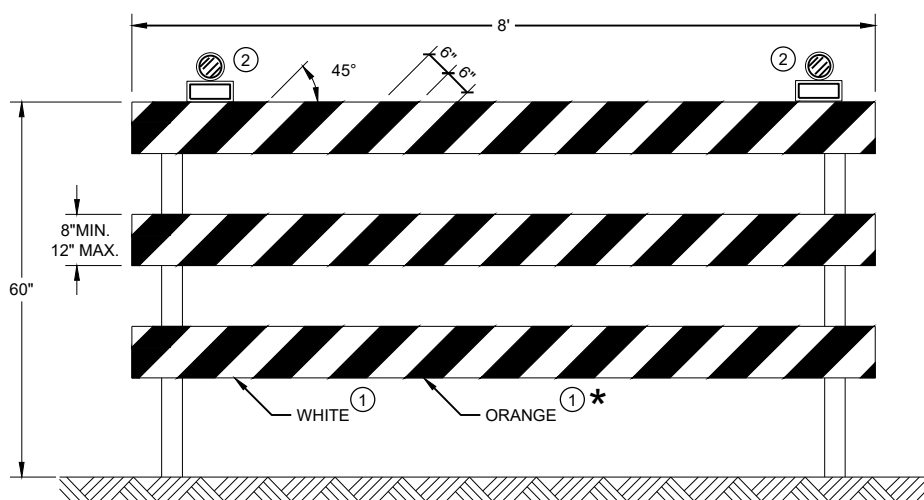
**VERTICAL PANEL**

THE STRIPES SHALL SLOPE DOWNWARD TO THE TRAFFIC SIDE FOR CHANNELIZATION.



**TYPE II BARRICADE**

FOR RAILS LESS THAN 36" LONG, 4" WIDE STRIPES MAY BE USED. ALL STRIPES SHALL SLOPE DOWNWARD TO THE TRAFFIC SIDE FOR CHANNELIZATION.



**TYPE III BARRICADE**

IF SIGN MOUNTED, DO NOT COVER MORE THAN 50% OF THE TOP TWO RAILS OR 33% OF THE TOTAL AREA OF THE THREE RAILS.

\* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

**CHANNELIZING DEVICES  
DRUMS, CONES, BARRICADES  
AND VERTICAL PANELS**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
May 2021 /S/ Andrew Heidtke  
DATE WORK ZONE ENGINEER

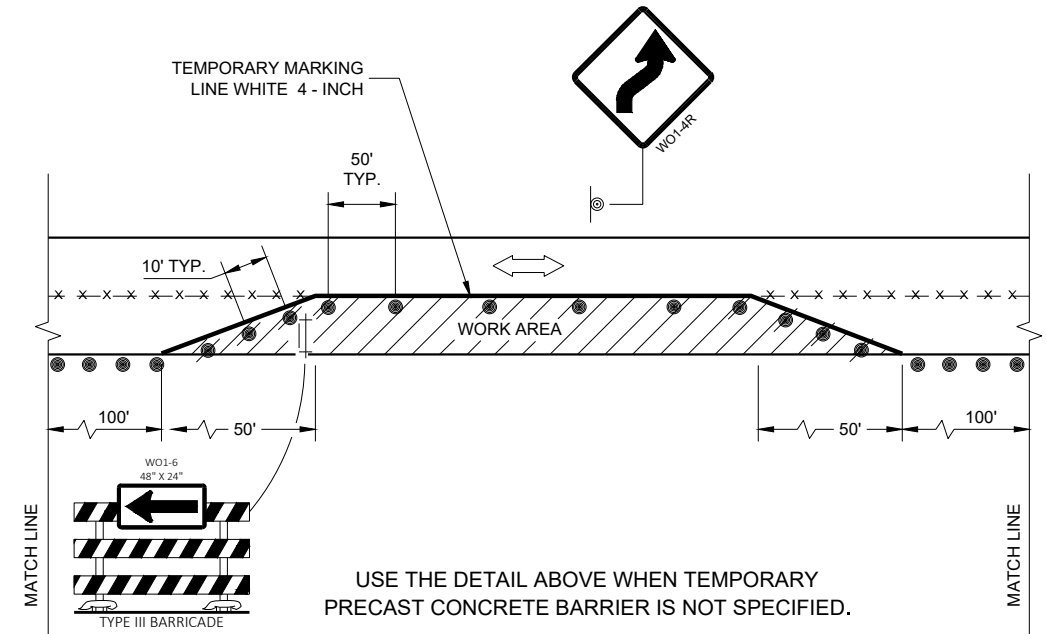


**LEGEND**

- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TRAFFIC CONTROL DRUM
- FLAGS, 16" X 16" MIN. (ORANGE)
- REMOVING PAVEMENT MARKING
- DIRECTION OF TRAFFIC
- ASPHALTIC PAVEMENT WIDENING
- CONCRETE BARRIER TEMPORARY PRECAST
- TEMPORARY SIGNAL. SEE SDD 09G02 FOR EXACT PLACEMENT

**GENERAL NOTES**

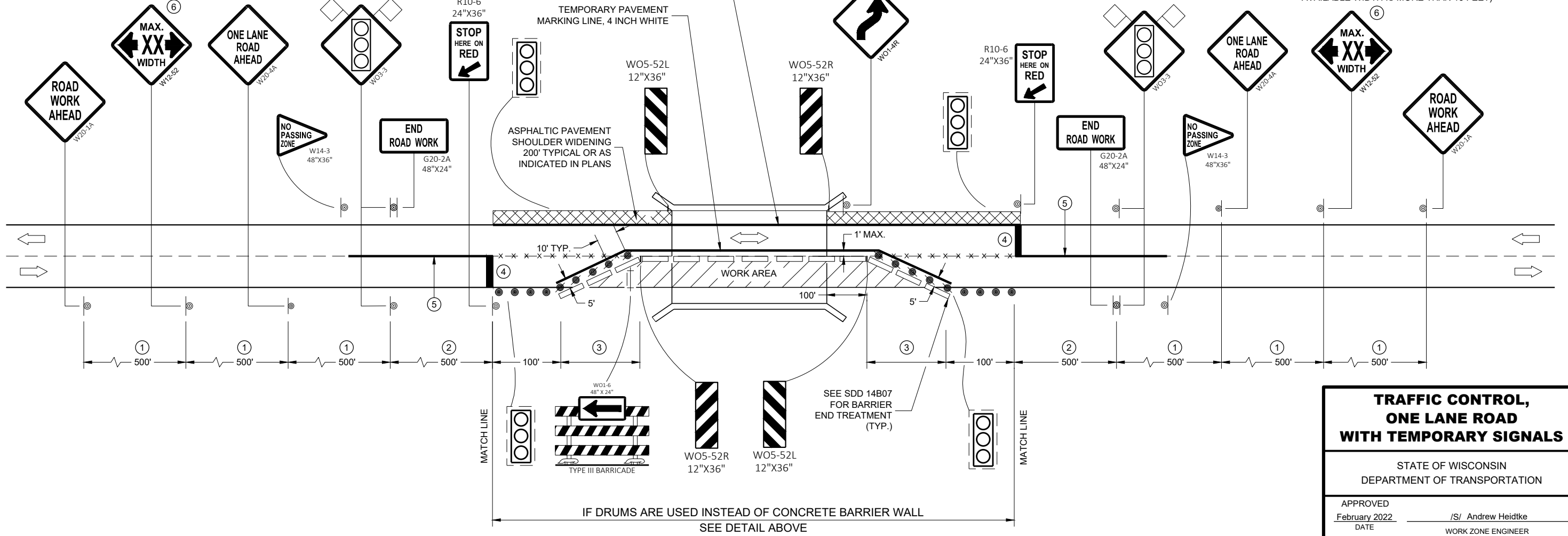
- THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.
- THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE..
- THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE - REVERSE FOR CLOSING LEFT LANE.
- ALL SIGNS ARE 48" x 48" UNLESS OTHERWISE NOTED.
- "WO" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.
- ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED OR AS APPROVED BY THE ENGINEER.
- REMOVE PAVEMENT MARKING AND PLACE TEMPORARY PAVEMENT MARKING LINES IF THE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.
- ① 500 FOOT SPACING SHOWN IS FOR ROADWAYS WITH A PRE-CONSTRUCTION REGULATORY SPEED LIMIT OF 45 MPH OR MORE. FOR 35 - 40 MPH, USE 350 FOOT TYPICAL SPACING. FOR 25 - 30 MPH, USE 200 FOOT TYPICAL SPACING.
  - ② USE 300 FOOT SPACING IF THE PRE - CONSTRUCTION REGULATORY SPEED IS 35 MPH OR LESS.
  - ③ DIMENSION DETERMINED BY CBTP TAPER FROM EDGE LINE TO TANGENT SECTION OF THE ROAD.
  - ④ TEMPORARY PAVEMENT MARKING LINE, 18 INCH WHITE STOP LINE.
  - ⑤ 700 FOOT TEMPORARY PAVEMENT MARKING LINE, 4 INCH DOUBLE YELLOW . WHEN THE DISTANCE FOR THE PRECEDING NO - PASSING ZONE IS LESS THAN THE MINIMUM DISTANCE BETWEEN ZONES AS INDICATED IN THE SPECIFICATIONS, THE TWO ZONES SHALL BE CONNECTED.
  - ⑥ SEE SDD 15C02 - SHEET "F" FOR ADVANCED WIDTH RESTRICTION SIGNING.



TEMPORARY PAVEMENT MARKING LINE, 4 INCH WHITE (STOPLINE TO STOPLINE). REMOVE EXISTING EDGELINE AND OFFSET THE TEMPORARY EDGELINE IF THE DISTANCE FROM THE EDGELINE TO CONCRETE BARRIER WALL IS LESS THAN 9 FEET.

WIDTH ON SIGN TO BE APPROX. 1-FOOT LESS THAN AVAILABLE WIDTH. (OMIT IF AVAILABLE WIDTH IS MORE THAN 16 FEET)

WIDTH ON SIGN TO BE APPROX. 1-FOOT LESS THAN AVAILABLE WIDTH. (OMIT IF AVAILABLE WIDTH IS MORE THAN 16 FEET)



**TRAFFIC CONTROL,  
ONE LANE ROAD  
WITH TEMPORARY SIGNALS**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
February 2022 /S/ Andrew Heidtke  
DATE WORK ZONE ENGINEER

FHWA

\* PROVIDE FOR THRIE BEAM GUARDRAIL ATTACHMENT.  
 (X) INDICATES WING NUMBER

**LIVE LOAD:**  
 DESIGN LOADING: HL-93  
 INVENTORY RATING FACTOR = 1.19  
 OPERATING RATING FACTOR = 1.64  
 WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 250 KIPS

STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 PSF.

**MATERIAL PROPERTIES:**  
 CONCRETE MASONRY - DECK, PARAPET, DIAPHRAGMS, - f'c = 4,000 P.S.I.  
 APPROACH SLAB, APPR. SLAB FOOTING.  
 - ALL OTHER - f'c = 3,500 P.S.I.

BAR STEEL REINFORCEMENT, GRADE 60 - f<sub>y</sub> = 60,000 P.S.I.  
 (INCLUDES STAINLESS STEEL REINFORCEMENT)

28" PRESTRESSED GIRDER  
 - CONCRETE MASONRY - f'c = 8,000 P.S.I.  
 - STRANDS - 0.6" DIA. WITH ULTIMATE TENSILE STRENGTH OF - 270,000 P.S.I.

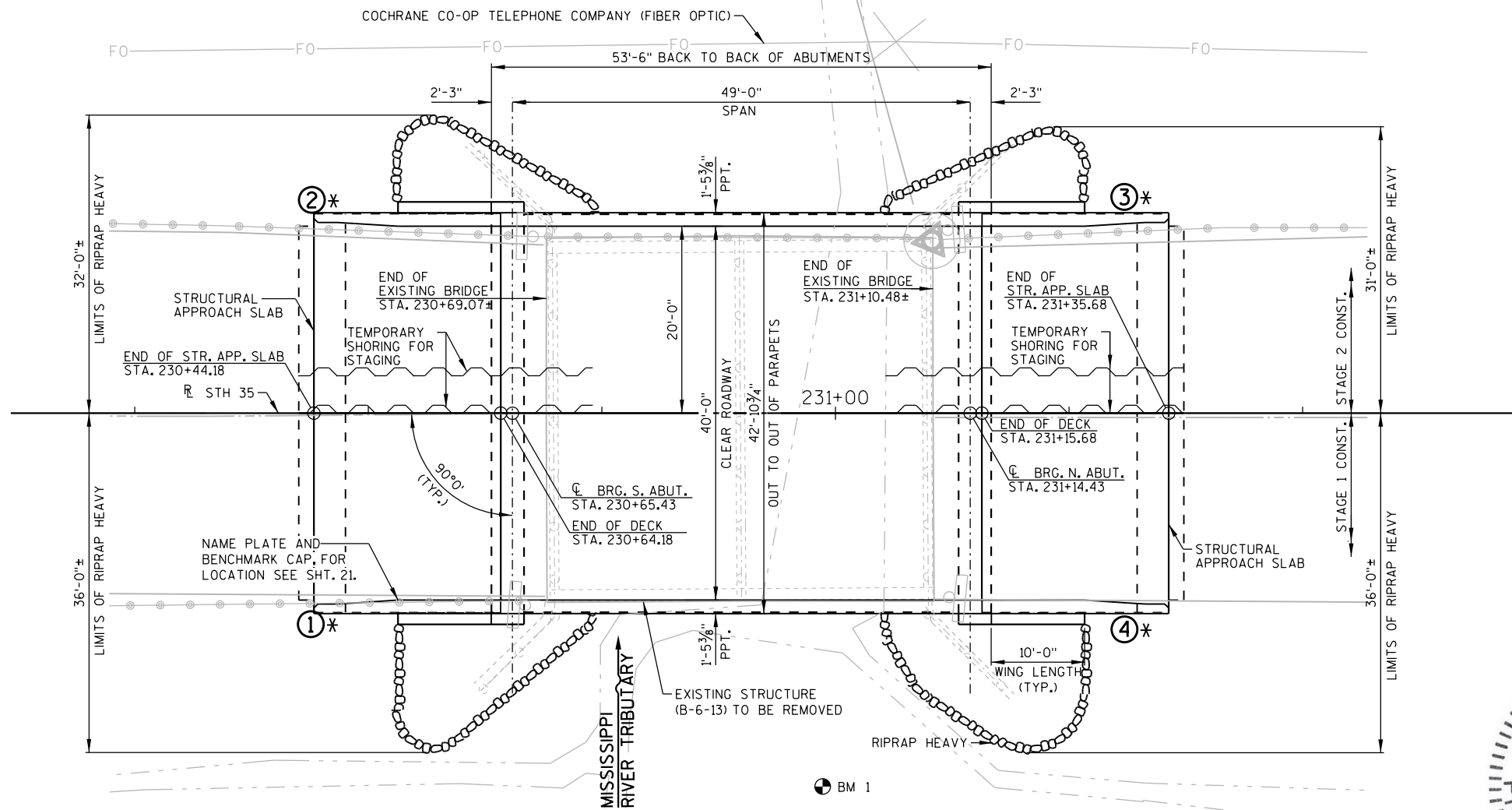
ABUTMENTS TO BE SUPPORTED ON PILING STEEL HP 10-INCHx42LB. PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS\*\* PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 75'-0" LONG FOR THE SOUTH ABUTMENT AND 85'-0" LONG FOR THE NORTH ABUTMENT.

\*\* THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS THE REQUIRED DRIVING RESISTANCE MULTIPLIED BY A RESISTANCE FACTOR OF 0.5 USING THE MODIFIED GATE DYNAMIC FORMULA TO DETERMINE DRIVEN PILE CAPACITY.

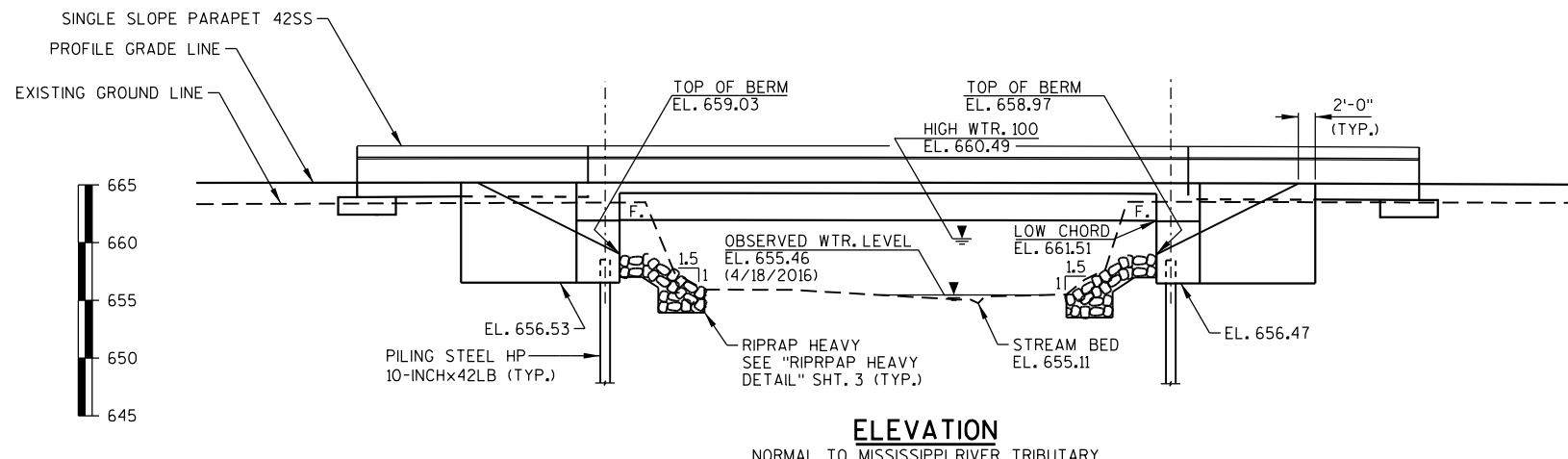
STH 35  
 A.D.T. (2023) = 5,500  
 A.D.T. (2043) = 6,350  
 DESIGN SPEED = 60 MPH

**100 YEAR FREQUENCY**  
 Q100 - 580 CFS  
 VELOCITY - 3.2 FPS  
 HIGH WATER ELEVATION - 660.49  
 WATERWAY AREA - 180.6 SQ. FT.  
 DRAINAGE AREA - 1.06 SQ. MI.  
 ROAD OVERTOPPING - N/A  
 SCOUR CRITICAL CODE - 5

**2 YEAR FREQUENCY**  
 Q2 - 75 CFS  
 VELOCITY - 1.1 FPS  
 HIGH WATER 2 ELEVATION - 657.93



**PLAN**  
 (SINGLE SPAN - 28" PRESTRESSED GIRDERS)



**ELEVATION**  
 NORMAL TO MISSISSIPPI RIVER TRIBUTARY

**LIST OF DRAWINGS**

1. GENERAL PLAN
2. CROSS SECTION & QUANTITIES
3. CONSTRUCTION DETAILS
4. SUBSURFACE EXPLORATION - 1
5. SUBSURFACE EXPLORATION - 2
6. CONSTRUCTION STAGING - 1
7. CONSTRUCTION STAGING - 2
8. SOUTH ABUTMENT
9. SOUTH ABUTMENT PILE PLAN AND SECTION
10. SOUTH ABUTMENT DETAILS
11. NORTH ABUTMENT
12. NORTH ABUTMENT PILE PLAN AND SECTION
13. NORTH ABUTMENT DETAILS
14. 28" PRESTRESSED GIRDER DETAILS
15. INTERMEDIATE STEEL DIAPHRAGM
16. SUPERSTRUCTURE CROSS SECTION
17. SUPERSTRUCTURE
18. SUPERSTRUCTURE DETAILS - 1
19. SUPERSTRUCTURE DETAILS - 2
20. STRUCTURAL APPROACH SLAB
21. PARAPET 42SS WITH STRUCTURAL APPROACH SLAB
22. BAR SPLICER (COUPLER) DETAILS

**STRUCTURES DESIGN CONTACTS**

BRIDGE OFFICE:  
 AARON BONK (608) 261-0261

CONSULTANT:  
 MATT KRIPPNER (608) 828-8123

AECOM PROJECT NO. 60579395

**BENCH MARK TABLE**

NO.	STATION	DESCRIPTION	ELEVATION
BM 1	230+97 RT	YELLOW BENCH TIE SPIKE IN 8" BOX ELDER	659.31

HORIZ. COORDINATES TIED TO NAD 83 (2011). VERT. TIED TO NAVD 88. COORDINATE SYSTEM WCCS, BUFFALO COUNTY.

NO.	DATE	REVISION	BY



STATE OF WISCONSIN  
 DEPARTMENT OF TRANSPORTATION

ACCEPTED *[Signature]* SDR 07/29/22  
 CHIEF STRUCTURES DESIGN ENGINEER DATE

**STRUCTURE B-6-201**

STH 35 OVER MISSISSIPPI RIVER TRIBUTARY

COUNTY BUFFALO TOWN/CITY/VILLAGE BUFFALO

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY MSK DESIGN CK'D. AJC DRAWN BY MES PLANS CK'D. EAN

**GENERAL PLAN**

SHEET 1 OF 22

PRINTER DRIVER: S:\acm\CAD\stds\Libraries\MicroStationResources\MS\_Plotting\Printer\_Drivers\AE\_PDF\_11 x 17.plt  
 PEN TABLE: A:\CLIENT\AMER-USA-WI-WsDOT\dev\WrsDOT\Bridges\Ver-A\Pen\_Tables\AE\_MsDOT\_Structure.tbl  
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 BATCH PRINT SHEET 1 OF 22  
 PLOT TIME: 7/27/2022 7:06:31 PM

**GENERAL NOTES**

DRAWINGS SHALL NOT BE SCALED.

BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS SHOWN OR NOTED OTHERWISE.

THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH RIPRAP HEAVY AND GEOTEXTILE TYPE 'HR' WITHIN THE LIMITS SHOWN ON SHEETS 1 AND 3, ON THE ABUTMENT SHEETS OR AS DIRECTED BY THE ENGINEER.

THE FIRST DIGIT OF A THREE DIGIT BAR MARK AND THE FIRST TWO DIGITS OF A FOUR DIGIT BAR MARK SIGNIFIES THE BAR SIZE.

THE EXISTING STRUCTURE (B-6-13) IS A 2 SPAN STEEL DECK GIRDER BRIDGE, 41.5' LONG X 38.9' WIDE, TO BE REMOVED. CONTRACTOR SHALL VERIFY THE ADEQUACY OF THE EXISTING STRUCTURE DURING STAGE 1 CONSTRUCTION IN ACCORDANCE WITH 108.7.3 OF THE STANDARD SPECIFICATIONS.

ALL REQUIRED REMOVAL OF THE EXISTING SUBSTRUCTURES IS INCLUDED IN THE BID ITEM "REMOVING STRUCTURE OVER WATERWAY MINIMAL DEBRIS B-6-13".

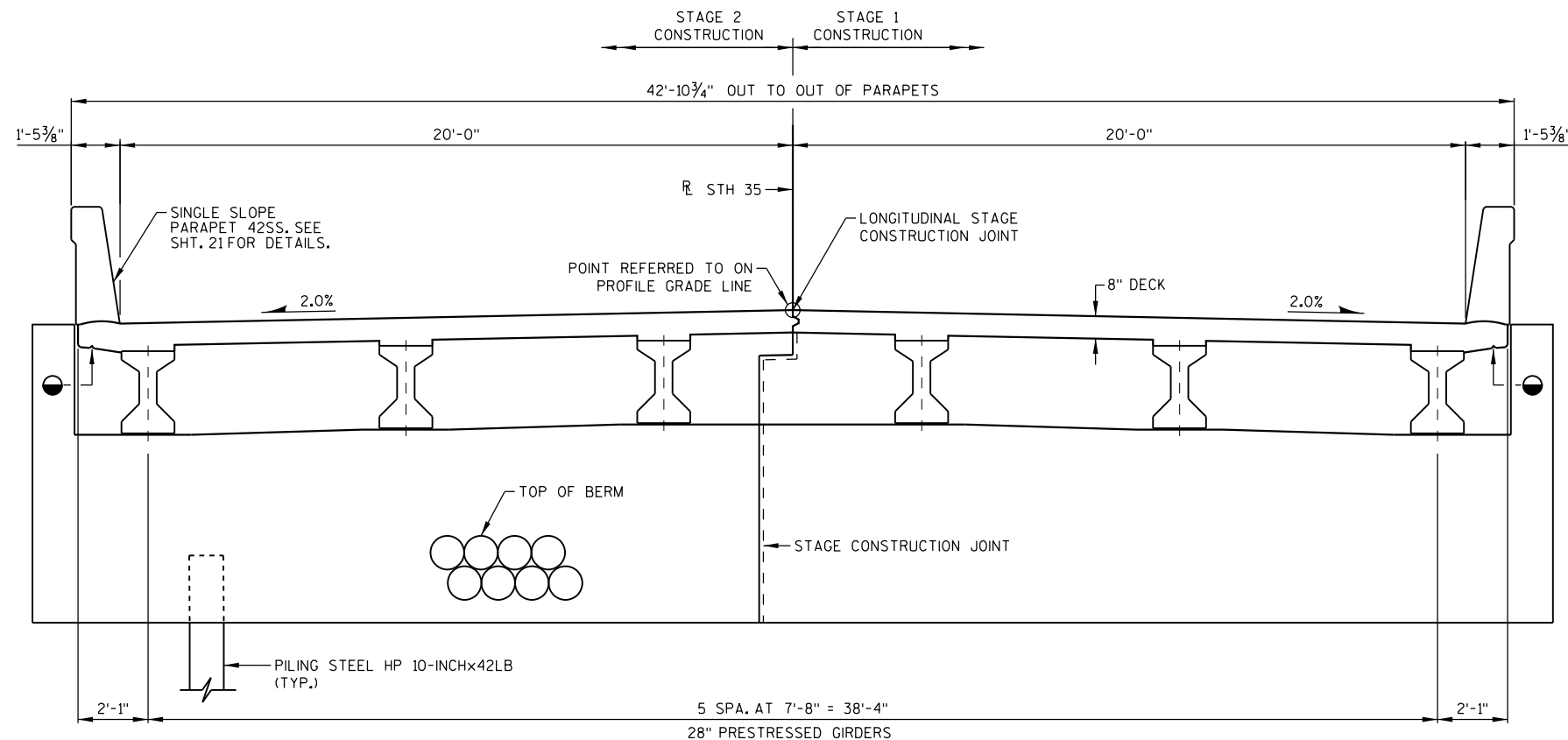
ELASTOMERIC BEARING PADS NEED NOT BE INDIVIDUALLY MOLDED PROVIDED THE CUT EDGES ARE SMOOTH AND TRUE.

THE HAUNCH CONCRETE QUANTITY IS BASED ON THE AVERAGE HAUNCH SHOWN ON THE PRESTRESSED GIRDER DETAIL SHEET.

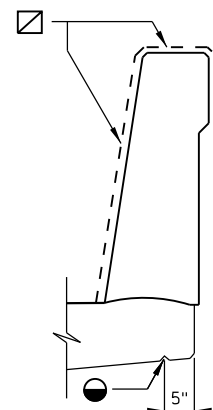
EXCAVATION REQUIRED UNDER THE BID ITEM "EXCAVATION FOR STRUCTURES BRIDGES B-6-201" IS NOT USED TO BALANCE THE EARTHWORK.

AT THE BACKFACE OF ABUTMENT, ALL VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL.

PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE PAVING NOTCHES, TOP OF SLAB, AND THE TOP OF THE STRUCTURAL APPROACH SLABS. PIGMENTED SURFACE SEALER TO BE APPLIED TO THE INSIDE FACE OF PARAPETS AND THE TOP OF PARAPETS, INCLUDING PARAPETS ON THE STRUCTURAL APPROACH SLABS.



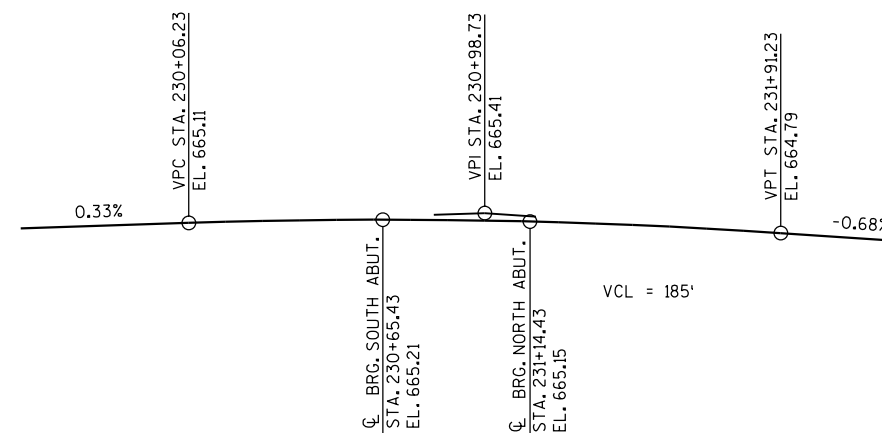
**CROSS SECTION THRU ROADWAY**  
(LOOKING UPSTATION)



**SURFACE PROTECTION DETAIL**

**TOTAL ESTIMATED QUANTITIES**

BID ITEM NUMBER	BID ITEM	UNIT	SOUTH APPROACH	SOUTH ABUTMENT	NORTH ABUTMENT	NORTH APPROACH	SUPER.	TOTALS
203.0260	REMOVING STRUCTURE OVER WATERWAY MINIMAL DEBRIS B-6-13	EACH						1
206.1001	EXCAVATION FOR STRUCTURES BRIDGES B-6-201	EACH						1
210.1500	BACKFILL STRUCTURE TYPE A	TON		120	120			240
305.0120	BASE AGGREGATE DENSE 1 1/4-INCH	TON	135			135		270
502.0100	CONCRETE MASONRY BRIDGES	CY	60	46	46	60	101	313
502.3200	PROTECTIVE SURFACE TREATMENT	SY	90			90	260	440
502.3210	PIGMENTED SURFACE SEALER	SY	20			20	60	100
503.0128	PRESTRESSED GIRDER TYPE 128-INCH	LF					300	300
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB		2,810	2,810			5,620
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	10,085	1,370	1,370	10,085	19,710	42,620
505.0800.S	BAR STEEL REINFORCEMENT HS STAINLESS STRUCTURES	LB	720			720		1,440
505.0905	BAR COUPLERS NO. 5	EACH	42			42		84
505.0906	BAR COUPLERS NO. 6	EACH		11	11		12	34
505.0908	BAR COUPLERS NO. 8	EACH	12	7	7	12		38
506.2605	BEARING PADS ELASTOMERIC NON-LAMINATED	EACH		6	6			12
506.4000	STEEL DIAPHRAGMS B-6-201	EACH					5	5
511.1200	TEMPORARY SHORING B-6-201	SF		510	520			1,030
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY		13	13			26
550.1100	PILING STEEL HP 10-INCH X 42 LB	LF		600	680			1,280
606.0300	RIPRAP HEAVY	CY		70	70			140
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF		80	80			160
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	2			2		4
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY		60	60			120
645.0120	GEOTEXTILE TYPE HR	SY		140	140			280
	NON-BID ITEMS							
	FILLER	SIZE						1/2" & 3/4"



**PROFILE GRADE LINE, STH 35**

**LEGEND**

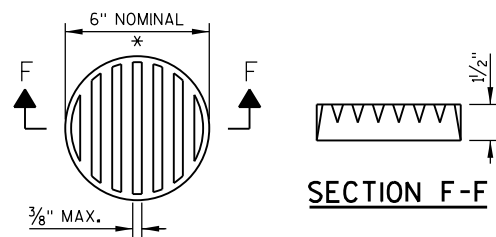
- COAT WITH "PIGMENTED SURFACE SEALER" AS PER THE STANDARD SPECIFICATIONS.
- 3/4" V-GROOVE REQ'D. EXTEND V-GROOVE TO 6" FROM FRONT FACE OF ABUT. DIAPHRAGM.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-201</b>			
DRAWN BY		MES	PLANS CKD. EAN
<b>CROSS SECTION &amp; QUANTITIES</b>			SHEET 2 OF 22

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 BATCH PRINT SHEET 2 OF 22

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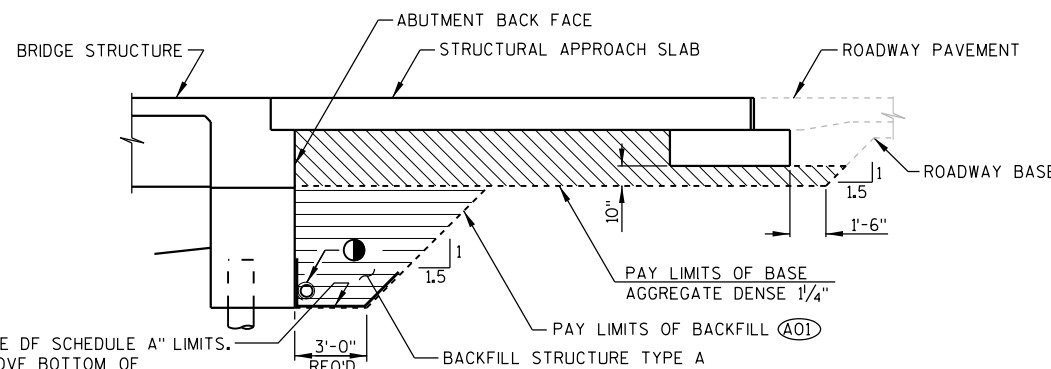


**RODENT SHIELD DETAIL**

\* DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.

THE RODENT SHIELD, PIPE COUPLING AND SCREWS SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH STAINLESS STEEL SHEET METAL SCREWS.



"GEOTEXTILE TYPE DF SCHEDULE A" LIMITS. EXTEND 2'-0" ABOVE BOTTOM OF ABUTMENT FOR THE ENTIRE ABUTMENT BODY LENGTH.

**BACKFILL STRUCTURE LIMITS**

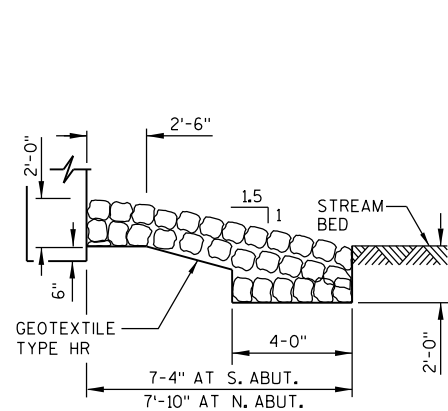
THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGES B-6-201" SHALL BE THE EXISTING GROUNDLINE.

(A01) BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.

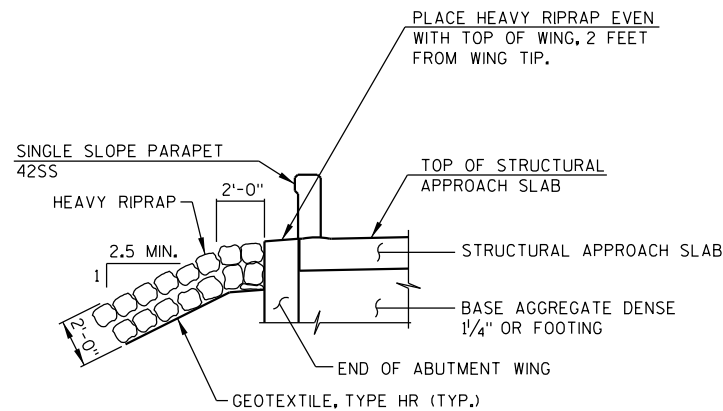
THE BACKFILL QUANTITIES ARE BASED ON THE PAY LIMITS SHOWN ON THE PLANS AND MAY NOT REFLECT ACTUAL PLACED QUANTITIES. "BACKFILL STRUCTURE TYPE A" REQUIRED DIRECTLY BEHIND ABUTMENTS AND ABUTMENT WINGS FOR 3 FEET. BACKFILL PLACED BEYOND PAY LIMITS OR EXCEEDING PLAN QUANTITIES SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES.

EXCAVATION BELOW THE ABUTMENT AND ABUTMENT BEDDING MATERIALS REQUIRES ENGINEER APPROVAL. GEOTEXTILE SHALL BE SET AT THE BOTTOM OF EXCAVATION AND EXTEND 2'-0" ABOVE THE BOTTOM OF THE ABUTMENT.

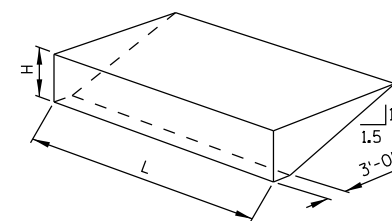
(1) PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN.



**RIPRAP DETAIL**



**TYPICAL FILL SECTION AT WING TIPS**  
(TYP. BOTH ABUTMENTS)



**WINGS PARALLEL TO ROADWAY**

**ABUTMENT BACKFILL DIAGRAM**

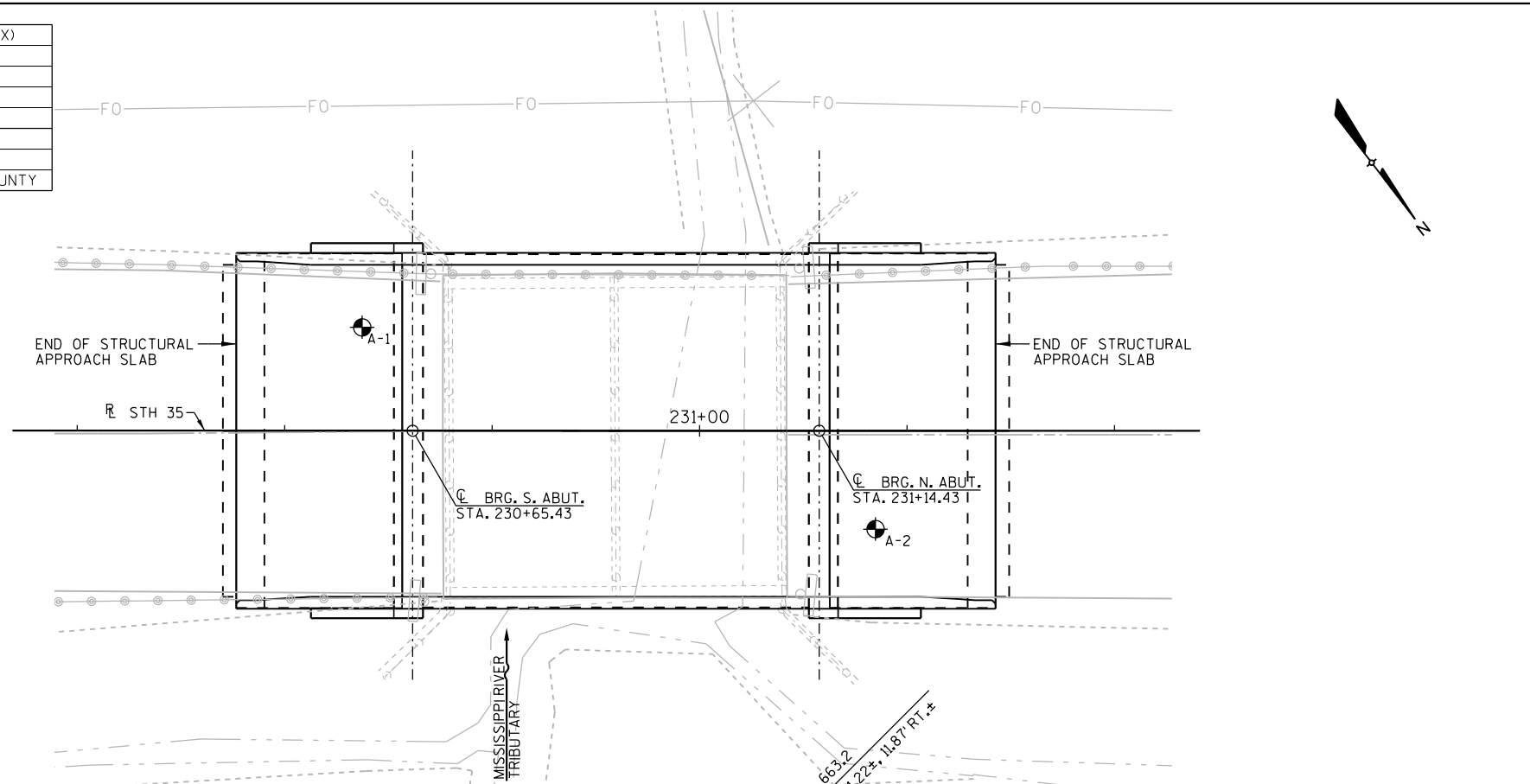
- L = OUT TO OUT OF ABUTMENT, INCLUDING WINGS (FT)
- H = AVERAGE ABUTMENT FILL HEIGHT (FT)
- EF = EXPANSION FACTOR (1.20 FOR CY BID ITEMS, AND 1.00 FOR TON BID ITEMS)
- V<sub>CF</sub> = (L)(3.0')(H) + (L)(0.5)(1.5H)(H)
- V<sub>CY</sub> = V<sub>CF</sub> (EF)/27
- V<sub>TON</sub> = V<sub>CY</sub> (2.0)

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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-201</b>			
DRAWN BY		MES	PLANS CK'D. EAN
<b>CONSTRUCTION DETAILS</b>			SHEET 3 OF 22

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
A-1	7/25/2018	218107.2±	614223.1±
A-2	7/24/2018	218164.2±	614188.9±

BORINGS COMPLETED BY: AMERICAN ENGINEERING TESTING, INC.  
 REPORT COMPLETED BY: AMERICAN ENGINEERING TESTING, INC.  
 ALL COORDINATES REFERENCED TO WCCS NAD 83(11) BUFFALO COUNTY

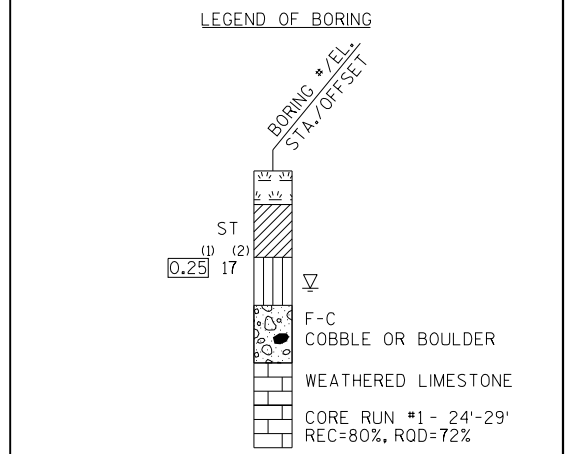


**LEGEND**  
 DENOTES APPROXIMATE LOCATION OF STANDARD PENETRATION TEST BORING.

STATE PROJECT NUMBER  
**7160-04-75**

**MATERIAL SYMBOLS**

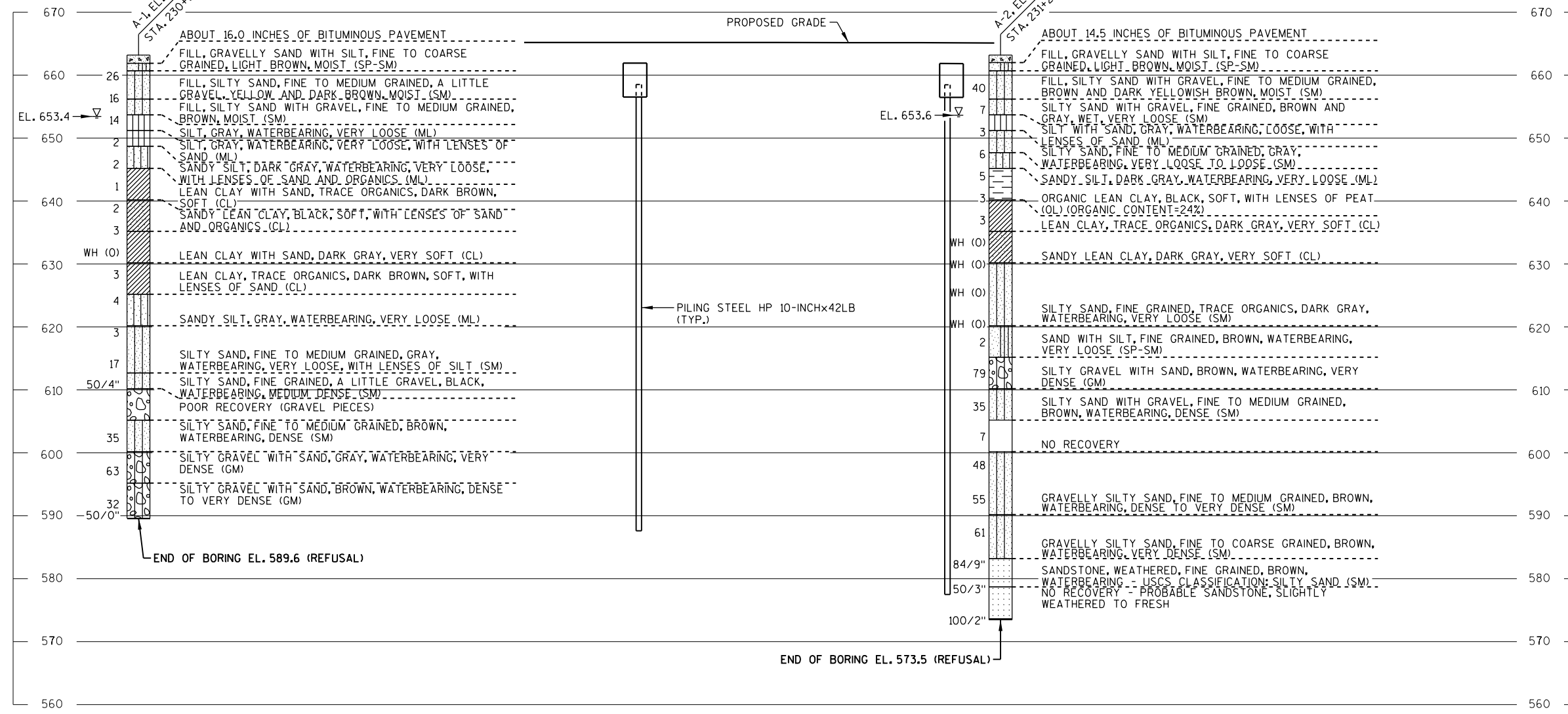
ASPHALT	TOPSOIL	PEAT
CONCRETE	FILL	GRAVEL
SAND	CLAY	SILT
BOULDERS OR COBBLES	LIMESTONE	BEDROCK (UNKNOWN)
SHALE	SANDSTONE	IGNEOUS/META



(1) UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)  
 (2) UNLESS OTHERWISE SPECIFIED THE SPT 'N' VALUE IS BASED ON AASHTO T-206, STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.

**GROUND WATER ELEVATION**  
 ▽ AT TIME OF DRILLING  
 ▼ END OF DRILLING  
 ▽ AFTER DRILLING

**ABBREVIATIONS**  
 WH - SAMPLER PENETRATED SOIL UNDER WEIGHT OF HAMMER AND RODS ALONE; DRIVING NOT REQ'D.  
 F-FINE M-MEDIUM C-COARSE ST-SHELBY TUBE

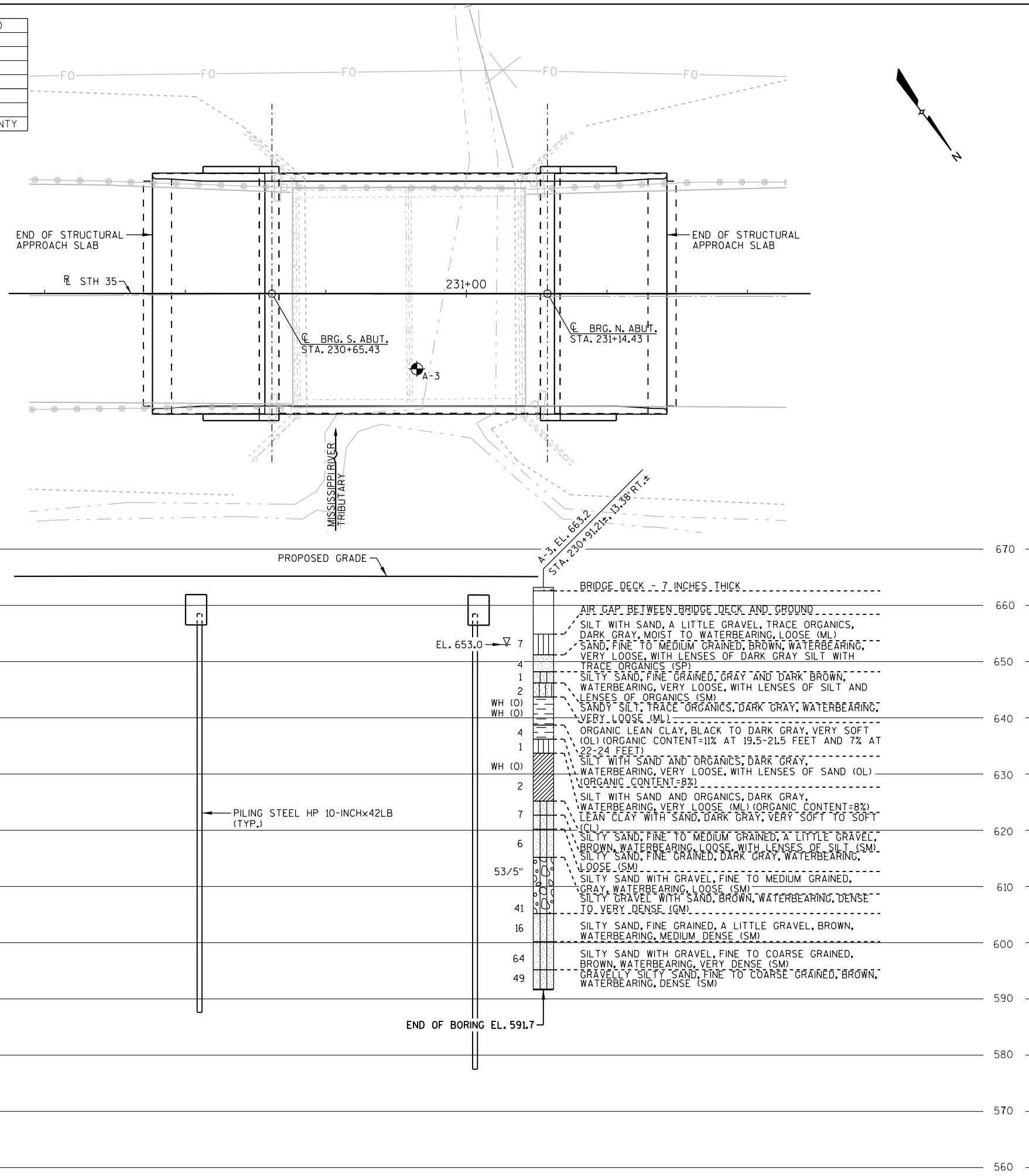


**SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION**

BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT SIMILAR SUBSURFACE CONDITIONS BELOW, BETWEEN, OR BEYOND THESE BORINGS. VARIATIONS IN SOIL CONDITIONS SHOULD BE EXPECTED AND FLUCTUATIONS IN GROUNDWATER LEVELS MAY OCCUR.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-201</b>			
DRAWN BY		MES	PLANS Ckd. EAN
<b>SUBSURFACE EXPLORATION-1</b>			SHEET 4 OF 22

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
A-3	7/25/2018	218147.1±	614213.6±
BORINGS COMPLETED BY: AMERICAN ENGINEERING TESTING, INC.			
REPORT COMPLETED BY: AMERICAN ENGINEERING TESTING, INC.			
ALL COORDINATES REFERENCED TO WCCS NAD 83(11) BUFFALO COUNTY			

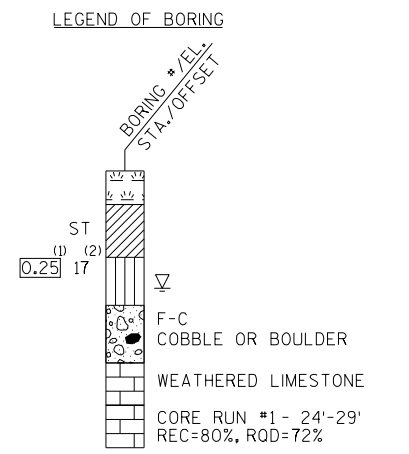


**LEGEND**  
 DENOTES APPROXIMATE LOCATION OF STANDARD PENETRATION TEST BORING.

STATE PROJECT NUMBER  
**7160-04-75**

**MATERIAL SYMBOLS**

ASPHALT	TOPSOIL	PEAT
CONCRETE	FILL	GRAVEL
SAND	CLAY	SILT
BOULDERS OR COBBLES	LIMESTONE	BEDROCK (UNKNOWN)
SHALE	SANDSTONE	IGNEOUS/META



<sup>(1)</sup> UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)  
<sup>(2)</sup> UNLESS OTHERWISE SPECIFIED THE SPT 'N' VALUE IS BASED ON AASHTO T-206, STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.

**GROUND WATER ELEVATION**  
 ▽ AT TIME OF DRILLING  
 ▼ END OF DRILLING  
 ▽ AFTER DRILLING

**ABBREVIATIONS**  
 WH - SAMPLER PENETRATED SOIL UNDER WEIGHT OF HAMMER AND RODS ALONE; DRIVING NOT REQ'D.  
 F-FINE M-MEDIUM C-COARSE ST-SHELBY TUBE

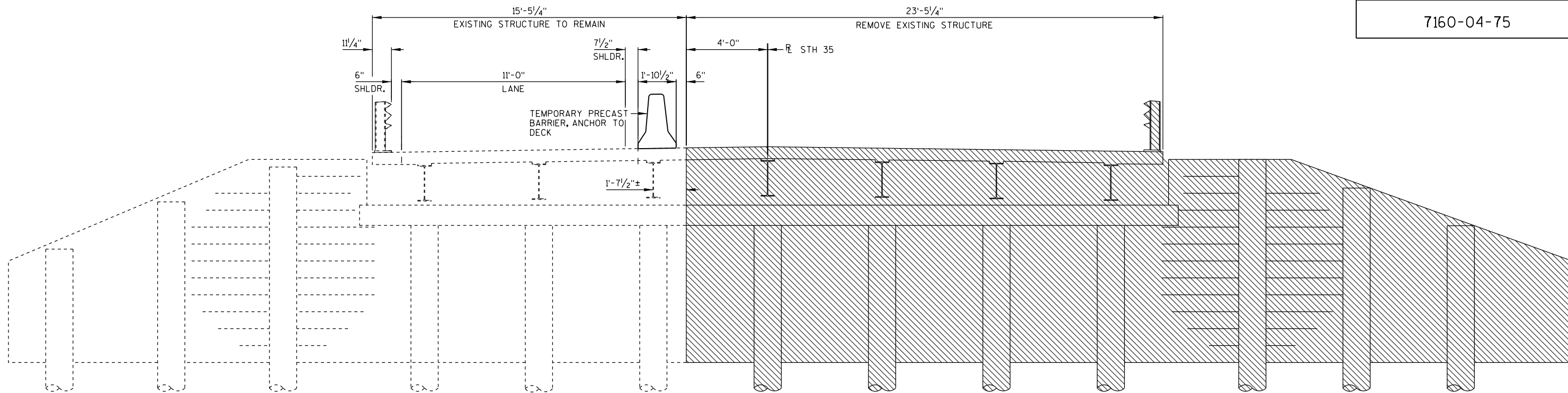
**SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION**

BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT SIMILAR SUBSURFACE CONDITIONS BELOW, BETWEEN, OR BEYOND THESE BORINGS. VARIATIONS IN SOIL CONDITIONS SHOULD BE EXPECTED AND FLUCTUATIONS IN GROUNDWATER LEVELS MAY OCCUR.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-201</b>			
DRAWN BY		MES	PLANS CK'D. EAN
<b>SUBSURFACE EXPLORATION-2</b>			SHEET 5 OF 22

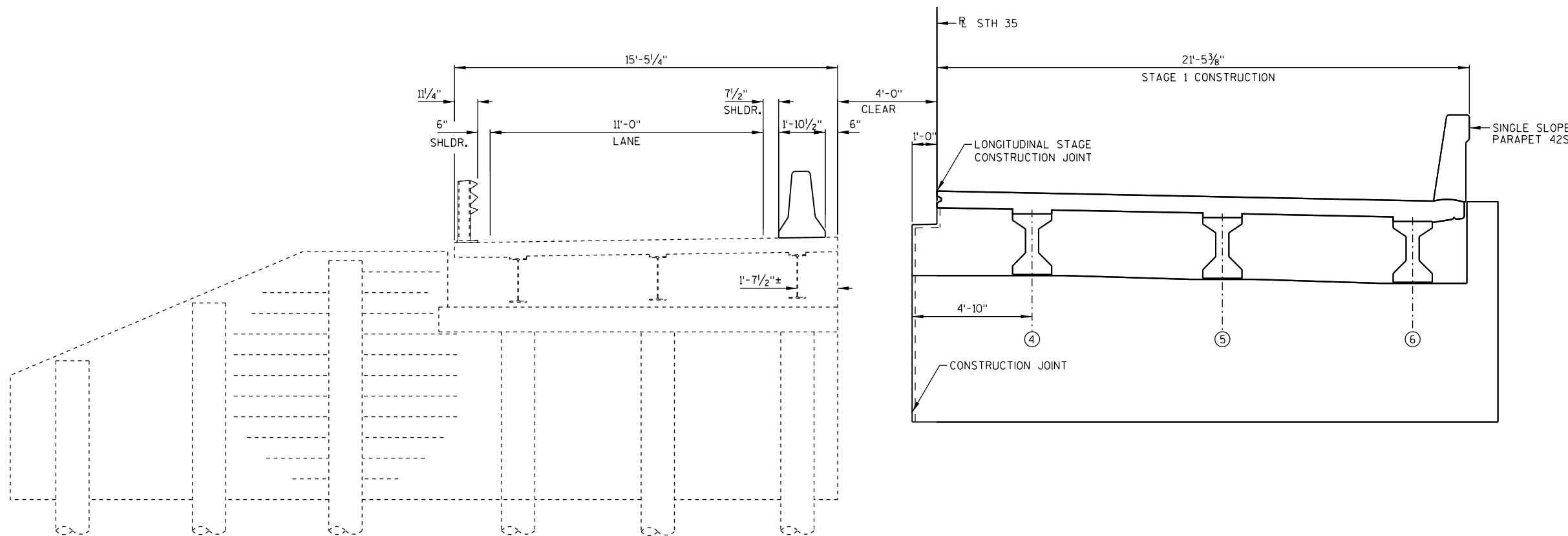
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**STAGE 1 REMOVAL**

LOOKING UPSTATION - (NW)



**STAGE 1 CONSTRUCTION**

LOOKING UPSTATION - (NW)

**LEGEND**

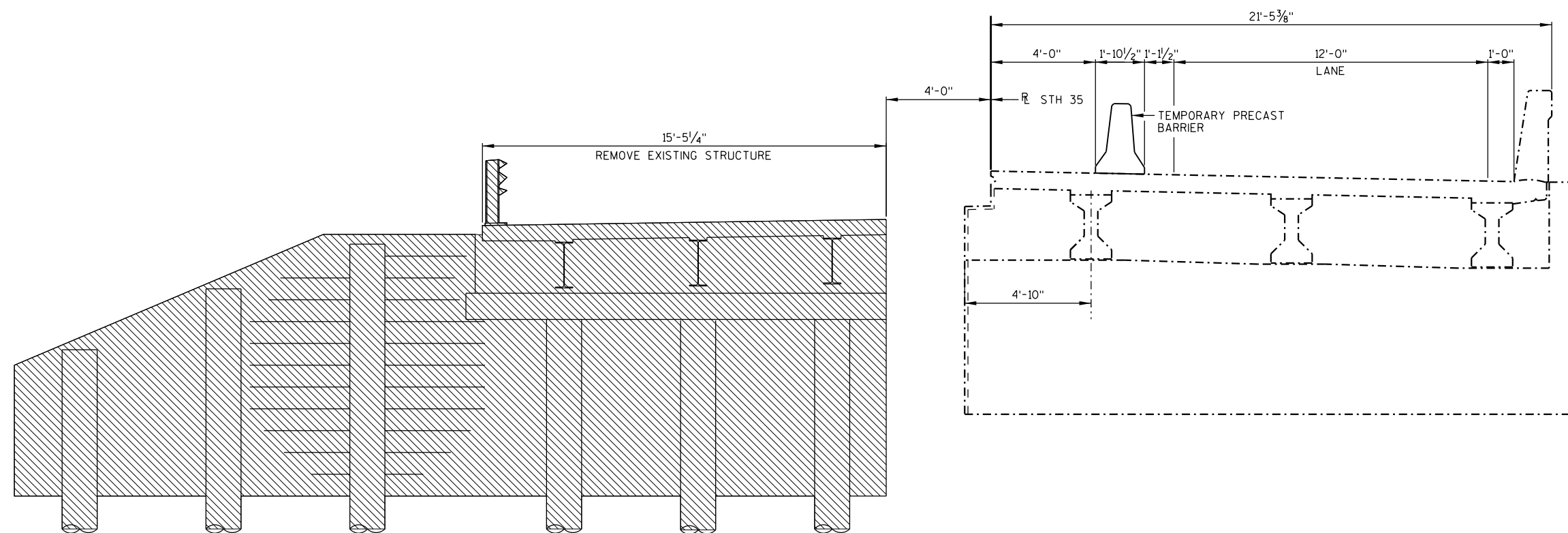
EXISTING STRUCTURE REMOVAL

**NOTES**

SEE SHEET 16 FOR DETAILS AT LONGITUDINAL CONSTRUCTION JOINT IN DECK.

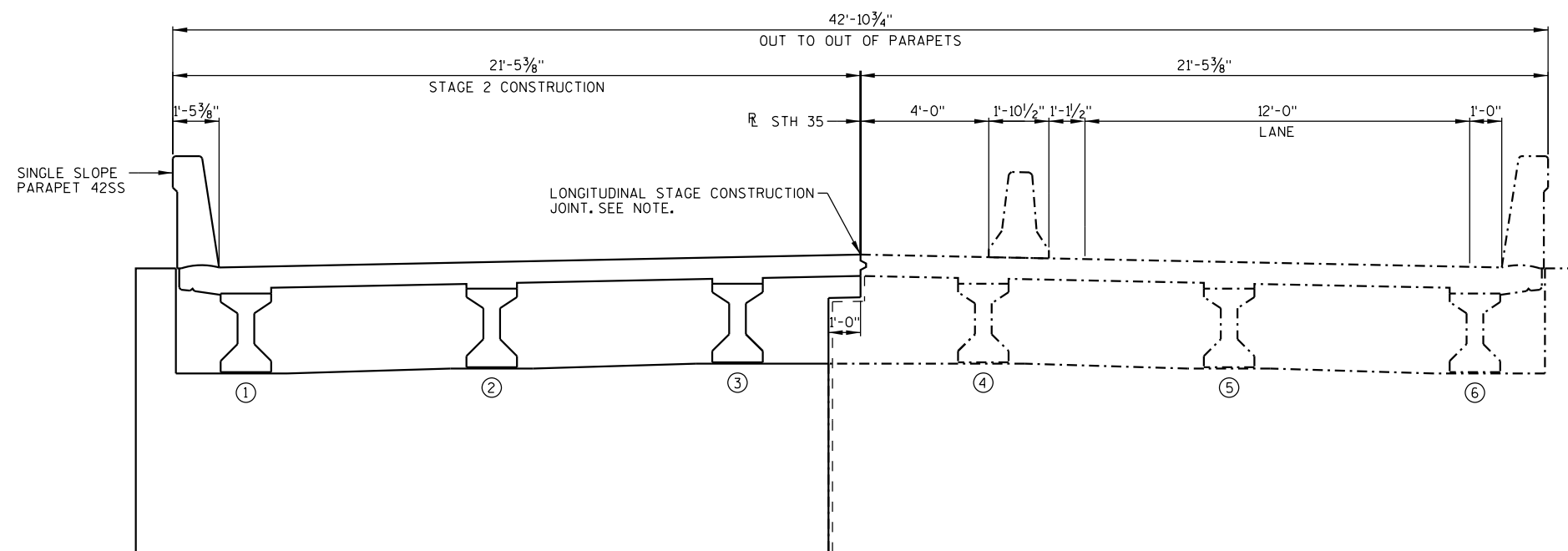
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-201</b>			
DRAWN BY		MES	PLANS CK'D. MSK
<b>CONSTRUCTION STAGING - 1</b>			SHEET 6 OF 22

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 PLOT DATE: 7/27/2022 PLOT TIME: 7:10:54 PM BATCH PRINT SHEET 6 OF 22



**STAGE 2 REMOVAL**

LOOKING UPSTATION - (NW)



**STAGE 2 CONSTRUCTION**

LOOKING UPSTATION - (NW)

**LEGEND**

EXISTING STRUCTURE REMOVAL

**NOTES**

SEE SHEET 16 FOR DETAILS AT LONGITUDINAL CONSTRUCTION JOINT IN DECK.

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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-201</b>			
DRAWN BY		MES	PLANS CK'D. MSK
<b>CONSTRUCTION STAGING - 2</b>			SHEET 7 OF 22

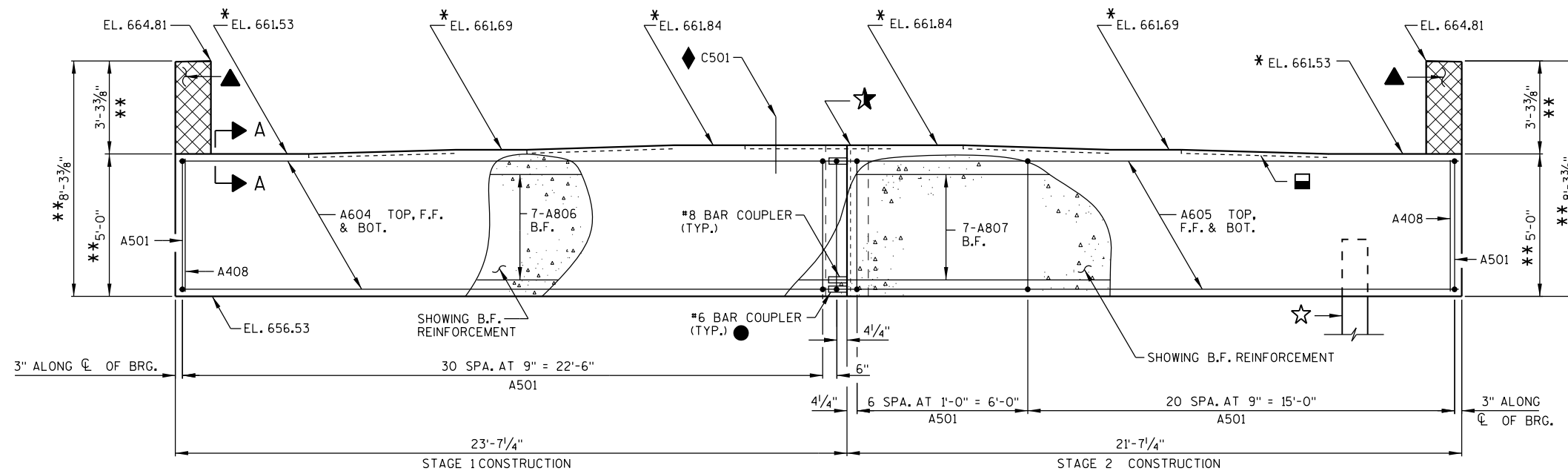


**NOTE**

SEE SHT. 22 FOR BAR COUPLER DETAILS.

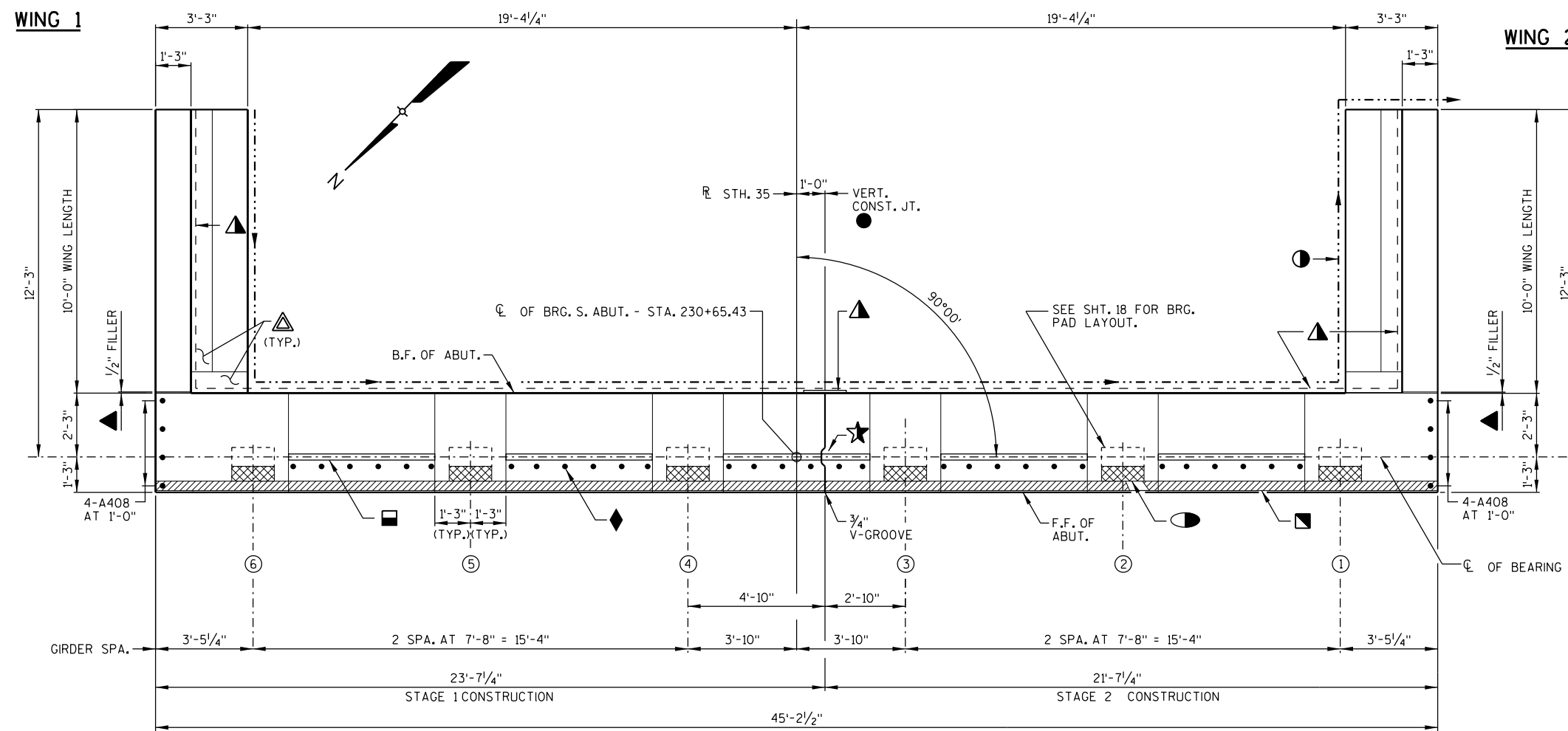
**LEGEND**

- ☆ SUPPORT S. ABUTMENT ON PILING STEEL HP 10-INCHx42 LB. SEE PILE NOTE ON SHEET 9. FOR PILE SPLICE DETAIL, SEE SHEET 10.
- PIPE UNDERDRAIN WRAPPED (6-INCH), SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. DRAIN BOTH ABUTMENTS TO DOWNSTREAM SIDE OF BRIDGE. ATTACH RODENT SHIELD AT ENDS OF PIPE. SEE SHT. 3.
- ▲ 1/2" FILLER TO EXTEND FROM BRIDGE SEAT TO TOP OF WING. SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE.)
- ▲ 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE.
- 4"x1/2" FILLER - TO EXTEND FULL LENGTH OF ABUTMENT BODY.
- OPTIONAL CONSTRUCTION JOINT KEYWAY FORMED BY A BEVELED 2"x6", WITH RUBBERIZED MEMBRANE WATERPROOFING ON BACKFACE. 3/4" BEVEL REQUIRED ON JOINT EDGES ON F.F., B.F. AND END OF WING.
- ▲ PLACE BOTTOM HALF OF RUBBERIZED MEMBRANE WATERPROOFING, HORIZONTAL IN THIS AREA.
- ◆ C501 AT 1'-0" CTRS., COATED. BARS MAY BE PLACED AFTER CONCRETE HAS BEEN POURED BUT PRIOR TO ITS INITIAL SET. EMBED 1'-0".
- KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2"x6".
- ☆ VERTICAL CONSTRUCTION JOINT KEYWAY FORMED BY BEVELED 2" x 8". RUN BAR STEEL THRU JOINT. 3/4" "V" GROOVE AT FRONT FACE. SEAL BACKFACE WITH 18" RUBBERIZED MEMBRANE WATERPROOFING.
- ⊗ INDICATES BEAM NUMBER
- \* ELEVATIONS GIVEN ARE AT TOP OF CONCRETE C. OF BRG.
- USE BAR COUPLERS TO CONTINUE BAR STEEL THRU JOINT (A604 & A605, A806 & A807). SEE SHT. 22 FOR DETAILS.
- 1/2" PREFORMED JOINT FILLER UNDER GIRDER FLANGE IN FRONT OF BRG. PAD.
- \*\* DIMENSIONS ARE GIVEN AT THE B.F. OF ABUTMENT BODY.

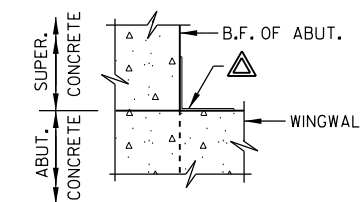


**ELEVATION**  
(LOOKING SOUTH AT SOUTH ABUTMENT)

NOTE:  
SPACE A501 BARS TO MISS PILES.



**PLAN**

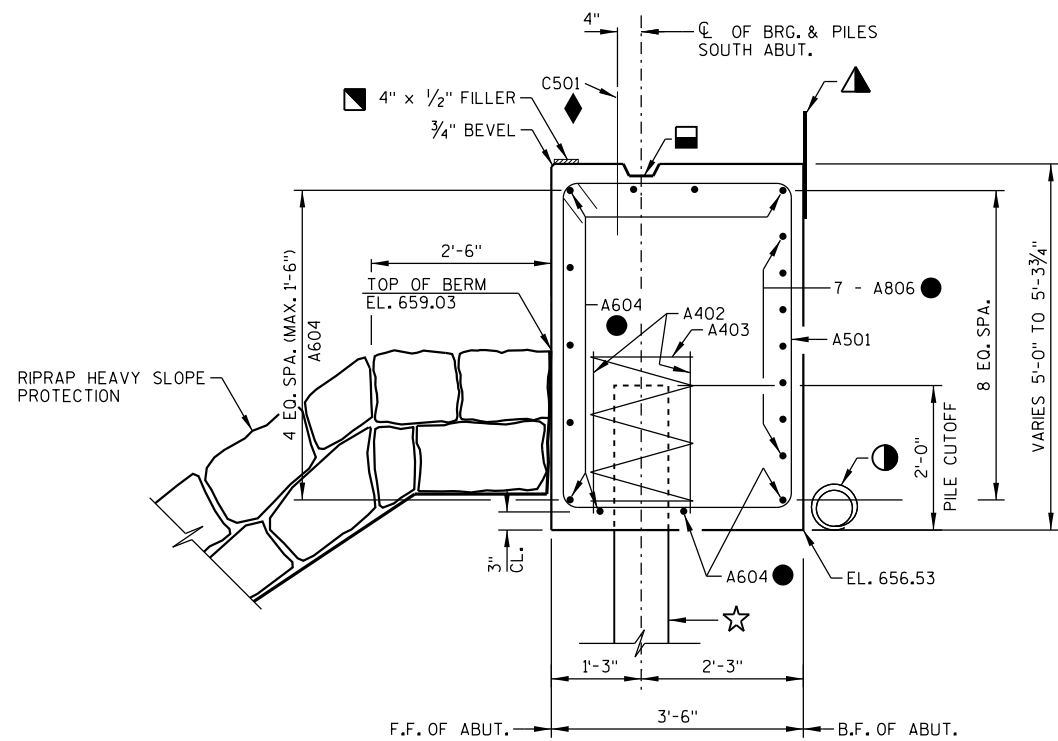


**SECTION A-A**

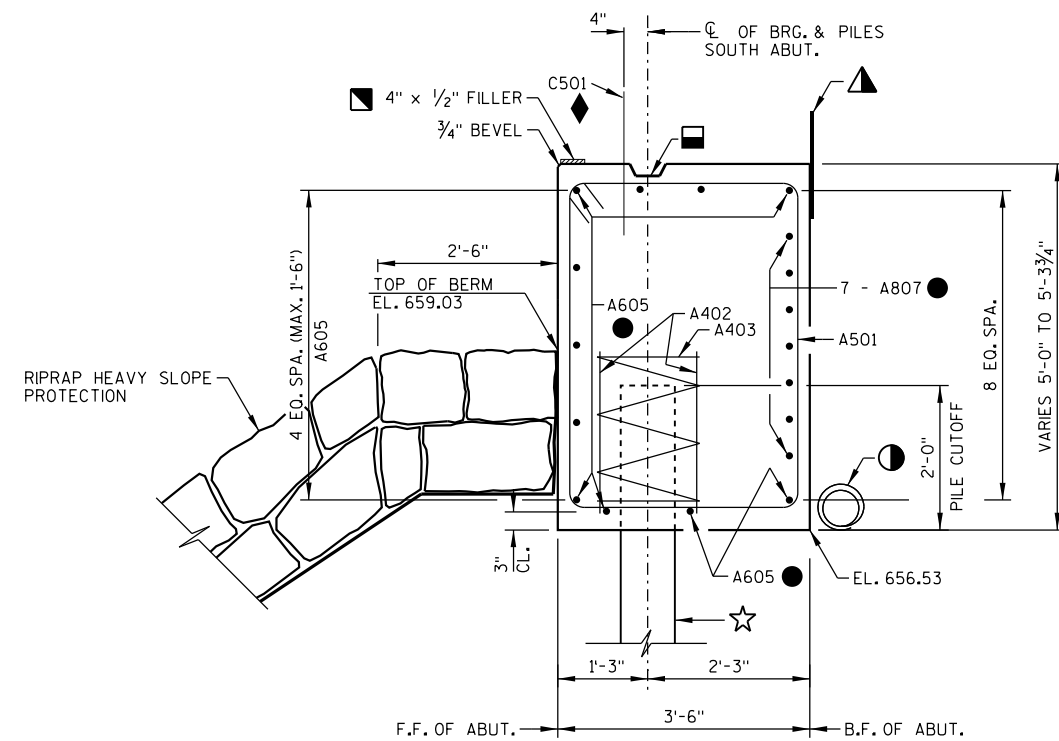
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-201</b>			
DRAWN BY		KAM	PLANS CK'D. MSK
SOUTH ABUTMENT			SHEET 8 OF 22

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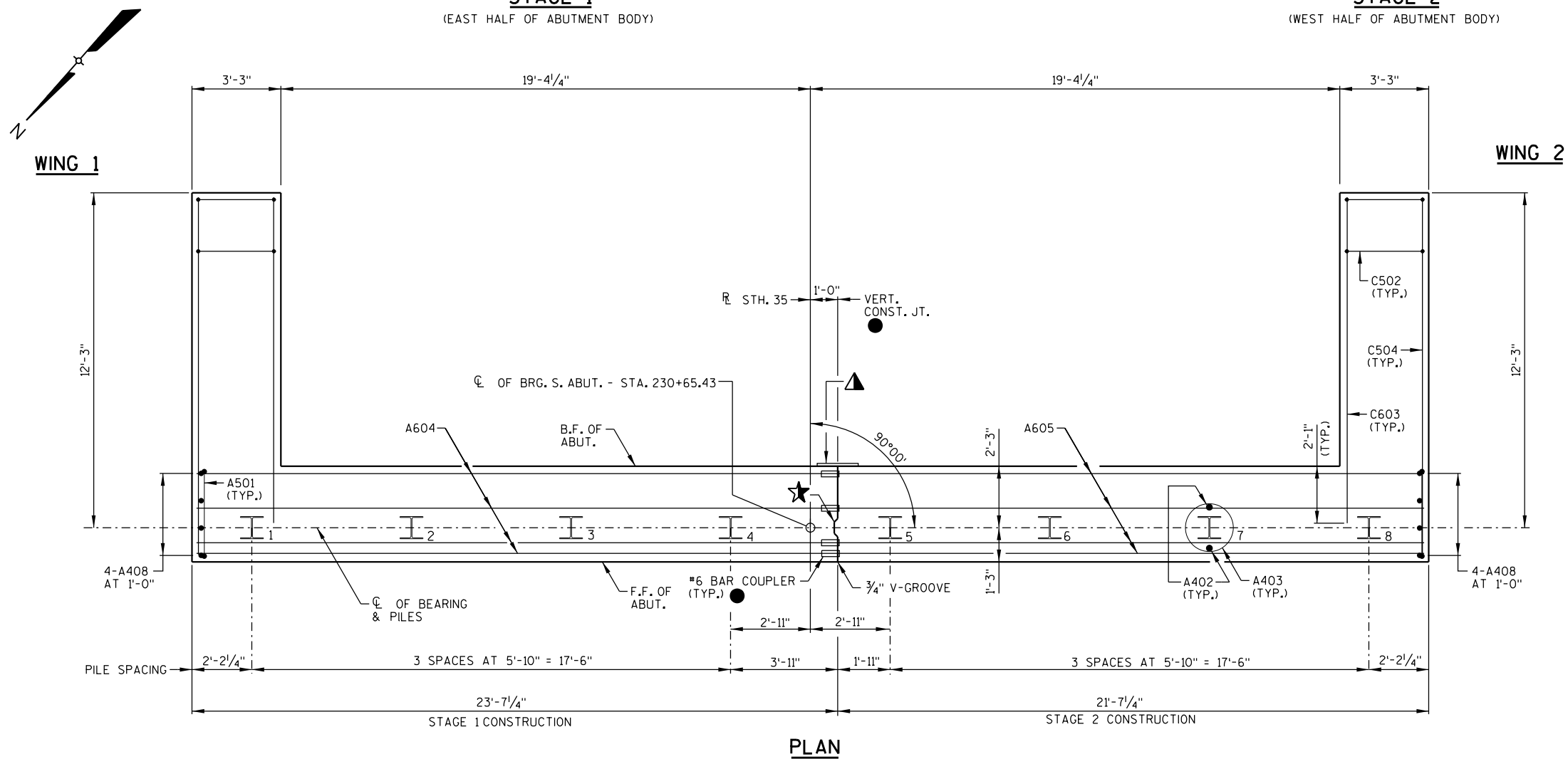
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 PLOT DATE: 7/27/2022 PLOT TIME: 7:21:16 PM BATCH PRINT SHEET 9 OF 22



**TYP. SECTION THRU BODY -  
STAGE 1**  
(EAST HALF OF ABUTMENT BODY)



**TYP. SECTION THRU BODY -  
STAGE 2**  
(WEST HALF OF ABUTMENT BODY)



**PLAN**

**LEGEND**  
FOR SYMBOL DESCRIPTIONS, SEE SHEET 8.

**PILE NOTE**  
S. ABUTMENT TO BE SUPPORTED ON PILING STEEL HP 10-INCHx42LB. PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 75'-0" LONG.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-201</b>			
DRAWN BY KAM		PLANS CK'D. MSK	
SOUTH ABUTMENT PILE PLAN AND SECTION			SHEET 9 OF 22

**BILL OF BARS**

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

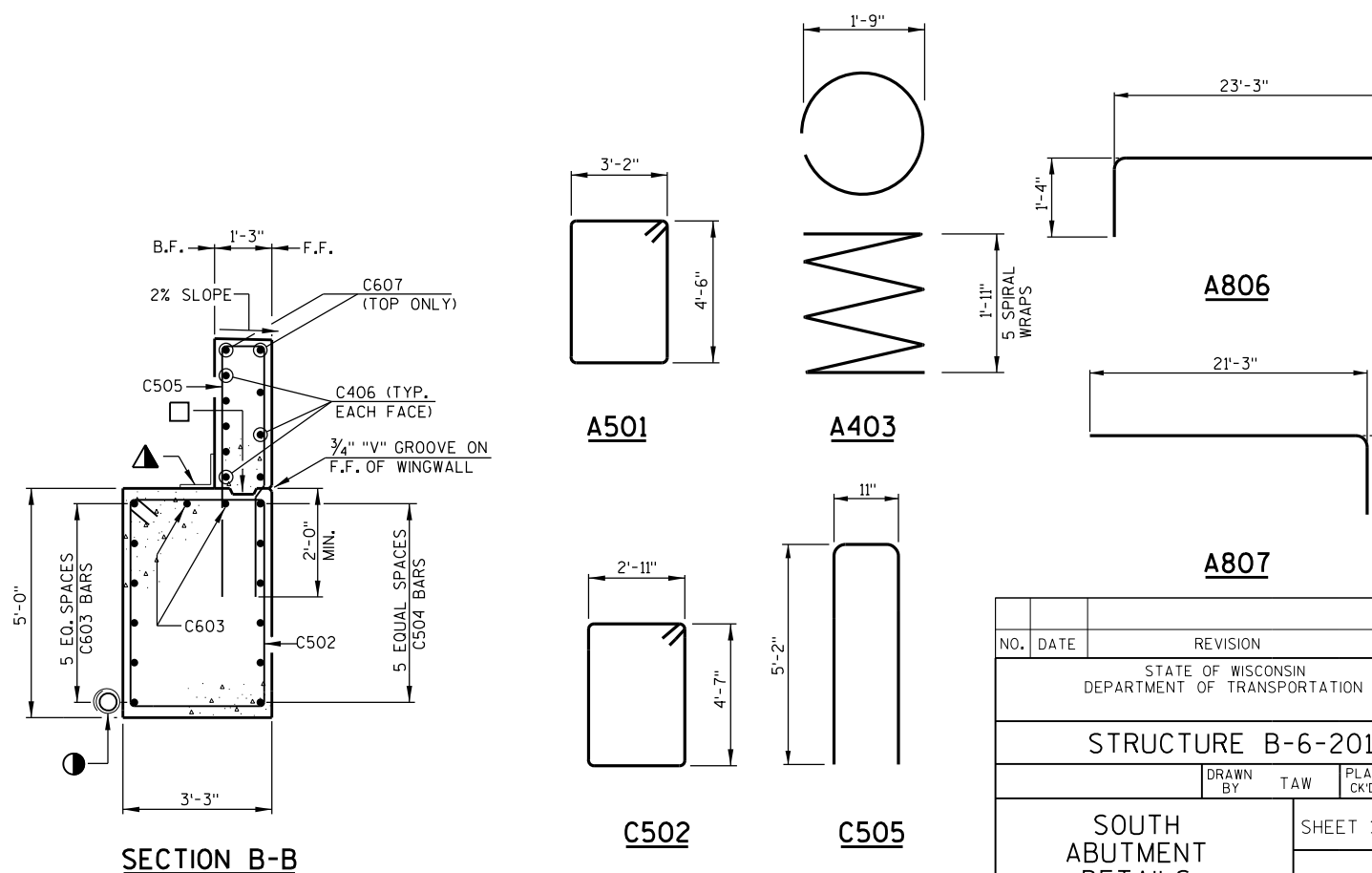
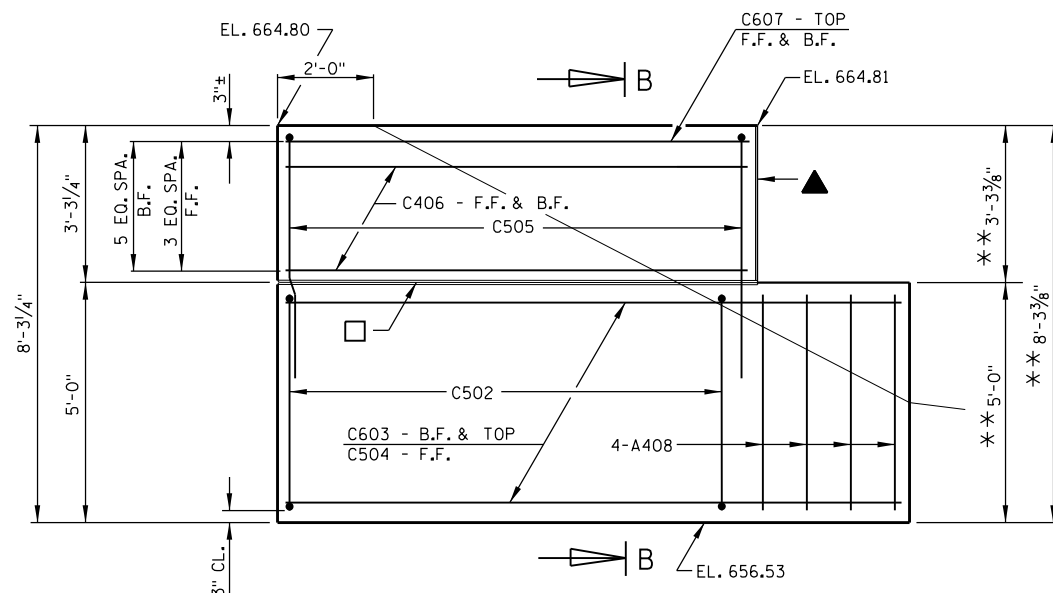
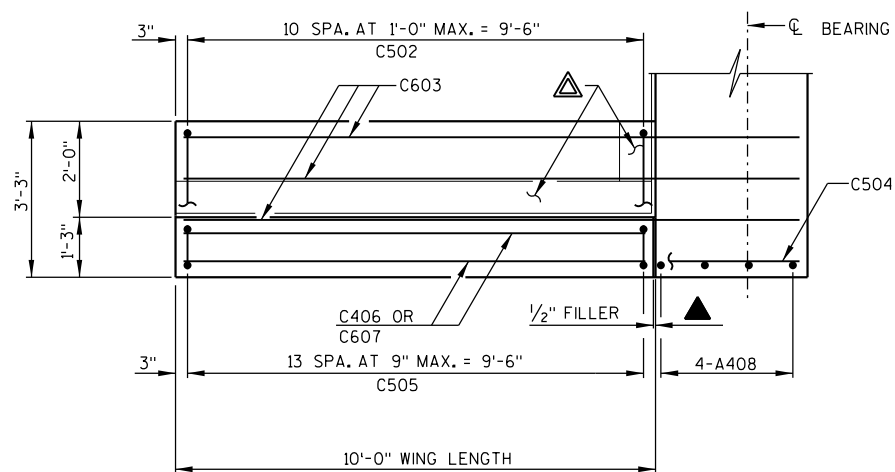
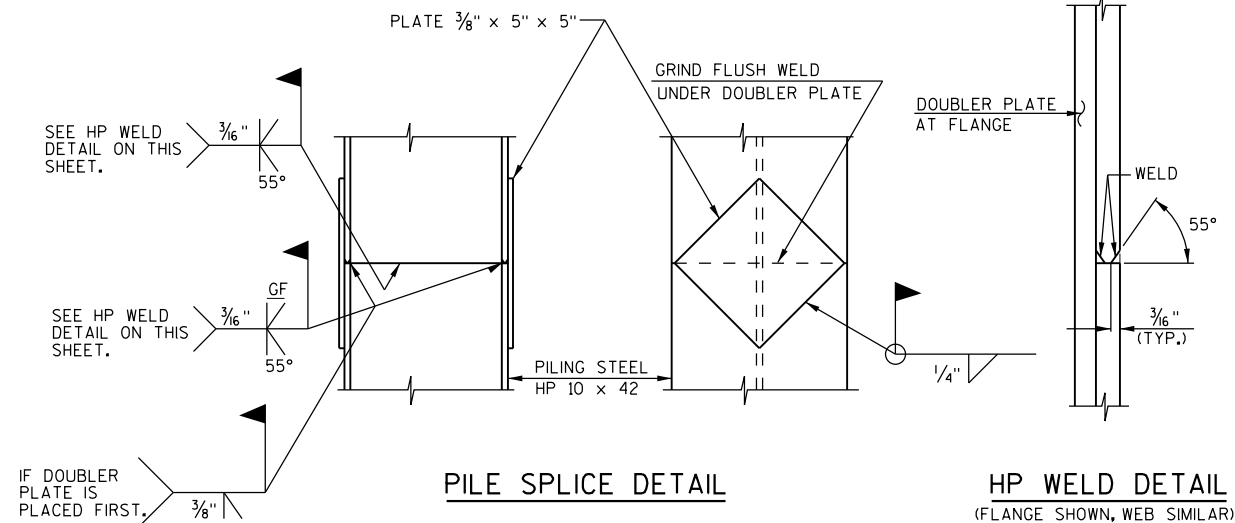
MARK	STAGE 1 NO. REQ'D	STAGE 2 NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION	
NON-COATED BARS							TOTAL WEIGHT = 2,810 LBS
A501	32	27	16-0	X		BODY - STIRRUPS	VERT.
A402	8	8	2-3			BODY - TWO PER PILE	VERT.
A403	4	4	28-0	X		BODY - ONE SPIRAL WRAP PER PILE	HORIZ.
A604	11	-----	23-5			BODY - F.F., TOP & BOTTOM	HORIZ.
A605	-----	11	21-5			BODY - F.F., TOP & BOTTOM	HORIZ.
A806	7	-----	24-4	X		BODY - B.F.	HORIZ.
A807	-----	7	22-4	X		BODY - B.F.	HORIZ.
A408	4	4	4-7			BODY - AT EACH END	VERT.
COATED BARS							TOTAL WEIGHT = 1,370 LBS
C501	16	14	2-0			ABUTMENT BODY - TOP	VERT.
C502	11	11	15-8	X		WINGS - STIRRUPS	HORIZ.
C603	8	8	11-11			WINGS - BODY - B.F. & TOP	HORIZ.
C504	6	6	13-2			WINGS - BODY - F.F.	HORIZ.
C505	14	14	11-0	X		WINGS - F.F. & B.F.	VERT.
C406	8	8	9-8			WINGS - F.F. & B.F.	HORIZ.
C607	2	2	9-8			WINGS - F.F. & B.F. - TOP	HORIZ.

**ESTIMATED QUANTITIES**

	CONCRETE MASONRY BRIDGES (CY)	BAR STEEL REINFORCEMENT HS STRUCTURES (LB)	BAR STEEL REINFORCEMENT HS COATED STRUCTURES (LB)
STAGE 1	24	1,480	690
STAGE 2	22	1,330	680

**LEGEND**

FOR SYMBOL DESCRIPTIONS, SEE SHEET 8.



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-6-201			
DRAWN BY		TAW	PLANS CK'D. MSK
SOUTH ABUTMENT DETAILS			SHEET 10 OF 22

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8

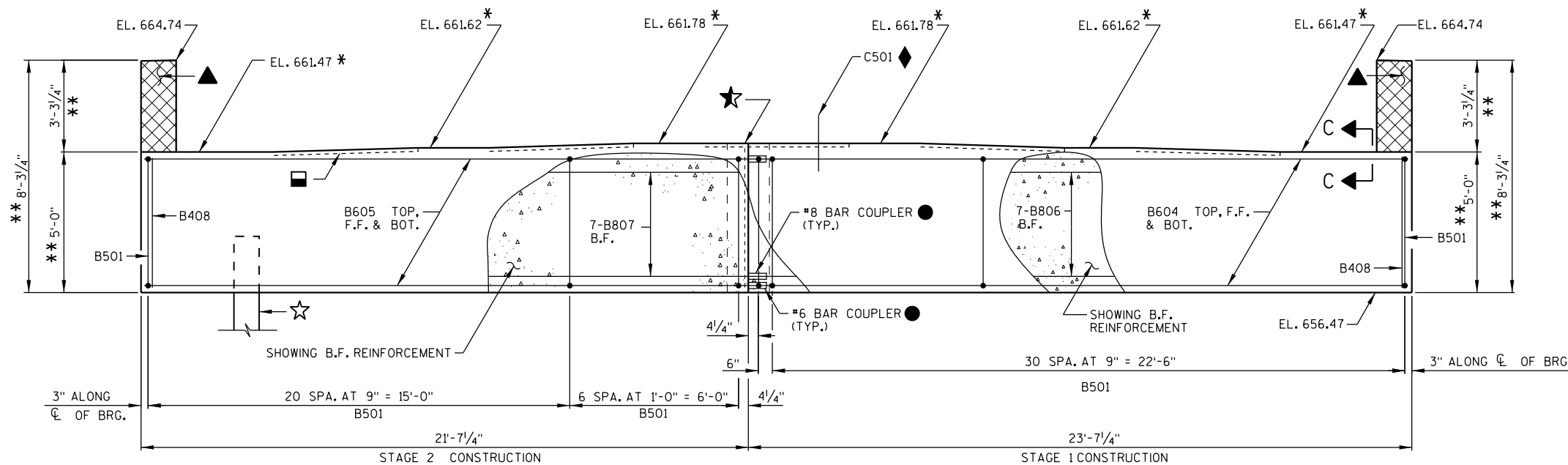
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**NOTE**

SEE SHT. 22 FOR BAR COUPLER DETAILS.

**LEGEND**

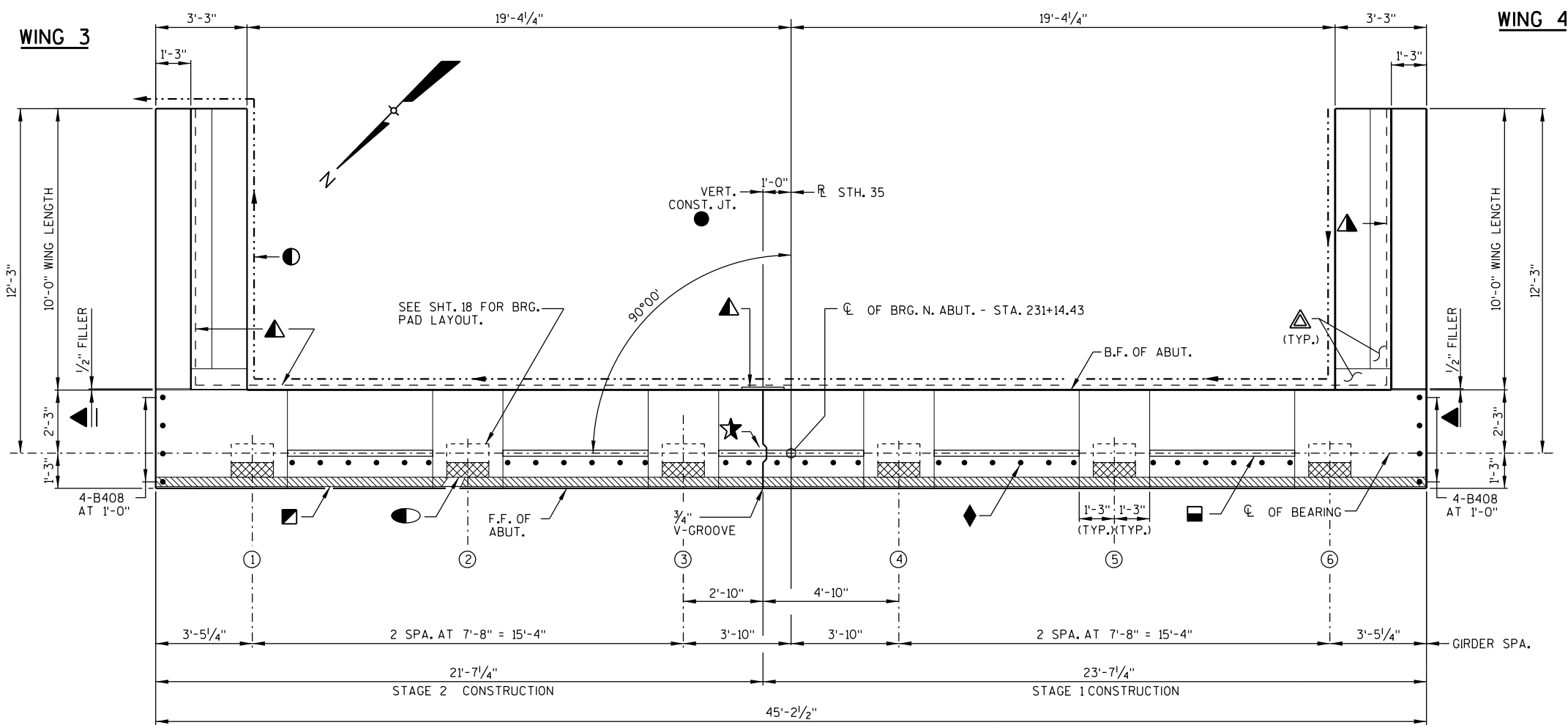
- ☆ SUPPORT N. ABUTMENT ON PILING STEEL HP 10-INCHx42 LB. SEE PILE NOTE ON SHEET 12. FOR PILE SPLICE DETAIL, SEE SHEET 10.
- PIPE UNDERDRAIN WRAPPED (6-INCH), SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. DRAIN BOTH ABUTMENTS TO DOWNSTREAM SIDE OF BRIDGE. ATTACH RODENT SHIELD AT ENDS OF PIPE. SEE SHT. 3.
- ▲ 1/2" FILLER TO EXTEND FROM BRIDGE SEAT TO TOP OF WING. SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE.)
- ▲ 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE.
- 4"x1/2" FILLER - TO EXTEND FULL LENGTH OF ABUTMENT BODY.
- OPTIONAL CONSTRUCTION JOINT KEYWAY FORMED BY A BEVELED 2"x6", WITH RUBBERIZED MEMBRANE WATERPROOFING ON BACKFACE. 3/4" BEVEL REQUIRED ON JOINT EDGES ON F.F., B.F. AND END OF WING.
- ▲ PLACE BOTTOM HALF OF RUBBERIZED MEMBRANE WATERPROOFING, HORIZONTAL IN THIS AREA.
- ◆ D501 AT 1'-0" CTRS., COATED. BARS MAY BE PLACED AFTER CONCRETE HAS BEEN POURED BUT PRIOR TO ITS INITIAL SET. EMBED 1'-0".
- KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2"x6".
- ☆ VERTICAL CONSTRUCTION JOINT KEYWAY FORMED BY BEVELED 2" x 8". RUN BAR STEEL THRU JOINT. 3/4" "V" GROOVE AT FRONT FACE. SEAL BACKFACE WITH 18" RUBBERIZED MEMBRANE WATERPROOFING.
- ⊗ INDICATES BEAM NUMBER
- \* ELEVATIONS GIVEN ARE AT TOP OF CONCRETE CL OF BRG.
- USE BAR COUPLERS TO CONTINUE BAR STEEL THRU JOINT (B604 & B605, B806 & B807). SEE SHT. 22 FOR DETAILS.
- 1/2" PREFORMED JOINT FILLER UNDER GIRDER FLANGE IN FRONT OF BRG. PAD.
- \*\* DIMENSIONS ARE GIVEN AT THE B.F. OF ABUTMENT BODY.



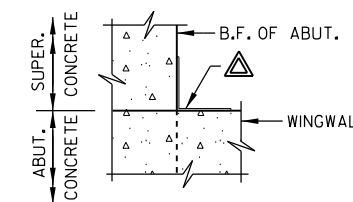
**ELEVATION**

(LOOKING NORTH AT NORTH ABUTMENT)

NOTE:  
SPACE B501 BARS TO MISS PILES.



**PLAN**

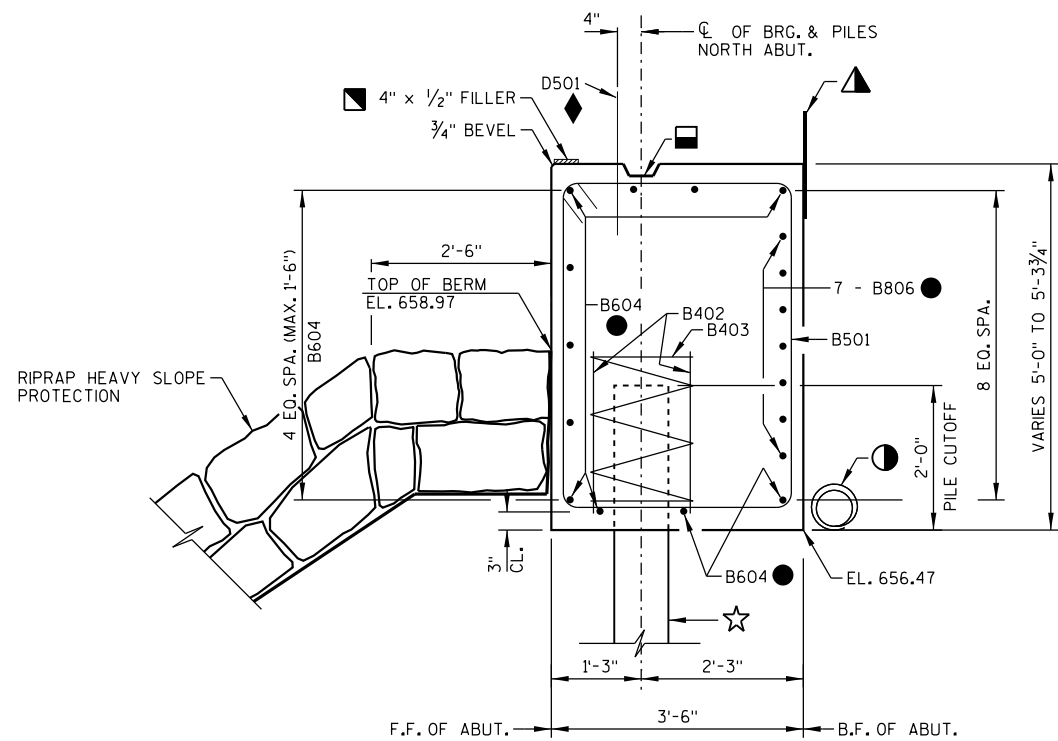


**SECTION C-C**

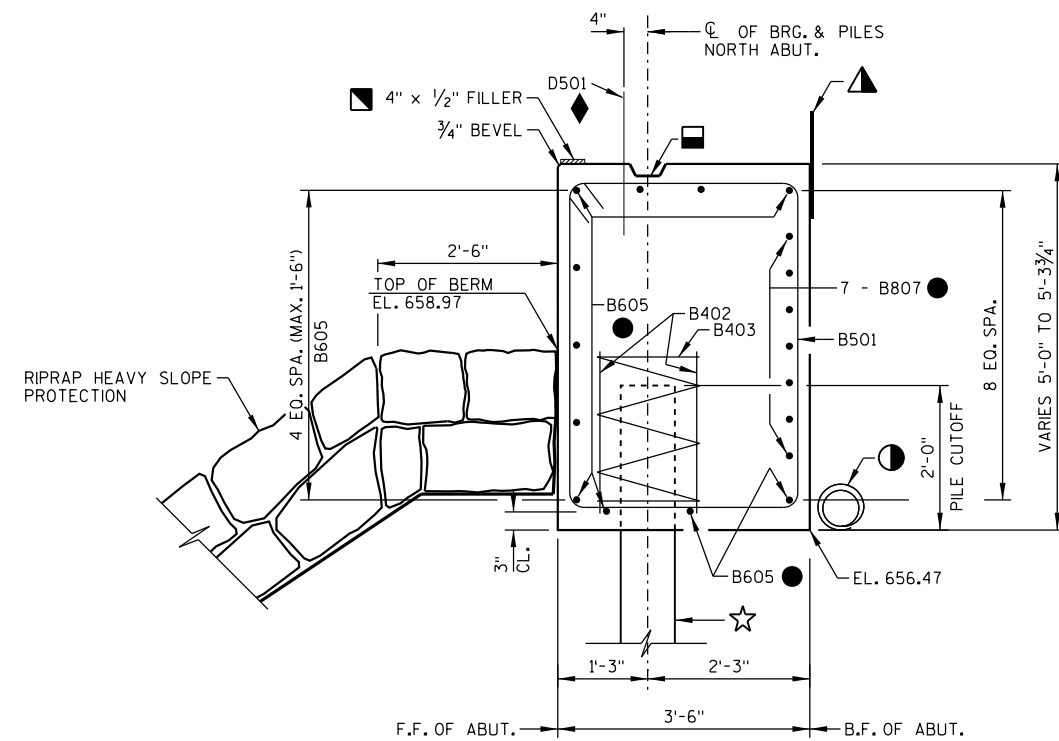
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-201</b>			
DRAWN BY		KAM	PLANS CK'D. MSK
<b>NORTH ABUTMENT</b>			SHEET 11 OF 22

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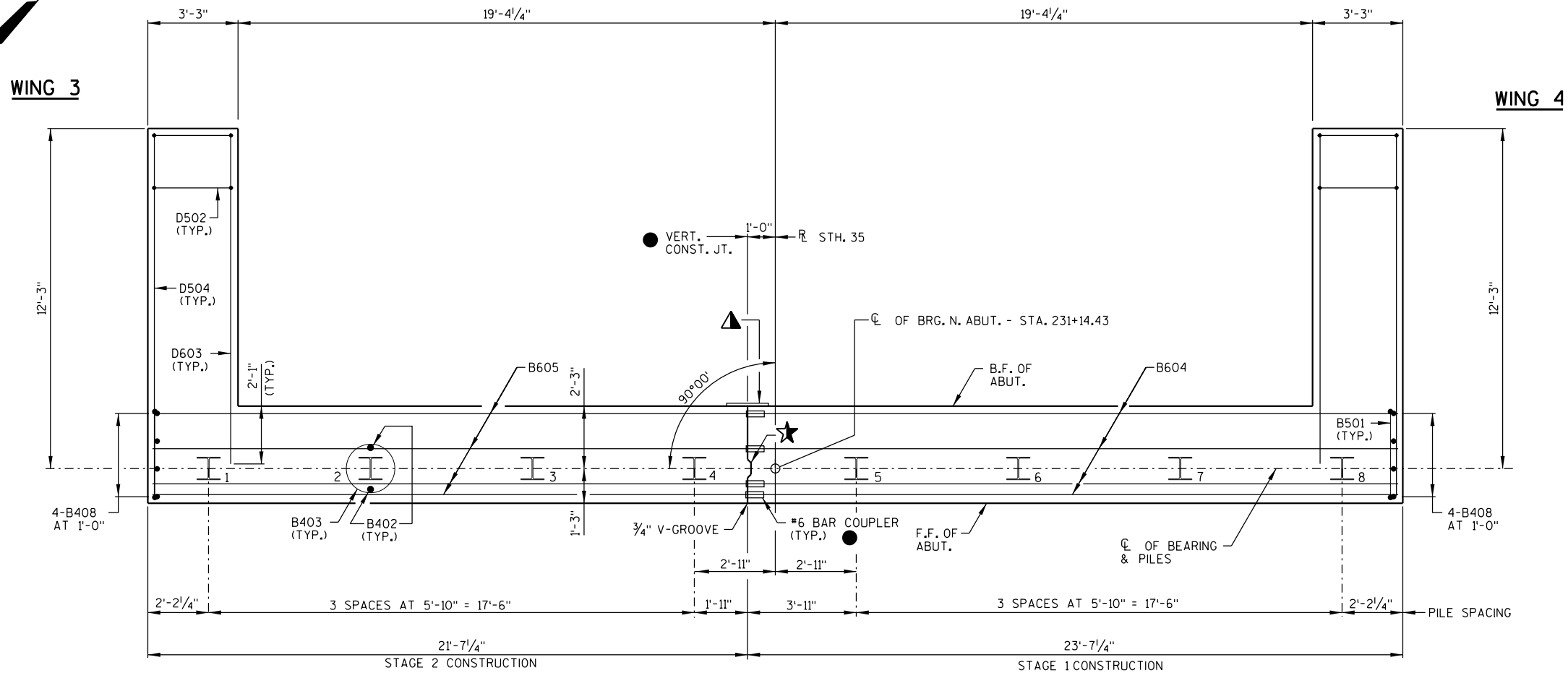
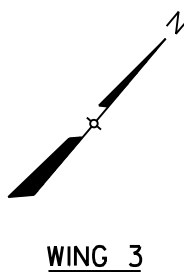
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 BATCH PRINT SHEET 12 OF 22  
 PLOT DATE: 7/27/2022  
 PLOT TIME: 7:13:41 PM



**TYP. SECTION THRU BODY -  
 STAGE 1**  
 (WEST HALF OF ABUTMENT BODY)



**TYP. SECTION THRU BODY -  
 STAGE 2**  
 (EAST HALF OF ABUTMENT BODY)



**PLAN**

**LEGEND**  
 FOR SYMBOL DESCRIPTIONS, SEE SHEET 11.

**PILE NOTE**  
 N. ABUTMENT TO BE SUPPORTED ON PILING STEEL HP 10-INCHx42LB. PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 85'-0" LONG.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-201</b>			
DRAWN BY		KAM	PLANS CK'D. MSK
NORTH ABUTMENT PILE PLAN AND SECTION			SHEET 12 OF 22

8

8

**BILL OF BARS**

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

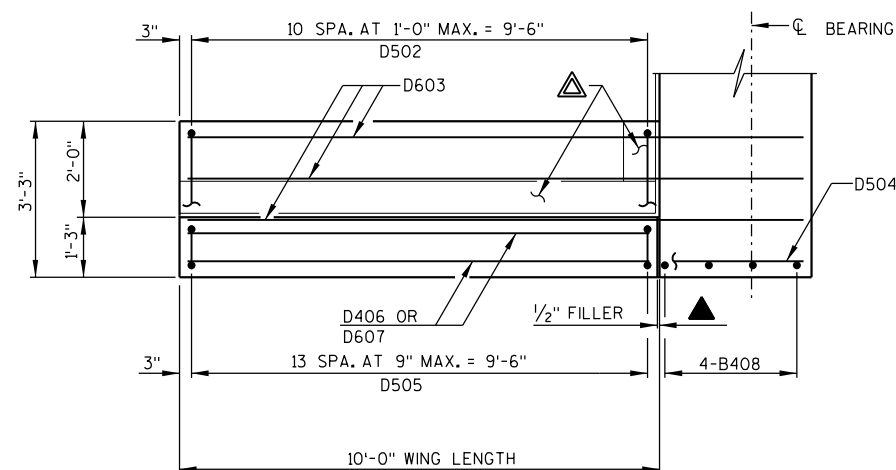
MARK	STAGE 1 NO. REQ'D	STAGE 2 NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION	
NON-COATED BARS							TOTAL WEIGHT = 2,810 LBS
B501	32	27	16-0	X		BODY - STIRRUPS	VERT.
B402	8	8	2-3			BODY - TWO PER PILE	VERT.
B403	4	4	28-0	X		BODY - ONE SPIRAL WRAP PER PILE	HORIZ.
B604	11	-----	23-5			BODY - F.F., TOP & BOTTOM	HORIZ.
B605	-----	11	21-5			BODY - F.F., TOP & BOTTOM	HORIZ.
B806	7	-----	24-4	X		BODY - B.F.	HORIZ.
B807	-----	7	22-4	X		BODY - B.F.	HORIZ.
B408	4	4	4-7			BODY - AT EACH END	VERT.
COATED BARS							TOTAL WEIGHT = 1,370 LBS
D501	16	14	2-0			ABUTMENT BODY - TOP	VERT.
D502	11	11	15-8	X		WINGS - STIRRUPS	HORIZ.
D603	8	8	11-11			WINGS - BODY - B.F. & TOP	HORIZ.
D504	6	6	13-2			WINGS - BODY - F.F.	HORIZ.
D505	14	14	11-0	X		WINGS - F.F. & B.F.	VERT.
D406	8	8	9-8			WINGS - F.F. & B.F.	HORIZ.
D607	2	2	9-8			WINGS - F.F. & B.F. - TOP	HORIZ.

**ESTIMATED QUANTITIES**

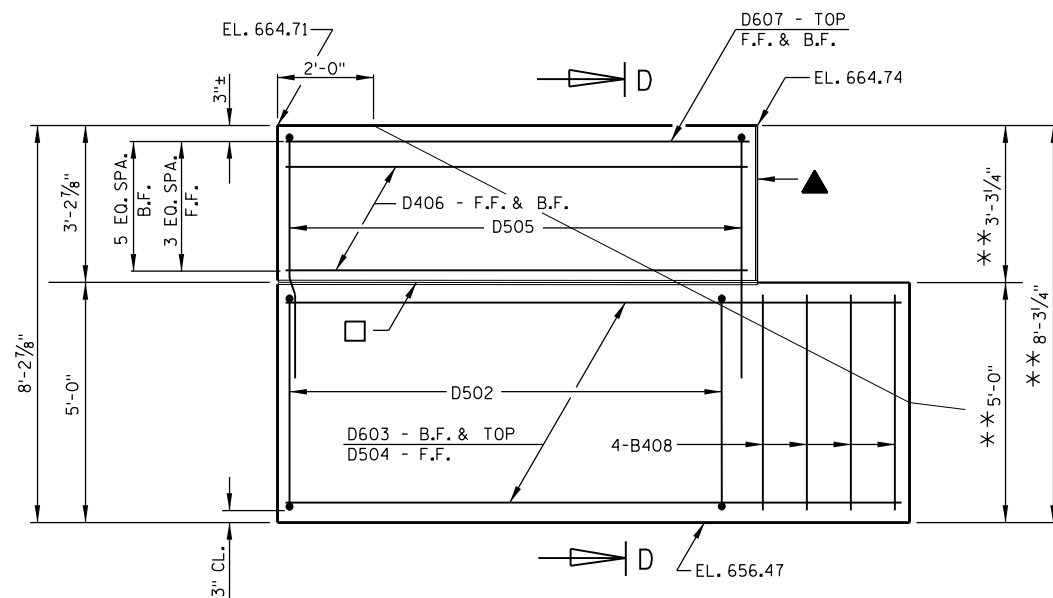
	CONCRETE MASONRY BRIDGES (CY)	BAR STEEL REINFORCEMENT HS STRUCTURES (LB)	BAR STEEL REINFORCEMENT HS COATED STRUCTURES (LB)
STAGE 1	24	1,480	690
STAGE 2	22	1,330	680

**LEGEND**

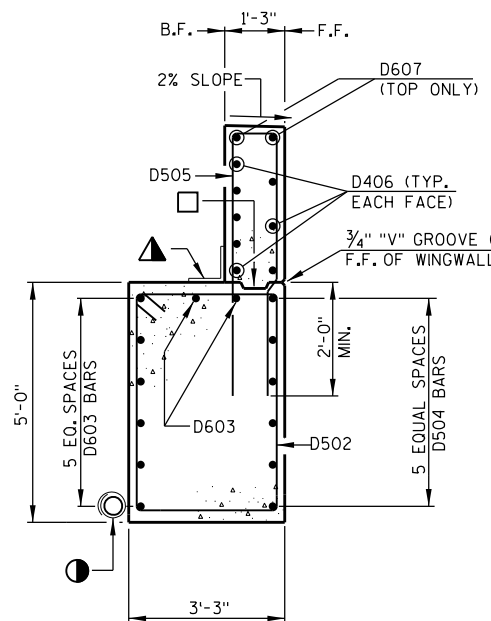
FOR SYMBOL DESCRIPTIONS, SEE SHEET 11.



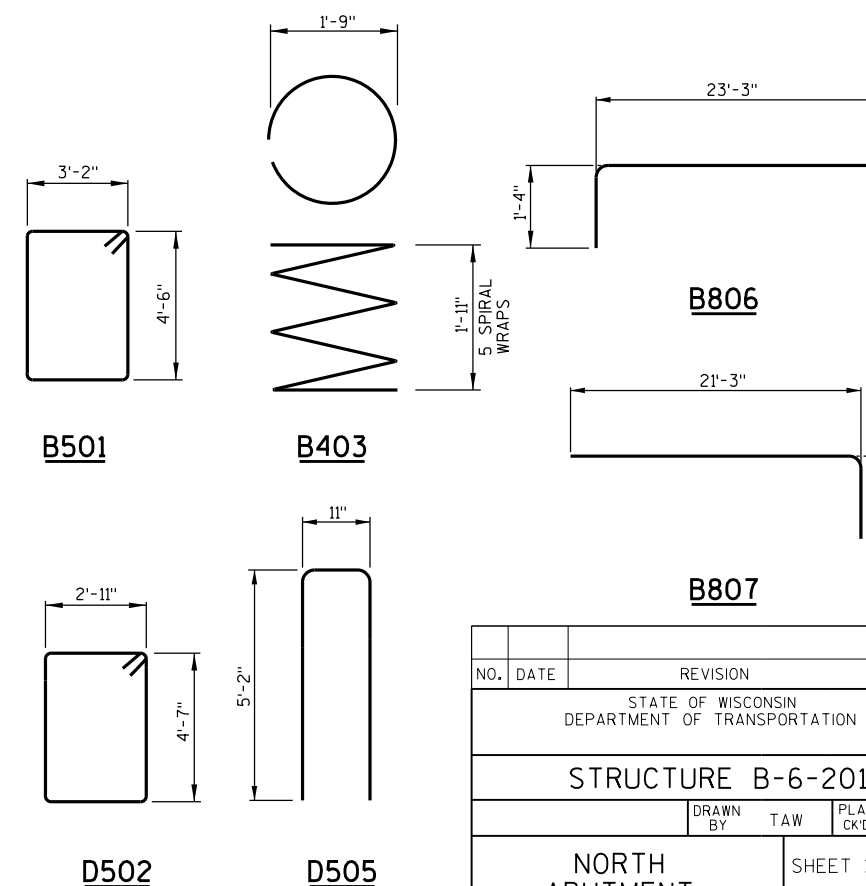
**PLAN - WINGS 3 & 4**



**ELEVATION - WINGS 3 & 4**



**SECTION D-D**



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 PLOT DATE: 7/27/2022 PLOT TIME: 7:14:08 PM BATCH PRINT SHEET 13 OF 22

8

8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-6-201			
DRAWN BY		TAW	PLANS CK'D. MSK
NORTH ABUTMENT DETAILS			SHEET 13 OF 22

**NOTES**

TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY, EXCEPT THE OUTSIDE 2" OF GIRDER, WHICH SHALL RECEIVE A SMOOTH FINISH. AN APPROVED CONCRETE SEALER SHALL BE APPLIED TO ALL SMOOTH SURFACES INCLUDING THE OUTSIDE 2" OF THE TOP FLANGE.

DO NOT APPLY CONCRETE SEALER OR EPOXY TO SURFACES RECEIVING APPLICATION OF CONCRETE STAINING.

THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS. SEE SECT. 503.3.4 OF STANDARD SPECIFICATIONS FOR GUIDANCE.

STRANDS SHALL BE FLUSH WITH END OF GIRDER. FOR GIRDER ENDS EMBEDDED COMPLETELY IN CONCRETE, END OF STRANDS SHALL BE COATED WITH NON-BITUMINOUS JOINT SEALER. FOR GIRDER ENDS THAT ARE FINALLY EXPOSED, COAT THE GIRDER ENDS, EXPOSED STRAND ENDS AND ALL NON-BONDING SURFACES WITHIN 2 FEET OF THE GIRDER ENDS WITH A NON-PIGMENTED EPOXY CONFORMING TO AASHTO M-235 TYPE III, GRADE 2, CLASS B OR C. THE EPOXY SHALL BE APPLIED AT LEAST 3 DAYS AFTER MOIST CURING HAS CEASED AND PRIOR TO THE APPLICATION OF THE SEALER.

ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

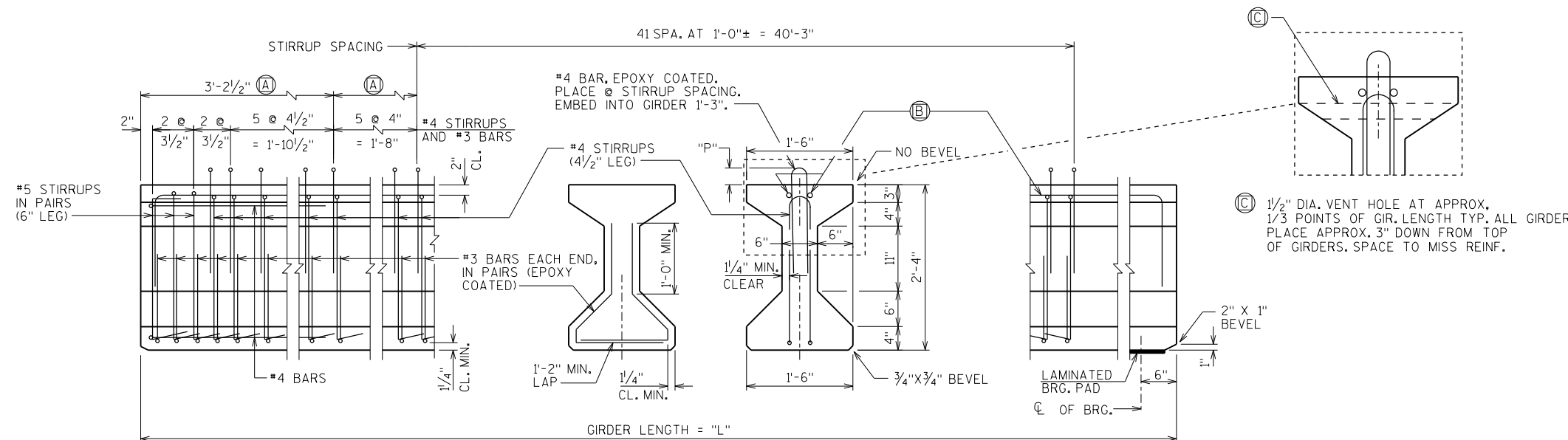
SPACING SHOWN FOR #4 STIRRUPS IS FOR GRADE 60 REINFORCEMENT.

AN EQUIVALENT OF WELDED WIRE FABRIC (WWF) ASTM A1064 MAY BE SUBSTITUTED FOR THE STIRRUP REINFORCEMENT SHOWN, UPON APPROVAL OF THE STRUCTURES MAINTENANCE SECTION. IF USED, WWF SUBSTITUTION DETAILS SHALL BE SUBMITTED ELECTRONICALLY TO THE WISDOT FABRICATION LIBRARY AND ACCEPTED PRIOR TO SHOP DRAWING SUBMITTAL.

PRESTRESSING STRANDS SHALL BE (0.6" DIA.)-7 WIRE LOW-RELAXATION STRANDS WITH AN ULTIMATE STRENGTH OF 270,000 PSI.

BEND EACH END OF #4 STIRRUPS 4 1/2" AND #5 STIRRUPS 6".

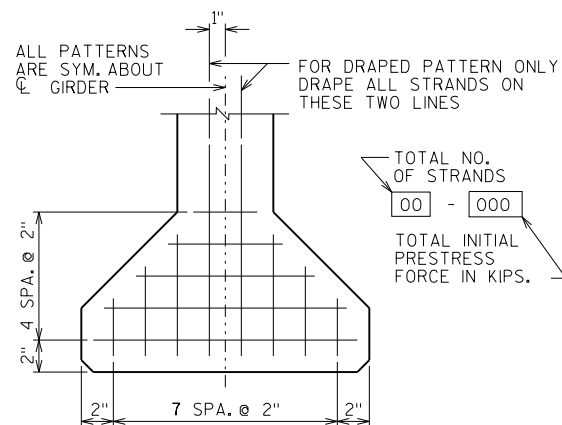
FOR DIAPHRAGM INSERT & CONNECTION DETAILS SEE "STEEL DIAPHRAGM" SHEET.



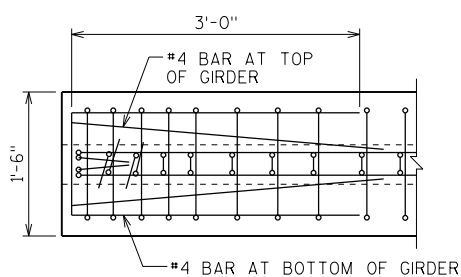
**SIDE VIEW & TYPICAL SECTION IN SPAN**

(A) DETAIL TYP. AT EACH END

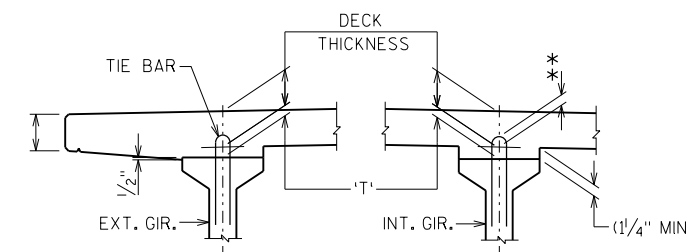
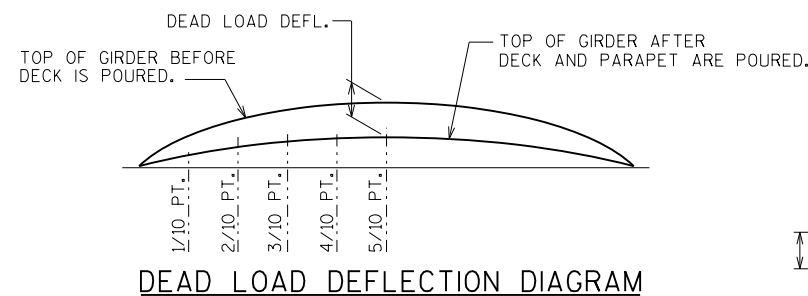
(B) 2 - #6 BARS (2'-11" MIN. LAP) BEND DOWN 16 BAR DIA. AT ENDS



**TYP. STRAND PATTERN**



**TOP VIEW OF GIRDER ENDS**



**DECK HAUNCH DETAIL**

IF 1/4" MINIMUM HAUNCH HEIGHT AT EDGE OF GIRDER CANNOT BE MAINTAINED, THE GRADE LINE MAY BE REVISED BY THE ENGINEER AT THE OPTION OF THE CONTRACTOR. THE PLAN DECK THICKNESS SHALL BE HELD. NOTIFY THE STRUCTURES SECTION IF THE GRADE LINE IS RAISED FROM THE PLAN PROFILE BY MORE THAN 1/2" OR, \*\* IF 3" MINIMUM DECK EMBEDMENT OF TIE BAR CANNOT BE OBTAINED.

TO DETERMINE 'T', ELEV. OF TOP OF GIR'S. AT CL. OF SUBSTRUCTURE UNITS & AT 1/10 POINTS OF EACH SPAN SHALL BE TAKEN. THEN FOLLOW THIS PROCESS:

- TOP OF DECK ELEV. AT FINAL GRADE
- TOP OF GIRDER ELEVATION
- + DEAD LOAD DEFLECTION
- DECK THICKNESS
- = HAUNCH HEIGHT 'T'

NOTE: AN AVERAGE HAUNCH ('T') OF 3" WAS USED IN THE QUANTITY "CONCRETE MASONRY BRIDGES".

\* THE THEORETICAL INITIAL CAMBER VALUE AT THE TIME OF STRAND RELEASE AT MIDSPAN MULTIPLIED BY A FACTOR OF 1.4 TO ACCOUNT FOR CAMBER GROWTH FROM THE TIME OF STRAND RELEASE TO JOBSITE PLACEMENT.

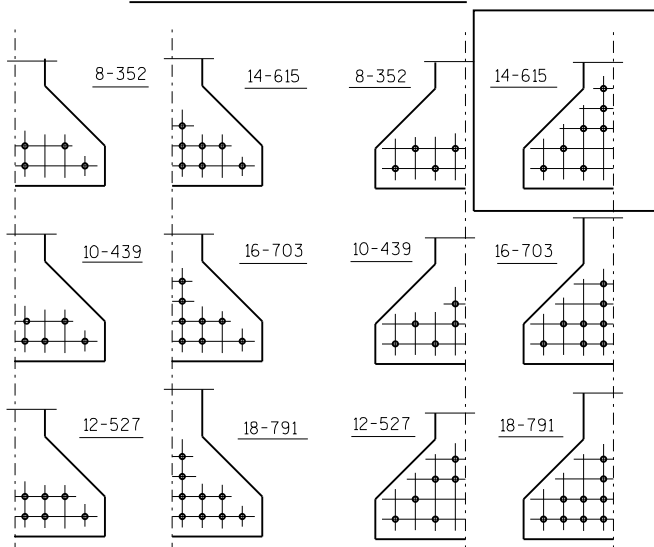
SPAN	CAMBER (IN.) *
1	1.54

THESE VALUES ARE NOT TO BE USED IN DETERMINING 'T'. USE ACTUAL GIRDER SHOTS. THESE VALUES ARE FOR INFORMATIONAL PURPOSES ONLY.

\* MINIMUM CYLINDER STRENGTH OF CONCRETE @ TIME OF TRANSFER OF PRESTRESS FORCE.

**GIRDER DATA**

SPAN	GIRDER	GIRDER LENGTH "L" (FEET)	DEAD LOAD DEFL. (IN.)									CONC. STRGTH. f'c (P.S.I.)	"P" (IN.)			DIA. OF STRAND (IN.)	DRAPED PATTERN (IN.)				UNDRAPED PATTERN	
			1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10		1ST 1/3 OF GIRDER	MID 1/3 OF GIRDER	END 1/3 OF GIRDER		TOTAL NO. OF STRANDS	f'ci (P.S.I.)	TOTAL NO. OF STRANDS	f'ci (P.S.I.)		
1	1-6	50	0.18	0.36	0.51	0.60	0.63	0.60	0.51	0.36	0.18	8,000	6.75	6.5	6.75	0.6					14	6,800



**DRAPED PATTERN**

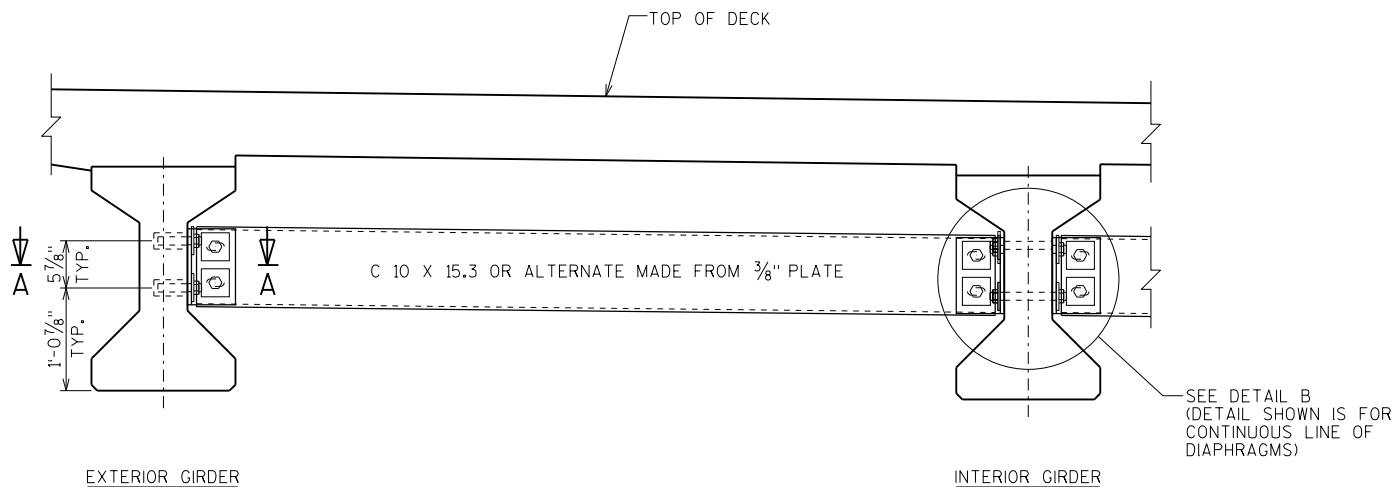
**UNDRAPED PATTERN**

0.6"φ STRANDS

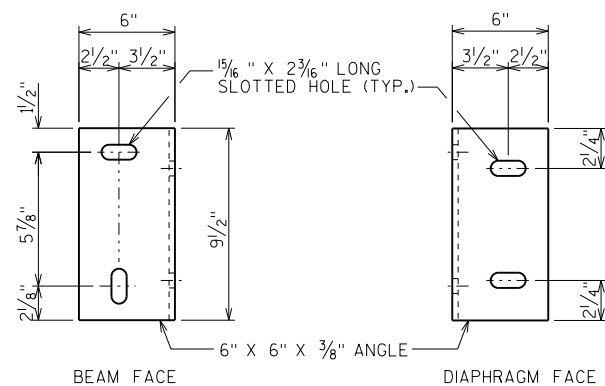
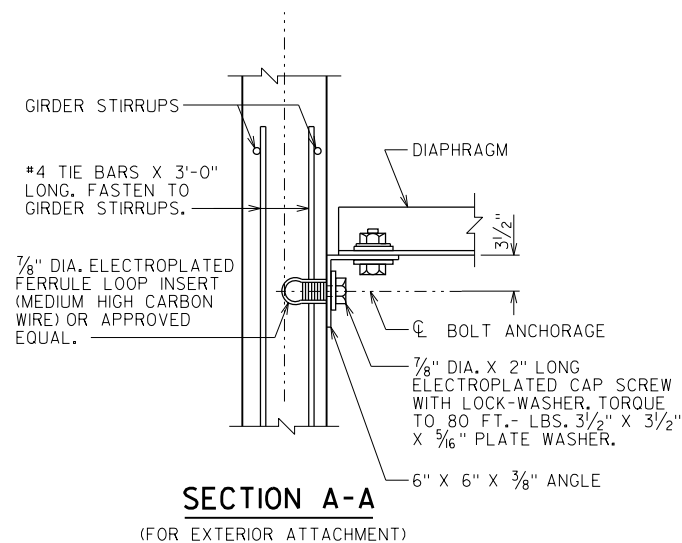
0.6"φ STRANDS

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-201</b>			
DRAWN BY		TAW	PLANS CK'D. MSK
<b>28" PRESTRESSED GIRDER DETAILS</b>			SHEET 14 OF 22

PRINTER DRIVER: S:\\_com-CAD\stds...  
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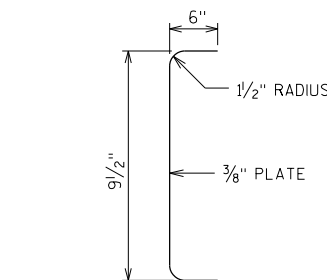


**PART TRANSVERSE SECTION AT DIAPHRAGM**

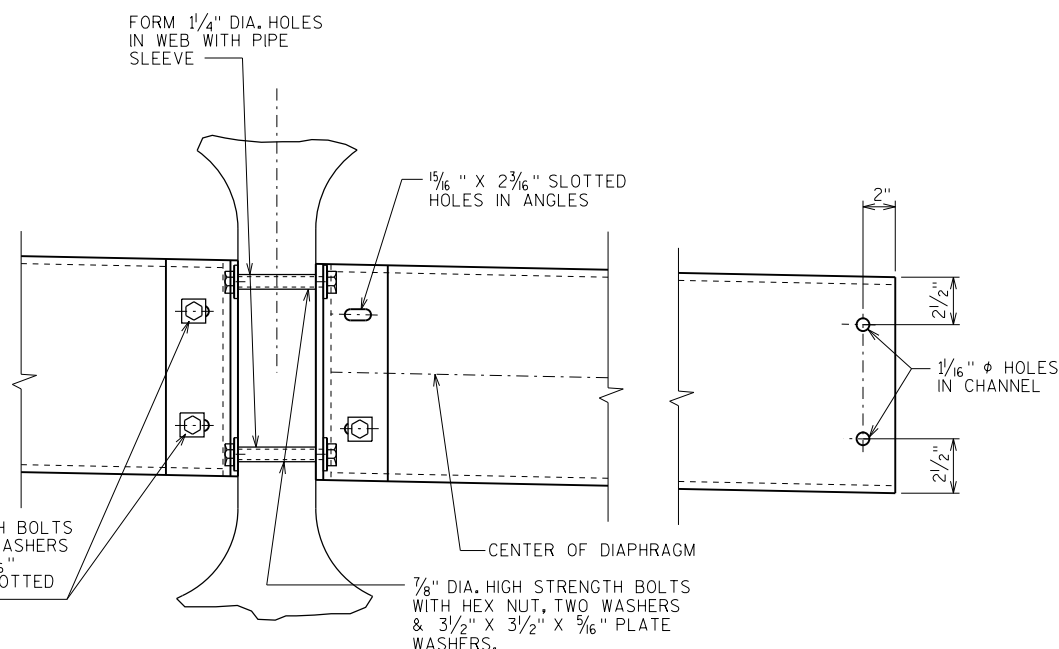


**DIAPHRAGM SUPPORT**

\* 2 1/2" FOR ALTERNATE PLATE DIAPHRAGM

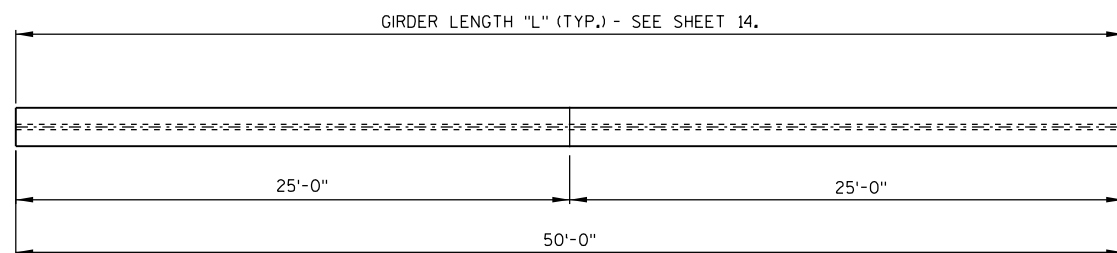


**SECTION THRU ALTERNATE DIAPHRAGM**



**DETAIL B**

(FOR CONTINUOUS LINE OF DIAPHRAGMS)



**DIAPHRAGM CONNECTION SPACING**

**NOTES**

ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS B-6-201", EACH.

EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.

ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36.

ALL DIAPHRAGM MATERIAL INCLUDING BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AFTER FABRICATION.

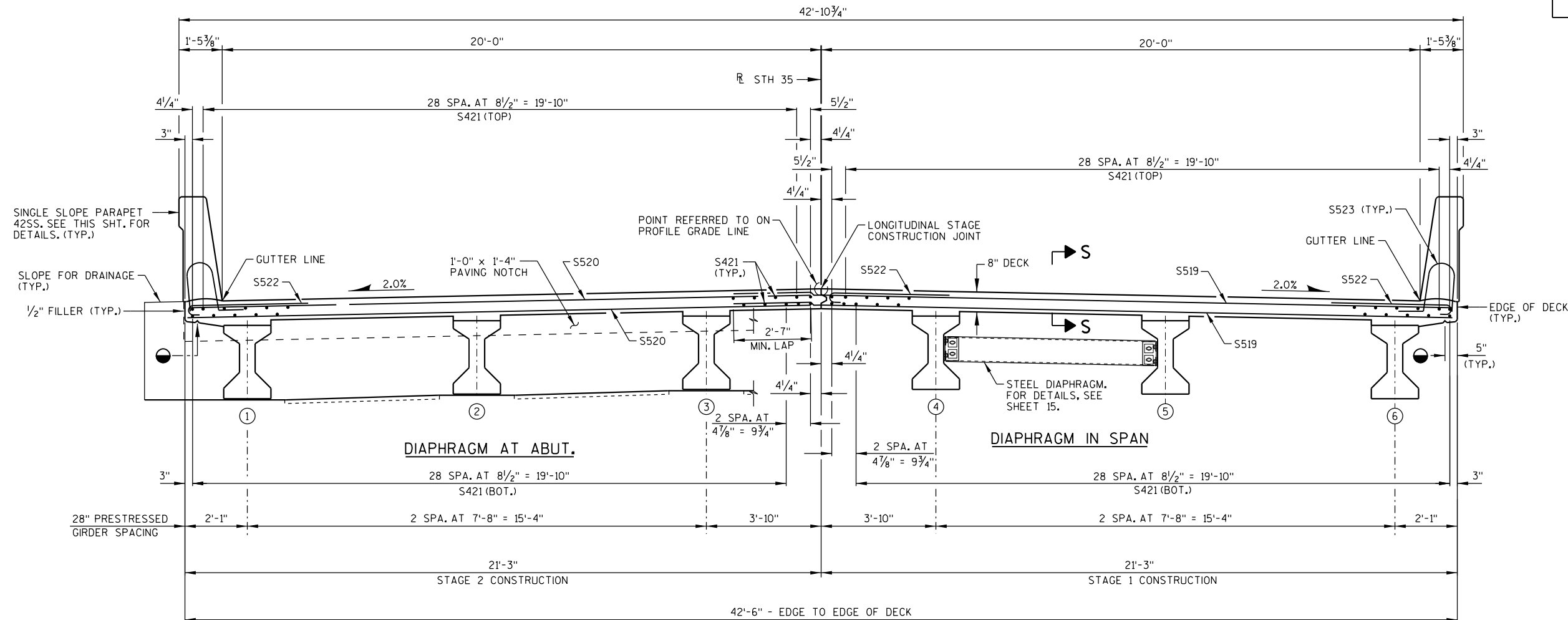
STEEL DIAPHRAGM TO CONCRETE WEB CONNECTION SHALL BE SNUG-TIGHT PLUS 1/4 TURN, UNLESS NOTED OTHERWISE. HIGH STRENGTH BOLTS FOR WEB CONNECTION SHALL MEET THE REQUIREMENTS FOR ASTM A325 OR ASTM A449.

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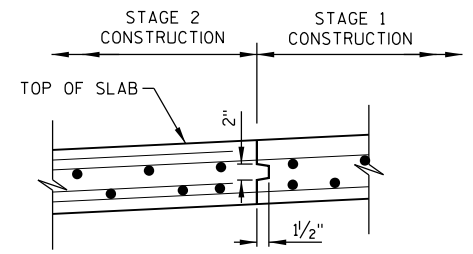
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-201</b>			
DRAWN BY		TAW	PLANS CKD. MSK
INTERMEDIATE STEEL DIAPHRAGM			SHEET 15 OF 22



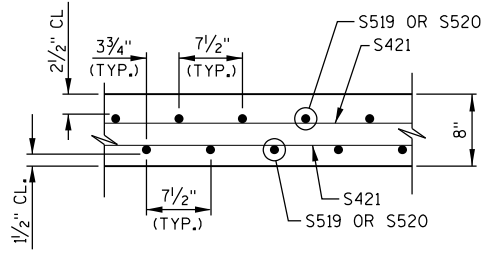
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 PLOT DATE: 7/27/2022  
 PLOT TIME: 7:19:32 PM



**CROSS SECTION THRU ROADWAY**  
(LOOKING UPSTATION)



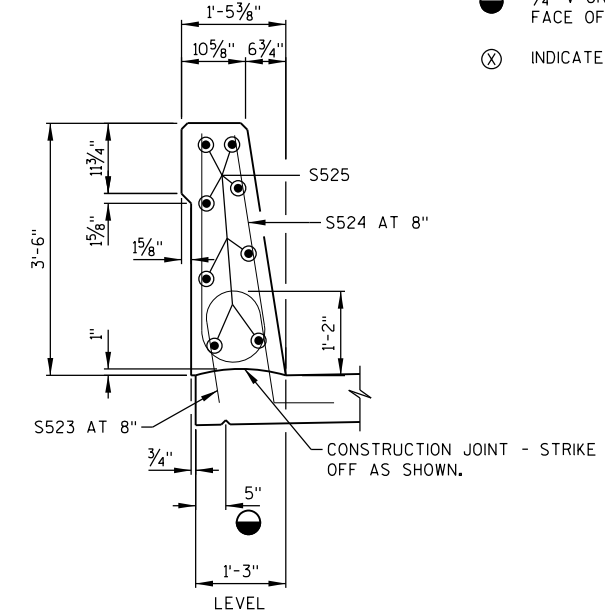
**SECTION THRU LONGITUDINAL JOINT**



**SECTION S-S**

**LEGEND**

- 3/4" V-GROOVE REQ'D. EXTEND V-GROOVE TO 6" FROM FRONT FACE OF ABUT. DIAPHRAGM.
- ⊗ INDICATES BEAM NUMBER



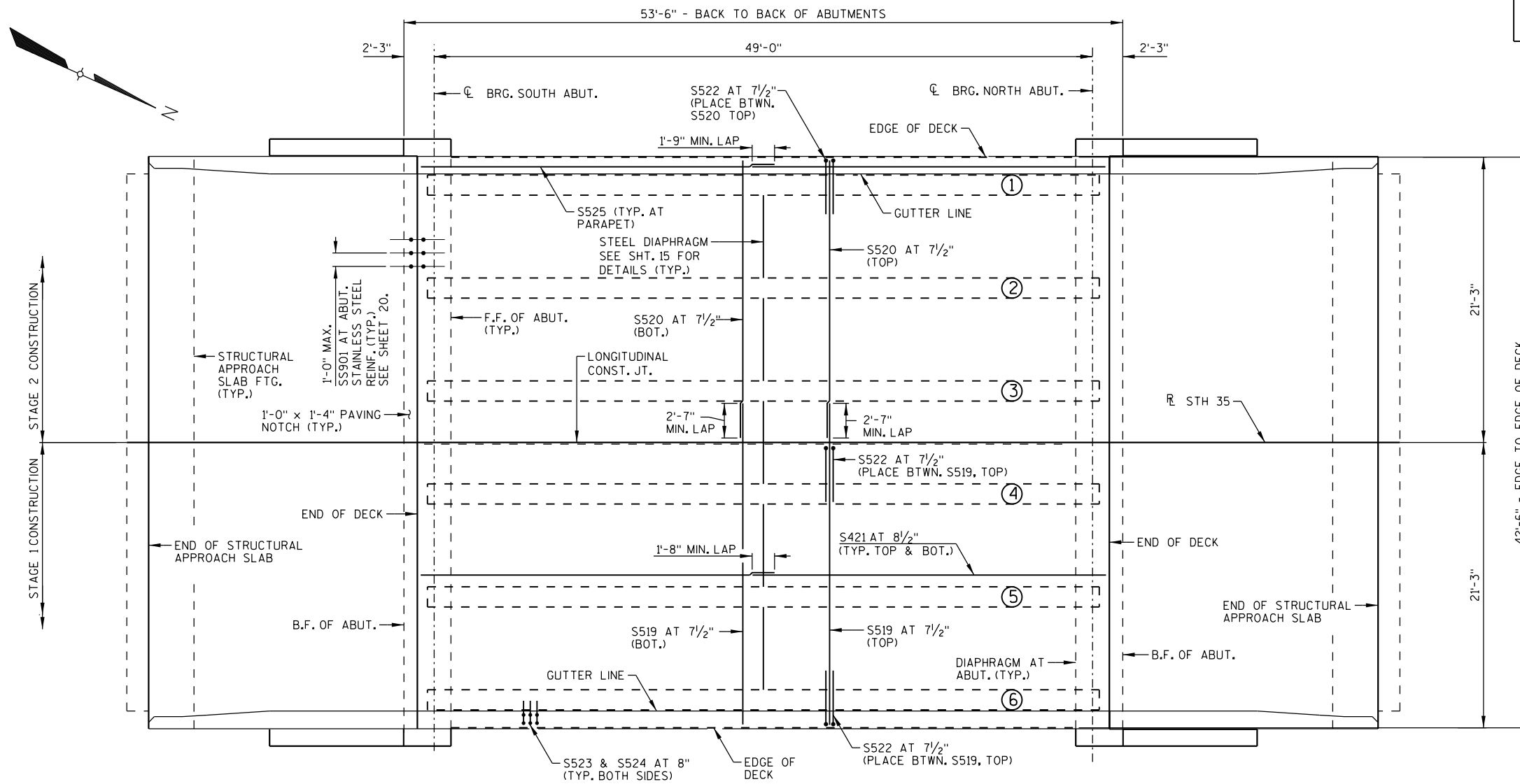
**SINGLE SLOPE PARAPET 42SS ON SUPERSTRUCTURE**

**TOP OF DECK ELEVATIONS**

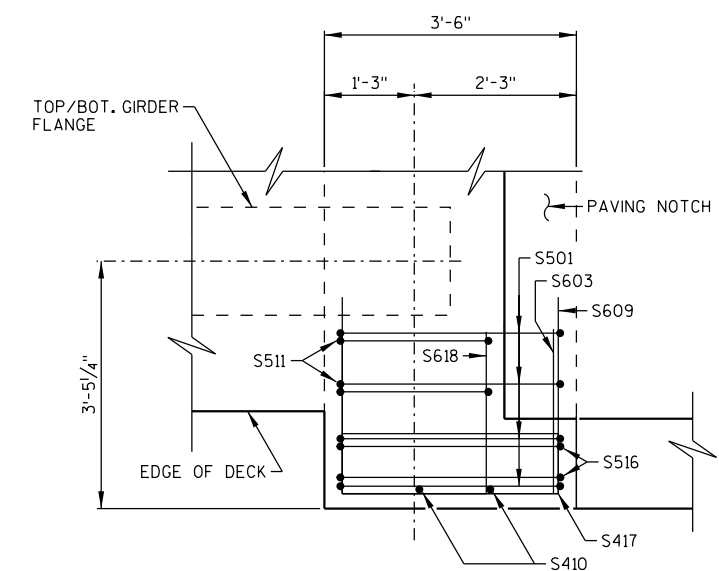
	C.L. BRG. S. ABUT.	0.10 PT.	0.20 PT.	0.30 PT.	0.40 PT.	0.50 PT.	0.60 PT.	0.70 PT.	0.80 PT.	0.90 PT.	C.L. BRG. N. ABUT.
W. EOD	664.81	664.81	664.81	664.80	664.80	664.79	664.79	664.78	664.77	664.76	664.75
GIRDER 1	664.82	664.82	664.82	664.82	664.82	664.81	664.80	664.79	664.79	664.77	664.76
GIRDER 2	664.98	664.98	664.98	664.97	664.97	664.96	664.96	664.95	664.94	664.93	664.92
GIRDER 3	665.13	665.13	665.13	665.13	665.12	665.12	665.11	665.10	665.09	665.08	665.07
STAGE CONST. JT.	665.21	665.21	665.21	665.20	665.20	665.19	665.19	665.18	665.17	665.16	665.15
GIRDER 4	665.13	665.13	665.13	665.13	665.12	665.12	665.11	665.10	665.09	665.08	665.07
GIRDER 5	664.98	664.98	664.98	664.97	664.97	664.96	664.96	664.95	664.94	664.93	664.92
GIRDER 6	664.82	664.82	664.82	664.82	664.82	664.81	664.80	664.79	664.79	664.77	664.76
E. EOD	664.81	664.81	664.81	664.80	664.80	664.79	664.79	664.78	664.77	664.76	664.75

NOTE: EDGE OF DECK (EOD) ELEVATIONS ARE CALCULATED ASSUMING CROSS SLOPE CONTINUES TO EDGE.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-201</b>			
DRAWN BY		KAM	PLANS CK'D. MSK
SUPERSTRUCTURE CROSS SECTION			SHEET 16 OF 22



PLAN



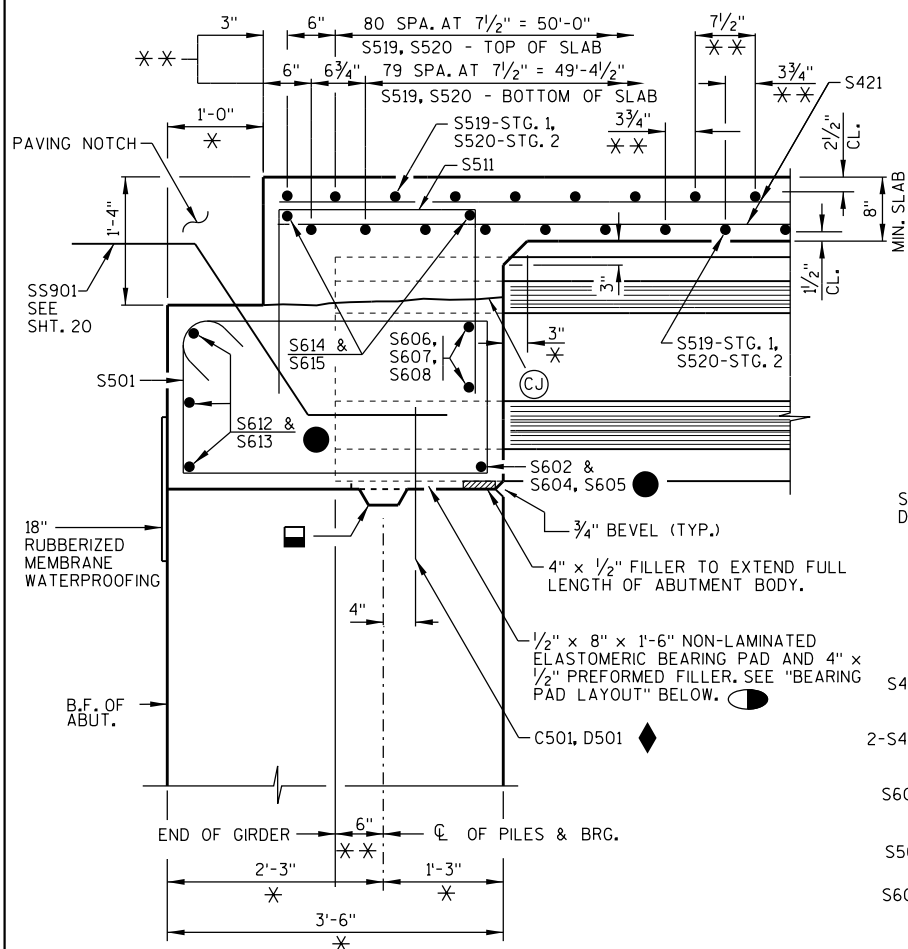
PLAN - DIAPHRAGM  
(WING 4 SHOWN; WINGS 1, 2 & 3 SIMILIAR)

**NOTES**

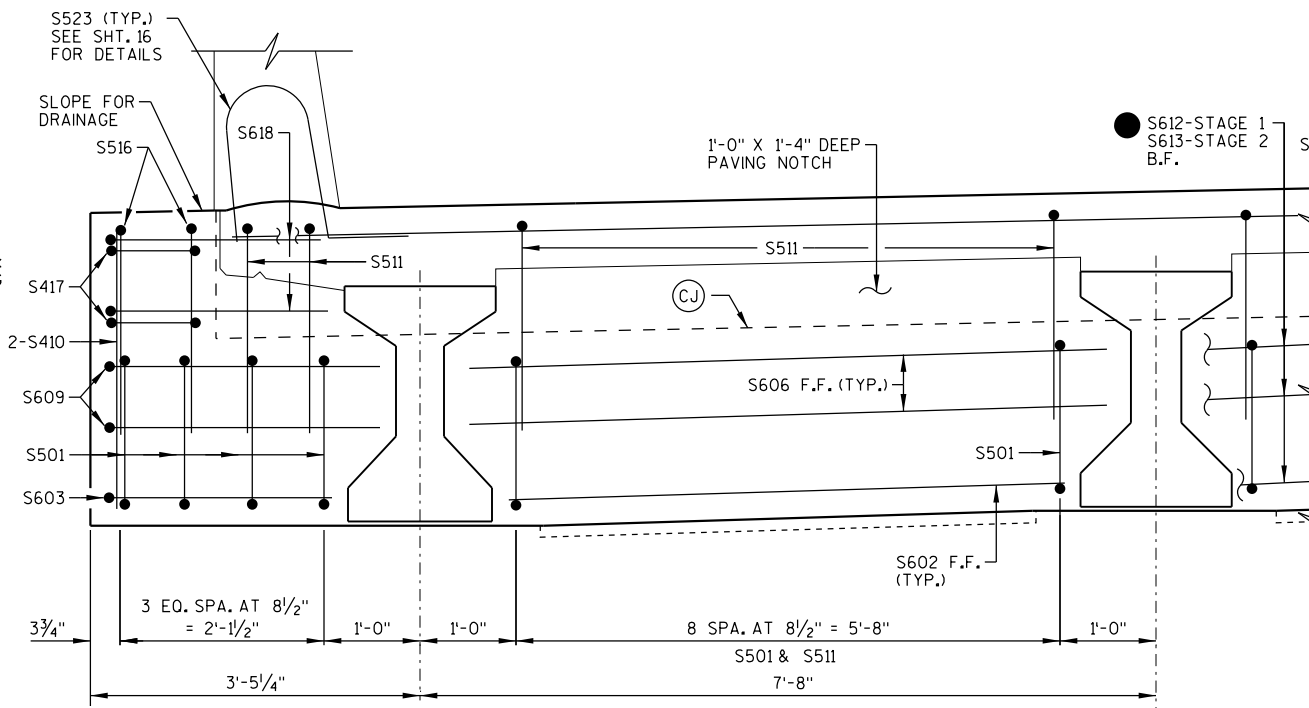
- ALL TRANSVERSE BAR STEEL REINFORCEMENT SHALL BE PLACED PARALLEL TO SUBSTRUCTURE UNITS.
- LAP LONGITUDINAL NO. 5 BARS IN PARAPET 1'-9" MIN.
- LAP NO. 4 BARS 1'-8" MIN. IN DECK.
- LAP NO. 5 BARS 2'-7" MIN. IN DECK.
- FOR PARAPET ON SUPERSTRUCTURE REINFORCEMENT DETAIL, SEE SHT. 16, "SUPERSTRUCTURE CROSS SECTION".

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 PLOT DATE: 7/27/2022 PLOT TIME: 7:16:01 PM BATCH PRINT SHEET 17 OF 22

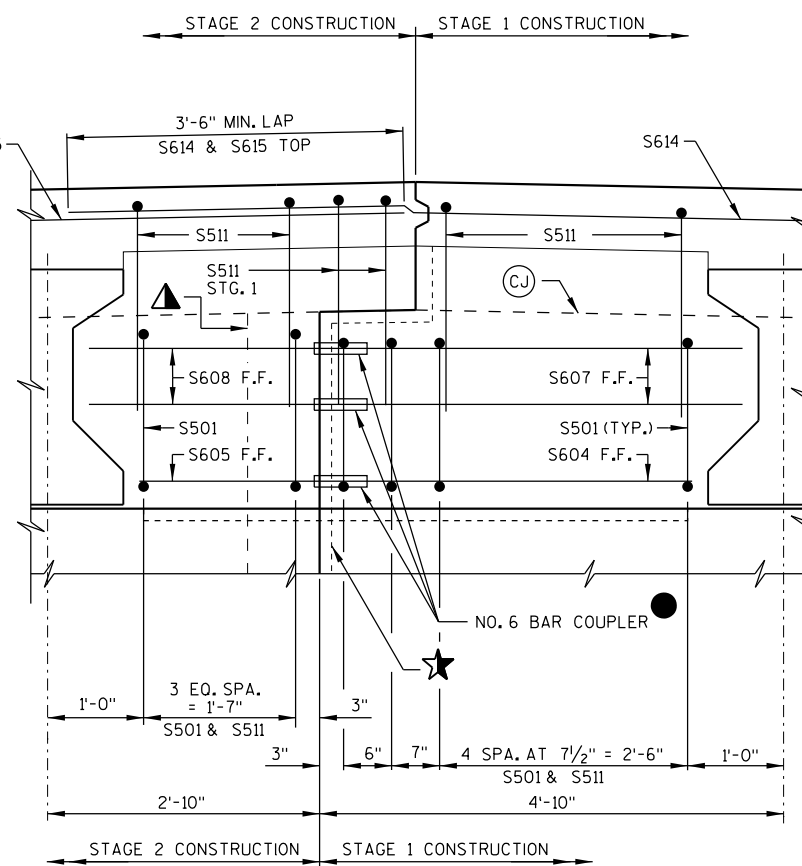
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-201</b>			
DRAWN BY		KAM	PLANS CK'D. MSK
SUPERSTRUCTURE			SHEET 17 OF 22



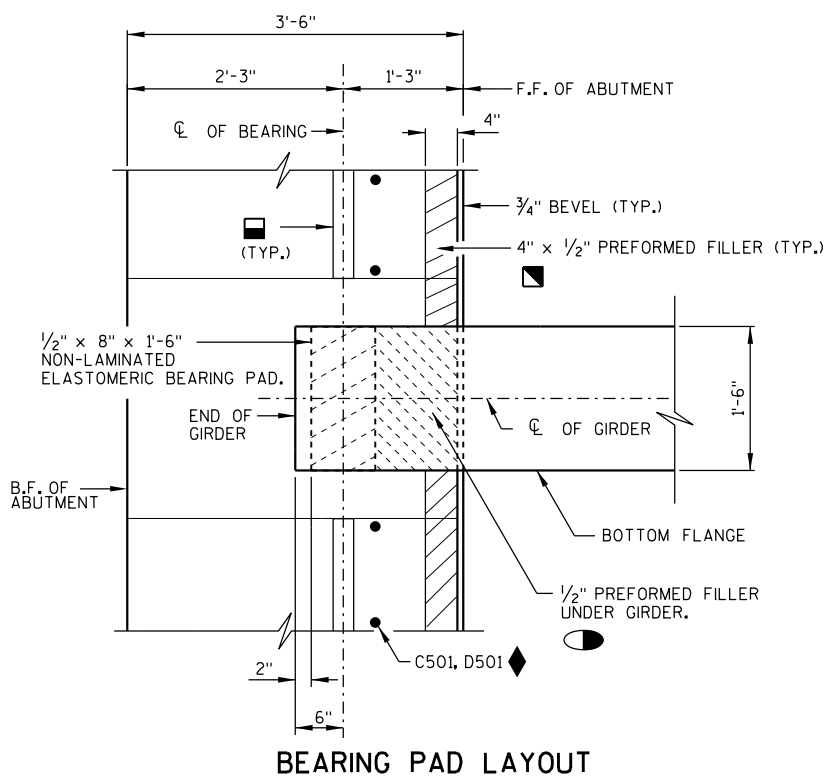
**PART LONGITUDINAL SECTION**  
(AT ABUTMENT)



**ABUTMENT DIAPHRAGM DETAIL**  
(LOOKING UPSTATION)  
WING 3 SHOWN, WINGS 1, 2, & 4 SIMILIAR



**ABUTMENT DIAPHRAGM AT CONSTR. JOINT**  
(LOOKING UPSTATION)



**BEARING PAD LAYOUT**

**LEGEND**

- \* DIMENSIONS ARE GIVEN NORMAL TO C OF SUBSTRUCTURE UNITS.
- \* \* DIMENSIONS ARE GIVEN PARALLEL TO THE GIRDER C.
- (CJ) OPTIONAL CONSTRUCTION JOINT, IF USED, DECK POUR MUST BE WITHIN 2 WEEKS FROM THE TIME OF THE DIAPHRAGM POUR.
- USE BAR COUPLERS TO CONTINUE BAR STEEL THRU JOINT AT ABUTMENT DIAPHRAGM AS SHOWN, SEE SHEET 22 FOR DETAILS.

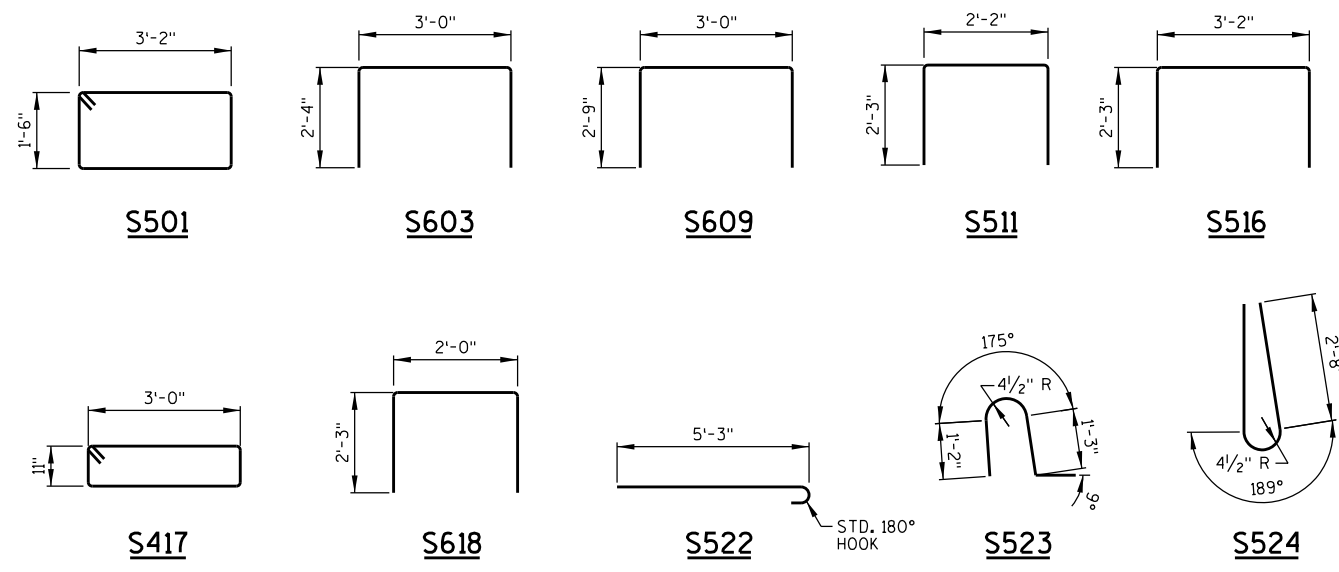
FOR ADDITIONAL SYMBOL DESCRIPTIONS, SEE SHEET 8 OR 11.

**NOTES**

- PLACE AND SPACE VERTICAL REINFORCEMENT BARS PARALLEL TO THE GIRDER C.
- LAP S614 & S615 BARS IN ABUTMENT DIAPHRAGM 3'-6" MIN.
- MATCH BOTTOM OF PAVING NOTCH WITH SLOPE OF TOP OF DECK.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-201</b>			
DRAWN BY		KAM	PLANS CK'D. MSK
<b>SUPERSTRUCTURE DETAILS - 1</b>			SHEET 18 OF 22

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 BATCH PRINT SHEET 18 OF 22  
 PLOT DATE: 7/27/2022  
 PLOT TIME: 7:16:32 PM



**BILL OF BARS**

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

MARK	STAGE 1 NO. REQ'D	STAGE 2 NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION	TOTAL WEIGHT = 19,710 LBS
COATED BARS							
S501	58	52	10-0	X		ABUTMENT DIAPHRAGM - STIRRUPS	VERT.
S602	4	4	5-10			ABUTMENT DIAPH. - BETWN. GIRDERS 1 THRU 3 & 4 THRU 6 - F.F.	HORIZ.
S603	2	2	7-4	X		ABUTMENT DIAPHRAGM - BOTTOM - ENDS	HORIZ.
S604	2	-----	3-10			ABUTMENT DIAPH. - BETWN. GIRDERS 3 & 4 - F.F.	HORIZ.
S605	-----	2	1-10			ABUTMENT DIAPH. - BETWN. GIRDERS 3 & 4 - F.F.	HORIZ.
S606	8	8	6-8			ABUTMENT DIAPH. - BETWN. GIRDERS 1 THRU 3 & 4 THRU 6 - F.F.	HORIZ.
S607	4	-----	4-4			ABUTMENT DIAPH. - BETWN. GIRDERS 3 & 4 - F.F.	HORIZ.
S608	-----	4	2-4			ABUTMENT DIAPH. - BETWN. GIRDERS 3 & 4 - F.F.	HORIZ.
S609	4	4	8-2	X		ABUTMENT DIAPHRAGM - ENDS	HORIZ.
S410	4	4	2-11			ABUTMENT DIAPHRAGM - ENDS	VERT.
S511	54	48	6-5	X		ABUTMENT DIAPHRAGM - TOP	VERT.
S612	6	-----	23-5			ABUTMENT DIAPHRAGM - B.F.	HORIZ.
S613	-----	6	21-5			ABUTMENT DIAPHRAGM - B.F.	HORIZ.
S614	4	-----	26-2			ABUTMENT DIAPHRAGM - TOP	HORIZ.
S615	-----	4	22-3			ABUTMENT DIAPHRAGM - TOP	HORIZ.
S516	4	4	7-5	X		ABUTMENT DIAPHRAGM - ENDS	VERT.
S417	4	4	8-4	X		ABUTMENT DIAPHRAGM - ENDS	HORIZ.
S618	4	4	6-2	X		ABUTMENT DIAPHRAGM - ENDS	HORIZ.
S519	167	-----	23-10			SLAB - TOP & BOTTOM	TRANS.
S520	-----	167	20-11			SLAB - TOP & BOTTOM	TRANS.
S421	124	124	27-5			SLAB - TOP & BOTTOM	LONGIT.
S522	164	82	5-10	X		SLAB - DECK EDGES	TRANS.
S523	79	79	4-5	X		PARAPET	VERT.
S524	79	79	6-8	X		PARAPET	VERT.
S525	16	16	26-6			PARAPET	LONGIT.

**ESTIMATED QUANTITIES**

	HPC MASONRY SUPERSTRUCTURE (CY)	BAR STEEL REINFORCEMENT HS COATED STRUCTURES (LB)
STAGE 1	51	10,440
STAGE 2	50	9,270

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 PLOT DATE: 7/27/2022 PLOT TIME: 7:17:00 PM BATCH PRINT SHEET 19 OF 22

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-6-201			
DRAWN BY		KAM	PLANS CK'D. MSK
SUPERSTRUCTURE DETAILS - 2			SHEET 19 OF 22

TOP OF APPROACH SLAB ELEVATIONS

LOCATION	DESCRIPTION	STATION	OFFSET TO R	ELEVATION (FEET)
'A'	EAST FLOW LINE AT END OF SOUTH APPROACH SLAB (NEAR WING 1)	230+44.18	20.0' LT.	664.80
'B'	WEST FLOW LINE AT END OF SOUTH APPROACH SLAB (NEAR WING 2)	230+44.18	20.0' RT.	664.80
'A'	EAST FLOW LINE AT END OF NORTH APPROACH SLAB (NEAR WING 4)	231+35.68	20.0' LT.	664.68
'B'	WEST FLOW LINE AT END OF NORTH APPROACH SLAB (NEAR WING 3)	231+35.68	20.0' RT.	664.68

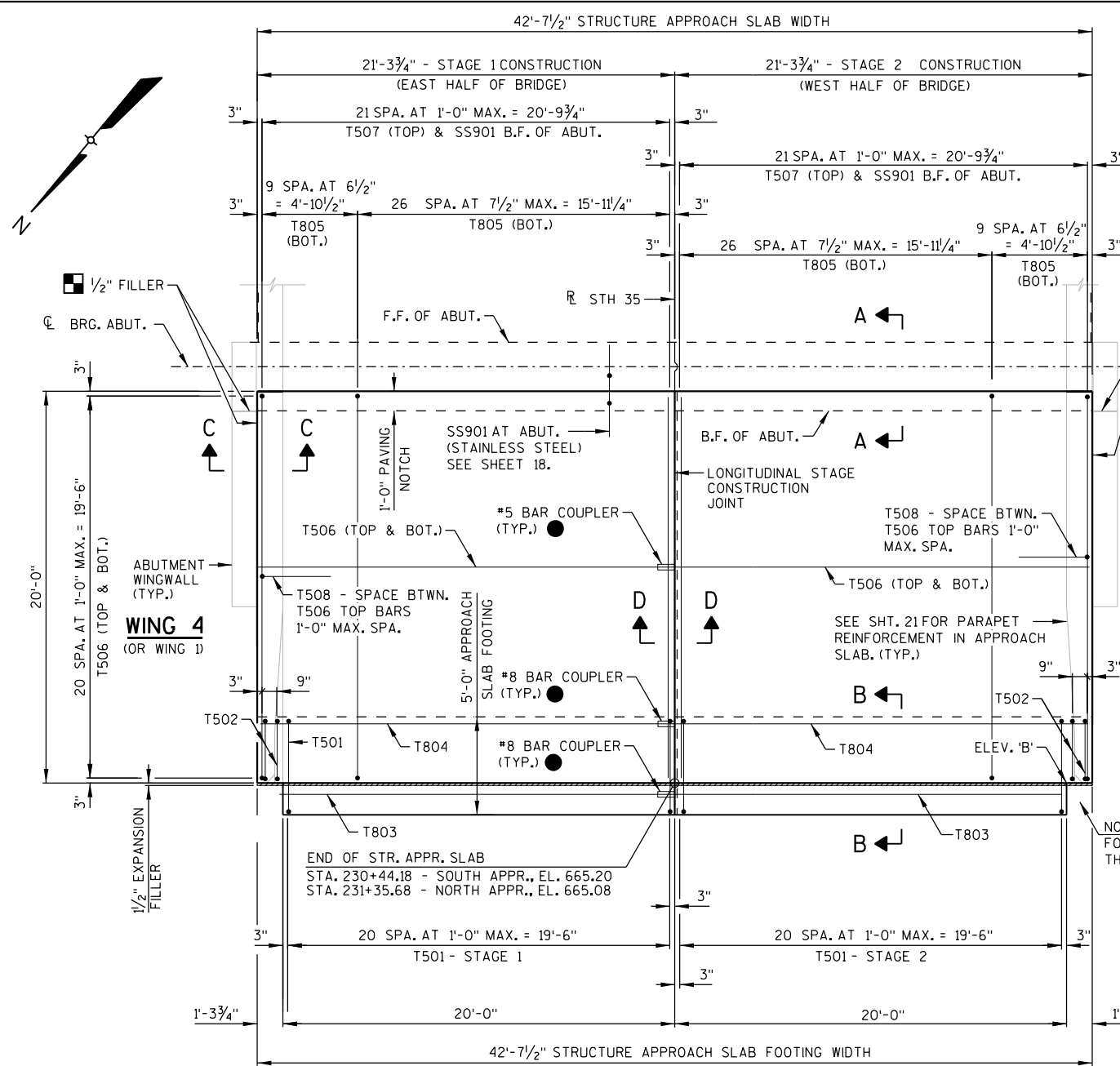
BILL OF BARS

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

MARK	STAGE 1 NO. REQ'D	STAGE 2 NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION	TOTAL WEIGHT = 17,820 LBS
COATED BARS							
T501	42	42	12-2	X		APPROACH SLAB FOOTING - STIRRUP	VERT.
T502	4	4	9-2	X		APPROACH SLAB FOOTING - STIRRUP	VERT.
T803	8	8	19-8			APPROACH SLAB FOOTING	TRANS.
T804	16	16	21-4			APPROACH SLAB FOOTING	TRANS.
T805	72	72	21-4	X		APPROACH SLAB - BOTTOM	LONGIT.
T506	84	84	20-11			APPROACH SLAB - TOP & BOTTOM	TRANS.
T507	44	44	19-8			APPROACH SLAB - TOP	LONGIT.
T508	40	40	4-1	X		APPROACH SLAB - TOP - EDGE OF SLAB	TRANS.
STAINLESS STEEL BARS							
TOTAL WEIGHT = 1,440 LBS							
SS901	42	42	5-0	X		ABUTMENT DIAPHRAGM TO APPROACH SLAB	VERT.

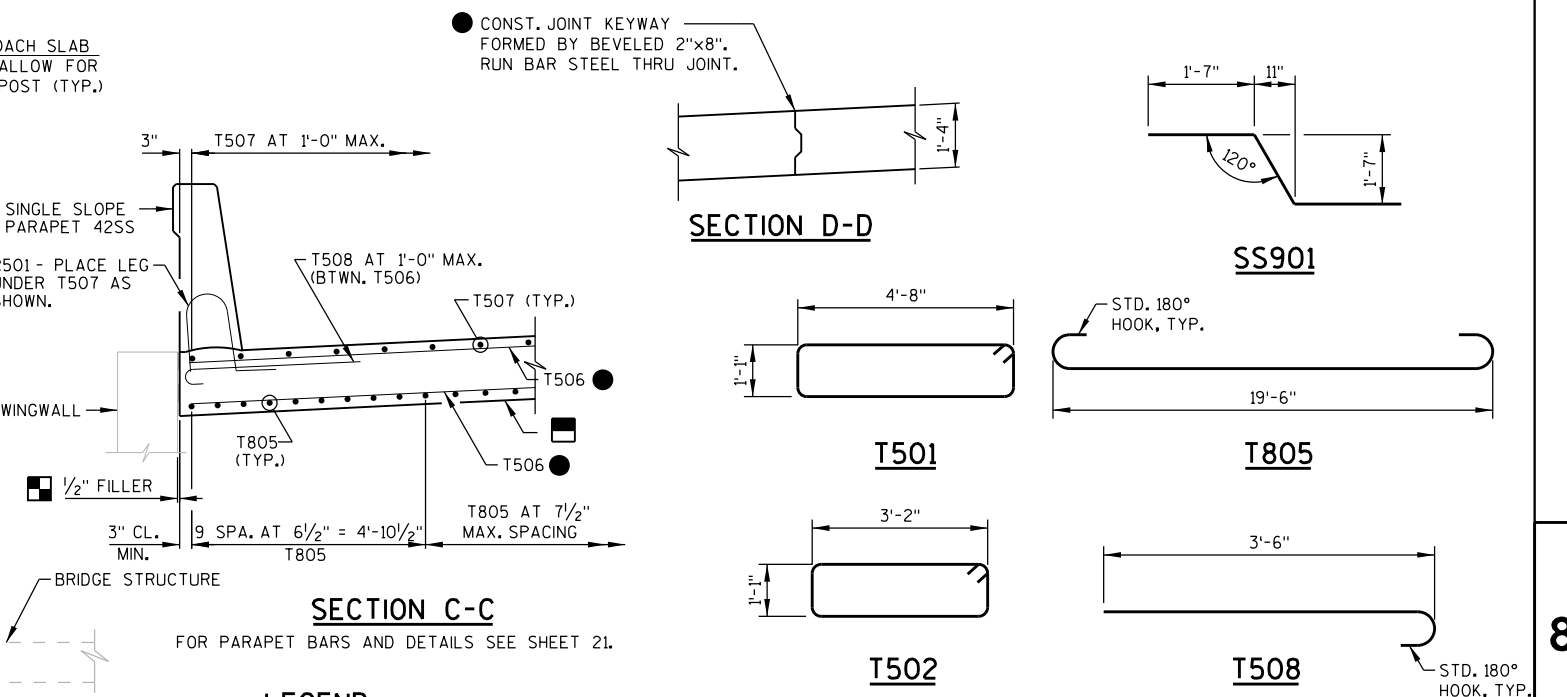
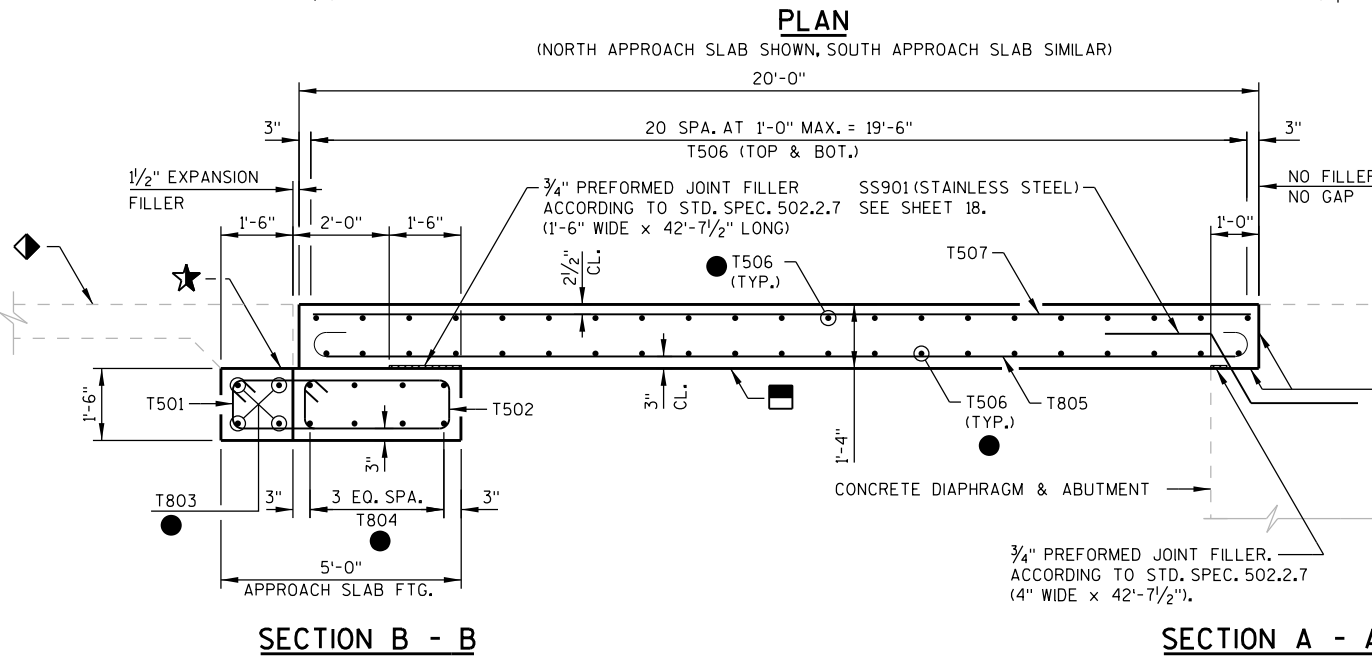
ESTIMATED QUANTITIES

	CONCRETE MASONRY BRIDGES (CY)	BAR STEEL REINFORCEMENT HS COATED STRUCTURES (LB)	BAR STEEL REINFORCEMENT HS STAINLESS STRUCTURES (LB)
STAGE 1	60	8,910	720
STAGE 2	60	8,910	720



WING 3 (OR WING 2)

NOTCH APPROACH SLAB FOOTING TO ALLOW FOR THREE BEAM POST (TYP.)



LEGEND

- ★ STEEL TROWEL TOP SURFACE OF FOOTING AND PLACE MULTIPLE LAYERS (0.03" MIN. TOTAL THK.) OF POLYETHYLENE SHEETS OVER THE ENTIRE TOP OF FOOTING.
- PLACE MULTIPLE LAYERS (0.03" MIN. TOTAL THK.) OF POLYETHYLENE SHEETS OVER THE ENTIRE TOP OF SUBGRADE BENEATH SLAB.
- SEAL ALL EXPOSED HORIZ. AND VERT. SURFACES OF AS NOTED FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE).
- ◆ SEE ROADWAY PLANS FOR DETAILS.
- USE BAR COUPLERS TO CONTINUE BAR STEEL THRU JOINT. SEE SHEET 22 FOR DETAILS.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-6-201			
DRAWN BY KAM		PLANS CKD. MSK	
STRUCTURAL APPROACH SLAB			SHEET 20 OF 22

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 PLOT DATE: 7/27/2022

**BILL OF BARS**

FOR STRUCTURAL APPROACH SLAB PARAPETS

BAR MARK	COAT	STAGE 1	STAGE 2	LENGTH	BEND	BAR SERIES	LOCATION
R501	X	36	36	4-5	X		PARAPET VERT.
R502	X	36	36	6-8	X		PARAPET VERT.
R503	X	22	22	2-9	X		PARAPET VERT.
R504	X	34	34	4-4	X		PARAPET VERT.
R505	X	10	10	6-5	X		PARAPET VERT.
R506	X	12	12	6-6	X		PARAPET VERT.
R507	X	2	2	19-6	X		PARAPET HORIZ.
R508	X	10	10	19-6			PARAPET HORIZ.
R509	X	12	12	5-5	X	▲	PARAPET VERT.
R510	X	4	4	19-6	X		PARAPET HORIZ.

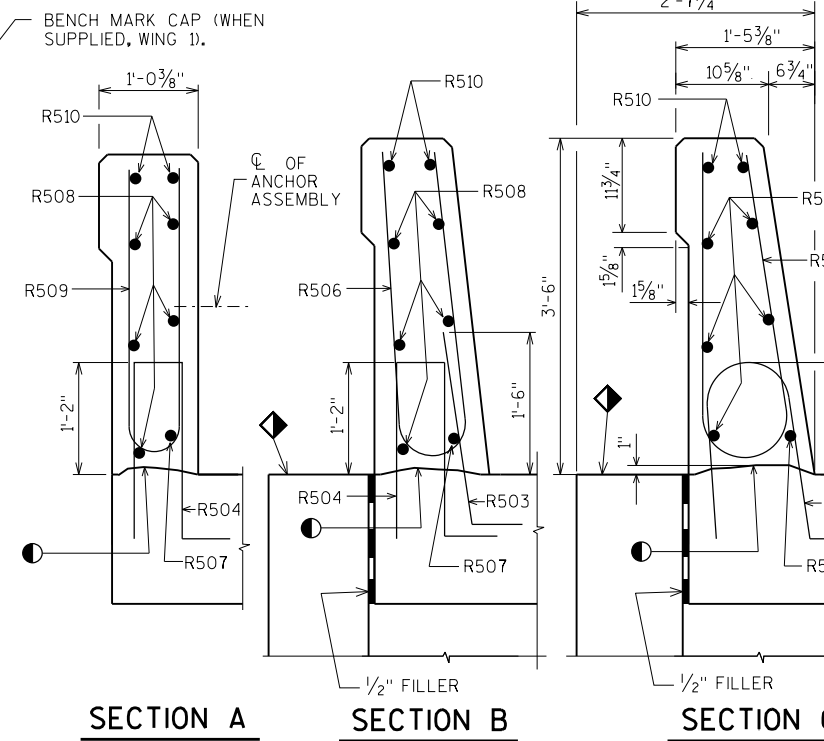
STAGE 1 WT. = 1,175 LBS.  
STAGE 2 WT. = 1,175 LBS.

▲ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

**BAR SERIES TABLE**

MARK	NO. REQD.	LENGTH
R509	4 SERIES OF 6	4'-9" TO 6'-1"

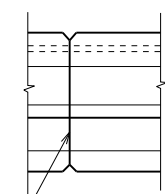
BUNDLE AND TAG EACH SERIES SEPARATELY.



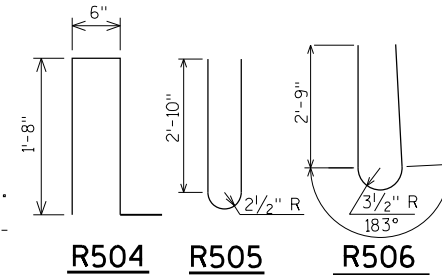
**SECTION A**

**SECTION B**

**SECTION C**



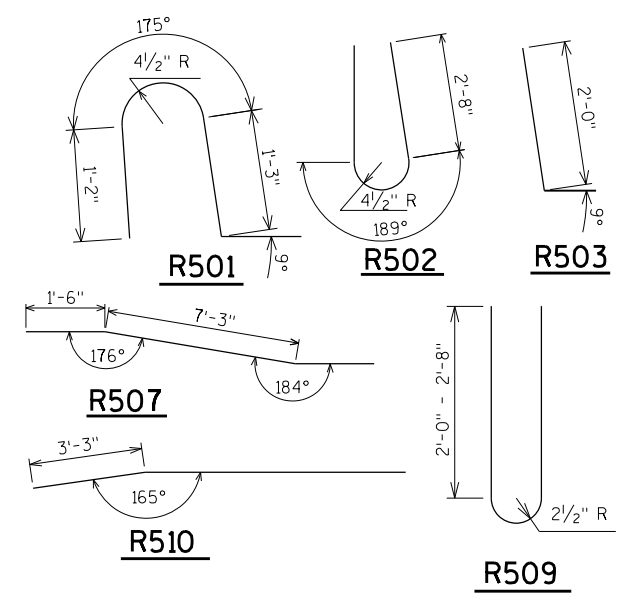
OPTIONAL CONSTRUCTION JOINTS IN THE PARAPETS MAY BE USED. RUN BAR REINF. THRU THE JOINT. LAP LONGIT. BARS A MIN. OF 1'-9". MIN. JOINT SPACING OF 80'-0". DEFINE CONST. JOINT WITH A 3/4" 'V' GROOVE.



**R504**

**R505**

**R506**



**R501**

**R502**

**R503**

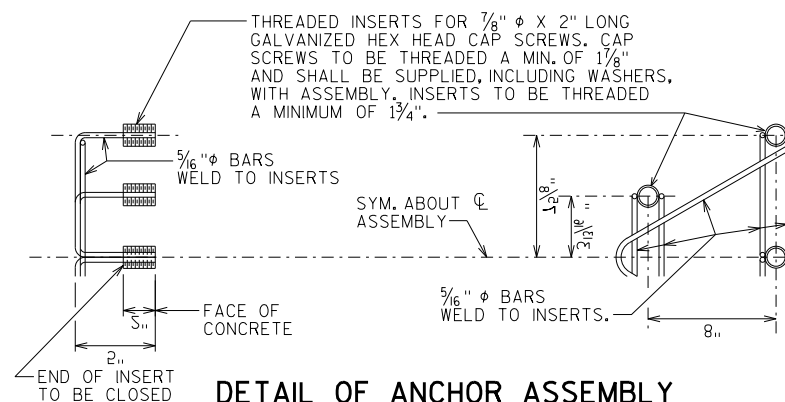
**R507**

**R510**

**R509**

**LEGEND**

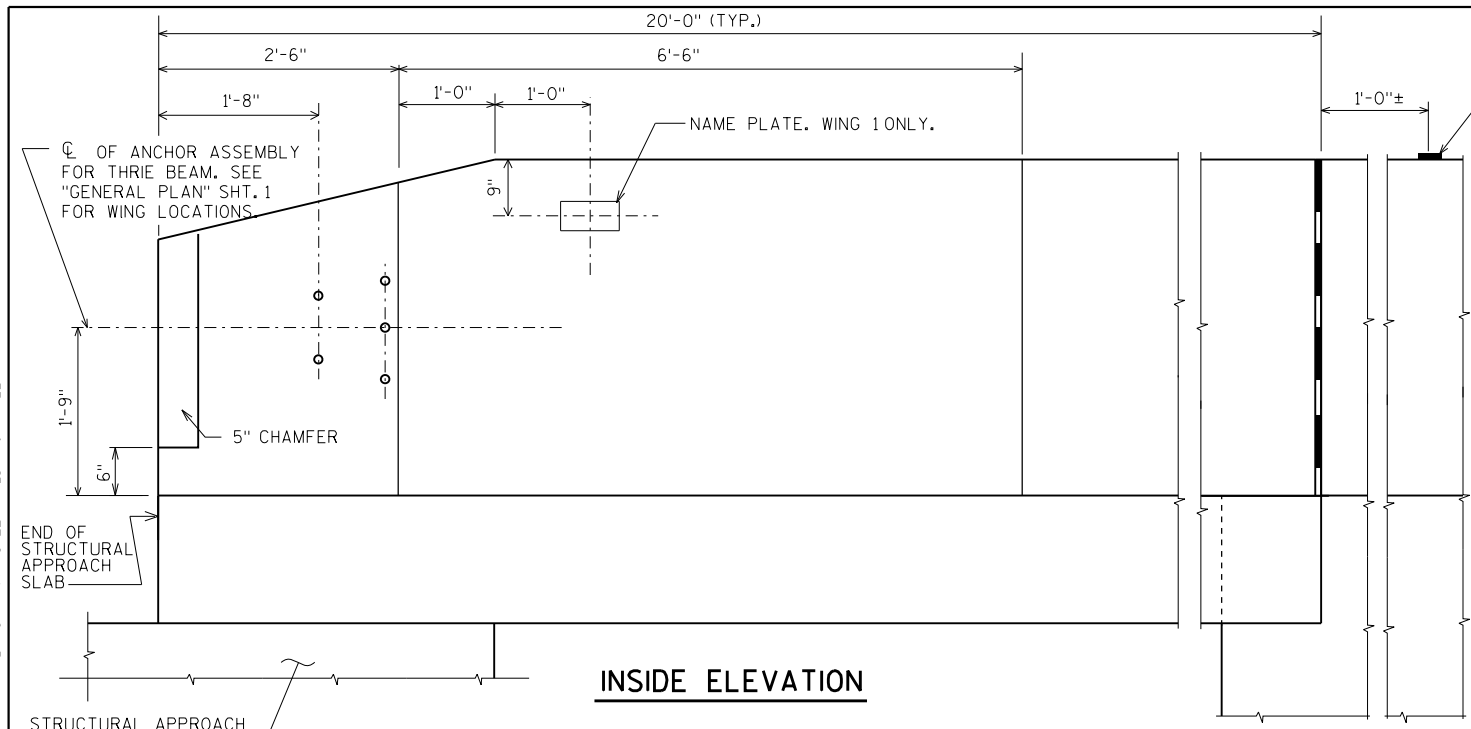
- CONST. JOINT - STRIKE OFF AS SHOWN.
- ◆ SLOPE FOR DRAINAGE
- ▽ R501 AND R504 BARS TO BE TIED TO STRUCTURAL APPROACH SLAB STEEL BEFORE STRUCTURAL APPROACH SLAB IS POURED.



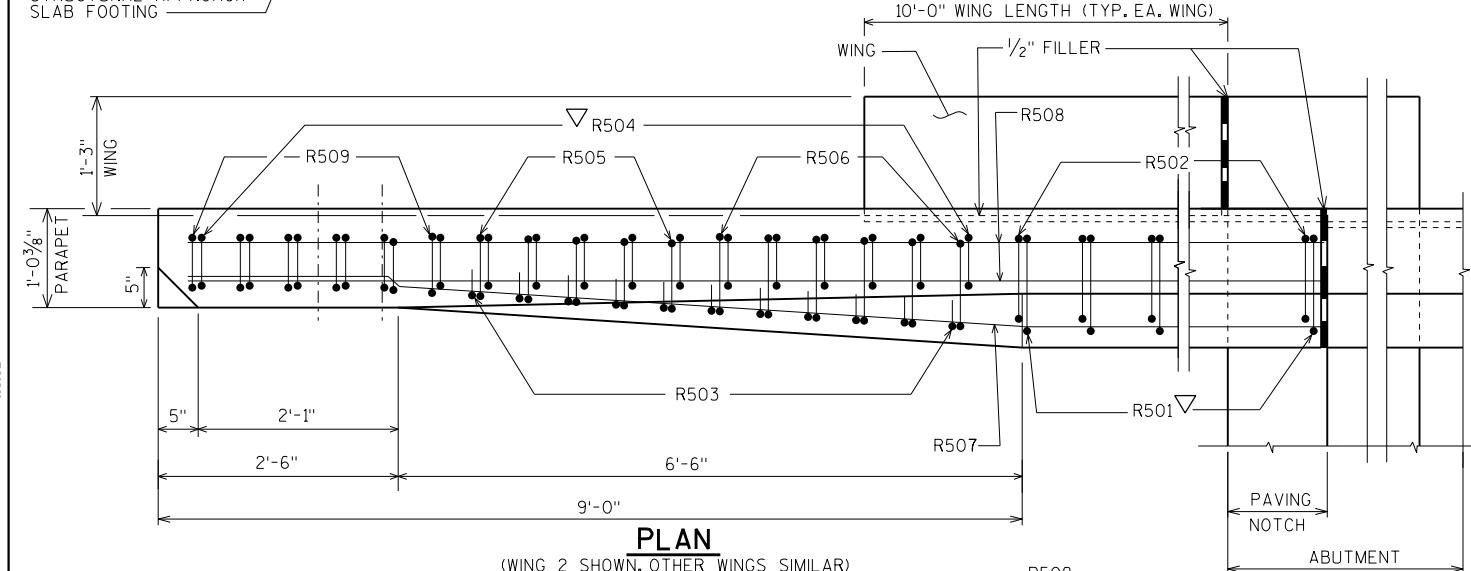
**DETAIL OF ANCHOR ASSEMBLY**

NOTE: HEX HEAD CAP SCREWS & WASHERS TO BE GALVANIZED IN ACCORDANCE WITH AASHTO M232 CLASS C.

ASSEMBLY SHALL BE BID ITEM "ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD", EACH.

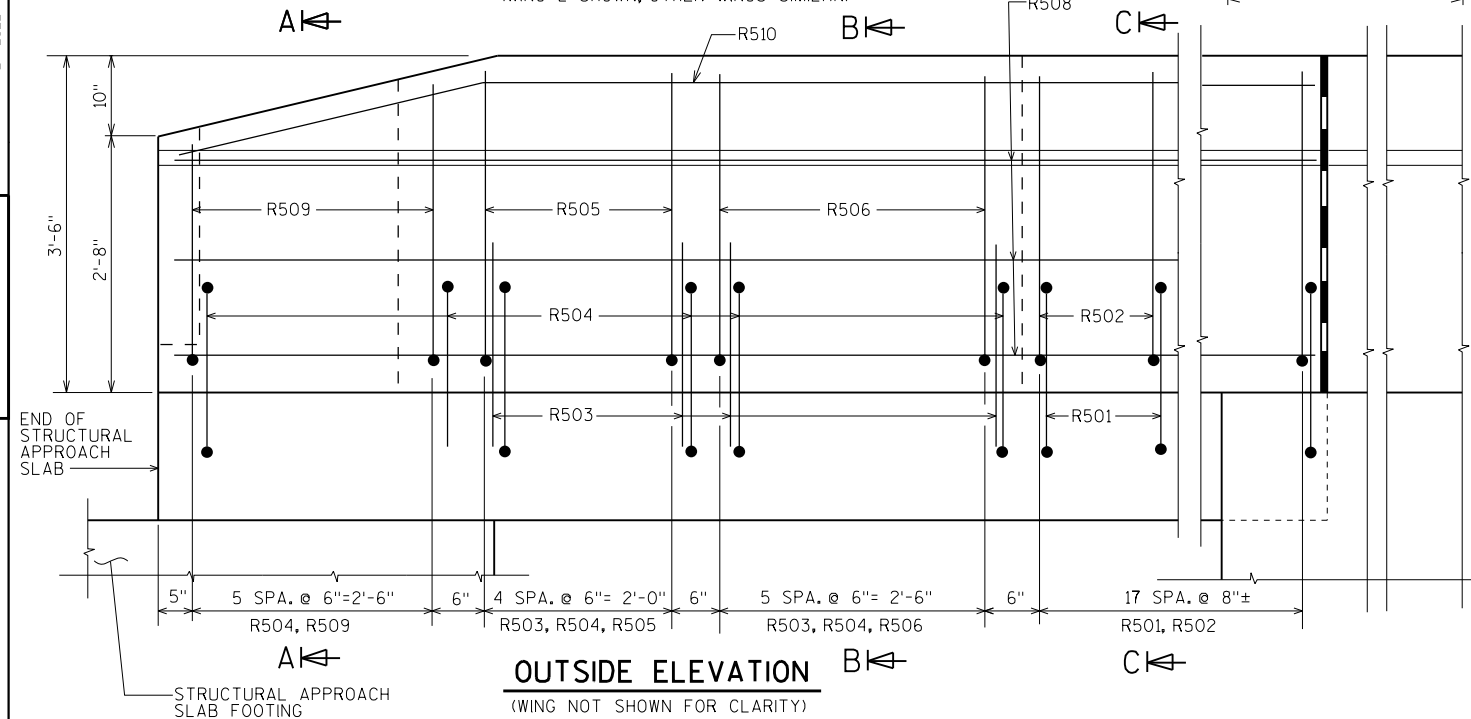


**INSIDE ELEVATION**



**PLAN**

(WING 2 SHOWN, OTHER WINGS SIMILAR)



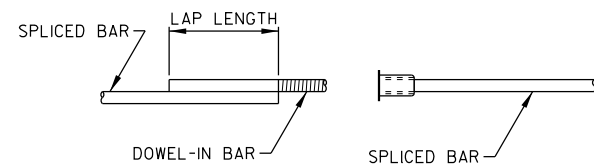
**OUTSIDE ELEVATION**

(WING NOT SHOWN FOR CLARITY)

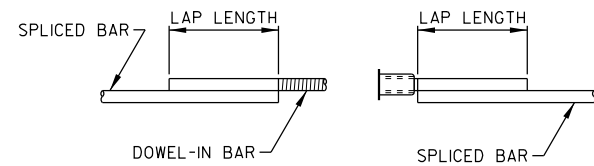
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 PLOT TIME: 7:18:02 PM  
 BATCH PRINT SHEET 21 OF 22

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-201</b>			
DRAWN BY: TAW		PLANS CKD.: MSK	
<b>PARAPET 42SS WITH STRUCTURAL APPROACH SLAB</b>			SHEET 21 OF 22

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 PLOT DATE: 7/27/2022 PLOT TIME: 7:18:30 PM BATCH PRINT SHEET 22 OF 22



**DOWEL BAR SPLICER**

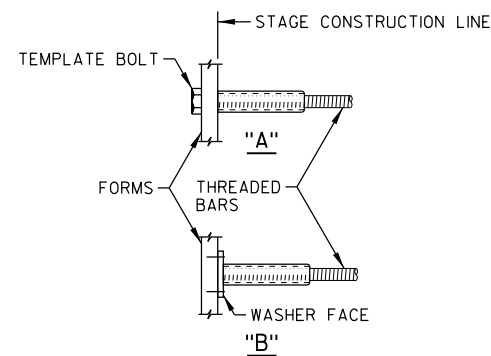


**DOWEL BAR SPLICER**



**ONE PIECE THREADED SPLICER**

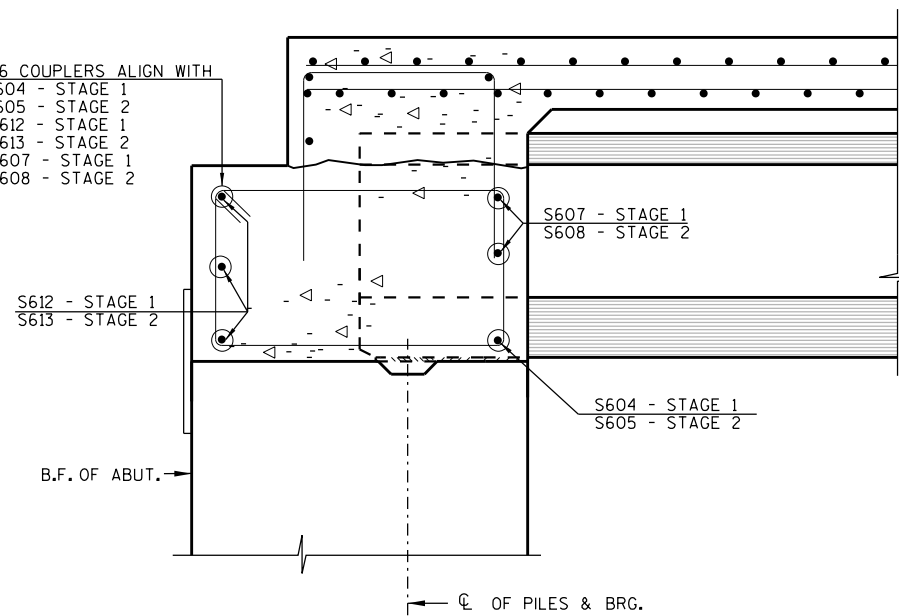
**SPLICER ALTERNATIVES**



**INSTALLATION AND SETTING METHODS**

"A" SET SPLICER BY MEANS OF A TEMPLATE BOLT.  
 "B" SET SPLICER BY NAILING TO WOOD FORMS OR CEMENTING TO STEEL FORMS.

- (6) #6 COUPLERS ALIGN WITH  
 (1) S604 - STAGE 1  
 (1) S605 - STAGE 2  
 (3) S612 - STAGE 1  
 (3) S613 - STAGE 2  
 (2) S607 - STAGE 1  
 (2) S608 - STAGE 2



**TYPICAL SECTION THRU ABUTMENT DIAPHRAGM AT CONSTRUCTION JOINT**

**NOTES**

STEEL SPLICE (COUPLER) ASSEMBLY SHALL BE AN APPROVED TYPE AND SHALL DEVELOP IN TENSION AT LEAST 125% OF THE YIELD STRENGTH OF THE SPLICED REINFORCEMENT BARS.

DOWEL BAR SPLICERS SHALL BE OF MINIMUM 60 KSI YIELD STRENGTH, AND HAVE TENSILE STRENGTH AREA EQUAL OR GREATER THAN THAT OF THE LAPPED REINFORCEMENT BARS.

DOWEL BAR SPLICERS SHALL MEET THE DEFORMATION REQUIREMENTS FOR STANDARD ASTM DEFORMED REINFORCING BARS.

FOR DOWEL BAR SPLICERS, ALL REINFORCEMENT BARS SHALL BE LAPPED AND TIED TO THE SPLICER BARS.

SPLICER (COUPLER) ASSEMBLY IN THE STRUCTURAL APPROACH SLABS SHALL BE EPOXY COATED IN ACCORDANCE WITH THE REQUIREMENTS FOR REINFORCEMENT BARS.

OTHER SYSTEMS OF SIMILAR DESIGN MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL. APPROVAL SHALL BE BASED ON CERTIFIED TEST RESULTS FROM AN APPROVED TESTING LABORATORY THAT THE PROPOSED SPLICER (COUPLER) ASSEMBLY SATISFIES THE FOLLOWING REQUIREMENT:

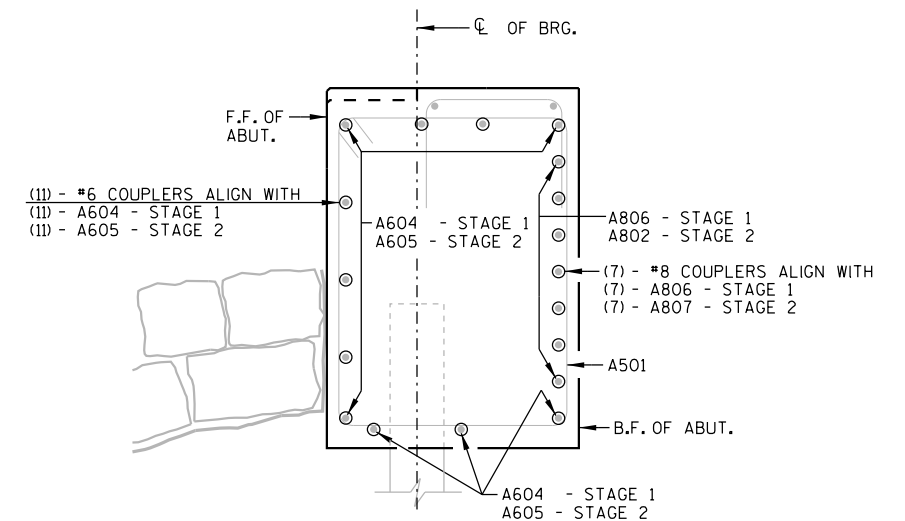
1. - MINIMUM CAPACITY = 1.25 x fy x AREA OF SPLICED REINFORCEMENT BAR.

WHERE fy = YIELD STRENGTH OF SPLICED REINFORCEMENT BARS.

**DOWEL BAR SPLICER LAP LENGTHS**

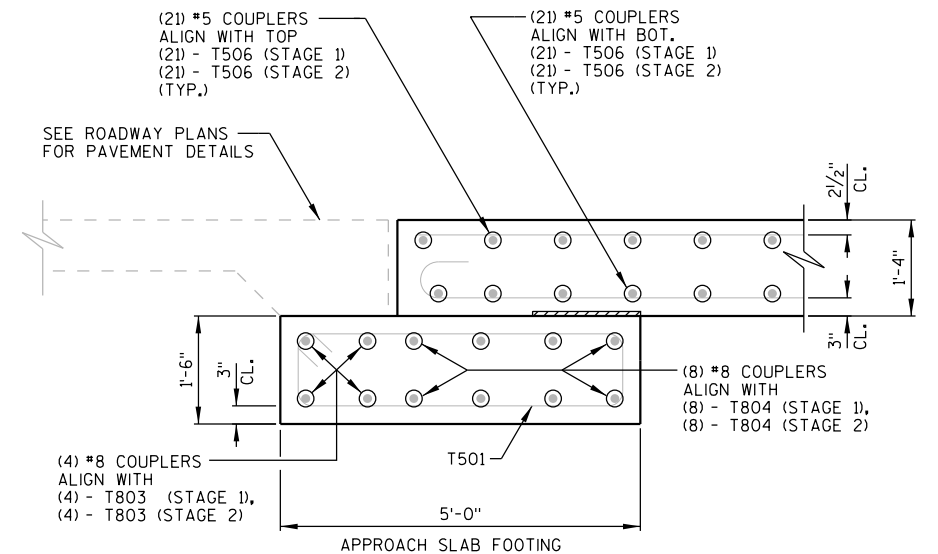
CONCRETE UNDER BAR	BAR SIZE	4	5	6	7	8	9	10	11
12" OR LESS	f'c = 3500	1'-8"	2'-8"	3'-2"	4'-3"	5'-6"	7'-0"	8'-9"	10'-11"
	f'c = 4000	1'-8"	2'-8"	3'-2"	4'-0"	5'-2"	6'-6"	8'-3"	10'-2"
MORE THAN 12"	f'c = 3500	2'-3"	2'-11"	3'-6"	4'-8"	6'-1"	7'-10"	9'-10"	12'-1"
	f'c = 4000	2'-3"	2'-11"	3'-6"	4'-5"	5'-8"	7'-4"	9'-2"	11'-4"

BAR LENGTH COMPUTED TO CL LONGIT. JOINT AND SHALL BE MODIFIED IF REQ'D. TO BAR COUPLER MANUFACTURER RECOMENDATIONS. PAY BASED ON BARS AS DETAILED.



**TYPICAL SECTION THRU ABUTMENT AT CONSTRUCTION JOINT**

(SOUTH ABUTMENT SHOWN, NORTH ABUTMENT SIMILAR)



**TYPICAL SECTION THRU APPROACH SLAB FOOTING AT CONSTRUCTION JOINT**

(SOUTH APPROACH SLAB SHOWN, NORTH APPROACH SLAB SIMILAR)

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-6-201			
DRAWN BY KAM		PLANS CK'D. MSK	
BAR SPLICER (COUPLER) DETAILS			SHEET 22 OF 22

- \* PROVIDE FOR THREE BEAM GUARDRAIL ATTACHMENT.
- (X) INDICATES WING NUMBER

**DESIGN DATA**

**LIVE LOAD:**  
 DESIGN LOADING: HL-93  
 INVENTORY RATING FACTOR = 1.10  
 OPERATING RATING FACTOR = 1.43  
 WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 250 KIPS

STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 PSF.

**MATERIAL PROPERTIES:**

CONCRETE MASONRY - DECK, PARAPET, DIAPHRAGMS, - f'c = 4,000 P.S.I.  
 APPROACH SLAB, APPR. SLAB FOOTING.  
 - ALL OTHER - f'c = 3,500 P.S.I.

BAR STEEL REINFORCEMENT, GRADE 60 - fy = 60,000 P.S.I.  
 (INCLUDES STAINLESS STEEL REINFORCEMENT)

28" PRESTRESSED GIRDER - CONCRETE MASONRY - f'c = 8,000 P.S.I.  
 - STRANDS - 0.6" DIA. WITH ULTIMATE TENSILE STRENGTH OF - 270,000 P.S.I.

**FOUNDATION DATA**

ABUTMENTS TO BE SUPPORTED ON PILING HP 10-INCHx42LB. PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS\*\* PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 70'-0" LONG FOR THE SOUTH ABUTMENT AND 70'-0" LONG FOR THE NORTH ABUTMENT.

\*\* THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS THE REQUIRED DRIVING RESISTANCE MULTIPLIED BY A RESISTANCE FACTOR OF 0.5 USING THE MODIFIED GATE DYNAMIC FORMULA TO DETERMINE DRIVEN PILE CAPACITY.

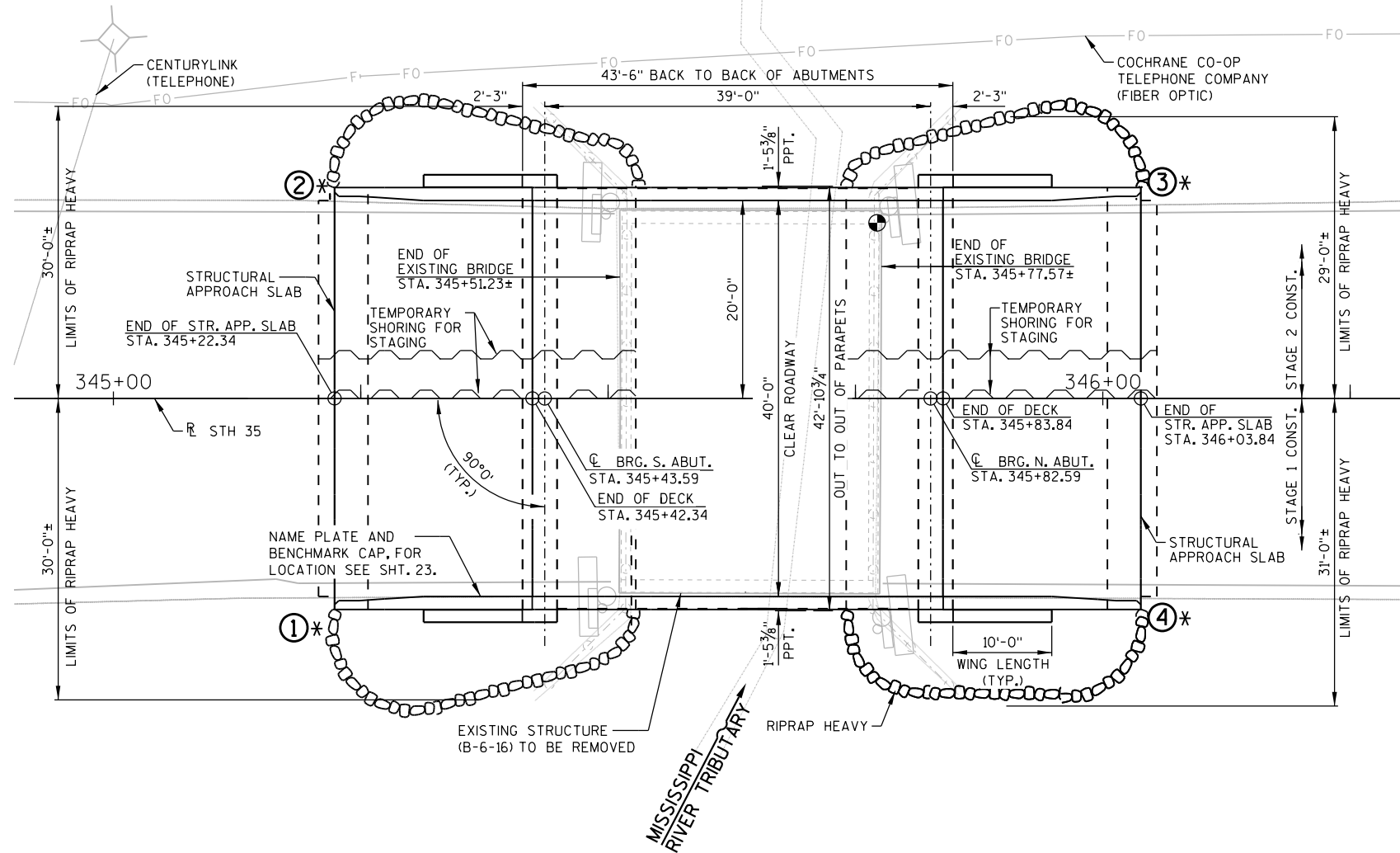
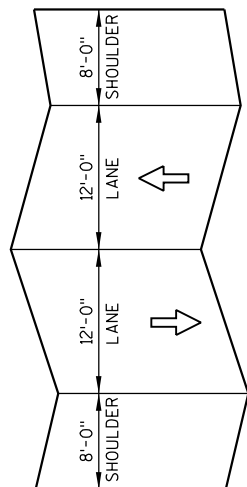
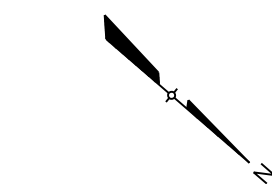
**TRAFFIC VOLUME**

STH 35  
 A.D.T. (2023) = 5,500  
 A.D.T. (2043) = 6,350  
 DESIGN SPEED = 60 MPH

**HYDRAULIC DATA**

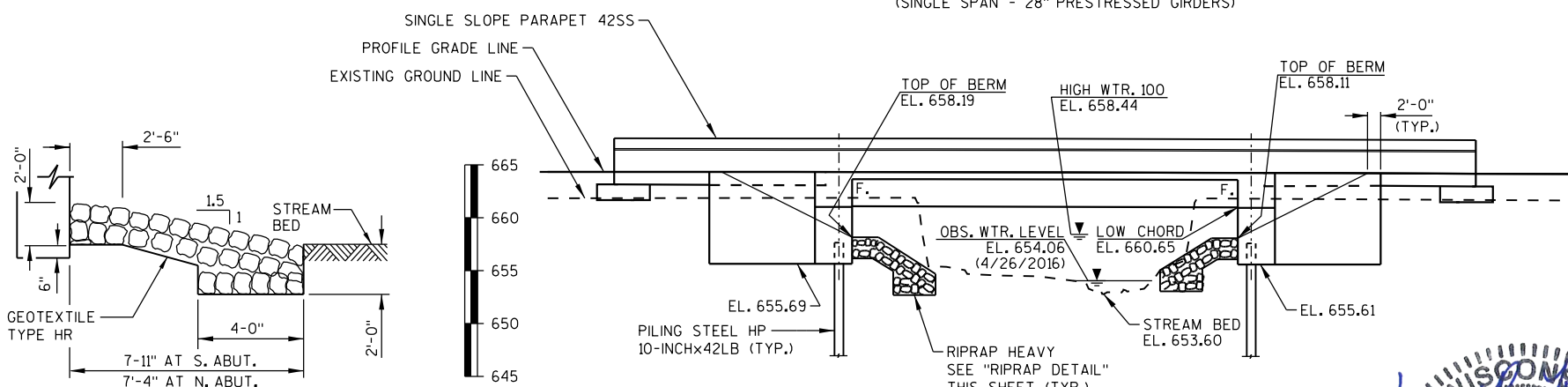
**100 YEAR FREQUENCY**  
 Q100 - 340 CFS  
 VELOCITY - 6.4 FPS  
 HIGH WATER ELEVATION - 658.44  
 WATERWAY AREA - 52.9 SQ. FT.  
 DRAINAGE AREA - 0.52 SQ. MI.  
 ROAD OVERTOPPING - N/A  
 SCOUR CRITICAL CODE - 5

**2 YEAR FREQUENCY**  
 Q2 - 50 CFS  
 VELOCITY - 5.2 FPS  
 HIGH WATER 2 ELEVATION - 656.42



**PLAN**

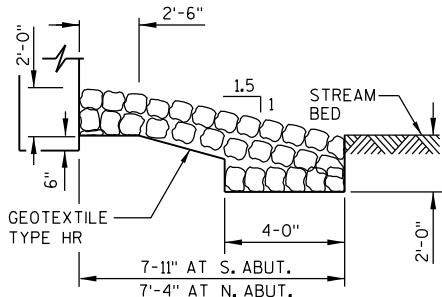
(SINGLE SPAN - 28" PRESTRESSED GIRDERS)



**ELEVATION**

NORMAL TO MISSISSIPPI RIVER TRIBUTARY

**RIPRAP DETAIL**



**BENCH MARK TABLE**

NO.	STATION	DESCRIPTION	ELEVATION
BM 5	345+77 LT	ALUM CAP SW CORNER OF DECK	661.60

HORIZ. COORDINATES TIED TO NAD 83 (2011). VERT. TIED TO NAVD 88. COORDINATE SYSTEM WCCS, BUFFALO COUNTY.

**LIST OF DRAWINGS**

1. GENERAL PLAN
2. CROSS SECTION & QUANTITIES
3. CONSTRUCTION DETAILS
4. SUBSURFACE EXPLORATION - 1
5. SUBSURFACE EXPLORATION - 2
6. CONSTRUCTION STAGING - 1
7. CONSTRUCTION STAGING - 2
8. SOUTH ABUTMENT
9. SOUTH ABUTMENT PILE PLAN AND SECTION
10. WINGS 1 AND 2
11. SOUTH ABUTMENT DETAILS
12. NORTH ABUTMENT
13. NORTH ABUTMENT PILE PLAN AND SECTION
14. WINGS 3 AND 4
15. NORTH ABUTMENT DETAILS
16. 28" PRESTRESSED GIRDER
17. INTERMEDIATE STEEL DIAPHRAGM
18. SUPERSTRUCTURE CROSS SECTION
19. SUPERSTRUCTURE
20. SUPERSTRUCTURE DETAILS - 1
21. SUPERSTRUCTURE DETAILS - 2
22. STRUCTURAL APPROACH SLAB
23. SINGLE SLOPE PARAPET 42SS WITH STRUCTURAL APPROACH SLAB
24. BAR SPLICER (COUPLER) DETAILS

**STRUCTURES DESIGN CONTACTS**

BRIDGE OFFICE:  
 AARON BONK (608) 261-0261

CONSULTANT:  
 KEVIN HAGEN (715) 342-3053

AECOM PROJECT NO. 60579395

NO.	DATE	REVISION	BY



STATE OF WISCONSIN  
 DEPARTMENT OF TRANSPORTATION

ACCEPTED *[Signature]* SDR 07/29/22  
 CHIEF STRUCTURES DESIGN ENGINEER DATE

**STRUCTURE B-6-204**

STH 35 OVER MISSISSIPPI RIVER TRIBUTARY

COUNTY BUFFALO TOWN/CITY/VILLAGE BUFFALO

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY KB DESIGN EAN DRAWN BY MES PLANS CK'D. EAN

GENERAL PLAN

SHEET 1 OF 24





**GENERAL NOTES**

DRAWINGS SHALL NOT BE SCALED.

BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS SHOWN OR NOTED OTHERWISE.

THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH RIPRAP HEAVY AND GEOTEXTILE TYPE 'HR' WITHIN THE LIMITS SHOWN ON SHEET 1, ON THE ABUTMENT SHEETS OR AS DIRECTED BY THE ENGINEER.

THE FIRST DIGIT OF A THREE DIGIT BAR MARK AND THE FIRST TWO DIGITS OF A FOUR DIGIT BAR MARK SIGNIFIES THE BAR SIZE.

THE EXISTING STRUCTURE (B-6-16) IS A SINGLE SPAN STEEL DECK GIRDER BRIDGE, 26.5' LONG x 38.9' WIDE, TO BE REMOVED. CONTRACTOR SHALL VERIFY THE ADEQUACY OF THE EXISTING STRUCTURE DURING STAGE 1 CONSTRUCTION IN ACCORDANCE WITH 108.7.3 OF THE STANDARD SPECIFICATIONS.

ALL REQUIRED REMOVAL OF THE EXISTING SUBSTRUCTURES IS INCLUDED IN THE BID ITEM "REMOVING STRUCTURE OVER WATERWAY MINIMAL DEBRIS B-6-16".

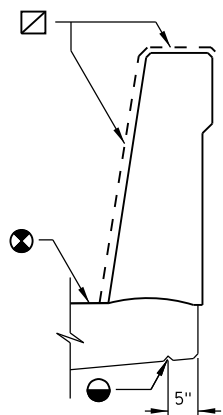
ELASTOMERIC BEARING PADS NEED NOT BE INDIVIDUALLY MOLDED PROVIDED THE CUT EDGES ARE SMOOTH AND TRUE.

THE HAUNCH CONCRETE QUANTITY IS BASED ON THE AVERAGE HAUNCH SHOWN ON THE PRESTRESSED GIRDER DETAIL SHEET.

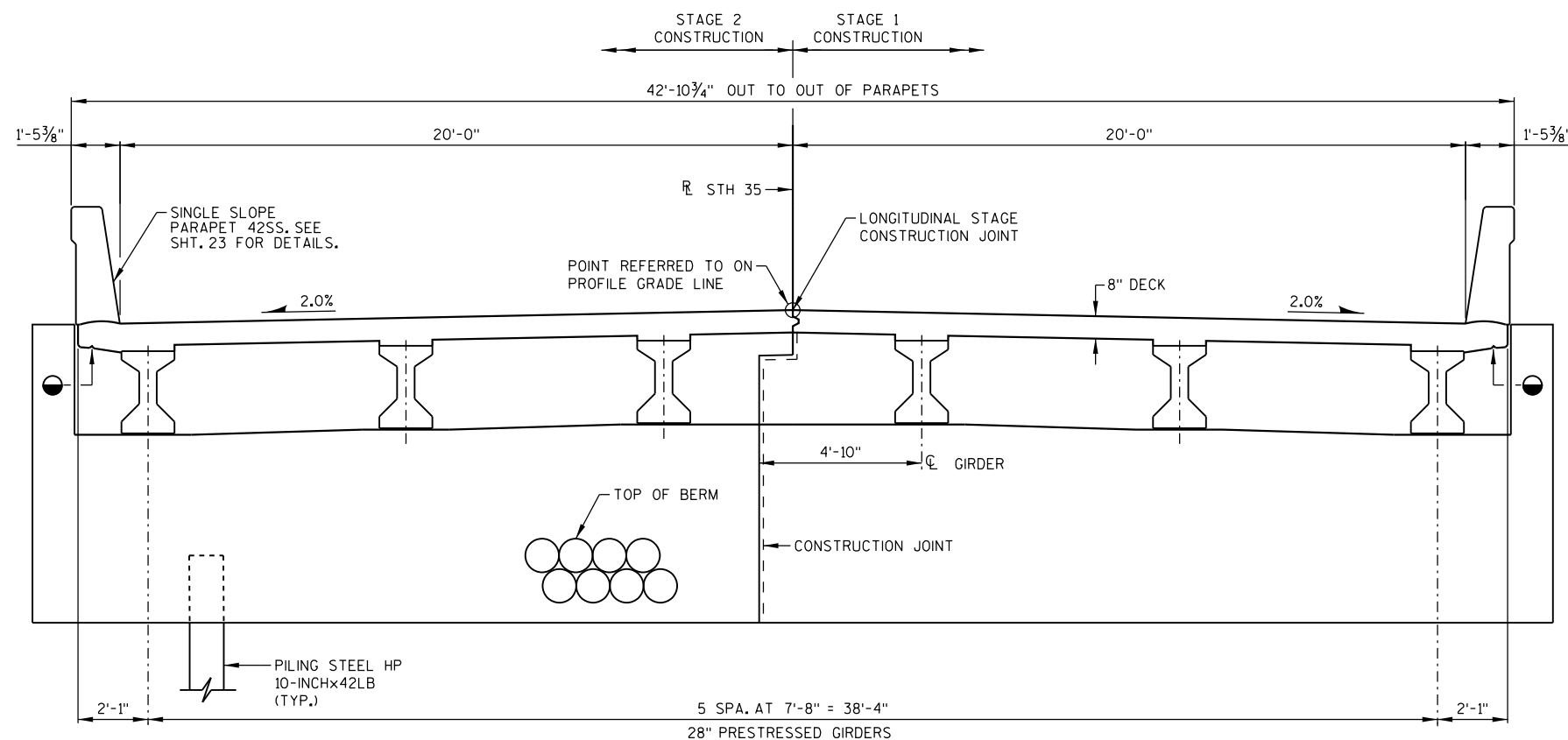
EXCAVATION REQUIRED UNDER THE BID ITEM "EXCAVATION FOR STRUCTURES BRIDGES B-6-204" IS NOT USED TO BALANCE THE EARTHWORK.

AT THE BACKFACE OF ABUTMENT, ALL VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL.

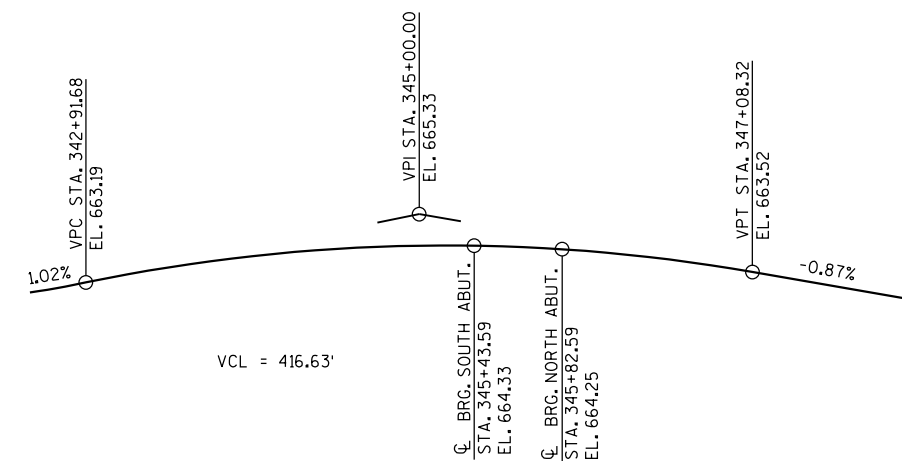
PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE PAVING NOTCHES, TOP OF SLAB AND TOP OF THE STRUCTURAL APPROACH SLABS. PIGMENTED SURFACE SEALER TO BE APPLIED TO THE INSIDE FACE OF PARAPETS AND THE TOP OF PARAPETS, INCLUDING PARAPETS ON THE STRUCTURAL APPROACH SLABS.



**SURFACE PROTECTION DETAIL**



**CROSS SECTION THRU ROADWAY**  
(LOOKING UPSTATION)



**PROFILE GRADE LINE, STH 35**

**TOTAL ESTIMATED QUANTITIES**

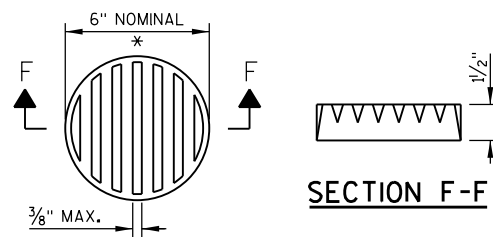
BID ITEM NUMBER	BID ITEM	UNIT	SOUTH APPROACH	SOUTH ABUTMENT	NORTH ABUTMENT	NORTH APPROACH	SUPER.	TOTALS
203.0260	REMOVING STRUCTURE OVER WATERWAY MINIMAL DEBRIS B-6-16	EACH						1
206.1001	EXCAVATION FOR STRUCTURES BRIDGES B-6-204	EACH						1
210.1500	BACKFILL STRUCTURE TYPE A	TON		110	110			220
305.0120	BASE AGGREGATE DENSE 1 1/4-INCH	TON	130			130		260
502.0100	CONCRETE MASONRY BRIDGES	CY	60	46	46	60	88	300
502.3200	PROTECTIVE SURFACE TREATMENT	SY	90			90	210	390
502.3210	PIGMENTED SURFACE SEALER	SY	20			20	45	85
503.0128	PRESTRESSED GIRDER TYPE 1 28-INCH	LF					240	240
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB		2,770	2,770			5,540
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	10,095	1,360	1,350	10,095	15,700	38,600
505.0800.S	BAR STEEL REINFORCEMENT HS STAINLESS STRUCTURES	LB	750			750		1,500
505.0905	BAR COUPLERS NO. 5	EACH	42			42		84
505.0906	BAR COUPLERS NO. 6	EACH		11	11		12	34
505.0908	BAR COUPLERS NO. 8	EACH	12	7	7	12		38
506.2605	BEARING PADS ELASTOMERIC NON-LAMINATED	EACH		6	6			12
506.4000	STEEL DIAPHRAGMS B-6-204	EACH					5	5
511.1200	TEMPORARY SHORING B-6-204	SF		680	680			1,360
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY		12	12			24
550.1100	PILING STEEL HP 10-INCH X 42 LB	LF		490	490			980
606.0300	RIPRAP HEAVY	CY		59	57			116
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF		82	82			164
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	2			2		4
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY		51	51			102
645.0120	GEOTEXTILE TYPE HR	SY		120	120			240
	NON-BID ITEMS							
	FILLER	SIZE						1/2 " & 1 1/2"

**LEGEND**

- ☒ COAT WITH "PIGMENTED SURFACE SEALER" AS PER THE STANDARD SPECIFICATIONS.
- ⊗ COAT WITH "PROTECTIVE SURFACE TREATMENT" AS PER THE STANDARD SPECIFICATIONS.
- ⊙ 3/4" V-GROOVE REQ'D. EXTEND V-GROOVE TO 6" FROM FRONT FACE OF ABUT. DIAPHRAGM.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-204</b>			
DRAWN BY		MES/KAM	PLANS CKD. EAN
<b>CROSS SECTION &amp; QUANTITIES</b>			SHEET 2 OF 24

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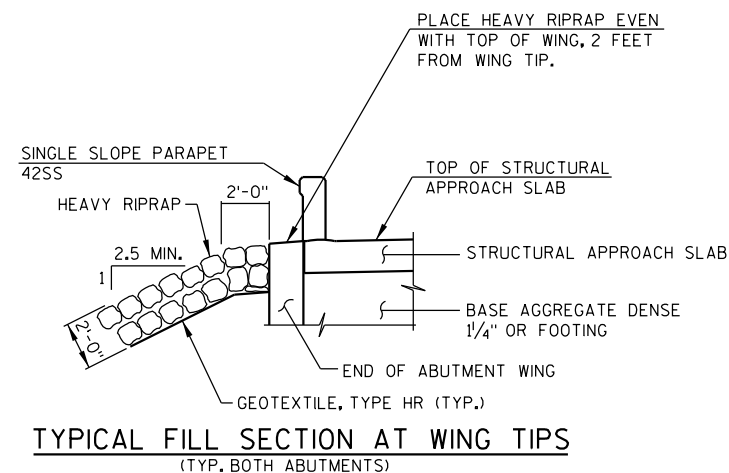


**RODENT SHIELD DETAIL**

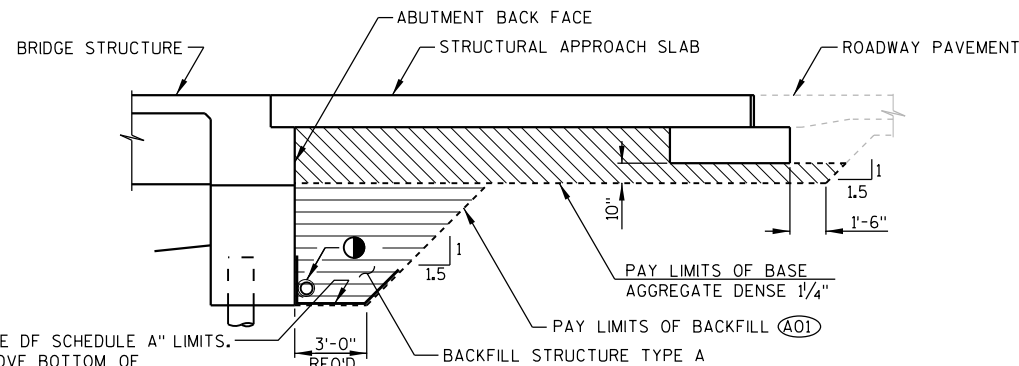
\* DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.

THE RODENT SHIELD, PIPE COUPLING AND SCREWS SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH STAINLESS STEEL SHEET METAL SCREWS.



**TYPICAL FILL SECTION AT WING TIPS**  
(TYP. BOTH ABUTMENTS)



"GEOTEXTILE TYPE OF SCHEDULE A" LIMITS. EXTEND 2'-0" ABOVE BOTTOM OF ABUTMENT FOR THE ENTIRE ABUTMENT BODY LENGTH.

**BACKFILL STRUCTURE LIMITS**

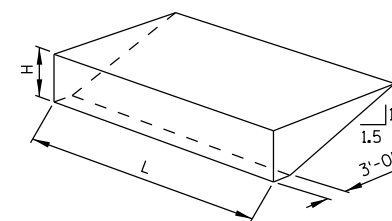
THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGES B-6-204" SHALL BE THE EXISTING GROUNDLINE.

(A01) BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.

THE BACKFILL QUANTITIES ARE BASED ON THE PAY LIMITS SHOWN ON THE PLANS AND MAY NOT REFLECT ACTUAL PLACED QUANTITIES. "BACKFILL STRUCTURE TYPE A" REQUIRED DIRECTLY BEHIND ABUTMENTS AND ABUTMENT WINGS FOR 3 FEET. BACKFILL PLACED BEYOND PAY LIMITS OR EXCEEDING PLAN QUANTITIES SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES.

EXCAVATION BELOW THE ABUTMENT AND ABUTMENT BEDDING MATERIALS REQUIRES ENGINEER APPROVAL. GEOTEXTILE SHALL BE SET AT THE BOTTOM OF EXCAVATION AND EXTEND 2'-0" ABOVE THE BOTTOM OF THE ABUTMENT.

PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN.



**WINGS PARALLEL TO ROADWAY**

**ABUTMENT BACKFILL DIAGRAM**

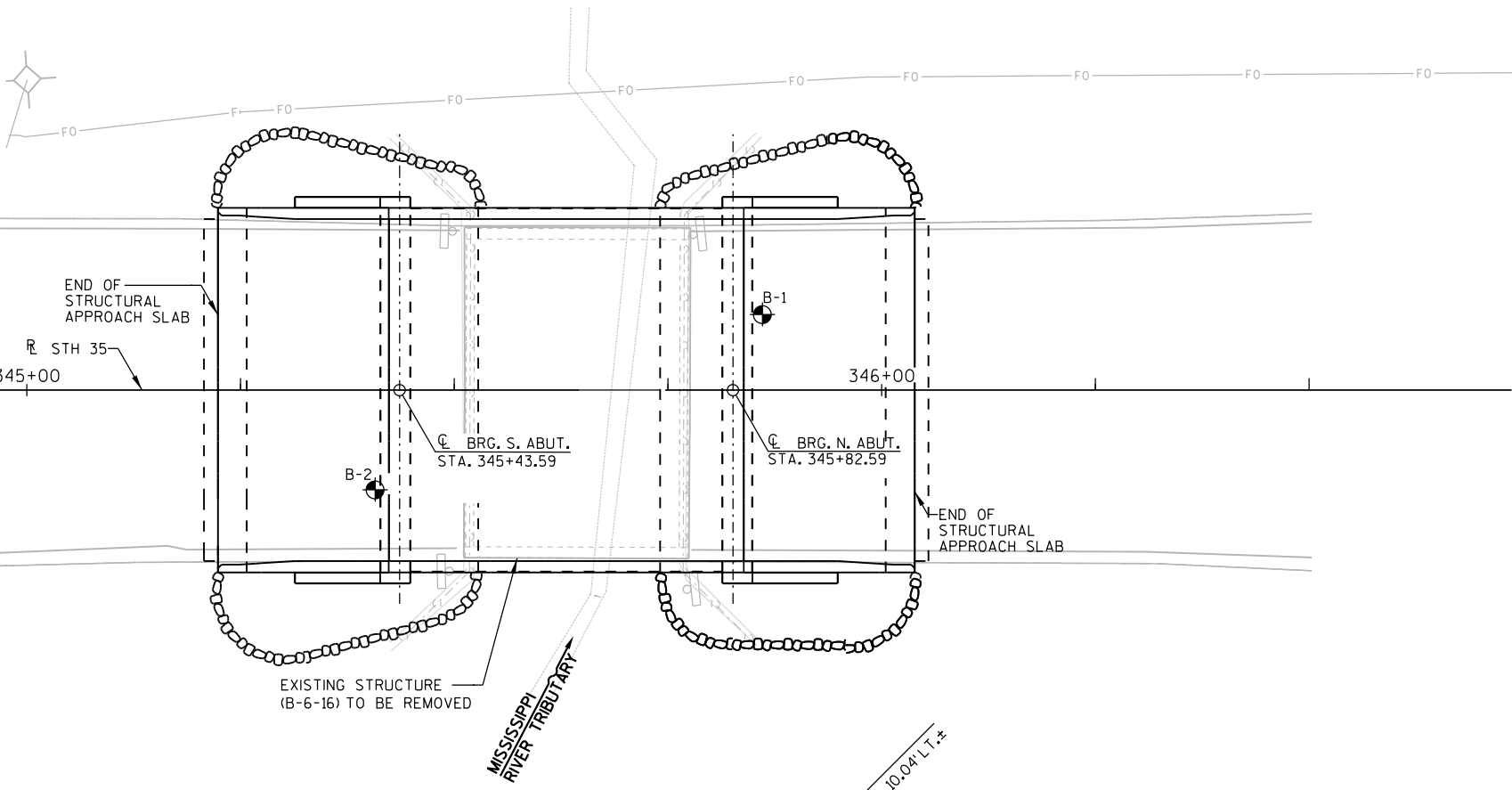
- L = OUT TO OUT OF ABUTMENT, INCLUDING WINGS (FT)
- H = AVERAGE ABUTMENT FILL HEIGHT (FT)
- EF = EXPANSION FACTOR (1.20 FOR CY BID ITEMS, AND 1.00 FOR TON BID ITEMS)
- $V_{CF} = (L)(3.0')(H) + (L)(0.5)(1.5)(H)$
- $V_{CY} = V_{CF} (EF) / 27$
- $V_{TON} = V_{CY} (2.0)$

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 PLOT DATE: 7/27/2022 PLOT TIME: 5:55:40 PM BATCH PRINT SHEET 3 OF 24

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-204</b>			
DRAWN BY		MES/KAM	PLANS CK'D. EAN
<b>CONSTRUCTION DETAILS</b>			SHEET 3 OF 24

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
B-1	7/26/2018	225481.8±	605596.7±
B-2	7/26/2018	225460.9±	605641.8±

BORINGS COMPLETED BY: AMERICAN ENGINEERING TESTING, INC.  
 REPORT COMPLETED BY: AMERICAN ENGINEERING TESTING, INC.  
 ALL COORDINATES REFERENCED TO WCCS NAD 83(11) BUFFALO COUNTY



**LEGEND**  
 DENOTES APPROXIMATE LOCATION OF STANDARD PENETRATION TEST BORING.

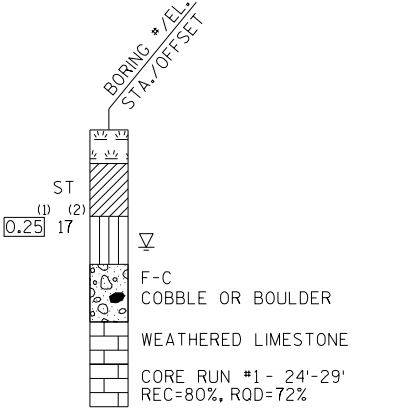
STATE PROJECT NUMBER

7160-04-75

MATERIAL SYMBOLS

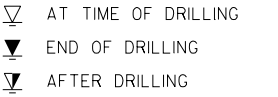
ASPHALT	TOPSOIL	PEAT
CONCRETE	FILL	GRAVEL
SAND	CLAY	SILT
BOULDERS OR COBBLES	LIMESTONE	BEDROCK (UNKNOWN)
SHALE	SANDSTONE	IGNEOUS/META

LEGEND OF BORING



<sup>(1)</sup> UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)  
<sup>(2)</sup> UNLESS OTHERWISE SPECIFIED THE SPT 'N' VALUE IS BASED ON AASHTO T-206, STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.

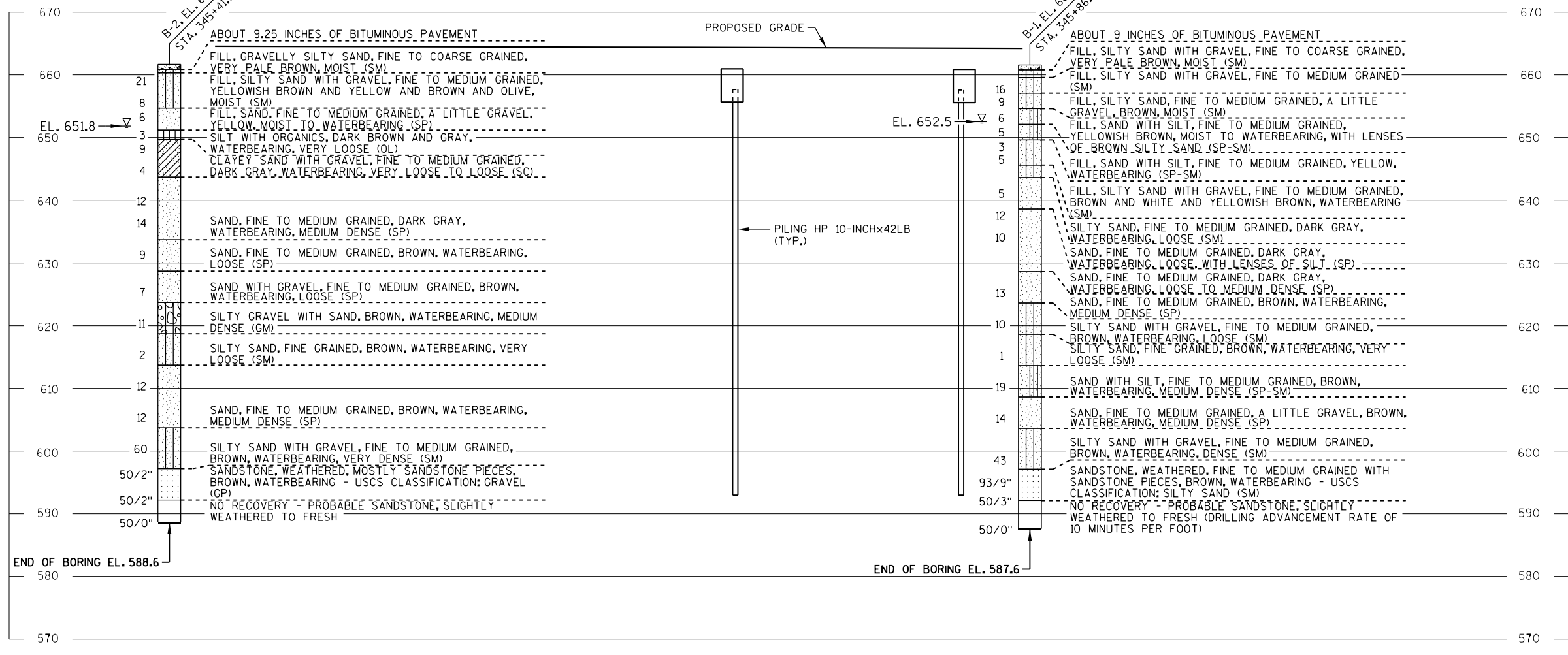
GROUND WATER ELEVATION



ABBREVIATIONS  
 WH - SAMPLER PENETRATED SOIL UNDER WEIGHT OF HAMMER AND RODS ALONE; DRIVING NOT REQ'D.  
 F-FINE M-MEDIUM C-COARSE ST-SHELBY TUBE

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT SIMILAR SUBSURFACE CONDITIONS BELOW, BETWEEN, OR BEYOND THESE BORINGS. VARIATIONS IN SOIL CONDITIONS SHOULD BE EXPECTED AND FLUCTUATIONS IN GROUNDWATER LEVELS MAY OCCUR.



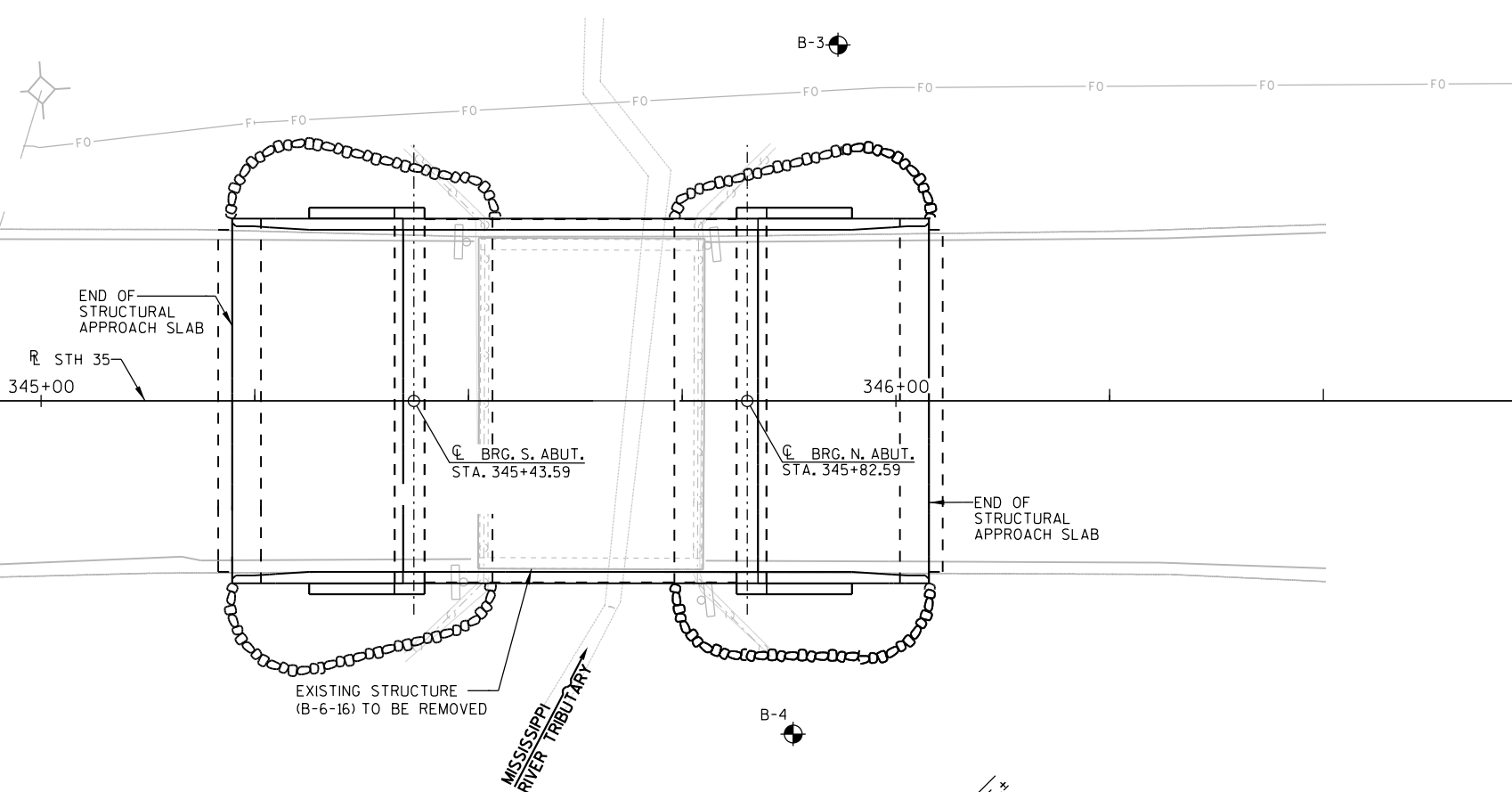
8

8

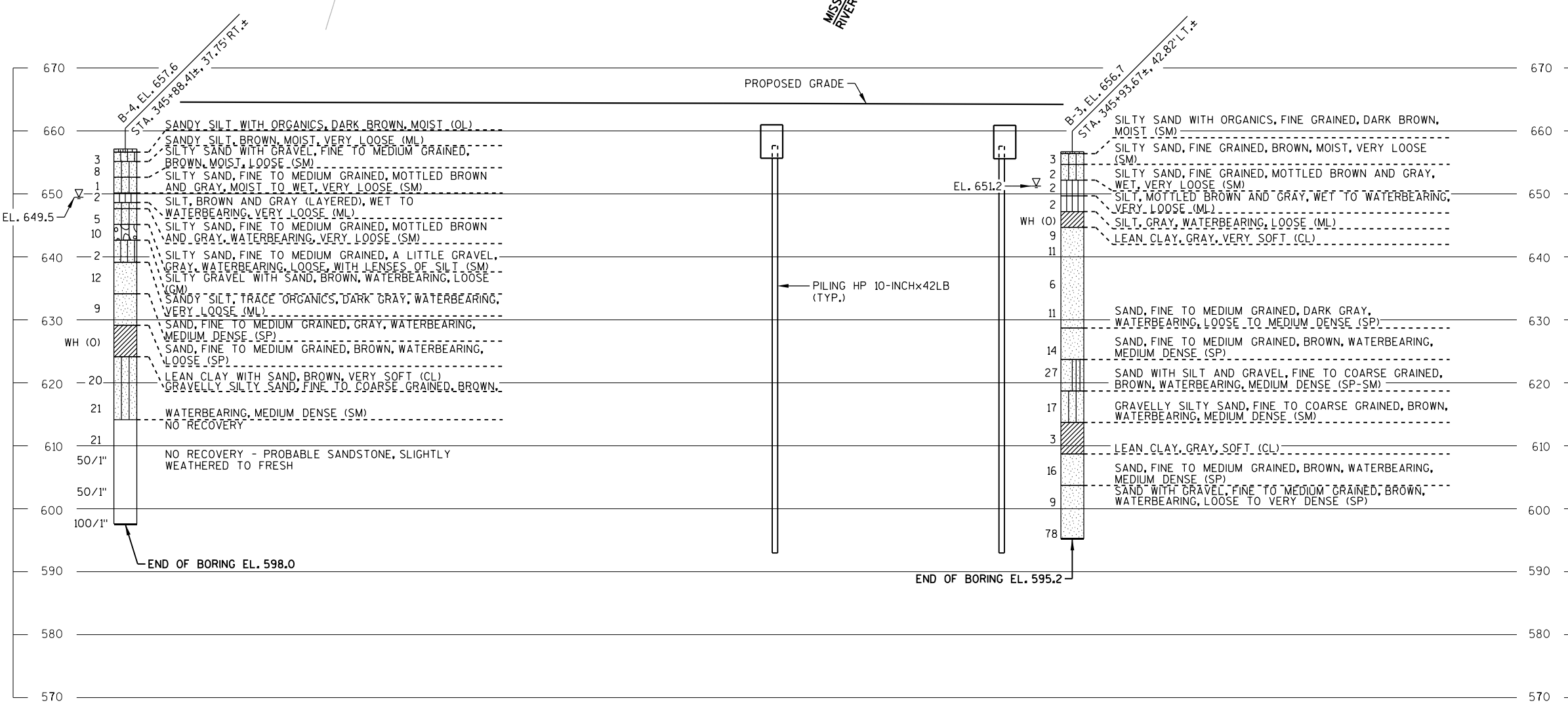
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-6-204			
DRAWN BY MES		PLANS CKD. EAN	
SUBSURFACE EXPLORATION-1			SHEET 4 OF 24

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
B-3	7/26/2018	225465.8±	605567.2±
B-4	7/26/2018	225514.5±	605631.6±

BORINGS COMPLETED BY: AMERICAN ENGINEERING TESTING, INC.  
 REPORT COMPLETED BY: AMERICAN ENGINEERING TESTING, INC.  
 ALL COORDINATES REFERENCED TO WCCS NAD 83(11) BUFFALO COUNTY



**LEGEND**  
 DENOTES APPROXIMATE LOCATION OF STANDARD PENETRATION TEST BORING.



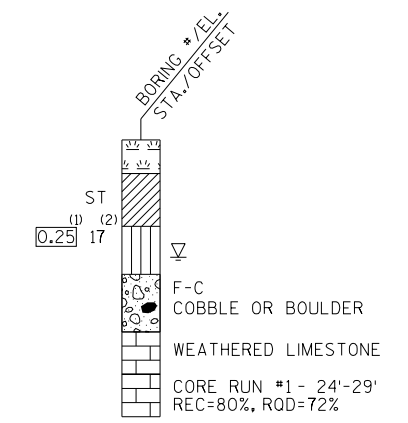
STATE PROJECT NUMBER

**7160-04-75**

MATERIAL SYMBOLS

ASPHALT	TOPSOIL	PEAT
CONCRETE	FILL	GRAVEL
SAND	CLAY	SILT
BOULDERS OR COBBLES	LIMESTONE	BEDROCK (UNKNOWN)
SHALE	SANDSTONE	IGNEOUS/META

LEGEND OF BORING



<sup>(1)</sup> UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)  
<sup>(2)</sup> UNLESS OTHERWISE SPECIFIED THE SPT 'N' VALUE IS BASED ON AASHTO T-206, STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.

GROUND WATER ELEVATION

- ▽ AT TIME OF DRILLING
- ▽ END OF DRILLING
- ▽ AFTER DRILLING

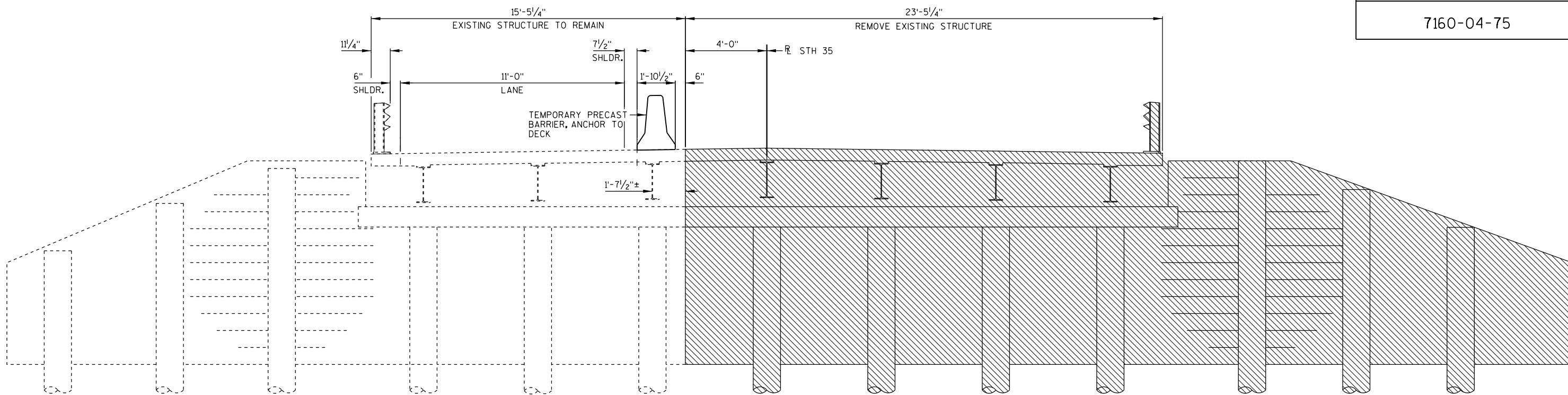
ABBREVIATIONS

WH - SAMPLER PENETRATED SOIL UNDER WEIGHT OF HAMMER AND RODS ALONE; DRIVING NOT REQ'D.  
 F-FINE M-MEDIUM C-COARSE ST-SHELBY TUBE

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

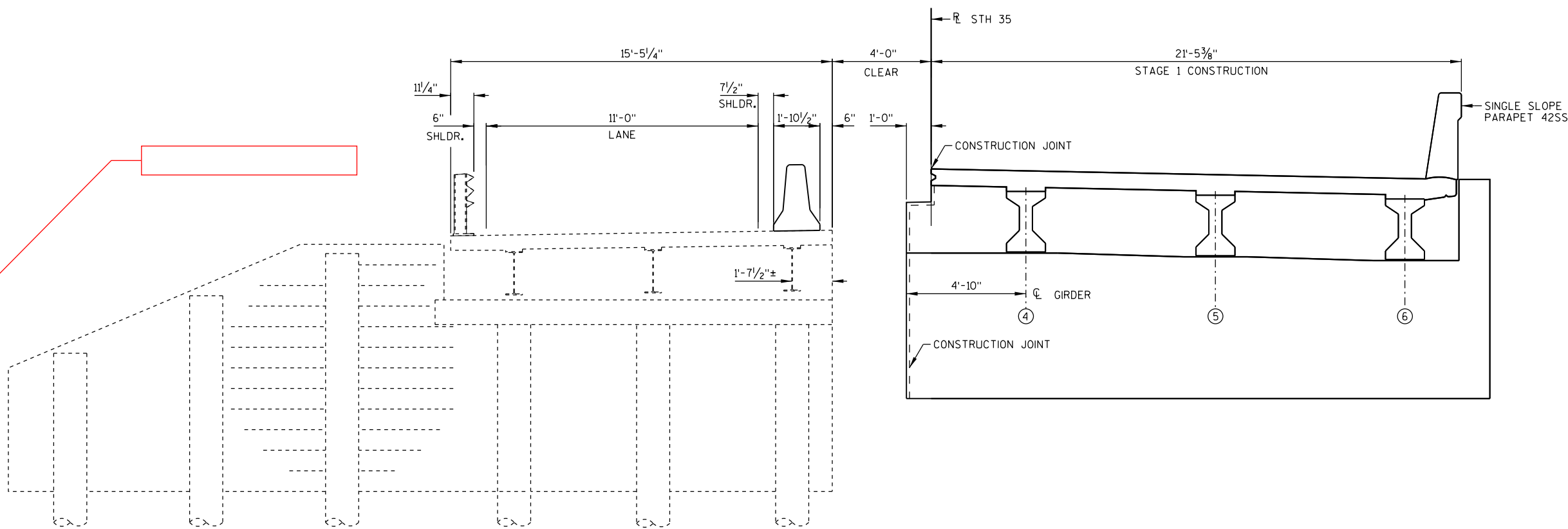
BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT SIMILAR SUBSURFACE CONDITIONS BELOW, BETWEEN, OR BEYOND THESE BORINGS. VARIATIONS IN SOIL CONDITIONS SHOULD BE EXPECTED AND FLUCTUATIONS IN GROUNDWATER LEVELS MAY OCCUR.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-204</b>			
DRAWN BY		MES	PLANS EAN
SHEET 5 OF 24			
<b>SUBSURFACE EXPLORATION-2</b>			



**STAGE 1 REMOVAL**

LOOKING UPSTATION - (NW)



**STAGE 1 CONSTRUCTION**

LOOKING UPSTATION - (NW)

**LEGEND**

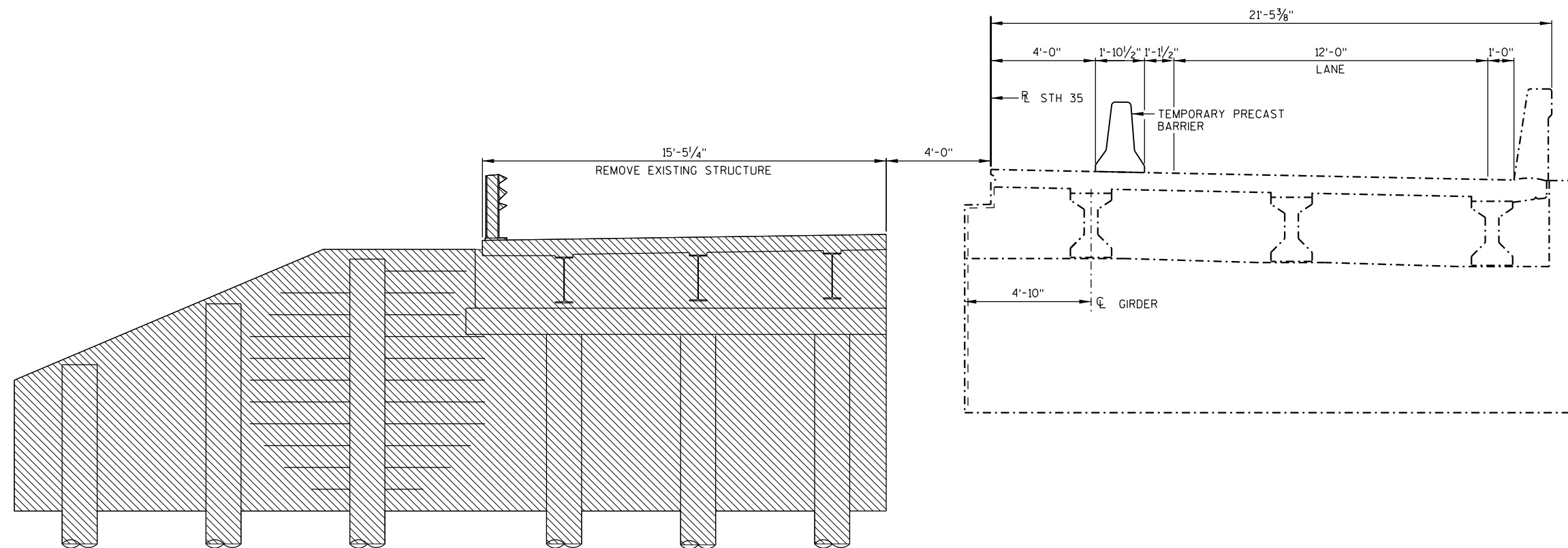
EXISTING STRUCTURE REMOVAL

**NOTES**

SEE SHEET 18 FOR DETAILS AT LONGITUDINAL CONSTRUCTION JOINT IN DECK.

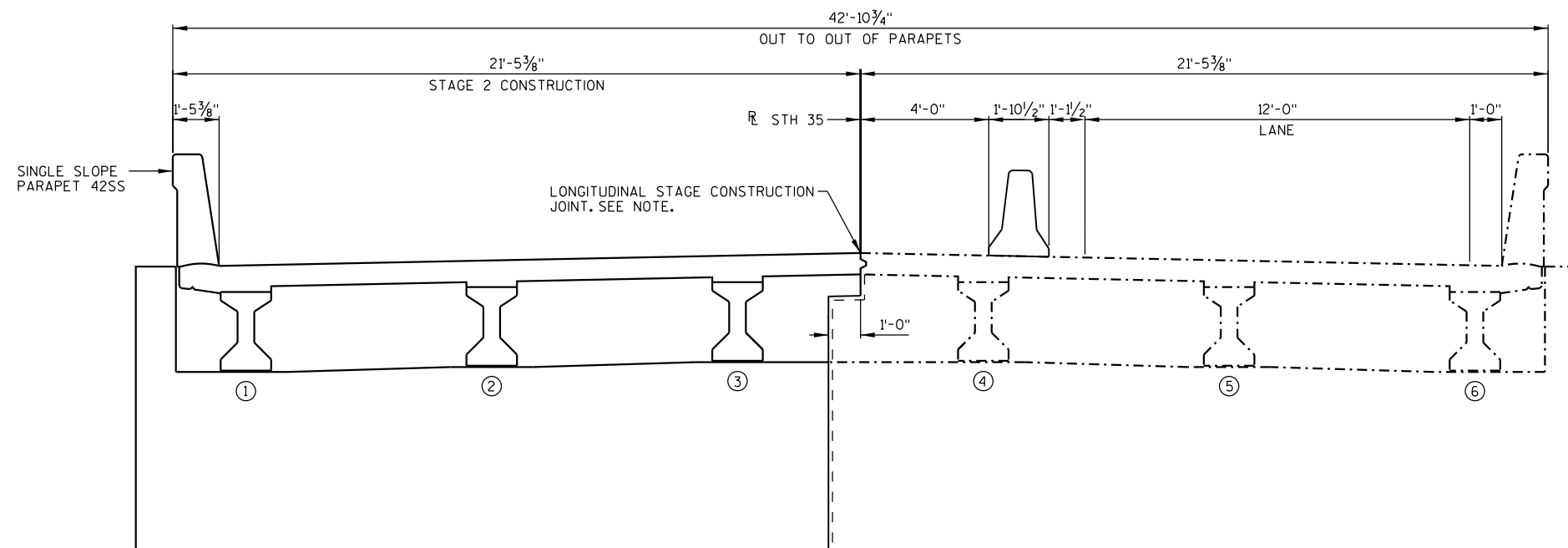
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-6-204			
DRAWN BY MES/KAM		PLANS CK'D. EAN	
CONSTRUCTION STAGING - 1			SHEET 6 OF 24

PRINTER DRIVER: S:\\_com-CADstdd...Libraries\MSDOT\MicroStationResources\MS\_Printing\Printer\_Drivers\AE\_PDF... x 17.plt  
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FILE NAME: \\na.aecomnet.com\1\fs\AMER\sevensPoint-USST\1\DCS\Projects\60579395\400...  
PLOT DATE: 7/27/2022 PLOT TIME: 5:58:29 PM



**STAGE 2 REMOVAL**

LOOKING UPSTATION - (NW)



**STAGE 2 CONSTRUCTION**

LOOKING UPSTATION - (NW)

**LEGEND**

EXISTING STRUCTURE REMOVAL

**NOTES**

SEE SHEET 18 FOR DETAILS AT LONGITUDINAL CONSTRUCTION JOINT IN DECK.

PRINTER DRIVER: S:\\_ocm-CADstds\_Libraries\WISDOT\MicroStation\Resources\MS\_Printing\Printer\_Drivers\AE\_PDF..11 x 17.plt  
 PEN TABLE: A:\CLIENT\AMER-USA-WI-WISDOT\dev\WisDOT\Brdge\VerA\Pen\_Table\AE\_WISDOT\_Structure.tbl  
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 PLOT DATE: 7/27/2022 PLOT TIME: 5:58:54 PM BATCH PRINT SHEET 7 OF 24

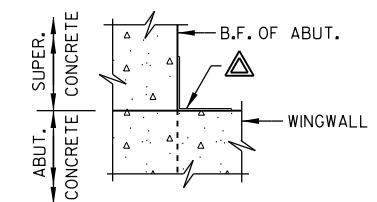
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-204</b>			
DRAWN BY MES/KAM		PLANS CK'D. EAN	
<b>CONSTRUCTION STAGING - 2</b>			SHEET 7 OF 24

**NOTE**

SEE SHT. 24 FOR BAR COUPLER DETAILS.

**LEGEND**

- ☆ SUPPORT ABUTMENTS ON PILING STEEL HP 10-INCHx42 LB. SEE PILE NOTE ON SHEET 9 AND 13. PILE SPLICE DETAIL ON SHEET 11.
- PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. DRAIN BOTH ABUTMENTS TO DOWNSTREAM SIDE OF BRIDGE. ATTACH RODENT SHIELD AT ENDS OF PIPE. SEE SHT. 3.
- ▲ 1/2" FILLER TO EXTEND FROM BRIDGE SEAT TO TOP OF CONCRETE PARAPET. SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE.)
- ▲ 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE.
- 4"x1/2" PREFORMED JOINT FILLER - TO EXTEND FULL LENGTH OF ABUTMENT BODY.
- OPTIONAL CONSTRUCTION JOINT KEYWAY FORMED BY A BEVELED 2"x6", WITH RUBBERIZED MEMBRANE WATERPROOFING ON BACKFACE. 3/4" BEVEL REQUIRED ON F.F.
- ▲ PLACE BOTTOM HALF OF RUBBERIZED MEMBRANE WATERPROOFING, HORIZONTAL IN THIS AREA.
- ◆ C501 OR D501 AT 1'-0" MAX., COATED. BARS MAY BE PLACED AFTER CONCRETE HAS BEEN POURED BUT PRIOR TO ITS INITIAL SET. EMBED 1'-0".
- KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2"x6".
- ☆ VERTICAL CONSTRUCTION JOINT KEYWAY FORMED BY BEVELED 2" x 8", 3/4" V GROOVE AT FRONT FACE. SEAL BACKFACE WITH 18" RUBBERIZED MEMBRANE WATERPROOFING.
- ⊗ INDICATES BEAM NUMBER
- \* ELEVATIONS GIVEN ARE AT TOP OF CONCRETE C. OF BRG.
- \*\* DIMENSIONS GIVEN ARE AT THE B.F. OF THE ABUTMENT BODY.
- USE BAR COUPLERS TO CONTINUE BAR STEEL THRU JOINT. SEE SHT. 24 FOR DETAILS.
- 1/2" PREFORMED JOINT FILLER UNDER GIRDER FLANGE IN FRONT OF BRG. PAD.
- 3/4" V-GROOVE REQ'D. EXTEND V-GROOVE TO 6" FROM FRONT FACE OF ABUT. DIAPHRAGM.



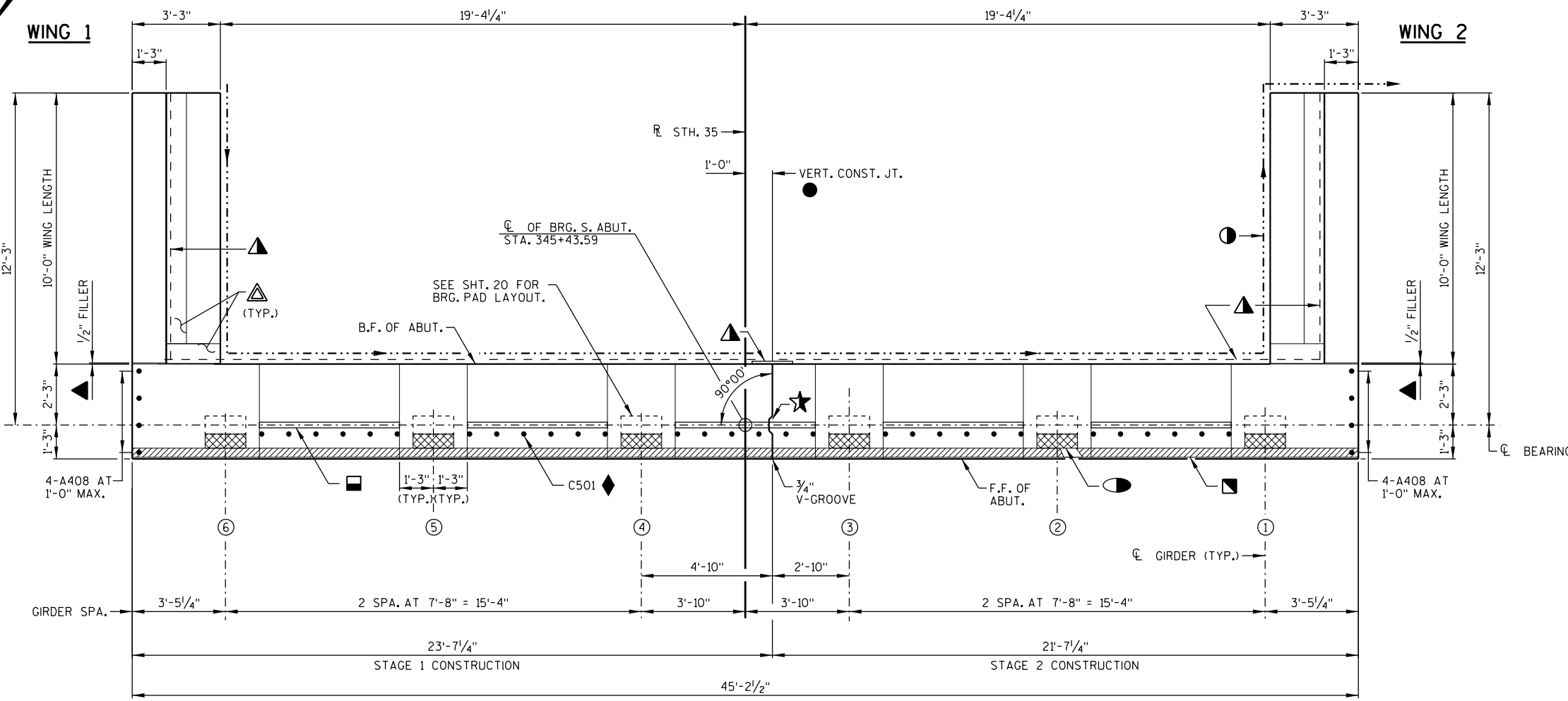
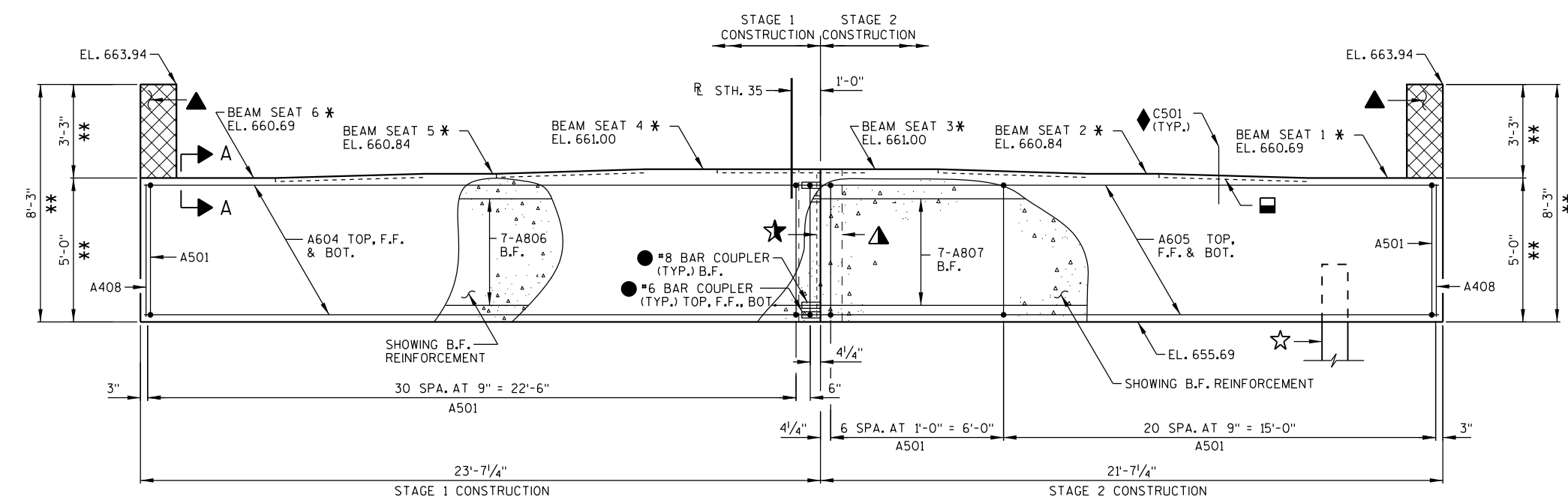
**SECTION A-A**

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-204</b>			
DRAWN BY		KAM	PLANS CK'D. EAN
<b>SOUTH ABUTMENT</b>			SHEET 8 OF 24

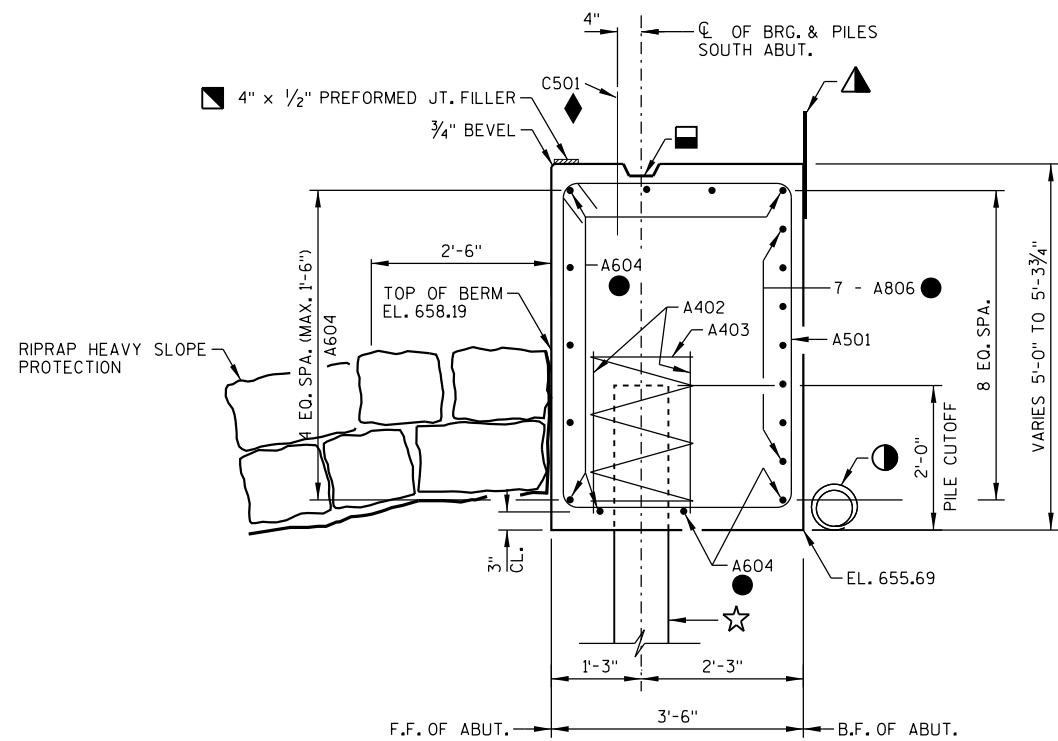
**ELEVATION**  
(LOOKING SOUTH)

NOTE:  
SPACE A501 BARS TO MISS PILING.

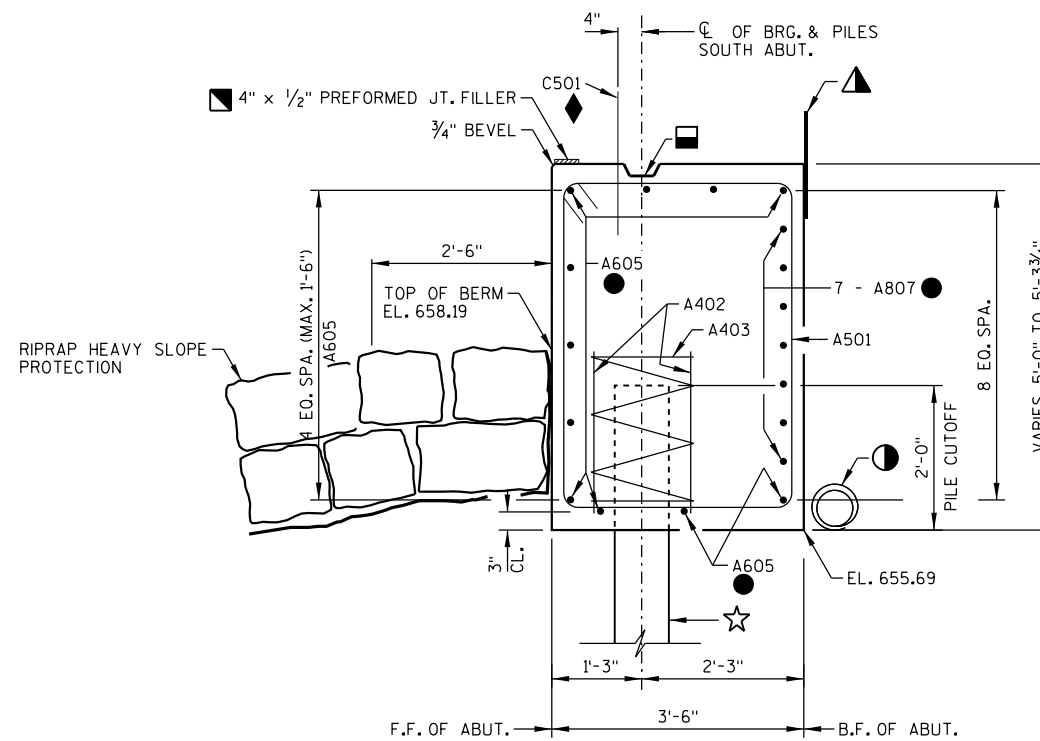
**PLAN**



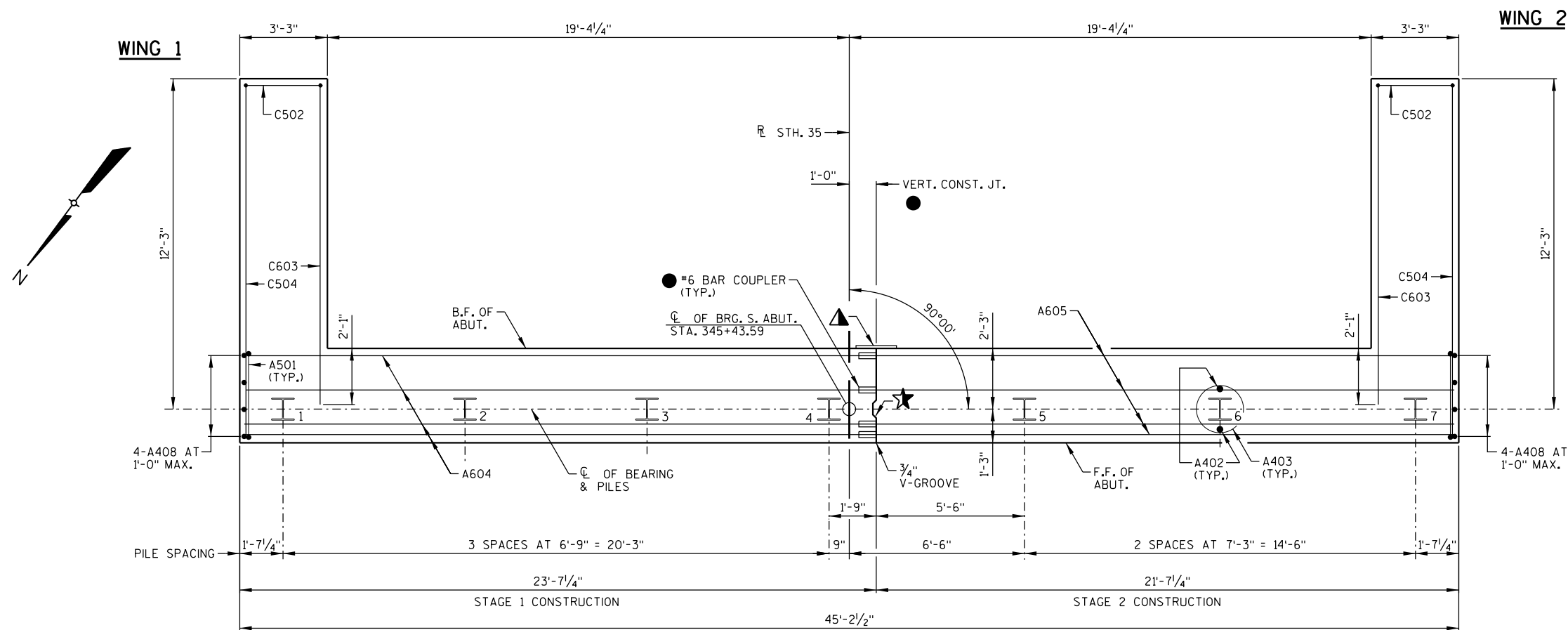
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 PLOT DATE: 7/27/2022 PLOT TIME: 5:59:20 PM



**TYP. SECTION THRU BODY -  
STAGE 1**  
(EAST HALF OF ABUTMENT BODY)



**TYP. SECTION THRU BODY -  
STAGE 2**  
(WEST HALF OF ABUTMENT BODY)



**PLAN**

**NOTE**  
SEE SHT. 24 FOR BAR COUPLER DETAILS.

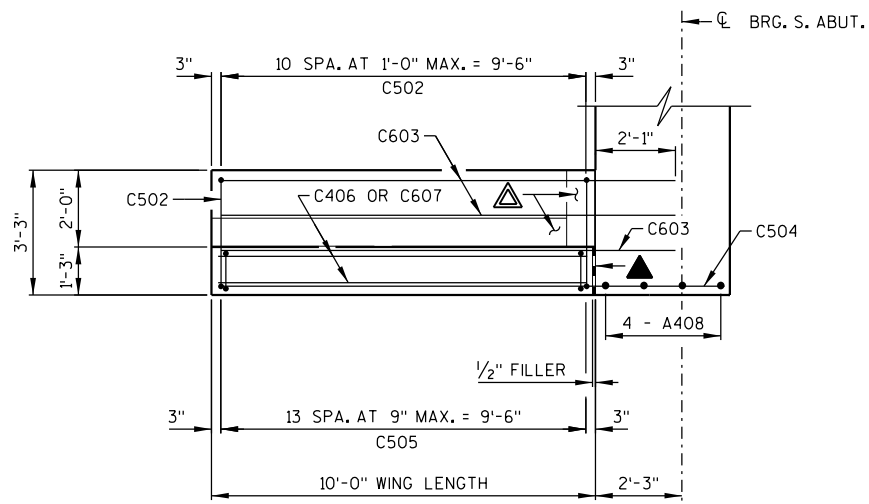
**LEGEND**  
FOR SYMBOL DESCRIPTIONS SEE SHT. 8.

**PILE NOTE**  
SOUTH ABUTMENT TO BE SUPPORTED ON PILING STEEL HP 10-INCHx42LB. PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 70'-0" LONG.

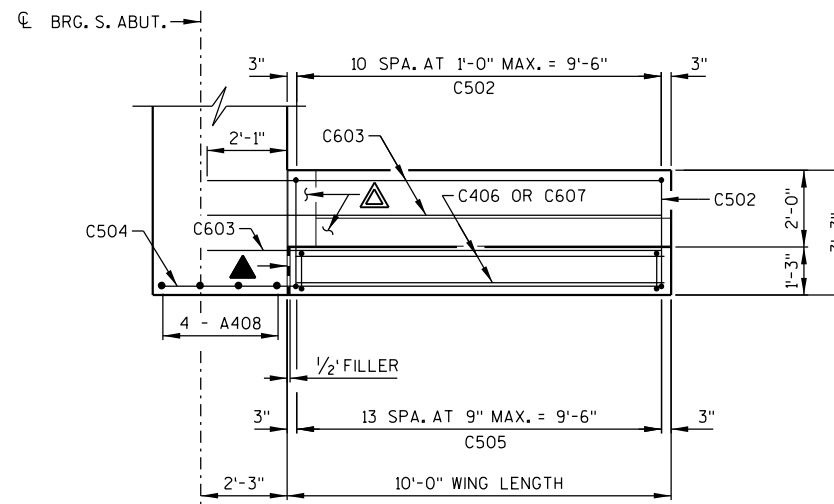
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-204</b>			
DRAWN BY		KAM	PLANS CK'D. EAN
SOUTH ABUTMENT PILE PLAN AND SECTION			SHEET 9 OF 24

PRINTER DRIVER: S:\\_com-CADstds\_Libraries\WISDOT\MicroStationResources\MS\_Printing\Printer\_Drivers\AE\_PDF..11 x 17.plt  
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 PLOT DATE: 7/27/2022 PLOT TIME: 5:59:46 PM BATCH PRINT SHEET 9 OF 24

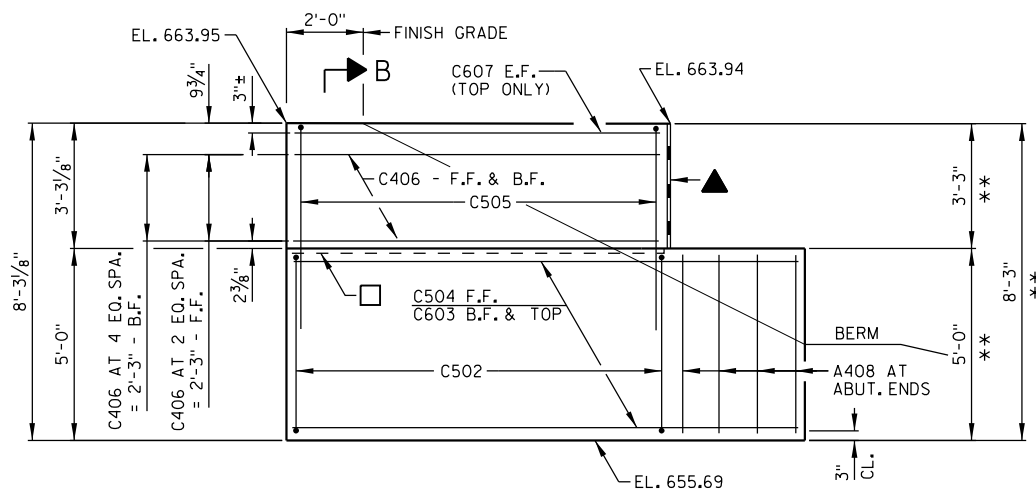




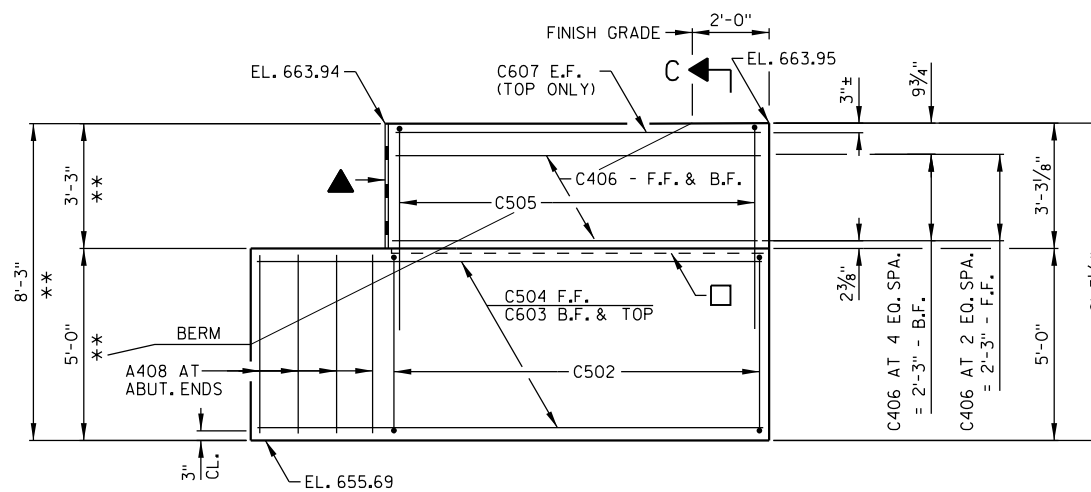
PLAN WING 1



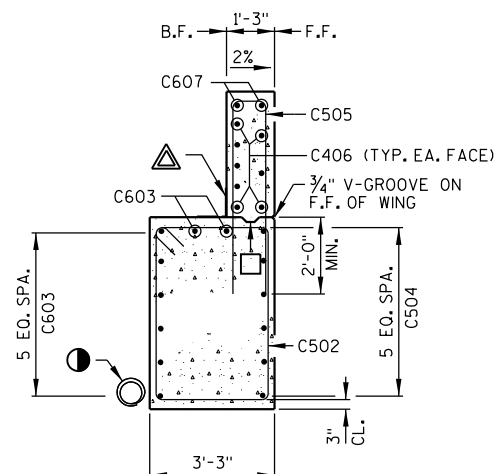
PLAN WING 2



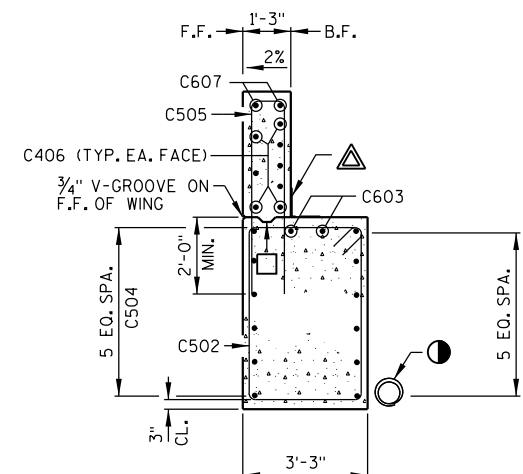
ELEVATION WING 1



ELEVATION WING 2



SECTION B-B



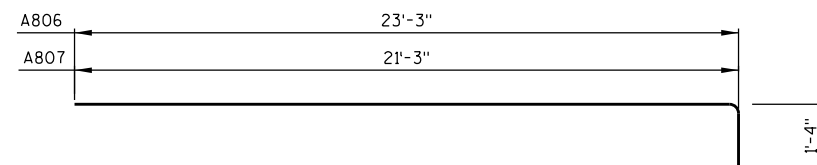
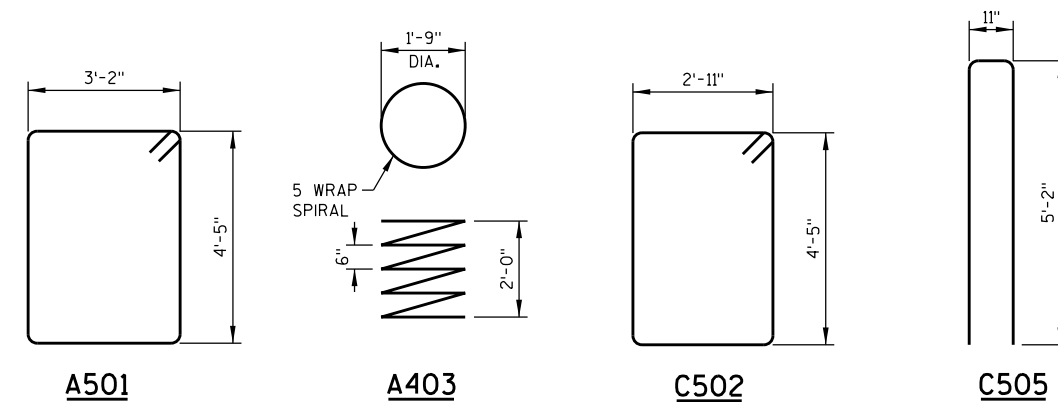
SECTION C-C

**NOTE**  
FOR TYPICAL FILL SECTION AT WING TIPS SEE SHT. 3.

**LEGEND**  
FOR SYMBOL DESCRIPTIONS SEE SHT. 8.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-6-204			
DRAWN BY		KAM	PLANS CK'D. EAN
WINGS 1 AND 2			SHEET 10 OF 24

PRINTER DRIVER: S:\\_ocm-CADstds\_Libraries\MicroStationResources\MS\_Printing\Printer\_Drivers\AE\_PDF\_11 x 17.plt  
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 PLOT DATE: 7/27/2022 PLOT TIME: 6:00:13 PM BATCH PRINT SHEET 10 OF 24



**A806, A807**

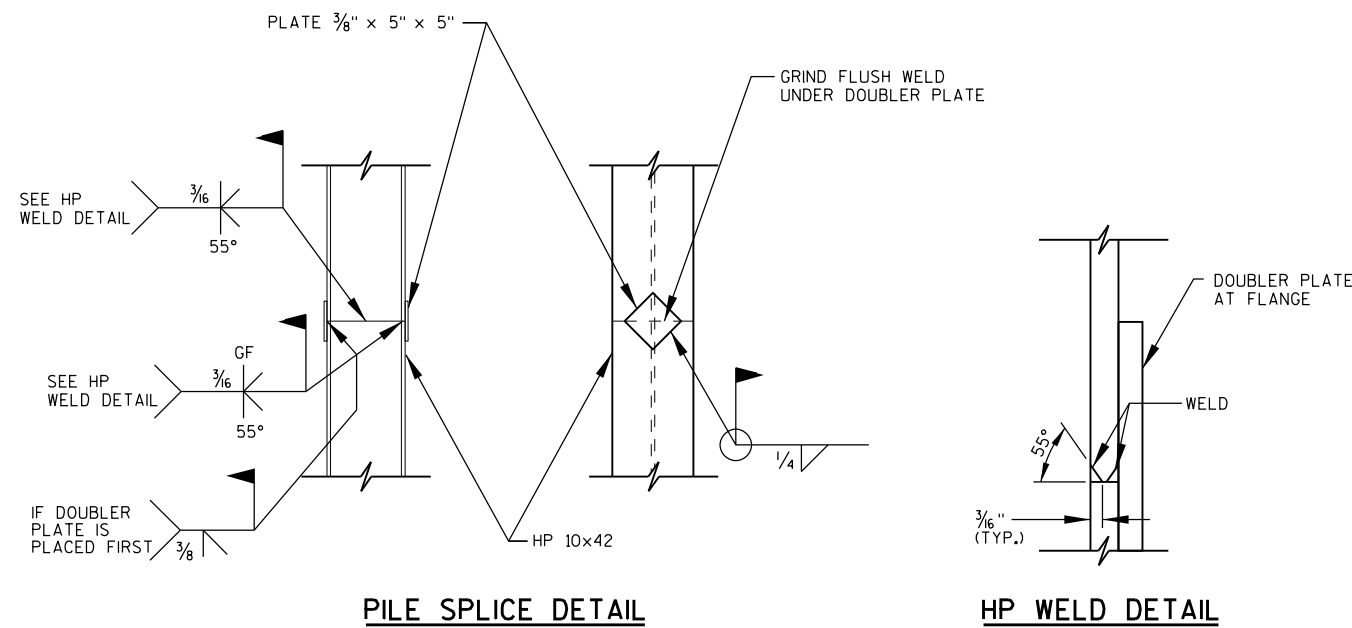
**BILL OF BARS**

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

MARK	STAGE 1 NO. REQ'D	STAGE 2 NO. REQ'D	LENGTH	BENT	LOCATION	
NON-COATED BARS						TOTAL WEIGHT = 2,770 LBS
A501	32	27	15-10	X	ABUT. STIRRUP	VERT.
A402	8	6	2-3		ABUT. AT PILES	VERT.
A403	4	3	28-0	X	ABUT. AT PILES	VERT.
A604	11	-----	23-5		ABUT. F.F., TOP & BOT.	HORIZ.
A605	-----	11	21-5		ABUT. F.F., TOP & BOT.	HORIZ.
A806	7	-----	24-4	X	ABUT. B.F.	HORIZ.
A807	-----	7	22-4	X	ABUT. B.F.	HORIZ.
A408	4	4	4-7		ABUT. ENDS	VERT.
COATED BARS						TOTAL WEIGHT = 1,360 LBS
C501	16	14	2-0		ABUT. DOWEL	VERT.
C502	11	11	15-4	X	WING 1 & 2 STIRRUP	VERT.
C603	8	8	11-11		WING 1 & 2 B.F. & TOP	HORIZ.
C504	6	6	13-2		WING 1 & 2 F.F.	HORIZ.
C505	14	14	11-0	X	WING 1 & 2 TOP - STIRRUP	VERT.
C406	8	8	9-7		WING 1 & 2 TOP - F.F. & B.F.	HORIZ.
C607	2	2	9-7		WING 1 & 2 TOP - TOP	HORIZ.

**ESTIMATED QUANTITIES**

	CONCRETE MASONRY BRIDGES (CY)	BAR STEEL REINFORCEMENT HS COATED STRUCTURES (LB)	BAR STEEL REINFORCEMENT HS STRUCTURES (LB)
STAGE 1	23	680	1,470
STAGE 2	23	680	1,300



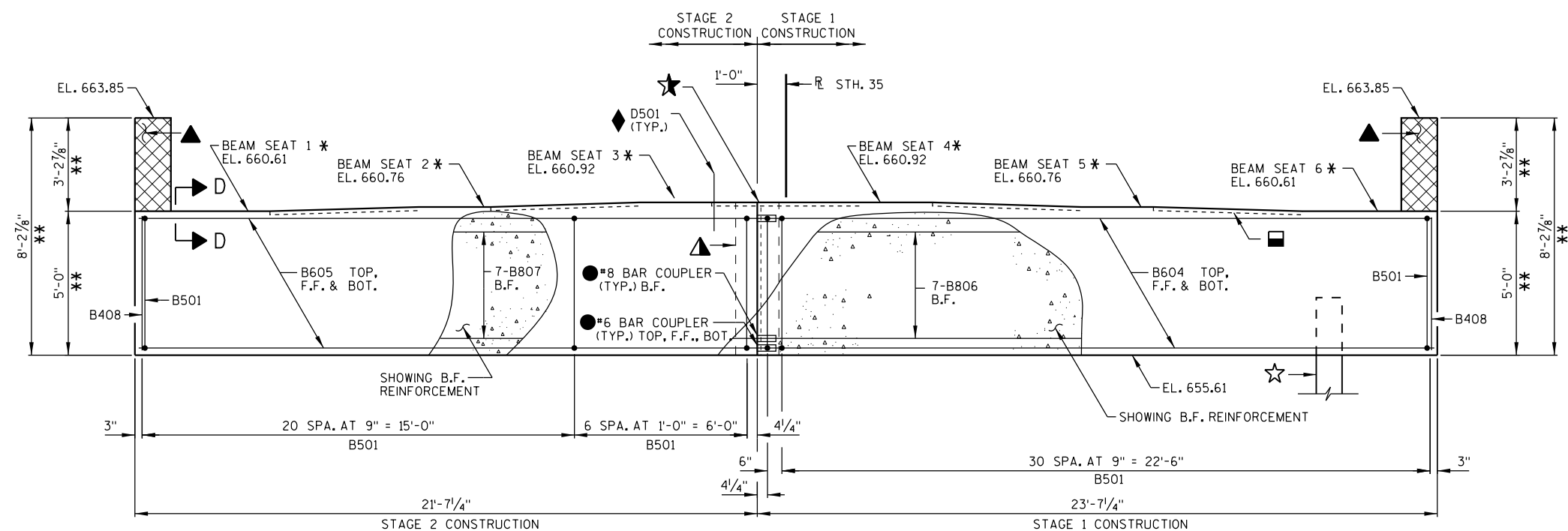
**PILE SPLICE DETAIL**

**HP WELD DETAIL**  
(FLANGE SHOWN, WEB SIMILIAR)

PRINTER DRIVER: S:\\_com-CADstds\_Libraries\MSD01\MicroStationResources\MS\_Printing\Printer\_Drivers\AE\_PDF..11 x 17.plt  
 PEN TABLE: A:\CLIENT\AMER-USA-WI-WISDOT\dev\WisDOT\Bridges\VerA\Pen\_Table\AE\_WisDOT\_Structure.tbl  
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 PLOT DATE: 7/27/2022 PLOT TIME: 6:00:37 PM BATCH PRINT SHEET 11 OF 24

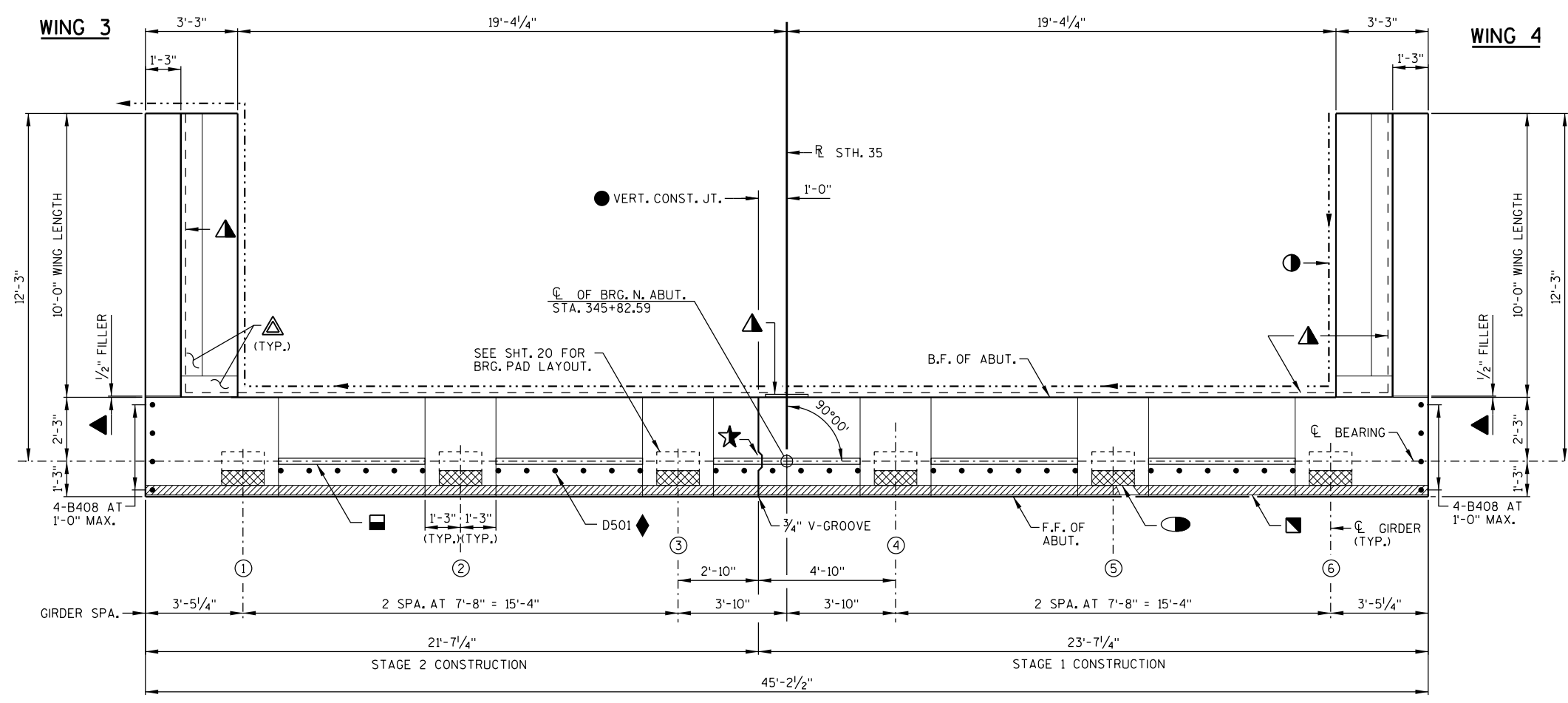
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-6-204			
DRAWN BY		KAM	PLANS CK'D. EAN
SOUTH ABUTMENT DETAILS		SHEET 11 OF 24	

PRINTER DRIVER: S:\\_cam-CADstds\_Libraries\WISDOT\MicroStationResources\MS\_Printing\Printer\_Drivers\AE\_PDF.plt  
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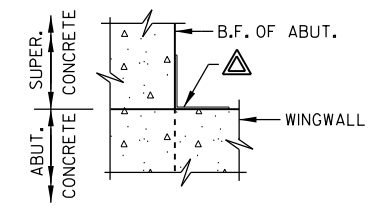


**ELEVATION**  
(LOOKING NORTH)

NOTE:  
SPACE B501 BARS TO MISS PILING.



**PLAN**



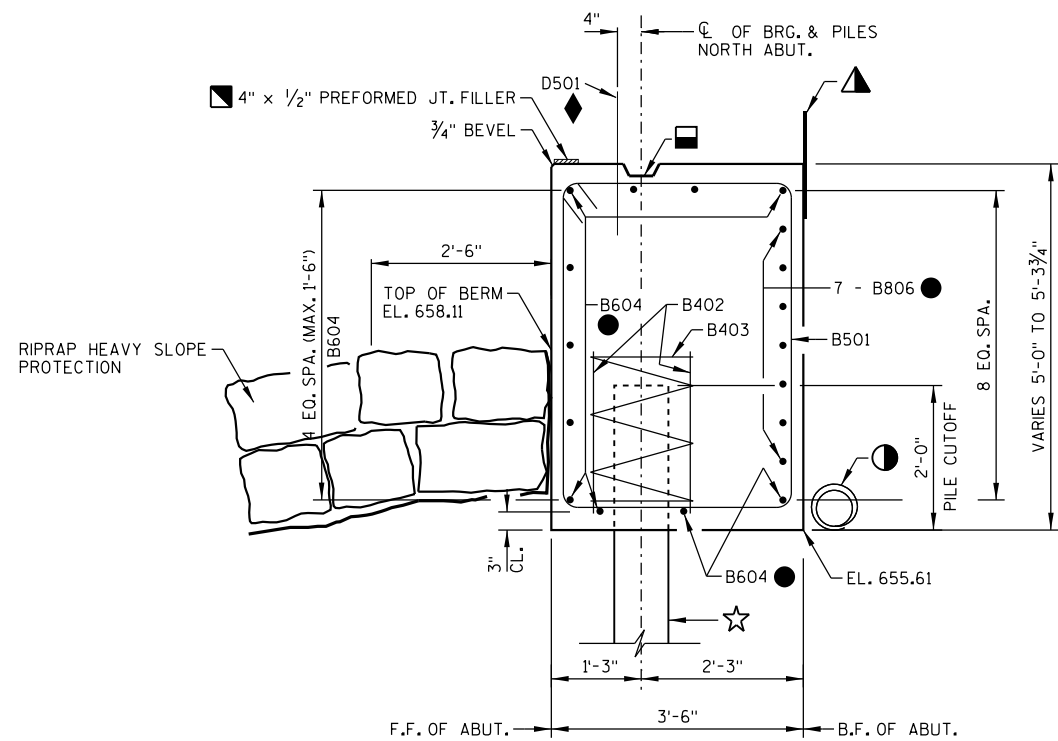
**SECTION D-D**

**NOTE**  
SEE SHT. 24 FOR BAR COUPLER DETAILS.

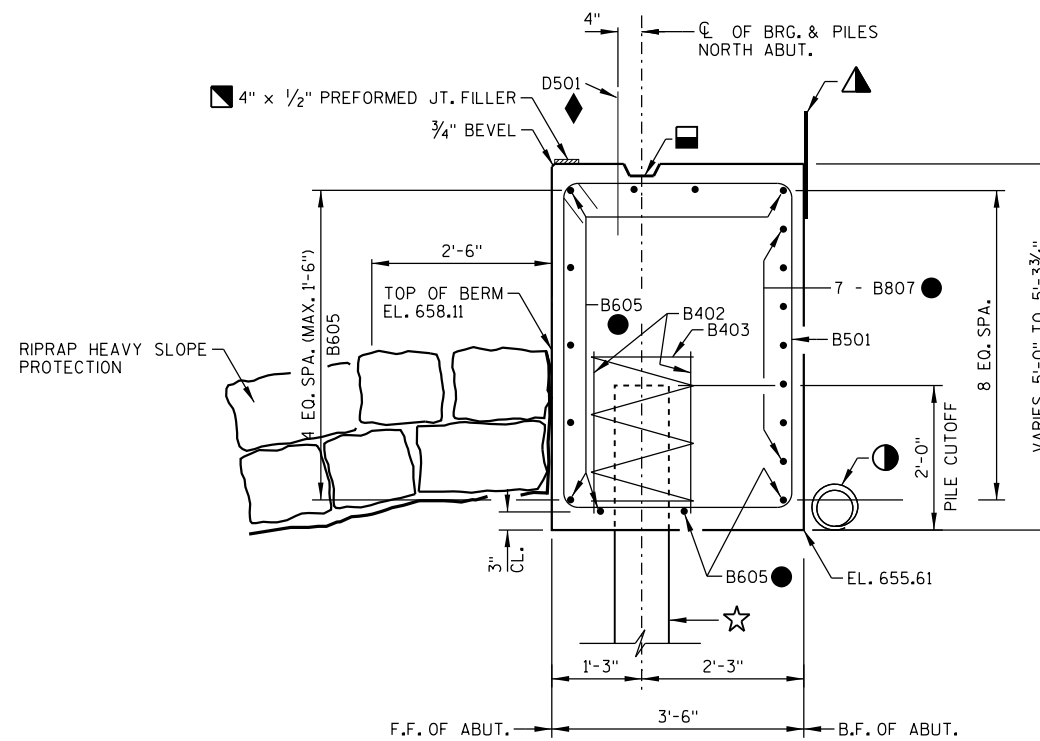
**LEGEND**  
FOR SYMBOL DESCRIPTIONS SEE SHT. 8.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-204</b>			
DRAWN BY		KAM	PLANS CKD. EAN
<b>NORTH ABUTMENT</b>			SHEET 12 OF 24

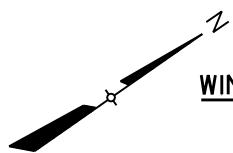
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 BATCH PRINT SHEET 13 OF 24  
 PLOT DATE: 7/27/2022 PLOT TIME: 6:01:36 PM



**TYP. SECTION THRU BODY -  
 STAGE 1**  
 (EAST HALF OF ABUTMENT BODY)

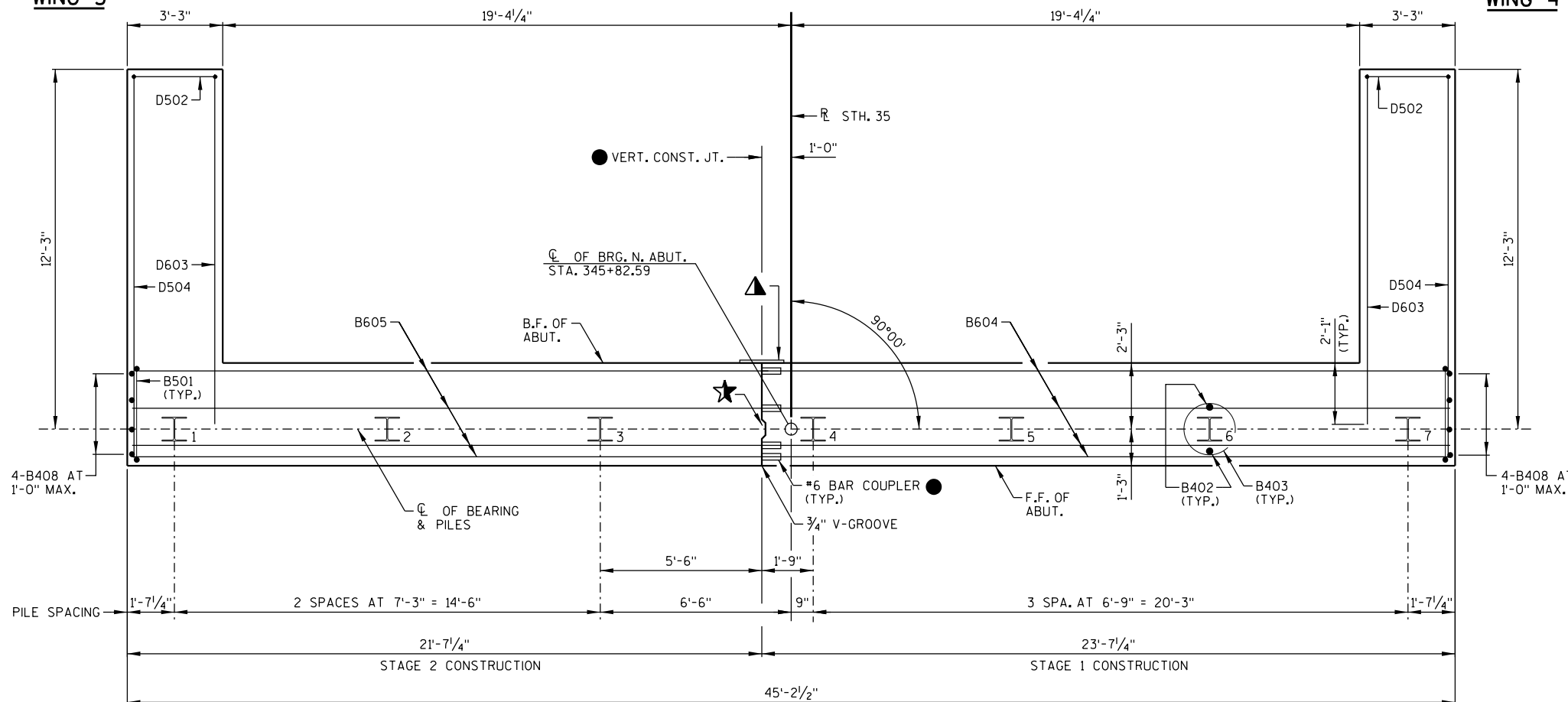


**TYP. SECTION THRU BODY -  
 STAGE 2**  
 (WEST HALF OF ABUTMENT BODY)



**WING 3**

**WING 4**



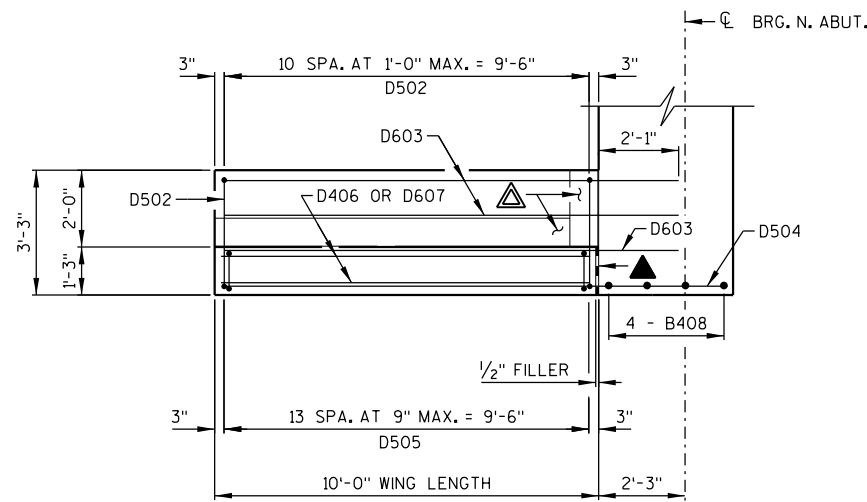
**PLAN**

**NOTE**  
 SEE SHT. 24 FOR BAR COUPLER DETAILS.

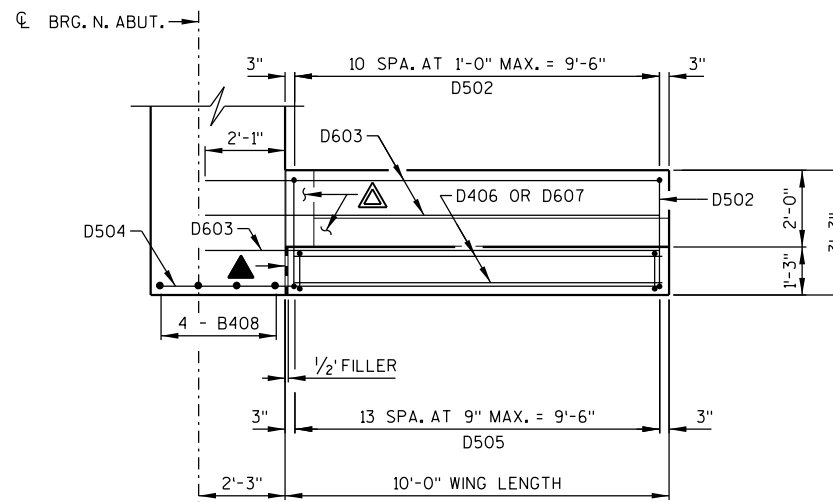
**LEGEND**  
 FOR SYMBOL DESCRIPTIONS SEE SHT. 8.

**PILE NOTE**  
 NORTH ABUTMENT TO BE SUPPORTED ON PILING STEEL HP 10-INCHx42LB. PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 70'-0" LONG.

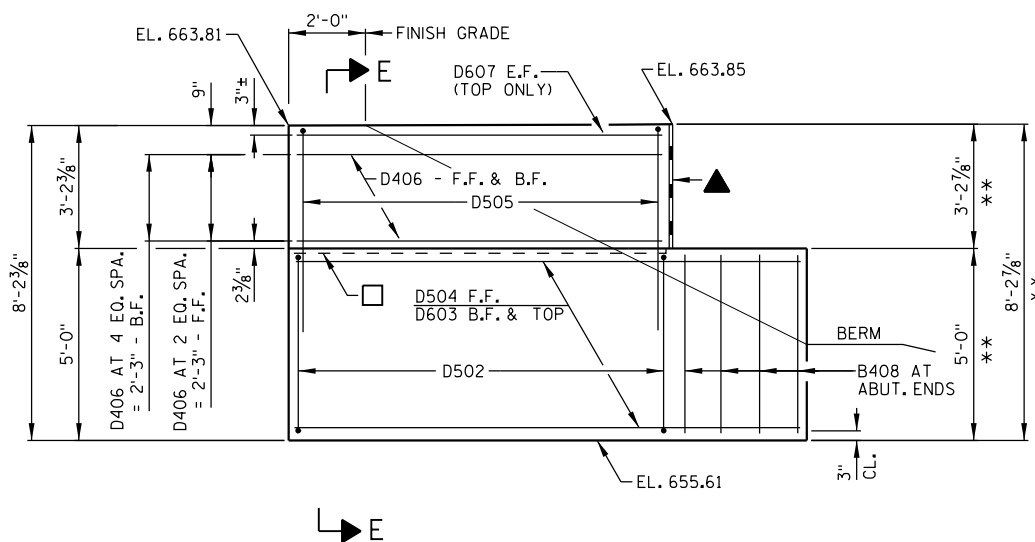
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-204</b>			
DRAWN BY		KAM	PLANS CK'D. EAN
NORTH ABUTMENT PILE PLAN AND SECTION			SHEET 13 OF 24



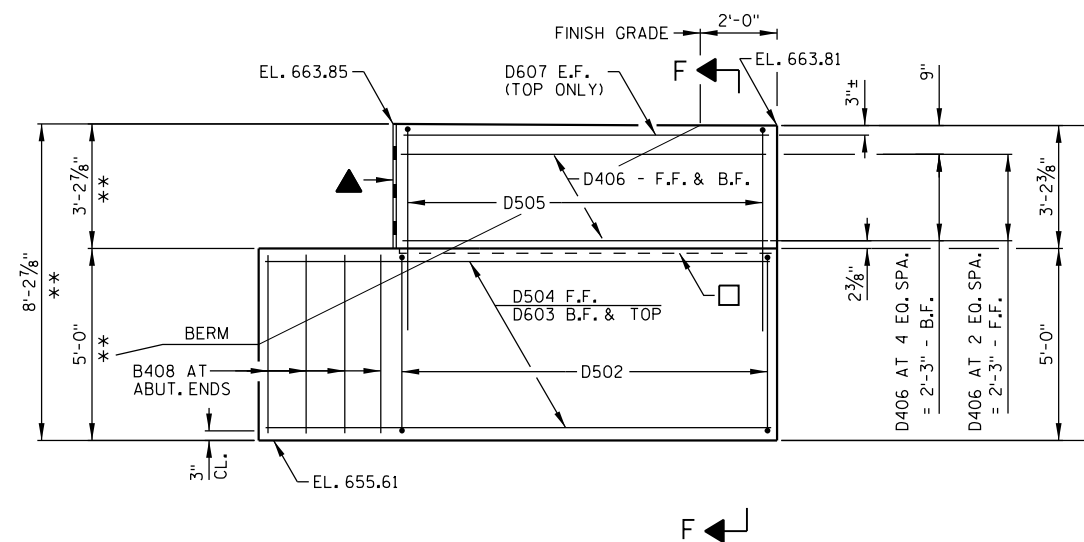
PLAN WING 3



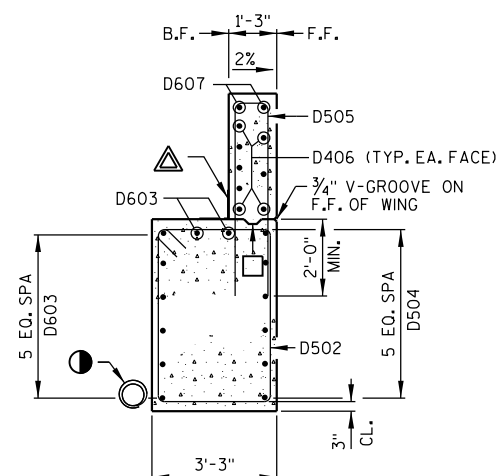
PLAN WING 4



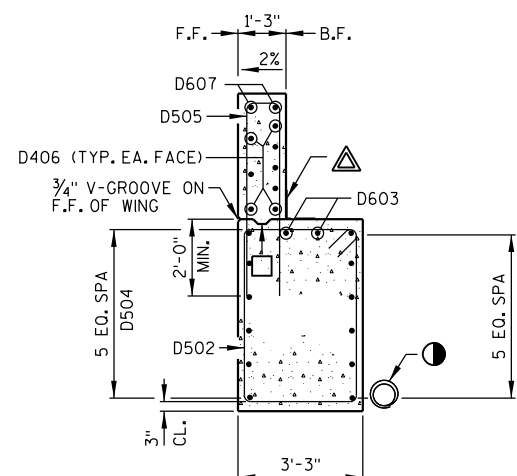
ELEVATION WING 3



ELEVATION WING 4



SECTION E-E



SECTION F-F

**NOTE**  
FOR TYPICAL FILL SECTION AT WING TIPS SEE SHT. 3.

**LEGEND**  
FOR SYMBOL DESCRIPTIONS SEE SHT. 8.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-204</b>			
DRAWN BY		KAM	PLANS CK'D. EAN
WINGS 3 AND 4			SHEET 14 OF 24

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 PLOT DATE: 7/27/2022 PLOT TIME: 6:02:42 PM BATCH PRINT SHEET 14 OF 24

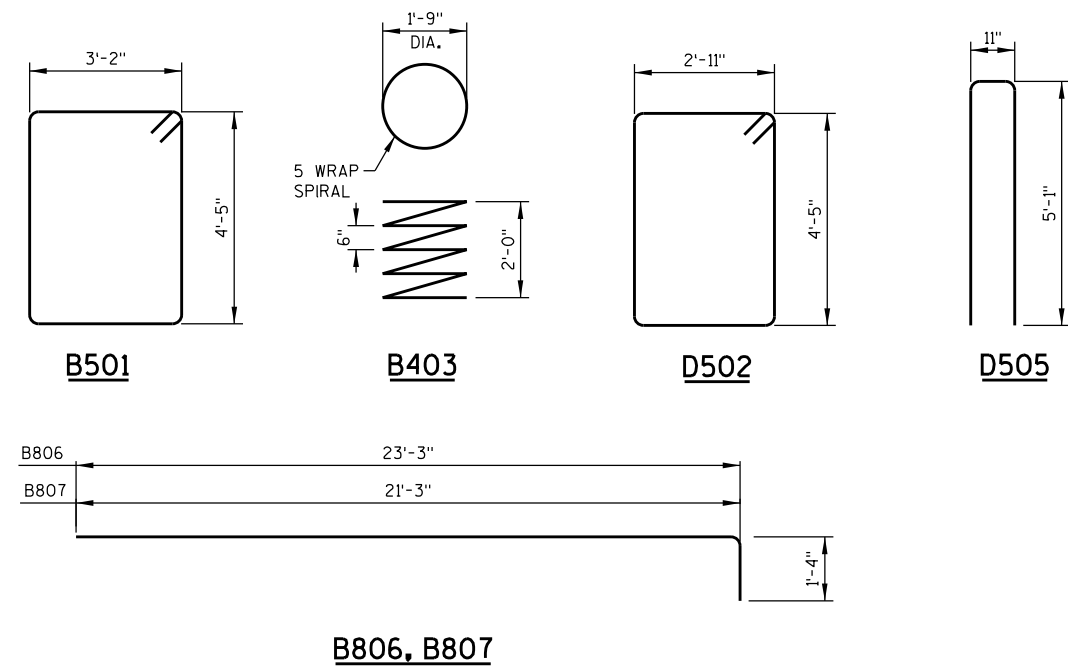
**BILL OF BARS**

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

MARK	STAGE 1 NO. REQ'D	STAGE 2 NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION	
NON-COATED BARS						TOTAL WEIGHT = 2,770 LBS	
B501	32	27	15-10	X		ABUT. STIRRUP	VERT.
B402	8	6	2-3			ABUT. AT PILES	VERT.
B403	4	3	28-0	X		ABUT. AT PILES	VERT.
B604	11	-----	23-5			ABUT. F.F., TOP & BOT.	HORIZ.
B605	-----	11	21-5			ABUT. F.F., TOP & BOT.	HORIZ.
B806	7	-----	24-4	X		ABUT. B.F.	HORIZ.
B807	-----	7	22-4	X		ABUT. B.F.	HORIZ.
B408	4	4	4-7			ABUT. ENDS	VERT.
COATED BARS						TOTAL WEIGHT = 1,350 LBS	
D501	16	14	2-0			ABUT. DOWEL	VERT.
D502	11	11	15-4	X		WING 3 & 4 STIRRUP	VERT.
D603	8	8	11-11			WING 3 & 4 B.F. & TOP	HORIZ.
D504	6	6	13-2			WING 3 & 4 F.F.	HORIZ.
D505	14	14	10-10	X		WING 3 & 4 TOP - STIRRUP	VERT.
D406	8	8	9-7			WING 3 & 4 TOP - F.F. & B.F.	HORIZ.
D607	2	2	9-7			WING 3 & 4 TOP - TOP	HORIZ.

**ESTIMATED QUANTITIES**

	CONCRETE MASONRY BRIDGES (CY)	BAR STEEL REINFORCEMENT HS COATED STRUCTURES (LB)	BAR STEEL REINFORCEMENT HS STRUCTURES (LB)
STAGE 1	23	680	1,470
STAGE 2	23	670	1,300



PRINTER DRIVER: S:\\_com-CADstds\_Libraries\MSDDOT\MicroStationResources\MS\_Printing\Printer\_Drivers\AE\_PDF..11 x 17.plt  
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 PLOT DATE: 7/27/2022 PLOT TIME: 6:02:26 PM BATCH PRINT SHEET 15 OF 24

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-6-204			
DRAWN BY		KAM	PLANS CK'D. EAN
NORTH ABUTMENT DETAILS			SHEET 15 OF 24

**NOTES**

TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY, EXCEPT THE OUTSIDE 2" OF GIRDER, WHICH SHALL RECEIVE A SMOOTH FINISH. AN APPROVED CONCRETE SEALER SHALL BE APPLIED TO ALL SMOOTH SURFACES INCLUDING THE OUTSIDE 2" OF THE TOP FLANGE.

DO NOT APPLY CONCRETE SEALER OR EPOXY TO SURFACES RECEIVING APPLICATION OF CONCRETE STAINING.

THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS. SEE SECT. 503.3.4 OF STANDARD SPECIFICATIONS FOR GUIDANCE.

STRANDS SHALL BE FLUSH WITH END OF GIRDER. FOR GIRDER ENDS EMBEDDED COMPLETELY IN CONCRETE, END OF STRANDS SHALL BE COATED WITH NON-BITUMINOUS JOINT SEALER. FOR GIRDER ENDS THAT ARE FINALLY EXPOSED, COAT THE GIRDER ENDS, EXPOSED STRAND ENDS AND ALL NON-BONDING SURFACES WITHIN 2 FEET OF THE GIRDER ENDS WITH A NON-PIGMENTED EPOXY CONFORMING TO AASHTO M-235 TYPE III, GRADE 2, CLASS B OR C. THE EPOXY SHALL BE APPLIED AT LEAST 3 DAYS AFTER MOIST CURING HAS CEASED AND PRIOR TO THE APPLICATION OF THE SEALER.

ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

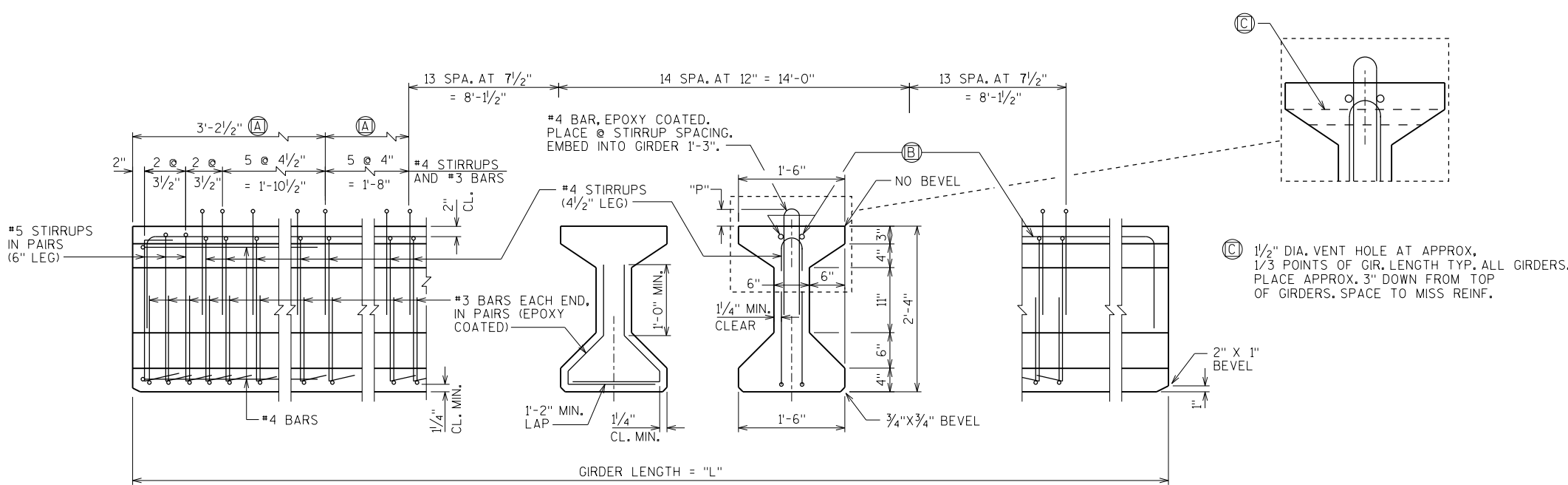
SPACING SHOWN FOR #4 STIRRUPS IS FOR GRADE 60 REINFORCEMENT.

AN EQUIVALENT OF WELDED WIRE FABRIC (WWF) ASTM A1064 MAY BE SUBSTITUTED FOR THE STIRRUP REINFORCEMENT SHOWN, UPON APPROVAL OF THE STRUCTURES MAINTENANCE SECTION. IF USED, WWF SUBSTITUTION DETAILS SHALL BE SUBMITTED ELECTRONICALLY TO THE WISDOT FABRICATION LIBRARY AND ACCEPTED PRIOR TO SHOP DRAWING SUBMITTAL.

PRESTRESSING STRANDS SHALL BE ( 0.6" DIA.)-7 WIRE LOW-RELAXATION STRANDS WITH AN ULTIMATE STRENGTH OF 270,000 PSI.

BEND EACH END OF #4 STIRRUPS 4/2" AND #5 STIRRUPS 6".

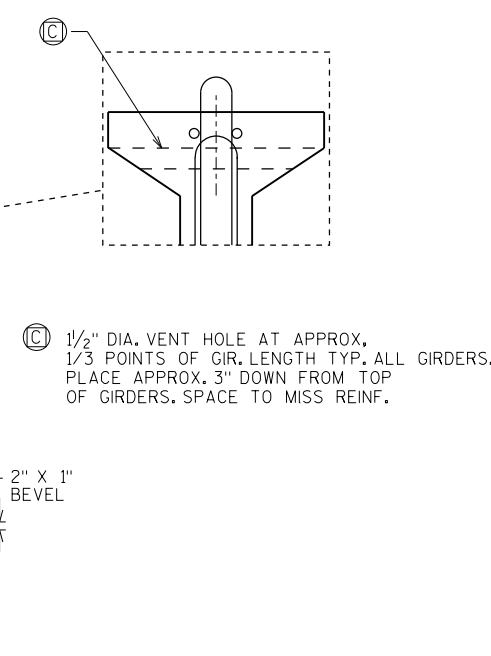
FOR DIAPHRAGM INSERT & CONNECTION DETAILS SEE "INTERMEDIATE STEEL DIAPHRAGM" SHEET.



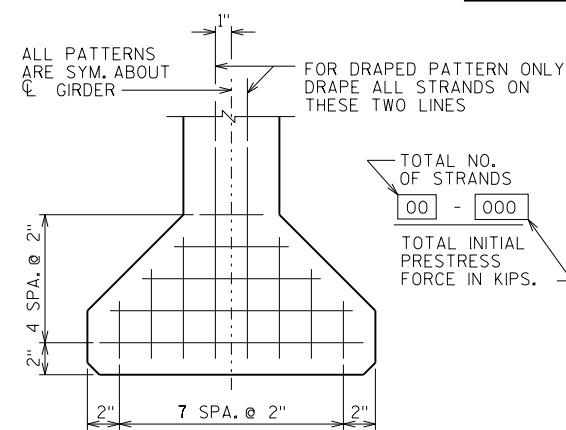
**SIDE VIEW & TYPICAL SECTION IN SPAN**

(A) DETAIL TYP. AT EACH END

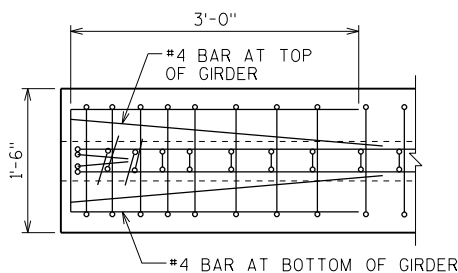
(B) 2 - #6 BARS FULL LENGTH, MIN. LAP 2'-11" BEND DOWN 16 BAR DIA. AT ENDS



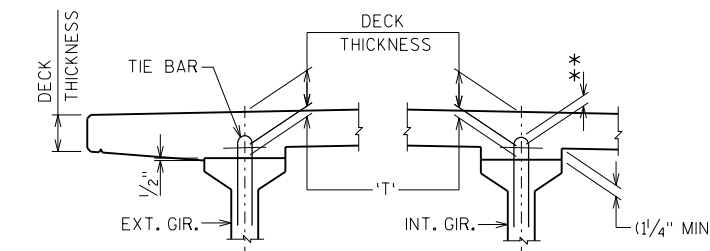
**DEAD LOAD DEFLECTION DIAGRAM**



**TYP. STRAND PATTERN**



**TOP VIEW OF GIRDER ENDS**



**DECK HAUNCH DETAIL**

IF 1/4" MINIMUM HAUNCH HEIGHT AT EDGE OF GIRDER CANNOT BE MAINTAINED, THE GRADE LINE MAY BE REVISED BY THE ENGINEER AT THE OPTION OF THE CONTRACTOR, THE PLAN DECK THICKNESS SHALL BE HELD. NOTIFY THE STRUCTURES SECTION IF THE GRADE LINE IS RAISED FROM THE PLAN PROFILE BY MORE THAN 1/2" OR, \*\* IF 3" MINIMUM DECK EMBEDMENT OF TIE BAR CANNOT BE OBTAINED.

TO DETERMINE 'T', ELEV. OF TOP OF GIR. AT CL OF SUBSTRUCTURE UNITS & AT 1/10 POINTS OF EACH SPAN SHALL BE TAKEN. THEN FOLLOW THIS PROCESS:

- TOP OF DECK ELEV. AT FINAL GRADE
- TOP OF GIRDER ELEVATION
- + DEAD LOAD DEFLECTION
- DECK THICKNESS
- = HAUNCH HEIGHT 'T'

NOTE: AN AVERAGE HAUNCH ('T') OF 2.5" WAS USED IN THE QUANTITY "CONCRETE MASONRY BRIDGES".

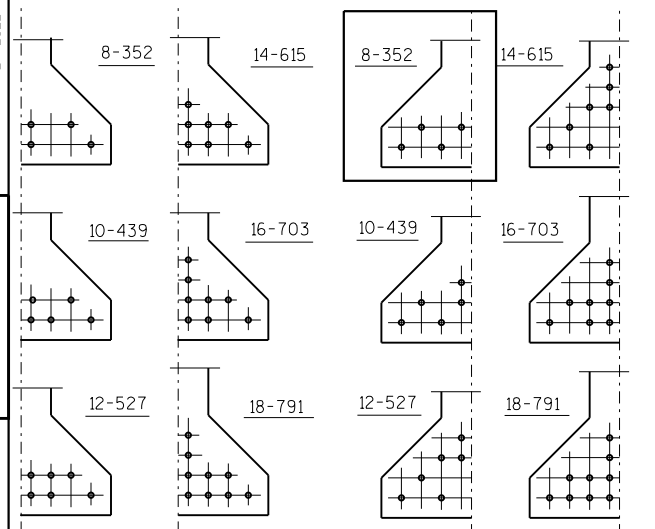
\* THE THEORETICAL INITIAL CAMBER VALUE AT THE TIME OF STRAND RELEASE AT MIDSPAN MULTIPLIED BY A FACTOR OF 1.4 TO ACCOUNT FOR CAMBER GROWTH FROM THE TIME OF STRAND RELEASE TO JOBSITE PLACEMENT.

SPAN	CAMBER (IN.) *
1	0.78

THESE VALUES ARE NOT TO BE USED IN DETERMINING 'T', USE ACTUAL GIRDER SHOTS. THESE VALUES ARE FOR INFORMATIONAL PURPOSES ONLY.

\* MINIMUM CYLINDER STRENGTH OF CONCRETE @ TIME OF TRANSFER OF PRESTRESS FORCE.

SPAN	GIRDER	GIRDER LENGTH "L" (FEET)	DEAD LOAD DEFL. (IN.)										CONC. STRGTH. f'c (P.S.I.)	"P" (IN.)	DIA. OF STRAND (IN.)	DRAPED PATTERN (IN.)				UNDRAPED PATTERN			
			1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10	TOTAL NO. OF STRANDS				f'ci (P.S.I.) *	TOTAL NO. OF STRANDS	f'ci (P.S.I.) *					
			1ST 1/3 OF GIRDER	MID 1/3 OF GIRDER	END 1/3 OF GIRDER	"A"	"B" MIN.	"B" MAX.	"C"														
1	1-6	40	0.07	0.14	0.20	0.24	0.25	0.24	0.20	0.14	0.07	8,000	6.5	6.5	6.5	0.6	*	"A"	"B" MIN.	"B" MAX.	"C"	8	6,800



**DRAPED PATTERN**

0.6"φ STRANDS

**UNDRAPED PATTERN**

0.6"φ STRANDS

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 BATCH PRINT SHEET 16 OF 24

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-204</b>			
DRAWN BY		KAM	PLANS CKD. EAN
<b>28" PRESTRESSED GIRDER</b>			SHEET 16 OF 24

**NOTES**

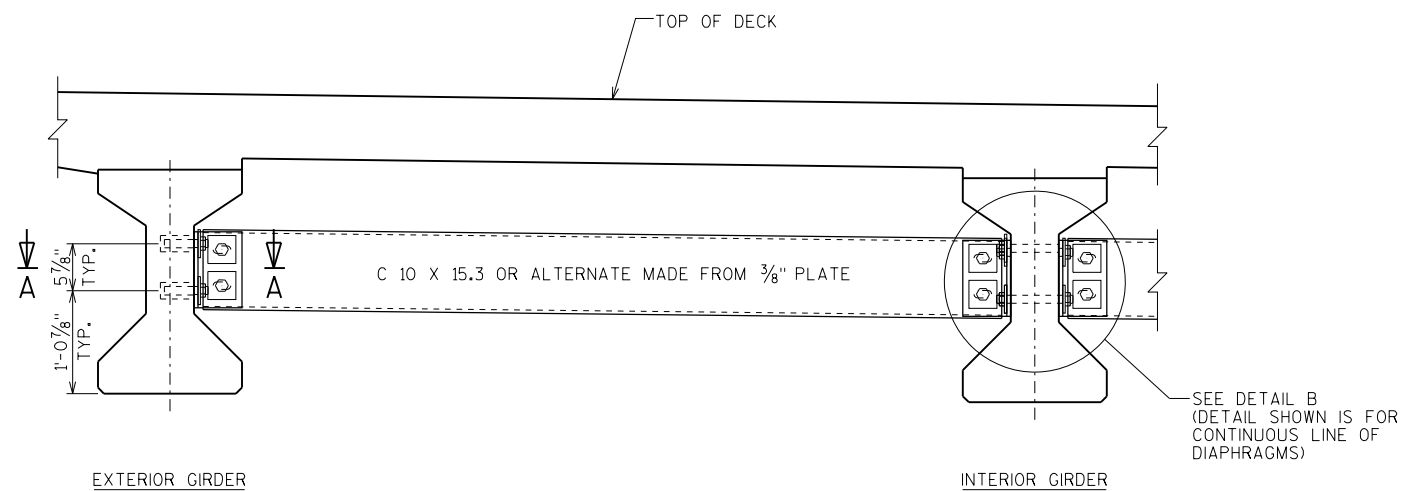
ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS B-6-204", EACH.

EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.

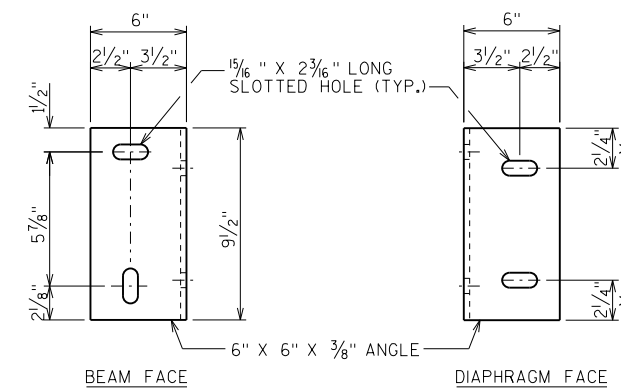
ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36.

ALL DIAPHRAGM MATERIAL INCLUDING BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AFTER FABRICATION.

STEEL DIAPHRAGM TO CONCRETE WEB CONNECTION SHALL BE SNUG-TIGHT PLUS 1/4 TURN, UNLESS NOTED OTHERWISE. HIGH STRENGTH BOLTS FOR WEB CONNECTION SHALL MEET THE REQUIREMENTS FOR ASTM A325 OR ASTM A449.

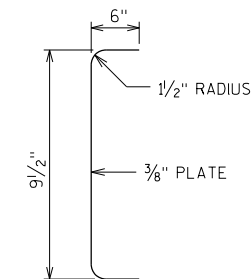


**PART TRANSVERSE SECTION AT DIAPHRAGM**

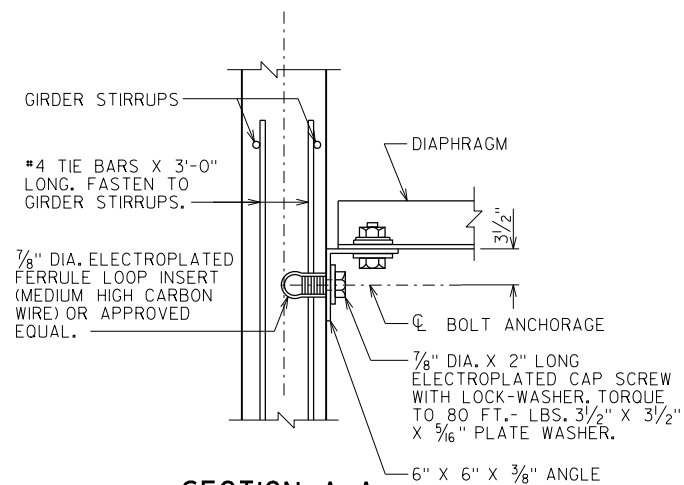


**DIAPHRAGM SUPPORT**

\* 2/2" FOR ALTERNATE PLATE DIAPHRAGM

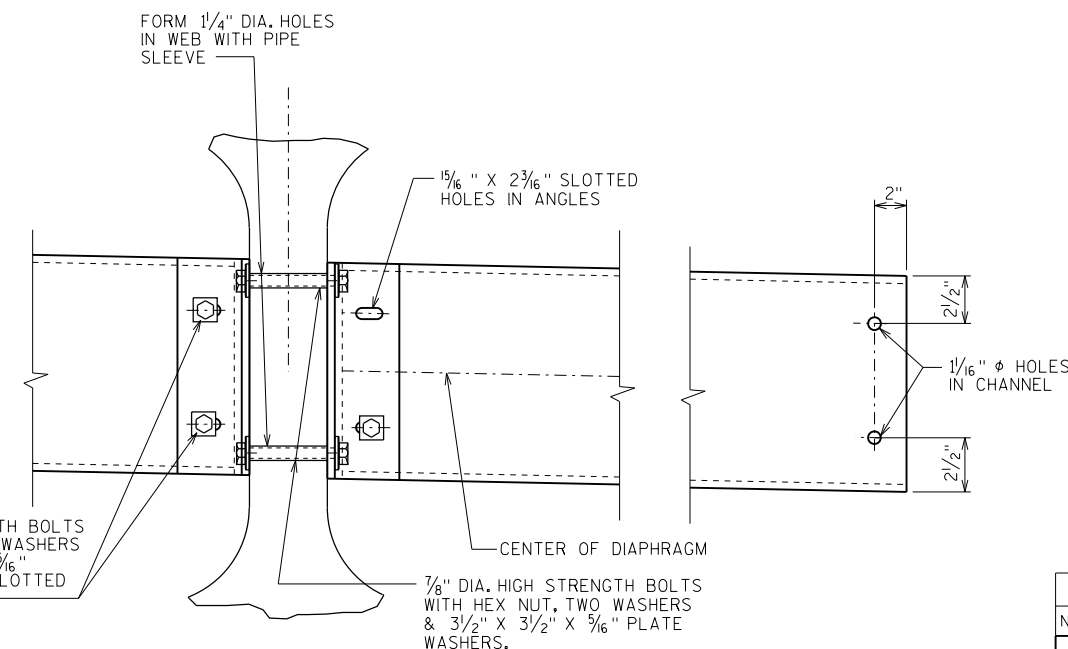


**SECTION THRU ALTERNATE DIAPHRAGM**

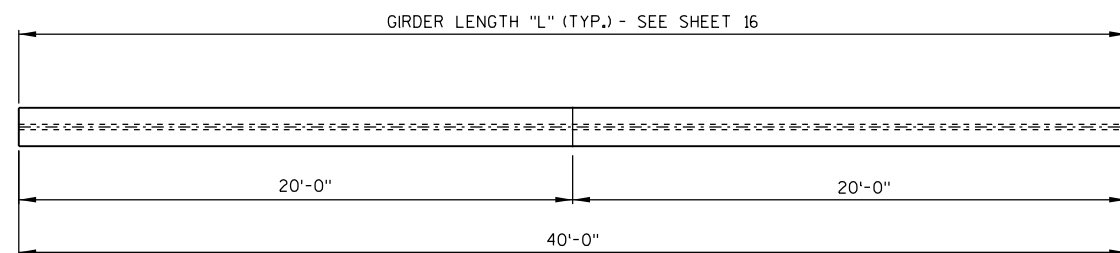


**SECTION A-A**

(FOR EXTERIOR ATTACHMENT)



**DETAIL B**

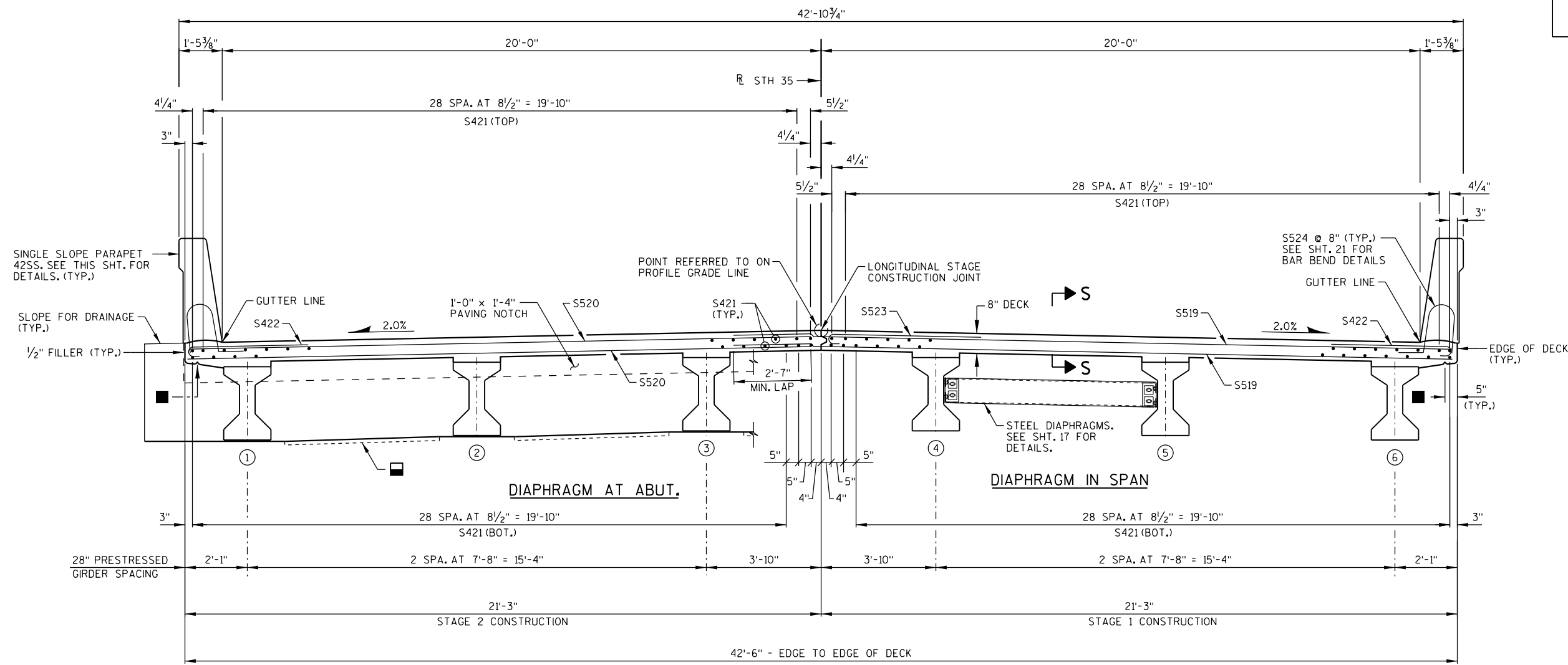


**DIAPHRAGM CONNECTION SPACING**

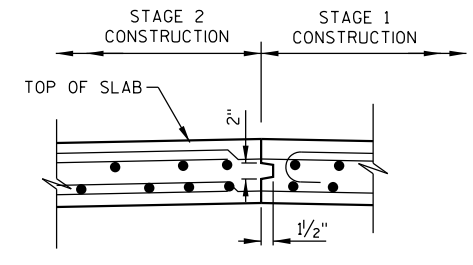
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-204</b>			
DRAWN BY		KAM	PLANS CK'D. EAN
INTERMEDIATE STEEL DIAPHRAGM			SHEET 17 OF 24

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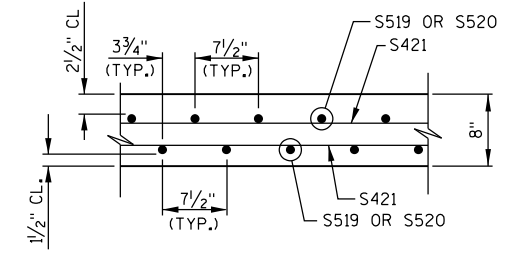




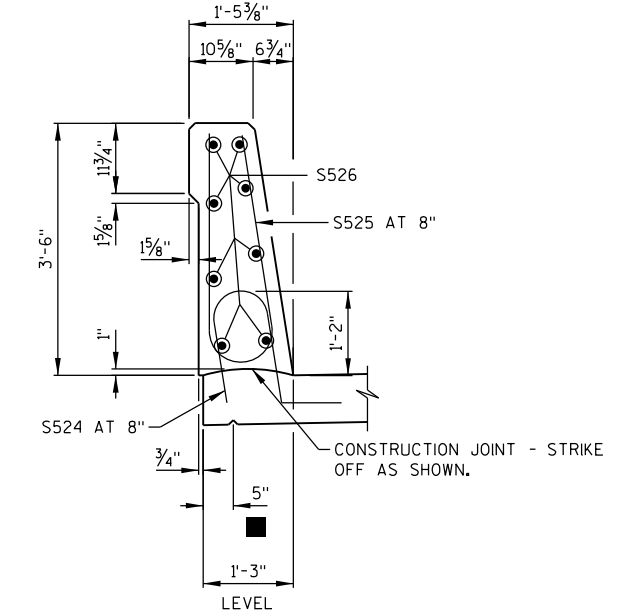
**CROSS SECTION THRU ROADWAY**  
(LOOKING UPSTATION)



**SECTION THRU LONGITUDINAL JOINT**



**SECTION S-S**



**SINGLE SLOPE PARAPET 42SS ON SUPERSTRUCTURE**

**TOP OF DECK ELEVATIONS**

	CL BRG. S. ABUT.	1/10 PT.	2/10 PT.	3/10 PT.	4/10 PT.	5/10 PT.	6/10 PT.	7/10 PT.	8/10 PT.	9/10 PT.	CL BRG. N. ABUT.
EOD	663.91	663.90	663.90	663.89	663.88	663.88	663.87	663.86	663.85	663.84	663.83
BEAM 1	663.95	663.95	663.94	663.93	663.93	663.92	663.91	663.90	663.89	663.88	663.87
BEAM 2	664.10	664.10	664.09	664.09	664.08	664.07	664.06	664.05	664.04	664.03	664.02
BEAM 3	664.26	664.25	664.25	664.24	664.23	664.22	664.22	664.21	664.20	664.19	664.18
STAGE CONST. JOINT	664.33	664.33	664.32	664.32	664.31	664.30	664.29	664.28	664.27	664.26	664.25
BEAM 4	664.26	664.25	664.25	664.24	664.23	664.22	664.22	664.21	664.20	664.19	664.18
BEAM 5	664.10	664.10	664.09	664.09	664.08	664.07	664.06	664.05	664.04	664.03	664.02
BEAM 6	663.95	663.95	663.94	663.93	663.93	663.92	663.91	663.90	663.89	663.88	663.87
EOD	663.91	663.90	663.90	663.89	663.88	663.88	663.87	663.86	663.85	663.84	663.83

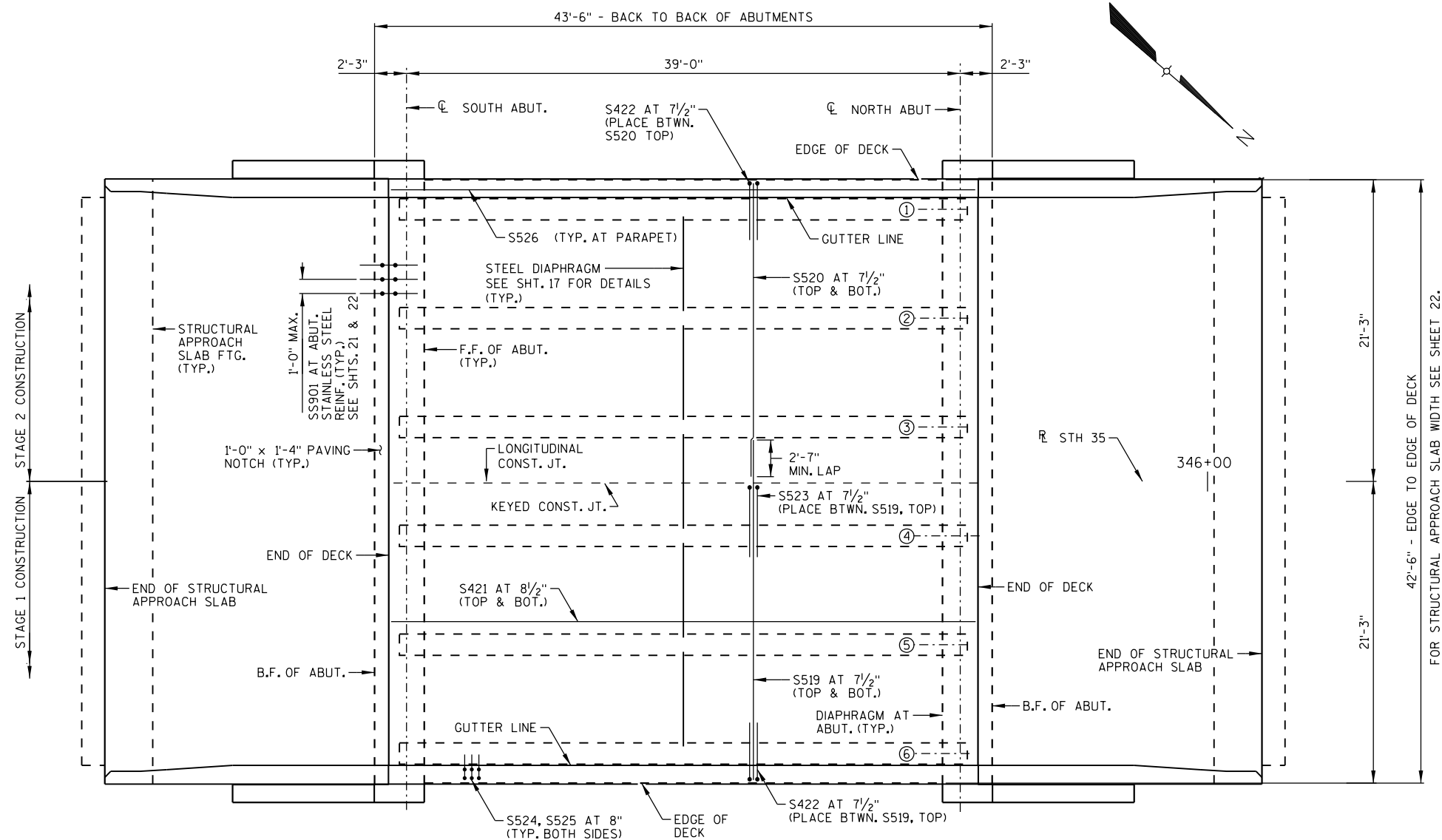
NOTE: EDGE OF DECK ELEVATIONS ARE CALCULATED ASSUMING CROSS SLOPE CONTINUES TO EDGE.

**LEGEND**

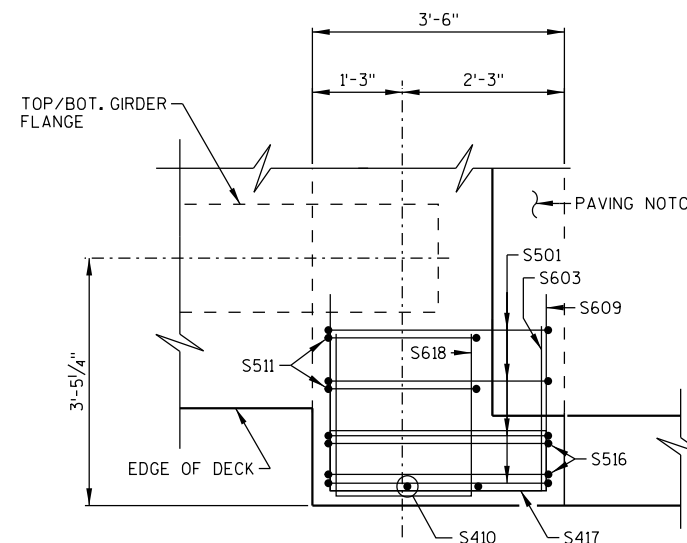
FOR SYMBOL DESCRIPTIONS SEE SHT. 8.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-204</b>			
DRAWN BY		KAM	PLANS CKD. EAN
<b>SUPERSTRUCTURE CROSS SECTION</b>			SHEET 18 OF 24

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 BATCH PRINT SHEET 18 OF 24  
 PLOT DATE: 7/27/2022  
 PLOT TIME: 6:03:20 PM



**PLAN**



**PLAN - DIAPHRAGM**

(WING 4 SHOWN WINGS 1, 2 & 3 SIMILAR)

**NOTES**

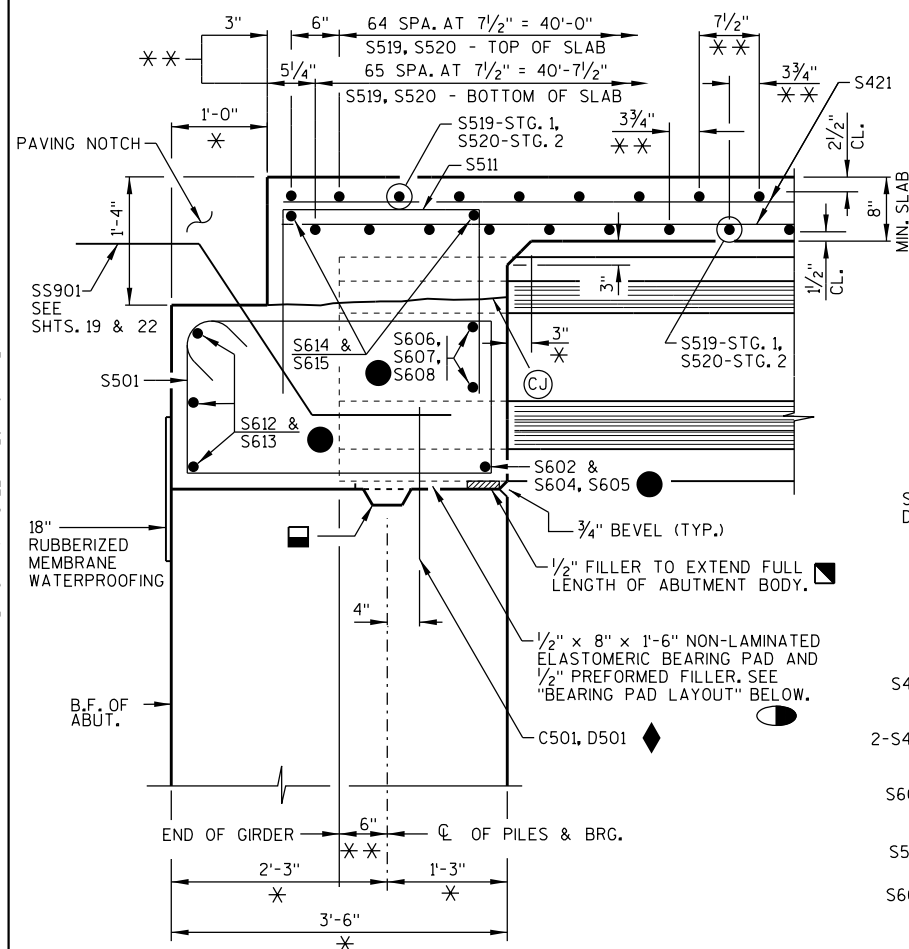
ALL TRANSVERSE BAR STEEL REINFORCEMENT SHALL BE PLACED PARALLEL TO SUBSTRUCTURE UNITS.

LAP NO. 5 BARS 2'-7" MIN. IN DECK.

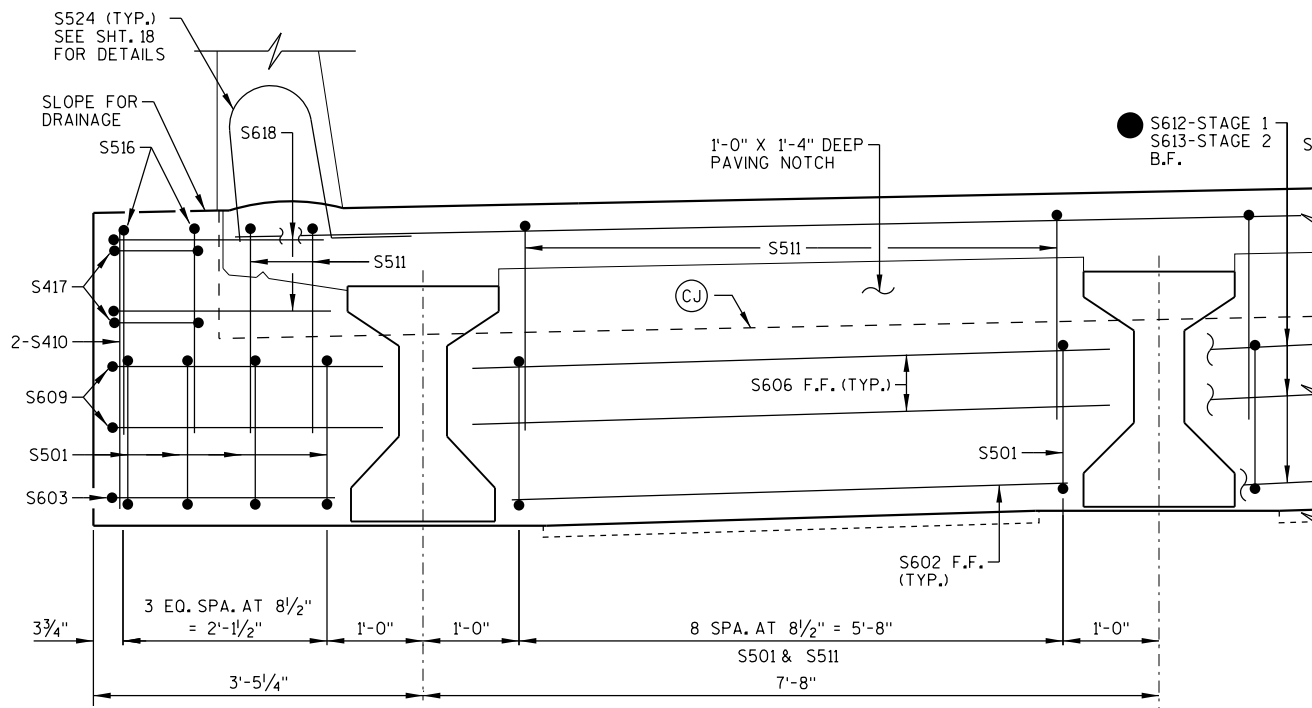
SEE SHT. 18 'SUPERSTRUCTURE CROSS SECTION' FOR PARAPET REINFORCEMENT DETAIL.

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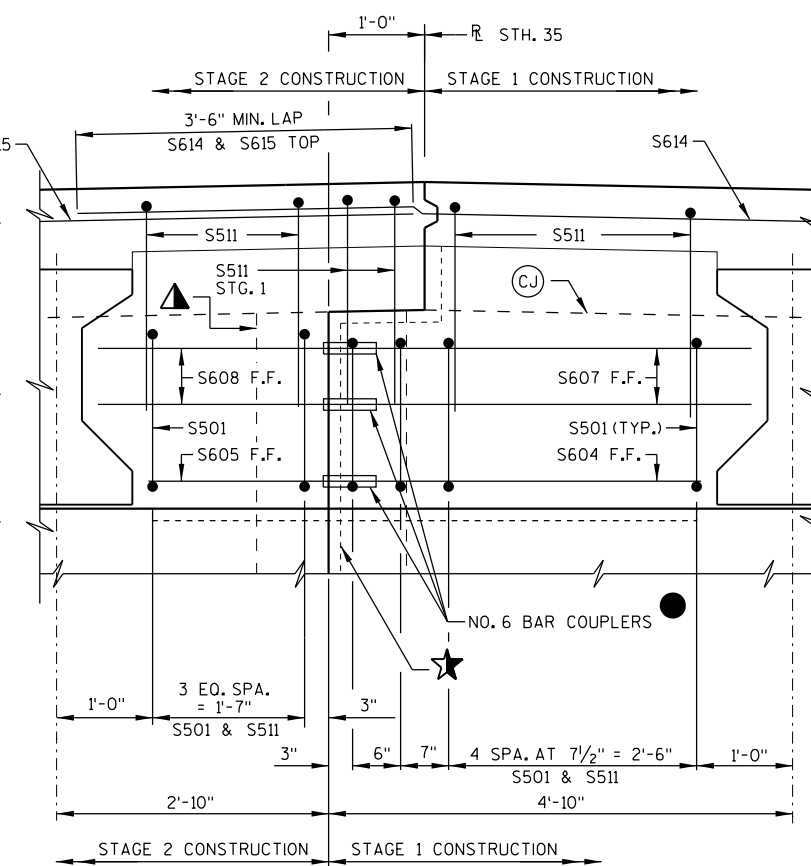
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-204</b>			
DRAWN BY		KAM	PLANS CK'D. EAN
SUPERSTRUCTURE			SHEET 19 OF 24



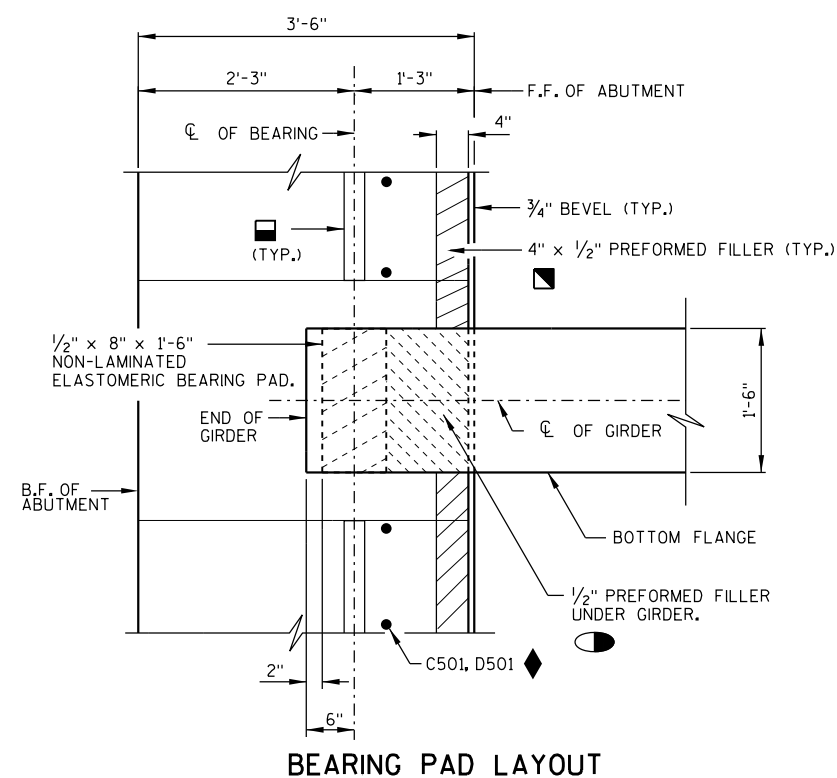
**PART LONGITUDINAL SECTION**  
(AT ABUTMENT)



**ABUTMENT DIAPHRAGM DETAIL**  
(LOOKING UPSTATION)  
WING 3 SHOWN, WINGS 1, 2, & 4 SIMILIAR



**ABUTMENT DIAPHRAGM AT CONSTR. JOINT**  
(LOOKING UPSTATION)



**BEARING PAD LAYOUT**

**LEGEND**

- \* DIMENSIONS ARE GIVEN NORMAL TO CL OF SUBSTRUCTURE UNITS.
- \* \* DIMENSIONS ARE GIVEN PARALLEL TO THE GIRDER CL.
- (CJ) OPTIONAL CONSTRUCTION JOINT. IF USED, DECK POUR MUST BE WITHIN 2 WEEKS FROM THE TIME OF THE DIAPHRAGM POUR.

FOR ADDITIONAL SYMBOL DESCRIPTIONS, SEE SHEET 8.

**NOTES**

- PLACE AND SPACE VERTICAL REINFORCEMENT BARS PARALLEL TO THE GIRDER CL.
- MATCH BOTTOM OF PAVING NOTCH WITH SLOPE OF TOP OF DECK.

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 PLOT TIME: 6:03:36 PM

8

8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-204</b>			
DRAWN BY		KAM	PLANS CK'D. EAN
<b>SUPERSTRUCTURE DETAILS - 1</b>			SHEET 20 OF 24

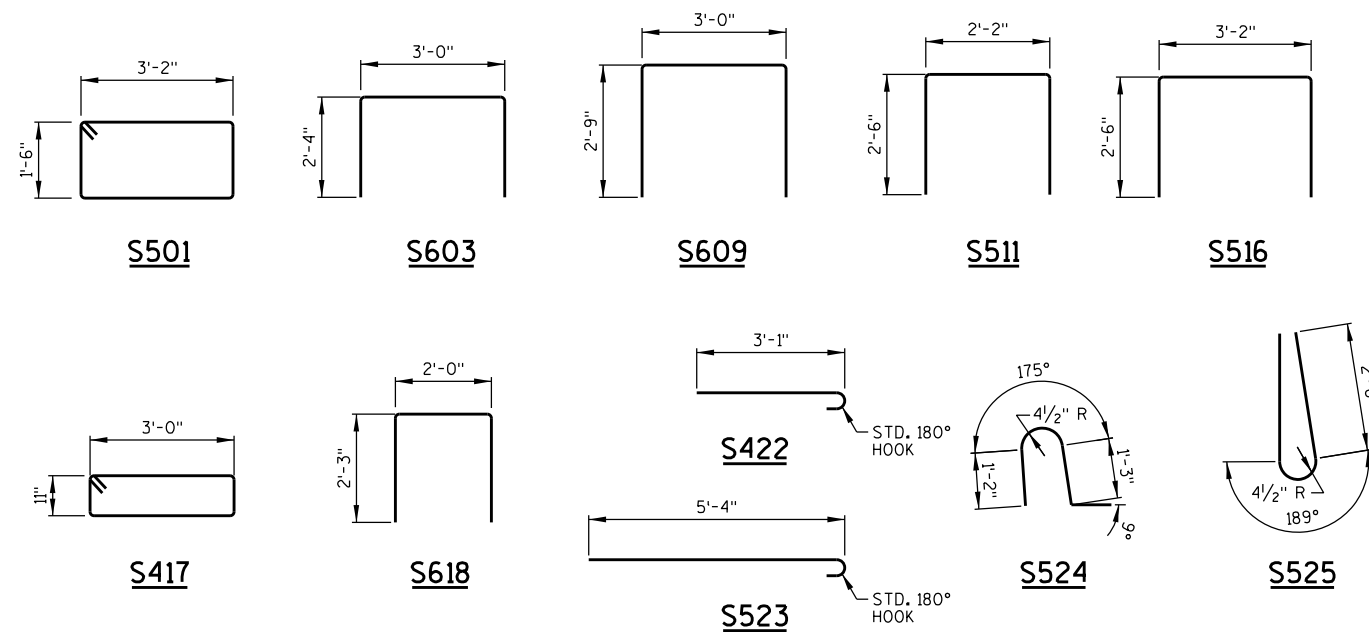
**BILL OF BARS**

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

MARK	STAGE 1 NO. REQ'D	STAGE 2 NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION	
COATED BARS							TOTAL WEIGHT = 15,700 LBS
S501	58	52	10-0	X		ABUTMENT DIAPHRAGM - STIRRUPS	VERT.
S602	4	4	5-10			ABUTMENT DIAPH. - BTWN. GIRDERS 1 THRU 3 & 4 THRU 6 - F.F.	HORIZ.
S603	2	2	7-4	X		ABUTMENT DIAPHRAGM - BOTTOM - ENDS	HORIZ.
S604	2	-----	3-10			ABUTMENT DIAPH. - BTWN. GIRDERS 3 & 4 - F.F.	HORIZ.
S605	-----	2	1-10			ABUTMENT DIAPH. - BTWN. GIRDERS 3 & 4 - F.F.	HORIZ.
S606	8	8	6-8			ABUTMENT DIAPH. - BTWN. GIRDERS 1 THRU 3 & 4 THRU 6 - F.F.	HORIZ.
S607	4	-----	3-10			ABUTMENT DIAPH. - BTWN. GIRDERS 3 & 4 - F.F.	HORIZ.
S608	-----	4	1-10			ABUTMENT DIAPH. - BTWN. GIRDERS 3 & 4 - F.F.	HORIZ.
S609	4	4	8-2	X		ABUTMENT DIAPHRAGM - ENDS	HORIZ.
S410	4	4	2-11			ABUTMENT DIAPHRAGM - ENDS	VERT.
S511	54	48	6-11	X		ABUTMENT DIAPHRAGM - TOP	VERT.
S612	6	-----	23-5			ABUTMENT DIAPHRAGM - B.F.	HORIZ.
S613	-----	6	21-5			ABUTMENT DIAPHRAGM - B.F.	HORIZ.
S614	4	-----	26-1			ABUTMENT DIAPHRAGM - TOP	HORIZ.
S615	-----	4	22-3			ABUTMENT DIAPHRAGM - TOP	HORIZ.
S516	4	4	7-11	X		ABUTMENT DIAPHRAGM - ENDS	VERT.
S417	4	4	8-4	X		ABUTMENT DIAPHRAGM - ENDS	HORIZ.
S618	4	4	6-2	X		ABUTMENT DIAPHRAGM - ENDS	HORIZ.
S519	133	-----	23-10			SLAB - TOP & BOTTOM	TRANS.
S520	-----	133	20-11			SLAB - TOP & BOTTOM	TRANS.
S421	62	62	41-2			SLAB - TOP & BOTTOM	LONGIT.
S422	66	66	3-7	X		SLAB - DECK EDGES	TRANS.
S523	66	-----	5-11	X		SLAB - AT LONGITUDINAL CONST. JOINT	TRANS.
S524	63	63	4-5	X		PARAPET/DECK	VERT.
S525	63	63	6-8	X		PARAPET	VERT.
S526	8	8	41-2			PARAPET	LONGIT.

**ESTIMATED QUANTITIES**

	CONCRETE MASONRY BRIDGES (CY)	BAR STEEL REINFORCEMENT HS COATED STRUCTURES (LB)
STAGE 1	44	8,340
STAGE 2	44	7,360



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 PLOT DATE: 7/27/2022 PLOT TIME: 6:03:45 PM BATCH PRINT SHEET 21 OF 24

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-6-204			
DRAWN BY		KAM	PLANS CK'D. EAN
SUPERSTRUCTURE DETAILS - 2			SHEET 21 OF 24

**TOP OF APPROACH SLAB ELEVATIONS**

LOCATION	DESCRIPTION	STATION	OFFSET TO R	ELEVATION (FEET)
'A'	EAST FLOW LINE AT END OF SOUTH APPROACH SLAB (NEAR WING 1)	345+22.34	20.0' RT.	663.95
'B'	WEST FLOW LINE AT END OF SOUTH APPROACH SLAB (NEAR WING 2)	345+22.34	20.0' LT.	663.95
'C'	WEST FLOW LINE AT END OF NORTH APPROACH SLAB (NEAR WING 3)	346+03.84	20.0' LT.	663.78
'D'	EAST FLOW LINE AT END OF NORTH APPROACH SLAB (NEAR WING 4)	346+03.84	20.0' RT.	663.78

**BILL OF BARS**

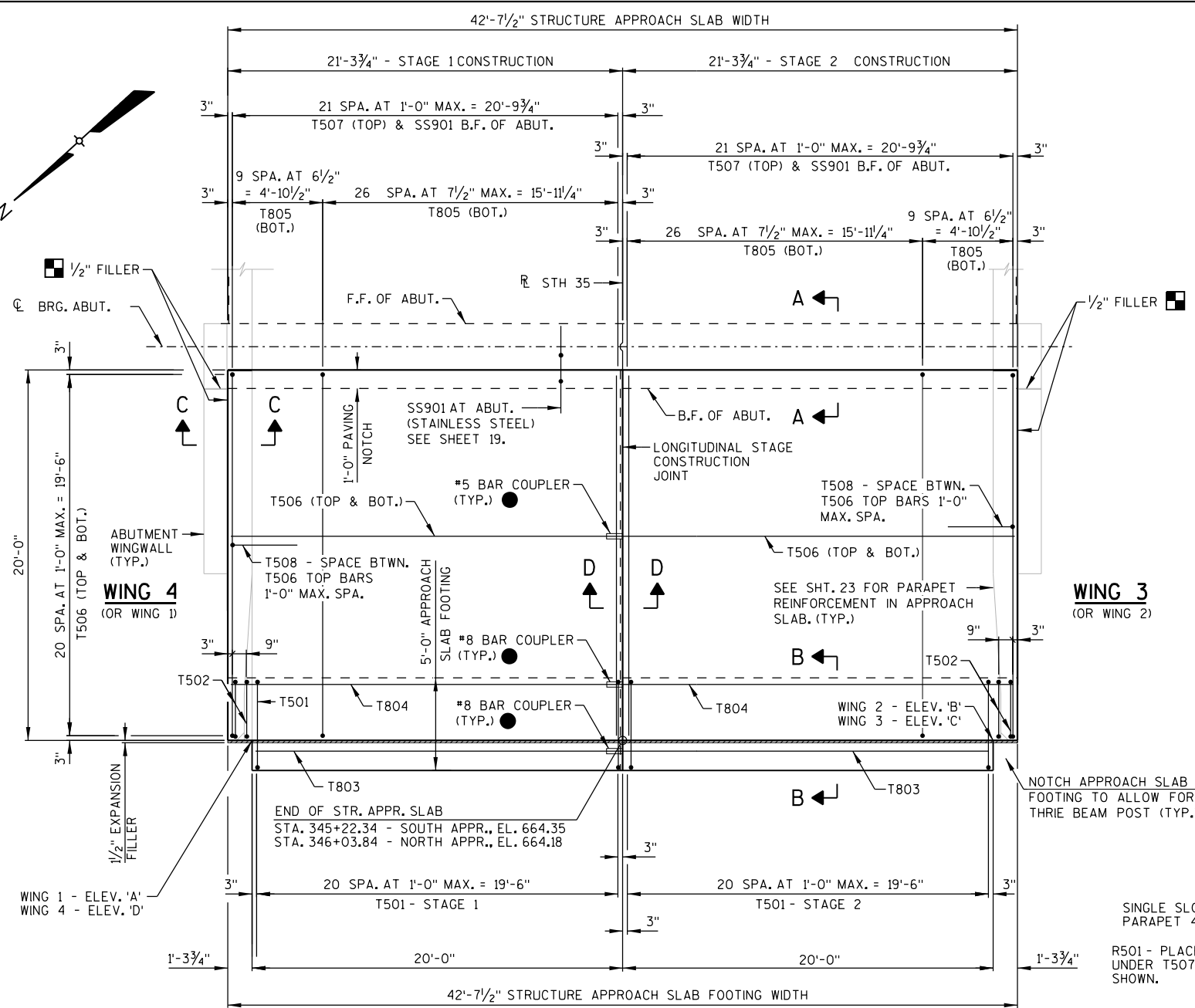
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.  
BAR QUANTITIES INCLUDE BOTH NORTH AND SOUTH APPROACH SLABS.

MARK	STAGE 1 NO. REQ'D	STAGE 2 NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION
<b>COATED BARS</b>						
TOTAL WEIGHT = 17,820 LBS						
T501	42	42	12-2	X		APPROACH SLAB FOOTING - STIRRUP VERT.
T502	4	4	9-2	X		APPROACH SLAB FOOTING - STIRRUP VERT.
T803	8	8	19-9			APPROACH SLAB FOOTING TRANS.
T804	16	16	21-1			APPROACH SLAB FOOTING TRANS.
T805	72	72	21-4	X		APPROACH SLAB - BOTTOM LONGIT.
T506	84	84	21-1			APPROACH SLAB - TOP & BOTTOM TRANS.
T507	44	44	19-6			APPROACH SLAB - TOP LONGIT.
T508	40	40	4-1	X		APPROACH SLAB - TOP - EDGE OF SLAB TRANS.
<b>STAINLESS STEEL BARS</b>						
TOTAL WEIGHT = 1,500 LBS						
SS901	44	44	5-0	X		ABUTMENT DIAPHRAGM TO APPROACH SLAB VERT.

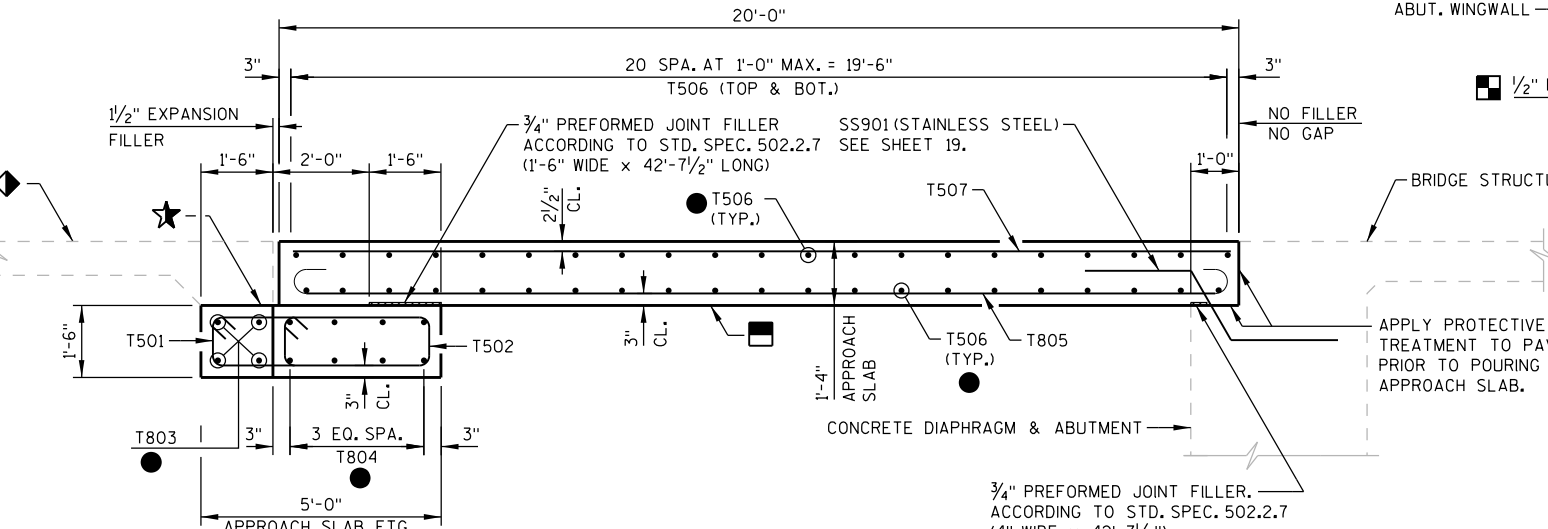
**ESTIMATED QUANTITIES**

QUANTITIES INCLUDE BOTH NORTH AND SOUTH APPROACH SLABS.

	CONCRETE MASONRY BRIDGES (CY)	BAR STEEL REINFORCEMENT HS COATED STRUCTURES (LB)	BAR STEEL REINFORCEMENT HS STAINLESS STRUCTURES (LB)
STAGE 1	60	8,910	750
STAGE 2	60	8,910	750

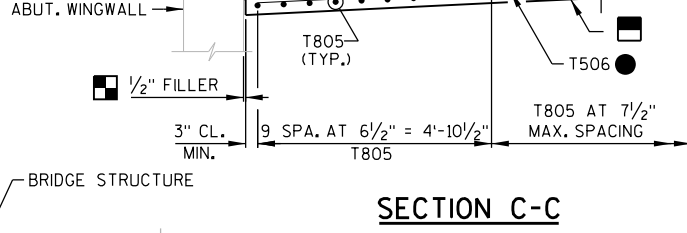


**PLAN**  
(NORTH APPROACH SLAB SHOWN, SOUTH APPROACH SLAB SIMILAR)



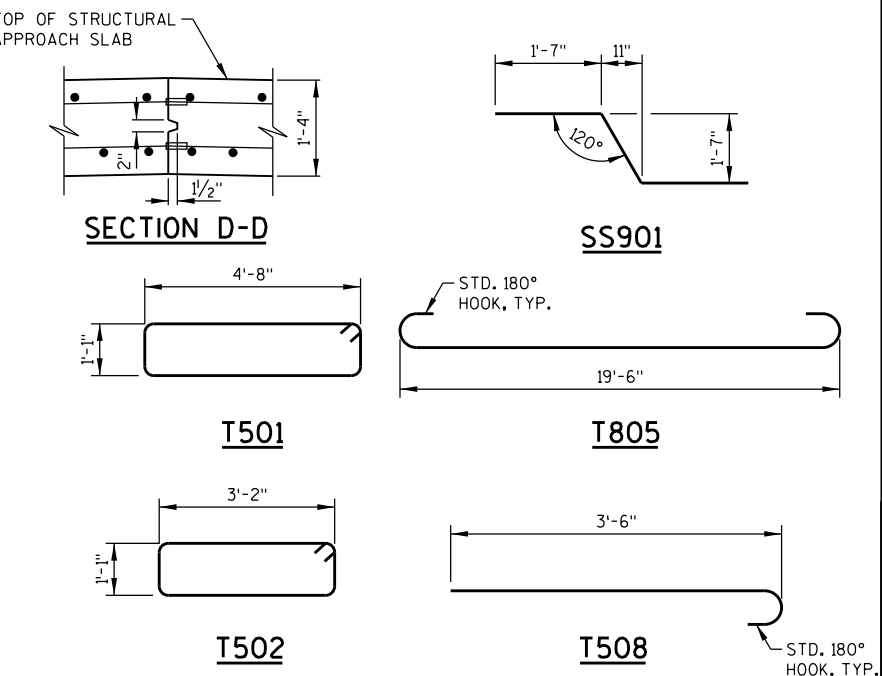
**SECTION B - B**

**SECTION THRU APPROACH SLAB**



**SECTION C - C**

FOR PARAPET BARS AND DETAILS SEE SHEET 23.



**LEGEND**

- ★ STEEL TROWEL TOP SURFACE OF FOOTING AND PLACE MULTIPLE LAYERS (0.03" MIN. TOTAL THK.) OF POLYETHYLENE SHEETS OVER THE ENTIRE TOP OF FOOTING.
- PLACE MULTIPLE LAYERS (0.03" MIN. TOTAL THK.) OF POLYETHYLENE SHEETS OVER THE ENTIRE TOP OF SUBGRADE BENEATH SLAB.
- SEAL ALL EXPOSED HORIZ. AND VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE).
- ◆ SEE ROADWAY PLANS FOR DETAILS.
- USE BAR COUPLERS TO CONTINUE BAR STEEL THRU JOINT. SEE SHEET 24 FOR DETAILS.

**NOTE**

SEE SHT. 24 FOR BAR COUPLER DETAILS.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-204</b>			
DRAWN BY		KAM	PLANS CKD. EAN
<b>STRUCTURAL APPROACH SLAB</b>			SHEET 22 OF 24

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 PLOT DATE: 7/27/2022

**BILL OF BARS**

FOR STRUCTURAL APPROACH SLAB PARAPETS  
BAR QUANTITIES INCLUDE ALL FOUR CORNERS.

BAR MARK	COAT	STAGE 1	STAGE 2	LENGTH	BENT	BAR SERIES	LOCATION
R501	X	36	36	4'-5"	X		PARAPET VERT.
R502	X	36	36	6'-8"	X		PARAPET VERT.
R503	X	24	24	2'-9"	X		PARAPET VERT.
R504	X	34	34	4'-4"	X		PARAPET VERT.
R505	X	10	10	6'-5"	X		PARAPET VERT.
R506	X	12	12	6'-6"	X		PARAPET VERT.
R507	X	2	2	19'-6"	X		PARAPET HORIZ.
R508	X	10	10	19'-6"	X		PARAPET HORIZ.
R509	X	12	12	5'-5"	X	▲	PARAPET VERT.
R510	X	4	4	19'-7"	X		PARAPET HORIZ.

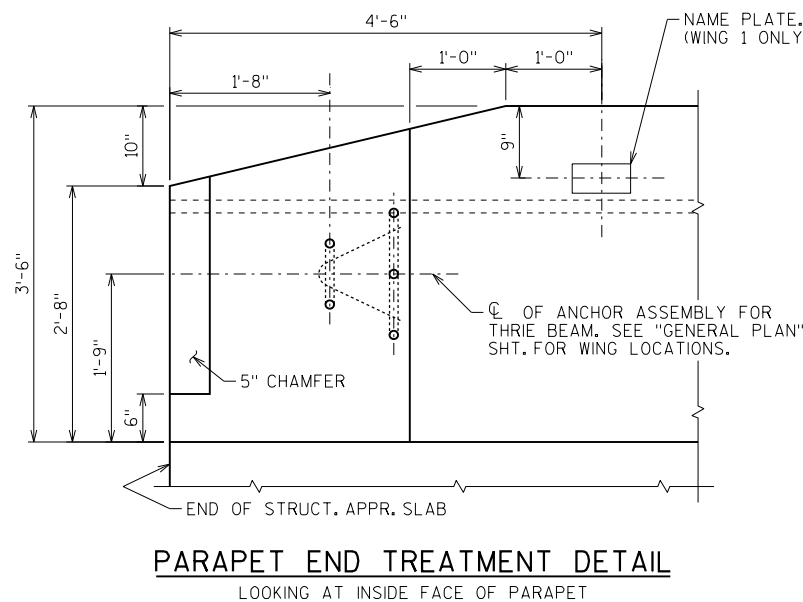
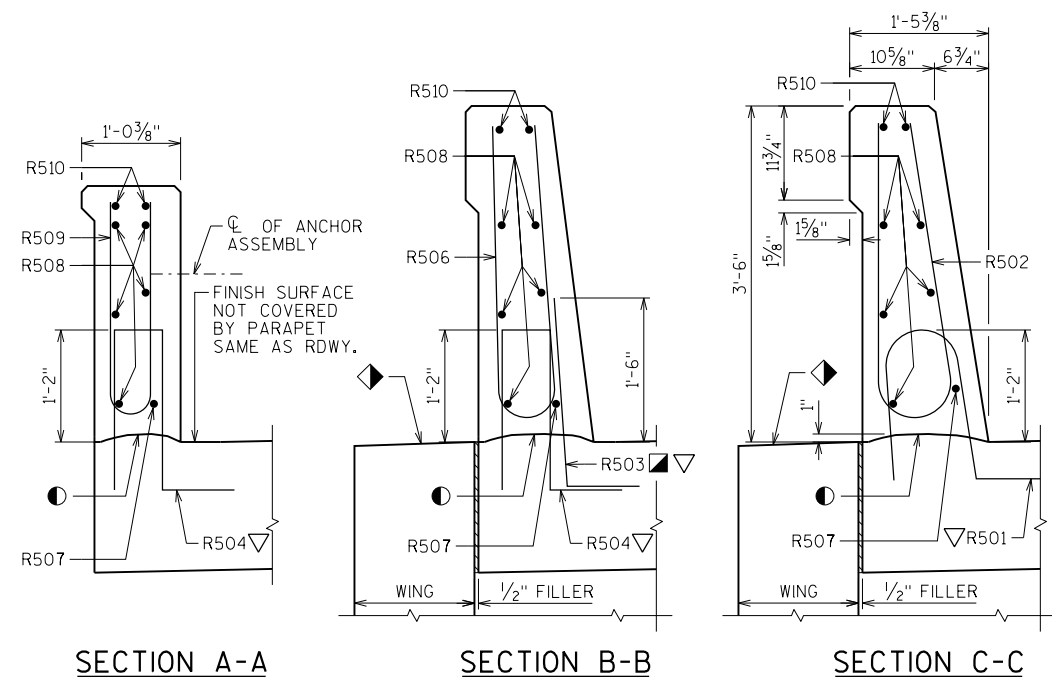
STAGE 1 WT. = 1,185 LBS.  
STAGE 2 WT. = 1,185 LBS.

▲ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

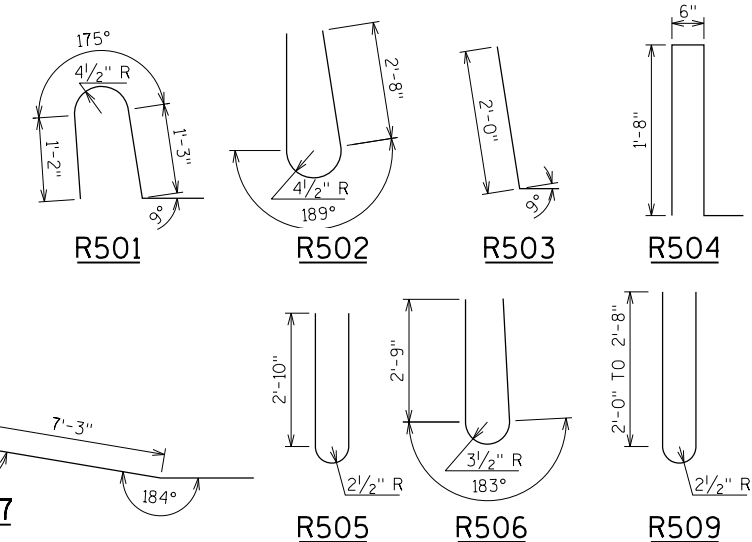
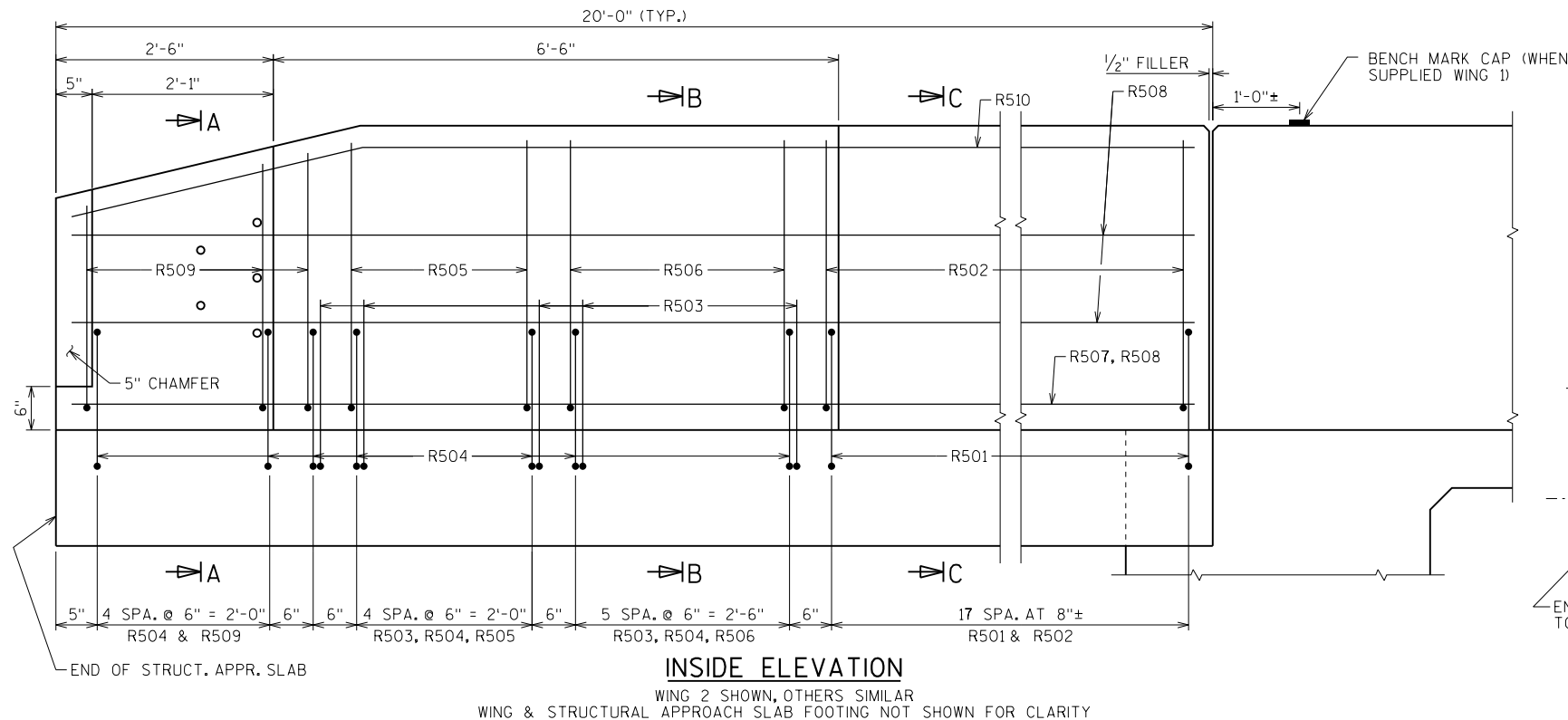
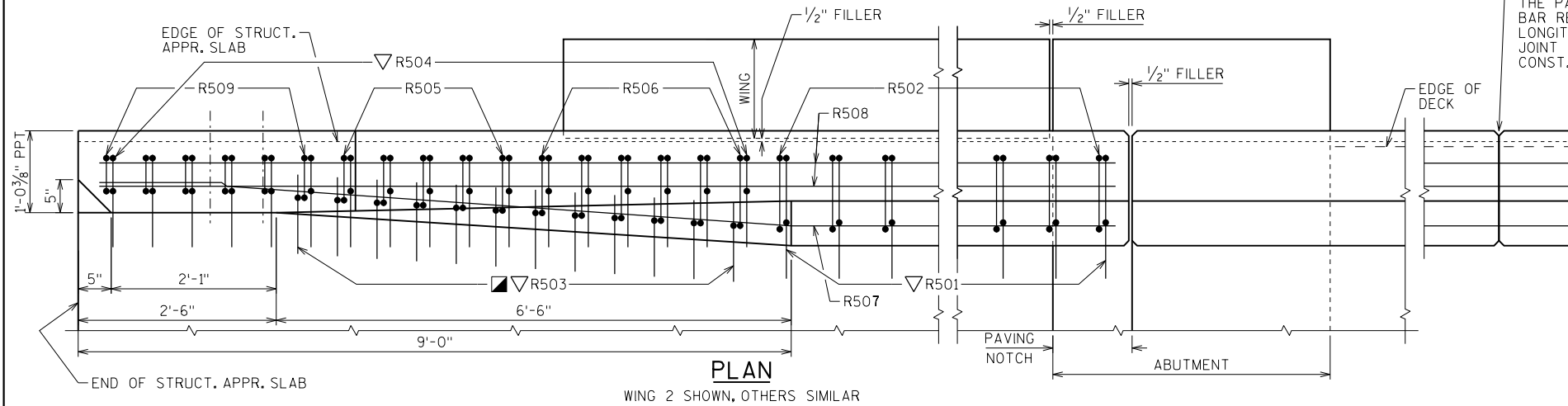
**BAR SERIES TABLE**

BAR MARK	NO. REQ'D	LENGTH
R509	4 SERIES OF 6	4'-9" TO 6'-1"

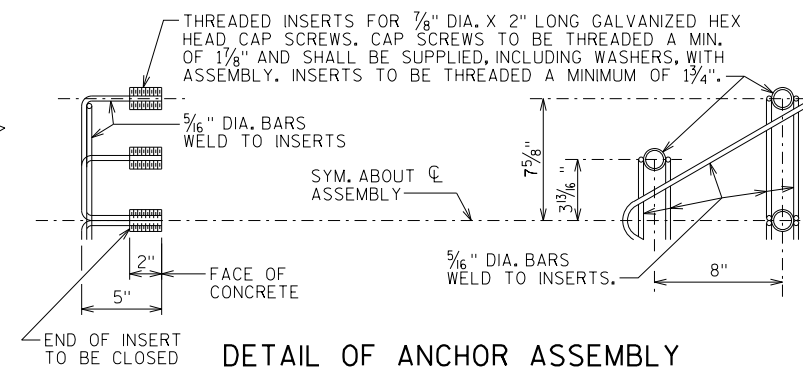
BUNDLE AND TAG EACH SERIES SEPARATELY.



OPTIONAL CONSTRUCTION JOINTS IN THE PARAPETS MAY BE USED. RUN BAR REINF. THRU THE JOINT. LAP LONGIT. BARS A MIN. OF 1'-9". MIN. JOINT SPACING OF 80'-0". DEFINE CONST. JOINT WITH A 3/4" - 'V' GROOVE.



- CONST. JOINT - STRIKE OFF AS SHOWN
- ◆ SLOPE FOR DRAINAGE
- USE CARE TO PLACE R503 BARS CORRECTLY ALONG TRANSITION OF PARAPET.
- ▽ R501, R503, AND R504 BARS TO BE TIED TO STRUCTURAL APPROACH SLAB STEEL BEFORE STRUCTURAL APPROACH SLAB IS POURED.



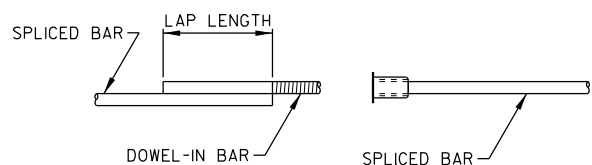
NOTE: HEX HEAD CAP SCREWS & WASHERS TO BE GALVANIZED IN ACCORDANCE WITH AASHTO M232 CLASS C.  
ASSEMBLY SHALL BE BID ITEM "ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD", EACH.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-204</b>			
DRAWN BY		KAM	PLANS CKD. EAN
<b>SINGLE SLOPE PARAPET 42SS WITH STRUCTURAL APPROACH SLAB</b>			SHEET 23 OF 24

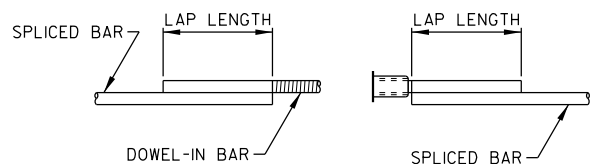
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 BATCH PRINT SHEET 23 OF 24

8

8



DOWEL BAR SPLICER

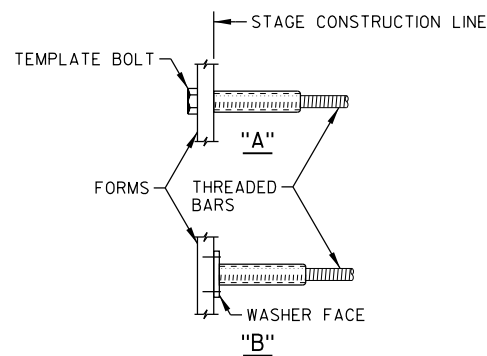


DOWEL BAR SPLICER



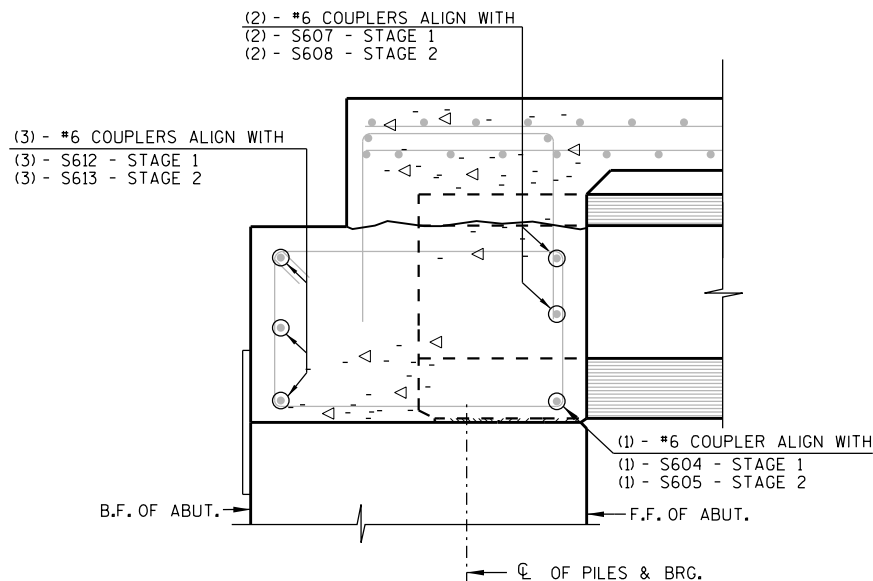
ONE PIECE THREADED SPLICER

**SPLICER ALTERNATIVES**

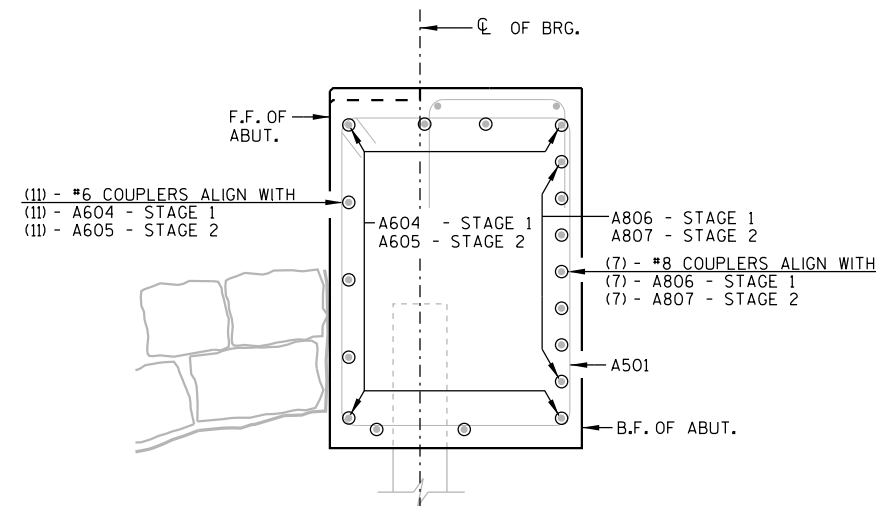


**INSTALLATION AND SETTING METHODS**

"A" SET SPLICER BY MEANS OF A TEMPLATE BOLT.  
 "B" SET SPLICER BY NAILING TO WOOD FORMS OR CEMENTING TO STEEL FORMS.



**TYPICAL SECTION THRU ABUTMENT DIAPHRAGM AT CONSTRUCTION JOINT**



**TYPICAL SECTION THRU ABUTMENT AT CONSTRUCTION JOINT**

(SOUTH ABUTMENT SHOWN, NORTH ABUTMENT SIMILAR)

**NOTES**

STEEL SPLICE (COUPLER) ASSEMBLY SHALL BE AN APPROVED TYPE AND SHALL DEVELOP IN TENSION AT LEAST 125% OF THE YIELD STRENGTH OF THE SPLICED REINFORCEMENT BARS.

DOWEL BAR SPLICERS SHALL BE OF MINIMUM 60 KSI YIELD STRENGTH, AND HAVE TENSILE STRENGTH AREA EQUAL OR GREATER THAN THAT OF THE LAPPED REINFORCEMENT BARS.

DOWEL BAR SPLICERS SHALL MEET THE DEFORMATION REQUIREMENTS FOR STANDARD ASTM DEFORMED REINFORCING BARS.

FOR DOWEL BAR SPLICERS, ALL REINFORCEMENT BARS SHALL BE LAPPED AND TIED TO THE SPLICER BARS.

SPLICER (COUPLER) ASSEMBLY IN THE STRUCTURAL APPROACH SLABS SHALL BE EPOXY COATED IN ACCORDANCE WITH THE REQUIREMENTS FOR REINFORCEMENT BARS.

OTHER SYSTEMS OF SIMILAR DESIGN MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL. APPROVAL SHALL BE BASED ON CERTIFIED TEST RESULTS FROM AN APPROVED TESTING LABORATORY THAT THE PROPOSED SPLICER (COUPLER) ASSEMBLY SATISFIES THE FOLLOWING REQUIREMENT:

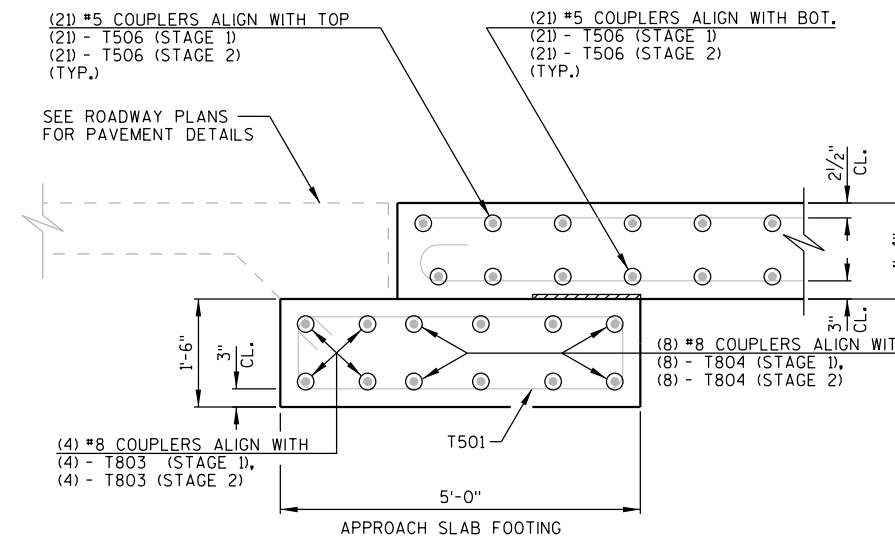
1. - MINIMUM CAPACITY = 1.25 x fy x AREA OF SPLICED REINFORCEMENT BAR.

WHERE fy = YIELD STRENGTH OF SPLICED REINFORCEMENT BARS.

**DOWEL BAR SPLICER LAP LENGTHS**

CONCRETE UNDER BAR	BAR SIZE	4	5	6	7	8	9	10	11
12" OR LESS	f'c = 3500	1'-8"	2'-8"	3'-2"	4'-3"	5'-6"	7'-0"	8'-9"	10'-11"
	f'c = 4000	1'-8"	2'-8"	3'-2"	4'-0"	5'-2"	6'-6"	8'-3"	10'-2"
MORE THAN 12"	f'c = 3500	2'-3"	2'-11"	3'-6"	4'-8"	6'-1"	7'-10"	9'-10"	12'-1"
	f'c = 4000	2'-3"	2'-11"	3'-6"	4'-5"	5'-8"	7'-4"	9'-2"	11'-4"

BAR LENGTH COMPUTED TO CL LONGIT. JOINT AND SHALL BE MODIFIED IF REQ'D. TO BAR COUPLER MANUFACTURER RECOMENDATIONS. PAY BASED ON BARS AS DETAILED.



**TYPICAL SECTION THRU APPROACH SLAB FOOTING AT CONSTRUCTION JOINT**

(SOUTH APPROACH SLAB SHOWN, NORTH APPROACH SLAB SIMILAR)

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 PLOT TIME: 6:05:17 PM  
 BATCH PRINT SHEET 24 OF 24

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-6-204			
DRAWN BY		KAM	PLANS CK'D. EAN
BAR SPLICER (COUPLER) DETAILS			SHEET 24 OF 24

**DESIGN DATA**

**LIVE LOAD:**  
 DESIGN LOADING: HL-93  
 INVENTORY RATING FACTOR = 1.26  
 OPERATING RATING FACTOR = 1.64  
 WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 250 KIPS

STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 PSF.

**MATERIAL PROPERTIES:**

CONCRETE MASONRY — DECK, PARAPET, DIAPHRAGMS, — f'c = 4,000 P.S.I.  
 APPROACH SLAB, APPR. SLAB FOOTING.  
 — ALL OTHER — f'c = 3,500 P.S.I.

BAR STEEL REINFORCEMENT, GRADE 60 — f<sub>y</sub> = 60,000 P.S.I.  
 (INCLUDES STAINLESS STEEL REINFORCEMENT)

28" PRESTRESSED GIRDER  
 — CONCRETE MASONRY — f'c = 8,000 P.S.I.  
 — STRANDS — 0.6" DIA. WITH ULTIMATE TENSILE STRENGTH OF — 270,000 P.S.I.

**FOUNDATION DATA**

ABUTMENTS TO BE SUPPORTED ON PILING STEEL HP 10-INCHx42LB. PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS\*\* PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 65'-0" LONG FOR THE SOUTH ABUTMENT AND 60'-0" LONG FOR THE NORTH ABUTMENT.

\*\* THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS THE REQUIRED DRIVING RESISTANCE MULTIPLIED BY A RESISTANCE FACTOR OF 0.5 USING THE MODIFIED GATE DYNAMIC FORMULA TO DETERMINE DRIVEN PILE CAPACITY.

**TRAFFIC VOLUME**

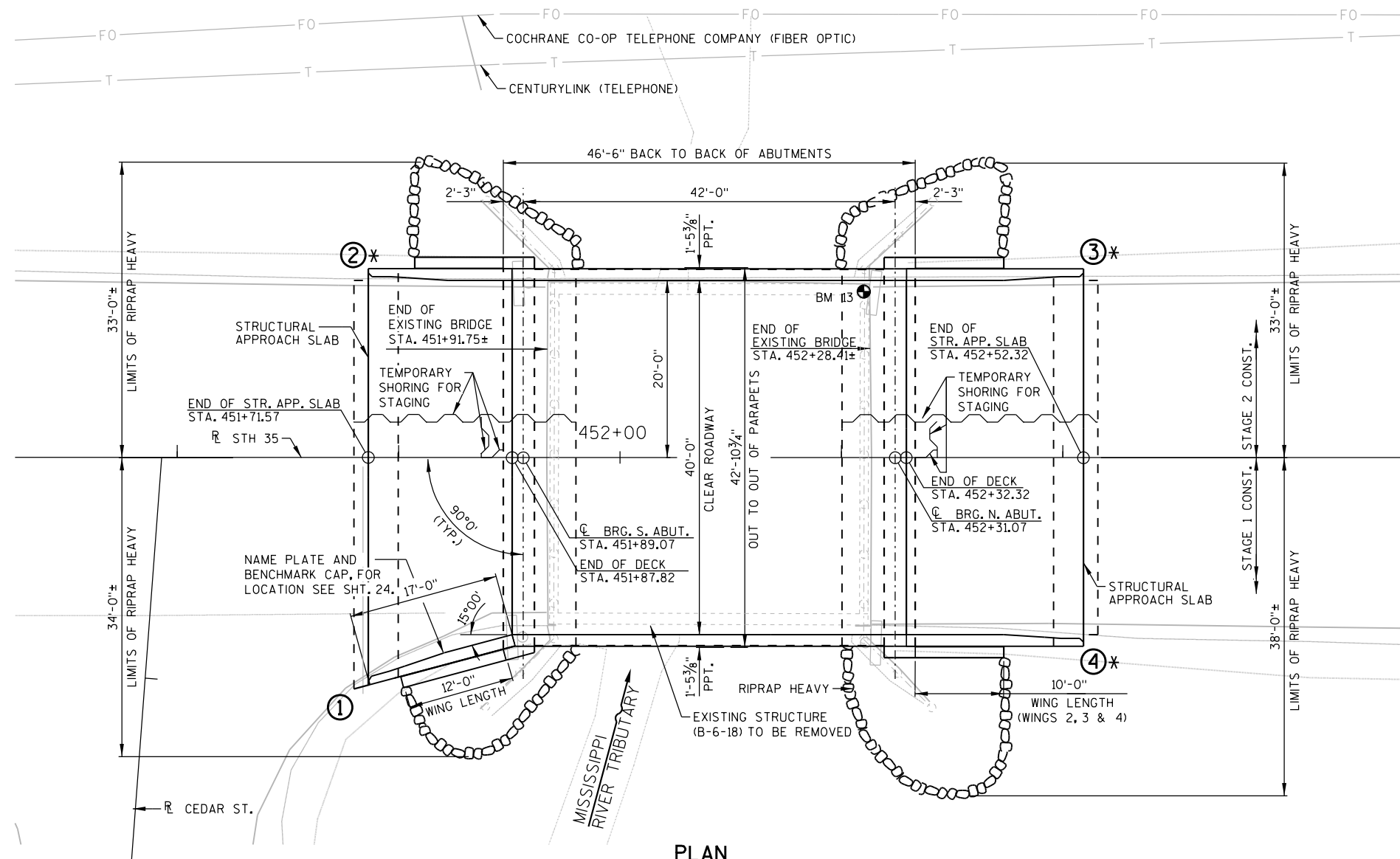
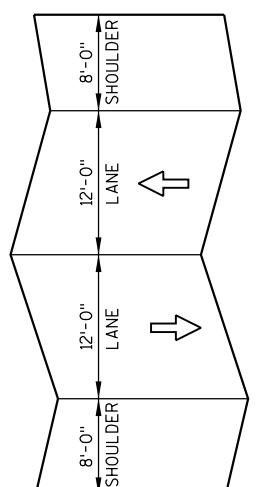
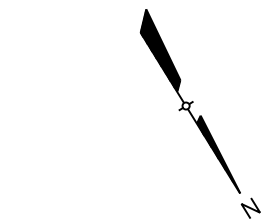
STH 35  
 A.D.T. (2023) = 5,500  
 A.D.T. (2043) = 6,350  
 DESIGN SPEED = 40 MPH

**HYDRAULIC DATA**

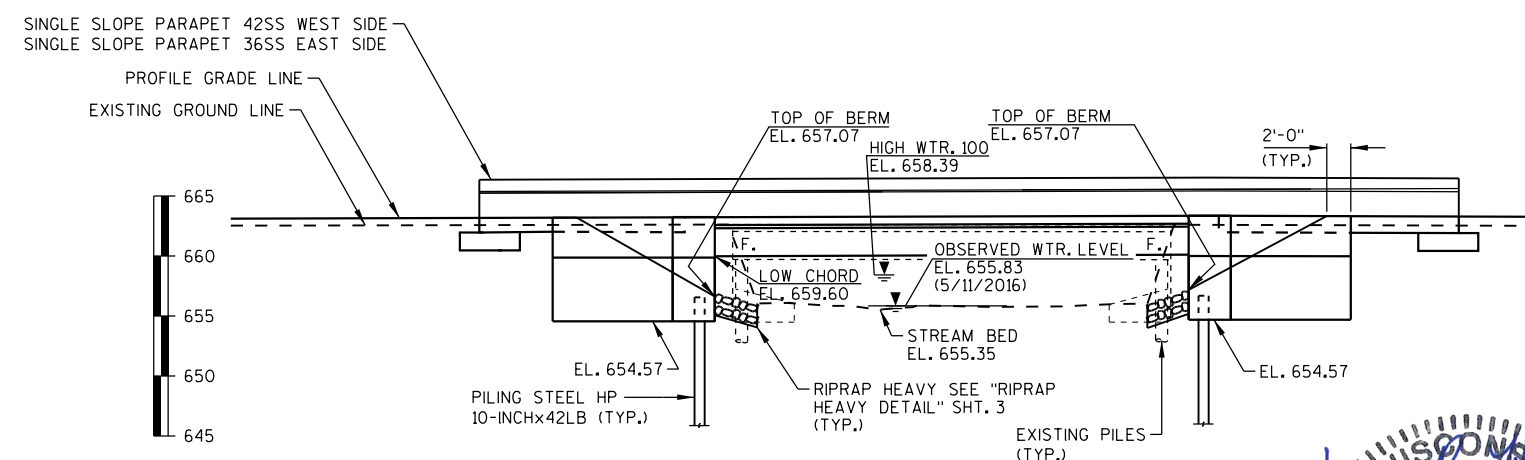
**100 YEAR FREQUENCY**  
 Q100 — 345 CFS  
 VELOCITY — 4.4 FPS  
 HIGH WATER ELEVATION — 658.39  
 WATERWAY AREA — 77.7 SQ. FT.  
 DRAINAGE AREA — 0.55 SQ. MI.  
 ROAD OVERTOPPING — N/A  
 SCOUR CRITICAL CODE — 5

**2 YEAR FREQUENCY**  
 Q2 — 55 CFS  
 HIGH WATER 2 ELEVATION — 657.26  
 VELOCITY 2 — 2.1 FPS

- \* PROVIDE FOR THRIE BEAM GUARDRAIL ATTACHMENT.
- (X) INDICATES WING NUMBER



**PLAN**  
 (SINGLE SPAN - 28" PRESTRESSED GIRDERS)



**ELEVATION**  
 NORMAL TO MISSISSIPPI RIVER TRIBUTARY

**BENCH MARK TABLE**

NO.	STATION	DESCRIPTION	ELEVATION
BM 11	451+17 RT	MAGNAIL SPIKE IN LIGHT POLE	661.87
BM 12	454+27 RT	BENCH TIE SPIKE IN LIGHT POLE	661.97
BM 13	452+28 LT	ALUM CAP NW CORNER OF DECK	662.40

HORIZ. COORDINATES TIED TO NAD 83 (2011). VERT. TIED TO NAVD 88. COORDINATE SYSTEM WCCS, BUFFALO COUNTY.

**LIST OF DRAWINGS**

1. GENERAL PLAN
2. CROSS SECTION & QUANTITIES
3. CONSTRUCTION DETAILS
4. SUBSURFACE EXPLORATION - 1
5. SUBSURFACE EXPLORATION - 2
6. CONSTRUCTION STAGING - 1
7. CONSTRUCTION STAGING - 2
8. SOUTH ABUTMENT
9. SOUTH ABUTMENT PILE PLAN AND SECTION
10. WINGS 1 AND 2
11. SOUTH ABUTMENT DETAILS
12. NORTH ABUTMENT
13. NORTH ABUTMENT PILE PLAN AND SECTION
14. WINGS 3 AND 4
15. NORTH ABUTMENT DETAILS
16. 28" PRESTRESSED GIRDER
17. INTERMEDIATE STEEL DIAPHRAGM
18. SUPERSTRUCTURE CROSS SECTION
19. SUPERSTRUCTURE
20. SUPERSTRUCTURE DETAILS - 1
21. SUPERSTRUCTURE DETAILS - 2
22. SOUTH STRUCTURAL APPROACH SLAB
23. NORTH STRUCTURAL APPROACH SLAB
24. SINGLE SLOPE PARAPET 42SS WITH STRUCTURAL APPROACH SLAB
25. SINGLE SLOPE PARAPET 36SS WITH STRUCTURAL APPROACH SLAB
26. BAR SPLICER (COUPLER) DETAILS

**STRUCTURES DESIGN CONTACTS**

BRIDGE OFFICE:  
 AARON BONK (608) 261-0261

CONSULTANT:  
 KEVIN HAGEN (715) 342-3053

AECOM PROJECT NO. 60579395

NO.	DATE	REVISION	BY



STATE OF WISCONSIN  
 DEPARTMENT OF TRANSPORTATION

ACCEPTED *[Signature]* SDR **09/30/22**  
 CHIEF STRUCTURES DESIGN ENGINEER DATE

**STRUCTURE B-6-206**

STH 35 OVER MISSISSIPPI RIVER TRIBUTARY

COUNTY BUFFALO TOWN/CITY/VILLAGE FOUNTAIN CITY

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY KB/KRH DESIGN CK'D. AUC DRAWN BY MES PLANS CK'D. KRH

**GENERAL PLAN**

SHEET 1 OF 26



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 BATCH PRINT SHEET 1 OF 26



**GENERAL NOTES**

DRAWINGS SHALL NOT BE SCALED.

BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS SHOWN OR NOTED OTHERWISE.

THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH RIPRAP HEAVY AND GEOTEXTILE TYPE 'HR' WITHIN THE LIMITS SHOWN ON SHEETS 1 AND 3, ON THE ABUTMENT SHEETS OR AS DIRECTED BY THE ENGINEER.

THE FIRST DIGIT OF A THREE DIGIT BAR MARK AND THE FIRST TWO DIGITS OF A FOUR DIGIT BAR MARK SIGNIFIES THE BAR SIZE.

THE EXISTING STRUCTURE (B-6-18) IS A SINGLE SPAN STEEL DECK GIRDER BRIDGE, 36.5' LONG x 38.9' WIDE, TO BE REMOVED. CONTRACTOR SHALL VERIFY THE ADEQUACY OF THE EXISTING STRUCTURE DURING STAGE 1 CONSTRUCTION IN ACCORDANCE WITH 108.7.3 OF THE STANDARD SPECIFICATIONS.

ALL REQUIRED REMOVAL OF THE EXISTING SUBSTRUCTURES IS INCLUDED IN THE BID ITEM "REMOVING STRUCTURE OVER WATERWAY MINIMAL DEBRIS B-6-18".

ELASTOMERIC BEARING PADS NEED NOT BE INDIVIDUALLY MOLDED PROVIDED THE CUT EDGES ARE SMOOTH AND TRUE.

THE HAUNCH CONCRETE QUANTITY IS BASED ON THE AVERAGE HAUNCH SHOWN ON THE PRESTRESSED GIRDER DETAIL SHEET.

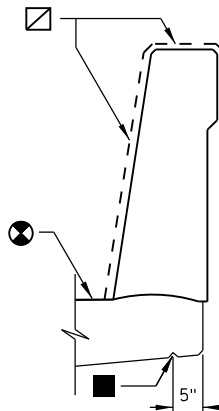
EXCAVATION REQUIRED UNDER THE BID ITEM "EXCAVATION FOR STRUCTURES BRIDGES B-6-206" IS NOT USED TO BALANCE THE EARTHWORK.

AT THE BACKFACE OF ABUTMENT, ALL VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL.

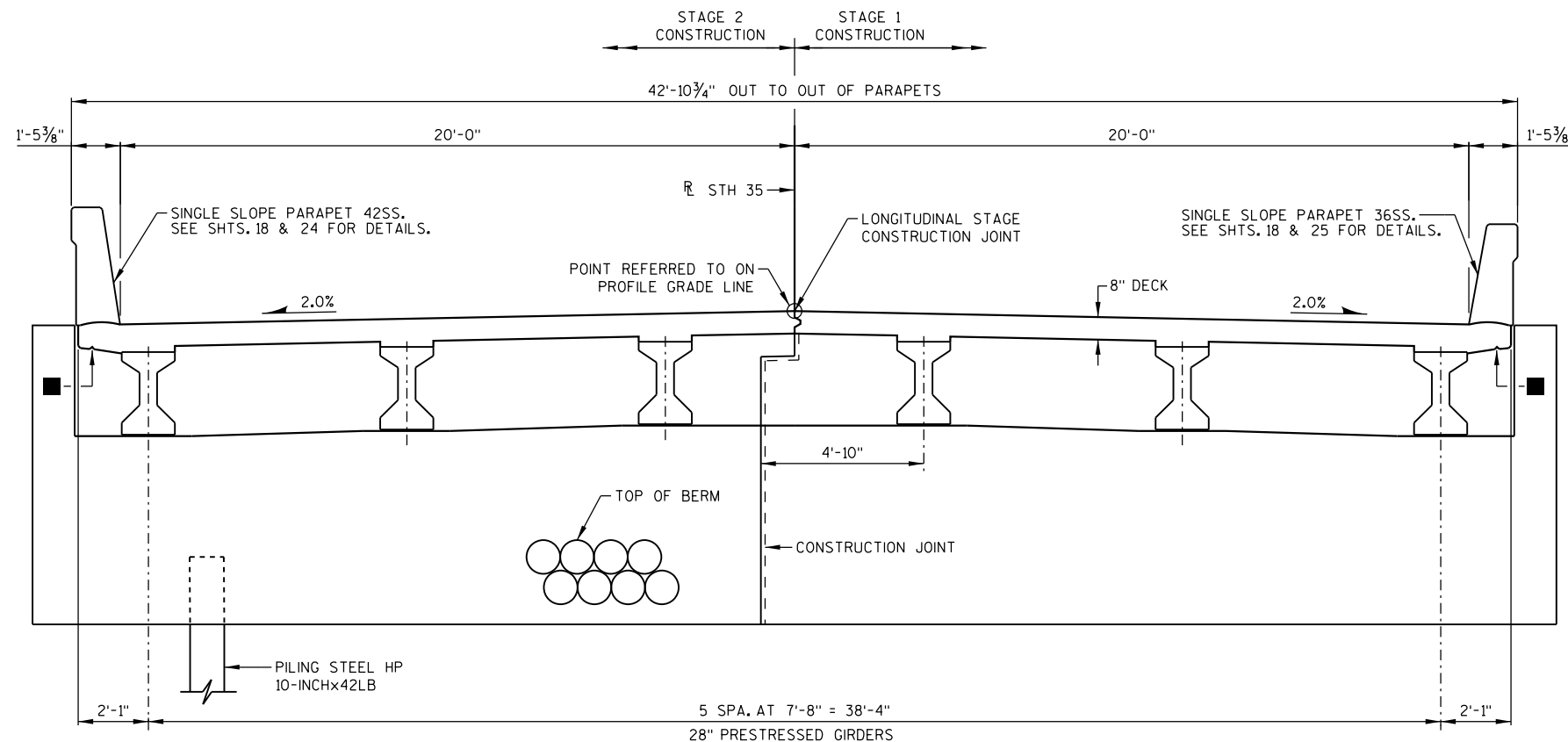
PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE PAVING NOTCHES, TOP OF SLAB AND TOP OF THE STRUCTURAL APPROACH SLABS. PIGMENTED SURFACE SEALER TO BE APPLIED TO THE INSIDE FACE OF PARAPETS AND THE TOP OF PARAPETS, INCLUDING PARAPETS ON THE STRUCTURAL APPROACH SLABS.

**LEGEND**

- ☒ COAT WITH "PIGMENTED SURFACE SEALER" AS PER THE STANDARD SPECIFICATIONS.
- ⊗ COAT WITH "PROTECTIVE SURFACE TREATMENT" AS PER THE STANDARD SPECIFICATIONS.
- 3/4" V-GROOVE REQ'D. EXTEND V-GROOVE TO 6" FROM FRONT FACE OF ABUT. DIAPHRAGM.



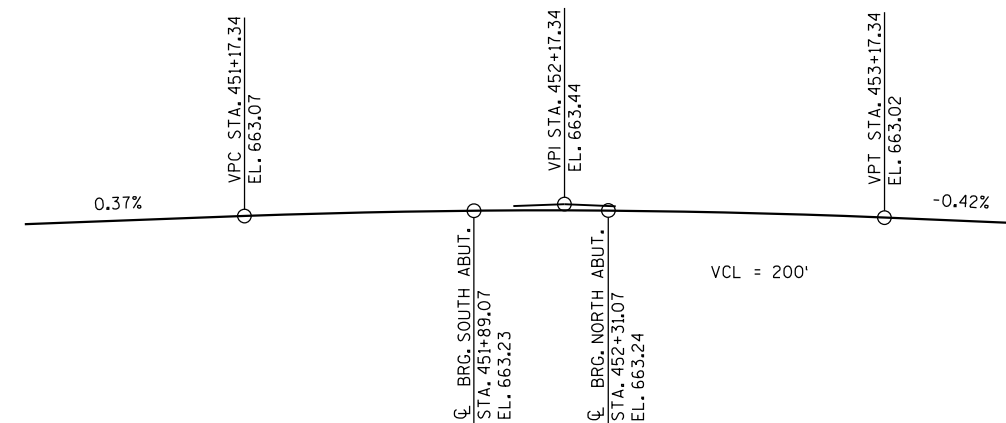
**SURFACE PROTECTION DETAIL**



**CROSS SECTION THRU ROADWAY**  
(LOOKING UPSTATION)

**TOTAL ESTIMATED QUANTITIES**

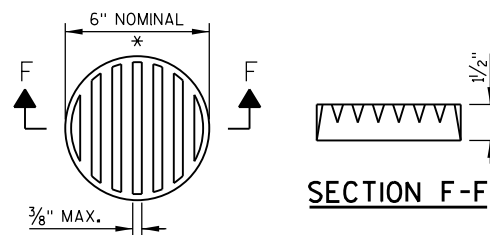
BID ITEM NUMBER	BID ITEM	UNIT	SOUTH APPROACH	SOUTH ABUTMENT	NORTH ABUTMENT	NORTH APPROACH	SUPER.	TOTALS
203.0260	REMOVING STRUCTURE OVER WATERWAY MINIMAL DEBRIS B-6-18	EACH						1
206.1001	EXCAVATION FOR STRUCTURES BRIDGES B-6-206	EACH						1
210.1500	BACKFILL STRUCTURE TYPE A	TON		110	105			215
305.0120	BASE AGGREGATE DENSE 1 1/4-INCH	TON	110			130		240
502.0100	CONCRETE MASONRY BRIDGES	CY	54	47	46	60	89	296
502.3200	PROTECTIVE SURFACE TREATMENT	SY	80			90	220	390
502.3210	PIGMENTED SURFACE SEALER	SY	20			20	45	85
503.0128	PRESTRESSED GIRDER TYPE I 28-INCH	LF					258	258
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB		2,770	2,770			5,540
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	9,660	1,490	1,360	9,990	16,490	38,990
505.0800.S	BAR STEEL REINFORCEMENT HS STAINLESS STRUCTURES	LB	730			750		1,480
505.0905	BAR COUPLERS NO. 5	EACH	34			42		76
505.0906	BAR COUPLERS NO. 6	EACH		11	11		12	34
505.0908	BAR COUPLERS NO. 8	EACH	12	7	7	12		38
506.2605	BEARING PADS ELASTOMERIC NON-LAMINATED	EACH		6	6			12
506.4000	STEEL DIAPHRAGMS B-6-206	EACH					5	5
511.1200	TEMPORARY SHORING B-6-206	SF		310	345			655
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY		12	12			24
550.1100	PILING STEEL HP 10-INCH X 42 LB	LF		455	420			875
606.0300	RIPRAP HEAVY	CY		43	54			97
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF		85	85			170
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	1			2		3
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY		59	58			117
645.0120	GEOTEXTILE TYPE HR	SY		104	125			229
	NON-BID ITEMS							
	FILLER	SIZE						1/2"



**PROFILE GRADE LINE, STH 35**

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-206</b>			
DRAWN BY		MES/KAM	PLANS CK'D. AJC
<b>CROSS SECTION &amp; QUANTITIES</b>			SHEET 2 OF 26

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 PLOT DATE: 9/29/2022 PLOT TIME: 1:52:48 PM BATCH PRINT SHEET 2 OF 26

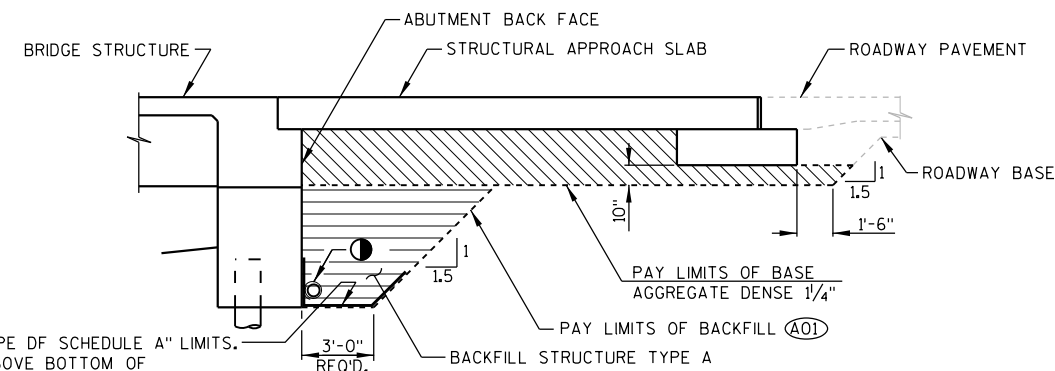


**RODENT SHIELD DETAIL**

\* DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.

THE RODENT SHIELD, PIPE COUPLING AND SCREWS SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH STAINLESS STEEL SHEET METAL SCREWS.



"GEOTEXTILE TYPE OF SCHEDULE A" LIMITS. EXTEND 2'-0" ABOVE BOTTOM OF ABUTMENT FOR THE ENTIRE ABUTMENT BODY LENGTH.

**BACKFILL STRUCTURE LIMITS**

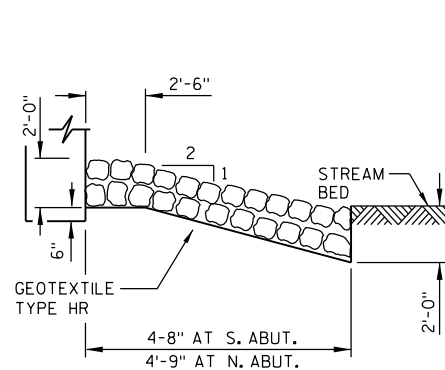
THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGES B-6-206" SHALL BE THE EXISTING GROUNDLINE.

(A01) BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.

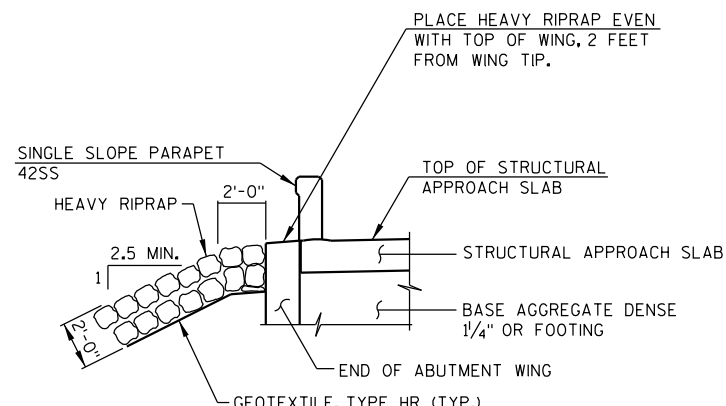
THE BACKFILL QUANTITIES ARE BASED ON THE PAY LIMITS SHOWN ON THE PLANS AND MAY NOT REFLECT ACTUAL PLACED QUANTITIES. "BACKFILL STRUCTURE TYPE A" REQUIRED DIRECTLY BEHIND ABUTMENTS AND ABUTMENT WINGS FOR 3 FEET. BACKFILL PLACED BEYOND PAY LIMITS OR EXCEEDING PLAN QUANTITIES SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES.

EXCAVATION BELOW THE ABUTMENT AND ABUTMENT BEDDING MATERIALS REQUIRES ENGINEER APPROVAL. GEOTEXTILE SHALL BE SET AT THE BOTTOM OF EXCAVATION AND EXTEND 2'-0" ABOVE THE BOTTOM OF THE ABUTMENT.

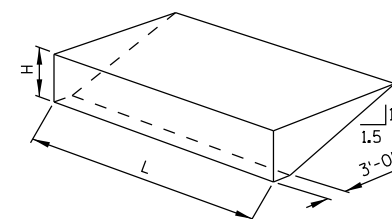
PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN.



**RIPRAP DETAIL**



**TYPICAL FILL SECTION AT WING TIPS**  
(TYP. BOTH ABUTMENTS)



**WINGS PARALLEL TO ROADWAY**

**ABUTMENT BACKFILL DIAGRAM**

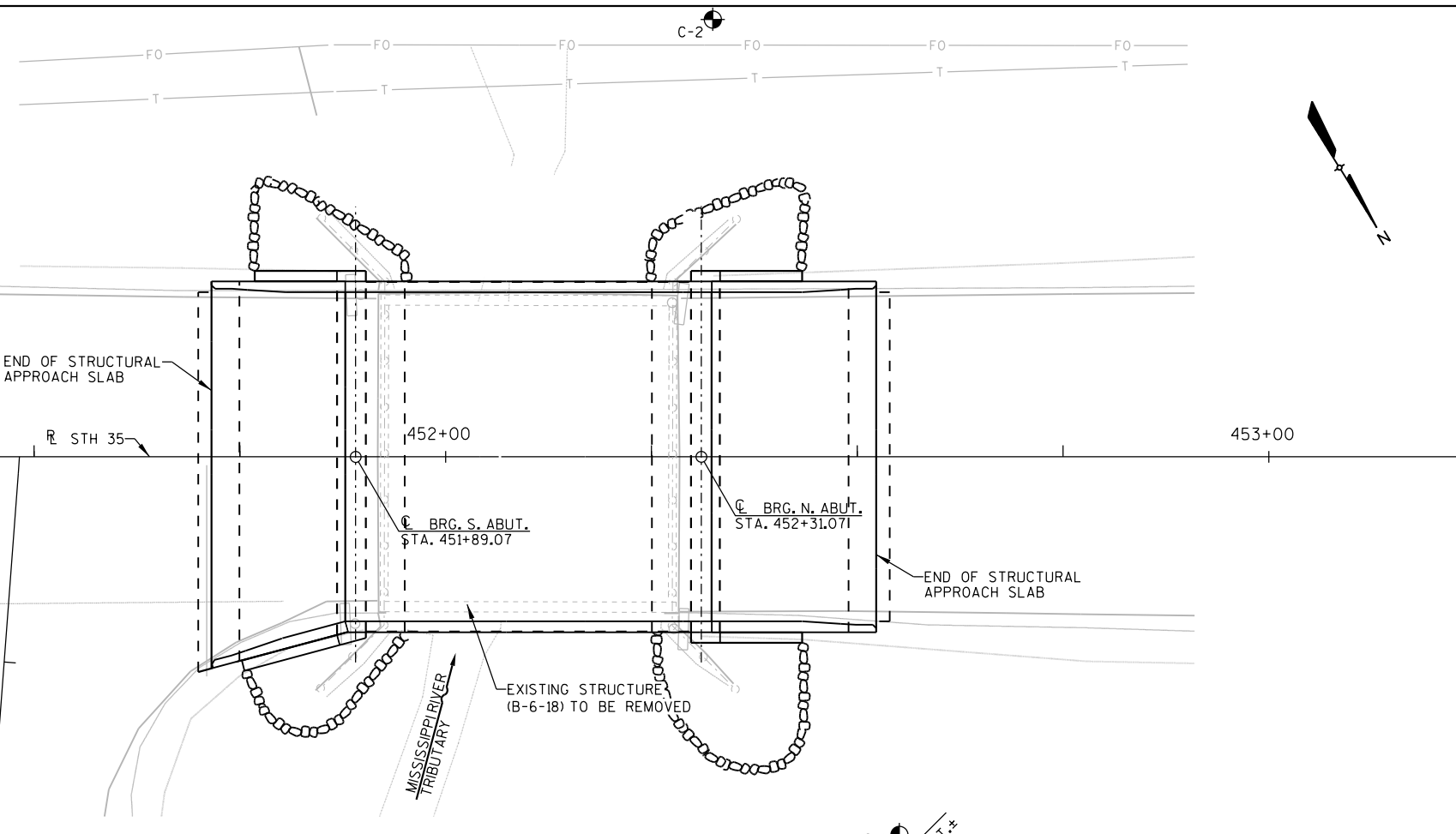
- L = OUT TO OUT OF ABUTMENT, INCLUDING WINGS (FT)
- H = AVERAGE ABUTMENT FILL HEIGHT (FT)
- EF = EXPANSION FACTOR (1.20 FOR CY BID ITEMS, AND 1.00 FOR TON BID ITEMS)
- V<sub>CF</sub> = (L)(3.0')(H) + (L)(0.5)(1.5)(H)
- V<sub>CY</sub> = V<sub>CF</sub> (EF)/27
- V<sub>TON</sub> = V<sub>CY</sub> (2.0)

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 PLOT DATE: 9/29/2022 PLOT TIME: 15:33:36 PM BATCH PRINT SHEET 3 OF 26

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-206</b>			
DRAWN BY		MES/KAM	PLANS CK'D. AJC
<b>CONSTRUCTION DETAILS</b>			SHEET 3 OF 26

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
C-1	7/25/2018	233575.7±	599190.7±
C-2	7/24/2018	233477.8±	599156.7±

BORINGS COMPLETED BY: AMERICAN ENGINEERING TESTING, INC.  
 REPORT COMPLETED BY: AMERICAN ENGINEERING TESTING, INC.  
 ALL COORDINATES REFERENCED TO WCCS NAD 83(11) BUFFALO COUNTY



**LEGEND**  
 DENOTES APPROXIMATE LOCATION OF STANDARD PENETRATION TEST BORING.

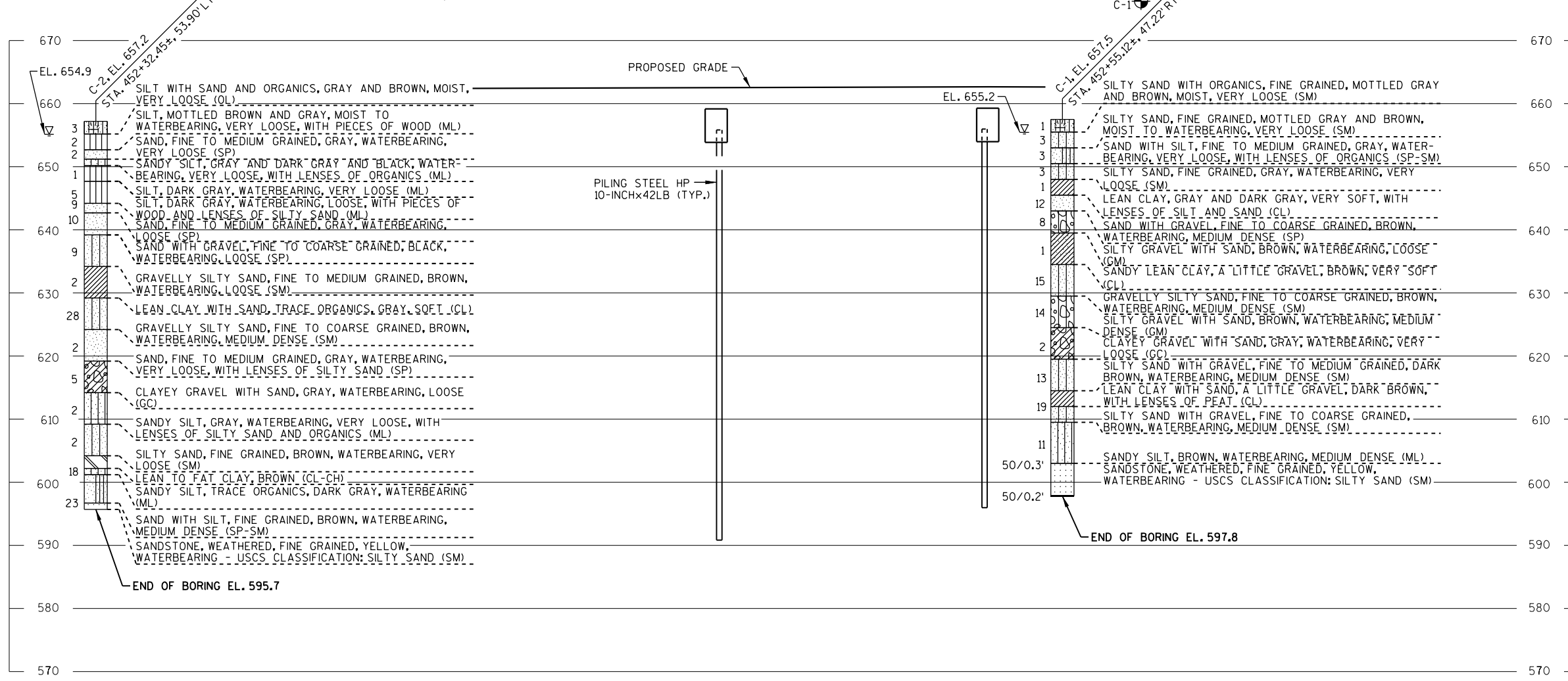
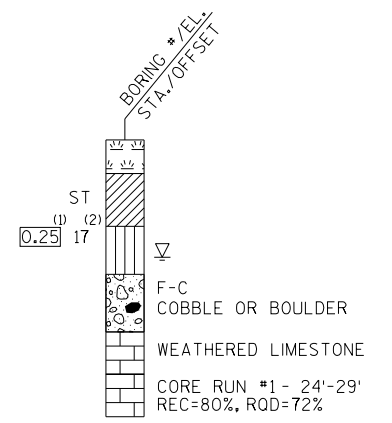
STATE PROJECT NUMBER

7160-04-75

MATERIAL SYMBOLS

ASPHALT	TOPSOIL	PEAT
CONCRETE	FILL	GRAVEL
SAND	CLAY	SILT
BOULDERS OR COBBLES	LIMESTONE	BEDROCK (UNKNOWN)
SHALE	SANDSTONE	IGNEOUS/META

LEGEND OF BORING



GROUND WATER ELEVATION  
 ▽ AT TIME OF DRILLING  
 ▼ END OF DRILLING  
 ▲ AFTER DRILLING

ABBREVIATIONS  
 WH - SAMPLER PENETRATED SOIL UNDER WEIGHT OF HAMMER AND RODS ALONE; DRIVING NOT REQ'D.  
 F-FINE M-MEDIUM C-COARSE ST-SHELBY TUBE

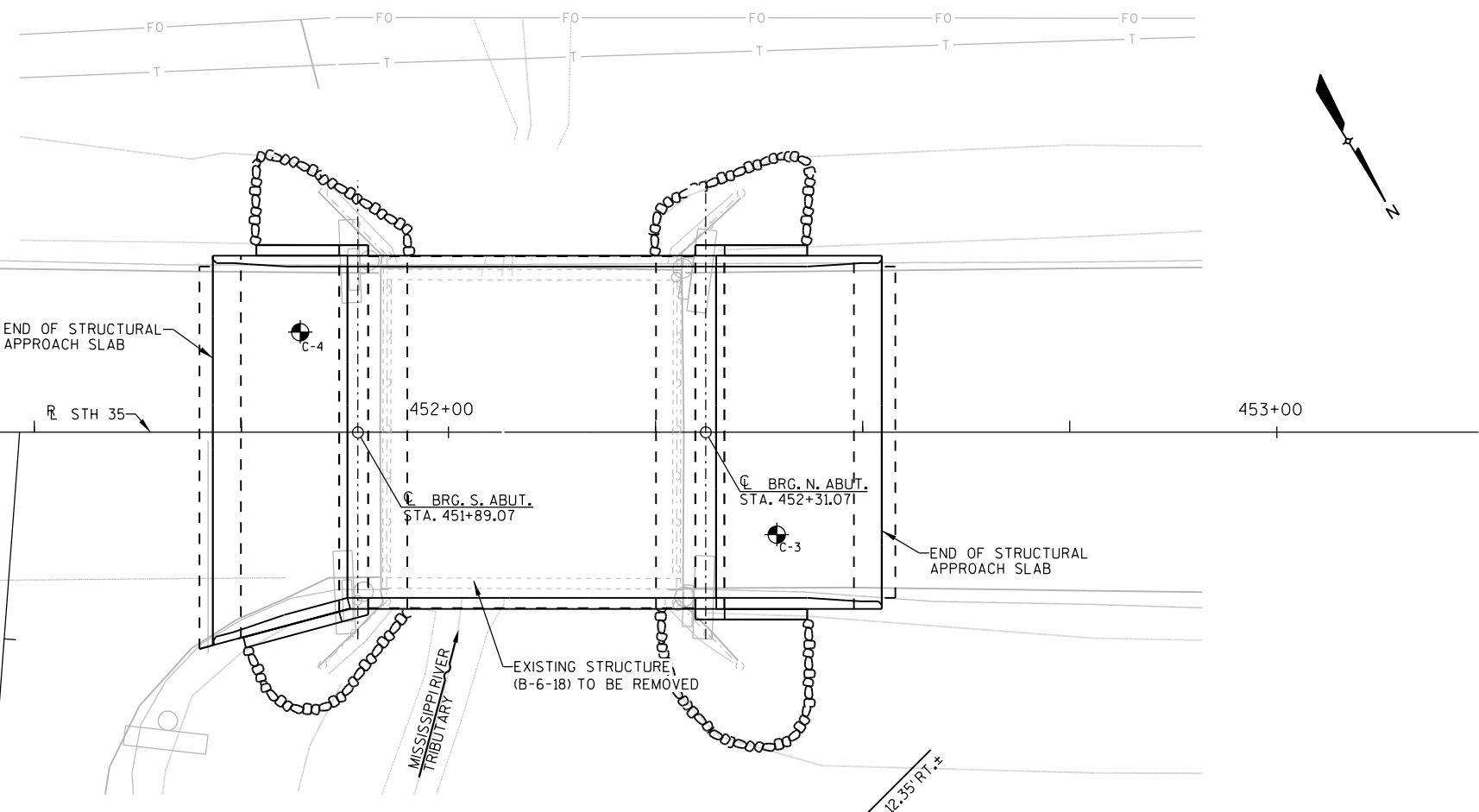
SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT SIMILAR SUBSURFACE CONDITIONS BELOW, BETWEEN, OR BEYOND THESE BORINGS. VARIATIONS IN SOIL CONDITIONS SHOULD BE EXPECTED AND FLUCTUATIONS IN GROUNDWATER LEVELS MAY OCCUR.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-6-206			
DRAWN BY MES		PLANS CKD. KRH	
SUBSURFACE EXPLORATION-1			SHEET 4 OF 25

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
C-3	7/27/2018	233537.9±	599185.5±
C-4	7/27/2018	233486.8±	599221.5±

BORINGS COMPLETED BY: AMERICAN ENGINEERING TESTING, INC.  
 REPORT COMPLETED BY: AMERICAN ENGINEERING TESTING, INC.  
 ALL COORDINATES REFERENCED TO WCCS NAD 83(11) BUFFALO COUNTY

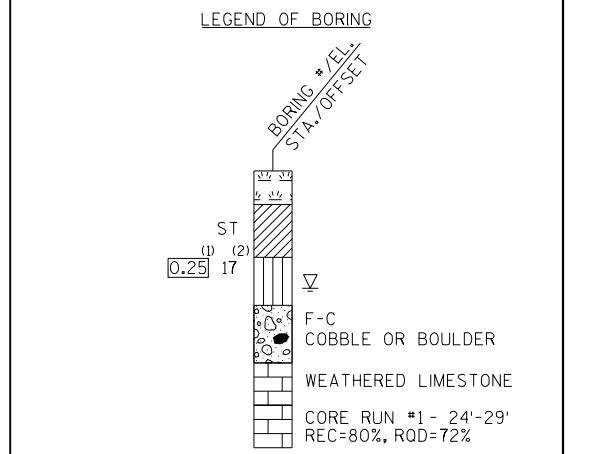


**LEGEND**  
 DENOTES APPROXIMATE LOCATION OF STANDARD PENETRATION TEST BORING.

STATE PROJECT NUMBER  
**7160-04-75**

**MATERIAL SYMBOLS**

ASPHALT	TOPSOIL	PEAT
CONCRETE	FILL	GRAVEL
SAND	CLAY	SILT
BOULDERS OR COBBLES	LIMESTONE	BEDROCK (UNKNOWN)
SHALE	SANDSTONE	IGNEOUS/META



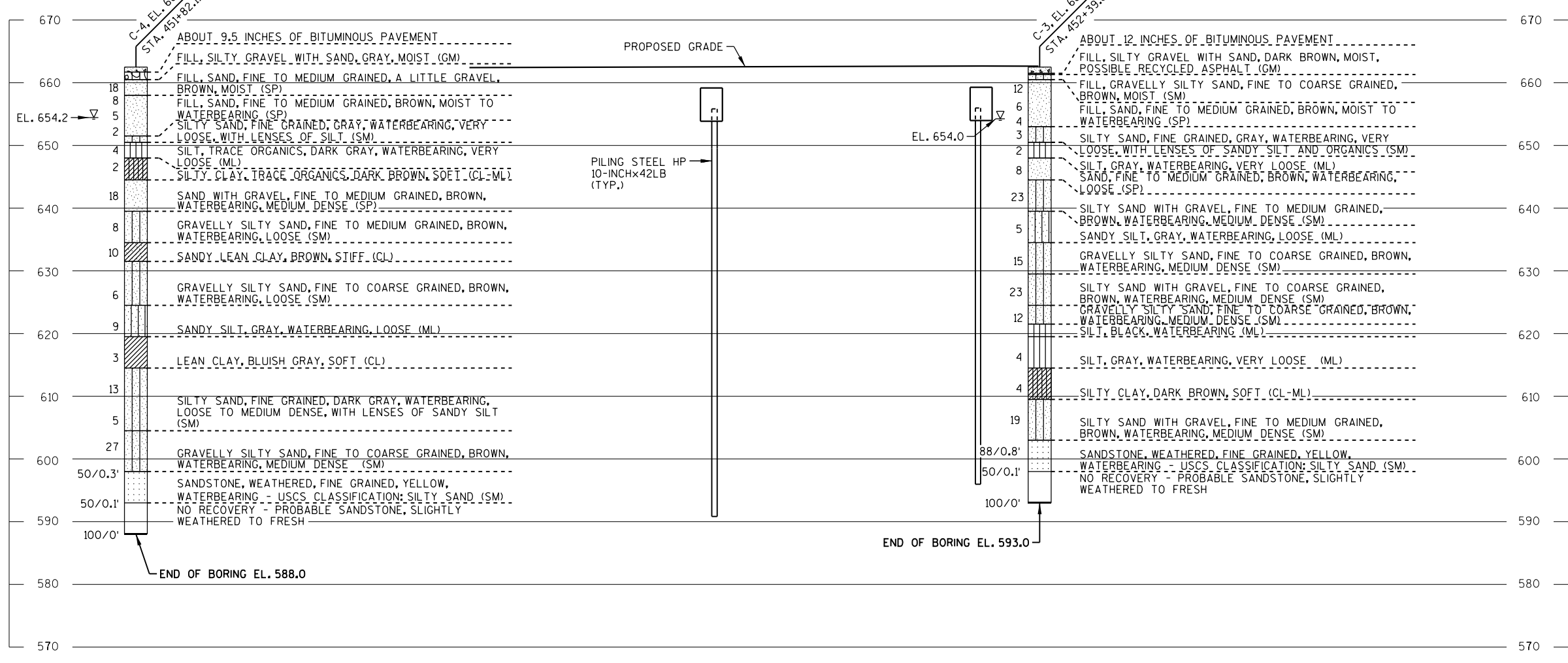
(1) UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)  
 (2) UNLESS OTHERWISE SPECIFIED THE SPT 'N' VALUE IS BASED ON AASHTO T-206, STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.

**GROUND WATER ELEVATION**  
 ▽ AT TIME OF DRILLING  
 ▼ END OF DRILLING  
 ▽ AFTER DRILLING

**ABBREVIATIONS**  
 WH - SAMPLER PENETRATED SOIL UNDER WEIGHT OF HAMMER AND RODS ALONE; DRIVING NOT REQ'D.  
 F-FINE M-MEDIUM C-COARSE ST-SHELBY TUBE

**SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION**

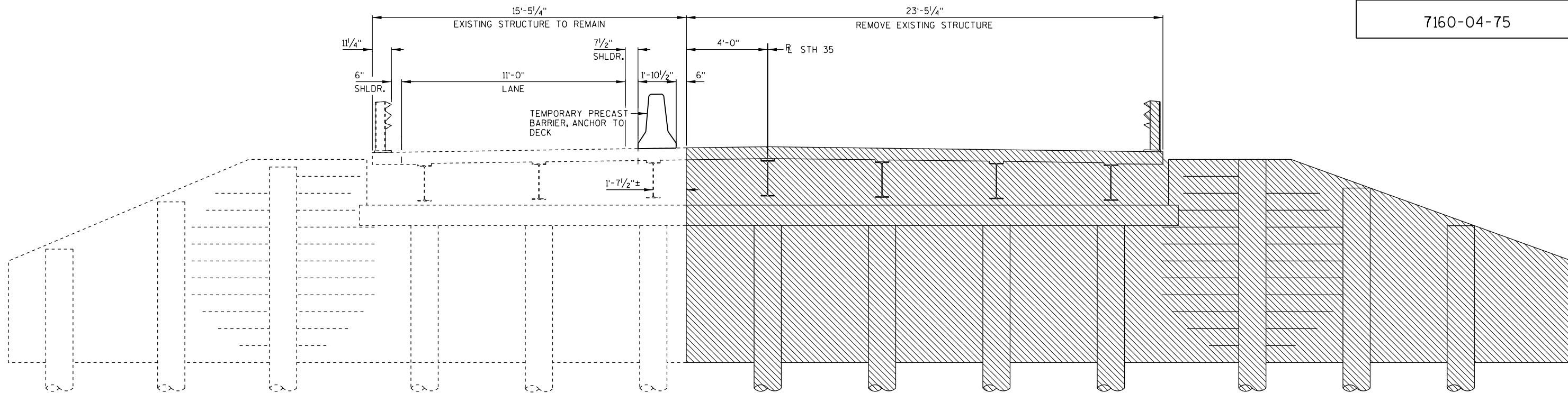
BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT SIMILAR SUBSURFACE CONDITIONS BELOW, BETWEEN, OR BEYOND THESE BORINGS. VARIATIONS IN SOIL CONDITIONS SHOULD BE EXPECTED AND FLUCTUATIONS IN GROUNDWATER LEVELS MAY OCCUR.



8

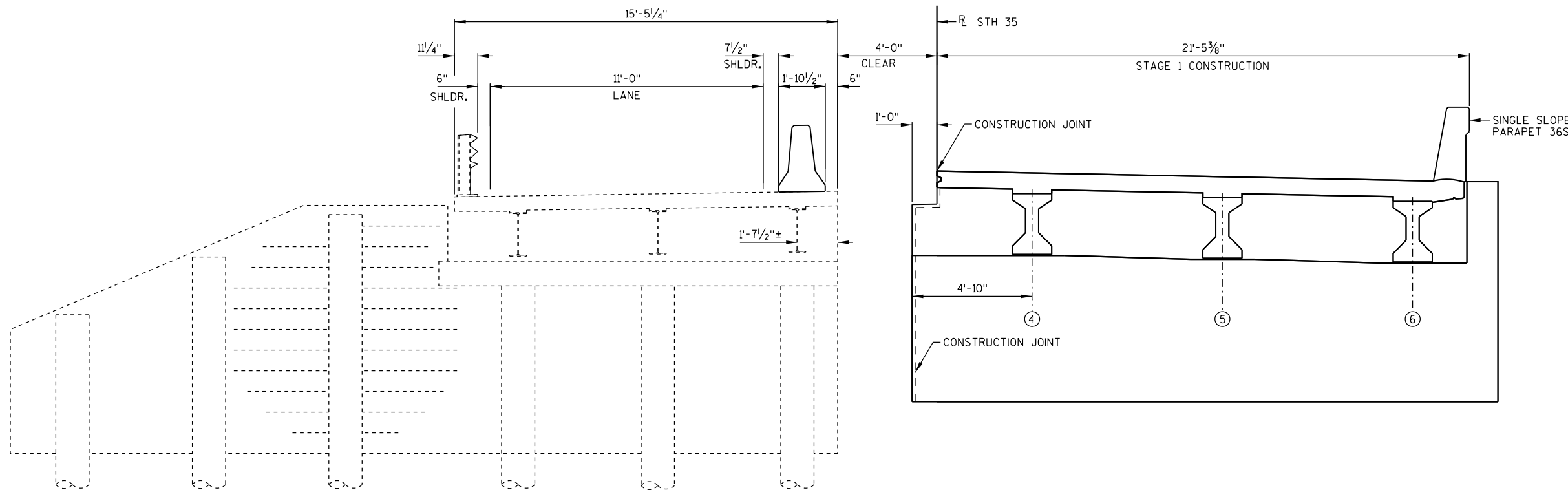
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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-206</b>			
DRAWN BY		MES	PLANS Ckd. KRH
<b>SUBSURFACE EXPLORATION-2</b>			SHEET 5 OF 25



**STAGE 1 REMOVAL**


LOOKING UPSTATION - (NW)



**STAGE 1 CONSTRUCTION**

LOOKING UPSTATION - (NW)

**LEGEND**

 EXISTING STRUCTURE REMOVAL

**NOTES**

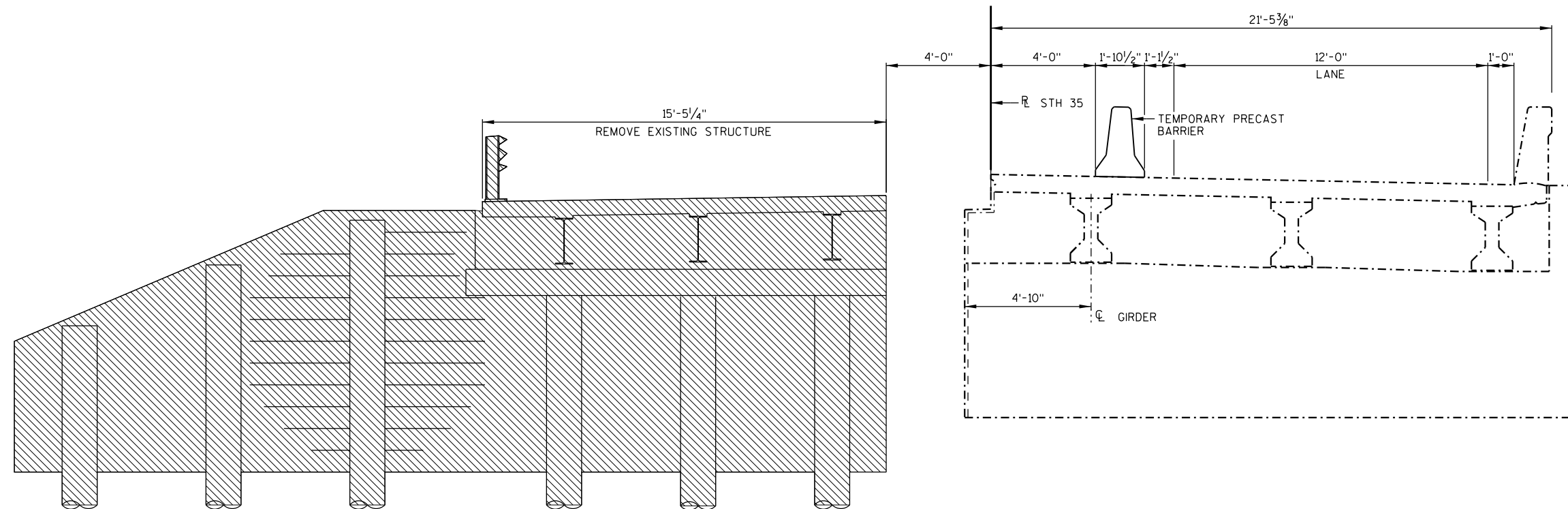
SEE SHEET 18 FOR DETAILS AT LONGITUDINAL CONSTRUCTION JOINT IN DECK.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-206</b>			
DRAWN BY MES/KAM		PLANS CK'D. AJC	
<b>CONSTRUCTION STAGING - 1</b>			SHEET 6 OF 26

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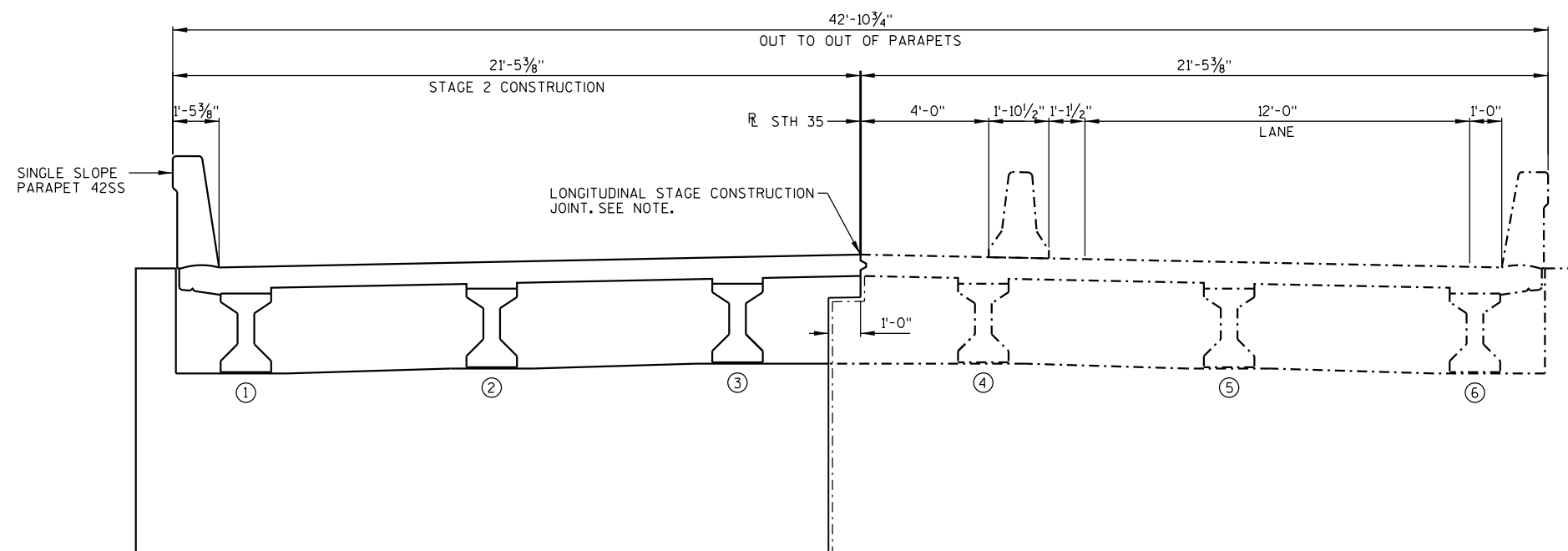
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8



**STAGE 2 REMOVAL**


LOOKING UPSTATION - (NW)



**STAGE 2 CONSTRUCTION**

LOOKING UPSTATION - (NW)

**LEGEND**

 EXISTING STRUCTURE REMOVAL

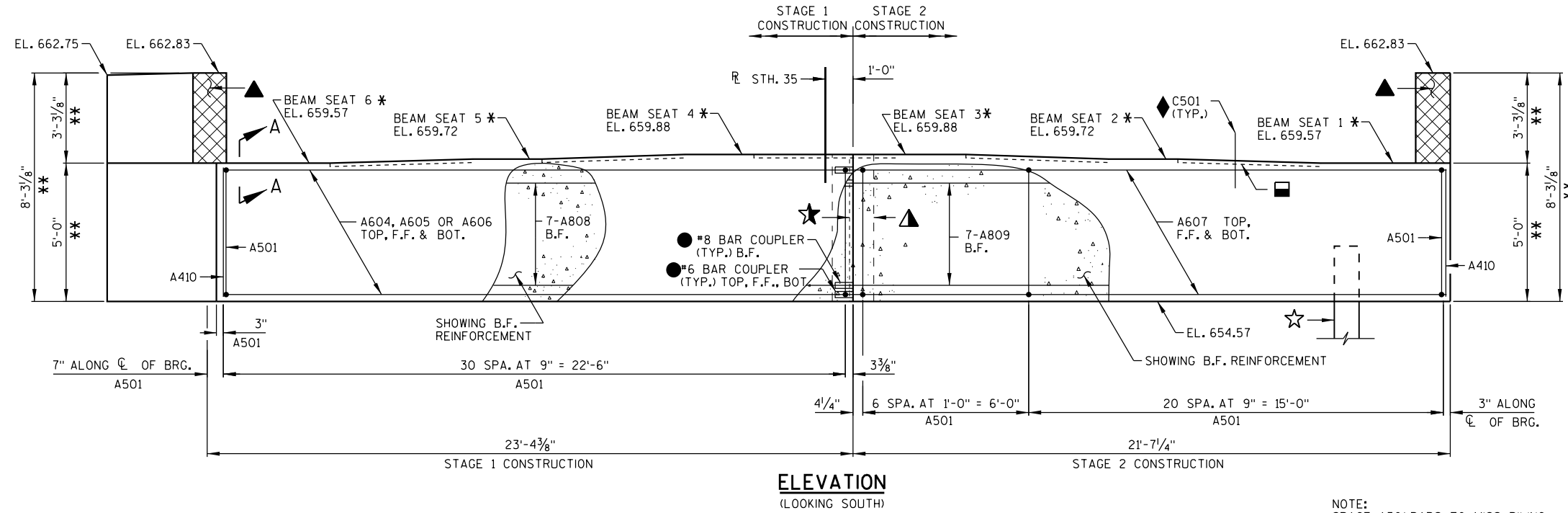
**NOTES**

SEE SHEET 18 FOR DETAILS AT LONGITUDINAL CONSTRUCTION JOINT IN DECK.

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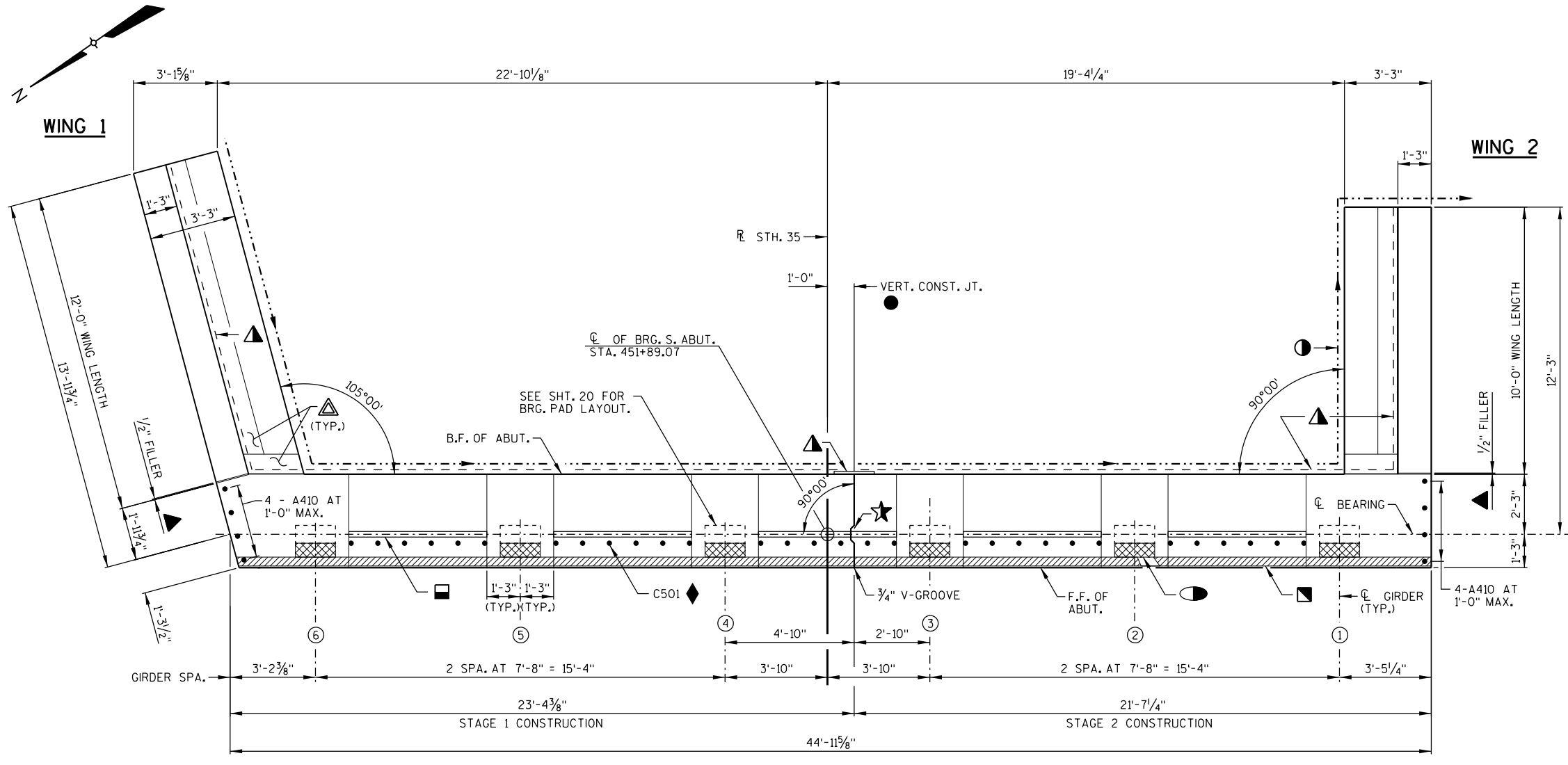
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-206</b>			
DRAWN BY MES/KAM		PLANS CK'D. AJC	
<b>CONSTRUCTION STAGING - 2</b>			SHEET 7 OF 26

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 BATCH PRINT SHEET 8 OF 26  
 PLOT DATE: 9/29/2022 PLOT TIME: 1:53:42 PM



**ELEVATION**  
(LOOKING SOUTH)

NOTE:  
SPACE A501 BARS TO MISS PILING.



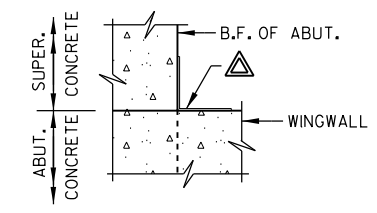
**PLAN**

**NOTE**

SEE SHT. 25 FOR BAR COUPLER DETAILS.

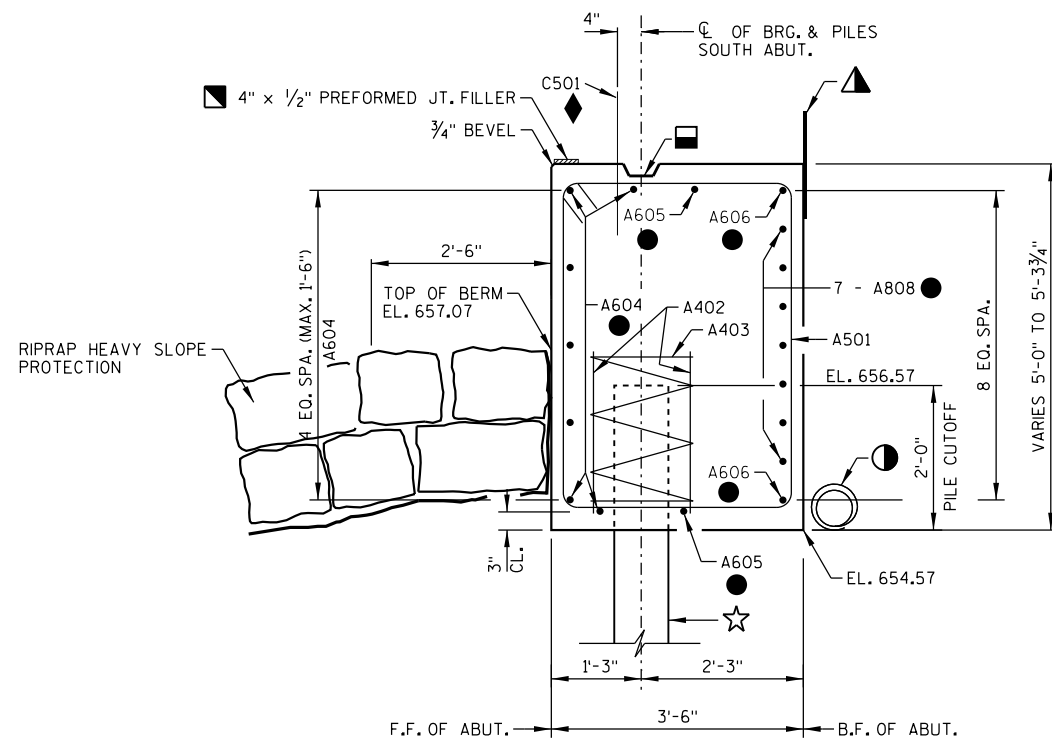
**LEGEND**

- ☆ SUPPORT ABUTMENTS ON PILING STEEL HP 10-INCHx42 LB. SEE PILE NOTE ON SHEET 9 AND 13. PILE SPLICE DETAIL ON SHEET 11.
- PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. DRAIN BOTH ABUTMENTS TO DOWNSTREAM SIDE OF BRIDGE. ATTACH RODENT SHIELD AT ENDS OF PIPE. SEE SHT. 3.
- ▲ 1/2" FILLER TO EXTEND FROM BRIDGE SEAT TO TOP OF CONCRETE PARAPET. SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE.)
- ▲ 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE.
- 4"x1/2" PREFORMED JOINT FILLER - TO EXTEND FULL LENGTH OF ABUTMENT BODY.
- OPTIONAL CONSTRUCTION JOINT KEYWAY FORMED BY A BEVELED 2"x6", WITH RUBBERIZED MEMBRANE WATERPROOFING ON BACKFACE. 3/4" BEVEL REQUIRED ON F.F.
- ▲ PLACE BOTTOM HALF OF RUBBERIZED MEMBRANE WATERPROOFING, HORIZONTAL IN THIS AREA.
- ◆ C501 OR D501 AT 1'-0" MAX., COATED. BARS MAY BE PLACED AFTER CONCRETE HAS BEEN POURED BUT PRIOR TO ITS INITIAL SET. EMBED 1'-0".
- KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2"x6".
- ☆ VERTICAL CONSTRUCTION JOINT KEYWAY FORMED BY BEVELED 2" x 8", 3/4" "V" GROOVE AT FRONT FACE. SEAL BACKFACE WITH 18" RUBBERIZED MEMBRANE WATERPROOFING.
- ⊗ INDICATES BEAM NUMBER
- \* ELEVATIONS GIVEN ARE AT TOP OF CONCRETE CL OF BRG.
- \*\* DIMENSIONS GIVEN ARE AT THE B.F. OF THE ABUTMENT BODY.
- USE BAR COUPLERS TO CONTINUE BAR STEEL THRU JOINT. SEE SHT. 25 FOR DETAILS.
- 1/2" PREFORMED JOINT FILLER UNDER GIRDER FLANGE IN FRONT OF BRG. PAD.
- 3/4" V-GROOVE REQ'D. EXTEND V-GROOVE TO 6" FROM FRONT FACE OF ABUT. DIAPHRAGM.

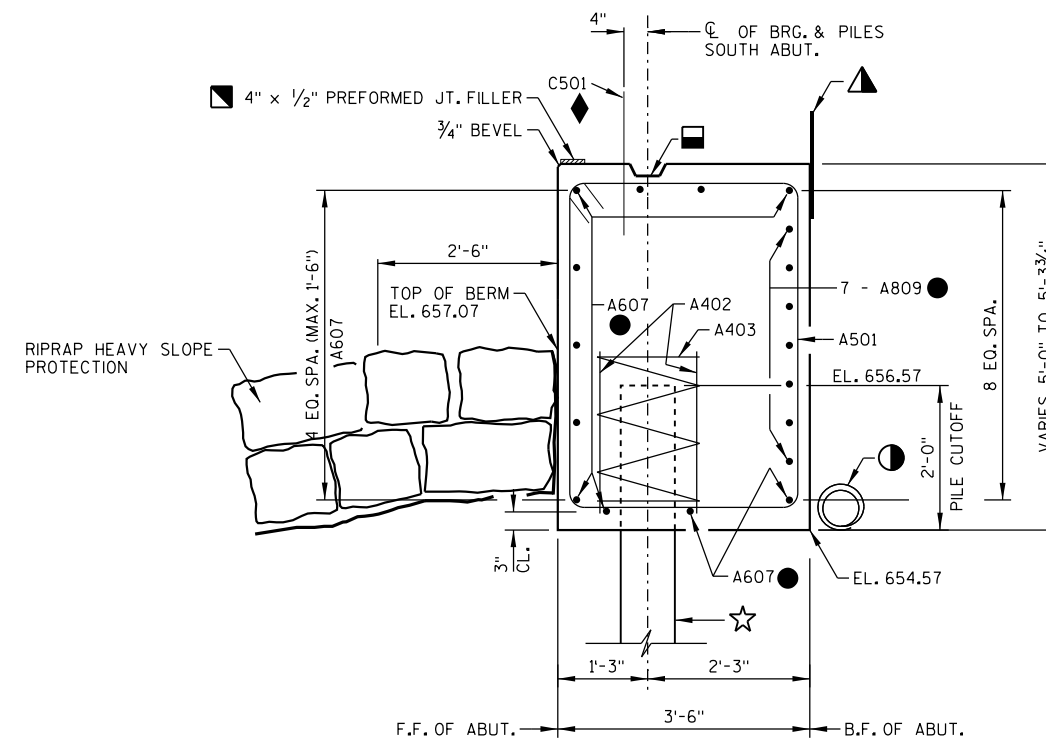


**SECTION A-A**

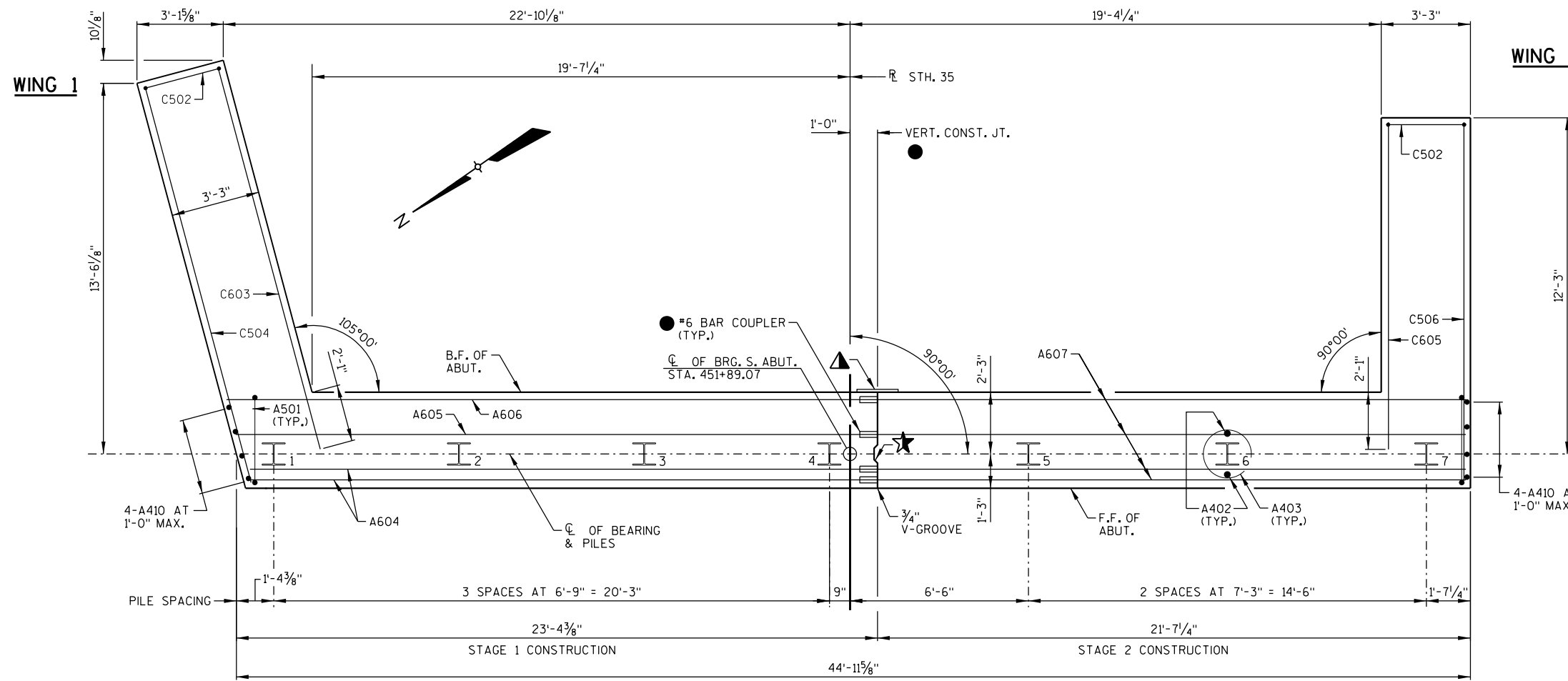
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-206</b>			
DRAWN BY		KAM	PLANS CK'D. AJC
<b>SOUTH ABUTMENT</b>			SHEET 8 OF 26



**TYP. SECTION THRU BODY -  
STAGE 1**  
(EAST HALF OF ABUTMENT BODY)



**TYP. SECTION THRU BODY -  
STAGE 2**  
(WEST HALF OF ABUTMENT BODY)



**PLAN**

**NOTE**  
SEE SHT. 25 FOR BAR COUPLER DETAILS.

**LEGEND**  
FOR SYMBOL DESCRIPTIONS SEE SHT. 8.

**PILE NOTE**  
SOUTH ABUTMENT TO BE SUPPORTED ON PILING STEEL HP 10-INCHx42LB. PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 65'-0" LONG.

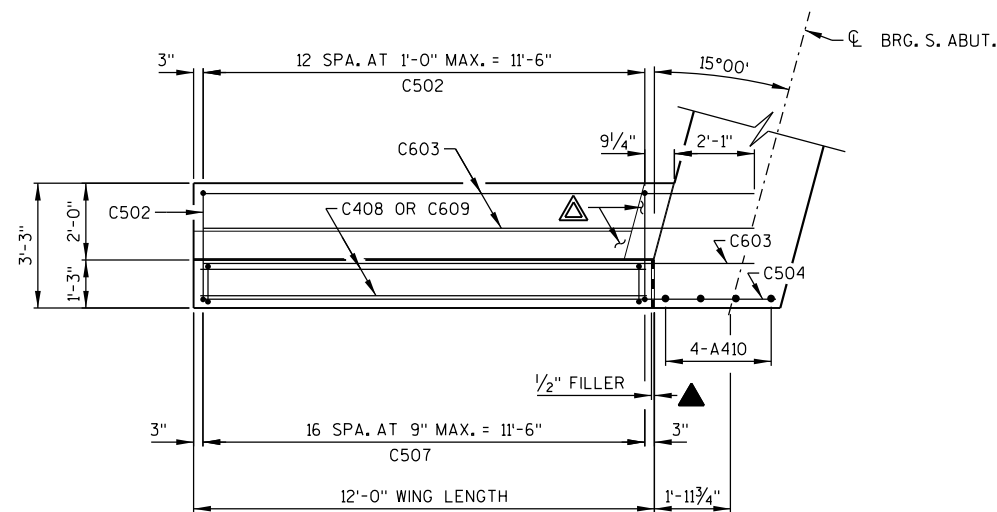
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-206</b>			
DRAWN BY		KAM	PLANS CK'D. AJC
SOUTH ABUTMENT PILE PLAN AND SECTION			SHEET 9 OF 26

PRINTER DRIVER: S:\\_ocm-CADstds\_Libraries\WISDOT\MicroStation\Resources\MS\_Printing\Printer\_Drivers\AE\_PDF..11 x 17.plt  
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 FILE NAME: \\naaebconnet.com\1\fs\AMER\sevens\Point-USST\1\DCS\Projects\60579395\400\_Technical\438\_Struct\Drawings\B-6-206\206-09\_South\_Abutment\_Pile.dgn  
 PLOT DATE: 9/29/2022 PLOT TIME: 2:00:18 PM BATCH PRINT SHEET 9 OF 26

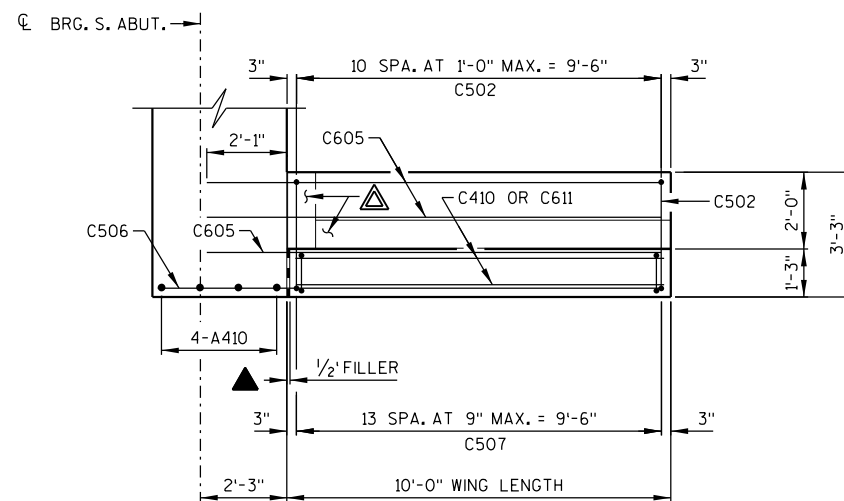
8

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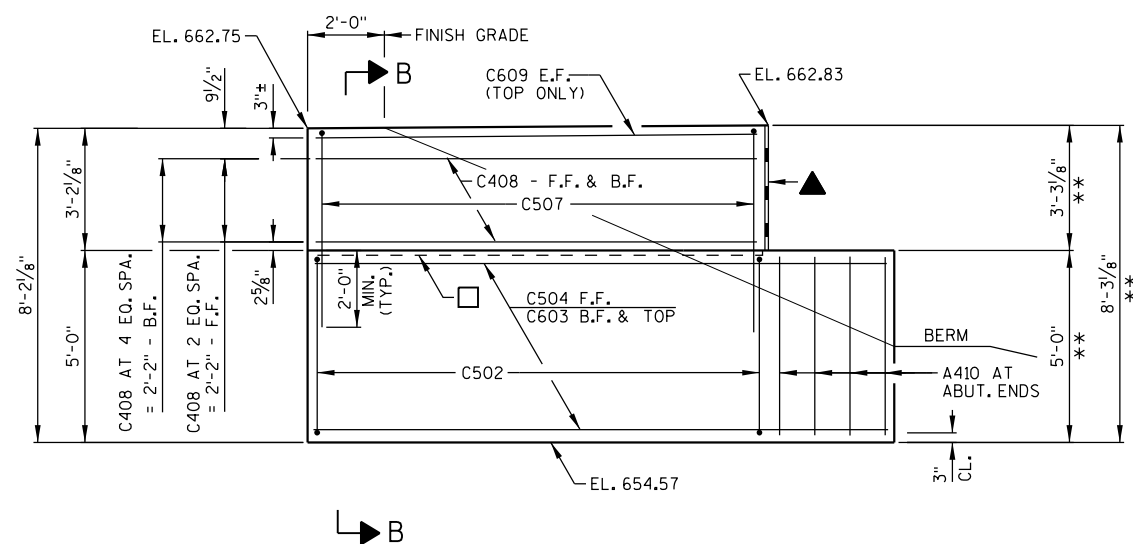




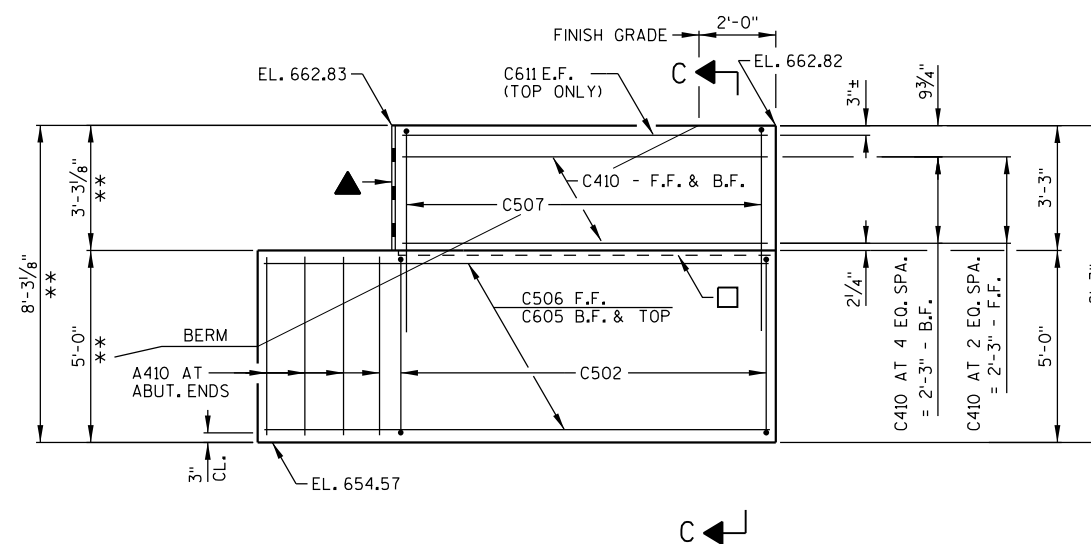
PLAN WING 1



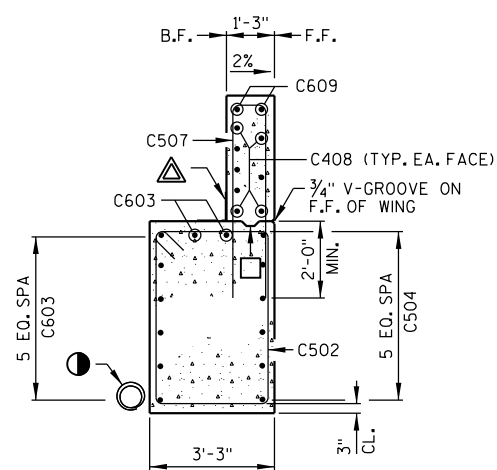
PLAN WING 2



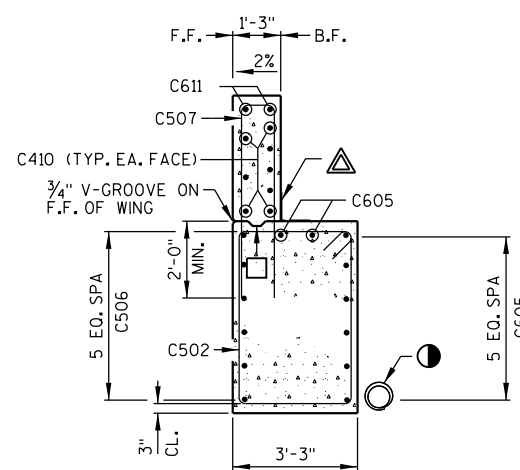
ELEVATION WING 1



ELEVATION WING 2



SECTION B-B



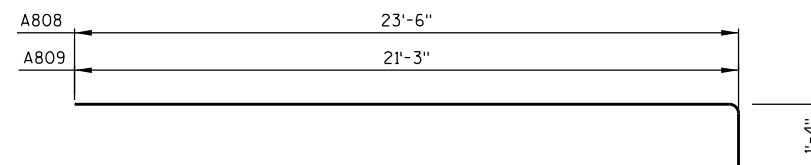
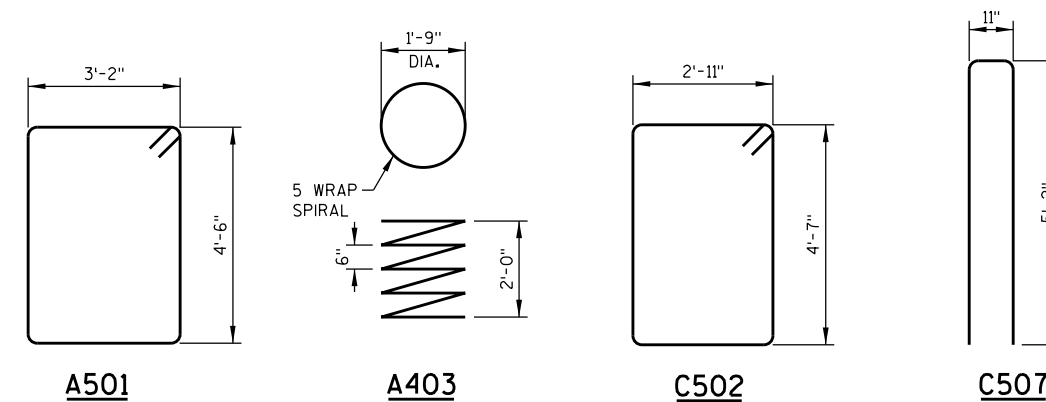
SECTION C-C

**NOTE**  
FOR TYPICAL FILL SECTION AT WING TIPS SEE SHT. 3.

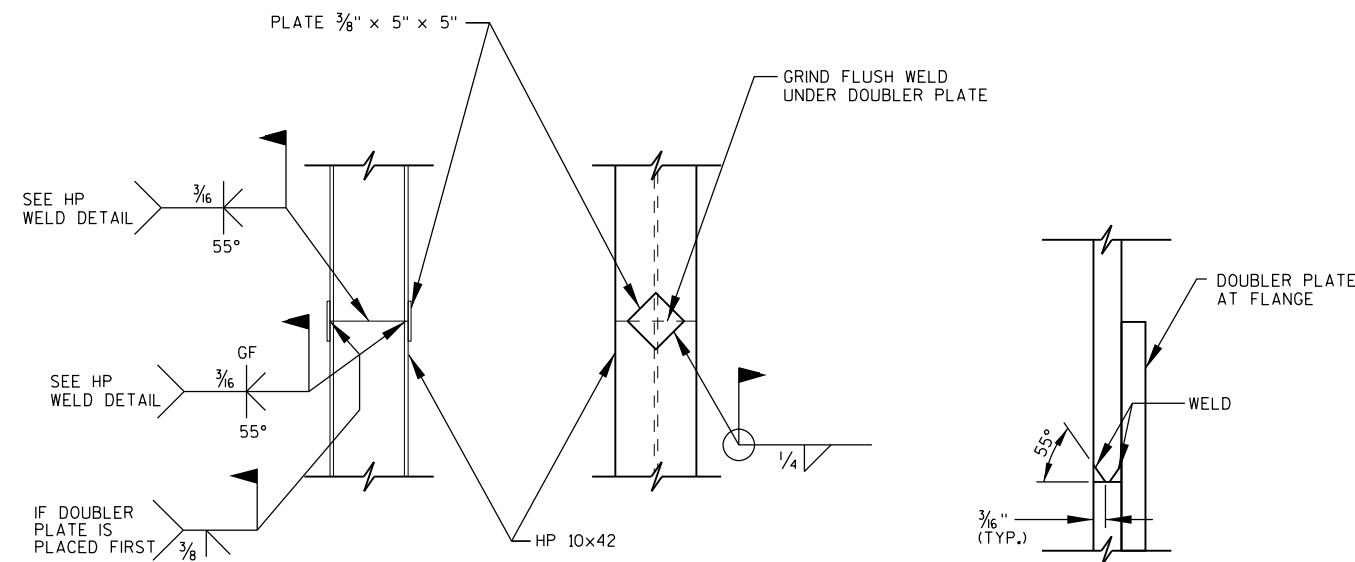
**LEGEND**  
FOR SYMBOL DESCRIPTIONS SEE SHT. 8.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-206</b>			
DRAWN BY		KAM	PLANS CK'D. AJC
WINGS 1 AND 2			SHEET 10 OF 26

PRINTER DRIVER: S:\\_ocm-CADstds\Libraries\MSD01\MicroStationResources\MS-Printing\Printer\_Drivers\AE\_PDF..11 x 17.plt  
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 PLOT DATE: 9/29/2022 PLOT TIME: 2:00:52 PM BATCH PRINT SHEET 10 OF 26



**A808, A809**



**PILE SPLICE DETAIL**

**HP WELD DETAIL**  
(FLANGE SHOWN, WEB SIMILIAR)

**BILL OF BARS**

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

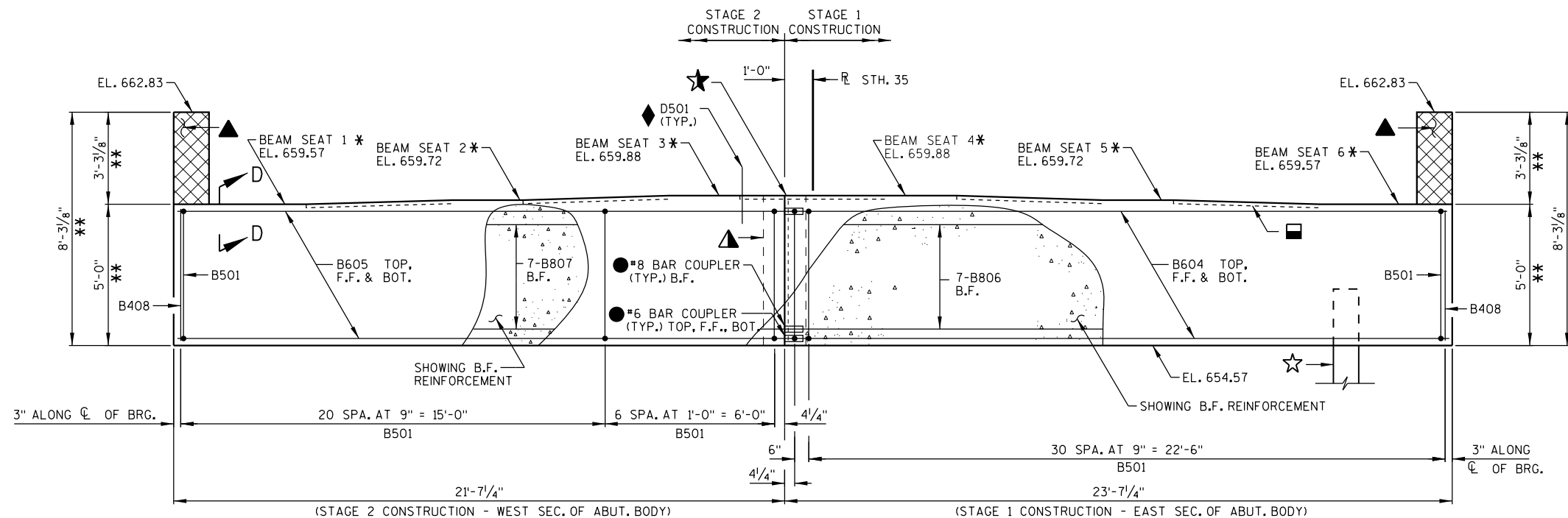
MARK	STAGE 1 NO. REQ'D	STAGE 2 NO. REQ'D	LENGTH	BENT	LOCATION	
NON-COATED BARS						TOTAL WEIGHT = 2,770 LBS
A501	31	27	16-0	X	ABUT. STIRRUP	VERT.
A402	8	6	2-3		ABUT. AT PILES	VERT.
A403	4	3	28-0	X	ABUT. AT PILES	VERT.
A604	7	-----	22-11		ABUT. F.F., TOP & BOT.	HORIZ.
A605	2	-----	23-4		ABUT. TOP & BOTTOM	HORIZ.
A606	2	-----	23-8		ABUT. B.F.	HORIZ.
A607	-----	11	21-5		ABUT. F.F., TOP & BOT.	HORIZ.
A808	7	-----	24-8	X	ABUT. B.F.	HORIZ.
A809	-----	7	22-5	X	ABUT. B.F.	HORIZ.
A410	4	4	4-7		ABUT. AT ABUT. ENDS	VERT.
COATED BARS						TOTAL WEIGHT = 1,490 LBS
C501	16	14	2-0		ABUT. DOWEL	VERT.
C502	13	11	15-8	X	WING 1 & 2 STIRRUP	VERT.
C603	8	-----	14-5		WING 1 B.F. & TOP	HORIZ.
C504	6	-----	14-11		WING 1 F.F.	HORIZ.
C605	-----	8	11-11		WING 2 B.F. & TOP	HORIZ.
C506	-----	6	13-2		WING 2 F.F.	HORIZ.
C507	17	14	11-0	X	WING 1 & 2 TOP	VERT.
C408	8	-----	11-7		WING 1 TOP - F.F. & B.F.	HORIZ.
C609	2	-----	11-7		WING 1 TOP	HORIZ.
C410	-----	8	9-7		WING 2 TOP F.F. & B.F.	HORIZ.
C611	-----	2	9-7		WING 2 TOP	HORIZ.

**ESTIMATED QUANTITIES**

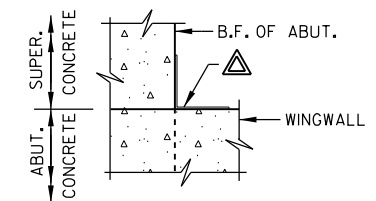
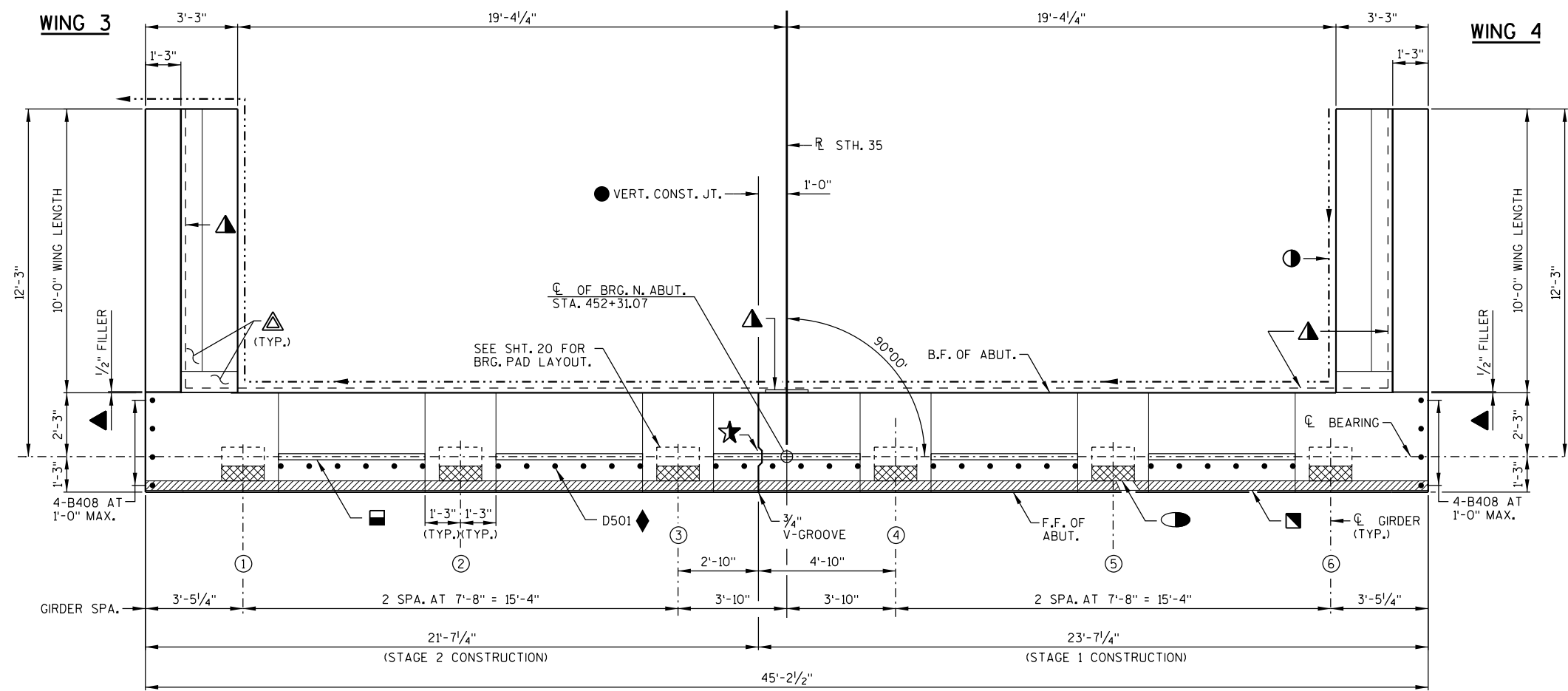
	CONCRETE MASONRY BRIDGES (CY)	BAR STEEL REINFORCEMENT HS COATED STRUCTURES (LB)	BAR STEEL REINFORCEMENT HS STRUCTURES (LB)
STAGE 1	24	810	1,460
STAGE 2	23	680	1,310

PRINTER DRIVER: S:\\_com-CADstds\_Libraries\WISDOT\MicroStationResources\MS\_Printing\Printer\_Drivers\AE\_PDF-11 x 17.plt  
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 PLOT DATE: 9/29/2022 PLOT TIME: 2:01:23 PM BATCH PRINT SHEET 11 OF 26

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-6-206			
DRAWN BY		KAM	PLANS CK'D. AJC
SOUTH ABUTMENT DETAILS		SHEET 11 OF 26	



NOTE: SPACE B501 BARS TO MISS PILINGS.



**NOTE**  
SEE SHT. 25 FOR BAR COUPLER DETAILS.

**LEGEND**  
FOR SYMBOL DESCRIPTIONS SEE SHT. 8.

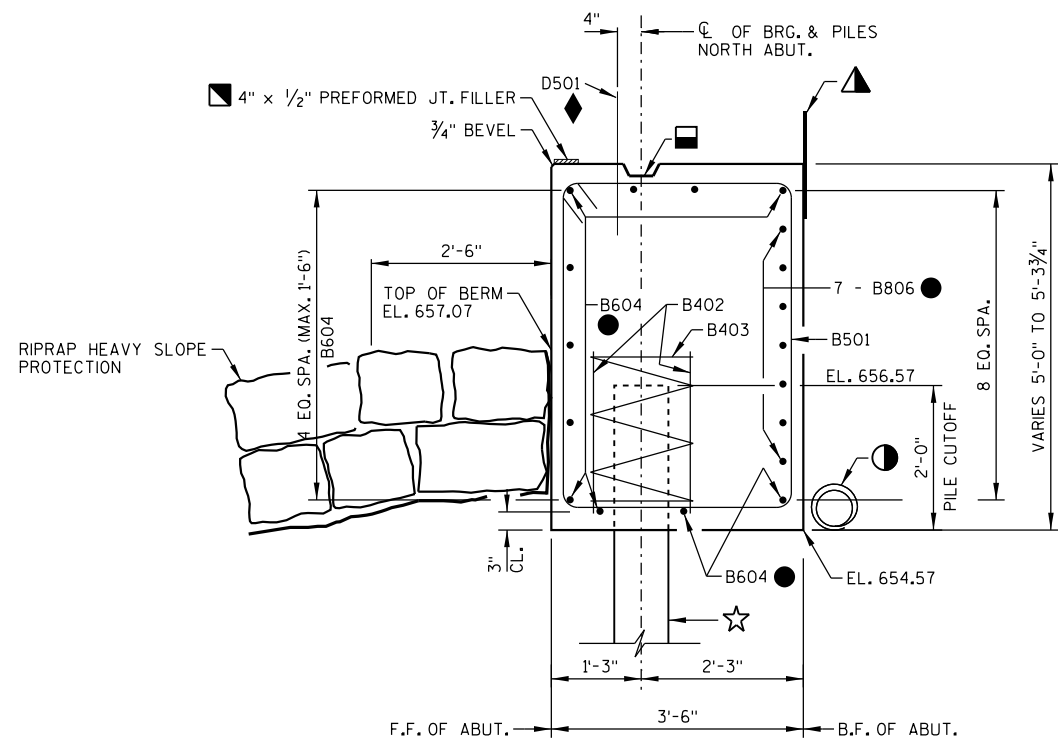
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-206</b>			
DRAWN BY		KAM	PLANS CK'D. AJC
<b>NORTH ABUTMENT</b>			SHEET 12 OF 26

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 PLOT DATE: 9/29/2022 PLOT TIME: 2:01:56 PM BATCH PRINT SHEET 12 OF 26

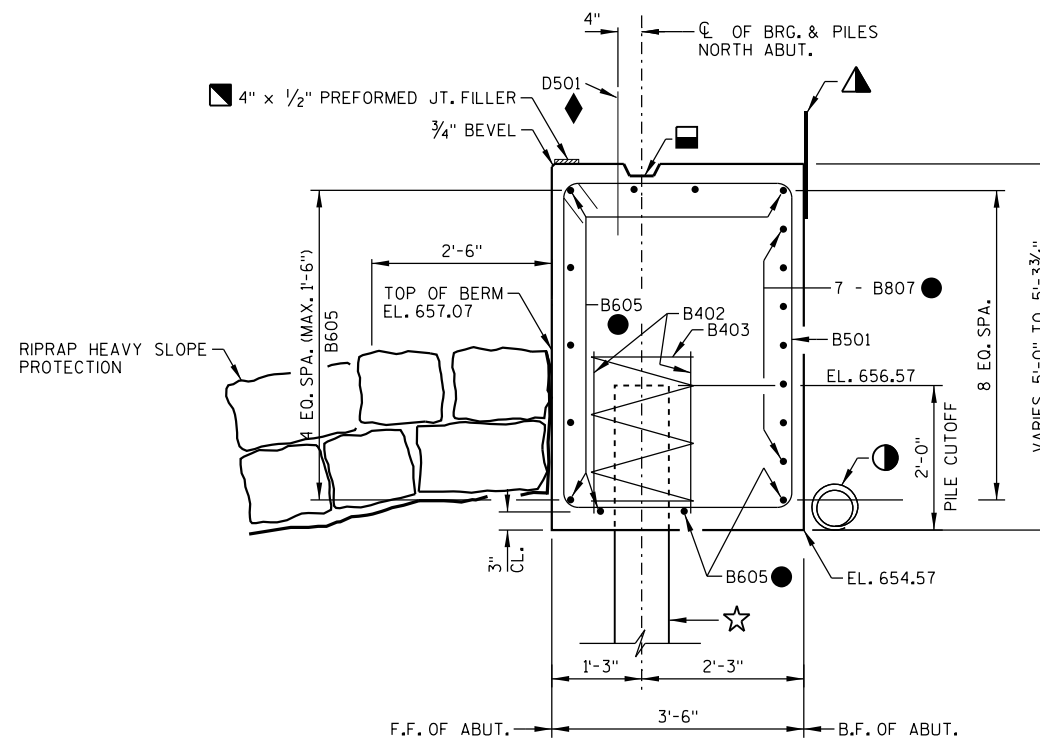
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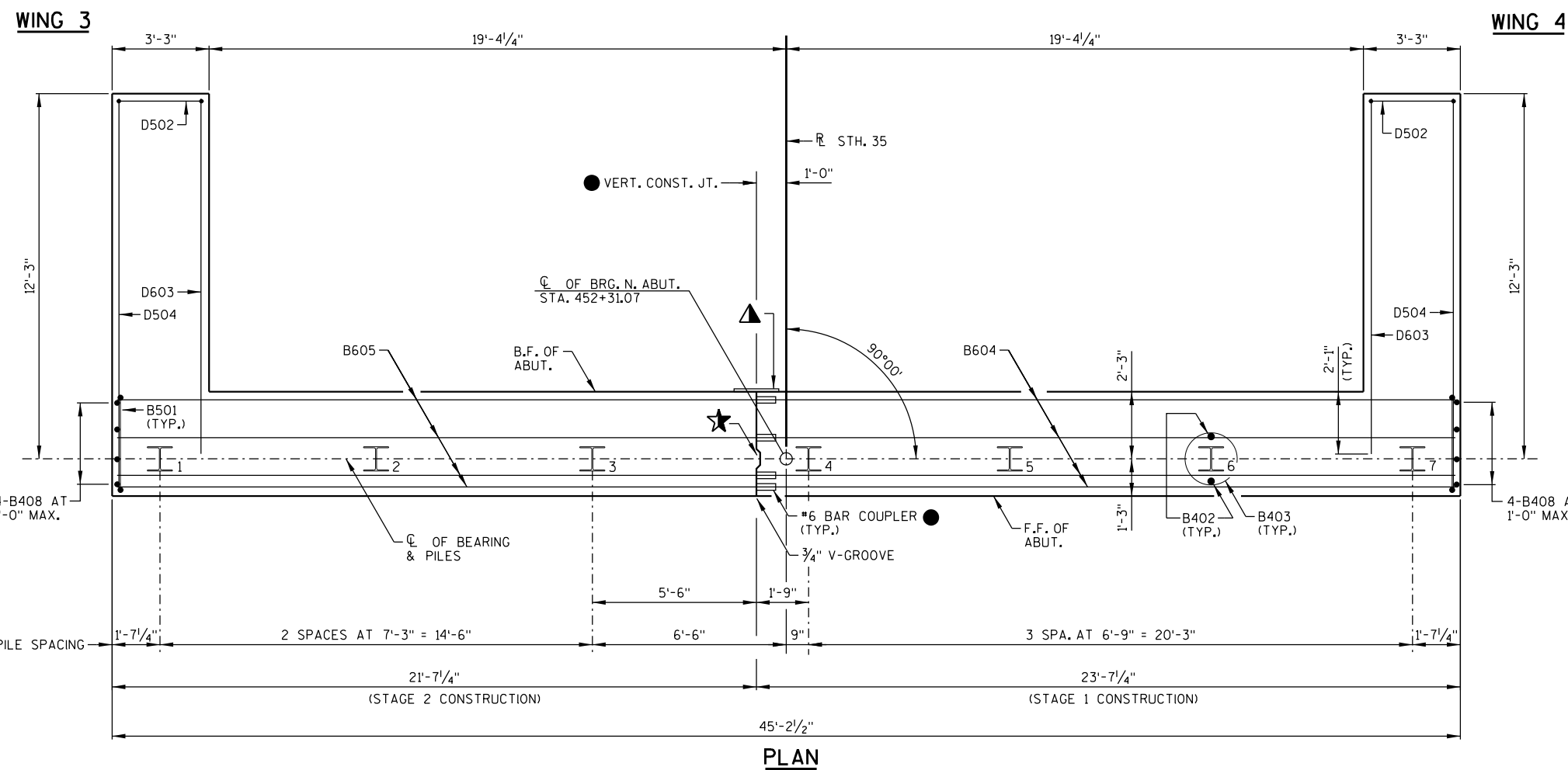
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 BATCH PRINT SHEET 13 OF 26  
 PLOT DATE: 9/29/2022 PLOT TIME: 2:02:31 PM



**TYP. SECTION THRU BODY -  
STAGE 1**  
(EAST HALF OF ABUTMENT BODY)



**TYP. SECTION THRU BODY -  
STAGE 2**  
(WEST HALF OF ABUTMENT BODY)



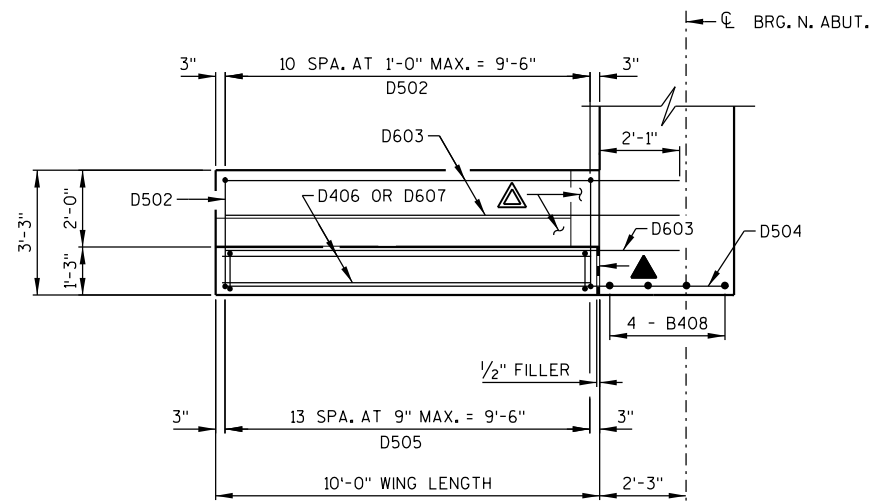
**PLAN**

**NOTE**  
SEE SHT. 25 FOR BAR COUPLER DETAILS.

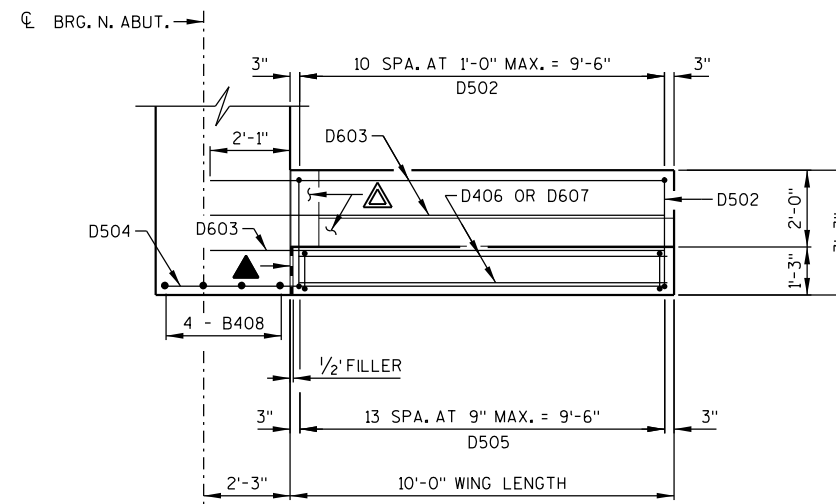
**LEGEND**  
FOR SYMBOL DESCRIPTIONS SEE SHT. 8.

**PILE NOTE**  
NORTH ABUTMENT TO BE SUPPORTED ON PILING STEEL HP 10-INCHx42LB. PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 60'-0" LONG.

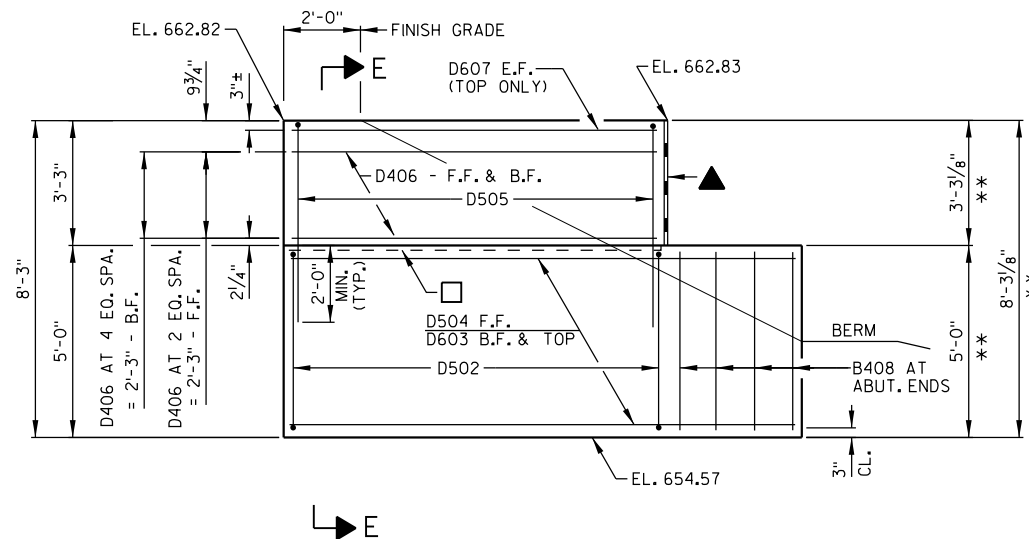
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-206</b>			
DRAWN BY		KAM	PLANS CK'D. AJC
NORTH ABUTMENT PILE PLAN AND SECTION			SHEET 13 OF 26



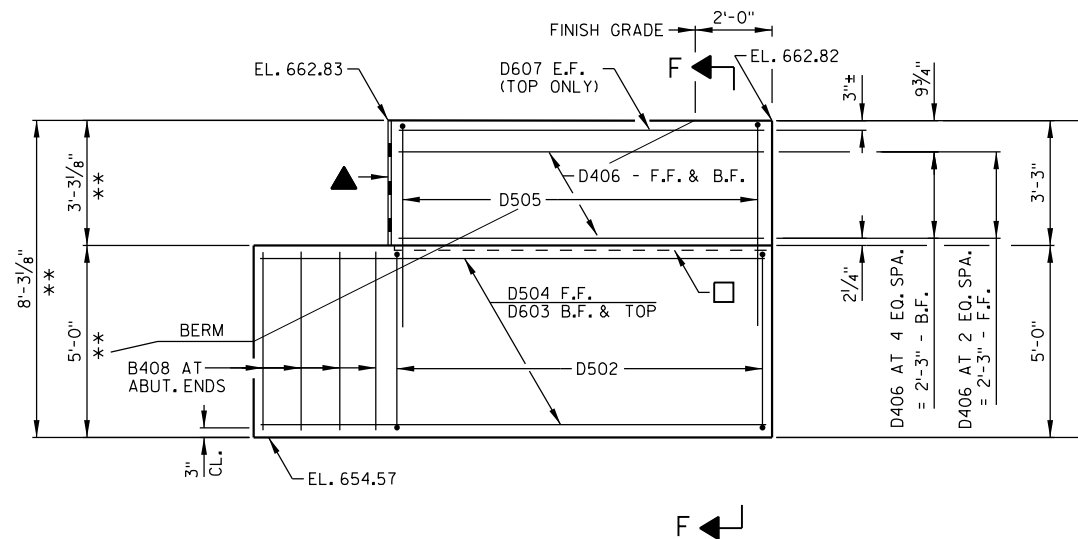
PLAN WING 3



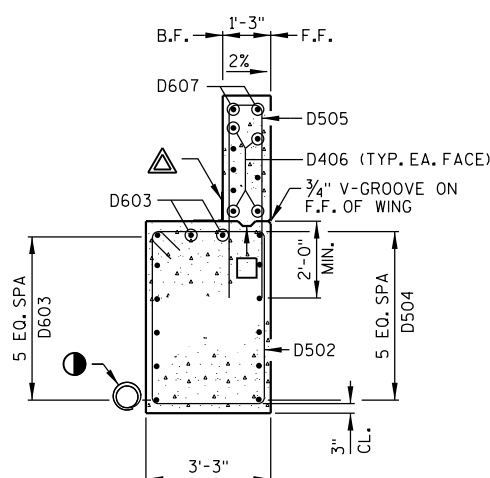
PLAN WING 4



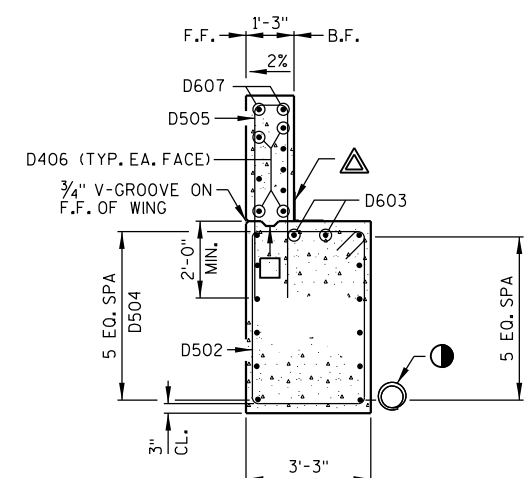
ELEVATION WING 3



ELEVATION WING 4



SECTION E-E



SECTION F-F

**NOTE**  
FOR TYPICAL FILL SECTION AT WING TIPS SEE SHT. 3.

**LEGEND**  
FOR SYMBOL DESCRIPTIONS SEE SHT. 8.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-6-206			
DRAWN BY		KAM	PLANS CK'D. AJC
WINGS 3 AND 4			SHEET 14 OF 26

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 PLOT DATE: 9/29/2022 PLOT TIME: 2:03:03 PM BATCH PRINT SHEET 14 OF 26

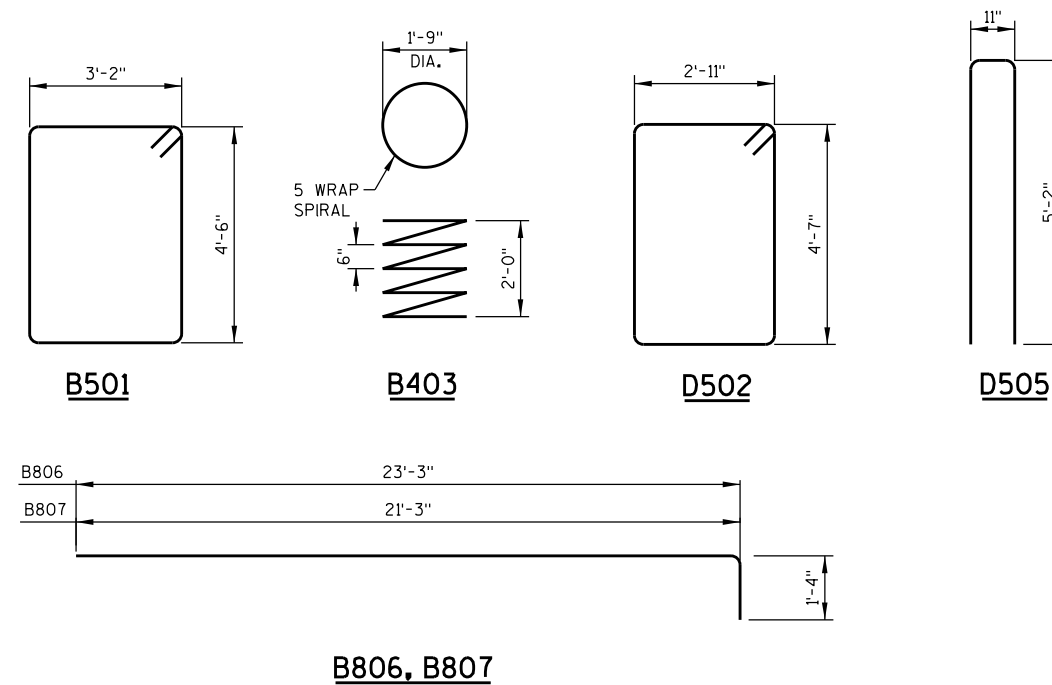
**BILL OF BARS**

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

MARK	STAGE 1 NO. REQ'D	STAGE 2 NO. REQ'D	LENGTH	BENT	LOCATION	
NON-COATED BARS						TOTAL WEIGHT = 2,770 LBS
B501	31	27	16-0	X	ABUT. STIRRUP	VERT.
B402	8	6	2-3		ABUT. AT PILES	VERT.
B403	4	3	28-0	X	ABUT. AT PILES	VERT.
B604	11	-----	23-5		ABUT. F.F., TOP & BOT.	HORIZ.
B605	-----	11	21-5		ABUT. F.F., TOP & BOT.	HORIZ.
B806	7	-----	24-5	X	ABUT. B.F.	HORIZ.
B807	-----	7	22-5	X	ABUT. B.F.	HORIZ.
B408	4	4	4-7		ABUT. ENDS	VERT.
COATED BARS						TOTAL WEIGHT = 1,360 LBS
D501	16	14	2-0		ABUT. DOWEL	VERT.
D502	11	11	15-8	X	WING 3 & 4 STIRRUP	VERT.
D603	8	8	11-11		WING 3 & 4 B.F. & TOP	HORIZ.
D504	6	6	13-2		WING 3 & 4 F.F.	HORIZ.
D505	14	14	11-0	X	WING 3 & 4 TOP	VERT.
D406	8	8	9-7		WING 3 & 4 TOP - F.F. & B.F.	HORIZ.
D607	2	2	9-7		WING 3 & 4 TOP	HORIZ.

**ESTIMATED QUANTITIES**

	CONCRETE MASONRY BRIDGES (CY)	BAR STEEL REINFORCEMENT HS COATED STRUCTURES (LB)	BAR STEEL REINFORCEMENT HS STRUCTURES (LB)
STAGE 1	23	680	1,460
STAGE 2	23	680	1,310



PRINTER DRIVER: S:\\_com-CADstds\Libraries\MSD01\MicroStationResources\MS\_Printing\Printer\_Drivers\AE\_PDF\_11 x 17.plt  
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 PLOT DATE: 9/29/2022 PLOT TIME: 2:03:29 PM BATCH PRINT SHEET 15 OF 26

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-6-206			
DRAWN BY		KAM	PLANS CK'D. AJC
NORTH ABUTMENT DETAILS			SHEET 15 OF 26

**NOTES**

TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY, EXCEPT THE OUTSIDE 2" OF GIRDER, WHICH SHALL RECEIVE A SMOOTH FINISH. AN APPROVED CONCRETE SEALER SHALL BE APPLIED TO ALL SMOOTH SURFACES INCLUDING THE OUTSIDE 2" OF THE TOP FLANGE.

DO NOT APPLY CONCRETE SEALER OR EPOXY TO SURFACES RECEIVING APPLICATION OF CONCRETE STAINING.

THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS. SEE SECT. 503.3.4 OF STANDARD SPECIFICATIONS FOR GUIDANCE.

STRANDS SHALL BE FLUSH WITH END OF GIRDER. FOR GIRDER ENDS EMBEDDED COMPLETELY IN CONCRETE, END OF STRANDS SHALL BE COATED WITH NON-BITUMINOUS JOINT SEALER. FOR GIRDER ENDS THAT ARE FINALLY EXPOSED, COAT THE GIRDER ENDS, EXPOSED STRAND ENDS AND ALL NON-BONDING SURFACES WITHIN 2 FEET OF THE GIRDER ENDS WITH A NON-PIGMENTED EPOXY CONFORMING TO AASHTO M-235 TYPE III, GRADE 2, CLASS B OR C. THE EPOXY SHALL BE APPLIED AT LEAST 3 DAYS AFTER MOIST CURING HAS CEASED AND PRIOR TO THE APPLICATION OF THE SEALER.

ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

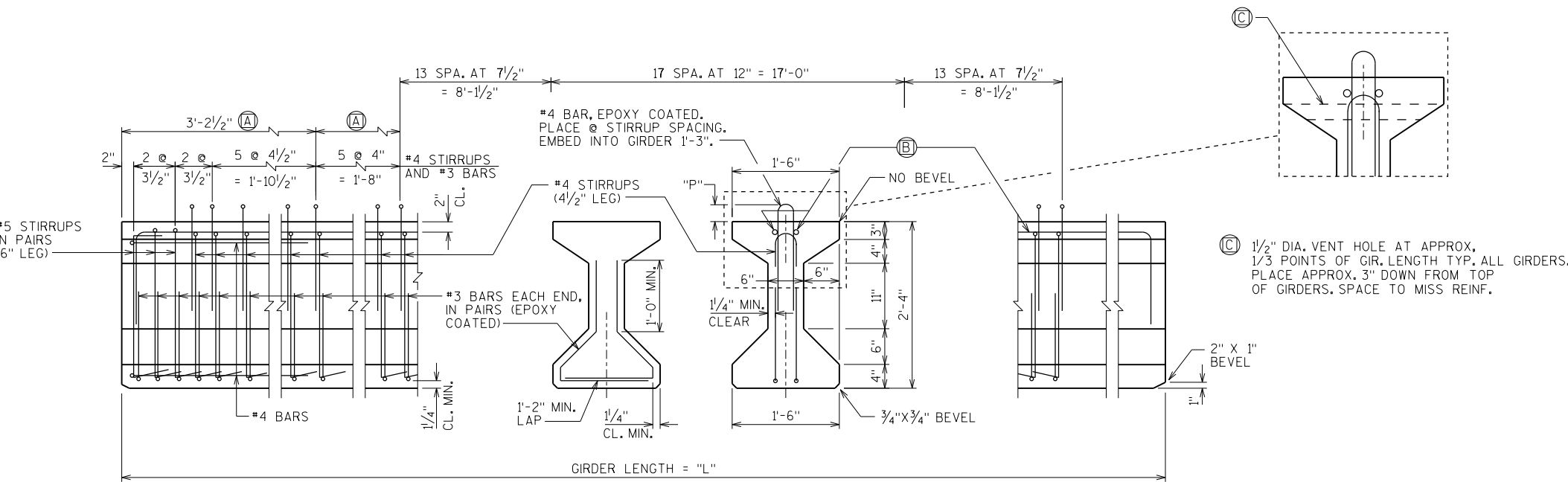
SPACING SHOWN FOR #4 STIRRUPS IS FOR GRADE 60 REINFORCEMENT.

AN EQUIVALENT OF WELDED WIRE FABRIC (WWF) ASTM A1064 MAY BE SUBSTITUTED FOR THE STIRRUP REINFORCEMENT SHOWN, UPON APPROVAL OF THE STRUCTURES MAINTENANCE SECTION. IF USED, WWF SUBSTITUTION DETAILS SHALL BE SUBMITTED ELECTRONICALLY TO THE WISDOT FABRICATION LIBRARY AND ACCEPTED PRIOR TO SHOP DRAWING SUBMITTAL.

PRESTRESSING STRANDS SHALL BE (0.6" DIA.)-7 WIRE LOW-RELAXATION STRANDS WITH AN ULTIMATE STRENGTH OF 270,000 PSI.

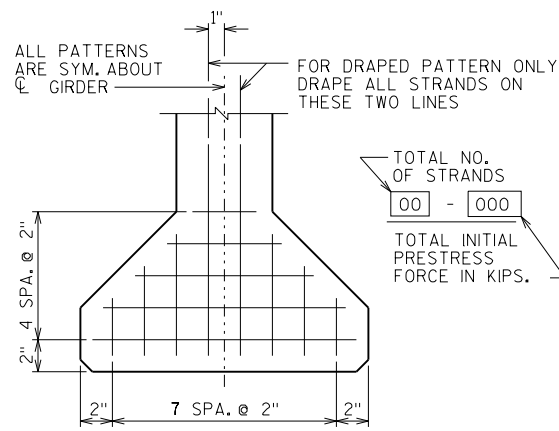
BEND EACH END OF #4 STIRRUPS 4/2" AND #5 STIRRUPS 6".

FOR DIAPHRAGM INSERT & CONNECTION DETAILS SEE "STEEL DIAPHRAGM" SHEET.

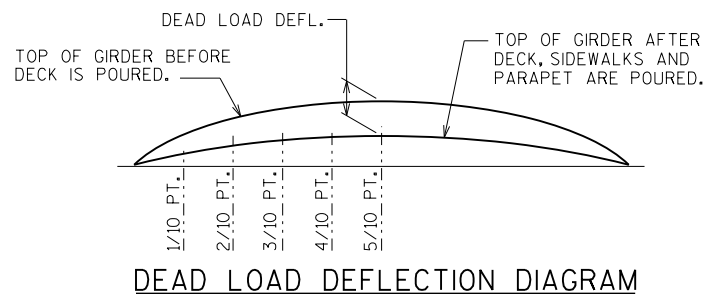


**SIDE VIEW & TYPICAL SECTION IN SPAN**

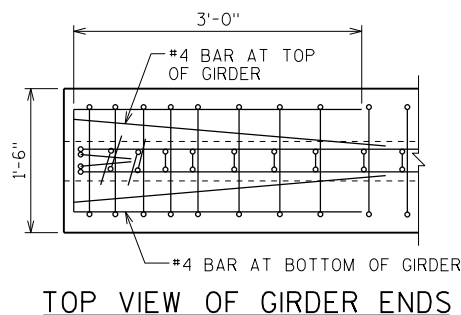
- (A) DETAIL TYP. AT EACH END
- (B) 2 - #6 BARS FULL LENGTH, MIN. LAP 2'-11"
- (C) BEND DOWN 16 BAR DIA. AT ENDS



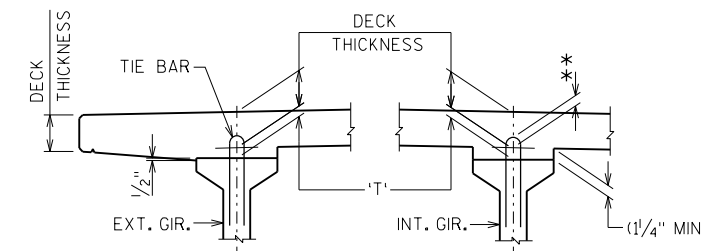
**TYP. STRAND PATTERN**



**DEAD LOAD DEFLECTION DIAGRAM**



**TOP VIEW OF GIRDER ENDS**



**DECK HAUNCH DETAIL**

IF 1/4" MINIMUM HAUNCH HEIGHT AT EDGE OF GIRDER CANNOT BE MAINTAINED, THE GRADE LINE MAY BE REVISED BY THE ENGINEER AT THE OPTION OF THE CONTRACTOR, THE PLAN DECK THICKNESS SHALL BE HELD. NOTIFY THE STRUCTURES SECTION IF THE GRADE LINE IS RAISED FROM THE PLAN PROFILE BY MORE THAN 1/2" OR, \*\* IF 3" MINIMUM DECK EMBEDMENT OF TIE BAR CANNOT BE OBTAINED.

TO DETERMINE 'T', ELEV. OF TOP OF GIR. AT CL OF SUBSTRUCTURE UNITS & AT 1/10 POINTS OF EACH SPAN SHALL BE TAKEN. THEN FOLLOW THIS PROCESS:

- TOP OF DECK ELEV. AT FINAL GRADE
- TOP OF GIRDER ELEVATION
- + DEAD LOAD DEFLECTION
- DECK THICKNESS
- = HAUNCH HEIGHT 'T'

NOTE: AN AVERAGE HAUNCH ('T') OF 2.5" WAS USED IN THE QUANTITY "CONCRETE MASONRY BRIDGES".

\* THE THEORETICAL INITIAL CAMBER VALUE AT THE TIME OF STRAND RELEASE AT MIDSPAN MULTIPLIED BY A FACTOR OF 1.4 TO ACCOUNT FOR CAMBER GROWTH FROM THE TIME OF STRAND RELEASE TO JOBSITE PLACEMENT.

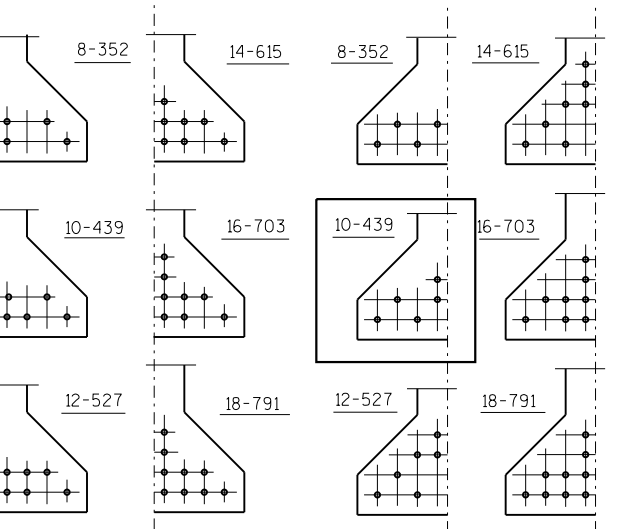
SPAN	CAMBER (IN.) *
1	1.06

THESE VALUES ARE NOT TO BE USED IN DETERMINING 'T', USE ACTUAL GIRDER SHOTS.  
THESE VALUES ARE FOR INFORMATIONAL PURPOSES ONLY.

\* MINIMUM CYLINDER STRENGTH OF CONCRETE @ TIME OF TRANSFER OF PRESTRESS FORCE.

**GIRDER DATA**

SPAN	GIRDER	GIRDER LENGTH "L" (FEET)	DEAD LOAD DEFL. (IN.)										CONC. STRGTH. f'c (P.S.I.)	"P" (IN.)			DIA. OF STRAND (IN.)	DRAPED PATTERN (IN.)				UNDRAPED PATTERN		
			1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10	10/10		1ST 1/3 OF GIRDER	MID 1/3 OF GIRDER	END 1/3 OF GIRDER		TOTAL NO. OF STRANDS	f'ci (P.S.I.) *	"A"	"B" MIN.	"B" MAX.	"C"	TOTAL NO. OF STRANDS
1	1-6	43	0.10	0.19	0.27	0.32	0.34	0.32	0.27	0.19	0.10	8,000	6.75	6.75	6.75	0.6	10	6,800	N/A	N/A	N/A	N/A		



**DRAPED PATTERN**

**UNDRAPED PATTERN**

0.6"φ STRANDS

0.6"φ STRANDS

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-206</b>			
DRAWN BY		KAM	PLANS CKD. AJC
<b>28" PRESTRESSED GIRDER</b>			SHEET 16 OF 26

**NOTES**

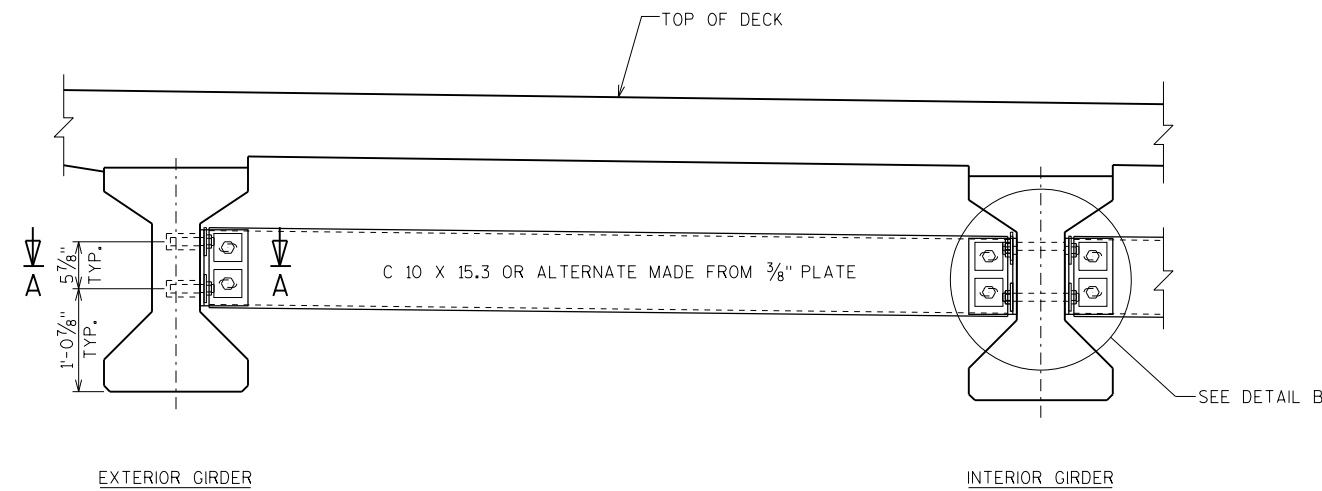
ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS B-6-206", EACH.

EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.

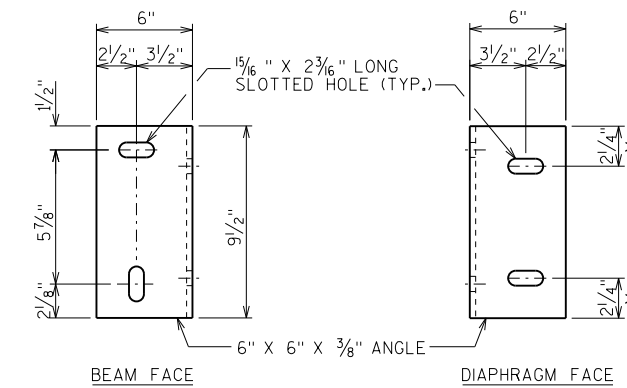
ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36.

ALL DIAPHRAGM MATERIAL INCLUDING BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AFTER FABRICATION.

STEEL DIAPHRAGM TO CONCRETE WEB CONNECTION SHALL BE SNUG-TIGHT PLUS 1/4 TURN, UNLESS NOTED OTHERWISE. HIGH STRENGTH BOLTS FOR WEB CONNECTION SHALL MEET THE REQUIREMENTS FOR ASTM A325 OR ASTM A449.

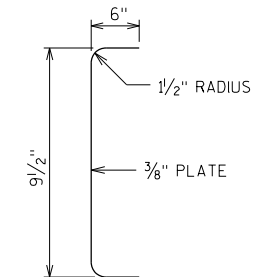


**PART TRANSVERSE SECTION AT DIAPHRAGM**

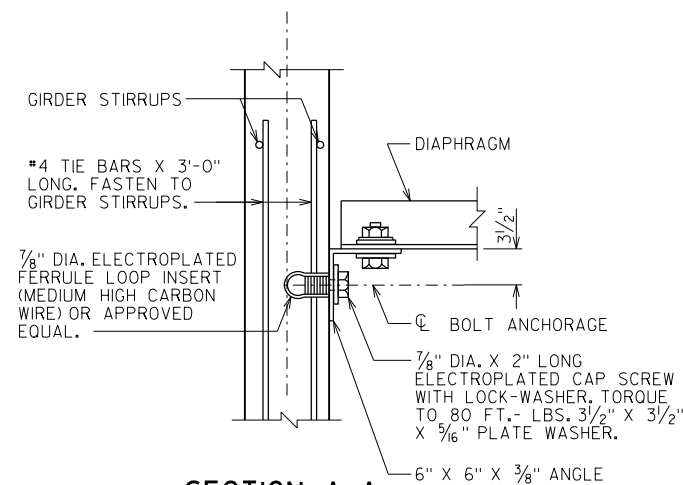


**DIAPHRAGM SUPPORT**

\* 2 1/2" FOR ALTERNATE PLATE DIAPHRAGM

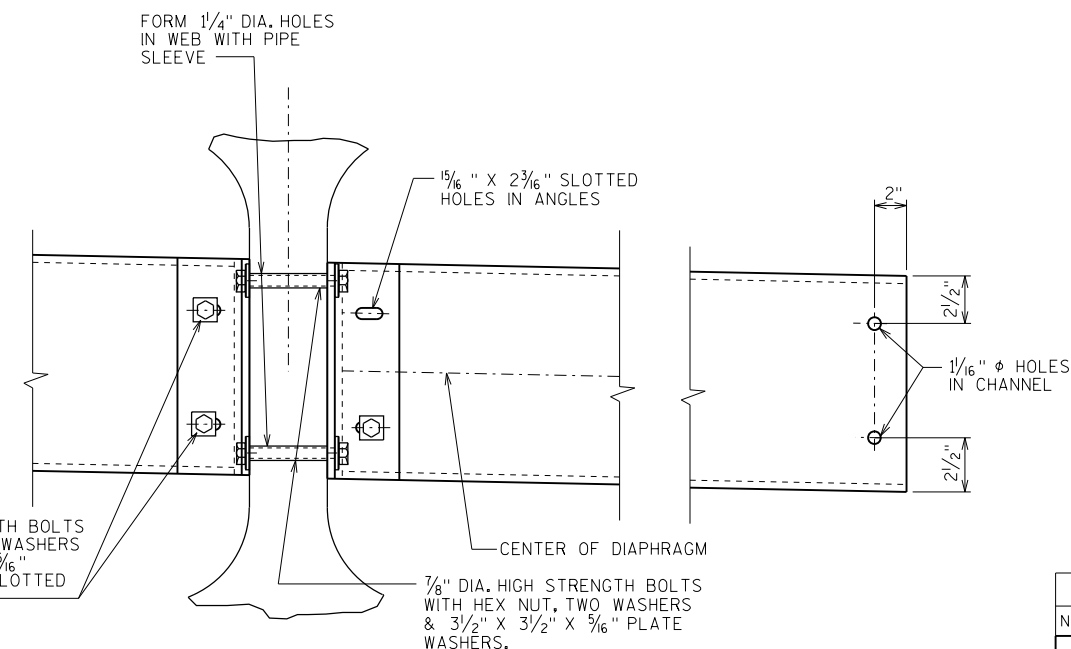


**SECTION THRU ALTERNATE DIAPHRAGM**

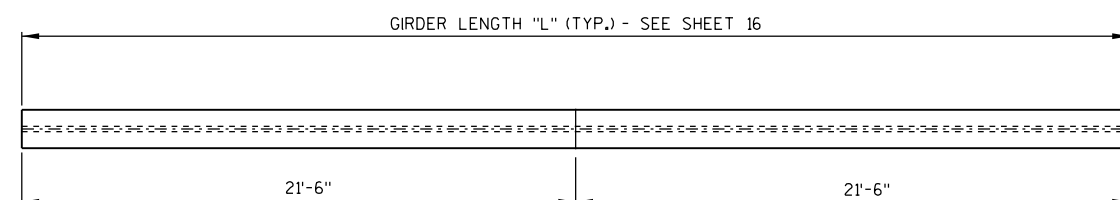


**SECTION A-A**

(FOR EXTERIOR ATTACHMENT)



**DETAIL B**

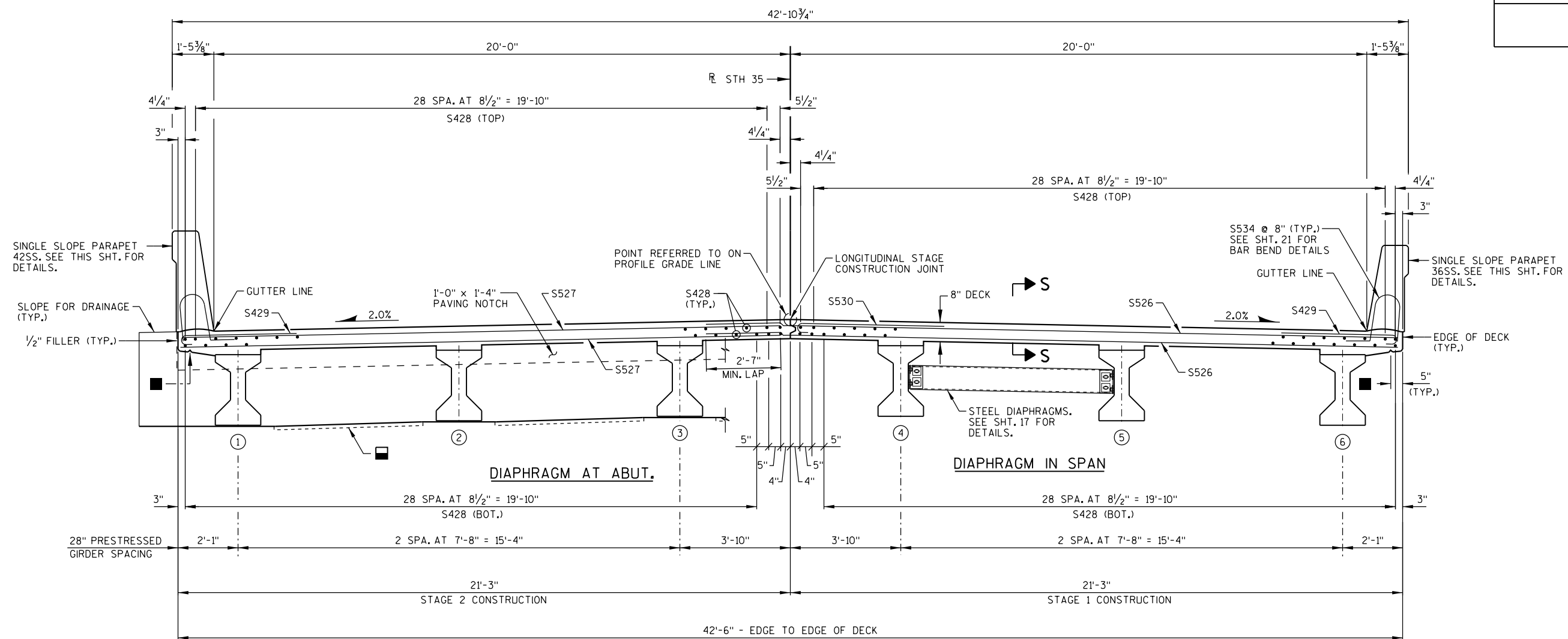


**DIAPHRAGM CONNECTION SPACING**

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-206</b>			
DRAWN BY		KAM	PLANS CK'D. AJC
INTERMEDIATE STEEL DIAPHRAGM			SHEET 17 OF 26

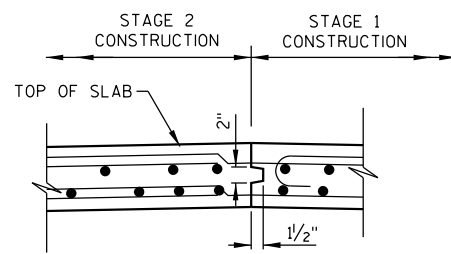
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 PLOT DATE: 9/29/2022 PLOT TIME: 2:04:19 PM BATCH PRINT SHEET 17 OF 26



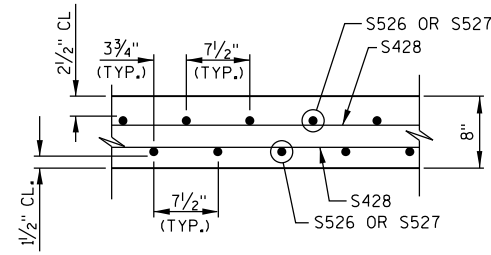


**CROSS SECTION THRU ROADWAY**

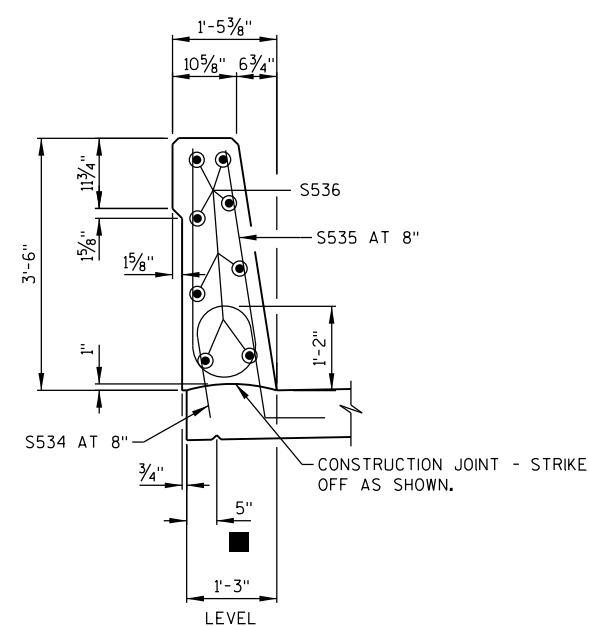
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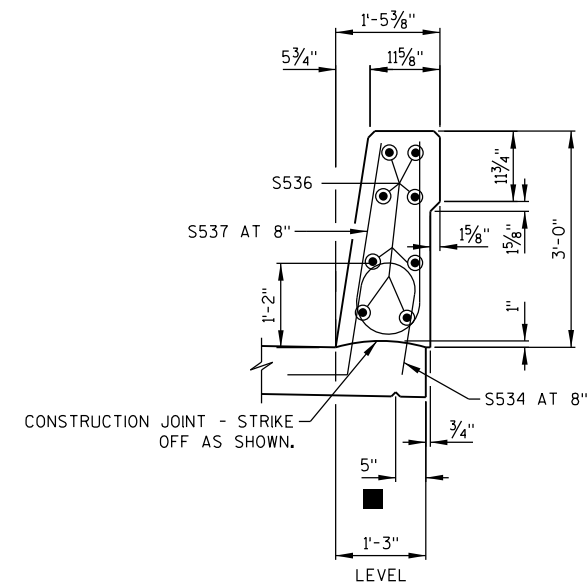
**SECTION THRU LONGITUDINAL JOINT**



**SECTION S-S**



**SINGLE SLOPE PARAPET 42SS ON SUPERSTRUCTURE**



**SINGLE SLOPE PARAPET 36SS ON SUPERSTRUCTURE**

**TOP OF DECK ELEVATIONS**

	CL BRG. S. ABUT.	1/10 PT.	2/10 PT.	3/10 PT.	4/10 PT.	5/10 PT.	6/10 PT.	7/10 PT.	8/10 PT.	9/10 PT.	CL BRG. N. ABUT.
EOD	662.809	662.812	662.815	662.817	662.818	662.818	662.818	662.817	662.816	662.813	662.810
BEAM 1	662.850	662.854	662.856	662.858	662.859	662.860	662.860	662.859	662.857	662.855	662.852
BEAM 2	663.004	663.007	663.010	663.012	663.013	663.013	663.013	663.012	663.011	663.008	663.005
BEAM 3	663.157	663.160	663.163	663.165	663.166	663.167	663.166	663.166	663.164	663.162	663.159
STAGE CONST. JOINT	663.234	663.237	663.240	663.242	663.243	663.243	663.243	663.242	663.241	663.238	663.235
BEAM 4	663.157	663.160	663.163	663.165	663.166	663.167	663.166	663.166	663.164	663.162	663.159
BEAM 5	663.004	663.007	663.010	663.012	663.013	663.013	663.013	663.012	663.011	663.008	663.005
BEAM 6	662.850	662.854	662.856	662.858	662.859	662.860	662.860	662.859	662.857	662.855	662.852
EOD	662.809	662.812	662.815	662.817	662.818	662.818	662.818	662.817	662.816	662.813	662.810

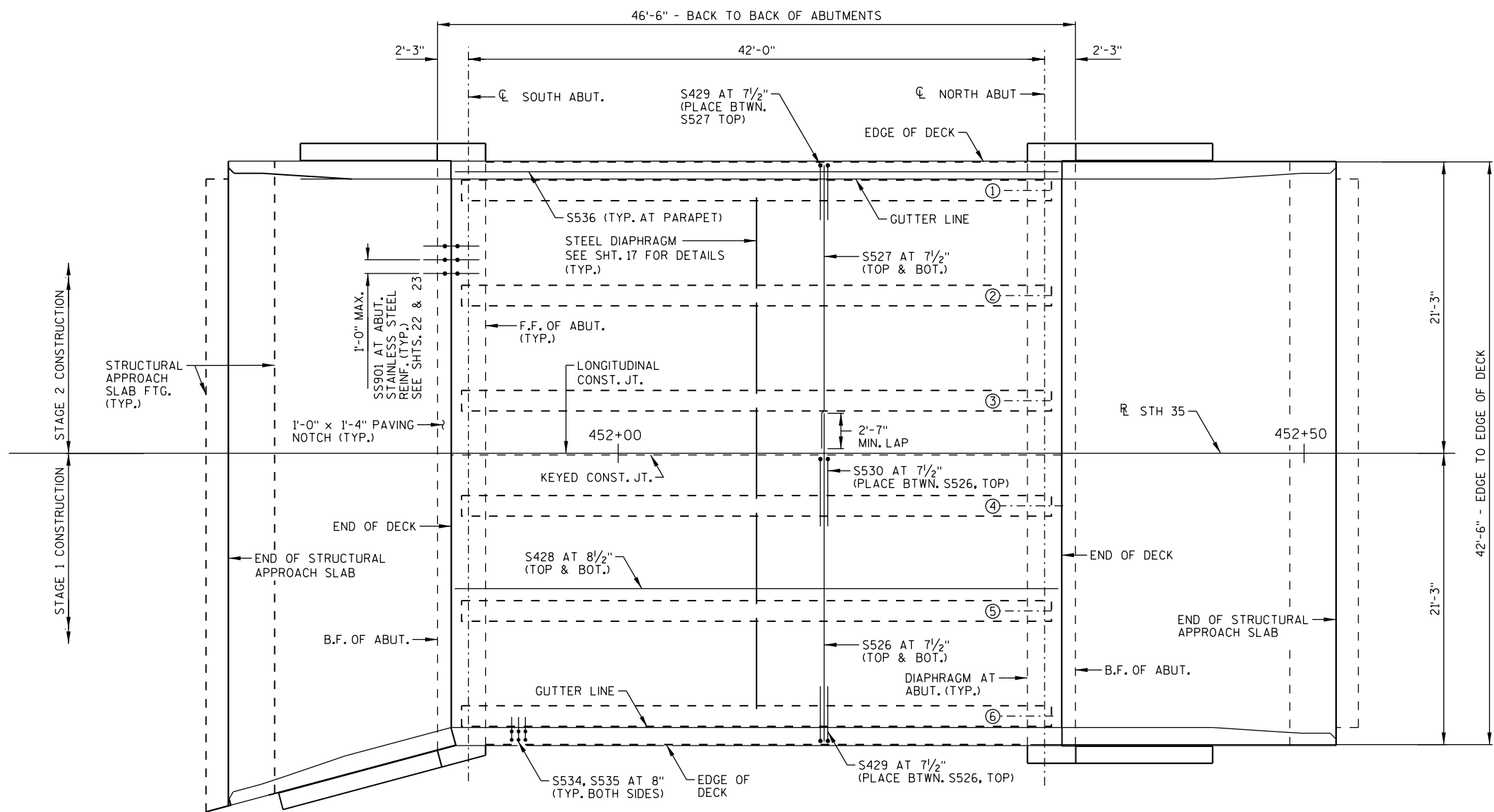
NOTE: EDGE OF DECK ELEVATIONS ARE CALCULATED ASSUMING CROSS SLOPE CONTINUES TO EDGE.

**LEGEND**

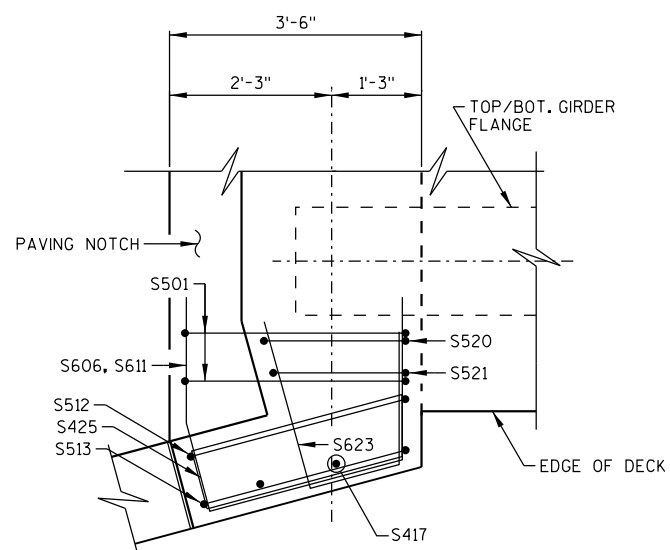
FOR SYMBOL DESCRIPTIONS SEE SHT. 8.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-206</b>			
DRAWN BY		KAM	PLANS CK'D. AJC
SUPERSTRUCTURE CROSS SECTION			SHEET 18 OF 26

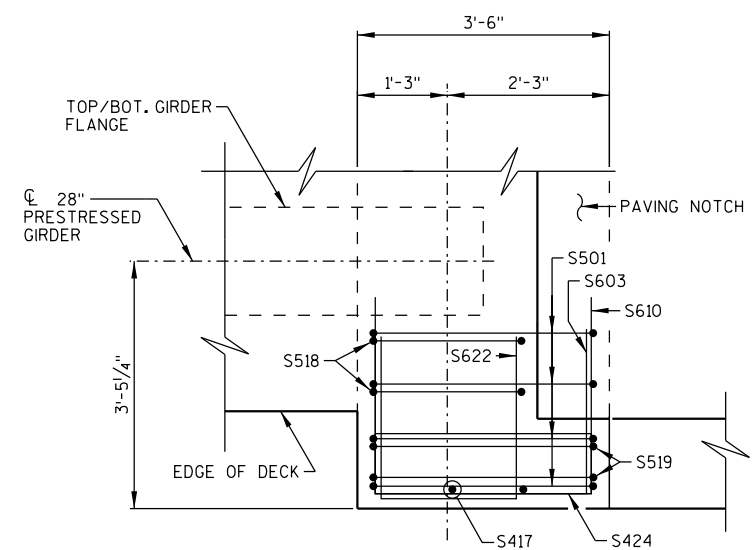
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 BATCH PRINT SHEET 18 OF 26  
 PLOT DATE: 9/29/2022  
 PLOT TIME: 2:04:48 PM



PLAN



PLAN - DIAPHRAGM  
(AT WING 1)



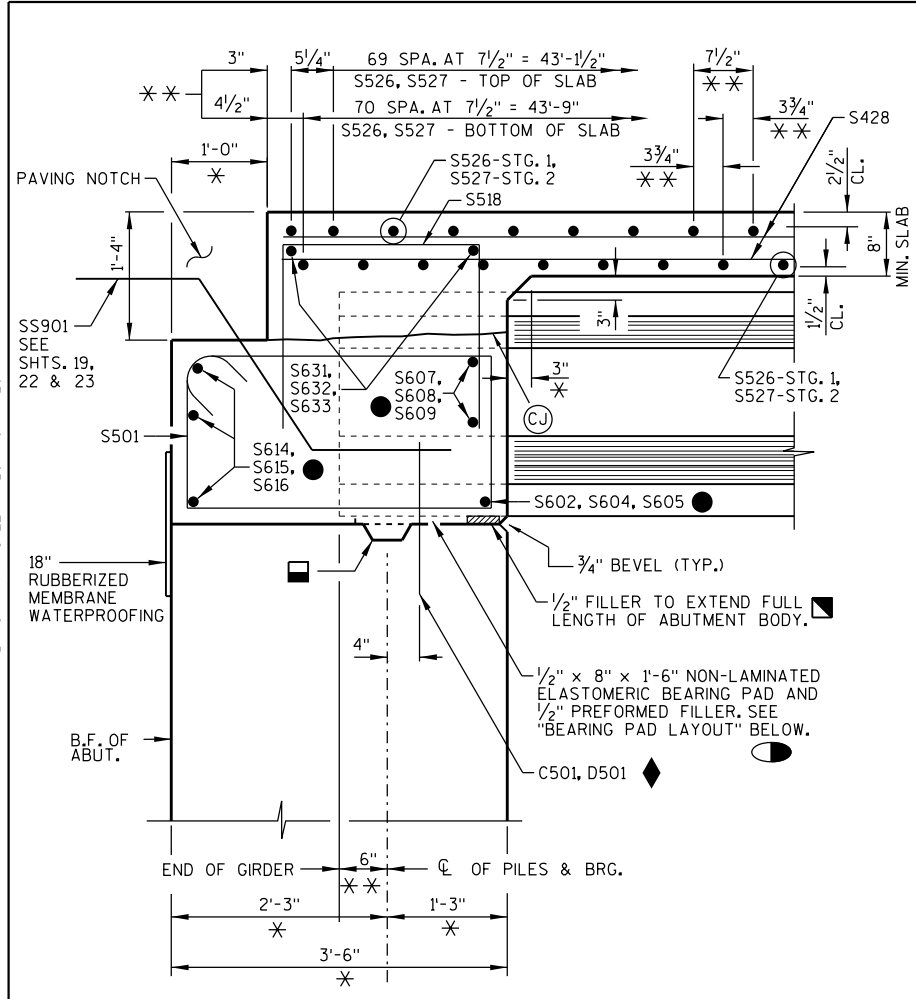
PLAN - DIAPHRAGM  
(WING 4 SHOWN WINGS 2 & 3 SIMILIAR)

NOTES

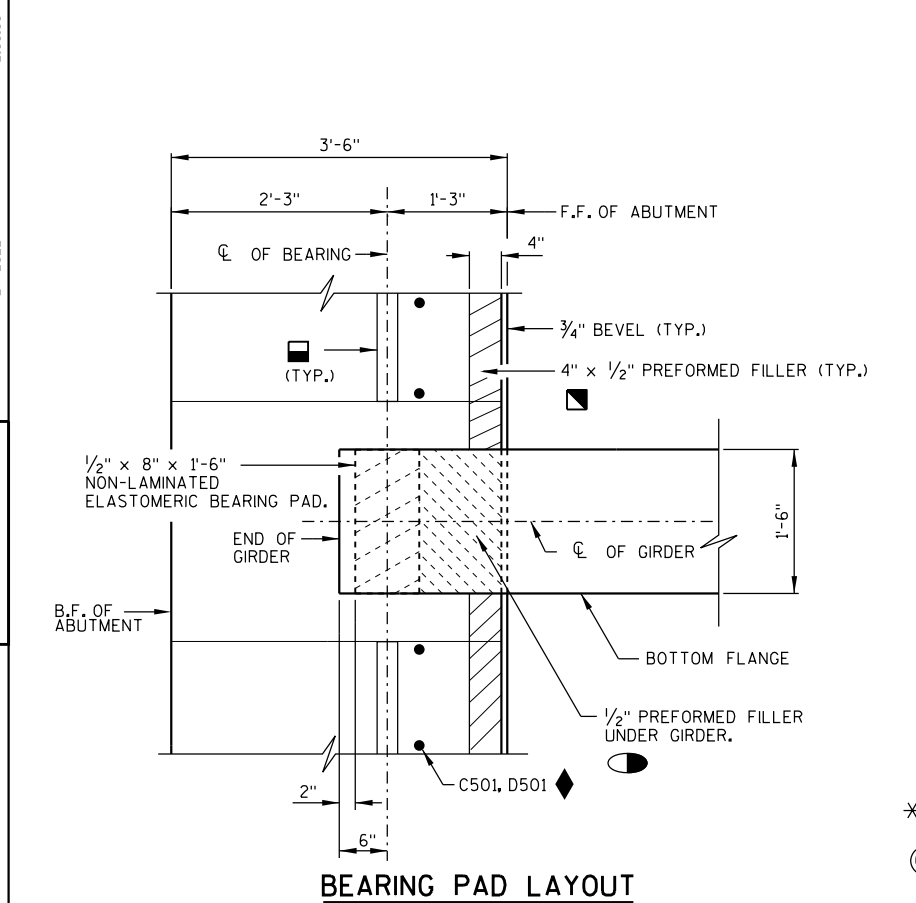
- ALL TRANSVERSE BAR STEEL REINFORCEMENT SHALL BE PLACED PARALLEL TO SUBSTRUCTURE UNITS.
- LAP NO. 5 BARS 2'-7" MIN. IN DECK.
- SEE SHT. 18 'SUPERSTRUCTURE CROSS SECTION' FOR PARAPET REINFORCEMENT DETAIL.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-6-206			
DRAWN BY		KAM	PLANS CK'D. AJC
SUPERSTRUCTURE			SHEET 19 OF 26

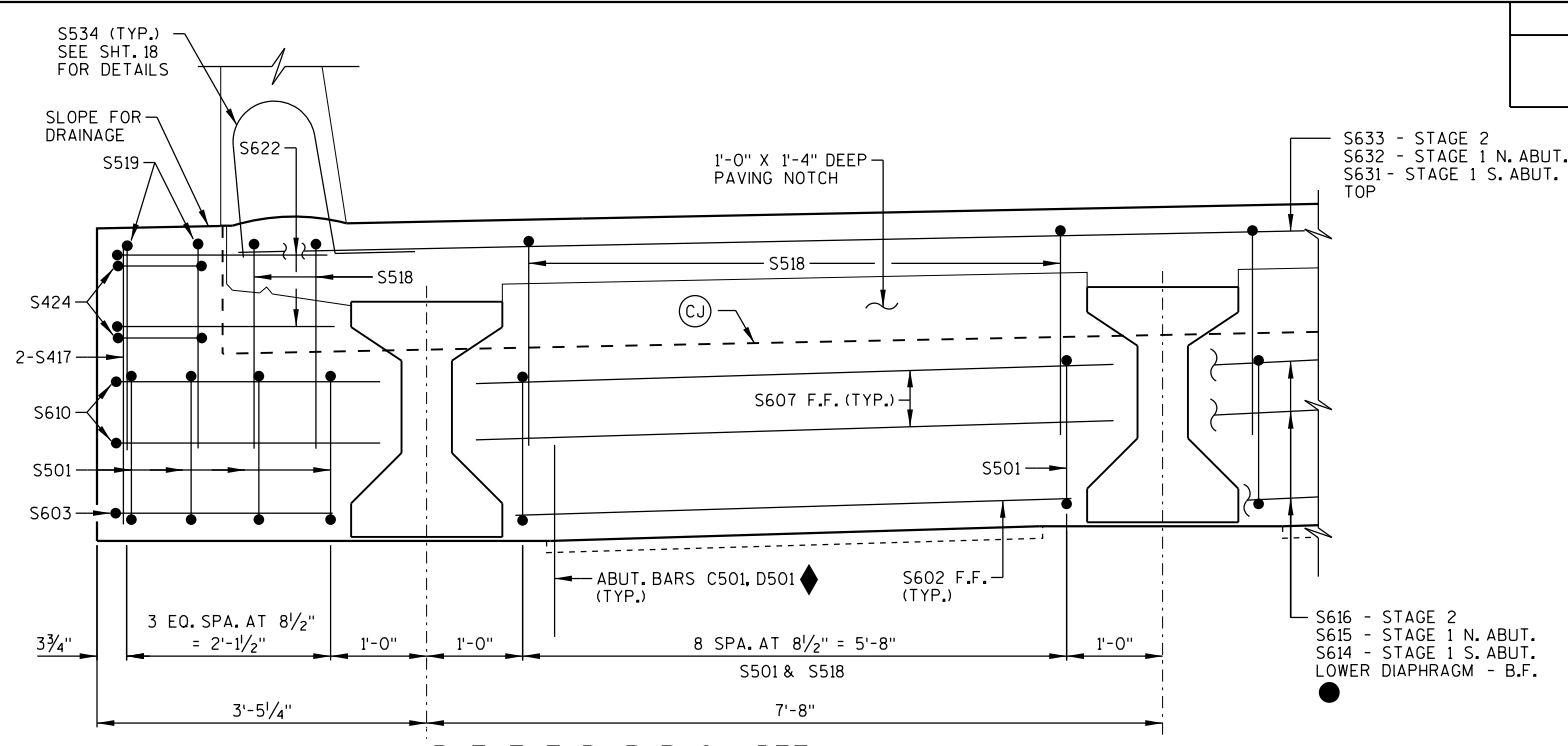
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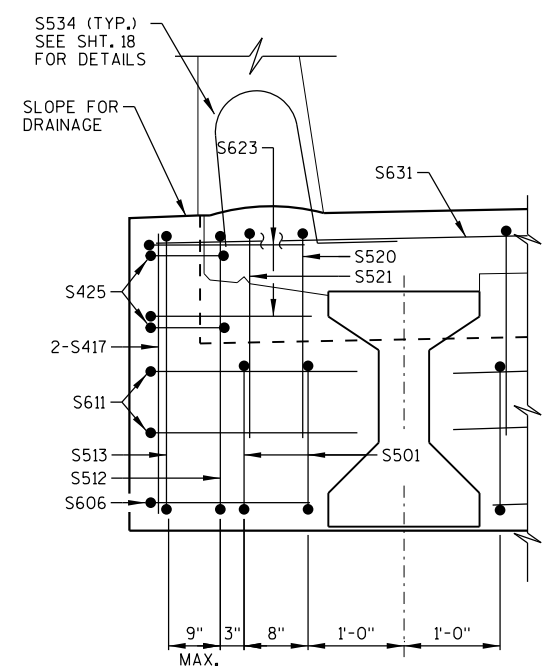
**PART LONGITUDINAL SECTION**  
(AT ABUTMENT)



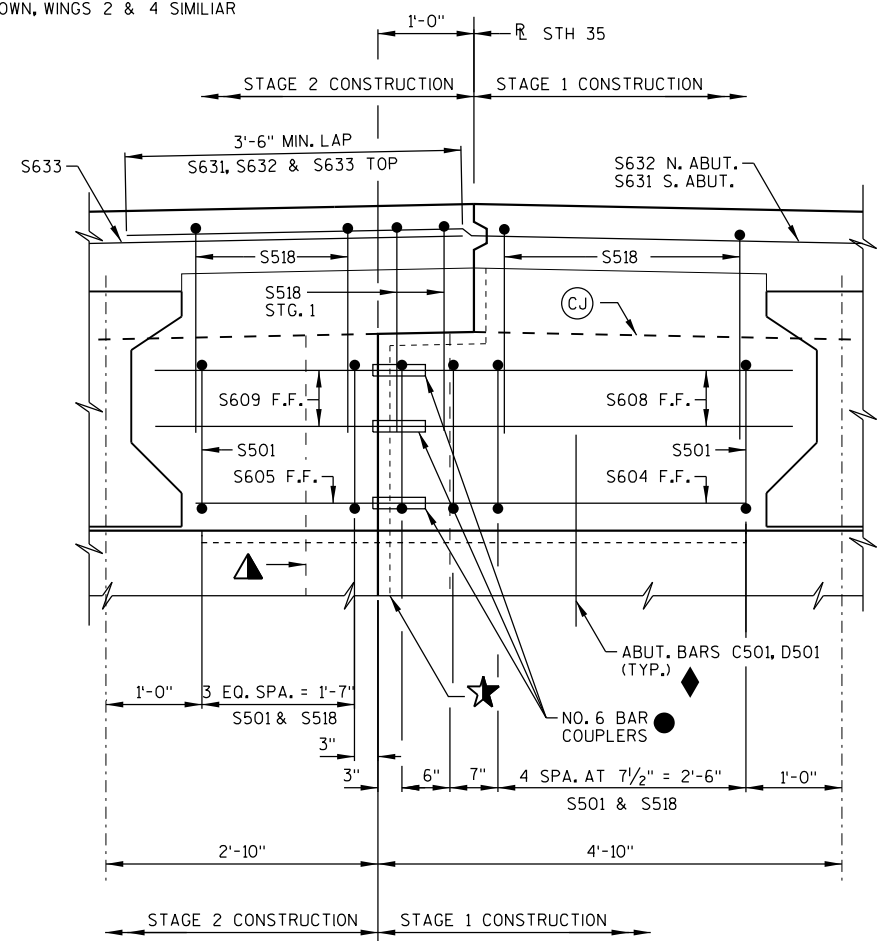
**BEARING PAD LAYOUT**



**ABUTMENT DIAPHRAGM DETAIL**  
(LOOKING UPSTATION)  
WING 3 SHOWN, WINGS 2 & 4 SIMILAR



**ABUTMENT DIAPHRAGM DETAIL**  
(AT WING 1)



**ABUTMENT DIAPHRAGM AT CONSTR. JOINT**  
(LOOKING UPSTATION)

- LEGEND**
- \* DIMENSIONS ARE GIVEN NORMAL TO  $\phi$  OF SUBSTRUCTURE UNITS.
  - \* \* DIMENSIONS ARE GIVEN PARALLEL TO THE GIRDER  $\phi$ .
  - (CJ) OPTIONAL CONSTRUCTION JOINT, IF USED, DECK POUR MUST BE WITHIN 2 WEEKS FROM THE TIME OF THE DIAPHRAGM POUR.
- SEE SHT. 8 FOR ADDITIONAL SYMBOL DESCRIPTIONS.

- NOTES**
- PLACE AND SPACE VERTICAL REINFORCEMENT BARS PARALLEL TO THE GIRDER  $\phi$ .
  - MATCH BOTTOM OF PAVING NOTCH WITH SLOPE OF 'TOP OF DECK'.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-206</b>			
DRAWN BY		KAM	PLANS CKD. AJC
<b>SUPERSTRUCTURE DETAILS - 1</b>			SHEET 20 OF 26

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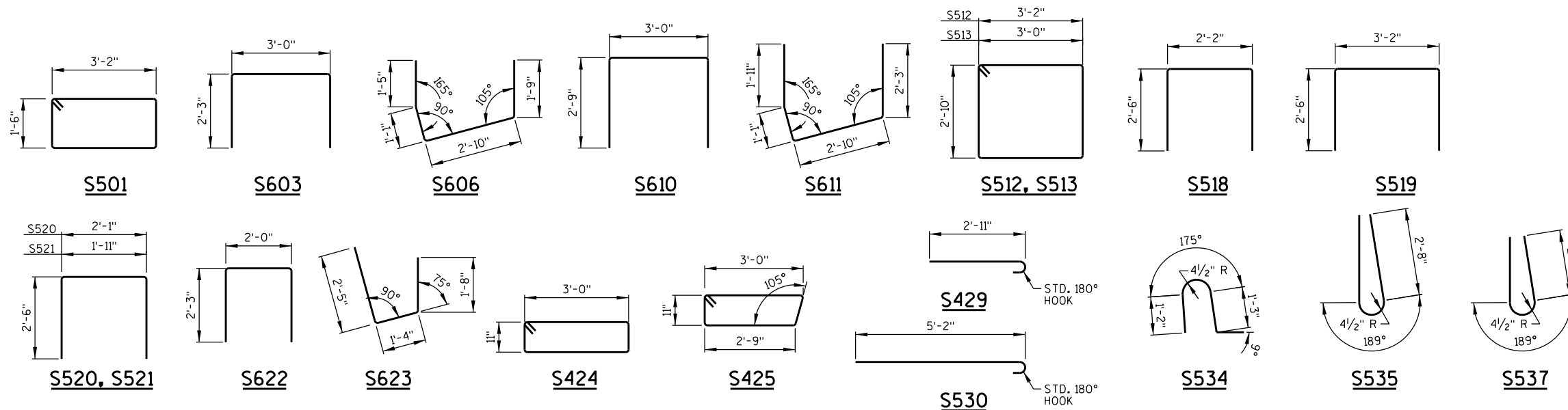
**BILL OF BARS**

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

MARK	STAGE 1 NO. REQ'D	STAGE 2 NO. REQ'D	LENGTH	BENT	LOCATION	TOTAL WEIGHT = 16,490 LBS
COATED BARS						
S501	56	52	10-0	X	ABUTMENT DIAPHRAGM - STIRRUP	VERT.
S602	4	4	5-10		ABUTMENT DIAPHRAGM - F.F. BTWN. GIRDERS 1 THRU 3 & 4 THRU 6	HORIZ.
S603	1	2	7-2	X	ABUTMENT DIAPHRAGM - ENDS AT WINGS 2, 3, 4	HORIZ.
S604	2	-----	3-10		ABUTMENT DIAPHRAGM - F.F. BTWN. GIRDERS AT CONST. JT.	HORIZ.
S605	-----	2	1-10		ABUTMENT DIAPHRAGM - F.F. BTWN. GIRDERS AT CONST. JT.	HORIZ.
S606	1	-----	6-7	X	ABUTMENT DIAPHRAGM - AT WING 1	HORIZ.
S607	8	8	6-10		ABUTMENT DIAPHRAGM - F.F. BTWN. GIRDERS	HORIZ.
S608	4	-----	4-1		ABUTMENT DIAPHRAGM - F.F. BTWN. GIRDERS AT CONST. JT.	HORIZ.
S609	-----	4	2-1		ABUTMENT DIAPHRAGM - F.F. BTWN. GIRDERS AT CONST. JT.	HORIZ.
S610	2	4	8-2	X	ABUTMENT DIAPHRAGM - ENDS AT WINGS 2, 3, 4	HORIZ.
S611	2	-----	7-7	X	ABUTMENT DIAPHRAGM - AT WING 1	HORIZ.
S512	1	-----	12-8	X	ABUTMENT DIAPHRAGM - AT WING 1	VERT.
S513	1	-----	12-4	X	ABUTMENT DIAPHRAGM - AT WING 1	VERT.
S614	3	-----	23-8		ABUTMENT DIAPHRAGM - B.F.	HORIZ.
S615	3	-----	23-5		ABUTMENT DIAPHRAGM - B.F.	HORIZ.
S616	-----	6	21-5		ABUTMENT DIAPHRAGM - B.F.	HORIZ.
S417	4	4	2-11		ABUTMENT DIAPHRAGM - ENDS	VERT.
S518	52	48	6-11	X	ABUTMENT DIAPHRAGM - TOP	VERT.
S519	2	4	7-11	X	ABUTMENT DIAPHRAGM - ENDS AT WINGS 2, 3, 4	VERT.
S520	1	-----	6-10	X	ABUTMENT DIAPHRAGM - AT WING 1 TOP	VERT.
S521	1	-----	6-8	X	ABUTMENT DIAPHRAGM - AT WING 1 TOP	VERT.
S622	2	4	6-2	X	ABUTMENT DIAPHRAGM - ENDS AT WINGS 2, 3, 4	HORIZ.
S623	1	-----	5-1	X	ABUTMENT DIAPHRAGM - AT WING 1 TOP	HORIZ.
S424	2	4	8-4	X	ABUTMENT DIAPHRAGM - ENDS AT WINGS 2, 3, 4 - TOP	LONGIT.
S425	2	-----	8-2	X	ABUTMENT DIAPHRAGM - AT WING 1 TOP	LONGIT.
S526	143	-----	23-10		SLAB - TOP & BOTTOM	TRANS.
S527	-----	143	20-11		SLAB - TOP & BOTTOM	TRANS.
S428	62	62	44-2		SLAB - TOP & BOTTOM	LONGIT.
S429	71	71	3-6	X	SLAB - DECK OUTSIDE EDGES, TOP	TRANS.
S530	71	-----	5-9	X	SLAB - LONGITUDINAL CONST. JOINT	TRANS.
S631	2	-----	25-6		ABUTMENT DIAPHRAGM - B.F. SOUTH ABUT.	HORIZ.
S632	2	-----	26-1		ABUTMENT DIAPHRAGM - B.F. NORTH ABUT.	HORIZ.
S633	-----	4	22-3		ABUTMENT DIAPHRAGM - B.F. - N. & S. ABUT.	HORIZ.
S534	67	67	4-5	X	DECK/PARAPET	VERT.
S535	-----	67	6-8	X	WEST PARAPET	VERT.
S536	8	8	44-2		PARAPET	LONGIT.
S537	67	-----	5-8	X	EAST PARAPET	VERT.

**ESTIMATED QUANTITIES**

	CONCRETE MASONRY BRIDGES (CY)	BAR STEEL REINFORCEMENT HS COATED STRUCTURES (LB)
STAGE 1	44	8,710
STAGE 2	45	7,780



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8

8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-6-206			
DRAWN BY		KAM	PLANS CK'D. AJC
SUPERSTRUCTURE DETAILS - 2			SHEET 21 OF 26

**LEGEND**

SEE SHT. 23 FOR SYMBOL DESCRIPTIONS.

**NOTE**

SEE SHT. 26 FOR BAR COUPLER DETAILS.

**BILL OF BARS**

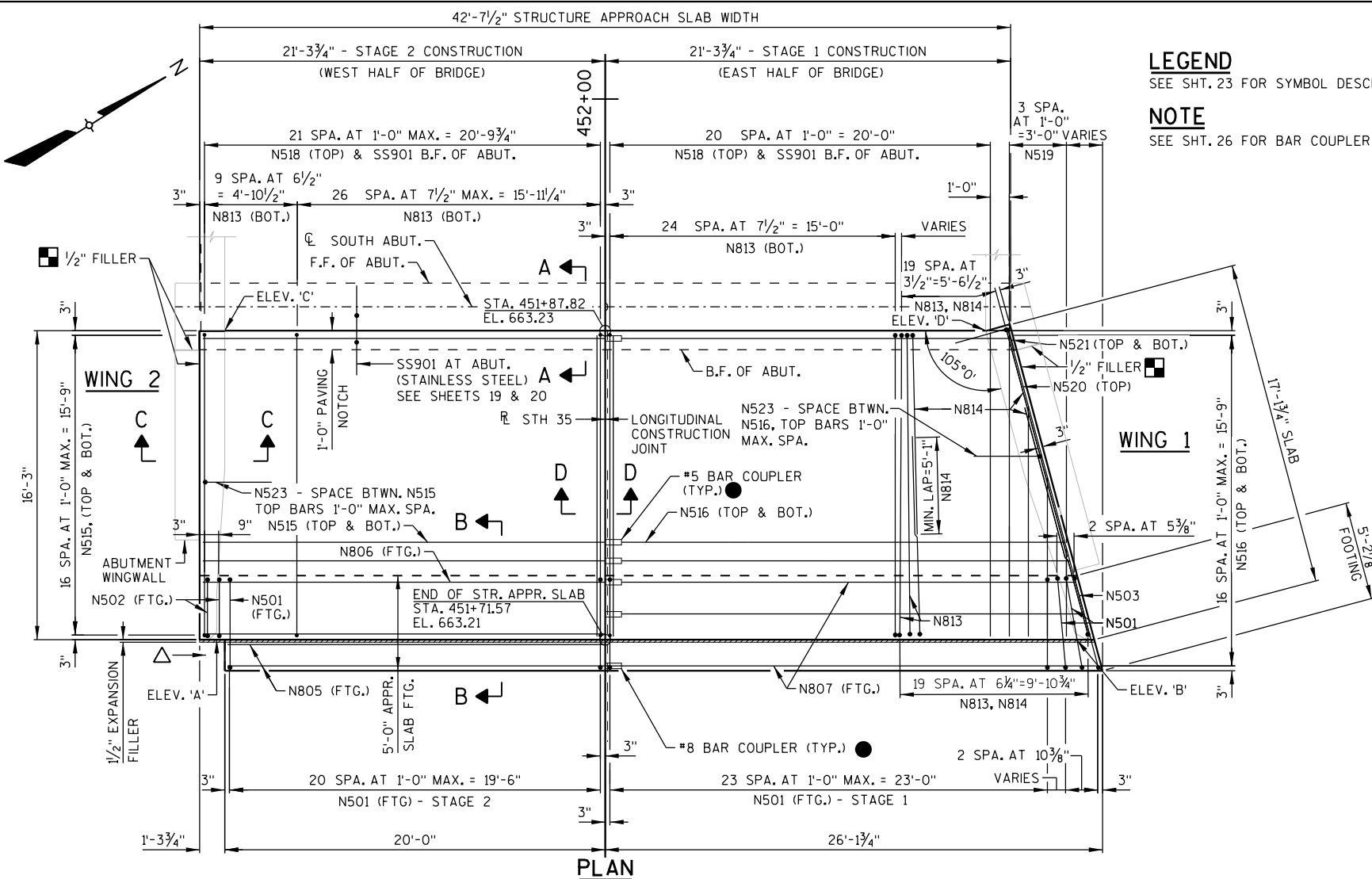
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

Δ LENGTH SHOWN FOR BAR IS AN AVG. LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

MARK	STAGE 1 NO. REQ'D	STAGE 2 NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION	TOTAL WEIGHT = 8,690 LBS
COATED BARS							
N501	26	21	12 - 2	X		APPROACH SLAB FOOTING - STIRRUP	VERT.
N502	----	2	9 - 2	X		APPROACH SLAB FOOTING - STIRRUP	VERT.
N503	1	----	12 - 6	X		APPROACH SLAB FOOTING - STIRRUP	VERT.
N504	----	----	----			NOT USED	
N805	----	4	19 - 10			APPROACH SLAB FOOTING	TRANS.
N806	----	8	21 - 1			APPROACH SLAB FOOTING	TRANS.
N807	12	----	25 - 2		Δ	APPROACH SLAB FOOTING	TRANS.
N808	----	----	----			NOT USED	
N809	----	----	----			NOT USED	
N810	----	----	----			NOT USED	
N811	----	----	----			NOT USED	
N812	----	----	----			NOT USED	
N813	27	36	17 - 7	X		APPROACH SLAB - BOTTOM	LONGIT.
N814	36	----	11 - 10	X		APPROACH SLAB - BOTTOM	LONGIT.
N515	----	34	21 - 1			APPROACH SLAB - TOP & BOT.	TRANS.
N516	34	----	23 - 3		Δ	APPROACH SLAB - TOP & BOT.	TRANS.
N517	----	----	----			NOT USED	
N518	21	22	15 - 11			APPROACH SLAB - TOP	LONGIT.
N519	4	----	10 - 4		Δ	APPROACH SLAB - TOP	LONGIT.
N520	1	----	16 - 8			APPROACH SLAB - TOP EAST EDGE	LONGIT.
N521	2	----	3 - 9	X		APPROACH SLAB - TOP & BOT. NE CRNR.	LONGIT.
N522	----	----	----			NOT USED	
N523	17	17	4 - 1			APPROACH SLAB - TOP EAST & WEST EDGE	TRANS.
STAINLESS STEEL BARS							
SS901	21	22	5 - 0	X		ABUTMENT DIAPHRAGM TO APPROACH SLAB	HORIZ.
TOTAL WEIGHT = 730 LBS							

**BAR SERIES**

MARK	NO. REQ'D	LENGTH
N807	2 SETS OF 6	24'-6" TO 25'-10"
N516	2 SETS OF 17	21'-3" TO 25'-4"
N519	1 SET OF 4	4'-8" TO 16'-0"

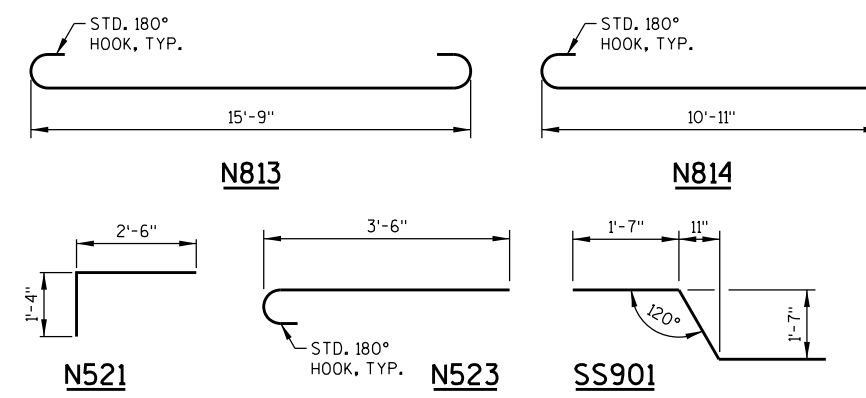
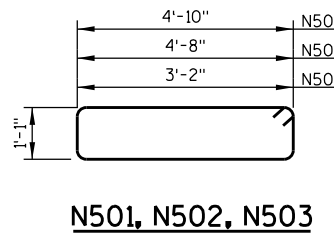
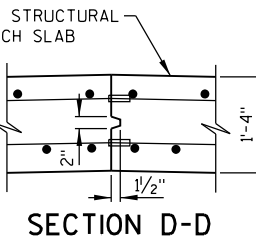
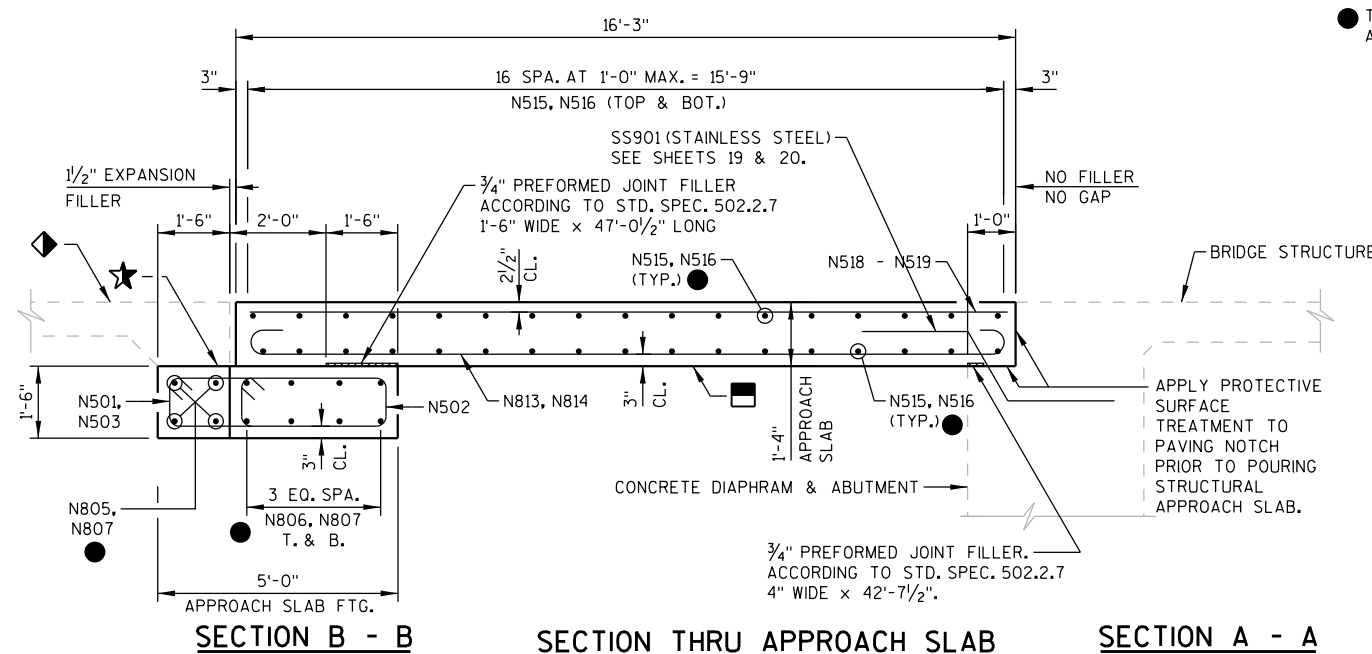
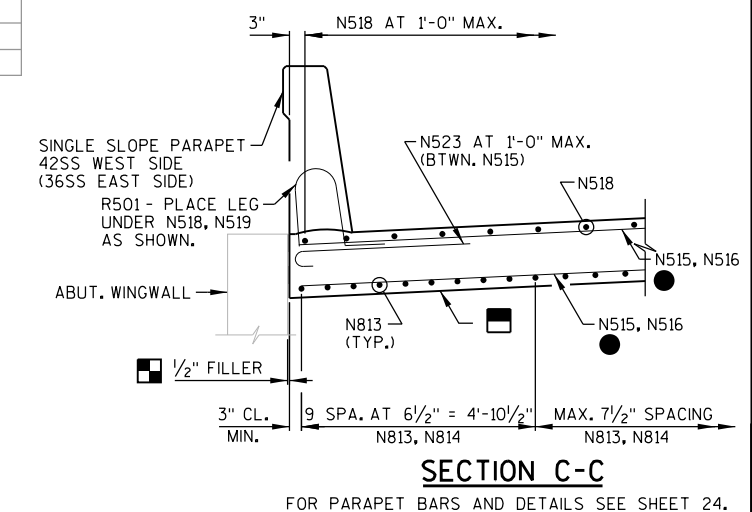


**TOP OF APPROACH SLAB ELEVATIONS**

LOCATION	DESCRIPTION	STATION	OFFSET TO R (FEET)	ELEVATION (FEET)
'A'	WEST FLOW LINE AT END OF APPROACH SLAB	451+71.57	20.42 LT.	662.804
'B'	EAST FLOW LINE AT END OF APPROACH SLAB	451+71.57	24.79 RT.	662.716
'C'	WEST FLOW LINE AT ABUTMENT	451+87.82	20.00 LT.	662.833
'D'	EAST FLOW LINE AT ABUTMENT	451+87.82	20.00 RT.	662.833

**ESTIMATED QUANTITIES**

	CONCRETE MASONRY BRIDGES (CY)	BAR STEEL REINFORCEMENT HS COATED STRUCTURES (LB)	BAR STEEL REINFORCEMENT HS STAINLESS STRUCTURES (LB)
STAGE 1	28	4,870	355
STAGE 2	26	3,820	375



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-6-206			
DRAWN BY		KAM	PLANS CKD. AJC
SOUTH STRUCTURAL APPROACH SLAB			SHEET 22 OF 26

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 BATCH PRINT SHEET 22 OF 26  
 PLOT DATE: 9/29/2022  
 PLOT TIME: 2:07:46 PM

**BILL OF BARS**

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

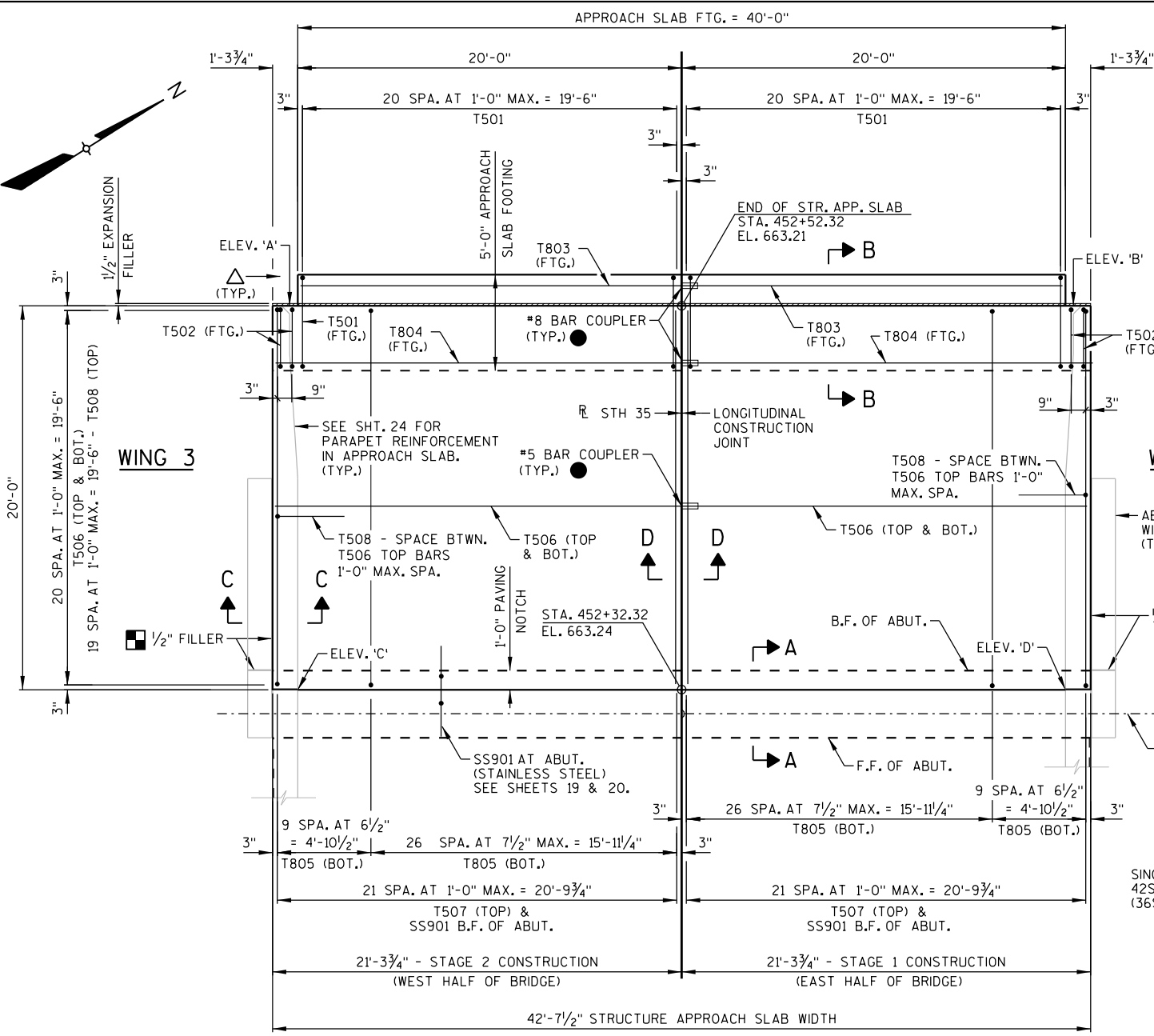
MARK	STAGE 1 NO. REQ'D	STAGE 2 NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION	TOTAL WEIGHT = 8,920 LBS
COATED BARS							
T501	21	21	12-2	X		APPROACH SLAB FOOTING - STIRRUP	VERT.
T502	2	2	9-2	X		APPROACH SLAB FOOTING - STIRRUP	VERT.
T803	4	4	19-10			APPROACH SLAB FOOTING	TRANS.
T804	8	8	21-1			APPROACH SLAB FOOTING	TRANS.
T805	36	36	21-4	X		APPROACH SLAB - BOTTOM	LONGIT.
T506	42	42	21-1			APPROACH SLAB - TOP & BOTTOM	TRANS.
T507	22	22	19-8			APPROACH SLAB - TOP	LONGIT.
T508	20	20	4-1	X		APPROACH SLAB - TOP - EDGE OF SLAB	TRANS.
STAINLESS STEEL BARS							
SS901	22	22	5-0	X		ABUTMENT DIAPHRAGM TO APPROACH SLAB	HORIZ.
							TOTAL WEIGHT = 750 LBS

**ESTIMATED QUANTITIES**

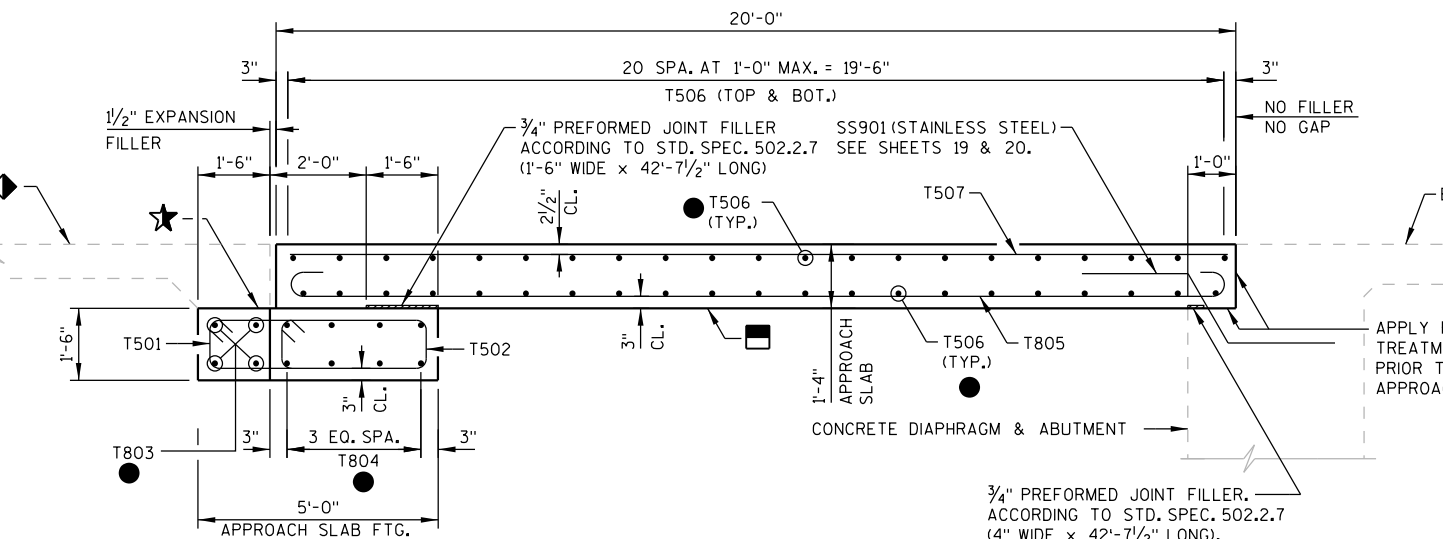
	CONCRETE MASONRY BRIDGES (CY)	BAR STEEL REINFORCEMENT HS COATED STRUCTURES (LB)	BAR STEEL REINFORCEMENT HS STAINLESS STRUCTURES (LB)
STAGE 1	30	4,460	375
STAGE 2	30	4,460	375

**TOP OF APPROACH SLAB ELEVATIONS**

LOCATION	DESCRIPTION	STATION	OFFSET TO R (FEET)	ELEVATION (FEET)
'A'	WEST FLOW LINE AT END OF APPROACH SLAB	452+52.32	20.42 LT.	662.801
'B'	EAST FLOW LINE AT END OF APPROACH SLAB	452+52.32	20.42 RT.	662.801
'C'	WEST FLOW LINE AT ABUTMENT	452+32.32	20.00 LT.	662.834
'D'	EAST FLOW LINE AT ABUTMENT	452+32.32	20.00 RT.	662.834



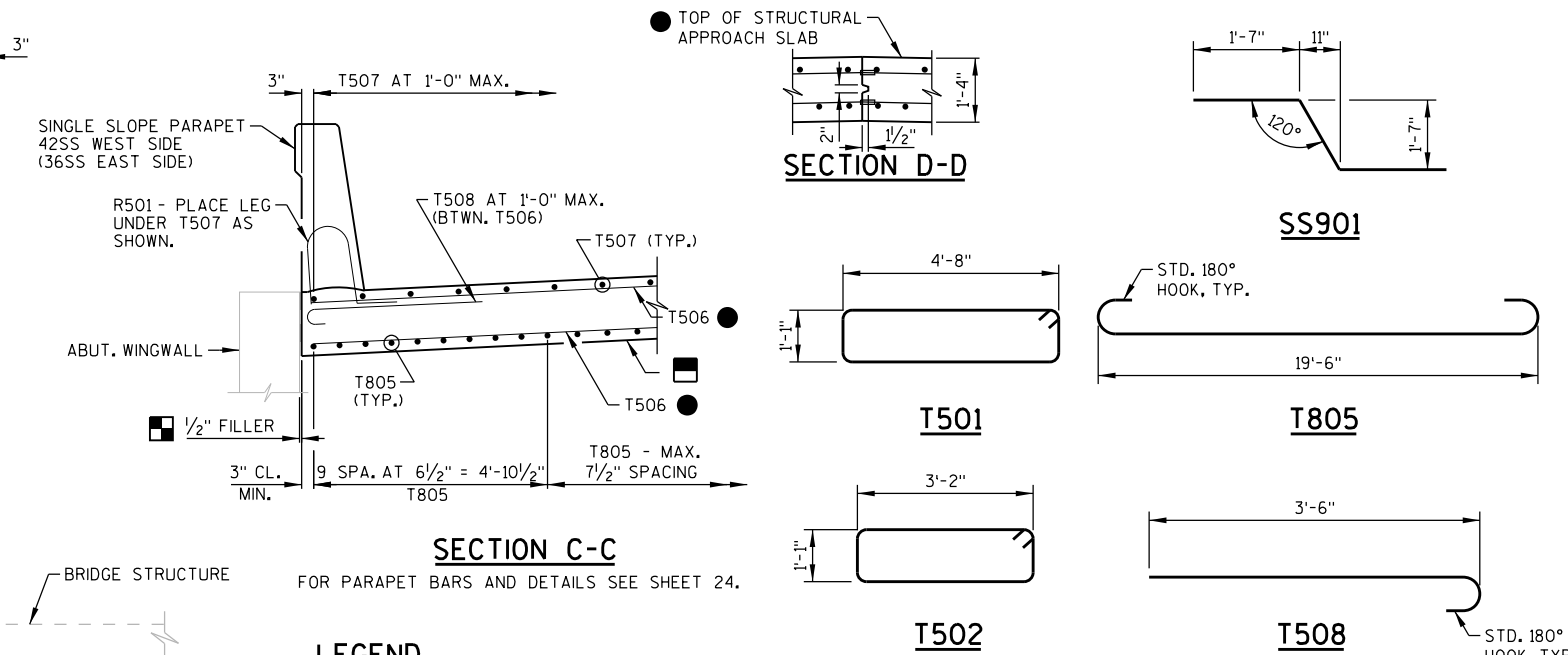
**PLAN**



**SECTION B - B**

**SECTION THRU APPROACH SLAB**

**SECTION A - A**

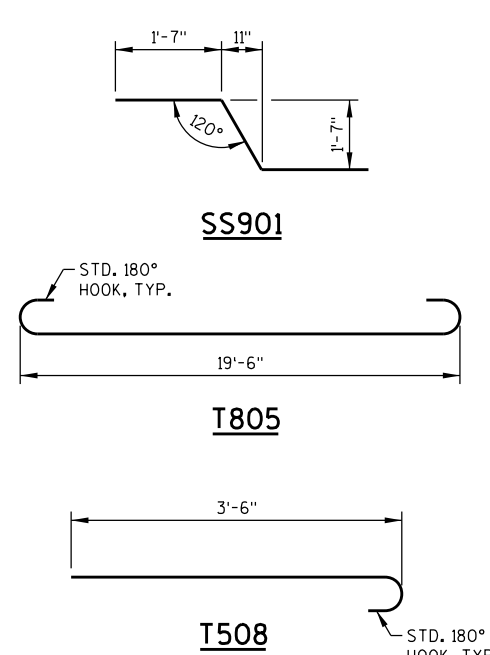


**SECTION C - C**

FOR PARAPET BARS AND DETAILS SEE SHEET 24.

**LEGEND**

- ★ STEEL TROWEL TOP SURFACE OF FOOTING AND PLACE MULTIPLE LAYERS (0.03" MIN. TOTAL THK.) OF POLYETHYLENE SHEETS OVER THE ENTIRE TOP OF FOOTING.
- PLACE MULTIPLE LAYERS (0.03" MIN. TOTAL THK.) OF POLYETHYLENE SHEETS OVER THE ENTIRE TOP OF SUBGRADE BENEATH SLAB.
- SEAL ALL EXPOSED HORIZ. AND VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE).
- ◆ SEE ROADWAY PLANS FOR DETAILS.
- USE BAR COUPLERS TO CONTINUE BAR STEEL THRU JOINT. SEE SHEET 25 FOR DETAILS.
- △ NOTCH APPROACH SLAB FOOTING TO ALLOW FOR THRIE BEAM POST INSTALLATION.



**SS901**

**T501**

**T805**

**T502**

**T508**

STD. 180° HOOK, TYP.

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 BATCH PRINT SHEET 23 OF 26  
 PLOT DATE: 9/29/2022  
 PLOT TIME: 2:07:33 PM

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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-206</b>			
DRAWN BY		KAM	PLANS CKD. AJC
<b>NORTH STRUCTURAL APPROACH SLAB</b>			SHEET 23 OF 26

**BILL OF BARS**

FOR STRUCTURAL APPROACH SLAB PARAPETS.  
BAR QUANTITIES INCLUDE WINGS 2 AND 3.

BAR MARK	COAT	NO.	LENGTH	BENT	BAR SERIES	LOCATION
R501	X	30	4'-5"	X		PARAPET VERT.
R502	X	30	6'-8"	X		PARAPET VERT.
R503	X	24	2'-9"	X		PARAPET VERT.
R504	X	34	4'-4"	X		PARAPET VERT.
R505	X	10	6'-5"	X		PARAPET VERT.
R506	X	12	6'-6"	X		PARAPET VERT.
R507	X	1	19'-6"	X		PARAPET HORIZ. WING 3
R508	X	5	19'-6"			PARAPET HORIZ. WING 3
R509	X	12	5'-5"	X	▲	PARAPET VERT.
R510	X	2	19'-7"	X		PARAPET HORIZ. WING 3
R515	X	1	15'-9"	X		PARAPET HORIZ. WING 2
R516	X	5	15'-9"			PARAPET HORIZ. WING 2
R517	X	2	15'-10"	X		PARAPET HORIZ. WING 2

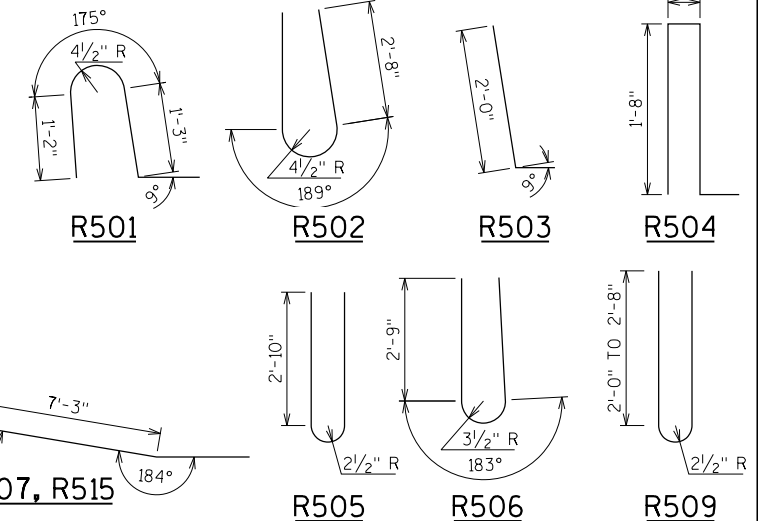
▲ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

WT. = 1080 LBS.

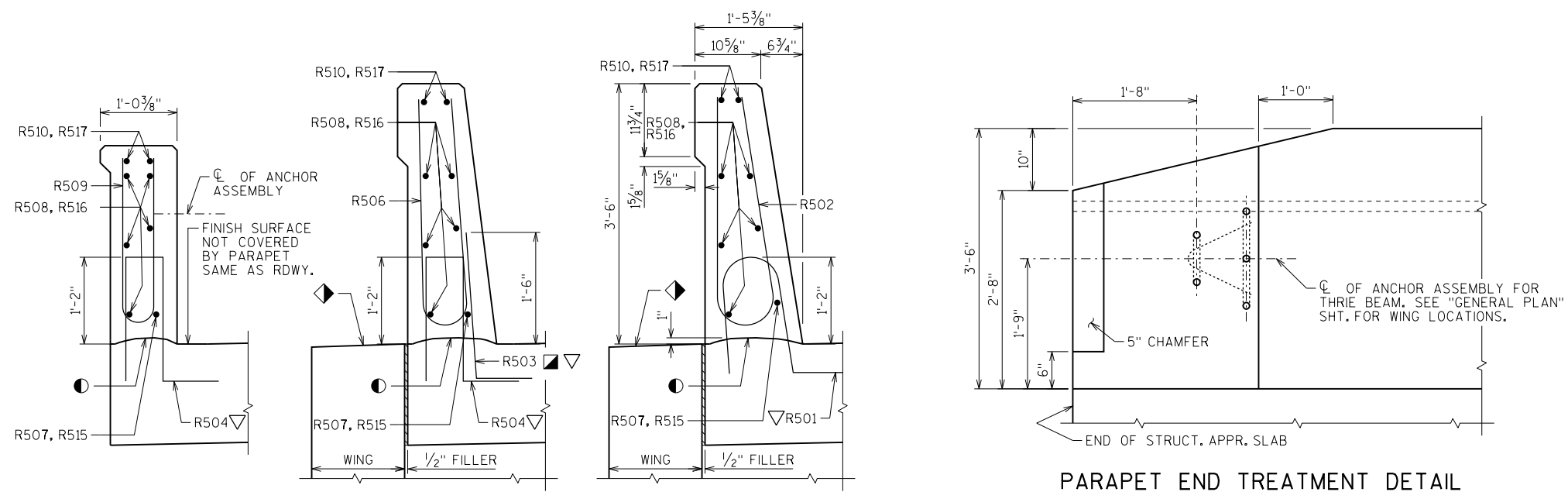
**BAR SERIES TABLE**

BAR MARK	NO. REQ'D	LENGTH
R509	2 SERIES OF 6	4'-9" TO 6'-1"

BUNDLE AND TAG EACH SERIES SEPARATELY.



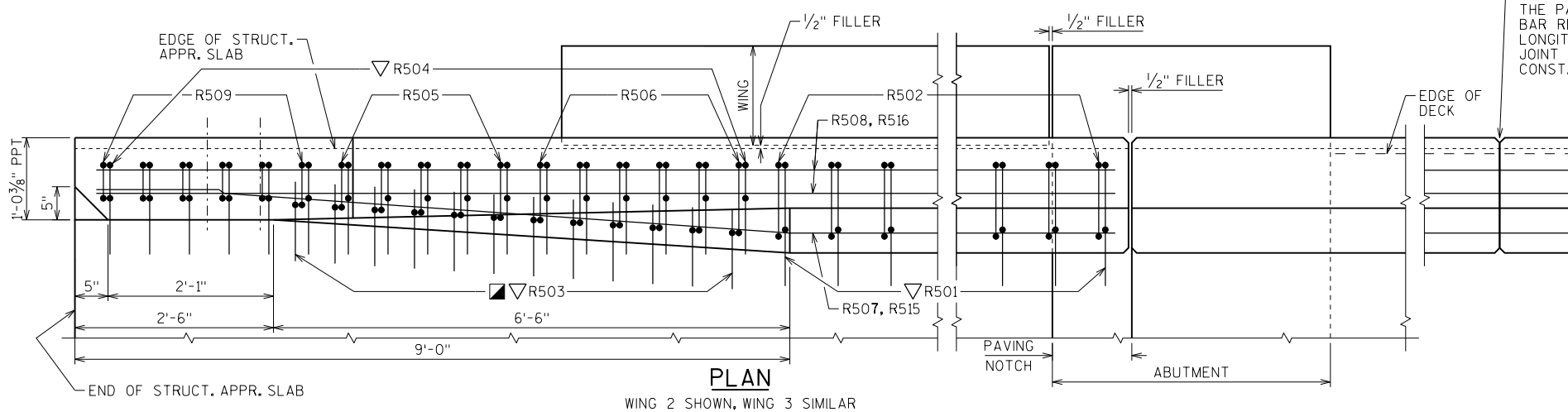
- CONST. JOINT - STRIKE OFF AS SHOWN
- ◆ SLOPE FOR DRAINAGE
- USE CARE TO PLACE R503 BARS CORRECTLY ALONG TRANSITION OF PARAPET.
- ▽ R501, R503, AND R504 BARS TO BE TIED TO STRUCTURAL APPROACH SLAB STEEL BEFORE STRUCTURAL APPROACH SLAB IS POURED.



**PARAPET END TREATMENT DETAIL**

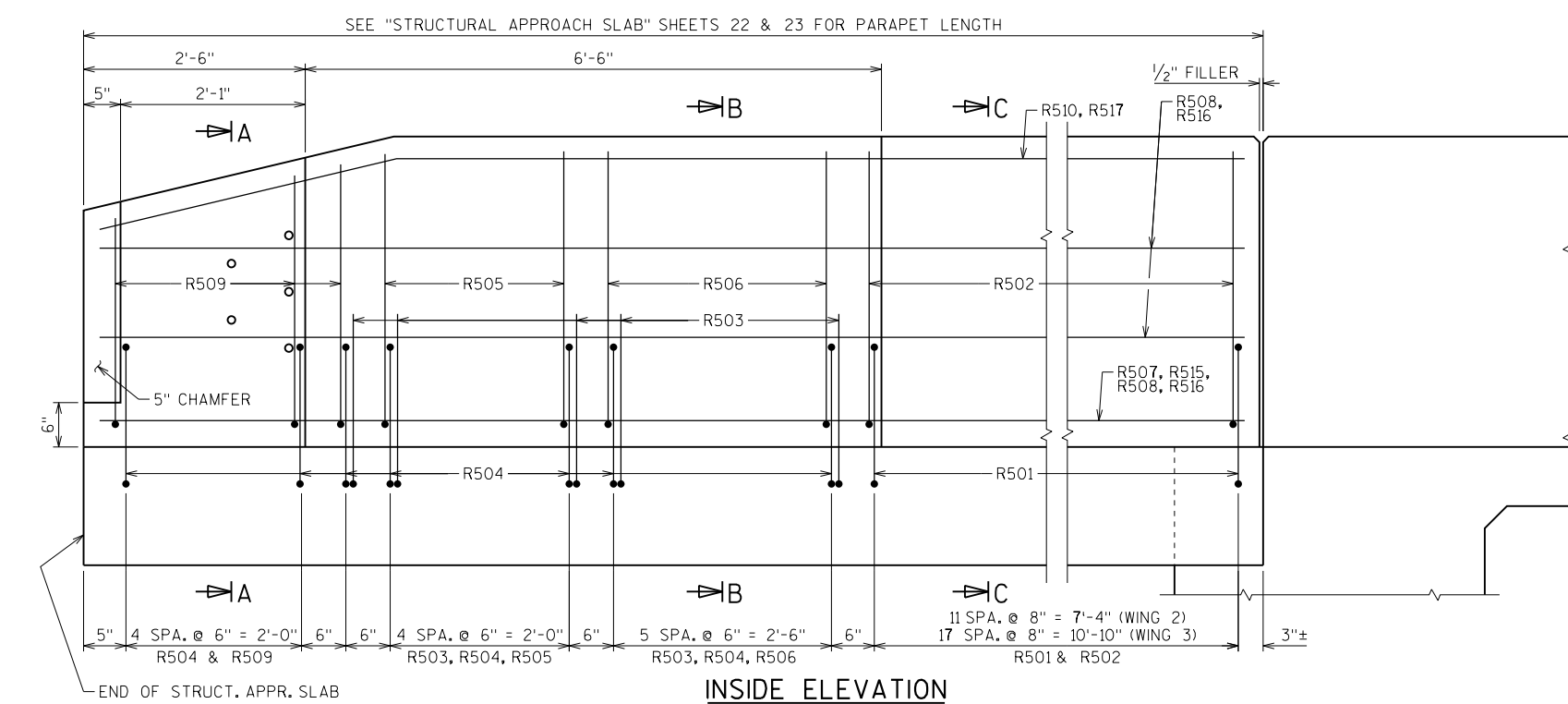
LOOKING AT INSIDE FACE OF PARAPET

OPTIONAL CONSTRUCTION JOINTS IN THE PARAPETS MAY BE USED. RUN BAR REINF. THRU THE JOINT. LAP LONGIT. BARS A MIN. OF 1'-9". MIN. JOINT SPACING OF 80'-0". DEFINE CONST. JOINT WITH A 3/4" - 'V' GROOVE.



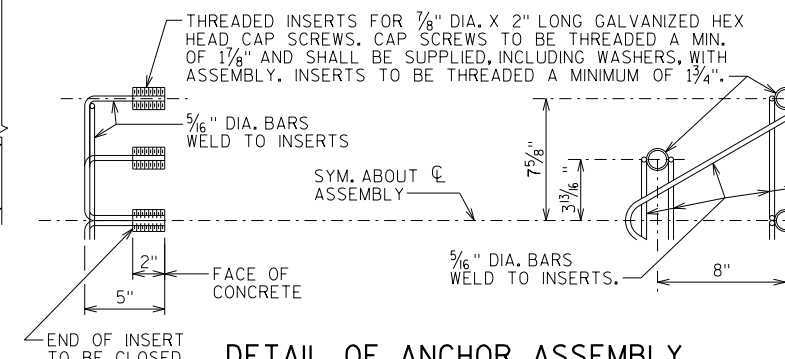
**PLAN**

WING 2 SHOWN, WING 3 SIMILAR



**INSIDE ELEVATION**

WING & STRUCTURAL APPROACH SLAB FOOTING NOT SHOWN FOR CLARITY



**DETAIL OF ANCHOR ASSEMBLY**

NOTE: HEX HEAD CAP SCREWS & WASHERS TO BE GALVANIZED IN ACCORDANCE WITH AASHTO M232 CLASS C.

ASSEMBLY SHALL BE BID ITEM "ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD", EACH.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-206</b>			
DRAWN BY		KAM	PLANS CKD. AJC
<b>SINGLE SLOPE PARAPET 42SS WITH STRUCTURAL APPROACH SLAB</b>			SHEET 24 OF 26

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 PLOT TIME: 2:08:03 PM  
 BATCH PRINT SHEET 24 OF 26

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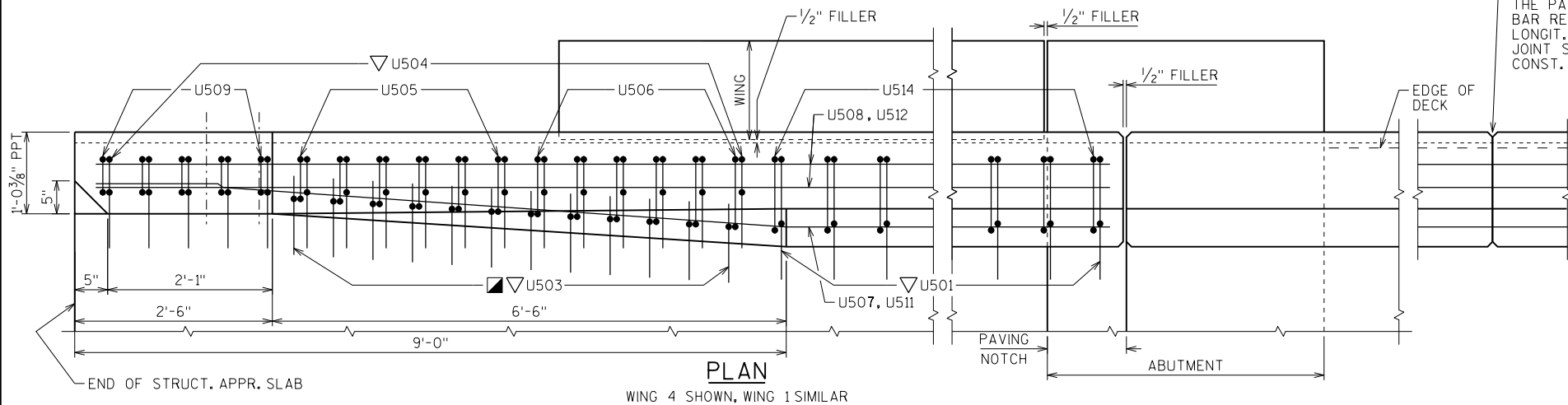
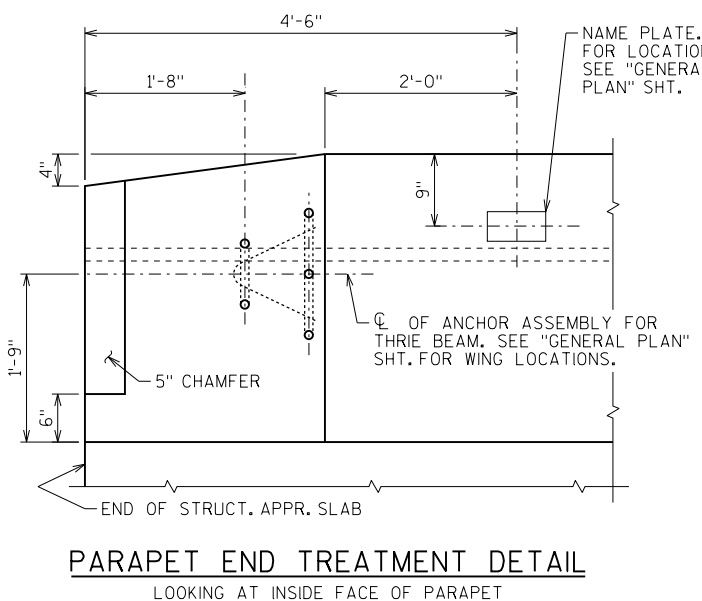
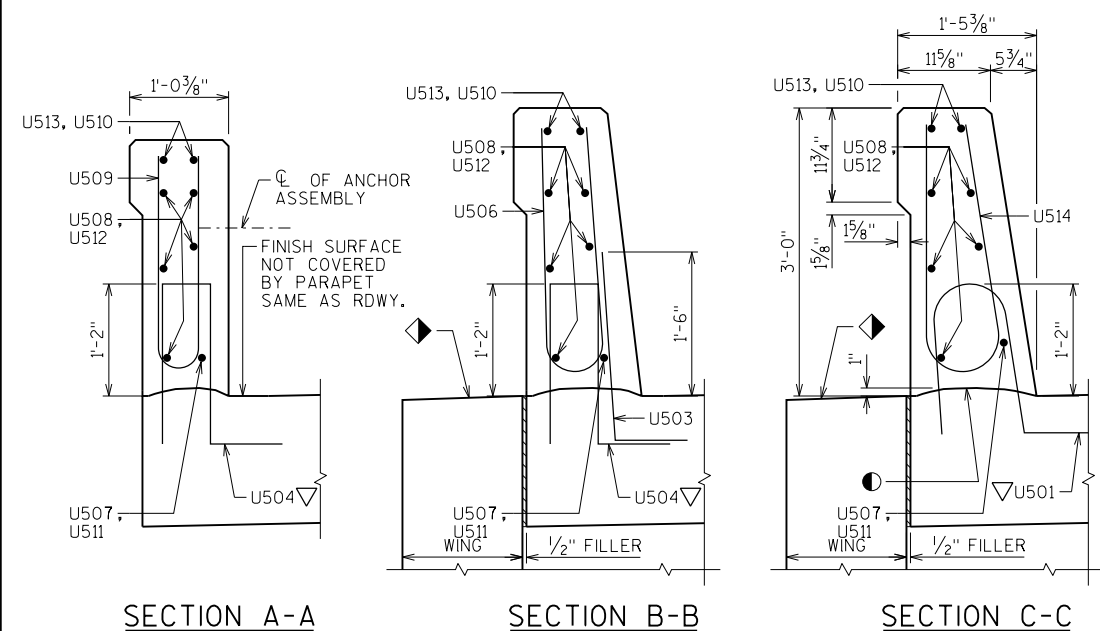
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**BILL OF BARS**

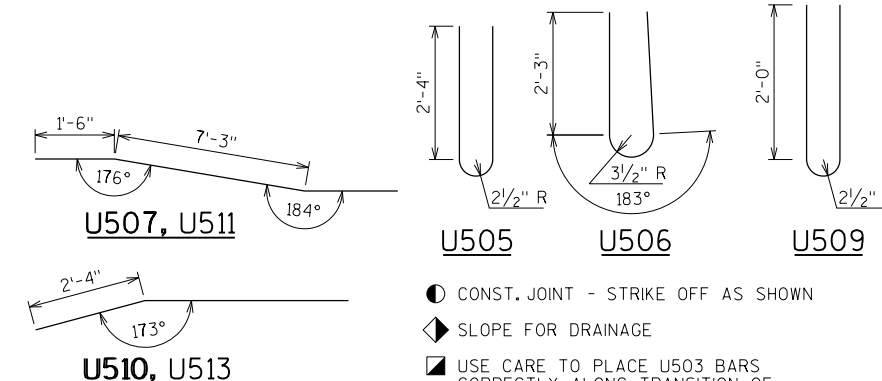
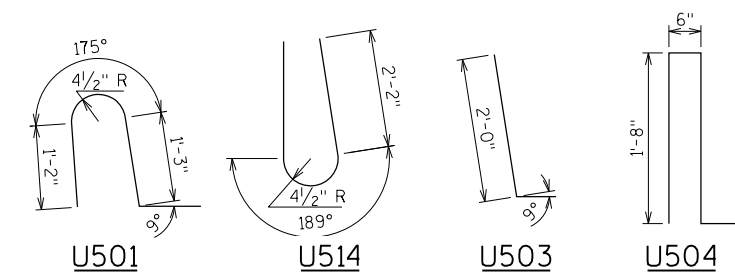
FOR STRUCTURAL APPROACH SLAB PARAPETS.  
BAR QUANTITIES INCLUDE WINGS 1 AND 4.

BAR MARK	COAT	NO.	LENGTH	BENT	BAR SERIES	LOCATION
U501	X	31	4'-5"	X		PARAPET VERT.
U502	-	-	-	-	-	-
U503	X	24	2'-9"	X		PARAPET VERT.
U504	X	34	4'-4"	X		PARAPET VERT.
U505	X	12	5'-5"	X		PARAPET VERT.
U506	X	12	5'-6"	X		PARAPET VERT.
U507	X	1	19'-6"	X		PARAPET HORIZ. WING 4
U508	X	5	19'-6"	X		PARAPET HORIZ. WING 4
U509	X	10	4'-9"	X		PARAPET VERT.
U510	X	2	19'-7"	X		PARAPET HORIZ. WING 4
U511	X	1	16'-6"	X		PARAPET HORIZ. WING 1
U512	X	5	16'-6"	X		PARAPET HORIZ. WING 1
U513	X	2	16'-7"	X		PARAPET HORIZ. WING 1
U514	X	31	5'-8"	X		PARAPET VERT.

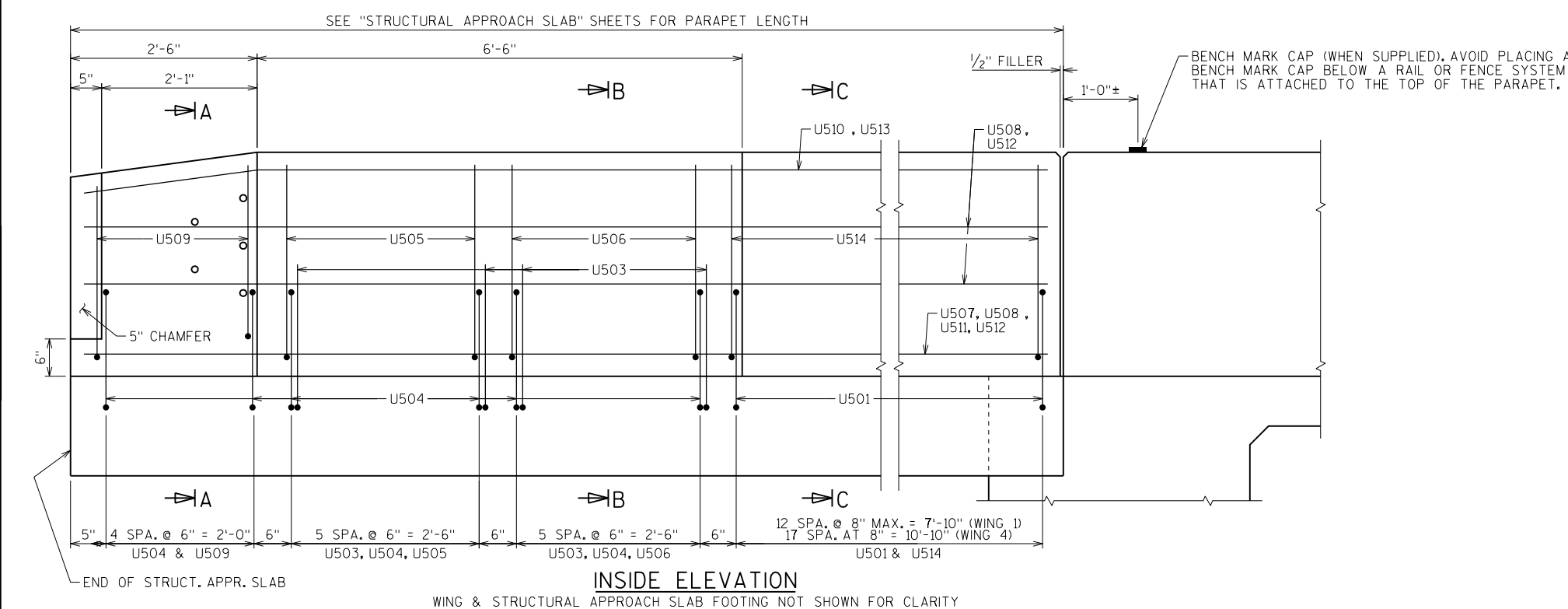
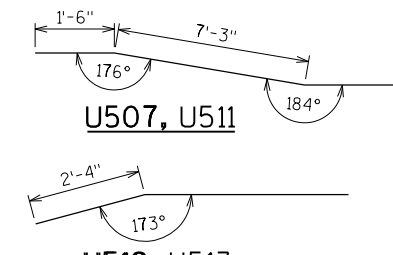
WT. = 960 LBS.



OPTIONAL CONSTRUCTION JOINTS IN THE PARAPETS MAY BE USED. RUN BAR REINF. THRU THE JOINT. LAP LONGIT. BARS A MIN. OF 1'-9". MIN. JOINT SPACING OF 80'-0". DEFINE CONST. JOINT WITH A 3/4" - 1" GROOVE.



U510, U513



BENCH MARK CAP (WHEN SUPPLIED). AVOID PLACING A BENCH MARK CAP BELOW A RAIL OR FENCE SYSTEM THAT IS ATTACHED TO THE TOP OF THE PARAPET.

- CONST. JOINT - STRIKE OFF AS SHOWN
  - ◊ SLOPE FOR DRAINAGE
  - USE CARE TO PLACE U503 BARS CORRECTLY ALONG TRANSITION OF PARAPET.
  - ▽ U501, U503, AND U504 BARS TO BE TIED TO STRUCTURAL APPROACH SLAB STEEL BEFORE STRUCTURAL APPROACH SLAB IS POURED.
- SEE SHT. 24 FOR ANCHOR ASSEMBLY DETAIL.

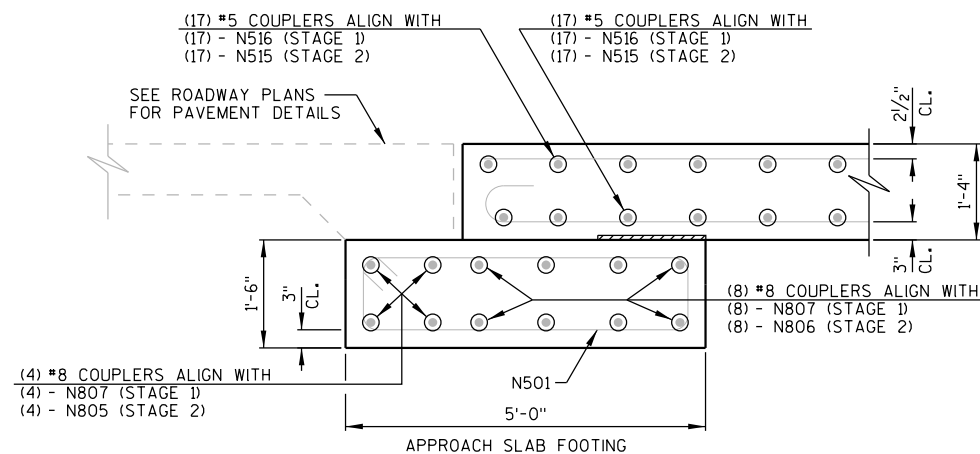
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-206</b>			
DRAWN BY		MES	PLANS CKD. KRH
SINGLE SLOPE PARAPET 36SS WITH STRUCTURAL APPROACH SLAB			SHEET 25 OF 26

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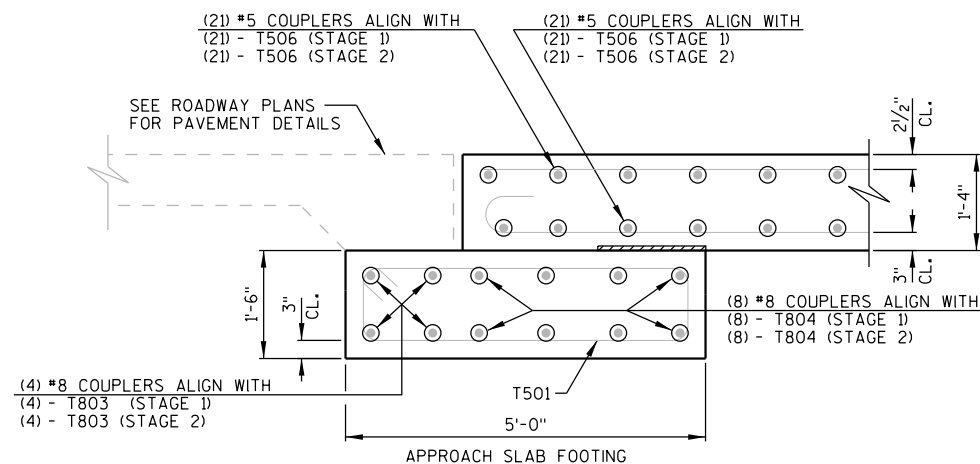
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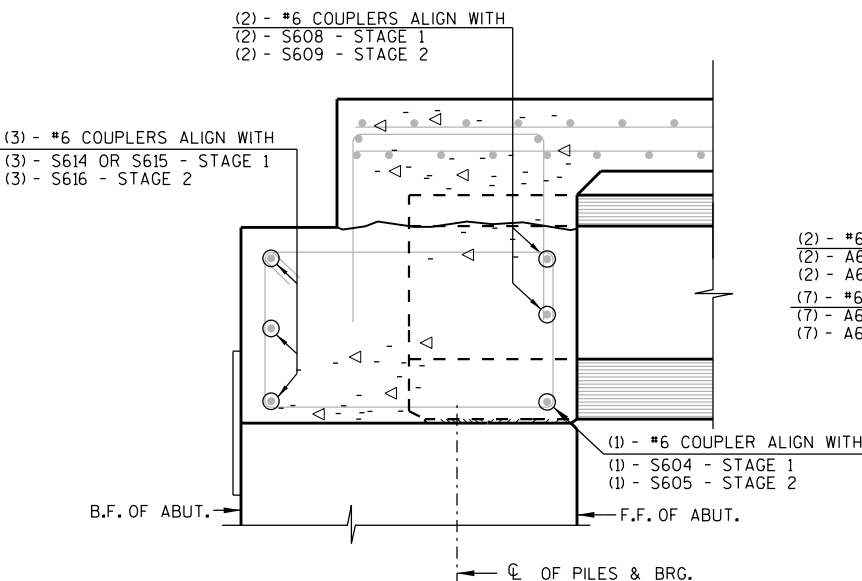




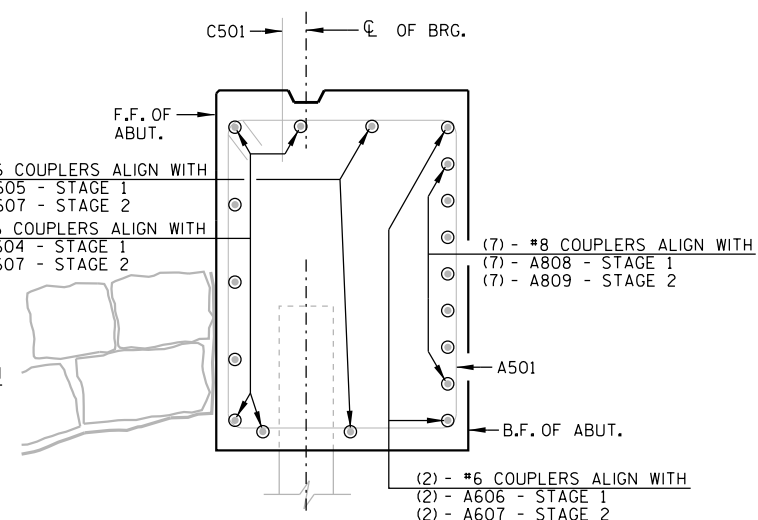
**TYPICAL SECTION THRU S. APPR. SLAB FOOTING AT CONSTRUCTION JOINT**



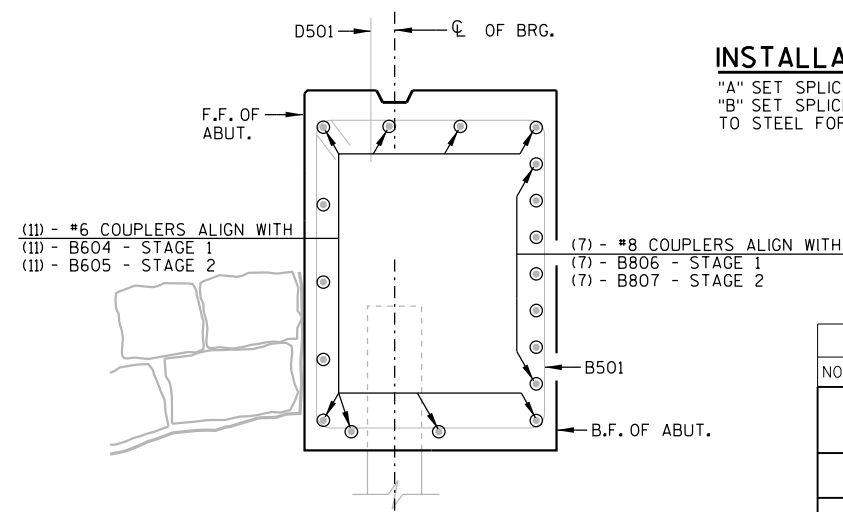
**TYPICAL SECTION THRU N. APPR. SLAB FOOTING AT CONSTRUCTION JOINT**



**TYPICAL SECTION THRU ABUTMENT DIAPHRAGM AT CONSTRUCTION JOINT**



**TYPICAL SECTION THRU SOUTH ABUTMENT AT CONSTRUCTION JOINT**



**TYPICAL SECTION THRU NORTH ABUTMENT AT CONSTRUCTION JOINT**

**NOTES**

STEEL SPLICE (COUPLER) ASSEMBLY SHALL BE AN APPROVED TYPE AND SHALL DEVELOP IN TENSION AT LEAST 125% OF THE YIELD STRENGTH OF THE SPLICED REINFORCEMENT BARS.

DOWEL BAR SPLICERS SHALL BE OF MINIMUM 60 ksi YIELD STRENGTH, AND HAVE TENSILE STRENGTH AREA EQUAL OR GREATER THAN THAT OF THE LAPPED REINFORCEMENT BARS.

DOWEL BAR SPLICERS SHALL MEET THE DEFORMATION REQUIREMENTS FOR STANDARD ASTM DEFORMED REINFORCING BARS.

FOR DOWEL BAR SPLICERS, ALL REINFORCEMENT BARS SHALL BE LAPPED AND TIED TO THE SPLICER BARS.

SPLICER (COUPLER) ASSEMBLY IN THE STRUCTURAL APPROACH SLABS SHALL BE EPOXY COATED IN ACCORDANCE WITH THE REQUIREMENTS FOR REINFORCEMENT BARS.

OTHER SYSTEMS OF SIMILAR DESIGN MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL. APPROVAL SHALL BE BASED ON CERTIFIED TEST RESULTS FROM AN APPROVED TESTING LABORATORY THAT THE PROPOSED SPLICER (COUPLER) ASSEMBLY SATISFIES THE FOLLOWING REQUIREMENT:

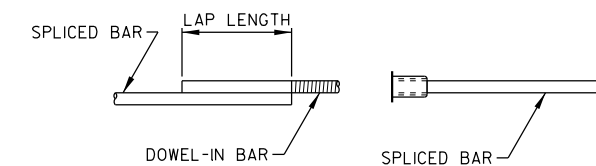
1. - MINIMUM CAPACITY = 1.25 x fy x AREA OF SPLICED REINFORCEMENT BAR.

WHERE fy = YIELD STRENGTH OF SPLICED REINFORCEMENT BARS.

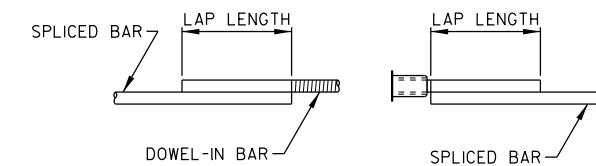
**DOWEL BAR SPLICER LAP LENGTHS**

CONCRETE UNDER BAR	BAR SIZE	4	5	6	7	8	9	10	11
12" OR LESS	f'c = 3500	1'-8"	2'-8"	3'-2"	4'-3"	5'-6"	7'-0"	8'-9"	10'-11"
	f'c = 4000	1'-8"	2'-8"	3'-2"	4'-0"	5'-2"	6'-6"	8'-3"	10'-2"
MORE THAN 12"	f'c = 3500	2'-3"	2'-11"	3'-6"	4'-8"	6'-1"	7'-10"	9'-10"	12'-1"
	f'c = 4000	2'-3"	2'-11"	3'-6"	4'-5"	5'-8"	7'-4"	9'-2"	11'-4"

BAR LENGTH COMPUTED TO CL LONGIT. JOINT AND SHALL BE MODIFIED IF REQ'D. TO BAR COUPLER MANUFACTURER RECOMENDATIONS. PAY BASED ON BARS AS DETAILED.



**DOWEL BAR SPLICER**

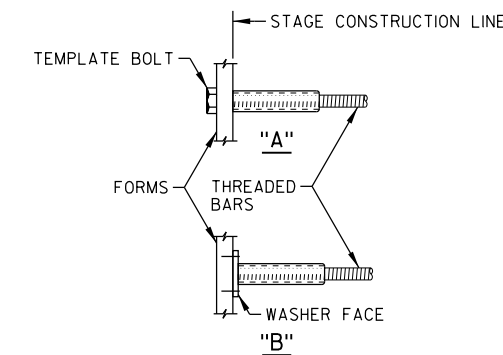


**DOWEL BAR SPLICER**



**ONE PIECE THREADED SPLICER**

**SPLICER ALTERNATIVES**



**INSTALLATION AND SETTING METHODS**

"A" SET SPLICER BY MEANS OF A TEMPLATE BOLT.  
"B" SET SPLICER BY NAILING TO WOOD FORMS OR CEMENTING TO STEEL FORMS.

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 PLOT DATE: 9/29/2022  
 PLOT TIME: 2:08:58 PM  
 BATCH PRINT SHEET 26 OF 26

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-6-206</b>			
DRAWN BY		KAM	PLANS CK'D. AJC
BAR SPLICER (COUPLER) DETAILS			SHEET 26 OF 26

STATION	AREA (SF)		Incremental Vol (CY) (Unadjusted)		Cumulative Vol (CY)		Mass Ordinate Note 7
	Cut	Fill	Cut Note 1	Fill	Cut 1.00 Note 1	Expanded Fill 1.25 Note 6	
225+86	75.2	12.85	0	0	0	0	0
226+00	73.06	92.33	38	27	38	34	4
226+50	65.96	59.78	129	141	167	210	-43
227+00	54.26	51.73	111	103	278	339	-61
227+50	41.35	58.89	89	102	367	467	-100
228+00	30.51	71.59	67	121	434	618	-185
228+50	20.26	76.75	47	137	481	790	-309
229+00	9.52	82.87	28	148	508	975	-467
229+50	2.87	74.01	11	145	520	1156	-637
230+00	0	87.56	3	150	522	1343	-821
230+23	0	119.73	0	88	522	1454	-931
230+50	0	0	0	60	522	1528	-1006
231+00	0	0	0	0	522	1528	-1006
231+50	3.55	95.42	3	88	526	1639	-1113
231+57	4.26	89.26	1	24	527	1669	-1142
231+79	6.79	67.96	5	64	531	1749	-1218
232+00	9.62	57.55	6	49	537	1810	-1272
232+50	21.49	56.98	29	106	566	1942	-1376
233+00	35.38	49.46	53	99	619	2066	-1447
233+50	50.76	31.06	80	75	699	2159	-1460
234+00	65.95	28.4	108	55	807	2228	-1421
234+48	75.65	14.37	126	38	933	2275	-1343
234+50	75.95	14.22	6	1	938	2276	-1338
234+74	79.76	14.55	69	13	1007	2292	-1285
235+00	85.01	20.37	79	17	1087	2313	-1227
235+50	81.75	38.27	154	54	1241	2381	-1140
236+00	78.94	0.16	149	36	1390	2426	-1036
			1390	1941			

- 1) Common Excavation is the sum of the Cut and EBS Excavation columns. Item number 205.0100
- 6) Expanded Fill = Unexpanded Fill \* Fill Factor
- 7) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material within the Division. Minus indicates a shortage of material within the Division.

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STATION	AREA (SF)		Incremental Vol (CY) (Unadjusted)		Cumulative Vol (CY)		Mass Ordinate Note 7
	Cut	Fill	Cut Note 1	Fill	Cut 1.00 Note 1	Expanded Fill 1.25 Note 6	
338+00	24.03	0	0	0	0	0	0
338+26	0	0	12	0	12	0	0
338+50	0	0	0	0	12	0	0
338+52	19.32	5.44	1	0	12	0	1
338+52	19.32	5.44	0	0	13	0	1
338+78	19.61	24.18	18	14	31	18	2
339+00	0	0	8	10	39	30	-10
339+05	21.07	6.95	2	1	41	31	-7
339+05	21.52	1.59	0	0	41	31	-6
339+28	21.52	1.59	18	1	59	33	10
339+50	22.25	2.81	18	2	77	33	26
339+73	21.69	2.4	19	2	96	34	41
340+00	21.7	1.29	22	2	118	36	61
340+50	21.46	10.09	40	11	158	49	87
341+00	22.32	7.93	41	17	198	70	108
341+50	84.44	10.22	99	17	297	91	243
342+00	83.62	26.82	156	34	453	133	355
342+50	75.11	52.82	147	74	599	226	402
343+00	52.54	54.72	118	100	718	350	375
343+05	24.67	77.55	7	12	725	365	364
343+31	22.33	81.11	23	76	747	461	290
343+50	11.88	97.97	12	63	759	540	220
343+58	5.38	112.53	3	31	762	579	182

STATION	AREA (SF)		Incremental Vol (CY) (Unadjusted)		Cumulative Vol (CY)		Mass Ordinate Note 7
	Cut	Fill	Cut Note 1	Fill	Cut 1.00 Note 1	Expanded Fill 1.25 Note 6	
344+00	2.72	98.89	6	164	768	784	-19
344+20	0	81.68	1	67	769	868	-103
344+50	0	107.83	0	105	769	999	-234
344+51	0	126.03	0	4	769	1005	-240
344+73	0	126.2	0	103	769	1133	-368
345+00	0	76.85	0	184	769	1364	-598
345+50	0	107.33	0	171	769	1577	-811
346+00	0	0	0	99	769	1701	-936
346+47	0	0	0	0	769	1701	-936
346+50	0	86.46	0	5	769	1707	-942
346+56	0	70.17	0	17	769	1729	-963
346+81	0	77.67	0	68	769	1814	-1049
347+00	0	58.25	0	48	769	1874	-1109
347+06	0	47.59	0	12	769	1889	-1123
347+06	0	46.54	0	1	769	1890	-1125
347+50	0	46.54	0	75	769	1984	-1218
347+90	12.23	57.31	9	77	778	2080	-1296
348+00	29.93	54.34	8	21	786	2106	-1311
348+17	32.92	54.94	20	34	806	2149	-1333
348+44	38.31	55.57	36	55	842	2218	-1364
348+50	47.91	58.2	80	105	921	2349	-1407
349+00	50.36	93.08	91	140	1012	2524	-1489
349+50	67.55	69.35	109	150	1122	2712	-1552
350+00	76.59	53.31	133	114	1255	2854	-1552
350+50	76.58	1.99	142	51	1397	2896	-1452
			1397	2338			

8

- 1) Common Excavation is the sum of the Cut and EBS Excavation columns. Item number 205.0100
- 6) Expanded Fill = Unexpanded Fill \* Fill Factor
- 7) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material within the Division. Minus indicates a shortage of material within the Division

8

STATION	AREA (SF)		Incremental Vol (CY) (Unadjusted)		Cumulative Vol (CY)		Mass Ordinate Note 7
	Cut	Fill	Cut Note 1	Fill	Cut 1.00 Note 1	Expanded Fill 1.25 Note 6	
449+80	81.92	14.49	0	0	0	0	0
450+00	80.38	28.58	60	16	60	20	40
450+50	69.45	23.78	139	48	199	81	118
451+00	57.43	12.61	117	34	316	123	194
451+48	20.64	0	70	11	386	137	249
451+50	45.02	29.18	2	1	388	138	250
451+51	45	29.23	2	1	390	139	251
451+67	57.03	31.64	30	18	420	161	258
451+70	55.41	35.93	8	5	427	167	260
452+00	0	0	30	20	458	192	266
452+50	0	0	0	0	458	192	266
452+52	45.27	36.13	2	1	459	193	266
452+95	49.26	8.66	75	35	534	238	296
453+00	49.65	10.08	9	2	543	240	303
453+02	50	9.9	4	1	547	241	306
453+30	63.7	0.79	59	6	605	248	358
453+50	73.11	1.17	51	1	656	248	408
453+54	75.15	1.36	11	0	667	249	419
453+55	75.24	17.77	3	0	670	249	421
454+00	90.22	0	138	15	808	268	540
			808	214			

1) Common Excavation is the sum of the Cut and EBS Excavation columns. Item number 205.0100

6) Expanded Fill = Unexpanded Fill \* Fill Factor

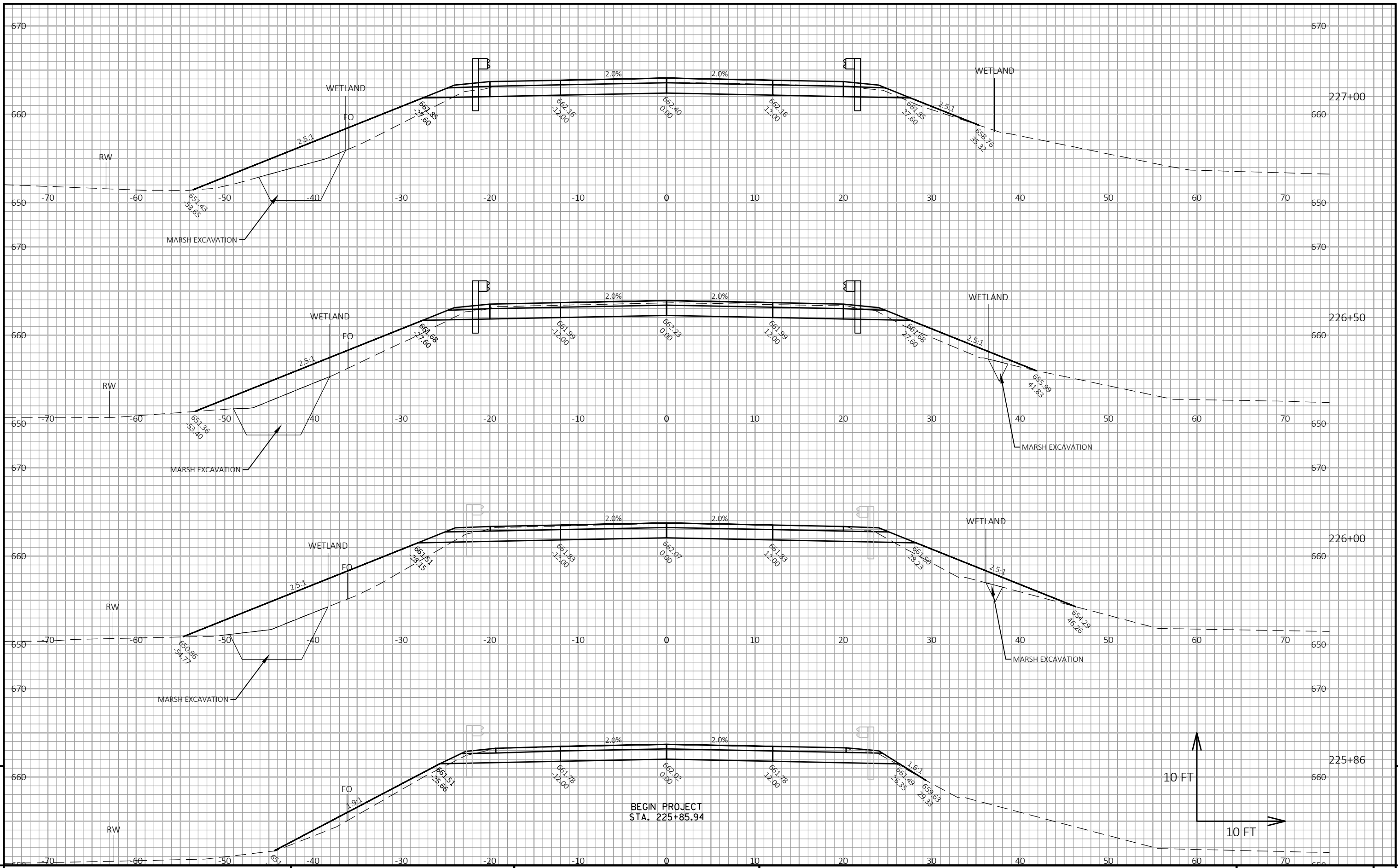
7) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material within the Division. Minus indicates a shortage of material within the Division.

STATION	AREA (SF)		Incremental Vol (CY) (Unadjusted)		Cumulative Vol (CY)		Mass Ordinate Note 7
	Cut	Fill	Cut Note 1	Fill	Cut 1.00 Note 1	Expanded Fill 1.25 Note 6	
10+20	23.31	0.00	0	0	0	0	0
10+25	40.15	12.38	6	1	6	1	4
10+50	32.80	0.88	34	6	40	9	31
10+74	56.83	0.00	40	0	80	10	70
			80	8			

1) Common Excavation is the sum of the Cut and EBS Excavation columns. Item number 205.0100

6) Expanded Fill = Unexpanded Fill \* Fill Factor

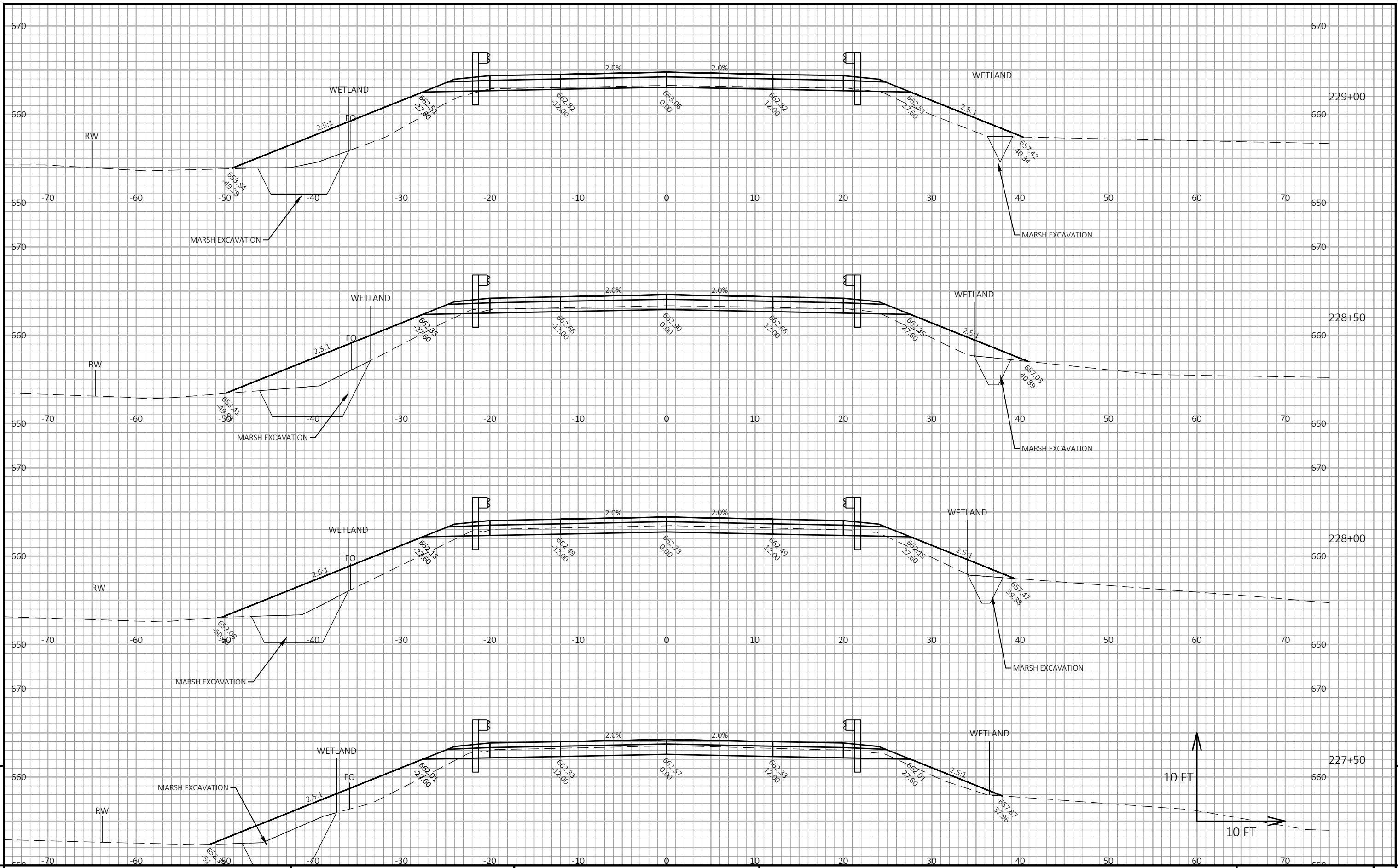
7) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material within the Division. Minus indicates a shortage of material within the Division



9

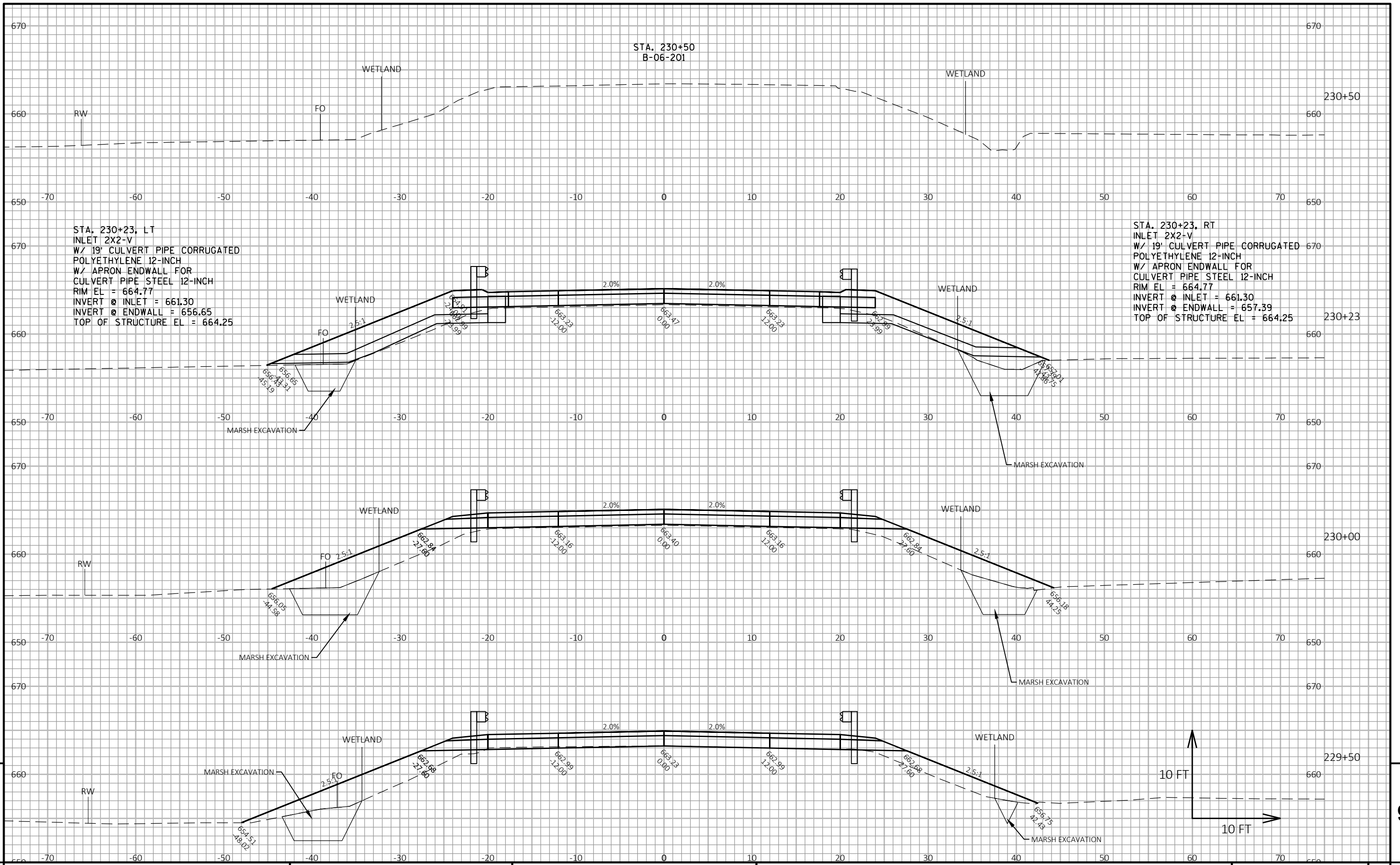
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PROJECT NO: 7160-04-75	HWY: STH 35	COUNTY: BUFFALO	CROSS SECTIONS: B-06-201	SHEET	E
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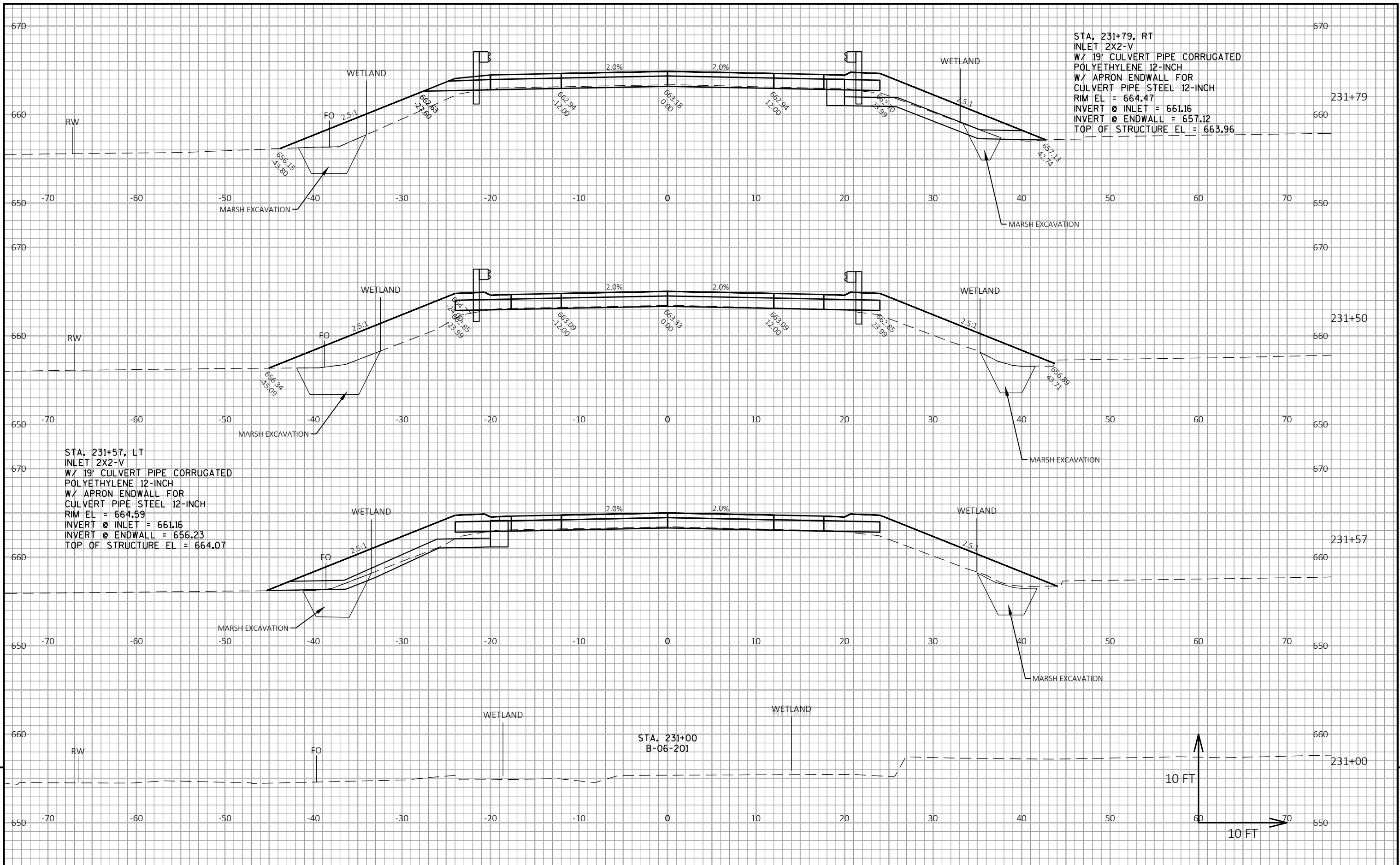


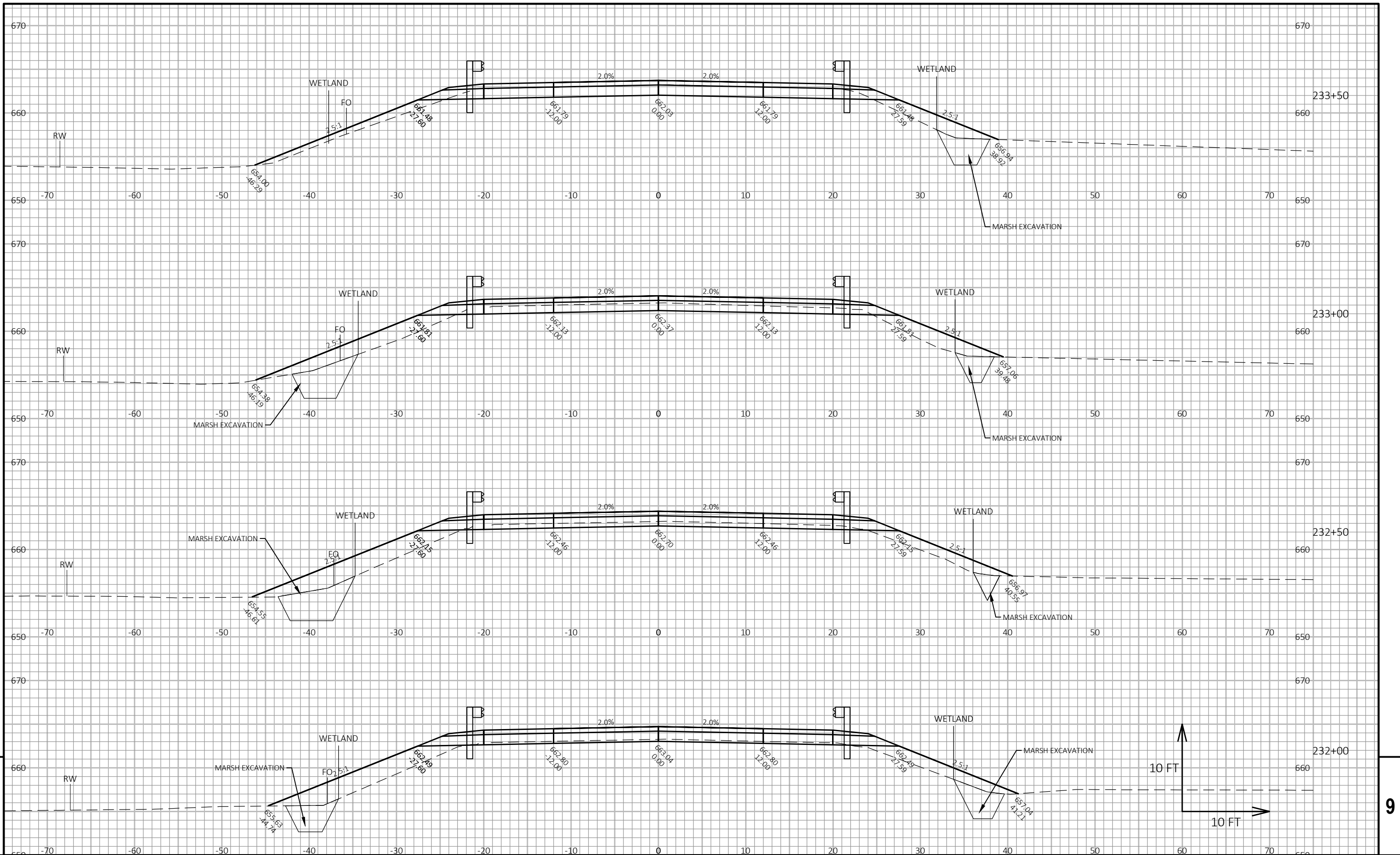
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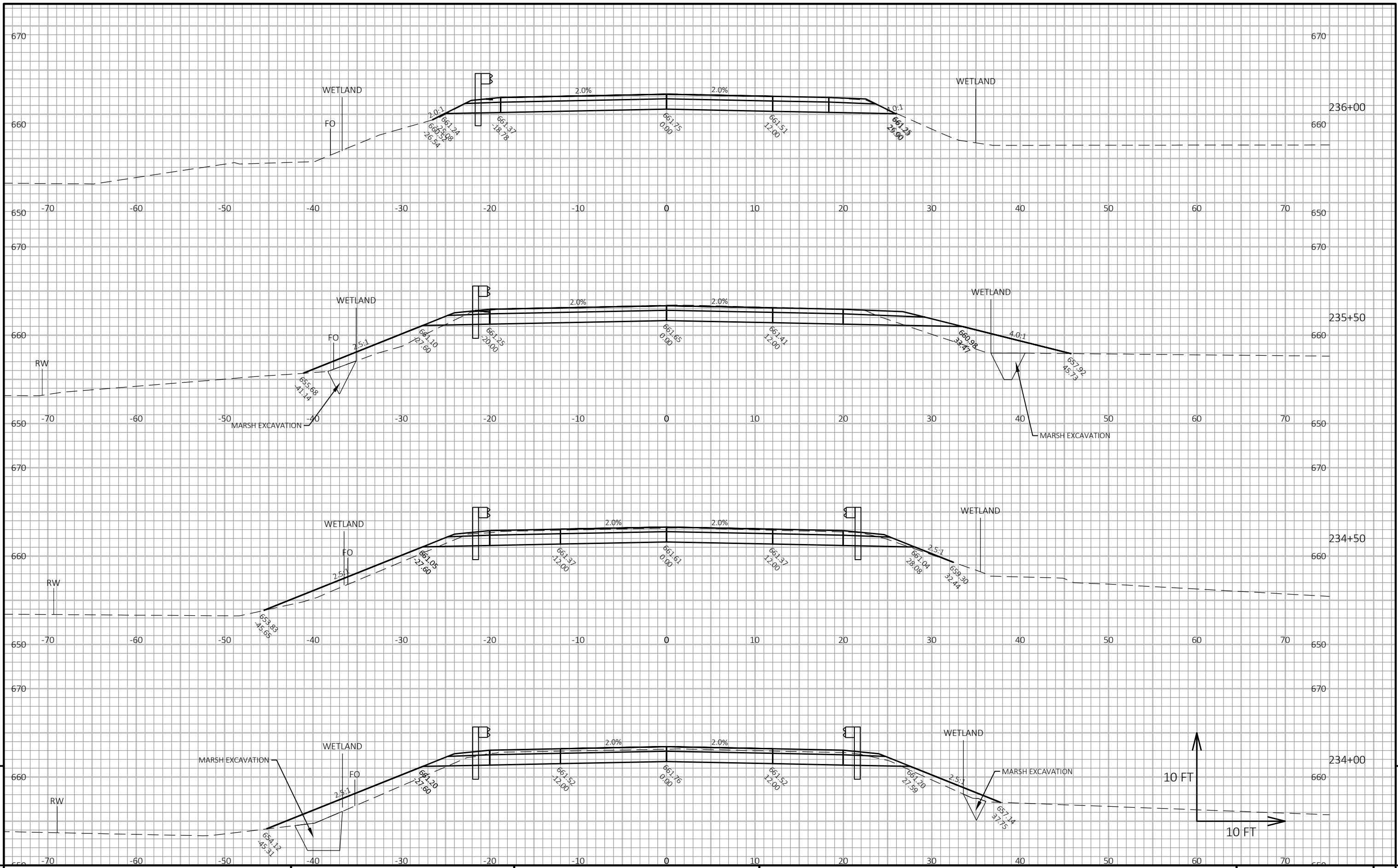


PROJECT NO: 7160-04-75	HWY: STH 35	COUNTY: BUFFALO	CROSS SECTIONS: B-06-201	SHEET	E
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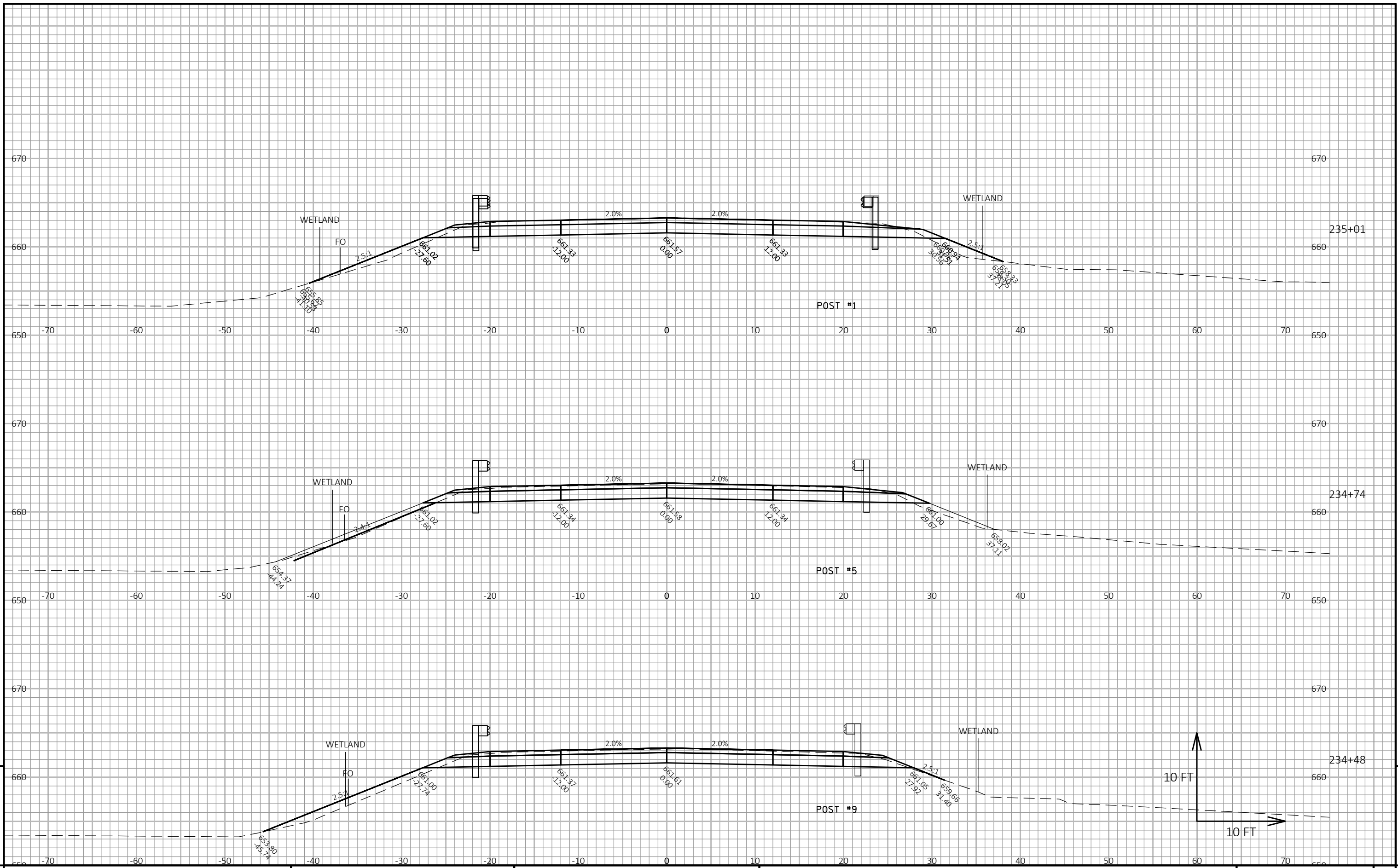




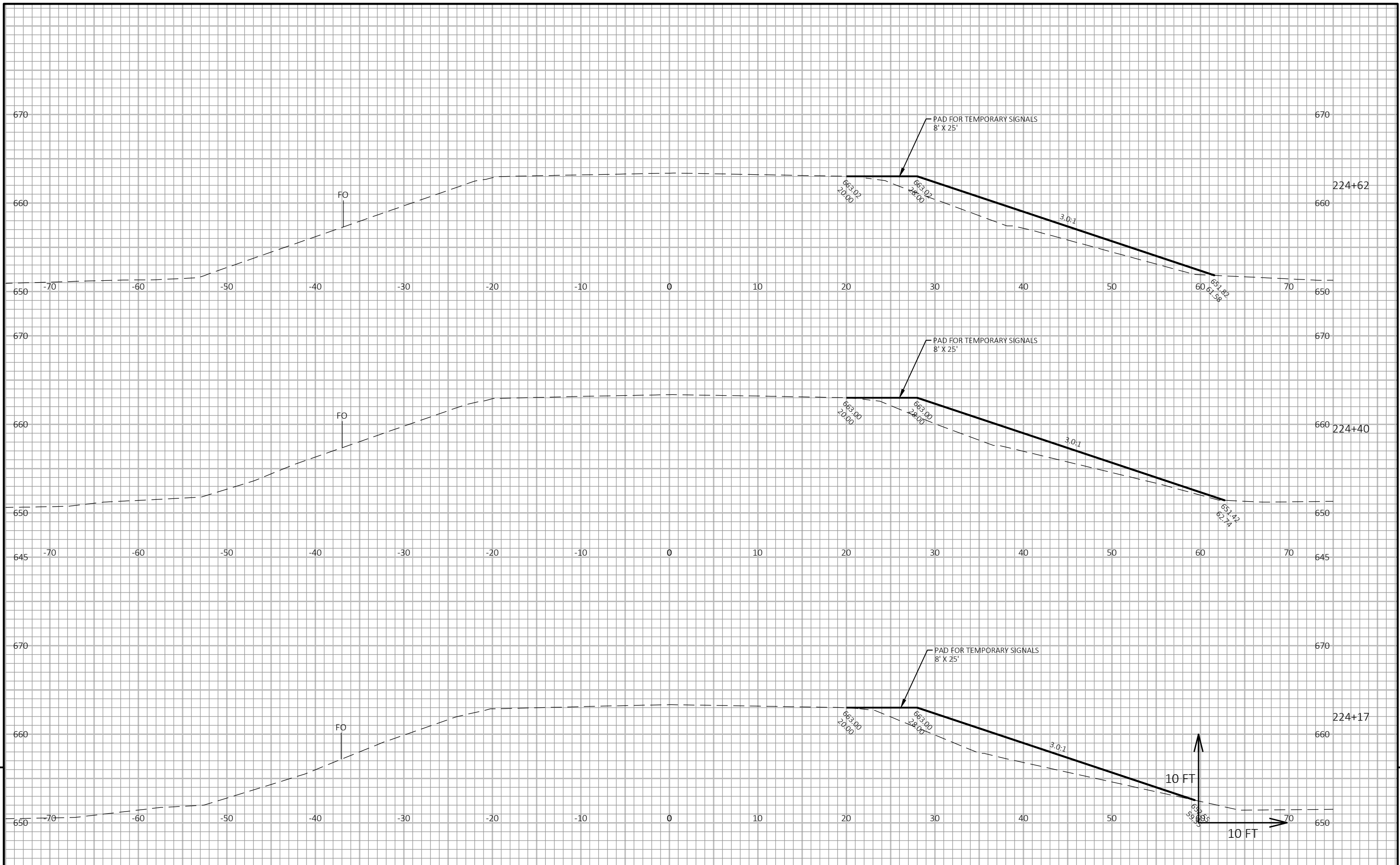
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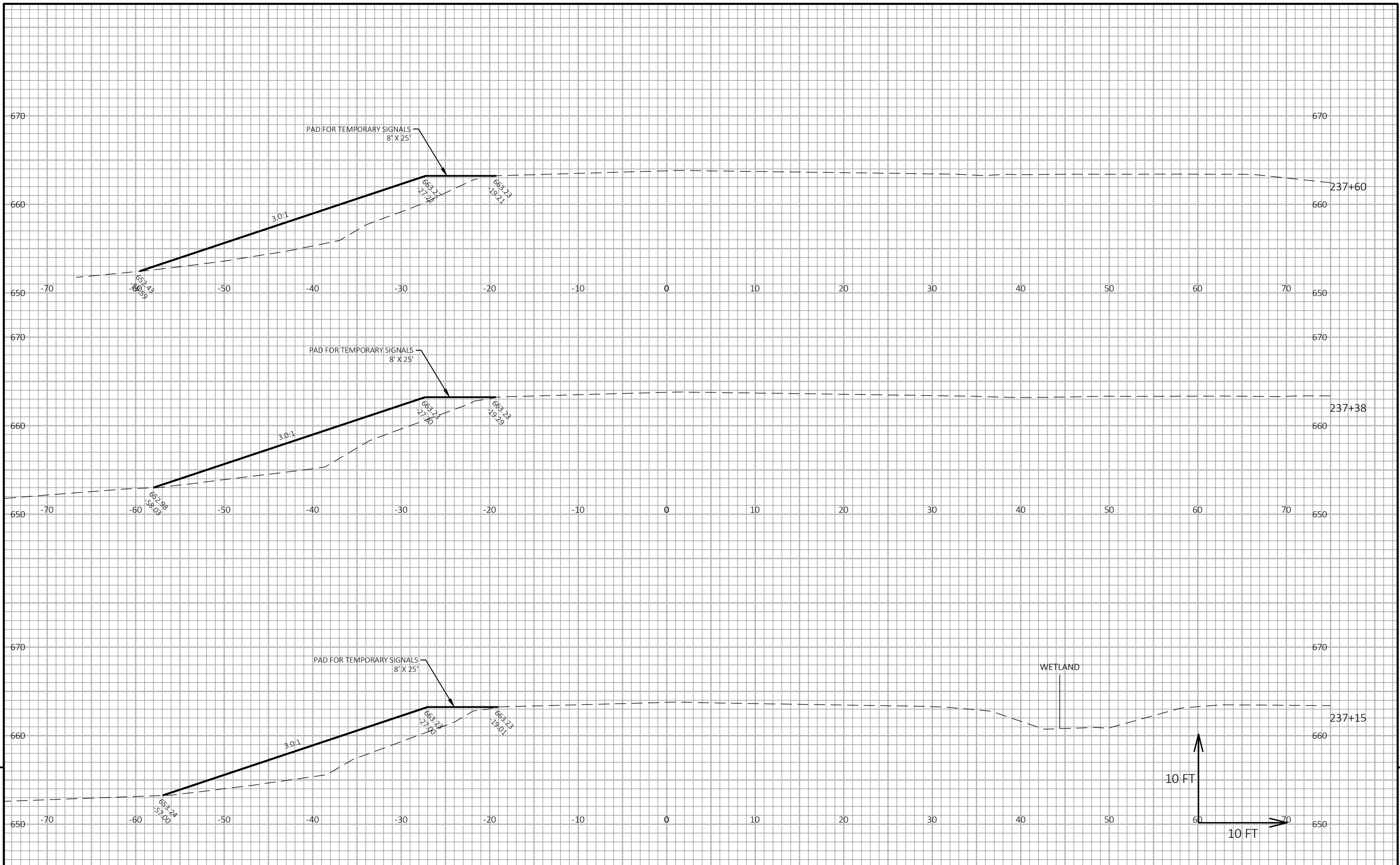
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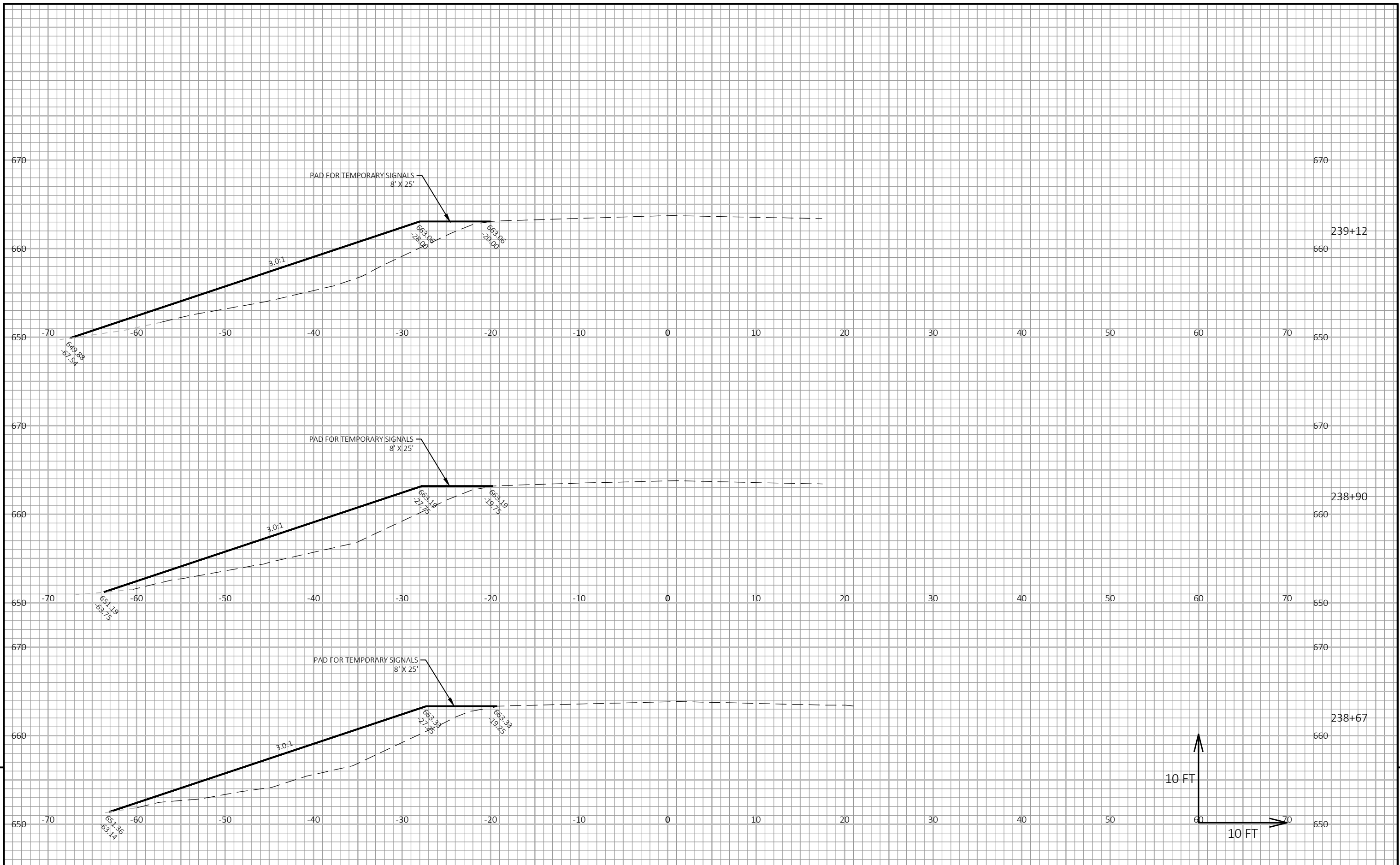
PROJECT NO: 7160-04-75      HWY: STH 35      COUNTY: BUFFALO      CROSS SECTIONS: B-06-201      SHEET      E



PROJECT NO: 7160-04-75	HWY: STH 35	COUNTY: BUFFALO	CROSS SECTIONS: B-06-201	SHEET	<b>9</b>
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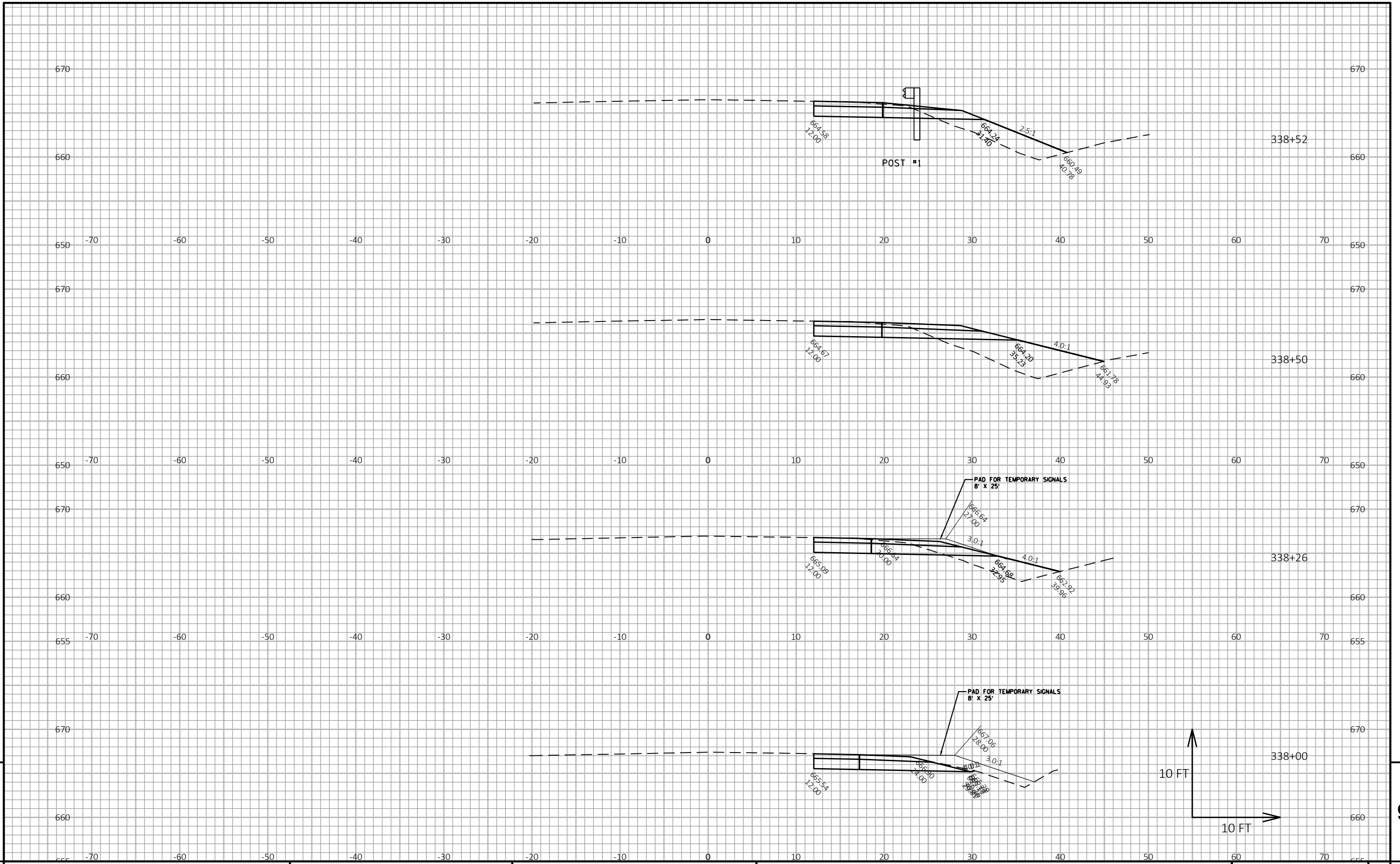


PROJECT NO: 7160-04-75	HWY: STH 35	COUNTY: BUFFALO	CROSS SECTIONS: B-06-201	SHEET	<b>9</b>
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PROJECT NO: 7160-04-75      HWY: STH 35      COUNTY: BUFFALO      CROSS SECTIONS: B-06-201      SHEET      E





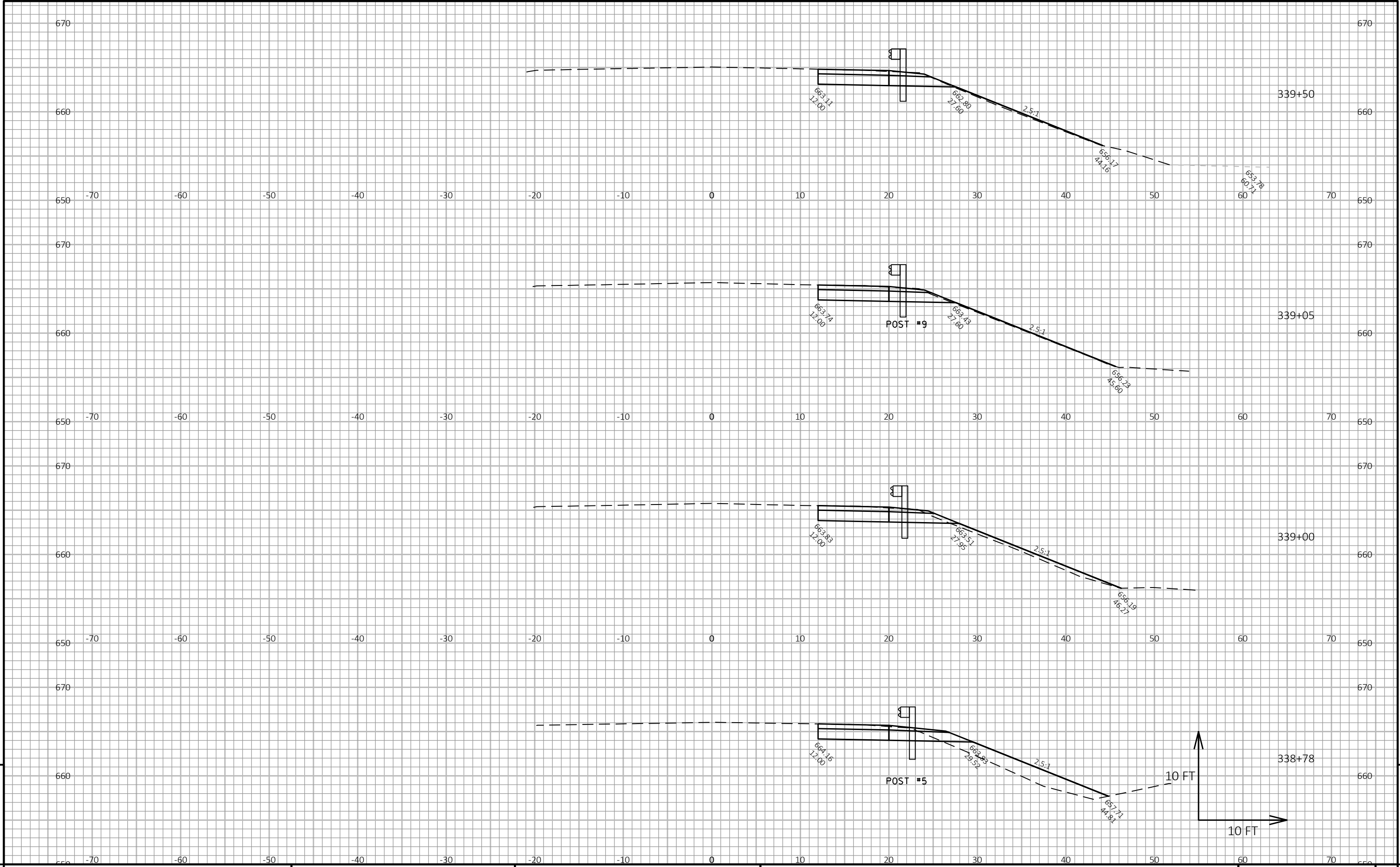
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PROJECT NO: 7160-04-75      HWY: STH 35      COUNTY: BUFFALO      CROSS SECTIONS: B-06-204      SHEET      E

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LAYOUT NAME - 090201-xs



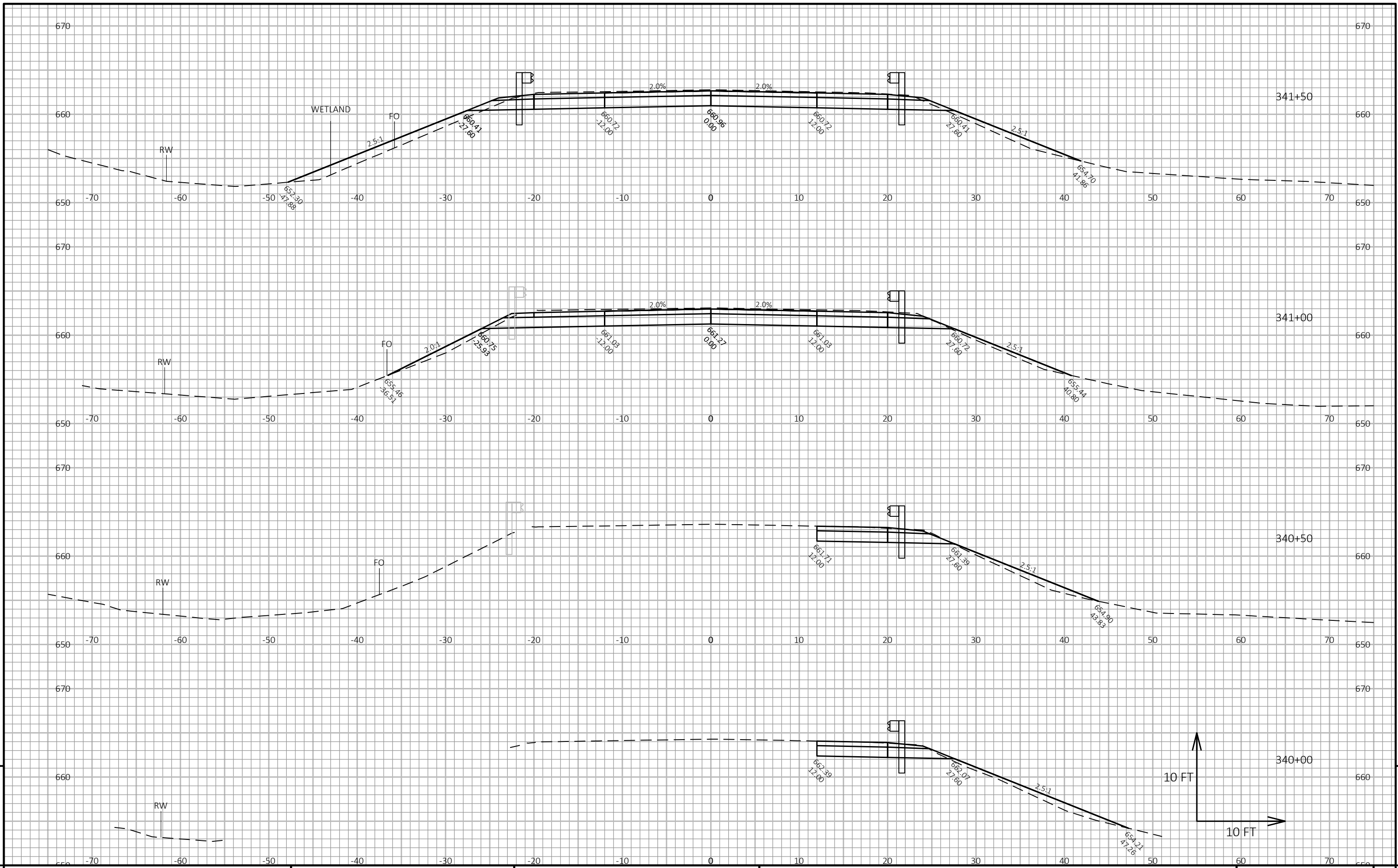
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PROJECT NO: 7160-04-75      HWY: STH 35      COUNTY: BUFFALO      CROSS SECTIONS: B-06-204      SHEET      E

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LAYOUT NAME - 090202-xs



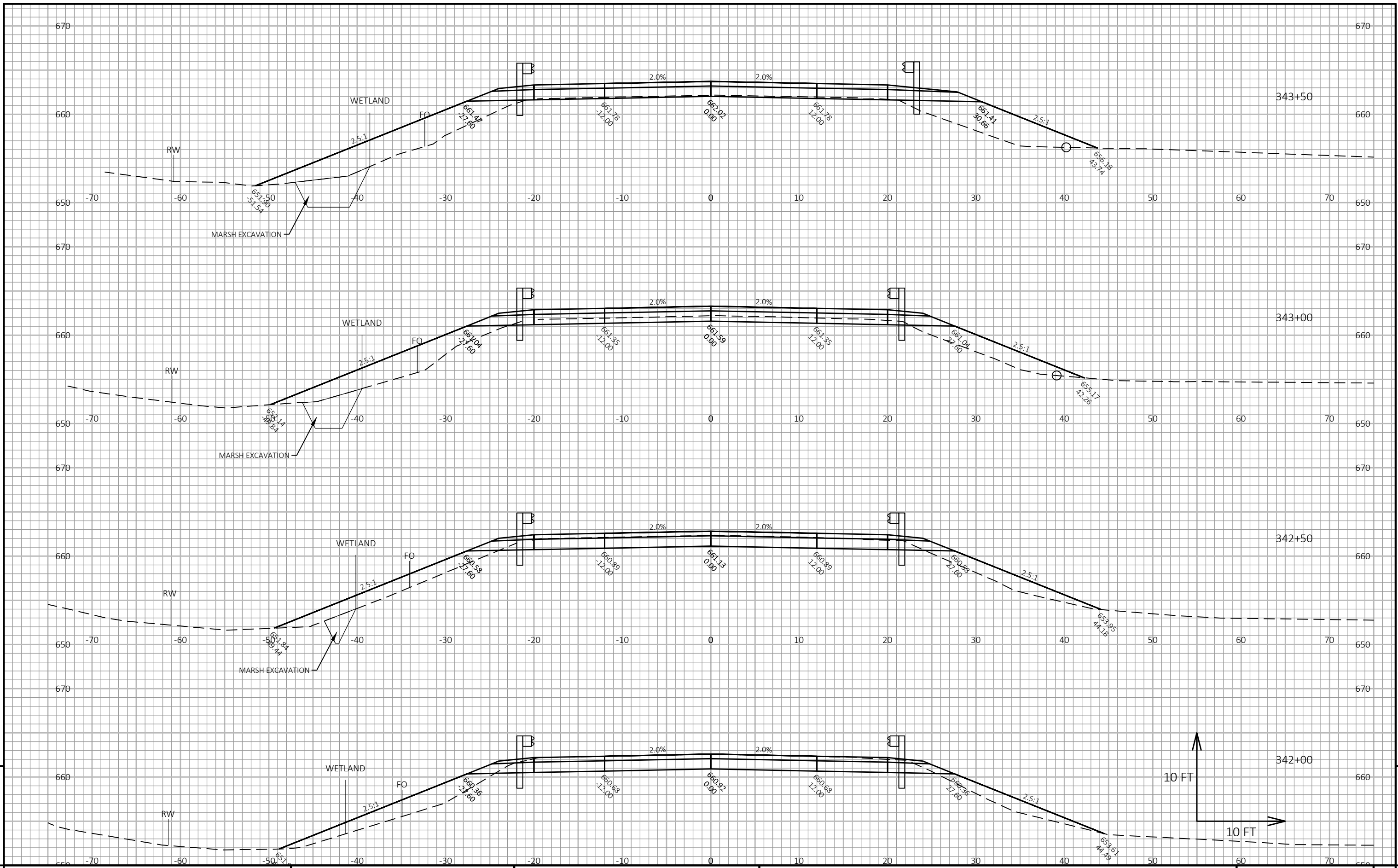
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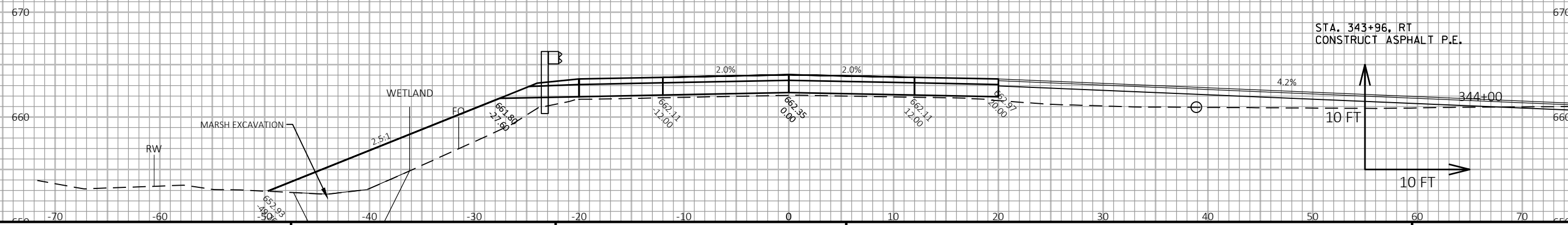
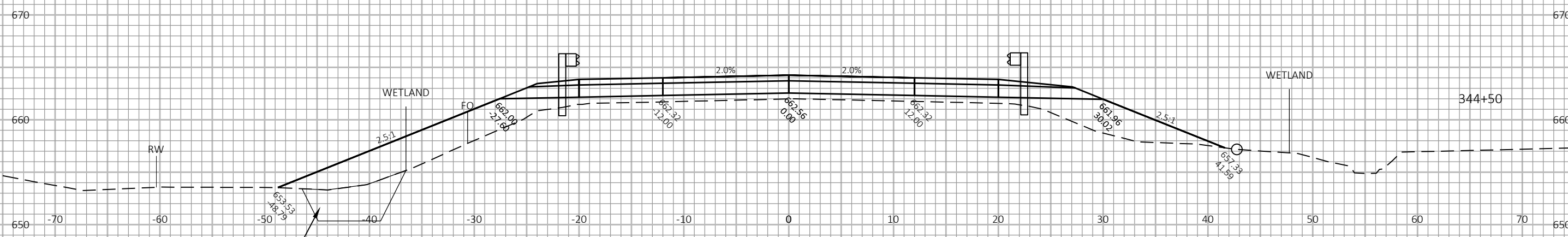
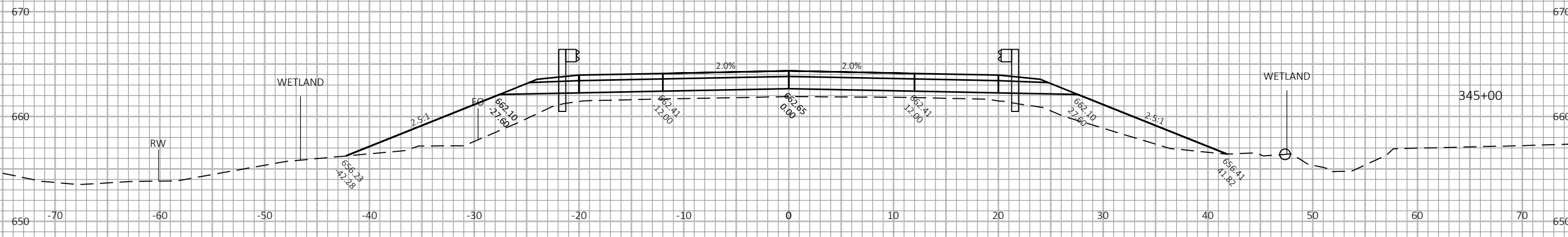
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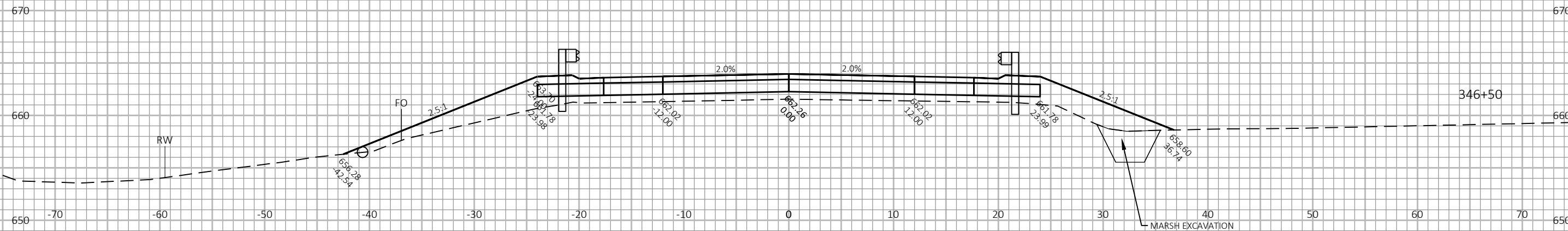
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PROJECT NO: 7160-04-75      HWY: STH 35      COUNTY: BUFFALO      CROSS SECTIONS: B-06-204      SHEET      E

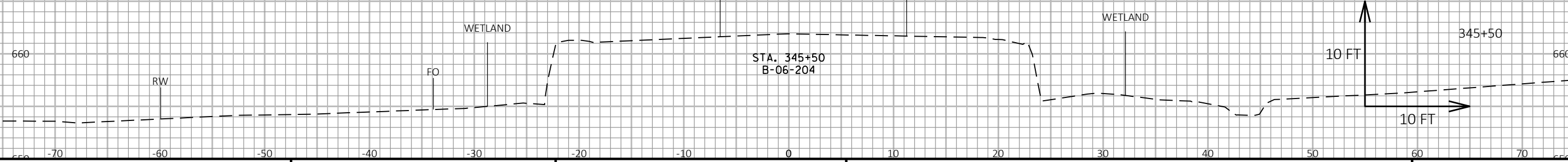
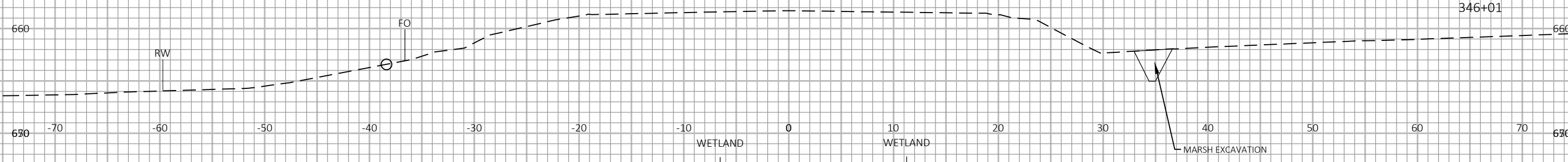


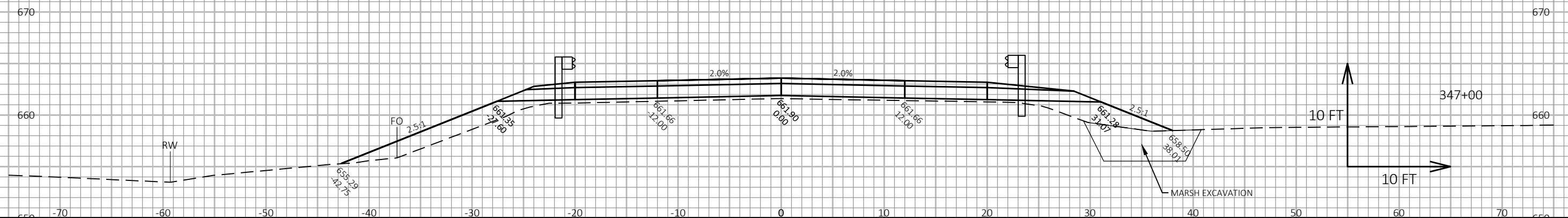
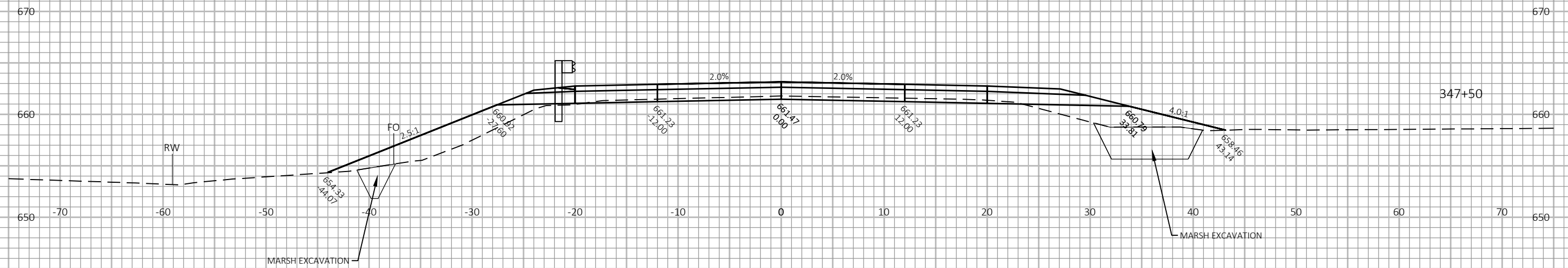
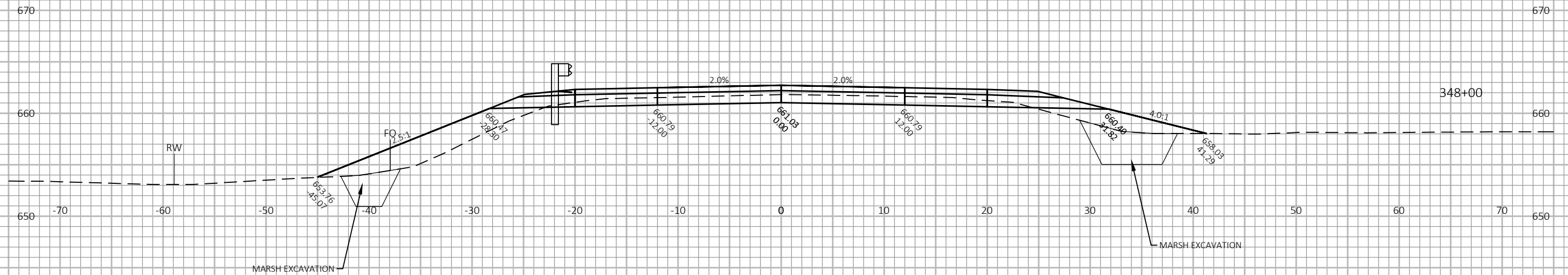
PROJECT NO: 7160-04-75      HWY: STH 35      COUNTY: BUFFALO      CROSS SECTIONS: B-06-204      SHEET      E



**STA. 346+47, LT**  
 INLET 2X2-V  
 W/ 15' PIPE CULVERT PIPE  
 CORRUGATED POLYETHYLENE 12-INCH  
 W/ APRON ENDWALL FOR  
 CULVERT PIPE STEEL 12-INCH  
 RIM EL = 663.58  
 INVERT @ INLET = 660.07  
 INVERT @ ENDWALL = 656.45  
 TOP OF STRUCTURE EL = 663.06

**STA. 346+47, RT**  
 INLET 2X2-V  
 W/ 14' CULVERT PIPE CORRUGATED  
 POLYETHYLENE 12-INCH  
 W/ APRON ENDWALL FOR  
 CULVERT PIPE STEEL 12-INCH  
 RIM EL = 663.58  
 INVERT @ INLET = 660.06  
 INVERT @ ENDWALL = 658.61  
 TOP OF STRUCTURE EL = 663.06





PROJECT NO: 7160-04-75

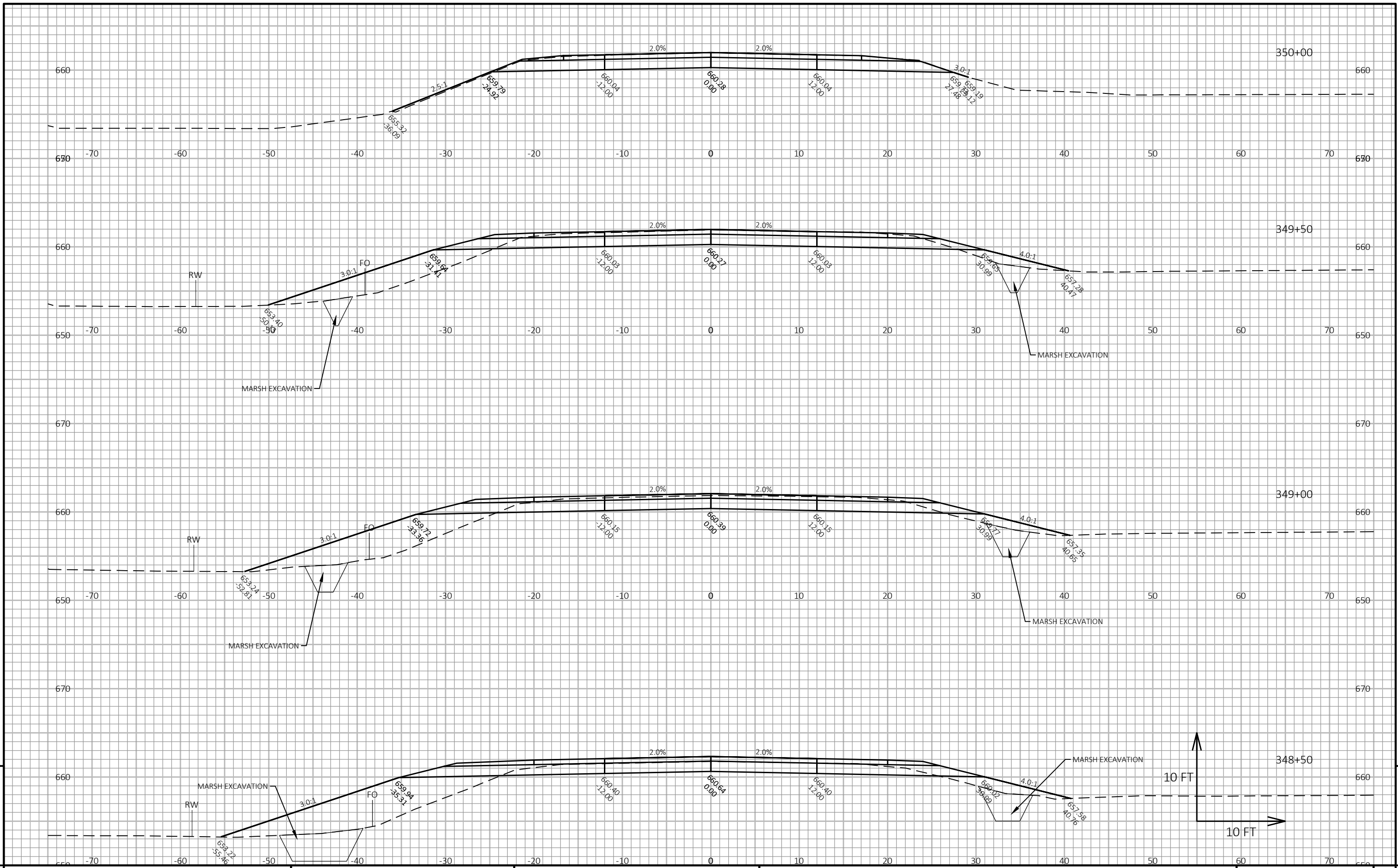
HWY: STH 35

COUNTY: BUFFALO

CROSS SECTIONS: B-06-204

SHEET

E



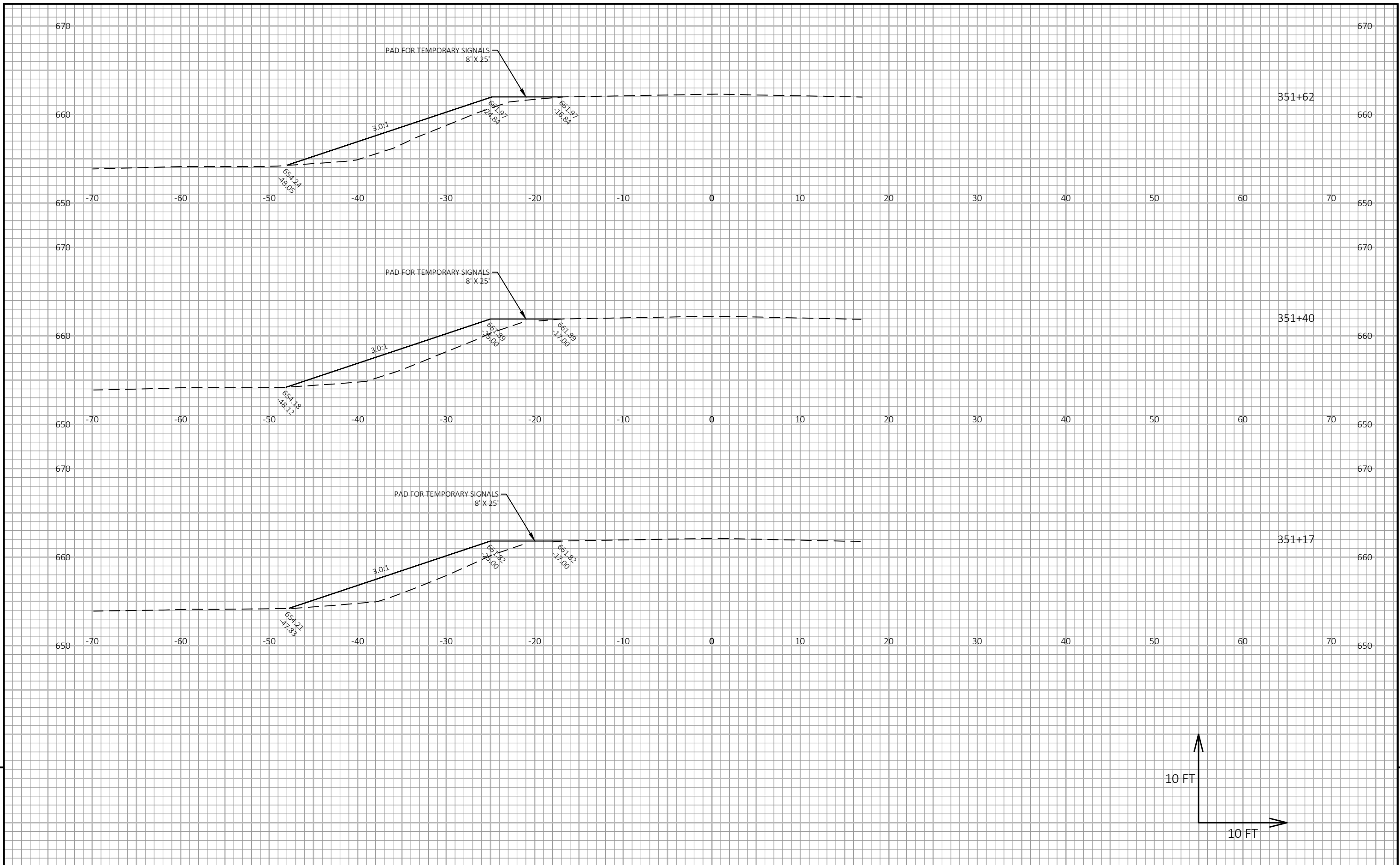
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PROJECT NO: 7160-04-75	HWY: STH 35	COUNTY: BUFFALO	CROSS SECTIONS: B-06-204	SHEET	E
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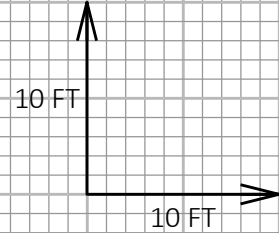
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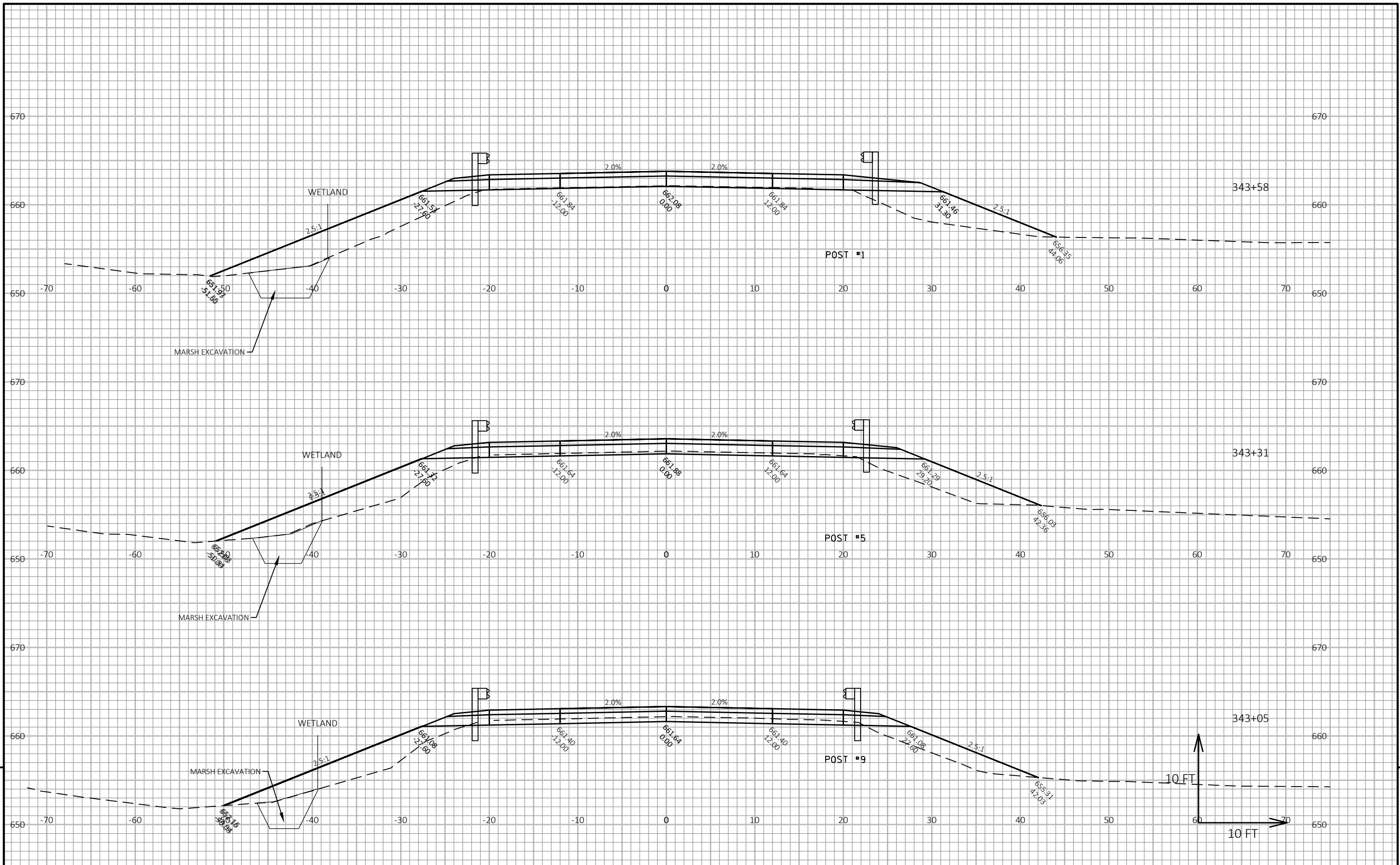


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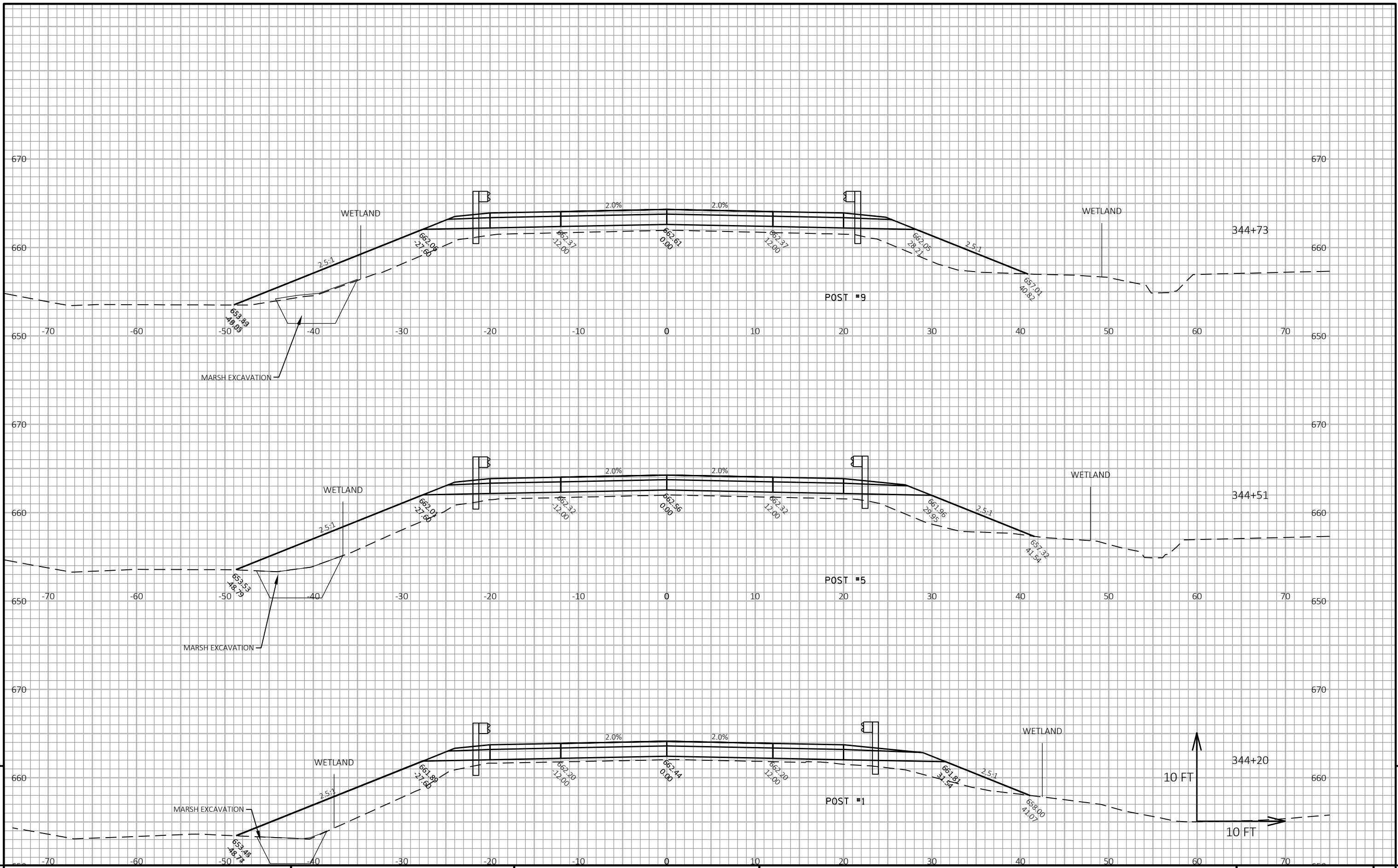
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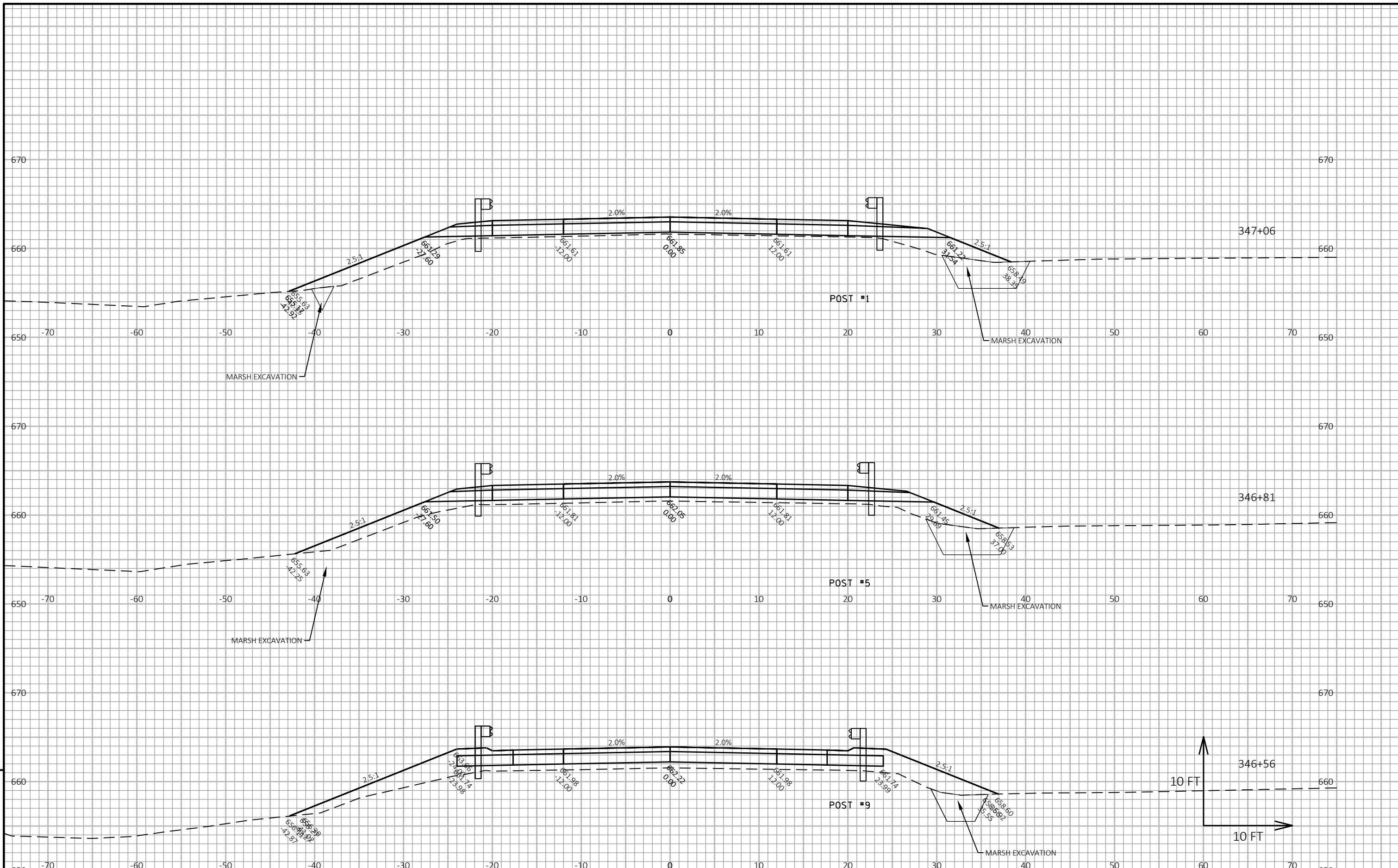
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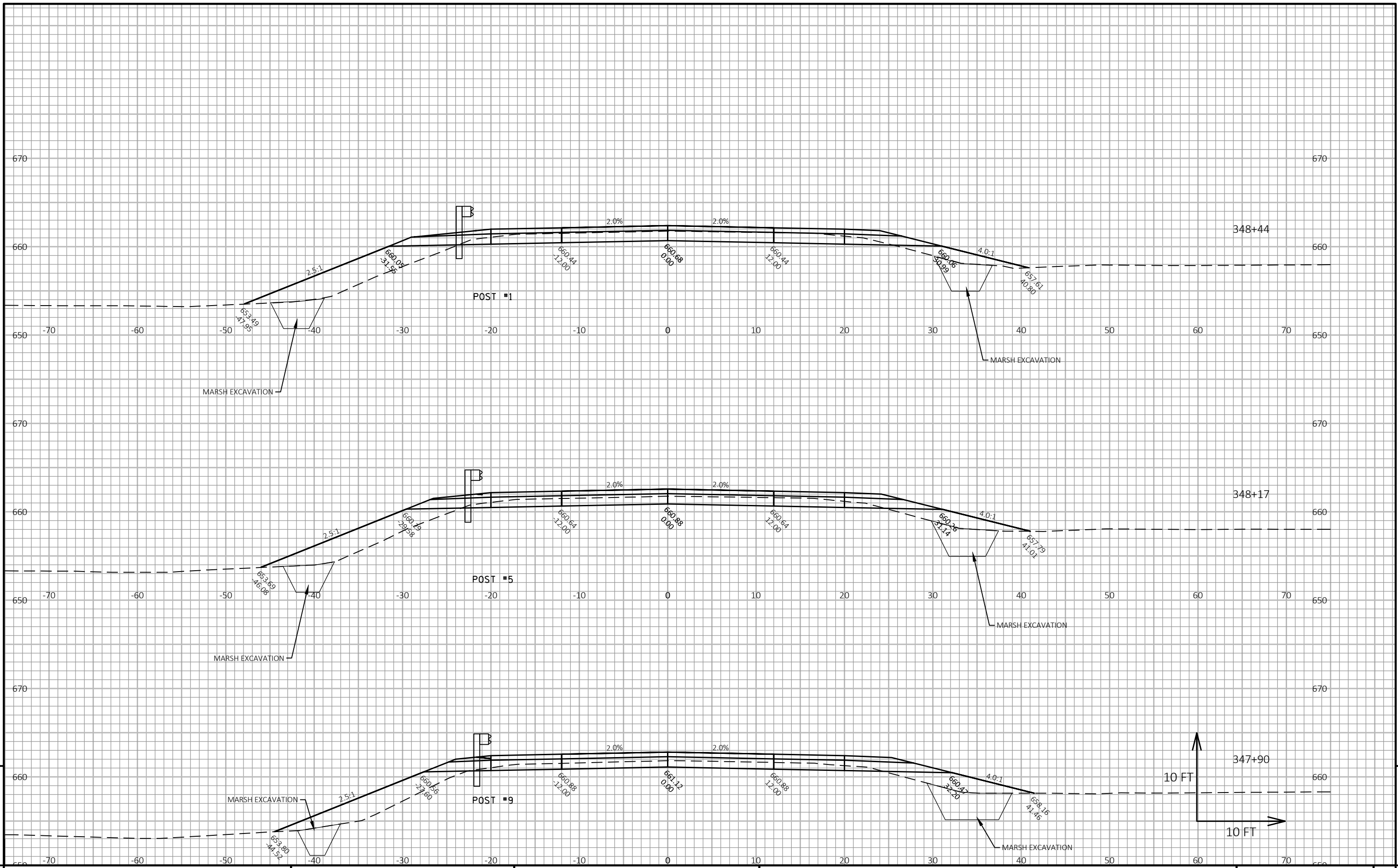
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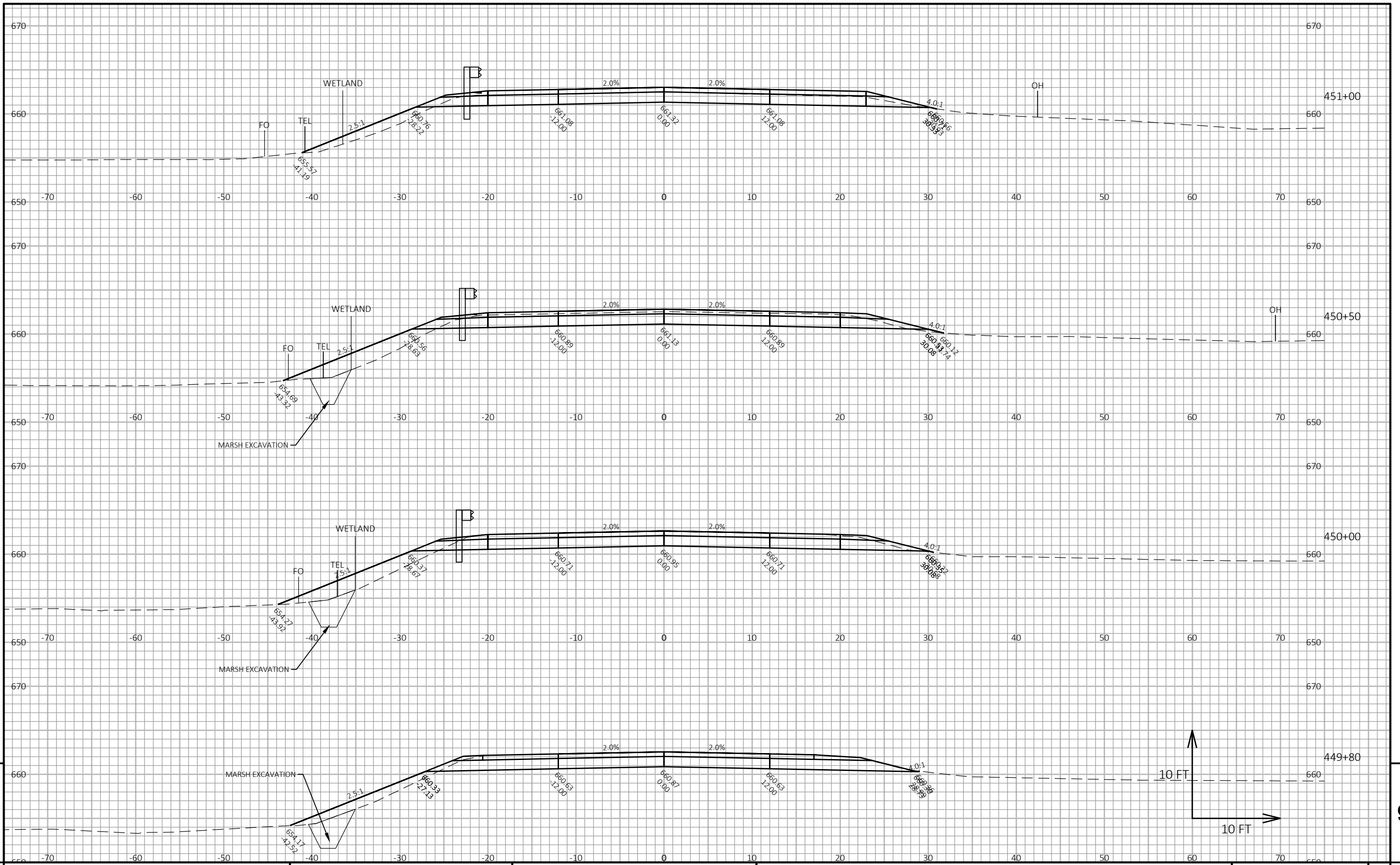
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PROJECT NO: 7160-04-75	HWY: STH 35	COUNTY: BUFFALO	CROSS SECTIONS: B-06-204	SHEET	E
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PROJECT NO: 7160-04-75      HWY: STH 35      COUNTY: BUFFALO      CROSS SECTIONS: B-06-204      SHEET 9

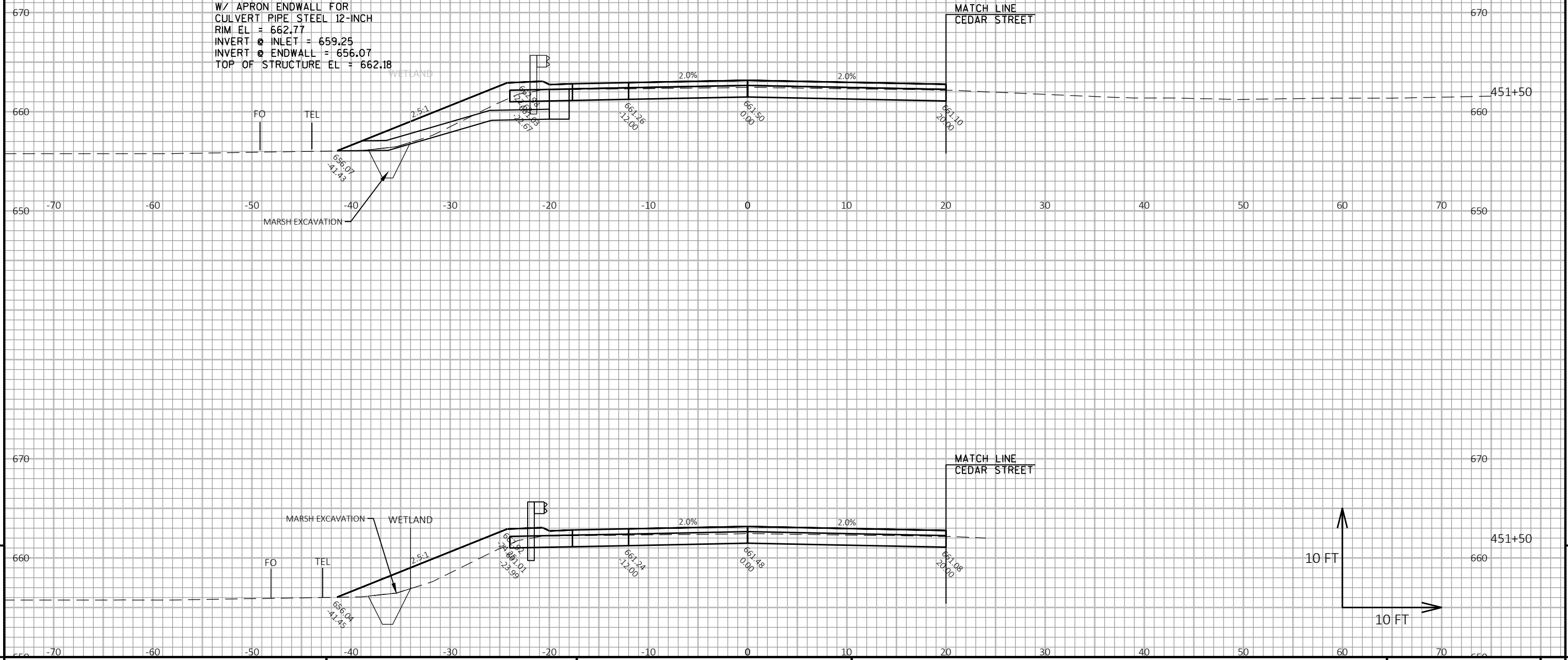


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PROJECT NO: 7160-04-75	HWY: STH 35	COUNTY: BUFFALO	CROSS SECTIONS: B-06-206	SHEET	E
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STA. 451+50, LT  
 INLET 2X2+V  
 W/ 14' CULVERT PIPE CORRUGATED  
 POLYETHYLENE 12-INCH  
 W/ APRON ENDWALL FOR  
 CULVERT PIPE STEEL 12-INCH  
 RIM EL = 662.77  
 INVERT @ INLET = 659.25  
 INVERT @ ENDWALL = 656.07  
 TOP OF STRUCTURE EL = 662.18



PROJECT NO: 7160-04-75

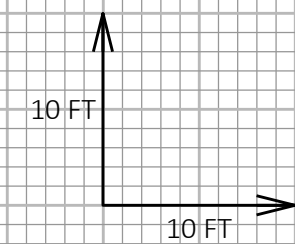
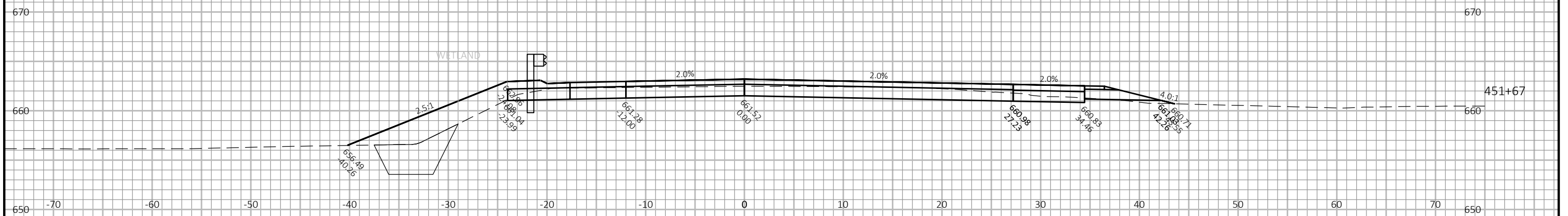
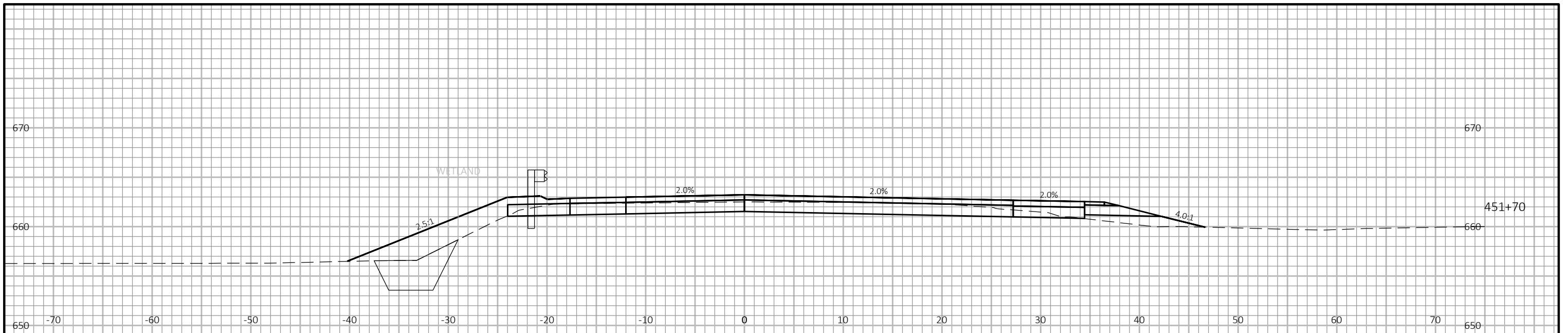
HWY: STH 35

COUNTY: BUFFALO

CROSS SECTIONS: B-06-206

SHEET

E

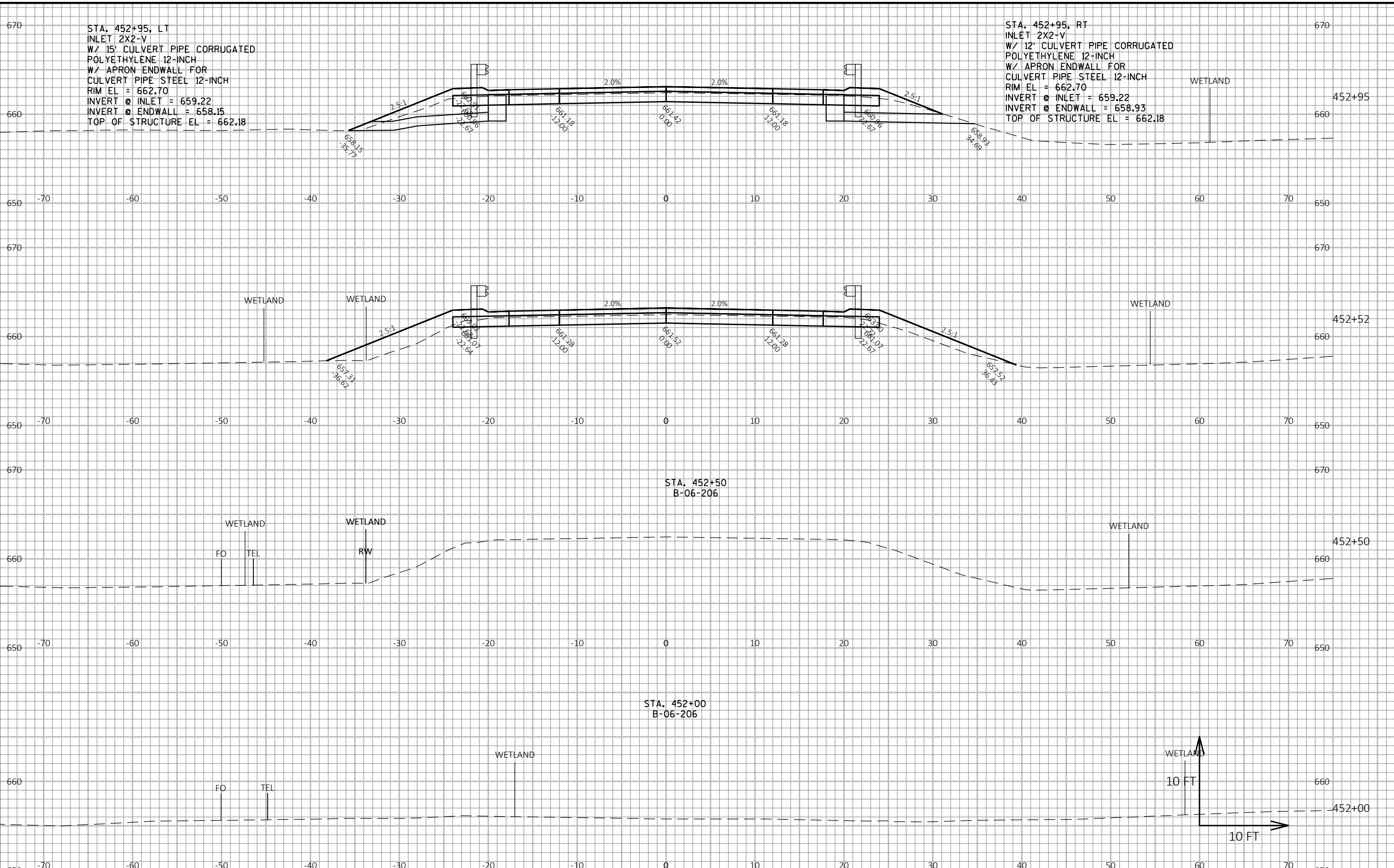


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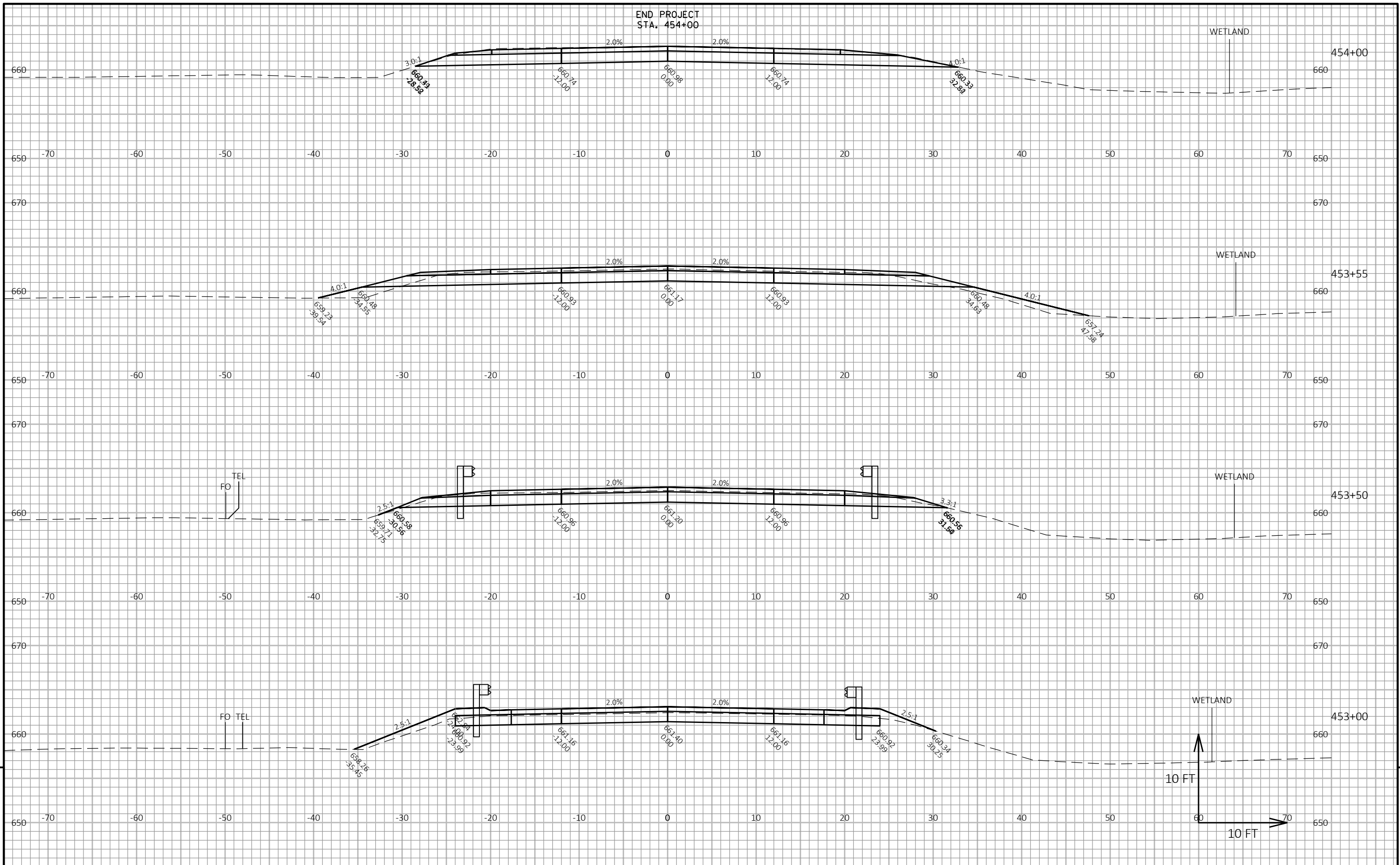
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PROJECT NO: 7160-04-75	HWY: STH 35	COUNTY: BUFFALO	CROSS SECTIONS: B-06-206	SHEET	E
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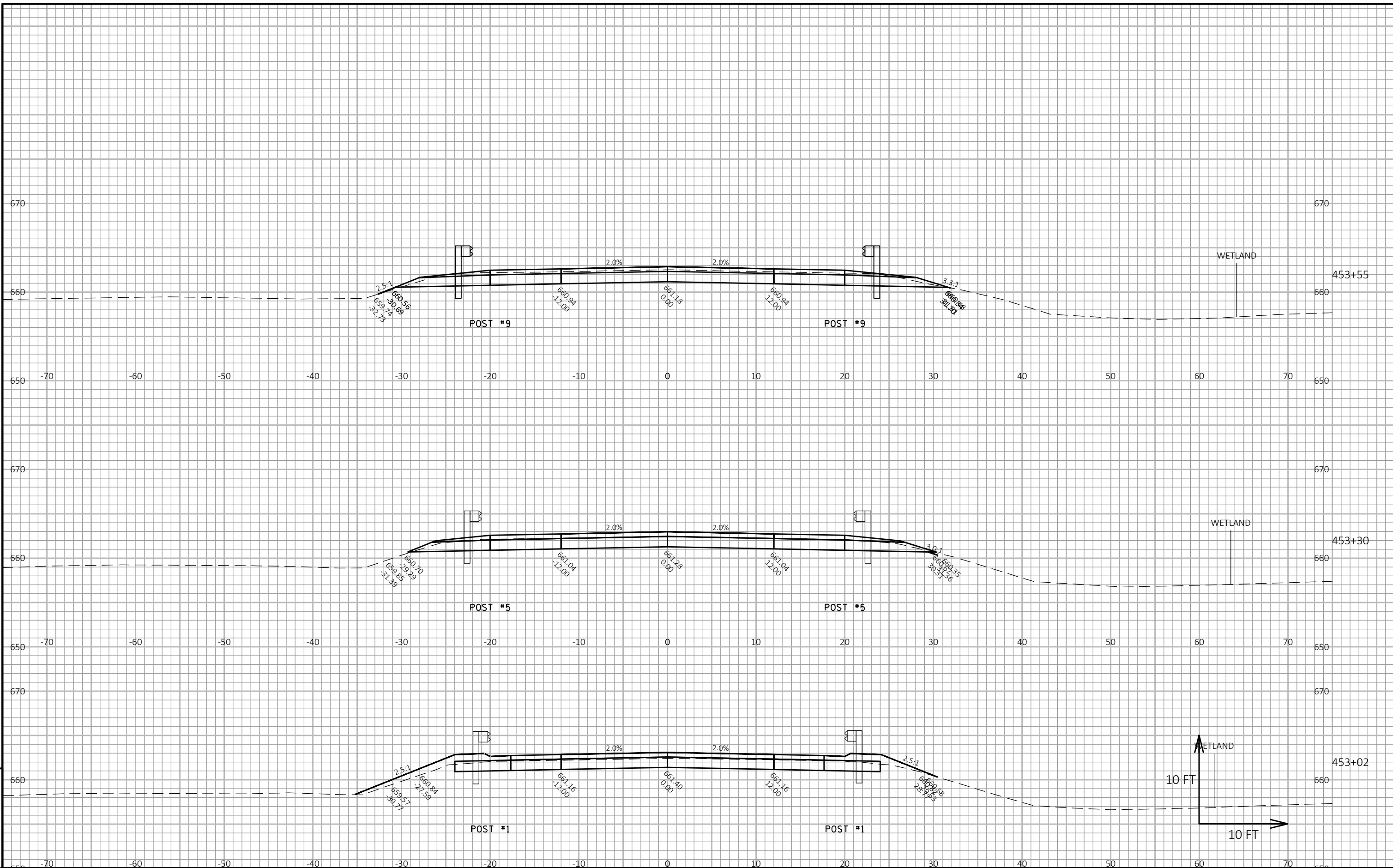




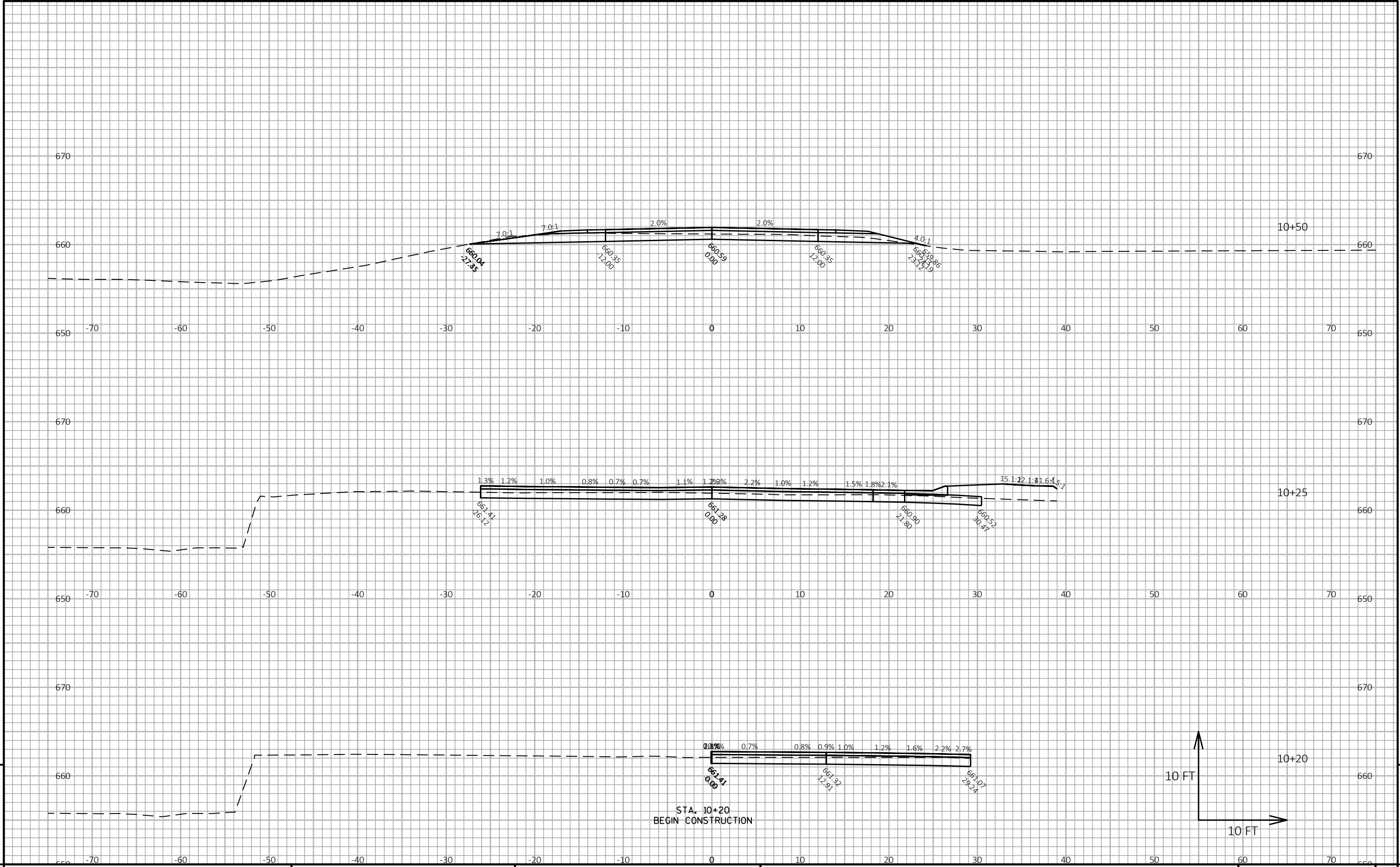
PROJECT NO: 7160-04-75	HWY: STH 35	COUNTY: BUFFALO	CROSS SECTIONS: B-06-206	SHEET	E
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PROJECT NO: 7160-04-75	HWY: STH 35	COUNTY: BUFFALO	CROSS SECTIONS: B-06-206	SHEET	<b>9</b>
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PROJECT NO: 7160-04-75	HWY: STH 35	COUNTY: BUFFALO	CROSS SECTIONS: B-06-206	SHEET	E
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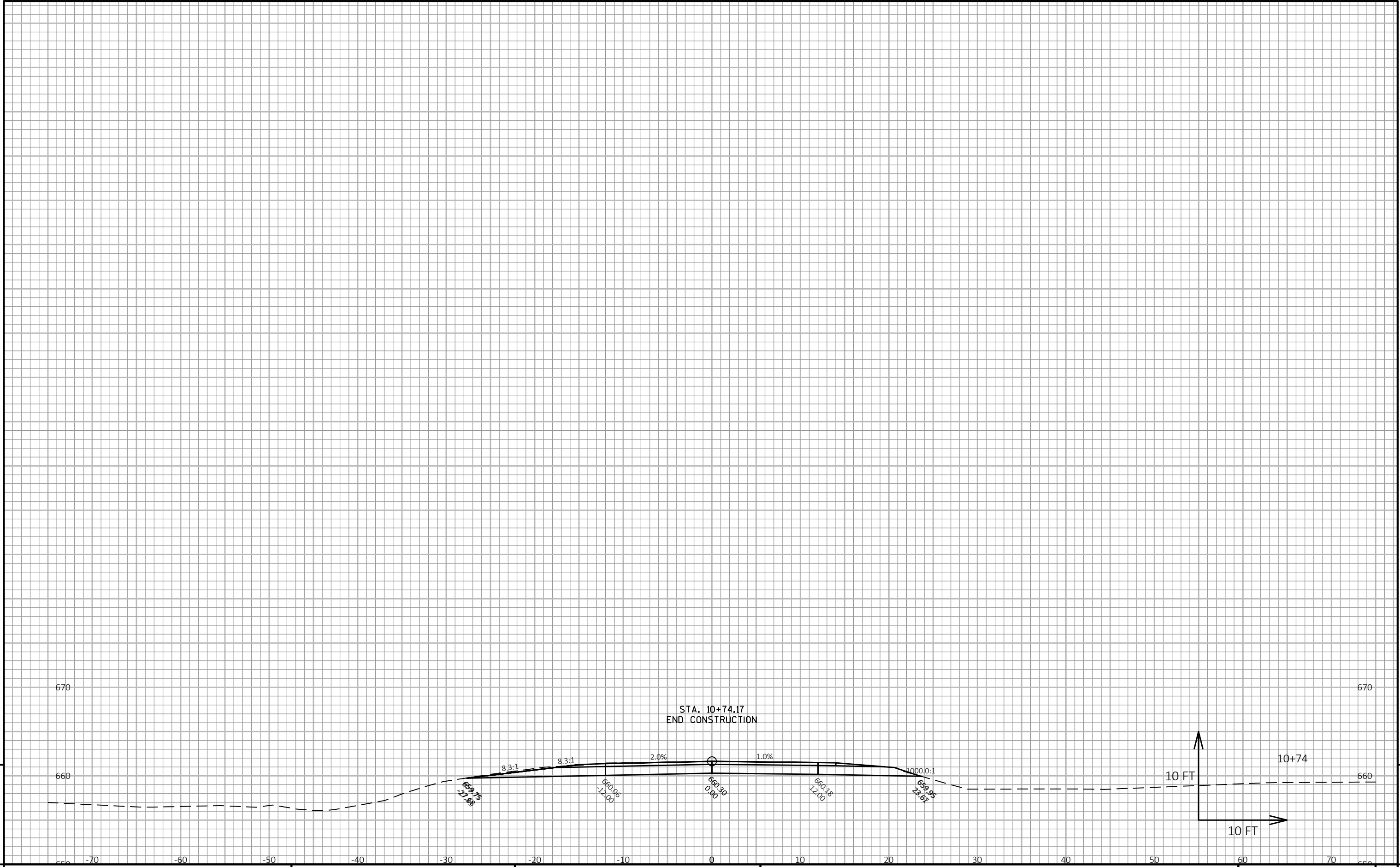
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PROJECT NO: 7160-04-75      HWY: STH 35      COUNTY: BUFFALO      CROSS SECTIONS: CEDAR ST      SHEET      E

FILE NAME : \\USSTV1PFILN001.NA.AECOMNET.COM\LOCAL\STEVENSPOINT\DCS\PROJECTS\60579395\900\_CAD\_GIS\910\_CAD\71600405\DESIGN\CORRIDOR\CRDR-35.DWG      PLOT DATE : 9/6/2022 11:43 AM      PLOT BY : ARBUCKLE, ADRIAN      PLOT NAME :      PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.      WISDOT/CADD SHEET 49

LAYOUT NAME - 0902-10



9

9

PROJECT NO: 7160-04-75	HWY: STH 35	COUNTY: BUFFALO	CROSS SECTIONS: CEDAR ST	SHEET	E
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## *Wisconsin Department of Transportation*

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