SUP MAY 2016

PROJECT ID: 1198-03-72
WITH: N/A

COUNTY: DOUGLAS

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
1198-03-72	———	—

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

C SUPERIOR, EAST SECOND STREET

BRG MNTNC 3 BRG/B-16-0010, 0011, 0012

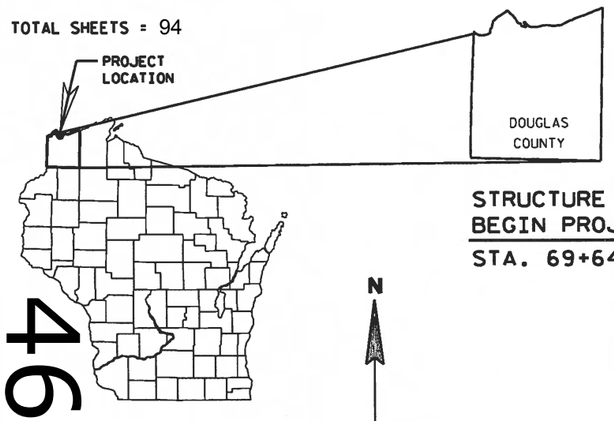
USH 53

DOUGLAS COUNTY

STATE PROJECT NUMBER
1198-03-72

ORDER OF SHEETS

TOTAL SHEETS = 94

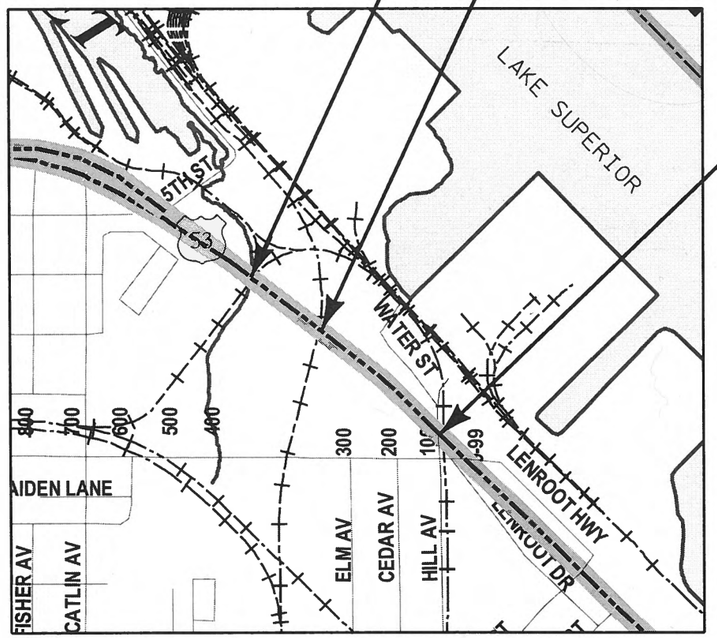


46

STRUCTURE B-16-10
BEGIN PROJECT/CONSTRUCTION & END CONSTRUCTION
STA. 69+64.33 TO STA. 71+82.67

STRUCTURE B-16-11
BEGIN & END CONSTRUCTION
STA. 75+55.22 TO STA. 77+67.78

STRUCTURE B-16-12
BEGIN CONSTRUCTION & END PROJECT/CONSTRUCTION
STA. 86+07.35 TO STA. 93+18.49



LAYOUT
SCALE 0 500 FT.

TOTAL NET LENGTH OF CENTERLINE = 0.027 MI.

COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), DOUGLAS COUNTY.

DESIGN DESIGNATION

A.D.T. (2016)	=	14,200
A.D.T. (2036)	=	16,700
D.H.V.	=	---
D.	=	58/42
T.	=	11.4%
DESIGN SPEED	=	50 MPH
ESALS	=	N/A

CONVENTIONAL SYMBOLS

PLAN

CORPORATE LIMITS
PROPERTY LINE (PL + 58.1)
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 (CAUTION)
HIGH VOLTAGE (CAUTION)
MARSH AREA
WOODED OR SHRUB AREA

PROFILE

GRADE LINE
ORIGINAL GROUND
MARSH OR ROCK PROFILE (To be noted as such) (ROCK)
SPECIAL DITCH (LABEL)
GRADE ELEVATION (95.36)
CULVERT (Profile View)

UTILITIES

OVERHEAD ELECTRIC (OH)
ELECTRIC (E)
FIBER OPTIC (FO)
GAS (G)
SANITARY SEWER (SAN)
STORM SEWER (SS)
TELEPHONE (T)
WATER (W)
UTILITY PEDESTAL
POWER POLE
TELEPHONE POLE

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

REGISTERED PROFESSIONAL ENGINEER — WISCONSIN — CHRISTOPHER B. McMAHON — E-29454 — EAU CLAIRE, WI

DATE 1/22/16

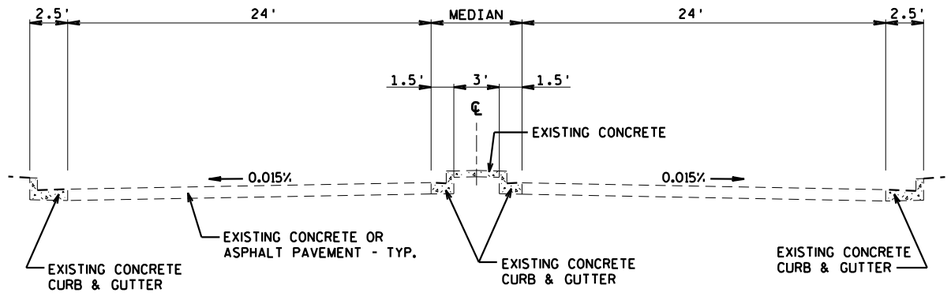
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	AYRES ASSOCIATES INC
Designer	AYRES ASSOCIATES INC
Project Manager	BRENDAN DIRKES
Regional Examiner	CHRISTINE KOSKI
Regional Supervisor	ANDREW STENSLAND

APPROVED FOR THE DEPARTMENT
DATE: 1/20/16 Andrew Stensland (Signature)

E



TYPICAL EXISTING SECTION
(USH 53)

GENERAL NOTES

EROSION CONTROL ITEMS TO BE PLACED AS SHOWN ON THE PLAN OR AS DIRECTED BY THE ENGINEER.

NO TREES (AND/OR SHRUBS) ARE TO BE REMOVED WITHOUT THE APPROVAL OF THE ENGINEER.

THE LOCATIONS 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.

THE DEPARTMENT OF TRANSPORTATION WILL FURNISH THE CONTRACTOR WITH A MONUMENT TO BE INSTALLED BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER.

THE LOCATION AND WIDTH OF THE EXISTING RIGHT OF WAY WAS DETERMINED BY THE MUNICIPALITY FOR THIS PROJECT. AYRES ASSOCIATES DOES NOT WARRANT IT'S ACCURACY.

UTILITIES

SUPERIOR WATER LIGHT & POWER CO.
2915 HILL AVE.
SUPERIOR, WI 54880
ATTN: JAMISON MEHLE
715-395-6288
218-393-6391 (cell)
jmehle@swlp.com

CENTURYLINK
P.O. BOX 181
SOLON SPRINGS, WI 54873
ATTN: ALAN NICKELL
715-378-2131
715-566-3879 (cell)
alan.nickell@centurylink.com

CITY OF SUPERIOR PUBLIC WORKS
1316 N 14th ST.
SUPERIOR, WI 54880
ATTN: TODD JANIGO
715-395-7334
janigot@ci.superior.wi.us

CALUMET SUPERIOR
2407 STINSON AVE.
P.O. BOX 2066
SUPERIOR, WI 54880
ATTN: SAMUEL TALARICO
715-398-8264
samuel.talarico@calumetspecialty.com

UNION PACIFIC RAILROAD

JOHN VENICE, MANAGER SPECIAL PROJECTS
INDUSTRY & PUBLIC PROJECTS ENGINEERING DEPARTMENT
101 NORTH WACKER DRIVE - SUITE 1920
CHICAGO, IL 60606
312-777-2043
402-233-2769 (fax)
jnvenice@up.com

BNSF RAILROAD

CALVIN NUTT, MANAGER OF PUBLIC PROJECTS
80 44th AVENUE NE
MINNEAPOLIS, MN 55421
763-782-3495
763-782-3061 (fax)
calvin.nutt@bnfs.com

WISCONSIN DEPARTMENT OF
NATURAL RESOURCES CONTACT:

AMY CRONK
810 W. MAPLE STREET
SPOONER, WI 54801
715-635-4229
amy.cronk@wisconsin.gov

DESIGNER

AYRES ASSOCIATES
3433 OAKWOOD HILLS PARKWAY
EAU CLAIRE, WI 54701
ATTN: CHRISTOPHER B. McMAHON
715-834-3161
mcmahonc@AyresAssociates.com

** DENOTES UTILITIES THAT ARE NOT DIGGERS HOTLINE MEMBERS

DIGGERS HOTLINE
Dial 811 or (800)242-8511
www.DiggersHotline.com

PROJECT NO: 1198-03-72	HWY: USH 53	COUNTY: DOUGLAS	TYPICAL SECTIONS & NOTES	SHEET 2

2

2

N

BEGIN CONSTRUCTION
STA. 75+55.22
(SAW CUT REQ'D.)

DRAINAGE DITCH

STRUCTURE B-16-10

ABANDONED RAILROAD (FORMERLY SOO LINE RAILROAD)

STRUCTURE B-16-11

℄ OF USH 53

PI 82+79.70

PI 85+08.87

℄ OF HILL AVE.

ABANDONED RAILROAD

END PROJECT/CONSTRUCTION
STA. 93+18.49
(SAW CUT REQ'D.)

68+00 70+00 72+00 74+00 76+00 78+00 80+00 82+00 84+00 86+00 88+00 90+00 92+00 94+00

S52°49'30"E

PT 68+67.24

LSTT RAILROAD
(BNSF RAILWAY COMPANY)

END CONSTRUCTION
STA. 71+82.67
(SAW CUT REQ'D.)

PC 80+49.98

BEGIN PROJECT/CONSTRUCTION
STA. 69+64.33
(SAW CUT REQ'D.)

END CONSTRUCTION
STA. 77+67.78
(SAW CUT REQ'D.)

BEGIN CONSTRUCTION
STA. 86+07.35

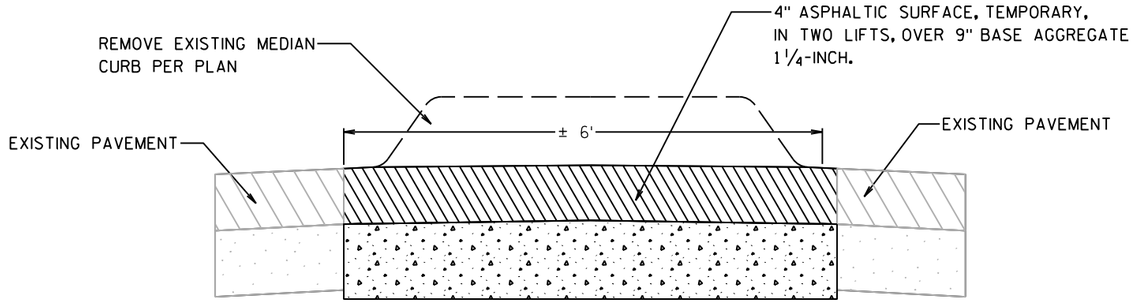
UNION PACIFIC (UP) RAILROAD

℄ OF WINTER STREET

STRUCTURE B-16-12

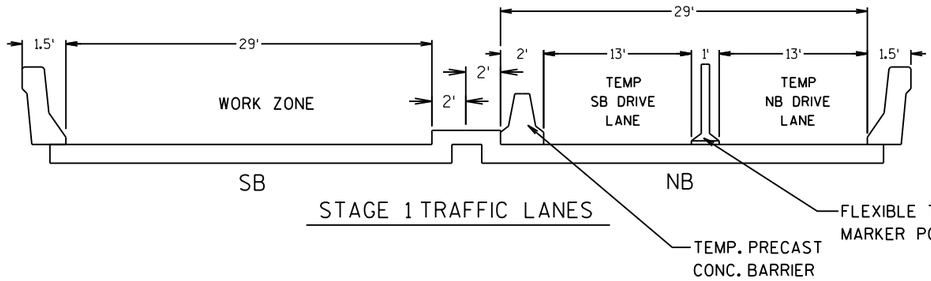
PROJECT NO: 1198-03-72	HWY: USH 53	COUNTY: DOUGLAS	PROJECT OVERVIEW	SHEET 3	E

2

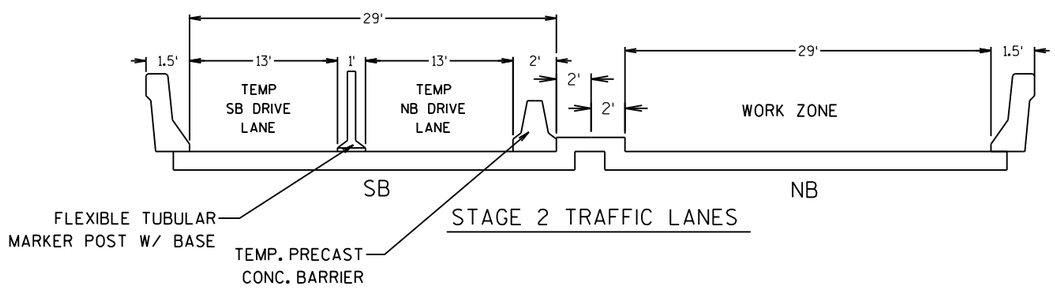


MEDIAN REMOVALS / ASPHALT SURFACE TEMPORARY SECTIONS

STA. 65+00 TO STA. 67+75 (CROSSOVER)
STA. 68+15 TO STA. 69+25 (CONCRETE BARRIER TAPER)
STA. 77+75 TO STA. 79+15 (CONCRETE BARRIER TAPER)
STA. 96+00 TO STA. 99+50 (CROSSOVER)



STAGE 1 TRAFFIC LANES



STAGE 2 TRAFFIC LANES

PROJECT NO: 1198-03-72	HWY: USH 53	COUNTY: DOUGLAS	CONSTRUCTION TYPICAL SECTIONS	SHEET 4	E

LEGEND

- TYPE III BARRICADE W/ SIGN
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM W/ TYPE C STEADY BURN LIGHT
- FLEXIBLE TUBULAR MARKER
- TEMPORARY CONCRETE BARRIER PRECAST
- DIRECTION OF TRAVEL
- SIGN ON TEMPORARY SUPPORT
- FLASHING ARROW BOARD
- WORK ZONE
- CRASH CUSHION TEMPORARY

GENERAL NOTES

1. 'WO' SIGNS ARE THE SAME AS 'W' SIGNS EXCEPT THE BACKGORUND IS ORANGE. ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED.
2. SIGN LAYOUT SHALL BE IN ACCORDANCE WITH THE WISCONSIN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND THE WISDOT FDM.
3. ALL SIGNS, TEMPORARY OR EXISTING, WHICH CONFLICT WITH THE TRAFFIC IN USE SHALL BE COVERED OR REMOVED AS DIRECTED BY THE ENGINEER.

PROJECT NO: 1198-03-72	HWY: USH 53	COUNTY: DOUGLAS	TRAFFIC CONTROL - PRE-STAGE	SHEET 5	E

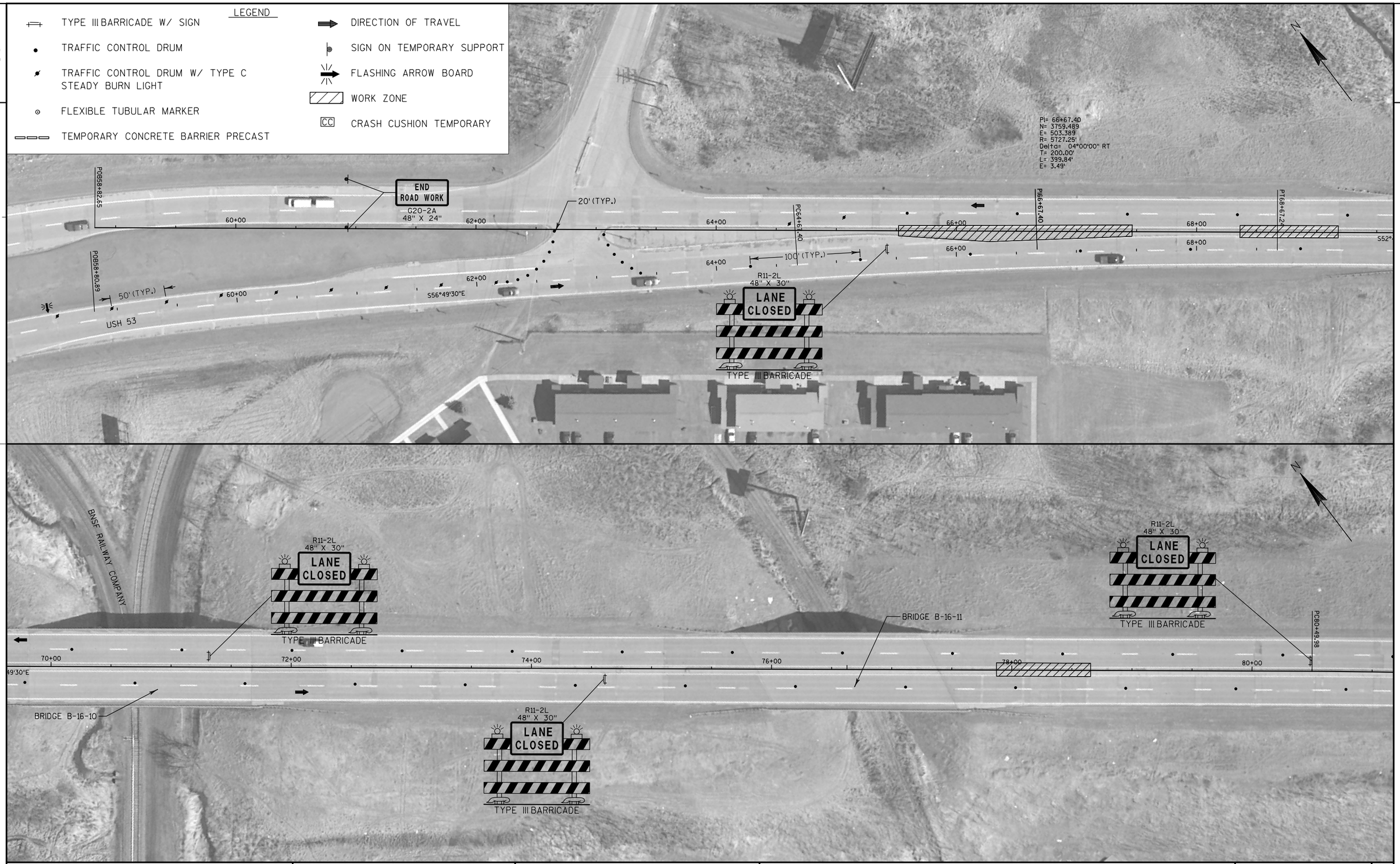
FILE NAME : V:\Structures-EC\42-0960.00 - USH 53 Bridge Rehabilitations\DESIGN\Construction Staging\070005_tc.dgn PLOT DATE : 1/25/2016 PLOT BY : hickmant PLOT NAME : PLOT SCALE : 1:80

WISDOT/CADDS SHEET 42

2

LEGEND

- TYPE III BARRICADE W/ SIGN
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM W/ TYPE C STEADY BURN LIGHT
- FLEXIBLE TUBULAR MARKER
- TEMPORARY CONCRETE BARRIER PRECAST
- DIRECTION OF TRAVEL
- SIGN ON TEMPORARY SUPPORT
- FLASHING ARROW BOARD
- WORK ZONE
- CC CRASH CUSHION TEMPORARY



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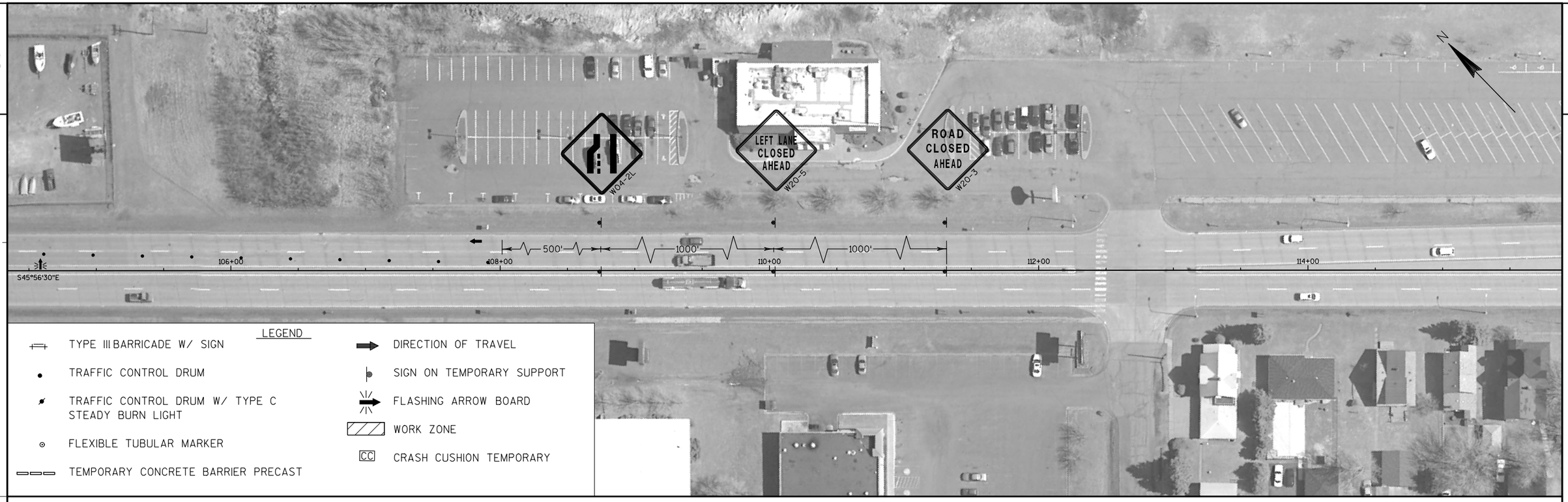
PROJECT NO: 1198-03-72	HWY: USH 53	COUNTY: DOUGLAS	TRAFFIC CONTROL - PRE-STAGE	SHEET 6	E

LEGEND

- TYPE III BARRICADE W/ SIGN
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM W/ TYPE C STEADY BURN LIGHT
- FLEXIBLE TUBULAR MARKER
- TEMPORARY CONCRETE BARRIER PRECAST
- DIRECTION OF TRAVEL
- SIGN ON TEMPORARY SUPPORT
- FLASHING ARROW BOARD
- WORK ZONE
- CRASH CUSHION TEMPORARY

PROJECT NO: 1198-03-72	HWY: USH 53	COUNTY: DOUGLAS	TRAFFIC CONTROL - PRE-STAGE	SHEET 7	E

FILE NAME : V:\Structures-EC\42-0960.00 - USH 53 Bridge Rehabilitations\DESIGN\Construction Staging\070005_tc.dgn PLOT DATE : 1/25/2016 PLOT BY : hickmant PLOT NAME : PLOT SCALE : 1:80



LEGEND

- TYPE III BARRICADE W/ SIGN
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM W/ TYPE C STEADY BURN LIGHT
- FLEXIBLE TUBULAR MARKER
- TEMPORARY CONCRETE BARRIER PRECAST
- DIRECTION OF TRAVEL
- SIGN ON TEMPORARY SUPPORT
- FLASHING ARROW BOARD
- WORK ZONE
- CC CRASH CUSHION TEMPORARY

2

PROJECT NO: 1198-03-72	HWY: USH 53	COUNTY: DOUGLAS	TRAFFIC CONTROL - PRE-STAGE	SHEET 8	E

FILE NAME : V:\Structures-EC\42-0960.00 - USH 53 Bridge Rehabilitations\DESIGN\Construction Staging\070005_tc.dgn PLOT DATE : 1/25/2016 PLOT BY : hickmant PLOT NAME : PLOT SCALE : 1:80

WISDOT/CADDS SHEET 42

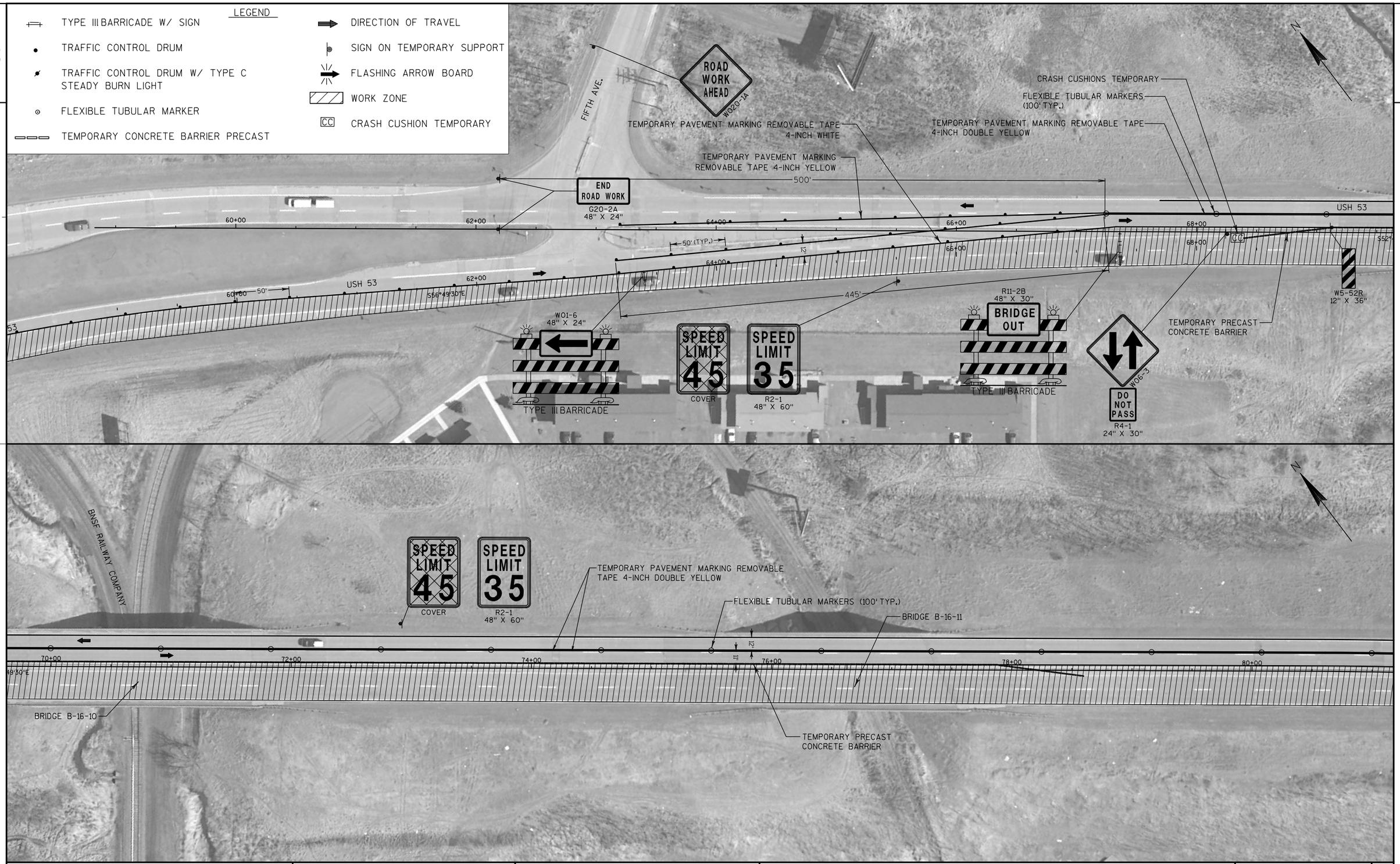
LEGEND

- TYPE III BARRICADE W/ SIGN
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM W/ TYPE C STEADY BURN LIGHT
- FLEXIBLE TUBULAR MARKER
- TEMPORARY CONCRETE BARRIER PRECAST
- DIRECTION OF TRAVEL
- SIGN ON TEMPORARY SUPPORT
- FLASHING ARROW BOARD
- WORK ZONE
- CC CRASH CUSHION TEMPORARY

PROJECT NO: 1198-03-72	HWY: USH 53	COUNTY: DOUGLAS	TRAFFIC CONTROL - STAGE 1	SHEET 9 E

LEGEND

- TYPE III BARRICADE W/ SIGN
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM W/ TYPE C STEADY BURN LIGHT
- FLEXIBLE TUBULAR MARKER
- TEMPORARY CONCRETE BARRIER PRECAST
- DIRECTION OF TRAVEL
- SIGN ON TEMPORARY SUPPORT
- FLASHING ARROW BOARD
- WORK ZONE
- CC CRASH CUSHION TEMPORARY



PROJECT NO: 1198-03-72	HWY: USH 53	COUNTY: DOUGLAS	TRAFFIC CONTROL - STAGE 1	SHEET 10	E

FILE NAME : V:\Structures-EC\42-0960.00 - USH 53 Bridge Rehabilitations\DESIGN\Construction Staging\070002_tc.dgn PLOT DATE : 1/25/2016 PLOT BY : hickmant PLOT NAME : PLOT SCALE : 1:80

WISDOT/CADDS SHEET 42

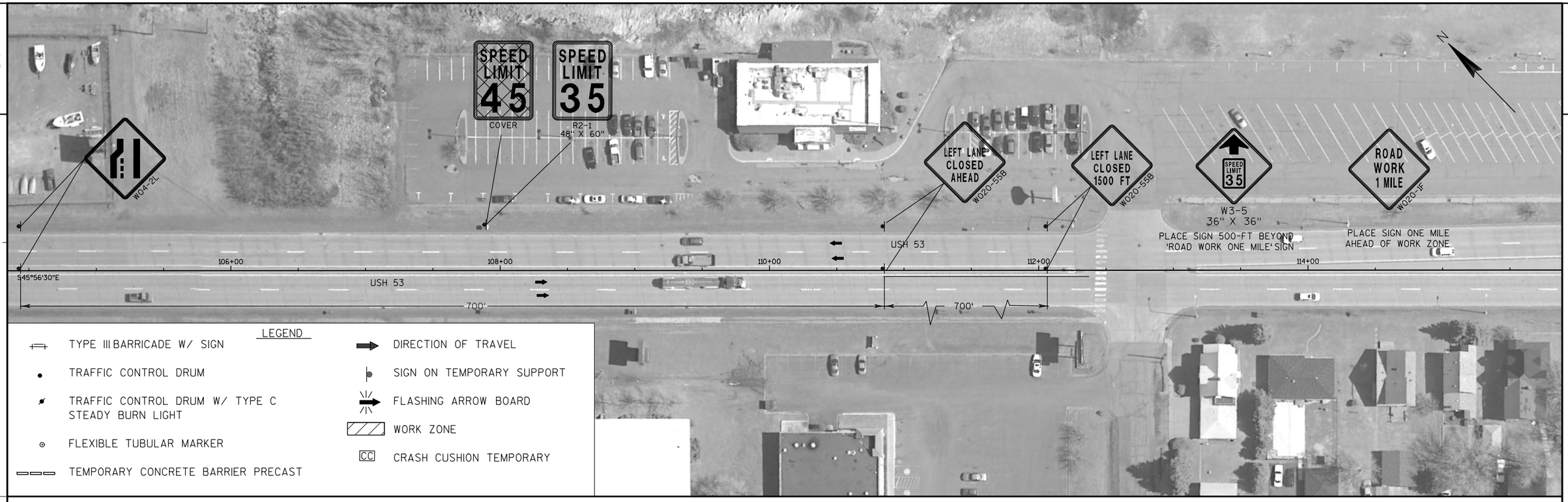
LEGEND

- TYPE III BARRICADE W/ SIGN
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM W/ TYPE C STEADY BURN LIGHT
- FLEXIBLE TUBULAR MARKER
- TEMPORARY CONCRETE BARRIER PRECAST
- DIRECTION OF TRAVEL
- SIGN ON TEMPORARY SUPPORT
- FLASHING ARROW BOARD
- WORK ZONE
- CRASH CUSHION TEMPORARY

PROJECT NO: 1198-03-72	HWY: USH 53	COUNTY: DOUGLAS	TRAFFIC CONTROL - STAGE 1	SHEET 11	E

FILE NAME : V:\Structures-EC\42-0960.00 - USH 53 Bridge Rehabilitations\DESIGN\Construction Staging\070002_tc.dgn PLOT DATE : 1/25/2016 PLOT BY : hickmant PLOT NAME : PLOT SCALE : 1:80

WISDOT/CADDS SHEET 42



PROJECT NO: 1198-03-72	HWY: USH 53	COUNTY: DOUGLAS	TRAFFIC CONTROL - STAGE 1	SHEET 12	E

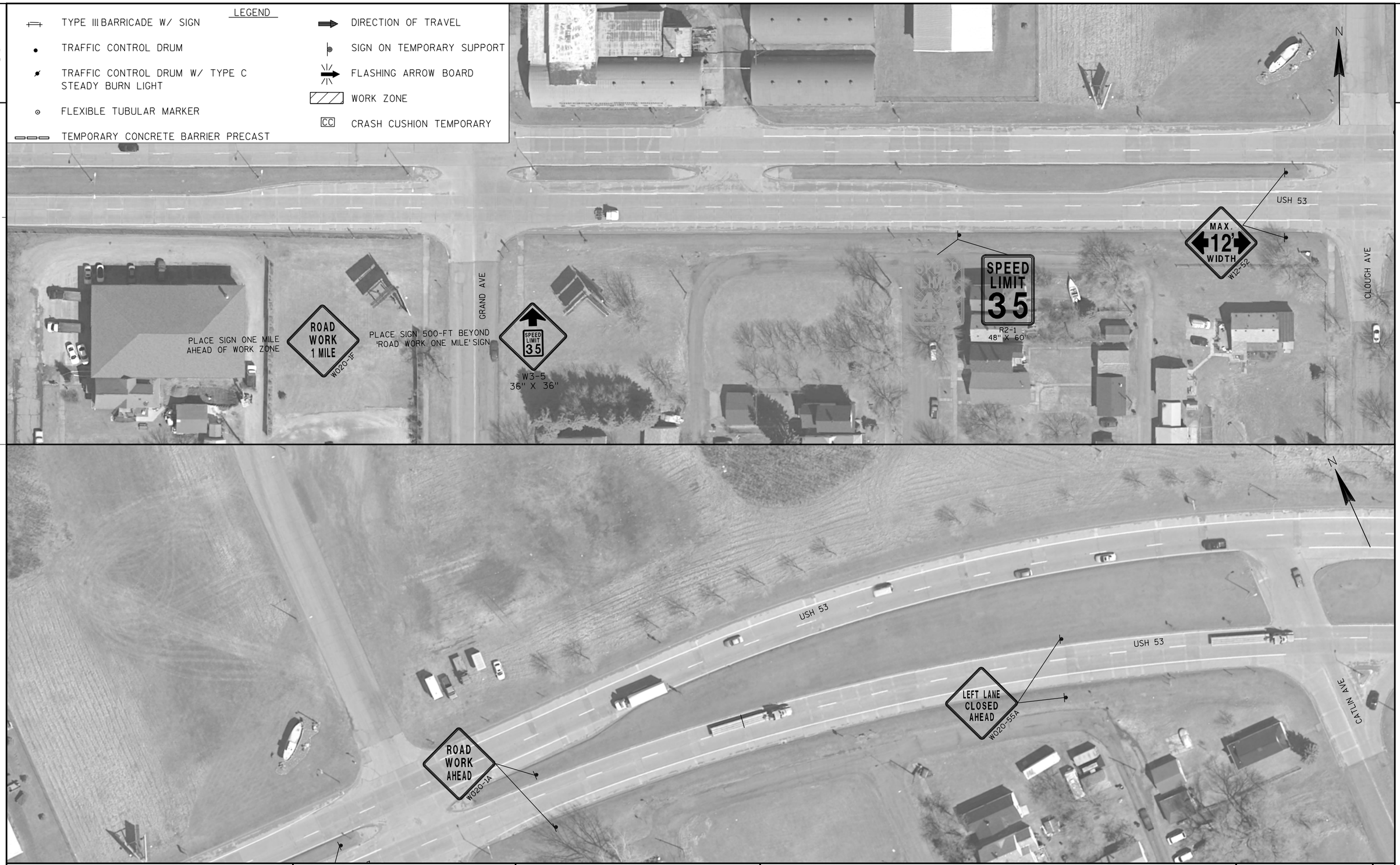
FILE NAME : V:\Structures-EC\42-0960.00 - USH 53 Bridge Rehabilitations\DESIGN\Construction Staging\070002_tc.dgn PLOT DATE : 1/25/2016 PLOT BY : hickmant PLOT NAME : PLOT SCALE : 1:80

WISDOT/CADDS SHEET 42

2

LEGEND

- TYPE III BARRICADE W/ SIGN
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM W/ TYPE C STEADY BURN LIGHT
- FLEXIBLE TUBULAR MARKER
- TEMPORARY CONCRETE BARRIER PRECAST
- DIRECTION OF TRAVEL
- SIGN ON TEMPORARY SUPPORT
- FLASHING ARROW BOARD
- WORK ZONE
- CRASH CUSHION TEMPORARY

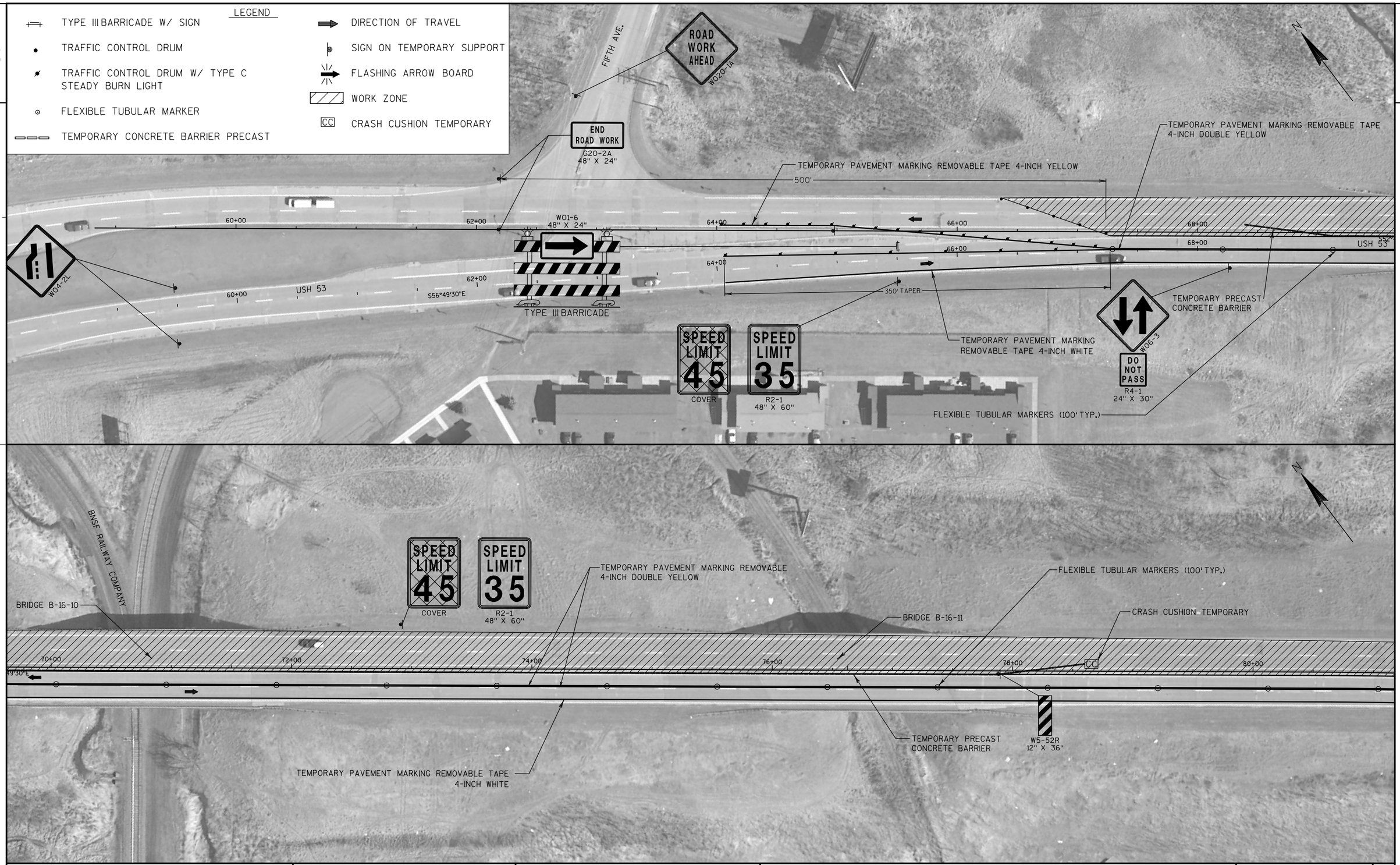


2

PROJECT NO: 1198-03-72	HWY: USH 53	COUNTY: DOUGLAS	TRAFFIC CONTROL - STAGE 2	SHEET 13	E

LEGEND

- TYPE III BARRICADE W/ SIGN
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM W/ TYPE C STEADY BURN LIGHT
- FLEXIBLE TUBULAR MARKER
- TEMPORARY CONCRETE BARRIER PRECAST
- DIRECTION OF TRAVEL
- SIGN ON TEMPORARY SUPPORT
- FLASHING ARROW BOARD
- WORK ZONE
- CC CRASH CUSHION TEMPORARY



PROJECT NO: 1198-03-72	HWY: USH 53	COUNTY: DOUGLAS	TRAFFIC CONTROL - STAGE 2	SHEET 14	E

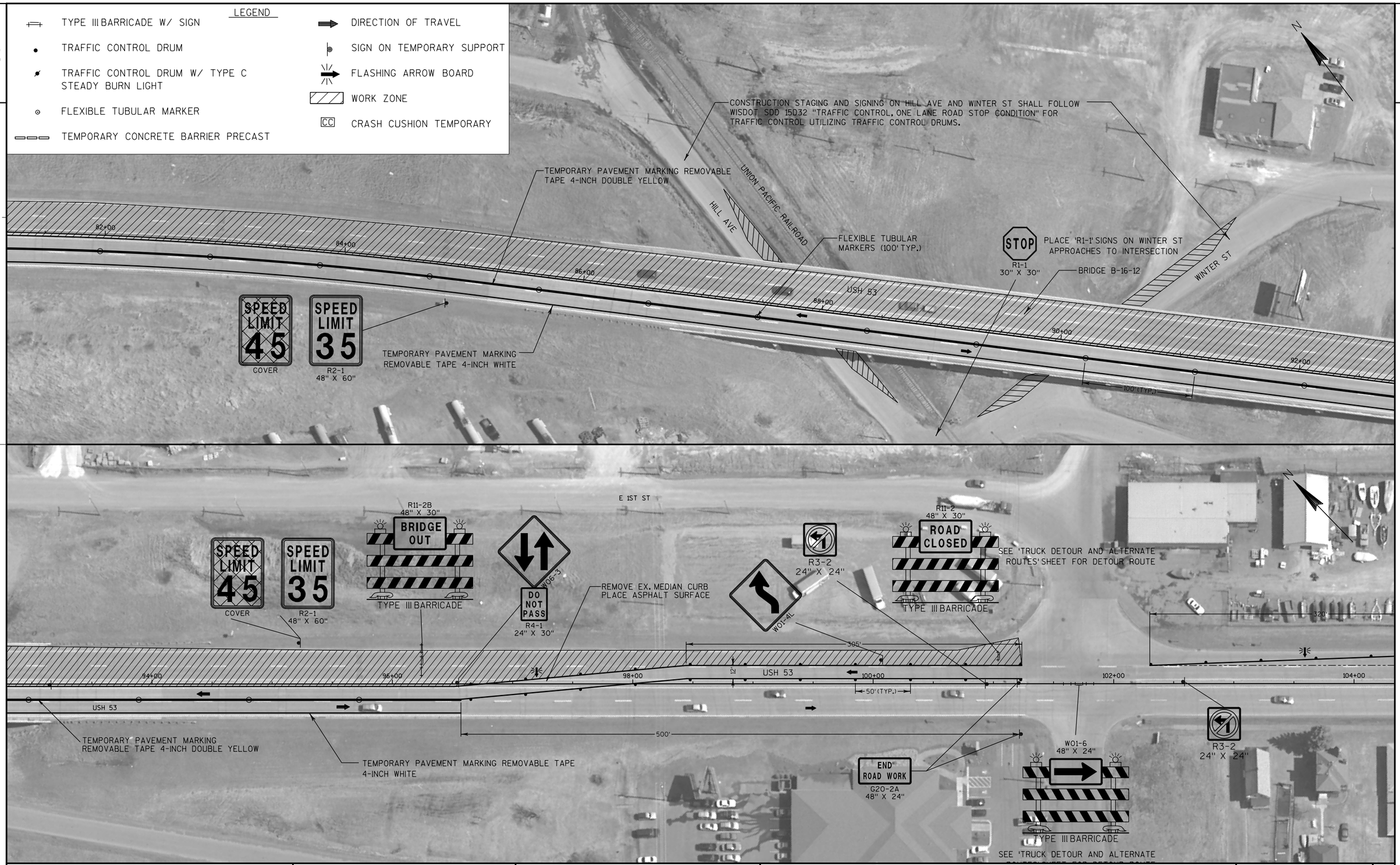
FILE NAME : V:\Structures-EC\42-0960.00 - USH 53 Bridge Rehabilitations\DESIGN\Construction Staging\070003_tc.dgn PLOT DATE : 1/25/2016 PLOT BY : hickmant PLOT NAME : PLOT SCALE : 1:80

WISDOT/CADDS SHEET 42

2

LEGEND

- TYPE III BARRICADE W/ SIGN
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM W/ TYPE C STEADY BURN LIGHT
- FLEXIBLE TUBULAR MARKER
- TEMPORARY CONCRETE BARRIER PRECAST
- DIRECTION OF TRAVEL
- SIGN ON TEMPORARY SUPPORT
- FLASHING ARROW BOARD
- WORK ZONE
- CC CRASH CUSHION TEMPORARY



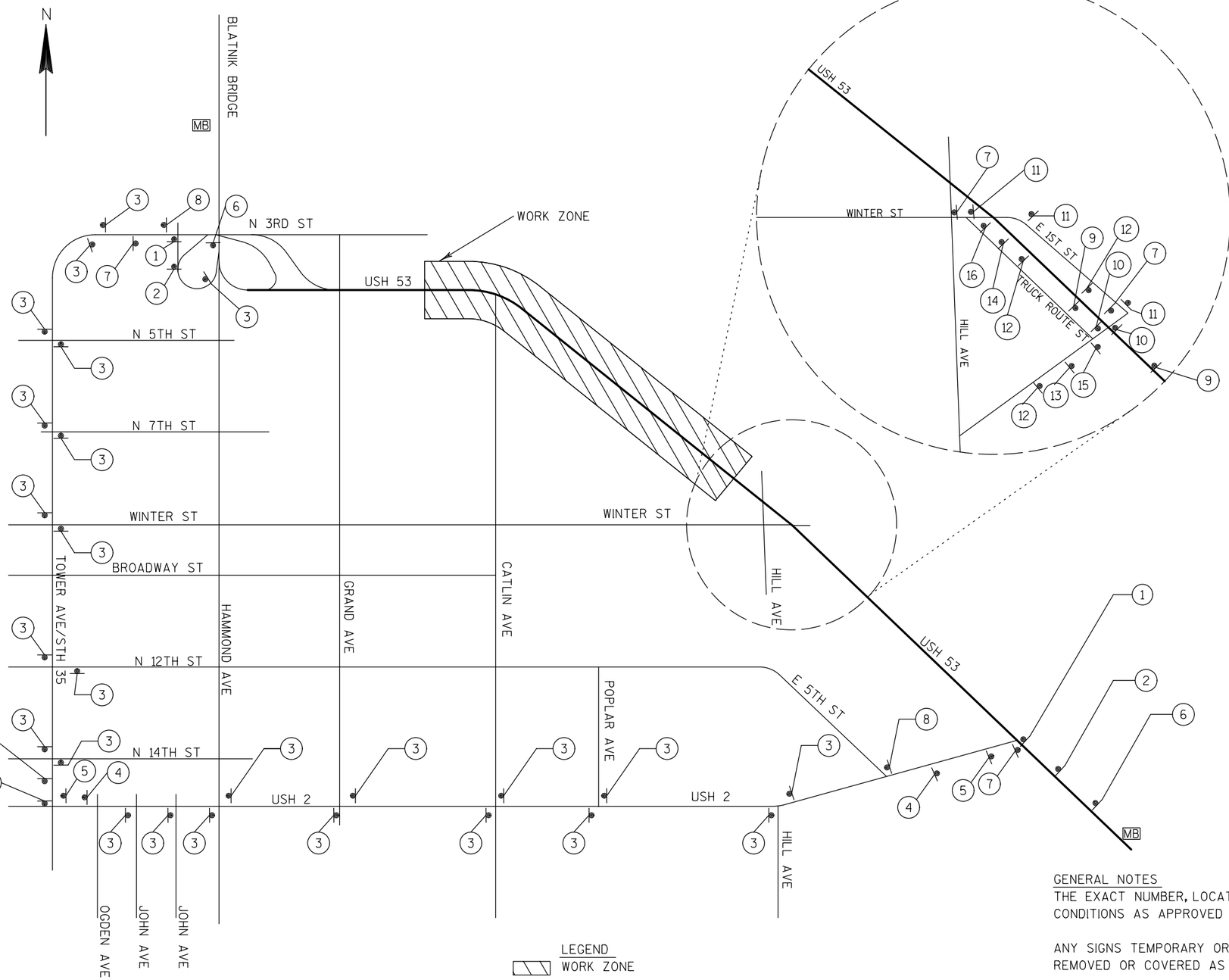
PROJECT NO: 1198-03-72	HWY: USH 53	COUNTY: DOUGLAS	TRAFFIC CONTROL - STAGE 2	SHEET 15	E

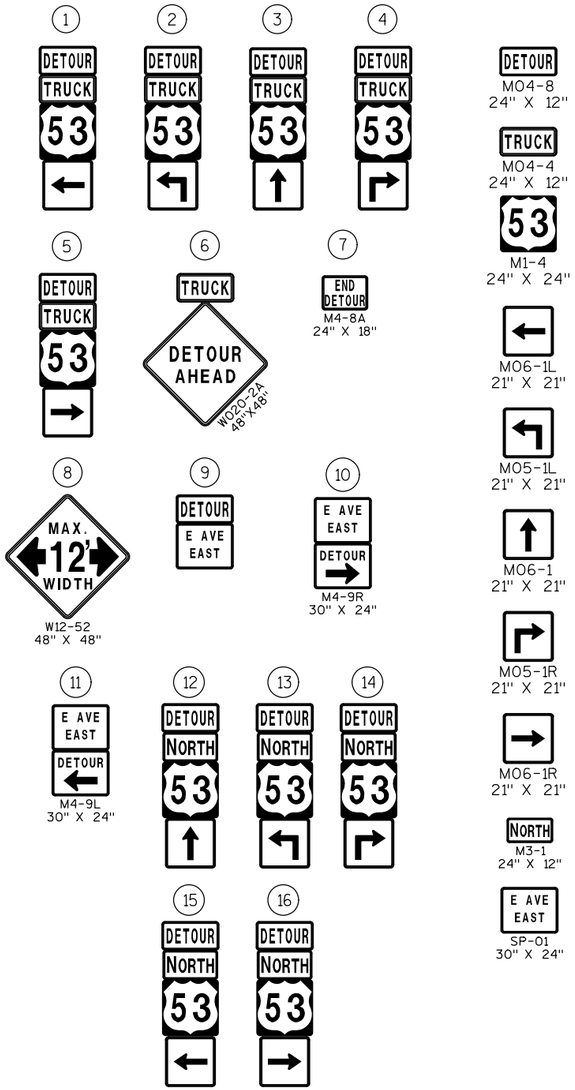
FILE NAME : V:\Structures-EC\42-0960.00 - USH 53 Bridge Rehabilitations\DESIGN\Construction Staging\070003_tc.dgn PLOT DATE : 1/25/2016 PLOT BY : hickmant PLOT NAME : PLOT SCALE : 1:80

WISDOT/CADDS SHEET 42

2

PROJECT NO: 1198-03-72	HWY: USH 53	COUNTY: DOUGLAS	TRAFFIC CONTROL - STAGE 2	SHEET 16	E





LEGEND

WORK ZONE

SIGN ON PERMANENT SUPPORT

MB PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

GENERAL NOTES

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS 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.

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

PCMS TO BE PLACED APPROX. 2 WEEKS IN ADVANCE OF LANE CLOSURES AT LOCATIONS DETERMINED BY THE ENGINEER.

PROJECT NO: 1198-03-72	HWY: USH 53	COUNTY: DOUGLAS	TRUCK DETOUR AND ALTERNATE ROUTES	SHEET 17	E

DATE 08MAR16 E S T I M A T E O F Q U A N T I T I E S

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	1198-03-72 QUANTITY
0010	203.0600.S	Removing Old Structure Over Waterway With Minimal Debris (station) 01. 70+74	LS	1.000	1.000
0020	203.0600.S	Removing Old Structure Over Waterway With Minimal Debris (station) 02. 76+61. 50	LS	1.000	1.000
0030	204.0100	Removing Pavement	SY	485.000	485.000
0040	204.0110	Removing Asphaltic Surface	SY	575.000	575.000
0050	204.0150	Removing Curb & Gutter	LF	2,010.000	2,010.000
0060	204.0155	Removing Concrete Sidewalk	SY	325.000	325.000
0070	204.0175	Removing Concrete Slope Paving	SY	20.000	20.000
0080	205.0100	Excavation Common	CY	195.000	195.000
0090	206.1000	Excavation for Structures Bridges (structure) 01. B-16-10	LS	1.000	1.000
0100	206.1000	Excavation for Structures Bridges (structure) 02. B-16-11	LS	1.000	1.000
0110	210.0100	Backfill Structure	CY	150.000	150.000
0120	213.0100	Finishing Roadway (project) 01. 1198-03-72	EACH	1.000	1.000
0130	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	300.000	300.000
0140	415.0120	Concrete Pavement 12-Inch	SY	50.000	50.000
0150	415.0410	Concrete Pavement Approach Slab	SY	445.000	445.000
0160	416.0610	Drilled Tie Bars	EACH	570.000	570.000
0170	416.0620	Drilled Dowel Bars	EACH	200.000	200.000
0180	455.0605	Tack Coat	GAL	40.000	40.000
0190	465.0125	Asphaltic Surface Temporary	TON	135.000	135.000
0200	502.0100	Concrete Masonry Bridges	CY	86.000	86.000
0210	502.2000	Compression Joint Sealer Preformed Elastomeric (width) 01. 2 1/4-Inch	LF	185.000	185.000
0220	502.2000	Compression Joint Sealer Preformed Elastomeric (width) 02. 3-INCH	LF	155.000	155.000
0230	502.2000	Compression Joint Sealer Preformed Elastomeric (width) 02. 3-Inch	LF	649.000	649.000
0240	502.3100	Expansion Device (structure) 01. B-16-10	LS	1.000	1.000
0250	502.3100	Expansion Device (structure) 02. B-16-11	LS	1.000	1.000
0260	502.3210	Pigmented Surface Sealer	SY	1,265.000	1,265.000
0270	502.5005	Masonry Anchors Type L No. 5 Bars	EACH	560.000	560.000
0280	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	13,700.000	13,700.000
0290	505.0904	Bar Couplers No. 4	EACH	28.000	28.000
0300	505.0905	Bar Couplers No. 5	EACH	12.000	12.000
0310	506.5000	Bearing Assemblies Fixed (structure) 01. B-16-10	EACH	10.000	10.000
0320	506.5000	Bearing Assemblies Fixed (structure) 02. B-16-11	EACH	10.000	10.000
0330	506.6000	Bearing Assemblies Expansion (structure) 01. B-16-10	EACH	10.000	10.000
0340	506.6000	Bearing Assemblies Expansion (structure) 02. B-16-11	EACH	10.000	10.000
0350	506.7050.S	Removing Bearings (structure) 01. B-16-10	EACH	20.000	20.000
0360	506.7050.S	Removing Bearings (structure) 02. B-16-11	EACH	20.000	20.000
0370	509.0301	Preparation Decks Type 1	SY	10.000	10.000
0380	509.0302	Preparation Decks Type 2	SY	4.000	4.000
0390	509.1000	Joint Repair	SY	125.000	125.000
0400	509.1200	Curb Repair	LF	150.000	150.000

3

DATE 08MAR16 E S T I M A T E O F Q U A N T I T I E S

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	1198-03-72 QUANTITY
0410	509.1500	Concrete Surface Repair	SF	1,210.000	1,210.000
0420	509.2000	Full-Depth Deck Repair	SY	2.000	2.000
0430	509.5100.S	Polymer Overlay	SY	2,195.000	2,195.000
0440	509.9050.S	Cleaning Parapets	LF	2,125.000	2,125.000
0450	516.0500	Rubberized Membrane Waterproofing	SY	54.000	54.000
0460	517.0900.S	Preparation and Coating of Top Flanges (structure) 01. B-16-10	LS	1.000	1.000
0470	517.0900.S	Preparation and Coating of Top Flanges (structure) 02. B-16-11	LS	1.000	1.000
0480	517.1800.S	Structure Repainting Recycled Abrasive (structure) 01. B-16-10	LS	1.000	1.000
0490	517.1800.S	Structure Repainting Recycled Abrasive (structure) 02. B-16-11	LS	1.000	1.000
0500	517.1800.S	Structure Repainting Recycled Abrasive (structure) 03. B-16-12	LS	1.000	1.000
0510	517.4500.S	Negative Pressure Containment and Collection of Waste Materials (structure) 01. B-16-10	LS	1.000	1.000
0520	517.4500.S	Negative Pressure Containment and Collection of Waste Materials (structure) 02. B-16-11	LS	1.000	1.000
0530	517.4500.S	Negative Pressure Containment and Collection of Waste Materials (structure) 03. B-16-12	LS	1.000	1.000
0540	517.6001.S	Portable Decontamination Facility	EACH	3.000	3.000
0550	601.0405	Concrete Curb & Gutter 18-Inch Type A	LF	2,010.000	2,010.000
0560	602.0405	Concrete Sidewalk 4-Inch	SF	2,835.000	2,835.000
0570	603.8000	Concrete Barrier Temporary Precast Delivered	LF	1,150.000	1,150.000
0580	603.8125	Concrete Barrier Temporary Precast Installed	LF	2,300.000	2,300.000
0590	604.0400	Slope Paving Concrete	SY	20.000	20.000
0600	614.0905	Crash Cushions Temporary	EACH	2.000	2.000
0610	614.1100	MGS Guardrail Temporary Thrie Beam Transition	LF	237.000	237.000
0620	614.1200	MGS Guardrail Temporary Terminal EAT	EACH	6.000	6.000
0630	619.1000	Mobilization	EACH	1.000	1.000
0640	628.1905	Mobilizations Erosion Control	EACH	2.000	2.000
0650	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0660	628.7015	Inlet Protection Type C	EACH	15.000	15.000
0670	633.0500	Delineator Reflectors	EACH	89.000	89.000
0680	633.1000	Delineator Brackets	EACH	89.000	89.000
0690	642.5001	Field Office Type B	EACH	1.000	1.000
0700	643.0100	Traffic Control (project) 01. 1198-03-72	EACH	1.000	1.000
0710	643.0300	Traffic Control Drums	DAY	8,423.000	8,423.000
0720	643.0420	Traffic Control Barricades Type III	DAY	416.000	416.000
0730	643.0500	Traffic Control Flexible Tubular Marker Posts	EACH	74.000	74.000
0740	643.0600	Traffic Control Flexible Tubular Marker Bases	EACH	74.000	74.000
0750	643.0705	Traffic Control Warning Lights Type A	DAY	832.000	832.000
0760	643.0715	Traffic Control Warning Lights Type C	DAY	2,276.000	2,276.000
0770	643.0800	Traffic Control Arrow Boards	DAY	164.000	164.000
0780	643.0900	Traffic Control Signs	DAY	4,304.000	4,304.000
0790	643.0910	Traffic Control Covering Signs Type I	EACH	6.000	6.000
0800	643.1050	Traffic Control Signs PCMS	DAY	182.000	182.000

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DATE 08MAR16 E S T I M A T E O F Q U A N T I T I E S

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	1198-03-72 QUANTITY
0810	643.2000	Traffic Control Detour (project) 01. 1198-03-72	EACH	1.000	1.000
0820	643.3000	Traffic Control Detour Signs	DAY	11,520.000	11,520.000
0830	646.0106	Pavement Marking Epoxy 4-Inch	LF	4,946.000	4,946.000
0840	649.0400	Temporary Pavement Marking Removable Tape 4-Inch	LF	66,700.000	66,700.000
0850	649.1400	Temporary Pavement Marking Stop Line Removable Tape 24-Inch	LF	24.000	24.000
0860	650.6500	Construction Staking Structure Layout (structure) 01. B-16-10	LS	1.000	1.000
0870	650.6500	Construction Staking Structure Layout (structure) 02. B-16-11	LS	1.000	1.000
0880	650.8000	Construction Staking Resurfacing Reference	LF	3,600.000	3,600.000
0890	650.9910	Construction Staking Supplemental Control (project) 01. 1198-03-72	LS	1.000	1.000
0900	690.0250	Sawing Concrete	LF	2,260.000	2,260.000
0910	715.0415	Incentive Strength Concrete Pavement	DOL	500.000	500.000
0920	715.0502	Incentive Strength Concrete Structures	DOL	516.000	516.000
0930	SPV.0035	Special 01. Concrete Masonry Deck Patching	CY	2.000	2.000
0940	SPV.0045	Special 01. Portable Changeable Message Sign (PCMS) Cellular Communications	DAY	182.000	182.000
0950	SPV.0090	Special 01. Sawing Pavement Deck Preparation Areas	LF	240.000	240.000
0960	SPV.0105	Special 01. Debris Containment Special Structure B-16-0010	LS	1.000	1.000
0970	SPV.0105	Special 02. Debris Containment Special Structure B-16-0012	LS	1.000	1.000
0980	SPV.0165	Special 01. Fiber Wrap Column Reinforcing	SF	4,000.000	4,000.000

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204.0100 REMOVING PAVEMENT (CATEGORY 0010)

STATION TO STATION	LOCATION	SY
Sta. 69+64.33 to Sta. 69+80	USH 53 NB & SB	91
Sta. 71+67 to Sta. 71+82.67	USH 53 NB & SB	91
Sta. 75+55.22 to Sta. 75+99.55	USH 53 NB & SB	127
Sta. 77+23.44 to Sta. 77+67.78	USH 53 NB & SB	127
Sta. 93+02.82 to Sta. 93+18.49	USH 53 NB	49
TOTALS		485

204.0110 REMOVING ASPHALTIC SURFACE (CATEGORY 0010)

STATION TO STATION	LOCATION	SY
Sta. 65+00 to Sta. 67+50	USH 53 Median	170
Sta. 68+15 to Sta. 69+25	USH 53 Median	75
Sta. 77+75 to Sta. 79+15	USH 53 Median	95
Sta. 96+00 to Sta. 99+50	USH 53 Median	235
TOTALS		575

204.0150 REMOVING CURB & GUTTER (CATEGORY 0010)

STATION TO STATION	LOCATION	LF
Sta. 65+00 to Sta. 67+50	USH 53 Median	500
Sta. 68+15 to Sta. 69+25	USH 53 Median	220
Sta. 77+75 to Sta. 79+15	USH 53 Median	280
Sta. 96+00 to Sta. 99+50	USH 53 Median	700
Sta. 69+64.33 to Sta. 69+80	USH 53 NB & SB LT & RT	65
Sta. 71+67 to Sta. 71+82.67	USH 53 NB & SB LT & RT	65
Sta. 75+55.22 to Sta. 75+83.22	USH 53 NB RT	29
Sta. 75+55.22 to Sta. 75+70.89	USH 53 NB LT	16
Sta. 75+70.54 to Sta. 75+86.21	USH 53 SB LT	16
Sta. 75+70.54 to Sta. 75+99.54	USH 53 SB RT	29
Sta. 77+23.39 to Sta. 77+52.39	USH 53 NB LT	29
Sta. 77+36.71 to Sta. 77+52.38	USH 53 NB RT	16
Sta. 77+39.78 to Sta. 77+67.78	USH 53 SB LT	29
Sta. 77+52.11 to Sta. 77+67.78	USH 53 SB RT	16
TOTALS		2,010

204.0155 REMOVING CONCRETE SIDEWALK (CATEGORY 0010)

STATION TO STATION	LOCATION	SY
Sta. 65+00 to Sta. 67+50	USH 53 Median	85
Sta. 68+15 to Sta. 69+25	USH 53 Median	38
Sta. 77+75 to Sta. 79+15	USH 53 Median	48
Sta. 96+00 to Sta. 99+50	USH 53 Median	120
Sta. 69+64.33 to Sta. 69+80	USH 53	6
Sta. 71+67 to Sta. 71+82.67	USH 53	6
Sta. 75+55.22 to Sta. 75+86.21	USH 53	11
Sta. 77+36.71 to Sta. 77+67.78	USH 53	11
TOTALS		325

205.0100 EXCAVATION COMMON (CATEGORY 0010)

STATION TO STATION	LOCATION	CY
Sta. 65+00 to Sta. 67+50	USH 53 Median	57
Sta. 68+15 to Sta. 69+25	USH 53 Median	26
Sta. 77+75 to Sta. 79+15	USH 53 Median	33
Sta. 96+00 to Sta. 99+50	USH 53 Median	79
TOTAL		195

213.0100 FINISHING ROADWAY (CATEGORY 0010)

LOCATION	EACH
PROJECT 1198-03-72	1

305.0120 BASE AGGREGATE DENSE 1 1/4-INCH (CATEGORY 0010)

STATION TO STATION	LOCATION	TON
Sta. 65+00 to Sta. 67+50	USH 53 Median	90
Sta. 68+15 to Sta. 69+25	USH 53 Median	40
Sta. 77+75 to Sta. 79+15	USH 53 Median	50
Sta. 96+00 to Sta. 99+50	USH 53 Median	120
TOTALS		300

415.0120 CONCRETE PAVEMENT 12-INCH (CATEGORY 0010)

STATION TO STATION	LOCATION	SY
Sta. 69+64.33 to Sta. 69+80	USH 53 SB RT	7
Sta. 71+67 to Sta. 71+82.67	USH 53 NB LT	7
Sta. 75+70.54 to Sta. 75+99.55	USH 53 SB RT	14
Sta. 77+22.40 to Sta. 77+52.46	USH 53 NB LT	14
Sta. 93+02.82 to Sta. 93+18.49	USH 53 NB LT	8
TOTALS		50

415.0410 CONCRETE PAVEMENT APPROACH SLAB (CATEGORY 0010)

STATION TO STATION	LOCATION	SY
Sta. 69+64.33 to Sta. 69+80	USH 53 NB & SB	84
Sta. 71+67 to Sta. 71+82.67	USH 53 NB & SB	84
Sta. 75+55.22 to Sta. 75+99.55	USH 53 NB & SB	117
Sta. 77+23.44 to Sta. 77+67.78	USH 53 NB & SB	117
Sta. 93+02.82 to Sta. 93+18.49	USH 53 NB	43
TOTALS		445

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416.0610 DRILLED TIE BARS (CATEGORY 0010)

STATION TO STATION	LOCATION	EACH
Sta. 65+00 to Sta. 67+50	USH 53 Median	168
Sta. 68+15 to Sta. 69+25	USH 53 Median	74
Sta. 77+75 to Sta. 79+15	USH 53 Median	94
Sta. 96+00 to Sta. 99+50	USH 53 Median	234
TOTALS		570

416.0620 DRILLED DOWEL BARS (CATEGORY 0010)

STATION	LOCATION	EACH
Sta. 69+64.33	USH 53 NB & SB	45
Sta. 71+82.67	USH 53 NB & SB	45
Sta. 75+55.22	USH 53 NB	22
Sta. 75+70.54	USH 53 SB	22
Sta. 77+52.38	USH 53 NB	22
Sta. 77+67.78	USH 53 SB	22
Sta. 93+18.49	USH 53 NB	22
TOTALS		200

455.0605 TACK COAT (CATEGORY 0010)

STATION TO STATION	LOCATION	GAL
Sta. 65+00 to Sta. 67+50	USH 53 Median	12
Sta. 68+15 to Sta. 69+25	USH 53 Median	6
Sta. 77+75 to Sta. 79+15	USH 53 Median	7
Sta. 96+00 to Sta. 99+50	USH 53 Median	15
TOTAL		40

465.0125 ASPHALTIC SURFACE TEMPORARY (CATEGORY 0010)

STATION TO STATION	LOCATION	TON
Sta. 65+00 to Sta. 67+50	USH 53 Median	40
Sta. 68+15 to Sta. 69+25	USH 53 Median	18
Sta. 77+75 to Sta. 79+15	USH 53 Median	22
Sta. 96+00 to Sta. 99+50	USH 53 Median	55
TOTALS		135

601.0405 CONCRETE CURB & GUTTER 18-INCH TYPE A (CATEGORY 0010)

STATION TO STATION	LOCATION	LF
Sta. 69+64.33 to Sta. 69+80	USH 53 NB & SB LT & RT	65
Sta. 71+67 to Sta. 71+82.67	USH 53 NB & SB LT & RT	65
Sta. 75+55.22 to Sta. 75+83.22	USH 53 NB RT	29
Sta. 75+55.22 to Sta. 75+70.89	USH 53 NB LT	16
Sta. 75+70.54 to Sta. 75+86.21	USH 53 SB LT	16
Sta. 75+70.54 to Sta. 75+99.54	USH 53 SB RT	29
Sta. 77+23.39 to Sta. 77+52.39	USH 53 NB LT	29
Sta. 77+36.71 to Sta. 77+52.38	USH 53 NB RT	16
Sta. 77+39.78 to Sta. 77+67.78	USH 53 SB LT	29
Sta. 77+52.11 to Sta. 77+67.78	USH 53 SB RT	16
Sta. 65+00 to Sta. 67+50	USH 53 Median	500
Sta. 68+15 to Sta. 69+25	USH 53 Median	220
Sta. 77+75 to Sta. 79+15	USH 53 Median	280
Sta. 96+00 to Sta. 99+50	USH 53 Median	700
TOTALS		2,010

602.0405 CONCRETE SIDEWALK 4-INCH (CATEGORY 0010)

STATION TO STATION	LOCATION	SF
Sta. 69+64.33 to Sta. 69+80	USH 53	49
Sta. 71+67 to Sta. 71+82.67	USH 53	49
Sta. 75+55.22 to Sta. 75+86.21	USH 53	93
Sta. 77+36.71 to Sta. 77+67.78	USH 53	94
Sta. 65+00 to Sta. 67+50	USH 53 Median	750
Sta. 68+15 to Sta. 69+25	USH 53 Median	330
Sta. 77+75 to Sta. 79+15	USH 53 Median	420
Sta. 96+00 to Sta. 99+50	USH 53 Median	1,050
TOTALS		2,835

MGS GUARDRAIL TEMPORARY (CATEGORY 0010)

STATION TO STATION	LOCATION	614.1100 THRIE BEAM TRANSITION LF	614.1200 TERMINAL EAT EACH
Sta. 68+82.52 to Sta. 69+75.02	USH 53 NB LT	39.5	1
Sta. 71+71.92 to Sta. 72+64.42	USH 53 SB RT	39.5	1
Sta. 74+69.06 to Sta. 75+61.56	USH 53 NB LT	39.5	1
Sta. 79+65.44 to Sta. 80+57.94	USH 53 SB RT	39.5	1
Sta. 85+18.85 to Sta. 86+11.35	USH 53 NB LT	39.5	1
Sta. 93+07.49 to Sta. 93+99.99	USH 53 SB RT	39.5	1
TOTAL		237	6

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619.1000 MOBILIZATION

LOCATION	EACH
PROJECT 1198-03-72	1
TOTAL	1

MOBILIZATIONS EROSION CONTROL & EMERGENCY EROSION CONTROL (CATEGORY 0010)

LOCATION	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH
PROJECT 1198-03-72	2	2

628.7015 INLET PROTECTION TYPE C (CATEGORY 0010)

LOCATION	EACH
USH 53 NB	4
USH 53 SB	6
Undistributed	5
TOTAL	15

646.0106 PAVEMENT MARKING EPOXY 4-INCH (CATEGORY 0010)

STATION TO STATION	LOCATION	DESCRIPTION	WHITE LF	YELLOW LF
Sta. 69+64 to Sta. 71+83	USH 53 NB	EDGELINE	219	219
Sta. 69+64 to Sta. 71+83	USH 53 NB	DASHED LANE LINE	63	-
Sta. 69+64 to Sta. 71+83	USH 53 SB	EDGELINE	219	219
Sta. 69+64 to Sta. 71+83	USH 53 SB	DASHED LANE LINE	63	-
Sta. 75+55 to Sta. 77+53	USH 53 NB	EDGELINE	198	198
Sta. 75+55 to Sta. 77+53	USH 53 NB	DASHED LANE LINE	50	-
Sta. 75+70 to Sta. 77+68	USH 53 SB	EDGELINE	198	198
Sta. 75+70 to Sta. 77+68	USH 53 SB	DASHED LANE LINE	50	-
Sta. 86+33 to Sta. 93+19	USH 53 NB	EDGELINE	686	686
Sta. 86+33 to Sta. 93+19	USH 53 NB	DASHED LANE LINE	175	-
Sta. 86+54 to Sta. 93+19	USH 53 SB	EDGELINE	665	665
Sta. 86+54 to Sta. 93+19	USH 53 SB	DASHED LANE LINE	175	-
TOTAL			4,946	

CONSTRUCTION STAKING

CATEGORY	LOCATION	650.6500.01 STRUCTURE LAYOUT LS	651.6500.02 STRUCTURE LAYOUT LS	650.8000 RESURFACING REFERENCE LF	650.9910 SUPPLEMENTARY CONTROL LS
0010	Sta. 64+00 to Sta.100+00, USH 53	-	-	3,600	1
0020	B-16-0010	1	-	-	-
0030	B-16-0011	-	1	-	-
TOTALS		1	1	3,600	1

690.0250 SAWING CONCRETE (CATEGORY 0010)

STATION	LOCATION	LF
Sta. 65+00 to Sta. 67+50	USH 53 Median	515
Sta. 68+15 to Sta. 69+25	USH 53 Median	235
Sta. 77+75 to Sta. 79+15	USH 53 Median	295
Sta. 96+00 to Sta. 99+50	USH 53 Median	715
Sta. 69+64.33 to Sta. 69+80	USH 53 NB & SB	96
Sta. 71+67 to Sta. 71+82.67	USH 53 NB & SB	96
Sta. 75+55.22 to Sta. 75+99.55	USH 53 NB & SB	121
Sta. 77+23.44 to Sta. 77+67.78	USH 53 NB & SB	121
Sta. 93+02.82 to Sta. 93+18.49	USH 53 NB	66
TOTAL		2,260

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CONCRETE BARRIER TEMPORARY PRECAST ITEMS (CATEGORY 0010)

PROJECT ID	BRIDGE NO.	STAGE	603.8000 CONCRETE BARRIER TEMPORARY PRECAST DELIVERED LF	603.8125 CONCRETE BARRIER TEMPORARY PRECAST INSTALLED LF	614.0905 CRASH CUSHIONS TEMPORARY EA	COMMENT
1198-03-72	B-16-10 & B-16-11	1	1150	1150	1	ANCHOR CONCRETE BARRIER PER DETAIL
		2	---	1150	1	ANCHOR CONCRETE BARRIER PER DETAIL
TOTAL			**1150**	**2300**	**2**	

FIELD OFFICE (CATEGORY 0010)

PROJECT NO.	642.5001 (TYPE B) EA
1198-03-72	1

TRAFFIC CONTROL (CATEGORY 0010)

PROJECT NO.	643.0100 (PROJECT) EA
1198-03-72	1

TRAFFIC CONTROL ITEMS (CATEGORY 0010)

PROJECT ID	STAGE	DURATION DAYS	643.0300 DRUMS NO.	643.0300 DRUMS DAYS	643.0420 BARRICADES TYPE III NO.	643.0420 BARRICADES TYPE III DAYS	643.0500 FLEXIBLE TUBULAR MARKER POSTS EA	643.0600 FLEXIBLE TUBULAR MARKER BASES EA	643.0705 WARNING LIGHTS TYPE A NO.	643.0705 WARNING LIGHTS TYPE A DAYS	643.0715 WARNING LIGHTS TYPE C NO.	643.0715 WARNING LIGHTS TYPE C DAYS	643.0800 ARROW BOARDS NO.	643.0800 ARROW BOARDS DAYS	643.0900 SIGNS NO.	643.0900 SIGNS DAYS	643.0910 COVERING SIGNS TYPE I EACH
1198-03-72	PRE	5	120	600	8	40	--	--	16	80	13	65	2	10	24	120	
	1	38	109	4142	5	190	37	37	10	380	18	684	2	76	49	1862	6
	2	39	79	3081	4	156	37	37	8	312	33	1287	2	78	48	1872	
	HILL AVE/WINTER ST	15	40	600	2	30	--	--	4	60	16	240	--	--	30	450	
TOTAL				**8423**		**416**	**74**	**74**		**832**		**2276**		**164**		**4304**	**6**

TRAFFIC CONTROL SIGNS PCMS (CATEGORY 0010)

PROJECT NO.	643.1050 DAY
1198-03-72	182

TRAFFIC CONTROL DETOUR (CATEGORY 0010)

PROJECT NO.	643.2000 (PROJECT) EA
1198-03-72	1

TRAFFIC CONTROL DETOUR SIGNS (CATEGORY 0010)

PROJECT ID	DURATION (DAYS)	643.3000 NO.	643.3000 DAYS
1198-03-72	60	192	11520
TOTAL			**11520**

TEMPORARY PAVEMENT MARKING (CATEGORY 0010)

PROJECT ID	STAGE	649.0400 TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (YELLOW) LF	649.0400 TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH WHITE LF	649.1400 TEMPORARY PAVEMENT MARKING STOP LINE REMOVABLE TAPE 24-INCH (WHITE) LF
1198-03-72	1	22000	11100	--
	2	22000	11100	--
	HILL AVE/WINTER ST	--	500	24
SUBTOTAL		44000	22700	24
TOTAL		**66700**		**24**

PORTABLE CHANGEABLE MESSAGE SIGN (PCMS) CELLULAR COMMUNCATIONS (CATEGORY 0010)

PROJECT NO.	SPV.0045.01 DAY
1198-03-72	182

N

MGS GUARDRAIL
TEMPORARY TERMINAL EAT

MGS GUARDRAIL
TEMPORARY THRIE
BEAM TRANSITION

15'-8"

WisDOT

STRUCTURE
B-16-10

CONCRETE PAVEMENT 12-INCH

EXISTING MGS
GUARDRAIL TO
REMAIN IN PLACE

CATCH BASIN

SS

℄ OF USH 53

REMOVE EXISTING MEDIAN CURB.
PLACE ASPHALTIC SURFACE
TEMPORARY FOR CROSSOVER
AND CONCRETE BARRIER TAPER

PI66+67.40

PT68+67.24

66+00

68+00

70+00

72+00

S52°49'30"E

CONCRETE PAVEMENT
APPROACH SLAB - TYP.

RESTORE MEDIAN AFTER
STAGE 2 CONSTRUCTION

EXISTING MGS
GUARDRAIL TO
REMAIN IN PLACE

DRAINAGE
DITCH

CONCRETE PAVEMENT 12-INCH

15'-8"

CATCH BASIN

MGS GUARDRAIL
TEMPORARY
TERMINAL EAT

MGS GUARDRAIL
TEMPORARY THRIE
BEAM TRANSITION

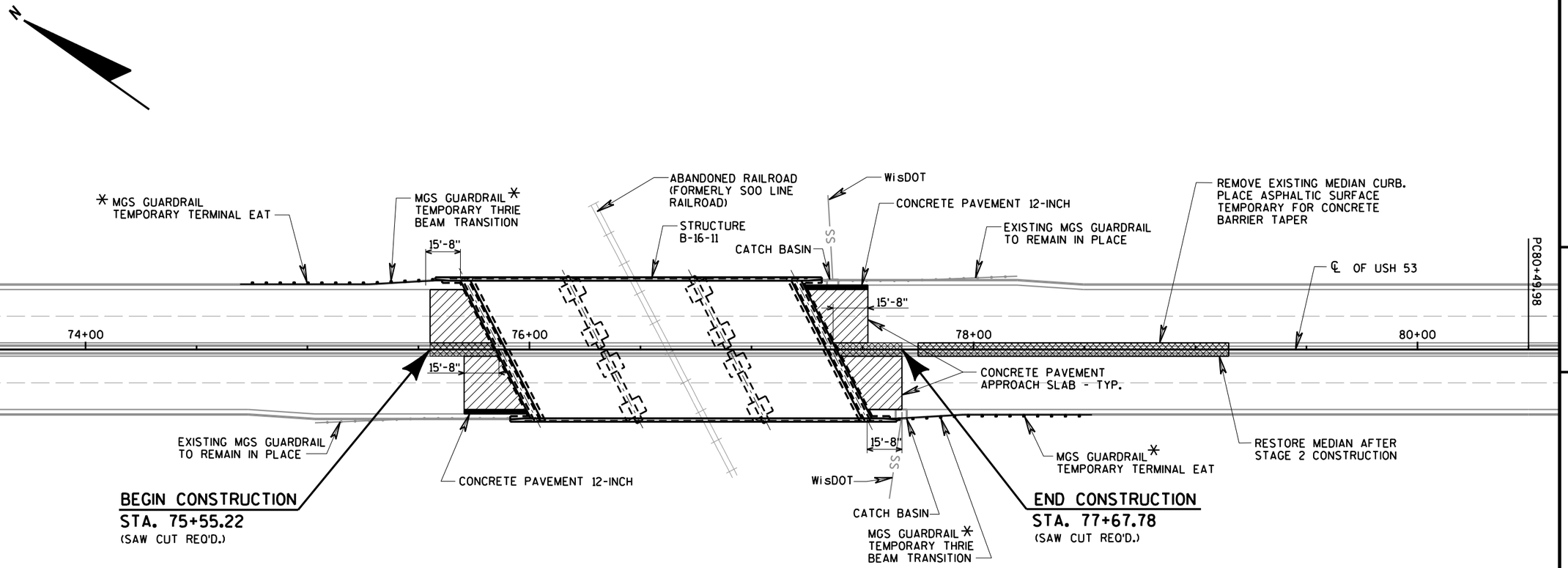
BEGIN PROJECT/CONSTRUCTION
STA. 69+64.33
(SAW CUT REQ'D.)

LSTT RAILROAD
(BNSF RAILWAY COMPANY)

END CONSTRUCTION
STA. 71+82.67
(SAW CUT REQ'D.)

* TEMPORARY MGS GUARDRAIL REQUIRED ON DEPARTING ENDS OF BRIDGE FOR TRAFFIC CONTROL. REMOVE TEMPORARY MGS GUARDRAIL AFTER TRAFFIC CONTROL IS COMPLETE, PATCH ANCHORAGE HOLES.

PROJECT NO: 1198-03-72	HWY: USH 53	COUNTY: DOUGLAS	PLAN B-16-10 & MEDIAN WORK	SCALE, FEET 0 25 50	SHEET 25	E



✳ TEMPORARY MGS GUARDRAIL REQUIRED ON DEPARTING ENDS OF BRIDGE FOR TRAFFIC CONTROL. REMOVE TEMPORARY MGS GUARDRAIL AFTER TRAFFIC CONTROL IS COMPLETE, PATCH ANCHORAGE HOLES.

PROJECT NO: 1198-03-72	HWY: USH 53	COUNTY: DOUGLAS	PLAN B-16-11 & MEDIAN WORK	SCALE, FEET 0 25 50	SHEET 26	E

5

5

CITY OF SUPERIOR

CALUMET SPECIALTY

SWLP

CENTURYLINK

℄ OF HILL AVE.

MGS GUARDRAIL ✳
TEMPORARY THRIE
BEAM TRANSITION

UNION PACIFIC
(UP) RAILROAD

MGS GUARDRAIL ✳
TEMPORARY TERMINAL EAT

ABANDONED
RAILROAD

CITY OF SUPERIOR

STRUCTURE
B-16-12

SWLP

CITY OF SUPERIOR

℄ OF WINTER STREET

CONCRETE PAVEMENT 12-INCH

EXISTING MGS GUARDRAIL
TO REMAIN IN PLACE

15'-8"

CONCRETE PAVEMENT
APPROACH SLAB

PT85+08.87

86+00

88+00

90+00

92+00

94+00

EXISTING MGS GUARDRAIL
TO REMAIN IN PLACE

SCUPPERS - TYP.

℄ OF USH 53

MGS GUARDRAIL
TEMPORARY THRIE
BEAM TRANSITION

MGS GUARDRAIL
TEMPORARY TERMINAL EAT

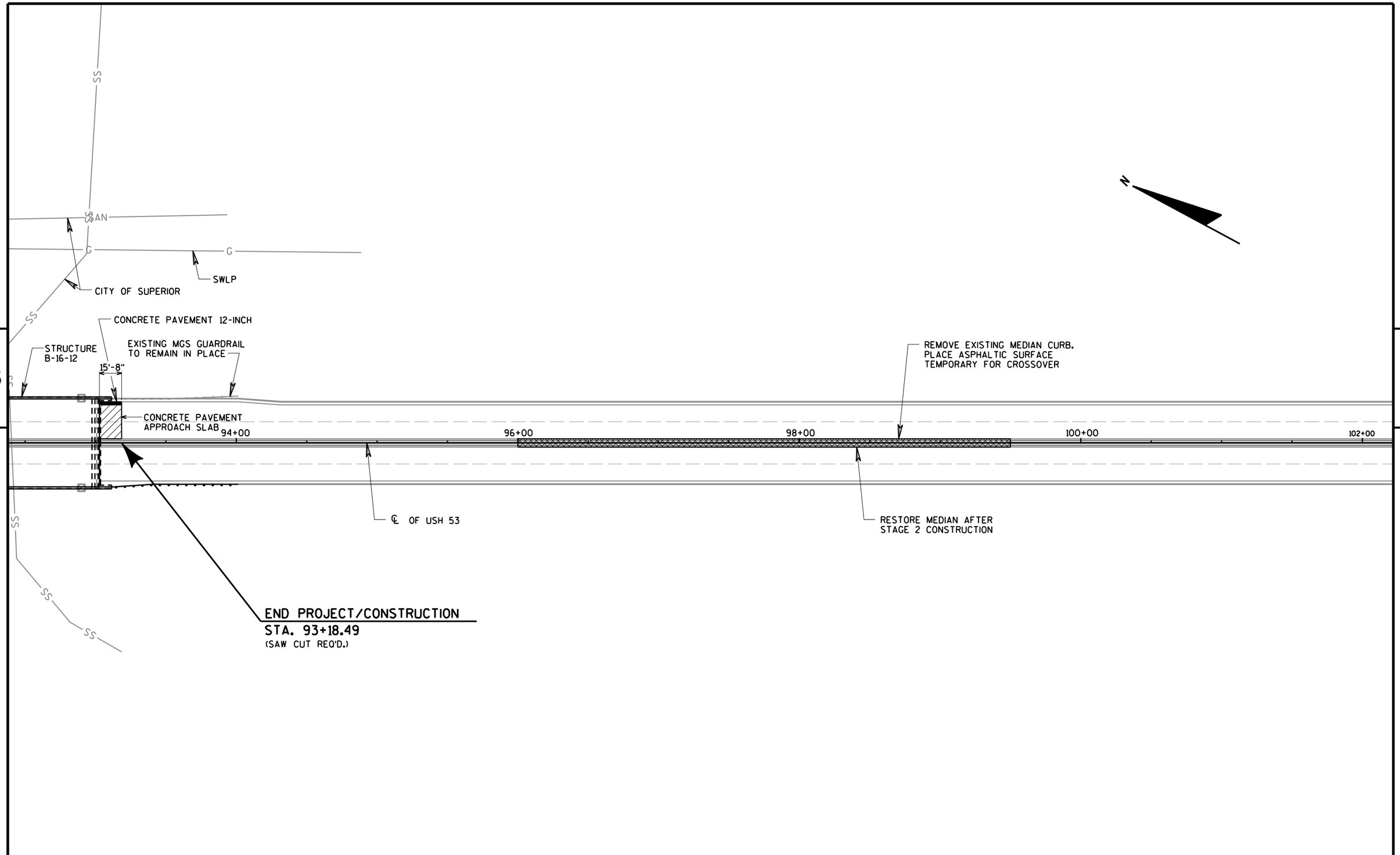
SWLP

BEGIN CONSTRUCTION
STA. 86+07.35

END PROJECT/CONSTRUCTION
STA. 93+18.49
(SAW CUT REQ'D.)

✳ TEMPORARY MGS GUARDRAIL REQUIRED ON DEPARTING ENDS OF BRIDGE FOR TRAFFIC CONTROL. REMOVE TEMPORARY MGS GUARDRAIL AFTER TRAFFIC CONTROL IS COMPLETE, PATCH ANCHORAGE HOLES.

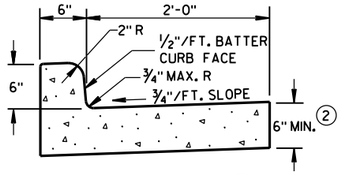
PROJECT NO: 1198-03-72	HWY: USH 53	COUNTY: DOUGLAS	PLAN B-16-12	SCALE, FEET 0 40 80	SHEET 27	E



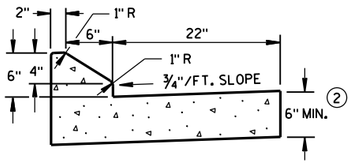
PROJECT NO: 1198-03-72	HWY: USH 53	COUNTY: DOUGLAS	MEDIAN WORK	SCALE. FEET 0 40 80	SHEET 28	E

Standard Detail Drawing List

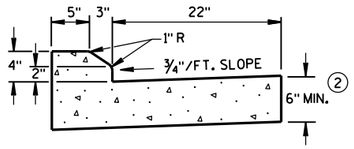
08D01-18	CONCRETE CURB, CONCRETE CURB AND GUTTER AND TIES
08E10-02	INLET PROTECTION TYPE A, B, C AND D
13B02-08A	CONCRETE PAVEMENT APPROACH SLAB
14B07-14A	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14B	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14C	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14D	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14E	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14F	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14G	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14H	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
14B42-03A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-03B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-03C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-02A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-04A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04D	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04F	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15A02-08	DELINEATOR POST, DELINEATOR, AND DELINEATOR BRACKET WITH REFLECTIVE SHEETING
15C02-06C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C08-16A	PAVEMENT MARKING (MAINLINE)
15C11-06	FLEXIBLE TUBULAR MARKER POST
15D03-02	TRAFFIC CONTROL, LANE CLOSURE, SPEEDS GREATER THAN 40 M.P.H. WITH BARRIER
15D06-03	TRAFFIC CONTROL, TWO LANE TWO WAY OPERATION
15D12-05B	TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION
15D20-03	TRAFFIC CONTROL, SINGLE LANE CLOSURE, NON-FREEWAY/EXPRESSWAY
15D32-04	TRAFFIC CONTROL, ONE LANE ROAD STOP CONDITION



TYPES A & D ①

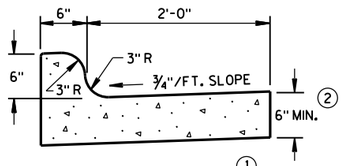


6" SLOPED CURB TYPES G & J ①

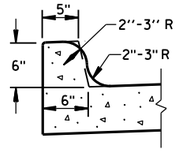


4" SLOPED CURB TYPES G & J ①

CONCRETE CURB & GUTTER 30"

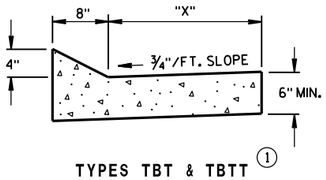


TYPES K & L ①



OPTIONAL CURB SHAPE FOR TYPES K & L ①

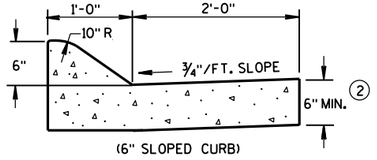
CONCRETE CURB & GUTTER 30"



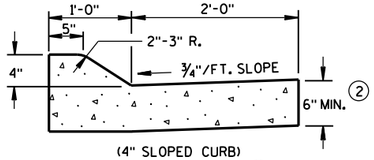
TYPES TBT & TBTT ①

CONCRETE CURB & GUTTER

TBT & TBTT	"X"
30"	22"
36"	28"

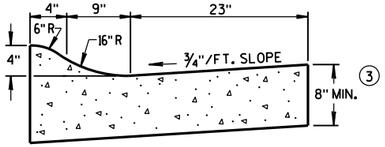


(6" SLOPED CURB)



(4" SLOPED CURB)

TYPES A & D ①



4" SLOPED CURB TYPES R & T ① ④

CONCRETE CURB & GUTTER 36"

GENERAL NOTES

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

PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

INTEGRAL CURB & GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB & GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE. A LONGITUDINAL CONSTRUCTION JOINT IS NOT REQUIRED WITH INTEGRAL CURB AND GUTTER.

WHERE THE TRANSVERSE JOINTS IN THE PAVEMENT ARE REQUIRED TO BE SEALED, THE JOINTS IN THE INTEGRAL CURB AND GUTTER SHALL BE SEALED TO THE FACE OF CURB WITH THE SAME TYPE OF SEALANT. THE COST OF FURNISHING AND INSTALLING THIS SEALANT SHALL BE INCIDENTAL TO THE ITEM CONCRETE CURB AND GUTTER.

UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE AGGREGATE AND COMMON EXCAVATION LIMITS ARE 2'-0" BEHIND THE BACK OF CURBS.

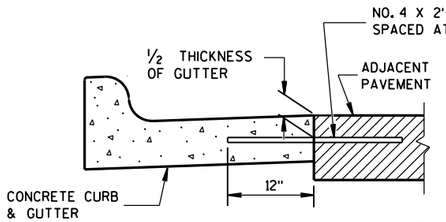
① TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K, R AND TBTT.

② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.

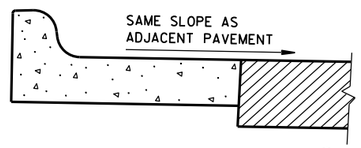
③ THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.

④ THE FACE OF CURB IS 6" FROM THE BACK OF CURB.

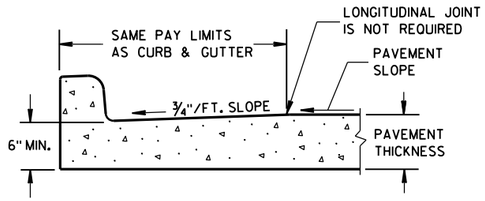
⑤ WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.



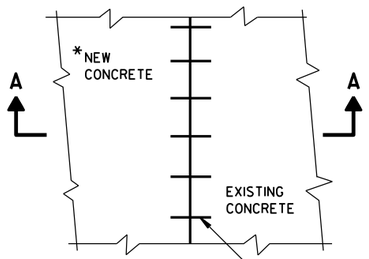
TYPICAL TIE BAR LOCATION ①



REVERSE SLOPE GUTTER ⑤
(TYPICAL FOR ALL CURB & GUTTER TYPES)

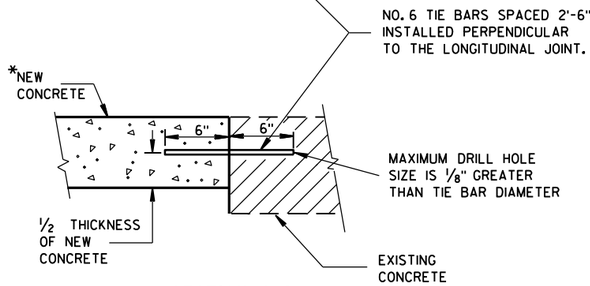


PARTIAL SECTION OF PAVEMENT
WITH INTEGRAL CURB & GUTTER



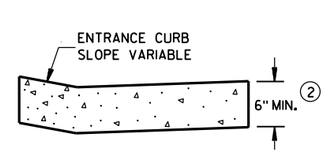
PLAN VIEW

*NEW CURB & GUTTER, SURFACE DRAINS, CONCRETE PAVEMENT OR OTHER NEW CONCRETE.

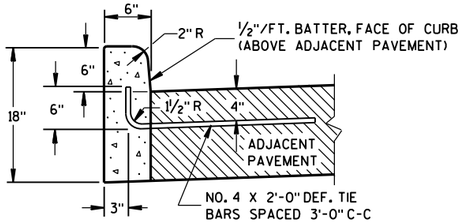


SECTION A-A

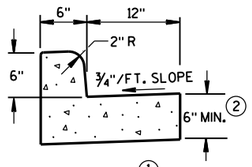
TIE BARS DRILLED
INTO EXISTING PAVEMENT



DRIVEWAY ENTRANCE CURB
(WHEN DIRECTED BY THE ENGINEER)

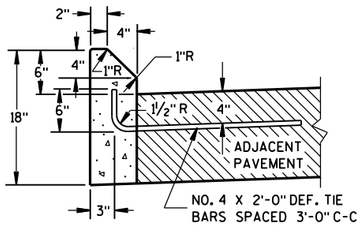


① TYPES A & D

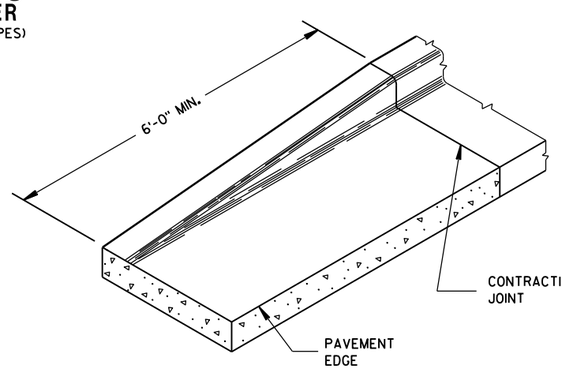


① TYPES A & D

CONCRETE CURB & GUTTER 18"



① TYPES G & J



END SECTION CURB & GUTTER

CONCRETE CURB

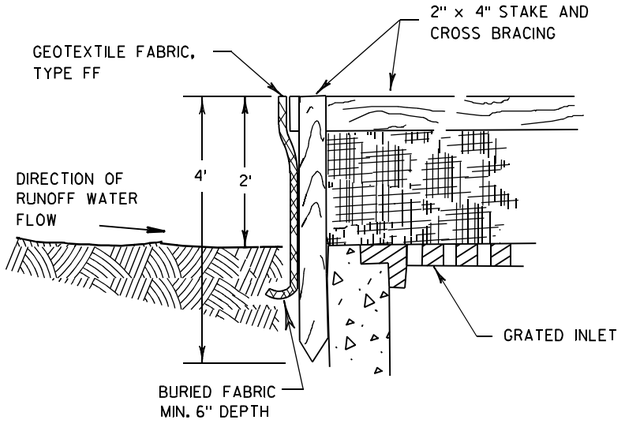
CONCRETE CURB, CONCRETE CURB & GUTTER AND TIES

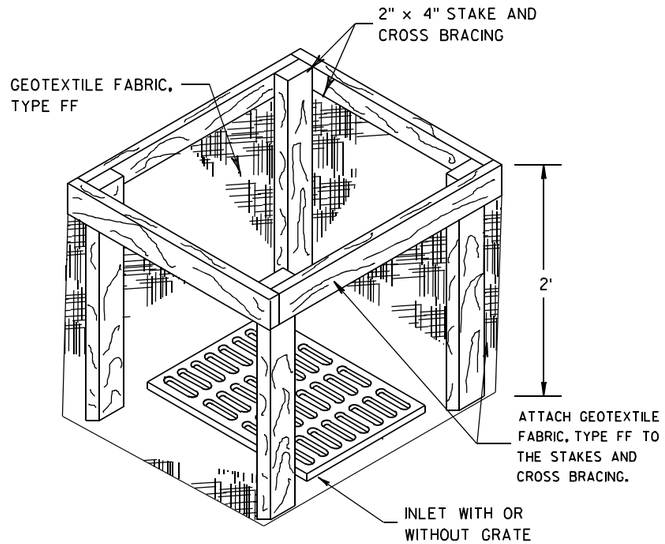
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

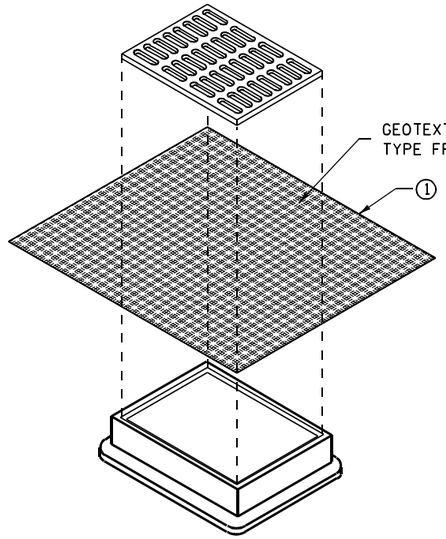
6

S.D.D. 8 D 1-18



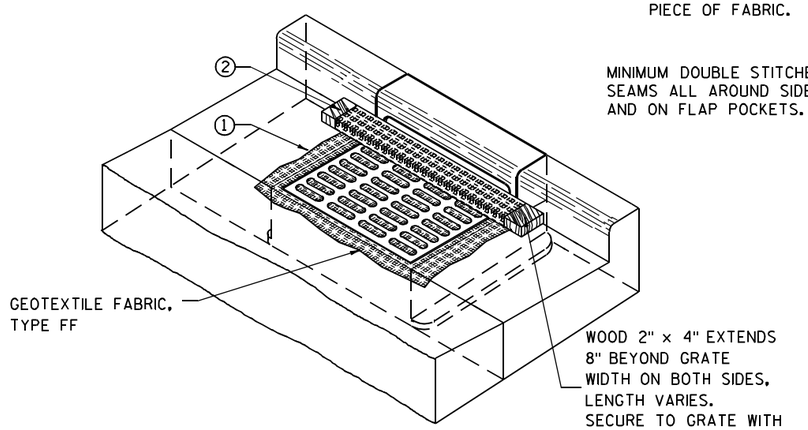


INLET PROTECTION, TYPE A

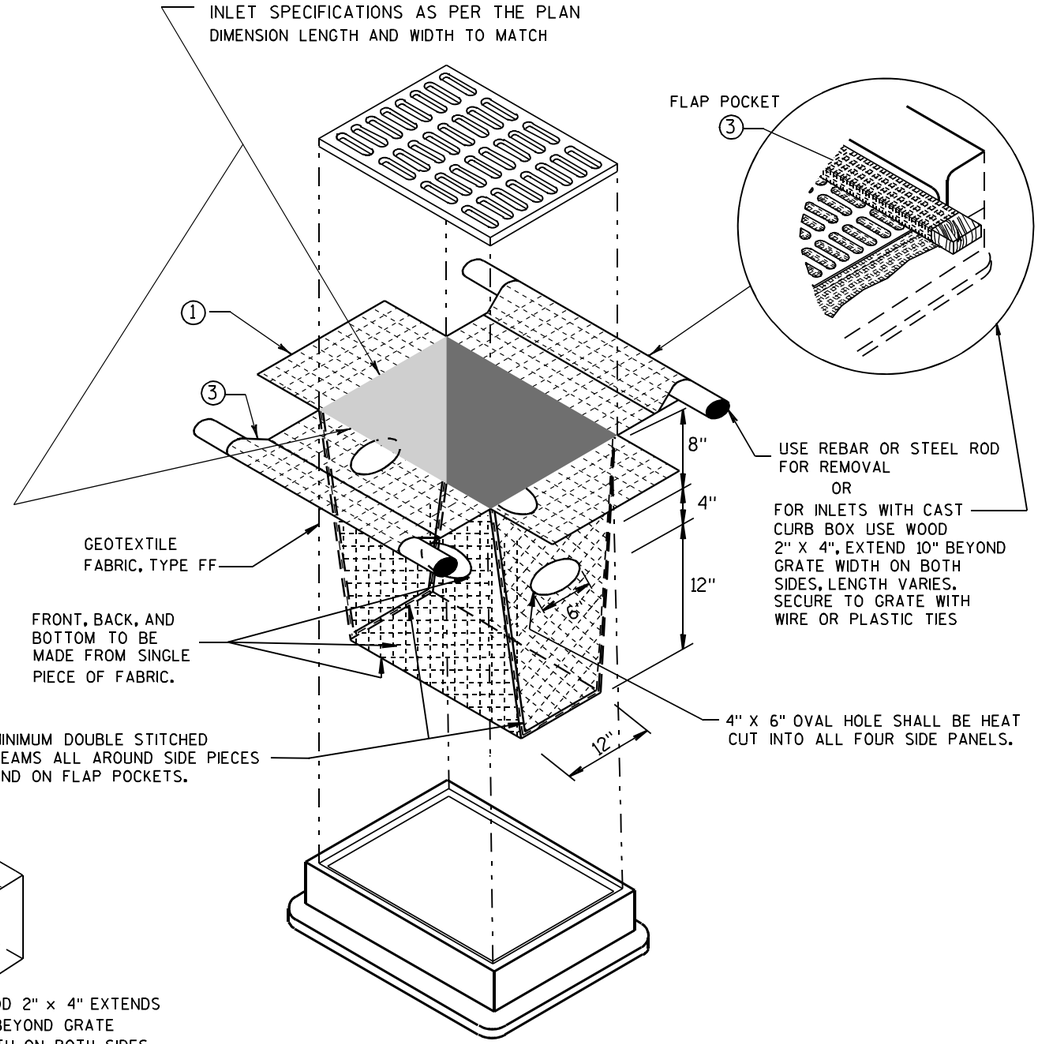


INLET PROTECTION, TYPE B
(WITHOUT CURB BOX)

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



INLET PROTECTION, TYPE C (WITH CURB BOX)



INLET PROTECTION, TYPE D

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

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.

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.

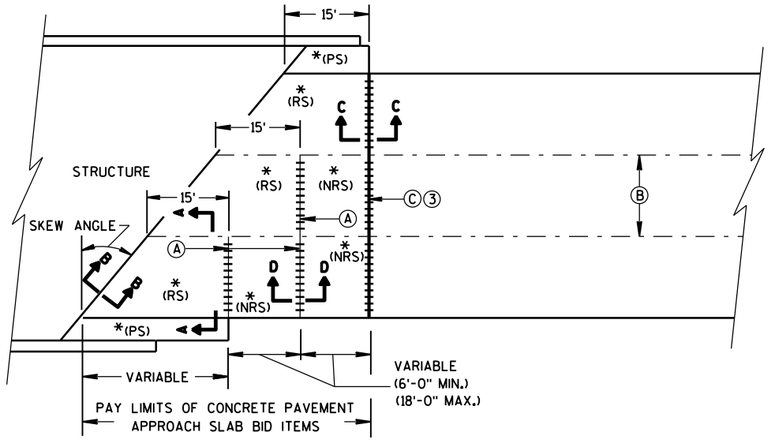
THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE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

INLET PROTECTION
TYPE A, B, C, AND D

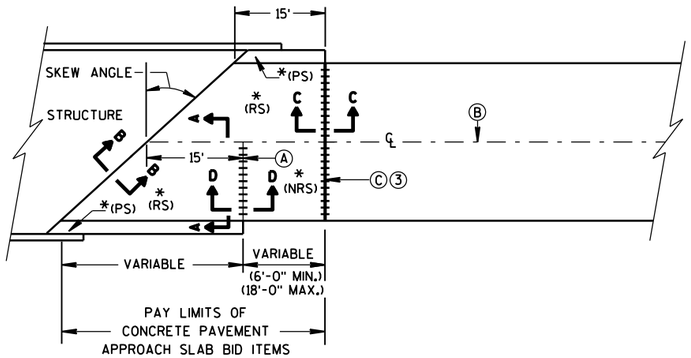
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/16/02
DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

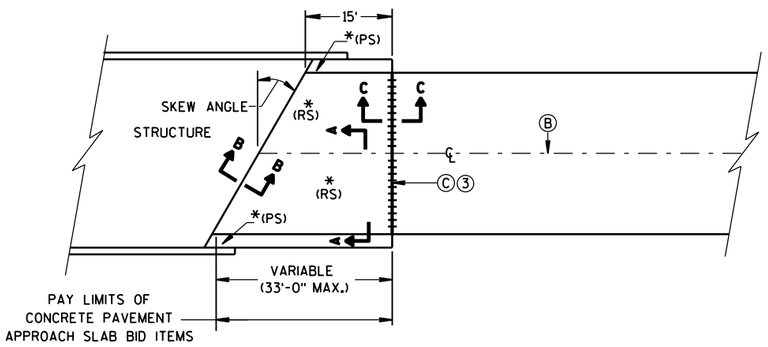
6
S.D.D. 8 E 10-2



SKEWED APPROACH
(PAVEMENT MORE THAN 2 LANES)



SKEWS >20°
(PAVEMENT WIDTH ≤30')



SKEWS ≤20°
(PAVEMENT WIDTH ≤30')

APPROACH SLAB AND ADJACENT PAVEMENT

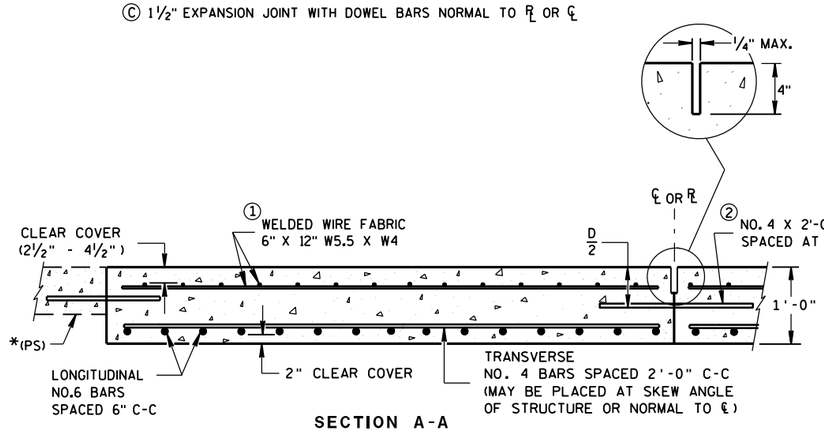
*(RS) = REINFORCED CONCRETE SLAB
*(PS) = PAVED CONCRETE SHOULDER OR CONCRETE DRAINAGE SLAB
(SEE DETAILS ELSEWHERE IN THE PLAN)
*(NRS) = NON-REINFORCED CONCRETE SLAB

***STANDARD DOWEL BAR DIAMETER
(SEE SDD 13C11, & SDD 13C13)

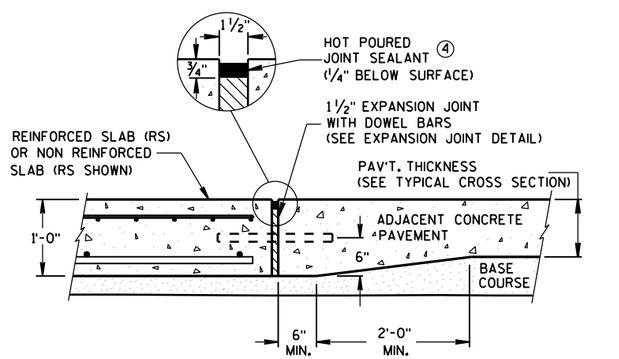
Ⓐ STANDARD CONTRACTION JOINT NORMAL TO ℄ OR ℄

Ⓑ STANDARD LONGITUDINAL JOINT WITH TIE BARS.

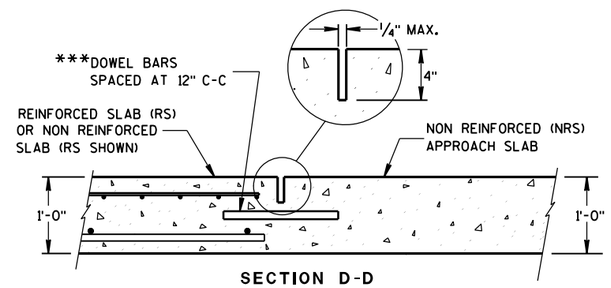
Ⓒ 1½" EXPANSION JOINT WITH DOWEL BARS NORMAL TO ℄ OR ℄



SECTION A-A
REINFORCEMENT POSITIONING DETAIL



SECTION C-C
TRANSITION DETAIL
APPROACH SLAB TO ADJACENT PAVEMENT



SECTION D-D
CONTRACTION JOINT

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.

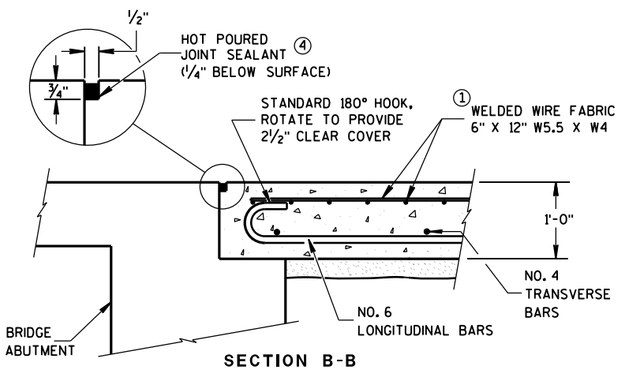
① THE CONTRACTOR MAY USE NO. 4 BARS SPACED AT 2'-0" C-C IN BOTH THE LONGITUDINAL AND TRANSVERSE DIRECTIONS FOR TOP REINFORCEMENT AS AN ALTERNATIVE TO THE WELDED WIRE FABRIC.

② THE CONTRACTOR MAY OMIT TIE BARS BETWEEN REINFORCED SLABS WHERE SLAB REINFORCEMENT BARS EXTEND ACROSS THE CENTERLINE OR REFERENCE LINE.

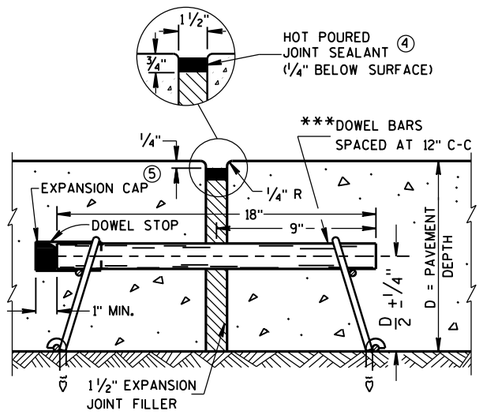
③ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING AN HMA PAVEMENT.

④ USE A JOINT SEALANT MEETING THE REQUIREMENTS OF ASTM D6690.

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.



SECTION B-B
BEND DETAIL
BOTTOM REINFORCEMENT



EXPANSION JOINT DETAIL

CONCRETE PAVEMENT APPROACH SLAB

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

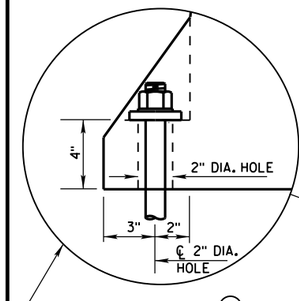
APPROVED
June, 2015
DATE
/S/ Peter Kemp, P.E.
PAVEMENT SUPER
FHWA

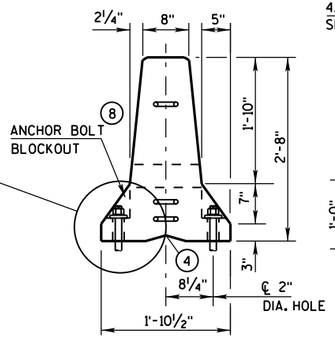
6

S.D.D. 13 B 2-8a

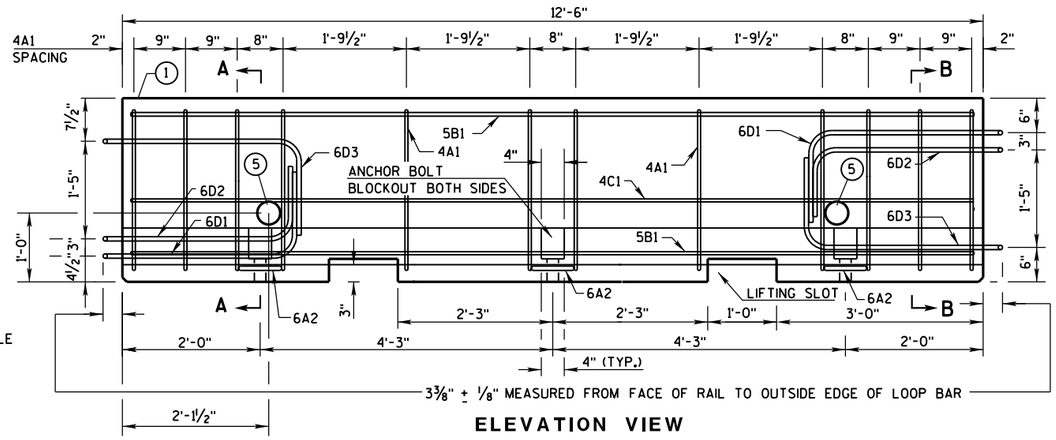
6

S.D.D. 13 B 2-8a

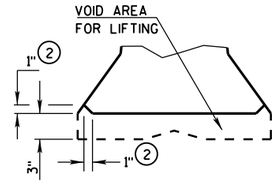




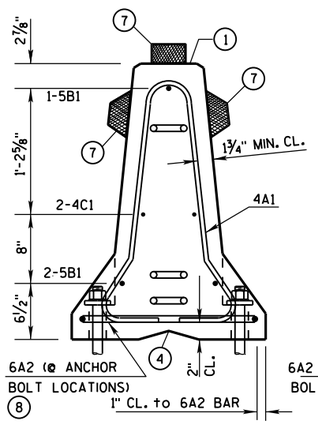
END VIEW



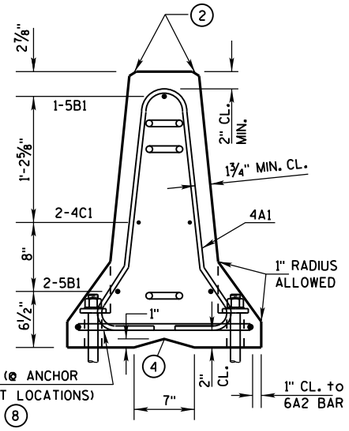
ELEVATION VIEW



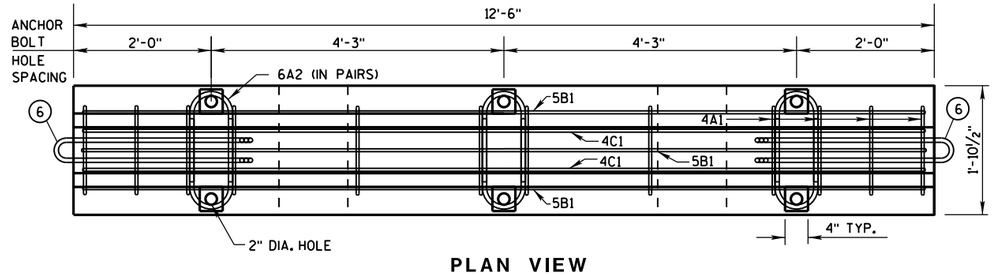
DETAIL "B"
LIFTING SLOT DETAIL



SECTION A-A
(STIRRUP PLACEMENT)

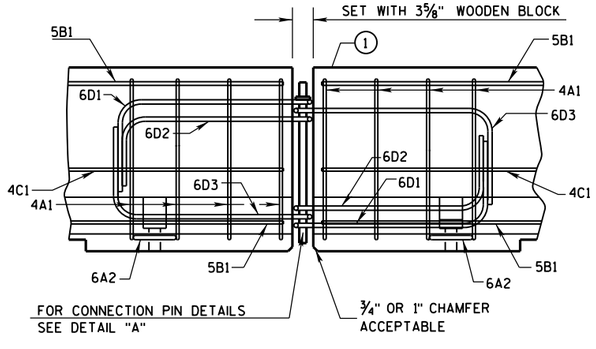


SECTION B-B
(STIRRUP PLACEMENT)

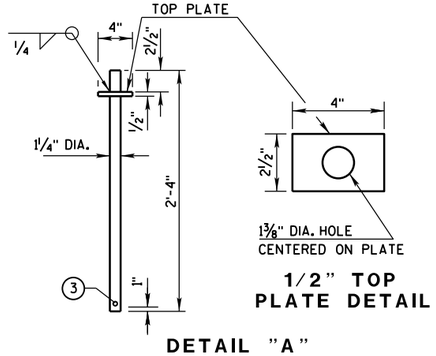


PLAN VIEW

DETAILS OF BARRIER SECTION

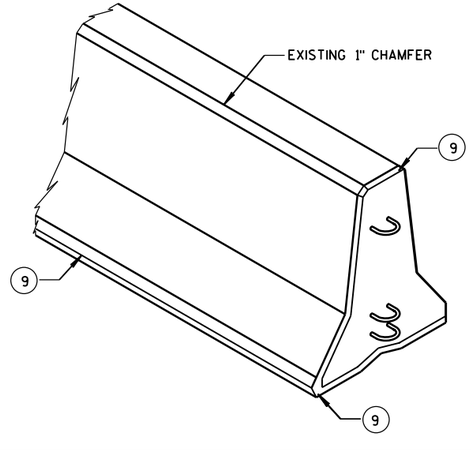


DETAILS OF BARRIER CONNECTION



1/2" TOP
PLATE DETAIL

DETAIL "A"
CONNECTION PIN
(A36 STEEL (10.9 LB EACH))



GENERAL NOTES

THESE GENERAL NOTES APPLY TO SHEETS 14B7-14(a) THRU 14B7-14(h).

DO NOT INTERMIX CONCRETE BARRIER TEMPORARY PRCAST, 12'-6" (CBTP12.5) WITH OTHER TEMPORARY CONCRETE BARRIERS.

USE ASTM A-615, GRADE 60, DEFORMED STEEL BARS FOR BARS 4A1, 6A2, 5B1 AND 4C1 IN THE BARRIER SECTION AND FOR 4V1, 4V2, 4V3, 4V4, 4V5, 4V6, 4F1, 4F2 AND 5F3 IN THE BARRIER TAPER SECTION.

LOOP BARS 6D1, 6D2 AND 6D3 SHALL BE ¾" SMOOTH STEEL BARS WITH A MINIMUM YIELD STRENGTH OF 60 KSI, A TENSILE STRENGTH OF NOT LESS THAN 1.25 TIMES THE YIELD STRENGTH BUT A MINIMUM OF 80 KSI, A MINIMUM 14% ELONGATION IN 8 INCHES AND PASSING A 180 DEGREE BEND TEST USING A 3-½" PIN BEND DIAMETER FOR BEND TESTS. THE LOOPS SHALL BE INSTALLED WITHIN ⅛" OF THE PLAN DIMENSION.

CONSTRUCT LIFTING SLOTS AS SPECIFIED ON THE PLANS TO FACILITATE THE DRAINAGE OF WATER AFTER INSTALLATION.

PLACE BARRIER ON A PAVED SURFACE. REMOVE ALL LOOSE DIRT AND SAND FROM THE ROADWAY SURFACE PRIOR TO PLACEMENT OF THE BARRIER.

INSTALL MECHANICAL OR ADHESIVE ANCHORS PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE MANUFACTURER'S INFORMATION TO PROJECT ENGINEER.

(1) MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
- a. TYPE: WI CBTP
- b. MANUFACTURER
- c. DATE MANUFACTURED (MONTH AND YEAR)

(2) 1" CHAMFER TO PREVENT SPALLING.

(3) A ⅜" HOLE IN THE CONNECTION PIN, AT THE LOCATION SHOWN, IS ACCEPTABLE, BUT NOT REQUIRED..

(4) "V" NOTCH IS OPTIONAL.

(5) THE 4" DIAMETER, 11 GAUGE STEEL, ROUND MECHANICAL TUBING SLEEVE FOR LIFTING (OPTIONAL).

(6) NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.

(7) USE DELINEATORS CONFORMING TO SECTION 633 OF THE STANDARD SPECIFICATIONS. CONTRACTOR MAY USE ALTERNATE SHAPES AND HOUSING. INSTALL DELINEATORS ACCORDING TO MANUFACTURES INSTRUCTION. INSTALL YELLOW REFLECTORS WHEN BARRIER IS LOCATED TO THE LEFT OF TRAFFIC AND WHITE REFLECTORS WHEN BARRIER IS LOCATED TO THE RIGHT OF TRAFFIC. SPACE DELINEATORS A MAXIMUM OF 25 FEET APART. PROVIDE TOP MOUNTED DELINEATORS IN ADDITION TO THE SIDE MOUNTED DELINEATORS ON ALL BARRIER INSTALLATIONS LOCATED ON A CURVED ALIGNMENT LONGER THAN 200 FEET AND ON BARRIERS USED TO SEPARATE OPPOSING TRAFFIC.

(8) SEE SHEET D FOR ANCHORING CRITERIA.

(9) 1" CHAMFER OPTIONAL.

CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

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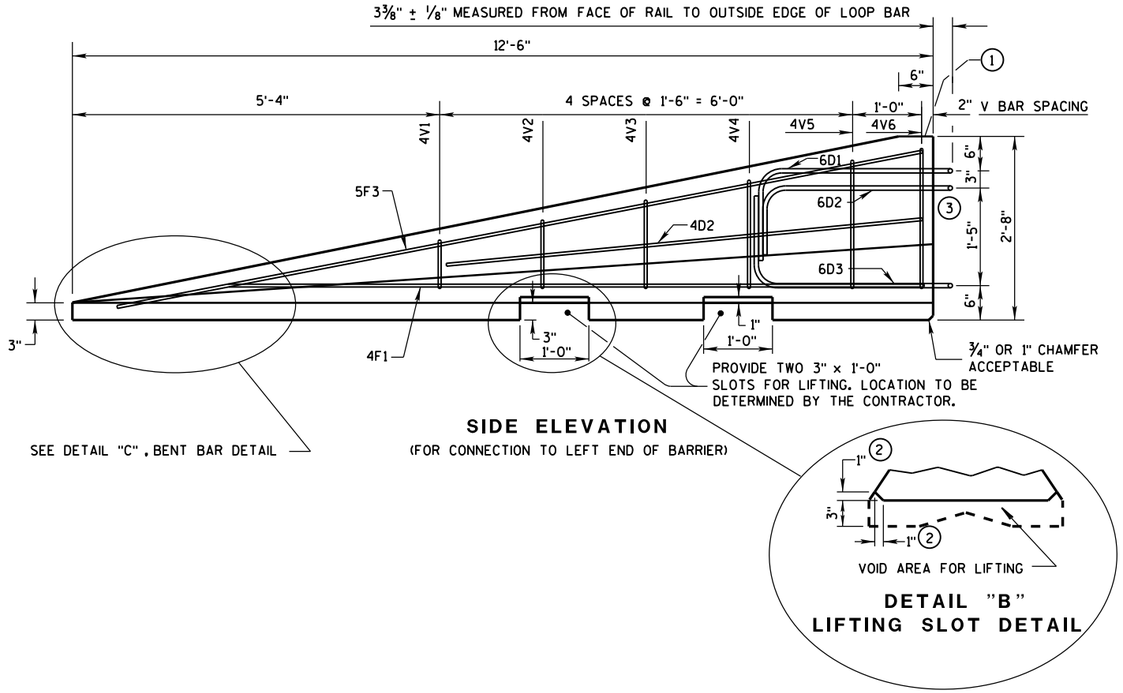
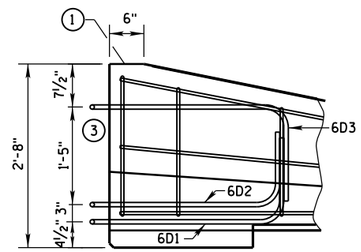
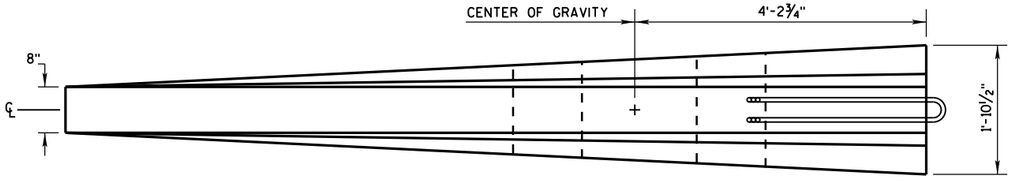
S.D.D. 14 B 7-14a

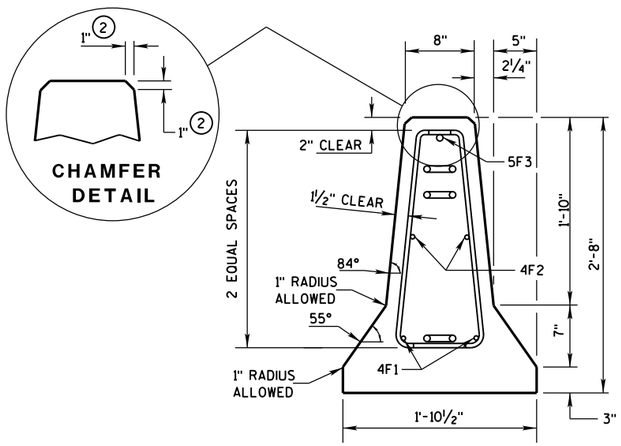


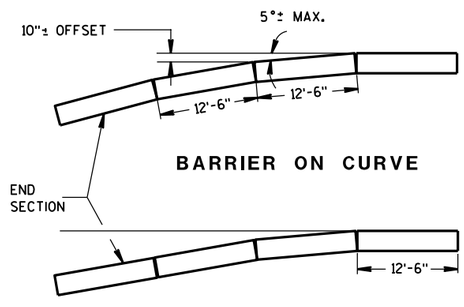


GENERAL NOTES

1. MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
   a. TYPE WICBTP
   b. MANUFACTURER
   c. DATE MANUFACTURED (MONTH AND YEAR)
2. 1" CHAMFER TO PREVENT SPALLING.
3. NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.







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

DETAILS OF BARRIER TAPER SECTION

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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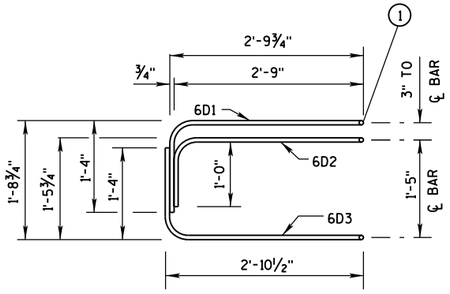
S.D.D. 14 B 7-14b

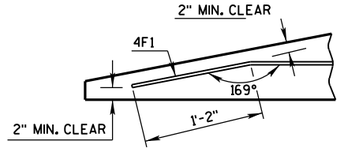
BARRIER TAPER SECTION BILL OF MATERIALS

(PER 12'-6" BARRIER TAPER SECTION)

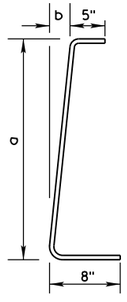
BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4V1	4	2	1'-11"
4V2	4	2	2'-2"
4V3	4	2	2'-6"
4V4	4	2	2'-9"
4V5	4	2	3'-2"
4V6	4	2	3'-4"
4F1	4	2	12'-0"
4F2	4	2	7'-6"
5F3	5	1	11'-9"
LOOP ASSEMBLY			
6D1	6	1	8'-5"
6D2	6	1	7'-7"
6D3	6	1	8'-6"



ELEVATION
LOOP BAR ASSEMBLY



DETAIL "C"
BENT BAR DETAIL



BAR	a	b
V1	10"	1"
V2	1'-1"	1¼"
V3	1'-5"	1⅝"
V4	1'-8"	1⅞"
V5	2'-0½"	2⅜"
V6	2'-3"	2¾"

4V BARS
2 AT EACH SIZE REQUIRED
FOR STIRRUP ASSEMBLY

TAPER BARRIER SECTION

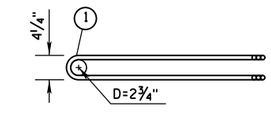
GENERAL NOTES

(1) NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.

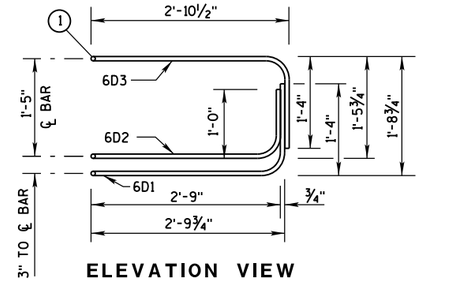
BARRIER SECTION BILL OF MATERIALS

(PER 12'-6" BARRIER SECTION)

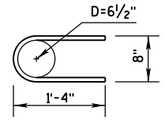
BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4A1	4	12	6'-0"
6A2	6	6	2'-11"
5B1	5	3	12'-2"
4C1	4	2	12'-2"
LOOP ASSEMBLY			
6D1	6	2	8'-5"
6D2	6	2	7'-7"
6D3	6	2	8'-6"



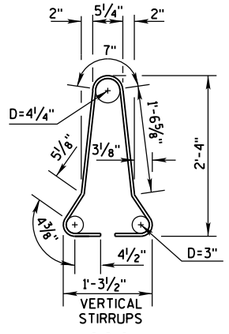
PLAN VIEW
LOOP BAR ASSEMBLY
(MARKED END SHOWN, INVERT FOR OTHER END)



ELEVATION VIEW



6A2



4A1

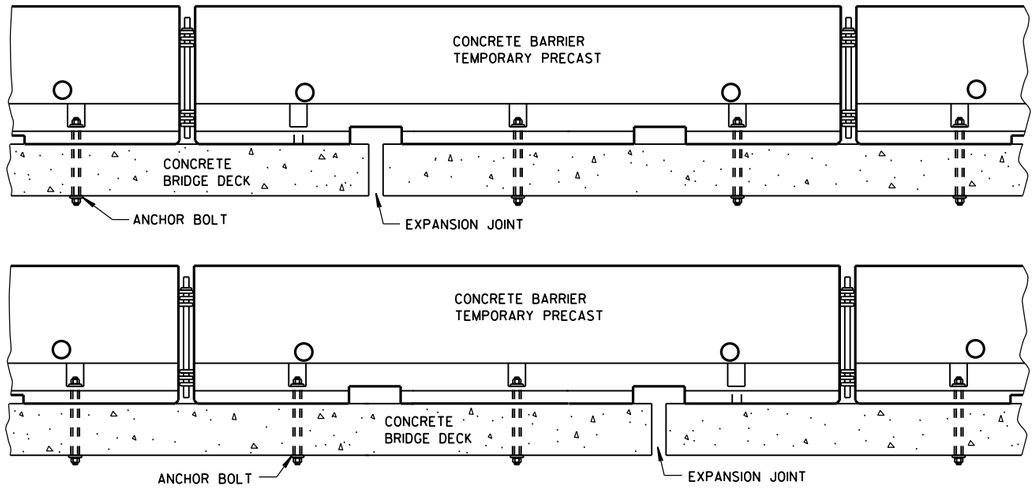
BARRIER SECTION

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

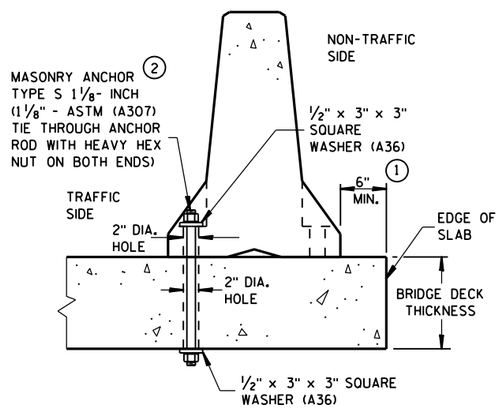
6

S.D.D. 14 B 7-14c



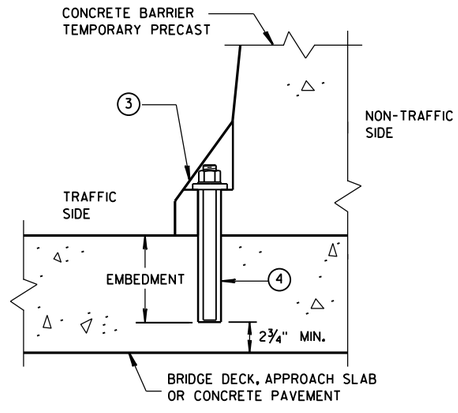
TREATMENT AT BRIDGE DECK EXPANSION JOINTS

(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.)



THROUGH BOLTED ANCHOR INSTALLATION ON BRIDGE DECK

(DO NOTUSE ON CONCRETE BRIDGE DECK WITH ASPHALT OVERLAY)



REMOVABLE ADHESIVE BONDED ANCHOR INSTALLATION ON CONCRETE BRIDGE DECK, CONCRETE APPROACH SLAB, OR CONCRETE PAVEMENT ②

(DO NOT USE ON CONCRETE WITH AN ASPHALTIC OVERLAY)

GENERAL NOTES

① CONCRETE BARRIER TEMPORARY PRECAST, 12'-6" SHALL BE ANCHORED IF:
THE DISTANCE TO A 2 FOOT OR GREATER DROPOFF THAT IS STEEPER THAN 3H : 1V, FOR EXAMPLE THE EDGE OF A BRIDGE DECK OR A DROPOFF AT THE EDGE OF PAVEMENT, IS LESS THAN 4 FEET FROM THE SIDE OF THE BARRIER CLOSEST TO THE DROPOFF AND THE POSTED SPEED IS 45 MPH OR GREATER, OR

THE DISTANCE TO A 2 FOOT OR GREATER DROPOFF THAT IS STEEPER THAN 3H : 1V, FOR EXAMPLE THE EDGE OF A BRIDGE DECK OR A DROPOFF AT THE EDGE OF PAVEMENT, IS LESS THAN 2 FEET FROM THE SIDE OF THE BARRIER CLOSEST TO THE DROPOFF AND THE POSTED SPEED IS 40 MPH OR LESS.

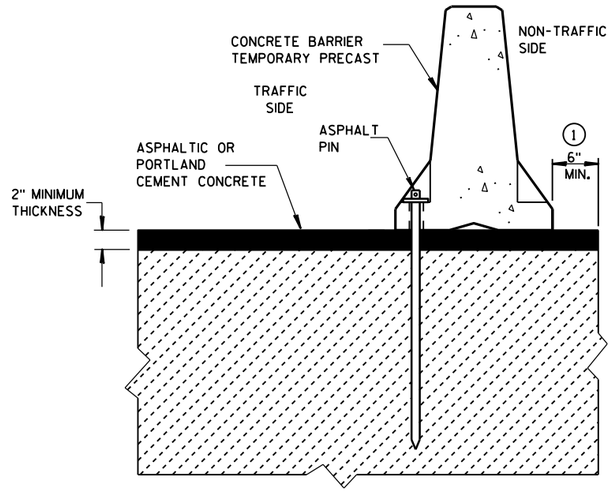
② ANCHORING IS INCIDENTAL TO CONCRETE BARRIER TEMPORARY PRECAST.

WITH THE APPROVAL OF THE ENGINEER, REMOVABLE ADHESIVE BONDED ANCHOR BOLT INSTALLATION MAY BE USED IN LIEU OF THROUGH BOLTED ANCHOR INSTALLATION. THE ADHESIVE BONDED ANCHOR BOLT MUST BE REMOVABLE. USE ASTM (A307) MASONRY ANCHORS TYPE S 1⅛-INCH, EMBEDDED TO A DEPTH SUFFICIENT TO DEVELOP THE ULTIMATE CAPACITY OF THE ANCHOR BOLT AND PROVIDE DOCUMENTATION TO CONFIRM THIS.

UPON REMOVAL OR RELOCATION OF THE BARRIER UNITS, REMOVE ALL ANCHOR BOLTS AND COMPLETELY FILL IN THE REMAINING HOLES IN CONCRETE BRIDGE DECKS, CONCRETE APPROACH SLABS AND CONCRETE PAVEMENTS THAT ARE TO REMAIN, WITH A NON-SHRINK COMMERICAL GROUT OR MATERIAL IDENTIFIED ON THE CURRENT WISDOT APPROVED PRODUCTS LIST.

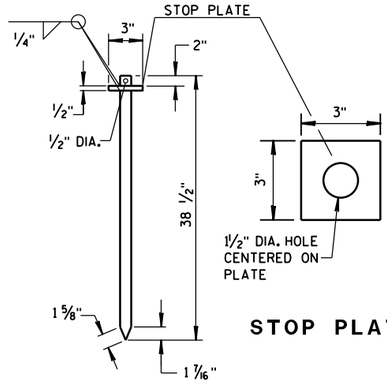
③ 1⅛" DIAMENTER A307 THREADED ROD, ½" X 3" X 3" SQUARE PLATE WASHER WITH ASTM A36 STEEL, ASTM A563A HEAVY HEX NUT.

④ ADHESIVE ANCHORS WITH A MINIMUM BOND STRENGTH OF 1,800 PSI AND 5¼" EMBEDMENT. SEE 603.2 AND 603.3.1.2 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.



STAKE DOWN INSTALLATION FOR ASPHALTIC OR PORTLAND CEMENT CONCRETE SURFACE

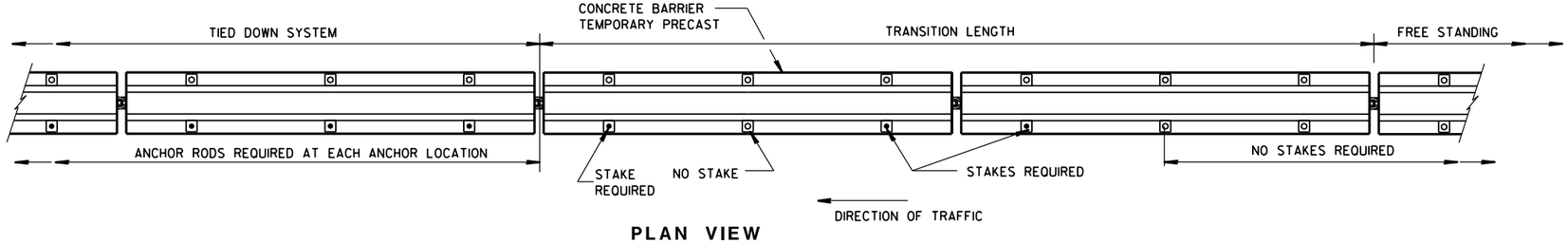
(STAKING IS INCIDENTAL TO CONCRETE BARRIER TEMPORARY PRECAST)



STOP PLATE

ASPHALT PIN

(ASTM A36 STEEL)



PLAN VIEW

FREE STANDING TRANSITION TO TIED-DOWN SYSTEM

(PLACE TRANSITION IN A TANGENT SECTION OF BARRIER PARALLEL TO THE ROADWAY. IF TRANSITION OCCURS ON STRUCTURAL SLAB, ANCHOR AS SHOWN.)

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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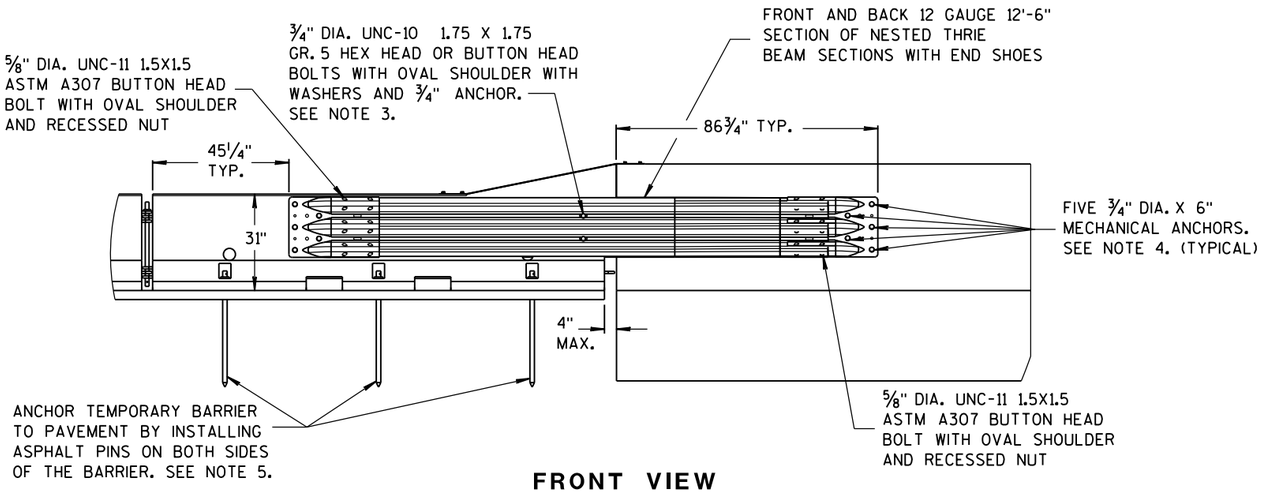
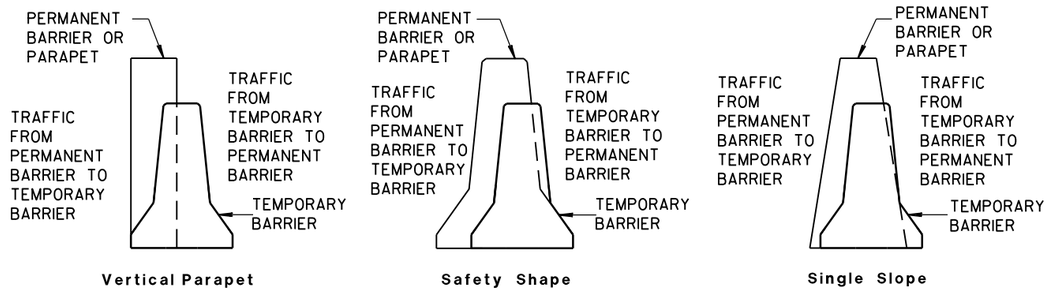
S.D.D. 14 B 7-14d



FRONT VIEW

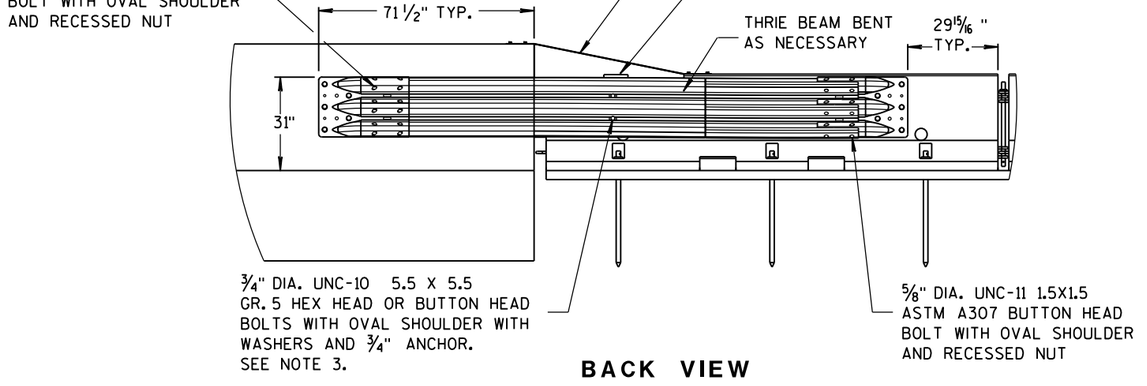


TEMPORARY BARRIER PLACEMENT FOR BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM

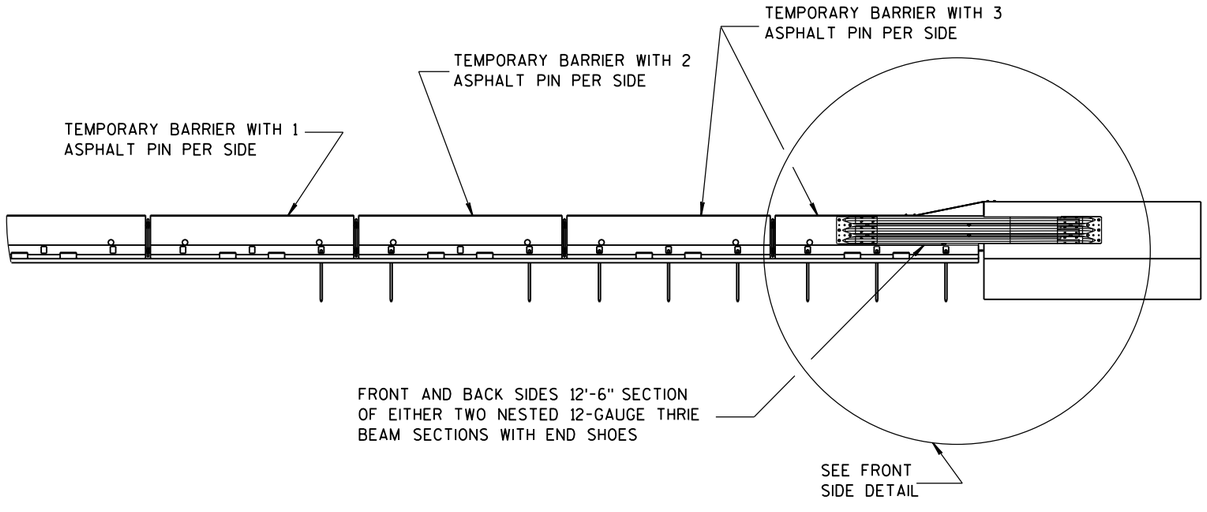
NOTES

NESTED THRIE BEAM IS REQUIRED ON BOTH SIDES OF THE TEMPORARY BARRIER FOR ALL INSTALLATIONS.

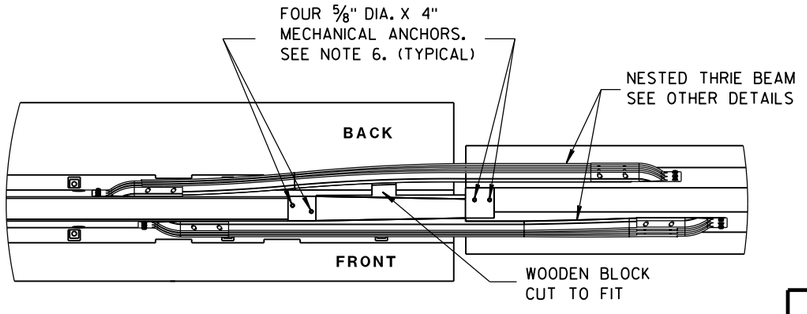
1. CAP END PLATE PLACED FLUSH WITH UPSTREAM END OF PERMANENT BARRIER OR PARAPET.
2. THRIE BEAM PIECES ARE OFFSET 15 1/4" TO PREVENT INTERFERENCE FROM THE ANCHORS ON OPPOSING SIDES.
3. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 9.48 KIPS AND ULTIMATE SHEAR LOAD 10.48 KIPS.
4. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 17.9 KIPS AND ULTIMATE SHEAR LOAD 21.96 KIPS.
5. MAY BE USED ON CONCRETE OR ASPHALT PAVEMENTS. ASPHALT OPTION SHOWN. FOR CONCRETE OPTION SEE OTHER DETAILS.
6. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 12.14 KIPS AND ULTIMATE SHEAR LOAD 17.5 KIPS.



BACK VIEW



FRONT VIEW



PLAN VIEW

BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

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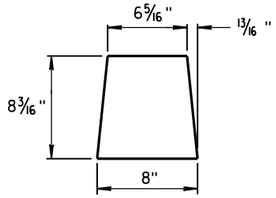
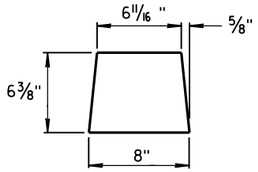
S.D.D. 14 B 7-14e



GUSSET 1



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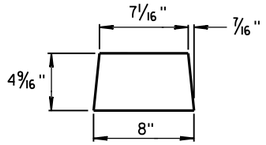
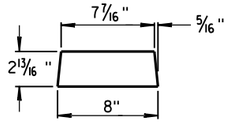
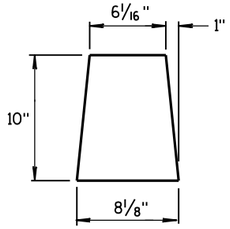


GUSSET 3

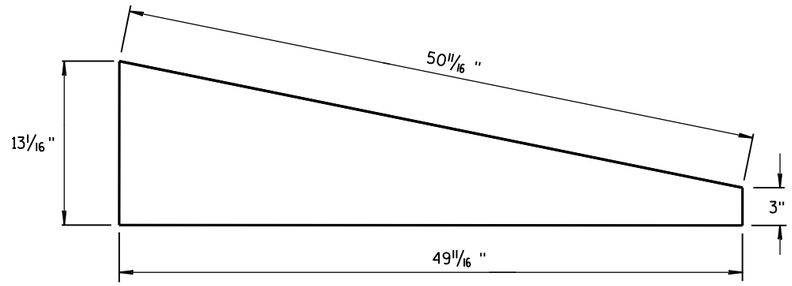


GUSSET 4

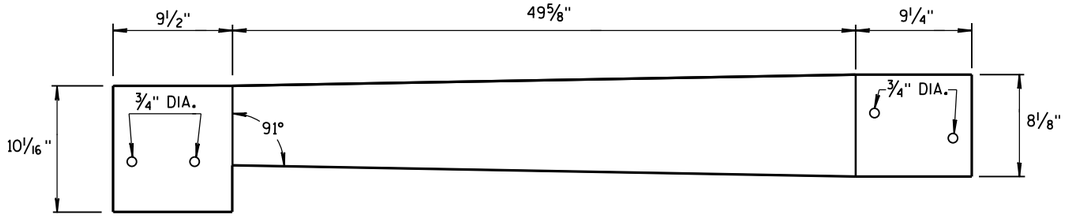
GUSSETS

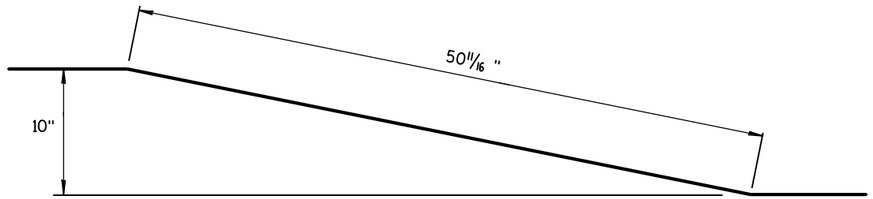


END PLATE



SIDE PLATE

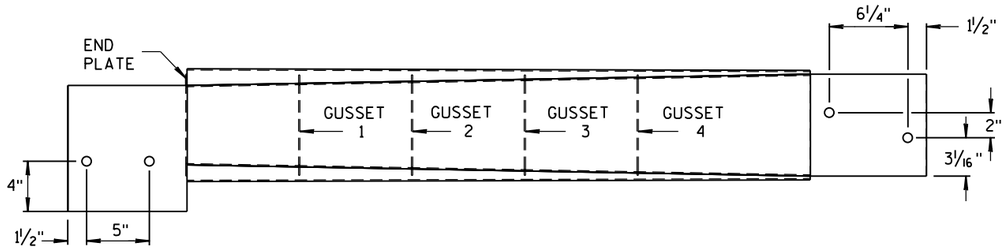


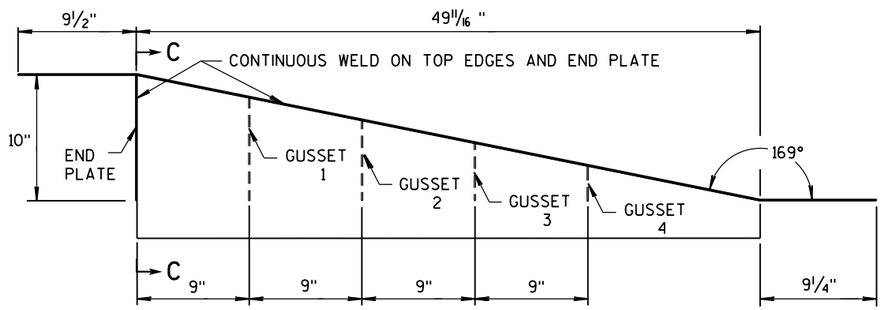


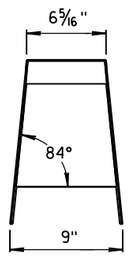
TOP PLATE

SIDE, TOP AND END PLATES FOR CAP FROM TEMPORARY CONCRETE BARRIER TO 42" PERMANENT CONCRETE BARRIER

SIDE PLATES, TOP PLATE, END PLATE AND GUSSETS ARE 12 GAUGE ASTM A36 GALVANIZED STEEL.







SECTION C-C

NOTES

1. FOUR GUSSETS AND END PLATE ARE STITCH WELDED ON THREE SIDES.
2. TWO TRIANGULAR SIDE PLATES ARE STITCH WELDED TO TOP PLATE, END PLATE, AND GUSSETS.

CAP DETAILS FOR TEMPORARY CONCRETE BARRIER TO 42" PERMANENT CONCRETE BARRIER

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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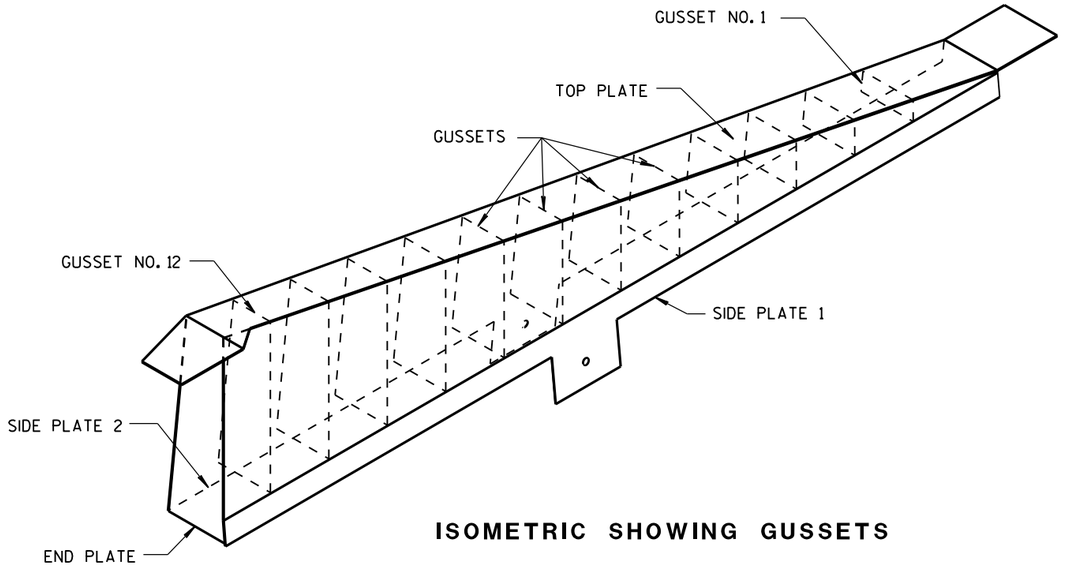
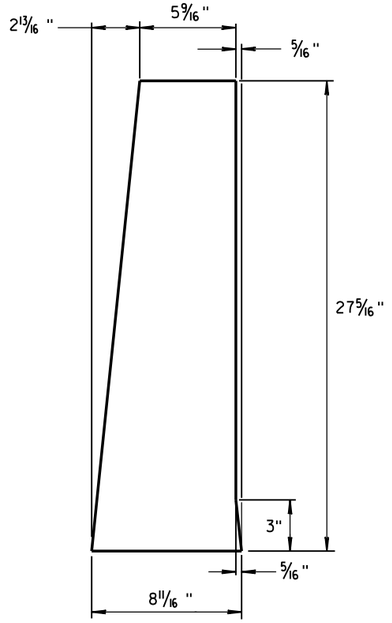
S.D.D. 14 B 7-14f

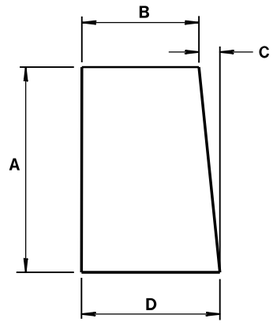


ISOMETRIC SHOWING GUSSETS



END PLATE

1/8" STEEL PLATE



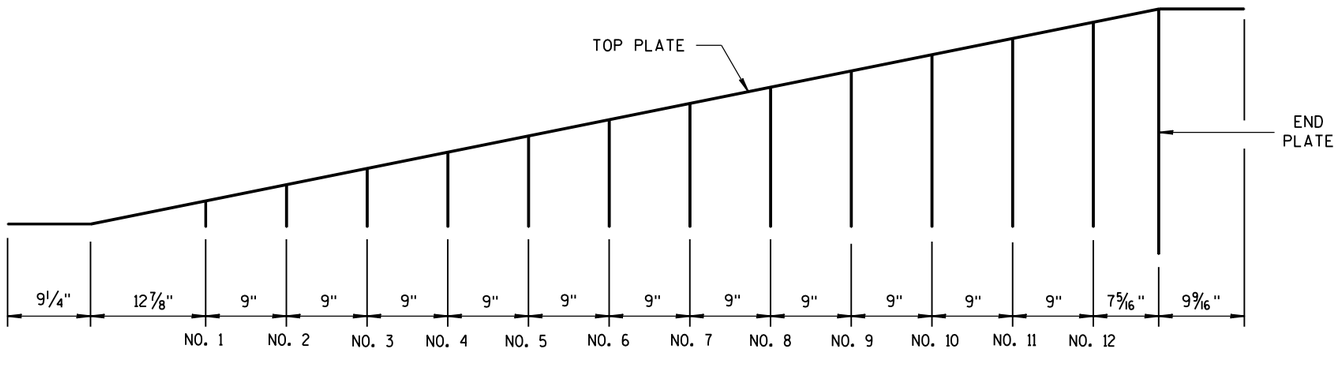
GUSSETS 1 - 12

ALL GUSSETS 1/8" STEEL PLATE

GUSSET DIMENSIONS				
GUSSET NO.	A	B	C	D
1	2 7/8"	7 3/4"	1/4"	8
2	4 11/16 "	7 9/16 "	1/2"	8
3	6 1/2"	7 3/8"	11/16 "	8 1/16 "
4	8 5/16 "	7 3/16 "	7/8"	8 1/16 "
5	10 1/8"	7"	1 1/16 "	8 1/16 "
6	11 15/16 "	6 13/16 "	1 1/4"	8 1/16 "
7	13 3/4"	6 5/8"	1 7/16 "	8 1/16 "
8	15 9/16 "	6 7/16 "	1 9/16 "	8 1/16 "
9	17 3/8"	6 1/4"	1 13/16 "	8 1/16 "
10	19 3/16 "	6 1/16 "	1 15/16 "	8 1/16 "
11	21"	5 7/8"	2 3/16 "	8 1/16 "
12	22 13/16 "	5 11/16 "	2 5/16 "	8 1/16 "

SIDE PLATES, TOP PLATE, END PLATE AND GUSSETS ARE 12 GAUGE ASTM A36 STEEL AND GALVANIZED.

GUSSETS AND END PLATE ARE STITCH WELDED ON 3 SIDES. TWO TRIANGULAR SIDE PLATES ARE STITCH WELDED TO TOP PLATE, END PLATE AND GUSSETS.



GUSSET LOCATION

CAP DETAILS FOR TEMPORARY CONCRETE BARRIER TO 56" PERMANENT CONCRETE BARRIER

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

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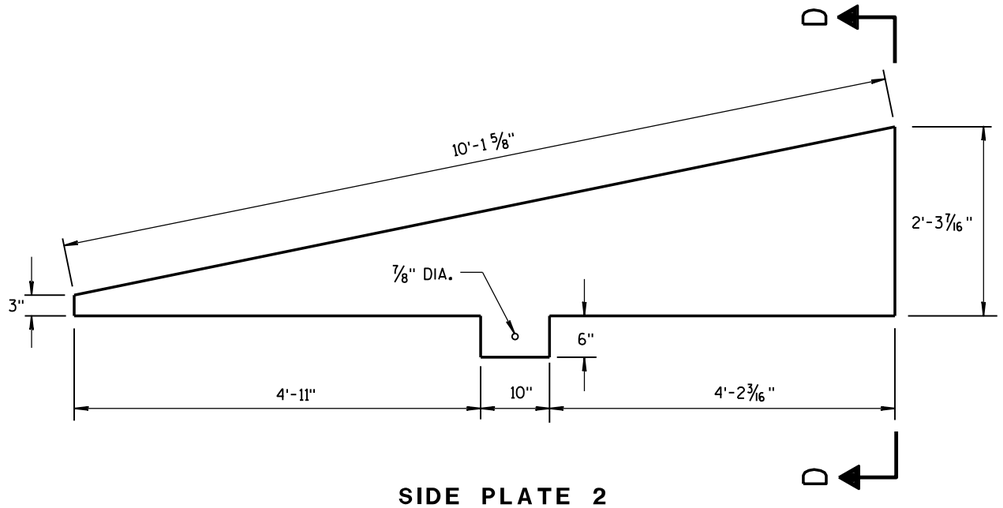
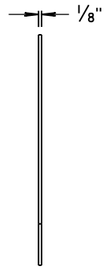
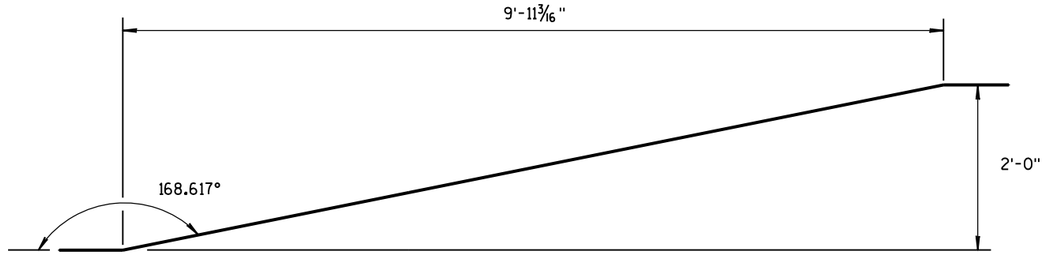
S.D.D. 14 B 7-14g



SIDE PLATE 2

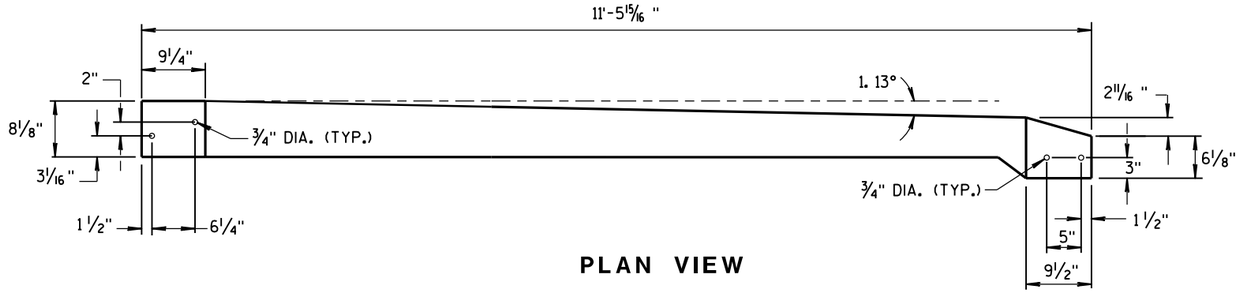


END VIEW



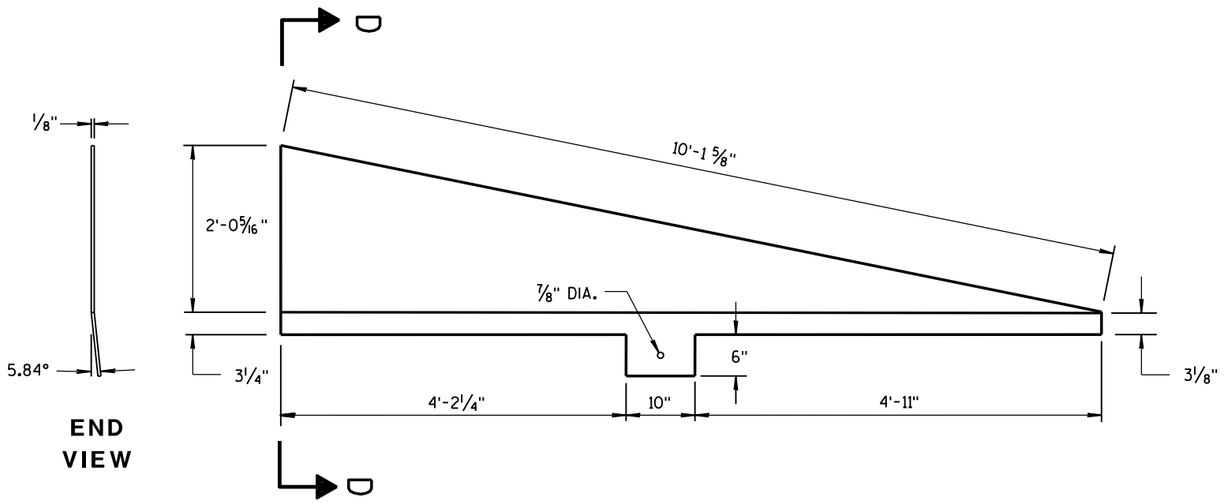
SIDE VIEW

TOP PLATE



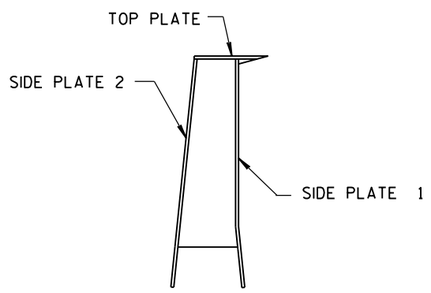
PLAN VIEW

TOP PLATE



END VIEW

SIDE PLATE 1



SECTION D-D

CAP DETAILS FOR TEMPORARY CONCRETE BARRIER TO 56" PERMANENT CONCRETE BARRIER

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2014 — DATE
/S/ Jerry H. Zoda — ROADWAY STANDARD DEVELOPMENT ENGINEER
FHWA

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S.D.D. 14 B 7-14h

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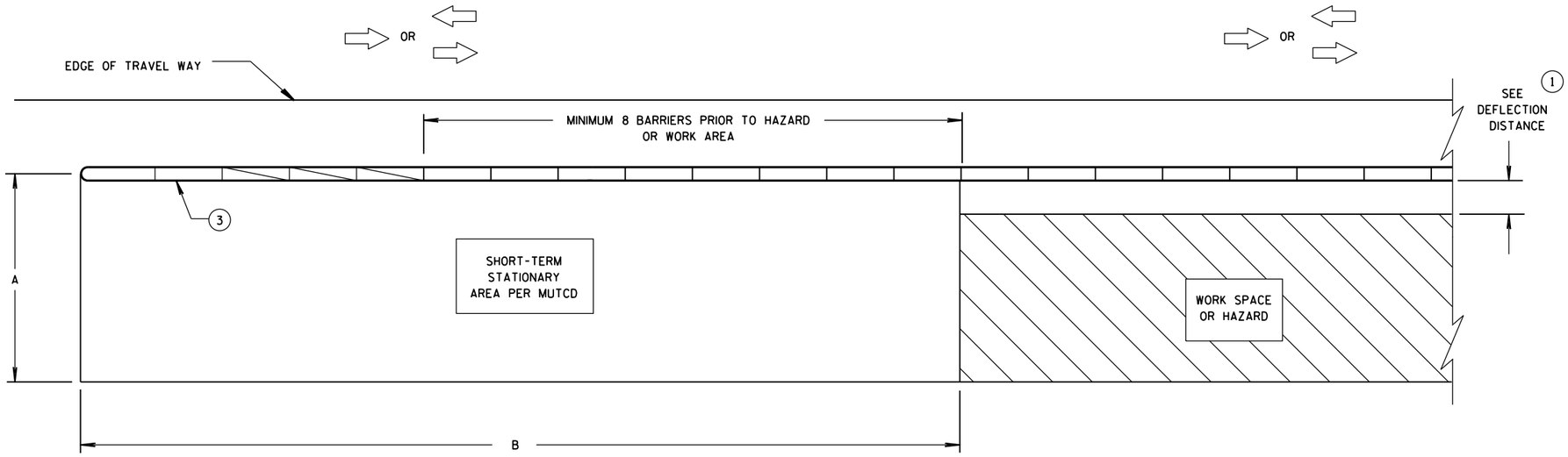
S.D.D. 14 B 7-14h



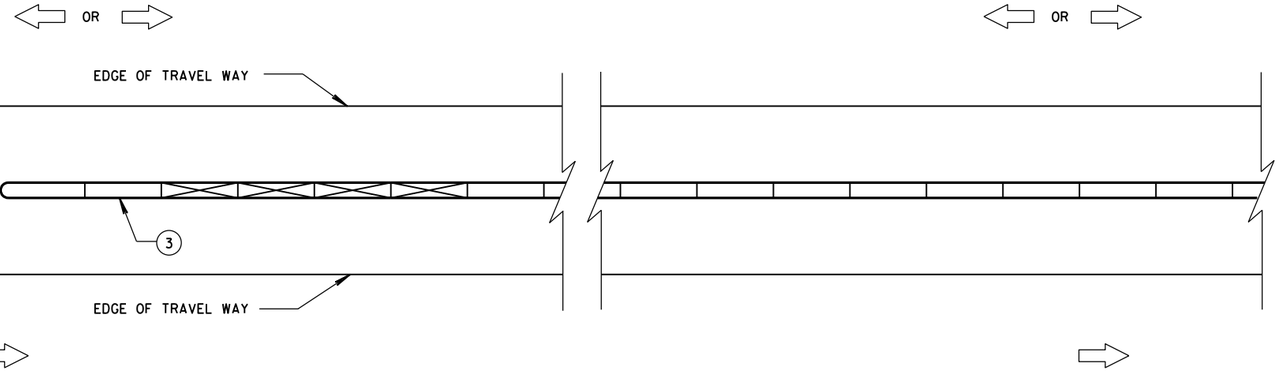
CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER INSTALLATION FOR TRAFFIC ON ONE SIDE OF BARRIER

DIMENSION A TABLE (2)

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

DIMENSION B TABLE (2)

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.

FOR DETAILS ON CRASH CUSHION OR SAND BARREL ARRAYS SEE OTHER SECTIONS OF THE PLAN AND MANUFACTURE'S DETAILS.

SLOPES LEADING TO TEMPORARY BARRIER, CRASH CUSHION OR SAND BARREL ARRAY ARE 10:1 OR LESS.

(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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

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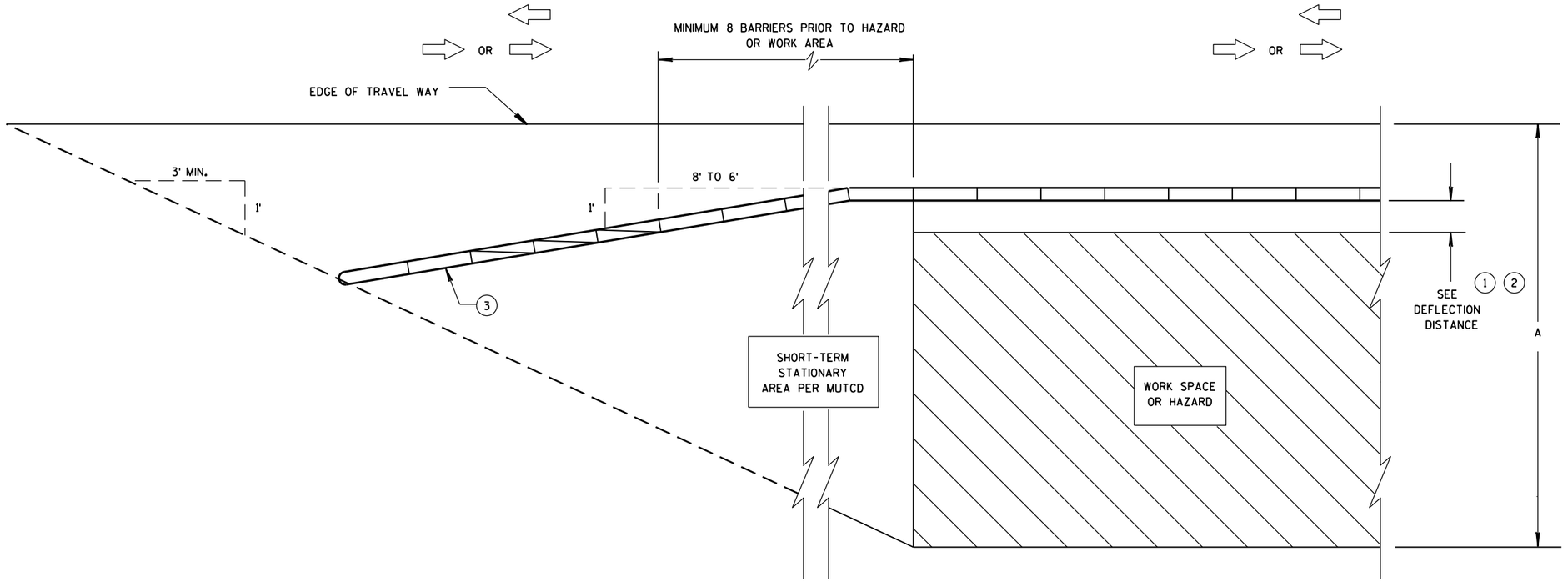
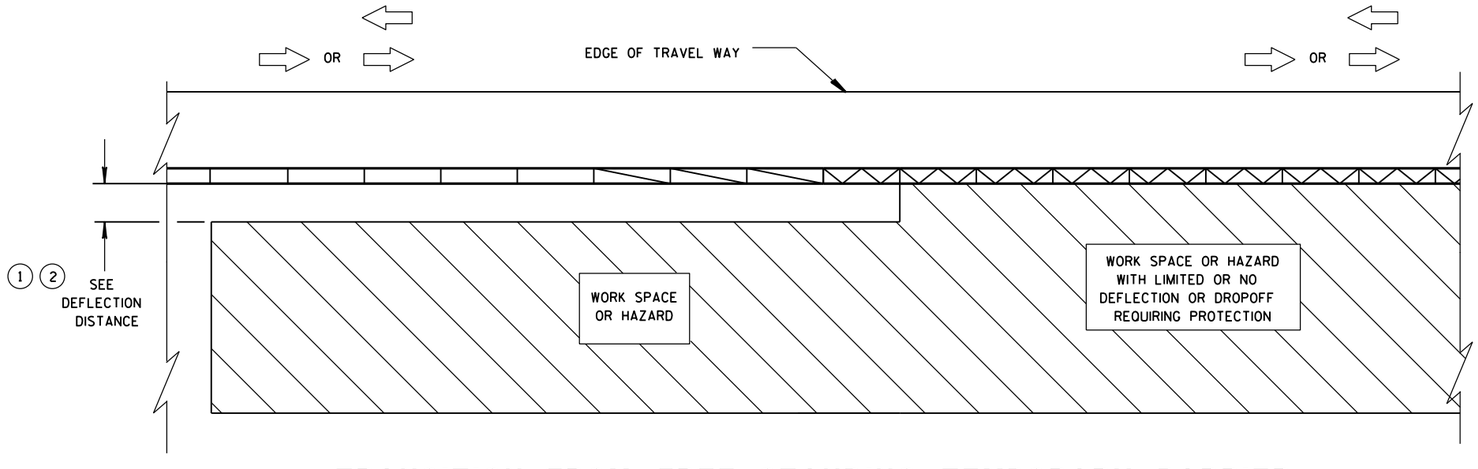
S.D.D. 14 B 8-2a



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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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

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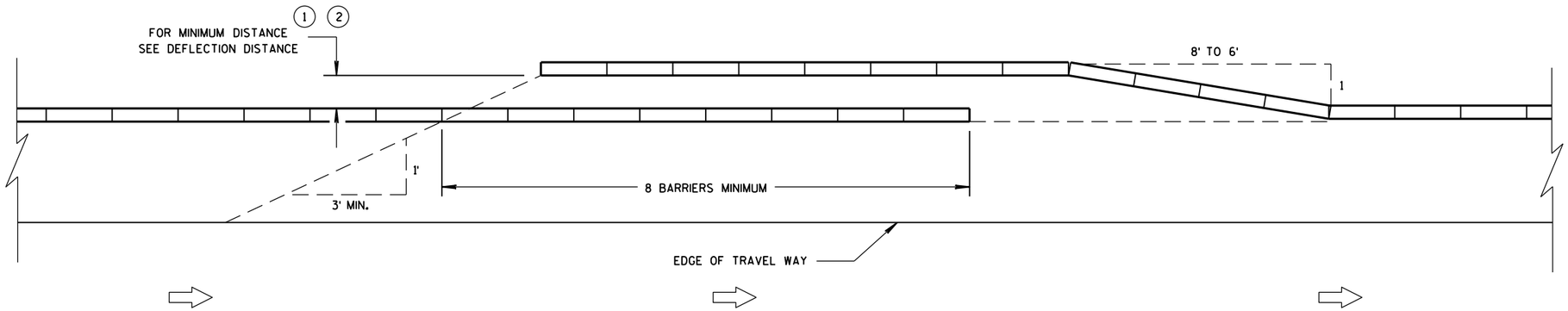
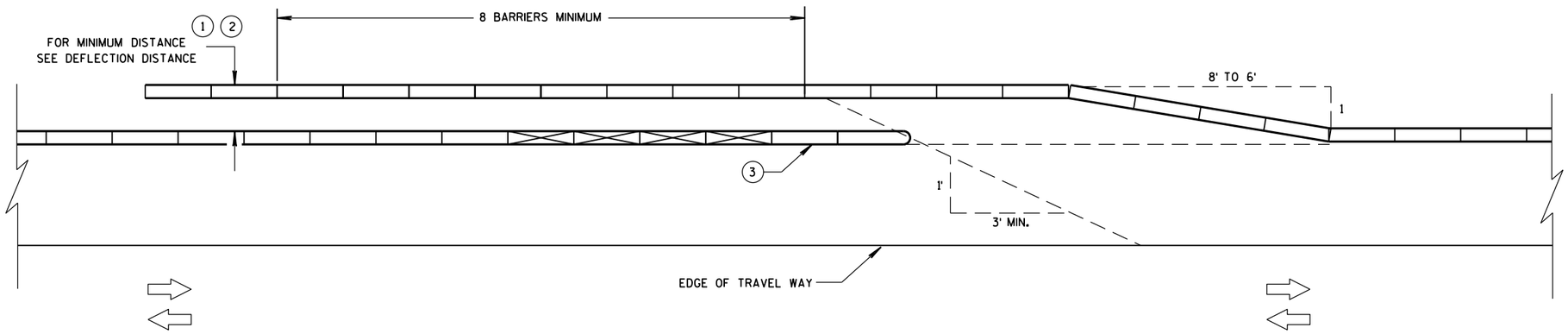
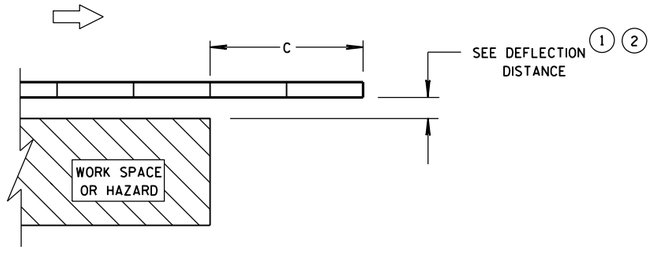
S.D.D. 14 B 8-2b



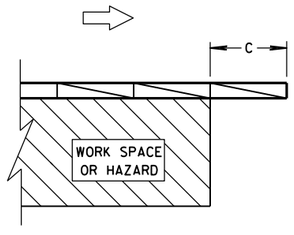
TEMPORARY BARRIER OVERLAP - ONE-WAY TRAFFIC



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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

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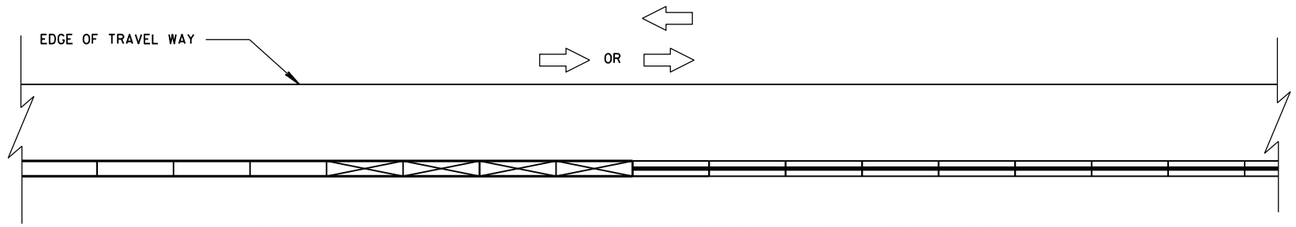
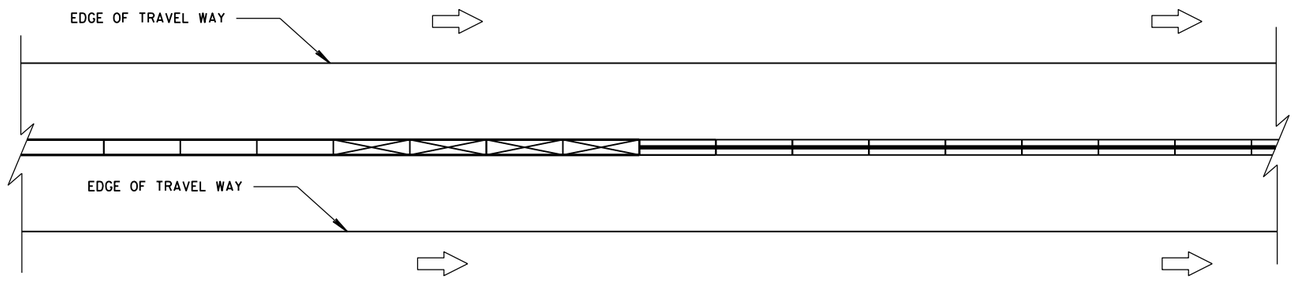
S.D.D. 14 B 8-2c



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

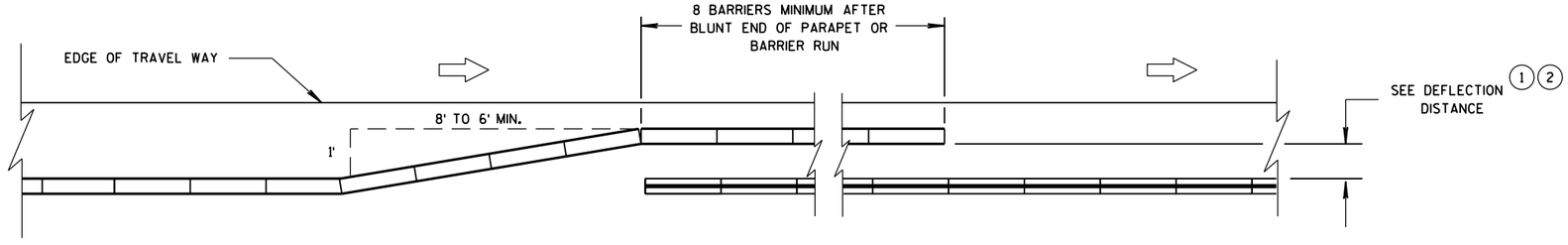
SEE FREE STANDING TRANSITION
TO TIED-DOWN SYSTEM DETAILS

SEE BI-DIRECTIONAL TRANSITION
TO TIED-DOWN SYSTEM DETAILS

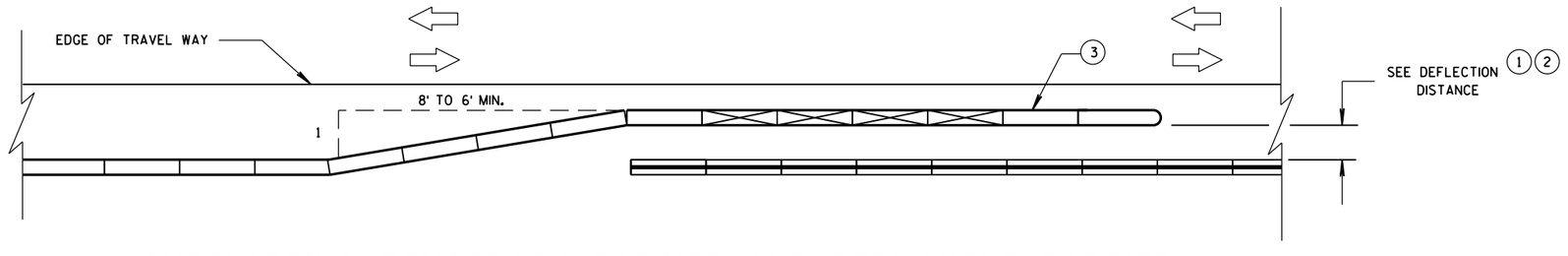
3 PINS PLACED ON
TRAFFIC SIDE OF BARRIER

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
DEPARTMENT OF TRANSPOI

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

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

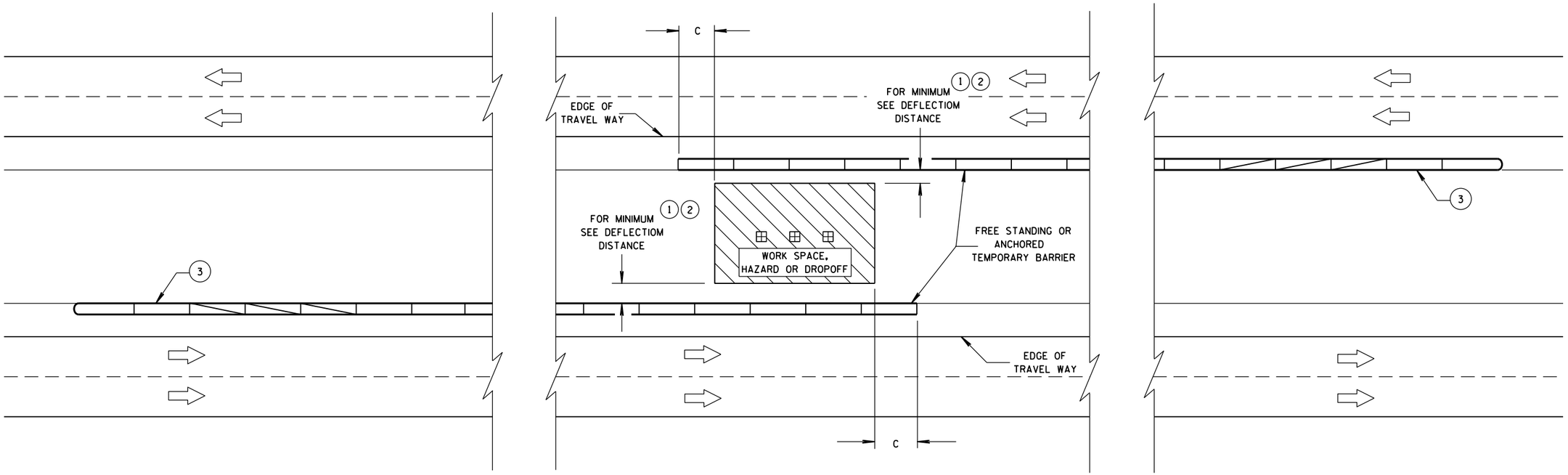
3 PINS PLACED ON TRAFFIC SIDE OF BARRIER

PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET

FREE STANDING TEMPORARY BARRIER

DIMENSION C TABLE (2)

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



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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

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

GENERAL NOTES

(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.

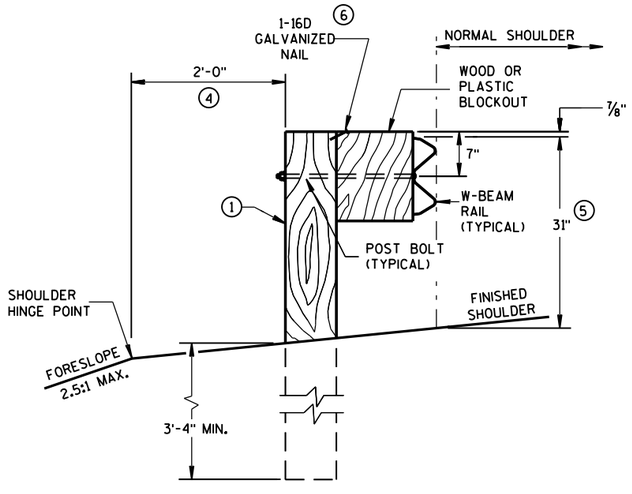
(2) USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.

(3) IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2½ INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AMD 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).

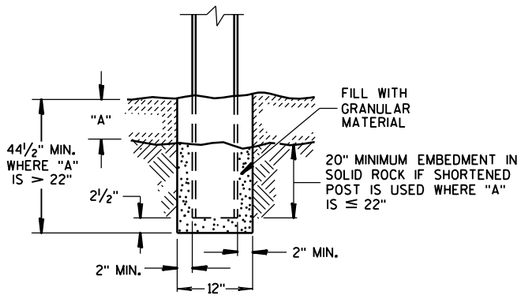
(5) FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ± 1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27¾" TO 32".

(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.



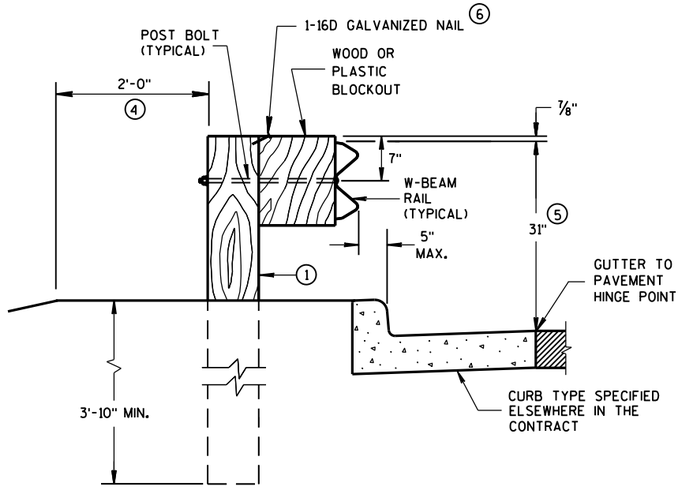
END VIEW

LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



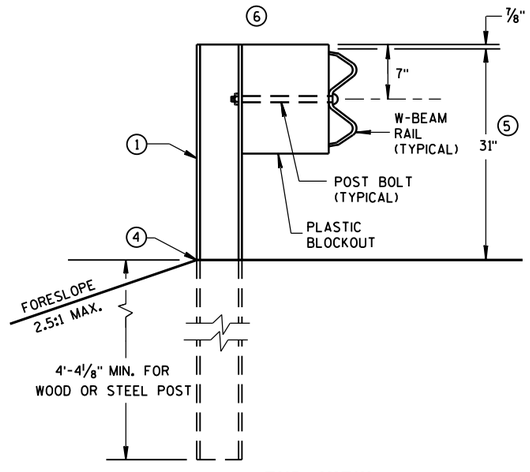
END VIEW

SETTING STEEL OR WOOD POST IN ROCK (3)



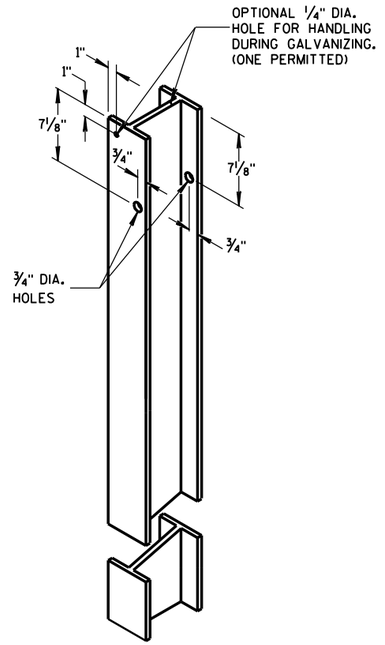
END VIEW

LOCATED ALONG A CURBED ROADWAY

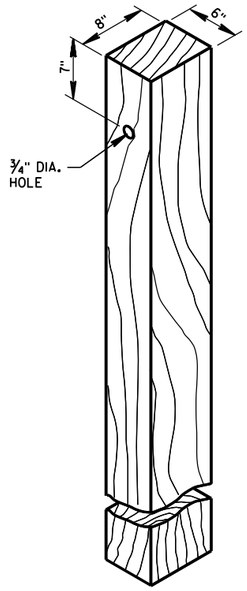


END VIEW

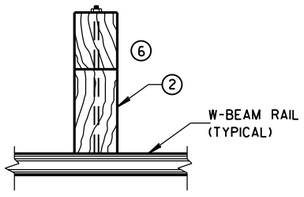
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



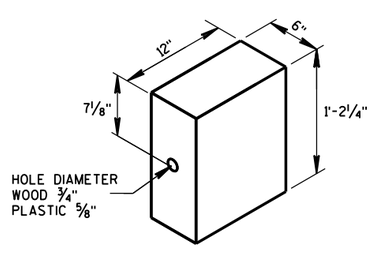
STEEL POST &
HOLE PUNCHING DETAIL
(w6X9) (1)



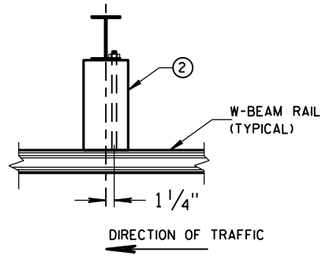
WOOD POST
(6" X 8") NOMINAL (1)



PLAN VIEW
WOOD POST,
BLOCKOUT & BEAM



WOOD OR
PLASTIC BLOCKOUT (2)



PLAN VIEW
STEEL POST,
PLASTIC BLOCKOUT & BEAM

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

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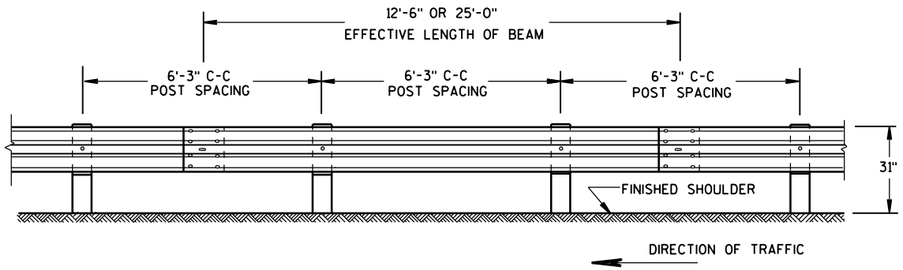
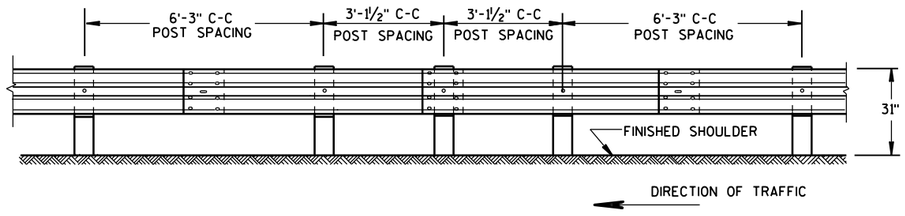
S.D.D. 14 B 42-3a



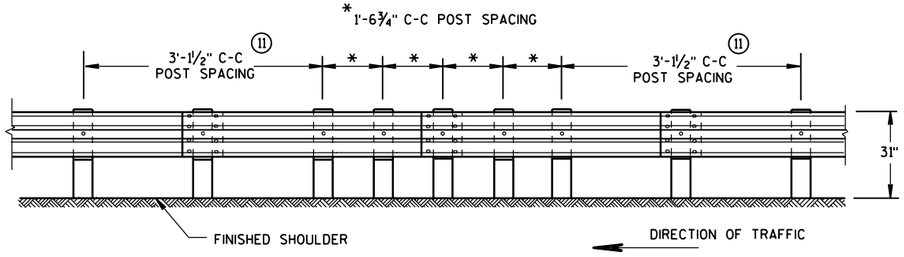
FRONT VIEW

POST SPACING STANDARD INSTALLATION



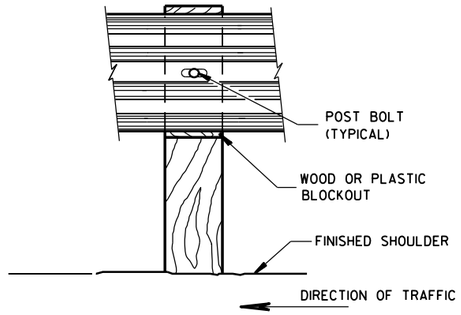
FRONT VIEW

HALF POST SPACING (HS) AND HALF POST SPACING WITH LONGER POSTS (K)

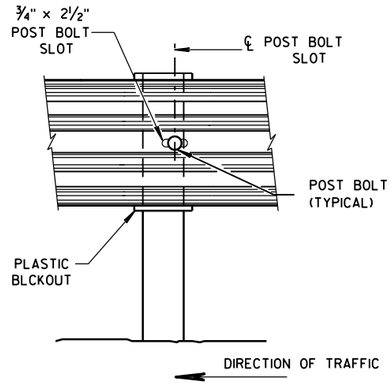


FRONT VIEW

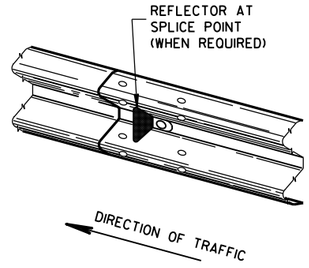
QUARTER POST SPACING (QS)

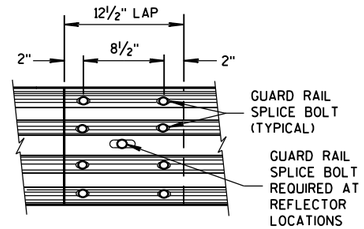


FRONT VIEW AT WOOD POST

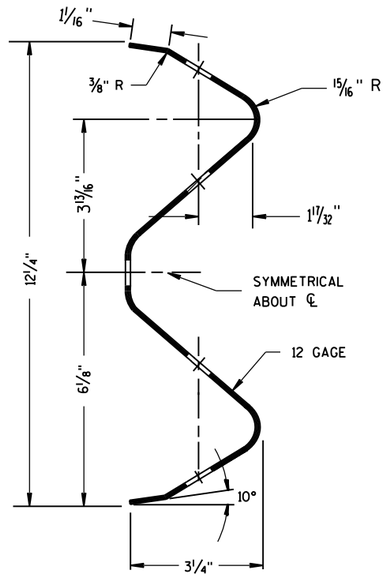


FRONT VIEW AT STEEL POST

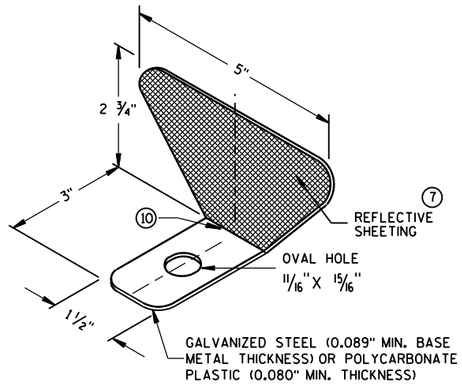




FRONT VIEW
MID-SPAN BEAM SPLICE



SECTION THRU W-BEAM RAIL



ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION ⑦

GENERAL NOTES

⑦ PROVIDE SILVER REFLECTIVE SHEETING ON ALL REFLECTORS EXCEPT THOSE LOCATED ALONG THE LEFT EDGE OF ONE-WAY ROADWAYS, WHICH SHALL BE PROVIDED WITH YELLOW REFLECTIVE SHEETING. SHEETING IS TYPE H. SEE STANDARD SPECIFICATION 637.

⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL. RAIL SPLICE LOCATIONS ARE THE ONLY ACCEPTABLE LOCATIONS FOR REFLECTORS.

⑨ REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.

⑩ PROVIDE AN ANGLE OF BEND OF 90° ± 1° FOR TWO-SIDED REFLECTORS.

⑪ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.

POST BOLTS ARE A ⅝" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES ⅝" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND ⅝" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

GUARD RAIL SPLICE BOLTS ARE A ⅝" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES ⅝" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.

REFLECTOR SPACING ⑧

	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200'	50' C-C	1	3
	> 200'	100' C-C	1	
TWO WAY TRAFFIC	< 200'	25' C-C	1 ⑨	6
	> 200'	50' C-C	1	
TWO WAY TRAFFIC	< 200'	50' C-C	2	3
	> 200'	100' C-C	2 ⑩	

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

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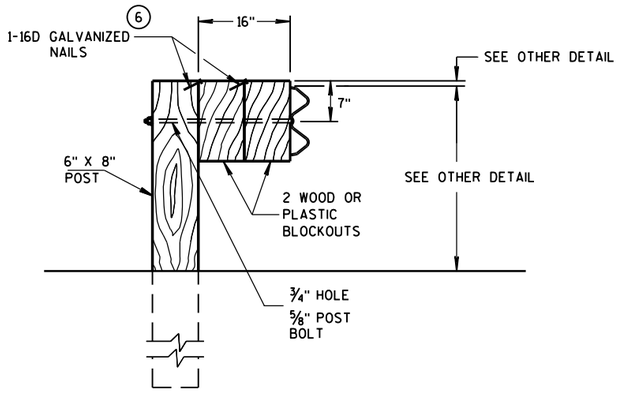
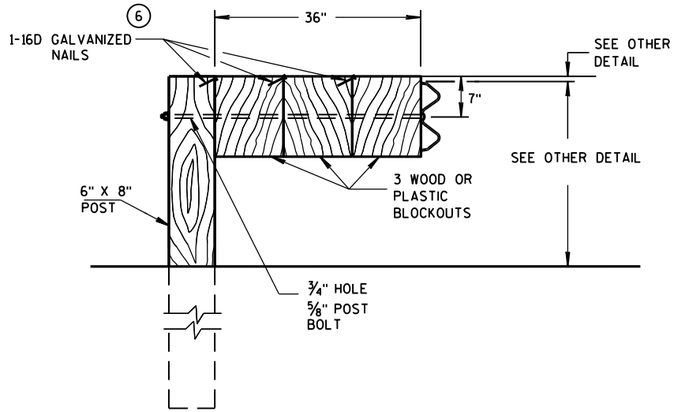


DETAIL FOR 16" BLOCKOUT DEPTH

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.

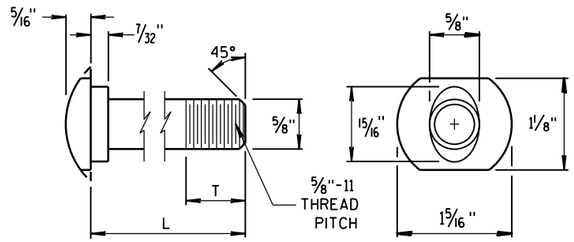


DETAIL FOR 36" BLOCKOUT DEPTH

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.

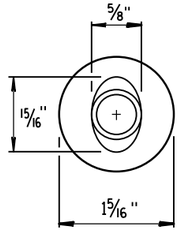
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

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

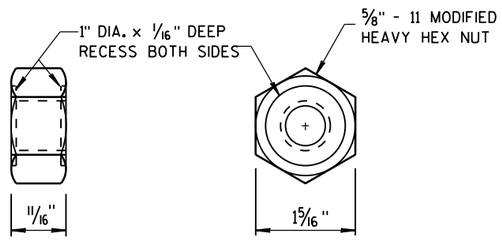


POST BOLT TABLE

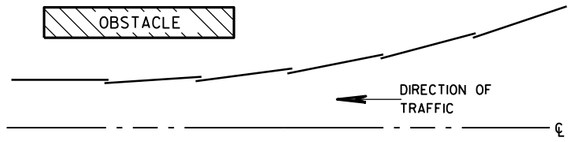
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



ALTERNATE BOLT HEAD

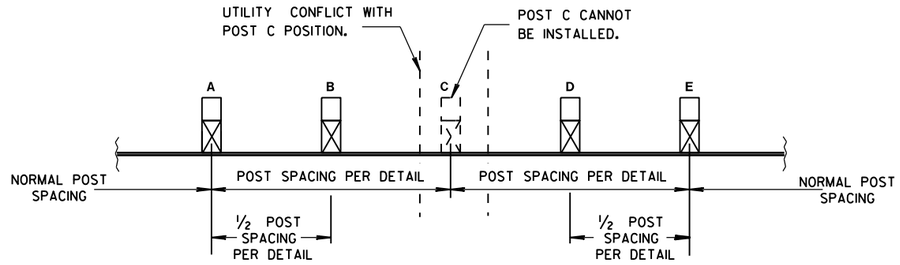


POST BOLT AND RECESS NUT

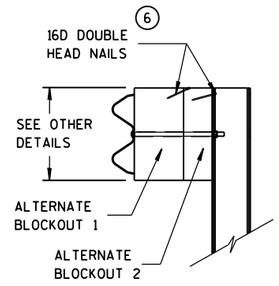


PLAN VIEW

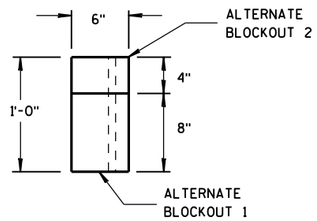
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



SIDE VIEW



TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2014 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER
FHWA

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S.D.D. 14 B 42-3c

GENERAL NOTES

(A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL), 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 MANUFACTURES REQUIRE DIFFERENT PERFORATED W-BEAM RAIL END PANELS. SEE MANUFACTURES INFORMATION.

(D) THE TOP OF THE STEEL TUBE ON POST 1 AND POST 2 SHALL NOT BE MORE THAN 3" ABOVE THE FINISH GROUND ELEVATION.

(F) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS. ONE SCREW PER CORNER.

(G) ½" DIAMETER X 3" LONG LAG BOLT AND WASHER.

(H) HARDWARE VARIES BETWEEN DIFFERENT MANUFACTURES. SEE MANUFACTURE'S DRAWING FOR INFORMATION.

(I) DIMENSIONS MAY VARY. SEE MANUFACTURE'S INFORMATION.

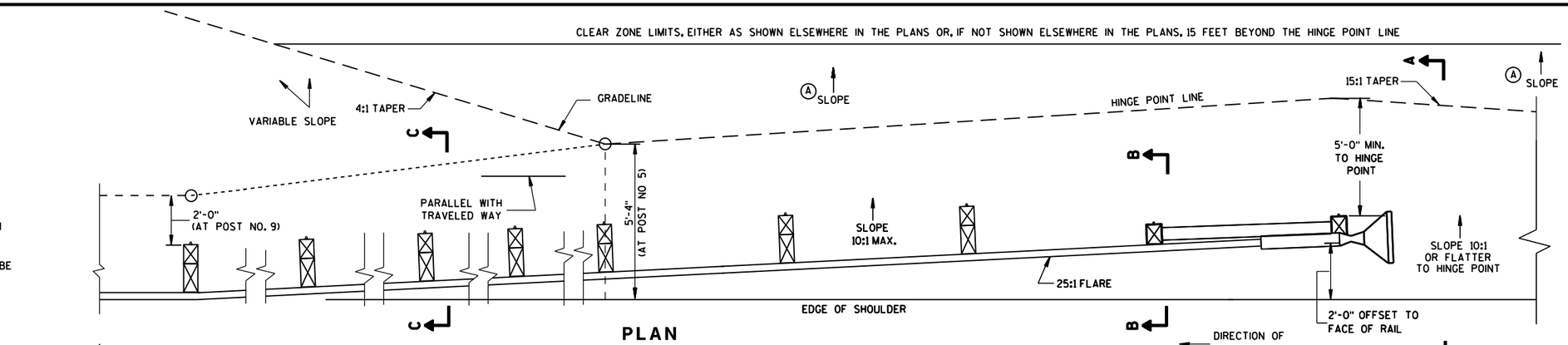
SEE SDD 14B42 FOR MORE INFORMATION.

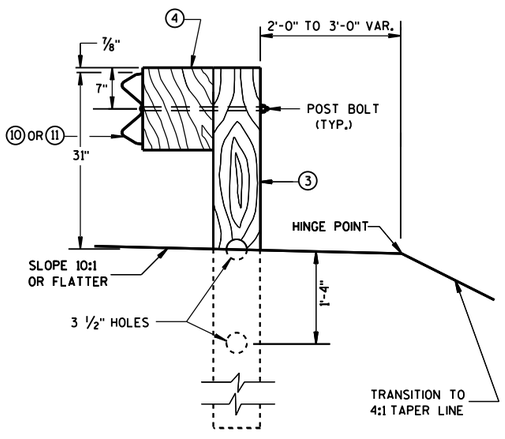
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

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

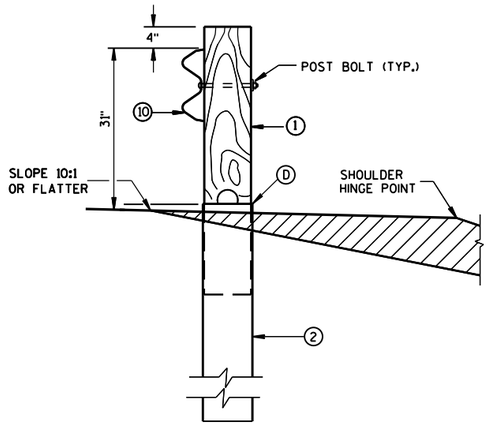
W-BEAM RAIL SPLICES ARE LOCATED AT POST NUMBER 3, AND BETWEEN POST 5 AND 6, BETWEEN POSTS 7 AND 8, AND MIDDLE OF THE SPAN AFTER POST 9.

THE CENTER OF THE UPPER 3½" 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.

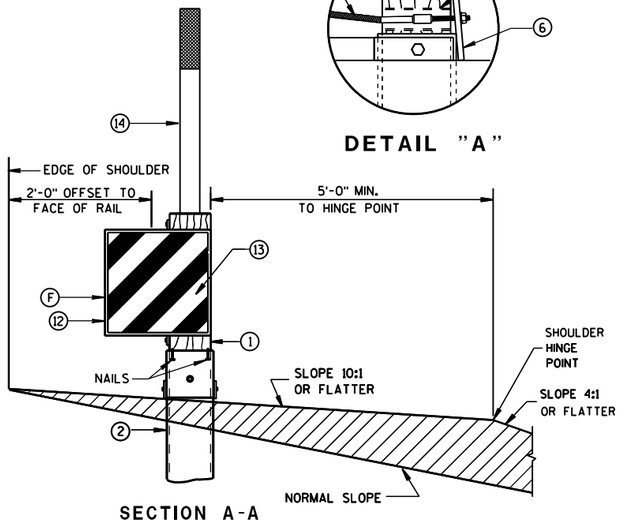




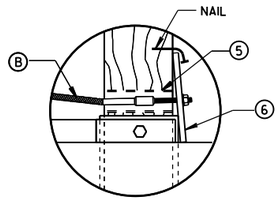
SECTION C-C
TYPICAL AT POST NOS. 3-9



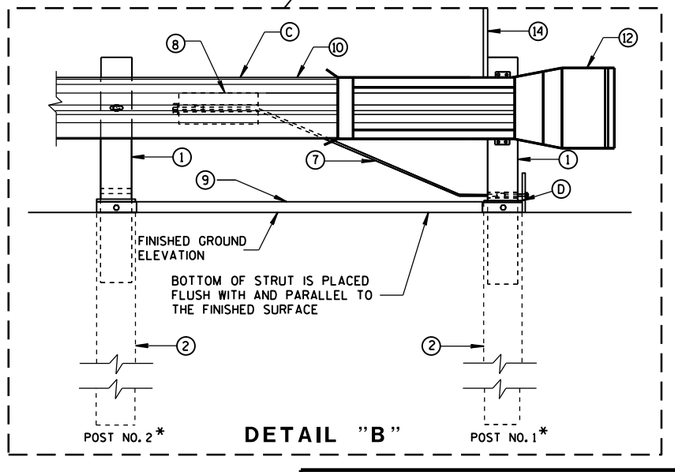
SECTION B-B
TYPICAL AT POST NO. 2*



SECTION A-A
TYPICAL AT POST NO. 1*



DETAIL "A"



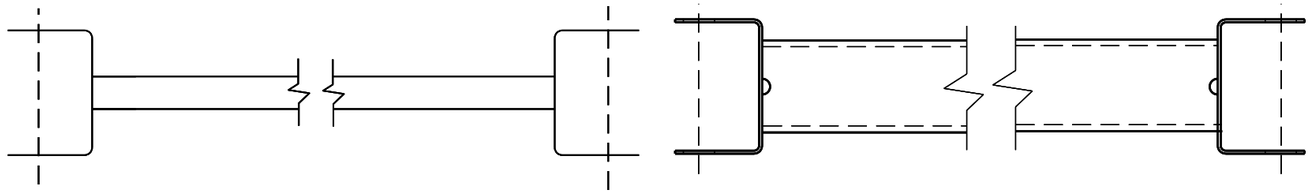
DETAIL "B"

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

S.D.D. 14 B 44-2a

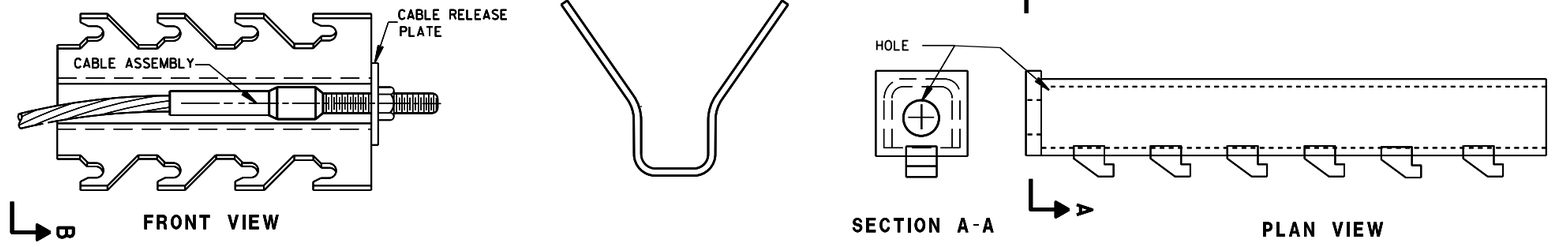
S.D.D. 14 B 44-2a



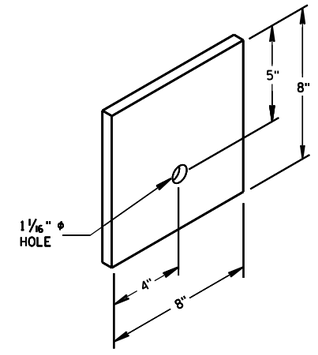
GENERIC GROUND STRUT (9) (H)

BILL OF MATERIALS

PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
(1)	WOOD BREAKAWAY POST
(2)	6" X 8" X 0.188", 6'-0" LONG FOUNDATION TUBE AT POSTS 1 AND 2
(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)	END SECTION EAT
(13)	0.040" ALUMINUM SHEET WITH REFLECTIVE SHEETING TYPE F PER SECTION 637 OF THE STANDARD SPECIFICATIONS
(14)	EAT MARKER POST - YELLOW (SEE APPROVED PRODUCTS LIST)



GENERIC ANCHOR CABLE BOX (8) (H)



BEARING PLATE (6)

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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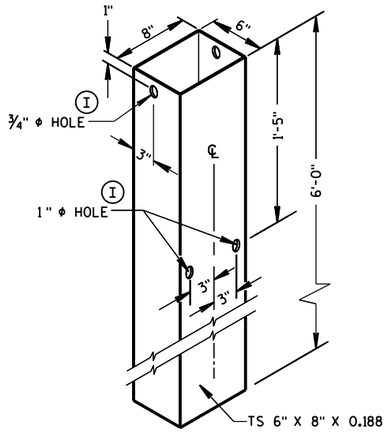
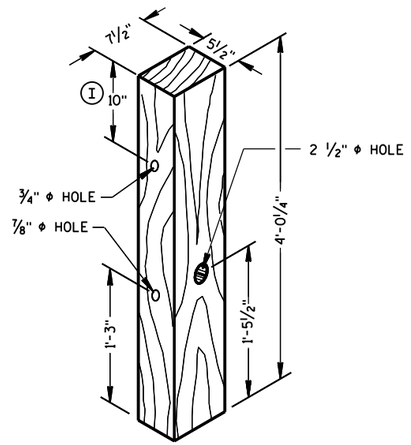
S.D.D. 14 B 44-2b

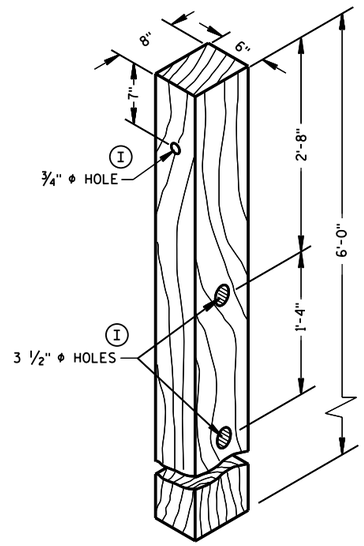


FOUNDATION TUBE (2)



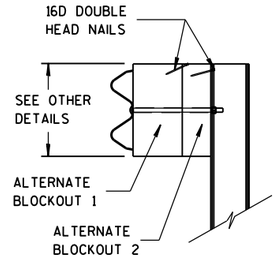
POSTS NUMBER 1 AND 2

WOOD BREAKAWAY POST (1)

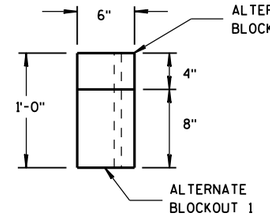


POSTS NUMBER 3-9

WOOD CRT POST (3)

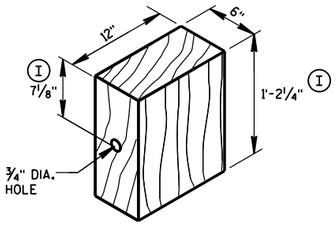


SIDE VIEW



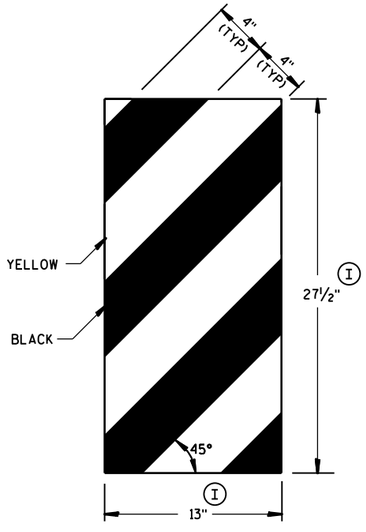
TOP VIEW

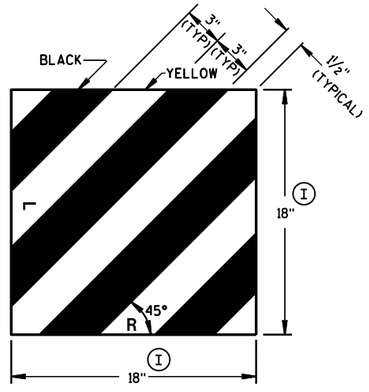
ALTERNATE WOOD BLOCKOUT DETAIL



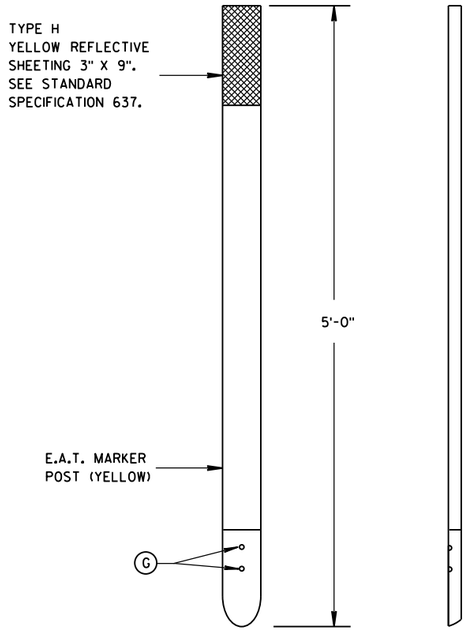
WOOD BLOCKOUT (4)

REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2





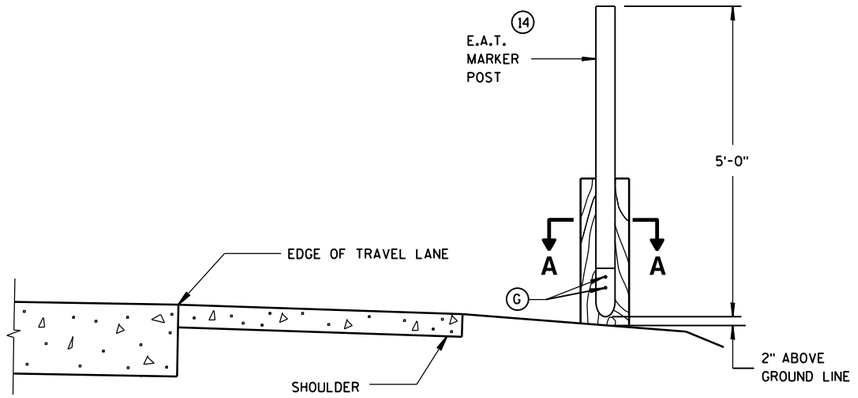
GENERIC REFLECTIVE SHEETING (13) (H)



FRONT VIEW

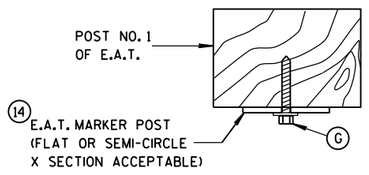
SIDE VIEW

E.A.T. MARKER POST (14)



TYPICAL INSTALLATION OF E.A.T. MARKER POST BACKSIDE OF POST NO. 1

(E.A.T. AND RAIL REMOVED FOR CLARITY)



SECTION A-A

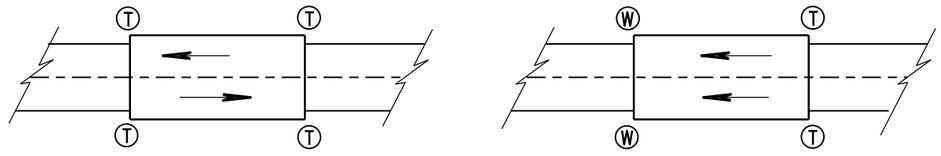
MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2014 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER
FHWA

6

S.D.D. 14 B 44-2c



TWO WAY TRAFFIC

ONE WAY TRAFFIC

Ⓣ THRIE BEAM CONNECTION

Ⓦ W-BEAM CONNECTION WHEN REQUIRED

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

GENERAL NOTES

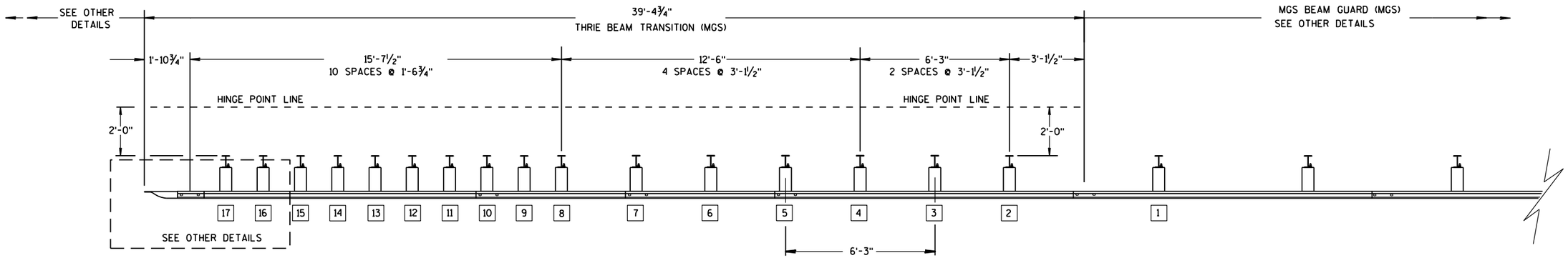
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2½", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

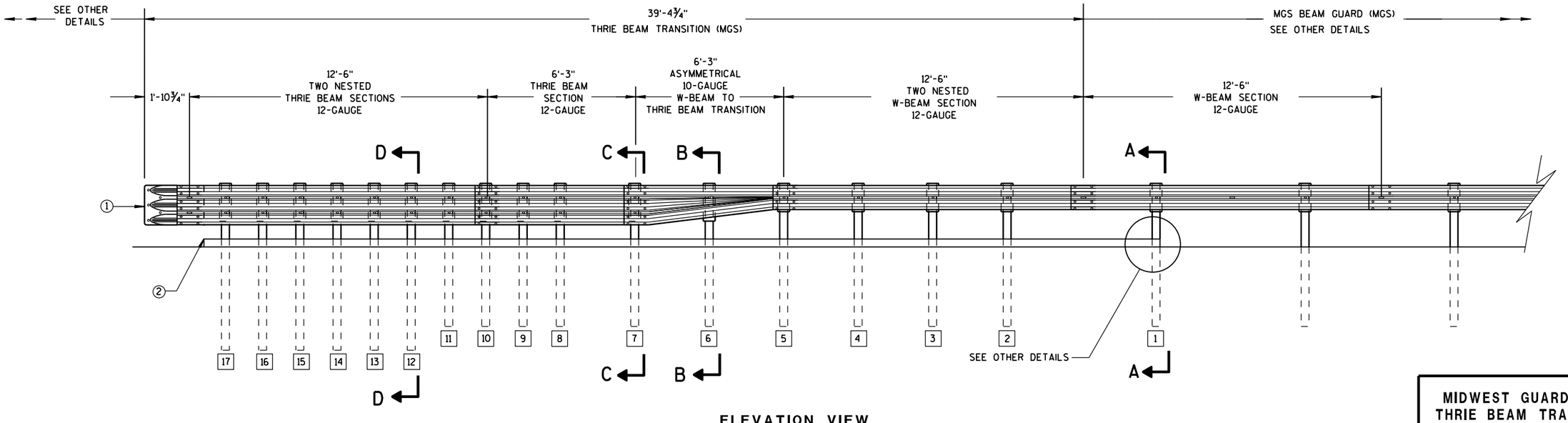
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

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

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



PLAN VIEW



ELEVATION VIEW

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

S.D.D. 14 B 45-4a

6

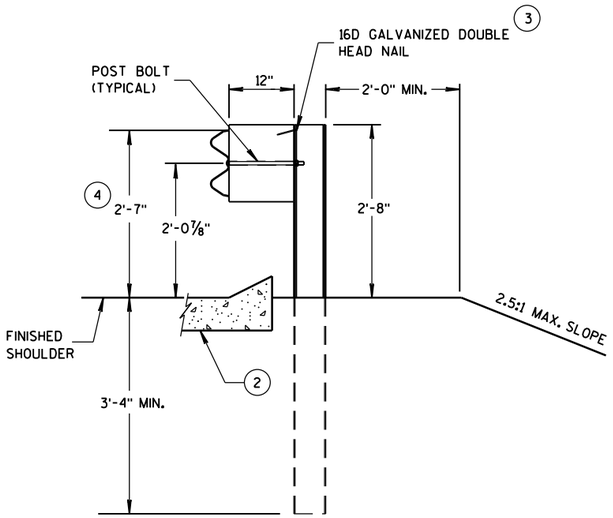
S.D.D. 14 B 45-4a

GENERAL NOTES

(2) OPTIONAL CURB AND GUTTER OR DRAINAGE_FEATURE SEE PLAN FOR INFORMATION.

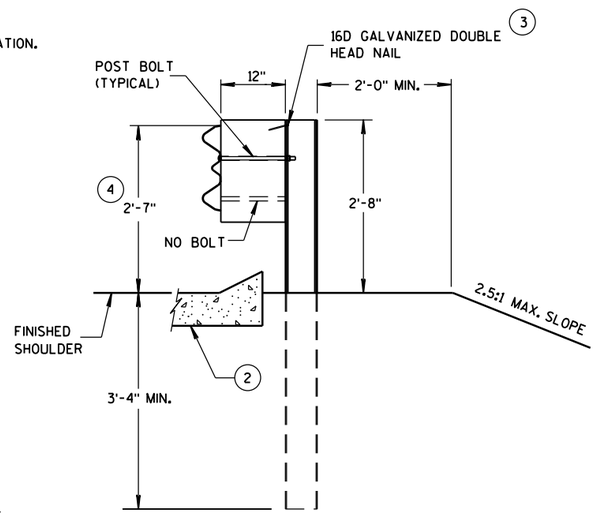
(3) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

(4) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".



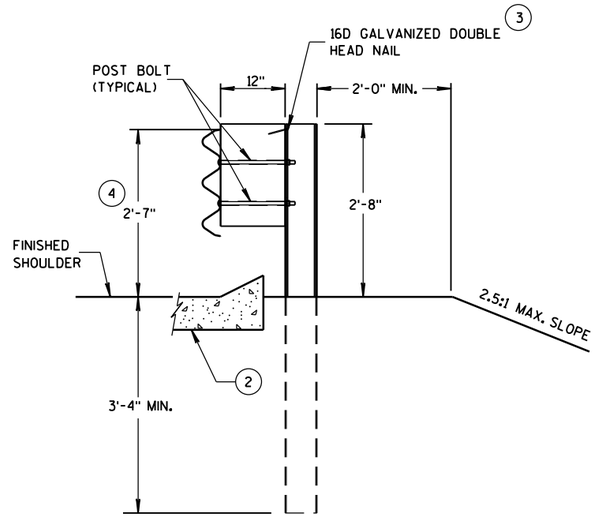
SECTION A-A

POSTS 1-5



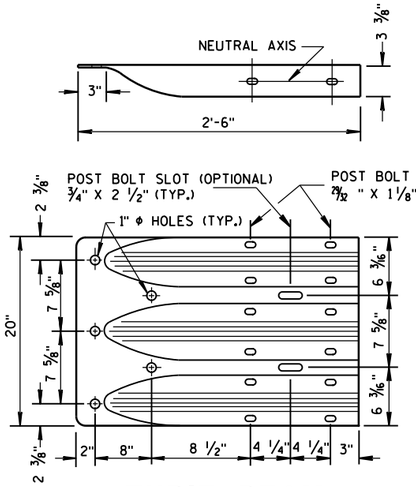
SECTION B-B

POST 6

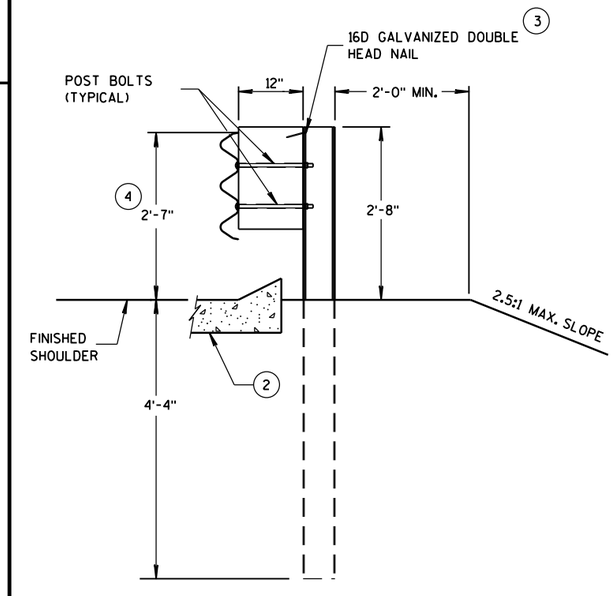


SECTION C-C

POSTS 7-11

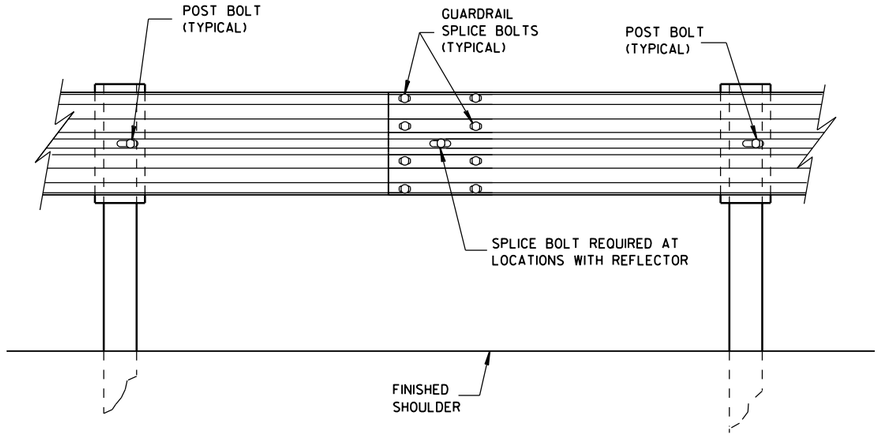


THRIE BEAM TERMINAL CONNECTOR



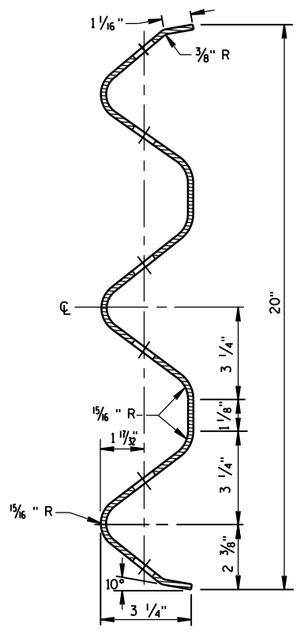
SECTION D-D

POSTS 12-17



SPLICE DETAIL

PLATE WASHER DETAIL



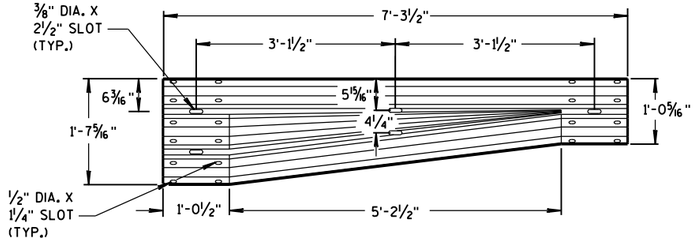
SECTION THRU THRIE BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

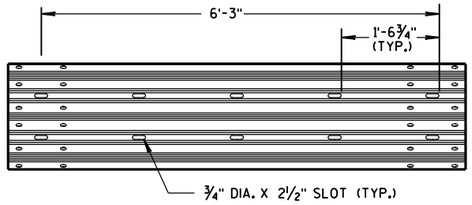
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

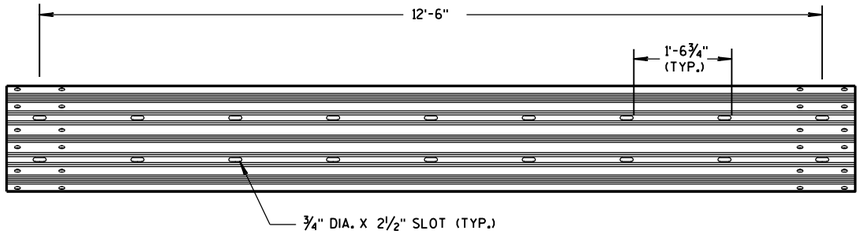
S.D.D. 14 B 45-4b



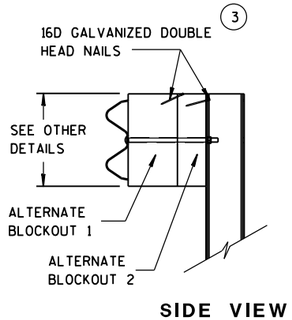
W-BEAM TO THRIE BEAM TRANSITION SECTION



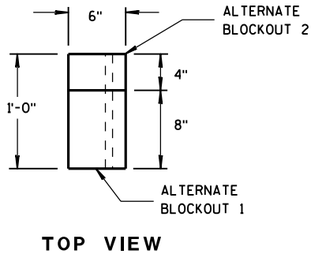
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

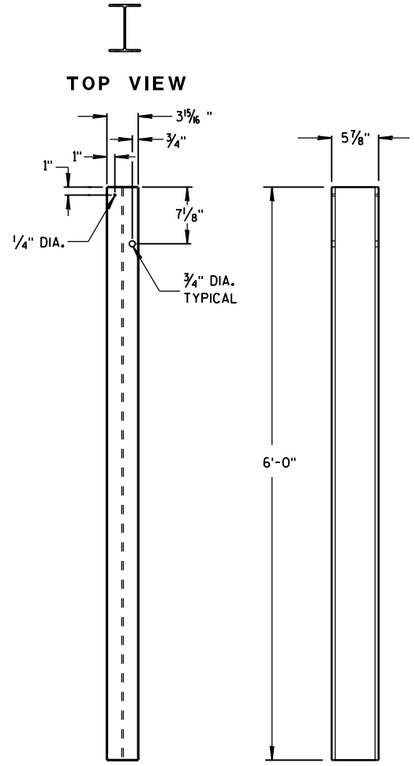


SIDE VIEW



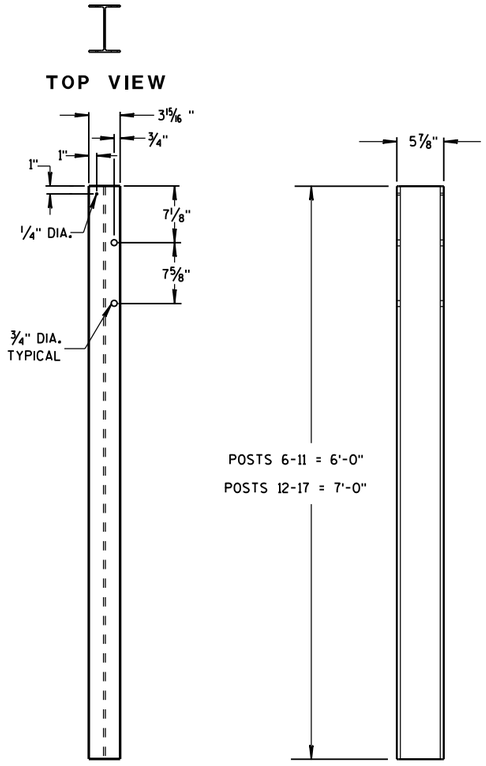
TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL



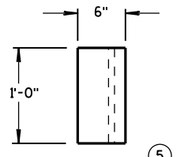
FRONT VIEW SIDE VIEW

STEEL POSTS 1-5

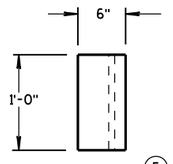


FRONT VIEW SIDE VIEW

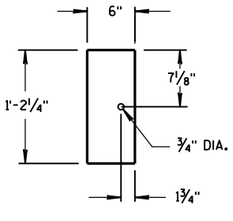
STEEL POSTS 6-17



TOP VIEW (5)

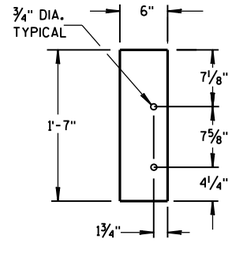


TOP VIEW (5)



FRONT VIEW

BLOCKOUT POSTS 1-5



FRONT VIEW

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.

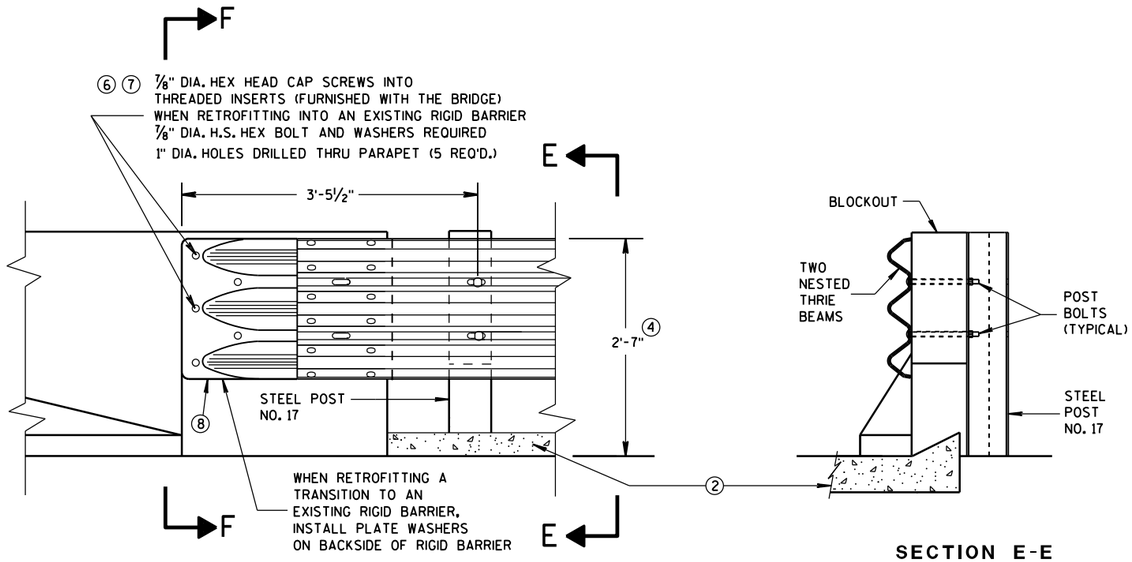
(5) WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

S.D.D. 14 B 45-4c



FRONT VIEW

SECTION E-E

THRIE BEAM CONNECTION TO BRIDGE PARAPET WITH SQUARE ENDS

GENERAL NOTES

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

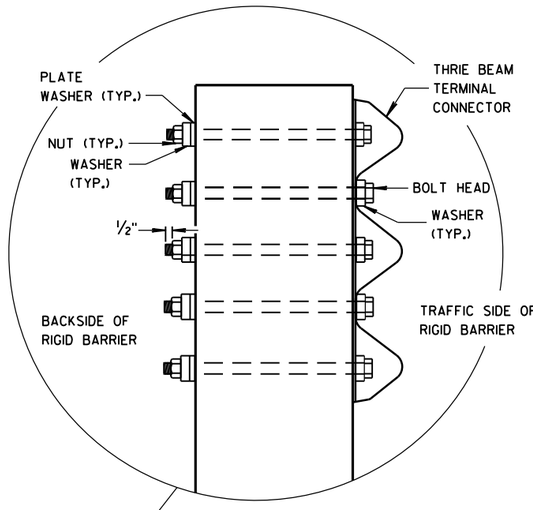
② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

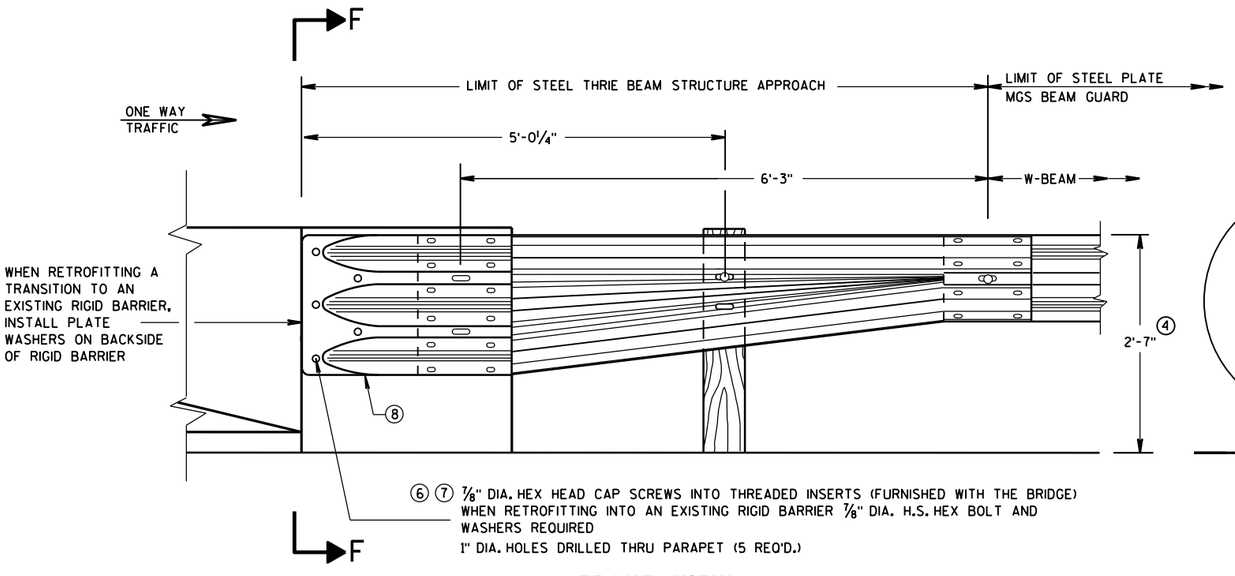
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

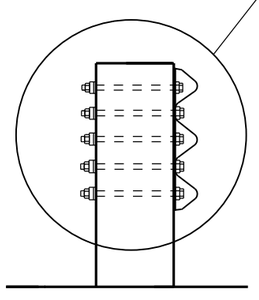
⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" 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".

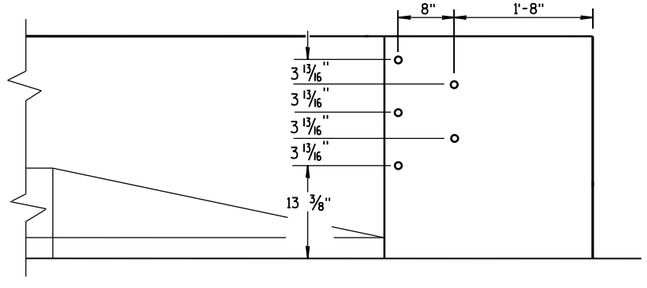




FRONT VIEW



SECTION F-F



DRILL HOLE LOCATION

W BEAM TRANSITION AND CONNECTION TO BRIDGE PARAPETS WITH SQUARE ENDS

(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA
55
NT

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S.D.D. 14 B 45-4d

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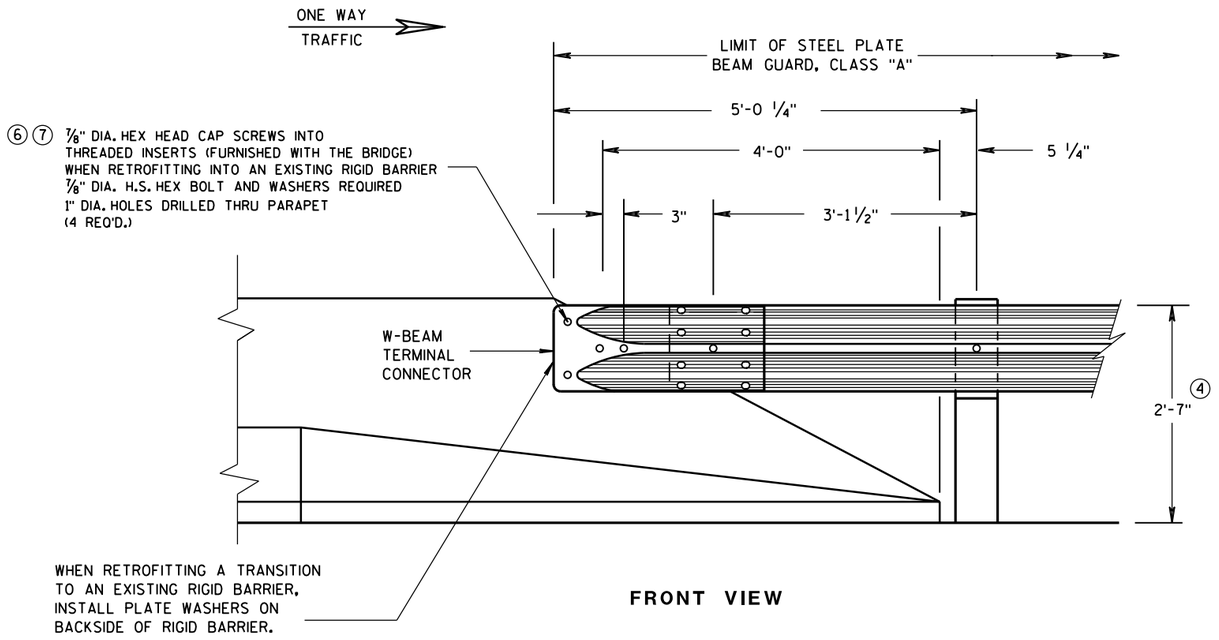
S.D.D. 14 B 45-4d



FRONT VIEW

W BEAM CONNECTION TO PARAPETS WITH SLOPED ENDS

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

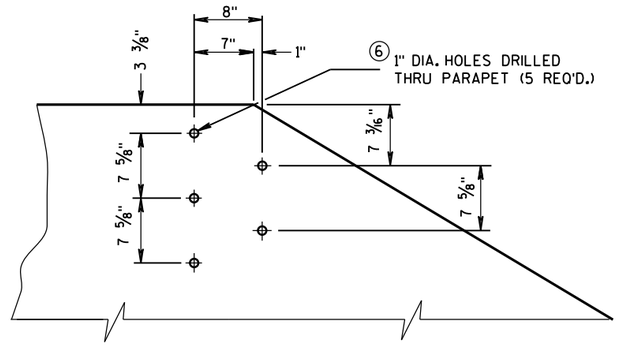
GENERAL NOTES

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

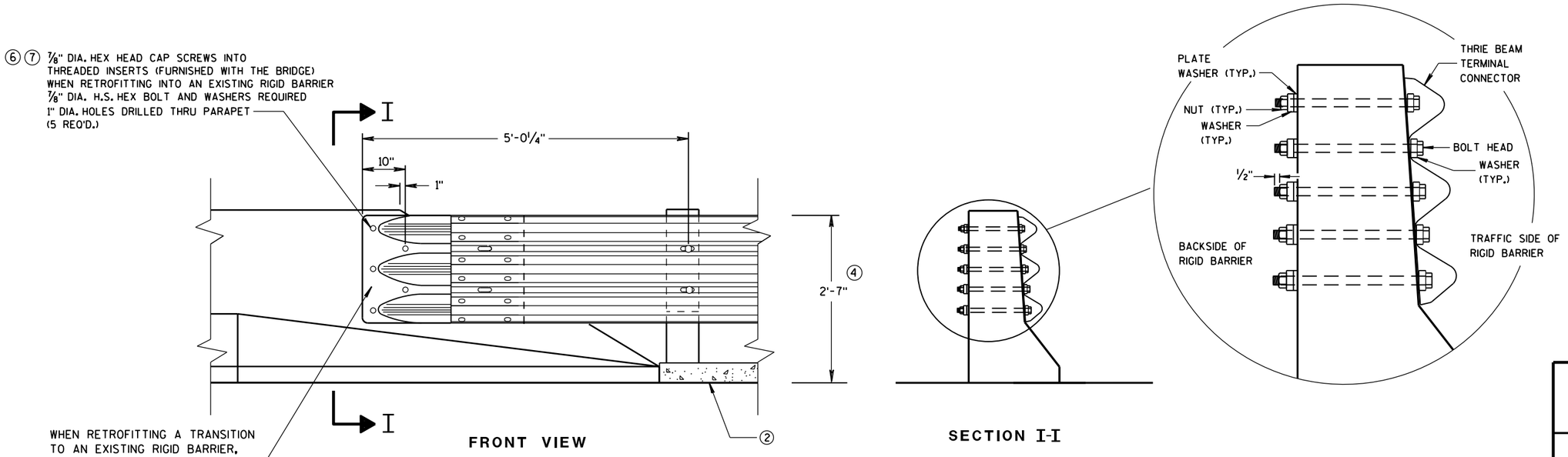
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

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 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



DRILL HOLE LOCATION AND PATTERN
FOR THRIE BEAM CONNECTION



FRONT VIEW

SECTION I-I

THRIE BEAM CONNECTION TO BRIDGE PARAPETS WITH SLOPED ENDS

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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S.D.D. 14 B 45-4f

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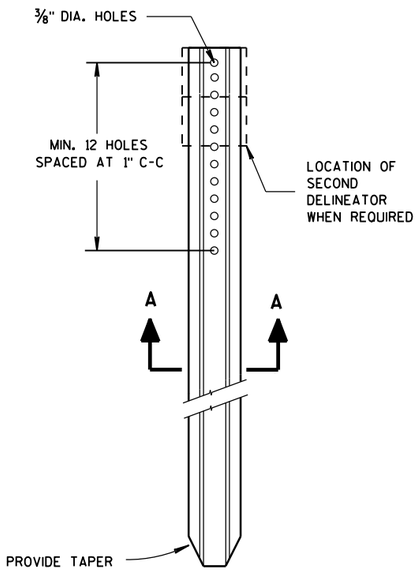
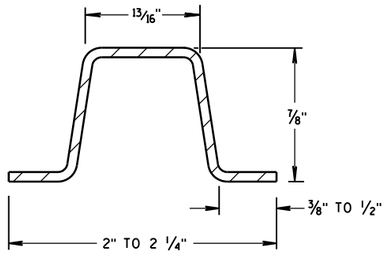
S.D.D. 14 B 45-4f

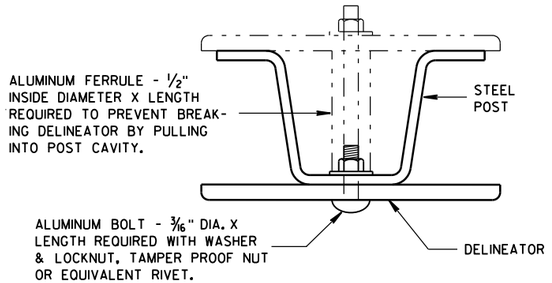


DELINEATOR POST

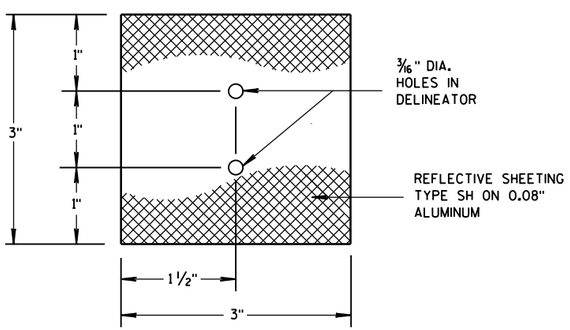


SECTION A-A

WEIGHT 1.12 LBS PER FT. ± 0.1 LB.

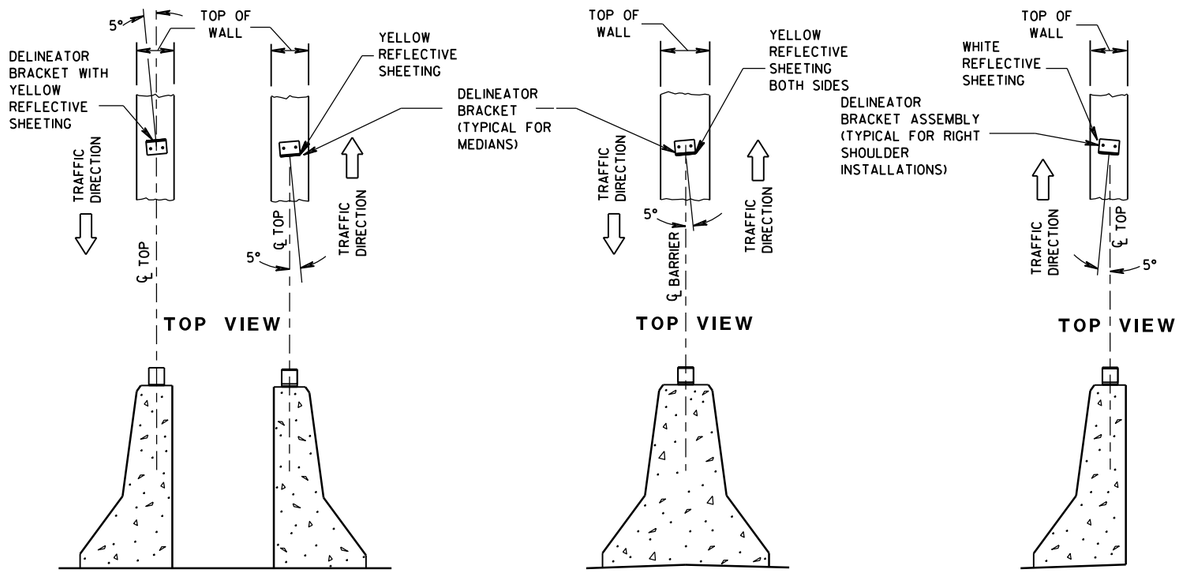


MOUNTING DETAIL FOR DELINEATOR



3"x 3" DELINEATOR

TYPICAL INSTALLATIONS OF DELINEATOR POSTS



DOUBLE BARRIERS IN MEDIAN | MEDIAN BARRIER | BARRIER LOCATED TO RT. OF TRAFFIC FLOW

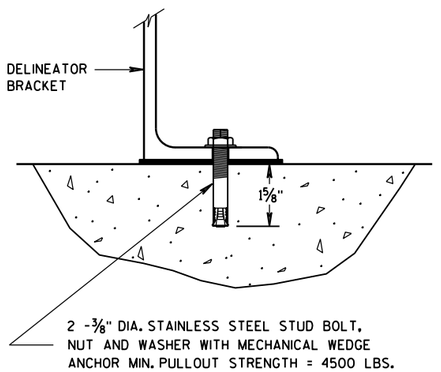
LOCATION AND AIMING DETAILS FOR DELINEATOR BRACKETS MOUNTED ON CONCRETE BARRIERS

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.

① DELINEATORS SHALL BE PLACED AT A CONSTANT DISTANCE FROM THE EDGE OF THE SHOULDER FOR THE LENGTH OF THE INSTALLATION.

DELINEATOR BRACKET



DELINEATOR BRACKET MOUNTING DETAIL

DELINEATOR POST, DELINEATOR, AND DELINEATOR BRACKET WITH REFLECTIVE SHEETING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
7/2013 — DATE
/S/ Travis Feltes — STATE TRAFFIC ENGINEER

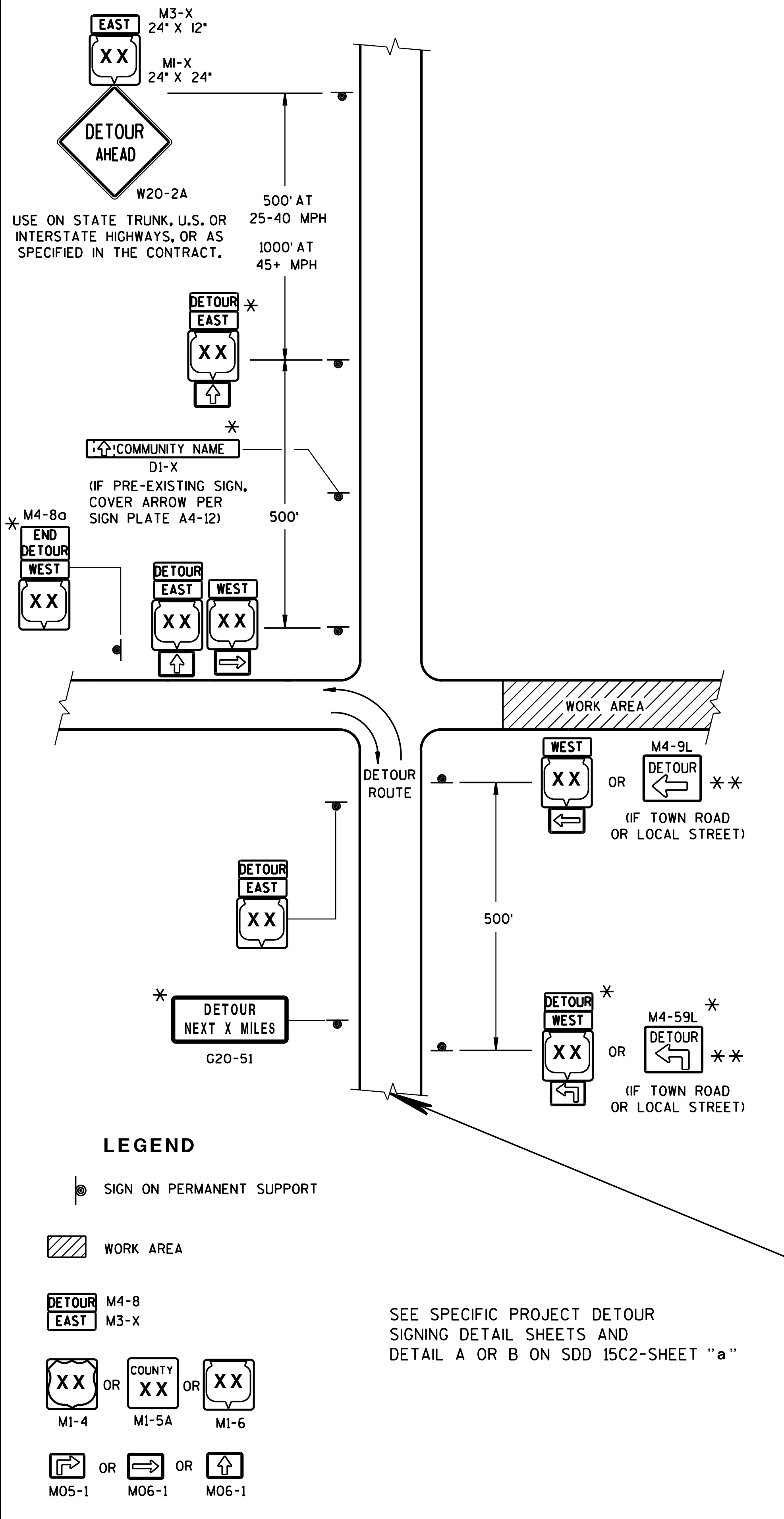
FHWA

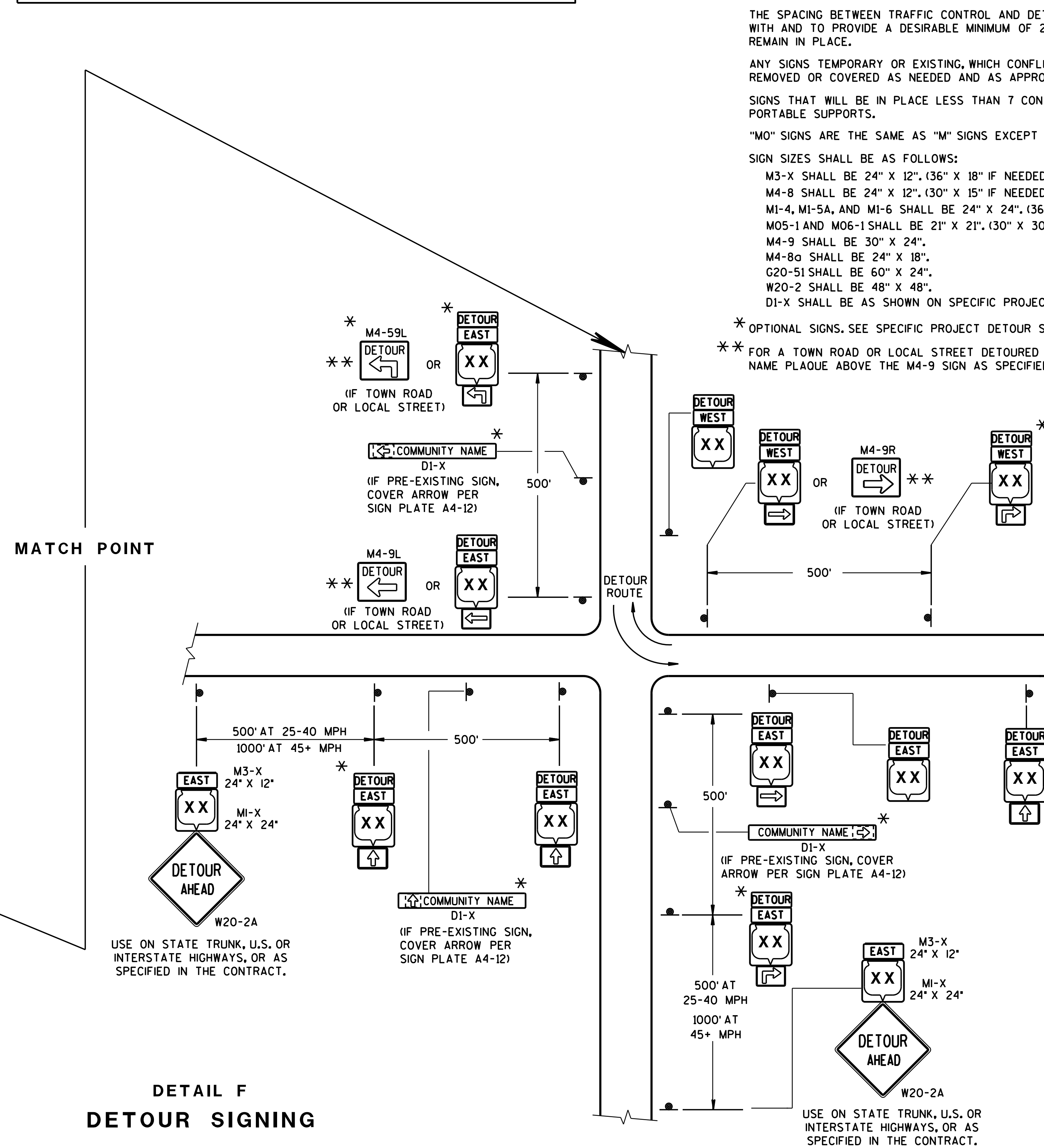
6

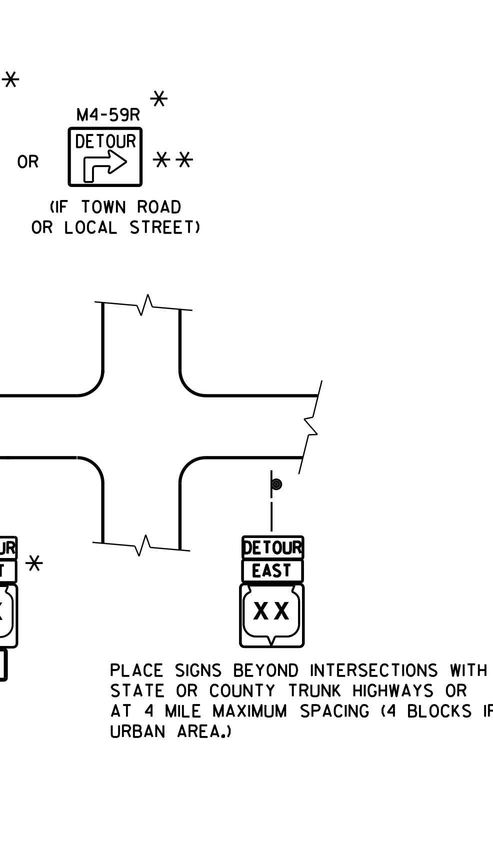
S.D.D. 15 A 2-8

6

THIS DRAWING PROVIDES GENERAL GUIDANCE ON TYPICAL DETOUR SIGN LAYOUT AND SPACING. SEE PROJECT DETOUR SIGNING SHEETS FOR SPECIFIC DETAILS FOR EACH PROJECT.







GENERAL NOTES

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

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. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. MODIFY EXISTING SIGNS WHERE POSSIBLE.

THE SPACING BETWEEN TRAFFIC CONTROL AND DETOUR 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.

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

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

SIGN SIZES SHALL BE AS FOLLOWS:

- M3-X SHALL BE 24" X 12". (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS.)
- M4-8 SHALL BE 24" X 12". (30" X 15" 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.)
- M05-1 AND M06-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)
- M4-9 SHALL BE 30" X 24".
- M4-8a SHALL BE 24" X 18".
- G20-51 SHALL BE 60" X 24".
- W20-2 SHALL BE 48" X 48".
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

* OPTIONAL SIGNS. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS.

** FOR A TOWN ROAD OR LOCAL STREET DETOURED ONTO A STATE TRUNK HIGHWAY, PLACE A ROAD NAME PLAQUE ABOVE THE M4-9 SIGN AS SPECIFIED IN THE CONTRACT.

DETAIL F

DETOUR SIGNING

DETOUR SIGNING FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

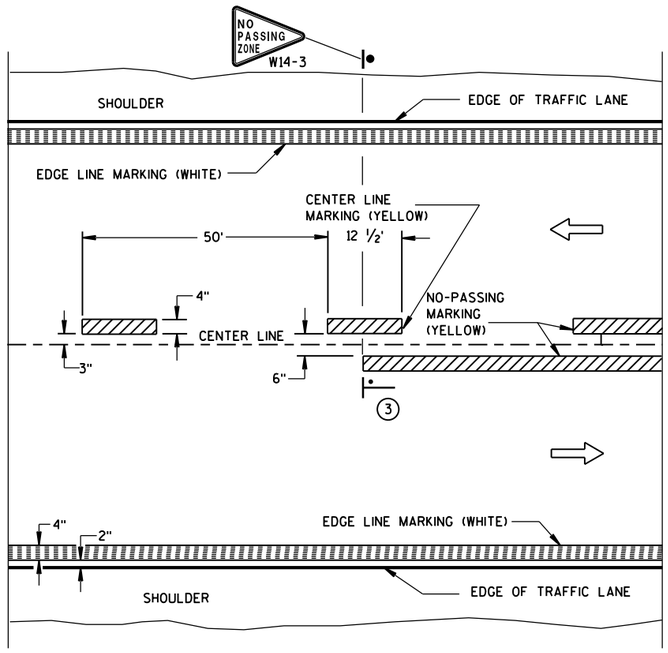
APPROVED

Sept. 2015 — DATE

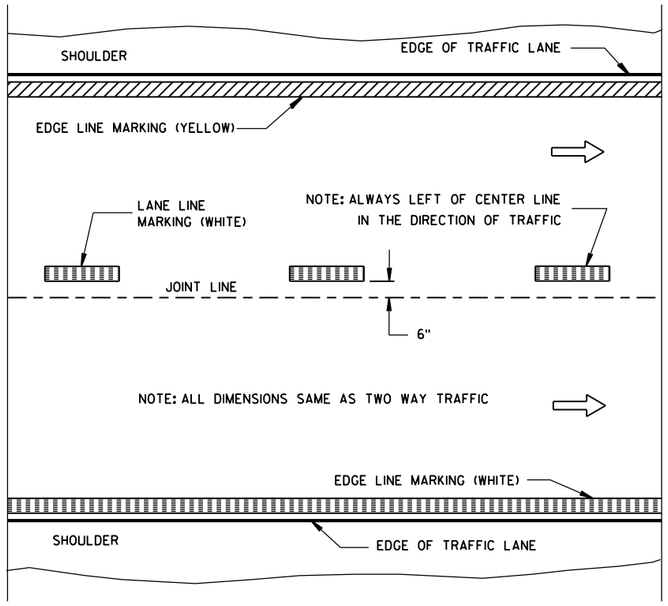
/S/ Peter Amakobe Atepe — STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER

FHWA

S.D.D. 15 C 2-6c

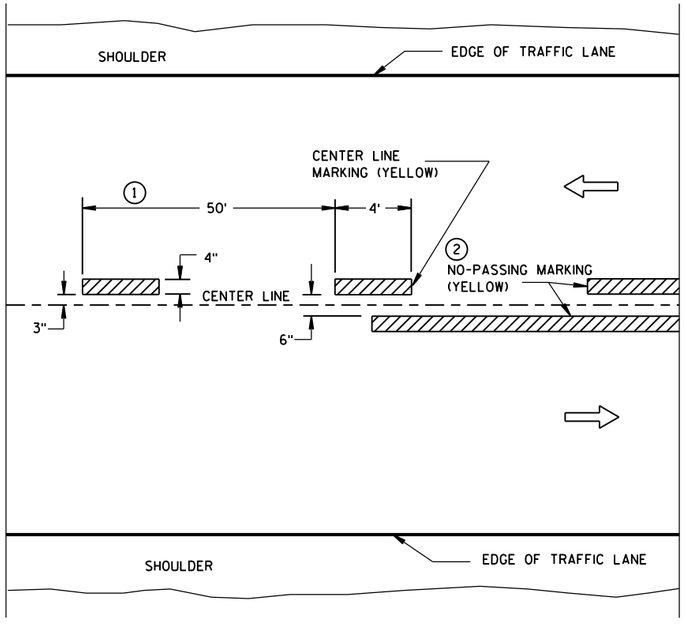


TWO WAY TRAFFIC

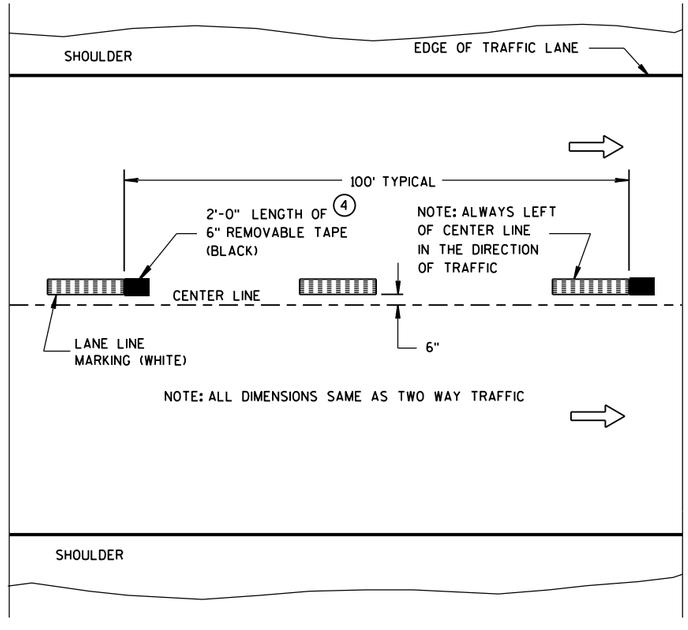


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY (INTERMEDIATE) PAVEMENT MARKING

(SHOWS CYCLE FOR TEMPORARY CENTER LINE OR TEMPORARY LANE LINE MARKING)

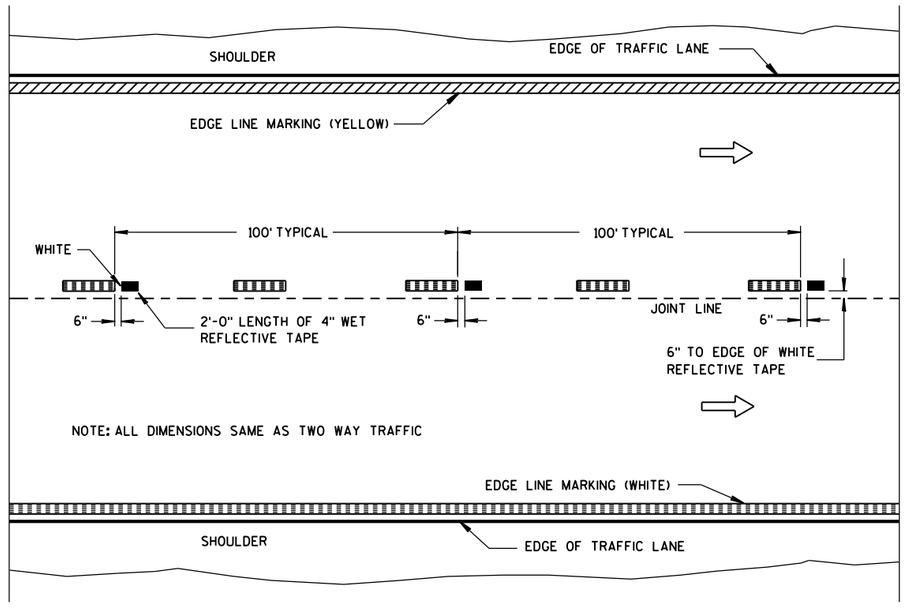
GENERAL NOTES

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

1. HALF CYCLE LENGTHS (25'±) WITH 2' MINIMUM STRIPE LENGTHS SHALL BE PROVIDED ON ROADWAYS (INCLUDING TEMPORARY TRAVELED WAYS) WITH REVERSE CURVATURE, CURVATURE OF OVER 5 DEGREES OR WHEN DIRECTED BY THE ENGINEER TO MARK UNUSUAL ALIGNMENT OF THE TRAVELED WAY.
2. NO PASSING ZONE TEMPORARY PAVEMENT MARKING IS REQUIRED TO BE PLACED, WHERE APPROPRIATE, ALONG WITH CENTERLINE TEMPORARY PAVEMENT MARKING WHEN A SAME DAY PERMANENT PAVEMENT MARKING ITEM IS INCLUDED IN THE CONTRACT.
3. NO PASSING ZONE MARKINGS ARE PLACED ACCORDING TO "T" MARKINGS. IF EXISTING NO PASSING ZONE W14-3 SIGNS ARE BEYOND 50 FEET IN EITHER DIRECTION, THE SIGNS SHALL BE MOVED TO THE "T" MARKINGS.
4. CONCRETE ONLY.

NOTE

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL



WET REFLECTIVE TAPE SUPPLEMENT TO
SPRAYED OR NON WET REFLECTIVE TAPE LANE LINE

LEGEND

"T" MARKING

POST MOUNTED SIGN

PAVEMENT MARKING (MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

5-13-2013
DATE

/S/ Travis Feltes
STATE TRAFFIC E

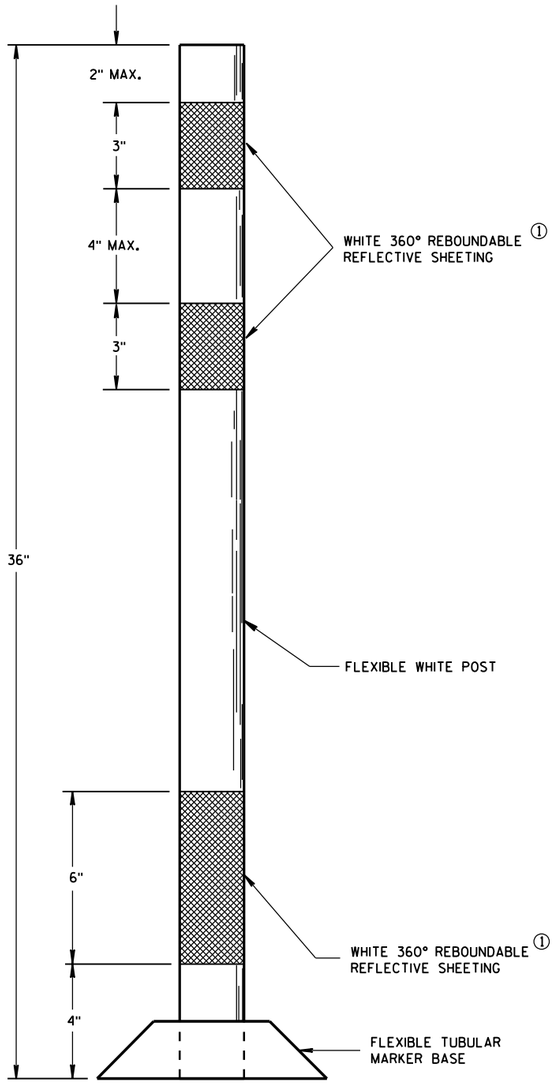
FHWA

6

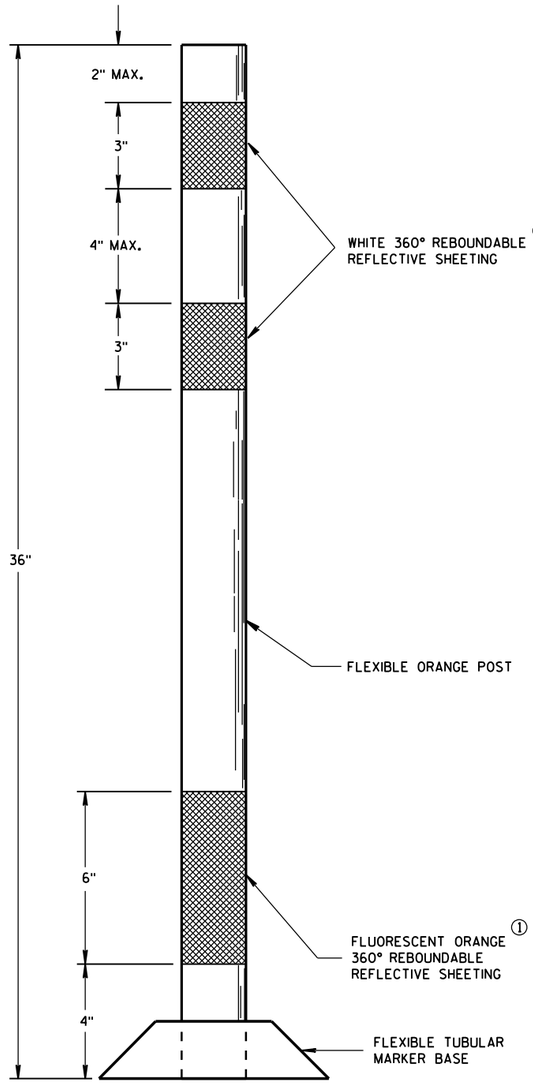
S.D.D. 15 C 8-16a

6

S.D.D. 15 C 8-16a



FLEXIBLE
TUBULAR MARKER POST
PERMANENT CROSSOVER



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 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.

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

6

6

S.D.D. 15 C 11-6

S.D.D. 15 C 11-6

FLEXIBLE TUBULAR MARKER POST

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

10-16-2015
DATE

/S/ Peter Amakobe Atepe
STATEWIDE WORK ZON
SAFETY ENGINE

FHWA

LEGEND

- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TRAFFIC CONTROL DRUM
- FLASHING ARROW BOARD
- REMOVING PAVEMENT MARKING
- CONCRETE BARRIER TEMPORARY PRECAST
- DIRECTION OF TRAFFIC
- WORK AREA

W057-52
36"x24"

INSTALL ON EACH APPROACH AT THE CLOSEST INTERSECTION WITH A STATE OR COUNTY TRUNK HIGHWAY, OR AS DIRECTED BY THE ENGINEER. WIDTH ON SIGN TO BE APPROX. 1 FOOT LESS THAN AVAILABLE WIDTH (OMIT IF AVAILABLE WIDTH IS MORE THAN 16 FEET).

LOCATED 500 FEET IN ADVANCE OF R2-1 SIGN AND 500 FEET BEYOND THE "ROAD WORK 1 MILE" SIGN.

R2-1
48"x60"
(BLACK AND WHITE)

IF THE REGULATORY SPEED HAS BEEN REDUCED, A SPEED LIMIT SIGN SHALL BE LOCATED 1500 FEET BEYOND THE END OF THE ACCELERATION LANE OF EACH ENTRANCE RAMP. THERE SHOULD BE A SPEED LIMIT SIGN INCORPORATED A MINIMUM OF EVERY 2 OR 3 MILES.

* INCLUDE RESUME SPEED LIMIT SIGN A MINIMUM OF 200 FEET (500 FEET DESIRABLE) AFTER END ROAD WORK SIGNS.

GENERAL NOTES

THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE - REVERSE FOR CLOSING LEFT LANE.

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 SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS.

ALL SIGNS ARE 48"x48" 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.

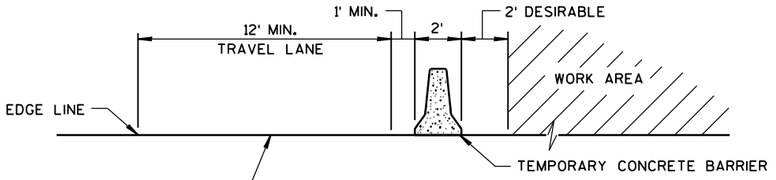
(1) CONSIDER ROADWAY GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS FOR A MINIMUM 1500 FEET IN FRONT OF DRUM TAPER.

FOR A LANE CLOSURE THAT IS IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, THE ADVANCED WARNING SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS.

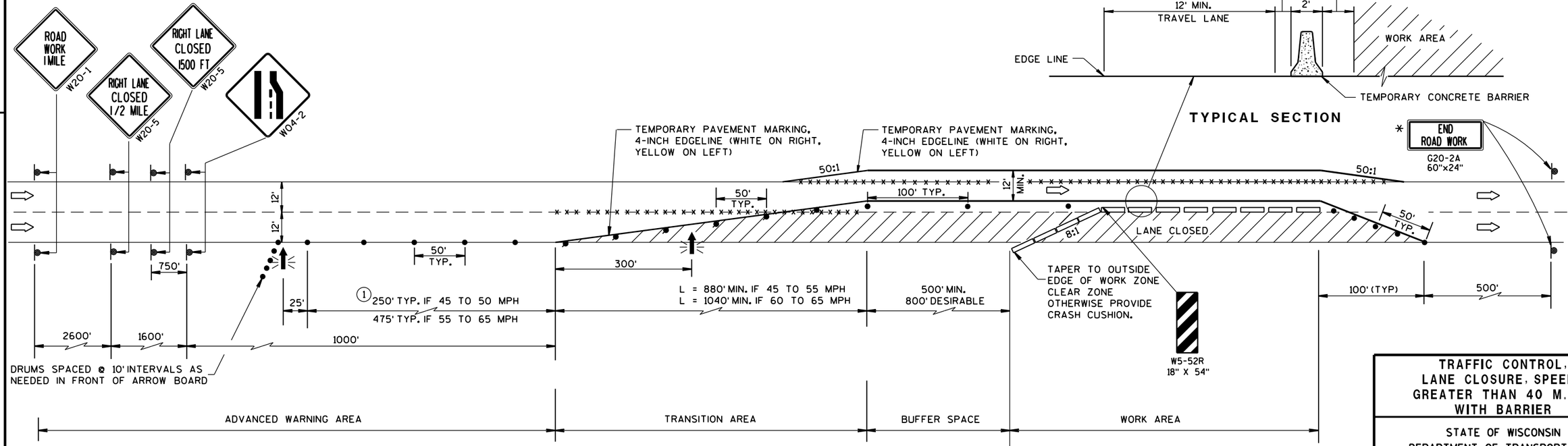
REMOVE PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL DELINEATION, THE DEVICE SPACING MAY BE DECREASED TO 50 FEET.

ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP OR INTERSECTION. THE LANE CLOSURE MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE 1/2 THE LENGTH OF THE TRANSITION AREA. THE ENTRANCE RAMP SHOULD BE FOLLOWED BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A CROSSOVER MANEUVER.



TYPICAL SECTION



TRAFFIC CONTROL, LANE CLOSURE, SPEEDS GREATER THAN 40 M.P.H. WITH BARRIER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8/2013 — DATE
/S/ Travis Feltes — STATE TRAFFIC ENGINEER — SIGN
FHWA

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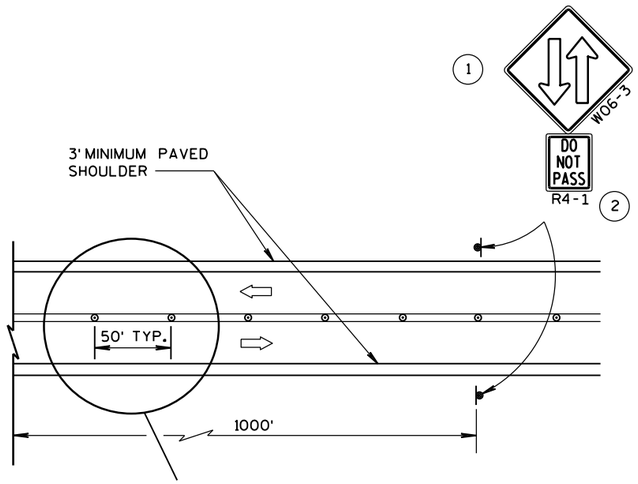
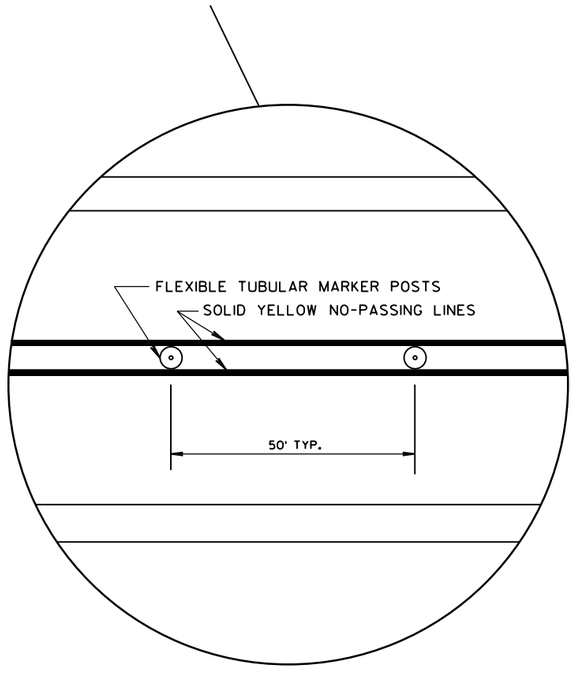
S.D.D. 15 D 3-2

6

S.D.D. 15 D 3-2



TWO LANE, TWO WAY OPERATION



LEGEND

- SIGN ON PERMANENT SUPPORT
- DELINEATOR FLEXIBLE/TUBULAR MARKER
- DIRECTION OF TRAFFIC

GENERAL NOTES

ALL SIGNS ARE 48"x48" UNLESS OTHERS NOTED.

"WO" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.

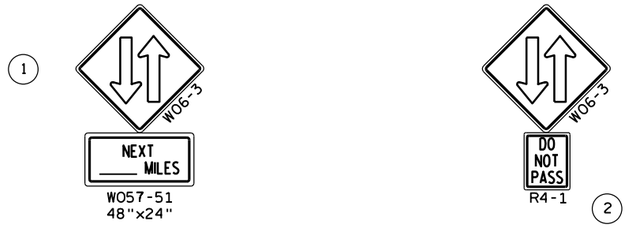
ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH THE TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER. NO WARNING LIGHTS SHALL BE WORKING ON "COVERED" OR "DOWNED" SIGNS.

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 SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET, (500 FEET DESIRABLE) DISTANCE TO EXISTING SIGNS.

A SINGLE ROW OF FLEXIBLE TUBULAR MARKERS ON CENTERLINE EXTEND FOR THE ENTIRE LENGTH OF TWO-WAY TRAFFIC AT 50-FOOT SPACING.

COVER EXISTING CENTERLINE STRIPE WITH TEMPORARY PAVEMENT MARKING, 4-INCH DOUBLE YELLOW.



THE W06-3 WITH THE W057-51 SHALL BE LOCATED 200 FEET BEYOND THE END OF THE ACCELERATION LANE OF EACH ENTRANCE RAMP AND/OR 500 FEET BEYOND ANY SIDEROAD. THE W06-3 WITH THE R4-1 SHALL BE LOCATED 1000 FEET BEYOND THE W06-3 AND THE W057-51 AND THE SIGNS SHALL BE ALTERNATED WITH ONE MILE INTERVALS BETWEEN W06-3 SIGNS.

(2) CONVENTIONAL: 24"x30"
FREEWAY AND EXPRESSWAY: 36"x48"

TRAFFIC CONTROL, TWO LANE TWO WAY OPERATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8/2013 DATE
/S/ Travis Feltes STATE TRAFFIC ENGINEER
SIGN
FHWA

LEGEND

- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON PERMENENT SUPPORT
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TRAFFIC CONTROL DRUM
- FLASHING ARROW BOARD
- (A) TYPE "A" WARNING LIGHT (FLASHING)
- REMOVING PAVEMENT MARKING
- DIRECTION OF TRAFFIC
- WORK AREA

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 SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET, (500 FEET DESIREABLE) DISTANCE TO EXISTING SIGNS.

THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE - REVERSE FOR CLOSING LEFT LANE.

ALL SIGNS ARE 48"×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 AND AS APPROVED BY THE ENGINEER. NO WARNING LIGHTS SHALL BE WORKING ON "COVERED" OR "DOWNED" SIGNS.

CONSIDER GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS FOR A MINIMUM 1500 FEET IN FRONT OF DRUMS.

FOR A LANE CLOSURE THAT IS IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, THE ADVANCED WARNING SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS.

REMOVE PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE FOR LONGER THAN 4 OR MORE DAYS AND NIGHTS.

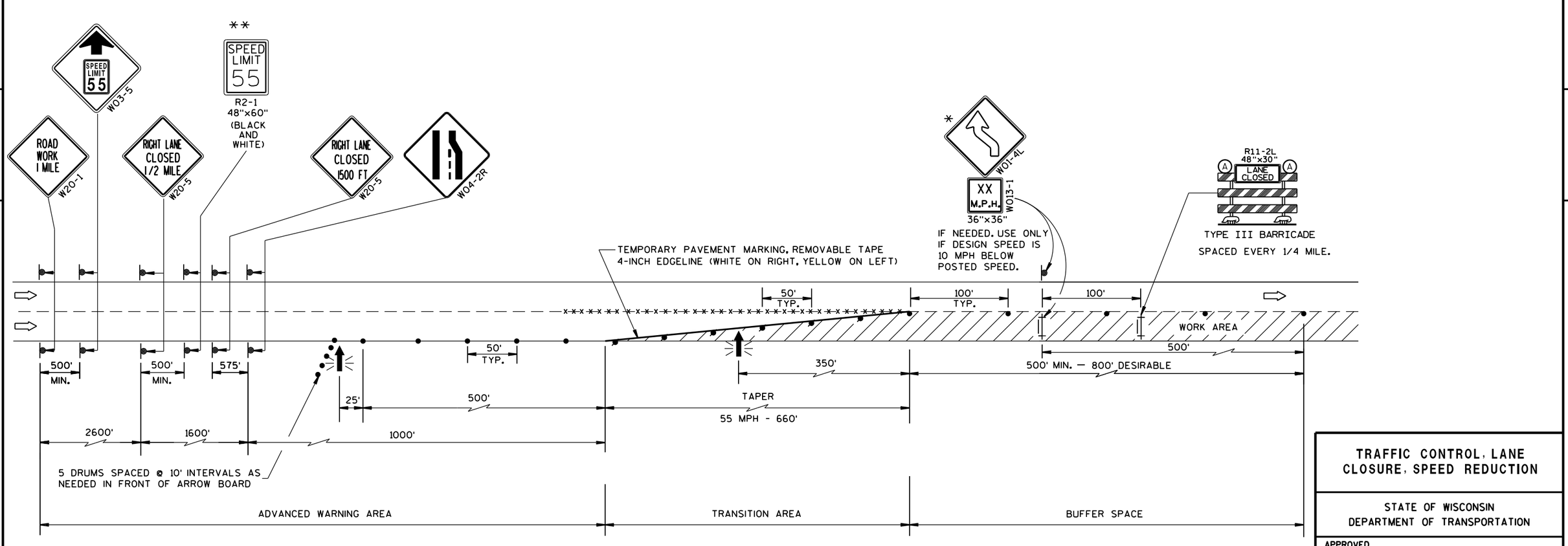
WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL DELINEATION, THE DEVICE SPACING MAY BE DECREASED TO 50 FEET.

ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP. THE LANE CLOSURE MUST MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE 1/2 THE LENGTH OF THE TRANSITION AREA. THE ENTRANCE RAMP SHOULD BE FOLLOWED BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A CROSSOVER MANEUVER.

* THE LEFT REVERSE CURVE SIGN (WO1-4L) IS ONLY REQUIRED WHEN THIS DETAIL IS USED IN COMBINATION WITH "SINGLE LANE CROSSOVER" DETAIL.

** A SPEED LIMIT SIGN SHALL BE LOCATED 1500 FEET BEYOND THE END OF THE ACCELERATION LANE OF EACH ENTRANCE RAMP. THERE SHOULD BE A SPEED LIMIT SIGN INCORPORATED A MINIMUM OF EVERY 2 OR 3 MILES. INCLUDE A 65 MPH RESUME SPEED LIMIT SIGN 200 FEET MINIMUM (500 FEET DESIREABLE) BEYOND THE "END OF ROADWORK" SIGN.



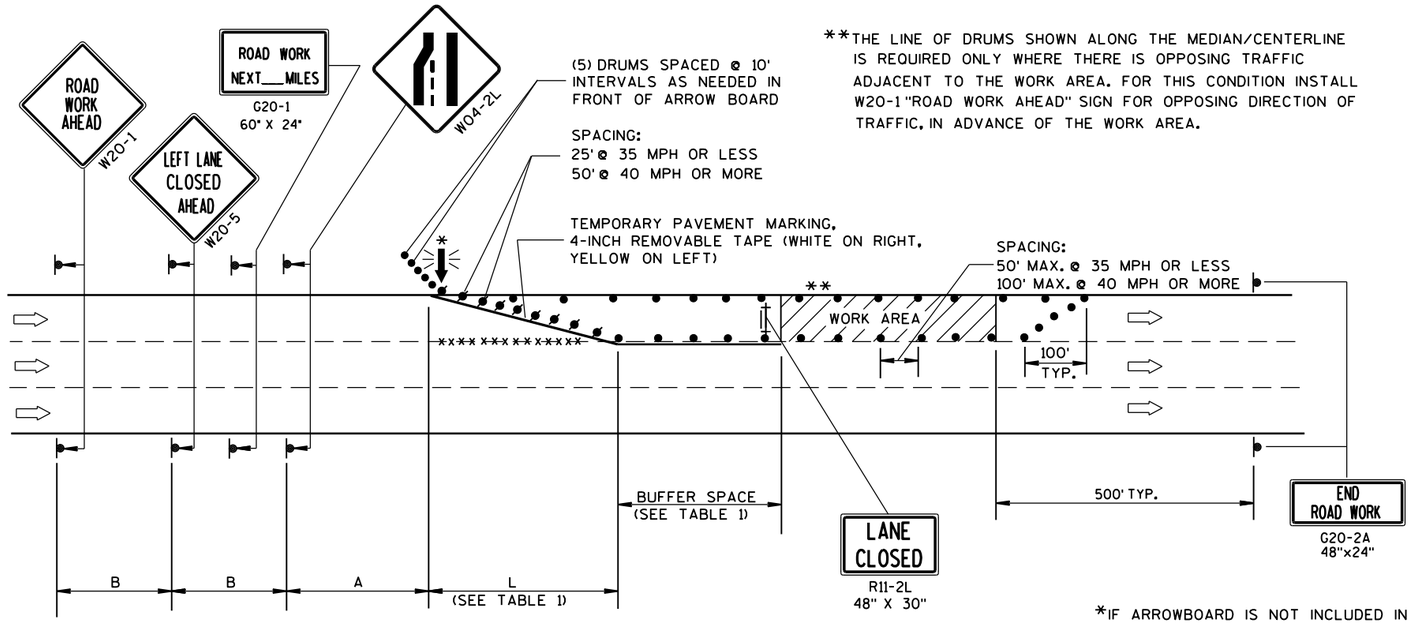
TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Feb. 2015 — DATE
/S/ Travis Feltes — STATE TRAFFIC ENGINEER
FHWA

S.D.D. 15 D 12-5b

S.D.D. 15 D 12-5b



**THE LINE OF DRUMS SHOWN ALONG THE MEDIAN/CENTERLINE IS REQUIRED ONLY WHERE THERE IS OPPOSING TRAFFIC ADJACENT TO THE WORK AREA. FOR THIS CONDITION INSTALL W20-1 "ROAD WORK AHEAD" SIGN FOR OPPOSING DIRECTION OF TRAFFIC, IN ADVANCE OF THE WORK AREA.

B=400' AT 25-30 MPH
700' AT 35-40 MPH
1000' AT 45-55 MPH

A=200' AT 25-30 MPH
350' AT 35-40 MPH
500' AT 45-55 MPH

(PLACE BARRICADE AND SIGN APPROX. EVERY 1000' ACROSS THE CLOSED LANE)

*IF ARROWBOARD IS NOT INCLUDED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE A TYPE III BARRICADE WITH W01-6 SIGN IN THE LANE CLOSURE TAPER.

W01-6
48"x24"

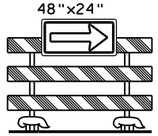


TABLE 1
TAPER AND BUFFER SPACE FOR 12' LANE WIDTH

S	L	BUFFER SPACE
25	125'	55'
30	180'	85'
35	245'	120'
40	320'	170'
45	540'	220'
50	600'	280'
55	660'	335'

FOR LANE WIDTH OTHER THAN 12':

L = WS AT 45 MPH OR GREATER

$L = \frac{WS^2}{60}$ AT 40 MPH OR LESS

L = TAPER LENGTH IN FEET

S = NON-CONSTRUCTION SPEED LIMIT (MPH)

W = WIDTH OF LANE CLOSURE

LEGEND

- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TRAFFIC CONTROL DRUM
- FLASHING ARROW BOARD
- DIRECTION OF TRAFFIC
- REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)
- WORK AREA

GENERAL NOTES

THIS LANE CLOSURE DETAIL IS TYPICAL FOR CLOSING THE LEFT LANE. FOR A RIGHT LANE CLOSURE, REVERSE THE TRAFFIC CONTROL.

THIS DETAIL MAY BE USED FOR ROADWAYS WITH EITHER TWO OR THREE LANES IN EACH DIRECTION.

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 SHOULD PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" SIGNS MAY BE USED IF APPROVED BY DISTRICT TRAFFIC UNIT.

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

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, OR THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE SUPPORTS.

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.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING, REMOVABLE TAPE IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

ON UNDIVIDED ROADWAYS, OMIT THE SIGNS SHOWN ON LEFT SIDE OF ROAD.

W20-1, G20-1 AND G20-2A SIGNS ARE NOT REQUIRED IF THE LANE CLOSURE IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT.

OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS.

CONSIDER GEOMETRICS WHEN LOCATING SIGNS AND ARROWBOARDS SO THE APPROACHING DRIVER HAS A CLEAR VIEW OF THE ARROWBOARDS AND LANE CLOSURE DRUMS.

PLACE THE ARROWBOARD AS CLOSE AS POSSIBLE TO THE BEGINNING OF THE LANE CLOSURE TAPER, PREFERABLY ON THE SHOULDER OR TERRACE.

CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

BARRICADES IN A CLOSED LANE 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.

WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

TRAFFIC CONTROL, SINGLE LANE CLOSURE, NON-FREEWAY/EXPRESSWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Feb. 2015 — DATE
/S/ Travis Feltes — STATE TRAFFIC ENGINEER
FHWA

6

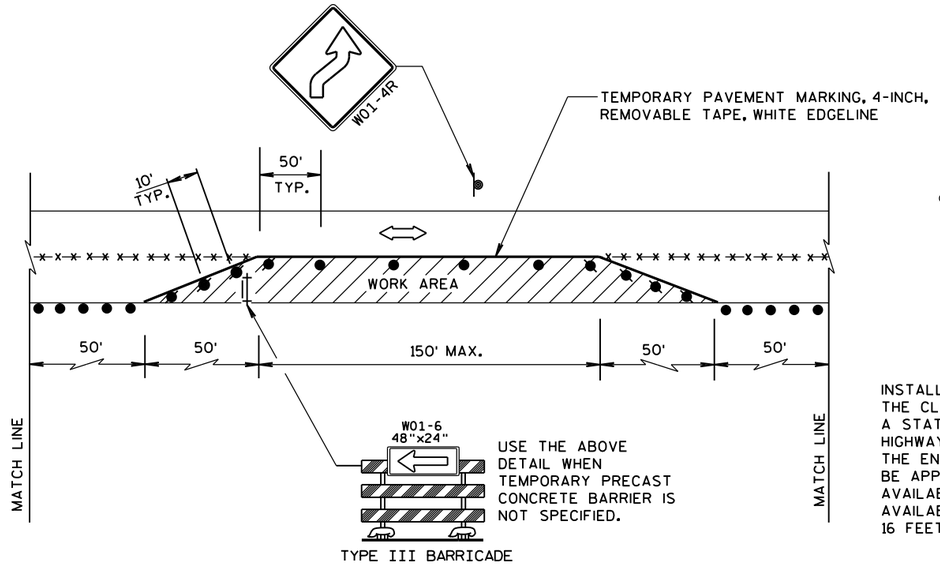
S.D.D. 15 D 20-3

6

S.D.D. 15 D 20-3

LEGEND

- SIGN ON PERMANENT SUPPORT
- REMOVING PAVEMENT MARKING
- TYPE III BARRICADE WITH ATTACHED SIGN
- CONCRETE BARRIER TEMPORARY PRECAST
- FLAGS, 16" x 16" MIN., (ORANGE)
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- ASPHALTIC PAVEMENT WIDENING
- DIRECTION OF TRAFFIC



TYPE III BARRICADE

W057-52
36"x24"

INSTALL ON EACH APPROACH AT THE CLOSEST INTERSECTION WITH A STATE OR COUNTY TRUNK HIGHWAY, OR AS DIRECTED BY THE ENGINEER. WIDTH ON SIGN TO BE APPROX. 1-FOOT LESS THAN AVAILABLE WIDTH. (OMIT IF AVAILABLE WIDTH IS MORE THAN 16 FEET.)

GENERAL NOTES

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

"WO" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.

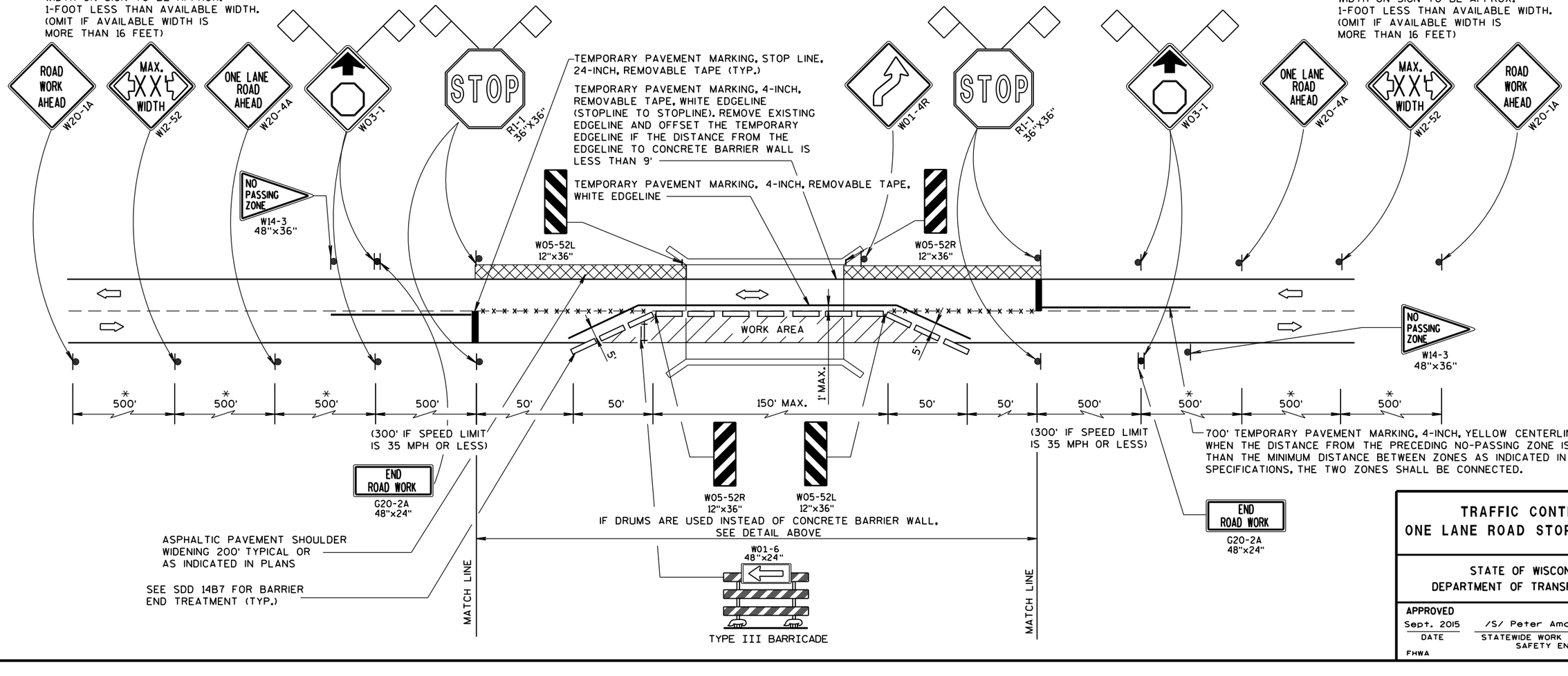
SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

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.

PLACE TEMPORARY PAVEMENT MARKING EDGELINE AND CENTERLINE, AND REMOVE EXISTING PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS OR AS NOTED ON DETAIL.

* 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.

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



TYPE III BARRICADE

TRAFFIC CONTROL, ONE LANE ROAD STOP CONDITION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Sept. 2015 — DATE
/S/ Peter Amakobe Atepe
STATEWIDE WORK ZONE SAFETY ENGINEER
IC
FHWA

6

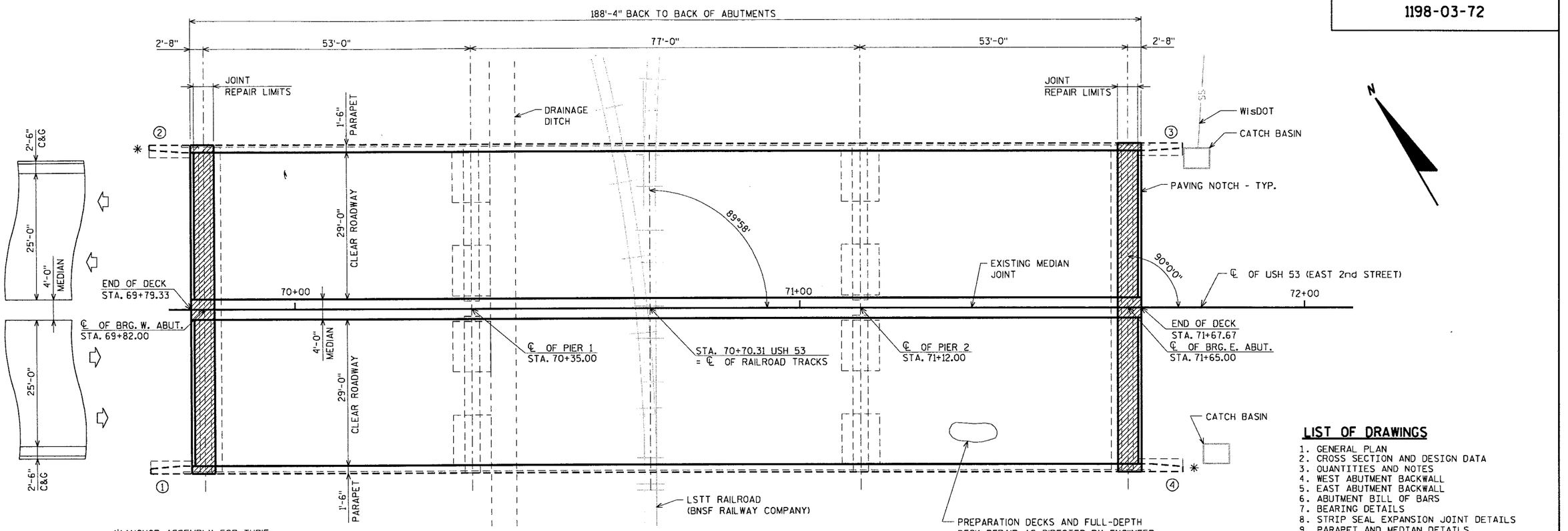
S.D.D. 15 D 32-4

6

S.D.D. 15 D 32-4

STATE PROJECT NUMBER

1198-03-72



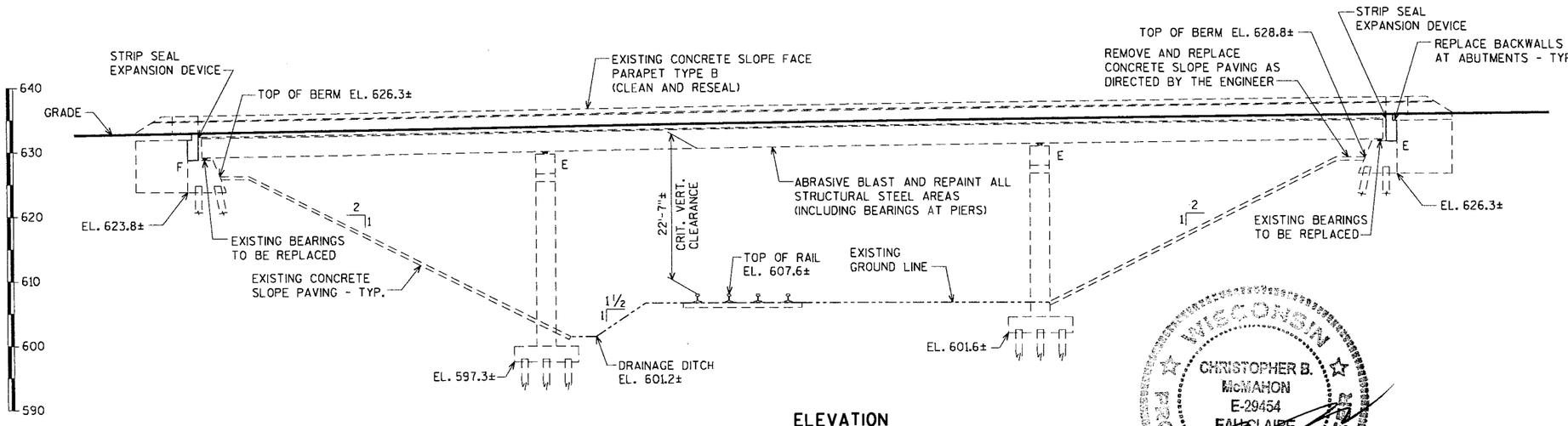
✳ANCHOR ASSEMBLY FOR THRIE BEAM TYPE GUARDRAIL.

◯ DENOTES WING NUMBER.

PLAN

3 SPAN CONTINUOUS STEEL GIRDER BRIDGE
(POLYMER OVERLAY, JOINT REPAIR, & PAINTING)

LIST OF DRAWINGS



ELEVATION

FOR CROSS SECTION AND DESIGN DATA SEE SHEET 2

NO.	DATE	REVISION	BY

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher SDR 02/09/16
CHIEF STRUCTURES DESIGN ENGINEER — DATE

STRUCTURE B-16-10

USH 53 (EAST 2nd STREET) OVER LSTT RAILROAD

COUNTY	TOWN/CITY/VILLAGE
DOUGLAS	SUPERIOR

DESIGN SPEC. REHABILITATION N/A

DESIGNED BY	DESIGN CK'D. CJM/AEB	DRAWN BY	PLANS CK'D.
JCK		JCK/CLS	CBM

GENERAL PLAN

SHEET 1 OF 12
66

CHRISTOPHER B. McMAHON E-29454 EAU CLAIRE WI
PROFESSIONAL ENGINEER
2/8/16

BRIDGE OFFICE CONTACT:
WILLIAM DREHER
(608)-266-8489

CONSULTANT CONTACT:
CHRIS MCMAHON
(715)-834-3161

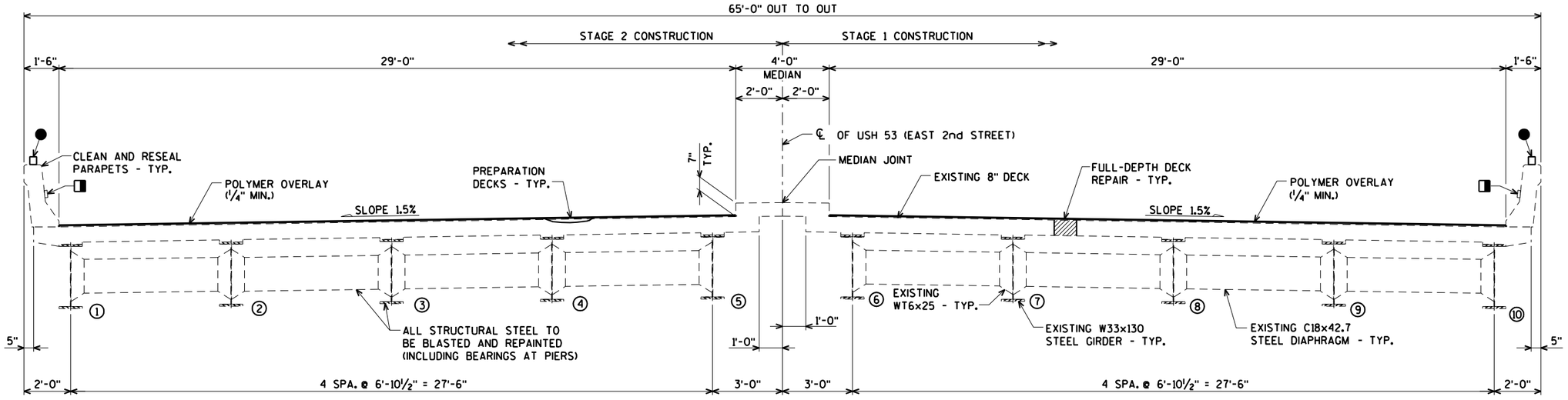
11X17-5200.plt
B-16-10 GP.dgn

DATE:
DATE:
DATE:
CHECKED BY:
BACK CHECKED BY:
CORRECTED BY:

8

8

2/8/2016 black.tbl I.D. DATE:



CROSS SECTION THRU ROADWAY
(LOOKING EAST)

- EXISTING DELINEATORS ON THE PARAPETS NEED TO BE REMOVED. COST INDICENTAL TO BID ITEM "CLEANING PARAPETS".
- DELINEATOR BRACKET WITH REFLECTOR TO BE MOUNTED ON THE EXISTING PARAPET AT 25' SPACING PER S.D.D. 15A2 "DELINEATOR POST, DELINEATOR BRACKET AND DELINEATOR". (BARRIER LOCATED TO RT. OF TRAFFIC FLOW)

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HS-20
INVENTORY RATING: HS-20
OPERATING RATING: HS-34
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 250 KIPS

MATERIAL PROPERTIES:

CONCRETE MASONRY	DECK PATCHING & SUPERSTRUCTURE	f'_c =	4,000 p.s.i.
	ALL OTHER	f'_c =	3,500 p.s.i.
HIGH STRENGTH BAR STEEL REINFORCEMENT (GRADE 60)		f_y =	60,000 p.s.i.

TRAFFIC DATA:

A.D.T. = 14,200 (2016)
A.D.T. = 16,700 (2036)
R.D.S. = 50 M.P.H.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-10

DRAWN BY JCK/CLS | PLANS CK'D. CBM

CROSS SECTION AND DESIGN DATA

SHEET 2 OF 12
67

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Eau Claire, WI 54701
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TOTAL ESTIMATED QUANTITIES

	BID ITEM NUMBER	BID ITEMS	UNIT	W. ABUT.	E. ABUT.	SUPER.	TOTAL
	203.0600.S.01	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STATION 70+74	LS	----	----	----	1
◭	204.0175	REMOVING CONCRETE SLOPE PAVING	SY	----	20	----	20
	206.1000.01	EXCAVATION FOR STRUCTURES BRIDGES B-16-10	LS	----	----	----	1
	210.0100	BACKFILL STRUCTURE	CY	40	40	----	80
	502.0100	CONCRETE MASONRY BRIDGES	CY	14	14	14	42
	502.2000	COMPRESSION JOINT SEALER PREFORATED ELASTOMERIC 2¼-INCH	LF	----	----	185	185
	502.3100.01	EXPANSION DEVICE B-16-10	LS	----	----	----	1
	502.3210	PIGMENTED SURFACE SEALER	SY	----	----	390	390
	502.5005	MASONRY ANCHORS TYPE L NO. 5 BARS	EACH	132	132	----	264
	505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	1,910	1,910	2,860	6,680
	505.0904	BAR COUPLERS NO. 4	EACH	8	8	----	16
	505.0905	BAR COUPLERS NO. 5	EACH	3	3	----	6
	506.5000.01	BEARING ASSEMBLIES FIXED B-16-10	EACH	10	----	----	10
	506.6000.01	BEARING ASSEMBLIES EXPANSION B-16-10	EACH	----	10	----	10
	506.7050.S.01	REMOVING BEARINGS B-16-10	EACH	10	10	----	20
	509.0301	PREPARATION DECKS TYPE 1	SY	----	----	5	5
	509.0302	PREPARATION DECKS TYPE 2	SY	----	----	2	2
	509.1000	JOINT REPAIR	SY	----	----	60	60
◑	509.1500	CONCRETE SURFACE REPAIR	SF	----	----	----	650
	509.2000	FULL-DEPTH DECK REPAIR	SY	----	----	----	1
	509.5100.S	POLYMER OVERLAY	SY	----	----	1,205	1,205
◨	509.9050.S	CLEANING PARAPETS	LF	----	----	420	420
	516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	13	13	----	26
	517.0900.S.01	PREPARATION AND COATING OF TOP FLANGES B-16-10	LS	----	----	----	1
	517.1800.S.01	STRUCTURE REPAINTING RECYCLED ABRASIVE B-16-10	LS	----	----	----	1
	517.4500.S.01	NEGATIVE PRESSURE CONTAINMENT AND COLLECTION OF WASTE MATERIALS B-16-10	LS	----	----	----	1
	517.6001.S	PORTABLE DECONTAMINATION FACILITY	EACH	----	----	----	1
	604.0400	SLOPE PAVING CONCRETE	SY	----	20	----	20
	633.0500	DELINEATOR REFLECTORS	EACH	----	----	18	18
	633.1000	DELINEATOR BRACKETS	EACH	----	----	18	18
	SPV.0035.01	CONCRETE MASONRY DECK PATCHING	CY	----	----	1	1
	SPV.0090.01	SAWING PAVEMENT DECK PREPARATION AREAS	LF	----	----	120	120
	SPV.0105.01	DEBRIS CONTAINMENT SPECIAL STRUCTURE B-16-0010	LS	----	----	----	1
		NON-BID ITEMS					
		BRIDGE SEAT PROTECTION					
		FILLER	SIZE	----	----	----	½"

◨ EXISTING DELINEATORS ON THE PARAPETS NEED TO BE REMOVED. COST INDICENTAL TO BID ITEM "CLEANING PARAPETS".

◭ AT EAST ABUTMENT AS DIRECTED BY THE ENGINEER IN THE FIELD.

◑ UNDISTRIBUTED. REQUIRED ON ABUTMENTS AND PIERS AS DIRECTED BY THE ENGINEER IN THE FIELD.

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

DECK SURFACE PREPARATION IS INCLUDED IN THE BID ITEM "POLYMER OVERLAY".

CLEAN AND FILL EXISTING LONGITUDINAL AND TRANSVERSE CRACKS WITH PENETRATING EPOXY AS DIRECTED BY THE FIELD ENGINEER.

AREAS OF "PREPARATION DECKS TYPE 1" SHALL BE DEFINED BY A SAW CUT.

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

THE FIRST DIGIT OF A THREE DIGIT BAR NO. AND THE FIRST TWO DIGITS OF A FOUR DIGIT BAR NO. SIGNIFIES THE BAR SIZE.

PREPARATION DECKS, CONCRETE SURFACE REPAIR, AND FULL-DEPTH DECK REPAIR SHALL BE AS DETERMINED BY THE ENGINEER IN THE FIELD.

DECK PREPARATION AND FULL-DEPTH DECK REPAIRS SHALL BE FILLED WITH "CONCRETE MASONRY DECK PATCHING".

PIGMENTED SURFACE SEALER IS TO BE APPLIED TO THE TOP AND CURB FACES OF THE MEDIAN AND THE TOP AND INSIDE FACES OF THE PARAPETS.

PROFILE GRADE LINE SHALL BE DETERMINED IN THE FIELD BASED ON A MINIMUM OVERLAY THICKNESS OF ¼" PLACED ABOVE THE FINAL DECK SURFACE AFTER ALL PREPARATION.

UTILIZE EXISTING BAR STEEL REINFORCEMENT WHERE SHOWN AND EXTEND 24 BAR DIAMETERS INTO NEW WORK, UNLESS SPECIFIED OTHERWISE.

THE EXISTING GROUNDLINE SHALL BE THE UPPER LIMIT FOR EXCAVATION FOR STRUCTURES.

AT ABUTMENTS ALL SPACES EXCAVATED AND NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH BACKFILL STRUCTURE.

EPOXY SEAL ABUTMENT BEAM SEATS.

EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE SHALL BE PAID FOR IN THE LUMP SUM BID PRICE AS "EXPANSION DEVICE B-16-10".

THE COLOR OF THE FINISH EPOXY TOP COAT FOR THE GIRDERS AND CONNECTING STRUCTURAL STEEL SHALL BE LIGHT GRAY (FEDERAL STANDARD COLOR NO. 26293).

THE QUANTITY FOR BACKFILL STRUCTURES, BID ITEM 210.0100, IS CALCULATED BASED ON THE APPLICABLE FIGURES 12.6-1 AND 12.6-2 IN THE WISCONSIN DEPARTMENT OF TRANSPORTATION BRIDGE MANUAL.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-10

DRAWN BY JCK/CLS | PLANS CK'D. CBM

QUANTITIES AND NOTES

SHEET 3 OF 12
68

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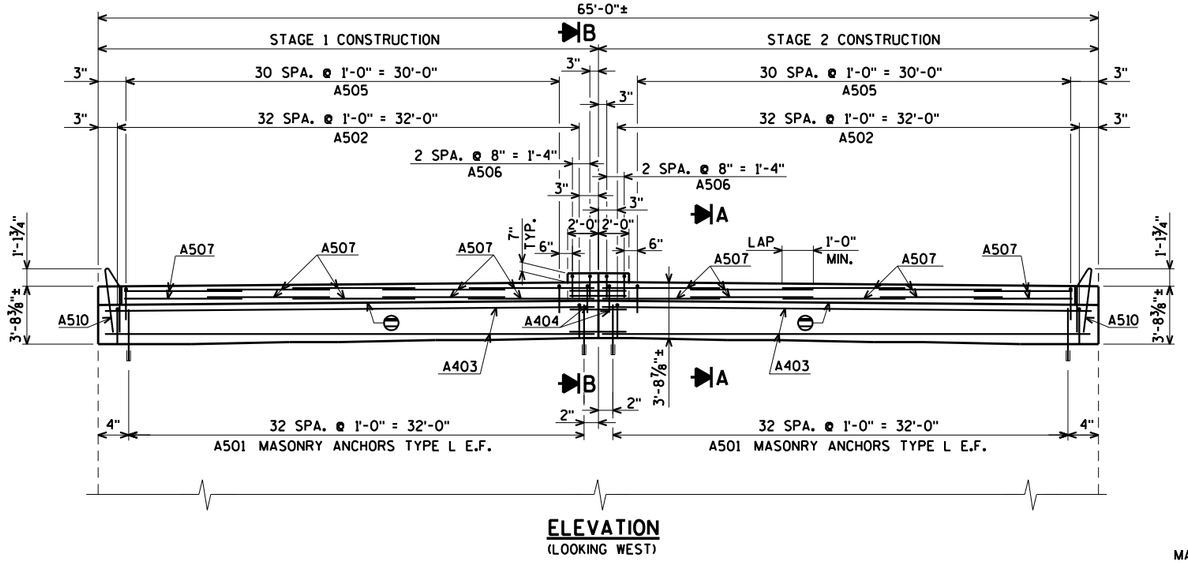
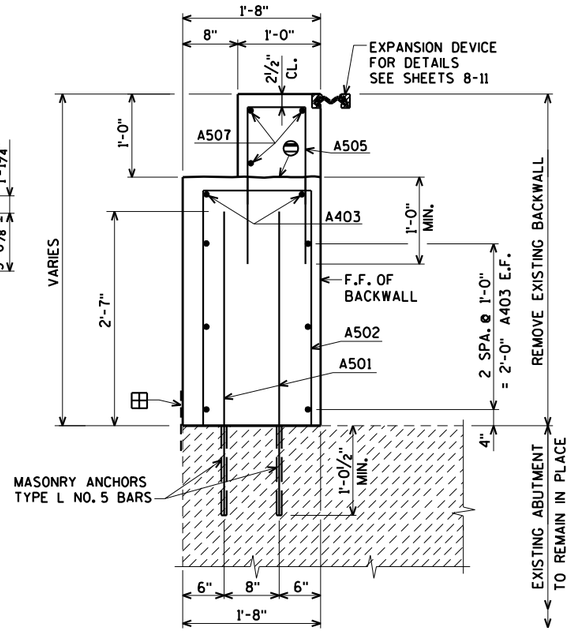
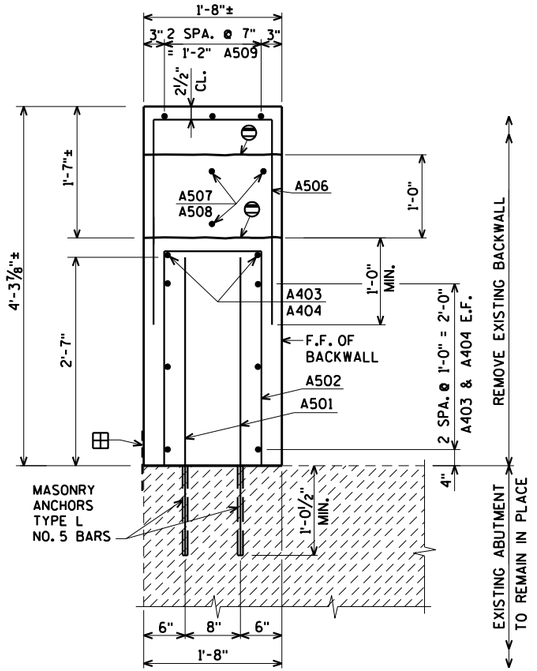


ELEVATION
(LOOKING WEST)



SECTION A



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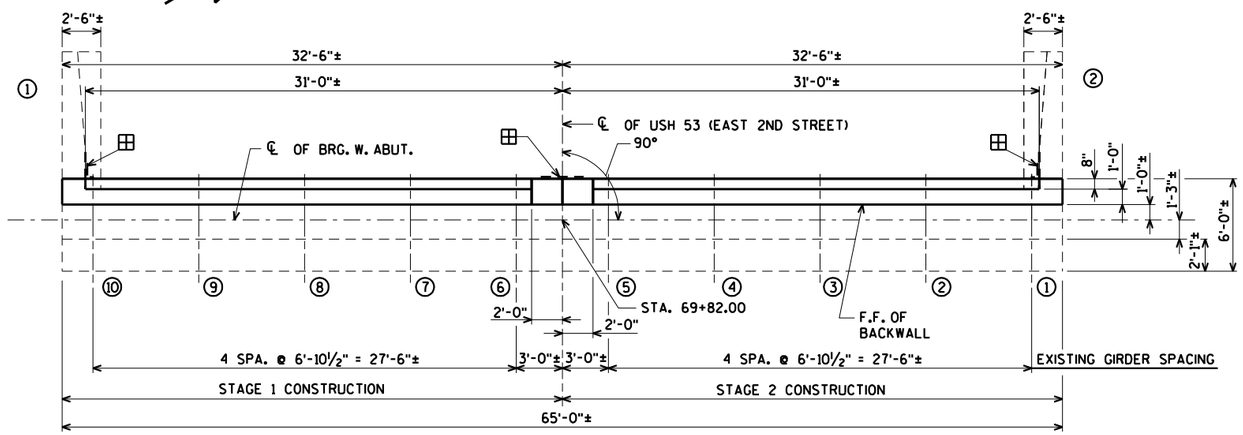
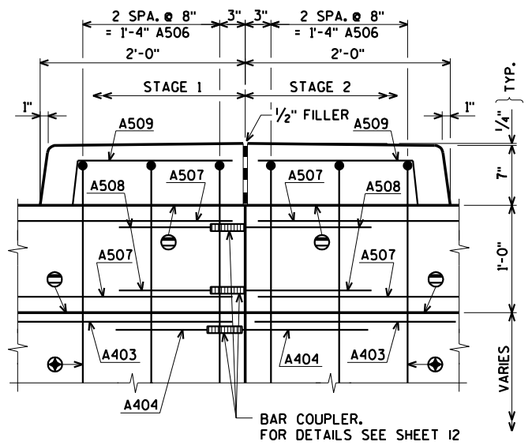


PLAN



CONST. JOINT & MEDIAN DETAIL
(LOOKING WEST)

NOTE:
SEAL ALL EXPOSED HORIZONTAL SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE).

⊖ CONST. JOINT - STRIKE OFF AND LEAVE ROUGH.

⊞ 18" RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE OF ABUTMENT AND WINGS.

⊕ FIELD CUT BAR AS NECESSARY TO MISS NEOPRENE STRIP SEAL AND STEEL EXTRUSION.

PARAPET NOT SHOWN.
FOR DETAILS SEE SHEET 9

F.F. DENOTES FRONT FACE

E.F. DENOTES EACH FACE

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-10

DRAWN BY CLS | PLANS CK'D. CBM

WEST ABUTMENT BACKWALL

SHEET 4 OF 12
69

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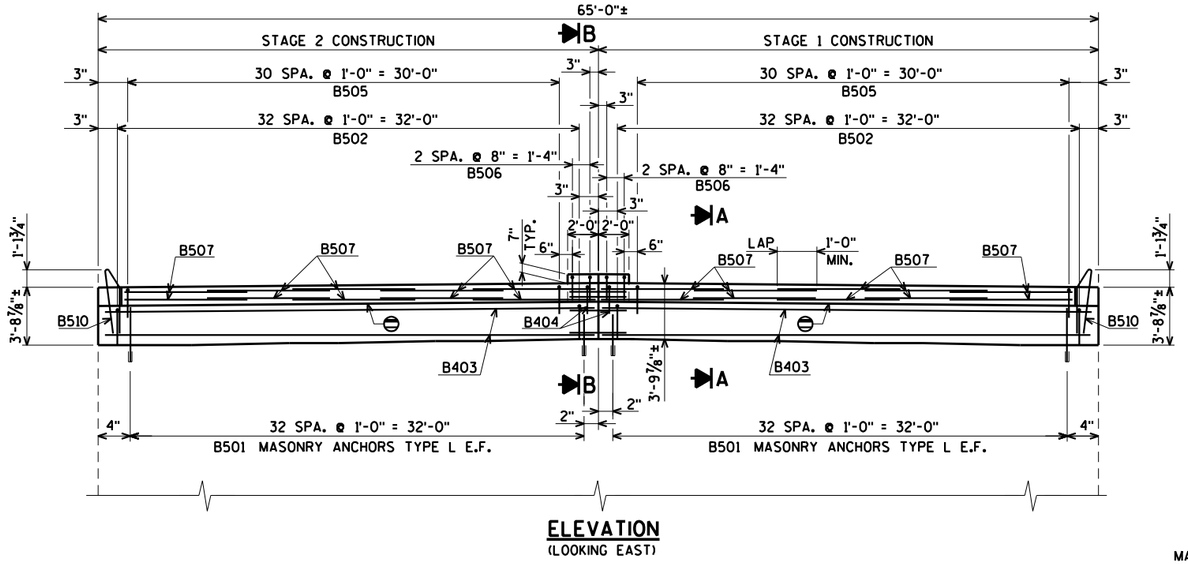
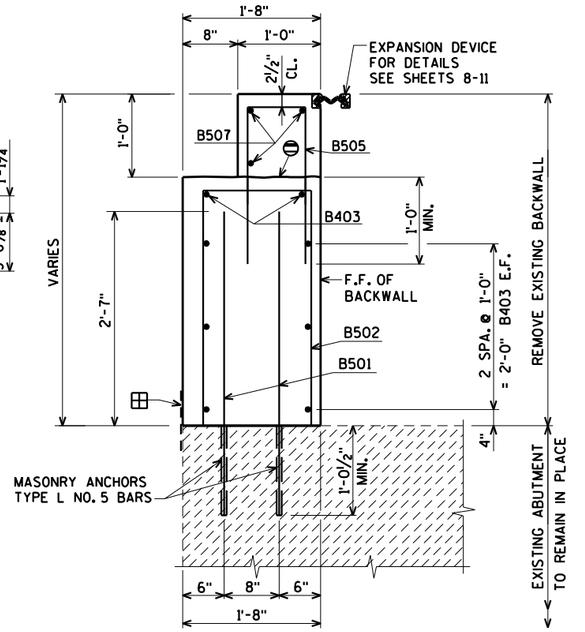
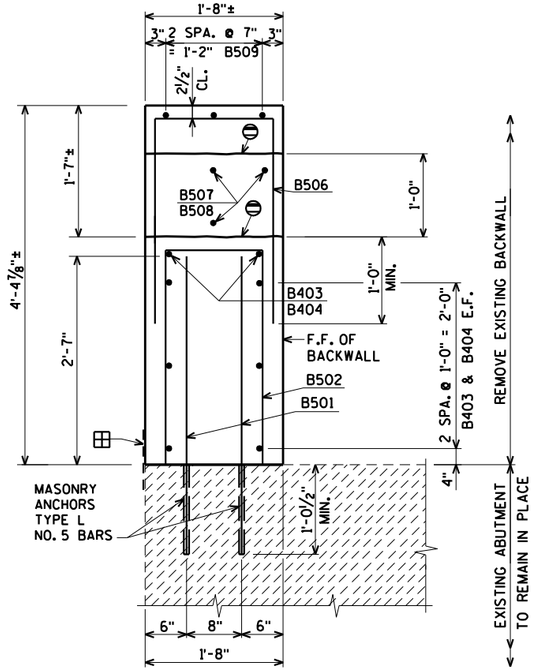


ELEVATION
(LOOKING EAST)



SECTION A



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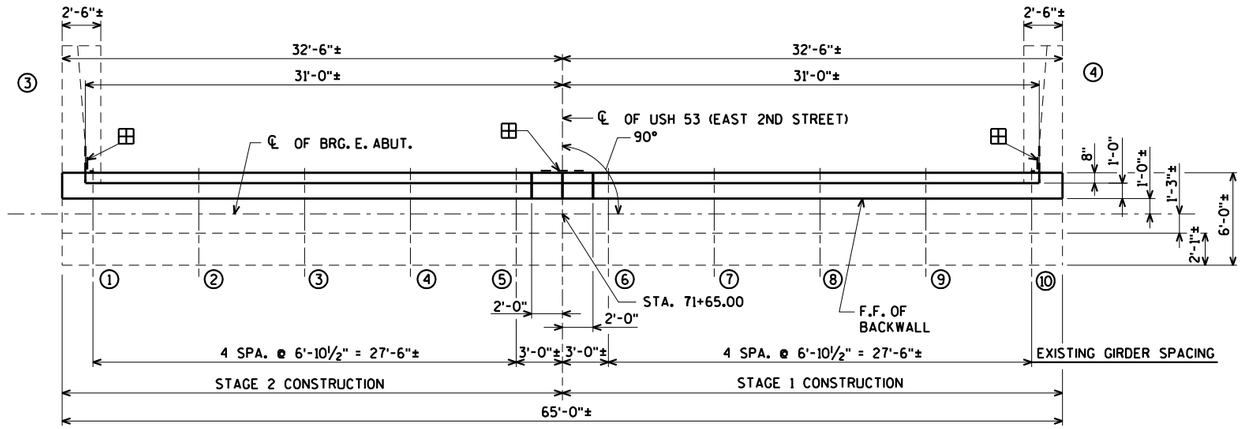
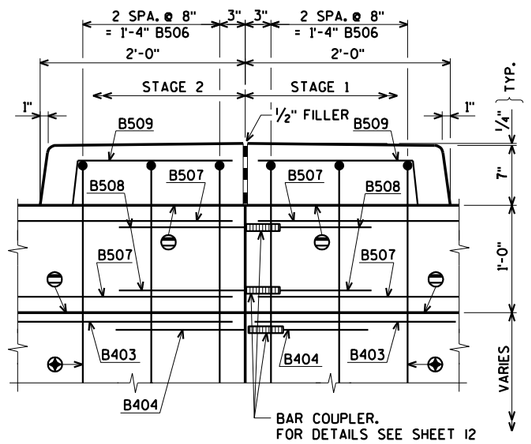


PLAN



CONST. JOINT & MEDIAN DETAIL
(LOOKING EAST)

NOTE:
SEAL ALL EXPOSED HORIZONTAL SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE).

⊖ CONST. JOINT - STRIKE OFF AND LEAVE ROUGH.

⊞ 18" RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE OF ABUTMENT AND WINGS.

⊕ FIELD CUT BAR AS NECESSARY TO MISS NEOPRENE STRIP SEAL AND STEEL EXTRUSION.

PARAPET NOT SHOWN.
FOR DETAILS SEE SHEET 9

F.F. DENOTES FRONT FACE

E.F. DENOTES EACH FACE

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-10

DRAWN BY CLS | PLANS CK'D. CBM

EAST ABUTMENT BACKWALL

SHEET 5 OF 12
70

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STATE PROJECT NUMBER

1198-03-72

BILL OF BARS - WEST ABUTMENT

	BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR	SERIES	1,910# COATED LOCATION
◩	A501	X	132	3-8				BACKWALL VERT. DOWELS
	A502	X	66	6-2	X			BACKWALL VERT.
	A403	X	16	32-2				BACKWALL HORIZ. E.F.
⊗	A404	X	16	2-4				BACKWALL HORIZ. E.F. @ CONST. JOINT
	A505	X	62	4-2	X			PAVING BLOCK VERT.
	A506	X	6	5-10	X			PAVING BLOCK VERT. @ MEDIAN
	A507	X	30	8-0				PAVING BLOCK HORIZ.
⊗	A508	X	6	2-11				PAVING BLOCK HORIZ. @ CONST. JOINT
	A509	X	6	1-11	X			PAVING BLOCK HORIZ. @ MEDIAN
	A510	X	6	4-7	X			BACKWALL @ PARAPET

BILL OF BARS - EAST ABUTMENT

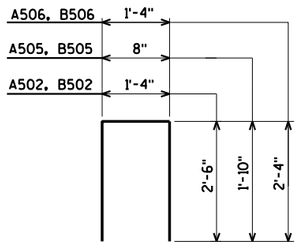
	BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR	SERIES	1,910# COATED LOCATION
◩	B501	X	132	3-8				BACKWALL VERT. DOWELS
	B502	X	66	6-2	X			BACKWALL VERT.
	B403	X	16	32-2				BACKWALL HORIZ. E.F.
⊗	B404	X	16	2-4				BACKWALL HORIZ. E.F. @ CONST. JOINT
	B505	X	62	4-2	X			PAVING BLOCK VERT.
	B506	X	6	5-10	X			PAVING BLOCK VERT. @ MEDIAN
	B507	X	30	8-0				PAVING BLOCK HORIZ.
⊗	B508	X	6	2-11				PAVING BLOCK HORIZ. @ CONST. JOINT
	B509	X	6	1-11	X			PAVING BLOCK HORIZ. @ MEDIAN
	B510	X	6	4-7	X			BACKWALL @ PARAPET

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

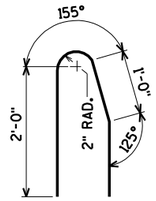
◩ MASONRY ANCHORS TYPE L NO. 5 BARS

⊗ BAR COUPLERS REQ'D. FOR DETAILS SEE SHEET 12.

E.F. DENOTES EACH FACE



A509, B509



A510, B510

8

8

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-10

DRAWN BY CLS | PLANS CK'D. CBM

ABUTMENT
BILL OF BARS

SHEET 6 OF 12
71

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2/8/2016

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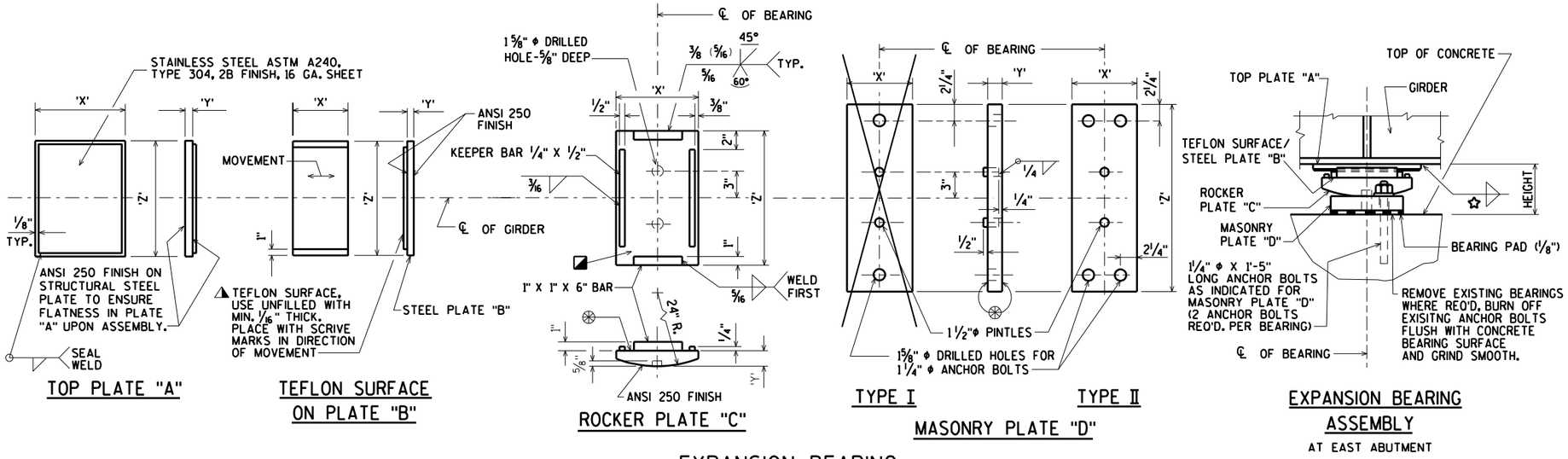


EXPANSION BEARING

	PLATE "A"			PLATE "B"			PLATE "C"			PLATE "D"			PLATE "D" TYPE	ANCHOR BOLT SIZE	ANCHOR BOLT LENGTH	NO. OF BRG'S REQ'D.	LOCATION	HEIGHT FEET
	'X'	'Y'	'Z'	'X'	'Y'	'Z'	'X'	'Y'	'Z'	'X'	'Y'	'Z'						
EXPANSION BEARING	11"	5/8"	1'-2"	7"	1/2"	1'-2"	9"	1 5/16 "	1'-4 1/4"	8"	1 5/16 "	2'-0"	II	1 1/4" ϕ	1'-5"	10	AT EAST ABUTMENT	0.35
FIXED BEARING	5"		1'-2"	9"		1'-10 1/2"		1 5/16 "			1 1/2"		II	1 1/4" ϕ	1'-5"	10	AT WEST ABUTMENT	0.30

BEARING NOTES

ALL BEARINGS ARE SYMMETRICAL ABOUT ℄ OF GIRDER AND ℄ OF BEARING.

ALL STRUCTURAL STEEL BEARING PLATES SHALL BE FLAT ROLLED STEEL PLATES WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL.

ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUTS.

ALL FINISHED SURFACES SHALL BE MACHINE FINISHED BY AN AUTOMATIC PROCESS.

CHAMFER ANCHOR BOLTS PRIOR TO THREADING.

ANCHOR BOLTS SHALL BE THREADED 3". PROVIDE ONE STANDARD WROUGHT WASHER AND ONE HEX NUT PER BOLT. BOLT LENGTH TO BE AS SHOWN FOR 1 1/4" ϕ BOLTS. PROJECT ANCHOR BOLTS, MASONRY PLATE "D" THICKNESS + SHIM PLATE IF APPLICABLE + 2 1/4", ABOVE TOP OF CONCRETE.

CHAMFER TOP OF PINTLES 1/8". DRILL HOLES FOR ALL PINTLES IN MASONRY PLATE "D" FOR A DRIVING FIT.

ALL MATERIAL IN BEARINGS, INCLUDING SHIM PLATES, BUT EXCLUDING ANCHOR BOLTS, STAINLESS STEEL SHEET, TEFLON SURFACE, PINTLES, NUTS AND WASHERS SHALL CONFORM TO ASTM A709 GRADE 50W.

STEEL PINTLES SHALL CONFORM TO ASTM A449 OR MATERIAL OF EQUIVALENT YIELD STRENGTH AND ELONGATION.

ANCHOR BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A709 GRADE 36, OR MATERIAL OF EQUIVALENT YIELD STRENGTH AND ELONGATION.

PROVIDE 1/8" THICK BEARING PAD THE SAME SIZE AS MASONRY PLATE "D" FOR EACH BEARING.

ALL MATERIAL IN BEARINGS, INCLUDING SHIM PLATES, AND BEARING PADS, SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "BEARING ASSEMBLIES EXPANSION B-16-10" OR "BEARING ASSEMBLIES FIXED B-16-10", EACH.

ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153, CLASS C.

PLACE SHIM PLATES BETWEEN BEARING PAD AND MASONRY PLATE "D". PLATES SHALL HAVE "X" AND "Z" DIMENSIONS THAT MATCH MASONRY PLATE "D".

IN LIEU OF USING SHIM PLATES, FABRICATOR MAY INCREASE THICKNESS OF TOP PLATE "A" OR MASONRY PLATE "D" BY THE SHIM PLATE THICKNESS.

FILL NON-USED HOLES IN PLATE "D" WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

FIXED BEARINGS:
ROCKER PLATE "C" SHALL BE SHOP PAINTED WITH A WELDABLE PRIMER.
MASONRY PLATE "D" SHALL BE GALVANIZED.

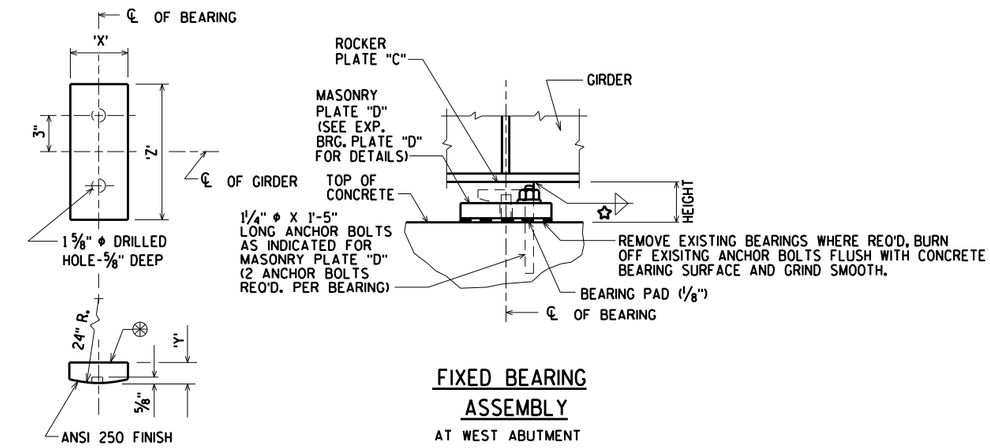
EXPANSION BEARINGS:
TOP PLATE "A" AND STEEL PLATE "B" SHALL BE SHOP PAINTED. USE A WELDABLE PRIMER ON TOP PLATE "A".
ROCKER PLATE "C" AND MASONRY PLATE "D" SHALL BE GALVANIZED.
DO NOT PAINT STAINLESS STEEL OR TEFLON SURFACES.

⊛ FINISH THESE SURFACES TO ANSI 250 IF 'Y' DIMENSION IS GREATER THAN 2".

◪ PROVIDE A METHOD FOR HANDLING ROCKER PLATE "C" DURING GALVANIZING.

⚠ BOND STEEL PLATE "B" AND TEFLON WITH ADHESIVE MATERIAL MEETING FEDERAL SPECIFICATION MMM-A-134, FEP FILM OR EQUAL.

AT INSTALLATION, ENSURE STAINLESS STEEL SLIDING FACE OF THE UPPER ELEMENT AND THE TFE SLIDING FACE OF THE LOWER ELEMENT HAVE THE SURFACE FINISH SPECIFIED AND ARE CLEAN AND FREE OF ALL DUST, MOISTURE, AND OTHER FOREIGN MATTER.



FIXED BEARING

☆ TABLE OF FILLET WELD SIZES

MATERIAL THICKNESS OF THICKER PART JOINED.	✝ MIN. SIZE OF FILLET WELD
TO 1/2" INCLUSIVE	3/16"
OVER 1/2" TO 3/4"	1/4"
OVER 3/4" TO 1 1/2"	△ 5/16"
OVER 1 1/2"	△ 3/8"

✝ EXCEPT THAT THE WELD SIZE SHALL NOT EXCEED THE THICKNESS OF THE THINNER PART JOINED.

△ MIN. PASS SIZE IS 5/16"

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-10

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BEARING DETAILS

SHEET 7 OF 12
72

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
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STATE PROJECT NUMBER

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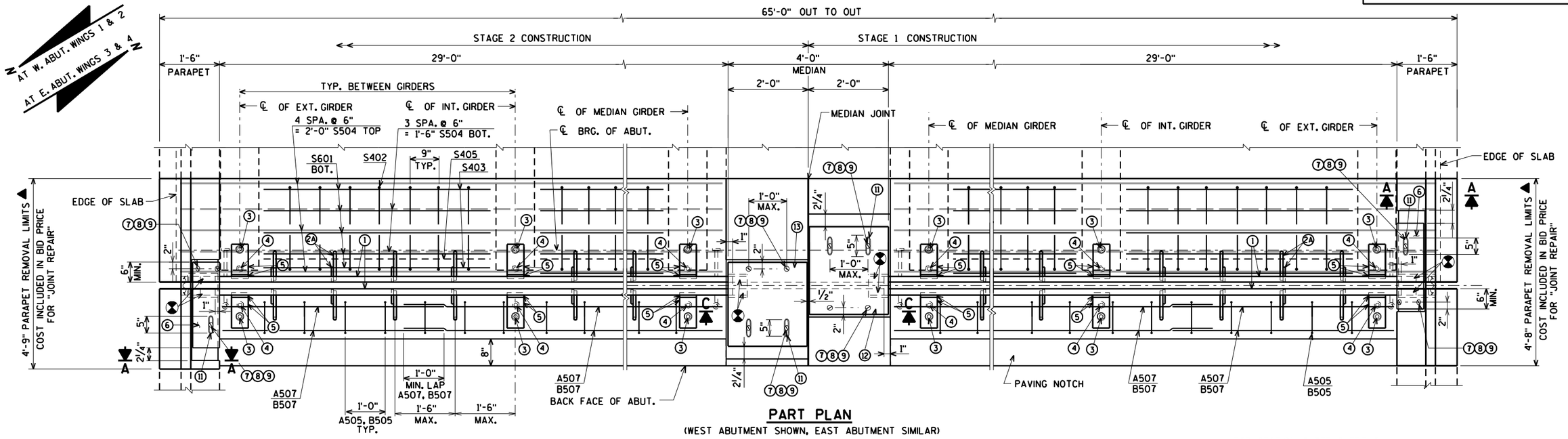
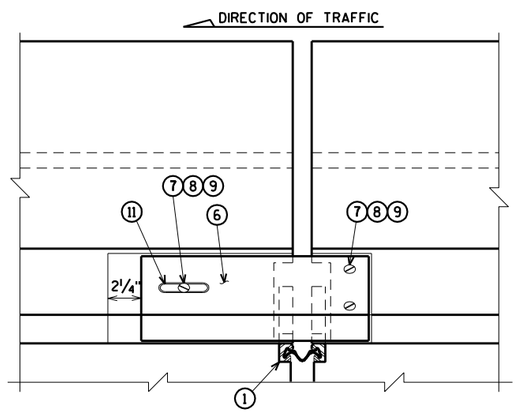


PART PLAN

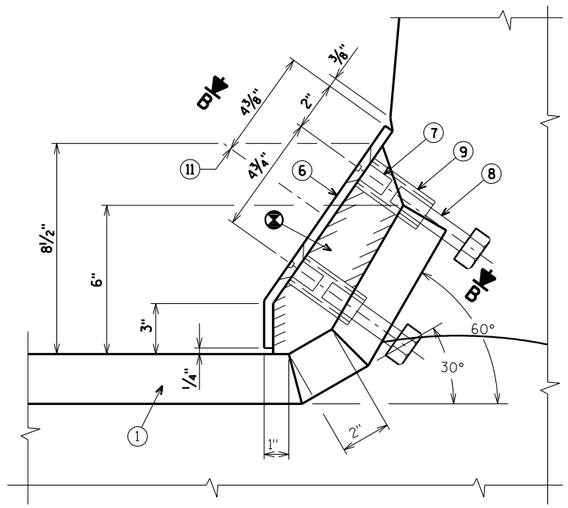
(WEST ABUTMENT SHOWN, EAST ABUTMENT SIMILAR)

FOR SECTION C SEE SHEET 9.

▲ UTILIZE EXISTING VERTICAL BAR STEEL FOR PARAPET REMOVAL LIMITS OUTSIDE OF THE "JOINT REPAIR" LIMITS.

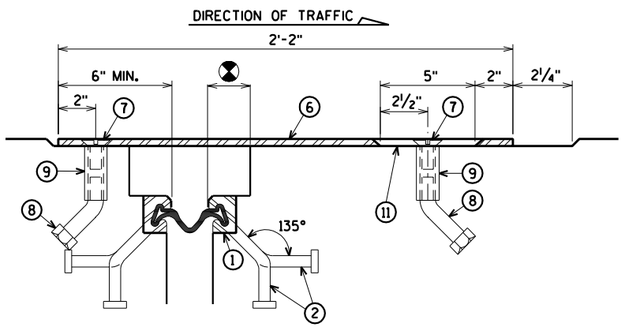


VIEW OF PARAPET PLATES FROM ROADWAY



SECTION A

BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.



SECTION B

WORK THIS SHEET WITH SHEETS 9-11.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-10

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STRIP SEAL EXPANSION JOINT DETAILS

SHEET 8 OF 12
73

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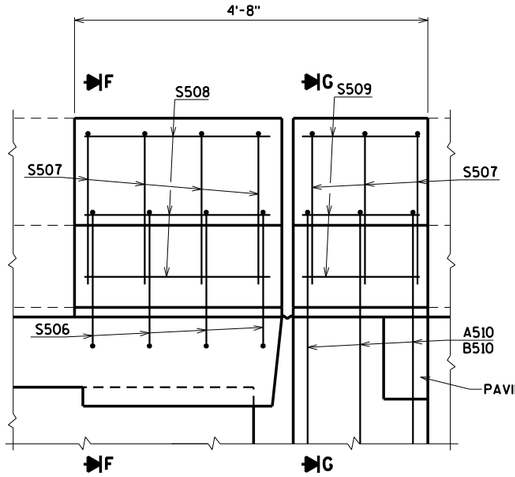
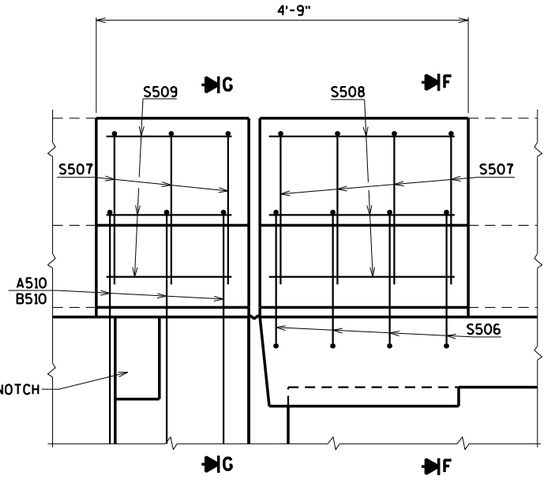
STATE PROJECT NUMBER

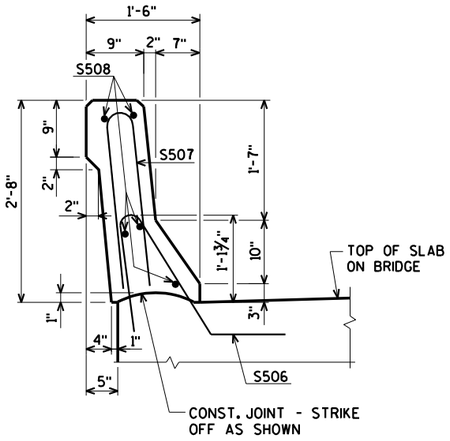
1198-03-72



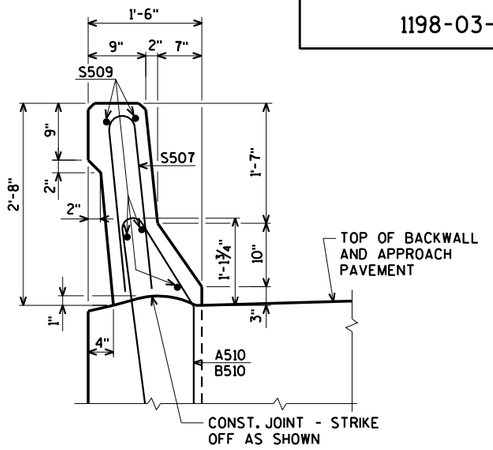
INSIDE ELEVATION
AT WINGS 1 & 3



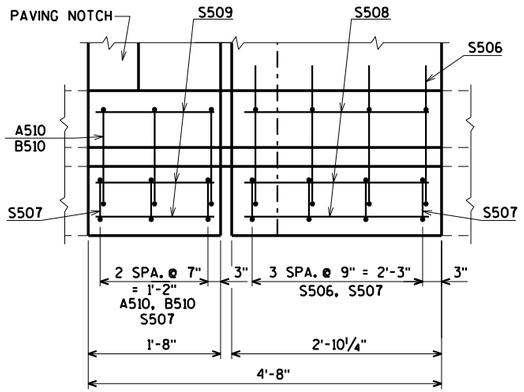
INSIDE ELEVATION
AT WINGS 2 & 4



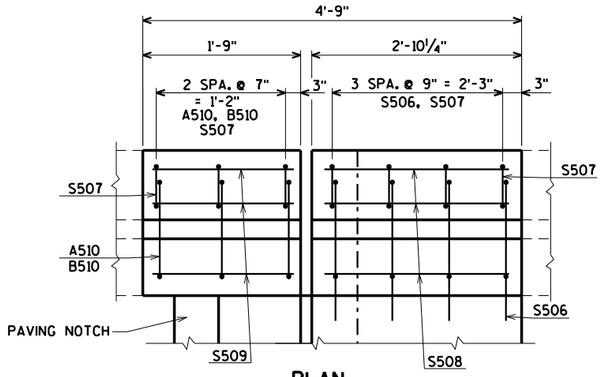
SECTION F



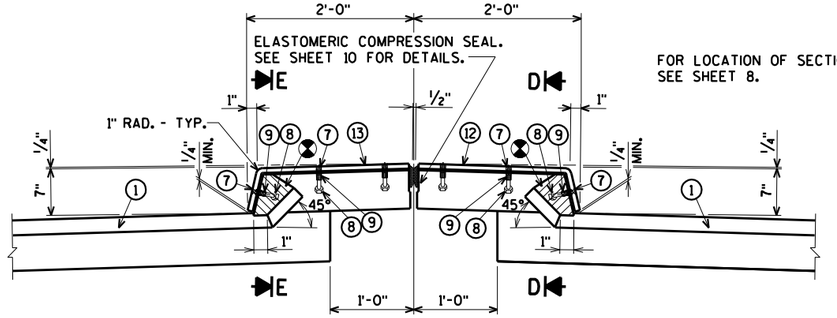
SECTION G



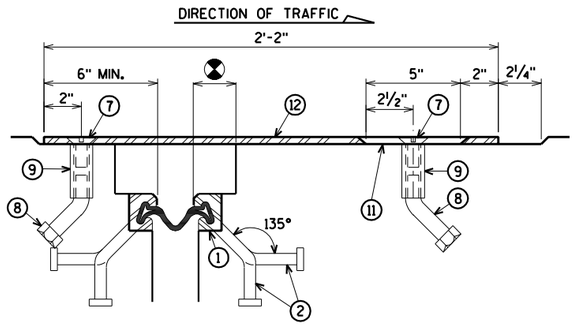
PLAN
AT WINGS 1 & 3



PLAN
AT WINGS 2 & 4

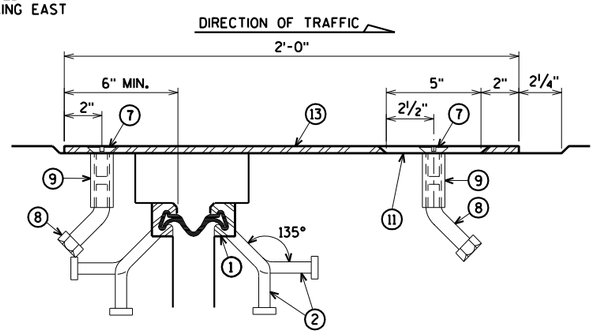


SECTION C
MEDIAN
LOOKING EAST

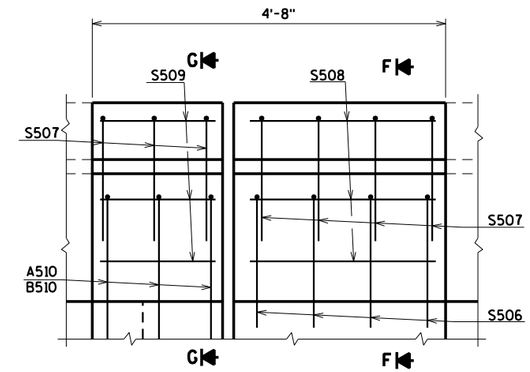


SECTION D

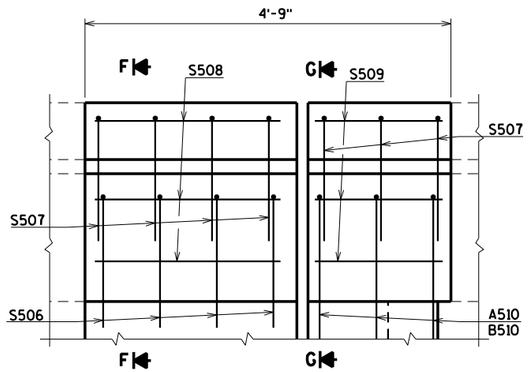
BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.



SECTION E



OUTSIDE ELEVATION
AT WINGS 1 & 3



OUTSIDE ELEVATION
AT WINGS 2 & 4

WORK THIS SHEET WITH SHEETS 8 & 10-11.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-10

DRAWN BY	CLS	PLANS CK'D.	CBM

PARAPET AND MEDIAN DETAILS

SHEET 9 OF 12
74

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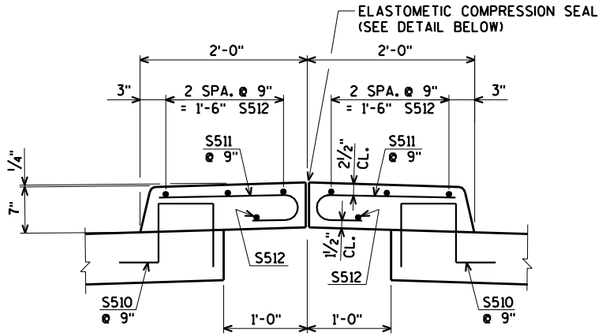
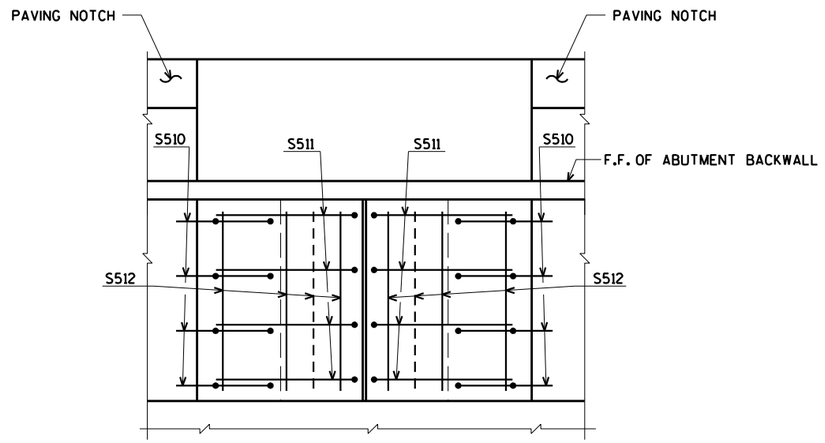
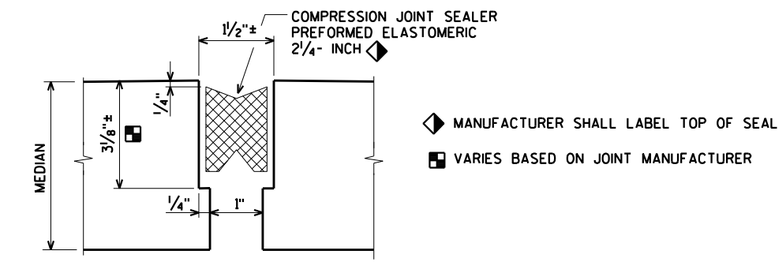


SECTION THRU MEDIAN ON DECK



PLAN VIEW OF MEDIAN ON DECK

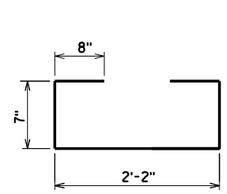


ELASTOMERIC COMPRESSION SEAL DETAIL

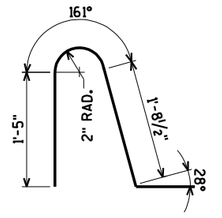
BILL OF BARS

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR	SERIES	2,860# COATED LOCATION
S601	X	80	5-7				DIAPH. BOT. HORIZ.
S402	X	128	4-4	X			DIAPH. VERT.
S403	X	32	5-7				DIAPH. TOP HORIZ.
S504	X	36	30-9				DECK TRANS. TOP & BOT.
S405	X	32	5-7				DIAPH. HORIZ.
S506	X	16	4-3	X			PARAPET VERT. @ DECK
S507	X	28	4-10	X			PARAPET VERT.
S508	X	20	2-6				PARAPET HORIZ. @ DECK
S509	X	20	1-4				PARAPET HORIZ. @ BACKWALL
S510	X	16	2-10	X			MEDIAN VERT. @ DECK
S511	X	16	2-6	X			MEDIAN VERT.
S512	X	16	2-6				MEDIAN LONG. TOP & BOT.

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.



S402



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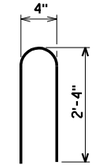

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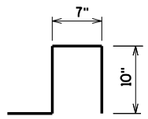

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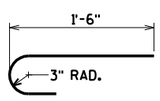

S511

F.F. DENOTES FRONT FACE.

WORK THIS SHEET WITH SHEETS 8-9 & 11.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-10

DRAWN BY CLS | PLANS CK'D. CBM

STRIP SEAL EXPANSION JOINT DETAILS

SHEET 10 OF 12
75

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STATE PROJECT NUMBER

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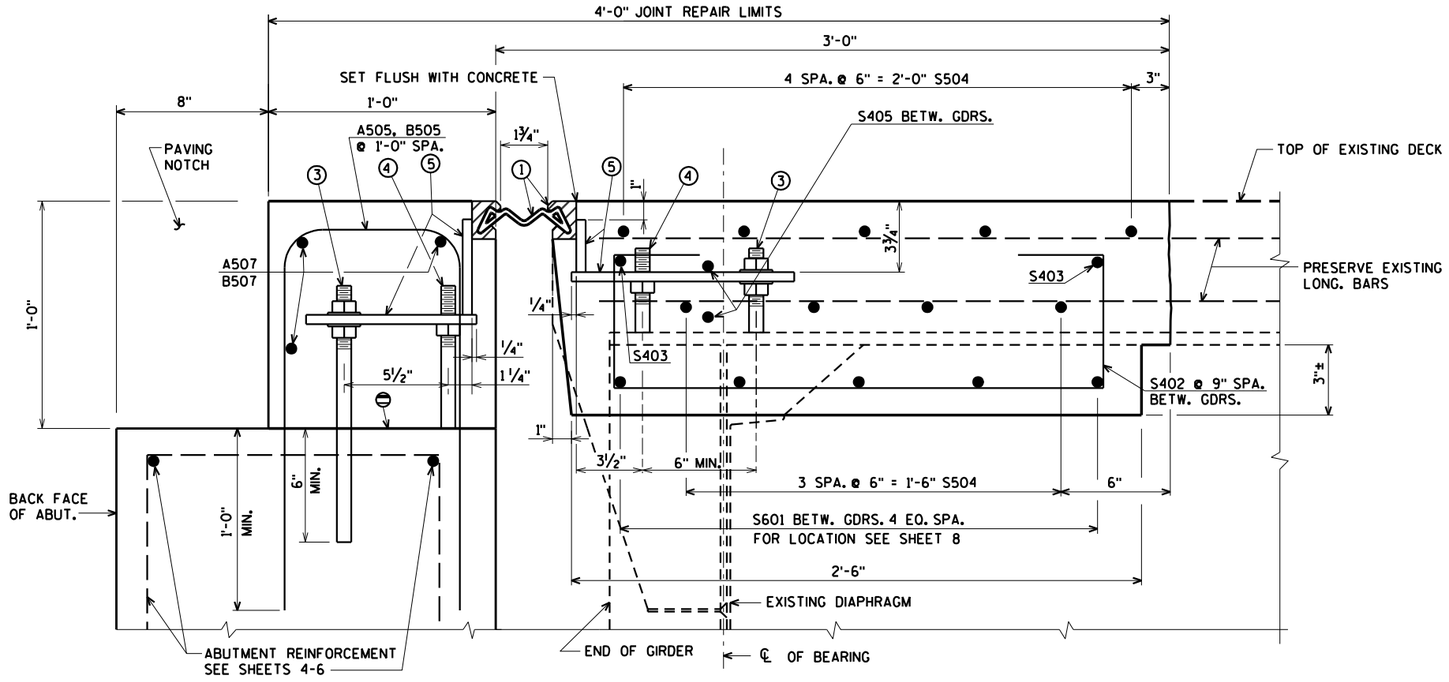


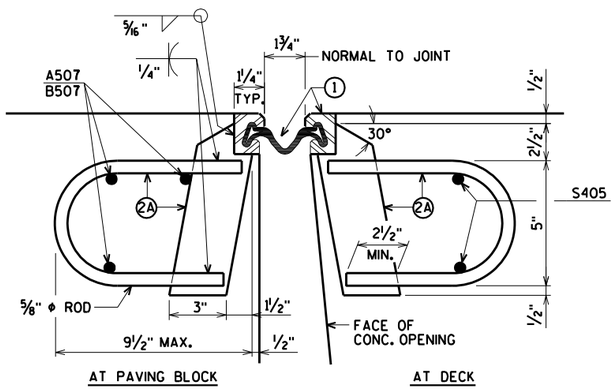
⊖ CONST. JOINT - STRIKE OFF AND LEAVE ROUGH.

TYPICAL SECTION THRU JOINT

NORMAL TO ℄ SUBSTRUCTURE

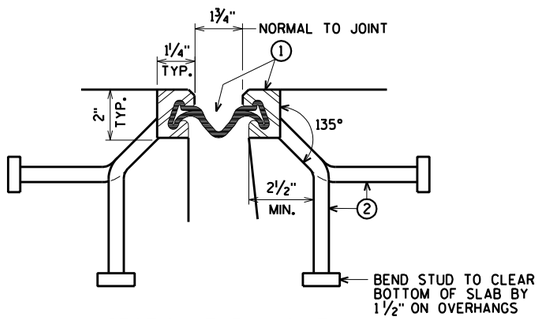
LEGEND

1. NEOPRENE STRIP SEAL (4 - INCH) AND STEEL EXTRUSIONS.
2. STUDS 5/8"Φ X 6 3/8" LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.
2A. 1/2" THICK ANCHOR PLATE WITH 5/8"Φ ROD (OR ALTERNATE STRIP SEAL ANCHOR). WELD ROD TO ANCHOR PLATE, WELD ANCHOR PLATE TO NO. 1 AT 1'-6" CENTERS BETWEEN GIRDERS.
3. 3/4" Φ THREADED ROD WITH 2 NUTS AND PLATE WASHERS. WELD THREADED ROD TO TOP FLANGE OR ATTACH BY BOLTING THRU FLANGE. ON ABUTMENT SIDE GROUT THREADED ROD INTO FIELD DRILLED HOLES IN ABUTMENT BACKWALL AS SHOWN.
4. 3/4"Φ THREADED ROD WITH NUT. TACK WELD NUT TO NO. 5.
5. FABRICATE SUPPORT FROM 3" X 1/2" BAR AS SHOWN OR EQUIVALENT, ONE PER GIRDER PER SIDE. SHOP OR FIELD WELD TO NO. 1. IF FIELD WELDED, COVER WELDED AREAS WITH EPOXY-COATING MATERIAL. PROVIDE 1 1/2" Φ HOLE FOR NO. 3 AND 1" Φ HOLE FOR NO. 4.
6. GALVANIZED PLATE 3/8" X 10 1/2" X 2'-2" LONG WITH HOLES FOR NO. 7. BEND AS SHOWN.
7. 3/4"Φ X 1 1/2" STAINLESS STEEL SOCKET FLAT HEAD SCREWS WITH ANTI-SEIZE LUBRICANT. PLACE IN COUNTERSUNK HOLE. RECESS 1/16" BELOW PLATE SURFACE.
8. 3/4"Φ X 4" GALVANIZED HEX HEAD BOLT. BEND 45°.
9. 3/4"Φ X 2 1/4" GALVANIZED THREADED COUPLING.
11. 1" X 5" SLOTTED COUNTERSUNK HOLE FOR NO. 7. PLACE SLOT PARALLEL TO DIRECTION OF MOVEMENT.
12. GALVANIZED PLATE 3/8" X 2'-5" X 2'-2" LONG WITH HOLES FOR NO. 7. BEND AS SHOWN.
13. GALVANIZED PLATE 3/8" X 2'-5" X 2'-0" LONG WITH HOLES FOR NO. 7. BEND AS SHOWN.



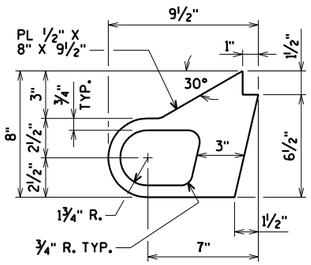
SECTION THRU JOINT

ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDER AND MEDIAN GIRDER.
SYM. ABOUT ℄ JOINT UNLESS OTHERWISE SHOWN OR NOTED



SECTION THRU JOINT

EXTERIOR GIRDER TO EDGE OF DECK AT PARAPETS AND MEDIAN GIRDER TO EDGE OF DECK AT MEDIAN



ALTERNATE STRIP SEAL ANCHOR

NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS, UNLESS MORE ARE REQUIRED FOR STAGED CONSTRUCTION, HANDLING OR GALVANIZING REQUIREMENTS. IF USED, DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PERMITTED IN NEOPRENE STRIP SEAL.

AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST & SWEEP.

FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN & SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST PLATES, SUPPORTS, & EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING THE PLATES, SUPPORTS, & EXTRUSIONS SHALL BE HOT DIPPED GALVANIZED.

ANCHOR SYSTEM #8 & #9 SHALL CONFORM TO ASTM A307 & SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C & D.

STRIP SEAL EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS & HARDWARE WILL BE PAID FOR AT THE LUMP SUM PRICE BID FOR "EXPANSION DEVICE B-16-10".

WORK THIS SHEET WITH SHEETS 8-10.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-10

DRAWN BY CLS | PLANS CK'D. CBM

STRIP SEAL EXPANSION JOINT DETAILS

SHEET 11 OF 12
76

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$PRFNAME$
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11/18/2015

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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.

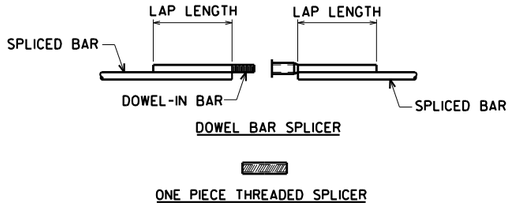
FOR DOWEL BAR SPLICERS, ALL REINFORCEMENT BARS SHALL BE LAPPED AND TIED TO THE SPLICER BARS.

SPLICER (COUPLER) ASSEMBLY 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.

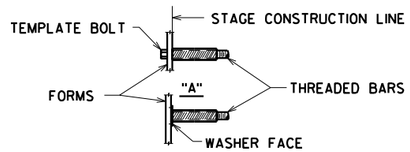
WHERE fy = YIELD STRENGTH OF SPLICED REINFORCEMENT BARS



DOWEL BAR SPLICER

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.

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 ℄ LONGIT. JOINT AND SHALL BE MODIFIED IF REQ'D. TO BAR COUPLER MANUFACTURER RECOMMENDATIONS. PAY BASED ON BARS AS DETAILED.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-10

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BAR COUPLER DETAILS

SHEET 12 OF 12
77

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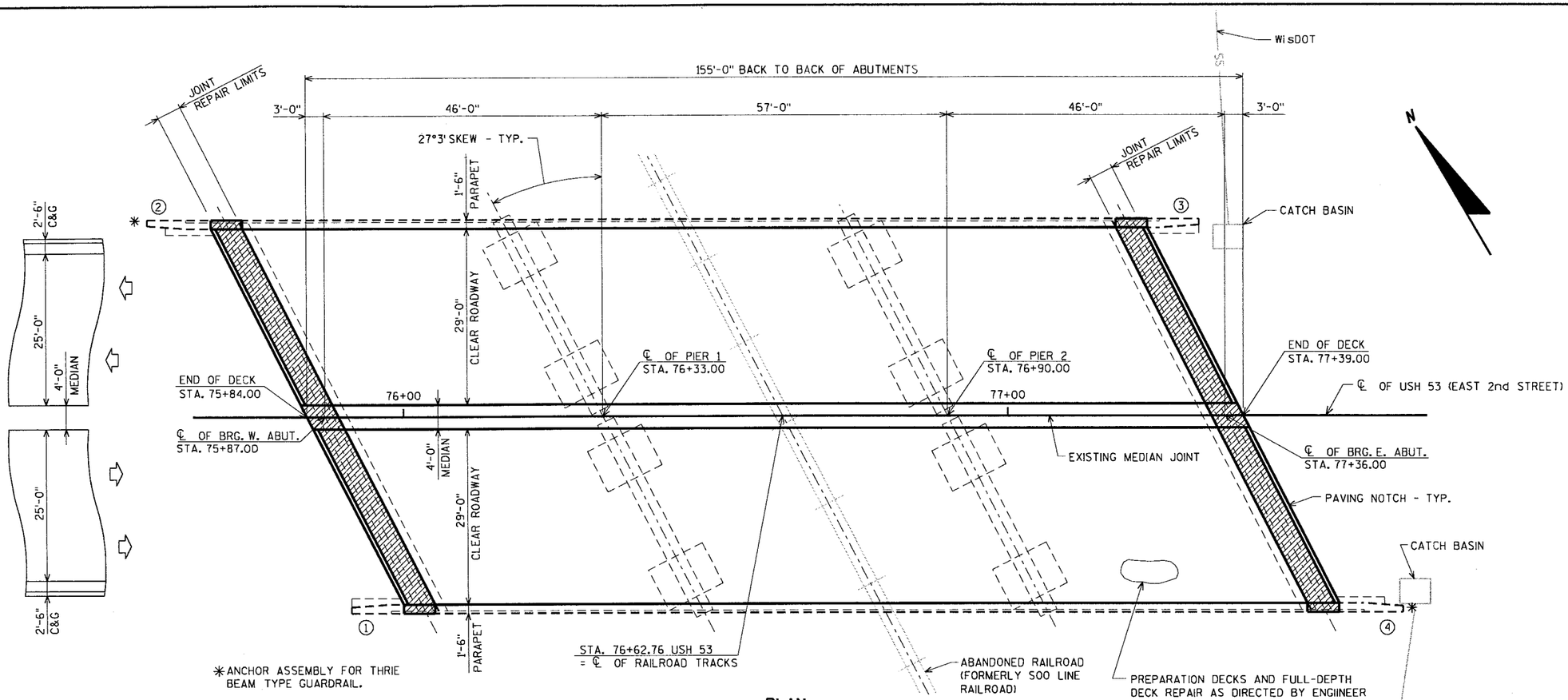
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

STATE PROJECT NUMBER

1198-03-72

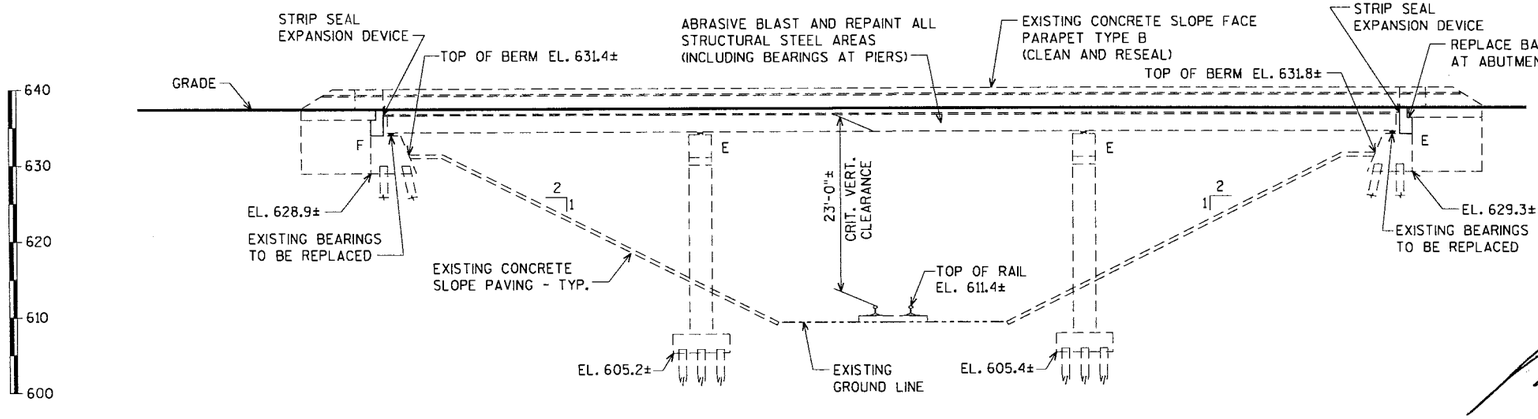


PLAN

3 SPAN CONTINUOUS STEEL GIRDER BRIDGE
(POLYMER OVERLAY, JOINT REPAIR, & PAINTING)

LIST OF DRAWINGS

FOR CROSS SECTION AND DESIGN DATA SEE SHEET 2



ELEVATION

(NORMAL TO ℄ OF SOO LINE RAILROAD TRACKS)

BRIDGE OFFICE CONTACT:
WILLIAM DREHER
(608)-266-8489

CONSULTANT CONTACT:
CHRIS MCMAHON
(715)-834-3161

WISCONSIN
CHRISTOPHER B. McMAHON
E-29454
EAU CLAIRE, WI
PROFESSIONAL ENGINEER
2/8/16

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AYRES ASSOCIATES
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Eau Claire, WI 54701
www.AyresAssociates.com

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher SDR 02/09/16
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-16-11

USH 53 (EAST 2nd ST.) OVER SOO LINE RAILROAD

COUNTY	TOWN/CITY/VILLAGE
DOUGLAS	SUPERIOR

DESIGN SPEC. REHABILITATION N/A

DESIGNED BY	DESIGN CK'D. CJM/AEB	DRAWN BY	PLANS CK'D.
JCK		JCK/CLS	CBM

GENERAL PLAN

SHEET 1 OF 12

78

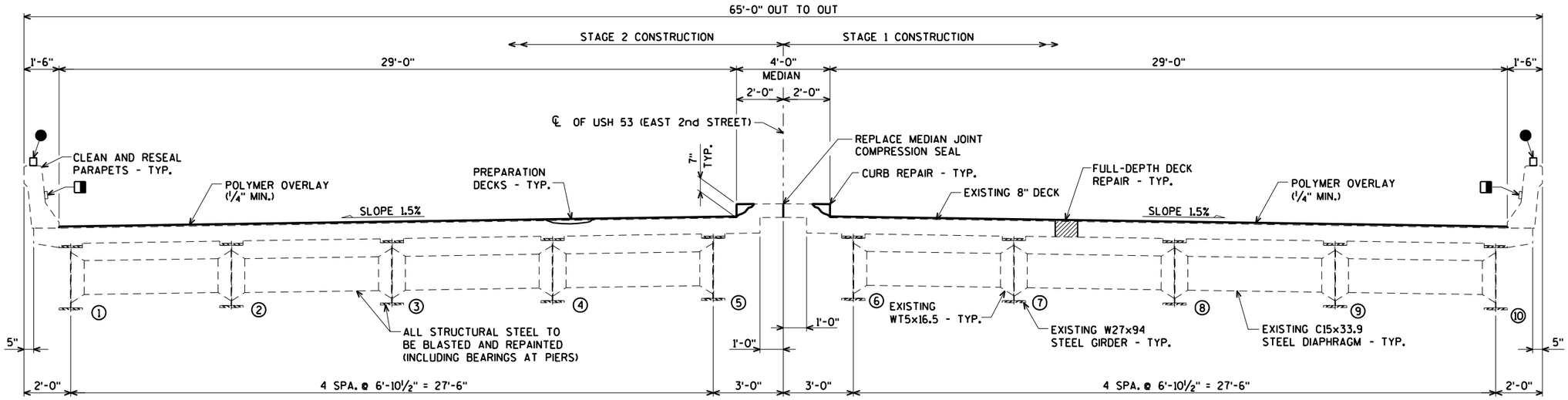
8

11X17-5200.plt
B-16-11GP.dgn

DATE:
DATE:
DATE:

CHECKED BY:
BACK CHECKED BY:
CORRECTED BY:

2/8/2016 black.tbl I.D. DATE:



CROSS SECTION THRU ROADWAY
(LOOKING EAST)

◨ EXISTING DELINEATORS ON THE PARAPETS NEED TO BE REMOVED. COST INDICENTAL TO BID ITEM "CLEANING PARAPETS".

● DELINEATOR BRACKET WITH REFLECTOR TO BE MOUNTED ON THE EXISTING PARAPET AT 25' SPACING PER S.D.D. 15A2 "DELINEATOR POST, DELINEATOR BRACKET AND DELINEATOR". (BARRIER LOCATED TO RT. OF TRAFFIC FLOW)

DESIGN DATA

LIVE LOAD:

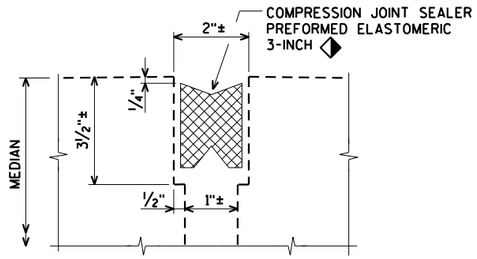
DESIGN LOADING: HS-20
INVENTORY RATING: HS-20
OPERATING RATING: HS-33
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 250 KIPS

MATERIAL PROPERTIES:

CONCRETE MASONRY	DECK PATCHING & SUPERSTRUCTURE	f'_c =	4,000 p.s.i.
	ALL OTHER	f'_c =	3,500 p.s.i.
HIGH STRENGTH BAR STEEL REINFORCEMENT (GRADE 60)		f_y =	60,000 p.s.i.

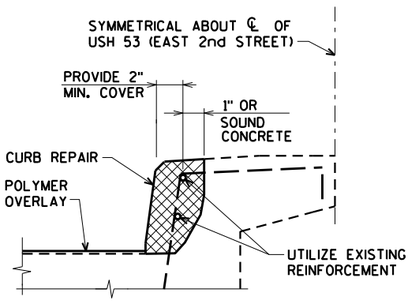
TRAFFIC DATA:

A.D.T. = 14,200 (2016)
A.D.T. = 16,700 (2036)
R.D.S. = 50 M.P.H.



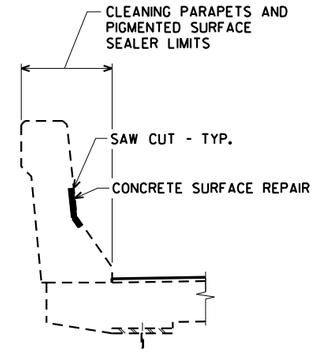
ELASTOMERIC COMPRESSION SEAL DETAIL

◆ MANUFACTURER SHALL LABEL TOP OF SEAL



CURB REPAIR DETAIL

NOTE:
LIMITS OF REPAIR FOR CURB SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER. VERTICAL AND HORIZONTAL LIMITS OF CURB REPAIR SHALL BE DEFINED BY A ½" DEEP SAW CUT.



PARAPET REPAIR DETAIL

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-11

DRAWN BY JCK/CLS | PLANS CK'D. CBM

CROSS SECTION AND DESIGN DATA

SHEET 2 OF 12
79

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Eau Claire, WI 54701
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TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	W. ABUT.	E. ABUT.	SUPER.	TOTAL
203.0600.S.02	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STATION 76+61.5	LS	----	----	----	1
206.1000.02	EXCAVATION FOR STRUCTURES BRIDGES B-16-11	LS	----	----	----	1
210.0100	BACKFILL STRUCTURE	CY	35	35	----	70
502.0100	CONCRETE MASONRY BRIDGES	CY	14	14	16	44
502.2000	COMPRESSION JOINT SEALER PREFORATED ELASTOMERIC 3-INCH	LF	----	----	155	155
502.3100.02	EXPANSION DEVICE B-16-11	LS	----	----	----	1
502.3210	PIGMENTED SURFACE SEALER	SY	----	----	330	330
502.5005	MASONRY ANCHORS TYPE L NO. 5 BARS	EACH	148	148	----	296
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	1,930	1,930	3,160	7,020
505.0904	BAR COUPLERS NO. 4	EACH	6	6	----	12
505.0905	BAR COUPLERS NO. 5	EACH	3	3	----	6
506.5000.02	BEARING ASSEMBLIES FIXED B-16-11	EACH	10	----	----	10
506.6000.02	BEARING ASSEMBLIES EXPANSION B-16-11	EACH	----	10	----	10
506.7050.S.02	REMOVING BEARINGS B-16-11	EACH	10	10	----	20
509.0301	PREPARATION DECKS TYPE 1	SY	----	----	5	5
509.0302	PREPARATION DECKS TYPE 2	SY	----	----	2	2
509.1000	JOINT REPAIR	SY	----	----	65	65
509.1200	CURB REPAIR	LF	----	----	150	150
◑ 509.1500	CONCRETE SURFACE REPAIR	SF	----	----	----	260
509.2000	FULL-DEPTH DECK REPAIR	SY	----	----	1	1
509.5100.S	POLYMER OVERLAY	SY	----	----	990	990
◨ 509.9050.S	CLEANING PARAPETS	LF	----	----	355	355
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	CY	14	14	----	28
517.0900.S.02	PREPARATION AND COATING OF TOP FLANGES B-16-11	LS	----	----	----	1
517.1800.S.02	STRUCTURE REPAINTING RECYCLED ABRASIVE B-16-11	LS	----	----	----	1
517.4500.S.02	NEGATIVE PRESSURE CONTAINMENT AND COLLECTION OF WASTE MATERIALS B-16-11	LS	----	----	----	1
517.6001.S	PORTABLE DECONTAMINATION FACILITY	EACH	----	----	----	1
633.0500	DELINEATOR REFLECTORS	EACH	----	----	16	16
633.1000	DELINEATOR BRACKETS	EACH	----	----	16	16
SPV.0035.01	CONCRETE MASONRY DECK PATCHING	CY	----	----	1	1
SPV.0090.01	SAWING PAVEMENT DECK PREPARATION AREAS	LF	----	----	120	120
	NON-BID ITEMS					
	BRIDGE SEAT PROTECTION					
	FILLER	SIZE	----	----	----	½"

◨ EXISTING DELINEATORS ON THE PARAPETS NEED TO BE REMOVED. COST INDICENTAL TO BID ITEM "CLEANING PARAPETS".

◑ UNDISTRIBUTED. REQUIRED ON ABUTMENTS, PIERS, AND PARAPETS AS DIRECTED BY THE ENGINEER IN THE FIELD.

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

DECK SURFACE PREPARATION IS INCLUDED IN THE BID ITEM "POLYMER OVERLAY".

CLEAN AND FILL EXISTING LONGITUDINAL AND TRANSVERSE CRACKS WITH PENETRATING EPOXY AS DIRECTED BY THE FIELD ENGINEER.

AREAS OF "PREPARATION DECKS TYPE I" SHALL BE DEFINED BY A SAW CUT.

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

THE FIRST DIGIT OF A THREE DIGIT BAR NO. AND THE FIRST TWO DIGITS OF A FOUR DIGIT BAR NO. SIGNIFIES THE BAR SIZE.

PREPARATION DECKS, CONCRETE SURFACE REPAIR, AND FULL-DEPTH DECK REPAIR SHALL BE AS DETERMINED BY THE ENGINEER IN THE FIELD.

DECK PREPARATION AND FULL-DEPTH DECK REPAIRS SHALL BE FILLED WITH "CONCRETE MASONRY DECK PATCHING".

PIGMENTED SURFACE SEALER IS TO BE APPLIED TO THE TOP AND CURB FACES OF THE MEDIAN AND THE TOP AND INSIDE FACES OF THE PARAPETS.

PROFILE GRADE LINE SHALL BE DETERMINED IN THE FIELD BASED ON A MINIMUM OVERLAY THICKNESS OF ¼" PLACED ABOVE THE FINAL DECK SURFACE AFTER ALL PREPARATION.

UTILIZE EXISTING BAR STEEL REINFORCEMENT WHERE SHOWN AND EXTEND 24 BAR DIAMETERS INTO NEW WORK, UNLESS SPECIFIED OTHERWISE.

THE EXISTING GROUNDLINE SHALL BE THE UPPER LIMIT FOR EXCAVATION FOR STRUCTURES.

AT ABUTMENTS ALL SPACES EXCAVATED AND NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH BACKFILL STRUCTURE.

EPOXY SEAL ABUTMENT BEAM SEATS.

EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE SHALL BE PAID FOR IN THE LUMP SUM BID PRICE AS "EXPANSION DEVICE B-16-11".

THE COLOR OF THE FINISH EPOXY TOP COAT FOR THE GIRDERS AND CONNECTING STRUCTURAL STEEL SHALL BE LIGHT GRAY (FEDERAL STANDARD COLOR NO. 26293).

THE QUANTITY FOR BACKFILL STRUCTURES, BID ITEM 210.0100, IS CALCULATED BASED ON THE APPLICABLE FIGURES 12.6-1 AND 12.6-2 IN THE WISCONSIN DEPARTMENT OF TRANSPORTATION BRIDGE MANUAL.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-11

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QUANTITIES AND NOTES

SHEET 3 OF 12
80

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Eau Claire, WI 54701
www.AyresAssociates.com

STATE PROJECT NUMBER

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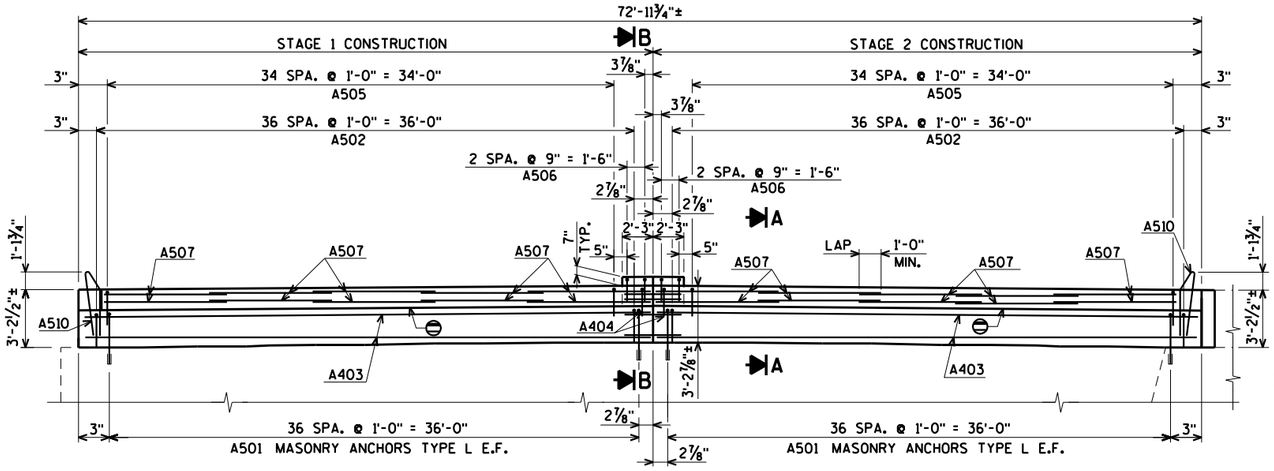
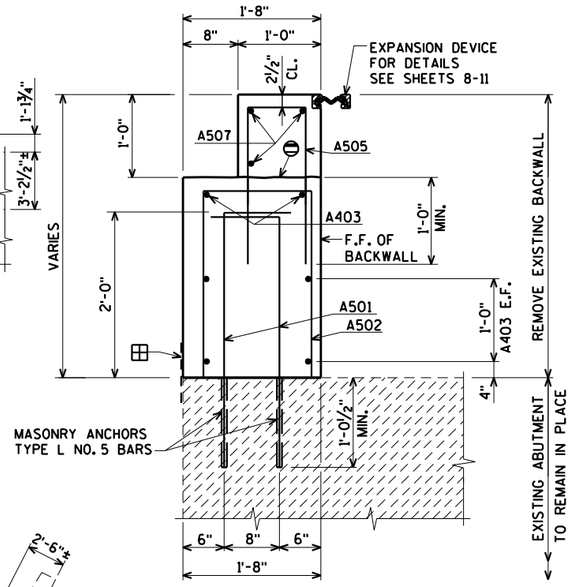


ELEVATION
(LOOKING WEST)



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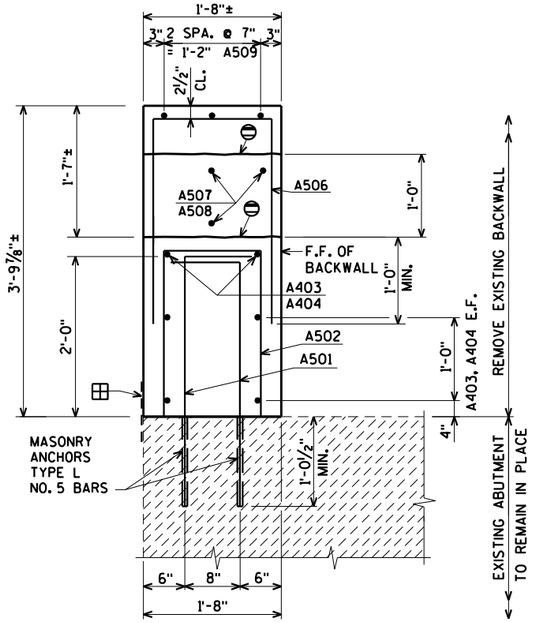
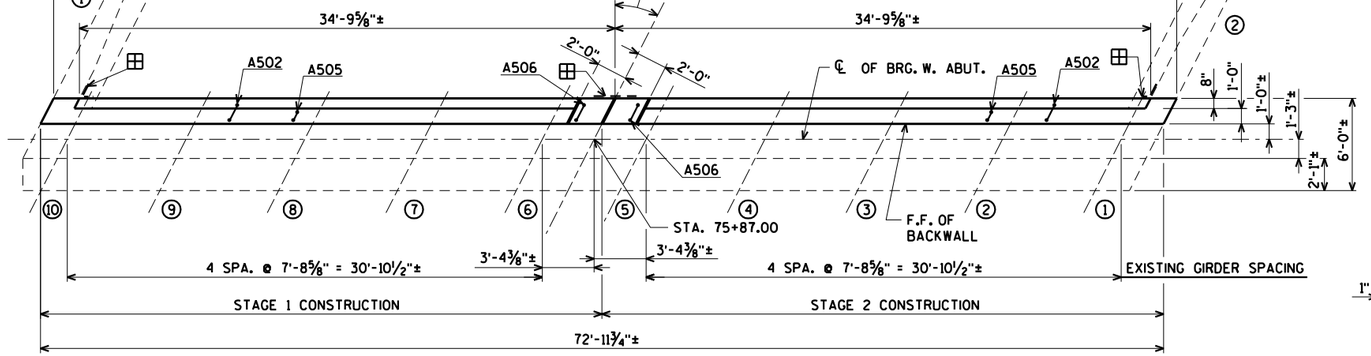
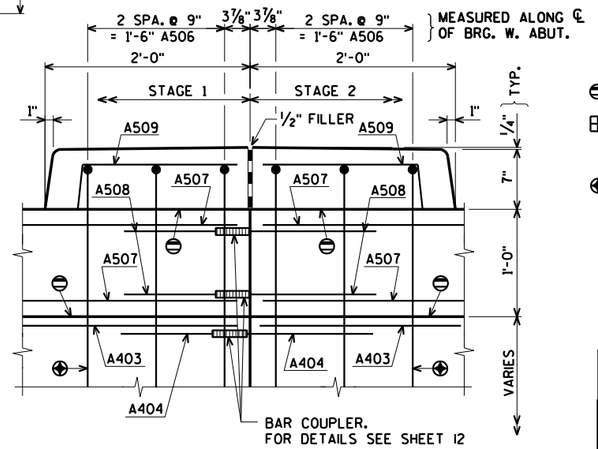


SECTION B



PLAN



CONST. JOINT & MEDIAN DETAIL
LOOKING WEST NORMAL TO ℄ OF USH 53 (EAST 2nd STREET)

NOTE:
SEAL ALL EXPOSED HORIZONTAL SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE).

⊖ CONST. JOINT - STRIKE OFF AND LEAVE ROUGH.

⊞ 18" RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE OF ABUTMENT AND WINGS.

⊕ FIELD CUT BAR AS NECESSARY TO MISS NEOPRENE STRIP SEAL AND STEEL EXTRUSION.

PARAPET NOT SHOWN.
FOR DETAILS SEE SHEET 9

F.F. DENOTES FRONT FACE

E.F. DENOTES EACH FACE

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-11

DRAWN BY CLS | PLANS CK'D. CBM

WEST ABUTMENT BACKWALL

SHEET 4 OF 12
81

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8

8

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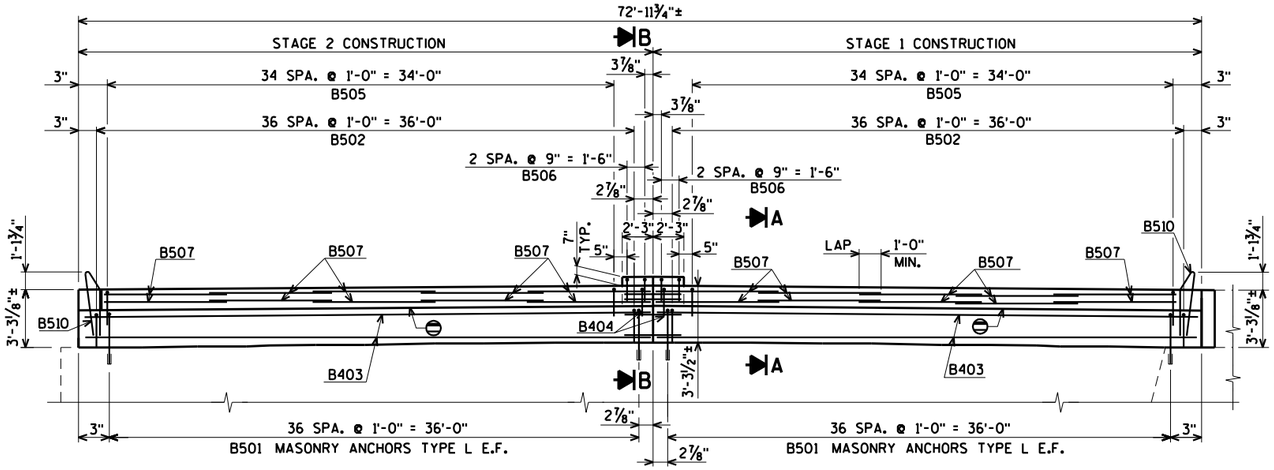
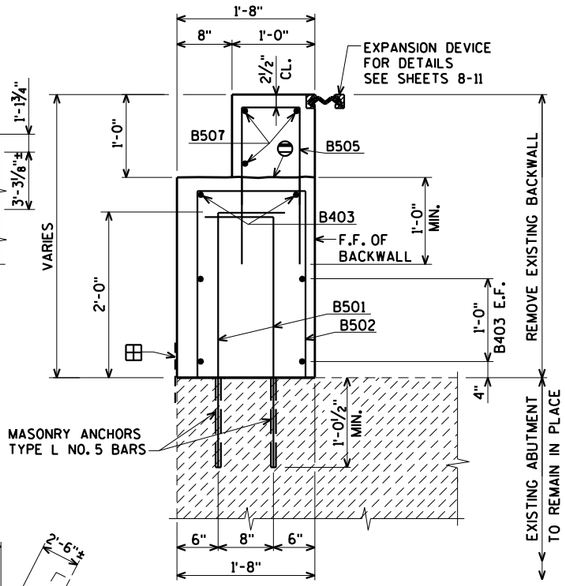


ELEVATION
(LOOKING EAST)



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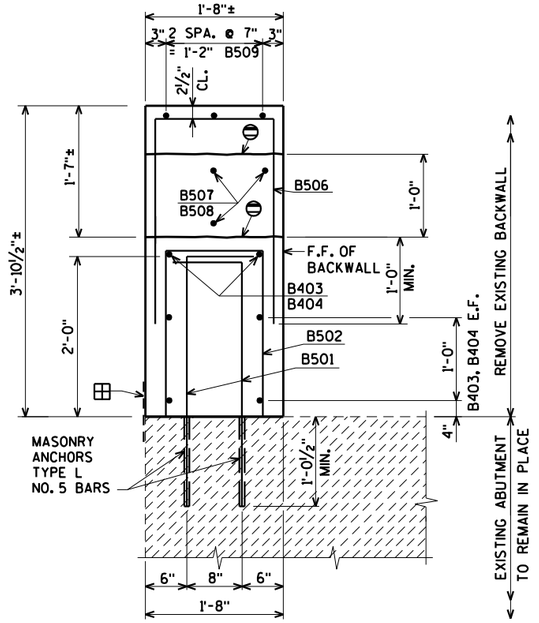

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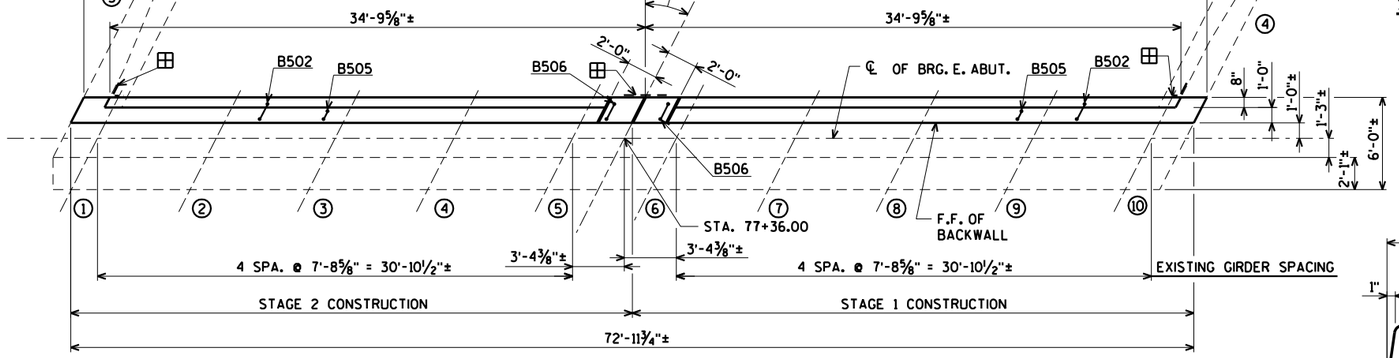
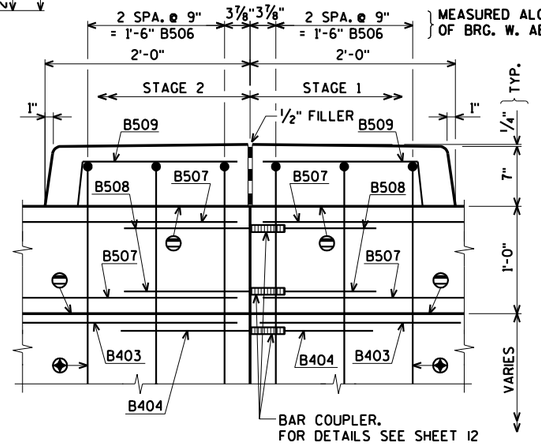


PLAN



CONST. JOINT & MEDIAN DETAIL
LOOKING EAST NORMAL TO ℄ OF USH 53 (EAST 2nd STREET)

NOTE:
SEAL ALL EXPOSED HORIZONTAL SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE).

⊖ CONST. JOINT - STRIKE OFF AND LEAVE ROUGH.

⊞ 18" RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE OF ABUTMENT AND WINGS.

⊕ FIELD CUT BAR AS NECESSARY TO MISS NEOPRENE STRIP SEAL AND STEEL EXTRUSION.

PARAPET NOT SHOWN.
FOR DETAILS SEE SHEET 9

F.F. DENOTES FRONT FACE

E.F. DENOTES EACH FACE

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-11

DRAWN BY CLS | PLANS CK'D. CBM

EAST ABUTMENT BACKWALL

SHEET 5 OF 12
82

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8

8

$PRFNAME$
U:\42-0960.00 - USH 53 Bridge Rehabilitations\BRIDGE\B-16-11\B-16-11 abut.dgn

11/18/2015

PENTABLE:BReau_shd_util.tbl

STATE PROJECT NUMBER

1198-03-72

BILL OF BARS - WEST ABUTMENT

	BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	1,930" COATED LOCATION
◩	A501	X	148	3-10	X		BACKWALL VERT. DOWELS
	A502	X	74	4-11	X		BACKWALL VERT.
	A403	X	12	36-1			BACKWALL HORIZ. E.F.
⊗	A404	X	12	2-4			BACKWALL HORIZ. E.F. @ CONST. JOINT
	A505	X	70	4-2	X		PAVING BLOCK VERT.
	A506	X	6	5-11	X		PAVING BLOCK VERT. @ MEDIAN
	A507	X	30	8-0			PAVING BLOCK HORIZ.
⊗	A508	X	6	2-11			PAVING BLOCK HORIZ. @ CONST. JOINT
	A509	X	6	2-0	X		PAVING BLOCK HORIZ. @ MEDIAN
	A510	X	6	4-7	X		BACKWALL @ PARAPET

BILL OF BARS - EAST ABUTMENT

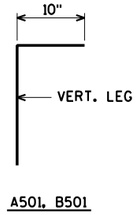
	BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	1,930" COATED LOCATION
◩	B501	X	148	3-10	X		BACKWALL VERT. DOWELS
	B502	X	74	4-11	X		BACKWALL VERT.
	B403	X	12	36-1			BACKWALL HORIZ. E.F.
⊗	B404	X	12	2-4			BACKWALL HORIZ. E.F. @ CONST. JOINT
	B505	X	70	4-2	X		PAVING BLOCK VERT.
	B506	X	6	5-11	X		PAVING BLOCK VERT. @ MEDIAN
	B507	X	30	8-0			PAVING BLOCK HORIZ.
⊗	B508	X	6	2-11			PAVING BLOCK HORIZ. @ CONST. JOINT
	B509	X	6	2-0	X		PAVING BLOCK HORIZ. @ MEDIAN
	B510	X	6	4-7	X		BACKWALL @ PARAPET

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

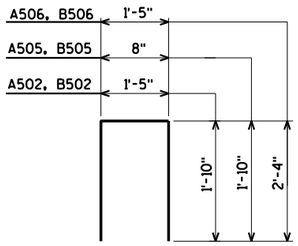
◩ MASONRY ANCHORS TYPE L NO. 5 BARS

⊗ BAR COUPLERS REQ'D. FOR DETAILS SEE SHEET 12.

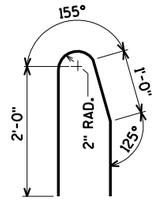
E.F. DENOTES EACH FACE



A501, B501



A509, B509



A510, B510

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STRUCTURE B-16-11

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ABUTMENT
BILL OF BARS

SHEET 6 OF 12
83

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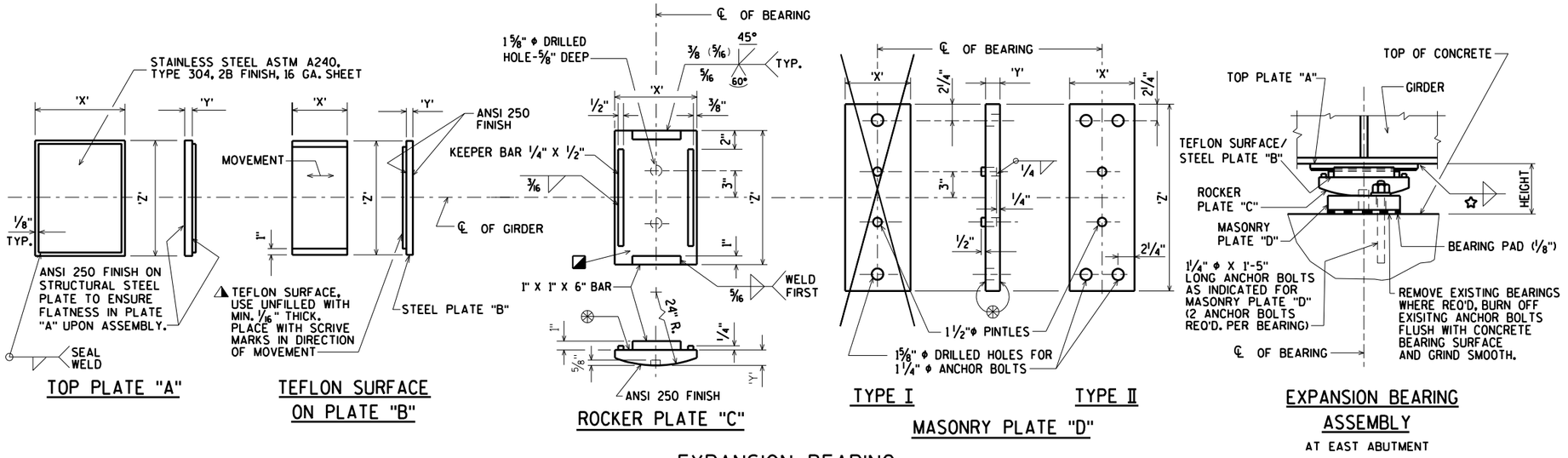
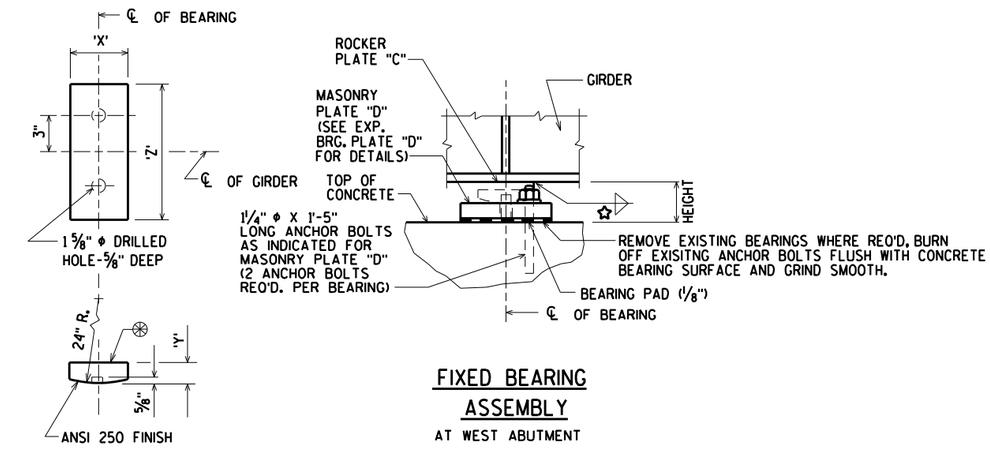


EXPANSION BEARING

	PLATE "A"			PLATE "B"			PLATE "C"			PLATE "D"			PLATE "D" TYPE	ANCHOR BOLT SIZE	ANCHOR BOLT LENGTH	NO. OF BRG'S REQ'D.	LOCATION	HEIGHT FEET
	'X'	'Y'	'Z'	'X'	'Y'	'Z'	'X'	'Y'	'Z'	'X'	'Y'	'Z'						
EXPANSION BEARING	9"	5/8"	1'-0"	5"	1/2"	1'-0"	7"	1 1/16"	1'-2 1/4"	8"	1 7/16"	1'-10"	II	1 1/4" ϕ	1'-5"	10	AT EAST ABUTMENT	0.35
FIXED BEARING	5"	2 3/8"	1'-0"	9"	1 1/16"	1'-9"	II	1 1/4" ϕ	1'-5"	10	AT WEST ABUTMENT	0.30						



FIXED BEARING

BEARING NOTES

ALL BEARINGS ARE SYMMETRICAL ABOUT ℄ OF GIRDER AND ℄ OF BEARING.

ALL STRUCTURAL STEEL BEARING PLATES SHALL BE FLAT ROLLED STEEL PLATES WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL.

ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUTS.

ALL FINISHED SURFACES SHALL BE MACHINE FINISHED BY AN AUTOMATIC PROCESS.

CHAMFER ANCHOR BOLTS PRIOR TO THREADING.

ANCHOR BOLTS SHALL BE THREADED 3". PROVIDE ONE STANDARD WROUGHT WASHER AND ONE HEX NUT PER BOLT. BOLT LENGTH TO BE AS SHOWN FOR 1 1/4" ϕ BOLTS. PROJECT ANCHOR BOLTS, MASONRY PLATE "D" THICKNESS + SHIM PLATE IF APPLICABLE + 2 1/4", ABOVE TOP OF CONCRETE.

CHAMFER TOP OF PINTLES 1/8". DRILL HOLES FOR ALL PINTLES IN MASONRY PLATE "D" FOR A DRIVING FIT.

ALL MATERIAL IN BEARINGS, INCLUDING SHIM PLATES, BUT EXCLUDING ANCHOR BOLTS, STAINLESS STEEL SHEET, TEFLON SURFACE, PINTLES, NUTS AND WASHERS SHALL CONFORM TO ASTM A709 GRADE 50W.

STEEL PINTLES SHALL CONFORM TO ASTM A449 OR MATERIAL OF EQUIVALENT YIELD STRENGTH AND ELONGATION.

ANCHOR BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A709 GRADE 36, OR MATERIAL OF EQUIVALENT YIELD STRENGTH AND ELONGATION.

PROVIDE 1/8" THICK BEARING PAD THE SAME SIZE AS MASONRY PLATE "D" FOR EACH BEARING.

ALL MATERIAL IN BEARINGS, INCLUDING SHIM PLATES, AND BEARING PADS, SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "BEARING ASSEMBLIES EXPANSION B-16-11" OR "BEARING ASSEMBLIES FIXED B-16-11", EACH.

ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153, CLASS C.

PLACE SHIM PLATES BETWEEN BEARING PAD AND MASONRY PLATE "D". PLATES SHALL HAVE "X" AND "Z" DIMENSIONS THAT MATCH MASONRY PLATE "D".

IN LIEU OF USING SHIM PLATES, FABRICATOR MAY INCREASE THICKNESS OF TOP PLATE "A" OR MASONRY PLATE "D" BY THE SHIM PLATE THICKNESS.

FILL NON-USED HOLES IN PLATE "D" WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

FIXED BEARINGS:
ROCKER PLATE "C" SHALL BE SHOP PAINTED WITH A WELDABLE PRIMER.
MASONRY PLATE "D" SHALL BE GALVANIZED.

EXPANSION BEARINGS:
TOP PLATE "A" AND STEEL PLATE "B" SHALL BE SHOP PAINTED. USE A WELDABLE PRIMER ON TOP PLATE "A".
ROCKER PLATE "C" AND MASONRY PLATE "D" SHALL BE GALVANIZED.
DO NOT PAINT STAINLESS STEEL OR TEFLON SURFACES.

⊛ FINISH THESE SURFACES TO ANSI 250 IF 'Y' DIMENSION IS GREATER THAN 2".

◪ PROVIDE A METHOD FOR HANDLING ROCKER PLATE "C" DURING GALVANIZING.

⚠ BOND STEEL PLATE "B" AND TEFLON WITH ADHESIVE MATERIAL MEETING FEDERAL SPECIFICATION MMM-A-134, FEP FILM OR EQUAL.

AT INSTALLATION, ENSURE STAINLESS STEEL SLIDING FACE OF THE UPPER ELEMENT AND THE TFE SLIDING FACE OF THE LOWER ELEMENT HAVE THE SURFACE FINISH SPECIFIED AND ARE CLEAN AND FREE OF ALL DUST, MOISTURE, AND OTHER FOREIGN MATTER.

☆ TABLE OF FILLET WELD SIZES

MATERIAL THICKNESS OF THICKER PART JOINED.	ǂ MIN. SIZE OF FILLET WELD
TO 1/2" INCLUSIVE	3/16"
OVER 1/2" TO 3/4"	1/4"
OVER 3/4" TO 1 1/2"	△ 5/16"
OVER 1 1/2"	△ 3/8"

ǂ EXCEPT THAT THE WELD SIZE SHALL NOT EXCEED THE THICKNESS OF THE THINNER PART JOINED.

△ MIN. PASS SIZE IS 5/16"

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BEARING DETAILS

SHEET 7 OF 12
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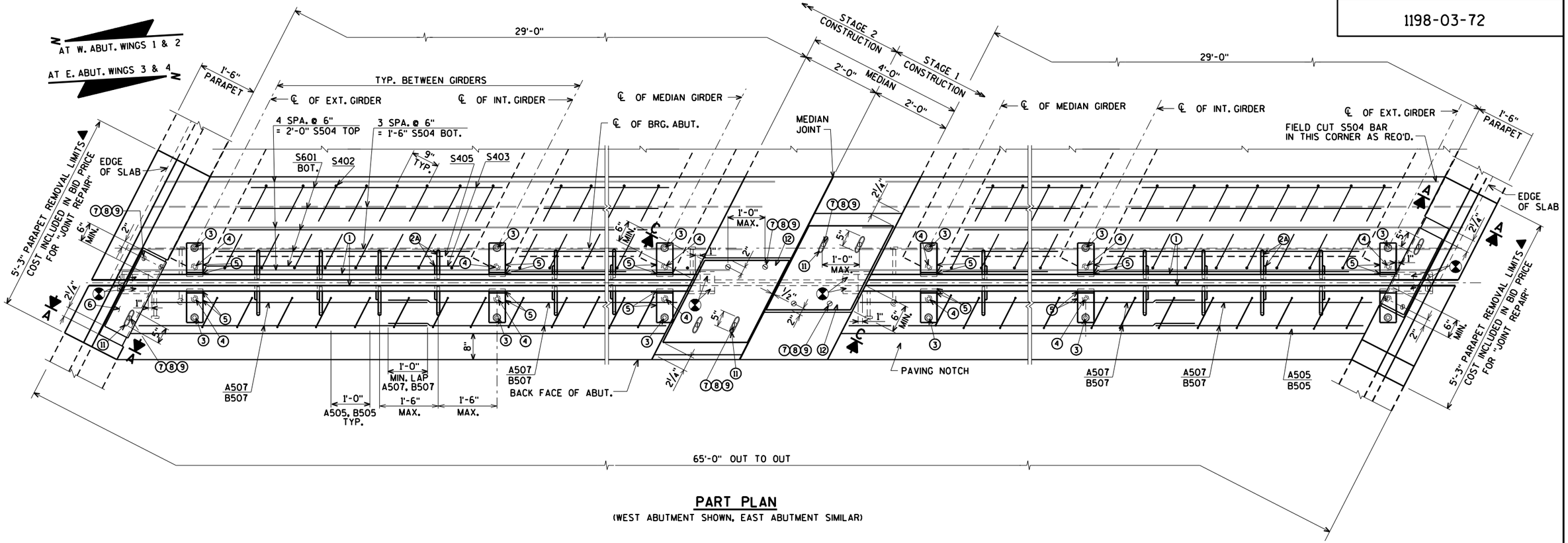
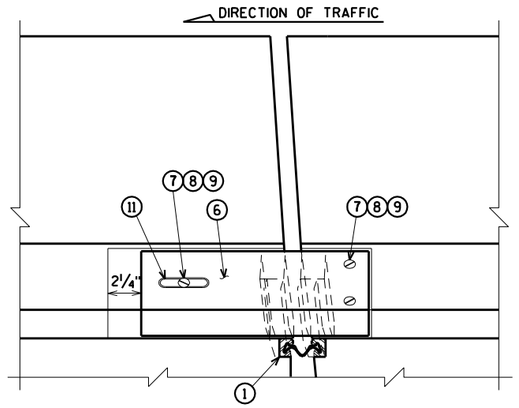
STATE PROJECT NUMBER

1198-03-72

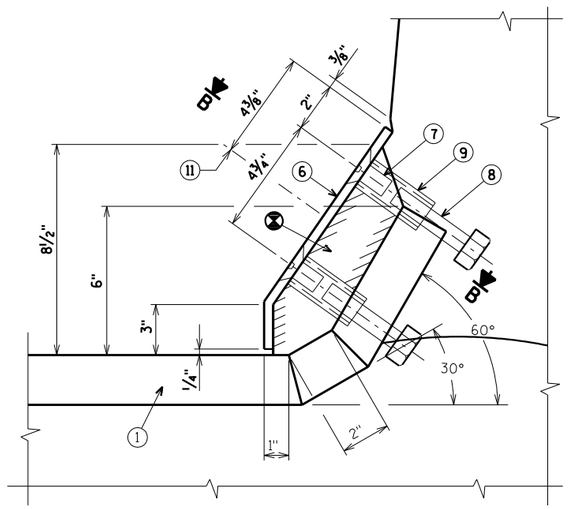


PART PLAN

(WEST ABUTMENT SHOWN, EAST ABUTMENT SIMILAR)

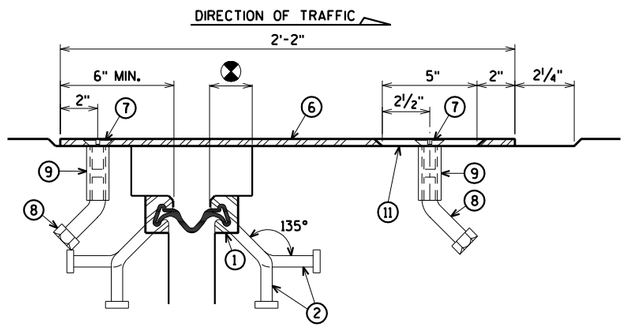


VIEW OF PARAPET PLATES FROM ROADWAY



SECTION A

BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.



SECTION B

FOR SECTION C SEE SHEET 9.

▲ UTILIZE EXISTING VERTICAL BAR STEEL FOR PARAPET REMOVAL LIMITS OUTSIDE OF THE "JOINT REPAIR" LIMITS.

WORK THIS SHEET WITH SHEETS 9-11.

NO.	DATE	REVISION	BY

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STRUCTURE B-16-11

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STRIP SEAL EXPANSION JOINT DETAILS

SHEET 8 OF 12
85

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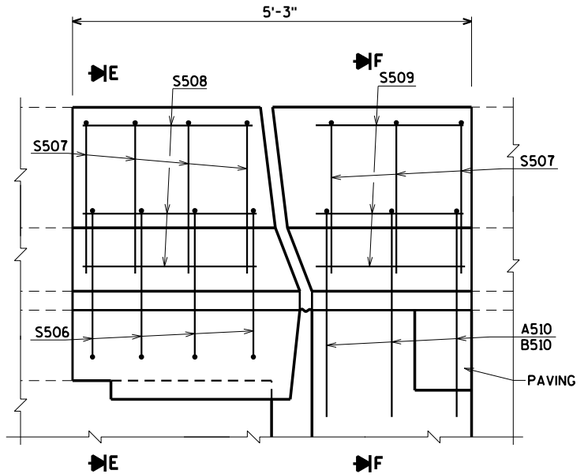
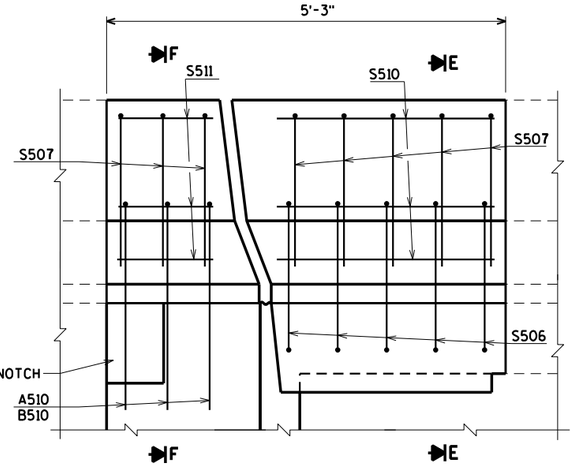
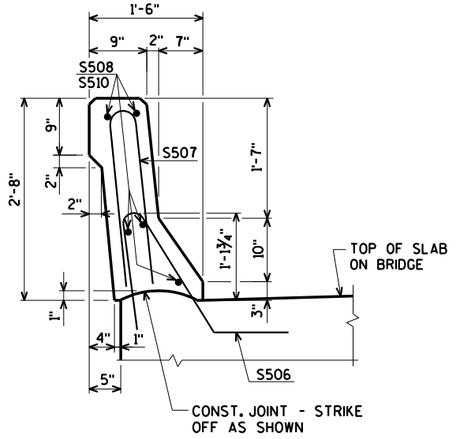


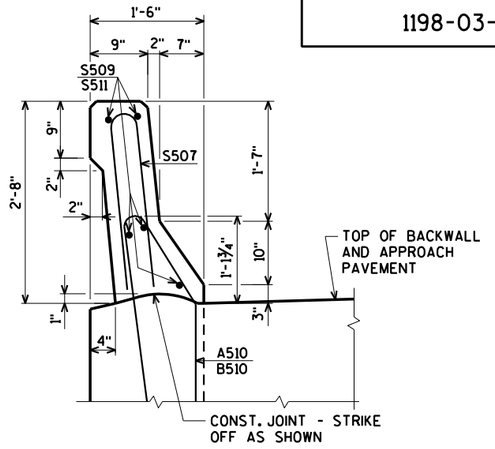
INSIDE ELEVATION
AT WINGS 1 & 3



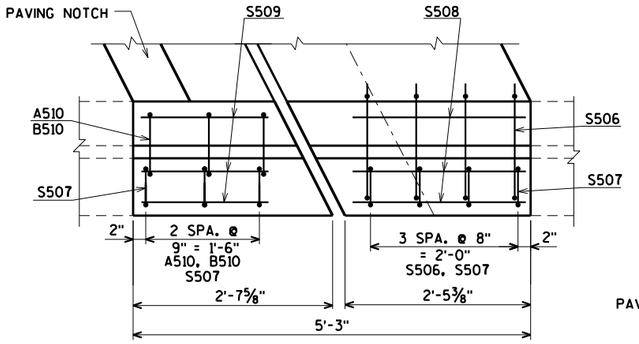
INSIDE ELEVATION
AT WINGS 2 & 4



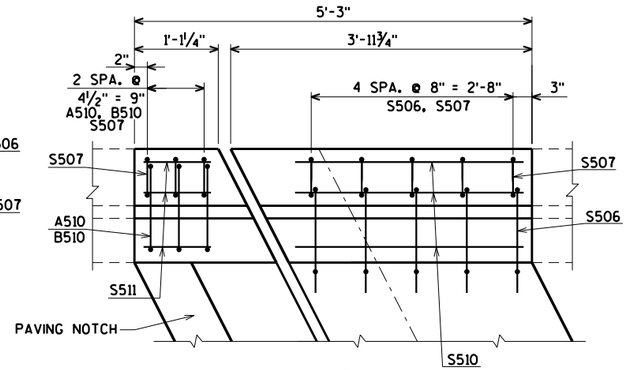
SECTION E



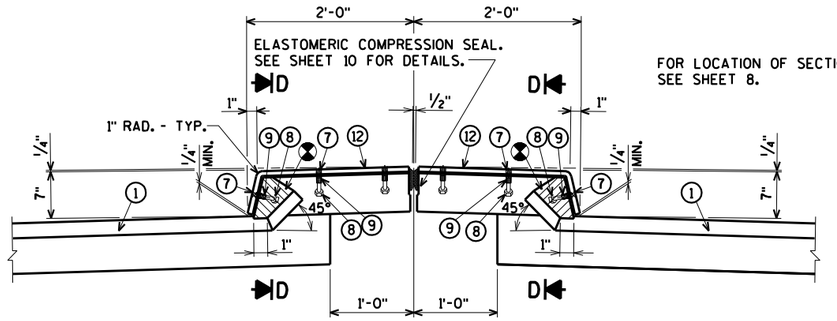
SECTION F



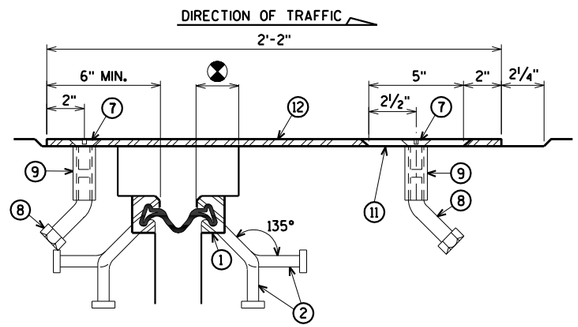
PLAN
AT WINGS 1 & 3



PLAN
AT WINGS 2 & 4

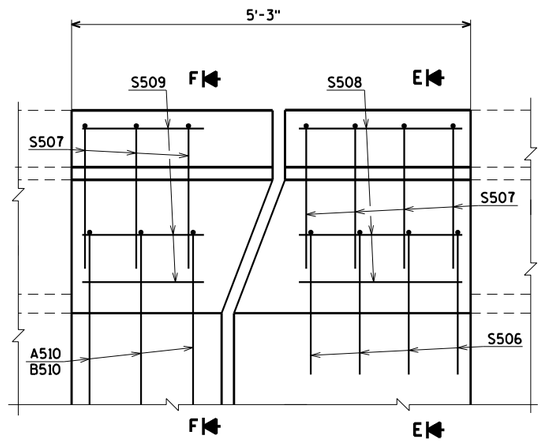


SECTION C
MEDIAN
LOOKING EAST

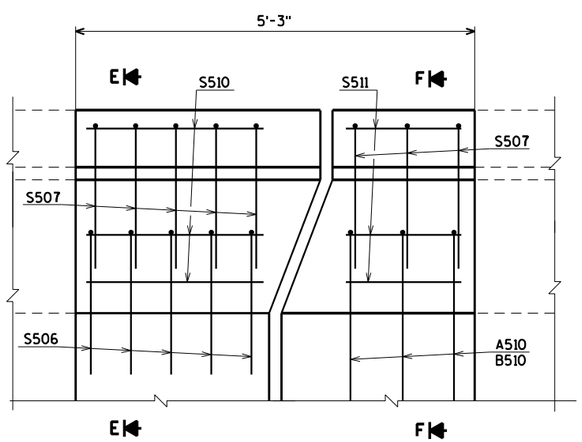


SECTION D

BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.



OUTSIDE ELEVATION
AT WINGS 1 & 3



OUTSIDE ELEVATION
AT WINGS 2 & 4

WORK THIS SHEET WITH SHEETS 8 & 10-11.

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STRUCTURE B-16-11

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PARAPET AND MEDIAN DETAILS

SHEET 9 OF 12
86

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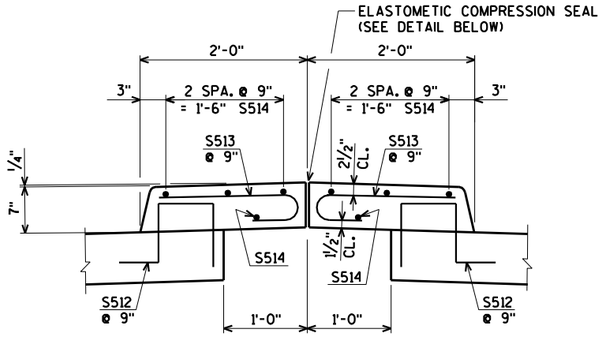
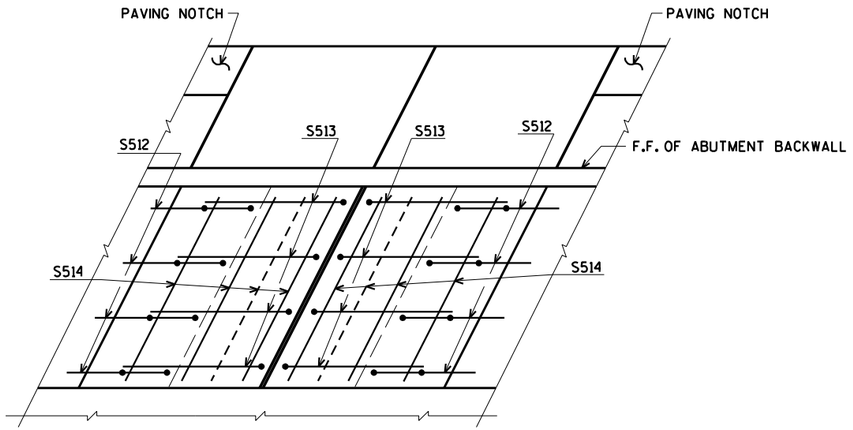
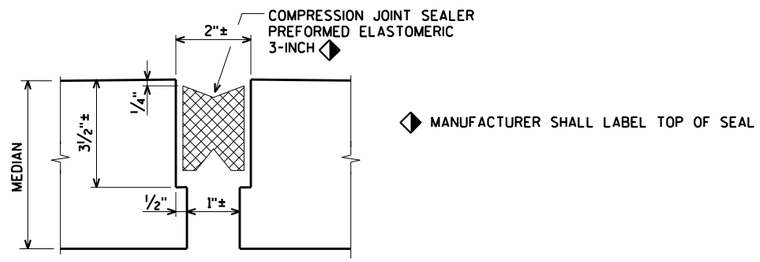


SECTION THRU MEDIAN ON DECK



PLAN VIEW OF MEDIAN ON DECK

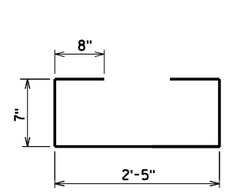


ELASTOMERIC COMPRESSION SEAL DETAIL

BILL OF BARS

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	3,160" COATED LOCATION
S601	X	80	6-4			DIAPH. BOT. HORIZ.
S402	X	128	4-7	X		DIAPH. VERT.
S403	X	32	6-4			DIAPH. TOP HORIZ.
S504	X	36	34-6			DECK TRANS. TOP & BOT.
S405	X	32	6-4			DIAPH. HORIZ.
S506	X	18	4-3	X		PARAPET VERT. @ DECK
S507	X	30	4-10	X		PARAPET VERT.
S508	X	10	2-1			PARAPET HORIZ. @ DECK WINGS 1 & 3
S509	X	10	1-6			PARAPET HORIZ. @ BACKWALL WINGS 1 & 3
S510	X	10	2-10			PARAPET HORIZ. @ DECK WINGS 2 & 4
S511	X	10	0-9			PARAPET HORIZ. @ BACKWALL WINGS 2 & 4
S512	X	16	2-10	X		MEDIAN VERT. @ DECK
S513	X	16	2-8	X		MEDIAN VERT.
S514	X	16	2-9			MEDIAN LONG. TOP & BOT.

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.



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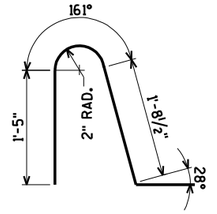

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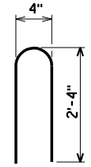

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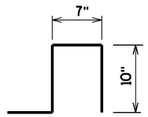

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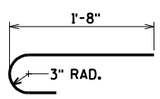

S513

F.F. DENOTES FRONT FACE

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STRIP SEAL EXPANSION JOINT DETAILS

SHEET 10 OF 12
87

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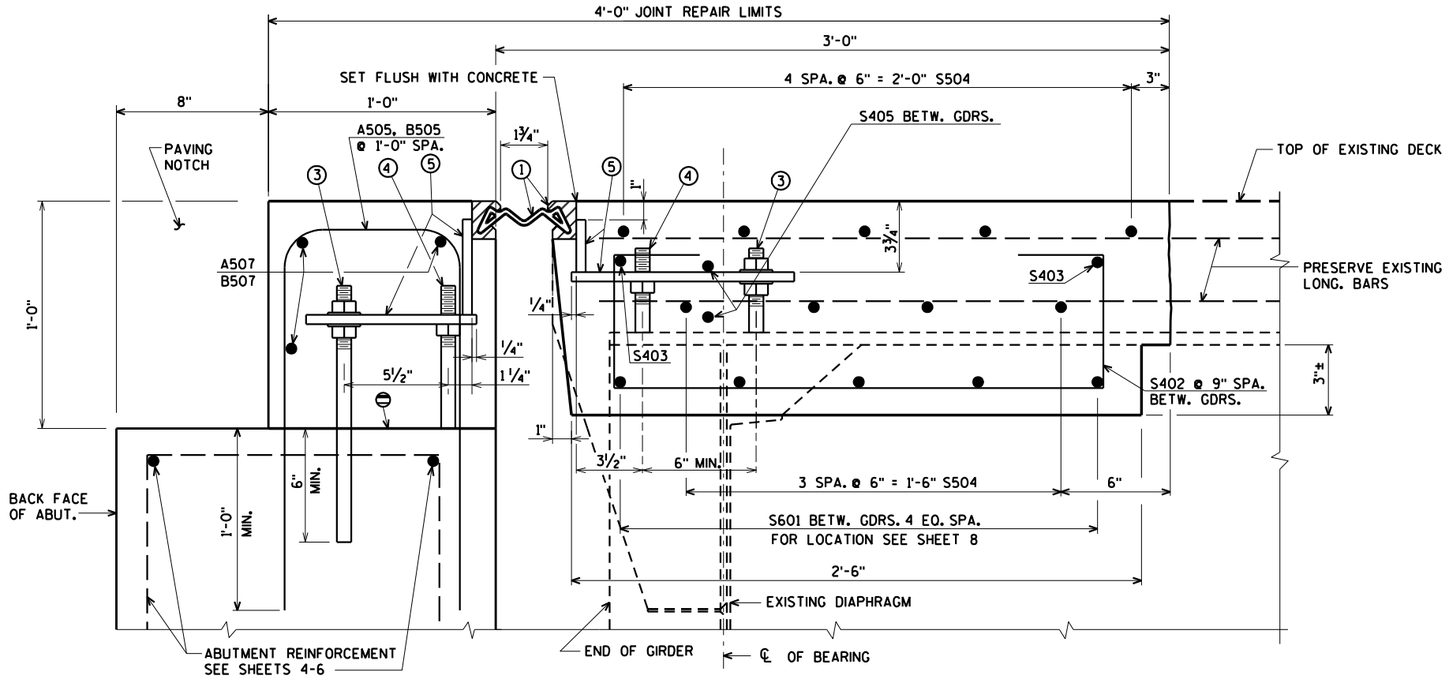
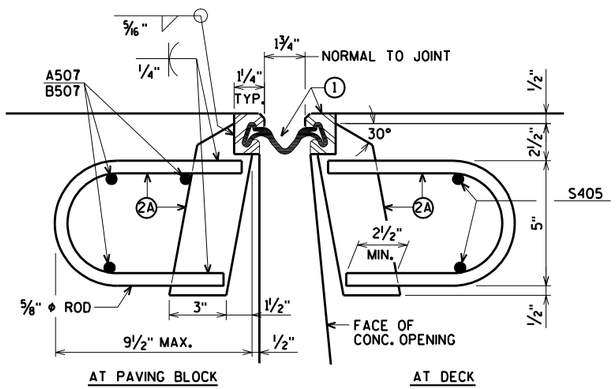


⊖ CONST. JOINT - STRIKE OFF AND LEAVE ROUGH.

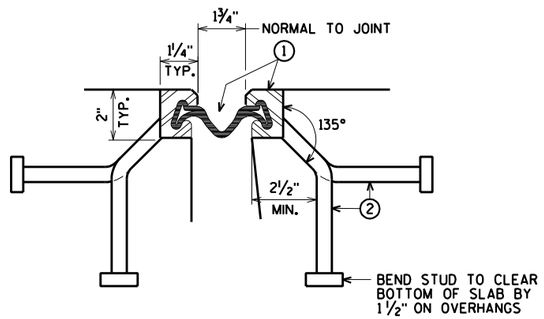
TYPICAL SECTION THRU JOINT
NORMAL TO ℄ SUBSTRUCTURE

LEGEND

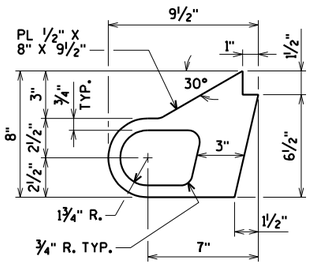
1. NEOPRENE STRIP SEAL (4 - INCH) AND STEEL EXTRUSIONS.
2. STUDS ⅝"Φ X 6⅜" LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.
2A. ½" THICK ANCHOR PLATE WITH ⅝"Φ ROD (OR ALTERNATE STRIP SEAL ANCHOR). WELD ROD TO ANCHOR PLATE, WELD ANCHOR PLATE TO NO. 1 AT 1'-6" CENTERS BETWEEN GIRDERS.
3. ¾" Φ THREADED ROD WITH 2 NUTS AND PLATE WASHERS. WELD THREADED ROD TO TOP FLANGE OR ATTACH BY BOLTING THRU FLANGE. ON ABUTMENT SIDE GROUT THREADED ROD INTO FIELD DRILLED HOLES IN ABUTMENT BACKWALL AS SHOWN.
4. ¾"Φ THREADED ROD WITH NUT. TACK WELD NUT TO NO. 5.
5. FABRICATE SUPPORT FROM 3" X ½" BAR AS SHOWN OR EQUIVALENT, ONE PER GIRDER PER SIDE. SHOP OR FIELD WELD TO NO. 1. IF FIELD WELDED, COVER WELDED AREAS WITH EPOXY-COATING MATERIAL. PROVIDE 1½" Φ HOLE FOR NO. 3 AND 1" Φ HOLE FOR NO. 4.
6. GALVANIZED PLATE ⅜" X 10½" X 2'-2" LONG WITH HOLES FOR NO. 7. BEND AS SHOWN.
7. ¾"Φ X 1½" STAINLESS STEEL SOCKET FLAT HEAD SCREWS WITH ANTI-SEIZE LUBRICANT. PLACE IN COUNTERSUNK HOLE. RECESS 1/16" BELOW PLATE SURFACE.
8. ¾"Φ X 4" GALVANIZED HEX HEAD BOLT. BEND 45°.
9. ¾"Φ X 2¼" GALVANIZED THREADED COUPLING.
11. 1" X 5" SLOTTED COUNTERSUNK HOLE FOR NO. 7. PLACE SLOT PARALLEL TO DIRECTION OF MOVEMENT.
12. GALVANIZED PLATE ⅜" X 2'-5" X 2'-2" LONG WITH HOLES FOR NO. 7. BEND AS SHOWN.



SECTION THRU JOINT
ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDER AND MEDIAN GIRDER.
SYM. ABOUT ℄ JOINT UNLESS OTHERWISE SHOWN OR NOTED



SECTION THRU JOINT
EXTERIOR GIRDER TO EDGE OF DECK AT PARAPETS AND MEDIAN GIRDER TO EDGE OF DECK AT MEDIAN



ALTERNATE STRIP SEAL ANCHOR

NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS, UNLESS MORE ARE REQUIRED FOR STAGED CONSTRUCTION, HANDLING OR GALVANIZING REQUIREMENTS. IF USED, DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PERMITTED IN NEOPRENE STRIP SEAL.

AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST & SWEEP.

FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN & SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST PLATES, SUPPORTS, & EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING THE PLATES, SUPPORTS, & EXTRUSIONS SHALL BE HOT DIPPED GALVANIZED.

ANCHOR SYSTEM #8 & #9 SHALL CONFORM TO ASTM A307 & SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C & D.

STRIP SEAL EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS & HARDWARE WILL BE PAID FOR AT THE LUMP SUM PRICE BID FOR "EXPANSION DEVICE B-16-11".

WORK THIS SHEET WITH SHEETS 8-10.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-11

DRAWN BY CLS | PLANS CK'D. CBM

STRIP SEAL EXPANSION JOINT DETAILS

SHEET 11 OF 12
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3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

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.

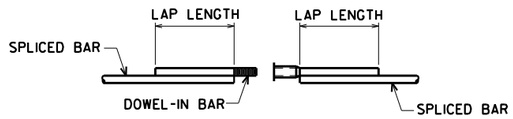
FOR DOWEL BAR SPLICERS, ALL REINFORCEMENT BARS SHALL BE LAPPED AND TIED TO THE SPLICER BARS.

SPLICER (COUPLER) ASSEMBLY 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.

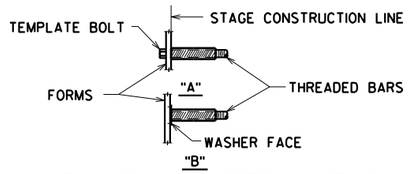
WHERE fy = YIELD STRENGTH OF SPLICED REINFORCEMENT BARS



DOWEL BAR SPLICER

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.

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 ℄ LONGIT. JOINT AND SHALL BE MODIFIED IF REQ'D. TO BAR COUPLER MANUFACTURER RECOMMENDATIONS. PAY BASED ON BARS AS DETAILED.

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DEPARTMENT OF TRANSPORTATION

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BAR COUPLER DETAILS

SHEET 12 OF 12
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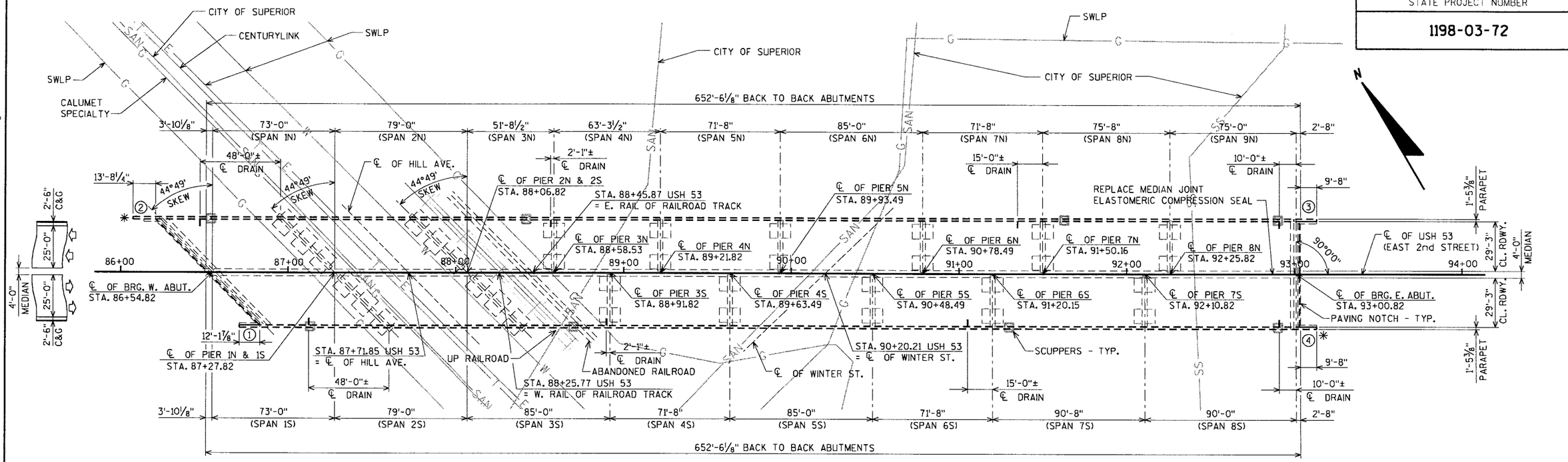


✱ANCHOR ASSEMBLY FOR THRIE BEAM TYPE GUARDRAIL.

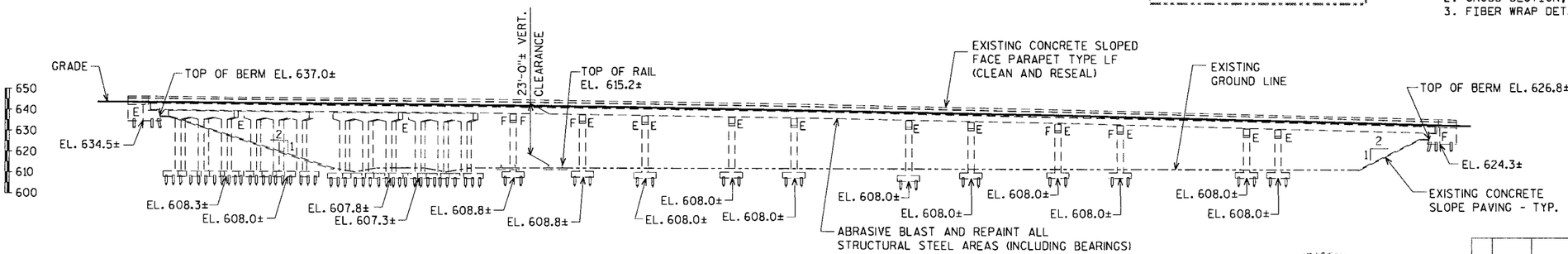
◯ DENOTES WING NUMBER.

PLAN

CONTINUOUS STEEL GIRDER BRIDGE
(PAINTING)

FOR CROSS SECTION AND DESIGN DATA SEE SHEET 2

LIST OF DRAWINGS



ELEVATION

(ALONG ℄ OF USH 53)

WISCONSIN
CHRISTOPHER B. McMAHON
E-29454
EAU CLAIRE, WI
PROFESSIONAL ENGINEER
1/25/16

BRIDGE OFFICE CONTACT:
WILLIAM DREHER
(608)-266-8489

CONSULTANT CONTACT:
CHRIS MCMAHON
(715)-834-3161

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STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher SDR 02/08/16
CHIEF STRUCTURES DESIGN ENGINEER — DATE

STRUCTURE B-16-12

USH 53 (EAST 2nd STREET) OVER HILL AVE.

COUNTY		~~TOWN~~/CITY/~~VILLAGE~~	
	DOUGLAS		SUPERIOR

DESIGN SPEC.			
	REHABILITATION		N/A

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
CBM	AEB	JCK/CLS	CBM

GENERAL PLAN

SHEET 90 OF 3

DATE:
DATE:
DATE:
CHECKED BY:
BACK CHECKED BY:
CORRECTED BY:

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1/19/2016

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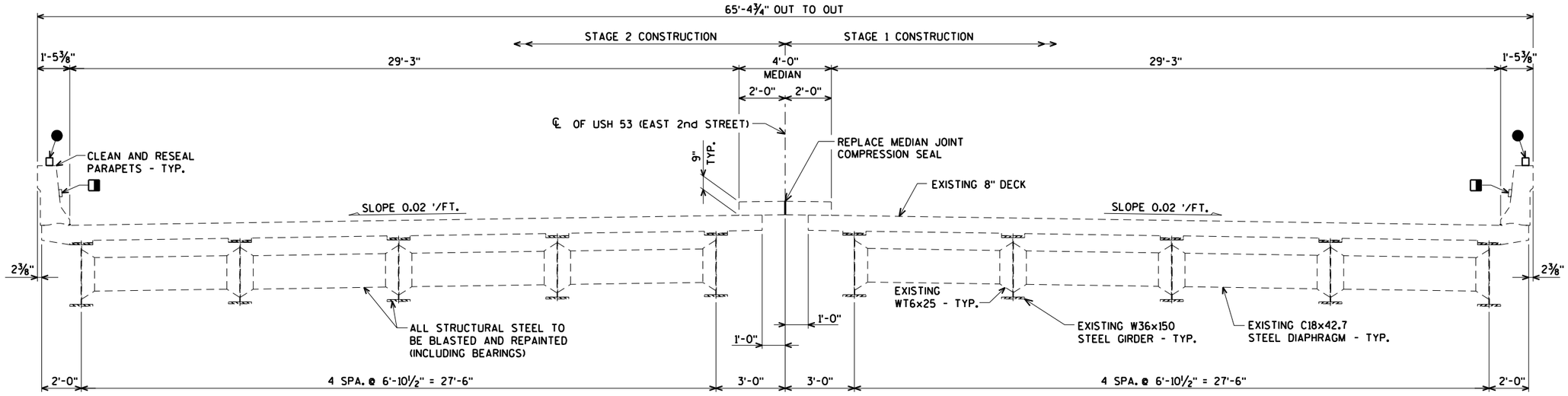


CROSS SECTION THRU ROADWAY

(LOOKING EAST)

● DELINEATOR BRACKET WITH REFLECTOR TO BE MOUNTED ON THE EXISTING PARAPET AT 25' SPACING PER S.D.D. 15A2 "DELINEATOR POST, DELINEATOR BRACKET AND DELINEATOR". (BARRIER LOCATED TO RT. OF TRAFFIC FLOW)

TOTAL ESTIMATED QUANTITIES

	BID ITEM NUMBER	BID ITEMS	UNIT	TOTAL
	502.2000	COMPRESSION JOINT SEALER PREFORMED ELASTOMERIC 3-INCH	LF	649
	502.3210	PIGMENTED SURFACE SEALER	SY	545
◑	509.1500	CONCRETE SURFACE REPAIR	SF	300
◨	509.9050.S	CLEANING PARAPETS	LF	1,350
	517.1800.S.03	STRUCTURE REPAINTING RECYCLED ABRASIVE B-16-12	LS	1
	517.4500.S.03	NEGATIVE PRESSURE CONTAINMENT AND COLLECTION OF WASTE MATERIALS B-16-12	LS	1
	517.6001.S	PORTABLE DECONTAMINATION FACILITY	EACH	1
	633.0500	DELINEATOR REFLECTORS	EACH	55
	633.1000	DELINEATOR BRACKETS	EACH	55
	SPV.0105.02	DEBRIS CONTAINMENT SPECIAL STRUCTURE B-16-0012	LS	1
	SPV.0165.01	FIBER WRAP COLUMN REINFORCING	SF	4,000

◨ EXISTING DELINEATORS ON THE PARAPETS NEED TO BE REMOVED. COST INDICENTAL TO BID ITEM "CLEANING PARAPETS".

◑ UNDISTRIBUTED. REQUIRED ON ABUTMENTS, PIERS, AND PARAPETS AS DIRECTED BY THE ENGINEER IN THE FIELD.

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

THE COLOR OF FINISH EPOXY TOP COAT FOR THE GIRDERS AND CONNECTING STRUCTURAL STEEL SHALL BE LIGHT GRAY (FEDERAL STANDARD COLOR NO. 26293).

FIBER WRAP REINFORCING SHALL BE APPLIED TO THE CONCRETE PIER COLUMNS OF THE EXISTING STRUCTURE AS SHOWN ON THESE PLANS AND IN ACCORDANCE WITH THE "FIBER WRAP REINFORCING" SPECIAL PROVISION. THE FIBER WRAP REINFORCING WILL BE PAINTED WHITE WITH ACRYLIC PAINT, FEDERAL STANDARD COLOR 37886 (WHITE).

CONCRETE SURFACE REPAIR SHALL BE AS DETERMINED BY THE ENGINEER IN THE FIELD.

PIGMENTED SURFACE SEALER IS TO BE APPLIED TO THE TOP AND CURB FACES OF THE MEDIAN AND THE TOP AND INSIDE FACES OF THE PARAPETS.

DESIGN DATA

LIVE LOAD:

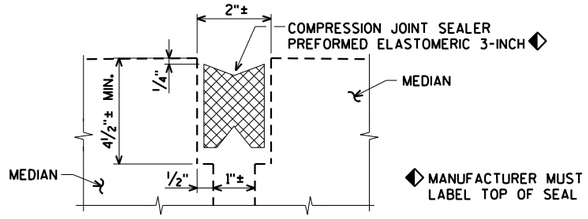
DESIGN LOADING: HS-20
INVENTORY RATING: HS-18
OPERATING RATING: HS-30
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 250 KIPS

MATERIAL PROPERTIES:

CONCRETE MASONRY { SUPERSTRUCTURE ____ f'_c = 4,000 p.s.i.
ALL OTHER ____ f'_c = 3,500 p.s.i.

TRAFFIC DATA:

A.D.T. = 14,200 (2016)
A.D.T. = 16,700 (2036)
R.D.S. = 50 M.P.H.



ELASTOMERIC COMPRESSION SEAL DETAIL

REMOVAL OF EXISTING COMPRESSION SEAL IS INCLUDED IN THE BID ITEM "COMPRESSION JOINT SEALER PREFORMED ELASTOMERIC 3-INCH"

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STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-12

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CROSS SECTION, QUANTITIES AND DESIGN DATA

SHEET 2 OF 3
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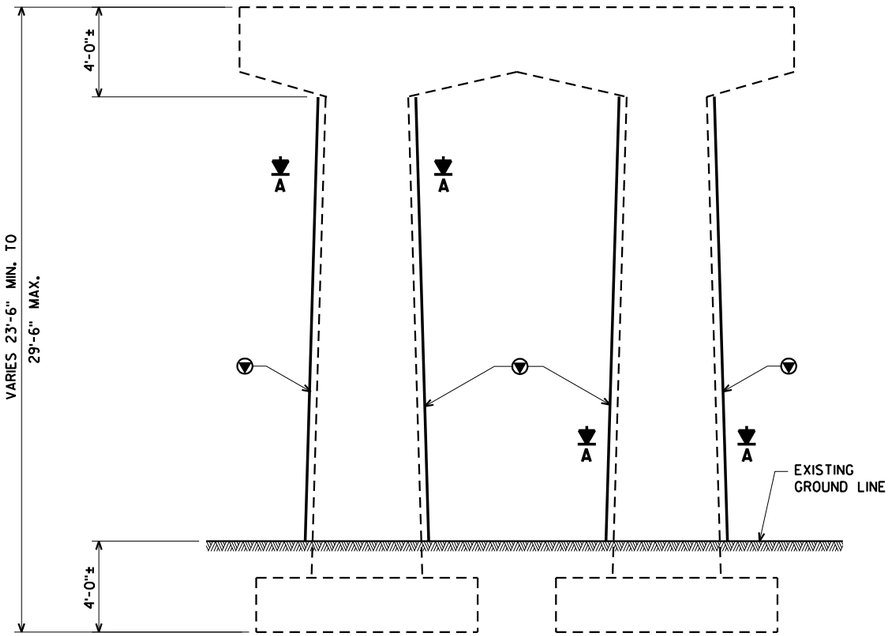
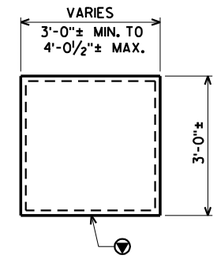


TYPICAL PIER ELEVATION

PIERS 4N, 7N, 3S, 4S, 5S, 6S, & 7S



SECTION A

FIBER WRAP COLUMN REINFORCING DETAILS

▼ FIBER WRAP REINFORCEMENT

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FIBER WRAP DETAILS

SHEET 3 OF 3
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Notes

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