SEL FEB 2014

PROJECT ID 2984-39-02
WITH: NONE

COUNTY MILWAUKEE

ORDER OF SHEETS

TOTAL: 84

12

N

DESIGN DESIGNATION

A.D.T. (CURRENT)	=	270
A.D.T. (2033)	=	300
D.H.V.	=	30
D.	=	50%
T.	=	14.2%
DESIGN SPEED	=	30 M.P.H.
ESALS	=	54,750

CONVENTIONAL SYMBOLS

PLAN

- COUNTY LINE
- TOWNSHIP OR RANGE LINE
- SECTION LINE
- CORPORATE OR CITY LIMITS
- PROPERTY LINE — P.L.
- STANDARD BENCH MARK
- EXISTING RIGHT OF WAY LINE — R/W
- PROPOSED SEWER LATERAL — (SIZE)
- REFERENCE LINE
- CONCRETE WALK/DWY. REMOVAL
- LIMITS OF CONCRETE PAVEMENT REMOVAL — X X X X X X
- COMBUSTIBLE FLUIDS — CAUTION
- RAILROADS
- FENCE — (TYPE)
- CATCH BASIN OR INLET — EXISTING / PROPOSED

PROFILE

- GRADE LINE
- ORIGINAL GROUND
- GRADE ELEVATION — 95.36

UTILITIES

- ELECTRIC — E
- FIBER OPTIC — FO
- GAS — G
- SANITARY SEWER — SAN
- STORM SEWER — STO
- TELEPHONE — T
- WATER — W
- TRAFFIC & ELECTRICAL SERVICES — TE&ES
- MILWAUKEE METRO SEWERAGE DIST — MMSD
- CABLE TELEVISION — TV
- FIRE & POLICE CALL BOX
- LIGHT POLE
- POWER POLE
- TELEPHONE OR TELEGRAPH POLE
- TRAFFIC SIGNAL
- TRAFFIC SIGNAL CONTROL BOX
- HYDRANT
- GAS OR WATER GATE VALVE
- MANHOLES - SEWER ○ UTILITY (TYPE) □
- TREES - EXISTING ◑ TO BE REMOVED

STATE OF WISCONSIN

DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

NORTH 45TH STREET

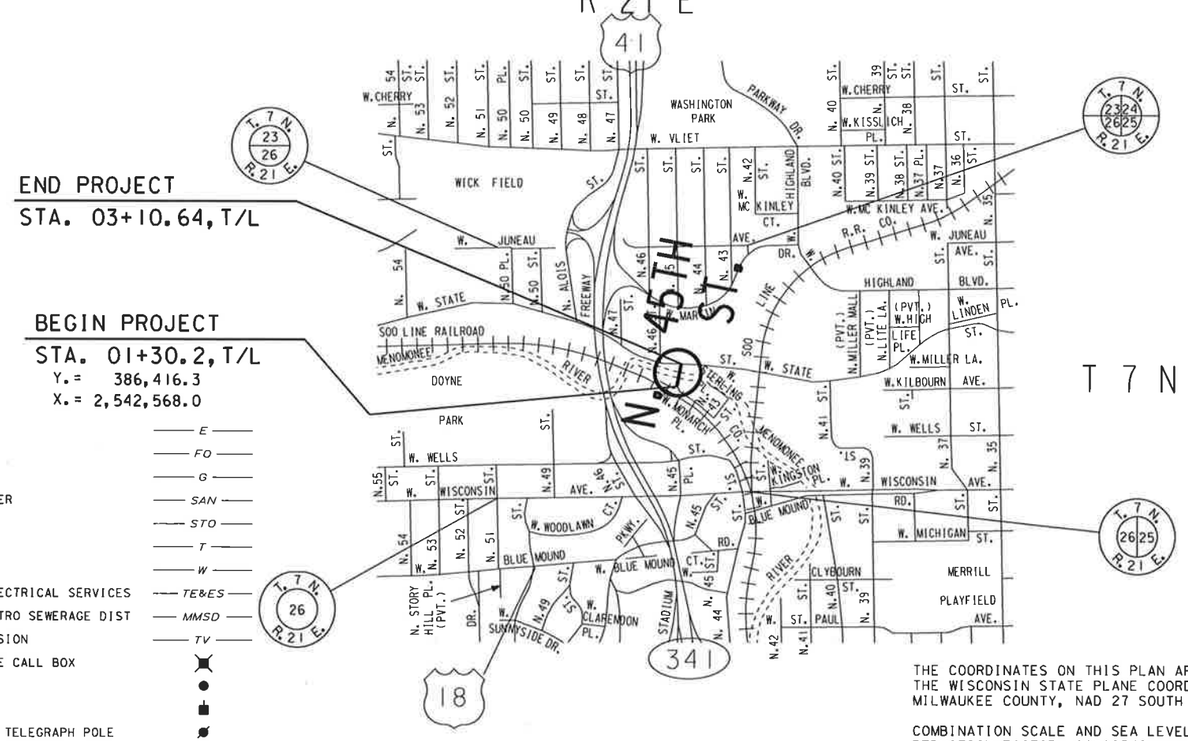
BRIDGE OVER THE MENOMONEE RIVER & APPROACHES

LOCAL STREET

CITY OF MILWAUKEE, MILWAUKEE COUNTY

STATE PROJECT NUMBER
2984-39-72

R 21 E



END PROJECT
STA. 03+10.64, T/L

BEGIN PROJECT
STA. 01+30.2, T/L
Y.= 386,416.3
X.= 2,542,568.0

LAYOUT
SCALE 1/4 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.000 MI

THE COORDINATES ON THIS PLAN ARE BASED ON THE WISCONSIN STATE PLANE COORDINATE SYSTEM, MILWAUKEE COUNTY, NAD 27 SOUTH ZONE.

COMBINATION SCALE AND SEA LEVEL REDUCTION FACTOR .99992542

ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO THE CITY OF MILWAUKEE DATUM.

TO CONVERT ELEVATIONS SHOWN ON THIS PLAN TO NATIONAL GEODEDIC VERTICAL DATUM OF 1929, ADD 580.603 TO ELEVATIONS SHOWN ON THIS PLAN.

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
2984-39-72	WISC 2014052	1

Accepted For
City of Milwaukee

10/30/13 [signature]
(Date) Commissioner of Public Works

Original Plans Prepared By

WISCONSIN JEFFREY S. POLENSKE E-36128 MILWAUKEE WIS. PROFESSIONAL ENGINEER

10/30/13 [signature]
(Date) City Engineer

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY
Surveyor City of Milwaukee
Designer City of Milwaukee
Management Consultant DAAR Engineering
C.O. Examiner

APPROVED FOR THE DEPARTMENT
DATE: 10/30/2013 [signature]
(Signature)

E

FILE NAME = W:\SPR\ 45TH ST BRIDGE\TITLE.DGN

GENERAL NOTES

1. ALL DISTURBED AREAS, NOT SURFACED, ARE TO BE COVERED WITH 4" OF TOPSOIL, SEEDED, FERTILIZED, AND COVERED W/EROSION CONTROL MAT UNLESS OTHERWISE DIRECTED BY THE ENGINEER. COVER ALL TOPSOILED AREAS WITHIN 5 TO 10 BUSINESS DAYS OF PLACEMENT.

2. WHEN THE QUANTITY OF ITEMS OF BASE AGGREGATE & / OR ASPHALTIC SURFACE IS MEASURED FOR PAYMENT BY THE TON, THE DEPTH OR THICKNESS OF THE LAYER SHOWN ON THE PLAN IS APPROXIMATE, AND THE ACTUAL THICKNESS WILL DEPEND ON THE DISTRIBUTION OF MATERIALS AS DIRECTED BY THE ENGINEER.

3. NO TREES OR SHRUBS SHALL BE REMOVED UNLESS DESIGNATED FOR REMOVAL BY THE ENGINEER OR SHOWN IN THE PLAN.

4. ALL CURB AND GUTTER IS LOW SIDE UNLESS OTHERWISE INDICATED ON THE PLAN.

5. TRANSVERSE JOINTS IN THE CONCRETE WALK SHALL BE CONSTRUCTED AT INTERVALS EQUAL TO THE WIDTH OF THE CONCRETE UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

6. ALL LONGITUDINAL AND TRANSVERSE JOINTS REQUIRING SEALING SHALL BE SEALED IN ACCORDANCE WITH THE DETAIL.

7. "PAVEMENT TIES" AS SHOWN ON STANDARD DETAIL DRAWING "CONCRETE GUTTER, CURB AND GUTTER AND PAVEMENT TIES" ARE NOT REQUIRED TO TIE EXISTING CONCRETE TO NEW CONCRETE CURB AND GUTTER.

8. THE LOCATION OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLAN IS APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN.

9. REPLACE ALL CONCRETE CURB AND GUTTER INDICATED FOR REMOVAL AND REPLACEMENT IN EXISTING LOCATION UNLESS OTHERWISE NOTED ON PLAN.

10. INLET SCREENS ARE TO BE PLACED BETWEEN THE FRAME AND GRATE OF CATCH BASINS / INLETS TO PREVENT SOIL FROM ENTERING THE SEWERS, AS DIRECTED BY ENGINEER.

11. BRIDGE WILL BE CLOSED TO ALL VEHICLE AND PEDESTRIAN TRAFFIC. A TEMPORARY BRIDGE LOCATED TO THE WEST WILL PROVIDE LIMITED TEMPORARY ACCESS DURING CONSTRUCTION.

12. THE CONTRACTOR MUST NOTIFY DIGGERS HOTLINE AND AFFECTED UTILITIES PRIOR TO THE START OF WORK. ANY LOCAL MUNICIPAL UTILITY WHICH IS NOT A MEMBER OF THE DIGGERS HOTLINE MUST BE CONTACTED SEPERATELY.

13. BASE COURSE THICKNESS WILL VARY TO ACCOMODATE DIFFERENCE IN PAVEMENT THICKNESS AT THE APPROACH SLAB AND EXISTING PAVEMENT JOINTS.

STANDARD ABBREVIATIONS

ASPH.	- ASPHALT
B.M.	- BENCH MARK
CTR.	- CENTER
C/L	- CENTER LINE
COMB.	- COMBINED
CONC.	- CONCRETE
C.W.	- CONCRETE WALK
COR.	- CORNER
C	- CURB
ELEV.	- ELEVATION
ENT.	- ENTRANCE
EXIST.	- EXISTING
F	- FLANGE
G	- GUTTER, OR GAS
HYD.	- HYDRANT
LT	- LEFT
P/L	- PROPERTY LINE
R OR RAD.	- RADIUS
RET.	- RETAINING
RT	- RIGHT
R/W	- RIGHT OF WAY
SAN	- SANITARY SEWER
STD.	- STANDARD
STO	- STORM SEWER
TEL	- AT&T
TES	- TRAFFIC ENGINEERING, AND ELECTRICAL SERVICES
T/L	- TRANSIT LINE
V.T. OR VT	- VARIABLE THICKNESS
WEP	- WISCONSIN ELECTRIC POWER (WE ENERGIES)

ORDER OF SECTION 2 SHEETS

2

WE ENERGIES - ELECTRIC
500 S. 116TH ST., WEST ALLIS, WI 53214
KENNETH FRANECKI, TEL. (414) 944-5531
kenneth.franecki@we-energies.com

WE ENERGIES - GAS
5400 N. GREEN BAY AVE., MILWAUKEE, WI 53209
THOMAS MINESAL, TEL. (414) 944-5755
thomas.minesal@we-energies.com

SBC/AT&T MILWAUKEE
7721 W. FOND DU LAC AVE.
MILWAUKEE, WI 53218
JAY BULABEK, TEL. (414) 535-7407
jb5175@att.com

TIME WARNER CABLE
1320 N. DR. M L KING JR. DR., MILWAUKEE, WI 53212
LUKAS LACROSSE, TEL. (414) 908-4766
lukas.lacrosse@twcable.com

MMSD
200 W. SEEBOTH ST. MILW., WI 53204
DEBRA JENSEN, TEL. (414) 225-2143
djensen@mmsd.com

TCG/AT&T
NORTHWIND TECHNICAL SERVICES, LLC
383 WILLIAMSTOWNE SUITE B
DELAFIELD, WI 53018
DON DIETSCH, TEL. (262) 646-5602
d.dietsch@northwindtech.com

OTHER CONTACTS

CITY OF MILWAUKEE, UTILITY COORDINATOR
841 N. BROADWAY, MILW., WI 53202
ANTHONY KOTECKI, TEL. (414) 708-3886
anthony.kotecki@milwaukee.gov

WISCONSIN DEPTARTMENT OF NATURAL RESOURCES
2300 N. DR. MARTIN LUTHER KING JR. DR., MILW., WI 53212
KRISTINA BETZOLD TEL. (414) 263-8517
kristina.betzold@wisconsin.gov

STRUCTURAL DESIGN - CITY OF MILWAUKEE
841 N. BROADWAY, MILWAUKEE, WI 53202
CRAIG LIBERTO, TEL. (414) 286-3294
craig.liberto@milwaukee.gov

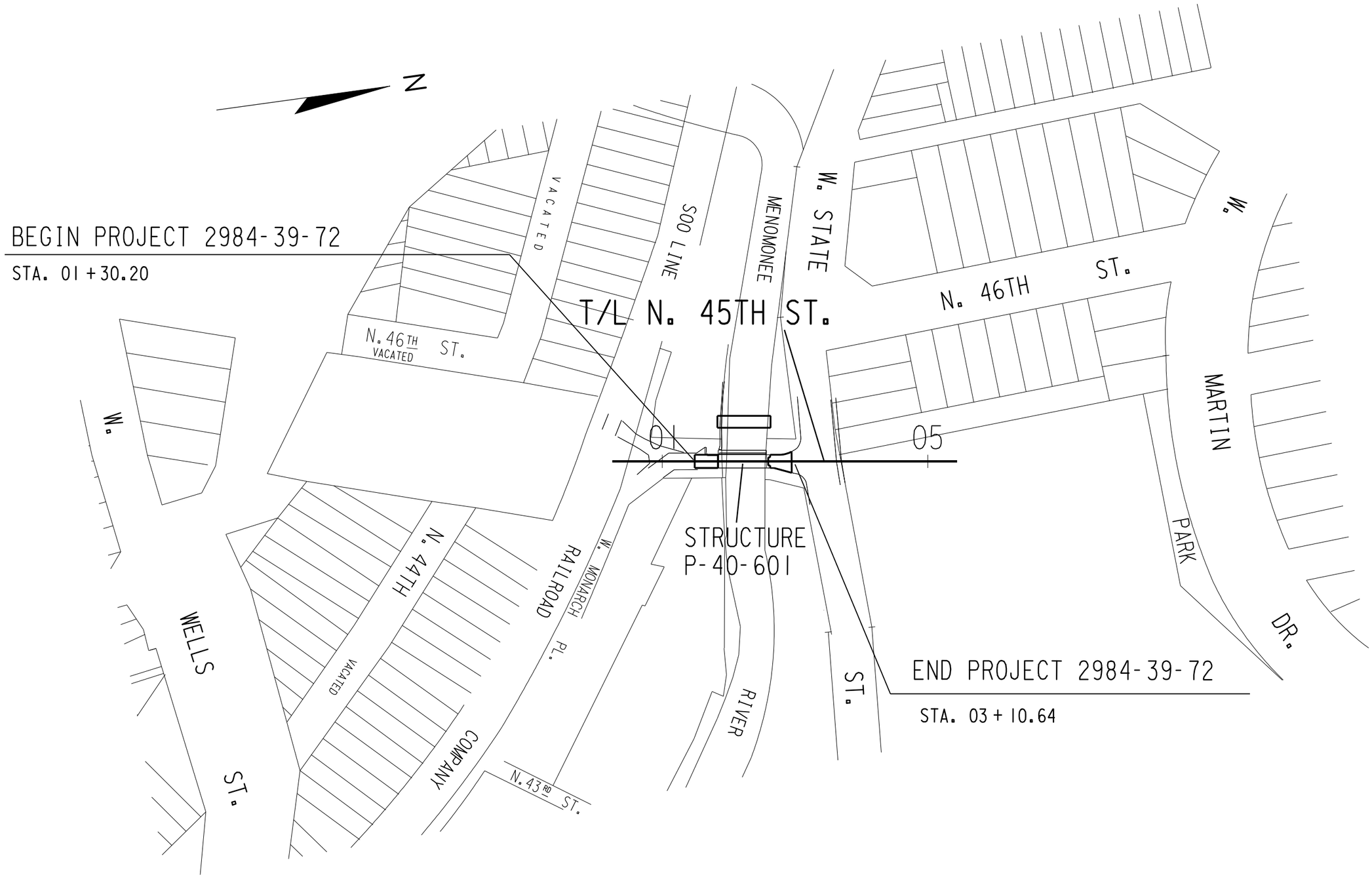
DIGGERS HOTLINE

Call 811 3 Work Days Before You Dig
Or Toll Free (800) 242-8511
Hearing Impaired TDD (800) 542-2289
www.DiggersHotline.com

STATE PROJECT NUMBER 2984-39-72 - -	HWY: LOCAL STREET	COUNTY: MILWAUKEE	UTILITY CONTACTS	SCALE FEET	SHEET NO: 3	E

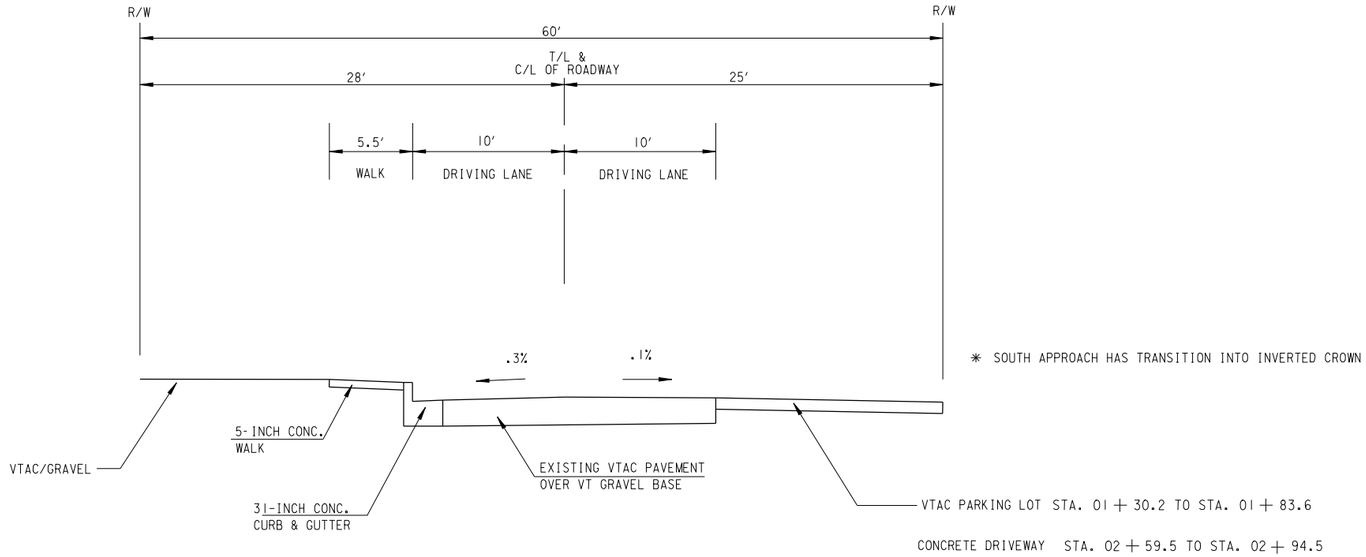
FILE NAME: W:\SPR\45TH ST BRIDGE\TYPSEC.DGN

2



STATE PROJECT NUMBER 2984-39-72 - -	HWY: LOCAL STREET	COUNTY: MILWAUKEE	PROJECT OVERVIEW	SCALE FEET 0' 150'	SHEET NO: 4	E

FILE NAME: W:\SPR\SPR 45TH ST_BRIDGE OVERVIEW.DGN

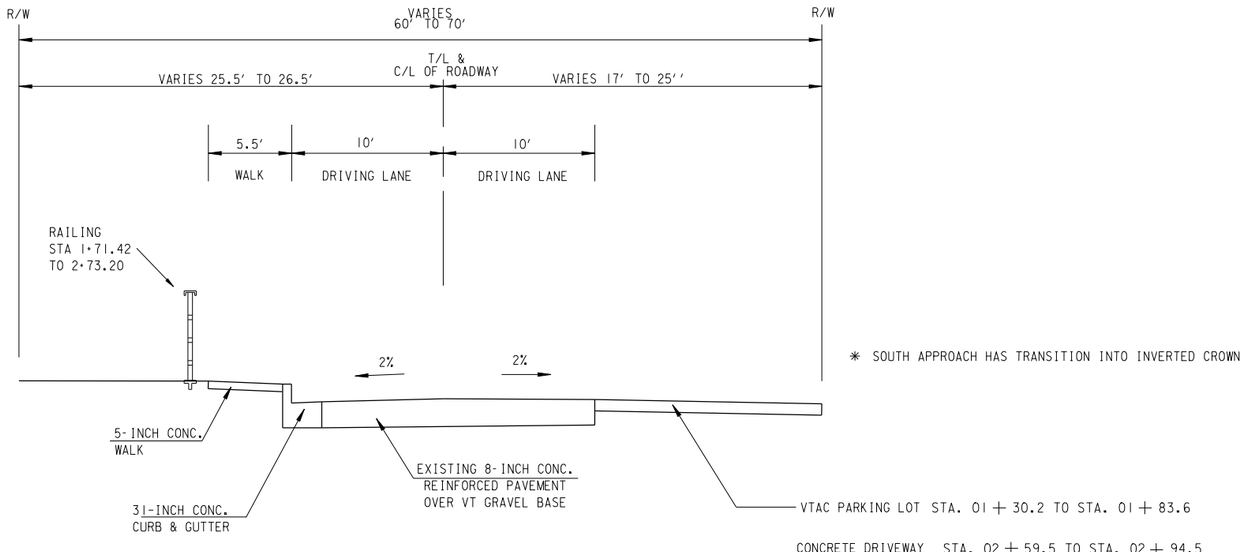


TYPICAL EXISTING SECTION - BRIDGE APPROACHES

NORTH 45TH STREET

STA. 01 + 52.0 TO STA. 01 + 73.0

(LOOKING NORTH)



TYPICAL EXISTING SECTION - BRIDGE APPROACHES

NORTH 45TH STREET

STA. 01 + 30.2 TO STA. 01 + 52.0

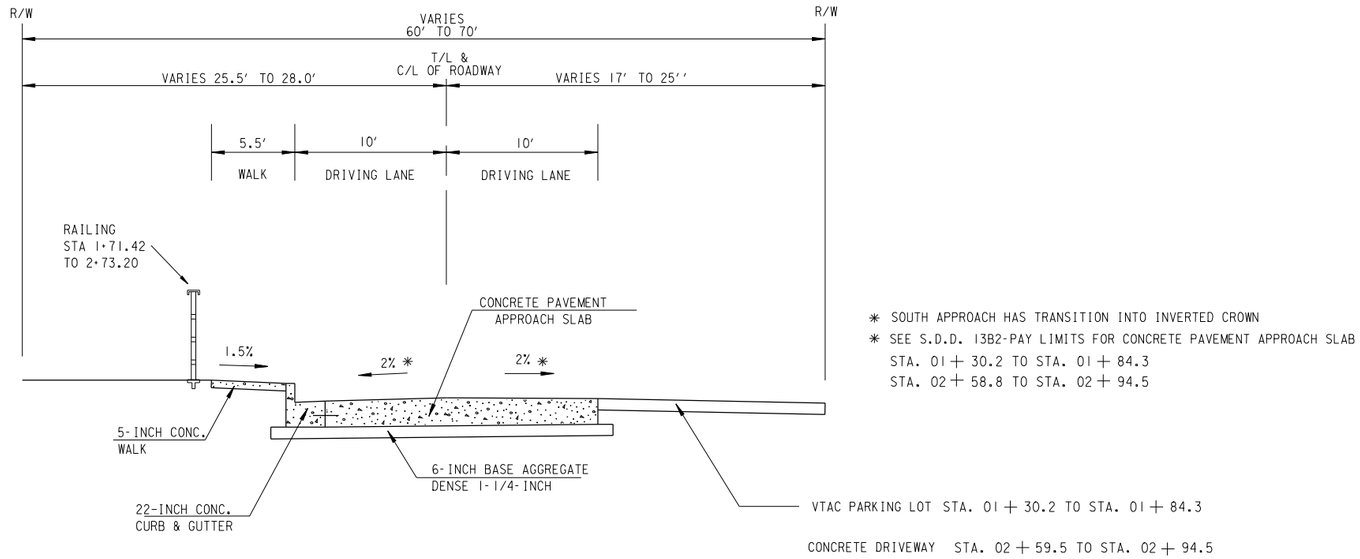
STA. 01 + 73.0 TO STA. 01 + 83.7

STA. 02 + 59.5 TO STA. 02 + 94.5

(LOOKING NORTH)

STATE PROJECT NUMBER 2984-39-72 - -	HWY: LOCAL STREET	COUNTY: MILWAUKEE	TYPICAL SECTIONS	SCALE FEET	SHEET NO: 5	E

FILE NAME: W:\SPR\45TH ST BRIDGE\TYPSEC.DGN



* SOUTH APPROACH HAS TRANSITION INTO INVERTED CROWN
* SEE S.D.D. 13B2-PAY LIMITS FOR CONCRETE PAVEMENT APPROACH SLAB
  STA. 01 + 30.2 TO STA. 01 + 84.3
  STA. 02 + 58.8 TO STA. 02 + 94.5

TYPICAL FINISHED SECTION - BRIDGE APPROACHES

NORTH 45TH STREET

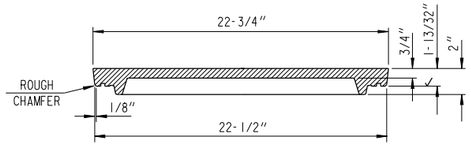
STA. 01 + 30.2 TO STA. 01 + 84.3

STA. 02 + 58.8 TO STA. 02 + 94.5

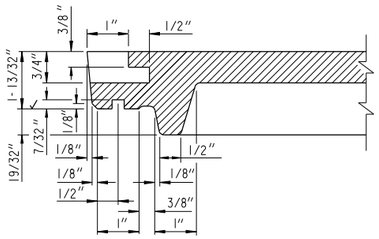
(LOOKING NORTH)

STATE PROJECT NUMBER 2984-39-72 - -	HWY: LOCAL STREET	COUNTY: MILWAUKEE	TYPICAL SECTIONS	SCALE FEET	SHEET NO: 6	E

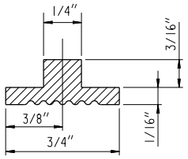
FILE NAME: W:\SPR\45TH ST BRIDGE\TYPSEC.DGN

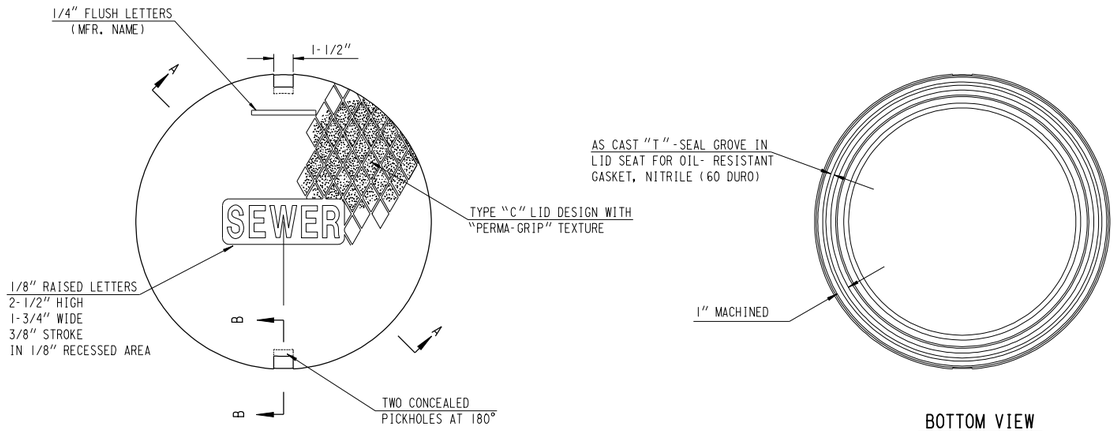


SECTION A-A



SECTION B-B





TOP VIEW

BOTTOM VIEW

MANHOLE COVER - TYPE 58-A

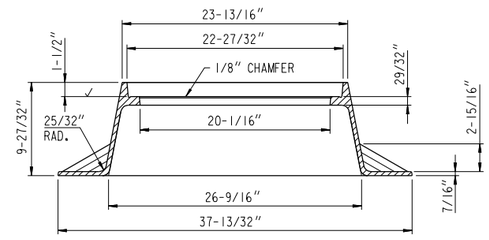
LID - 107 LBS.

NOTE:

ALL CASTINGS SHALL BEAR THE FOLLOWING IDENTIFICATION MARKS IN THE FORM OF LEGIBLE LETTERS OR NUMERALS RAISED 1/8" HAVING A DIGIT OR LETTER HEIGHT OF ONE INCH ON LOWER FACE OF LID:

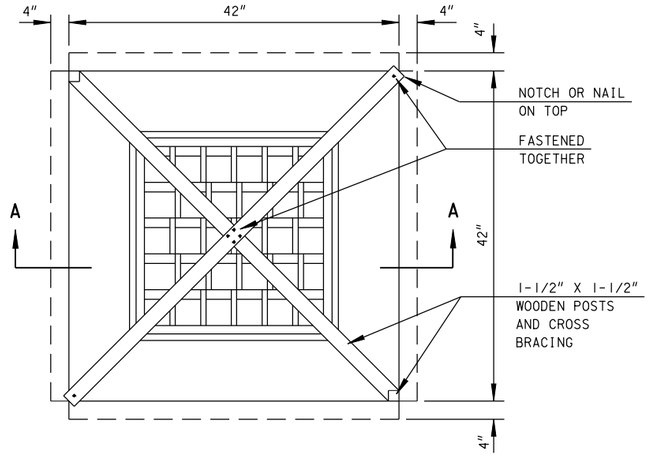
1. THE INITIALS OR MONOGRAM OF THE FOUNDRY.
2. THE CONTRACT NUMBER AND YEAR MADE.
3. THE CASTING IDENTIFICATION NUMBER.
4. THE SERIAL NUMBER OF THE INDIVIDUAL CASTING.

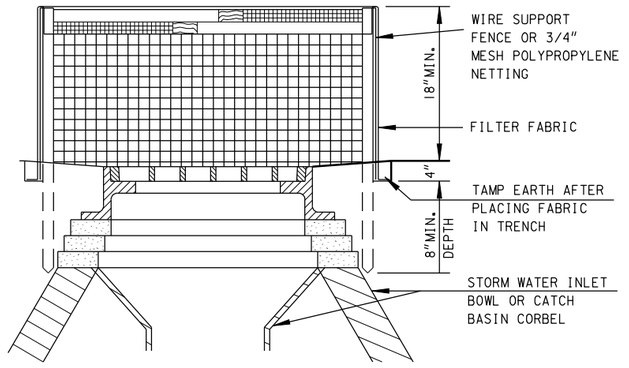
NOTE: ALL EXTERIOR EDGES SHALL BE GROUND.



MANHOLE FRAME - TYPE MS21

FRAME - 182 LBS.

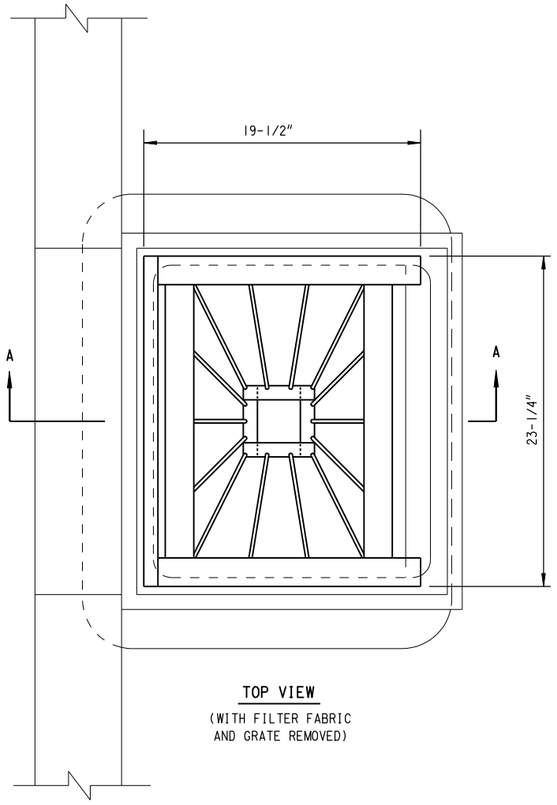




SECTION A-A

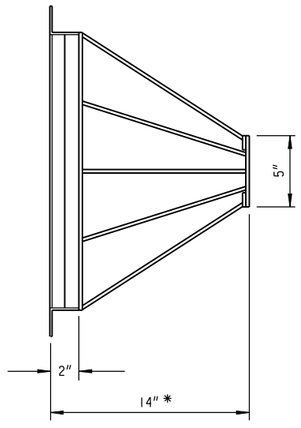
INLET SCREEN

(NOT PAVED) (TYPE R)



TOP VIEW

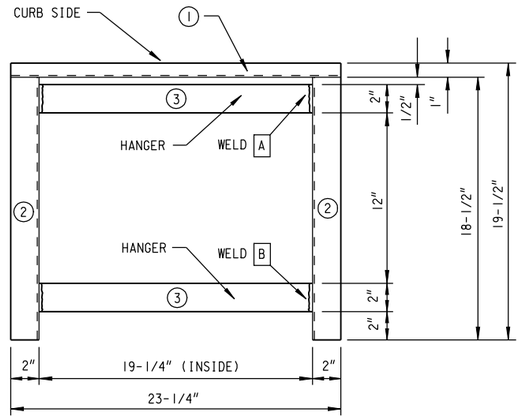
(WITH FILTER FABRIC AND GRATE REMOVED)



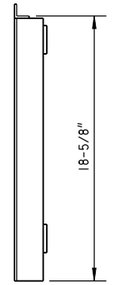
FRONT VIEW

(BASKET ONLY)

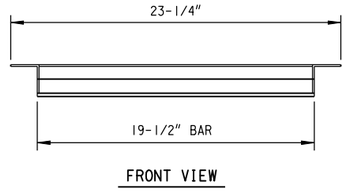
* MAY BE DECREASED IF INLET IS OF INSUFFICIENT DEPTH



TOP VIEW



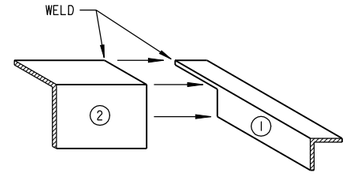
SIDE VIEW



FRONT VIEW

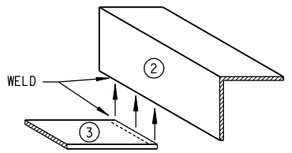
BAR SCHEDULE

NO.	SHAPE	SIZE	THICKNESS	LENGTH	QUANTITY
1	ANGLE	1" X 1"	1/8"	23-1/4"	1
2	ANGLE	2" X 2"	1/8"	18-1/2"	2
3	BAR	2"	1/4"	19-1/2"	2



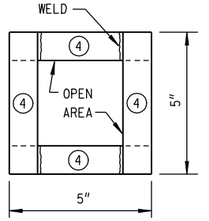
WELD CONNECTION - A

TOP FRAME

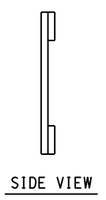


WELD CONNECTION - B

BASKET HANGER TO TOP FRAME



TOP VIEW

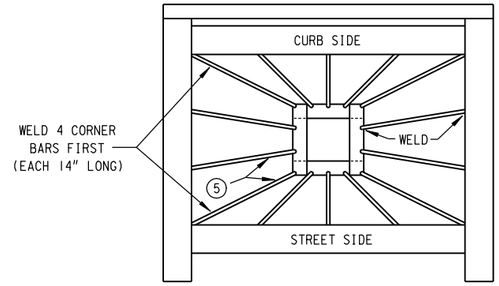


SIDE VIEW

BASKET BOTTOM

BAR SCHEDULE

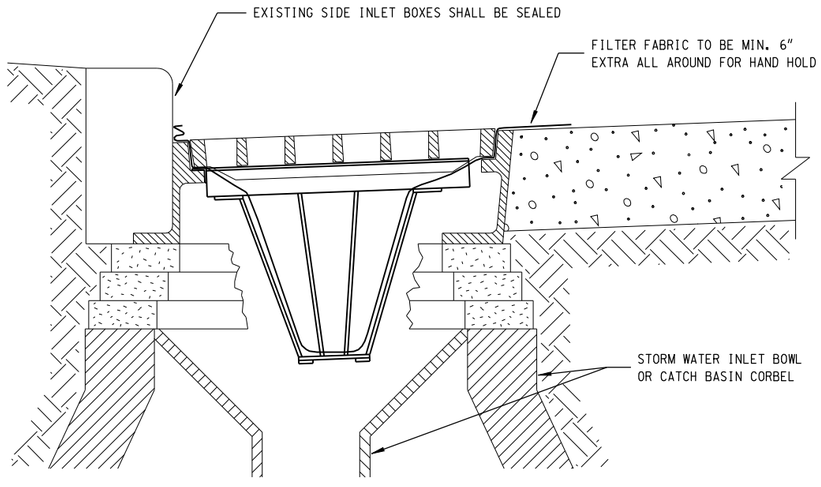
NO.	SHAPE	SIZE	THICKNESS	LENGTH	QUANTITY
4	BAR	1"	1/4"	5"	4



ROD PLACEMENT

ROD SCHEDULE

NO.	SHAPE	SIZE	THICKNESS	LENGTH	QUANTITY
5	ROD	1/4" MIN.	1/8"	12" TO 14" (CUT TO FIT)	14

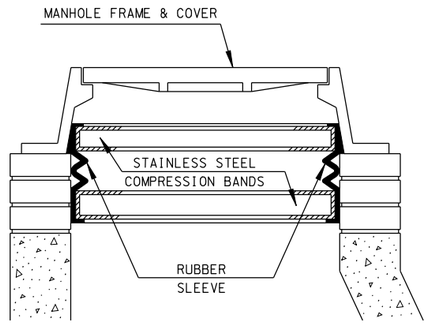


SECTION A-A

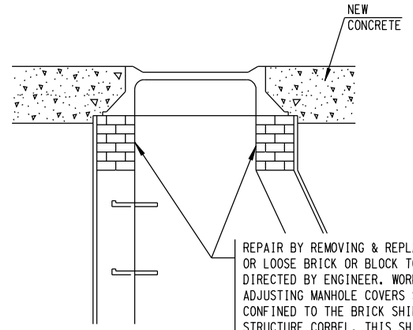
TYPE M
INLET / CATCH BASIN BASKET

STATE PROJECT NUMBER 2984-39-72 - -	HWY: LOCAL STREET	COUNTY: MILWAUKEE	DRAINAGE DETAILS	SCALE FEET	SHEET NO: 8	E

FILE NAME: W:\SPR\45TH ST BRIDGE\DRAINDET.DGN



INTERNAL SANITARY MANHOLE SEAL



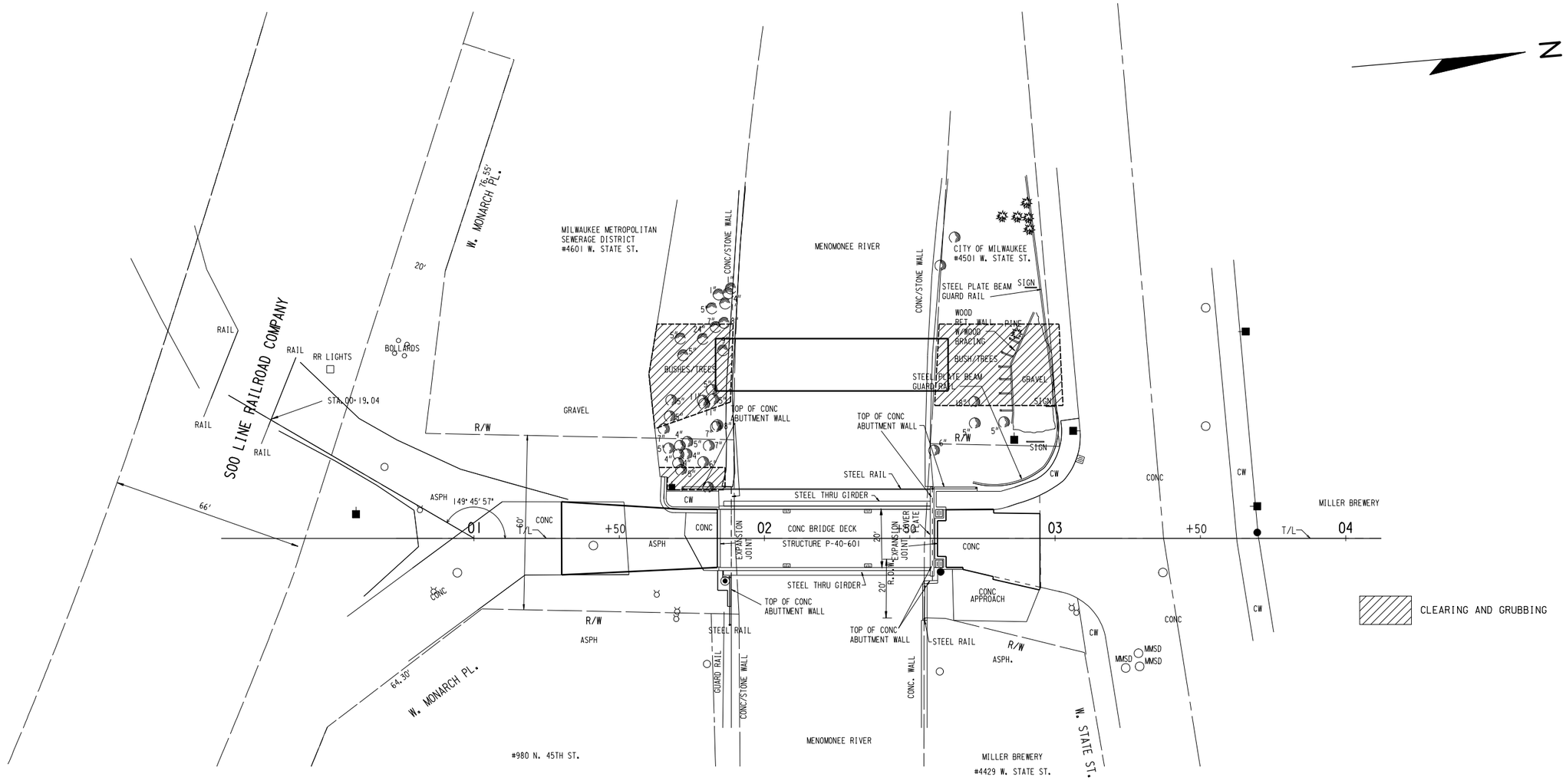
REPAIR BY REMOVING & REPLACING DAMAGED OR LOOSE BRICK OR BLOCK TO DEPTH AS DIRECTED BY ENGINEER. WORK UNDER ADJUSTING MANHOLE COVERS SHALL BE CONFINED TO THE BRICK SHIMMING ABOVE THE STRUCTURE CORBEL. THIS SHIMMING SHALL NOT EXCEED 1 FOOT BETWEEN THE TOP OF THE CORBEL AND THE FRAME BOTTOM. ANY WORK MORE EXTENSIVE THAN DESCRIBED IMMEDIATELY ABOVE SHALL BE CONSTRUED AS WORK UNDER RECONSTRUCTING MANHOLES. DEPTHS OF BRICK-WORK TO BE REPAIRED, AS INDICATED ON THE PLAN, ARE ESTIMATES ONLY AND MAY VARY AT TIME OF CONSTRUCTION.

ADJUSTING MANHOLE COVERS OR
MANHOLE COVERS TYPE 58 OR TYPE 58A

2

2

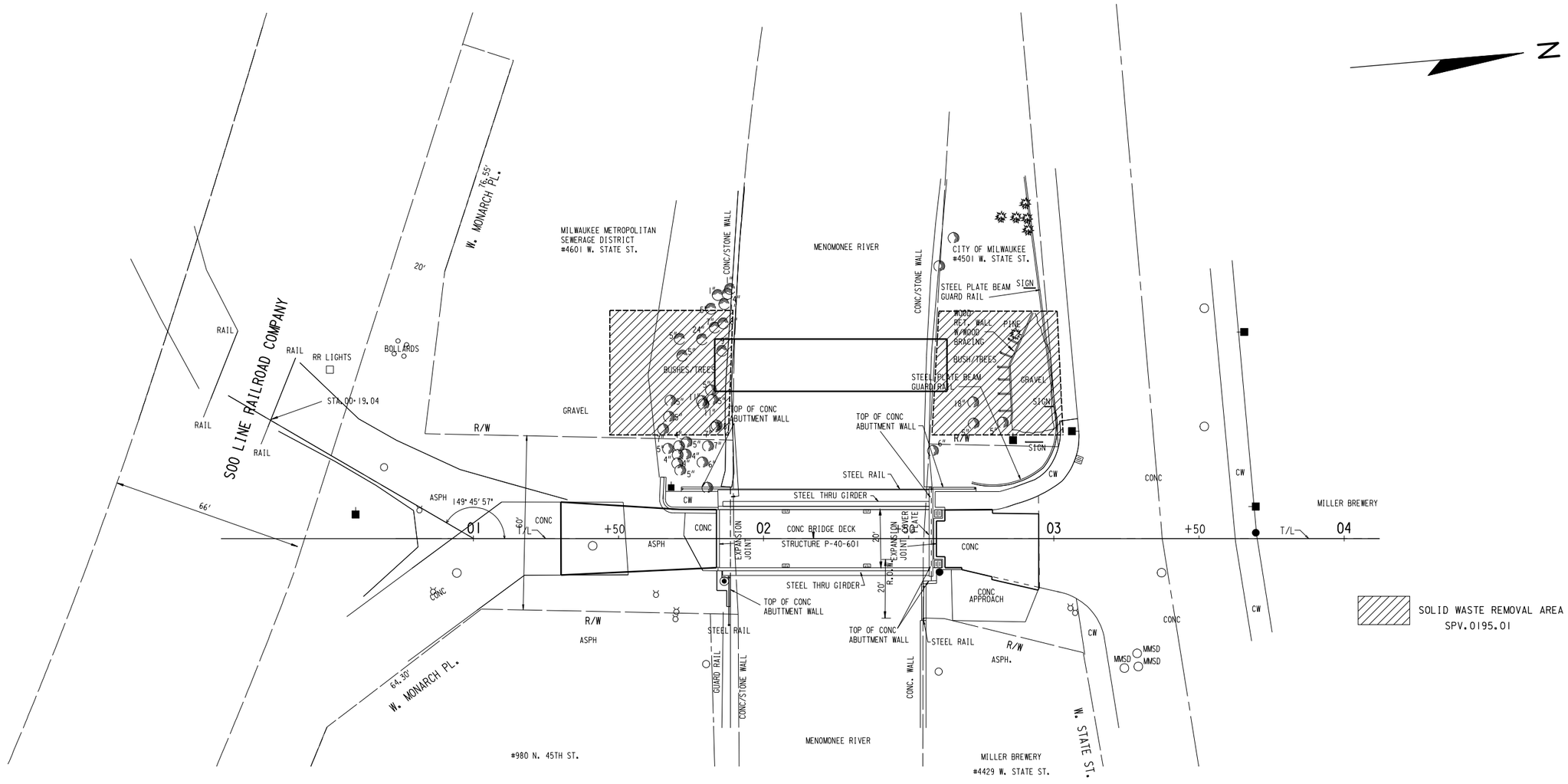
NORTH 45TH STREET



STATE PROJECT NUMBER 2984-39-72 - -	HWY: LOCAL STREET	COUNTY: MILWAUKEE	CONSTRUCTION DETAIL - CLEAR AND GRUB	SCALE FEET 0' 40'	SHEET NO: 10	E

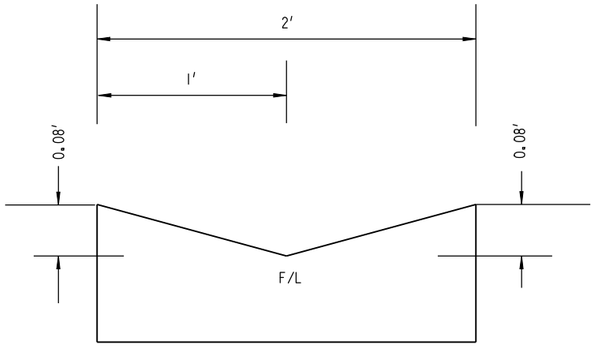
FILE NAME: W:\SPR\45TH ST BRIDGE\SOLIDWASTE.DGN

NORTH 45TH STREET



STATE PROJECT NUMBER 2984-39-72 - -	HWY: LOCAL STREET	COUNTY: MILWAUKEE	CONSTRUCTION DETAIL-SOLID WASTE	SCALE FEET 0' 40'	SHEET NO: 11	E

FILE NAME: W:\SPR\45TH ST BRIDGE\SOLIDWASTE.DGN



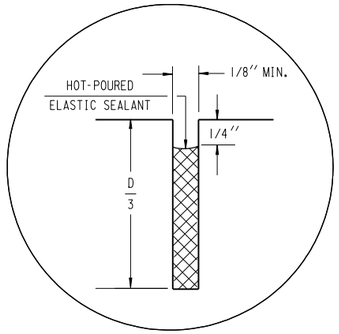
Ⓚ SEE CONSTRUCTION DETAIL PAGE FOR TEMPORARY BRIDGE

TYPICAL SECTION

VFCC&G

(0.00 FACE TO 0.00 FACE)

N.T.S.



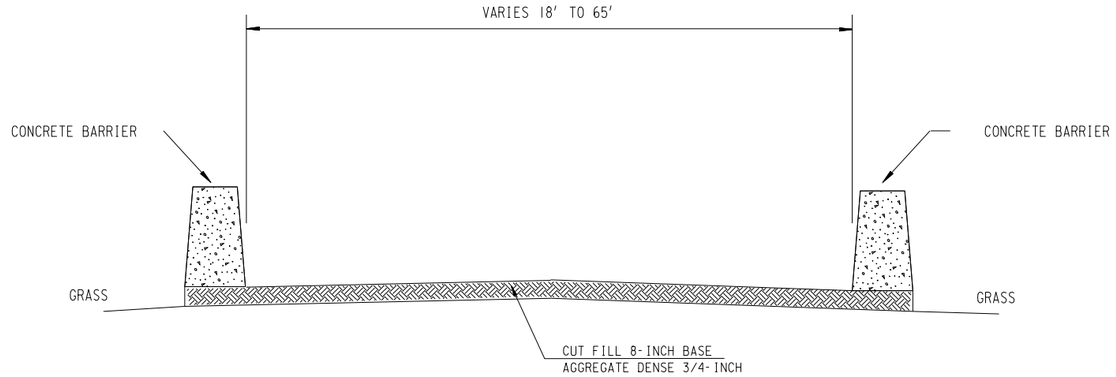
DETAIL "A"

PAVEMENT DEPTH AND JOINT SPACING TABLE	
PAVEMENT DEPTH (D)	CONTRACTION JOINT SPACING
6"	12'
7"	14'
8"	15'
9"	15'
10" & ABOVE	18'

JOINT SEALING DETAIL

2

2

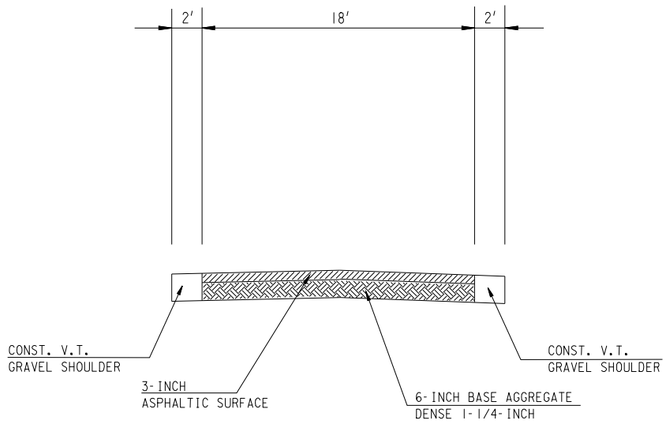


TEMPORARY BRIDGE APPROACH

SOUTH APPROACH

STA. 00+71.12 TO STA. 01+83.15

(LOOKING NORTH)



TEMPORARY BRIDGE APPROACH

NORTH APPROACH

STA. 02+63.2 TO STA. 03+00.65

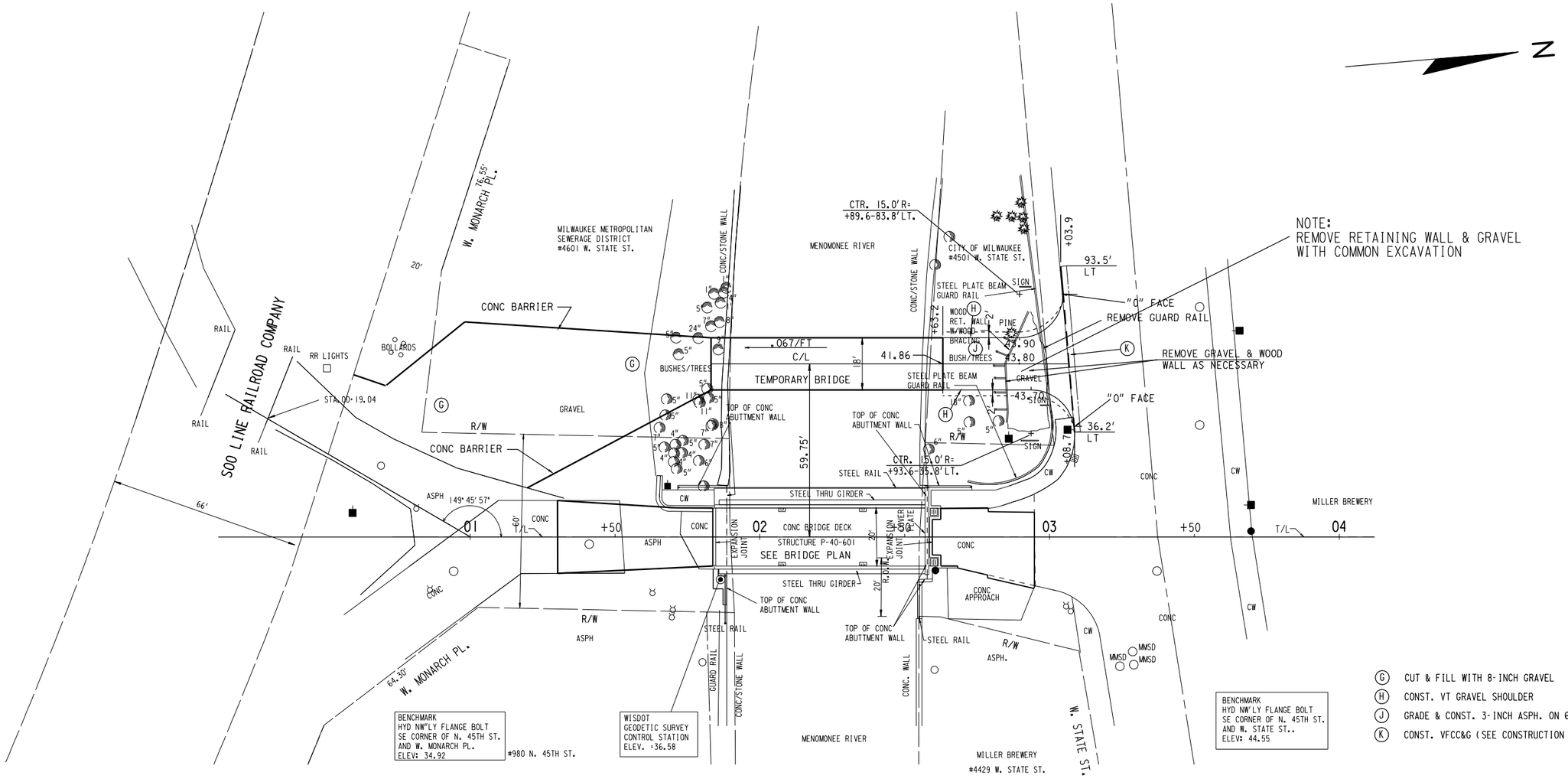
(LOOKING NORTH)

STATE PROJECT NUMBER 2984-39-72 - -	HWY: LOCAL STREET	COUNTY: MILWAUKEE	CONST. DETAILS-TEMPORARY APPR.	SCALE FEET	SHEET NO: 13	E

FILE NAME: W:\SPR\45TH ST BRIDGE\CONDET.DGN

2

NORTH 45TH STREET

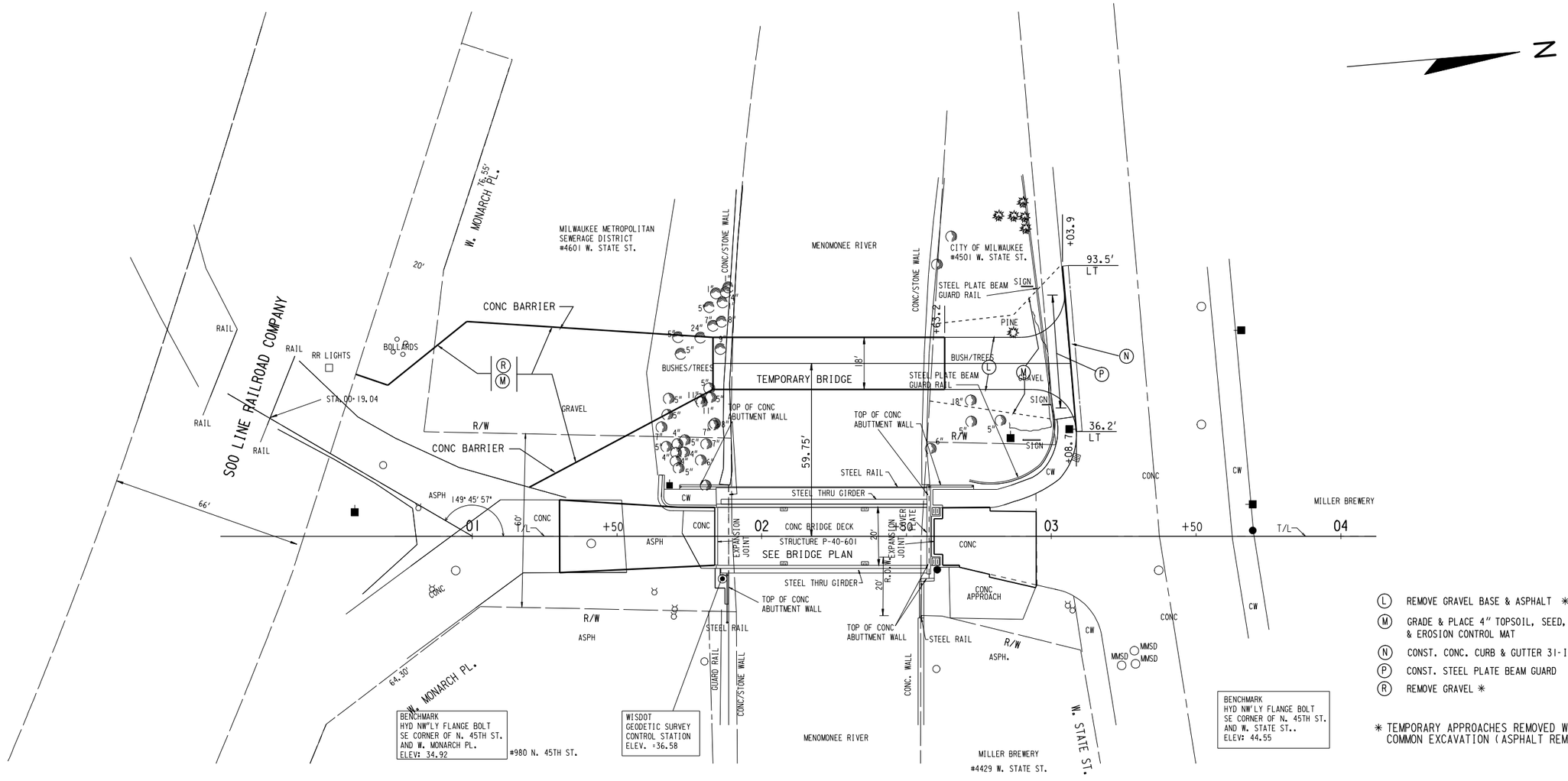


(G) CUT & FILL WITH 8-INCH GRAVEL
(H) CONST. VT GRAVEL SHOULDER
(J) GRADE & CONST. 3-INCH ASPH. ON 6-INCH GRAVEL BASE
(K) CONST. VFCC&G (SEE CONSTRUCTION DETAIL)

STATE PROJECT NUMBER 2984-39-72 - -	HWY: LOCAL STREET	COUNTY: MILWAUKEE	CONSTRUCTION DETAILS	SCALE FEET 0' 40'	SHEET NO: 14	E

FILE NAME: W:\SPR\0145TH ST BRIDGE\TEMPBRG.DGN

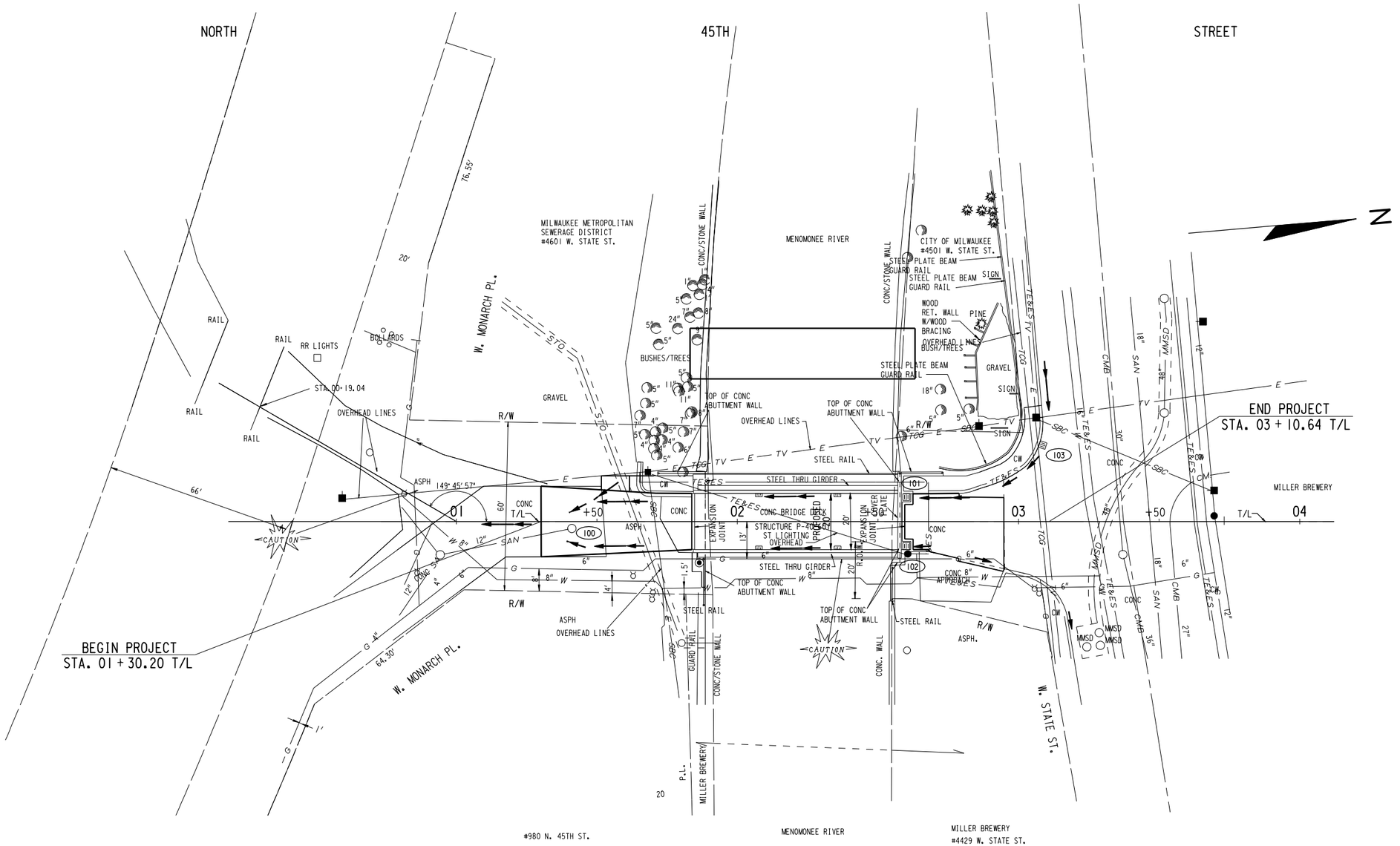
NORTH 45TH STREET



STATE PROJECT NUMBER 2984-39-72 - -	HWY: LOCAL STREET	COUNTY: MILWAUKEE	RESTORATION DETAILS	SCALE FEET 0' 40'	SHEET NO: 15	E

FILE NAME: W:\SPR\0145TH ST BRIDGE\RESTORE.DGN

2



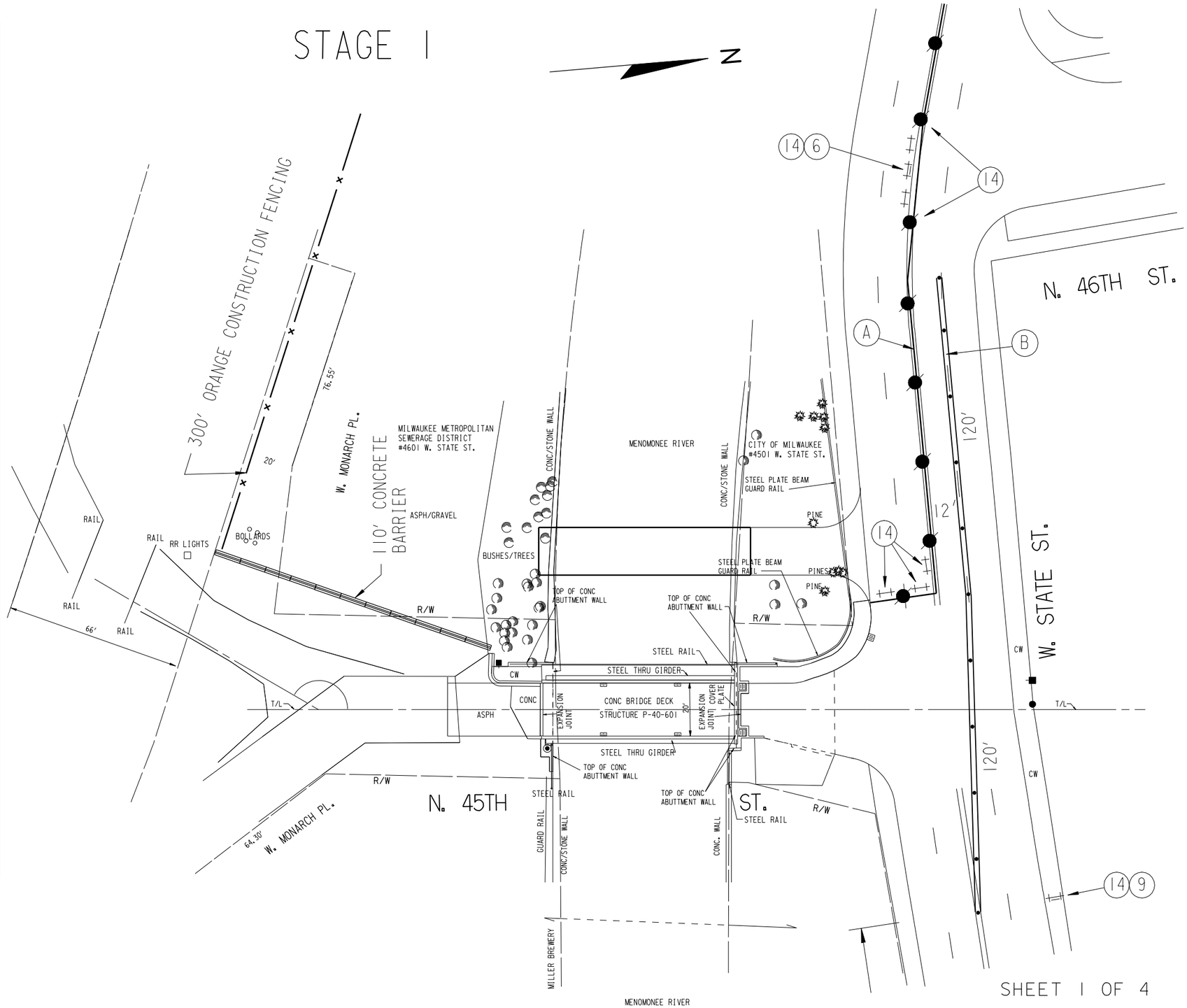
STATE PROJECT NUMBER 2984-39-72 - -	HWY: LOCAL STREET	COUNTY: MILWAUKEE	UTILITIES AND DRAINAGE	SCALE FEET 0' 40'	SHEET NO: 16	E

FILE NAME: W:\SPR\45TH ST BRIDGE\ UTIL 01-04.DGN

STAGE I

LEGEND

- W020-1 ROAD WORK AHEAD 48" X48" — (1)
- W020-5L LEFT LANE CLOSED AHEAD 48" X48" — (8)
- W020-5R RIGHT LANE CLOSED AHEAD 48" X48" — (2)
- W04-2L 48" X48" — (9)
- W04-2R 48" X48" — (3)
- CONCRETE BARRIER
- TUBULAR MARKERS 25' SPACING
- DRUM W/ LIGHT
- W01-4L 48" X48" — (4)
- TYPE III BARRICADES (14)
- W01-6L 24" X12" — (5)
- TYPE III BARRICADES W/ SIGN (14) + (X)
- W01-7 24" X48" — (6)
- (A) TPM, REMOVABLE TAPE, 4" WHITE
- G20-2A END ROAD WORK 36" X18" — (7)
- (B) TPM, REMOVABLE TAPE, 4" DOUBLE YELLOW



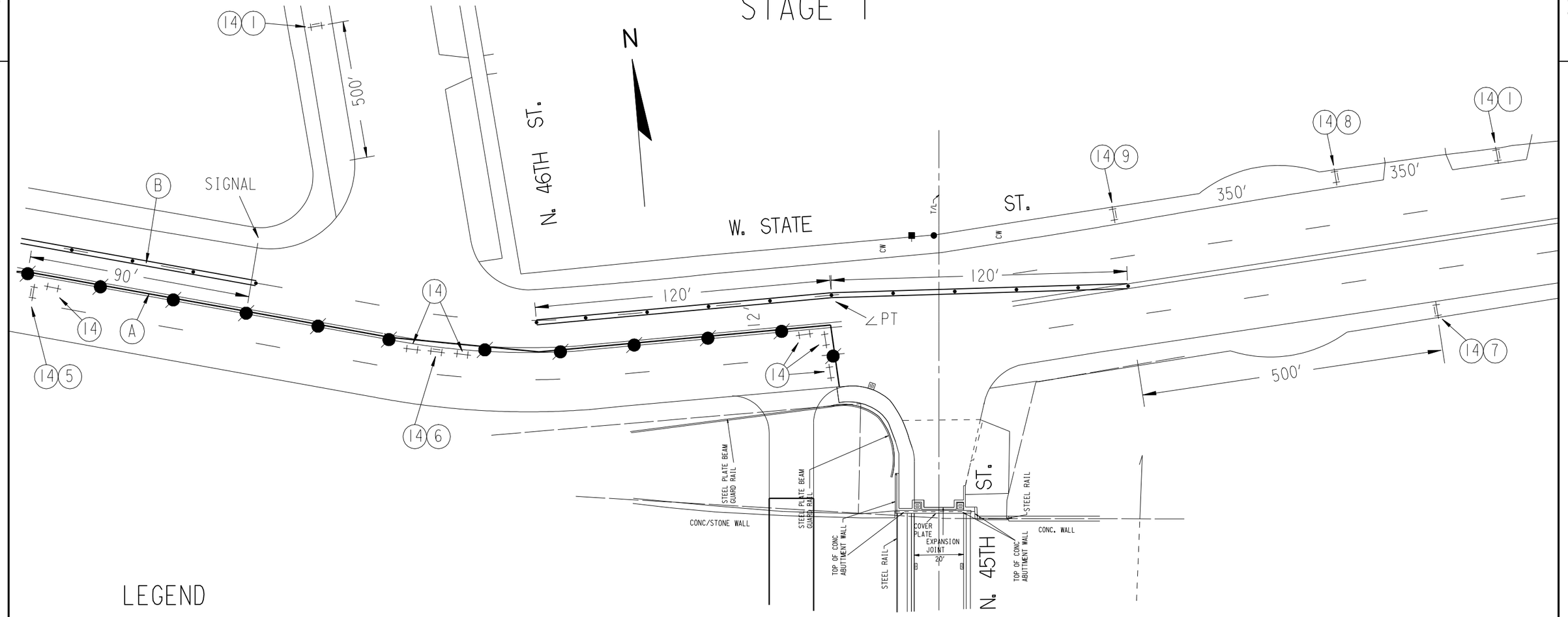
NOTES:
1. CONCRETE BARRIERS SHALL HAVE REFLECTIVE MARKERS.

SHEET 1 OF 4

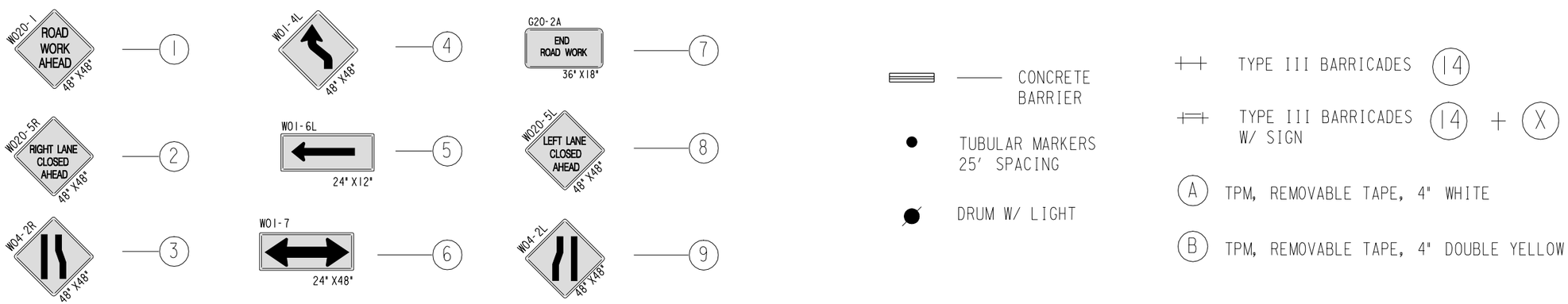
STATE PROJECT NUMBER 2984-39-72 - -	HWY: LOCAL STREET	COUNTY: MILWAUKEE	TRAFFIC CONTROL	SCALE FEET 0' 40'	SHEET NO: 17	E

FILE NAME: W:\SPR\45TH ST BRIDGE\ TRAFFIC.DGN

STAGE 1



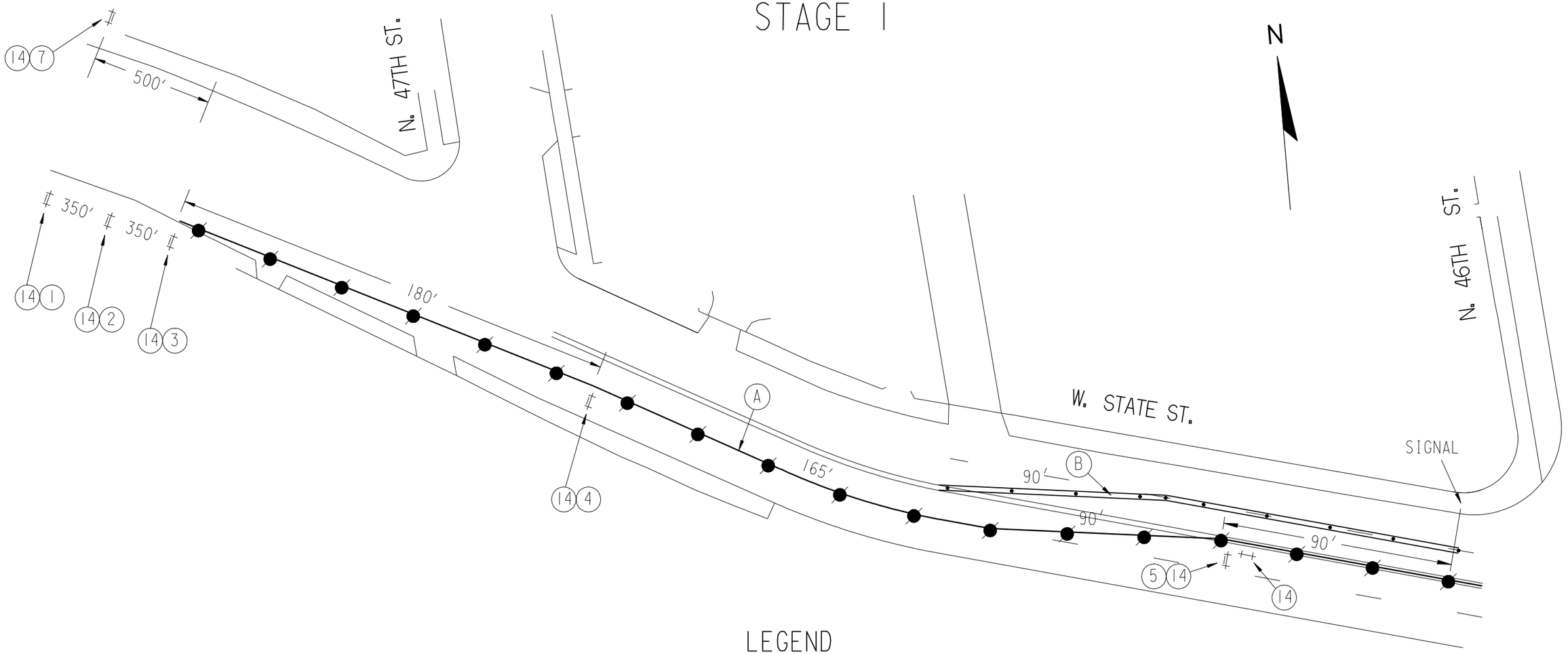
LEGEND



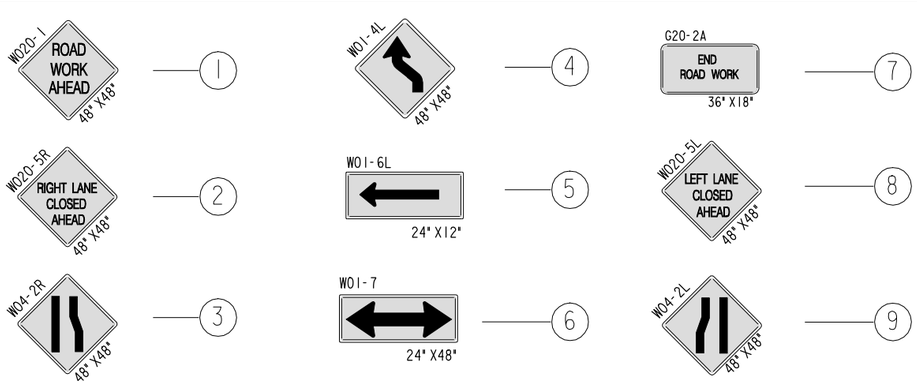
STATE PROJECT NUMBER 2984-39-72 - -	HWY: LOCAL STREET	COUNTY: MILWAUKEE	TRAFFIC CONTROL	SCALE FEET 0' 40'	SHEET NO: 18	E

FILE NAME: W:\SPR\45TH ST BRIDGE\ TRAFFIC.DGN

STAGE 1



LEGEND



STATE PROJECT NUMBER 2984-39-72 - -	HWY: LOCAL STREET	COUNTY: MILWAUKEE	TRAFFIC CONTROL	SCALE FEET 0' 40'	SHEET NO: 19	E

FILE NAME: W:\SPR\45TH ST BRIDGE\ TRAFFIC.DGN

2

STAGE 2

NOTES:

1. CONCRETE BARRIERS SHALL HAVE REFLECTIVE MARKERS.

ALL FMS SIGNS ARE BLACK SERIES C LETTERS
ON ORANGE BACKGROUND

LEGEND

W05-3 ONE LANE BRIDGE 36" X36" — 1

R1-1 STOP 30" X30" — 2

R1-2A TO ONCOMING TRAFFIC 60" X30" — 3

W8-7 LOOSE GRAVEL 36" X36" — 4

R11-2 ROAD CLOSED 48" X30" — 5

W01-6L 36" X18" — 6

R9-9 SIDEWALK CLOSED 30" X18" — 7

FMS-1 N. 45TH ST. 24"X48" — 8

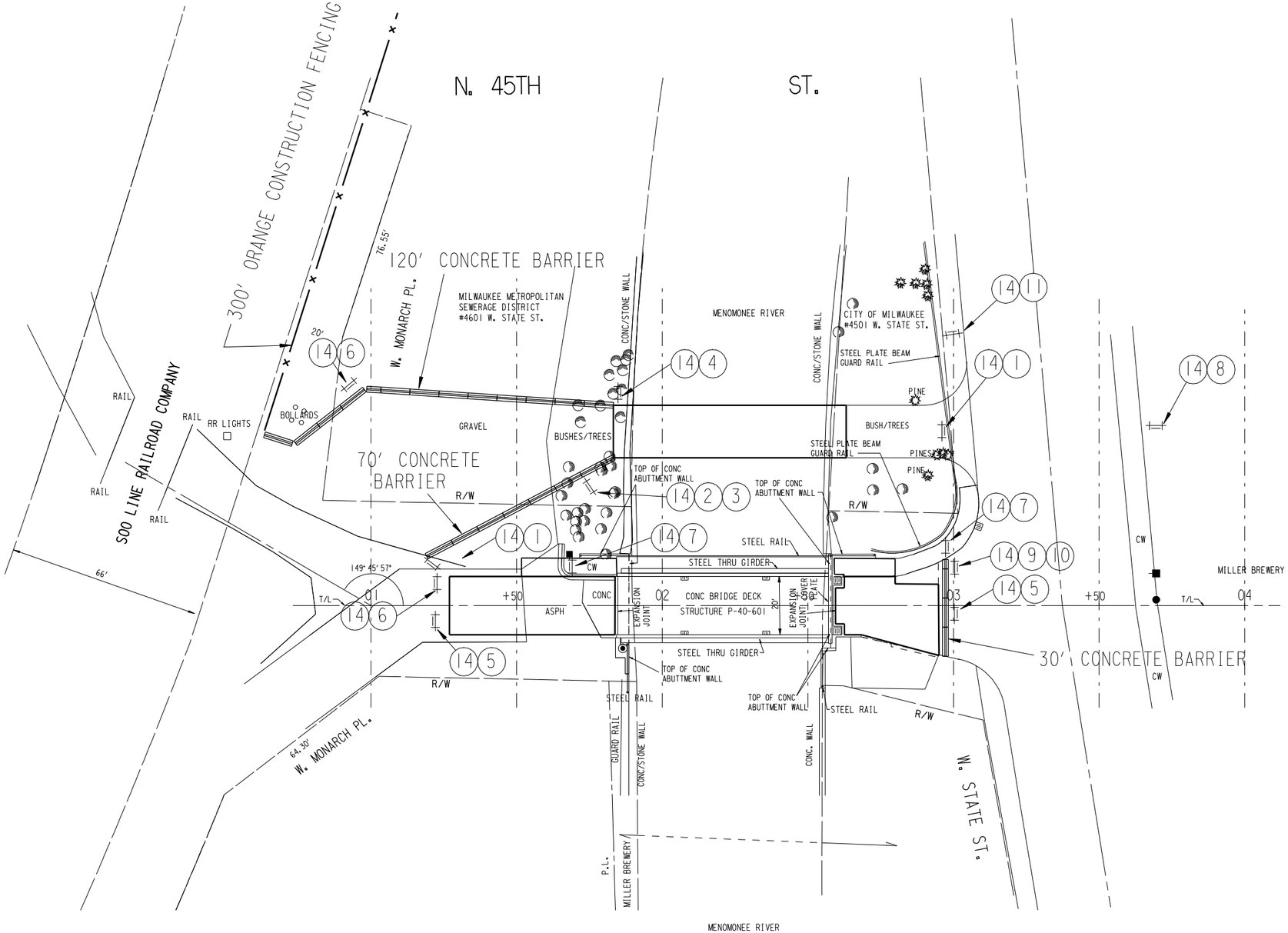
FMS-2 N. 45TH ST. CLOSED ENT. 30' WEST 36" X60" — 9

W01-6R 24" X12" — 10

FMS-2 N. 45TH ST. CLOSED ENT. 30' EAST 36" X60" — 11

CONCRETE BARRIER

TYPE III BARRICADES W/ SIGN (14) + (X)

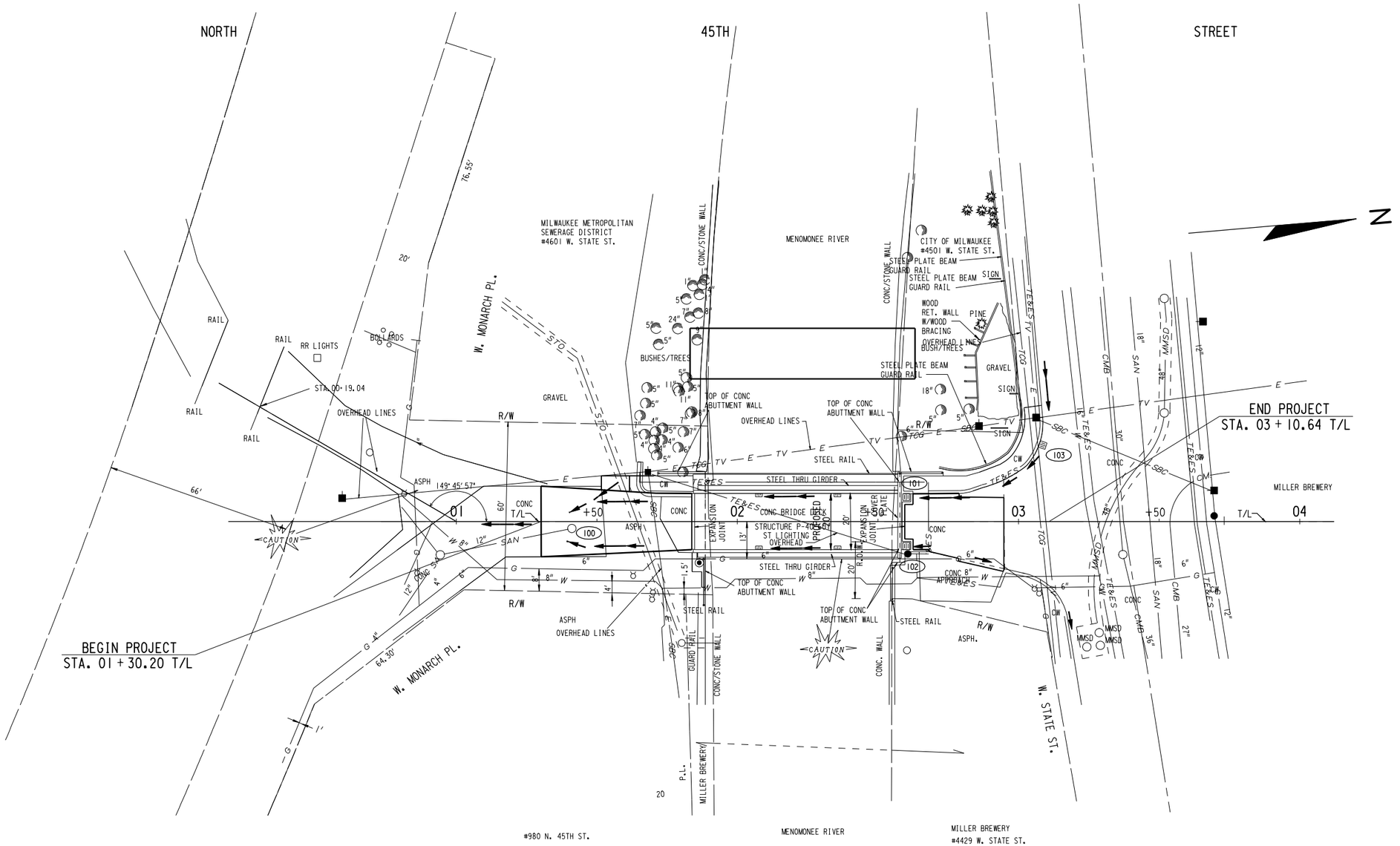


SHEET 4 OF 4

STATE PROJECT NUMBER 2984-39-72 - -	HWY: LOCAL STREET	COUNTY: MILWAUKEE	TRAFFIC CONTROL	SCALE FEET 0' 40'	SHEET NO: 20	E

FILE NAME: W:\SPR\45TH ST BRIDGE\ TRAFFIC.DGN

2



STATE PROJECT NUMBER 2984-39-72 - -	HWY: LOCAL STREET	COUNTY: MILWAUKEE	UTILITIES AND DRAINAGE	SCALE FEET 0' 40'	SHEET NO: 21	E

FILE NAME: W:\SPR\45TH ST BRIDGE\ UTIL 01-04.DGN

3

DATE 23DEC13 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	2984-39-72 QUANTITY
0010	201.0110	CLEARING	SY	272.000	272.000
0020	201.0210	GRUBBING	SY	272.000	272.000
0030	203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS (STATION) 01. 2+23. 17	LS	1.000	1.000
0040	204.0100	REMOVING PAVEMENT	SY	170.000	170.000
0050	204.0150	REMOVING CURB & GUTTER	LF	130.000	130.000
0060	204.0155	REMOVING CONCRETE SIDEWALK	SY	20.000	20.000
0070	204.0165	REMOVING GUARDRAIL	LF	40.000	40.000
0080	205.0100	EXCAVATION COMMON **P**	CY	523.000	523.000
0090	206.1000	EXCAVATION FOR STRUCTURES BRIDGES (STRUCTURE) 01. P-40-0601	LS	1.000	1.000
0100	206.6000.S	TEMPORARY SHORING	SF	840.000	840.000
0110	210.0100	BACKFILL STRUCTURE	CY	213.000	213.000
0120	305.0110	BASE AGGREGATE DENSE 3/4-INCH	TON	250.000	250.000
0130	305.0120	BASE AGGREGATE DENSE 1 1/4-INCH	TON	70.000	70.000
0140	415.0410	CONCRETE PAVEMENT APPROACH SLAB	SY	210.000	210.000
0150	416.0610	DRILLED TIE BARS	EACH	20.000	20.000
0160	455.0605	TACK COAT	GAL	40.000	40.000
0170	465.0105	ASPHALTIC SURFACE	TON	114.000	114.000
0180	502.0100	CONCRETE MASONRY BRIDGES	CY	64.000	64.000
0190	502.3100	EXPANSION DEVICE (STRUCTURE) 01. P-40-0601	LS	1.000	1.000
0200	502.3200	PROTECTIVE SURFACE TREATMENT	SY	231.000	231.000
0210	502.5005	MASONRY ANCHORS TYPE L NO. 5 BARS	EACH	140.000	140.000
0220	505.0605	BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	11,844.000	11,844.000
0230	506.0105	STRUCTURAL STEEL CARBON	LB	2,265.000	2,265.000
0240	506.3015	WELDED STUD SHEAR CONNECTORS 7/8X6-INCH	EACH	886.000	886.000
0250	506.3025	WELDED STUD SHEAR CONNECTORS 7/8X8-INCH	EACH	252.000	252.000
0260	509.1500	CONCRETE SURFACE REPAIR	SF	230.000	230.000
0270	513.4050	RAILING TUBULAR TYPE F (STRUCTURE) 01. P-40-0601	LS	1.000	1.000
0280	516.0100	DAMPPROOFING	SY	30.000	30.000
0290	516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	12.000	12.000
0300	517.0600	PAINTING EPOXY SYSTEM (STRUCTURE) 01. P-40-0601	LS	1.000	1.000
0310	517.0900.S	PREPARATION AND COATING OF TOP FLANGES (STRUCTURE) 01. P-40-0601	LS	1.000	1.000
0320	517.1010.S	CONCRETE STAINING (STRUCTURE) 01. P-40-0601	SF	1,050.000	1,050.000
0330	517.1800.S	STRUCTURE REPAINTING RECYCLED ABRASIVE (STRUCTURE) 01. P-40-0601	LS	1.000	1.000
0340	517.4500.S	NEGATIVE PRESSURE CONTAINMENT AND COLLECTION OF WASTE MATERIALS (STRUCTURE) 01. P-40-0601	LS	1.000	1.000
0350	517.6001.S	PORTABLE DECONTAMINATION FACILITY	EACH	1.000	1.000
0360	526.0100	TEMPORARY STRUCTURE (STATION) 01. 2+23. 17	LS	1.000	1.000
0370	601.0322	CONCRETE CURB & GUTTER 22-INCH	LF	50.000	50.000
0380	601.0331	CONCRETE CURB & GUTTER 31-INCH	LF	120.000	120.000
0390	602.0410	CONCRETE SIDEWALK 5-INCH	SF	250.000	250.000
0400	602.0515	CURB RAMP DETECTABLE WARNING FIELD NATURAL PATINA	SF	8.000	8.000
0410	603.8000	CONCRETE BARRIER TEMPORARY PRECAST DELIVERED	LF	330.000	330.000

DATE 23DEC13 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	2984-39-72 QUANTITY
0420	603.8125	CONCRETE BARRIER TEMPORARY PRECAST INSTALLED	LF	330.000	330.000
0430	614.0305	STEEL PLATE BEAM GUARD CLASS A	LF	68.000	68.000
0440	619.1000	MOBILIZATION	EACH	1.000	1.000
0450	625.0100	TOPSOIL	SY	690.000	690.000
0460	628.1504	SILT FENCE	LF	130.000	130.000
0470	628.1520	SILT FENCE MAINTENANCE	LF	130.000	130.000
0480	628.1905	MOBILIZATIONS EROSION CONTROL	EACH	1.000	1.000
0490	628.1910	MOBILIZATIONS EMERGENCY EROSION CONTROL	EACH	1.000	1.000
0500	628.2023	EROSION MAT CLASS II TYPE B	SY	690.000	690.000
0510	629.0210	FERTILIZER TYPE B	CWT	1.000	1.000
0520	630.0170	SEEDING MIXTURE NO. 70	LB	10.000	10.000
0530	643.0100	TRAFFIC CONTROL (PROJECT) 01. 2984-39-72	EACH	1.000	1.000
0540	643.0300	TRAFFIC CONTROL DRUMS	DAY	4,680.000	4,680.000
0550	643.0420	TRAFFIC CONTROL BARRICADES TYPE III	DAY	5,580.000	5,580.000
0560	643.0500	TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER POSTS	EACH	21.000	21.000
0570	643.0600	TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER BASES	EACH	21.000	21.000
0580	643.0705	TRAFFIC CONTROL WARNING LIGHTS TYPE A	DAY	11,160.000	11,160.000
0590	643.0715	TRAFFIC CONTROL WARNING LIGHTS TYPE C	DAY	4,680.000	4,680.000
0600	643.0900	TRAFFIC CONTROL SIGNS	DAY	4,860.000	4,860.000
0610	649.0400	TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH	LF	1,270.000	1,270.000
0620	650.4500	CONSTRUCTION STAKING SUBGRADE	LF	100.000	100.000
0630	650.6500	CONSTRUCTION STAKING STRUCTURE LAYOUT (STRUCTURE) 01. P-40-0601	LS	1.000	1.000
0640	650.7000	CONSTRUCTION STAKING CONCRETE PAVEMENT	LF	100.000	100.000
0650	650.9910	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) 01. 2984-39-72	LS	1.000	1.000
0660	652.0230	CONDUIT RIGID NONMETALLIC SCHEDULE 40 2 1/2-INCH	LF	164.000	164.000
0670	690.0250	SAWING CONCRETE	LF	50.000	50.000
0680	715.0502	INCENTIVE STRENGTH CONCRETE STRUCTURES	DOL	512.000	512.000
0690	ASP.1T0A	ON-THE-JOB TRAINING APPRENTICE AT $5. 00/HR	HRS	800.000	800.000
0700	ASP.1T0G	ON-THE-JOB TRAINING GRADUATE AT $5.00/HR	HRS	800.000	800.000
0710	SPV.0060	SPECIAL 01. INSTALLING SANITARY MANHOLE SEALS	EACH	1.000	1.000
0720	SPV.0060	SPECIAL 02. INLET SCREEN TYPE M	EACH	1.000	1.000
0730	SPV.0060	SPECIAL 03. INLET SCREEN TYPE R	EACH	1.000	1.000
0740	SPV.0060	SPECIAL 04. MANHOLE COVER TYPE 58A	EACH	1.000	1.000
0750	SPV.0060	SPECIAL 05. GIRDER BEARING REPLACEMENT P-40-0601	EACH	2.000	2.000
0760	SPV.0060	SPECIAL 06. STRINGER BEARING REPLACEMENT P-40-0601	EACH	5.000	5.000
0770	SPV.0060	SPECIAL 07. CATCH BASIN FRAME TYPE 51	EACH	2.000	2.000
0780	SPV.0060	SPECIAL 08. CATCH BASIN GRATE TYPE 57	EACH	2.000	2.000
0790	SPV.0060	SPECIAL 09. CATCH BASIN BOWL TYPE R-3223	EACH	2.000	2.000
0800	SPV.0060	SPECIAL 10. GALVANIZED OUTLET PIPE 9 1/2-INCH	EACH	2.000	2.000
0810	SPV.0105	SPECIAL 01. FLOOR BEAM STRAIGHTENING	LS	1.000	1.000
0820	SPV.0105	SPECIAL 02. RAILING STEEL SPECIAL GALVANIZED PEDESTRIAN, P-40-0601	LS	1.000	1.000
0830	SPV.0180	SPECIAL 01. JOINT SEALING	SY	210.000	210.000
0840	SPV.0195	SPECIAL 01. MANAGEMENT OF SOLID WASTE	TON	75.000	75.000

3

3

REMOVALS

2984-39-72

CATEGORY 0010 ITEM NO. / UNIT PAY		CLEARING 201.0110 SY	GRUBBING 201.0210 SY	REMOVING PAVEMENT 204.0100 SY	REMOVING CURB & GUTER 204.0150 LF	REMOVING CONCRETE SIDEWALK 204.0155 SY	REMOVING GUARDRAIL 204.0165 LF	SAWING CONCRETE 690.0250 LF
LOCATION								
STA 1+00 TO 3+00	LT	272	272	80	130	20	40	0
SUB TOTALS (LEFT)		**272**	**272**	**80**	**130**	**20**	**40**	**0**
STA 1+00 TO 3+00	RT	0	0	90	0	0	0	50
SUB TOTALS (RIGHT)		**0**	**0**	**90**	**0**	**0**	**0**	**50**
GRAND TOTALS		**272**	**272**	**170**	**130**	**20**	**40**	**50**

CONCRETE CONSTRUCTION ITEMS

2984-39-72

CATEGORY 0010 ITEM NO. / UNIT PAY		BASE AGGREGATE DENSE 3/4-INCH 305.0110 TON	BASE AGGREGATE DENSE 1¼-INCH 305.0120 TON	CONCRETE PAVEMENT APPROACH SLAB 415.0410 SY	DRILLED TIE BARS 416.0610 EACH	CONCRETE CURB & GUTTER 22-INCH 601.0322 LF	CONCRETE CURB & GUTTER 31-INCH 601.0331 LF	CONCRETE SIDEWALK 5-INCH 602.0410 SF
LOCATION								
STA 1+00 TO 3+00	LT	250	30	100	10	40	120	250
SUB TOTALS (LEFT)		**250**	**30**	**100**	**10**	**40**	**120**	**250**
STA 1+00 TO 3+00	RT	0	40	110	10	10	0	0
SUB TOTALS (RIGHT)		**0**	**40**	**110**	**10**	**10**	**0**	**0**
GRAND TOTALS		**250**	**70**	**210**	**20**	**50**	**120**	**250**

3

ROAD WORK
(EARTH WORK SUMMARY)

CATEGORY 0010

FROM/To STATION	LOCATION	EXCAVATION COMMON (1) (ITEM # 205.0100)		SALVAGED/UNUSABLE PAVEMENT MATERIAL (4)	AVAILABLE MATERIAL (5)	UNEXPANDED FILL	EXPANDED FILL (6)	MASS ORDINATE +/- (7)	WASTE
		CUT (2)	EBS EXCAVATION (3)				1.20 FACTOR		
		CY	CY	CY	CY	CY	CY	CY	CY
1+00 to 3+00	North 45th Street	523	0	38	485	0	0	485	523

1) COMMON EXCAVATION IS THE SUM OF THE CUT AND EBS EXCAVATION COLUMNS. ITEM NUMBER 205.0100
2) SALVAGED/UNUSABLE PAVEMENT MATERIAL IS INCLUDED IN CUT.
3) NO EBS IS ANTICIPATED
4) SALVAGED/UNUSABLE PAVEMENT MATERIAL
5) AVAILABLE MATERIAL = CUT - SALVAGED/UNUSABLE PAVEMENT MATERIAL
6) EXPANDED FILL. FACTOR = 1.20
7) THE MASS ORDINATE + OR - QUANTITY CALCULATED FOR THE DIVISION. PLUS QUANTITY INDICATES AN EXCESS OF MATERIAL WITHIN THE DIVISION. MINUS INDICATES A SHORTAGE OF MA

SEE SECTION 9 OF PLANS FOR CUT & FILL QUANTITIES

3

ASPHALT ITEMS

2984-39-72

CATEGORY 0010		TACK COAT	ASPHALTIC SURFACE
ITEM NO.		455.0605	465.0105
UNIT PAY		GAL	TON
LOCATION			
STA 1+00 TO 3+00	LT	40	111
SUB TOTALS (LEFT)		**40**	**111**
STA 1+00 TO 3+00	RT	0	3
SUB TOTALS (RIGHT)		**0**	3
GRAND TOTALS		**40**	**114**

CONSTRUCTION STAKING ROADWAY ITEMS

2984-39-72

CATEGORY 0010		CONSTRUCTION STAKING SUBGRADE	CONSTRUCTION STAKING CONCRETE PAVEMENT
ITEM NO.		650.4500	650.7000
UNIT PAY		LF	LF
LOCATION			
STA 1+00 TO 3+00	LT	50	50
SUB TOTALS (LEFT)		**50**	**50**
STA 1+00 TO 3+00	RT	50	50
SUB TOTALS (RIGHT)		**50**	**50**
GRAND TOTALS		**100**	**100**

3

MISCELLANEOUS

2984-39-72

CATEGORY 0010		CURB RAMP DETECTABLE WARNING FIELD NATURAL PATINA	STEEL PLATE BEAM GUARD CLASS A	SILT FENCE	SILT FENCE MAINTENANCE	MANAGEMENT OF SOLID WASTE	BACKFILL STRUCTURE
ITEM NO.		602.0515	614.0305	628.1504	628.1520	SPV.0195.01	210.0100
UNIT PAY		SF	LF	LF	LF	TON	CY
LOCATION							
STA 1+00 TO 3+00	LT	8	40	116	116	75	170
SUB TOTALS (LEFT)		**8**	**40**	**116**	**116**	**75**	**170**
STA 1+00 TO 3+00	RT	0	0	14	14	0	0
SUB TOTALS (RIGHT)		**0**	**28**	**14**	**14**	**0**	**0**
GRAND TOTALS		**8**	**68**	**130**	**130**	**75**	**170**

LANDSCAPING ITEMS

2984-39-72

CATEGORY 0010	ITEM NO. / UNIT PAY	TOPSOIL 625.0100 SY	EROSION MAT CLASS II TYPE B 628.2023 LB	FERTILIZER TYPE B 629.0210 CWT	SEEDING MIXTURE NO. 70 631.0170 LB
LOCATION					
STA 1+00 TO 3+00	LT	690	690	0.5	10
SUB TOTALS (LEFT)		**690**	**690**	**0.5**	**10**
STA 1+00 TO 3+00	RT	0	0	0.5	0
SUB TOTALS (RIGHT)		**0**	**0**	**0.5**	**0**
GRAND TOTALS		**690**	**690**	**1**	**10**

JOINT SEALING

2984-39-72

CATEGORY 0030	ITEM NO. / UNIT PAY	JOINT SEALING SPV.0180.01 SY
LOCATION		
STA 1+00 TO 3+00		100
SUB TOTAL (LEFT)		**100**
STA 1+00 TO 3+00		110
SUB TOTAL (RIGHT)		**110**
GRAND TOTAL		**210**

DRAINAGE TABLES

NEW MANHOLE COVER*					
GROUP CODE	NO.	LOCATION	PROP. ELEV.	COVER TYPE	REMARKS
0030	100	1+41.1 - 2.50 RT.	34.73	58A	

* INCLUDES UP TO 12" OF NEW BRICK WORK
1 MANHOLE COVER TYPE 58A (SPV.0060.04) (030)
1 INLET SCREEN TYPE R (SPV.0060.03) (030)

INSTALLING NEW INTERNAL SANITARY MANHOLE SEAL		
GROUP CODE	NO.	LOCATION
0030	100	2+41.1 - 2.50 RT.

1 INTERNAL SANITARY MANHOLE SEALS (SPV.0060.01) (030)

INLET/CATCH BASIN BASKET		
GROUP CODE	NO.	LOCATION
0010	103	3+7.7 - 27.52 LT.

1 INLET SCREEN TYPE M (SPV.0060.02) (010)

CATCH BASIN STRUCTURES IN NORTH ABUTMENT WALL		
GROUP CODE	NO.	LOCATION
0010	101*	2+60.8 - 10.00 LT.
0010	102*	2+60.8 - 10.00 RT.

2 CATCH BASIN FRAME TYPE 51 (SPV.0060.07) (010)
2 CATCH BASIN GRATE TYPE 57 (SPV.0060.08) (010)
2 CATCH BASIN BOWL TYPE R-3223 (SPV.0060.09) (010)
2 GALVANIZED OUTLET PIPE 9 1/2" (SPV.0060.10) (010)
* SEE SECTION NO. 8 (STRUCTURE PLANS) SHEET 9-10 FOR CONSTRUCTION DETAILS

3

TRAFFIC CONTROL ITEMS

2984-39-72

CATEGORY 0010

	ITEMS	STAGE 1		STAGE 2		TOTAL	
		EACH	DAY	EACH	DAY		
#	**TRAFFIC CONTROL DRUMS (643.0300)**	26	4,680	0	0	**4,680**	DAY
##	**TRAFFIC CONTROL BARRICADES TYPE III (643.0420)**	18	3,240	13	2,340	**5,580**	DAY
	TRAFFIC CONTROL WARNING LIGHTS TYPE A (FLASHING) (643.0705)	36	6,480	26	4,680	**11,160**	DAY
	TRAFFIC CONTROL WARNING LIGHTS TYPE C (STEADY) (643.0715)	26	4,680	0	0	**4,680**	DAY
###	*TEMPORARY PAVEMENT MARKING ITEMS:*						
	TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER POSTS (643.0500)	21	EACH	0	EACH	**21**	EACH
	TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER BASES (643.0600)	21	EACH	0	EACH	**21**	EACH
	TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH, WHITE (649.0400)	782	LF	0	LF	782	LF
	TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH, YELLOW (649.0400)	488	LF	0	LF	488	LF
	TOTAL REMOVABLE TAPE (649.0400)	1,270	LF	0	LF	**1,270**	LF
		LF					
	CONCRETE BARRIER TEMPORARY PRECAST DELIVERED (603.8000)	**110**		**220**		**330**	
	CONCRETE BARRIER TEMPORARY PRECAST INSTALLED (603.8125)	**110**		**220**		**330**	

\# ALL DRUMS HAVE ONE STEADY BURNING YELLOW LIGHT (LIGHTS ARE TO BE PAID FOR SEPERATLY UNDER THEIR APPROPRIATE BID ITEM)

\## ALL TYPE III BARRICADES HAVE TWO (2) FLASHING YELLOW LIGHTS (LIGHTS ARE TO BE PAID FOR SEPERATLY UNDER THEIR APPROPRIATE BID ITEM)

\### WHEN PLACING TEMPORARY PAVEMENT MARKING REMOVABLE TAPE, THE TAPE SHALL BE SLICED OR CUT ACROSS IT'S WIDTH EVERY TWENTY FIVE (25) FEET

\### ALL TEMPORARY PAVEMENT MARKINGS MUST BE REMOVED PRIOR TO FINAL ACCEPTANCE OF PROJECT

3

TRAFFIC CONTROL SIGNS

2984-39-72

CATEGORY 0010

ITEM	SIZE	DESCRIPTION	STAGE 1	STAGE 2	**TOTAL**
W020-1	48"x48"	"ROAD WORK AHEAD"	3	0	**3**
W020-5R	48"x48"	"RIGHT LANE CLOSED AHEAD"	1	0	**1**
W04-2R	48"x48"	MERGE LEFT	1	0	**1**
W01-7	24"x48"	GO LEFT OR RIGHT DOUBLE ARROW	1	0	**1**
W01-6L	24"x 12"	GO LEFT ARROW	1	0	**1**
W01-6R	24"x 12"	GO RIGHT ARROW	0	1	**1**
G20-2A	36"x18"	"END ROAD WORK"	2	0	**2**
W020-5L	48"x48"	"LEFT LANE CLOSED AHEAD"	1	0	**1**
W04-2L	48"x48"	MERGE RIGHT	1	0	**1**
W01-4L	18"X18"	LANE SHIFT (LEFT)	1	0	**1**
W05-3	36"x36"	"ONE LANE BRIDGE"	0	2	**2**
R1-1	30"x30"	"STOP"	0	1	**1**
R1-2A	60"X30"	"TO ONCOMING TRAFFIC"	0	1	**1**
W8-7	36"x36"	"LOOSE GRAVEL	0	1	**1**
R11-2	48"X30"	"ROAD CLOSED"	0	2	**2**
W01-6L	36"X18"	GO LEFT ARROW	0	2	**2**
R9-9	30"X18"	"SIDEWALK CLOSED"	0	2	**2**
FMS-1	24"x48"	GO LEFT ARROW "N. 45TH ST."	0	1	**1**
FMS-2	36"X60"	"N 45TH ST. CLOSED ENT. 30' WEST"	0	1	**1**
FMS-2	36"X60"	"N 45TH ST. CLOSED ENT. 30' EAST"	0	1	**1**
TRAFFIC CONTROL SIGNS		**643.0900 TOTAL**	12 2,160 DAY	15 2,700 DAY	27 **4,860 DAY**
			"W0" SIGNS ARE THE SAME AS "W" SIGNS, EXCEPT THE BACKGROUND IS ORANGE.		

NOTE:

SIGN LAYOUT SHALL BE IN ACCORDANCE WITH THE FEDERAL HIGHWAY ADMINISTARTION (FHWA) MANUAL OF STANDARD HIGHWAY SIGNS, UNLESS OTHERWISE PROVIDED IN THE PLAN.

R/W PROJECT NUMBER	SHEET NUMBER	TOTAL SHEETS
2984-39-02	4.1	1
FEDERAL PROJECT NUMBER		

PLAT OF RIGHT OF WAY REQUIRED FOR

N. 45TH STREET BRIDGE
OVER THE MENOMONEE RIVER

LOCAL STREET — MILWAUKEE COUNTY

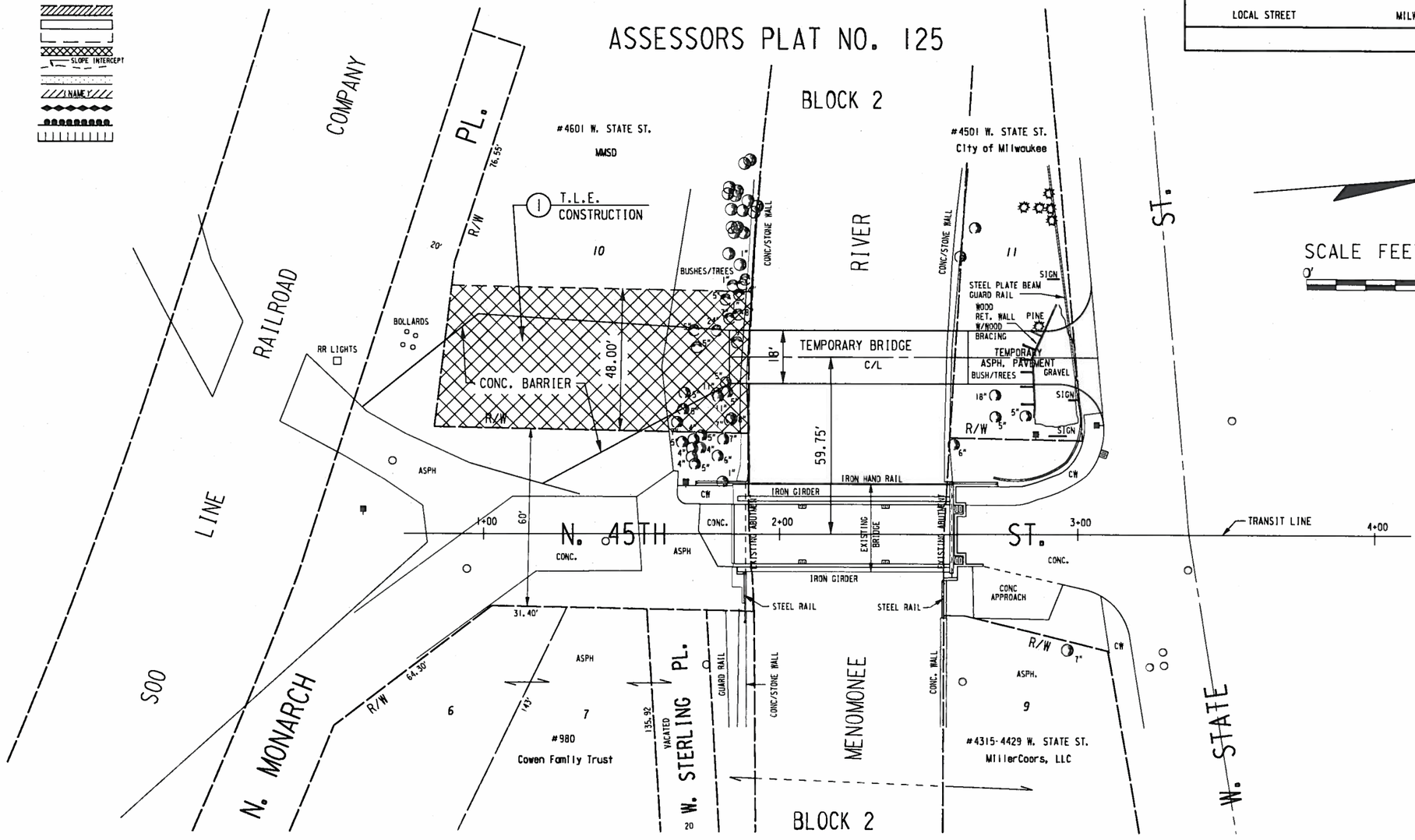
CONVENTIONAL SIGNS AND ABBREVIATIONS

SECTION LINE	
QUARTER SECTION LINE	
EXISTING ROW-OF-WAY	
PROPOSED RIGHT-OF-WAY	
LOT LINE	
PROPERTY LINE	P.L.
FEE	
HIGHWAY EASEMENT	
PERMANENT LIMITED EASEMENT	
TEMPORARY LIMITED EASEMENT	
SLOPE INTERCEPT	SLOPE INTERCEPT
PROPOSED PAVEMENT	
CORPORATE LIMITS	NAME
NO ACCESS (BY PREVIOUS PROJECT)	
NO ACCESS (BY STATUTORY AUTHORITY)	
NO ACCESS (BY ACQUISITION)	

POWER POLE	
LIGHT POLE	
TELEPHONE OR TELEGRAPH POLE	
POLE (TYPE)	
TRAFFIC SIGNAL	
TRAFFIC SIGNAL CONTROL BOX	
CATCH BASIN OR INLET	
MANHOLES - SEWERS	
MANHOLES - UTILITY (TYPE)	
HYDRANT	
FENCE (TYPE)	
TREES	5'

EAST	E.
WEST	W.
NORTH	N.
SOUTH	S.
NORTHEAST	N.E.
NORTHWEST	N.W.
SOUTHEAST	S.E.
SOUTHWEST	S.W.
RIGHT-OF-WAY	R/W
PROPERTY LINE	P.L.
HIGHWAY EASEMENT	H.E.
PERMANENT LIMITED EASEMENT	P.L.E.
TEMPORARY LIMITED EASEMENT	T.L.E.
PERMANENT MAINTENANCE EASEMENT	PERM. MAINT.
RIGHT OF ENTRY	R.O.E.
ACCESS RIGHTS	A.R.
CORNER	COR.
ROAD	RD.
STREET	ST.
ASPHALT	ASPH.
CONCRETE	CONC.
CONCRETE WALK	C.W.
DRIVEWAY	DWY.
HOUSE	HSE.
BUILDING	BLDG.

N.E. 1/4 SEC. 26, T.7N., R.21E.



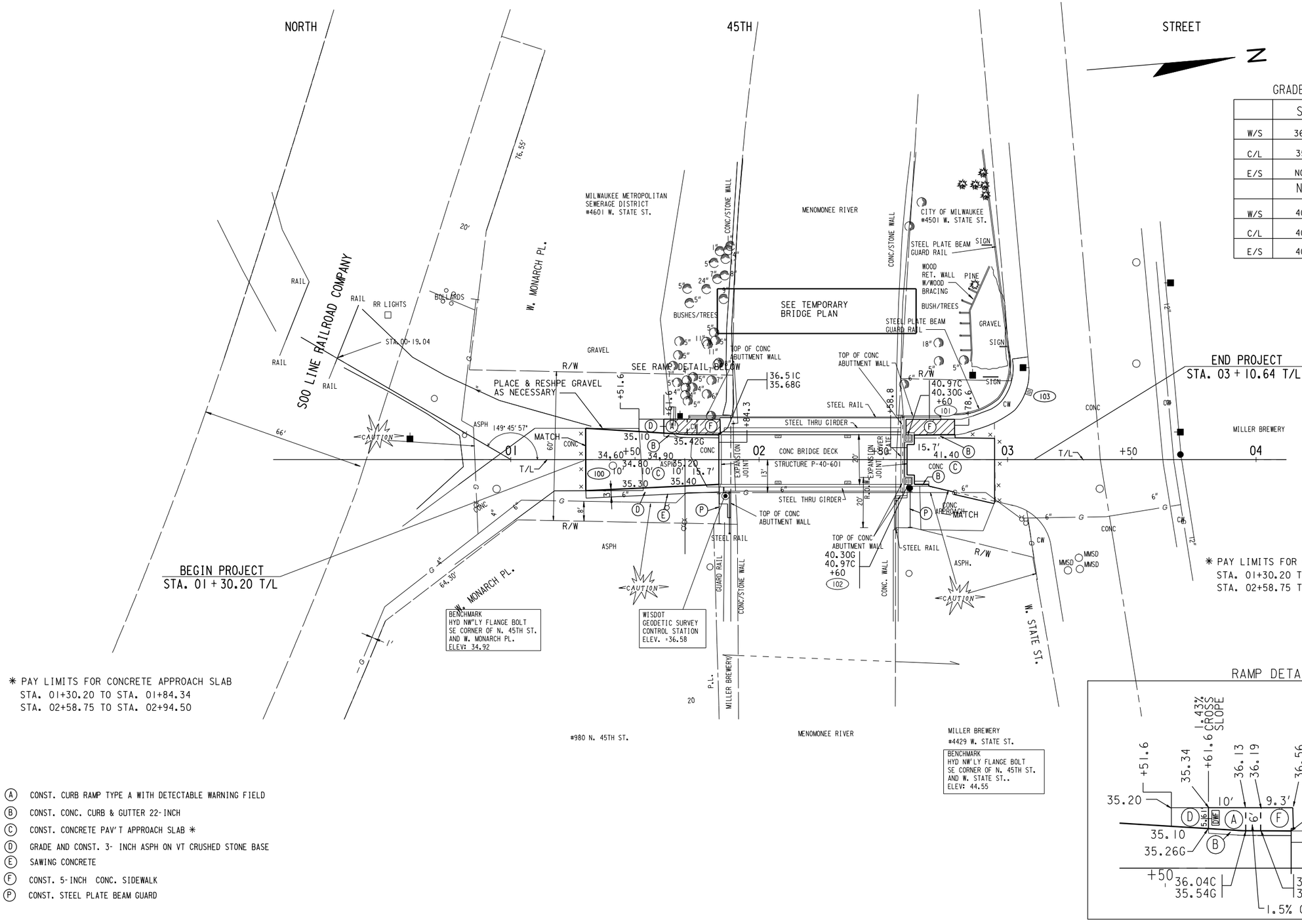
ASSESSORS PLAT NO. 125

N.E. 1/4 SEC. 26, T.7N., R.21E.

PARCEL NUMBER	SHEET NUMBER	OWNER	INTEREST REQUIRED	TOTAL SQUARE FEET	R/W REQUIRED (SQUARE FEET)			TOTAL REMAINING SQUARE FEET	SQUARE FEET		
					NEW	EXISTING	TOTAL		H.E.	P.L.E.	T.L.E
1		MILWAUKEE METROPOLITAN SEWERAGE DISTRICT	T.L.E.								4980

REVISION DATE	APPROVED FOR: CITY OF MILWAUKEE
	7/25/13 DATE — CITY ENGINEER

FILE NAME:



STATE PROJECT NUMBER 2984-39-72 - -	HWY: LOCAL STREET	COUNTY: MILWAUKEE	PLAN AND PROFILE	SCALE FEET 0' 40'	SHEET NO: 31	E

FILE NAME: W:\SPR\0145TH ST BRIDGE\ 01-04.DGN

STRUCTURE ID: P-40-0601
STATION: 2+23.17
CONTRACT WORK INCLUDES
RE-DECKING OF BRIDGE

EXISTING BRIDGE

11+84.34

2+58.75

FINISHED GRADE ON ROADWAY T/L

EXISTING ELEVATION ON ROADWAY T/L

6%

6%

END
PROJECT 02+94.50,T/L

EXISTING ELEVATION ON ROADWAY T/L

BRIDGE DECK

FINISHED GRADE ON ROADWAY T/L

BEGIN
PROJECT 01+30.20,T/L

EXISTING ELEVATION ON T/L

FINISHED GRADE ON ROADWAY T/L

45 44 43 42 41 40 39 38 37 36 35 34 33 32

33.67 34.28 MATCH 34.60 35.38 34.80 34.90 35.20 35.46 35.83 35.98 36.89 38.27 39.84 40.37 40.40 41.40 41.49 42.59 MATCH 43.45 43.74 43.94

+50 +50 01 +14 +30 +42 +50 +51 +61 +71 +75 +86 02 +25 +50 +60 +76 +79 +95 03 +14 +25 +37 +50 04 +50

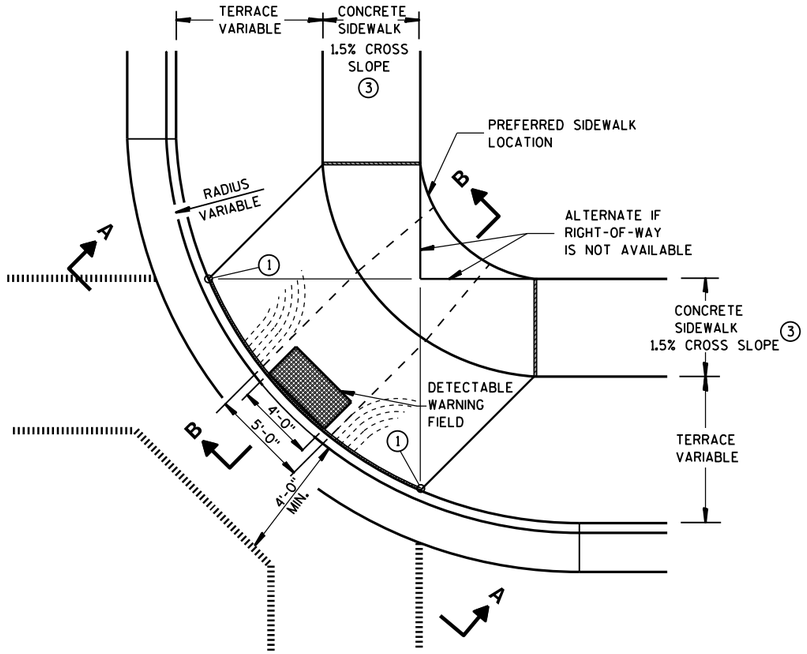
STATE PROJECT NUMBER 2984-39-72 - -	HWY: LOCAL STREET	COUNTY: MILWAUKEE	PLAN AND PROFILE	SCALE FEET	SHEET NO: 32	E

FILE NAME: W:\SPR\45TH ST BRIDGE\01-04.DGN

Standard Detail Drawing List

08D05-15A	CURB RAMPS TYPES 1 AND 1-A
08D05-15B	CURB RAMPS TYPES 2 AND 3
08D05-15C	CURB RAMPS TYPES 4A AND 4A1
08D05-15D	CURB RAMPS TYPE 4B AND 4B1
08D05-15E	CURB RAMPS TYPES 5, 6, 7A, 7B & 8
08D16-10	CONCRETE GUTTER, CURB AND GUTTER AND PAVEMENT TIES
08E09-06	SILT FENCE
12A03-10	NAME PLATE (STRUCTURES)
13B02-06	CONCRETE PAVEMENT APPROACH SLAB
13C01-16	CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES
14B07-13A	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-13B	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-13C	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-13D	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-13E	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-13F	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-13G	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-13H	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B15-07A	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-07B	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-07C	STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS
14B18-06A	STEEL PLATE BEAM GUARD, CLASS "A" (AT BRIDGES, OBSTACLES AND SIDEROADS/DRIVEWAYS)
15C02-04A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-04B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C03-01	BARRICADES AND SIGNS FOR SIDEROAD CLOSURES
15C11-05	FLEXIBLE TUBULAR MARKER POST, ANCHOR & BASES
15D20-01	TRAFFIC CONTROL, SINGLE LANE CLOSURE, NON-FREEWAY/EXPRESSWAY
15D30-01	TRAFFIC CONTROL, SIDEWALK CLOSURE

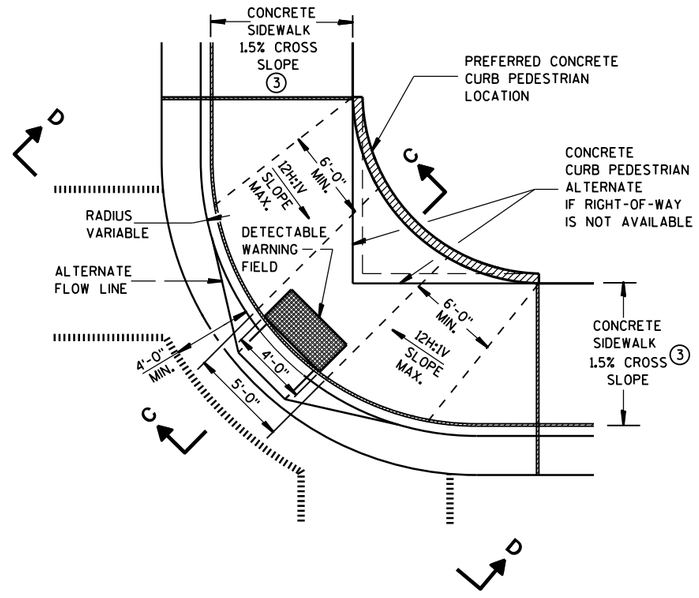
6



PLAN VIEW

TYPE 1 RAMP

(CENTER OF CORNER RADIUS)



PLAN VIEW

TYPE 1-A RAMP

(NO TERRACE)

GENERAL NOTES

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

RAMPS SHALL BE BUILT AT 12H:1V OR FLATTER. WHEN NECESSARY, THE SIDEWALK ELEVATION MAY BE LOWERED TO MEET THE HIGH POINT ON THE RAMP.

TYPE 1 RAMPS SHALL HAVE A NORMAL SIDEWALK APRON AND CURB ON BOTH SIDES OF RAMP.

DETECTABLE WARNING FIELD SHALL BE MEASURED AND PAID BY THE SQUARE FOOT AS "CURB RAMP DETECTABLE WARNING FIELD". THE CONCRETE PEDESTRIAN CURB, IF NEEDED, SHALL BE MEASURED AND PAID BY THE LINEAL FOOT AS "CONCRETE CURB PEDESTRIAN". CONCRETE SIDEWALK IN THE CURB RAMP AREA SHALL BE MEASURED AND PAID BY THE SQUARE FOOT AS CONCRETE SIDEWALK, INCLUDING THE AREA UNDER THE DETECTABLE WARNING FIELD.

SELECT CURB RAMP DETECTABLE WARNING FIELD MATERIALS AND DEVICES FROM THE DEPARTMENT'S APPROVED MATERIALS LIST. THE COLOR OF THE DETECTABLE WARNING FIELD IS SPECIFIED ELSEWHERE AND IS INCIDENTAL TO THE BID ITEM OF "CURB RAMP DETECTABLE WARNING FIELD".

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

SURFACE TEXTURE OF THE RAMP SHALL BE OBTAINED BY COARSE BROOMING TRANSVERSE TO THE SLOPE OF THE RAMP.

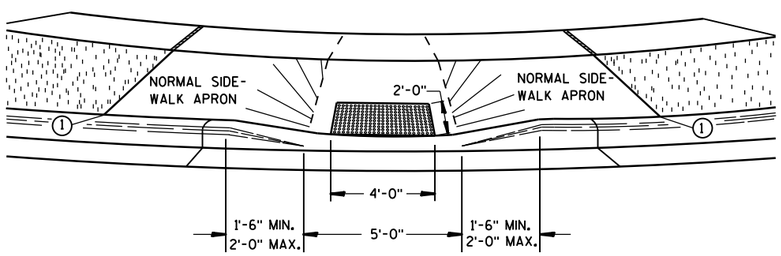
① THIS POINT IS AN EXTENSION OF OUTSIDE EDGE OF APPROACHING SIDEWALK WHERE IT MEETS THE BACK OF CONCRETE CURB.

② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. PROVIDE DRAINAGE AWAY FROM CURB RAMP AT GUTTER FLAG INTERFACE.

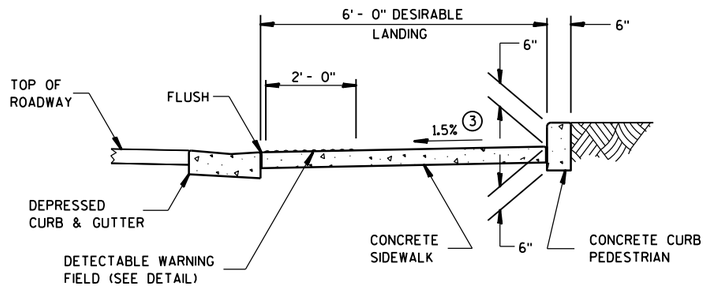
③ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

LEGEND

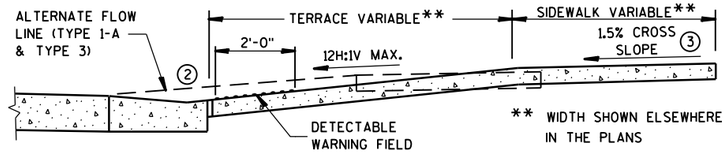
- ½" EXPANSION JOINT-SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)
- ALTERNATIVE LAYOUT



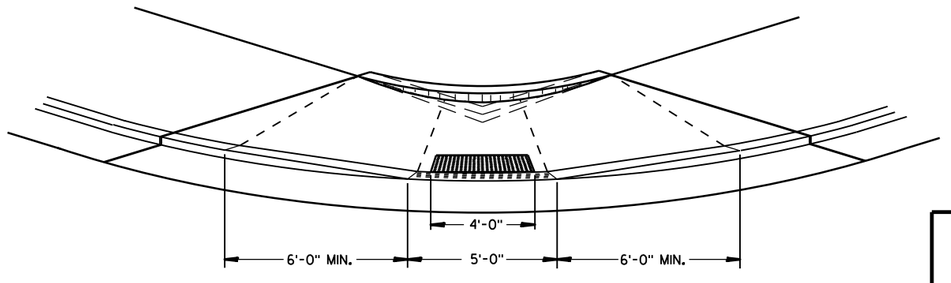
VIEW A-A



SECTION C-C



SECTION B-B



VIEW D-D

CURB RAMPS TYPES 1 AND 1-A

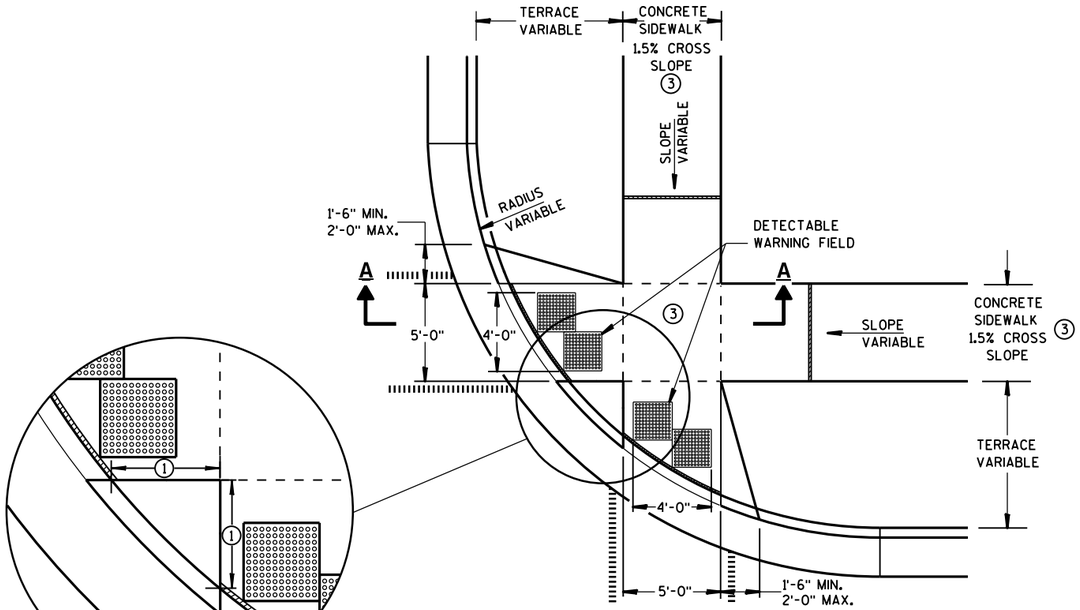
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

S.D.D. 8 D 5-15a

6

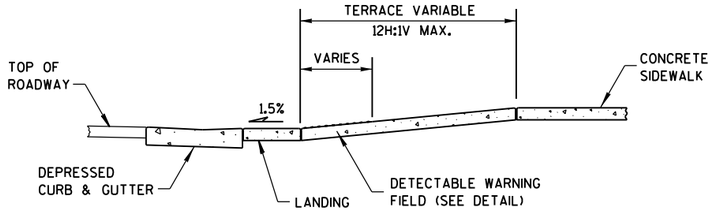
S.D.D. 8 D 5-15a



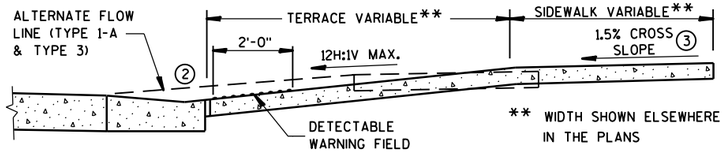
PLAN VIEW

TYPE 2 RAMP

(ON LINE WITH SIDEWALK)



SECTION A-A



SECTION B-B

GENERAL NOTES

USE THE TYPE 3 RAMP ONLY WHEN A TYPE 1 OR TYPE 2 CANNOT BE ACHIEVED BECAUSE OF FIELD CONDITIONS.

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

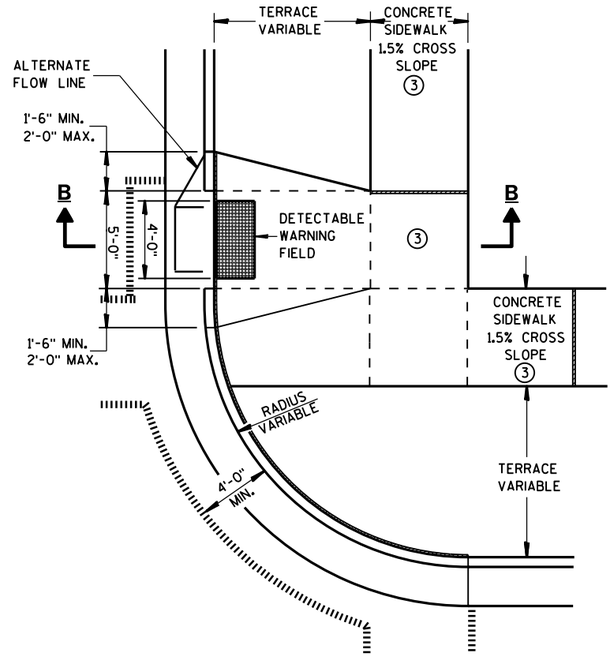
① WHEN THIS DISTANCE IS LESS THAN 6'-0" IT MAY BE DIFFICULT TO ACHIEVE A 12H:1V SLOPE, OR FLATTER, ON THE RAMP. REDUCE CURB HEIGHT IN TRIANGLE AREA TO ACHIEVE 12H:1V SLOPE, OR FLATTER, ON RAMP. 2" MINIMUM CURB HEIGHT.

② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. PROVIDE DRAINAGE AWAY FROM CURB RAMP AT GUTTER FLAG INTERFACE.

③ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

LEGEND

- ½" EXPANSION JOINT-SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)
- ALTERNATIVE LAYOUT



PLAN VIEW

TYPE 3 RAMP

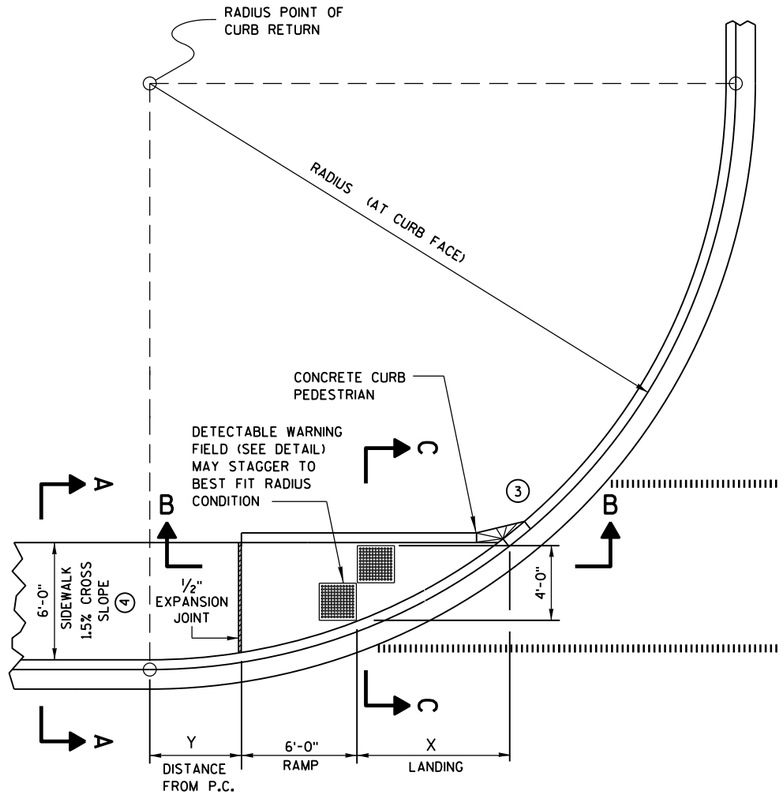
(OUTSIDE OF CROSSWALK AREA)

CURB RAMPS
TYPES 2 AND 3

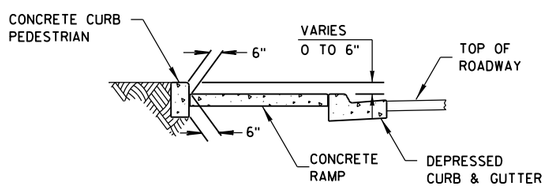
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

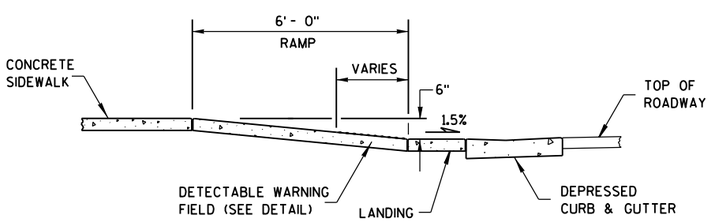
S.D.D. 8 D 5-15b



CURB RAMP TYPE 4A
PLAN VIEW



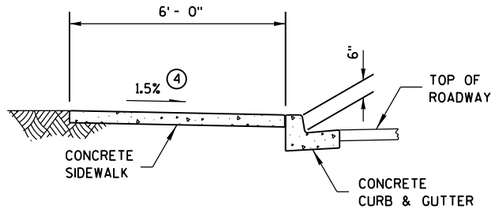
SECTION C-C FOR TYPE 4A



SECTION B-B FOR TYPE 4A

RADIUS (AT CURB FACE)	X	Y
20 FEET	6'-1¾"	2'-7¼"
30 FEET	7'-11¾"	4'-8¼"
40 FEET	9'-5¼"	6'-5"
50 FEET	10'-8¾"	7'-11¼"
60 FEET	11'-10¼"	9'-3½"

INTERMEDIATE RADII CAN BE INTERPOLATED



SECTION A-A FOR TYPE 4A

GENERAL NOTES

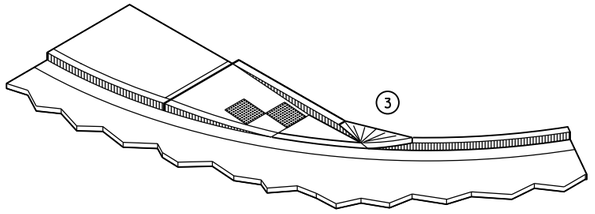
AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.

RAMP SLOPES SHALL NOT BE STEEPER THAN 12:1.

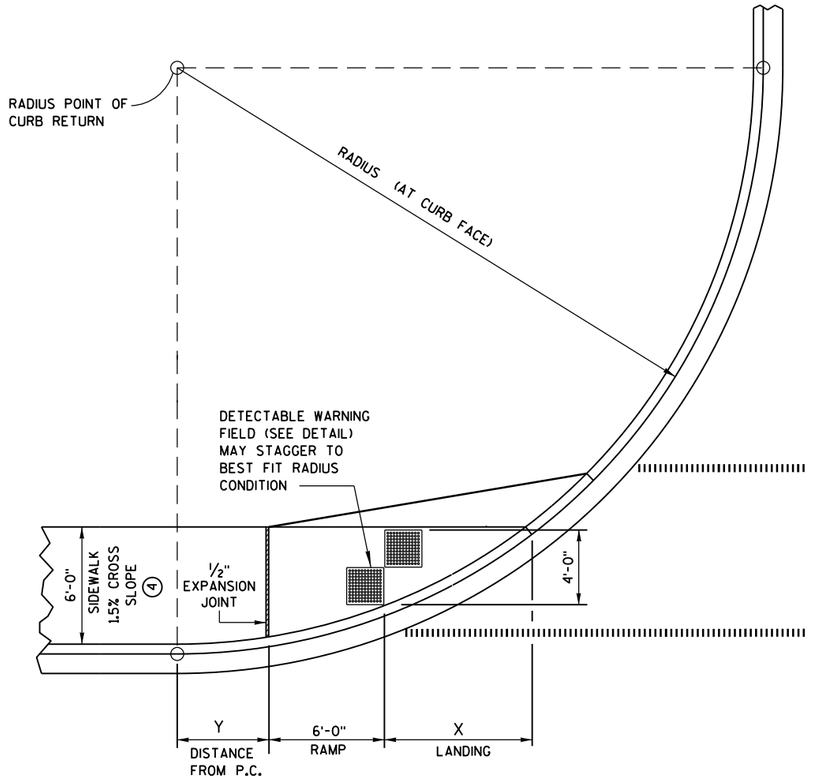
DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

(3) INSTALL TRANSITION NOSE. (INCIDENTAL TO OTHER PAY ITEMS.) DO NOT MARK TRANSITION NOSE.

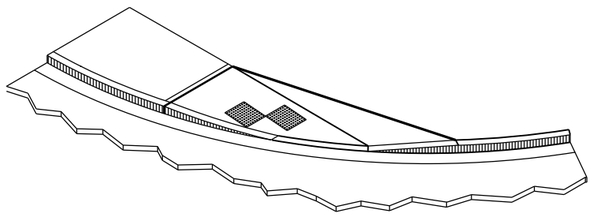
(4) ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.



ISOMETRIC VIEW FOR TYPE 4A



CURB RAMP TYPE 4A1
PLAN VIEW



ISOMETRIC VIEW FOR TYPE 4A1

LEGEND

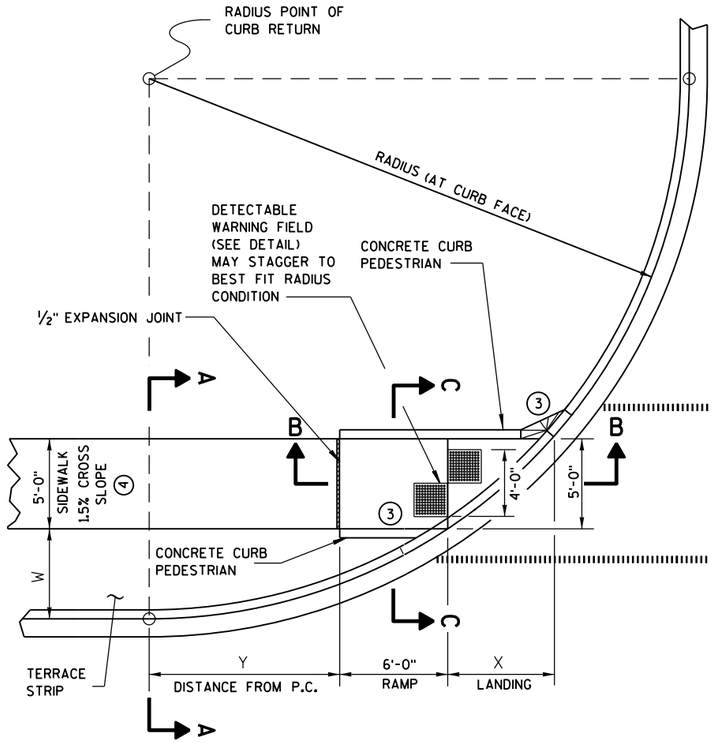
- ½" EXPANSION JOINT-SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)

CURB RAMPS
TYPES 4A AND 4A1

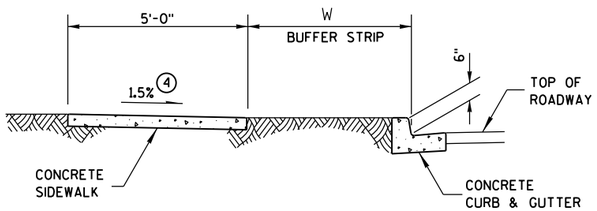
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

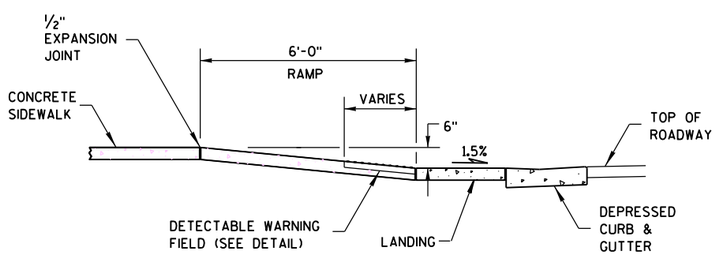
S.D.D. 8 D 5-15c



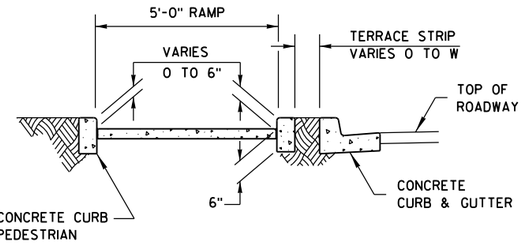
CURB RAMP TYPE 4B
PLAN VIEW



SECTION A-A FOR TYPE 4B



SECTION B-B FOR TYPE 4B



SECTION C-C FOR TYPE 4B

LEGEND

½" EXPANSION JOINT-SIDEWALK

CONTRACTION JOINT FIELD LOCATED

PAVEMENT MARKING CROSSWALK (WHITE)

RADIUS (AT CURB FACE)	W = 3'-0"		W = 4'-0"		W = 5'-0"		W = 6'-0"		W = 7'-0"	
	X	Y	X	Y	X	Y	X	Y	X	Y
20 FEET	5'-5½"	4'-6½"	4'-8½"	6'-0"	4'-1"	7'-2¾"	3'-7"	8'-3½"	3'-1½"	9'-2½"
30 FEET	7'-3¾"	7'-1"	6'-5½"	8'-11½"	5'-9¼"	10'-7"	5'-2½"	12'-0"	4'-8¾"	13'-3¼"
40 FEET	8'-9½"	9'-2½"	7'-10"	11'-5¼"	7'-1"	13'-4½"	6'-5¾"	15'-¾"	5'-11½"	16'-7¼"
50 FEET	10'-¾"	11'-¾"	9'-¼"	13'-7¼"	8'-2½"	15'-9½"	7'-6½"	17'-9"	6'-11¾"	19'-6¼"
60 FEET	11'-2½"	12'-8¾"	10'-¾"	15'-6½"	9'-2¼"	17'-11¾"	8'-5¾"	20'-1¾"	7'-10½"	22'-1½"

INTERMEDIATE RADII CAN BE INTERPOLATED

GENERAL NOTES

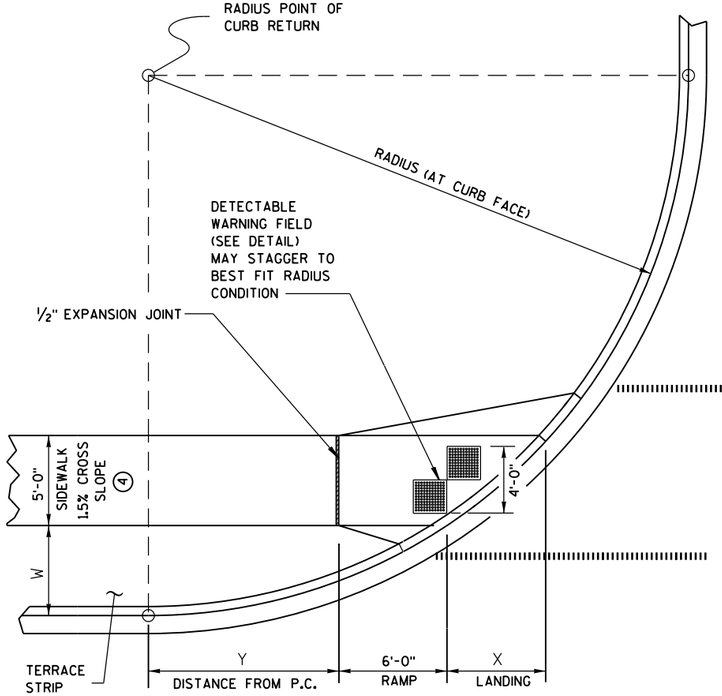
AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.

RAMP SLOPES SHALL NOT BE STEEPER THAN 12:1.

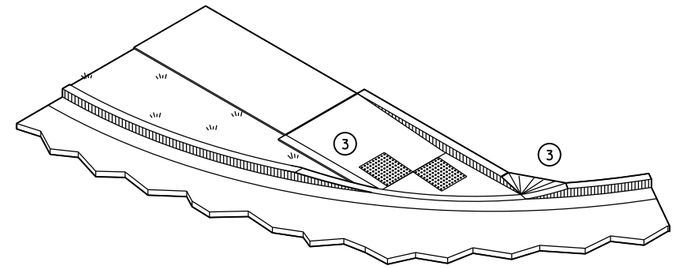
DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

(3) INSTALL TRANSITION NOSE. (INCIDENTAL TO OTHER PAY ITEMS.) DO NOT MARK TRANSITION NOSE.

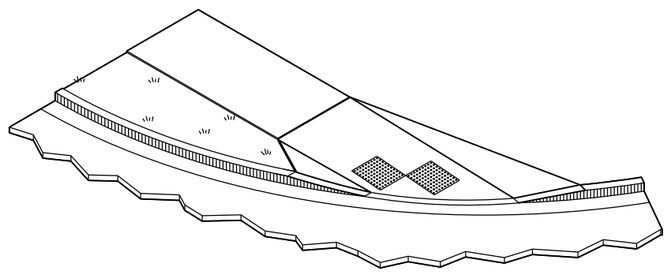
(4) ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.



CURB RAMP TYPE 4B1
PLAN VIEW



ISOMETRIC VIEW FOR TYPE 4B



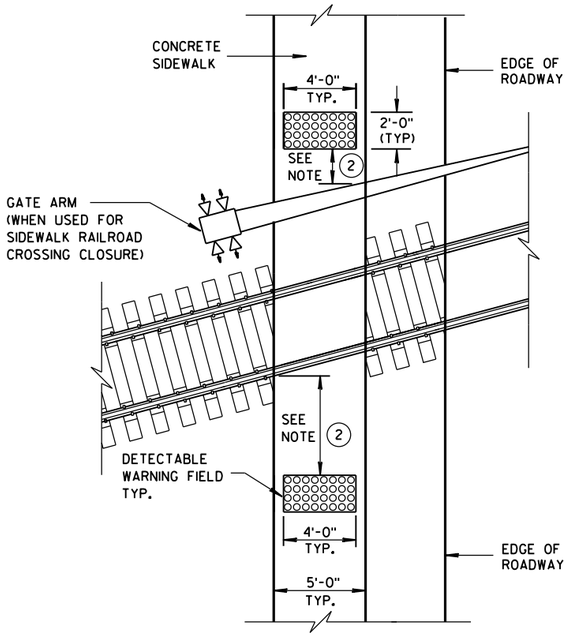
ISOMETRIC VIEW FOR TYPE 4B1

CURB RAMPS
TYPE 4B AND 4B1

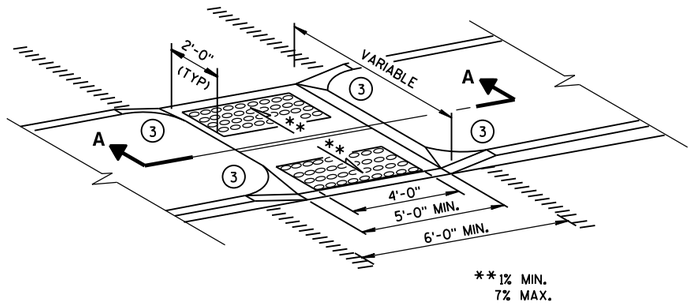
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

S.D.D. 8 D 5-15d



TYPE 8
DETECTABLE WARNINGS AT RAILROAD CROSSING



MEDIAN ISLAND
NON-ELEVATED CROSSING
TYPE 5

GENERAL NOTES

SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%.

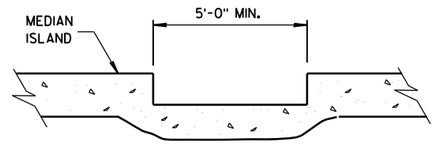
DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

(1) SLOPE SIDEWALK TOWARD LANDING AS SHOWN WHERE THERE IS NO TERRACE OR WHERE THE TERRACE WIDTH IS LESS THAN 6 FEET WIDE.

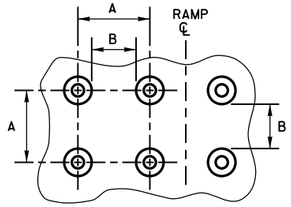
(2) THE EDGE OF THE DETECTABLE WARNING FIELD NEAREST TO A RAILROAD CROSSING SHALL BE 1.5 FEET ± 0.1' FROM THE FACE OF THE GATE ARM IF THE GATE ARM EXTENDS ACROSS THE SIDEWALK. WHERE THERE IS NO PEDESTRIAN GATE, THE EDGE OF THE DETECTABLE WARNING FIELD NEAREST TO THE RAILROAD CROSSING SHALL BE 15 FEET FROM THE NEAREST RAIL.

(3) INSTALL TRANSITION NOSE. (INCIDENTAL TO OTHER PAY ITEMS.) DO NOT MARK TRANSITION NOSE.

(4) ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.



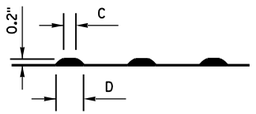
SECTION A-A



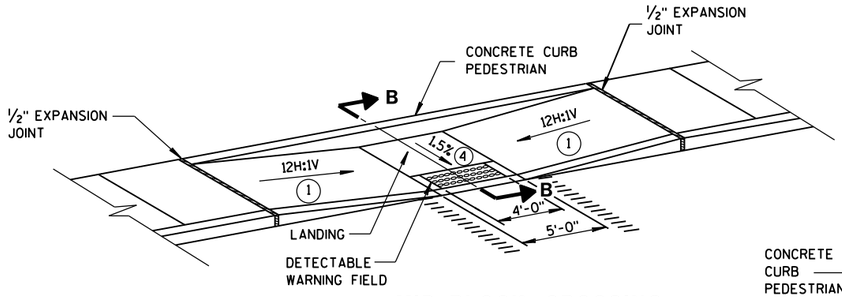
PLAN VIEW

	MIN.	MAX.
A	1.6"	2.4"
B	0.65"	1.5"
C	*	*
D	0.9"	1.4"

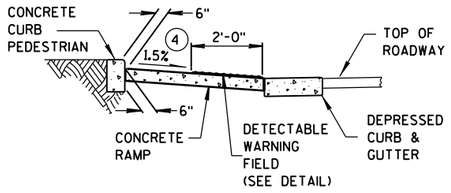
* THE C DIMENSION IS 50% TO 65% OF THE D DIMENSION.



ELEVATION VIEW

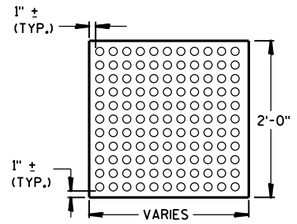


MID-BLOCK CROSSING
TYPE 7A



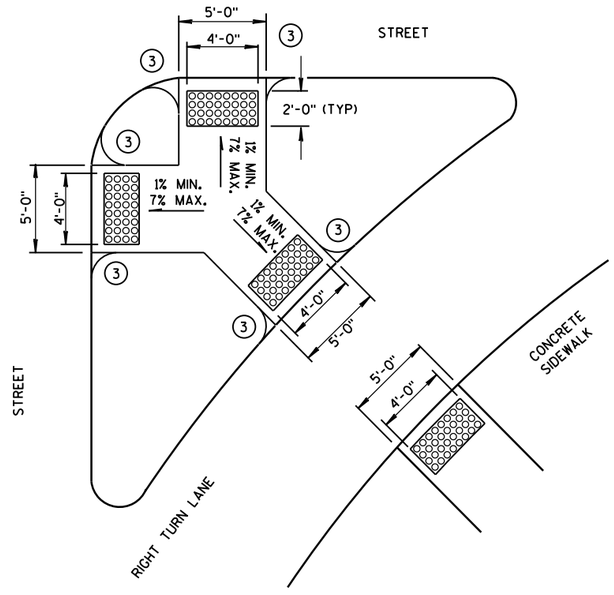
SECTION B-B

TRUNCATED DOMES
DETECTABLE WARNING PATTERN DETAIL

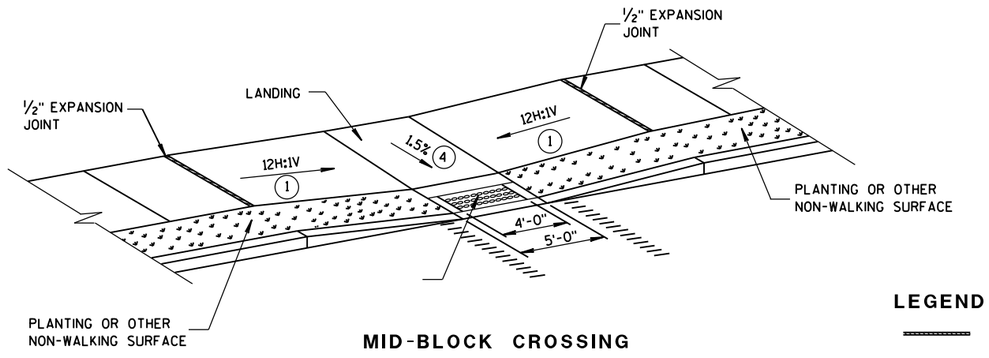


PLAN VIEW

DETECTABLE WARNING FIELD (TYPICAL)



TYPE 6
DETECTABLE WARNING AT ISLANDS



MID-BLOCK CROSSING
TYPE 7B

NOTE: THESE PARALLEL AND PARALLEL/PERPENDICULAR CURB RAMPS MAY BE USED AT INTERSECTIONS AND MID BLOCK LOCATIONS.

LEGEND

- ½" EXPANSION JOINT-SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)

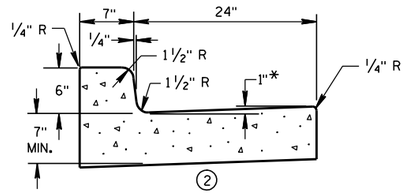
CURB RAMPS
TYPES 5, 6, 7A, 7B & 8

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

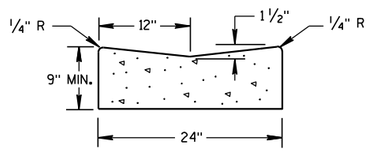
APPROVED
2-6-2013 DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS [illegible] ENGINEER
FHWA

6

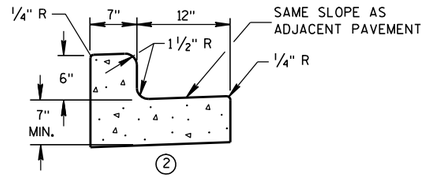
S.D.D. 8 D 5-15e



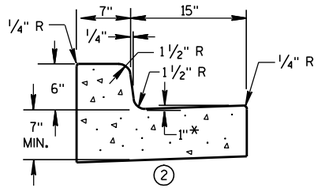
① CONCRETE CURB & GUTTER 31"



① CONCRETE GUTTER 24"

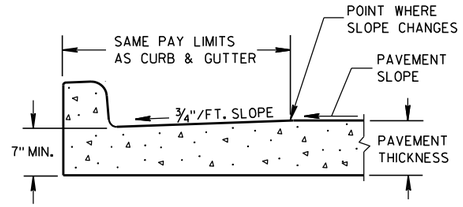


① CONCRETE CURB & GUTTER 19"



① CONCRETE CURB & GUTTER 22"

* TO BE MEASURED TO A MAXIMUM OF 3" WHERE DRAINAGE PROBLEMS EXIST.



PARTIAL SECTION OF PAVEMENT WITH INTEGRAL CURB & GUTTER

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.

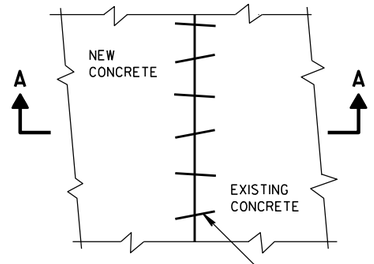
WHERE THE TRANSVERSE JOINTS IN THE PAVEMENT ARE REQUIRED TO BE SEALED, THE JOINTS IN THE INTEGRAL CURB AND GUTTER SHALL BE SEALED TO THE FACE OF CURB WITH THE SAME TYPE OF SEALANT. THE COST OF FURNISHING AND INSTALLING THIS SEALANT SHALL BE INCIDENTAL TO THE ITEM CONCRETE CURB AND GUTTER.

UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE COURSE AND UNCLASSIFIED EXCAVATION LIMITS ARE 2'-0" BEHIND THE BACK OF CURB.

① WHEN PLACED ADJACENT TO NEW CONCRETE, TIE BARS ARE REQUIRED FOR CURB AND GUTTER 31", 22", 19" AND CONCRETE GUTTER 24".

② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE COURSE PROVIDED A 7" MIMIMUM GUTTER THICKNESS IS MAINTAINED.

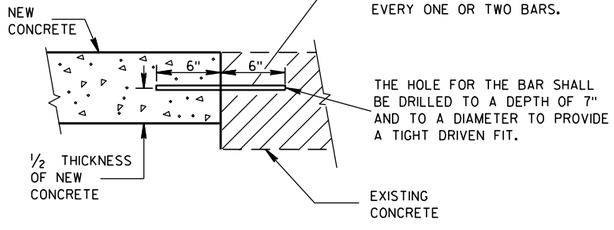
③ WHEN HIGH SIDE CURB SECTION IS REQUIRED, THE LOCATION(S) WILL BE NOTED ON THE PLAN.



PLAN VIEW

EXISTING AND NEW CONCRETE MAY BE CURB & GUTTER, SURFACE DRAIN, PAVEMENT OR OTHER CONCRETE STRUCTURE.

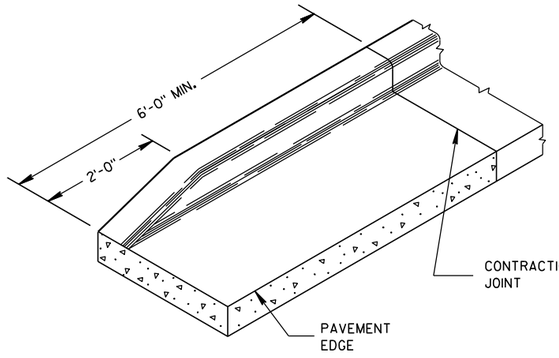
NO. 6 X 12" DEF. BARS SPACED 3'-0" C-C, INSTALLED ON 6:1 SKEW HORIZONTALLY. DIRECTION OF SKEW ALTERNATING AFTER EVERY ONE OR TWO BARS.



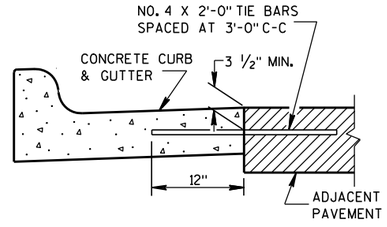
THE HOLE FOR THE BAR SHALL BE DRILLED TO A DEPTH OF 7" AND TO A DIAMETER TO PROVIDE A TIGHT DRIVEN FIT.

SECTION A-A

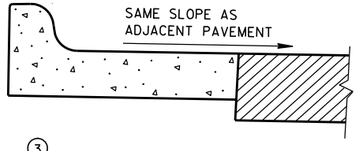
PAVEMENT TIES



END SECTION CURB & GUTTER



① TYPICAL TIE BAR LOCATION



③ HIGH SIDE SECTION

(TYPICAL FOR ALL CURB & GUTTER)

CONCRETE GUTTER, CURB AND GUTTER AND PAVEMENT TIES

(For Optional Use in Milwaukee Co. Only)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

11/2/2010 — DATE

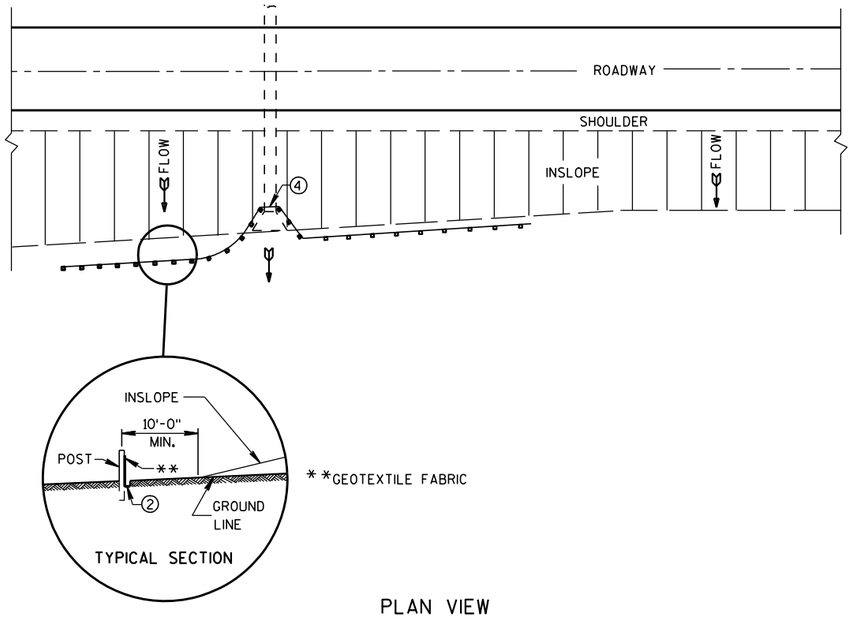
/S/ Jerry Zogg — ROADWAY STANDARDS ENGINEER

ENT

FHWA

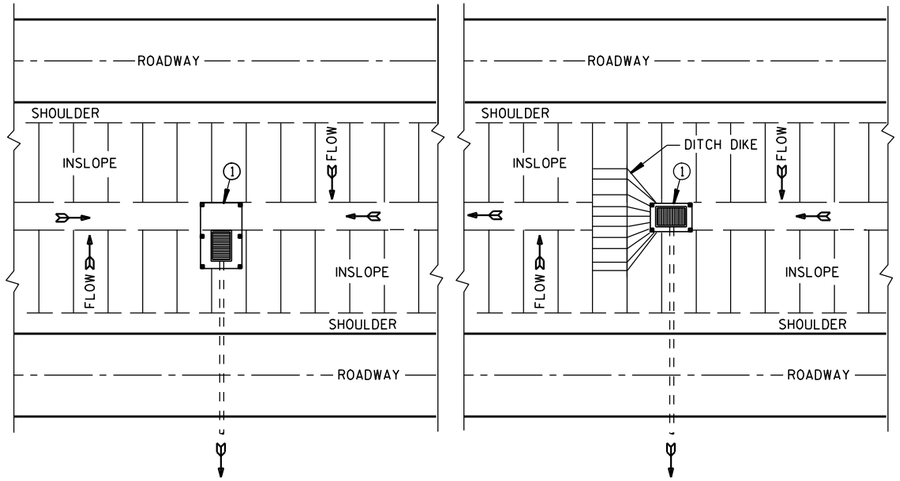
6

S.D.D. 8 D 16-10



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



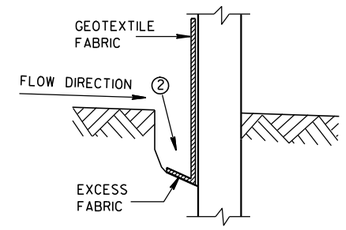
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

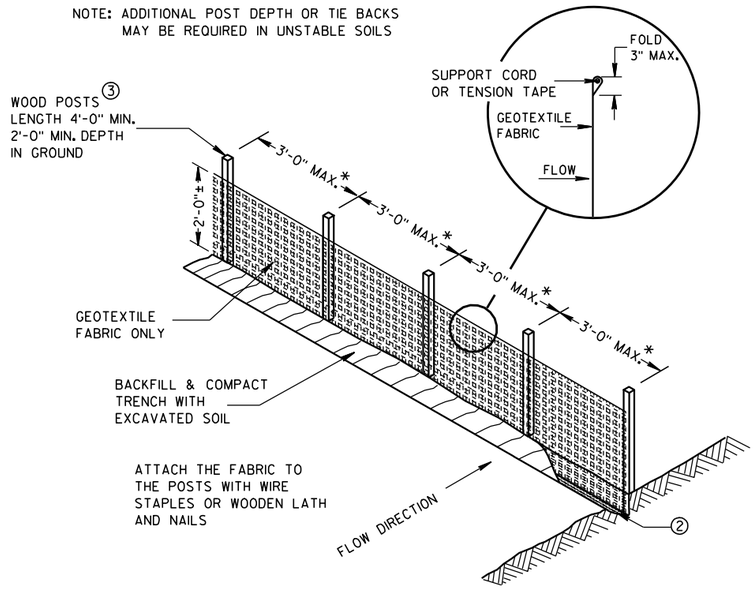
GENERAL NOTES

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

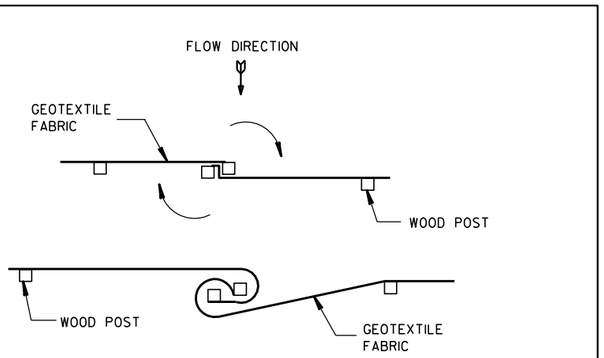
1. HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL BE A MINIMUM SIZE OF 1⅛" X 1⅛" OF OAK OR HICKORY.
4. SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
5. CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



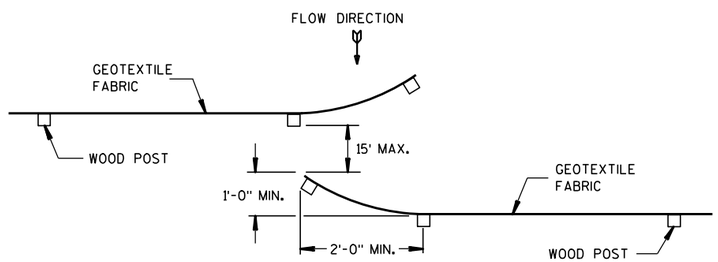
TRENCH DETAIL



SILT FENCE

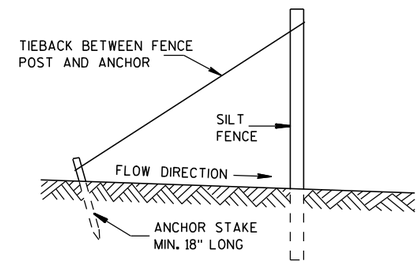


TWIST METHOD



HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE 5



SILT FENCE TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

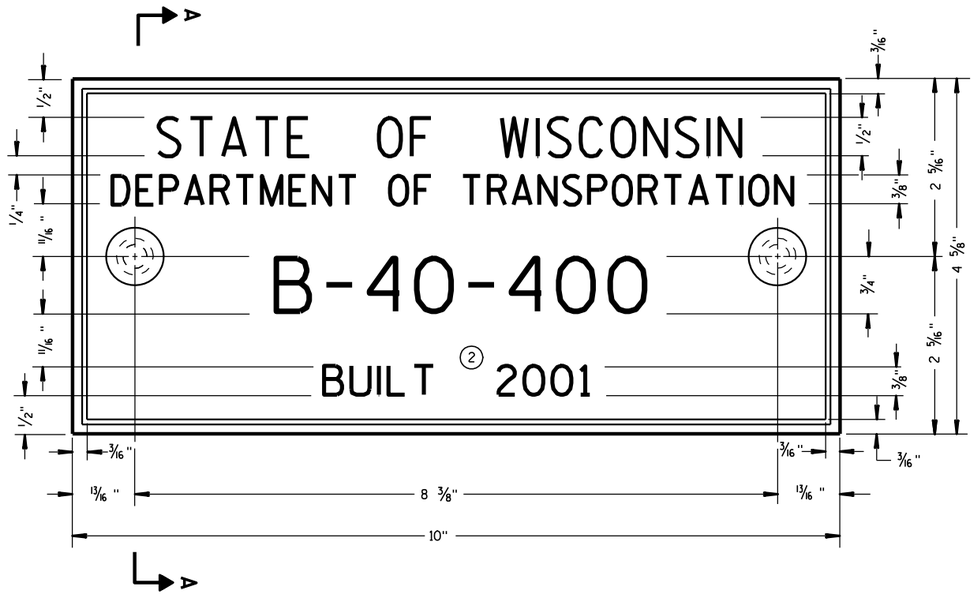
APPROVED
4-29-05 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

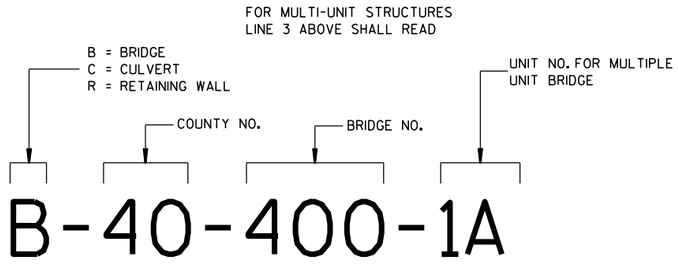
S.D.D. 8 E 9-6

6

S.D.D. 8 E 9-6



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



NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

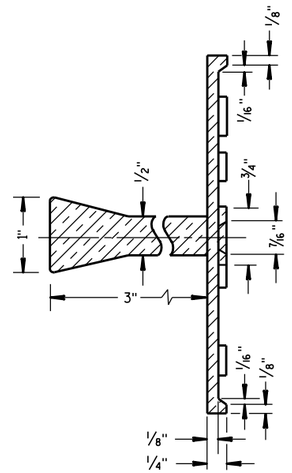
GENERAL NOTES

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

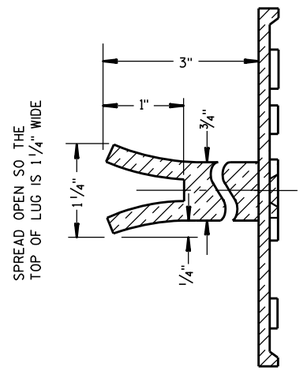
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

(1) EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

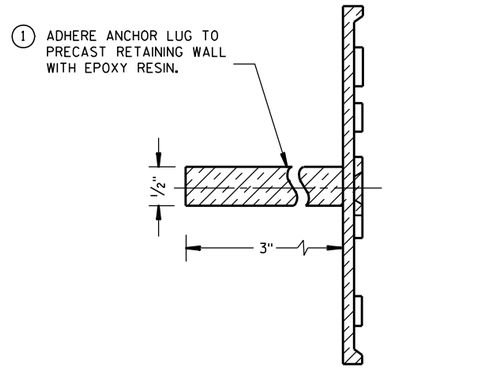
(2) REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



SECTION A-A



ALTERNATE LUG



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

NAME PLATE (STRUCTURES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

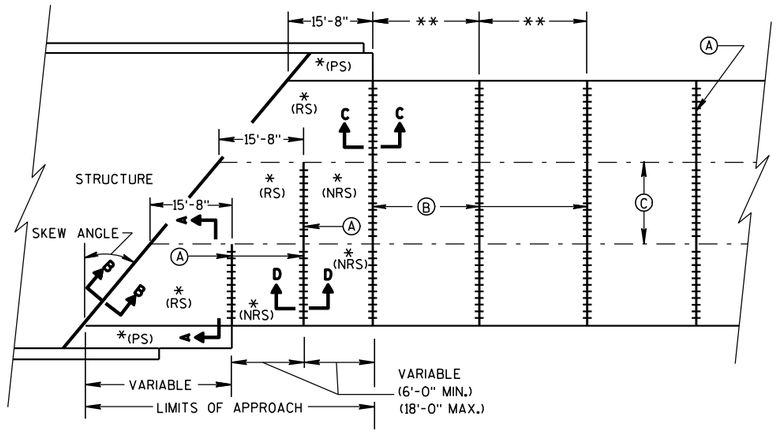
3/26/10 DATE

/S/ Scot Beck CHIEF STRUCTURAL DEVELOPMENT ENGINEER

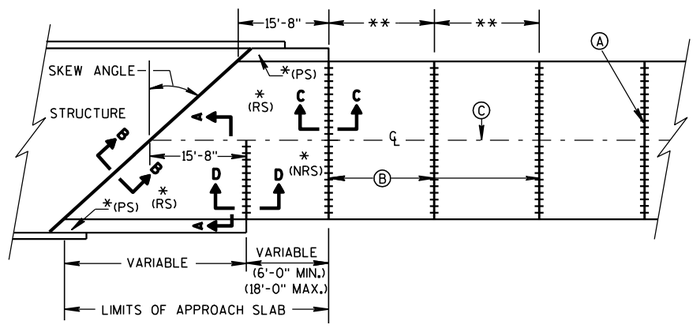
FHWA

6

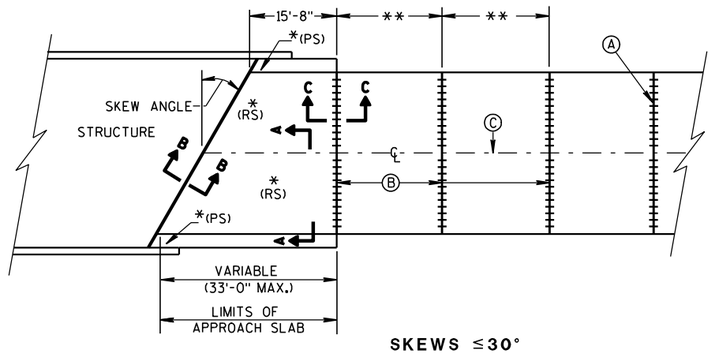
S.D.D. 12 A 3-10



SKEWED APPROACH
(PAVEMENT MORE THAN 2 LANES)



SKEWS >30°
(PAVEMENT WIDTH ≤30')



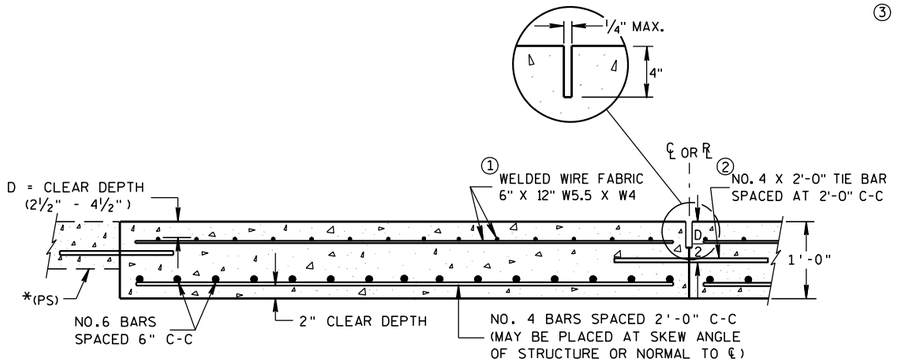
SKEWS ≤30°
(PAVEMENT WIDTH ≤30')

APPROACH SLAB AND ADJACENT PAVEMENT

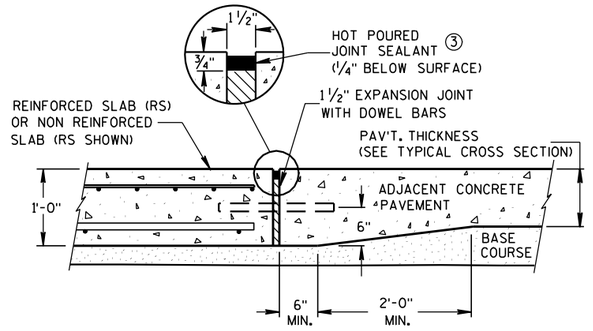
*(RS) = REINFORCED CONCRETE SLAB
*(PS) = PAVED CONCRETE SHOULDER: CONCRETE PAVEMENT, OR CONCRETE SURFACE DRAIN
(SEE DETAILS ELSEWHERE IN THE PLAN)
*(NRS) = NON-REINFORCED CONCRETE SLAB

**STANDARD TRANSVERSE JOINT SPACING
(SEE SDD 13C4, SDD 13C11, & SDD 13C13)

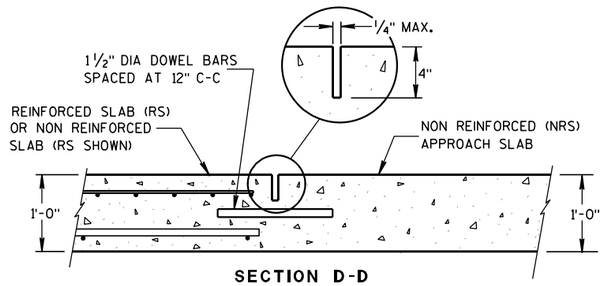
Ⓐ STANDARD CONTRACTION JOINT NORMAL TO ℄ OR ℄
Ⓑ 1½" EXPANSION JOINT WITH DOWEL BARS NORMAL TO ℄ OR ℄
Ⓒ STANDARD LONGITUDINAL JOINT AND TIE BARS.



SECTION A-A
REINFORCEMENT POSITIONING DETAIL



SECTION C-C
TRANSITION DETAIL
APPROACH SLAB TO ADJACENT PAVEMENT



SECTION D-D
CONTRACTION JOINT

GENERAL NOTES

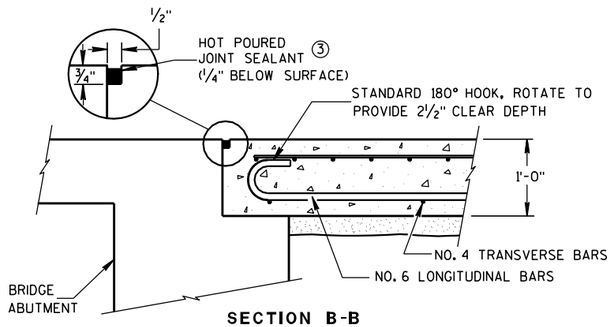
APPROACH SLABS ABUTTING AN HMA PAVEMENT OVER BASE COURSE DO NOT NEED TO BE DOWELED.

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.

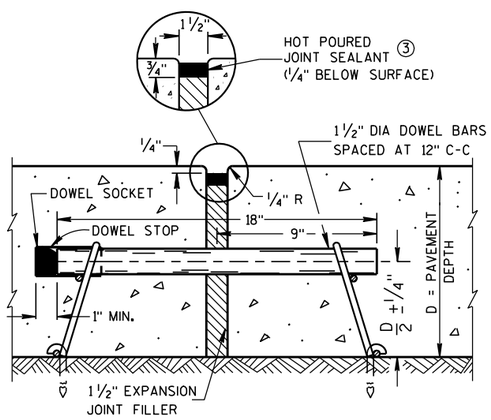
① THE CONTRACTOR MAY USE NO. 4 BARS SPACED AT 2'-0" C-C IN BOTH THE LONGITUDINAL AND TRANSVERSE DIRECTIONS FOR TOP REINFORCEMENT AS AN ALTERNATIVE TO THE WELDED WIRE FABRIC.

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

③ USE A JOINT SEALANT MEETING THE REQUIREMENTS OF ASTM D6690.



SECTION B-B
BEND DETAIL
BOTTOM REINFORCEMENT



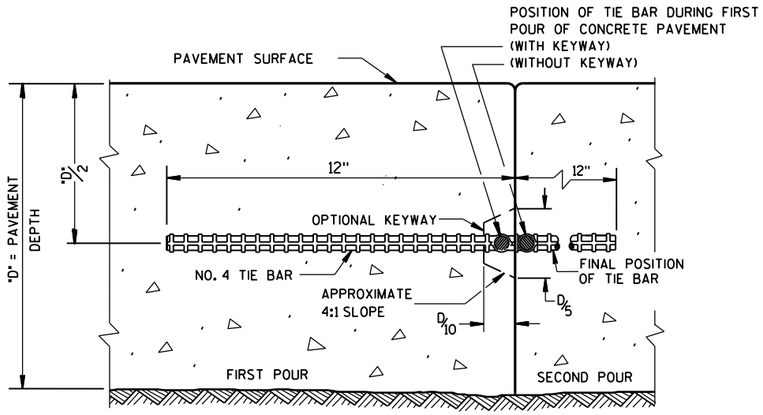
EXPANSION JOINT

CONCRETE PAVEMENT APPROACH SLAB

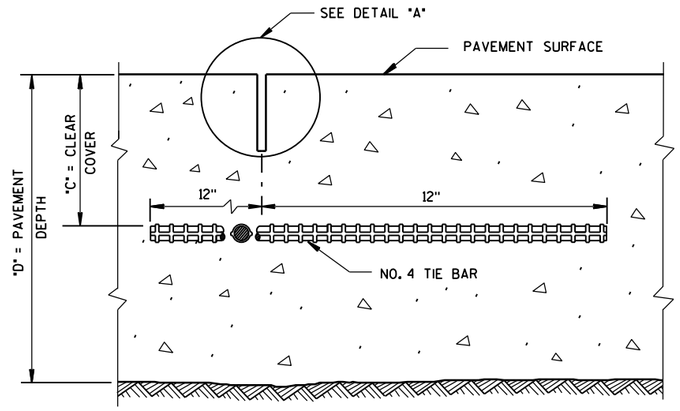
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
12/11/2009 — DATE
/S/ Deb Bischoff — PAVEMENT POLICY & DE ENGINEER
FHWA

6
S.D.D. 13 B 2-6



CONSTRUCTION JOINT



SAWED JOINT

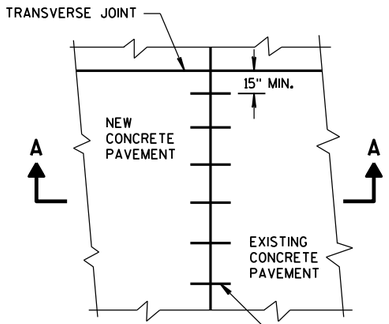
GENERAL NOTES

DO NOT SEAL OR FILL LONGITUDINAL JOINTS.

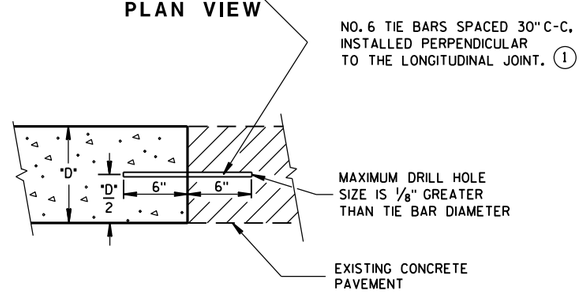
CREATE A LONGITUDINAL JOINT FOR PAVEMENT WIDTHS GREATER THAN 15 FEET.

CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.

(1) ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.

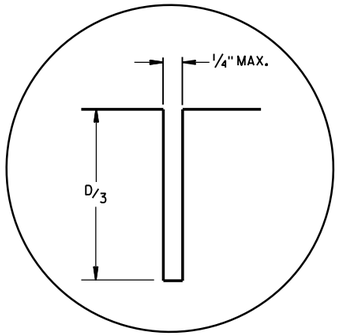


PLAN VIEW



SECTION A-A

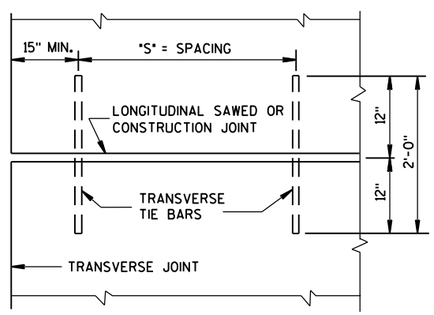
LONGITUDINAL CONSTRUCTION JOINT TIE BARS ANCHORED INTO EXISTING PAVEMENT



DETAIL "A"

TIE BAR TABLE

PAVEMENT DEPTH "D"	CLEAR COVER "C"	MAXIMUM TIE BAR SPACING "S"	
		PAVEMENT WIDTH	
		24' OR 26'	≥ 30'
6, 6 1/2"	3"±1/2"	48"	42"
7, 7 1/2"	3 1/4"±1"	45"	36"
8, 8 1/2"	3 3/4"±1"	39"	30"
9, 9 1/2"	4 1/4"±1"	33"	27"
10, 10 1/2"	4 3/4"±1"	30"	24"
11, 11 1/2"	5 1/4"±1"	27"	21"
12"	5 3/4"±1"	24"	21"



PLAN VIEW
SHOWING LOCATION OF TIE BARS

CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

5-3-2013
DATE

/S/ Deb Bischoff
PAVEMENT POLICY & DE

FHWA

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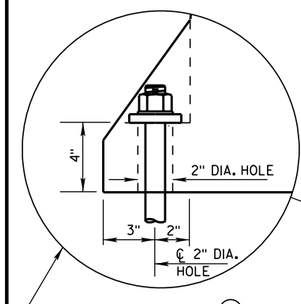
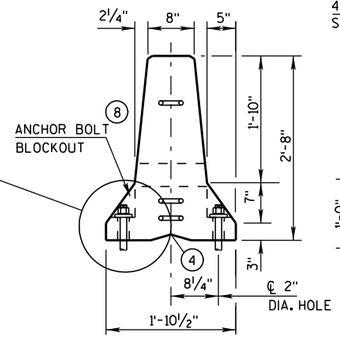
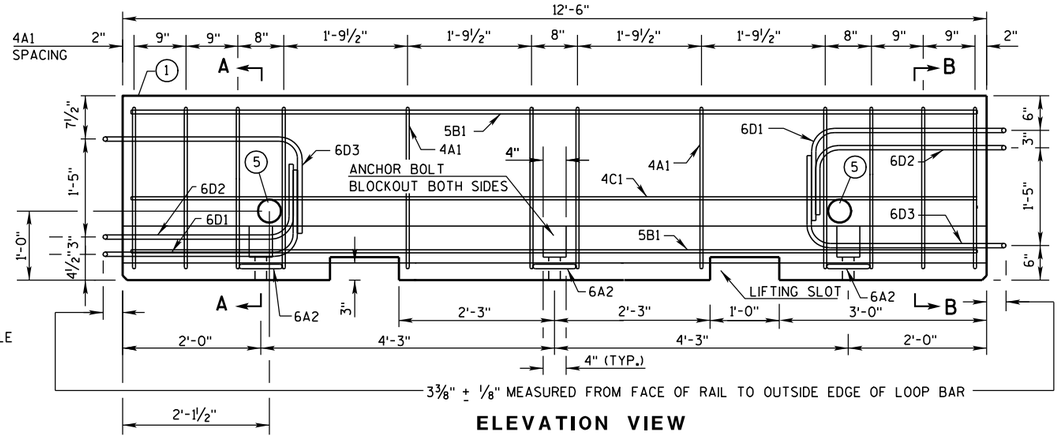
S.D.D. 13 C 1-16



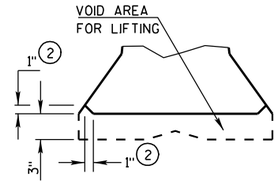
ANCHOR ON TRAFFIC SIDE (8) ONLY WHEN REQUIRED (SEE SHEET D FOR ADDITIONAL ANCHOR DETAIL)



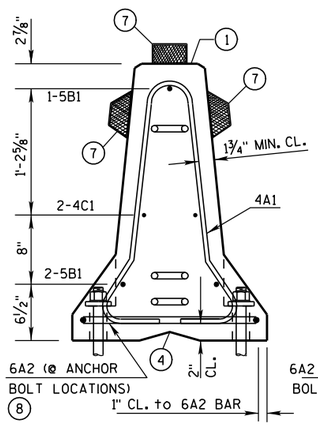
END VIEW



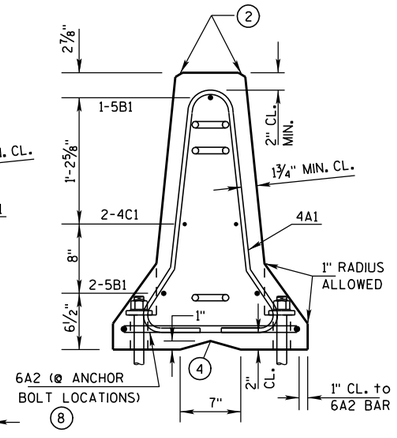
ELEVATION VIEW



DETAIL "B"
LIFTING SLOT DETAIL



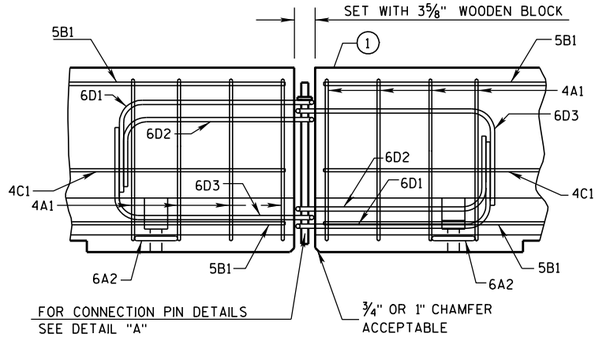
SECTION A-A
(STIRRUP PLACEMENT)



SECTION B-B
(STIRRUP PLACEMENT)

PLAN VIEW

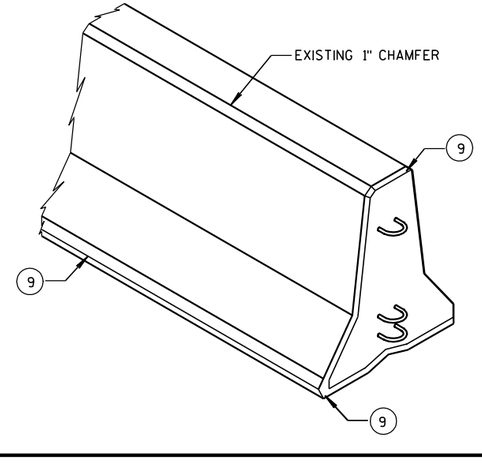
DETAILS OF BARRIER SECTION



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 14B7-13(a) THRU 14B7-13(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 EPOXY 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: WICBTP
- 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.

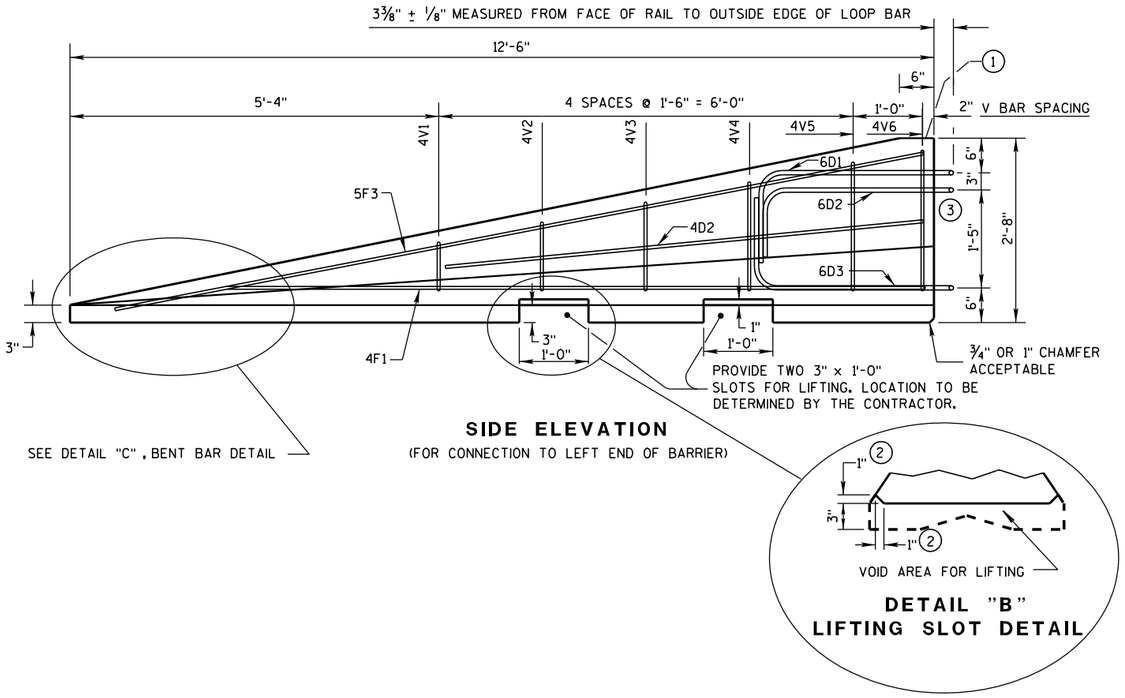
(7) USE DELINEATORS CONFORMING TO SECTION 633 OF THE STANDARD SPECIFICATIONS. CONTRACTOR MAY USE ALTERNATE SHAPES AND HOUSING. INSTALL DELINEATORS ACCORDING TO MANUFACTURES INSTRUCTION. INSTALL YELLOW REFLECTORS WHEN BARRIER IS LOCATED TO THE LEFT OF TRAFFIC AND WHITE REFLECTORS WHEN BARRIER IS LOCATED 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"

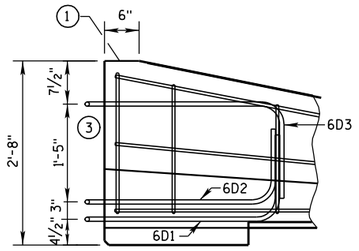
STATE OF WISCONSIN
DEPARTMENT OF TRANSPO.....



SIDE ELEVATION

(FOR CONNECTION TO LEFT END OF BARRIER)

DETAIL "B"
LIFTING SLOT DETAIL

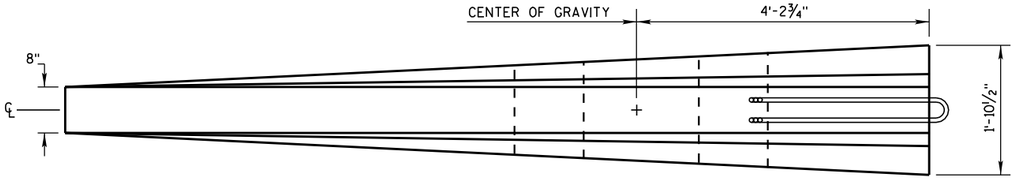


SIDE ELEVATION

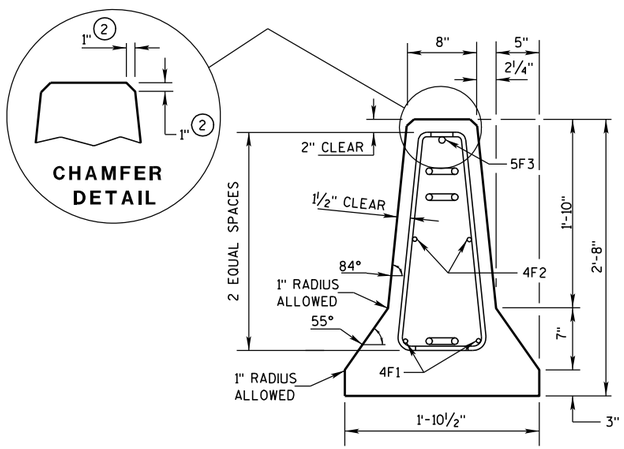
LOOP BAR ASSEMBLY INVERTED
FOR OPPOSITE END.
(FOR CONNECTION TO RIGHT END OF BARRIER)

GENERAL NOTES

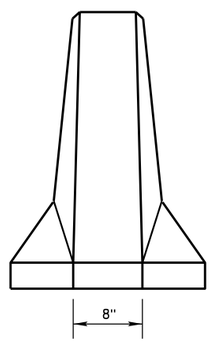
1. MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
   a. TYPE WICBTP
   b. MANUFACTURER
   c. DATE MANUFACTURED (MONTH AND YEAR)
2. 1" CHAMFER TO PREVENT SPALLING.
3. NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.



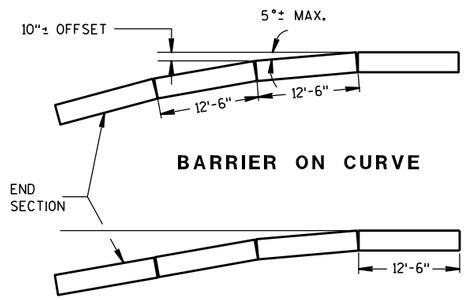
PLAN VIEW



END SECTION



FRONT ELEVATION



BARRIER ON CURVE

FLARE AT BARRIER END

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 TRANSPORTATION

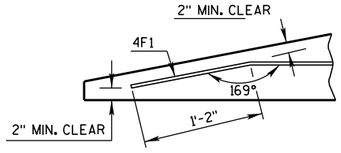
6

S.D.D. 14 B 7-13b

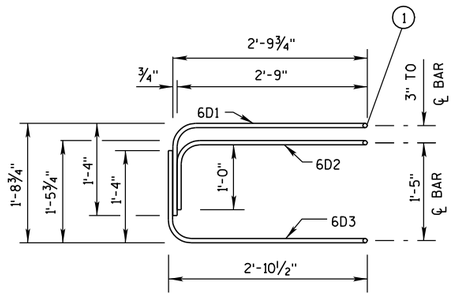
BARRIER TAPER SECTION BILL OF MATERIALS

(PER 12'-6" BARRIER TAPER SECTION)

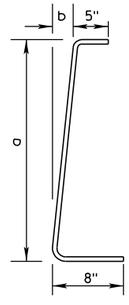
BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4V1	4	2	1'-11"
4V2	4	2	2'-2"
4V3	4	2	2'-6"
4V4	4	2	2'-9"
4V5	4	2	3'-2"
4V6	4	2	3'-4"
4F1	4	2	12'-0"
4F2	4	2	7'-6"
5F3	5	1	11'-9"
LOOP ASSEMBLY			
6D1	6	1	8'-5"
6D2	6	1	7'-7"
6D3	6	1	8'-6"



DETAIL "C"
BENT BAR DETAIL



ELEVATION
LOOP BAR ASSEMBLY



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

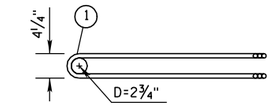
GENERAL NOTES

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

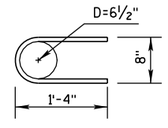
BARRIER SECTION BILL OF MATERIALS

(PER 12'-6" BARRIER SECTION)

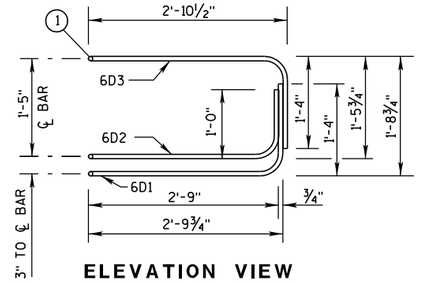
BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4A1	4	12	6'-0"
6A2	6	6	2'-11"
5B1	5	3	12'-2"
4C1	4	2	12'-2"
LOOP ASSEMBLY			
6D1	6	2	8'-5"
6D2	6	2	7'-7"
6D3	6	2	8'-6"



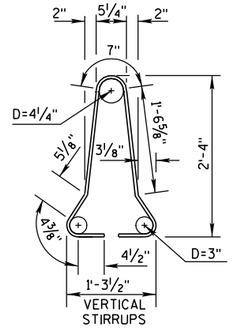
PLAN VIEW
LOOP BAR ASSEMBLY
(MARKED END SHOWN, INVERT FOR OTHER END)



6A2



ELEVATION VIEW



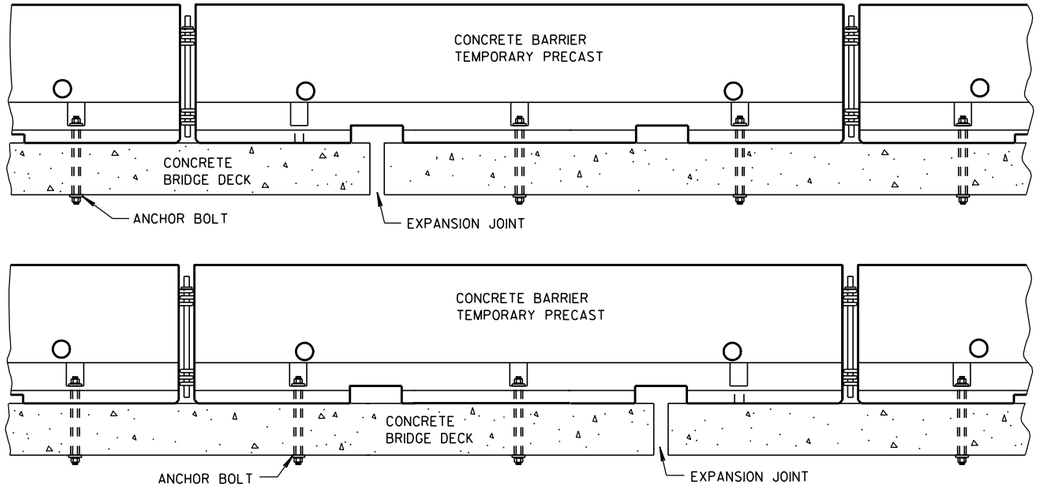
4A1

BARRIER SECTION

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

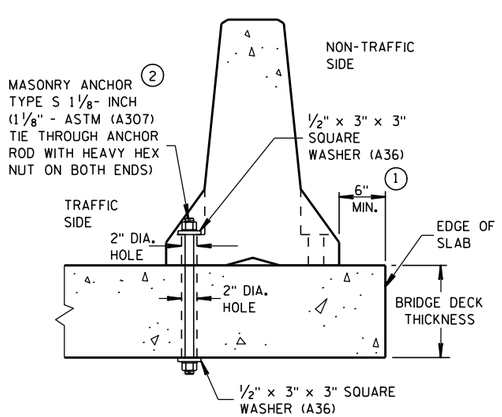
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6
S.D.D. 14 B 7-13c



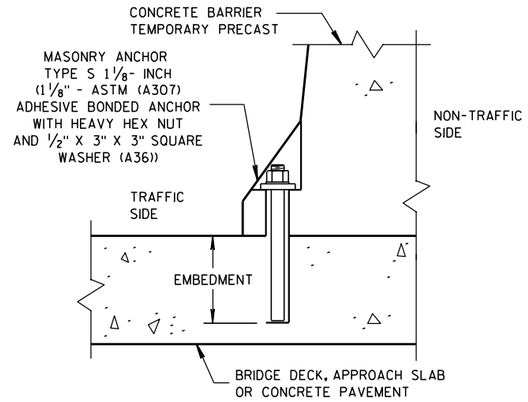
TREATMENT AT BRIDGE DECK EXPANSION JOINTS

(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

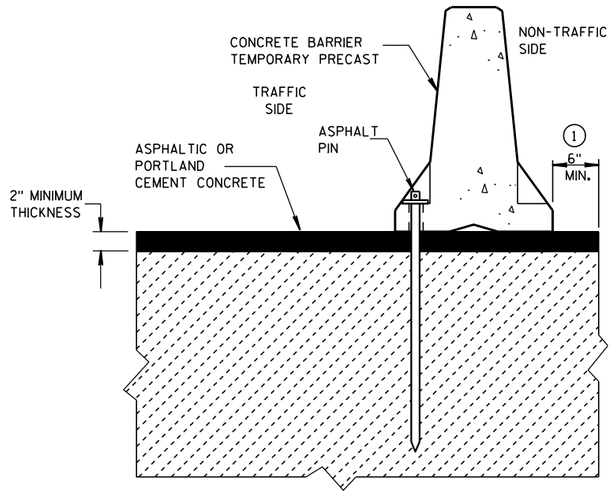
① CONCRETE BARRIER TEMPORARY PRECAST, 12'-6" SHALL BE ANCHORED IF:
THE DISTANCE TO A 2 FOOT OR GREATER DROPOFF THAT IS STEEPER THAN 3H : 1V, FOR EXAMPLE THE EDGE OF A BRIDGE DECK OR A DROPOFF AT THE EDGE OF PAVEMENT, IS LESS THAN 4 FEET FROM THE SIDE OF THE BARRIER CLOSEST TO THE DROPOFF AND THE POSTED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

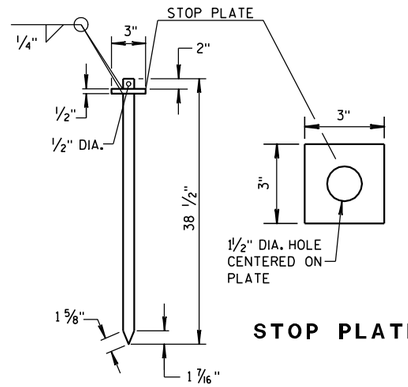
THE DISTANCE TO A 2 FOOT OR GREATER DROPOFF THAT IS STEEPER THAN 3H : 1V, FOR EXAMPLE THE EDGE OF A BRIDGE DECK OR A DROPOFF AT THE EDGE OF PAVEMENT. IS LESS THAN 2 FEET FROM THE SIDE OF THE BARRIER CLOSEST TO THE DROPOFF AND THE POSTED SPEED IS 40 MPH OR LESS.

② ANCHORING IS INCIDENTAL TO CONCRETE BARRIER TEMPORARY PRECAST.

WITH THE APPROVAL OF THE ENGINEER, REMOVABLE ADHESIVE BONDED (EPOXY) 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 ALLANCHOR 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 EPOXY MATERIAL IDENTIFIED ON THE CURRENT WISDOT APPROVED PRODUCTS LIST.





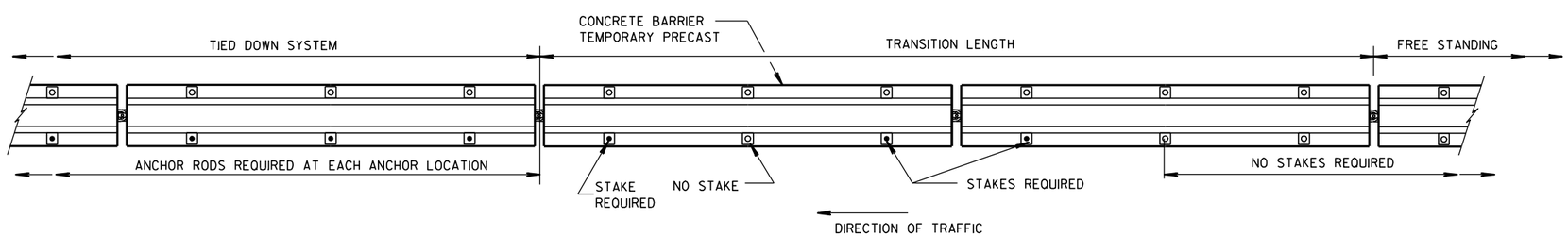
STOP PLATE

ASPHALT PIN

(ASTM A36 STEEL)

STAKE DOWN INSTALLATION FOR ASPHALTIC OR PORTLAND CEMENT CONCRETE SURFACE

(STAKING IS INCIDENTAL TO CONCRETE BARRIER TEMPORARY PRECAST)



PLAN VIEW

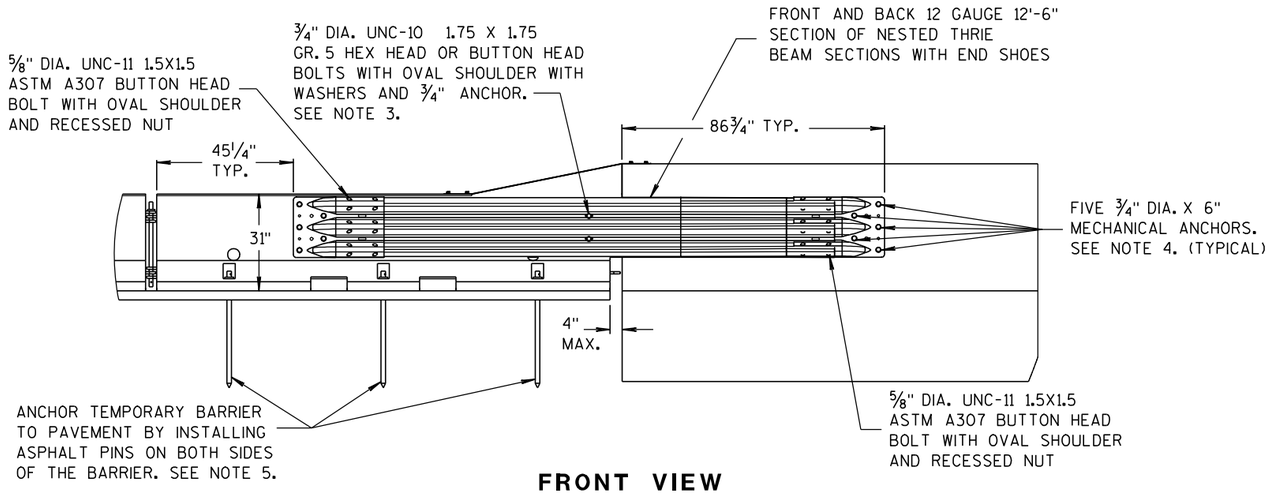
FREE STANDING TRANSITION TO TIED-DOWN SYSTEM

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

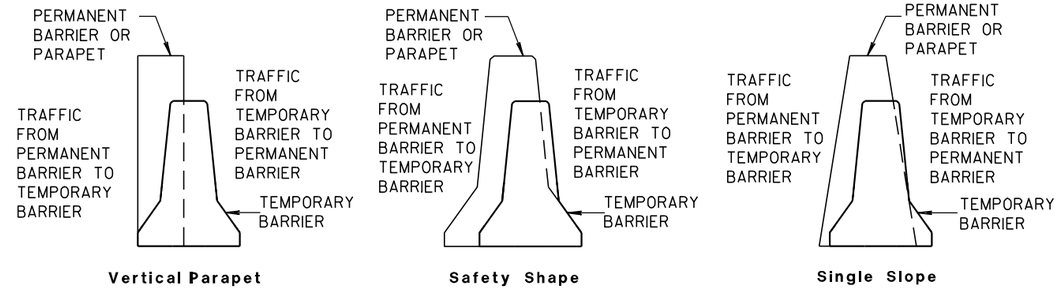
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO...

6
S.D.D. 14 B 7-13d



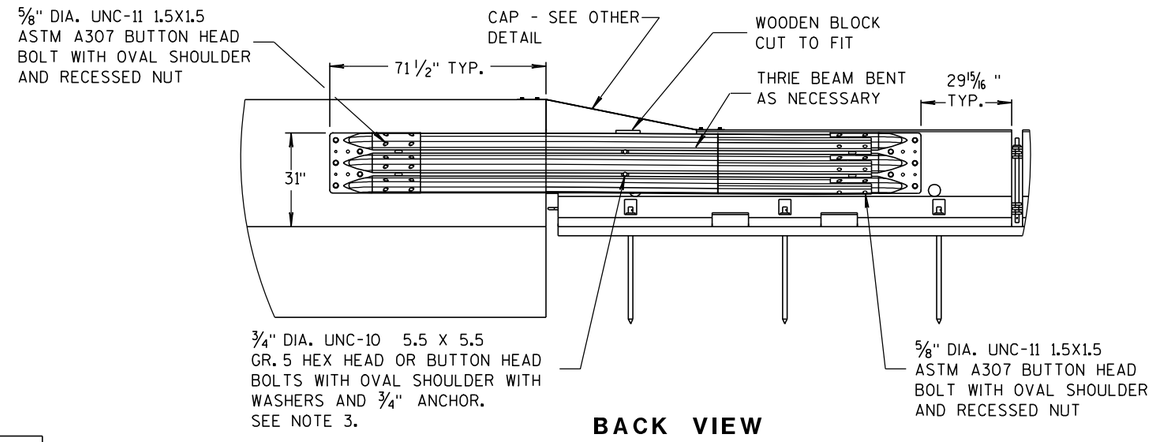
FRONT VIEW



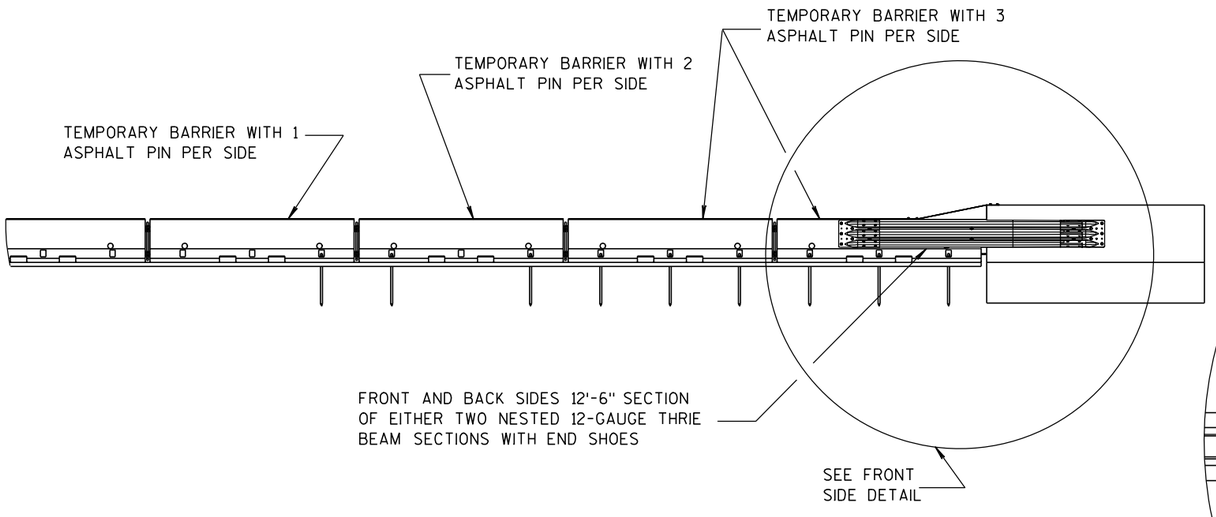
TEMPORARY BARRIER PLACEMENT FOR BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM

NOTES

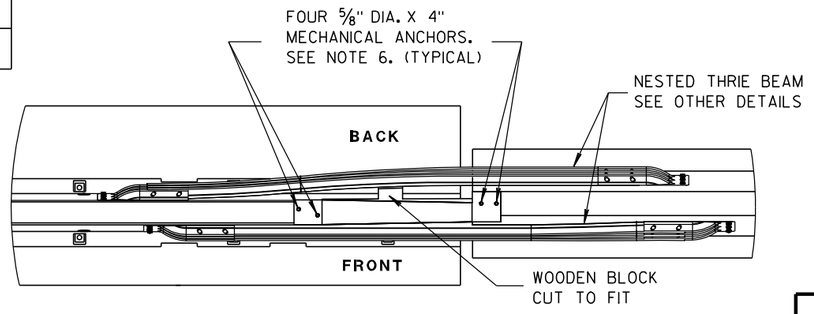
1. CAP END PLATE PLACED FLUSH WITH UPSTREAM END OF PERMANENT BARRIER OR PARAPET.
2. THRIE BEAM PIECES ARE OFFSET 15¼" TO PREVENT INTERFERENCE FROM THE ANCHORS ON OPPOSING SIDES.
3. MINIMUM MECHANICAL OR EPOXY ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 9.48 KIPS AND ULTIMATE SHEAR LOAD 10.48 KIPS.
4. MINIMUM MECHANICAL OR EPOXY 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 EPOXY ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 12.14 KIPS AND ULTIMATE SHEAR LOAD 17.5 KIPS.



BACK VIEW



FRONT VIEW



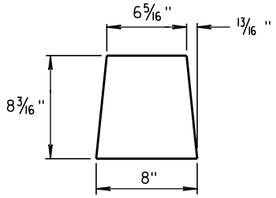
PLAN VIEW

BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM

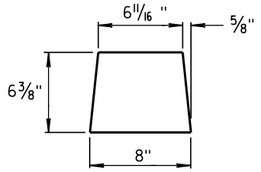
CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

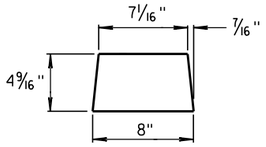
6
S.D.D. 14 B 7-13e



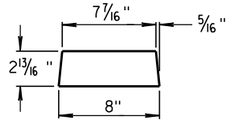
GUSSET 1



GUSSET 2

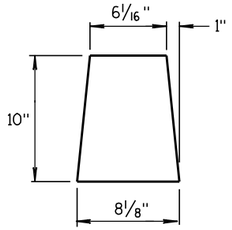


GUSSET 3

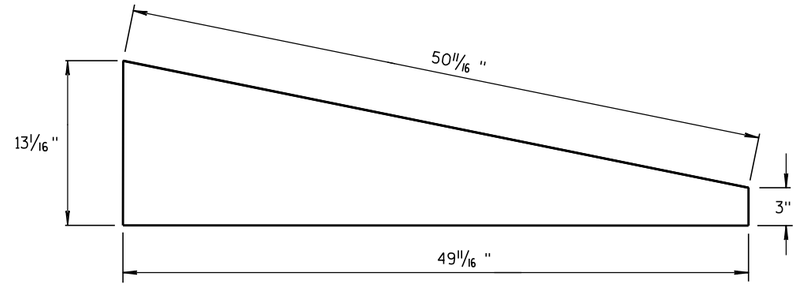


GUSSET 4

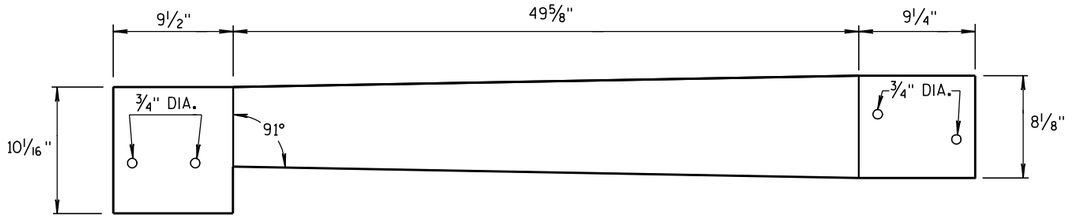
GUSSETS

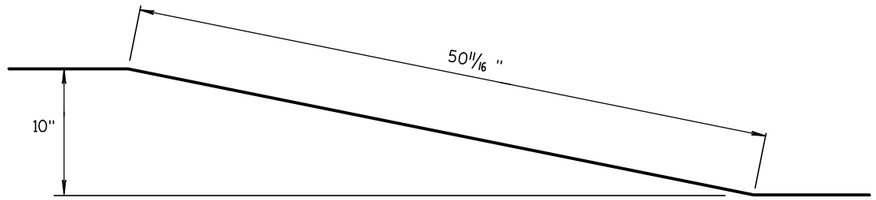


END PLATE

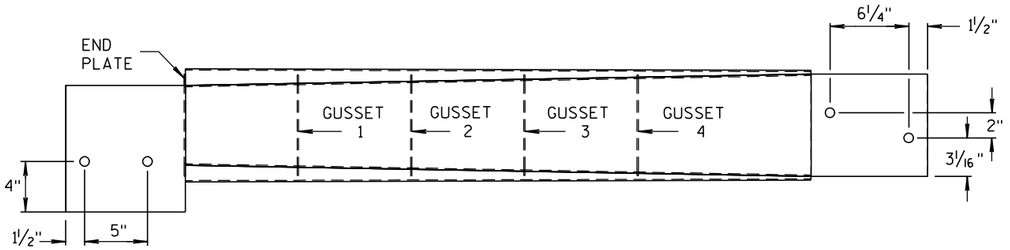


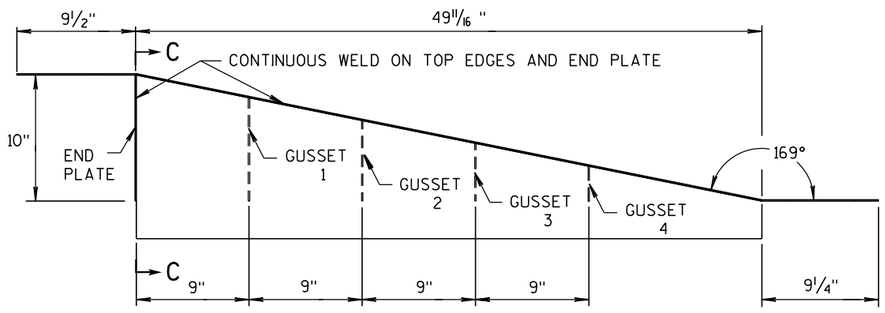
SIDE PLATE

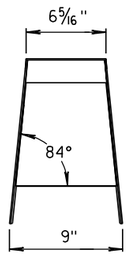




TOP PLATE







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.

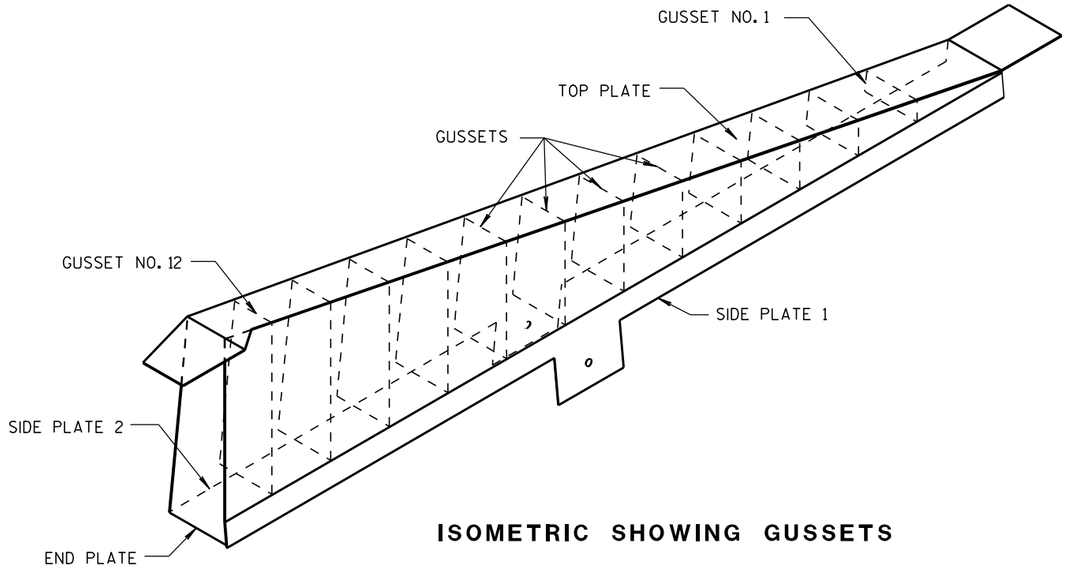
CAP DETAILS FOR TEMPORARY CONCRETE BARRIER TO 42" PERMANENT CONCRETE BARRIER

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

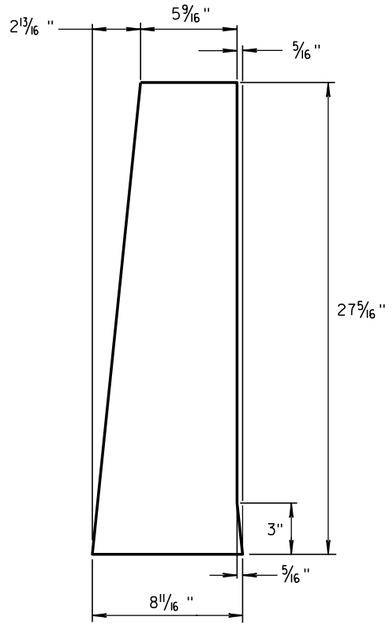
SIDE PLATES, TOP PLATE, END PLATE AND GUSSETS ARE 12 GAUGE ASTM A36 GALVANIZED STEEL.

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO...

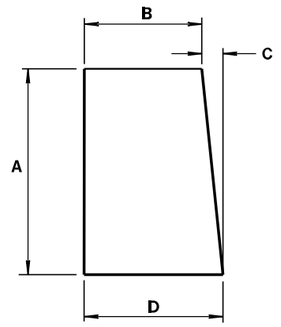


ISOMETRIC SHOWING GUSSETS



END PLATE

1/8" STEEL PLATE



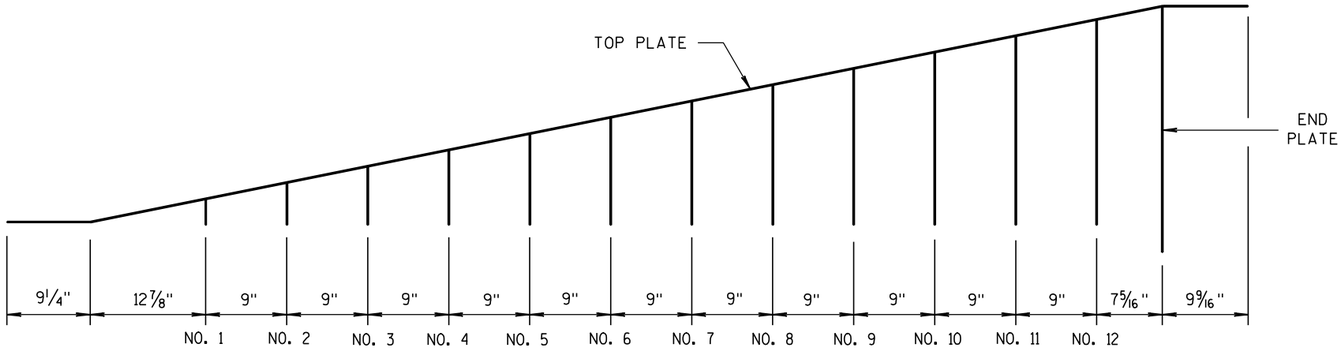
GUSSETS 1 - 12

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 TRANSPO.....T

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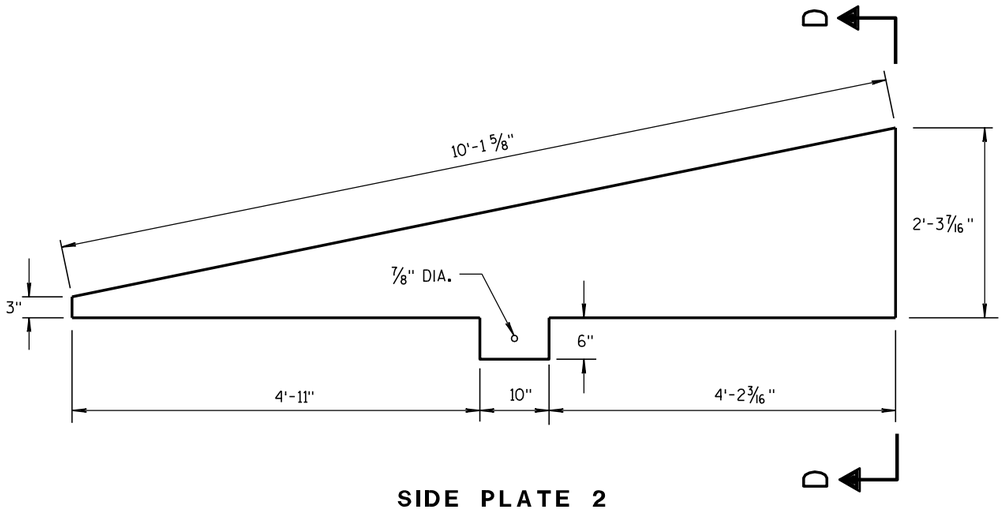
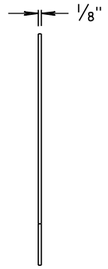
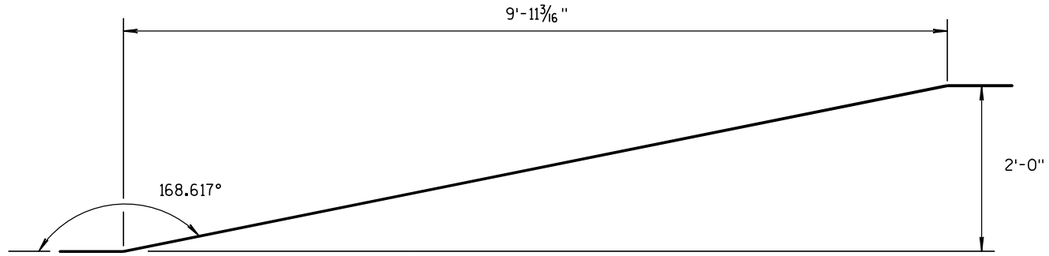
S.D.D. 14 B 7-13g



SIDE PLATE 2

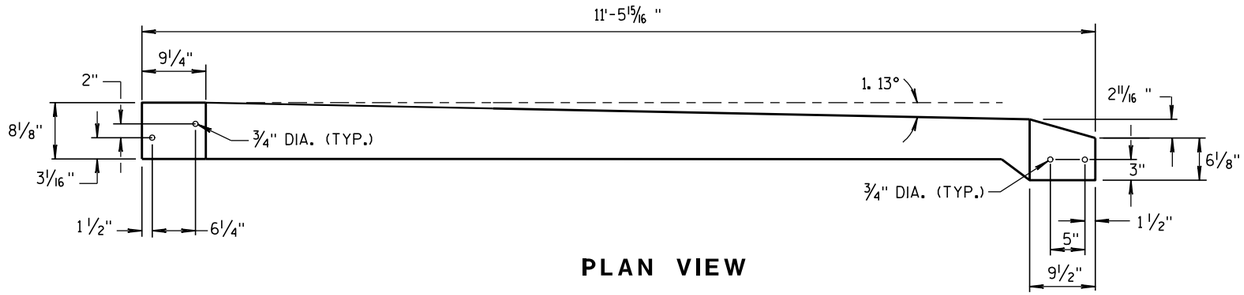


END VIEW



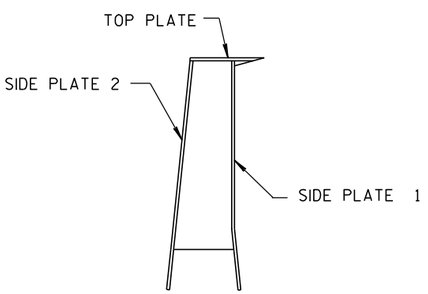
SIDE VIEW

TOP PLATE

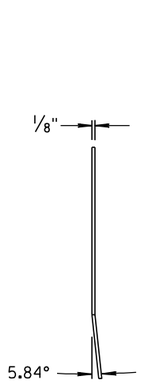


PLAN VIEW

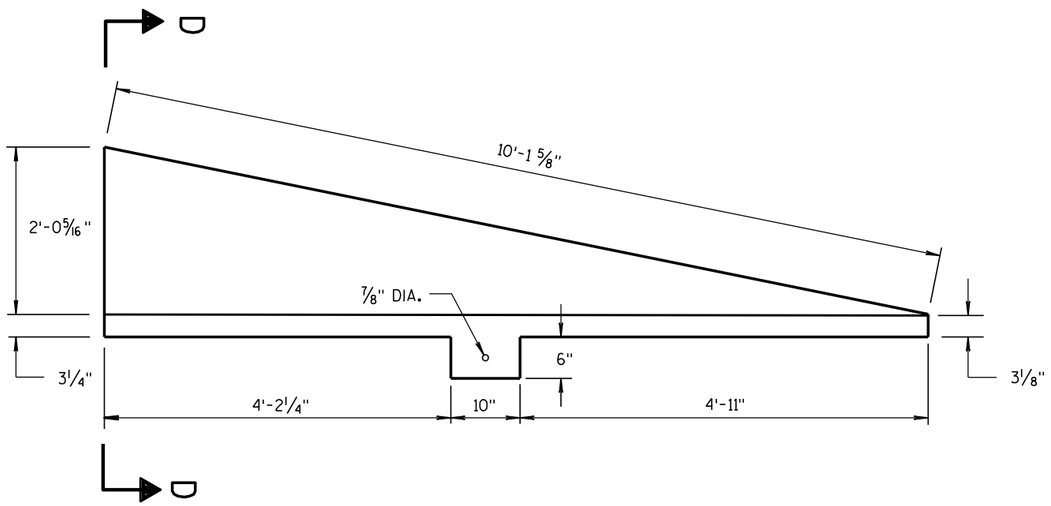
TOP PLATE



SECTION D-D



END VIEW



SIDE PLATE 1

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

CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
8/31/2012 DATE	/S/ Jerry H. 7---- ROADWAY STANDARDS ENGINEER
FHWA	51 ENT

6

S.D.D. 14 B 7-13h

6

S.D.D. 14 B 7-13h

GENERAL NOTES

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

(1) W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POSTS WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS. APPROVED PLASTIC BLOCKOUT DESIGNS MAY VARY FROM THIS TYPICAL DETAIL WHEN USED IN CONJUNCTION WITH STEEL POSTS.

DO NOT MIX STEEL POSTS AND WOOD POSTS IN A SINGLE INSTALLATION.

(2) USE STRUCTURAL STEEL POSTS CONFORMING TO ASTM A 36. GALVANIZED POSTS ACCORDING TO AASHTO M 111. EITHER SET THE POSTS IN DRILLED HOLES OR DRIVE TO GRADE. REMOVE MUSHROOMING CAUSED BY DRIVING AND REPAIR DAMAGED SPELTER COATING ON GALVANIZED POSTS.

(3) INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.

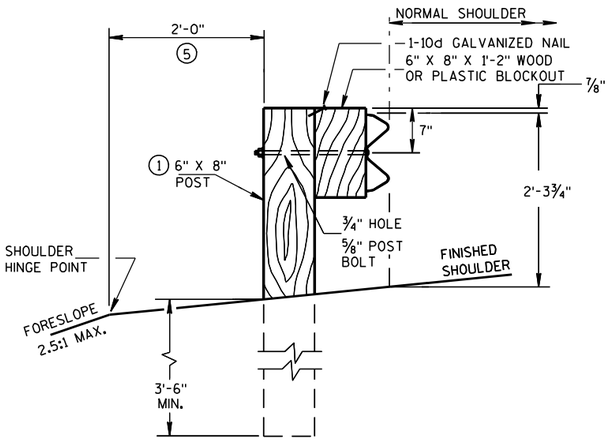
(4) USE EITHER WOOD OR APPROVED PLASTIC BLOCKOUTS ON WOOD POSTS.

(5) IF THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING, W BEAM (LHW).

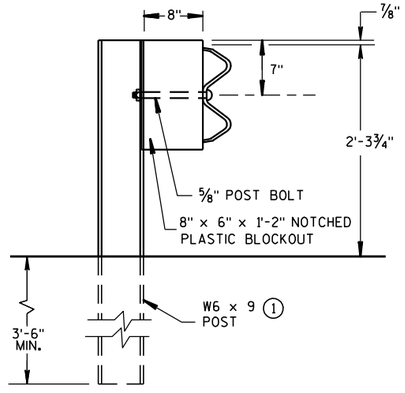
(6) IF ROCK IS ENCOUNTERED DURING EXCAVATION, THE ENGINEER MAY APPROVE USING A 12 INCH DIAMETER POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE APPROXIMATELY 2½ INCHES DEEP. CUT THE POSTS TO LENGTH AND PLACE IN YHE HOLE. BACKFILL WITH MATERIAL EXCAVATED FROM THE HOLE AND COMPACT ADEQUATEY.

INSTALL BEAM GUARD SECTIONS AND ALL NECESSARY HARDWARE ACCORDING TO THE APPLICABLE PLAN AND CURRENT STANDARD AND SUPPLEMENTAL SPECIFICATIONS.

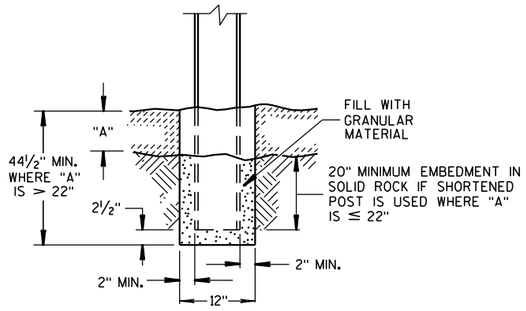
ALL DIMENSIONS ARE SUBJECT TO MANUFACTURER'S TOLERANCES EXCEPT WHERE ALLOWABLE TOLERANCES ARE SHOWN.



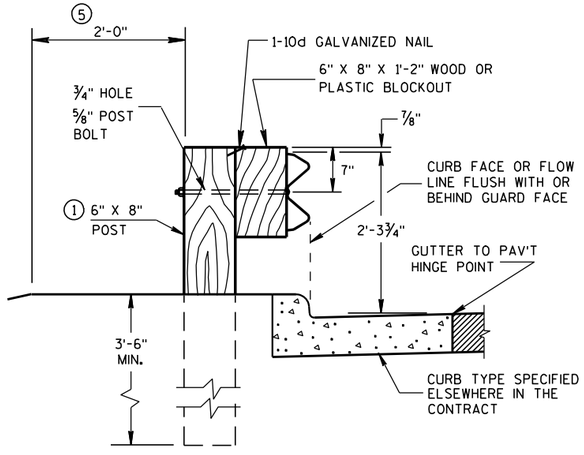
END VIEW
LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



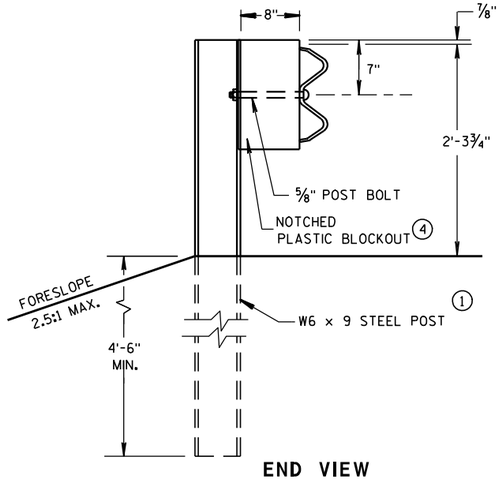
END VIEW
STEEL POST & NOTCHED
PLASTIC BLOCKOUT ALTERNATIVE
STANDARD INSTALLATION



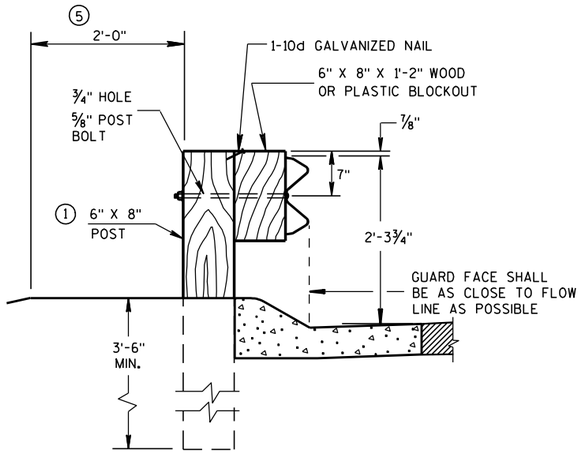
END VIEW
SETTING STEEL OR WOOD POST IN ROCK (6)



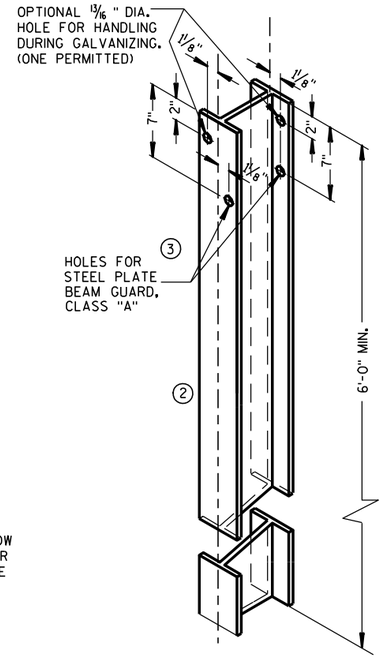
END VIEW
LOCATED ALONG A CURBED ROADWAY



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

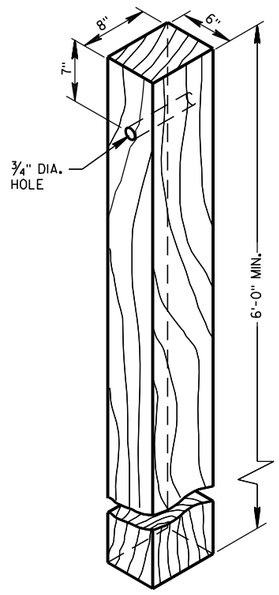


END VIEW
LOCATED ALONG A
MOUNTABLE CURBED ROADWAY

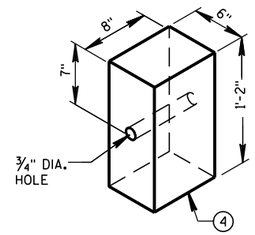


STEEL POST &
HOLE PUNCHING DETAIL
(W6 X 9) (1)

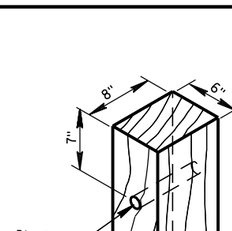
ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED



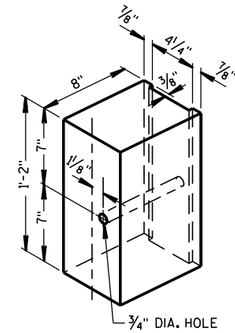
WOOD POST
(6"X8") NOMINAL



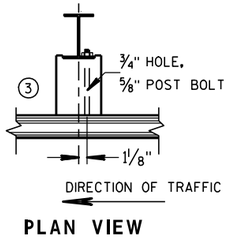
WOOD OR PLASTIC
BLOCKOUT FOR
WOOD POSTS



PLAN VIEW
WOOD POST,
BLOCKOUT & BEAM



TYPICAL NOTCHED (1)
PLASTIC BLOCKOUT
FOR STEEL POSTS



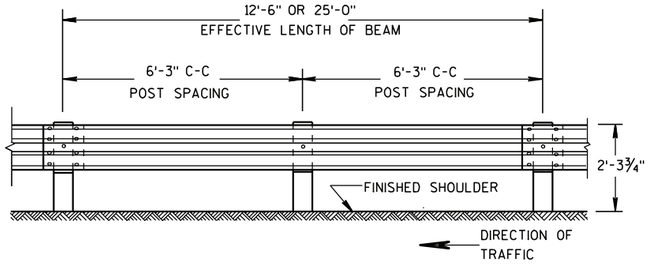
PLAN VIEW
STEEL POST, NOTCHED
PLASTIC BLOCKOUT & BEAM

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

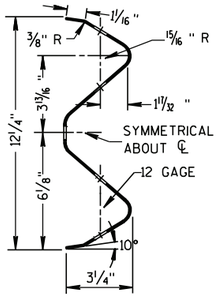
TYPICAL INSTALLATION OF STEEL PLATE BEAM GUARD

6
S.D.D. 14 B 15-7a

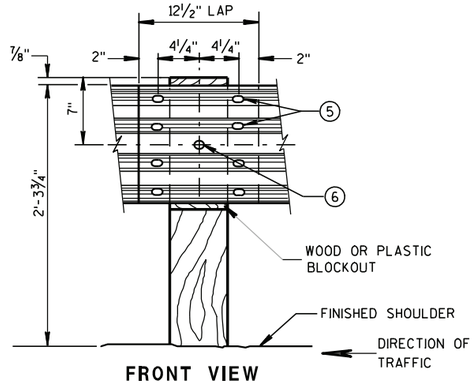


FRONT VIEW

POST SPACING STANDARD INSTALLATION



SECTION THRU W BEAM

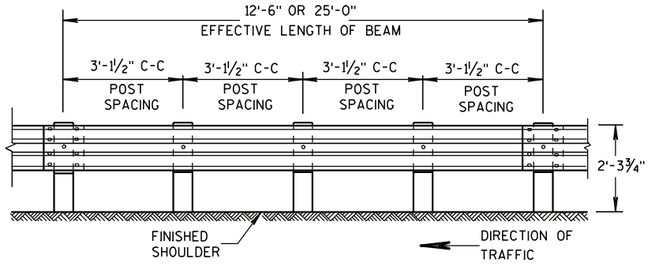


FRONT VIEW

BEAM SPLICE AT WOOD POST AND POST MOUNTING DETAIL

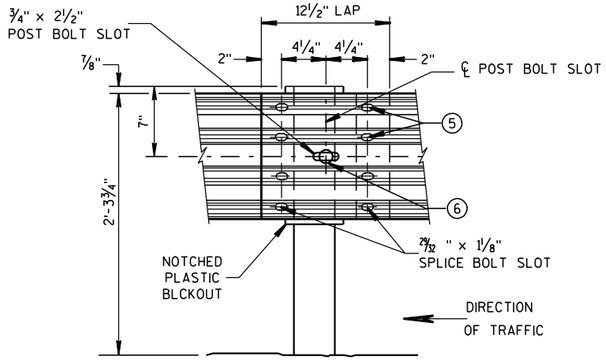
GENERAL NOTES

1. PROVIDE TYPE "H" SILVER REFLECTIVE SHEETING ON ALL REFLECTORS EXCEPT THOSE LOCATED ALONG THE LEFT EDGE OF ONE-WAY ROADWAYS, WHICH SHALL BE PROVIDED WITH TYPE "H" YELLOW REFLECTIVE SHEETING.
2. DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
3. REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.
4. PROVIDE AN ANGLE OF BEND OF 90° ± 1° FOR TWO-SIDED REFLECTORS.
5. 8 - 5/8" ϕ X 2 " BUTTON HEAD BOLTS WITH OVAL SHOULDERS & RECESS NUTS.
6. 5/8" ϕ X 1'-6" BUTTON HEAD BOLT AND AND RECESS NUT WITH ROUND WASHER UNDER NUT.



FRONT VIEW

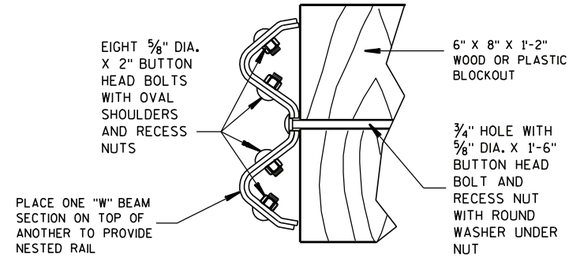
POST SPACING FOR LONGER POST AT HALF POST SPACING W BEAM (LHW)



FRONT VIEW

BEAM SPLICE AT STEEL POST

TYPICAL SPLICING DETAILS OF STEEL PLATE BEAM GUARD

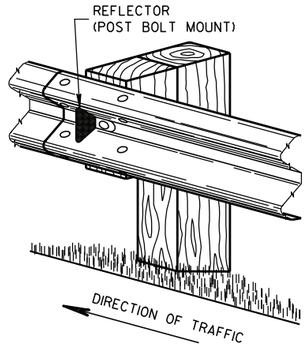


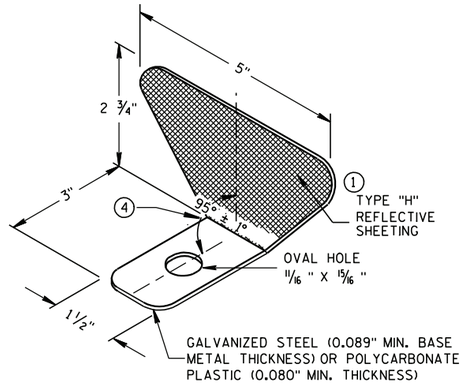
NESTED W BEAM (NW)

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

REFLECTOR SPACING (2)

	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 (3)	6
	> 200'	50' C-C	1	
TWO WAY TRAFFIC	< 200'	50' C-C	2	3
	> 200'	100' C-C	2 (4)	





ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION (1)

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO...

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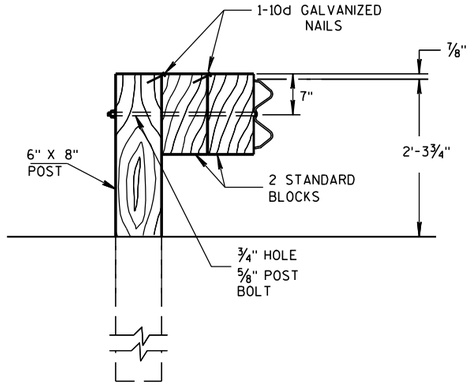
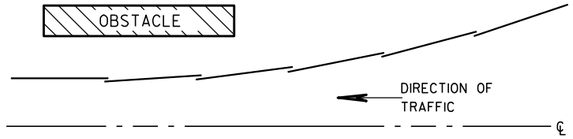
S.D.D. 14 B 15-7b

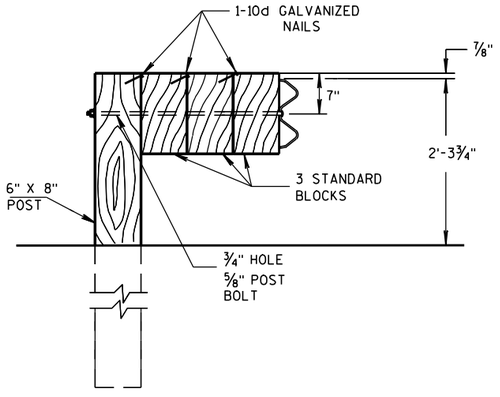


DETAIL FOR DOUBLE BLOCKS

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

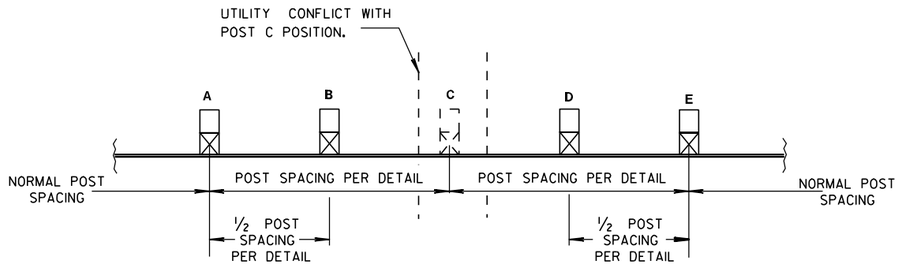


PLAN VIEW
BEAM LAPPING DETAIL



DETAIL FOR TRIPLE BLOCKS

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



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION

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

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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

5/23/11	/S/ Jerry H. Zogg	
DATE	ROADWAY STANDARDS ENGINEER	ENT

FHWA

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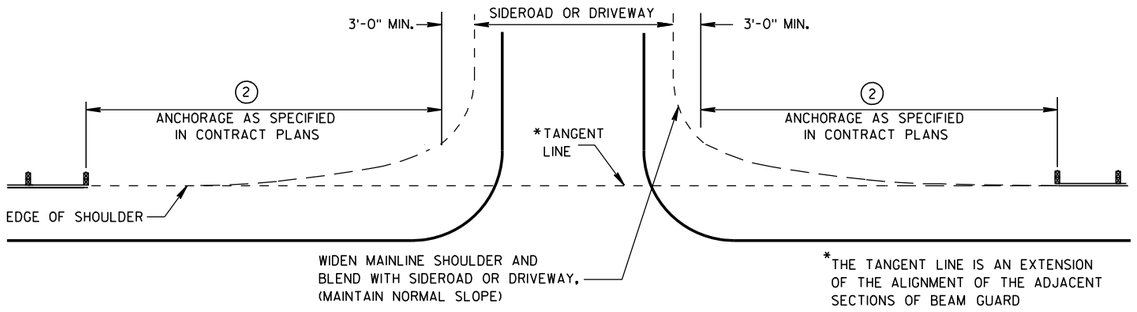
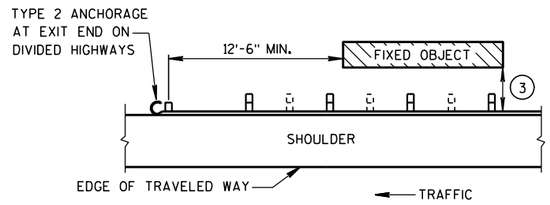
S.D.D. 14 B 15-7c



BEAM GUARD AT SIDEROADS OR DRIVEWAYS



BEAM GUARD AT OBSTACLES EXIT END - ONE WAY TRAFFIC

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE PERTINENT STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

W6 X 9 OR W6 X 8.5 STEEL POSTS WITH NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POSTS WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.

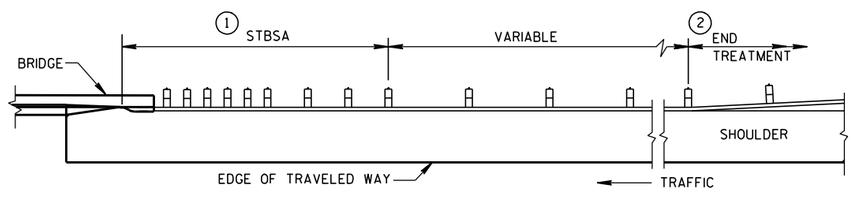
THE LOCATIONS AND LENGTHS OF BEAM GUARD ARE SHOWN ELSEWHERE IN THE PLAN.

(1) STEEL THRIE BEAM STRUCTURAL APPROACH (STBSA) - SEE CURRENT SDD 14B20.

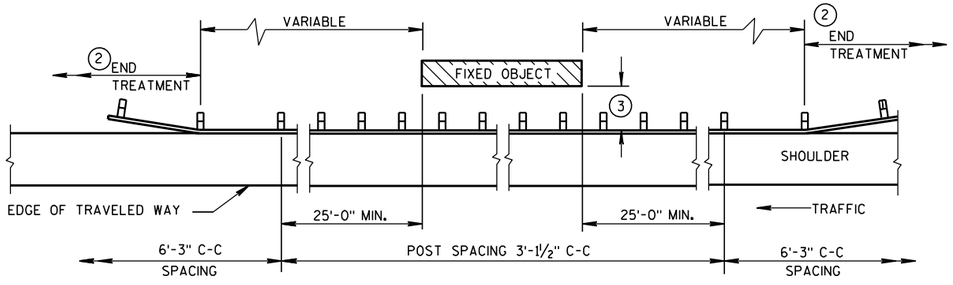
(2) USE AN APPROVED END TREATMENT FOR THE TRAFFIC APPROACH SIDE OF BRIDGE/OBSTACLES. USE TYPE 2 ANCHORAGE ONLY AT THE DOWNSTREAM ENDS OF BEAM GUARD LOCATED ALONG ROADWAYS WITH ONE WAY TRAFFIC.

(3)

MINIMUM LATERAL DISTANCE FROM FACE OF BEAM GUARD TO FIXED OBJECT	POST SPACING
3'-6"	3' - 1½"
4'-6"	6' - 3"

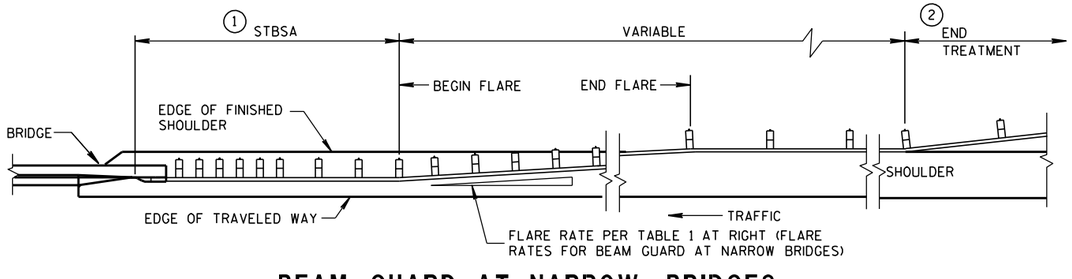


BEAM GUARD AT FULL WIDTH BRIDGES



BEAM GUARD AT OBSTACLES - TWO WAY TRAFFIC

(RAIL TO OBSTACLE CLEARANCE 3'-6" TO 4'-6")



BEAM GUARD AT NARROW BRIDGES
(FLARED TO SHOULDER EDGE, THEN PARALLEL TO ROADWAY)

TABLE 1
FLARE RATES FOR BEAM GUARD AT NARROW BRIDGES

POSTED SPEED (MPH)	FLARE RATE
25	13:1
30	15:1
35	16:1
40	18:1
45	21:1
50	24:1
55	26:1
65	30:1

STEEL PLATE BEAM GUARD CLASS "A" AT BRIDGES, OBSTACLES AND SIDEROADS/DRIVEWAYS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8-21-07 DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

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S.D.D. 14 B 18-6a

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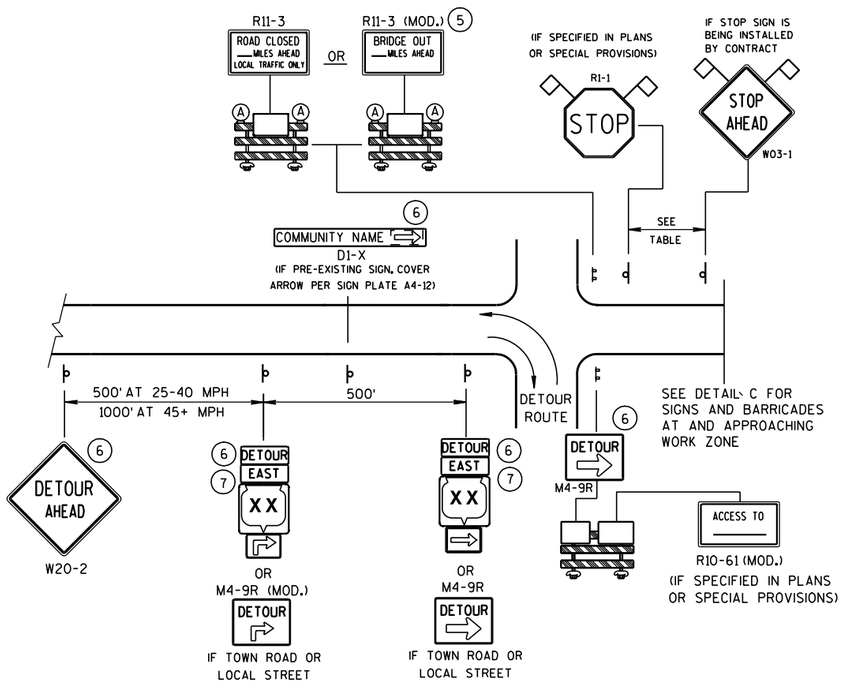
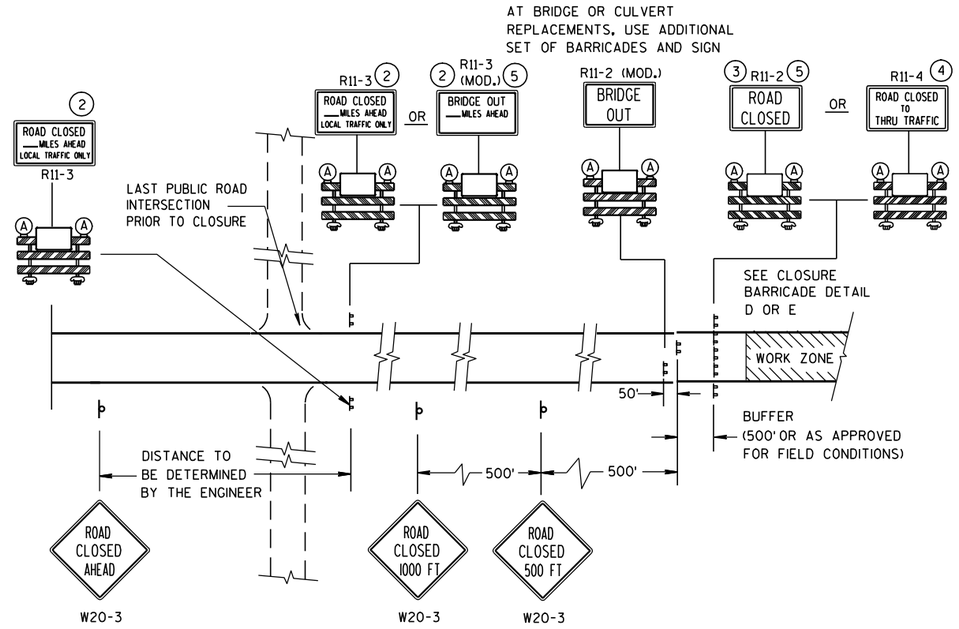
S.D.D. 14 B 18-6a



DETAIL A

MAINLINE CLOSURE WITH POSTED DETOUR

WORK ZONE GREATER THAN ½ MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)

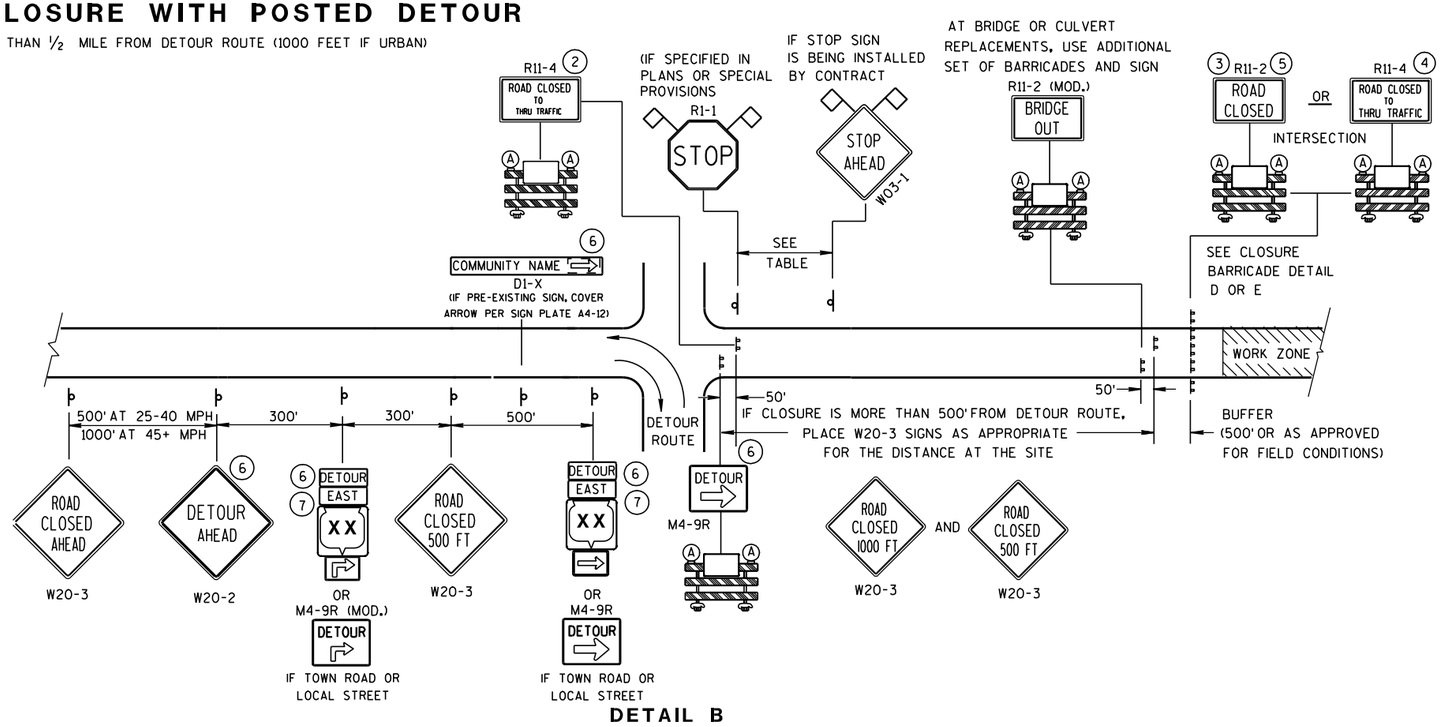


DETAIL C

MAINLINE CLOSURE, NO POSTED DETOUR

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

SEE SDD 15C2-4b
FOR GENERAL NOTES
AND FOOTNOTES (1) THROUGH (7)



DETAIL B

MAINLINE CLOSURE WITH POSTED DETOUR

WORK ZONE LESS THAN ½ MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)

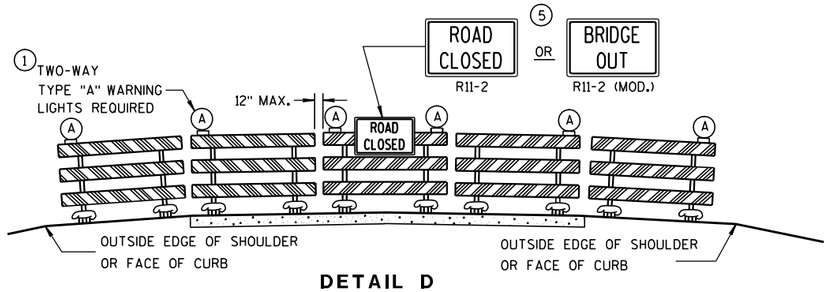
LEGEND

- POST MOUNTED SIGN
- TYPE III BARRICADES
- (A) TYPE "A" LOW INTENSITY FLASHING WARNING LIGHT (FOR NIGHT USE)
- WORK ZONE
- DETOUR / EAST — M4-8 / M3-X
- XX — M1-4; COUNTY XX — M1-5A; XX — M1-6
- M05-1; M06-1
- FLAGS, 16" X 16" MIN., (ORANGE)

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

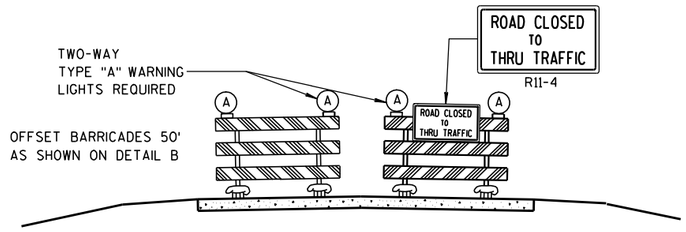
6
S.D.D. 15 C 2-4a



DETAIL D

ROAD CLOSURE BARRICADE DETAIL

APPROACH VIEW



DETAIL E

LANE CLOSURE BARRICADE DETAIL

APPROACH VIEW

SEE SDD 15C2-4a FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

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

THE REFLECTIVE SHEETING USED ON R11-2, R11-3, R11-4, R10-61 AND R1-1 SIGNS SHALL COMPLY WITH SUBSECTION 637.2.2.2 OF THE STANDARD SPECIFICATIONS.

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

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:
- R11-2 SHALL BE 48" X 30".
- R11-3, R11-4 AND R10-61 SHALL BE 60" X 30".
- M4-9 SHALL BE 30" X 24".
- M3-X AND 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.)
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.
- R1-1 SHALL BE 36" X 36".

(1) TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8-FOOT LIGHT SPACING).

(2) THESE SIGNS AND BARRICADES ARE NOT REQUIRED IF ROAD CLOSURE BEGINS AT INTERSECTION.

(3) FOR ROAD CLOSURE WITHOUT LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL D.

(4) FOR ROAD CLOSURE WITH LOCAL ACCESS TO PROJECT, SEE LANE CLOSURE BARRICADE DETAIL E.

(5) FOR BRIDGE OR CULVERT REPLACEMENTS, SUBSTITUTE "BRIDGE OUT" INSTEAD OF "ROAD CLOSED" ON R11-2 AND R11-3 SIGNS.

(6) INSTALL DETOUR AND COMMUNITY GUIDE SIGNS AND ARROWS ONLY IF SPECIFIED IN THE CONTRACT. IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. MODIFY EXISTING SIGNS WHERE POSSIBLE. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. IF DETOUR SIGNS ARE BEING INSTALLED BY OTHERS, PLACE THE CONTRACTED TRAFFIC CONTROL SIGNS TO ALLOW FOR PLACEMENT OF ALL WARNING, DETOUR AND GUIDE SIGNS AS SHOWN.

(7) "EAST" CARDINAL DIRECTION MARKERS AND RIGHT TURN ARROWS ARE SHOWN. USE OTHER CARDINAL DIRECTIONS AND ARROWS AS APPROPRIATE.

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

9/16/03 — DATE

/S/ Thomas N. N[illegible] — CHIEF SIGNS AND MAR[illegible]INEER

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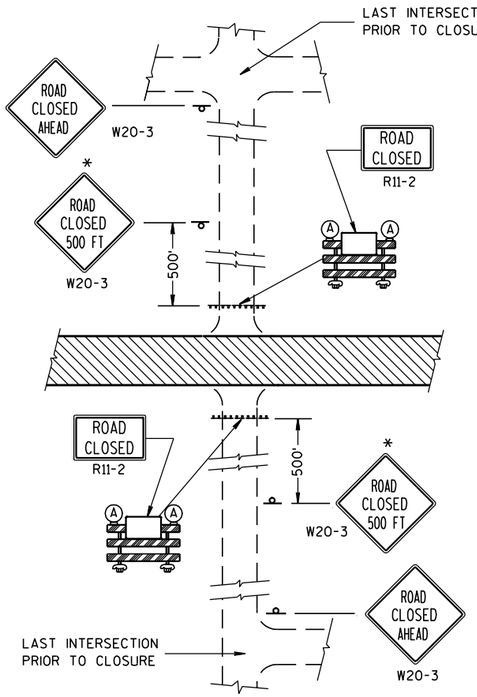
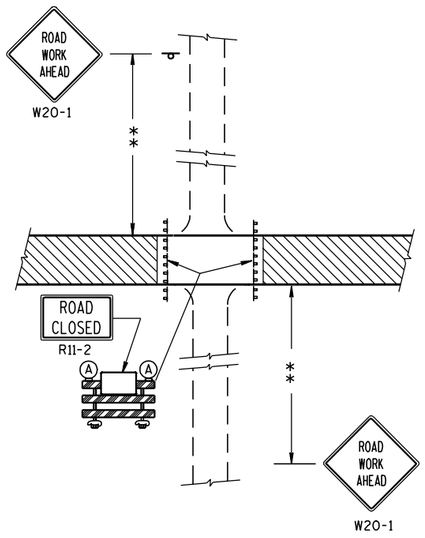
S.D.D. 15 C 2-4b



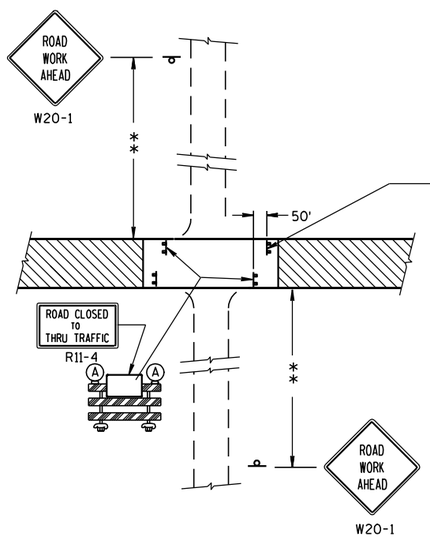
DETAIL 1

(NO ACCESS TO PROJECT)



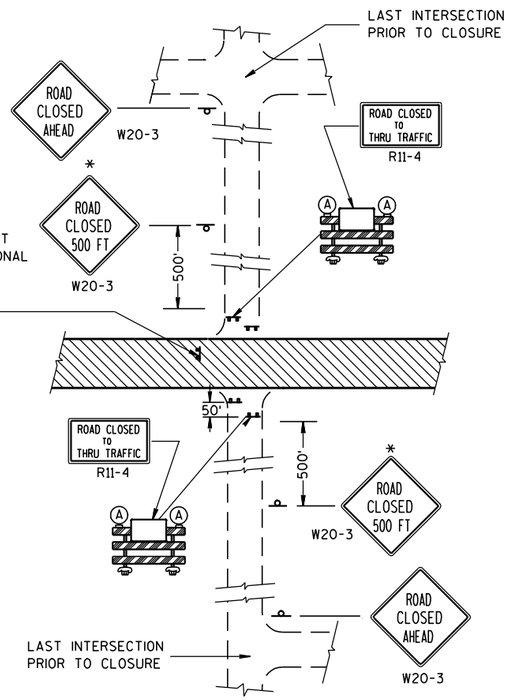
DETAIL 2

(PUBLIC CROSS-TRAFFIC MAINTAINED. NO ACCESS TO PROJECT).



DETAIL 3

(PUBLIC CROSS-TRAFFIC MAINTAINED. CONTRACTOR, LOCAL BUSINESS AND RESIDENT ACCESS).



DETAIL 4

(CONTRACTOR, LOCAL BUSINESS AND RESIDENT ACCESS TO PROJECT)

GENERAL NOTES

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

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

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

IF A "STOP" SIGN MUST BE REMOVED FOR A WORK OPERATION, A TEMPORARY "STOP" SIGN SHALL BE PLACED PRIOR TO THE SIGN REMOVAL, OR A FLAGGER SHALL BE PROVIDED UNTIL THE SIGN IS RE-ESTABLISHED.

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

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

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

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

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

THE REFLECTIVE SHEETING USED ON R11-2, R11-3 AND R11-4 SIGNS SHALL COMPLY WITH SUBSECTION 637.2.2.2 OF THE STANDARD SPECIFICATIONS.

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:
R11-2 SHALL BE 48" X 30".
R11-4 AND R11-3 SHALL BE 60" X 30".

*OMIT THE "ROAD CLOSED 500 FT." SIGN IF THE LAST INTERSECTION IS 500 FT. OR LESS FROM THE WORK ZONE.

**500' MAX. OR AT LAST INTERSECTION WHICHEVER IS CLOSER.

LEGEND

- POST MOUNTED WARNING SIGN
- TYPE III BARRICADES
- (A) TYPE "A" LOW INTENSITY FLASHING WARNING LIGHT (FOR NIGHT USE)
- WORK AREA

BARRICADES AND SIGNS FOR SIDEROAD CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

9-16-03 DATE

/S/ Thomas N. N[illegible] INEER
CHIEF SIGNS AND MAR

FHWA

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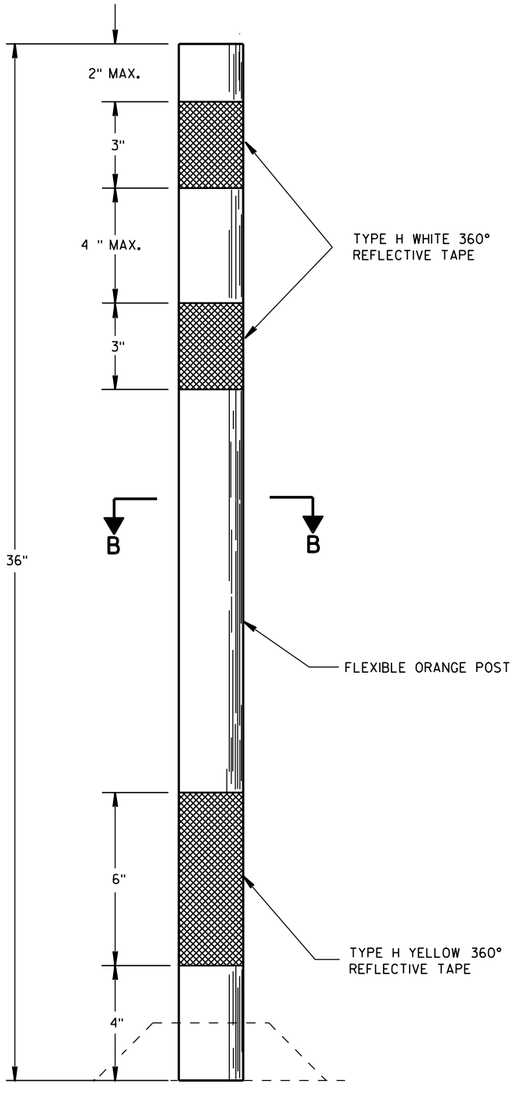
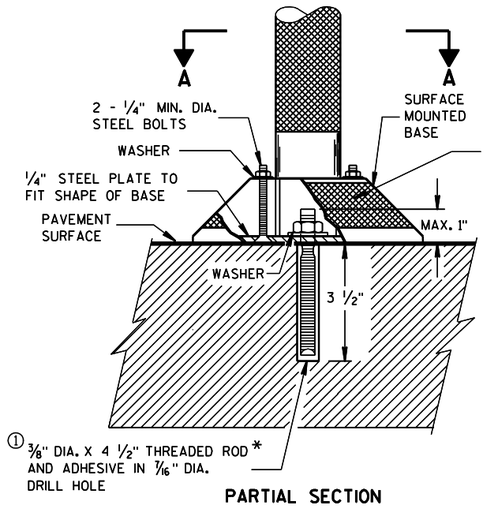
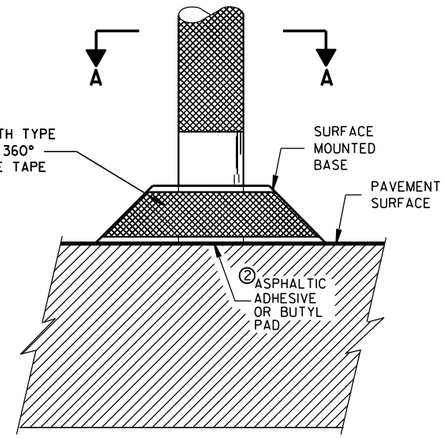


FLEXIBLE TUBULAR MARKER POST



PARTIAL SECTION TO SHOW BOLTS



POST BASES ON NEW OR EXISTING PAVEMENT

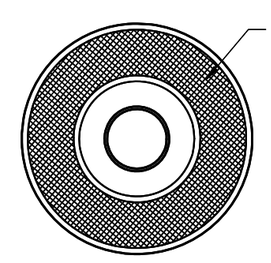
GENERAL NOTES

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.

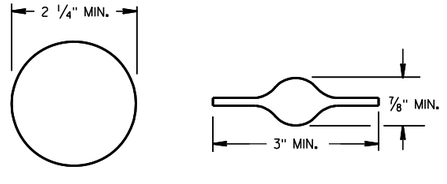
① THREADED ROD SHALL BE MACHINED DOWN TO 0.280 INCH DIA. 1 1/4 INCHES FROM THE TOP.

② THE ASPHALTIC ADHESIVE OR BUTYL PAD FURNISHED SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.



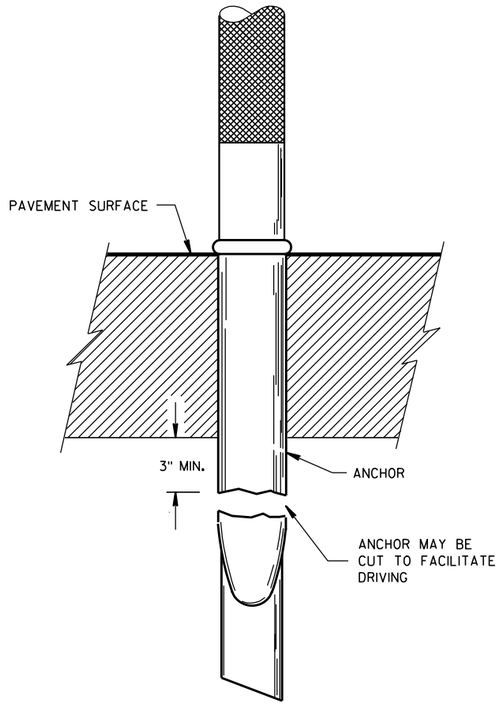
SECTION A-A

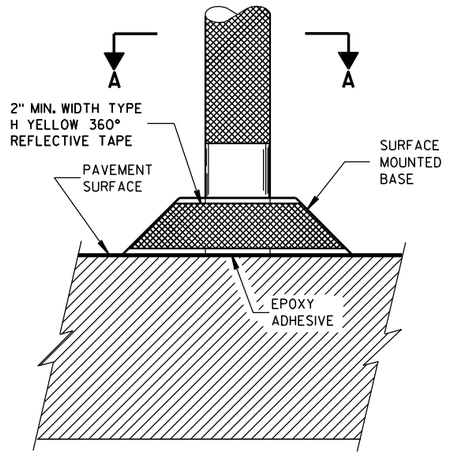
SURFACE MOUNTED BASE



SECTION B-B

ALTERNATIVE SHAPES





POST ANCHOR AND BASE ON PAVEMENT WHICH WILL BE REMOVED

FLEXIBLE TUBULAR MARKER POST, ANCHOR & BASES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

2/17/94 DATE

/S/ Chester J. [illegible] DIRECTOR, OFFICE O

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S.D.D. 15 C 11-5

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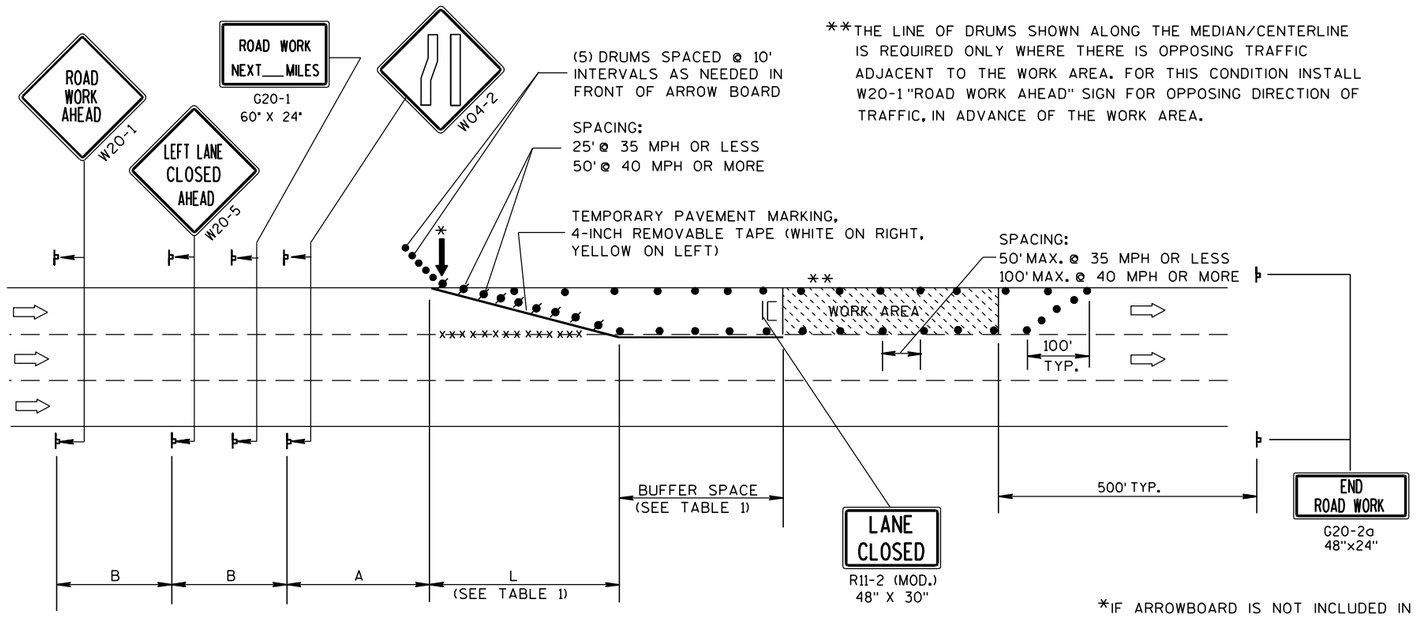
S.D.D. 15 C 11-5



**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"

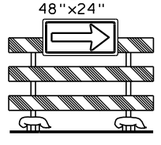


TABLE 1
TAPER AND BUFFER SPACE FOR 12' LANE WIDTH

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

- DRUM WITH/WITHOUT WARNING LIGHT, TYPE C (STEADY-BURN)
- POST MOUNTED SIGN
- ARROW BOARD
- TYPE III BARRICADE (8' EQUIVALENT) AND WARNING LIGHTS, TYPE A (FLASHING) WITH/WITHOUT SIGN
- DIRECTION OF TRAFFIC FLOW
- xxxx REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)

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 7 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
5/23/00 DATE
/S/ Chester J. [illegible]
CHIEF SIGNS AND MARK[illegible] ENGINEER
FHWA

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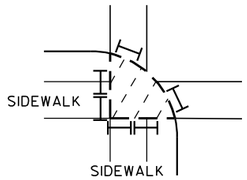
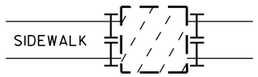
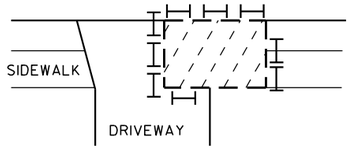
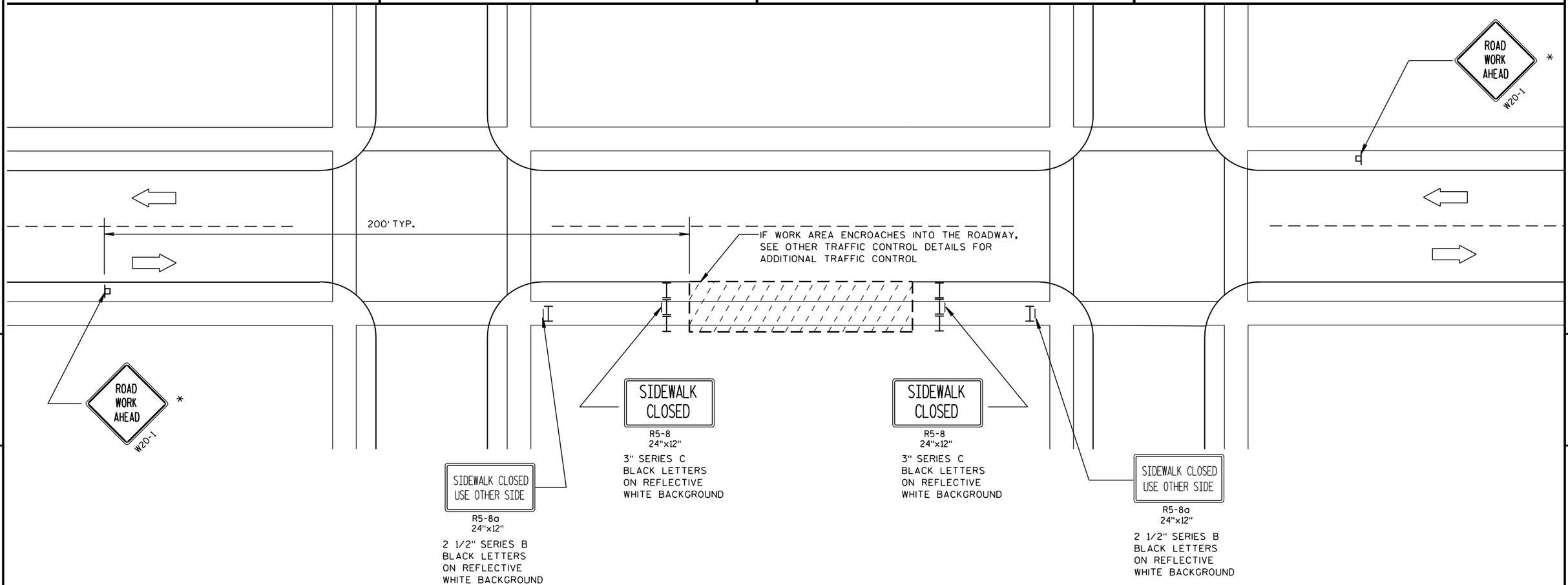
WARNING OF LOCALIZED SIDEWALK WORK AREAS









LEGEND

- POST MOUNTED SIGN
- TYPE II BARRICADE WITH/WITHOUT SIGN (ALL WITH ONE WARNING LIGHT, TYPE A, LOW-INTENSITY FLASHING)
- WORK AREA
- DIRECTION OF TRAFFIC FLOW

GENERAL NOTES :

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS, 36"x36" SIGNS MAY BE USED INSTEAD OF 48"x48" SIGNS, IF APPROVED BY DISTRICT TRAFFIC UNIT.

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

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

* "ROAD WORK AHEAD" SIGNS ARE NOT REQUIRED IF THE SIDEWALK CLOSURE OCCURS WITHIN A LARGER WORK ZONE WHERE ADVANCE WARNING SIGNS ARE ALREADY PRESENT, OR IF THE WORK AREA AND EQUIPMENT ARE MORE THAN 2 FEET BEHIND THE CURB.

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

TRAFFIC CONTROL, SIDEWALK CLOSURE

TRAFFIC CONTROL, SIDEWALK CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
5/23/2000 DATE
/S/ Chester J. [illegible]
CHIEF SIGNS AND MARK[illegible] [illegible]NEER
FHWA

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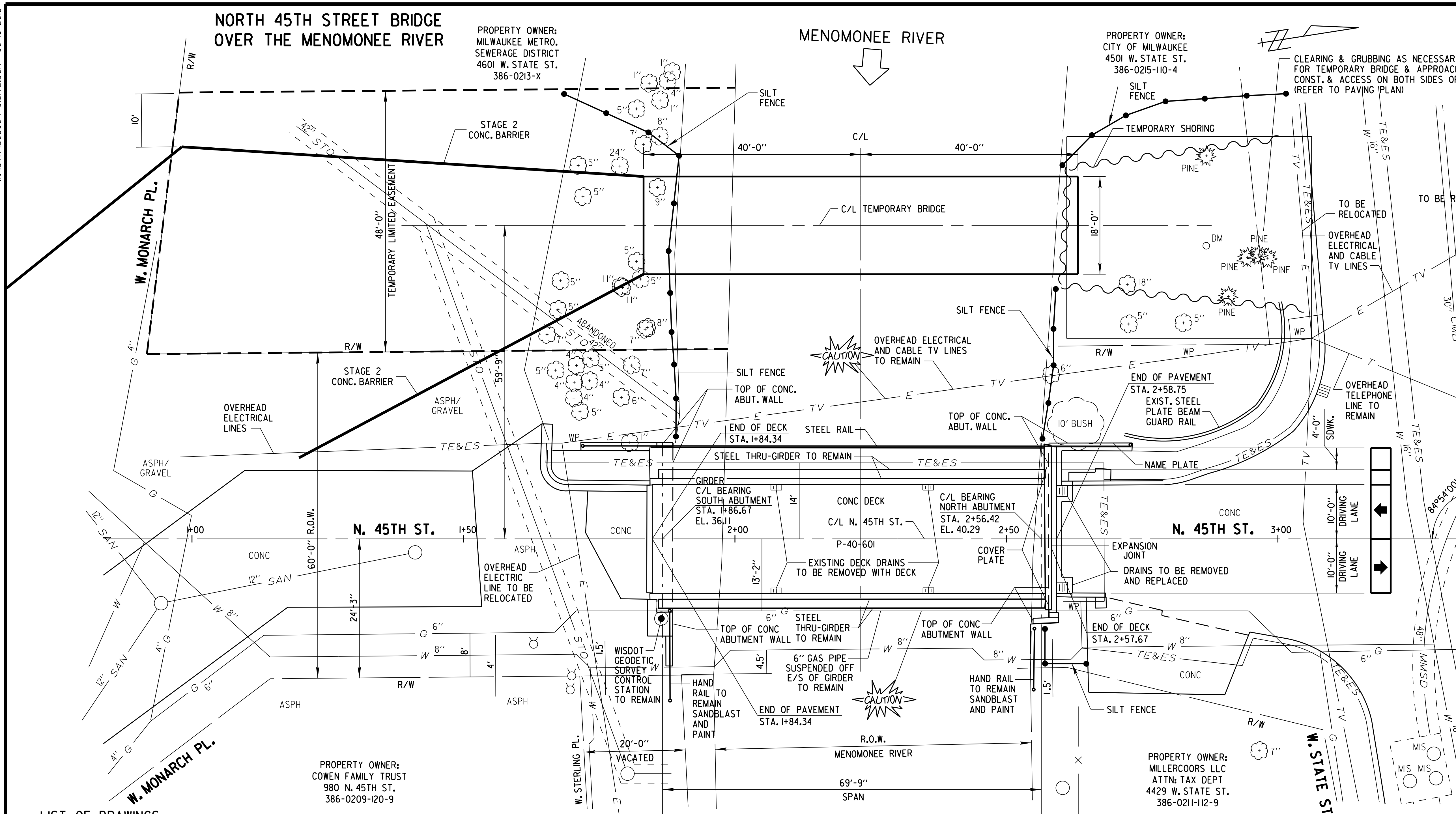
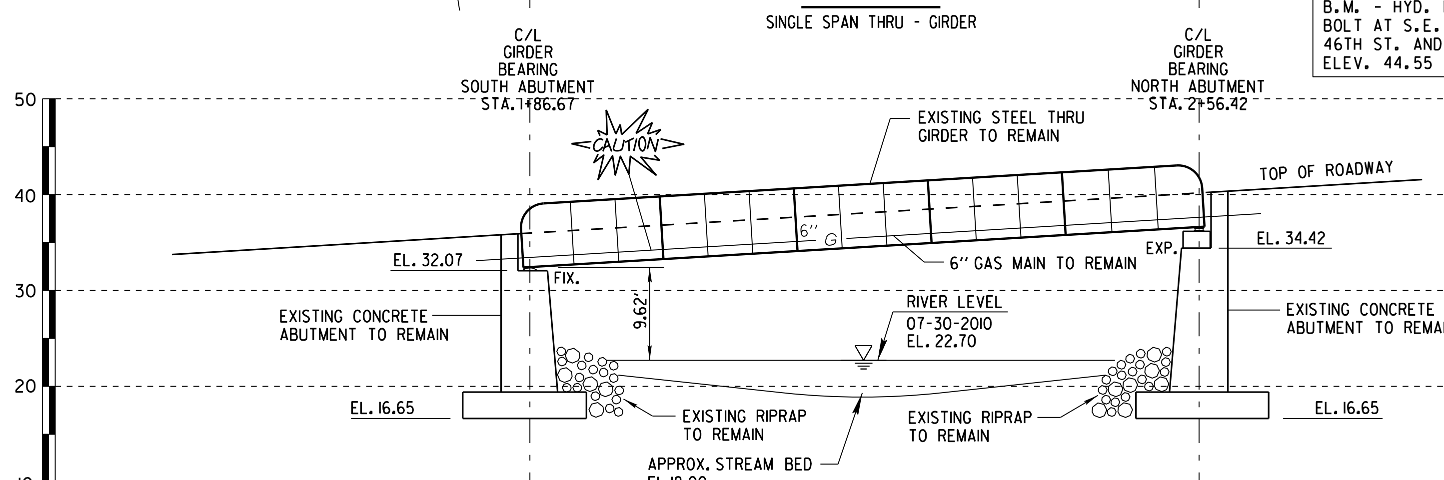
STATE PROJECT NUMBER
2984 - 39 - 72

NORTH 45TH STREET BRIDGE OVER THE MENOMONEE RIVER



PLAN VIEW

SINGLE SPAN THRU - GIRDER



EAST ELEVATION

LOOKING WEST

LIST OF DRAWINGS

1. SITE PLAN
2. CROSS SECTION AND ESTIMATE OF QUANTITIES
3. DECK PLAN
4. DECK CROSS SECTION
5. DECK BILL OF BARS
6. DECK GRADES
7. SOUTH ABUTMENT PLAN AND ELEVATION
8. SOUTH ABUTMENT DETAILS
9. NORTH ABUTMENT PLAN AND ELEVATION
10. NORTH ABUTMENT DETAILS
11. NORTH ABUTMENT DETAILS
12. GIRDER BEARING DETAILS
13. STRINGER BEARING DETAILS
14. WING WALL DETAILS
15. SIDEWALK DETAILS
16. RAILING LAYOUT PLAN
17. PEDESTRIAN RAILING DETAILS
18. TUBULAR TYPE 'F' RAILING DETAILS
19. STRIP SEAL EXPANSION JOINT DETAILS
20. TEMPORARY BRIDGE PLAN
21. TEMPORARY BRIDGE SUBSURFACE EXPLORATION

B.M. - HYD. N.W. FLANGE BOLT AT S.E. CORNER OF N. 46TH ST. AND W. STATE ST. ELEV. 44.55

CONSULTANT CONTACT:
CRAIG LIBERTO 414-286-3294
CITY OF MILWAUKEE

WISDOT CONTACT:
WILLIAM DREHER 608-266-8489

WISCONSIN PROFESSIONAL ENGINEER
CRAIG S. LIBERTO
E-23746
MILWAUKEE WIS.
Craig S. Liberto 8/29/13

NO.	DATE	REVISION	BY

ORIGINAL PLANS PREPARED BY CITY OF MILWAUKEE DEPARTMENT OF PUBLIC WORKS INFRASTRUCTURE SERVICES DIVISION

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher KAR 11/27/13
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE P-40-601

N. 45TH ST. OVER MENOMONEE RIVER

COUNTY	MILWAUKEE	~~TOWN~~/CITY/~~VILLAGE~~	MILWAUKEE
DESIGN SPEC.	REHABILITATION	N/A	
DESIGNED BY H.J.R.	DESIGN CK'D. J.J.K.	DRAWN BY K.P.S.	PLANS CK'D. J.J.K.

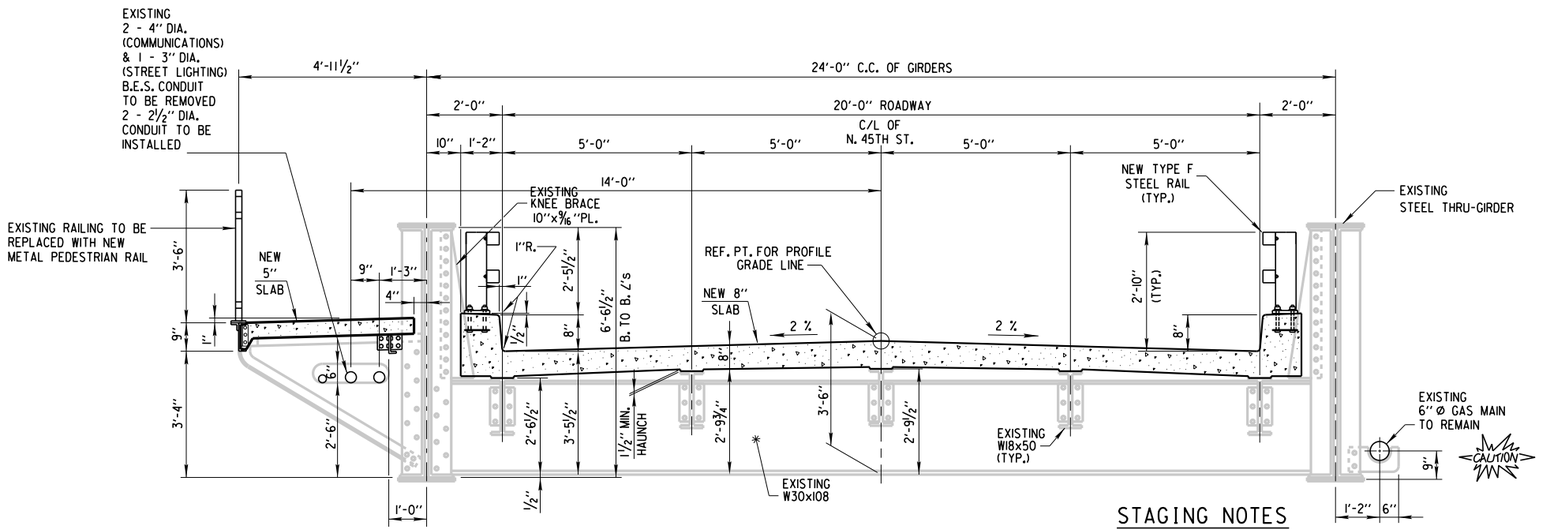
SITE PLAN — SHEET 1 OF 21

8

W:\STR\B0309\02ELEV.DGN 08-16-2013

STATE PROJECT NUMBER

2984 - 39 - 72



CROSS SECTION THRU BRIDGE LOOKING NORTH

TRAFFIC VOLUME

ADT (2014) = 270 VPD
ADT (2034) = 300 VPD
RDS = 25 MPH

DESIGN DATA

DEAD LOAD

CONCRETE = 150 LB/CF
FWS = 20 LB/SF
TRAFFIC RAILING = 37 LB/LF
PEDESTRIAN RAILING = 40 LB/LF

LIVE LOAD

DESIGN RATING : HS20
INVENTORY RATING : HS30
OPERATING RATING : HS50
MAX. STD. PERMIT VEHICLE LOAD = 190 KIPS

ULTIMATE DESIGN STRESSES

CONCRETE MASONRY (DECK SLAB)	f'c = 4,000 PSI
CONCRETE MASONRY (ALL OTHERS)	f'c = 3,500 PSI
BAR STEEL REINFORCEMENT	fy = 60,000 PSI
ROLLED STEEL BEAMS/SHAPES	fy = 50,000 PSI

HYDRAULIC DATA

INSTANTANEOUS PEAK DISCHARGE, 100 YEAR: 14,500 CFS
VELOCITY THRU BRIDGE: 15.8 FPS
WATERWAY AREA THRU BRIDGE: 916 SF AT 10-YEAR FLOOD STAGE: 28.09
DRAINAGE AREA: 126 SQ.MI.
2-YEAR WATER SURFACE EL.: N/A
10-YEAR WATER SURFACE EL.: 28.09
100-YEAR WATER SURFACE EL.: 36.12
REGULATORY FLOOD STAGE (PER 2008 FIS): 35.90

PROJECT IMPROVEMENTS (PROPOSED)

-ABUTMENTS:
  SURFACE REPAIRS, BACKWALL REPLACEMENT
-BRIDGE DECK, SIDEWALK, EXPANSION JOINTS AND PEDESTRIAN RAILING:
  REPLACEMENT
-STEEL SUPERSTRUCTURE:
  SAND BLASTING AND PAINTING, REPLACE SPECIFIED STEEL MEMBERS AT SIDEWALK, HEAT STRAIGHTENING, SHEAR STUDS
-BEARING ASSEMBLIES:
  SANDBLAST AND PAINT AT SOUTH, INSTALL NEW ELASTOMERIC BEARINGS AT NORTH.
-TYPE F RAIL:
  INSTALL NEW.
-CONCRETE STAINING

STAGING NOTES

STAGE 1- CONSTRUCT AND OPEN TEMPORARY BRIDGE TO TRAFFIC

STAGE 2 - TRAFFIC REROUTED TO TEMPORARY BRIDGE AND REHABILITATE EXISTING NORTH 45TH STREET BRIDGE

GENERAL NOTES

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

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

CONCRETE EXPANSION BOLTS AND INSERTS TO BE FURNISHED AND PLACED BY THE CONTRACTOR UNDER BID PRICE FOR CONCRETE MASONRY.

EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE SHALL BE PAID FOR IN THE LUMP SUM PRICE BID AS "EXPANSION DEVICE (P-40-601)".

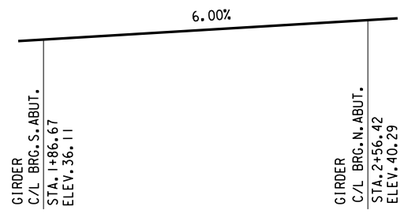
VARIATIONS TO THE NEW GRADE LINE OVER ¼" MUST BE SUBMITTED BY THE FIELD ENGINEER TO THE STRUCTURES DESIGN SECTION FOR REVIEW.

THE CONTRACTOR SHALL SUPPLY A NEW NAME PLATE IN ACCORDANCE WITH SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS AND THE STANDARD DETAIL DRAWINGS. NAME PLATE TO SHOW ORIGINAL CONSTRUCTION YEAR.

ALL CONCRETE REMOVAL NOT COVERED WITH A CONCRETE OVERLAY SHALL BE DEFINED BY A 1-INCH DEEP SAW CUT.

ALL EXISTING STEEL SHALL BE SANDBLASTED AND PAINTED UNDER BID ITEMS 517.0900.S "PREPARATION AND COATING OF TOP FLANGE", 517.1800.S "STRUCTURE REPAINTING RECYCLED ABRASIVE (STRUCTURE P-40-601)" AND 517.4500.S "NEGATIVE PRESSURE CONTAINMENT AND COLLECTION OF WASTE MATERIALS (P-40-601)."

CONCRETE STAIN COLOR SHALL MATCH SHERWIN-WILLIAMS 'SW 6143 BASKET BEIGE', PENDING ENGINEER'S APPROVAL OF 48" X 48" SAMPLE.



PROFILE GRADE LINE
ALONG C/L OF N. 45TH ST.

GENERAL NOTES CONT.

ALL DETAILS, MATERIALS AND FABRICATION SHALL CONFORM TO THE STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION OF THE STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION EDITION OF 2014 EXCEPT AS OTHERWISE NOTED.

ALL STATIONS AND ALL ELEVATIONS ARE IN FEET.

ALL ELEVATIONS ARE REFERRED TO CITY OF MILWAUKEE DATUM = 580.60 NGVD.

DRAWINGS SHALL NOT BE SCALED.

BEVEL EXPOSED EDGES OF CONCRETE 1" UNLESS OTHERWISE NOTED.

BENDING DIMENSIONS FOR REINFORCING BARS ARE OUT TO OUT.

ALL REINFORCING BARS ARE ENGLISH AND THE FIRST OR FIRST TWO DIGITS OF A BAR MARK SIGNIFIES THE SIZE OF THE BAR.

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

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

JOINT FILLER SHALL CONFORM TO AASHTO DESIGNATION M153 TYPE I, II, OR III, OR AASHTO DESIGNATION M213.

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.

ESTIMATED QUANTITIES

ITEM NO.	BID ITEM	UNIT	SUB-STRUCTURE	SUPER-STRUCTURE	TEMPORARY STRUCTURE	TOTAL
203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STATION 2+23.17	LS		1		1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES (P-40-601)	LS	1			1
206.6000.S	TEMPORARY SHORING	SF			840	840
210.0100	BACKFILL STRUCTURE	CY	43			43
502.0100	CONCRETE MASONRY BRIDGES	CY	10	54		64
502.3100	EXPANSION DEVICE (P-40-601)	LS	1			1
502.3200	PROTECTIVE SURFACE TREATMENT	SY		231		231
502.5005	MASONRY ANCHOR TYPE 'L' NO. 5 BARS	EA	140			140
505.0605	BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	1,972	9,872		11,844
506.0105	STRUCTURAL CARBON STEEL	LB	2,265			2,265
506.3015	WELDED STUD SHEAR CONNECTORS ⅞X6-INCH	EACH		886		886
506.3025	WELDED STUD SHEAR CONNECTORS ⅞X8-INCH	EACH		252		252
509.1500	CONCRETE SURFACE REPAIR	SF	230			230
513.4050	RAILING TUBULAR TYPE F (P-40-601)	LS		1		1
516.0100	DAMPPROOFING	SY	30			30
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	12			12
517.0600	PAINTING EPOXY SYSTEM (P-40-601)	LS		1		1
517.0900.S	PREPARATION AND COATING OF TOP FLANGES (P-40-601)	LS		1		1
517.1010.S	CONCRETE STAINING (P-40-601)	SF	1,050			1,050
517.1800.S	STRUCTURE REPAINTING RECYCLED ABRASIVE (P-40-601)	LS		1		1
517.4500.S	NEGATIVE PRESSURE CONTAINMENT AND COLLECTION OF WASTE MATERIALS (P-40-601)	LS		1		1
517.6001.S	PORTABLE DECONTAMINATION FACILITY	EACH		1		1
526.0100	TEMPORARY STRUCTURE STATION 2+23.17	LS			1	1
652.0230	CONDUIT RIGID NONMETALLIC SCHEDULE 40 2 1/2-INCH	LF		164		164
SPV.0060	GIRDER BEARING REPLACEMENT (P-40-601)	EACH		2		2
SPV.0060	STRINGER BEARING REPLACEMENT (P-40-601)	EACH		5		5
SPV.0105	FLOOR BEAM STRAIGHTENING	LS		1		1
SPV.0105	RAILING STEEL SPECIAL GALVANIZED PEDESTRIAN P-40-601	LS		1		1

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE P-40-601

DRAWN BY K.P.S. | PLANS CK'D. H.J.R. J.J.K.

CROSS SECTION AND ESTIMATE OF QUANTITIES

SHEET 8 OF 21

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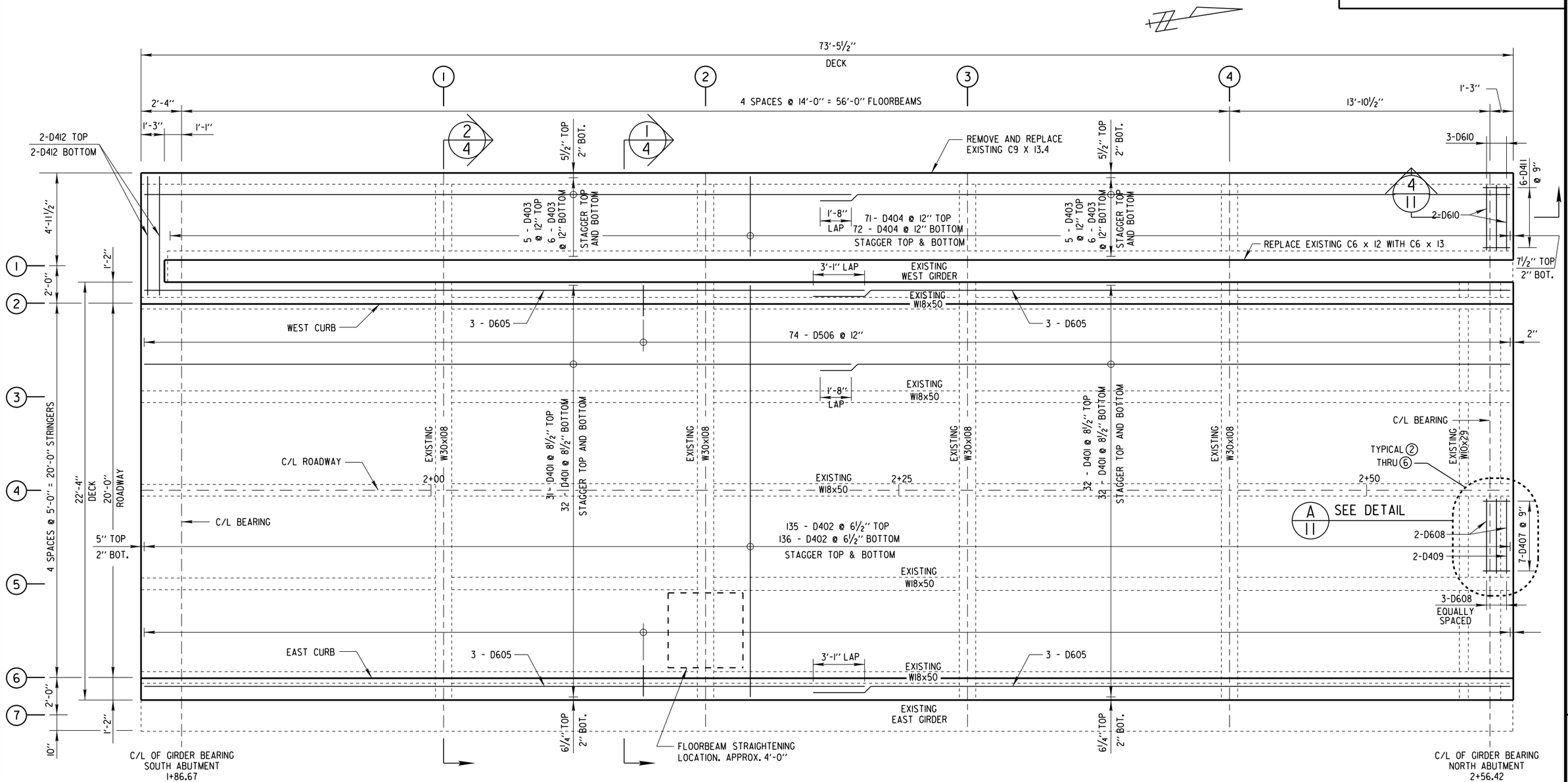
W:\STR\80309\ 03DECK.DGN 08-29-2013

STATE PROJECT NUMBER

2984 - 39 - 72



DECK PLAN

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE P-40-601

DRAWN BY	K.P.S.	PLANS CK'D.	H.J.R. J.J.K.

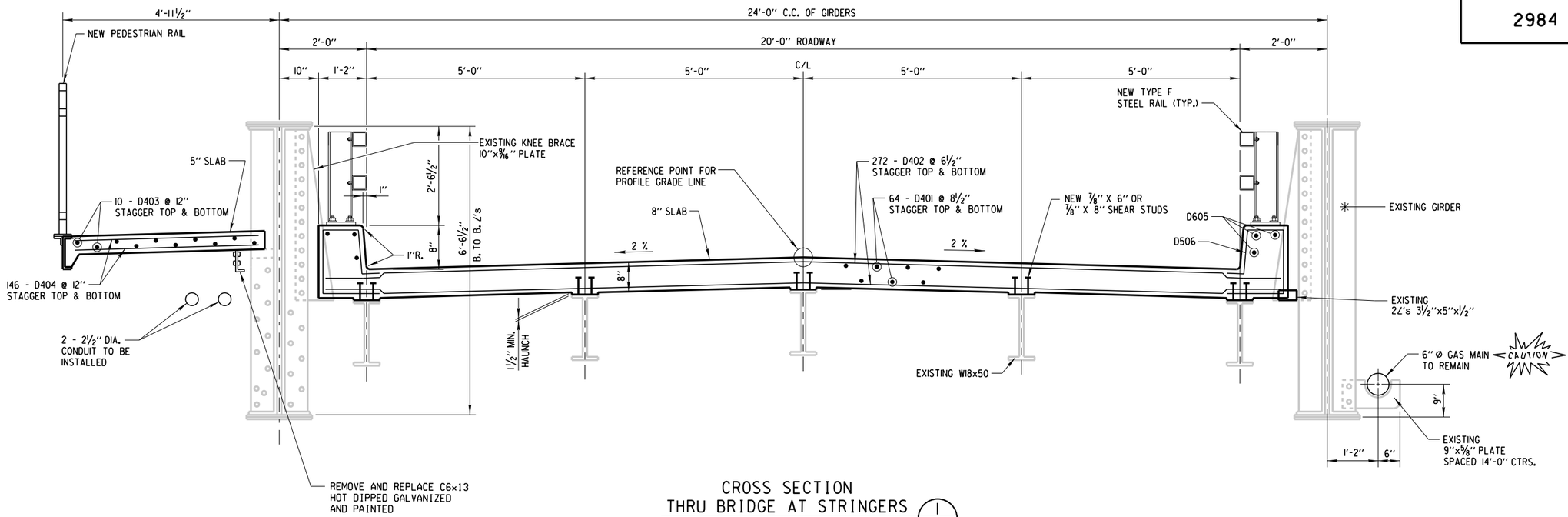
DECK PLAN

SHEET 64 OF 21

W:\STR\B0309\ 04SECTION.DGN 08-29-2013

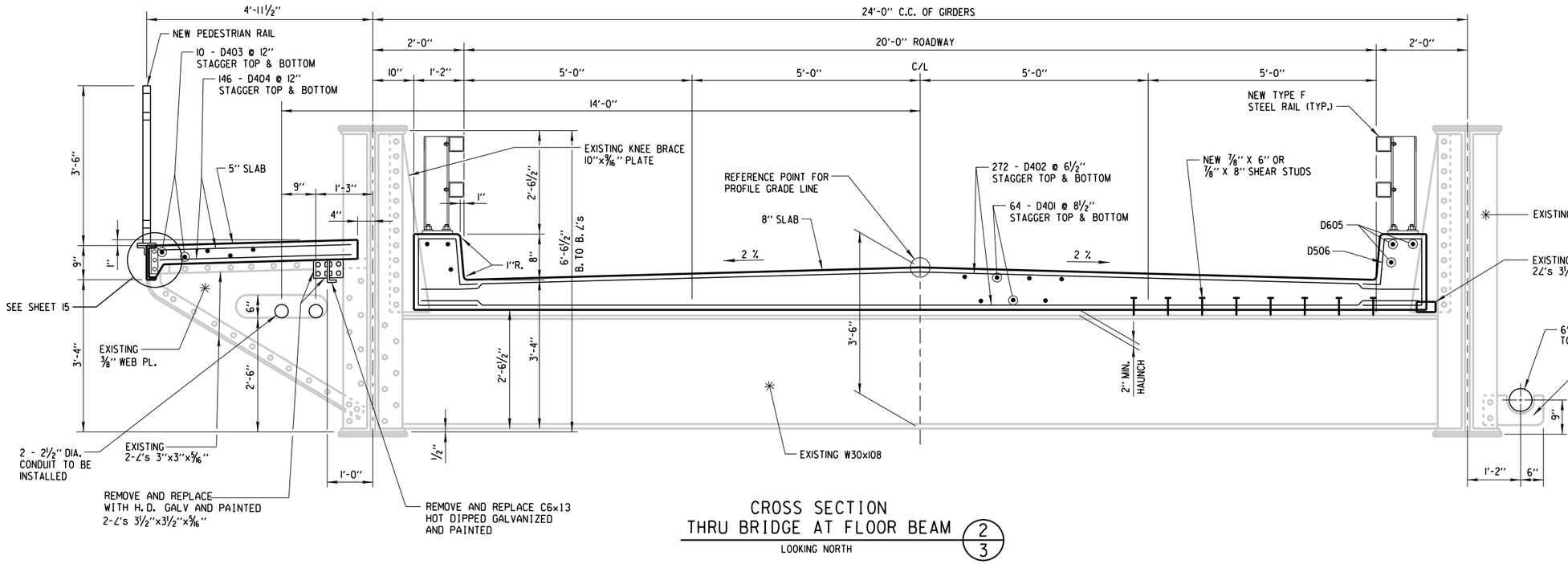
STATE PROJECT NUMBER

2984 - 39 - 72



CROSS SECTION
THRU BRIDGE AT STRINGERS (1/3)

LOOKING NORTH



CROSS SECTION
THRU BRIDGE AT FLOOR BEAM (2/3)

LOOKING NORTH

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE P-40-601

DRAWN BY K.P.S. | PLANS CK'D. H.J.R. J.J.K.

DECK CROSS SECTION

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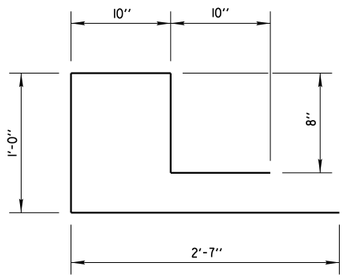
W:\STR\80309\05DECKBAR.DGN 08-29-2013

STATE PROJECT NUMBER

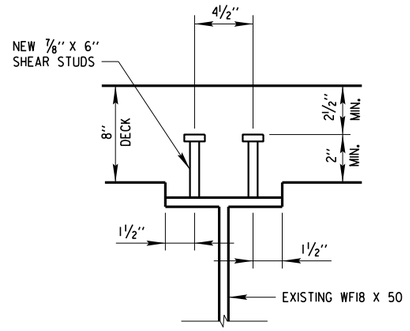
2984 - 39 - 72

BILL OF BARS - DECK

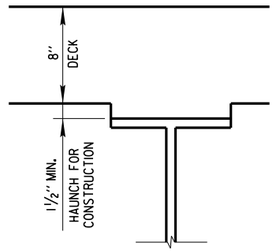
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
D401	×	126	37'-4"			DECK - LONGITUDINAL
D402	×	271	22'-0"			DECK - TRANSVERSE
D403	×	22	37'-4"			SIDEWALK - LONGITUDINAL
D404	×	143	4'-3"			SIDEWALK - TRANSVERSE
D605	×	12	38'-1"			CURB - LONGITUDINAL
D506	×	148	5'-5"	×		CURB - STIRRUPS
D407	×	28	2'-11"	×		END DIAPHRAGM
D608	×	20	4'-4"			END DIAPHRAGM
D409	×	8	5'-0"			END DIAPHRAGM
D610	×	5	4'-3"			SIDEWALK - DIAPHRAGM
D411	×	6	2'-5"	×		SIDEWALK - DIAPHRAGM
D412	×	4	6'-3"			SIDEWALK



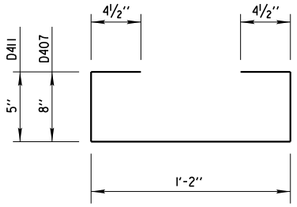
D506



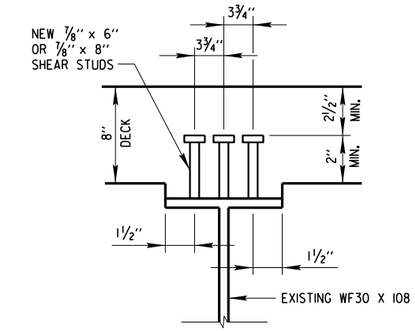
NEW SHEAR CONNECTOR DETAIL
AT STRINGERS



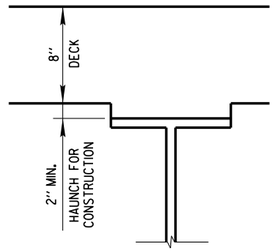
HAUNCH DETAIL
AT STRINGERS



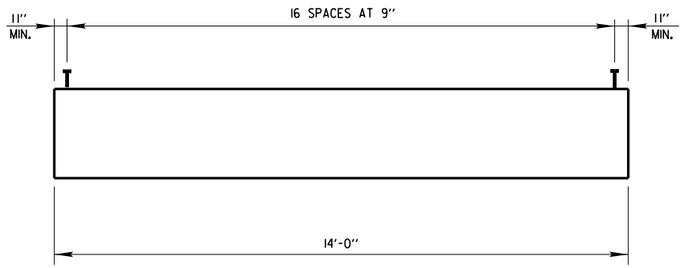
D407, D411



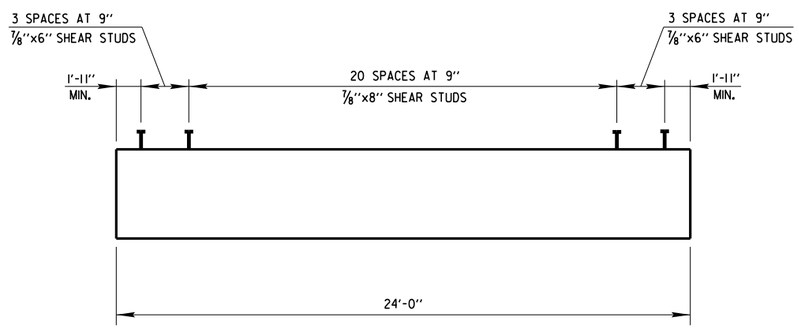
NEW SHEAR CONNECTOR DETAIL
AT FLOOR BEAMS



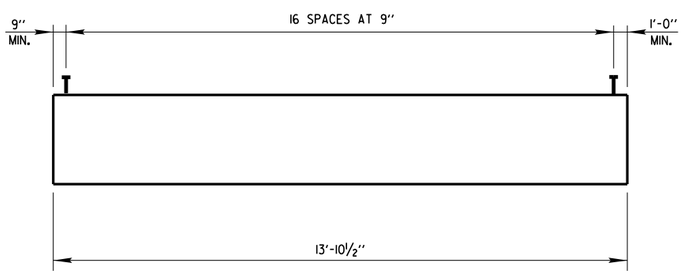
HAUNCH DETAIL
AT FLOOR BEAMS



NEW SHEAR CONNECTOR SPACING
AT 14'-0" STRINGERS



NEW SHEAR CONNECTOR SPACING
AT FLOOR BEAMS



NEW SHEAR CONNECTOR SPACING
AT 13'-10½" STRINGERS

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NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE P-40-601

DRAWN BY K.P.S. | PLANS CK'D. H.J.R. J.J.K.

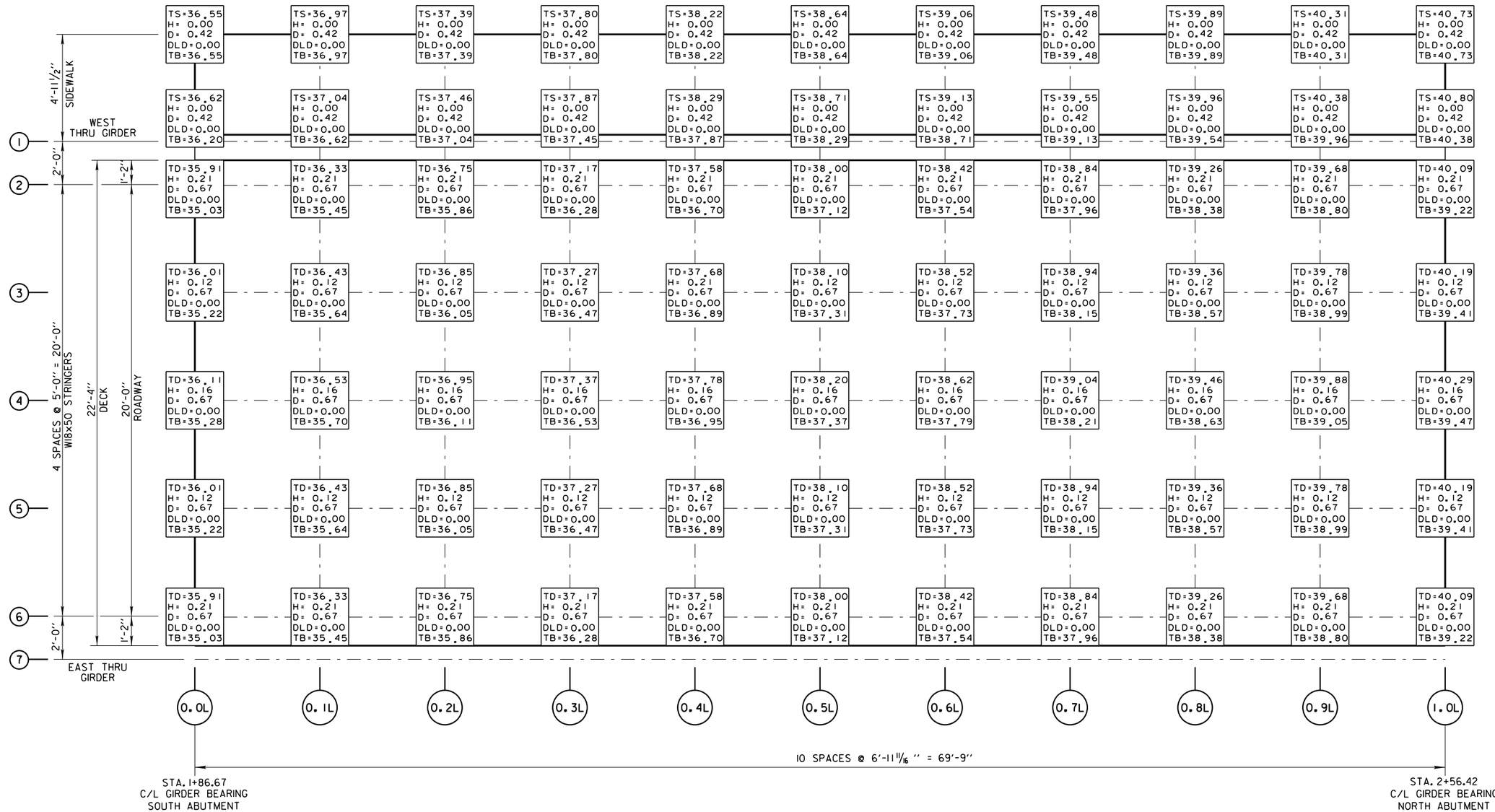
DECK
BILL OF BARS

SHEET 66 OF 21

W:\STR\B0309\ 06GRADES.DGN 08-29-2013

STATE PROJECT NUMBER

2984 - 39 - 72



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DECK GRADES

NOTES:

HAUNCH HEIGHT SHOWN IS AN ESTIMATE ONLY AND BASED ON PRELIMINARY FIELD MEASUREMENTS OF TOP OF BEAM ELEVATIONS. FINAL HAUNCH HEIGHTS WILL BE DETERMINED AFTER SHOOTING GRADES OF TOP OF BEAMS AFTER REMOVAL OF DECK.

TB GIVEN AT WEST END OF SIDEWALK IS ALONG TOP EDGE OF C9x13.4 CHANNEL SECTION.

KEY	
TS	TOP OF SIDEWALK
TD	TOP OF DECK
H	ESTIMATED HAUNCH HEIGHT
D	DECK THICKNESS
DLD	DEAD LOAD DEFLECTION
TB	ESTIMATED TOP OF BEAM

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE P-40-601

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DECK GRADES

SHEET 67 OF 21

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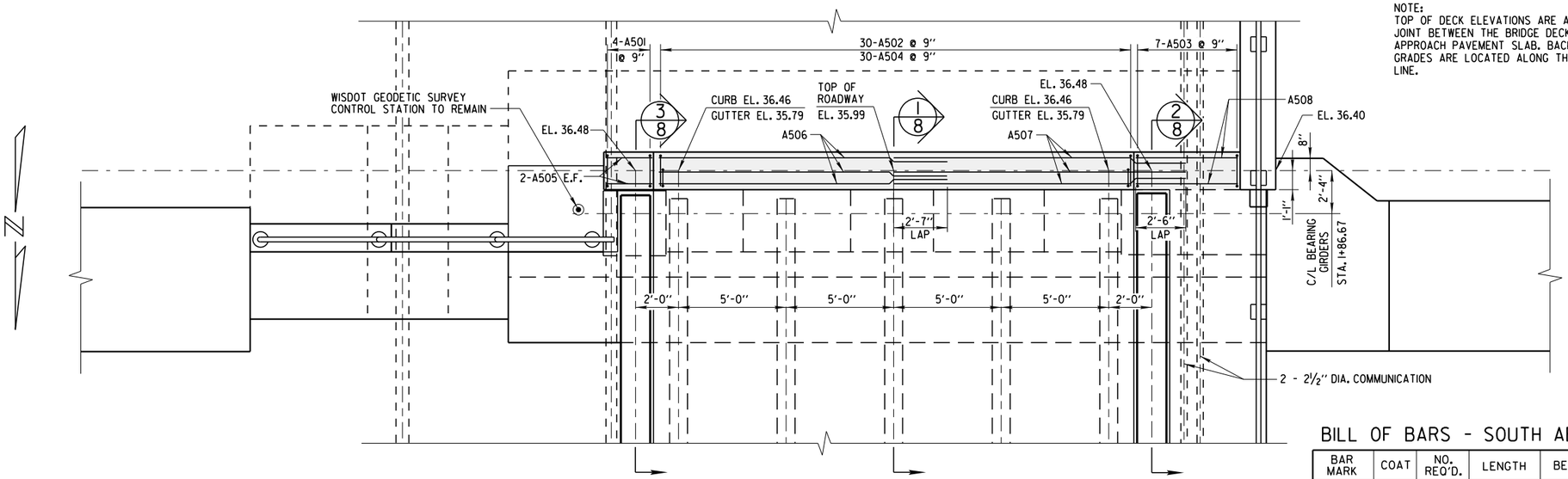
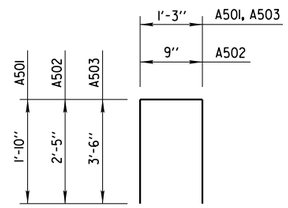
STATE PROJECT NUMBER

2984 - 39 - 72

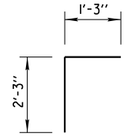


SOUTH ABUTMENT PLAN VIEW

NOTE:
TOP OF DECK ELEVATIONS ARE AT THE JOINT BETWEEN THE BRIDGE DECK AND APPROACH PAVEMENT SLAB. BACKWALL GRADES ARE LOCATED ALONG THE SAME LINE.



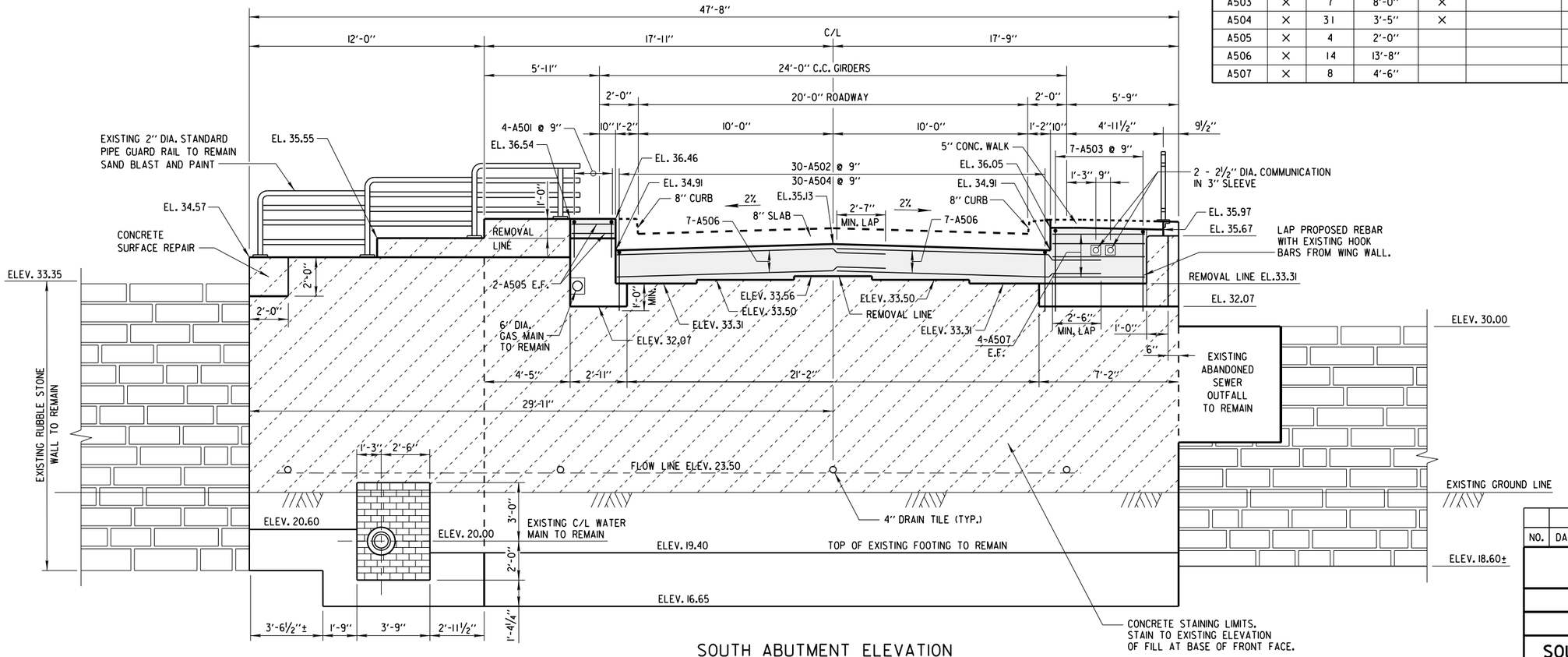
A501, A502, A503



A504

BILL OF BARS - SOUTH ABUTMENT

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
A501	×	4	4'-8''	×		BACKWALL DOWEL - EAST SIDE
A502	×	30	5'-4''	×		BACKWALL DOWEL - ROADWAY
A503	×	7	8'-0''	×		BACKWALL DOWEL - SIDEWALK
A504	×	31	3'-5''	×		BACKWALL DOWEL - PAVING NOTCH
A505	×	4	2'-0''			BACKWALL HORIZONTAL - EAST SIDE
A506	×	14	13'-8''			BACKWALL HORIZONTAL - ROADWAY
A507	×	8	4'-6''			BACKWALL HORIZONTAL - SIDEWALK



SOUTH ABUTMENT ELEVATION

LOOKING SOUTH

LEGEND

- CONCRETE SURFACE REPAIR
- CONCRETE STAINING LIMITS
- PROPOSED BACKWALL

F.F. FRONT FACE

B.F. BACK FACE

E.F. EACH FACE

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE P-40-601

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SOUTH ABUTMENT PLAN AND ELEVATION

SHEET 68 OF 21

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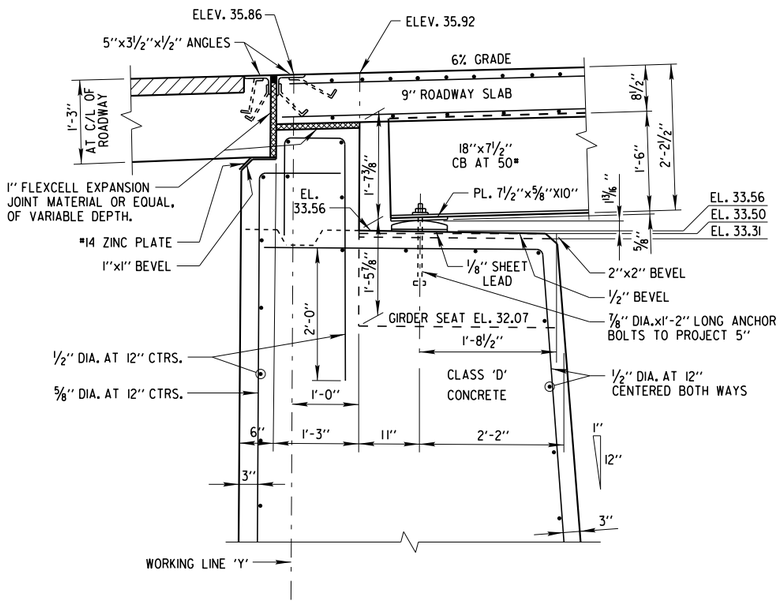
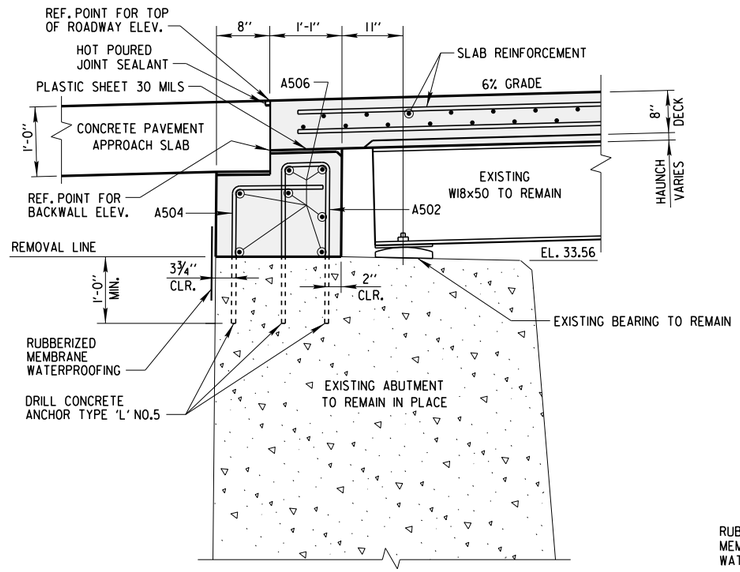
STATE PROJECT NUMBER

2984 - 39 - 72



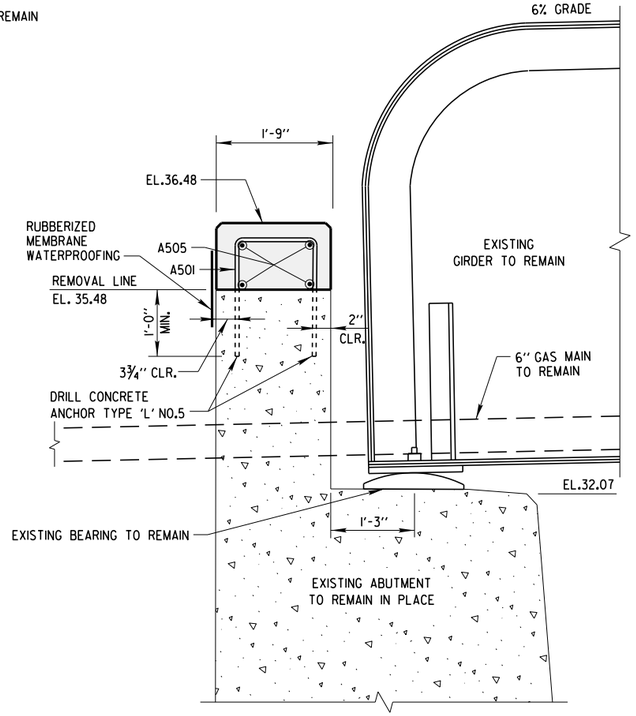
EXISTING SECTION AT C/L OF ROADWAY

SOUTH ABUTMENT



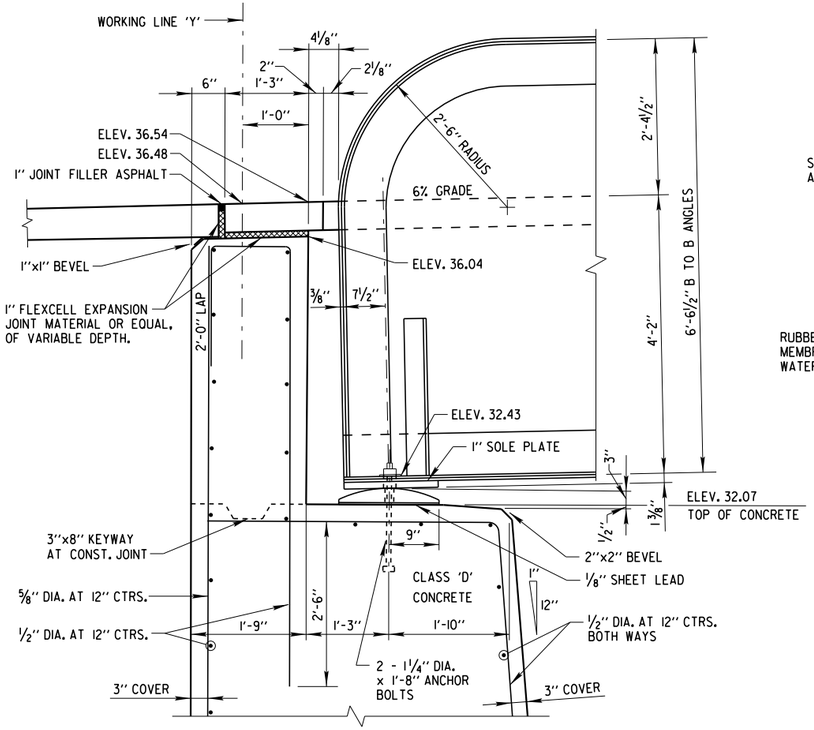
1/7 PROPOSED SECTION AT C/L OF ROADWAY

SOUTH ABUTMENT



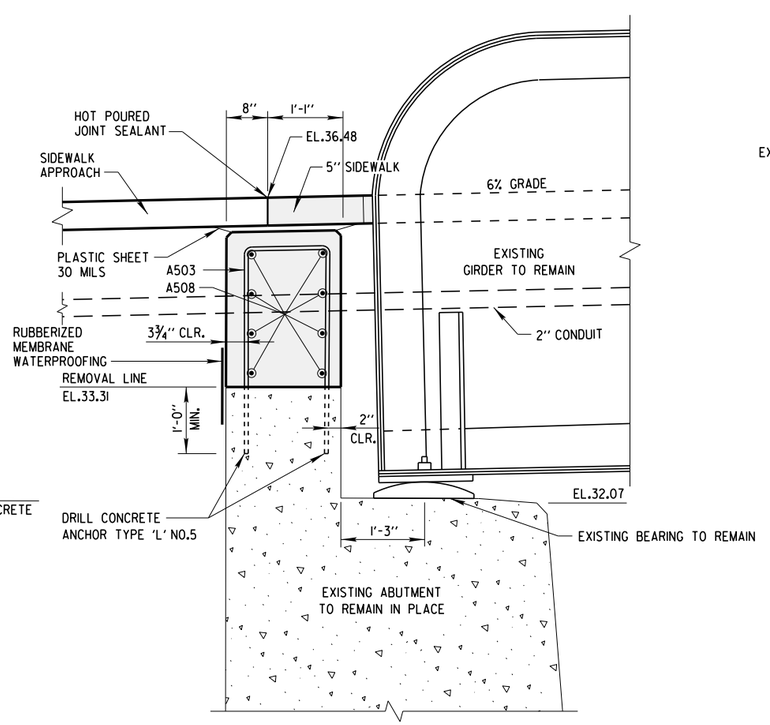
3/7 PROPOSED SECTION AT EAST GIRDER

SOUTH ABUTMENT



EXISTING SECTION AT WEST GIRDER

SOUTH ABUTMENT
EAST GIRDER SIMILAR



2/7 PROPOSED SECTION AT WEST GIRDER

SOUTH ABUTMENT

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE P-40-601

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SOUTH ABUTMENT DETAILS

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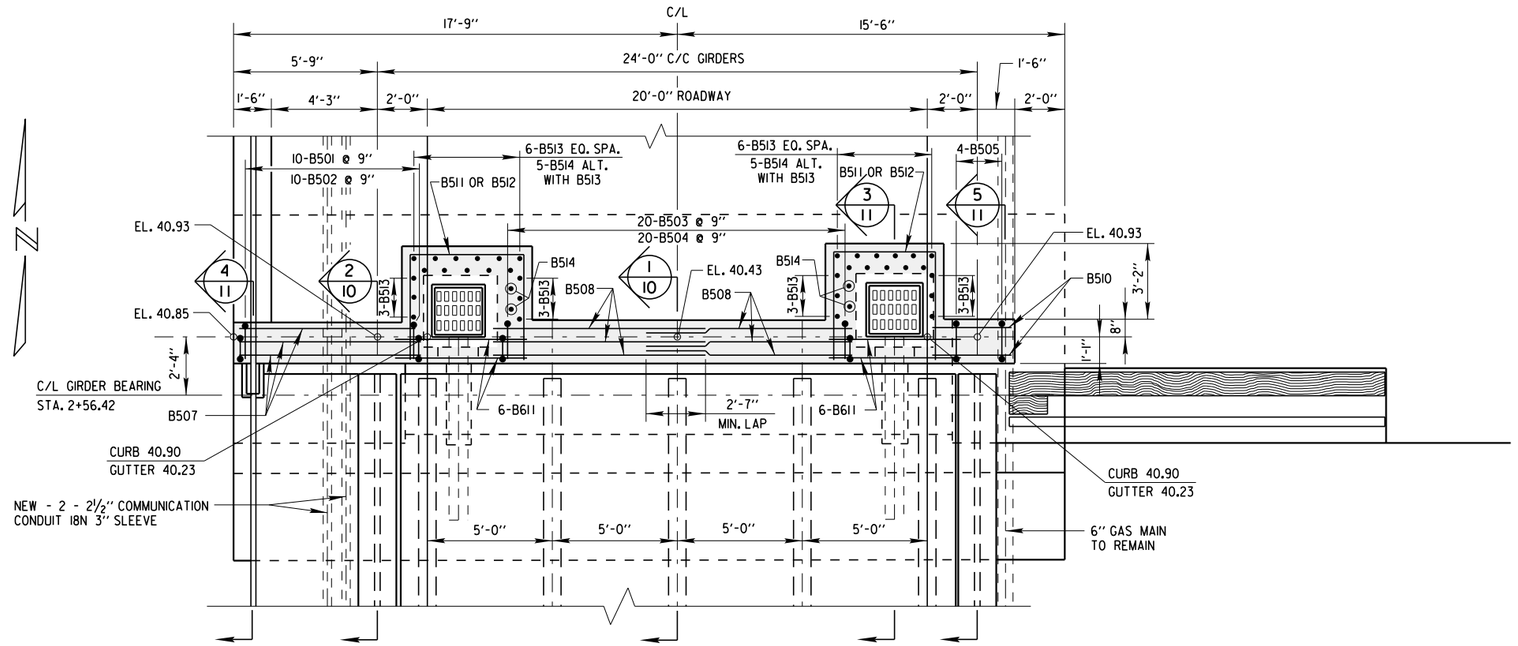
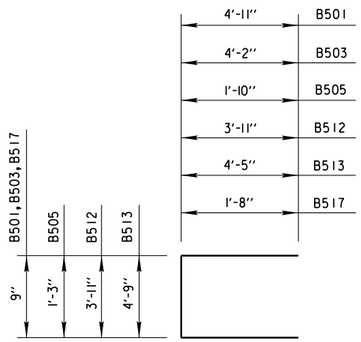
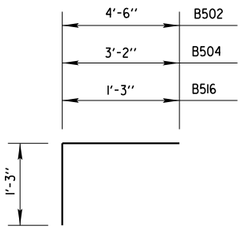
STATE PROJECT NUMBER

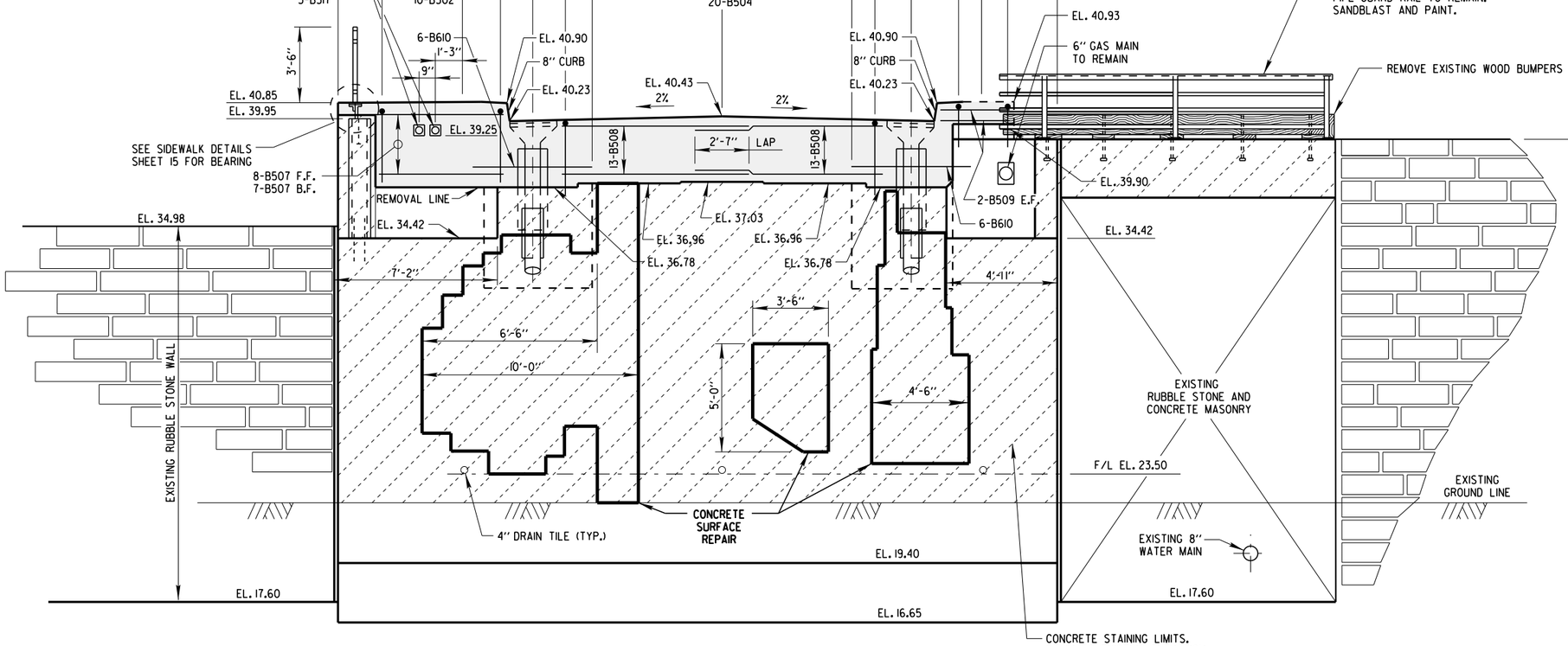
2984 - 39 - 72



NORTH ABUTMENT PLAN VIEW







NORTH ABUTMENT ELEVATION
LOOKING NORTH

LEGEND

- CONCRETE SURFACE REPAIR
- CONCRETE STAINING LIMITS
- PROPOSED BACKWALL

F.F. FRONT FACE

B.F. BACK FACE

E.F. EACH FACE

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE P-40-601

DRAWN BY K.P.S. | PLANS CK'D. H.J.R. J.J.K.

NORTH ABUTMENT PLAN AND ELEVATION

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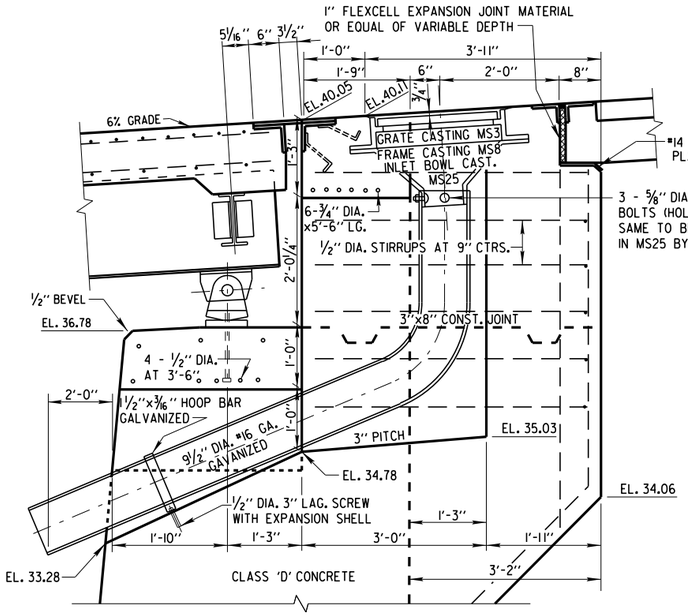
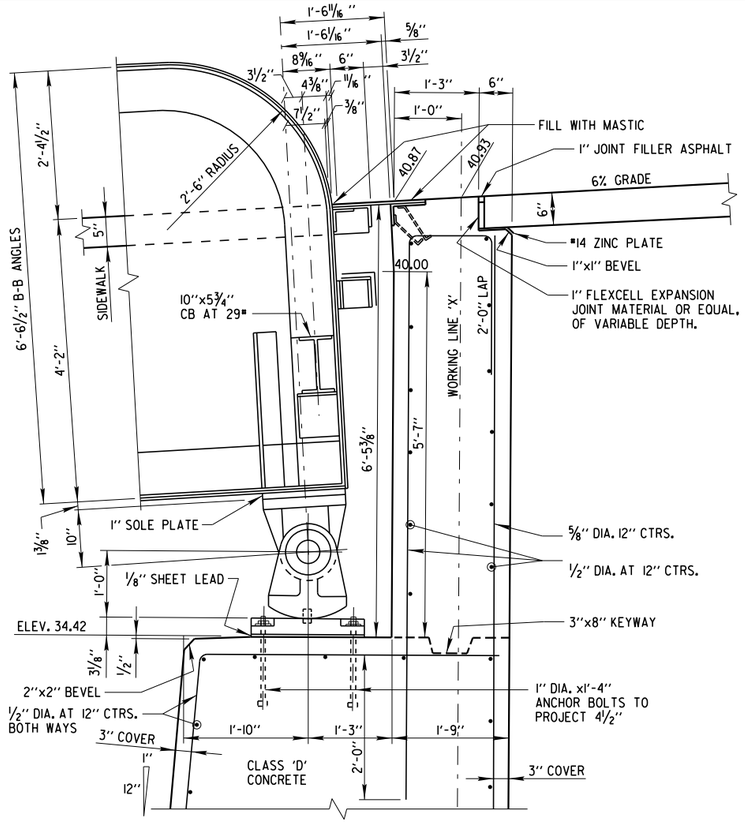
STATE PROJECT NUMBER

2984 - 39 - 72



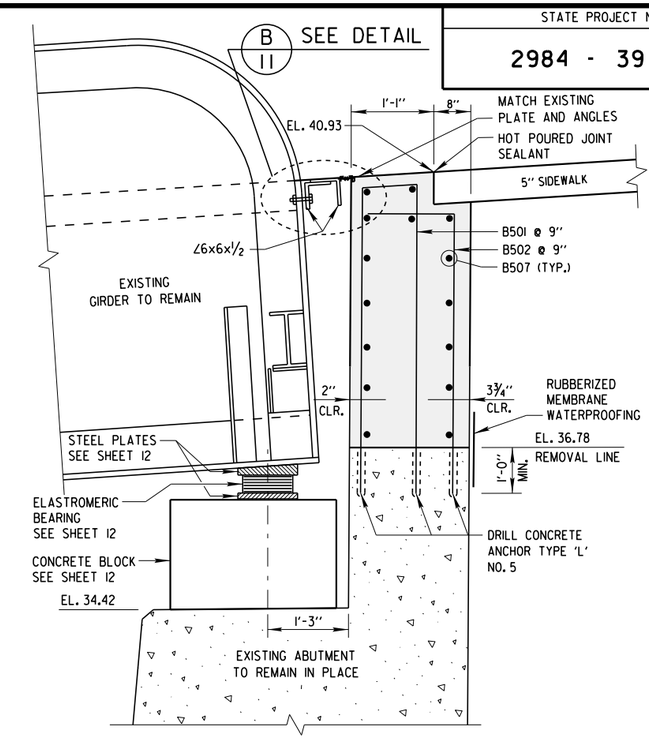
EXISTING CATCH BASIN DETAIL

NORTH ABUTMENT



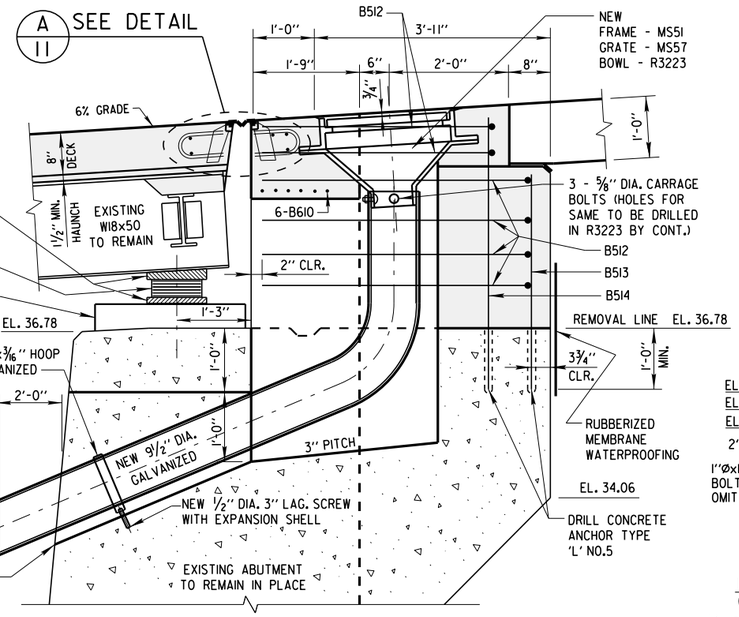
EXISTING SECTION AT WEST GIRDER

NORTH ABUTMENT
EAST GIRDER SIMILAR



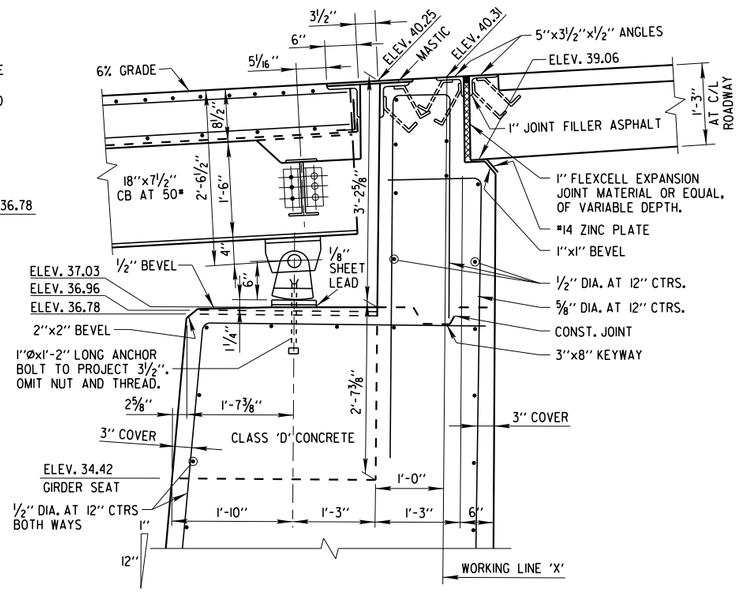
2/9 PROPOSED SECTION AT WEST GIRDER

NORTH ABUTMENT



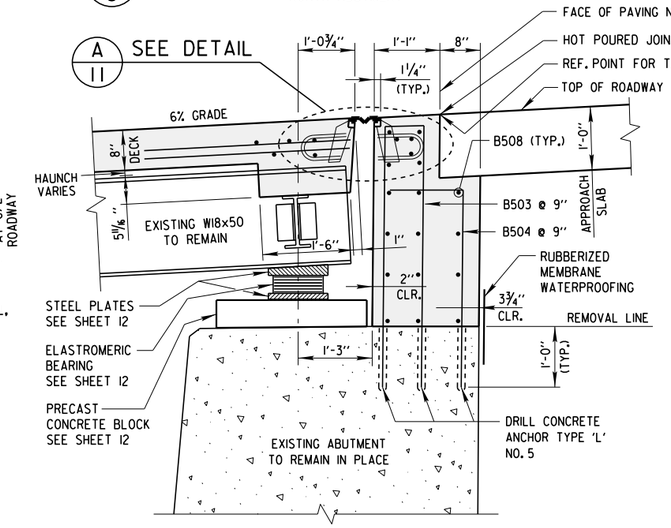
3/9 PROPOSED CATCH BASIN DETAIL

NORTH ABUTMENT



EXISTING SECTION AT C/L OF ROADWAY

NORTH ABUTMENT



1/9 PROPOSED SECTION AT C/L OF ROADWAY

NORTH ABUTMENT

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE P-40-601

DRAWN BY K.P.S. | PLANS CK'D. H.J.R. J.J.K.

NORTH ABUTMENT DETAILS

SHEET 71 OF 21

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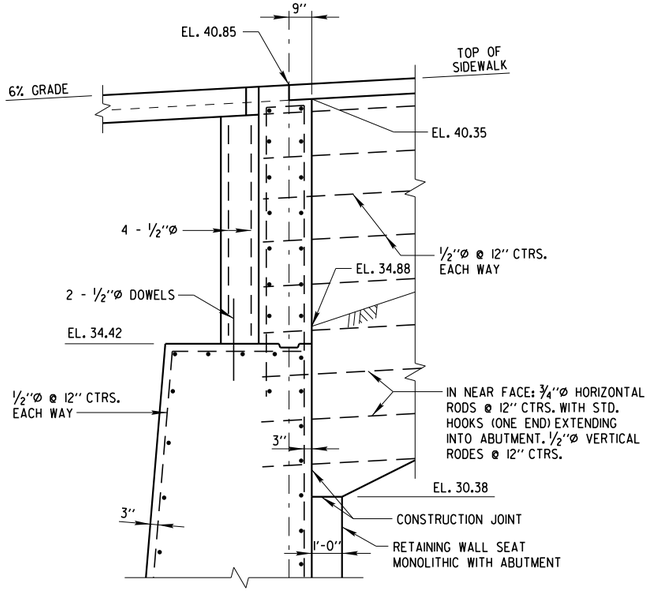
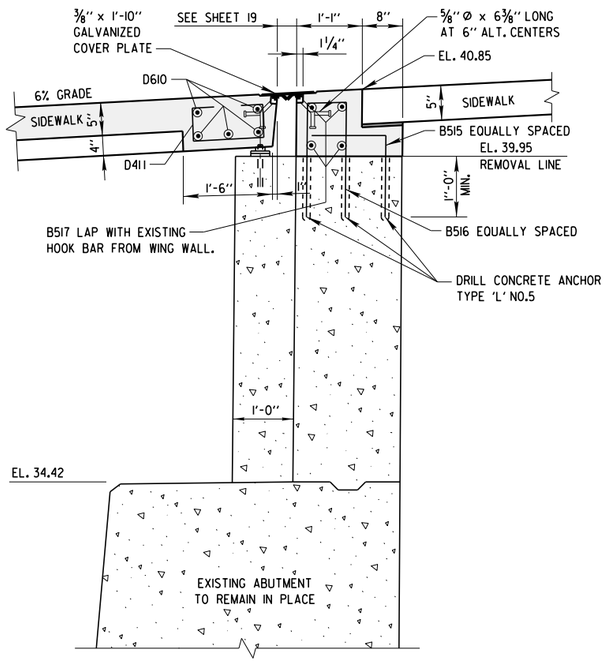
STATE PROJECT NUMBER

2984 - 39 - 72



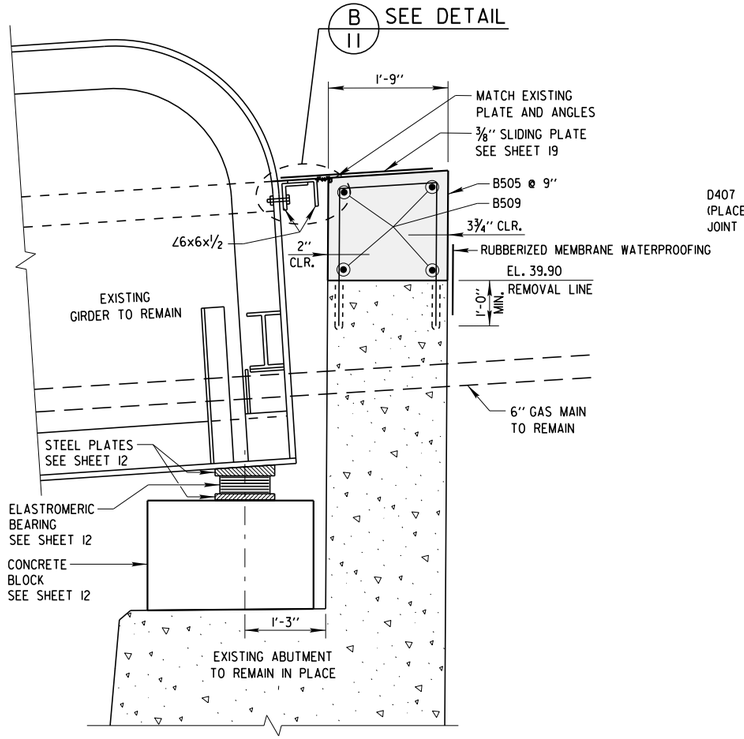
EXISTING SECTION AT SIDEWALK

NORTH ABUTMENT



4/3 4/9 PROPOSED SECTION AT SIDEWALK

NORTH ABUTMENT

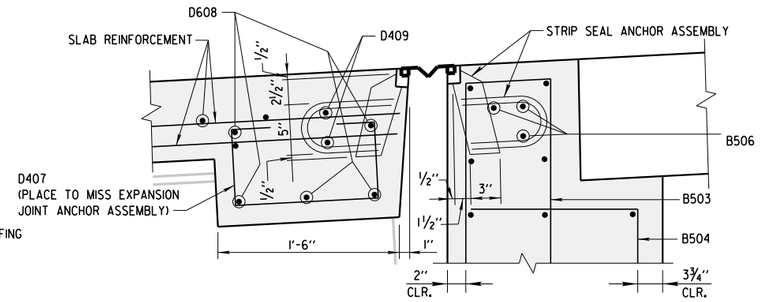


5/9 PROPOSED SECTION AT EAST GIRDER

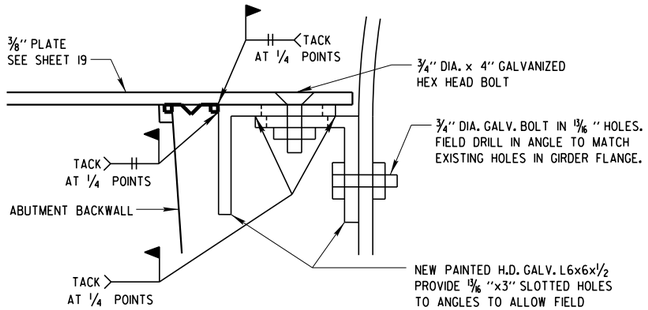
NORTH ABUTMENT

BILL OF BARS - NORTH ABUTMENT

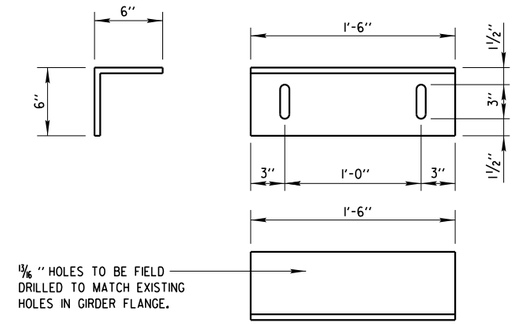
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
B501	×	10	10'-4"	×		BACKWALL DOWEL - SIDEWALK
B502	×	10	5'-7"	×		BACKWALL DOWEL - SIDEWALK
B503	×	20	8'-10"	×		BACKWALL DOWEL - ROADWAY
B504	×	20	4'-3"	×		BACKWALL DOWEL - ROADWAY
B505	×	4	4'-8"	×		BACKWALL DOWEL - EAST
B506	×	9	8'-0"	×		HORIZONTAL - STRIP SEAL ANCHOR
B507	×	15	5'-11"			HORIZONTAL - SIDEWALK
B508	×	26	9'-8"			HORIZONTAL - ROADWAY
B509	×	4	3'-3"			HORIZONTAL - EAST
B510	×	12	5'-6"			HORIZONTAL - CATCH BASIN F.F.
B611	×	4	11'-4"	×		HORIZONTAL - CATCH BASIN
B512	×	8	13'-4"	×		HORIZONTAL - CATCH BASIN B.F.
B513	×	18	3'-9"			DOWEL - CATCH BASIN
B514	×	20	4'-8"			DOWEL - CATCH BASIN
B515	×	3	2'-4"	×		BACKWALL DOWEL - SIDEWALK
B516	×	3	3'-10"	×		BACKWALL DOWEL - SIDEWALK
B517	×	5	4'-0"			HORIZONTAL - SIDEWALK LEDGE



A/3 A/10 DETAIL



B/10 B/11 DETAIL



∠ 6"x6"x½" ANGLE DETAIL

H.D. GALV. AND PAINTED

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE P-40-601

DRAWN BY K.P.S. | PLANS CK'D. H.J.R. J.J.K.

NORTH ABUTMENT DETAILS

SHEET 72 OF 21

8

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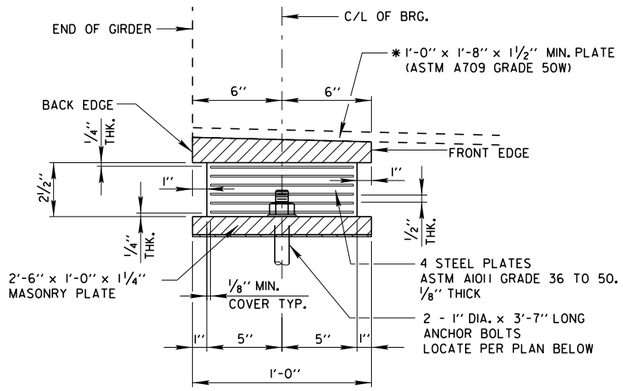
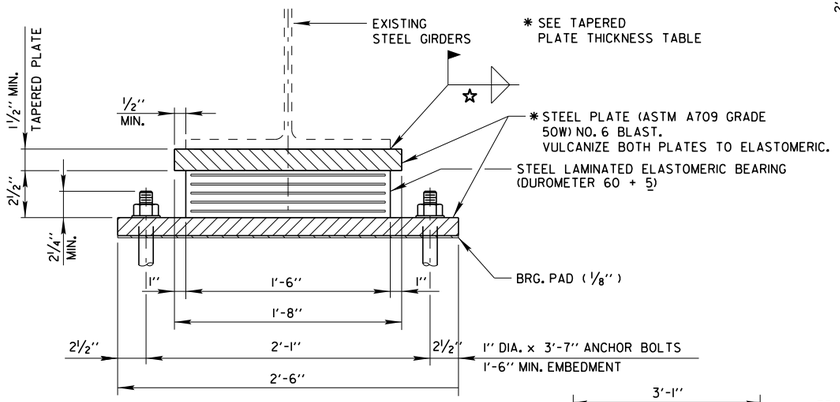
STATE PROJECT NUMBER

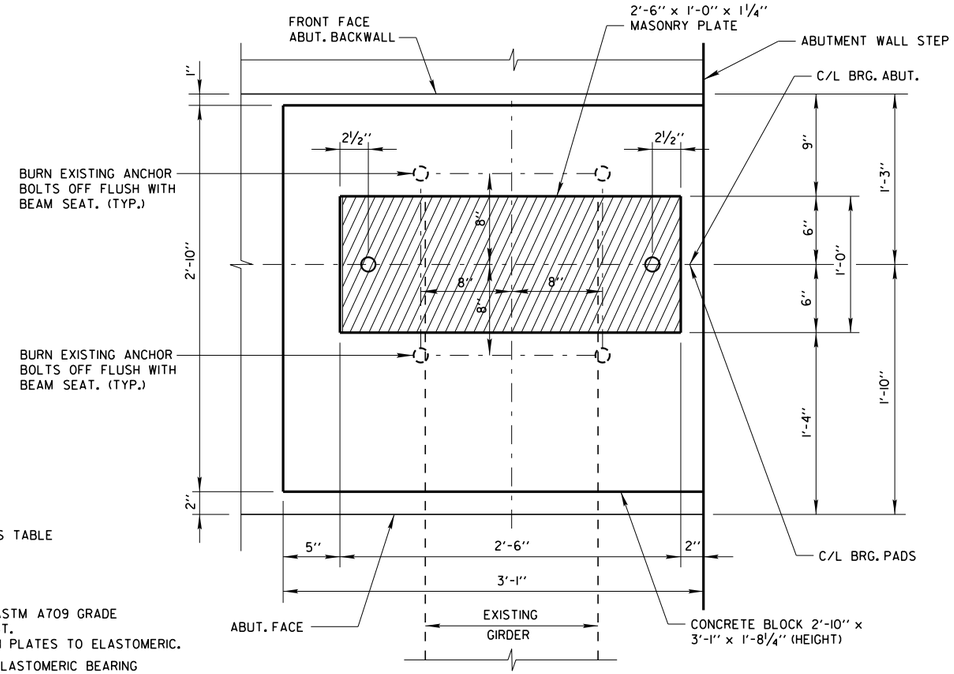
2984 - 39 - 72



SECTION THRU ELASTOMERIC BEARING



FRONT ELEVATION



CLEARANCE DIAGRAM AT ABUTMENTS

BEARING NOTES

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

ALL MATERIAL IN BEARINGS, INCLUDING SHIM PLATES, CONCRETE BEARING BLOCKS, EPOXY ANCHORS, ¼" GROUT, ANCHOR BOLTS, STEEL PLATES, AND BEARING PADS, SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "GIRDER BEARING REPLACEMENT (P-40-6011)", EACH.

ALL STRUCTURAL STEEL PLATES SHALL BE FLAT ROLLED 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.

ANCHOR BOLTS FOR BEARINGS SHALL BE THREADED 3", PROVIDE ONE STANDARD WROUGHT WASHER AND ONE HEX NUT PER BOLT. BOLT LENGTH TO BE 2'-3" FOR 1" DIA. BOLTS. PROJECT ANCHOR BOLTS, MASONRY PLATE THICKNESS + PRECAST CONCRETE BLOCK THICKNESS + 2¼", ABOVE TOP OF CONCRETE.

PROVIDE ⅛" THICK BEARING PAD SAME SIZE AS MASONRY PLATE FOR BEARINGS.

CHAMFER ANCHOR BOLTS PRIOR TO THREADING.

DRILLED HOLES FOR ANCHOR BOLTS IN MASONRY PLATE SHALL HAVE A DIAMETER ⅜" LARGER THAN ANCHOR BOLT.

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

ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AS REQUIRED BY ASTM DESIGNATION A153, CLASS C.

NEW ELASTOMERIC BEARINGS TO BE PLACED AT ALL GIRDERS ON NORTH ABUTMENT.

BURN EXISTING ANCHOR BOLTS OFF FLUSH WITH BEAM SEAT.

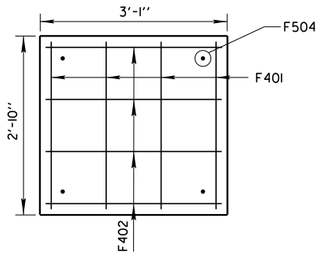
TAPERED TOP PLATE THICKNESS

LOCATION	THICKNESS AT BACK EDGE	THICKNESS AT FRONT EDGE
NORTH ABUTMENT	2¼"	1½"

WELDING PROCEDURES SHALL BE ESTABLISHED BY THE CONTRACTOR TO RESTRICT THE MAXIMUM TEMPERATURE REACHED BY SURFACES IN CONTACT WITH ELASTOMER TO 200°F (93°C). TEMPERATURES SHALL BE CONTROLLED BY TEMPERATURE INDICATING WAX PENCILS OR OTHER SUITABLE MEANS APPROVED BY THE ENGINEER.

ANCHOR BOLT NOTES

USE MASONRY PLATE WITH (2) - 1" DIA. x 3'-7" LONG ANCHOR BOLTS.



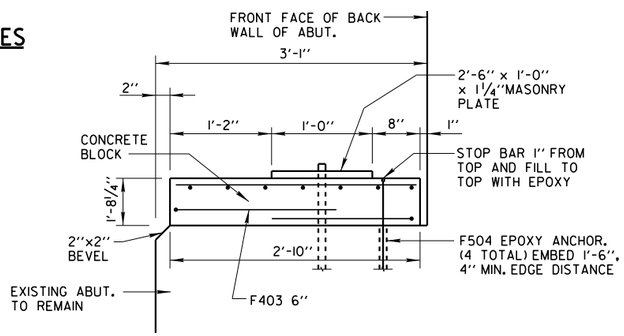
CONCRTE BLOCK PLAN VIEW

☆ TABLE OF FILLET WELD SIZES

MATERIAL THICKNESS OF THICKER PART JOINED.	+ MIN. SIZE OF FILLET WELD
TO ½" INCLUSIVE	3/16"
OVER ½" TO ¾"	¼"
OVER ¾" TO 1½"	△ 5/16"
OVER 1½" TO 2¼"	△ 3/8"
OVER 2¼" TO 6"	△ ½"

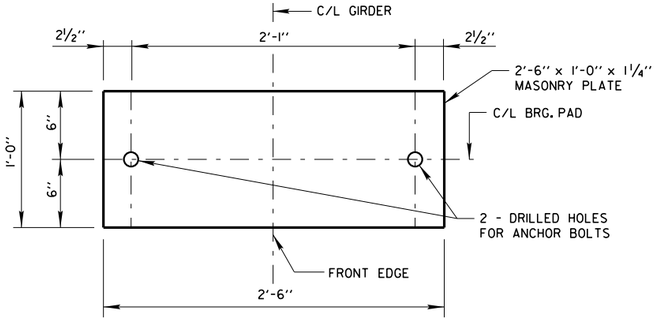
+ EXCEPT THAT THE WELD SIZE SHALL NOT EXCEED THE THICKNESS OF THE THINNER PART JOINED.

△ MIN. PASS SIZE IS 5/16"

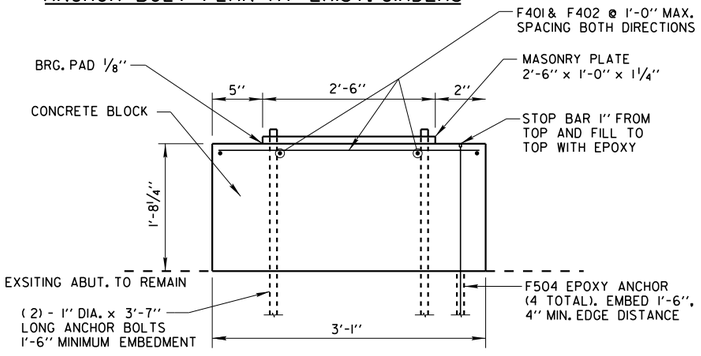


CONCRETE BLOCK DETAIL

(SIDE VIEW)



ANCHOR BOLT PLAN AT EXIST. GIRDERS

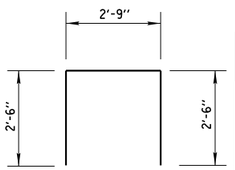


CONCRETE BLOCK DETAIL

(ELEVATION VIEW)

BILL OF BARS - CONCRETE ANCHOR BLOCK

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
F401	X	8	2'-6"			TOP LONGITUDINAL
F402	X	8	2'-9"			TOP TRANSVERSE
F403	X	16	7'-7"	X		U-SHAPED INTERIOR
F504	X	8	3'-2"			ANCHORS



F403

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE P-40-601

DRAWN BY K.P.S. | PLANS CK'D. H.J.R. J.J.K.

GIRDER BEARING DETAILS

SHEET 73 OF 21

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W:\STR\BO309\13BEARINGDET.DGN 08-29-2013

STATE PROJECT NUMBER

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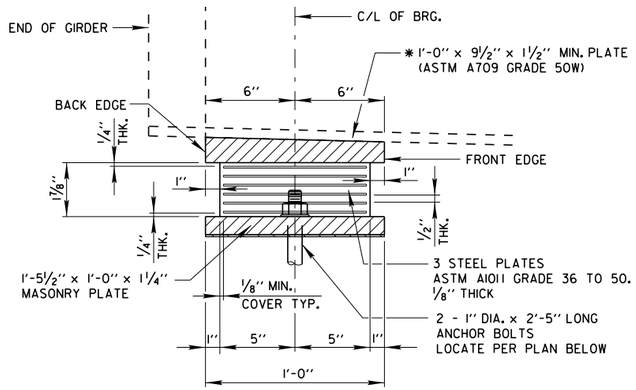
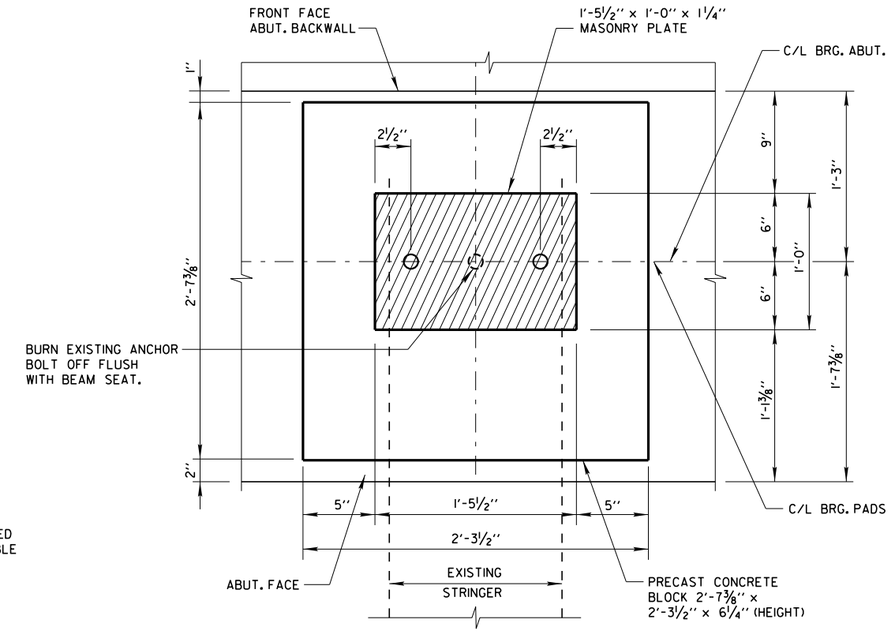
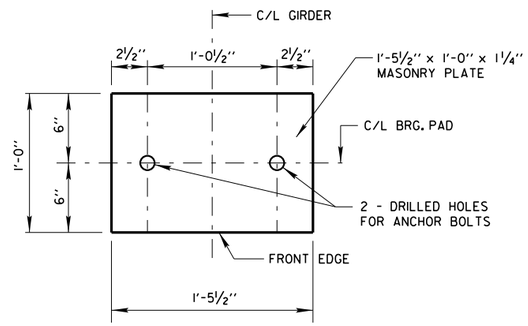


SECTION THRU ELASTOMERIC BEARING



CLEARANCE DIAGRAM AT ABUTMENTS



NEW MASONRY PLATE

BEARING NOTES

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

ALL MATERIAL IN BEARINGS, INCLUDING SHIM PLATES, PRECAST CONCRETE BEARING BLOCKS, EPOXY ANCHORS, ¼" GROUT, ANCHOR BOLTS, STEEL PLATES, AND BEARING PADS, SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STRINGER BEARING REPLACEMENT (P-40-601)", EACH.

ALL STRUCTURAL STEEL PLATES SHALL BE FLAT ROLLED 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.

ANCHOR BOLTS FOR BEARINGS SHALL BE THREADED 3", PROVIDE ONE STANDARD WROUGHT WASHER AND ONE HEX NUT PER BOLT. BOLT LENGTH TO BE 2'-5" FOR 1" DIA. BOLTS. PROJECT ANCHOR BOLTS, MASONRY PLATE THICKNESS + PRECAST CONCRETE BLOCK THICKNESS + 2¼", ABOVE TOP OF CONCRETE.

PROVIDE ⅛" THICK BEARING PAD SAME SIZE AS MASONRY PLATE FOR BEARINGS.

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ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AS REQUIRED BY ASTM DESIGNATION A153, CLASS C.

NEW ELASTOMERIC BEARINGS TO BE PLACED AT ALL GIRDERS ON NORTH ABUTMENT.

BURN EXISTING ANCHOR BOLTS OFF FLUSH WITH BEAM SEAT.

TAPERED TOP PLATE THICKNESS

LOCATION	THICKNESS AT BACK EDGE	THICKNESS AT FRONT EDGE
NORTH ABUTMENT	2¼"	1½"

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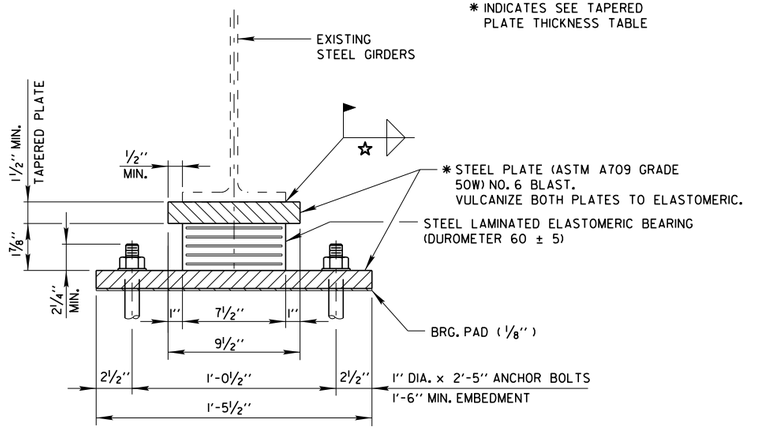
* INDICATES SEE TAPERED PLATE THICKNESS TABLE



FRONT ELEVATION

ANCHOR BOLT NOTES

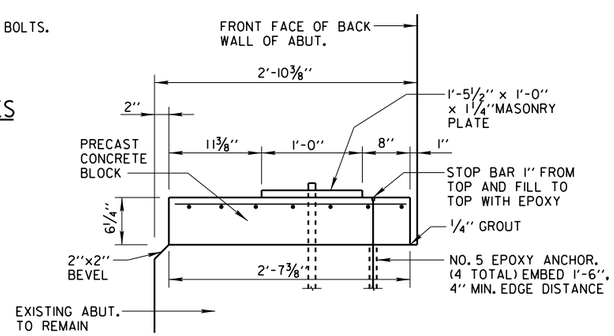
USE MASONRY PLATE WITH (2) - 1" DIA. x 2'-5" LONG ANCHOR BOLTS.

☆ TABLE OF FILLET WELD SIZES

MATERIAL THICKNESS OF THICKER PART JOINED.	ǂ MIN. SIZE OF FILLET WELD
TO ½" INCLUSIVE	3/16"
OVER ½" TO ¾"	¼"
OVER ¾" TO 1½"	△ 5/16"
OVER 1½" TO 2¼"	△ 3/8"
OVER 2¼" TO 6"	△ ½"

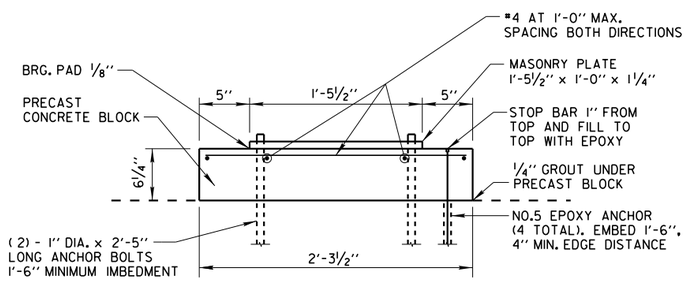
ǂ EXCEPT THAT THE WELD SIZE SHALL NOT EXCEED THE THICKNESS OF THE THINNER PART JOINED.

△ MIN. PASS SIZE IS 5/16"



PRECAST CONCRETE BLOCK DETAIL

(SIDE VIEW)



PRECAST CONCRETE BLOCK DETAIL

(ELEVATION VIEW)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE P-40-601

DRAWN BY K.P.S. | PLANS CK'D. H.J.R. J.J.K.

STRINGER BEARING DETAILS

SHEET 74 OF 21

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W:\STR\B0309\ 14WINGWALL.DGN 08-29-2013

STATE PROJECT NUMBER

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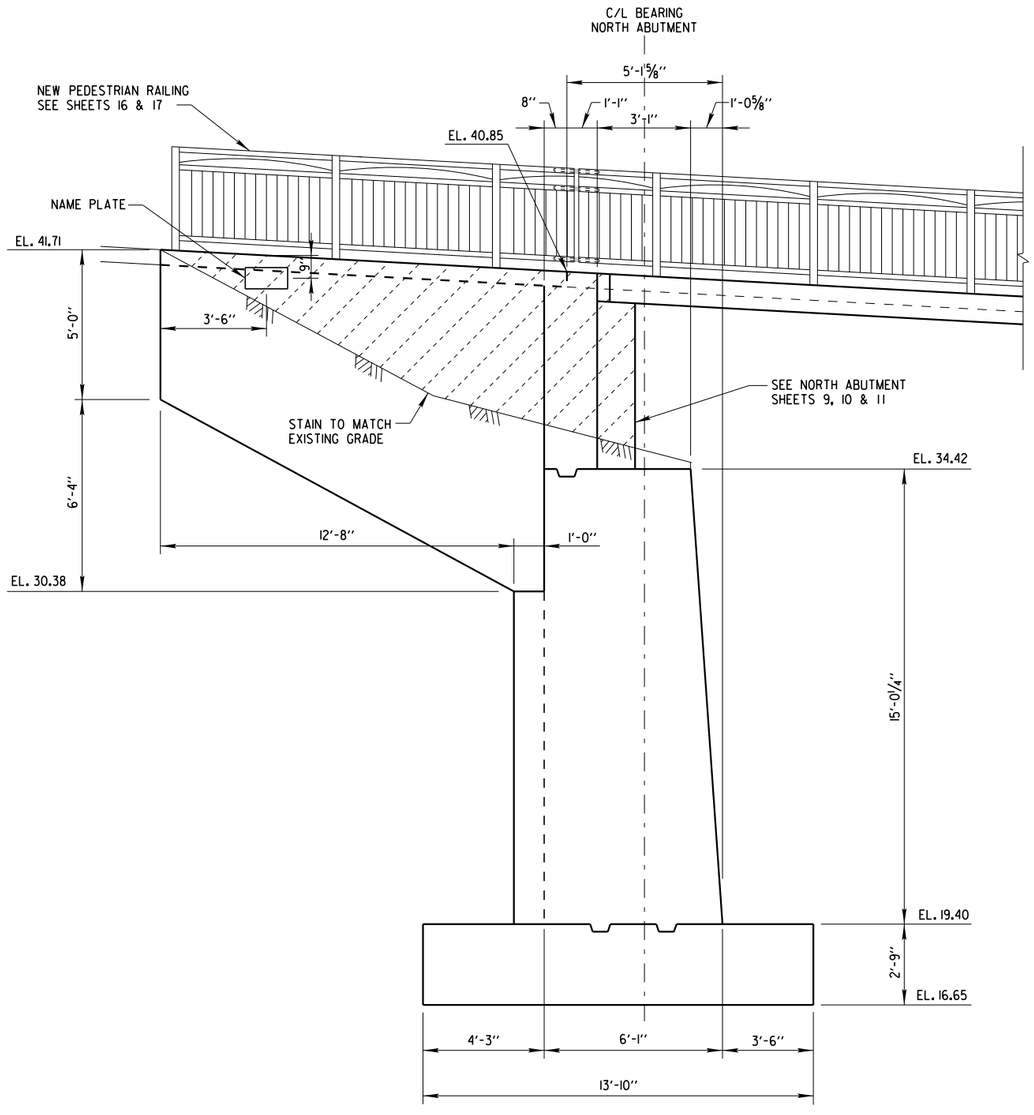
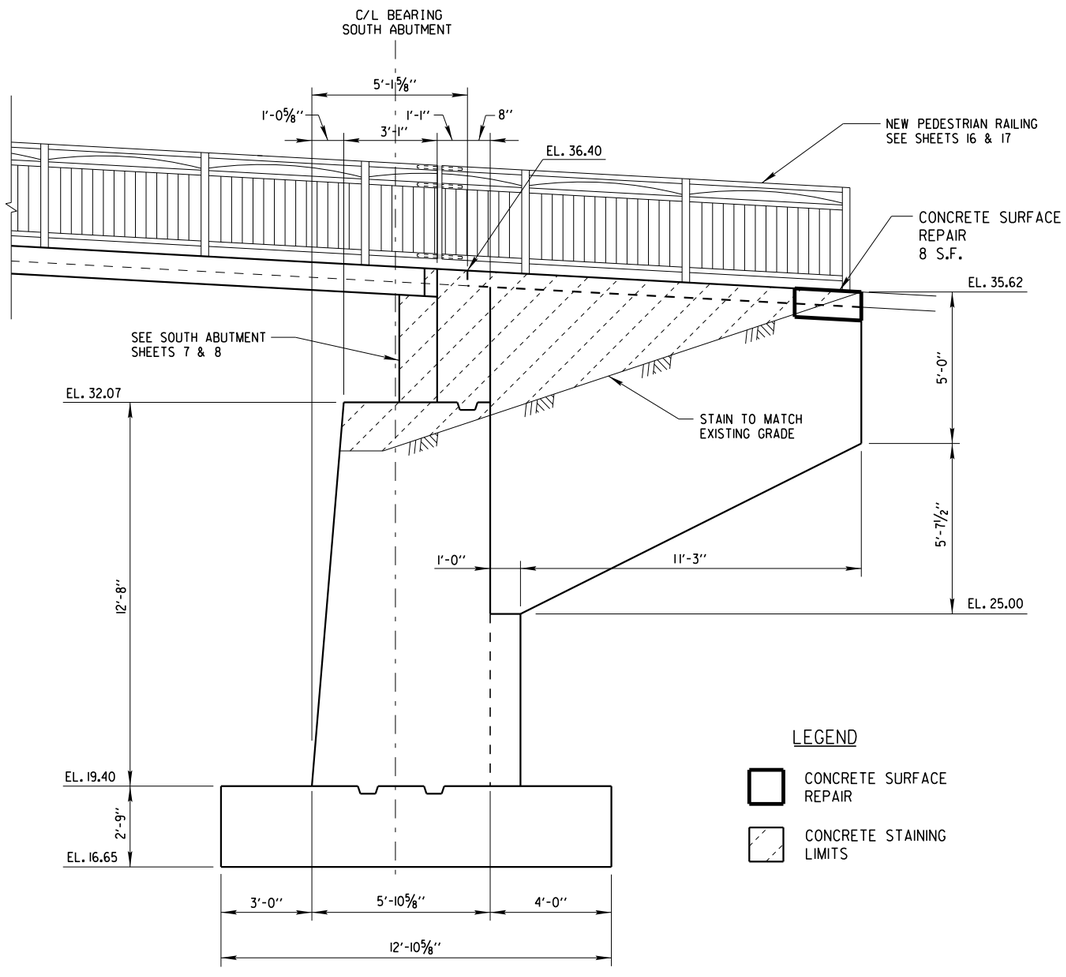


NORTH WEST WINGWALL ELEVATION
LOOKING EAST



SOUTH WEST WINGWALL ELEVATION
LOOKING EAST

LEGEND

- CONCRETE SURFACE REPAIR
- CONCRETE STAINING LIMITS

8

8

NO.	DATE	REVISION	BY

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DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE P-40-601

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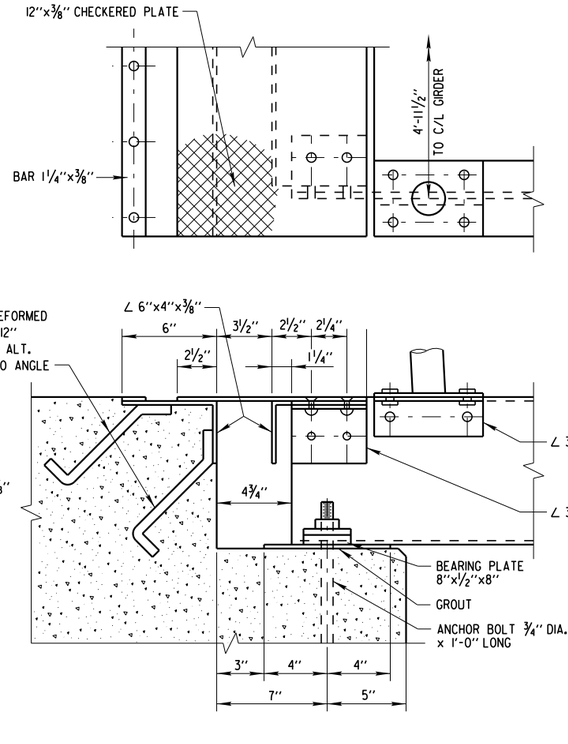
WING WALL DETAILS

SHEET 75 OF 21

W:\STR\B0309\ I5SIDEWALK1.DGN 08-29-2013

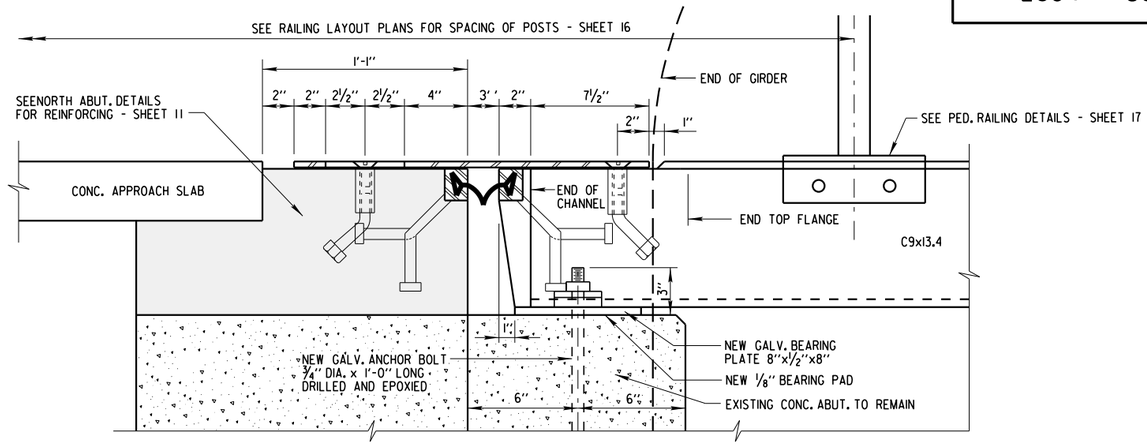
STATE PROJECT NUMBER

2984 - 39 - 72



EXISTING SIDEWALK CHANNEL AND BEARING DETAILS

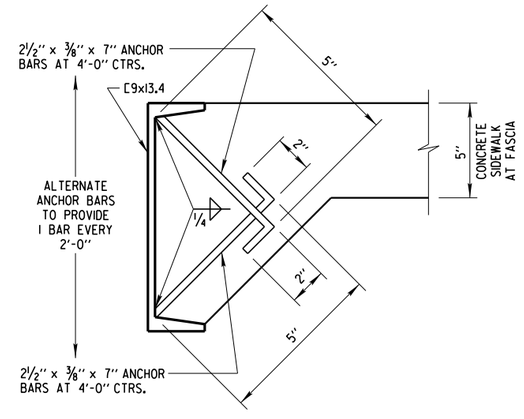
NORTH ABUTMENT



PROPOSED SIDEWALK CHANNEL AND BEARING DETAILS

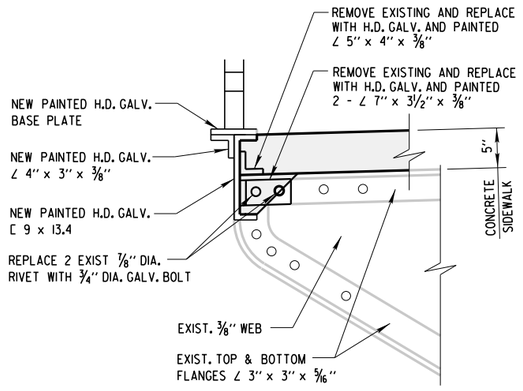
NORTH ABUTMENT

NOTE: BURN OFF EXISTING ANCHOR BOLT



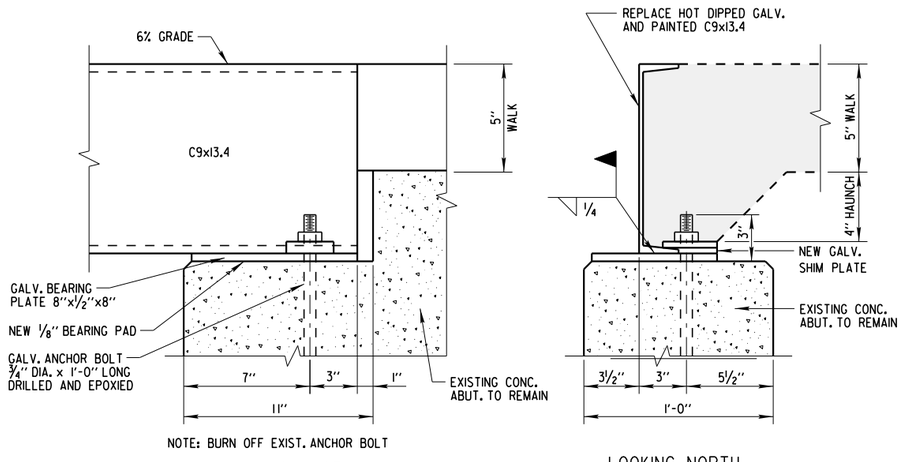
FACIA CHANNEL ANCHOR DETAILS

PAINTED HOT DIPPED GALVANIZED



WEST WALK DETAIL

(LOOKING NORTH)



PROPOSED SIDEWALK CHANNEL AND BEARING DETAILS

SOUTH ABUTMENT

8

8

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE P-40-601

DRAWN BY K.P.S. | PLANS CK'D. H.J.R. J.J.K.

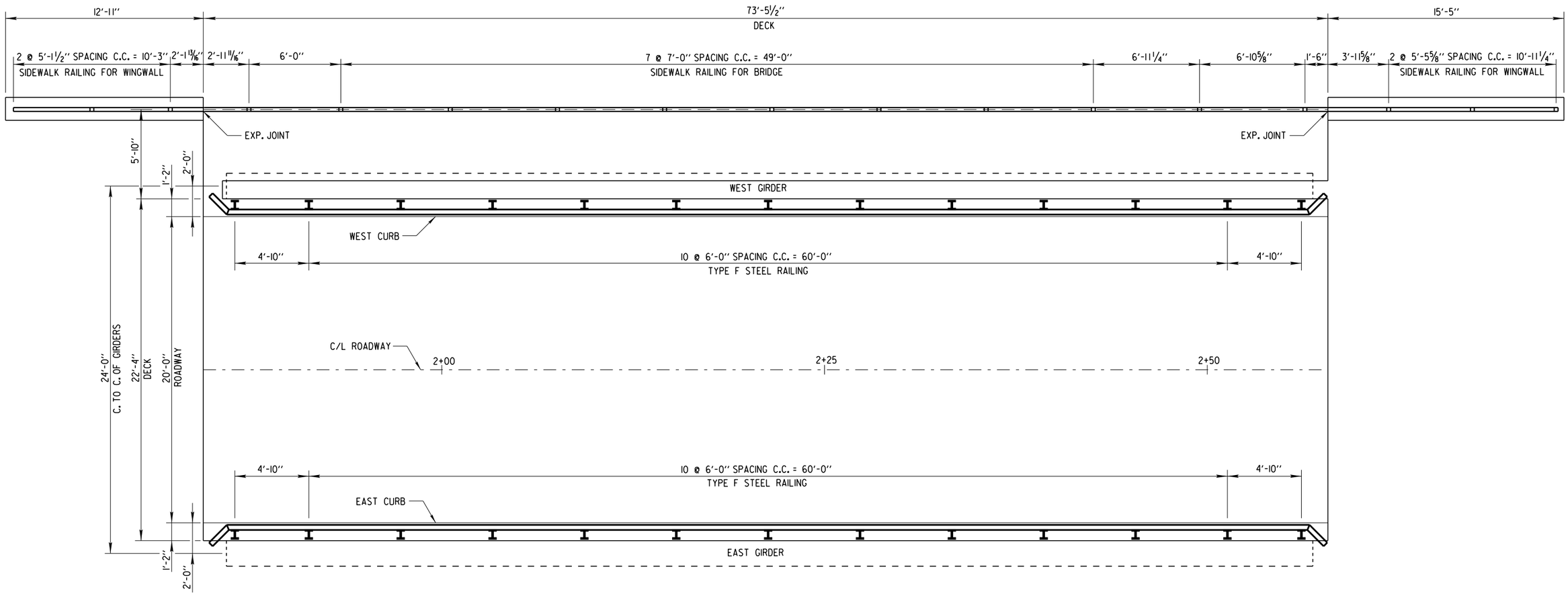
SIDEWALK DETAILS

SHEET 76 OF 21

W:\STR\B0309\ 16RAILING.DGN 08-28-2013

STATE PROJECT NUMBER

2984 - 39 - 72



RAILING LAYOUT PLAN

NOTES:

- MEASUREMENTS ARE ALONG PROFILE GRADE LINE
- CUT EXISTING ANCHOR BOLTS AT WINGWALLS AND GRIND FLUSH

8

8

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE P-40-601

DRAWN BY	K.P.S.	PLANS CK'D.	H.J.R. J.J.K.

RAILING LAYOUT PLAN

SHEET 77 OF 21

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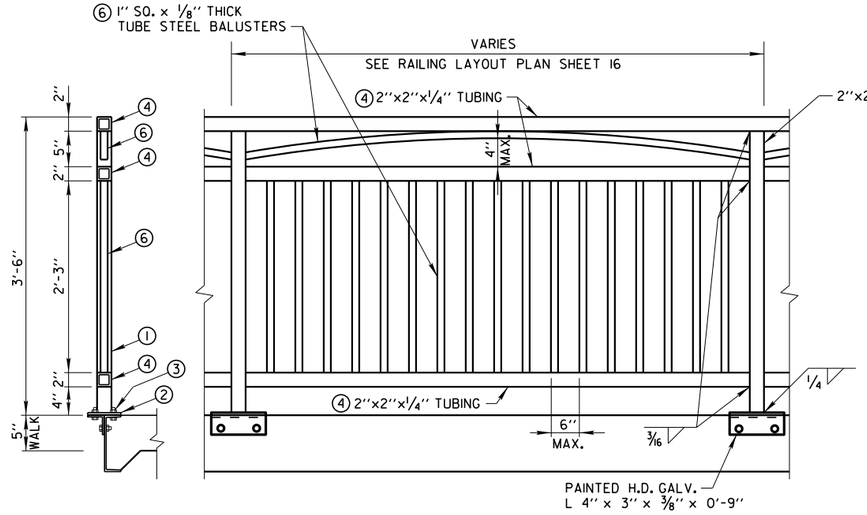
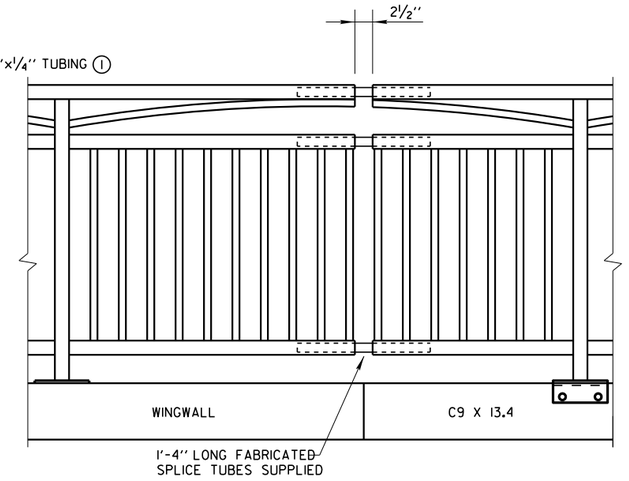
STATE PROJECT NUMBER

2984 - 39 - 72

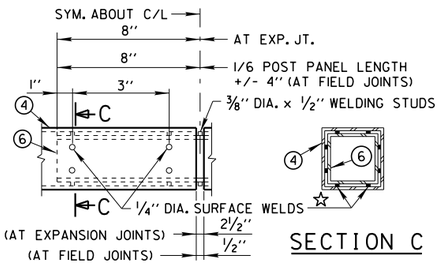


SECTION

PROPOSED TYPICAL BRIDGE RAILING



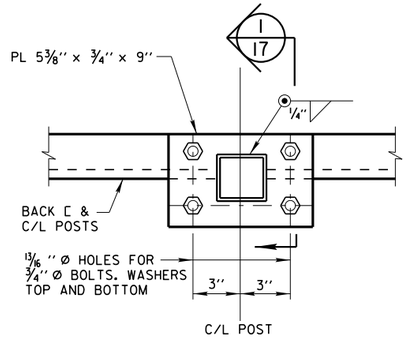
PROPOSED RAILING AT EXPANSION JOINT



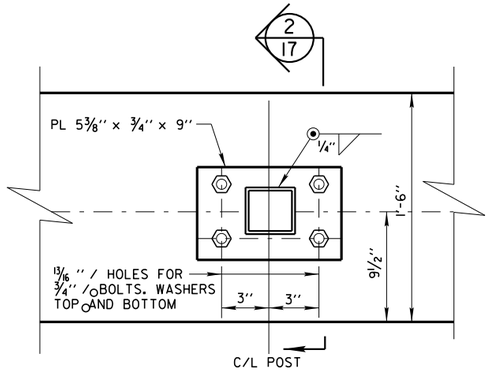
FIELD ERECTION JOINT DETAIL

SECTION C

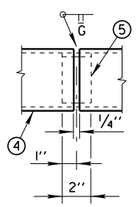
☆ MIN. 3/8" FLAT SURFACE DIA. PUNCHINGS OR STUDS MAY BE USED AS AN ALTERNATE.



POST BASE SIDEWALK DETAILS

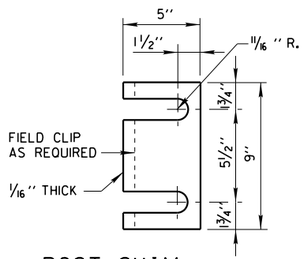


POST BASE WINGWALL DETAILS



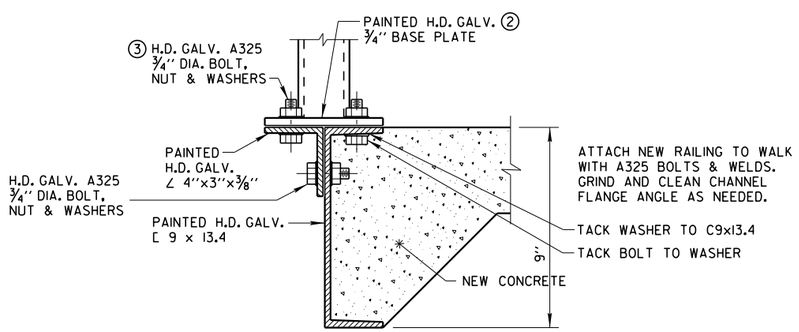
SHOP RAIL SPLICE DETAIL

(LOCATION MUST BE SHOWN ON SHOP DRAWINGS)

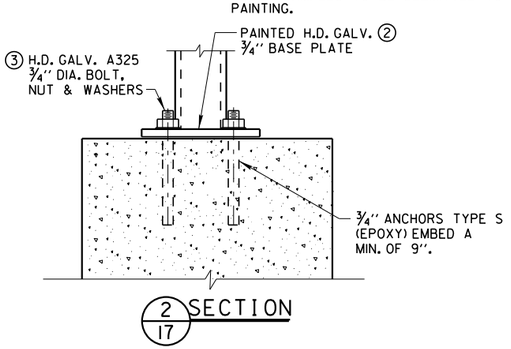


POST SHIM DETAIL

(4 PER POST)



1/17 SECTION



2/17 SECTION

LEGEND

① 2" x 2" x 1/4" TUBING. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF SIDEWALK. PLACE POST VERTICAL.

② PLATE 3/4" x 9" x 5 3/8" WITH 13/16 " HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN.

③ A325 - 3/4" DIA. HEX BOLTS (GALVANIZED) WITH A325 NUT & WASHER. USE 4" LONG AT SIDEWALK LOCATIONS. USE 1'-0" LONG AT WINGWALLS MASONRY TYPE S (EPOXY) 3/4" DIA. MINIMUM PULLOUT COAPACITY OF 13 KIPS. EMBED A MIN OF 9" FOR RAIL POSTS. 4 REQUIRED PER POST.

④ 2" x 2" x1/4" STRUCTURAL TUBING RAILS WELD TO NO. 1 AS SHOWN.

⑤ SQUARE SLEEVE FABRICATED FROM 1/4" PLATE. PROVIDE "SLIDING FIT" WITH A MINIMUM OUT TO OUT DIMENSION OF 1 13/32 ".

⑥ 1" x 1" x1/4" TUBING x (1'-4" AT EXPANSION JOINTS) & (1'-4" AT FIELD JOINTS) LONG. PROVIDE 1/4" DIA. SURFACE WELDS ON ALL SIDES AS SHOWN. GRIND WELDS TO FIT FREE INTO I.D. OF NO. 4. PROVIDE 3/8" DIA. x 1/2" WELDING STUDS ON TOP AND BOTTOM SURFACES AT CENTERLINE.

GENERAL NOTES

1. BID ITEM SHALL BE "RAILING STEEL SPECIAL GALVANIZED PEDESTRIAL P-40-601", WHICH INCLUDES ALL ITEMS SHOWN.
2. RAILING SHALL BE FABRICATED IN LENGTHS THAT INCLUDE 3 OR 4 POSTS.
3. POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.
4. ALL MATERIALS USED IN FABRICATION SHALL BE MADE FROM MATERIALS CONFORMING TO ASTM A709 GRADE 36 UNLESS NOTED OTHERWISE. ALL STRUCTURAL TUBING SHALL CONFORM TO ASTM A500 GRADE B.
5. GALVANIZED POST SHIMS MAY BE USED UNDER POSTS WHERE REQUIRED FOR ALIGNMENT.
6. ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
7. FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 AND CAULK AROUND PERIMETER OF PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.
8. ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION, PRIOR TO GALVANIZING. ALL STEEL RAILING POSTS & STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING BY SSPC SPECIFICATIONS.
9. ALL MATERIAL SHALL BE PAINTED OVER GALVANIZING WITH APPROVED TIE COAT AND TOP COAT.
10. WELDS ON FRONT AND BACK FACE OF RAILING (BETWEEN VERTICAL AND HORIZONTAL TUBING) SHOULD BE GROUND FLUSH.
11. ANCHORAGES SHALL BE ACCURATELY PLACED TO PROVIDE CORRECT ALIGNMENT AND INCLUDED IN BID ITEM "RAILING STEEL SPECIAL GALVANIZED PEDESTRIAN P-40-601" OF RAILING. SET NORMAL TO GRADE.
12. VENT HOLES SHALL BE DRILLED IN POST AND RAIL MEMBERS AS REQUIRED TO FACILITATE GALVANIZING AND DRAINAGE.
13. TOUCH-UP PAINTING TO BE DONE AT COMPLETION OF STEEL RAILING INSTALLATION TO THE SATISFACTION OF THE ENGINEER AT NO EXTRA COST.
14. ANCHOR BOLTS ON WINGWALLS WILL BE CUT FLUSH AND GROUND SMOOTH
15. FINISH COLOR ON PEDESTRIAN RAILING SHALL BE FEDERAL STANDARD 15050. COLOR SAMPLES TO BE SUBMITTED TO ENGINEER FOR APPROVAL PRIOR TO PAINTING.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE P-40-601

DRAWN BY K.P.S. | PLANS CK'D. H.J.R. J.J.K.

PEDESTRIAN RAILING DETAILS

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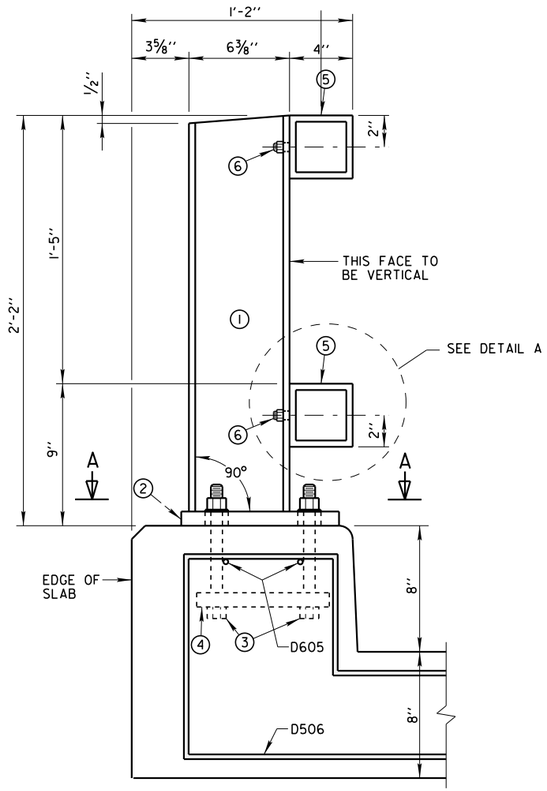
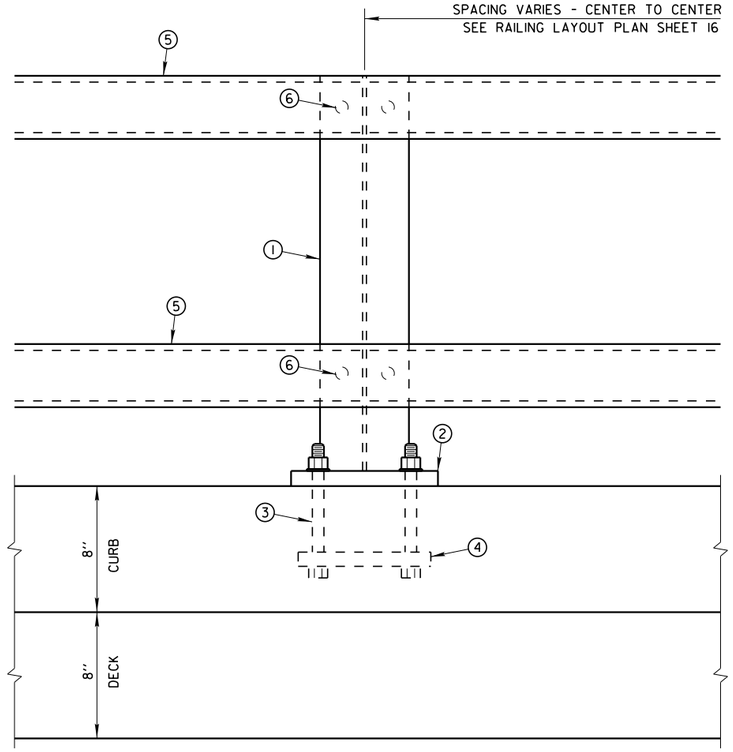


SECTION THRU RAILING ON DECK



RAILING ON DECK

LEGEND

(1) W6 x 25 WITH 1¼" DIA. HOLES ON EACH SIDE OF POST FOR STUD NO. 6. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL.

(2) PLATE 1" x 9½" x 10" WITH 1 1/16" x 1½" SLOTTED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN.

(3) A325 - ⅞" DIA. HEX BOLTS (GALVANIZED) WITH A325 NUT & WASHER. 14" LONG AT END POSTS USE 8" LONG AT ALL OTHER LOCATIONS. 4 REQUIRED PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING.

(4) ¼" x 8" x 8" FLAT BAR WITH 15/16 " DIA. HOLES FOR ANCHOR BOLTS NO. 3

(5) TS 4" x 4" x¼" STRUCTURAL TUBING, CONFORMING TO A.S.T.M. DESIGNATION A501 OR A500 GRADE B. ATTACH TO NO. 1 WITH STUDS NO. 6.

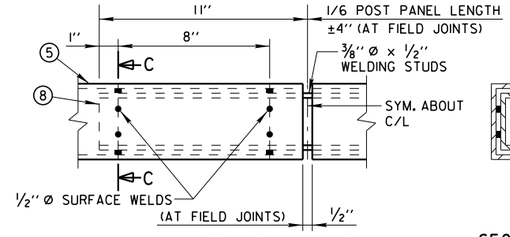
(6) ⅝" DIA. x 1½" LONG SHOP WELDED STUDS WITH HEX NUT AND 2" WASHERS (4 REQUIRED AT EACH RAIL TO POST LOCATION).

(7) SQUARE SLEEVE FABRICATED FROM ¼" PLATE. PROVIDE "SLIDING FIT" WITH A MINIMUM OUT TO OUT DIMENSION OF 3 13/32".

(8) TS 3" x 3" x¼" x (2'-4" AT EXPANSION JOINTS) & (1'-10" AT FIELD JOINTS) LONG. PROVIDE ½" DIA. SURFACE WELDS ON ALL SIDES AS SHOWN. GRIND WELDS TO FIT FREE INTO I.D. OF NO. 5. PROVIDE ⅜" DIA. x ½" WELDING STUDS ON TOP AND BOTTOM SURFACES AT CENTERLINE.

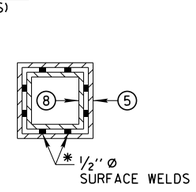
GENERAL NOTES

1. BID ITEM SHALL BE "RAILING TUBULAR TYPE F (P-40-601)", WHICH INCLUDES ALL ITEMS SHOWN.
2. RAILING SHALL BE FABRICATED IN LENGTHS THAT INCLUDE 3 OR 4 POSTS.
3. POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.
4. ALL MATERIALS USED IN FABRICATION SHALL BE MADE FROM MATERIALS CONFORMING TO ASTM A709 GRADE 36 UNLESS NOTED OTHERWISE.
5. FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.
6. GALVANIZED STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQUIRED FOR ALIGNMENT.
7. ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
8. ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION, PRIOR TO GALVANIZING. ALL STEEL RAILING POSTS & STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING BY SSPC SPECIFICATIONS.
9. ALL MATERIAL SHALL BE PAINTED OVER GALVANIZING WITH APPROVED TIE COAT AND TOP COAT.
10. VENT HOLES SHALL BE DRILLED IN RAIL MEMBERS AS REQUIRED TO FACILITATE GALVANIZING AND DRAINAGE.
11. TOUCH-UP PAINT PAINTING TO BE DONE AT COMPLETION OF STEEL RAILING INSTALLATION TO THE SATISFACTION OF THE ENGINEER AT NO EXTRA COST.
12. FINISH COLOR ON TYPE 'F' RAILING SHALL BE FEDERAL STANDARD 15050. COLOR SAMPLES TO BE SUBMITTED TO ENGINEER FOR APPROVAL PRIOR TO PAINTING.

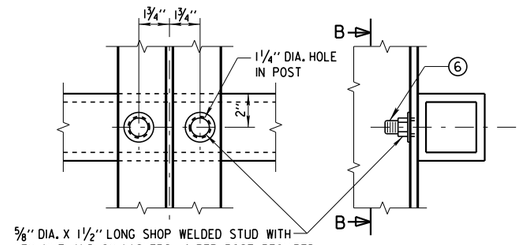


FIELD ERECTION JOINT DETAIL

* MIN. ⅝" FLAT SURFACE DIA. PUNCHINGS OR STUDS MAY BE USED AS AN ALTERNATE.

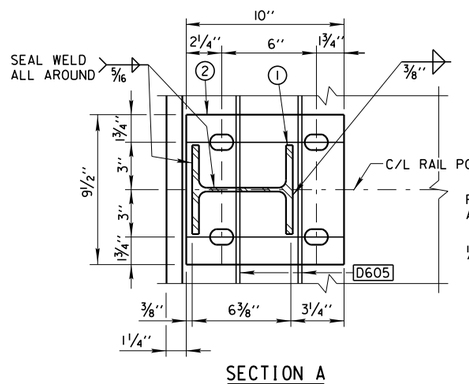


SECTION C

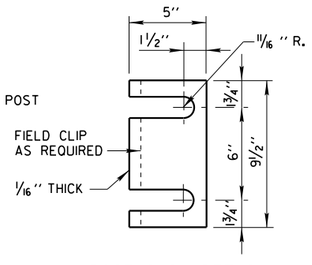


SECTION B

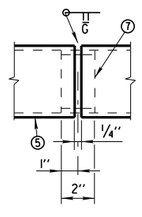
DETAIL A



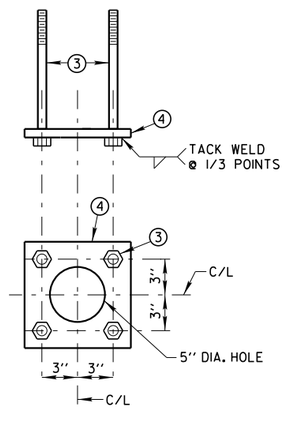
SECTION A



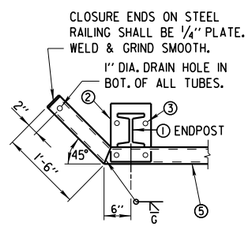
POST SHIM DETAIL
(4 PER POST)



SHOP RAIL SPLICE DETAIL
(LOCATION MUST BE SHOWN ON SHOP DRAWINGS)



ANCHORAGE DETAIL



DETAIL FOR END POSTS

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE P-40-601

DRAWN BY K.P.S. | PLANS CK'D. H.J.R. J.J.K.

TUBULAR TYPE 'F' RAILING DETAILS

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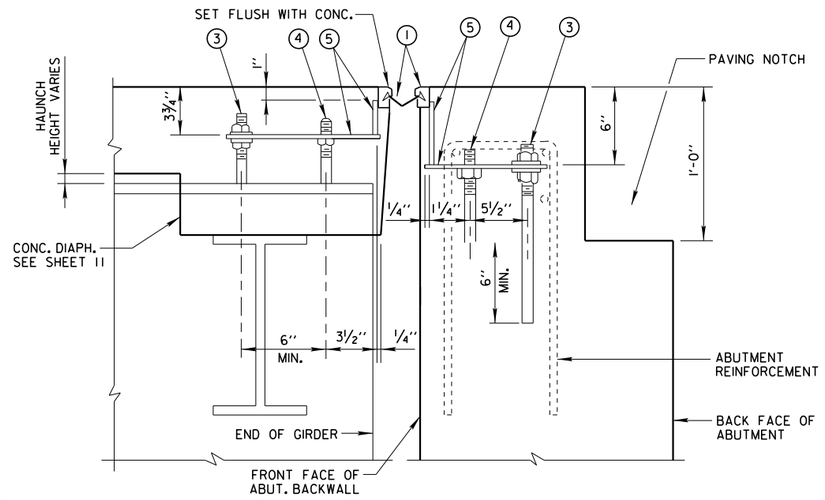
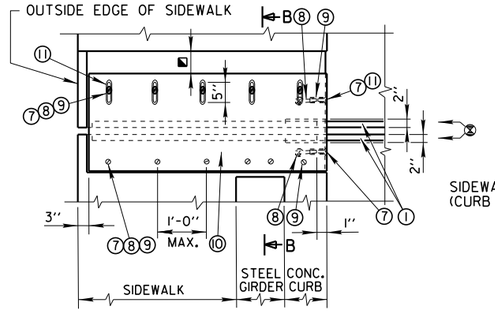
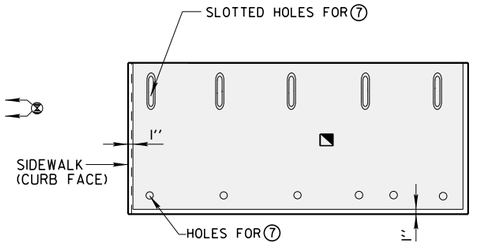


TYPICAL SECTION THRU JOINT AT STEEL GIRDER

NORMAL TO C/L SUBSTRUCTURE



PLAN AT NEW SIDEWALK



PLAN OF SIDEWALK COVER PLATE WITH SLIP-RESISTANT SURFACE

APPROVED SLIP-RESISTANT APPLIED SURFACES FOR STEEL PLATES		
PRODUCT	MANUFACTURER	CONTACT AT
SLIPNOT GRADE 2, STEEL	W. S. MOLNAR COMPANY	1-800-SLIPNOT
ALGRIP, STEEL	ROSS TECHNOLOGY CORP.	1-800-345-8170

◥ PLACE SLIP-RESISTANT SURFACE ON TOP WALKING SURFACE IN SHADED AREA ONLY (NOT ON CURB FACE). GALVANIZE PLATE AFTER SLIP-RESISTANT SURFACE IS APPLIED.

LEGEND

⚠① NEOPRENE STRIP SEAL (4-INCH) AND STEEL EXTRUSIONS. SET JOINT OPENING AT 1¾'' WHEN EXPANSION LENGTH ≤ 230'-0''. JOINT OPENINGS GIVEN NORMAL TO JOINT. ◨

② STUDS ⅝'' DIA. x 6⅜'' LONG AT 6'' ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.

2A ½'' THICK ANCHOR PLATE WITH ⅝'' DIA. ROD (OR ALTERNATE STRIP SEAL ANCHOR). WELD ROD TO ANCHOR PLATE, WELD ANCHOR PLATE TO NO. 1 AT 1'-6'' CTRS. BETWEEN GIRDERS.

③ ¾'' DIA. THREADED ROD WITH 2 NUTS AND PLATE WASHERS. FOR STEEL GIRDERS, WELD THREADED RODTO 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'' DIA. 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'' DIA. HOLE FOR NO. 3 AND 1'' DIA. HOLE FOR NO. 4.

⑥ GALVANIZED PLATE ⅜'' x 10'' x (2'-2'' LONG FOR SKEWS ≤ 45° AND 3'-0'' LONG FOR SKEWS > 45°) WITH HOLES FOR NO. 7. FOR SINGLE SLOPE PARAPET. FOR SLOPED FACE PARAPET, SEE STANDARD 28.07.

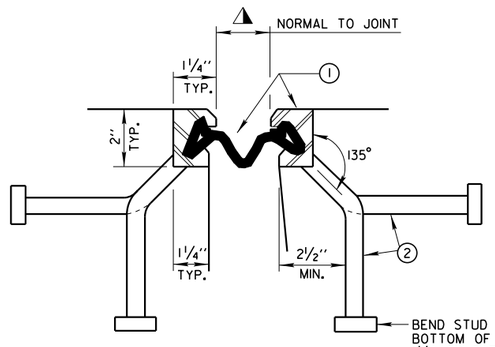
⑦ ¾'' DIA. x 1½'' STAINLESS STEEL SOCKET FLAT HEAD SCREWS WITH ANTI-SEIZE LUBRICANT. PLACE IN COUNTERSUNK HOLE. RECESS 1/16'' BELOW PLATE SURFACE.

⑧ ¾'' DIA. x 4'' GALVANIZED HEX HEAD BOLT. BEND 45°.

⑨ ¾'' DIA. x 2¼'' GALVANIZED THREADED COUPLING.

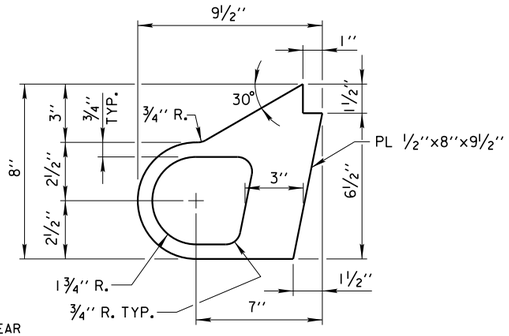
⑩ SIDEWALK COVER PLATE ⅜'' x 1'-10'' x LIMITS SHOWN. BEND DOWN FACE OF SIDEWALK WITH HOLES FOR NO. 7. GALVANIZE PLATE AFTER SLIP-RESISTANT SURFACE IS APPLIED.

⑪ 1'' x 5'' SLOTTED COUNTERSUNK HOLE FOR NO. 7. PLACE SLOT PARALLEL TO DIRECTION OF MOVEMENT.

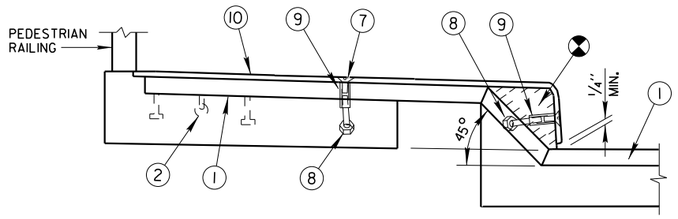


SECTION THRU JOINT

EXTERIOR GIRDER TO EDGE OF SLAB AND AT PARAPETS, MEDIANS AND SIDEWALKS



ALTERNATE STRIP SEAL ANCHOR



SECTION AT SIDEWALK

NOTES

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

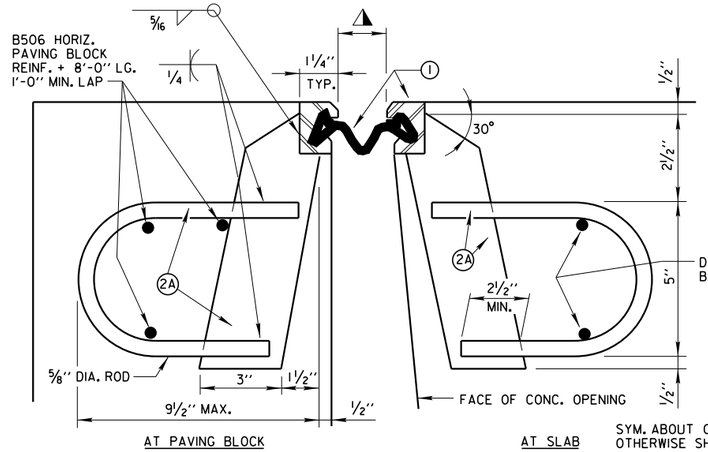
AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

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

SANDBLAST PLATES, SUPPORTS AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THE PLATES, SUPPORTS AND EXTRUSIONS SHALL BE HOT DIPPED GALVANIZED. SLIP-RESISTANT SURFACE IS APPLIED TO SIDEWALK COVER PLATES BY THE MANUFACTURER AND THEN HOT DIPPED GALVANIZED TO THEIR RECOMMENDATIONS TO MAINTAIN THE INTEGRITY OF THIS SURFACE.

ANCHOR SYSTEM NO. 8 AND NO. 9 SHALL CONFORM TO ASTM A307 AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C AND D.

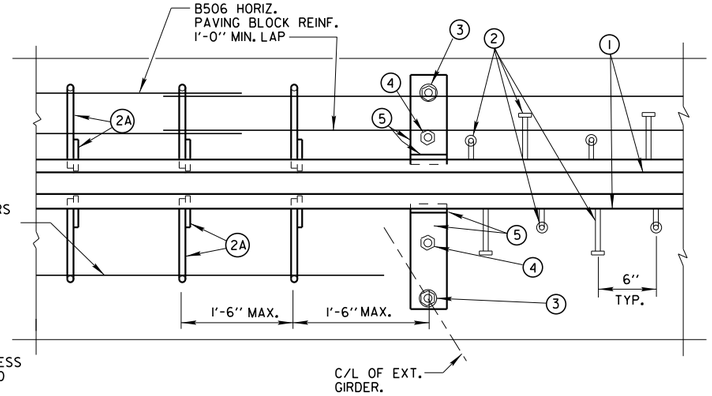
STRIP SEAL EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE WILL BE PAID FOR AT THE LUMP SUM PRICE BID FOR "EXPANSION DEVICE (P-40-601)".



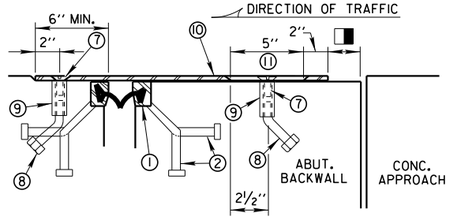
SECTION THRU JOINT

ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDERS

◒ BLOCK OUT CONCRETE 2'' EACH SIDE OF JOINT OPENING



PARTIAL PLAN AT NEW ROADWAY



EXPANSION JOINT AT SIDEWALK SECTION B-B

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE P-40-601

DRAWN BY K.P.S. | PLANS CK'D. H.J.R. J.J.K.

STRIP SEAL EXPANSION JOINT DETAILS

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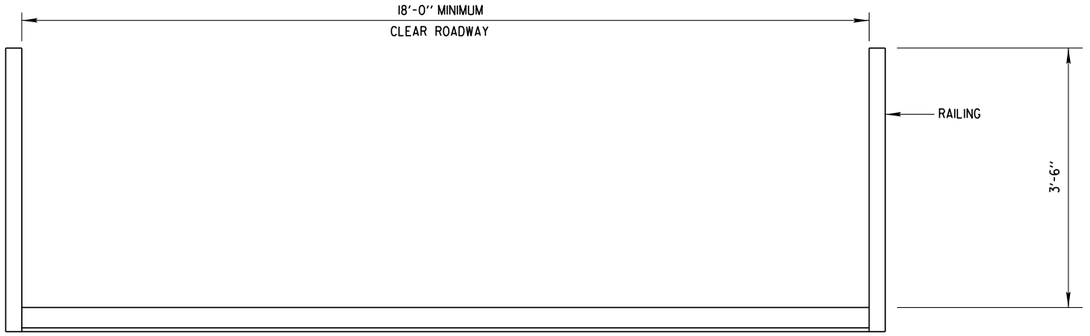


CROSS SECTION TEMPORARY BRIDGE

TRAFFIC VOLUME

ADT (2014) = 270 VPD
ADT (2034) = 300 VPD
RDS = 25 MPH

HYDRAULIC DATA

INSTANTANEOUS PEAK DISCHARGE, 100 YEAR: 14,500 CFS
VELOCITY THRU BRIDGE: 15.8 FPS
WATERWAY AREA THRU BRIDGE: 916 SF AT 10-YEAR FLOOD STAGE: 28.09
DRAINAGE AREA: 126 SQ.MI.
2-YEAR WATER SURFACE EL.: N/A
10-YEAR WATER SURFACE EL.: 28.09
100-YEAR WATER SURFACE EL.: 36.12
REGULATORY FLOOD STAGE (PER 2008 FIS): 35.90

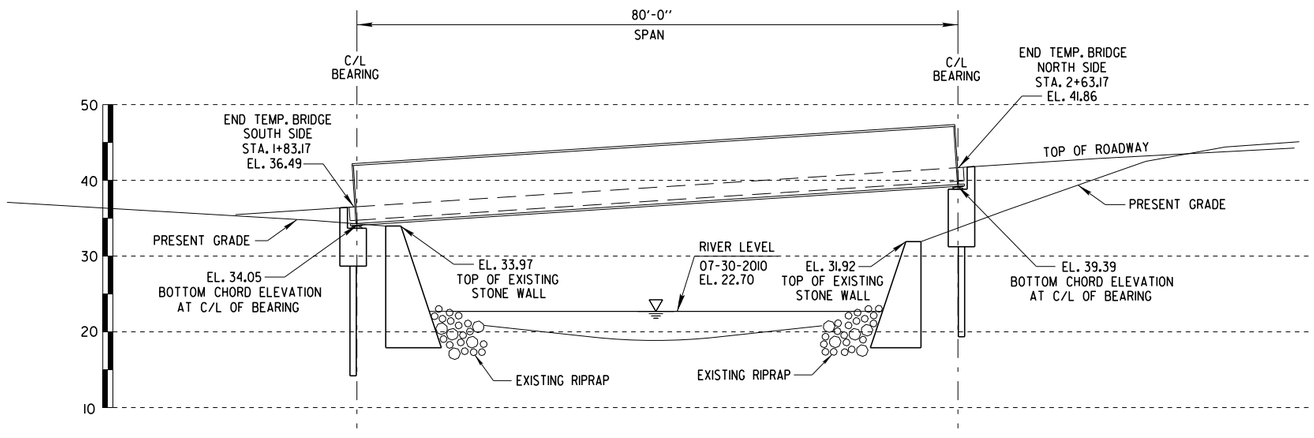
NOTES:

TEMPORARY BRIDGE SHALL BE DESIGNED BY THE CONTRACTOR AND SHOP DRAWINGS STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN WI SUBMITTED TO THE PROJECT ENGINEER FOR APPROVAL.

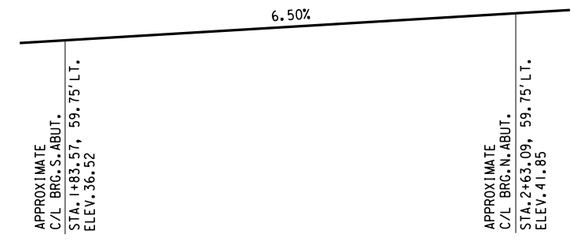
TEMPORARY BRIDGE SHALL CONFORM TO ALL QUANTITIES AND DIMENSIONS AS SHOWN IN THE PLANS.

DESIGN, CONSTRUCTION AND MAINTENANCE OF THE TEMPORARY BRIDGE IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE PAID FOR UNDER THE LUMP SUM QUANTITY "TEMPORARY STRUCTURE STA. 2+23.17".

CLEARING, GRUBBING, TEMPORARY SHORING, SITE RESTORATION, TOPSOIL, SEED, EROSION MAT, STRUCTUREBACKFILL ARE INCLUDED IN SEPARATE BID ITEMS.



EAST ELEVATION
LOOKING WEST



PROFILE GRADE LINE ALONG C/L OF TEMPORARY BRIDGE

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE P-40-601

DRAWN BY	K.P.S.	PLANS CK'D.	H.J.R. J.J.K.

TEMPORARY BRIDGE PLAN

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STATE PROJECT NUMBER

2984 - 39 - 72

ABBREVIATIONS

F — FINE M — MEDIUM C — COARSE
WS — WEATHERED SO — SOUND

MATERIAL SYMBOLS

TOPSOIL, SILT, SANDSTONE
SAND, PEAT, LIMESTONE
GRAVEL, CLAY, IGNEOUS ROCK

LEGEND OF PROBING

95/6÷95 BLOWS FOR 6" PENETRATION
PROBING TAKEN WITH A 350# WT. FALLING 18" ON A 2" O.D. POINT.

PROBING NO.
STATION
ELEVATION
7 AVERAGE BLOWS PER FOOT
REFUSAL 95/6

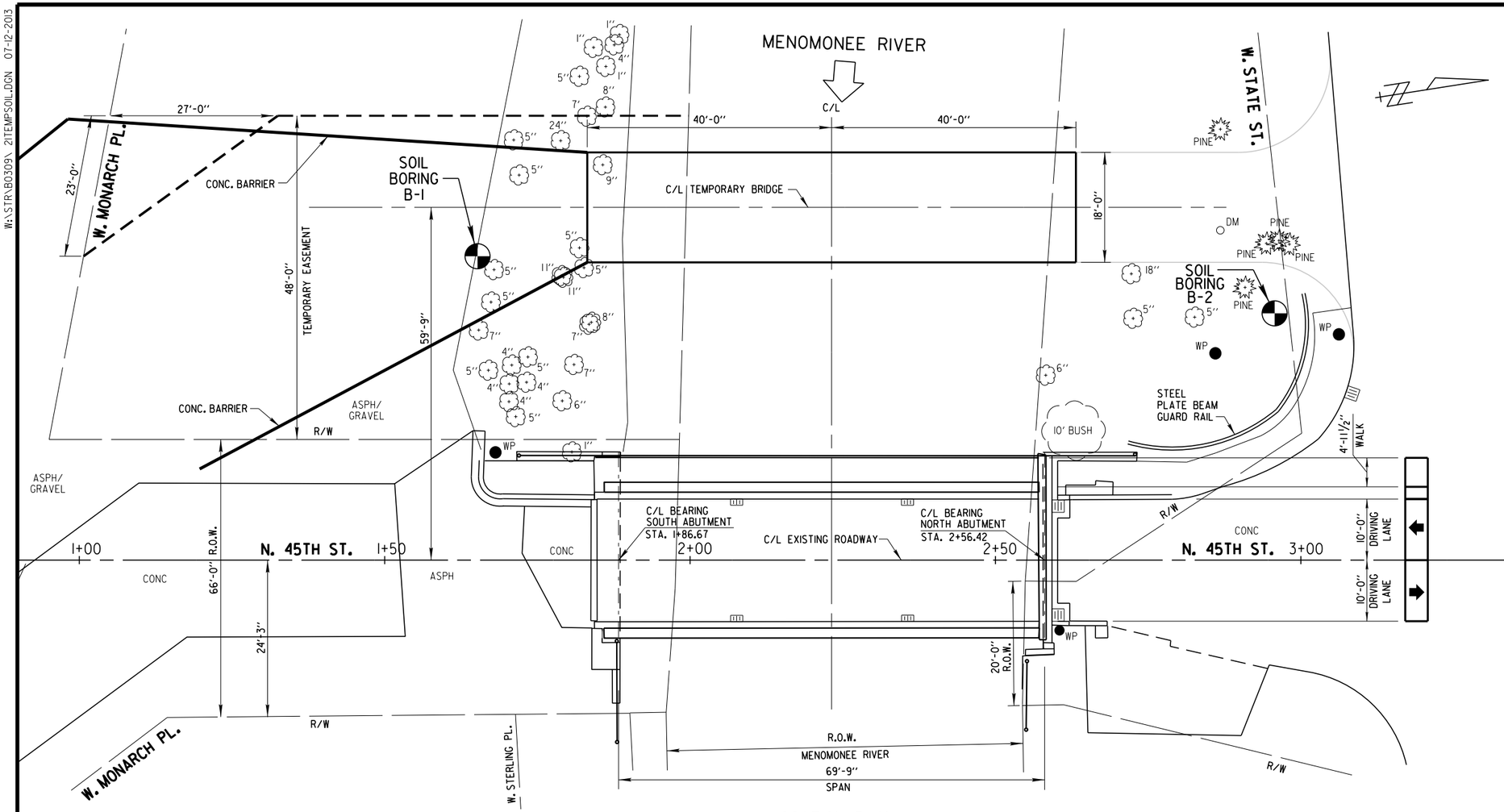
LEGEND OF BORING

BORING NO.
STA.
ELEV.
UNCONFINED STRENGTH 7.7 7
BLOWS PER FT. USING 140# WT. FALLING 30"
WASH SAMPLE
SHELBY TUBE — S.T.
GROUND WATER ELEVATION
NO GROUND WATER OBSERVED ABOVE THIS ELEVATION
SANDY GRAVEL
F. BOULDERS OR COBBLES
SAND
SILTY CLAY
SO LIMESTONE

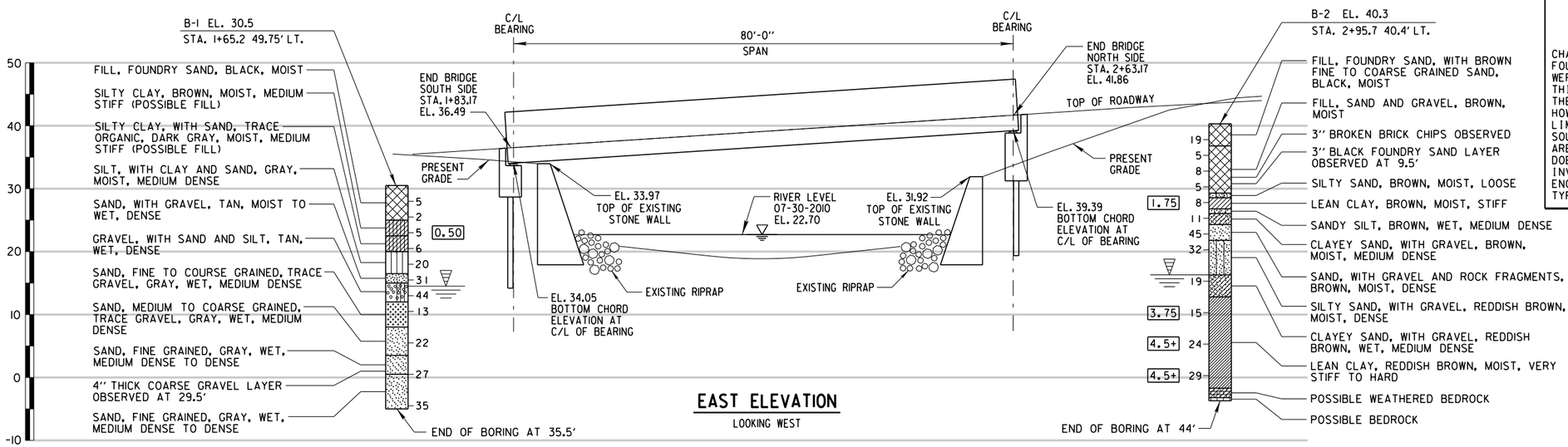
CONTRACTOR SHALL REFERENCE GESTRA GEOTECHNICAL REPORT DATED JUNE 21, 2011. UNLESS OTHERWISE SPECIFIED, THE BLOWS PER FOOT AT THE LOCATIONS INDICATED ARE BASED ON DRIVING A 2" O.D. X 1.4" I.D. SPLIT SPOON SAMPLER WITH A 140# HAMMER HAVING A FREE FALL OF 30". THE BLOW COUNT IS TAKEN IN UNDISTURBED SOIL IMMEDIATELY BELOW A CASED OR OPEN HOLE ELIMINATING SIDE FRICTION ON THE DRIVE PIPE.

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

TO OBTAIN RELATIVE DATA CONCERNING THE CHARACTER OF MATERIAL IN AND UPON WHICH THE FOUNDATION MIGHT BE BUILT, BORINGS AND/OR SOUNDINGS WERE MADE AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING. THE DATA PRESENTED HEREIN REPRESENTS THE FINDINGS OF THE SUBSURFACE EXPLORATIONS MADE. HOWEVER, BECAUSE THE DEPTHS INVESTIGATED ARE LIMITED AND THE AREA OF THE BORINGS AND/OR SOUNDINGS IS VERY SMALL IN RELATION TO THE ENTIRE AREA, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT CONDITIONS BELOW THE DEPTHS INVESTIGATED OR THAT THE CLASSIFICATION OF MATERIAL ENCOUNTERED IN THESE INVESTIGATIONS IS NECESSARILY TYPICAL OF THE ENTIRE SITE.



LOCATION PLAN



EAST ELEVATION

LOOKING WEST

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TEMPORARY BRIDGE SUBSURFACE EXPLORATION

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STATION	CUT C.Y.	FILL (-) C.Y.	LARGEST CUT IN FEET
1+00	175	0	0.33
1+50	93	0	0.33
2+00	0	0	0
2+50	217	0	9
3+00	0	0	0
TOTAL	**485**	**0**	

Wisconsin Department of Transportation

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through innovation and exceptional service.

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