WKE

JUNE 08, 2021

PROJECT ID: 1060-10-70

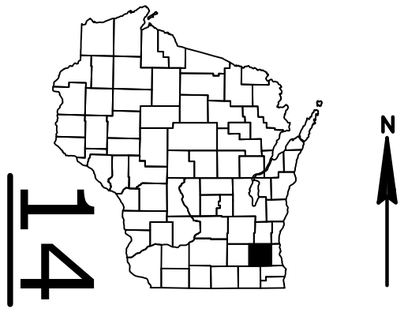
WITH:

COUNTY: WAUKESHA

ORDER OF SHEETS

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

TOTAL SHEETS = 232



DESIGN DESIGNATION			ELMHURST	IH 94
A.A.D.T.	2020	=	2,800	70,350
A.A.D.T.	2040	=	3,100	77,700
D.H.V.		=	3080	-
D.D.		=	59-41	-
T.		=	-	-
DESIGN SPEED		=	30 MPH	70 MPH
ESALS		=	-	-

CONVENTIONAL SYMBOLS

PLAN

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

PROFILE

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

UTILITIES

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

IH 94 EAST WEST FREEWAY

ELMHURST ROAD OVERPASS (B-67-0059)

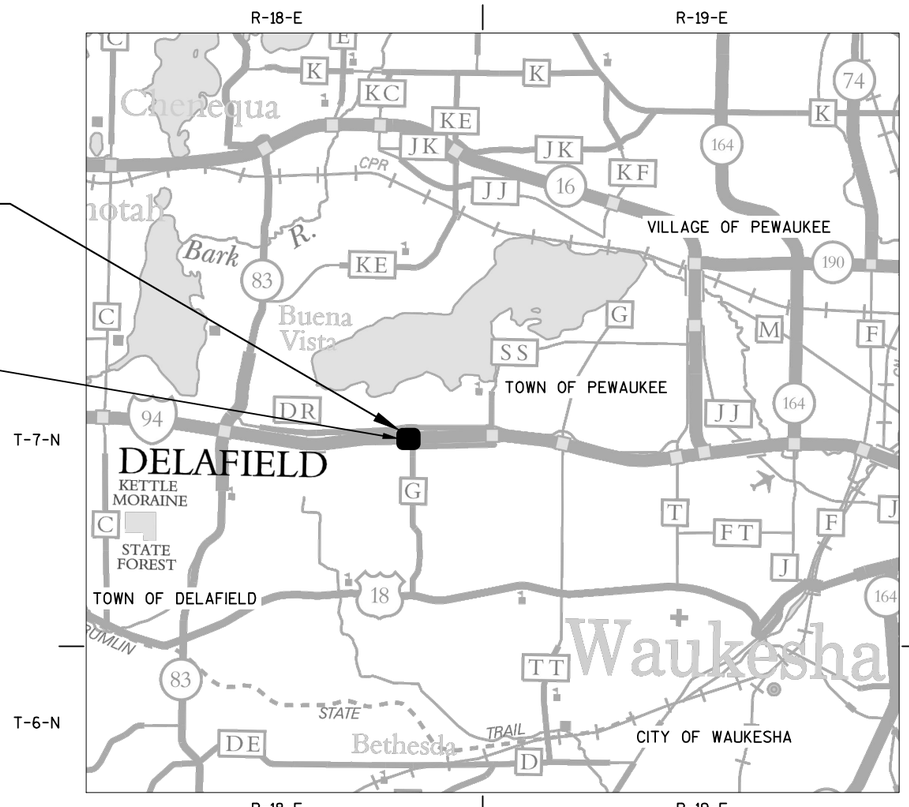
IH 94

WAUKESHA COUNTY

STATE PROJECT NUMBER
1060-10-70

PROJECT LOCATION
STA. 587+72.24
X = 658,147.1297
Y = 175,243.1219

STRUCTURE
B-67-59 (EXISTING)
B-67-369 (NEW)



LAYOUT

SCALE 0 1 MILE

TOTAL NET LENGTH OF CENTERLINE = 0.000 MI.

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATES, WAUKESHA COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988, NAVD88 (2012)

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
1060-10-70	WISC 2021365	1

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	SURVEYOR
Designer	WISDOT
Project Manager	SCOTT ANDERSON
Regional Examiner	
Regional Supervisor	WAFA ELQAQ

APPROVED FOR THE DEPARTMENT

DATE: 3/17/21 *Scott M Anderson* (Signature)

E

FILE NAME : N:\PDS\C3D\10601000\SHEETSPLAN\FINAL PSE\10601070\010101-TI.DWG
LAYOUT NAME - 010101-TI - 010101_TITLE SHEET

PLOT DATE : 1/2/2020 6:51 AM

PLOT BY : JOHANSEN, AMANDA A PLOT NAME :

WISDOT/CADDS SHEET 10

STANDARD ABBREVIATIONS

ASPH	ASPHALTIC
BAD	BASE AGGREGATE DENSE
BM	BENCH MARK
C/L	CENTER OR CONSTRUCTION LINE
CONC	CONCRETE
CP	CULVERT PIPE
CPRC	CULVERT PIPE REINFORCED CONCRETE
D	LANE DISTRIBUTION
DHV	DESIGN HOURLY VOLUME
DIM	DIMENSION
EB	EASTBOUND
LT	LEFT
MAX	MAXIMUM
MIN	MINIMUM
NB	NORTHBOUND
NORM	NORMAL
PAVT	PAVEMENT
PC	POINT OF CURVE
PCC	POINT OF COMPOUND CURVE
PI	POINT OF INTERSECTION
PGL	PROFILE GRADE LINE
PT	POINT OF TANGENT
R	RADIUS OF CURVE
R/L	REFERENCE LINE
R/W	RIGHT OF WAY
RO	RUN OFF LENGTH
RT	RIGHT
SB	SOUTHBOUND
SDD	STANDARD DETAIL DRAWING
SE	SUPER ELEVATION
SF	SQUARE FOOT
SI	SLOPE INTERCEPT
STA	STATION
SY	SQUARE YARD
TYP	TYPICAL
VCL	VERTICAL CURVE LENGTH
VPC	POINT OF VERTICAL CURVE
VPI	POINT OF VERTICAL INTERSECTION
VPT	POINT OF VERTICAL TANGENT
WB	WESTBOUND
V	DESIGN SPEED

ORDER OF SECTION 2 SHEETS

GENERAL NOTES

PROJECT OVERVIEW

TYPICAL SECTIONS

CONSTRUCTION DETAILS

PLAN DETAILS

PAVING GRADES

EROSION CONTROL

STORM SEWER PLAN

PAVEMENT MARKING

TRAFFIC CONTROL

STAGE CONSTRUCTION

DETOURS

ALIGNMENT

	PAVEMENT TYPE	TOTAL LAYER PAVEMENT THICKNESS	LAYERS
A	4 MT 58-28 S 3 MT 58-28 S	6”	2” UPPER LAYER 4” LOWER LAYER
B	3 MT 58-28 S	4”	4” SINGLE LAYER
F	4 MT 58-28 S 3 MT 58-28 S	4”	1 3/4” UPPER LAYER 2 1/4” LOWER LAYER

GENERAL NOTES

NO TREES OR SHRUBS SHALL BE REMOVED WITHOUT APPROVAL OF THE ENGINEER.

THE CONTRACTOR SHALL 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 SEPARATELY.

ALL HOLES OR OPENINGS BELOW SUBGRADE RESULTING FROM ABANDONMENT OR REMOVAL OF EXISTING STRUCTURES SHALL BE FILLED WITH GRANULAR BACKFILL.

TEMPORARY STORAGE OF ANY EXCAVATED MATERIAL WILL NOT BE PERMITTED IN WETLANDS.

THE LOCATION OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN. THE CONTRACTOR SHALL NOTIFY DIGGERS HOTLINE AND ALL UTILITIES IN THE VICINITY OF THE PROJECT TO LOCATE THEIR FACILITIES AT LEAST THREE WORKING DAYS PRIOR TO BEGINNING WORK.

PIPE ELEVATIONS SHOWN ON THE PLANS MAY BE ADJUSTED BY THE ENGINEER TO FIT EXISTING FIELD CONDITIONS.

THE EROSION CONTROL FEATURES ARE SHOWN ON THE PLAN AND PROFILE SHEETS AT SUGGESTED LOCATIONS. THE EXACT LOCATIONS WILL BE DETERMINED BY THE FIELD ENGINEER.

EROSION CONTROL DEVICES ARE TO BE PLACED IN PROPER SEQUENCE WITH CONSTRUCTION OPERATIONS AND MAINTAINED THROUGHOUT THE PROJECT TO COMPETION OR AS DETERMINED BY THE ENGINEER.

ADDITIONAL EROSION CONTROL NOTES AND INSTRUCTIONS MAY BE FOUND IN THE SPECIAL PROVISIONS.

ALL PAVEMENT MARKING STATIONS ARE APPROXIMATE AND ARE TO BE VERIFIED BY THE ENGINEER IN THE FIELD.

2

UTILITY CONTACTS

ATT LOCAL NETWORK
MS. JENNIFER NAVARRO
6070 N FLINT ROAD
GLENDALE, WI 53209
PHONE: (414) 459-3564
J.NAVARRO@NORTHWINDTECH.COM

ATT WISCONSIN
MR. TOM CROWLEY
2005 PEWAUKEE ROAD
WAUKESHA, WI 53188
PHONE: (262) 896-7427
TC1657@ATT.COM

ATC MANAGEMENT, INC.
MR. MIKE OLSEN
ATC MANAGEMENT, INC.
801 O'KEEFE ROAD
PO BOX 6113
DEPERE, WI 54115
PHONE: (920) 338-6582
MOLSEN@ATCLLC.COM

AT&T WISCONSIN
MR. RICK PODOLAK
304 S DEWEY STREET, 4TH FLOOR
EAU CLAIRE, WI 54701
PHONE: (715) 839-5565
RICK.T.PODOLAK@ATT.COM

CITY OF WAUKESHA - COMMUNICATION LINE
MR. JEFF HERNKE
130 DELAFIELD STREET
WAUKESHA, WI 53188
PHONE: (262) 524-3592
JHERNKE@WAUKESHA-WI.GOV

CITY OF WAUKESHA - WATER
CHRIS WALTER
PO BOX 1648
WAUKESHA, WI 53187
PHONE: (262) 521-5272
CWALTER@WAUKESHA-WATER.COM

SPECTRUM - COMMUNICATION LINE
BEAU ABUYA
1320 N DR MARTIN LUTHER KING JR DRIVE
MILWAUKEE, WI 53212
PHONE: (414) 908-1343
WIS.ENGINEERING@CHARTER.COM

WE ENERGIES - ELECTRICITY / GAS / PETROLEUM
WE ENERGIES UTILITY COORDINATOR
500 S 116TH STREET
WEST ALLIS, WI 53214
PHONE: (414) 221-2738
WE-UTILITY-RELOCATIONS@WE-ENERGIES.COM

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

OTHER CONTACTS

WISDOT DESIGN
MR. SCOTT ANDERSON, PROJECT MANAGER
141 NW BARSTOW ST.
WAUKESHA, WI 53187 0798
PHONE: (262) 548-6894
SCOTTM.ANDERSON@DOT.WI.GOV

WISDOT STOC
MR. JEFF MADSON
433 W ST. PAUL AVE., STE 300
MILWAUKEE, WI 53203 3007
PHONE: (414) 225-3723
JEFFREY.MADSON@DOT.WI.GOV

WISCONSIN DNR
MR. CRAIG WEBSTER
141 NW BARSTOW ST, RM 180
WAUKESHA, WI 53188
PHONE: (262) 574-2141
CELL: (414) 303-3011
CRAIG.WEBSTER@WISCONSIN.GOV

WAUKESHA COUNTY - ENGINEERING
MS. KAREN BRAUN
1320 PEWAUKEE ROAD
WAUKESHA, WI 53188
PHONE: (262) 424-9032
KBRAUN@WAUKESHACOUNTY.GOV

WAUKESHA COUNTY - ROADWAY
MR. BOB RAUCHLE
1320 PEWAUKEE ROAD
WAUKESHA, WI 53188
PHONE: (262) 548-7843
BRAUCHLE@WAUKESHACOUNTY.GOV

SEWRPC
MR. JOHN WASHBURN
W239 N1812 ROCKWOOD DR.
P.O. BOX 1607
WAUKESHA, WI 53187-1607
PHONE: (262) 547-6721
CELL: (262) 953-4295
FAX: (262) 547-1103
JWASHBURN@SEWRPC.ORG

WAUKESHA METRO
BRIAN ENGELKING
TRANSIT MANAGER
2311 BADGER DRIVE
WAUKESHA, WI 53188
PHONE: (262) 524-3634
BENGELKI@CI.WAUKESHA.WI.US

WAUKESHA CO. AIRPORT (CRITES FIELD)
MR. KURT STANICH, AIRPORT MANAGER
2525 AVIATION DRIVE
PHONE: (262) 521-5249
FAX: (262) 521-5290
KSTANICH@WAUKESHACOUNTY.GOV

TO OBTAIN LOCATION OF PARTICIPANTS' UNDERGROUND FACILITIES BEFORE YOU DIG IN WISCONSIN

WIS. STATUTE 182.0175 (1974) REQUIRES MIN. OF 3 WORK DAYS NOTICE BEFORE YOU EXCAVATE.

2

2

N

TOWN OF DELAFIELD

ELMHURST RD

ZION CREEK

STRUCTURE
B-67-59 (EXIST)
B-67-369 (NEW)
-RECONSTRUCT

CTH DR

GOLF RD

R-67-147

IH-94

574 576 578 580 582 584 586 588 590 592 594 596 598 600 602

R-67-146

SIL VERNAIL RD

PROJECT LOCATION
STA. 587+72.24

ZION CREEK

TOWN OF DELAFIELD

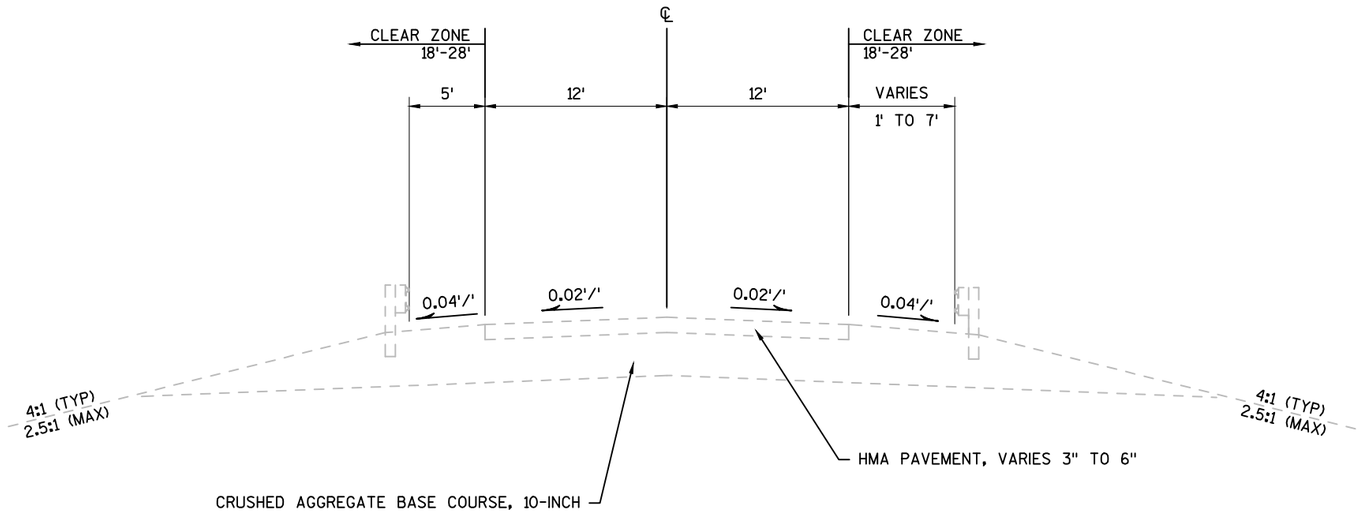
CTH G (ELMHURST RD)

PROJECT NO: 1060-10-70	HWY: IH 94	COUNTY: WAUKESHA	PROJECT OVERVIEW	SHEET 4	E

FILE NAME : N:\PDS\C3D\10601000\SHEETSPLAN\FINAL PSE\10601070\020201-PO.DWG
LAYOUT NAME - 020201_PROJECT OVERVIEW

PLOT DATE : 1/2/2020 7:38 AM PLOT BY : JOHANSEN, AMANDA A PLOT NAME : PLOT SCALE : 1 IN:200 FT

WISDOT/CADDS SHEET 44

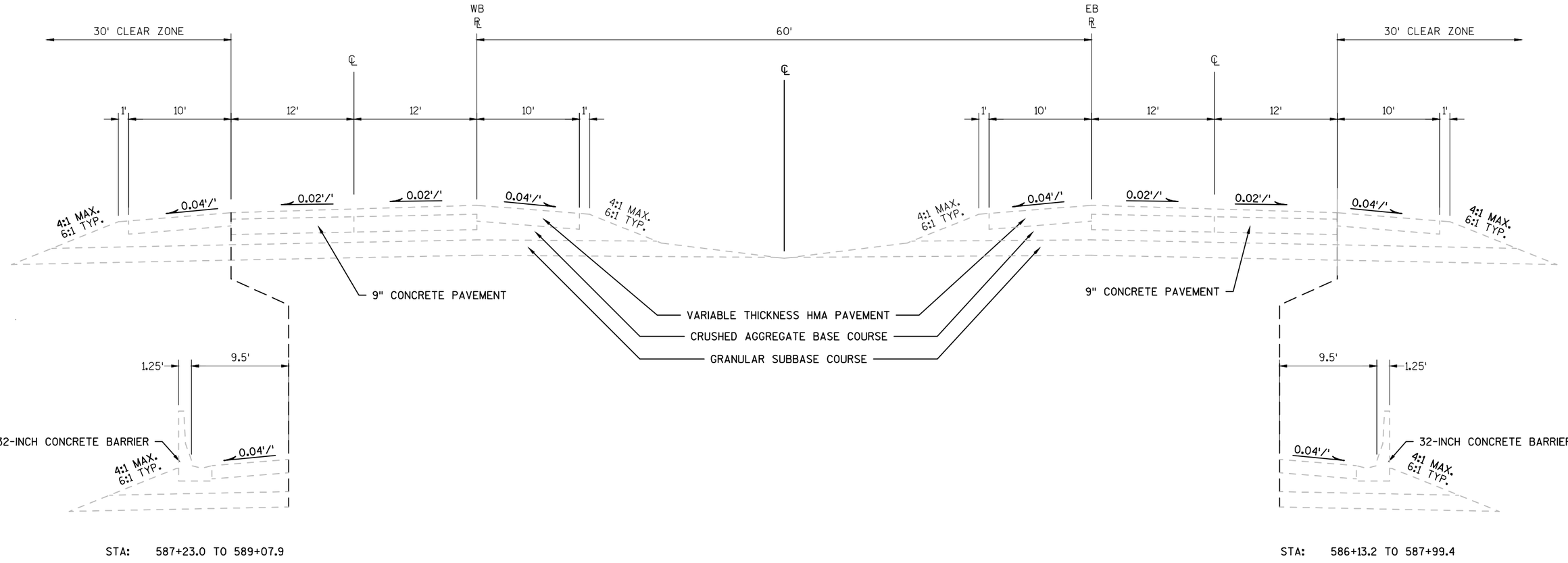


EXISTING TYPICAL SECTION - ELMHURST ROAD

17+52.18 TO 23+12.56

PROJECT NO: 1060-10-70	HWY: IH-94	COUNTY: WAUKESHA	TYPICAL SECTION - ELMHURST ROAD	SHEET 5	E

FILE NAME : N:\PDS\C3D\10601000\SHEETSPLAN\DRAFT PSE\PLAN\10601070\020301-TS.DWG
LAYOUT NAME - 020301_TS - EXISTING ELMHURST
PLOT DATE : 3/5/2018 9:25 AM PLOT BY : JOHANSEN, AMANDA A PLOT NAME : PLOT SCALE : 1 IN:10 FT
WISDOT/CADDS SHEET 42



STA: 587+23.0 TO 589+07.9

STA: 586+13.2 TO 587+99.4

EXISTING TYPICAL SECTION - IH 94 (AT ELMHURST RD)

584+93 TO 589+08

PROJECT NO: 1060-10-70	HWY: IH-94	COUNTY: WAUKESHA	TYPICAL SECTION - IH 94	SHEET 6	E

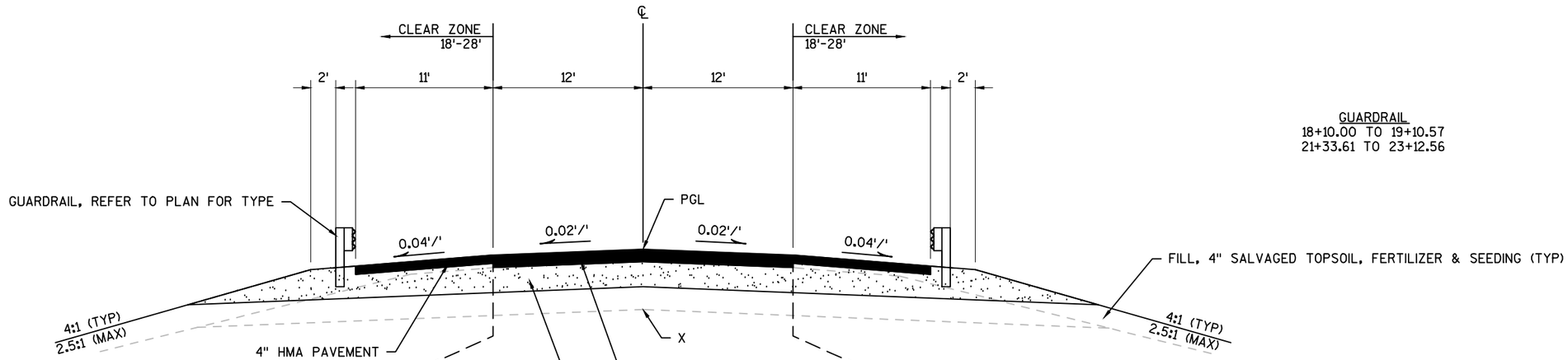
FILE NAME : N:\PDS\C3D\10601000\SHEETSPLAN\DRAFT PSE\PLAN\10601070\020301-TS.DWG
LAYOUT NAME - 020302_TS - EXISTING IH94

PLOT DATE : 3/5/2018 9:32 AM PLOT BY : JOHANSEN, AMANDA A PLOT NAME : PLOT SCALE : 1 IN:10 FT

2

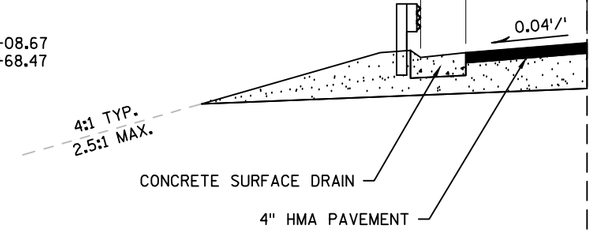
GUARDRAIL
18+24.92 TO 19+25.61
21+48.64 TO 23+12.56

GUARDRAIL
18+10.00 TO 19+10.57
21+33.61 TO 23+12.56

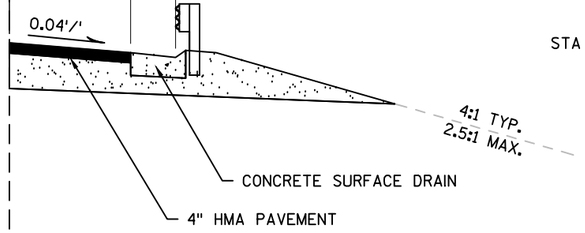


PROPOSED TYPICAL SECTION - ELMHURST ROAD
17+52.18 TO 23+12.56

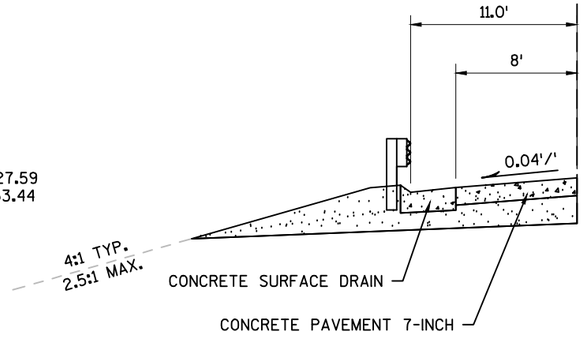
STA 18+99.52 TO 19+08.67
STA 21+53.44 TO 21+68.47



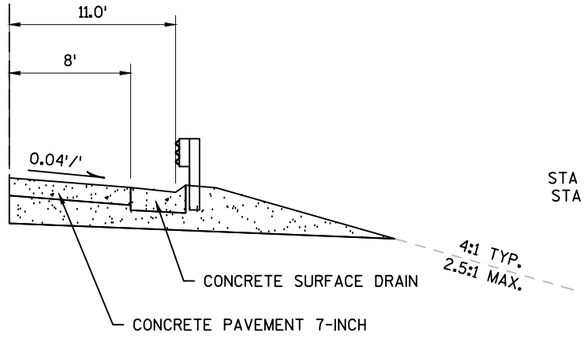
STA 18+71.99 TO 19+08.67



STA 19+08.67 TO 19+27.59
STA 21+39.14 TO 21+53.44



STA 19+08.67 TO 19+20.07
STA 21+31.62 TO 21+53.44



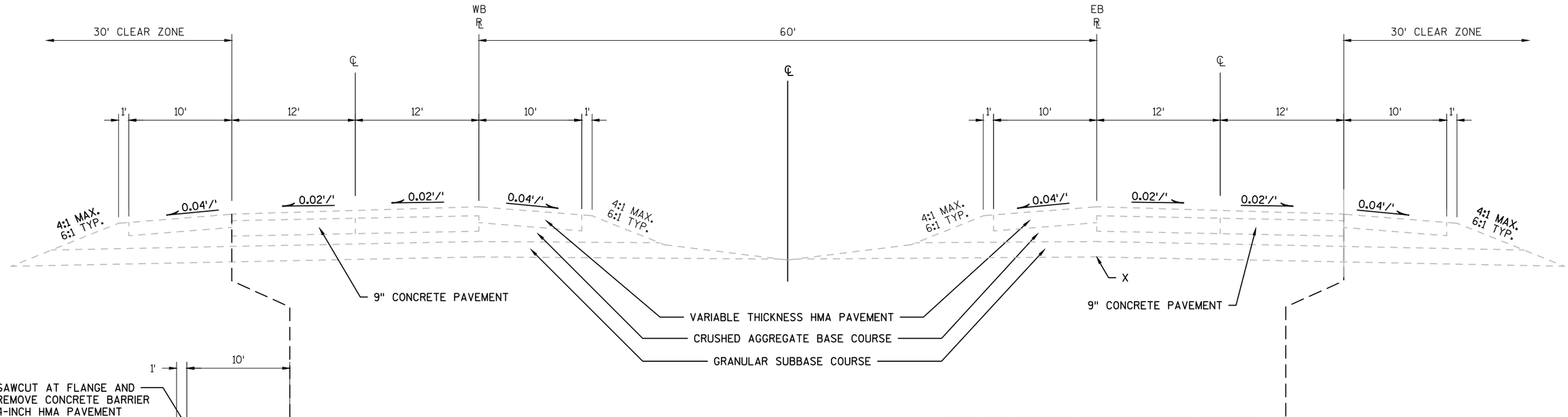
FOOTNOTE:

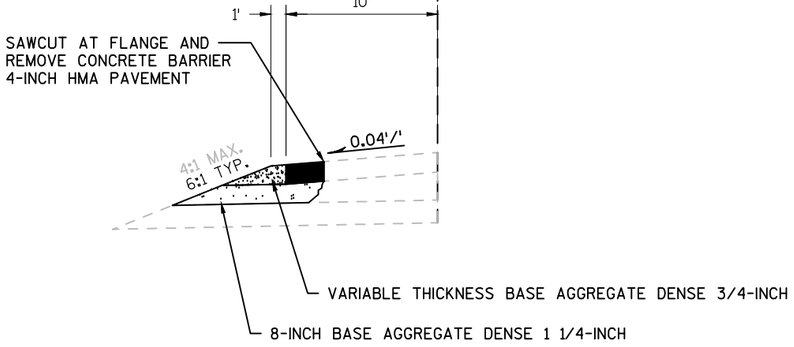
PGL = POINT REFERRED TO ON PROFILE
X = POINT REFERRED TO ON CROSS SECTION

PROJECT NO: 1060-10-70	HWY: IH-94	COUNTY: WAUKESHA	TYPICAL SECTION - ELMHURST ROAD	SHEET 7	E

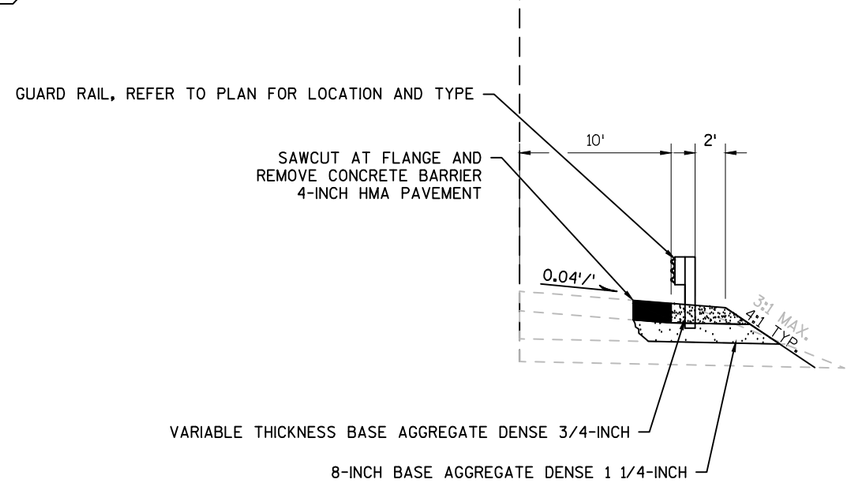
FILE NAME : N:\PDS\C3D\10601000\SHEETSPLAN\FINAL PSE\10601070\020301-TS.DWG
LAYOUT NAME - 020303_TS - PROPOSED ELMHURST
PLOT DATE : 3/22/2021 12:54 PM PLOT BY : JOHANSEN, AMANDA A PLOT NAME : PLOT SCALE : 1 IN:10 FT
WISDOT/CADDS SHEET 42

2





STA: 587+23.0 TO 589+07.9



STA: 586+13.2 TO 587+99.4

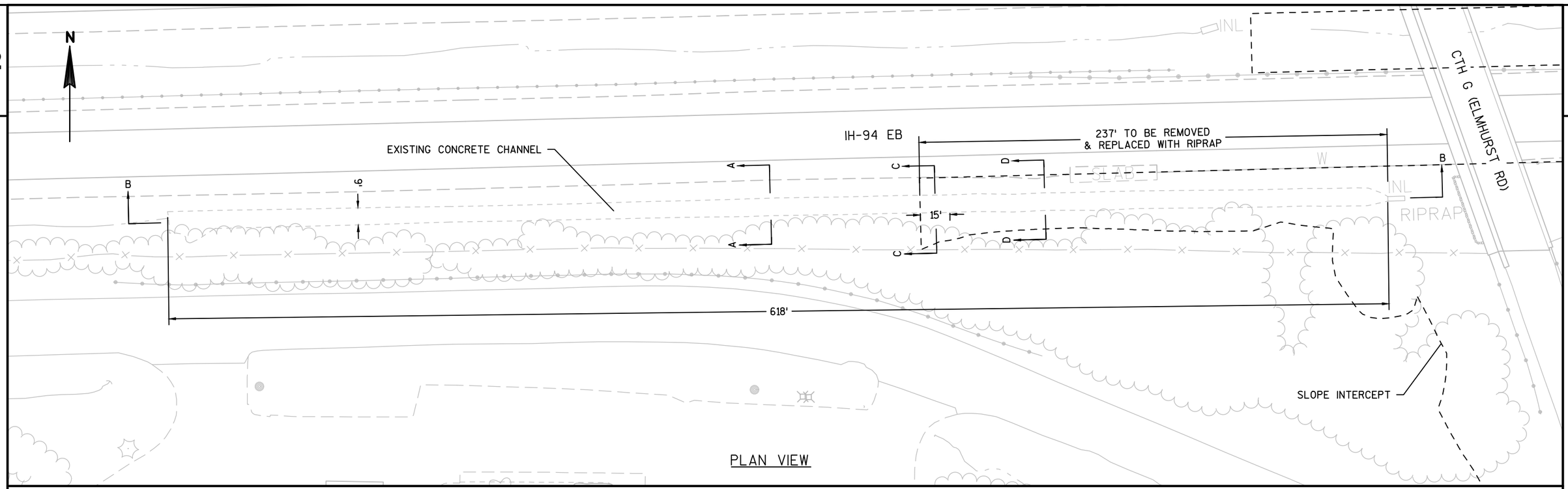
PROPOSED TYPICAL SECTION - IH 94 (AT ELMHURST RD) - BARRIER REMOVAL

FOOTNOTE:

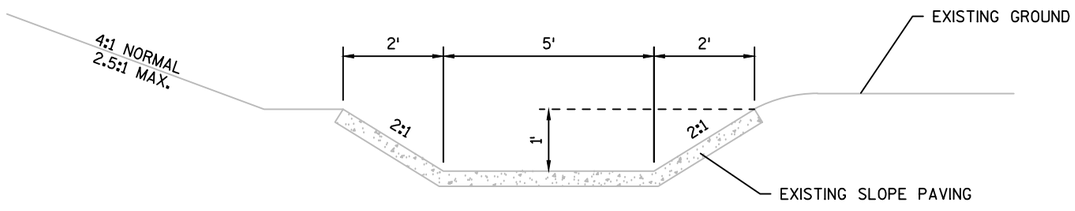
X = POINT REFERRED TO ON CROSS SECTION

PROJECT NO: 1060-10-70	HWY: IH-94	COUNTY: WAUKESHA	TYPICAL SECTION - IH 94	SHEET 8	E

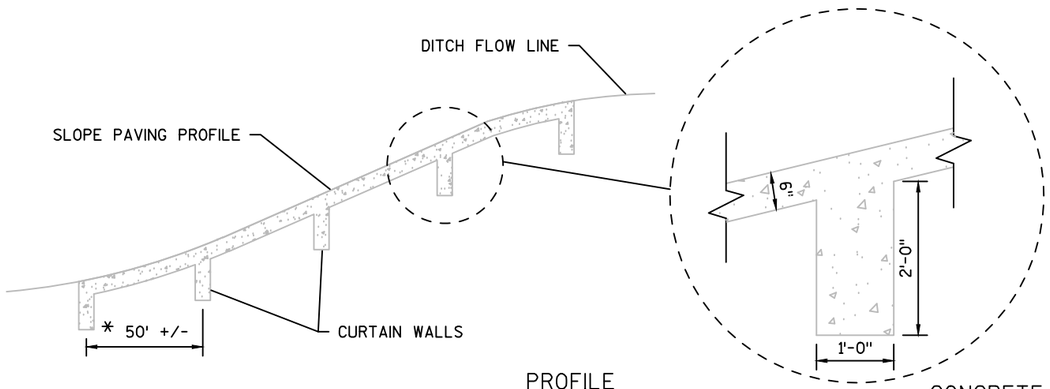
FILE NAME : N:\PDS\C3D\10601000\SHEETSPLAN\FINAL PSE\10601070\020301-TS.DWG
LAYOUT NAME - 020304_TS - PROPOSED IH 94
PLOT DATE : 3/22/2021 12:48 PM PLOT BY : JOHANSEN, AMANDA A PLOT NAME :
PLOT SCALE : 1 IN:10 FT
WISDOT/CADDS SHEET 42



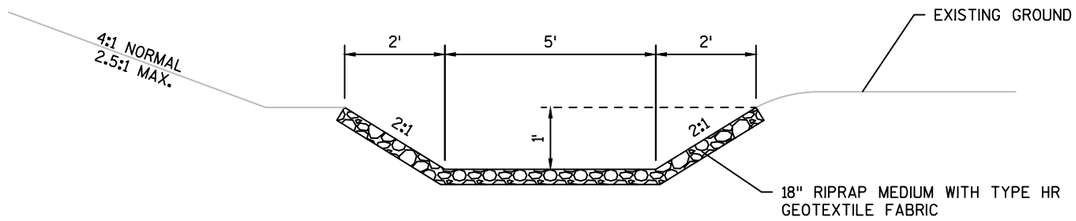
PLAN VIEW



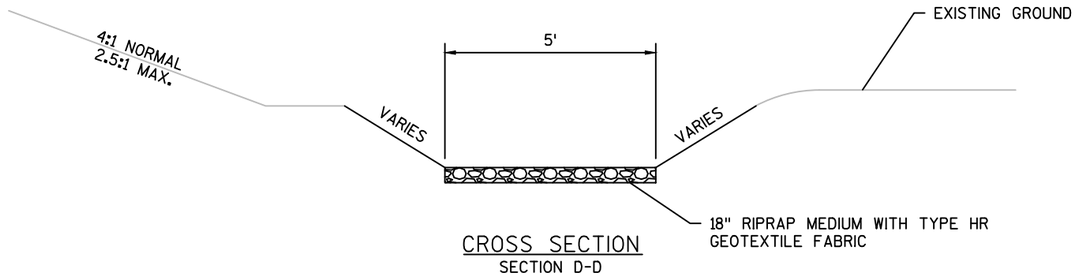
CROSS SECTION
SECTION A-A



PROFILE
SECTION B-B



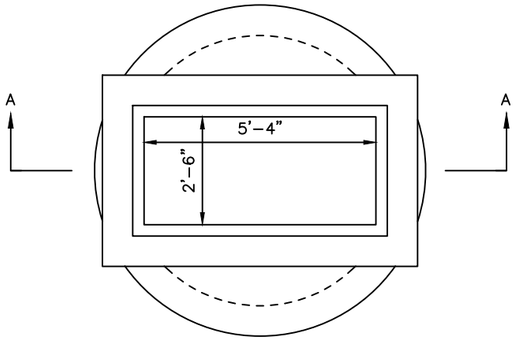
CROSS SECTION
SECTION C-C



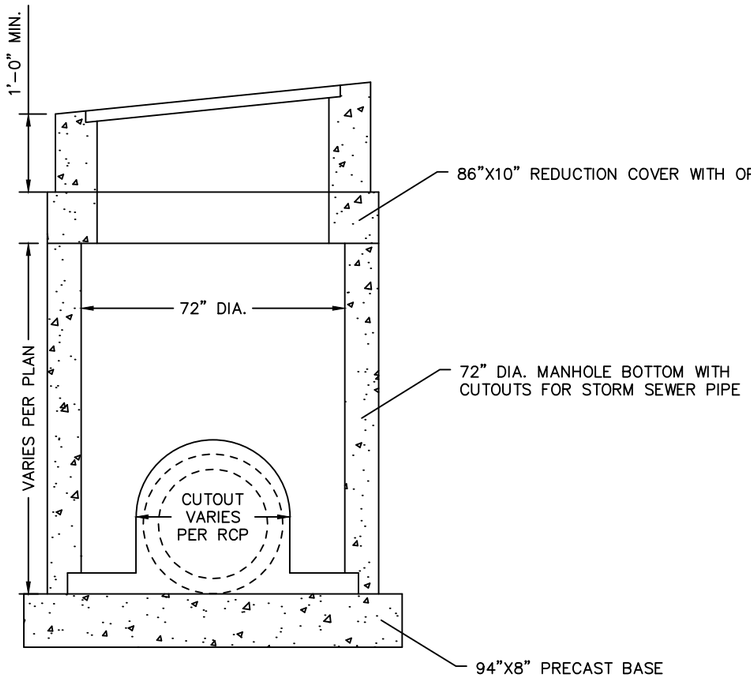
CROSS SECTION
SECTION D-D

CONCRETE CHANNEL REMOVAL & REPLACEMENT

PROJECT NO: 1060-10-70	HWY: IH-94	COUNTY: WAUKESHA	CONSTRUCTION DETAIL	SHEET 9	E

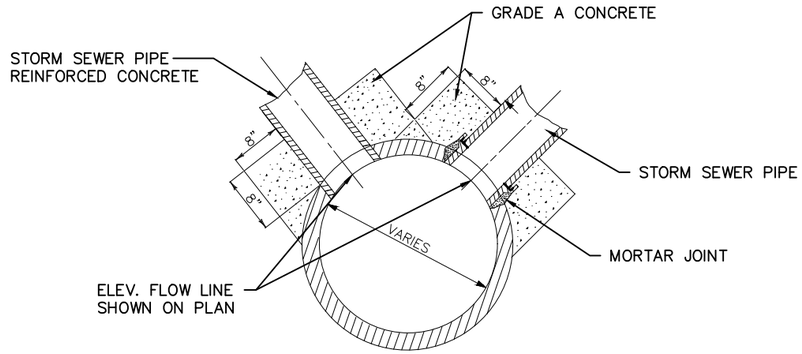


PLAN VIEW



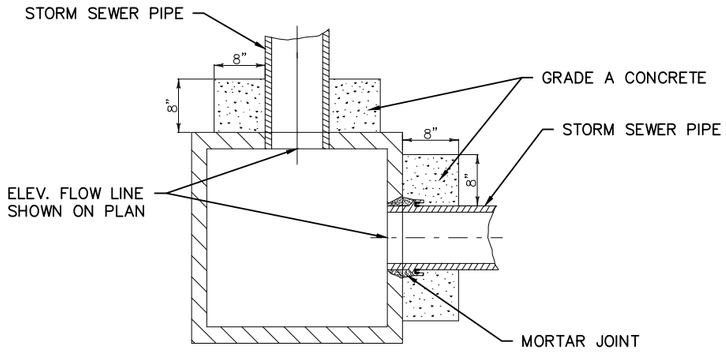
SECTION A–A

INLETS MEDIAN SPECIAL 2G–MS



AT MANHOLE

INCIDENTAL TO NEW STRUCTURE ITEMS WHEN NEW PIPE CONNECTS TO NEW STRUCTURE



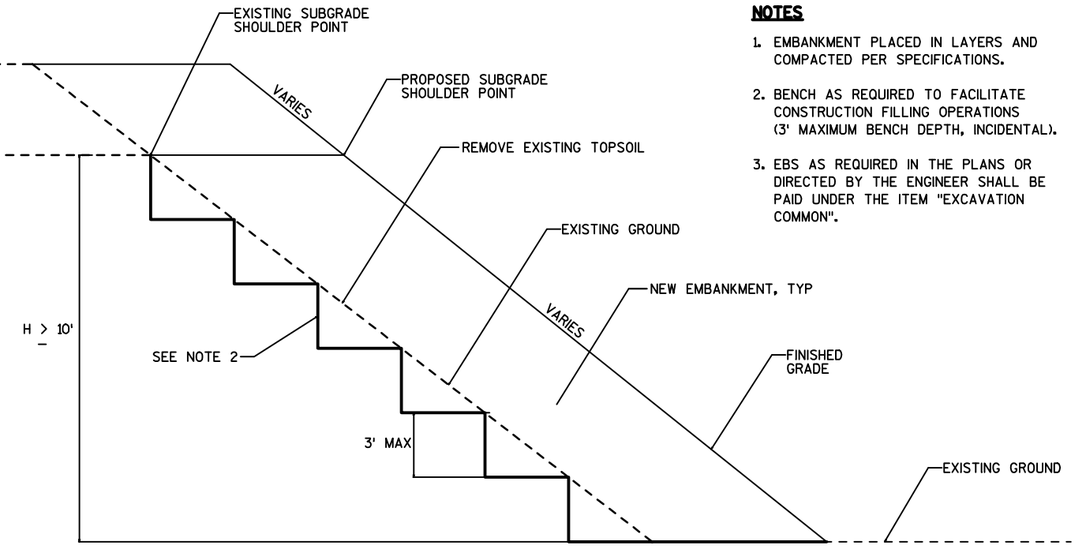
AT STORM SEWER INLET

INCIDENTAL TO NEW STRUCTURE ITEMS WHEN NEW PIPE CONNECTS TO NEW STRUCTURE

NOTES:

- CONCRETE COLLAR INCIDENTAL TO THE SPECIAL PROVISION "RECONNECT STORM SEWER LATERAL" WHEN CONNECTING AND EXISTING PIPE TO A NEW STRUCTURE.
- CONCRETE COLLAR TO BE PAID AS A BID ITEM WHEN CONNECTING A NEW PIPE TO AN EXISTING STRUCTURE

CONCRETE COLLAR DETAIL



NOTES

1. EMBANKMENT PLACED IN LAYERS AND COMPACTED PER SPECIFICATIONS.
2. BENCH AS REQUIRED TO FACILITATE CONSTRUCTION FILLING OPERATIONS (3' MAXIMUM BENCH DEPTH, INCIDENTAL).
3. EBS AS REQUIRED IN THE PLANS OR DIRECTED BY THE ENGINEER SHALL BE PAID UNDER THE ITEM "EXCAVATION COMMON".

STEPPED EMBANKMENT

NOTES:

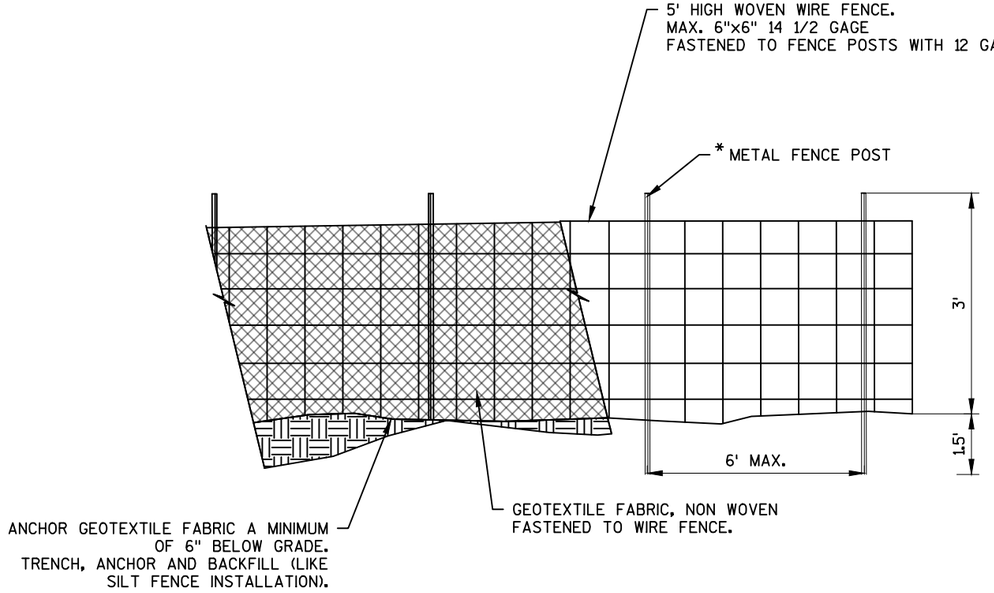
INSTALL SILT FENCE WITH MINIMUM 4" WIDE TRENCH & 6" MINIMUM TO BURY AND ANCHOR GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL. SEE STANDARD DETAIL 8 E 9-6 FOR TENCH DETAIL.

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 DEGRESS. B) HOOK THE END OF EACH SILT FENCE LENGTH.

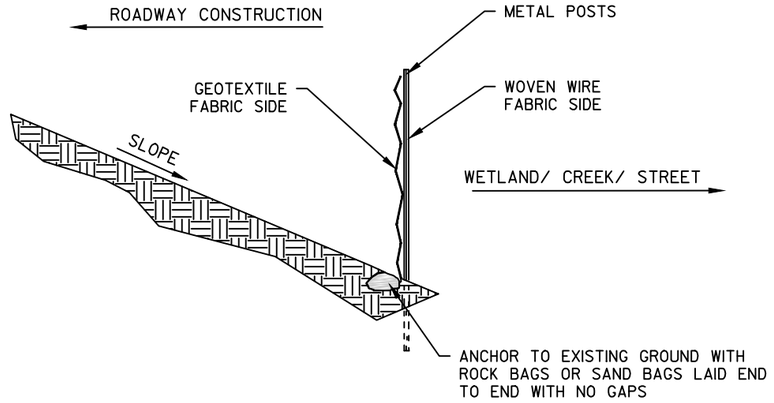
OFF SET SILT FENCE 10 FEET OUTSIDE OF SLOPE INTERCEPT (SI) WHEN POSSIBLE.

ANCHOR MATERIAL INCIDENTAL TO HEAVY DUTY SILT FENCE.

REFERENCE STANDARD DETAIL FOR JOINING TWO LENGHTS OF SILT FENCE AND TYPICAL APPLICATION OF SILT FENCE.



FRONT VIEW

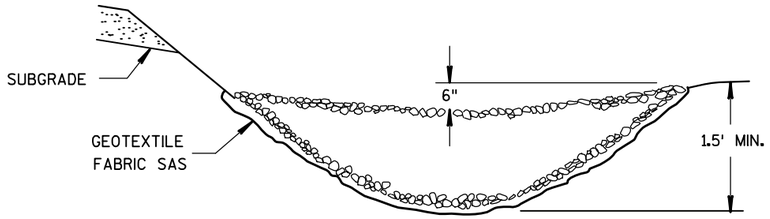


SIDE VIEW

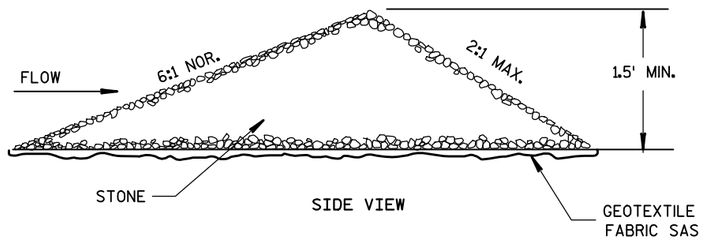
HEAVY DUTY SILT FENCE

* ADD GUY SUPPORTS TO SLOPE WHERE REQUIRED.

PROJECT NO: 1060-10-70	HWY: IH-94	COUNTY: WAUKESHA	CONSTRUCTION DETAIL	SHEET 12	E



CROSS SECTIONAL VIEW



TEMPORARY STONE DITCH CHECK

STORAGE VOLUME (C.F.) = 16 X GPM (PUMP RATE)

EXAMPLE:
CONTRACTOR INDICATES PUMP CAPABLE OF 50 GPM
HEIGHT OF BALES = 1.5 FT.

SOLUTION:
SV (C.F.) = 16 X 50
SV = 800 C.F.

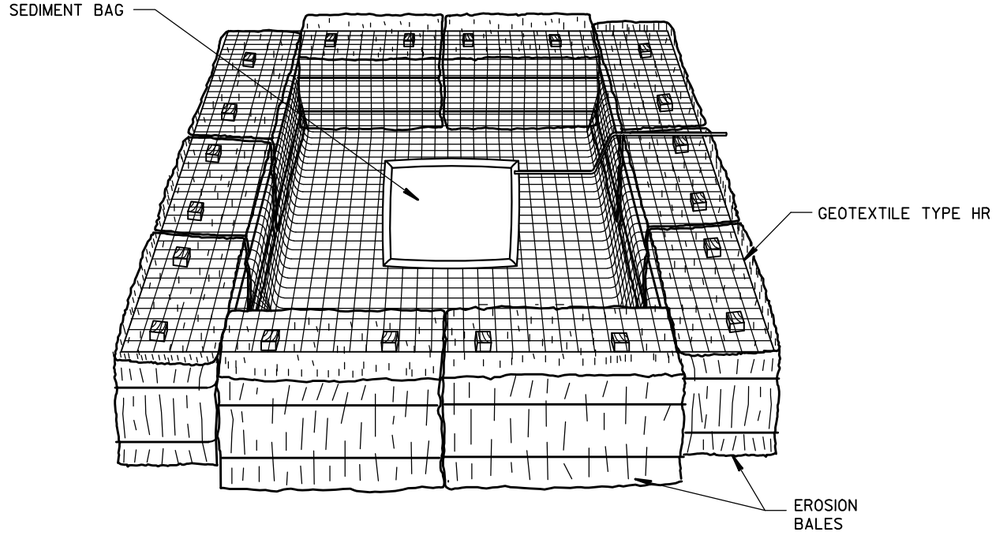
$\frac{800\ C.F.}{1.5\ FT.}$ = 533 S.F.

USE A 20 FT. X 27 FT. BASIN

NOTES
1) CONTRACTOR TO PUMP WATER FROM EXCAVATION TO SEDIMENT BAG INSIDE BASIN PRIOR TO DISCHARGING TO THE WATERWAY, SEDIMENT BAG TO BE PLACED IN AN UPLAND VEGETATED AREA OR EQUIVALENT LOCATION APPROVED BY THE ENGINEER.

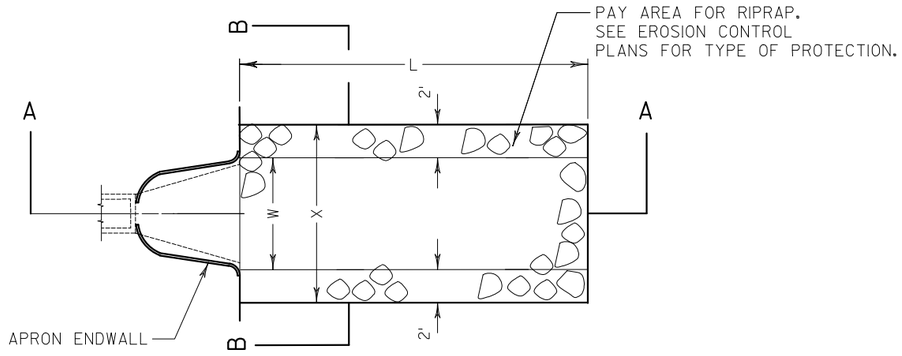
2) BASIN TO BE KEPT LESS THAN 10% FULL OF SEDIMENT. GEOTEXTILE FABRIC AND SEDIMENTS TO BE DISPOSED BY THE CONTRACTOR OFF THE PROJECT SITE.

3) TEMPORARY SETTLING BASIN AND SEDIMENT BAG TO BE PAID FOR AS EROSION BALES AND GEOTEXTILE TYPE HR.

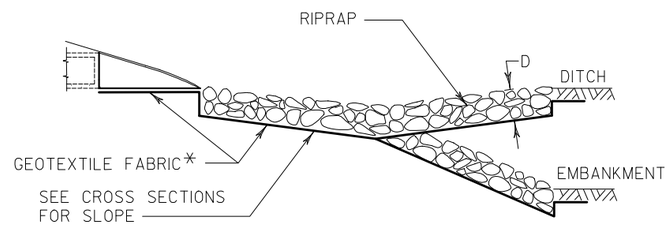


TEMPORARY SETTLING BASIN

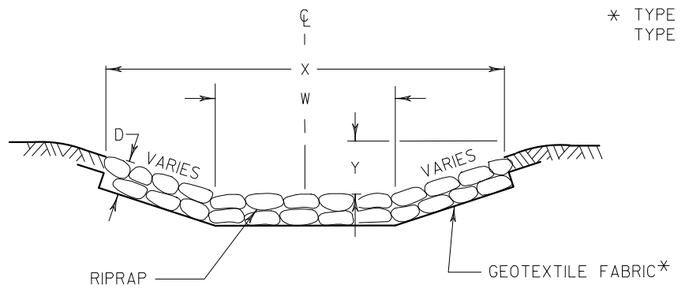
(SIZE TO BE DETERMINED IN FIELD)



PLAN VIEW



SECTION A-A



SECTION B-B

L = 3 x W (NOR) OR 10' MIN
OR AS INDICATED IN THE PLANS
OR AS DIRECTED BY THE ENGINEER

D = 12" FOR RIPRAP LIGHT
18" FOR RIPRAP MEDIUM
24" FOR RIPRAP HEAVY

X = W+4' FOR TYPICAL CULVERT
DISCHARGE INTO DITCH
W+6' FOR CULVERT DISCHARGE
DOWN EMBANKMENT SLOPE

Y = 6" FOR TYPICAL CULVERT
DISCHARGE INTO DITCH
12" FOR CULVERT DISCHARGE
DOWN EMBANKMENT SLOPE

* TYPE R (FOR RIPRAP LIGHT ONLY)
TYPE HR (FOR RIPRAP HEAVY AND MEDIUM ONLY)

CONSTRUCTION NOTES:

1. GEOTEXTILE FABRIC SHALL EXTEND BENEATH THE ENTIRE LENGTH OF THE APRON ENDWALL SECTION. INSTALL ON PREPAVED FOUNDATION. GRADE PRIOR TO END WALL INSTALLATION.

2. COMPLETE GEOTEXTILE FABRIC AND RIPRAP SECTION INSTALLATION PRIOR TO STORM WATER FLOW.

RIPRAP AND GEOTEXTILE FABRIC DETAIL AT APRON ENDWALLS

SEE EROSION CONTROL PLAN FOR LOCATIONS

2

LEGEND

A	HMA PAVEMENT 4 MT 58-28 S, 2-INCH OVER HMA PAVEMENT 3 MT 58-28 S, 4-INCH
B	HMA PAVEMENT 3 MT 58-28 S, 4-INCH
F	HMA PAVEMENT 4 MT 58-28 S, 1 3/4-INCH OVER HMA PAVEMENT 3 MT 58-28 S, 2 1/4-INCH
AG01	BASE AGGREGATE DENSE 3/4-INCH
CP01	CONCRETE PAVEMENT 7-INCH
PV01	CONCRETE PAVEMENT APPROACH SLAB
PV03	CONCRETE SURFACE DRAINS
BG02	STEEL THRIE BEAM STRUCTURE APPROACH
BG04	STEEL PLATE BEAM GUARD CLASS A
BG07	STEEL PLATE BEAM GUARD SHORT RADIUS
BG09	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
BG10	GUARD RAIL MOW STRIP ASPHALT
BG15	MGS GUARDRAIL 3
BG16	MGS THRIE BEAM TRANSITION
BG17	MGS GUARDRAIL TERMINAL EAT
FE45	FENCE WOVEN WIRE 4.5-FEET
IN01	DROP INLET
SW01	SAWING ASPHALT FULL DEPTH

2

LEGEND

- CLEARING AND GRUBBING (I.D.)
- CLEARING AND GRUBBING (STATION)
- REMOVING PAVEMENT
- REMOVING CONCRETE SIDEWALK
- REMOVING ASPHALTIC SURFACE
- REMOVING CONCRETE CHANNEL
- XXXX SAWCUT

SILVERNAIL RD

MATCHLINE 585+00

586

REMOVING CONCRETE CHANNEL

REMOVING CONCRETE BARRIER

IH 94 EB

STA. 18+12.0, 113.63' LT
STA. 587+41.0, 13.83' LT

SLOPE INTERCEPT

STA. 23+31.4, 146.2' LT
STA. 585+37.7, 14.3' RT

STA. 23+24.7, 136.9 LT
STA. 585+47.9, 19.5' RT

SLOPE INTERCEPT

REMOVING GUARDRAIL
(AS NEEDED FOR PIER EXCAVATION)

EXISTING STRUCTURE TO BE REPLACED
B-67-059 (EXISTING)
B-67-369 (PROPOSED)

REMOVING FENCE

REMOVING SURFACE DRAINS

588

STA. 17+52.19

REMOVING FENCE

18 19 20 ELMHURST RD 21 22 23

GOLF RD (CTH DR)

SW01

REMOVING GUARDRAIL

EXISTING STORM SEWER

REMOVING GUARDRAIL
(AS NEEDED FOR WORK ZONE ACCESS)

REMOVING GUARDRAIL
(AS NEEDED FOR PIER EXCAVATION

REMOVING FENCE

REMOVING GUARDRAIL

STA. 22+84.0, 142.5' RT

ABANDON EXISTING STORM SEWER

SW01

SW01

REMOVING CONCRETE BARRIER

590

588

STA. 17+36.7, 142.7 RT
STA. 590+23.7, 11.8 LT

IH 94 WB

STA. 22+84.0, 142.5' RT
STA. 588+31, 19.0' RT

REMOVING FENCE

REMOVING GUARDRAIL

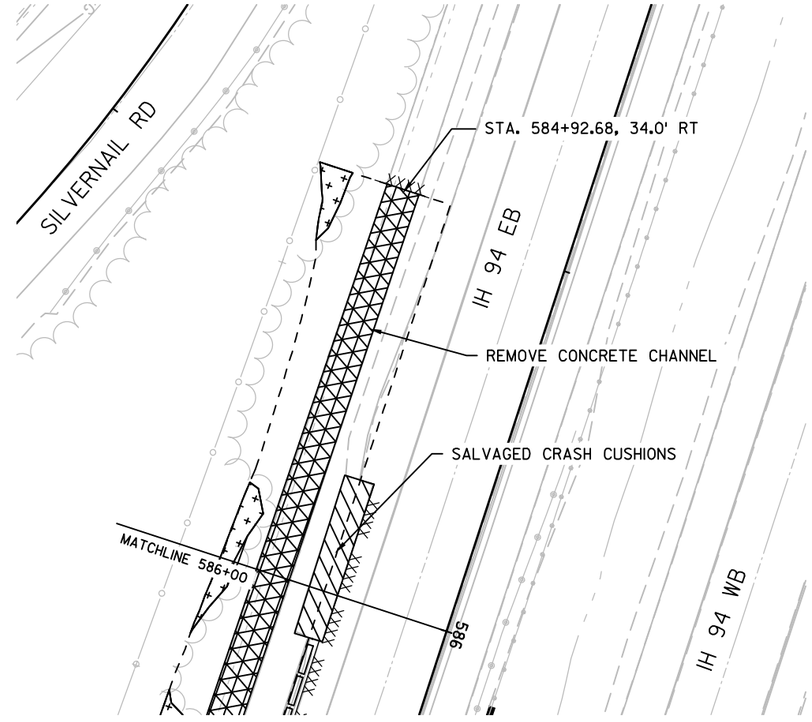
GENERAL NOTES

1. ALL ITEMS ASSOCIATED WITH BRIDGE REMOVALS ARE SHOWN ON THE BRIDGE PLAN
2. CLEARING AND GRUBBING SHALL BE PAID EITHER BY THE STATION OR INCH DIAMETER I.D.
3. THE LOCATION OF THE EXISTING UTILITY INSTALLATIONS AS SHOWN ON THE PLANS IS APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN INCLUDING BUILDING SERVICES AND LATERALS.
4. ADDITIONAL REMOVALS SHOWN ELSEWHERE ON THE PLANS.

PROJECT NO: 1060-10-70	HWY: IH-94	COUNTY: WAUKESHA	PLAN: ELMHURST ROAD REMOVALS	SHEET 16	E

FILE NAME : N:\PDS\C3D\10601000\SHEETSPLAN\DRAFT PSE\PLAN\10601070\021202-PD ELMHURST REMOVALS.DWG
LAYOUT NAME - 021202-PD ELMHURST REMOVALS
PLOT DATE : 3/5/2018 2:54 PM
PLOT BY : JOHANSEN, AMANDA A PLOT NAME :
PLOT SCALE : 1 IN:40 FT
WISDOT/CADDS SHEET 42

2



LEGEND

- CLEARING AND GRUBBING (I.D.)
- CLEARING AND GRUBBING (STATION)
- REMOVING PAVEMENT
- REMOVING CONCRETE SIDEWALK
- REMOVING ASPHALTIC SURFACE
- REMOVING CONCRETE CHANNEL
- XXXX SAWCUT

GENERAL NOTES

1. ALL ITEMS ASSOCIATED WITH BRIDGE REMOVALS ARE SHOWN ON THE BRIDGE PLAN
2. CLEARING AND GRUBBING SHALL BE PAID EITHER BY THE STATION OR INCH DIAMETER I.D.
3. THE LOCATION OF THE EXISTING UTILITY INSTALLATIONS AS SHOWN ON THE PLANS IS APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN INCLUDING BUILDING SERVICES AND LATERALS.
4. ADDITIONAL REMOVALS SHOWN ELSEWHERE ON THE PLANS.

2

MATCHLINE 586+00

SILVERNAIL RD

STA. 18+06.5, 110.3' LT

IH 94 EB

586EB

586WB

BG09

BG04

F

SLOPE INTERCEPT

FE45

PV03

STA. 17+79.7, 67.4' LT

STA. 18+10.0, 49.6' LT

AG01

STA. 18+06.4, 15.0' LT

STA. 18+32.7, 12.0' LT

IN01

BG10

BG17

BG16

3.5'

R35'

R60'

B

A

CP01

PV01

11'

12'

15'

18

19

20

21

22

23

ELMHURST RD

EXISTING STRUCTURE TO BE REPLACED
B-67-059 (EXISTING)
B-67-369 (PROPOSED)

STA. 587+23.0

STA. 587+99.4

STA. 589+07.9

IH 94 WB

BG15

BG02

STA. 23+32.2, 136.0' LT

CONNECT TO EXISTING
STA. 23+24.7, 136.9 LT

STA. 23+16.3, 62.0' LT

END CONSTRUCTION
STA. 23+12.56
MATCH EXISTING
SAWCUT REQUIRED

STA. 22+62.5, 73.0' LT

STA. 22+57.7, 74.6' LT

R50'

STA. 22+63.5, 15.0' LT

STA. 22+33.7, 12.0' LT

BG07

R40'

R32'

STA. 22+33.4, 12.0' RT

STA. 22+63.2, 15.0' RT

STA. 22+59.4, 54.7' RT

STA. 22+61.4, 55.0' RT

STA. 22+99.3, 56.4' RT

STA. 22+97.2, 106.7' RT

CONNECT TO EXISTING
STA. 22+84.0, 142.5' RT

GOLF RD (CTH DR)

586

5'

10'

12'

STA. 18+34.4, 12.0' RT

STA. 18+04.4, 15.0' RT

STA. 18+09.4, 74.7' RT

BEGIN CONSTRUCTION
STA. 17+52.18
MATCH EXISTING
SAWCUT REQUIRED

STA. 17+50.3, 64.4' RT

STA. 17+37.2, 139.3' RT

590

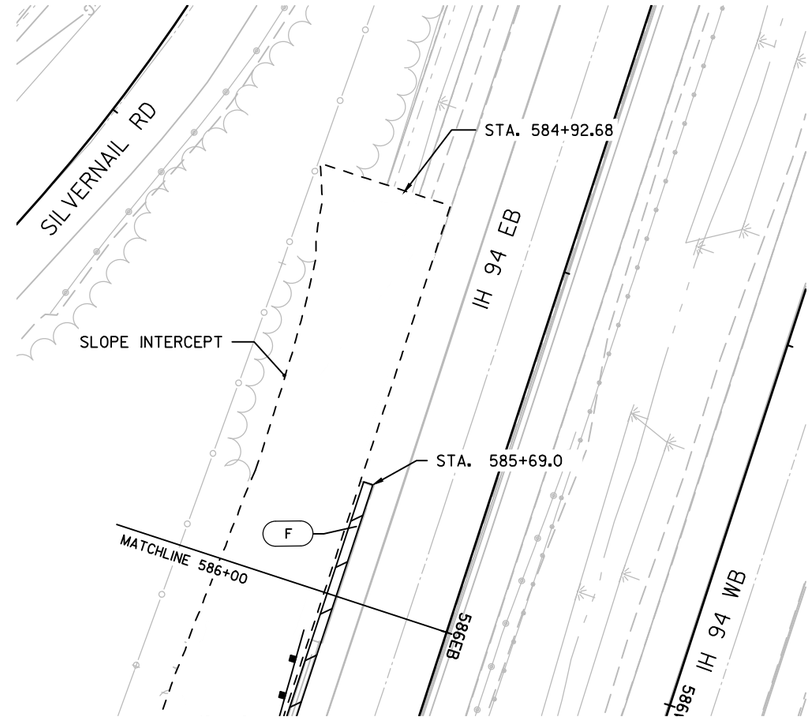
PROJECT NO: 1060-10-70	HWY: IH-94	COUNTY: WAUKESHA	PLAN: ELMHURST ROAD	SHEET 18 E

FILE NAME : N:\PDS\C3D\10601000\SHEETSPLAN\FINAL PSE\10601070\021204-PD ELMHURST.DWG
LAYOUT NAME - 021204-PD ELMHURST

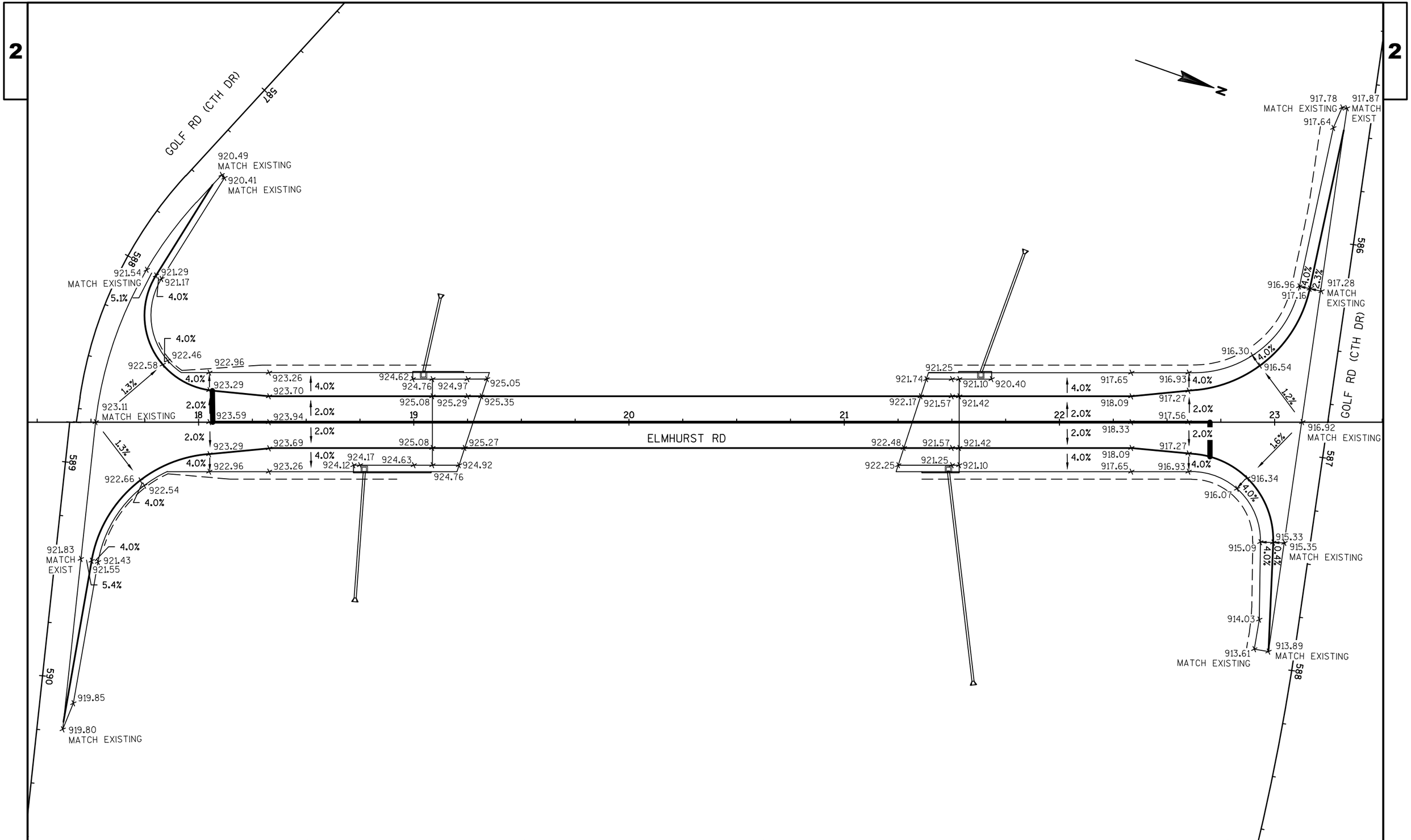
PLOT DATE : 3/22/2021 1:15 PM PLOT BY : JOHANSEN, AMANDA A PLOT NAME : PLOT SCALE : 1 IN:40 FT

WISDOT/CADDS SHEET 42

2



PROJECT NO: 1060-10-70	HWY: IH-94	COUNTY: WAUKESHA	PLAN: ELMHURST ROAD	SHEET 19	E



PROJECT NO: 1060-10-70	HWY: IH-94	COUNTY: WAUKESHA	PAVING GRADES	SHEET 20	E

FILE NAME : N:\PDS\C3D\10601000\SHEETSPLAN\DRAFT PSE\PLAN\10601070\021301_JD ELMHURST.DWG
LAYOUT NAME - 021301_JD
PLOT DATE : 3/14/2018 7:07 AM PLOT BY : JOHANSEN, AMANDA A PLOT NAME :
PLOT SCALE : 1 IN:40 FT
WISDOT/CADDS SHEET 42

2

R/L SILVERNAIL

SILVERNAIL RD

587

588

SLOPE INTERCEPT

IH 94

586EB

R/L IH 94 EB

N

158.4' (586+43.32)

153.8'

136.3'

120.5'

120.5'

120.5'

131.4'

148.9'

166.4'

183.9'

158.4' (588+56.58)

587EB

588EB

589EB

590EB

M/L

83.4' (587+32.60)

63.6' (19+31.04)

71.3'

60.5'

60.5'

60.5'

76.3'

93.9'

101.4' (588+85.73)

44.3'

63.0'

79.0' (21+96.26)

53.7'

138.7'

92.1' (22+32.63)

72.2'

43.5'

34.2'

53.8' (22+83.12)

23.3'

14.8'

34.4' (588+29.74)

26.4'

25.0'

37.3'

12.3'

8.9'

13.0'

(588+80.10)

40.0'

59.7' (17+86.21)

26.4'

44.4'

52.2'

(589+35.84)

70.0'

76.4' (18+66.43)

51.2'

28.7'

48.9' (586+36.05)

38.3'

19.3'

11.7' (586+85.05)

21.4'

37.5'

53.6'

69.8'

78.0' (587+87.69)

ELMHURST RD

R/L ELMHURST

18

19

20

21

22

23

586

587

588

589

590

GOLF RD (CTH DR)

SLOPE INTERCEPT

R/L CTH DR

PROJECT NO: 1060-10-70	HWY: IH-94	COUNTY: WAUKESHA	CROSS SECTION MATCHLINES - ELMHURST	SHEET 21	E

FILE NAME : N:\PDS\C3D\10601000\SHEETSPLAN\DRAFT PSE\PLAN\10601070\021701_XM ELMHURST.DWG
LAYOUT NAME - 021701_XM

PLOT DATE : 3/29/2018 1:29 PM PLOT BY : JOHANSEN, AMANDA A PLOT NAME : PLOT SCALE : 1 IN:40 FT

2

2

GOLF RD. (CTH DR)

ELMHURST RD.

SILVERNAIL RD.

ZION CREEK

IH-94 WB

IH-94 EB

22+27.06
99.7' RT

21+51.96
141.1' RT

21+68.24
118.0' RT

21+10.17
141.8' RT

WETLAND BOUNDARY

TYPE A

TEMPORARY STONE DITCH CHECK

PROPOSED STORM SEWER

LEGEND

- SILT FENCE
- HEAVY DUTY SILT FENCE
- RIP RAP OR STONE DITCH CHECK
- SLOPE INTERCEPT
- INLET PROTECTION
- TEMPORARY DITCH CHECK
- CULVERT PIPE CHECK
- SURFACE WATER FLOW

PROJECT NO: 1060-10-70	HWY: IH-94	COUNTY: WAUKESHA	INITIAL EROSION CONTROL PLAN	SHEET 22	E

2

2

GOLF RD. (CTH DR)

ELMHURST RD.

SILVERNAIL RD.

ZION CREEK

WETLAND BOUNDARY

IH-94 WB

IH-94 EB

TYPE A

TYPE B

RIPRAP CHANNEL (REFER TO CONSTRUCTION DETAIL)

LEGEND

- ###### EROSION MAT URBAN CLASS I, TYPE B WITH SEED MIXTURE NO. 20 (FOR FIRST 30 FT) (SEED MIXTURE NO. 60 IN WETLANDS)
- EROSION MAT CLASS II, TYPE B WITH SEED MIXTURE NO. 20 (SEED MIXTURE NO. 60 IN WETLANDS)
- SILT FENCE
- HEAVY DUTY SILT FENCE
- RIP RAP OR STONE DITCH CHECK
- SLOPE INTERCEPT
- INLET PROTECTION
- TEMPORARY DITCH CHECK
- CULVERT PIPE CHECK
- SURFACE WATER FLOW

PROJECT NO: 1060-10-70	HWY: IH-94	COUNTY: WAUKESHA	FINAL EROSION CONTROL PLAN	SHEET 23	E

2

SILVERNAIL RD

ELMHURST RD

18

20

22

586

588

IH-94 EB

IH-94 WB

GOLF RD (CTH DR)

N

SLOPE INTERCEPT

19+12.64, -59.38' LT

19+12.77, -23.00' LT (101)
INLETS 2x2-V

21+84.22, -79.97' LT

21+64.60, -23.00' LT (102)
INLETS 2x2-V

18+72.74, 23.00' RT (103)
INLETS 2x2-V

21+46.44, 23.00' RT (104)
INLETS 2x2-V

18+72.61, 83.45' RT

SLOPE INTERCEPT

WETLAND BOUNDARY

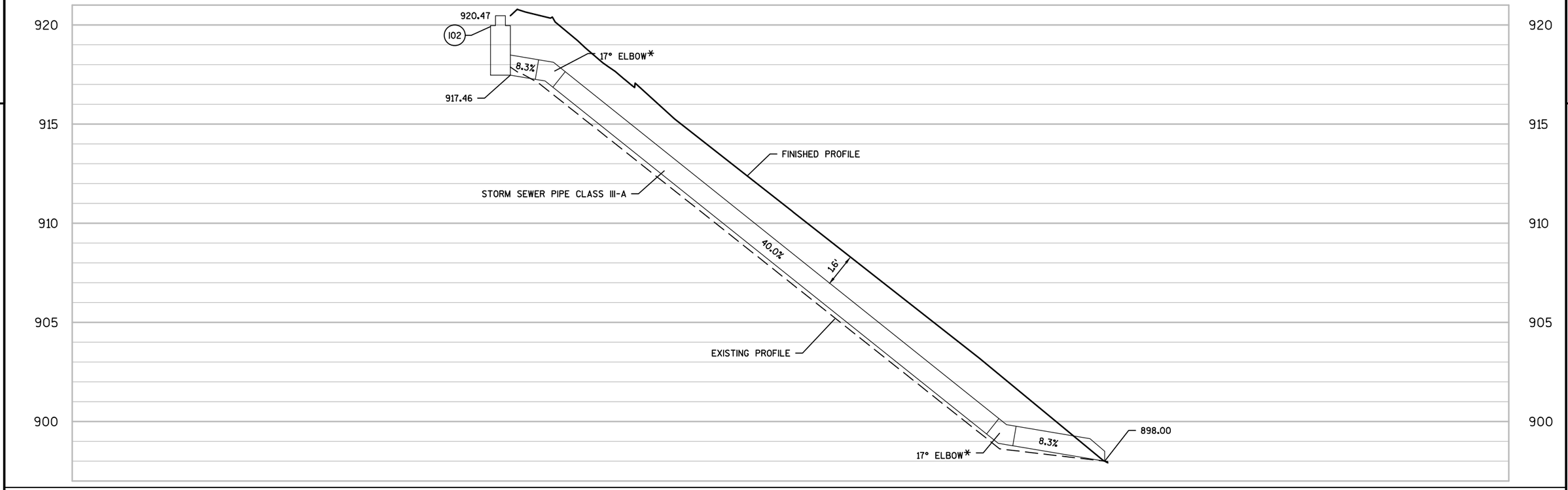
21+60.05, 122.13' RT

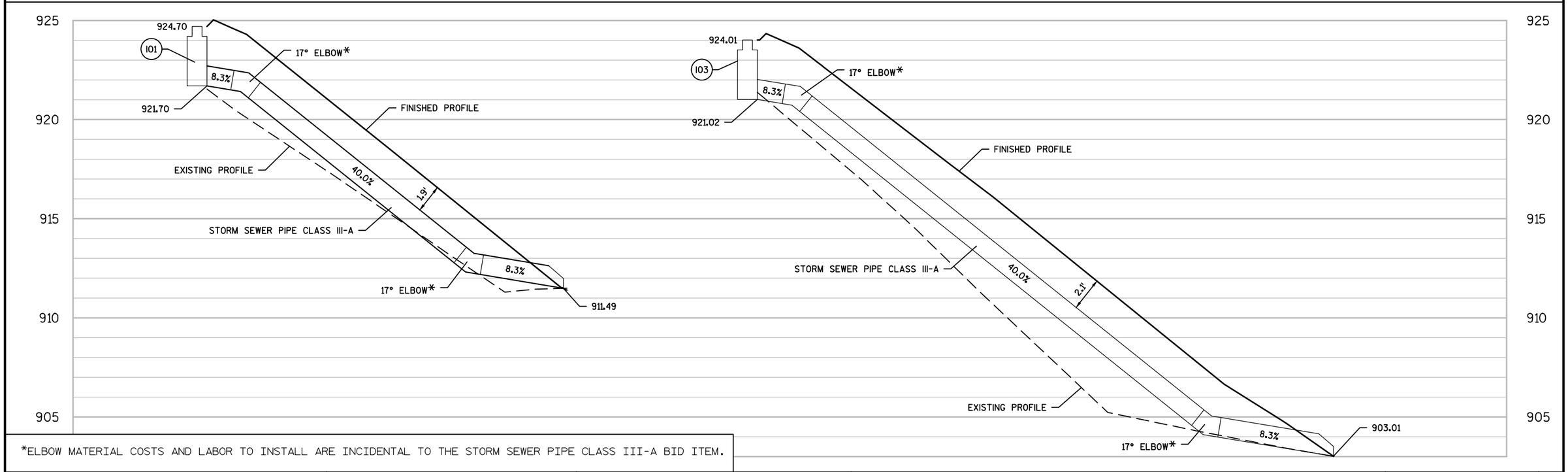
PROJECT NO: 1060-10-70	HWY: IH-94	COUNTY: WAUKESHA	STORM SEWER: ELMHURST	SHEET 24	E

FILE NAME : N:\PDS\C3D\10601000\SHEETSPLAN\DRAFT PSE\PLAN\10601070\022501-SS ELMHURST.DWG
LAYOUT NAME - 022501-SS ELMHURST

PLOT DATE : 3/12/2018 1:53 PM PLOT BY : JOHANSEN, AMANDA A PLOT NAME : PLOT SCALE : 1 IN:40 FT

WISDOT/CADDS SHEET 42

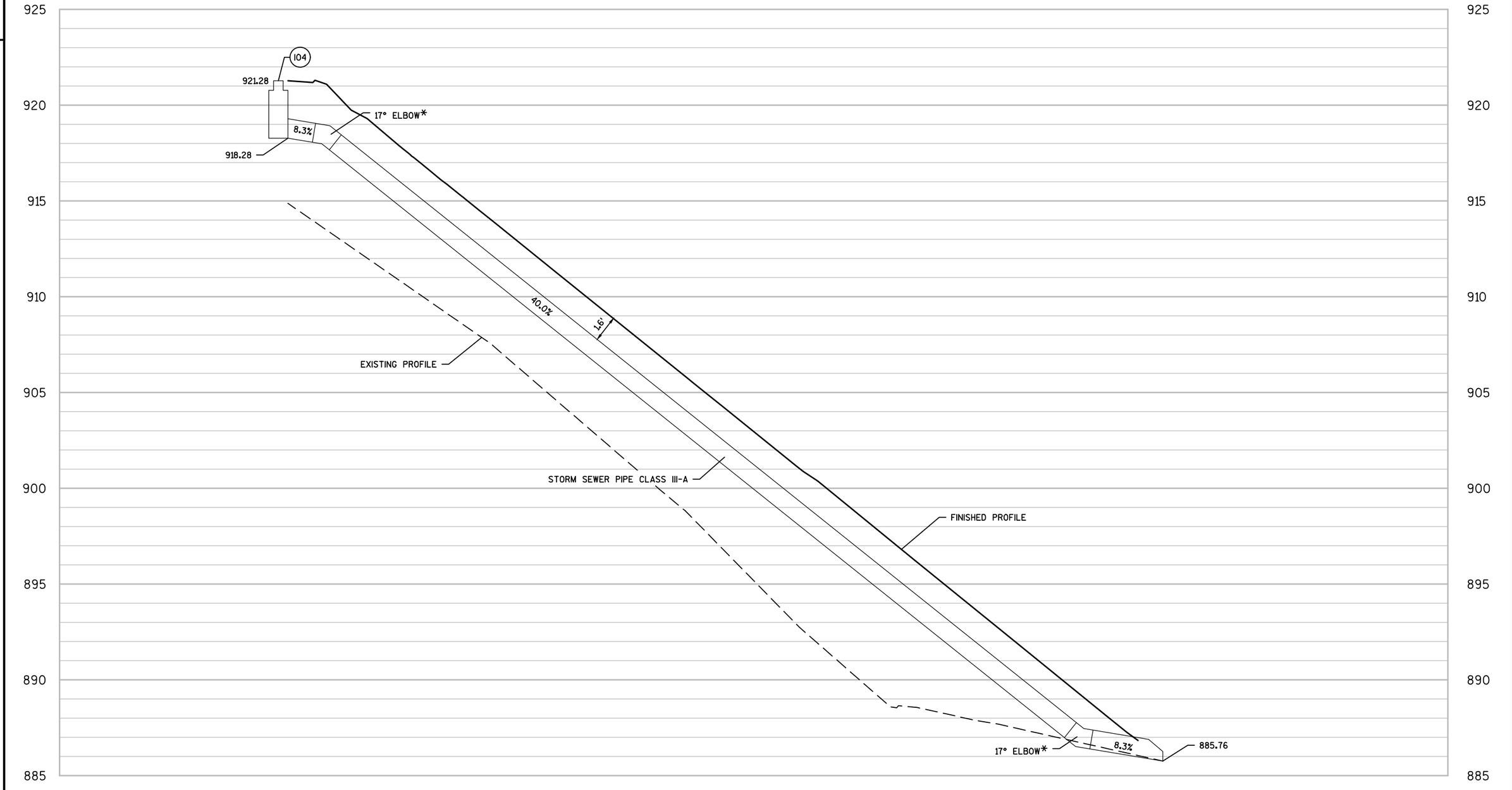




*ELBOW MATERIAL COSTS AND LABOR TO INSTALL ARE INCIDENTAL TO THE STORM SEWER PIPE CLASS III-A BID ITEM.

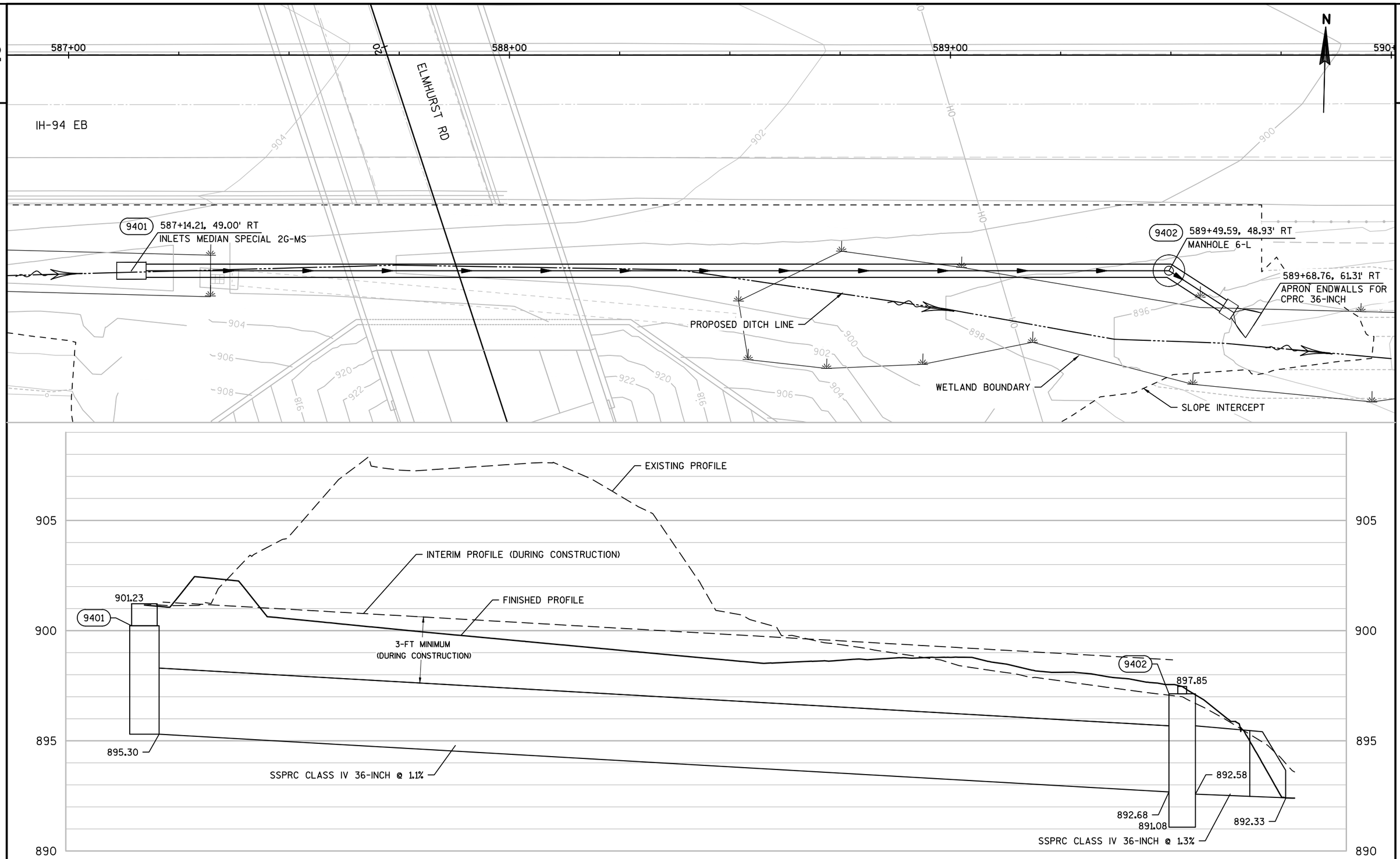
PROJECT NO: 1060-10-70	HWY: IH-94	COUNTY: WAUKESHA	STORM SEWER: ELMHURST	SHEET 25	E

2



*ELBOW MATERIAL COSTS AND LABOR TO INSTALL ARE INCIDENTAL TO THE STORM SEWER PIPE CLASS III-A BID ITEM.

PROJECT NO: 1060-10-70	HWY: IH-94	COUNTY: WAUKESHA	STORM SEWER: ELMHURST	SHEET 26	E



PROJECT NO: 1060-10-70	HWY: IH-94	COUNTY: WAUKESHA	STORM SEWER: IH-94	SHEET 27 E

LEGEND

- EXISTING SIGN MOUNTED ON POST(S)
- EXISTING SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
- PROPOSED SIGN MOUNTED ON POST(S)
- PROPOSED SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
- VMS — VARIABLE MESSAGE SIGN
- EXISTING LIGHT OR SIGNAL POLE
- SIGN BRIDGE
- CANTILEVER SIGN BRIDGE
- (XXX) — DENOTES SIGN NUMBER
- (X) — INDICATES SIGN SIZE
- ESTR — EXISTING SIGN TO REMAIN

1 STOP R1-1(2S) ALL WAY R1-3-P(2S)
STOP 4 WAYS REMOVE

2 COUNTY G M1-5A M6-6 J3-1(2S)
COUNTY G REMOVE

3 COUNTY G M1-5A M6-1 J3-1(2S)
COUNTY G REMOVE

4 STOP R1-1(2S) ALL WAY R1-3-P(2S)
STOP 4 WAYS REMOVE

ELMHURST RD
SILVERNAIL RD
ESTR

Faith Spring Church
¼ Mile
ESTR

5 STOP R1-1(2S) ALL WAY R1-3-P(2S)
STOP 4 WAYS REMOVE

6 S1-1(2S) AHEAD S16-9P(2S)
REMOVE

7 SPEED LIMIT 50 R2-1(2S)
SPEED LIMIT 50 REMOVE

8 W5-52L(2S) 4' MOUNTING HEIGHT
REMOVE

9 W5-52L(2S) 4' MOUNTING HEIGHT
REMOVE

10 COUNTY G M1-5A M6-6 J3-1(2S)
COUNTY G REMOVE

11 JCT M2-1
COUNTY DR M1-5A
REMOVE
J1-1(2S)

12 STOP R1-1(2S) ALL WAY R1-3-P(2S)
STOP 4 WAYS REMOVE

13 COUNTY G M1-5A M6-1 J3-1(2S)
COUNTY G REMOVE

14 W5-52R(2S) 4' MOUNTING HEIGHT
REMOVE

15 W5-52R(2S) 4' MOUNTING HEIGHT

26 27 STOP AHEAD W3-1(2S) REMOVE

CTH DR (GOLF RD)

CTH G (ELMHURST RD)

IH 94 WB

IH 94 EB

SLAB

RIPRAP

RIM ELEVATION AT EDGE OF CONCRETE EAST

RIM ELEVATION AT EDGE OF CONCRETE WEST

RIM=901.84
IE=896.77
IE=896.90
HDPE 10"
IE=897.05
CMCP 8"
IE=896.84
12" CMCP
IE=888.57
IE=889.48

16+00 17+00 18+00 19+00 20+00 21+00 22+00

N

SHEET 1 OF 2

PROJECT NO: 1060-10-70	HWY: IH-94 @ ELMHURST RD	COUNTY: WAUKESHA	PERMANENT SIGNING PLAN	SHEET 28	E

FILE NAME : N:\PDS\C3D\CAD\10601000\70\SIGN\023201_PS_14-16.DWG
LAYOUT NAME - 023201_PS

PLOT DATE : 6/7/2018 3:23 PM PLOT BY : VANDE LEEST, CYNTHIA PLOT NAME : PLOT SCALE : 1 IN:40 FT

WISDOT/CADDS SHEET 42

2

LEGEND

- EXISTING SIGN MOUNTED ON POST(S)
- EXISTING SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
- PROPOSED SIGN MOUNTED ON POST(S)
- PROPOSED SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
- VMS — VARIABLE MESSAGE SIGN
- EXISTING LIGHT OR SIGNAL POLE
- SIGN BRIDGE
- CANTILEVER SIGN BRIDGE
- (XXX) DENOTES SIGN NUMBER
- (X) INDICATES SIGN SIZE
- ESTR EXISTING SIGN TO REMAIN

IH 94 EB

SILVERNAIL RD

ELMHURST RD
ESTR

CTH G (ELMHURST RD)

21+00 22+00 23+00 24+00 25+00 26+00

16 JCT M2-1 / COUNTY G M1-5A — J1-1(2S)

17 ALTERNATE MB4-1 / INTERSTATE 94 M1-1 — J3-1(2S)

18 STOP R1-1(2S) / ALL WAY R1-3-P(2S)

19 STOP R1-1(2S) / ALL WAY R1-3-P(2S)

20 STOP R1-1(2S) / ALL WAY R1-3-P(2S)

21 COUNTY DR M1-5A / M6-4 — J3-1(2S)

22 STOP R1-1(2S) / ALL WAY R1-3-P(2S)

23 ALTERNATE MB4-1 / INTERSTATE 94 M1-1 — J4-1(2S)

24 STOP R1-1(2S) / ALL WAY R1-3-P(2S)

25 STOP R1-1(2S) / ALL WAY R1-3-P(2S)

SHEET 2 OF 2

PROJECT NO: 1060-10-70	HWY: IH-94 @ ELMHURST RD	COUNTY: WAUKESHA	PERMANENT SIGNING PLAN	SHEET 29	E

2

SILVERNAIL ROAD

IH 94 EB

GOLF ROAD (CTH DR)

N

7 STA. 18+06.3, 23.0' LT

STA. 18+70.6, 12.0' LT

2

STA. 22+83.2, 27.5' LT

STA. 22+23.3, 12.0' LT

R135.0'

11'

ELMHURST ROAD

12'

12'

11'

18 19 20 21 22 23

R140.5'

STA. 18+40.1, 12.0' RT

2

STA. 17+85.47, 23.0' RT

1

STA. 22+10.7, 12.0' RT

7 STA. 22+69.9, 24.2' RT

IH 94 WB

LEGEND

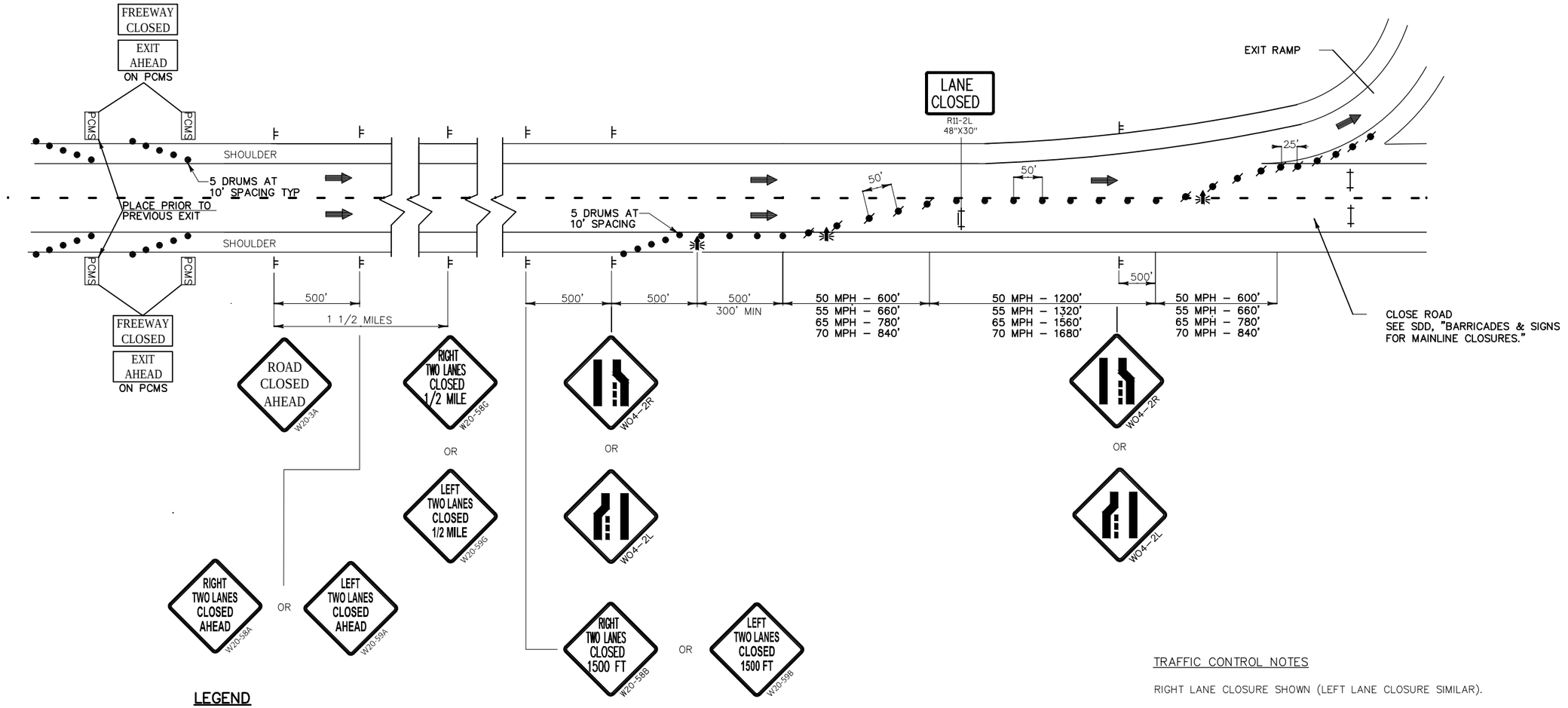
1 MARKING LINE EPOXY 4-INCH (DOUBLE YELLOW)

2 MARKING LINE EPOXY 4-INCH (WHITE)

7 MARKING STOP LINE EPOXY 18-INCH (WHITE)

PROJECT NO: 1060-10-70	HWY: IH-94	COUNTY: WAUKESHA	PAVEMENT MARKING: ELMHURST ROAD	SHEET 30	E

2



LEGEND

- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL WITH TYPE "C" STEADY BURN LIGHT
- TYPE III BARRICADE WITH TWO (2) TYPE "A" WARNING LIGHTS (FLASHING)
- TYPE III BARRICADE WITH SIGN WITH TWO (2) TYPE "A" WARNING LIGHTS (FLASHING)
- SIGN ON PERMANENT SUPPORT
- SIGN ON TEMPORARY SUPPORT
- FLASHING ARROW BOARD
- DIRECTION OF TRAFFIC
- PCMS TRAFFIC CONTROL SIGN PORTABLE CHANGEABLE MESSAGE BOARD
- WORK AREA

TWO LANE FULL FREEWAY CLOSURE

TRAFFIC CONTROL NOTES

RIGHT LANE CLOSURE SHOWN (LEFT LANE CLOSURE SIMILAR).

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

FOR NIGHTTIME OPERATION ALL DRUMS IN TAPERS SHALL HAVE A WARNING LIGHT, TYPE C (STEADY BURN).

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

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

WHEN A RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, ADDITIONAL TRAFFIC CONTROL SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND/OR THE SPECIAL PROVISIONS OR AS DIRECTED BY THE ENGINEER.

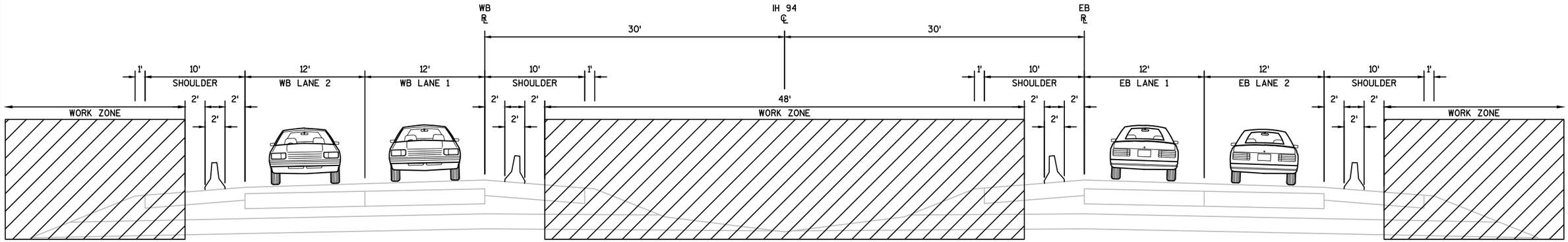
IF LANE CLOSURE IS MORE THAN 1 MILE, PLACE A TYPE III BARRICADE APPROXIMATELY EVERY 1000' ACROSS EACH CLOSED LANE TO HELP ENFORCE THE DRUM LINE.

CONSIDER GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARDS SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS FOR A MINIMUM 1500' IN FRONT OF DRUMS, WITH LANE CLOSED SIGN.

REFER TO DETOUR ROUTES FOR TRAFFIC CLOSING SIGNS.

PROJECT NO: 1060-10-70	HWY: IH 94	COUNTY: WAUKESHA	TRAFFIC CONTROL DETAIL	SHEET 31	E

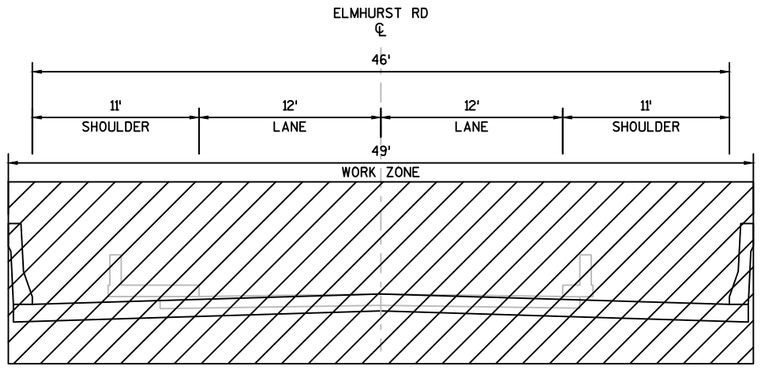
FILE NAME : N:\PDS\C3D\10601000\SHEETSPLAN\DRAFT PSE\PLAN\10601070\025000_TC FREEWAY CLOSURE DETAIL.DWG
LAYOUT NAME - 025000_TC FREEWAY CLOSURE DETAIL
PLOT DATE : 3/7/2018 1:38 PM PLOT BY : JOHANSEN, AMANDA A PLOT NAME : PLOT SCALE : 1 IN:200 FT
WISDOT/CADDS SHEET 42



TYPICAL SECTION

IH 94
(ELMHURST RD RECONSTRUCTION)

WORK TO BE PERFORMED
ELMHURST RD RECONSTRUCTION
- -BRIDGE DEMOLITION
- -PILE AND FOOTING CONSTRUCTION/DRAINAGE
- -CONSTRUCT SUBSTRUCTURE UNITS
- -GIRDER PLACEMENT
- -DECK CONSTRUCTION
- -PARAPET/APPROACH SLAB/FLUMES
- -ELMHURST ROADWAY



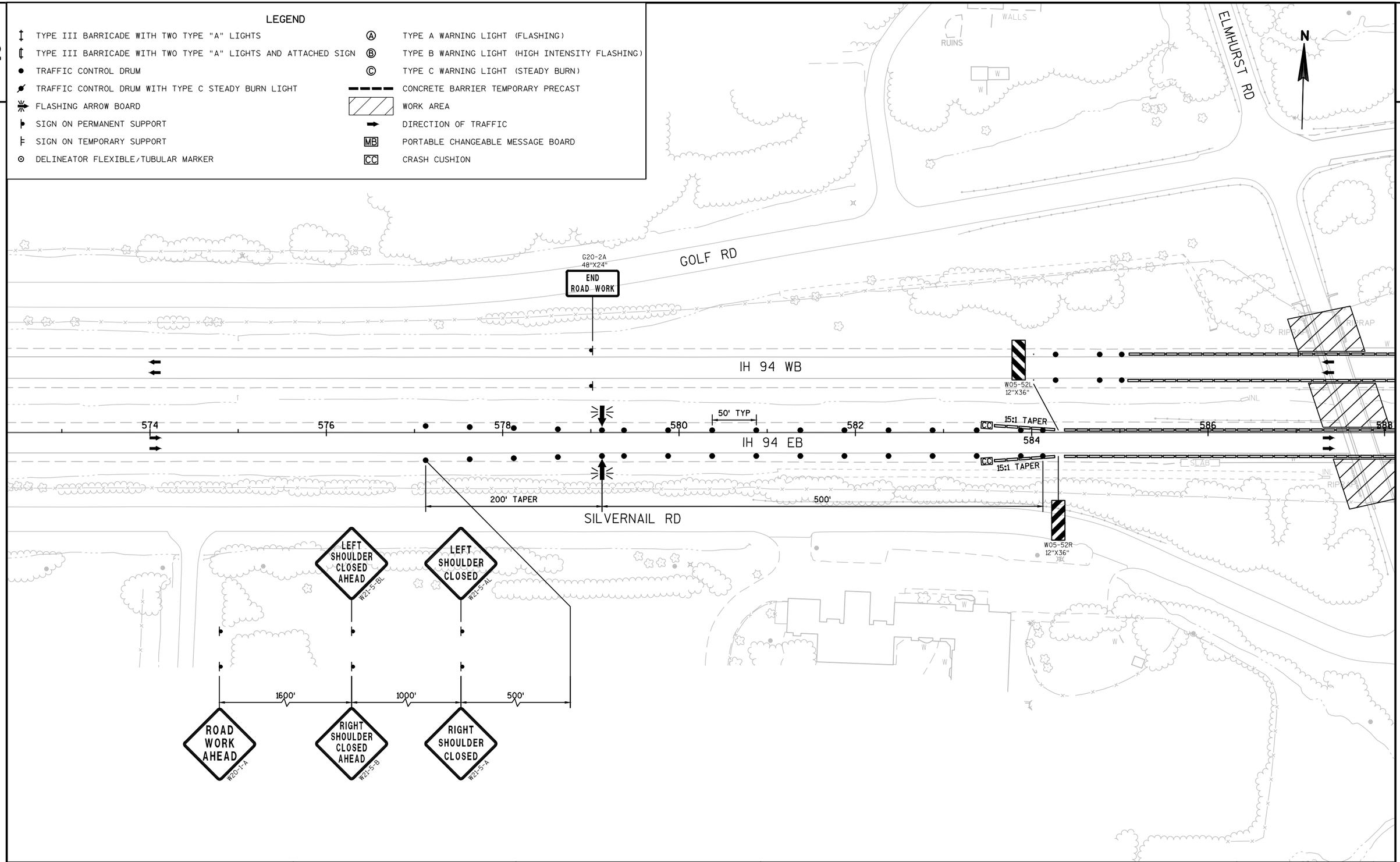
TYPICAL SECTION

ELMHURST RD
(ELMHURST RD RECONSTRUCTION)

PROJECT NO:1060-10-70	HWY: IH 94	COUNTY: WAUKESHA	TRAFFIC CONTROL - TYPICAL SECTIONS	SHEET 32	E

LEGEND

TYPE III BARRICADE WITH TWO TYPE "A" LIGHTS	TYPE A WARNING LIGHT (FLASHING)
TYPE III BARRICADE WITH TWO TYPE "A" LIGHTS AND ATTACHED SIGN	TYPE B WARNING LIGHT (HIGH INTENSITY FLASHING)
TRAFFIC CONTROL DRUM	TYPE C WARNING LIGHT (STEADY BURN)
TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT	CONCRETE BARRIER TEMPORARY PRECAST
FLASHING ARROW BOARD	WORK AREA
SIGN ON PERMANENT SUPPORT	DIRECTION OF TRAFFIC
SIGN ON TEMPORARY SUPPORT	MB PORTABLE CHANGEABLE MESSAGE BOARD
DELINEATOR FLEXIBLE/TUBULAR MARKER	CC CRASH CUSHION



PROJECT NO: 1060-10-70	HWY: IH 94	COUNTY: WAUKESHA	TRAFFIC CONTROL	SHEET 33	E

2

LEGEND

‡	TYPE III BARRICADE WITH TWO TYPE "A" LIGHTS	Ⓐ	TYPE A WARNING LIGHT (FLASHING)
‡	TYPE III BARRICADE WITH TWO TYPE "A" LIGHTS AND ATTACHED SIGN	Ⓑ	TYPE B WARNING LIGHT (HIGH INTENSITY FLASHING)
●	TRAFFIC CONTROL DRUM	Ⓒ	TYPE C WARNING LIGHT (STEADY BURN)
	TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT		CONCRETE BARRIER TEMPORARY PRECAST
	FLASHING ARROW BOARD		WORK AREA
	SIGN ON PERMANENT SUPPORT		DIRECTION OF TRAFFIC
	SIGN ON TEMPORARY SUPPORT	MB	PORTABLE CHANGEABLE MESSAGE BOARD
⊙	DELINEATOR FLEXIBLE/TUBULAR MARKER	CC	CRASH CUSHION

2

N

RIGHT SHOULDER CLOSED W21-5-A

RIGHT SHOULDER CLOSED AHEAD W21-5-B

500' 1000' 1600'

LEFT SHOULDER CLOSED W21-5-AL

LEFT SHOULDER CLOSED AHEAD W21-5-BL

ROAD WORK AHEAD W20-1-A

GOLF RD

W05-52R 12"X36"

500'

200' TAPER

15:1 TAPER CC

15:1 TAPER CC

IH 94 WB

50' TYP

IH 94 EB

588 590 592 594 596 598 600 602

W05-52L 12"X36"

END ROAD WORK G20-2A 48"X24"

SILVERNAIL RD

ELMHURST RD

FOOTBRIDGE

FOOTBRIDGE

RIP-RAP

INL

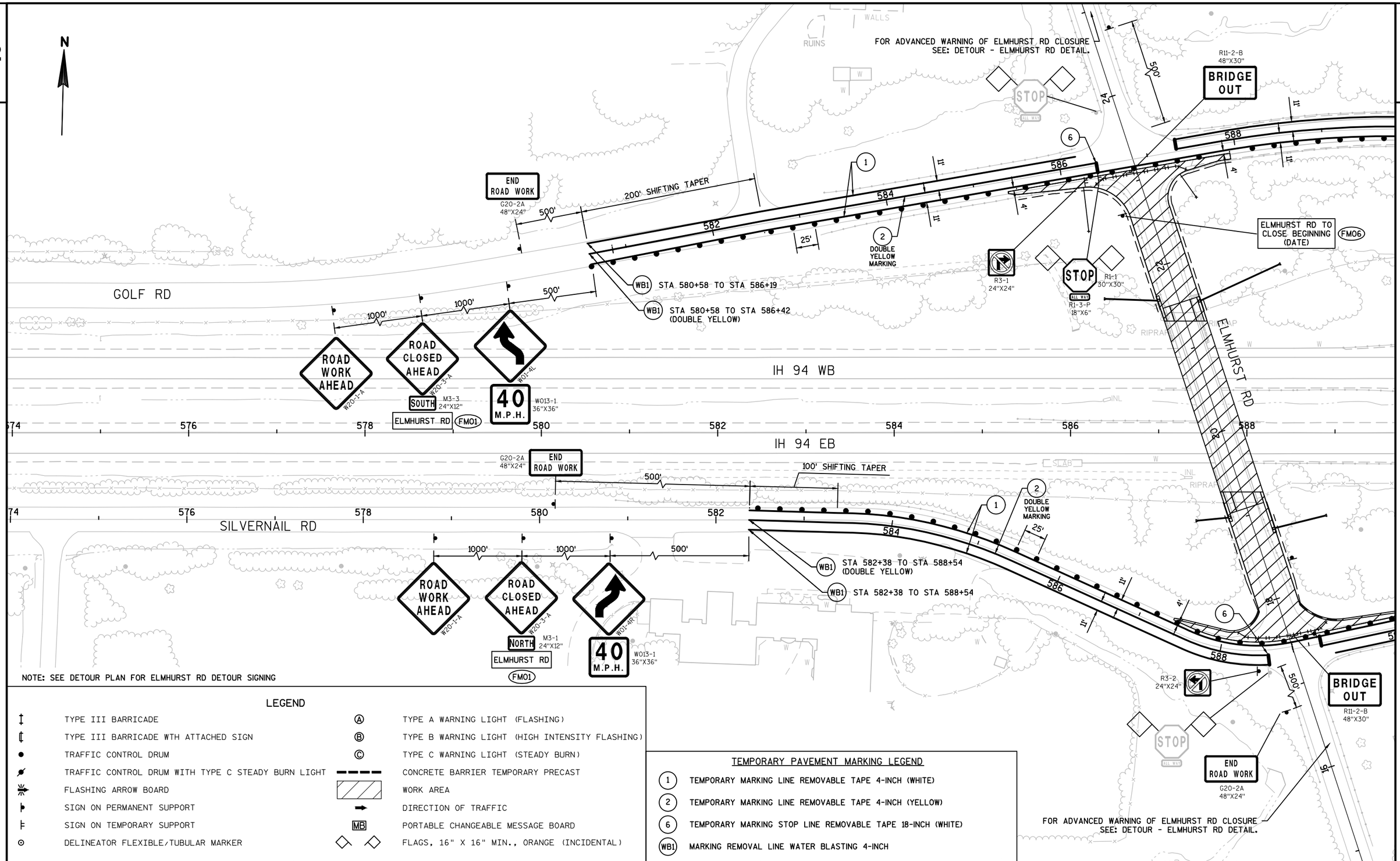
W

PROJECT NO: 1060-10-70	HWY: IH 94	COUNTY: WAUKESHA	TRAFFIC CONTROL	SHEET 34	E

FILE NAME : N:\PDS\C3D\10601000\SHEETSPLAN\FINAL PSE\10601070\025002_TC IH 94.DWG
LAYOUT NAME - 025003_TC IH 94

PLOT DATE : 1/3/2020 7:18 AM PLOT BY : JOHANSEN, AMANDA A PLOT NAME : PLOT SCALE : 1 IN:100 FT

WISDOT/CADDS SHEET 42



LEGEND

‡	TYPE III BARRICADE	Ⓐ	TYPE A WARNING LIGHT (FLASHING)
‡	TYPE III BARRICADE WTH ATTACHED SIGN	Ⓑ	TYPE B WARNING LIGHT (HIGH INTENSITY FLASHING)
●	TRAFFIC CONTROL DRUM	Ⓒ	TYPE C WARNING LIGHT (STEADY BURN)
	TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT		CONCRETE BARRIER TEMPORARY PRECAST
	FLASHING ARROW BOARD		WORK AREA
	SIGN ON PERMANENT SUPPORT	→	DIRECTION OF TRAFFIC
	SIGN ON TEMPORARY SUPPORT	MB	PORTABLE CHANGEABLE MESSAGE BOARD
⊙	DELINEATOR FLEXIBLE/TUBULAR MARKER	◇ ◇	FLAGS, 16" X 16" MIN., ORANGE (INCIDENTAL)

TEMPORARY PAVEMENT MARKING LEGEND

1	TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH (WHITE)
2	TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH (YELLOW)
6	TEMPORARY MARKING STOP LINE REMOVABLE TAPE 18-INCH (WHITE)
WB1	MARKING REMOVAL LINE WATER BLASTING 4-INCH

PROJECT NO: 1060-10-70	HWY: IH 43	COUNTY: WAUKESHA	TRAFFIC CONTROL	SHEET 35	E

2

LEGEND

‡	TYPE III BARRICADE	Ⓐ	TYPE A WARNING LIGHT (FLASHING)
‡	TYPE III BARRICADE WTH ATTACHED SIGN	Ⓑ	TYPE B WARNING LIGHT (HIGH INTENSITY FLASHING)
●	TRAFFIC CONTROL DRUM	Ⓒ	TYPE C WARNING LIGHT (STEADY BURN)
	TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT		CONCRETE BARRIER TEMPORARY PRECAST
	FLASHING ARROW BOARD		WORK AREA
	SIGN ON PERMANENT SUPPORT	→	DIRECTION OF TRAFFIC
	SIGN ON TEMPORARY SUPPORT	MB	PORTABLE CHANGEABLE MESSAGE BOARD
⊙	DELINEATOR FLEXIBLE/TUBULAR MARKER	◇ ◇	FLAGS, 16" X 16" MIN., ORANGE (INCIDENTAL)

NOTE: SEE DETOUR PLAN FOR ELMHURST RD DETOUR SIGNING

N

END ROAD WORK G20-2A 48"X24"

STOP ALL WAY R3-2 24"X24"

500'

24'

588 590 592 594 596 598 600

6

WB1 STA 587+34 TO STA 595+41

WB1 STA 587+34 TO STA 595+41 (DOUBLE YELLOW)

1

2 DOUBLE YELLOW MARKING

200' SHIFTING TAPER

500' 1000' 1000'

ROAD WORK AHEAD W20-1-A

END ROAD WORK G20-2A 48"X24"

W01-4R

40 M.P.H. W013-1 36"X36"

ROAD CLOSED AHEAD W20-3-A

SOUTH M3-3 24"X12"

ELMHURST RD FM01

GOLF RD

ELMHURST RD

IH 94 WB

IH 94 EB

RIPRAP INL W FOOTBRIDGE

ELMHURST RD TO CLOSE BEGINNING (DATE) FM06

STOP ALL WAY R1-1 30"X30" R1-3-P 18"X6"

R3-1 24"X24"

11' 4' 11' 11'

100' SHIFTING TAPER

W01-4L

40 M.P.H. W013-1 36"X36"

ROAD CLOSED AHEAD W20-3-A

NORTH M3-1 24"X12"

ELMHURST RD FM01

ROAD WORK AHEAD W20-1-A

SILVERNAIL RD

END ROAD WORK G20-2A 48"X24"

TEMPORARY PAVEMENT MARKING LEGEND

1	TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH (WHITE)
2	TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH (YELLOW)
6	TEMPORARY MARKING STOP LINE REMOVABLE TAPE 18-INCH (WHITE)
WB1	MARKING REMOVAL LINE WATER BLASTING 4-INCH

PROJECT NO: 1060-10-70	HWY: IH 43	COUNTY: WAUKESHA	TRAFFIC CONTROL	SHEET 36	E

2

TO BE PLACED AT OAKTON ROAD INTERSECTION

N

PROSPECT AVE (CTH SS)

GOLF RD

IH 94

SILVERNAIL RD

NORTHVIEW RD

ELMHURST RD (CTH G)

500'

ELMHURST RD CLOSED AT 194. FOLLOW DETOUR

FM02

FM01

1 — ROAD CLOSED AHEAD (W20-3-A) — NORTH M3-1 24"X12" — ELMHURST RD FM01

2 — ROAD CLOSED 500 FT (W20-3-D) — NORTH M3-1 24"X12" — ELMHURST RD FM01

3 — DETOUR AHEAD (W20-2-A) — NORTH M3-1 24"X12" — ELMHURST RD FM01

4 — DETOUR M4-8 24"X12" / NORTH M3-1 24"X12" — ELMHURST RD FM01

5 — END DETOUR M4-8A 24"X18" / NORTH M3-1 24"X12" — ELMHURST RD FM01

6 — ROAD CLOSED AHEAD (W20-3-A) — SOUTH M3-3 24"X12" — ELMHURST RD FM01

7 — ROAD CLOSED 500 FT (W20-3-D) — SOUTH M3-3 24"X12" — ELMHURST RD FM01

8 — DETOUR AHEAD (W20-2-A) — SOUTH M3-3 24"X12" — ELMHURST RD FM01

9 — DETOUR M4-8 24"X12" / SOUTH M3-3 24"X12" — ELMHURST RD FM01

10 — END DETOUR M4-8A 24"X18" / SOUTH M3-3 24"X12" — ELMHURST RD FM01

A — M05-1L 21"X21"

B — M05-1R 21"X21"

C — M06-1 21"X21"

D — M06-1 21"X21"

E — M06-1 21"X21"

LEGEND

- PERMANENT SIGN SUPPORT
- DETOUR ROUTE
- WORK AREA
- MB — PORTABLE CHANGEABLE MESSAGE BOARDS

NOTES

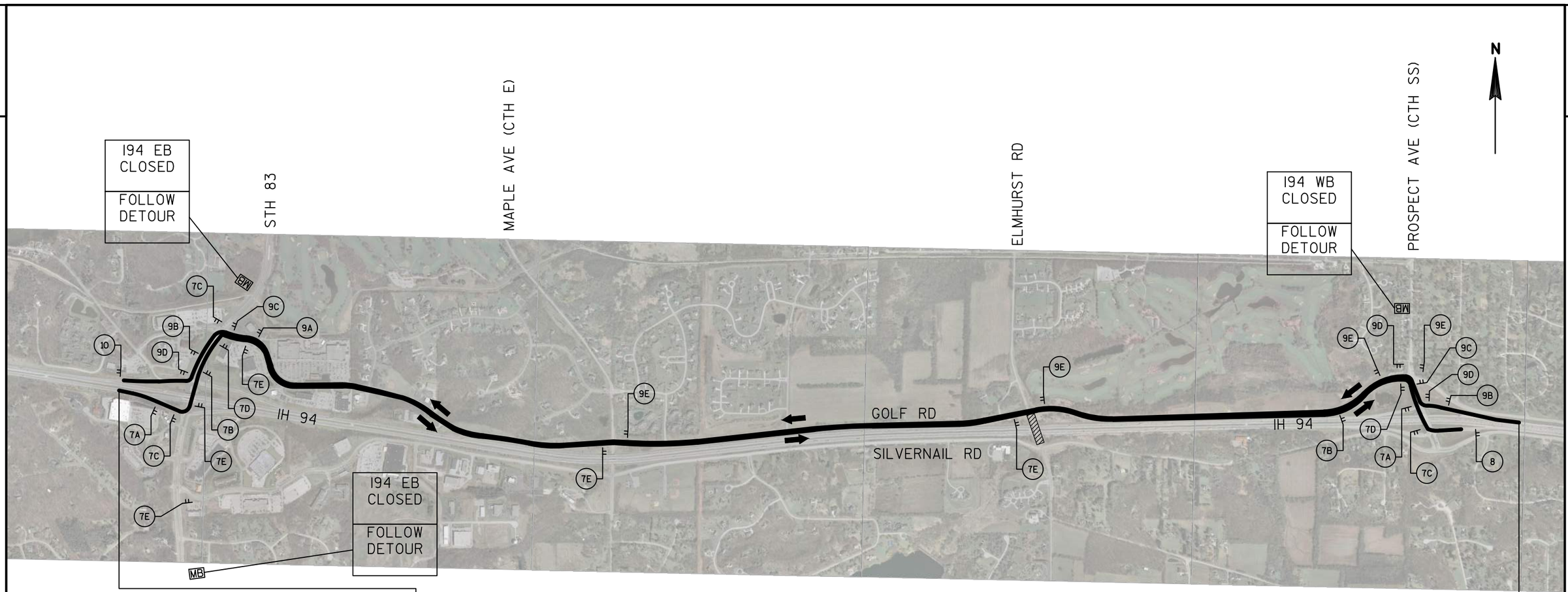
1. THE EXACT NUMBER, LOCATION AND SPACING BETWEEN ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.
2. THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED NOT TO CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS.
3. ANY SIGNS, TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE COVERED AND UNCOVERED DURING EACH CLOSURE AS NEEDED AND APPROVED BY THE ENGINEER.

PROJECT NO: 1060-10-70	HWY: IH-94	COUNTY: WAUKESHA	DETOUR - ELMHURST RD	SHEET 37	E

FILE NAME : N:\PDS\C3D\10601000\SHEETSPLAN\FINAL PSE\10601070\027001-DT ELMHURST.DWG
LAYOUT NAME - 027001-DT ELMHURST

PLOT DATE : 1/3/2020 9:55 AM PLOT BY : JOHANSEN, AMANDA A PLOT NAME : PLOT SCALE : 1 IN:500 FT

WISDOT/CADDS SHEET 42

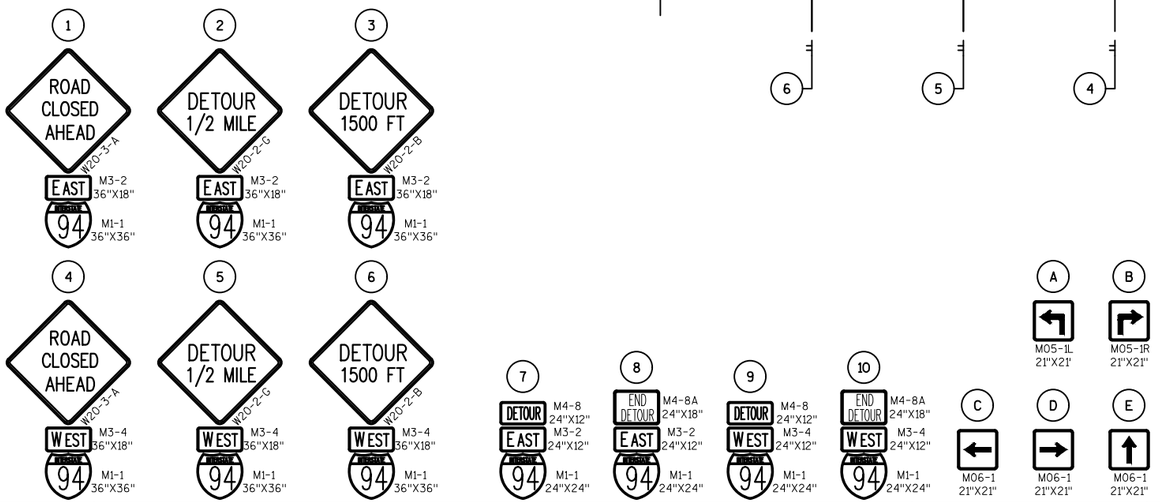


NOTES

1. THE EXACT NUMBER, LOCATION AND SPACING BETWEEN ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.
2. THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED NOT TO CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS.
3. ANY SIGNS, TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE COVERED AND UNCOVERED DURING EACH CLOSURE AS NEEDED AND APPROVED BY THE ENGINEER.
4. CLOSE ONLY ONE DIRECTION OF THE FREEWAY AT A TIME.

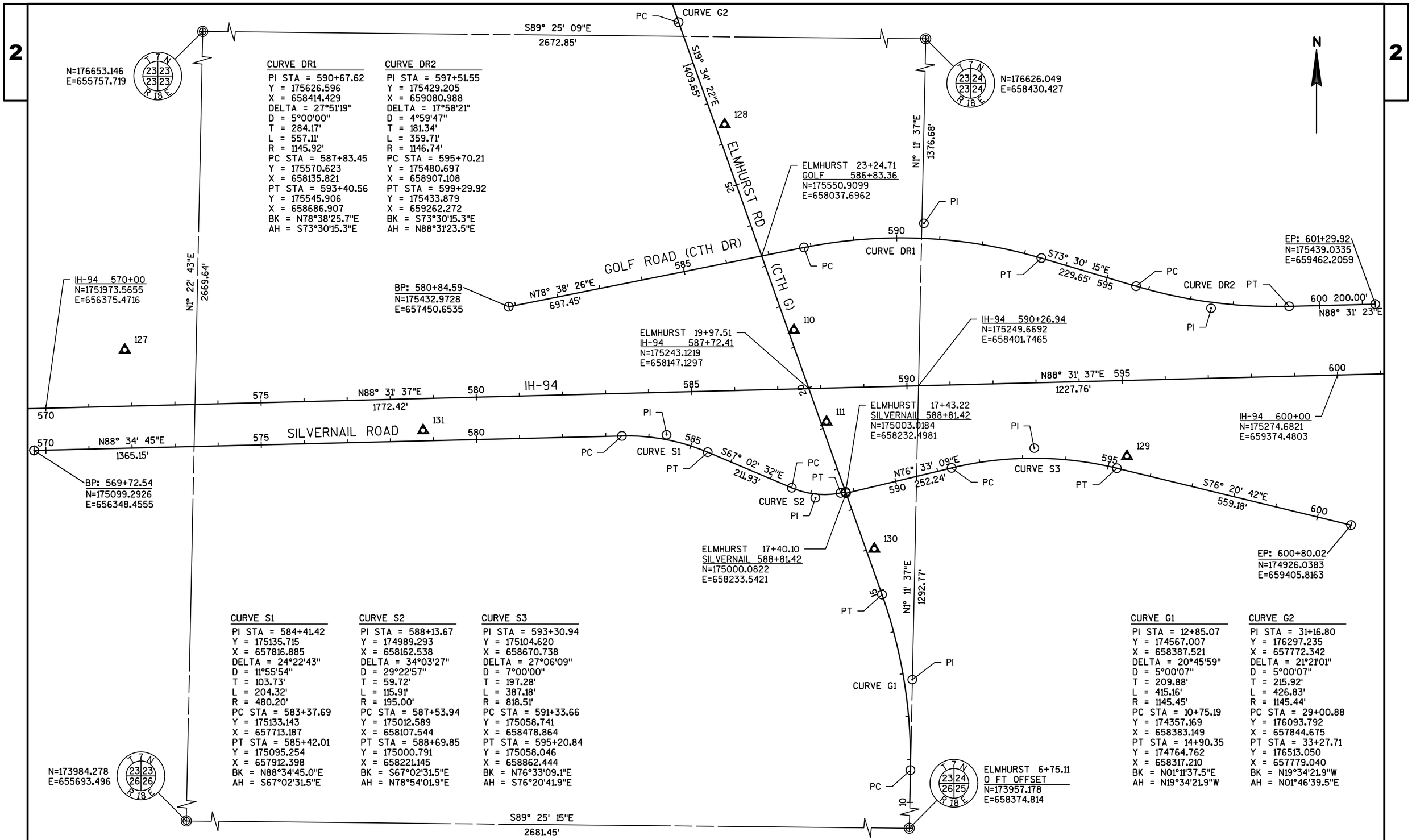
LEGEND

- TEMPORARY SIGN SUPPORT
- DETOUR ROUTE
- WORK AREA
- MB PORTABLE CHANGEABLE MESSAGE BOARDS



PROJECT NO: 1060-10-70	HWY: IH-94	COUNTY: WAUKESHA	DETOUR - IH 94 (FULL FREEWAY CLOSURE)	SHEET 38 E

FILE NAME : N:\PDS\C3D\10601000\SHEETSPLAN\DRAFT PSE\PLAN\10601070\027002_DT IH 94 FULL CLOSURE.DWG
LAYOUT NAME - 027002_DT IH 94 FULL CLOSURE
PLOT DATE : 3/7/2018 11:29 AM PLOT BY : JOHANSEN, AMANDA A PLOT NAME : PLOT SCALE : 1 IN:1500 FT
WISDOT/CADDS SHEET 42



CURVE S1
PI STA = 584+41.42
Y = 175135.715
X = 657816.885
DELTA = 24°22'43"
D = 11°55'54"
T = 103.73'
L = 204.32'
R = 480.20'
PC STA = 583+37.69
Y = 175133.143
X = 657713.187
PT STA = 585+42.01
Y = 175095.254
X = 657912.398
BK = N88°34'45.0"E
AH = S67°02'31.5"E

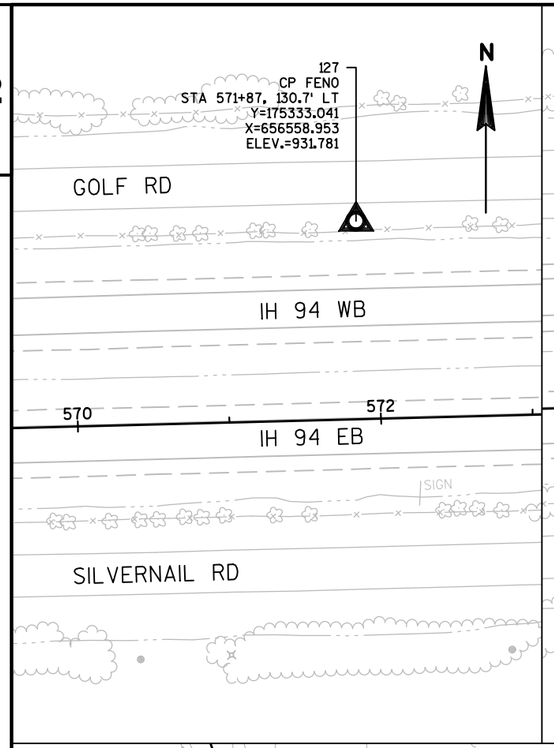
CURVE S2
PI STA = 588+13.67
Y = 174989.293
X = 658162.538
DELTA = 34°03'27"
D = 29°22'57"
T = 59.72'
L = 115.91'
R = 195.00'
PC STA = 587+53.94
Y = 175012.589
X = 658107.544
PT STA = 588+69.85
Y = 175000.791
X = 658221.145
BK = S67°02'31.5"E
AH = N78°54'01.9"E

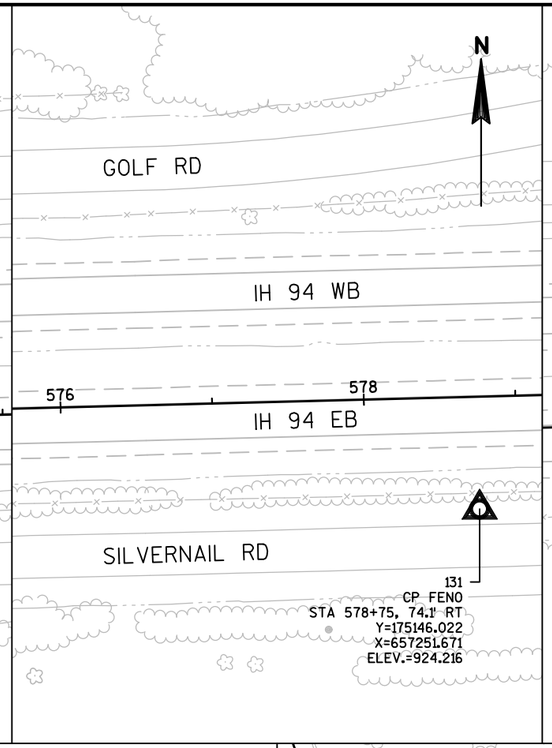
CURVE S3
PI STA = 593+30.94
Y = 175104.620
X = 658670.738
DELTA = 27°06'09"
D = 7°00'00"
T = 197.28'
L = 387.18'
R = 818.51'
PC STA = 591+33.66
Y = 175058.741
X = 658478.864
PT STA = 595+20.84
Y = 175058.046
X = 658862.444
BK = N76°33'09.1"E
AH = S76°20'41.9"E

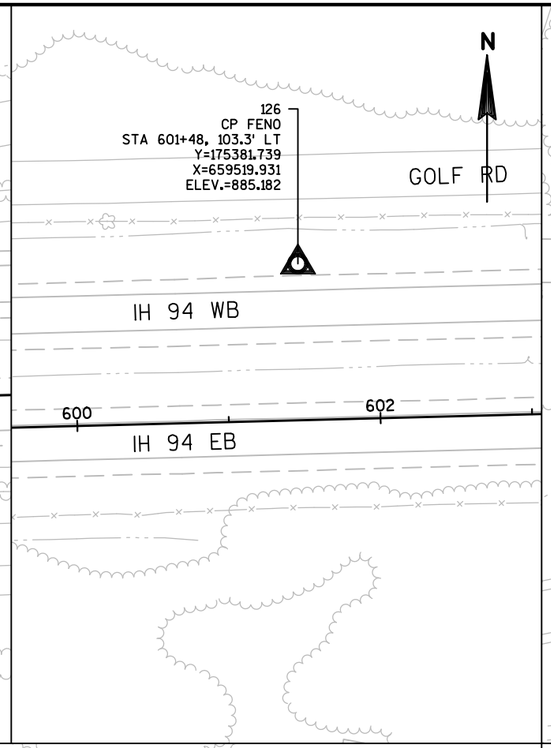
CURVE G1
PI STA = 12+85.07
Y = 174567.007
X = 658387.521
DELTA = 20°45'59"
D = 5°00'07"
T = 209.88'
L = 415.16'
R = 1145.45'
PC STA = 10+75.19
Y = 174357.169
X = 658383.149
PT STA = 14+90.35
Y = 174764.762
X = 658317.210
BK = N01°11'37.5"E
AH = N19°34'21.9"W

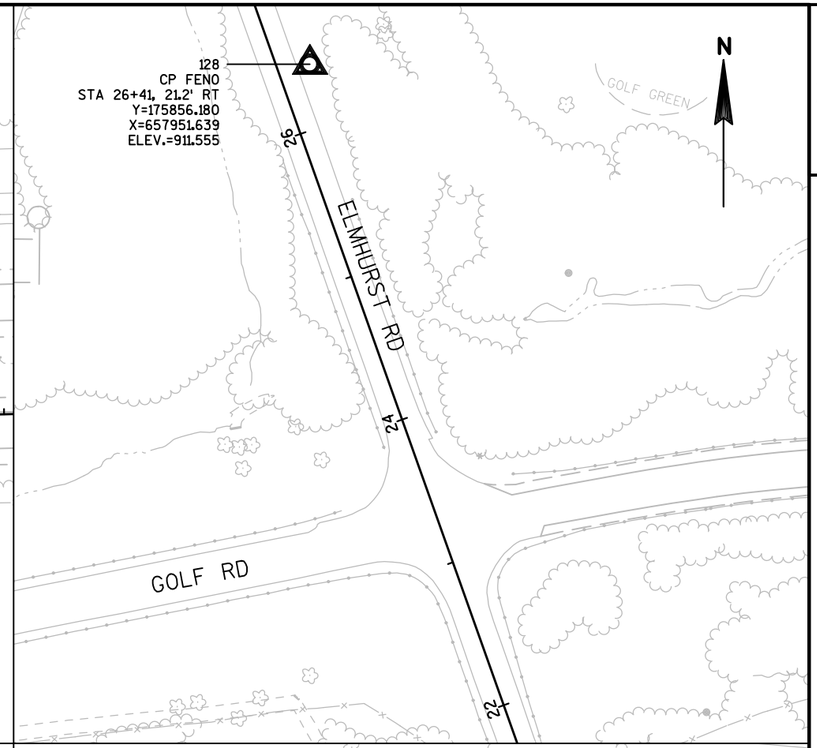
CURVE G2
PI STA = 31+16.80
Y = 176297.235
X = 657772.342
DELTA = 21°21'01"
D = 5°00'07"
T = 215.92'
L = 426.83'
R = 1145.44'
PC STA = 29+00.88
Y = 176093.792
X = 657844.675
PT STA = 33+27.71
Y = 176513.050
X = 657779.040
BK = N19°34'21.9"W
AH = N01°46'39.5"E

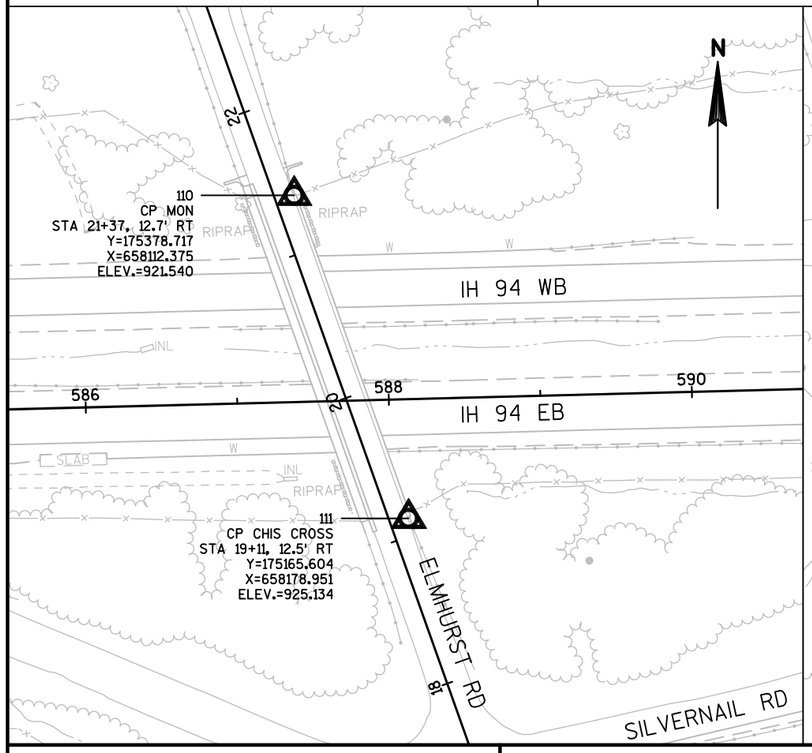
PROJECT NO: 1060-10-70	HWY: IH-94	COUNTY: WAUKESHA	ALIGNMENT PLAN: ELMHURST	SHEET 39	E

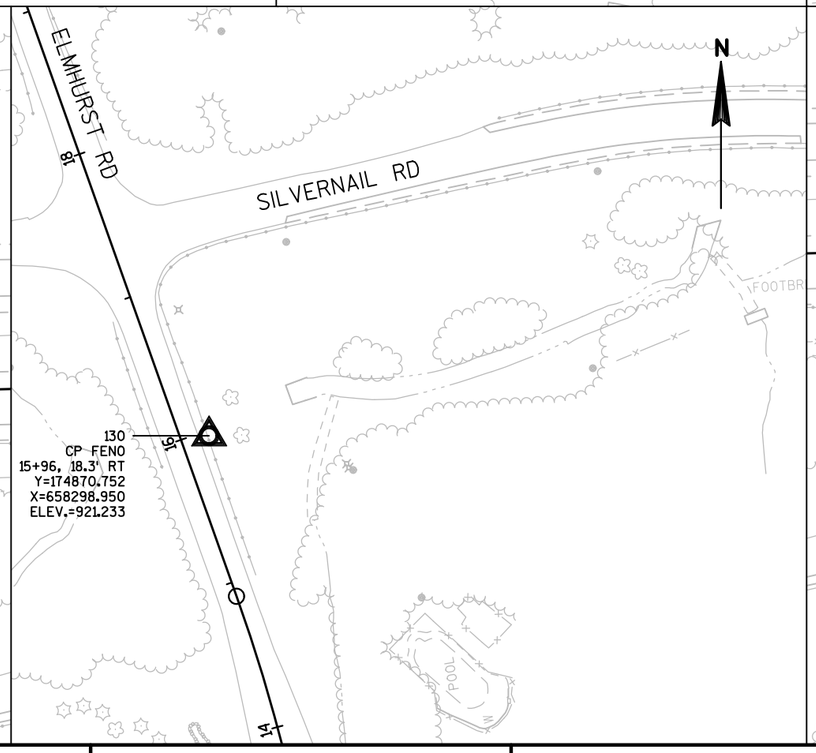


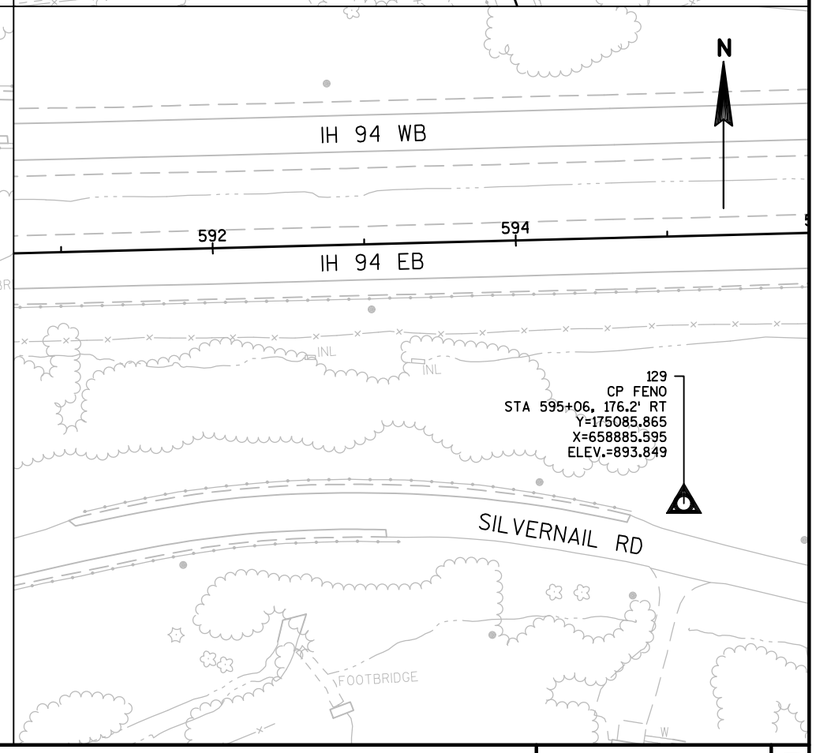












PROJECT NO: 1060-10-70	HWY: IH-94	COUNTY: WAUKESHA	ALIGNMENT PLAN: SURVEY CONTROL	SHEET 40	E

FILE NAME : N:\PDS\C3D\10601000\SHEETSPLAN\DRAFT PSE\PLAN\10601070\027200-AD CONTROL.DWG
LAYOUT NAME - 027200-AD CONTROL
PLOT DATE : 5/3/2018 1:44 PM
PLOT BY : JOHANSEN, AMANDA A PLOT NAME :
PLOT SCALE : 1 IN:100 FT
WISDOT/CADDS SHEET 42

1060-10-70

Line	Item	Item Description	Unit	Total	Qty
0002	108.4400	CPM Progress Schedule	EACH	1.000	1.000
0004	201.0105	Clearing	STA	9.000	9.000
0006	201.0120	Clearing	ID	111.000	111.000
0008	201.0205	Grubbing	STA	9.000	9.000
0010	201.0220	Grubbing	ID	111.000	111.000
0012	203.0200	Removing Old Structure (station) 01. 19+15	LS	1.000	1.000
0014	203.0210.S	Abatement of Asbestos Containing Material (structure) 01. B-67-59	LS	1.000	1.000
0016	204.0110	Removing Asphaltic Surface	SY	1,369.000	1,369.000
0018	204.0155	Removing Concrete Sidewalk	SY	9.000	9.000
0020	204.0157	Removing Concrete Barrier	LF	373.000	373.000
0022	204.0165	Removing Guardrail	LF	1,008.000	1,008.000
0024	204.0170	Removing Fence	LF	503.000	503.000
0026	204.0190	Removing Surface Drains	EACH	2.000	2.000
0028	204.9180.S	Removing (item description) 01. Concrete Channel	SY	237.000	237.000
0030	205.0100	Excavation Common	CY	1,806.000	1,806.000
0032	206.3000	Excavation for Structures Retaining Walls (structure) 01. R-67-146	LS	1.000	1.000
0034	206.3000	Excavation for Structures Retaining Walls (structure) 02. R-67-147	LS	1.000	1.000
0036	208.0100	Borrow	CY	4,851.000	4,851.000
0038	210.1100	Backfill Structure Type A	CY	664.000	664.000
0040	213.0100	Finishing Roadway (project) 01. 1060-10-70	EACH	1.000	1.000
0042	305.0110	Base Aggregate Dense 3/4-Inch	TON	24.000	24.000
0044	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	2,182.000	2,182.000
0046	415.0070	Concrete Pavement 7-Inch	SY	73.000	73.000
0048	415.0410	Concrete Pavement Approach Slab	SY	109.000	109.000
0050	416.1010	Concrete Surface Drains	CY	9.000	9.000
0052	455.0605	Tack Coat	GAL	111.000	111.000
0054	460.2000	Incentive Density HMA Pavement	DOL	410.000	410.000
0056	460.6223	HMA Pavement 3 MT 58-28 S	TON	489.000	489.000
0058	460.6224	HMA Pavement 4 MT 58-28 S	TON	149.000	149.000
0060	502.0100	Concrete Masonry Bridges	CY	621.000	621.000
0062	502.3200	Protective Surface Treatment	SY	1,043.000	1,043.000
0064	502.3210	Pigmented Surface Sealer	SY	227.000	227.000
0066	503.0137	Prestressed Girder Type I 36W-Inch	LF	1,606.000	1,606.000
0068	505.0400	Bar Steel Reinforcement HS Structures	LB	11,976.000	11,976.000
0070	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	111,343.000	111,343.000
0072	506.2605	Bearing Pads Elastomeric Non-Laminated	EACH	32.000	32.000
0074	506.4000	Steel Diaphragms (structure) 01. B-67-369	EACH	28.000	28.000

1060-10-70

Line	Item	Item Description	Unit	Total	Qty
0076	511.1200	Temporary Shoring (structure) 01. B-67-369	SF	1,620.000	1,620.000
0078	513.2001	Railing Pipe	LF	198.000	198.000
0080	516.0500	Rubberized Membrane Waterproofing	SY	22.000	22.000
0082	520.1012	Apron Endwalls for Culvert Pipe 12-Inch	EACH	4.000	4.000
0084	522.1036	Apron Endwalls for Culvert Pipe Reinforced Concrete 36-Inch	EACH	1.000	1.000
0086	550.0010	Pre-Boring Unconsolidated Materials	LF	160.000	160.000
0088	550.0500	Pile Points	EACH	10.000	10.000
0090	550.1120	Piling Steel HP 12-Inch X 53 Lb	LF	800.000	800.000
0092	603.8000	Concrete Barrier Temporary Precast Delivered	LF	1,326.000	1,326.000
0094	603.8125	Concrete Barrier Temporary Precast Installed	LF	1,326.000	1,326.000
0096	604.0400	Slope Paving Concrete	SY	28.000	28.000
0098	606.0200	Riprap Medium	CY	119.000	119.000
0100	608.0436	Storm Sewer Pipe Reinforced Concrete Class IV 36-Inch	LF	261.000	261.000
0102	608.3012	Storm Sewer Pipe Class III-A 12-Inch	LF	304.000	304.000
0104	611.0545	Manhole Covers Type L	EACH	1.000	1.000
0106	611.0642	Inlet Covers Type MS	EACH	2.000	2.000
0108	611.0654	Inlet Covers Type V	EACH	4.000	4.000
0110	611.2006	Manholes 6-FT Diameter	EACH	1.000	1.000
0112	611.3220	Inlets 2x2-FT	EACH	4.000	4.000
0114	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	549.000	549.000
0116	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	4.000	4.000
0118	614.0200	Steel Thrie Beam Structure Approach	LF	41.000	41.000
0120	614.0305	Steel Plate Beam Guard Class A	LF	685.000	685.000
0122	614.0345	Steel Plate Beam Guard Short Radius	LF	156.000	156.000
0124	614.0370	Steel Plate Beam Guard Energy Absorbing Terminal	EACH	1.000	1.000
0126	614.0396	Guardrail Mow Strip Asphalt	SY	496.000	496.000
0128	614.0905	Crash Cushions Temporary	EACH	4.000	4.000
0130	614.0930	Salvaged Crash Cushions	EACH	1.000	1.000
0132	614.2300	MGS Guardrail 3	LF	263.000	263.000
0134	614.2500	MGS Thrie Beam Transition	LF	75.000	75.000
0136	614.2610	MGS Guardrail Terminal EAT	EACH	2.000	2.000
0138	616.0100	Fence Woven Wire (height) 01. 4.5-FT	LF	302.000	302.000
0140	616.0206	Fence Chain Link 6-FT	LF	32.000	32.000
0142	618.0100	Maintenance And Repair of Haul Roads (project) 01. 1060-10-70	EACH	1.000	1.000
0144	619.1000	Mobilization	EACH	1.000	1.000
0146	624.0100	Water	MGAL	1,020.000	1,020.000
0148	625.0500	Salvaged Topsoil	SY	7,716.000	7,716.000

1060-10-70

Line	Item	Item Description	Unit	Total	Qty
0150	627.0200	Mulching	SY	1,929.000	1,929.000
0152	628.1104	Erosion Bales	EACH	50.000	50.000
0154	628.1504	Silt Fence	LF	914.000	914.000
0156	628.1520	Silt Fence Maintenance	LF	914.000	914.000
0158	628.1905	Mobilizations Erosion Control	EACH	11.000	11.000
0160	628.1910	Mobilizations Emergency Erosion Control	EACH	6.000	6.000
0162	628.2008	Erosion Mat Urban Class I Type B	SY	3,195.000	3,195.000
0164	628.2023	Erosion Mat Class II Type B	SY	6,450.000	6,450.000
0166	628.6510	Soil Stabilizer Type B	ACRE	1.600	1.600
0168	628.7005	Inlet Protection Type A	EACH	4.000	4.000
0170	628.7010	Inlet Protection Type B	EACH	5.000	5.000
0172	628.7504	Temporary Ditch Checks	LF	64.000	64.000
0174	628.7515.S	Stone or Rock Ditch Checks	CY	22.500	22.500
0176	628.7555	Culvert Pipe Checks	EACH	1.000	1.000
0178	628.7560	Tracking Pads	EACH	5.000	5.000
0180	628.7570	Rock Bags	EACH	10.000	10.000
0182	629.0210	Fertilizer Type B	CWT	4.900	4.900
0184	630.0120	Seeding Mixture No. 20	LB	209.000	209.000
0186	630.0200	Seeding Temporary	LB	129.000	129.000
0188	630.0500	Seed Water	MGAL	173.000	173.000
0190	634.0618	Posts Wood 4x6-Inch X 18-FT	EACH	9.000	9.000
0192	634.0818	Posts Tubular Steel 2x2-Inch X 18-FT	EACH	16.000	16.000
0194	637.2210	Signs Type II Reflective H	SF	146.580	146.580
0196	637.2230	Signs Type II Reflective F	SF	40.500	40.500
0198	638.2602	Removing Signs Type II	EACH	27.000	27.000
0200	638.3000	Removing Small Sign Supports	EACH	27.000	27.000
0202	642.5201	Field Office Type C	EACH	1.000	1.000
0204	643.0300	Traffic Control Drums	DAY	65,628.000	65,628.000
0206	643.0420	Traffic Control Barricades Type III	DAY	6,185.000	6,185.000
0208	643.0705	Traffic Control Warning Lights Type A	DAY	12,345.000	12,345.000
0210	643.0715	Traffic Control Warning Lights Type C	DAY	1,675.000	1,675.000
0212	643.0800	Traffic Control Arrow Boards	DAY	1,393.000	1,393.000
0214	643.0900	Traffic Control Signs	DAY	49,685.000	49,685.000
0216	643.0920	Traffic Control Covering Signs Type II	EACH	150.000	150.000
0218	643.1000	Traffic Control Signs Fixed Message	SF	358.000	358.000
0220	643.1050	Traffic Control Signs PCMS	DAY	100.000	100.000
0222	643.4100.S	Traffic Control Interim Lane Closure	EACH	8.000	8.000
0224	643.5000	Traffic Control	EACH	1.000	1.000
0226	645.0120	Geotextile Type HR	SY	551.000	551.000
0228	646.1020	Marking Line Epoxy 4-Inch	LF	1,894.000	1,894.000

1060-10-70

Line	Item	Item Description	Unit	Total	Qty
0230	646.6120	Marking Stop Line Epoxy 18-Inch	LF	47.000	47.000
0232	646.9010	Marking Removal Line Water Blasting 4-Inch	LF	11,054.000	11,054.000
0234	649.0150	Temporary Marking Line Removable Tape 4-Inch	LF	11,204.000	11,204.000
0236	649.0850	Temporary Marking Stop Line Removable Tape 18-Inch	LF	44.000	44.000
0238	690.0150	Sawing Asphalt	LF	564.000	564.000
0240	690.0250	Sawing Concrete	LF	437.000	437.000
0242	715.0415	Incentive Strength Concrete Pavement	DOL	500.000	500.000
0244	715.0502	Incentive Strength Concrete Structures	DOL	3,750.000	3,750.000
0246	999.2000.S	Installing and Maintaining Bird Deterrent System	EACH	1.000	1.000
0248	ASP.1T0A	On-the-Job Training Apprentice at $5.00/HR	HRS	1,200.000	1,200.000
0250	ASP.1T0G	On-the-Job Training Graduate at $5.00/HR	HRS	2,280.000	2,280.000
0252	SPV.0035	Special 41. Lean Concrete	CY	60.000	60.000
0254	SPV.0060	Special 01. Inlets Median Special 2G-MS	EACH	1.000	1.000
0256	SPV.0060	Special 02. Traffic Control Full Freeway Closure	EACH	10.000	10.000
0258	SPV.0060	Special 03. Traffic Control Close-Open Freeway Entrance Ramp	EACH	20.000	20.000
0260	SPV.0060	Special 04. Utility Line Opening (ULO)	EACH	2.000	2.000
0262	SPV.0075	Special 01. Pavement Clean Up Project 1060-10-70	HRS	40.000	40.000
0264	SPV.0090	Special 01. Heavy Duty Silt Fence	LF	533.000	533.000
0266	SPV.0105	Special 01. Survey Project 1060-10-70	LS	1.000	1.000
0268	SPV.0165	Special 41. Wall Concrete Panel Mechanically Stabilized Earth (R-67-146)	SF	2,054.000	2,054.000
0270	SPV.0165	Special 42. Wall Concrete Panel Mechanically Stabilized Earth (R-67-147)	SF	1,664.000	1,664.000

REMOVALS

CATEGORY	LOCATION	STATION	TO STATION	OFFSET	201.0105 CLEARING STA	201.0205 GRUBBING STA	201.0120 CLEARING ID	201.0220 GRUBBING ID	204.0110 REMOVING ASPHALTIC SURFACE SY	204.0155 REMOVING CONCRETE SIDEWALK SY	204.0157 REMOVING CONCRETE BARRIER LF	204.0165 REMOVING GUARDRAIL LF	204.0170 REMOVING FENCE LF	204.0190 REMOVING SURFACE DRAIN EACH	614.0930 SALVAGED CRASH CUSHIONS EACH	690.0150 SAWING ASPHALT LF	690.0250 SAWING CONCRETE LF	204.9180.S.01 REMOVING CONCRETE CHANNEL SY
0010	ELMHURST RD	17+96.03	19+40.69	RT	--	--	--	--	615	--	--	--	--	--	--	--	--	--
	ELMHURST RD	18+00	19+00	LT	1	1	--	--	--	--	--	--	--	--	--	--	--	--
	ELMHURST RD	18+00	20+00	RT	2	2	--	--	--	--	--	--	--	--	--	--	--	--
	ELMHURST RD	18+02.46	19+19.25	RT	--	--	--	--	--	--	--	101	--	--	--	--	--	--
	ELMHURST RD	18+34.17	19+09.33	LT	--	--	--	--	--	--	--	75	--	--	--	--	--	--
	ELMHURST RD	18+38.27		50.93' LT	--	--	18	18	--	--	--	--	--	--	--	--	--	--
	ELMHURST RD	18+40.00		65.98' LT	--	--	12	12	--	--	--	--	--	--	--	--	--	--
	ELMHURST RD	18+60.00		63.76' LT	--	--	12	12	--	--	--	--	--	--	--	--	--	--
	ELMHURST RD	18+73.08	19+15.15	RT	--	--	--	--	--	--	--	--	190	--	--	--	--	--
	ELMHURST RD	18+79.65		48.427' LT	--	--	14	14	--	--	--	--	--	--	--	--	--	--
	ELMHURST RD	19+10.76	19+19.25	LT	--	--	--	--	--	5	--	--	--	--	--	--	--	--
	ELMHURST RD	19+46.51	19+20.30	LT	--	--	--	--	--	--	--	--	78	--	--	--	--	--
	ELMHURST RD	21+36.83	21+36.83	RT	--	--	--	--	--	--	--	--	130	--	--	--	--	--
	ELMHURST RD	22+31.31	21+49.86	LT	--	--	--	--	--	--	--	--	104	--	--	--	--	--
	ELMHURST RD	21+40.92		60.05' LT	--	--	14	14	--	--	--	--	--	--	--	--	--	--
	ELMHURST RD	21+43.27	23+12.81		--	--	--	--	754	--	--	--	--	--	--	--	--	--
	ELMHURST RD	21+44.44		19.56 LT	--	--	12	12	--	--	--	--	--	--	--	--	--	--
	ELMHURST RD	21+45.83	21+53.32	LT	--	--	--	--	--	4	--	--	--	--	--	--	--	--
	ELMHURST RD	21+47.67	22+94.20	RT	--	--	--	--	--	--	--	163	--	--	--	--	--	--
	ELMHURST RD	21+57.87	21+61.76		--	--	--	--	--	--	--	--	--	2	--	--	--	--
	ELMHURST RD	21+61.68	23+14.00	LT	--	--	--	--	--	--	--	255	--	--	--	--	--	--
	ELMHURST RD	22+47.24		64.90' RT	--	--	16	16	--	--	--	--	--	--	--	--	--	--
	ELMHURST RD	22+37.44		37.13' RT	--	--	13	13	--	--	--	--	--	--	--	--	--	--
	IH 94 EB	584+92.68	587+29.84		--	--	--	--	--	--	--	--	--	--	--	--	--	237
	IH 94 EB	584+92.68			--	--	--	--	--	--	--	--	--	--	--	--	15	--
	IH 94 EB	584+93	586+60		2	2	--	--	--	--	--	--	--	--	--	--	--	--
	IH 94 EB	585+69.05	586+12.78		--	--	--	--	--	--	--	--	--	--	1	--	--	--
	IH 94 EB	585+69.05	587+99.40		--	--	--	--	--	--	--	--	--	--	--	--	236	--
	IH 94 WB	585+90	586+70		1	1	--	--	--	--	--	--	--	--	--	--	--	--
	IH 94 EB	586+12.97	587+99.40		--	--	--	--	--	--	186	--	--	--	--	--	--	--
	IH 94 EB	586+98.92	588+13.36	MED	--	--	--	--	--	--	--	114	--	--	--	--	--	--
	IH 94 WB	587+10.75	588+24.98	MED	--	--	--	--	--	--	--	114	--	--	--	--	--	--
	IH 94 WB	587+22.79	589+09.11	MED	--	--	--	--	--	--	--	--	--	--	--	--	186	--
	IH 94 WB	587+23.03	589+08.26		--	--	--	--	--	--	187	--	--	--	--	--	--	--
	IH 94 WB	587+80	588+80		1	1	--	--	--	--	--	--	--	--	--	--	--	--
	IH 94 EB	587+97.76	588+86.22		--	--	--	--	--	--	--	88	--	--	--	--	--	--
	IH 94 WB	589+08.96	590+03.97		--	--	--	--	--	--	--	97	--	--	--	--	--	--
	GOLF RD	585+38.36	58+30.96	RT	--	--	--	--	--	--	--	--	--	--	--	293	--	--
	GOLF RD	587+20	587+90	RT	1	1	--	--	--	--	--	--	--	--	--	--	--	--
	GOLF RD	588+10	588+31	RT	1	1	--	--	--	--	--	--	--	--	--	--	--	--
	SILVERNAIL RD	587+41.03	590+21.62	LT	--	--	--	--	--	--	--	--	--	--	--	272	--	--
		TOTAL:			9	9	111	111	1,369	9	373	1,008	503	2	1	564	437	237

3

EARTHWORK

DIVISION	LOCATION	FROM/TO STATION	COMMON EXCAVATION (1) (item # 205.0100) CUT (2)	EBS EXCAVATION (3)	SALVAGED/ UNUSABLE PAVEMENT MATERIAL (4)	AVAILABLE MATERIAL (5)	EXPANDED EBS BACKFILL (6) FACTOR 1.25	UNEXPANDED FILL	EXPANDED FILL (13) FACTOR 1.25	MASS ORDINATE +/- (14)	WASTE	BORROW (ITEM #208.0100)
1	CTH DR (Golf Road)	585+38 to 588+30	173	--	25	148	--	156	195	-47	--	
	Elmhurst Road	17+53 to 19+31 21+25 to 23+12	565	--	135	430	--	4085	5106	-4676	--	
	IH 94	584+93 to 589+95	941	--	--	941	--	919	1149	-208	--	
	Silvernail Road	587+43 to 590+23	127	--	16	111	--	25	31	80	--	
SUBTOTAL			1806	--	176	1630	--	5185	6481	-4851	--	4851
TOTAL			1806		176	1630	--	5185	6481	-4851	--	4851

1) Common Excavation is the sum of the Cut and EBS Excavation columns. Item number 205.0100
2) Salvaged/Unsuable Pavement Material is included in Cut.
3) EBS Excavation to be backfilled with cut material.
4) Salvaged/Unusable Pavement Material
5) Available Material = Cut - Salvaged/Unusuable Pavement Material
6) Expanded EBS Backfill - This is to be filled with cut material. EBS Backfill Factor = 1.25.
7) Expanded Fill. Factor = 1.25
   Expanded Fill = Unexpanded Fill * Fill Factor
8) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material within the Division. Minus indicates a shortage of material within the Division.

3

CPM PROGRESS SCHEDULE

CATEGORY	PROJECT	108.4400 CPM PROGRESS SCHEDULE EACH
0010	1060-10-70	1
	TOTAL:	1

CONCRETE ITEMS

CATEGORY	LOCATION	STATION	TO STATION	415.0070 CONCRETE PAVEMENT 7-INCH AREA (SY)	415.0410 CONCRETE PAVEMENT APPROACH SLAB AREA (SY)	416.1010 CONCRETE SURFACE DRAINS VOLUME (CY)
0010	ELMHURST RD (SOUTH)	19+08.63	19+34.91	--	51	--
	ELMHURST RD (NORTH)	21+24.11	21+53.40	--	58	--
	ELMHURST RD (SOUTH)	18+71.98	19+20.31	12	--	3
	ELMHURST RD (SOUTH)	18+99.49	19+35.35	22	--	2
	ELMHURST RD (NORTH)	21+39.12	21+68.35	15	--	2
	ELMHURST RD (NORTH)	21+24.09	21+53.31	24	--	2
	TOTAL:			73	109	9

BASE AGGREGATE

CATEGORY	LOCATION	STATION	TO STATION	305.0110 BASE AGGREGATE DENSE 3/4-INCH TON	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TON
0010	ELMHURST ROAD	17+52.18	19+07.89	--	857
	ELMHURST ROAD	21+53.33	23+12.56	--	1128
	APPROACH SLAB	19+07.89	19+27.59	--	41
	APPROACH SLAB	21+31.54	21+53.33	--	35
	IH 94 EB	587+99.4	585+69.0	18	80
	IH 94 WB	589+07.9	587+23.0	6	41
	TOTAL:			24	2182

ASPHALTIC ITEMS

CATEGORY	LOCATION	STATION	TO STATION	455.0605 TACK COAT GAL	460.6223 HMA PAVEMENT 3 MT 58-28 S TON	460.6224 HMA PAVEMENT 4 MT 58-28 S TON
0010	ELMHURST RD	17+52.18	19+07.89	35	153	77
	ELMHURST RD SHLD LT	17+52.18	19+07.89	8	37	--
	ELMHURST RD SHLD RT	17+52.18	18+67.59	8	37	--
	ELMHURST RD	21+51.33	23+12.56	33	145	73
	ELMHURST RD SHLD LT	21+70.26	23+12.56	11	48	--
	ELMHURST RD SHLD RT	21+51.33	23+12.56	10	44	--
	IH 94 WB	587+23.00	589+07.90	3	11	--
	IH 94 EB	585+69.00	587+99.40	3	14	--
	TOTAL:			111	489	149

3

DRAINAGE

CATEGORY	STRUCTURE NUMBER	STATION	OFFSET FT		RIM OR FLANGE ELEV	STR DEPTH FT	FROM STR	TO STR	INLET ELEV	DISCH ELEV	SLOPE %	520.1012 APRON ENDWALLS FOR CULVERT PIPE 12-INCH EACH	522.1036 APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 36-INCH EACH	608.0436 STORM SEWER PIPE REINFORCED CONCRETE CLASS IV 36-INCH LF		608.3012* STORM SEWER PIPE CLASS III-A 12-INCH LF		611.0545 INLET COVERS TYPE L EACH	611.0642 INLET COVERS TYPE MS EACH	611.0654 INLET COVERS TYPE V EACH	611.2006 MANHOLES 6-FT DIAMETER EACH	611.3220 INLETS 2X2-FT EACH	SPV.0060.01 INLETS MEDIAN SPECIAL 2G-MS EACH	NOTES
	IH 94													PLAN LENGTH	ACTUAL LENGTH	PLAN LENGTH	ACTUAL LENGTH							
1000	9401	587+14.21	49.00	RT	901.23	5.9	9401	9402	895.30	892.68	1.1	--	--	236	230	--	--	--	2	--	--	--	1	FIELD DRAIN
	9402	589+49.59	48.93	RT	897.85	6.8	9402	OUTLET	892.58	892.33	1.3	--	1	25	19	--	--	1	--	--	1	--	--	1.5-FT SUMP, DISCHARGES TO DITCH
	ELMHURST ROAD																							
	I01	19+12.77	23.00	LT	924.70	3.0	I01	OUTLET	921.70	911.49	SEE PROFILE	1	--	--	--	44	41	--	--	1	--	1	--	DROP INLET, DRAINS TO DITCH
	I02	21+64.60	23.00	LT	920.47	4.5	I02	OUTLET	917.46	898.00	SEE PROFILE	1	--	--	--	74	71	--	--	1	--	1	--	DROP INLET, DRAINS TO DITCH
	I03	18+72.74	23.00	RT	924.01	4.5	I03	OUTLET	921.02	903.01	SEE PROFILE	1	--	--	--	72	69	--	--	1	--	1	--	DROP INLET, DRAINS TO DITCH
	I04	21+46.44	23.00	RT	921.28	4.5	I04	OUTLET	918.28	885.76	SEE PROFILE	1	--	--	--	114	111	--	--	1	--	1	--	DROP INLET, DRAINS TO DITCH
	TOTAL											4	1	261	249	304	292	1	2	4	1	4	1	

* CLASS III-A PIPE LENGTHS INCLUDE THE ELBOWS. PAYMENT FOR MATERIAL COSTS AND LABOR TO INSTALL ELBOWS IS INCIDENTAL TO THE STORM SEWER PIPE CLASS III-A BID ITEM.

3

GUARDRAIL

CATEGORY	LOCATION	STATION	TO STATION	614.0200 STEEL THRIE BEAM STRUCTURE APPROACH LF	614.0305 STEEL PLATE BEAM GUARD CLASS A LF	614.0345 STEEL PLATE BEAM GUARD SHORT RADIUS LF	614.0370 STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL EACH	614.0396 GUARDRAIL MOW STRIP ASPHALT SY	614.2300 MGS GUARDRAIL 3 LF	614.2500 MGS THRIE BEAM TRANSITION LF	614.2610 MGS GUARDRAIL TERMINAL EAT EACH
0010	ELMHURST RT	18+24.9	19+08.1	--	--	--	--	43	13	38	1
	ELMHURST LT	18+10.0	19+23.1	--	--	--	--	43	13	38	1
	ELMHURST RT	21+36.1	22+84	21	150	69	--	83	--	--	--
	ELMHURST LT	21.49.9	23+24.7	21	175	88	--	100	--	--	--
	IH 94 EB	586+11.1	589+70.8	--	360	--	1	141	--	--	--
	IH 94 WB MED	586+99.2	588+13.4	--	--	--	--	43	119	--	--
	IH 94 EB MED	587+10.7	588+24.9	--	--	--	--	43	119	--	--
	TOTAL:			41	685	156	1	496	263	75	2

FENCING ITEMS

CATEGORY	LOCATION	STATION	TO STATION	616.0100 FENCE WOVEN WIRE 4.5 FT LF	616.0206 FENCE CHAIN LINK 6-FT LF
0010	IH 94 EB	587+00.65	587+32.32	--	32
	IH 94 EB	588+68.31	589+97.60	151	--
	IH 94 WB	586+17.58	586+64.45	70	--
	IH 94 WB	587+92.55	588+66.29	81	--
	TOTAL:			302	32

DUST CONTROL/CLEANUP

CATEGORY	LOCATION	624.0100 WATER MGAL	628.7560 TRACKING PADS EACH	SPV.0075.01 PAVEMENT CLEANUP PROJECT 1060-10-70 HRS
0010	PROJECT 1060-10-70	1020	5	40
	TOTAL	1020	5	40

3

MOBILIZATION

CATEGORY	PROJECT	619.1000 MOBILIZATION EACH	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH
0010	1060-10-70	1	11	6
	TOTAL:	1	11	6

RIPRAP

CATEGORY	STATION	LOCATION	L X W	606.0200 RIPRAP MEDIUM CY	645.0120 GEOTEXTILE TYPE HR SY
0010	18+79	ELMHURST	4' x 8'	2	10
	19+10	ELMHURST	4' x 8'	2	10
	21+51	ELMHURST	4' x 8'	2	10
	21+76	ELMHURST	4' x 8'	2	10
	584+93	IH 94	9' x 15'	8	28
	586+19	IH 94	5' x 222'	62	249
	587+59	IH 94	11' x 56'	34	106
	589+71	IH 94	8 x 16	7	28
	UNDISTRIBUTED			--	100
		TOTAL		119	551

EROSION CONTROL

CATEGORY	LOCATION	STATION	TO STATION	OFFSET	627.0200 MULCHING SY	628.1104 EROSION BALES EACH	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF	628.2008 EROSION MAT URBAN CLASS I TYPE B SY	628.2023 EROSION MAT CLASS II TYPE B SY	628.6510 SOIL STABILIZER TYPE B AC	628.7005 INLET PROTECTION TYPE A EACH	628.7010 INLET PROTECTION TYPE B EACH	628.7504 TEMPORARY DITCH CHECKS LF	628.7555 CULVERT PIPE CHECKS EACH	628.7570 ROCK BAGS EACH	628.7515.S STONE OR ROCK DITCH CHECKS CY	SPV.0090.01 HEAVY DUTY SILT FENCE LF
0010	ELMHURST RD	17+36.77	18+84.02	RT	--	--	111	111	--	--	--	--	--	--	--	--	--	135
	ELMHURST RD	17+55.00	19+25.00	RT	--	--	--	--	533	272	--	--	--	--	--	--	--	--
	ELMHURST RD	17+87.00	19+43.00	LT	--	--	--	--	494	133	--	--	--	--	--	--	--	--
	ELMHURST RD	18+12.69	19+58.06	LT	--	--	256	256	--	--	--	--	--	--	--	--	--	--
	ELMHURST RD	18+74.71		23.0' RT	--	--	--	--	--	--	--	--	1	--	--	--	--	--
	ELMHURST RD	19+11.27		23.5' LT	--	--	--	--	--	--	--	--	1	--	--	--	--	--
	ELMHURST RD	20+62.14	22+77.23	RT	--	--	241	241	--	--	--	--	--	--	--	--	--	129
	ELMHURST RD	21+17.00	22+84.00	RT	--	--	--	--	827	986	--	--	--	--	--	--	--	--
	ELMHURST RD	21+33.00	23+21.00	LT	--	--	--	--	702	243	--	--	--	--	--	--	--	--
	ELMHURST RD	21+34.60	23+23.77	LT	--	--	123	123	--	--	--	--	--	--	--	--	--	162
	ELMHURST RD	21+46.00		23.5' RT	--	--	--	--	--	--	--	--	1	--	--	--	--	--
	ELMHURST RD	21+63.00		21' LT	--	--	--	--	--	--	--	--	1	--	--	--	--	--
	IH 94	584+92.68		RT	--	--	--	--	--	--	--	--	--	18	--	--	--	--
	IH 94 EB	584+92.68	589+70	RT	--	--	--	--	--	1960	--	--	--	--	--	--	--	--
	IH 94	585+66.90		LT	--	--	--	--	--	--	--	--	--	--	1	--	--	--
	IH 94	586+42.36		41' LT	--	--	--	--	--	--	--	1	--	--	--	--	--	--
	IH 94 WB	586+44.00	588+55		--	--	--	--	--	899	--	--	--	--	--	--	--	--
	IH 94	587+13.63		51' RT	--	--	--	--	--	--	--	1	--	--	--	--	--	--
	IH 94	588+62.43		LT	--	--	--	--	--	--	--	--	--	15	--	--	6	--
	IH 94	590+07.41		RT	--	--	--	--	--	--	--	--	--	18	--	--	12	--
	IH 94	592+65.73		76' RT	--	--	--	--	--	--	--	1	--	--	--	--	--	--
	IH 94 MEDIAN	586+62	588+63	LT	--	--	--	--	--	667	--	--	--	--	--	--	--	--
		UNDISTRIBUTED			1929	50	183	183	639	1290	1.6	1	1	13	--	10	5	107
				TOTAL:	1929	50	914	914	3195	6450	1.6	4	5	64	1	10	22.5	533

RESTORATION ITEMS

CATEGORY	LOCATION	STATION	TO STATION	625.0500 SALVAGED TOPSOIL SY	629.0210 FERTILIZER TYPE B CWT	630.0120 SEED MIXTURE NO. 20 LB	630.0200 SEEDING TEMPORARY LB	630.0500 SEED WATER MGAL
0010	ELMHURST RD RT	17+55.00	19+25.00	804	0.5	23	11	18
	ELMHURST RD LT	17+87.00	19+43.00	628	0.4	16	8	14
	ELMHURST RD RT	21+17.00	22+84.00	1,813	1.2	49	25	41
	ELMHURST RD LT	21+33.00	23+21.00	945	0.6	26	13	21
	IH 94 EB			1,960	1.2	53	25	44
	IH 94 WB			899	0.6	24	12	20
	IH 94 MEDIAN			667	0.4	18	9	15
	UNDISTRIBUTED			--	--	--	26	--
			TOTAL:	7,716	4.9	209	129	173

TRAFFIC CONTROL

CATEGORY	LOCATION	643.5000 TRAFFIC CONTROL EACH
0010		1
	TOTAL	1

COVERING SIGNS

CATEGORY	LOCATION	643.0920 TRAFFIC CONTROL COVERING SIGNS TYPE II NUMBER OF SIGNS	NUMBER OF CYCLES	EACH
0010	UNDISTRIBUTED	15	10	150
	TOTAL			150

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TRAFFIC CONTROL

CATEGORY	LOCATION	* DAYS	643.0300 DRUMS EACH	643.0300 DRUMS DAY	643.0420 BARRICADES TYPE III EACH	643.0420 BARRICADES TYPE III DAY	643.0705 WARNING LIGHTS TYPE A EACH	643.0705 WARNING LIGHTS TYPE A DAY	643.0715 WARNING LIGHTS TYPE C EACH	643.0715 WARNING LIGHTS TYPE C DAY	643.0800 ARROW BOARDS EACH	643.0800 ARROW BOARDS DAY	643.0900 SIGNS EACH	643.0900 SIGNS DAY	643.1050 SIGNS PCMS EACH	643.1050 SIGNS PCMS DAY
0010	IH 94 EB	266	38	10108	--	--	--	--	--	--	2	532	10	2660	--	--
	IH 94 WB	266	36	9576	--	--	--	--	--	--	2	532	10	2660	--	--
	GOLF ROAD	266	56	14896	9	2394	18	4788	--	--	--	--	18	4788	--	--
	SILVERNAIL ROAD	266	57	15162	9	2394	18	4788	--	--	--	--	18	4788	--	--
DETOURS	ELMHURST	266	--	--	--	--	--	--	--	--	--	--	24	6384	--	--
	GOLF ROAD	266	--	--	--	--	--	--	--	--	--	--	24	6384	--	--
	SILVERNAIL ROAD	266	--	--	--	--	--	--	--	--	--	--	24	6384	--	--
	PROSPECT AVE (CTH SS)	266	--	--	--	--	--	--	--	--	--	--	15	3990	--	--
	FULL FREEWAY CLOSURE	10	--	--	--	--	--	--	--	--	--	--	128	1280	4	40
NIGHTTIME CLOSURE	RAMP CLOSURE	10	6	60	3	30	4	40	--	--	--	--	12	120	--	--
	FULL FREEWAY CLOSURE EB	10	110	1100	5	50	10	100	56	560	1	10	13	130	2	20
	FULL FREEWAY CLOSURE WB	10	160	1600	8	80	16	160	78	780	4	40	18	180	2	20
	UNDISTRIBUTED			13126		1237		2469		335		279		9937		20
	TOTAL:			65628		6185		12345		1675		1393		49685		100

* FOR INFORMATION ONLY

FIXED MESSAGE SIGNS

CATEGORY	LOCATION	SIGN NO.	SIZE	643.1000 TRAFFIC CONTROL SIGNS FIXED MESSAGE SF	NOTES
0010	ELMHURST RD	FM06	5.5' x 3.0"	33	"ELMHURST RD CLOSED BEGINS XXX-XX"
	SILVERNAIL RD	FM01	3.5' x 2.0'	14	"ELMHURST RD"
	GOLF RD	FM01	3.5' x 2.0'	14	"ELMHURST RD"
DETOURS	ELMHURST RD	FM01	3.5' x 2.0'	70	"ELMHURST RD"
	ELMHURST RD	FM02	5.5' x 3.0'	33	"ELMHURST RD CLOSED AT 1-94 FOLLOW DETOUR"
	GOLF RD	FM01	3.5' x 2.0'	63	"ELMHURST RD"
	SILVERNAIL RD	FM01	3.5' x 2.0'	63	"ELMHURST RD"
	SILVERNAIL RD	FM02	5.5' x 3.0'	33	"ELMHURST RD CLOSED AT 1-94 FOLLOW DETOUR"
	PROSPECT AVE	FM01	3.5' x 2.0'	35	"ELMHURST RD"
TOTAL:				358	

TRAFFIC CONTROL

CATEGORY	LOCATION	643.4100.S TRAFFIC CONTROL INTERIM LANE CLOSURE EACH	SPV.0060.02 TRAFFIC CONTROL FULL FREEWAY CLOSURE EACH	SPV.0060.03 TRAFFIC CONTROL CLOSE-OPEN FREEWAY ENTRANCE RAMP EACH
0010	IH 94	8	10	--
	IH 94 EB ENTRANCE RAMP FROM STH 83	--	--	10
	IH 94 WB ENTRANCE RAMP FROM CTH SS	--	--	10
	TOTAL	8	10	20

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3

TEMPORARY CONCRETE BARRIER

CATEGORY	LOCATION	STATION	TO STATION	603.8000 CONCRETE BARRIER TEMPORARY PRECAST DELIVERED LF	603.8125 CONCRETE BARRIER TEMPORARY PRECAST INSTALLED LF	614.0905 CRASH CUSHIONS TEMPORARY EACH
0010	IH 94 EB	583+54.98	590+09.36	663	663	2
	IH 94 WB	585+08.89	591+64.77	663	663	2
TOTAL:				1,326	1,326	4

TEMPORARY PAVEMENT MARKINGS

CATEGORY	LOCATION	STAGE	STATION	TO STATION	646.9010 MARKING REMOVAL LINE WATER BLASTING 4-INCH LF	649.0150 TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH YELLOW LF	649.0150 TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH WHITE LF	649.0850 TEMPORARY MARKING STOP LINE REMOVABLE TAPE 18-INCH (WHITE) LF
0010	GOLF ROAD	1	580+58	586+42	2314	1168	1301	11
			587+34	595+41	3238	1616	1553	11
	SILVERNAIL ROAD	1	582+38	588+54	2469	1234	1340	11
			589+14	596+78	3033	1526	1466	11
				SUBTOTAL:	11054	5544	5660	44
				TOTAL:	11054	11204		44

3

PAVEMENT MARKINGS

CATEGORY	LOCATION	STATION	TO STATION	646.1020 MARKING LINE EPOXY 4-INCH YELLOW LF	646.1020 MARKING LINE EPOXY 4-INCH WHITE LF	646.6120 MARKING STOP LINE EPOXY 18-INCH WHITE LF
0010	ELMHURST RT	17+85	22+70	--	487	--
	ELMHURST LT	18+06	23+83	--	480	--
	ELMHURST	18+06	22+70	927	--	--
	ELMHURST	18+06		--	--	23
	ELMHURST	22+70		--	--	24
	SUBTOTAL			927	967	47
	TOTAL:			1,894		47

ROADWAY ITEMS

CATEGORY	LOCATION	213.0100 FINISHING ROADWAY (1060-10-70) EACH	618.0100 MAINTENANCE AND REPAIR OF HAUL ROADS (1060-10-70) EACH	642.5201 FIELD OFFICE TYPE C EACH	SPV.0105.01 SURVEY PROJECT (1060-10-70) LS
0010	PROJECT 1060-10-70	1	1	1	1
	TOTAL:	1	1	1	1

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SIGN NO.	SIGN CODE & SIZE	SIGN MESSAGE	SIGN SIZE W [IN.]	x	H [IN.]	637.2210 SIGNS TYPE II REFLC H [SF]	637.2230 SIGNS TYPE II REFLC F [SF]	638.2602 REMOVING SIGNS TYPE II [EA]	638.3000 REMOVING SMALL SIGN SUPPORTS [EA]	634.0818 POST TUBULAR STEEL 2" x 2" x18' [EA]	634.0618 WOOD POSTS 4"X 6"x18' [EA]	MOUNT ON SAME POST AS SIGN #	REMARKS / NEW SIGN LOCATION
1	R1-1(2S)	--	30	x	30	5.180		1	1	1	--	--	--
--	R1-3P (2S)	--	24	x	9	1.500		--	--	--	--	1	--
2	J3-1(2S)	--	24	x	45	7.500		1	1	--	1	--	--
--	-- M1-5A	CTH G	24	x	24			--	--	--	--	--	--
--	-- M6-6	--	21	x	21			--	--	--	--	--	--
3	J3-1(2S)	--	24	x	45	7.500		1	1	--	1	--	--
--	-- M1-5A	CTH G	24	x	24			--	--	--	--	--	--
--	-- M6-1	--	21	x	21			--	--	--	--	--	--
4	R1-1(2S)	--	30	x	30	5.180		1	1	1	--	--	--
--	R1-3P (2S)	--	24	x	9	1.500		--	--	--	--	4	--
5	R1-1(2S)	--	36	x	36	7.460		1	1	1	--	--	--
--	R1-3P (2S)	--	24	x	9	1.500		--	--	--	--	5	--
6	S1-1(2S)	--	36	x	36		6.750	1	1	1	--	--	--
6a	S16-9P(2S)	--	30	x	18		3.750	--	--	--	--	6	--
6b	R2-6P(2S)		24	x	18	3.000						6	
7	R2-1(2S)	SPD LIMIT 50	24	x	30	5.000		1	1	1	--	--	--
8	W5-52L(2S)	--	12	x	36		3.000	1	1	1	--	--	--
9	W5-52L(2S)	--	12	x	36		3.000	1	1	--	--	--	4' MOUNTING HT.
10	J3-1(2S)	--	24	x	45	7.500		1	1	--	1	--	--
--	-- M1-5A	CTH G	24	x	24			--	--	--	--	--	--
--	-- M6-6	--	21	x	21			--	--	--	--	--	--
11	J1-1(2S)	--	24	x	39	6.500		1	1	--	1	--	--
--	-- M2-1	--	21	x	15			--	--	--	--	--	--
--	M1-5A	CTH DR	24	x	24			--	--	--	--	--	--
12	R1-1(2S)	--	30	x	30	5.180		1	1	1	--	--	--
--	R1-3P (2S)	--	24	x	9	1.500		--	--	--	--	12	--
13	J3-1(2S)		24	x	45	7.500		1	1	--	1	--	--
--	-- M1-5A	CTH G	24	x	24			--	--	--	--	--	--
--	-- M6-1	--	21	x	21			--	--	--	--	--	--
14	W5-52R(2S)	--	12	x	36		3.000	1	1	1	--	--	--
15	W5-52R(2S)	--	12	x	36		3.000	1	1	--	--	--	4' MOUNTING HT.
16	J1-1(2S)	--	24	x	39	6.500		1	1	--	1	--	--
--	-- M2-1	--	21	x	15			--	--	--	--	--	--
--	M1-5A	CTH G	24	x	24			--	--	--	--	--	--
17	J3-1(2S)	--	24	x	57	9.500		1	1	--	1	--	--
--	-- MB4-1	--	24	x	12			--	--	--	--	--	--
--	-- M1-1	IH 94	24	x	24			--	--	--	--	--	--
--	-- MB6-1	--	21	x	21			--	--	--	--	--	--
18	R1-1(2S)	--	30	x	30	5.180		1	1	1	--	--	--
--	R1-3P (2S)	--	24	x	9	1.500		--	--	--	--	18	--
19	R1-1(2S)	--	30	x	30	5.180		1	1	1	--	--	--
--	R1-3P (2S)	--	24	x	9	1.500		--	--	--	--	19	--
20	R1-1(2S)	--	30	x	30	5.180		1	1	1	--	--	--
--	R1-3P (2S)	--	24	x	9	1.500		--	--	--	--	20	--
21	J3-1(2S)	--	24	x	45	7.500		1	1	--	1	--	--
--	-- M1-5A	CTH DR	24	x	24			--	--	--	--	--	--
--	-- M6-4	--	21	x	21			--	--	--	--	--	--
22	R1-1(2S)	--	30	x	30	5.180		1	1	1	--	--	--
--	R1-3P (2S)	--	24	x	9	1.500		--	--	--	--	22	--
23	J3-1(2S)	--	24	x	57	9.500		1	1	--	1	--	--
--	-- MB4-1	--	24	x	12			--	--	--	--	--	--
--	-- M1-1	IH 94	24	x	24			--	--	--	--	--	--
--	-- MB6-1	--	21	x	21			--	--	--	--	--	--
24	R1-1(2S)	--	30	x	30	5.180		1	1	1	--	--	--
--	R1-3P (2S)	--	24	x	9	1.500		--	--	--	--	24	--
25	R1-1(2S)	--	30	x	30	5.180		1	1	1	--	--	--
--	R1-3P (2S)	--	24	x	9	1.500		--	--	--	--	25	--
26	W3-1(2S)	--	36	x	36		9.000	1	1	1	--	--	SEE SHT 1 OF 2
27	W3-1(2S)	--	36	x	36		9.000	1	1	1	--	--	SEE SHT 1 OF 2
TOTALS						146.580	40.500	27	27	16	9		

STA. 17+40.1 ELMHURST RD
STA. 588+81.4 SILVERNAIL RD

BEGIN CONSTRUCTION
STA. 17+52.18
MATCH EXISTING
SAWCUT REQUIRED

SILVERNAIL ROAD

IH 94 EB

IH 94 WB

EXISTING STRUCTURE TO BE REPLACED
B-67-059 (EXISTING)
B-67-369 (PROPOSED)

SLOPE INTERCEPT

STA. 19+98.1 ELMHURST RD
STA. 587+72.2 IH-94

MSE WALL

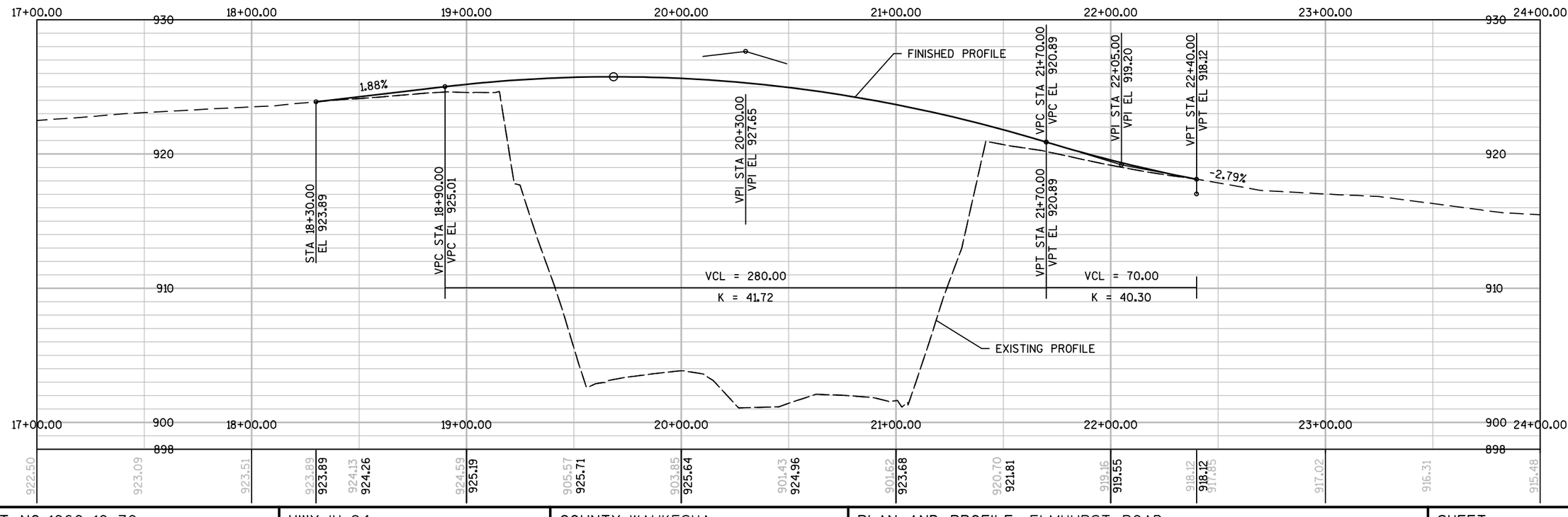
ELMHURST ROAD

STA. 23+24.7 ELMHURST RD
STA. 586+83.3 GOLF RD (CTH DR)

GOLF ROAD (CTH DR)

END CONSTRUCTION
STA. 23+12.56
MATCH EXISTING
SAWCUT REQUIRED

N



PROJECT NO: 1060-10-70	HWY: IH-94	COUNTY: WAUKESHA	PLAN AND PROFILE: ELMHURST ROAD	SHEET 56 E

FILE NAME : N:\PDS\C3D\10601000\SHEETSPLAN\FINAL PSE\10601070\050101-PP ELMHURST.DWG
LAYOUT NAME - 050101-PP ELMHURST

PLOT DATE : 1/3/2020 10:08 AM PLOT BY : JOHANSEN, AMANDA A PLOT NAME : PLOT SCALE : 1 IN:50 FT

WISDOT/CADDS SHEET 44

Standard Detail Drawing List

08A05-19B	INLET COVERS TYPE B, B-A, C, MS, MS-A, & WM
08A05-19C	INLET COVERS TYPE F, HM, HM-S, S, T, V, HM-GJ, & HM-GJ-S
08A05-19D	INLET COVER TYPE BW, MANHOLE COVERS, TYPE K, J, J-S, L & M
08B09-02	MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER
08C07-02	INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT
08D03-08A	CONCRETE SURFACE DRAINS DROP INLET TYPE AT STRUCTURES
08D03-08B	CONCRETE SURFACE DRAINS DROP INLET TYPE AT STRUCTURES
08D04-05	CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08E14-01	TRACKING PAD
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
13A03-06	CONCRETE PAVEMENT SHOULDERS
13B02-09A	CONCRETE PAVEMENT APPROACH SLAB
14B07-15A	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15B	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15C	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15D	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15E	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15F	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15G	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15H	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15I	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B08-02A	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02B	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02C	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02D	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02E	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B15-11A	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-11B	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-11C	STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS
14B20-11A	STEEL THRIE BEAM STRUCTURE APPROACH
14B20-11B	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO SQUARE END PARAPETS
14B20-11C	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO VERTICAL FACED PARAPETS
14B20-11D	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO SLOPED END PARAPETS
14B20-11E	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO BRIDGE RAILING TYPES "F" AND "W"
14B20-11F	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO BRIDGE RAILING TYPE "M"
14B20-11G	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTOR PLATE DETAIL
14B20-11H	STEEL THRIE BEAM STRUCTURE APPROACH, SINGLE SLOPE ATTACHMENT
14B24-09A	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B24-09B	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B24-09C	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B27-01A	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B27-01B	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B27-01C	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B28-04A	GUARDRAIL MOW STRIP
14B28-04B	GUARDRAIL MOW STRIP
14B42-06A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-04A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-05A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05D	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05E	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05F	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05G	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05I	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05J	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05K	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)

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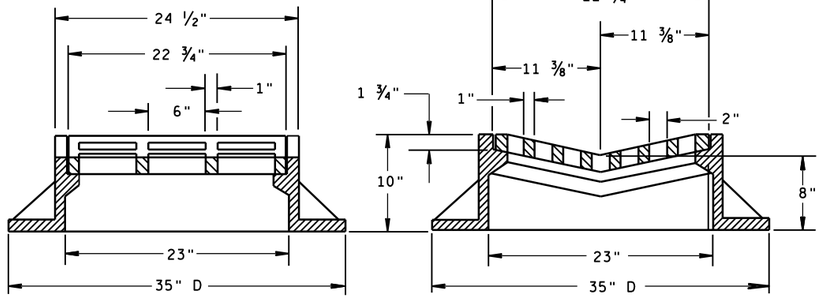
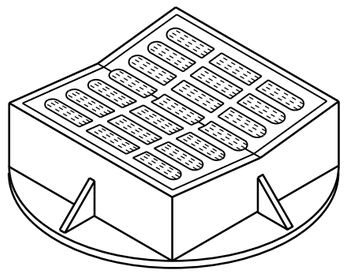
Standard Detail Drawing List

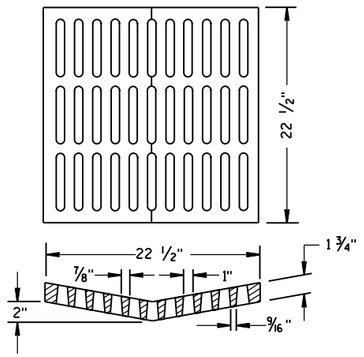
14B45-05L	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15B01-08A	FENCE WOVEN WIRE
15B01-08B	FENCE WOVEN WIRE
15B03-15A	FENCE CHAIN LINK
15B03-15B	FENCE CHAIN LINK
15C02-08A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-08B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C02-08C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C03-05	BARRICADES AND SIGNS FOR SIDEROAD CLOSURES
15C08-20A	LONGITUDINAL MARKING (MAINLINE)
15C08-20B	PAVEMENT MARKING (TURN LANES)
15C08-20C	PAVEMENT MARKING (TURN LANES)
15C11-07B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15C33-04	STOP LINE AND CROSSWALK PAVEMENT MARKING
15C35-04A	PAVEMENT MARKING (INTERSECTIONS)
15D12-09A	TRAFFIC CONTROL, LANE CLOSURE
15D16-04	TRAFFIC CONTROL, EXIT RAMP CLOSURE
15D38-02A	TEMPORARY TRAFFIC CONTROL SIGN MOUNTING
15D38-02B	ATTACHMENT OF SIGNS TO POSTS
15D42-01	TRAFFIC CONTROL, TWO LANE FULL FREEWAY CLOSURE

6



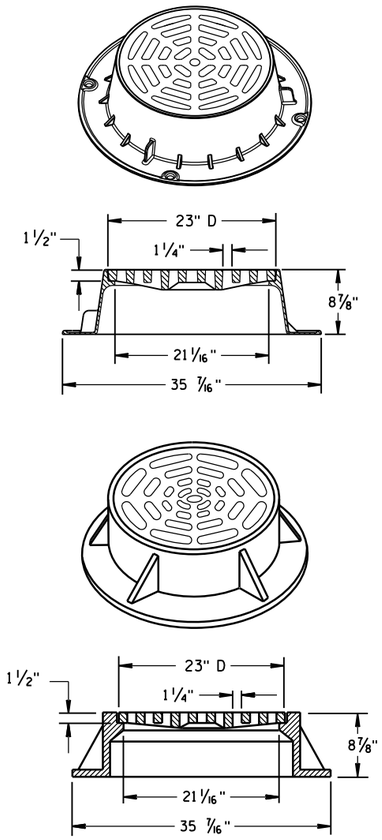


TYPE "B"



ALTERNATIVE GRATE FOR TYPE "B" COVER

USE WHERE PEDESTRIAN OR BICYCLE TRAFFIC IS POSSIBLE.
NOTED AS TYPE B-A ON THE DRAINAGE TABLE



TYPE "C"

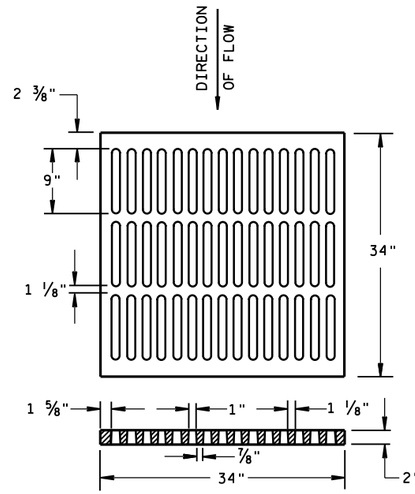
NOTE: EITHER CASTING IS ACCEPTABLE

GENERAL NOTES

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

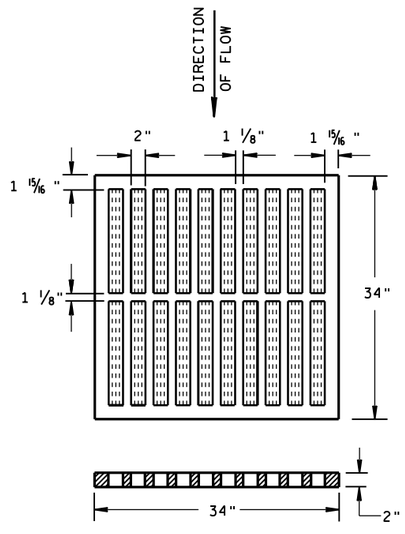
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR CATCH BASIN, MANHOLE AND INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ROUND FRAMES AND COVERS SHALL HAVE CONTINUOUSLY MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING.



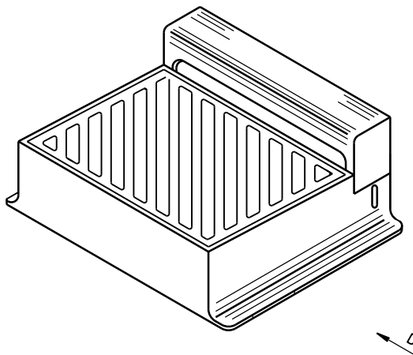
ALTERNATIVE TYPE "MS"

USE WHERE PEDESTRIAN OR BICYCLE TRAFFIC IS PERMITTED
NOTED AS TYPE MS-A ON THE DRAINAGE TABLE

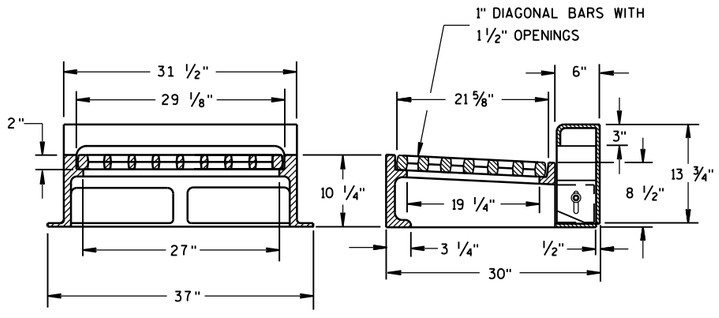


TYPE "MS"

USE ON FREEWAYS AND EXPRESSWAYS
NOTED AS TYPE MS ON DRAINAGE TABLE



DIAGONAL SLOTS, SHALL BE ORIENTED TO THE DIRECTION OF FLOW AS ILLUSTRATED. GRATES ARE MANUFACTURED TO BE REVERSIBLE.



NOTE: CURB BOX HEIGHT ADJUSTABLE 6" TO 9"

TYPE "WM"

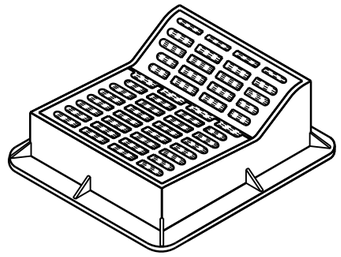
INLET COVERS
TYPE B, B-A, C,
MS, MS-A, & WM

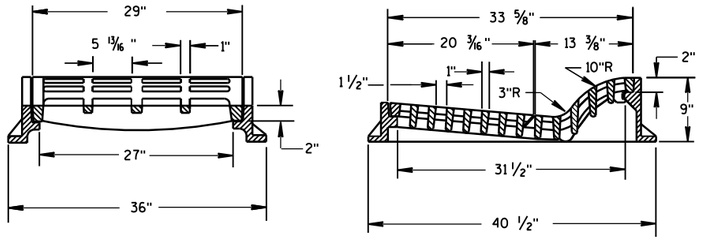
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
11/27/2013 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER
FHWA

6

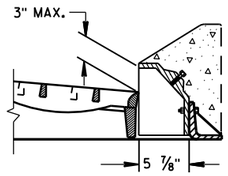
S.D.D. 8 A 5-19b





TYPE "F"

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



ALTERNATIVE CURB BOX FOR TYPE "HM" COVER

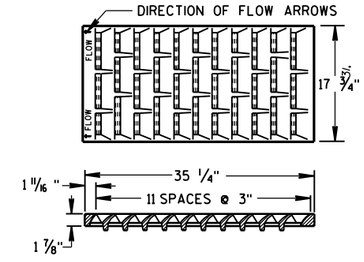
USE WITH TYPES G & J CONCRETE CURB & GUTTER, 30 INCH
NOTED AS TYPE HM-GJ ON DRAINAGE TABLE

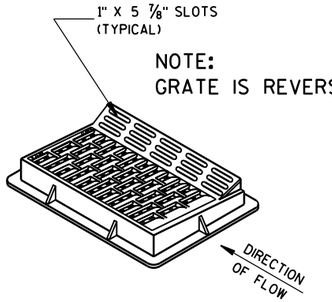
NOTE:
SPECIAL GRATE FOR THE
TYPE "H" COVER MAY ALSO BE
USED FOR THE TYPE "HM-GJ" COVER
NOTED AS TYPE HM-GJ-S ON DRAINAGE TABLE

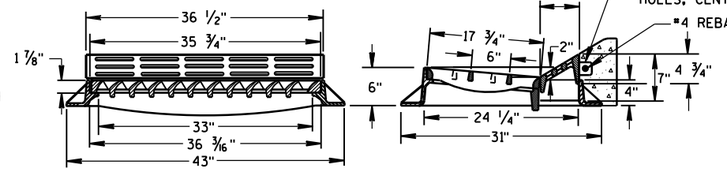
GENERAL NOTES

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

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



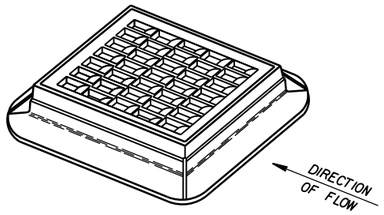


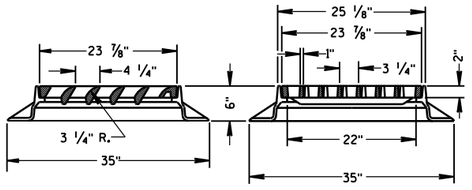


TYPE "HM"

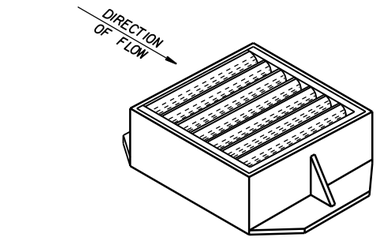
USE WITH TYPES A & D CONCRETE CURB & GUTTER, 36 INCH.

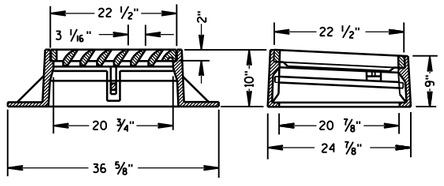
NOTE:
SPECIAL GRATE FOR THE
TYPE "H" COVER MAY ALSO BE
USED FOR THE TYPE "HM" COVER
NOTED AS TYPE HM-S ON DRAINAGE TABLE



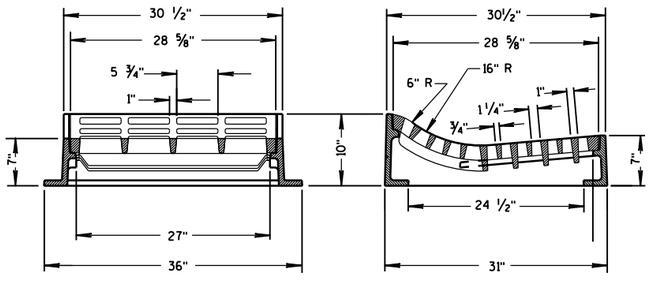


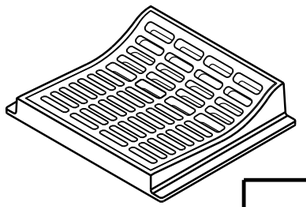
TYPE "S"





TYPE "V"





TYPE "T"

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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

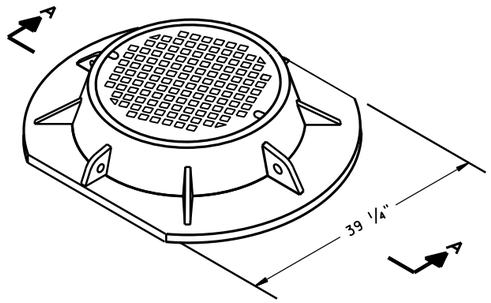
APPROVED
11/27/2013
DATE

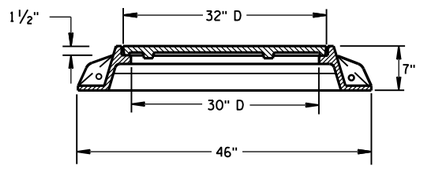
/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER

FHWA

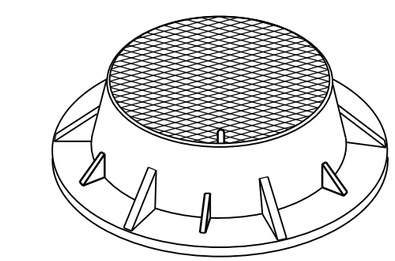
6

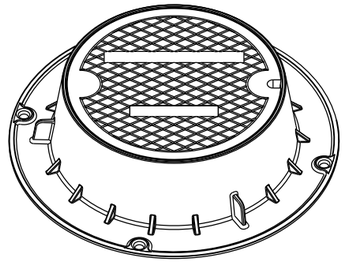
S.D.D. 8 A 5-19c

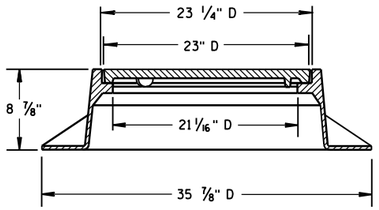


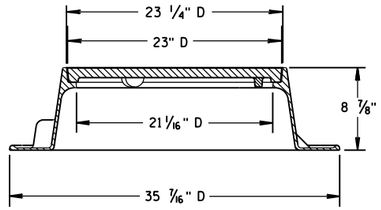


SECTION A-A
TYPE "K"









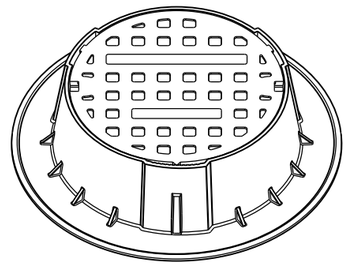
TYPE "J"
NOTE: EITHER CASTING IS ACCEPTABLE

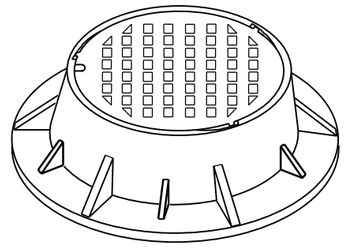
GENERAL NOTES

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

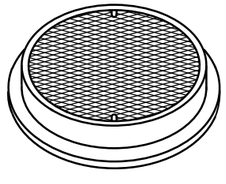
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR MANHOLE COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

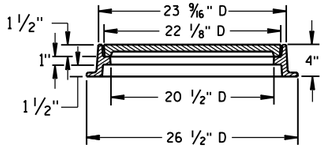
ROUND FRAMES AND COVERS SHALL HAVE CONTINUOUSLY MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING.



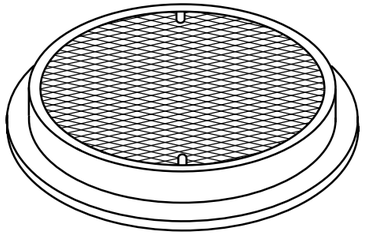


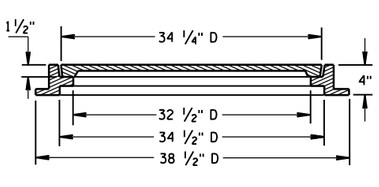
TYPE "J" SPECIAL
TYPE "B" NON-ROCKING SELF-SEAL LID
(NOTED AS TYPE J-S ON THE DRAINAGE TABLE)
NOTE: EITHER CASTING IS ACCEPTABLE



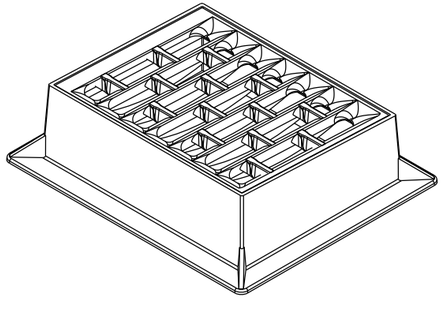


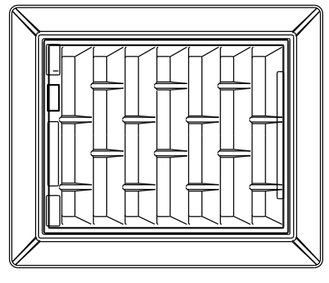
TYPE "L"

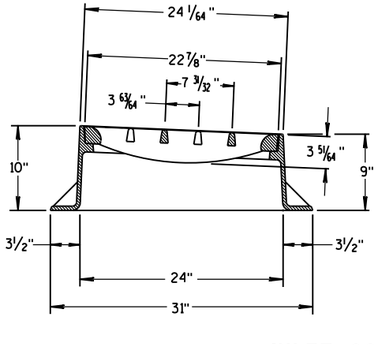


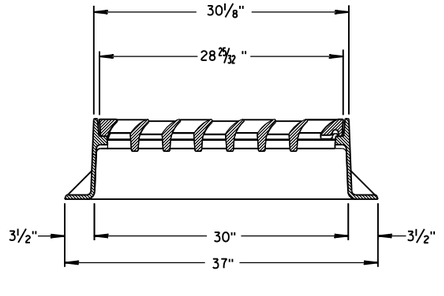


TYPE "M"









INLET COVER TYPE "BW"

INLET COVER TYPE BW
MANHOLE COVERS, TYPE K, J, J-S, L & M

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

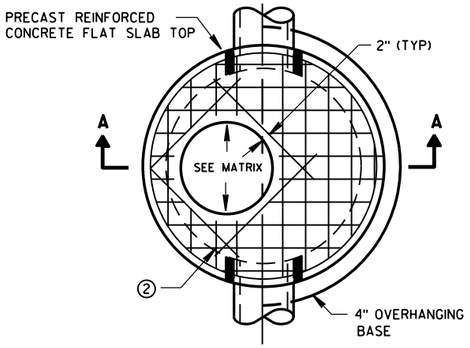
APPROVED
11/27/2013
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

6

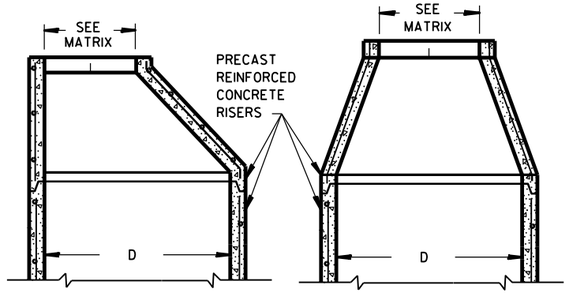
S.D.D. 8 A 5-19d

6

S.D.D. 8 A 5-19d

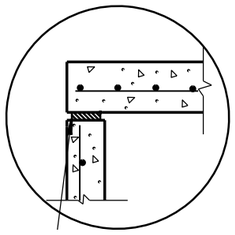


PLAN VIEW CIRCULAR OPENING

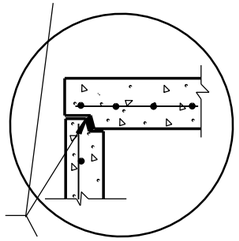


OPTIONAL PRECAST REINFORCED CONCRETE ECCENTRIC TOP

OPTIONAL PRECAST REINFORCED CONCRETE CONCENTRIC TOP

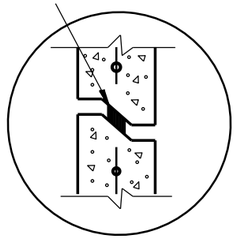


TOP WITH PLAIN END JOINT



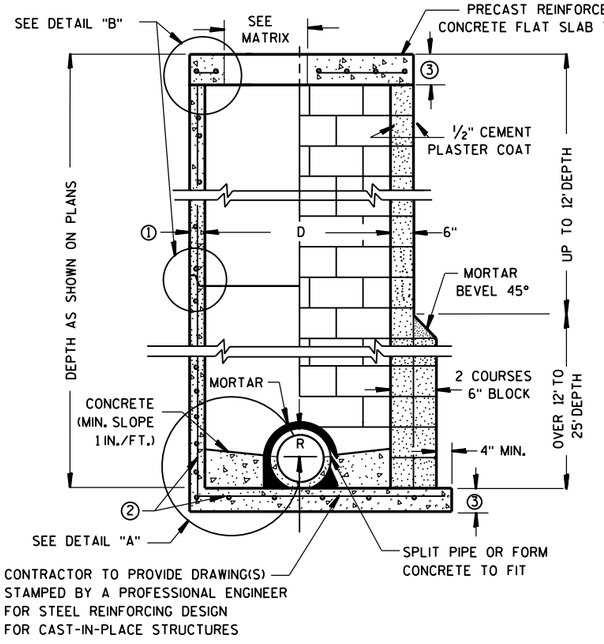
JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C990 (TYP)

TOP WITH TONGUE AND GROOVE JOINT



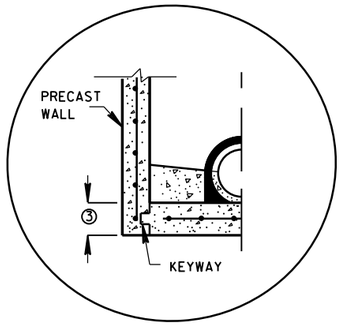
RISER WITH TONGUE AND GROOVE JOINT

DETAIL "B"

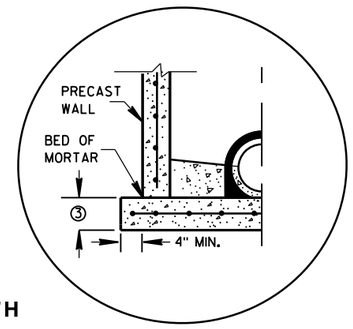


PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE

CONCRETE BLOCK WITH CAST-IN-PLACE OR PRECAST REINFORCED CONCRETE BASE ②

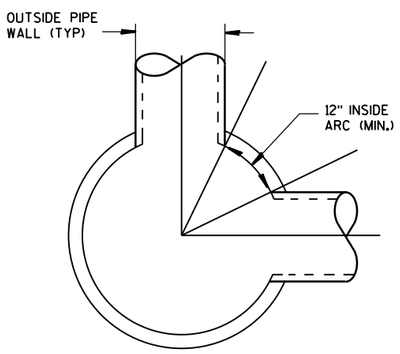


PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION



SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

DETAIL "A"



DETAIL "C"

GENERAL NOTES

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

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

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

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

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

PRECAST REINFORCED CONE TOPS (ECCENTRIC OR CONCENTRIC) OR PRECAST REINFORCED FLAT SLAB TOPS MAY BE USED ON CONCRETE BLOCK STRUCTURES.

ECCENTRIC CONE TOPS MAY BE USED ON ALL STRUCTURES, AND CONCENTRIC CONE TOPS SHALL BE USED ONLY ON STRUCTURES 5 FEET OR LESS IN DEPTH, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

STEPS MEETING AASHTO M199 AND THE FOLLOWING REQUIREMENTS SHALL BE INSTALLED IN ALL STRUCTURES OVER 5 FEET IN DEPTH: 16 INCH C-C MAXIMUM SPACING; PROJECT A MINIMUM CLEAR DISTANCE OF 4 INCHES FROM THE WALL AT THE POINT OF EMBEDMENT; MINIMUM LENGTH OF 10 INCHES; MINIMUM WALL EMBEDMENT OF 3 INCHES. FERROUS METAL STEPS NOT PAINTED OR TREATED TO RESIST CORROSION SHALL HAVE A MINIMUM CROSS SECTIONAL DIMENSION OF 1 INCH.

STEPS OF APPROVED POLYPROPYLENE PLASTIC COATED REINFORCEMENT BAR ARE ACCEPTABLE. REINFORCING BAR MUST BE A MINIMUM OF ½" AND MEET THE REQUIREMENTS OF ASTM A615.

CERTIFICATION SHALL BE PROVIDED THAT INSTALLED STEPS WHEN TESTED IN ACCORDANCE WITH SECTION 10 OF AASHTO T280 CAN WITHSTAND A VERTICAL LOAD OF 800 LBS. AND A HORIZONTAL LOAD OF 400 LBS.

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

CONCRETE BLOCK WILL NOT BE PERMITED FOR STRUCTURES GREATER THAN 4 FEET IN DIAMETER.

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

ALL PRECAST MANHOLE UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M 199.

4" OVERHANGING BASES ARE REQUIRED FOR ALL CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPARATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

FOR ADDITIONAL CONFIGURATIONS, MAINTAIN A MINIMUM OF 12 INCHES AS MEASURED FROM THE INSIDE OF THE STRUCTURE WALL BETWEEN THE OUTSIDE PIPE WALLS OF ADJACENT PIPES. SEE DETAIL "C".

① MINIMUM WALL THICKNESS SHALL BE 4 INCHES FOR 3-FT, 5 INCHES FOR 4-FT, 6 INCHES FOR 5-FT, 7 INCHES FOR 6-FT, 8 INCHES FOR 7-FT AND 9 INCHES FOR 8-FT DIAMETER PRECAST MANHOLES.

② FOR PRECAST MANHOLES PROVIDE REINFORCING STEEL IN ACCORDANCE TO AASHTO M199.

③ PRECAST FLAT SLAB TOPS AND BASES WITH A DIAMETER OF 48" AND LESS SHALL HAVE A MINIMUM THICKNESS OF 6". PRECAST FLAT SLAB TOPS AND BASES WITH A DIAMETER LARGER THAN 48" SHALL HAVE A MINIMUM THICKNESS OF 8".

MANHOLE COVER OPENING MATRIX

MANHOLE COVER TYPE	C	ALL J'S	K	L	M
OPENING SIZE (FT)					
2 DIA.	X	X		X	
3 DIA.			X		X

PIPE MATRIX

MANHOLE SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES	
	180° SEPARATION (IN)	90° SEPARATION (IN)
3-FT	15	12
4-FT	24	18
5-FT	36	24
6-FT	42	36
7-FT	48	36
8-FT	60	42

MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

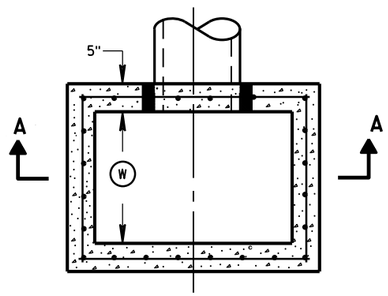
APPROVED

Sept., 2016
DATE

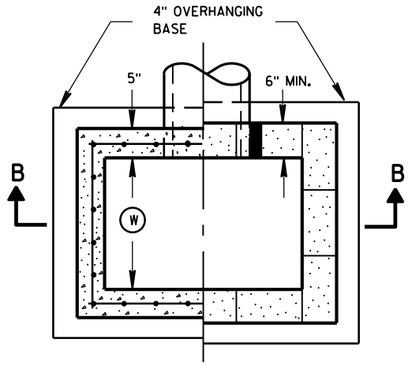
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERV

FHWA

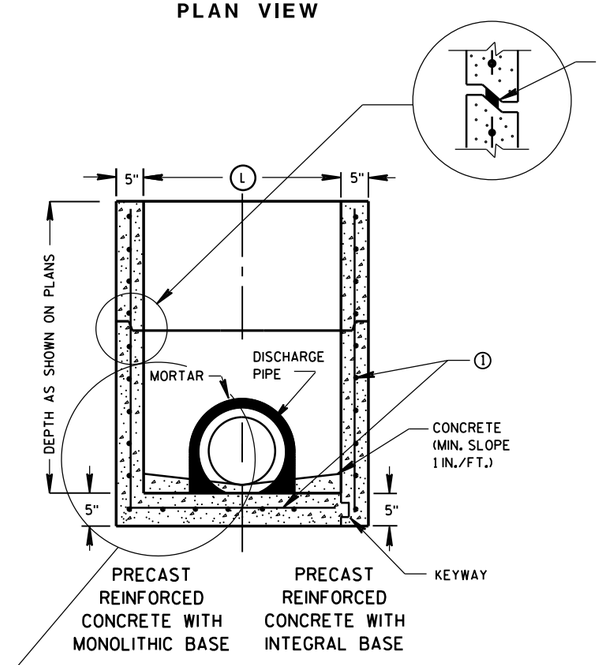
6
S.D.D. 8 B 9-2



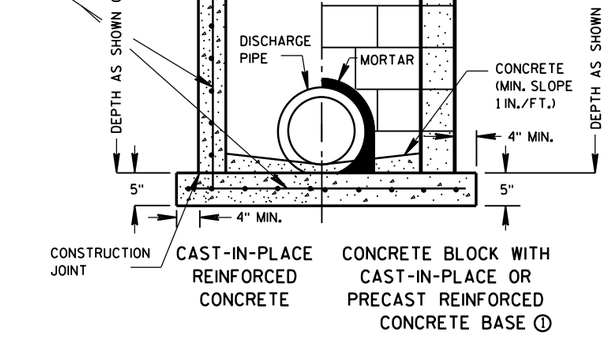
PLAN VIEW



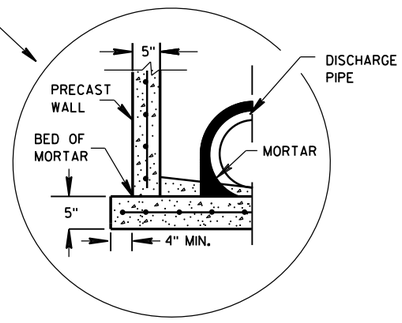
PLAN VIEW



SECTION A-A



SECTION B-B



SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

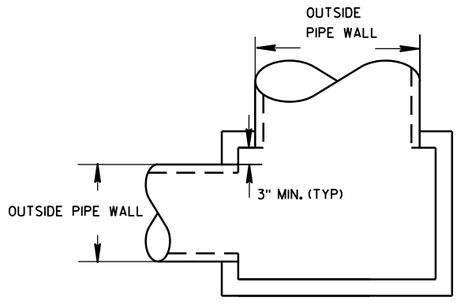
② CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES.

INLET COVER MATRIX

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

PIPE MATRIX

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



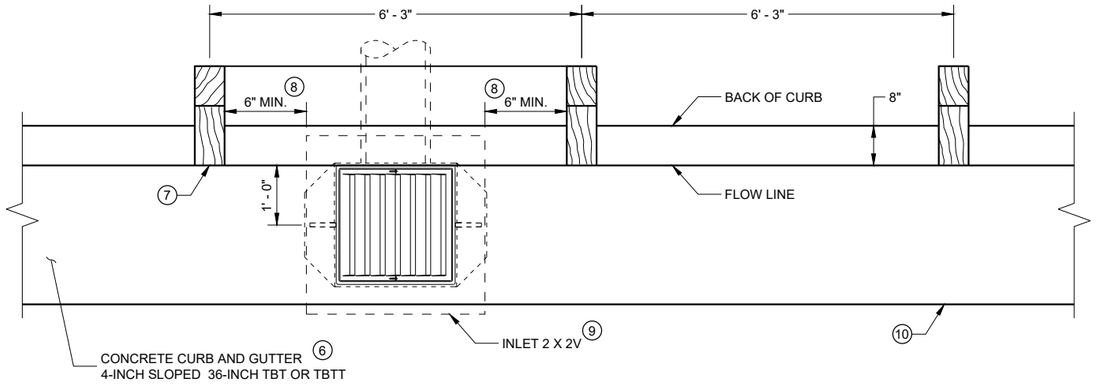
DETAIL "A"

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

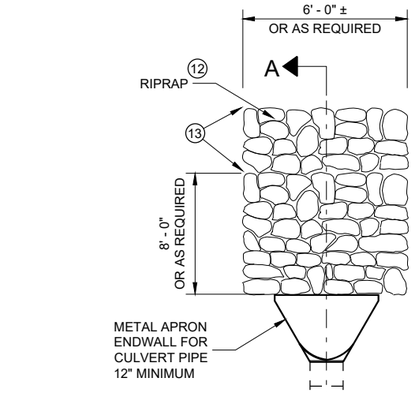
APPROVED
Sept., 2016 — DATE
/S/ Rodney Taylor
ROADWAY STANDARDS D IT UNIT SUPERVIS
FHWA

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



INLET PLAN VIEW

(NOTE: RAIL NOT SHOWN FOR CLARITY)

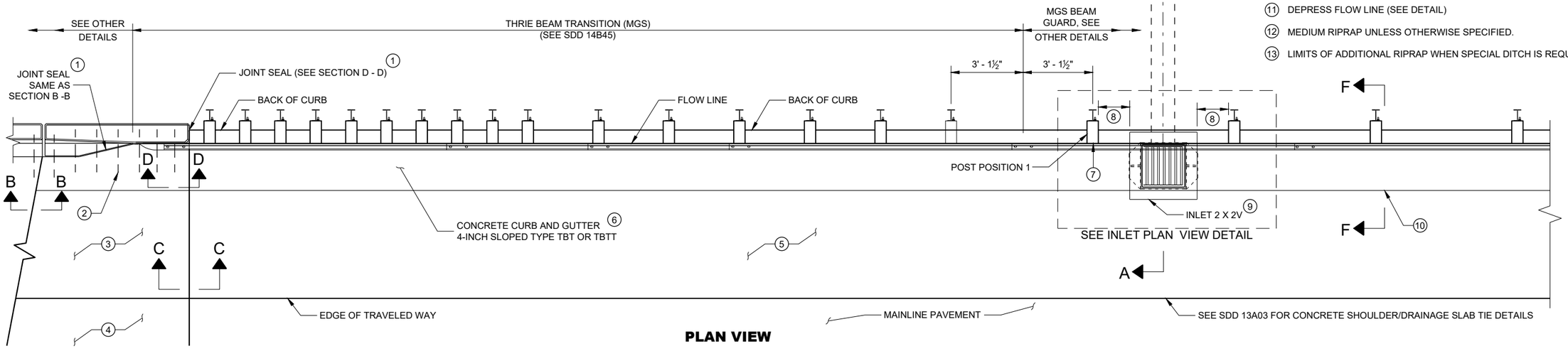


GENERAL NOTES

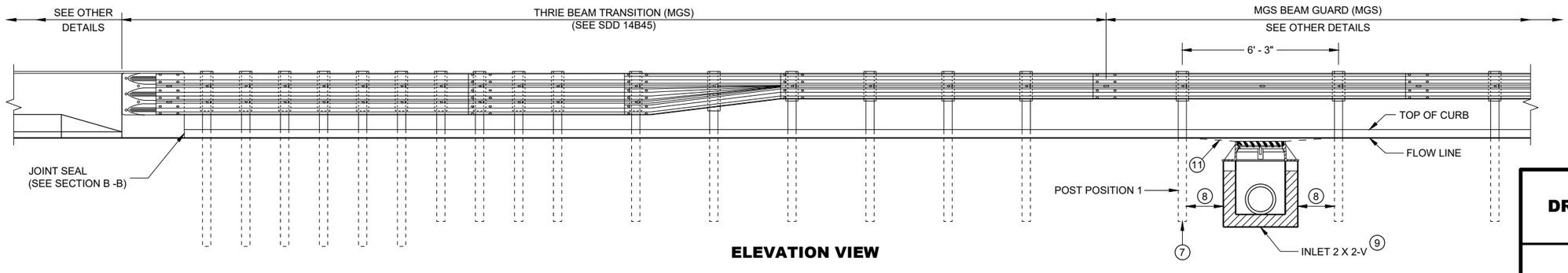
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

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



PLAN VIEW



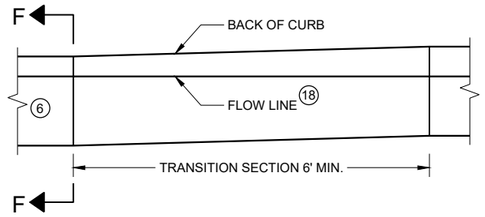
ELEVATION VIEW

CONCRETE SURFACE DRAINS DROP INLET TYPE AT STRUCTURES

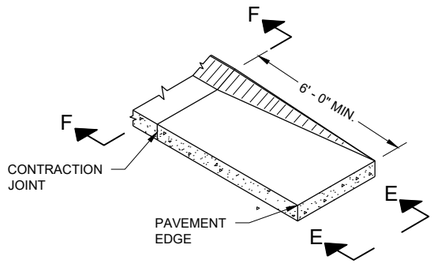
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

SDD 08D03 - 08a

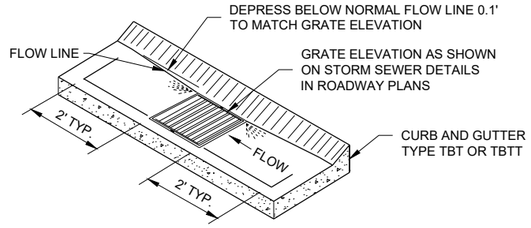
SDD 08D03 - 08a



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



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



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

GENERAL NOTES

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

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

(1) USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.

(2) NO. 4 X 2' - 0" TIE BARS SPACED AT 12" C-C TO BE PLACED BY BRIDGE CONTRACTOR OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.

(3) PAVED CONCRETE SHOULDER (SDD 13A03) OR CONCRETE DRAINAGE SLAB.

(4) CONCRETE PAVEMENT APPROACH SLAB (SHOWN) OR STRUCTURE APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB. SEE SDD 13B02 AND STRUCTURE PLANS.

(5) PAVED CONCRETE SHOULDER (SDD 13A03) OR ASPHALT SHOULDER.

(6) CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE TBT OR TBTT. USE TYPE TBTT CURB WITH NO. 4 X 2' -0" TIE BARS SPACED AT 3' - 0" C-C ONLY WHEN ADJACENT TO CONCRETE PAVEMENTS.

(7) PLACE DRAINAGE STRUCTURE BEFORE MSG THRIE BEAM TRANSITION POST 1 (SEE SDD 14B45)

(8) CENTER DRAINAGE STRUCTURE BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE WALL OF DRAINAGE STRUCTURE TO POSTS.

(9) SEE SDD 08A05 AND 08C07 FOR DETAILS. SEE ROADWAY PLANS FOR LOCATION.

(10) START CURB AND GUTTER TRANSITION OR END SECTION.

(11) DEPRESS FLOW LINE (SEE DETAIL)

(12) MEDIUM RIPRAP UNLESS OTHERWISE SPECIFIED.

(13) LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH IS REQUIRED.

(14) GEOTEXTILE FABRIC TYPE HR.

(15) MSG THRIE BEAM TRANSITION POST 1. SEE SDD 14B45 FOR ADDITIONAL CONSTRUCTION DETAILS AND ACCEPTABLE MATERIALS.

(16) MAINTAIN WIDTH, THICKNESS AND CROSS SLOPE OF ADJACENT TYPE TBT OR TBTT CURB. SEE NOTE 6 FOR TIE BAR SPACING.

(17) ALIGN FACE OF POST BLOCK WITH FLOW LINE.

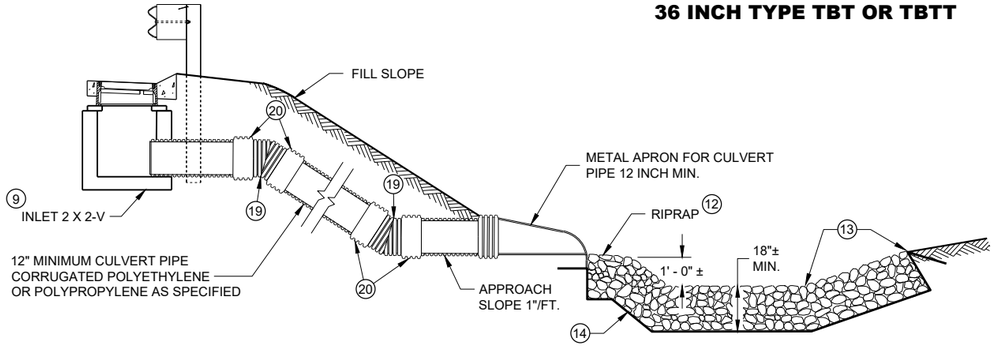
(18) MAINTAIN FLOW LINE AT EDGE OF PAVEMENT/FACE OF BEAM GUARD AS APPLICABLE.

(19) MANUFACTURER SUPPLIED BEND.

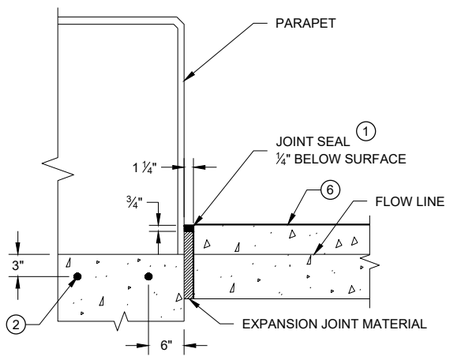
(20) MANUFACTURER SUPPLIED EXTERNAL MECHANICAL COUPLING OR A MANUFACTURER RECOMMENDED COUPLING WITH A MASTIC IMPREGNATED GEOTEXTILE WRAP AND MECHANICAL FASTENING BANDS.

(21) MINIMUM REINFORCEMENT SHALL BE 6" X 6" - W4.0 X W4.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C - C.

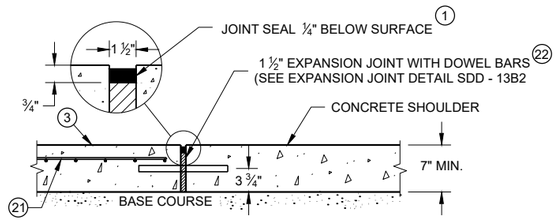
(22) DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING HMA PAVEMENTS.



SECTION A - A

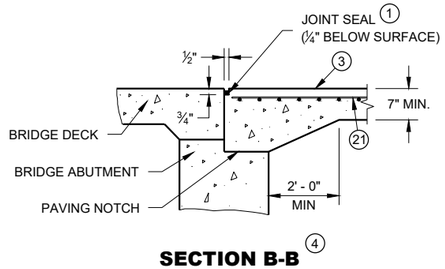


SECTION D - D

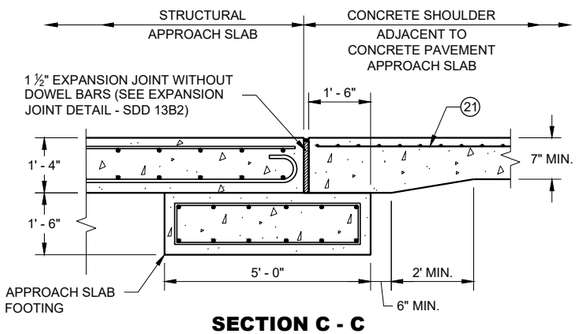


SECTION C - C

JOINT DETAIL FOR BRIDGE APPROACH WITH CONCRETE SHOULDERS

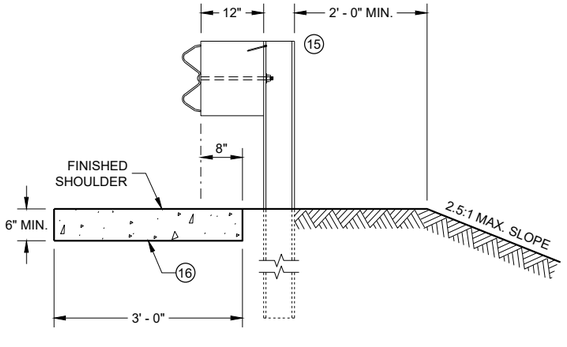


SECTION B-B (4)

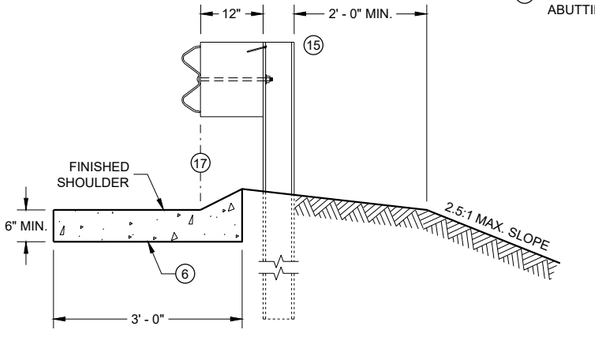


SECTION C - C

JOINT DETAIL FOR BRIDGE WITH STRUCTURAL APPROACH SLAB AND CONCRETE APPROACH SLAB



SECTION E - E



SECTION F - F

CONCRETE SURFACE DRAINS DROP INLET TYPE AT STRUCTURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

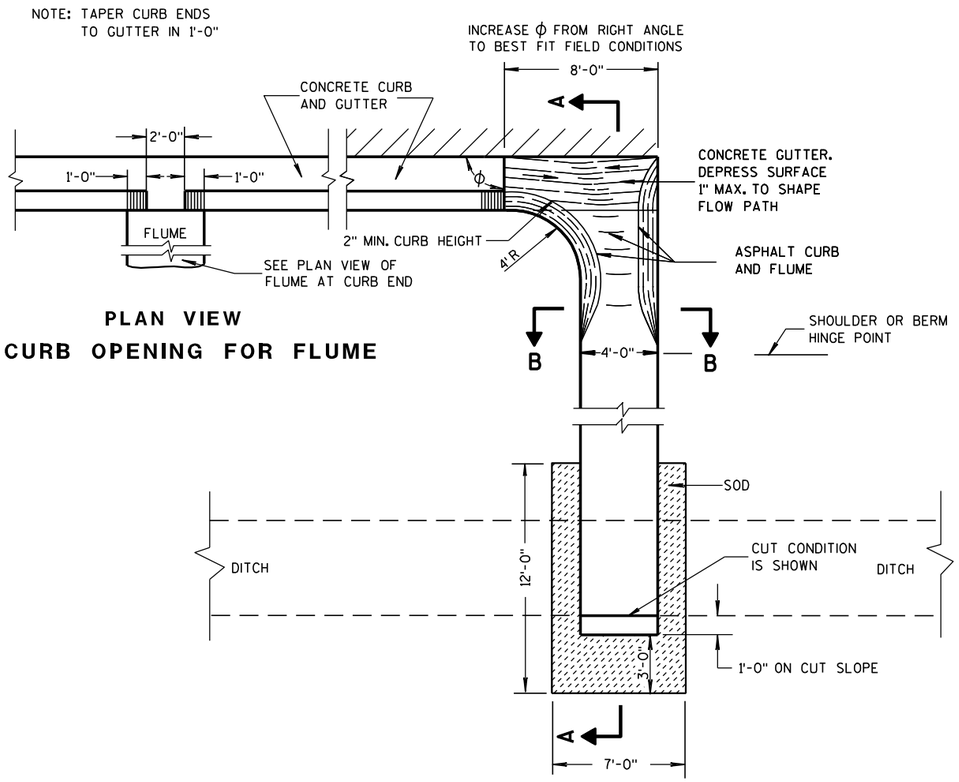
APPROVED
February 2020 — DATE
/S/ Rodney Taylor — ROADWAY STANDARDS DEVE ENGINEER

FHWA

SDD 08D03 - 08b

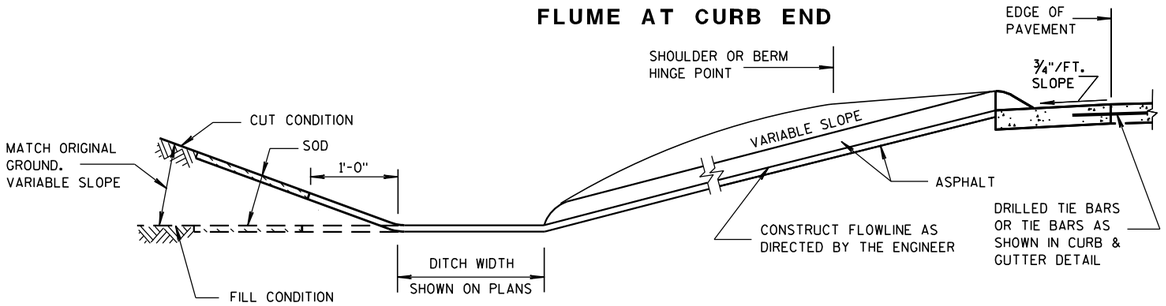
SDD 08D03 - 08b

ASPHALTIC FLUME

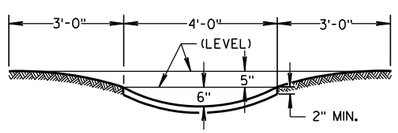


PLAN VIEW
CURB OPENING FOR FLUME

PLAN VIEW
FLUME AT CURB END



SECTION A-A



SECTION B-B

GENERAL NOTES

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

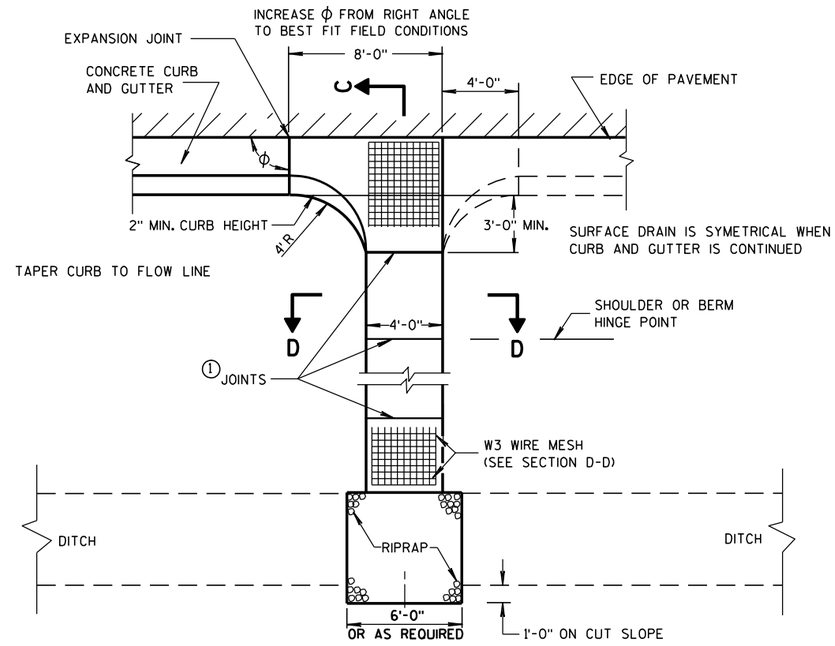
WELDED STEEL WIRE FABRIC SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATION M55.

① JOINTS SHALL BE $\frac{1}{8}$ TO $\frac{1}{4}$ INCH WIDE BY $1\frac{1}{2}$ INCHES DEEP AND SPACED AT UNIFORM INTERVALS OF APPROXIMATELY 4 FEET.

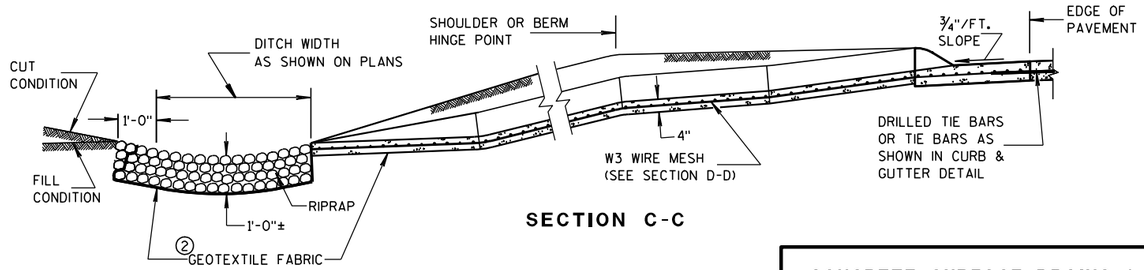
② GEOTEXTILE FABRIC TYPE "R" SHALL UNDERLAY THE FULL LENGTH AND WIDTH OF THE CONCRETE SURFACE DRAIN AND RIPRAP.

③ CONCRETE SURFACE DRAIN WITHOUT CURB AND GUTTER MAY BE USED ON BACKSLOPES WHEN SPECIFIED

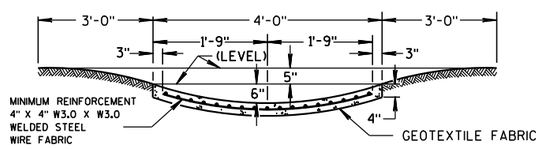
③ CONCRETE SURFACE DRAIN



PLAN VIEW



SECTION C-C

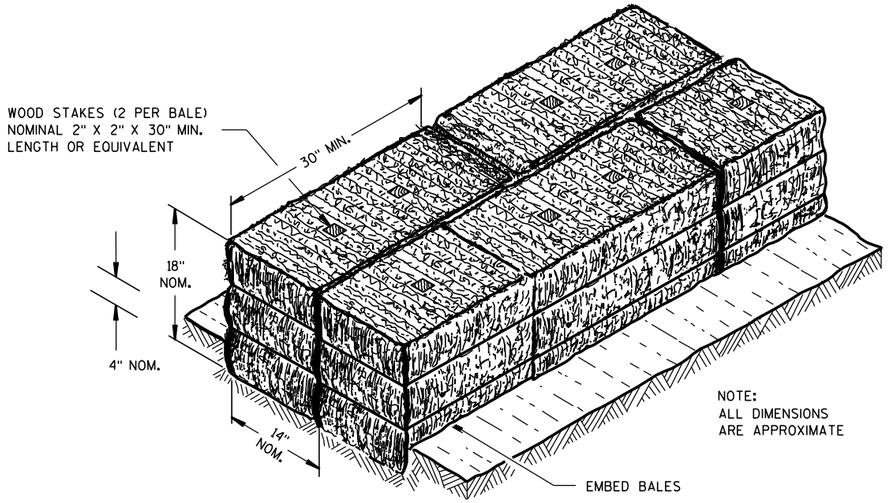


SECTION D-D

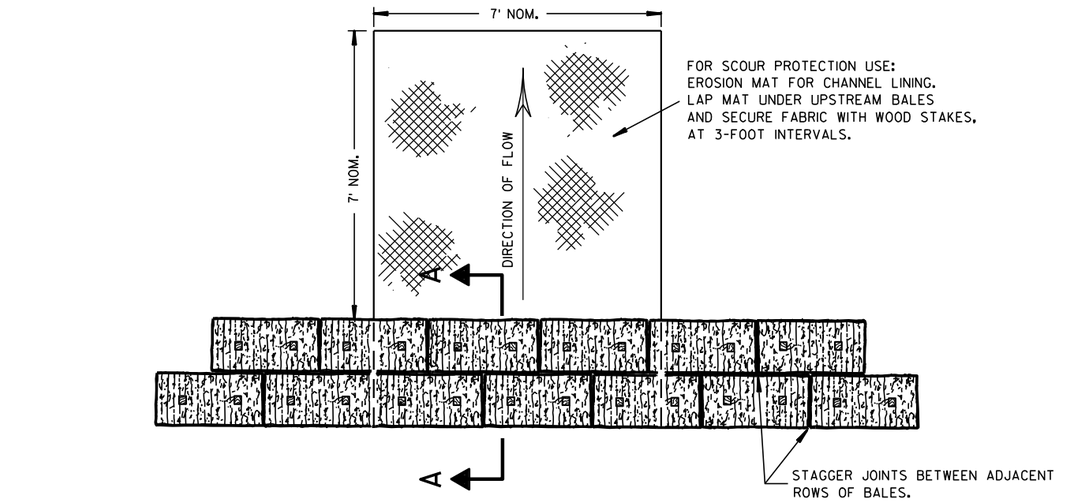
CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

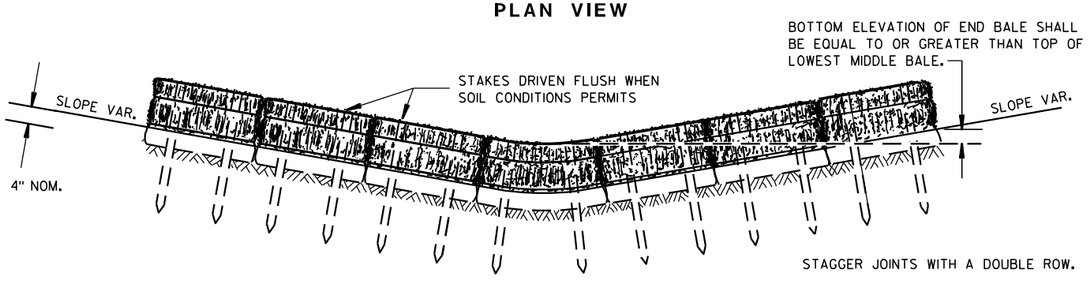
APPROVED
9-4-08 DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER
MENT
FHWA



SECTION A-A



PLAN VIEW



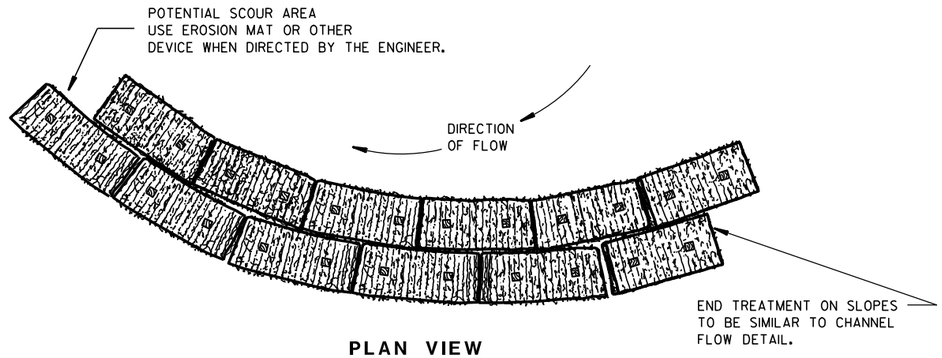
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

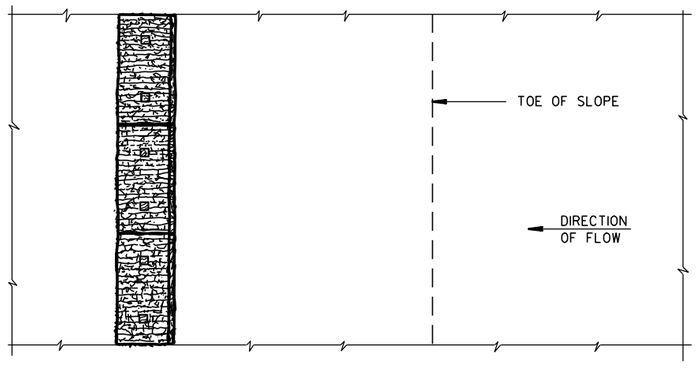
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

① TEMPORARY DITCH CHECKS EITHER EROSION BALES OR MANUFACTURED SHALL BE PAID FOR UNDER THE BID ITEM OF TEMPORARY DITCH CHECK. THE DEPARTMENT WILL NOT PAY FOR TEMPORARY DITCH CHECKS CONSTRUCTED OF A SINGLE ROW OF EROSION BALES.

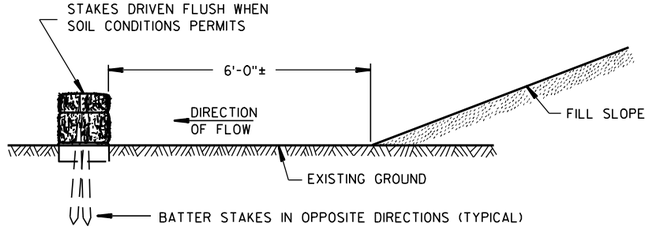


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

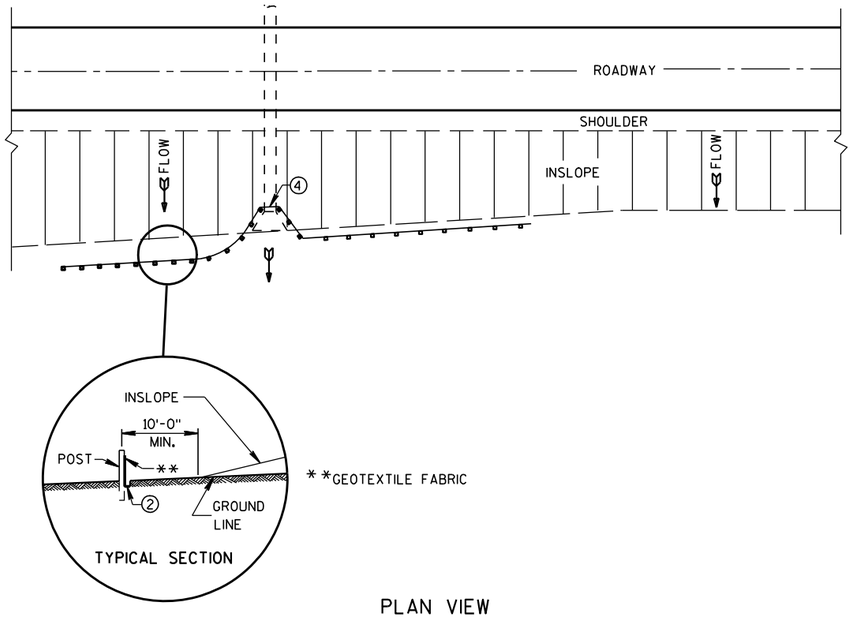
6/04/02 — DATE

/S/ Beth Cannestra — CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA

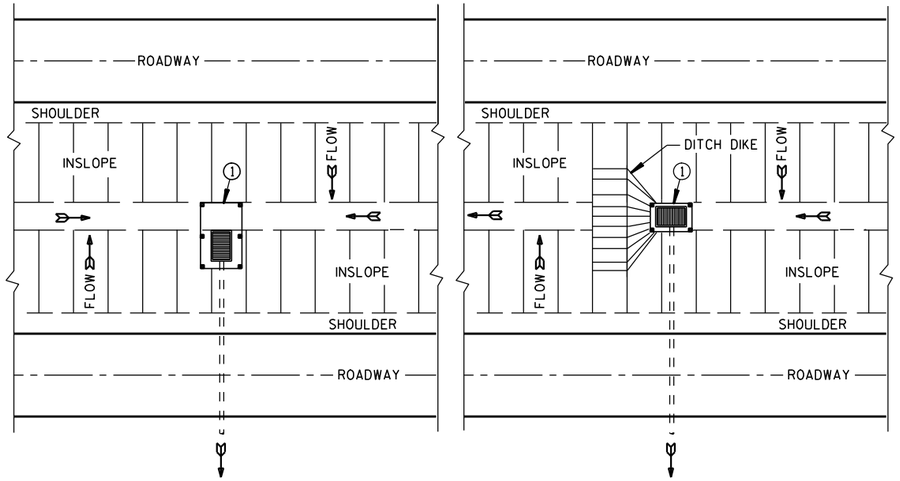
6

S.D.D. 8 E 8-3



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



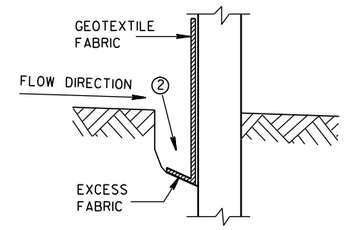
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

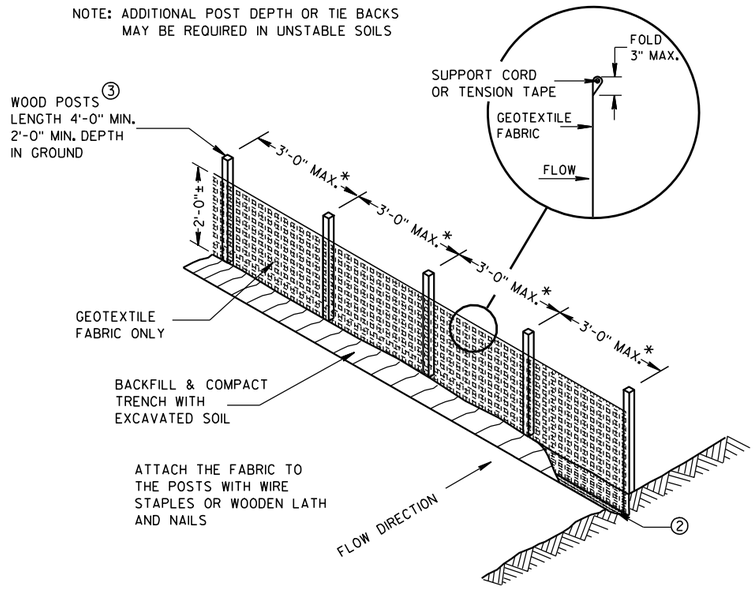
GENERAL NOTES

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

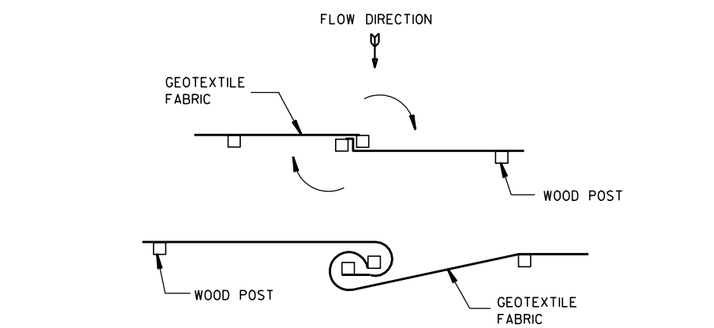
1. HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL 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.



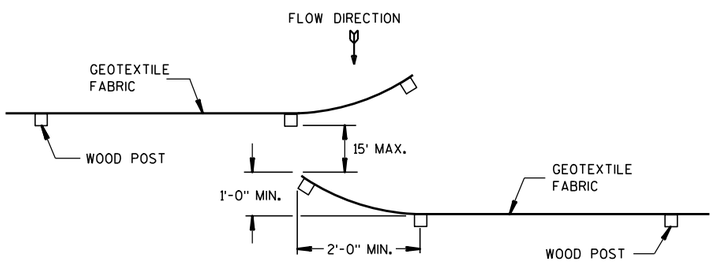
TRENCH DETAIL



SILT FENCE

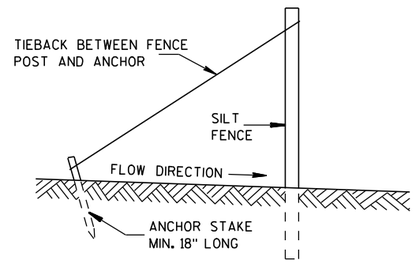


TWIST METHOD



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

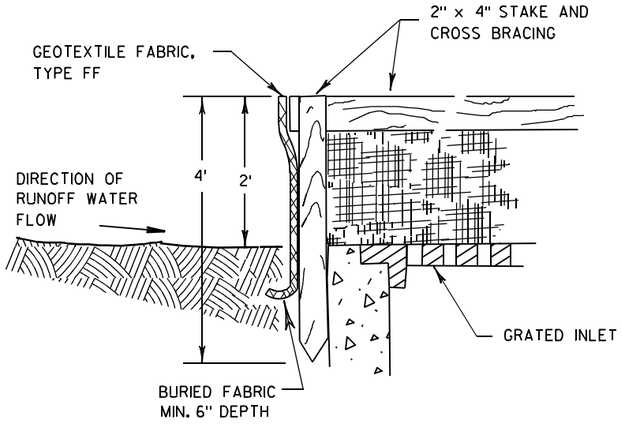
APPROVED
4-29-05 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

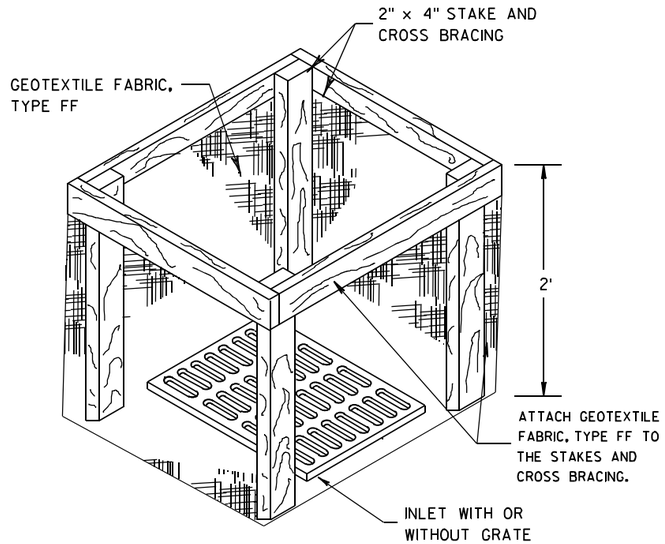
6

S.D.D. 8 E 9-6

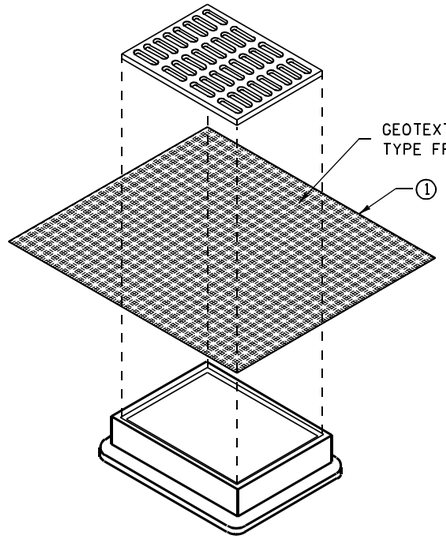
6

S.D.D. 8 E 9-6



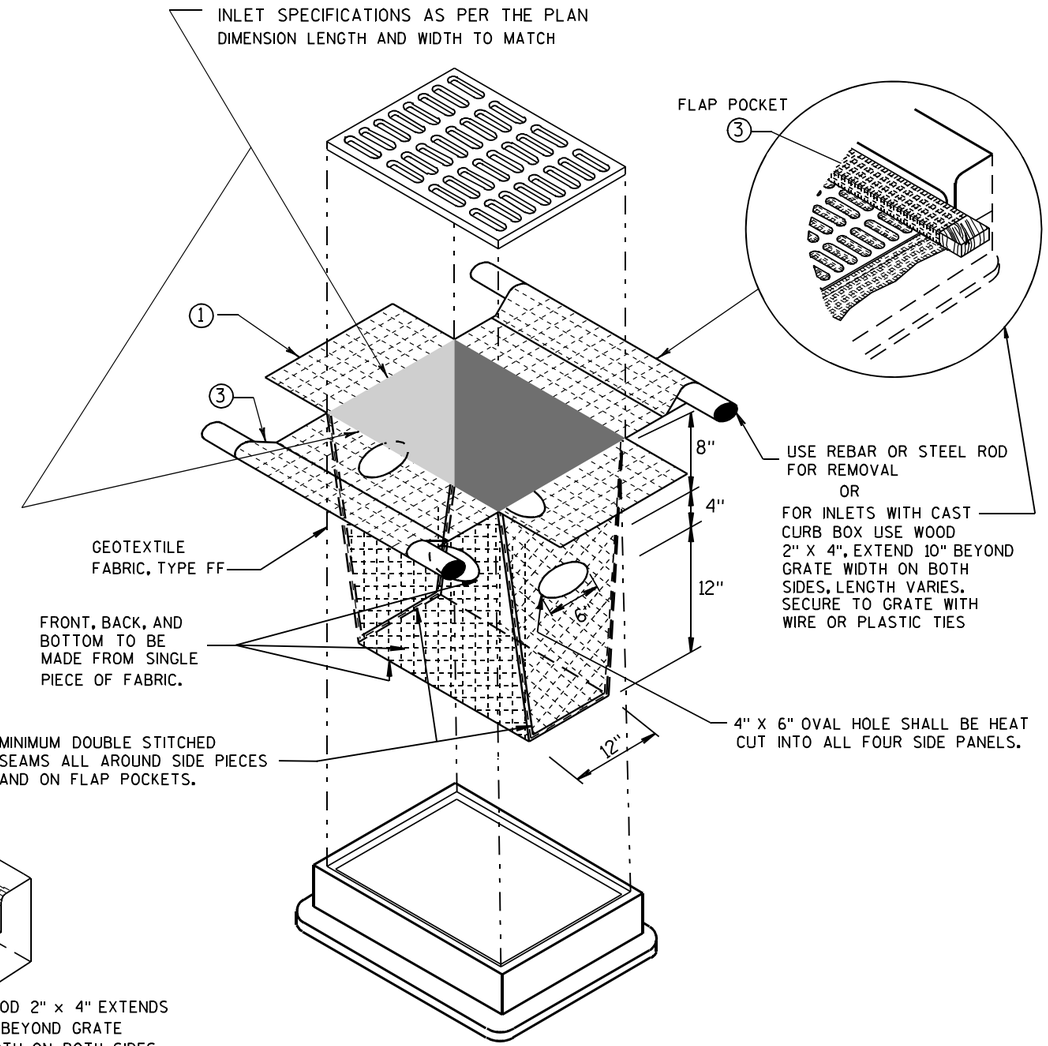


INLET PROTECTION, TYPE A



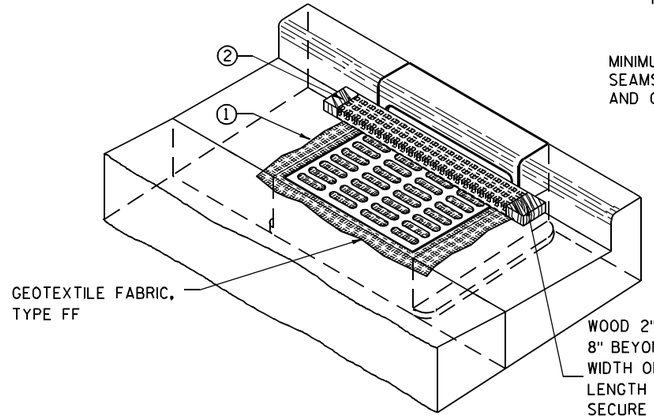
INLET PROTECTION, TYPE B
(WITHOUT CURB BOX)

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



INLET PROTECTION, TYPE D

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



INLET PROTECTION, TYPE C (WITH CURB BOX)

GENERAL NOTES

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

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

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

① FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.

② FOR INLET PROTECTION, TYPE C (WITH CURB BOX), AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.

③ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2X4.

INSTALLATION NOTES

TYPE B & C

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

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

TYPE D

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

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

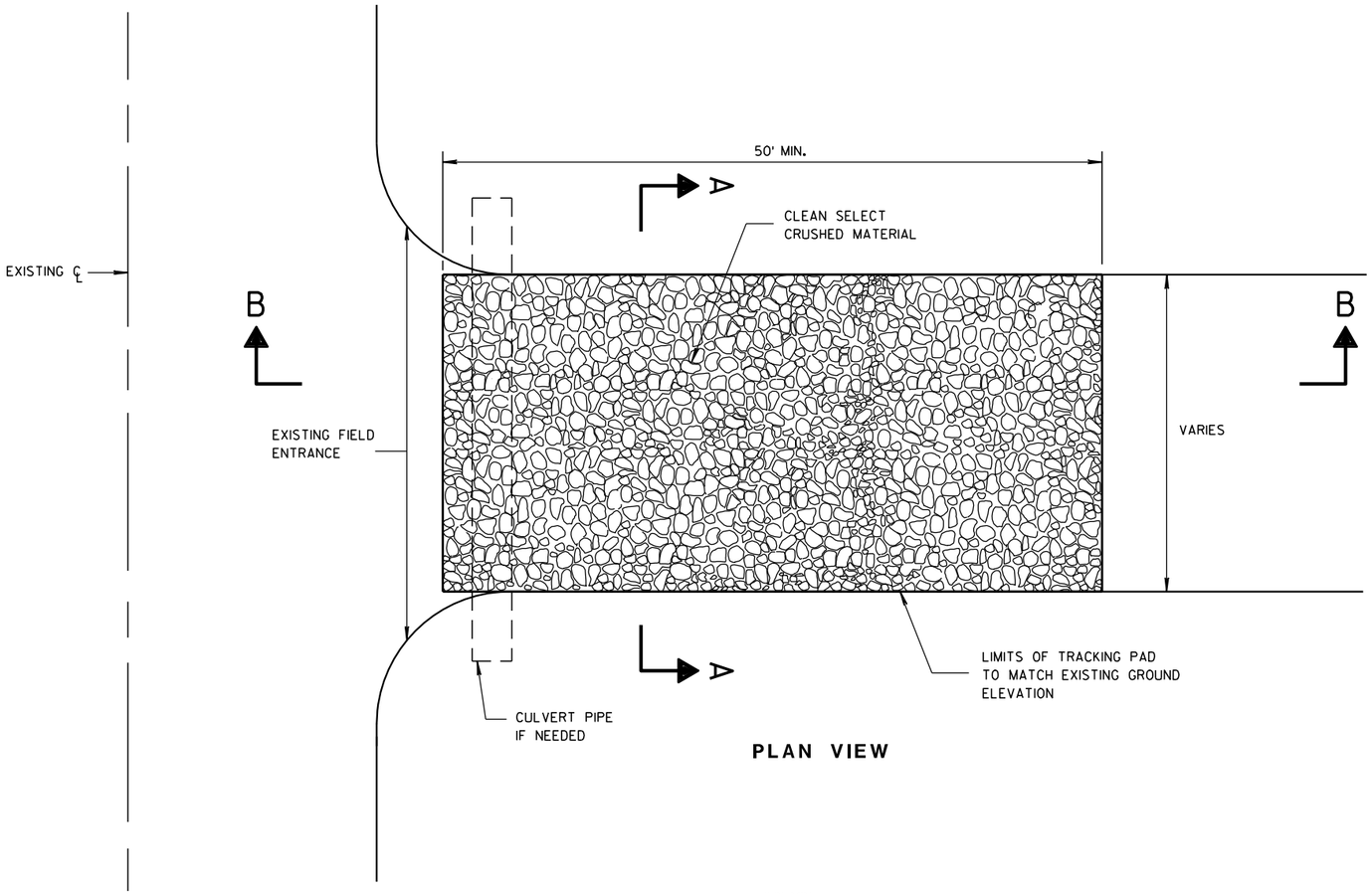
THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE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

INLET PROTECTION
TYPE A, B, C, AND D

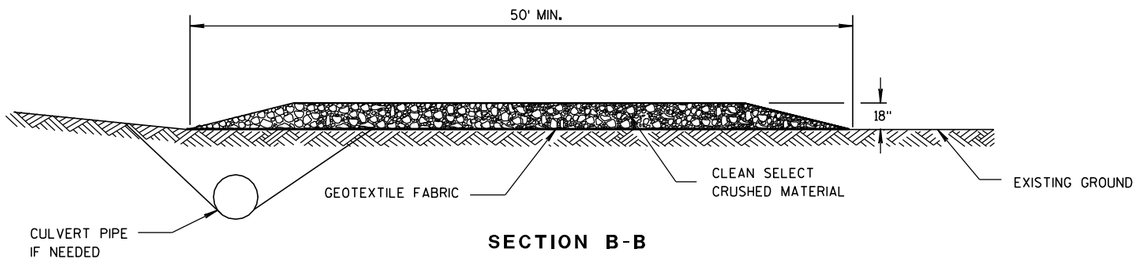
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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



PLAN VIEW



SECTION B-B

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.

TRACKING PAD SHALL BE INSPECTED DAILY. DEFICIENT AREAS SHALL BE REPAIRED OR REPLACED IMMEDIATELY.

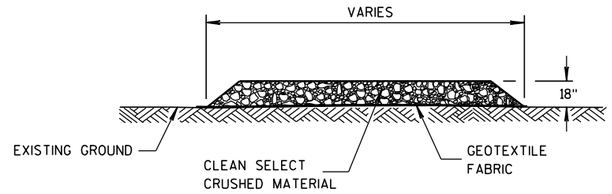
TRACKING PAD TO BE REMOVED AFTER CONSTRUCTION IS COMPLETED.

TRACKING PAD SHALL BE THE FULL WIDTH OF THE EGRESS POINT.

SURFACE WATER MUST BE PREVENTED FROM PASSING THROUGH THE TRACKING PAD. FLOWS SHALL BE DIVERTED AWAY, AROUND OR CONVEYED UNDER THE TRACKING PAD.

CULVERT PIPE OR OTHER BMP USED TO DIVERT WATER AWAY, AROUND OR UNDER THE TRACKING PAD SHALL BE DESIGNED TO CONVEY THE 2 YEAR - 24 HOUR EVENT.

THE COST OF ADDITIONAL BMP TO DIVERT WATER ARE INCIDENTAL TO THE TRACKING PAD BID ITEM.



SECTION A-A

TRACKING PAD

6

S.D.D. 8 E 14-1

TRACKING PAD

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/24/2011	/S/ Jerry H. Zoda	
DATE	ROADWAY STANDARDS ENGINEER	ENT

FHWA

6

S.D.D. 8 E 14-1

METAL APRON ENDWALLS

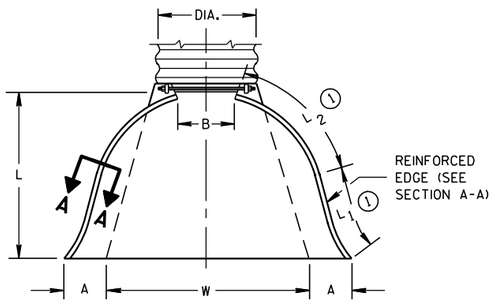
PIPE DIA. (IN.)	MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")		
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4	36	2 1/2 to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

× EXCEPT CENTER PANEL SEE GENERAL NOTES

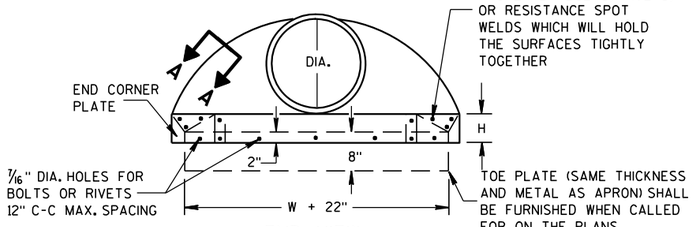
REINFORCED CONCRETE APRON ENDWALLS

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

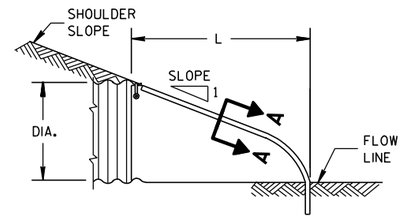
*MINIMUM
**MAXIMUM



PLAN VIEW

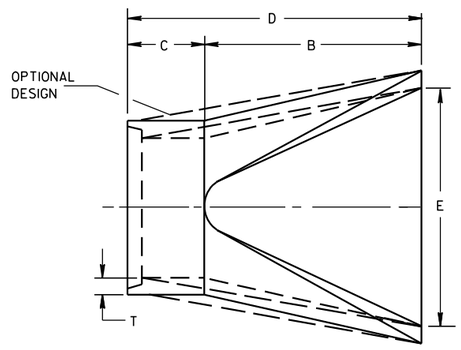


END VIEW

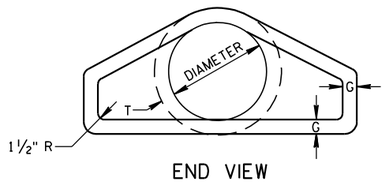


SIDE ELEVATION

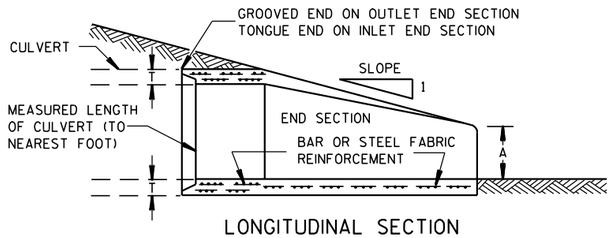
METAL ENDWALLS



PLAN

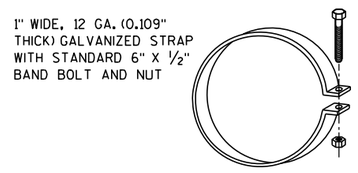


END VIEW



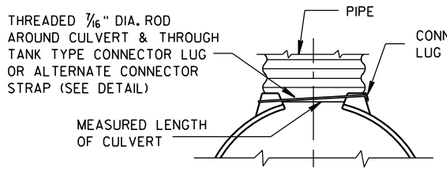
LONGITUDINAL SECTION

CONCRETE ENDWALLS

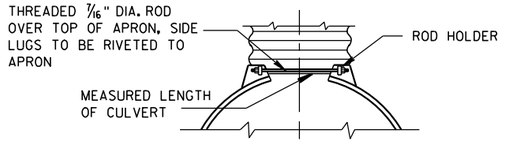


ALTERNATE FOR TYPE 1 CONNECTION

END SECTION CONNECTOR STRAP

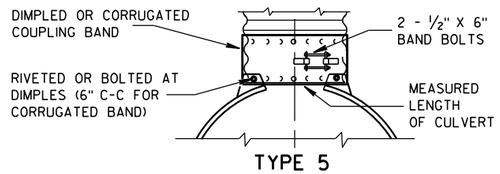


TYPE 1
FOR 12" THRU 24" CORR. PIPE



TYPE 2
FOR 30" THRU 96" CORR. PIPE

TYPE 3
FOR 42" THRU 96" CORR. PIPE



TYPE 5
ALTERNATE FOR:
ALL SIZES CORRUGATED CIRCULAR PIPE

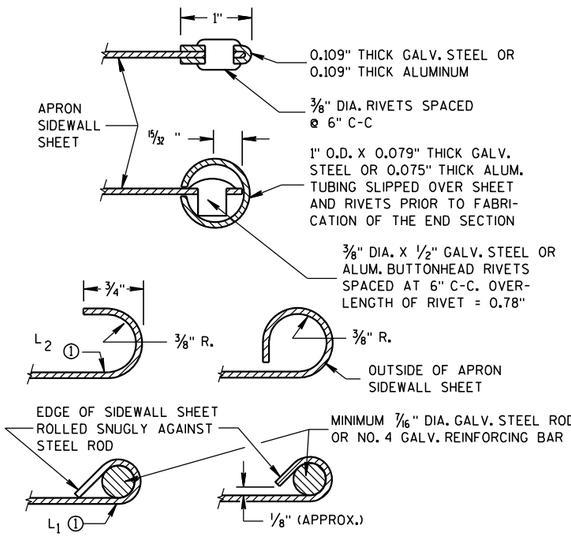
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL. AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

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

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

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

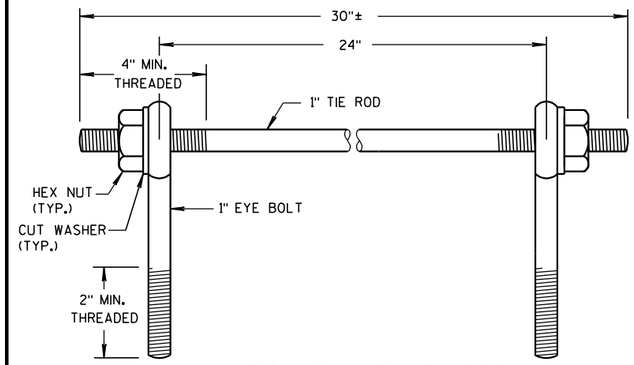
① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR CULVERT PIPE

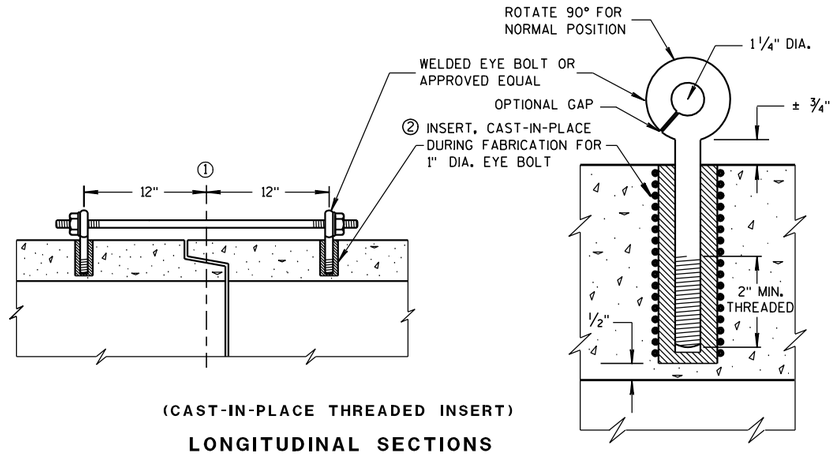
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6
S.D.D. 8 F 1-11



EYE BOLTS AND TIE ROD



(CAST-IN-PLACE THREADED INSERT)

LONGITUDINAL SECTIONS

EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 1)

GENERAL NOTES

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

CONCRETE CULVERT AND STORM SEWER PIPE SHALL BE TIED TOGETHER IN THE MANNER ILLUSTRATED BY THIS DETAIL AT LOCATIONS DESIGNATED IN THE STANDARD SPECIFICATIONS AND THE PLAN. THE CONTRACTOR MAY USE EITHER ALTERNATE 1, 2 OR 3 FOR DRAINAGE STRUCTURES. ONLY ALTERNATE 1 AND 3 MAY BE USED FOR CATTLE PASSES, UNLESS OTHERWISE STATED IN THE CONTRACT. THE MATERIALS, FABRICATION AND WORK NECESSARY TO TIE THE PIPE BY THIS DETAIL WILL BE CONSIDERED INCIDENTAL TO THE PIPE AND APRON ENDWALLS IF REQUIRED.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR JOINT TIES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

JOINT TIES TO BE HOT-DIP GALVANIZED PER ASTM A 153.

① ℄ OF TONGUE AND GROOVE OR BELL AND SPIGOT JOINTS.

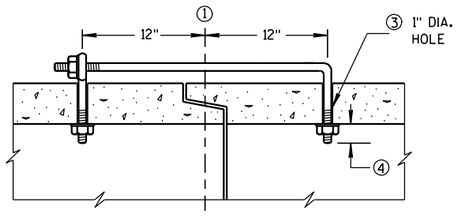
② THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.

③ HOLES SHALL BE CAST-IN-PLACE OR DRILLED 12 INCHES FROM ℄ OF TONGUE AND GROOVE.

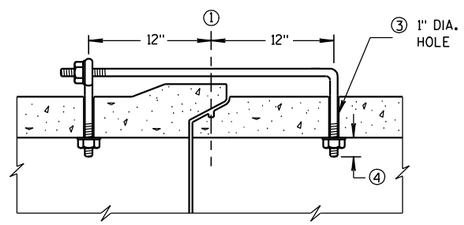
④ BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2 INCHES.

⑤ OPENING TO BE ROD DIAMETER PLUS 1 INCH.

⑥ LENGTH ADEQUATE TO EXTEND TO WITHIN 1/2 INCH OF THE INNER SURFACE OF THE PIPE.



(TONGUE & GROOVE PIPE)

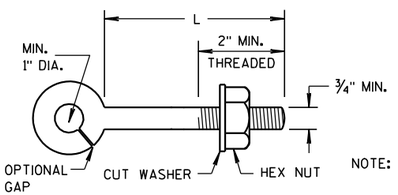


(MODIFIED BELL PIPE)

LONGITUDINAL SECTION

EYE BOLT DIMENSION TABLE

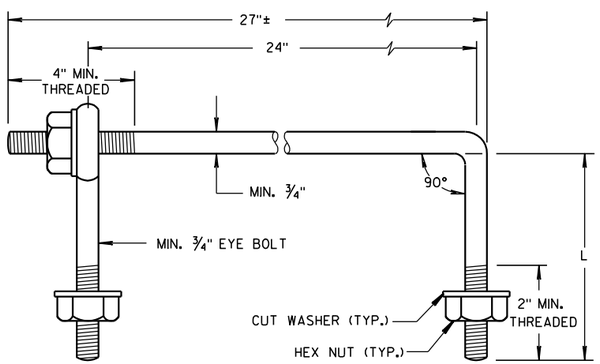
PIPE SIZE	L = LENGTH	
	TONGUE & GROOVE PIPE	MODIFIED BELL PIPE
18" TO 24"	4 1/2"	6 1/4"
30"	5"	7"
36"	5 1/2"	7"
42"	6"	
48"	6 1/2"	
60"	7 1/2"	
66"	8"	



NOTE:

EYE BOLT

NOTE: TWO EYE BOLTS MAY BE USED WITH A 30" LONG THREADED ROD IN LIEU OF THE 90° BENT TIE ROD.



EYE BOLT AND TIE ROD

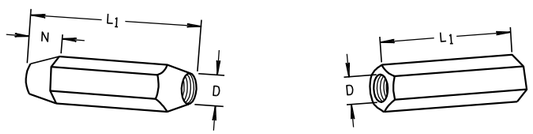
(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)

EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 2)

ADJUSTABLE TIE ROD TABLE

PIPE DIAMETER	TIE ROD DIAMETER	D	L_1	N
12-60	5/8	5/8	5	1/2
66-84	3/4	3/4	5	1/2
90-108	1	1	7	1 1/16

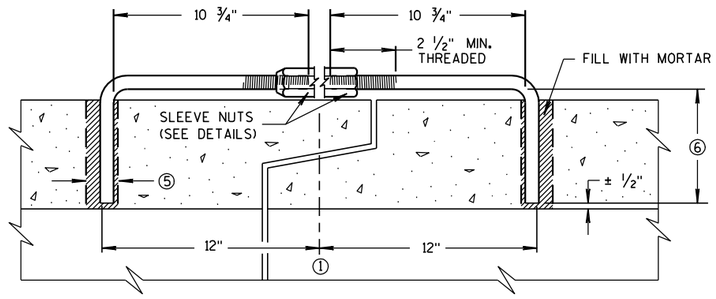
DIMENSIONS SHOWN ARE IN INCHES



TAPERED PLAIN

RIGHT AND LEFT THREADS

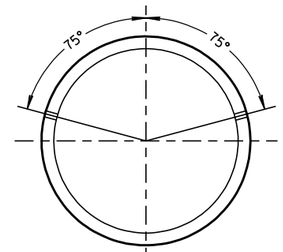
SLEEVE NUTS



LONGITUDINAL SECTION

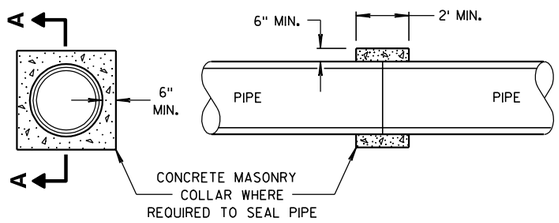
(JOINT TIES FOR 12" TO 108" DIA. CONCRETE PIPE)

ADJUSTABLE TIE ROD (ALTERNATE NO. 3)



PLACEMENT OF (2) CAST-IN-PLACE INSERTS OR HOLES DURING FABRICATION FOR PIPE SECTIONS REQUIRING TIE RODS

TRANSVERSE SECTION



SECTION A-A

CONCRETE COLLAR DETAIL

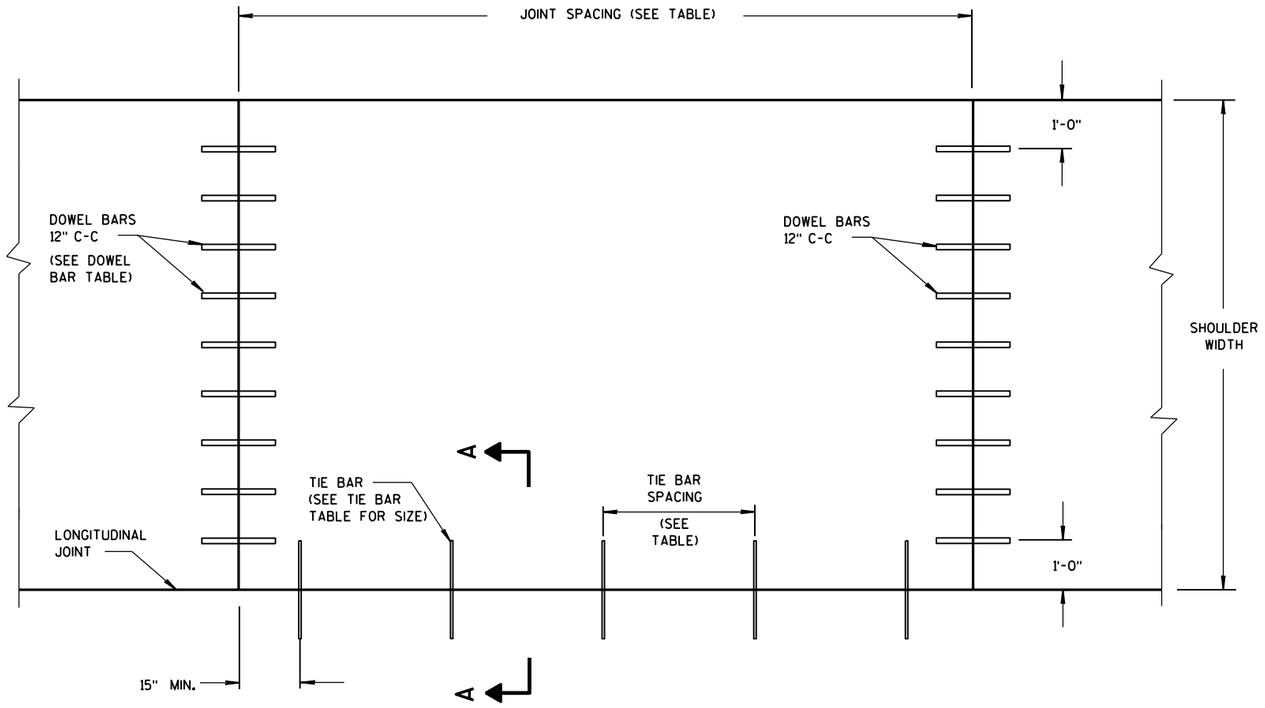
JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/5/2012 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER
72
FHWA

6

S.D.D. 8 F 4-7



PLAN VIEW

CONCRETE PAVEMENT SHOULDER

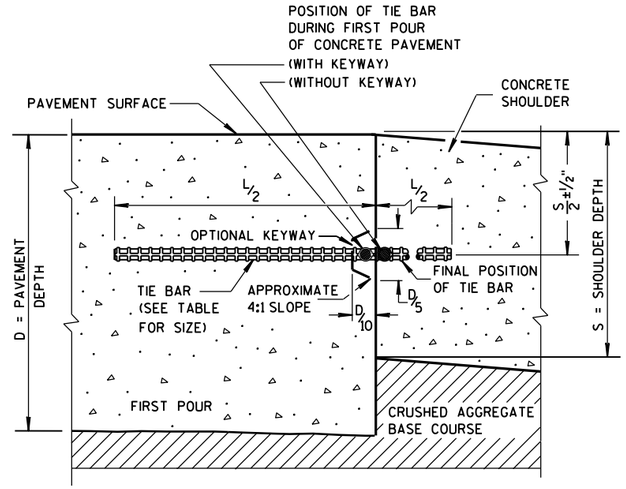
GENERAL NOTES

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

TRANSVERSE JOINT DETAILS ARE SHOWN ELSEWHERE IN THE PLAN.

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

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



SECTION A-A

LONGITUDINAL CONSTRUCTION JOINT

TIE BAR TABLE

PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 ½"	NO. 4	30"	36"
≥ 10 ½"	NO. 5	36"	36"
	NO. 4*	30"	24"**

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

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

PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER***	CONTRACTION JOINT SPACING
5 ½", 6", 6 ½"	NONE	12'
7", 7 ½"	1"	14'
8", 8 ½"	1 ¼"	15'
9", 9 ½"	1 ¼"	15'
10" & ABOVE	1 ½"	15'

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

CONCRETE PAVEMENT SHOULDERS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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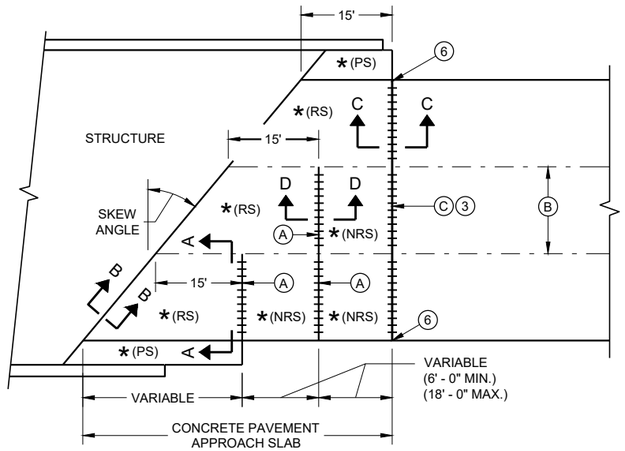
S.D.D. 13 A 3-6

6

S.D.D. 13 A 3-6



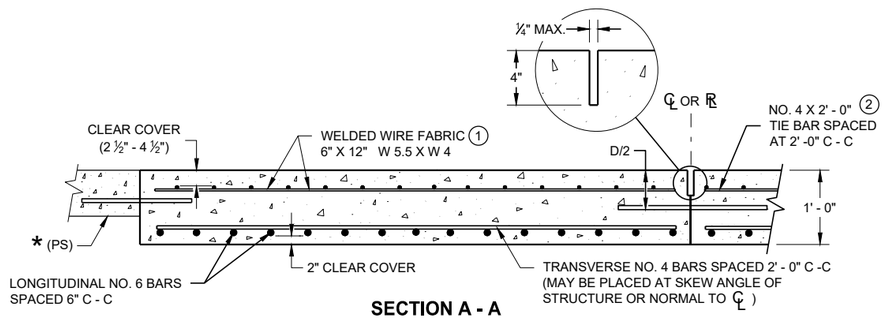
SKEWED APPROACH
(PAVEMENT MORE THAN TWO LANES)

* (RS) = REINFORCED CONCRETE SLAB

* (PS) = PAVED CONCRETE SHOULDER OR CONCRETE DRAINAGE SLAB

* (NRS) - NON - REINFORCED CONCRETE SLAB

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



SECTION A - A
REINFORCEMENT POSITIONING DETAIL

GENERAL NOTES

THE CONTRACTOR MAY SPLICE NO. 6 BARS IN THE APPROACH SLAB FOR SKEWED STRUCTURES ONLY. STAGGER SPLICES WITH A MAXIMUM OF ONE SPLICE PER BAR. THE LENGTH OF LAP IS 20 INCHES.

TACK WELD DOWEL BARS TO THE BASKETS ON ALTERNATE ENDS.

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

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

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

④ USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.

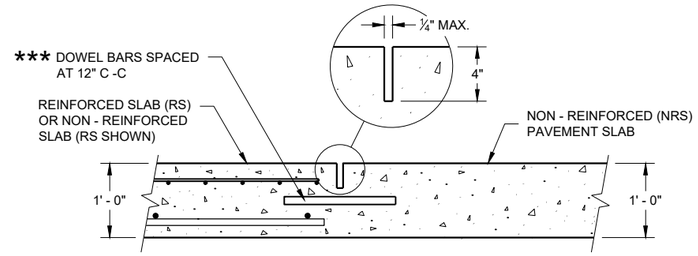
⑤ PLACE EXPANSION CAP ON THE END OF THE DOWEL THAT IS NOT TACK WELDED TO THE BASKET. DO NOT FORCE DOWEL BAR PAST THE DOWEL STOP.

⑥ EXTEND EXPANSION JOINT THROUGH ANY ADJACENT TIED CONCRETE.

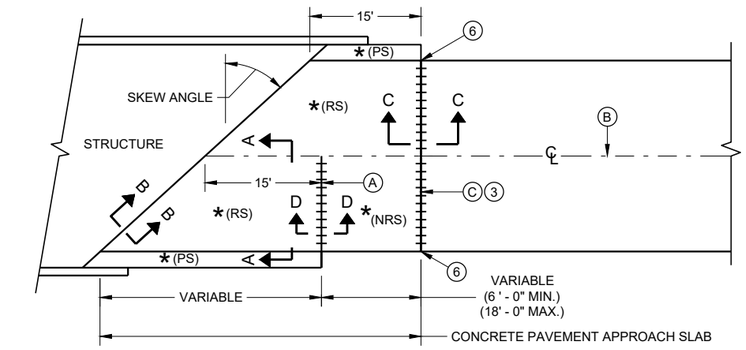
Ⓐ STANDARD CONTRACTION JOINT NORMAL TO ℄ OR ℞.

Ⓑ STANDARD LONGITUDINAL JOINT WITH TIE BARS.

Ⓒ 1 ½" EXPANSION JOINT WITH DOWEL BARS NORMAL TO ℄ OR ℞ .

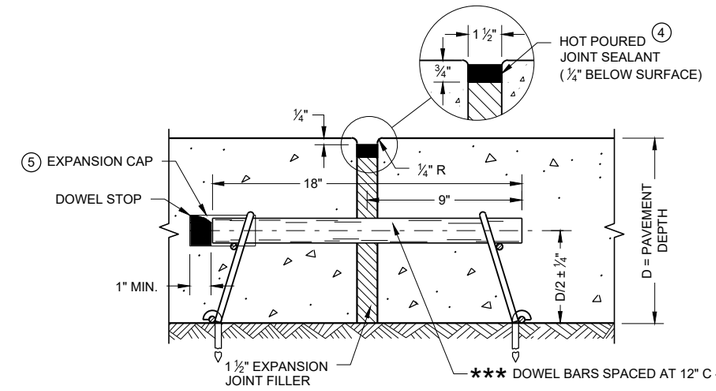


SECTION D - D
CONTRACTION JOINT

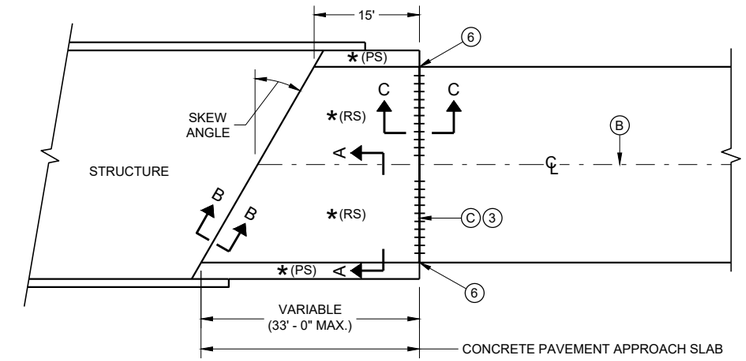


SKEWS > 20°
(PAVEMENT WIDTH ≤ 30')

SECTION B - B
BEND DETAIL
BOTTOM REINFORCEMENT

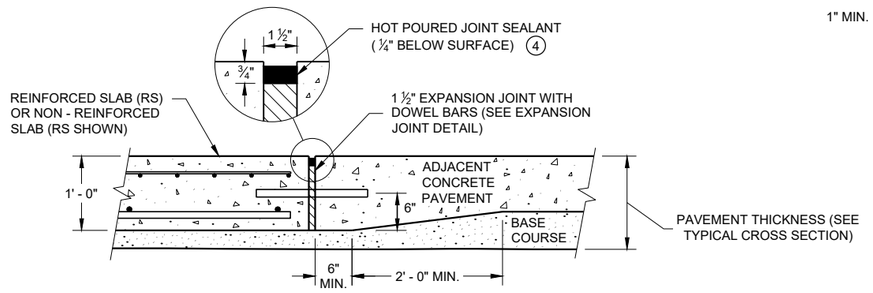


EXPANSION JOINT DETAIL



SKEWS ≤ 20°
(PAVEMENT WIDTH ≤ 30')

APPROACH SLAB AND ADJACENT PAVEMENT



SECTION C - C
TRANSITION DETAIL
APPROACH SLAB TO ADJACENT PAVEMENT

CONCRETE PAVEMENT APPROACH SLAB

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2018
DATE

/S/ Peter Kemp, P.E.
PAVEMENT SUPERVISOR

FHWA

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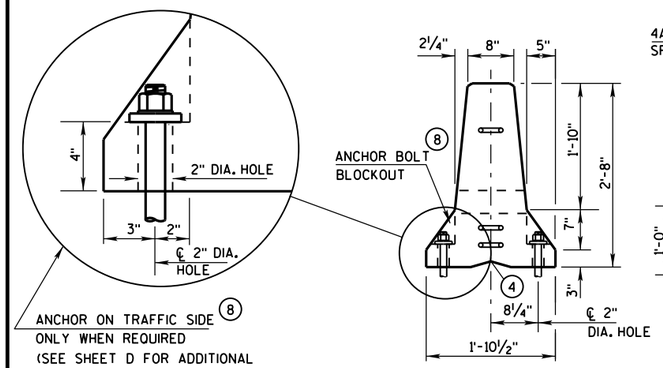
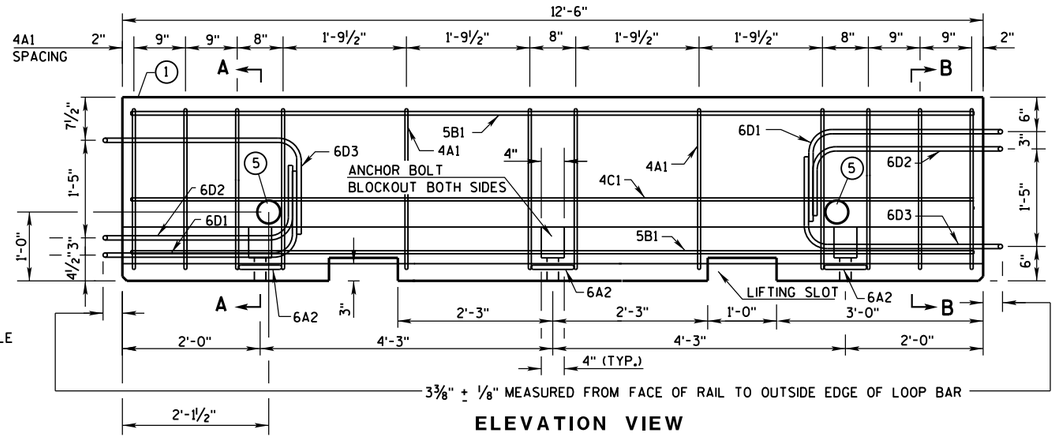
SDD 13B02 - 09a

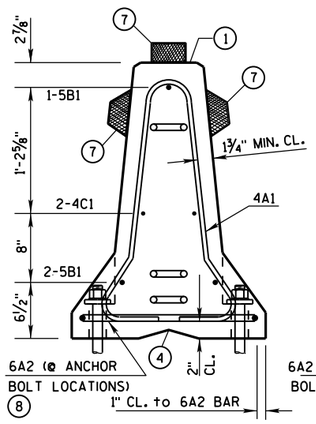


END VIEW

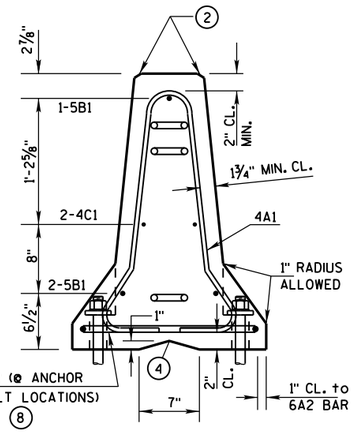


ELEVATION VIEW

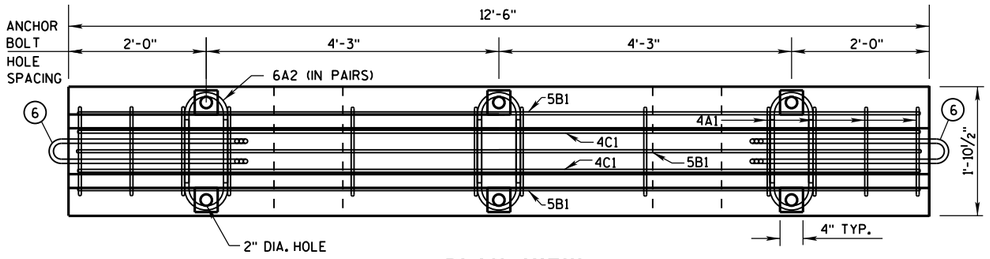
DETAIL "B"
LIFTING SLOT DETAIL



SECTION A-A
(STIRRUP PLACEMENT)

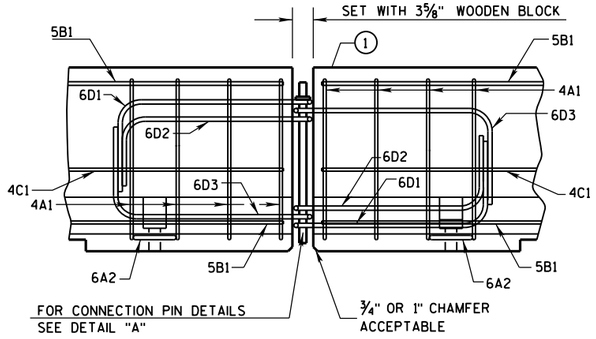


SECTION B-B
(STIRRUP PLACEMENT)

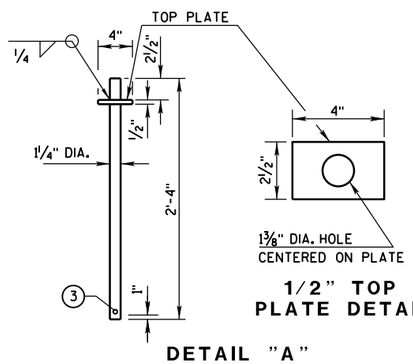


PLAN VIEW

DETAILS OF BARRIER SECTION

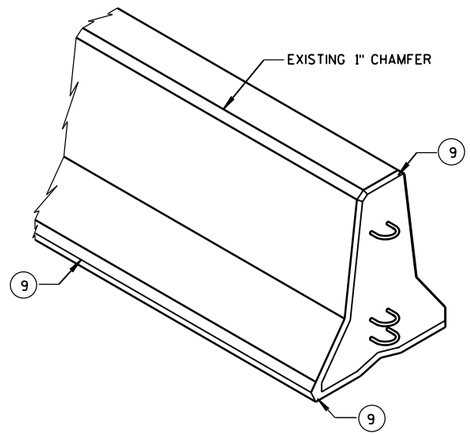


DETAILS OF BARRIER CONNECTION



1/2" TOP
PLATE DETAIL

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



GENERAL NOTES

THESE GENERAL NOTES APPLY TO SHEETS 14B7-15(a) THRU 14B7-15(i).

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

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

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

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

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

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

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

(2) 1" CHAMFER TO PREVENT SPALLING.

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

(4) "V" NOTCH IS OPTIONAL.

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

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

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

(8) SEE SHEET D FOR HOW TO ANCHOR BARRIER. SEE SHEET E FOR WHEN TO ANCHOR BARRIER.

(9) 1" CHAMFER OPTIONAL.

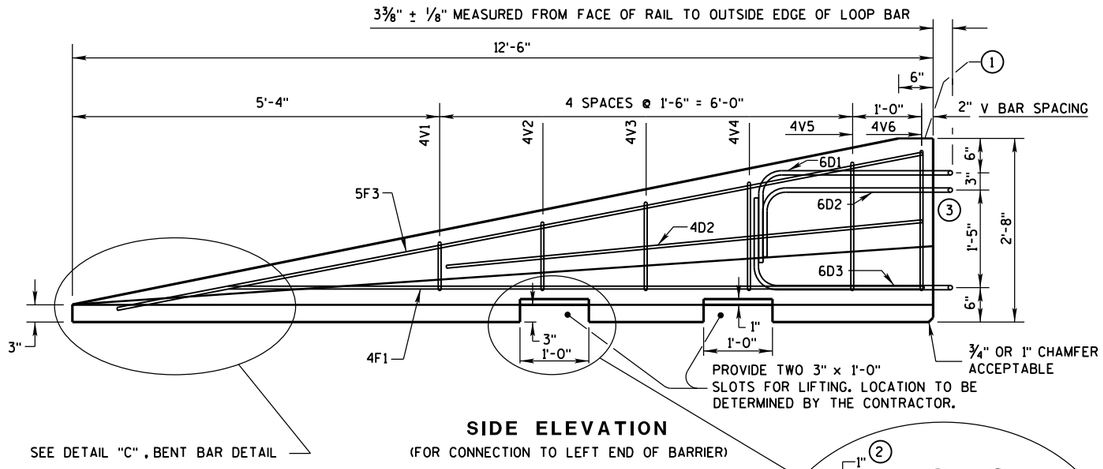
f'c = 4,000 psi

CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"

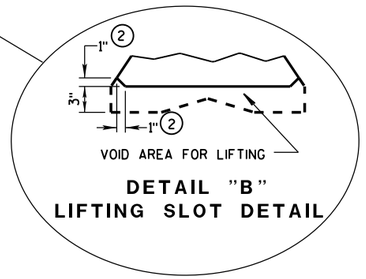
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

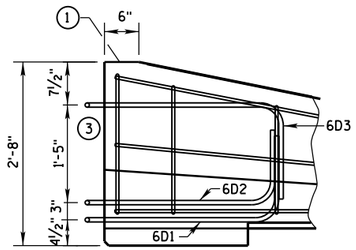
S.D.D. 14 B 7-15a



SIDE ELEVATION
(FOR CONNECTION TO LEFT END OF BARRIER)



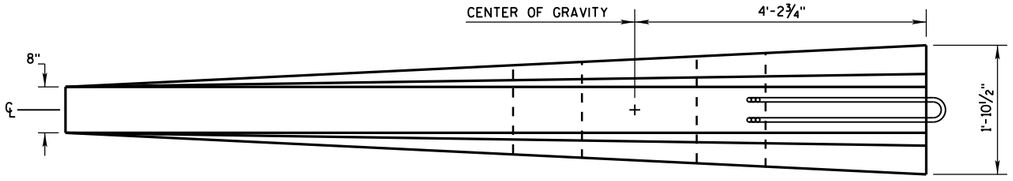
DETAIL "B"
LIFTING SLOT DETAIL



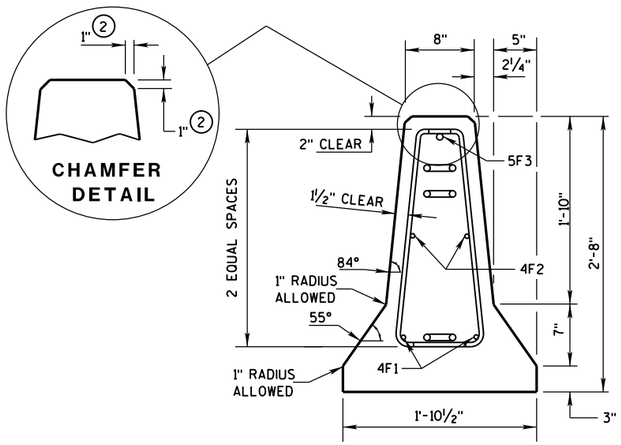
SIDE ELEVATION
LOOP BAR ASSEMBLY INVERTED
FOR OPPOSITE END.
(FOR CONNECTION TO RIGHT END OF BARRIER)

GENERAL NOTES

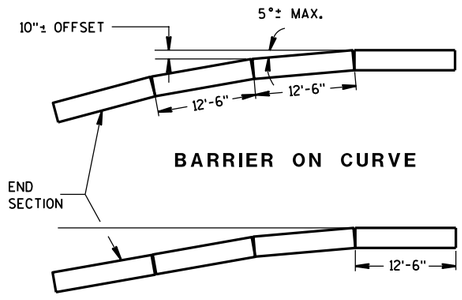
1. MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
   a. TYPE WICBTP
   b. MANUFACTURER
   c. DATE MANUFACTURED (MONTH AND YEAR)
2. 1" CHAMFER TO PREVENT SPALLING.
3. NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.



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 TRANSPOR

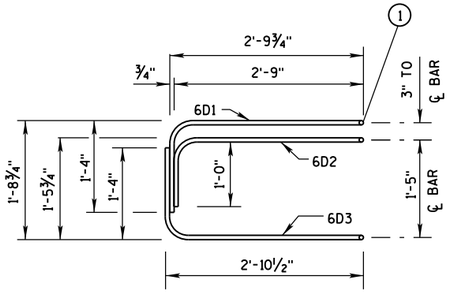
6

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

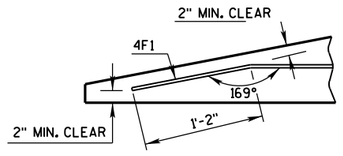
BARRIER TAPER SECTION BILL OF MATERIALS

(PER 12'-6" BARRIER TAPER SECTION)

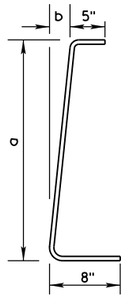
BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4V1	4	2	1'-11"
4V2	4	2	2'-2"
4V3	4	2	2'-6"
4V4	4	2	2'-9"
4V5	4	2	3'-2"
4V6	4	2	3'-4"
4F1	4	2	12'-0"
4F2	4	2	7'-6"
5F3	5	1	11'-9"
LOOP ASSEMBLY			
6D1	6	1	8'-5"
6D2	6	1	7'-7"
6D3	6	1	8'-6"



ELEVATION
LOOP BAR ASSEMBLY



DETAIL "C"
BENT BAR DETAIL



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

4V BARS
2 AT EACH SIZE REQUIRED
FOR STIRRUP ASSEMBLY

TAPER BARRIER SECTION

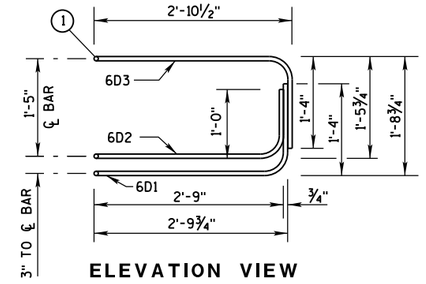
GENERAL NOTES

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

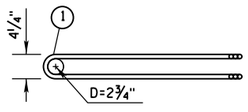
BARRIER SECTION BILL OF MATERIALS

(PER 12'-6" BARRIER SECTION)

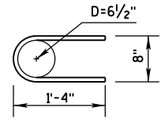
BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4A1	4	12	6'-0"
6A2	6	6	2'-11"
5B1	5	3	12'-2"
4C1	4	2	12'-2"
LOOP ASSEMBLY			
6D1	6	2	8'-5"
6D2	6	2	7'-7"
6D3	6	2	8'-6"



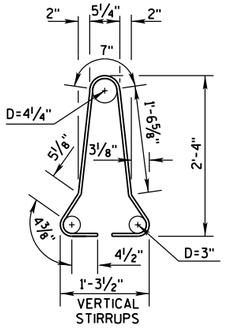
ELEVATION VIEW



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



6A2



4A1

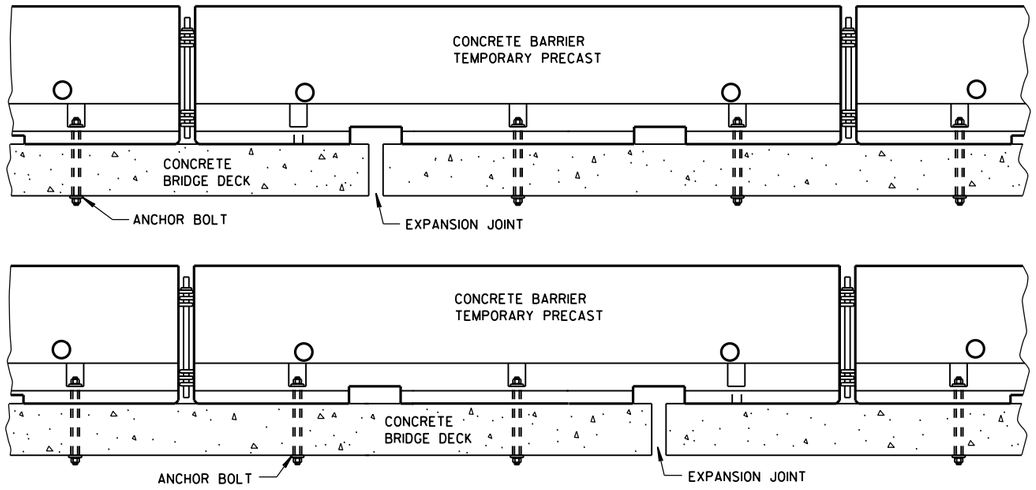
BARRIER SECTION

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

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



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.)

GENERAL NOTES

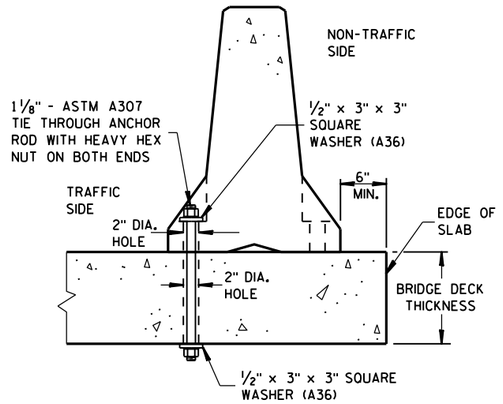
SEE SHEET E FOR WHEN TO ANCHOR. OTHER PARTS OF THE PLAN MAY SHOW ADDITIONAL LOCATIONS REQUIRING ANCHORING.

REMOVE ALL ANCHORS WHEN NO LONGER NEEDED. FILL CONCRETE PAVEMENTS, DECKS AND APPROACH SLABS WITH NON-SHRINK COMMERICAL GROUT FROM THE APPROVED PRODUCT LIST. FILL ASPHALT PAVEMENTS WITH ASTM D6690 TYPE II RUBBERIZED CRACK FILLER.

(1) 1⅛" DIAMENTER A307 THREADED ROD. ½" X 3" X 3" SQUARE PLATE WASHER WITH ASTM A36 STEEL. ASTM A563A HEAVY HEX NUT.

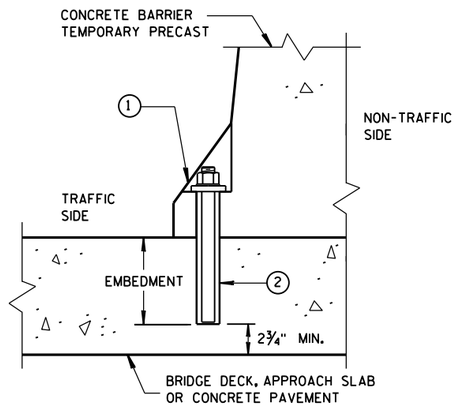
(2) ADHESIVE ANCHORS WITH A MINIMUM BOND STRENGTH OF 1,800 PSI AND 5¼" EMBEDMENT. SEE 603.2 AND 603.3.1.2 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.

(3) ASPHALT SURFACE SHOWN. CONTRACTOR MAY DRILL THROUGH CONCRETE PAVEMENT AND THAN DRIVE ASPHALT ANCHOR PIN.



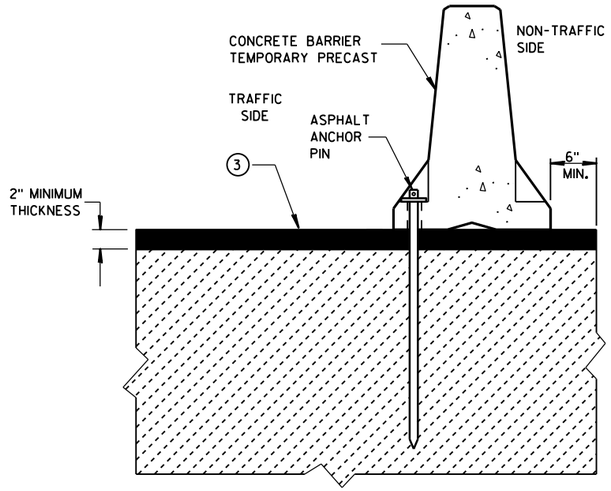
THROUGH BOLTED ANCHOR INSTALLATION ON BRIDGE DECK

(DO NOTUSE ON CONCRETE BRIDGE DECK WITH ASPHALT OVERLAY)

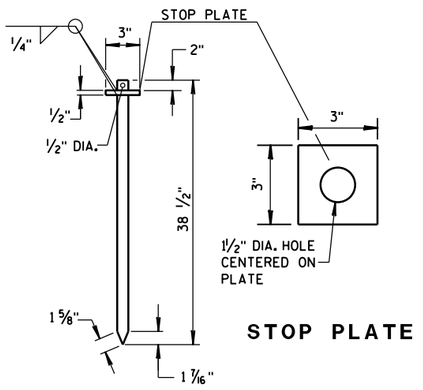


REMOVABLE ADHESIVE ANCHOR INSTALLATION ON CONCRETE BRIDGE DECK, CONCRETE APPROACH SLAB, OR CONCRETE PAVEMENT

(DO NOT USE ON CONCRETE WITH AN ASPHALTIC OVERLAY)



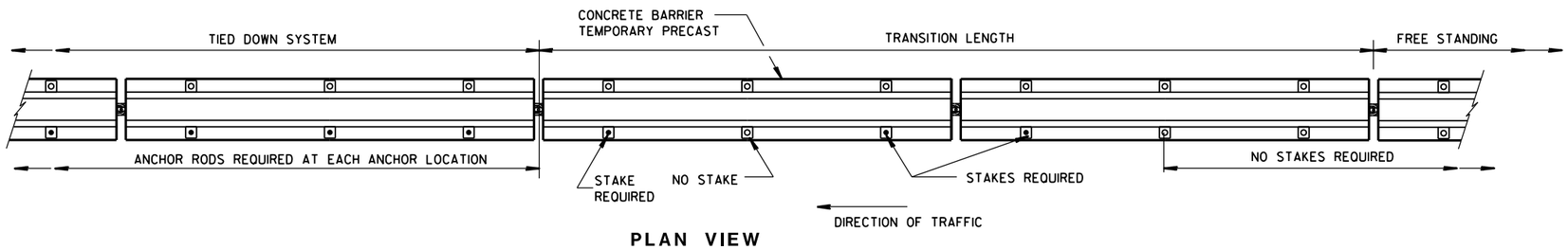
STAKE DOWN INSTALLATION FOR ASPHALTIC SURFACE



STOP PLATE

ASPHALT ANCHOR PIN

(ASTM A36 STEEL)



PLAN VIEW

FREE STANDING TRANSITION TO TIED-DOWN SYSTEM

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

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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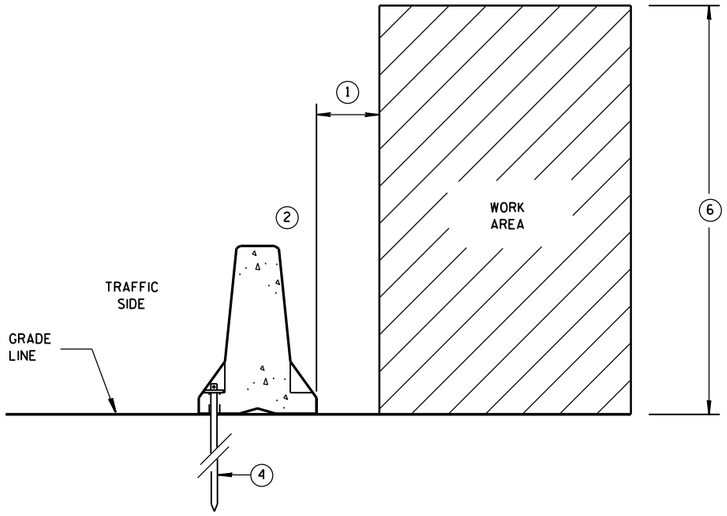
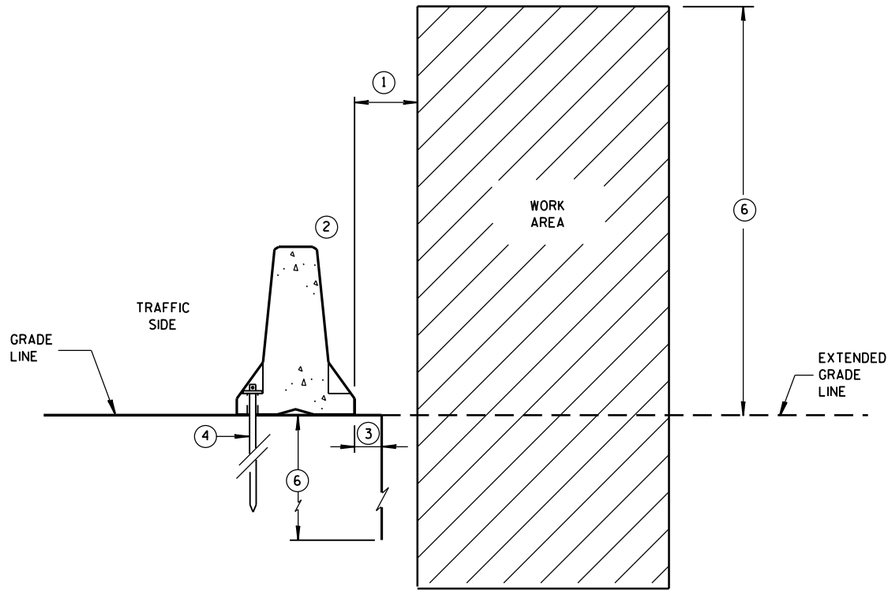
S.D.D. 14 B 7-15d



ANCHORED BARRIER SPACE REQUIREMENTS FOR HAZARDS EXTENDED ABOVE THE GRADE LINE

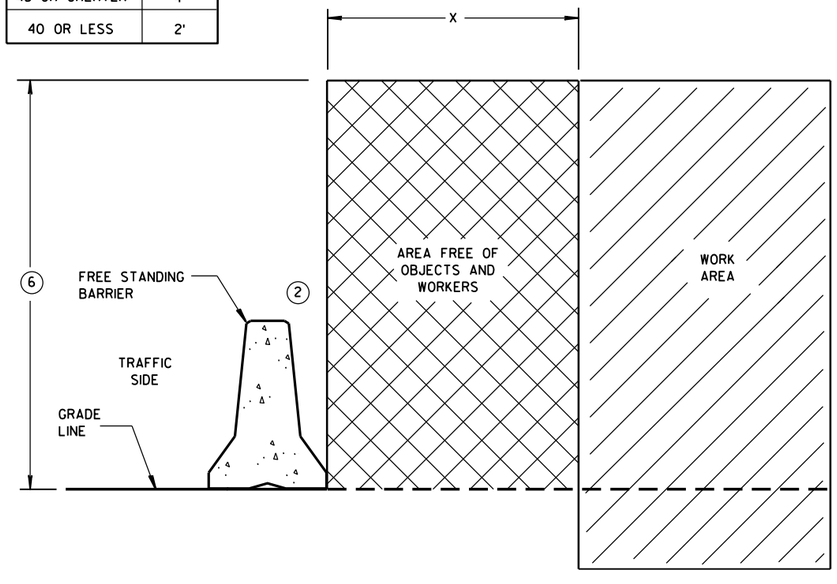


ANCHORED BARRIER SPACE REQUIREMENTS ON VERTICAL DROP OFFS

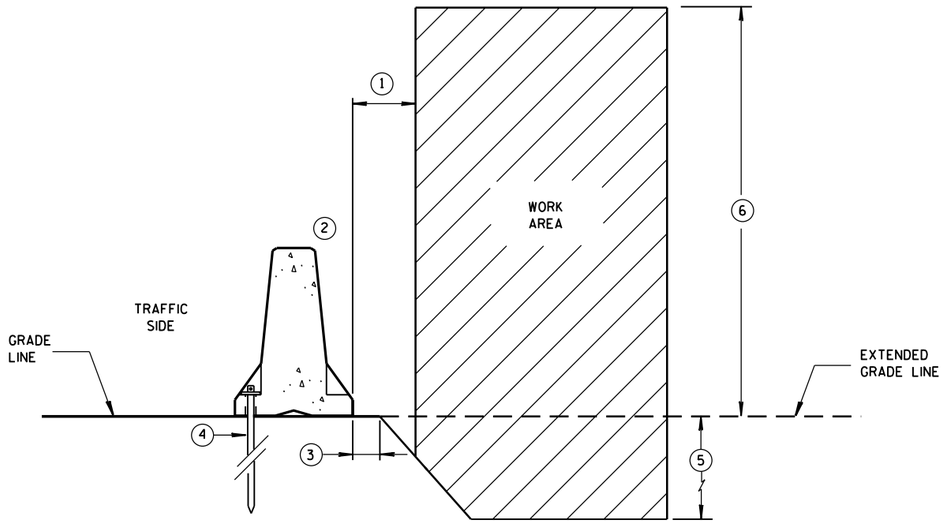
GENERAL NOTES

1. WHEN OBJECTS EXTEND ABOVE THE GRADE, A MINIMUM OF 1 FOOT IS REQUIRED FROM BACK OF BARRIER TO OBJECT. SEE OTHER DETAILS FOR FOR THE MINIMUM OFFSET FROM BACK OF BARRIER TO SLOPES OR VERTICAL DROPS.
2. OBJECTS ARE NOT TO BE PLACED ON, MOUNTED TO, OR LEANED AGAINST THE BARRIER WITHOUT PERMISSION OF THE PROJECT ENGINEER.
3. SEE OTHER DETAIL ON SHEET "D" FOR SPACE REQUIREMENTS.
4. SEE BOLT THROUGH DECK, REMOVABLE ADHESIVE ANCHOR, OR A STAKE DOWN FOR ASPHALTIC SURFACE TREATMENT DETAILS. ASPHALTIC ANCHOR SHOWN.
5. DEPTH OF 3 FEET OR MORE.
6. Y = 6'-6".

POSTED SPEED MPH	X
45 OR GREATER	4'
40 OR LESS	2'



FREE STANDING BARRIER SPACE REQUIREMENTS



ANCHORED BARRIER SPACE REQUIREMENTS ON SLOPES

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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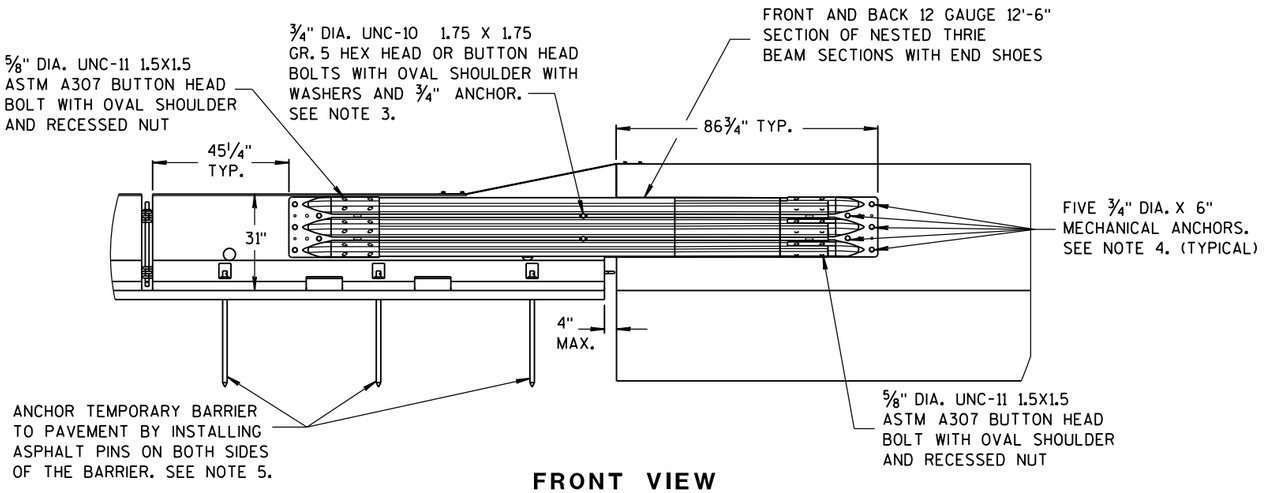
S.D.D. 14 B 7-15e

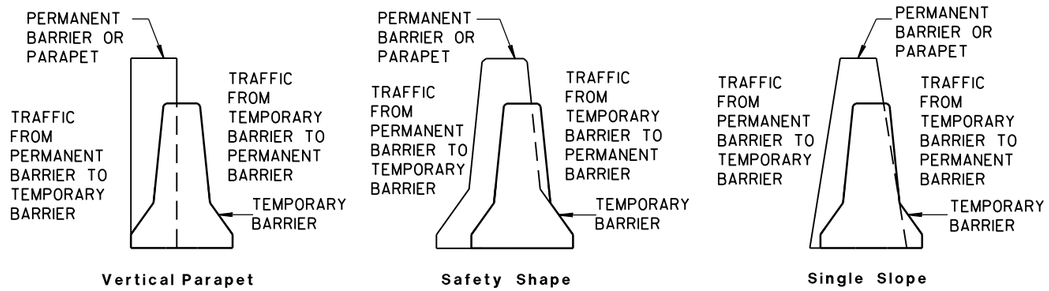


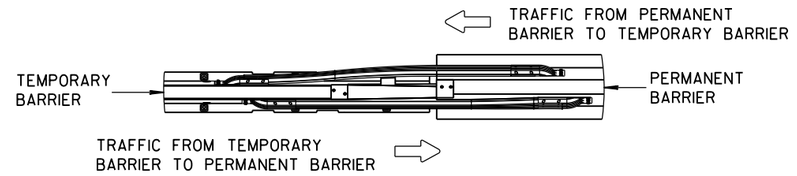
FRONT VIEW

NOTES

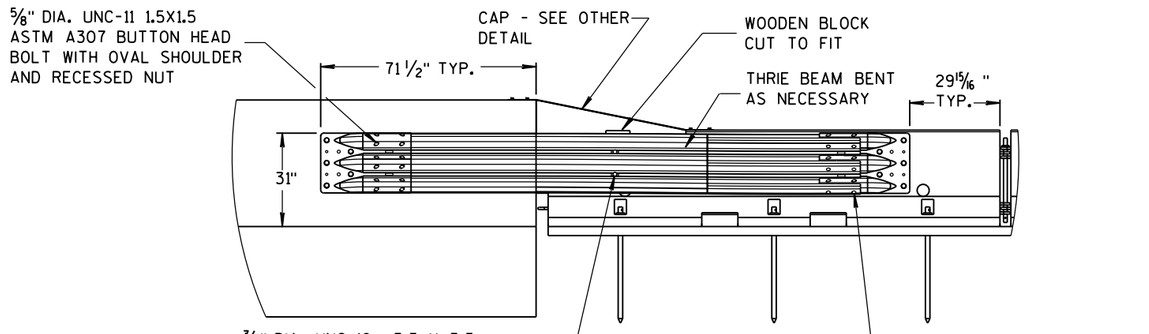
NESTED THRIE BEAM IS REQUIRED ON BOTH SIDES OF THE TEMPORARY BARRIER FOR ALL INSTALLATIONS REGARDLESS OF TRAFFIC.

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

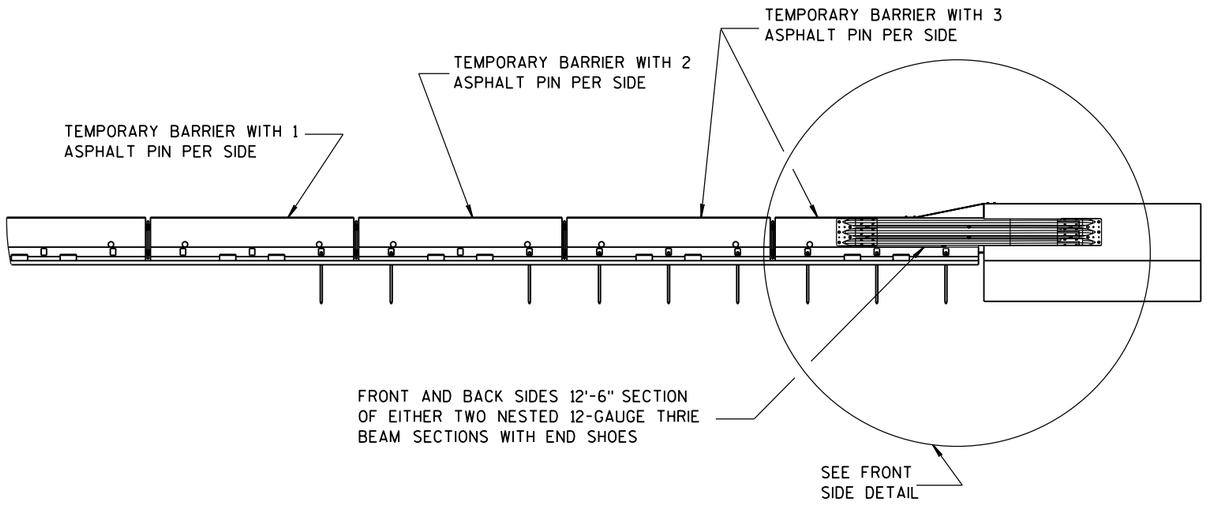




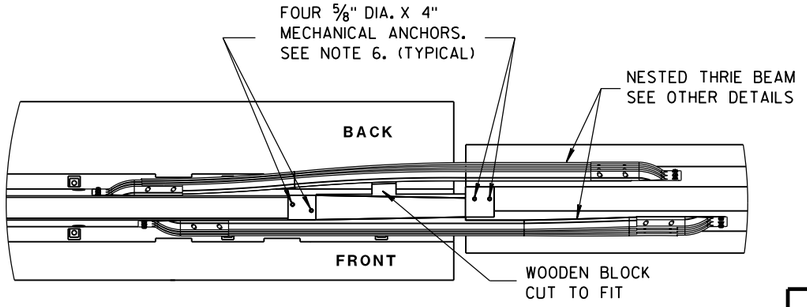
TEMPORARY BARRIER PLACEMENT FOR BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM



BACK VIEW



FRONT VIEW



PLAN VIEW

BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

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

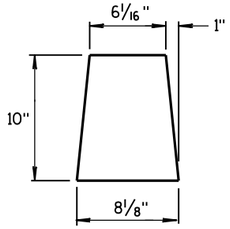
GUSSET 1

GUSSET 2

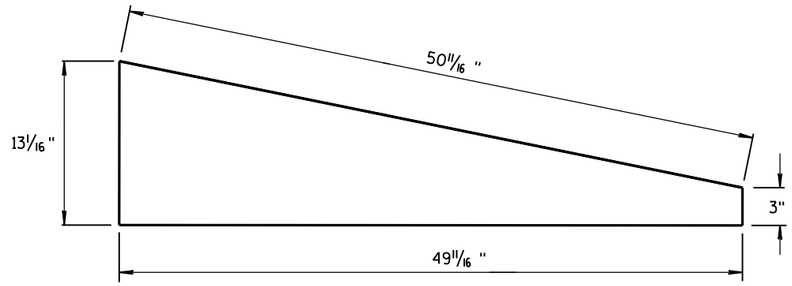
GUSSET 3

GUSSET 4

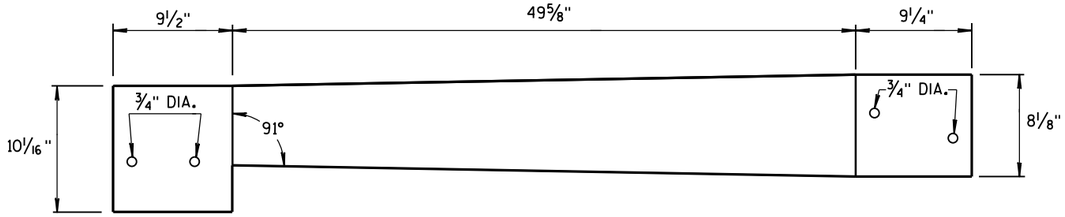
GUSSETS

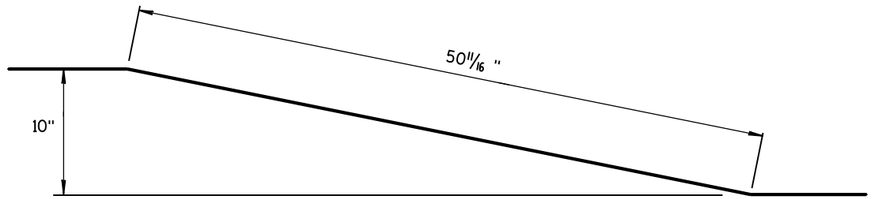


END PLATE

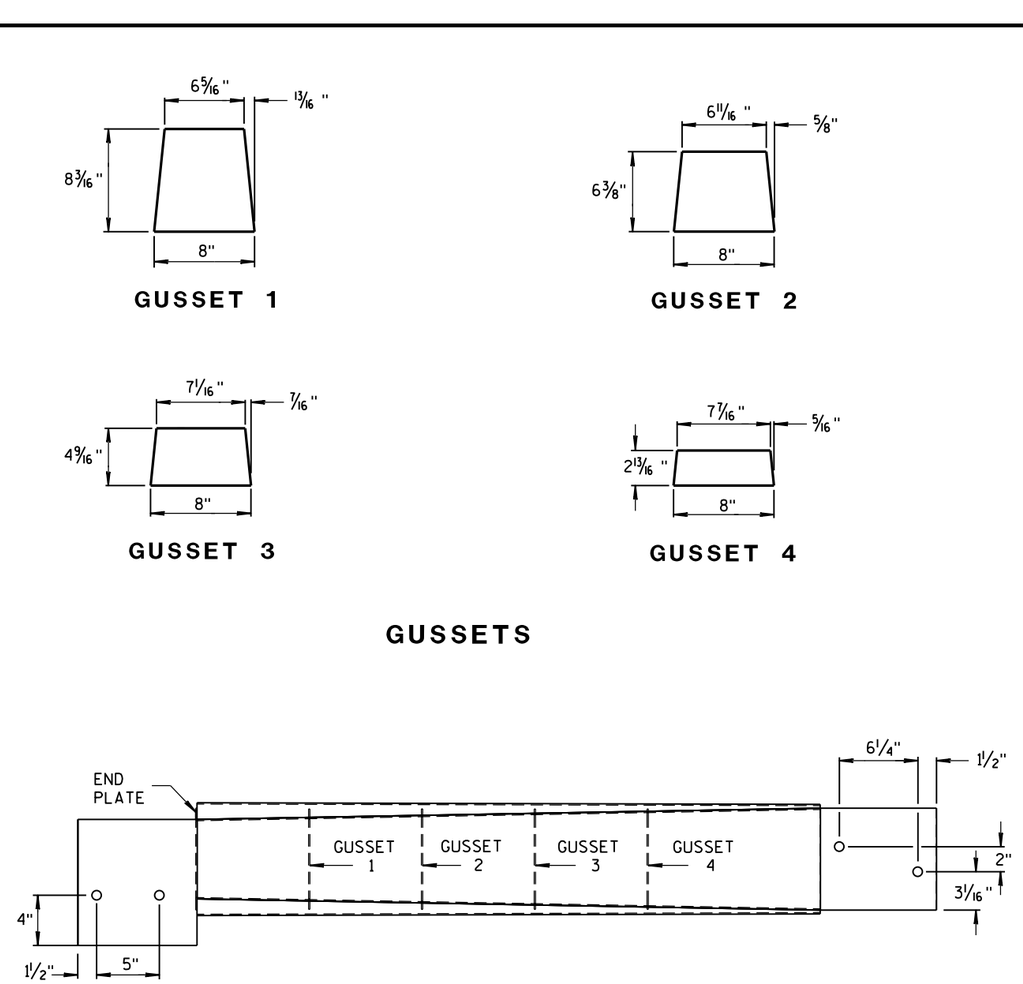


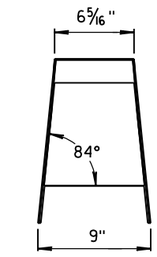
SIDE PLATE





TOP PLATE





SECTION C-C

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.

NOTES

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

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

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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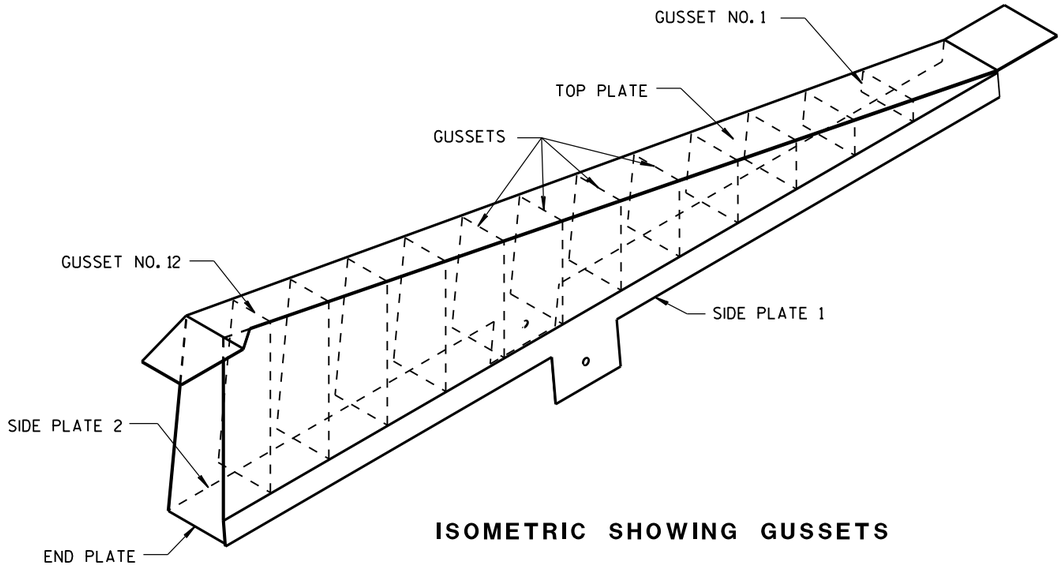
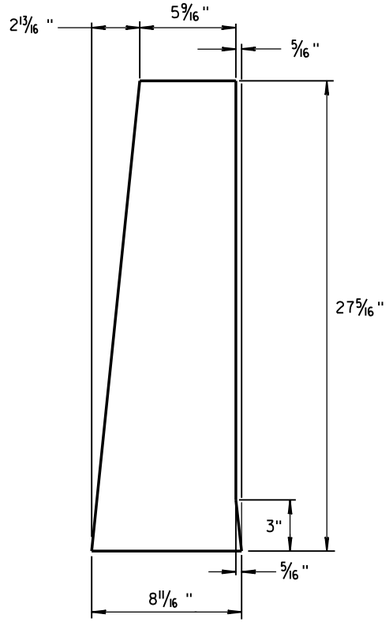
S.D.D. 14 B 7-15g

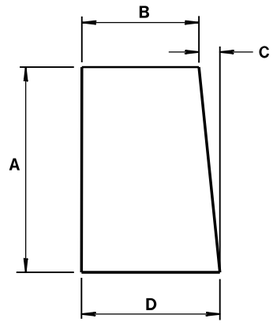


ISOMETRIC SHOWING GUSSETS



END PLATE

1/8" STEEL PLATE



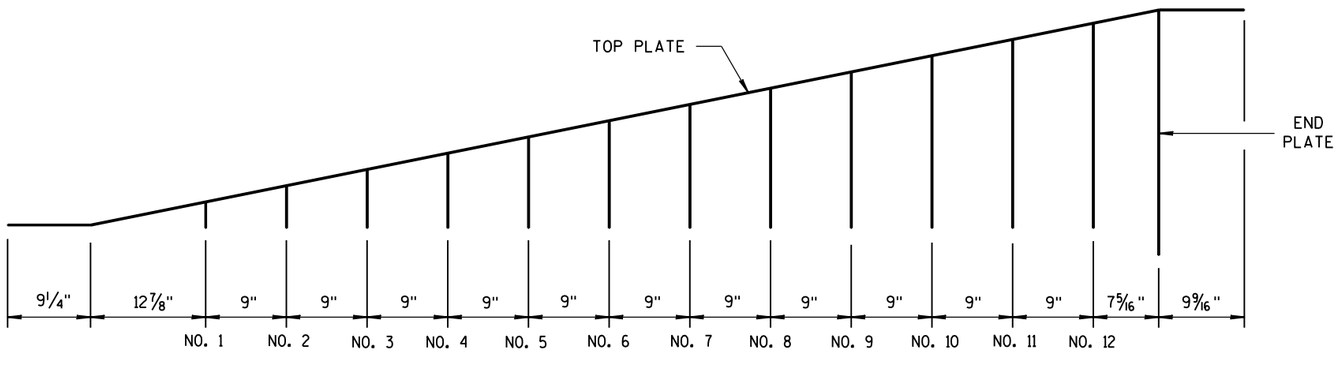
GUSSETS 1 - 12

ALL GUSSETS 1/8" STEEL PLATE

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

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

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



GUSSET LOCATION

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

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

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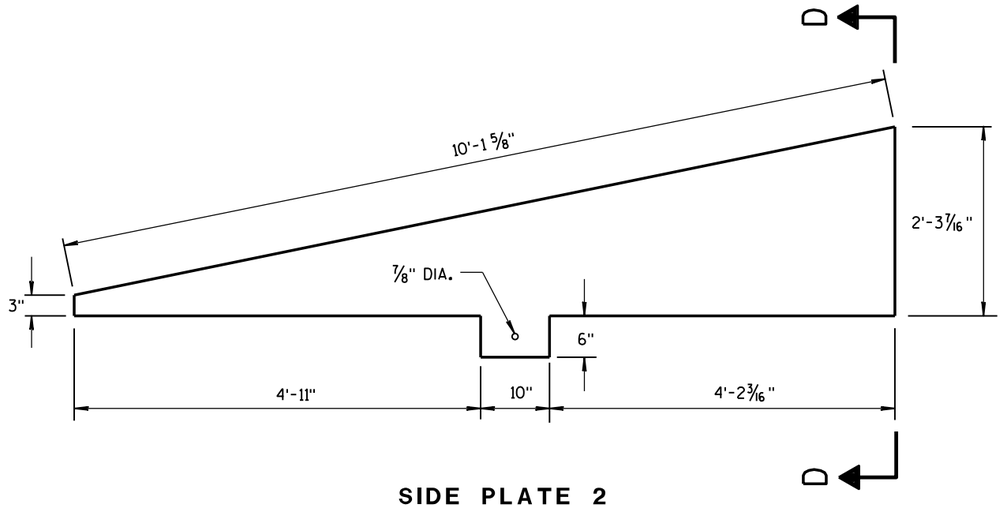
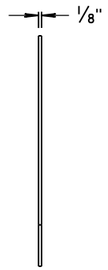
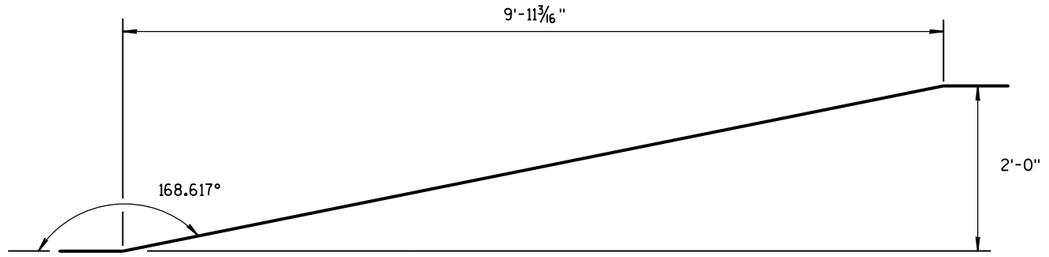
S.D.D. 14 B 7-15h



SIDE PLATE 2

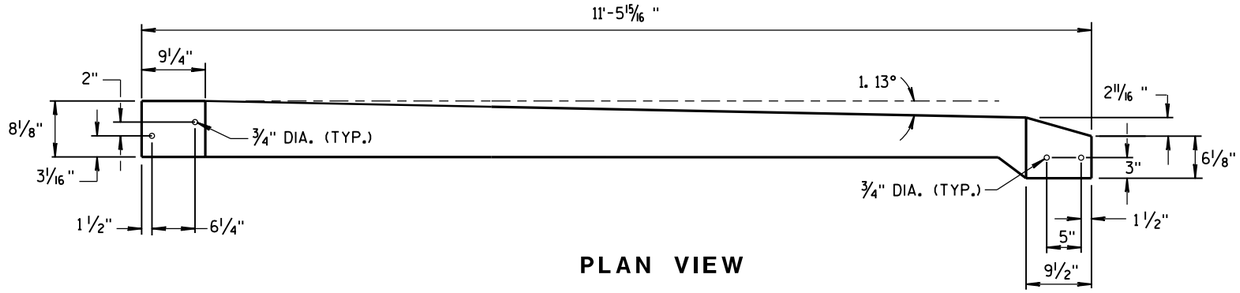


END VIEW



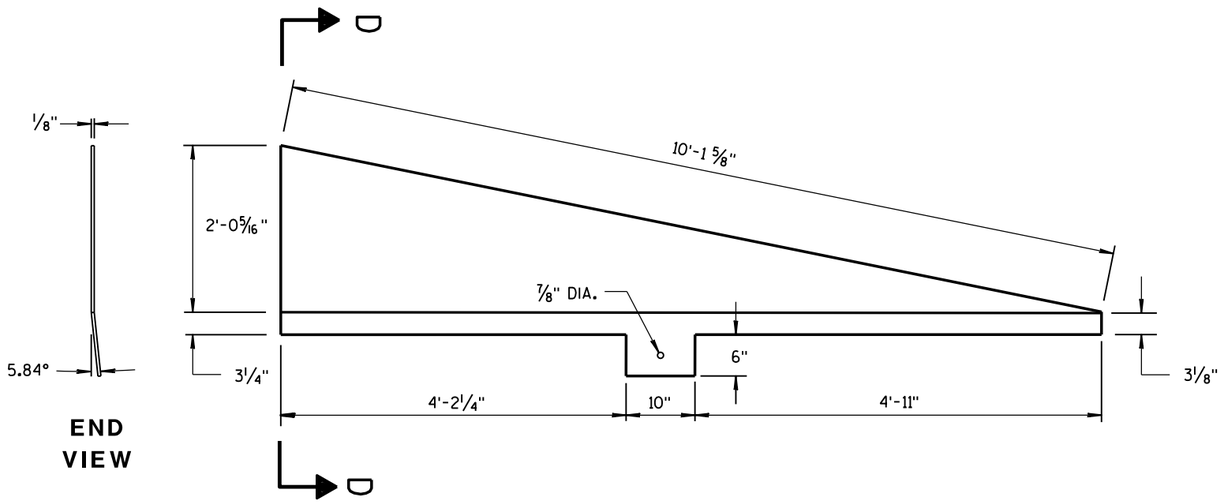
SIDE VIEW

TOP PLATE



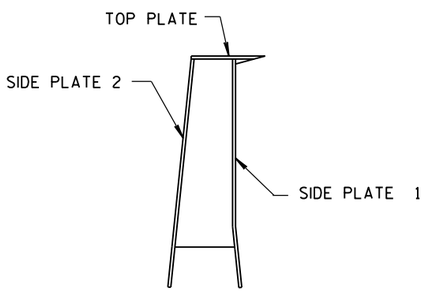
PLAN VIEW

TOP PLATE



END VIEW

SIDE PLATE 1



SECTION D-D

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

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017 — DATE
/S/ Rodney Taylor — ROADWAY STANDARDS UNIT SUPERV
FHWA

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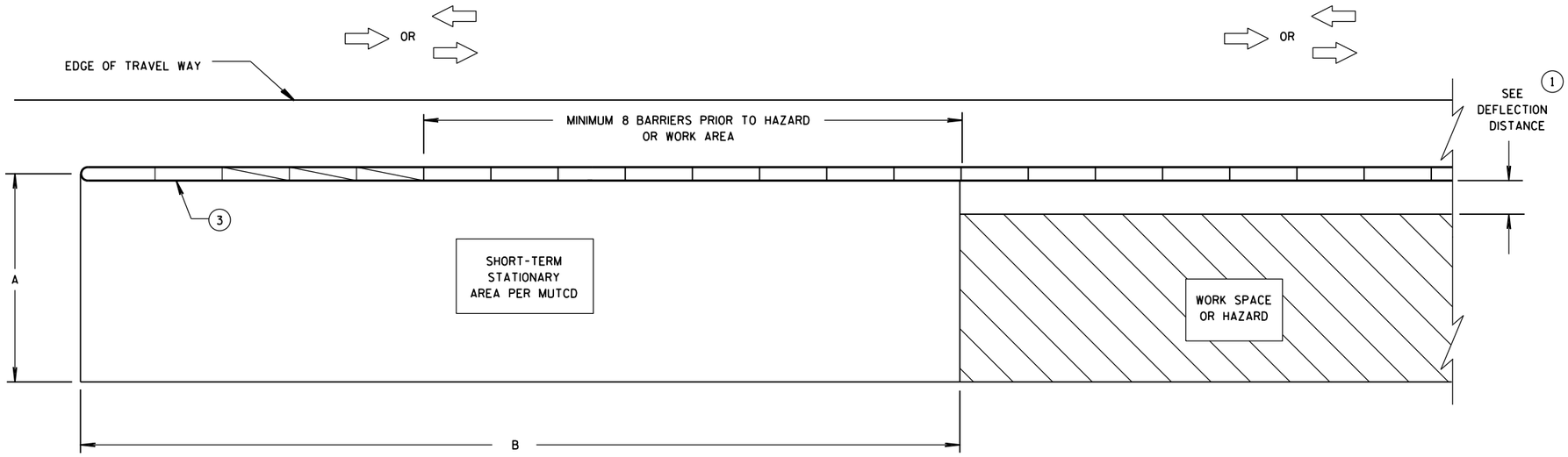


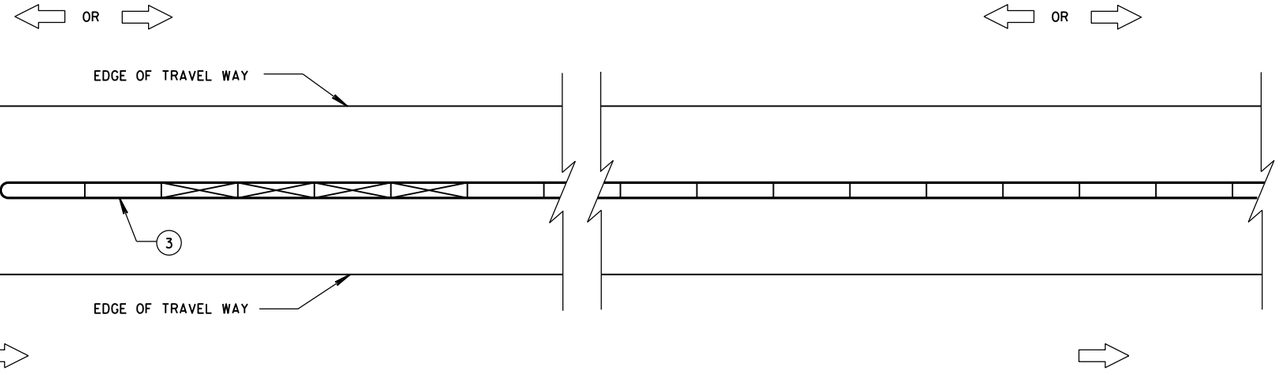
CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER INSTALLATION FOR TRAFFIC ON ONE SIDE OF BARRIER

DIMENSION A TABLE (2)

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

DIMENSION B TABLE (2)

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



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

LEGEND

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

GENERAL NOTES

SEE STANDARD DETAIL DRAWING 14B7 FOR MORE INFORMATION.

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

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

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

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

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

(1) FOR DEFLECTION INFORMATION SEE STANDARD DETAIL DRAWING 14B7.

(2) VALUES PROVIDED MAY NOT FIT ALL POSSIBLE SITUATIONS OR SITE CONDITIONS. SEE OTHER SECTIONS OF THE CONTRACT OR PROJECT ENGINEER FOR MORE DETAILS.

(3) ANCHOR TEMPORARY BARRIER ACCORDING TO CRASH CUSHION OR SAND BARREL MANUFACTURER'S RECOMMENDATIONS. IF MANUFACTURER'S RECOMMENDATIONS ARE NOT PROVIDED, ANCHOR 3 PINS ON TRAFFIC SIDE.

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

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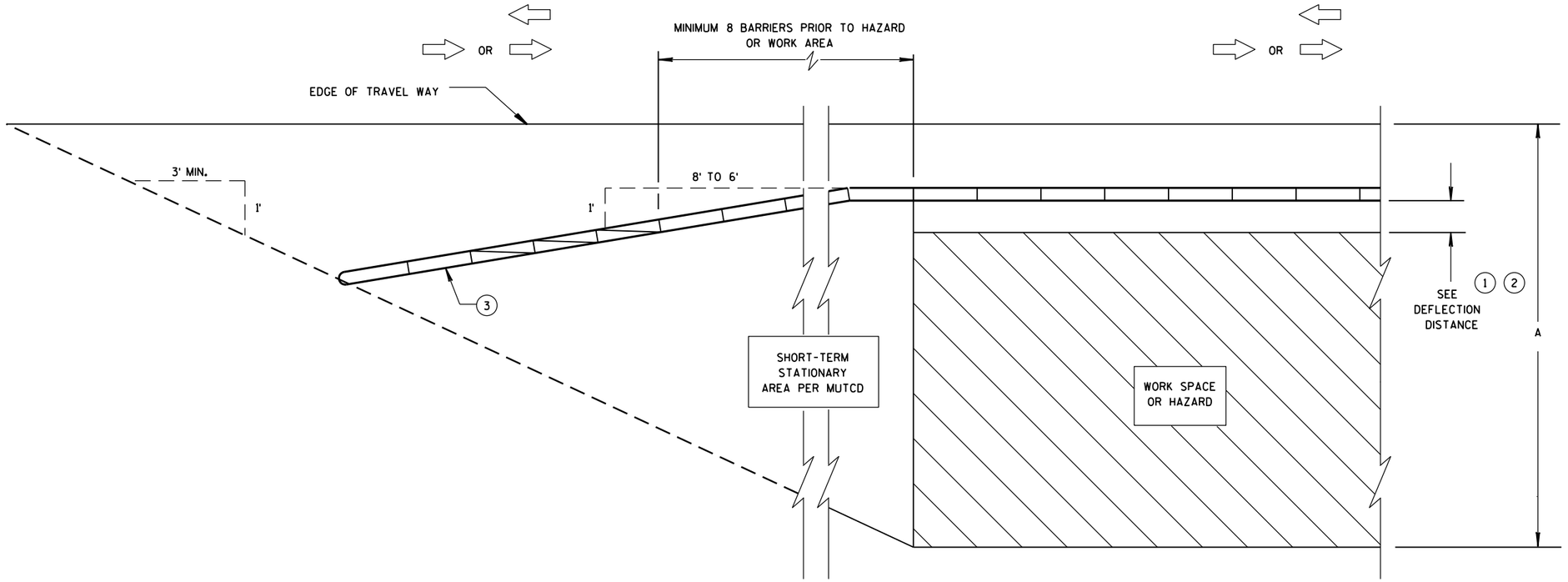
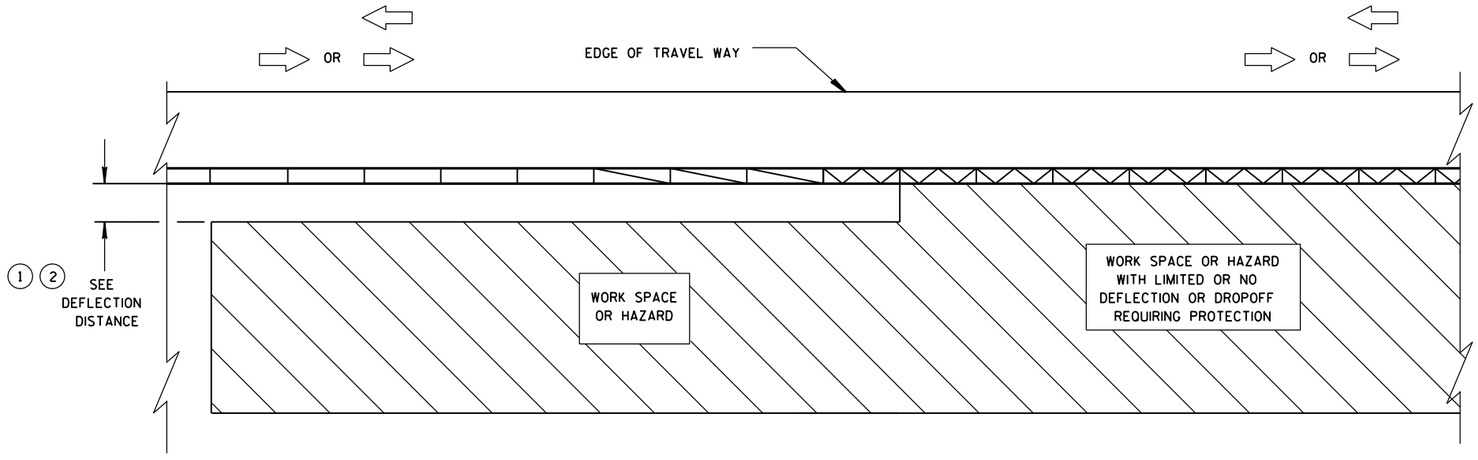
S.D.D. 14 B 8-2a
S.D.D. 14 B 8-2a



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



TRANSITION FROM FREE STANDING TEMPORARY BARRIER TO ANCHORED BARRIER

LEGEND

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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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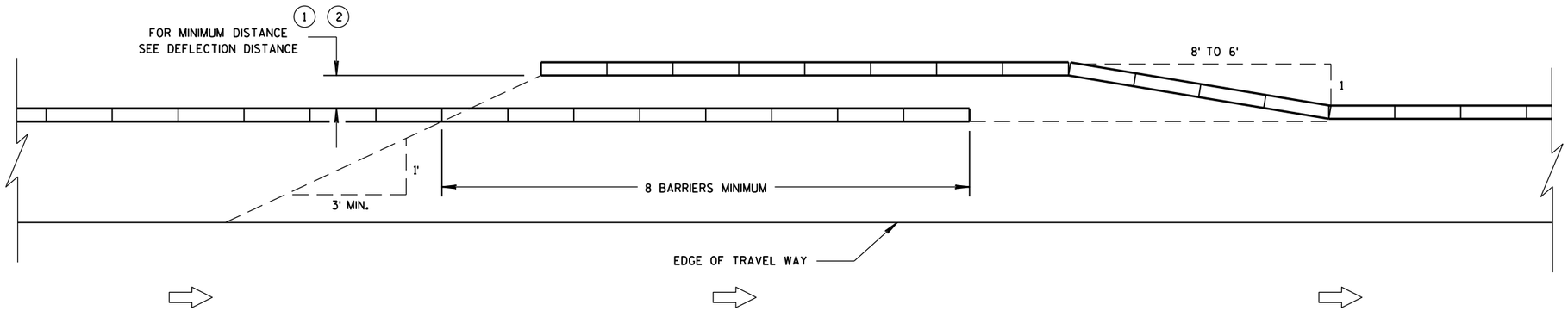
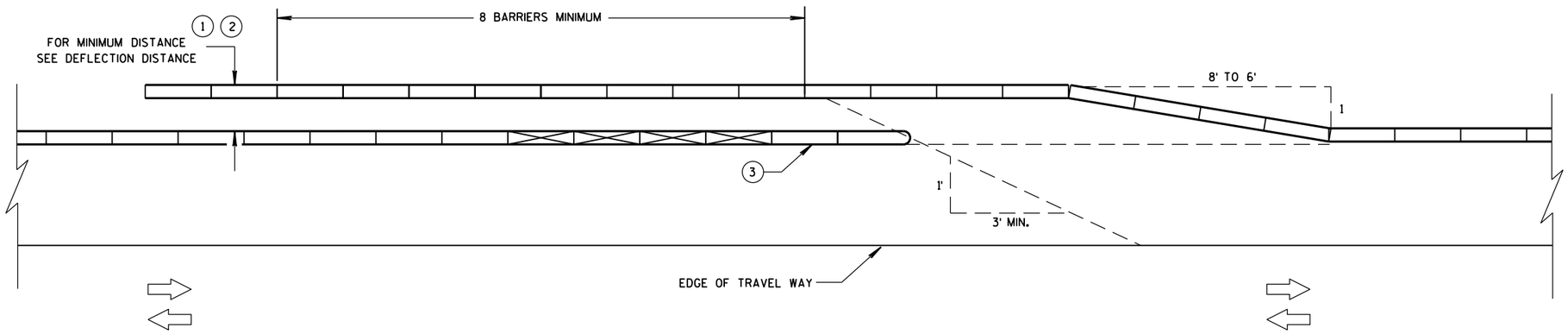
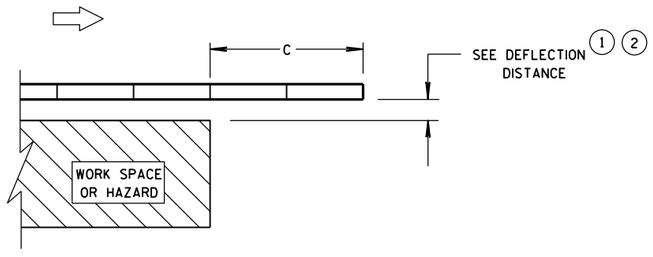
S.D.D. 14 B 8-2b



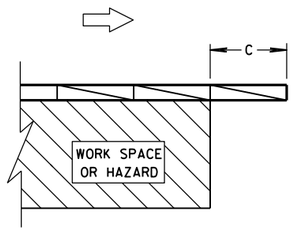
TEMPORARY BARRIER OVERLAP - ONE-WAY TRAFFIC



TEMPORARY BARRIER OVERLAP - TWO-WAY TRAFFIC



ENDING TEMPORARY BARRIER DOWNSTREAM - UNANCHORED



ENDING TEMPORARY BARRIER DOWNSTREAM - ANCHORED

LEGEND

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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

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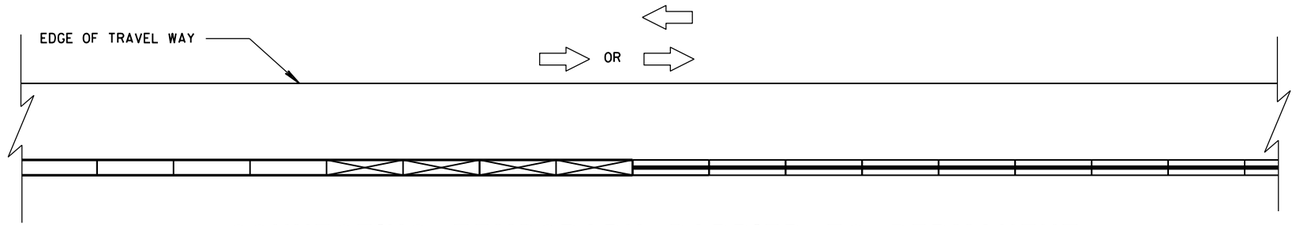
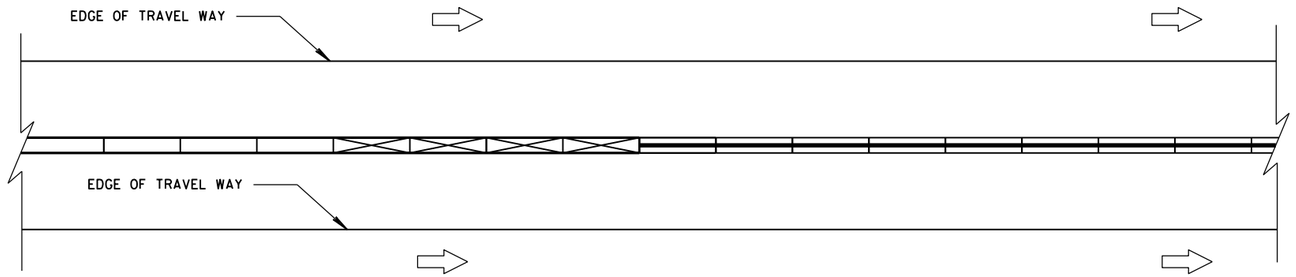


CONNECTING TEMPORARY BARRIER TO PERMANENT
CONCRETE BARRIER-TRAFFIC ON ONE SIDE



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

LEGEND

DIRECTION OF TRAVEL

CRASH CUSHION OR
SAND BARREL ARRAY

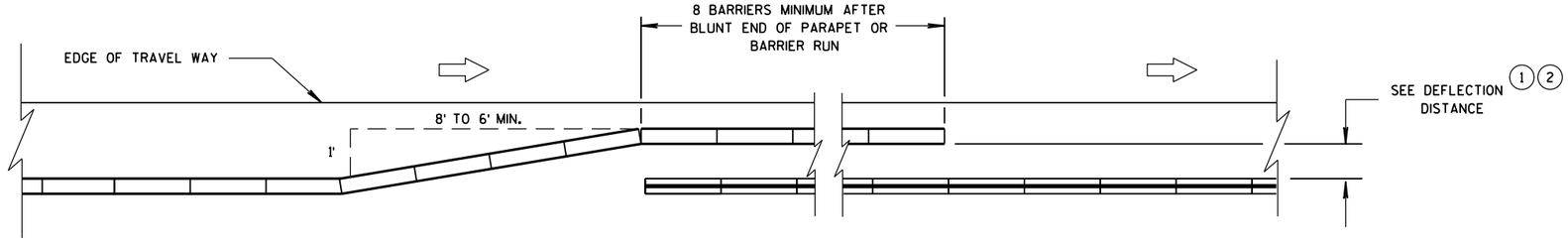
SEE FREE STANDING TRANSITION
TO TIED-DOWN SYSTEM DETAILS

SEE BI-DIRECTIONAL TRANSITION
TO TIED-DOWN SYSTEM DETAILS

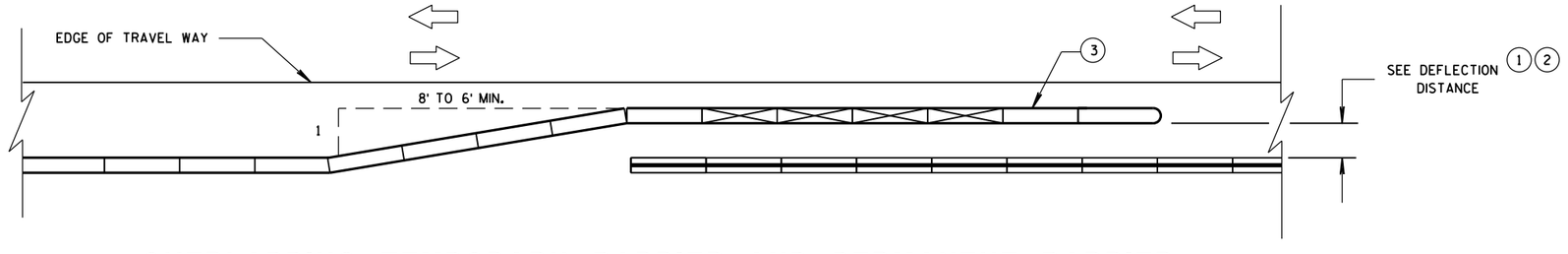
3 PINS PLACED ON
TRAFFIC SIDE OF BARRIER

PERMANENT CONCRETE BARRIER
OR CONCRETE PARAPET

FREE STANDING TEMPORARY
BARRIER



OVERLAPPING TEMPORARY BARRIER AND PERMANENT BARRIER -
ONE WAY TRAFFIC



OVERLAPPING TEMPORARY BARRIER AND PERMANENT BARRIER -
TWO WAY TRAFFIC

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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

LEGEND

DIRECTION OF TRAVEL

CRASH CUSHION OR SAND BARREL ARRAY

SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS

SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS

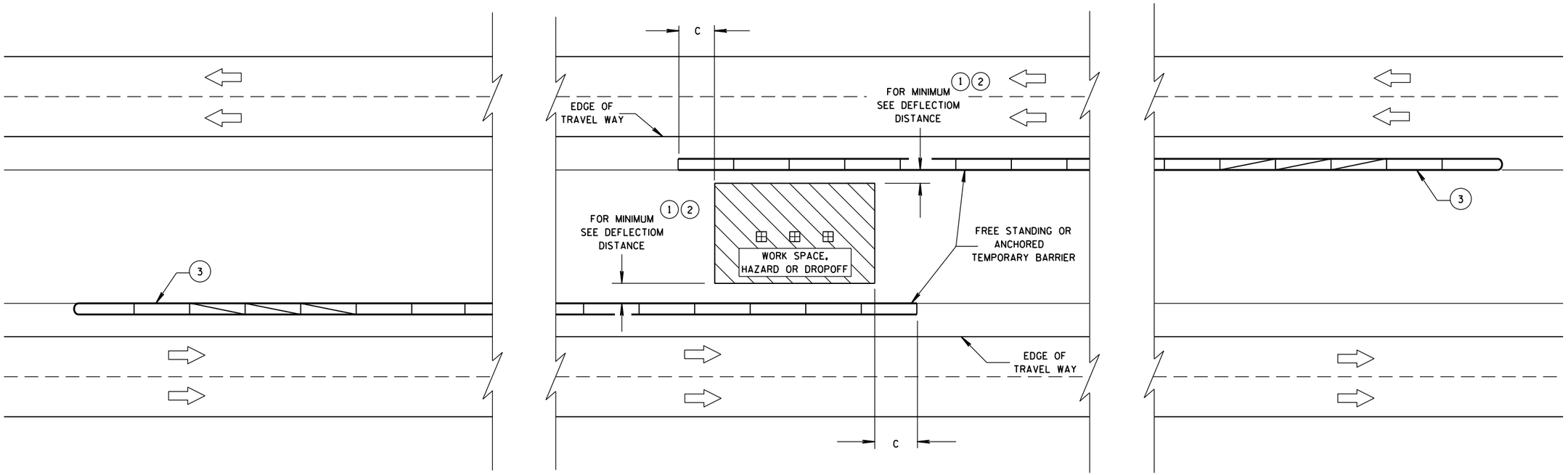
3 PINS PLACED ON TRAFFIC SIDE OF BARRIER

PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET

FREE STANDING TEMPORARY BARRIER

DIMENSION C TABLE (2)

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



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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

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

6

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

GENERAL NOTES

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

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

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

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

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

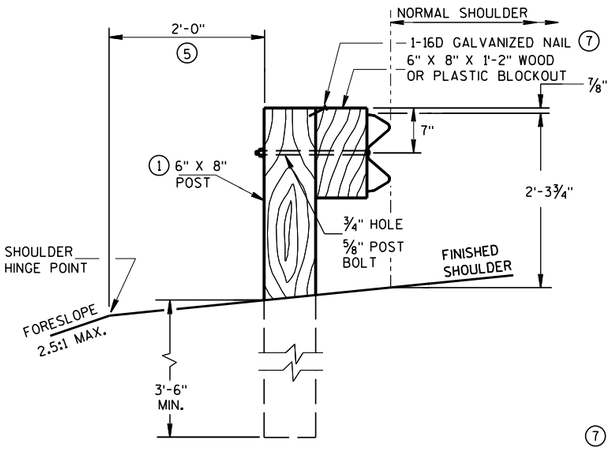
(5) IF THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING, W BEAM (LHW).

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

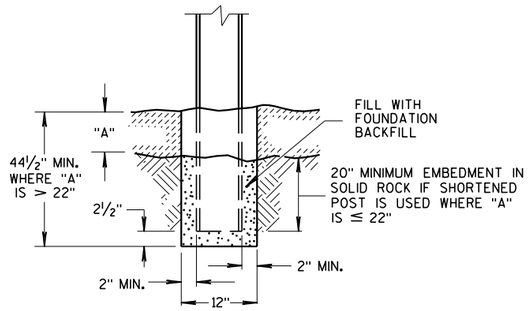
(7) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

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

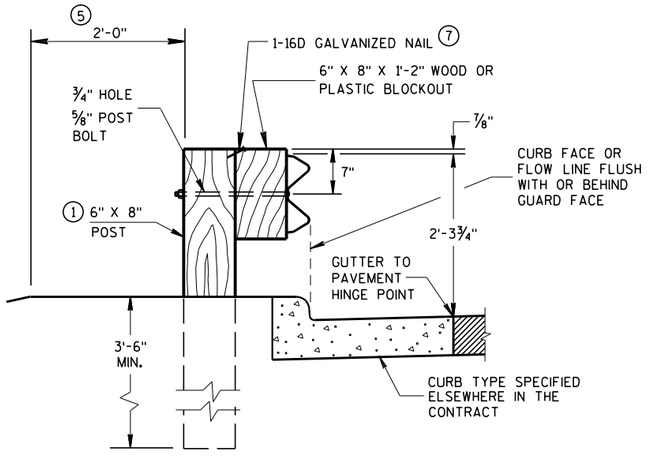
ALL DIMENSIONS ARE SUBJECT TO MANUFACTURER'S TOLERANCES EXCEPT WHERE ALLOWABLE TOLERANCES ARE SHOWN.



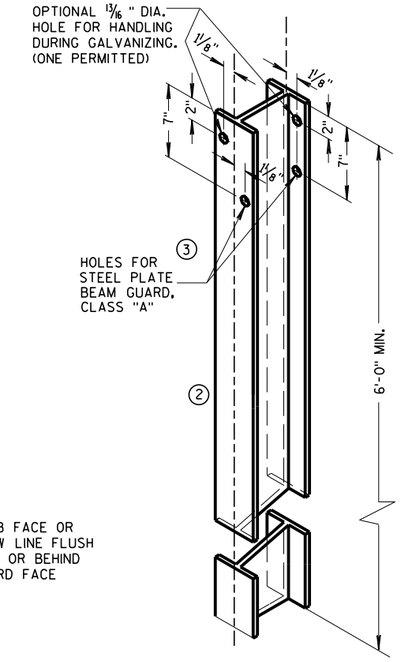
END VIEW
LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



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

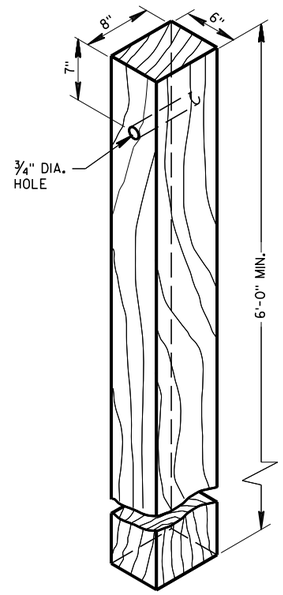


END VIEW
LOCATED ALONG A CURBED ROADWAY

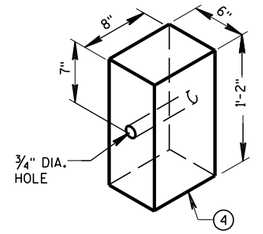


STEEL POST &
HOLE PUNCHING DETAIL
(W6 X 9) (1)

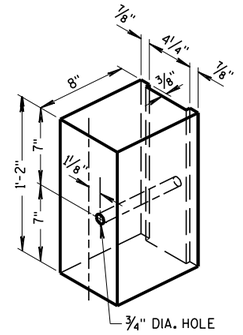
ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED



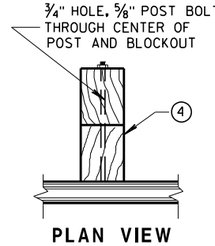
WOOD POST
(6"X8") NOMINAL



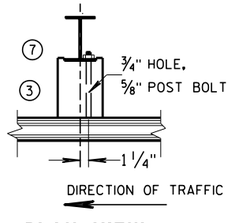
WOOD OR PLASTIC
BLOCKOUT FOR
WOOD POSTS



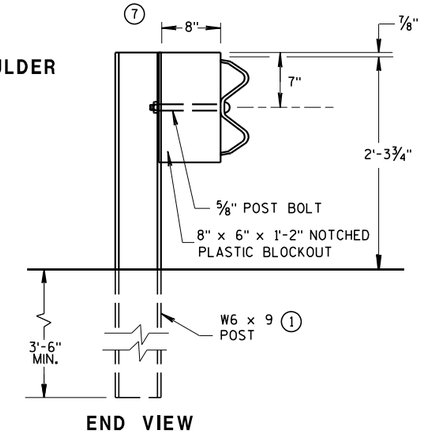
TYPICAL NOTCHED
PLASTIC BLOCKOUT
FOR STEEL POSTS (1)



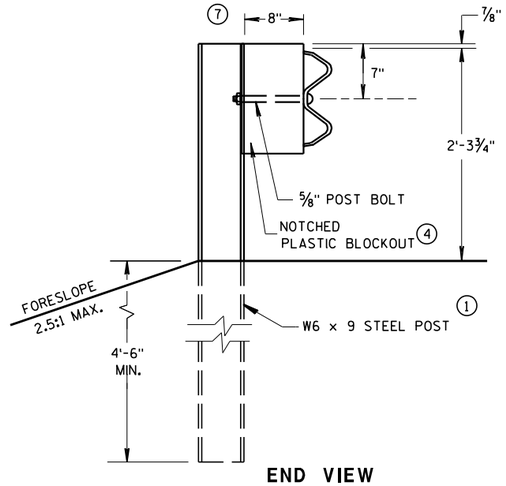
PLAN VIEW
WOOD POST, BLOCKOUT & BEAM



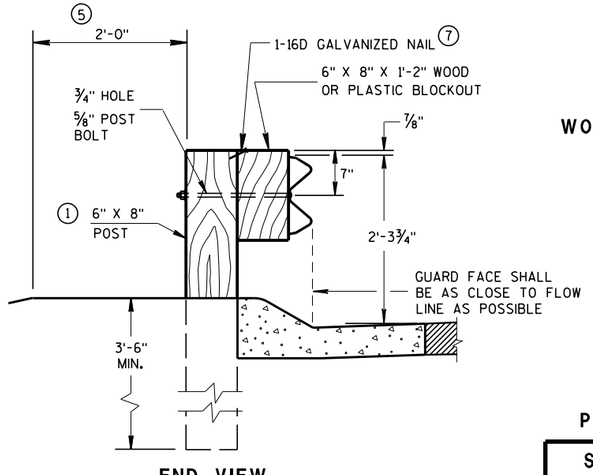
PLAN VIEW
STEEL POST, NOTCHED
PLASTIC BLOCKOUT & BEAM



END VIEW
STEEL POST & NOTCHED
PLASTIC BLOCKOUT ALTERNATIVE
STANDARD INSTALLATION



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



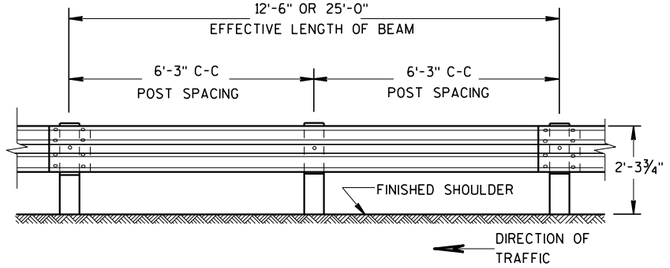
END VIEW
LOCATED ALONG A
MOUNTABLE CURBED ROADWAY

TYPICAL INSTALLATION OF STEEL PLATE BEAM GUARD

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

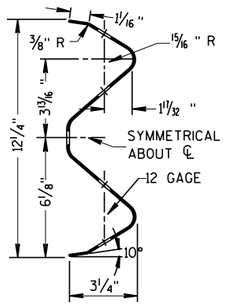
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6
S.D.D. 14 B 15-11a

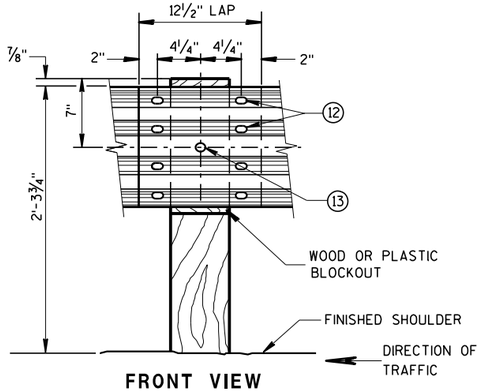


FRONT VIEW

POST SPACING STANDARD INSTALLATION



SECTION THRU W BEAM



FRONT VIEW

BEAM SPLICE AT WOOD POST AND POST MOUNTING DETAIL

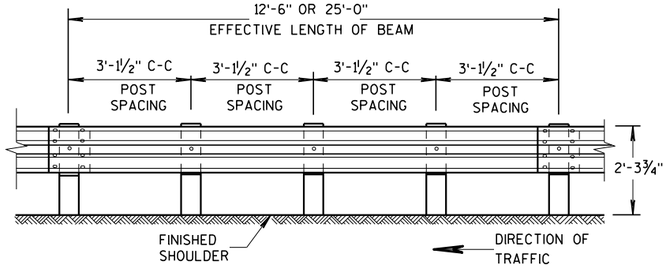
GENERAL NOTES

FURNISH GUARDRAIL DEFLECTORS FROM APPROVED PRODUCTS LIST.

(9) DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINA. START REFLECTORS AT POST #9 AND SPACE EVENLY EVERY 100 FEET (MAX.) TO THE END OF GUARDRAIL RUN, USING A MINIMUM OF 3 REFLECTORS.

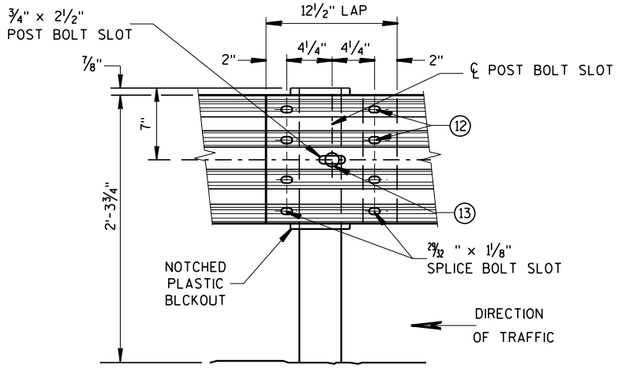
(12) 8 -⅝" ϕ X 2" BUTTON HEAD BOLTS WITH OVAL SHOULDERS & RECESS NUTS.

(13) ⅝" DIA. BUTTON HEAD BOLT AND RECESS NUT WITH ⅝" DIA. F844 FLAT WASHER UNDER NUT.



FRONT VIEW

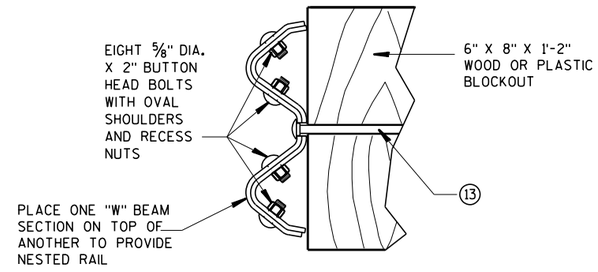
POST SPACING FOR LONGER POST AT HALF POST SPACING W BEAM (LHW)



FRONT VIEW

BEAM SPLICE AT STEEL POST

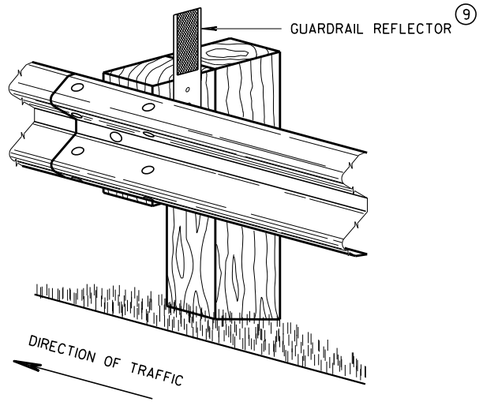
TYPICAL SPLICING DETAILS OF STEEL PLATE BEAM GUARD



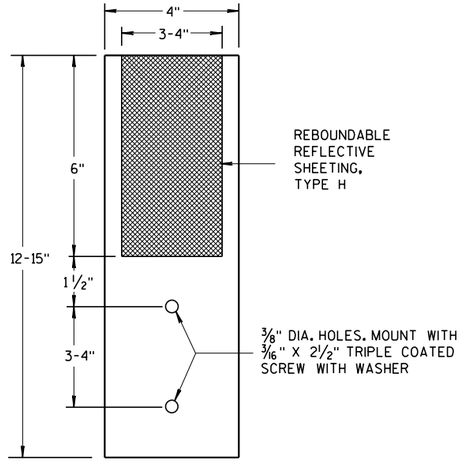
NESTED W BEAM (NW)

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

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



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



4"x 12" GUARDRAIL REFLECTOR

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

STATE OF WISCO 90
DEPARTMENT OF TRANSPORTATION

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

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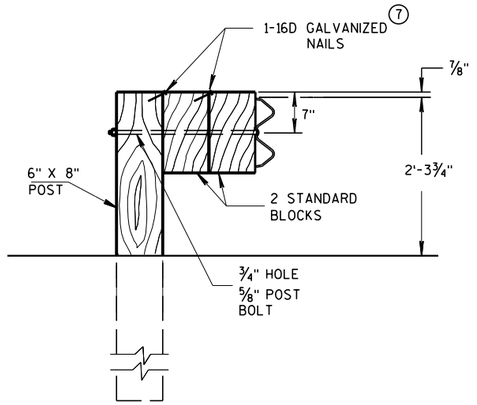
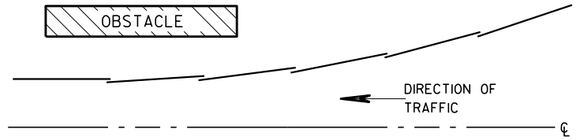
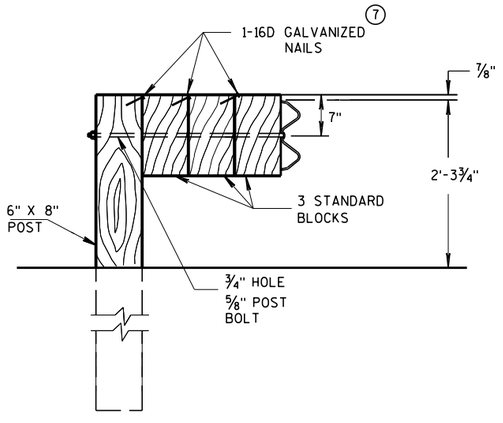


DETAIL FOR DOUBLE BLOCKS

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

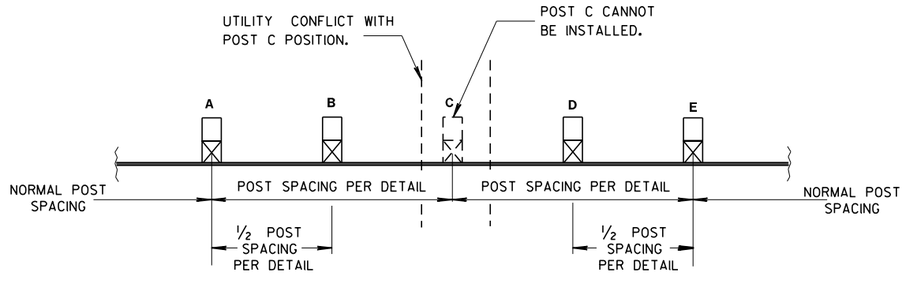


PLAN VIEW
BEAM LAPPING DETAIL



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.

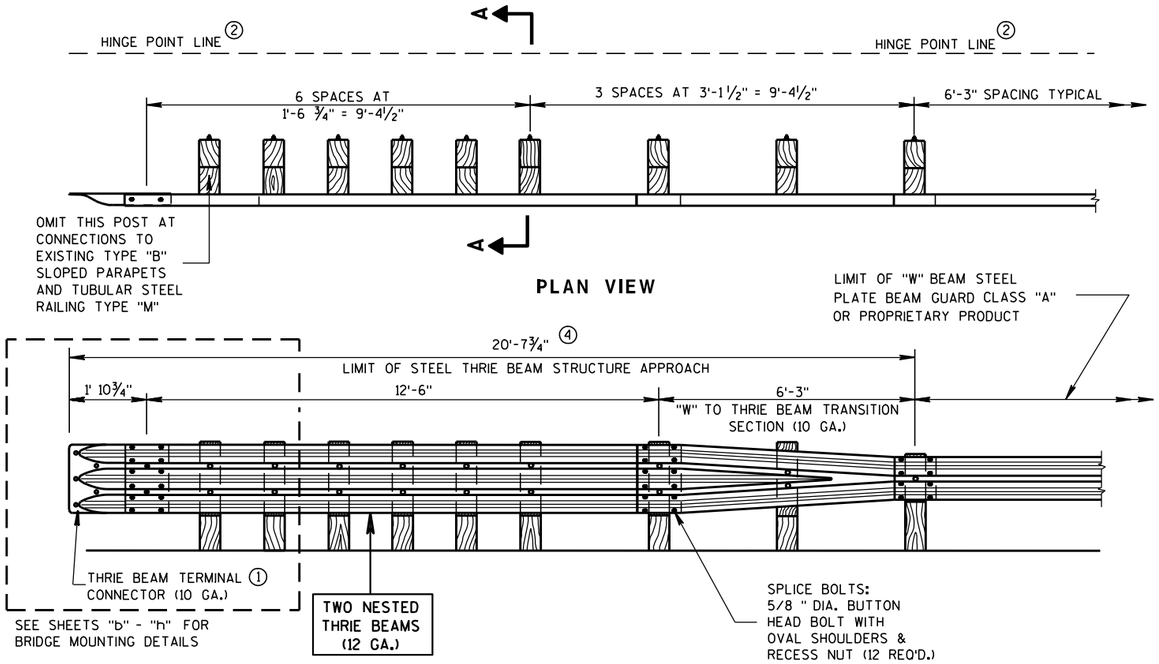
DO NOT USE EXTRA BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS UNIT SUPERVISOR
FHWA

6
S.D.D. 14 B 15-11c



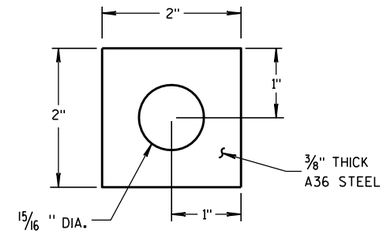


PLATE WASHER DETAIL

GENERAL NOTES

BOLT THE THRIE BEAM TO ALL POSTS AND BLOCKOUTS. DRILL OR PUNCH BOLT HOLES IN THE BEAM IF THE POST SPACING IS LESS THAN 6'-3".

DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.

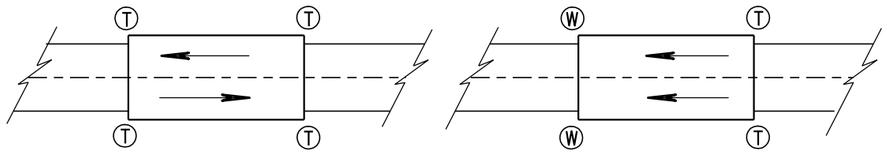
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2" , AND 12" DIAMETER AROUND POST. SEE 14B15 FOR MORE DETAILS.

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

② MINIMUM EMBEDMENT SHALL BE 4'-0". WHERE EXISTING CONDITIONS DO NOT PERMIT THE APPROPRIATE EARTHWORK SHOWN ON THE PLAN TYPICAL SECTIONS OR DETAILS, THE ENGINEER MAY ALLOW THE REDUCTION OR ELIMINATION OF THE 2 FOOT DISTANCE TO THE HINGE POINT. OTHERWISE BUILD AS THE PLAN SHOWS OR AS THE ENGINEER DIRECTS. IF THE 2 FOOT DISTANCE TO THE HINGE POINT IS REDUCED OR ELIMINATED, INCREASE THE POST EMBEDMENT DEPTH TO 4'-6" OR MORE.

③ POST BOLTS ARE 5/8" DIAMETER ASTM A307 BUTTON HEAD BOLT. A POST BOLT REQUIRES A 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX AND A 5/8" DIAMETER F844 FLAT WASHER. LENGTH OF POST BOLT MAY VARY.

④ ALL WOOD POSTS MUST BE 6" X 8" AND AT LEAST 7'-0" LONG.



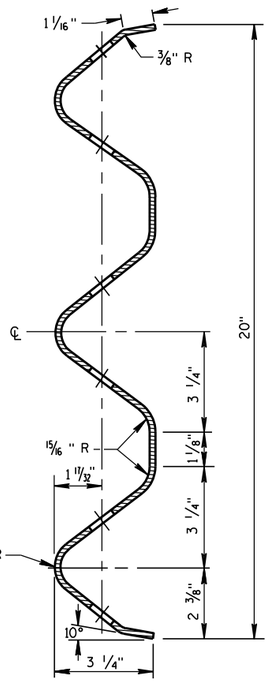
TWO WAY TRAFFIC

ONE WAY TRAFFIC

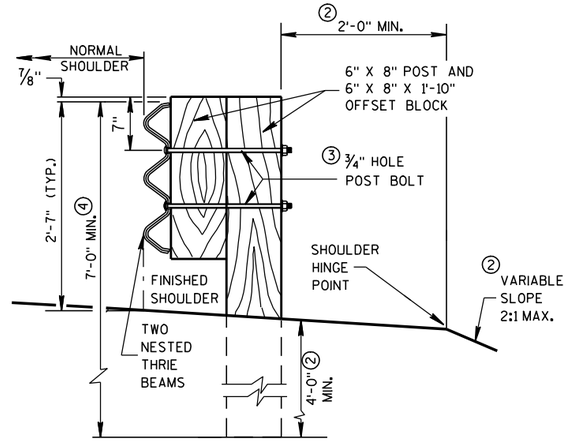
(T) THRIE BEAM CONNECTION

(W) W-BEAM CONNECTION WHEN REQUIRED

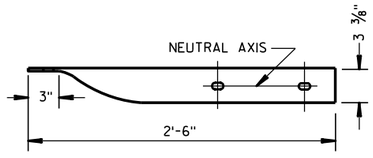
TYPICAL LOCATIONS OF THRIE BEAM AND W-BEAM CONNECTIONS TO BRIDGE

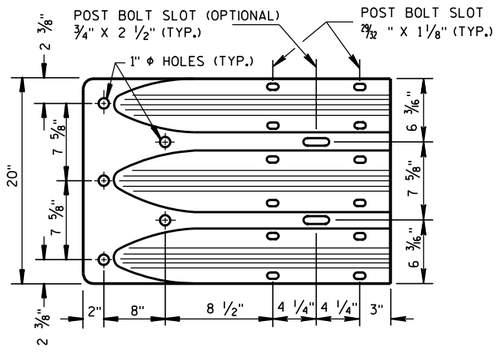


SECTION THRU THRIE BEAM RAIL ELEMENT

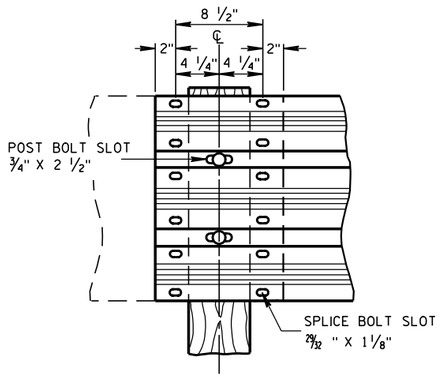


SECTION A-A





THRIE BEAM TERMINAL CONNECTOR



THRIE BEAM SPLICE

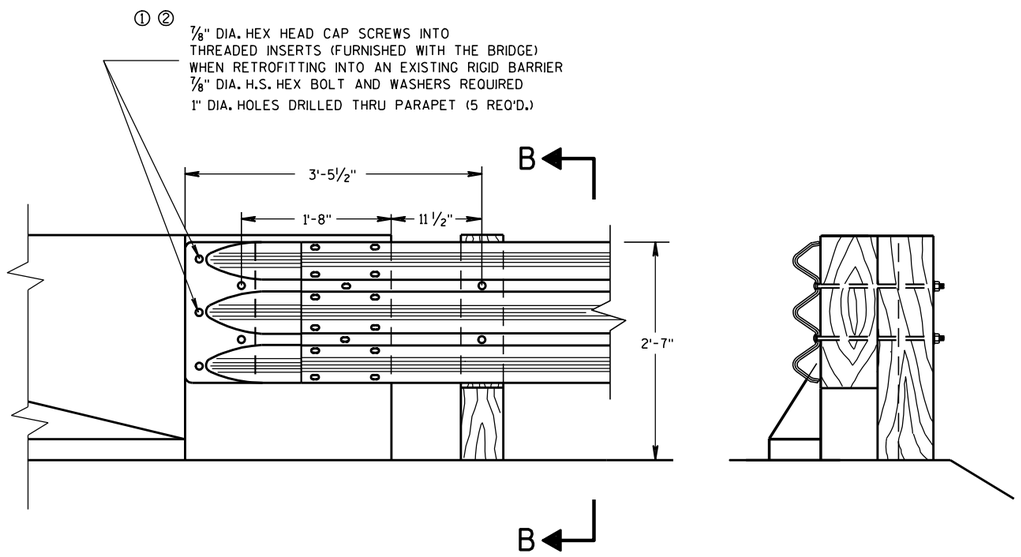
STEEL THRIE BEAM STRUCTURE APPROACH

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/31/2012 DATE — /S/ Jerry H. Zogg ROADWAY STANDARDS ENGINEER

FHWA



FRONT VIEW

SECTION B-B

THRIE BEAM CONNECTION TO BRIDGE PARAPET WITH SQUARE ENDS

GENERAL NOTES

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

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

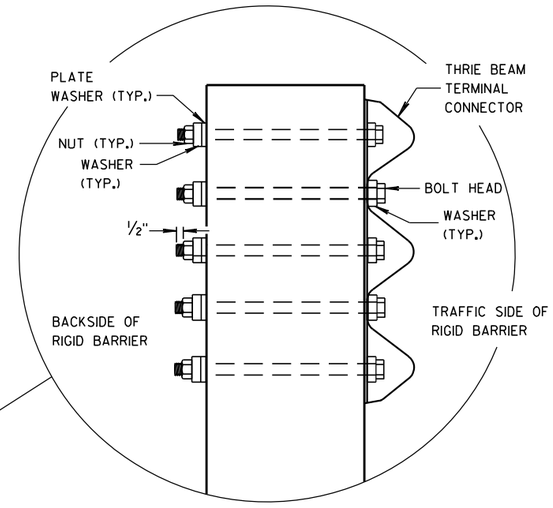
① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

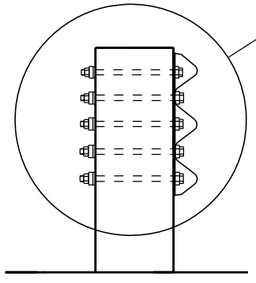
② BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM TERMINAL CONNECTOR. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X ⅝" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

③ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 ½".

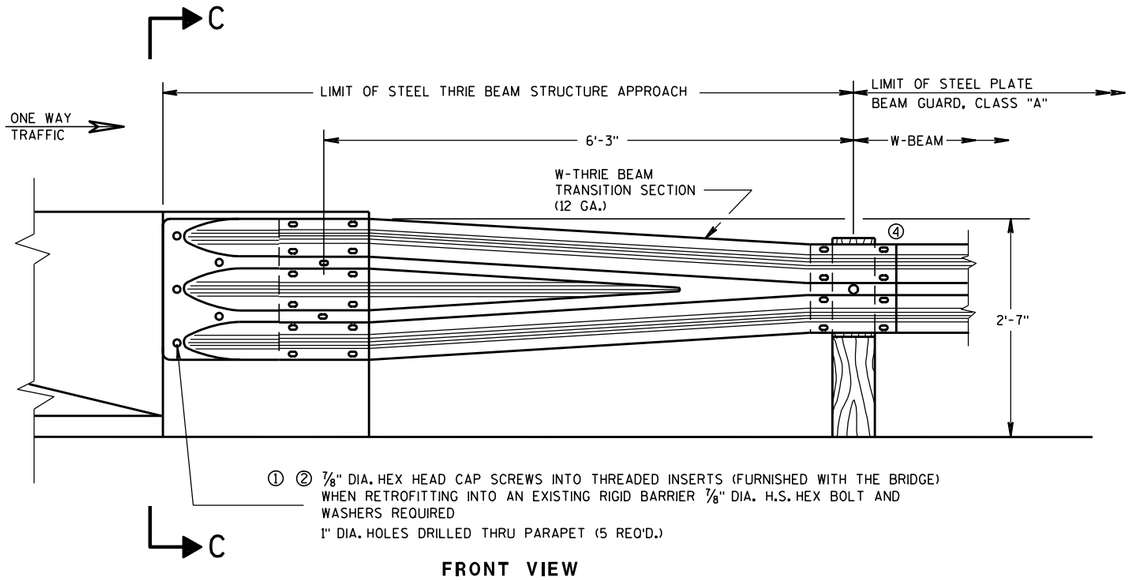
④ W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POST WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.

DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.





SECTION C-C



① ② ⅞" DIA. HEX HEAD CAP SCREWS INTO THREADED INSERTS (FURNISHED WITH THE BRIDGE) WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER ⅞" DIA. H.S. HEX BOLT AND WASHERS REQUIRED
1" DIA. HOLES DRILLED THRU PARAPET (5 REQ'D.)

FRONT VIEW

W BEAM TRANSITION AND CONNECTION TO BRIDGE PARAPETS WITH SQUARE ENDS

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

STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO SQUARE END PARAPETS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6
S.D.D. 14 B 20-11b

GENERAL NOTES

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

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

① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

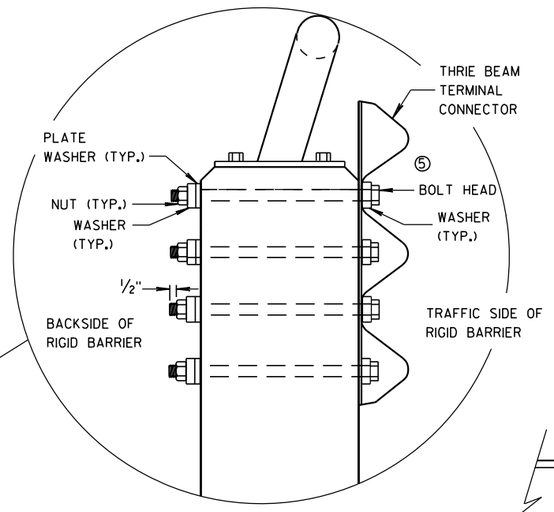
② BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM TERMINAL CONNECTOR. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X ⅝" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

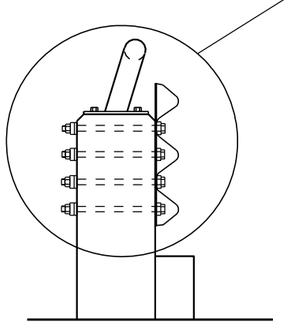
③ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 ½".

④ W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POST WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.

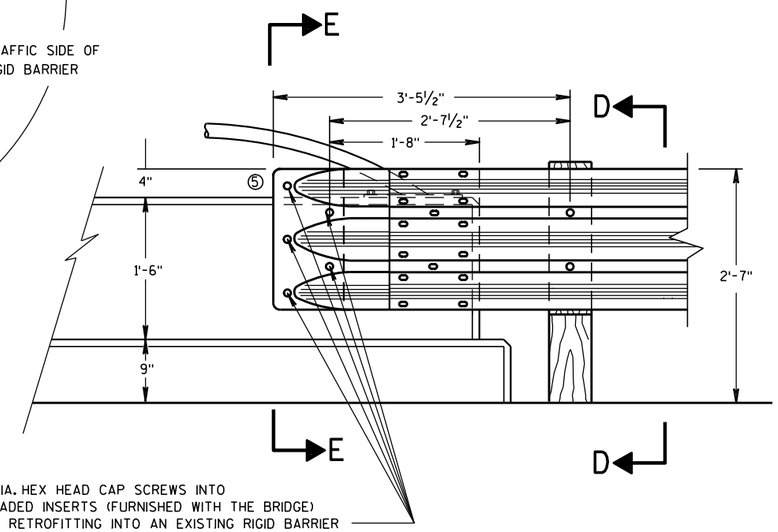
⑤ BOLT, NUT AND WASHERS NOT REQUIRED FOR THIS LOCATION WHEN RETROFITTING AN EXISTING PAPAPET AND THE HOLE IS EITHER ABOVE PARAPET OR WITHIN 4 INCHES OF THE EDGE OF PARAPET.

DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.





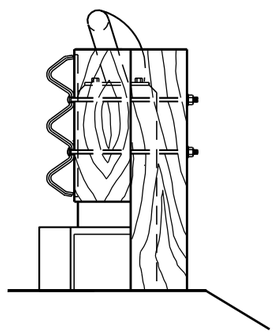
SECTION E-E



①② ⅞" DIA. HEX HEAD CAP SCREWS INTO THREADED INSERTS (FURNISHED WITH THE BRIDGE) WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER
⅞" DIA. H.S. HEX BOLT AND WASHERS REQUIRED

1" DIA. HOLES DRILLED THRU PARAPET (4 REQ'D.)

FRONT VIEW

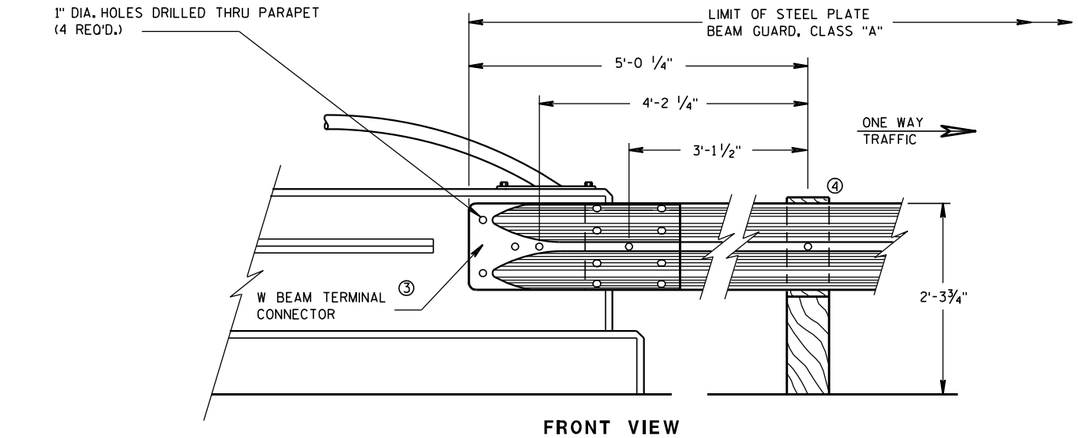


SECTION D-D

THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS

①② ⅞" DIA. HEX HEAD CAP SCREWS INTO THREADED INSERTS (FURNISHED WITH THE BRIDGE) WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER
⅞" DIA. HEX HEAD CAP SCREWS INTO THREADED INSERTS (FURNISHED WITH THE BRIDGE) WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER
⅞" DIA. H.S. HEX BOLT AND WASHERS REQUIRED

1" DIA. HOLES DRILLED THRU PARAPET (4 REQ'D.)



FRONT VIEW

W BEAM CONNECTION TO VERTICAL FACE PARAPET
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO VERTICAL FACED PARAPETS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
8/31/2012 DATE	/S/ Jerry H. Zogg ROADWAY STANDARDS (94) ENGINEER
FHWA	

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S.D.D. 14 B 20-11c

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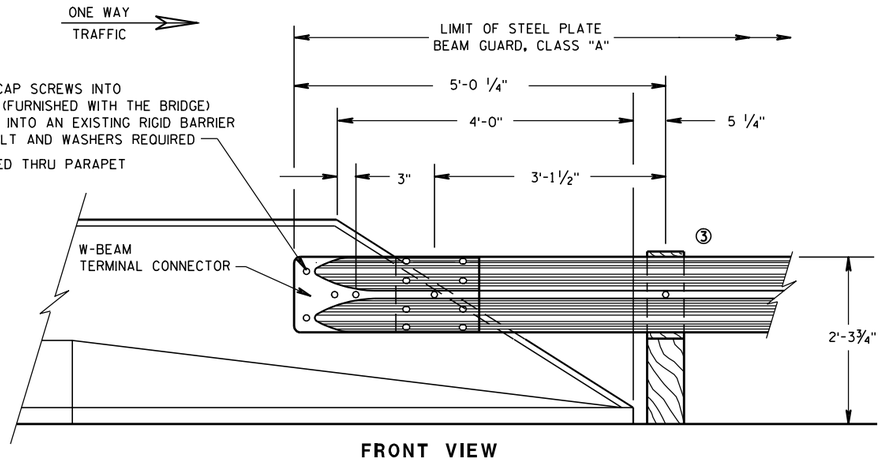
S.D.D. 14 B 20-11c



FRONT VIEW

W BEAM CONNECTION TO PARAPETS WITH SLOPED ENDS

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

GENERAL NOTES

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

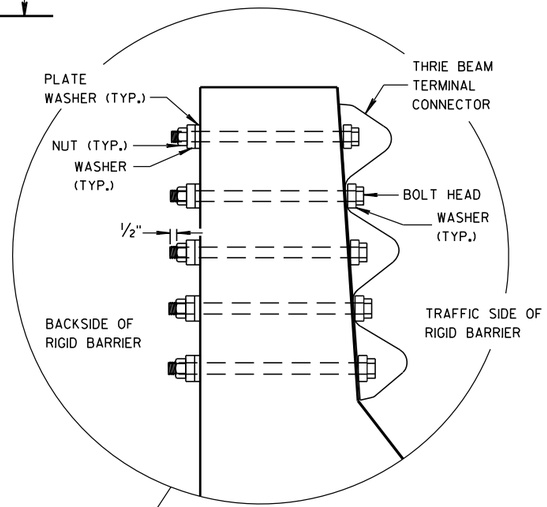
BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A325, A449 AND GALVANIZED PER STANDARD SPECIFICATIONS 614.

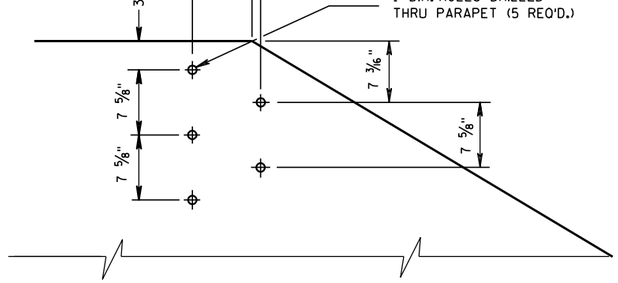
① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

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

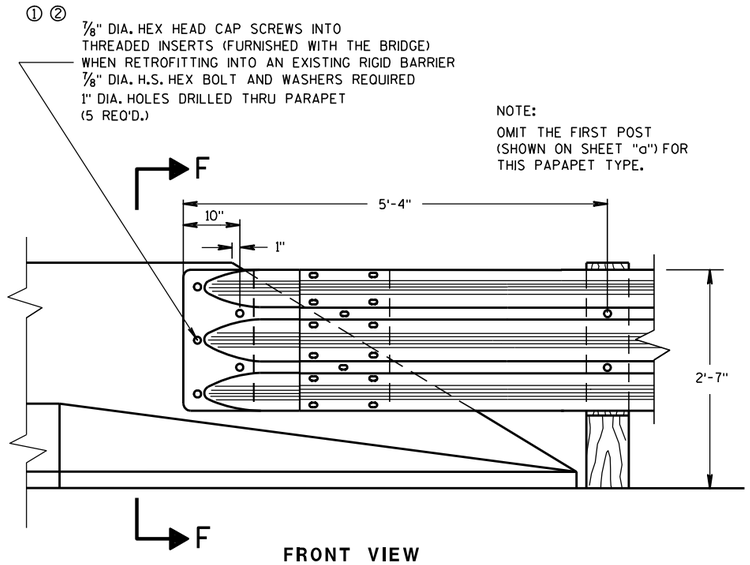
③ W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POST WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.

DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.

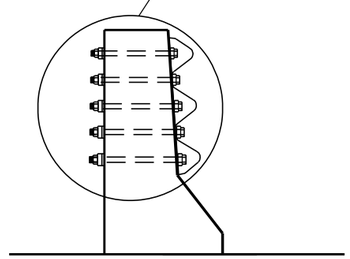




DRILL HOLE LOCATION AND PATTERN FOR THRIE BEAM CONNECTION



FRONT VIEW



SECTION F-F

THRIE BEAM CONNECTION TO BRIDGE PARAPETS WITH SLOPED ENDS

STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO SLOPED END PARAPETS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8/31/2012 — DATE
/S/ Jerry H. [illegible] — ROADWAY STANDARDS [illegible] ENGINEER
FHWA

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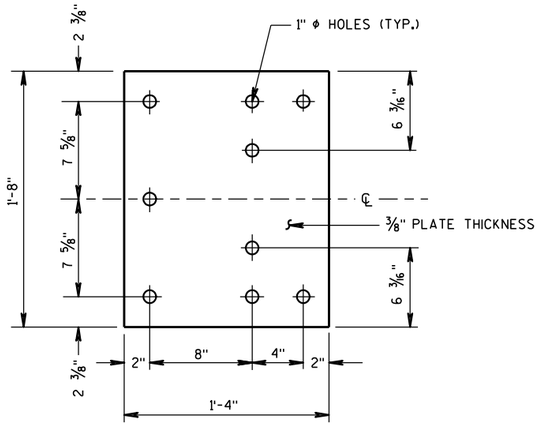
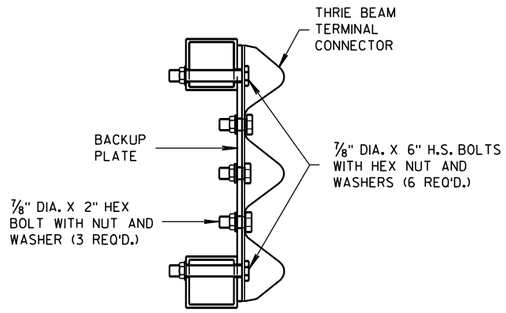
S.D.D. 14 B 20-11d



BACK-UP PLATE DETAIL



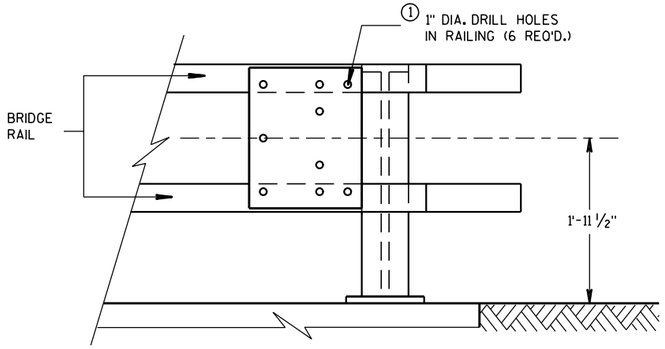
SECTION G-G

GENERAL NOTES

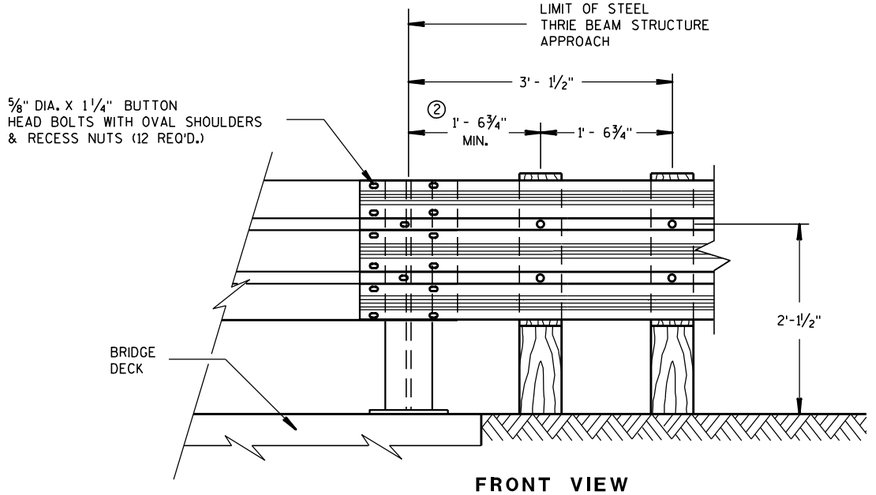
BOLTS, PLATES, NUTS AND WASHERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM SPECIFICATION A 325 AND BE GALVANIZED IN ACCORDANCE WITH ASTM A 153.

① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

② VARY THIS DIMENSION DEPENDING ON ABUTMENT TYPE, WINGWALL DETAILS, AND ANGLE OF SKEW. PLACE THE FIRST WOOD POST OFF THE BRIDGE SHALL AS CLOSE AS FEASIBLE TO THE STEEL END POST.

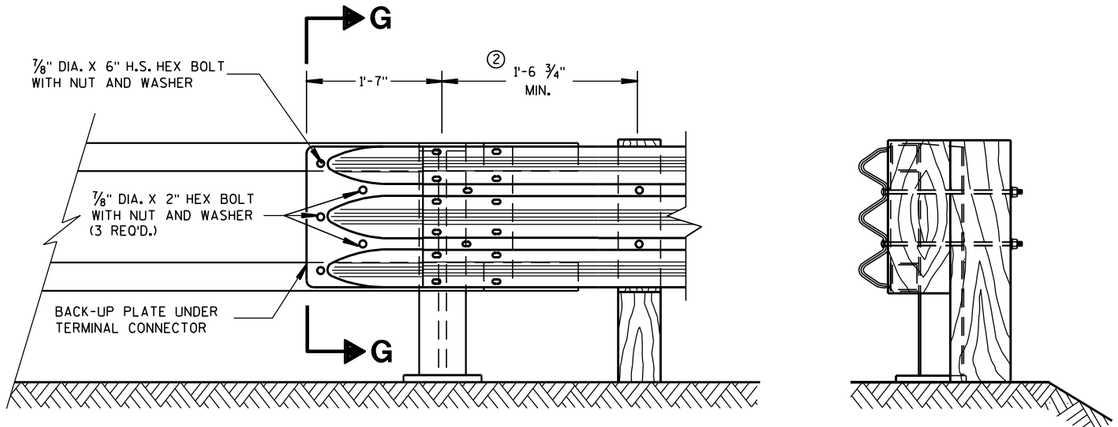


BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING



FRONT VIEW

THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"



FRONT VIEW

END VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"

STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO BRIDGE RAILING TYPES "F" AND "W"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/31/2012 — DATE

/S/ Jerry H ... — ROADWAY STANDARDS ENGINEER

ENT

FHWA

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S.D.D. 14 B 20-11e

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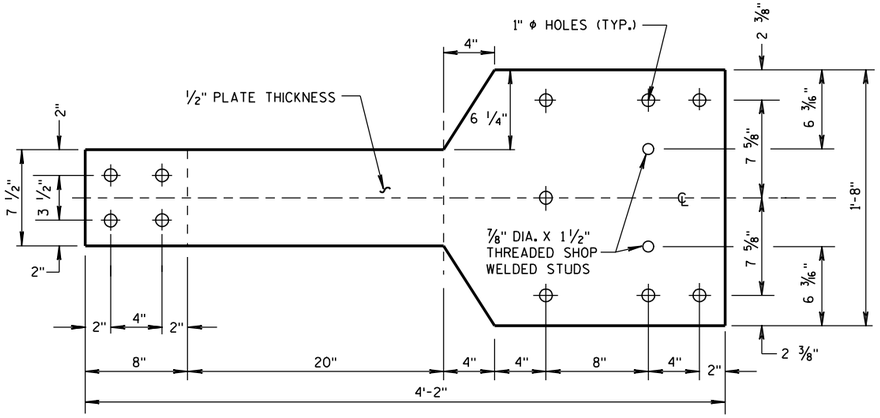
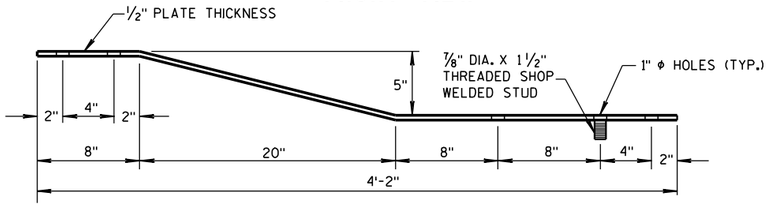
S.D.D. 14 B 20-11e

GENERAL NOTES

① VARY THIS DIMENSION DEPENDING ON ABUTMENT TYPE, WINGWALL DETAILS, AND ANGLE OF SKEW. PLACE THE FIRST WOOD POST OFF THE BRIDGE SHALL BE AS CLOSE AS FEASIBLE TO THE STEEL END POST.

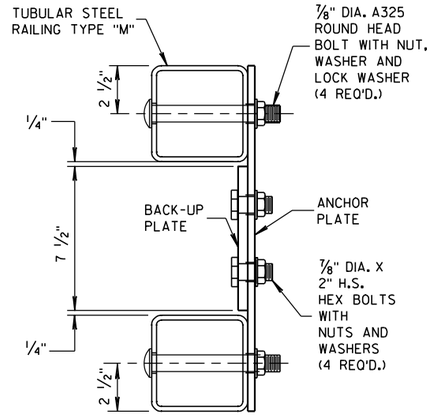


FRONT VIEW

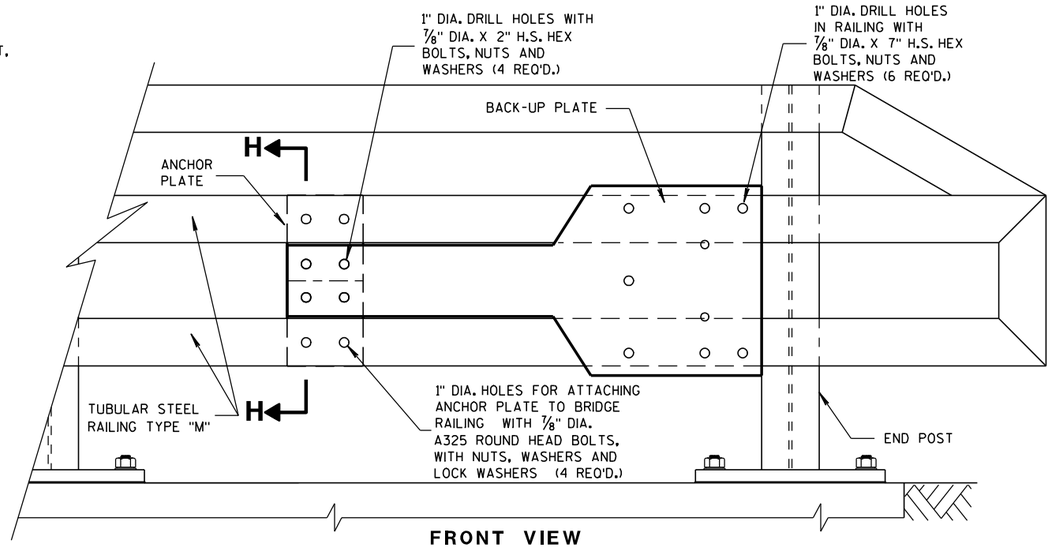


PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

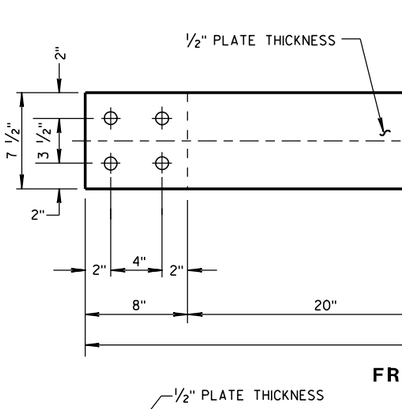


SECTION H-H



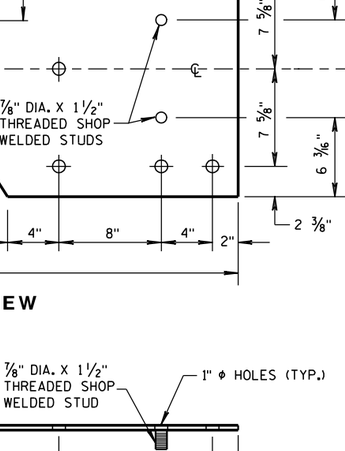
FRONT VIEW

ANCHOR AND BACK-UP PLATE MOUNTING TO BRIDGE RAILING, TYPE "M"

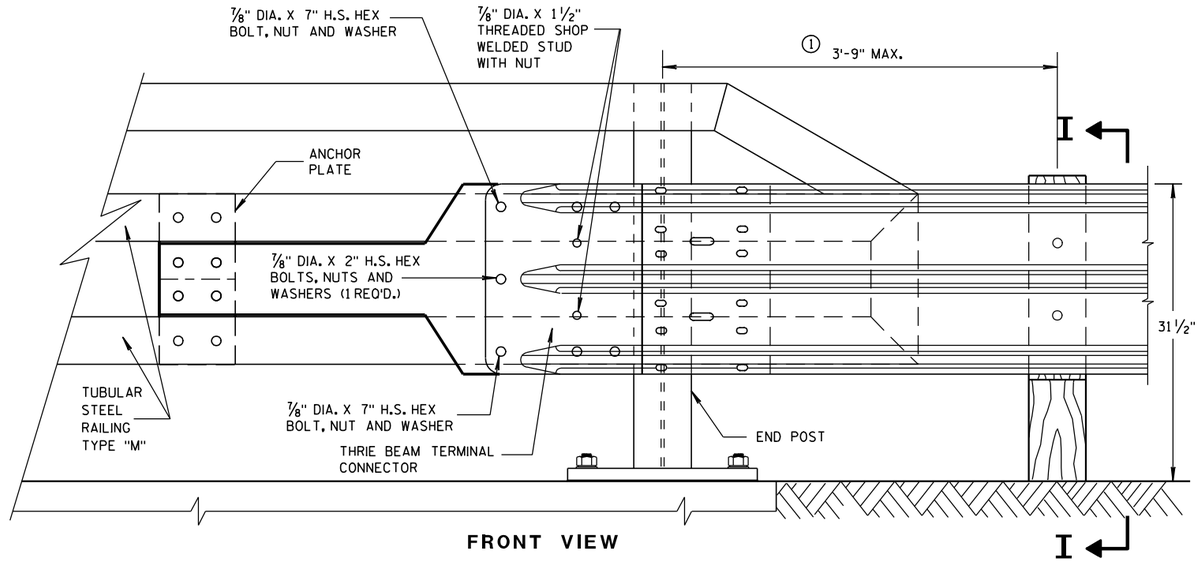


FRONT VIEW

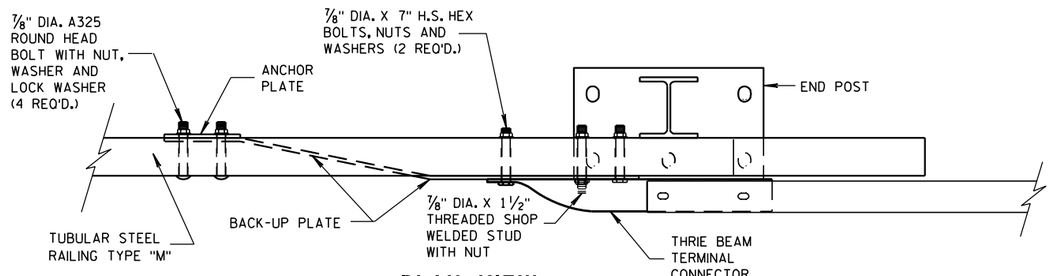
ANCHOR PLATE DETAIL, TYPE "M"



SECTION I-I



FRONT VIEW



PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO BRIDGE RAILING TYPE "M"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8/31/2012 — DATE
/S/ Jerry H. [illegible] — ROADWAY STANDARDS ENGINEER
97 — ENT
FHWA

6

S.D.D. 14 B 20-11f

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S.D.D. 14 B 20-11f

GENERAL NOTES

COVER PLATE PANELS ARE 3/16" THICK.

ALL STIFFENERS ARE 1/4" THICK.

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

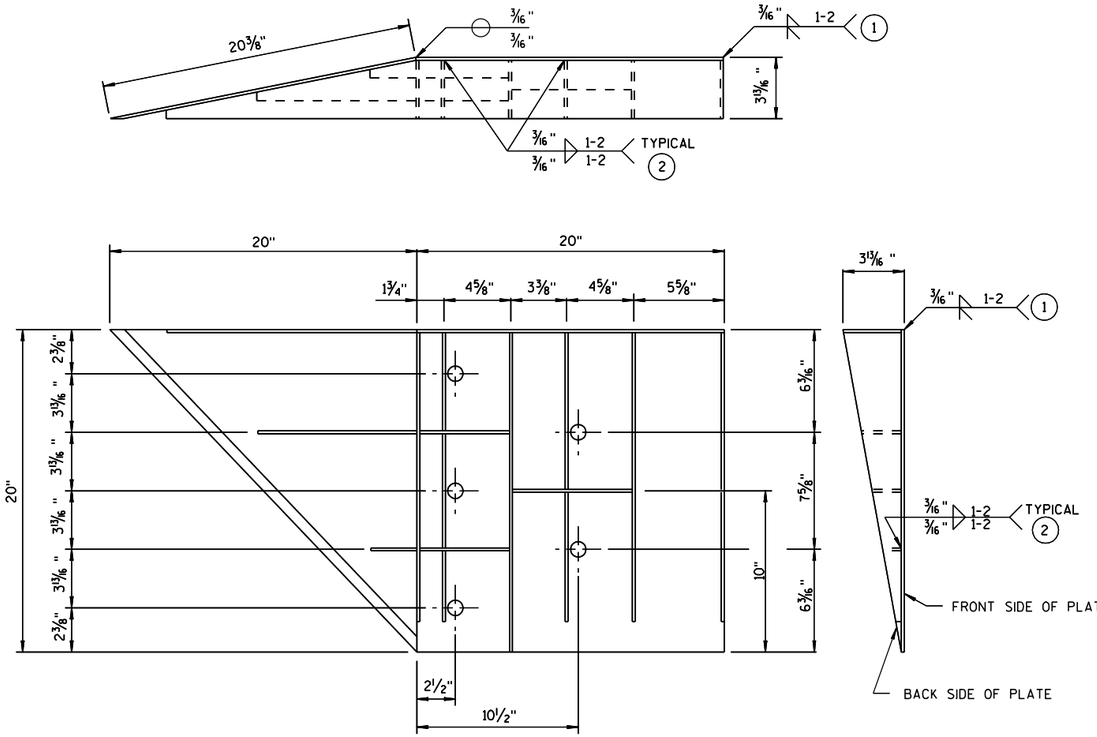
FOR GALVANIZED REQUIREMENTS, SEE SECTION 614 OF THE STANDARD SPECIFICATIONS.

ALL HOLE DIAMETERS SHALL BE 1".

FOR OPPOSITE SIDE INSTALLATION MIRROR DRAWINGS.

(1) STIFFENERS LOCATED AT THE OUTSIDE EDGES OF THE COVER PLATES SHALL BE WELDED AS FOLLOWS:
SINGLE BEVEL GROOVE WELD ON EXTERNAL SIDES AND 3/16" FILLET WELD BY 1" LONG SPACED AT 2" ON INTERNAL SIDES.

(2) STIFFENERS LOCATED ON THE INSIDE OF THE COVER PLATE SHALL BE WELDED AS FOLLOWS:
3/16" FILLET WELD BY 1" LONG SPACED AT 2".



WELDING INSTRUCTION

(VIEWED FROM BACK SIDE OF PLATE)

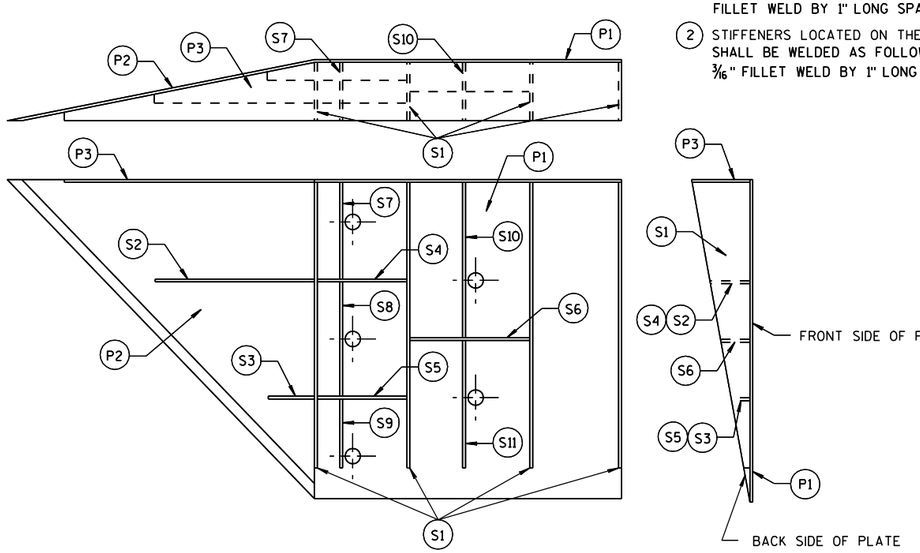


PLATE AND STIFFENER IDENTIFICATION

(VIEWED FROM BACK SIDE OF PLATE)

CONNECTOR PLATE DIMENSION (PER ASSEMBLY)

PLATE	QUANTITY	SHAPE	SIZE (A x B x C x D)	THICKNESS
P1	1		20" x 20"	3/16"
P2	1		20" x 20" x 28 9/16"	3/16"
P3	1		39" x 3 5/8" x 20" x 19 5/16"	3/16"
S1	4		18 7/16" x 3 5/8" x 18 3/4"	1/4"
S2	1		10 1/4" x 2 7/16" x 10 3/8" x 1/2"	1/4"
S3	1		3" x 1 1/16" x 3 1/8" x 1/2"	1/4"
S4	1		6 1/8" x 2 7/16"	1/4"
S5	1		6 1/8" x 1 1/16"	1/4"
S6	1		7 3/4" x 1 3/4"	1/4"
S7	1		2 9/16" x 6" x 3 5/8" x 5 7/8"	1/4"
S8	1		1 5/32" x 7 1/2" x 2 1/2" x 7 3/8"	1/4"
S9	1		6 1/16" x 6 3/16" x 1 3/32"	1/4"
S10	1		1 7/8" x 9 7/8" x 3 5/8" x 9 11/16"	1/4"
S11	1		8 1/2" x 8 3/4" x 1 13/16"	1/4"

STEEL THRIE BEAM STRUCTURE APPROACH

STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTOR PLATE DETAIL

STATE OF WISCONSIN
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ROADWAY STANDARDS ENGINEER
FHWA

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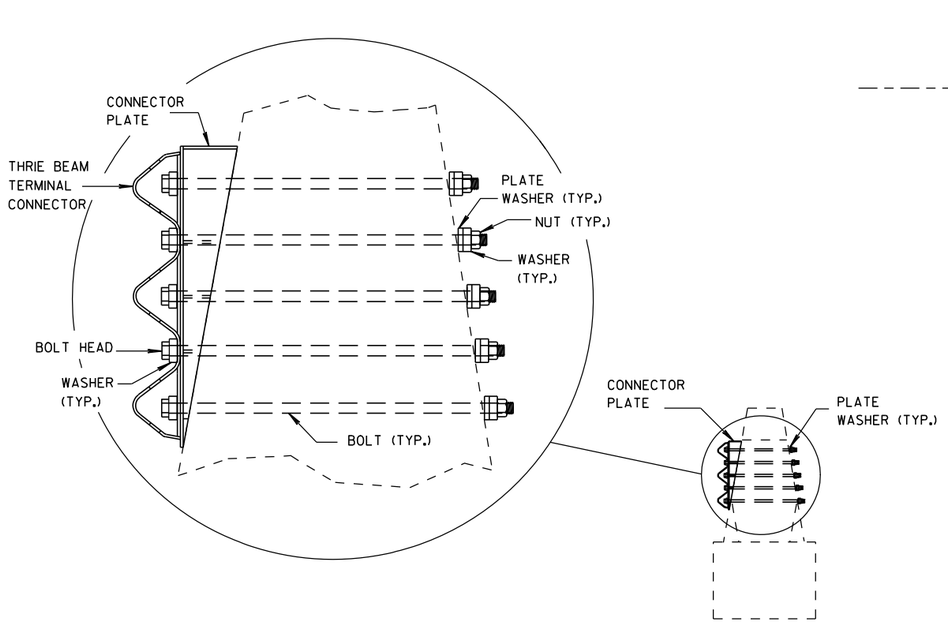
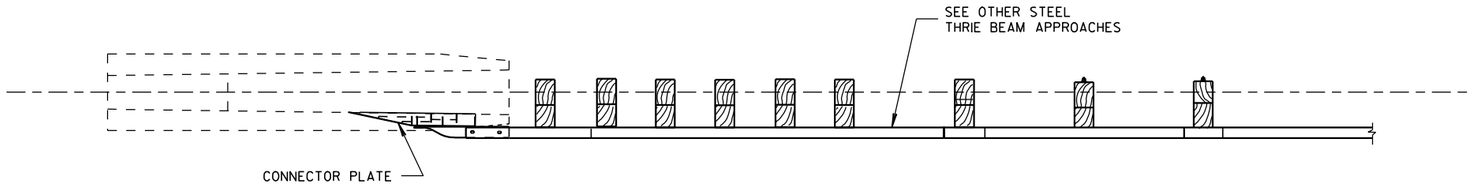
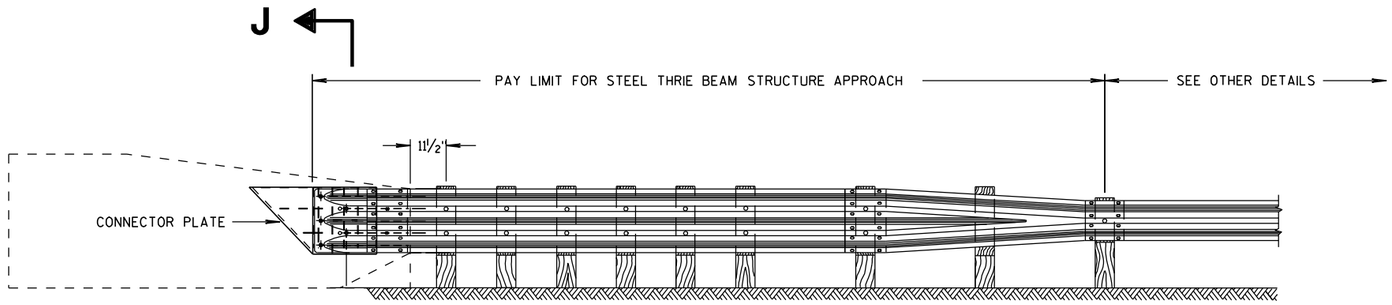
S.D.D. 14 B 20-11g



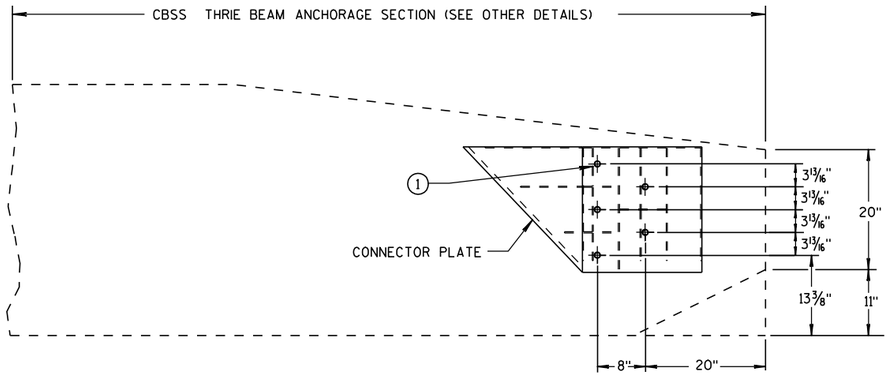
SECTION J-J



PLAN VIEW



FRONT VIEW



CONNECTOR PLATE LOCATION

GENERAL NOTES

CONSTRUCT PER STANDARD SPECIFICATION 614.

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

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

STEEL THRIE BEAM STRUCTURE APPROACH

STEEL THRIE BEAM STRUCTURE APPROACH, SINGLE SLOPE ATTACHMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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FHWA

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S.D.D. 14 B 20-11h

BILL OF MATERIALS

NOTE NO.	DESCRIPTION
①	WOOD BREAKAWAY TERMINAL POST: 5½" X 7½" X 3'-9"
②	STEEL TUBE TS 8" X 6" X 0.188", 6'-0"
④	WOOD BREAKAWAY CRT POST: 6" X 8" X 6'-0"
⑤	WOOD OFFSET BLOCKS: 6' X 8" X 1'-2"
⑥	PIPE SLEEVE: 2" X 5 ½" STANDARD PIPE
⑦	BEARING PLATE
⑧	BCT CABLE ASSEMBLY
⑨	CABLE ANCHOR BOX
⑩	STRUT & YOKE
⑪	STEEL PLATE BEAM, END PANEL 12 GA.
⑫	STEEL PLATE BEAM: 12 GA. 13'-6½"
⑬	IMPACT HEAD
⑭	0.040" ALUMINUM SHEET WITH REFLECTIVE SHEETING TYPE F PER SECTION 637 OF THE STANDARD SPECIFICATIONS

GENERAL NOTES

FOLLOW MANUFACTURE'S BOLTING RECOMMENDATIONS.

(A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL), AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.

(B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED.

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

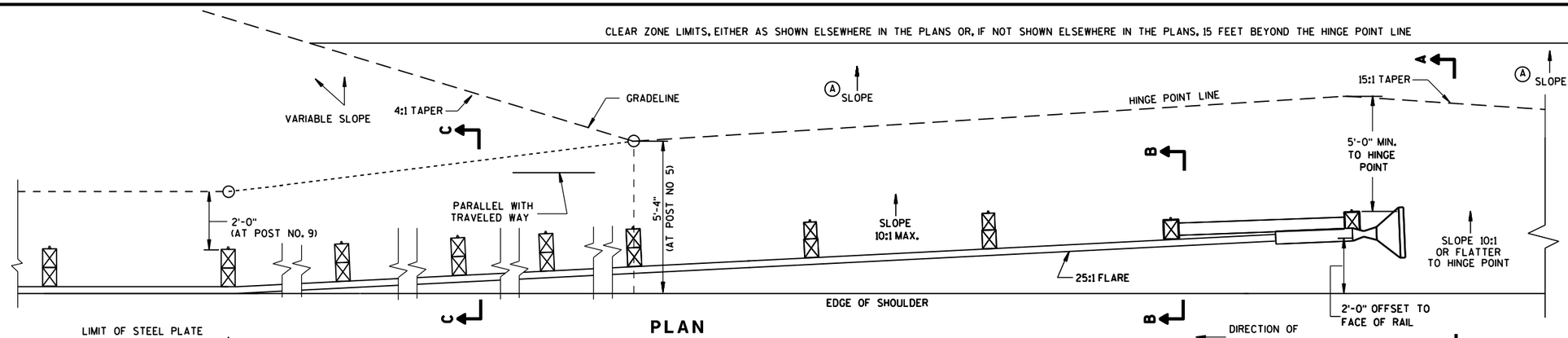
(E) THE CENTER OF THE UPPER 3½" DIAMETER HOLE ON POST 3 THROUGH 8 SHALL BE ¾" ABOVE THE FINISHED GROUND LINE.

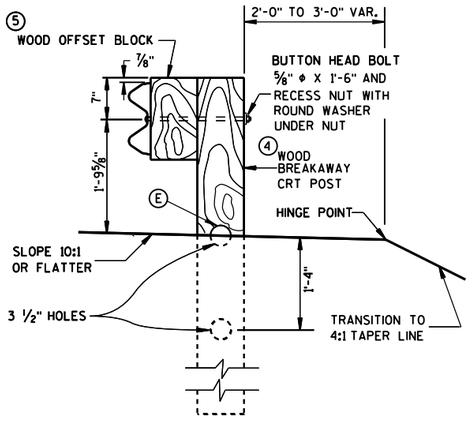
(F) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS. ONE SCREW PER CORNER.

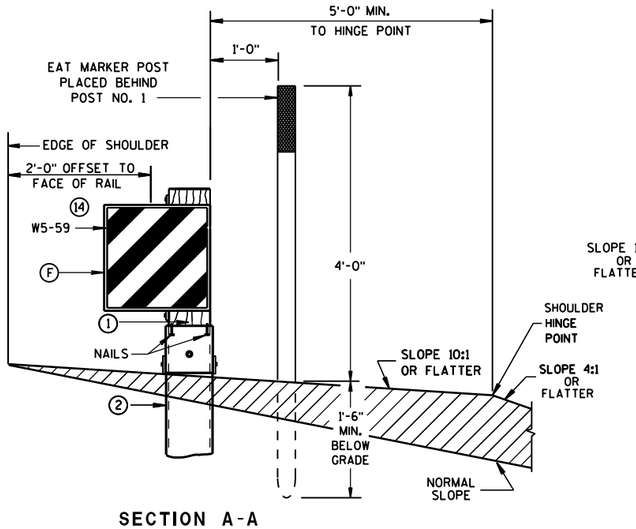
STEEL POSTS SHALL NOT BE ALLOWED FOR USE WITH ENERGY ABSORBING TERMINALS.

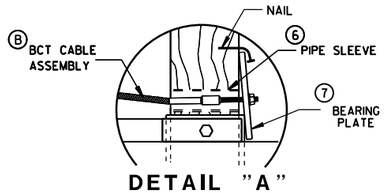
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

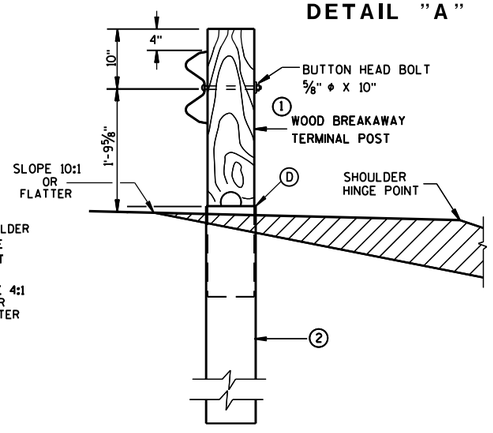
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

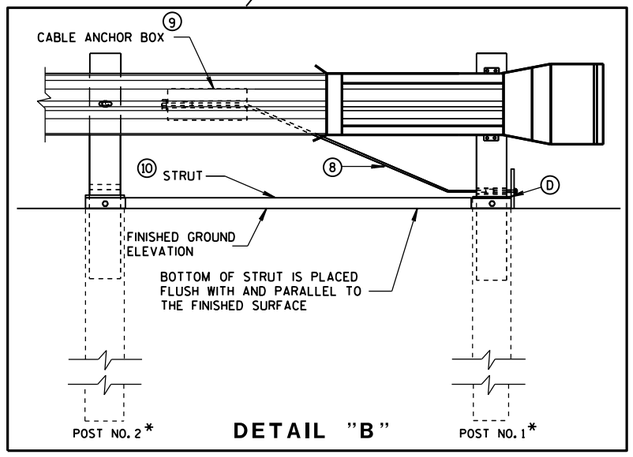












STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

S.D.D. 14 B 24-9a

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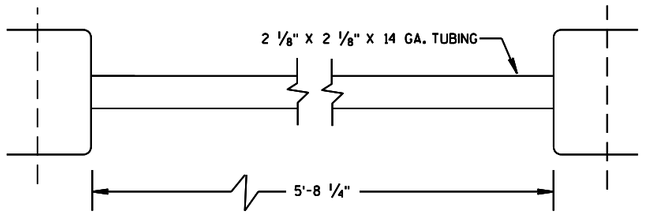
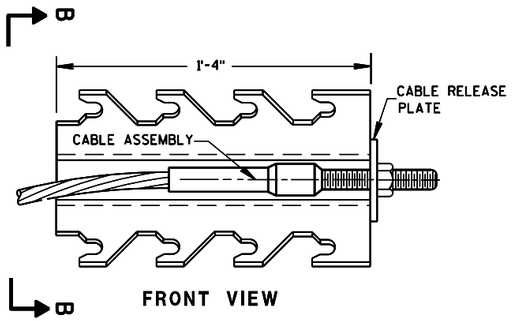
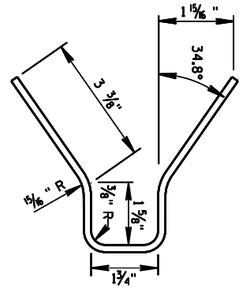
S.D.D. 14 B 24-9a



⑩ STRUT DETAIL

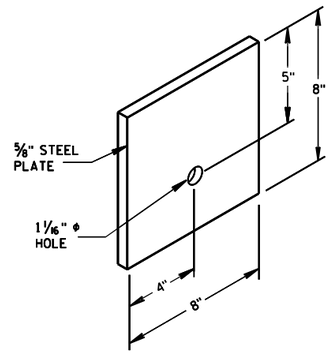


FRONT VIEW



SECTION B-B

⑨ CABLE ANCHOR BOX



⑦ STEEL BEARING PLATE

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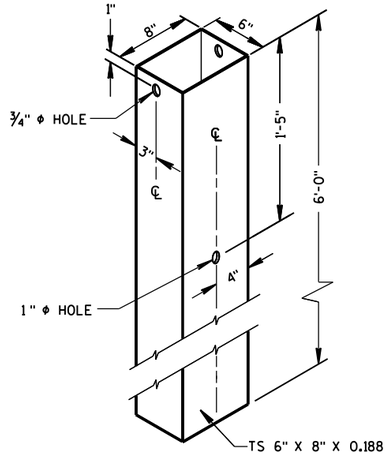
S.D.D. 14 B 24-9b

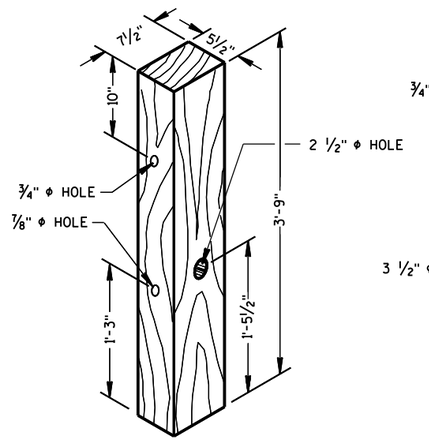
S.D.D. 14 B 24-9b

STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL

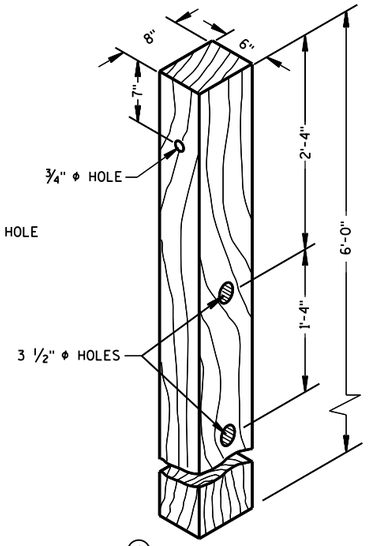
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI



② 72" STEEL TUBE
(POSTS NO. 1-2



① TERMINAL POST

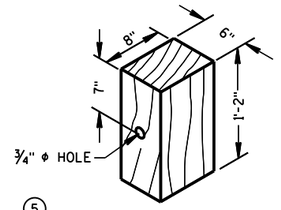


④ CRT POST
(POSTS NO'S 5-8

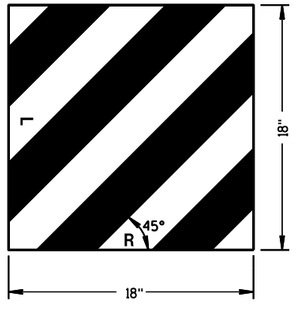
WOOD BREAKAWAY POSTS

GENERAL NOTES

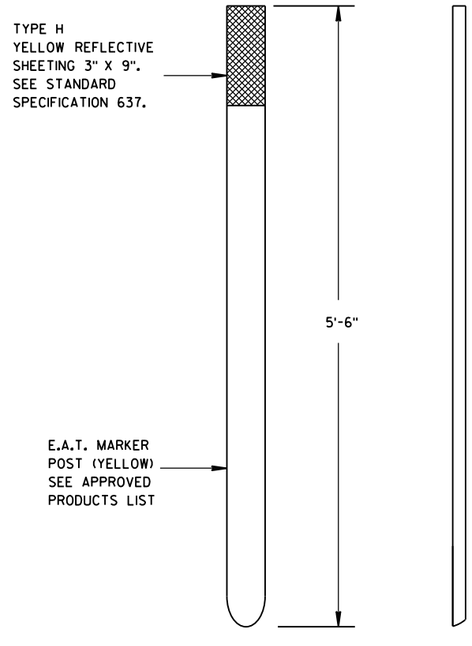
WHEN ROCK IS ENCOUNTERED DURING EXCAVATION, A 12 INCH DIA. POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK MAY BE USED IF APPROVED BY THE ENGINEER. GRANULAR MATERIAL SHALL BE PLACED IN THE BOTTOM OF THE HOLE APPROXIMATELY 2 ½" INCHES DEEP TO PROVIDE DRAINAGE. THE SOIL TUBES SHALL BE FIELD CUT TO LENGTH, PLACED IN THE HOLE AND BACKFILLED WITH ADEQUATELY COMPACTED MATERIAL EXCAVATED FROM THE HOLE.



⑤ WOOD OFFSET BLOCK
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



⑭ REFLECTIVE SHEETING DETAILS



E.A.T. MARKER POST

STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017
DATE
FHWA

/S/ Rodney Taylor
ROADWAY STANDARDS
UNIT SUPERV...

102

ENT

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S.D.D. 14 B 24-9c

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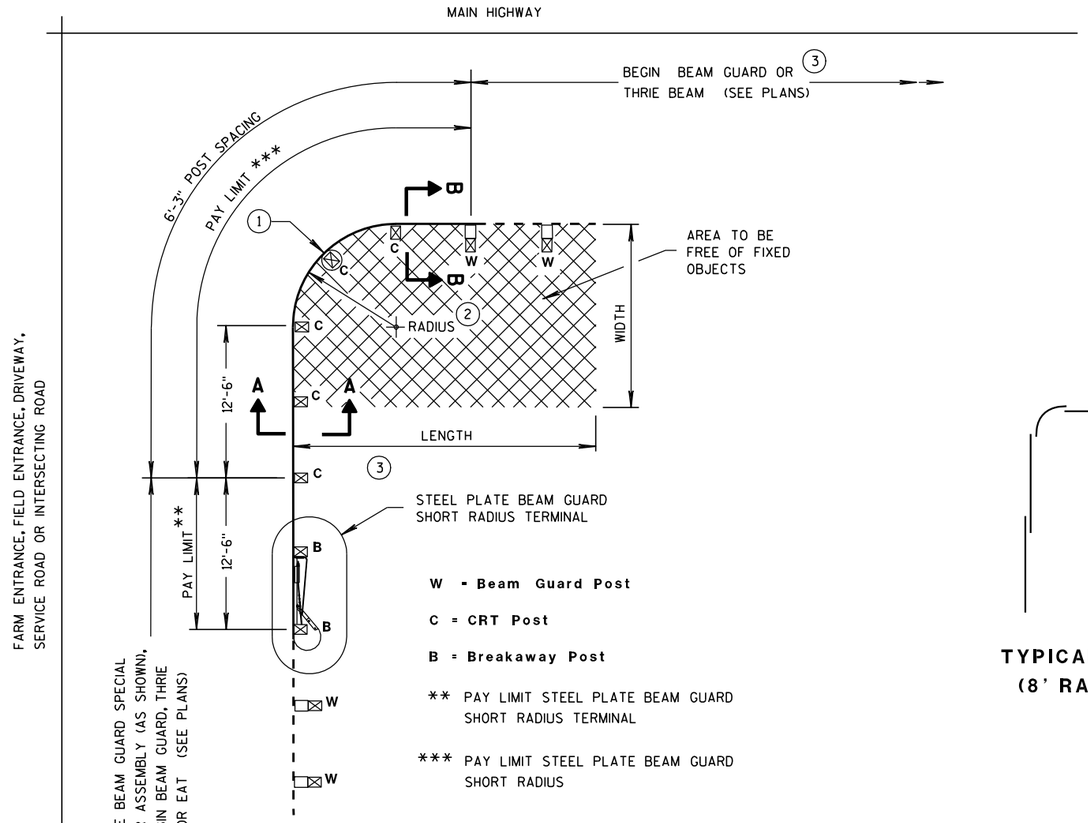
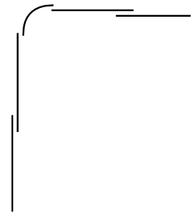
S.D.D. 14 B 24-9c



TYPICAL LAYOUT
(8' RADIUS SHOWN)



TYPICAL LAP SPLICES
(8' RADIUS SHOWN)

GENERAL NOTES

ALL ANGLES, CHANNELS, AND PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A36 AND THE STRUCTURAL TUBING SHALL CONFORM TO ASTM A 500. WELDING SHALL MEET THE CURRENT REQUIREMENTS OF THE AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE ANSI/AWS D1.1. ALL STRUCTURAL STEEL SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A 123. PUNCHING, DRILLING, CUTTING, OR WELDING WILL NOT BE PERMITTED AFTER GALVANIZING. FURNISH AND INSTALL HARDWARE PER STANDARD SPECIFICATION 614.2. UNLESS NOTED OTHERWISE.

SHOP BEND CURVED RAIL SECTIONS.

SEE STANDARD DETAIL DRAWING 14 B 15 FOR OTHER DETAIL.

(1) ON THE 8 FOOT RADIUS INSTALLATION, DO NOT INSTALL BUTTON HEAD BOLT AT CENTER CRT POST.

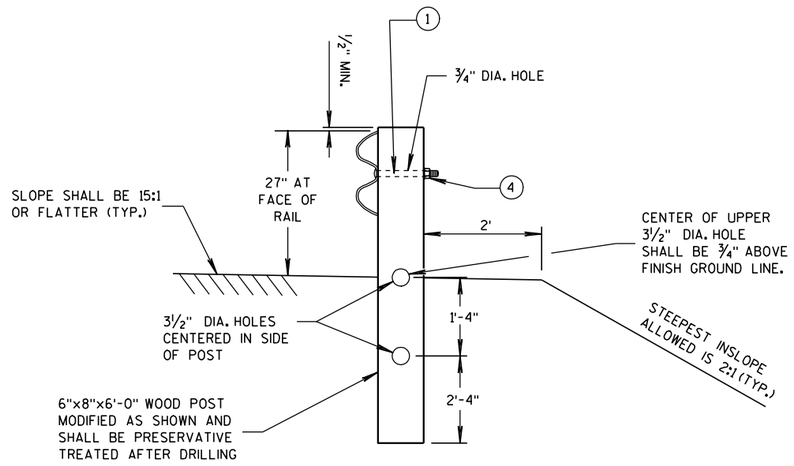
(2) RADIUS FROM 8' - 36'. SEE PLAN.

(3) HEIGHT TRANSITION MAY BE REQUIRED. SEE PLAN OR PROJECT ENGINEER.

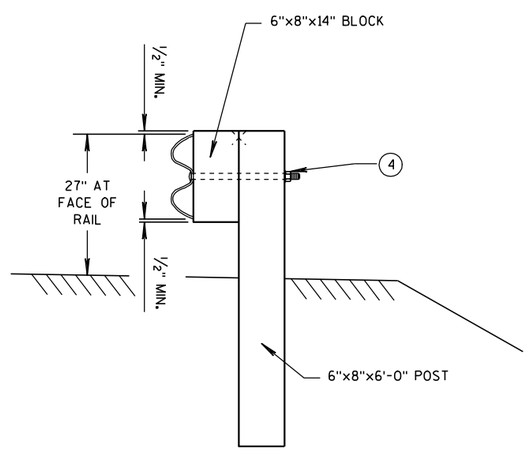
(4) 5/8" ø X 1'-6" BUTTON HEAD BOLT AND RECESS NUT WITH ROUND WASHER UNDER NUT.

RADIUS	NUMBER OF CRT POSTS	*NUMBER AND LENGTH OF CURVED RAILS	REQUIRED AREA FREE OF FIXED OBJECTS (LENGTH x WIDTH)
8'	5	1 at 12.5'	25' x 15'
16'	7	1 at 25'	30' x 15'
24'	9	1 at 25' and 1 at 12.5'	40' x 20'
32'	11	2 at 25'	50' x 20'

* THE NUMBER OF RAILS IS BASED ON A 90° INTERSECTION. SEE PLAN FOR NON 90° INSTALLATIONS.



SECTION A-A
(CRT POST)



SECTION B-B
(BEAM GUARD POST)

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

S.D.D. 14 B 27-1a

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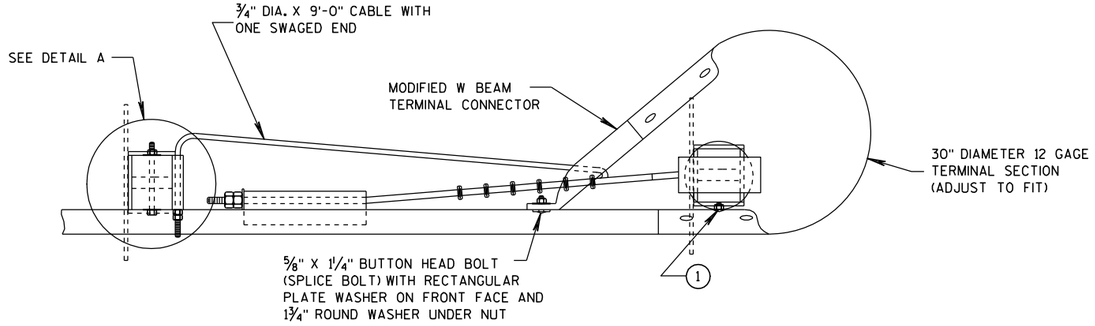
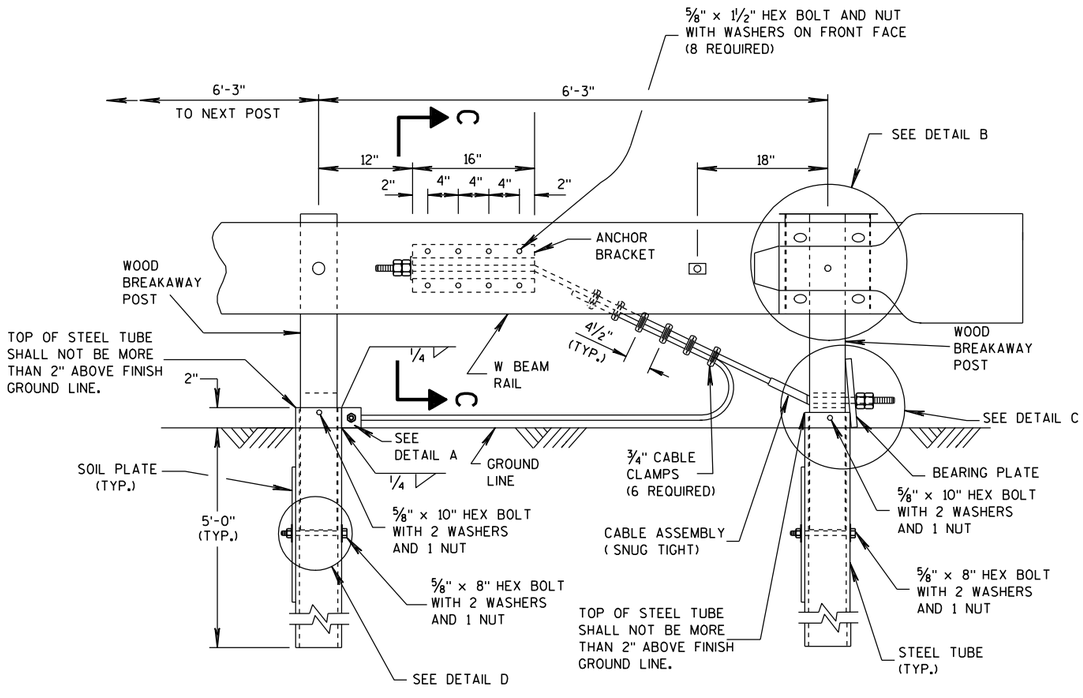
S.D.D. 14 B 27-1a



PLAN VIEW



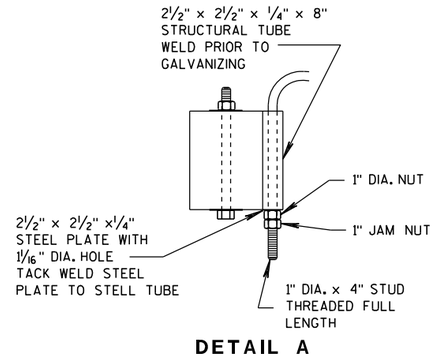
ELEVATION VIEW

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

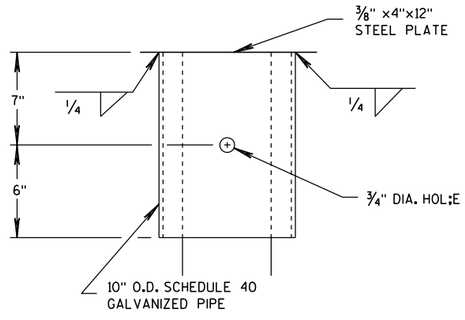
GENERAL NOTES

(1) ATTACH W BEAM RAIL TO THE STEEL PIPE WITH A ⅝" X 2" BUTTON HEAD BOLT WITH NO WASHER. CONNECTION TO THE POST IS NOT REQUIRED.

INSTALL GALVANIZED ¾" (6X19) PREFORMED WIRE OR INDEPENDENT WIRE ROPE CORE CONFORMING TO AASHTO M 30. MANUFACTURE WIRE ROPE OUT OF IMPROVED PLOW STEEL WITH A MINIMUM BREAKING STRENGTH OF 42,800 PSI.



DETAIL A



DETAIL B

(BEAM GUARD AND TERMINAL SECTION NOT SHOWN)

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

S.D.D. 14 B 27-1b

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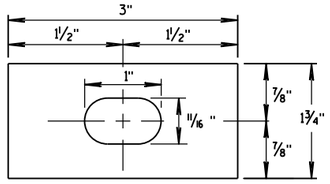
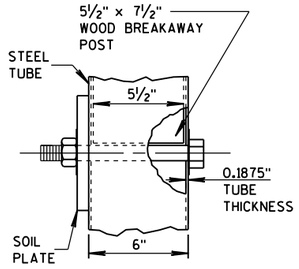
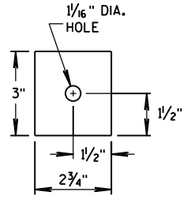
S.D.D. 14 B 27-1b



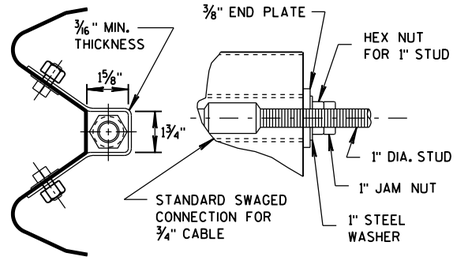
RECTANGULAR PLATE WASHER



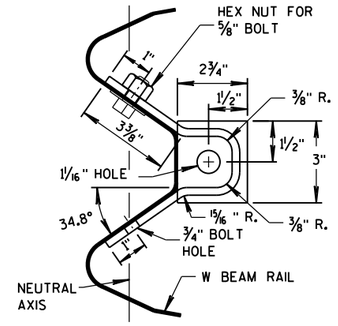
DETAIL D



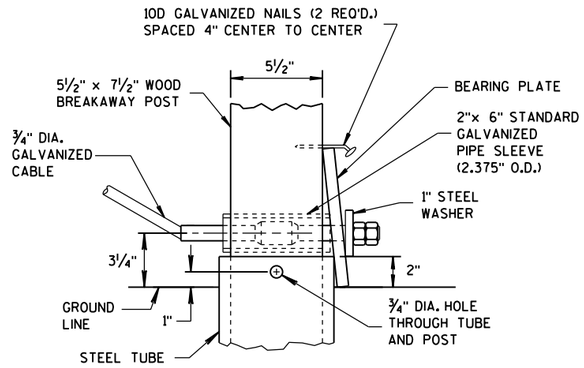
END PLATE



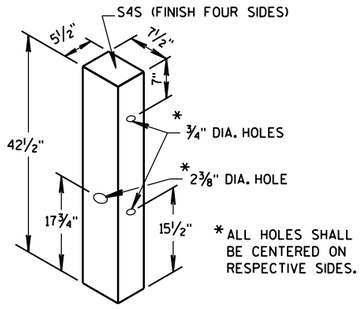
SECTION C-C
(END PLATE REMOVED)



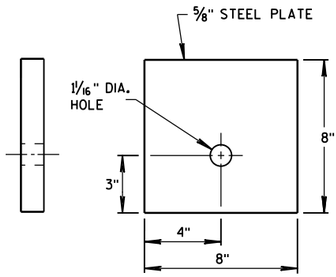
ANCHOR BRACKET



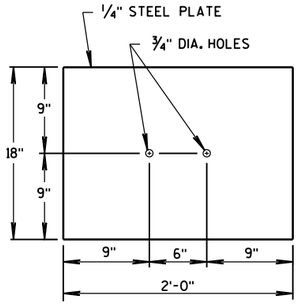
DETAIL C



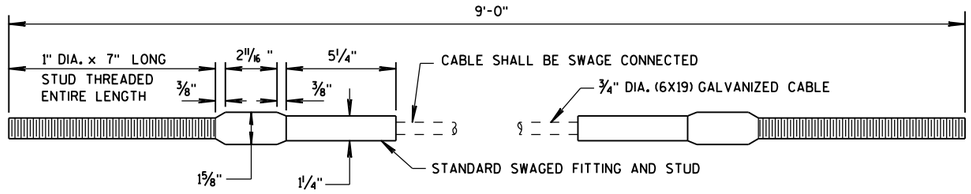
WOOD BREAKAWAY POST



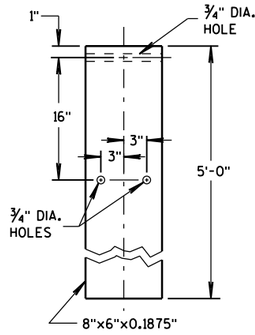
BEARING PLATE



SOIL PLATE



CABLE ASSEMBLY



STEEL TUBE

STEEL PLATE BEAM GUARD
SHORT RADIUS TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
12/18/08 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

6

S.D.D. 14 B 27-1c

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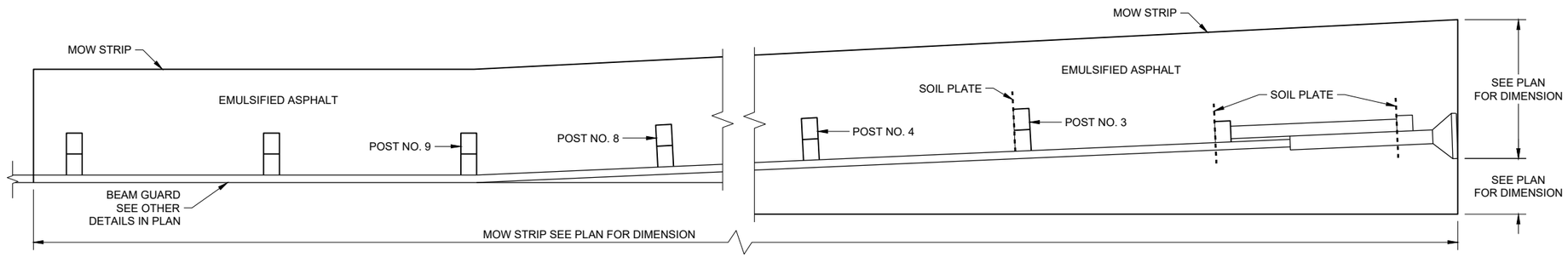
S.D.D. 14 B 27-1c



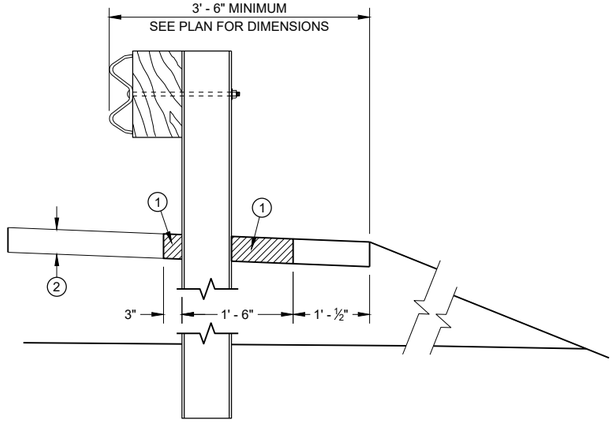
PLAN VIEW

MOW STRIP LAYOUT FOR ENERGY ABSORBING TERMINAL

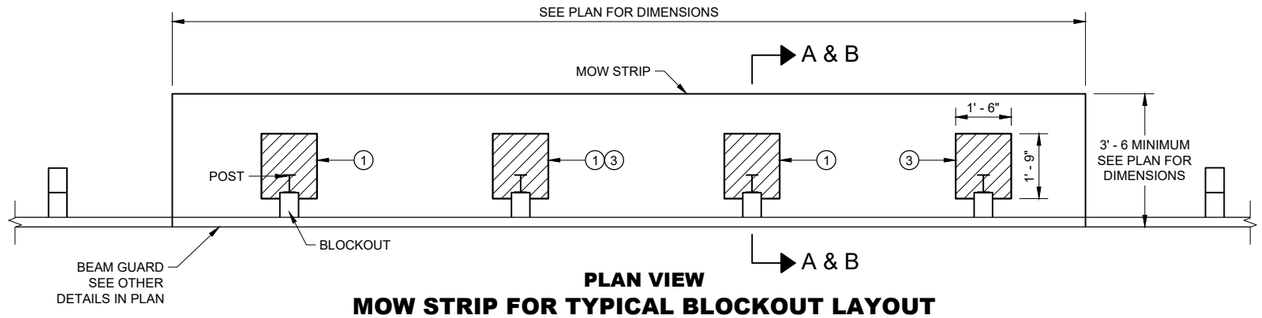
GENERAL NOTES

ONLY USE STEEL POSTS IN CONCRETE AND ASPHALT MOW STRIPS.

1. CONTROLLED LOW-STRENGTH BACKFILL OR EMULSIFIED ASPHALT.
2. DEPTH OF MOW STRIP:
   ASPHALT - 4"
   CONCRETE - 4"
   EMULSIFIED ASPHALT - 1" OR LESS
3. FOR EMULSIFIED ASPHALT, MOW STRIP STRIP LEAVE OUTS NOT REQUIRED. (TYPICAL FOR ALL POSTS)

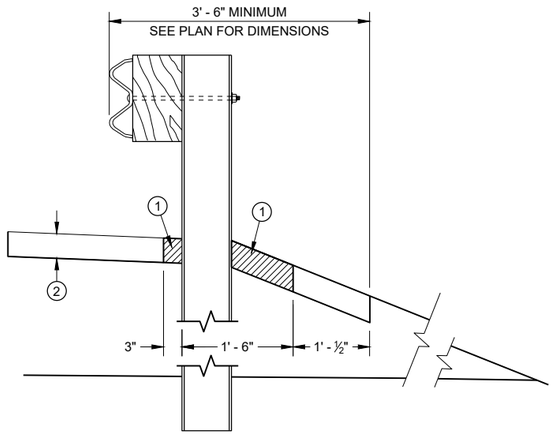


SECTION A - A

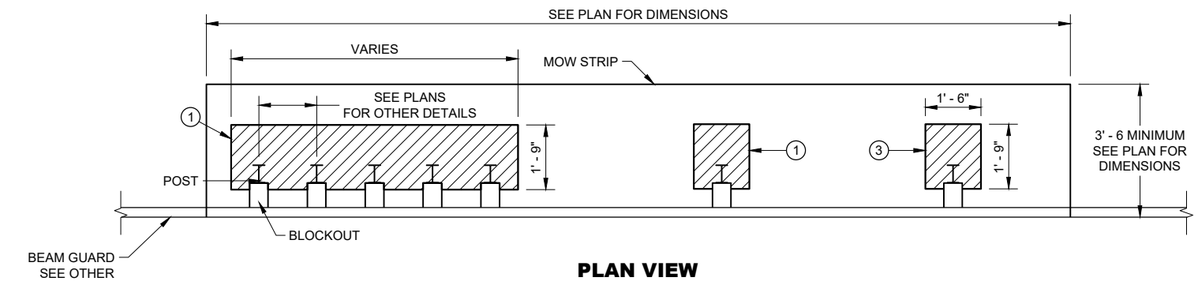


PLAN VIEW

MOW STRIP FOR TYPICAL BLOCKOUT LAYOUT

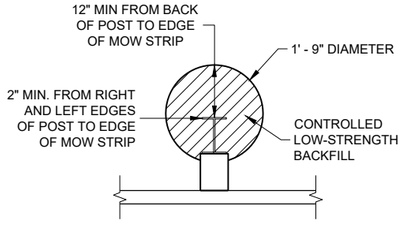


SECTION B - B

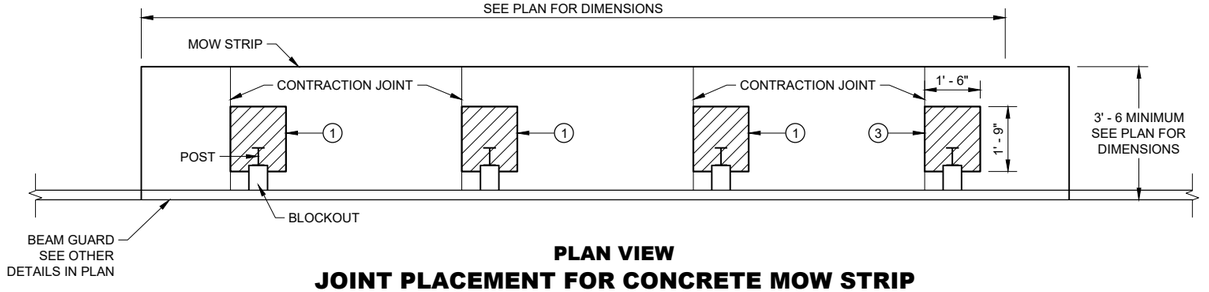


PLAN VIEW

MOW STRIP FOR TIGHT SPACING LAYOUT



ALTERNATIVE HMA MOW STRIP DESIGN



PLAN VIEW

JOINT PLACEMENT FOR CONCRETE MOW STRIP

GUARDRAIL MOW STRIP

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

SDD 14B28 - 04a

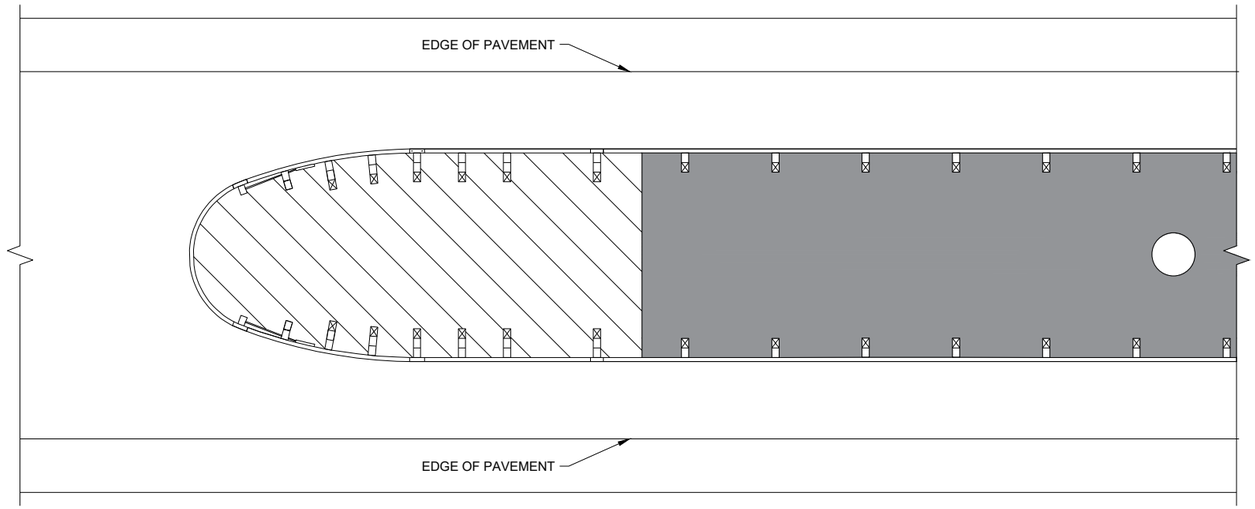
LEGEND

CONCRETE, ASPHALT, OR EMULSIFIED ASPHALT MOW STRIP (SEE OTHER DETAILS)

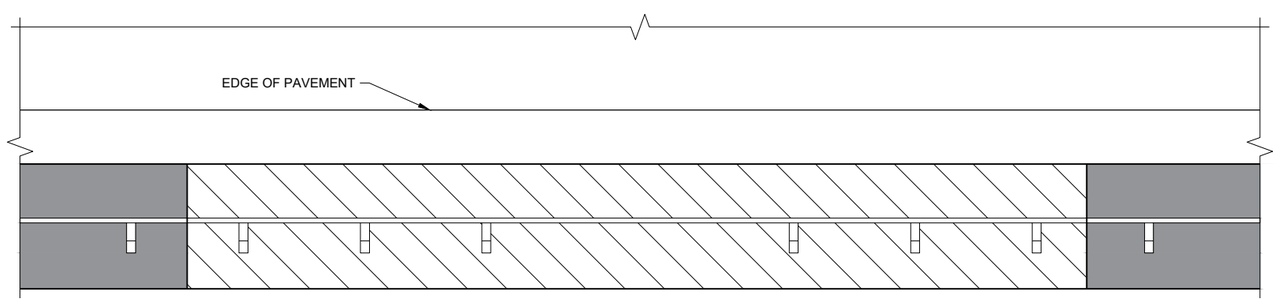
EMULSIFIED ASPHALT MOW STRIP (SEE OTHER DETAILS)

GENERAL NOTES

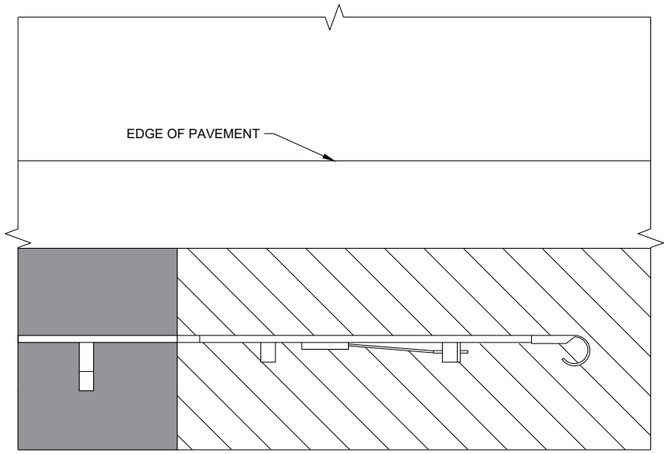
EXISTING THRIE BEAM BULLNOSES MAY HAVE WOOD POSTS. NEW THRIE BEAM BULLNOSE WILL HAVE STEEL POSTS.



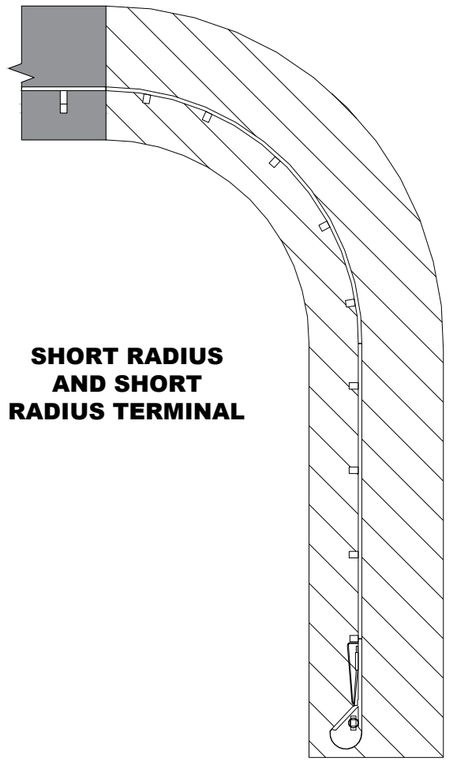
THRIE BEAM BULLNOSE



LONG - SPAN



TYPE 2 TERMINAL



SHORT RADIUS AND SHORT RADIUS TERMINAL

GUARDRAIL MOW STRIP

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
August 2020
DATE

/S/ Rodney Taylor
ROADWAY STANDARDS DEVE
ENGINEER

FHWA

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SDD 14B28 - 04b

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SDD 14B28 - 04b

(1) WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.

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

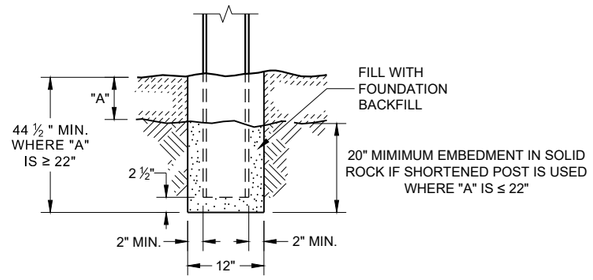
(3) IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2 1/2" INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AMD INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.

(4) WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).

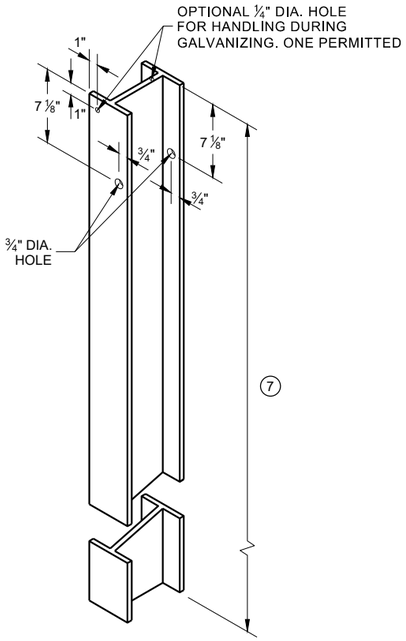
(5) FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS +1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 ¾" TO 32".

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

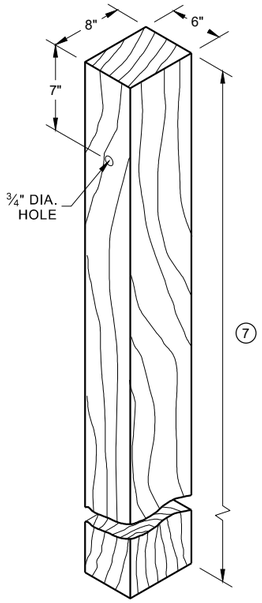
(7) TOTAL POST LENGTH FOR TYPE K IS 7' - 0".
TOTAL POST LENGTH FOR OTHER MGS TYPES IS 6' - 0".



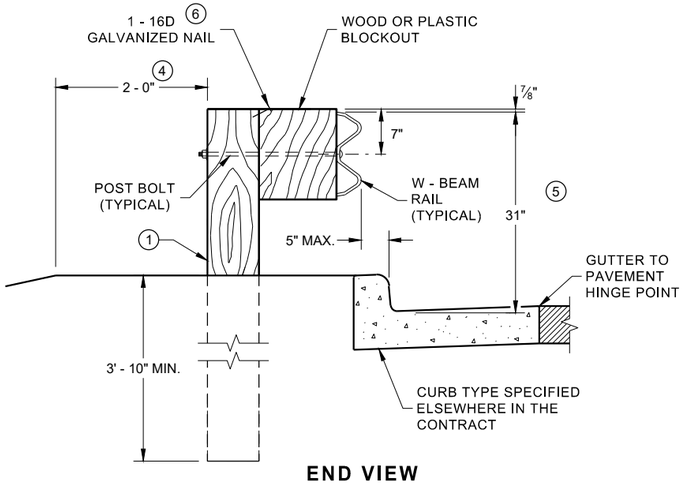
END VIEW
SETTING STEEL OR WOOD POST IN ROCK (3)



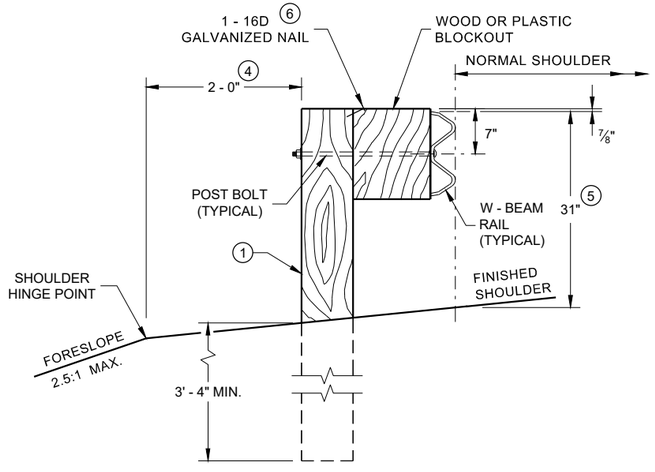
STEEL POST & HOLE PUNCHING DETAIL (W 6 X 9) (1)



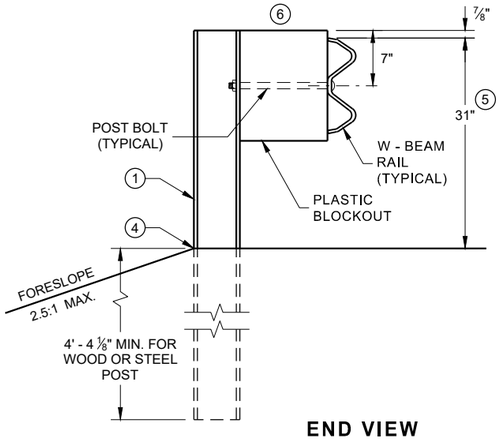
WOOD POST (6" X 8") NOMINAL (1)



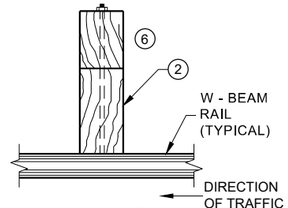
END VIEW
LOCATED ALONG A CURBED ROADWAY



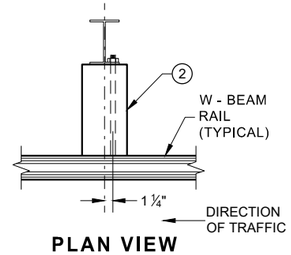
END VIEW
LOCATED ALONG A ROADWAY SHOULDER STANDARD INSTALLATION



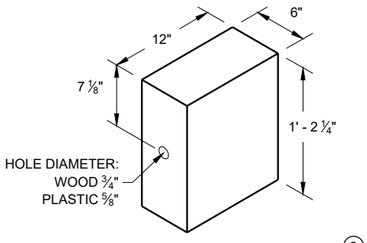
END VIEW
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



PLAN VIEW
WOOD POST, BLOCKOUT & BEAM



PLAN VIEW
STEEL POST, PLASTIC BLOCKOUT & BEAM



WOOD OR PLASTIC BLOCKOUT (2)

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

SDD 14B42 - 06a

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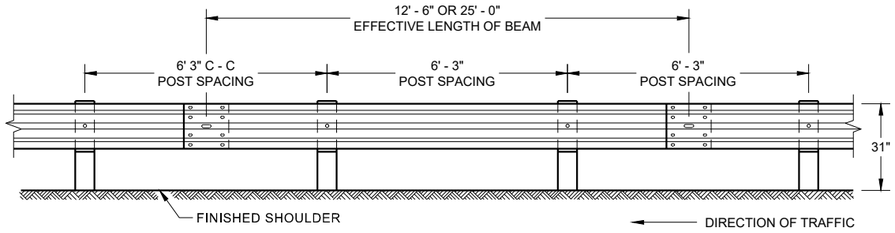
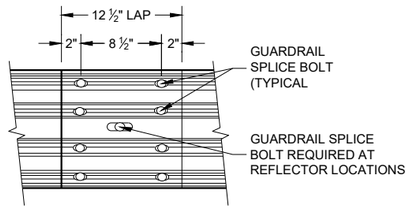
SDD 14B42 - 06a



FRONT VIEW
POST SPACING STANDARD INSTALLATION



FRONT VIEW
MID-SPAN BEAM SPLICE

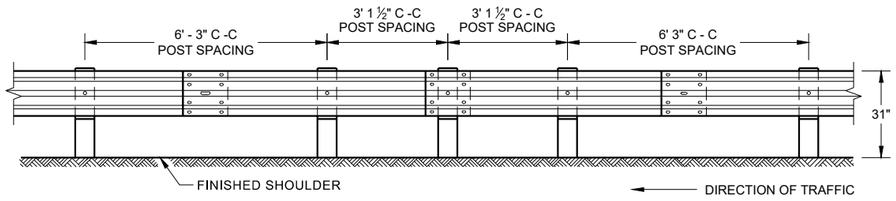
GENERAL NOTES

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

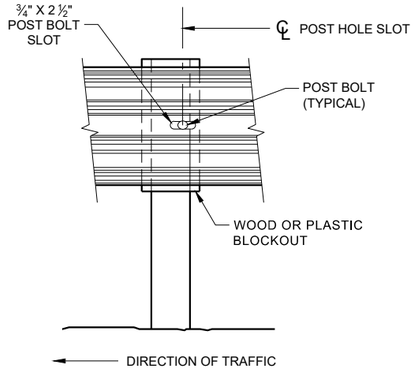
(9) 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.

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

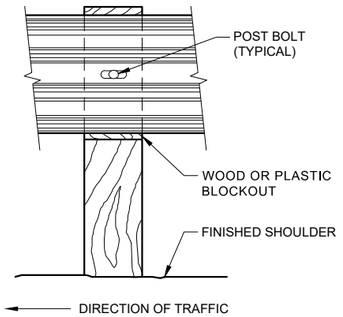
GUARD RAIL SPLICE BOLTS ARE A ⅝" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES ⅝" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



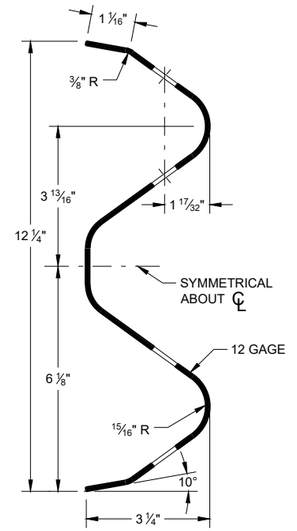
FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)



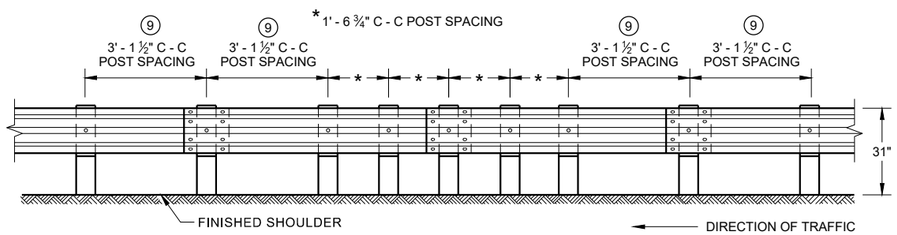
FRONT VIEW AT STEEL POST



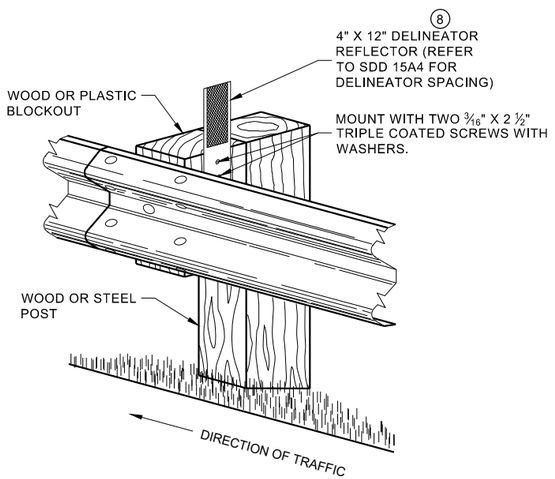
FRONT VIEW AT WOOD POST



SECTION THRU W-BEAM RAIL



FRONT VIEW
QUARTER POST SPACING (QS)



ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTA

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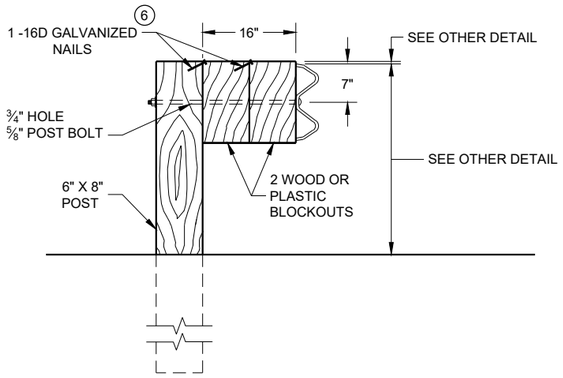
SDD 14B42 - 06b

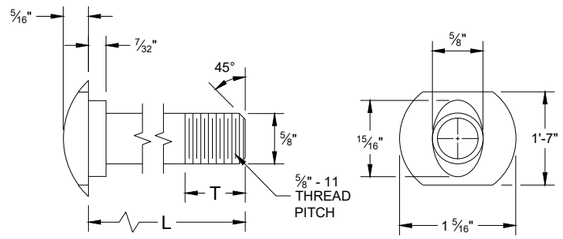


DETAIL FOR 16" BLOCKOUT DEPTH

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

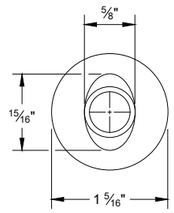
NOTE:

1. ALL FILLETS SHALL HAVE A MINIMUM RADIUS OF 3⁄16".
2. IF THE BOLT EXTENDS MORE THAN ¼" FROM THE NUT THE BOLT SHOULD BE TRIMMED BACK.

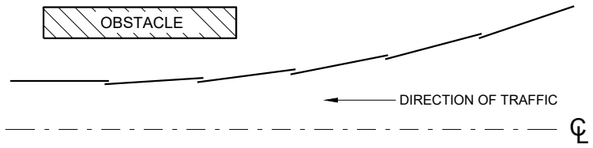


POST BOLT TABLE

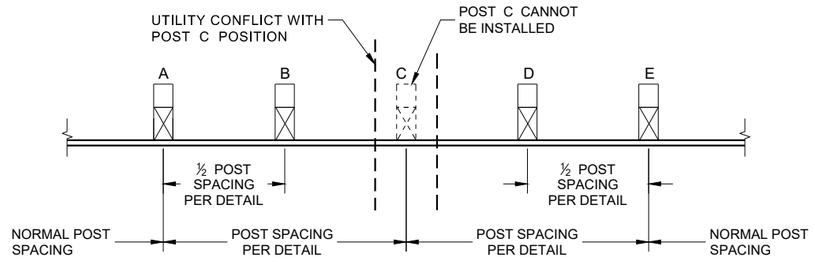
L	T (MIN.)
1 ¼"	1 ⅛"
2"	1 ¾"
10"	4"
14"	4 1⁄16"
18"	4"
21"	4 1⁄16"
25"	4"



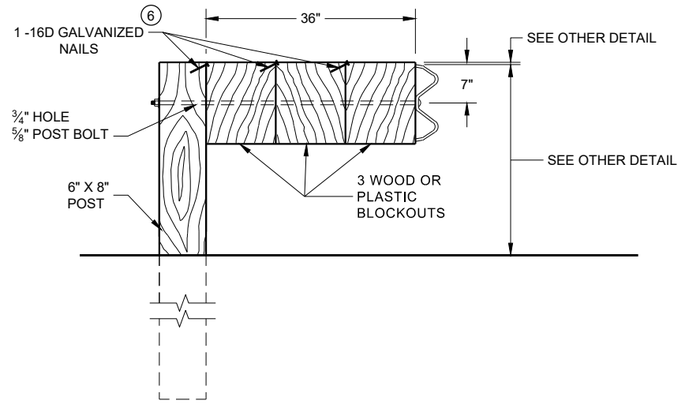
ALTERNATE BOLT HEAD



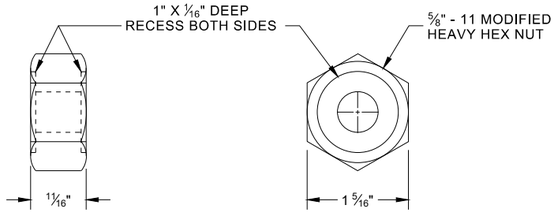
PLAN VIEW
BEAM LAPPING DETAIL



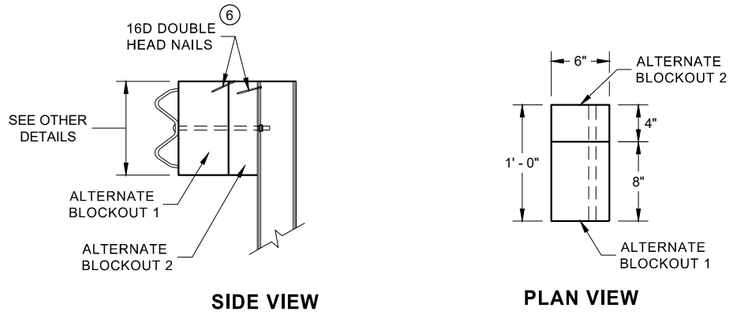
POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



DETAIL FOR 36" BLOCKOUT DEPTH



POST BOLT, SPLICE BOLT AND RECESS NUT



SIDE VIEW

PLAN VIEW

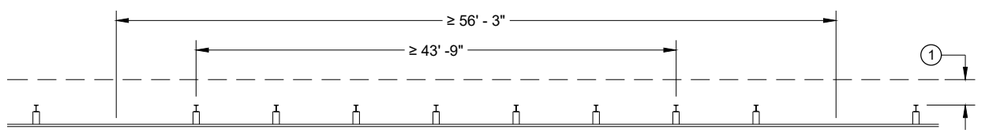
ALTERNATE WOOD BLOCKOUT DETAIL

NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.

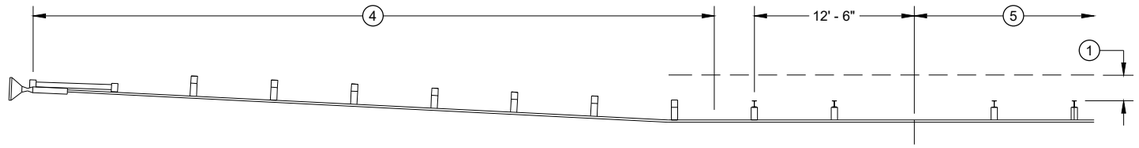
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

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

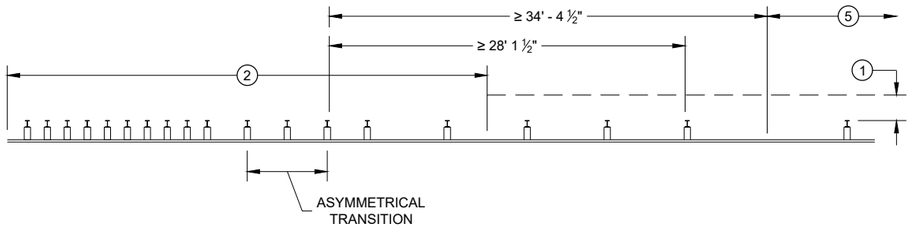
MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL



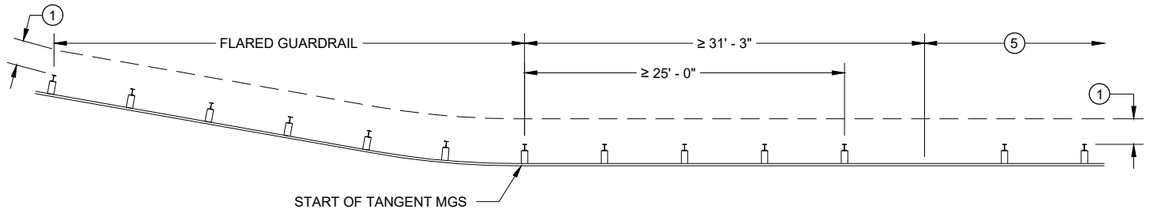
MISSING POST IN NORMAL BEAM GUARD RUN



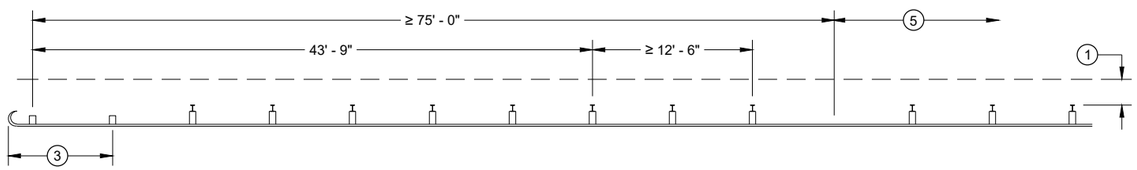
MISSING POST IN NORMAL BEAM GUARD RUN NEAR EAT



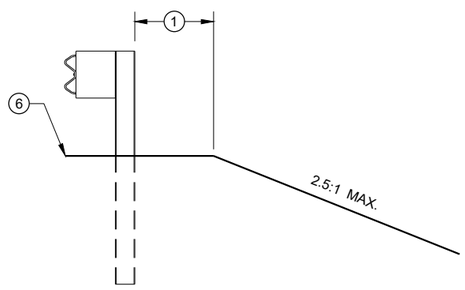
MISSING POST NEAR APPROACH THRIE BEAM TRANSITION



MISSING POST IN NORMAL BEAM GUARD RUN NEAR FLARED BEAM GUARD



MISSING POST IN NORMAL BEAM GUARD RUN NEAR TYPE 2 TERMINAL



CROSS SECTION VIEW

1. MINIMUM OF 2 FEET OF GRADING BEHIND POST.
2. SEE SDD 14B45 FOR MORE DETAILS.
3. SEE SDD 14B47 FOR MORE DETAILS.
4. SEE SDD 14B44 FOR MORE DETAILS.
5. SEE MISSING POST IN NORMAL BEAM GUARD RUN FOR DISTANCE TO NEXT MISSING POST AND AREA FOR WELL DRAINED, COMPACTED SOILS.
6. SEE PLAN FOR SHOULDER DESIGN.

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

SDD 14B42 - 06d

SDD 14B42 - 06d

GENERAL NOTES

(A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL) AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.

(B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED

(C) DIFFERENT MANUFACTURERS REQUIRE DIFFERENT PERFORATED W - BEAM RAIL END PANELS. SEE MANUFACTURER'S INFORMATION.

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

(E) HARDWARE MAY VARY BETWEEN MANUFACTURER. SEE MANUFACTURER'S DRAWING FOR INFORMATION.

DIMENSIONS MAY VARY, MANUFACTURER'S INFORMATION.

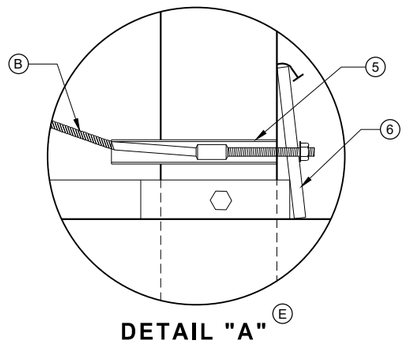
SEE SDD 14B42 FOR MORE INFORMATION.

* DO NOT ATTACH BLOCKOUTS TO POST 1 AND 2.

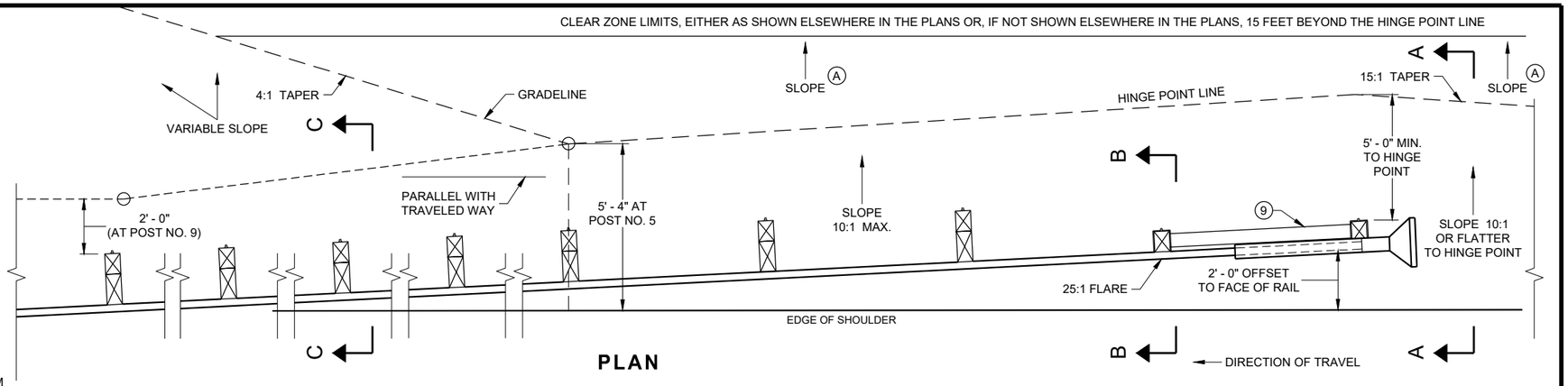
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

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

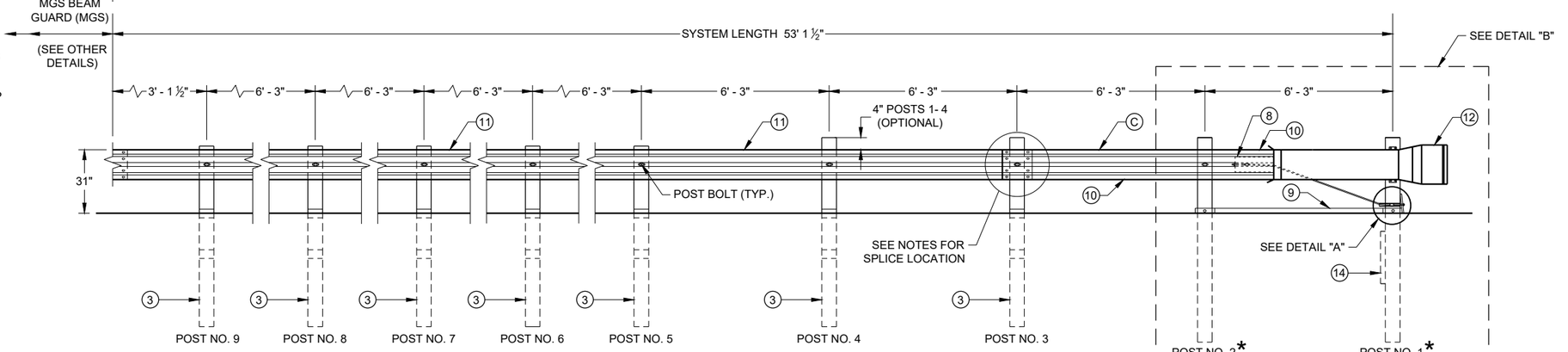
THE CENTER OF THE UPPER 3 ½" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE. WOOD BLOCKS ON POSTS NUMBERED 3 THROUGH 9 MAY BE ADJUSTED UP TO 3" ABOVE THE TOP OF POST.



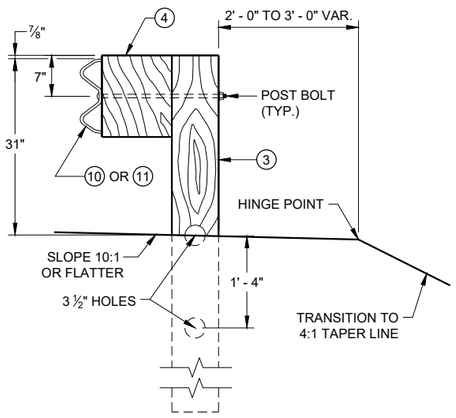
DETAIL "A" (E)



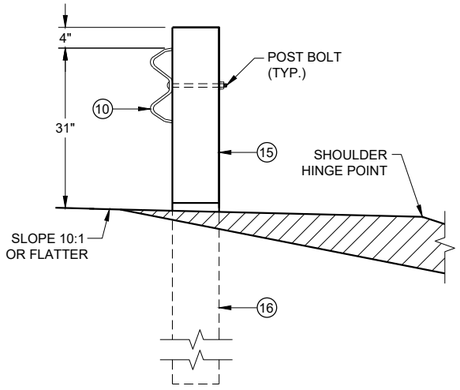
PLAN



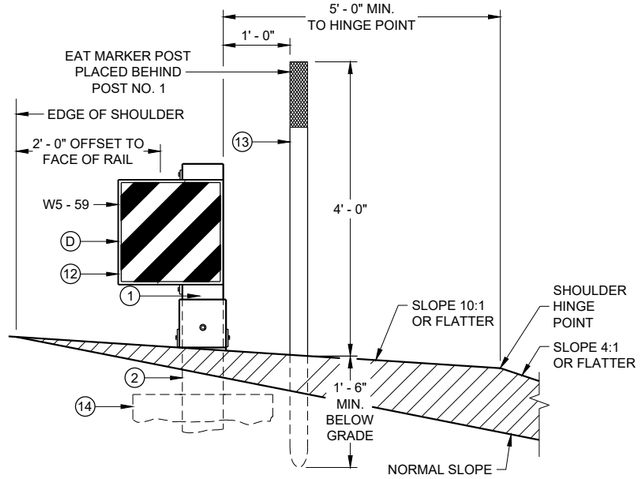
ELEVATION



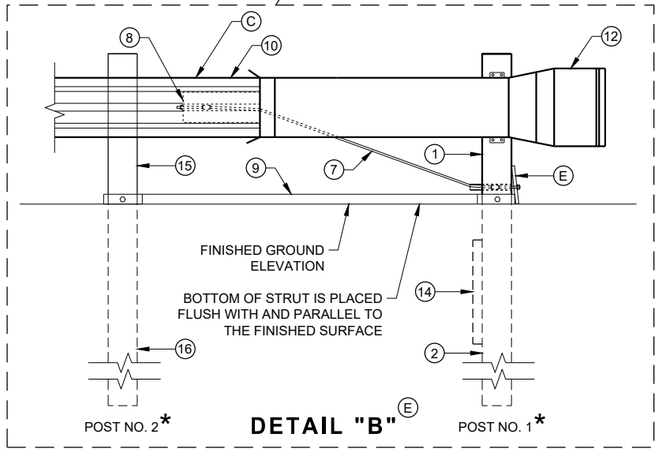
SECTION C - C
TYPICAL AT POST NOS. 3 - 9



SECTION B - B
TYPICAL AT POST NO. 2*



SECTION A - A
TYPICAL AT POST NO. 1*



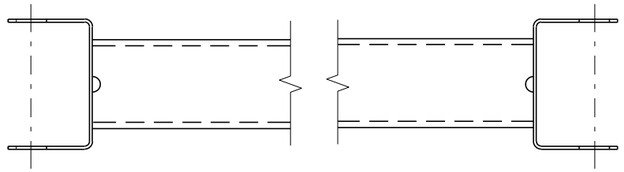
DETAIL "B" (E)

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

SDD 14B44 - 04a

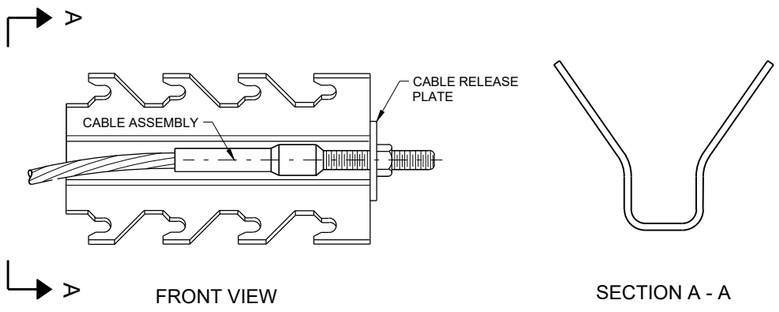
SDD 14B44 - 04a



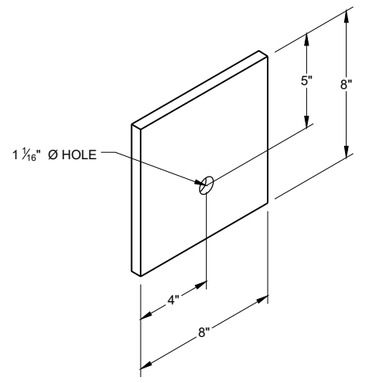
GENERIC GROUND STRUT ⑨ Ⓔ

BILL OF MATERIALS

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



GENERIC ANCHOR CABLE BOX ⑧ Ⓔ



BEARING PLATE ⑥ Ⓔ

6

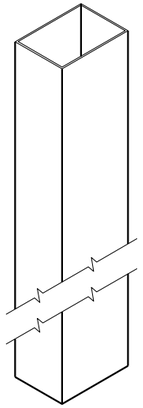
6

SDD 14B44 - 04b

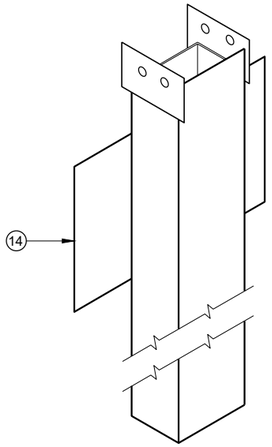
SDD 14B44 - 04b

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

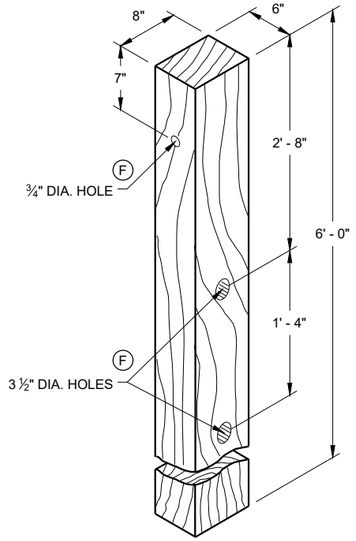
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTA



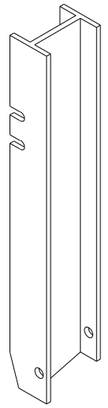
UPPER POST NO. 1 (1) (E)



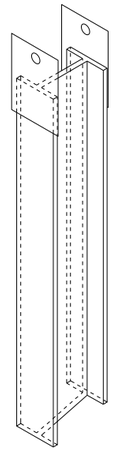
LOWER POST NO. 1 (2) (E)



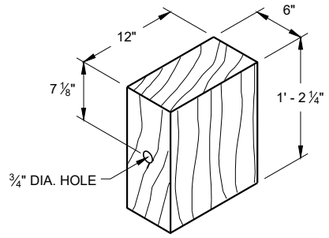
WOOD CRT POST (3) (E)
POSTS NUMBER 3-9



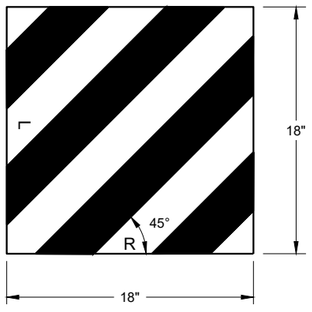
UPPER POST NO. 2 (15) (E)



LOWER POST NO. 2 (16) (E)

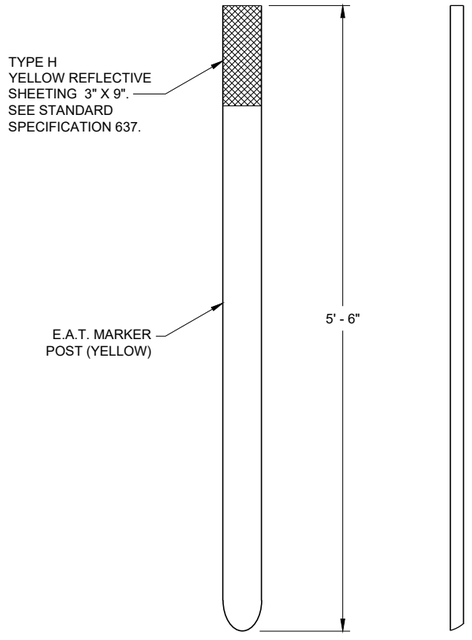


WOOD BLOCKOUT (4)
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



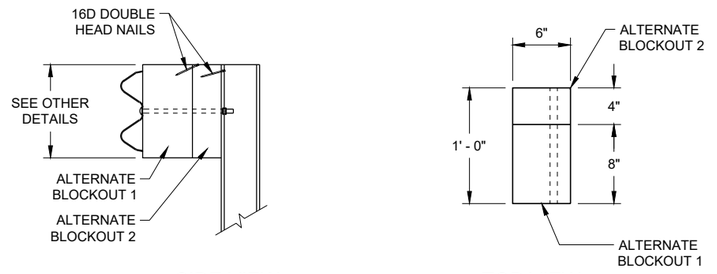
W5 - 59

REFLECTIVE SHEETING DETAIL (E)



FRONT VIEW SIDE VIEW

E.A.T. MARKER POST (13)



SIDE VIEW TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)

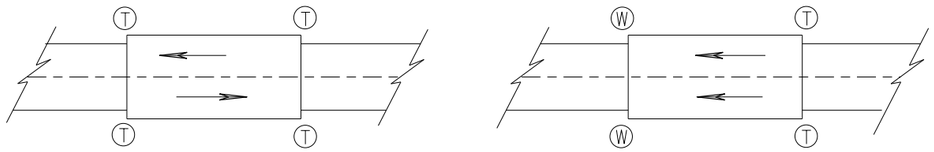
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

6

SDD 14B44 - 04c



TWO WAY TRAFFIC

ONE WAY TRAFFIC

(T) THRIE BEAM CONNECTION

(W) W-BEAM CONNECTION WHEN REQUIRED

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

GENERAL NOTES

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

TRANSITION USES STEEL POSTS ONLY.

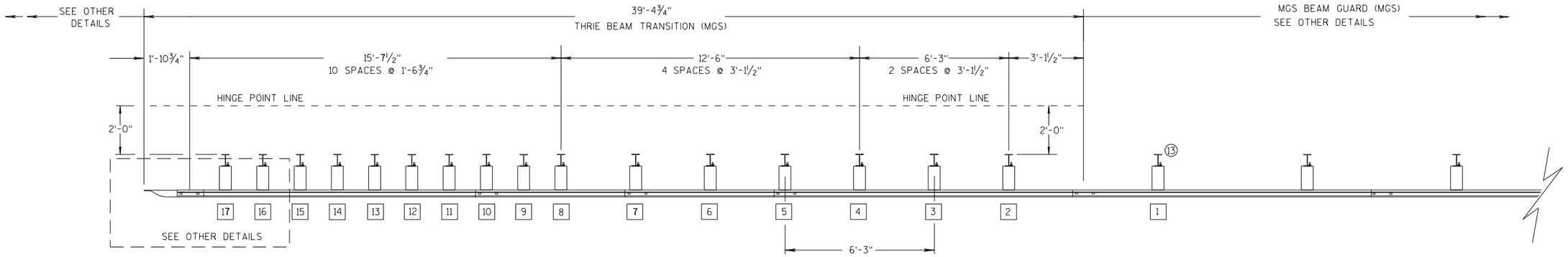
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

POST 2 THROUGH 17 USES STEEL POST ONLY

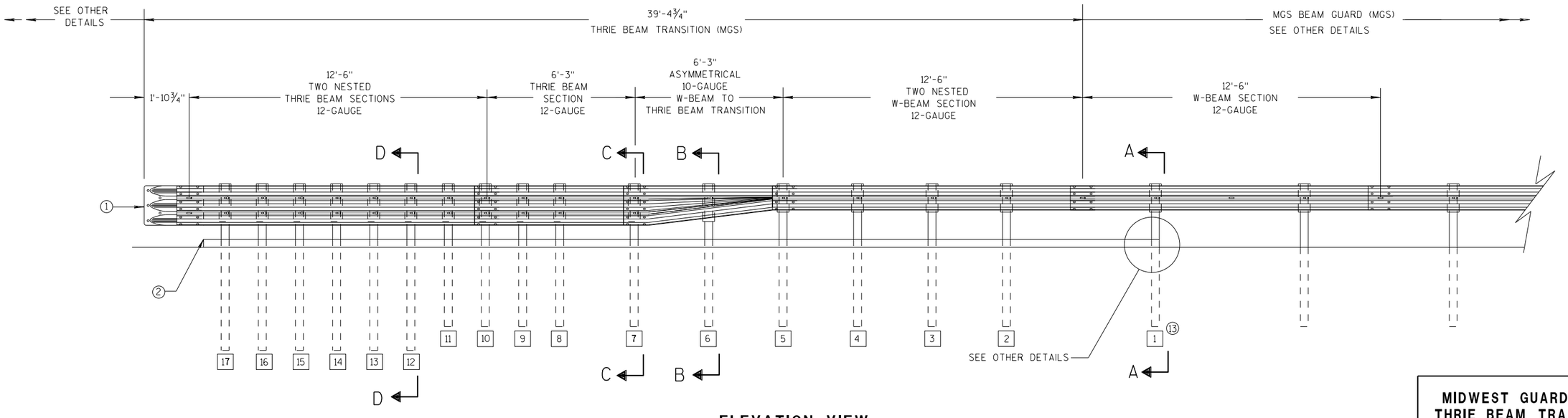
(1) BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.

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

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



PLAN VIEW



ELEVATION VIEW

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

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

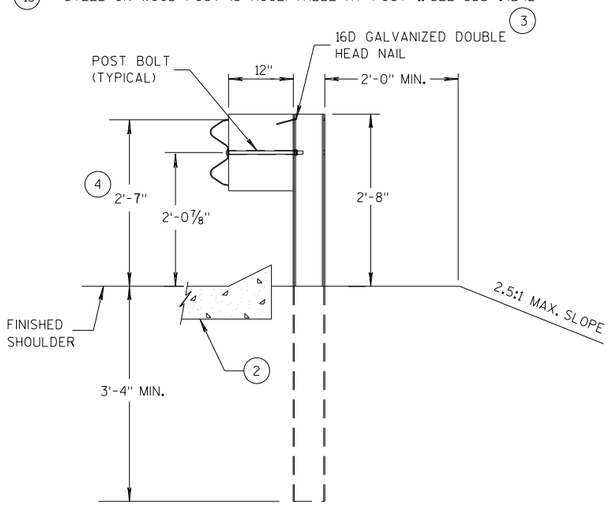
GENERAL NOTES

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

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

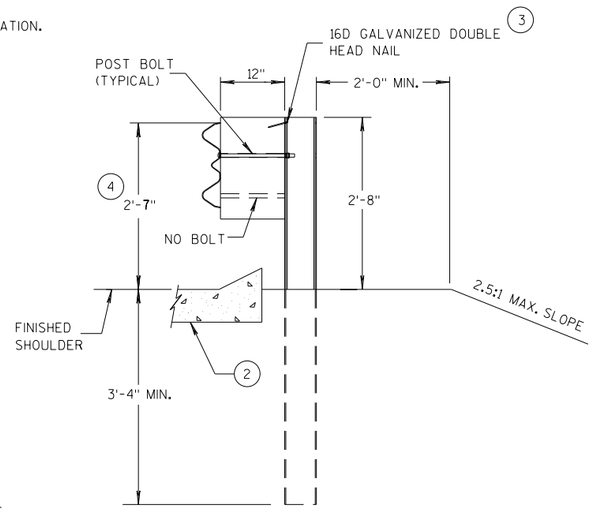
(4) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".

(13) STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42



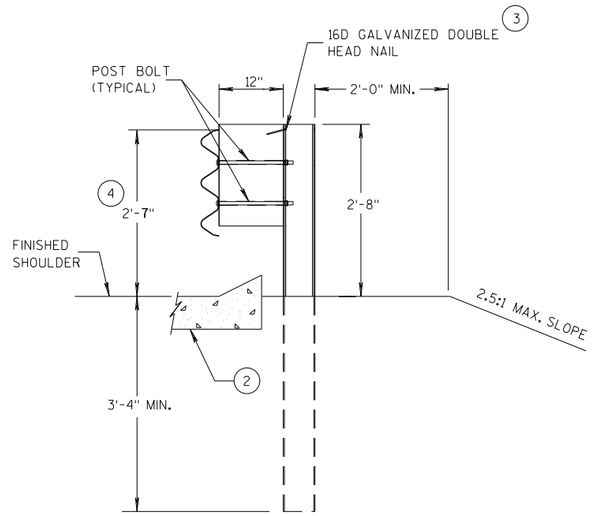
SECTION A-A (13)

POSTS 1-5



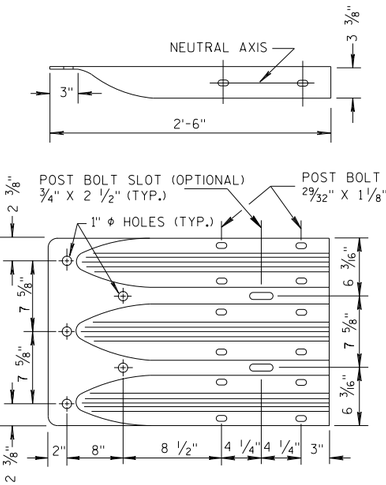
SECTION B-B

POST 6

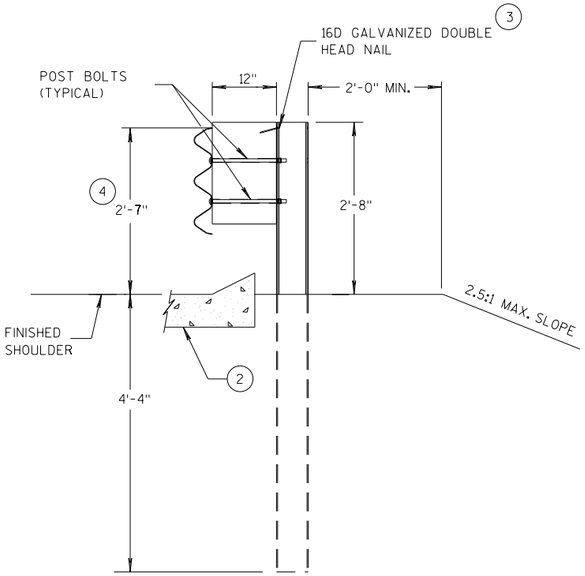


SECTION C-C

POSTS 7-11

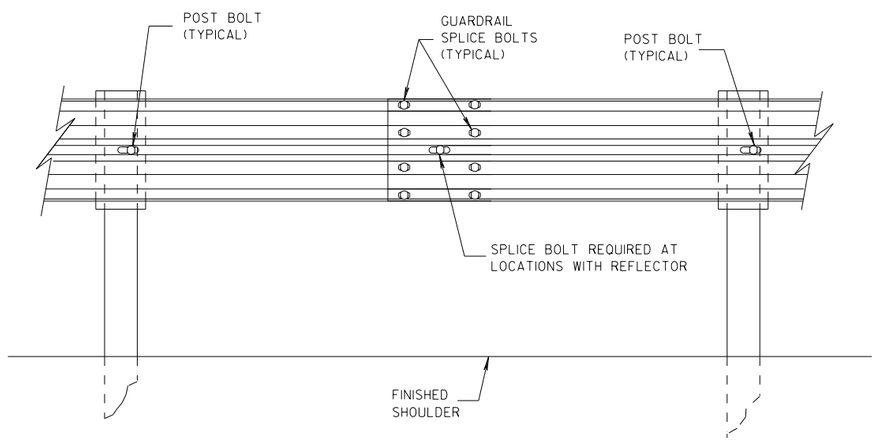


THRIE BEAM TERMINAL CONNECTOR



SECTION D-D

POSTS 12-17



SPLICE DETAIL

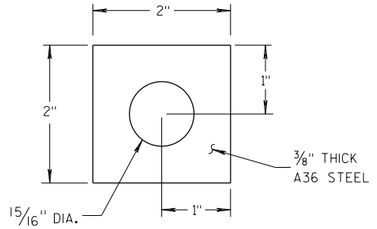
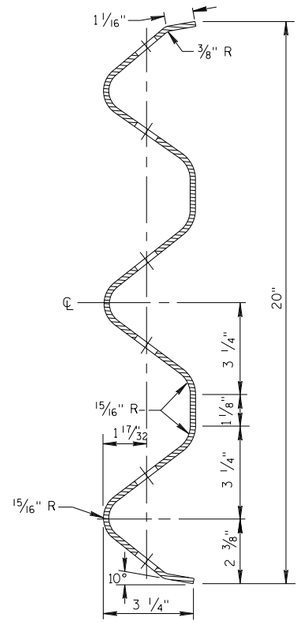


PLATE WASHER DETAIL



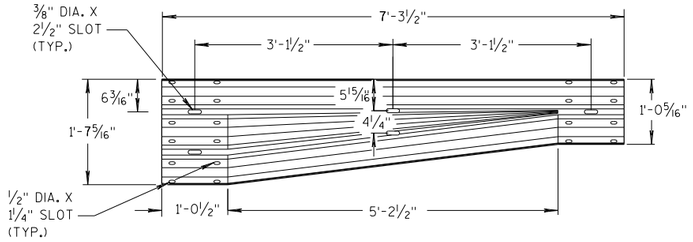
SECTION THRU THRIE BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

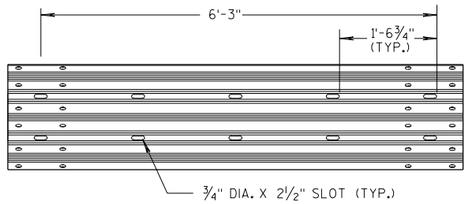
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOF

6

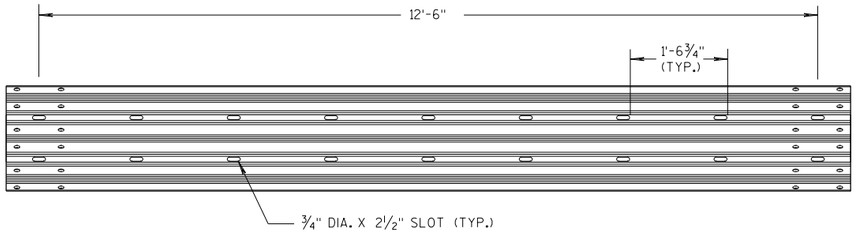
S.D.D. 14 B 45-5b



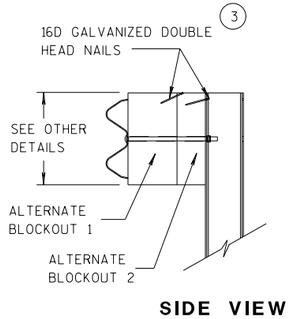
W-BEAM TO THRIE BEAM TRANSITION SECTION



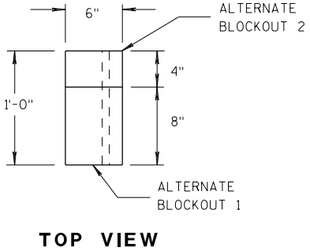
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

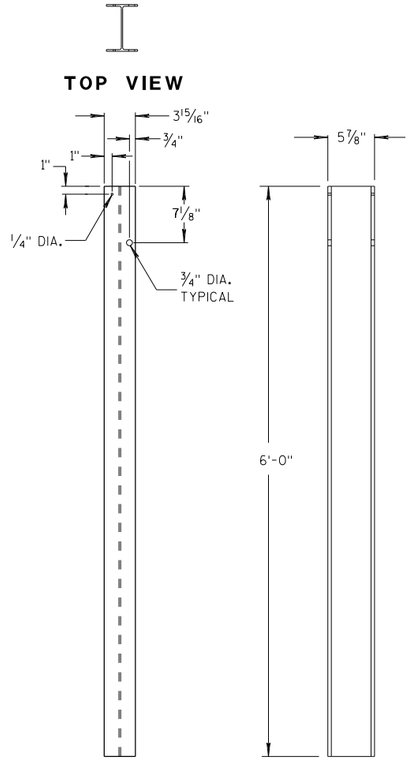


SIDE VIEW



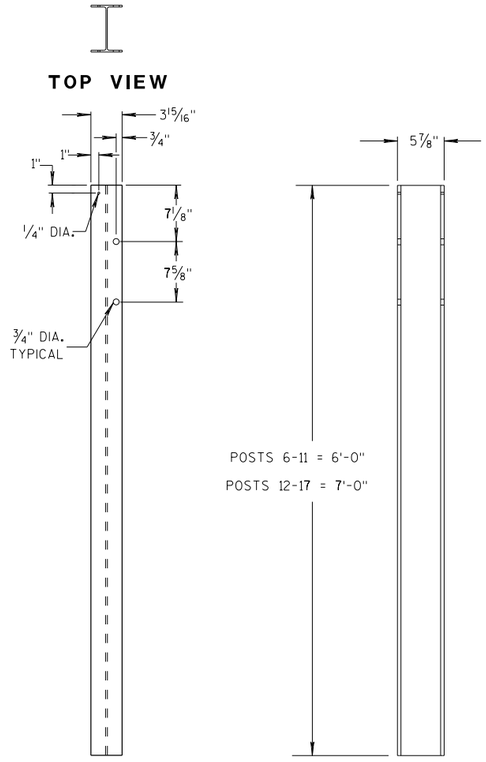
TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL



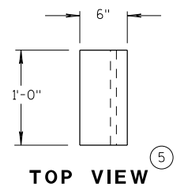
FRONT VIEW SIDE VIEW

STEEL POSTS 1-5 (13)

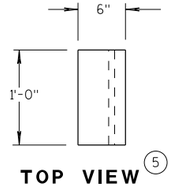


FRONT VIEW SIDE VIEW

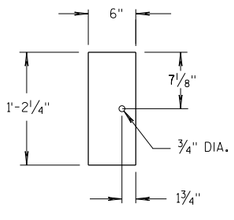
STEEL POSTS 6-17



TOP VIEW (5)

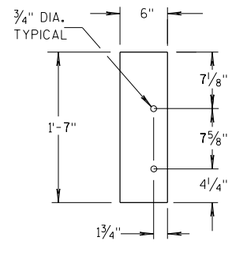


TOP VIEW (5)



FRONT VIEW

BLOCKOUT POSTS 1-5



FRONT VIEW

BLOCKOUT POSTS 6-17

GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

BOLT HOLES FOR POST ARE ON FRONT AND OF SIDE OF POST.

(3) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

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

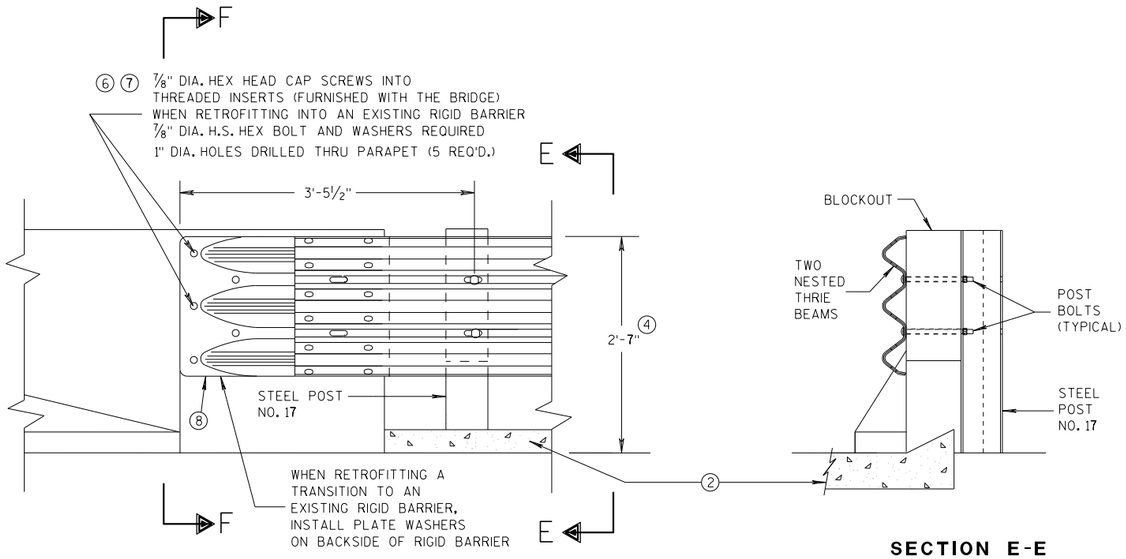
(13) STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42.

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOF

6

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



FRONT VIEW

SECTION E-E

THRIE BEAM CONNECTION TO BRIDGE PARAPET WITH SQUARE ENDS

GENERAL NOTES

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

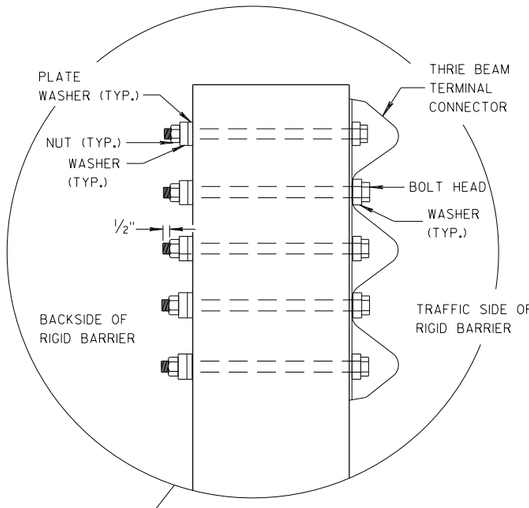
② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

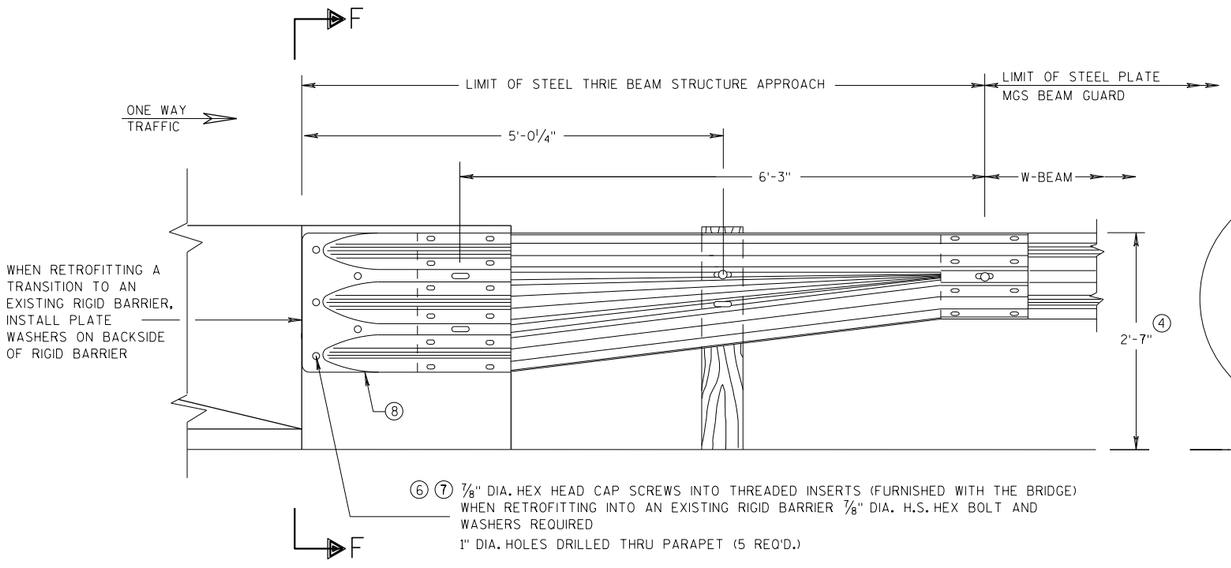
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

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

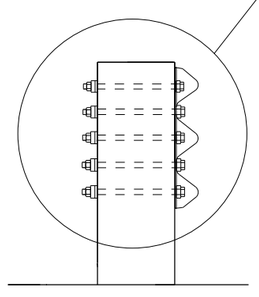
⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

⑧ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".

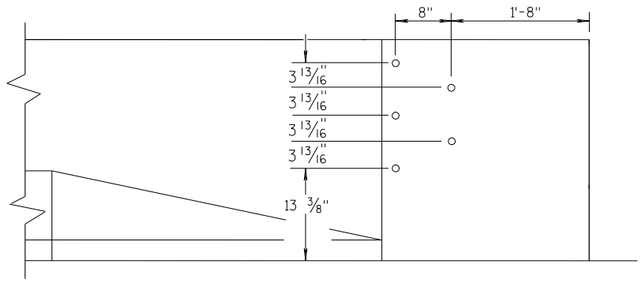




FRONT VIEW



SECTION F-F



DRILL HOLE LOCATION

W BEAM TRANSITION AND CONNECTION TO BRIDGE PARAPETS WITH SQUARE ENDS

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

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
07/2018 — DATE
/S/ Rodney Taylor — ROADWAY STANDARDS D[illegible] UNIT SUPERVIS[illegible] — NT
FHWA

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

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

GENERAL NOTES

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

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

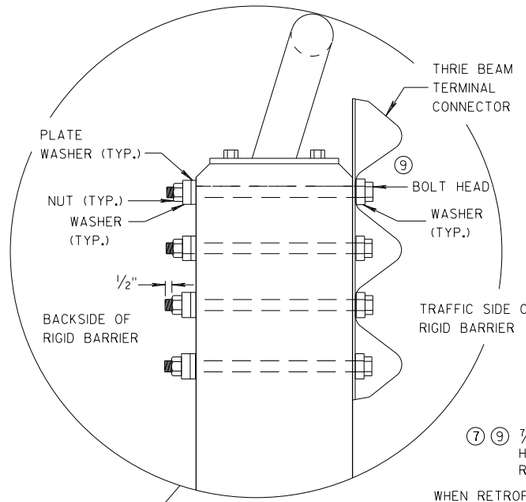
(4) TOLERANCE FOR TOP OF BEAM IS ± 1".

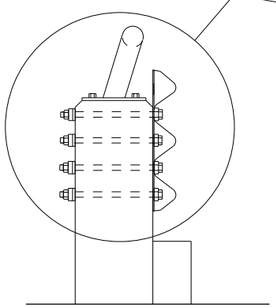
(6) DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

(7) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

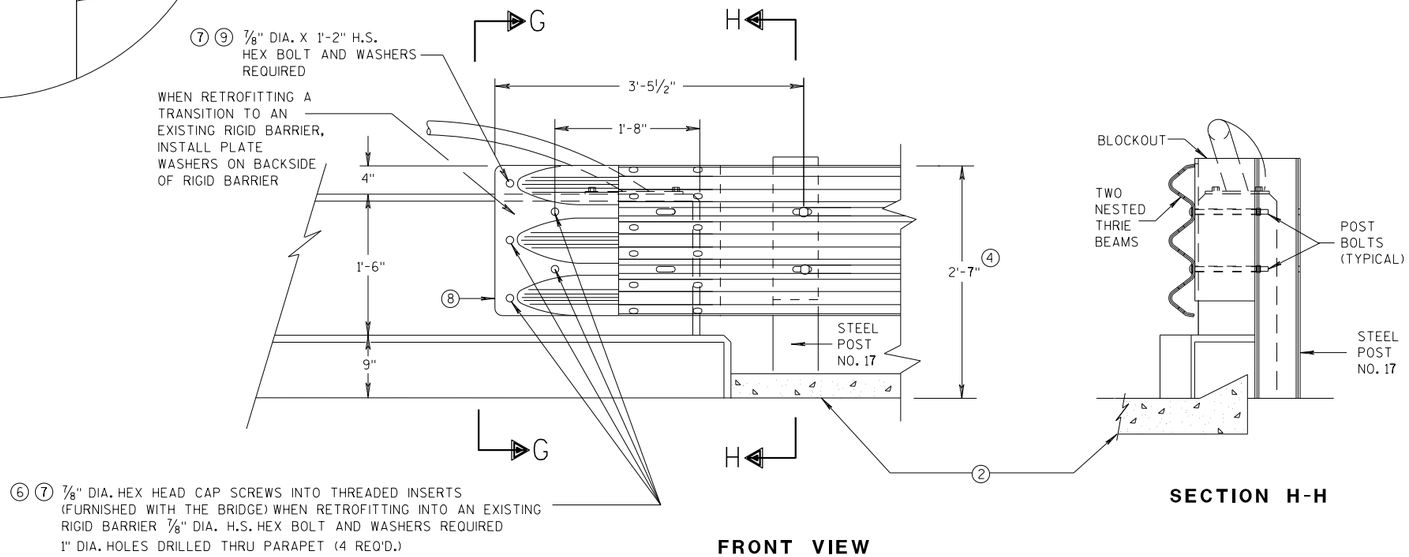
(8) THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 ½".

(9) BOLT, NUT AND WASHERS NOT REQUIRED FOR THIS LOCATION WHEN RETROFITTING AN EXISTING PAPAPET AND THE HOLE IS EITHER ABOVE PARAPET OR WITHIN 4 INCHES OF THE EDGE OF PARAPET.





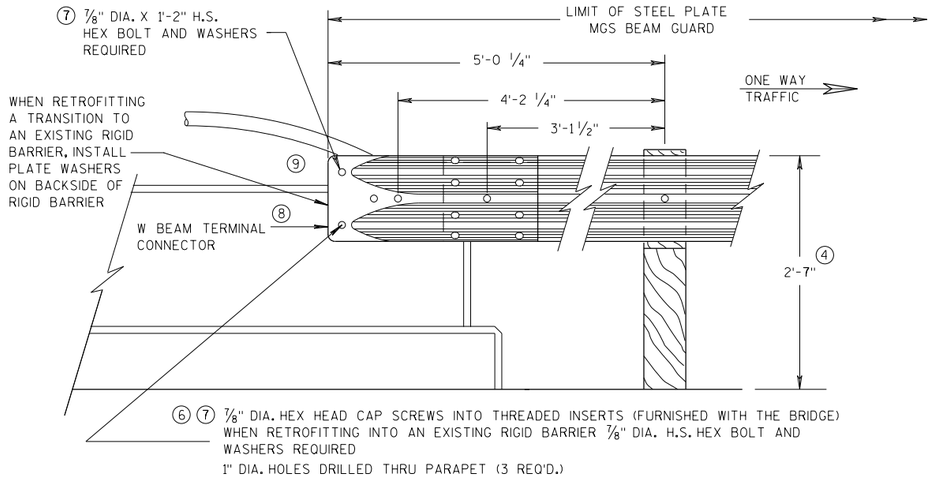
SECTION G-G



FRONT VIEW

SECTION H-H

THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS



FRONT VIEW

W BEAM CONNECTION TO VERTICAL FACE PARAPET

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

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
07/2018 — DATE
/S/ Rodney Taylor
ROADWAY STANDARDS D UNIT SUPERVIS NT
FHWA

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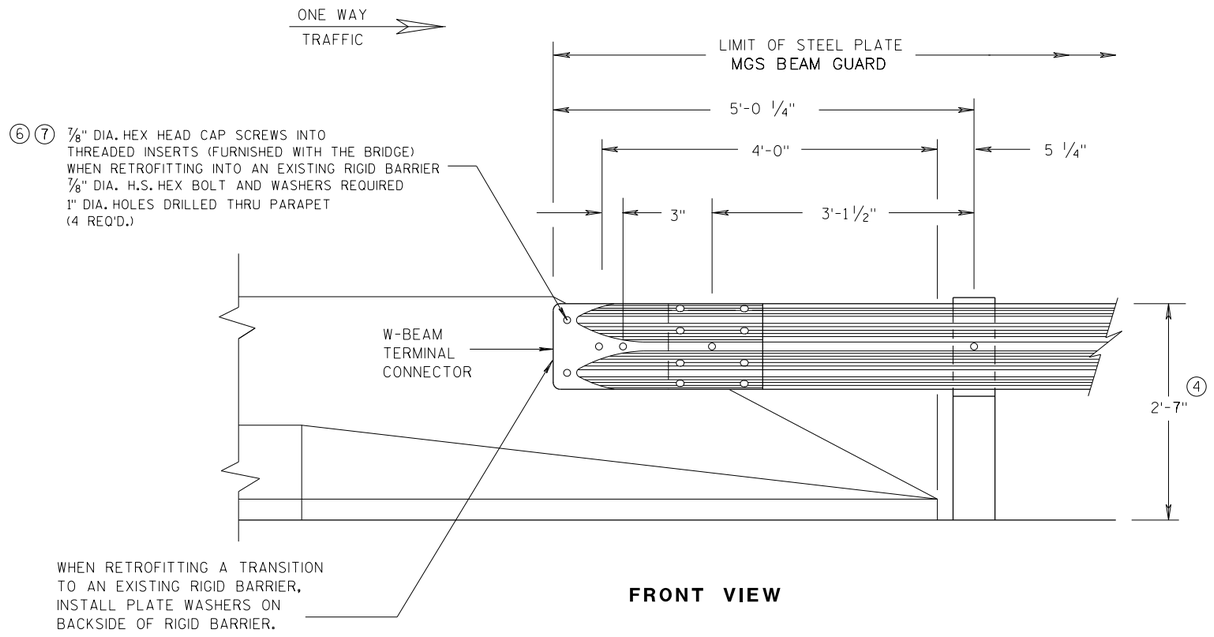


FRONT VIEW

W BEAM CONNECTION TO PARAPETS WITH SLOPED ENDS

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

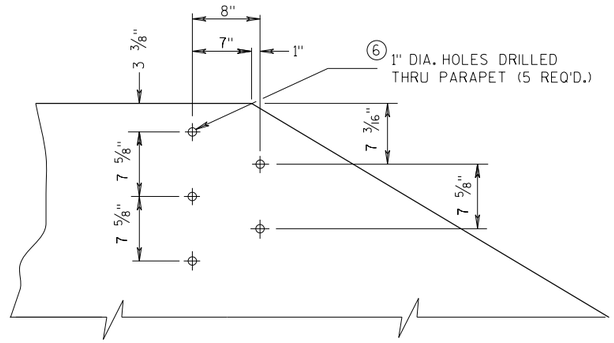
GENERAL NOTES

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

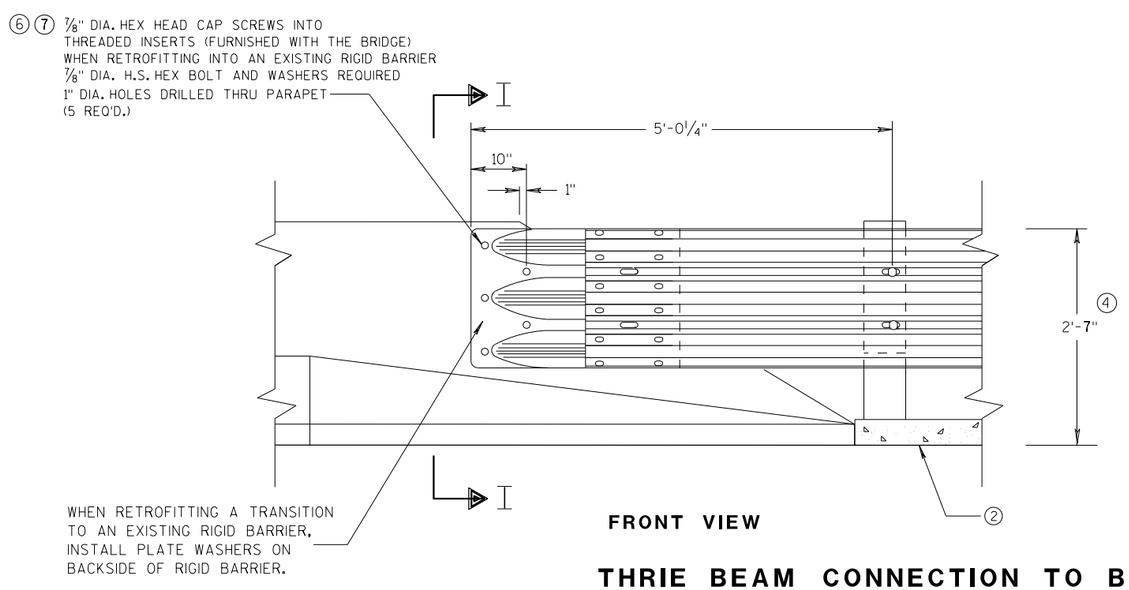
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

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

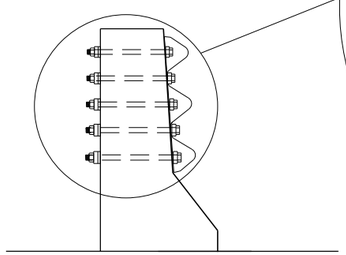
⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



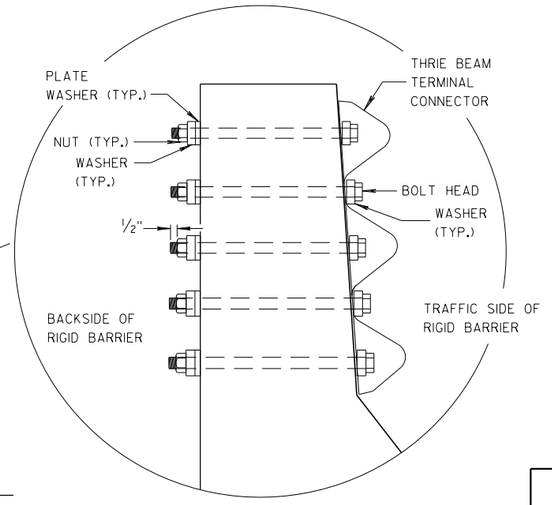
DRILL HOLE LOCATION AND PATTERN FOR THRIE BEAM CONNECTION



FRONT VIEW



SECTION I-I



THRIE BEAM CONNECTION TO BRIDGE PARAPETS WITH SLOPED ENDS

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
07/2018 — DATE
/S/ Rodney Taylor
ROADWAY STANDARDS [illegible] UNIT SUPERVI[illegible]ENT
FHWA

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

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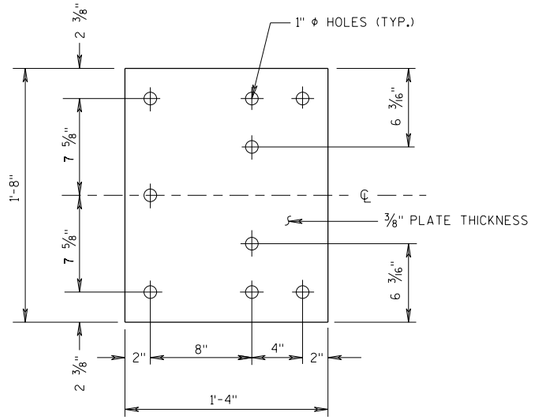
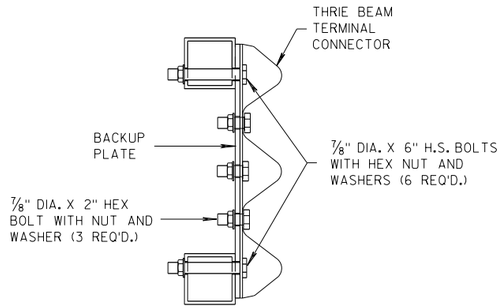
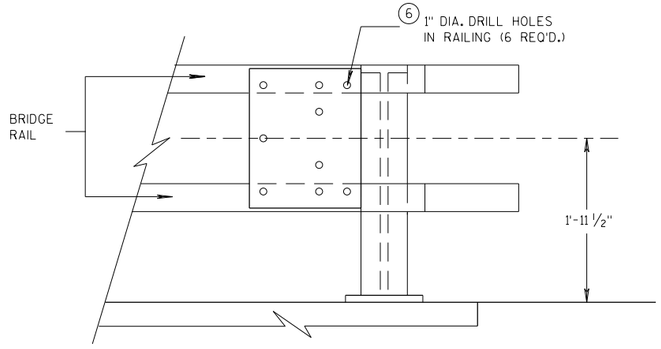


BACK-UP PLATE DETAIL



SECTION J-J

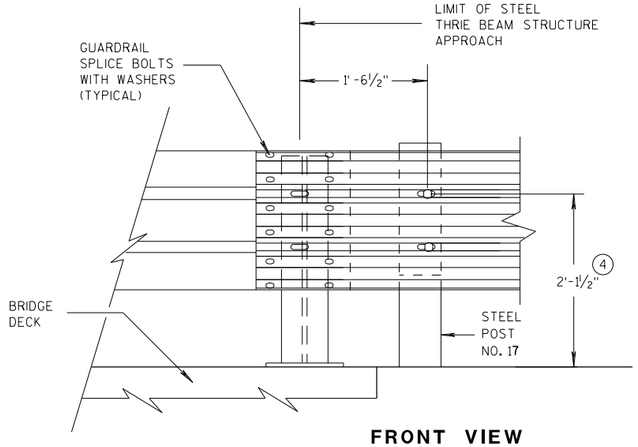


BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING

GENERAL NOTES

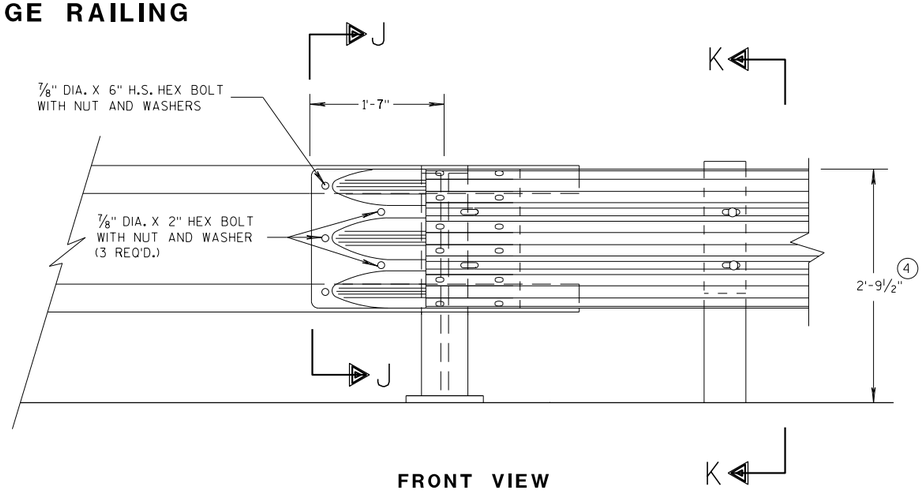
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

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

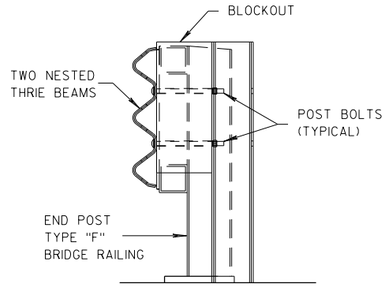


FRONT VIEW

THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"



FRONT VIEW



SECTION K-K

THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED 07/2018 — DATE
FHWA

/S/ Rodney Taylor — ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR

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

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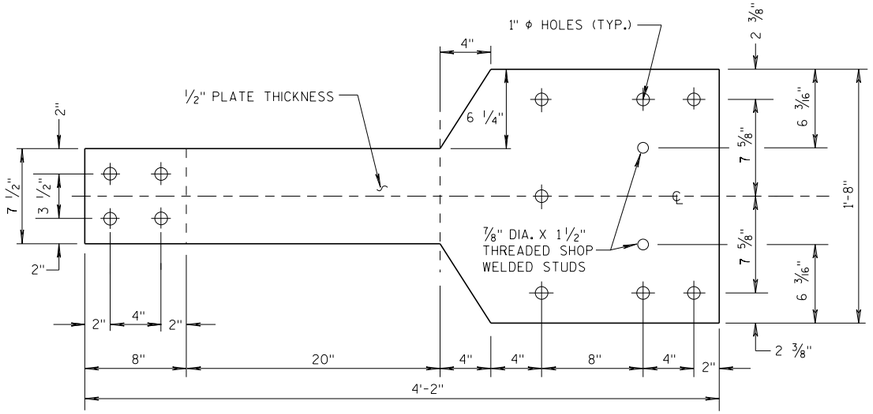
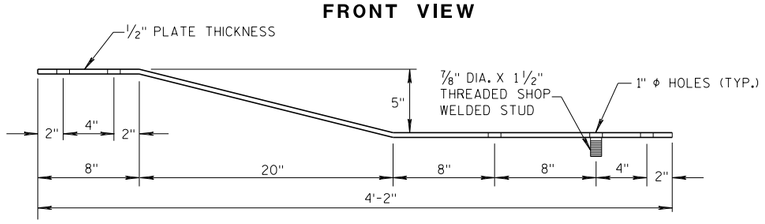
S.D.D. 14 B 45-5g

GENERAL NOTES

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

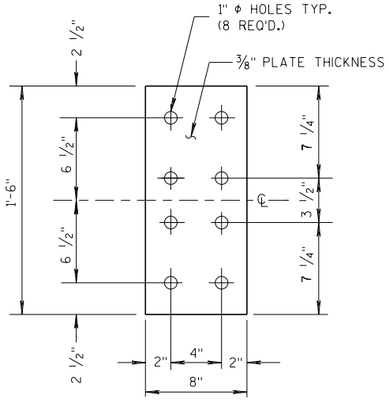


FRONT VIEW



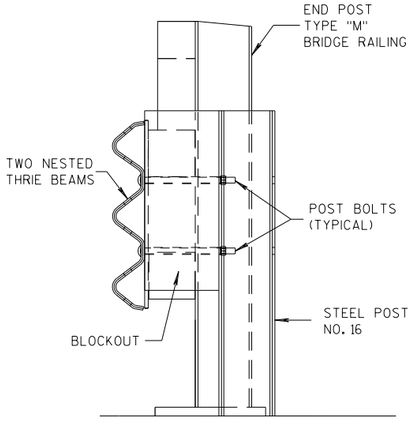
PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

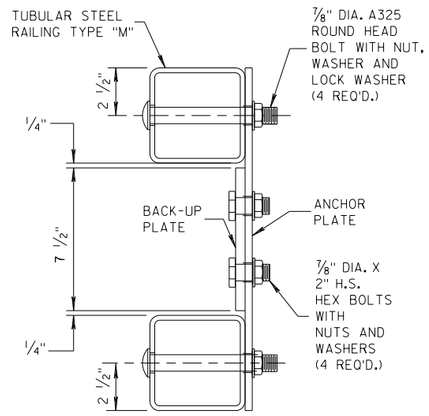


FRONT VIEW

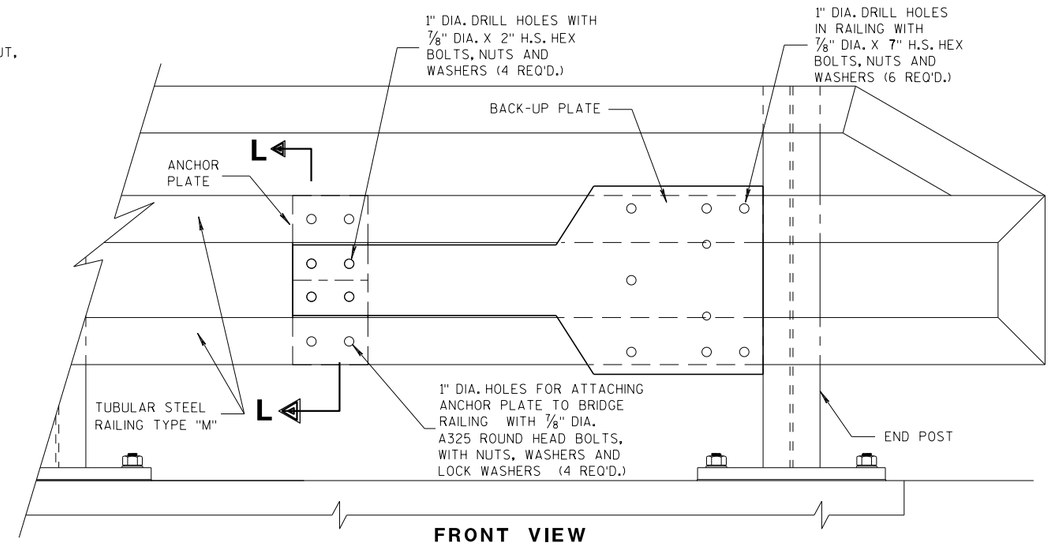
ANCHOR PLATE DETAIL, TYPE "M"



SECTION M-M

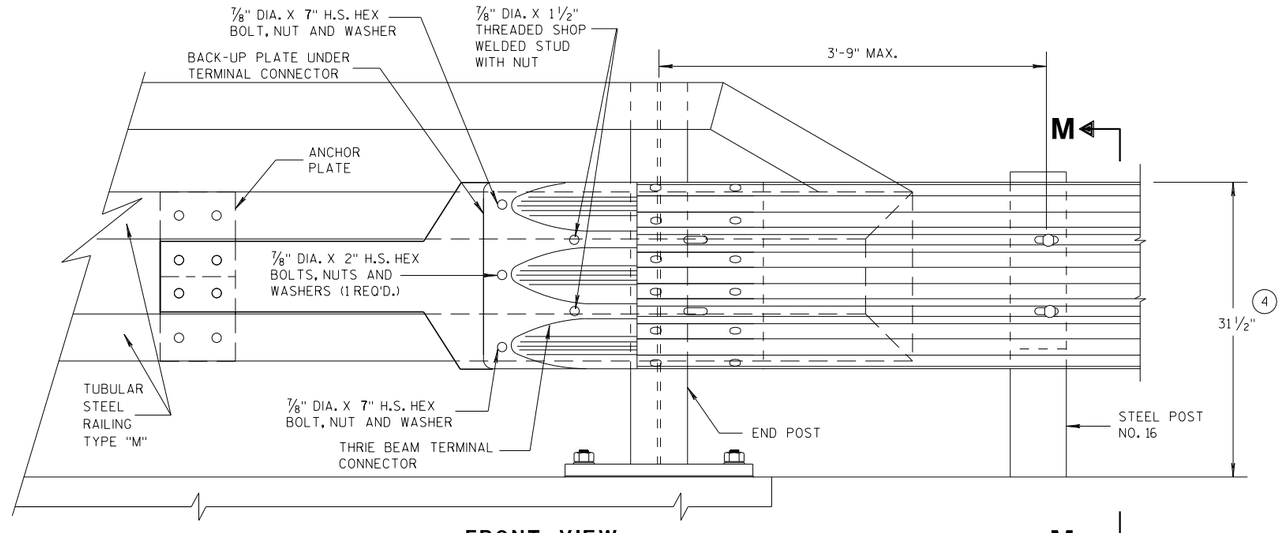


SECTION L-L

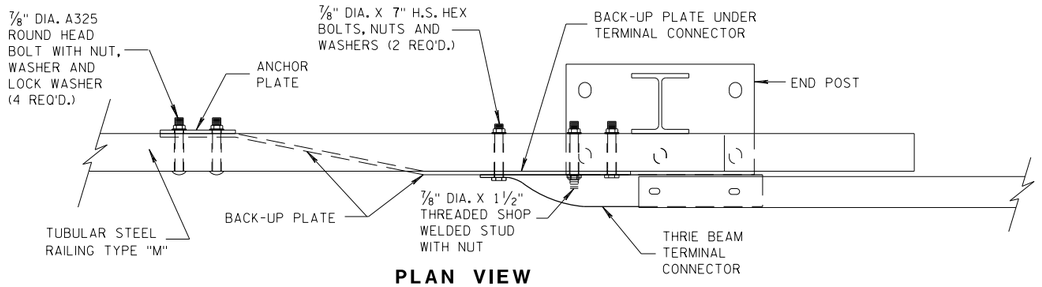


FRONT VIEW

ANCHOR AND BACK-UP PLATE MOUNTING TO BRIDGE RAILING, TYPE "M"



FRONT VIEW



PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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

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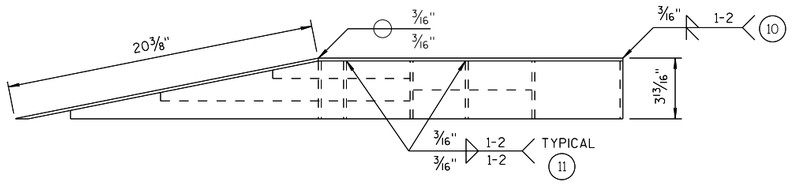
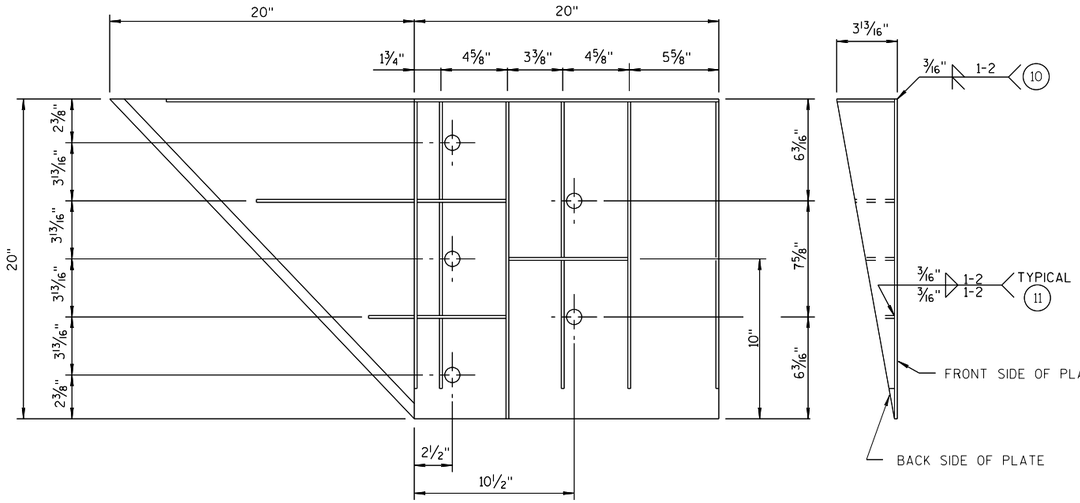
S.D.D. 14 B 45-5h





WELDING INSTRUCTION

(VIEWED FROM BACK SIDE OF PLATE)

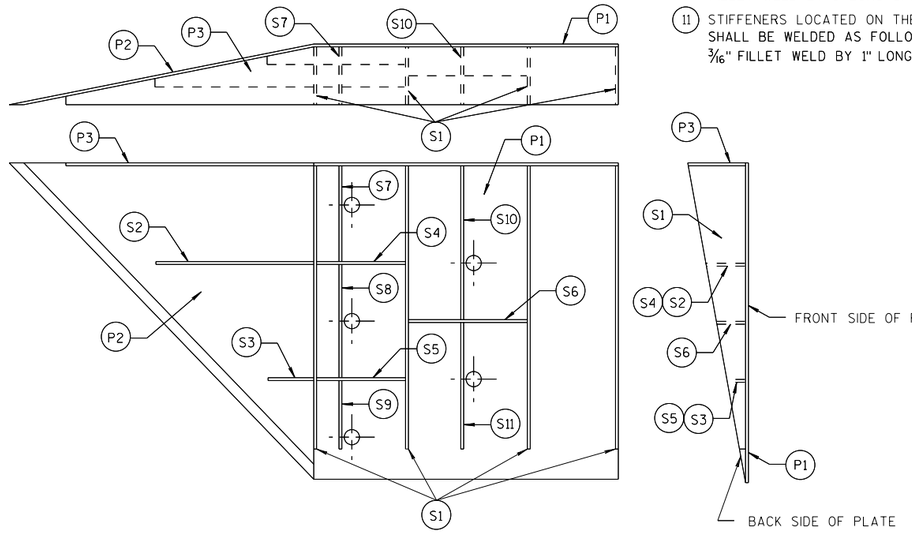


PLATE AND STIFFENER IDENTIFICATION

(VIEWED FROM BACK SIDE OF PLATE)

GENERAL NOTES

COVER PLATE PANELS ARE 3/16" THICK.

ALL STIFFENERS ARE 1/4" THICK.

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

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

ALL HOLE DIAMETERS SHALL BE 1".

FOR OPPOSITE SIDE INSTALLATION MIRROR DRAWINGS.

(10) STIFFENERS LOCATED AT THE OUTSIDE EDGES OF THE COVER PLATES SHALL BE WELDED AS FOLLOWS:
SINGLE BEVEL GROOVE WELD ON EXTERNAL SIDES AND 3/16" FILLET WELD BY 1" LONG SPACED AT 2" ON INTERNAL SIDES.

(11) STIFFENERS LOCATED ON THE INSIDE OF THE COVER PLATE SHALL BE WELDED AS FOLLOWS:
3/16" FILLET WELD BY 1" LONG SPACED AT 2".

CONNECTOR PLATE DIMENSION (PER ASSEMBLY)

PLATE	QUANTITY	SHAPE	SIZE (A x B x C x D)	THICKNESS
P1	1		20" x 20"	3/16"
P2	1		20" x 20" x 28 9/16"	3/16"
P3	1		39" x 3 5/8" x 20" x 19 5/16"	3/16"
S1	4		18 7/16" x 3 5/8" x 18 3/4"	1/4"
S2	1		10 1/4" x 2 7/16" x 10 3/8" x 1/2"	1/4"
S3	1		3" x 1 1/16" x 3 1/8" x 1/2"	1/4"
S4	1		6 1/8" x 2 7/16"	1/4"
S5	1		6 1/8" x 1 1/16"	1/4"
S6	1		7 3/4" x 1 3/4"	1/4"
S7	1		2 9/16" x 6" x 3 5/8" x 5 7/8"	1/4"
S8	1		1 5/32" x 7 1/2" x 2 1/2" x 7 3/8"	1/4"
S9	1		6 1/16" x 6 3/16" x 1 3/32"	1/4"
S10	1		1 7/8" x 9 7/8" x 3 5/8" x 9 11/16"	1/4"
S11	1		8 1/2" x 8 3/4" x 1 13/16"	1/4"

SINGLE SLOPE CONNECTION PLATE

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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7/2018
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ROADWAY STANDARDS I
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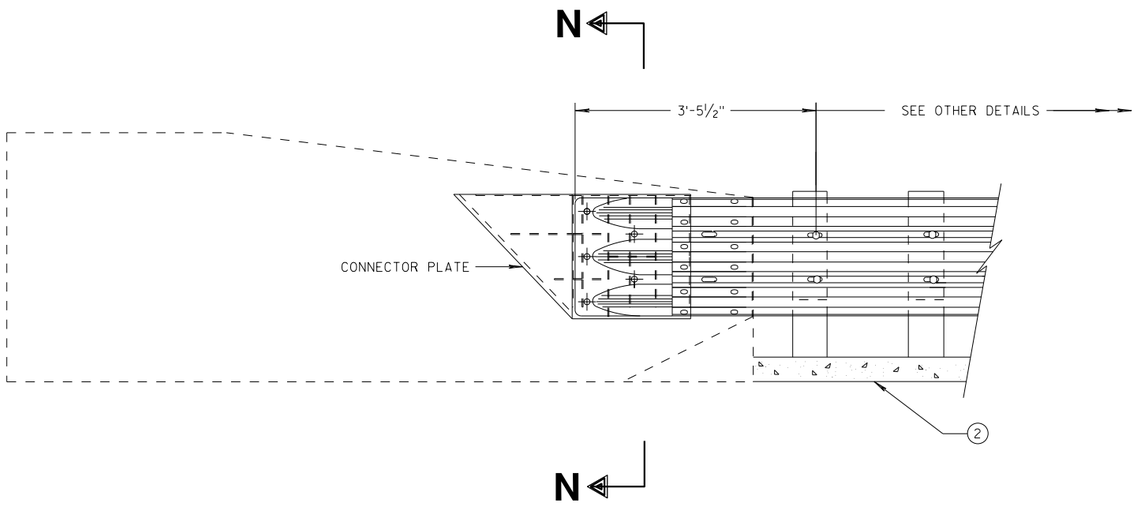
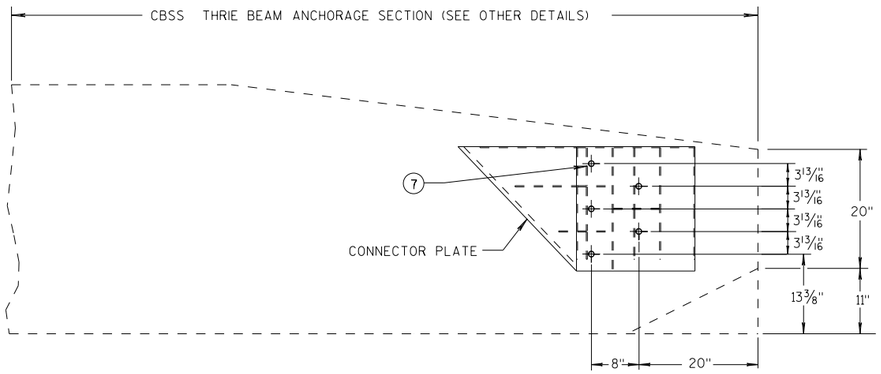


THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER



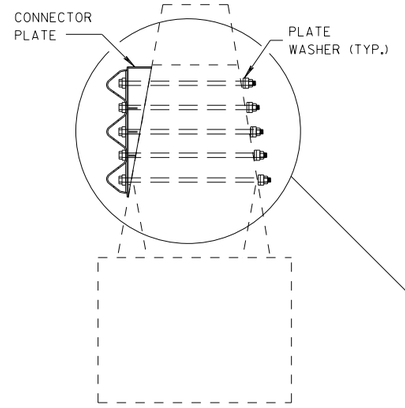
SINGLE SLOPE CONNECTION PLATE PLACEMENT

GENERAL NOTES

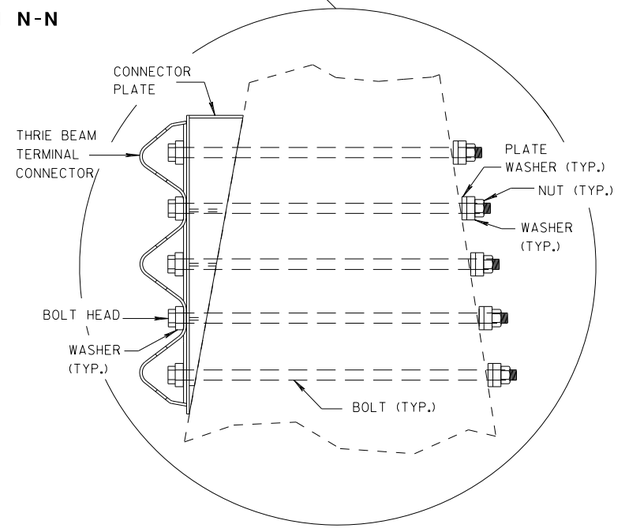
CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

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

(7) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



SECTION N-N



MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
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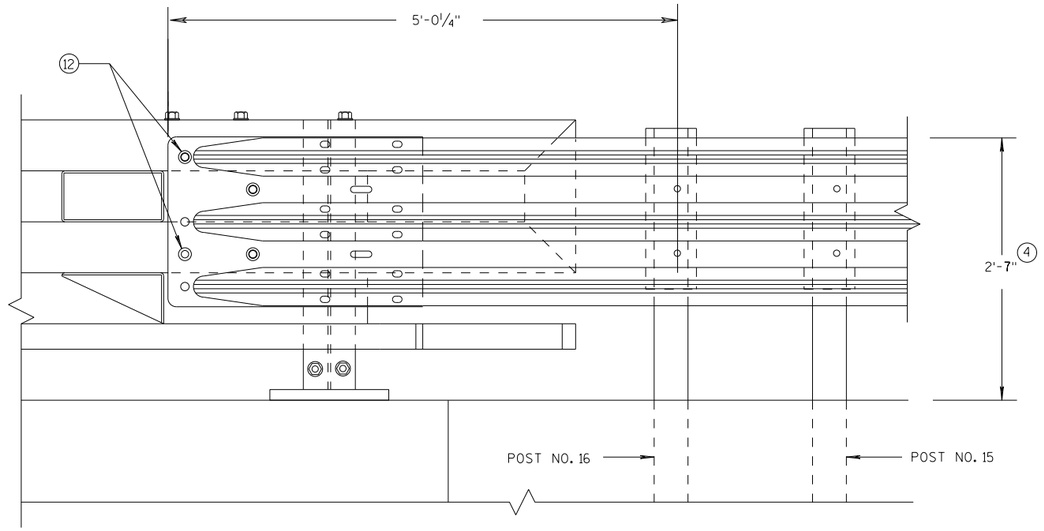
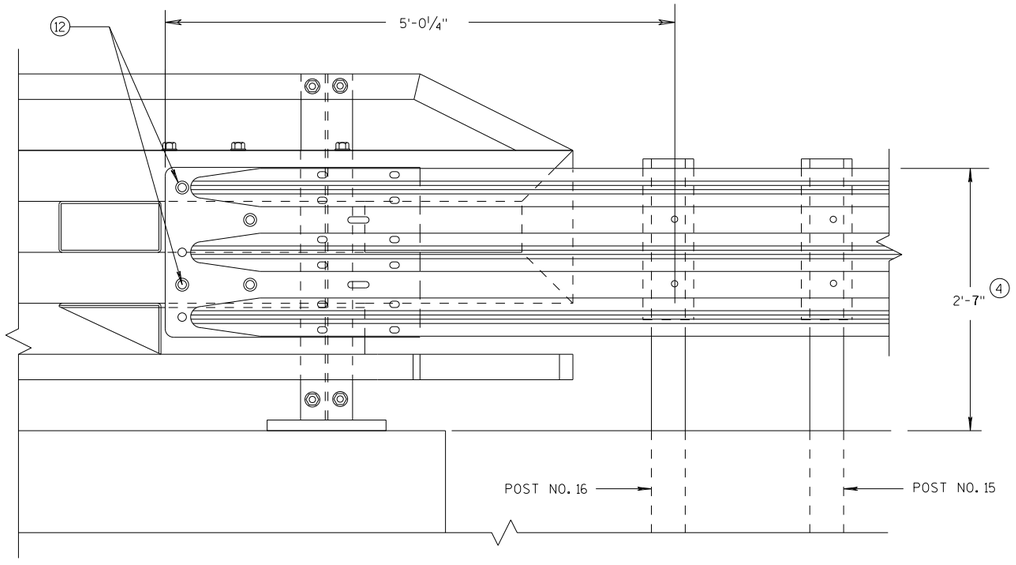
S.D.D. 14 B 45-5j



ELEVATION OF DETAIL AT NY3 END POST

THRIE BEAM RAIL ATTACHMENT



ELEVATION OF DETAIL AT NY4 END POST

THRIE BEAM RAIL ATTACHMENT

GENERAL NOTES

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

(12) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. ON BACKSIDE OF PARAPET ONE ROUND WASHER, AND NUT REQUIRED. BOLT THREAD IS TO EXTEND 1/2-INCH BEYOND NUT.

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

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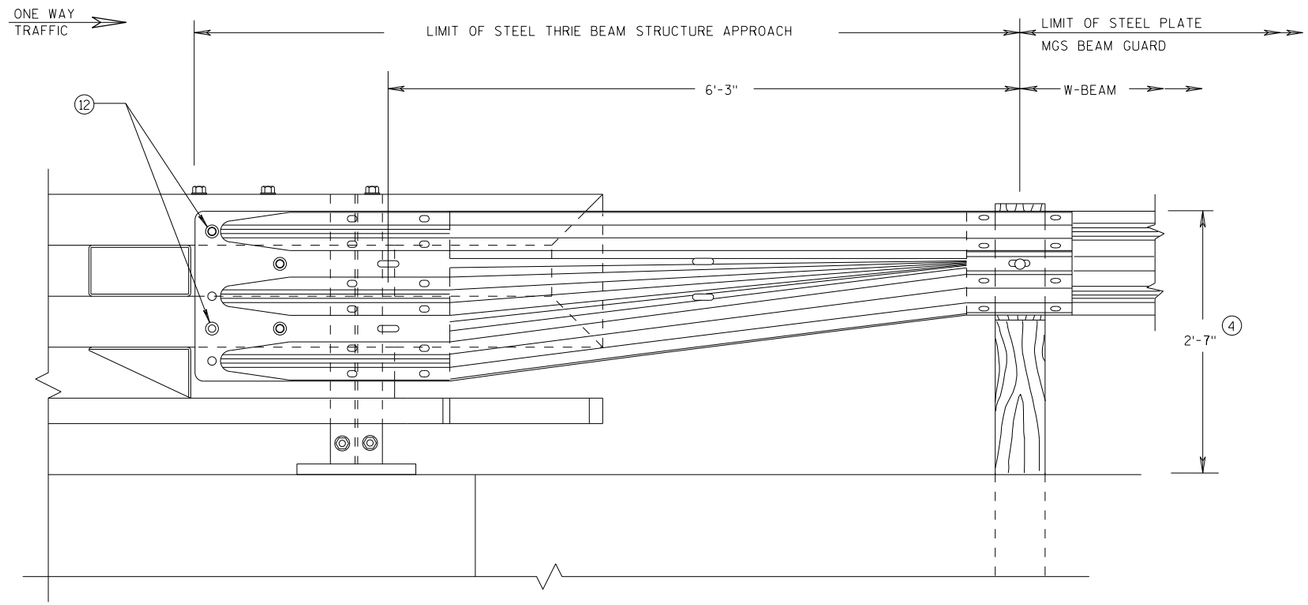


FRONT VIEW

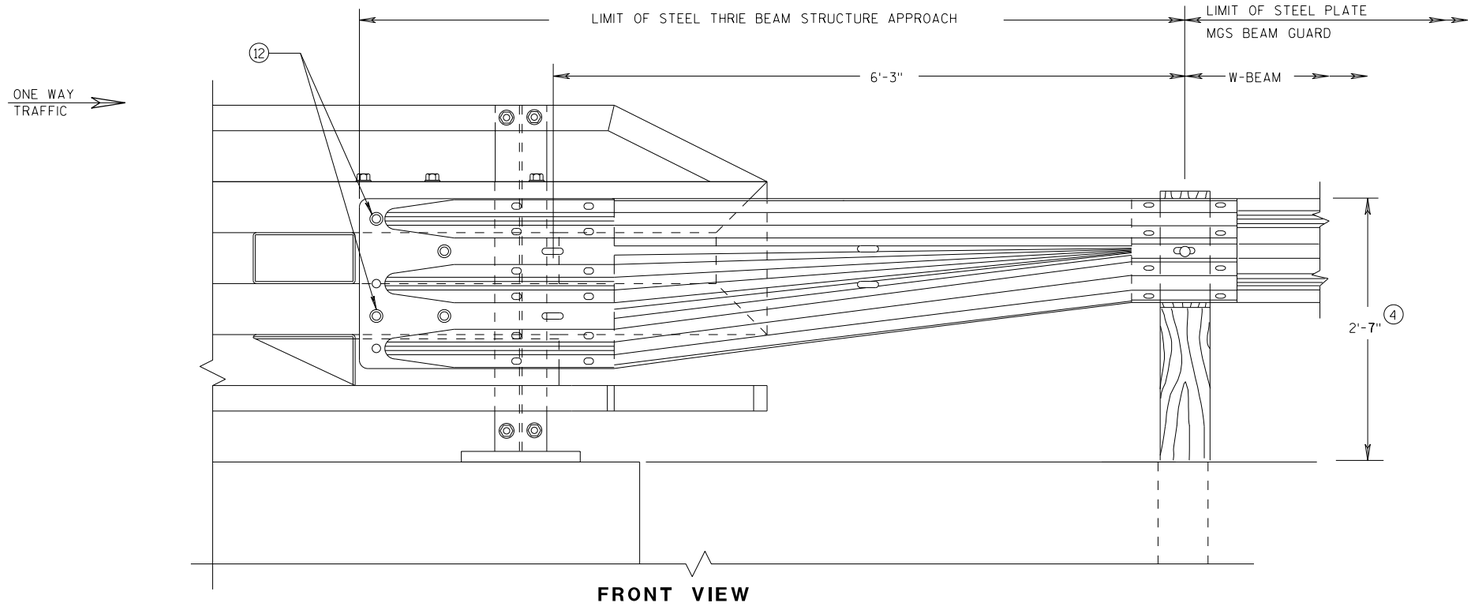
W BEAM TRANSITION AND CONNECTION TO BRIDGE RAILING TYPE "NY3"

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

GENERAL NOTES

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

(12) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. ON BACKSIDE OF PARAPET ONE ROUND WASHER, AND NUT REQUIRED. BOLT THREAD IS TO EXTEND 1/2-INCH BEYOND NUT.



FRONT VIEW

W BEAM TRANSITION AND CONNECTION TO BRIDGE RAILING TYPE "NY4"

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

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

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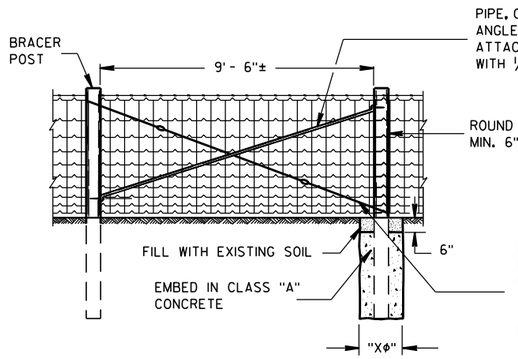
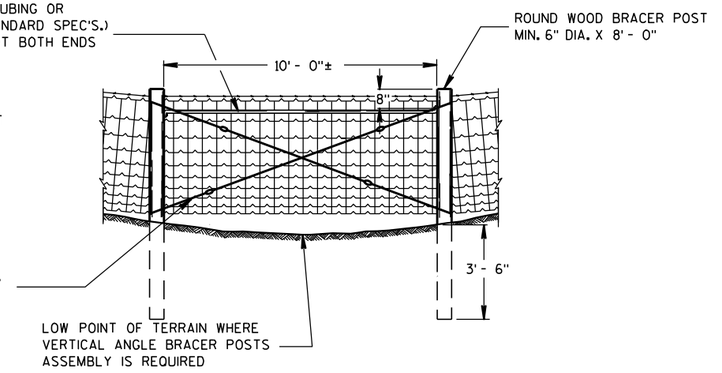
S.D.D. 14 B 45-5L

NOTE: PULL OR STRETCHER POST ASSEMBLIES SHALL BE PLACED MIDWAY BETWEEN END POSTS AND CORNER POSTS WHERE A RUN OF FENCE EXCEEDS 660' BUT IS LESS THAN 1,320'. FOR RUNS OF FENCE IN EXCESS OF 1,320' MAXIMUM SPACING OF PULL OR STRETCHER POST ASSEMBLIES SHALL BE 660'± C-C.

ILLUSTRATION SHOWS POSITION OF STANDARD STEEL BRACE, DOUBLE STRAND GALVANIZED WIRE, AND THE POST TO BE EMBEDDED IN CONCRETE WHEN WIRE FENCE IS INSTALLED FROM LEFT TO RIGHT. THE BRACES SHALL BE POSITIONED ON THE OPPOSITE DIAGONALS AND THE OPPOSITE POST SHALL BE EMBEDDED IN CONCRETE WHEN WIRE FENCE IS INSTALLED FROM RIGHT TO LEFT.



PULL OR STRETCHER POSTS ASSEMBLY



VERTICAL ANGLE BRACER POSTS ASSEMBLY

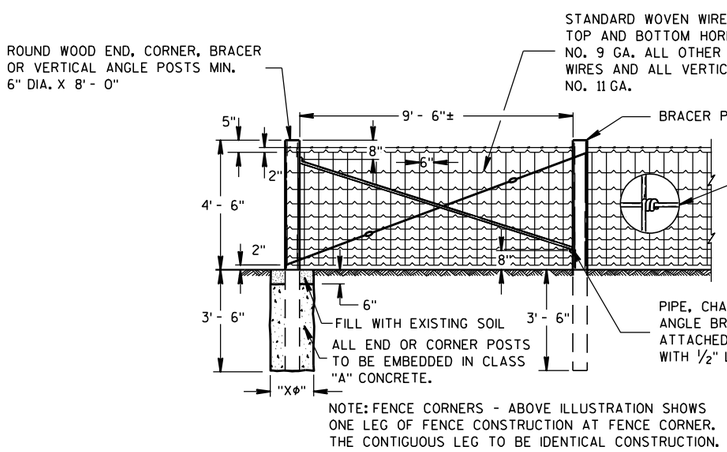
GENERAL NOTES

"XΦ" = DIAMETER OF THE POST PLUS 12".

FENCE STAPLES SHOULD NEVER BE DRIVEN VERTICALLY INTO WOOD POSTS (WITH BOTH LEGS PARALLEL WITH THE WOOD GRAIN). DOING SO CAN SEPARATE THE GRAIN AND SIGNIFICANTLY REDUCE THE HOLDING POWER. ROTATING THE STAPLES SLIGHTLY OFF VERTICAL STRADDLES THE GRAIN AND PROVIDES MORE RESISTANCE TO PULL-OUT.

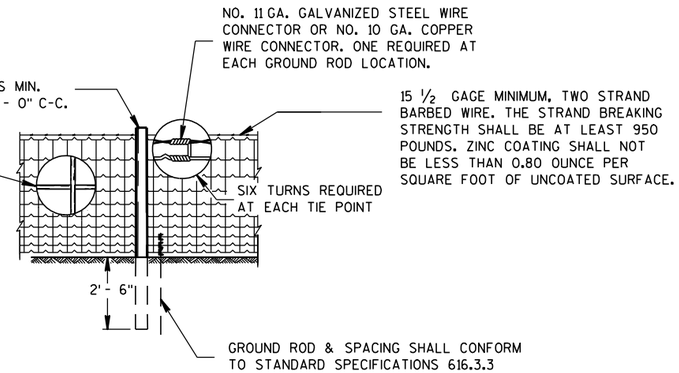
DO NOT STAPLE WIRE TIGHT TO THE LINE POSTS. ALLOW MOVEMENT OF WIRE FOR EXPANSION AND CONTRACTION. STAPLE ARRANGEMENT SHALL BE THE SAME FOR ALL OTHER POSTS EXCEPT THAT THEY SHALL BE DRIVEN TIGHT TO POSTS. ALL STAPLES SHALL BE 2" X 9 GAGE AND SHALL BE MANUFACTURED FROM GALVANIZED WIRE OR HOT DIP GALVANIZED AFTER FORMING. STAPLES SHALL HAVE SLASH-CUT POINTS.

FENCE SHALL BE LOCATED 3'-0" INSIDE THE RIGHT OF WAY LINE UNLESS OTHERWISE INDICATED ON THE PLANS.



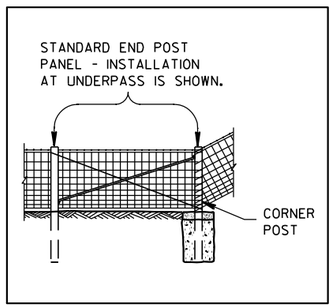
NOTE: FENCE CORNERS - ABOVE ILLUSTRATION SHOWS ONE LEG OF FENCE CONSTRUCTION AT FENCE CORNER. THE CONTIGUOUS LEG TO BE IDENTICAL CONSTRUCTION.

END OR CORNER POSTS ASSEMBLY

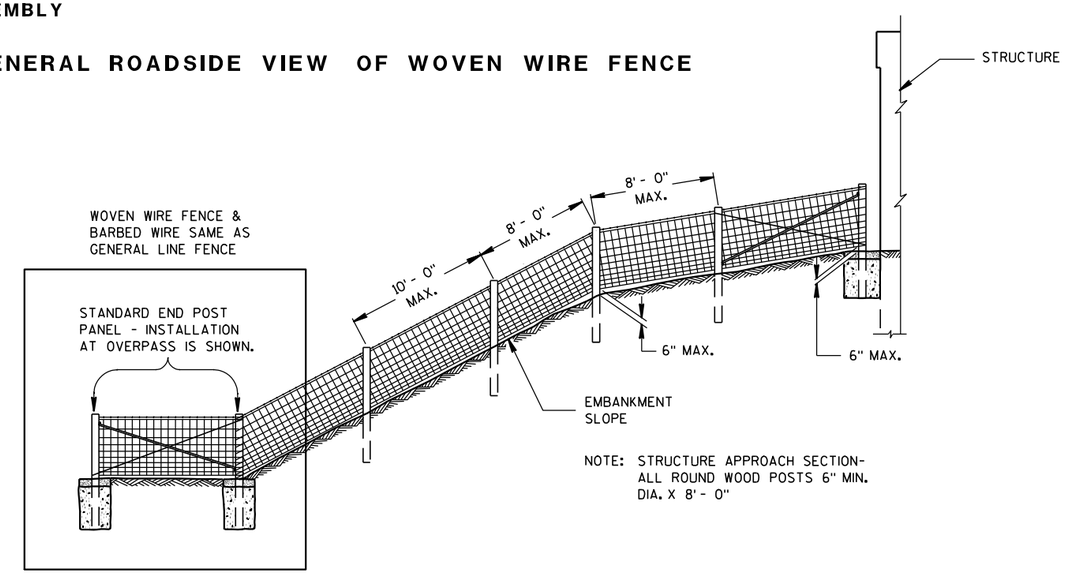


LINE FENCE CONSTRUCTION

GENERAL ROADSIDE VIEW OF WOVEN WIRE FENCE



ALTERNATE FENCE DESIGN AT STRUCTURE



FENCE DESIGN AT STRUCTURE APPROACH

FENCE WOVEN WIRE

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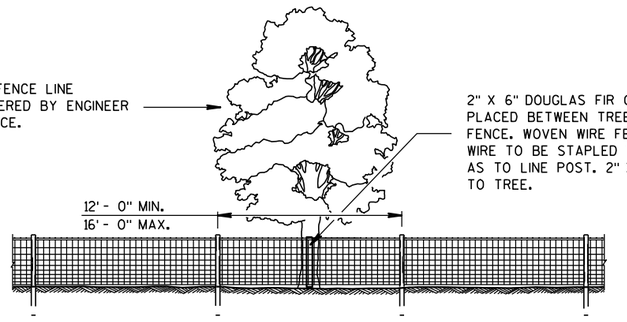
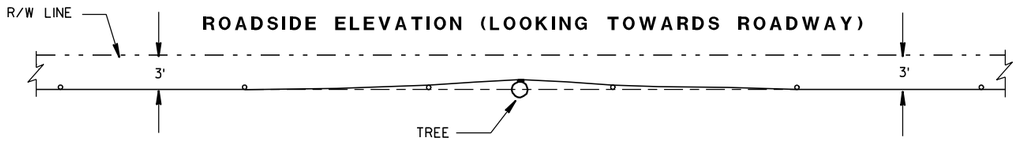
S.D.D. 15 B 1-8a

NOTE: TREE IN NORMAL FENCE LINE SPECIFICALLY ORDERED BY ENGINEER TO REMAIN IN PLACE.

2" X 6" DOUGLAS FIR OR SO. YELLOW PINE PLACED BETWEEN TREE AND WOVEN WIRE FENCE. WOVEN WIRE FENCE AND BARBED WIRE TO BE STAPLED TO 2" X 6" LIKE AS TO LINE POST. 2" X 6" NOT FASTENED TO TREE.

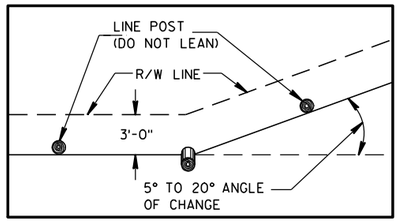


ROADSIDE ELEVATION (LOOKING TOWARDS ROADWAY)

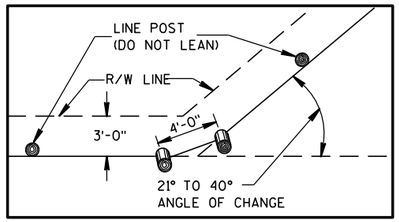


PLAN VIEW

FENCE DESIGN AT TREES REMAINING IN NORMAL FENCE LINE



PLAN VIEW
SINGLE POST CORNER

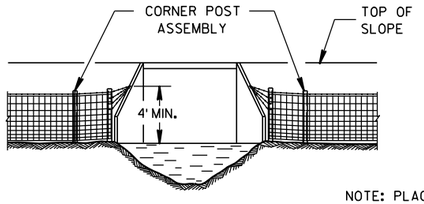


PLAN VIEW
DOUBLE POST CORNER

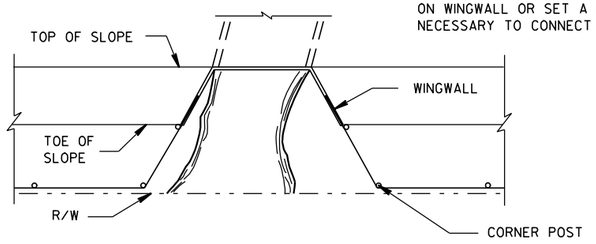
RIGHT OF WAY LINE CHANGE 40° AND LESS

NOTE: SINGLE AND DOUBLE POSTS SHALL BE A MIN. 6" DIA. X 8'-0" WITH A LEAN OF 4" TOWARD THE OUTSIDE OF THE CURVE.

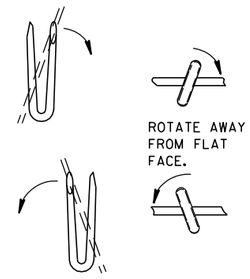
WHEN THE RIGHT OF WAY LINE CHANGE IS MORE THAN 40° USE THE CORNER OR STRETCHER POSTS ASSEMBLY.



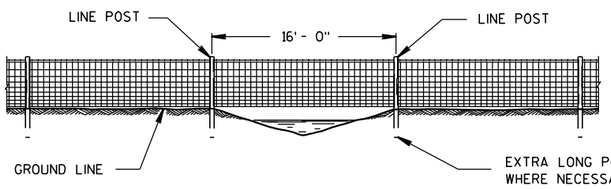
NOTE: PLACE A MINIMUM OF 4 STRANDS OF BARBED WIRE, 6" MAXIMUM CENTERS IN FAN SHAPE CONNECTED TO AN EYE BOLT ON WINGWALL OR SET A LONE POST WHEN NECESSARY TO CONNECT BARBED WIRE.



FENCE INSTALLATION TO WINGWALLS

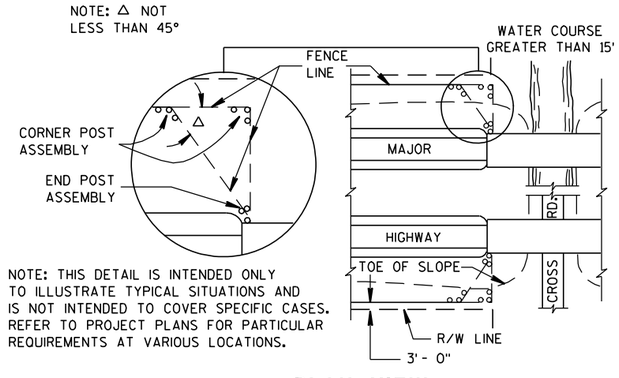


LINE POST



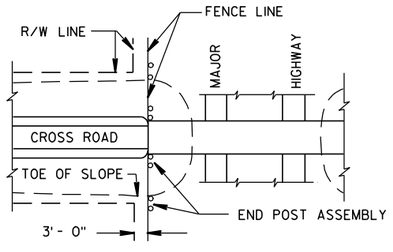
FENCE CONSTRUCTION OVER STREAM COURSES OF 15 FT. OR LESS IN WIDTH

NOTE: △ NOT LESS THAN 45°



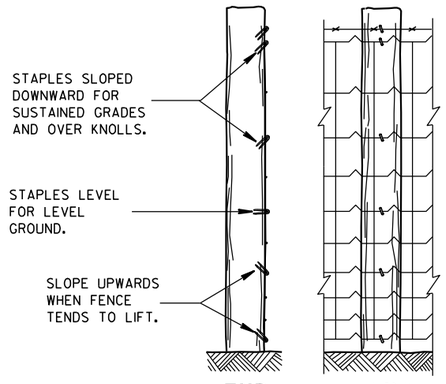
NOTE: THIS DETAIL IS INTENDED ONLY TO ILLUSTRATE TYPICAL SITUATIONS AND IS NOT INTENDED TO COVER SPECIFIC CASES. REFER TO PROJECT PLANS FOR PARTICULAR REQUIREMENTS AT VARIOUS LOCATIONS.

PLAN VIEW
MAJOR HIGHWAY OVERPASS OR STREAM COURSE CROSSING OF GREATER THAN 15 FT. IN WIDTH



PLAN VIEW
MAJOR HIGHWAY UNDERPASS

NOTE: WHEN POSTS ARE DRIVEN THE SMALL END SHALL BE DOWN.



END ELEVATION — FARM SIDE ELEVATION

FENCE MOUNTING DETAIL

FENCE LOCATION AT STRUCTURES

FENCE WOVEN WIRE

STATE OF WISCONSIN
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APPROVED
4/4/2008
DATE
/S/ Jerry H. [illegible]
ROADWAY STANDARDS [illegible] ENGINEER
FHWA

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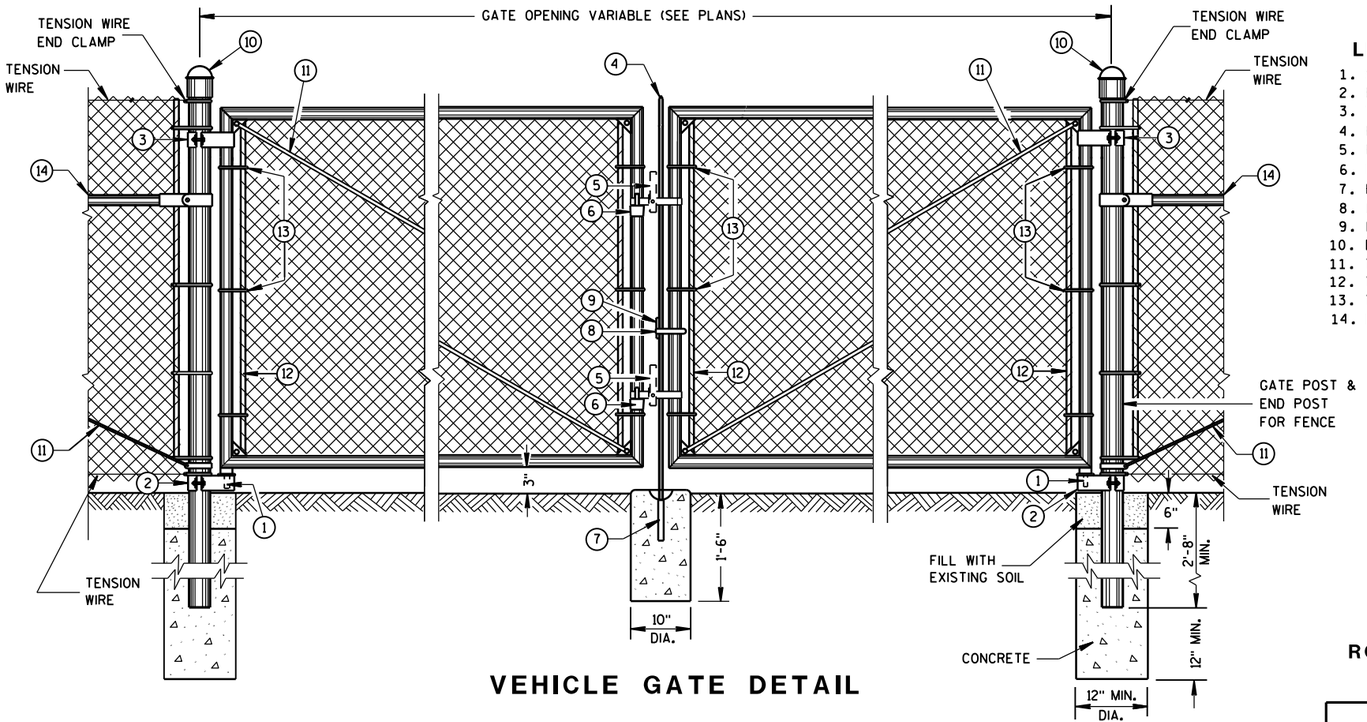
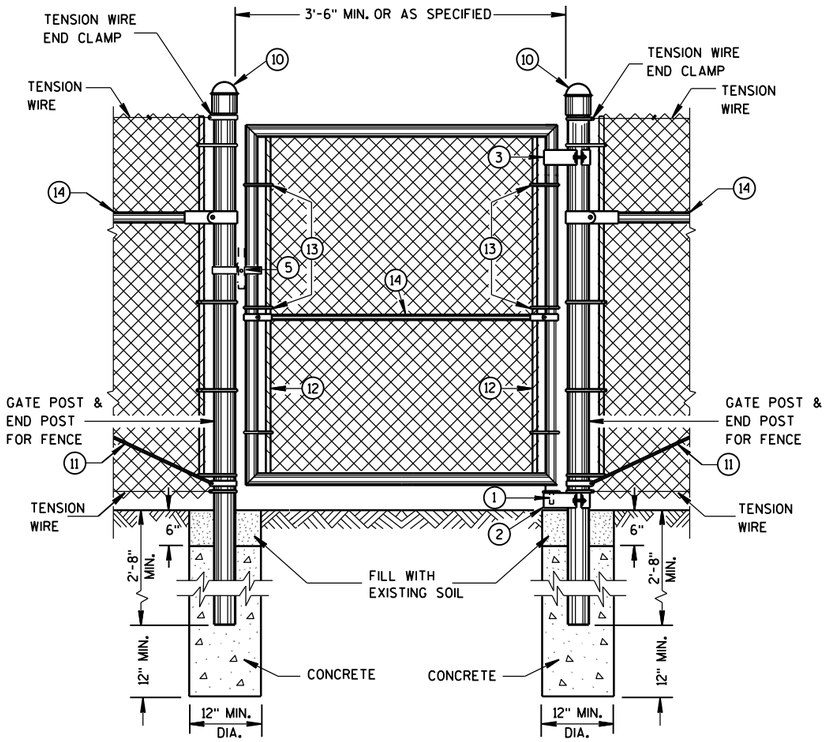
S.D.D. 15 B 1-8b



VEHICLE GATE DETAIL



PEDESTRIAN GATE DETAIL

LEGEND

1. STRAIGHT PLUG
2. BOTTOM HINGE
3. TOP HINGE
4. PLUNGER ROD
5. FULCRUM LATCH
6. FORK CATCH *
7. PLUNGER ROD CATCH
8. LOCK KEEPER GUIDE
9. LOCK KEEPER
10. DOME TOPS
11. TRUSS RODS
12. TENSION BAR
13. TENSION BANDS
14. BRACE RAIL

*NOT REQUIRED ON SINGLE SWING PEDESTRIAN GATE

GENERAL NOTES

FENCE POSTS INSTALLED ON CONCRETE WALLS SHALL BE ANCHORED INTO EMBEDDED METAL SLEEVES OR CORED HOLE BY FILLING THE ANNULAR SPACE WITH PEA GRAVEL FOLLOWED BY AN EPOXY RESIN ADHESIVE. THE EPOXY RESIN ADHESIVE SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 235, CLASS A, B OR C.

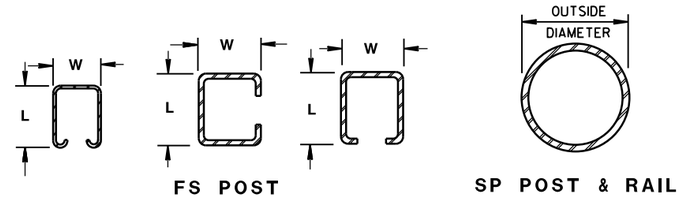
USE FENCE FABRIC KNUCKLED AT BOTH SELVAGES.

FOR LEAF GATES GREATER THAN 8 FEET WIDE, INSTALL INTERIOR VERTICAL BRACE RAIL AT 8 FOOT INTERVALS.

FOR FABRIC HEIGHTS GREATER THAN 8 FEET, INSTALL INTERIOR HORIZONTAL BRACE RAILS TO LEAF GATE.

MAXIMUM SAG FOR OUTER GATE MEMBER SHALL NOT EXCEED THE GREATER OF 1% OF THE LEAF GATE WIDTH OR 2 INCHES.

USE TYPE 2, CLASS 3, MARCELLED/CRIMPED, TENSION WIRE PER ASTM A 817.



FS POST

SP POST & RAIL

CROSS SECTIONS OF POSTS AND RAILS

ROLLED-FORMED STEEL FENCE POST (2.0 OZ./SQ. FT. COATING)

POST TYPE	LENGTH (L) INCH	WIDTH (W) INCH	WEIGHT LBS/FT
FS1	1.625	1.25	1.35
FS2†	1.875	1.625	1.850
FS2	1.875	1.625	2.400
FS3	2.250	1.700	2.780

ROUND STEEL FENCE POST (1.8 OZ./SQ. FT. COATING)

POST TYPE	OUTSIDE DIMENSION INCH	WALL THICKNESS INCH	WEIGHT LBS/FT
SP1	1.660	0.140	2.270
SP2	1.900	0.145	2.720
SP3	2.375	0.154	3.650
SP4	2.875	0.203	5.800
SP5	4.000	0.226	9.120
SP6	6.625	0.280	18.990
SP7	8.625	0.322	28.580

REQUIRED FENCE POST SIZES

USE	FABRIC HEIGHTS FEET	POST TYPE
TERMINAL POSTS **	LESS THAN OR EQUAL TO 6 FT.	SP3
	GREATER THAN OR EQUAL TO 6 FT.	SP4
LINE POSTS	LESS THAN OR EQUAL TO 6 FT.	SP2
	LESS THAN OR EQUAL TO 8 FT.	SP3
	GREATER THAN OR EQUAL TO 8 FT.	SP4
	LESS THAN OR EQUAL TO 8 FT.	FS2 OR FS2†
	GREATER THAN OR EQUAL TO 8 FT.	FS3

REQUIRED POST SIZE FOR GATES

USE	LEAF WIDTHS FEET	POST TYPE
GATES	LESS THAN OR EQUAL TO 6 FT.	SP4
	LESS THAN OR EQUAL TO 13 FT.	SP5
	LESS THAN OR EQUAL TO 18 FT.	SP6
	LESS THAN OR EQUAL TO 23 FT.	SP7

BRACE RAIL TYPES

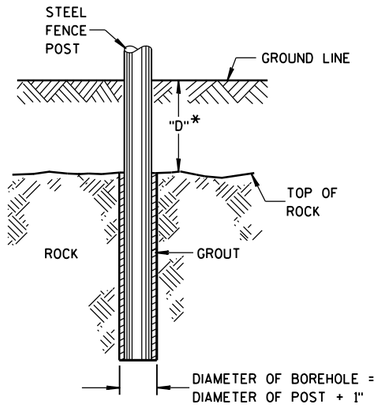
USE		TYPE
BRACE RAIL		SP1 OR FS1

** INCLUDES END, CORNER, ANGLE, INTERSECTION AND INTERMEDIATE BRACED POSTS

FENCE CHAIN LINK

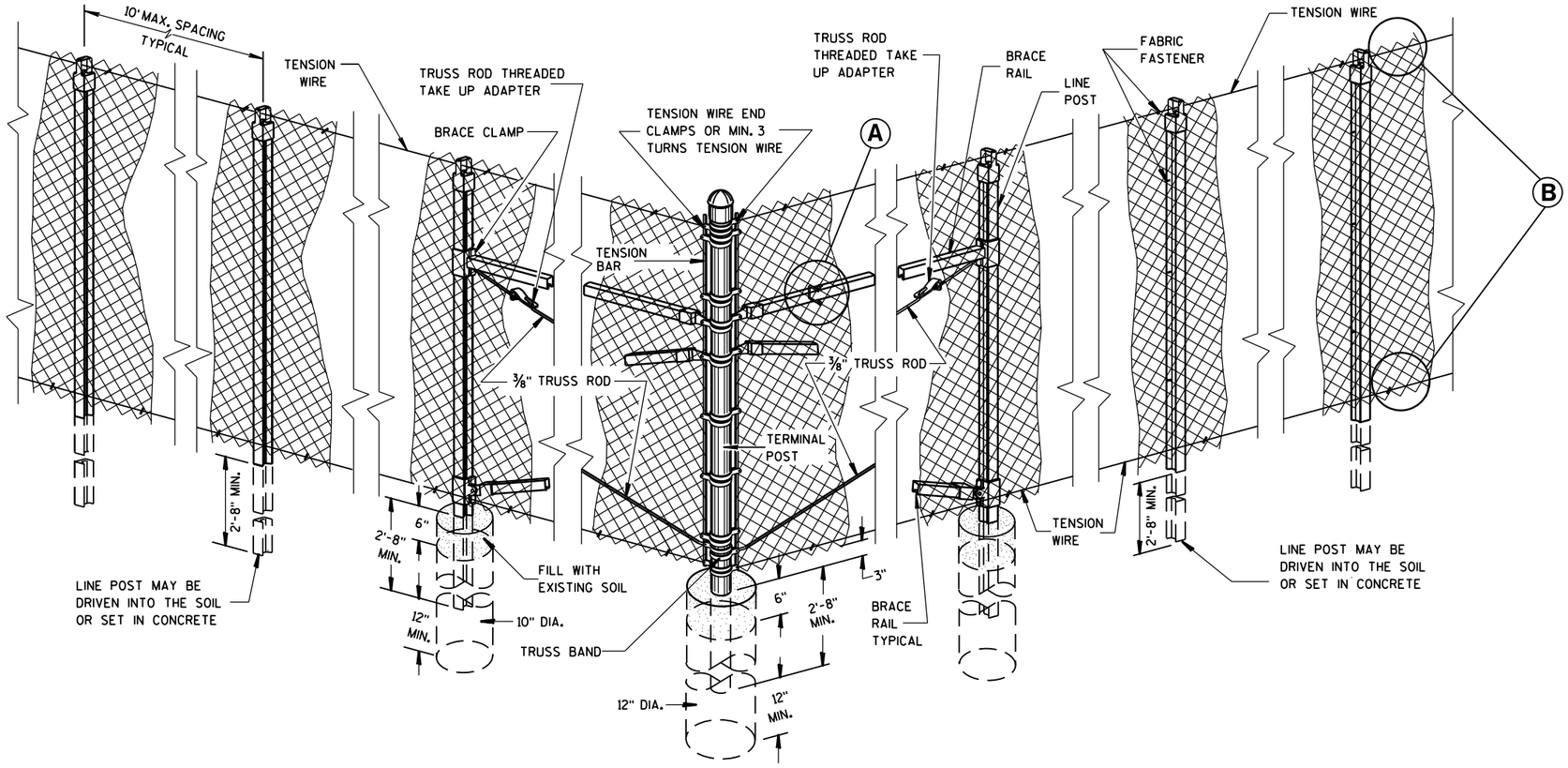
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6
S.D.D. 15 B 3-15a

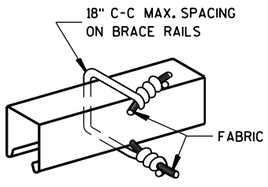


*IF "D" IS LESS THAN 2'-6", DRILL ROCK AND INSTALL GROUT

ROCK INSTALLATION OF LINE POST



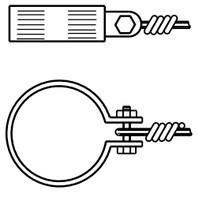
END, CORNER, ANGLE INTERSECTION & INTERMEDIATE BRACED POSTS



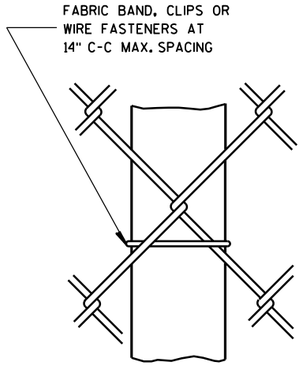
BRACE RAIL

FABRIC FASTENER

Ⓐ



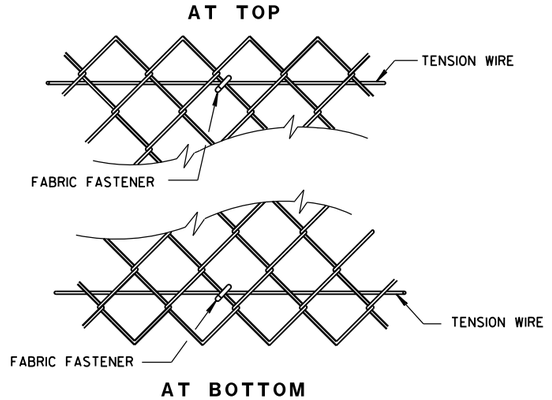
TENSION WIRE END CLAMP



LINE POST

FABRIC FASTENER

AT TOP



AT BOTTOM

SELVAGES

Ⓑ

FENCE CHAIN LINK

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

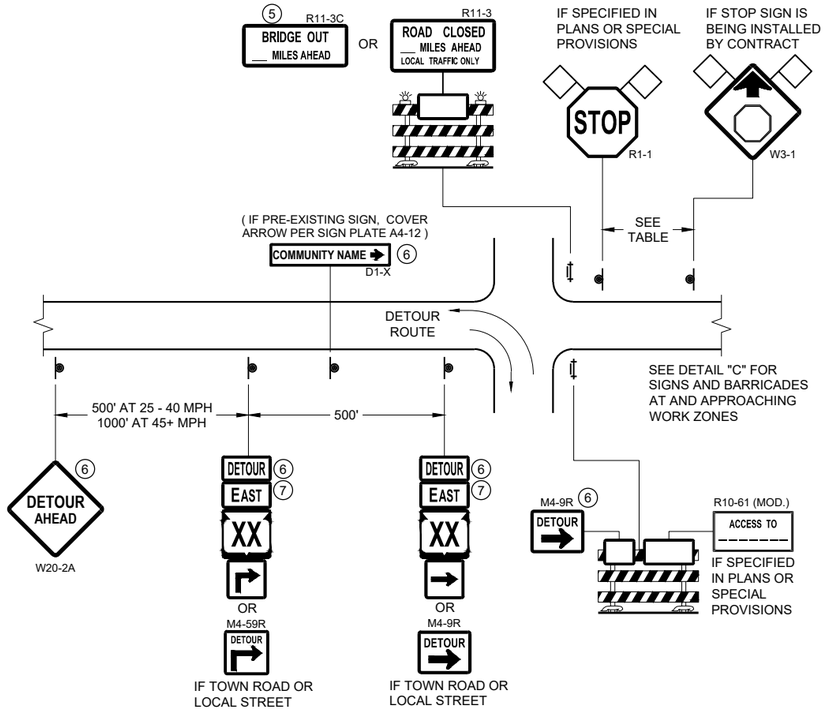
APPROVED
FEB. 2015 DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

6

S.D.D. 15 B 3-15b

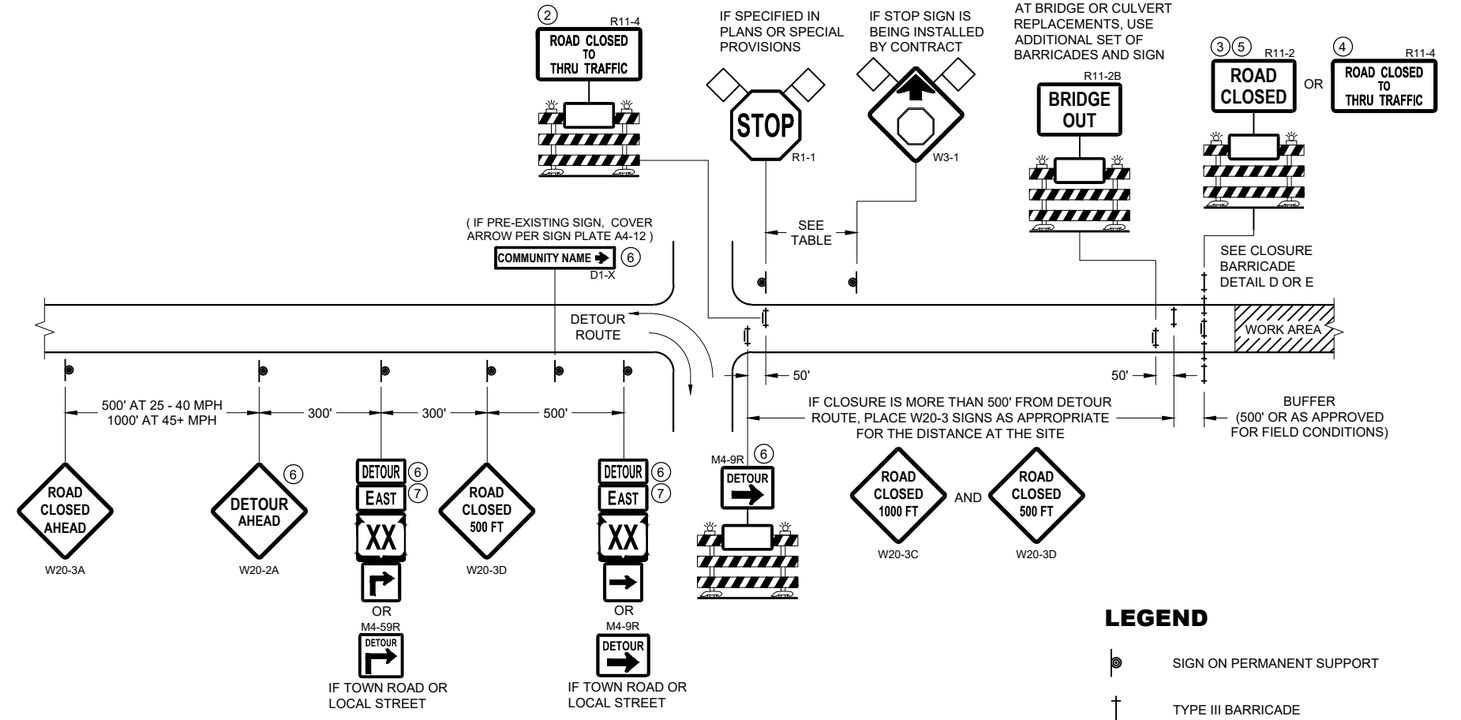
6

S.D.D. 15 B 3-15b



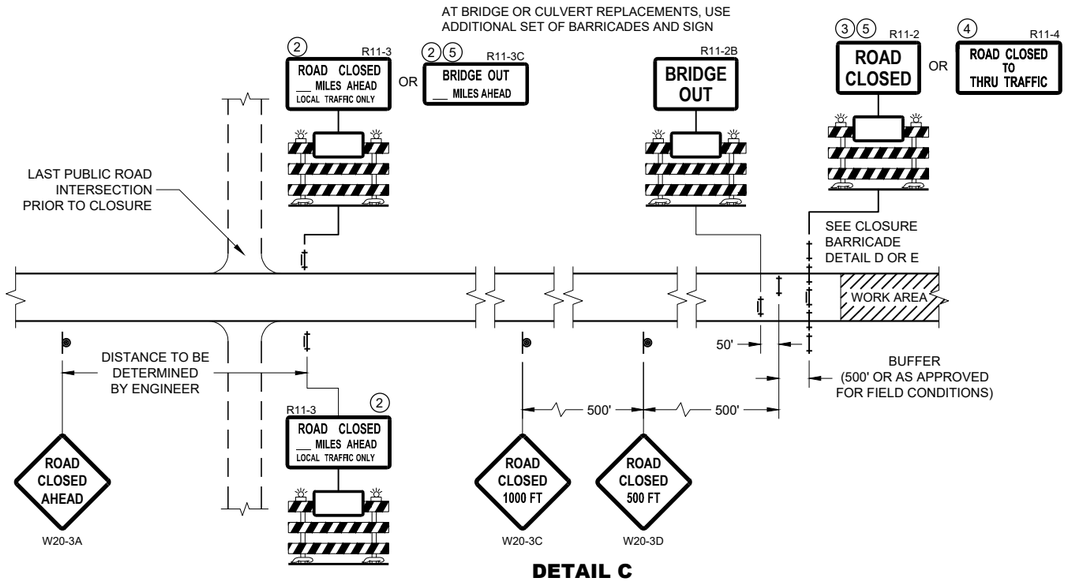
DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR

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



DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR

WORK ZONE LESS 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-SHEET "b"
FOR GENERAL NOTES
AND FOOTNOTES ① THROUGH ⑦

LEGEND

- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- WORK AREA
- FLAGS, 16" X 16" MIN. (ORANGE)

DETOUR M4 - 8
EAST M3 - X
XX M1 - 4 OR XX M1 - 6 OR COUNTY X M1 - 5A
M05 - 1 OR M06 - 1

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

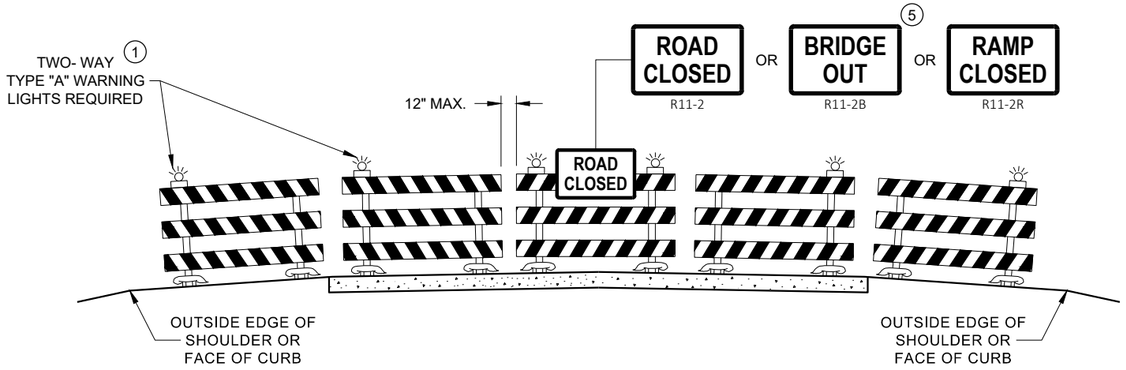
APPROVED
February 2020
DATE
/S/ Andrew Heidtke
WORK ZONE ENGINEER

FHWA

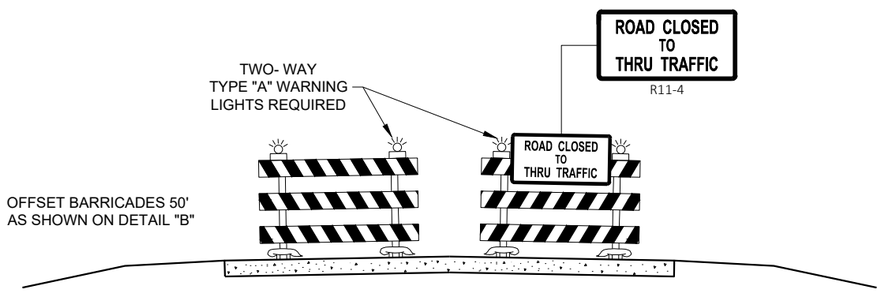
6

SDD 15C02 - 08a

SDD 15C02 - 08a



DETAIL D
ROAD CLOSURE BARRICADE DETAIL
APPROACH VIEW



DETAIL E
LANE CLOSURE BARRICADE DETAIL
APPROACH VIEW

SEE SDD 15C2 - SHEET "a" FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

BARRICADES AND SIGNS FOR VARIOUS CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

SDD 15C02 - 08b

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SDD 15C02 - 08b

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

LEGEND

- SIGN ON PERMANENT SUPPORT
- WORK AREA
- DETOUR — M4 - 8
- EAST — M3 - X
- XX — M1 - 4 OR XX — M1 - 6 OR COUNTY X — M1 - 5A
- M05 - 1 OR M06 - 1 OR M06 - 1

GENERAL NOTES

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

IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. MODIFY EXISTING SIGNS WHERE POSSIBLE.

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

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

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

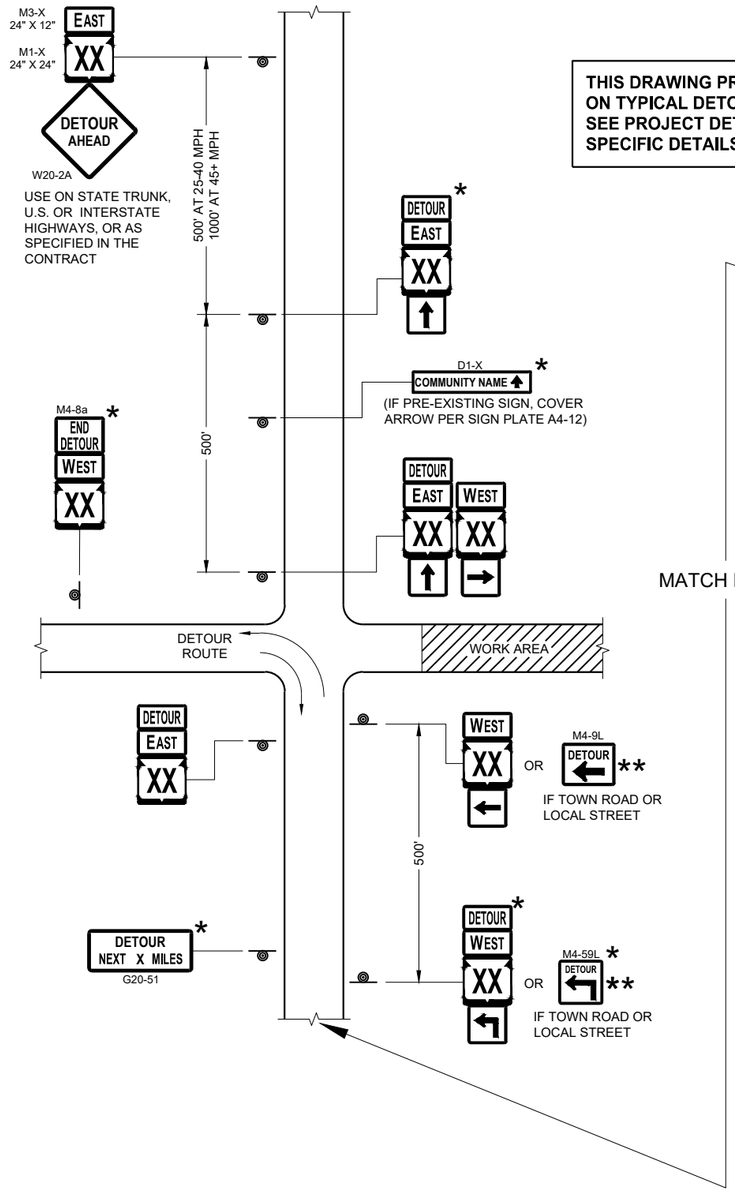
"MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

SIGN SIZES SHALL BE AS FOLLOWS:

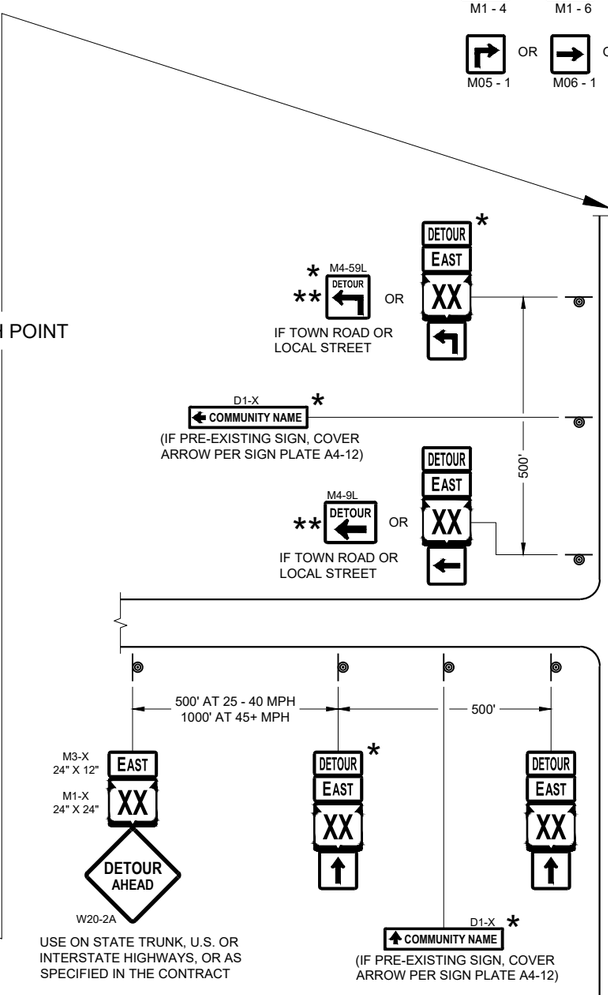
- M3-X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M4-8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M1-4, M1-5A AND M1-6 SHALL BE 24" X 24" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)
- M05-1 AND M06-1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)
- M4-9 AND M4-59 SHALL BE 30" X 24"
- M4-8a SHALL BE 24" X 18"
- G20-51 SHALL BE 60" X 24"
- W20-2A SHALL BE 48" X 48"
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

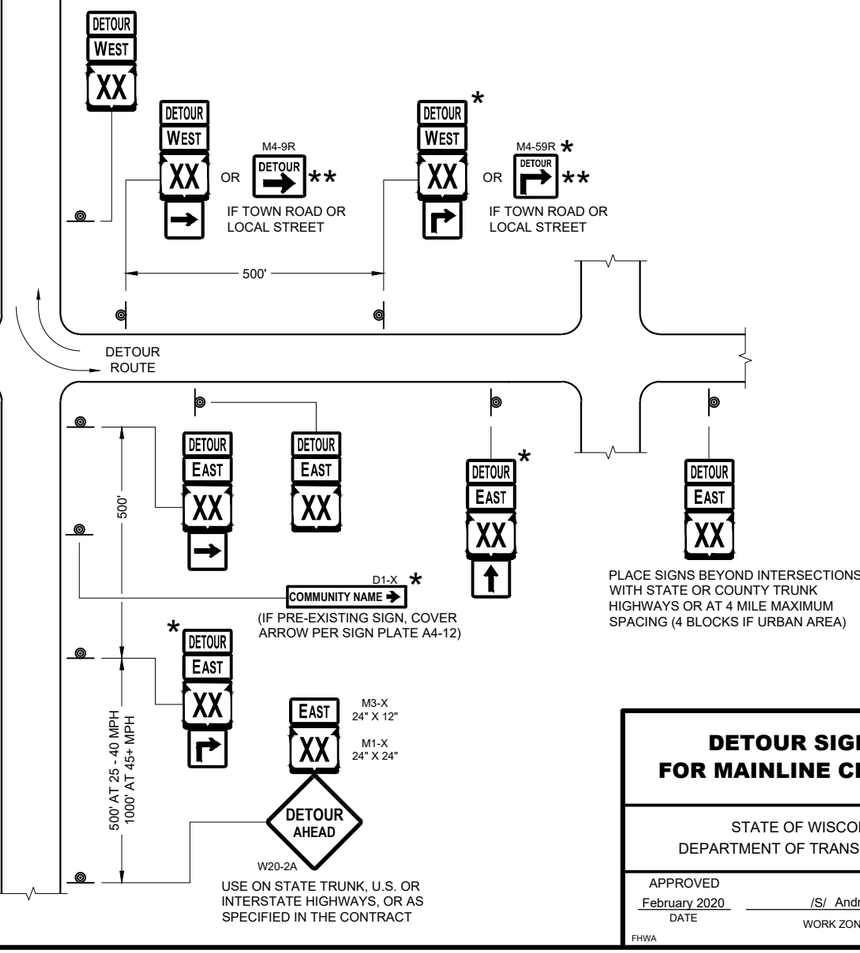
* OPTIONAL SIGNS. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS.

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



MATCH POINT





SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS AND DETAIL A OR B ON SDD SHEET 15C02 - SHEET "a"

DETAIL F
DETOUR SIGNING

DETOUR SIGNING FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEER

FHWA

SDD 15C02 - 08c

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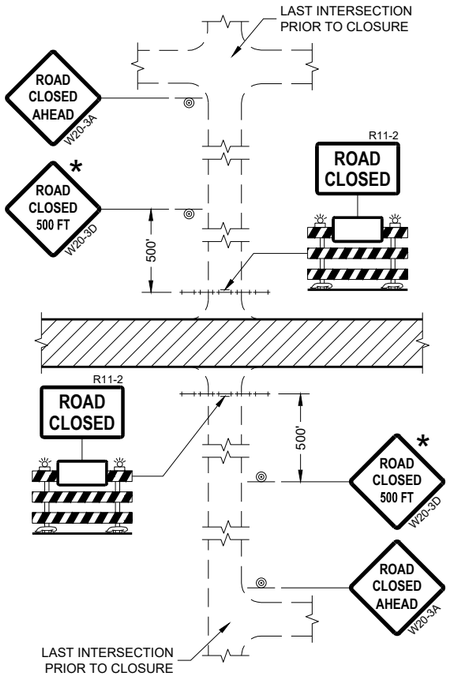
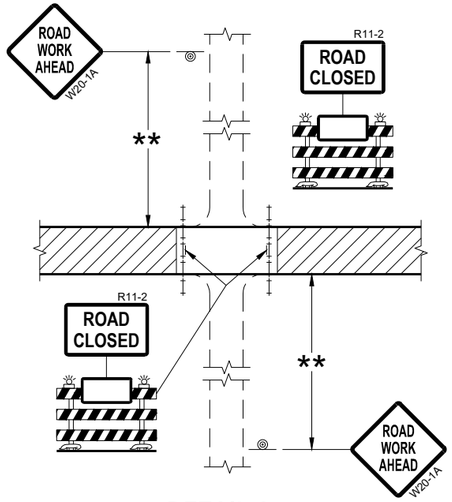
SDD 15C02 - 08c



DETAIL 1
(NO ACCESS TO PROJECT)



DETAIL 2
(PUBLIC CROSS-TRAFFIC MAINTAINED.
NO 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 (500 FEET DESIRABLE) 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 REESTABLISHED.

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

SIGNS THAT WILL BE IN PLACE LESS THAN SEVEN 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.

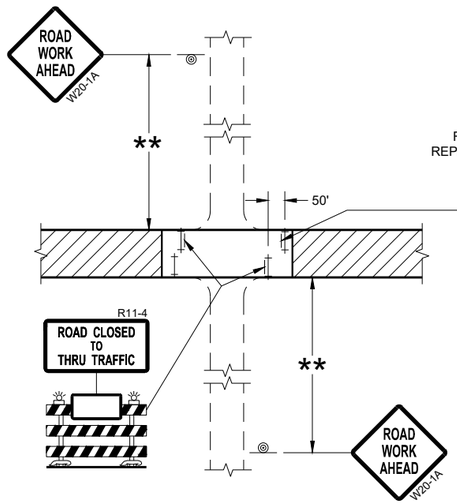
TYPE "A" LOW-INTENSITY FLASHING WARNING LIGHTS SHALL BE VISIBLE ON BOTH SIDES OF THE BARRICADE.

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.

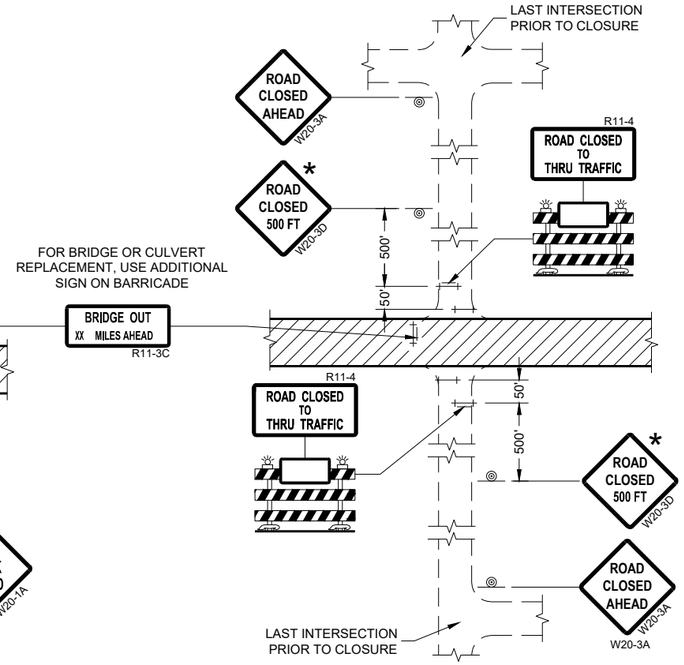
ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:
R11-2 SHALL BE 48" X 30".
R11-4 AND R11-3 SHALL BE 60" X 30".

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

** 500' MAX. OR AT LAST INTERSECTION, WHICHEVER IS CLOSEST.



DETAIL 3
(PUBLIC CROSS-TRAFFIC MAINTAINED.
CONTRACTOR, LOCAL BUSINESS AND
RESIDENT ACCESS TO PROJECT)



DETAIL 4
(CONTRACTOR, LOCAL BUSINESS AND
RESIDENT ACCESS TO PROJECT)

LEGEND

- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- WORK AREA

BARRICADES AND SIGNS FOR SIDEROAD CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

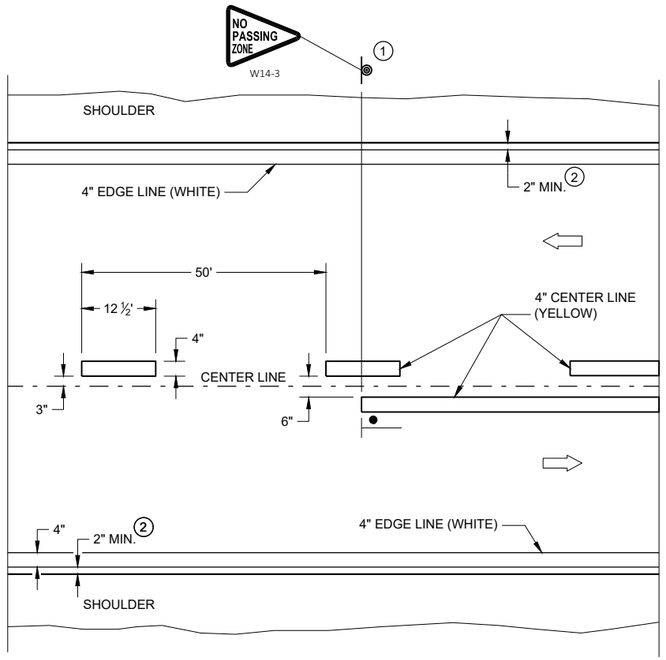
APPROVED
July 2018
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEER

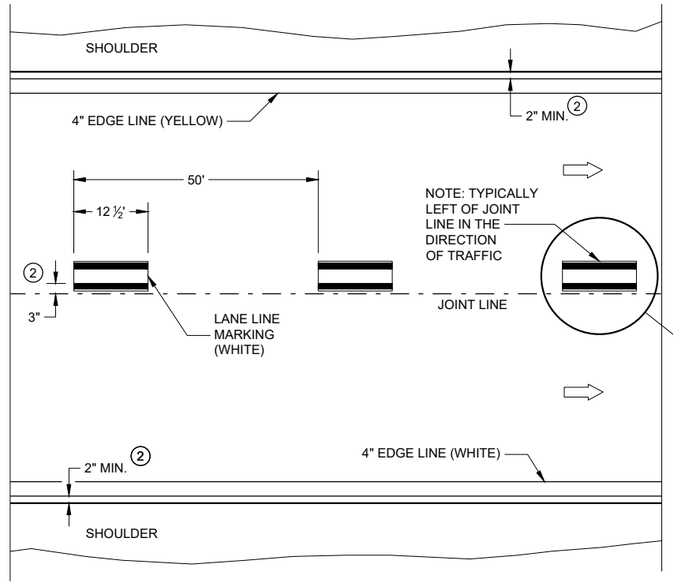
FHWA

6

SDD 15C03 - 05

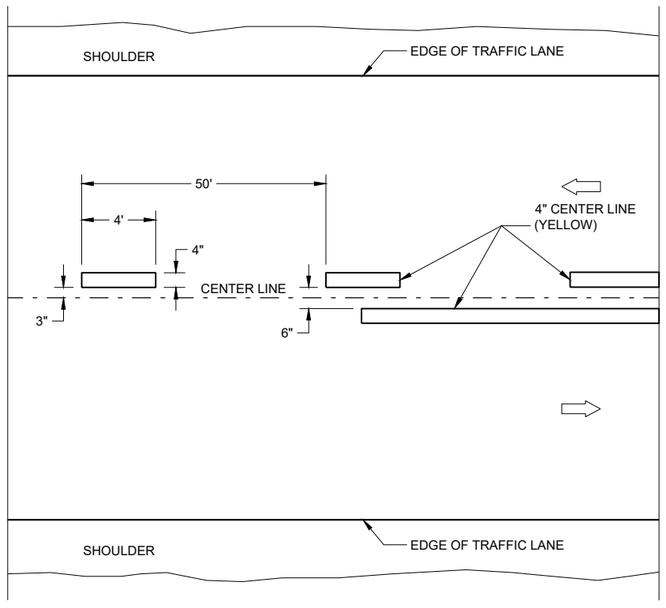


TWO WAY TRAFFIC

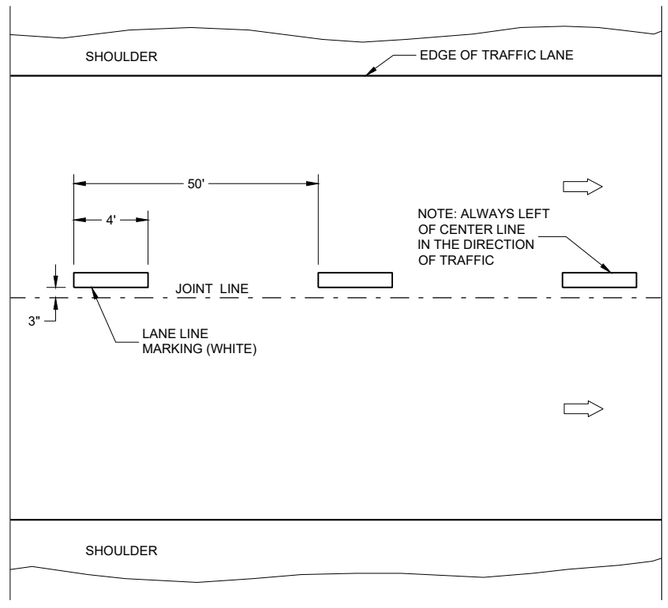


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

GENERAL NOTES

DETAILS OF CONSTRUCTION NO SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

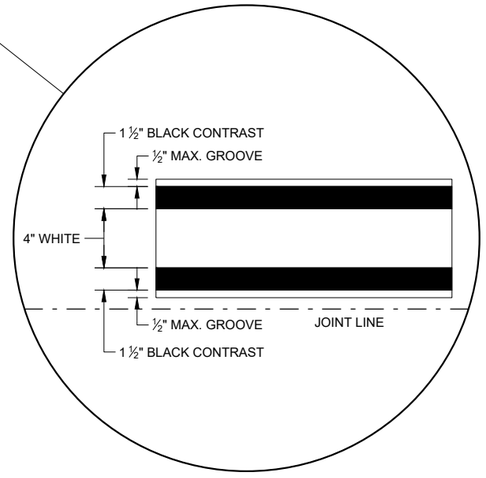
1. LOCATE THE NO PASSING ZONE W14-3 SIGN WITH 50 FEET OF THE "T" MARKING
2. MEASURE FROM EDGE OF MARKING TO JOINT LINE. THIS DOES NOT INCLUDE SPACE NEEDED FOR GROOVING OPERATIONS.

LEGEND

"T" MARKING

SIGN ON PERMANENT SUPPORT

DIRECTION OF TRAFFIC



LONGITUDINAL MARKING (MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020
DATE
/S/ Matthew Rauch
STATEWIDE SIGNING AND M ENGINEER

FHWA

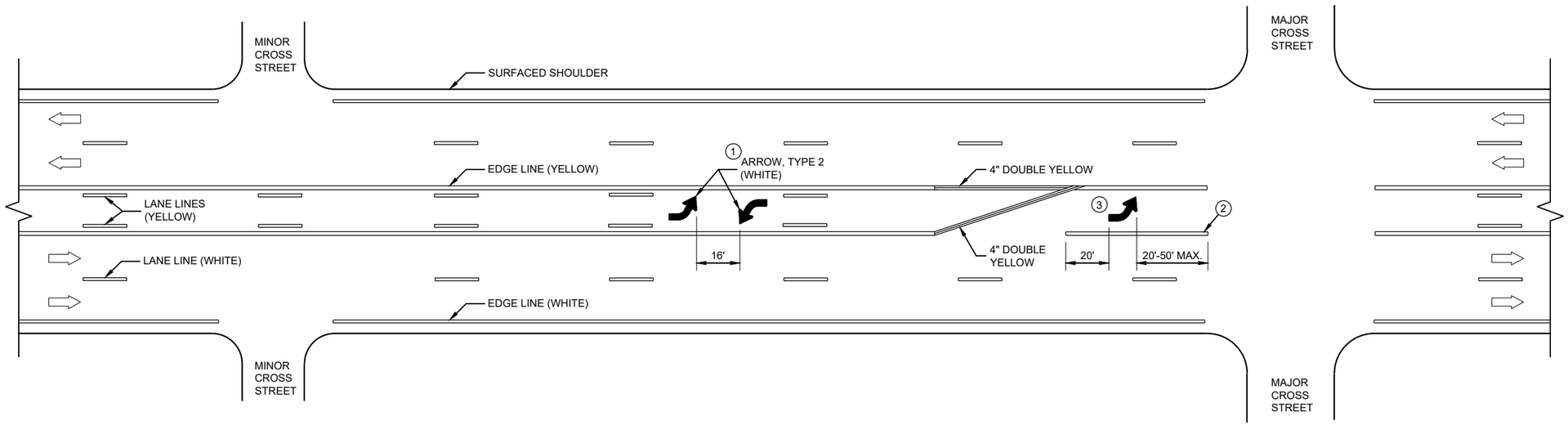
SDD 15C08 - 20a

SDD 15C08 - 20a

GENERAL NOTES

1. A SET OF ARROWS IS REQUIRED EVERY 400 FEET OR NEAR INTERSECTIONS OR DRIVEWAYS WITH TURNING TRAFFIC.
2. 8" WHITE
3. TURN BAY LENGTH OF LESS THAN 48' DOES NOT REQUIRE PAVEMENT ARROWS OR TEXT.

DIRECTION OF TRAFFIC



TWO WAY LEFT TURN LANE

6

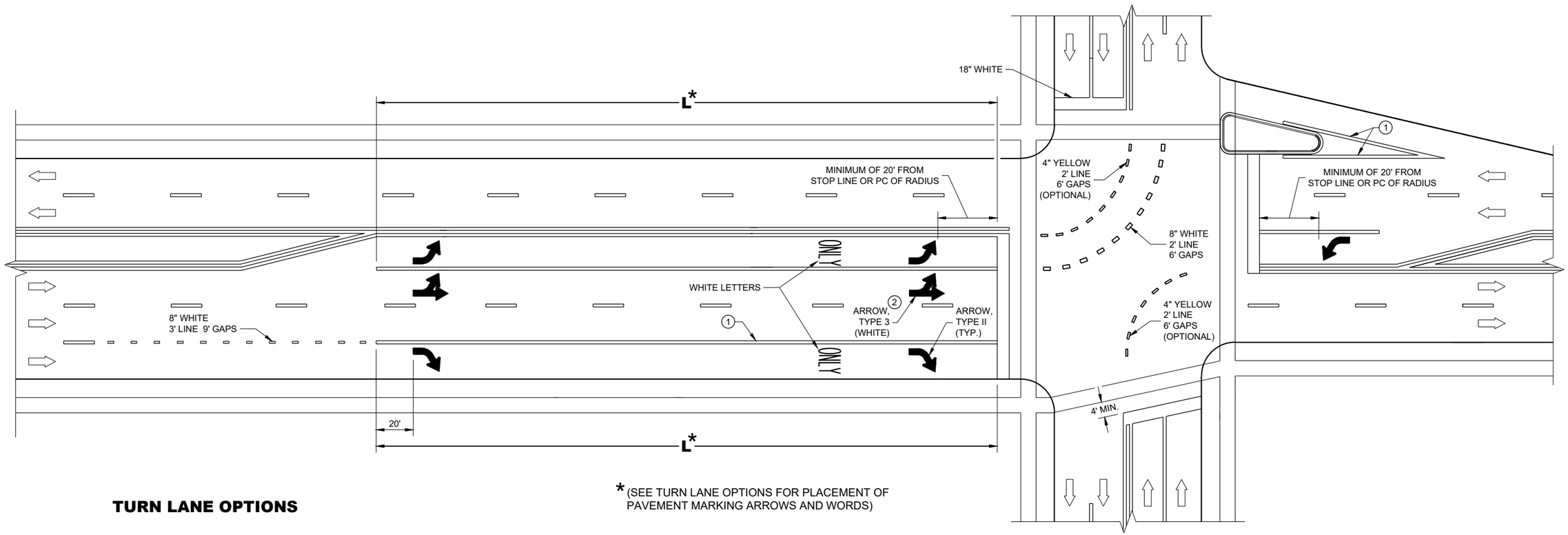
6

SDD 15C08 - 20b

SDD 15C08 - 20b

PAVEMENT MARKING (TURN LANES)

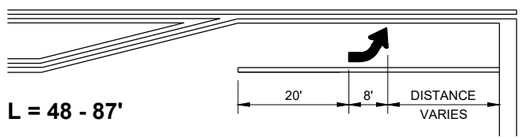
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTA



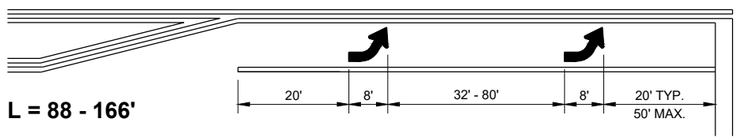
* (SEE TURN LANE OPTIONS FOR PLACEMENT OF PAVEMENT MARKING ARROWS AND WORDS)

TURN LANE OPTIONS

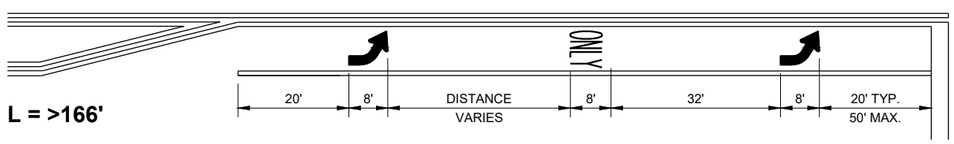
LENGTH OF TURN BAY (**L**) OF 0 - 47' DOES NOT REQUIRE PAVEMENT MARKING ARROWS OR WORDS



L = 48 - 87'



L = 88 - 166'



L = >166'

GENERAL NOTES

1. 8" WHITE
2. QUANTITY AND LOCATION OF TYPE 3 ARROWS ARE THE SAME AS THE TYPE II ARROWS IN THE ADJACENT TURN LANE. FOR TURN LANES WITH A PHYSICAL SEPARATION IN THE SAME DIRECTION OF TRAVEL, THE ARROWS AND "ONLY" MARKING MAY BE ELIMINATED.

DIRECTION OF TRAFFIC

L = LENGTH OF TURN BAY

PAVEMENT MARKING (TURN LANES)

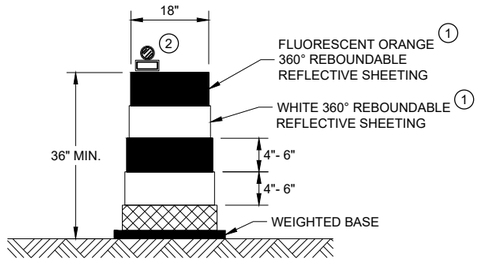
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

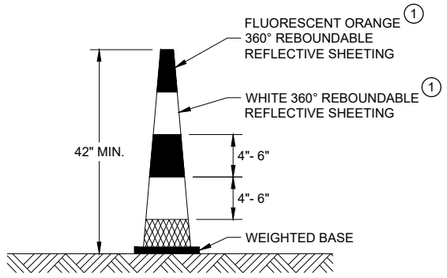
SDD 15C08 - 20c

GENERAL NOTES

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

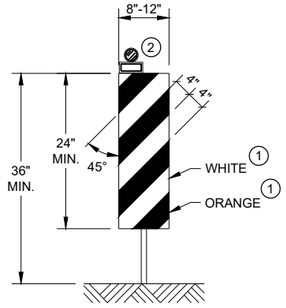


DRUM



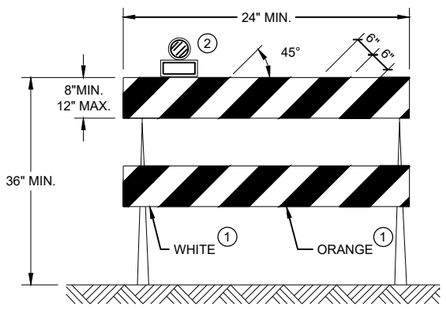
42" CONE

DO NOT USE IN TAPERS
½ SPACING OF DRUMS



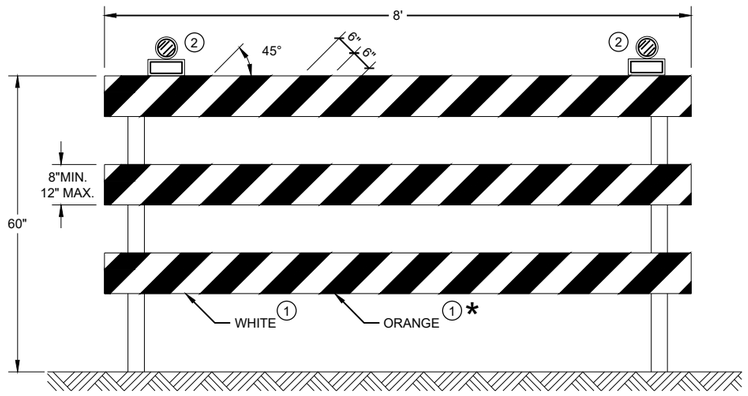
VERTICAL PANEL

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



TYPE II BARRICADE

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



TYPE III BARRICADE

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

* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

CHANNELIZING DEVICES
DRUMS, CONES, BARRICADES
AND VERTICAL PANELS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017 — DATE
/S/ Andrew Heidtke — WORK ZONE ENGINEER
FHWA

6

SDD 15C11 - 07b

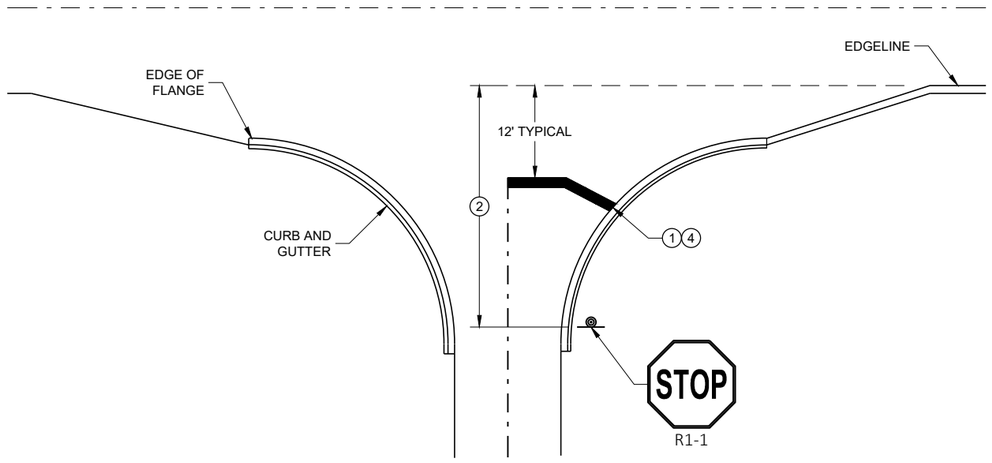
6

SDD 15C11 - 07b

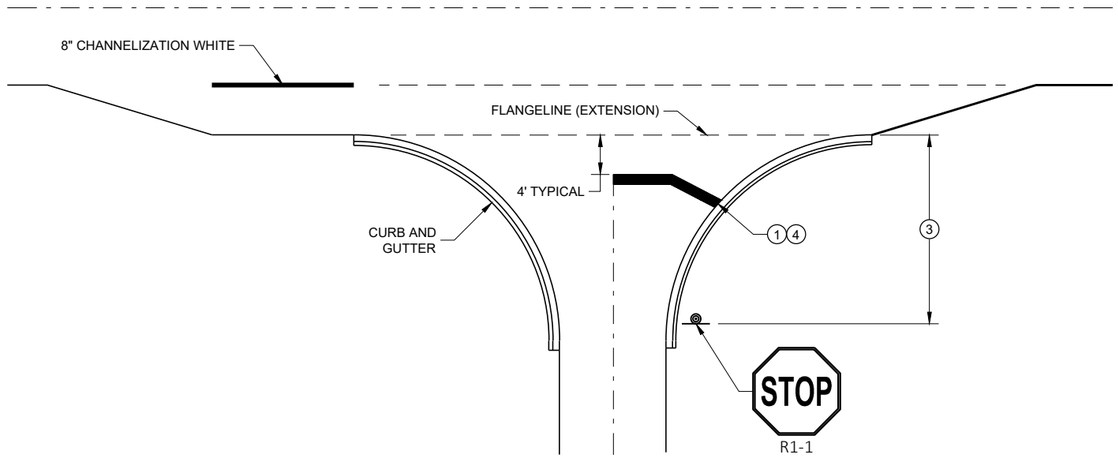
GENERAL NOTES

STOP SIGN SHALL BE PLACED A MINIMUM OF 6 FEET TO A MAXIMUM OF 50 FEET FROM THE EDGELINE LOCATION.

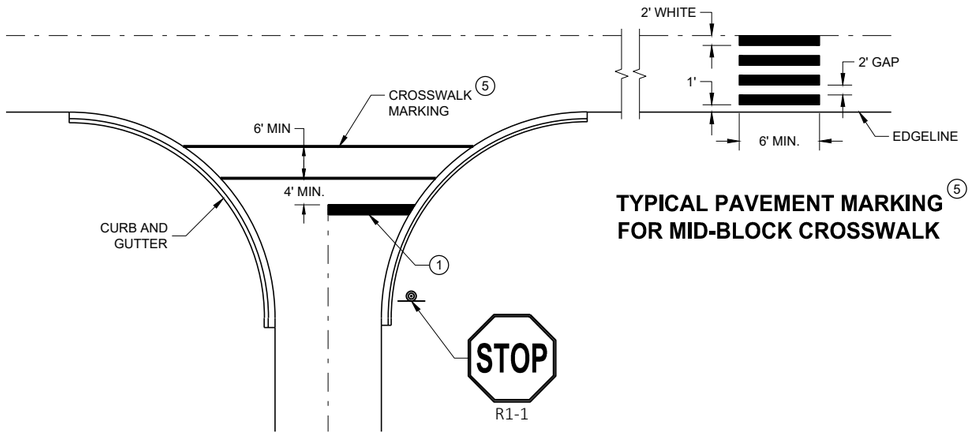
1. 18-INCH STOP LINES MAY BE DELETED OR ADDED BY THE REGION MARKING ENGINEER BASED ON VISIBILITY AND SIGHT LINES.
2. NO STOP LINE IS REQUIRED IF STOP SIGN IS LESS THAN OR EQUAL TO 40 FEET FROM THE EDGELINE.
3. NO STOP LINE IS REQUIRED IF STOP SIGN IS LESS THAN OR EQUAL TO 30 FEET FROM THE FLANGELINE EXTENSION.
4. MOVE CLOSER TO THE EDGE OF TRAVEL LINE AS NEEDED FOR VISIBILITY AND SIGHT LINES (NO CLOSER THAN 4 FEET).
5. LADDER BAR CROSSWALKS SHOULD ONLY BE USED FOR MID BLOCK CROSSINGS. USE 2 - 6" TRANSVERSE LINES INSTEAD.



TYPICAL STOP LINE PAVEMENT MARKING WITH CURB AND GUTTER

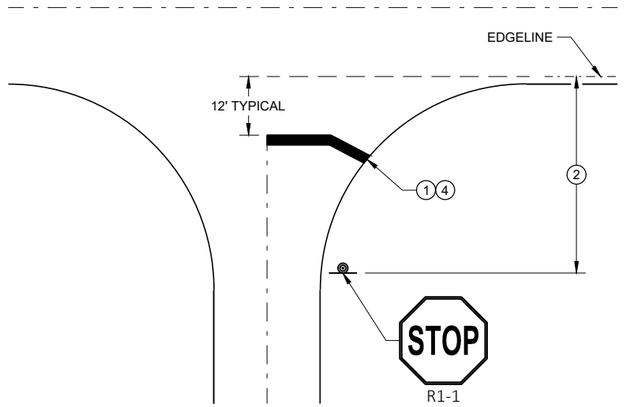


TYPICAL STOP LINE PAVEMENT MARKING FOR SIDEROADS WITH RIGHT TURN LANE



TYPICAL PAVEMENT MARKING FOR MID-BLOCK CROSSWALK 5

TYPICAL STOP LINE PAVEMENT MARKING FOR SIDEROADS WITH CROSSWALK MARKING



TYPICAL STOP LINE PAVEMENT MARKING WITHOUT CURB AND GUTTER

STOP LINE AND CROSSWALK PAVEMENT MARKING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2019
DATE

/S/ Matthew Rauch
STATE SIGNING AND MARKING ENGINEER

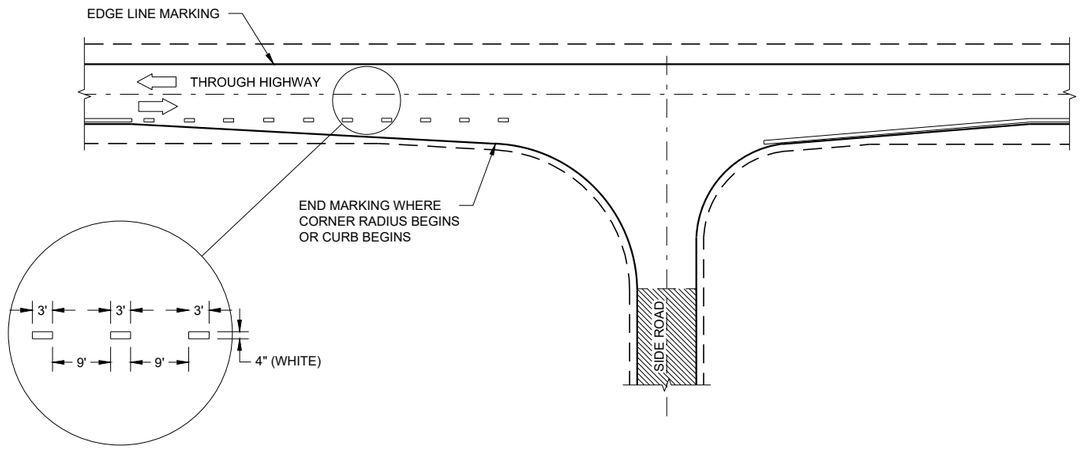
FHWA

6

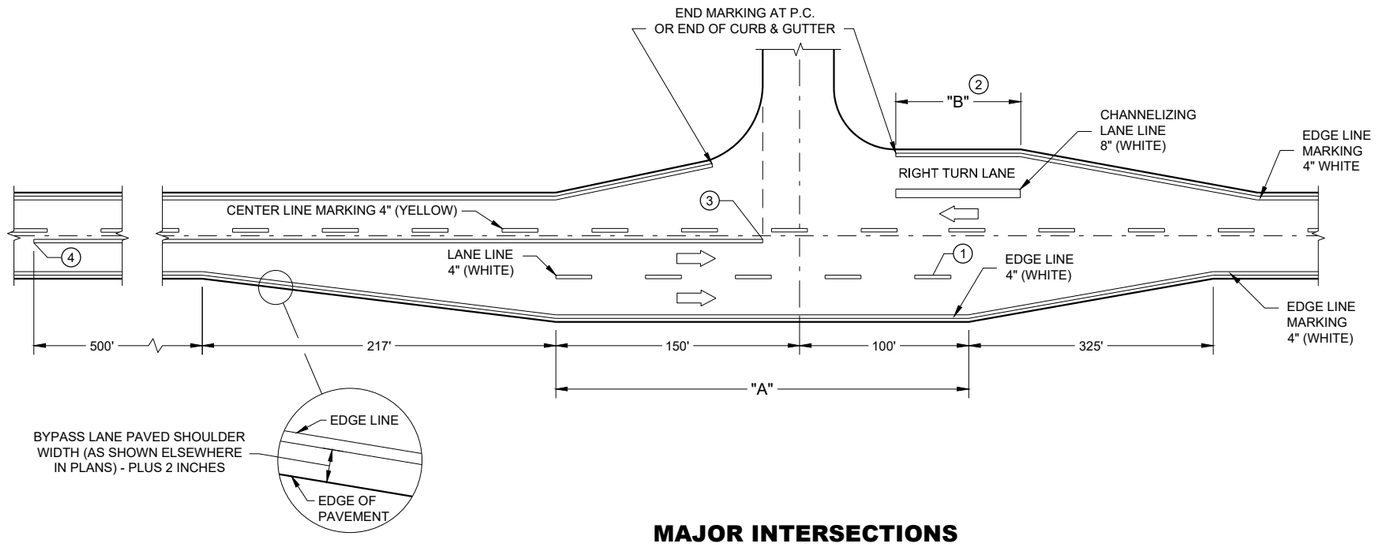
SDD 15C33 - 04

6

SDD 15C33 - 04



MINOR INTERSECTION



MAJOR INTERSECTIONS

(INTERSECTION WITH FULL RIGHT TURN LANE OR BYPASS LANE)

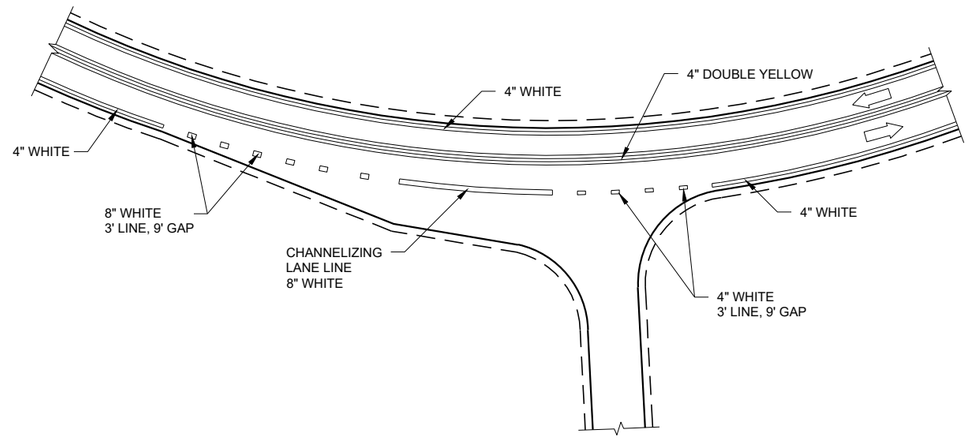
GENERAL NOTES

OMIT EDGE LINES THROUGH INTERSECTIONS. CONTINUE EDGE LINES THROUGH DRIVEWAYS.

1. WHEN DISTANCE "A" IS LESS THAN 250 FEET, OMIT LANE LINE.
2. WHEN DISTANCE "B" IS LESS THAN 100 FEET, OMIT CHANNELIZING LANE LINE.
3. BARRIER LINE ENDS AT SIDE ROAD PAVEMENT / SURFACE EDGE EXTENSION.
4. BARRIER LINE STARTS 500 FEET PRIOR TO THE BYPASS TAPER.

LEGEND

DIRECTION OF TRAVEL



INTERSECTION ON OUTSIDE OF CURVE

PAVEMENT MARKING (INTERSECTIONS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

SDD 15C35 - 04a

6

SDD 15C35 - 04a

GENERAL NOTES

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

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

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

ALL SIGNS ARE 48" x 48" UNLESS OTHERWISE NOTED.

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

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

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

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

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

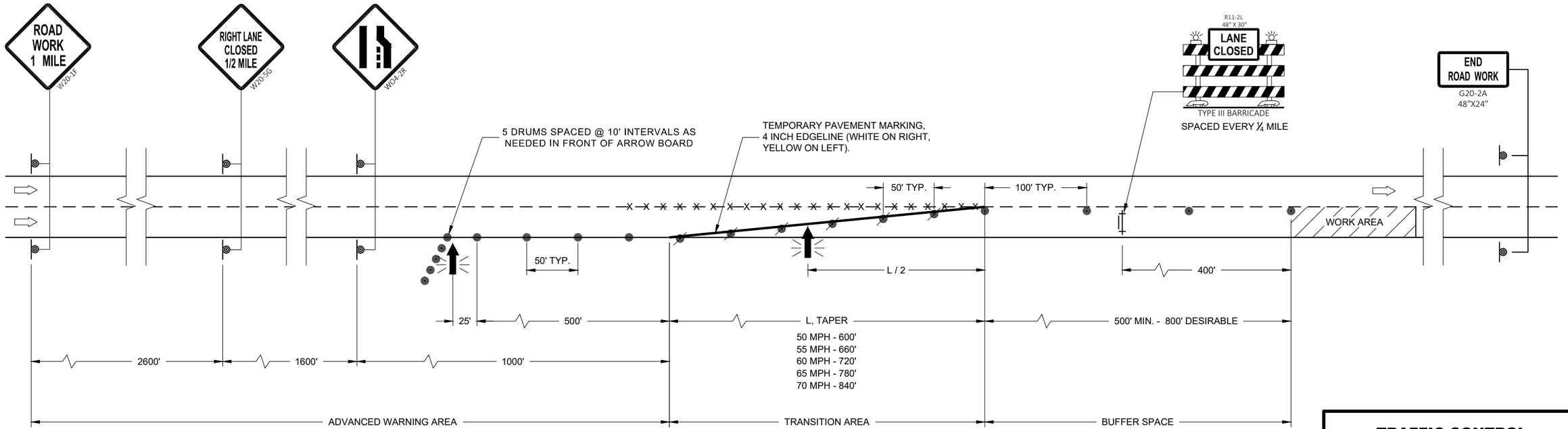
WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

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

CONSIDER ROADWAY GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS.

LEGEND

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



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SDD 15D12 - 09a

TRAFFIC CONTROL LANE CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
August 2020
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEE

FHWA

6

SDD 15D12 - 09a

LEGEND

- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TRAFFIC CONTROL DRUM
- SIGN ON PERMANENT SUPPORT
- TYPE "A" WARNING LIGHT (FLASHING)
- DIRECTION OF TRAFFIC

GENERAL NOTES

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

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 MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS 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.

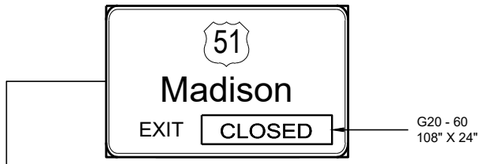
PLACE TEMPORARY PAVEMENT MARKING, REMOVABLE TAPE IF RAMP CLOSURE IS TO BE IN PLACE 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

WORK AREAS WITH A DROP OFF ALONG THE EDGE OF AN OPEN TRAVEL LANE SHALL BE LEVELED WITH TEMPORARY FILL WHEN THE CONTRACTOR IS NOT WORKING ADJACENT TO THE TRAVEL LANE. DRUMS SHALL BE PLACED ENTIRELY OUTSIDE THE TRAVEL LANE, ALLOWING THE FULL UNOBSTRUCTED LANE WIDTH, WHEN WORK IS NOT IN PROGRESS.

WHERE MEDIAN BARRIER IS IN PLACE, SIGNS SHOWN ON LEFT SIDE OF ROADWAY MAY BE OMITTED FOR RIGHT SIDE RAMP CLOSURES OF LESS THAN 12 - HOUR DURATION.

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

** PLACE "RAMP CLOSED BEGINNING" SIGN OR PCMS 7 CALENDAR DAYS PRIOR TO CLOSURE OR AS DIRECTED BY THE ENGINEER. SEE WISCONSIN STANDARD SIGN PLATES FOR SIGN LAYOUT.



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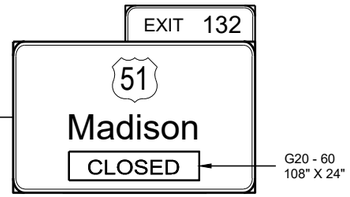
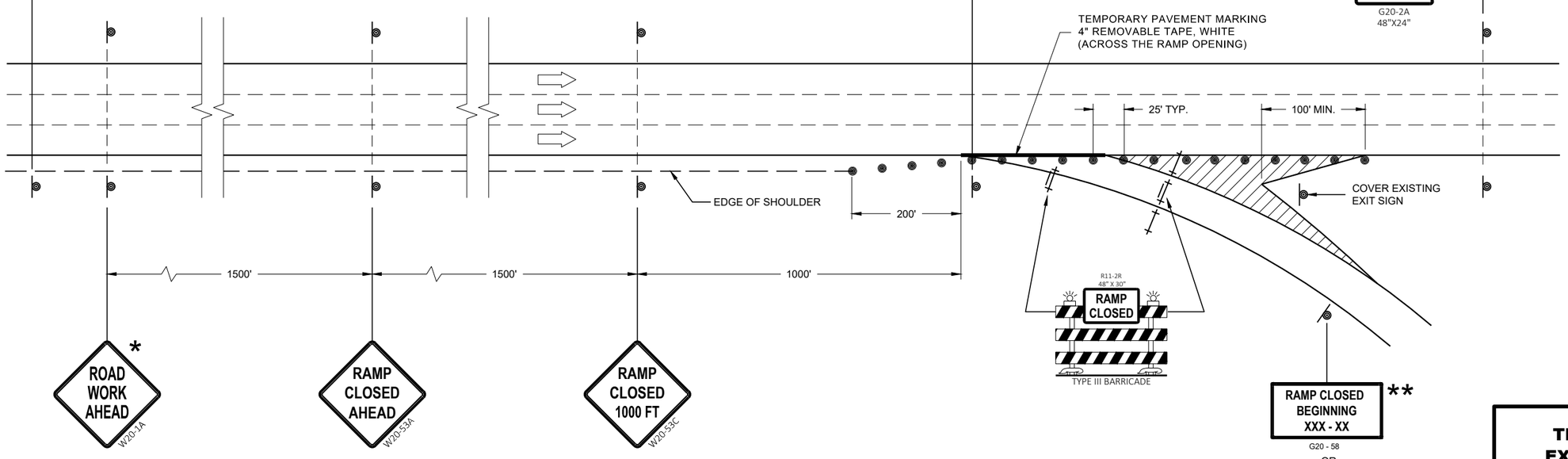


PLACE SIGN G20 - 60 OVER MILEAGE ON EXISTING E1 - 1A SIGN

COVER ARROW ON EXISTING E4 - 1 SIGN (COVERING SIGNS TYPE I)

G20 - 61
120 ' X 30"



OR

PCMS MESSAGING

FRAME 1	FRAME 2
RAMP TO CLOSE	XXXDAY XX XX XX

TRAFFIC CONTROL, EXIT RAMP CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

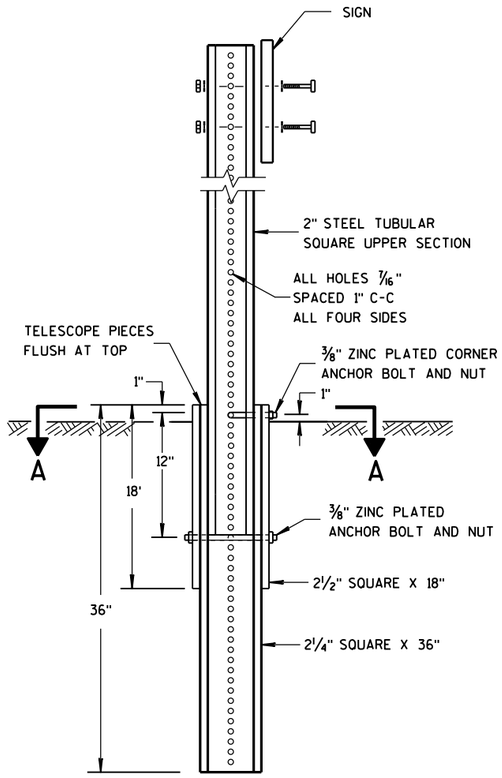
APPROVED
November 2018
DATE

/S/ Andrew Heidtke
ROADWAY STANDARDS DEVE ENGINEER

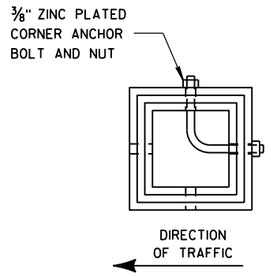
FHWA

SDD 15D16 - 04

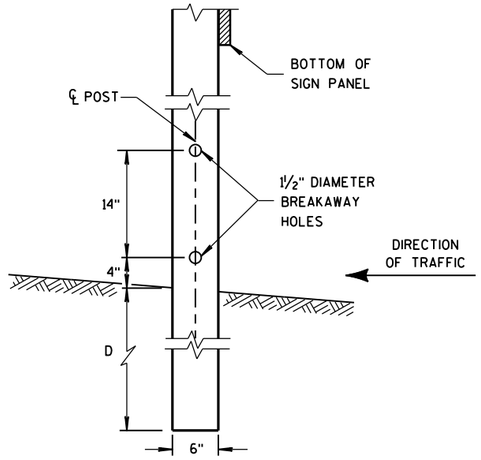
6



DETAIL OF TUBULAR STEEL SIGN POST



SECTION A-A



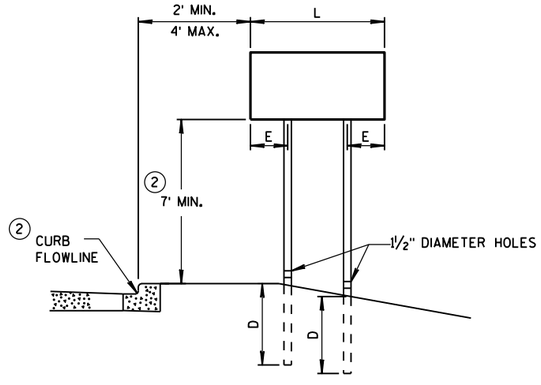
4"x6" WOOD POST MODIFICATION

GENERAL NOTES

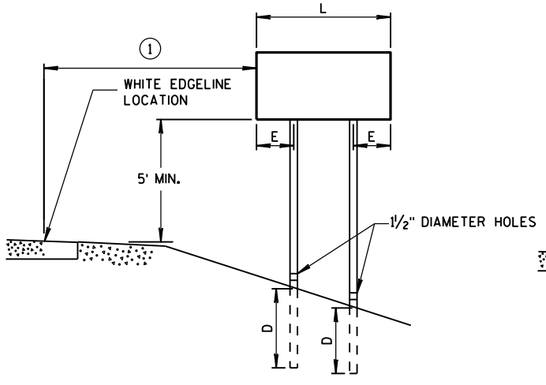
(1) 6 FEET FROM THE EDGE OF PAVEMENT (EDGE LINE LOCATION) UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER. LATERAL OFFSET SHOULD BE ADJUSTED TO AVOID THE DITCH FLOWLINE.

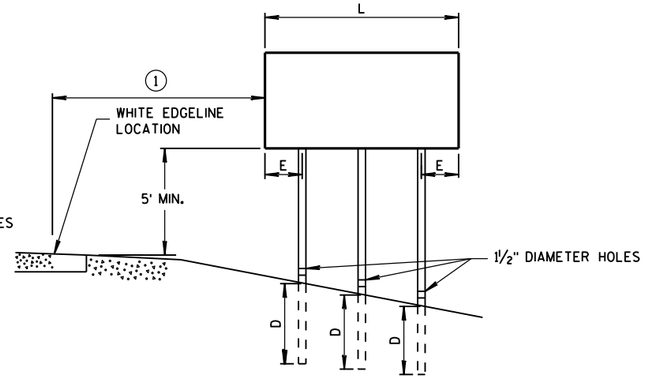
(2) THE EXISTENCE OF CURB AND GUTTER DOES NOT IN ITSELF MANDATE THE VERTICAL CLEARANCE ILLUSTRATED. THAT HEIGHT IS TYPICALLY MEASURED WHERE THERE IS SIDEWALK ADJACENT TO THE ROADWAY OR PARKING IS PERMITTED. IN THE ABSENCE OF SIDEWALK, VERTICAL CLEARANCE IS MEASURED FROM THE TOP OF THE CURB. IF NO SIDEWALK AND NO PARKING, VERTICAL CLEARANCE MAY BE REDUCED TO 5 FOOT MINIMUM. OFFSET OF SIGNS IS MEASURED FROM THE CURB FLOWLINE.

(3) FOR SIGNS REQUIRING 4 POSTS, SPACE INTERMEDIATE POSTS EVENLY.



URBAN AREA





RURAL AREA

POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

TUBULAR STEEL POSTS

AREA OF SIGN INSTALLATION (SQ. FT.)	NUMBER OF REQUIRED TUBULAR STEEL POSTS
9 OR LESS	1
GREATER THAN 9 LESS THAN OR EQUAL TO 18	2
GREATER THAN 18 LESS THAN OR EQUAL TO 27	3

SIGNS WIDER THAN 3 FEET OR LARGER THAN 9 SQ. FT. SHALL BE MOUNTED ON MULTIPLE POSTS (SEE ABOVE TABLE).

SIGNS LARGER THAN 27 SQ. FT. SHALL NOT BE MOUNTED ON TUBULAR STEEL POSTS.

WOOD POST EMBEDMENT DEPTH

AREA OF SIGN INSTALLATION (SQ. FT.)	D (MIN)
20 OR LESS	4'
GREATER THAN 20	5'

4" X 6" WOOD POST

POST SPACING REQUIREMENTS		NUMBER OF WOOD POSTS REQUIRED
L	E	
48" OR LESS AND LESS THAN 20 SQ. FT.	-	1
LESS THAN 60"	12"	2
60" TO 120"	L/5	2
GREATER THAN 120" LESS THAN 168"	12"	3
168" AND GREATER	12"	4

SEE NOTE (3)

TEMPORARY TRAFFIC CONTROL SIGN MOUNTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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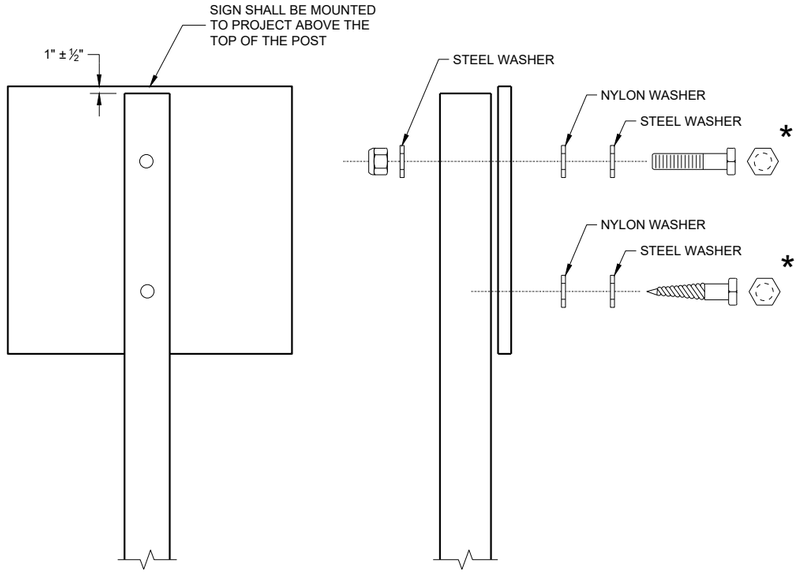
S.D.D. 15 D 38-2a



NUTS, BOLTS AND LAGS USED FOR MOUNTING SIGNS SHALL HAVE HEXAGONAL HEADS AND SHALL BE EITHER:

A. HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM
   DESIGNATION: A 153, CLASS D, OR SC 3
B. ELECTRO-GALVANIZED IN ACCORDANCE WITH ASTM
   DESIGNATION: B 633, TYPE III, SC 3

THREADS ON BOLTS AND NUTS SHALL BE MANUFACTURED WITH SUFFICIENT ALLOWANCE FOR THE CADMIUM PLATE OR GALVANIZED COATING TO PERMIT THE NUTS TO RUN FREELY ON THE BOLTS.

WOOD POST (4" x 6")
- LAG SCREWS - ⅜" x 3"
- MACHINE BOLTS - 5/16" x 6 ½" OR 7" LENGTH W/NUTS

SQUARE STEEL POST (2" x 2")
- MACHINE BOLTS - ⅜" x 3 ¼" LENGTH W/NUTS
- RIVETS - 9/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL O.D. FLANGE 0.720 - 0.765 INCH, GRIP RANGE 0.042 - 0.375 INCH

WASHERS (ALL POSTS) -
- 1 ¼" O.D. x ⅜" I.D. x 1/16" STEEL
- 1 ¼" O.D. x ⅜" I.D. x 0.080 NYLON

* TWO DIFFERENT FASTENING SYSTEMS ARE SHOWN FOR ILLUSTRATION PURPOSES. ON ANY INDIVIDUAL SIGN, EITHER ONE OR THE OTHER SYSTEM SHALL BE USED. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA. FOR A SINGLE POST INSTALLATION, ALL SIGNS GREATER THAN 9 SQ. FT. REQUIRE THE USE OF 3 FASTENERS.

6

6

SDD 15D38 - 02b

SDD15D38 - 02b

ATTACHMENT OF SIGNS TO POSTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEE

FHWA

LEGEND

- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON TEMPORARY SUPPORT
- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TRAFFIC CONTROL DRUM
- TYPE "A" WARNING LIGHT (FLASHING)
- DIRECTION OF TRAFFIC
- WORK AREA
- FLASHING ARROW BOARD
- PCMS — PORTABLE CHANGEABLE MESSAGE SIGN

GENERAL NOTES

RIGHT CLOSURE SHOWN (LEFT LANE CLOSURE SIMILAR)

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

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

ALL SIGNS ARE 48" x 48" UNLESS OTHERWISE NOTED.

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

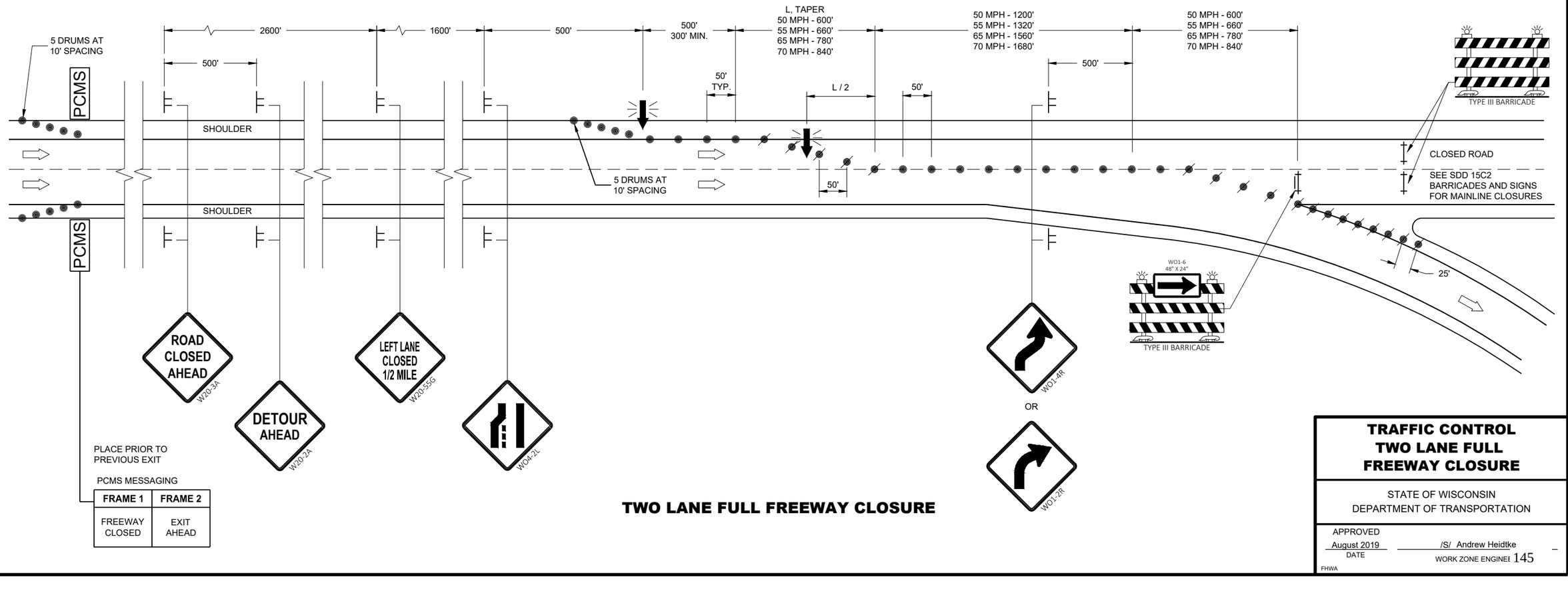
WHEN A RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, ADDITIONAL TRAFFIC CONTROL SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND / OR THE SPECIAL PROVISIONS OR AS DIRECTED BY THE ENGINEER.

PLACE A TYPE III BARRICADE APPROXIMATELY EVERY 1000' ACROSS EACH CLOSED LANE TO HELP REINFORCE THE DRUM LINE.

CONSIDER ROADWAY GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS.

REFER TO DETOUR ROUTES FOR TRAFFIC GUIDANCE SIGNING.

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



TWO LANE FULL FREEWAY CLOSURE

TRAFFIC CONTROL
TWO LANE FULL
FREEWAY CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
August 2019
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEER

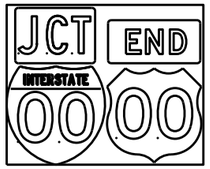
FHWA

SDD 15D42 - 01

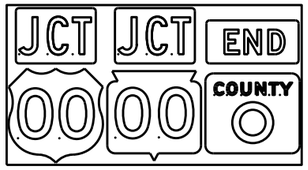
SDD 15D42 - 01

TYPICAL ASSEMBLIES

J1-1

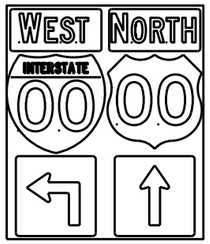


J1-2

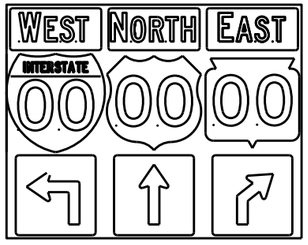


J1-3

J2-1



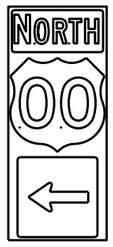
J2-2



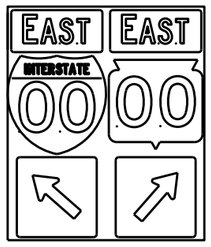
J2-3

JV

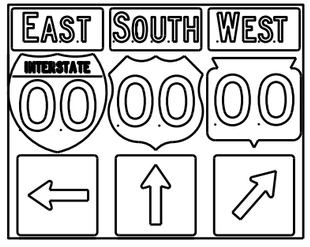
(Typical Vertical J-Assembly
See Note 10 and 11)



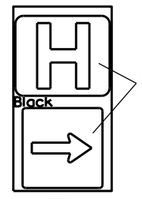
J3-1



J3-2



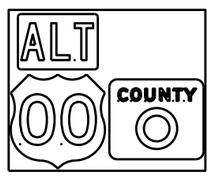
J3-3



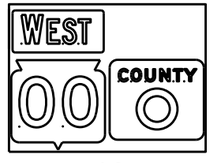
Blue Background

JH-1

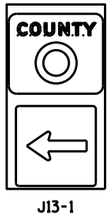
J4-1



J4-2



J4-2



J13-1

J12-1

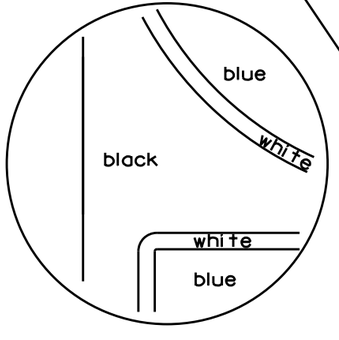
J32-1

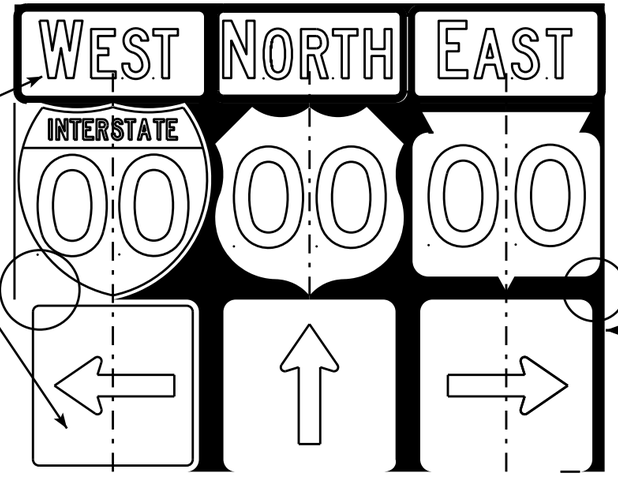
J33-1

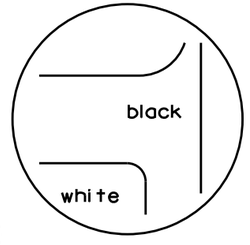
J23-1

J22-1

[blue background with interstate]







[black background]

NOTES

1. Signs are Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Black Non-reflective
   Message - see Note 5
3. Message Series - See Note 5
4. Corners shall be square or rounded if base material is plywood. If base material is metal the corners shall be rounded.
5. The colors and message spacing on each marker shall be according to the applicable route marker panel specifications.
6. Certain marker heads require the component pieces to be the same color. As an example, all the components used with an M1-1 Interstate marker shall be blue.
7. Single panel j-assemblies shall only be used with route marker shields that are same size. If the route marker shields are different size use multiple piece component.
8. Route assemblies that have 24 inch route shields and have dimensions greater than 48 inches (both vertical and horizontal) shall have one horizontal splice between the arrows and route shields. Vertical splices shall not be used on route assemblies with a horizontal dimension of 144 inches or less. The contractor shall not use more than one vertical joint per sign and the joint shall be between route shields.
9. Route assemblies that have 36 inch shields and have dimensions greater than 48 inchs (both vertical and horizontal) shall have two horizontal splices. One horizontal splice shall be between the cardinal direction and route shields and the other horizontal splice shall be between the arrows and route shields. Vertical splices shall not be used on route assemblies with a horizontal dimension of 144 or less. The contractor shall not use more than one vertical joint per sign and the joint shall be between route shields.
10. All Vertical J Assemblies are given a Sign Code of JV
11. For JV Assemblies that have a mixture of Interstate and non Interstate shields, arrows and cardinals shall be white on blue.

ROUTE MARKERS & COMPONENTS
IN TYPICAL ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 2/06/14 PL... A2-1S.8

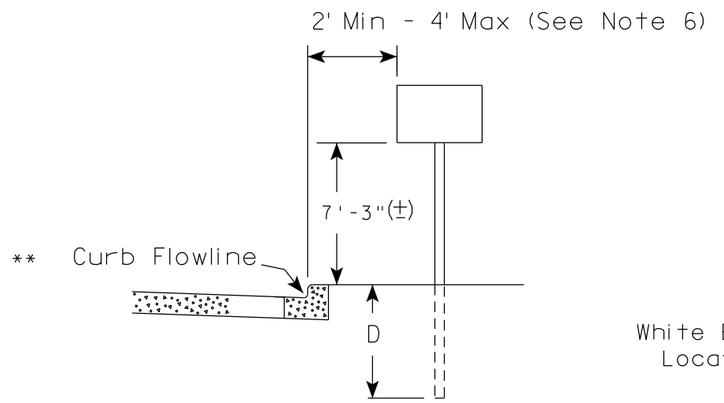
PROJECT NO:

SHEET NO: E

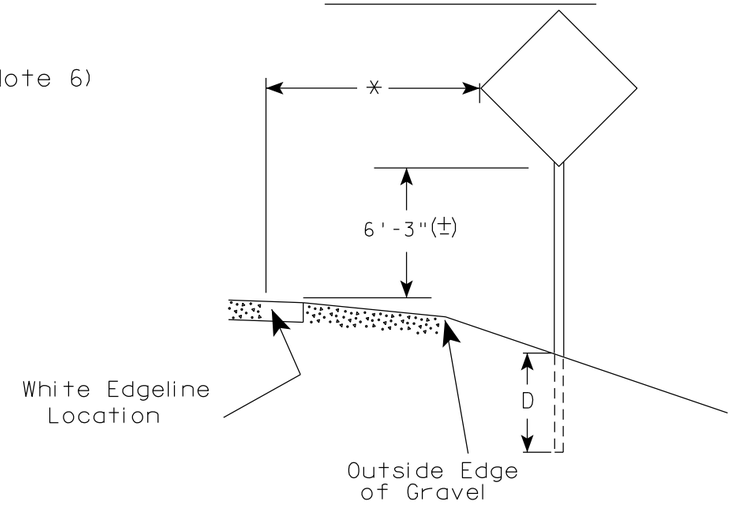
FILE NAME : C:\CAEFiles\Projects\tr_stdplate\A21S.DGN PLOT DATE : 06-FEB-2014 14:10 PLOT BY : mscsja PLOT NAME :

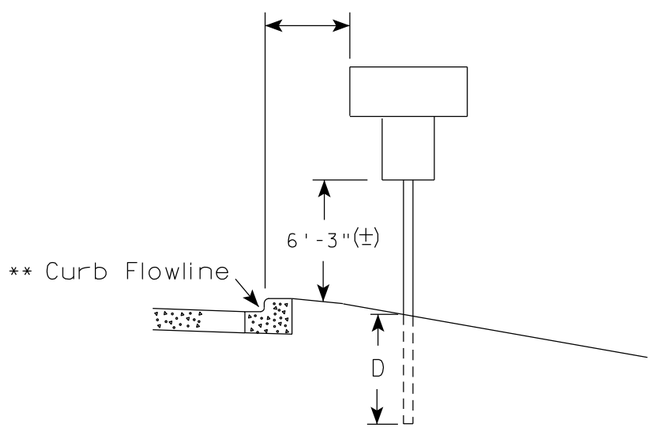
WISDOT/CADDS SHEET 42

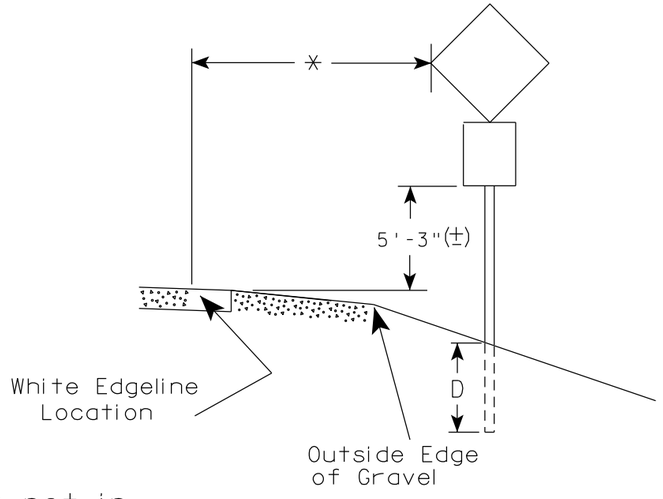
URBAN AREA



RURAL AREA (See Note 2)







** The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs is measured from the flow line.

* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

POST EMBEDMENT DEPTH

Area of Sign Installation (Sq.Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

GENERAL NOTES

1. Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on or behind barrier wall, see A4-10 sign plate.
   The Double Arrow sign (W12-1D) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).
3. For expressways and freeways, mounting height is 7'- 3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±).
5. Offset distance shall be consistent with existing signs or consistent throughout length of project.
6. The (±) tolerance for mounting height is 3 inches.
7. Folding signs shall be mounted at a height of 5'-3" (±) or as directd by the Engineer.

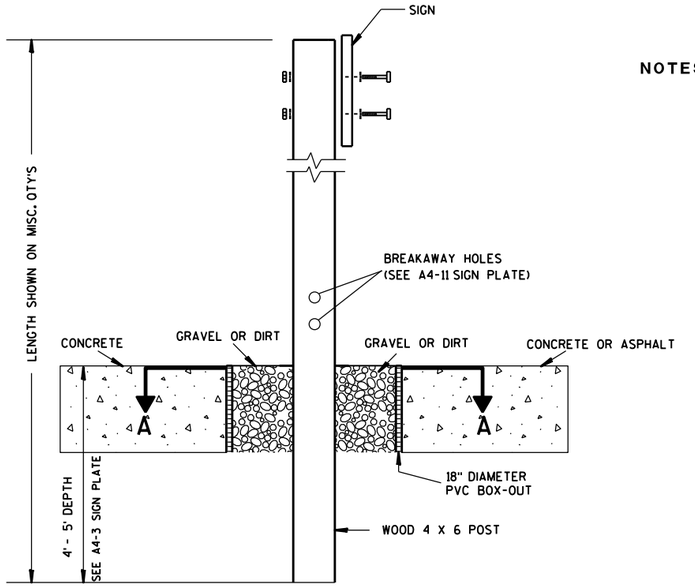
TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 5/13/2020 PLATE NO. A4-3.22

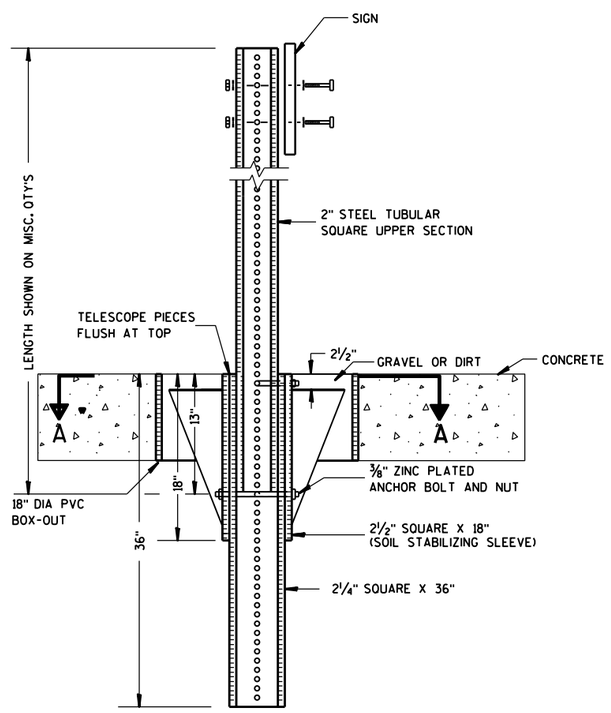
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 147	E



ELEVATION VIEW

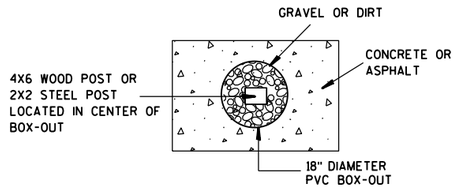
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

NOTES:
1. ALL MATERIAL TO BE APPROVED BY ENGINEER PRIOR TO INSTALLATION
2. SEE SIGN PLATE A4-8 FOR SIGN HARDWARE REQUIREMENTS
3. 18 INCH X 18 INCH SQUARE BOX-OUTS MAY BE USED FOR INSTALLATIONS IN EXISTING CONCRETE OR ASPHALT LOCATIONS.



ELEVATION VIEW

DETAIL OF STEEL 2 X 2 SIGN POST IN BOX-OUT



PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST BOX-OUTS A4-3B

WISCONSIN DEPT OF TRANSPORTATION

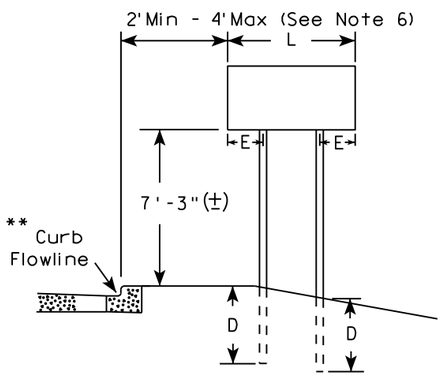
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 1/27/14 PLATE NO. A4-3B.1

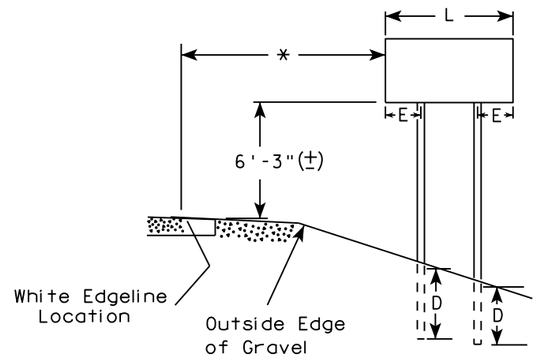
PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

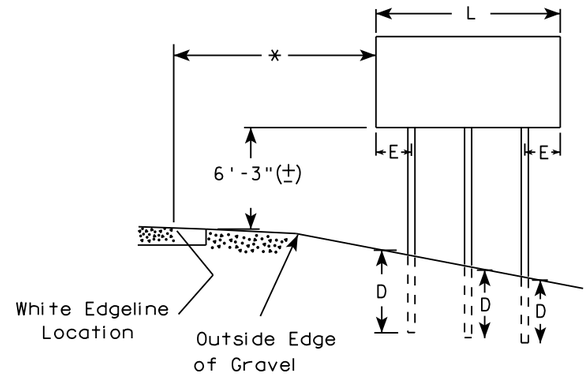
FILE NAME : C:\CAEFiles\Projects\tr_stdplate\A43B.DGN PLOT DATE : 27-JAN-2014 09:48 PLOT BY : mscsja PLOT NAME : PLOT SCALE : 13.659812:1.000000 WISDOT/CADDS SHEET 42

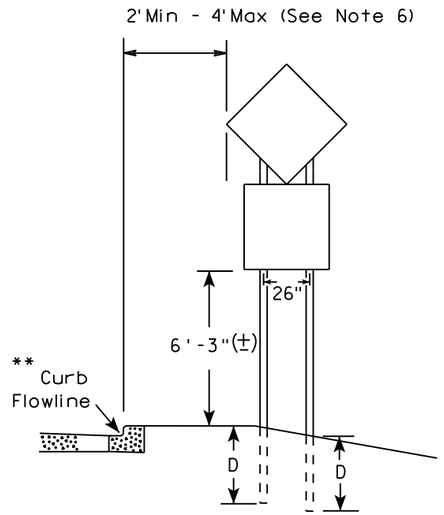
URBAN AREA



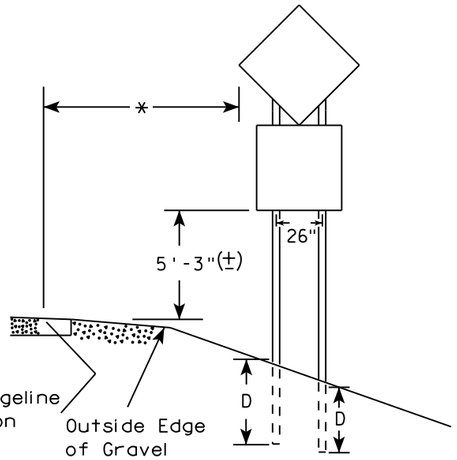
RURAL AREA (See Note 3)







48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

***	SIGN SHAPE OTHER THAN DIAMOND (TWO POSTS REQUIRED)	
	L	E
	Greater than 48" Less than 60"	12"
	60" to 108"	L/5

SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 108" to 144"	12"

GENERAL NOTES

1. For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
2. See tables below for required number of posts.
3. For expressways and freeways, mounting height is 7'-3" (±) or 6'-3" (±) depending upon existence of sub-sign.
4. The (±) tolerance for mounting height is 3 inches.
5. J-Assemblies are considered to be one sign for mounting height.
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the engineer.
8. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4"-3" (±).

* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

** The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs is measured from the flow line.

*** See A4-3 sign plate for signs 4' or less in width and less than 20 S.F. in area.

POST EMBEDMENT DEPTH

Area of Sign Installation (Sq. Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

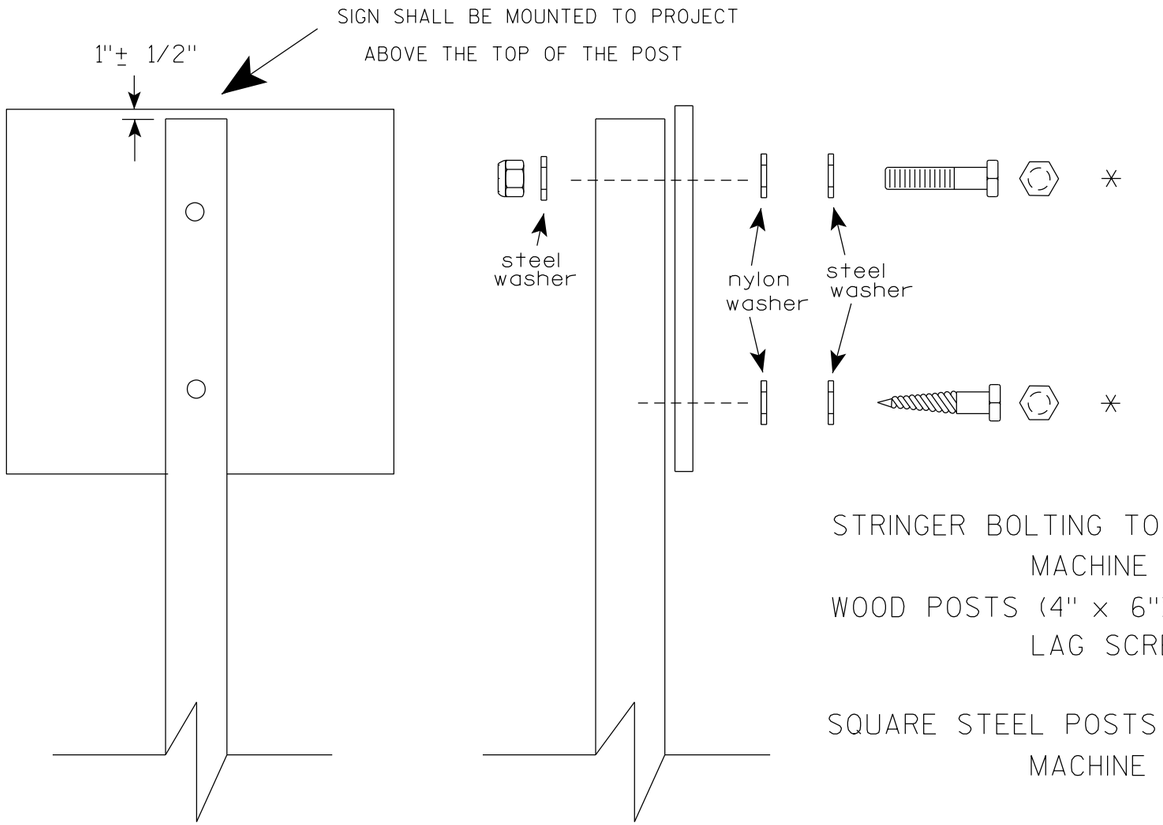
TYPICAL INSTALLATION OF TYPE II SIGNS ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 8/21/17 PLATE NO. A4-4.15

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 149	E



Nuts, bolts and lags used for mounting signs shall have hexagonal heads and shall be either :

a. Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3

b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)

MACHINE BOLTS - 5/16" X 1-3/4" Length w/ lock nuts

WOOD POSTS (4" x 6")

LAG SCREWS - 3/8" X 3" (NO STRINGERS ON BACK OF SIGN)
3/8" X 4" (STRINGERS ON BACK OF SIGN)

SQUARE STEEL POSTS (2" x 2")

MACHINE BOLTS - 3/8" X 3-1/4" Length w/ nuts (NO STRINGER ON BACK OF SIGN)
3/8" X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)

RIVETS - 9/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL
O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH

WASHERS (ALL POSTS) -

1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON

* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require the use of 3 fasteners.

ATTACHMENT OF SIGNS TO POSTS

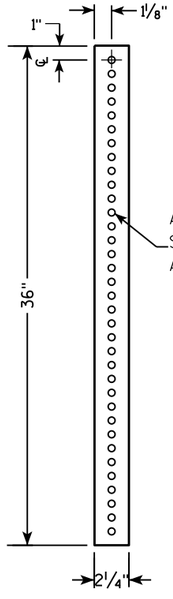
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

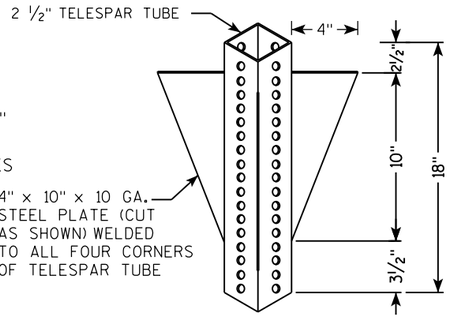
DATE 4/1/2020 PLATE NO. A4-8.9

TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM

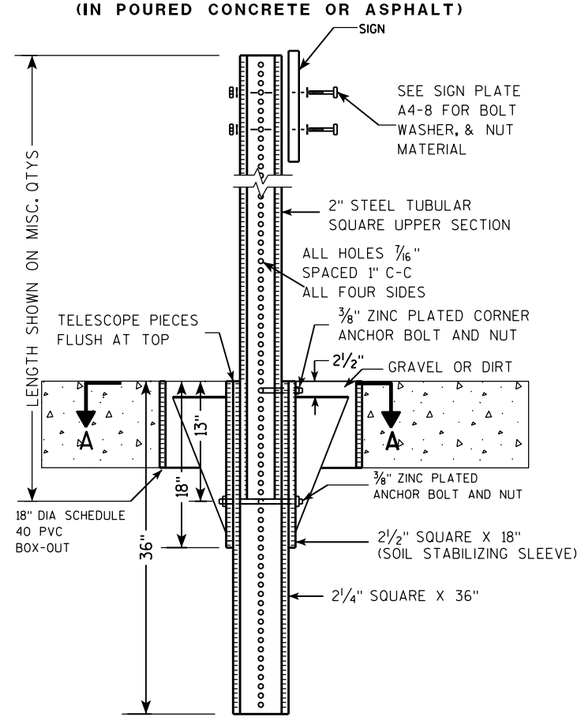
2 1/4 " SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH



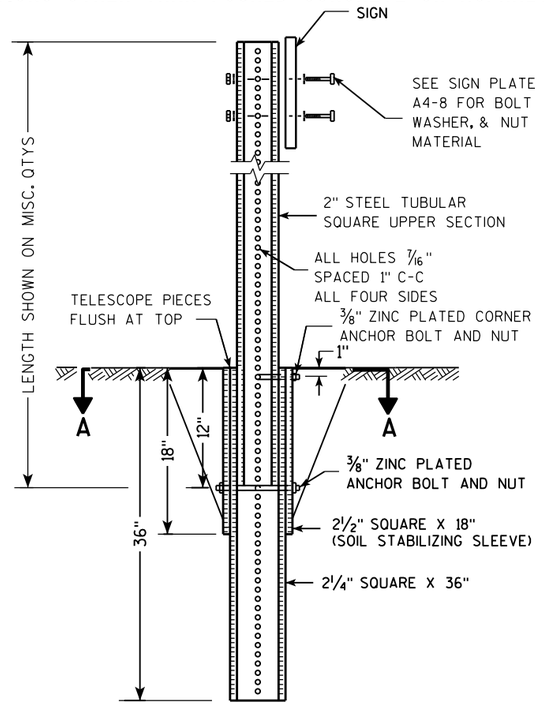
2 1/2 " SQUARE
12 GAUGE
OMNI-DIRECTIONAL
PERFORATED
SOIL STABILIZING SLEEVE
GALVANIZED FINISH

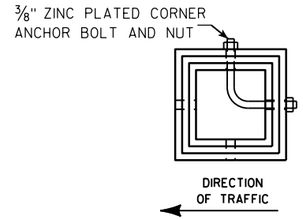


DETAIL OF TUBULAR STEEL SIGN POST
(IN POURED CONCRETE OR ASPHALT)



DETAIL OF TUBULAR STEEL SIGN POST
(IN LOCATIONS OTHER THAN POURED CONCRETE OR ASPHALT)





SECTION A-A

Area of Sign Installation (Sq. Ft.)	Number of Required Posts
9 or less	1
Greater than 9 less than or equal to 18	2
Greater than 18 less than or equal to 27	3

Signs wider than 3 feet or larger than 9 sq. ft shall be mounted on multiple posts (see above table).

TUBULAR STEEL
SIGN POST
A4-9

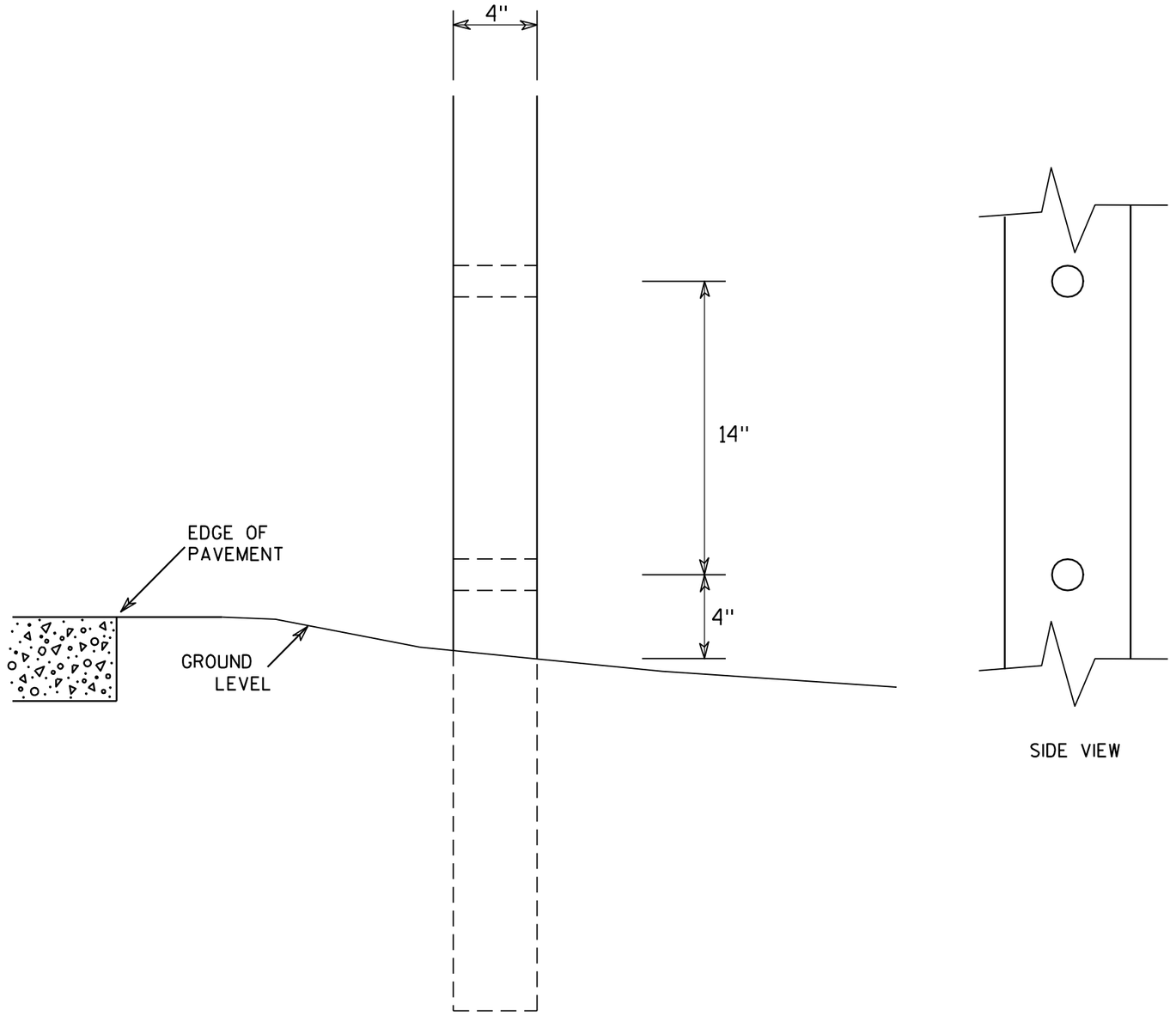
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 2/05/15 PLATE A4-9.9

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

FILE NAME : C:\CAEFiles\Projects\tr_stdplate\A49.DGN PLOT DATE : 05-FEB-2015 17:09 PLOT BY : mscsja PLOT NAME : PLOT SCALE : 13.659812:1.000000
WISDOT/CADDS SHEET 42



SIDE VIEW

GENERAL NOTES

1. All 4 x 6 Wood Posts shall be modified by having two 1½" diameter holes drilled perpendicular to the roadway centerline.

7

7

4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

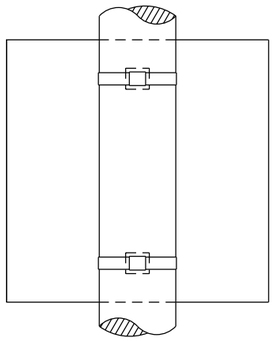
APPROVED Chester J Spang
for State Traffic Engineer

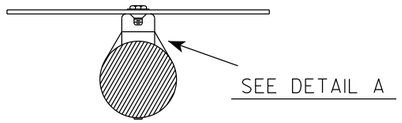
DATE 3/27/97 PLATE NO. A4-11.2

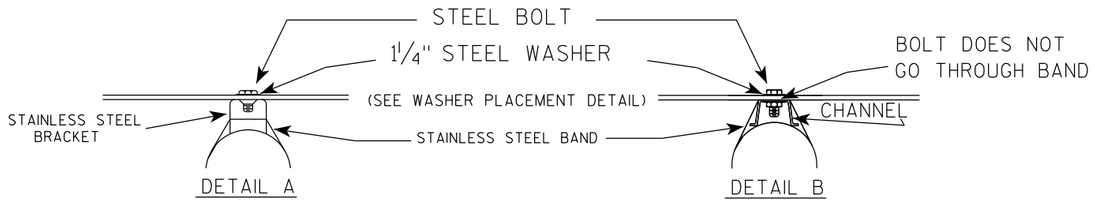
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 152	E

BANDING

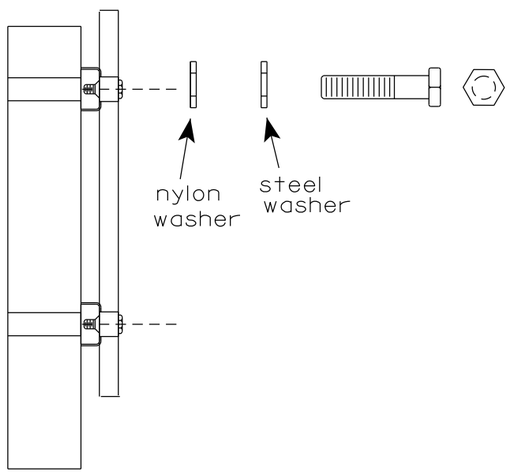
SINGLE SIGN







WASHER PLACEMENT

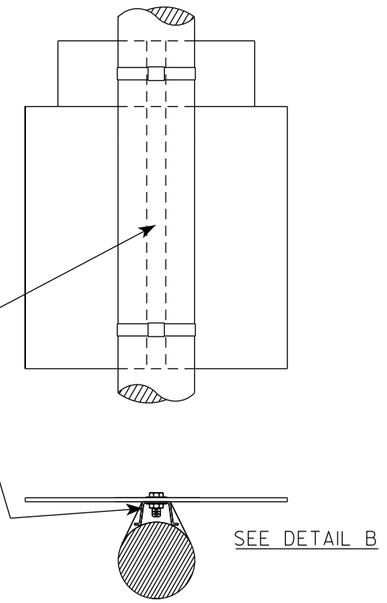


WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON
FOR ALL TYPE H SIGNS

GENERAL NOTES

1. Any sign over 3 feet in width shall use the V-Block banding method. See A5-10 standard plate.
2. Signs 3 feet or greater in height shall have three bracket bands installed. Signs less than 3 feet in height shall have two bracket bands installed.
3. Banding and assembly bracket shall be stainless steel. All bands shall be ¾" in width and 0.025" thickness.
4. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
   a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D
   b. Electro-galvanized in accordance with ASTM designation: B 633, Type III, SC 3

"J" ASSEMBLY



STANDARD SIGN
SIGN BANDING DETAILS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

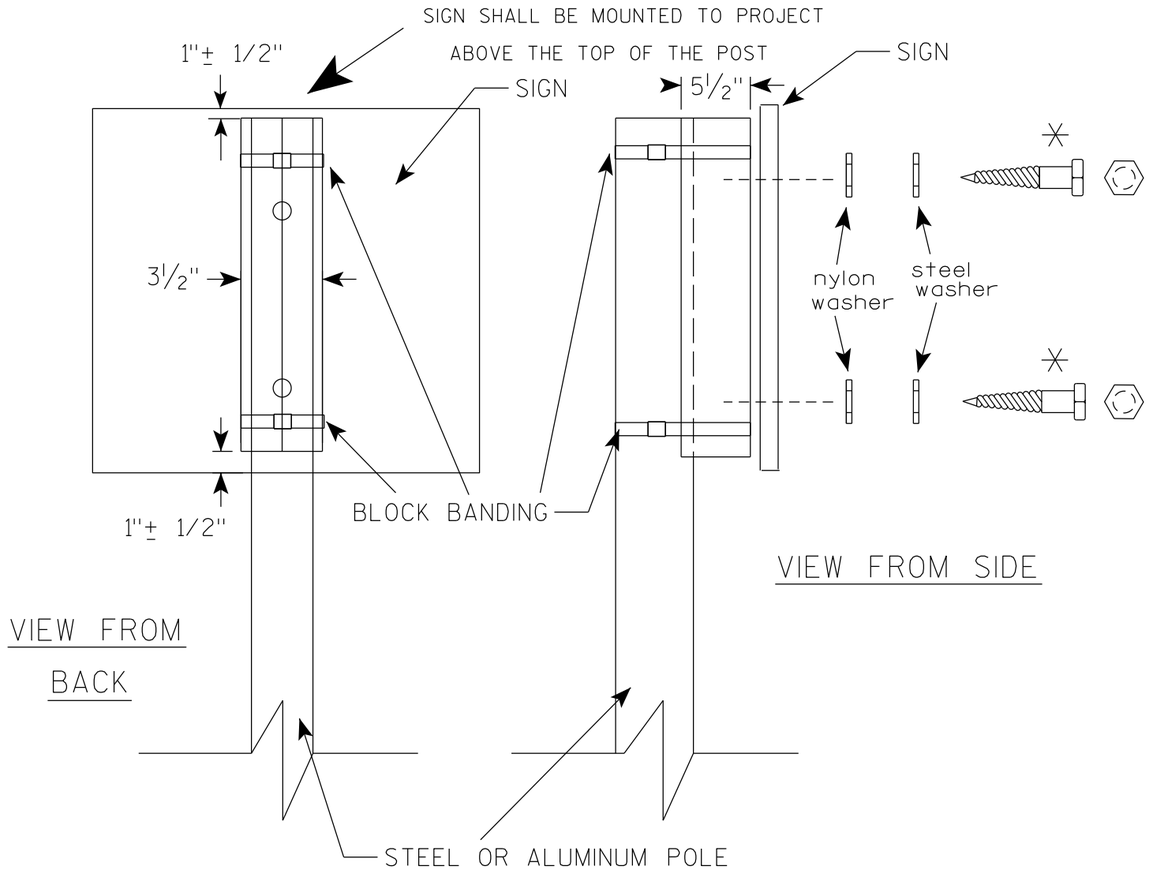
DATE 6/10/19 PLATE NO. A5-9.4

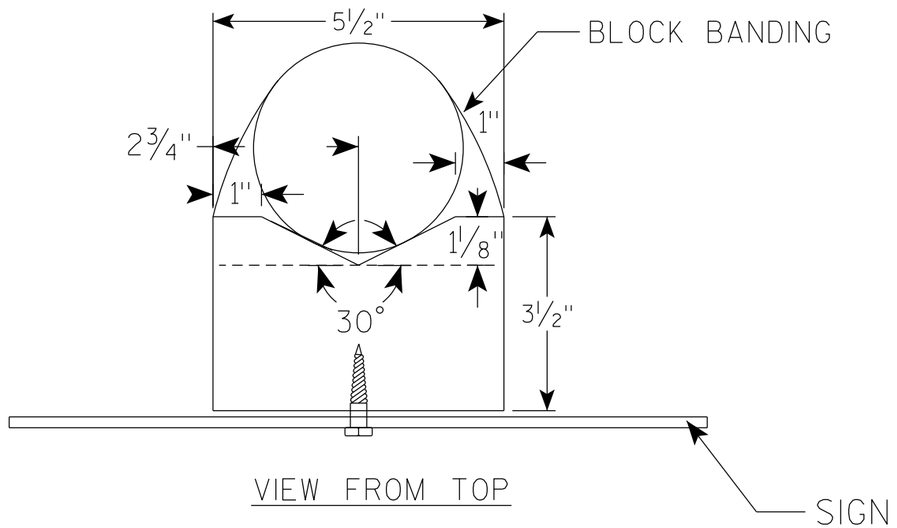
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 153	E

FILE NAME : C:\CAEfiles\Projects\tr_stdplate\A59.dgn PLOT DATE : 10-JUN 2019 4:10 PLOT BY : mscj9h PLOT NAME : PLOT SCALE : $$.....plotscale.....$$ WISDOT/CADDS SHEET 42

7

7





GENERAL NOTES

1. WOOD 4"X6" POST MATERIAL SHALL CONFORM TO 507.2.2 OF THE WisDOT STANDARD SPECIFICATIONS
2. BLOCK BANDING AND CLIPS SHALL BE STAINLESS STEEL, ¾" WIDTH AND 0.025" THICKNESS
3. SIGNS 3' OR GREATER IN HEIGHT SHALL UTILIZE 3 BLOCK BANDS. SIGNS UNDER 3' IN HEIGHT SHALL UTILIZE 2 BLOCK BANDS
4. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA, BUT NORNALLY THERE ARE TWO. FOR SIGNS GREATER THAN 9 S.F. 3 FASTENERS SHALL BE USED.
5. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
   a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D
   b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3
6. ALL BOLTS SHALL HAVE HEXAGONAL HEADS.
7. STEEL WASHERS SHALL BE 1¼" O.D. X ⅜" I.D. X 1/16"
8. NYLON WASHERS SHALL BE 1¼" O.D. X ⅜" I.D. X .080 FOR TYPE H OR TYPE F FACE SIGN

✳ LAG BOLTS SHALL BE ⅜" X 2½"

BLOCK BANDING DETAIL (V-BLOCK OPTION)

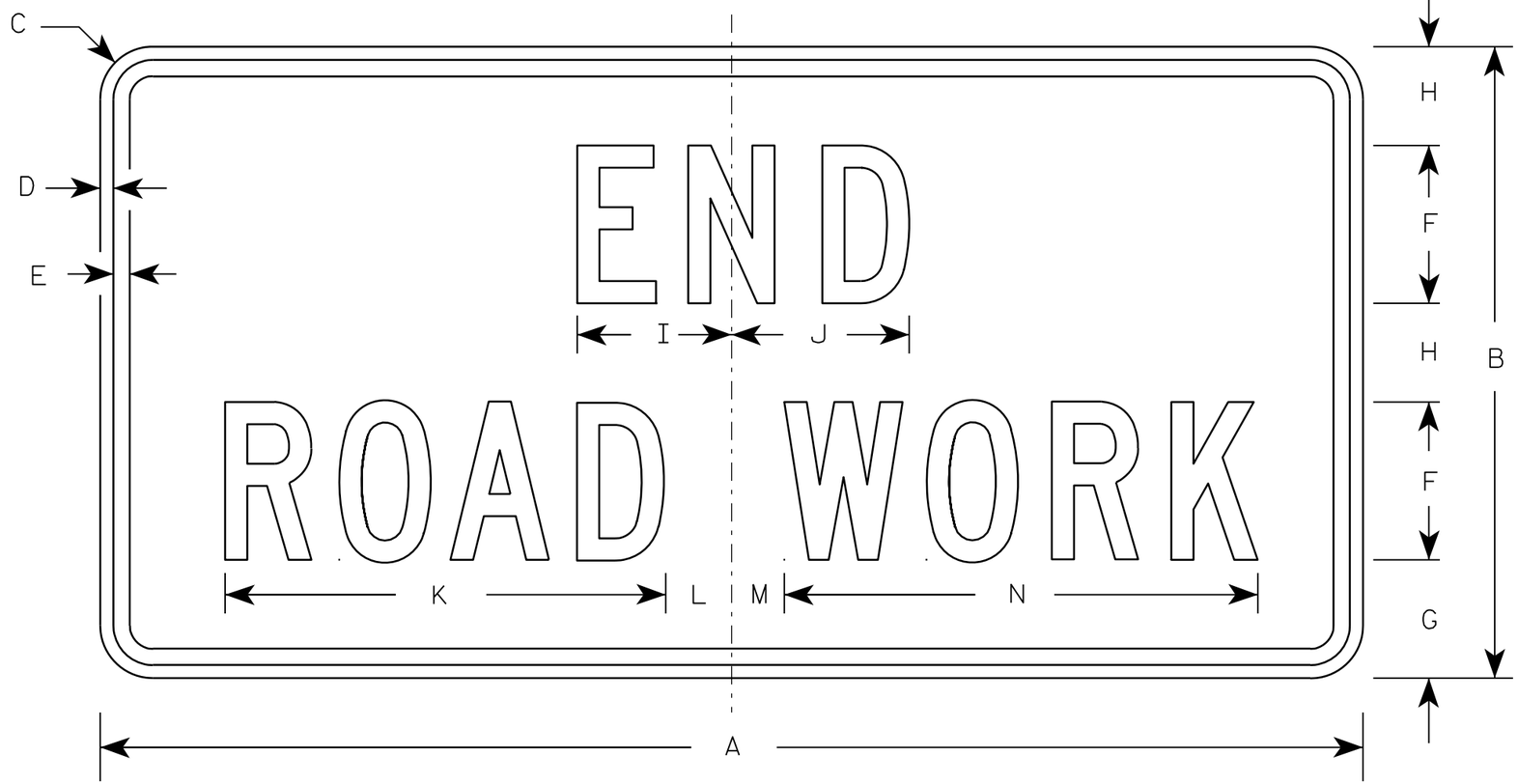
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
For State Traffic Engineer

DATE 6/10/19 PLATE NO. A5-10.2

PROJECT NO:

SHEET NO: 154 E



G20-2A

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Orange
   Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

Metric equivalent for this sign is:

SIZE	
1	900 mm X 450 mm
2	1200 mm X 600 mm
3	1200 mm X 600 mm
4	1200 mm X 600 mm
5	1200 mm X 600 mm

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.	Area m2
1	36	18	1 1/8	3/8	1/2	4	3 3/4	2 1/2	4 1/8	4 1/8	11 1/8	2	1	12 1/8													4.5	0.41
2	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
3	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
4	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
5	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72

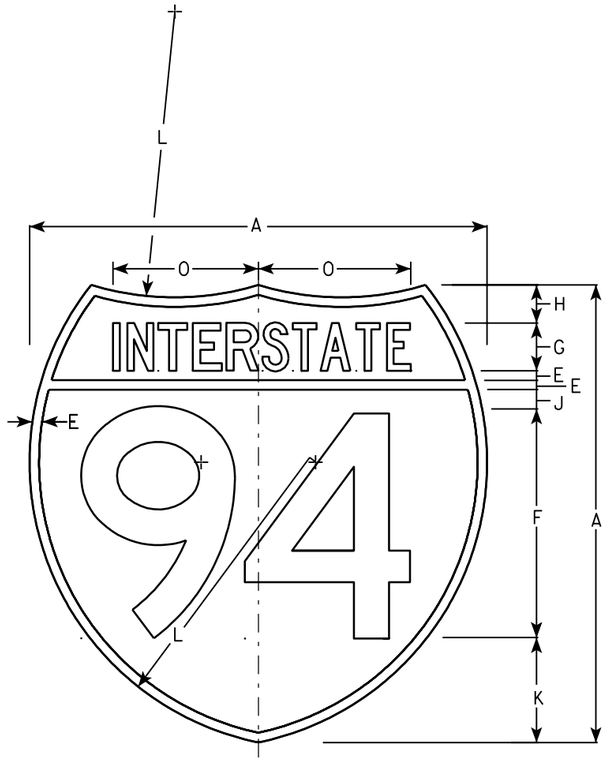
STANDARD SIGN
G20-2A

WISCONSIN DEPT OF TRANSPORTATION

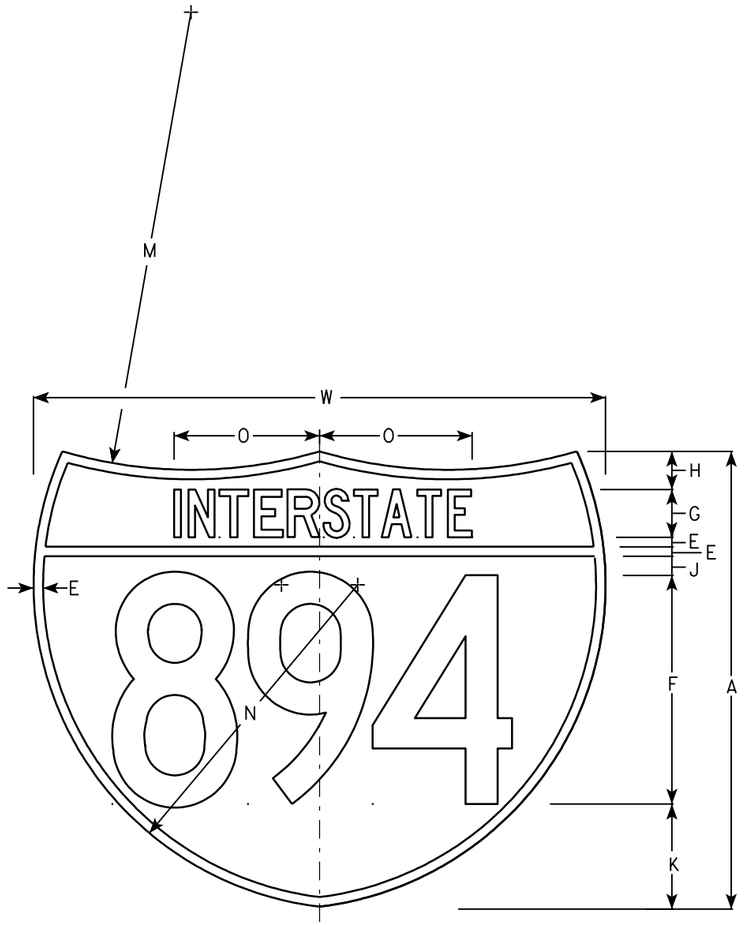
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 9/30/09 PLATE NO. G20-2A.8

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 155	E



M1-1



M1-1A

NOTES

1. Sign is Type II - See Note 6 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Top Red - Bottom Blue (See Note 6)
   Message - White - See Note 6
3. Message Series - See note 5
4. Substitute appropriate numerals & ajust spacing as per plate A10-1.
5. M1-1 - Numerals - D
   Interstate - C
   M1-1A - All copy - C
6. Permanent Signs
   Message - Type H Reflective
   Detour or other temporary signs
   Background - Reflective
   Message - Reflective

Metric equivalent for these signs are:

SIZE	M1-1	SIZE	M1-1A
1			
2	600 mm X 600 mm	2	600 mm X 750 mm
3	900 mm X 900 mm	3	900 mm X 1125 mm
4	900 mm X 900 mm	4	900 mm X 1125 mm
5	900 mm X 900 mm	5	900 mm X 1125 mm

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	M1-1 Area sq. ft.	M1-1A Area sq. ft.	M1-1 Area m2	M1-1A Area m2
1																													
2	24				1/2	12	2 1/2	2		1	5 1/2	15	24	17	7 7/8								30			3.13	3.91	.36	.46
3	36				3/4	18	3 3/4	3		1 1/2	8 1/4	22 1/2	36	25 1/2	11 3/4								45			7.03	8.79	.81	1.05
4	36				3/4	18	3 3/4	3		1 1/2	8 1/4	22 1/2	36	25 1/2	11 3/4								45			7.03	8.79	.81	1.05
5	36				3/4	18	3 3/4	3		1 1/2	8 1/4	22 1/2	36	25 1/2	11 3/4								45			7.03	8.79	.81	1.05

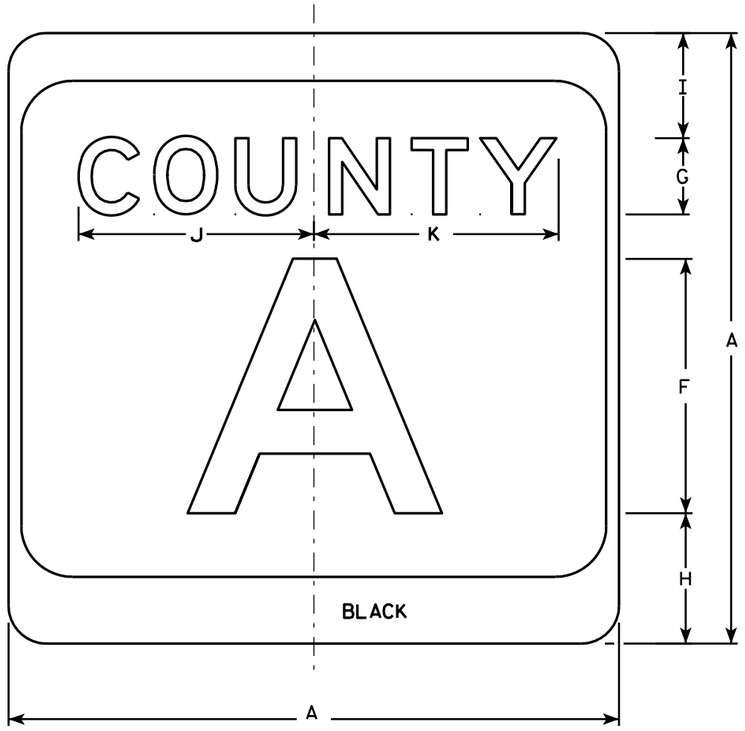
INTERSTATE ROUTE MARKER
M1-1 FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

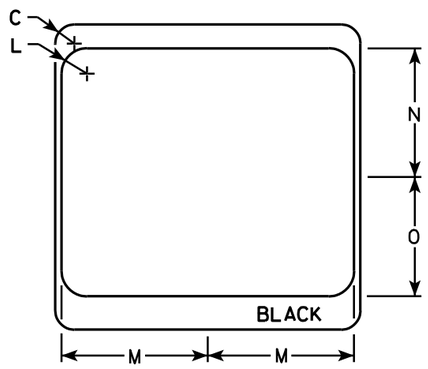
APPROVED Matthew R Rauch
for State Traffic Engineer

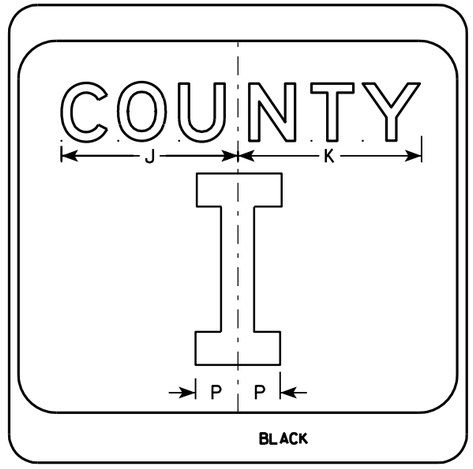
DATE 08/23/05 PLATE NO. M1-1.8

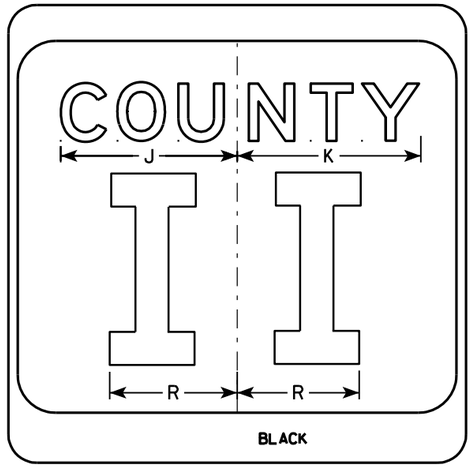
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 156	E



M1-5A







NOTES

1. Sign is Type II - see Note 7 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White & Black - See Note 7
   Message - Black
3. Message Series - see Note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Message Series E for 1 letter.
   Message Series D for 2 letters unless message is too big then Series C.
   Message Series C for 3 letters unless message is too big then Series B.
6. Substitute appropriate letters & optically center to achieve proper balance.
7. Permanent Signs
   Background - Type H Reflective
   Detour or temporary Signs
   Background - Reflective

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24		1 1/2			10	3	5 1/8	4 1/8	9 1/4	9 5/8	2	11 1/2	10 1/8	9 3/8	2 1/4		6 5/8									4.0
3	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0
4	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0
5	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0

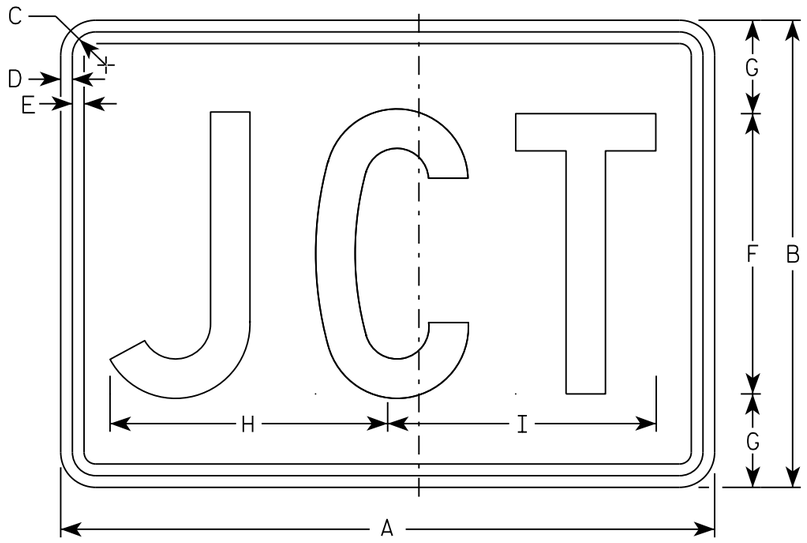
CTH MARKER
M1-5A FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

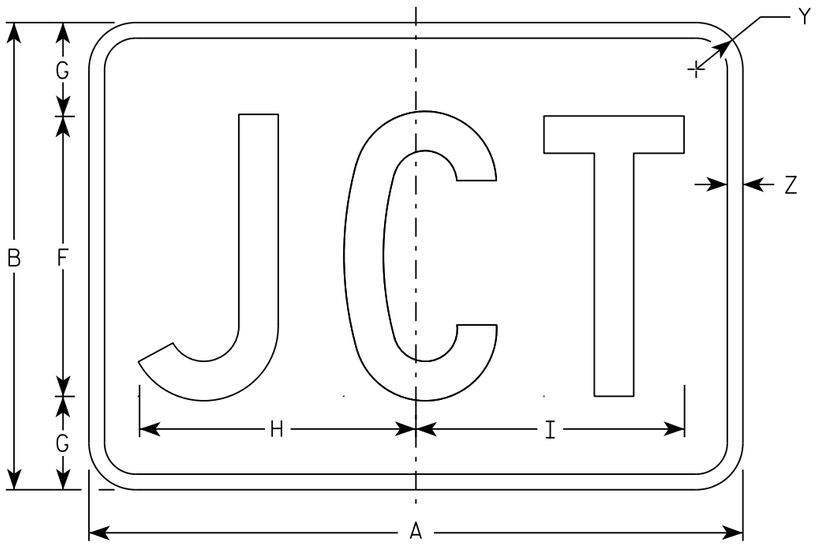
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 9/27/11 PLATE NO. M1-5A.8

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 157	E



M2-1
MM2-1
MP2-1



MB2-1
MK2-1
MN2-1
MR2-1

NOTES

1. Sign is Type II - Type H
2. Color:
   Background - See note 5
   Message - See note 5
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. M2-1 Background - White
   Message - Black
   MB2-1 Background - Blue
   Message - White
   MK2-1 Background - Green
   Message - White
   MM2-1 Background - White
   Message - Green
   MN2-1 Background - Brown
   Message - White
   MP2-1 Background - White
   Message - Blue
   MR2-1 Background - Brown
   Message - Yellow

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	21	15	1 1/8	3/8	3/8	9	3	8 7/8	8 5/8																1 1/2	1/2	2.20
3	30	21	1 1/8	3/8	3/8	13	4	12 7/8	12 3/8																1 1/2	1/2	4.40
4	30	21	1 1/8	3/8	3/8	13	4	12 7/8	12 3/8																1 1/2	1/2	4.40
5	30	21	1 1/8	3/8	3/8	13	4	12 7/8	12 3/8																1 1/2	1/2	4.40

STANDARD SIGN
M2-1

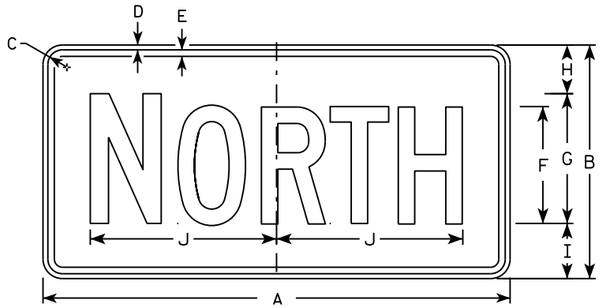
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

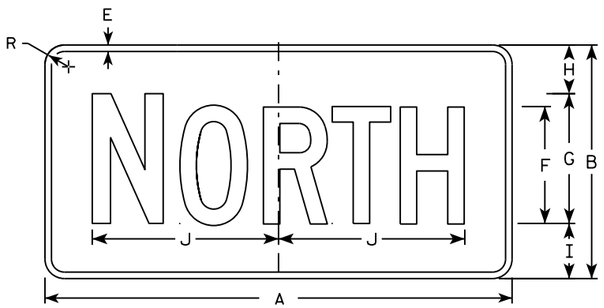
DATE 10/15/15 PLATE 158 12-1.12

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

FILE NAME : C:\CAEfiles\Projects\tr_stdplate\M21.DGN PLOT DATE : 01-DEC-2015 17:54 PLOT BY : $$ plotuser $$ PLOT NAME : PLOT SCALE : 4.864603:1.000000



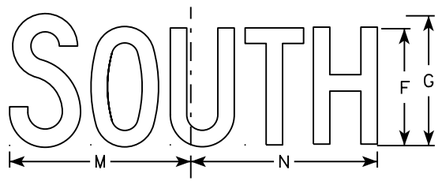
M3-1
MM3-1
MP3-1



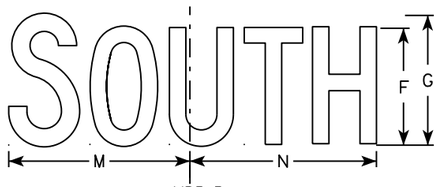
MB3-1
MK3-1
MN3-1

M3-2
MM3-2
MP3-2

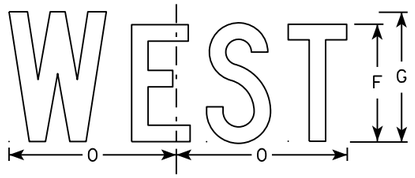
MB3-2
MK3-2
MN3-2



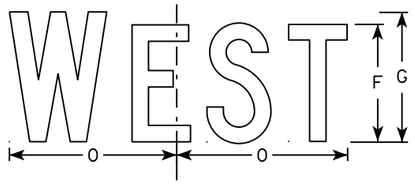
M3-3
MM3-3
MP3-3



MB3-3
MK3-3
MN3-3



M3-4
MM3-4
MP3-4



MB3-4
MK3-4
MN3-4

NOTES

1. All Signs Type II - Type H
2. Color:
   Background - See note 5
   Message - See note 5
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. M3-1 thru M3-4 Background - White
   Message - Black
   MB3-1 thru MB3-4 Background - Blue
   Message - White
   MK3-1 thru MK3-4 Background - Green
   Message - White
   MM3-1 thru MM3-4 Background - White
   Message - Green
   MN3-1 thru MN3-4 Background - Brown
   Message - White
   MP3-1 thru MP3-4 Background - White
   Message - Blue
6. Note the first letter of each direction is larger than the remainder of the message.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	12	1 1/8	3/8	3/8	6	7	2 1/4	2 3/4	10 1/4	7 7/8	8 3/8	10 1/4	9 3/4	8 3/4			1 1/2									2.00
3	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5
4	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5
5	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5

STANDARD SIGNS
M3-1 thur M3-4
SERIES

WISCONSIN DEPT OF TRANSPORTATION

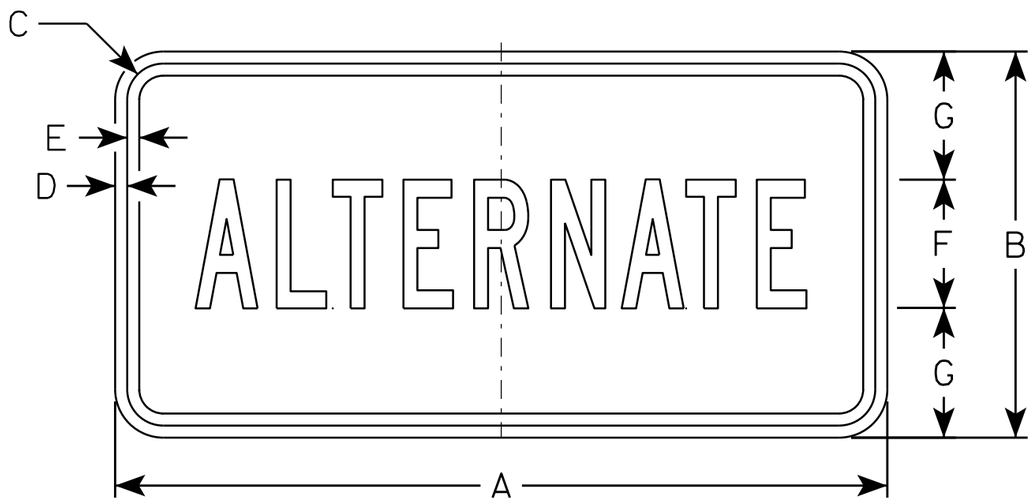
APPROVED Matthew P Rauch for State Traffic Engineer

DATE 10/15/15 PLATE NO M3-1.14

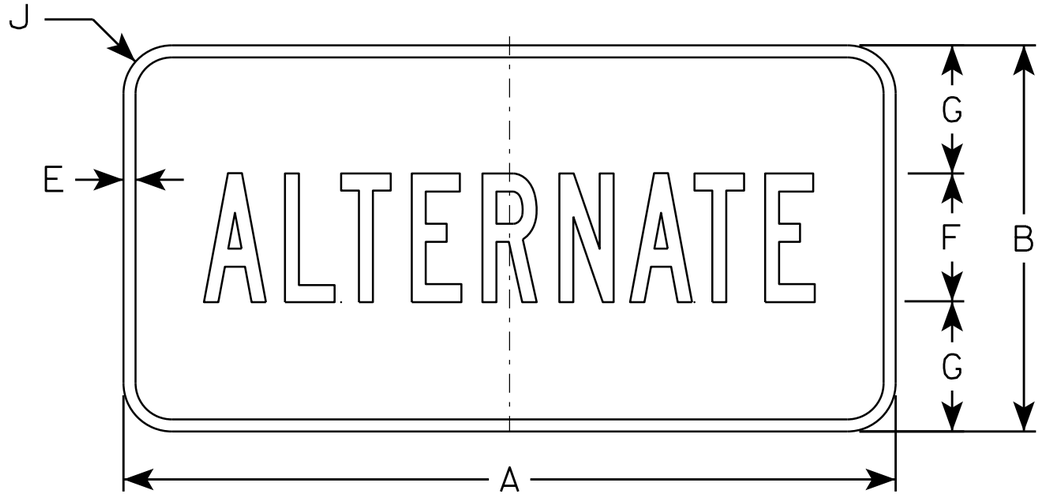
PROJECT NO: | HWY: | COUNTY: | SHEET NO: E

FILE NAME : C:\CAEfiles\Projects\tr_stdplate\M31.DGN PLOT DATE : 01-DEC-2015 17:54 PLOT BY : $$ plotuser $$ PLOT NAME : PLOT SCALE : 11.675051:1.000000

7



M4-1
M04-1



MB4-1

NOTES

1. Sign is Type II - Type H except as Shown
2. Color:
   Background - See Note 5
   Message - See note 5
3. Message Series - B
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. M4-1 Background - White
   Message - Black

   MB4-1 Background - Blue
   Message - White

   M04-1 Background - Orange - Type F
   Message - Black

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	12	1 1/8	3/8	3/8	4	4	9 3/4	9 1/2	1 1/2																	2.00
3	36	18	1 1/8	3/8	1/2	7	5 1/2	16 3/8	16 1/2	1 1/2																	4.5
4	36	18	1 1/8	3/8	1/2	7	5 1/2	16 3/8	16 1/2	1 1/2																	4.5
5	36	18	1 1/8	3/8	1/2	7	5 1/2	16 3/8	16 1/2	1 1/2																	4.5

STANDARD SIGN
M4-1

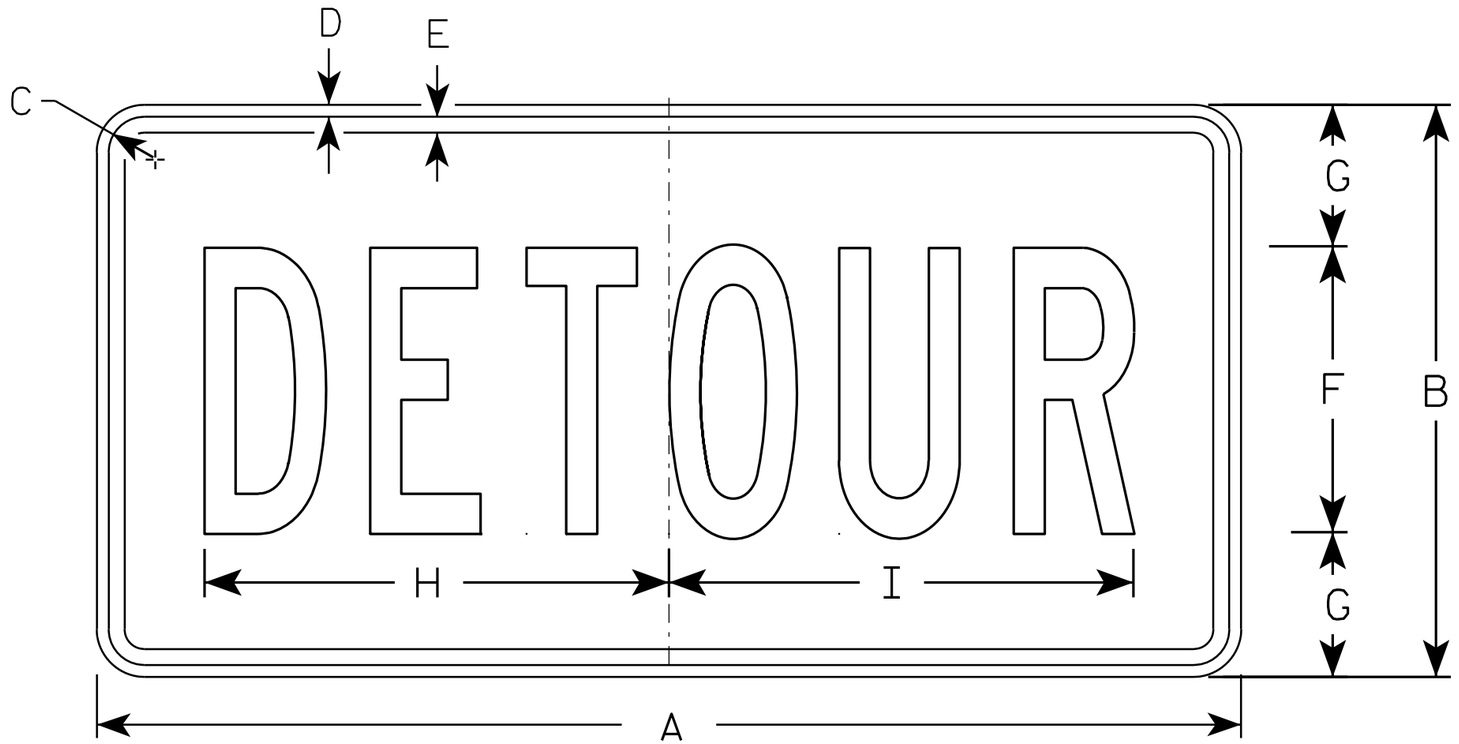
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 6/30/14 PLATE 14-1.8

PROJECT NO: | HWY: | COUNTY: | SHEET NO: E

FILE NAME : C:\CAEFiles\Projects\tr_stdplate\M41.DGN PLOT DATE : 30-JUN-2014 15:38 PLOT BY : mscsja PLOT NAME : PLOT SCALE : 4.708937:1.000000 WISDOT/CADDS SHEET 42



M4-8

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Orange
   Message - Black
3. Message Series - B
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	12	1 1/8	3/8	3/8	6	3	10	10 1/4																		2.0
3	36	18	1 1/8	3/8	1/2	9	4 1/2	14 5/8	14 1/2																		4.5
4																											
5																											

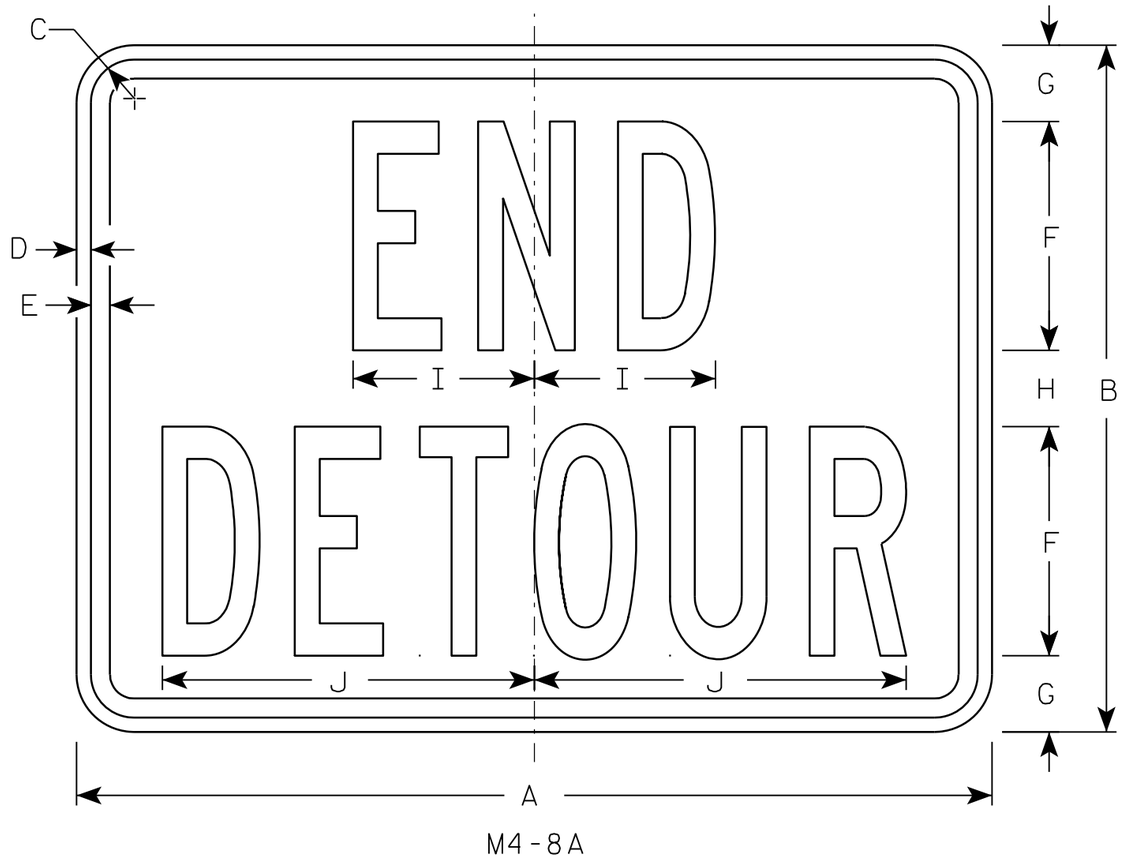
STANDARD SIGN
M4-8

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 11/10/10 PLATE NO. M4-8.2

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 161	E



M4-8A

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Orange
   Message - Black
3. Message Series - B
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	18	1 1/8	3/8	1/2	6	2	2	4 3/4	9 3/4																	3.0
3	30	24	1 1/8	3/8	1/2	8	2 1/2	3	6 3/4	13																	5.0
4																											
5																											

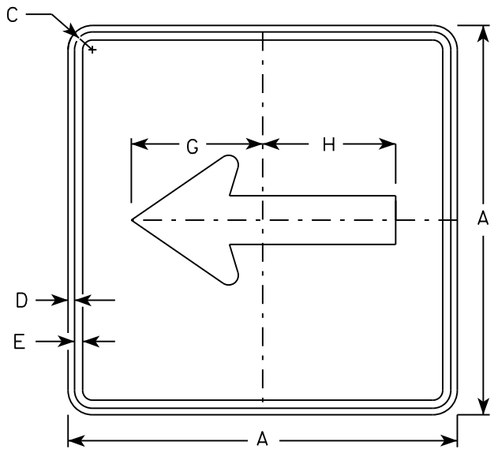
STANDARD SIGN
M4-8A

WISCONSIN DEPT OF TRANSPORTATION

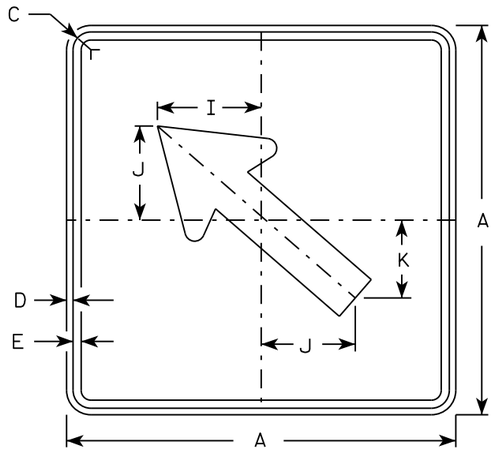
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/9/11 PLATE NO. M4-8A.2

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 162	E



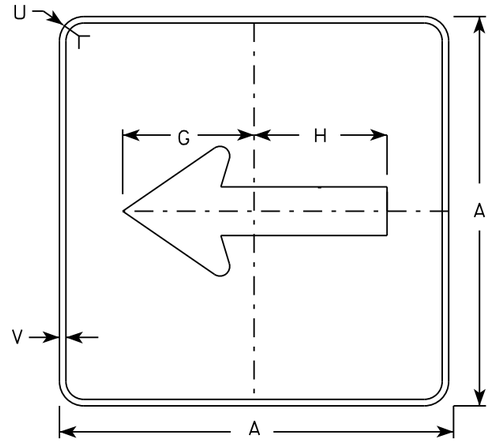
M6-1
MM6-1
MO6-1
MP6-1



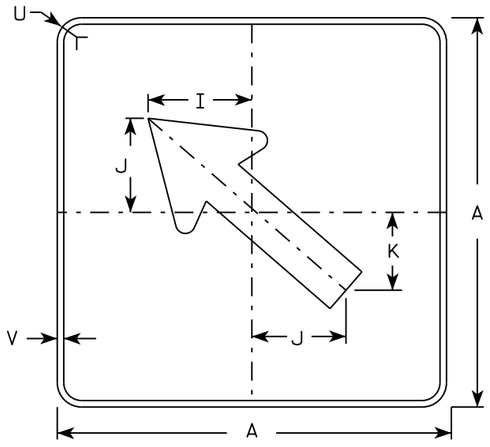
M6-2
MM6-2
MO6-2
MP6-2

NOTES

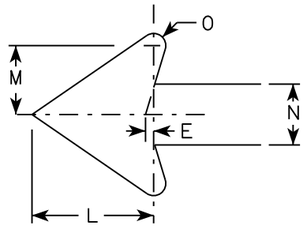
1. Signs are Type II - Type H except as Shown
2. Color:
   Background - See note 4
   Message - See note 4
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. M6-1 and M6-2 Background - White
   Message - Black
   MB6-1 and MB6-2 Background - Blue
   Message - White
   MK6-1 and MK6-2 Background - Green
   Message - White
   MM6-1 and MM6-2 Background - White
   Message - Green
   MN6-1 and MN6-2 Background - Brown
   Message - White
   MO6-1 and MO6-2 Background - Orange - Type F Reflective
   Message - Black
   MP6-1 and MP6-2 Background - White
   Message - Blue
   MR6-1 and MR6-2 Background - Brown
   Message - Yellow



MB6-1
MK6-1
MN6-1
MR6-1



MB6-2
MK6-2
MN6-2
MR6-2



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	21		1 1/8	3/8	3/8		7 1/2	7 1/8	5 5/8	5	4 1/4	5 1/4	3	2 5/8	1/2						1 1/2	1/2						3.06
3	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2						6.25
4	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2						6.25
5	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2						6.25

STANDARD SIGN
M6-1 & M6-2
SERIES

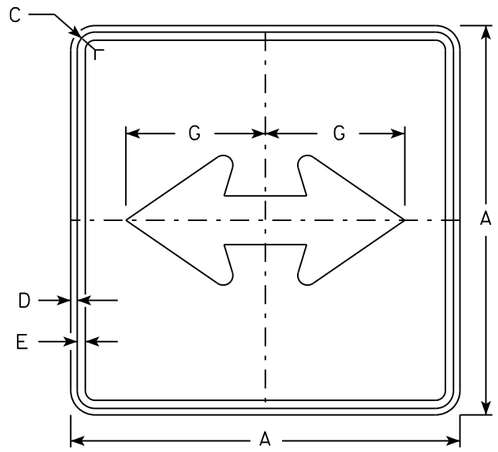
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

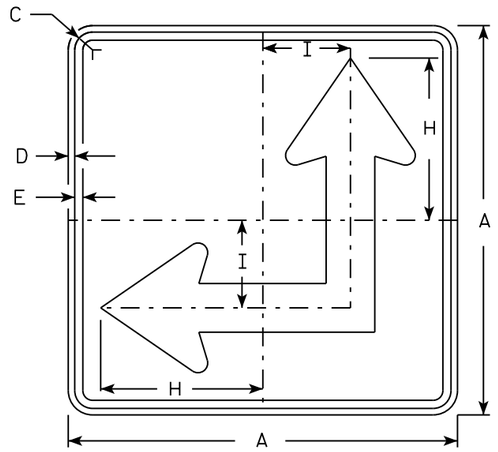
DATE 10/15/15 PLATE 163 M6-1.15

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

FILE NAME : C:\CAEfiles\Projects\tr_stdplate\M61.DGN PLOT DATE : 01-DEC-2015 17:57 PLOT BY : $$ plotuser $$ PLOT NAME : PLOT SCALE : 11.675051:1.000000



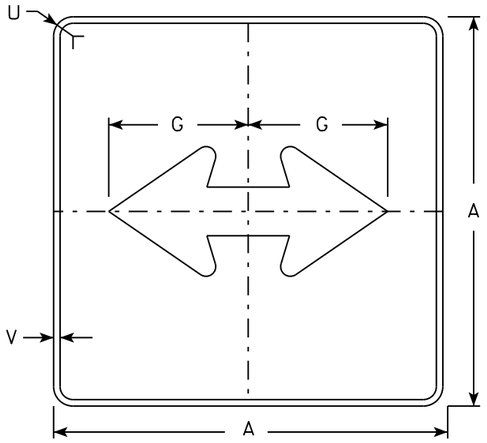
M6-4
MM6-4
MO6-4
MP6-4



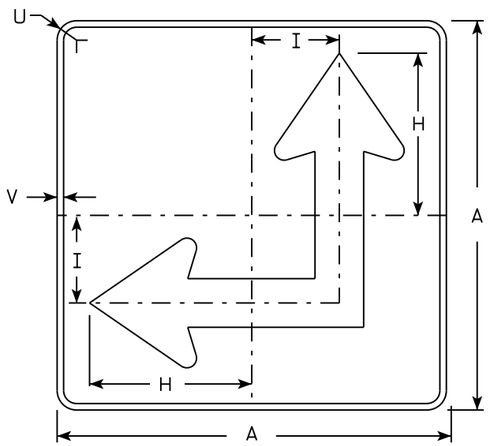
M6-6
MM6-6
MO6-6
MP6-6

NOTES

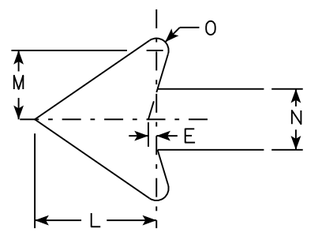
1. Signs are Type II - Type H except as Shown
2. Color:
   Background - See Note 4
   Message - See Note 4
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. M6-4 and M6-6 Background - White
   Message - Black
   MB6-4 and MB6-6 Background - Blue
   Message - White
   MK6-4 and MK6-6 Background - Green
   Message - White
   MM6-4 and MM6-6 Background - White
   Message - Green
   MN6-4 and MN6-6 Background - Brown
   Message - White
   MO6-4 and MO6-6 Background - Orange - Type F Reflective
   Message - Black
   MP6-4 and MP6-6 Background - White
   Message - Blue
   MR6-4 and MR6-6 Background - Brown
   Message - Yellow
5. M6-6R same as M6-6L except arrow points ahead and right.



MB6-4
MK6-4
MN6-4
MR6-4



MB6-6
MK6-6
MN6-6
MR6-6



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	21		1 1/8	3/8	3/8		7 1/2	8 3/4	4 1/4			5 1/4	3	2 5/8	1/2						1 1/2	1/2					3.06
3	30		1 3/8	1/2	5/8		10 3/4	12 1/2	6 3/4			7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25
4	30		1 3/8	1/2	5/8		10 3/4	12 1/2	6 3/4			7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25
5	30		1 3/8	1/2	5/8		10 3/4	12 1/2	6 3/4			7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25

STANDARD SIGN
M6-4 & M6-6
SERIES

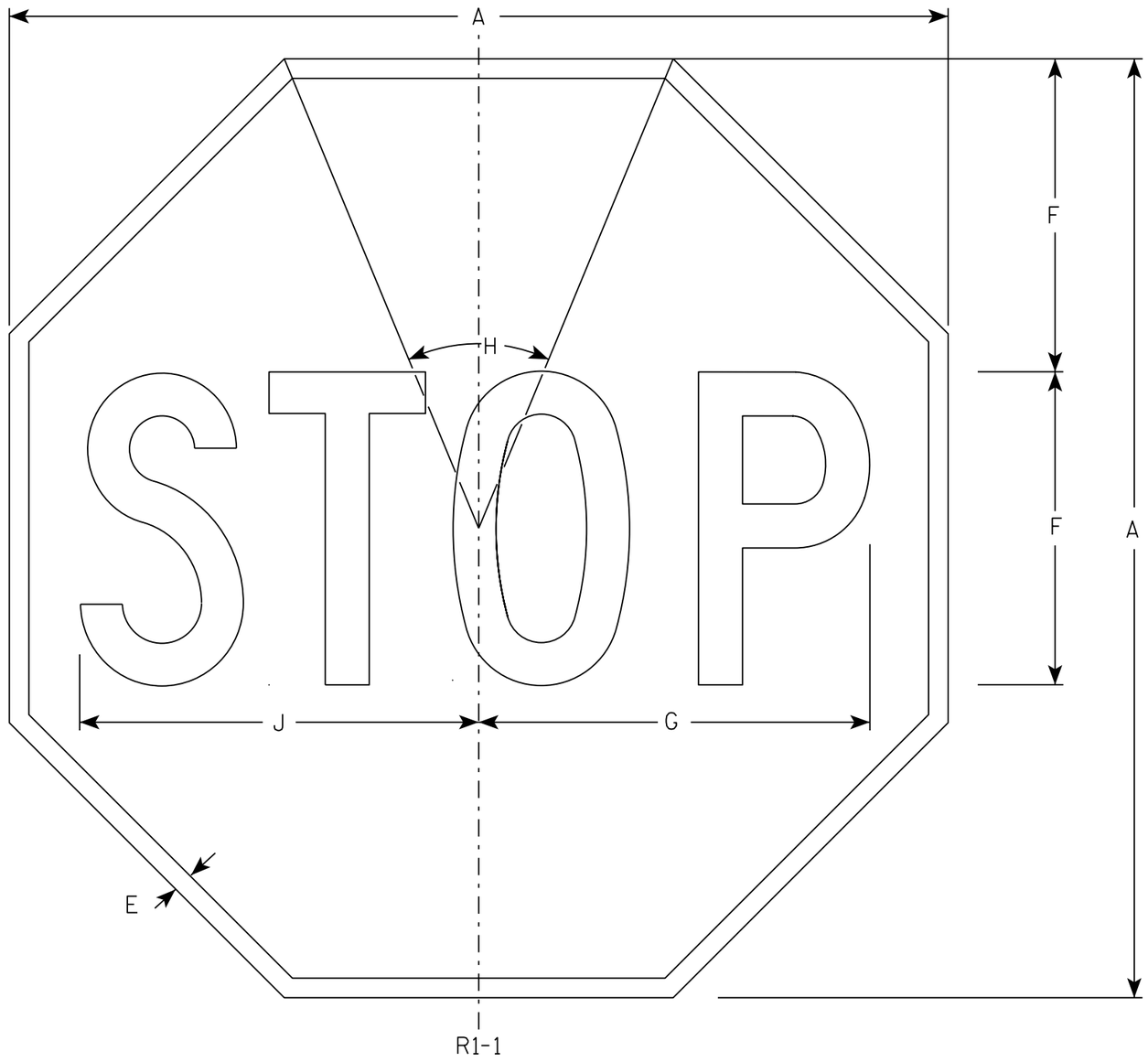
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 10/15/15 PLATE 164 M6-4.10

PROJECT NO: | HWY: | COUNTY: | SHEET NO: E

FILE NAME : C:\CAEfiles\Projects\tr_stdplate\M64.DGN PLOT DATE : 01-DEC-2015 17:58 PLOT BY : $$ platuser $$ PLOT NAME : PLOT SCALE : 11.675051:1.000000



NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Red
   Message - White
3. Message Series - C

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30				5/8	10	12 1/2	45°		12 3/4																	5.18
2S	30				5/8	10	12 1/2	45°		12 3/4																	5.18
2M	36				3/4	12	15	45°		15 3/8																	7.46
3	36				3/4	12	15	45°		15 3/8																	7.46
4	48				1	16	20	45°		20 1/2																	13.25
5	48				1	16	20	45°		20 1/2																	13.25
6	18				3/8	6	7 3/4	45°		7 3/4																	1.86
7	12				1/4	4	5	45°		5 1/8																	0.78

STANDARD SIGN
R1-1

WISCONSIN DEPT OF TRANSPORTATION

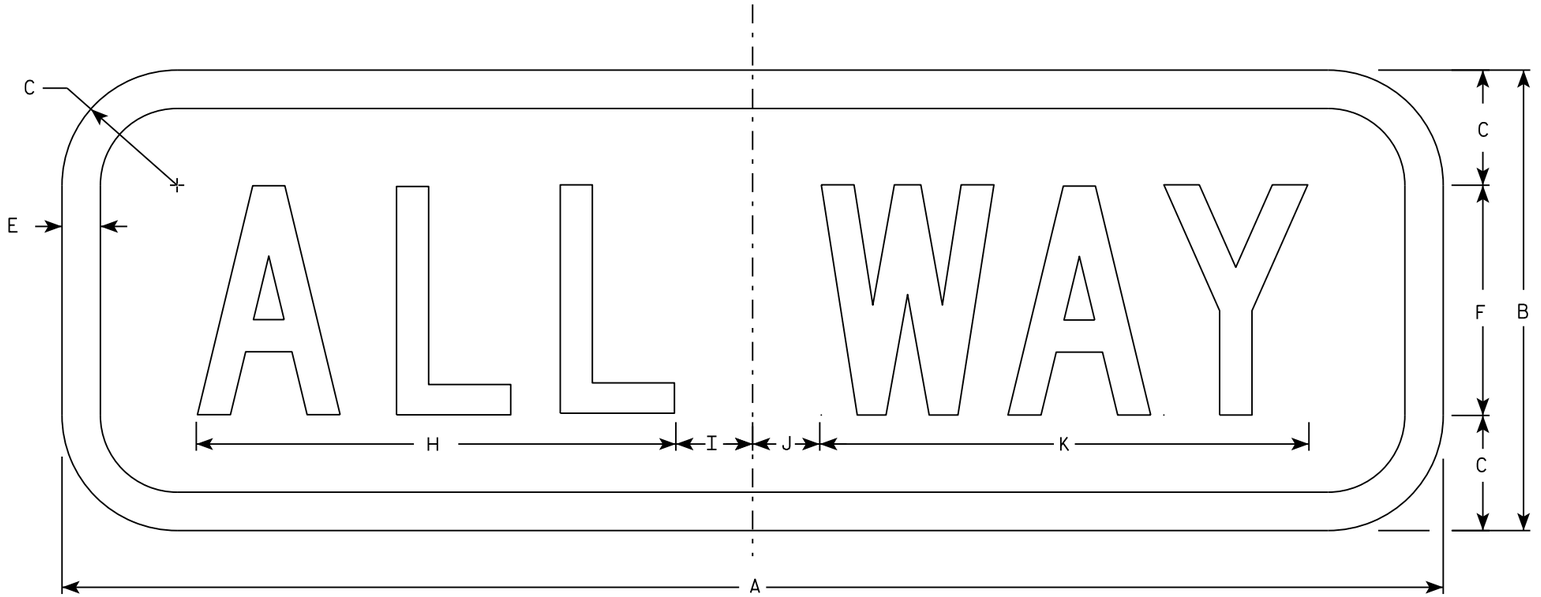
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 11/12/15 PLATE NO. R1-1.13

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 165	E

NOTES

1. Sign is Type II - Type H Reflective
2. Color:
   Background - Red
   Message - White
3. Message Series - C
4. For 30"x30" R1-1 use 18"x6" R1-3P sign
   For 36"x36" R1-1 use 24"x9" R1-3P sign
   For 48"x48" R1-1 use 30"x12" R1-3P sign



R1-3P

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	18	6	1 ½		½	3		6 ¼	1 ¼	⅞	6 ⅜																0.75
2S	18	6	1 ½		½	3		6 ¼	1 ¼	⅞	6 ⅜																1.5
2M	24	9	1 ½		½	5		9 ¼	1 ¼	¾	9 ¾																1.5
3	24	9	1 ½		½	5		9 ¼	1 ¼	¾	9 ¾																1.5
4	30	12	2 ¼		⅝	6		11	2 ¼	1 ½	11 ¾																2.5
5	30	12	2 ¼		⅝	6		11	2 ¼	1 ½	11 ¾																2.5

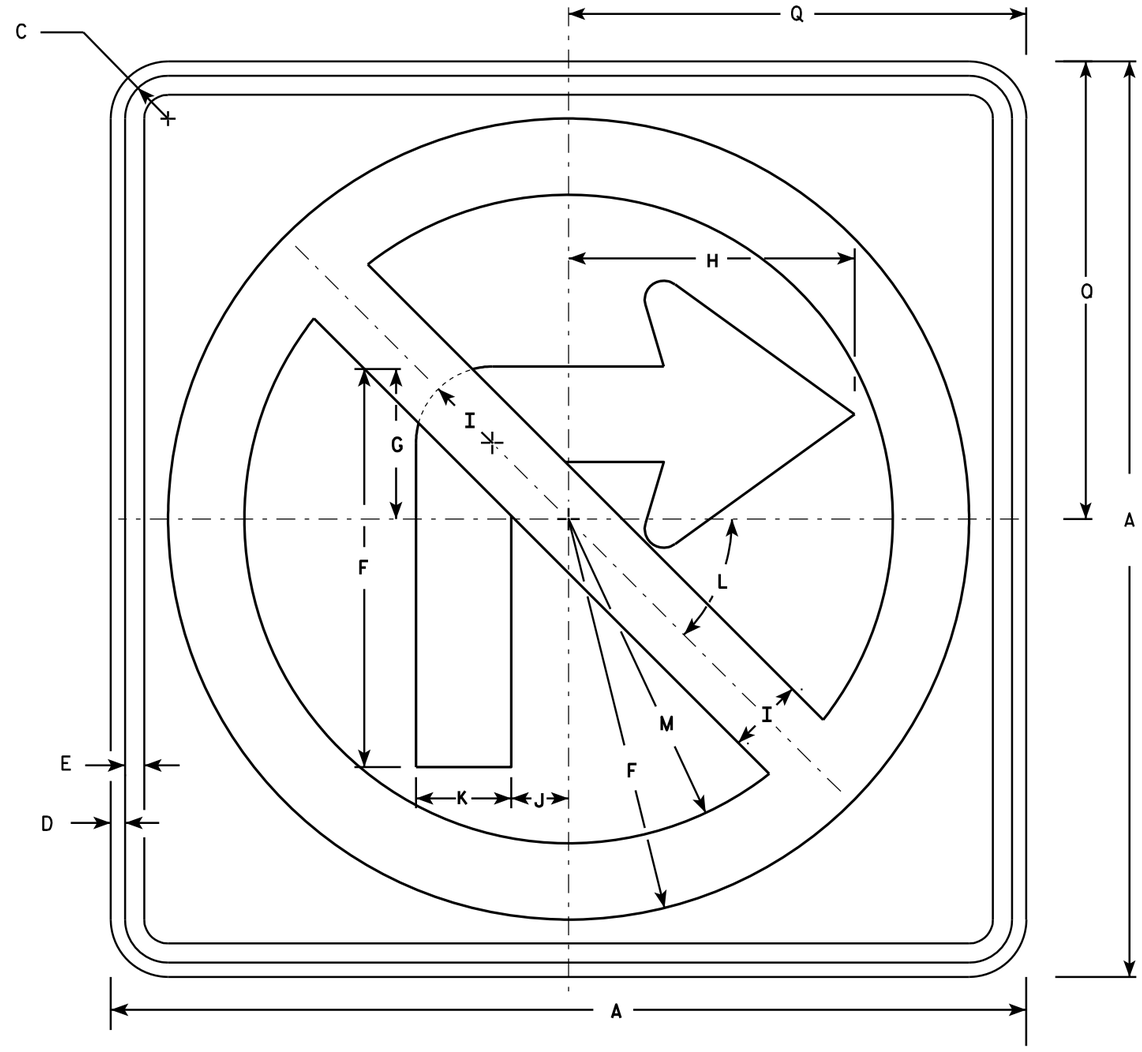
STANDARD SIGN
R1-3P

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 11/29/16 PLATE NO. R1-3P.3

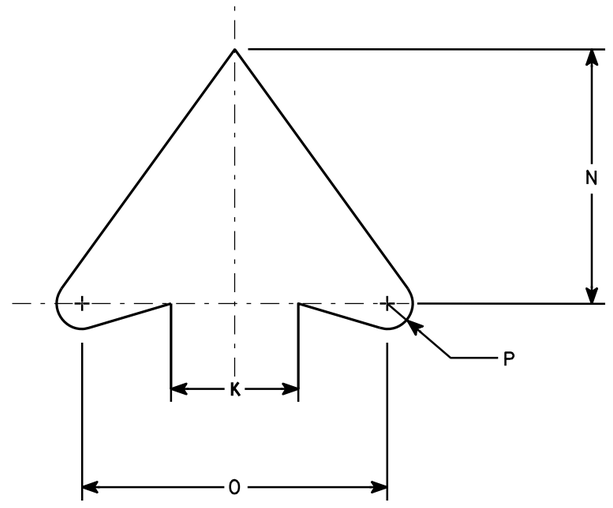
PROJECT NO: | HWY: | COUNTY: | SHEET NO: 166 | E



R3-1

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White
   Message - See note 4
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. Border & Arrow are non reflective black, the circle with diagonal bar is reflective red.



ARROW DETAIL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24		1 1/8	3/8	1/2	10 1/2	4	7 1/2	2	1 1/2	2 1/2	45	8 1/2	5	6	1/2	12										4.0
2S	24		1 1/8	3/8	1/2	10 1/2	4	7 1/2	2	1 1/2	2 1/2	45°	8 1/2	5	6	1/2	12										4.0
2M	36		1 5/8	5/8	3/4	15 3/4	6	11 1/4	3	2 1/4	3 3/4	45	12 3/4	7 1/2	9	3/4	18										9.0
3	36		1 5/8	5/8	3/4	15 3/4	6	11 1/4	3	2 1/4	3 3/4	45	12 3/4	7 1/2	9	3/4	18										9.0
4	36		1 5/8	5/8	3/4	15 3/4	6	11 1/4	3	2 1/4	3 3/4	45°	12 3/4	7 1/2	9	3/4	18										9.0
5	48		2 1/4	3/4	1	21	8	15	4	3	5	45°	17	10	12	1	24										16.0

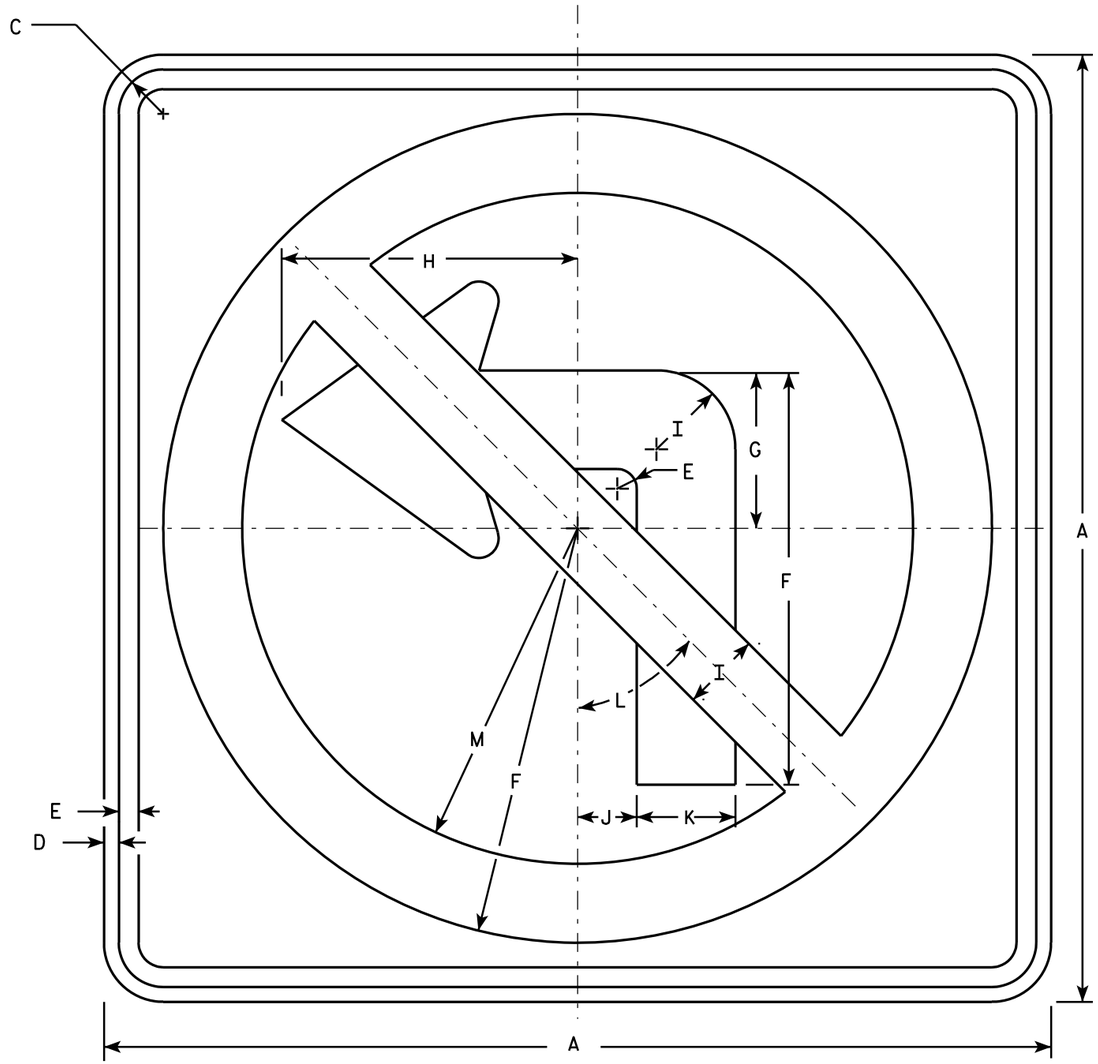
STANDARD SIGN
R3-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 12/08/10 PLATE NO. R3-1.5

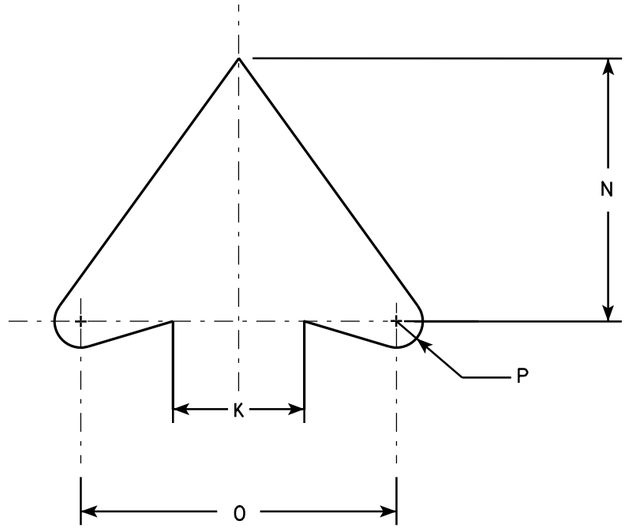
PROJECT NO: | HWY: | COUNTY: | SHEET NO: 167 | E



R3-2

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White
   Message - See note 4
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. Border & Arrow are non reflective black, the circle with diagonal bar is reflective red.



ARROW DETAIL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24		1 1/8	3/8	1/2	10 1/2	4	7 1/2	2	1 1/2	2 1/2	45°	8 1/2	5	6	1/2											4.0
2S	24		1 1/8	3/8	1/2	10 1/2	4	7 1/2	2	1 1/2	2 1/2	45°	8 1/2	5	6	1/2											4.0
2M	36		1 5/8	5/8	3/4	15 3/4	6	11 1/4	3	2 1/4	3 3/4	45°	12 3/4	7 1/2	9	3/4											9.0
3	36		1 5/8	5/8	3/4	15 3/4	6	11 1/4	3	2 1/4	3 3/4	45°	12 3/4	7 1/2	9	3/4											9.0
4	36		1 5/8	5/8	3/4	15 3/4	6	11 1/4	3	2 1/4	3 3/4	45°	12 3/4	7 1/2	9	3/4											9.0
5	48		2 1/4	3/4	1	21	8	15	4	3	5	45°	17	10	12	1											16.0

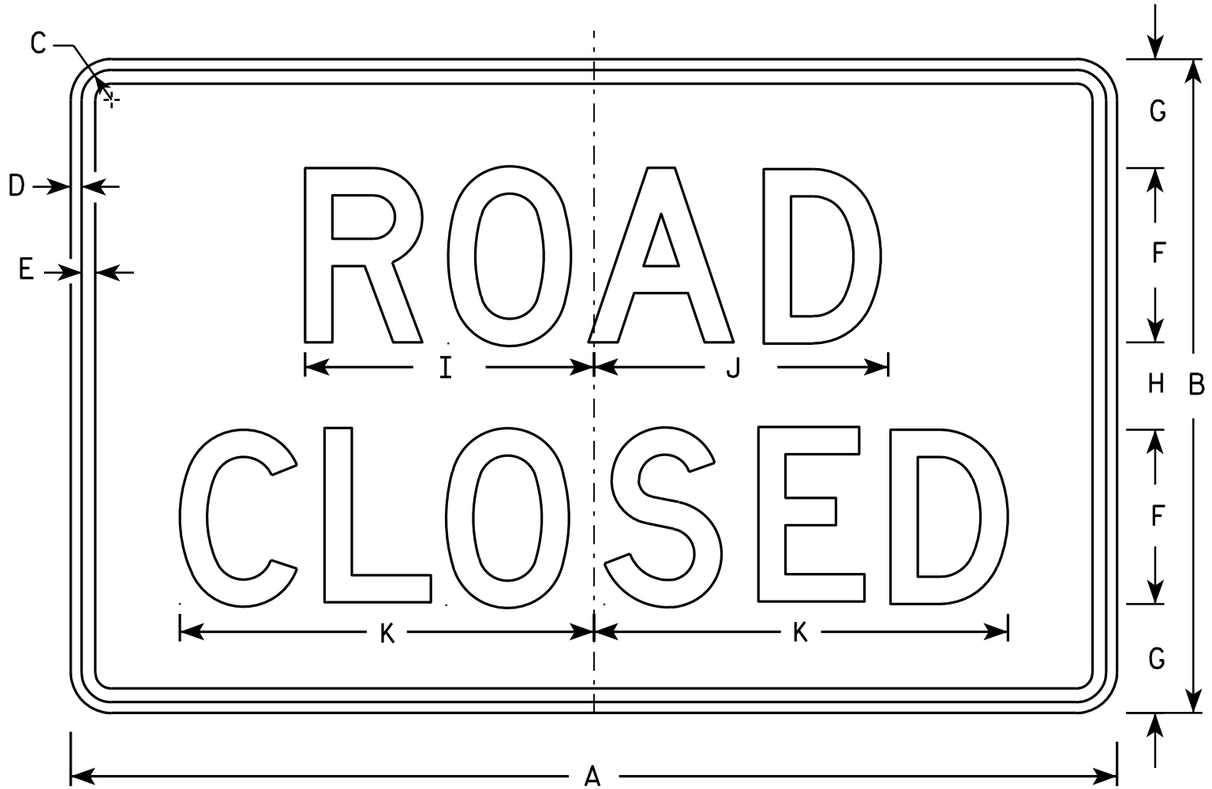
STANDARD SIGN
R3-2

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 12/08/10 PLATE NO. R3-2.10

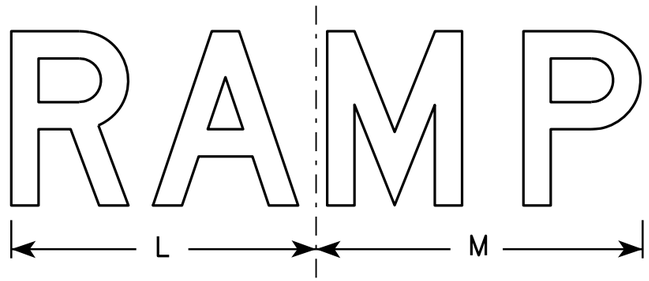
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 168	E



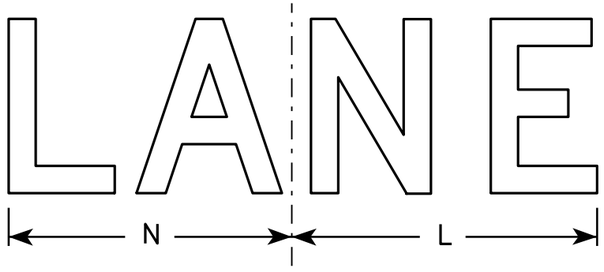
R11-2

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White
   Message - Black
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Modify the message as required.



R11-2R



R11-2L

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13													10.0
2M	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13													10.0
3	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13													10.0
4	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13													10.0
5	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13													10.0

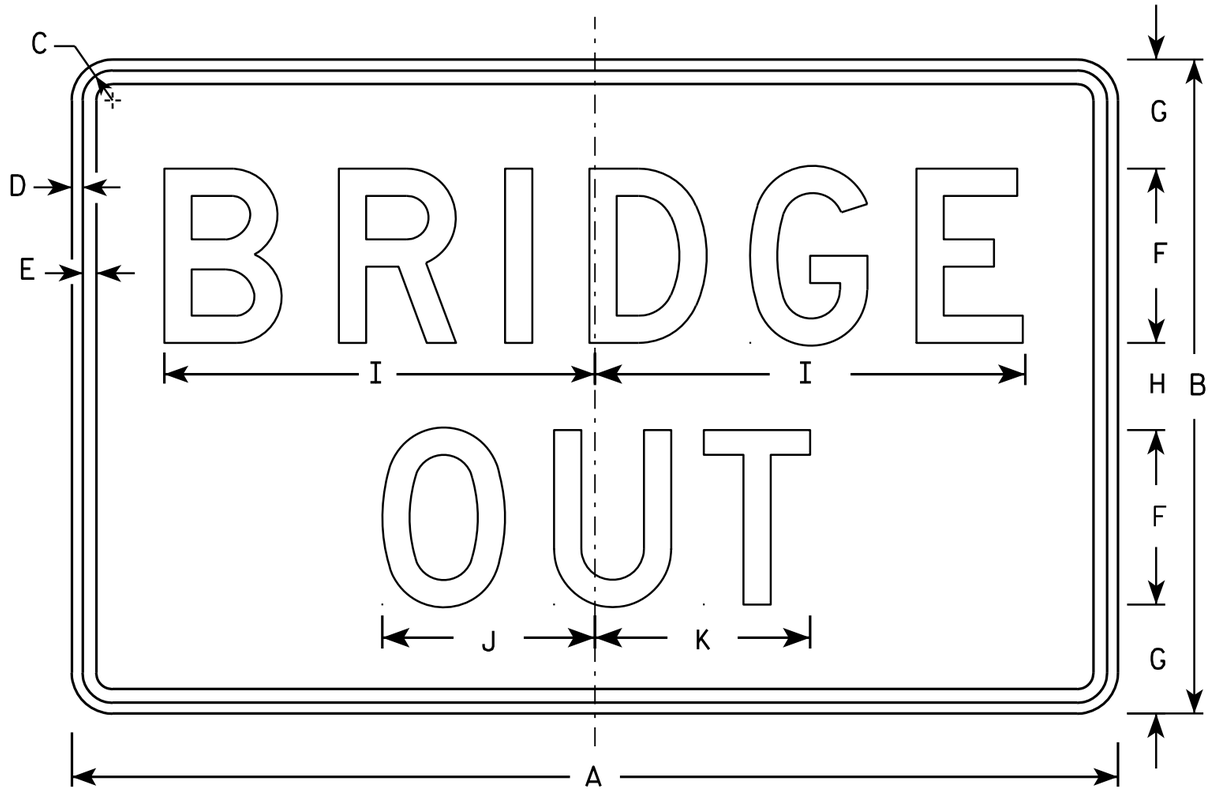
STANDARD SIGN
R11-2

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 4/1/11 PLATE NO. R11-2.10

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 169 | E



R11-2B

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White
   Message - Black
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
2M	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
3	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
4	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
5	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0

STANDARD SIGN
R11-2B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
For State Traffic Engineer

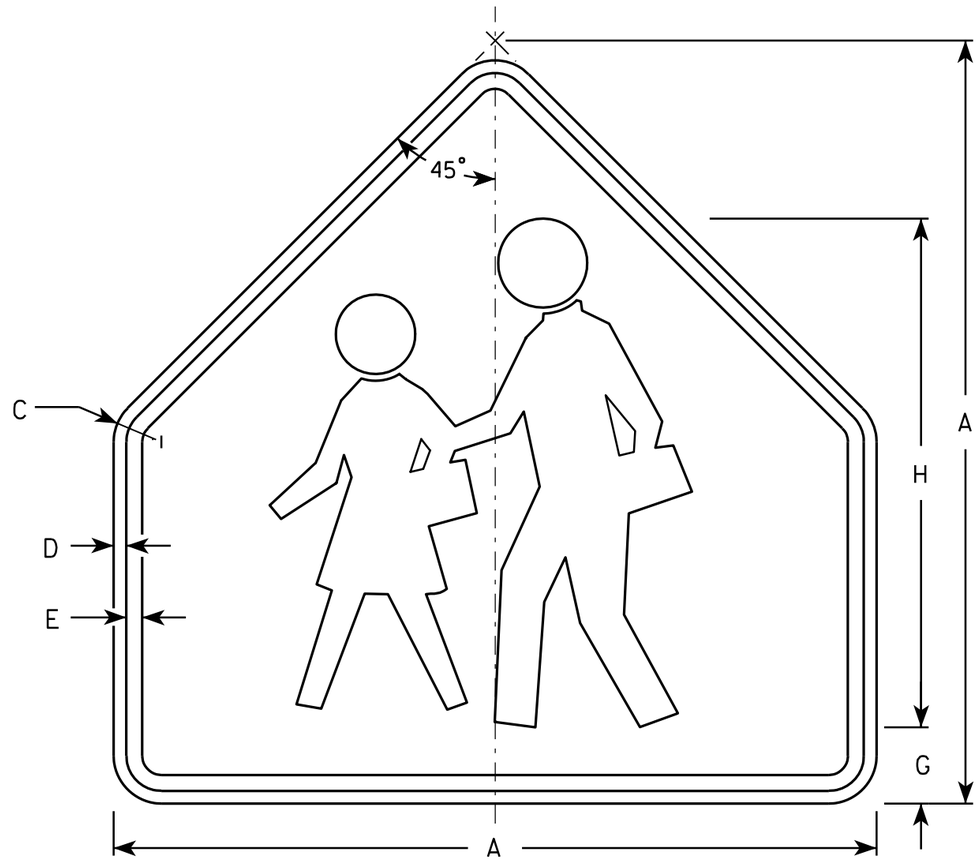
DATE 4/1/11 PLATE NO. R11-2B.2

PROJECT NO:

SHEET NO: 170 E

FILE NAME : C:\Users\PROJECTS\tr_stdplate\R112B.DGN PLOT DATE : 01-APR-2011 14:23 PLOT BY : mscj9h

WISDOT/CADDS SHEET 42



S1-1

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Yellow-Green
   Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30		1 3/8	1/2	5/8		3	20																			4.69
2	36		1 5/8	5/8	3/4		3 1/2	24																			6.75
3	36		1 5/8	5/8	3/4		3 1/2	24																			6.75
4	48		2 1/4	3/4	1		4 3/4	32																			12
5																											

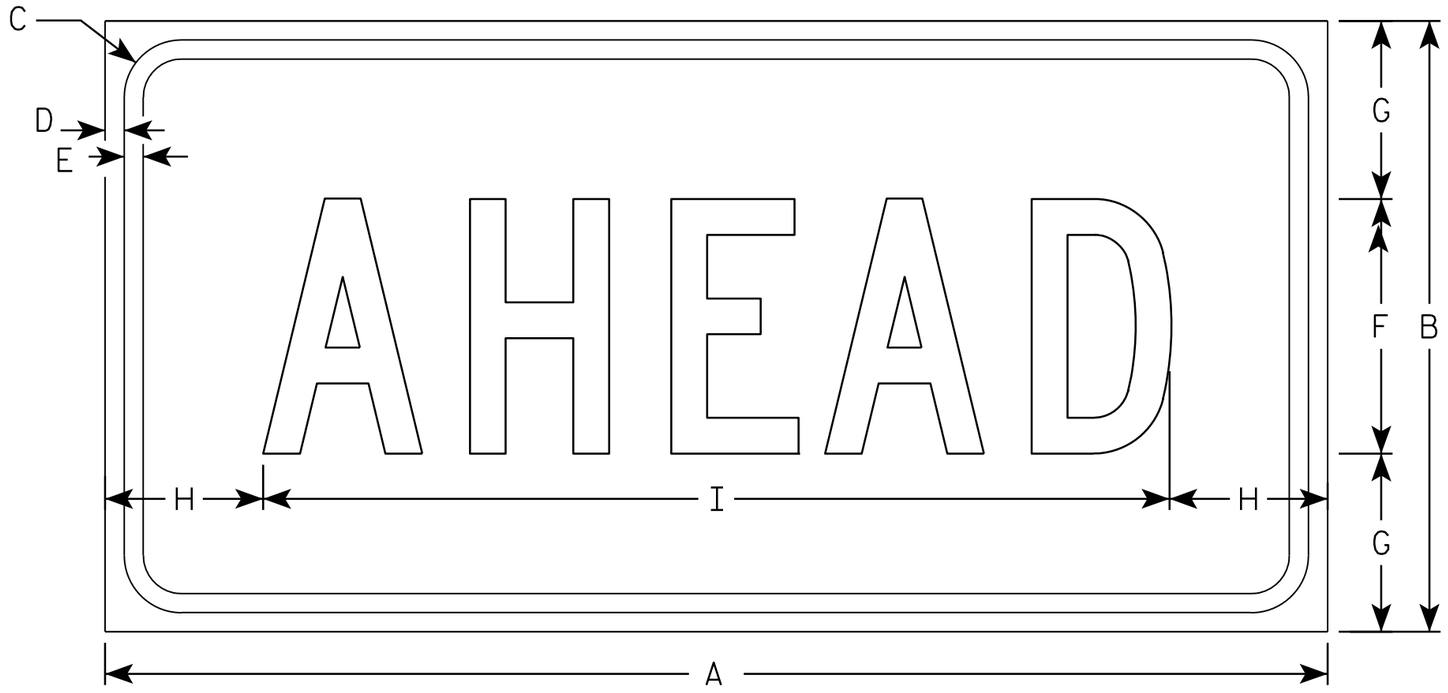
STANDARD SIGN
S1-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 6/30/05 PLATE NO. S1-1.8

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 171	E



S16-9P

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Yellow-Green
   Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24	12	1 1/8	3/8	3/8	5	3 1/2	3 1/8	17 3/4																		2.0
2S	30	18	1 1/8	3/8	1/2	7	5 1/2	2 3/4	24 1/2																		3.75
2M	30	18	1 1/8	3/8	1/2	7	5 1/2	2 3/4	24 1/2																		3.75
3	30	18	1 1/8	3/8	1/2	7	3 1/2	2 3/4	24 1/2																		3.75
4	48	24	1 3/8	1/2	5/8	10	7	6 1/8	35 3/4																		8.0
5																											

STANDARD SIGN
S16-9P

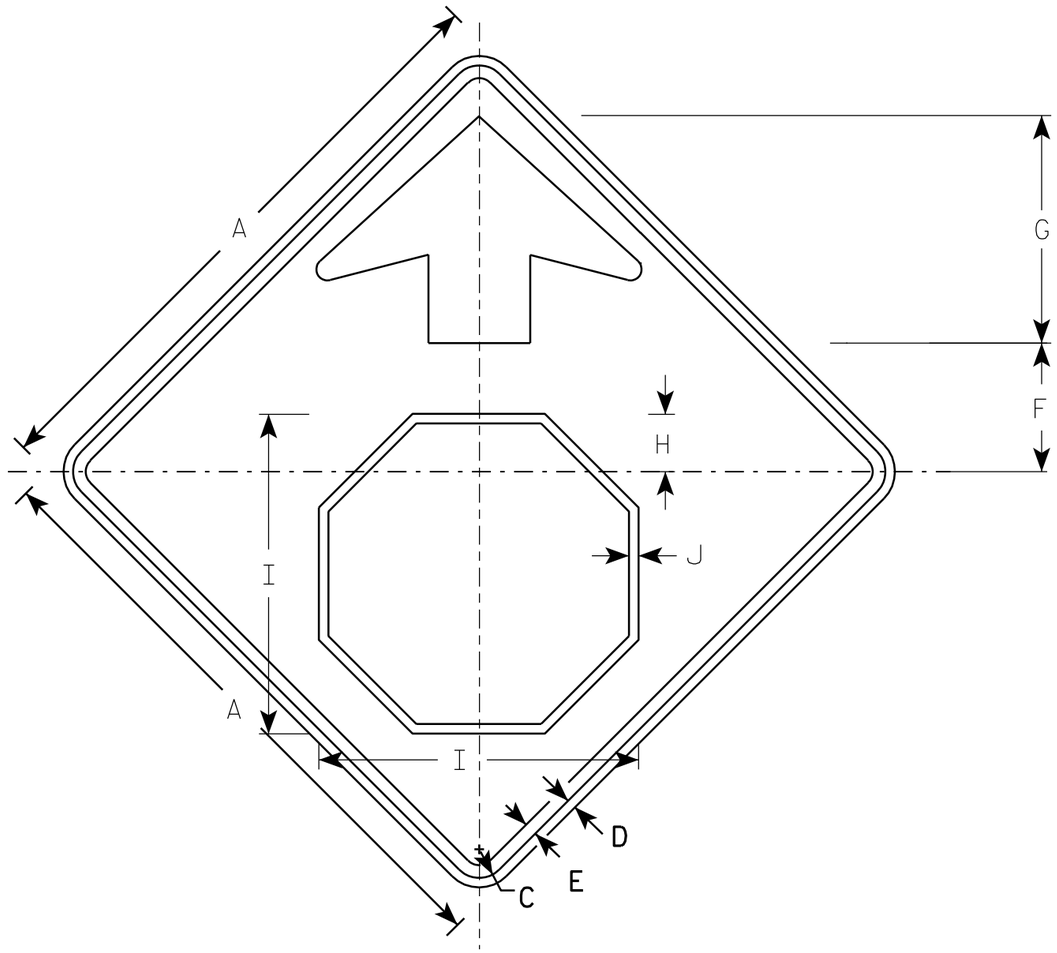
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 7/22/13 PLATE NO. S16-9P.1

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 172 | E

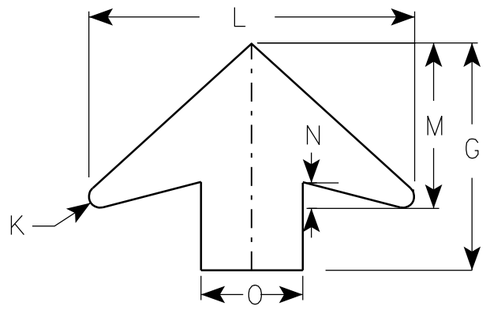
FILE NAME : C:\CAEFiles\Projects\tr_stdplate\S169P.dgn PLOT DATE : 22-JUL-2013 10:32 PLOT BY : mscj9h PLOT NAME : PLOT SCALE : 2.977140:1.000000



W3-1

NOTES

1. All Signs Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - YELLOW
   Arrow & Border - BLACK
   Stop Symbol - WHITE BORDER ON RED BACKGROUND



ARROW DETAIL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30		1 3/8	1/2	5/8	6 1/4	11 1/4	2 7/8	15 3/4	1/2	1/2	16	8	1 1/4	5												6.25
2S	36		1 5/8	5/8	3/4	7 1/2	13 1/2	3 1/2	19	5/8	5/8	19 1/4	9 3/4	1 5/8	6												9.0
2M	36		1 5/8	5/8	3/4	7 1/2	13 1/2	3 1/2	19	5/8	5/8	19 1/4	9 3/4	1 5/8	6												9.0
3	36		1 5/8	5/8	3/4	7 1/2	13 1/2	3 1/2	19	5/8	5/8	19 1/4	9 3/4	1 5/8	6												9.0
4	48		2 1/4	3/4	1	10	17 7/8	4 1/2	25 1/8	3/4	7/8	25 5/8	13	2	8												16.0
5	48		2 1/4	3/4	1	10	17 7/8	4 1/2	25 1/8	3/4	7/8	25 5/8	13	2	8												16.0

STANDARD SIGN
W3-1

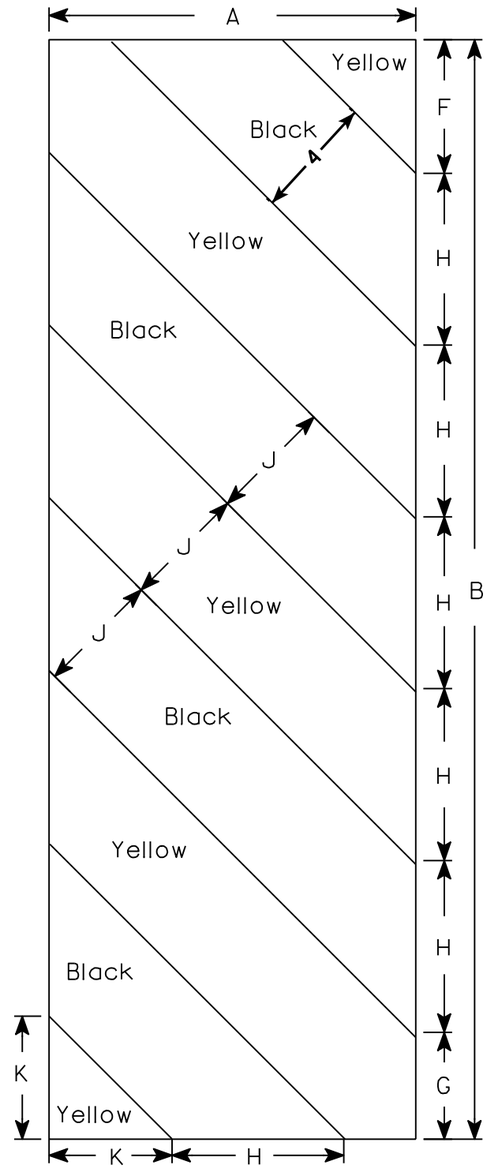
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

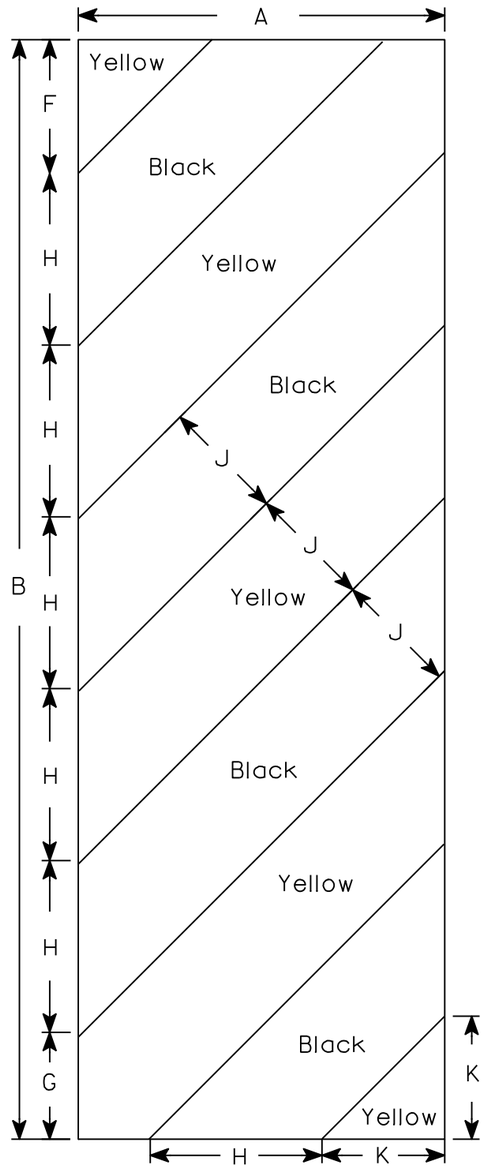
DATE 6/7/10 PLATE NO. W3-1.12

PROJECT NO:

SHEET NO: 173 E



W5-52L



W5-52R

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Yellow
   Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. Alternate colors of stripes as shown.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	12	36				4 3/8	3 1/2	5 5/8	45°	4	4																3.0
2M	12	36				4 3/8	3 1/2	5 5/8	45°	4	4																3.0
3	18	54				6	5 1/2	8 1/2	45°	6	6 9/16																6.75
4																											
5																											

STANDARD SIGN

W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

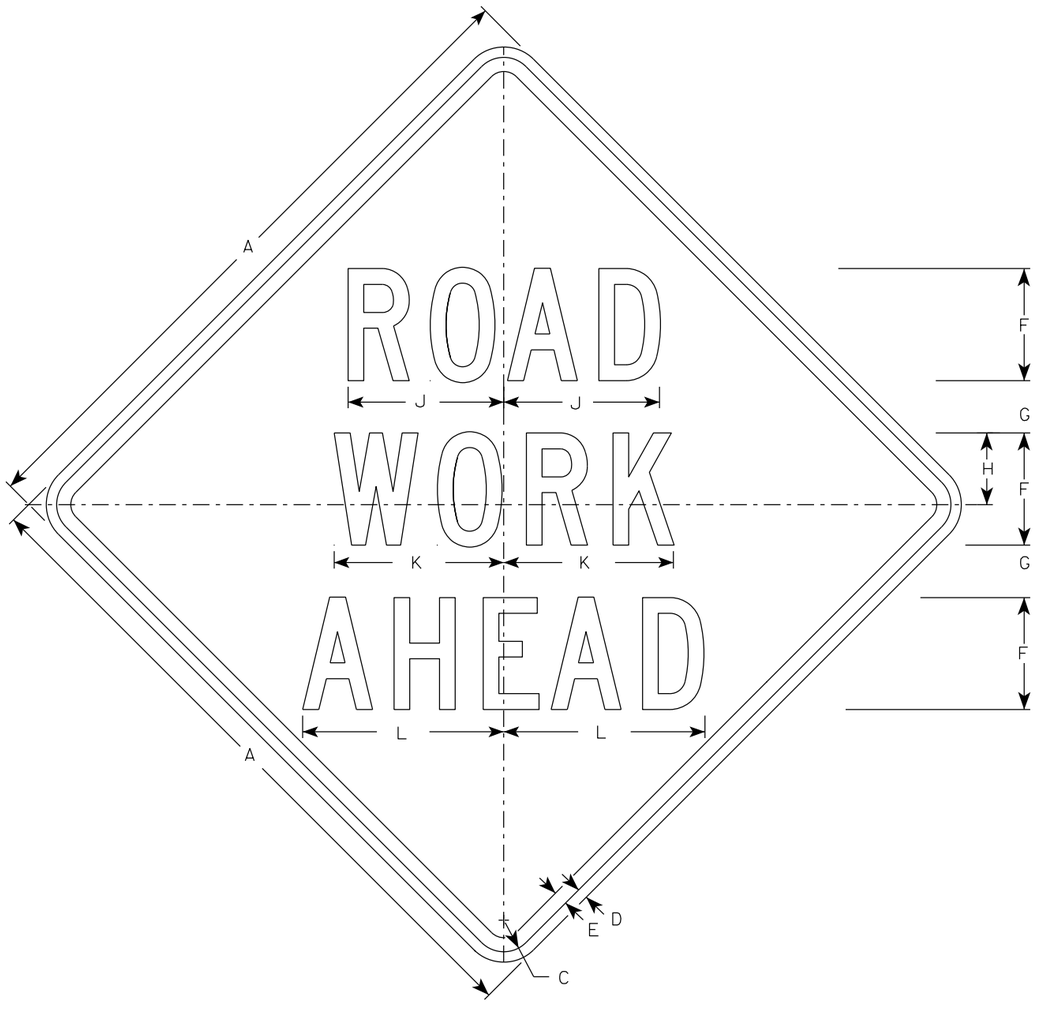
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 5/29/12 PLATE NO. W5-52.9

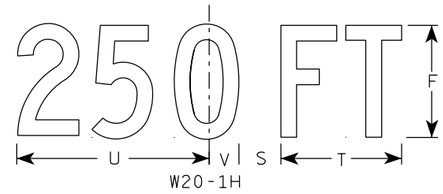
PROJECT NO: | HWY: | COUNTY: | SHEET NO: 174 | E

NOTES

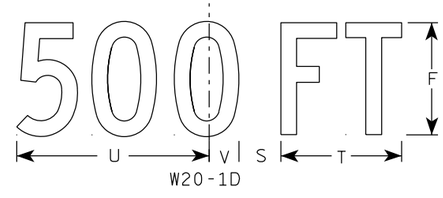
1. Sign is Type II - Type F Reflective
2. Color:
   Background - Orange
   Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



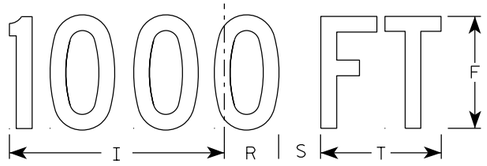
W20-1A



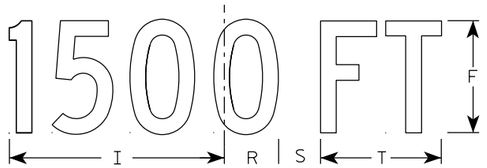
W20-1H



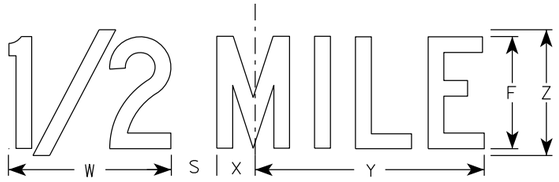
W20-1D



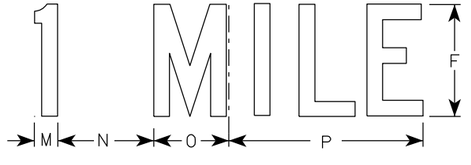
W20-1C



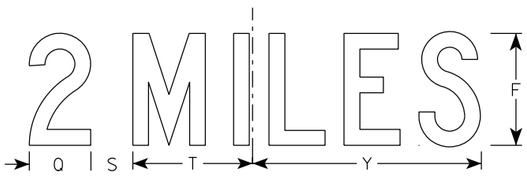
W20-1B



W20-1G



W20-1F



W20-1E

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	5	2 5/8	3 1/4	10 1/8	7	7 5/8	8 7/8	1 1/8	4 1/2	3 1/2	9	3 1/4	2 1/2	2 1/4	5 5/8	9	1 3/8	8	1 3/4	10 3/4	6	9.0
2S	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
2M	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
3	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
4	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
5	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0

STANDARD SIGN
W20-1A, B, C, D, E, F, G & H

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/25/2020 PLATE NO. W20-1.11

PROJECT NO:

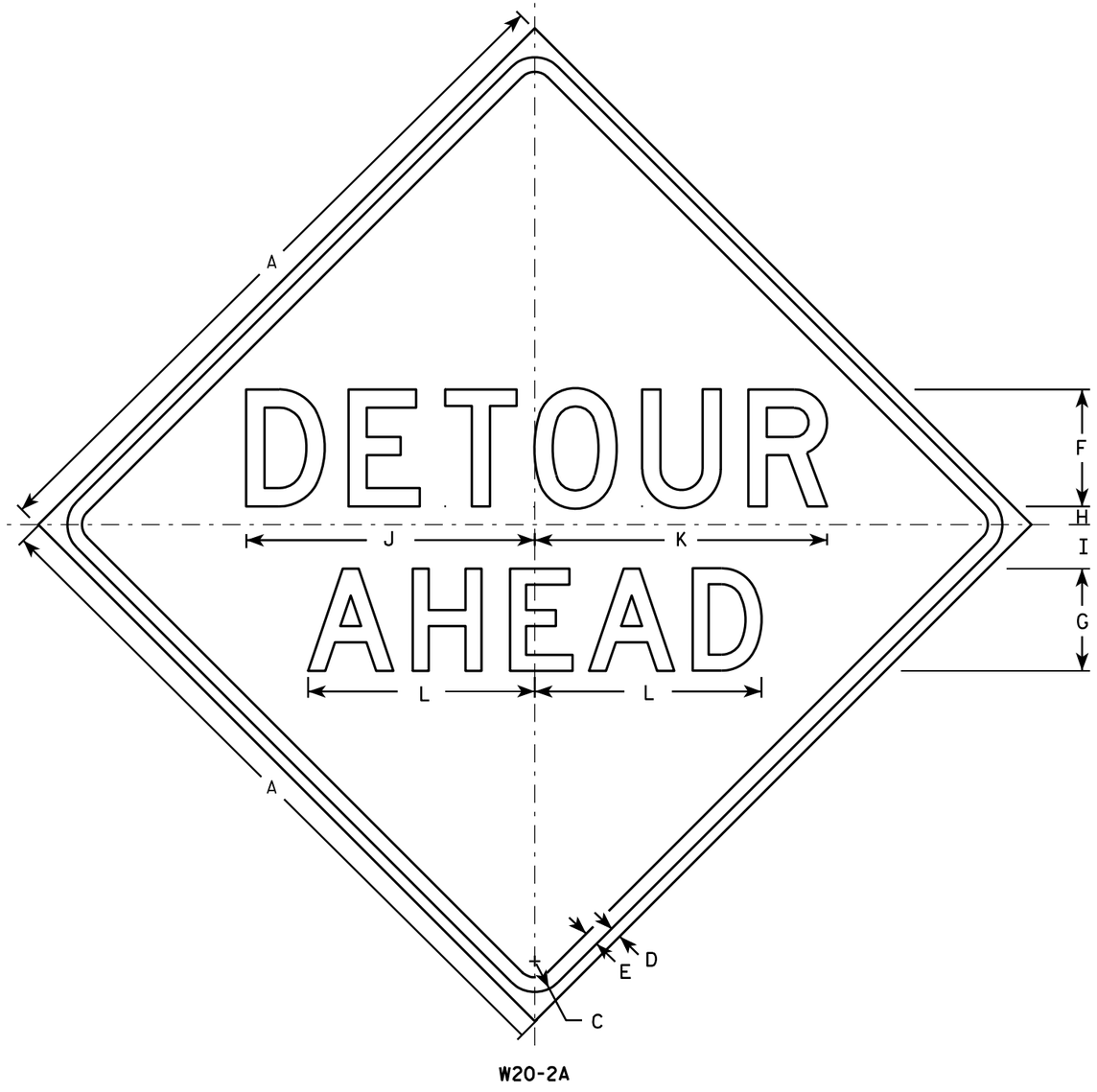
SHEET NO: E

FILE NAME : C:\CAEfiles\Projects\tr_stdplate\W201.DGN PLOT DATE : 25-MARCH-2020 PLOT BY : dotc4c

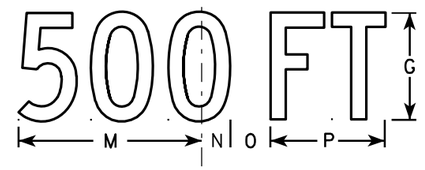
WISDOT/CADDS SHEET 42

7

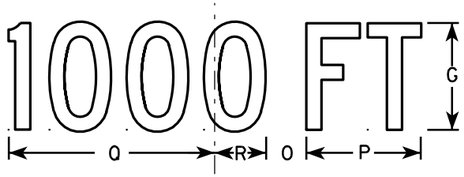
7



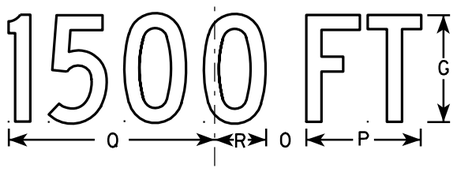
W20-2A



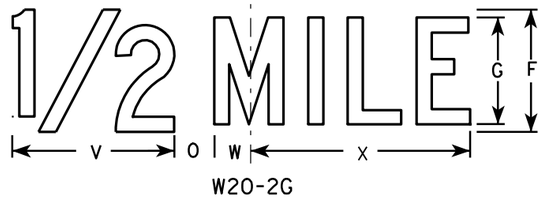
W20-2D



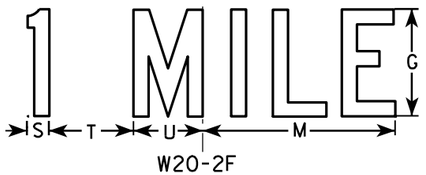
W20-2C



W20-2B



W20-2G



W20-2F

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Orange
   Message - Black
3. Message Series - See note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Line 1 is Series D.
   Line 2 is Series D for AHEAD and Series C for all other distances.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	O	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	6	5	1	2 1/4	14 3/4	15	11 5/8	9	1 3/8	1 7/8	5 5/8	10 1/8	2 1/2	1 1/8	4 1/2	3 1/2	8	1 3/4	10 3/4			9.0
2S	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
2M	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
3	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
4	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
5	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0

STANDARD SIGN
W20-2A,B,C,D,F & G

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/18/11 PLATE NO. W20-2.6

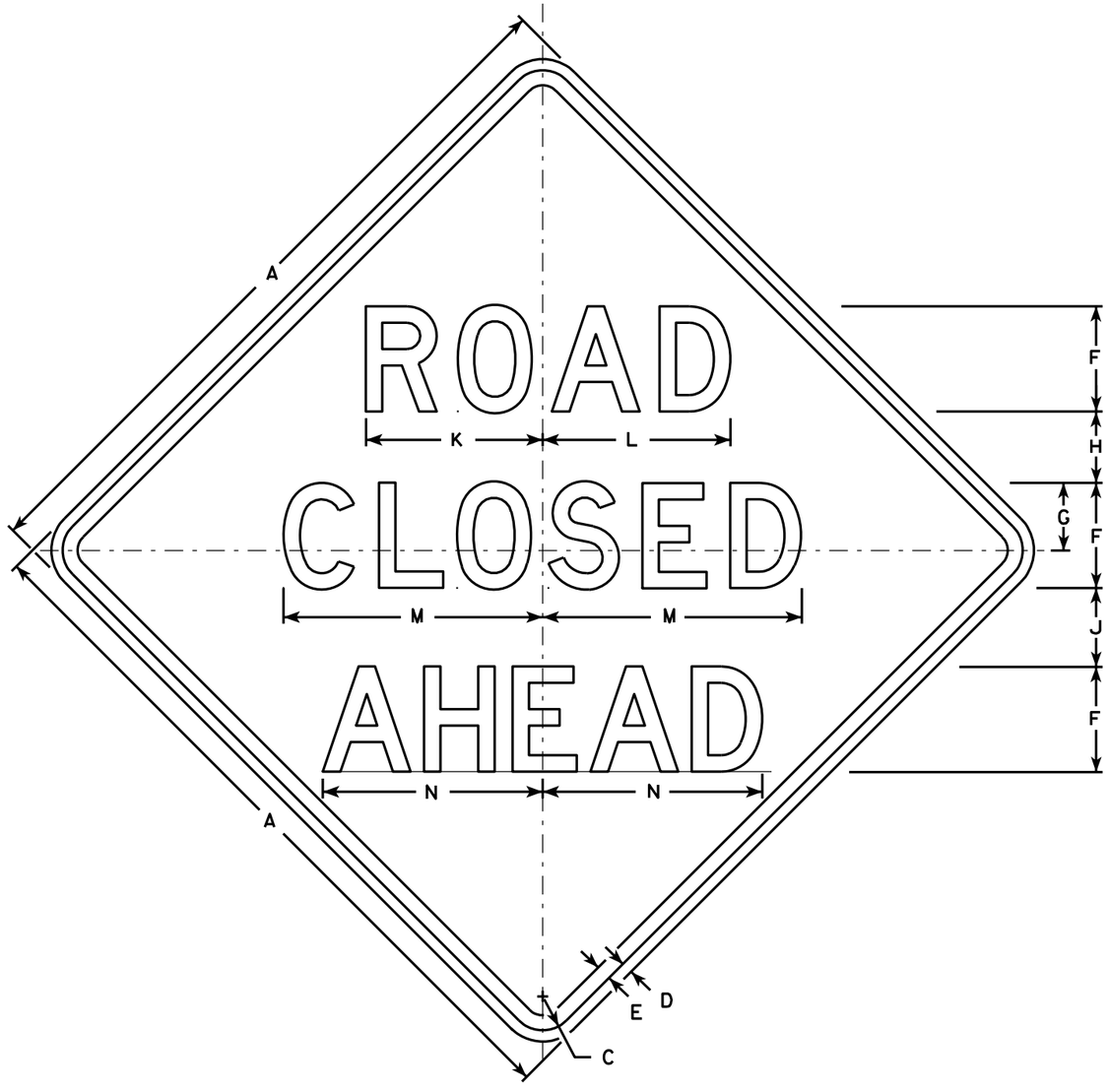
PROJECT NO: | HWY: | COUNTY: | SHEET NO: 176 | E

FILE NAME : C:\Users\PROJECTS\tr_stdplate\W202.DGN PLOT DATE : 18-MAR-2011 10:00 PLOT BY : mscj9h PLOT NAME : PLOT SCALE : 9.931739:1.000000

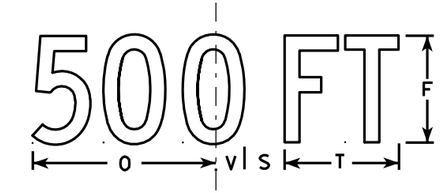
WISDOT/CADDS SHEET 42

7

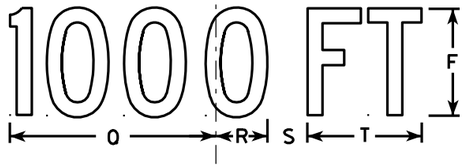
7



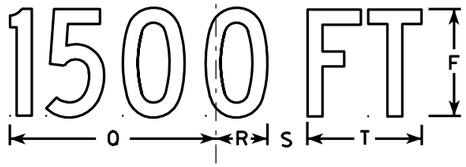
W20-3A



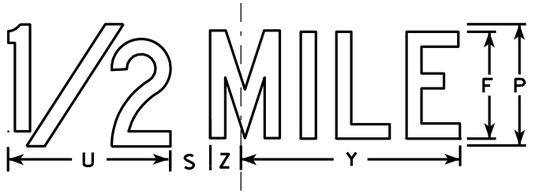
W20-3D



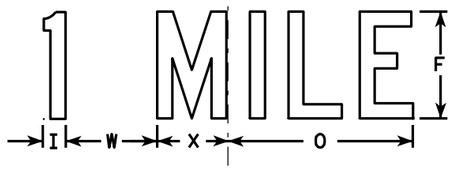
W20-3C



W20-3B



W20-3G



W20-3F

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Orange
   Message - Black
3. Message Series - see note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Lines 1 and 2 are Series D.
   Line 3 is Series D for AHEAD and Series C for all other distances.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	5	3 3/8	3 1/2	1 1/8	4	8 3/8	8 7/8	12 1/2	11	9	6	10 1/8	2 1/2	1 7/8	5 5/8	8	1 3/8	4 1/2	3 1/2	10 3/4	1 3/4	9.0
2S	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
2M	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
3	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
4	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
5	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0

STANDARD SIGN
W20-3A, B, C, D, F & G

WISCONSIN DEPT OF TRANSPORTATION

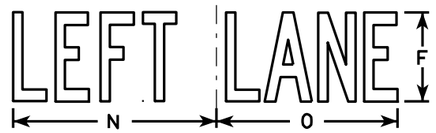
APPROVED Matthew R Rauch
for State Traffic Engineer
DATE 3/18/11 PLATE NO. W20-3.7

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 177 | E

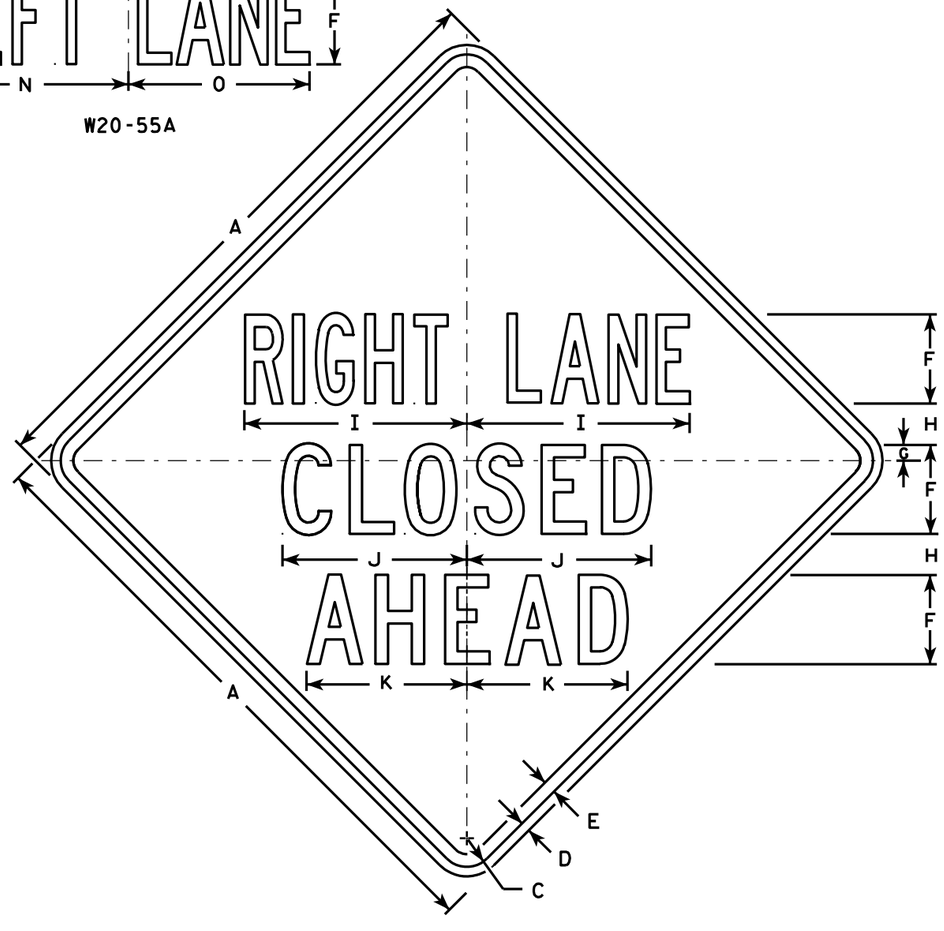
7

FILE NAME : C:\Users\PROJECTS\tr_stdplate\W203.DGN PLOT DATE : 18-MAR-2011 12:08 PLOT BY : mscj9h PLOT NAME : PLOT SCALE : 9.931739:1.000000
WISDOT/CADDS SHEET 42

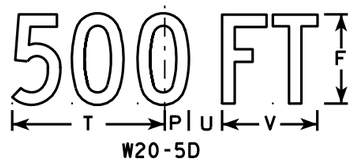
W20-56A



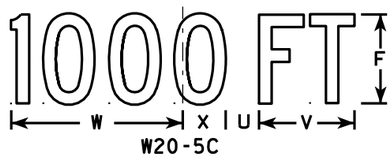
W20-55A



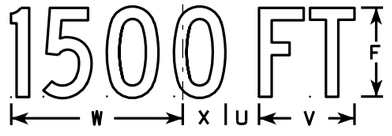
W20-5A



W20-5D



W20-5C



W20-5B

W20-5G

W20-5F

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Orange
   Message - Black
3. Message Series - See Note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. " _____ LANE" is Series B.
   All other copy is Series C.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	6	1 5/8	5/8	3/4	5	1/8	2 1/2	13 1/8	10 3/4	9 1/2	14 1/4	13 5/8	12	12	1 3/8	1 1/8	4 1/2	3 1/2	9	1 1/8	5 5/8	10 1/8	2 1/2	1 3/4	8	9.0
2S	48	8	2 1/4	3/4	1	7	1 1/4	3 1/4	17 1/2	14 3/8	12 5/8	19	18 3/8	16	14 1/4	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0
2M	48	8	2 1/4	3/4	1	7	1 1/4	3 1/4	17 1/2	14 3/8	12 5/8	19	18 3/8	16	14 1/4	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0
3	48	8	2 1/4	3/4	1	7	1 1/4	3 1/4	17 1/2	14 3/8	12 5/8	19	18 3/8	16	14 1/4	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0
4	48	8	2 1/4	3/4	1	7	1 1/4	3 1/4	17 1/2	14 3/8	12 5/8	19	18 3/8	16	14 1/4	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0
5	48	8	2 1/4	3/4	1	7	1 1/4	3 1/4	17 1/2	14 3/8	12 5/8	19	18 3/8	16	14 1/4	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0

STANDARD SIGN
W20-5A, B, C, D, F & G

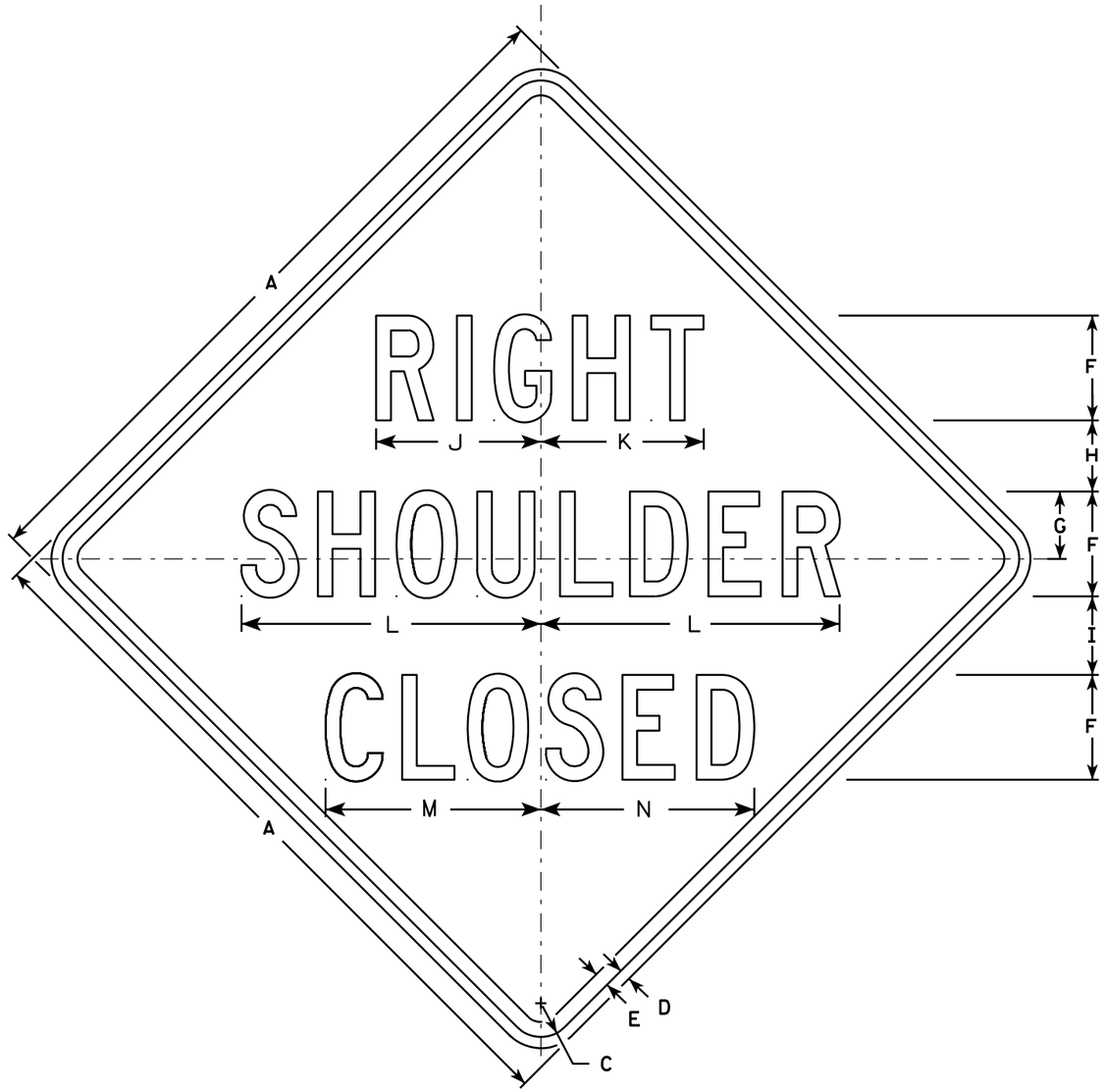
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/18/11 PLATE NO. W20-5.11

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 178	E

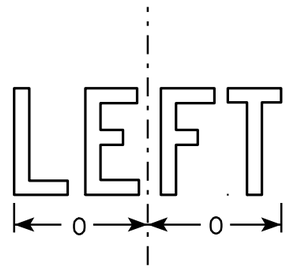
FILE NAME : C:\Users\PROJECTS\tr_stdplate\W205.DGN PLOT DATE : 18-MAR-2011 12:15 PLOT BY : mscj9h PLOT NAME : PLOT SCALE : 11.918087:1.000000
WISDOT/CADDS SHEET 42



W21-5A

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Orange
   Message - Black
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



W21-5AL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	5	3 3/8	3 1/2	4	7 7/8	7 3/4	14 1/4	10 1/4	10 1/8	6 1/4												9.0
2S	48		2 1/4	3/4	1	7	4 1/2	4 3/4	5 1/4	11	10 7/8	20	14 3/8	14 1/4	8 3/4												16.0
2M	48		2 1/4	3/4	1	7	4 1/2	4 3/4	5 1/4	11	10 7/8	20	14 3/8	14 1/4	8 3/4												16.0
3	48		2 1/4	3/4	1	7	4 1/2	4 3/4	5 1/4	11	10 7/8	20	14 3/8	14 1/4	8 3/4												16.0
4	48		2 1/4	3/4	1	7	4 1/2	4 3/4	5 1/4	11	10 7/8	20	14 3/8	14 1/4	8 3/4												16.0
5	48		2 1/4	3/4	1	7	4 1/2	4 3/4	5 1/4	11	10 7/8	20	14 3/8	14 1/4	8 3/4												16.0

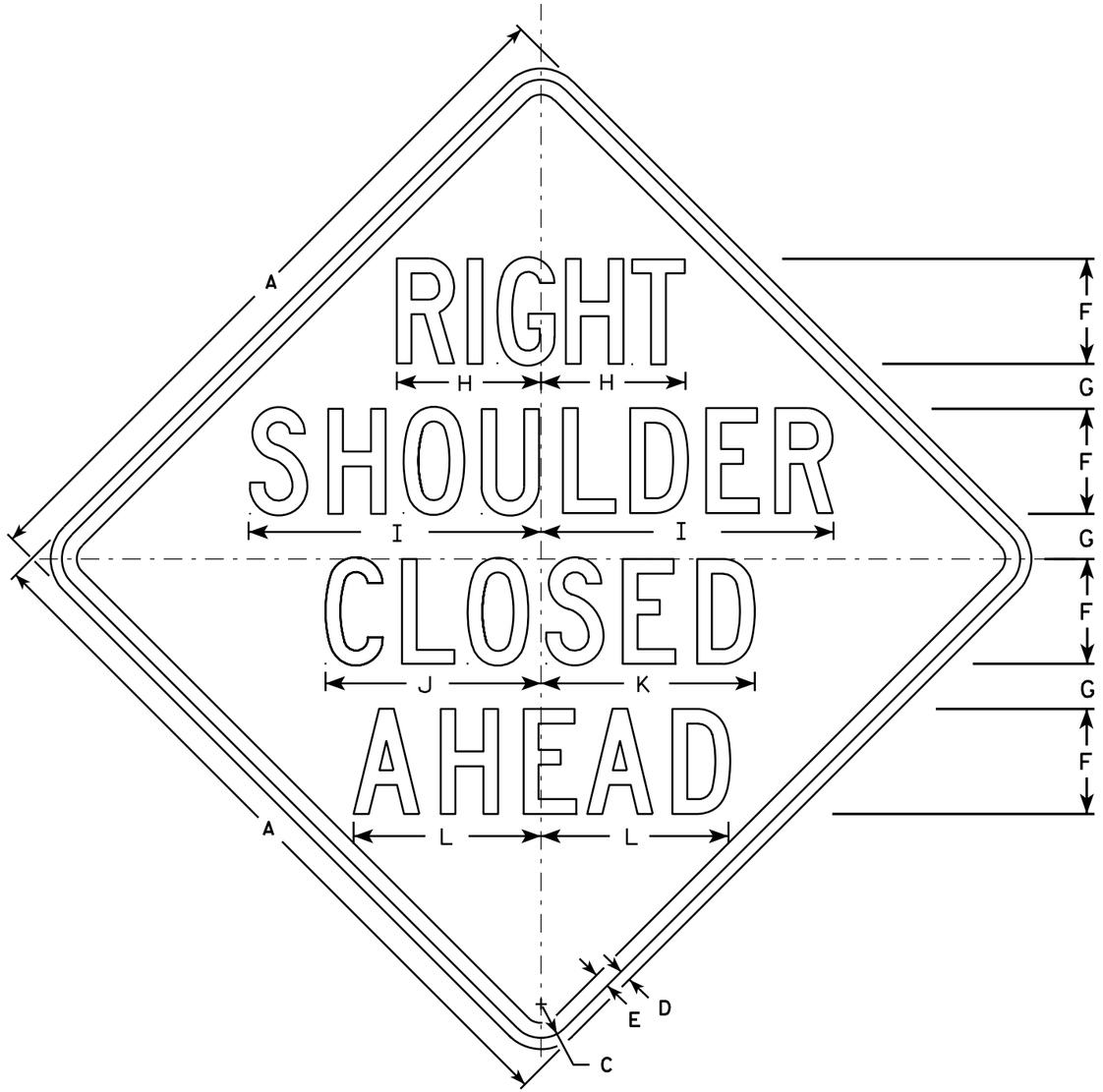
STANDARD SIGN
W21-5A

WISCONSIN DEPT OF TRANSPORTATION

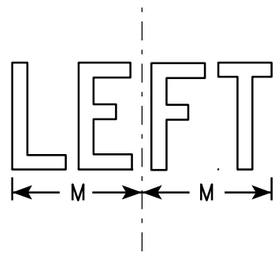
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/21/11 PLATE NO. W21-5A.3

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 179 | E



W21-5B



W21-5BL

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Orange
   Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	5	2 1/4	7 3/8	14 1/4	10 1/4	10 1/8	8 7/8	6 1/4														9.0
2S	48		2 1/4	3/4	1	7	3	9 5/8	19 1/2	14 3/8	14 1/4	12 1/2	8 1/2														16.0
2M	48		2 1/4	3/4	1	7	3	9 5/8	19 1/2	14 3/8	14 1/4	12 1/2	8 1/2														16.0
3	48		2 1/4	3/4	1	7	3	9 5/8	19 1/2	14 3/8	14 1/4	12 1/2	8 1/2														16.0
4	48		2 1/4	3/4	1	7	3	9 5/8	19 1/2	14 3/8	14 1/4	12 1/2	8 1/2														16.0
5	48		2 1/4	3/4	1	7	3	9 5/8	19 1/2	14 3/8	14 1/4	12 1/2	8 1/2														16.0

STANDARD SIGN
W21-5B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/21/11 PLATE NO. W21-5B.3

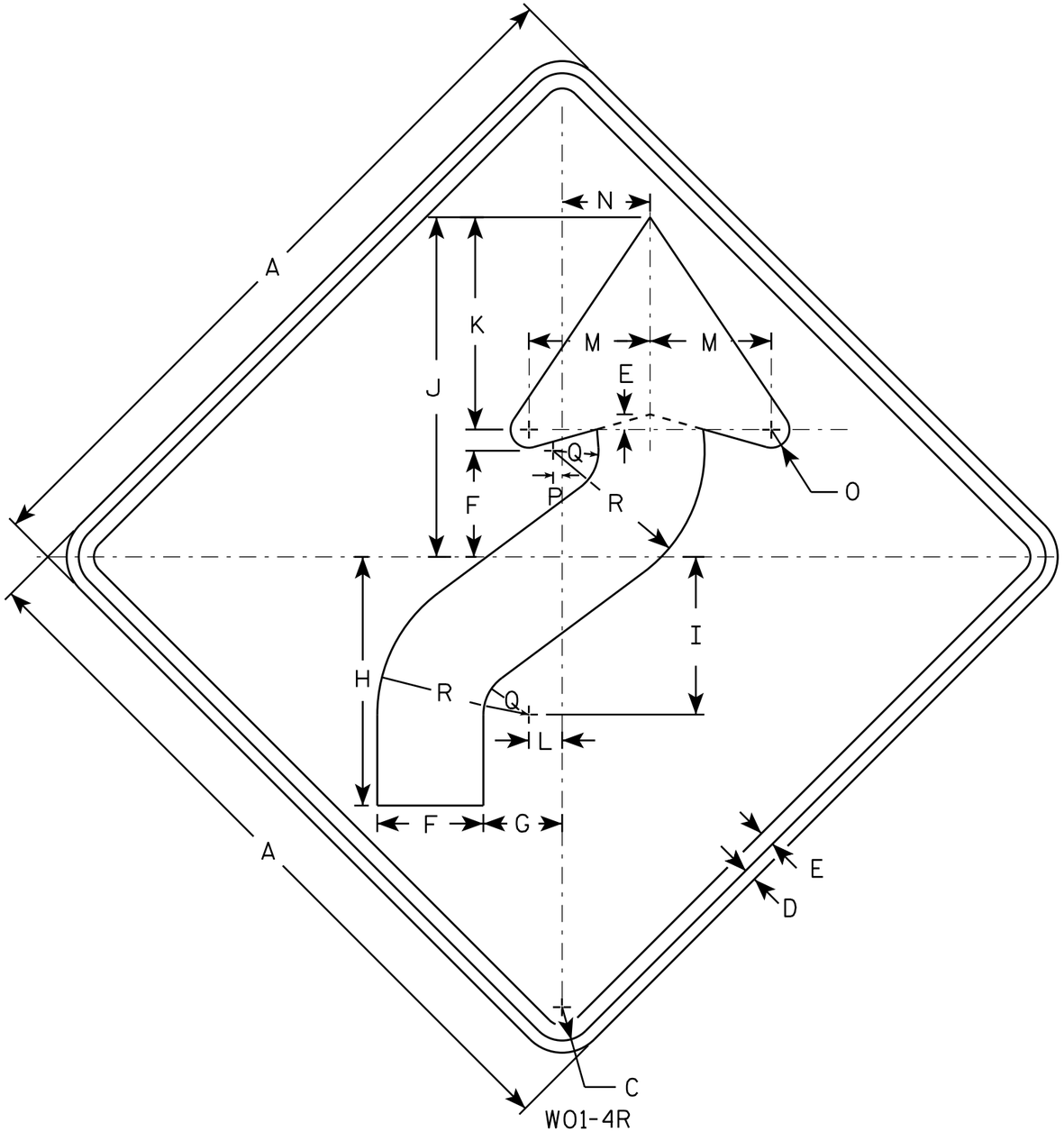
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 180	E

FILE NAME : C:\Users\PROJECTS\tr_stdplate\W215B.DGN PLOT DATE : 21-MAR-2011 09:05 PLOT BY : mscj9h PLOT NAME : PLOT SCALE : 9.931739:1.000000

WISDOT/CADDS SHEET 42

7

7



W01-4R

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Orange
   Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. W01-4L is the same as W01-4R except the arrow is reversed along the vertical centerline.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	5 1/4	4	12 3/8	7 7/8	16 7/8	10 1/2	1 5/8	6	4 1/2	1	1/2	2 1/4	7 1/2									9.0
2S	48		2 1/4	3/4	1	7	5 1/4	16 1/2	10 1/2	22 1/2	14	2 1/4	8	6	1 1/4	5/8	3	10									16.0
2M	48		2 1/4	3/4	1	7	5 1/4	16 1/2	10 1/2	22 1/2	14	2 1/4	8	6	1 1/4	5/8	3	10									16.0
3	48		2 1/4	3/4	1	7	5 1/4	16 1/2	10 1/2	22 1/2	14	2 1/4	8	6	1 1/4	5/8	3	10									16.0
4	48		2 1/4	3/4	1	7	5 1/4	16 1/2	10 1/2	22 1/2	14	2 1/4	8	6	1 1/4	5/8	3	10									16.0
5	48		2 1/4	3/4	1	7	5 1/4	16 1/2	10 1/2	22 1/2	14	2 1/4	8	6	1 1/4	5/8	3	10									16.0

STANDARD SIGN
W01-4

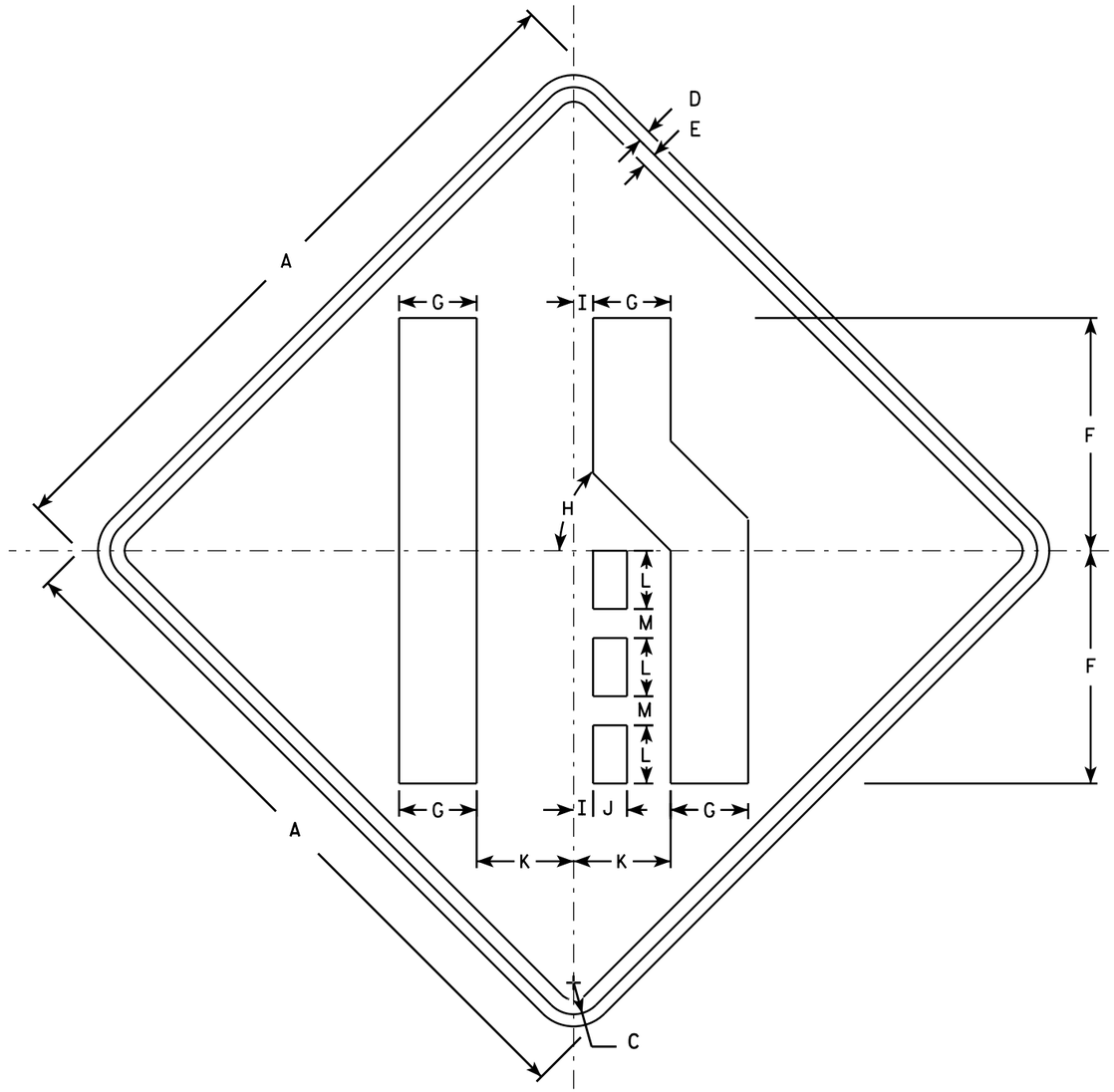
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 11/18/13 PLATE NO W01-4.1

PROJECT NO: | HWY: | COUNTY: | SHEET NO: E

FILE NAME : C:\CAEfiles\Projects\tr_stdplate\W014.DGN PLOT DATE : 28-FEB-2014 11:35 PLOT BY : mscj9h PLOT NAME : PLOT SCALE : 6.755110:1.000000
WISDOT/CADDS SHEET 42



W04-2R

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Orange
   Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. W04-2L is the same as W04-2R except the symbol is reversed along the vertical centerline.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	12	4	45°	1	1 3/4	5	3	1 1/2														9.0
2S	48		2 1/4	3/4	1	16	5 3/8	45°	1 1/4	2 3/8	6 3/4	4	2														16.0
2M	48		2 1/4	3/4	1	16	5 3/8	45°	1 1/4	2 3/8	6 3/4	4	2														16.0
3	48		2 1/4	3/4	1	16	5 3/8	45°	1 1/4	2 3/8	6 3/4	4	2														16.0
4	48		2 1/4	3/4	1	16	5 3/8	45°	1 1/4	2 3/8	6 3/4	4	2														16.0
5	48		2 1/4	3/4	1	16	5 3/8	45°	1 1/4	2 3/8	6 3/4	4	2														16.0

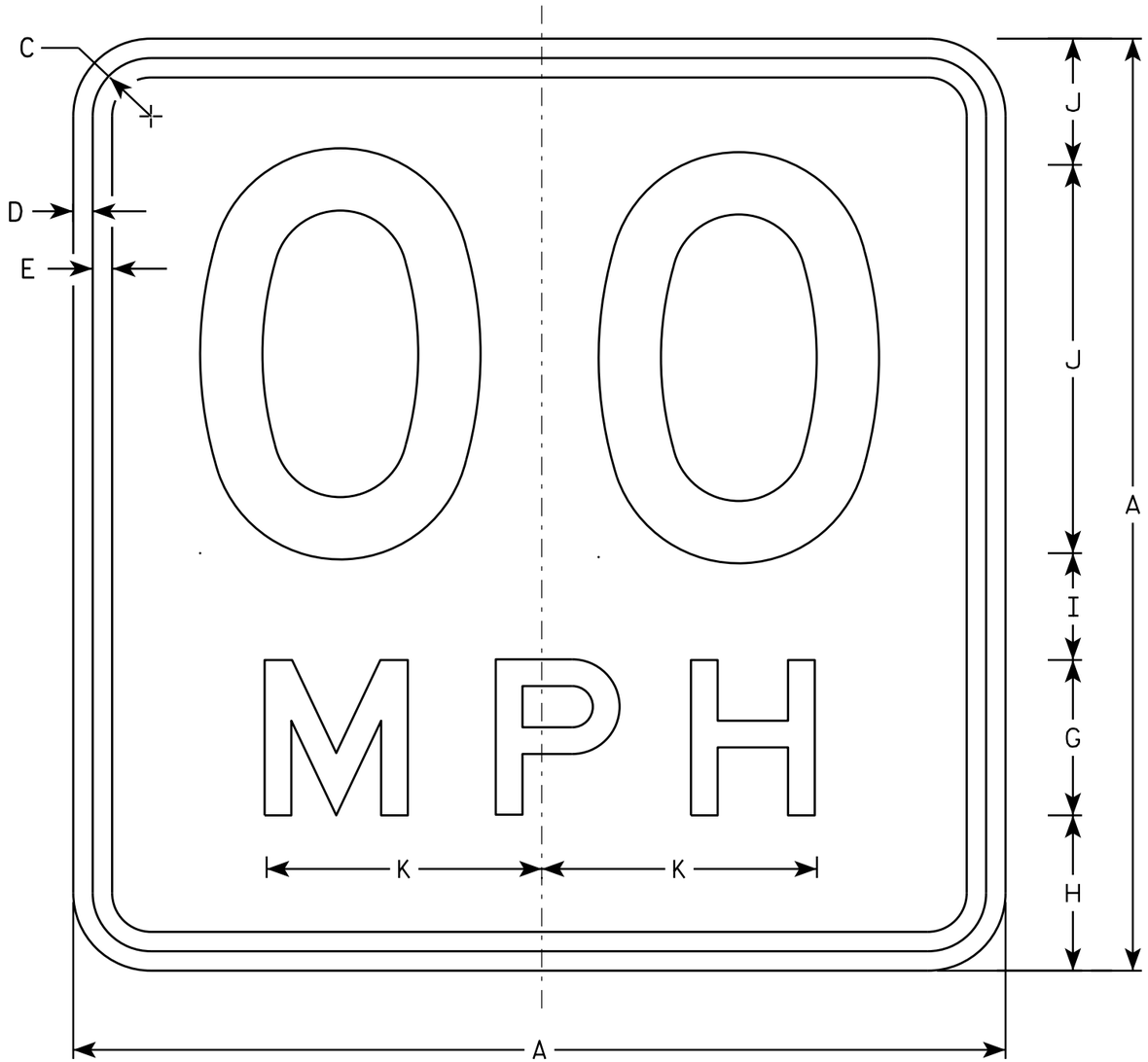
STANDARD SIGN
W04-2

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 11/20/13 PLATE 182 W04-2.1

PROJECT NO: | SHEET NO: E



W013-1

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Orange
   Message - Black
3. Message Series - See Note 6
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate numerals and optically space about centerline to achieve proper balance.
6. Line 1 is Series D
   Line 2 is Series E

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24		1 1/8	3/8	1/2	10	4	4	2 3/4	3 1/4	7 1/8																4.00
2S	36		1 5/8	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.00
2M	36		1 5/8	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.00
3	36		1 5/8	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.00
4	36		1 5/8	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.00
5	36		1 5/8	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.00

STANDARD SIGN
W013-1

WISCONSIN DEPT OF TRANSPORTATION

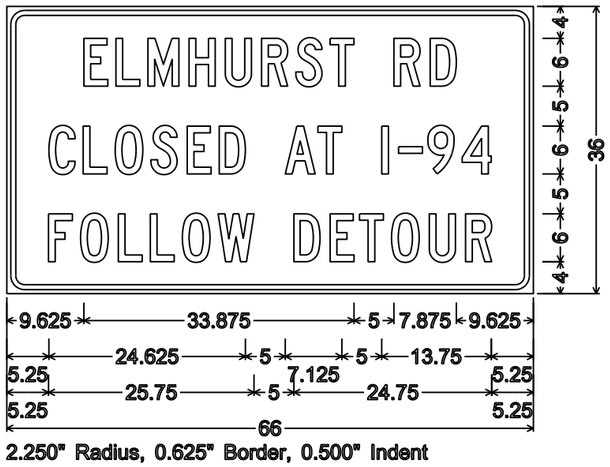
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 11/21/13 PLATE 183 W013-1.1

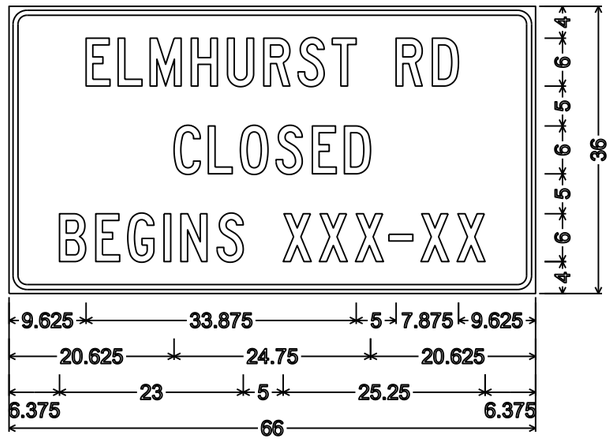
PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

NOTES

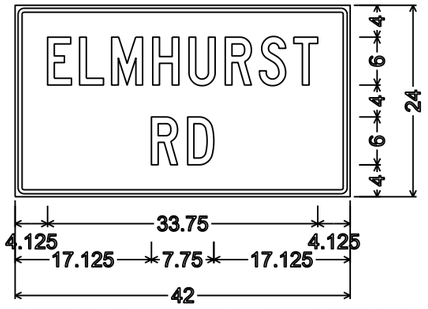
1. All Signs Type II - Type F Reflective
2. Color:
   Background - Orange
   Message - Black
3. Message Series - C



2.250" Radius, 0.625" Border, 0.500" Indent



2.250" Radius, 0.625" Border, 0.500" Indent

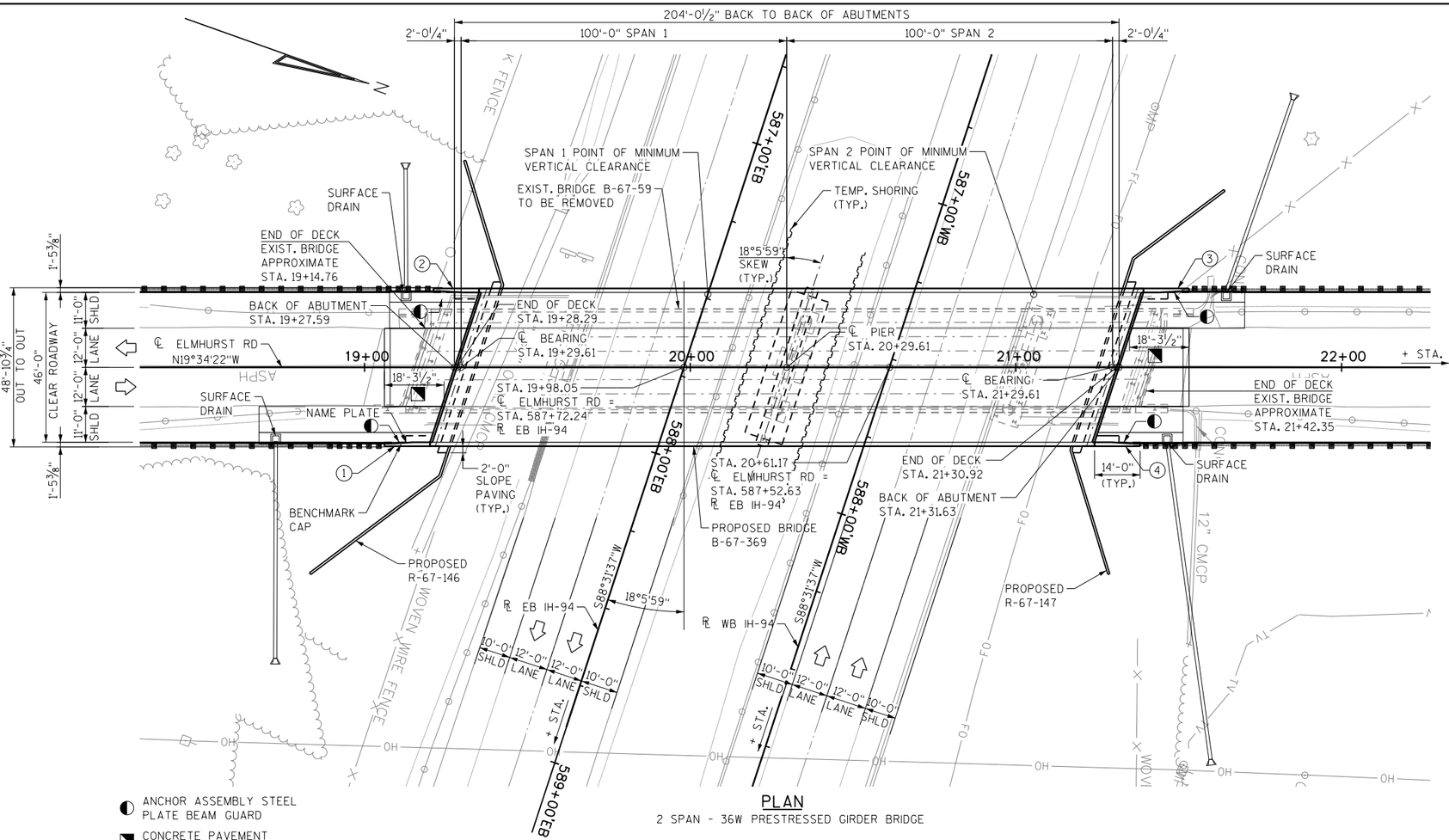


1.125" Radius, 0.500" Border, 0.375" Indent

7

7

STATE PROJECT NUMBER
1060-10-70

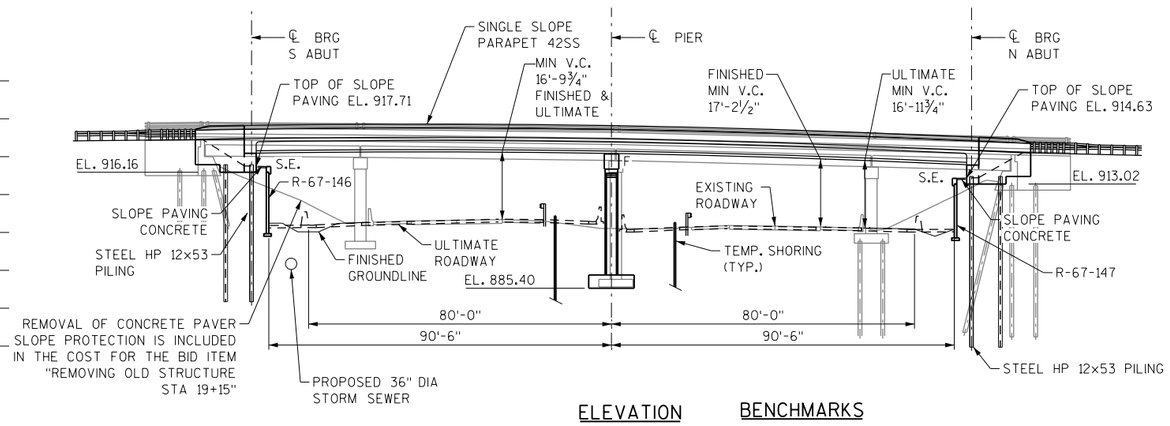


PLAN
2 SPAN - 36W PRESTRESSED GIRDER BRIDGE

◐ ANCHOR ASSEMBLY STEEL PLATE BEAM GUARD

◥ CONCRETE PAVEMENT APPROACH SLAB (ROADWAY ITEM)

Ⓧ WINGWALL NO.



ELEVATION

LIST OF DRAWINGS:

1. GENERAL PLAN & ELEVATION
2. TYPICAL SECTIONS & NOTES
3. SUBSURFACE EXPLORATION
4. SOUTH ABUTMENT
5. SOUTH ABUTMENT DETAILS
6. NORTH ABUTMENT
7. NORTH ABUTMENT DETAILS
8. PIER
9. PIER DETAILS
10. PIER DETAILS CONTINUED
11. 36W" PRESTRESSED GIRDER
12. 36W" PRESTRESSED GIRDER DETAILS
13. SUPERSTRUCTURE FRAMING PLAN
14. SUPERSTRUCTURE REINFORCEMENT
15. SUPERSTRUCTURE DETAILS
16. STEEL DIAPHRAGM
17. SINGLE SLOPE PARAPET 42SS

BENCHMARKS

NAME	ELEVATION	DESCRIPTION	STATION	OFFSET
BM110	921.54	CP MON	21+37	12.7 RT
BM111	925.13	CP CHIS CROSS	19+11	12.5 RT
BM128	911.56	CP FENO	26+41	21.2 RT
BM130	921.23	CP FENO	15+96	18.3 RT

DESIGN DATA

LIVE LOAD:

DESIGN LOADING HL-93
INVENTORY RATING FACTOR 1.03
OPERATING RATING FACTOR 1.68
WISCONSIN STANDARD PERMIT VEHICLE (Wis-SPV) = 250 KIPS
DESIGN ACCOUNTS FOR FUTURE WEARING SURFACE = 20 PSF

MATERIAL PROPERTIES:

CONCRETE MASONRY:
- SUPERSTRUCTURE ..... f'c = 4,000 psi
- SUBSTRUCTURE ..... f'c = 4,000 psi
- 36W-INCH PRESTRESSED GIRDERS ..... f'c = 8,000 psi

BAR STEEL REINFORCEMENT ..... fy = 60,000 psi
STAINLESS STEEL BAR REINFORCEMENT ..... fy = 60,000 psi
STEEL PILING ..... fy = 50,000 psi
PRESTRESSING STRANDS:
ULTIMATE TENSILE STRENGTH = 270,000 psi

FOUNDATION DATA:

PLACE NORTH ABUTMENT ON STEEL HP 12x53 PILING WITH PILE POINTS DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 195 TONS/PILE* AS DETERMINED BY THE MODIFIED GATES DYNAMIC EQUATION.

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

THE SOUTH ABUTMENT WILL BE PLACED ON STEEL HP 12x53 PILES THAT ARE PRE-BORED TO AN ELEVATION OF 882.00.

EST. PILE LENGTHS: 45 FT AT N. ABUT.
35 FT AT S. ABUT.

PIER IS TO BE SUPPORTED ON SPREAD FOOTING. THE REQUIRED NOMINAL BEARING RESISTANCE OF THE NATIVE SOIL AT THE BOTTOM OF THE FOOTING IS 24.4 KSF. THE NOMINAL BEARING CAPACITY MUST BE VERIFIED BY ENGINEER PRIOR TO CONSTRUCTION OF THE PIER FOOTING.

THE FACTORED NET BEARING RESISTANCE OF THE NATIVE SOIL IS THE REQUIRED NOMINAL BEARING RESISTANCE MULTIPLIED BY A RESISTANCE FACTOR OF 0.45. FACTORED NET BEARING RESISTANCE IS 11 KSF.

TRAFFIC DATA

ELMHURST RD
AADT (2020) = 2,800
AADT (2040) = 3,100
D = 59/41
DESIGN SPEED = 30 MPH.

IH-94
AADT (2020) = 70,350
AADT (2040) = 77,700
DESIGN SPEED = 70 MPH.

EXISTING STRUCTURE

THE EXISTING BRIDGE (B-67-059) IS A 227'-8" LONG, 32'-0" WIDE FOUR SPAN PRESTRESSED CONCRETE GIRDER BRIDGE SUPPORTED ON CONCRETE PIERS AND ABUTMENTS. PLANS OF THE EXISTING BRIDGE ARE AVAILABLE FOR REVIEW AT WISDOT SE REGION OFFICE, 141 NW BARSTOW ST. WAUKESHA, WI OR THROUGH THE WISDOT STRUCTURES WEBSITE.

STRUCTURES DESIGN CONTACTS

BRIDGE OFFICE:
AARON BONK, PE
(608) 261-0261

CONSULTANT:
WILLIAM J. ZIPPEL, PE, SE
ALFRED BENESCH & CO
1300 W CANAL ST, SUITE 150
MILWAUKEE, WI 53233
(414) 308-1321

WISCONSIN
WILLIAM J. ZIPPEL
38868-006
MILWAUKEE, WI
3/22/2021
PROFESSIONAL ENGINEER

NO.	DATE	REVISION	BY

benesch
Alfred Benesch & Company
1300 West Canal Street, Suite 150
Milwaukee, Wisconsin 53233
414-308-1310 Job No. 20205.00

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED SDR 03/24/21
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-67-369

ELMHURST ROAD OVER IH-94

COUNTY	TOWN/~~CITY/VILLAGE~~
WAUKESHA	DELAFIELD

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
JAP	WJZ	JAP	WJZ

GENERAL PLAN AND ELEVATION

SHEET 1 OF 17

185

FILE= B67369_10_GP&E.DGN
SCALE = 1:40

8

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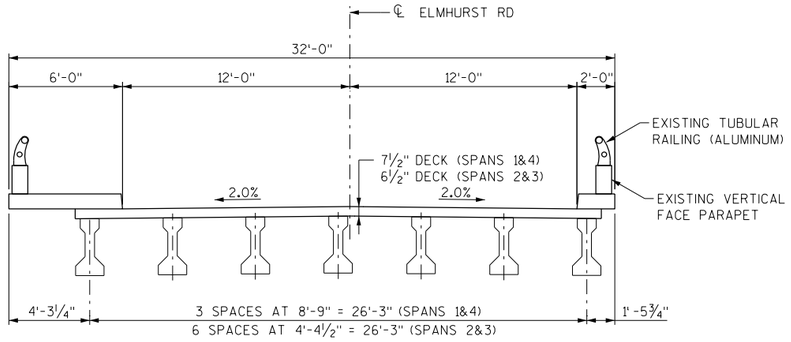
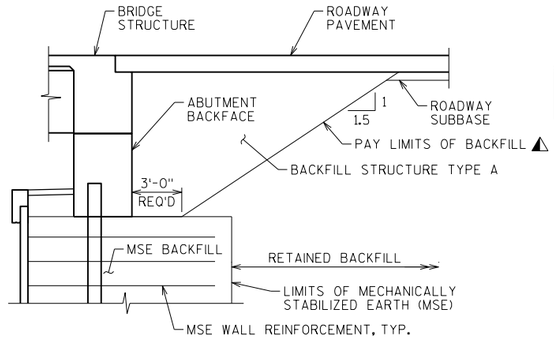
STATE PROJECT NUMBER

1060-10-70

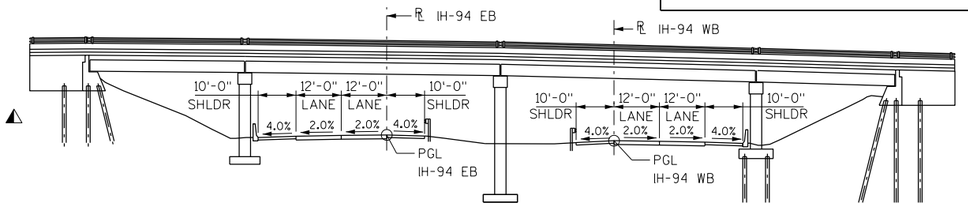


EXISTING SECTION
(LOOKING NORTH)

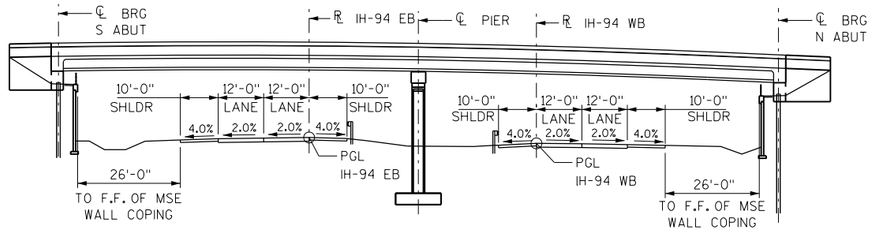


TYPICAL SECTION THRU ABUTMENT

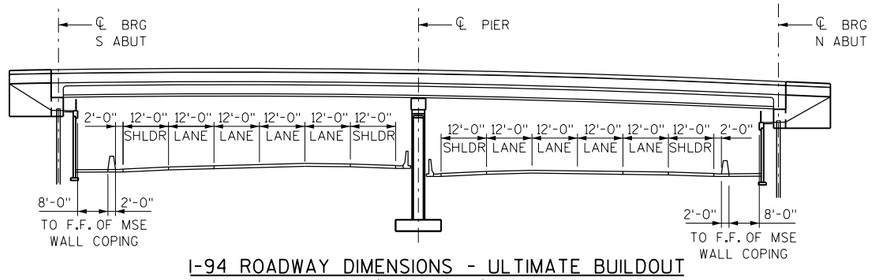
⚠ BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.



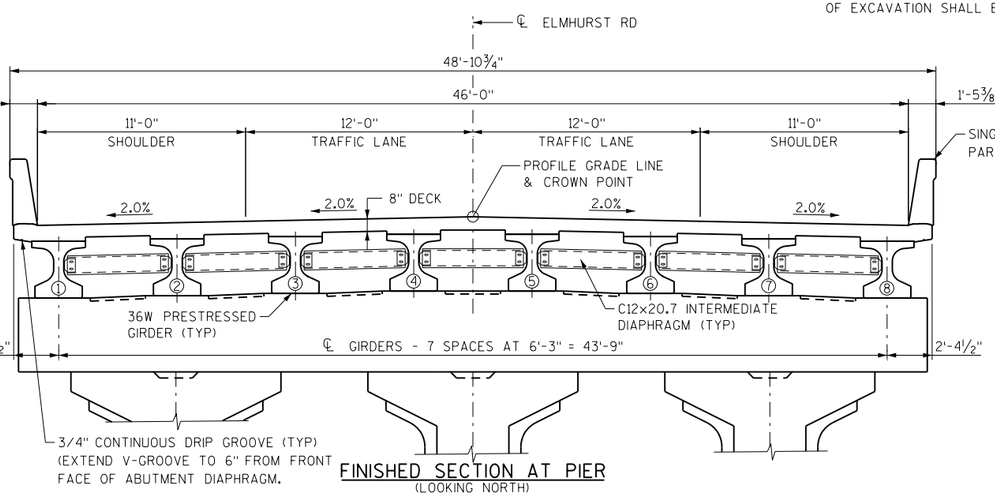
I-94 ROADWAY DIMENSIONS - EXISTING CONDITION
(LOOKING WEST)



I-94 ROADWAY DIMENSIONS - FINISHED CONDITION
(LOOKING WEST)



I-94 ROADWAY DIMENSIONS - ULTIMATE BUILDOUT
(LOOKING WEST)



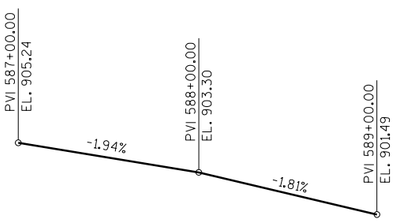
FINISHED SECTION AT PIER
(LOOKING NORTH)

GENERAL NOTES

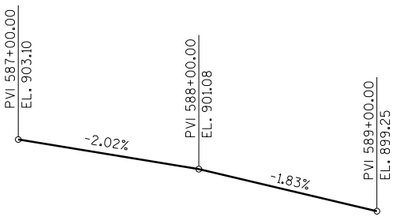
1. DRAWINGS SHALL NOT BE SCALED.
2. BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED. THE TOP LAYER OF BAR STEEL REINFORCEMENT IN THE DECK SHALL BE PLACED WITH 2½" OF CONCRETE COVER.
3. BEVEL EXPOSED EDGES OF CONCRETE ¾" UNLESS OTHERWISE NOTED.
4. ALL DIMENSIONS ARE IN FEET AND INCHES UNLESS NOTED OTHERWISE.
5. ALL STATIONS AND ELEVATIONS ARE IN FEET.
6. THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.
7. THE EXISTING GROUND LINE SHALL BE USED AS THE UPPER LIMITS OF EXCAVATION AT THE PIERS AND ABUTMENTS.
8. AT THE BACKFACE OF ABUTMENT ALL VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL.
9. THE HAUNCH CONCRETE QUANTITY IS BASED ON THE AVERAGE HAUNCH SHOWN ON THE PRESTRESSED GIRDER DETAILS.
10. EXISTING PILING IS TO BE CUT OFF AT THE BOTTOM OF PROPOSED MSE WALL. COST IS INCIDENTAL TO REMOVING OLD STRUCTURE STA 19+15.
11. THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH SLOPE PAVING MATERIAL TO THE EXENTS SHOWN ON SHEET ONE AND IN THE ABUTMENT DETAILS.

TOTAL ESTIMATE OF QUANTITIES

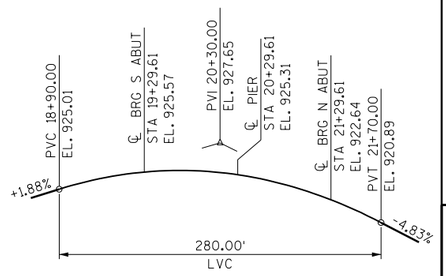
BID NO.	BID ITEMS	UNIT	SOUTH ABUT.	PIER	NORTH ABUT.	SUPER	TOTAL
203.0200	REMOVING OLD STRUCTURE STA 19+15	LS					1
203.0210.S	ABATEMENT OF ASBESTOS CONTAINING MATERIAL B-67-59	LS					1
210.1100	BACKFILL STRUCTURE TYPE A	CY	70	524	70		664
502.0100	CONCRETE MASONRY BRIDGES	CY	48	145	49	379	621
502.3200	PROTECTIVE SURFACE TREATMENT	SY				1043	1043
502.3210	PIGMENTED SURFACE SEALER	SY				227	227
503.0137	PRESTRESSED GIRDER TYPE I36W-INCH	LF				1606	1606
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	2540	6743	2693	0	11976
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	2197	23864	2203	83079	111343
506.2605	BEARING PADS ELASTOMERIC LON-LAMINATED	EACH				32	32
506.4000	STEEL DIAPHRAGMS B-67-369	EACH				28	28
511.1200	TEMPORARY SHORING B-67-369	SF		1620			1620
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	11		11		22
550.0010	PRE-BORING UNCONSOLIDATED MATERIALS	LF	160				160
550.0500	PILE POINTS	EACH			10		10
550.1120	PILING STEEL HP 12-INCH X 53 LB	LF	350		450		800
604.0400	SLOPE PAVING CONCRETE	SY	14		14		28
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	90		90		180
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	2		2		4
SPV.0035.41	LEAN CONCRETE	CY		60			60
	NON-BID ITEMS						
	NAME PLATE						
	JOINT FILLER						
	NON-BITUMINOUS JOINT SEALER						



PROFILE GRADE LINE IH-94 EB



PROFILE GRADE LINE IH-94 WB



PROFILE GRADE LINE ELMHURST ROAD

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-67-369

DRAWN BY JAP | PLANS CK'D. WJZ

TYPICAL SECTION AND NOTES

SHEET 2 OF 17

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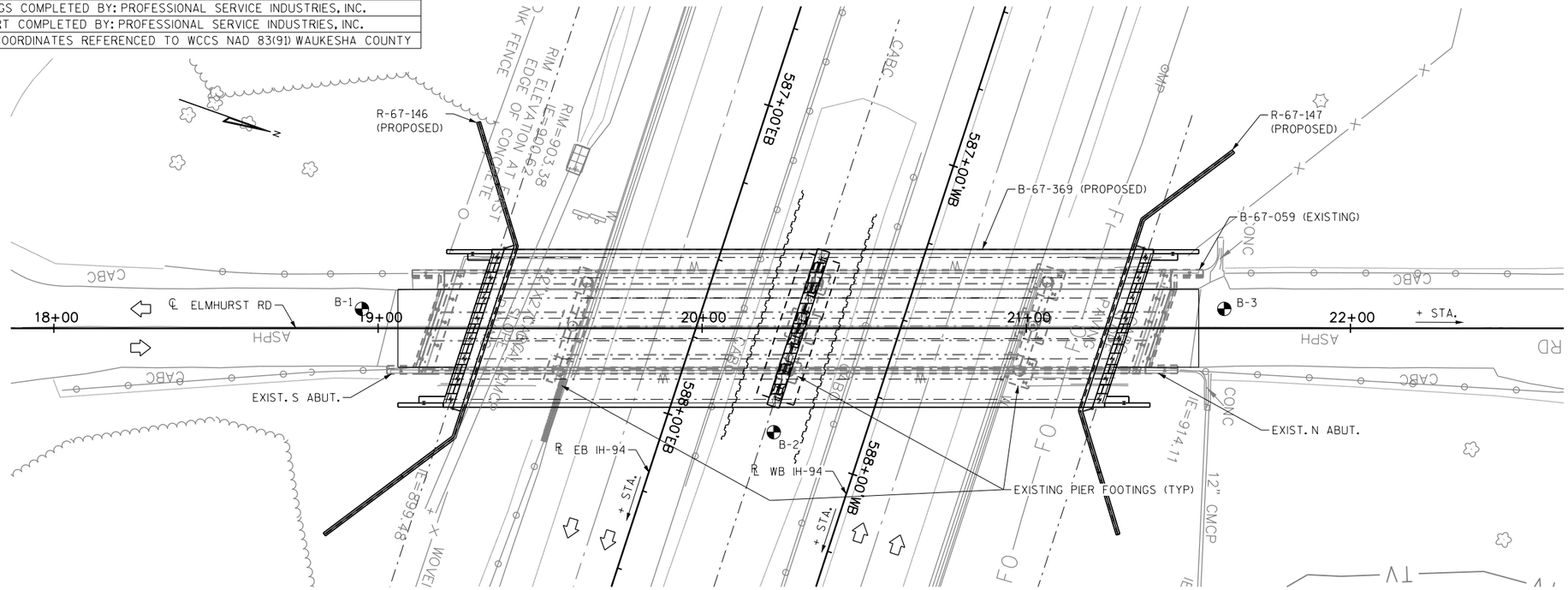
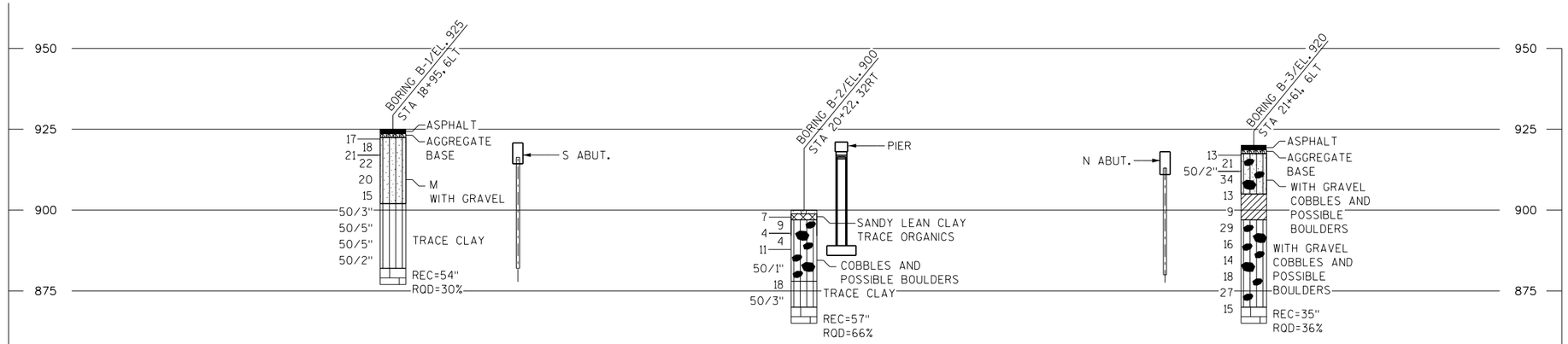
8

FILE= B67369_20_TYP.DGN
SCALE = 1:8

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	8-25-2016	175,144.02	658,176.00
2	8-26-2016	175,276.41	658,169.26
3	8-29-2016	175,394.65	658,086.89
BORINGS COMPLETED BY: PROFESSIONAL SERVICE INDUSTRIES, INC.			
REPORT COMPLETED BY: PROFESSIONAL SERVICE INDUSTRIES, INC.			
ALL COORDINATES REFERENCED TO WCCS NAD 83(91) WAUKESHA COUNTY			





NOTES:

FOUNDATION DESIGN PARAMETERS ARE BASED ON RECOMMENDATIONS FROM THE GEOTECHNICAL EXPLORATION REPORTS DATED 11/18/2016 & 8/7/2017 BY PROFESSIONAL SERVICE INDUSTRIES, INC, AVAILABLE FROM WISDOT.

REFER TO THE GEOTECHNICAL REPORT FOR FULL SOIL DESCRIPTIONS AND DETAILS OF BORING LOGS.

HISTORIC BORINGS ARE AVAILABLE UPON REQUEST FROM WISDOT.

BORINGS INDICATE THE LIKELY PRESENCE OF BOULDERS AND COBBLES.

CONTACT THE WISCONSIN DEPARTMENT OF TRANSPORTATION FOR THE GEOTECHNICAL REPORT AND BORING LOGS.

EXISTING FOOTINGS AND ABUTMENTS ARE SHOWN BASED ON ORIGINAL STRUCTURE PLANS.

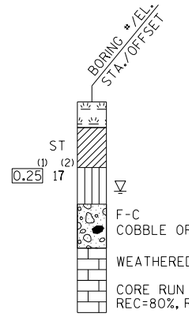
STATE PROJECT NUMBER

1060-10-70

MATERIAL SYMBOLS

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

LEGEND OF BORING



(1) UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)

(2) UNLESS OTHERWISE, SPECIFIED THE SPT 'N' VALUE IS BASED ON AASHTO T-206, STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.

GROUND WATER ELEVATION

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

ABBREVIATIONS

F-FINE M-MEDIUM C-COARSE ST-SHELBY TUBE

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

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

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-67-369

DRAWN BY JAP | PLANS CK'D. WJZ

SUBSURFACE EXPLORATION

SHEET 3 OF 17

187

FILE= B67369_30_SUBS.DGN
SCALE = 1:40

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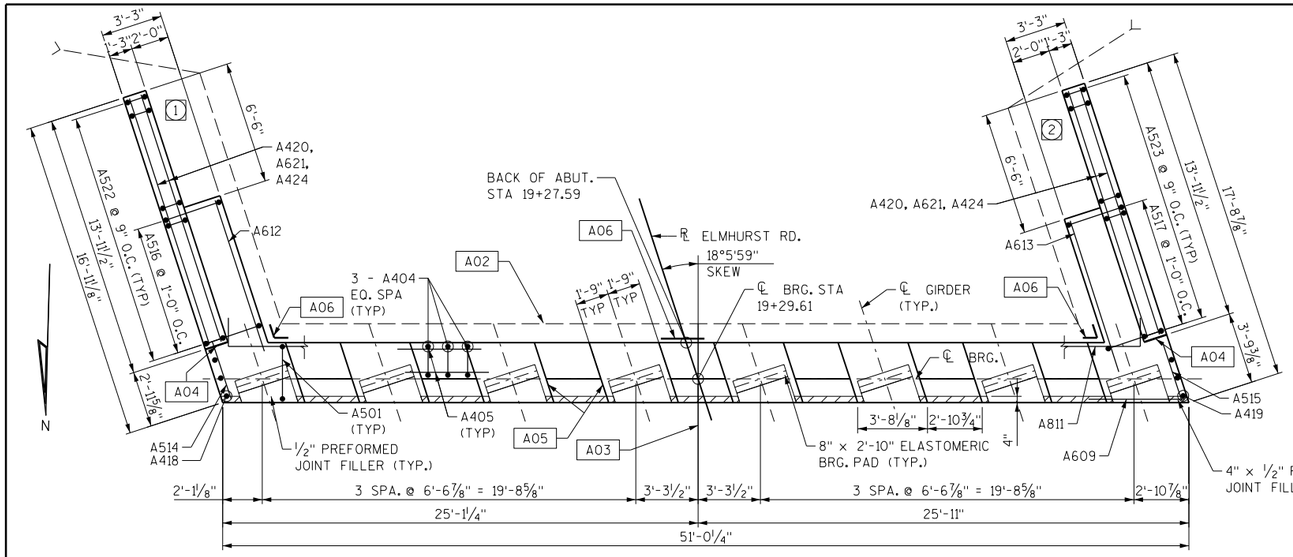
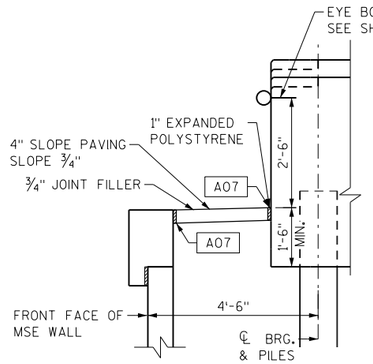
STATE PROJECT NUMBER
1060-10-70



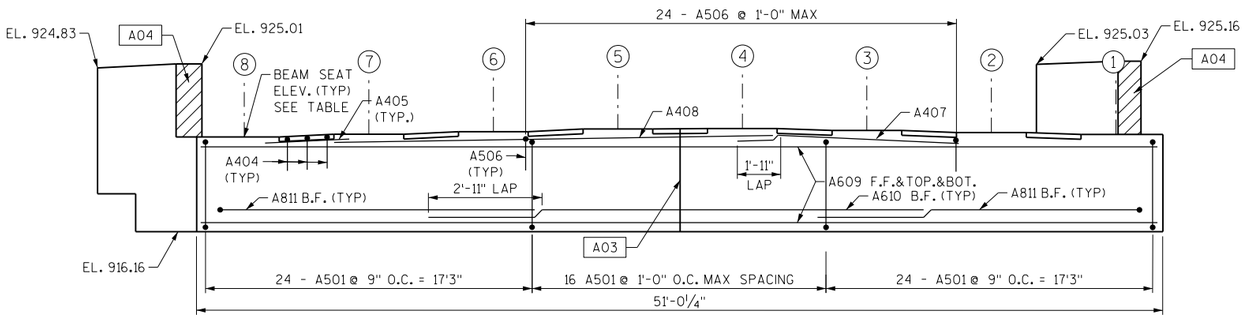
PLAN



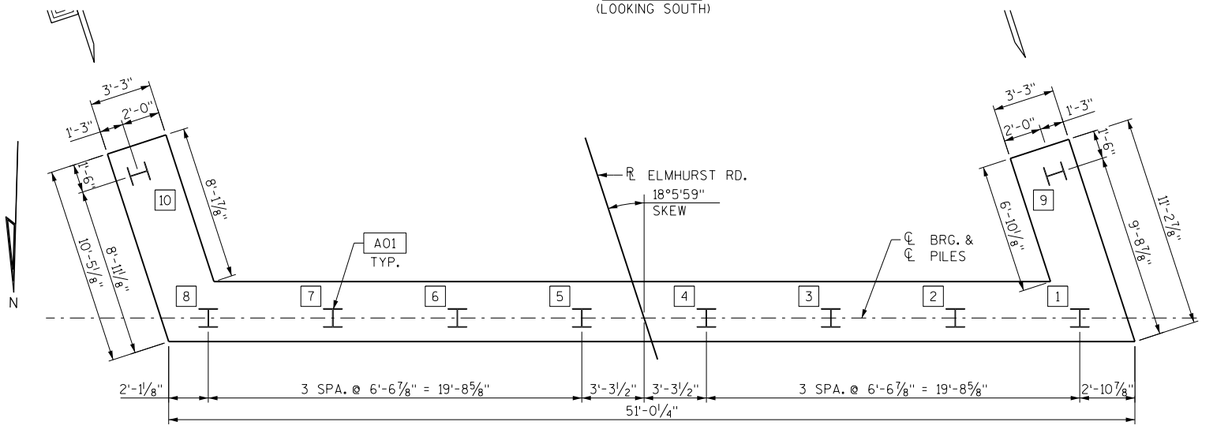
WALL SECTION

NOTES:

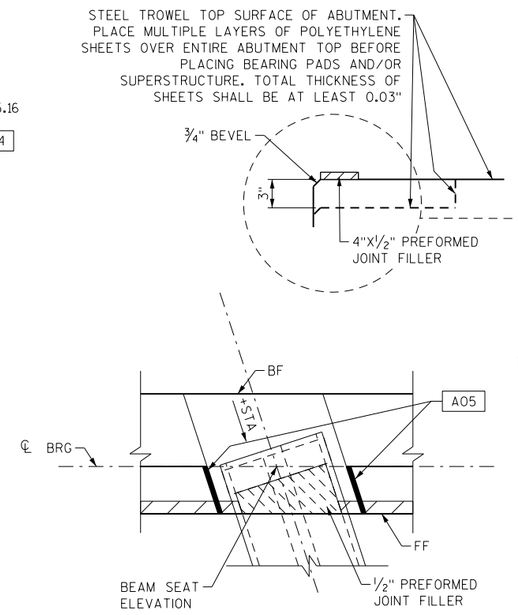
- A01 ABUTMENT TO BE SUPPORTED ON HP12X53 STEEL PILING PRE-BORED TO AN ELEVATION OF 882.00. ESTIMATED PILE LENGTH = 35 FEET. INSTALL BRIDGE PILING BEFORE MSE WALL. PLACE REINFORCING MAT AROUND PILING FOR ABUTMENT.
- A02 PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE AS DIRECTED BY THE ENGINEER. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON SHEET 5.
- A03 VERT. CONSTR. JOINT KEYWAY FORMED AT ℄ OF ABUTMENT BY A BEVELED 2"X8". DEFINE BY ¾" V-GROOVE ON FRONT FACE. SEE SHEET 7 FOR ALTERNATE CONSTRUCTION JOINT DETAIL.
- A04 ½" FILLER TO EXTEND FROM BRIDGE SEAT TO TOP OF WING.
- A05 ¾" CORK FILLER ON VERT. BEAM SEAT FACES, TYP.
- A06 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE.
- A07 SEAL ALL HORIZONTAL AND VERTICAL SURFACES OF FILLER AND EXPANDED POLYSTYRENE WITH NON-STAINING, GRAY NON-BITUMINOUS JOINT SEALER, (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE).
- [XX] PILE NUMBER, SEE SHEET 5 FOR PILE SPLICE DETAILS.
- (X) GIRDER NUMBER, SEE SHEETS 11, 12 & 13 FOR GIRDER DETAILS.
- [X] WINGWALL NUMBER, SEE SHEET 5 FOR WINGWALL DETAILS.



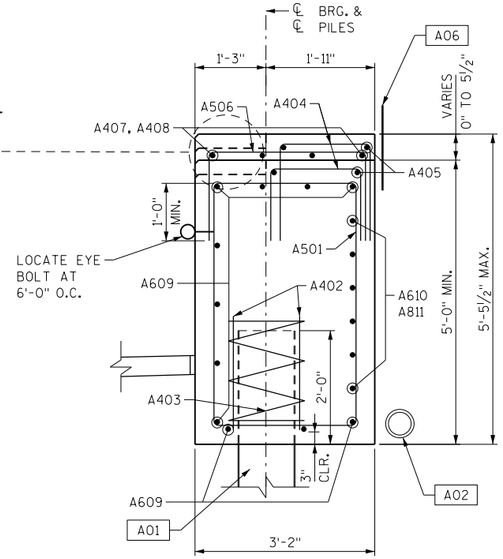
ELEVATION
(LOOKING SOUTH)



PILING PLAN



TYPICAL BEAM SEAT DETAIL



SECTION THRU BODY

GIRDER	BEAM SEAT ELEVATION (FT)
1	921.29
2	921.40
3	921.51
4	921.62
5	921.60
6	921.45
7	921.31
8	921.16

NOTES:
EXCAVATE TO BOTTOM OF ABUTMENTS BEFORE DRIVING PILES

FF DENOTES FRONT FACE

BF DENOTES BACK FACE

EF DENOTES EACH FACE

NO.	DATE	REVISION	BY

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STRUCTURE B-67-369

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SOUTH ABUTMENT

SHEET 4 OF 17

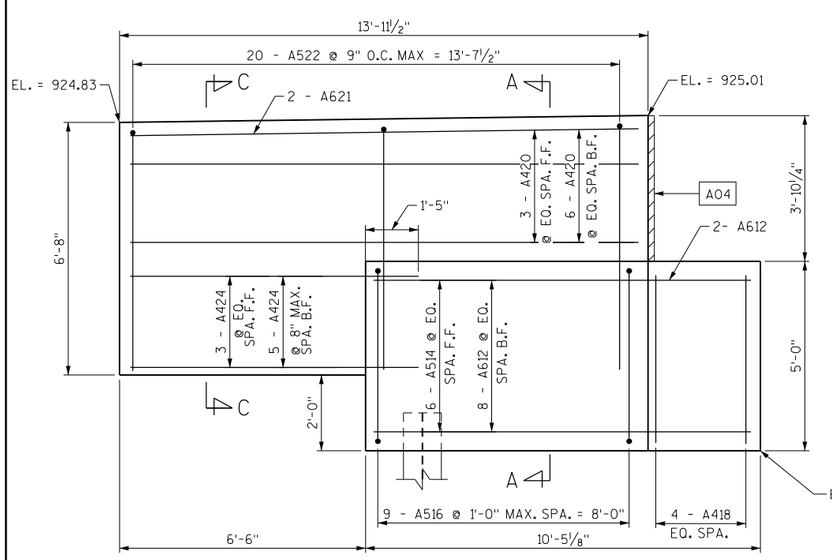
188

8

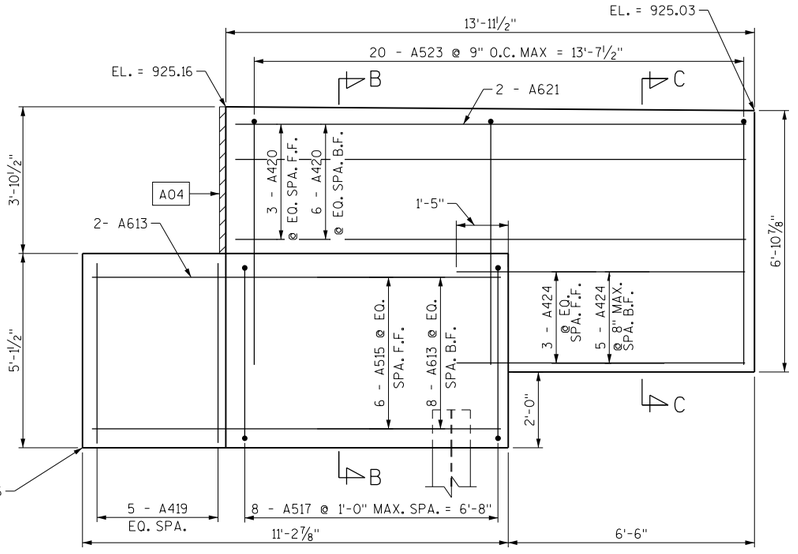
8

FILE= B67369_40_SABUT.DGN
SCALE = 1:8

STATE PROJECT NUMBER
1060-10-70



ELEVATION WING 1

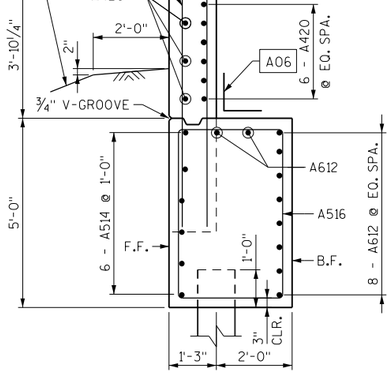


ELEVATION WING 2

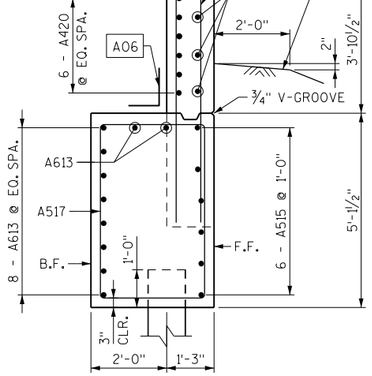
BILL OF BARS

BAR NO.	COATED BAR	NO. REQ'D	LENGTH	BENT BAR	BUNDLED	BAR SERIES	2197 # COATED 2540 # UNCOATED LOCATION
A501		64	15'-0"	X			ABUT BODY STIRRUPS
A402		16	2'-3"				ABUT PILES - 2 PER PILE
A403		8	28'-0"	X			ABUT PILES - 1 PER PILE
A404		21	4'-6"	X			ABUT BODY TOP - BETWEEN BEAM SEATS
A405		14	4'-11"				ABUT BODY TOP - BETWEEN BEAM SEATS
A506		24	5'-11"	X			ABUT BODY TOP - UNDER GIRDERS 3 THRU 5
A407		4	11'-5"				ABUT BODY TOP - UNDER GIRDERS 3 THRU 4
A408		4	13'-2"				ABUT BODY TOP - UNDER GIRDERS 4 THRU 5
A609		11	50'-8"				ABUT BODY LONGITUDINAL
A610		6	22'-8"				ABUT BODY LONGITUDINAL - BF MID
A811	x	12	18'-1"	X			ABUT BODY LONGITUDINAL - BF ENDS
A612	X	10	10'-1"				WINGWALL 1 FOOTING - HORIZ. BARS - BF & TOP
A613	X	10	8'-9"				WINGWALL 2 FOOTING - HORIZ. BARS - BF & TOP
A514	X	6	10'-1"				WINGWALL 1 FOOTING - HORIZ. BARS - FF
A515	X	6	10'-11"				WINGWALL 2 FOOTING - HORIZ. BARS - FF
A516	X	9	15'-8"	X			WINGWALL 1 FOOTING - STIRRUPS
A517	X	8	16'-0"	X			WINGWALL 2 FOOTING - STIRRUPS
A418	X	4	4'-8"				WINGWALL 1 - ABUTMENT END VERTICAL
A419	X	5	4'-10"				WINGWALL 2 - ABUTMENT END VERTICAL
A420	X	18	13'-7"				WINGWALL 1 & 2 - HORIZONTAL FF & BF
A621	X	4	13'-7"				WINGWALL 1 & 2 - HORIZONTAL TOP
A522	X	20	13'-4"	X			WINGWALL 1 - U BARS
A523	X	20	13'-10"	X			WINGWALL 2 - U BARS
A424	X	16	7'-9"				WINGWALL 1 & 2 - HORIZONTAL BARS - FF & BF

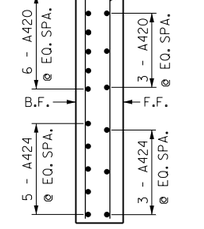
THE FIRST DIGIT OR FIRST TWO DIGITS OF A BAR MARK INDICATES THE BAR SIZE.
ALL DIMENSIONS IN THE BAR BENDS ARE OUT TO OUT.



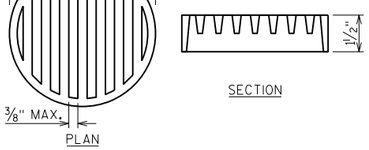
SECTION A-A



SECTION B-B



SECTION C-C
(TYP. THRU WING)

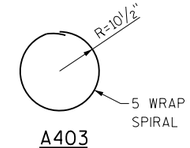


RODENT SHIELD DETAIL

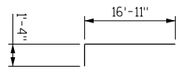
✳ DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.

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

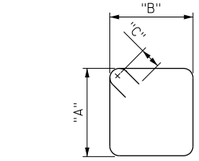
THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALLY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X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



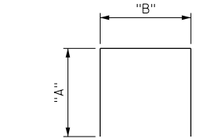
A403



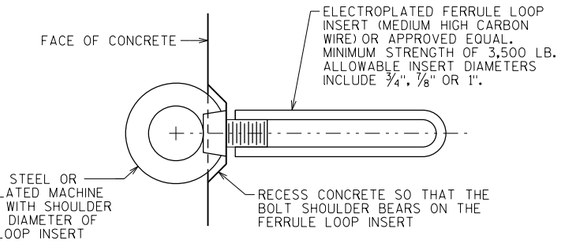
A811



BAR NO.	DIM "A"	DIM "B"	DIM "C"
A501	4'-4"	2'-10"	4"
A516	4'-7"	2'-11"	4"
A517	4'-4"	2'-11"	4"



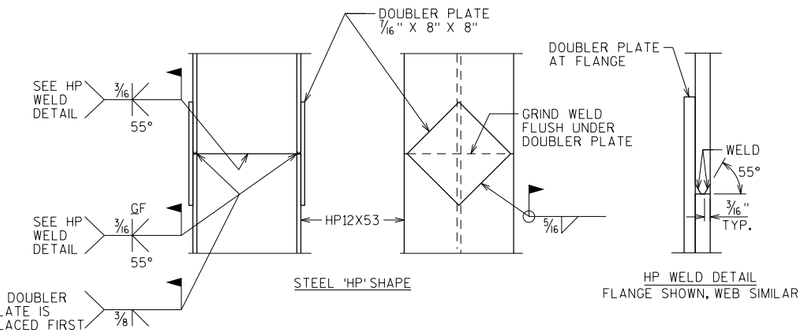
BAR NO.	DIM "A"	DIM "B"
A404	1'-6"	1'-8"
A506	1'-5"	2'-10"
A522	6'-4"	0'-11"
A523	6'-7"	0'-11"



EYE BOLT DETAIL

COST INCIDENTAL TO BID ITEM "CONCRETE MASONRY BRIDGES"

FF = FRONT FACE
BF = BACK FACE



STEEL 'HP' SHAPE

HP WELD DETAIL
FLANGE SHOWN, WEB SIMILAR

STEEL PILING SPLICE DETAILS

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-67-369

DRAWN BY JAP | PLANS CK'D. WJZ

SOUTH ABUTMENT DETAILS

SHEET 5 OF 17

189

FILE= B67369-50-SABUTDETAILS.DGN
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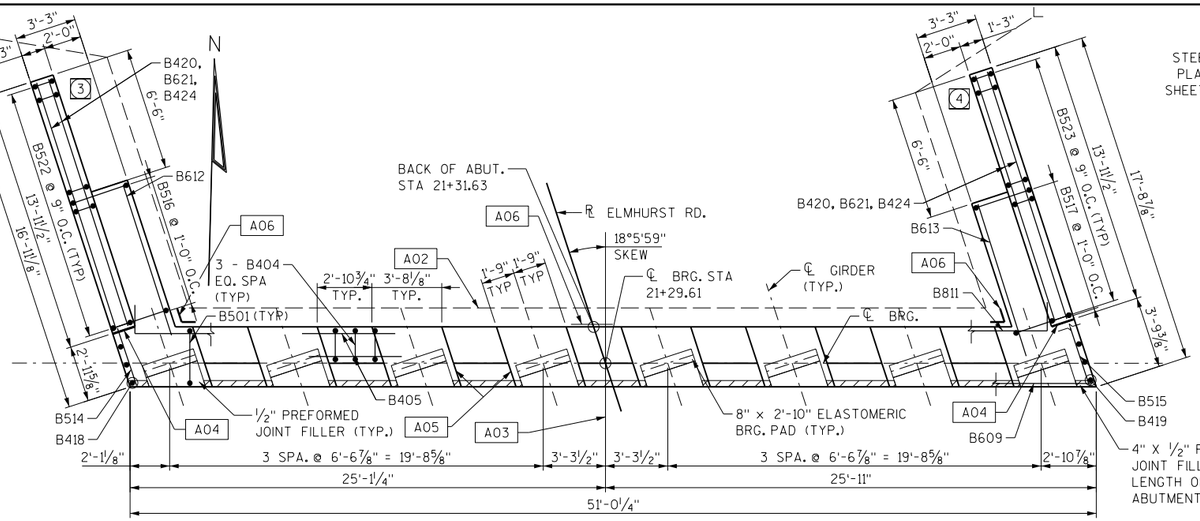
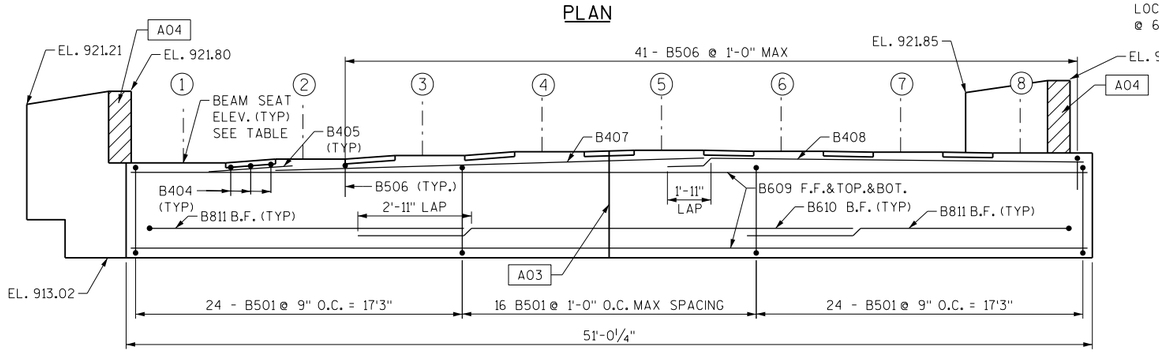
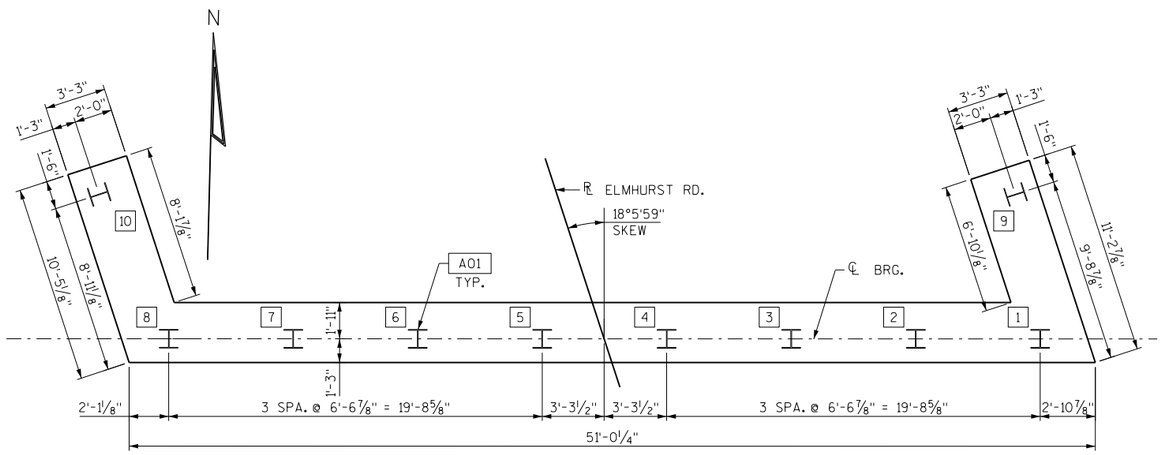


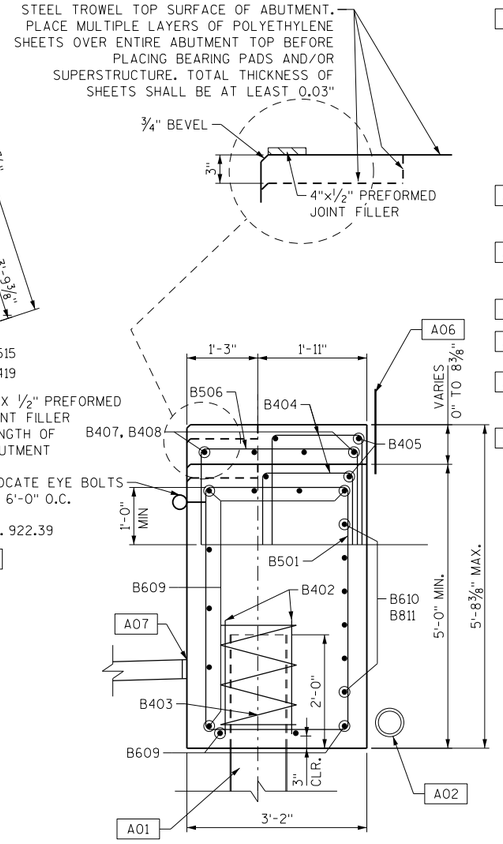
PLAN



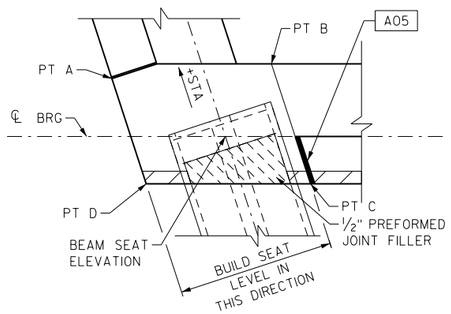
ELEVATION
LOOKING NORTH



PILING PLAN

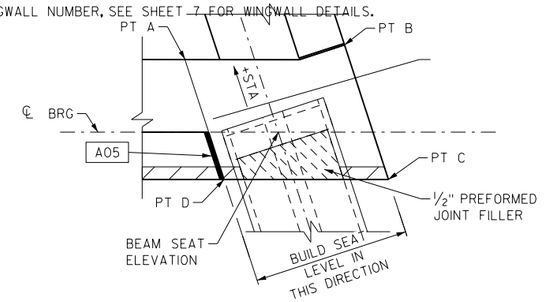


SECTION THRU BODY

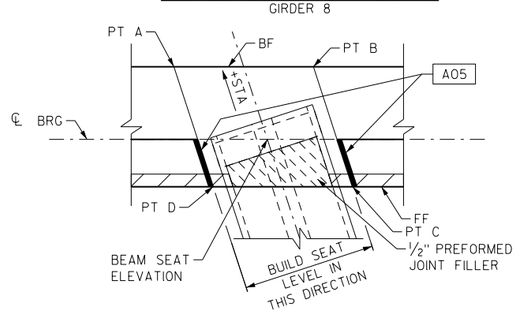


SLOPED BEAM SEAT DETAIL
GIRDER 1

GIRDER	BEAM SEAT ELEVATION (FT)	CHANGE IN SEAT ELEVATION (FT)			
		PT A	PT B	PT C	PT D
1	918.02	-0.08	-0.05	0.06	0.02
2	918.23	-0.08	-0.04	0.06	0.02
3	918.43	-0.08	-0.04	0.06	0.02
4	918.64	-0.08	-0.04	0.06	0.02
5	918.72	-0.08	-0.04	0.06	0.02
6	918.67	-0.08	-0.04	0.06	0.02
7	918.62	-0.08	-0.04	0.06	0.02
8	918.57	-0.08	-0.05	0.06	0.02



SLOPED BEAM SEAT DETAIL
GIRDER 8



SLOPED BEAM SEAT DETAIL
GIRDERS 2-7

NOTES:
EXCAVATE TO BOTTOM OF ABUTMENTS BEFORE DRIVING PILES

FF DENOTES FRONT FACE

BF DENOTES BACK FACE

EF DENOTES EACH FACE

NOTES:

A01 ABUTMENT TO BE SUPPORTED ON HP12X53 STEEL PILING WITH PILE POINTS DRIVEN TO THE REQUIRED DRIVING RESISTANCE OF 195 TONS ** PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED PILE LENGTH = 45 FEET. INSTALL BRIDGE PILING BEFORE MSE WALL. PLACE REINFORCING MAT AROUND PILING FOR ABUTMENT.

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

A02 PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE AS DIRECTED BY THE ENGINEER. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON SHEET 5.

A03 VERT. CONSTR. JOINT KEYWAY FORMED AT ℄ ABUTMENT BY A BEVELED 2"X8". DEFINE BY ¾" V-GROOVE ON FRONT FACE. SEE SHEET 7 FOR ALTERNATE CONSTRUCTION JOINT DETAIL.

A04 ½" FILLER TO EXTEND FROM BRIDGE SEAT TO TOP OF WING.

A05 ¾" CORK FILLER ON VERT. BEAM SEAT FACES, TYP.

A06 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE.

A07 SEAL ALL HORIZONTAL AND VERTCAL SURFACES OF FILLER AND EXPANDED POLYSTYRENE WITH NON-STAINING, GRAY NON-BITUMINOUS JOINT SEALER, (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE).

[XX] PILE NUMBER, SEE SHEET 5 FOR PILE SPLICE DETAILS.

(X) GIRDER NUMBER, SEE SHEETS 11, 12 & 13 FOR GIRDER DETAILS.

[X] WINGWALL NUMBER, SEE SHEET 7 FOR WINGWALL DETAILS.

STATE PROJECT NUMBER
1060-10-70

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-67-369

DRAWN BY JAP | PLANS CK'D. WJZ

NORTH ABUTMENT

SHEET 6 OF 17

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FILE= B67369_60_NABUT.DGN
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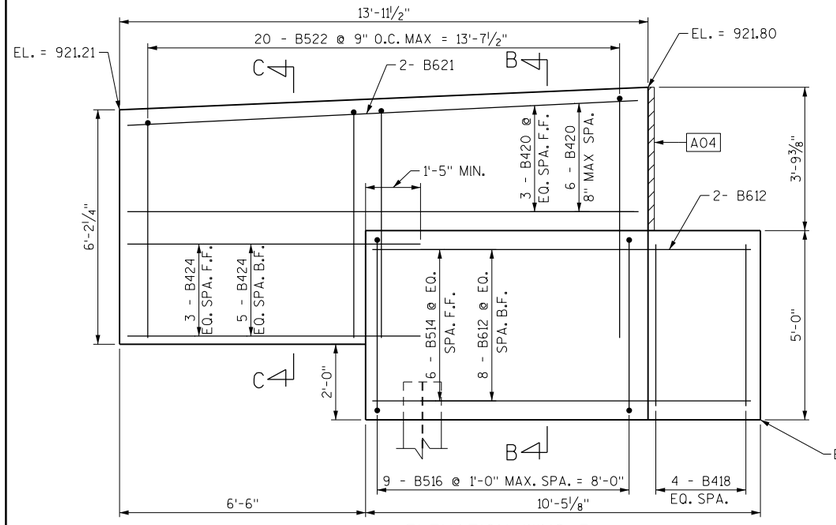
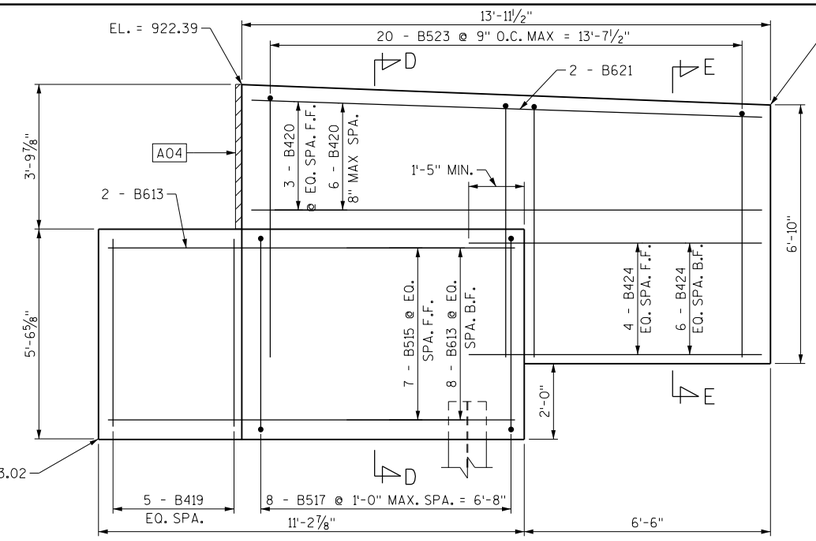
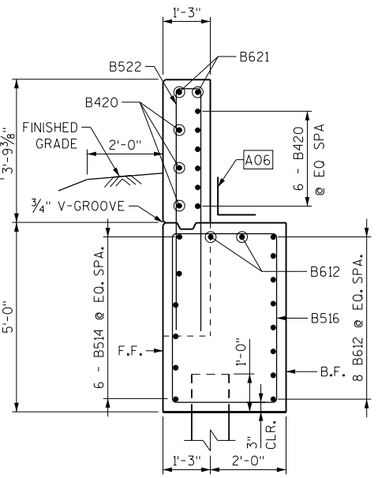


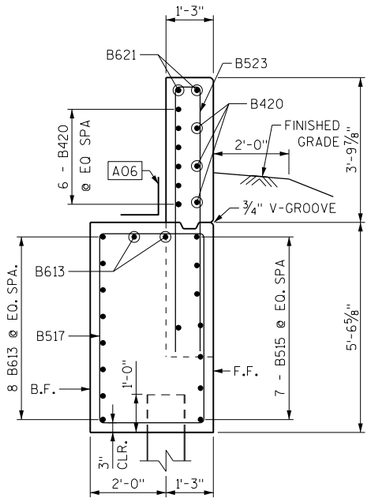
ELEVATION WING 3



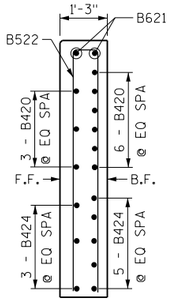
ELEVATION WING 4



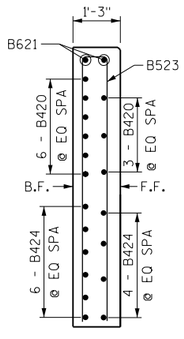
SECTION B-B



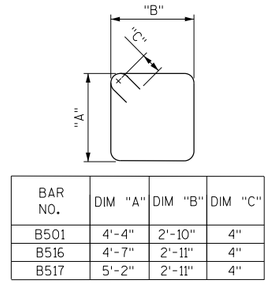
SECTION D-D



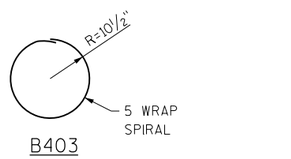
SECTION C-C



SECTION E-E



BAR NO.	DIM "A"	DIM "B"	DIM "C"
B501	4'-4"	2'-10"	4"
B516	4'-7"	2'-11"	4"
B517	5'-2"	2'-11"	4"



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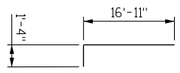
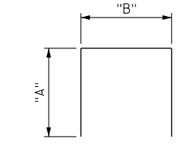
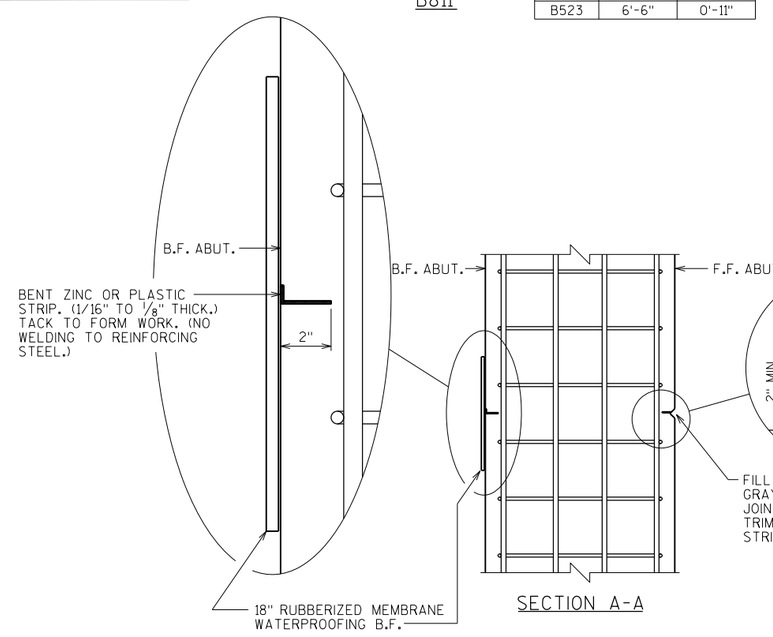


B811



BAR NO.	DIM "A"	DIM "B"
B404	1'-8"	1'-7"
B506	1'-8"	2'-10"
B522	5'-10"	0'-11"
B523	6'-6"	0'-11"



SECTION A-A

ALTERNATE CONSTRUCTION JOINT AT ABUTMENT

BILL OF BARS

BAR NO.	COATED BAR	NO. REQ'D	LENGTH	BENT BAR	BUNDLED BAR	SERIES	2203# COATED 2693# UNCOATED LOCATION
B501		64	15'-0"	X			ABUT BODY STIRRUPS
B402		16	2'-3"				ABUT PILES - 2 PER PILE
B403		8	28'-0"	X			ABUT PILES - 1 PER PILE
B404		21	4'-9"	X			ABUT BODY TOP - BETWEEN BEAM SEATS
B405		14	4'-11"				ABUT BODY TOP - BETWEEN BEAM SEATS
B506		41	5'-11"	X			ABUT BODY TOP - UNDER GIRDERS 3 THRU 8
B407		4	19'-0"				ABUT BODY TOP - UNDER GIRDERS 3 THRU 5
B408		4	22'-5"				ABUT BODY TOP - UNDER GIRDERS 5 THRU 8
B609		11	50'-8"				ABUT BODY LONGITUDINAL
B610		6	22'-8"				ABUT BODY LONGITUDINAL - BF MID
B811	X	12	18'-1"	X			ABUT BODY LONGITUDINAL - BF ENDS
B612	X	10	10'-1"				WINGWALL 3 FOOTING - HORIZ. BARS - BF & TOP
B613	X	10	8'-9"				WINGWALL 4 FOOTING - HORIZ. BARS - BF & TOP
B514	X	6	10'-1"				WINGWALL 3 FOOTING - HORIZ. BARS - FF
B515	X	7	10'-11"				WINGWALL 4 FOOTING - HORIZ. BARS - FF
B516	X	9	15'-8"	X			WINGWALL 3 FOOTING - STIRRUPS
B517	X	8	16'-10"	X			WINGWALL 4 FOOTING - STIRRUPS
B418	X	4	4'-8"				WINGWALL 3 - ABUTMENT END VERTICAL
B419	X	5	5'-2"				WINGWALL 4 - ABUTMENT END VERTICAL
B420	X	18	13'-7"				WINGWALL 3 & 4 - HORIZONTAL FF & BF
B621	X	4	13'-7"				WINGWALL 3 & 4 - HORIZONTAL TOP
B522	X	20	12'-4"	X			WINGWALL 3 - U BARS
B523	X	20	13'-8"	X			WINGWALL 4 - U BARS
B424	X	18	7'-9"				WINGWALL 3 & 4 - HORIZONTAL BARS - FF & BF

THE FIRST DIGIT OR FIRST TWO DIGITS OF A BAR MARK INDICATES THE BAR SIZE.
ALL DIMENSIONS IN THE BAR BENDS ARE OUT TO OUT.

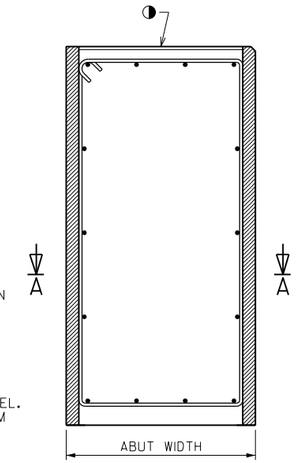
PARTIAL ZINC OR PLASTIC BULKHEAD MAY BE USED AS ALTERNATE CONSTRUCTION JOINT, WITH THE PERMISSION OF THE ENGINEER, AT THE CONTRACTOR'S EXPENSE.

VERTICAL CONSTRUCTION JOINT KEYWAY IS NOT REQUIRED WHEN USING ALTERNATE CONSTRUCTION JOINT.

CARE IS TO BE USED IN CASTING CONCRETE AROUND BULKHEAD TO PREVENT DISLOCATION OR MISALIGNMENT OF THE BULKHEAD.

SAWCUTTING THE CONSTRUCTION JOINT IS NOT ALLOWED

◑ USE A JOINT TOOL TO CONSTRUCT A CONTRACTION JOINT APPROXIMATELY ½" DEEP.



SECTION THRU ABUTMENT BODY

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DEPARTMENT OF TRANSPORTATION

STRUCTURE B-67-369

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NORTH ABUTMENT DETAILS

SHEET 7 OF 17

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STATE PROJECT NUMBER

1060-10-70

FILE= B67369_TO_NABUTDETAILS.DGN
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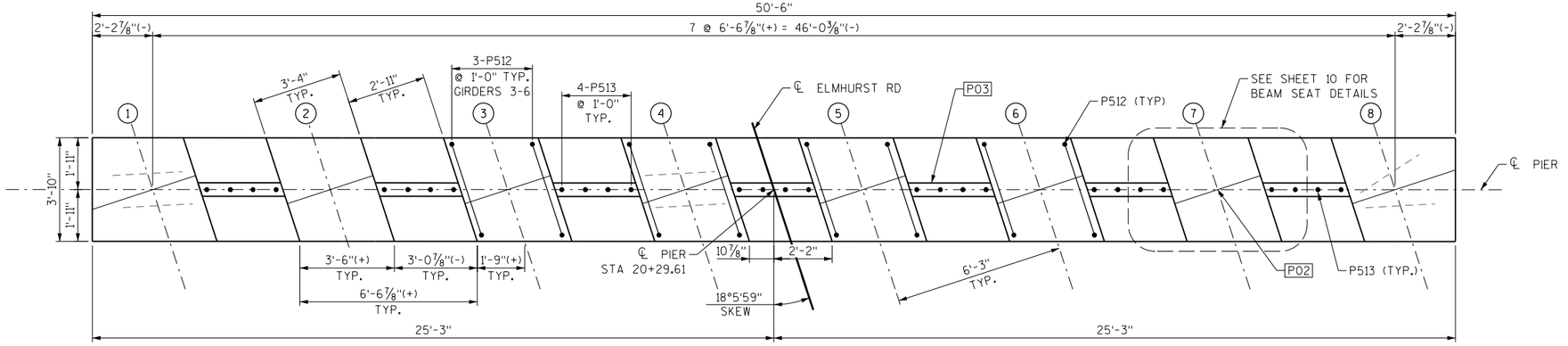
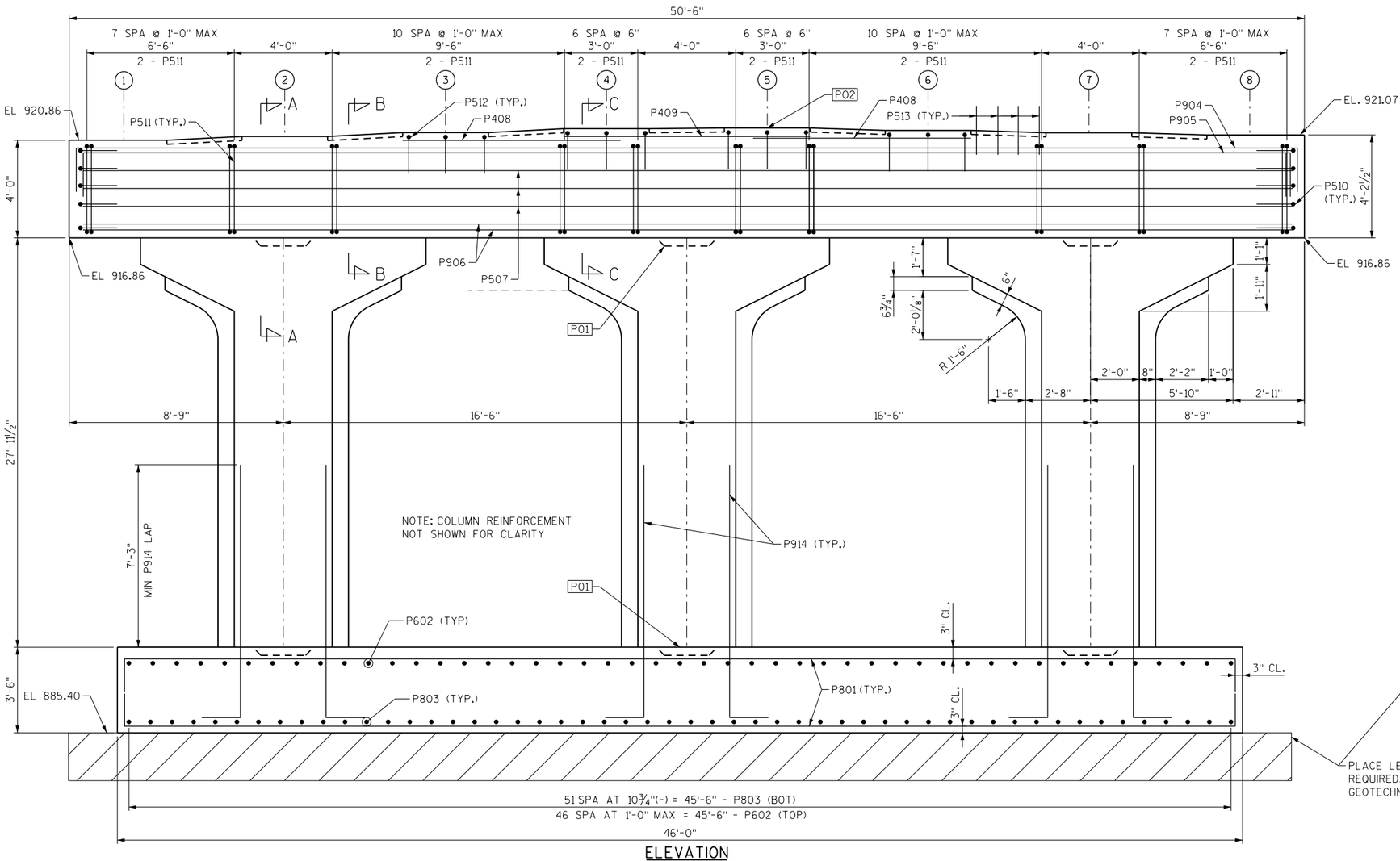
STATE PROJECT NUMBER

1060-10-70



PIER CAP PLAN



ELEVATION
(LOOKING NORTH)

N

NOTES:

P01 KEYED CONSTRUCTION JOINT FORMED BY SURFACE BEVELLED 4" x 1'-3" X 2'-6". TYPICAL AT TOP AND BOTTOM OF COLUMNS.

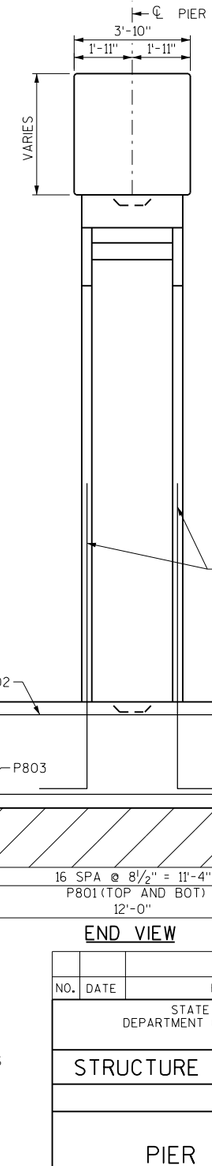
P02 FOR BEAM SEAT ELEVATIONS SEE SHEET 10

P03 2" x 6" BEVELED KEYWAY BETWEEN BEAM SEATS

SEE SHEET 9 FOR SECTIONS A-A, B-B, AND C-C

FOR REINFORCEMENT BILL OF BARS SEE SHEET 10

PIER FOOTING TO BE BACKFILLED TO WITHIN 2 FT OF FINISHED GRADE BEFORE SUPERSTRUCTURE CONSTRUCTION.



END VIEW

PLACE LEAN CONCRETE IF UNDERCUTS REQUIRED. LOCATION DETERMINED BY GEOTECHNICAL ENGINEER IN FIELD.

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PIER

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8

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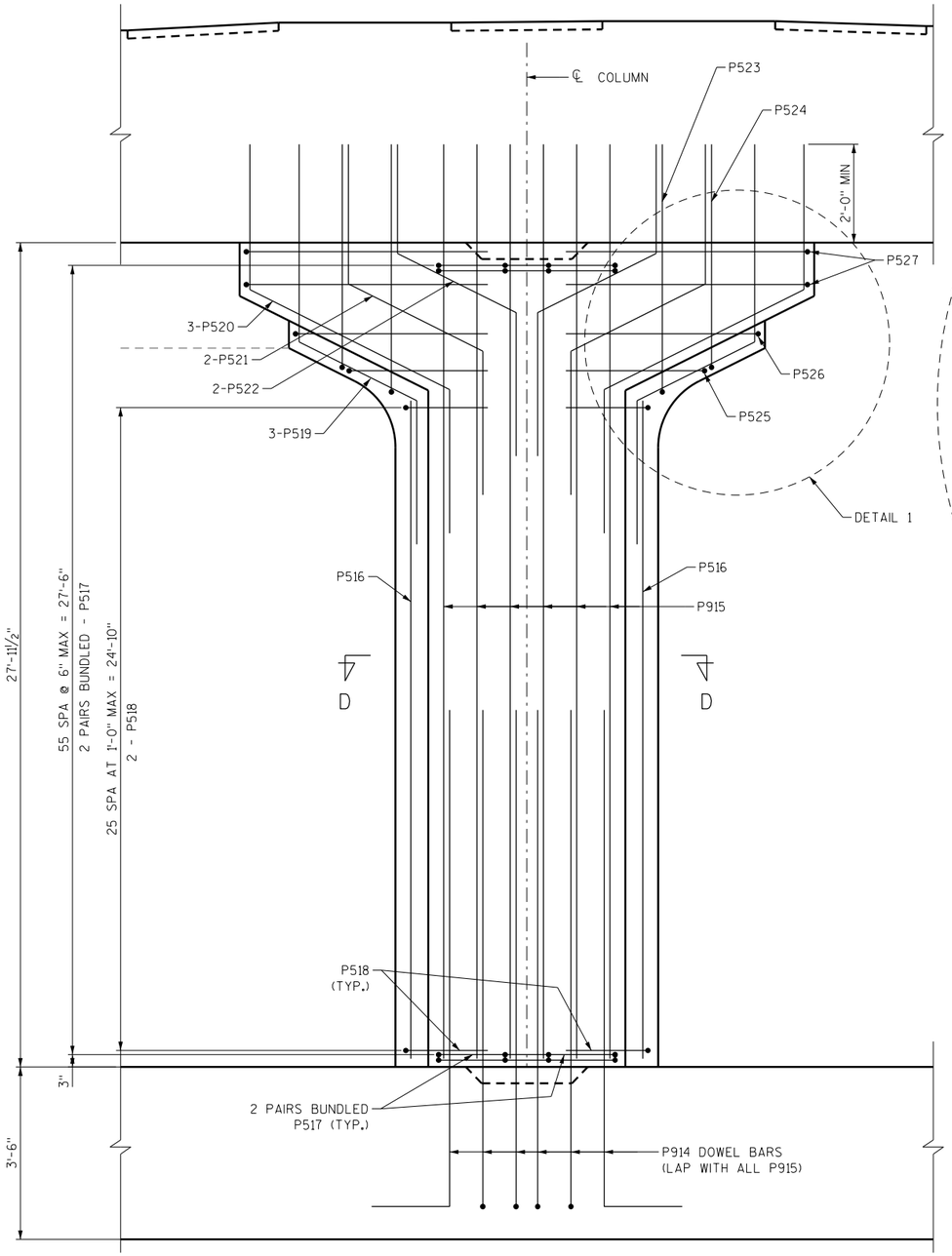
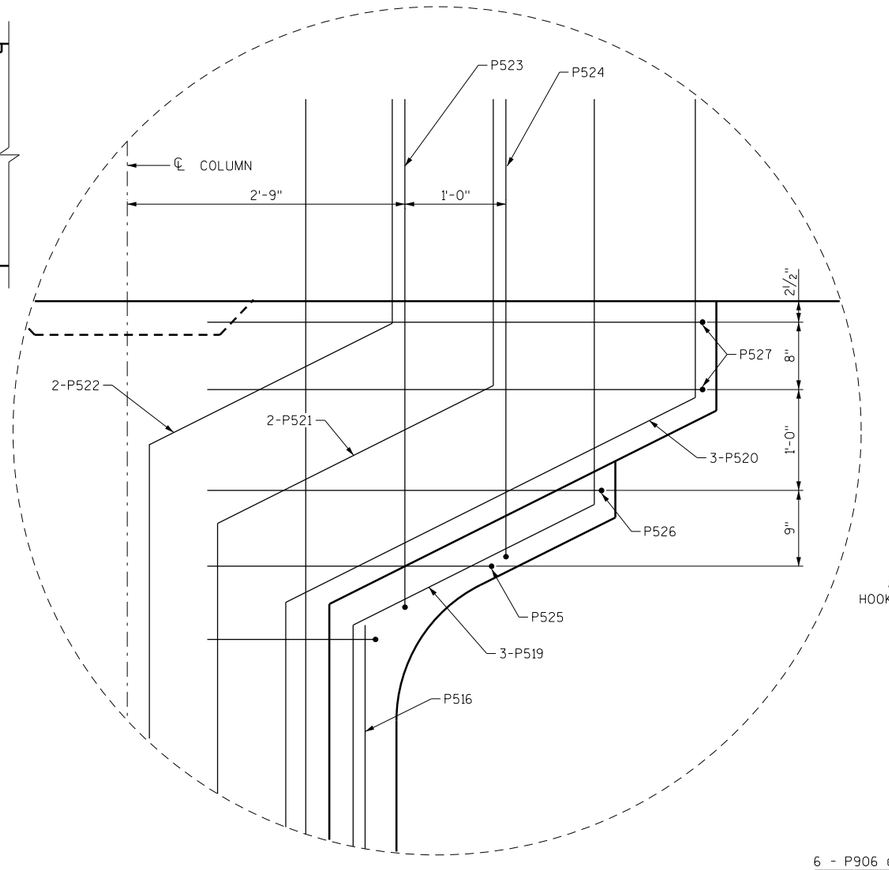
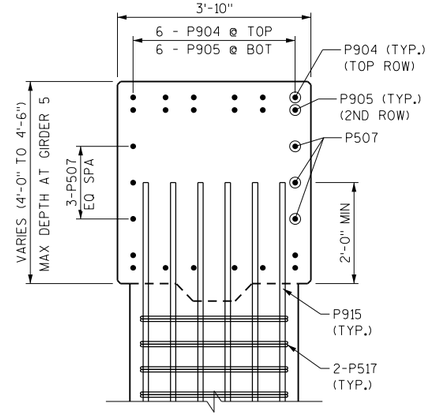
1060-10-70



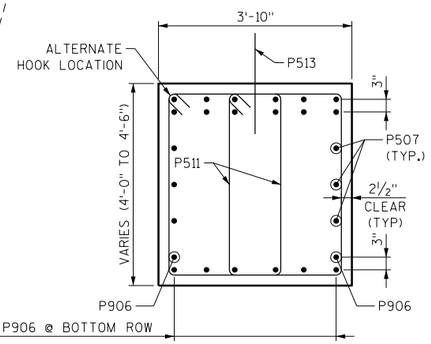
PIER COLUMN ELEVATION



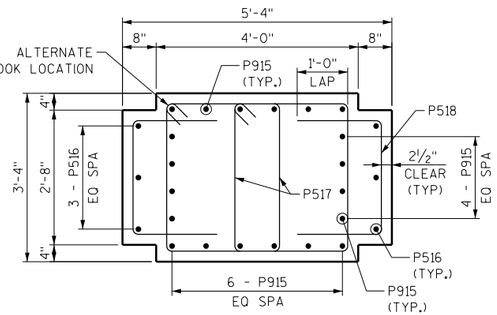
DETAIL 1
SECONDARY REINFORCEMENT ONLY



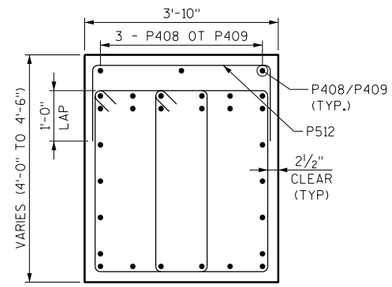
SECTION A-A
(SEE SHEET 8)



SECTION B-B
(SEE SHEET 8)



SECTION D-D



SECTION C-C
(SEE SHEET 8)

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STRUCTURE B-67-369

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PIER DETAILS

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STATE PROJECT NUMBER

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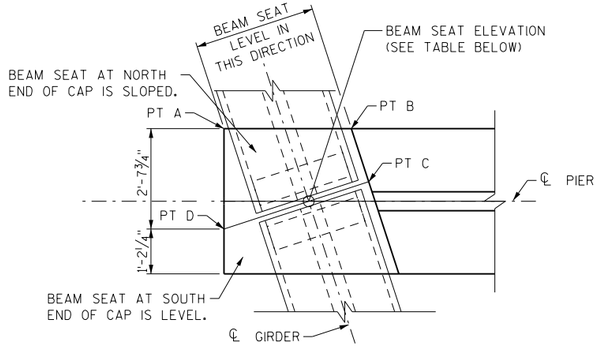
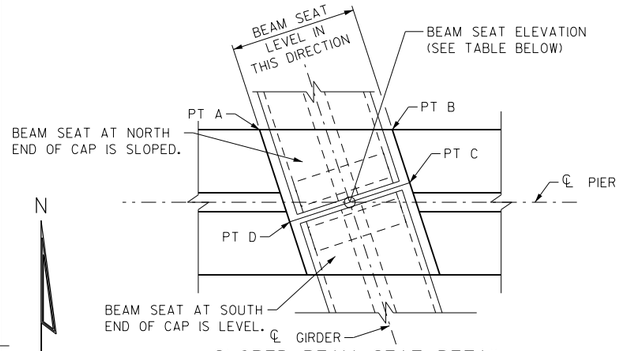


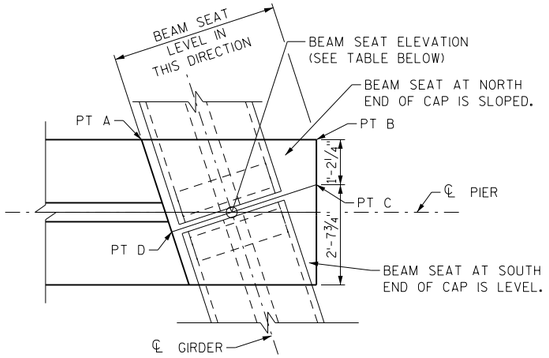
SLOPED BEAM SEAT DETAIL

GIRDER 1



SLOPED BEAM SEAT DETAIL

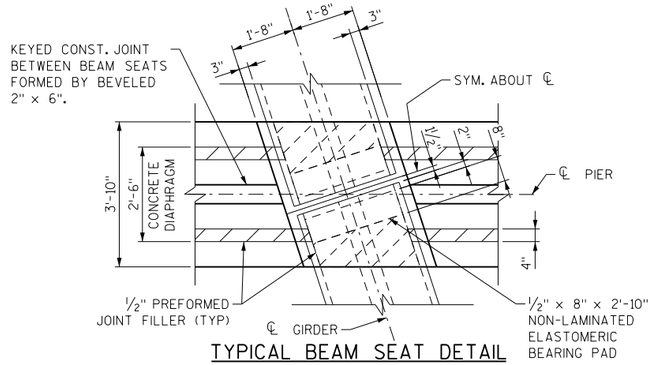
GIRDERS 2-7



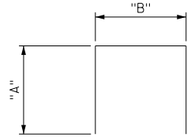
SLOPED BEAM SEAT DETAIL

GIRDER 8

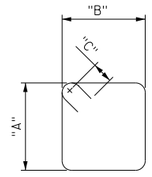
GIRDER	BEAM SEAT ELEVATION (FT)	CHANGE IN SEAT ELEVATION (FT)			
		PT A	PT B	PT C	PT D
1	920.86	-0.06	-0.04	0.00	0.00
2	921.01	-0.06	-0.04	0.00	0.00
3	921.17	-0.06	-0.04	0.00	0.00
4	921.33	-0.06	-0.03	0.00	0.00
5	921.36	-0.06	-0.03	0.00	0.00
6	921.26	-0.06	-0.03	0.00	0.00
7	921.16	-0.06	-0.03	0.00	0.00
8	921.07	-0.05	-0.02	0.00	0.00



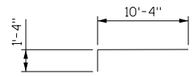
TYPICAL BEAM SEAT DETAIL



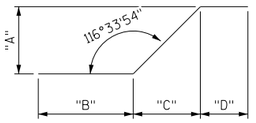
BAR NO.	DIM "A"	DIM "B"
P801	1'-4"	45'-6"
P904	1'-7"	50'-1"
P905	1'-7"	49'-7"
P510	2'-11"	3'-3½"
P512	1'-4"	3'-7"
P518	1'-8"	2'-3"
P523	5'-1"	2'-3"
P524	4'-6"	2'-3"
P525	2'-11"	2'-3"
P526	3'-11"	2'-3"
P527	4'-11"	2'-11"



BAR NO.	DIM "A"	DIM "B"	DIM "C"
P511	3'-7"	2'-2½"	4"
P517	2'-11"	2'-3"	4"



P914



BAR NO.	DIM "A"	DIM "B"	DIM "C"	DIM "D"
P519	2'-2"	4'-0"	1'-1"	2'-11"
P520	3'-10"	3'-1"	1'-11"	2'-11"
P521	2'-8"	2'-11"	1'-4"	2'-11"
P522	2'-4"	2'-3"	1'-2"	2'-11"

BILL OF BARS

BAR NO.	COATED BAR	NO. REQ'D	LENGTH	BENT BAR	BUNDLED	BAR SERIES	23864 # COATED 6743 # UNCOATED LOCATION
P801		34	47'-9"	X			FOOTING HORIZONTAL - TOP AND BOTTOM
P602		47	11'-6"				FOOTING TRANSVERSE - TOP
P803		52	11'-6"				FOOTING TRANSVERSE - BOTTOM
P904	X	6	52'-9"	X			CAP HORIZONTAL - TOP
P905	X	6	52'-3"	X			CAP HORIZONTAL - TOP
P906	X	8	50'-1"				CAP HORIZONTAL - BOTTOM
P507	X	6	50'-1"				CAP HORIZONTAL - SIDES
P408	X	6	8'-11"				CAP HORIZONTAL - BEAM SEAT TOP
P409	X	3	10'-1"				CAP HORIZONTAL - BEAM SEAT TOP
P510	X	10	8'-11"	X			CAP HORIZONTAL - END TIE
P511	X	100	12'-3"	X			CAP TRANSVERSE - STIRRUPS
P512	X	12	6'-0"	X			CAP TRANSVERSE - ADDITIONAL TIE AT BEAM SEAT
P513	X	28	2'-0"				CAP VERTICAL - BETWEEN BEAM SEATS
P914	X	60	11'-5"	X			COLUMN VERTICAL - DOWEL BARS
P915	X	60	30'-0"				COLUMN VERTICAL - PRIMARY
P516	X	18	24'-10"				COLUMN VERTICAL - AESTHETIC DETAIL
P517	X	672	11'-0"	X			COLUMN HORIZONTAL - PRIMARY STIRRUP
P518	X	156	5'-4"	X			COLUMN HORIZONTAL AESTHETIC STIRRUP
P519	X	18	9'-4"	X			COLUMN SECONDARY - VERTICAL BENT
P520	X	18	10'-4"	X			COLUMN SECONDARY - VERTICAL BENT
P521	X	12	8'-10"	X			COLUMN SECONDARY - VERTICAL BENT
P522	X	12	7'-10"	X			COLUMN SECONDARY - VERTICAL BENT
P523	X	6	12'-2"	X			COLUMN SECONDARY - VERTICAL "U" BAR
P524	X	6	11'-0"	X			COLUMN SECONDARY - VERTICAL "U" BAR
P525	X	6	8'-4"	X			COLUMN SECONDARY - HORIZONTAL "U" BAR
P526	X	6	9'-10"	X			COLUMN SECONDARY - HORIZONTAL "U" BAR
P527	X	12	12'-6"	X			COLUMN SECONDARY - HORIZONTAL "U" BAR

THE FIRST DIGIT OR FIRST TWO DIGITS OF A BAR MARK INDICATES THE BAR SIZE.
ALL DIMENSIONS IN THE BAR BENDS ARE OUT TO OUT.

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PIER DETAILS CONTINUED

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STATE PROJECT NUMBER

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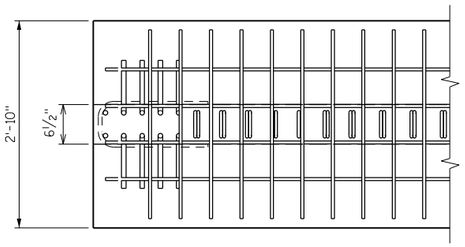
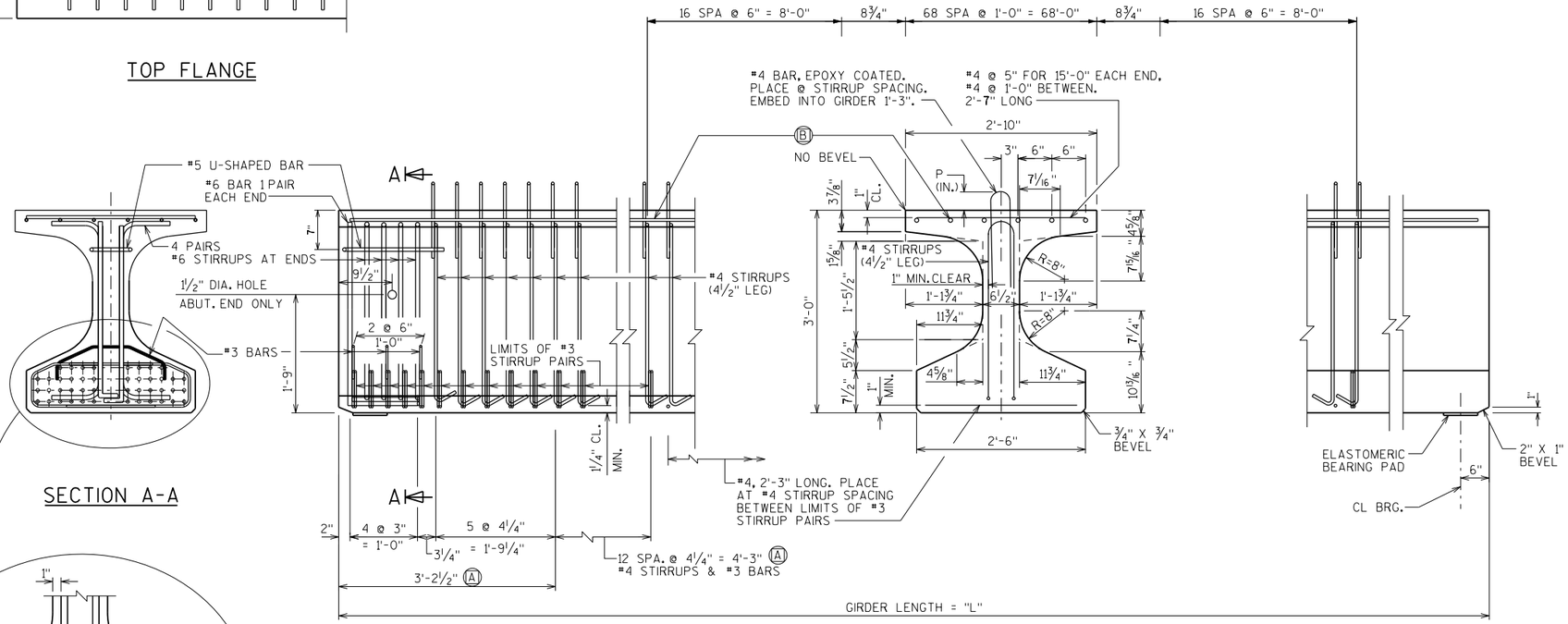


TOP FLANGE

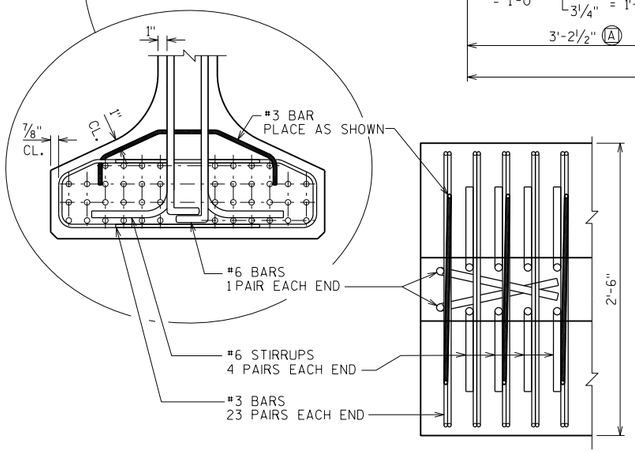


SECTION A-A

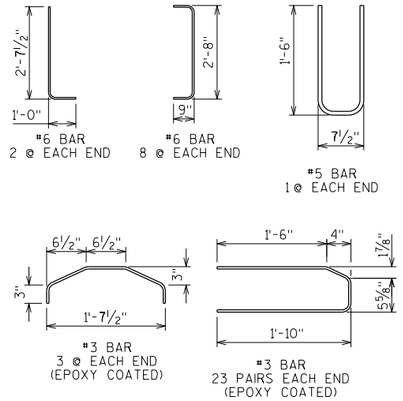
SIDE VIEW & TYPICAL SECTION IN SPAN

(A) DETAIL TYP. AT EACH END

(B) 6 #4 BARS, FULL LENGTH, MIN. LAP = 1'-8"



BOTTOM FLANGE



NOTES

TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY, EXCEPT THE THE OUTSIDE 8" OF GIRDER, WHICH SHALL RECEIVE A SMOOTH FINISH. AN APPROVED CONCRETE SEALER SHALL BE APPLIED TO ALL SMOOTH SURFACES INCLUDING THE OUTSIDE 8" OF THE TOP FLANGE.

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

THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS. SEE SECT. 503.3.3 OF STANDARD SPECIFICATIONS FOR GUIDANCE.

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

ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

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

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

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

FOR DIAPHRAGM INSERT & CONNECTION DETAILS SEE SHEET 16, "STEEL DIAPHRAGM".

GIRDER DATA

SPAN	GIRDER LENGTH "L"	DEAD LOAD DEFL. (IN.)									CONC. STRGTH. f'c (p.s.i.)	"P" 0'-0" TO 5'-0"	"P" 5'-0" TO 15'-0"	"P" 15'-0" TO 25'-0"	"P" 25'-0" TO 75'-4½"	"P" 75'-4½" TO 85'-4½"	"P" 85'-4½" TO 95'-4½"	"P" 95'-4½" TO 100'-4½"	DIA. OF STRAND (IN.)	DRAPED PATTERN					
		1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10										TOTAL NO. OF STRANDS	f'ci (P.S.I.) ✳	(IN.) "A"	"B" MIN.	"B" MAX.	"C"
1	100'-4½"	⅞"	1⅝"	2⅛"	2½	2⅝"	2½	2⅛"	1⅝"	⅞"	8000	7"	7½"	8"	9"	8"	7½"	7"	0.6	32	6800	31	11½	14½	5
2	100'-4½"	⅞"	1⅝"	2⅛"	2½	2⅝"	2½	2⅛"	1⅝"	⅞"	8000	7"	7½"	8"	9"	8"	7½"	7"	0.6	32	6800	31	11½	14½	5

✳ MINIMUM CYLINDER STRENGTH OF CONCRETE @ TIME OF TRANSFER OF PRESTRESS FORCE.

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36W PRESTRESSED GIRDER

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STATE PROJECT NUMBER

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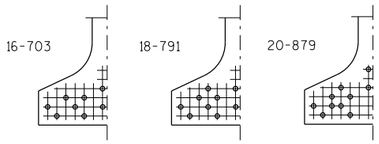
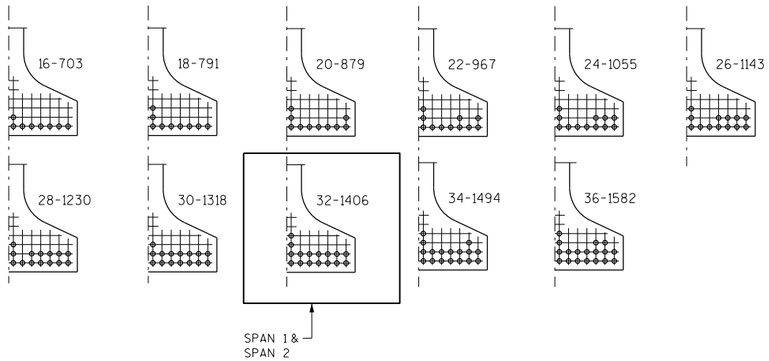
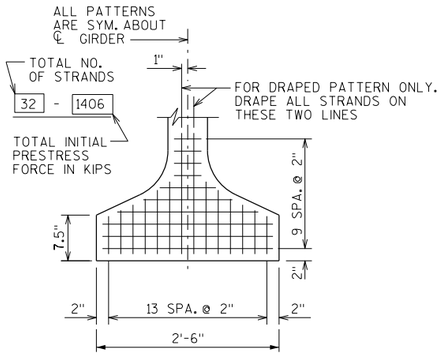


STANDARD ARRANGEMENTS TO RAISE CENTER OF GRAVITY TO AVOID DRAPING OF STRANDS

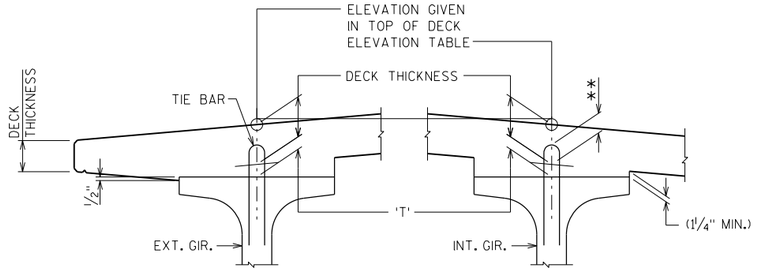
0.6"Φ STRANDS





TYP. STRAND PATTERN

0.6"Φ STRANDS



DECK HAUNCH DETAIL

IF 1¼" MINIMUM HAUNCH HEIGHT AT EDGE OF GIRDER CANNOT BE MAINTAINED, THE GRADE LINE MAY BE REVISED BY THE ENGINEER AT THE OPTION OF THE CONTRACTOR, THE PLAN DECK THICKNESS SHALL BE HELD. NOTIFY THE STRUCTURES SECTION IF THE GRADE LINE IS RAISED FROM THE PLAN PROFILE BY MORE THAN ½" OR,

** IF 3" MINIMUM DECK EMBEDMENT OF TIE BAR CANNOT BE OBTAINED.

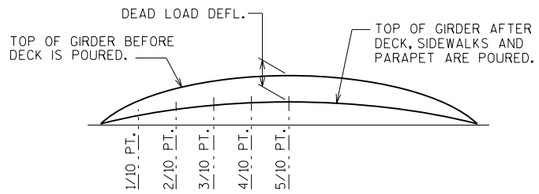
TO DETERMINE 'T', ELEV. OF TOP OF GIR'S. AT ℄ OF SUBSTRUCTURE UNITS & AT 1/10 POINTS OF EACH SPAN SHALL BE TAKEN. THEN FOLLOW THIS PROCESS:

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

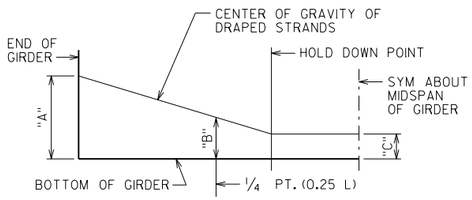
NOTE: AN AVERAGE HAUNCH ('T') OF 2" WAS USED IN THE QUANTITY "CONCRETE MASONRY BRIDGES".

ARRANGEMENT AT ℄ SPAN - FOR GIRDERS WITH DRAPED STRANDS

0.6"Φ STRANDS



DEAD LOAD DEFLECTION DIAGRAM



DRAPED STRAND PROFILE

SPAN	CAMBER (IN.) *
1	3¾"
2	3¾"

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

THESE VALUES ARE NOT TO BE USED IN DETERMINING 'T', USE ACTUAL GIRDER SHOTS.

THESE VALUES ARE FOR INFORMATIONAL PURPOSES ONLY.

8

8

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-67-369

DRAWN BY JAP | PLANS CK'D. WJZ

36W PRESTRESSED GIRDER DETAILS

SHEET 12 OF 17

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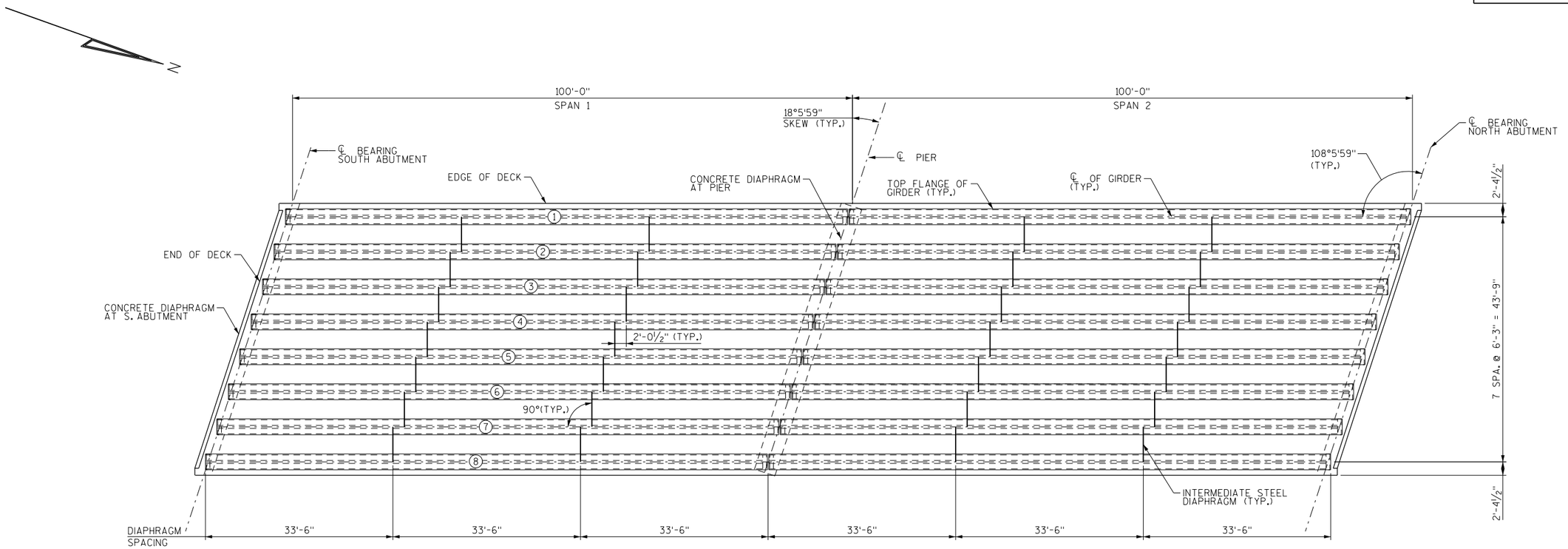
FILE= B67369_120_PRESTRESSEDGIRDERDETAILS.DGN
SCALE = 1:1

STATE PROJECT NUMBER

1060-10-70



FRAMING PLAN

TOP OF DECK ELEVATIONS

	℄ BRG.	SPAN 1									℄ BRG.	SPAN 2									℄ BRG.
GIRDER LINE	S. ABUT.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	PIER	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	N. ABUT.
WEST FLOWLINE	925.18	925.24	925.28	925.30	925.29	925.25	925.20	925.12	925.01	924.88	924.73	924.55	924.35	924.13	923.88	923.61	923.31	922.99	922.65	922.28	921.89
1	925.20	925.26	925.30	925.32	925.31	925.28	925.22	925.14	925.04	924.91	924.76	924.58	924.38	924.16	923.91	923.64	923.35	923.03	922.68	922.31	921.92
2	925.31	925.38	925.42	925.44	925.44	925.41	925.36	925.29	925.19	925.06	924.92	924.75	924.55	924.33	924.09	923.82	923.53	923.22	922.88	922.52	922.13
3	925.41	925.49	925.54	925.56	925.57	925.54	925.50	925.43	925.33	925.22	925.07	924.91	924.72	924.50	924.27	924.00	923.72	923.41	923.08	922.72	922.34
4	925.52	925.60	925.65	925.69	925.69	925.68	925.63	925.57	925.48	925.37	925.23	925.07	924.88	924.67	924.44	924.19	923.90	923.60	923.27	922.92	922.54
CROWN	925.57	925.66	925.71	925.75	925.76	925.74	925.70	925.64	925.55	925.44	925.31	925.15	924.97	924.76	924.53	924.27	924.00	923.69	923.37	923.02	922.64
5	925.50	925.59	925.65	925.68	925.69	925.68	925.64	925.58	925.50	925.39	925.26	925.10	924.92	924.72	924.49	924.24	923.96	923.66	923.34	922.99	922.62
6	925.36	925.45	925.51	925.55	925.57	925.56	925.53	925.47	925.39	925.29	925.16	925.01	924.84	924.64	924.42	924.17	923.90	923.60	923.28	922.94	922.57
7	925.21	925.30	925.37	925.42	925.44	925.44	925.41	925.36	925.29	925.19	925.07	924.92	924.75	924.56	924.34	924.10	923.83	923.54	923.23	922.89	922.53
8	925.06	925.16	925.24	925.29	925.31	925.32	925.29	925.25	925.18	925.09	924.97	924.83	924.66	924.47	924.26	924.02	923.76	923.48	923.17	922.83	922.48
EAST FLOWLINE	925.04	925.14	925.21	925.26	925.29	925.29	925.27	925.23	925.16	925.07	924.95	924.81	924.65	924.46	924.24	924.01	923.75	923.46	923.16	922.82	922.47

8

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DEPARTMENT OF TRANSPORTATION

STRUCTURE B-67-369

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SUPERSTRUCTURE FRAMING PLAN

SHEET 13 OF 17

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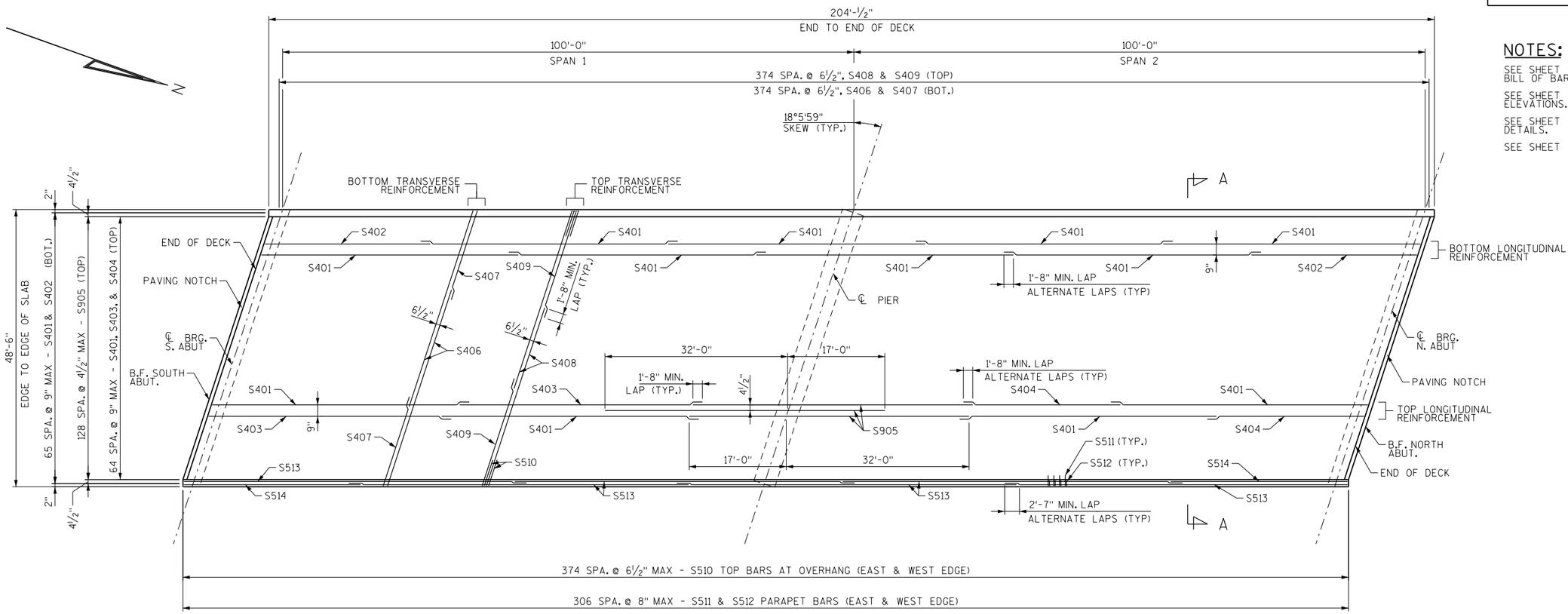
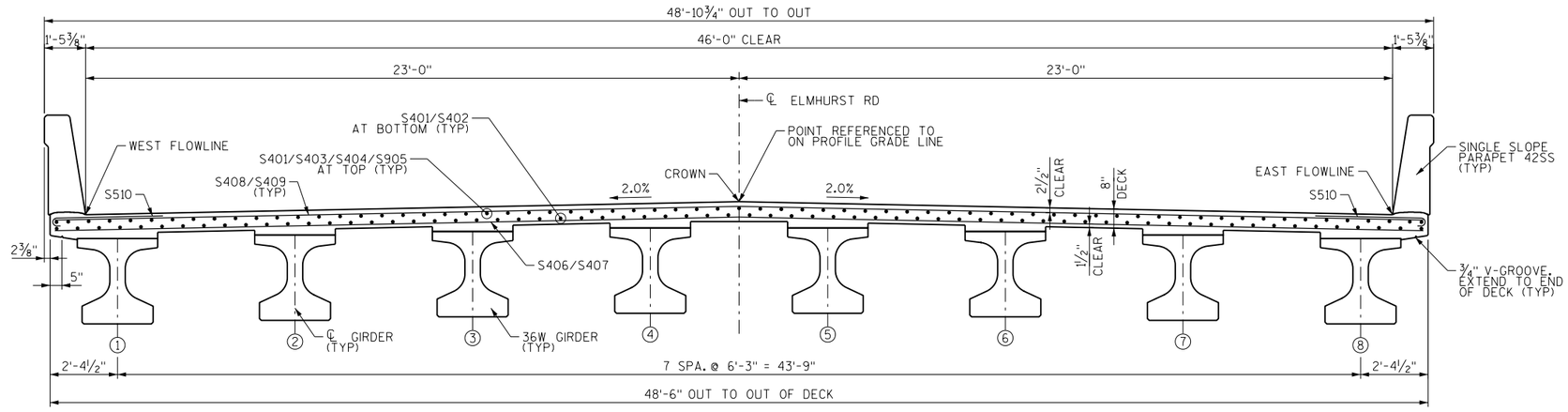
FILE= B67369_130_DECKFRAMING.DGN
SCALE = 1:20

STATE PROJECT NUMBER
1060-10-70



DECK REINFORCEMENT PLAN



TYPICAL DECK SECTION A-A

LOOKING NORTH

NOTES:

SEE SHEET 15 FOR SUPERSTRUCTURE BILL OF BARS AND DECK DETAILS.

SEE SHEET 13 FOR TOP OF DECK ELEVATIONS.

SEE SHEET 16 FOR STEEL DIAPHRAGM DETAILS.

SEE SHEET 17 FOR PARAPET DETAILS.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-67-369

DRAWN BY JAP | PLANS CK'D. WJZ

SUPERSTRUCTURE REINFORCEMENT

SHEET 14 OF 17

198

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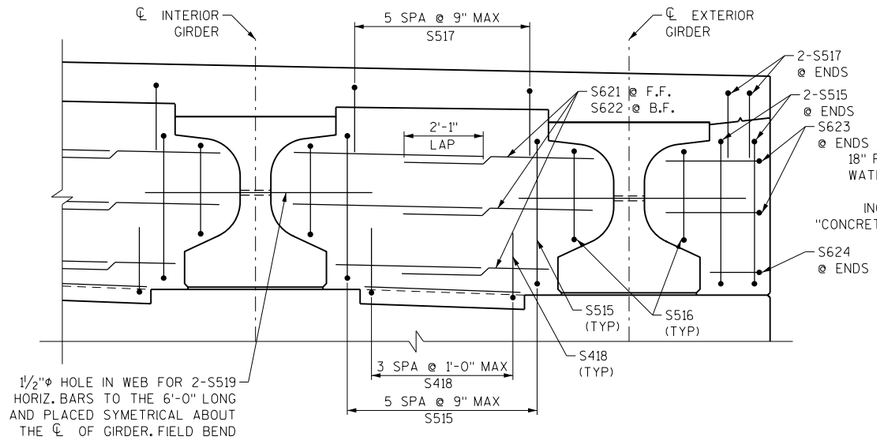
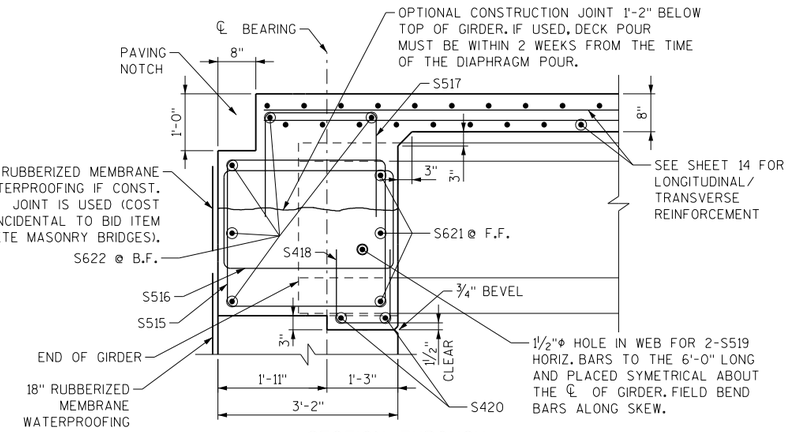
STATE PROJECT NUMBER

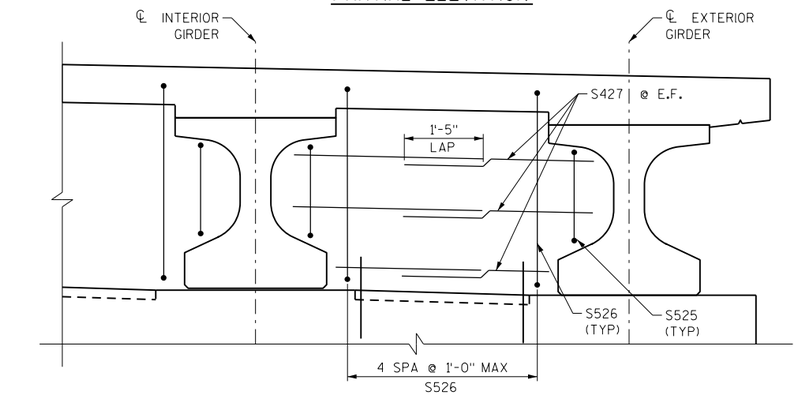
1060-10-70



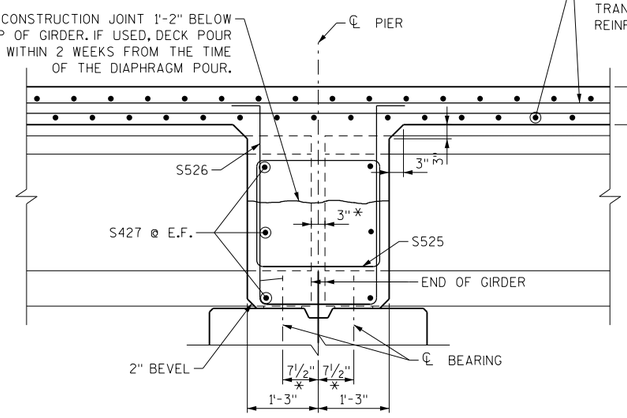
ABUTMENT DIAPHRAGM
PARTIAL ELEVATION



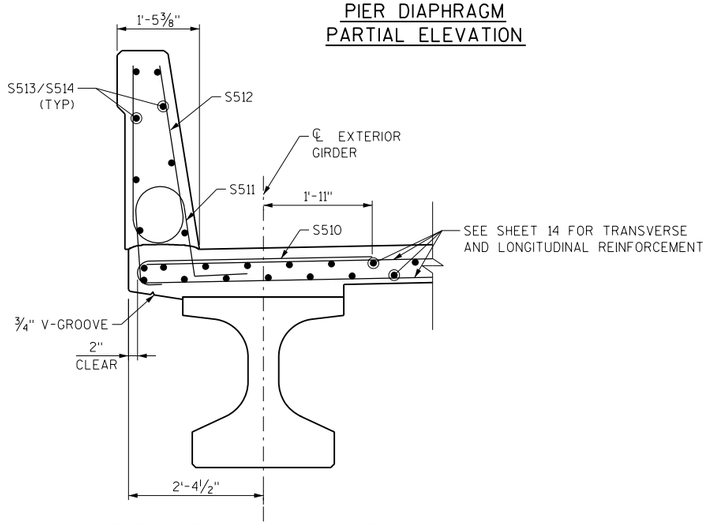
SECTION THROUGH
ABUTMENT DIAPHRAGM



PIER DIAPHRAGM
PARTIAL ELEVATION



SECTION THROUGH
PIER DIAPHRAGM

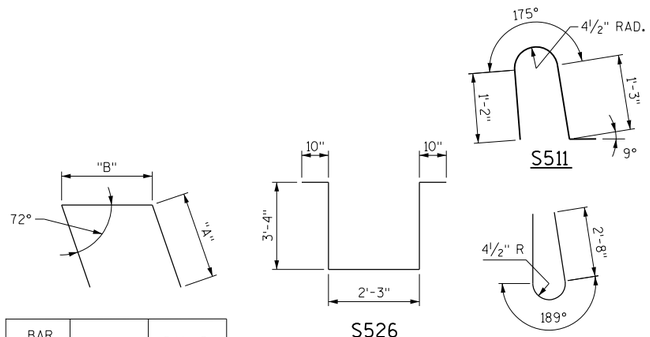


SECTION THROUGH PARAPET AT
OVERHANG REINFORCEMENT

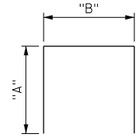
BILL OF BARS- SUPERSTRUCTURE

BAR NO.	COATED BAR	NO. REQ'D	LENGTH	BENT BAR	BUNDLED BAR	SERIES	83079 # COATED 0 # UNCOATED LOCATION
S401	X	398	45'-0"				SLAB LONGITUDINAL - TOP & BOTTOM
S402	X	66	29'-0"				SLAB LONGITUDINAL - BOTTOM
S403	X	67	42'-6"				SLAB LONGITUDINAL - TOP
S404	X	67	27'-6"				SLAB LONGITUDINAL - TOP
S905	X	131	49'-0"				SLAB LONGITUDINAL - TOP AT PIER
S406	X	375	36'-1"				SLAB TRANSVERSE - BOTTOM
S407	X	375	16'-3"				SLAB TRANSVERSE - BOTTOM
S408	X	375	32'-9"				SLAB TRANSVERSE - TOP
S409	X	375	19'-7"				SLAB TRANSVERSE - TOP
S510	X	750	4'-7"	X			SLAB TRANSVERSE - TOP AT OVERHANG
S511	X	614	4'-5"	X			PARAPET CONNECTION
S512	X	614	6'-8"	X			PARAPET U-BAR
S513	X	48	60'-0"				PARAPET LONGITUDINAL
S514	X	16	31'-9"				PARAPET LONGITUDINAL
S515	X	92	11'-10"	X			ABUTMENT DIAPHRAGM - LARGE STIRRUP
S516	X	32	10'-0"	X			ABUTMENT DIAPHRAGM - SMALL STIRRUP
S517	X	92	5'-8"	X			ABUTMENT DIAPHRAGM - TOP U-BAR
S418	X	56	3'-6"	X			ABUTMENT DIAPHRAGM - BOTTOM U-BAR
S519	X	32	6'-0"				ABUTMENT DIAPHRAGM - THROUGH GIRDER WEB
S420	X	28	2'-7"				ABUTMENT DIAPHRAGM - LONGITUDINAL AT SEAT
S621	X	84	3'-11"				ABUTMENT DIAPHRAGM - LONGITUDINAL F.F.
S622	X	10	50'-8"				ABUTMENT DIAPHRAGM - LONGITUDINAL B.F.
S623	X	8	6'-4"	X			ABUTMENT DIAPHRAGM - END U-BAR LONG
S624	X	4	4'-4"	X			ABUTMENT DIAPHRAGM - END U-BAR SHORT
S525	X	14	8'-6"	X			PIER DIAPHRAGM - SMALL STIRRUP
S526	X	35	10'-1"	X			PIER DIAPHRAGM - LARGE U-BAR
S427	X	84	3'-7"				PIER DIAPHRAGM - LONDITUDINAL E.F.

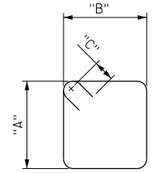
THE FIRST DIGIT OR FIRST TWO DIGITS OF A BAR MARK INDICATES THE BAR SIZE.
ALL DIMENSIONS IN THE BAR BENDS ARE OUT TO OUT.



BAR NO.	DIM "A"	DIM "B"
S623	1'-10"	3'-0"
S624	10"	3'-0"



BAR NO.	DIM "A"	DIM "B"
S517	1'-10"	2'-3"
S418	1'-4"	1'-0"



BAR NO.	DIM "A"	DIM "B"	DIM "C"
S515	2'-7"	3'-0"	4"
S516	1'-8"	3'-0"	4"
S525	1'-8"	2'-3"	4"

NOTES:

DIMENSIONS ARE TAKEN NORMAL TO THE SUBSTRUCTURE UNITS UNLESS OTHERWISE NOTED

TRANSVERSE BARS ARE PLACED PARALEL TO GIRDERS AND SPACING IS PERPENDICULAR TO THE ℄ OF GIRDERS

*DIMENSION TAKEN PARALLEL TO ℄ GIRDER.

F.F. = FRONT FACE

B.F. = BACK FACE

E.F. = EACH FACE

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-67-369

DRAWN BY JAP | PLANS CK'D. WJZ

SUPERSTRUCTURE DETAILS

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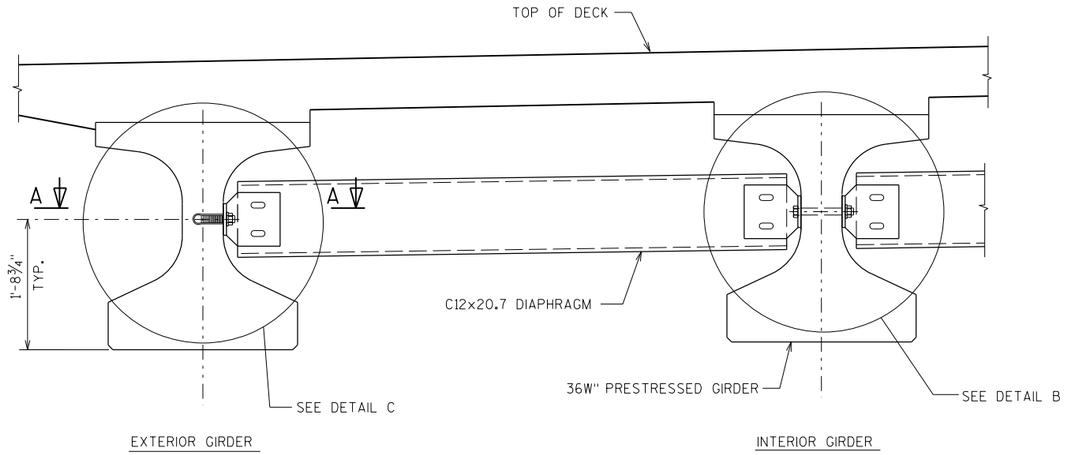
8

FILE= B67369_150_DECKDETAILS.DGN
SCALE = 1:4

STATE PROJECT NUMBER

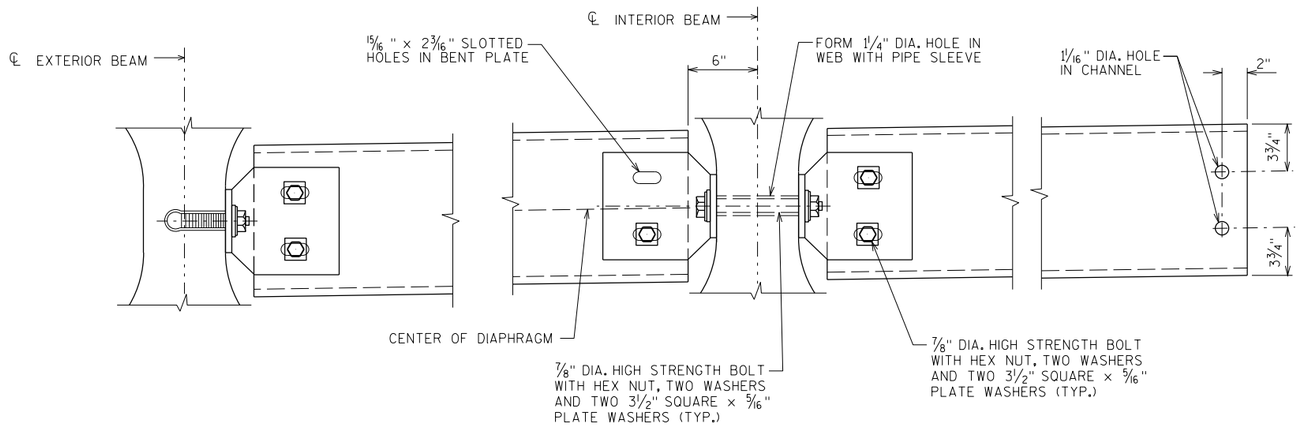
1060-10-70



EXTERIOR GIRDER

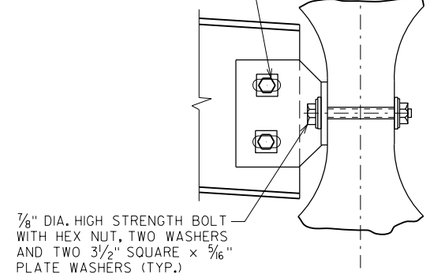
INTERIOR GIRDER

PART TRANSVERSE SECTION AT DIAPHRAGM



DETAIL C

DETAIL B



SECTION AT INTERIOR GIRDERS THRU DIAPHRAGM FOR SKEW ANGLES > 10°

NOTES

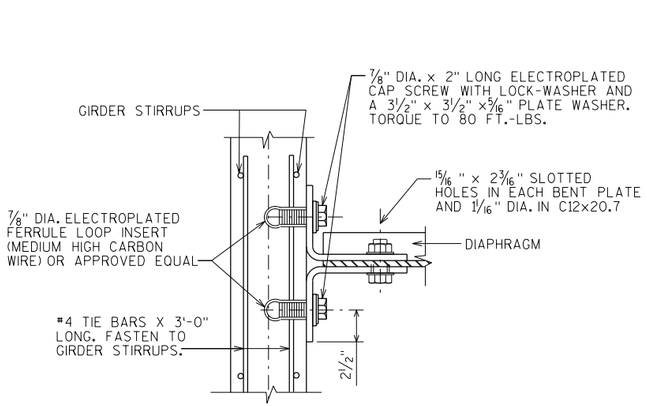
ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS B-67-369", EACH.

EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.

ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36.

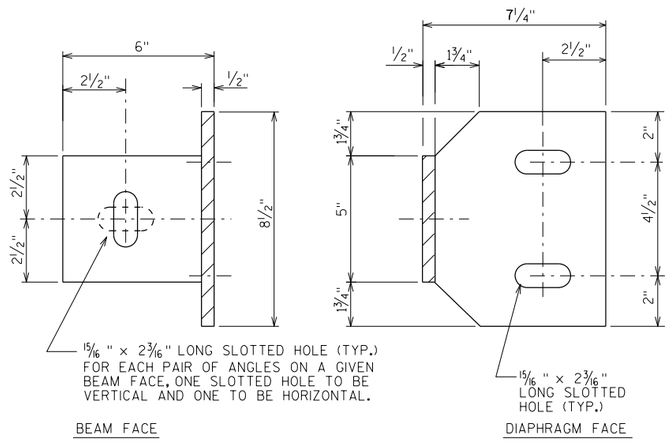
ALL DIAPHRAGM MATERIAL INCLUDING BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AFTER FABRICATION.

STEEL DIAPHRAGM TO CONCRETE WEB CONNECTION SHALL BE SNUG-TIGHT PLUS ¼ TURN, UNLESS NOTED OTHERWISE. HIGH STRENGTH BOLTS FOR WEB CONNECTION SHALL MEET THE REQUIREMENTS FOR ASTM A325 OR ASTM A449.



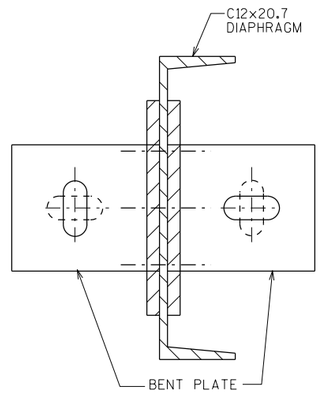
SECTION A-A

(FOR EXTERIOR ATTACHMENT)



BEAM FACE

DIAPHRAGM FACE



ATTACHMENT TO CHANNEL

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-67-369

DRAWN BY JAP | PLANS CK'D. WJZ

STEEL DIAPHRAGM

SHEET 16 OF 17

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FILE= B67369_160_STEELDIAPHRAGM.DGN

SCALE = 1:1

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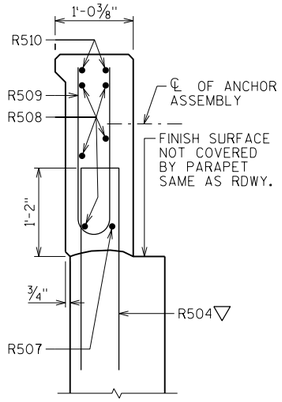
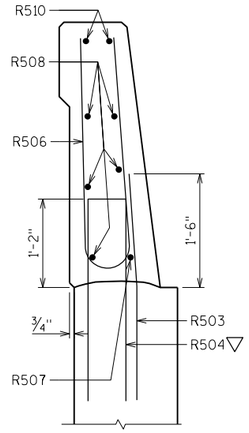
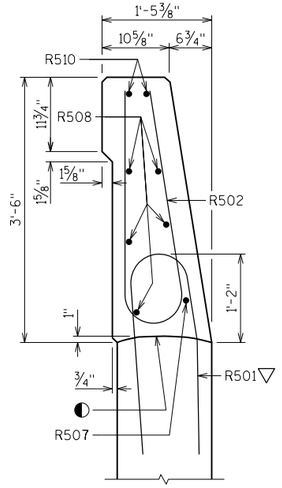


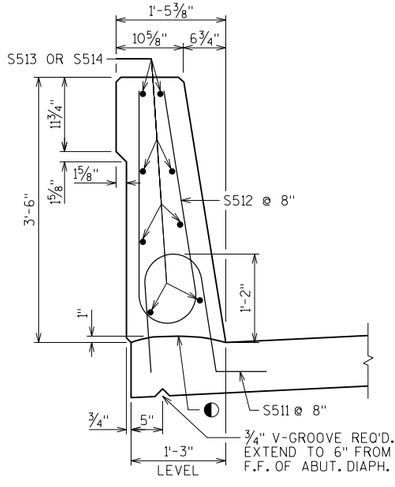
SECTION A-A



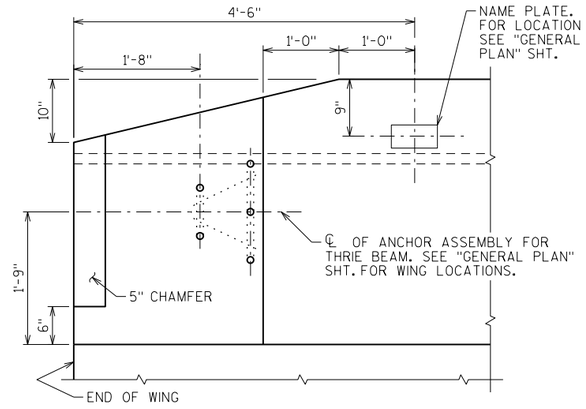
SECTION B-B



SECTION C-C



SECTION THRU PARAPET ON DECK



PARAPET END TREATMENT DETAIL

LOOKING AT INSIDE FACE OF PARAPET

STATE PROJECT NUMBER

1060-10-70

BILL OF BARS

FOR ABUTMENT PARAPETS

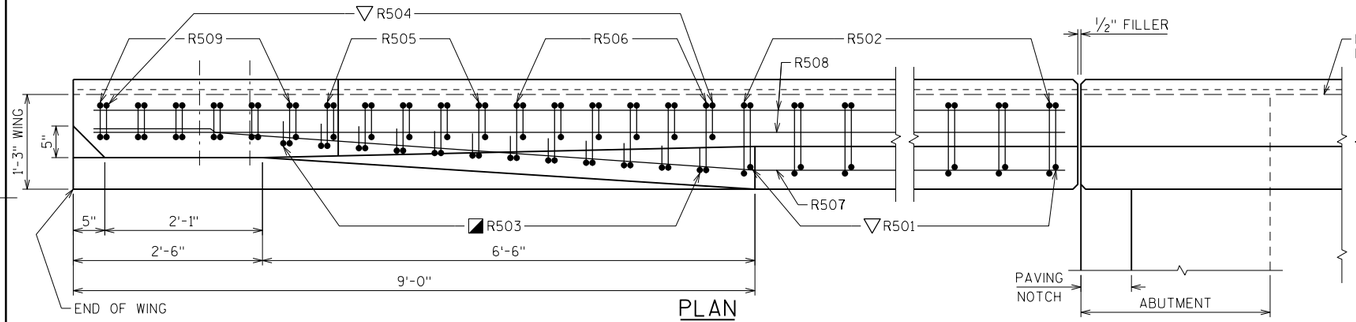
BAR MARK	COAT	N ABUT.	S ABUT.	LENGTH	BENT	BAR SERIES	LOCATION
R501	X	18	18	5'-10	X		PARAPET VERT.
R502	X	18	18	6'-8"	X		PARAPET VERT.
R503	X	24	24	3'-0"	X		PARAPET VERT.
R504	X	34	34	5'-7"	X		PARAPET VERT.
R505	X	10	10	6'-5"	X		PARAPET VERT.
R506	X	12	12	6'-6"	X		PARAPET VERT.
R507	X	2	2	13'-7"	X		PARAPET HORIZ.
R508	X	10	10	13'-7"			PARAPET HORIZ.
R509	X	12	12	5'-5"	X	◭	PARAPET VERT.
R510	X	4	4	13'-7"	X		PARAPET HORIZ.

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

BAR SERIES TABLE

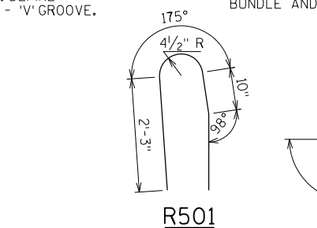
BAR MARK	NO. REQ'D	LENGTH
R509	4 SERIES OF 6	4'-9" TO 6'-1"

BUNDLE AND TAG EACH SERIES SEPARATELY.

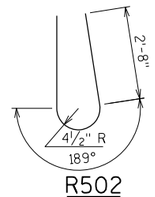


PLAN

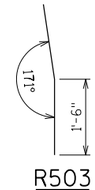
SW CORNER SHOWN, OTHERS SIMILAR



R501



R502



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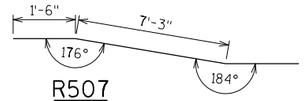
R504



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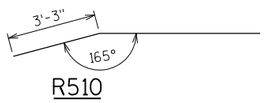

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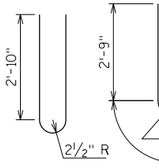

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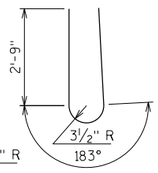

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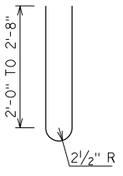

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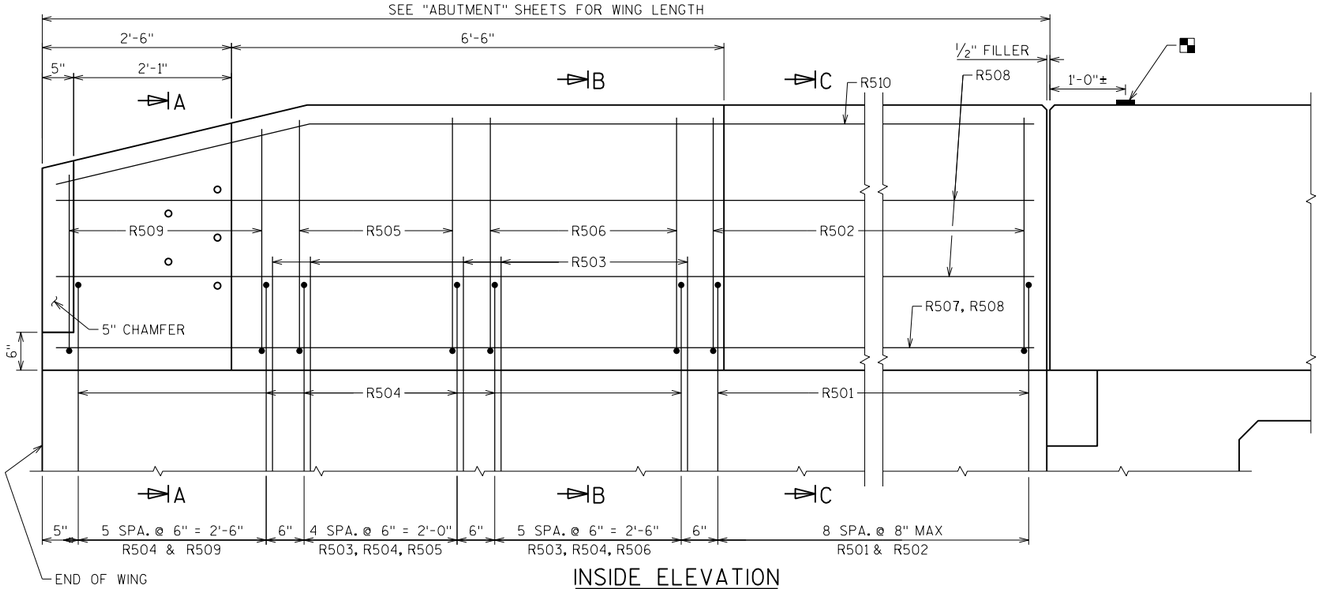
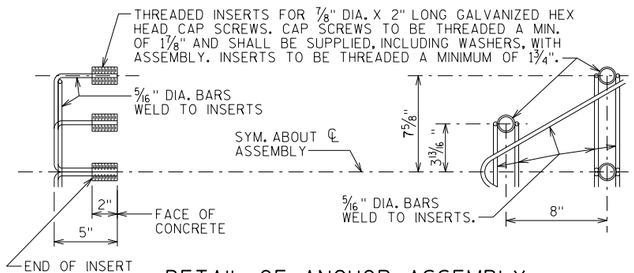


INSIDE ELEVATION

SW CORNER SHOWN, OTHERS SIMILAR

■ BENCH MARK CAP (WHEN SUPPLIED). AVOID PLACING A BENCH MARK CAP BELOW A RAIL OR FENCE SYSTEM THAT IS ATTACHED TO THE TOP OF THE PARAPET.



DETAIL OF ANCHOR ASSEMBLY

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

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

◐ CONST. JOINT - STRIKE OFF AS SHOWN

◪ R503 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. USE CARE TO PLACE R503 BARS CORRECTLY ALONG TRANSITION OF PARAPET.

▽ R501 AND R504 BARS TO BE TIED TO WING STEEL BEFORE WING IS POURED.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-67-369

DRAWN BY JAP | PLANS CK'D. WJZ

SINGLE SLOPE PARAPET 42SS

SHEET 17 OF 17

201

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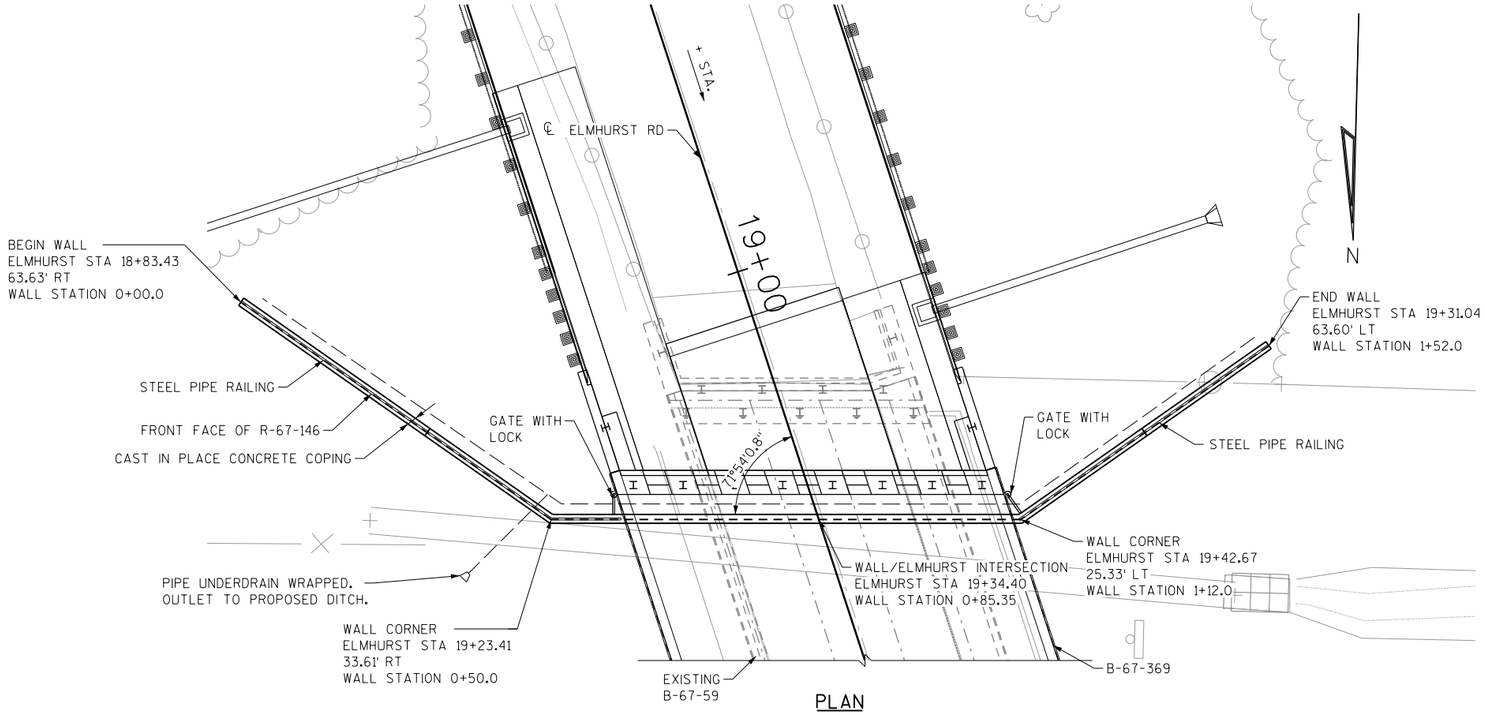
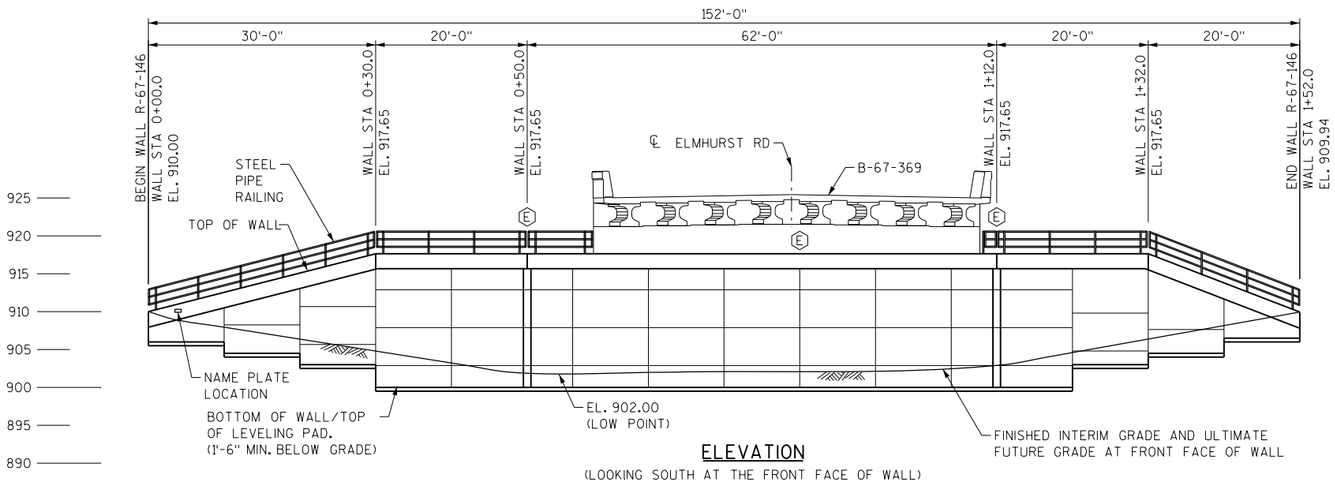
STATE PROJECT NUMBER

1060-10-70



PLAN

MECHANICALLY STABILIZED EARTH (MSE)
RETAINING WALL

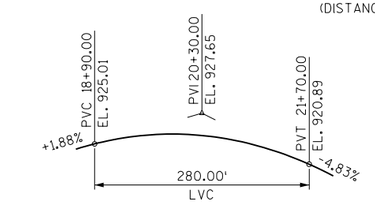


ELEVATION

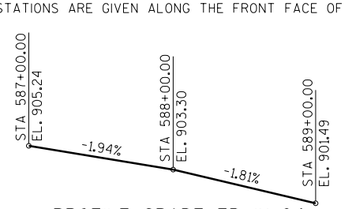
(LOOKING SOUTH AT THE FRONT FACE OF WALL)
(DISTANCES AND STATIONS ARE GIVEN ALONG THE FRONT FACE OF THE WALL)

LEGEND

Ⓔ INDICATES AN EXPANSION JOINT IN THE COPING



PROFILE GRADE LINE ELMHURST ROAD



PROFILE GRADE EB IH-94

STRUCTURES DESIGN CONTACTS

BRIDGE OFFICE:
WILLIAM DREHER, PE
(608) 266-8489

CONSULTANT:
WILLIAM J. ZIPPEL, PE, SE
ALFRED BENESCH & CO
1300 W CANAL ST, SUITE 150
MILWAUKEE, WI 53233
(414) 308-1321

DESIGN DATA

LIVE LOAD:
LIVE LOAD SURCHARGE = 240 PSF

MATERIAL PROPERTIES:

CONCRETE MASONRY RETAINING WALLS	F'c = 3,500 PSI
PRECAST CONCRETE WALL PANELS	F'c = 4,000 PSI
BAR STEEL REINFORCEMENT	fy = 60,000 PSI

FOUNDATION DATA

MSE WALL	SEE TABLE ON SHEET 3

ALLOWABLE WALL SYSTEMS

WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

BEVEL EXPOSED EDGES OF CONCRETE ¾", UNLESS OTHERWISE SHOWN.

ALL STATIONS AND DIMENSIONS ARE ALONG THE FRONT FACE OF THE WALL, UNLESS OTHERWISE SHOWN.

BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN. ALL BAR STEEL REINFORCEMENT IN CAST IN PLACE CONCRETE SHALL BE EPOXY COATED.

THE CONTRACTOR MUST COORDINATE THE CONSTRUCTION OF THE WALL R-67-146 WITH THE CONSTRUCTION OF BRIDGE B-67-369.

THE QUANTITY OF CONCRETE MASONRY AND REINFORCING STEEL FOR THE CAST-IN-PLACE COPING IS PAID FOR UNDER THE BID ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH".

THE COST OF FURNISHING AND PLACING THE UNREINFORCED CONCRETE LEVELING PAD UNDER THE MSE PRECAST WALL PANELS IS INCLUDED IN THE BID ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH".

CONTRACTOR SHALL SUPPLY AND INSTALL A NAME PLATE IN ACCORDANCE WITH SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS AND THE STANDARD DETAIL DRAWINGS.

THE EXISTING GROUND LINE SHALL BE USED AS THE UPPER LIMITS OF EXCAVATION FOR THE WALL.

THE PLAN QUANTITY FOR THE BID ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH" IS BASED ON WALL HEIGHT MEASURED FROM THE TOP OF THE WALL TO A CONSTANT DEPTH OF 1'-6" BELOW THE FINISHED GRADE.

THE CONTRACTOR SHALL PROVIDE COMPLETE DESIGN, PLANS, DETAILS, SPECIFICATIONS, AND SHOP DRAWINGS FOR THE RETAINING WALL IN ACCORDANCE WITH THE SPECIAL PROVISIONS. THE RETAINING WALL MANUFACTURER SHALL PROVIDE TECHNICAL ASSISTANCE TO THE CONTRACTOR DURING CONSTRUCTION. THE COST OF FURNISHING THESE ITEMS IS INCLUDED IN THE BID ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH".

PLANS ELEVATIONS AND DETAILS SHOWN ON THESE DRAWINGS ARE INTENDED TO INDICATE WALL LOCATIONS, LENGTHS, HEIGHTS, AND DETAILS COMMON TO THE WALL SYSTEM SELECTED. THE CONTRACTOR SHALL VERIFY THAT THE WALL SYSTEM SELECTED WILL CONFORM TO THE REQUIRED ALIGNMENTS AND DETAILS.

THE RETAINING WALL IS TO BE DESIGNED USING THE ELEVATIONS GIVEN ON THIS SHEET AND SHEET 3.

DESIGN THE WALL TO PROVIDE FOR FINISHED GRADE SLOPED BEHIND THE WALL AS SHOWN IN THESE PLANS AND THE ROADWAY CROSS SECTIONS WITH A LIVE LOAD SURCHARGE OF 240 PSF.

BENCHMARKS

NAME			STATION	OFFSET
BM110	921.54	CP MON	21+37	12.7 RT
BM111	925.13	CP CHIS CROSS	19+11	12.5 RT
BM128	911.56	CP FENO	26+41	21.2 RT
BM130	921.23	CP FENO	15+96	18.3 RT

LIST OF DRAWINGS:

1. GENERAL PLAN & ELEVATION
2. SUBSURFACE EXPLORATION
3. WALL DETAILS & QUANTITIES
4. COPING & MISCELLANEOUS DETAILS
5. PIPE RAILING DETAILS

NO.	DATE	REVISION	BY

benesch
Alfred Benesch & Company
1300 West Canal Street, Suite 150
Milwaukee, Wisconsin 53233
414-308-1310 Job No. 20205.00

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher SDR 03/06/20
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE R-67-146

ELMHURST ROAD OVER IH-94

COUNTY: WAUKESHA	TOWN/~~CITY/VILLAGE~~: DELAFIELD

DESIGN SPEC.
AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY	JAP	DESIGN CK'D.	WJZ	DRAWN BY	JAP	PLANS CK'D.	WJZ

GENERAL PLAN AND ELEVATION

SHEET 1 OF 5

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FILE= R67146_10_GP&E.DGN
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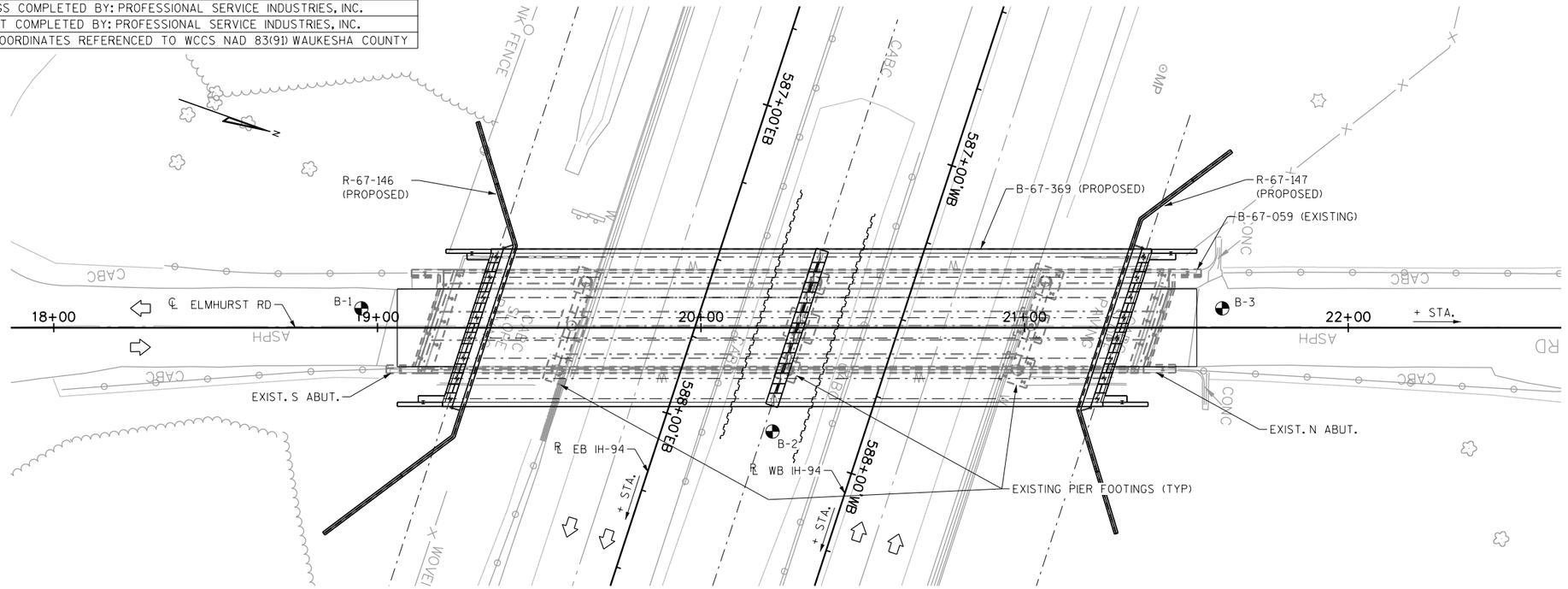
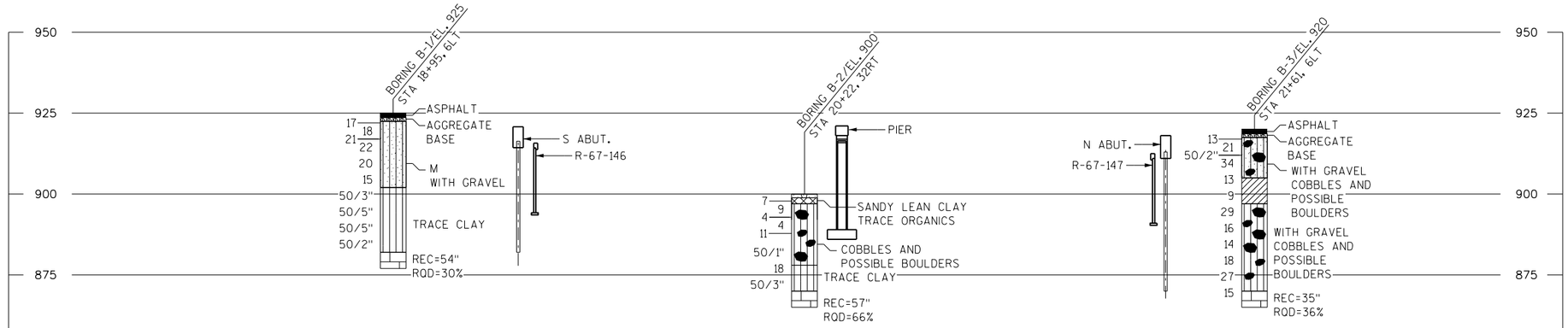
BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	8-25-2016	175,144.02	658,176.00
2	8-26-2016	175,276.41	658,169.26
3	8-29-2016	175,394.65	658,086.89
BORINGS COMPLETED BY: PROFESSIONAL SERVICE INDUSTRIES, INC.			
REPORT COMPLETED BY: PROFESSIONAL SERVICE INDUSTRIES, INC.			
ALL COORDINATES REFERENCED TO WCCS NAD 83(91) WAUKESHA COUNTY			





NOTES:

FOUNDATION DESIGN PARAMETERS ARE BASED ON RECOMMENDATIONS FROM THE GEOTECHNICAL EXPLORATION REPORTS DATED 11/18/2016 & 8/7/2017 BY PROFESSIONAL SERVICE INDUSTRIES, INC, AVAILABLE FROM WISDOT.

REFER TO THE GEOTECHNICAL REPORT FOR FULL SOIL DESCRIPTIONS AND DETAILS OF BORING LOGS.

HISTORIC BORINGS ARE AVAILABLE UPON REQUEST FROM WISDOT.

BORINGS INDICATE THE LIKELY PRESENCE OF BOULDERS AND COBBLES.

CONTACT THE WISCONSIN DEPARTMENT OF TRANSPORTATION FOR THE GEOTECHNICAL REPORT AND BORING LOGS.

EXISTING FOOTINGS AND ABUTMENTS ARE SHOWN BASED ON ORIGINAL STRUCTURE PLANS.

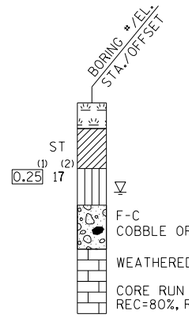
STATE PROJECT NUMBER

1060-10-70

MATERIAL SYMBOLS

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

LEGEND OF BORING



(1) UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)

(2) UNLESS OTHERWISE, SPECIFIED THE SPT 'N' VALUE IS BASED ON AASHTO T-206, STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.

GROUND WATER ELEVATION

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

ABBREVIATIONS

F-FINE M-MEDIUM C-COARSE ST-SHELBY TUBE

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

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

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE R-67-146

DRAWN BY JAP | PLANS CK'D. WJZ

SUBSURFACE EXPLORATION

SHEET 2 OF 5

203

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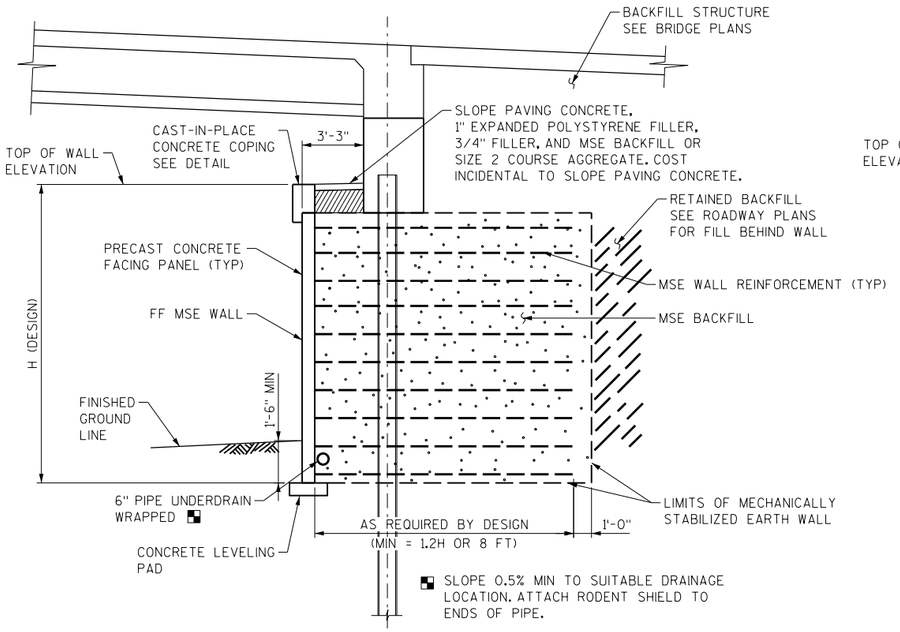
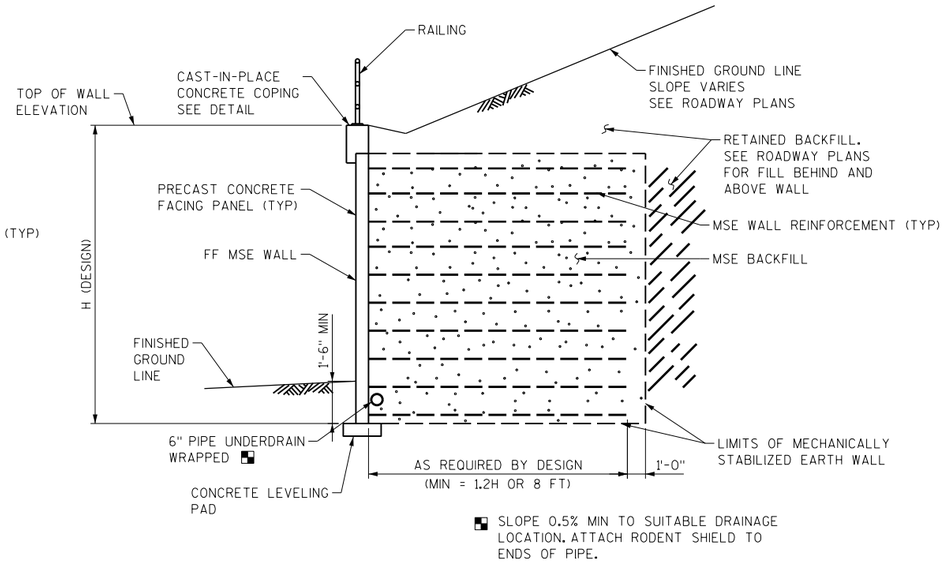
STATE PROJECT NUMBER

1060-10-70



TYPICAL SECTION UNDER BRIDGE



TYPICAL SECTION OUTSIDE OF BRIDGE

TOTAL ESTIMATED QUANTITIES

BID NO.	BID ITEMS	UNIT	TOTAL
206.3000	EXCAVATION FOR STRUCTURES RETAINING WALLS R-67-146	LS	1
513.2001	RAILING PIPE	LF	107
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	192
SPV.0165.41	WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH R-67-146	SF	2054
	NON BID ITEMS		
	PREFORMED JOINT FILLER		
	NON-BITUMINOUS JOINT SEALER		
	NAME PLATE		
	RUBBERIZED MEMBRANE WATERPROOFING		

WALL EXTERNAL & OVERALL STABILITY EVALUATION

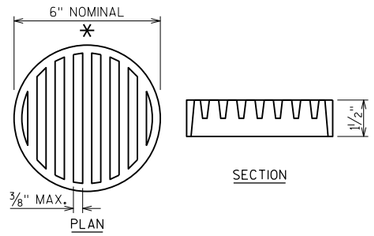
DIMENSIONS	EVALUATED LOCATIONS	
WALL HEIGHT (FEET)	17.1	16.0
EXPOSED WALL HEIGHT (FEET)	15.6	14.5
MINIMUM LENGTH OF REINFORCEMENT (FEET)	20.5	19.2
WALL STATION	0+78	0+40
BORING USED	B-1, B-3	B-1, B-3
CAPACITY TO DEMAND RATIO		
SLIDING (CDR > 1.0)	1.5	1.9
ECCENTRICITY (CDR > 1.0)	1.8	4.0
OVERALL STABILITY (CDR > 1.0)	1.1	1.0
BEARING RESISTANCE (CDR > 1.0)	3.6	3.1
FACTORED BEARING RESISTANCE (PSF)	13,100	13,100

RECOMMENDED SOIL PARAMETERS FOR MSE WALL ANALYSIS

STRATUM LOCATIONS & SOIL DESCRIPTIONS	TOTAL UNIT WEIGHT (PCF)	FRICTION ANGLE (DEGREE)	COHESION (PSF)
GRANULAR BACKFILL (REINFORCING ZONE OR BACKFILL)	120	30	0
NATURAL SILTY SAND OR OR SILT/SANDY SILT RETAINED/FOUNDATION SOIL	125	32	0

GEOMETRY TABLE

WALL STATION	ELMHURST ROAD STATION	OFFSET	LOCATION	TOP OF WALL	FINISHED GRADE
0+00.0	18+83.43	63.63 RT	BEGIN WALL	910.00	909.71
0+30.0	19+07.42	45.62 RT	END TAPER	917.65	904.58
0+50.0	19+23.41	33.61 RT	WALL CORNER	917.65	901.65
0+85.35	19+34.40	0	WALL/ELMHURST INTERSECTION	917.65	902.31
1+12.0	19+42.67	25.33 LT	WALL CORNER	917.65	902.81
1+32.0	19+36.85	44.46 LT	START TAPER	917.65	906.38
1+52.0	19+31.04	63.60 LT	END WALL	909.94	909.94



RODENT SHIELD DETAIL

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

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

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

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE R-67-146

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WALL DETAILS & QUANTITIES

SHEET 3 OF 5

204

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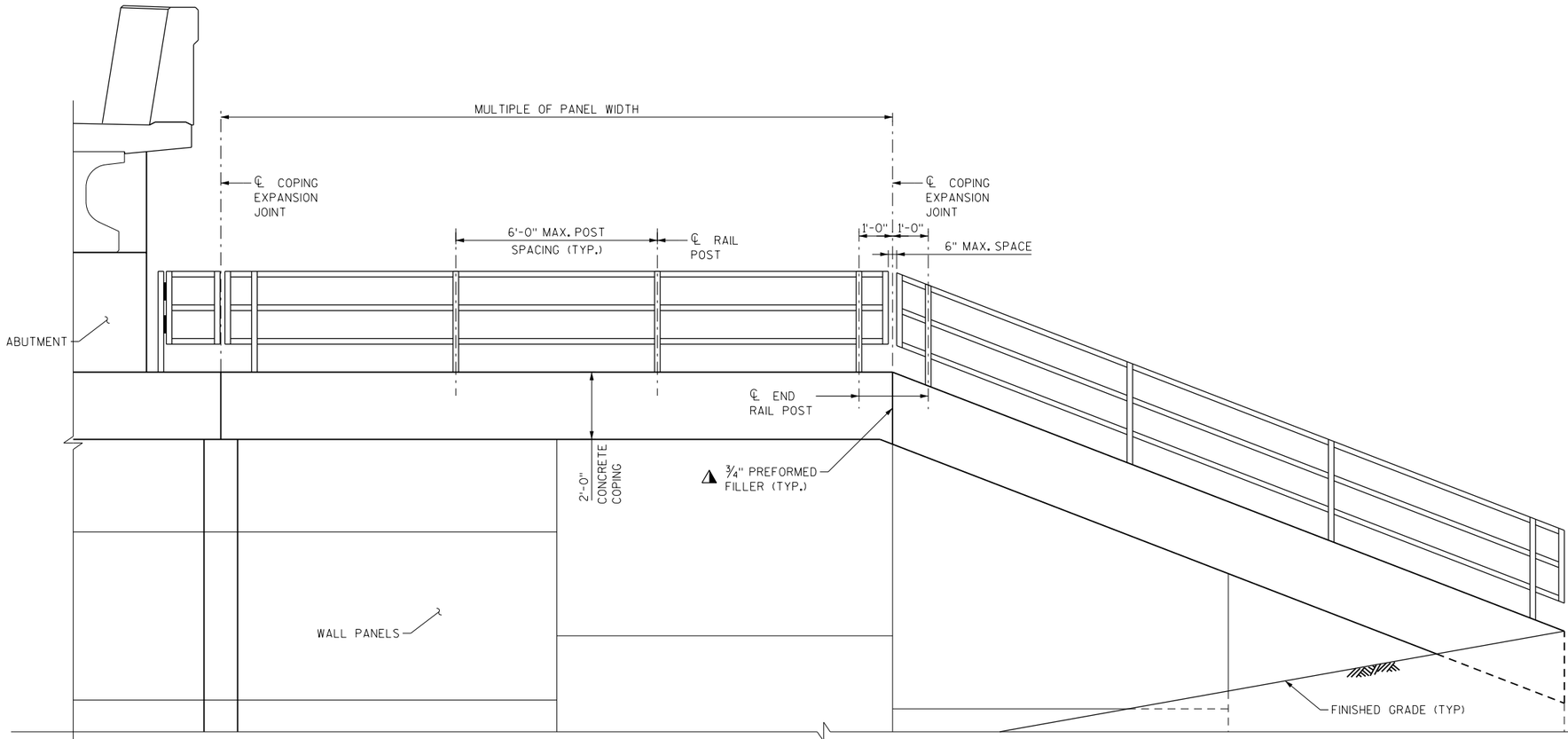
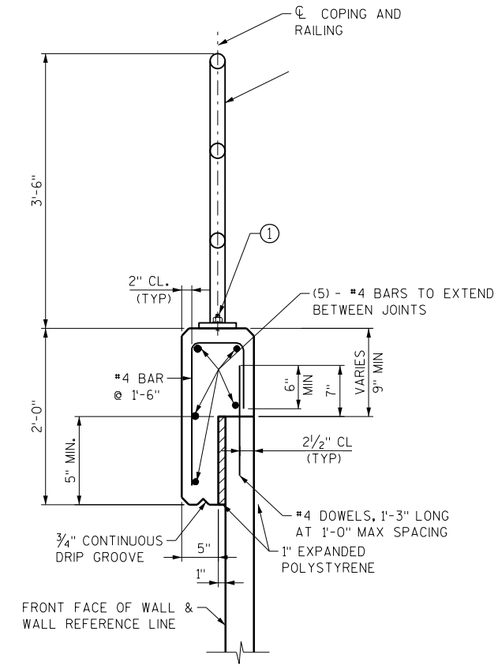
STATE PROJECT NUMBER

1060-10-70

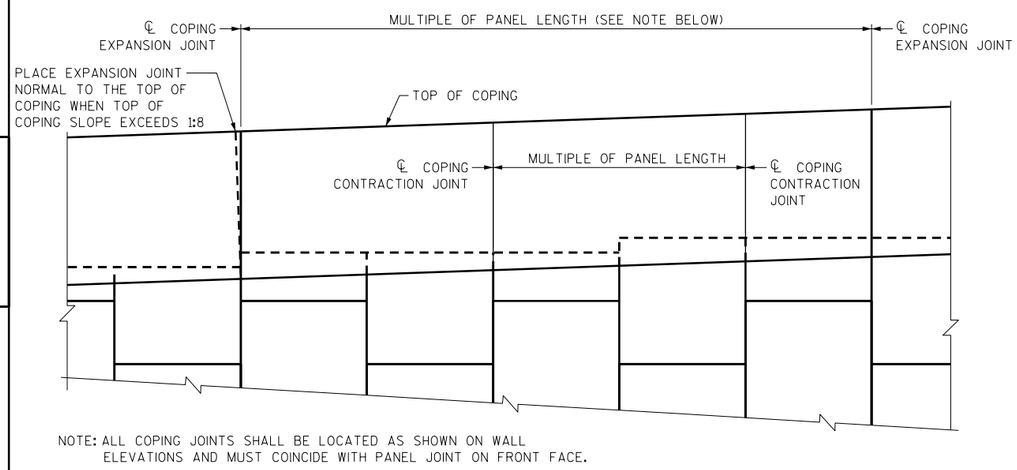


PARTIAL WALL ELEVATION

LOOKING SOUTH AT F.F. OF WALL

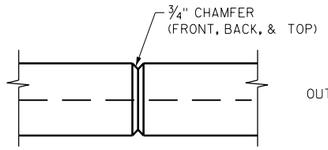


CAST-IN-PACE CONCRETE COPING DETAIL



NOTE: ALL COPING JOINTS SHALL BE LOCATED AS SHOWN ON WALL ELEVATIONS AND MUST COINCIDE WITH PANEL JOINT ON FRONT FACE.

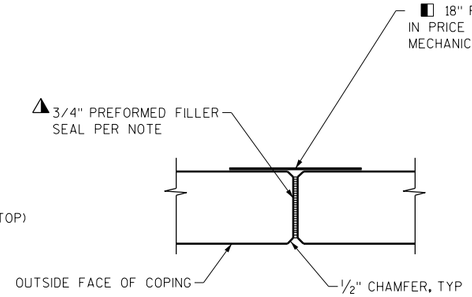
C.I.P. COPING PARTIAL ELEVATION



COPING CONTRACTION JOINT

DO NOT RUN BAR STEEL THROUGH JOINT.
MAX SPACING OF JOINTS = 12 FT

LOCATE TO MISS RAILING POSTS



COPING EXPANSION JOINT

DO NOT RUN BAR STEEL THROUGH JOINT.
MAX SPACING OF JOINTS = 50 FT

◧ MEMBRANE WATERPROOFING TO EXTEND FROM TOP OF COPING TO 6" BELOW TOP OF PANELS

NOTES

① ⅝" DIA. STAINLESS STEEL MASONRY ANCHORS TYPE S WITH NUT AND WASHER EMBED 7" MIN

⚠ SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF FILLER AND EXPANDED POLYSTYRENE WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER (1" DEEP & HOLD ⅛" BELOW SURFACE OF CONCRETE.)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE R-67-146

DRAWN BY JAP | PLANS CK'D. WJZ

COPING & MISC. DETAILS

SHEET 4 OF 5

205

FILE = R67146_25_COPINGDET.DGN
SCALE = 1:1

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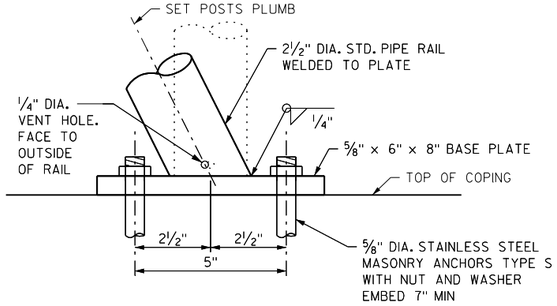
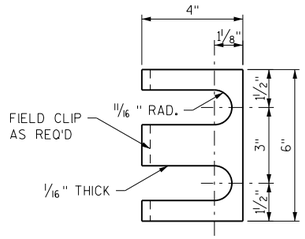
STATE PROJECT NUMBER

1060-10-70

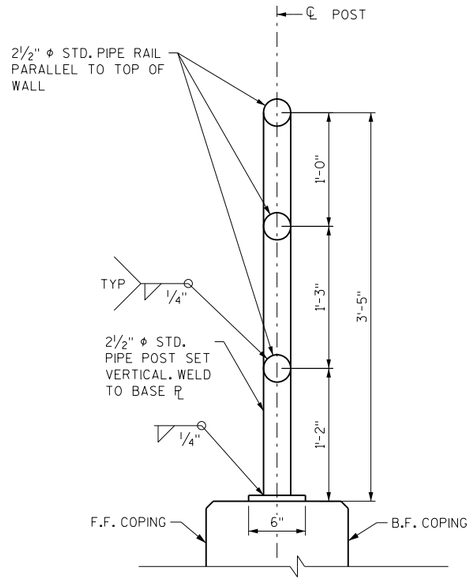


RAIL POST BASE PLATE

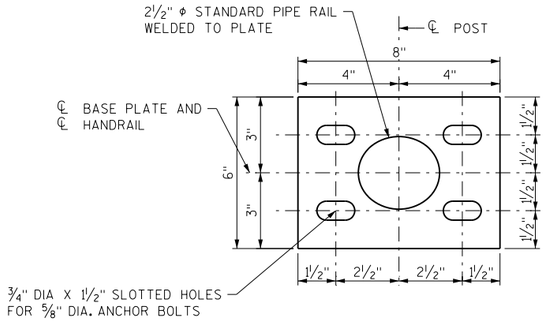


SHIM DETAIL

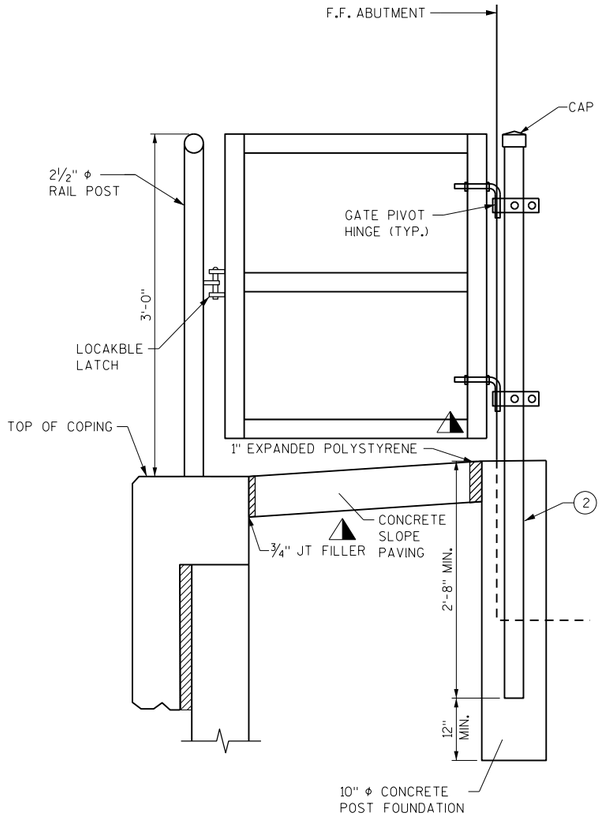
STEEL SHIMS SHALL BE PROVIDED AND USED UNDER BASE PLATES WHERE REQUIRED FOR ALIGNMENT (PROVIDE 4 SETS PER POST)



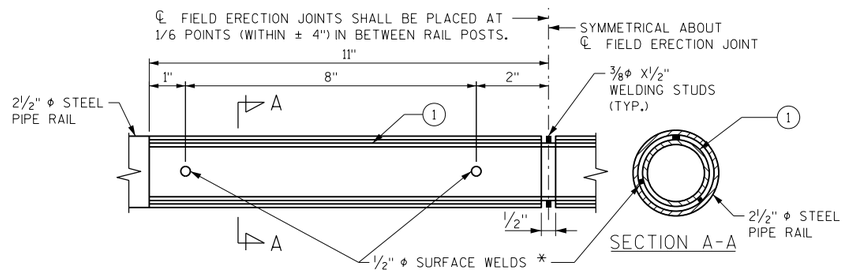
SECTION THROUGH RAIL AT POST



BASE PLATE DETAIL



GATE DETAIL



FIELD ERECTION JOINT DETAIL

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

NOTES

BID ITEM SHALL BE "RAILING PIPE," WHICH SHALL INCLUDE ALL STEEL ITEMS SHOWN, CONCRETE MASONRY ANCHORS, AND GALVANIZING.

RAILING SHALL BE FABRICATED IN LENGTHS THAT INCLUDE 2 POSTS MINIMUM.

FIELD ERECTION JOINTS MUST BE PLACED IN BETWEEN RAIL POSTS WHERE THERE IS A CONCRETE COPING EXPANSION JOINT BETWEEN THE RAIL POSTS.

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.

BASE PLATES SHALL CONFORM TO A.S.T.M. A709 GRADE 36. STANDARD PIPE SHALL CONFORM TO A.S.T.M. A500 GRADE B.

ANCHORAGES SHALL BE ACURATELY PLACED TO PROVIDE CORRECT ALIGNMENT OF RAILING. SET NORMAL TO GRADE.

CUT BOTTOM OF POST TO MAKE POST VERTICAL IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTIONS.

STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D FOR ALIGNMENT.

FILL BOLT SLOT OPENINGS IN SHIMS AND BASE PLATES, AND CAULK AROUND PERIMETER OF BASE PLATES WITH NON-STAINING GREY NON-BITUMINOUS JOINT SEALER.

ALL JOINTS SHALL BE CONTINUOUSLY WELDED AND GROUND SMOOTH. COPE COMPONENTS AT PERPENDICULAR AND SKEW CONNECTIONS TO PROVIDE CLOSE FIT. OBTAIN FUSION WITHOUT UNDERCUT OR OVERLAP. REMOVE FLUX IMMEDIATELY.

SUPPLY CONCRETE MASONRY ANCHORS, TYPE S (EPOXY), ⅝-INCH HAVING A MINIMUM PULLOUT CAPACITY OF 9.2 KIPS. EMBED A MINIMUM OF 7" INTO SOUND CONCRETE. ANCHORS SHALL BE STAINLESS STEEL.

VENT HOLES SHALL BE DRILLED IN MEMBERS AS REQUIRED TO FACILITATE GALVANIZING AND DRAINAGE.

DRILL DRAIN HOLES PRIOR TO GALVANIZING.

GALVANIZE AFTER FABRICATION PER ASTM A123.

SHIMS SHALL BE GALVANIZED.

HANDRAIL AND POSTS TO BE SMOOTH AND FREE OF NICKS, BURRS, AND ABRASIONS AFTER GALVANIZING.

GATE LATCH SHALL BE LOCKABLE USING A STANDARD PADLOCK.

LEGEND

(1) 2" ϕ PIPE SLEEVE X 1'-10" LONG FOR 2½" STEEL PIPE RAILING. PROVIDE ½" ϕ SURFACE WELDS ON ALL SIDES AS SHOWN. GRIND WELDS TO FIT FREE INTO I.D. OF 2½" ϕ STEEL PIPE. PROVIDE ⅜" ϕ X ½" WELDING STUDS ON TOP AND BOTTOM SURFACES AT CENTERLINE.

(2) GATE POST TO BE PLACED VERTICAL, EVEN WITH THE END RAIL POST, AND ADJACENT TO THE ABUTMENT CORNER. SWING GATE SHALL PIVOT AROUND POST AND OUTWARD AWAY FROM BRIDGE. ALIGN GATE IN CLOSED POSITION PERPENDICULAR TO FIXED RAILING. EMBED POST MIN. 2'-8" INTO CONCRETE FOOTING, AND AVOID MSE WALL REINFORCEMENT WHEN PLACING FOOTING.

⚠ SEAL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF FILLER AND EXPANDED POLYSTYRENE WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE).

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE R-67-146

DRAWN BY JAP | PLANS CK'D. WJZ

PIPE RAILING DETAILS

SHEET 5 OF 5

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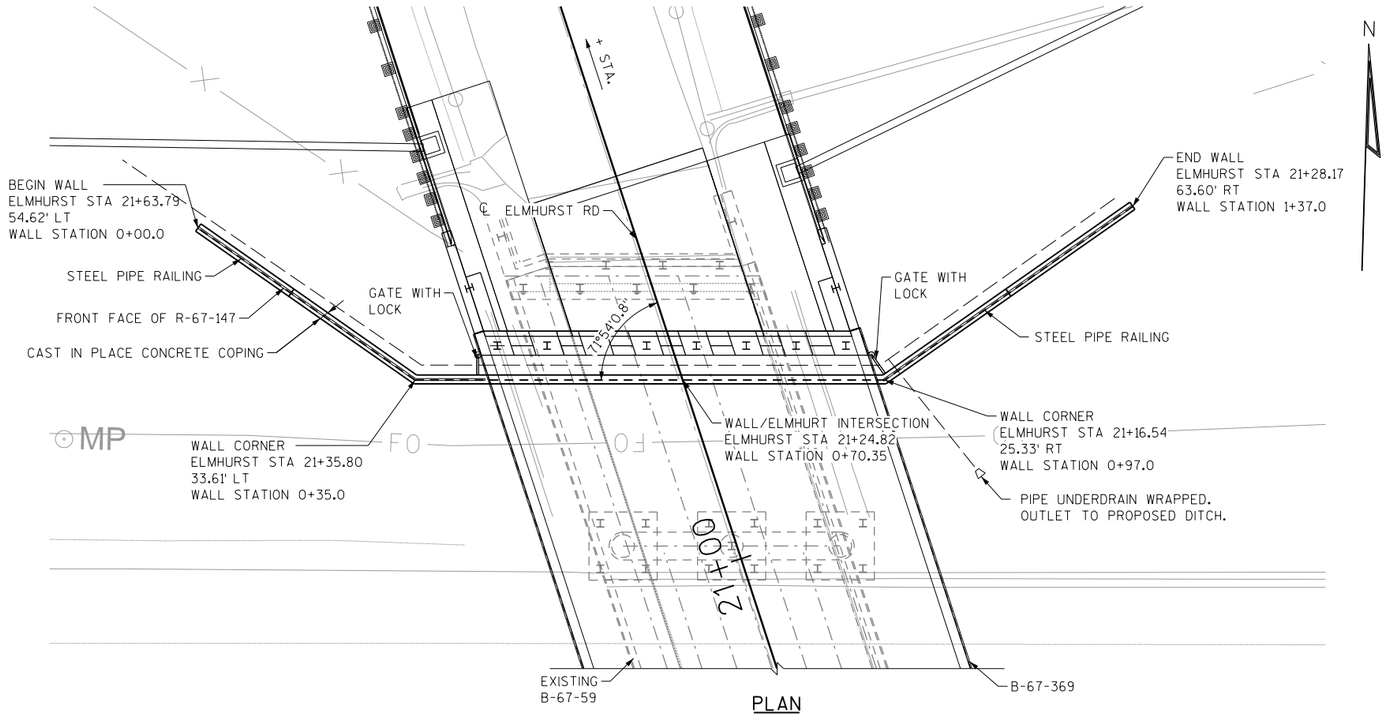
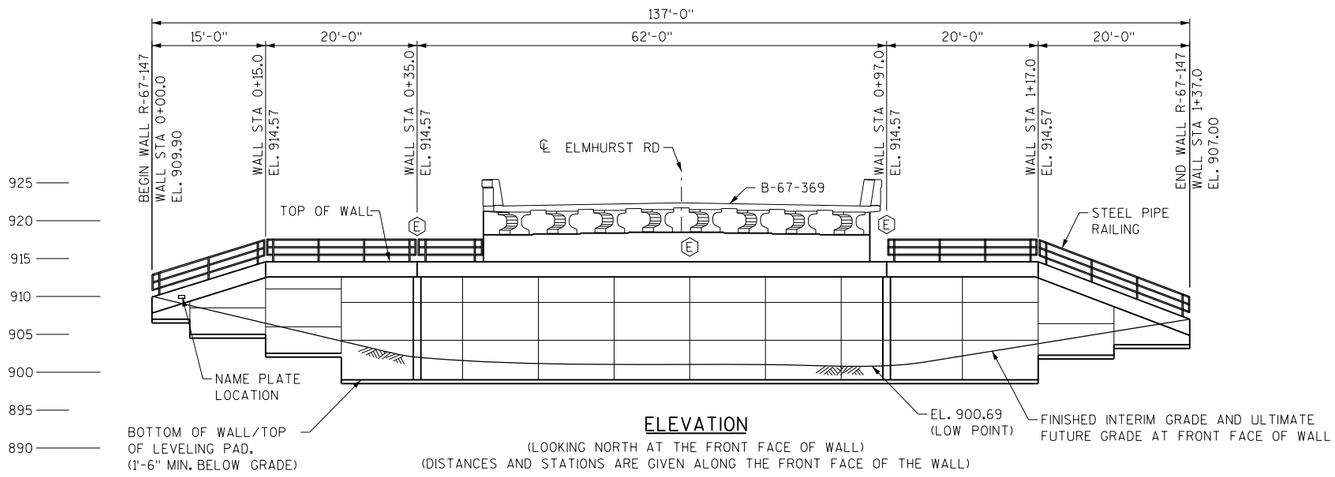
STATE PROJECT NUMBER
1060-10-70



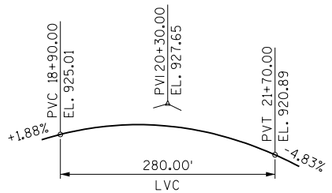
PLAN

MECHANICALLY STABILIZED EARTH (MSE)
RETAINING WALL

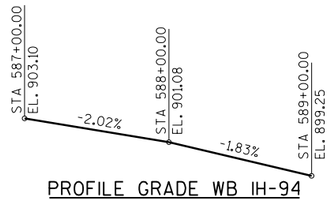


ELEVATION

(LOOKING NORTH AT THE FRONT FACE OF WALL)
(DISTANCES AND STATIONS ARE GIVEN ALONG THE FRONT FACE OF THE WALL)



PROFILE GRADE LINE ELMHURST ROAD



PROFILE GRADE WB IH-94

LEGEND

Ⓔ INDICATES AN EXPANSION JOINT IN THE COPING

DESIGN DATA

LIVE LOAD:

LIVE LOAD SURCHARGE = 240 PSF

MATERIAL PROPERTIES:

CONCRETE MASONRY RETAINING WALLS	F'c = 3,500 PSI
PRECAST CONCRETE WALL PANELS	F'c = 4,000 PSI
BAR STEEL REINFORCEMENT	fy = 60,000 PSI

FOUNDATION DATA

MSE WALL	SEE TABLE ON SHEET 3

ALLOWABLE WALL SYSTEMS

WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

BEVEL EXPOSED EDGES OF CONCRETE ¾", UNLESS OTHERWISE SHOWN.

ALL STATIONS AND DIMENSIONS ARE ALONG THE FRONT FACE OF THE WALL, UNLESS OTHERWISE SHOWN.

BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN. ALL BAR STEEL REINFORCEMENT IN CAST IN PLACE CONCRETE SHALL BE EPOXY COATED.

THE CONTRACTOR MUST COORDINATE THE CONSTRUCTION OF THE WALL R-67-147 WITH THE CONSTRUCTION OF BRIDGE B-67-369.

THE QUANTITY OF CONCRETE MASONRY AND REINFORCING STEEL FOR THE CAST-IN-PLACE COPING IS PAID FOR UNDER THE BID ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH".

THE COST OF FURNISHING AND PLACING THE UNREINFORCED CONCRETE LEVELING PAD UNDER THE MSE PRECAST WALL PANELS IS INCLUDED IN THE BID ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH".

CONTRACTOR SHALL SUPPLY AND INSTALL A NAME PLATE IN ACCORDANCE WITH SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS AND THE STANDARD DETAIL DRAWINGS.

THE EXISTING GROUND LINE SHALL BE USED AS THE UPPER LIMITS OF EXCAVATION FOR THE WALL.

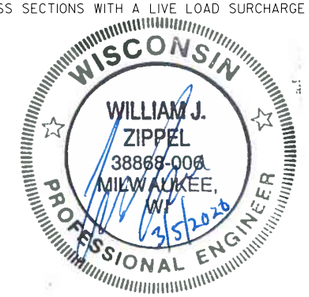
THE PLAN QUANTITY FOR THE BID ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH" IS BASED ON WALL HEIGHT MEASURED FROM THE TOP OF THE WALL TO A CONSTANT DEPTH OF 1'-6" BELOW THE FINISHED GRADE.

THE CONTRACTOR SHALL PROVIDE COMPLETE DESIGN, PLANS, DETAILS, SPECIFICATIONS, AND SHOP DRAWINGS FOR THE RETAINING WALL IN ACCORDANCE WITH THE SPECIAL PROVISIONS. THE RETAINING WALL MANUFACTURER SHALL PROVIDE TECHNICAL ASSISTANCE TO THE CONTRACTOR DURING CONSTRUCTION. THE COST OF FURNISHING THESE ITEMS IS INCLUDED IN THE BID ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH".

PLANS ELEVATIONS AND DETAILS SHOWN ON THESE DRAWINGS ARE INTENDED TO INDICATE WALL LOCATIONS, LENGTHS, HEIGHTS, AND DETAILS COMMON TO THE WALL SYSTEM SELECTED. THE CONTRACTOR SHALL VERIFY THAT THE WALL SYSTEM SELECTED WILL CONFORM TO THE REQUIRED ALIGNMENTS AND DETAILS.

THE RETAINING WALL IS TO BE DESIGNED USING THE ELEVATIONS GIVEN ON THIS SHEET AND SHEET 3.

DESIGN THE WALL TO PROVIDE FOR FINISHED GRADE SLOPED BEHIND THE WALL AS SHOWN IN THESE PLANS AND THE ROADWAY CROSS SECTIONS WITH A LIVE LOAD SURCHARGE OF 240 PSF.



BENCHMARKS

NAME			STATION	OFFSET
BM110	921.54	CP MON	21+37	12.7 RT
BM111	925.13	CP CHIS CROSS	19+11	12.5 RT
BM128	911.56	CP FENO	26+41	21.2 RT
BM130	921.23	CP FENO	15+96	18.3 RT

STRUCTURES DESIGN CONTACTS

BRIDGE OFFICE:

WILLIAM DREHER, PE
(608) 266-8489

CONSULTANT:

WILLIAM J. ZIPPEL, PE, SE
ALFRED BENESCH & CO
1300 W CANAL ST, SUITE 150
MILWAUKEE, WI 53233
(414) 308-1321

LIST OF DRAWINGS:

1. GENERAL PLAN & ELEVATION
2. SUBSURFACE EXPLORATION
3. WALL DETAILS & QUANTITIES
4. COPING & MISCELLANEOUS DETAILS
5. PIPE RAILING DETAILS

NO.	DATE	REVISION	BY

benesch

Alfred Benesch & Company
1300 West Canal Street, Suite 150
Milwaukee, Wisconsin 53233
414-308-1310 Job No. 20205.00

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher SDR 03/06/20
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE R-67-147

ELMHURST ROAD OVER IH-94

COUNTY: WAUKESHA	TOWN/~~CITY/VILLAGE~~: DELAFIELD
DESIGN SPEC.: AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS	
DESIGNED BY: JAP	DESIGN CK'D.: WJZ
DRAWN BY: JAP	PLANS CK'D.: WJZ

GENERAL PLAN AND ELEVATION

SHEET 1 OF 5

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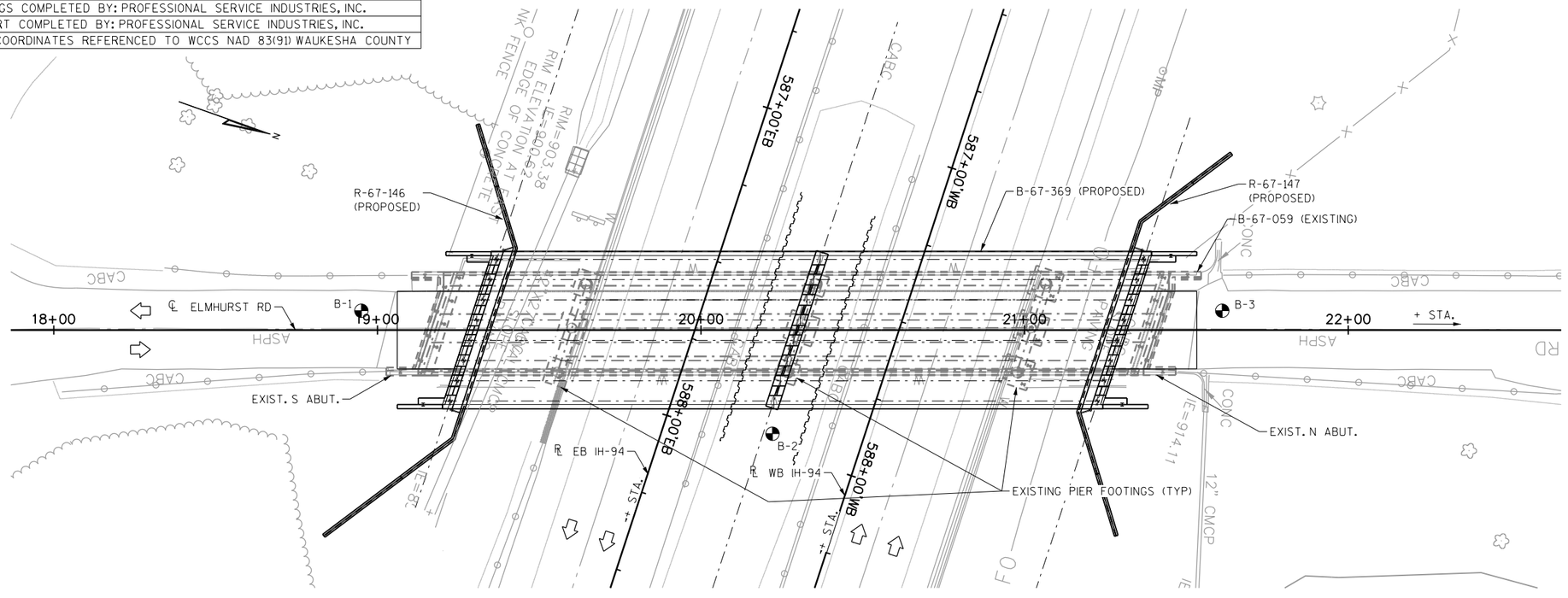
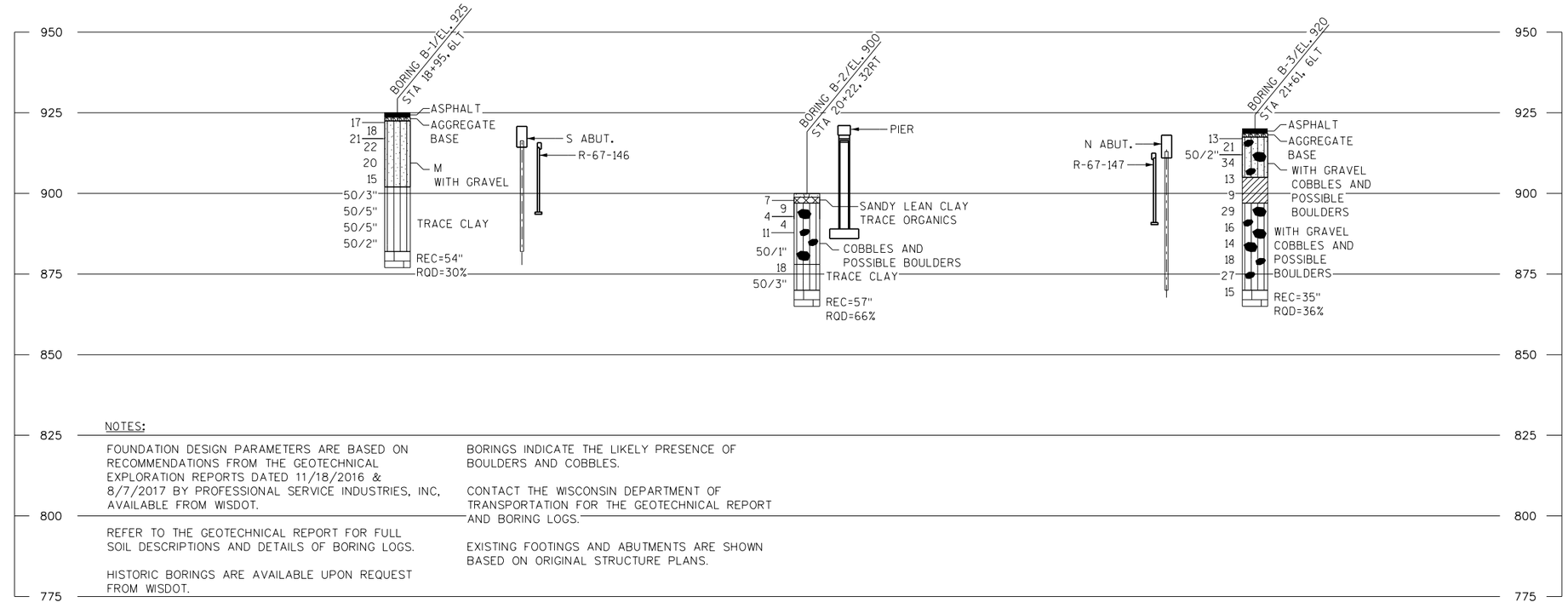
FILE= R67147_10_GP&E.DGN
SCALE = 1:20

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	8-25-2016	175,144.02	658,176.00
2	8-26-2016	175,276.41	658,169.26
3	8-29-2016	175,394.65	658,086.89
BORINGS COMPLETED BY: PROFESSIONAL SERVICE INDUSTRIES, INC.			
REPORT COMPLETED BY: PROFESSIONAL SERVICE INDUSTRIES, INC.			
ALL COORDINATES REFERENCED TO WCCS NAD 83(91) WAUKESHA COUNTY			





NOTES:

FOUNDATION DESIGN PARAMETERS ARE BASED ON RECOMMENDATIONS FROM THE GEOTECHNICAL EXPLORATION REPORTS DATED 11/18/2016 & 8/7/2017 BY PROFESSIONAL SERVICE INDUSTRIES, INC, AVAILABLE FROM WISDOT.

REFER TO THE GEOTECHNICAL REPORT FOR FULL SOIL DESCRIPTIONS AND DETAILS OF BORING LOGS.

HISTORIC BORINGS ARE AVAILABLE UPON REQUEST FROM WISDOT.

BORINGS INDICATE THE LIKELY PRESENCE OF BOULDERS AND COBBLES.

CONTACT THE WISCONSIN DEPARTMENT OF TRANSPORTATION FOR THE GEOTECHNICAL REPORT AND BORING LOGS.

EXISTING FOOTINGS AND ABUTMENTS ARE SHOWN BASED ON ORIGINAL STRUCTURE PLANS.

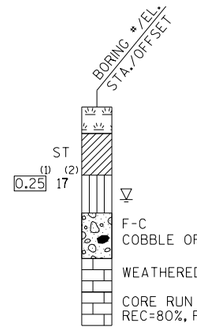
STATE PROJECT NUMBER

1060-10-70

MATERIAL SYMBOLS

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

LEGEND OF BORING



(1) UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)

(2) UNLESS OTHERWISE, SPECIFIED THE SPT 'N' VALUE IS BASED ON AASHTO T-206, STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.

GROUND WATER ELEVATION

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

ABBREVIATIONS

F-FINE M-MEDIUM C-COARSE ST-SHELBY TUBE

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

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

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE R-67-147

DRAWN BY JAP | PLANS CK'D. WJZ

SUBSURFACE EXPLORATION

SHEET 2 OF 5

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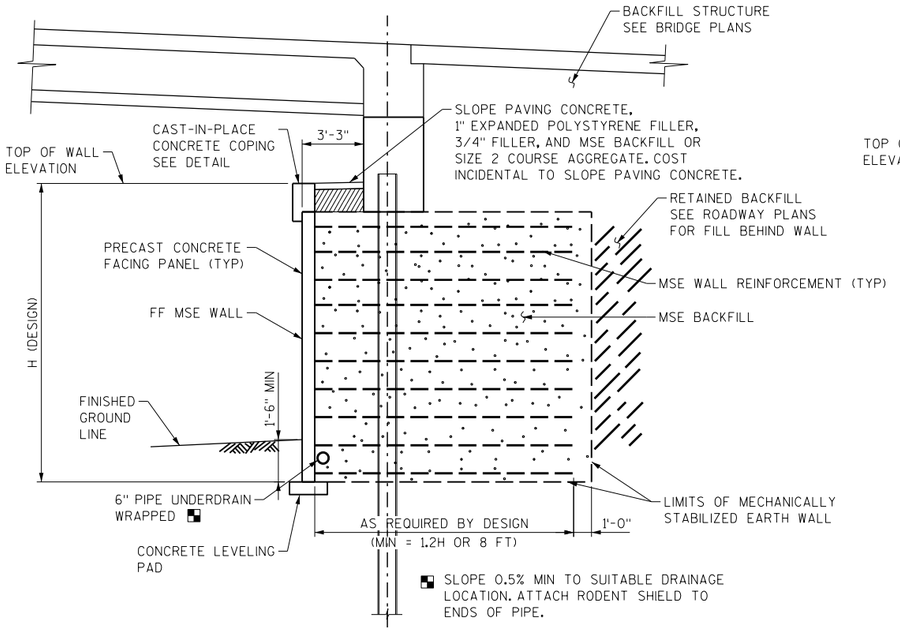
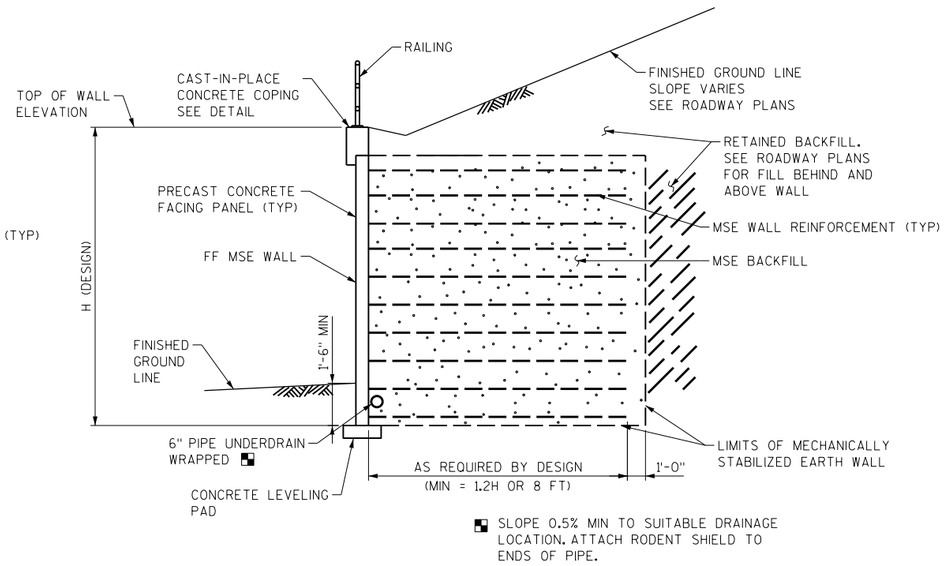
STATE PROJECT NUMBER
1060-10-70



TYPICAL SECTION UNDER BRIDGE



TYPICAL SECTION OUTSIDE OF BRIDGE

TOTAL ESTIMATED QUANTITIES

BID NO.	BID ITEMS	UNIT	TOTAL
206.3000	EXCAVATION FOR STRUCTURES RETAINING WALLS R-67-146	LS	1
513.2001	RAILING PIPE	LF	91
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	177
SPV.0165.42	WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH R-67-147	SF	1664
	NON BID ITEMS		
	PREFORMED JOINT FILLER		
	NON-BITUMINOUS JOINT SEALER		
	NAME PLATE		
	RUBBERIZED MEMBRANE WATERPROOFING		

GEOMETRY TABLE

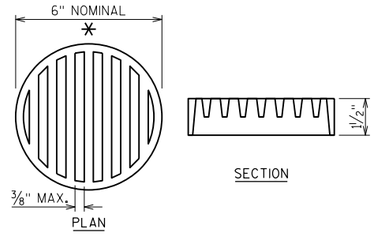
WALL STATION	ELMHURST ROAD STATION	OFFSET	LOCATION	TOP OF WALL	FINISHED GRADE
0+00.0	21+63.79	54.62 LT	BEGIN WALL	909.9	909.43
0+15.0	21+51.79	45.63 LT	END TAPER	914.57	906.46
0+35.0	21+35.80	33.61 LT	WALL CORNER	914.57	901.96
0+70.35	21+24.82	0	WALL/ELMHURST INTERSECTION	914.57	901.23
0+97.0	21+16.54	25.33 RT	WALL CORNER	914.57	900.69
1+17.0	21+22.35	44.46 RT	START TAPER	914.57	903.76
1+37.0	21+28.17	63.60 RT	END WALL	907.00	907.00

WALL EXTERNAL & OVERALL STABILITY EVALUATION

DIMENSIONS	EVALUATED LOCATIONS	
WALL HEIGHT (FEET)	17.1	16.0
EXPOSED WALL HEIGHT (FEET)	15.6	14.5
MINIMUM LENGTH OF REINFORCEMENT (FEET)	20.5	19.2
WALL STATION	0+78	0+40
BORING USED	B-1, B-3	B-1, B-3
CAPACITY TO DEMAND RATIO		
SLIDING (CDR > 1.0)	1.5	1.9
ECCENTRICITY (CDR > 1.0)	1.8	4.0
OVERALL STABILITY (CDR > 1.0)	1.1	1.0
BEARING RESISTANCE (CDR > 1.0)	3.6	3.1
FACTORED BEARING RESISTANCE (PSF)	13,100	13,100

RECOMMENDED SOIL PARAMETERS FOR MSE WALL ANALYSIS

STRATUM LOCATIONS & SOIL DESCRIPTIONS	TOTAL UNIT WEIGHT (PCF)	FRICTION ANGLE (DEGREE)	COHESION (PSF)
GRANULAR BACKFILL (REINFORCING ZONE OR BACKFILL)	120	30	0
NATURAL SILTY SAND OR OR SILT/SANDY SILT RETAINED/FOUNDATION SOIL	125	32	0



RODENT SHIELD DETAIL

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

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

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

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE R-67-147

DRAWN BY JAP | PLANS CK'D. WJZ

WALL DETAILS & QUANTITIES

SHEET 3 OF 5

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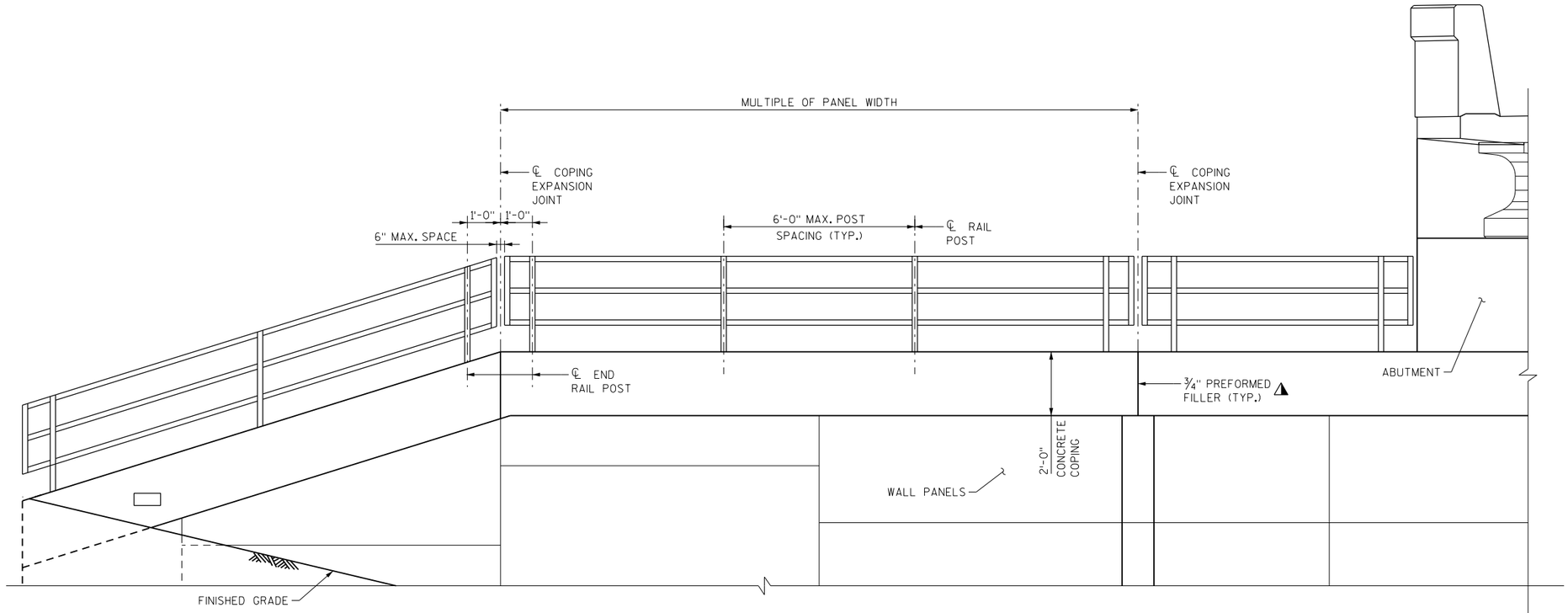
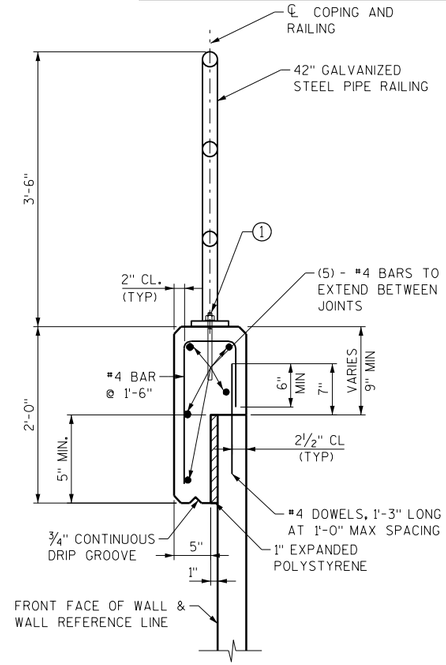
STATE PROJECT NUMBER
1060-10-70

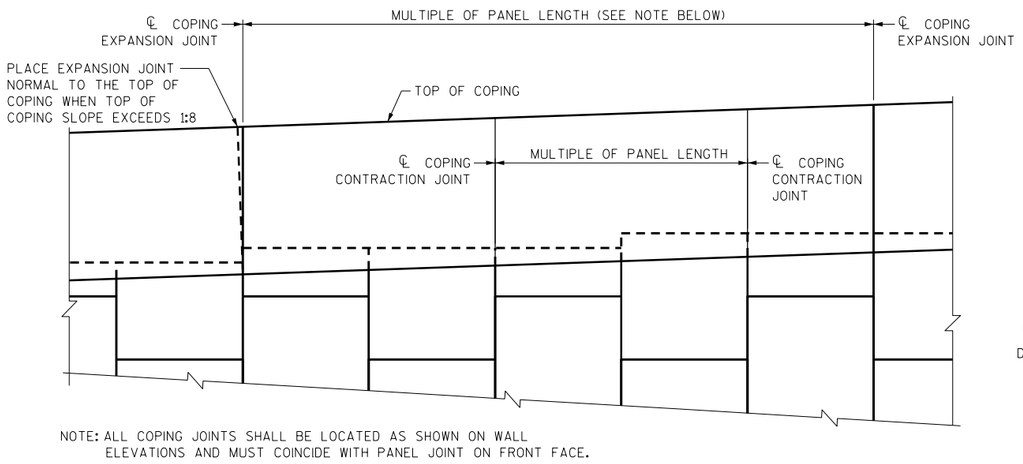


PARTIAL WALL ELEVATION

LOOKING NORTH AT F.F. OF WALL

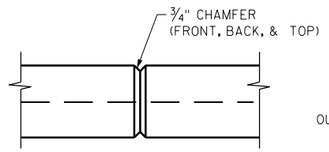


CAST-IN-PACE CONCRETE COPING DETAIL



NOTE: ALL COPING JOINTS SHALL BE LOCATED AS SHOWN ON WALL ELEVATIONS AND MUST COINCIDE WITH PANEL JOINT ON FRONT FACE.

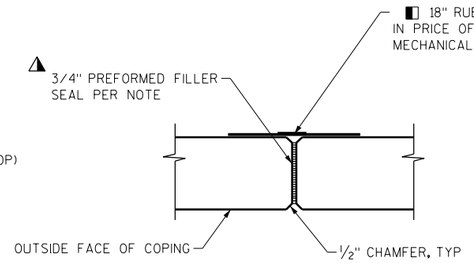
C.I.P. COPING PARTIAL ELEVATION



COPING CONTRACTION JOINT

DO NOT RUN BAR STEEL THROUGH JOINT.
MAX SPACING OF JOINTS = 12 FT

LOCATE TO MISS RAILING POSTS



COPING EXPANSION JOINT

DO NOT RUN BAR STEEL THROUGH JOINT.
MAX SPACING OF JOINTS = 50 FT

◧ MEMBRANE WATERPROOFING TO EXTEND FROM TOP OF COPING TO 6" BELOW TOP OF PANELS

NOTES

① 5/8" DIA. STAINLESS STEEL MASONRY ANCHORS TYPE S WITH NUT AND WASHER EMBED 7" MIN.

◭ SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF FILLER AND EXPANDED POLYSTYRENE WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER (1" DEEP & HOLD 1/8" BELOW SURFACE OF CONCRETE.)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE R-67-147

DRAWN BY JAP | PLANS CK'D. WJZ

COPING & MISC. DETAILS

SHEET 4 OF 5

210

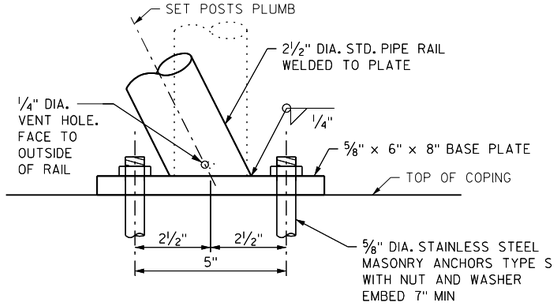
FILE= R67147_25_COPINGDET.DGN
SCALE = 1:1

8

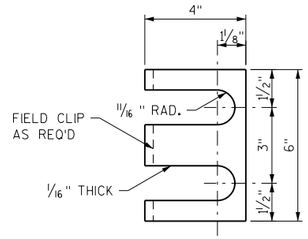
8

STATE PROJECT NUMBER

1060-10-70

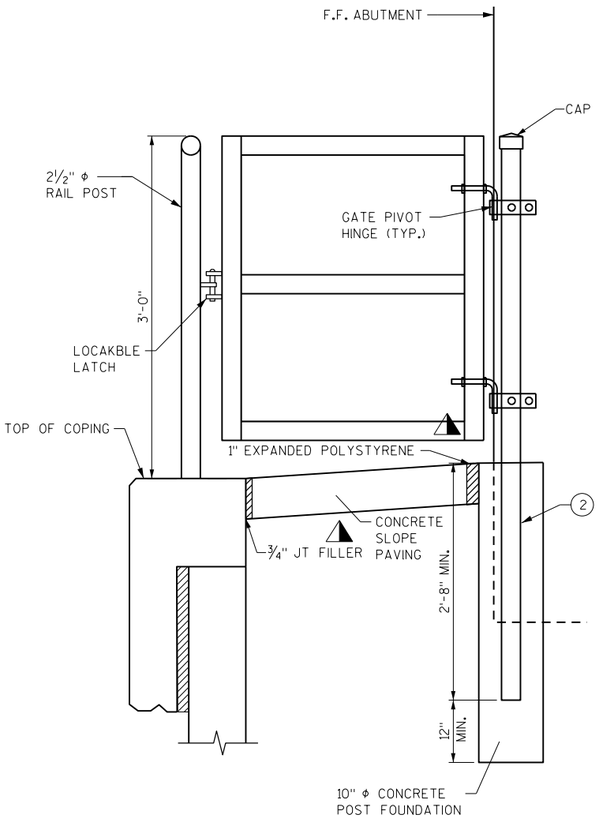


RAIL POST BASE PLATE

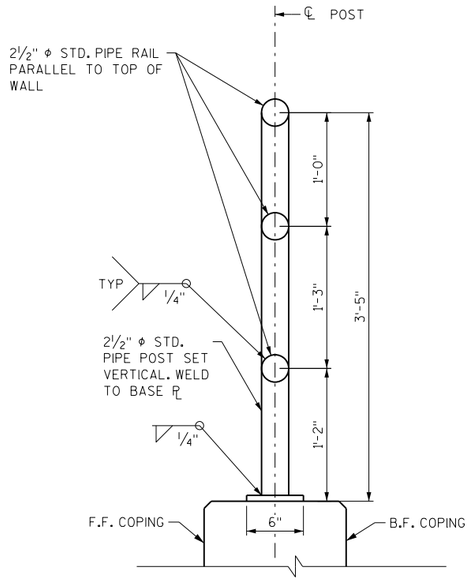


SHIM DETAIL

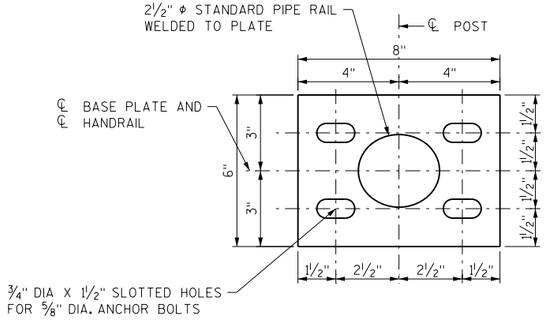
STEEL SHIMS SHALL BE PROVIDED AND USED UNDER BASE PLATES WHERE REQUIRED FOR ALIGNMENT (PROVIDE 4 SETS PER POST)



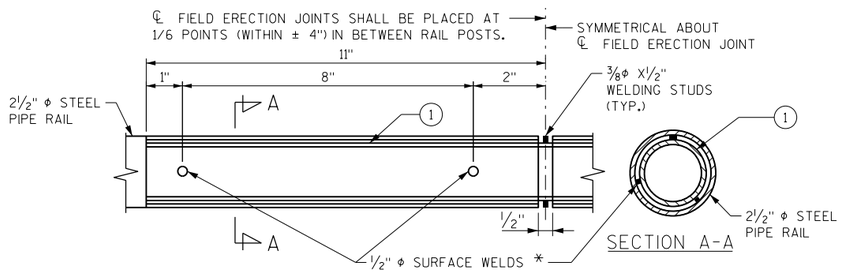
GATE DETAIL



SECTION THROUGH RAIL AT POST



BASE PLATE DETAIL



FIELD ERECTION JOINT DETAIL

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

NOTES

BID ITEM SHALL BE "RAILING PIPE," WHICH SHALL INCLUDE ALL STEEL ITEMS SHOWN, CONCRETE MASONRY ANCHORS, AND GALVANIZING.

RAILING SHALL BE FABRICATED IN LENGTHS THAT INCLUDE 2 POSTS MINIMUM.

FIELD ERECTION JOINTS MUST BE PLACED IN BETWEEN RAIL POSTS WHERE THERE IS A CONCRETE COPING EXPANSION JOINT BETWEEN THE RAIL POSTS.

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.

BASE PLATES SHALL CONFORM TO A.S.T.M. A709 GRADE 36. STANDARD PIPE SHALL CONFORM TO A.S.T.M. A500 GRADE B.

ANCHORAGES SHALL BE ACURATELY PLACED TO PROVIDE CORRECT ALIGNMENT OF RAILING. SET NORMAL TO GRADE.

CUT BOTTOM OF POST TO MAKE POST VERTICAL IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTIONS.

STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D FOR ALIGNMENT.

FILL BOLT SLOT OPENINGS IN SHIMS AND BASE PLATES, AND CAULK AROUND PERIMETER OF BASE PLATES WITH NON-STAINING GREY NON-BITUMINOUS JOINT SEALER.

ALL JOINTS SHALL BE CONTINUOUSLY WELDED AND GROUND SMOOTH. COPE COMPONENTS AT PERPENDICULAR AND SKEW CONNECTIONS TO PROVIDE CLOSE FIT. OBTAIN FUSION WITHOUT UNDERCUT OR OVERLAP. REMOVE FLUX IMMEDIATELY.

SUPPLY CONCRETE MASONRY ANCHORS, TYPE S (EPOXY), ⅝-INCH HAVING A MINIMUM PULLOUT CAPACITY OF 9.2 KIPS. EMBED A MINIMUM OF 7" INTO SOUND CONCRETE. ANCHORS SHALL BE STAINLESS STEEL.

VENT HOLES SHALL BE DRILLED IN MEMBERS AS REQUIRED TO FACILITATE GALVANIZING AND DRAINAGE.

DRILL DRAIN HOLES PRIOR TO GALVANIZING.

GALVANIZE AFTER FABRICATION PER ASTM A123.

SHIMS SHALL BE GALVANIZED.

HANDRAIL AND POSTS TO BE SMOOTH AND FREE OF NICKS, BURRS, AND ABRASIONS AFTER GALVANIZING.

LATCH SHALL BE LOCKABLE USING A STANDARD PADLOCK

LEGEND

(1) 2" ϕ PIPE SLEEVE X 1'-10" LONG FOR 2½" STEEL PIPE RAILING. PROVIDE ½" ϕ SURFACE WELDS ON ALL SIDES AS SHOWN. GRIND WELDS TO FIT FREE INTO I.D. OF 2½" ϕ STEEL PIPE. PROVIDE ⅜" ϕ X ½" WELDING STUDS ON TOP AND BOTTOM SURFACES AT CENTERLINE.

(2) GATE POST TO BE PLACED VERTICAL, EVEN WITH THE END RAIL POST, AND ADJACENT TO THE ABUTMENT CORNER. SWING GATE SHALL PIVOT AROUND POST AND OUTWARD AWAY FROM BRIDGE. ALIGN GATE IN CLOSED POSITION PERPENDICULAR TO FIXED RAILING. EMBED POST MIN. 2'-8" INTO CONCRETE FOOTING, AND AVOID MSE WALL REINFORCEMENT WHEN PLACING FOOTING.

⚠ SEAL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF FILLER AND EXPANDED POLYSTYRENE WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE).

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE R-67-147

DRAWN BY JAP | PLANS CK'D. WJZ

PIPE RAILING DETAILS

SHEET 5 OF 5

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8

8

FILE= R67147_30_RAILDET.DGN
SCALE = 1:1

CTH DR (GOLF ROAD)

STATION	Real Station	Distance	AREA (SF) Cut	AREA (SF) Fill	Incremental Vol (CY) (Unadjusted) Cut Note 1	Incremental Vol (CY) (Unadjusted) Fill Note 3	Cumulative Vol (CY) Cut 1.00 Note 1	Cumulative Vol (CY) Expanded Fill 1.25	Mass Ordinate Note 8
585+38	58538.00	0.00	13.83	13.39	0	0	0	0	0
585+50	58550.00	12.00	13.82	11.92	6	6	6	7	-1
585+75	58575.00	25.00	14.28	8.37	13	9	19	19	0
586+00	58600.00	25.00	16.08	9.27	14	8	33	29	4
586+25	58625.00	25.00	18.34	8.11	16	8	49	39	10
586+36.04	58636.04	11.04	22.26	12.84	8	4	57	44	13
586+50	58650.00	13.96	26.68	2.92	13	4	70	49	21
586+75	58675.00	25.00	10.89	0.00	17	1	87	51	36
586+85.05	58685.05	10.05	0.00	0.00	2	0	90	51	38
587+00	58700.00	14.95	13.78	0.00	4	0	93	51	42
587+25	58725.00	25.00	24.19	0.98	18	0	111	52	59
587+50	58750.00	25.00	15.70	12.50	18	6	129	60	70
587+75	58775.00	25.00	14.16	12.94	14	12	143	74	69
587+88	58788.00	13.00	15.22	43.52	7	14	150	91	59
588+00	58800.00	12.00	14.71	54.50	7	22	157	118	38
588+25	58825.00	25.00	13.90	56.00	13	51	170	182	-12
588+30	58830.00	5.00	13.86	54.93	3	10	173	195	-23
				SUBTOTAL =	173	156	173	195	-23

ELMHURST ROAD

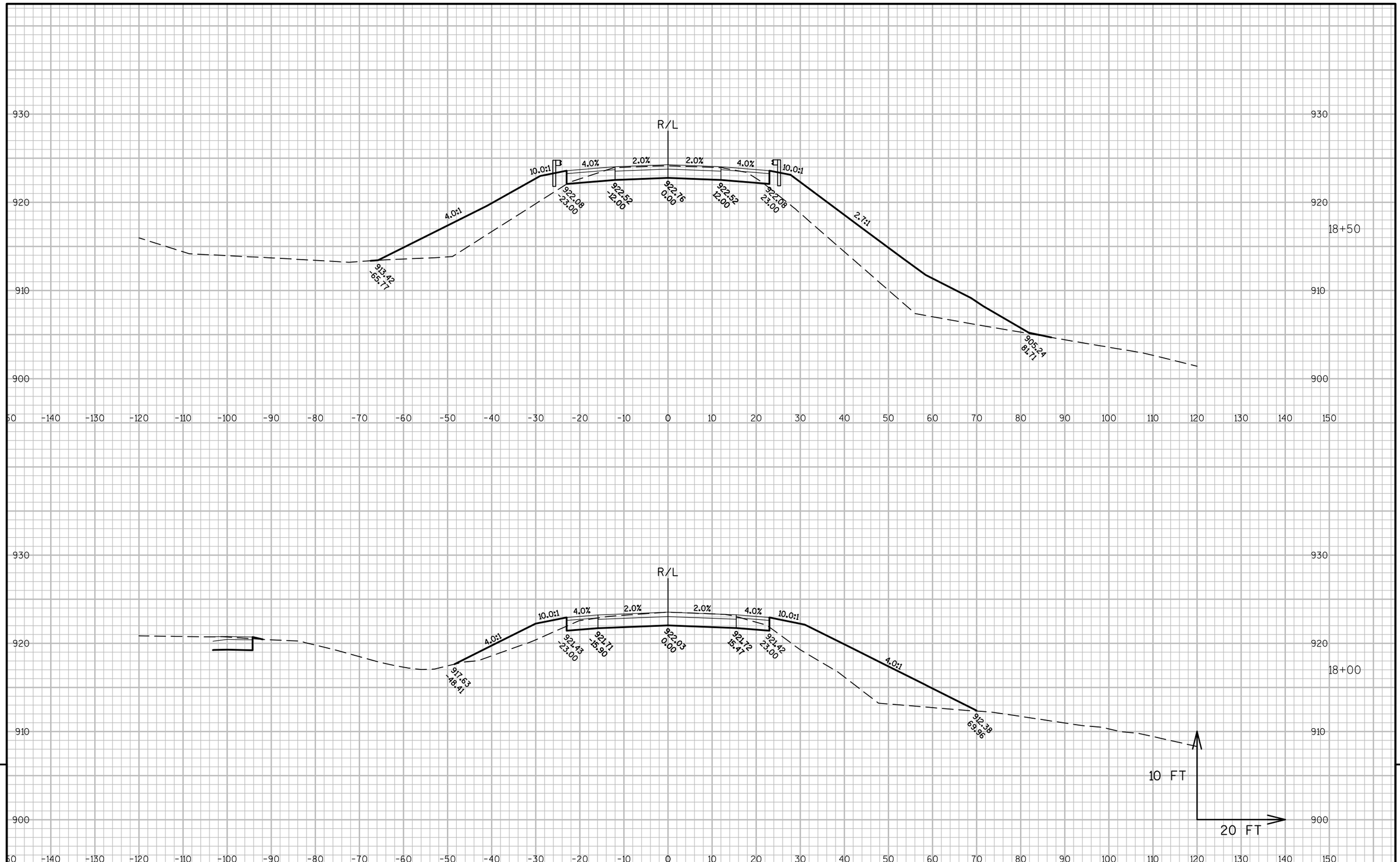
STATION	Real Station	Distance	AREA (SF) Cut	AREA (SF) Fill	Incremental Vol (CY) (Unadjusted) Cut Note 1	Incremental Vol (CY) (Unadjusted) Fill Note 3	Cumulative Vol (CY) Cut 1.00 Note 1	Cumulative Vol (CY) Expanded Fill 1.25	Mass Ordinate Note 8
17+53	1753.00	0.00	2.80	0.00	0	0	0	0	0
17+75	1775.00	22.00	70.67	20.16	30	8	30	10	20
17+86.21	1786.21	11.21	69.52	68.26	29	18	59	33	26
18+00	1800.00	13.79	58.57	164.41	33	59	92	107	-16
18+25	1825.00	25.00	58.58	326.72	54	227	146	392	-246
18+50	1850.00	25.00	51.15	314.51	51	297	197	763	-566
18+66.43	1866.43	16.43	46.55	285.08	30	182	227	991	-764
18+75	1875.00	8.57	43.55	301.00	14	93	241	1,107	-866
19+00	1900.00	25.00	27.68	309.45	33	283	274	1,460	-1187
19+25	1925.00	25.00	0.00	330.34	13	296	287	1,831	-1544
19+31.04	1931.04	6.04	0.00	223.33	0	62	287	1,908	-1621
21+25	2125.00	0.00	0.00	228.87	0	0	287	1,908	-1621
21+50	2150.00	25.00	13.05	735.19	6	446	293	2,466	-2173
21+75	2175.00	25.00	27.89	648.06	19	640	312	3,266	-2955
21+96.26	2196.26	21.26	38.23	591.03	26	488	338	3,876	-3539
22+00	2200.00	3.74	40.06	569.10	5	80	343	3,977	-3634
22+25	2225.00	25.00	50.77	408.23	42	452	385	4,542	-4157
22+32.63	2232.63	7.63	53.21	352.91	15	108	400	4,677	-4277
22+50	2250.00	17.37	57.35	222.94	36	185	435	4,908	-4473
22+75	2275.00	25.00	64.65	66.28	56	134	492	5,076	-4584
22+83.12	2283.12	8.12	69.03	31.18	20	15	512	5,094	-4582
23+00	2300.00	16.88	57.04	0.00	39	10	551	5,106	-4555
23+12	2312.00	12.00	3.53	0.00	13	0	565	5,106	-4541
				SUBTOTAL =	565	4,085	565	5,106	-4541

IH 94

STATION	Real Station	Distance	AREA (SF)		Incremental Vol (CY) (Unadjusted)		Cumulative Vol (CY)		Mass Ordinate
			Cut	Fill	Cut	Fill	Cut 1.00	Expanded Fill 1.25	
					Note 1	Note 3	Note 1		Note 8
584+93	58493.00	0.00	6.14	2.23	0	0	0	0	0
585+00	58500.00	7.00	5.97	1.53	2	0	2	1	1
585+25	58525.00	25.00	4.58	1.64	5	1	6	2	4
585+50	58550.00	25.00	4.66	1.81	4	2	11	4	6
585+75	58575.00	25.00	3.46	2.92	4	2	14	7	7
586+00	58600.00	25.00	3.84	4.65	3	4	18	12	6
586+25	58625.00	25.00	3.55	7.39	3	6	21	19	3
586+43.32	58643.32	18.32	3.93	43.98	3	17	24	40	-16
586+50	58650.00	6.68	4.01	104.81	1	18	25	63	-39
586+75	58675.00	25.00	29.85	10.82	16	54	40	130	-90
587+00	58700.00	25.00	108.31	9.72	64	10	104	142	-38
587+25	58725.00	25.00	110.57	12.36	101	10	206	155	51
587+32.6	58732.60	7.60	116.44	3.79	32	2	238	158	80
587+50	58750.00	17.40	229.33	0.00	111	1	349	159	190
587+75	58775.00	25.00	196.20	0.40	197	0	546	160	387
588+00	58800.00	25.00	151.90	250.20	161	116	707	305	403
588+25	58825.00	25.00	124.83	259.31	128	236	835	599	236
588+50	58850.00	25.00	23.32	202.76	69	214	904	867	37
588+56.58	58856.58	6.58	15.13	191.29	5	48	909	927	-18
588+75	58875.00	18.42	9.14	116.92	8	105	917	1,058	-141
588+85.73	58885.73	10.73	5.83	52.53	3	34	920	1,100	-180
589+00	58900.00	14.27	1.02	7.38	2	16	922	1,120	-198
589+25	58925.00	25.00	4.51	9.70	3	8	924	1,130	-206
589+50	58950.00	25.00	0.13	11.85	2	10	926	1,142	-216
589+75	58975.00	25.00	17.76	0.01	8	5	935	1,149	-215
589+95	58995.00	20.00	0.11	0.01	7	0	941	1,149	-208
				SUBTOTAL =	941	919	941	1,149	-208

SILVERNAIL ROAD

STATION	Real Station	Distance	AREA (SF) Cut	AREA (SF) Fill	Incremental Vol (CY) (Unadjusted) Cut Note 1	Incremental Vol (CY) (Unadjusted) Fill Note 3	Cumulative Vol (CY) Cut 1.00 Note 1	Cumulative Vol (CY) Expanded Fill 1.25	Mass Ordinate Note 8
587+43	58743.00	0.00	3.13	0.00	0	0	0	0	0
587+50	58750.00	7.00	5.04	0.02	1	0	1	0	1
587+75	58775.00	25.00	10.01	0.10	7	0	8	0	8
588+00	58800.00	25.00	12.11	0.09	10	0	18	0	18
588+25	58825.00	25.00	19.68	0.30	15	0	33	0	33
588+29.74	58829.74	4.74	22.44	1.04	4	0	37	1	36
588+50	58850.00	20.26	24.56	0.00	18	0	54	1	53
588+75	58875.00	25.00	4.34	0.00	13	0	68	1	67
588+80.1	58880.10	5.10	0.00	0.00	0	0	68	1	67
588+81.42	58881.42	0.00	1.18	0.00	0	0	68	1	67
589+00	58900.00	18.58	23.29	0.00	8	0	77	1	75
589+25	58925.00	25.00	15.77	27.58	18	13	95	17	78
589+35.84	58935.84	10.84	13.23	11.63	6	8	100	27	74
589+50	58950.00	14.16	11.32	0.22	6	3	107	31	76
589+75	58975.00	25.00	9.21	0.13	10	0	116	31	85
590+00	59000.00	25.00	6.48	0.18	7	0	124	31	93
590+23	59023.00	23.00	0.47	0.47	3	0	127	31	95
				SUBTOTAL =	127	25	127	31	95
				TOTAL =	1,806	5,186	1,806	6,482	-4,677



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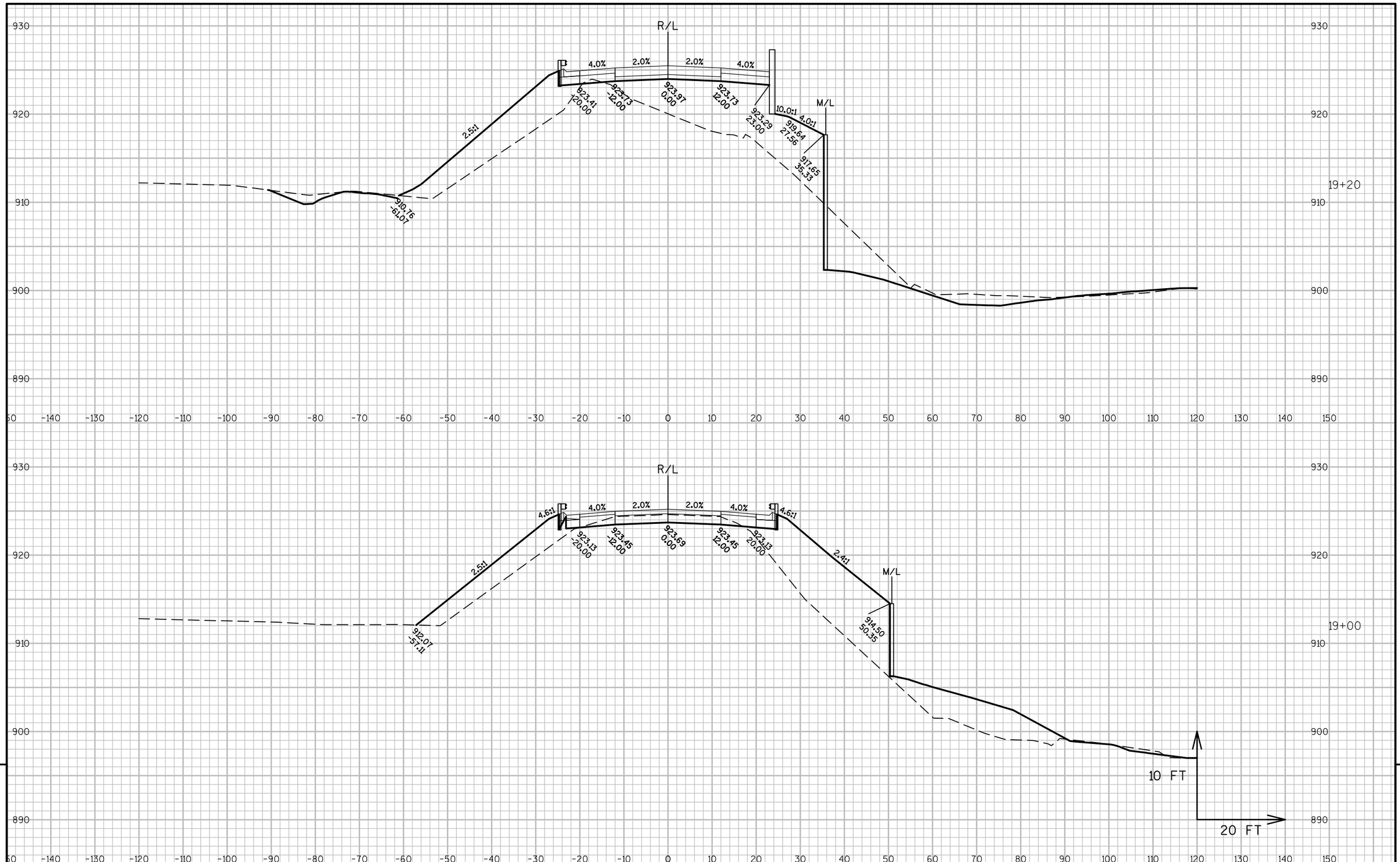
PROJECT NO: 1060-10-70	HWY: IH-94	COUNTY: WAUKESHA	CROSS SECTIONS: ELMHURST ROAD	SHEET 215	E

FILE NAME : N:\PDS\C3D\10601000\SHEETSPLAN\DRAFT PSE\PLAN\10601070\090201-XS ELMHURST.DWG
LAYOUT NAME - 090201-XS ELMHURST

PLOT DATE : 4/2/2018 7:19 AM PLOT BY : JOHANSEN, AMANDA A PLOT NAME : PLOT SCALE : 1 IN:20 FT

WISDOT/CADDS SHEET 49



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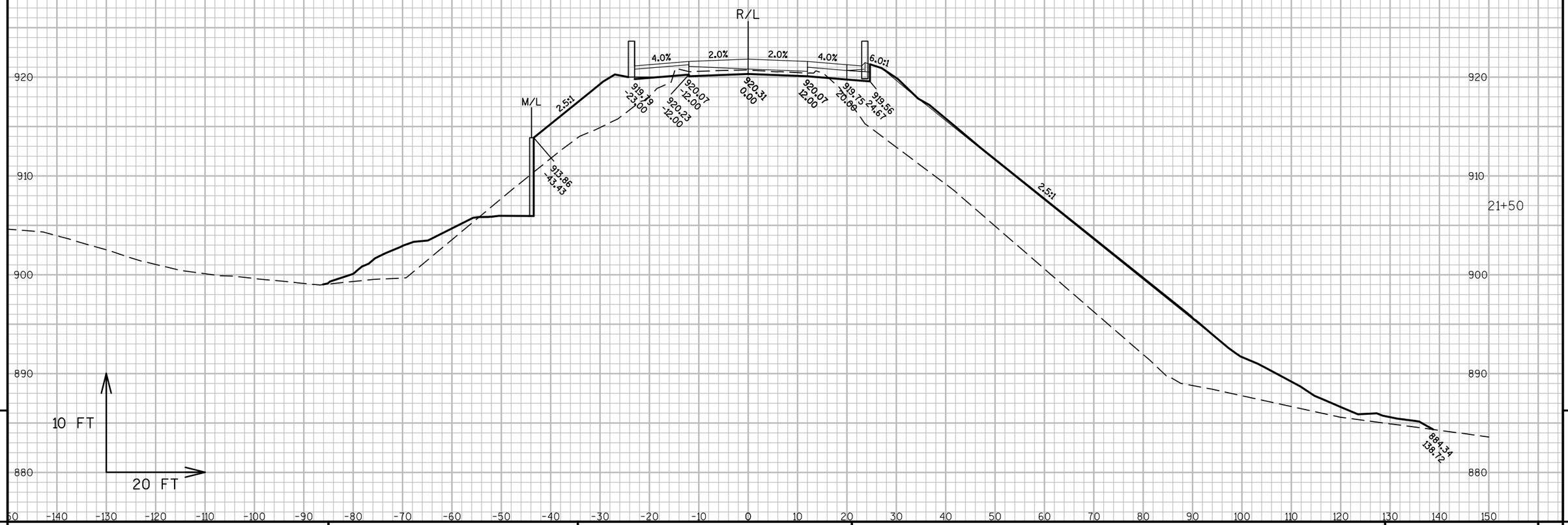
PROJECT NO: 1060-10-70	HWY: IH-94	COUNTY: WAUKESHA	CROSS SECTIONS: ELMHURST ROAD	SHEET 216 E

FILE NAME : N:\PDS\C3D\10601000\SHEETSPLAN\DRAFT PSE\PLAN\10601070\090201-XS ELMHURST.DWG
LAYOUT NAME - 090202-XS ELMHURST

PLOT DATE : 4/2/2018 8:24 AM PLOT BY : JOHANSEN, AMANDA A PLOT NAME : PLOT SCALE : 1 IN:20 FT

WISDOT/CADDS SHEET 49



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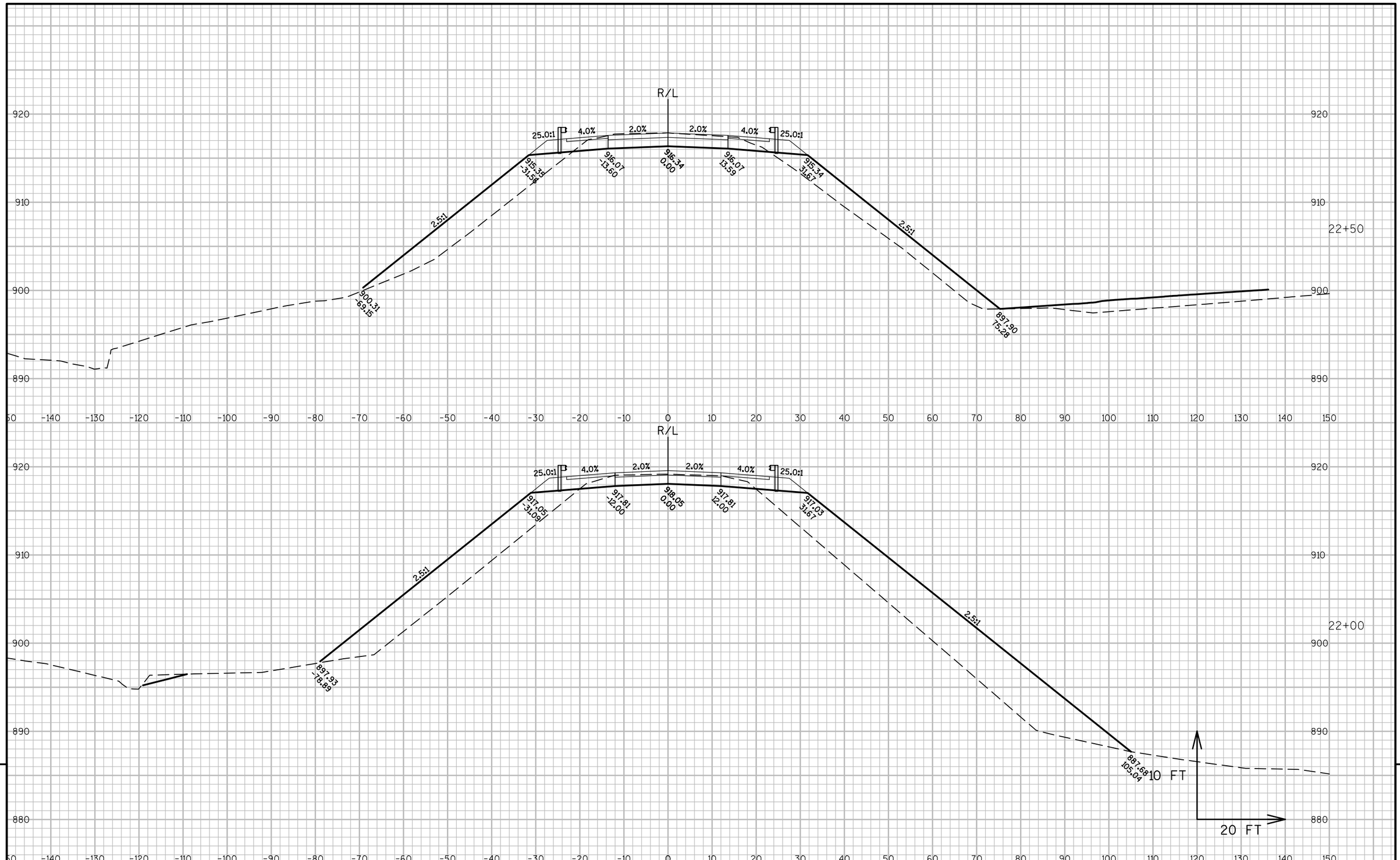
PROJECT NO: 1060-10-70	HWY: IH-94	COUNTY: WAUKESHA	CROSS SECTIONS: ELMHURST ROAD	SHEET 217	E

FILE NAME : N:\PDS\C3D\10601000\SHEETSPLAN\DRAFT PSE\PLAN\10601070\090201-XS ELMHURST.DWG
LAYOUT NAME - 090203-XS ELMHURST

PLOT DATE : 4/2/2018 8:57 AM PLOT BY : JOHANSEN, AMANDA A PLOT NAME : PLOT SCALE : 1 IN:20 FT

WISDOT/CADDS SHEET 49

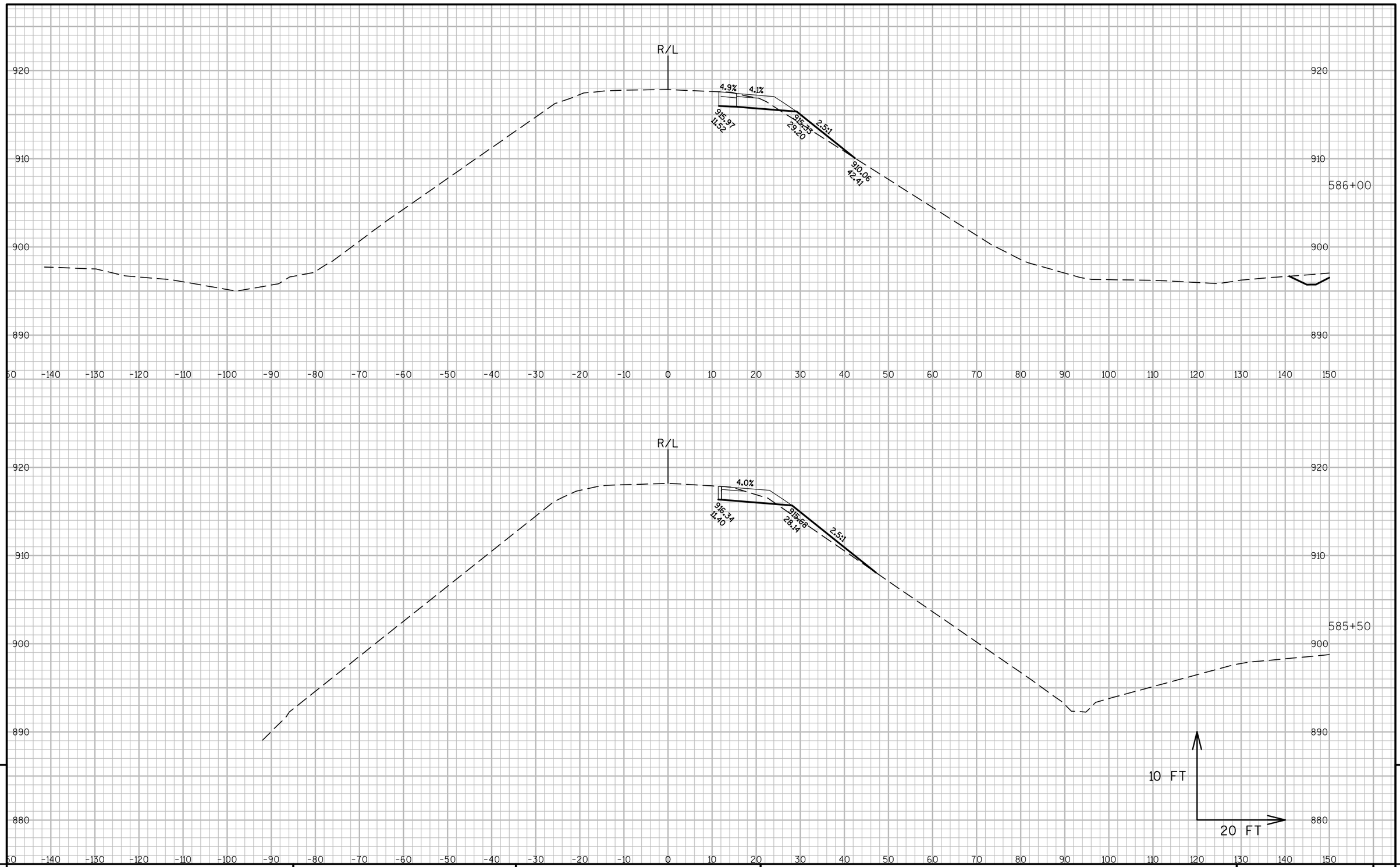


9	PROJECT NO: 1060-10-70	HWY: IH-94	COUNTY: WAUKESHA	CROSS SECTIONS: ELMHURST ROAD	SHEET 218 E

FILE NAME : N:\PDS\C3D\10601000\SHEETSPLAN\DRAFT PSE\PLAN\10601070\090201-XS ELMHURST.DWG
LAYOUT NAME - 090204-XS ELMHURST

PLOT DATE : 4/2/2018 9:09 AM PLOT BY : JOHANSEN, AMANDA A PLOT NAME : PLOT SCALE : 1 IN:20 FT

WISDOT/CADDS SHEET 49



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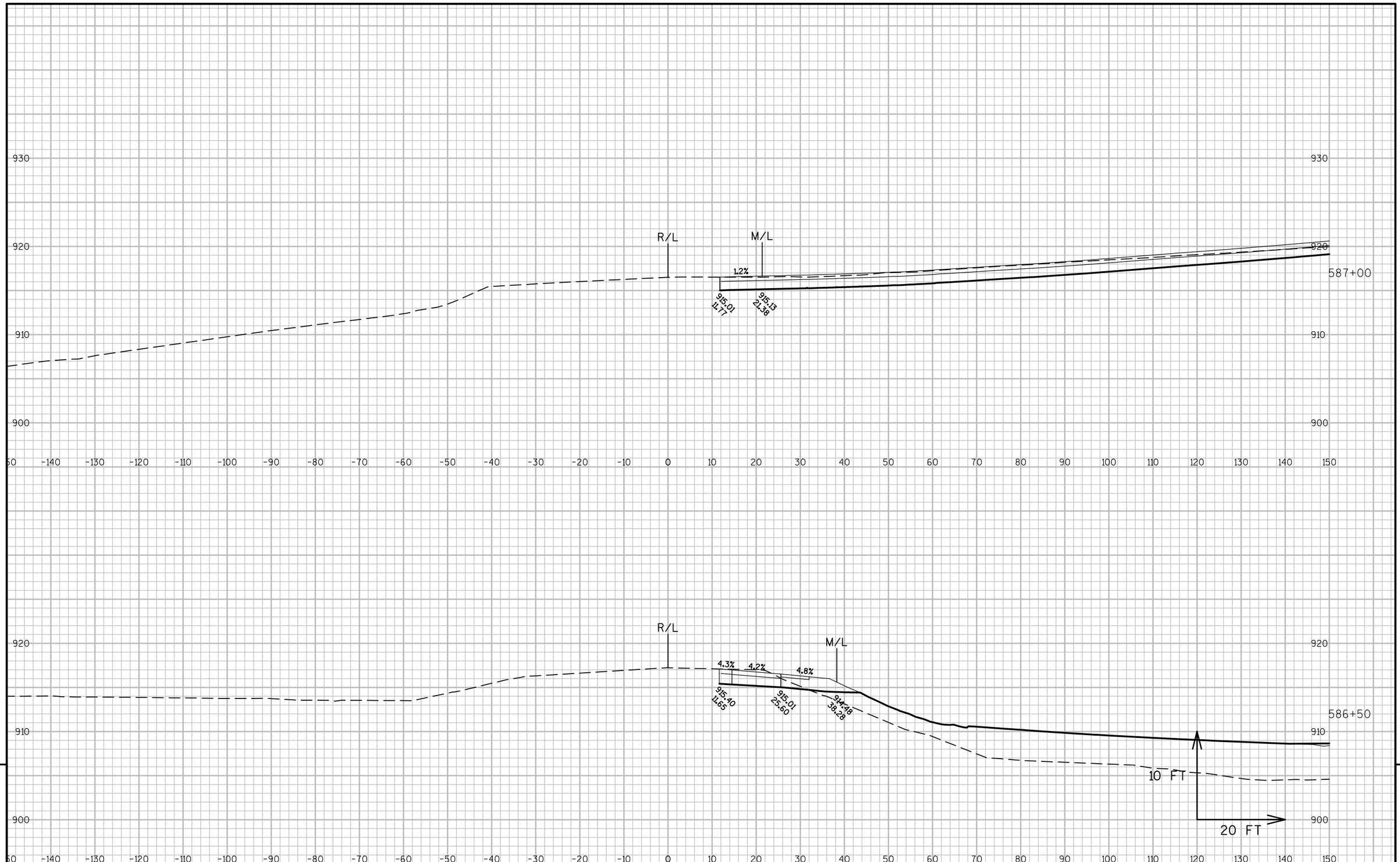
PROJECT NO: 1060-10-70	HWY: IH-94	COUNTY: WAUKESHA	CROSS SECTIONS: CTH DR (GOLF ROAD)	SHEET 219	E

FILE NAME : N:\PDS\C3D\10601000\SHEETSPLAN\DRAFT PSE\PLAN\10601070\090201-XS ELMHURST.DWG
LAYOUT NAME - 090212-XS CTH DR

PLOT DATE : 4/3/2018 8:23 AM PLOT BY : JOHANSEN, AMANDA A PLOT NAME : PLOT SCALE : 1 IN:20 FT

WISDOT/CADDS SHEET 49

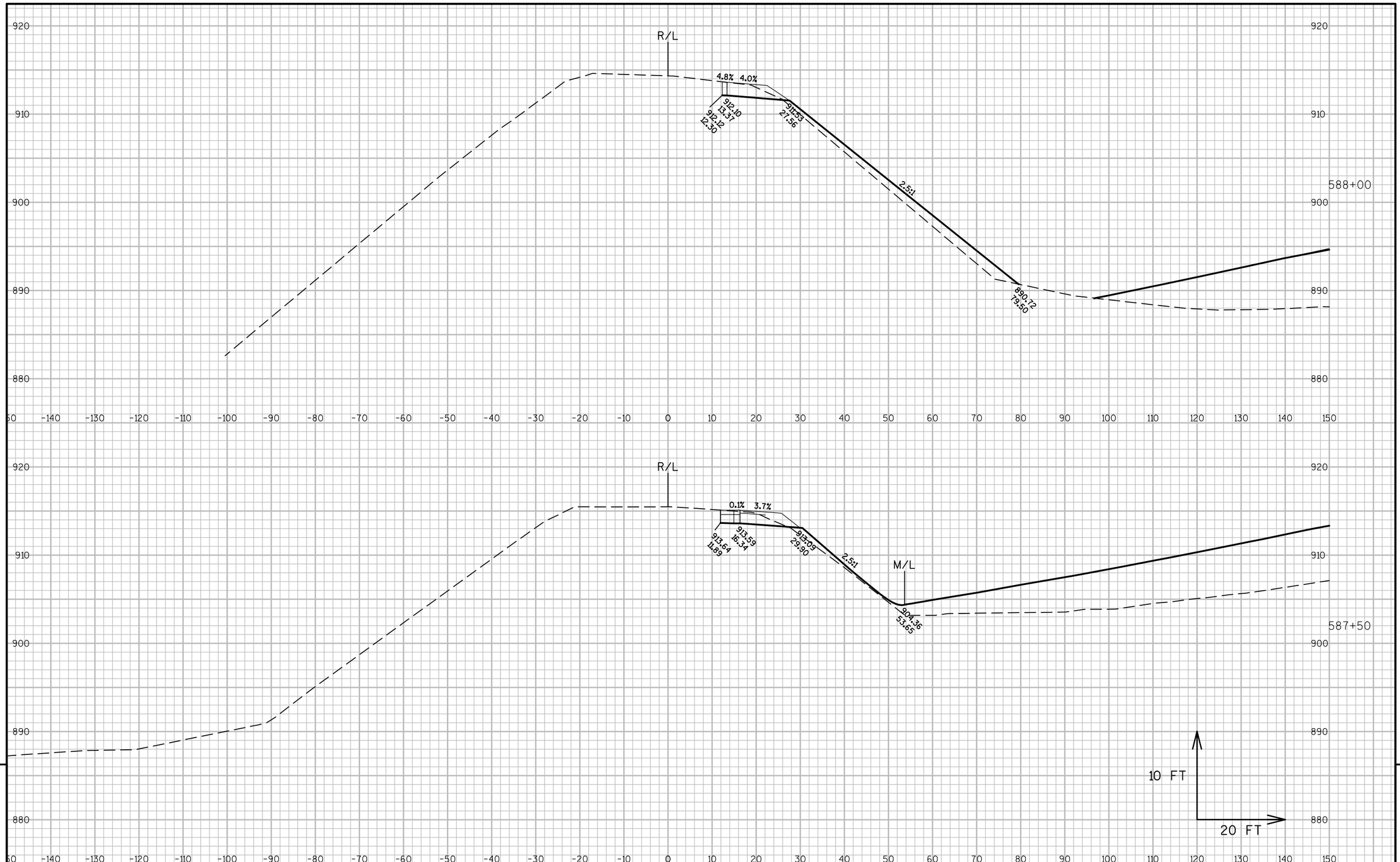


PROJECT NO: 1060-10-70	HWY: IH-94	COUNTY: WAUKESHA	CROSS SECTIONS: CTH DR (GOLF ROAD)	SHEET 220	E

FILE NAME : N:\PDS\C3D\10601000\SHEETSPLAN\DRAFT PSE\PLAN\10601070\090201-XS ELMHURST.DWG
LAYOUT NAME - 090213-XS CTH DR

PLOT DATE : 4/3/2018 8:31 AM PLOT BY : JOHANSEN, AMANDA A PLOT NAME : PLOT SCALE : 1 IN:20 FT

WISDOT/CADDS SHEET 49

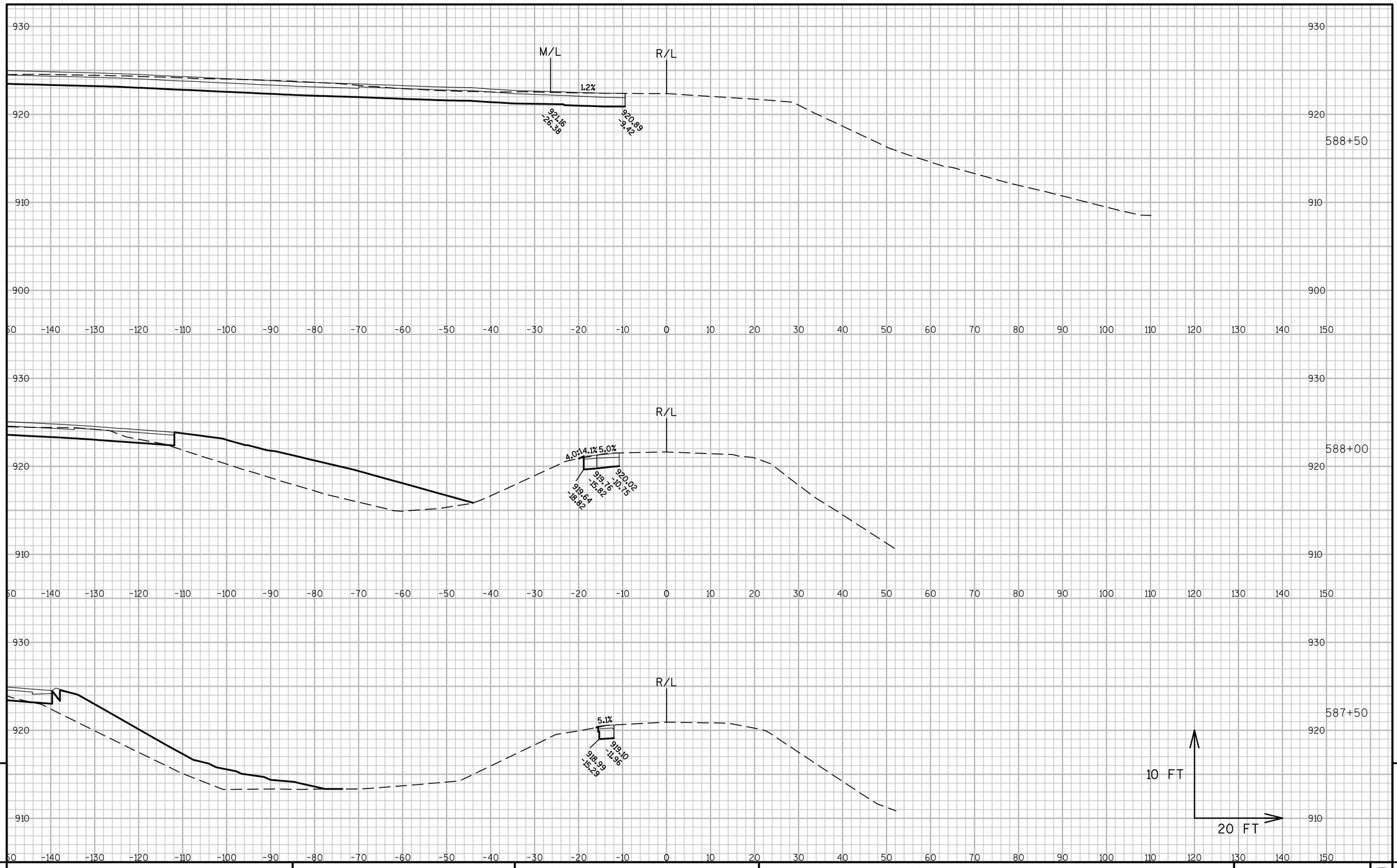


PROJECT NO: 1060-10-70	HWY: IH-94	COUNTY: WAUKESHA	CROSS SECTIONS: CTH DR (GOLF ROAD)	SHEET 221 E

FILE NAME : N:\PDS\C3D\10601000\SHEETSPLAN\DRAFT PSE\PLAN\10601070\090201-XS ELMHURST.DWG
LAYOUT NAME - 090214-XS CTH DR

PLOT DATE : 4/3/2018 8:43 AM PLOT BY : JOHANSEN, AMANDA A PLOT NAME : PLOT SCALE : 1 IN:20 FT

WISDOT/CADDS SHEET 49



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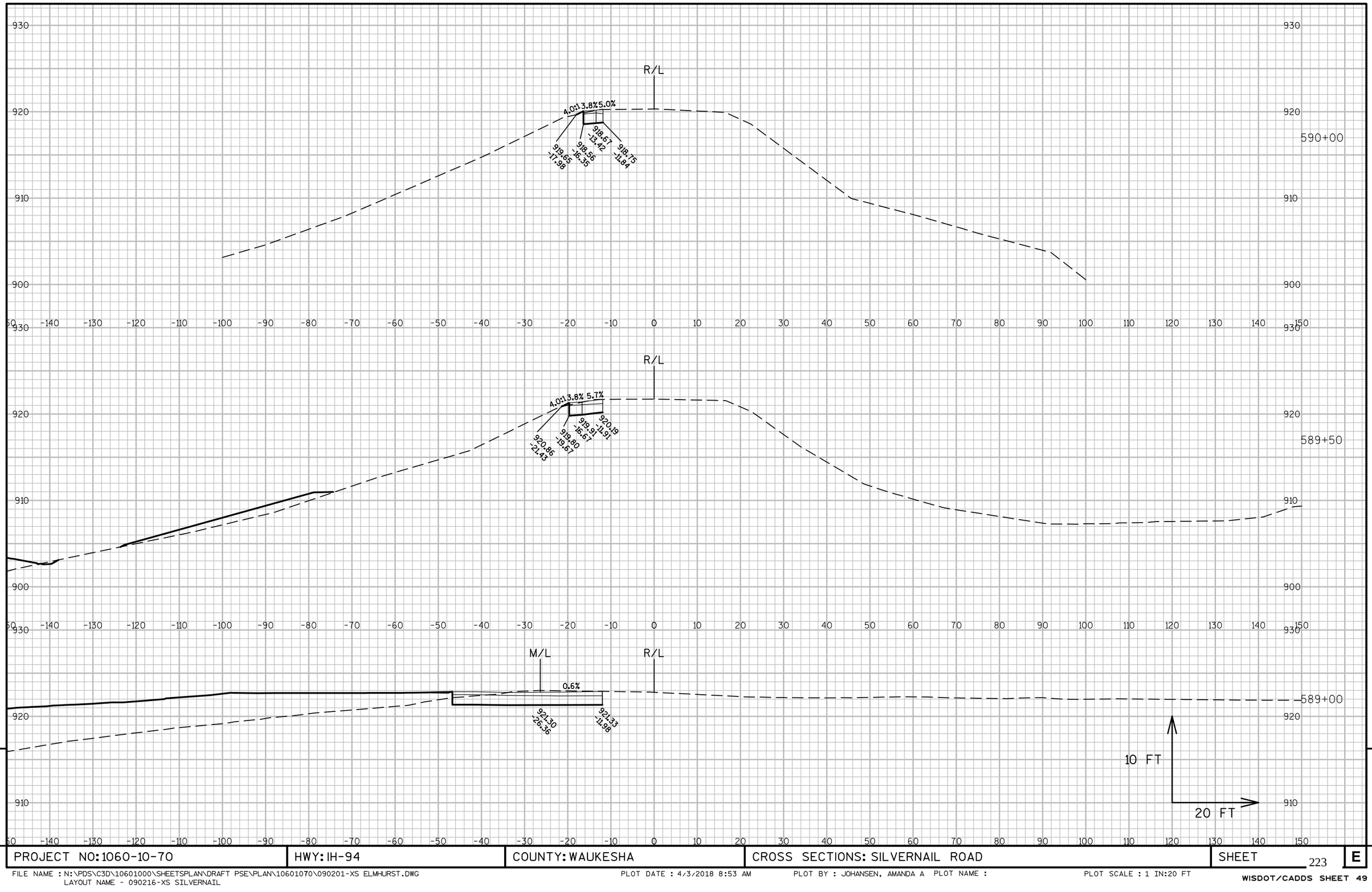
9

PROJECT NO: 1060-10-70	HWY: IH-94	COUNTY: WAUKESHA	CROSS SECTIONS: SILVERNAIL ROAD	SHEET 222	E

FILE NAME : N:\PDS\C3D\10601000\SHEETSPLAN\DRAFT PSE\PLAN\10601070\090201-XS ELMHURST.DWG
LAYOUT NAME - 090215-XS SILVERNAIL

PLOT DATE : 4/3/2018 8:48 AM PLOT BY : JOHANSEN, AMANDA A PLOT NAME : PLOT SCALE : 1 IN:20 FT

WISDOT/CADDS SHEET 49

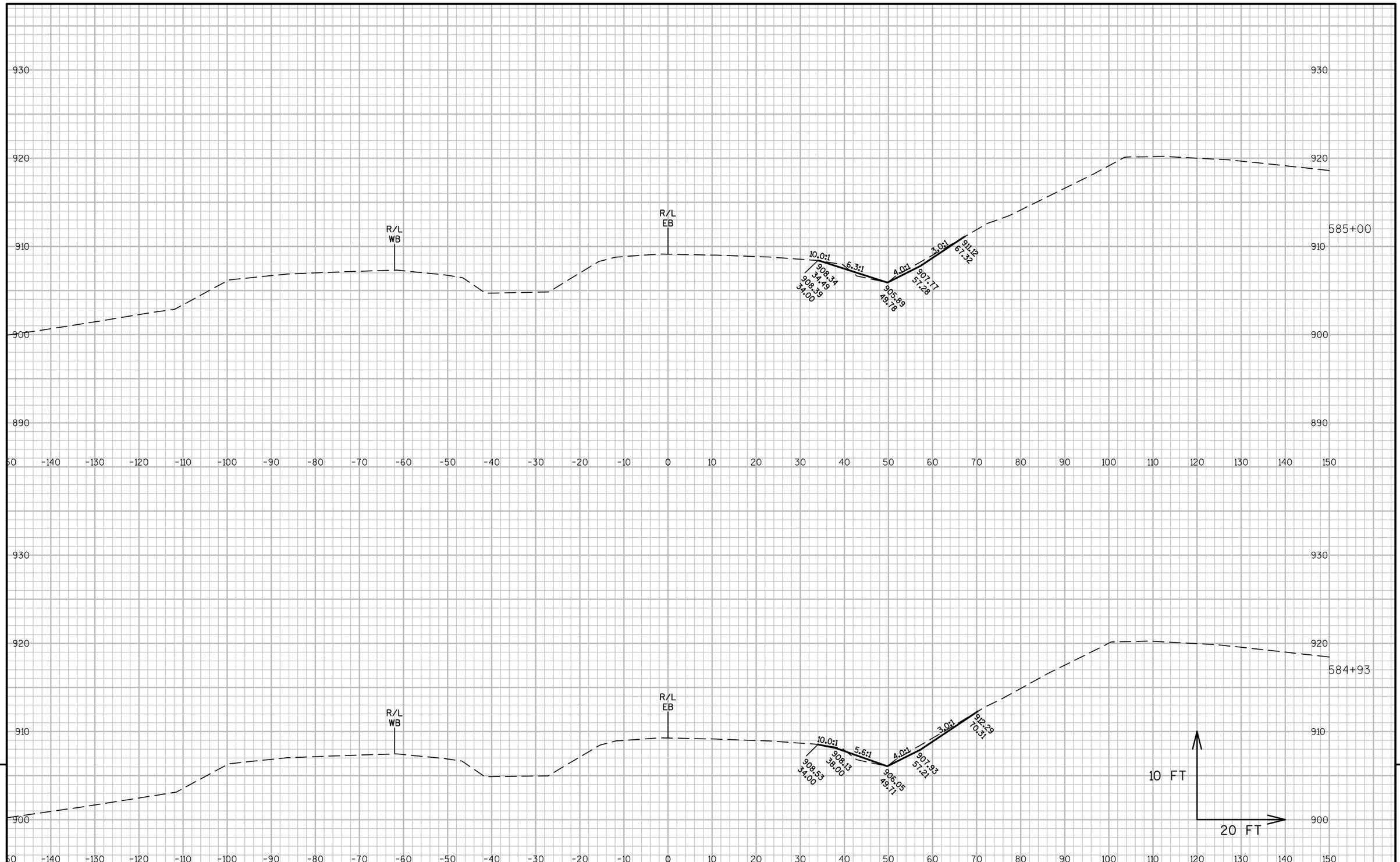


9	PROJECT NO: 1060-10-70	HWY: IH-94	COUNTY: WAUKESHA	CROSS SECTIONS: SILVERNAIL ROAD	SHEET 223 E

FILE NAME : N:\PDS\C3D\10601000\SHEETSPLAN\DRAFT PSE\PLAN\10601070\090201-XS ELMHURST.DWG
LAYOUT NAME - 090216-XS SILVERNAIL

PLOT DATE : 4/3/2018 8:53 AM PLOT BY : JOHANSEN, AMANDA A PLOT NAME : PLOT SCALE : 1 IN:20 FT

WISDOT/CADDS SHEET 49



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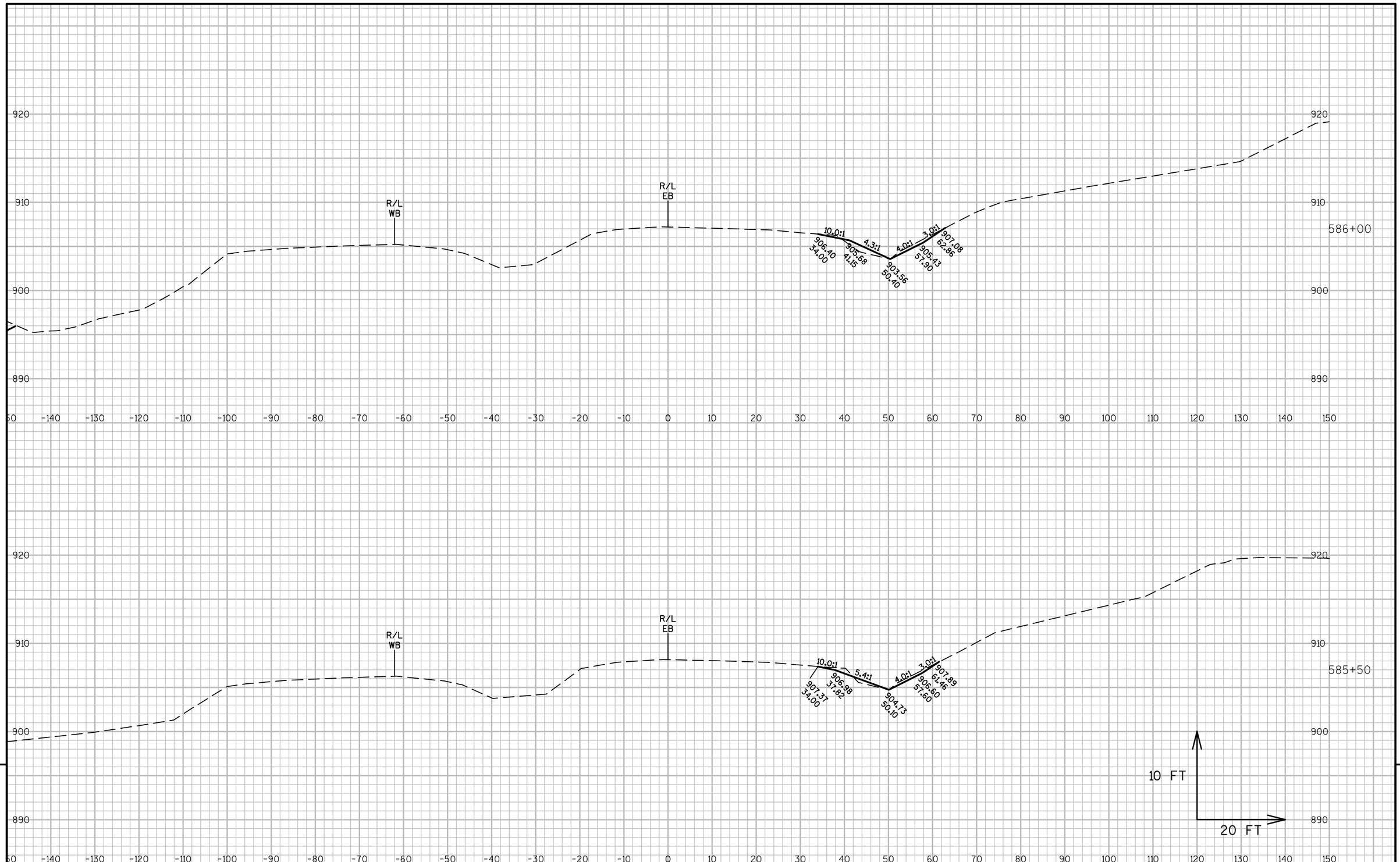
PROJECT NO: 1060-10-70	HWY: IH-94	COUNTY: WAUKESHA	CROSS SECTIONS: IH-94	SHEET 224	E

FILE NAME : N:\PDS\C3D\10601000\SHEETSPLAN\DRAFT PSE\PLAN\10601070\090205-XS IH94.DWG
LAYOUT NAME - 090205-XS IH94

PLOT DATE : 4/2/2018 11:22 AM PLOT BY : JOHANSEN, AMANDA A PLOT NAME : PLOT SCALE : 1 IN:20 FT

WISDOT/CADDS SHEET 49



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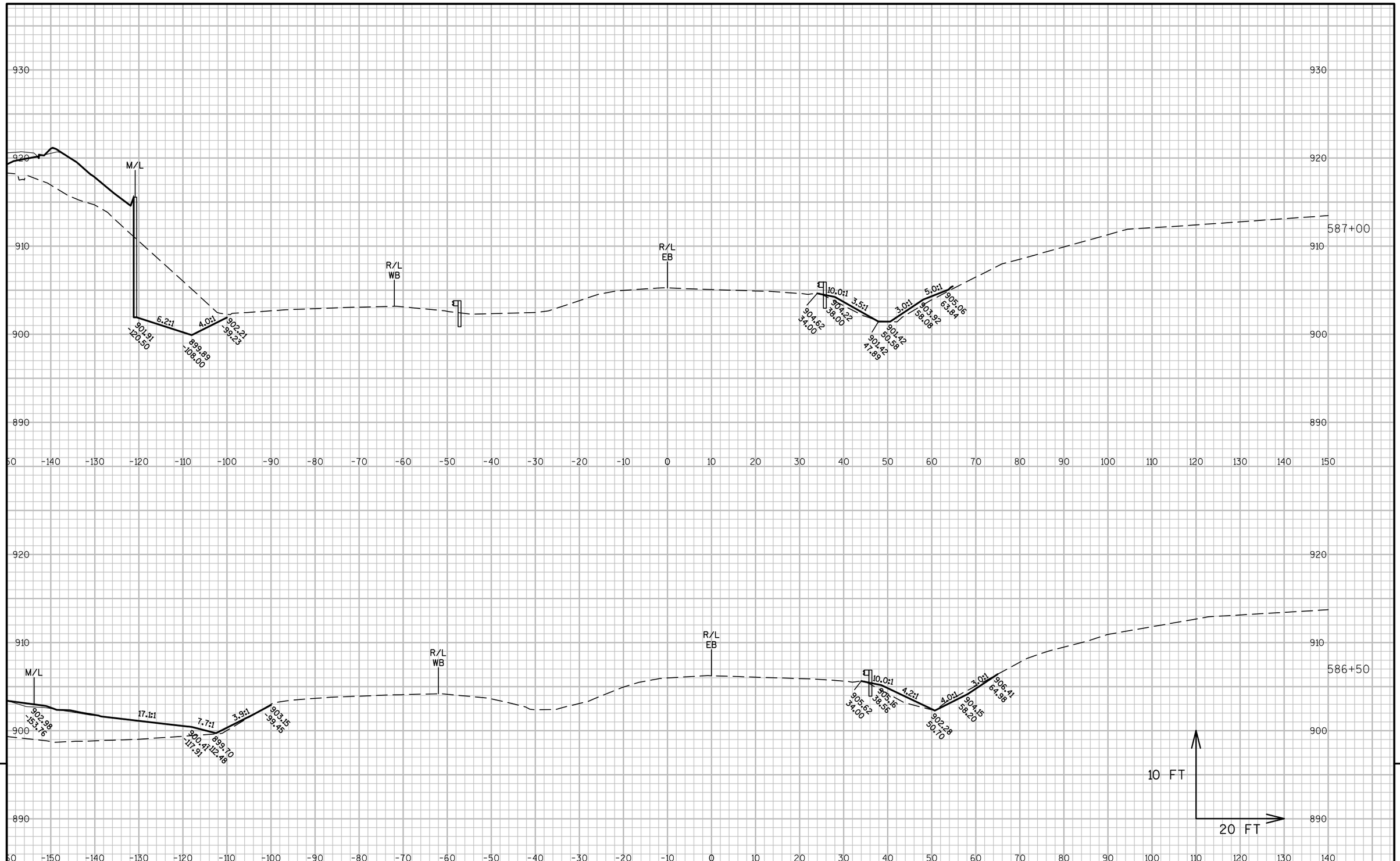
PROJECT NO: 1060-10-70	HWY: IH-94	COUNTY: WAUKESHA	CROSS SECTIONS: IH-94	SHEET 225 E

FILE NAME : N:\PDS\C3D\10601000\SHEETSPLAN\DRAFT PSE\PLAN\10601070\090205-XS IH94.DWG
LAYOUT NAME - 090206-XS IH94

PLOT DATE : 4/2/2018 11:27 AM PLOT BY : JOHANSEN, AMANDA A PLOT NAME : PLOT SCALE : 1 IN:20 FT



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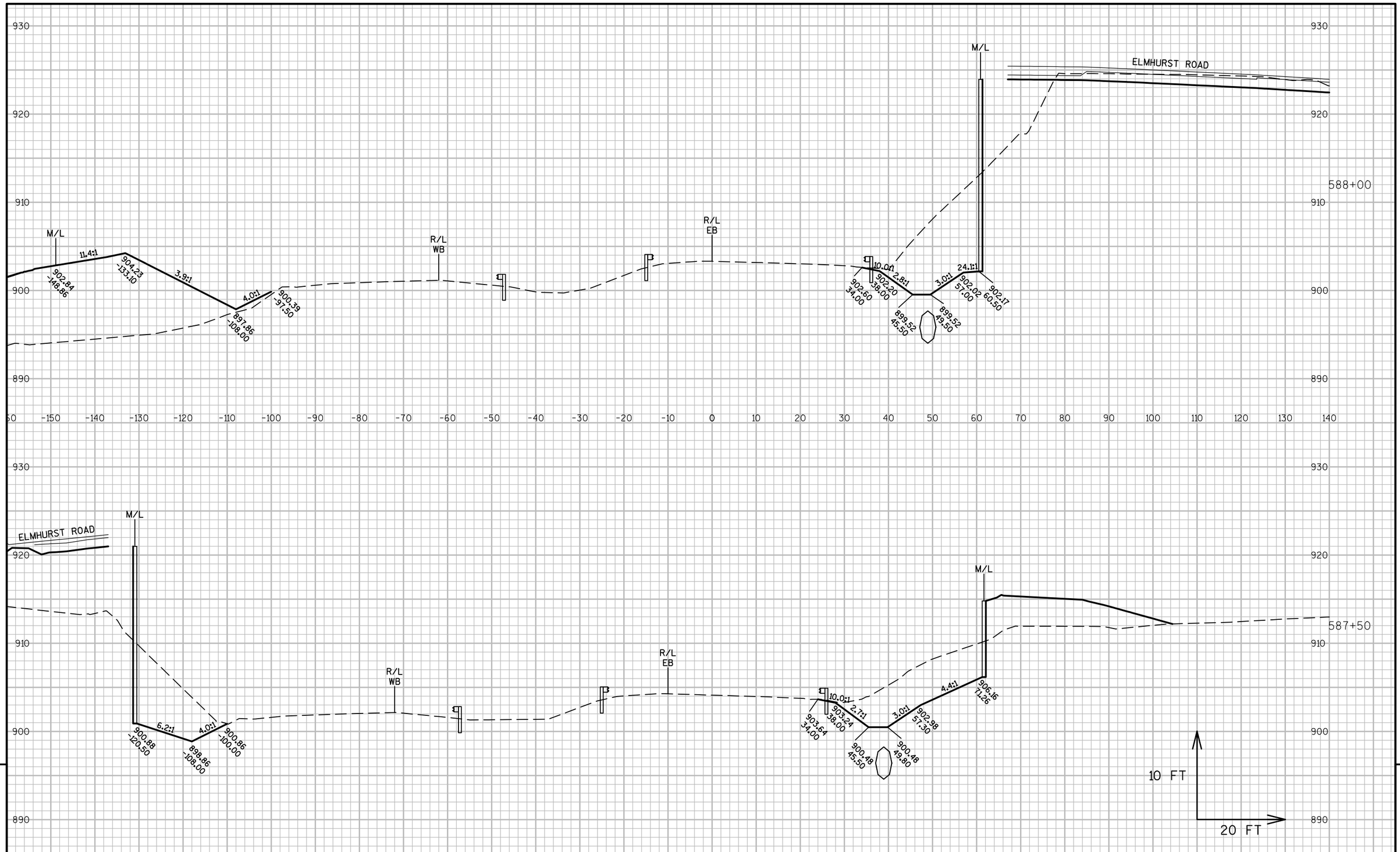
PROJECT NO: 1060-10-70	HWY: IH-94	COUNTY: WAUKESHA	CROSS SECTIONS: IH-94	SHEET 226	E

FILE NAME : N:\PDS\C3D\10601000\SHEETSPLAN\DRAFT PSE\PLAN\10601070\090205-XS IH94.DWG
LAYOUT NAME - 090207-XS IH94

PLOT DATE : 4/2/2018 12:47 PM PLOT BY : JOHANSEN, AMANDA A PLOT NAME : PLOT SCALE : 1 IN:20 FT

WISDOT/CADDS SHEET 49

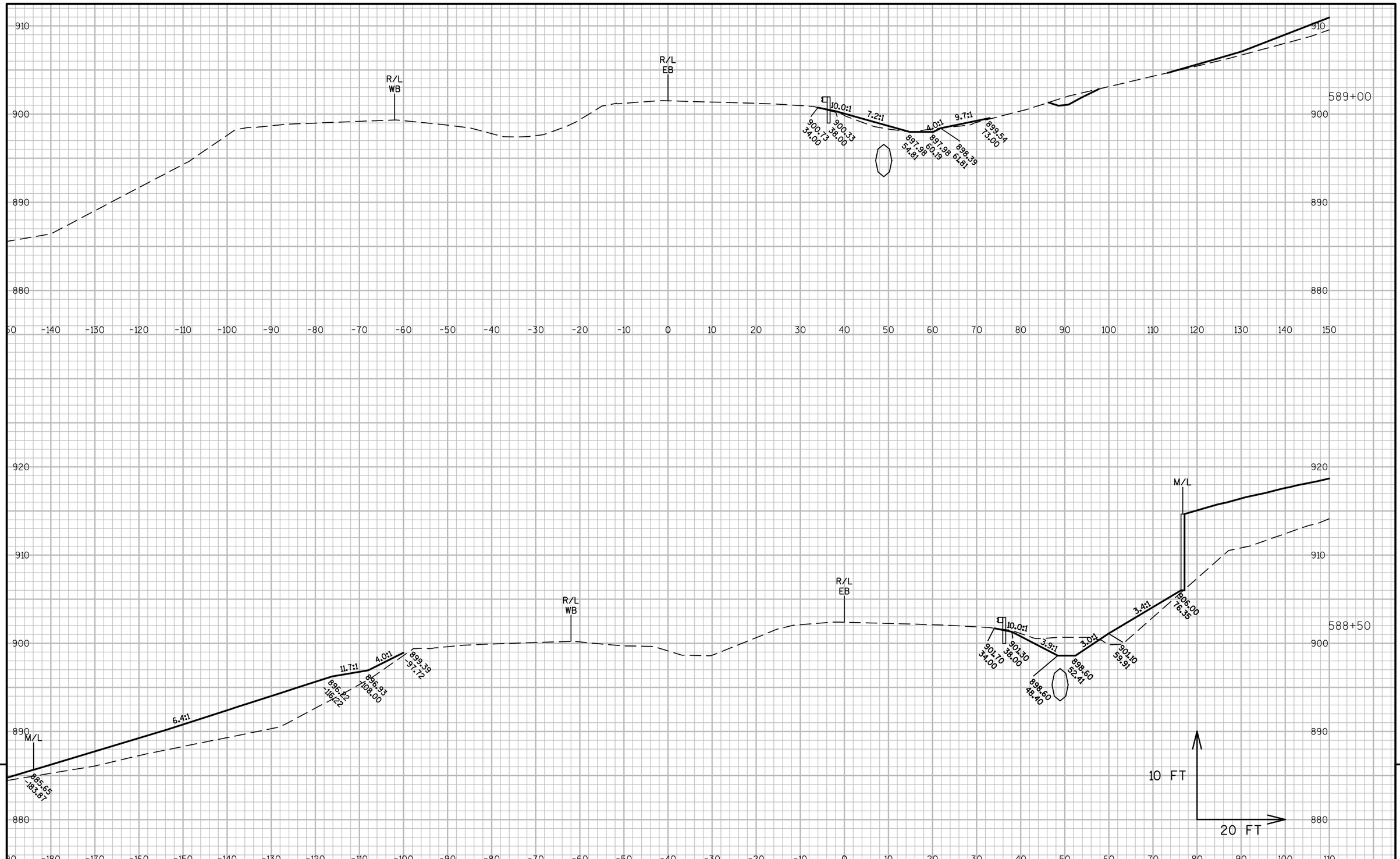


PROJECT NO: 1060-10-70	HWY: IH-94	COUNTY: WAUKESHA	CROSS SECTIONS: IH-94	SHEET 227 E

FILE NAME : N:\PDS\C3D\10601000\SHEETSPLAN\DRAFT PSE\PLAN\10601070\090205-XS IH94.DWG
LAYOUT NAME - 090208-XS IH94

PLOT DATE : 4/2/2018 1:28 PM PLOT BY : JOHANSEN, AMANDA A PLOT NAME : PLOT SCALE : 1 IN:20 FT

WISDOT/CADDS SHEET 49

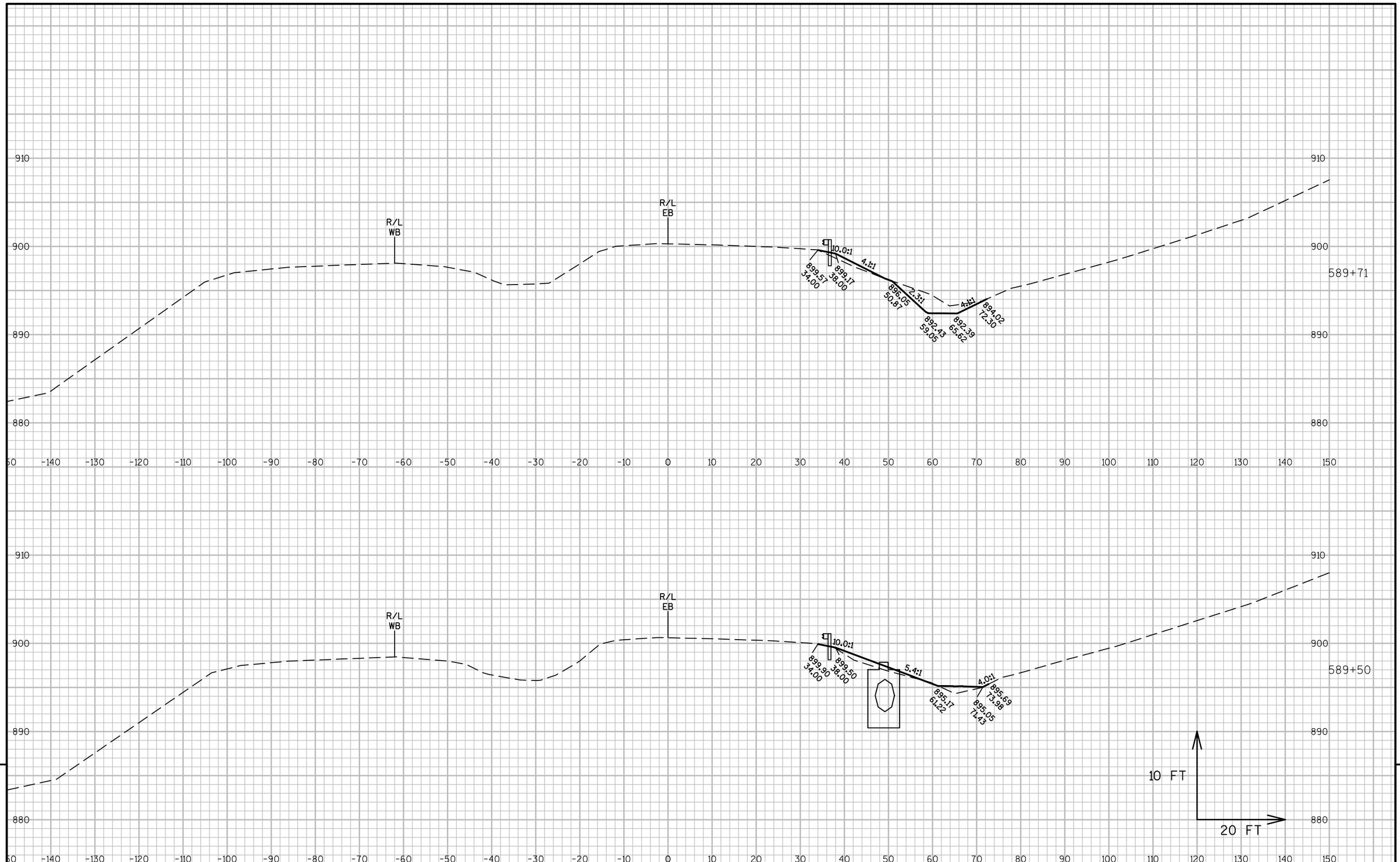


PROJECT NO: 1060-10-70	HWY: IH-94	COUNTY: WAUKESHA	CROSS SECTIONS: IH-94	SHEET 228 E

FILE NAME : N:\PDS\C3D\10601000\SHEETSPLAN\DRAFT PSE\PLAN\10601070\090205-XS IH94.DWG
LAYOUT NAME - 090209-XS IH94

PLOT DATE : 4/2/2018 3:28 PM PLOT BY : JOHANSEN, AMANDA A PLOT NAME : PLOT SCALE : 1 IN:20 FT

WISDOT/CADDS SHEET 49



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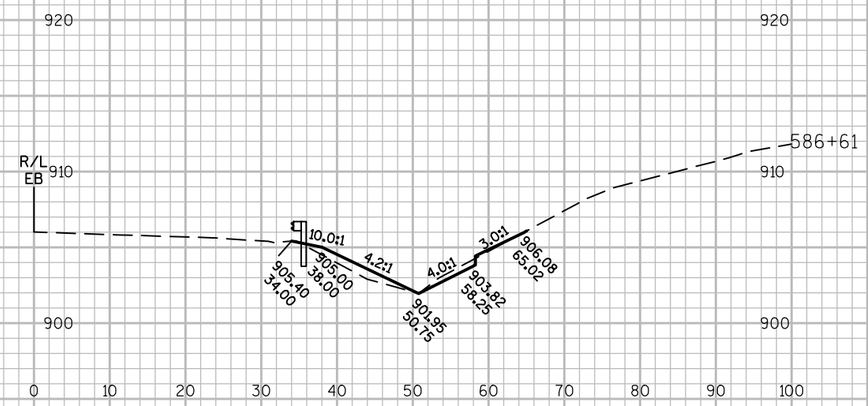
PROJECT NO: 1060-10-70	HWY: IH-94	COUNTY: WAUKESHA	CROSS SECTIONS: IH-94	SHEET 229	E

FILE NAME : N:\PDS\C3D\10601000\SHEETSPLAN\DRAFT PSE\PLAN\10601070\090205-XS IH94.DWG
LAYOUT NAME - 090210-XS IH94

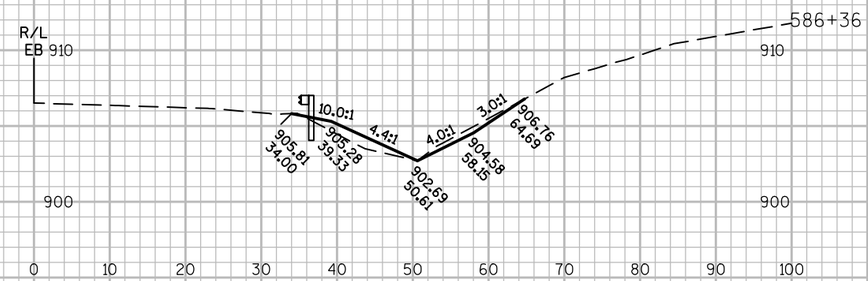
PLOT DATE : 4/2/2018 3:35 PM PLOT BY : JOHANSEN, AMANDA A PLOT NAME : PLOT SCALE : 1 IN:20 FT

WISDOT/CADDS SHEET 49

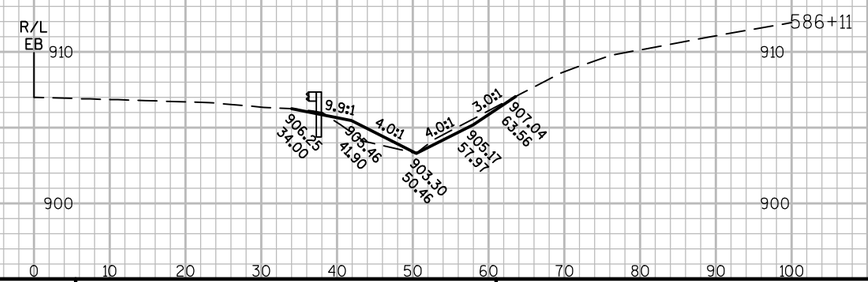
POST 9

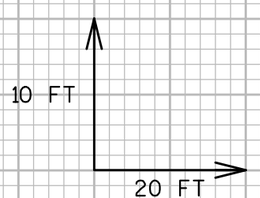


POST 5



POST 1





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PROJECT NO: 1060-10-70	HWY: IH-94	COUNTY: WAUKESHA	CROSS SECTIONS: IH-94 BEAM GUARD	SHEET 230	E

FILE NAME : N:\PDS\C3D\10601000\SHEETSPLAN\DRAFT PSE\PLAN\10601070\090205-XS IH94.DWG
LAYOUT NAME - 090211-XS IH94 BEAMGUARD

PLOT DATE : 4/3/2018 7:01 AM PLOT BY : JOHANSEN, AMANDA A PLOT NAME : PLOT SCALE : 1 IN:20 FT

WISDOT/CADDS SHEET 49

Notes

Wisconsin Department of Transportation

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