MAD JANUARY 2015

PROJECT ID: 5255-01-61

WITH:

COUNTY: IOWA

ORDER OF SHEETS

TOTAL SHEETS = 136

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

MINERAL POINT - SPRING GREEN

LOWER WYOMING ROAD TO N COUNTY LINE

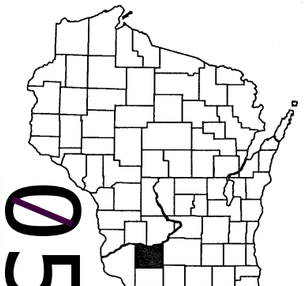
STH 23

IOWA COUNTY

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
5255-01-61	WISC 2015004	1

STATE PROJECT NUMBER

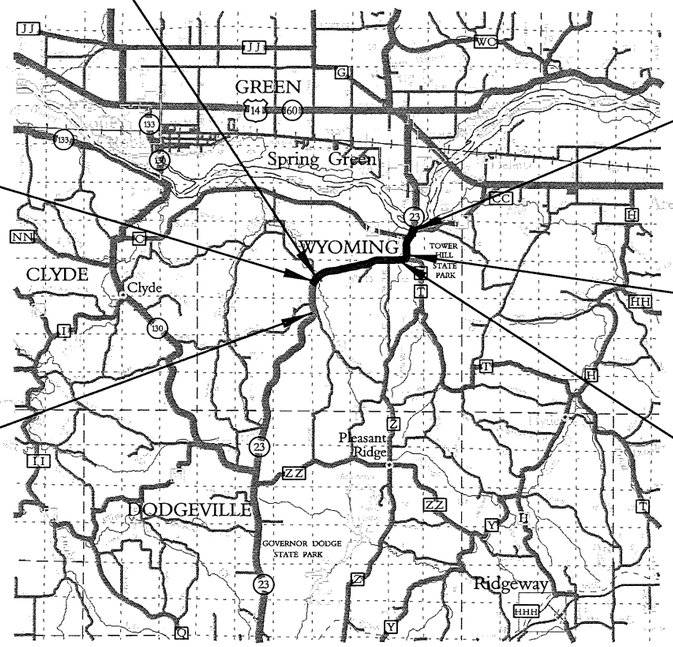
5255-01-61



EXCEPTION TO NET CL LENGTH
B-25-0059
STA. 589+68.85 TO
STA. 590+23.23

BEGIN PROJECT 5255-01-61
STA. 582+00
Y 213 308.17
X 383 898.26

SLOPE RESTORATION



END PROJECT 5255-01-61
STA. 758+73
Y 220 484.96
X 397 549.20

EXCEPTION TO NET CL LENGTH
B-25-0061
STA. 723+62.02 TO
STA. 723+99.33

EXCEPTION TO NET CL LENGTH
B-25-0060
STA. 709+17.17 TO
STA. 709+52.68

DESIGN DESIGNATION

A.A.D.T. (2013)	=	2700
A.A.D.T. (2033)	=	3300
D.H.V.	=	470
D.D.	=	63/37
T.	=	6.8%
DESIGN SPEED	=	55
ESALS	=	510,000

CONVENTIONAL SYMBOLS

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

LAYOUT
SCALE 0 2 MI.

TOTAL NET LENGTH OF CENTERLINE = 3.323 MI.

NOTES:
COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), IOWA COUNTY, NAD 1983 (97).

ELEVATIONS SHOWN ON THIS PLAN ARE FEFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 NAVD 99 (91).

WESTBROOK
Associated Engineers, Inc.

619 EAST HOXIE STREET
P.O. BOX 429
SPRING GREEN, WI. 53588
PHONE (608)-588-7866
FAX (608) 588-7954

WISCONSIN
ALEX M. BROMLEY
E-37718
PRAIRIE DU SAC, WI
PROFESSIONAL ENGINEER

8/29/14 (Date) (Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	WESTBROOK
Designer	WESTBROOK
Project Manager	MAHESH SHRESTHA
Regional Examiner	
Regional Supervisor	WILLIAM STROBEL
C.O. Examiner	

APPROVED FOR THE DEPARTMENT
DATE: 8/28/14 William Strobel (Signature)

E

2

GENERAL NOTES

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

THERE ARE UTILITY FACILITIES WITHIN THE PROJECT AREA THAT ARE NOT SHOWN ON THE PLANS. THE CONTRACTOR SHALL COORDINATE HIS CONSTRUCTION ACTIVITIES WITH A CALL TO DIGGERS HOTLINE AND/OR A DIRECT CALL TO THE UTILITIES THAT HAVE FACILITIES IN THE AREA. NOT ALL UTILITIES ARE MEMBERS OF DIGGERS HOTLINE.

EXACT LOCATION AND WIDTH OF ALL DRIVEWAY ENTRANCES TO BE DETERMINED BY THE ENGINEER. DRIVEWAYS SHALL BE REPLACED IN KIND.

WHEN THE QUANTITY OF THE ITEMS OF BASE OR SURFACE COURSE IS MEASURED FOR PAYMENT BY THE TON OR CUBIC YARD, THE DEPTH OF THICKNESS OF THE COURSE SHOWN ON THE PLANS IS APPROXIMATE AND THE ACTUAL THICKNESS WILL DEPEND ON THE DISTRIBUTION OF THE MATERAIL AS DIRECTED BY THE ENGINEER.
IN THE FIELD.

RADIUS DIMENSIONS FOR THE CURB AND GUTTER ARE TO THE FLAG LINE.

MISCELLANEOUS REMOVAL ITEMS REQUIRING RESTORATION OF CONCRETE OR ASPHALIC CONCRETE DRIVEWAYS, SIDEWALKS, OR SIDE STREETS SHALL BE REMOVED TO AN EXISTING JOINT OR SAWED AS DETERMINED BY THE ENGINEER OR AS SHOWN ON THE PLANS.

EXPANSION JOINTS TO BE CONSTRUCTED AT ALL RADIUS POINTS IN CURB AND GUTTER.

TYPICAL FINISHED SECTIONS SHOW THE GENERAL ROADWAY FEATURES THROUGHOUT THE PROJECT. PAVEMENT, SLOPES, BORDER SLOPES, ETC., MAY VARY WITHIN THE STATION LIMITS OF THE STATION SECTION.

DISTURBED AREAS WITHIN THE RIGHT-OF-WAY ARE TO BE FERTILIZED AND SEEDED AS DIRECTED BY THE ENGINEER. SEED MIX NO. 80 SHALL BE USED ON ALL AREAS.

CURVE DATA IS BASED ON ARC DEFINITION.

EROSION CONTROL FEATURES AS SHOWN ON THE PLANS ARE SUGGESTED LOCATIONS. EXACT LOCATIONS WILL BE DETERMINED BY THE CONTRACTORS EROSION CONTROL IMPLEMENTATION PLAN (ECIP) AND APPROVED BY THE ENGINEER IN CONSULTATION WITH THE WISCONSIN DEPARTMENT OF NATURAL RESOURCES.

COORDINATE WITH JEFF GUSTAFSON, THE CHANGEABLE MESSAGE SIGN COORDINATOR AT THE SW REGION, (608) 516-6400 TO ALLOW AT LEAST TEN WORKING DAYS FOR THE INSPECTION AND APPROVAL OF THE PORTABLE CHANGEABLE MESSAGE SIGNS PRIOR TO DELIVERY OF THE MESSAGE SIGNS TO THE PROJECT SITE.

THE CONTRACTOR'S PAVING OPERATIONS SHALL BE CONSISTENT WITH THE PLAN TYPICAL SECTIONS AND CONSTRUCTED TO PREVENT HMA LONGITUDINAL JOINTS FROM BEING LOCATED WITHIN A DRIVING, TURNING, BIKE OR PARKING LANE.

HMA PAVEMENT WEIGHT CALCULATIONS BASED ON 112 LB/SY/IN.

THE ASPHALTIC MATERIAL PG58-28 HAS BEEN ESTIMATED AT 5.5% OF THE HMA PAVEMENT.

PLACE 3-INCH HMA PAVEMENT TYPE E-1 IN ONE LAYER USING 12.5 mm MIX GRADATION.

ALL BEAM GUARD POSTS SHALL BE TIMBER.

ALL BEAM GUARD SHALL BE GALVANIZED & PAINTED IN ACCORDANCE WITH ITEM SPV.0090.03, STEEL PLATE BEAM GUARD DUPLEX COATED.

STANDARD ABBREVIATIONS

ADT	AVERAGE DAILY TRAFFIC
BM	BENCH MARK
C/L	CENTER LINE
Δ	CENTRAL ANGLE OR DELTA
CONC.	CONCRETE
CP	CULVERT PIPE
CTH	COUNTY TRUNK HIGHWAY
DHV	DESIGN HOURLY VOLUME
D	DIRECTIONAL DISTRIBUTION
E	EAST
EL	ELEVATION
ESALS	EQUIVALENT SINGLE AXLE LOADS
FT.	FEET
IN.	INCHES
L	LENGTH
LT.	LEFT
MI	MILE
N	NORTH
PC	POINT OF CURVATURE
PI	POINT OF INTERSECTION
PT	POINT OF TANGENCY
R	RADIUS
SSPRC	STORM SEWER PIPE REINFORCED CONCRETE
CPRCHE	CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL
REINF.	REINFORCED
REQ'D.	REQUIRED
R/L	REFERENCE LINE
RT.	RIGHT
SDD	STANDARD DETAIL DRAWING
STA.	STATION
STH	STATE TRUNK HIGHWAY
SE	SUPERELEVATION
T	TANGENT OR / TRUCKS (PERCENT OF)

SECTION 2 ORDER OF SHEETS

DESIGN CONSULTANT

WESTBROOK ASSOCIATED ENGINEERS INC.
619 E. HOXIE STREET
P.O. BOX 429
SPRING GREEN, WI. 53588

ATTN: ALEX BROMLEY
TELEPHONE: (608) 588-7866
EMAIL: abromley@westbrookeng.com

DNR LIAISON

WISCONSIN DEPARTMENT
OF NATURAL RESOURSES
SOUTH CENTRAL REGION HEADQUARTERS
3911 FISH HATCHERY ROAD
FITCHBURG, WISCONSIN 53711

ATTN: ANDY BARTA
TELEPHONE: (608) 275-3308
EMAIL: Andrew.Barta@wisconsin.gov

WISDOT PROJECT MANAGER

SW REGION-MADISON, DTSD, WISDOT
2101 WRIGHT STREET
MADISON, WI 53704

ATTN: MAHESH SHRESTHA, P.E.
TELEPHONE: (608) 245-2674
EMAIL: mahesh.shrestha@dot.wi.gov

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

** DENOTES UTILITIES THAT ARE NOT MEMBERS OF DIGGERS HOTLINE

UTILITIES

ALLIANT ENERGY - ELECTRIC
SUITE 1000
4902 N BILTMORE LANE
MADISON, WI 53718

ATTN: JASON HOGAN
PHONE: (608) 395-7395
EMAIL: jasonhogan@alliantenergy.com

ALLIANT ENERGY - GAS/PETROLEUM
SUITE 1000
4902 N BILTMORE LANE
MADISON, WI 53718

ATTN: JASON HOGAN
PHONE: (608) 458-4871
EMAIL: jasonhogan@alliantenergy.com

CHARTER COMMUNICATIONS - COMMUNICATION LINE
2701 DANIELS STREET
MADISON, WI 53718

ATTN: BRANDON STORM
PHONE: (608) 274-3822
EMAIL: brandon.storm@chartercom.com

FRONTIER COMMUNICATIONS OF WI LLC
118 DIVISION STREET
PLYMOUTH, WI 53073

ATTN: ROBERT CHURCH
PHONE: (608) 509-3668
EMAIL: robert.church@ftr.com

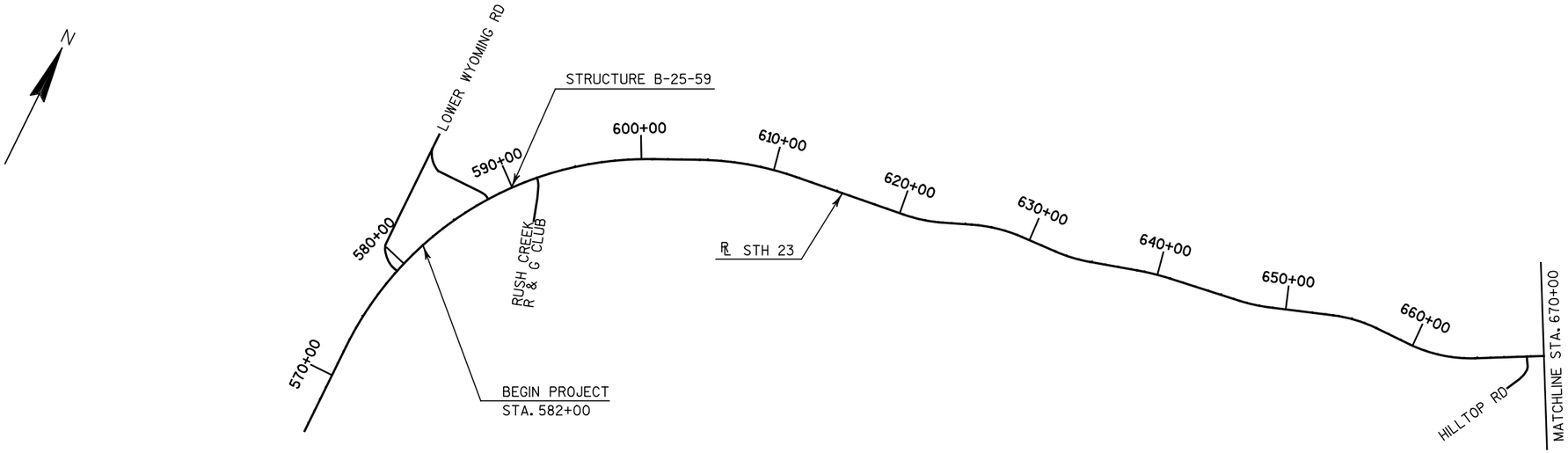
** SPRING GREEN GOLF CLUB SANITARY DIST. #2
TOWN OF WYOMING
5851 COUNTY ROAD Z
SPRING GREEN, WI 53588

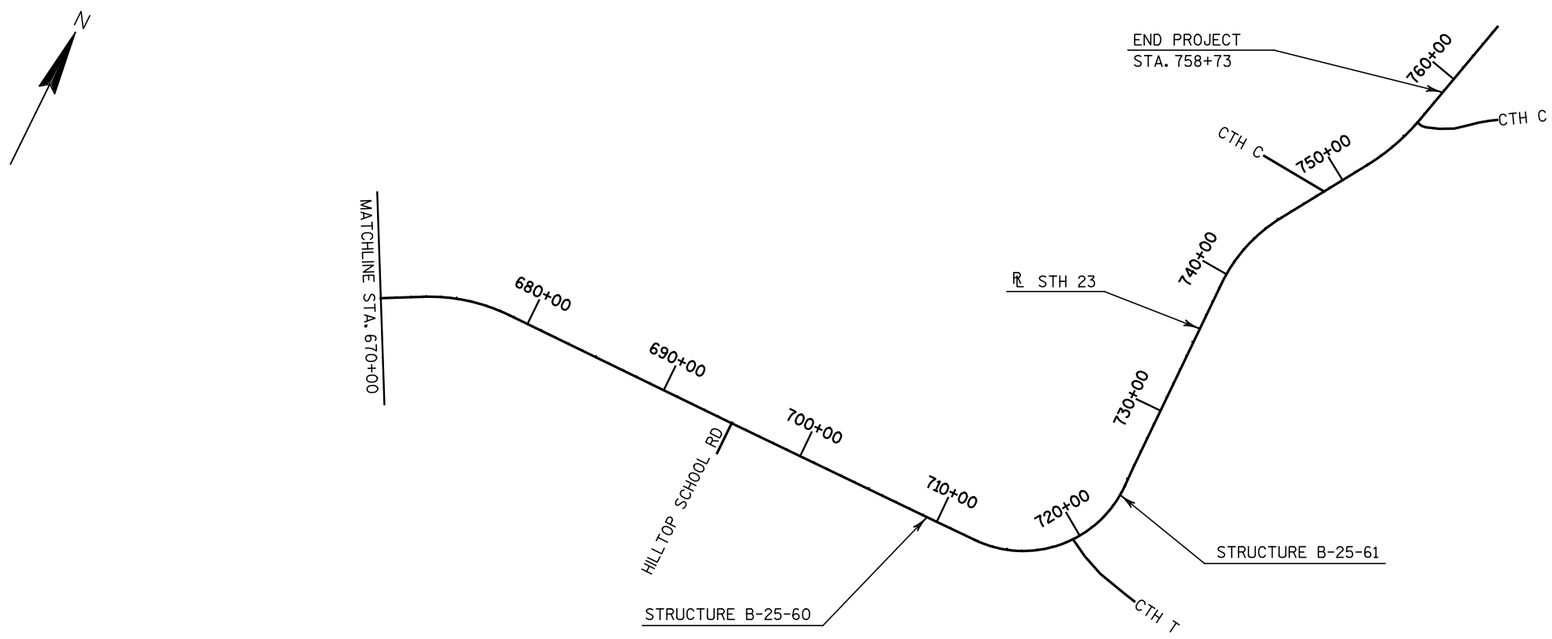
ATTN: JOHN HESS - CHAIRMAN
PHONE: (608) 588-7082
EMAIL: Johnhesswyoming@gmail.com

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

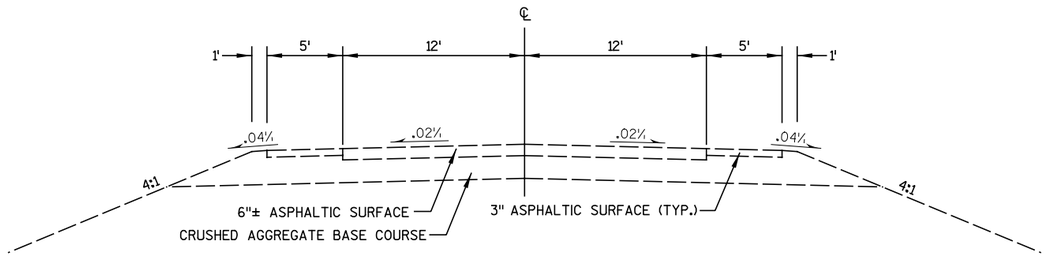
TOTAL PROJECT AREA = 47.88 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 23.94 ACRES

2



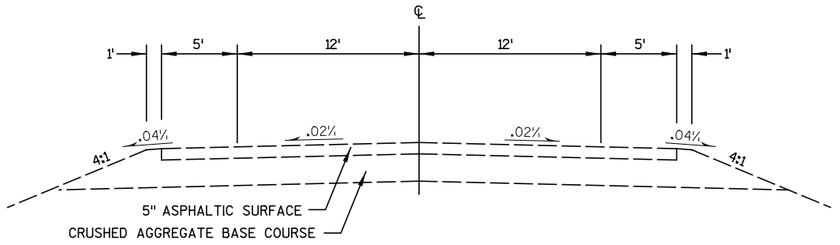


PROJECT NO: 5255-01-61	HWY: STH 23	COUNTY: IOWA	PROJECT OVERVIEW	SHEET 3	E



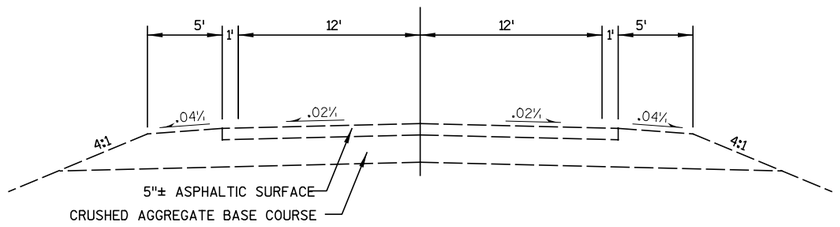
TYPICAL EXISTING SECTION

STA. 582+00 - STA. 589+68.80
STA. 590+23.20 - STA. 603+45



TYPICAL EXISTING SECTION

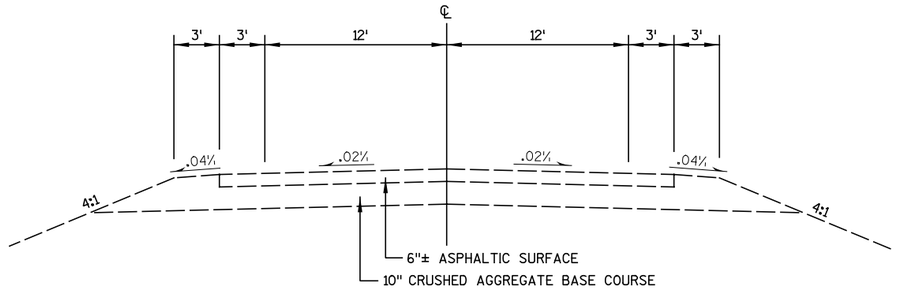
STA. 603+45 - STA. 694+95



TYPICAL EXISTING SECTION

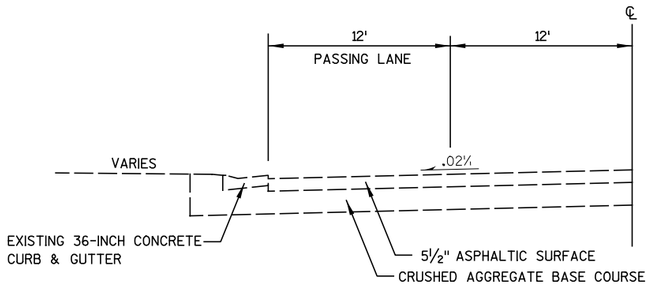
STA. 694+95 - STA. 708+45
STA. 725+45 - STA. 748+05

2



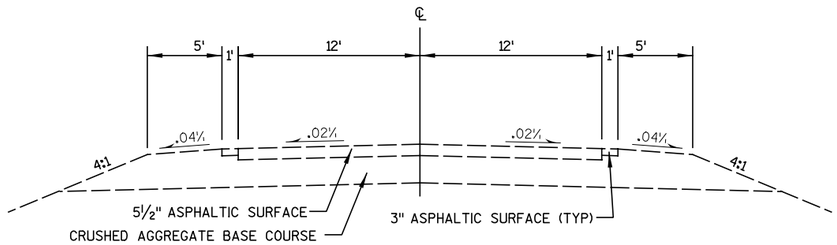
TYPICAL EXISTING SECTION

STA. 708+45 - STA. 709+17.20
STA. 709+52.70 - STA. 723+62.00 RT.
STA. 709+52.70 - STA. 718+25 LT.
STA. 721+00 - STA. 723+62.00 LT.
STA. 723.99.30 - STA. 725+45



TYPICAL EXISTING HALF SECTION FOR PASSING LANES

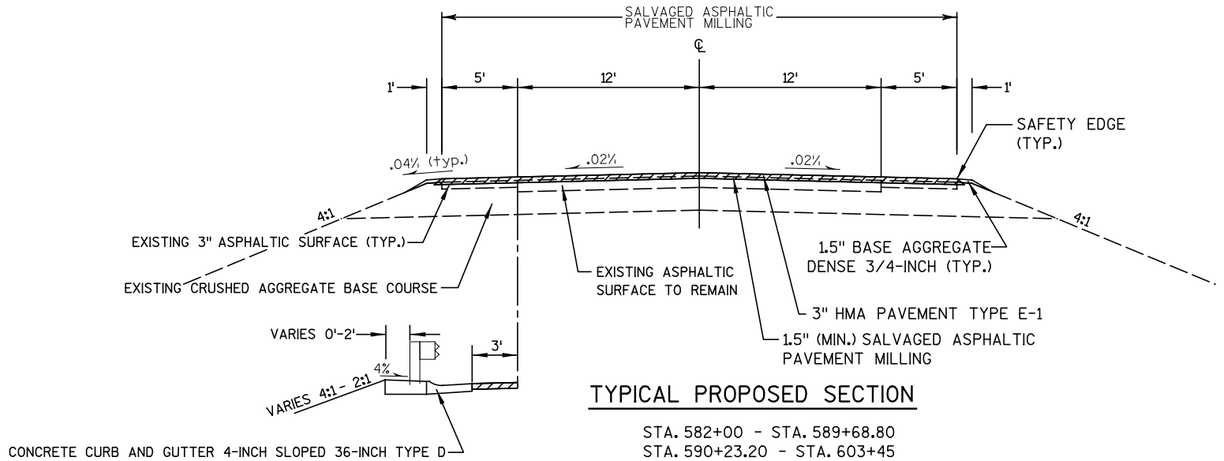
STA. 718+25 - STA. 721+00 LT.



TYPICAL EXISTING SECTION

STA. 748+05 - STA. 758+73

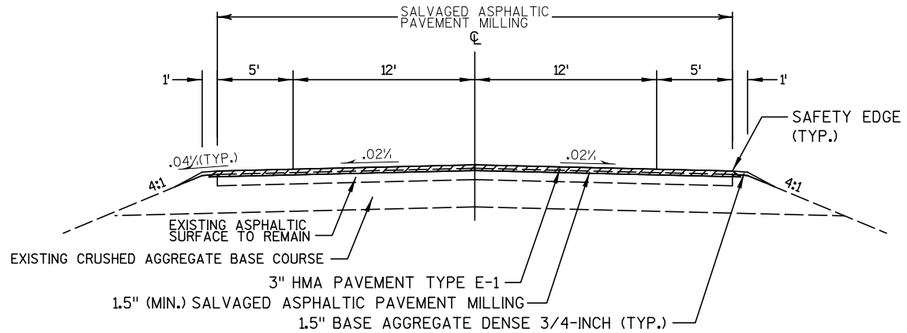
PROJECT NO: 5255-01-61	HWY: STH 23	COUNTY: IOWA	EXISTING TYPICAL SECTIONS	SHEET 5	E



TYPICAL PROPOSED SECTION

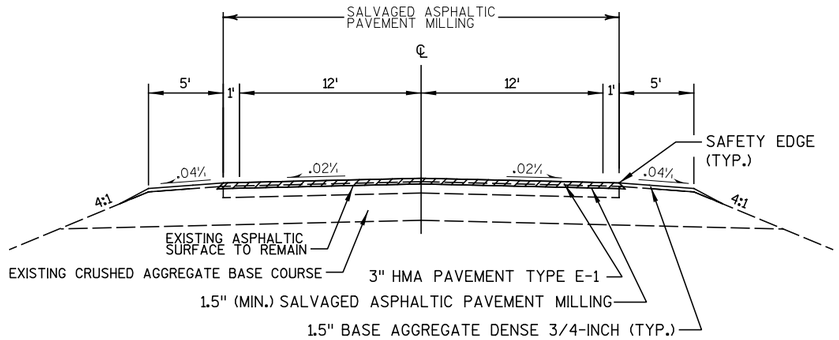
STA. 582+00 - STA. 589+68.80
STA. 590+23.20 - STA. 603+45

STA. 588+80 - STA. 589+62, LT
STA. 590+29.80 - STA. 591+05.80, RT



TYPICAL PROPOSED SECTION

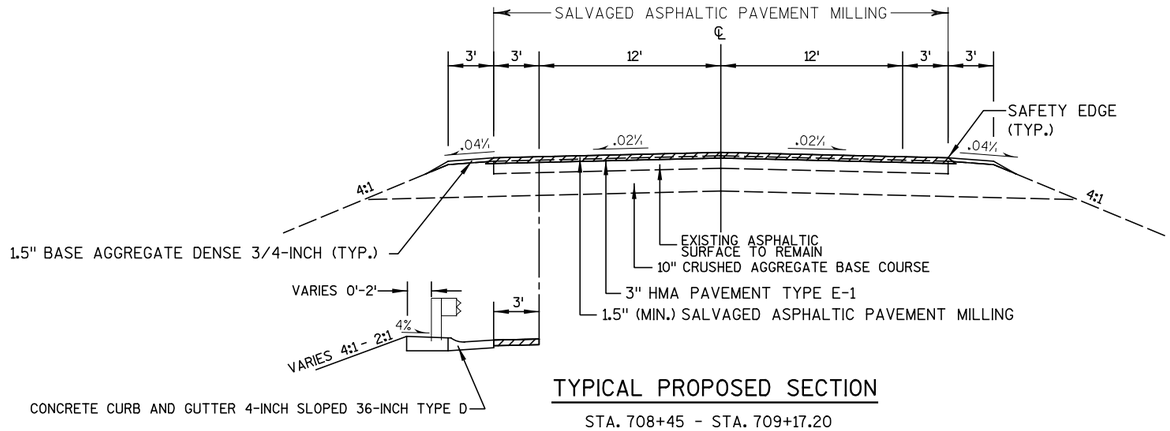
STA. 603+45 - STA. 694+95



TYPICAL PROPOSED SECTION

STA. 694+95 - STA. 708+45
STA. 725+45 - STA. 748+05

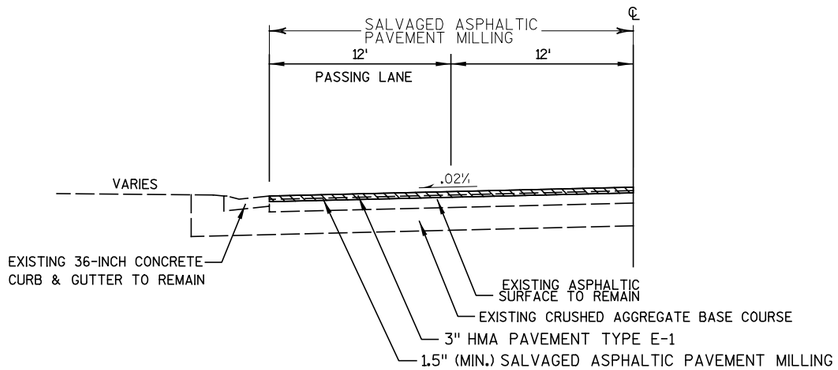
PROJECT NO: 5255-01-61	HWY: STH 23	COUNTY: IOWA	TYPICAL SECTIONS	SHEET 6	E



STA. 709+71- STA. 710+70, RT
STA. 709+71 - STA. 710+73, LT
STA. 722+75 - STA. 723+45, LT

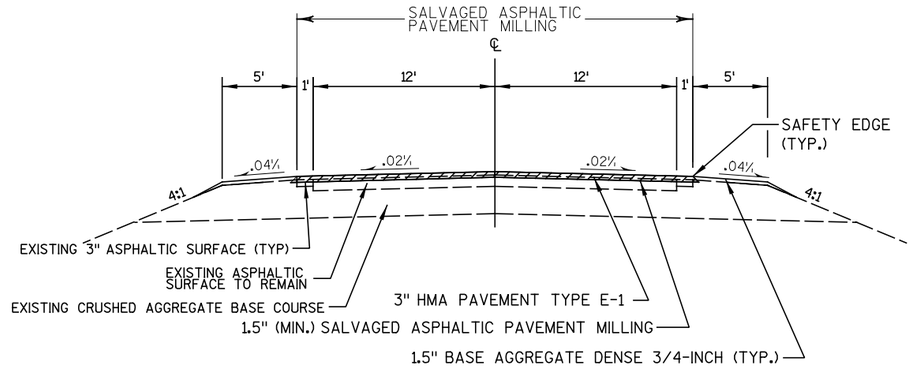
TYPICAL PROPOSED SECTION

STA. 708+45 - STA. 709+17.20
STA. 709+52.70 - STA. 723+62.00 RT.
STA. 709+52.70 - STA. 718+25 LT.
STA. 721+00 - STA. 723+62.00 LT.
STA. 723+99.30 - STA. 725+45



TYPICAL PROPOSED HALF SECTION FOR PASSING LANES

STA. 718+25 - STA. 721+00 LT.



TYPICAL PROPOSED SECTION

STA. 748+05 - STA. 758+73

PROJECT NO: 5255-01-61	HWY: STH 23	COUNTY: IOWA	TYPICAL SECTIONS	SHEET 7	E

2

PROJECT NO: 5255-01-61	HWY: STH 23	COUNTY: IOWA	B-25-59 WETLAND DELINEATION	SHEET 8	E

FILE NAME : G:\00-PROJECT FILES\2013\13057 STH 23 Phase 2\5255-01-61\021001_cd.dgn PLOT DATE : 8/28/2014 PLOT BY : MikeCO PLOT NAME : PLOT SCALE : 40.0000 sf / in.

2

2

N

WETLAND DELINEATION

SLOPE INTERCEPTS

EXISTING R/W

710+00

STH 23

WETLAND DELINEATION

SLOPE INTERCEPTS

EXISTING R/W

PI 709+79.19

PROJECT NO: 5255-01-61	HWY: STH 23	COUNTY: IOWA	B-25-60 WETLAND DELINEATION	SHEET 9	E

2

N

EXISTING R/W

STH 23

EXISTING R/W

SLOPE INTERCEPTS

WETLAND DELINEATION

PT 724+51.10

PI 725+79.17

SLOPE INTERCEPTS

EXISTING R/W

725+00

EXISTING RIPRAP (TYP)

SLOPE INTERCEPTS

P.L.E.

WETLAND DELINEATION

EXISTING R/W

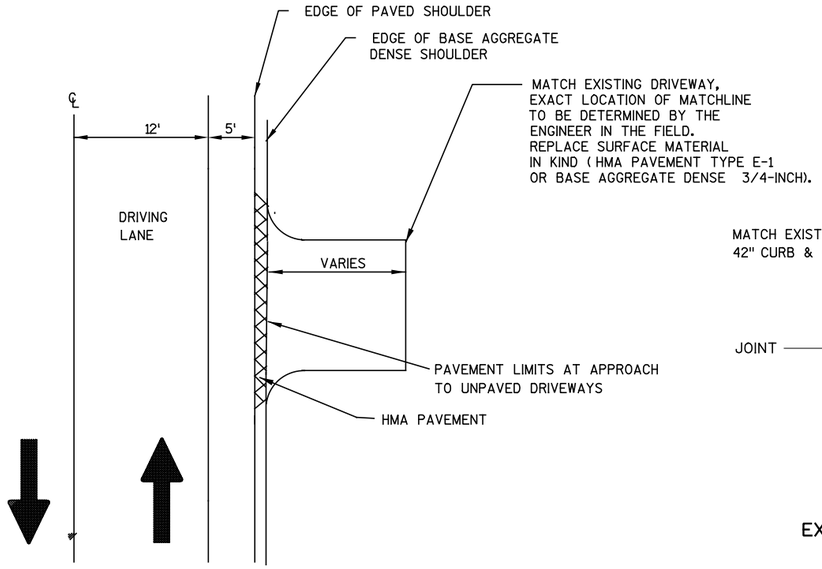
EXISTING R/W

P.L.E.

PROJECT NO: 5255-01-61	HWY: STH 23	COUNTY: IOWA	B-25-61 WETLAND DELINEATION	SHEET 10	E

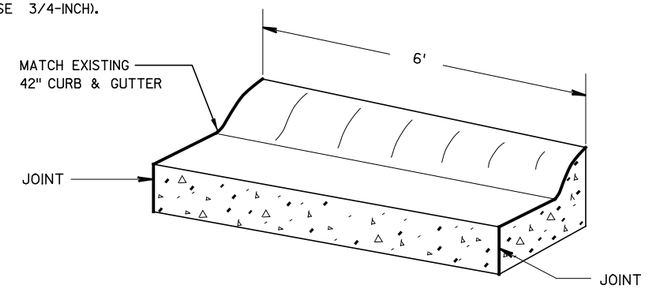
FILE NAME : G:\00-PROJECT FILES\2013\13057 STH 23 Phase 2\5255-01-61\021003_cd.dgn PLOT DATE : 8/28/2014 PLOT BY : MikeCO PLOT NAME : PLOT SCALE : 40.0000 sf / in.

WISDOT/CADDS SHEET 42



DRIVEWAY INTERSECTION DETAIL

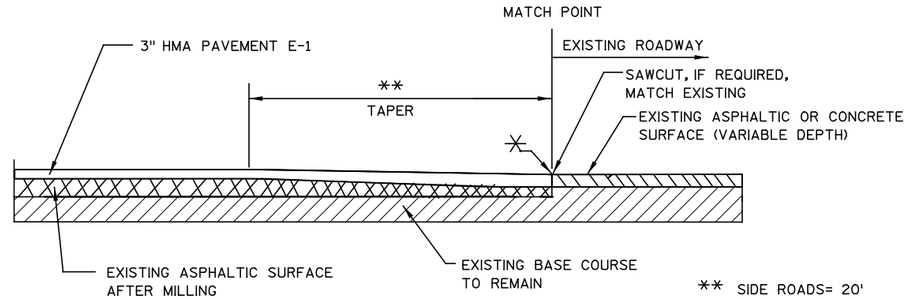
(PAVED SHOULDER ON HIGHWAYS)



TRANSITION DETAIL

EXISTING 42" CURB & GUTTER TO CONCRETE CURB & GUTTER 4-INCH SLOPED 36" TYPE "D"

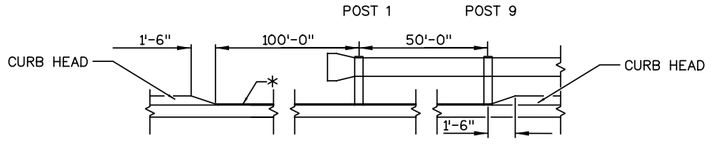
(TO BE MEASURED & PAID FOR AS 36" CONC. C&G)



BUTT JOINT DETAIL AT MATCH POINT

EXISTING ASPHALT SURFACE: STA. 582+00
EXISTING ASPHALT SURFACE: LOWER WYOMING RD
EXISTING ASPHALT SURFACE: STA. 589+68.80
EXISTING ASPHALT SURFACE: STA. 590+23.20
EXISTING ASPHALT SURFACE: STA. 592+00, RT, SIDEROAD
EXISTING ASPHALT SURFACE: HILLTOP ROAD
EXISTING ASPHALT SURFACE: HILLSIDE SCHOOL ROAD
EXISTING ASPHALT SURFACE: STA. 709+17.20
EXISTING ASPHALT SURFACE: STA. 709+52.70
EXISTING ASPHALT SURFACE: CTH T
EXISTING ASPHALT SURFACE: STA. 723+62.00
EXISTING ASPHALT SURFACE: STA. 723+99.30
EXISTING ASPHALT SURFACE: CTH C, WEST
EXISTING ASPHALT SURFACE: CTH C, EAST
EXISTING ASPHALT SURFACE: STA. 758+73.00

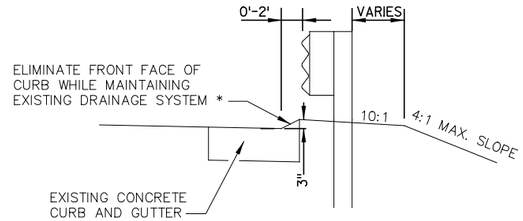
✳ FOR ASPHALTIC SURFACES: MILL THE EXISTING SURFACE, PER ITEM "REMOVING ASPHALTIC SURFACE BUTT JOINTS", TO 3" BELOW THE MATCHING SURFACE AND TAPER BACK FOR **.



PROFILE CURB CUT AT EAT LOCATIONS

✳ MAINTAIN EXISTING DRAINAGE PATTERNS.

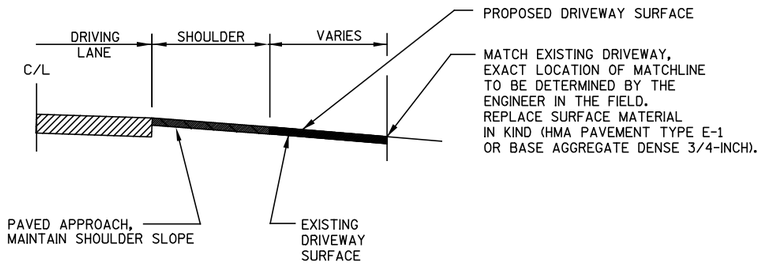
STA 710+45 – STA 711+95, RT
STA 710+95.15 – STA 712+45.15, LT
STA 721+56.66 – STA 723+06.66, LT



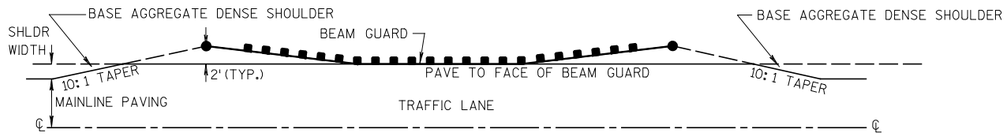
PROFILE CURB CUT THROUGH MGS GUARDRAIL TERMINAL EAT

*CURB MODIFICATIONS SHALL BE CONSTRUCTED TO MAINTAIN SMOOTH TRANSITIONS THROUGHOUT CURB LENGTH INCLUDING START/STOP POINTS

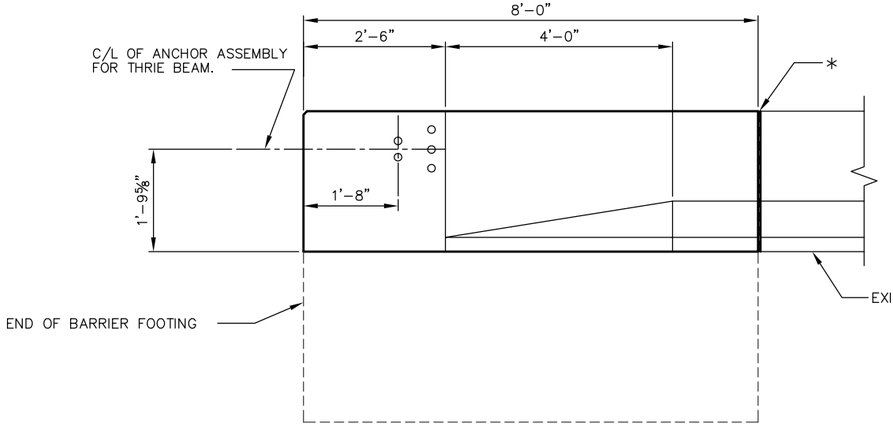
STA 710+45 – STA 711+95, RT
STA 710+95.15 – STA 712+45.15, LT
STA 721+56.66 – STA 723+06.66, LT



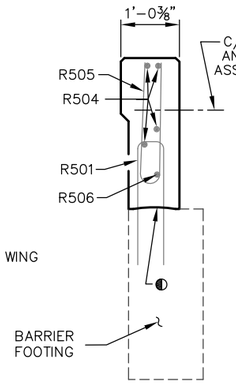
TYPICAL DRIVEWAY PROFILES
DETAILS FOR RURAL PRIVATE AND FIELD ENTRANCES



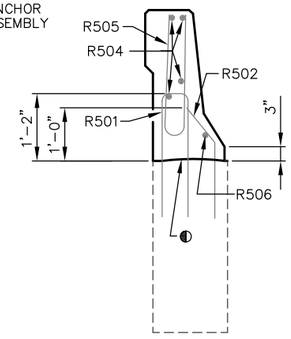
DETAIL FOR PAVED SHOULDER AT GUARDRAIL



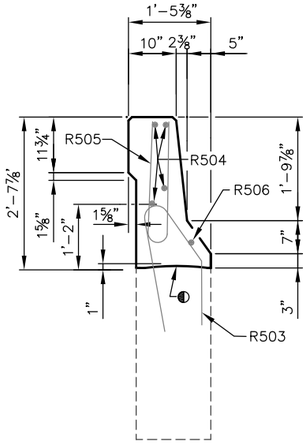
INSIDE ELEVATION



SECTION A–A



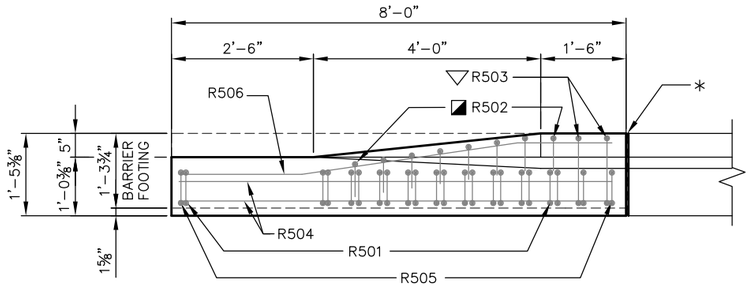
SECTION B–B



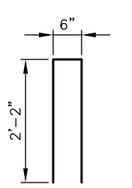
SECTION C–C

BILL OF BARS BARRIERS COATED 860 LBS.

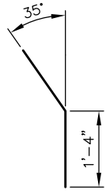
MARK	NUMBER COATED	NUMBER UNCOATED	LENGTH	BENT	LOCATION	
R501	56		4–7	X	BARRIERS	VERT.
R502	32		2–4	X	BARRIERS	VERT.
R503	8		4–7	X	BARRIERS	VERT.
R504	16		7–11		BARRIERS	HORIZ.
R505	64		4–10	X	BARRIERS	VERT.
R506	2		8–5	X	BARRIERS	HORIZ.



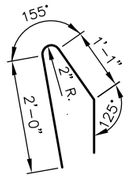
PLAN



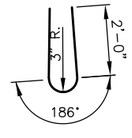
R501



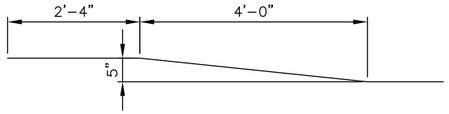
R502



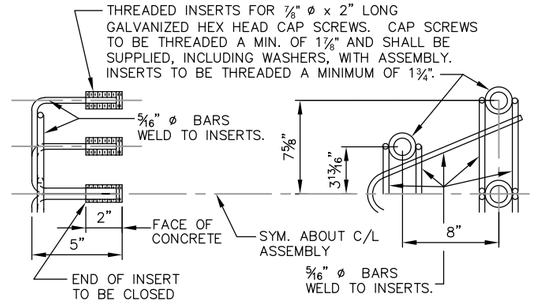
R503



R505

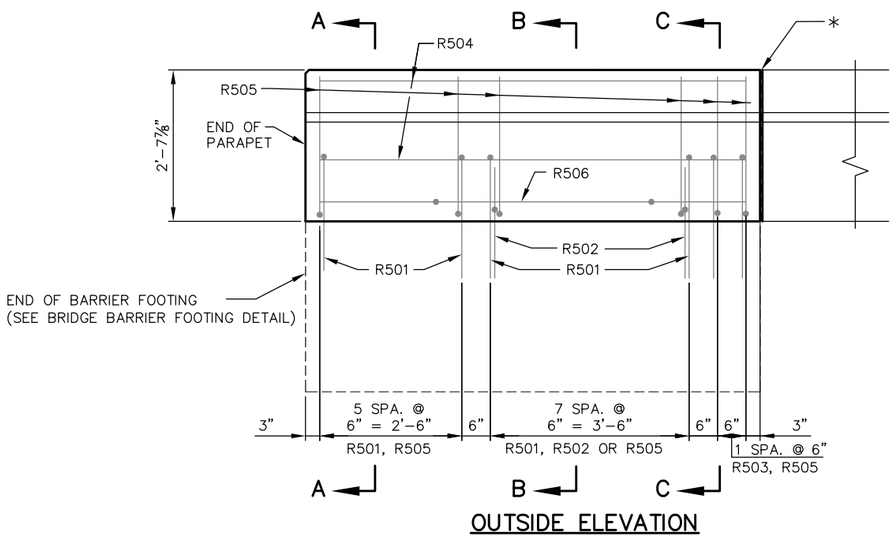


R506



DETAIL OF ANCHOR ASSEMBLY

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



OUTSIDE ELEVATION

* ½" FILLER

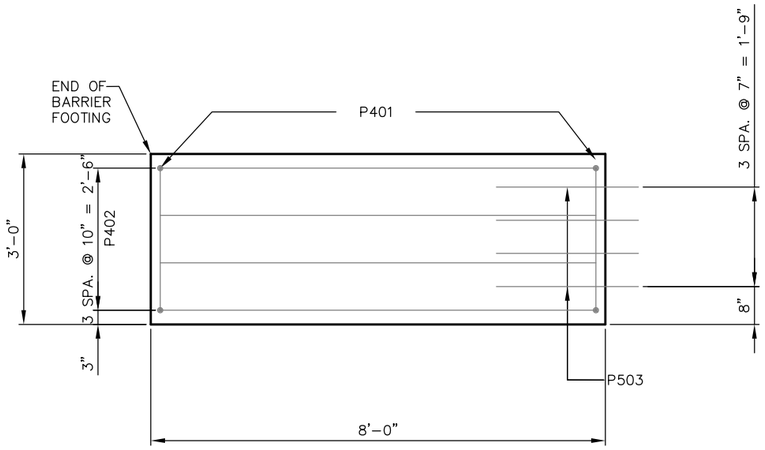
◪ R502 BARS MAY BE PLACED AFTER THE CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. USE CARE TO PLACE R502 BARS CORRECTLY ALONG TRANSITION OF PARAPET.

▽ R501 & R503 BARS TO BE TIED TO PARAPET FOOTING STEEL BEFORE PARAPET FOOTING IS POURED.

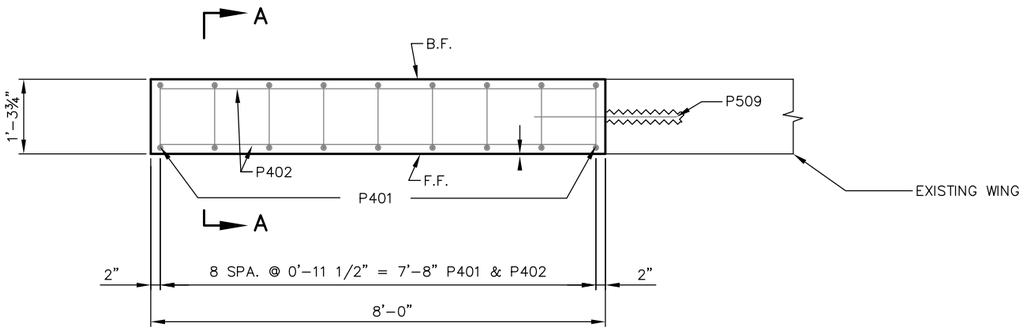
◐ CONST. JOINT – STRIKE OFF AS SHOWN.

PROJECT NO: 5255–01–61	HWY: STH 23	COUNTY: IOWA	CONCRETE BARRIER TRANSITION DETAIL	SHEET	E

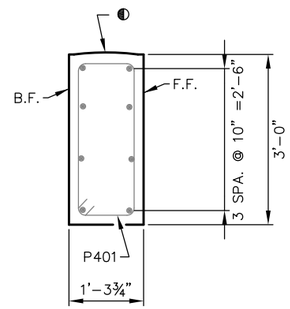
FILE NAME: G:\00–PROJECT FILES\2013\13057 STH 23 Phase 2\bridgeparapet_cd.dwg PLOT DATE: Jul 17, 2014 PLOT BY: kevins0 PLOT SCALE: 1/8"=1'–0" ROTATION: 0.0°



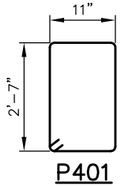
ELEVATION VEIW



PLAN



SECTION A–A



P401

BILL OF BARS
BARRIER FOOTINGS — COATED = 340 LBS.

MARK	NUMBER COATED	NUMBER UNCOATED	LENGTH	BENT	LOCATION	
P401	36		7–6	X	STIRRUP	VERT.
P402	32		7–8			HORIZ.
▲ P503	16		2–6		CONC. MASONRY ANCHORS	HORIZ.

NOTES

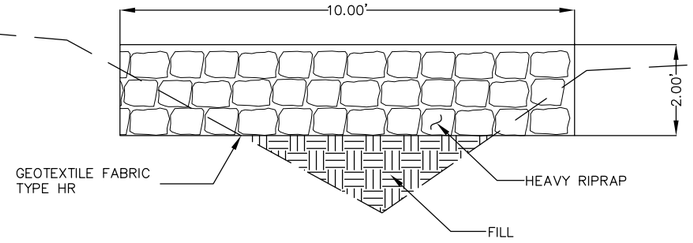
TOP AND BOTTOM OF PARAPET LONGITUDINAL SLOPE TO MATCH PROPOSED PROFILE SLOPE.

◐ CONST. JOINT – STRIKE OFF AS SHOWN & LEAVE ROUGH.

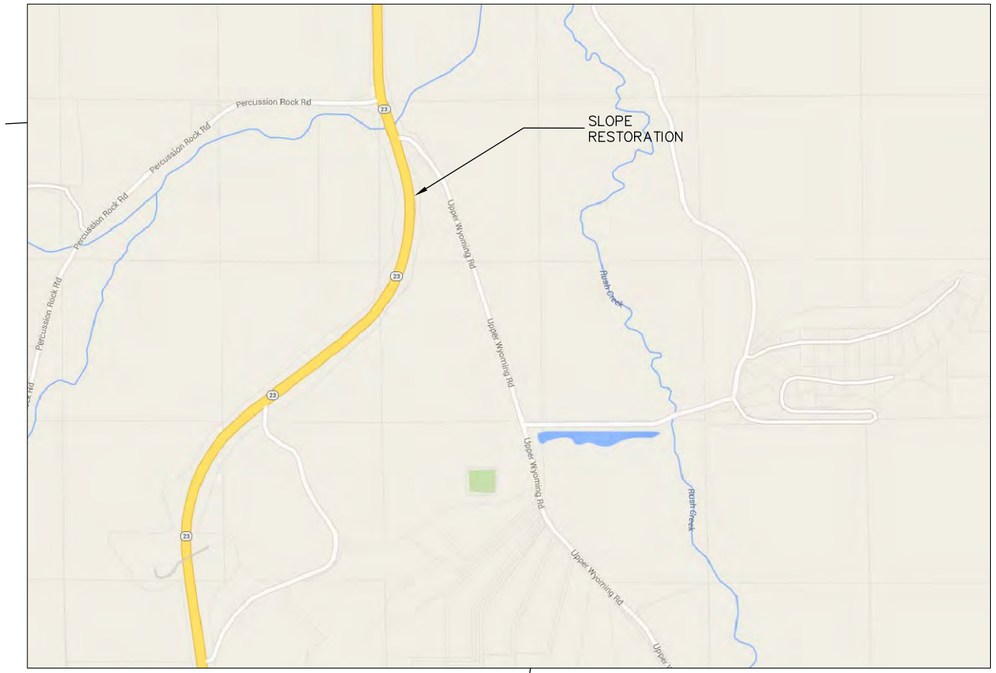
▲ CONCRETE MASONRY ANCHORS, TYPE L, NO. 5 BARS, EMBED A MINIMUM OF 1'–3".

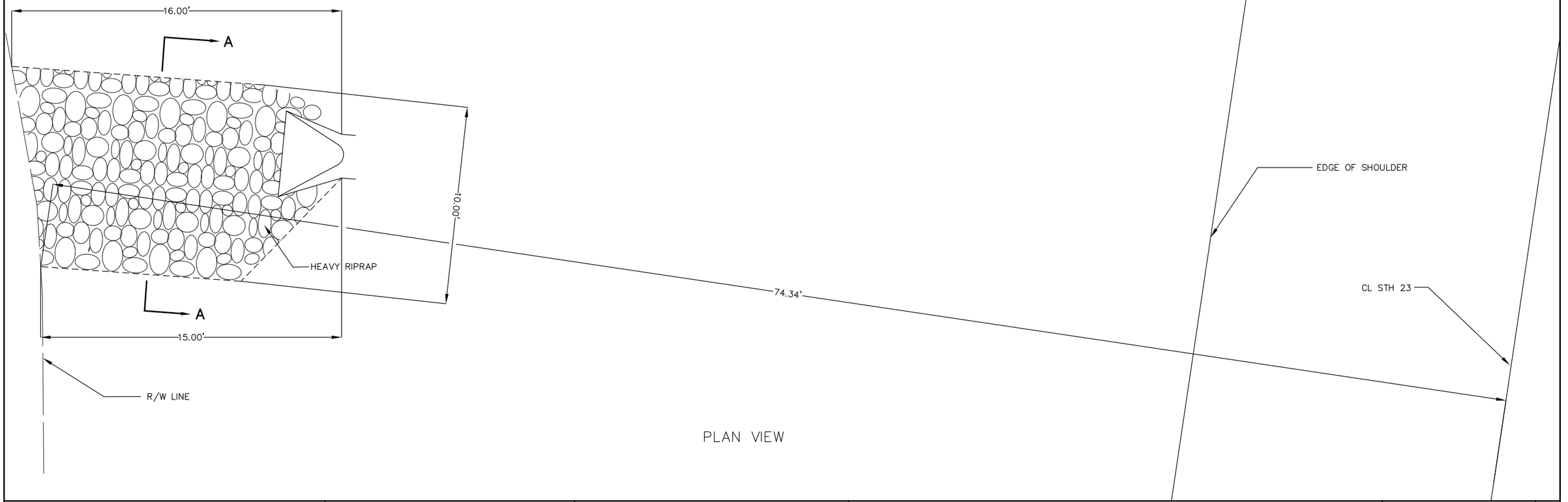
PROJECT NO: 5255–01–61	HWY: STH 23	COUNTY: IOWA	CONCRETE BARRIER FOOTING DETAIL	SHEET NO:	E

FILE NAME: G:\00–PROJECT FILES\2013\13057 STH 23 Phase 2\bridgeparapetfooting_cd.dwg PLOT DATE: Jul 17, 2014 PLOT BY: kevins0 PLOT SCALE: 1/8"=1'–0" ROTATION: 0.0°



TYPICAL SECTION A–A FROM PIPE TO R/W





PLAN VIEW

2

PROJECT NO: 5255–01–61	HWY: STH 23	COUNTY: IOWA	SLOPE RESTORATION DETAIL	SHEET NO: 14	E

FILE NAME: G:\00–PROJECT FILES\2013\13057 STH 23 Phase 2\5255–01–61\021008_cd_restoration.dwg PLOT DATE: Aug 26, 2014 PLOT BY: kevins0 PLOT SCALE: ROTATION:

2

2

LEGEND

XXXX SAWCUT, MATCH EXISTING

SILT FENCE

ASPHALTIC SURFACE BUTT JOINTS

N

STA. 588+21.20, 63.00' LT
1-ANCHORAGE FOR STEEL PLATE BEAM GUARD TYPE 2

STA. 588+21.20, 63.00' LT - 589+43.71, 18.30' LT
150 L.F. STEEL PLATE BEAM GUARD CLASS A

STA. 589+43.71, 18.33' LT - 589+64.23, 18.00' LT
STEEL THRIE BEAM STRUCTURE APPROACH

STA. 588+80.00 - 589+70.00, LT
REMOVE CONCRETE BARRIER
90 LF

STA. 588+80.00 - 589+62.00, LT
82 LF CONCRETE CURB & GUTTER
4-INCH SLOPED 36-INCH TYPE D

STA. 590+49.34 - 590+88.45, 18' LT
MGS THRIE BEAM TRANSITION

STA. 590+88.45 - 591+25.68, 18' LT
37.50 L.F. MGS GUARDRAIL 3

STA. 591+78.36, 20' LT
1 - MGS GUARDRAIL TERMINAL EAT

STA. 590+41.30 - 591+26.30, LT
REMOVE CONCRETE BARRIER
85 LF

* CONCRETE BARRIER TRANSITION

PI 588+32.86

LOWER WYOMING RD

LOWER WYOMING RD

R/W

580+00

585+00

575+00

570+00

STH 23

PC 572+38.24

PI 565+33.59

BEGIN PROJECT 5255-01-61
STA. 582+00.00

54' RADIUS

590+00

R/W

24' RADIUS

STRUCTURE B-25-59
TO REMAIN

CONCRETE SURFACE DRAIN
RIPRAP LIGHT 1 CY
WITH GEOTEXTILE FABRIC TYPE R

RUSH CREEK R & G CLUB

R/W

STA. 588+61.70 - 589+50.70, RT
REMOVE CONCRETE BARRIER
89 LF

STA. 588+58.00 RT
REMOVE SURFACE DRAIN

STA. 586+73.64, 20' RT
1 - MGS GUARDRAIL TERMINAL EAT

STA. 587+27.11 - 589+03.39, 18' RT
175 L.F. MGS GUARDRAIL 3

STA. 589+03.36 - 589+43.07, 18' RT
MGS THRIE BEAM TRANSITION

STA. 590+21.80 - 591+05.80, RT
REMOVE CONCRETE BARRIER
84 LF

STA. 590+25.00. RT
REMOVE EXISTING INLET &
15" X 10' SS PIPE

STA. 590+29.80 - 591+05.80, RT
76 LF CONCRETE CURB & GUTTER
4-INCH SLOPED 36-INCH TYPE D

STA. 590+29.42 - 590+50.21, 17.40' RT
STEEL THRIE BEAM STRUCTURE APPROACH

STA. 590+50.20, 17.40' RT - 591+35.60, 19.50' RT
84.75 L.F. STEEL PLATE BEAM GUARD CLASS A

STA. 591+35.60, 19.50' RT
68.75 L.F. STEEL PLATE BEAM GUARD SHORT RADIUS

STA. 591+52.40, 77.9' RT
STEEL PLATE BEAM GUARD
SHORT RADIUS TERMINAL

PROJECT NO: 5255-01-61	HWY: STH 23	COUNTY: IOWA	PLAN DETAIL	SHEET 15	E

2


LEGEND
XXXX SAWCUT, MATCH EXISTING
SILT FENCE
ASPHALTIC SURFACE BUTT JOINTS
N
STA. 619+39.40 - STA. 633+79.00, LT
SALVAGED RAIL
STA. 619+42.88, 20' LT
1- MGS GUARDRAIL TERMINAL EAT
STA. 619+95.97 - STA. 633+27.70, 18' LT
1331.25 L.F. MGS GUARDRAIL 3
STA. 622+75.40, 20' RT
1- MGS GUARDRAIL TERMINAL EAT
595+00
600+00
605+00
610+00
615+00
620+00
STH 23
R/W
R/W
PT 600+81.70
PC 604+37.89
PI 608+10.09
PT 611+75.84
PC 620+27.63
PI 621+81.98
PT 623+34.49

PROJECT NO: 5255-01-61	HWY: STH 23	COUNTY: IOWA	PLAN DETAIL	SHEET 16	E

2

N

LEGEND

XXXX SAWCUT, MATCH EXISTING

SILT FENCE

ASPHALTIC SURFACE BUTT JOINTS

STA. 619+39.40 - STA. 633+79.00, LT
SALVAGED RAIL

STA. 619+95.97 - STA. 633+34.07, 18'LT
1337.50 L.F. MGS GUARDRAIL 3

STA. 633+88.04, 20'LT
1 - MGS GUARDRAIL TERMINAL EAT

PI 621+81.98

PT 623+34.49

PC 625+48.49

PI 627+45.84

PT 629+39.37

PC 632+12.02

PI 633+45.66

PT 634+78.10

PC 638+45.78

PT 640+98.19

PI 639+72.17

PC 646+41.96

PT 648+78.54

PI 647+60.59

625+00

630+00

635+00

640+00

645+00

650+00

STH 23

STA. 622+94.90 - STA. 623+85.00, RT
SALVAGED RAIL

STA. 622+75.40, 20'RT
1 - MGS GUARDRAIL TERMINAL EAT

STA. 623+27.48 - STA. 623+52.47, 18'RT
25 L.F. MGS GUARDRAIL 3

STA. 624+05.60, 20'RT
1 - MGS GUARDRAIL TERMINAL EAT

STA. 629+16.40 - STA. 630+69.50, RT
SALVAGED RAIL

STA. 629+14.48, 20'RT
1 - MGS GUARDRAIL TERMINAL EAT

STA. 629+67.99 - STA. 630+18.00, 18'RT
50 L.F. MGS GUARDRAIL 3

STA. 630+71.09, 20'RT
1 - MGS GUARDRAIL TERMINAL EAT

PROJECT NO: 5255-01-61	HWY: STH 23	COUNTY: IOWA	PLAN DETAIL	SHEET 17	E

2

PROJECT NO: 5255-01-61	HWY: STH 23	COUNTY: IOWA	PLAN DETAIL	SHEET	E

FILE NAME : G:\00-PROJECT FILES\2013\13057 STH 23 Phase 2\5255-01-61\021204_pd.dgn PLOT DATE : 8/28/2014 PLOT BY : MikeCO PLOT NAME : PLOT SCALE : 200.0000 sf / in.

WISDOT/CADDS SHEET 42

2

2

N

LEGEND

XXXX SAWCUT, MATCH EXISTING

SILT FENCE

ASPHALTIC SURFACE BUTT JOINTS

STA. 707+46.62, 20.00' LT
1 - MGS GUARDRAIL TERMINAL EAT

STA. 707+99.73 - 708+62.23, 18.00' LT
62.50 L.F. MGS GUARDRAIL 3

STA. 708+62.23 - 709+01.63, 18.00' LT
MGS THRIE BEAM TRANSITION

STA. 708+23.00 - STA. 709+07.00, LT & RT
REMOVE CONCRETE BARRIER
168 LF

STA. 709+68.19 - 710+07.65, 18.00' LT
MGS THRIE BEAM TRANSITION

STA. 710+07.65 - 710+95.15, 18.00' LT
87.50 L.F. MGS GUARDRAIL 3

STA. 711+48.28, 20.00' LT
1 - MGS GUARDRAIL TERMINAL EAT

STA. 709+63.00 - STA. 710+73.00, LT
REMOVE CONCRETE BARRIER
110 LF

* CONCRETE BARRIER TRANSITION

STA. 709+65.00, LT
REMOVE EXISTING INLET &
15" X 10' SS PIPE

CONCRETE SURFACE DRAIN
RIPRAP LIGHT 1 CY
WITH GEOTEXTILE FABRIC
TYPE R

685+00 690+00 695+00 700+00 R/W 705+00 710+00

STH 23

R/W

R/W

PI 694+93.75

PI 709+79.19

HILLSIDE SCHOOL RD

STRUCTURE B-25-60
TO REMAIN

CONCRETE SURFACE DRAIN
RIPRAP LIGHT 1 CY
WITH GEOTEXTILE FABRIC
TYPE R

STA. 707+08.97, 20.00' RT
1 - MGS GUARDRAIL TERMINAL EAT

STA. 707+62.10 - 708+62.10, 18.00' RT
100.00 L.F. MGS GUARDRAIL 3

STA. 708+62.10 - 709+01.50, 18.00' RT
MGS THRIE BEAM TRANSITION

STA. 709+65.00, RT
REMOVE EXISTING INLET &
15" X 10' SS PIPE

STA. 709+63.00 - STA. 710+70.00, RT
REMOVE CONCRETE BARRIER
107 LF

STA. 709+68.17 - 710+07.50, 18.00' RT
MGS THRIE BEAM TRANSITION

STA. 710+07.50 - 710+45.00, 18.00' RT
37.50 L.F. MGS GUARDRAIL 3

STA. 710+98.13, 13.00' RT
1 - MGS GUARDRAIL TERMINAL EAT

PROJECT NO: 5255-01-61	HWY: STH 23	COUNTY: IOWA	PLAN DETAIL	SHEET 19	E

2

2

LEGEND

XXXX SAWCUT, MATCH EXISTING

SILT FENCE

ASPHALTIC SURFACE BUTT JOINTS

N

PC 712+79.97

715+00

720+00

PT 724+51.10

PI 725+79.17

705+00

730+00

735+00

STH 23

R/W

EXISTING RIPRAP (TYP)

PI 720+29.18

CTH T

STRUCTURE B-25-61
TO REMAIN

STA. 722+52.12, 18.70' LT
1- MGS GUARDRAIL TERMINAL EAT

STA. 723+06.66 - 723+47.05, 18.00' LT
MGS THRIE BEAM TRANSITION

STA. 722+75.00 - 723+53.00, LT
REMOVE CONCRETE BARRIER
92 LF

STA. 724+12.00 - 724+96.00, LT
REMOVE CONCRETE BARRIER
84 LF

STA. 724+17.27 - 724+57.53, 18.00' LT
MGS THRIE BEAM TRANSITION

STA. 724+57.53- 725+82.25, 18.00' LT
125 L.F. MGS GUARDRAIL 3

STA. 726+35.38, 20.00' LT
1- MGS GUARDRAIL TERMINAL EAT

STA. 724+15.00, LT
REMOVE EXISTING INLET &
15" X 10' SS PIPE

* CONCRETE BARRIER TRANSITION

STA. 722+63.00 - 723+47.00, RT
REMOVE CONCRETE BARRIER
84 LF

STA. 722+15.90, 20.00' RT
1- MGS GUARDRAIL TERMINAL EAT

STA. 722+66.98 - 723+03.61, 18.00' RT
37.50 L.F. MGS GUARDRAIL 3

STA. 723+03.61 - 723+42.08, 18.00' RT
MGS THRIE BEAM TRANSITION

STA. 724+07.00 - 724+91.00, RT
REMOVE CONCRETE BARRIER
84 LF

STA. 724+12.52 - 724+50.98, 18.00' RT
MGS THRIE BEAM TRANSITION

STA. 724+50.98 - 724+88.80, 18.00' RT
37.50 L.F. MGS GUARDRAIL 3

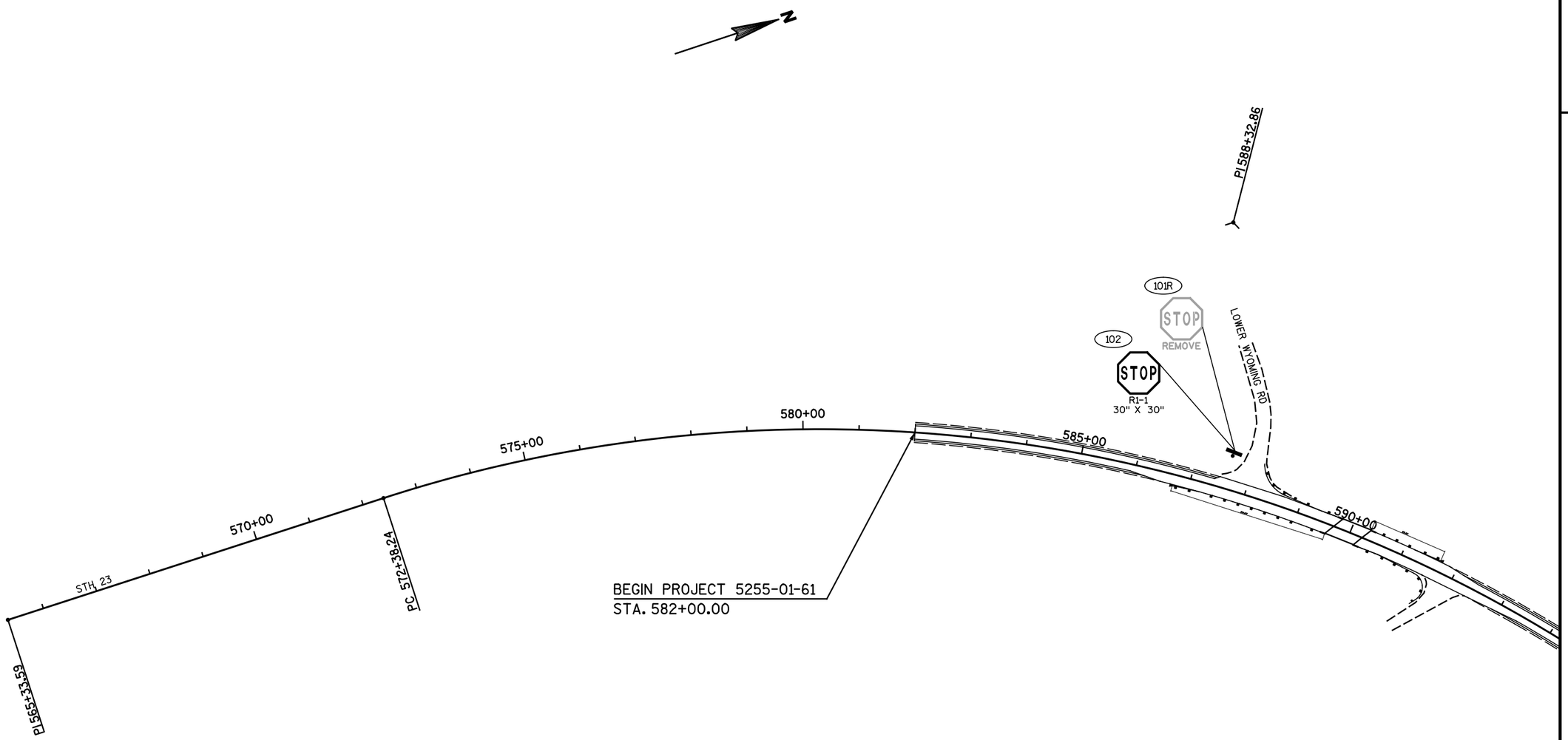
STA. 725+41.94, 20.00' RT
1- MGS GUARDRAIL TERMINAL EAT

PROJECT NO: 5255-01-61	HWY: STH 23	COUNTY: IOWA	PLAN DETAIL	SHEET 20	E

2

PROJECT NO: 5255-01-61	HWY: STH 23	COUNTY: IOWA	PLAN DETAIL	SHEET 21	E

2



PROJECT NO: 5255-01-61	HWY: STH 23	COUNTY: IOWA	EXISTING SIGN REMOVAL & PERMANENT SIGNING	SHEET 22	E

2

N

595+00

600+00

605+00

610+00

615+00

620+00

STH 23

PT 600+81.70

PC 604+37.89

PI 608+10.09

PT 611+75.84

PC 620+27.63

PT 623+34.49

PI 621+81.98

203R
REMOVE

204
W1-2L
30" X 30"

209R
NO PASSING ZONE
REMOVE

210
NO PASSING ZONE
W14-3
48" X 36"

205R
REMOVE

206R
50 M.P.H.
REMOVE

207R
NO PASSING ZONE
REMOVE

208
NO PASSING ZONE
W14-3
48" X 36"

201R
STOP
REMOVE

202
STOP
R1-1
30" X 30"

✳ FINAL LOCATIONS OF W14-3, "NO PASSING ZONE" SIGNS, TO BE DETERMINED AFTER LOCATING NO PASSING ZONES IS COMPLETED.

PROJECT NO: 5255-01-61	HWY: STH 23	COUNTY: IOWA	EXISTING SIGN REMOVAL & PERMANENT SIGNING	SHEET 23	E

2

2

N

PT 623+34.49

625+00

PI 627+45.84

630+00

PC 632+12.02

PT 634+78.10

635+00

PI 639+72.17

640+00

645+00

PC 646+41.96

STH 23

PT 648+78.54

650+00

PI 621+81.98

PC 625+48.49

PT 629+39.37

PI 633+45.66

PC 638+45.78

PT 640+98.19

PI 647+60.59

301R

REMOVE

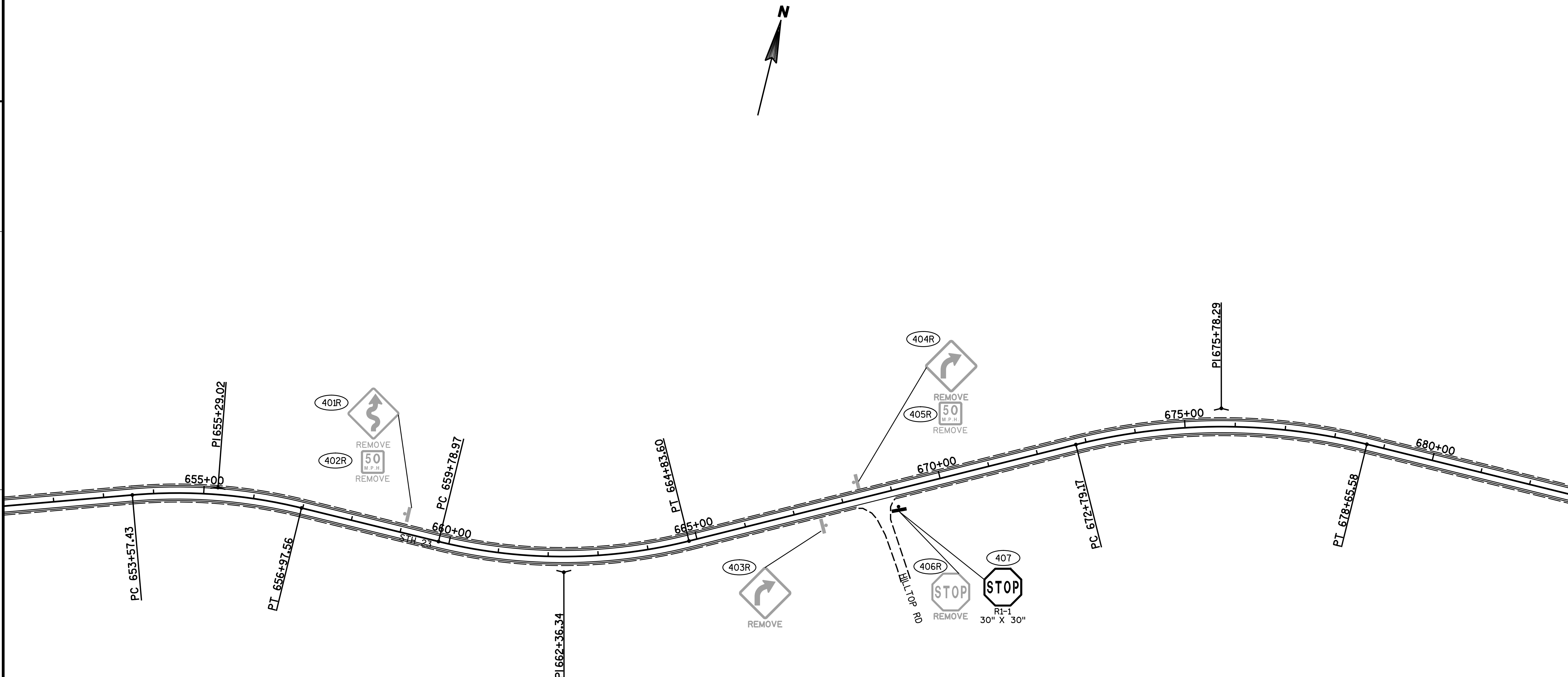
302R

50 M.P.H.

REMOVE

PROJECT NO: 5255-01-61	HWY: STH 23	COUNTY: IOWA	EXISTING SIGN REMOVAL & PERMANENT SIGNING	SHEET 24	E

2



2

PROJECT NO:5255-01-61	HWY:STH 23	COUNTY:IOWA	EXISTING SIGN REMOVAL & PERMANENT SIGNING	SHEET 25	E

FILE NAME : G:\00-PROJECT FILES\2012\12014 STH 23\plans\5255-01-61\023204_ps.dgn PLOT DATE : 5/6/2014 PLOT BY : JimO PLOT NAME : PLOT SCALE : 200.0000 sf / in. WISDOT/CADDS SHEET 42

2

N

501R
REMOVE

685+00

690+00

695+00

700+00

705+00

710+00

STH 23

502R
NO PASSING ZONE
REMOVE

503
NO PASSING ZONE
W14-3
48" X 36"

PI 694+93.75
HILLSIDE SCHOOL RD

504R
STOP
REMOVE

505
STOP
R1-1
30" X 30"

506R
ROAD TO
Tower Hill
State Park
1 MILE
REMOVE

507
ROAD TO
Tower Hill
State Park
1 MILE
D7-52
60" X 42"

508R
NO PASSING ZONE
REMOVE

509
NO PASSING ZONE
W14-3
48" X 36"

510R
REMOVE

511R
45 M.P.H.
REMOVE

512
W1-2L
30" X 30"

513
45 M.P.H.
W13-1
18" X 18"

PI 709+79.19

514R
JCT
COUNTY T
REMOVE

515
JCT
COUNTY T
J1-1
24" X 39"

STRUCTURE B-25-60
TO REMAIN

✳ FINAL LOCATIONS OF W14-3, "NO PASSING ZONE" SIGNS, TO BE DETERMINED AFTER LOCATING NO PASSING ZONES IS COMPLETED.

PROJECT NO: 5255-01-61	HWY: STH 23	COUNTY: IOWA	EXISTING SIGN REMOVAL & PERMANENT SIGNING	SHEET	E

FILE NAME : G:\00-PROJECT FILES\2013\13057 STH 23 Phase 2\5255-01-61\023205_ps.dgn PLOT DATE : 10/15/2014 PLOT BY : MikeCO PLOT NAME : PLOT SCALE : 200.0000 sf / in.

WISDOT/CADDS SHEET 42

2

N

PC 712+79.97

715+00

720+00

PI 720+29.18

725+00

730+00

735+00

STH 23

PT 724+51.10

PI 725+79.17

C/H T

STRUCTURE B-25-61
TO REMAIN

✳ FINAL LOCATIONS OF W14-3, "NO PASSING ZONE" SIGNS, TO BE DETERMINED AFTER LOCATING NO PASSING ZONES IS COMPLETED.

601R — SOUTH 23 — REMOVE

602 — SOUTH 23 — J4-1 24" X 36"

603R — COUNTY T — REMOVE

604 — COUNTY T — J13-1 24" X 45"

605 — W1-7 48" X 24"

606R — STOP — REMOVE

607 — STOP — R1-1 30" X 30"

608R — 23 — REMOVE

609 — 23 — J13-1 24" X 45"

610R — COUNTY T — REMOVE

611 — COUNTY T — J13-1 24" X 45"

612R — NORTH 23 — REMOVE

613 — NORTH 23 — J4-1 24" X 36"

614R — JCT COUNTY T — REMOVE

615 — JCT COUNTY T — J1-1 24" X 39"

616 — ROAD TO Taliesin / Frank Lloyd Wright Visitor Center 1/2 MILE — D7-51 (MOD) 90" X 54"

617R — NO PASSING ZONE — REMOVE

618 ✳ — NO PASSING ZONE — W14-3 48" X 36"

619R — REMOVE

620R — 45 M.P.H. — REMOVE

621R — REMOVE

622R — 50 M.P.H. — REMOVE

623R — NO PASSING ZONE — REMOVE

624 ✳ — NO PASSING ZONE — W14-3 48" X 36"

625 — W1-2R 30" X 30"

626 — 45 M.P.H. — W13-1 18" X 18"

PROJECT NO: 5255-01-61	HWY: STH 23	COUNTY: IOWA	EXISTING SIGN REMOVAL & PERMANENT SIGNING	SHEET 27	E

2

N

PI 742+32.47

740+00

745+00

750+00

755+00

760+00

STH 23

PC 739+25.14

PT 745+22.67

PC 751+91.02

PT 756+55.88

PI 754+25.51

PI 764+49.95

CTH C

701R
JCT
COUNTY C
REMOVE

702R
REMOVE

703R
SOUTH
23
REMOVE

704R
COUNTY C 23
REMOVE

705R
STOP
REMOVE

706R
COUNTY C
REMOVE

707R
COUNTY C
REMOVE

708R
REMOVE

709R
50 M.P.H.
REMOVE

710R
Frank Lloyd Wright Visitor Center
Tower Hill State Park
REMOVE

711R
REMOVE

712R
American Players Theater
REMOVE

713R
COUNTY C
REMOVE

714R
Dodgeville
House on the Rock
Spring Green
REMOVE

715R
COUNTY C
REMOVE

716R
STOP
REMOVE

717R
COUNTY C 23
REMOVE

718R
STOP
REMOVE

719R
NORTH
23
REMOVE

720R
Sauk Co
REMOVE

721R
NO FISHING DIVING BRIDGE
REMOVE

722R
REMOVE

723R
REMOVE

724R
REMOVE

725R
House On The Rock
REMOVE

726R
American Players Theater
REMOVE

PROJECT NO: 5255-01-61	HWY: STH 23	COUNTY: IOWA	EXISTING SIGN REMOVAL & PERMANENT SIGNING	SHEET 28	E

2

N

PI 742+32.47

740+00

745+00

750+00

755+00

760+00

STH 23

PC 739+52.34

PT 745+22.67

PC 751+91.02

PT 756+55.88

PI 764+49.95

PI 754+25.51

CTH C

801
JCT
COUNTY C
J1-1
24" X 39"

802
W11-1
30" X 30"

803
SOUTH 23
J4-1
24" X 36"

804
COUNTY C 23
J13-2
48" X 45"

805
STOP
R1-1
30" X 30"

806
COUNTY C
J13-1
24" X 45"

807
W1-7
48" X 24"

808
COUNTY C
J13-1
24" X 45"

809
Taliesin
Frank Lloyd Wright Visitor Center
D7-53R
90" X 48"

810M
HOUSE ON THE ROCK RESORT ½
MOVE

811M
SPRING VALLEY INN 2.7
MOVE

812
Tower Hill State Park
D7-53R
54" X 36"

813
W11-1
30" X 30"

814
American Players Theater
D1-3
66" X 36"

815
House On The Rock
D1-2
78" X 24"

816
COUNTY C
J13-1
24" X 45"

817
STOP
R1-1
30" X 30"

818
W1-6
48" X 24"

819
COUNTY C
J13-1
24" X 45"

820M
HOUSE ON THE ROCK RESORT ½
MOVE

821M
SPRING VALLEY INN 2.7
MOVE

822
STOP
R1-1
30" X 30"

823
COUNTY C 23
J13-2
48" X 45"

824
NORTH 23
J4-1
24" X 36"

825
American Players Theater
D1-3
66" X 36"

826
Sauk Co
I2-2
48" X 15"

827
NO FISHING DIVING BRIDGE
R9-56
18" X 24"

828
D11-6
24" X 18"

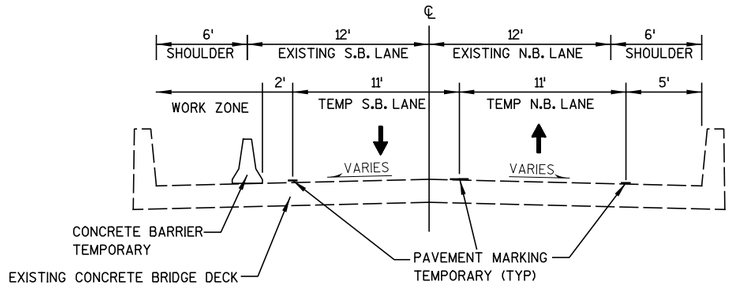
829
W5-52L
12" X 36"

830
W5-52R
12" X 36"

831
Tower Hill State Park
D7-53L
54" X 36"

PROJECT NO: 5255-01-61	HWY: STH 23	COUNTY: IOWA	EXISTING SIGN REMOVAL & PERMANENT SIGNING	SHEET 29	E

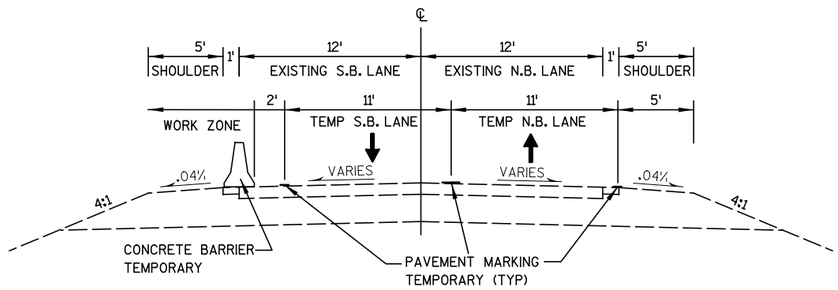
2



TYPICAL EXISTING BRIDGE SECTION

STAGE 1

STAGE 2 IS THE MIRROR IMAGE



TYPICAL EXISTING SECTION

STAGE 1

STAGE 2 IS THE MIRROR IMAGE

FOR BRIDGES AT STA. 590+00, STA. 709+35 AND STA. 723+80

NOTES

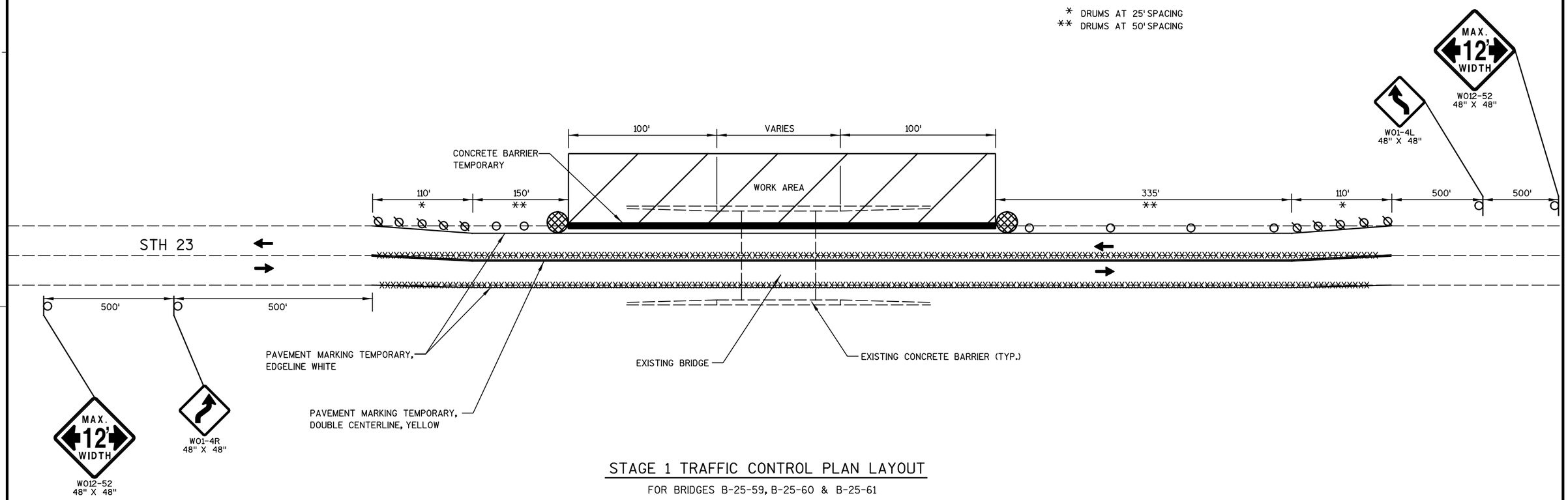
REFER TO S.D.D. "TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY", FOR MORE GUIDANCE.

FOR BRIDGES B-25-60 & B-25-61 ONLY TWO W012-52 SIGNS ARE REQUIRED FOR EACH STAGE.

LEGEND

⊘/○	TRAFFIC CONTROL DRUMS, WITH / WITHOUT TYPE "C" LIGHT
⊗	CRASH CUSHIONS TEMPORARY
←	DIRECTION OF TRAFFIC
XXXXX	REMOVE PAVEMENT MARKING

* DRUMS AT 25' SPACING
** DRUMS AT 50' SPACING



STAGE 1 TRAFFIC CONTROL PLAN LAYOUT

FOR BRIDGES B-25-59, B-25-60 & B-25-61
STAGE 2 IS MIRROR IMAGE

PROJECT NO: 5255-01-61	HWY: STH 23	COUNTY: IOWA	TRAFFIC CONTROL - STAGING PLAN AT BRIDGES	SHEET 31	E

DATE 18NOV14 E S T I M A T E O F Q U A N T I T I E S

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	5255-01-61 QUANTITY
0010	204.0115	REMOVING ASPHALTIC SURFACE BUTT JOINTS	SY	4,260.000	4,260.000
0020	204.0157	REMOVING CONCRETE BARRIER	LF	1,100.000	1,100.000
0030	204.0180	REMOVING DELINEATORS AND MARKERS	EACH	6.000	6.000
0040	204.0190	REMOVING SURFACE DRAINS	EACH	1.000	1.000
0050	204.0220	REMOVING INLETS	EACH	4.000	4.000
0060	204.0245	REMOVING STORM SEWER (SIZE) 01. 15-INCH	LF	40.000	40.000
0070	213.0100	FINISHING ROADWAY (PROJECT) 01. 5255-01-61	EACH	1.000	1.000
0080	305.0110	BASE AGGREGATE DENSE 3/4-INCH	TON	900.000	900.000
0090	305.0500	SHAPING SHOULDERS	STA	464.000	464.000
0100	416.1010	CONCRETE SURFACE DRAINS	CY	12.000	12.000
0110	440.4410.S	INCENTIVE IRI RIDE	DOL	6,646.000	6,646.000
0120	455.0105	ASPHALTIC MATERIAL PG58-28	TON	580.000	580.000
0130	455.0605	TACK COAT	GAL	3,200.000	3,200.000
0140	460.1101	HMA PAVEMENT TYPE E-1	TON	10,510.000	10,510.000
0150	460.2000	INCENTIVE DENSITY HMA PAVEMENT	DOL	8,620.000	8,620.000
0160	460.4110.S	REHEATING HMA PAVEMENT LONGITUDINAL JOINTS	LF	17,550.000	17,550.000
0170	490.0200	SALVAGED ASPHALTIC PAVEMENT MILLING	SY	62,500.000	62,500.000
0180	601.0553	CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE D	LF	430.000	430.000
0190	603.8000	CONCRETE BARRIER TEMPORARY PRECAST DELIVERED	LF	1,680.000	1,680.000
0200	603.8125	CONCRETE BARRIER TEMPORARY PRECAST INSTALLED	LF	1,680.000	1,680.000
0210	606.0100	RIPRAP LIGHT	CY	3.000	3.000
0220	606.0300	RIPRAP HEAVY	CY	12.000	12.000
0230	614.0010	BARRIER SYSTEM GRADING SHAPING FINISHING	EACH	17.000	17.000
0240	614.0115	ANCHORAGES FOR STEEL PLATE BEAM GUARD TYPE 2	EACH	1.000	1.000
0250	614.0200	STEEL THRIE BEAM STRUCTURE APPROACH	LF	61.950	61.950
0260	614.0305	STEEL PLATE BEAM GUARD CLASS A	LF	359.750	359.750
0270	614.0345	STEEL PLATE BEAM GUARD SHORT RADIUS	LF	68.750	68.750
0280	614.0370	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL	EACH	1.000	1.000
0290	614.0390	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL	EACH	1.000	1.000
0300	614.0515	GUARDRAIL STIFENED LHW	LF	143.750	143.750
0310	614.0905	CRASH CUSHIONS TEMPORARY	EACH	12.000	12.000
0320	614.0920	SALVAGED RAIL	LF	2,200.000	2,200.000
0330	614.2300	MGS GUARDRAIL 3	LF	2,112.500	2,112.500
0340	614.2330	MGS GUARDRAIL 3 K	LF	212.500	212.500
0350	614.2500	MGS THRIE BEAM TRANSITION	LF	433.400	433.400
0360	614.2610	MGS GUARDRAIL TERMINAL EAT	EACH	17.000	17.000
0370	618.0100	MAINTENANCE AND REPAIR OF HAUL ROADS (PROJECT) 01. 5255-01-61	EACH	1.000	1.000
0380	619.1000	MOBILIZATION	EACH	1.000	1.000
0390	628.1504	SILT FENCE	LF	4,500.000	4,500.000
0400	628.1520	SILT FENCE MAINTENANCE	LF	9,000.000	9,000.000
0410	628.2004	EROSION MAT CLASS I TYPE B	SY	300.000	300.000
0420	634.0614	POSTS WOOD 4X6-INCH X 14-FT	EACH	5.000	5.000
0430	634.0616	POSTS WOOD 4X6-INCH X 16-FT	EACH	47.000	47.000
0440	634.0618	POSTS WOOD 4X6-INCH X 18-FT	EACH	9.000	9.000
0450	637.2210	SIGNS TYPE II REFLECTIVE H	SF	332.690	332.690
0460	637.2230	SIGNS TYPE II REFLECTIVE F	SF	101.750	101.750

3

DATE 18NOV14 E S T I M A T E O F Q U A N T I T I E S

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	5255-01-61 QUANTITY
0470	638.2102	MOVING SIGNS TYPE II	EACH	4.000	4.000
0480	638.2602	REMOVING SIGNS TYPE II	EACH	62.000	62.000
0490	638.3000	REMOVING SMALL SIGN SUPPORTS	EACH	55.000	55.000
0500	642.5001	FIELD OFFICE TYPE B	EACH	1.000	1.000
0510	643.0100	TRAFFIC CONTROL (PROJECT) 01. 5255-01-61	EACH	1.000	1.000
0520	643.0300	TRAFFIC CONTROL DRUMS	DAY	2,160.000	2,160.000
0530	643.0715	TRAFFIC CONTROL WARNING LIGHTS TYPE C	DAY	1,200.000	1,200.000
0540	643.0900	TRAFFIC CONTROL SIGNS	DAY	1,712.000	1,712.000
0550	645.0120	GEOTEXTILE FABRIC TYPE HR	SY	25.000	25.000
0560	645.0130	GEOTEXTILE FABRIC TYPE R	SY	17.000	17.000
0570	646.0106	PAVEMENT MARKING EPOXY 4-INCH	LF	35,350.000	35,350.000
0580	646.0406	PAVEMENT MARKING SAME DAY EPOXY 4-INCH	LF	28,022.000	28,022.000
0590	646.0600	REMOVING PAVEMENT MARKINGS	LF	21,150.000	21,150.000
0600	647.0566	PAVEMENT MARKING STOP LINE EPOXY 18-INCH	LF	75.000	75.000
0610	648.0100	LOCATING NO-PASSING ZONES	MI	3.350	3.350
0620	649.0100	TEMPORARY PAVEMENT MARKING 4-INCH	LF	22,800.000	22,800.000
0630	650.5500	CONSTRUCTION STAKING CURB GUTTER AND CURB & GUTTER	LF	430.000	430.000
0640	650.7500	CONSTRUCTION STAKING CONCRETE BARRIER	LF	96.000	96.000
0650	650.8000	CONSTRUCTION STAKING RESURFACING REFERENCE	LF	17,546.000	17,546.000
0660	650.9910	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) 01. 5255-01-61	LS	1.000	1.000
0670	690.0150	SAWING ASPHALT	LF	200.000	200.000
0680	690.0250	SAWING CONCRETE	LF	62.000	62.000
0690	SPV.0090	SPECIAL 01. CONCRETE BARRIER TRANSITION	LF	96.000	96.000
0700	SPV.0090	SPECIAL 02. PROFILE CURB CUT	LF	450.000	450.000
0710	SPV.0090	SPECIAL 03. STEEL PLATE BEAM GUARD DUPLEX COATED	LF	4,358.000	4,358.000
0720	SPV.0090	SPECIAL 04. REMOVING HMA PAVEMENT NOTCHED WEDGE LONGITUDINAL JOINT MILLING	LF	17,550.000	17,550.000

3

204.0115
REMOVING ASPHALTIC SURFACE BUTT JOINTS

STATION	LOCATION	(SY)
582+00	MAINLINE	473
583+00	LOWER WYOMING RD	80
589+68.80	MAINLINE	472
590+23.20	MAINLINE	472
592+00	RUSH CREEK R & G CLUB	53
668+75	HILLTOP ROAD	62
694+95	HILLSIDE SCHOOL ROAD	64
709+17.20	MAINLINE	472
709+52.70	MAINLINE	472
719+50	CTH T	76
723+62.00	MAINLINE	472
723+99.30	MAINLINE	472
748+25	CTH C, WEST	71
756+40	CTH C, EAST	76
758+73.00	MAINLINE	473
	TOTAL	4260

204.0157
REMOVING CONCRETE BARRIER

STATION	-	STATION	LOCATION	(LF)
588+61.7	-	589+50.7	MAINLINE, RT	91
588+80.0	-	589+70.0	MAINLINE, LT	92
590+21.8	-	591+05.8	MAINLINE, RT	86
590+41.3	-	591+26.3	MAINLINE, LT	87
708+23.0	-	709+07.0	MAINLINE, LT & RT	171
709+63.0	-	710+70.0	MAINLINE, RT	109
709+63.0	-	710+73.0.	MAINLINE, LT	112
722+63.0	-	723+47.0	MAINLINE, RT	86
722+75.0	-	723+53.0	MAINLINE, LT	94
724+07.0	-	724+91.0	MAINLINE, RT	86
724+12.0	-	724+96.0	MAINLINE, LT	86
			TOTAL	1100

614.0920
SALVAGED RAIL

CATEGORY	STATION	- STATION	LOCATION	(L.F.)
	619+39.40	633+79.00	MAINLINE, LT	1463
	622+94.90	-623+85.00	MAINLINE, RT	92
	629+16.40	-630+69.50	MAINLINE, RT	156
	755+57.00	-758+66.00	MAINLINE, LT	313
	756+92.00	-758+66.00	MAINLINE, RT	176
			TOTAL	2200

204.0180
REMOVING DELINEATORS AND MARKERS

STATION	LOCATION	(EACH)
588+60	MAINLINE, RT	1
591+05	MAINLINE, LT	1
708+23	MAINLINE, RT	1
710+73	MAINLINE, LT	1
722+63	MAINLINE, RT	1
723+53	MAINLINE, LT	1
	TOTAL	6

3

204.0190
REMOVING SUFACE DRAINS

STATION	LOCATION	(EACH)
588+60	MAINLINE, RT	1
	TOTAL	1

204.0220
REMOVING INLETS

STATION	LOCATION	(EACH)
590+25	MAINLINE, RT	1
709+65	MAINLINE, LT	1
709+65	MAINLINE, RT	1
724+15	MAINLINE, LT	1
	TOTAL	4

204.0245
REMOVING STORM SEWER (SIZE)

STATION	LOCATION	SIZE (IN)	LF
590+25	MAINLINE, RT	15	10
709+65	MAINLINE, LT	15	10
709+65	MAINLINE, RT	15	10
724+15	MAINLINE, LT	15	10
	TOTAL		40

305.0500
SHAPING SHOULDERS

STATION	-	STATION	LOCATION	(STA)
525+00	-	758+73	MAINLINE, LT	232
525+00	-	758+73	MAINLINE, RT	232
			TOTAL	464

305.0110
BASE AGGREGATE DENSE 3/4-INCH

STATION	-	STATION	LOCATION	(TON)
582+00.00	-	589+68.80	MAINLINE, LT & RT	21
590+23.20	-	603+45.00	MAINLINE, LT & RT	35
603+45.00	-	618+50.00	MAINLINE, LT & RT	40
618+50.00	-	635+00.00	MAINLINE, LT	83
618+50.00	-	622+00.00	MAINLINE, RT	5
622+00.00	-	625+00.00	MAINLINE, RT	15
625+00.00	-	628+50.00	MAINLINE, RT	5
628+50.00	-	631+50.00	MAINLINE, RT	15
631+50.00	-	635+00.00	MAINLINE, RT	5
635+00.00	-	694+95.00	MAINLINE, LT & RT	160
694+95.00	-	708+45.00	MAINLINE, LT & RT	132
708+45.00	-	709+17.20	MAINLINE, LT & RT	5
715+00.00	-	723+62.00	MAINLINE, RT	31
723+99.30	-	725+45.00	MAINLINE, LT & RT	10
725+45.00	-	748+05.00	MAINLINE, LT & RT	221
748+05.00	-	758+73.00	MAINLINE, LT & RT	104
---	-	---	SIDEROADS	8
---	-	---	DRIVEWAYS	5
			TOTAL	900

490.0200
SALVAGED ASPHALTIC PAVEMENT MILLING

STATION	-	STATION	LOCATION	(SY)
582+20.00	-	589+48.80	MAINLINE, LT & RT	2756
---	-	---	LOWER WYOMING RD	216
590+43.20	-	694+95.00	MAINLINE, LT & RT	39531
---	-	---	RUSH CREEK R & G CLUB	134
---	-	---	HILLTOP RD	126
---	-	---	HILLSIDE SCHOOL RD	161
694+95.00	-	708+45.00	MAINLINE, LT & RT	3904
708+45.00	-	708+97.20	MAINLINE, LT & RT	174
709+72.70	-	723+42.00	MAINLINE, RT	2283
709+72.70	-	718+25.00	MAINLINE, LT	1420
---	-	---	CTH T	108
718+25.00	-	721+00.00	MAINLINE, LT	733
721+00.00	-	723+42.00	MAINLINE, LT	403
724+19.30	-	725+45.00	MAINLINE, LT & RT	419
725+45.00	-	748+05.00	MAINLINE, LT & RT	6536
---	-	---	CTH C, WEST	266
748+05.00	-	758+73.00	MAINLINE, LT & RT	3088
---	-	---	CTH C, EAST	242
			TOTAL	62,500

416.1010
CONCRETE SURFACE DRAINS

STATION	LOCATION	(CY)
590+40	MAINLINE, RT	7
709+75	MAINLINE, LT	2
709+75	MAINLINE, RT	3
	TOTAL	12

RIPRAP HEAVY	606.0300	645.0120
LOCATION	RIPRAP HEAVY (CY)	GEOTEXTILE FABRIC TYPE HR (SY)
SLOPE RESTORATION AREA	12	25
TOTALS	12	25

ASPHALTIC ITEMS		455.0105	455.0605	460.1101
STATION	- STATION	LOCATION	ASPHALTIC MATERIAL PG58-28 (TON)	TACK COAT (GAL)	HMA PAVEMENT TYPE E-1 (TON)
582+00.00	- 589+68.80	MAINLINE, LT & RT	27	150	489
	- 583+00.00	LOWER WYOMING ROAD	12	16	218
590+23.20	- 603+45.00	MAINLINE, LT & RT	46	256	840
	- 592+00.00	RUSH CREEK R & G CLUB	2	14	31
603+45.00	- 619+35.00	MAINLINE, LT & RT	56	308	1010
619+35.00	- 634+00.00	MAINLINE, LT	27	150	493
619+35.00	- 622+65.00	MAINLINE, RT	6	36	105
622+65.00	- 624+15.00	MAINLINE, RT	3	20	53
624+15.00	- 629+00.00	MAINLINE, RT	8	48	154
629+00.00	- 630+85.00	MAINLINE, RT	4	24	66
630+85.00	- 634+00.00	MAINLINE, RT	5	32	100
634+00.00	- 694+95.00	MAINLINE, LT & RT	215	1174	3870
	- 668+75.00	HILLTOP ROAD	2	14	32
	- 694+95.00	HILLSIDE SCHOOL ROAD	2	16	38
694+95.00	- 707+00.00	MAINLINE, LT & RT	32	178	586
707+00.00	- 709+17.20	MAINLINE, LT & RT	7	40	130
709+52.70	- 711+50.00	MAINLINE, LT & RT	6	38	118
711+50.00	- 718+25.00	MAINLINE, LT & RT	21	116	378
718+25.00	- 721+00.00	MAINLINE, LT & RT	11	64	200
	- 719+50.00	CTH T	2	16	31
721+00.00	- 722+00.00	MAINLINE, LT & RT	3	20	56
722+00.00	- 723+62.00	MAINLINE, LT & RT	6	36	109
723+99.30	- 726+25.00	MAINLINE, LT & RT	8	50	152
726+25.00	- 747+00.00	MAINLINE, LT & RT	55	308	1008
747+00.00	- 750+75.00	MAINLINE, LT & RT	13	76	245
	- 748+25.00	CTH C, WEST	3	20	57
750+75.00	- 753+00.00	MAINLINE, LT & RT	6	36	109
753+00.00	- 757+50.00	MAINLINE, LT & RT	18	104	337
	- 756+40.00	CTH C, EAST	3	20	53
757+50.00	- 758+73.00	MAINLINE, LT & RT	4	26	76
		TOTALS	580	3,200	10,510

NOTE: ALL ITEMS ARE CATEGORY 0010, UNLESS OTHERWISE NOTED.

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601.0553
CONCRETE CURB & GUTTER 4-INCH SLOPED 36-INCH TYPE D

STATION	-	STATION	LOCATION	(LF)
588+80.00	-	589+62.00	MAINLINE, LT	82
590+29.80	-	591+05.80	MAINLINE, RT	76
709+71.00	-	710+70.00	MAINLINE, RT	99
709+71.00	-	710+73.00	MAINLINE, LT	103
722+75.00	-	723+45.00	MAINLINE, LT	70
			TOTAL	430

CONCRETE BARRIER TEMPORARY PRECAST 603.8000 603.8125

STAGE	STATION	-	STATION	LOCATION	603.8000 DELIVERED (LF)	603.8125 INSTALLED (LF)
1	588+60.00	-	591+40.00	MAINLINE	280	280
1	708+00.00	-	710+80.00	MAINLINE	280	280
1	722+50.00	-	725+30.00	MAINLINE	280	280
2	588+60.00	-	591+40.00	MAINLINE	280	280
2	708+00.00	-	710+80.00	MAINLINE	280	280
2	722+50.00	-	725+30.00	MAINLINE	280	280
				TOTALS	1680	1680

RIPRAP LIGHT 606.0100 645.0130

STATION	LOCATION	606.0100 RIPRAP LIGHT (CY)	645.0130 GEOTEXTILE FABRIC TYPE R (SY)
590+40	MAINLINE, RT	1.0	5.8
709+75	MAINLINE, LT	1.0	5.8
709+75	MAINLINE, RT	1.0	5.8
	TOTALS	3	17

614.0010
BARRIER SYSTEM GRADING SHAPING FINISHING

STATION	-	STATION	LOCATION	(EACH)	* EXCAVATION COMMON (CY)	* BORROW (CY)	* TOPSOIL (SY)	* MULCHING (SY)	* FERTILIZER (CWT)	** SEEDING (LB)	* CONSTRUCTION STAKING (LF)
586+73.64	-	589+43.07	MAINLINE, RT	1	5	27	260	8.5	0.2	2.3	267.5
588+21.20	-	589+64.23	MAINLINE, LT	1	5	0	80	2.8	0.1	0.7	170.7
590+29.42	-	591+52.40	MAINLINE, RT	1	1	4	64	2.3	0.1	0.6	186.7
590+49.34	-	591+78.36	MAINLINE, LT	1	6	0	74	2.5	0.1	0.7	130.0
619+42.88	-	633+88.04	MAINLINE, LT	1	0	245	216	7.3	0.2	1.9	1443.8
622+75.40	-	624+05.60	MAINLINE, RT	1	0	1	29	1.1	0.0	0.3	131.2
629+14.48	-	630+71.09	MAINLINE, RT	1	0	9	87	2.9	0.1	0.8	156.2
707+08.97	-	709+01.50	MAINLINE, RT	1	0	30	150	5.1	0.1	1.3	192.5
707+46.62	-	709+07.00	MAINLINE, LT	1	1	3	69	2.3	0.1	0.6	155.0
709+68.17	-	710+98.13	MAINLINE, RT	1	6	1	33	1.1	0.0	0.3	130.0
709+68.19	-	711+48.28	MAINLINE, LT	1	2	1	33	1.1	0.0	0.3	180.0
722+15.90	-	723+42.08	MAINLINE, RT	1	0	135	246	8.3	0.2	2.2	130.0
722+52.12	-	723+47.05	MAINLINE, LT	1	0	17	63	2.1	0.0	0.6	92.5
724+12.52	-	725+41.94	MAINLINE, RT	1	0	62	259	8.9	0.2	2.3	130.0
724+17.27	-	726+35.38	MAINLINE, LT	1	0	12	153	5.3	0.1	1.4	217.6
755+59.21	-	758+65.54	MAINLINE, LT	1	0	92	70	2.5	0.1	0.6	305.0
757+36.85	-	758+65.82	MAINLINE, RT	1	0	2	80	2.8	0.1	0.7	339.4
			TOTALS	17	25	641	1966	67	2	18	4358

* ITEMS ARE INCIDENTAL TO THE ITEM 614.0010 AND ARE FOR INFORMATIONAL PURPOSES ONLY. QUANTITIES ARE APPROXIMATE.

** USE SEEDING MIXTURE NO. 80

614.2610
MGS GUARDRAIL TERMINAL EAT

STATION	-	STATION	LOCATION	(EACH)
586+73.64	-	587+27.11	MAINLINE, RT	1
591+25.68	-	591+78.36	MAINLINE, LT	1
619+42.87	-	619+95.97	MAINLINE, LT	1
622+75.40	-	623+27.59	MAINLINE, RT	1
623+52.59	-	624+05.60	MAINLINE, RT	1
629+14.48	-	629+67.99	MAINLINE, RT	1
630+18.00	-	630+71.09	MAINLINE, RT	1
633+34.07	-	633+88.04	MAINLINE, LT	1
707+08.97	-	707+62.10	MAINLINE, RT	1
707+46.62	-	707+99.73	MAINLINE, LT	1
710+45.00	-	710+98.13	MAINLINE, RT	1
710+95.15	-	711+48.28	MAINLINE, LT	1
722+15.90	-	722+66.98	MAINLINE, RT	1
722+52.12	-	723+06.66	MAINLINE, LT	1
724+88.80	-	725+41.94	MAINLINE, RT	1
725+82.25	-	726+35.38	MAINLINE, LT	1
755+59.21	-	756+13.18	MAINLINE, LT	1
			TOTAL	17

614.0115
ANCHORAGES FOR STEEL PLATE BEAM GUARD TYPE 2

STATION	LOCATION	(EACH)
588+21.20	MAINLINE, LT	1
	TOTAL	1

614.0390
STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

STATION	LOCATION	(EACH)
591+52.4	MAINLINE, RT	1
	TOTAL	1

614.2500
MGS THRIE BEAN TRANSITION

STATION	-	STATION	LOCATION	(LF)
589+03.39	-	589+43.07	MAINLINE, RT	39.40
590+49.34	-	590+88.74	MAINLINE, LT	39.40
708+62.10	-	709+01.50	MAINLINE, RT	39.40
708+62.23	-	709+01.63	MAINLINE, LT	39.40
709+68.17	-	710+07.50	MAINLINE, RT	39.40
709+68.19	-	710+07.65	MAINLINE, LT	39.40
723+03.61	-	723+42.08	MAINLINE, RT	39.40
723+06.66	-	723+47.05	MAINLINE, LT	39.40
724+12.52	-	724+50.98	MAINLINE, RT	39.40
724+17.27	-	724+57.53	MAINLINE, LT	39.40
758+26.14	-	758+65.54	MAINLINE, LT	39.40
			TOTAL	433.4

614.0200
STEEL THRIE BEAM STRUCTURE APPROACH

STATION	-	STATION	LOCATION	(LF)
589+43.71	-	589+64.23	MAINLINE, LT	20.65
590+29.42	-	590+50.21	MAINLINE, RT	20.65
758+45.17	-	758+65.82	MAINLINE, RT	20.65
			TOTAL	61.95

614.0515
GUARDRAIL STIFFENED LHW

STATION	-	STATION	LOCATION	(LF)
757+01.98	-	758+45.17	MAINLINE, RT	143.75
			TOTAL	143.75

614.0345
STEEL PLATE BEAM GUARD SHORT RADIUS

STATION	-	STATION	LOCATION	(LF)
591+35.60	-	591+57.96	MAINLINE, RT	68.75
			TOTAL	68.75

614.2300
MGS GUARDRAIL 3

STATION	-	STATION	LOCATION	(LF)
587+27.11	-	589+03.39	MAINLINE, RT	175.0
590+88.74	-	591+25.68	MAINLINE, LT	37.5
619+95.97	-	633+34.07	MAINLINE, LT	1337.5
623+27.48	-	623+52.47	MAINLINE, RT	25.0
629+67.99	-	630+18.00	MAINLINE, RT	50.0
707+62.10	-	708+62.10	MAINLINE, RT	100.0
707+99.73	-	708+62.23	MAINLINE, LT	62.5
710+07.50	-	710+45.00	MAINLINE, RT	37.5
710+07.65	-	710+95.15	MAINLINE, LT	87.5
722+66.98	-	723+03.61	MAINLINE, RT	37.5
724+50.98	-	724+88.80	MAINLINE, RT	37.5
724+57.53	-	725+82.25	MAINLINE, LT	125.0
			TOTAL	2112.5

614.0905
CRASH CUSHIONS TEMPORARY

STAGE	STATION	LOCATION	(EACH)
1	588+50	MAINLINE	1
1	591+50	MAINLINE	1
1	708+00	MAINLINE	1
1	711+00	MAINLINE	1
1	722+25	MAINLINE	1
1	725+50	MAINLINE	1
2	588+50	MAINLINE	1
2	591+50	MAINLINE	1
2	708+00	MAINLINE	1
2	711+00	MAINLINE	1
2	722+25	MAINLINE	1
2	725+50	MAINLINE	1
		TOTAL	12

614.0305
STEEL PLATE BEAM GUARD CLASS A

STATION	-	STATION	LOCATION	(LF)
588+21.20	-	589+43.71	MAINLINE, LT	150.00
590+50.20	-	591+35.60	MAINLINE, RT	84.75
756+93.55	-	758+45.17	MAINLINE, RT	125.00
			TOTAL	359.75

614.0370
STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL

STATION	LOCATION	(EACH)
757+36.85	MAINLINE, RT	1
	TOTAL	1

614.2330
MGS GUARDRAIL 3K

STATION	-	STATION	LOCATION	(LF)
756+13.18	-	758+26.14	MAINLINE, LT	212.5
			TOTAL	212.5

NOTE: ALL ITEMS ARE CATEGORY 0010, UNLESS OTHERWISE NOTED.

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EROSION CONTROL

STATION		STATION	LOCATION	628.1504 SILT FENCE (LF)	628.1520 SILT FENCE MAINTENANCE (LF)	628.2004 EROSION MAT CLASS I TYPE B (SY)
586+50	-	589+70	MAINLINE, RT	320	640	0
588+30	-	589+80	MAINLINE, LT	150	300	0
590+15	-	591+50	MAINLINE, RT	175	350	0
590+20	-	592+00	MAINLINE, LT	170	340	0
619+00	-	620+40	MAINLINE, LT	160	320	0
622+40	-	624+50	MAINLINE, RT	220	440	0
628+50	-	631+20	MAINLINE, RT	260	520	0
633+00	-	634+25	MAINLINE, LT	120	240	0
706+75	-	709+20	MAINLINE, RT	240	480	0
707+25	-	709+20	MAINLINE, LT	200	400	0
709+50	-	711+35	MAINLINE, RT	190	380	0
709+50	-	711+75	MAINLINE, LT	230	460	0
721+60	-	723+65	MAINLINE, RT	205	410	0
722+30	-	723+70	MAINLINE, LT	130	260	0
724+00	-	726+00	MAINLINE, RT	210	420	0
724+05	-	726+90	MAINLINE, LT	290	580	0
755+15	-	758+73	MAINLINE, LT	365	730	0
756+80	-	758+73	MAINLINE, RT	360	720	0
--	-	--	UNDISTRIBUTED	505	1010	300
			TOTALS	4500	9000	300

646.0406
PAVEMENT MARKING SAME DAY EPOXY 4-INCH

STATION		STATION	LOCATION	DASHED CL (YELLOW) (LF)	SOLID CL (YELLOW) (LF)	DASHED LANE LINE (WHITE) (LF)
582+00.00	-	606+50.00	MAINLINE	0	4900	0
606+50.00	-	617+00.00	MAINLINE	263	1050	0
617+00.00	-	619+00.00	MAINLINE	50	0	0
619+00.00	-	627+50.00	MAINLINE	213	850	0
627+50.00	-	676+50.00	MAINLINE	0	9800	0
676+50.00	-	687+50.00	MAINLINE	275	1100	0
687+50.00	-	703+50.00	MAINLINE	400	0	0
703+50.00	-	714+00.00	MAINLINE	263	1050	0
714+00.00	-	717+50.00	MAINLINE	0	700	0
717+50.00	-	721+00.00	MAINLINE	0	700	75
721+00.00	-	723+25.00	MAINLINE	0	450	0
723+25.00	-	731+50.00	MAINLINE	206	825	0
731+50.00	-	733+50.00	MAINLINE	0	400	0
733+50.00	-	742+25.00	MAINLINE	219	875	0
742+25.00	-	754+50.00	MAINLINE	0	2450	0
754+50.00	-	756+50.00	MAINLINE	0	400	63
756+50.00	-	758+73.00	MAINLINE	0	446	0
			SUBTOTALS	1,888	25,996	138
			TOTAL		28,022	

648.0100
LOCATING NO-PASSING ZONES

STATION		STATION	LOCATION	(MI)
582+00.00	-	758+73.00	MAINLINE	3.35
			TOTAL	3.35

TRAFFIC CONTROL

STAGE	STATION		STATION	LOCATION	643.0300 TRAFFIC CONTROL DRUMS (DAYS)	643.0715 TRAFFIC CONTROL WARNING LIGHTS TYPE	643.0900 TRAFFIC CONTROL SIGNS (DAYS)
---	---	-	BOP	MAINLINE	0	0	410
---	---	-	---	SIDEROADS	0	0	492
1	584+50	-	594+00	MAINLINE	360	200	80
1	703+75	-	713+25	MAINLINE	360	200	60
1	718+25	-	727+75	MAINLINE	360	200	60
2	584+50	-	594+00	MAINLINE	360	200	80
2	703+75	-	713+25	MAINLINE	360	200	60
2	718+25	-	727+75	MAINLINE	360	200	60
---	---	-	EOP	MAINLINE	0	0	410
				TOTALS	2160	1200	1712

646.0600
REMOVING PAVEMENT MARKINGS

STAGE	STATION		STATION	LOCATION	(LF)
1	584+50.00	-	594+00.00	MAINLINE	3800.0
1	703+75.00	-	713+25.00	MAINLINE	3087.5
1	718+25.00	-	727+75.00	MAINLINE	3687.5
2	584+50.00	-	594+00.00	MAINLINE	3800.0
2	703+75.00	-	713+25.00	MAINLINE	3087.5
2	718+25.00	-	727+75.00	MAINLINE	3687.5
				TOTAL	21150

647.0566
PAVEMENT MARKING STOP LINE EPOXY 18-INCH

STATION	LOCATION	(LF)
719+50	CTH T	25
748+10	CTH C, WEST	25
756+50	CTH C, EAST	25
	TOTAL	75

649.0100
TEMPORARY PAVEMENT MARKING 4-INCH

STAGE	STATION		STATION	LOCATION	SOLID DBL CL (YELLOW) (LF)	EDGELINE (WHITE) (LF)
1	584+50.00	-	594+00.00	MAINLINE	1900	1900
1	703+75.00	-	713+25.00	MAINLINE	1900	1900
1	718+25.00	-	727+75.00	MAINLINE	1900	1900
				STAGE 1 TOTALS	5700	5700
2	584+50.00	-	594+00.00	MAINLINE	1900	1900
2	703+75.00	-	713+25.00	MAINLINE	1900	1900
2	718+25.00	-	727+75.00	MAINLINE	1900	1900
				STAGE 2 TOTALS	5700	5700
				TOTAL	22,800	

650.5500
CONSTRUCTION STAKING CONCRETE CURB AND GUTTER

STATION		STATION	LOCATION	(EACH)
588+80.00	-	589+62.00	MAINLINE, LT	82
590+29.80	-	591+05.80	MAINLINE, LT	76
709+71.00	-	710+70.00	MAINLINE, RT	99
709+71.00	-	710+73.00	MAINLINE, LT	103
722+75.00	-	723+45.00	MAINLINE, LT	70
			TOTAL	430

650.8000
CONSTRUCTION STAKING RESURFACING REFERENCE

STATION		STATION	LOCATION	(LF)
582+00.00	-	758+73.00	MAINLINE	17,546
			TOTAL	17,546

690.0150
SAWING ASPHALT

STATION	LOCATION	(LF)
582+00	MAINLINE	34
583+00	LOWER WYOMING ROAD	28
592+00	RUSH CREEK R & G CLUB	22
668+75	HILLTOP ROAD	22
694+95	HILLSIDE SCHOOL ROAD	22
719+50	CTH T	22
748+25	CTH C, WEST	22
756+40	CTH C, EAST	28
	TOTAL	200

646.0106
PAVEMENT MARKING EPOXY 4-INCH

STATION		STATION	LOCATION	EDGELINE (WHITE) (LF)
582+00.00	-	758+73.00	MAINLINE	35,350
			TOTAL	35,350

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650.7500
CONSTRUCTION STAKING CONCRETE BARRIER

STATION	LOCATION	(LF)
589+50	MAINLINE, RT	8
589+70	MAINLINE, LT	8
590+25	MAINLINE, RT	8
590+45	MAINLINE, LT	8
709+05	MAINLINE, LT & RT	16
709+60	MAINLINE, LT & RT	16
723+40	MAINLINE, RT	8
723+50	MAINLINE, LT	8
724+10	MAINLINE, RT	8
724+15	MAINLINE, LT	8
	TOTAL	96

690.0250
SAWING CONCRETE

STATION	LOCATION	(LF)
588+80	MAINLINE, LT	3.5
589+50.7	MAINLINE, RT	3.5
589+70	MAINLINE, LT	3.5
590+21.8	MAINLINE, RT	3.5
591+05.8	MAINLINE, RT	3.5
590+41.3	MAINLINE, LT	3.5
709+07	MAINLINE, LT & RT	7.0
709+63	MAINLINE, LT & RT	7.0
710+70	MAINLINE, RT	5.5
710+73	MAINLINE, LT	3.5
722+75	MAINLINE, LT	3.5
723+47	MAINLINE, RT	3.5
723+53	MAINLINE, LT	3.5
724+07	MAINLINE, RT	3.5
724+12	MAINLINE, LT	3.5
	TOTAL	62

NOTE: ALL ITEMS ARE CATEGORY 0010, UNLESS OTHERWISE NOTED.

PERMANENT SIGNING ITEMS							634.0614 POSTS WOOD 4X6-INCHX 14-FT EACH	634.0616 POSTS WOOD 4X6-INCHX 16-FT EACH	634.0618 POSTS WOOD 4X6-INCHX 18-FT EACH	637.2210 SIGNS TYPE II REFLECTIVE H SF	637.2230 SIGNS TYPE II REFLECTIVE F SF	638.2102 MOVING SIGNS TYPE II EACH	638.2602 REMOVING SIGNS TYPE II EACH	638.3000 REMOVING SMALL SIGN SUPPORTS EACH	
SIGN NUMBER	STATION	LOCATION	SIGN CODE	SIZE	DESCRIPTION	ORDER LINES									NOTES
101R	587+60	STH 23, Left	R1-1	30" x 30"	Stop								1	1	
102	587+60	STH 23, Left	R1-1	30" x 30"	Stop			1		5.18					
201R	592+54	STH 23, Right	R1-1	30" x 30"	Stop								1	1	
202	592+55	STH 23, Right	R1-1	30" x 30"	Stop			1		5.18					
203R	601+00	STH 23, Left	W1-2L	30" x 30"	Left Curve								1	1	
204	601+00	STH 23, Left	W1-2L	30" x 30"	Left Curve			1			6.25				
205R	615+50	STH 23, Right	W1-2L	30" x 30"	Left Curve								1	1	
206R	615+50	STH 23, Right	W13-1	18" x 18"	Advisory Speed Plate (Yellow Black)	50							1		Mounted with 205R
207R	617+13	STH 23, Right	W14-3	48" x 36"	No Passing Zone								1	1	
208	617+13	STH 23, Right	W14-3	48" x 36"	No Passing Zone			1			6.00				
209R	618+95	STH 23, Left	W14-3	48" x 36"	No Passing Zone								1	1	
210	618+95	STH 23, Left	W14-3	48" x 36"	No Passing Zone			1			6.00				
301R	624+72	STH 23, Right	W1-5R	30" x 30"	Right Winding Road								1	1	
302R	624+72	STH 23, Right	W13-1	18" x 18"	Advisory Speed Plate (Yellow Black)	50							1		Mounted with 301R
401R	659+00	STH 23, Left	W1-5R	30" x 30"	Right Winding Road								1	1	
402R	659+00	STH 23, Left	W13-1	18" x 18"	Advisory Speed Plate (Yellow Black)	50							1		Mounted with 401R
403R	667+50	STH 23, Right	W1-2R	30" x 30"	Right Curve								1	1	
404R	668+30	STH 23, Left	W1-2R	30" x 30"	Right Curve								1	1	
405R	668+30	STH 23, Left	W13-1	18" x 18"	Advisory Speed Plate (Yellow Black)	50							1		Mounted with 404R
406R	669+05	STH 23, Right	R1-1	30" x 30"	Stop								1	1	
407	669+05	STH 23, Right	R1-1	30" x 30"	Stop			1		5.18					
501R	683+50	STH 23, Left	W1-2L	30" x 30"	Left Curve								1	1	
502R	688+00	STH 23, Right	W14-3	48" x 36"	No Passing Zone								1	1	
503	688+00	STH 23, Right	W14-3	48" x 36"	No Passing Zone			1			6.00				
504R	695+40	STH 23, Right	R1-1	30" x 30"	Stop								1	1	
505	695+40	STH 23, Right	R1-1	30" x 30"	Stop			1		5.18					
506R	699+50	STH 23, Right	D7-52	54" x 42"	Road To [Name State Park] [1] Mile	ROAD TO Tower Hill State Park 1 MILE							1	2	
507	703+50	STH 23, Right	D7-52	60" x 42"	Road To [Name State Park] [1] Mile	ROAD TO Tower Hill State Park 1 MILE		2		17.50					
508R	703+50	STH 23, Left	W14-3	48" x 36"	No Passing Zone								1	1	
509	703+50	STH 23, Left	W14-3	48" x 36"	No Passing Zone			1			6.00				
510R	707+50	STH 23, Right	W1-2L	30" x 30"	Left Curve								1	1	
511R	707+50	STH 23, Right	W13-1	18" x 18"	Advisory Speed Plate (Yellow Black)	50							1		Mounted with 510R
512	708+75	STH 23, Right	W1-2L	30" x 30"	Left Curve			1			6.25				
513	708+76	STH 23, Right	W13-1	18" x 18"	Advisory Speed Plate (Yellow Black)	45					2.25				Mount with 512
514R	711+00	STH 23, Right	J1-1	24" x 39"	Junction Assembly	Jct COUNTY T							1	1	
515	711+00	STH 23, Right	J1-1	24" x 39"	Junction Assembly	Jct COUNTY T		1		6.50					
601R	718+00	STH 23, Right	J4-1	24" x 36"	Reassurance Assembly (1 Headed Route Panel)	South STH 23							1	1	
602	718+00	STH 23, Right	J4-1	24" x 36"	Reassurance Assembly (1 Headed Route Panel)	South STH 23		1		6.00					
603R	718+95	STH 23, Right	J13-1	24" x 45"	Directional Without Cardinal (1 Headed Route Panel)	County T Arrow Right							1	1	
604	718+95	STH 23, Right	J13-1	24" x 45"	Directional Without Cardinal (1 Headed Route Panel)	County T Arrow Right		1		7.50					
605	719+50	STH 23, Left	W1-7	48" x 24"	Night Arrow (Double)		1				8.00				
606R	719+80	STH 23, Right	R1-1	30" x 30"	Stop								1	1	
607	719+80	STH 23, Right	R1-1	30" x 30"	Stop			1		5.18					
608R	719+90	STH 23, Right	J13-1	24" x 45"	Directional Without Cardinal (1 Headed Route Panel)	STH 23 Arrow Double							1	1	
609	719+90	STH 23, Right	J13-1	24" x 45"	Directional Without Cardinal (1 Headed Route Panel)	STH 23 Arrow Double		1		7.50					
610R	720+05	STH 23, Left	J13-1	24" x 45"	Directional Without Cardinal (1 Headed Route Panel)	County T Arrow Double							1	1	
611	720+05	STH 23, Left	J13-1	24" x 45"	Directional Without Cardinal (1 Headed Route Panel)	County T Arrow Left		1		7.50					
						Sheet Totals	1	18	0	78.4	46.75	0	28	24	

PERMANENT SIGNING ITEMS CONT'D

SIGN NUMBER	STATION	LOCATION	SIGN CODE	SIZE	DESCRIPTION	ORDER LINES	634.0614 POSTS WOOD 4X6-INCHX 14-FT EACH	634.0616 POSTS WOOD 4X6-INCHX 16-FT EACH	634.0618 POSTS WOOD 4X6-INCHX 18-FT EACH	637.2210 SIGNS TYPE II REFLECTIVE H SF	637.2230 SIGNS TYPE II REFLECTIVE F SF	638.2102 MOVING SIGNS TYPE II EACH	638.2602 REMOVING SIGNS TYPE II EACH	638.3000 REMOVING SMALL SIGN SUPPORTS EACH	NOTES
612R	720+95	STH 23, Right	J4-1	24" x 36"	Reassurance Assembly (1 Headed Route Panel)	North							1	1	
						STH 23									
613	720+95	STH 23, Right	J4-1	24" x 36"	Reassurance Assembly (1 Headed Route Panel)	North		1		6.00					
						STH 23									
614R	729+25	STH 23, Left	J1-1	24" x 39"	Junction Assembly	Jct							1	1	
						COUNTY T									
615	729+25	STH 23, Left	J1-1	24" x 39"	Junction Assembly	Jct		1		6.50					
						COUNTY T									
616	729+75	STH 23, Right	D7-51 (MOD)	90" x 54"	Road To [Name State Park] [1] Mile	ROAD TO			2	33.75					
						Taliesin									
						Frank Lloyd Wright									
						Visitor Center									
						1/2 MILE									
617R	731+15	STH 23, Left	W14-3	48" x 36"	No Passing Zone								1	1	
618	731+15	STH 23, Left	W14-3	48" x 36"	No Passing Zone			1			6.00				
619R	731+90	STH 23, Left	W1-2R	30" x 30"	Right Curve								1	1	
620R	731+90	STH 23, Left	W13-1	18" x 18"	Advisory Speed Plate (Yellow Black)	45							1		Mounted with 619R
621R	733+70	STH 23, Right	W1-2R	30" x 30"	Right Curve								1	1	
622R	733+70	STH 23, Right	W13-1	18" x 18"	Advisory Speed Plate (Yellow Black)	45							1		Mounted with 621R
623R	733+70	STH 23, Right	W14-3	48" x 36"	No Passing Zone								1		Mounted on back of 621R
624	733+70	STH 23, Right	W14-3	48" x 36"	No Passing Zone			1			6.00				
625	737+50	STH 23, Left	W1-2R	30" x 30"	Right Curve			1			6.25				
626	737+50	STH 23, Left	W13-1	18" x 18"	Advisory Speed Plate (Yellow Black)	45					2.25				Mount with 625
701R	738+00	STH 23, Right	J1-1	24" x 39"	Junction Assembly	Jct							1	1	
						COUNTY C									
702R	740+00	STH 23, Right	W11-1	30" x 30"	Bicycle Warning Sign								1	1	
703R	746+50	STH 23, Left	J4-1	24" x 36"	Reassurance Assembly (1 Headed Route Panel)	South							1	1	
						STH 23									
704R	747+65	STH 23, Left	J13-2	48" x 45"	Directional Without Cardinal (2 Headed Route Panel)	County C, STH 23							1	1	
						Arrow Left, Arrow Double									
705R	747+70	STH 23, Left	R1-1	30" x 30"	Stop								1	1	
706R	747+80	STH 23, Right	J13-1	24" x 45"	Directional Without Cardinal (1 Headed Route Panel)	County C							1	1	
						Directional Arrows LA/UA Combo									
707R	749+15	STH 23, Left	J13-1	24" x 45"	Directional Without Cardinal (1 Headed Route Panel)	County C							1	1	
						Arrow Right									
708R	750+95	STH 23, Left	W1-2L	30" x 30"	Left Curve								1	1	
709R	750+95	STH 23, Left	W13-1	18" x 18"	Advisory Speed Plate (Yellow Black)	50							1		Mounted with 708R
710R	753+00	STH 23, Right	D7-53R	90" x 48"	[Name State Park] Arrow Right (MOD)	Frank Lloyd Wright							1	2	
						Visitor Center (Arrow RT)									
						Tower Hill									
						State Park (Arrow RT)									
711R	753+65	STH 23, Left	W11-1	30" x 30"	Bicycle Warning Sign								1	1	
712R	755+40	STH 23, Right	D1-3	66" x 36"	Destination - Directional Sign	American							1	2	
						Players									
						Theater (Arrow RT)									
713R	755+85	STH 23, Right	J13-1	24" x 45"	Directional Without Cardinal (1 Headed Route Panel)	County C							1	1	
						Arrow Right									
714R	756+25	STH 23, Left	D1-3	90" x 48"	Destination - Directional Sign	Dodgeville (Arrow LT)							1	2	
						House on the Rock									
						Spring Green (Arrow RT)									
715R	756+55	STH 23, Left	J13-1	24" x 45"	Directional Without Cardinal (1 Headed Route Panel)	County C							1	1	
						Directional Arrows LA/UA Combo									
716R	756+80	STH 23, Right	R1-1	30" x 30"	Stop								1	1	
717R	756+85	STH 23, Right	J13-2	48" x 45"	Directional Without Cardinal (2 Headed Route Panel)	County C, STH 23							1	1	
						Arrow Left, Arrow Double									
718R	757+00	STH 23, Right	R1-1	30" x 30"	Stop								1	1	
719R	758+20	STH 23, Right	J4-1	24" x 36"	Reassurance Assembly (1 Headed Route Panel)	North							1	1	
						STH 23									
						Sheet Totals	0	5	2	46.25	20.5	0	27	26	

PERMANENT SIGNING ITEMS CONT'D

SIGN NUMBER	STATION	LOCATION	SIGN CODE	SIZE	DESCRIPTION	ORDER LINES	634.0614 POSTS WOOD 4X6-INCHX 14-FT EACH	634.0616 POSTS WOOD 4X6-INCHX 16-FT EACH	634.0618 POSTS WOOD 4X6-INCHX 18-FT EACH	637.2210 SIGNS TYPE II REFLECTIVE H SF	637.2230 SIGNS TYPE II REFLECTIVE F SF	638.2102 MOVING SIGNS TYPE II EACH	638.2602 REMOVING SIGNS TYPE II EACH	638.3000 REMOVING SMALL SIGN SUPPORTS EACH	NOTES
720R	758+70	STH 23, Right	I2-2	48" x 15"	County Line Name	Sauk Co							1	1	
721R	758+70	STH 23, Right	R9-56	18" x 24"	No Fishing Or Diving From Bridge								1		Mounted with 720R
722R	758+70	STH 23, Right	D11-6	24" x 18"	Snowmobile Route with Symbol								1		Mounted with 720R
723R	758+70	STH 23, Right	W5-52R	12" x 36"	Clearance Striper Down Left								1	1	
724R	758+65	STH 23, Left	W5-52L	12" x 36"	Clearance Striper Down Right								1	1	
725R	758+60	STH 23, Left	D1-2	66" x 24"	Two Destination (Arrow)	House On (Arrow Up)							1	1	
726R	758+60	STH 23, Left	D1-3	66" x 36"	Triple Destintion (Arrow)	The Rock American Players (Arrow LT) Theater							1	1	
801	738+00	STH 23, Right	J1-1	24" x 39"	Junction Assembly	Jct COUNTY C		1		6.50					
802	740+00	STH 23, Right	W11-1	30" x 30"	Bicycle Warning Sign			1			6.25				
803	746+50	STH 23, Left	J4-1	24" x 36"	Reassurance Assembly (1 Headed Route Panel)	South STH 23		1		6.00					
804	747+65	STH 23, Left	J13-2	48" x 45"	Directional Without Cardinal (2 Headed Route Panel)	County C, STH 23 Arrow Left, Arrow Double		1		15.00					
805	747+70	STH 23, Left	R1-1	30" x 30"	Stop			1		5.18					
806	747+80	STH 23, Right	J13-1	24" x 45"	Directional Without Cardinal (1 Headed Route Panel)	County C Directional Arrows LA/UA Combo		1		7.50					
807	748+40	STH 23, Right	W1-7	48" x 24"	Night Arrow (Double)		1				8.00				
808	749+15	STH 23, Left	J13-1	24" x 45"	Directional Without Cardinal (1 Headed Route Panel)	County C Arrow Right		1		7.50					
809	750+00	STH 23, Right	D7-53R	90" x 48"	[Name State Park] Arrow Right (MOD)	Taliesin Frank Lloyd Wright Visitor Center Arrow RT			2	30.00					
810M	751+50	STH 23, Right			Destination Sign	HOUSE ON THE (Arrow RT) ROCK RESORT (1/2)			2			1			Move to STA 755+60, RT
811M	751+50	STH 23, Right			Destination Sign	SPRING (Arrow RT) VALLEY INN (2.7)						1			Mounted with 810M
812	752+00	STH 23, Right	D7-53R	54" x 36"	[Name State Park] Arrow Right (MOD)	Tower Hill State Park Arrow RT		2		13.50					
813	753+65	STH 23, Left	W11-1	30" x 30"	Bicycle Warning Sign			1			6.25				
814	753+95	STH 23, Right	D1-3	66" x 36"	Triple Destintion (Arrow)	American Players (Arrow RT) Theater		2		16.50					
815	755+50	STH 23, Left	D1-2	78" x 24"	Two Destination (Arrow)	House On (Arrow Up) The Rock		2		13.00					
816	755+85	STH 23, Right	J13-1	24" x 45"	Directional Without Cardinal (1 Headed Route Panel)	County C Arrow Right		1		7.50					
817	755+95	STH 23, Right	R1-1	30" x 30"	Stop			1		5.18					
818	756+50	STH 23, Right	W1-6	48" x 24"	Night Arrow (Single)		1				8.00				
819	756+55	STH 23, Left	J13-1	24" x 45"	Directional Without Cardinal (1 Headed Route Panel)	County C Directional Arrows LA/UA Combo		1		7.50					
820M	756+55	STH 23, Left			Destination Sign	HOUSE ON THE (Arrow LT) ROCK RESORT (1/2)			2			1			Move to STA 755+60, RT
821M	756+55	STH 23, Left			Destination Sign	SPRING (Arrow LT) VALLEY INN (2.7)						1			Mounted with 810M
822	756+75	STH 23, Right	R1-1	30" x 30"	Stop			1		5.18					
823	756+80	STH 23, Right	J13-2	48" x 45"	Directional Without Cardinal (2 Headed Route Panel)	County C, STH 23 Arrow Left, Arrow Double		1		15.00					
824	757+50	STH 23, Right	J4-1	24" x 36"	Reassurance Assembly (1 Headed Route Panel)	North STH 23		1		6.00					
825	757+65	STH 23, Left	D1-3	66" x 36"	Triple Destintion (Arrow)	American Players (Arrow LT) Theater		2		16.50					
826	758+70	STH 23, Right	I2-2	48" x 15"	County Line Name	Sauk Co			1	5.00					
827	758+70	STH 23, Right	R9-56	18" x 24"	No Fishing Or Diving From Bridge					3.00					Mount with 826
828	758+70	STH 23, Right	D11-6	24" x 18"	Snowmobile Route with Symbol					3.00					Mount with 826
829	758+70	STH 23, Right	W5-52R	12" x 36"	Clearance Striper Down Left		1				3.00				
830	758+65	STH 23, Left	W5-52L	12" x 36"	Clearance Striper Down Right		1				3.00				
831	758+65	STH 23, Left	D7-53L	54" x 36"	[Name State Park] Arrow Right (MOD)	Tower Hill State Park Arrow LT		2		13.50					
						Sheet Totals	4	24	7	208.04	34.5	4	7	5	
						Signing Totals	5	47	9	332.69	101.75	4	62	55	

3

SPV. 0090.01
CONCRETE BARRIER TRANSITION

STATION	-	STATION	LOCATION	(LF)
589+40.55	-	589+48.61	MAINLINE, RT	8
589+61.74	-	589+69.74	MAINLINE, LT	8
590+23.88	-	590+31.94	MAINLINE, RT	8
590+43.88	-	590+51.82	MAINLINE, LT	8
708+99.05	-	709+07.05	MAINLINE, LT	8
708+99.05	-	709+07.05	MAINLINE, RT	8
709+62.68	-	709+70.68	MAINLINE, LT	8
709+62.68	-	709+70.68	MAINLINE, RT	8
723+39.64	-	723+47.45	MAINLINE, RT	8
723+44.49	-	723+52.69	MAINLINE, LT	8
724+07.15	-	724+14.96	MAINLINE, RT	8
724+11.64	-	724+19.85	MAINLINE, LT	8
			TOTAL	96

SPV.0090.02
PROFILE CURB CUT

STATION	-	STATION	LOCATION	(LF)
710+45.00	-	711+95.00	MAINLINE, RT	150
710+95.15	-	712+45.15	MAINLINE, LT	150
721+56.66	-	723+06.66	MAINLINE, LT	150
			TOTAL	450

SPV.0090.03
STEEL PLATE BEAM GUARD DUPLEX COATED

STATION	-	STATION	LOCATION	(LF)
586+73.64	-	589+43.07	MAINLINE, RT	267.5
588+21.20	-	589+64.23	MAINLINE, LT	170.7
590+29.42	-	591+52.40	MAINLINE, RT	186.7
590+49.34	-	591+78.36	MAINLINE, LT	130.0
619+42.88	-	633+88.04	MAINLINE, RT	1443.8
622+75.40	-	624+05.60	MAINLINE, LT	131.2
629+14.48	-	630+71.09	MAINLINE, LT	156.2
707+08.97	-	709+01.50	MAINLINE, RT	192.5
707+46.62	-	709+07.00	MAINLINE, LT	155.0
709+68.17	-	710+98.13	MAINLINE, RT	130.0
709+68.19	-	711+48.28	MAINLINE, LT	180.0
722+15.90	-	723+42.08	MAINLINE, RT	130.0
722+52.12	-	723+47.05	MAINLINE, LT	92.5
724+12.52	-	725+41.94	MAINLINE, RT	130.0
724+17.27	-	726+35.38	MAINLINE, LT	217.6
755+59.21	-	758+65.54	MAINLINE, LT	305.0
757+36.85	-	758+65.82	MAINLINE, RT	339.4
			TOTAL	4358.0

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SPV.0090.04
REMOVING HMA PAVEMENT NOTCHED WEDGE LONGITUDINAL JOINT

STATION	-	STATION	LOCATION	(LF)
582+00	-	758+73	MAINLINE	17550
			TOTAL	17550

460.4110.S
REHEATING LONGITUDINAL JOINTS

STATION	-	STATION	LOCATION	(LF)
582+00	-	758+73	MAINLINE	17550
			TOTAL	17550

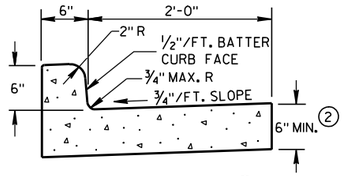
NOTE: ALL ITEMS ARE CATEGORY 0010, UNLESS OTHERWISE NOTED.

STATE PROJECT NUMBER: 5255-01-61	HWY: STH 23	COUNTY: IOWA	MISCELLANEOUS QUANTITIES	SHEET NO: 40	E

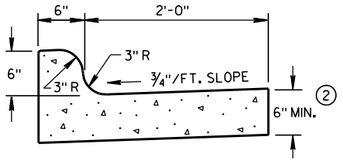
Standard Detail Drawing List

08D01-17	CONCRETE CURB, CONCRETE CURB AND GUTTER AND TIES
08D02-06	CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES
08E09-06	SILT FENCE
14B07-14A	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14B	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14C	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14D	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14E	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B08-01A	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-01B	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-01C	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-01D	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-01E	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B15-08A	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-08B	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-08C	STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS
14B16-04A	ANCHORAGE FOR STEEL PLATE BEAM GUARD TYPE 2
14B16-04B	ANCHORAGE FOR STEEL PLATE BEAM GUARD TYPE 2
14B18-06A	STEEL PLATE BEAM GUARD, CLASS "A" (AT BRIDGES, OBSTACLES AND SIDEROADS/DRIVEWAYS)
14B18-06B	STEEL PLATE BEAM GUARD, CLASS "A" AT MEDIAN APPROACH TO BRIDGES
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
14B24-08A	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B24-08B	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B24-08C	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
14B29-01	SAFETY EDGE
14B42-03A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-03B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-03C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-02A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-03A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03D	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03E	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15C04-02	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C08-16A	PAVEMENT MARKING (MAINLINE)
15C08-16B	PAVEMENT MARKING (INTERSECTIONS)
15C12-04	TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)
15C19-02A	MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY
15C33-01	STOP LINE AND CROSSWALK PAVEMENT MARKING
15D03-02	TRAFFIC CONTROL, LANE CLOSURE, SPEEDS GREATER THAN 40 M.P.H. WITH BARRIER
15D28-02	TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY

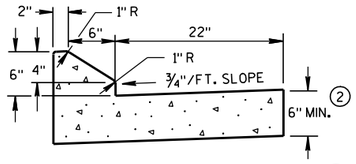
6



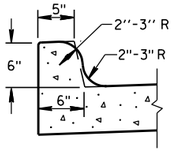
TYPES A & D (1)



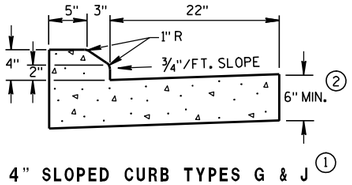
TYPES K & L (1)



6" SLOPED CURB TYPES G & J (1)

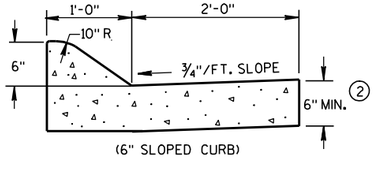


OPTIONAL CURB SHAPE FOR TYPES K & L (1)

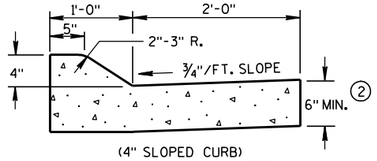


4" SLOPED CURB TYPES G & J (1)

CONCRETE CURB & GUTTER 30"

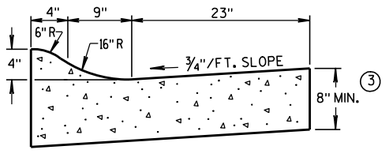


(6" SLOPED CURB)



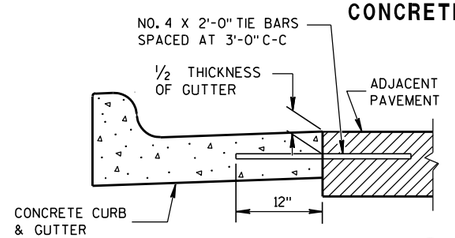
(4" SLOPED CURB)

TYPES A & D (1)

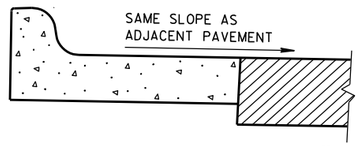


4" SLOPED CURB TYPES R & T (1) (4)

CONCRETE CURB & GUTTER 36"



TYPICAL TIE BAR LOCATION (1)



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

GENERAL NOTES

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

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

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

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

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

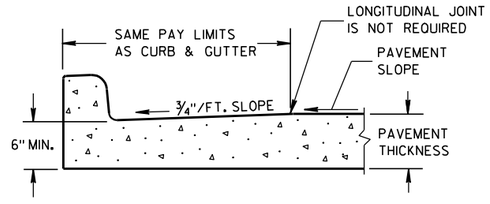
(1) TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K AND R.

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

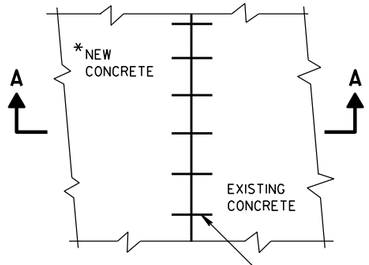
(3) THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.

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

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

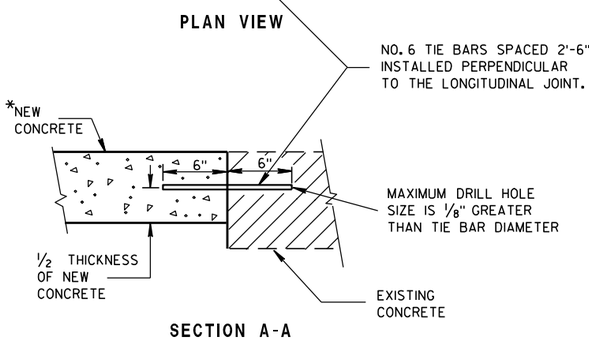


PARTIAL SECTION OF PAVEMENT WITH INTEGRAL CURB & GUTTER



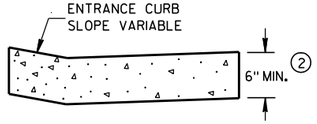
PLAN VIEW

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

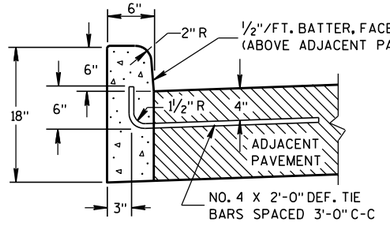


SECTION A-A

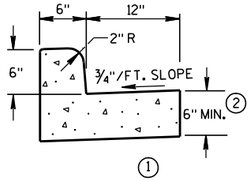
TIE BARS DRILLED INTO EXISTING PAVEMENT



DRIVEWAY ENTRANCE CURB
(WHEN DIRECTED BY THE ENGINEER)

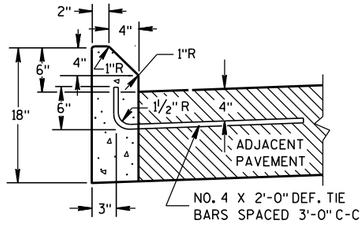


(1) TYPES A & D



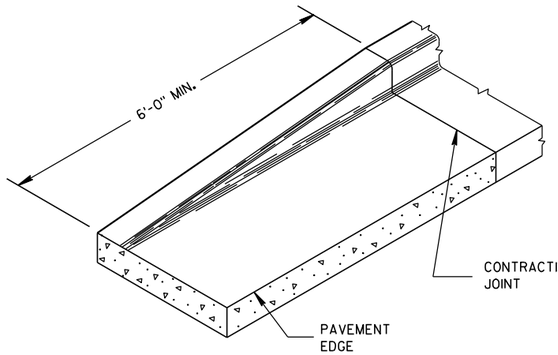
(1) TYPES A & D

CONCRETE CURB & GUTTER 18"



(1) TYPES G & J

CONCRETE CURB



END SECTION CURB & GUTTER

CONCRETE CURB, CONCRETE CURB & GUTTER AND TIES

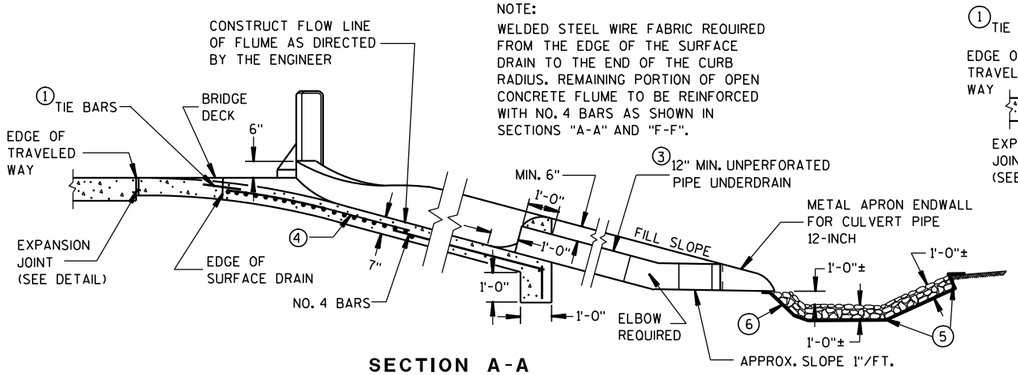
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
9/4/08 DATE
/S/ Jerry H. [illegible]
ROADWAY STANDARDS ENGINEER

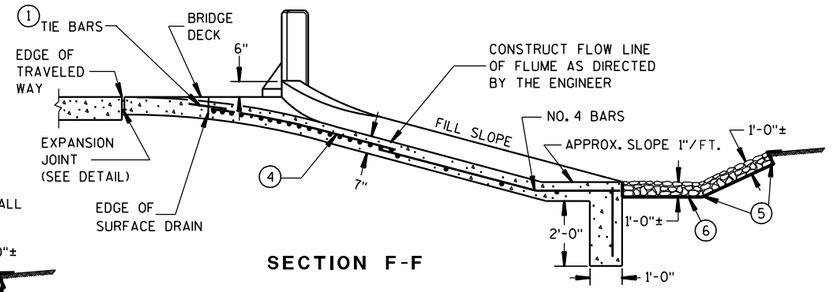
FHWA ENT

6

S.D.D. 8 D 1-17



SECTION A-A



SECTION F-F

GENERAL NOTES

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

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

(1) NO. 4 X 2'-0" TIE BARS SPACED AT 3'-0" CENTERS TO BE USED ONLY WHEN ADJACENT TO P.C. CONCRETE.

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

(3) PIPE UNDERDRAIN MAY BE ANY OF THE MATERIALS LISTED IN SECTION 612.2 OF THE STANDARD SPECIFICATIONS EXCEPT DRAIN TILE.

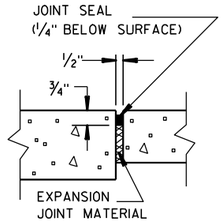
(4) MINIMUM REINFORCEMENT SHALL BE 6" X 6" - W4.0 X W4.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C-C.

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

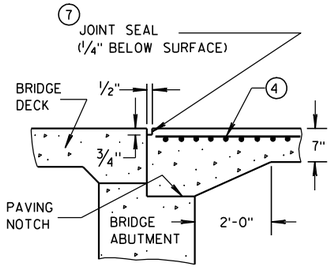
(6) GEOTEXTILE FABRIC, TYPE 'R"

(7) HOT POURED SEALANT UNLESS OTHERWISE SPECIFIED.

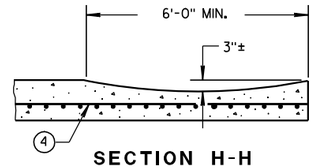
(8) THIS DIMENSION MAY VARY DEPENDING ON THE SPACING OF POSTS FOR THE STEEL PLATE BEAM GUARD. THE TYPICAL LOCATION FOR THE SURFACE DRAIN IS WHERE THE POST SPACING WIDENS TO 3'-1½".



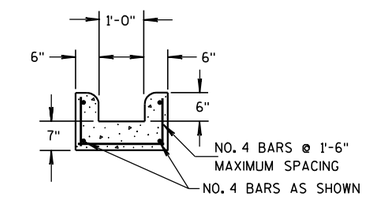
EXPANSION JOINT DETAIL



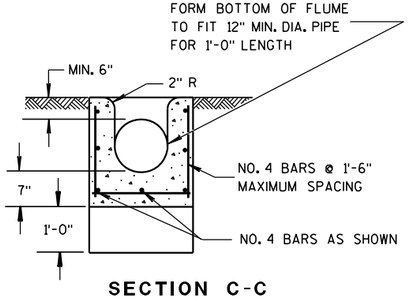
SECTION D-D



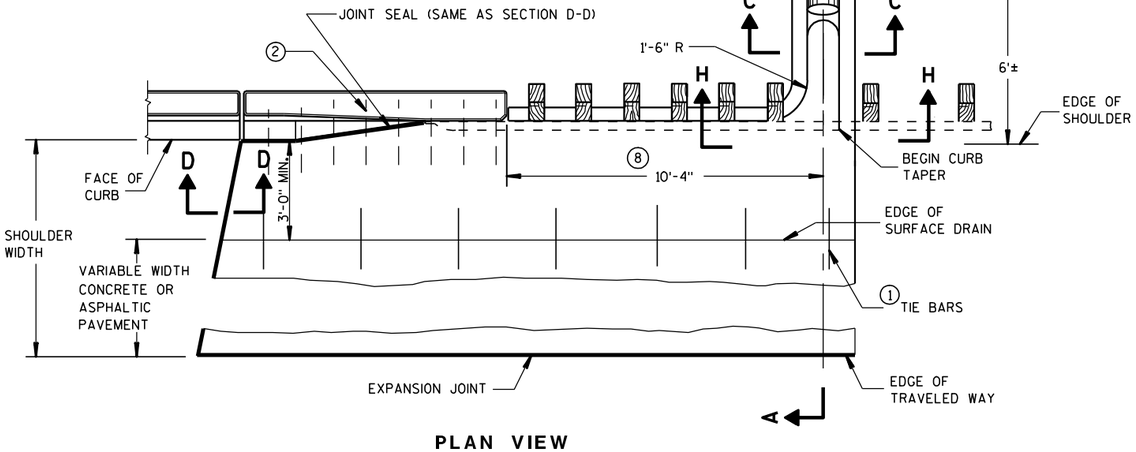
SECTION H-H



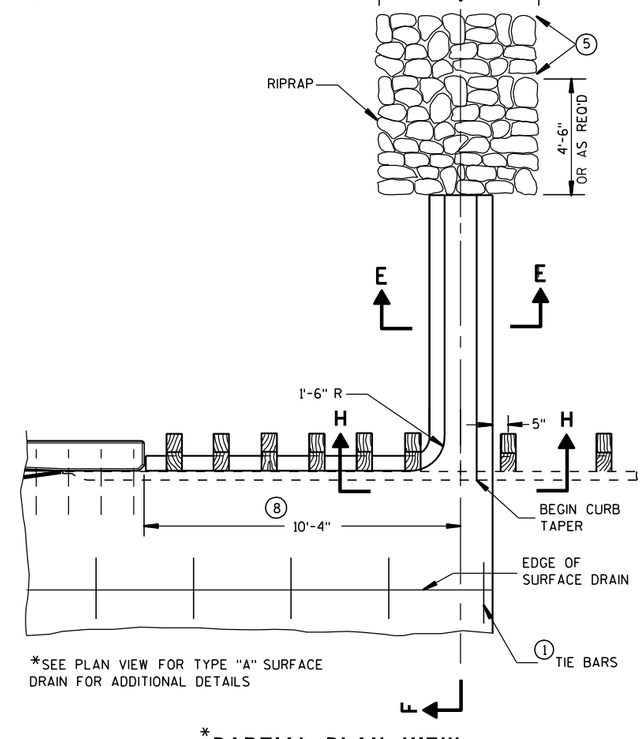
SECTION E-E



SECTION C-C

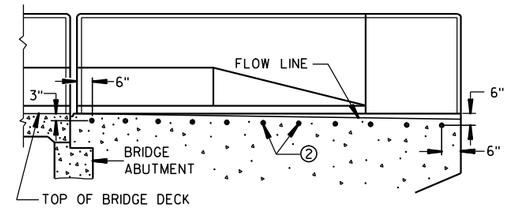


PLAN VIEW
SURFACE DRAIN WITH PIPE
TYPE "A"



*SEE PLAN VIEW FOR TYPE "A" SURFACE DRAIN FOR ADDITIONAL DETAILS

*PARTIAL PLAN VIEW
SURFACE DRAIN WITHOUT PIPE
TYPE "B"



LOCATION OF
TIE BARS IN WINGWALL

CONCRETE SURFACE DRAINS
FLUME TYPE
AT STRUCTURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

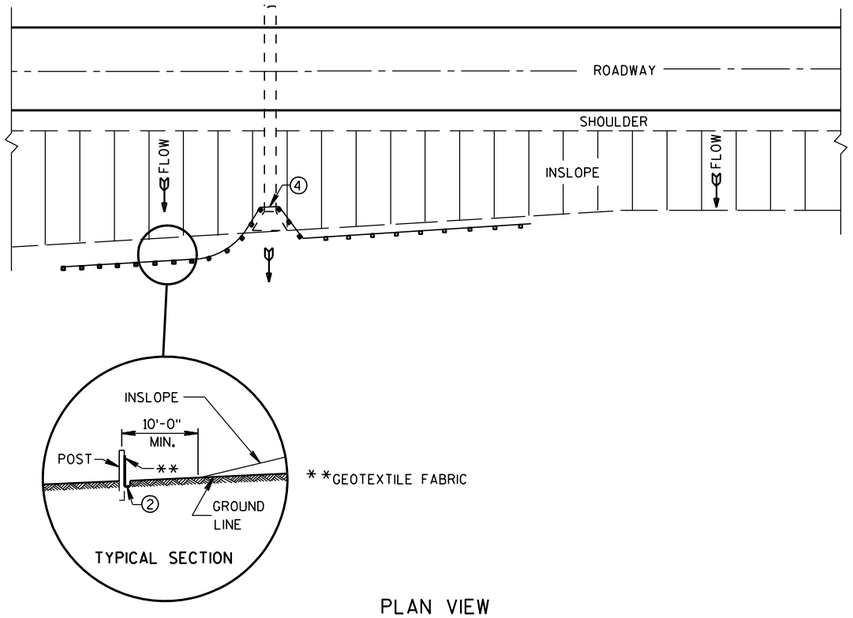
APPROVED
9/4/08
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER
FHWA

6

S.D.D. 8 D 2-6

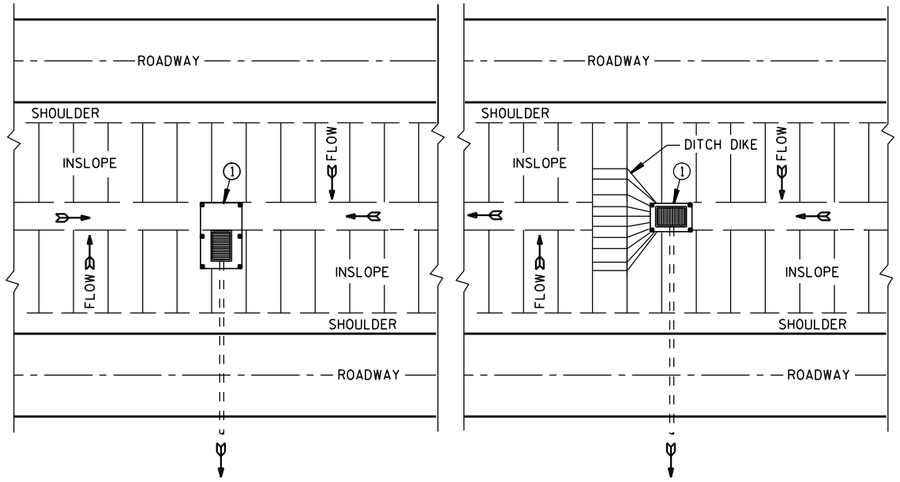
6

S.D.D. 8 D 2-6



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.

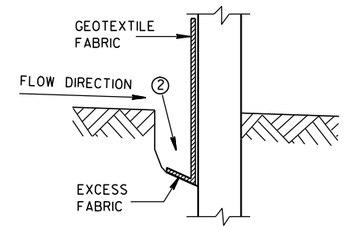
① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.

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.

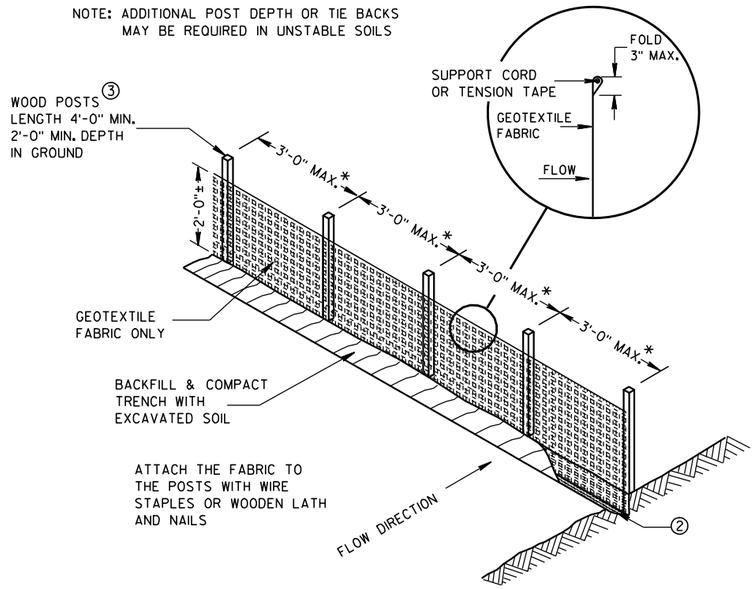
③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 1⅛" X 1⅛" OF OAK OR HICKORY.

④ SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.

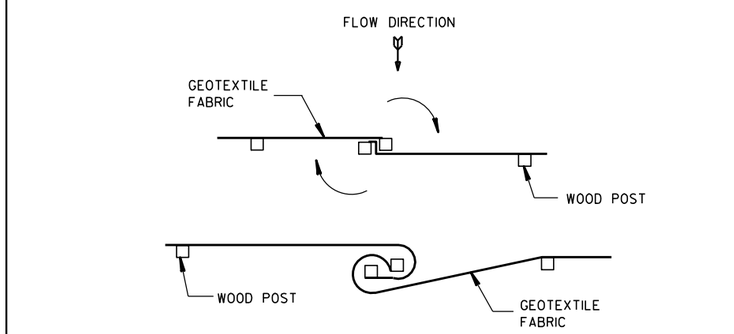
⑤ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



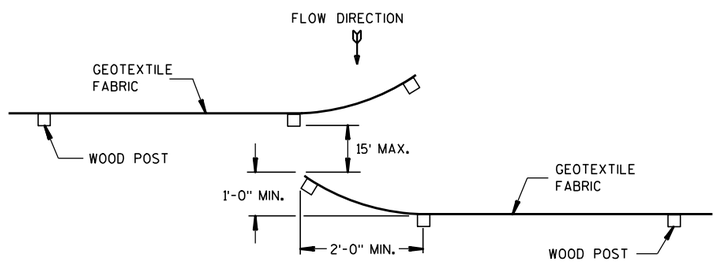
TRENCH DETAIL



SILT FENCE

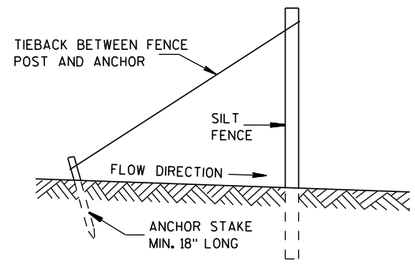


TWIST METHOD



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

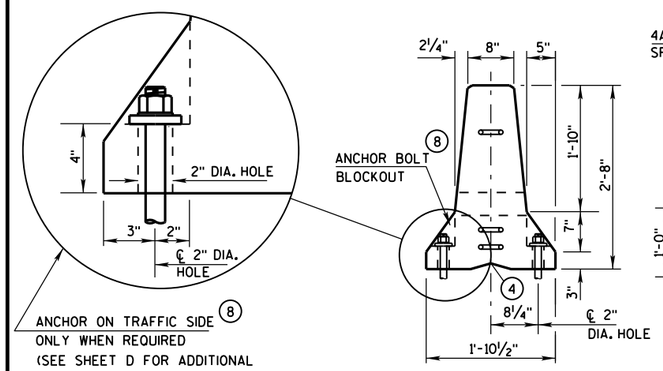
APPROVED
4-29-05 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

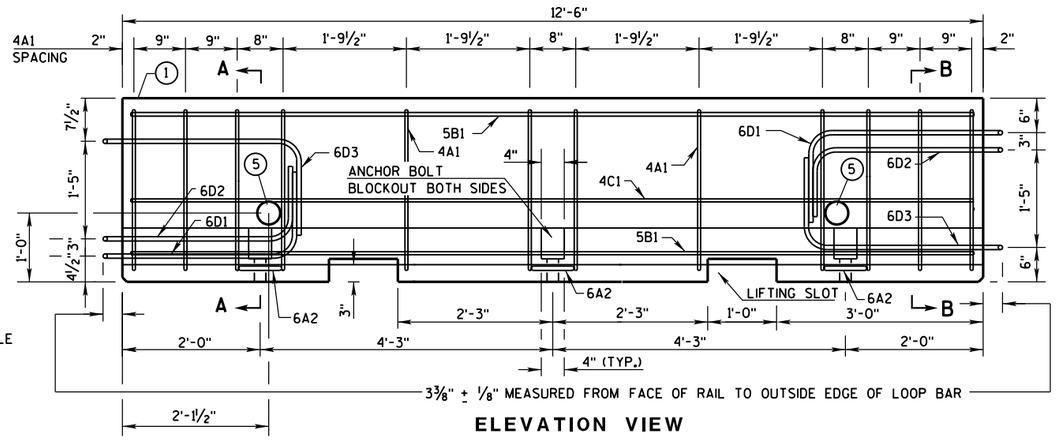
S.D.D. 8 E 9-6

6

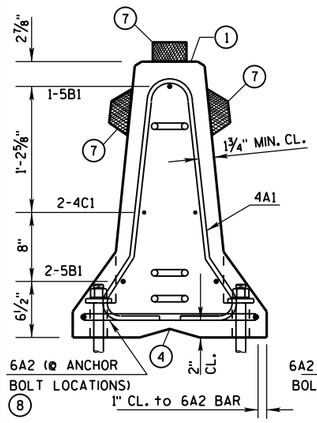
S.D.D. 8 E 9-6



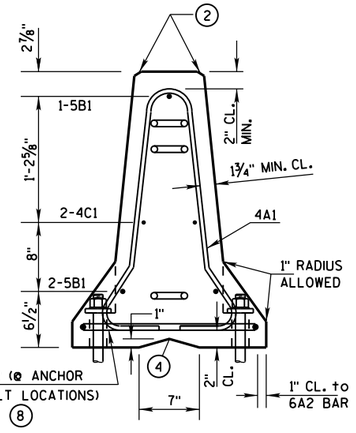
END VIEW



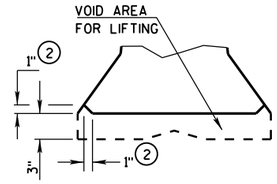
ELEVATION VIEW



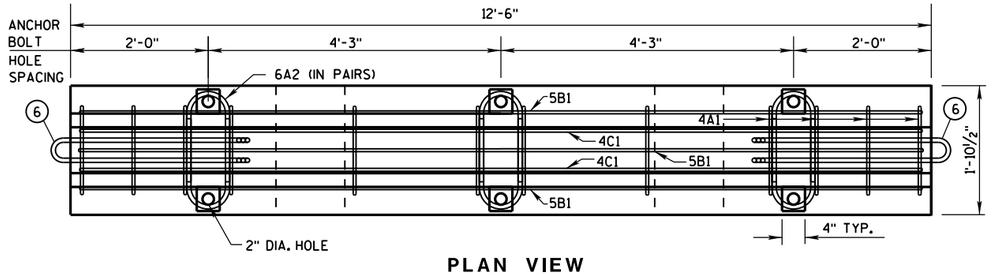
SECTION A-A
(STIRRUP PLACEMENT)



SECTION B-B
(STIRRUP PLACEMENT)

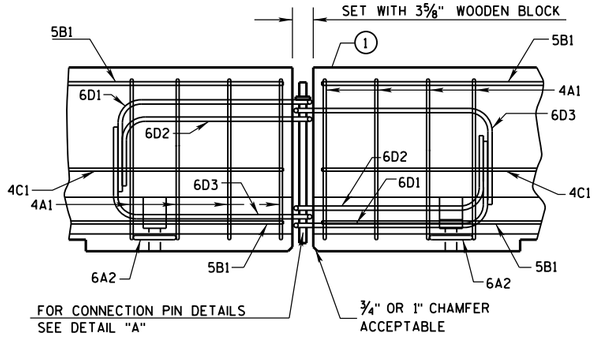


DETAIL "B"
LIFTING SLOT DETAIL

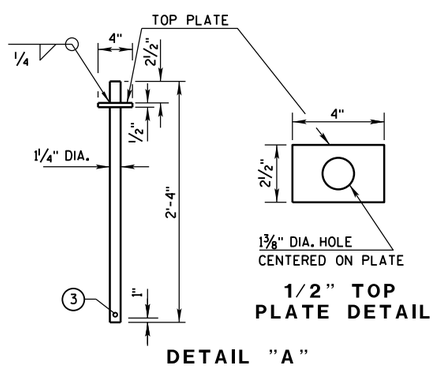


PLAN VIEW

DETAILS OF BARRIER SECTION

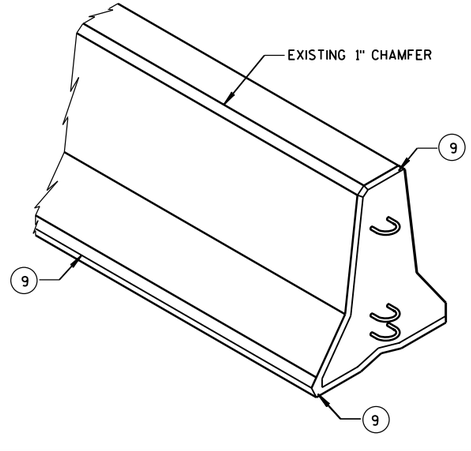


DETAILS OF BARRIER CONNECTION



1/2" TOP
PLATE DETAIL

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



GENERAL NOTES

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

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

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

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

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

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

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

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

(2) 1" CHAMFER TO PREVENT SPALLING.

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

(4) "V" NOTCH IS OPTIONAL.

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

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

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

(8) SEE SHEET D FOR ANCHORING CRITERIA.

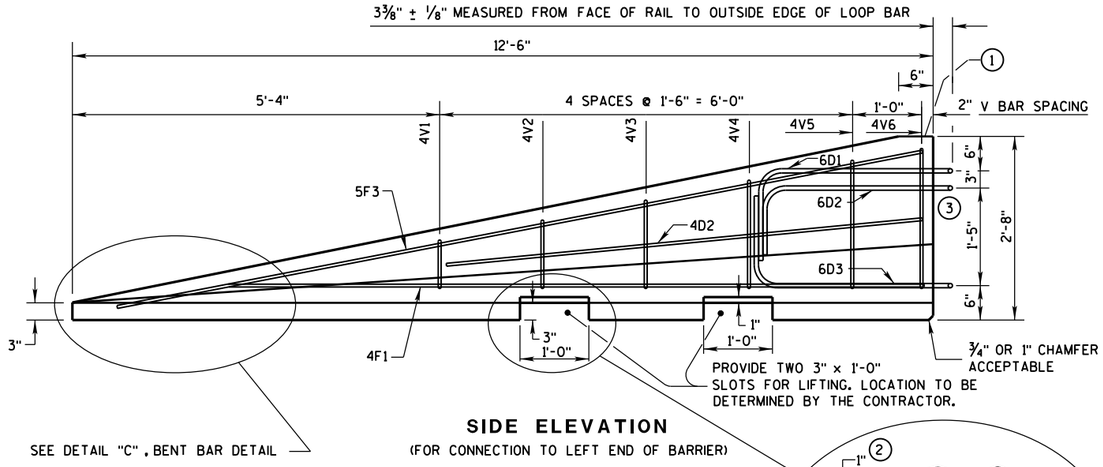
(9) 1" CHAMFER OPTIONAL.

CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"

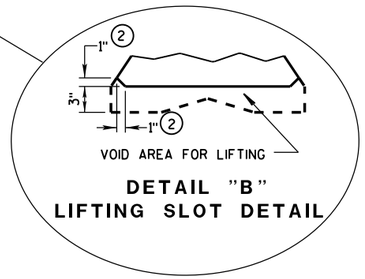
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

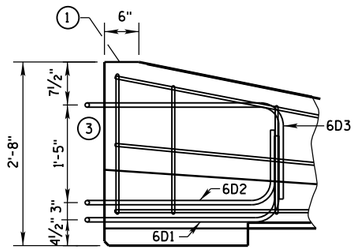
S.D.D. 14 B 7-14a



SIDE ELEVATION
(FOR CONNECTION TO LEFT END OF BARRIER)



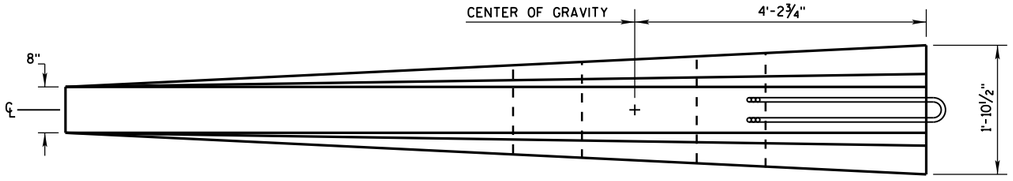
DETAIL "B"
LIFTING SLOT DETAIL



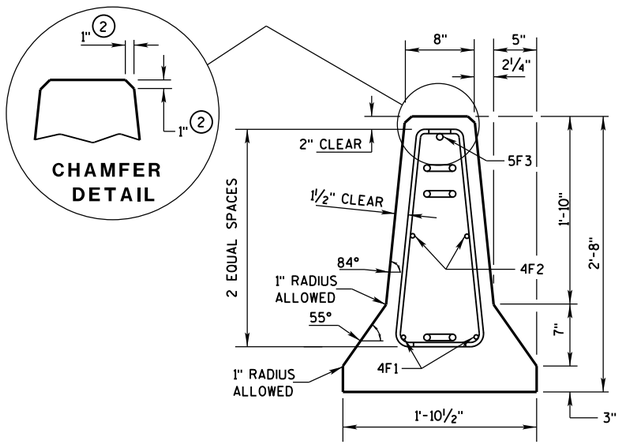
SIDE ELEVATION
LOOP BAR ASSEMBLY INVERTED
FOR OPPOSITE END.
(FOR CONNECTION TO RIGHT END OF BARRIER)

GENERAL NOTES

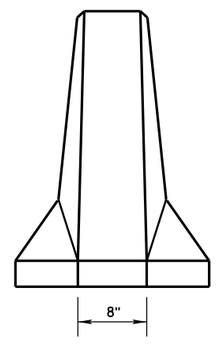
1. MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
   a. TYPE WICBTP
   b. MANUFACTURER
   c. DATE MANUFACTURED (MONTH AND YEAR)
2. 1" CHAMFER TO PREVENT SPALLING.
3. NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.



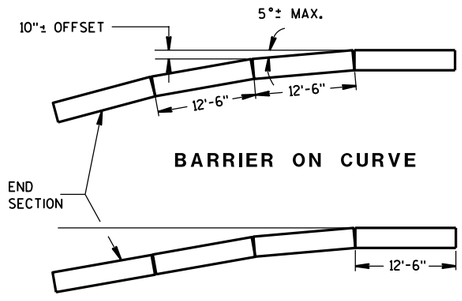
PLAN VIEW



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 TRANSPOI

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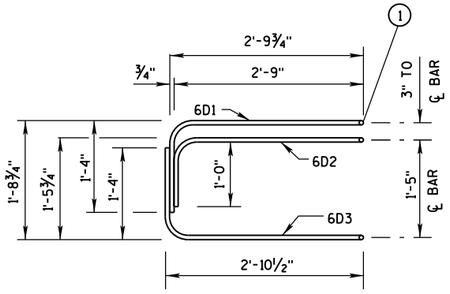
S.D.D. 14 B 7-14b

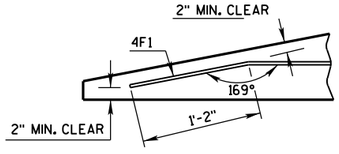
BARRIER TAPER SECTION BILL OF MATERIALS

(PER 12'-6" BARRIER TAPER SECTION)

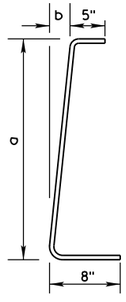
BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4V1	4	2	1'-11"
4V2	4	2	2'-2"
4V3	4	2	2'-6"
4V4	4	2	2'-9"
4V5	4	2	3'-2"
4V6	4	2	3'-4"
4F1	4	2	12'-0"
4F2	4	2	7'-6"
5F3	5	1	11'-9"
LOOP ASSEMBLY			
6D1	6	1	8'-5"
6D2	6	1	7'-7"
6D3	6	1	8'-6"



ELEVATION
LOOP BAR ASSEMBLY



DETAIL "C"
BENT BAR DETAIL



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

4V BARS
2 AT EACH SIZE REQUIRED
FOR STIRRUP ASSEMBLY

TAPER BARRIER SECTION

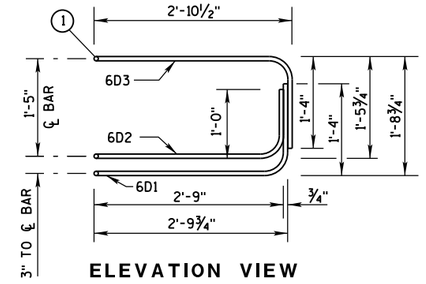
GENERAL NOTES

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

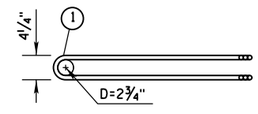
BARRIER SECTION BILL OF MATERIALS

(PER 12'-6" BARRIER SECTION)

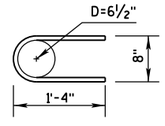
BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4A1	4	12	6'-0"
6A2	6	6	2'-11"
5B1	5	3	12'-2"
4C1	4	2	12'-2"
LOOP ASSEMBLY			
6D1	6	2	8'-5"
6D2	6	2	7'-7"
6D3	6	2	8'-6"



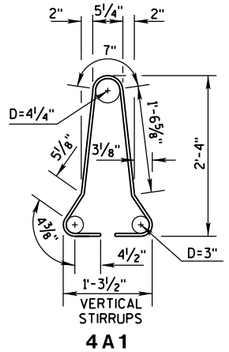
ELEVATION VIEW



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 TRANSPOR

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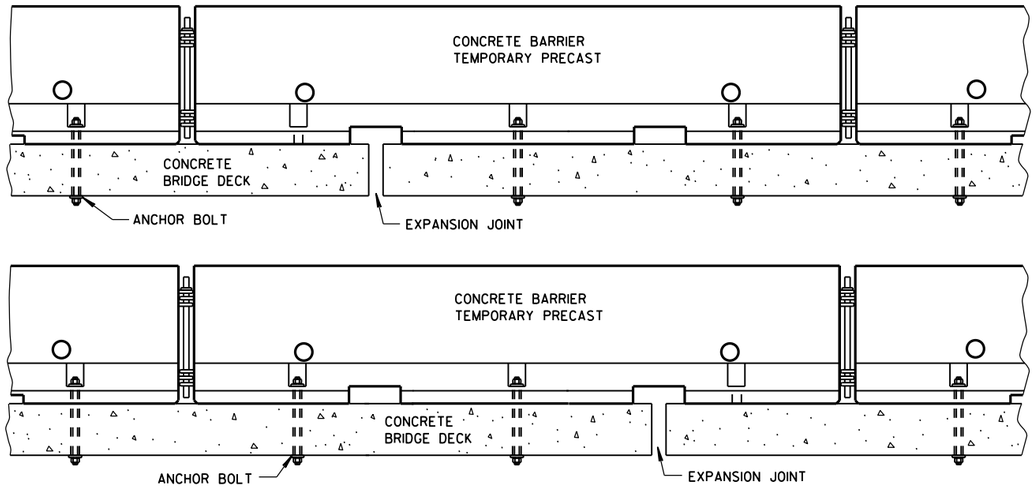
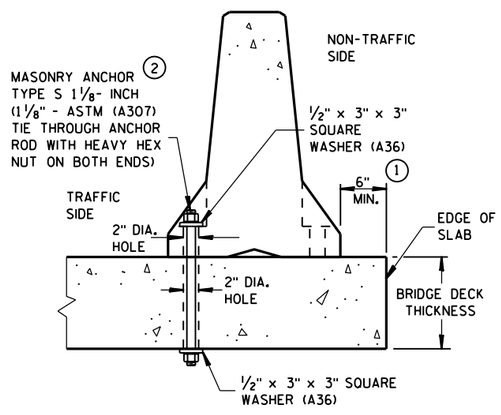
S.D.D. 14 B 7-14c



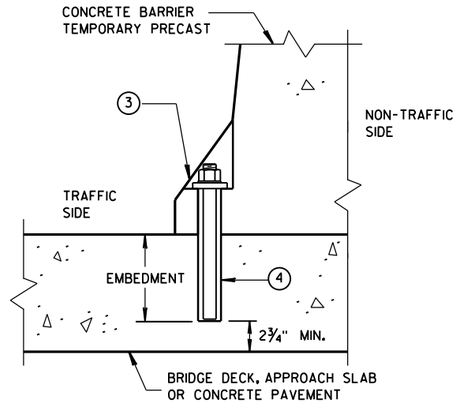
TREATMENT AT BRIDGE DECK EXPANSION JOINTS

(NO SINGLE CONCRETE BARRIER SECTION SHALL BE ANCHORED TO BOTH THE BRIDGE DECK AND THE APPROACH SLAB. ALL ANCHOR BOLT LOCATIONS SHALL BE ANCHORED TO THE DECK IN ACCORDANCE WITH THE DETAIL. NO MORE THAN ONE ANCHOR BOLT SHALL BE ELIMINATED FROM A BARRIER SECTION WHEN SPANNING AN EXPANSION JOINT.)



THROUGH BOLTED ANCHOR INSTALLATION ON BRIDGE DECK

(DO NOTUSE ON CONCRETE BRIDGE DECK WITH ASPHALT OVERLAY)



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

(DO NOT USE ON CONCRETE WITH AN ASPHALTIC OVERLAY)

GENERAL NOTES

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

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

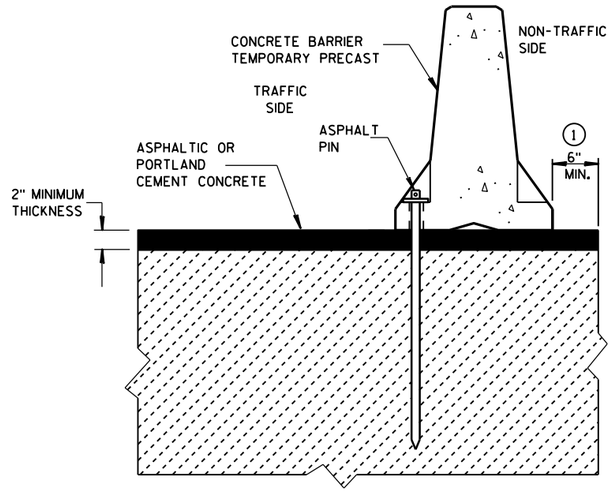
② ANCHORING IS INCIDENTAL TO CONCRETE BARRIER TEMPORARY PRECAST.

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

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

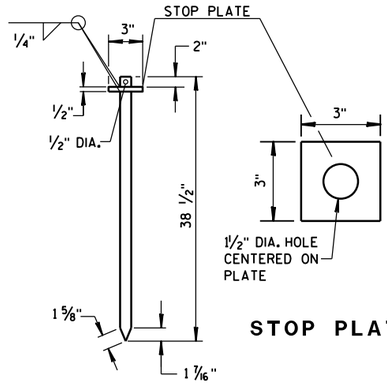
③ 1⅛" DIAMENTER A307 THREADED ROD, ½" X 3" X 3" SQUARE PLATE WASHER WITH ASTM A36 STEEL, ASTM A563A HEAVY HEX NUT.

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



STAKE DOWN INSTALLATION FOR ASPHALTIC OR PORTLAND CEMENT CONCRETE SURFACE

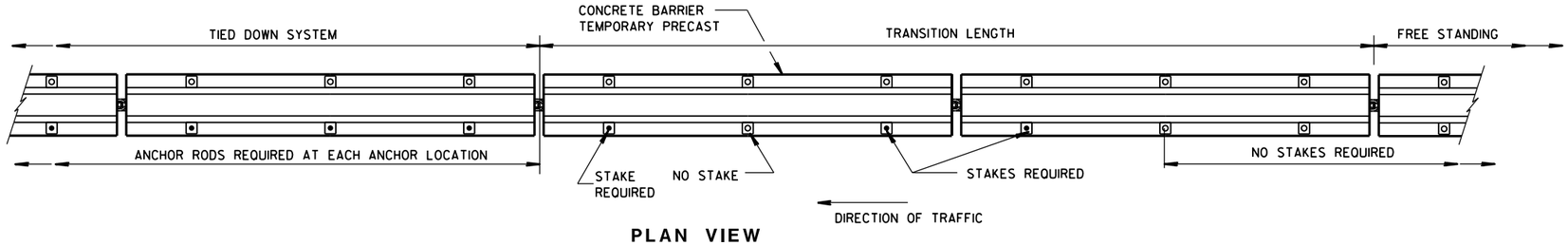
(STAKING IS INCIDENTAL TO CONCRETE BARRIER TEMPORARY PRECAST)



STOP PLATE

ASPHALT PIN

(ASTM A36 STEEL)



PLAN VIEW

FREE STANDING TRANSITION TO TIED-DOWN SYSTEM

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

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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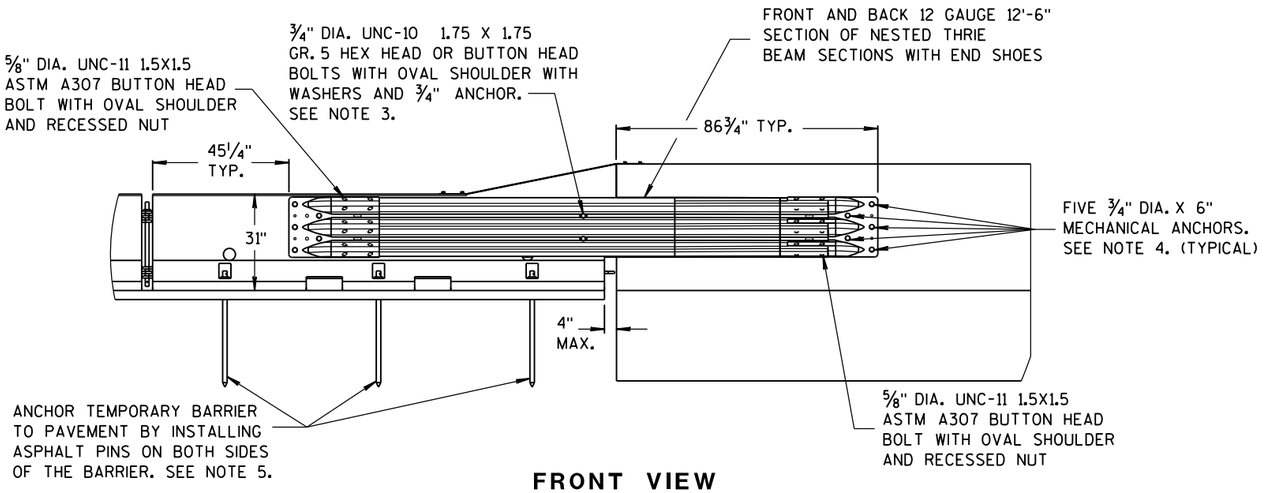
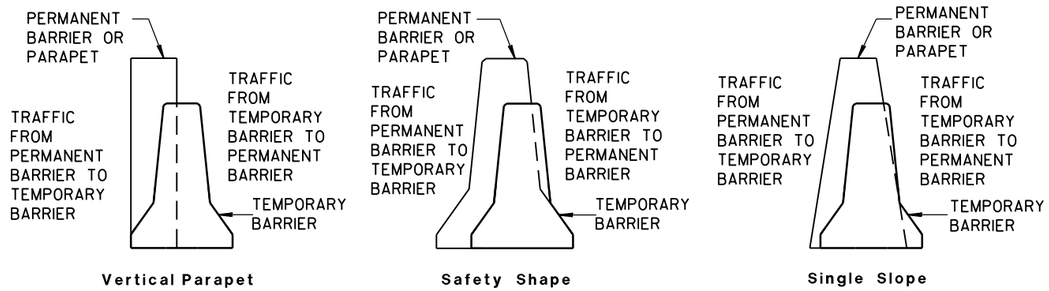
S.D.D. 14 B 7-14d



FRONT VIEW



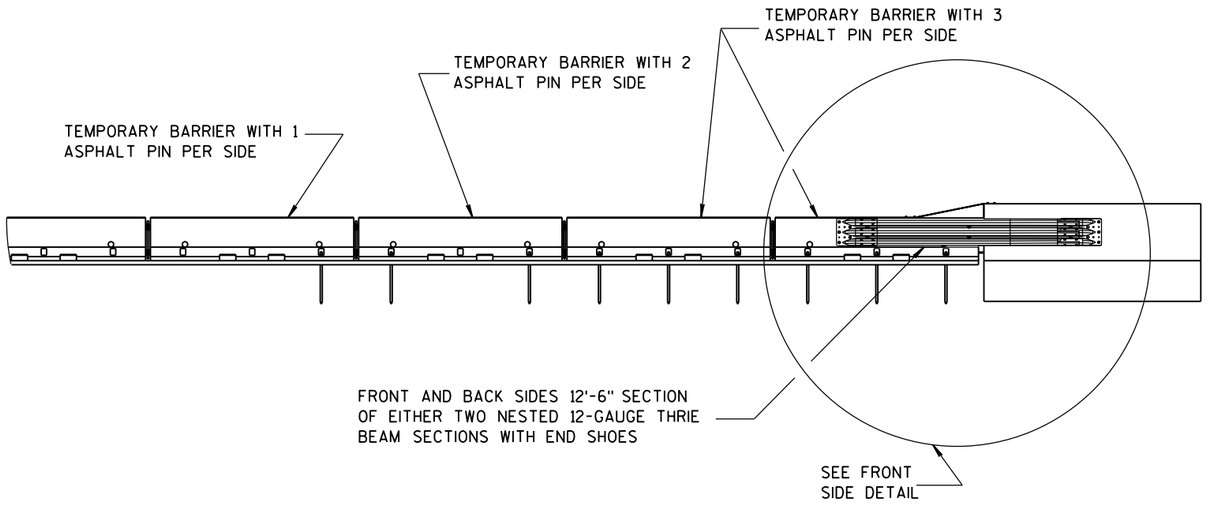
TEMPORARY BARRIER PLACEMENT FOR BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM

NOTES

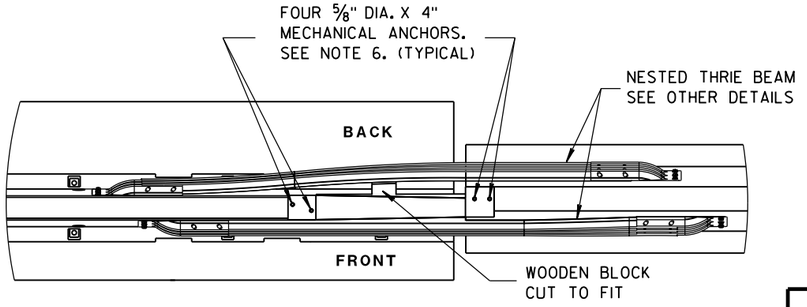
NESTED THRIE BEAM IS REQUIRED ON BOTH SIDES OF THE TEMPORARY BARRIER FOR ALL INSTALLATIONS.

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

BACK VIEW



FRONT VIEW



PLAN VIEW

BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

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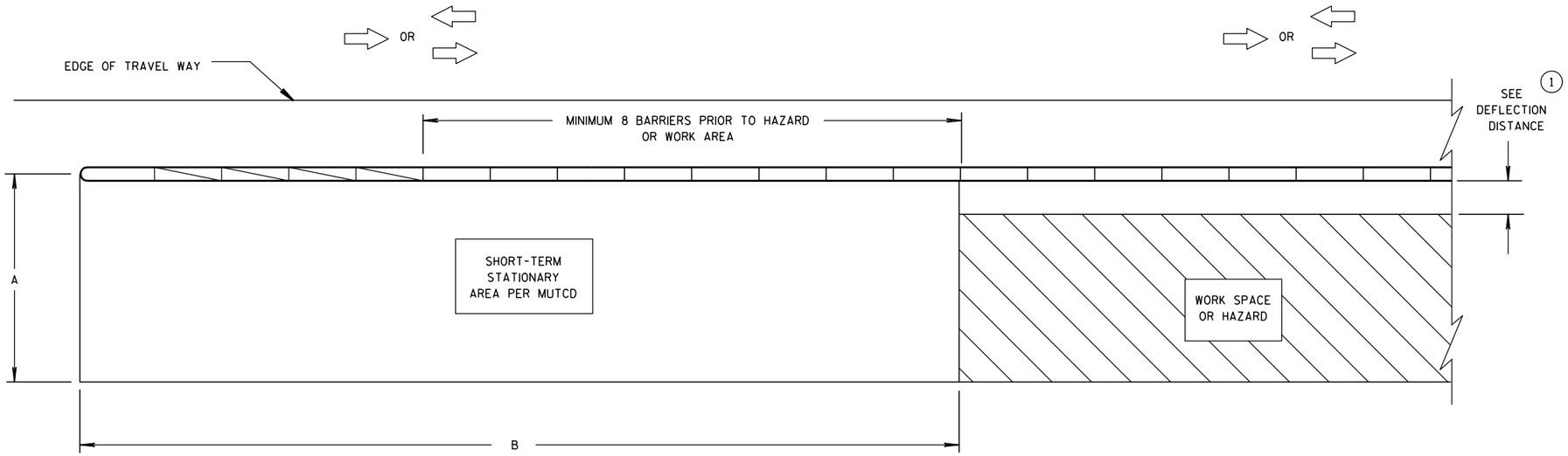
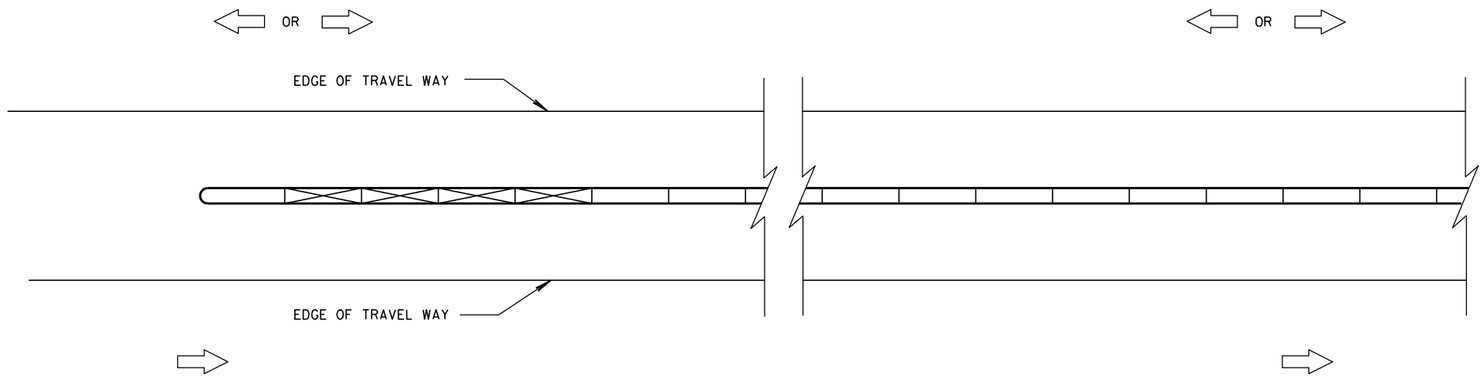
S.D.D. 14 B 7-14e



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



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

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.

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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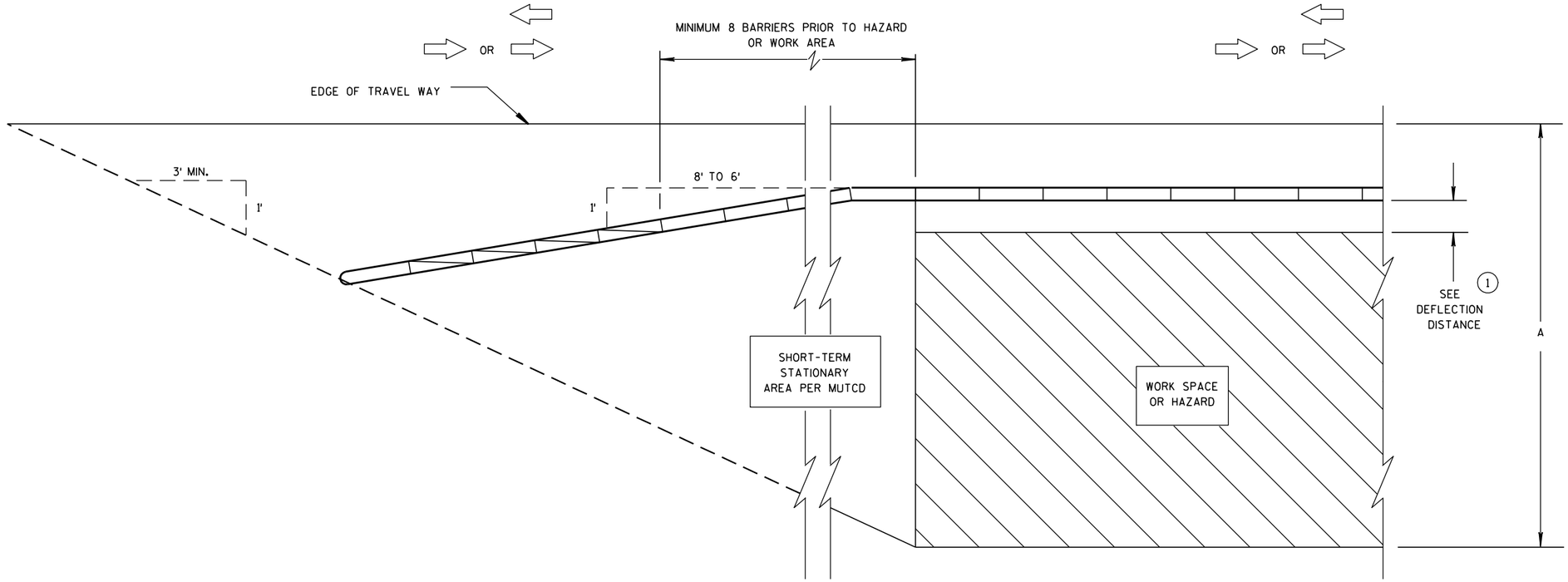
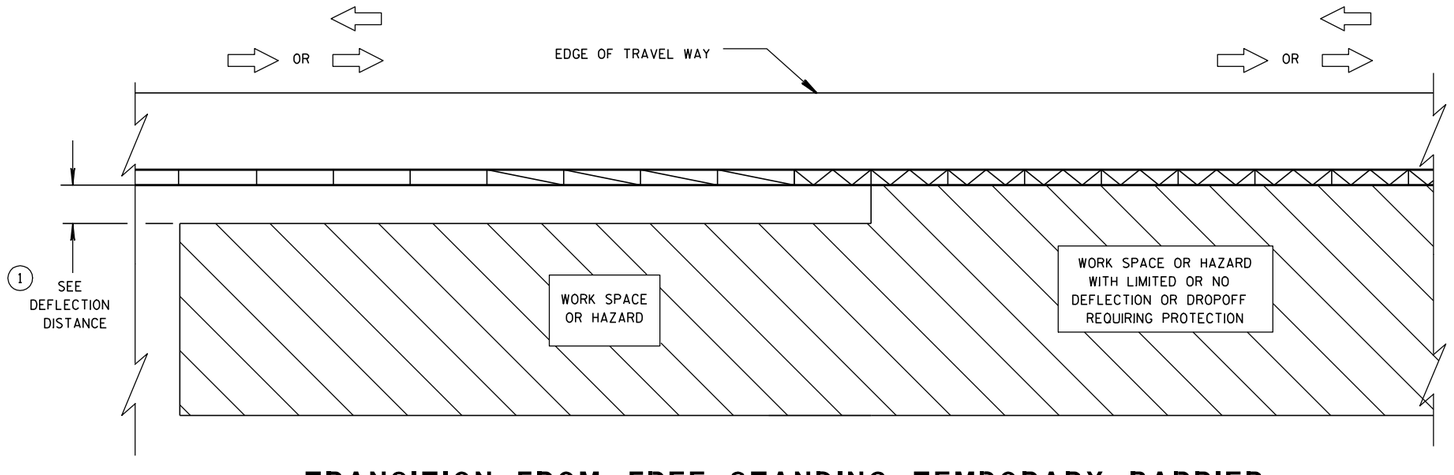


CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER INSTALLATION FOR TRAFFIC ON ONE SIDE - FLARED INSTALLATION



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 TRANSPORTATION

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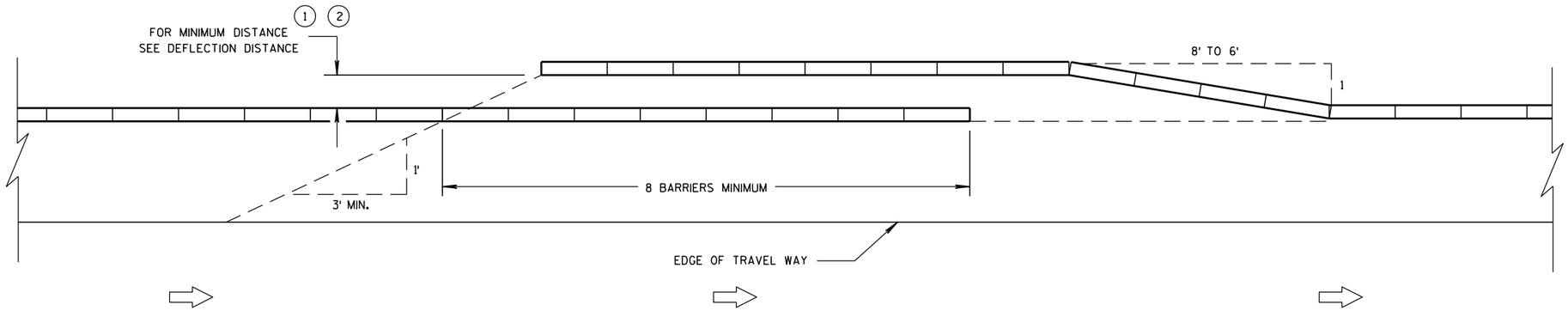
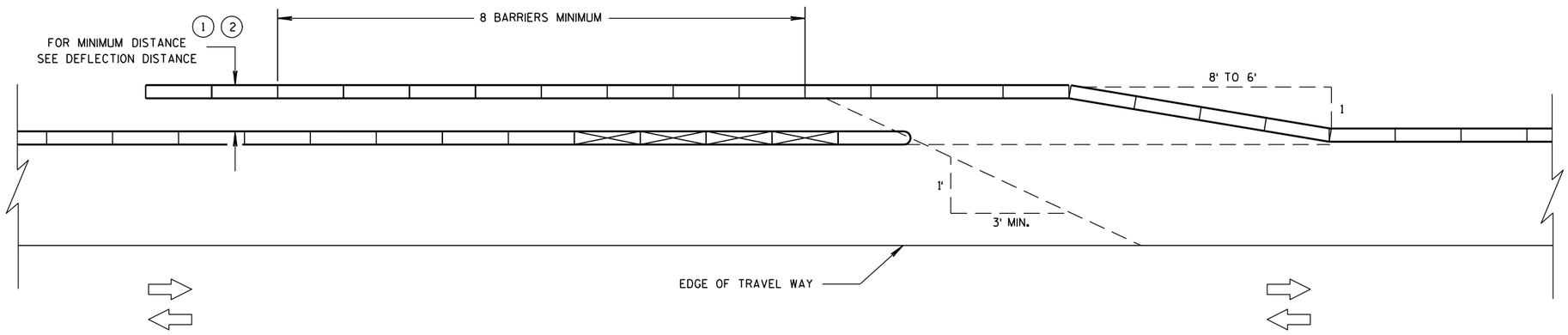
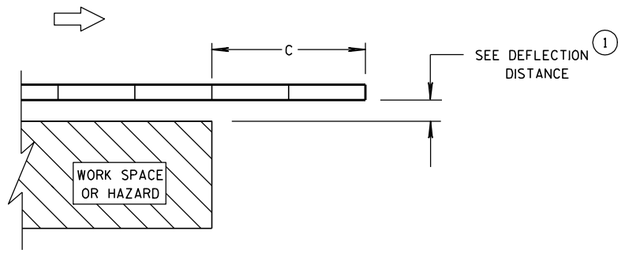
S.D.D. 14 B 8-1b



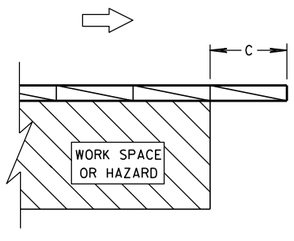
TEMPORARY BARRIER OVERLAP - ONE-WAY TRAFFIC



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 TRANSPORTATION

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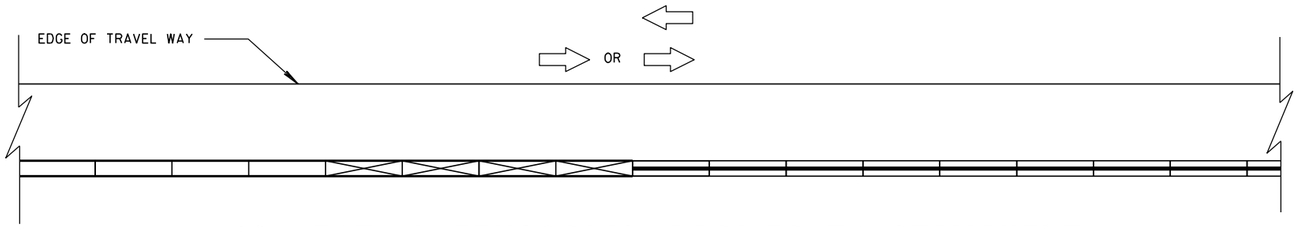
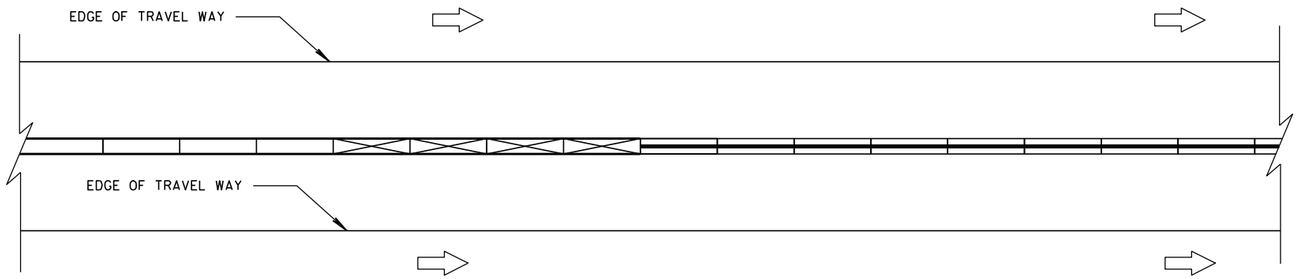
S.D.D. 14 B 8-1c



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

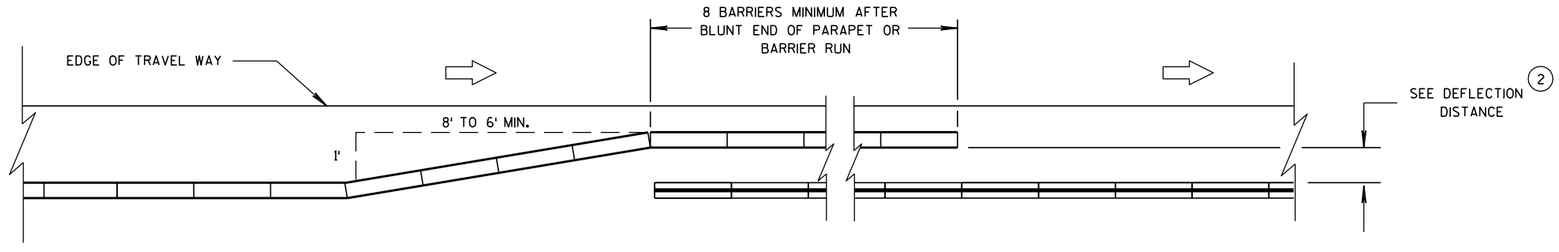
SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS

SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS

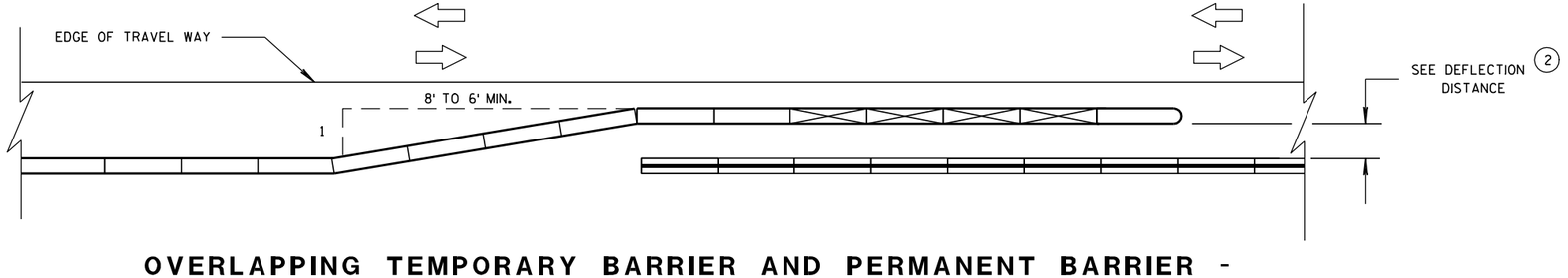
3 PINS PLACED ON TRAFFIC SIDE OF BARRIER

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 TRANSPO...

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LEGEND

DIRECTION OF TRAVEL

CRASH CUSHION OR SAND BARREL ARRAY

SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS

SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS

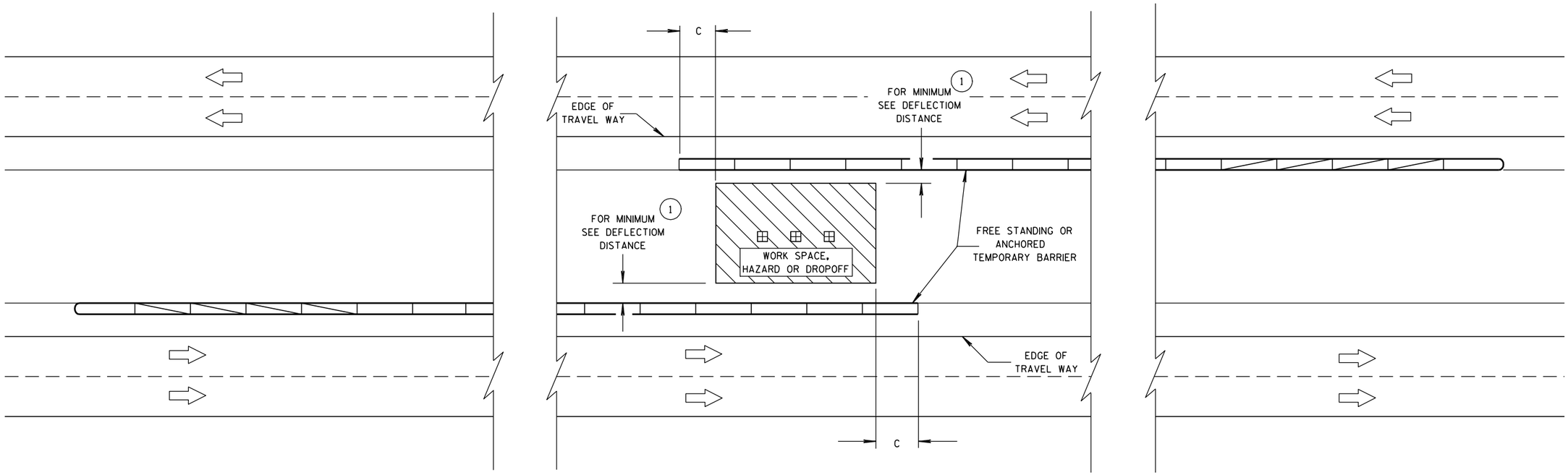
3 PINS PLACED ON TRAFFIC SIDE OF BARRIER

PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET

FREE STANDING TEMPORARY BARRIER

DIMENSION C TABLE (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

8/31/2012
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINNER

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FHWA

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GENERAL NOTES

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

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

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

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

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

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

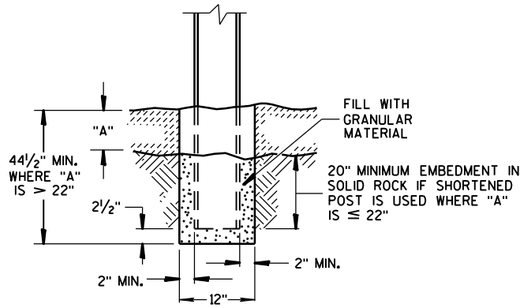
(5) IF THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING, W BEAM (LHW).

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

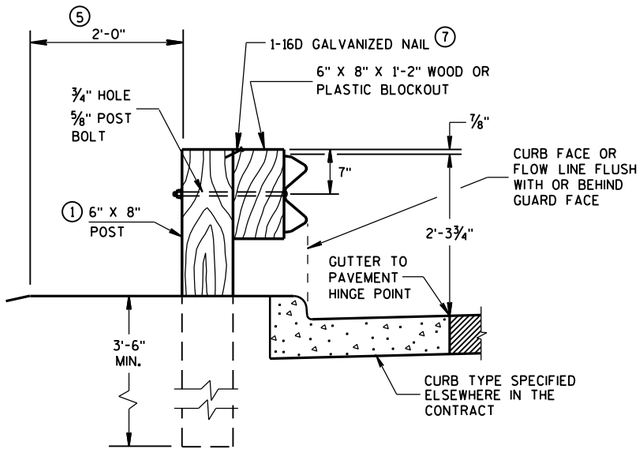
(7) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

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

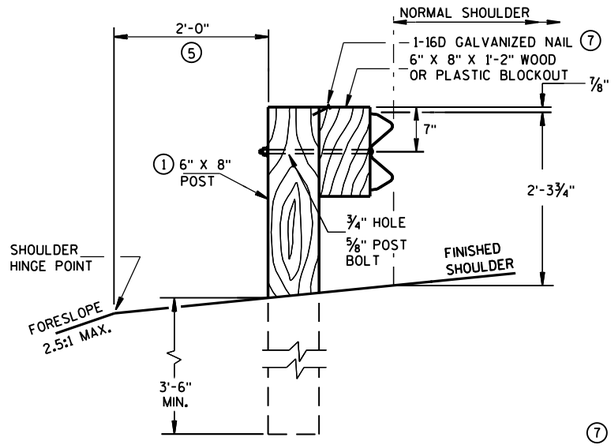
ALL DIMENSIONS ARE SUBJECT TO MANUFACTURER'S TOLERANCES EXCEPT WHERE ALLOWABLE TOLERANCES ARE SHOWN.



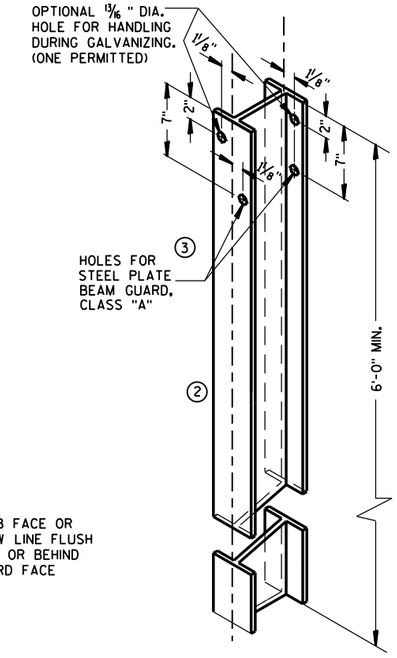
END VIEW
SETTING STEEL OR WOOD POST IN ROCK (6)



END VIEW
LOCATED ALONG A CURBED ROADWAY

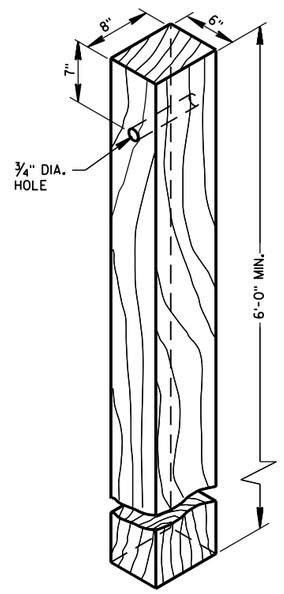


END VIEW
LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION

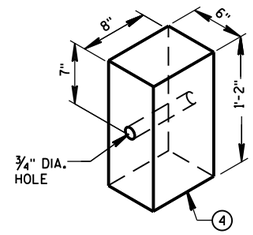


STEEL POST &
HOLE PUNCHING DETAIL
(W6 X 9) (1)

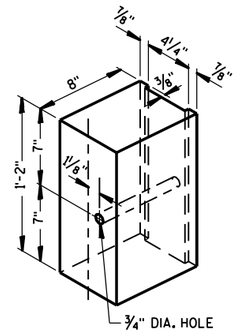
ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED



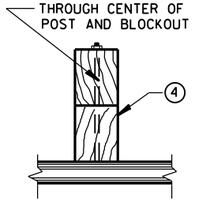
WOOD POST
(6"X8") NOMINAL



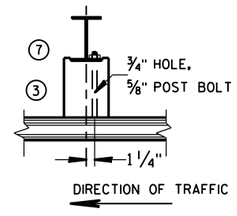
WOOD OR PLASTIC
BLOCKOUT FOR
WOOD POSTS



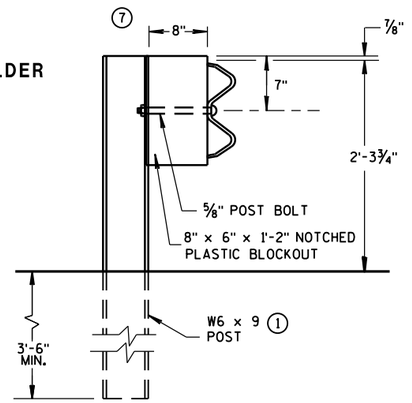
TYPICAL NOTCHED (1)
PLASTIC BLOCKOUT
FOR STEEL POSTS



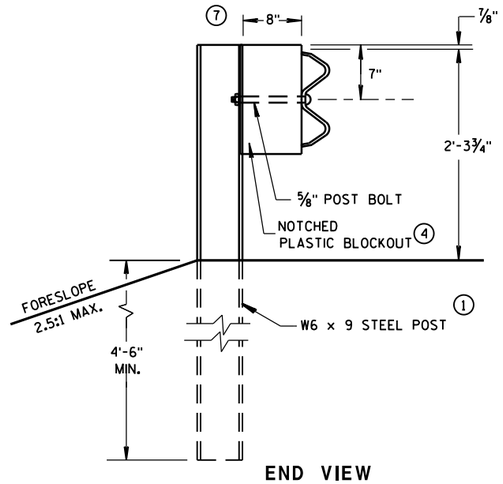
PLAN VIEW
WOOD POST, BLOCKOUT & BEAM



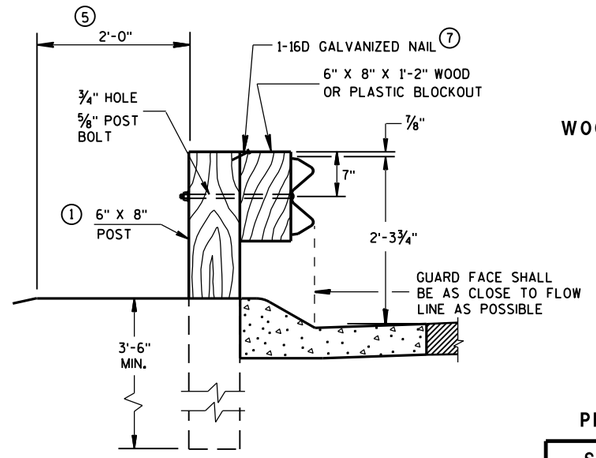
PLAN VIEW
STEEL POST, NOTCHED
PLASTIC BLOCKOUT & BEAM



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 TRANSPOR 55

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S.D.D. 14 B 15-8a

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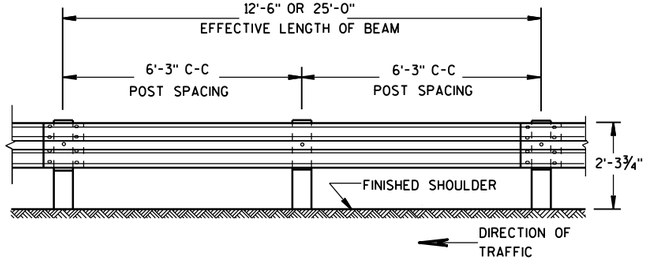
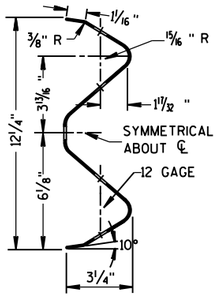
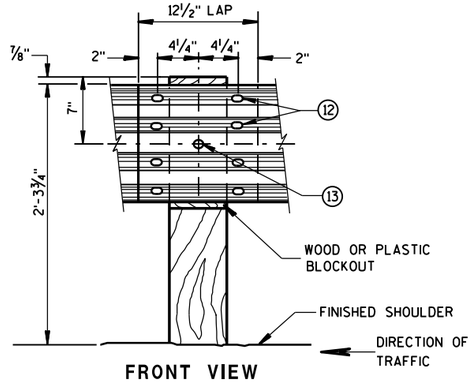


FRONT VIEW

POST SPACING STANDARD INSTALLATION



SECTION THRU W BEAM



FRONT VIEW

BEAM SPLICE AT WOOD POST AND POST MOUNTING DETAIL

GENERAL NOTES

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

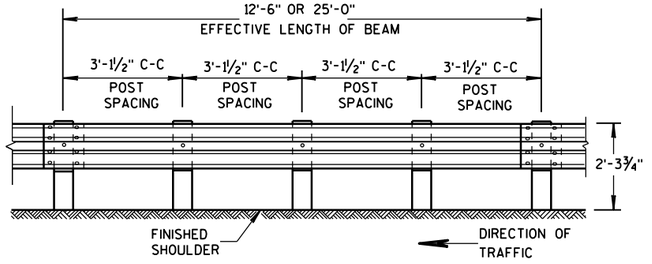
(9) DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

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

(11) PROVIDE AN ANGLE OF BEND OF 90° ± 1° FOR TWO-SIDED REFLECTORS.

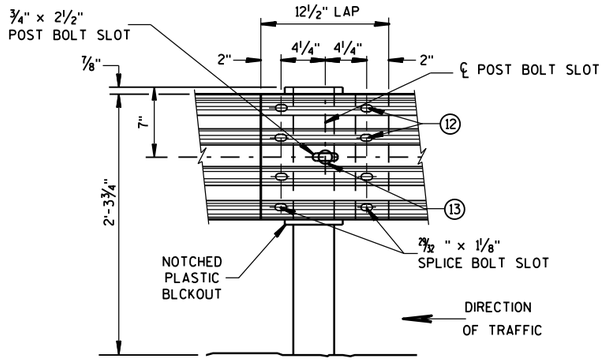
(12) 8 -⅝" ϕ X 2" BUTTON HEAD BOLTS WITH OVAL SHOULDERS & RECESS NUTS.

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



FRONT VIEW

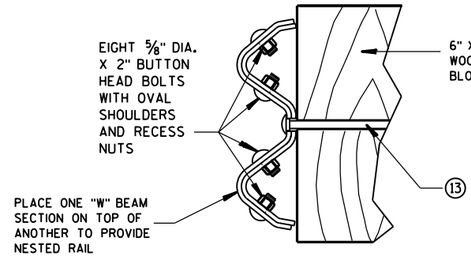
POST SPACING FOR LONGER POST AT HALF POST SPACING W BEAM (LHW)



FRONT VIEW

BEAM SPLICE AT STEEL POST

TYPICAL SPLICING DETAILS OF STEEL PLATE BEAM GUARD

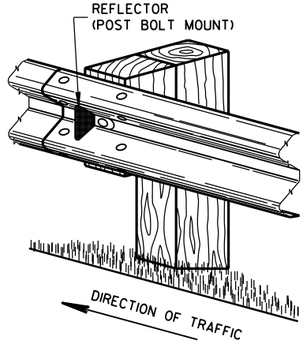


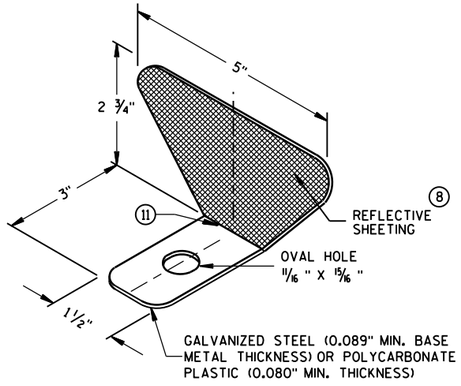
NESTED W BEAM (NW)

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

REFLECTOR SPACING (9)

	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200' > 200'	50' C-C 100' C-C	1 1	3
TWO WAY TRAFFIC	< 200' > 200'	25' C-C 50' C-C	1 (10) 1	6
TWO WAY TRAFFIC	< 200' > 200'	50' C-C 100' C-C	2 2 (11)	3





ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION (8)

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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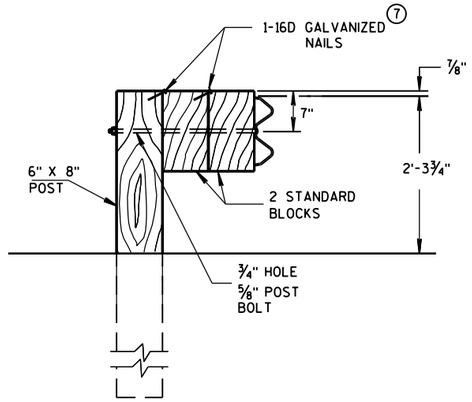
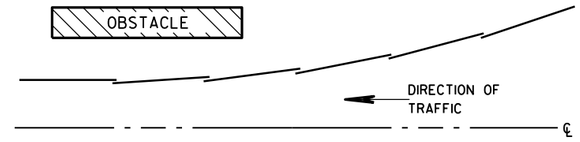
S.D.D. 14 B 15-8b

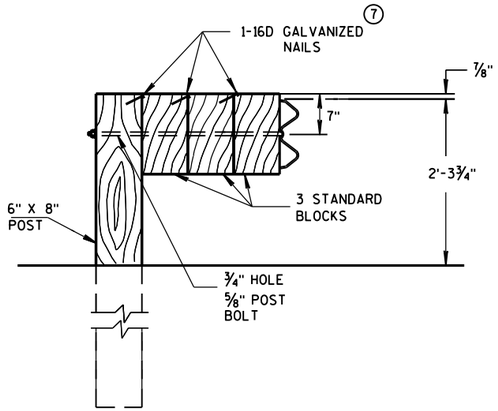


DETAIL FOR DOUBLE BLOCKS

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

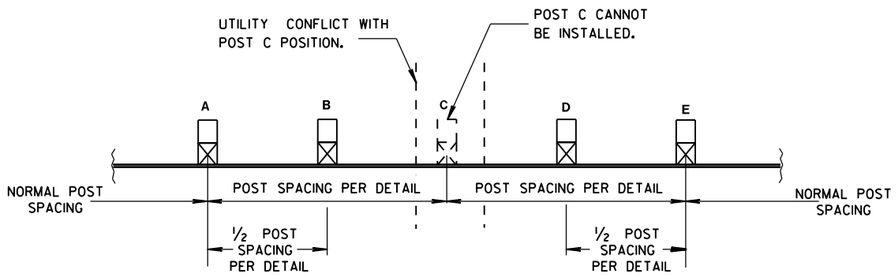


PLAN VIEW
BEAM LAPPING DETAIL



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

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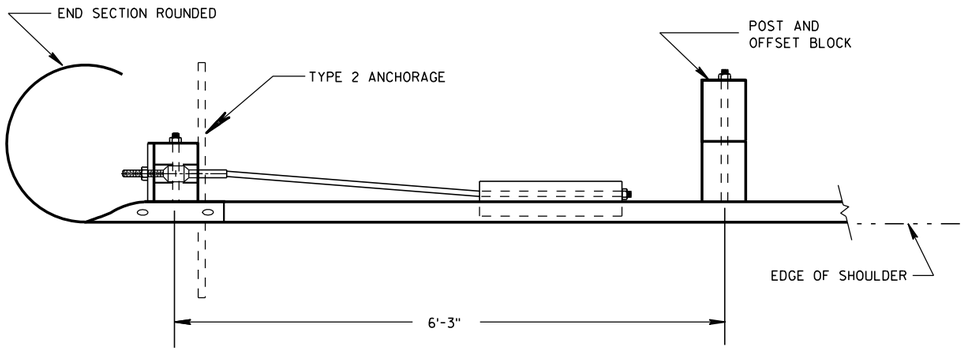
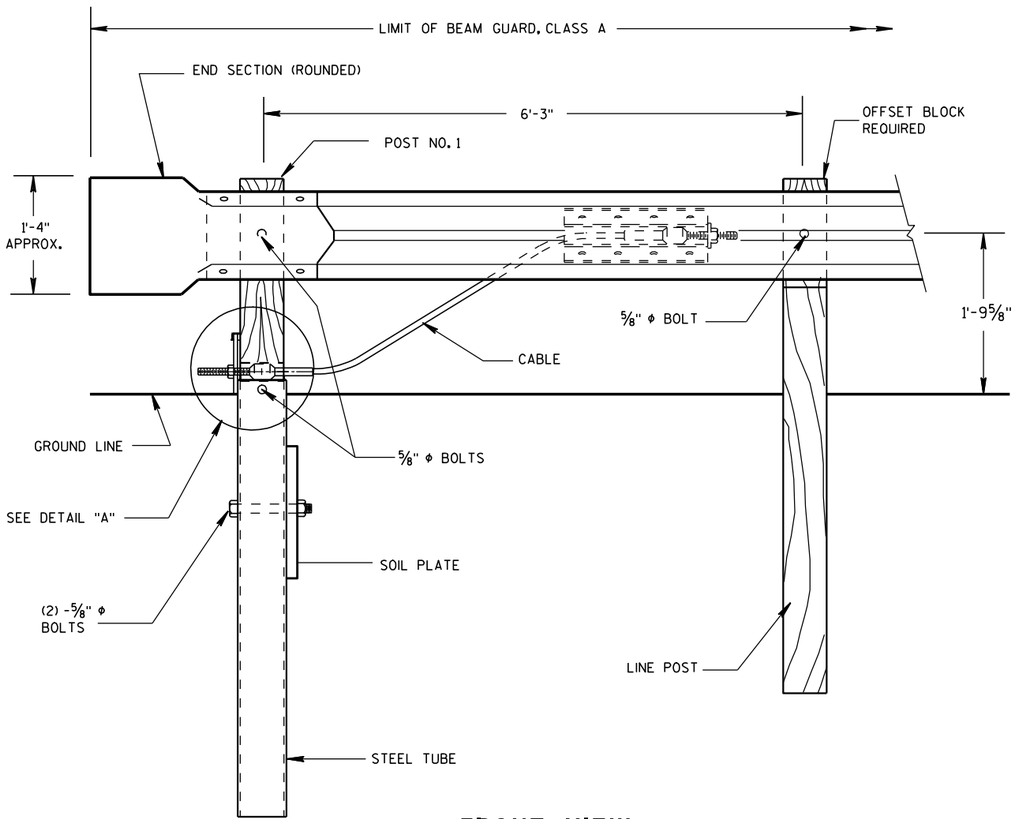
S.D.D. 14 B 15-8c



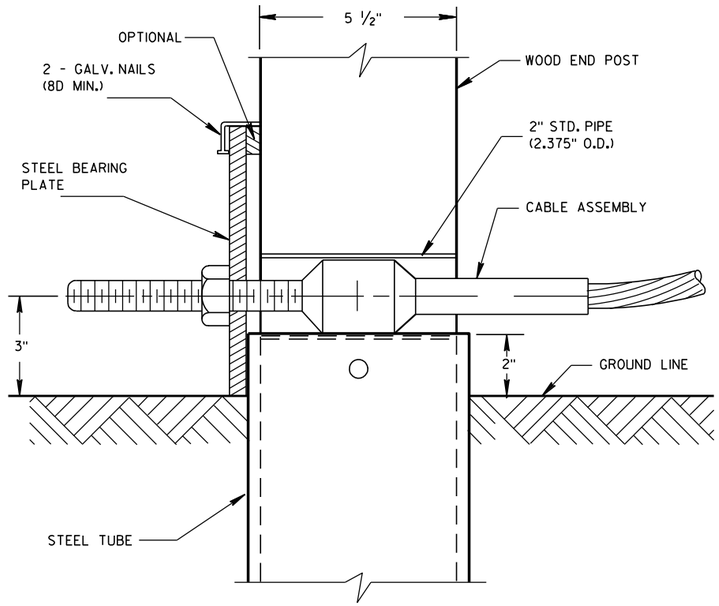
PLAN VIEW



FRONT VIEW

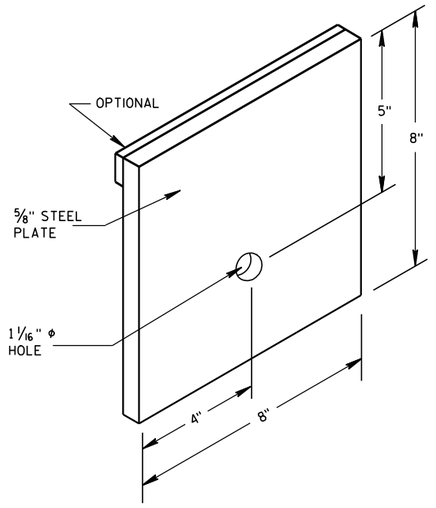
END TREATMENT WITH TYPE 2 ANCHORAGE

(USE ON ONE-WAY ROADWAYS ONLY - DEPARTING END)



DETAIL "A"

POST NO. 1



STEEL BEARING PLATE

ANCHORAGE FOR STEEL
PLATE BEAM GUARD
TYPE 2

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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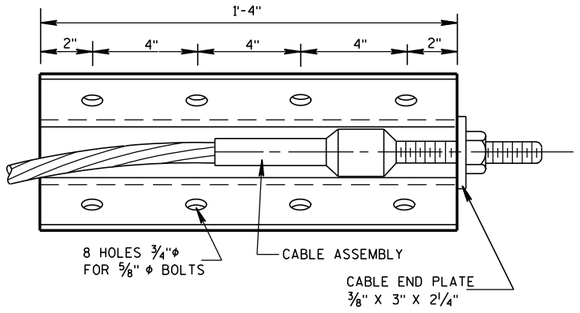
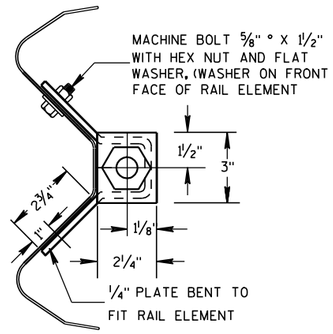
S.D.D. 14 B 16-4a

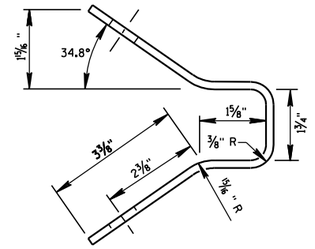


FRONT VIEW

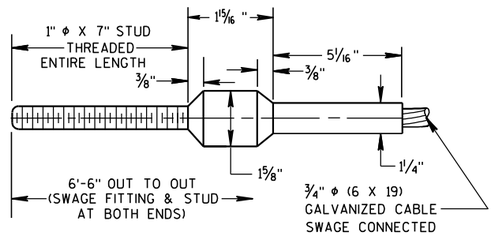


END VIEW

ANCHOR PLATE DETAIL



END VIEW OF BRACKET



CABLE ASSEMBLY

CABLE, SWAGE FITTING, STUD AND NUT SHALL DEVELOP
A MINIMUM BREAKING STRENGTH OF 40,000 LB
(TIGHTEN UNTIL TAUT)

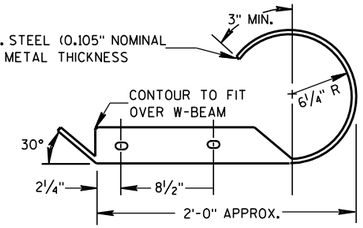
GENERAL NOTES

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

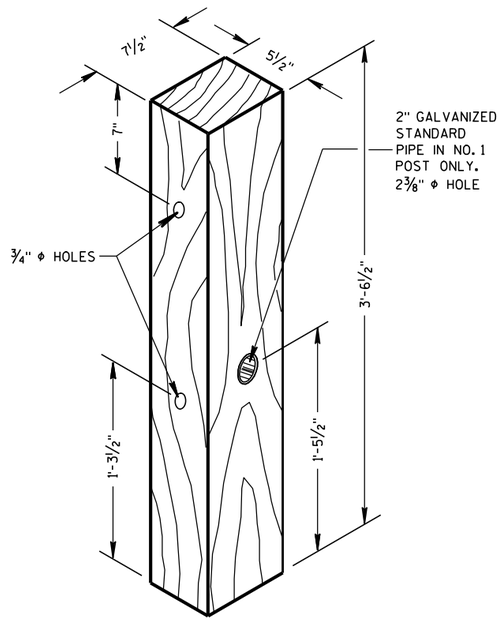
STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A-500 GRADE B OR ASTM A-501.

POST NO. 1 SHALL BE WOOD BREAKAWAY POST INSERTED AND BOLTED INTO STEEL TUBE.

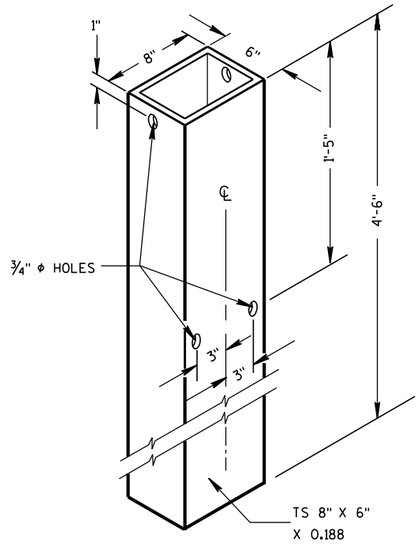
TYPE 2 ANCHORAGE SHALL CONSIST OF A STEEL TUBE, SOIL PLATE WOOD BREAKAWAY POST, BEARING PLATE, ANCHOR PLATE, CABLE ASSEMBLY AND ALL ASSOCIATED HARDWARE, ALL STEEL PARTS SHALL BE GALVANIZED.



PLAN VIEW

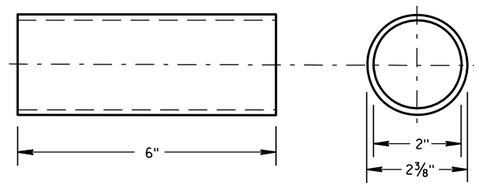


WOOD BREAKAWAY POST



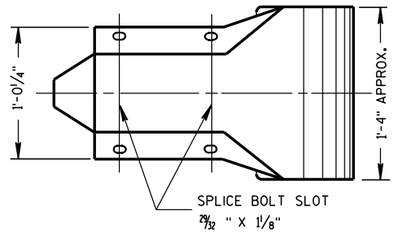
STEEL TUBE

STEEL TUBE SHALL CONFORM TO
REQUIREMENTS OF ASTM A500

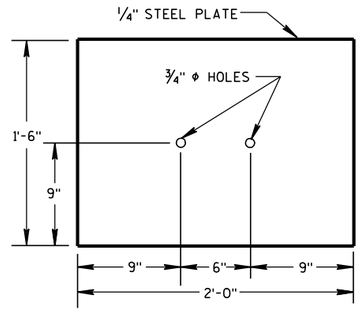


BREAKAWAY TERMINAL POST SLEEVE

GALVANIZED STANDARD STRENGTH STEEL PIPE, ASTM 53 GRADE "B"



FRONT VIEW
W BEAM END SECTION ROUNDED



SOIL PLATE

ANCHORAGE FOR STEEL
PLATE BEAM GUARD
TYPE 2

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8/21/2007
DATE
/S/ Jerry H. [illegible]
ROADWAY STANDARDS ENGINEER
59
ENT
FHWA

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S.D.D. 14 B 16-4b

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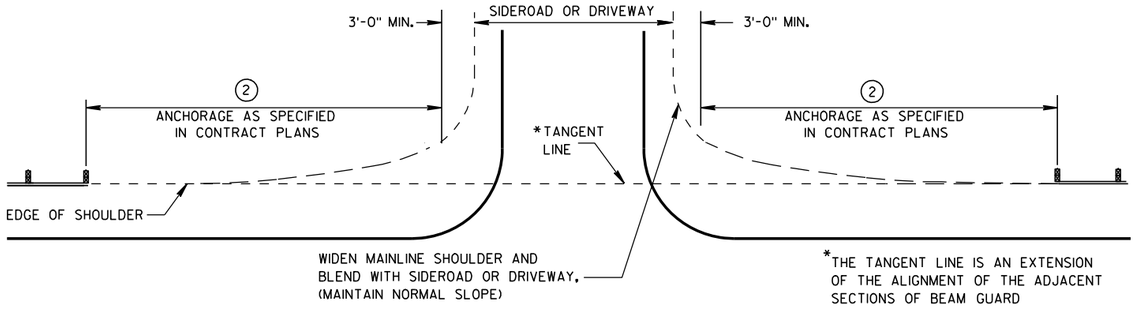
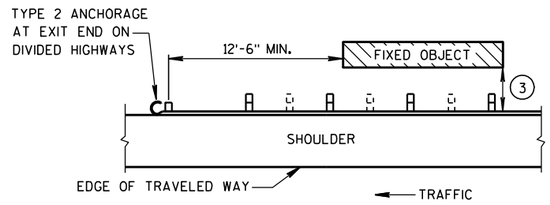
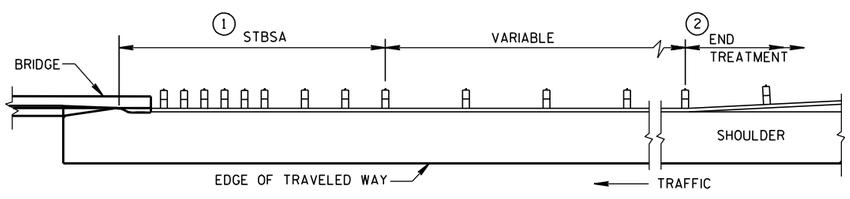
S.D.D. 14 B 16-4b



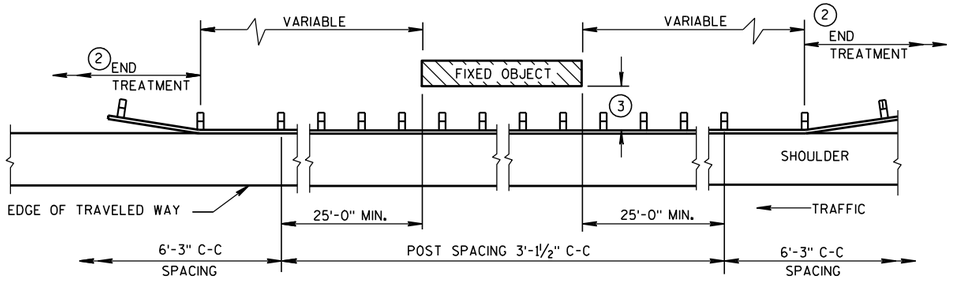
BEAM GUARD AT SIDEROADS OR DRIVEWAYS



BEAM GUARD AT OBSTACLES EXIT END - ONE WAY TRAFFIC

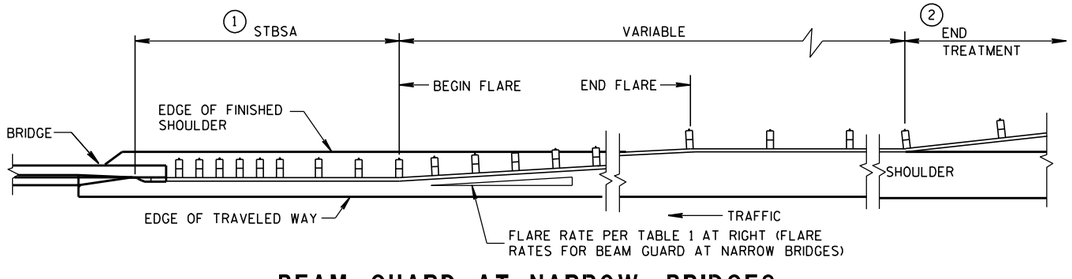


BEAM GUARD AT FULL WIDTH BRIDGES



BEAM GUARD AT OBSTACLES - TWO WAY TRAFFIC

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



BEAM GUARD AT NARROW BRIDGES

(FLARED TO SHOULDER EDGE, THEN PARALLEL TO ROADWAY)

GENERAL NOTES

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

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

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

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

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

(3)

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

TABLE 1
FLARE RATES FOR BEAM GUARD AT NARROW BRIDGES

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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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

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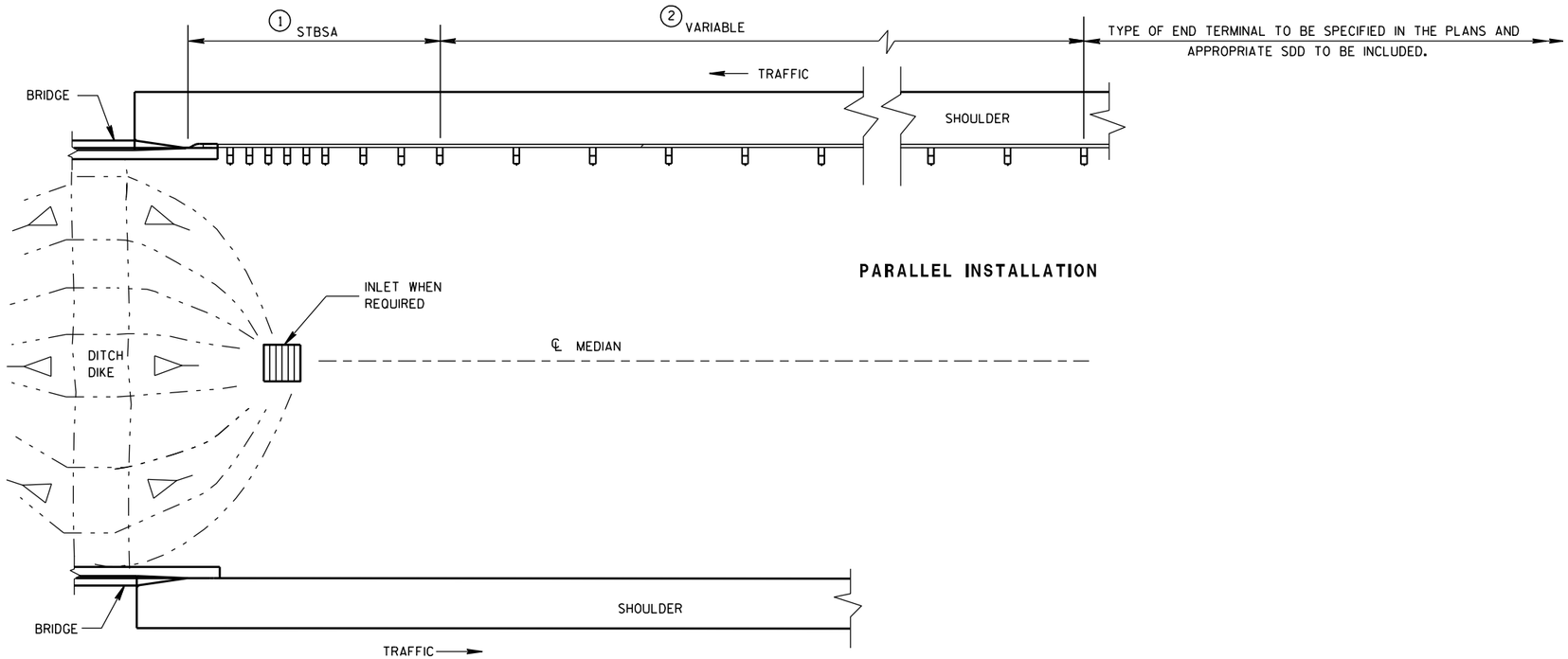
S.D.D. 14 B 18-6a

GENERAL NOTES

1. STEEL THRIE BEAM STRUCTURAL APPROACH (STBSA) - SEE CURRENT SDD 14B20.
2. LOCATIONS AND LENGTHS OF BEAM GUARD ARE SHOWN ELSEWHERE IN THE PLAN.



PARALLEL INSTALLATION

BEAM GUARD AT MEDIAN APPROACH TO BRIDGES

STEEL PLATE BEAM GUARD CLASS "A" AT MEDIAN APPROACH TO BRIDGES	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
8-21-07 DATE	/S/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	

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

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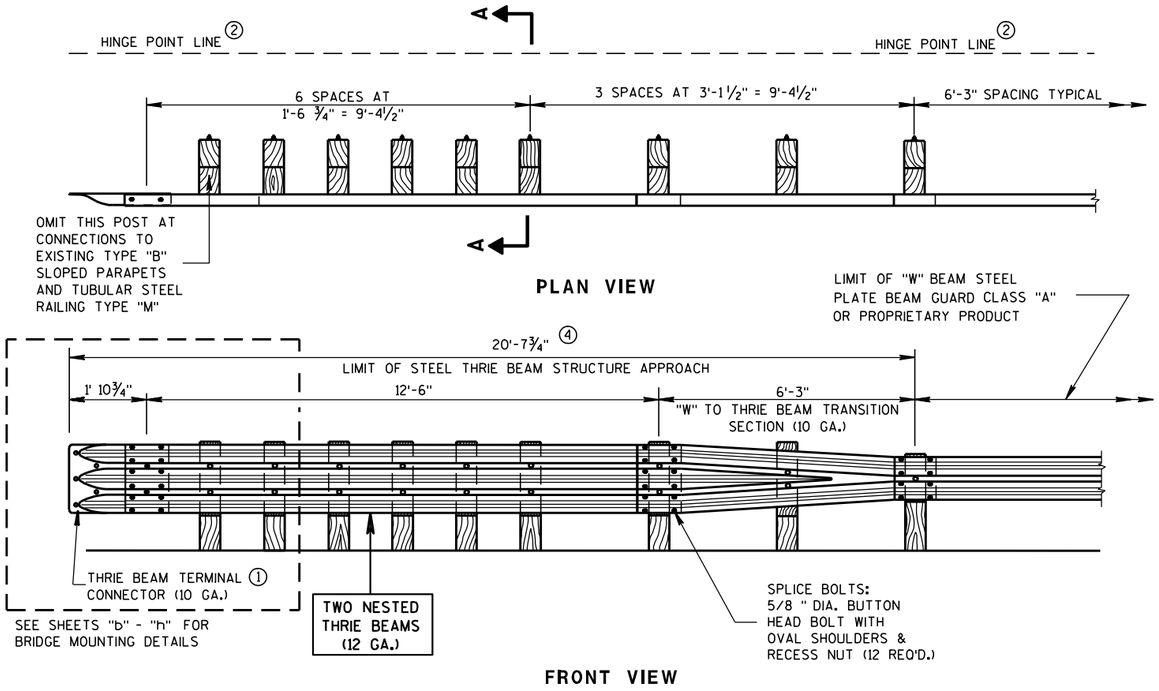
S.D.D. 14 B 18-6b



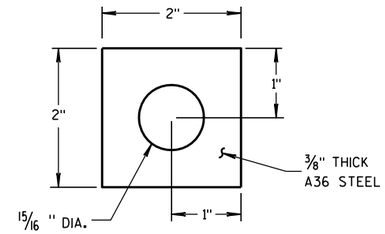


PLATE WASHER DETAIL

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.

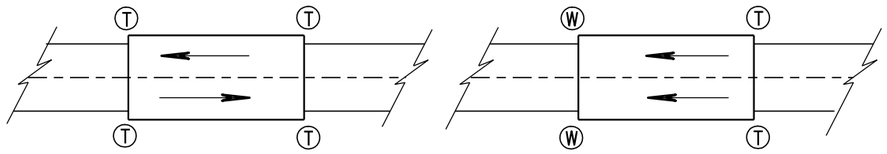
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2" , AND 12" DIAMETER AROUND POST. SEE 14B15 FOR MORE DETAILS.

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.



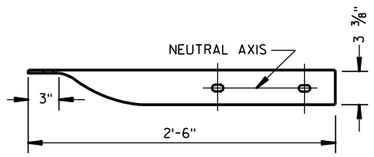
TWO WAY TRAFFIC

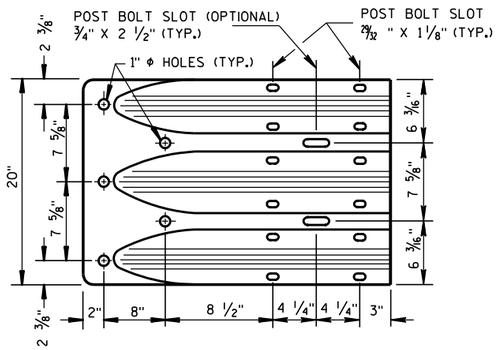
ONE WAY TRAFFIC

T THRIE BEAM CONNECTION

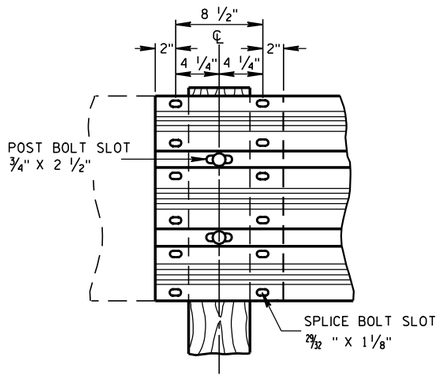
W W-BEAM CONNECTION WHEN REQUIRED

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

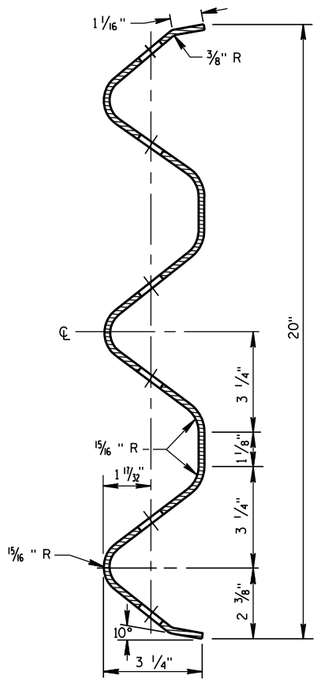




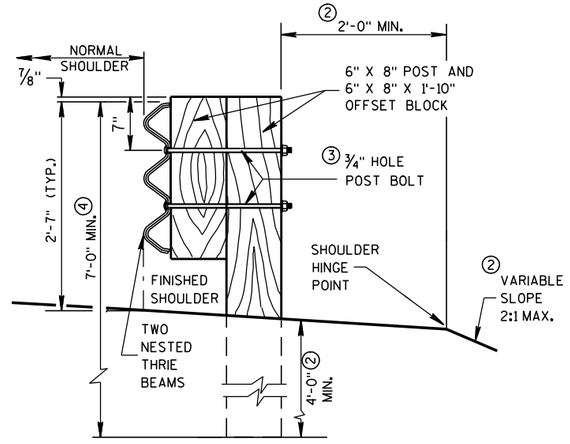
THRIE BEAM TERMINAL CONNECTOR



THRIE BEAM SPLICE



SECTION THRU THRIE BEAM RAIL ELEMENT



SECTION A-A

STEEL THRIE BEAM STRUCTURE APPROACH

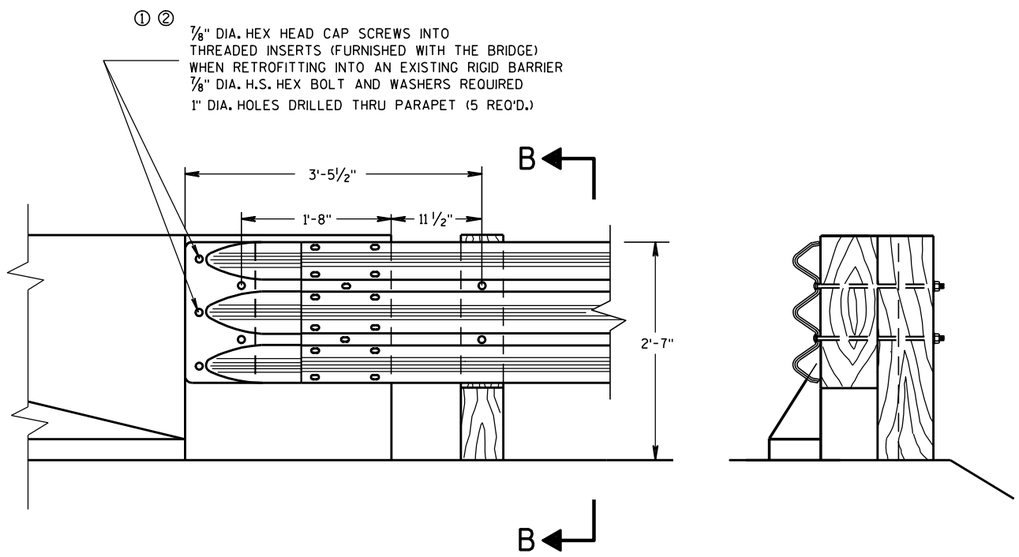
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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.

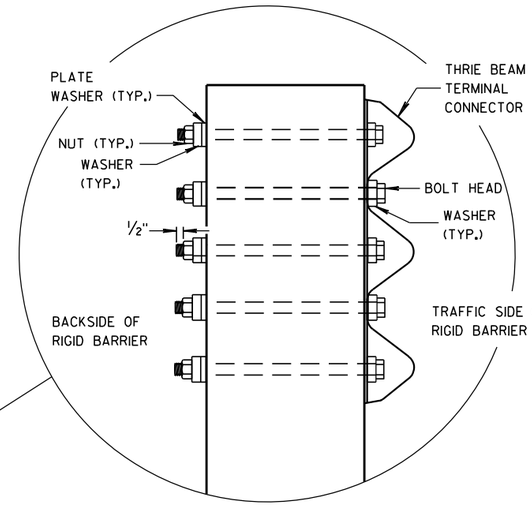
① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

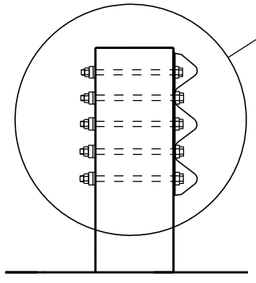
② BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM TERMINAL CONNECTOR. 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".

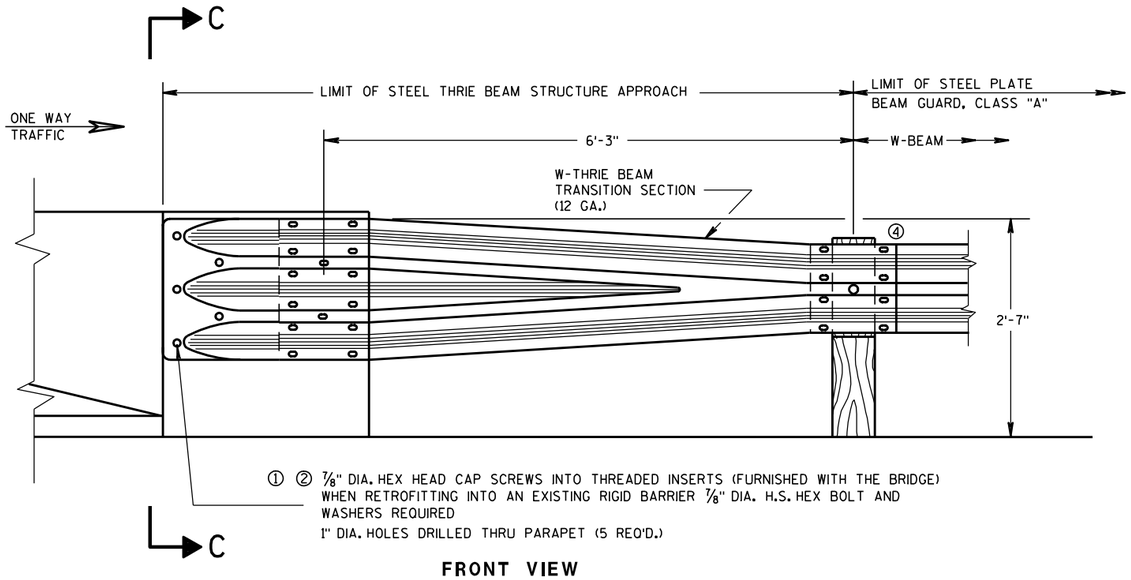
④ W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POST WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.

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. Zaa
ROADWAY STANDARDS ENGINEER

FHWA

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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.

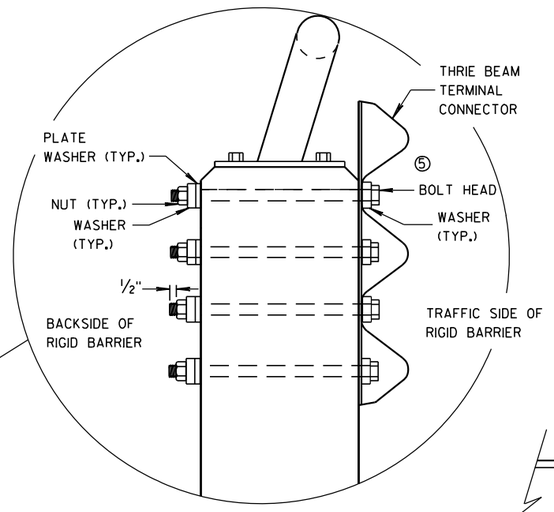
② BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM TERMINAL CONNECTOR. 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.

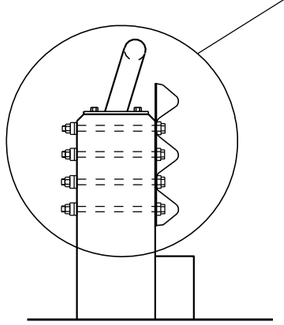
③ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 ½".

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.

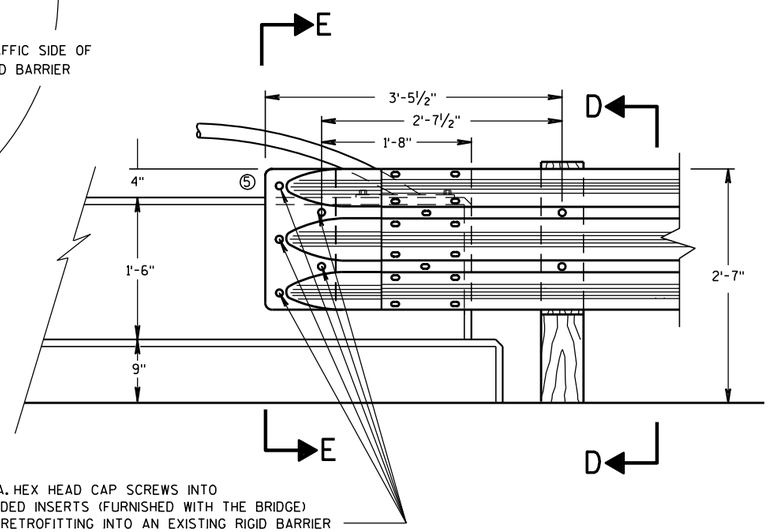
⑤ BOLT, NUT AND WASHERS NOT REQUIRED FOR THIS LOCATION WHEN RETROFITTING AN EXISTING PAPAPET AND THE HOLE IS EITHER ABOVE PARAPET OR WITHIN 4 INCHES OF THE EDGE OF PARAPET.

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.



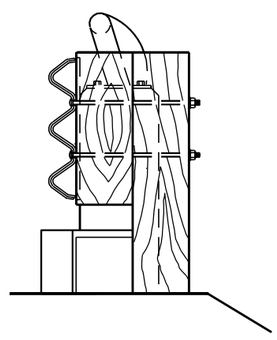


SECTION E-E



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.)

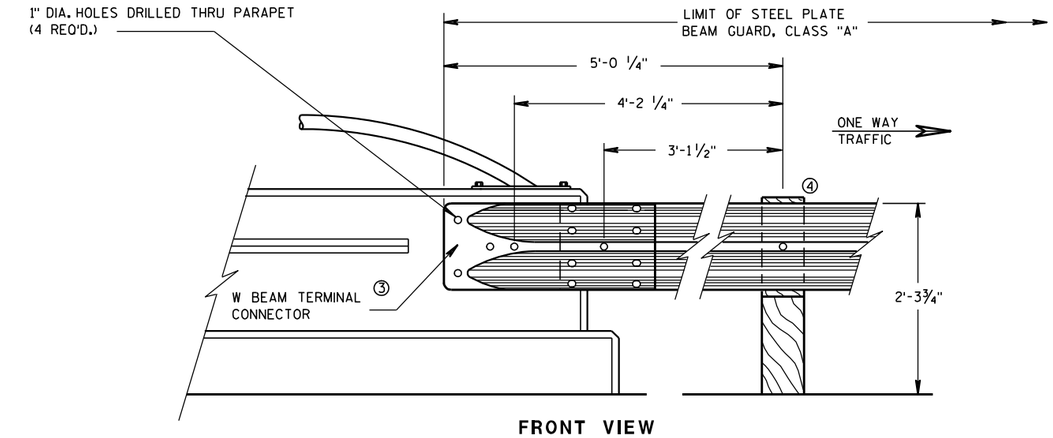
FRONT VIEW



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. Zaa — ROADWAY STANDARDS ENGINEER
FHWA

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

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

BILL OF MATERIALS

NOTE NO.	QTY.	DESCRIPTION
①	4	WOOD BREAKAWAY TERMINAL POST: 5½" X 7½" X 3'-9"
②	**	STEEL TUBE: OPTION 1 - QUANITY OF 4 TS 8" X 6" X 0.188", 4'-6" LONG OR OPTION 2 - QUANITY OF 2 TS 8" X 6" X 0.188", 6'-0" AND 2 TS 8" X 6" X 0.188", 4'-6" LONG
③	2	SOIL PLATE: 2'-0" X 1'-6" X ¼" **
④	4	WOOD BREAKAWAY CRT POST: 6" X 8" X 6'-0"
⑤	6	WOOD OFFSET BLOCKS: 6' X 8" X 1'-2"
⑥	1	PIPE SLEEVE: 2" X 5 ½" STANDARD PIPE
⑦	1	BEARING PLATE
⑧	1	BCT CABLE ASSEMBLY
⑨	1	CABLE ANCHOR BOX
⑩	1	STRUT & YOKE
⑪	1	STEEL PLATE BEAM, END PANEL 12 GA. 13'-6½" LONG FOR SKT-350, ET-2000 AND ET-2000 PLUS
⑫	3	STEEL PLATE BEAM: 12 GA. 13'-6½"
⑬	1	ET-2000/ET-2000 PLUS GUARDRAIL EXTRUDER OR SKT-350 IMPACT HEAD: AS FURNISHED BY MANUFACTURER
⑭	1	0.040" ALUMINUM SHEET WITH REFLECTIVE SHEETING TYPE F PER SECTION 637 OF THE STANDARD SPECIFICATIONS
⑮	1	E.A.T. MARKER POST

GENERAL NOTES

FOLLOW MANUFACTURE'S BOLTING RECOMMENDATIONS. IF NONE ARE AVAILABLE, INSTALL ⅝" ø X 1'-6" BUTTON HEAD BOLTS AT ALL POSTS EXCEPT FOR POST 1.

(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) THE 13 SLOT FIRST RAIL PANEL MAY BE USED IN LIEU OF THE 3 SLOT RAIL PANEL ON SKT-350 ONLY.

(D) THE TOP OF THE STEEL TUBE ON POSTS 1 THROUGH 4 SHALL NOT BE MORE THAN 3" ABOVE THE FINISH GROUND ELEVATION.

(E) THE CENTER OF THE UPPER 3½" DIAMETER HOLE ON POST 5 THROUGH 8 SHALL BE ¾" ABOVE THE FINISHED GROUND LINE.

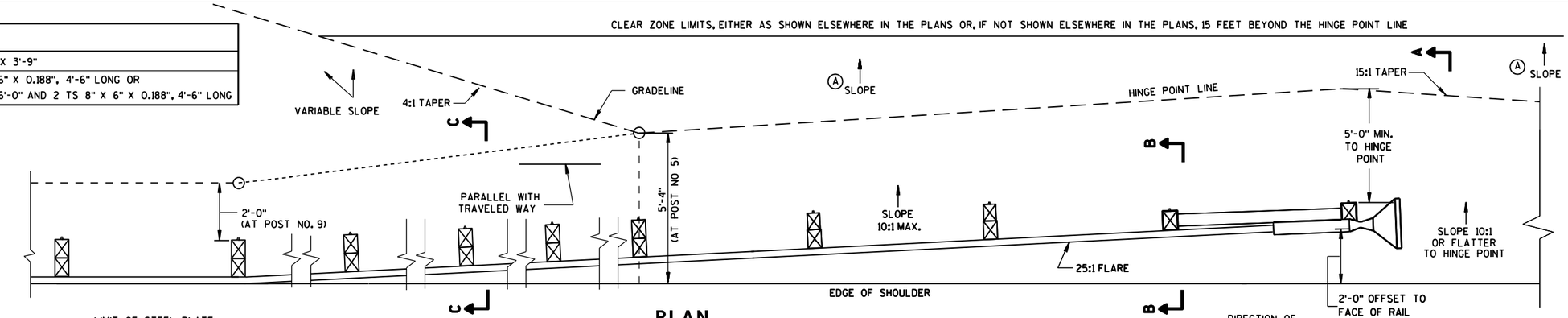
(F) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS. ONE SCREW PER CORNER.

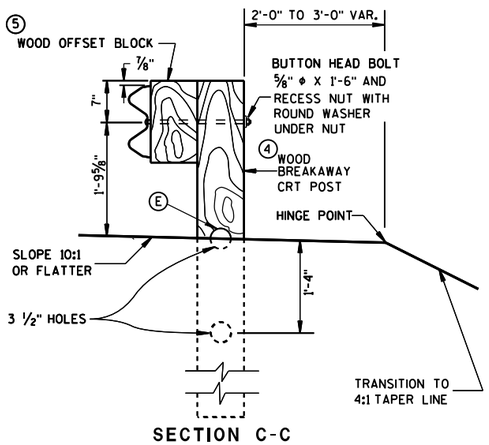
STEEL POSTS SHALL NOT BE ALLOWED FOR USE WITH ENERGY ABSORBING TERMINALS.

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

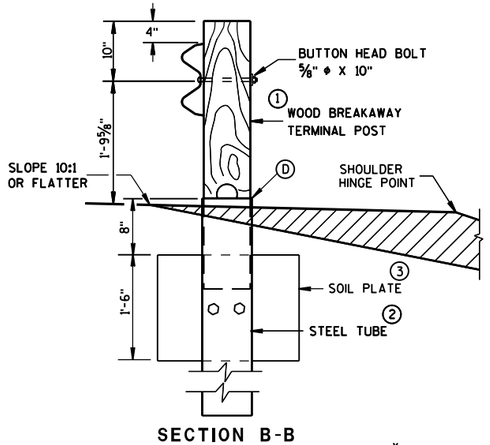
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

** SDD SHOWS 4 - 54 INCH STEEL TUBES WITH SOIL PLATES INSTALLED ON POST 1 AND POST 2. POST 3 AND 4 DO NOT NEED SOIL PLATES. AN ALTERNATIVE INSTALLATION WOULD CONSIST OF 2 - 72 INCH STEEL TUBES ON POST 1 AND POST 2 AND 54 INCH SOIL TUBES ON POSTS 3 AND 4. THE ALTERNATIVE INSTALLATION DOES NOT REQUIRE SOIL PLATES.

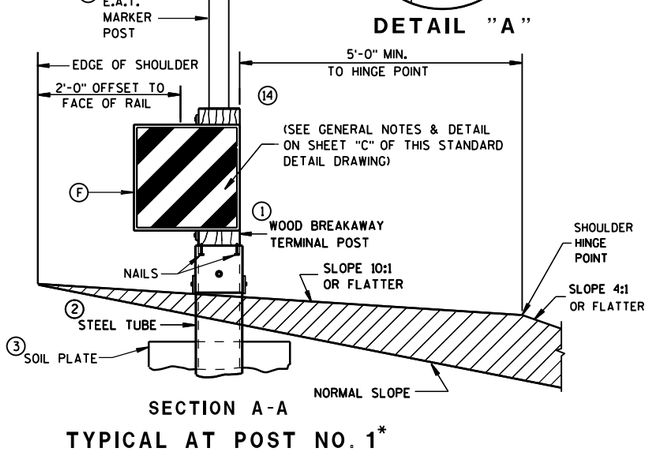




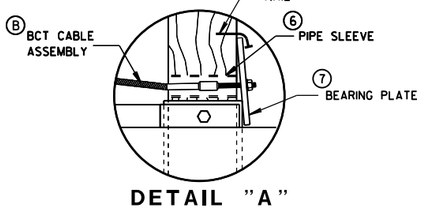
SECTION C-C
TYPICAL AT POST NOS. 6, 8



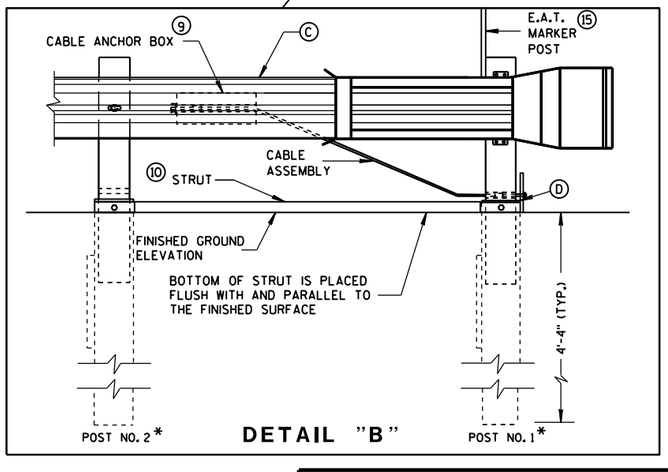
SECTION B-B
TYPICAL AT POST NO. 2*



SECTION A-A
TYPICAL AT POST NO. 1*



DETAIL "A"



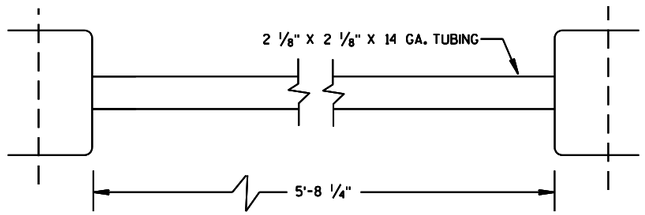
DETAIL "B"

STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL

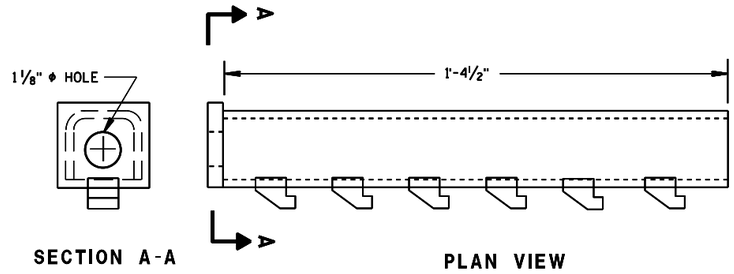
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

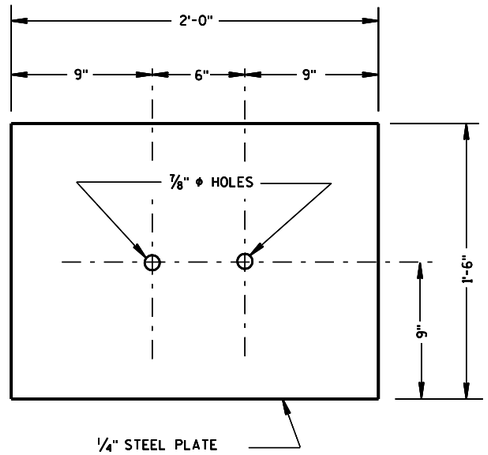
S.D.D. 14 B 24-8a
S.D.D. 14 B 24-8a



⑩ STRUT DETAIL (SKT-350)

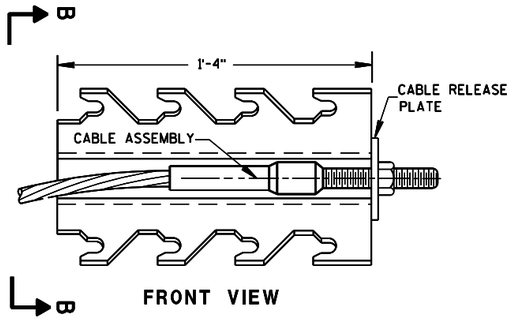


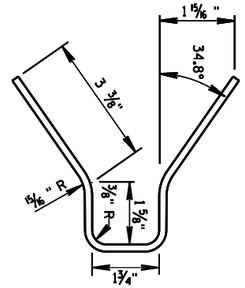
⑨ CABLE ANCHOR BOX (ET-2000/ET-2000 PLUS)



③ SOIL PLATE

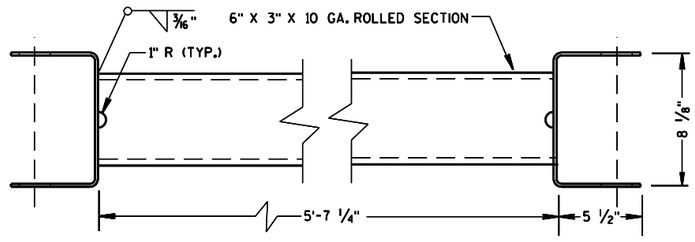
(SKT-350, ET-2000/ET-2000 PLUS)





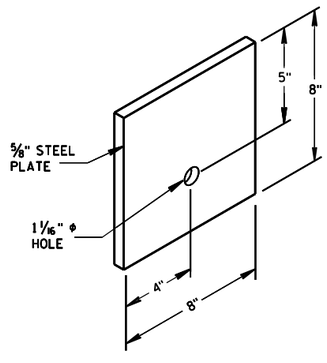
⑨ CABLE ANCHOR BOX (SKT-350)

(SKT-350)



⑩ STRUT DETAIL (ET-2000/ET-2000 PLUS)

(ET-2000/ET-2000 PLUS)



⑦ STEEL BEARING PLATE

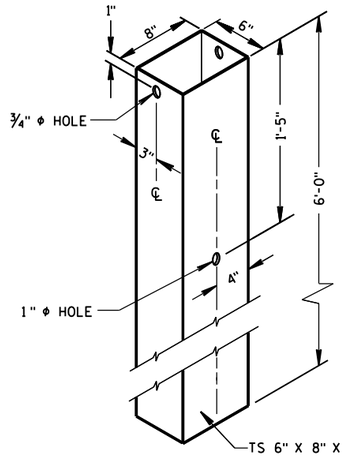
(SKT-350, ET-2000/ET-2000 PLUS)

STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL

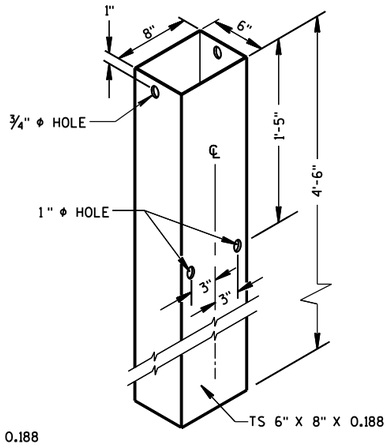
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

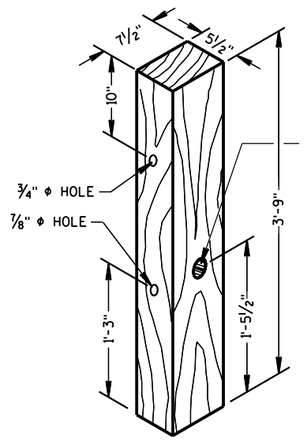
S.D.D. 14 B 24-8b



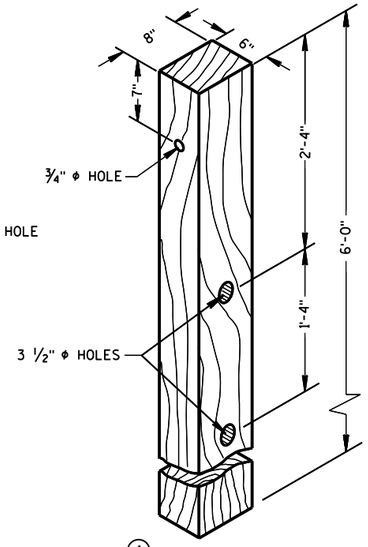
② 72" STEEL TUBE
(POSTS NO. 1-4



② 54" STEEL TUBE
(POSTS NO. 1-4



① TERMINAL POST
(POSTS NO. 1-4



④ CRT POST
(POSTS NO'S 5-8

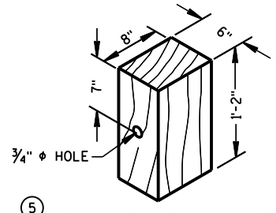
WOOD BREAKAWAY POSTS

GENERAL NOTES

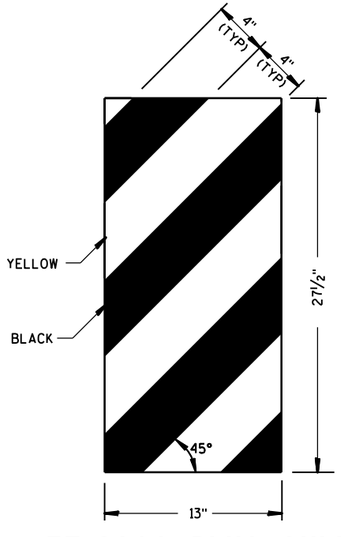
WHEN ROCK IS ENCOUNTERED DURING EXCAVATION, A 12 INCH DIA. POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK MAY BE USED IF APPROVED BY THE ENGINEER. GRANULAR MATERIAL SHALL BE PLACED IN THE BOTTOM OF THE HOLE APPROXIMATELY 2 ½" INCHES DEEP TO PROVIDE DRAINAGE. THE SOIL TUBES SHALL BE FIELD CUT TO LENGTH,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

SEE APPROVED PRODUCTS LIST FOR ACCEPTABLE E. A. T. MARKER POST.

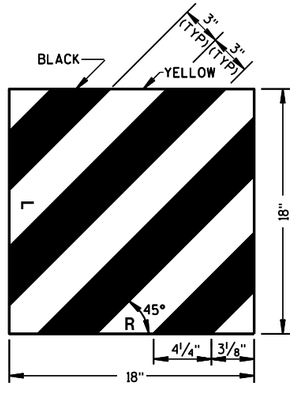
(G) ½" DIA. X 3" LAG BOLT WITH WASHER.



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

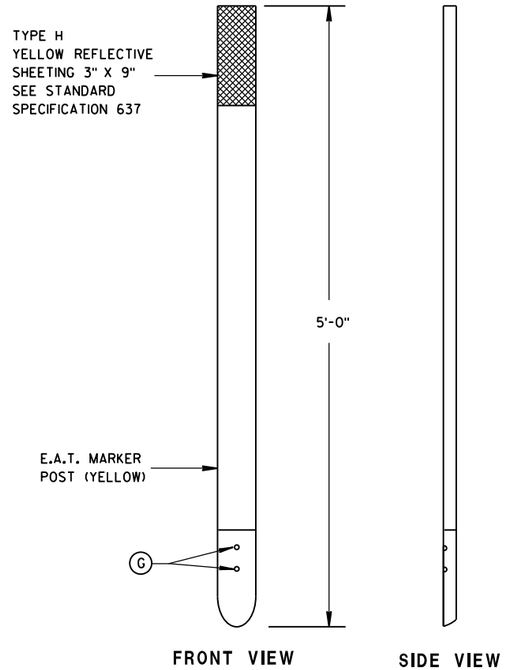


ET-2000 PLUS ONLY

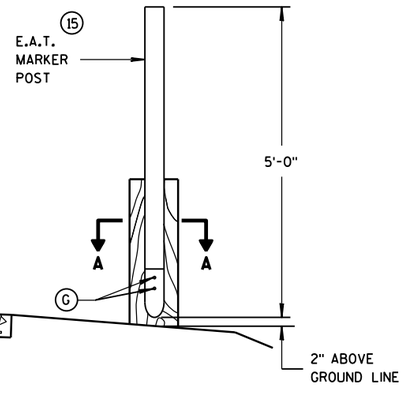


ET-2000 AND SKT-350

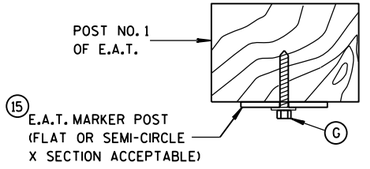
⑭ REFLECTIVE SHEETING DETAILS



⑮ E.A.T. MARKER POST



TYPICAL INSTALLATION OF E.A.T.
MARKER POST BACKSIDE OF POST NO. 1
(E.A.T. AND RAIL REMOVED FOR CLARITY)



SECTION A-A

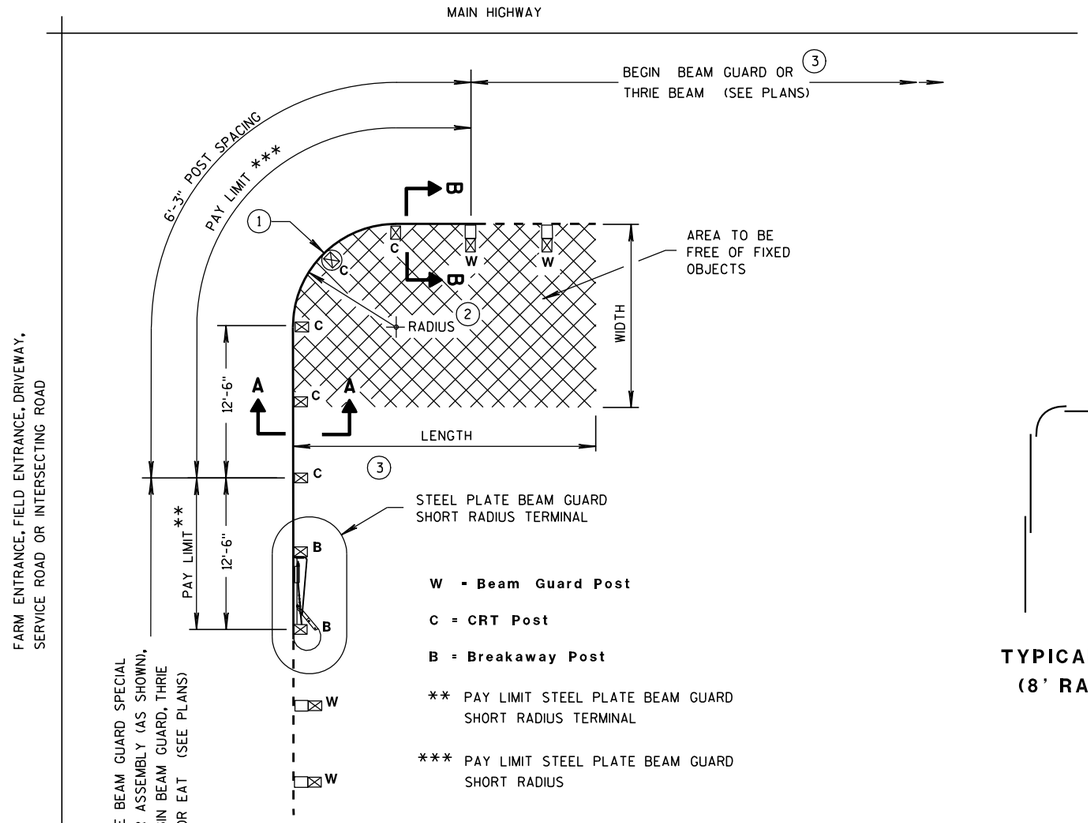
STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

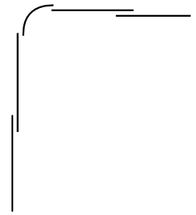
APPROVED
June 2014 — DATE
/S/ Jerry H. Zoda — ROADWAY STANDARDS ENGINEER
FHWA

6

S.D.D. 14 B 24-8c



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.

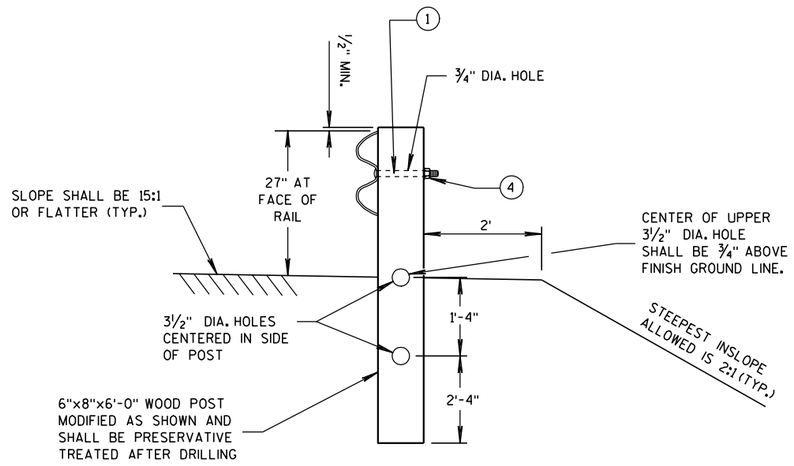
(2) RADIUS FROM 8' - 36'. SEE PLAN.

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

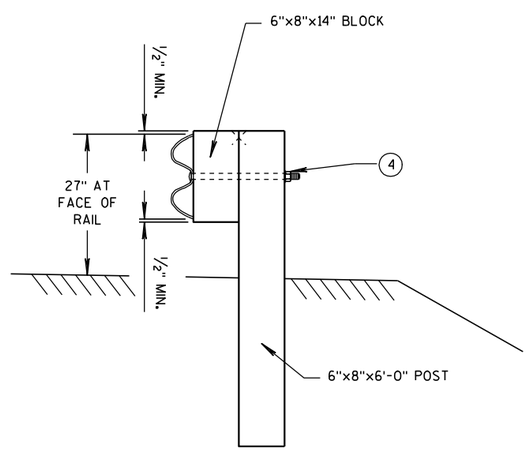
(4) 5/8" ø X 1'-6" BUTTON HEAD BOLT AND RECESS NUT WITH ROUND WASHER UNDER NUT.

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

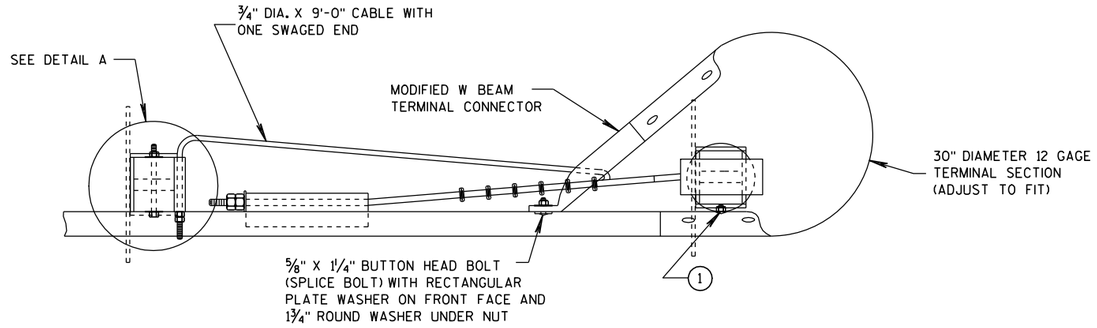
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

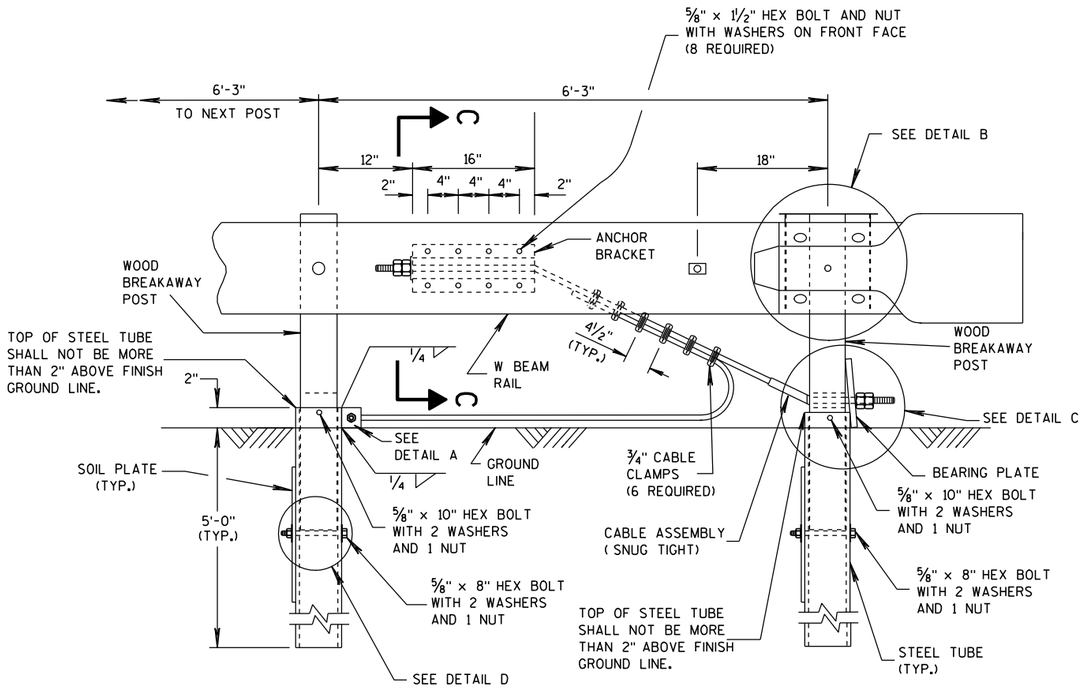
S.D.D. 14 B 27-1a

6

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



PLAN VIEW



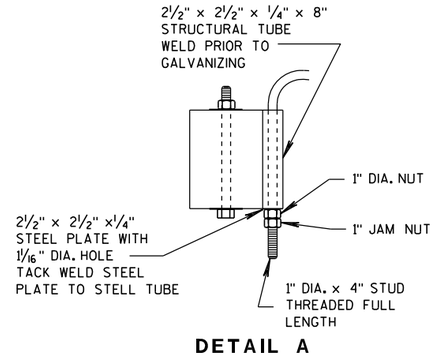
ELEVATION VIEW

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

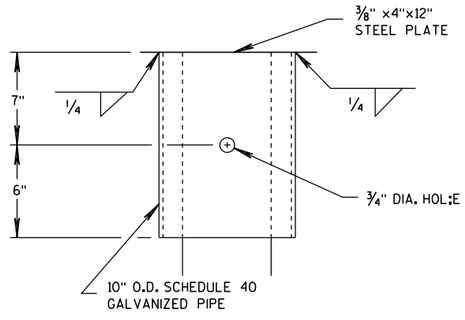
GENERAL NOTES

(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



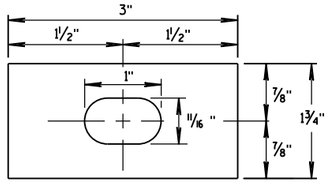
DETAIL B

(BEAM GUARD AND TERMINAL SECTION NOT SHOWN)

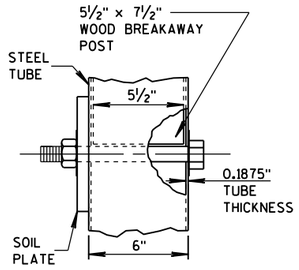
STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

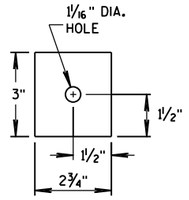
6
S.D.D. 14 B 27-1b



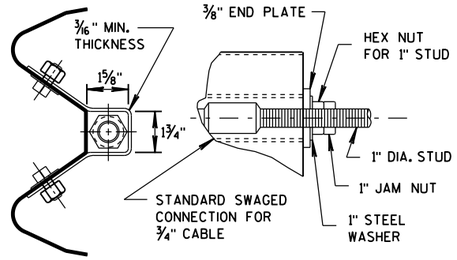
RECTANGULAR PLATE WASHER



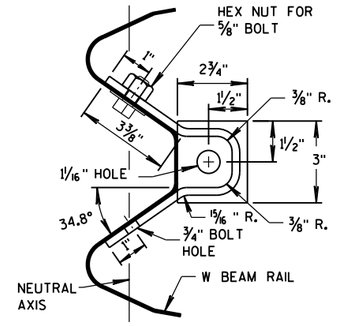
DETAIL D



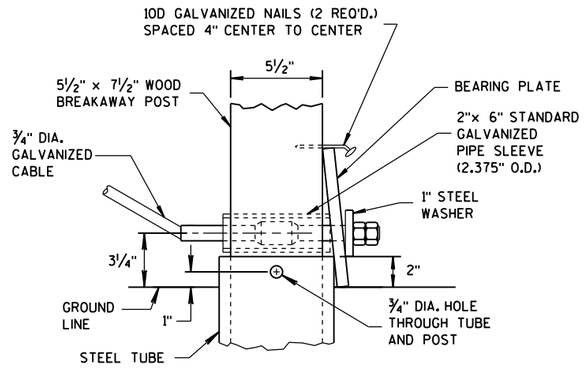
END PLATE



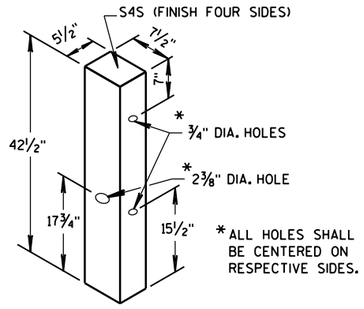
SECTION C-C
(END PLATE REMOVED)



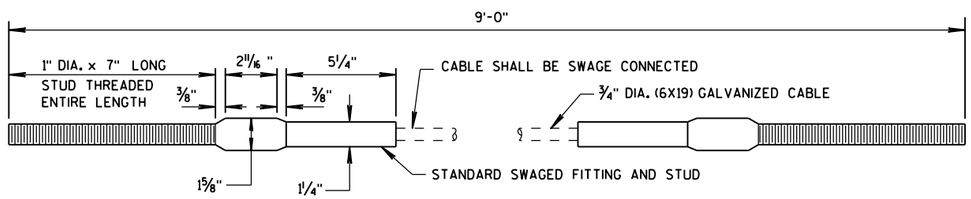
ANCHOR BRACKET



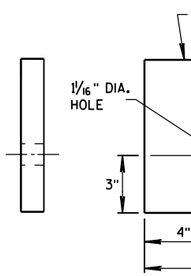
DETAIL C



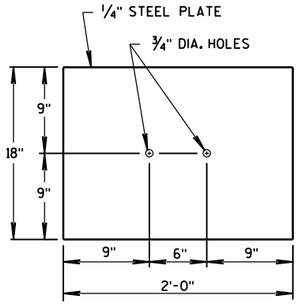
WOOD BREAKAWAY POST



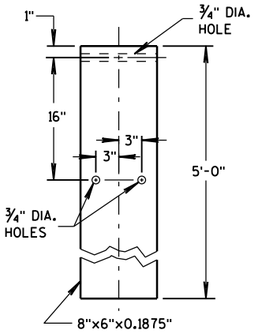
CABLE ASSEMBLY



BEARING PLATE



SOIL PLATE



STEEL TUBE

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

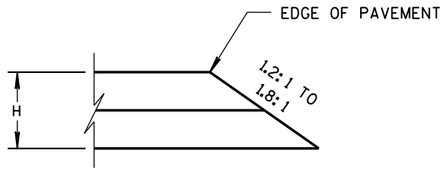
APPROVED
12/18/08 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

6

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

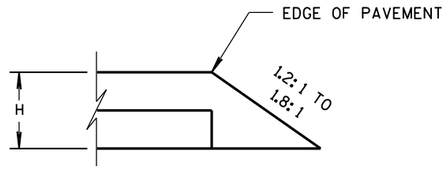
6

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



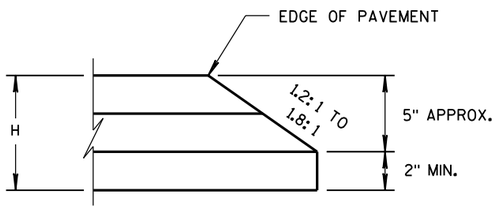
CONSTRUCTED WITH FINAL TWO LAYERS

FOR H 5" OR LESS



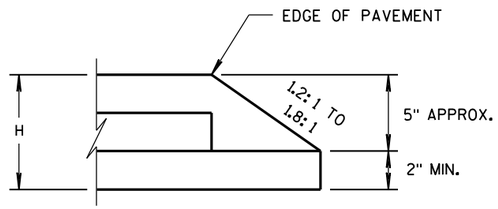
CONSTRUCTED WITH FINAL LAYER

FOR H 5" OR LESS



CONSTRUCTED WITH FINAL TWO LAYERS

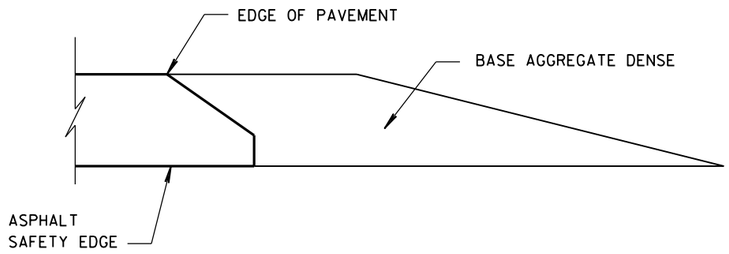
FOR H GREATER THAN 5"



CONSTRUCTED WITH FINAL LAYER

FOR H GREATER THAN 5"

HMA PAVEMENT AND HMA OVERLAYS



FINISHED SHOULDER AGGREGATE PLACEMENT

6

6

S.D.D. 14 B 29-1

S.D.D. 14 B 29-1

SAFETY EDGE SM

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

11/30/2012
DATE

/S/ Jerry H. Zoda
ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA

GENERAL NOTES

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

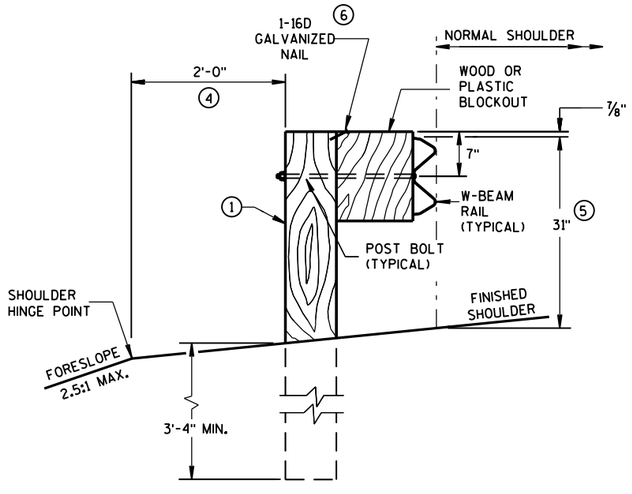
2. USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.

3. IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2½ INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AMD INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.

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

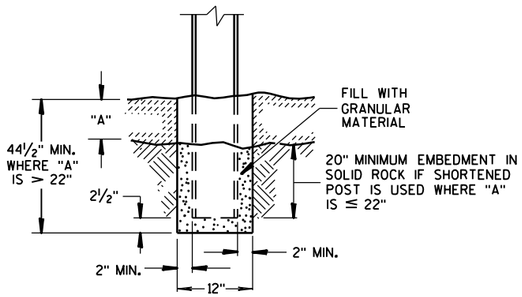
5. FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ± 1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27¾" TO 32".

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



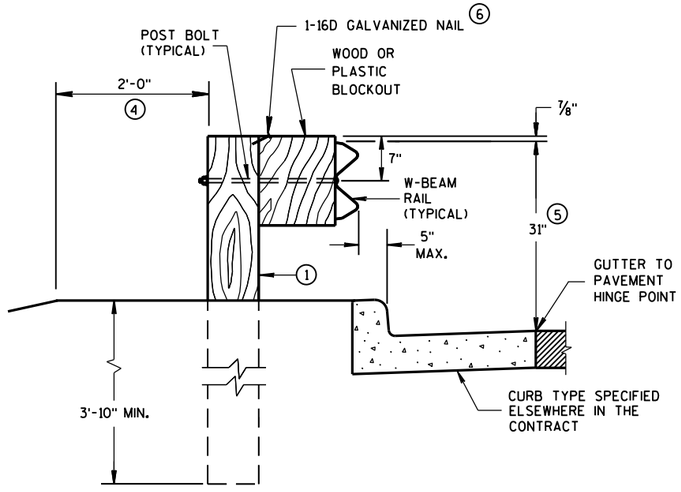
END VIEW

LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



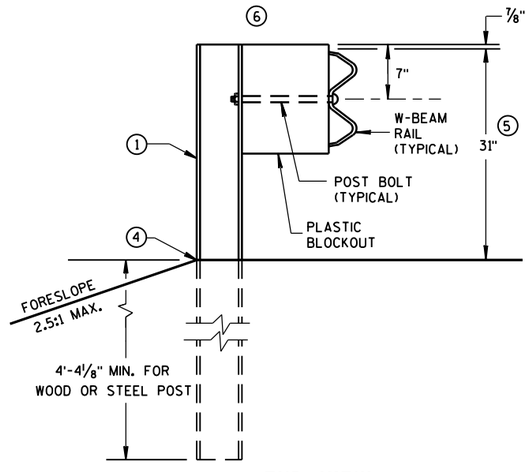
END VIEW

SETTING STEEL OR WOOD POST IN ROCK 3



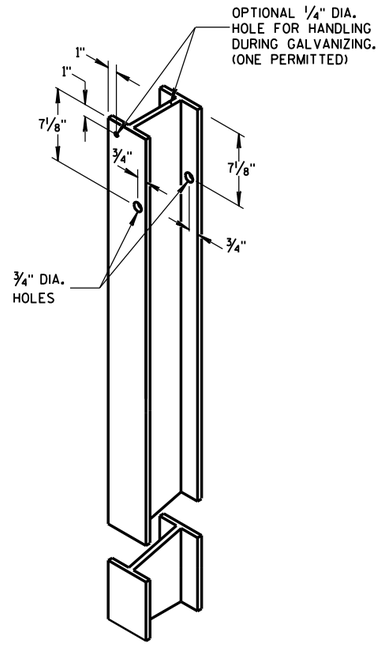
END VIEW

LOCATED ALONG A CURBED ROADWAY

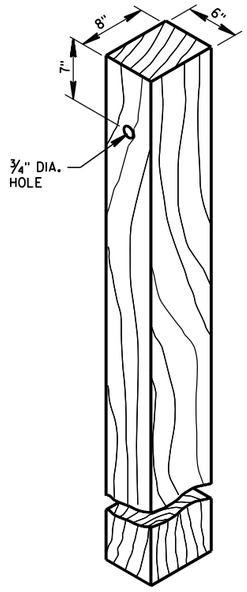


END VIEW

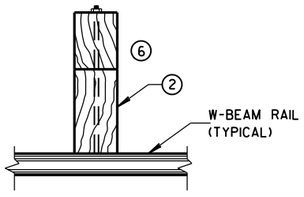
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



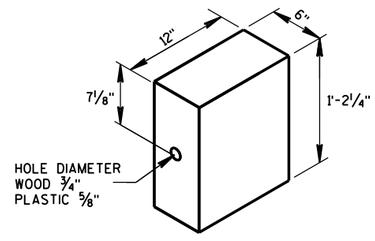
STEEL POST &
HOLE PUNCHING DETAIL
(w6X9) 1



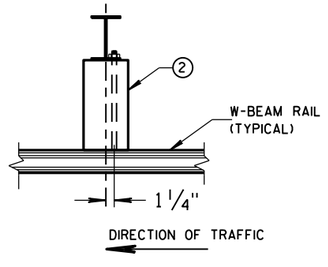
WOOD POST
(6" X 8") NOMINAL 1



PLAN VIEW
WOOD POST,
BLOCKOUT & BEAM



WOOD OR
PLASTIC BLOCKOUT 2



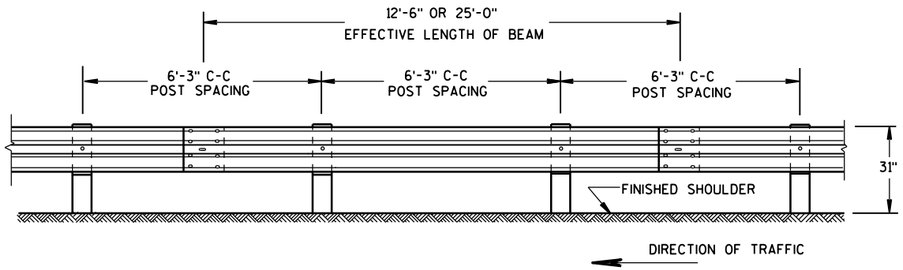
PLAN VIEW
STEEL POST,
PLASTIC BLOCKOUT & BEAM

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

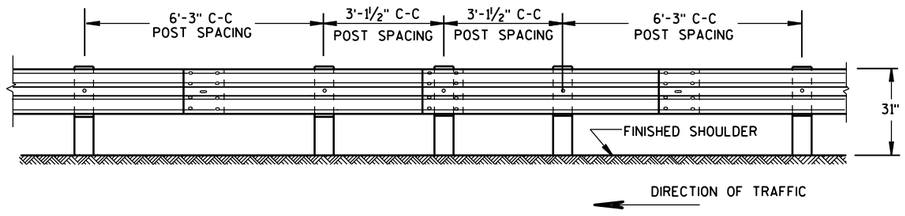
6

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



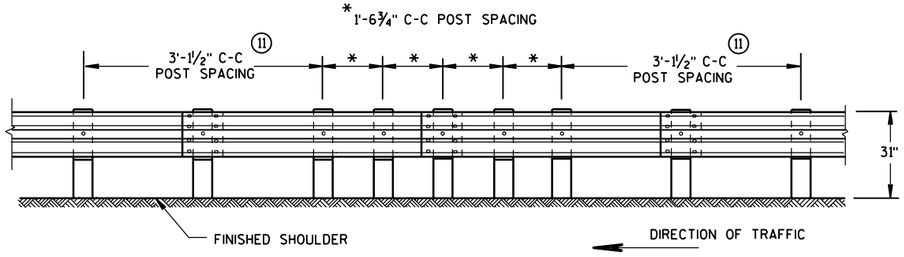
FRONT VIEW

POST SPACING STANDARD INSTALLATION



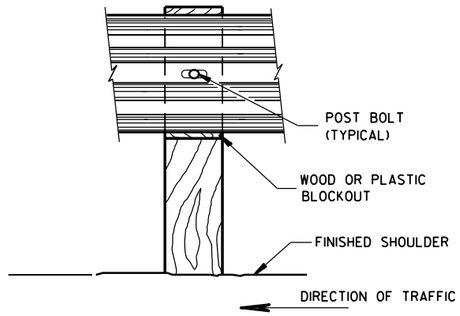
FRONT VIEW

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

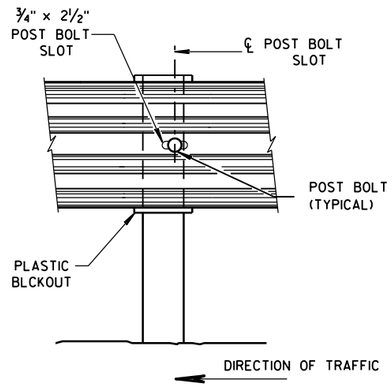


FRONT VIEW

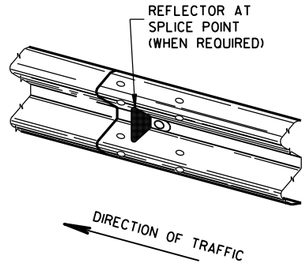
QUARTER POST SPACING (QS)

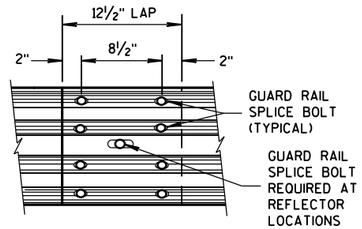


FRONT VIEW AT WOOD POST



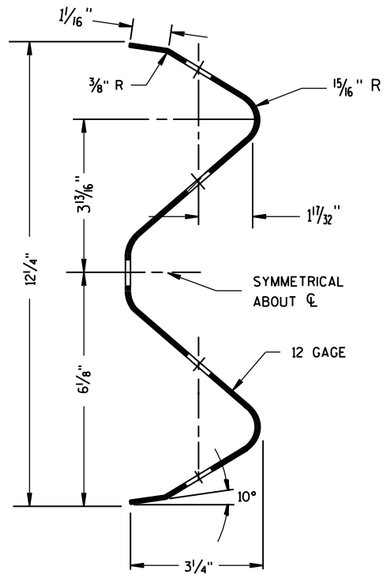
FRONT VIEW AT STEEL POST



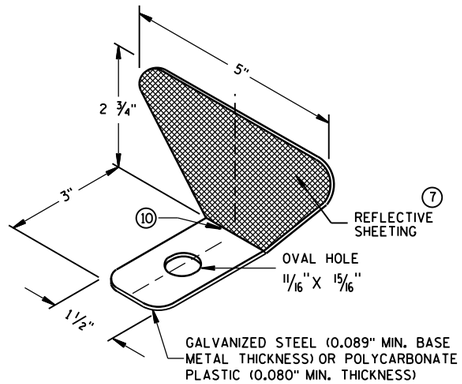


FRONT VIEW

MID-SPAN BEAM SPLICE



SECTION THRU W-BEAM RAIL



ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION ⑦

GENERAL NOTES

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

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

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

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

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

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

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

REFLECTOR SPACING ⑧

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

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR 73

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

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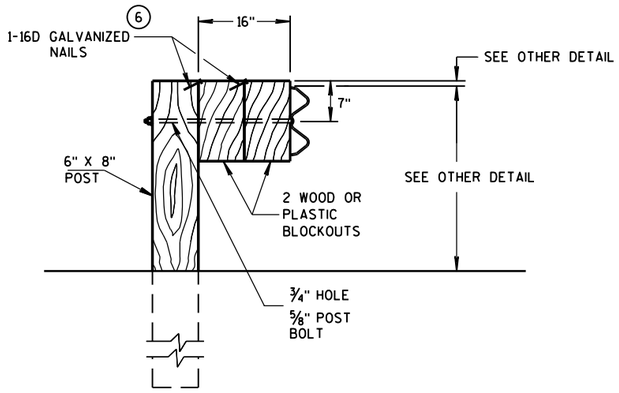
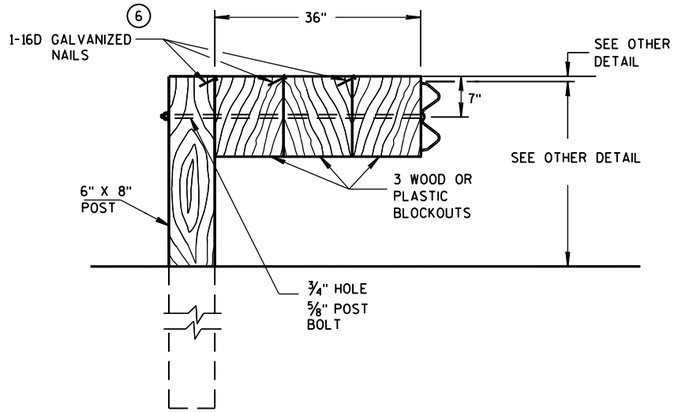
S.D.D. 14 B 42-3b



DETAIL FOR 16" BLOCKOUT DEPTH

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

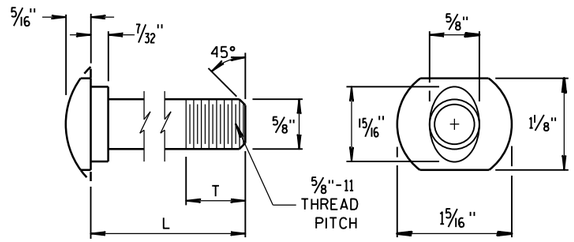


DETAIL FOR 36" BLOCKOUT DEPTH

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

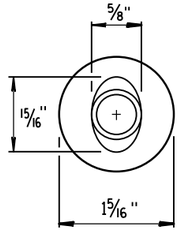
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

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

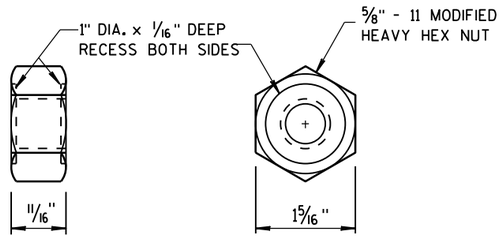


POST BOLT TABLE

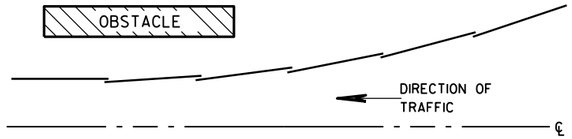
L	T (MIN.)
1¼"	1⅛"
2"	1¾"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



ALTERNATE BOLT HEAD

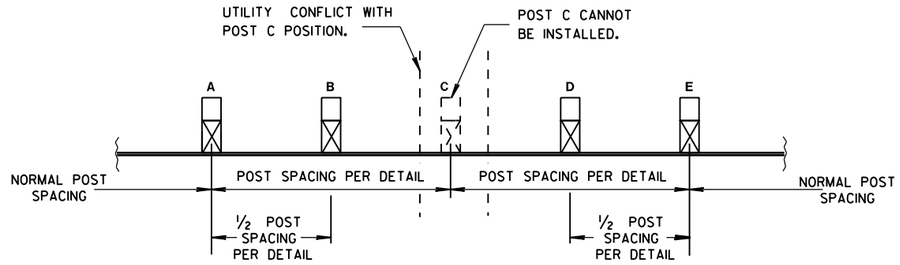


POST BOLT AND RECESS NUT

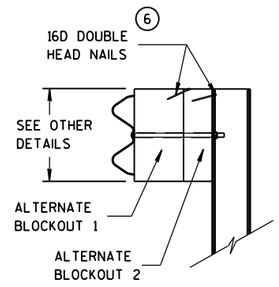


PLAN VIEW

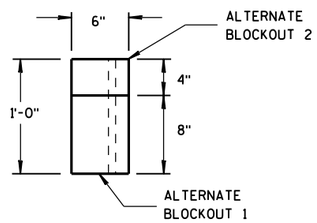
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



SIDE VIEW



TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6
S.D.D. 14 B 42-3c

GENERAL NOTES

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

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

(C) DIFFERENT MANUFACTURES REQUIRE DIFFERENT PERFORATED W-BEAM RAIL END PANELS. SEE MANUFACTURES INFORMATION.

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

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

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

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

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

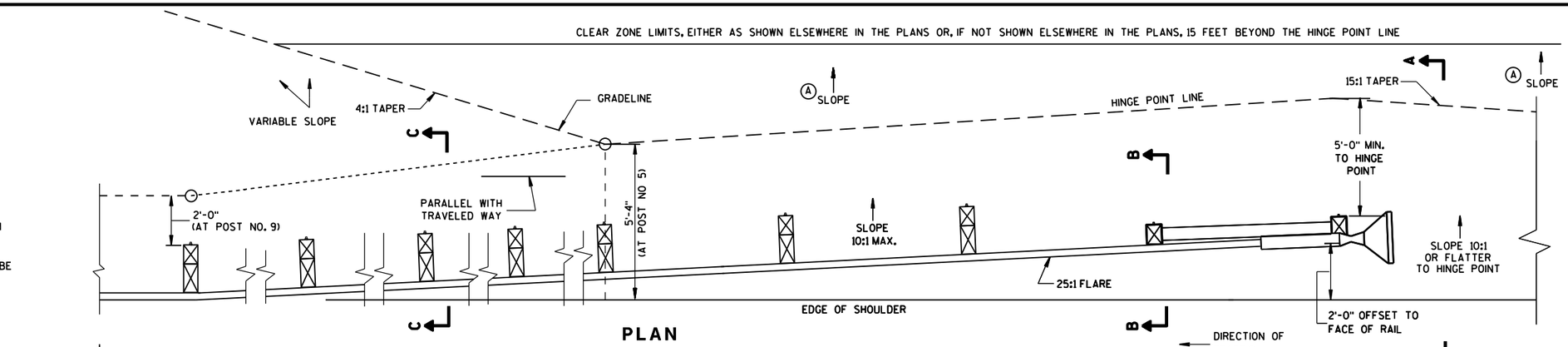
SEE SDD 14B42 FOR MORE INFORMATION.

* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

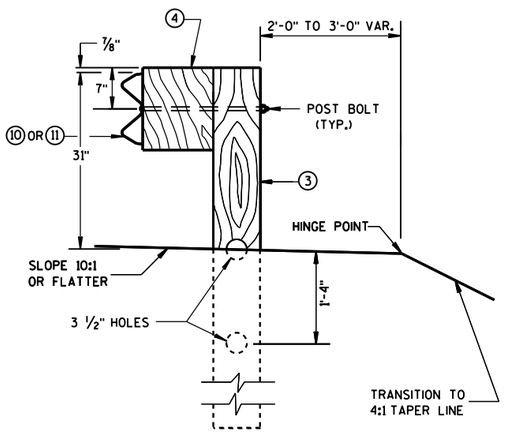
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

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

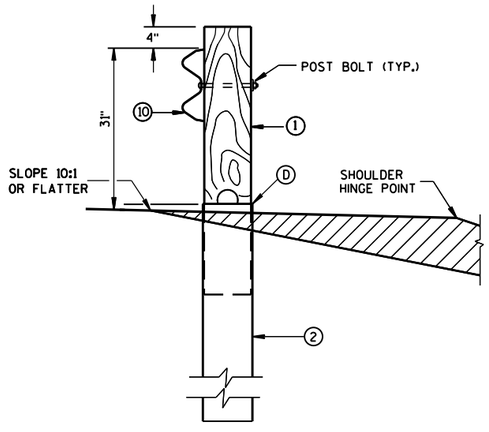
THE CENTER OF THE UPPER 3½" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE.



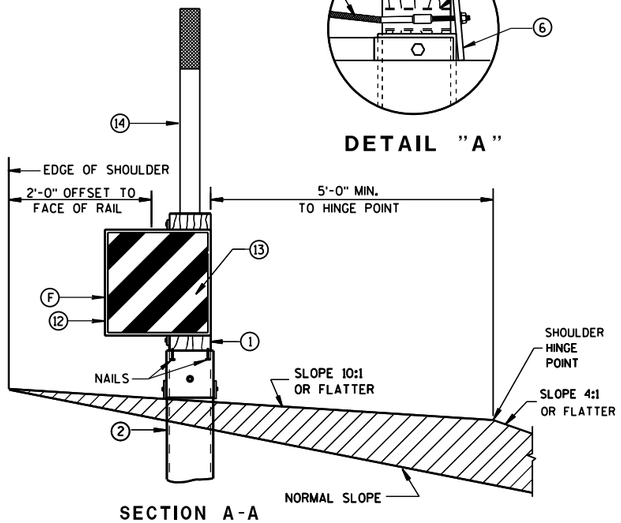
ELEVATION



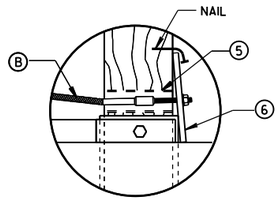
SECTION C-C
TYPICAL AT POST NOS. 3-9



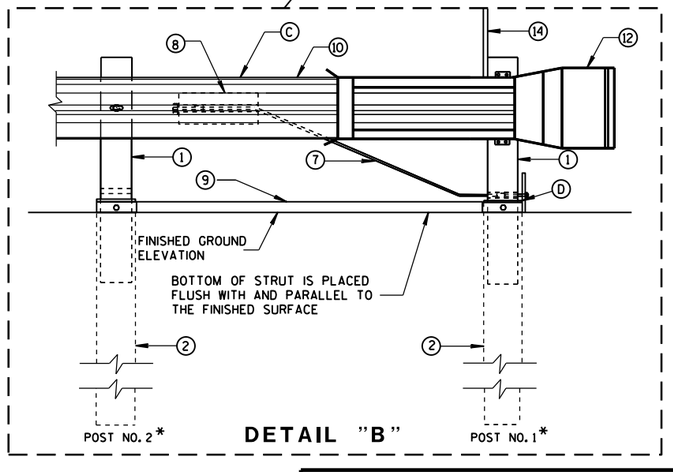
SECTION B-B
TYPICAL AT POST NO. 2*



SECTION A-A
TYPICAL AT POST NO. 1*



DETAIL "A"



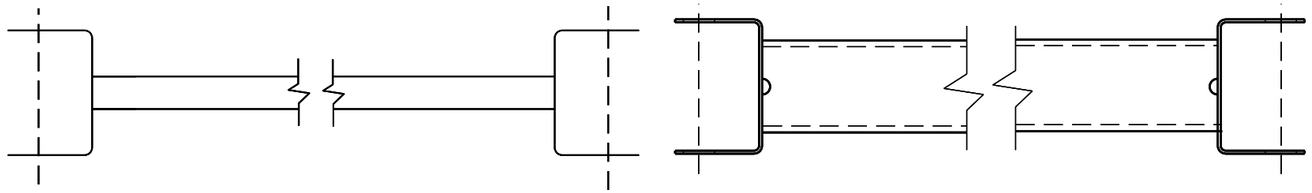
DETAIL "B"

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

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

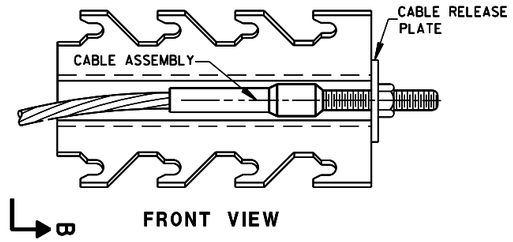
S.D.D. 14 B 44-2a



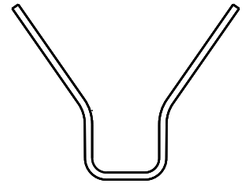
GENERIC GROUND STRUT (9) (H)

BILL OF MATERIALS

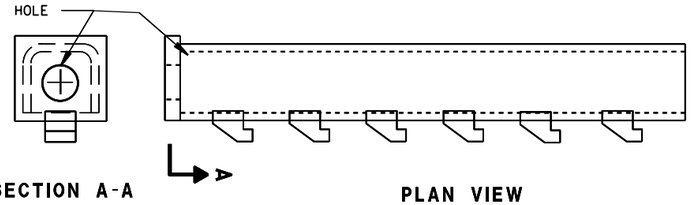
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
(1)	WOOD BREAKAWAY POST
(2)	6" X 8" X 0.188", 6'-0" LONG FOUNDATION TUBE AT POSTS 1 AND 2
(3)	WOOD CRT
(4)	WOOD BLOCKOUT
(5)	PIPE SLEEVE
(6)	BEARING PLATE
(7)	BCT CABLE ASSEMBLY
(8)	ANCHOR CABLE BOX
(9)	GROUND STRUT
(10)	PERFORATED W-BEAM RAIL END PANEL, 12'-6" LONG.
(11)	STANDARD W-BEAM RAIL. MULTIPLE SECTIONS REQUIRED. SECTIONS VARY IN LENGTH.
(12)	END SECTION EAT
(13)	0.040" ALUMINUM SHEET WITH REFLECTIVE SHEETING TYPE F PER SECTION 637 OF THE STANDARD SPECIFICATIONS
(14)	EAT MARKER POST - YELLOW (SEE APPROVED PRODUCTS LIST)



FRONT VIEW



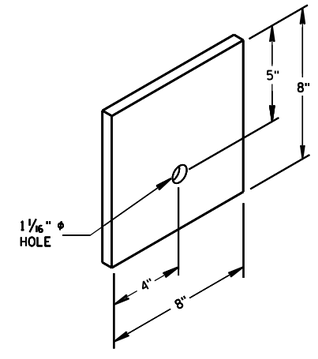
SECTION B-B



SECTION A-A

PLAN VIEW

GENERIC ANCHOR CABLE BOX (8) (H)



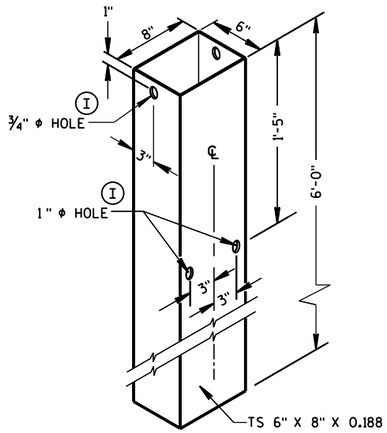
BEARING PLATE (6)

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

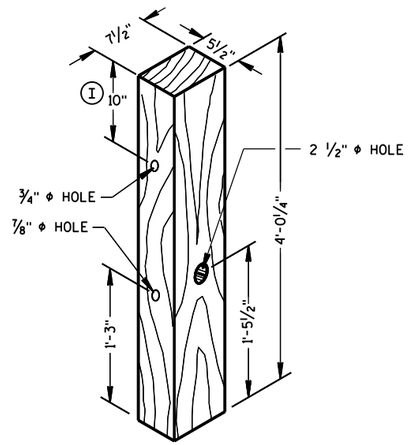
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

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

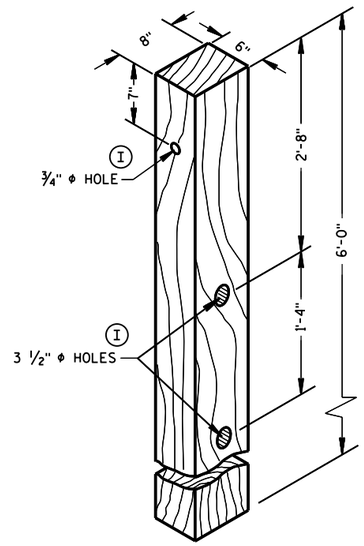


FOUNDATION TUBE (2)



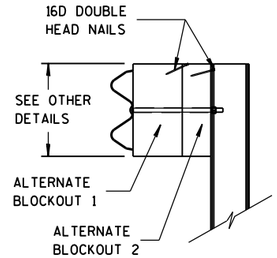
POSTS NUMBER 1 AND 2

WOOD BREAKAWAY POST (1)

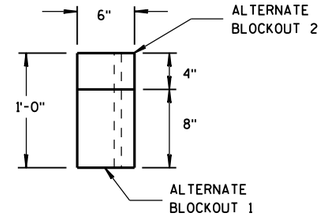


POSTS NUMBER 3-9

WOOD CRT POST (3)

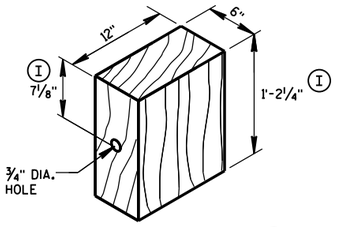


SIDE VIEW



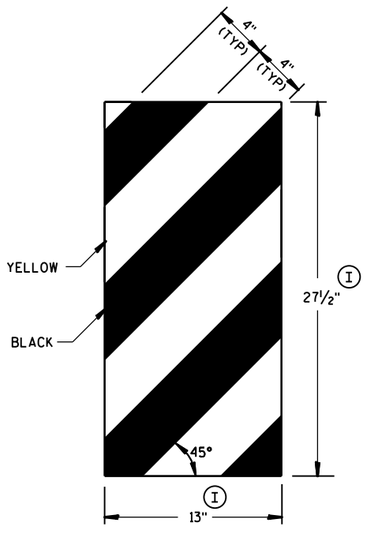
TOP VIEW

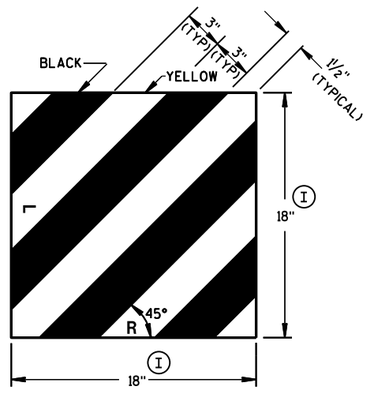
ALTERNATE WOOD BLOCKOUT DETAIL



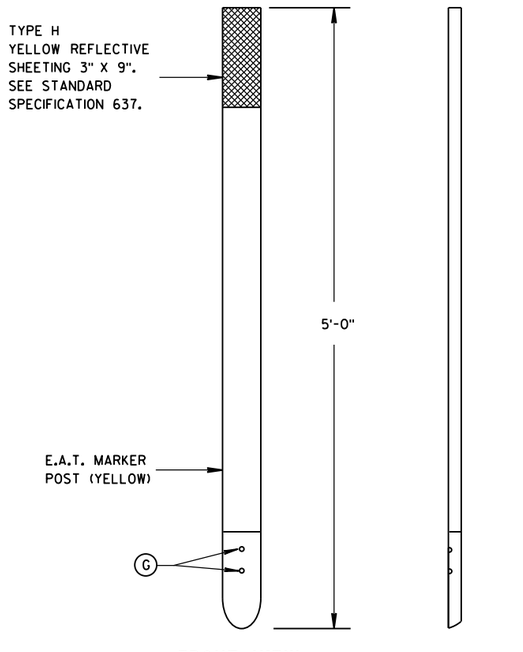
WOOD BLOCKOUT (4)

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





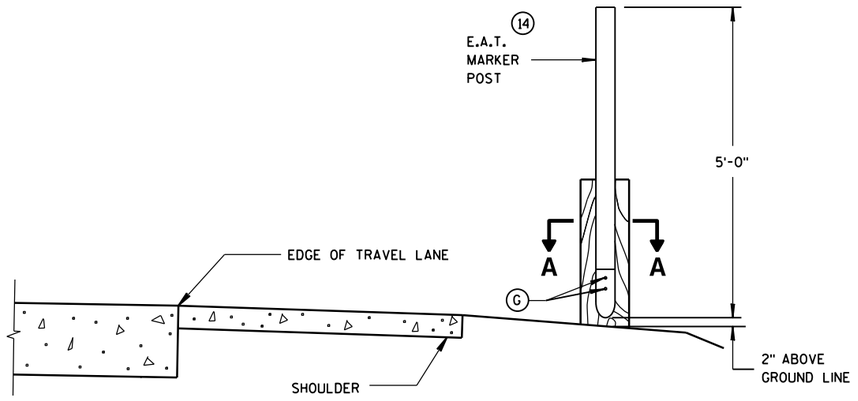
GENERIC REFLECTIVE SHEETING (13) (H)



FRONT VIEW

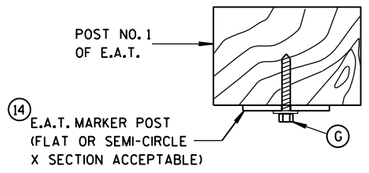
SIDE VIEW

E.A.T. MARKER POST (14)



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

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



SECTION A-A

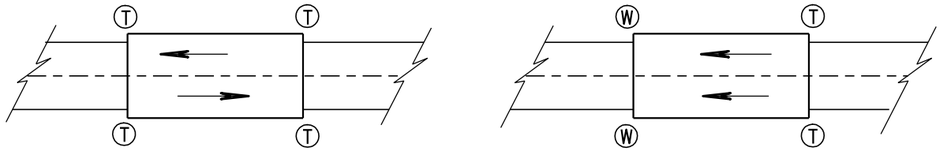
MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

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



TWO WAY TRAFFIC

ONE WAY TRAFFIC

Ⓣ THRIE BEAM CONNECTION

Ⓦ W-BEAM CONNECTION WHEN REQUIRED

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

GENERAL NOTES

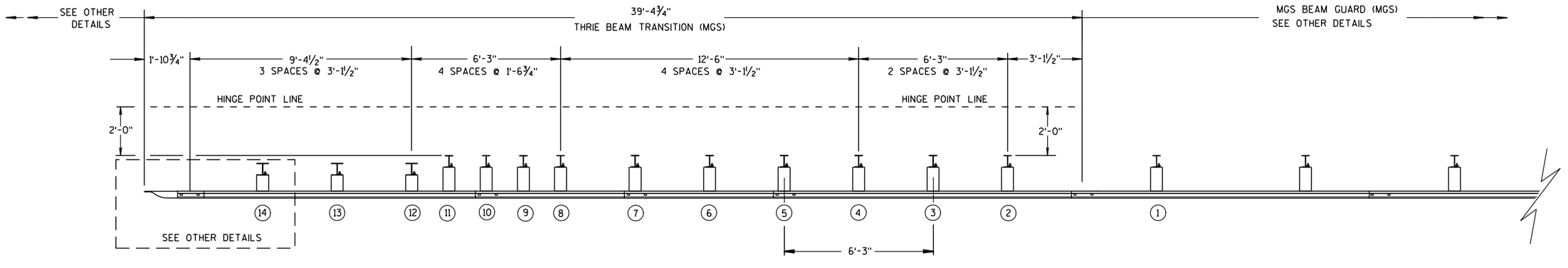
BOLT THE THRIE BEAM TO ALL POSTS AND BLOCKOUTS. DRILL OR PUNCH BOLT HOLES IN THE BEAM IF THE POST SPACING IS LESS THAN 6'-3.

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

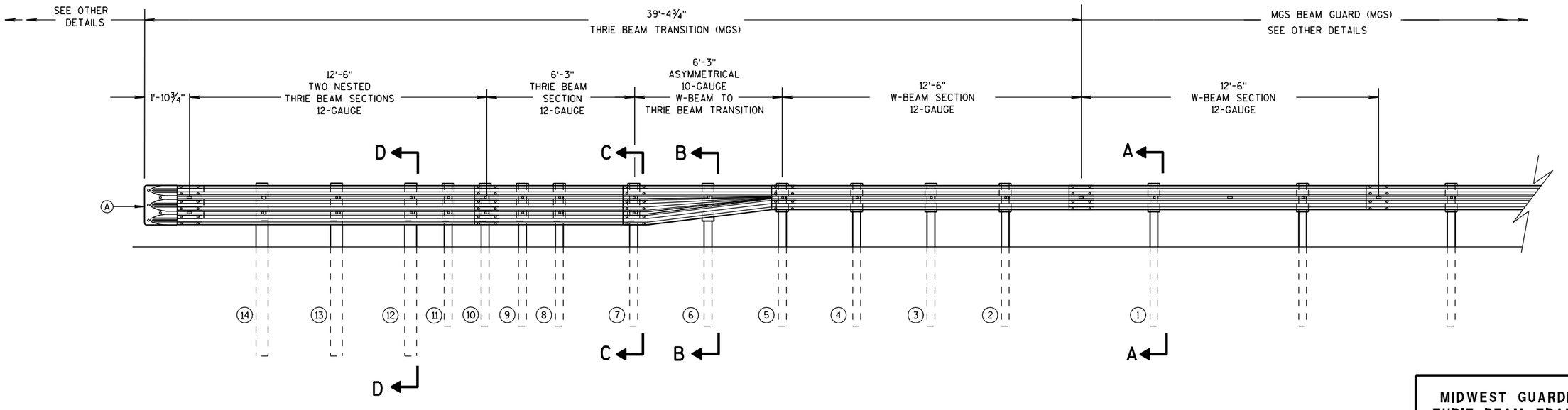
TRANSITION USES STEEL POSTS ONLY.

SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

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



PLAN VIEW



ELEVATION VIEW

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

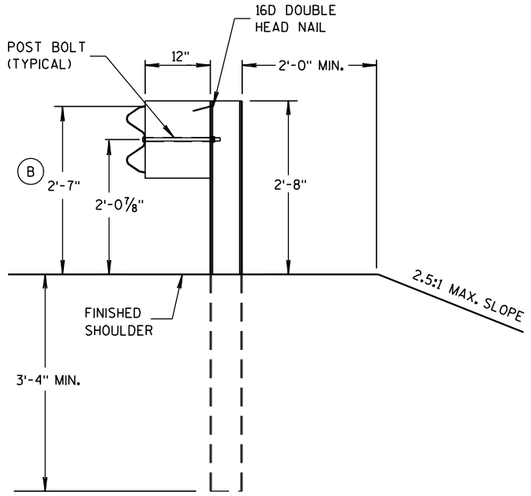
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6
S.D.D. 14 B 45-3a

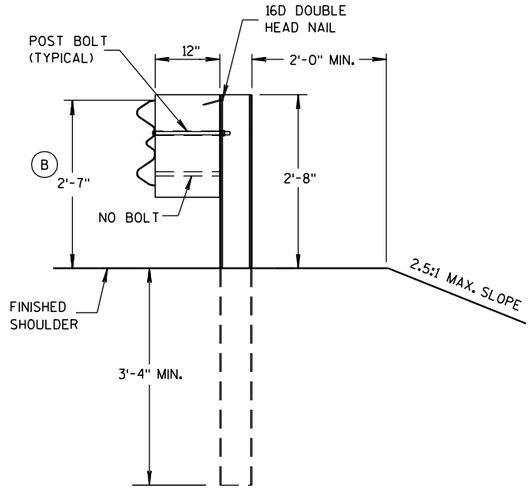
GENERAL NOTES

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



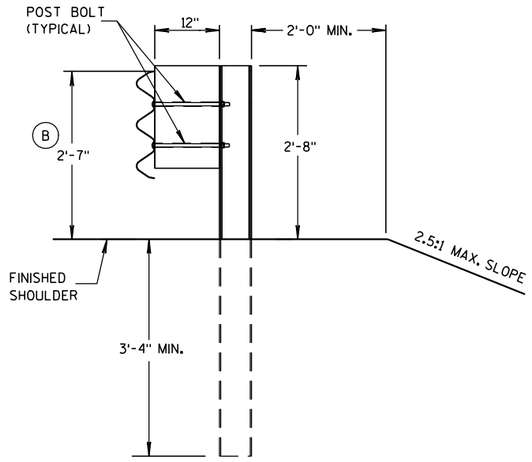
SECTION A-A

POSTS 1-5



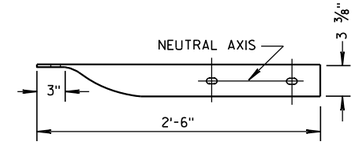
SECTION B-B

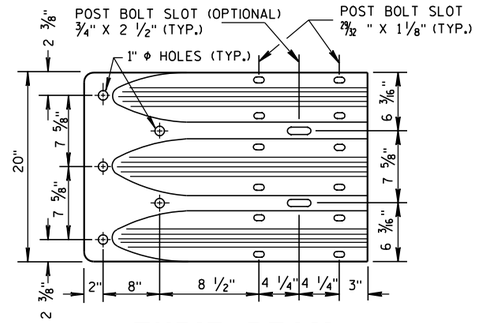
POST 6



SECTION C-C

POSTS 7-11





THRIE BEAM TERMINAL CONNECTOR

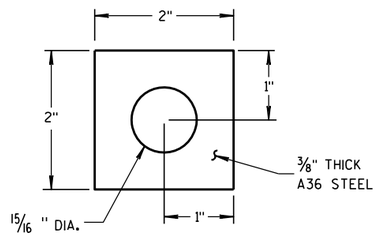
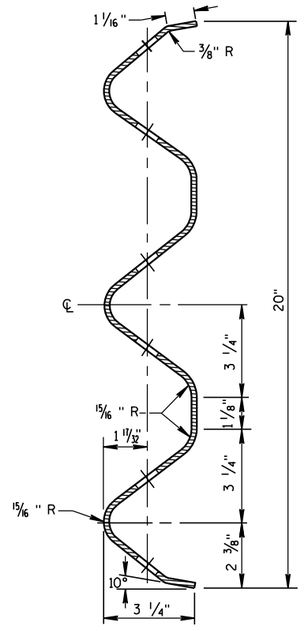
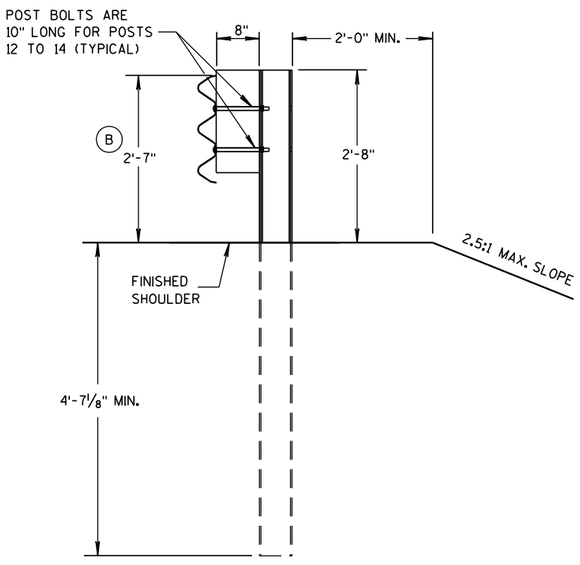


PLATE WASHER DETAIL

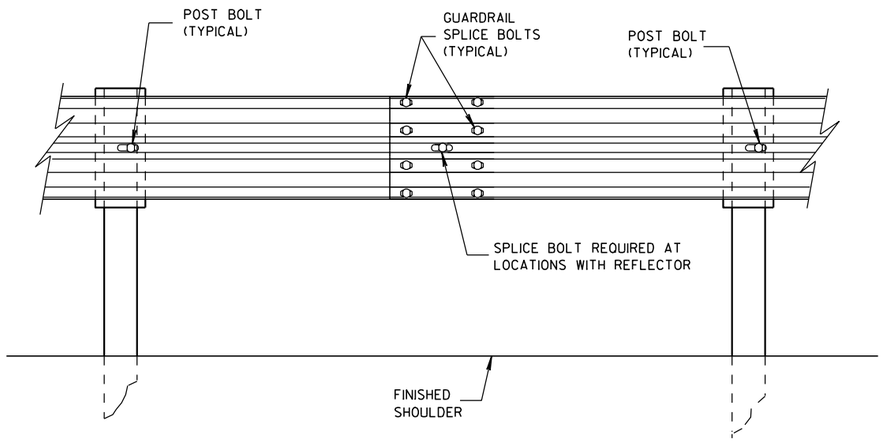


SECTION THRU THRIE BEAM RAIL ELEMENT



SECTION D-D

POSTS 12-14



SPLICE DETAIL

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

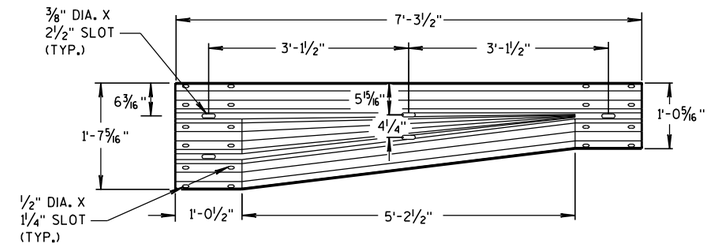
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

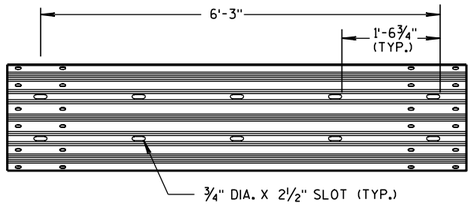
S.D.D. 14 B 45-3b

6

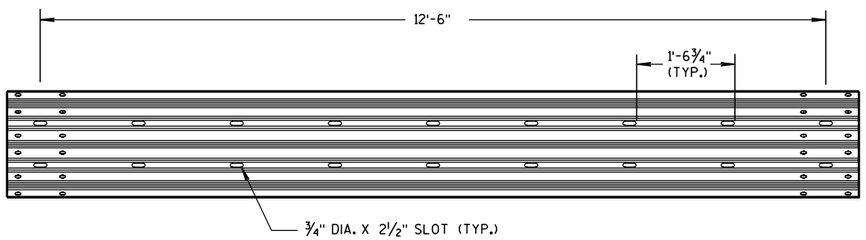
S.D.D. 14 B 45-3b



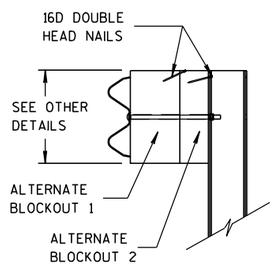
W-BEAM TO THRIE BEAM TRANSITION SECTION



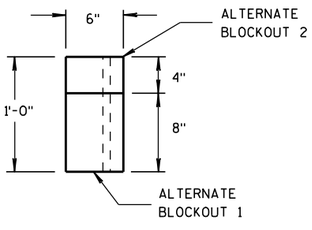
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

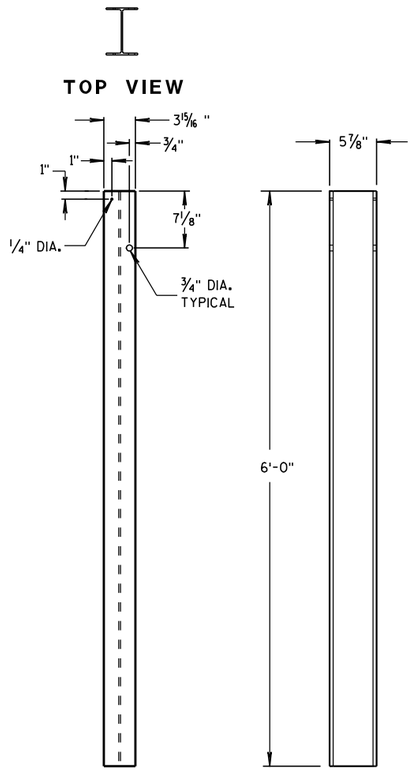


SIDE VIEW



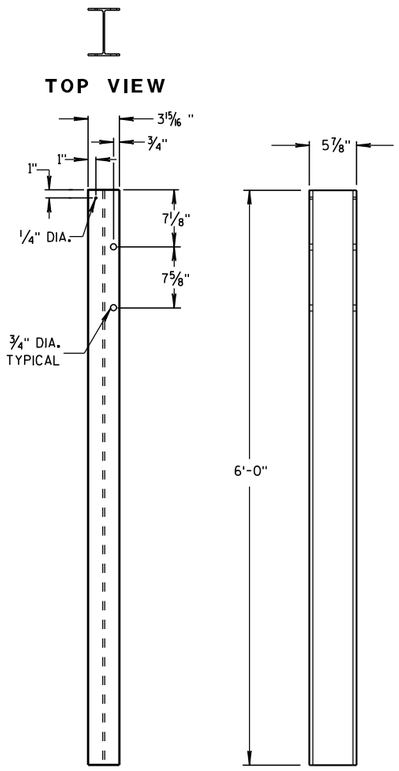
TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL



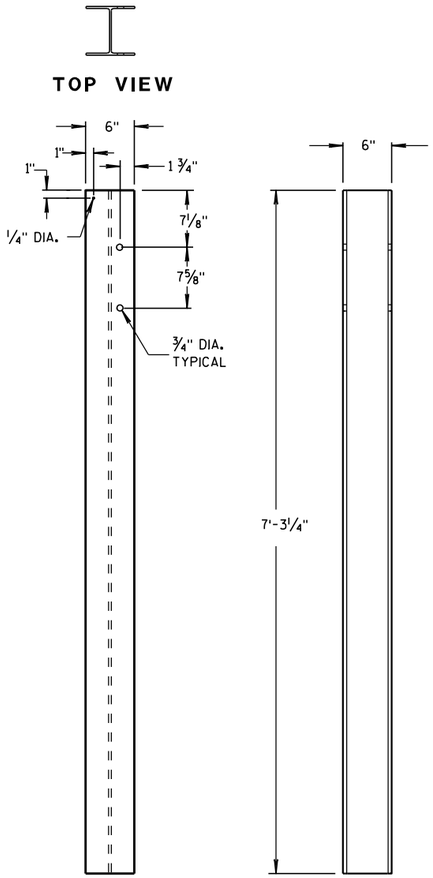
FRONT VIEW SIDE VIEW

STEEL POSTS 1-5



FRONT VIEW SIDE VIEW

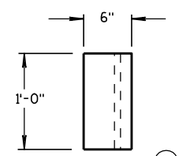
STEEL POSTS 6-11



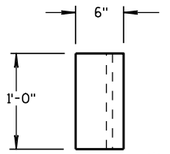
FRONT VIEW SIDE VIEW

STEEL POSTS 12-14

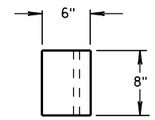
(1) WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.



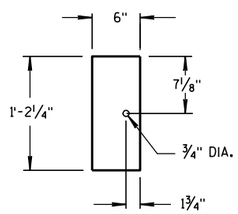
TOP VIEW (1)



TOP VIEW (1)

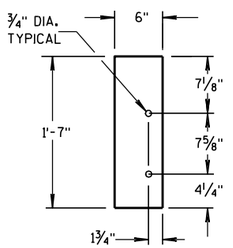


TOP VIEW



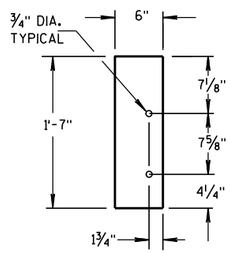
FRONT VIEW

BLOCKOUT POSTS 1-5



FRONT VIEW

BLOCKOUT POSTS 6-11



FRONT VIEW

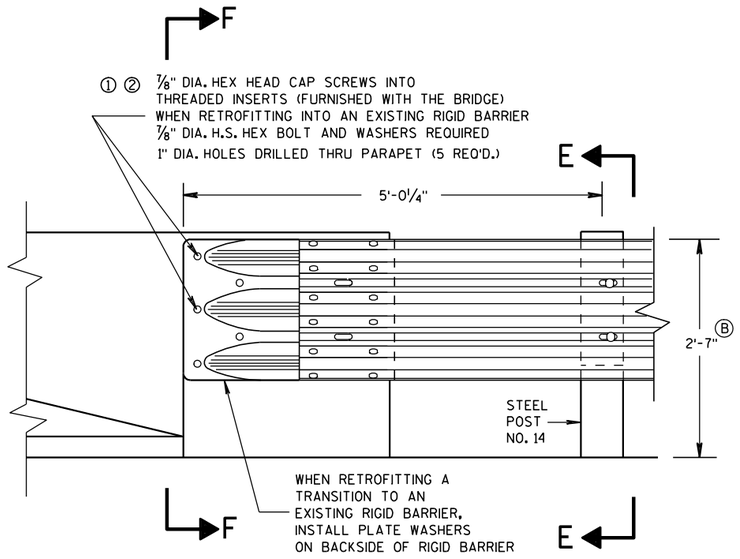
BLOCKOUT POSTS 12-14

STEEL POST SIZES

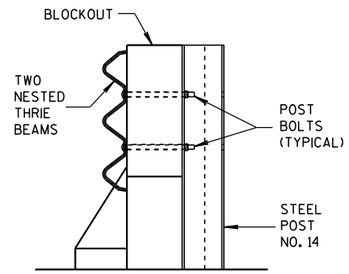
POST NUMBER	SECTION TYPE	LENGTH
1	W6x9	72"
2	W6x9	72"
3	W6x9	72"
4	W6x9	72"
5	W6x9	72"
6	W6x9	72"
7	W6x9	72"
8	W6x9	72"
9	W6x9	72"
10	W6x9	72"
11	W6x9	72"
12	W6x15	87 1/8"
13	W6x15	87 1/8"
14	W6x15	87 1/8"

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



FRONT VIEW



SECTION E-E

GENERAL NOTES

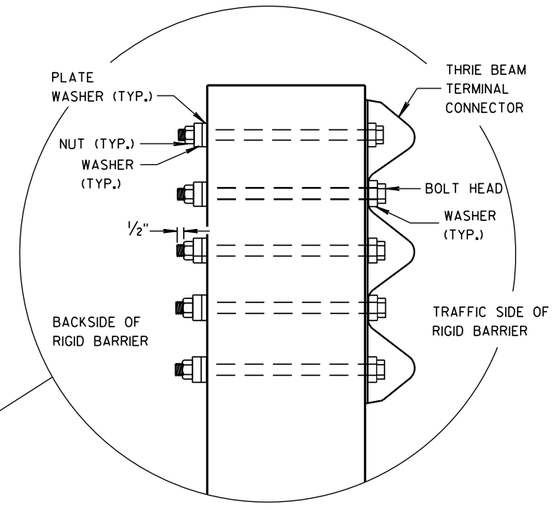
THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSTION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

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

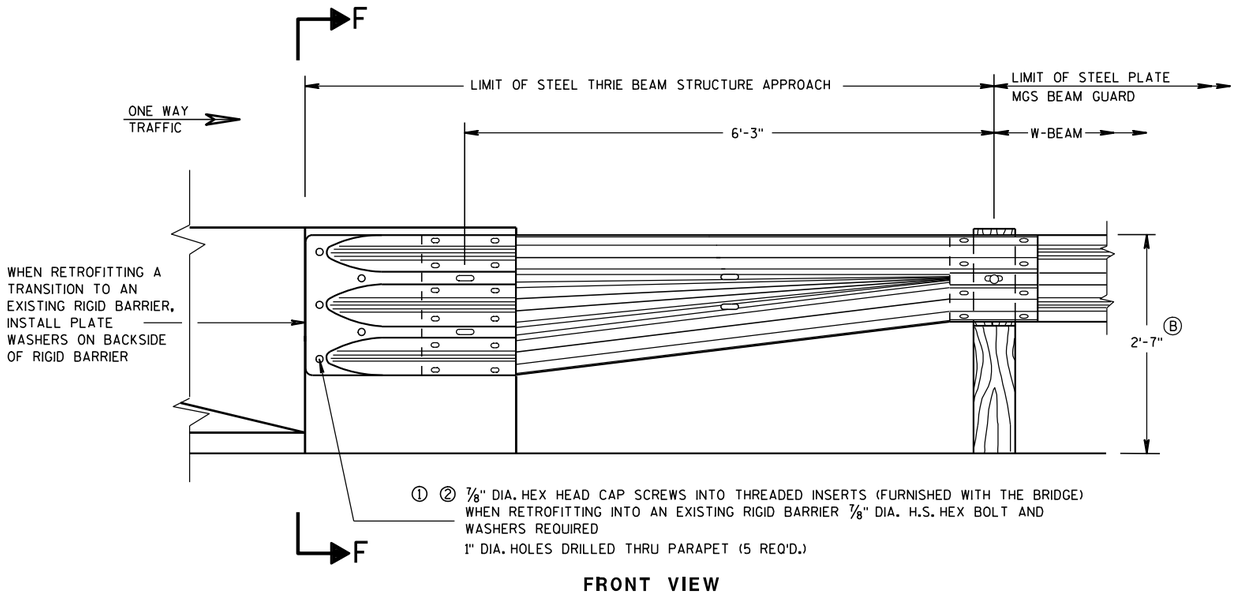
② BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE.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

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 1/2".

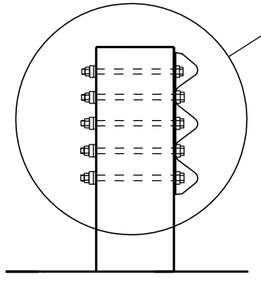
Ⓑ TOLERANCE FOR TOP OF BEAM IS ± 1".



THRIE BEAM CONNECTION TO BRIDGE PARAPET WITH SQUARE ENDS



FRONT VIEW



SECTION F-F

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

8/31/2012 — DATE

/S/ Jerry H. [illegible] — ROADWAY STANDARDS ENGINEER

FHWA

6

S.D.D. 14 B 45-3d

6

S.D.D. 14 B 45-3d

GENERAL NOTES

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

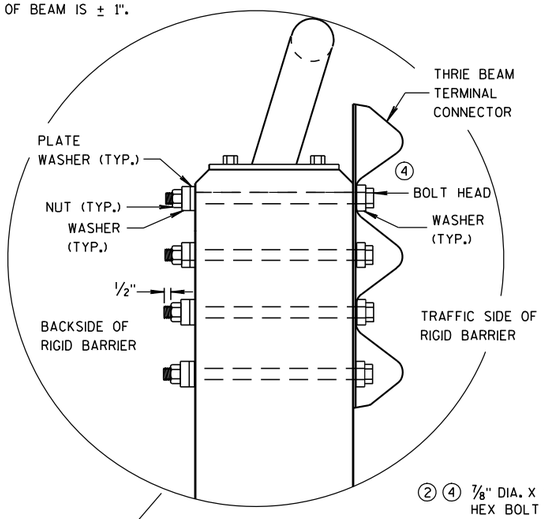
① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

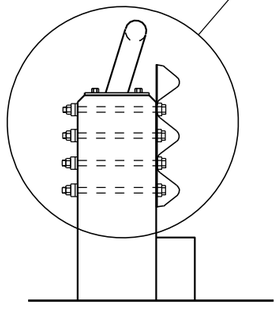
② BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE.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

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 1/2". BLOCK IS INCIDENTAL TO THE CONTRACT.

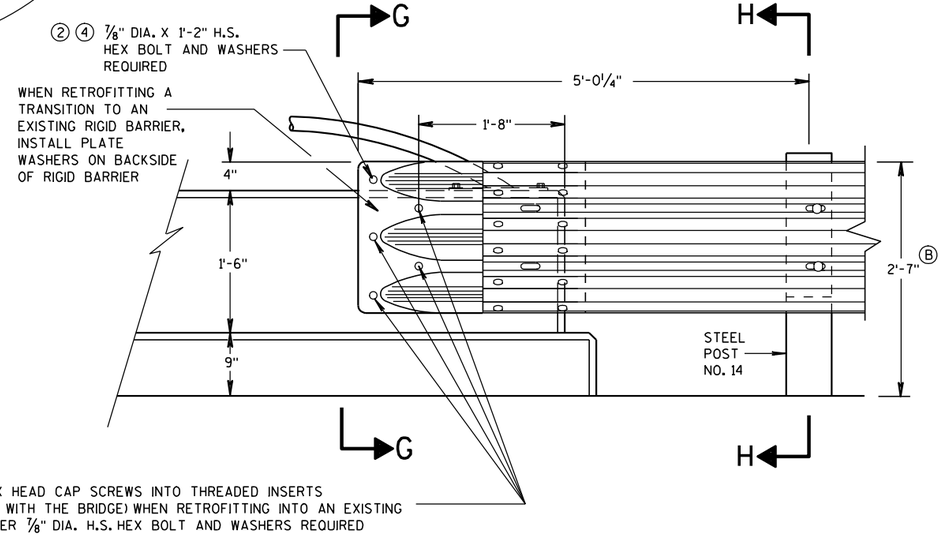
④ BOLT, NUT AND WASHERS NOT REQUIRED FOR THIS LOCATION WHEN RETROFITTING AN EXISTING PAPAPET AND THE HOLE IS EITHER ABOVE PARAPET OR WITHIN 4 INCHES OF THE EDGE OF PARAPET.

Ⓑ TOLERANCE FOR TOP OF BEAM IS ± 1".

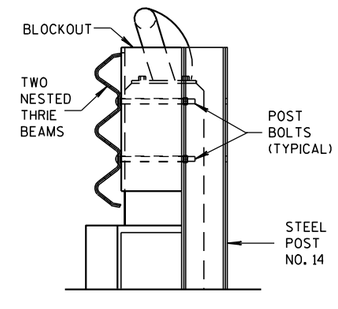




SECTION G-G

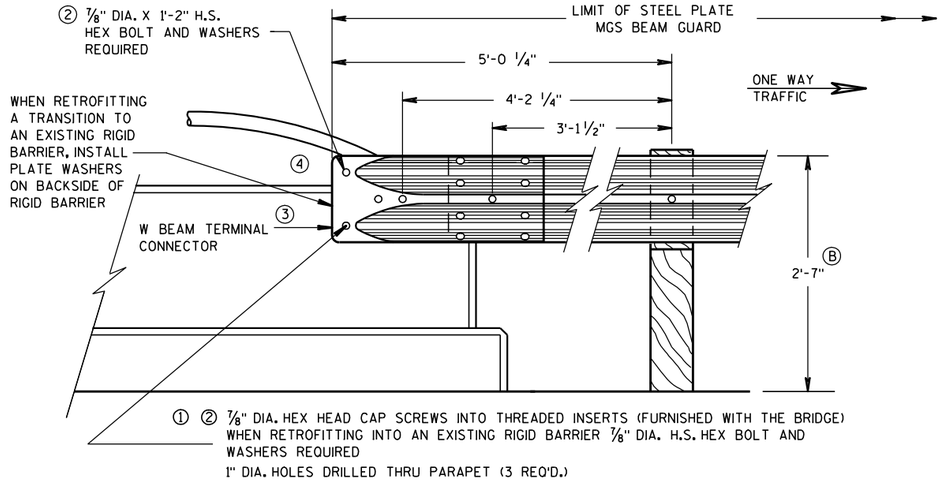


FRONT VIEW



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

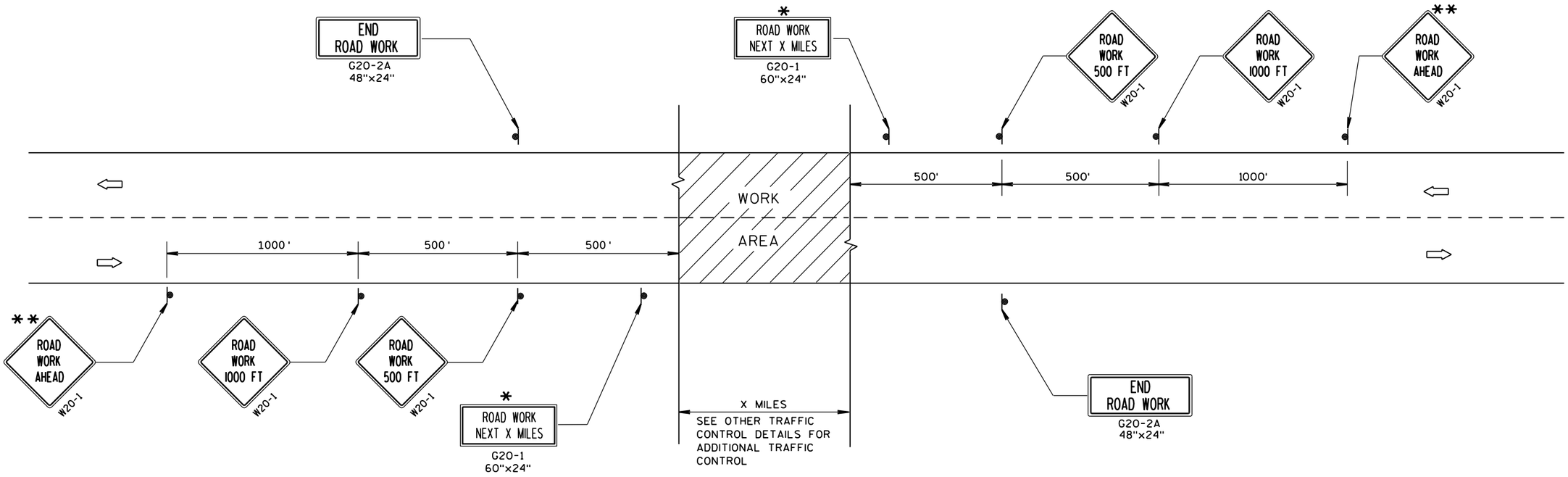
8-31-2012
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER

FHWA

6
S.D.D. 14 B 45-3e

TYPICAL SIDEROAD APPROACH WARNING SIGN DETAIL



GENERAL NOTES

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

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

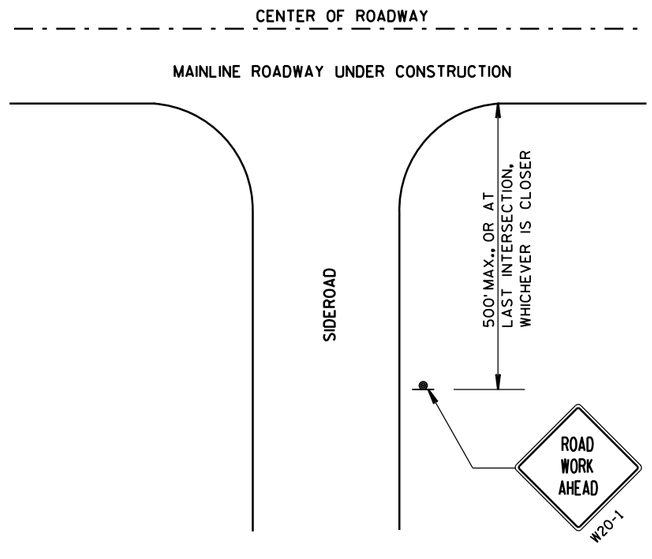
ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

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

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

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

** PLACE ADDITIONAL W20-1 "ROAD WORK AHEAD" SIGN IF WORK AREA WITHIN THE PROJECT IS SEPARATED BY MORE THAN 2 MILES FROM PREVIOUS WORK AREA.



LEGEND

- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC
- WORK AREA

TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/2013 — DATE

/S/ Travis Feltes — STATE TRAFFIC ENGINEER

FHWA

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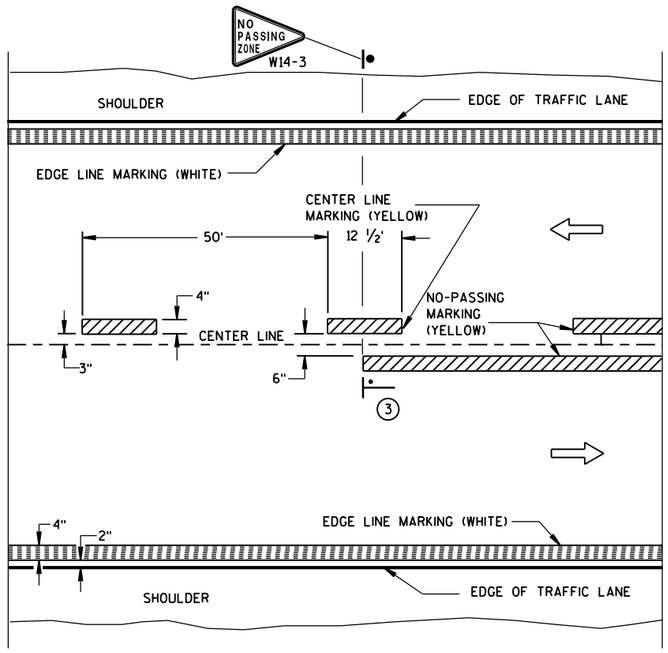
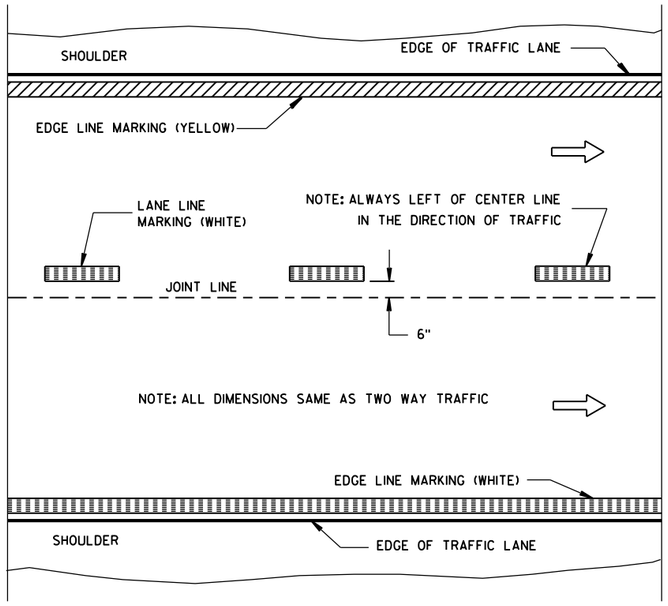
S.D.D. 15 C 4-2

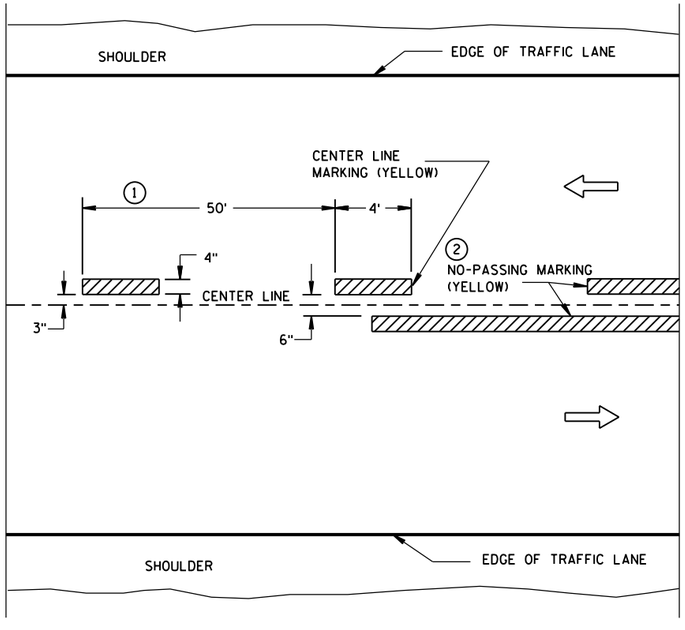


TWO WAY TRAFFIC

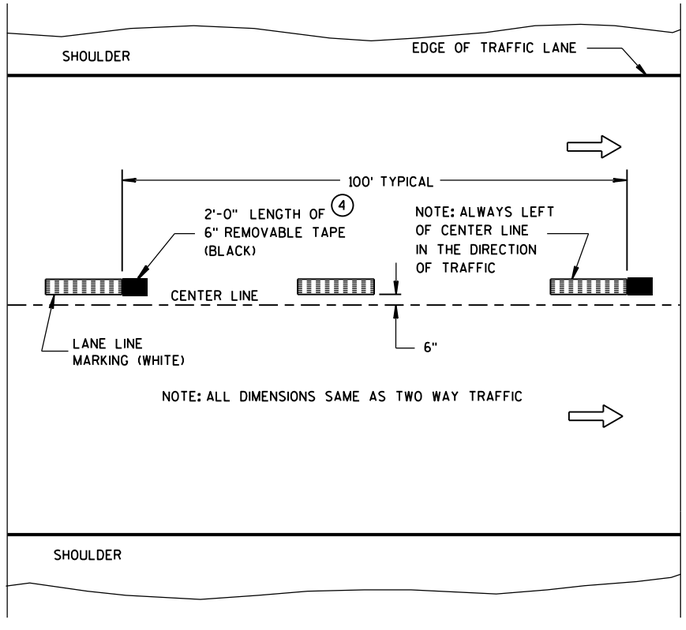


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY (INTERMEDIATE) PAVEMENT MARKING

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

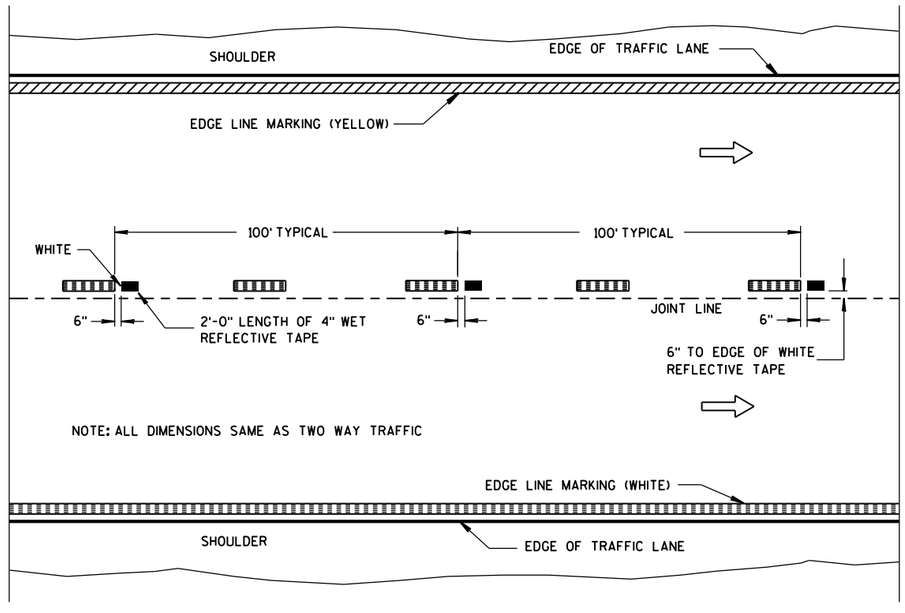
GENERAL NOTES

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

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

NOTE

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL



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

LEGEND

"T" MARKING

POST MOUNTED SIGN

PAVEMENT MARKING (MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
5-13-2013 DATE
/S/ Travis Feltes STATE TRAFFIC E
FHWA

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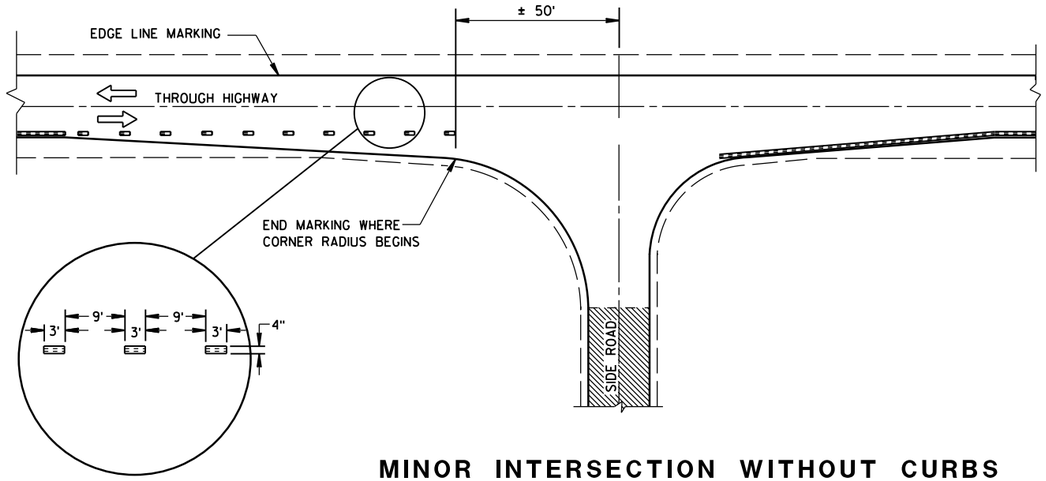
S.D.D. 15 C 8-16a



MINOR INTERSECTION WITHOUT CURBS

GENERAL NOTES

EDGE LINES SHALL BE OMITTED THROUGH INTERSECTIONS. EDGE LINES SHALL BE CONTINUED 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) ALTERNATIVE MARKING SHALL BE PROVIDED WHEN SPECIFIED IN THE CONTRACT. TYPICAL SITUATIONS WHERE THIS MARKING MAY BE REQUIRED ARE WHERE THE INTERSECTION IS ON A SHARP HORIZONTAL CURVE OR CREST VERTICAL CURVE IN AN UNLIGHTED AREA SUCH THAT THE EDGE LINE MAY BE MISLEADING TO THE MOTORIST OR DISAPPEAR FROM SIGHT.

(4) THE EDGE LINE IN THE TAPER AREAS OF THE BYPASS LANE AND THE BYPASS LANE SHALL BE LOCATED 1-FOOT FROM EDGE OF PAVEMENT TO THE OUTSIDE EDGE OF EDGE LINE.

(5) BARRIER LINE ENDS AT SIDE ROAD PAVEMENT/SURFACE EDGE EXTENSION.

(6) BARRIER LINE STARTS 500 FEET PRIOR TO THE BYPASS TAPER.

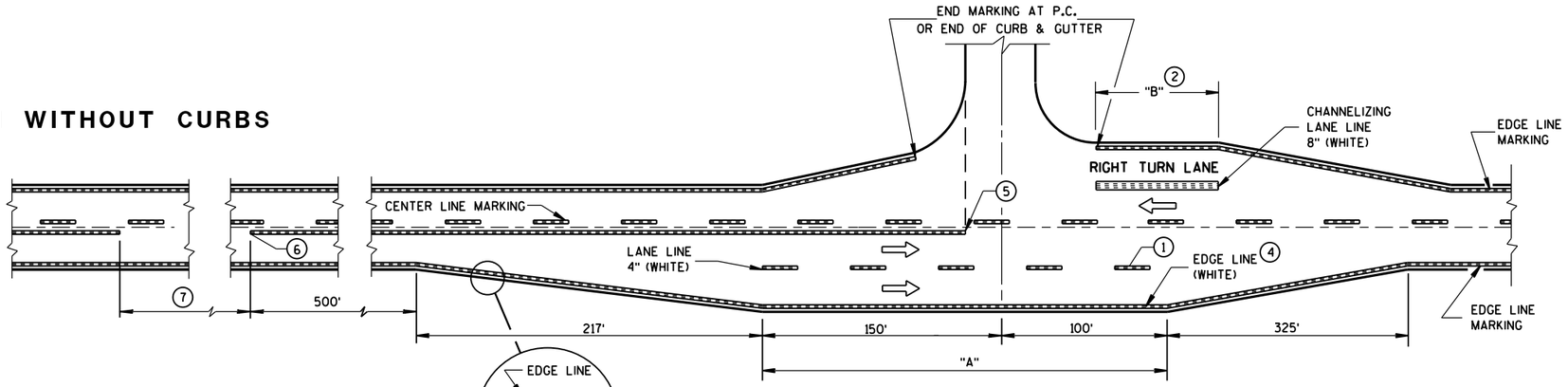
(7) IF THE DISTANCE BETWEEN 2 SUCCESSIVE NO-PASSING ZONES IS LESS THAN THE MINIMUM DISTANCE BETWEEN ZONES, CONNECT THE 2 ZONES.

(8) 3' LINE 9' GAP, EXCEPT RETRACE THE EXISTING LINE - GAP PATTERN WHERE EXISTING MARKINGS ARE IN PLACE.

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL

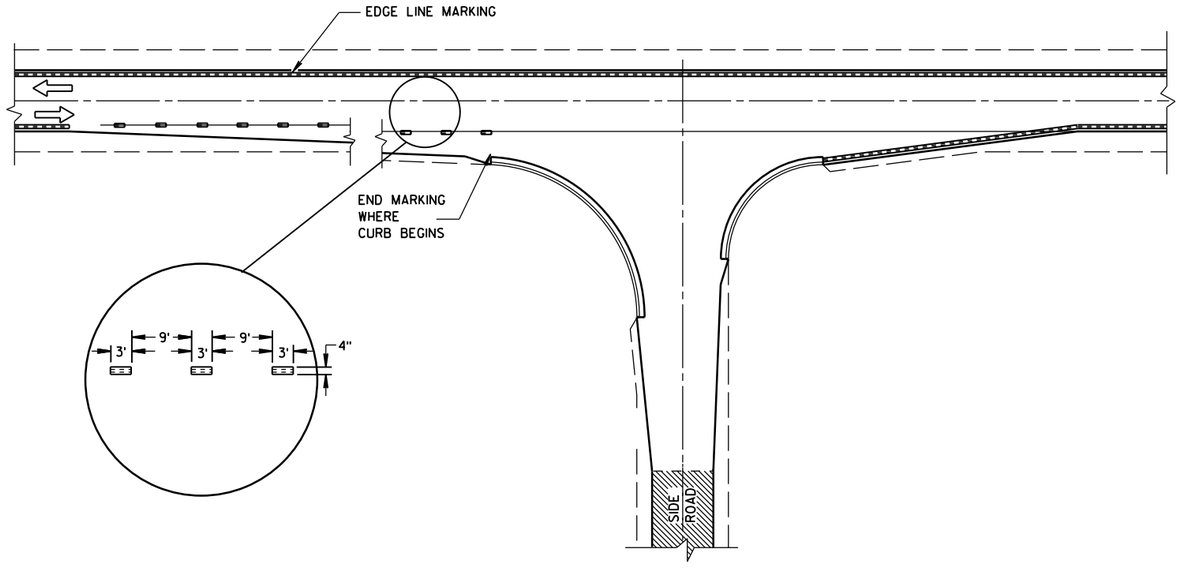
(7)

POSTED SPEED (MPH)	MINIMUM DISTANCE BETWEEN ZONES (FEET)
25 - 30	528
35 - 40	528
45 - 50	686
55	792



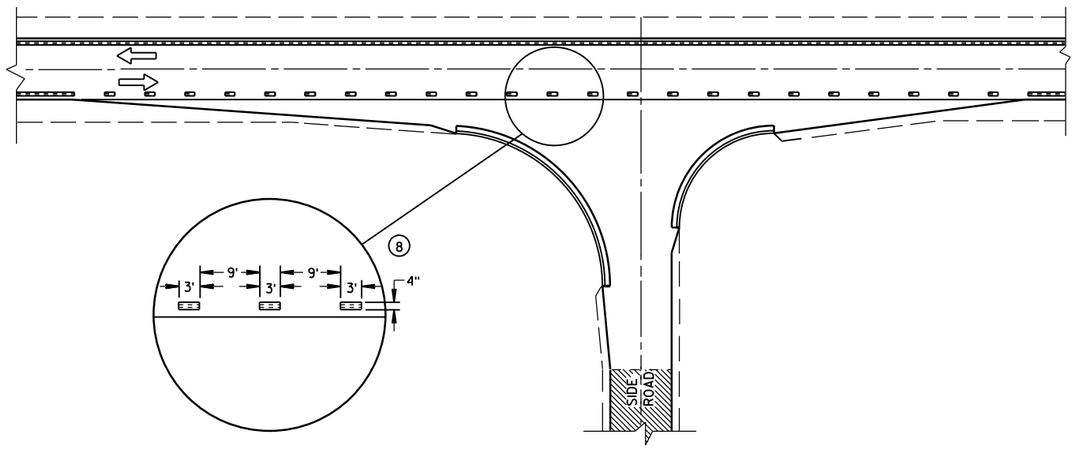
MAJOR INTERSECTIONS

(INTERSECTION WITH FULL RIGHT TURN LANE OR BYPASS LANES)



MINOR INTERSECTION WITH CURBS

(TYPICAL MARKING)



MINOR INTERSECTION WITH CURBS

(3) (FOR SPECIAL CONDITIONS AS SPECIFIED)

PAVEMENT MARKING
(INTERSECTIONS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

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

6

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

LEGEND

SIGN ON PORTABLE OR PERMANENT SUPPORT

DIRECTION OF TRAFFIC

WORK AREA

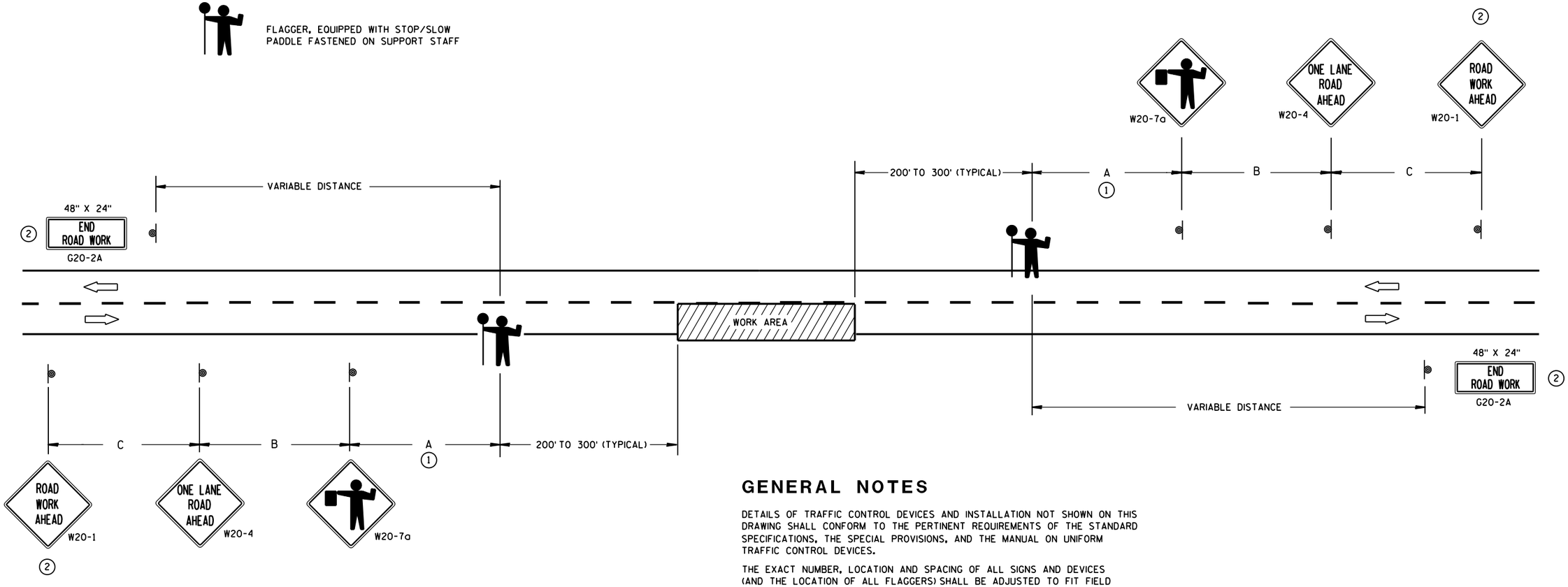
FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

SIGN SPACING TABLE

SPEED LIMIT	SIGN SPACING A,B,C
25-35 MPH	200'
35-40 MPH	350'
45-55 MPH	500'

W3-4

USE OF THE "BE PREPARED TO STOP" SIGN IS OPTIONAL. WHEN USED, THIS SIGN SHALL BE LOCATED BETWEEN THE W20-7a AND W20-4 SIGNS. A 500' TYPICAL SPACING SHALL BE PROVIDED BETWEEN THE SIGNS.



(1) FOR A MOVING WORK OPERATION,
SIGNING FOR BOTH DIRECTIONS SHALL BE REESTABLISHED (AS SIMULTANEOUSLY AS PRACTICAL) AT APPROXIMATELY 3500 FOOT INTERVALS IN THE MOVING WORK OPERATION OR AS APPROVED BY THE ENGINEER.

(2) SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.

GENERAL NOTES

DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

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

THE FIRST ADVANCE WARNING SIGN SHOULD TYPICALLY BE LOCATED IN ADVANCE OF THE ANTICIPATED TRAFFIC BACKUP OR QUEUE.

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

FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT, COVER OR REMOVE ALL TEMPORARY TRAFFIC CONTROL SIGNS.

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

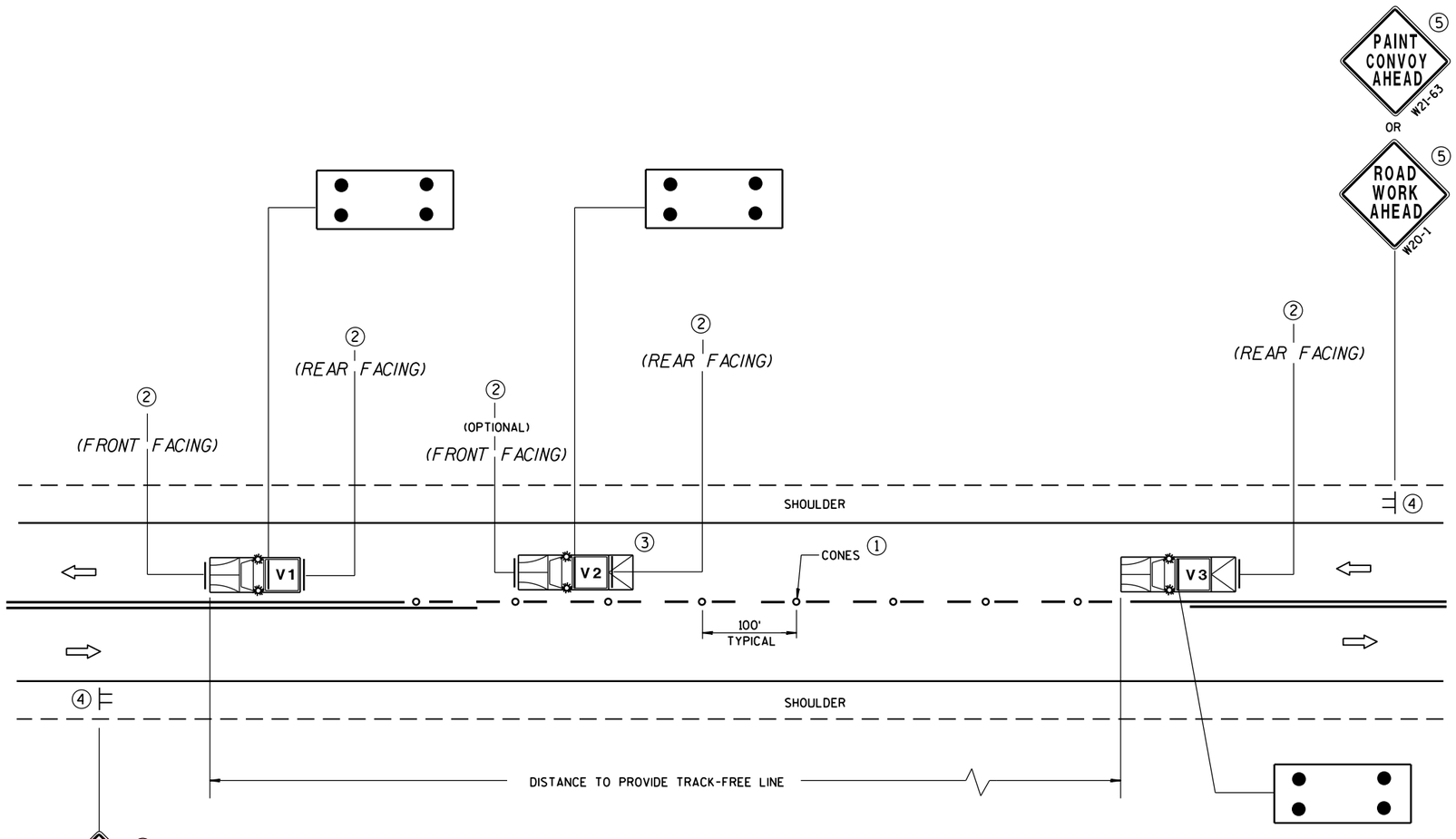
TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

S.D.D. 15 C 12-4



MOVING PAVEMENT MARKING OPERATIONS
TWO-LANE TWO-WAY ROADWAY

GENERAL NOTES

ALL VEHICLES SHALL BE EQUIPPED WITH TWO 360 DEGREE HIGH INTENSITY YELLOW FLASHING LIGHTS OR STROBE LIGHTS AND OPERATED WITH HEADLIGHTS TURNED ON.

VEHICLES SHALL BE EQUIPPED WITH REAR FACING TYPE B OR C FLASHING ARROW PANEL OPERATING IN CAUTION MODE. SIGNS PLACED ON VEHICLES MUST NOT OBSCURE THE ARROW PANEL.

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

IF SPEED LIMIT IS 40 MPH OR LESS STATIONARY SIGNS MAY BE OMITTED IF CONES ARE USED.

ALTERNATE SIGN MESSAGES, SUCH AS "PAINT CREW AHEAD" OR "ROAD PAINTING AHEAD" MAY BE USED.

DISTANCE BETWEEN VEHICLES MAY VARY ACCORDING TO TERRAIN, SIGHT DISTANCE, PAINT DRYING TIME, AND OTHER FACTORS. WHENEVER ADEQUATE STOPPING SIGHT DISTANCE EXISTS TO THE REAR, SHADOW VEHICLES SHOULD MAINTAIN THE MINIMUM DISTANCE FROM THE WORK VEHICLE AND PROCEED AT THE SAME SPEED AS THE WORK VEHICLE. SHADOW VEHICLES SHOULD SLOW DOWN IN ADVANCE OF VERTICAL OR HORIZONTAL CURVES THAT RESTRICT SIGHT DISTANCE.

THE WORK AND SHADOW VEHICLES SHOULD PULL OVER PERIODICALLY TO ALLOW TRAFFIC TO PASS.

THIS DRAWING SHALL BE USED FOR CENTERLINE OR EDGELINE MARKING.

WHEN NO WORK ACTIVITY IS TAKING PLACE, REMOVE OR TURN THE STATIONARY WARNING SIGNS AWAY FROM TRAFFIC.

(1) CONES MAY BE OMITTED ON PAINTED LINE IF APPROVED BY THE ENGINEER. CONSIDER PAVEMENT MARKING DRY OR CURE TIMES AND TRAFFIC VOLUME.

(2) USE STANDARD SIGN W21-64 WITH APPROPRIATE ARROW.

WET PAINT W21-64 OR WET PAINT W21-64

(3) OPTIONAL TRUCK-MOUNTED ATTENUATOR.

(4) SIGNS SHALL BE REPEATED APPROXIMATELY EVERY THREE MILES.

(5) IF CONSTRUCTION WORK ZONE SIGNS ARE IN PLACE, W20-1 OR W21-63 ARE NOT REQUIRED.

LEGEND

- **V1** LEAD VEHICLE
- **V2** SHADOW VEHICLE
- **V3** TRAIL VEHICLE WITH TMA
- **TMA** TRUCK-MOUNTED ATTENUATOR
- SIGN ON TEMPORARY SUPPORT
- DIRECTION OF TRAFFIC
- CONES
- FLASHING ARROW PANEL (CAUTION)

MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION
APPROVED 5/3/2013 DATE — /S/ Travis Feltes STATE TRAFFIC E FHWA

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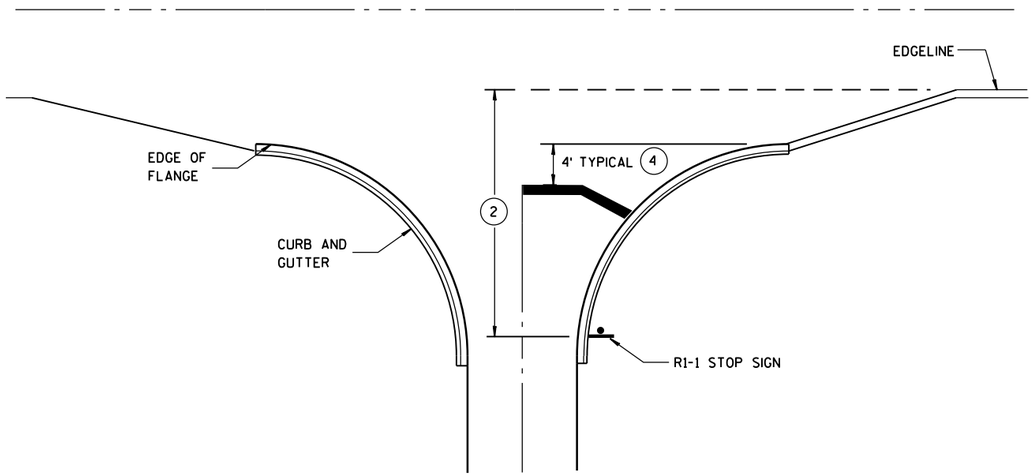
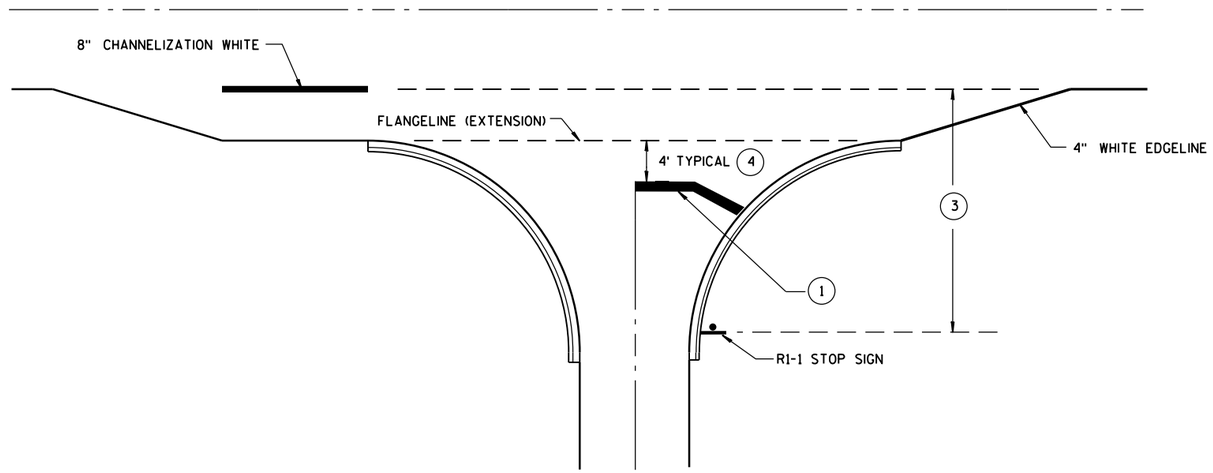
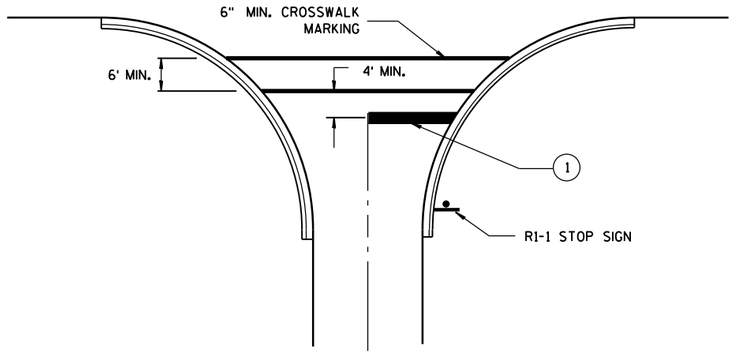
S.D.D. 15 C 19-2a



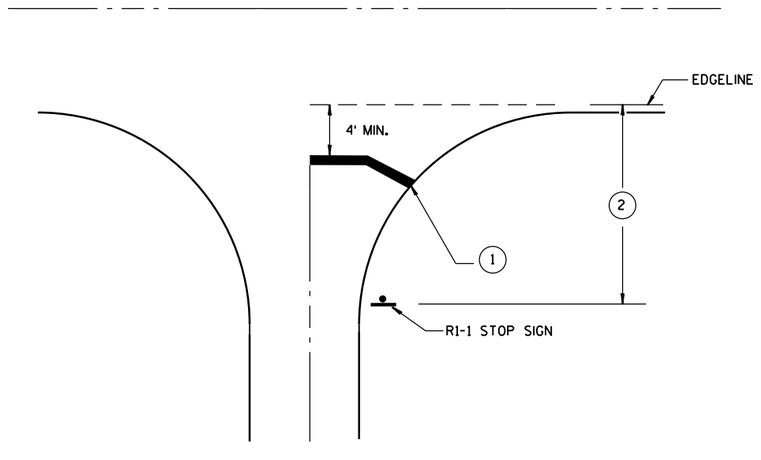
TYPICAL STOP LINE PAVEMENT MARKING WITH CURB AND GUTTER



TYPICAL STOP LINE PAVEMENT MARKING FOR SIDEROADS WITH RIGHT TURN LANE



TYPICAL STOP LINE PAVEMENT MARKING FOR SIDEROADS WITH CROSSWALK MARKING



TYPICAL STOP LINE PAVEMENT MARKING WITHOUT CURB AND GUTTER

GENERAL NOTES

1. 18-INCH STOP LINES MAY BE DELETED OR ADDED BY THE PROJECT ENGINEER BASED ON VISIBILITY AND SIGHT LINES.
2. IF STOP SIGN IS LESS THAN OR EQUAL TO 40 FEET FROM THE EDGELINE THAN NO STOP LINE IS REQUIRED.
3. IF STOP SIGN IS LESS THAN OR EQUAL TO 30 FEET FROM THE FLANGELINE EXTENSION THAN NO STOP LINE IS REQUIRED.
4. MOVE CLOSER TO EDGE OF TRAVEL LANE AS NEEDED FOR VISIBILITY AND SIGHT LINES.

STOP LINE AND CROSSWALK PAVEMENT MARKING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

4/30/2013
DATE

/S/ Travis Feltes
STATE TRAFFIC E

FHWA

6

S.D.D. 15 C 33-1

LEGEND

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

W057-52
36"x24"

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

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

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

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

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

GENERAL NOTES

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

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

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

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

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

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

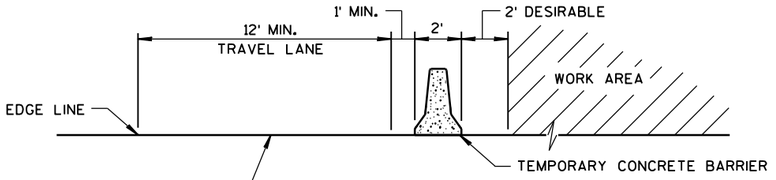
(1) CONSIDER ROADWAY GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS FOR A MINIMUM 1500 FEET IN FRONT OF DRUM TAPER.

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

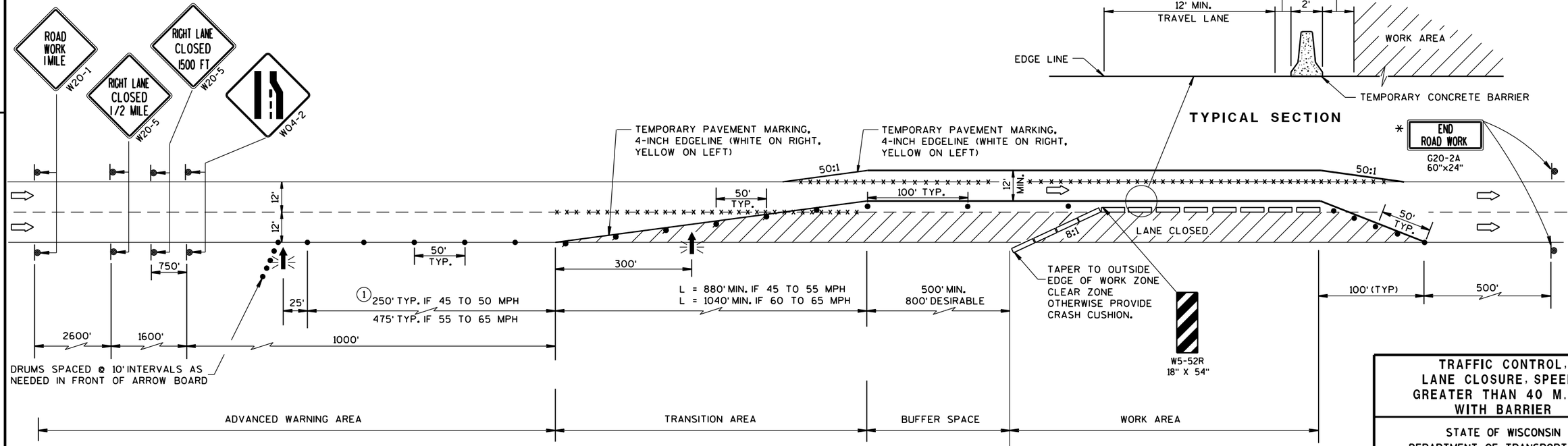
REMOVE PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

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

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



TYPICAL SECTION



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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

S.D.D. 15 D 3-2

6

S.D.D. 15 D 3-2

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.

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

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

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS 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.

W20-1 AND G20-2A SIGNS ARE NOT REQUIRED IF THE WORK AREA IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT. G20-2A SIGNS MAY ALSO BE OMITTED IF DURATION OF WORK IS LESS THAN 7 CONTINUOUS DAYS AND NIGHTS.

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

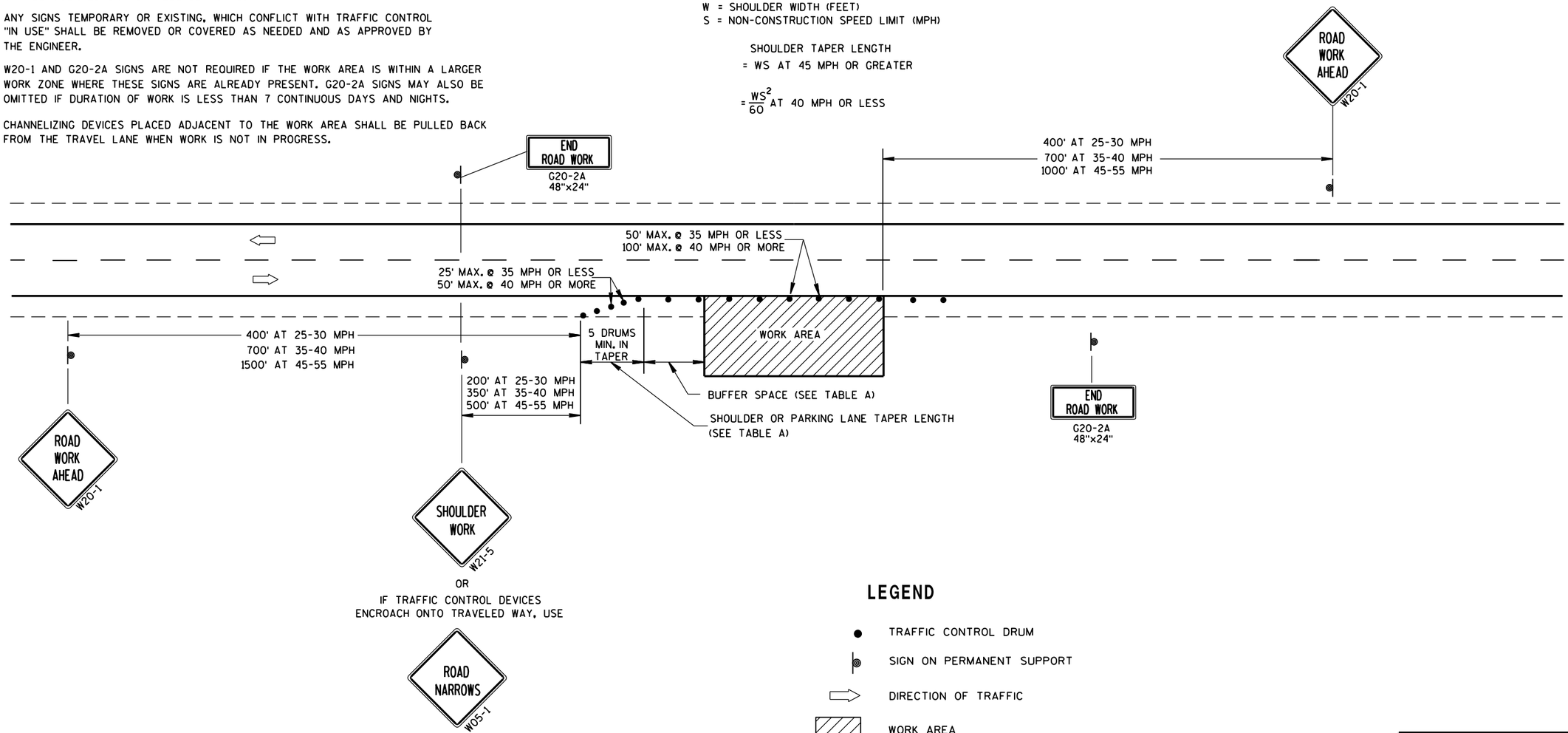
TABLE A

S \ W	SHOULDER TAPER LENGTH (FEET) 4	6	8	10	BUFFER SPACE (FEET)
30	20	30	40	50	85
35	30	45	55	70	120
40	40	55	75	90	170
45	60	90	120	150	220
50	70	100	135	170	280
55	75	110	150	185	335

W = SHOULDER WIDTH (FEET)
S = NON-CONSTRUCTION SPEED LIMIT (MPH)

SHOULDER TAPER LENGTH
= WS AT 45 MPH OR GREATER

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



LEGEND

- TRAFFIC CONTROL DRUM
- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC
- WORK AREA

TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/2013 DATE

/S/ Travis Feltes
STATE TRAFFIC ENGINEER

FHWA

6

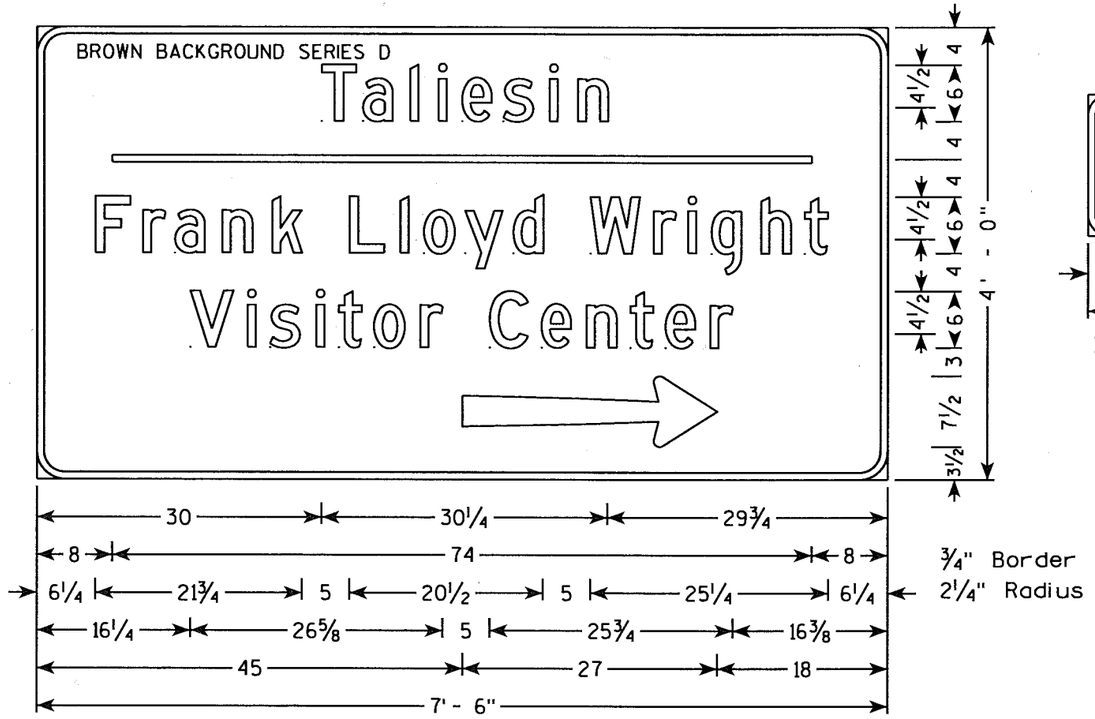
S.D.D. 15 D 28-2

6

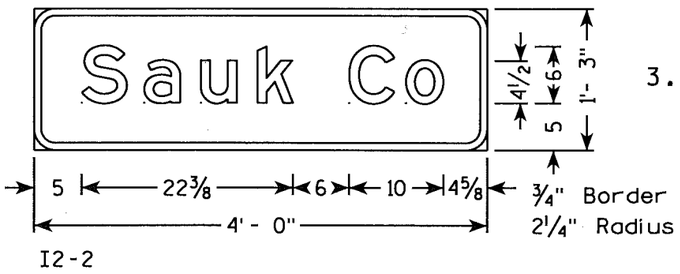
S.D.D. 15 D 28-2

NOTES

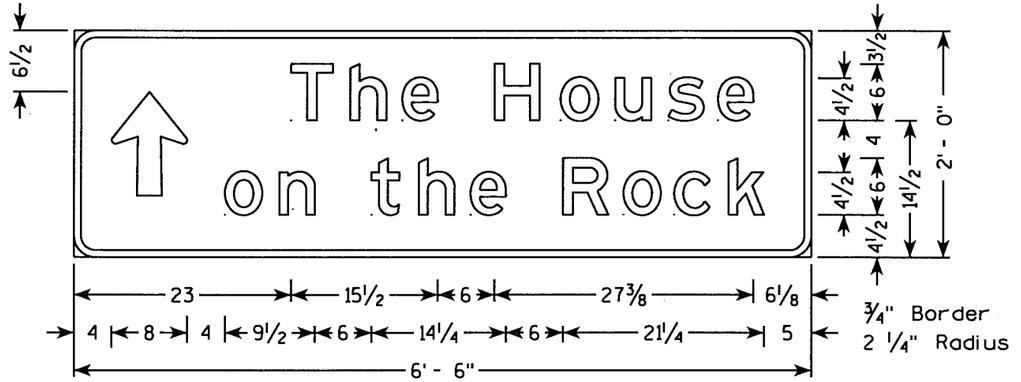
1. All Signs Type II - Type H Reflective
2. Color:
   Background - GREEN except as Shown
   Message - WHITE
3. Message Series - E except as Shown



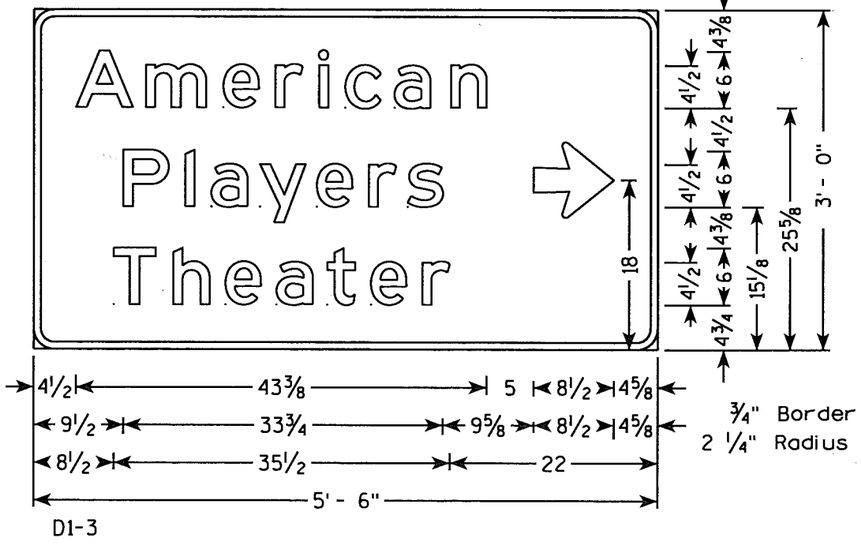
D7-53R



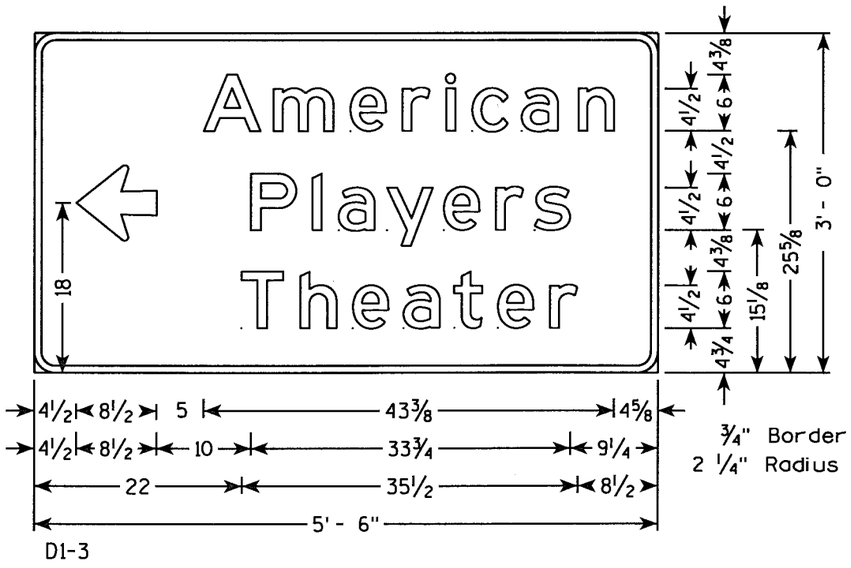
I2-2



D1-2



D1-3

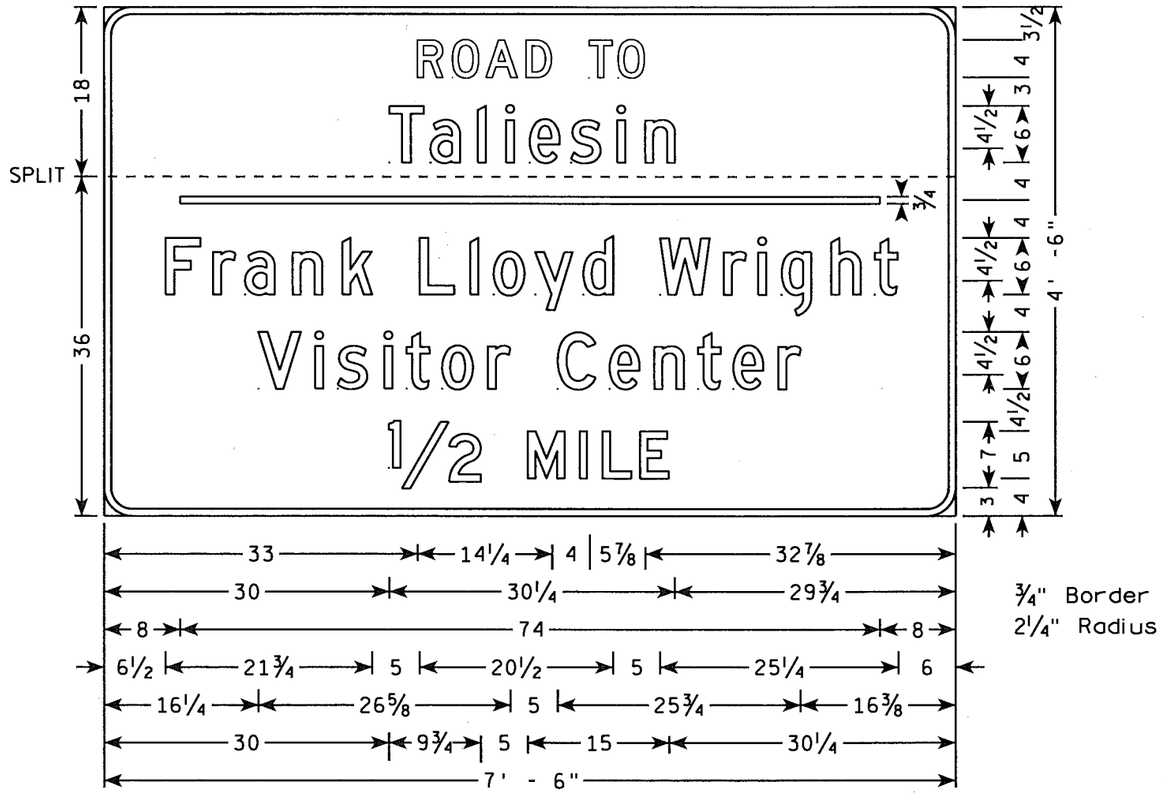


D1-3

7

7

PROJECT NO: 5255-01-61	HWY: USH 18	COUNTY: IOWA/SAUK	PERMANET SIGNING	SHEET NO: 91	E

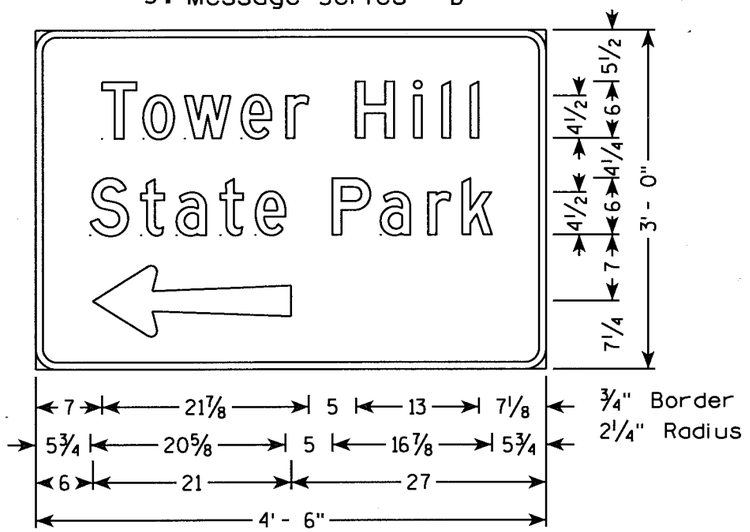


D7-51 (MOD)

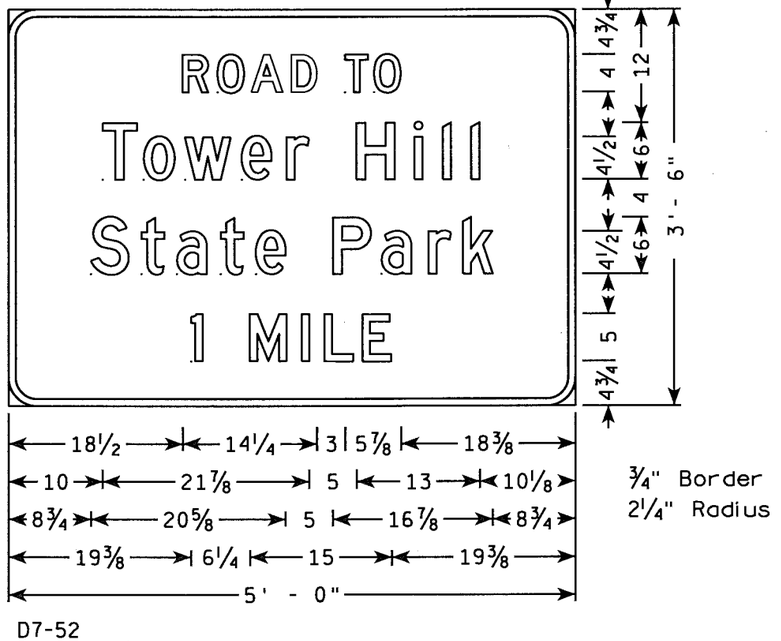
D7-53R

NOTES

1. All Signs Type II - Type H Reflective
2. Color:
   Background - BROWN
   Message - WHITE
3. Message Series - D



D7-53L



D7-52

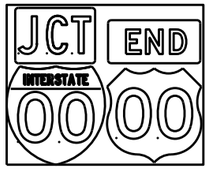
7

7

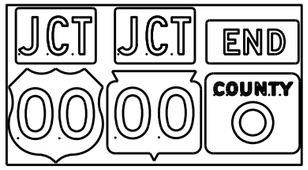
PROJECT NO: 5255-01-61	HWY: USH 18	COUNTY: IOWA/SAUK	PERMANET SIGNING	SHEET NO: 92	E

TYPICAL ASSEMBLIES

J1-1

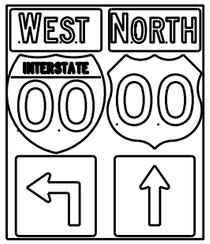


J1-2

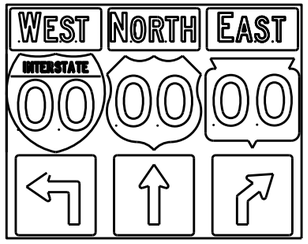


J1-3

J2-1



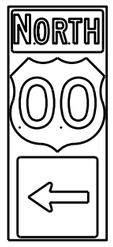
J2-2



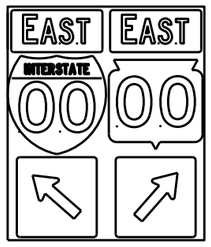
J2-3

JV

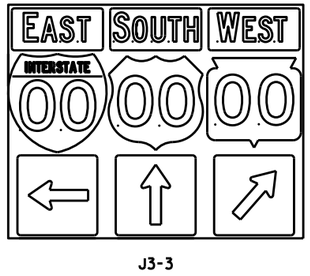
(Typical Vertical J-Assembly
See Note 10 and 11)



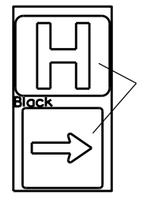
J3-1



J3-2

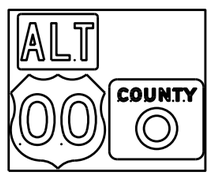


J3-3

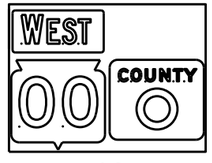


JH-1

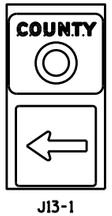
J4-1



J4-2



J4-2



J13-1

J12-1

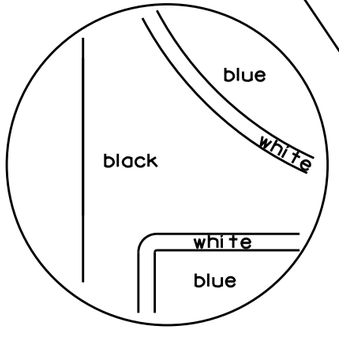
J32-1

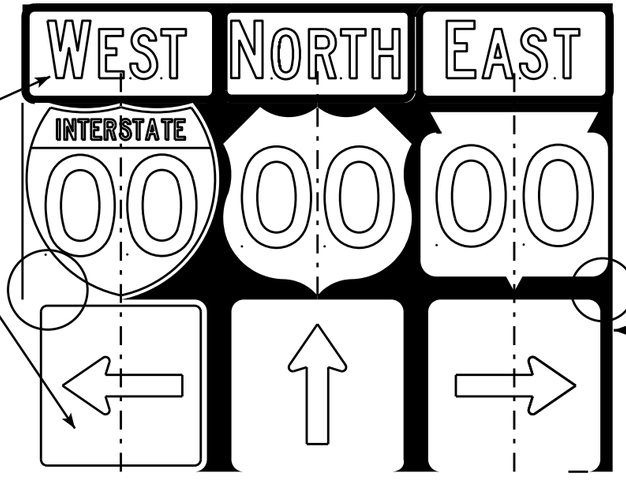
J33-1

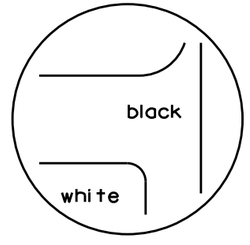
J23-1

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

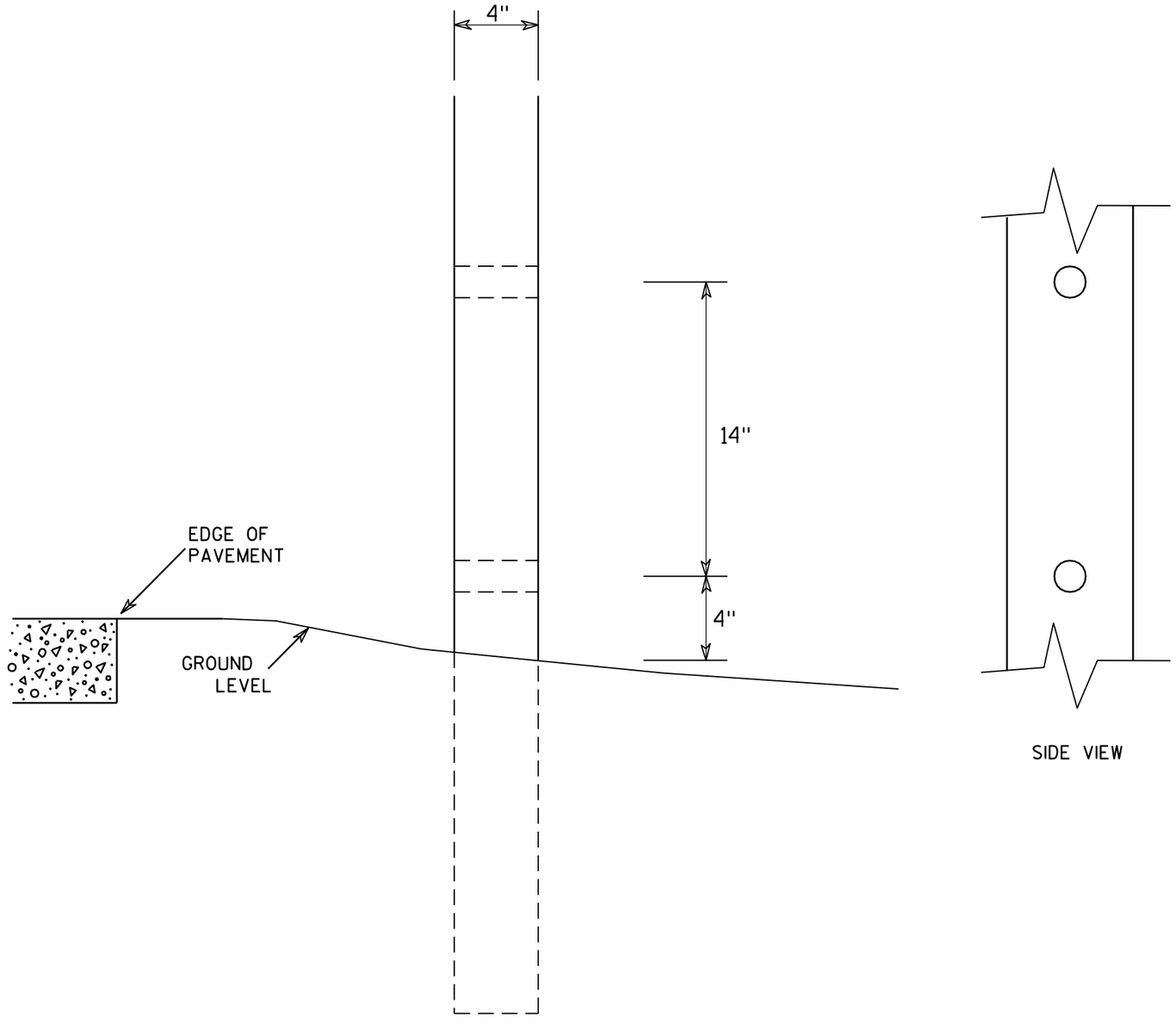
APPROVED Matthew R Rauch
for State Traffic Engineer

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



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.

4 X 6 WOOD POST MODIFICATIONS

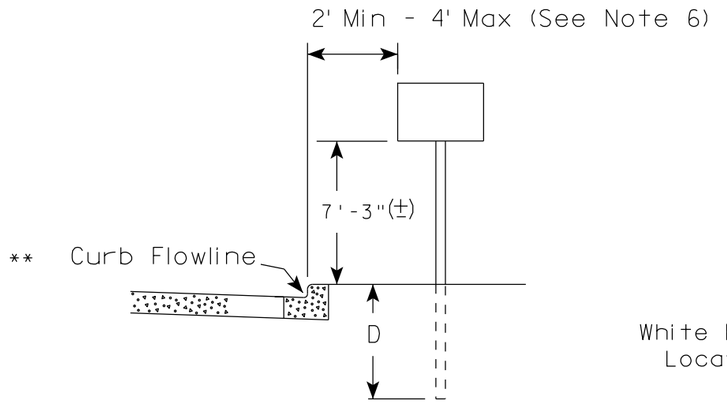
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Chester J Spang for State Traffic Engineer

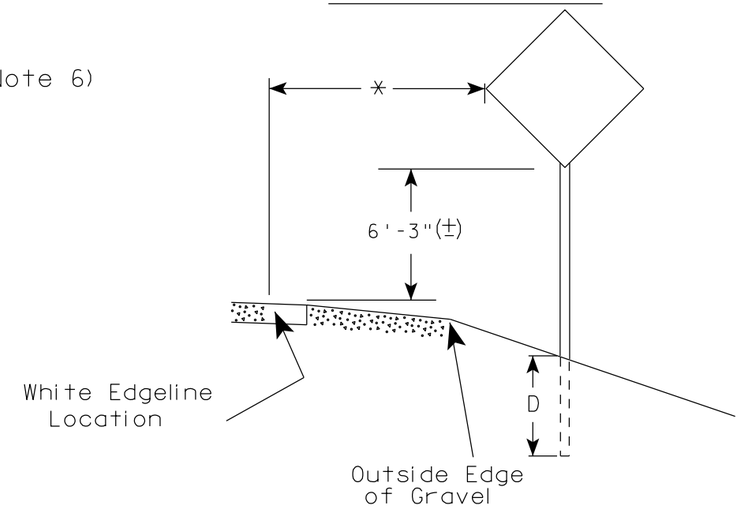
DATE 3/27/97 PLATE NO. A4-11.2

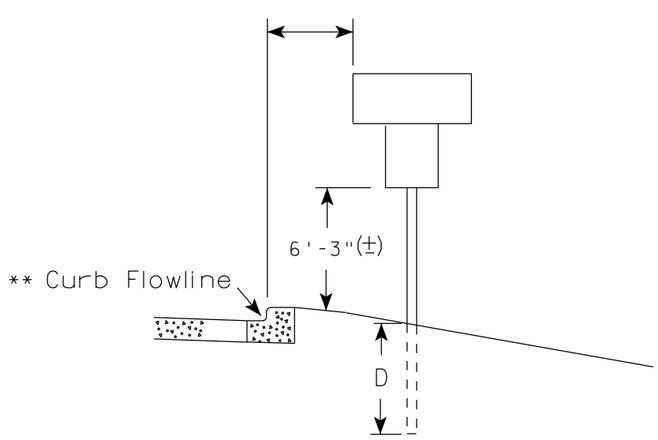
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 94	E

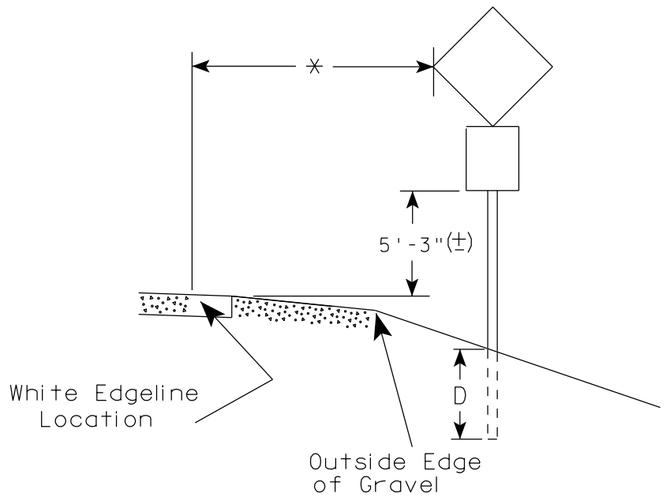
URBAN AREA



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, 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on barrier wall, see A4-10 sign plate.
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 J assemblies (A2-1S) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
5. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±).
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. The (±) tolerance for mounting height is 3 inches.
8. Folding stop signs (R1-1F) shall be mounted at a height of 5'-3" (±) or as directed by the Engineer.
9. 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), 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" (±).

TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

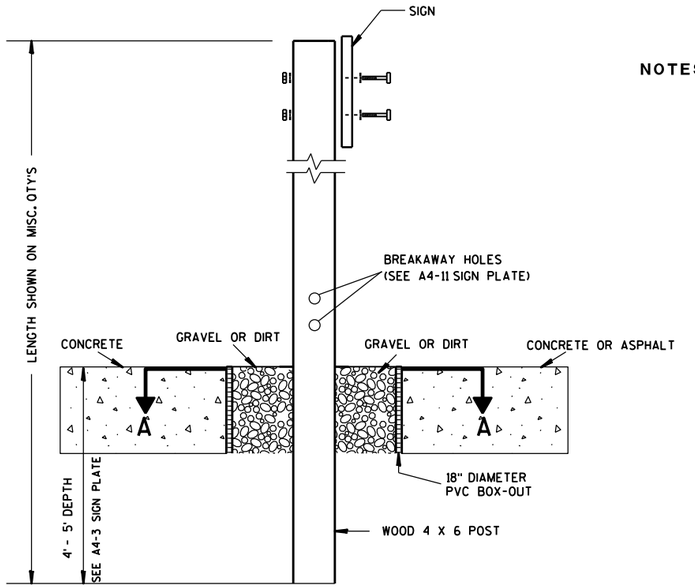
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch for State Traffic Engineer

DATE 10/13/14 PLATE NO. A4-3.19

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

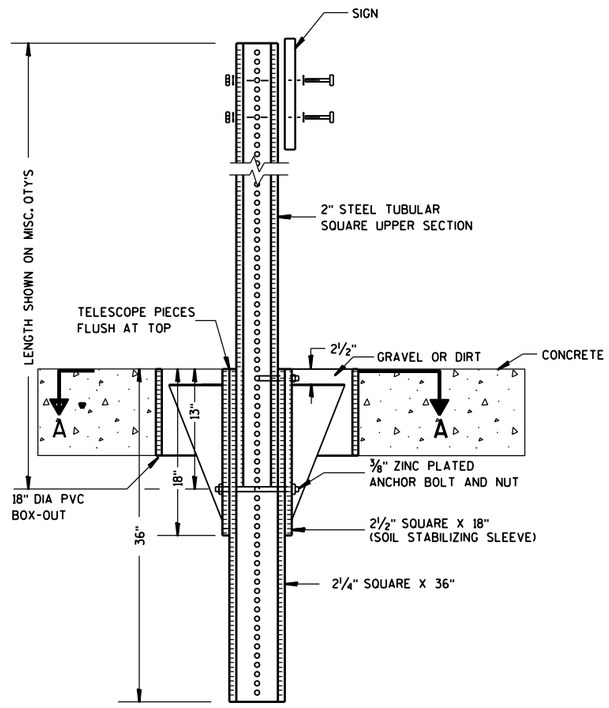
FILE NAME : C:\CAEFiles\Projects\tr_stdplate\A43.DGN PLOT DATE : 13-OCT-2014 16:30 PLOT BY : mscsja PLOT NAME : PLOT SCALE : 99.237937:1.000000 WISDOT/CADDS SHEET 42



ELEVATION VIEW

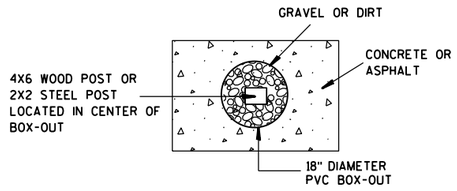
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

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

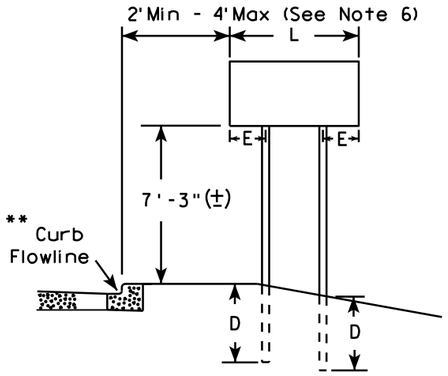
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 1/27/14 PLATE NO. A4-3B.1

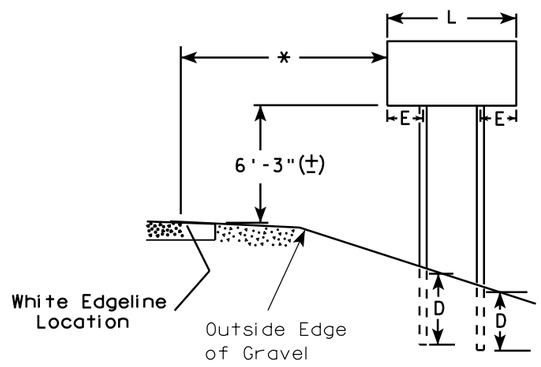
PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

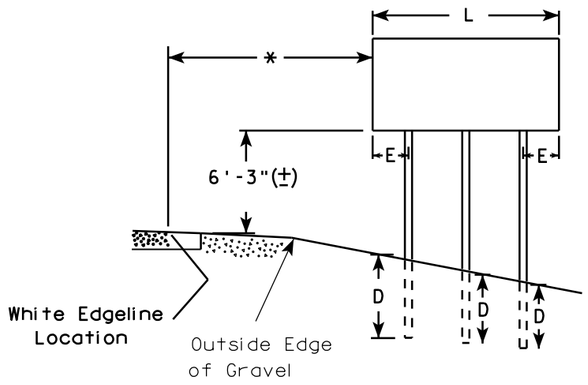
FILE NAME : C:\CAEFiles\Projects\tr_stdplate\A43B.DGN PLOT DATE : 27-JAN-2014 09:48 PLOT BY : mscsja PLOT NAME : PLOT SCALE : 13.659812:1.000000 WISDOT/CADDS SHEET 42

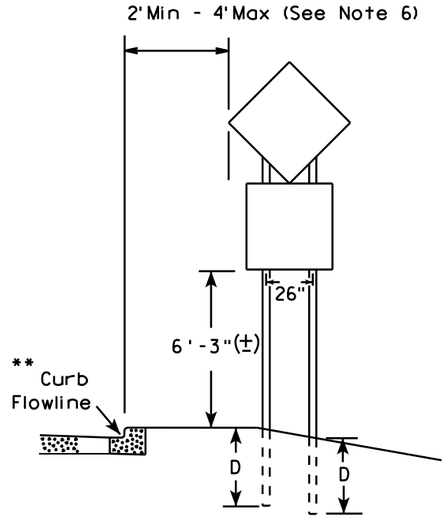
URBAN AREA



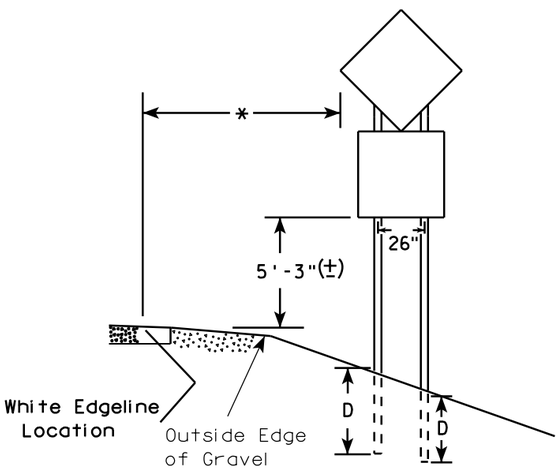
RURAL AREA (See Note 3)







48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

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. Minimum mounting height for J assemblies (A2-1S) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. Folding stop signs (R1-1F) 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 or less than 20 S.F. in area.

SIGN SHAPE OTHER THAN DIAMOND (TWO POSTS REQUIRED)	
L	E
Greater than 48" Less than 60"	12"
60" to 120"	L/5

***

SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 120" less than 168"	12"

SIGN SHAPE OTHER THAN DIAMOND (FOUR POSTS REQUIRED)	
L	E
168" and greater	12"

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

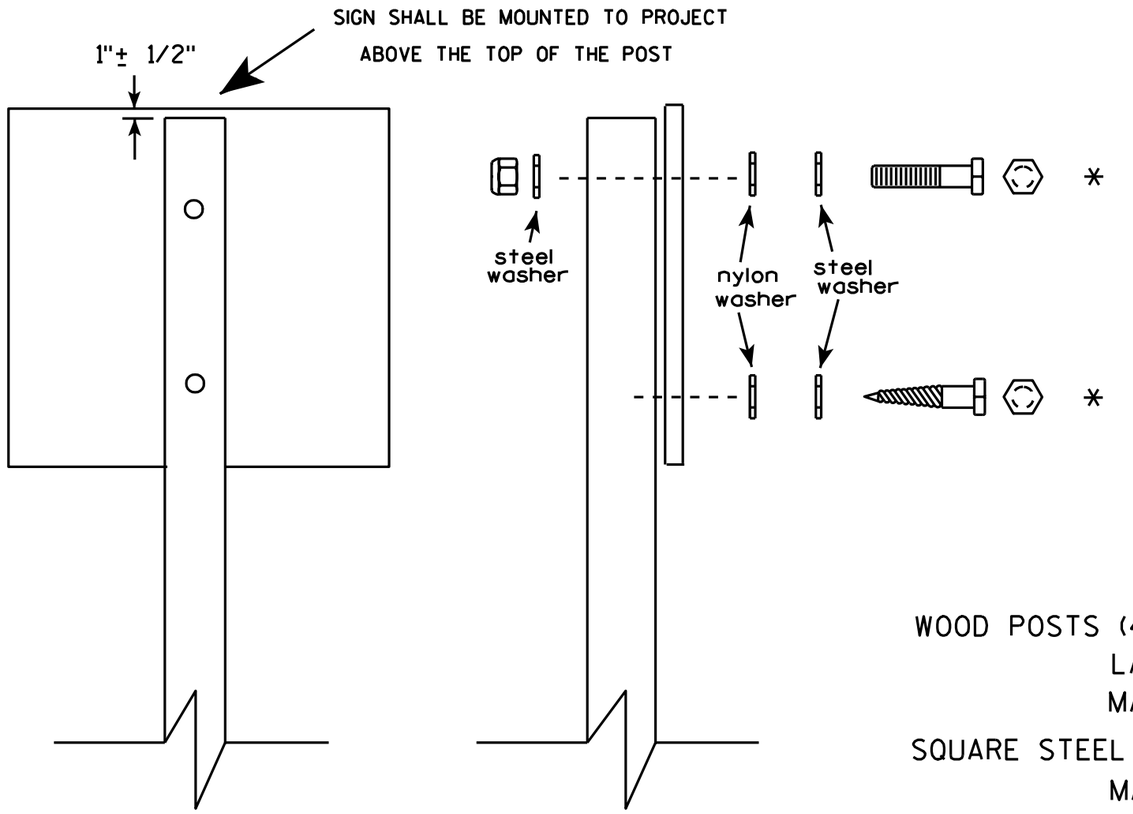
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 10/13/14 PLATE NO. A4-4 13

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

FILE NAME : C:\CAEFiles\Projects\tr_stdplate\A44.DGN PLOT DATE : 13-OCT-2014 16:32 PLOT BY : mscsja PLOT NAME : PLOT SCALE : 107.021305:1.000000 WISDOT/CADDS SHEET 42



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

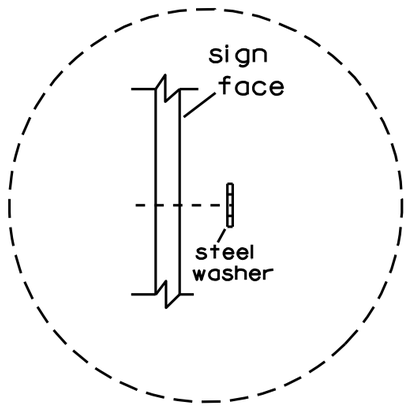
b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

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 POSTS (4" x 4" or 4" x 6")
LAG SCREWS - 3/8" X 3"
MACHINE BOLTS - 5/16" X 6-1/2" or 7" Length w/ nuts

SQUARE STEEL POSTS (2" x 2")
MACHINE BOLTS - 3/8" X 3-1/4" Length w/ nuts
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 for all Type H signs.



Washer Placement when Sign Has Other Than Type H or Type F Face

* 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 3/23/10 PLATE NO. A4-8.7

7

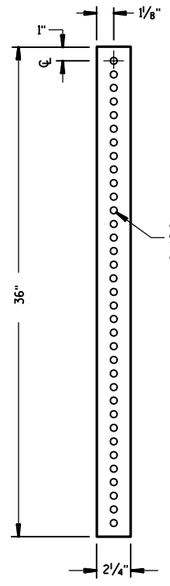
7

PROJECT NO:

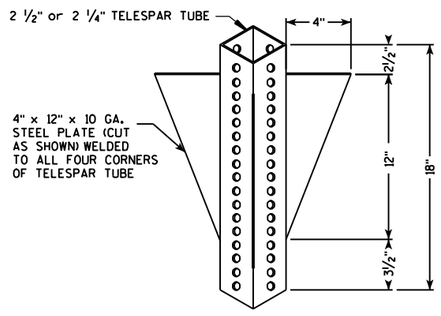
SHEET NO: 98 E

TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM

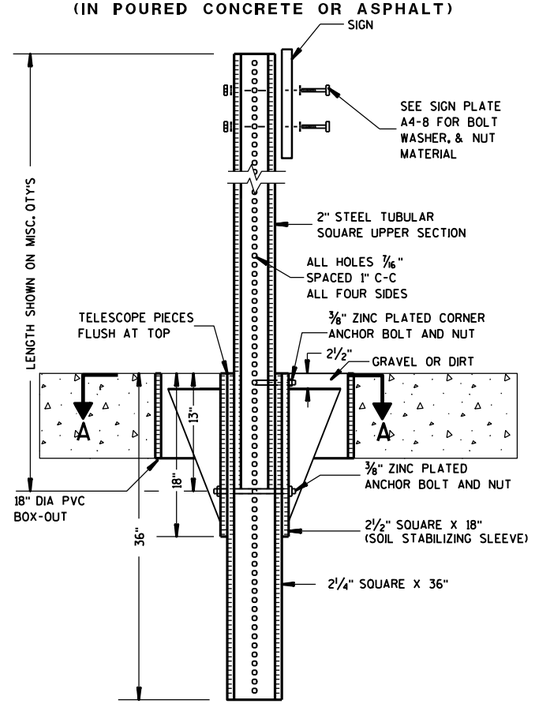
2 1/4 " SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH



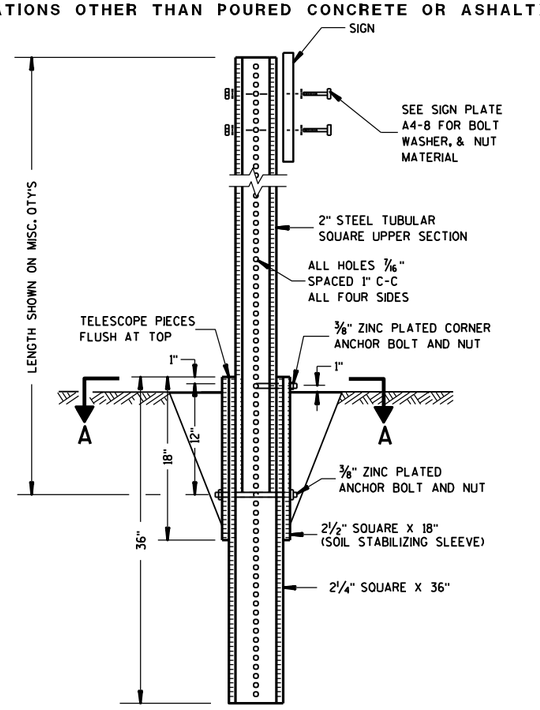
2 1/2 " SQUARE
12 GAUGE
OMNI-DIRECTIONAL
PERFORATED
SOIL STABILIZING SLEEVE
GALVANIZED FINISH

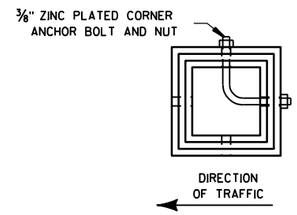


DETAIL OF TUBULAR STEEL SIGN POST
(IN POURED CONCRETE OR ASPHALT)



DETAIL OF TUBULAR STEEL SIGN POST
(IN LOCATIONS OTHER THAN POURED CONCRETE OR ASHALT)





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

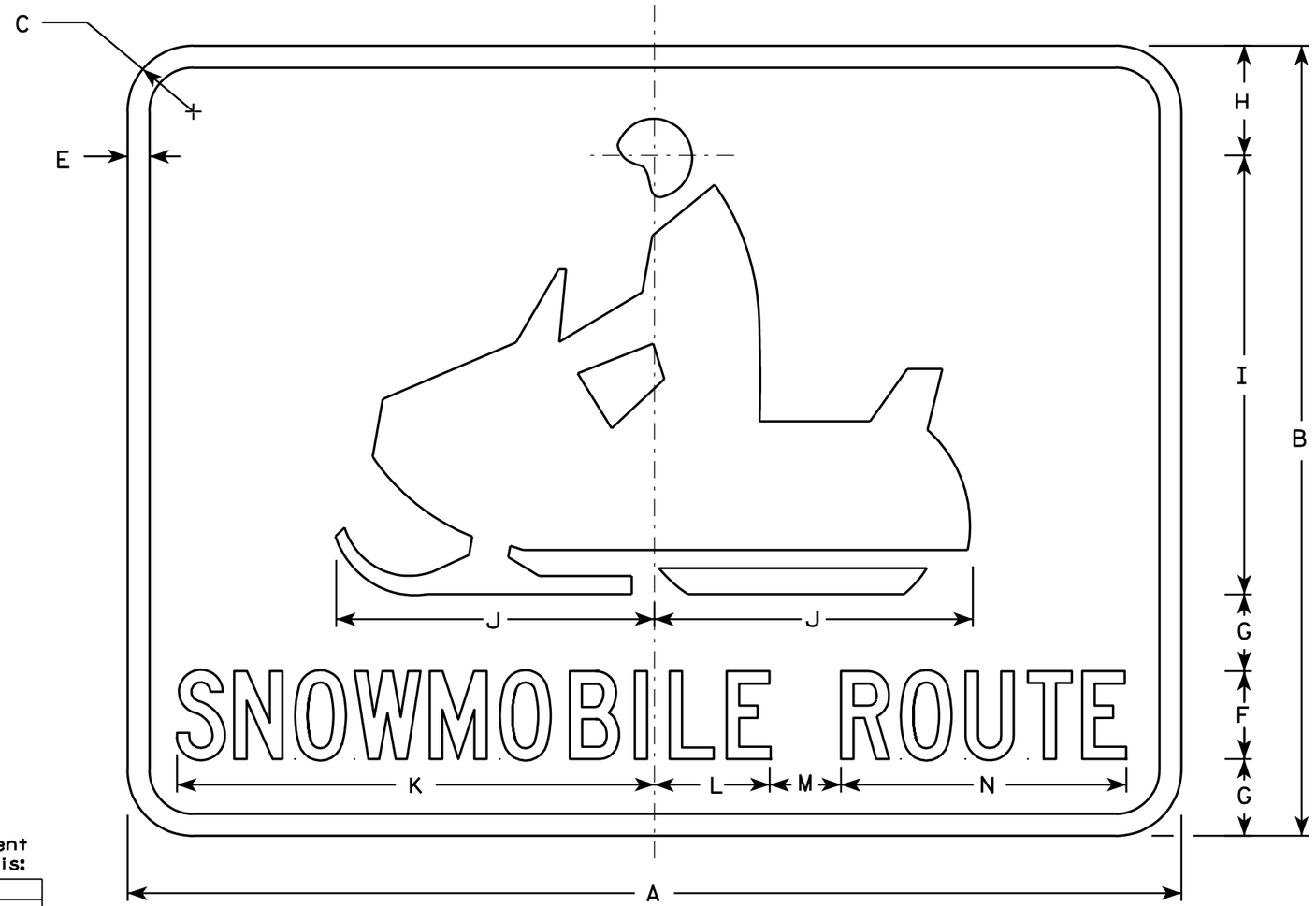
Signs wider than 3 feet or larger than 9 sq. ft shall be mounted on multiple posts (see above table).

TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer
DATE 5/30/12 PLATE NO. A4-9.7

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 99	E



D11-6

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Green
   Message - White - Type H Reflective
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	
2	600 mm X 450 mm
3	
4	
5	

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																												
2	24	18	1 1/2		1/2	2	1 3/4	2 1/2	10	7 1/4	10 7/8	2 5/8	1 5/8	6 1/2													3.0	0.27
3																												
4																												
5																												

STANDARD SIGN
D11-6

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Chester J Spry for State Traffic Engineer

DATE 1/16/02 PLATE NO. D11-6.6

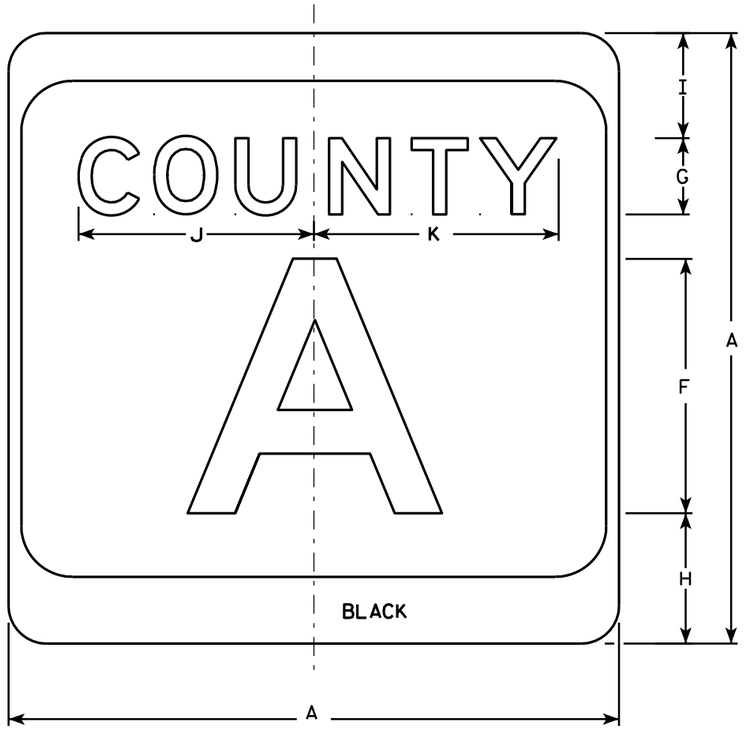
PROJECT NO: | SHEET NO: 100 | E

FILE NAME : C:\Users\Projects\tr_stdplate\D116.DGN PLOT DATE : 11-OCT-2005 14:57 PLOT BY : DOTSJA

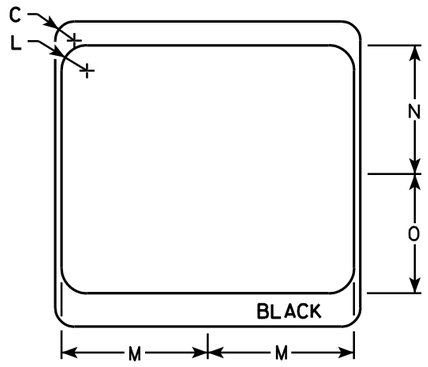
WISDOT/CADDS SHEET 42

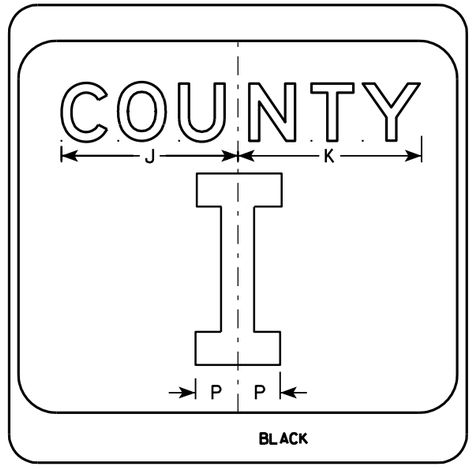
7

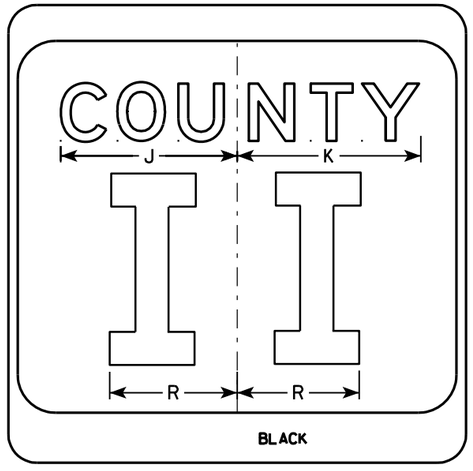
7



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

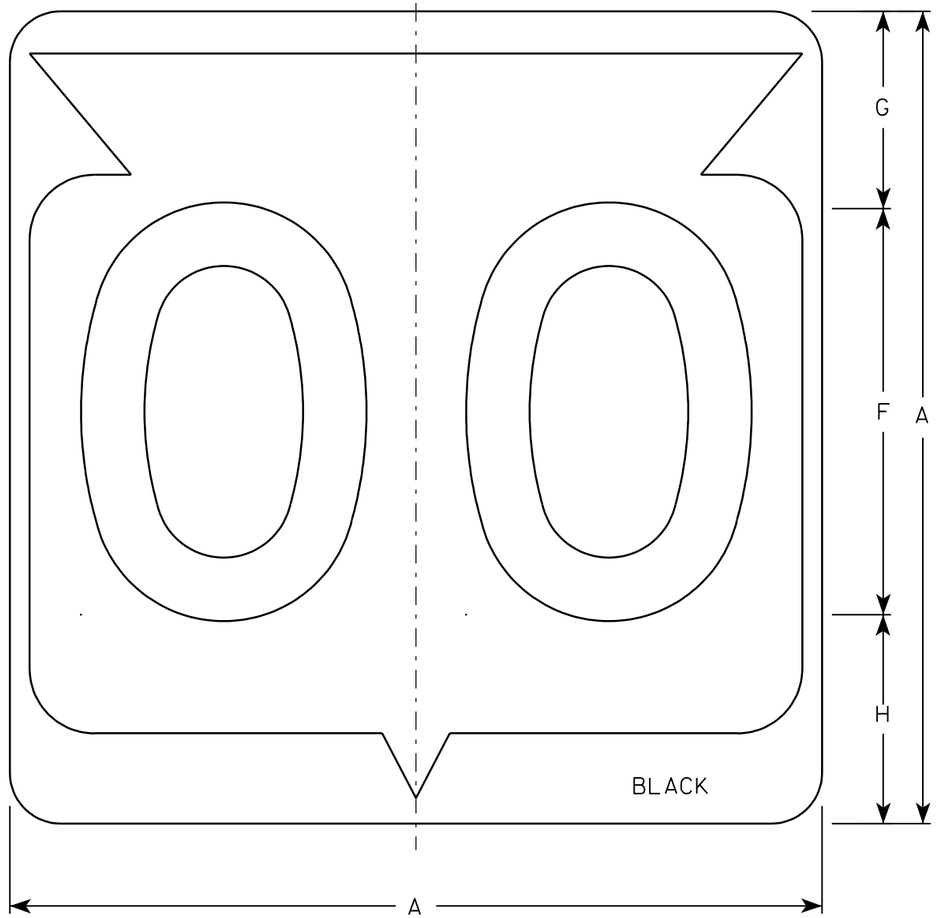
CTH MARKER
M1-5A FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 9/27/11 PLATE NO. M1-5A.8

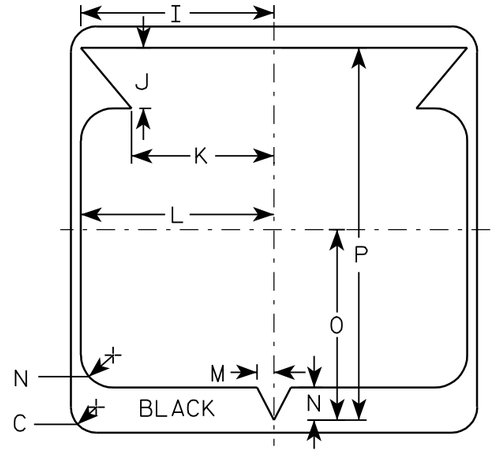
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 101	E



M1-6

NOTES

1. Sign is Type II - See Note 6 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White & Black - See Note 6
   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. Substitute appropriate Series numerals and adjust spacing as per plate A10-1.
6. Permanent Signs
   Background - Type H Reflective
   Detour or temporary Signs
   Background - Reflective



Metric equivalent for this sign is:

SIZE	
1	
2	600 mm X 600 mm
3	900 mm X 900 mm
4	900 mm X 900 mm
5	900 mm X 900 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																												
2	24		1 1/2			12	5 1/2	6 1/2	10 1/4	2 1/2	8 7/8	11 1/2	1	1 7/8	11 1/4	21 7/8											4.0	.36
3	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0	.81
4	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0	.81
5	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0	.81

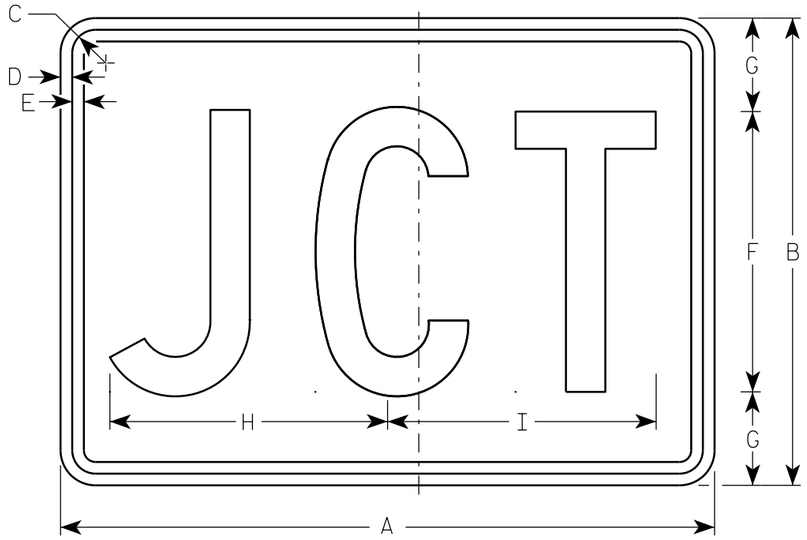
STATE ROUTE MARKER M1-6 FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

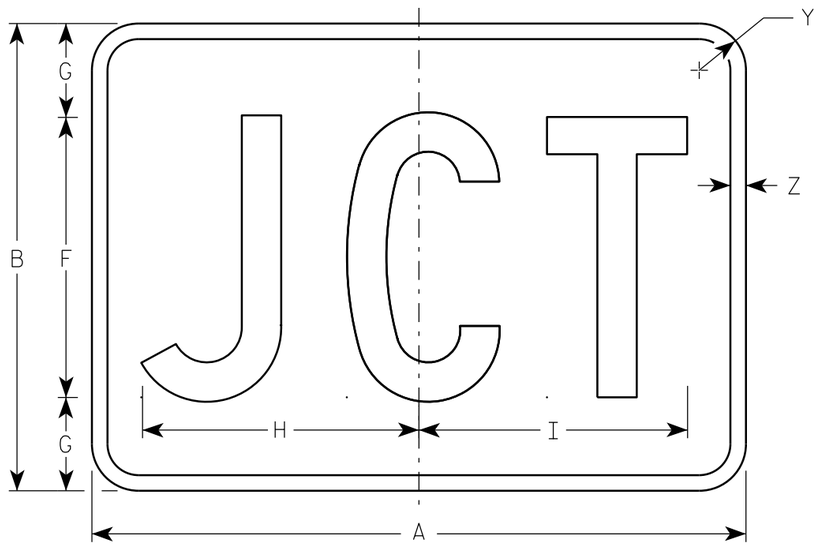
APPROVED *Chester J Spang* for State Traffic Engineer

DATE 3/20/02 PLATE NO. M1-6.9

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 102	E



M2-1
MK2-1
MM2-1
MN2-1
MR2-1



MB2-1

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
   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

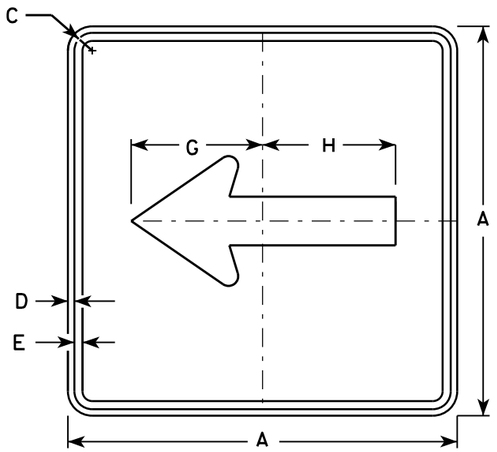
STANDARD SIGN
M2-1

WISCONSIN DEPT OF TRANSPORTATION

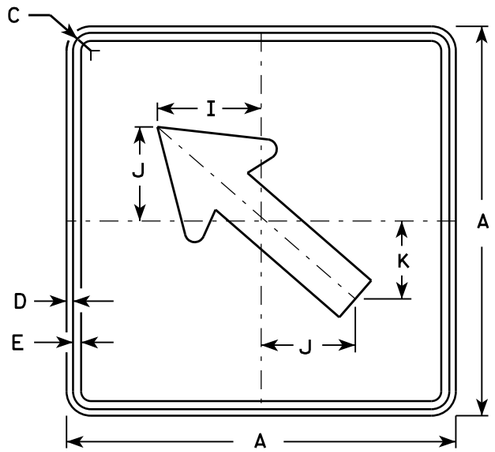
APPROVED Matthew R Rauch
For State Traffic Engineer

DATE 6/30/14 PLATE 103 12-1.11

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E



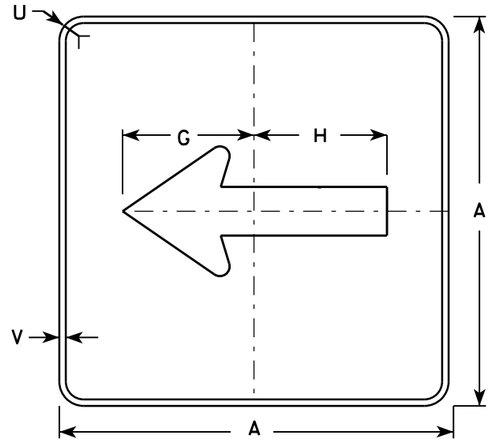
M6-1
MK6-1
MM6-1
MN6-1
MO6-1
MP6-1
MR6-1



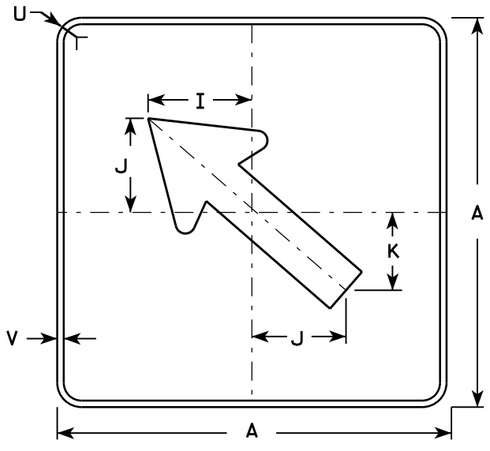
M6-2
MK6-2
MM6-2
MN6-2
MO6-2
MP6-2
MR6-2

NOTES

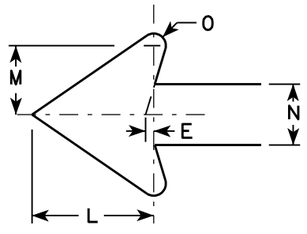
1. Signs are Type II - Type H except as Shown
2. Color:
   Background - See note 4
   Message - See note 4
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. M6-1 and M6-2 Background - White
   Message - Black
   MB6-1 and MB6-2 Background - Blue
   Message - White
   MG6-1 and MG6-2 Background - Green
   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



MB6-2



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

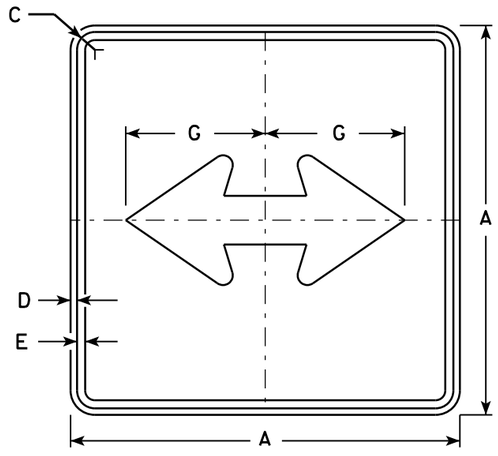
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

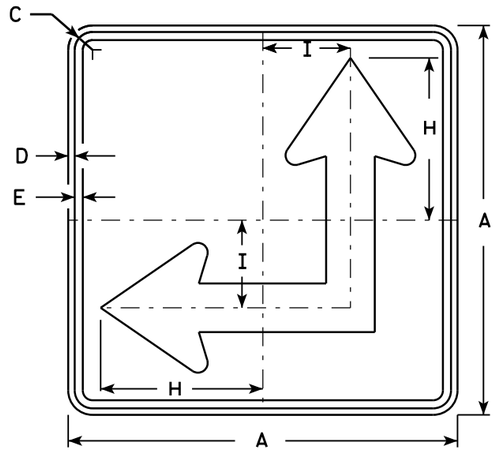
DATE 7/03/14 PLATE M6-1.14

PROJECT NO: | HWY: | COUNTY: | SHEET NO: E

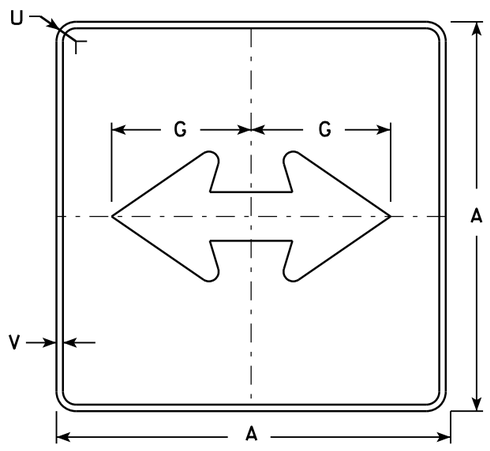
FILE NAME : C:\CAEFiles\Projects\tr_stdplate\M61.DGN PLOT DATE : 03-JUL-2014 14:28 PLOT BY : mscsja PLOT NAME : PLOT SCALE : 11.675051:1.000000



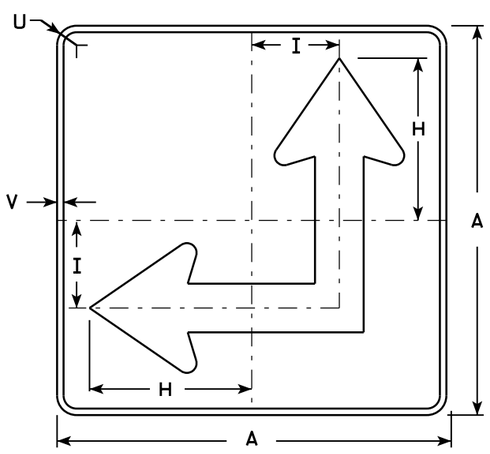
M6-4
MK6-4
MM6-4
MN6-4
MO6-4
MP6-4
MR6-4



M6-6
MK6-6
MM6-6
MN6-6
MO6-6
MP6-6
MR6-6



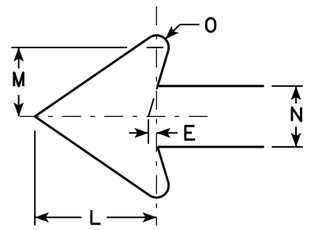
MB6-4



MB6-6

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.



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

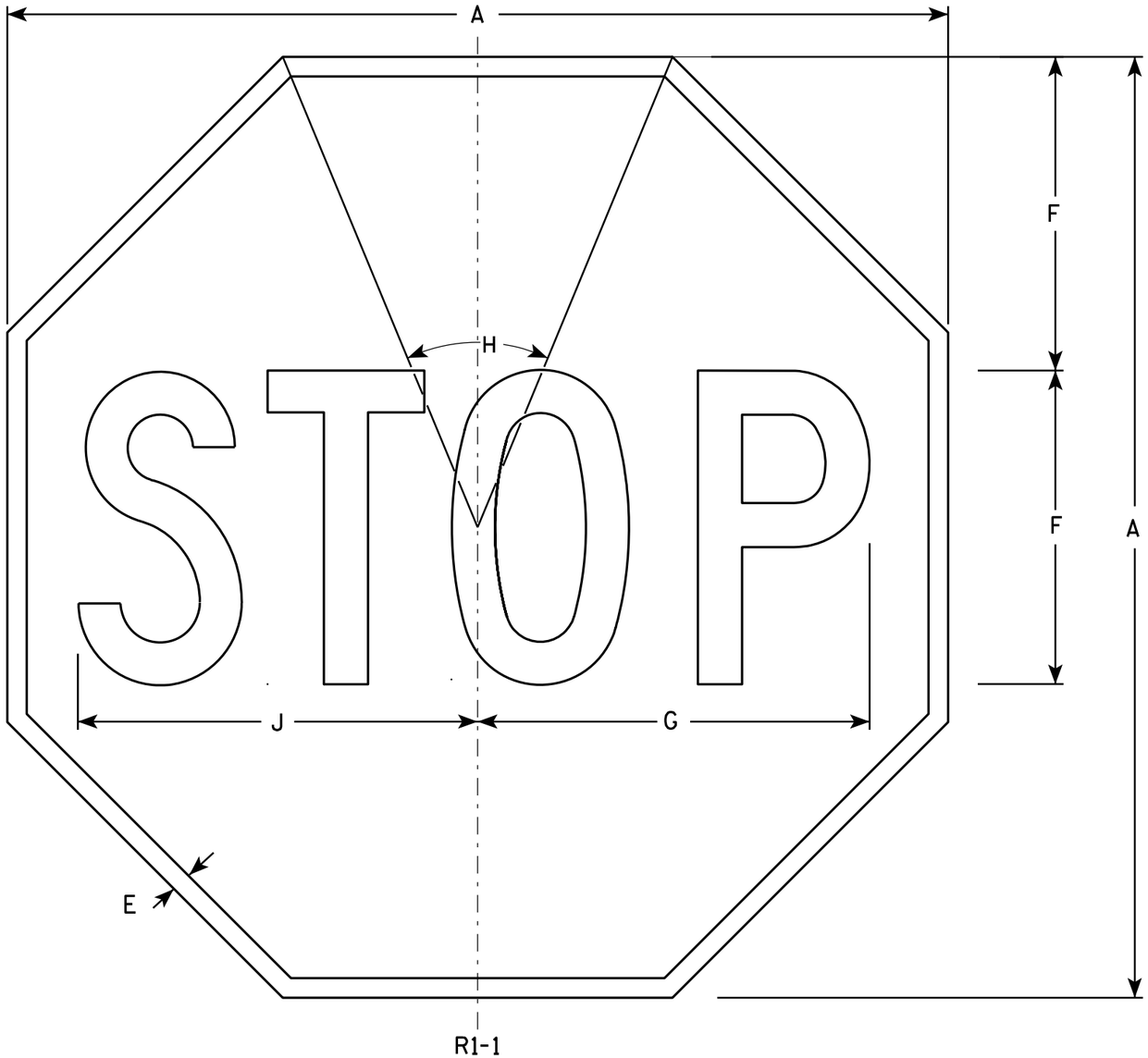
STANDARD SIGN M6-4 & M6-6 SERIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch for State Traffic Engineer

DATE 7/03/14 PLATE M6-4.9

PROJECT NO: | HWY: | COUNTY: | SHEET NO: E



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	24				3/8	8	10	45°		10 1/4																	3.31
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

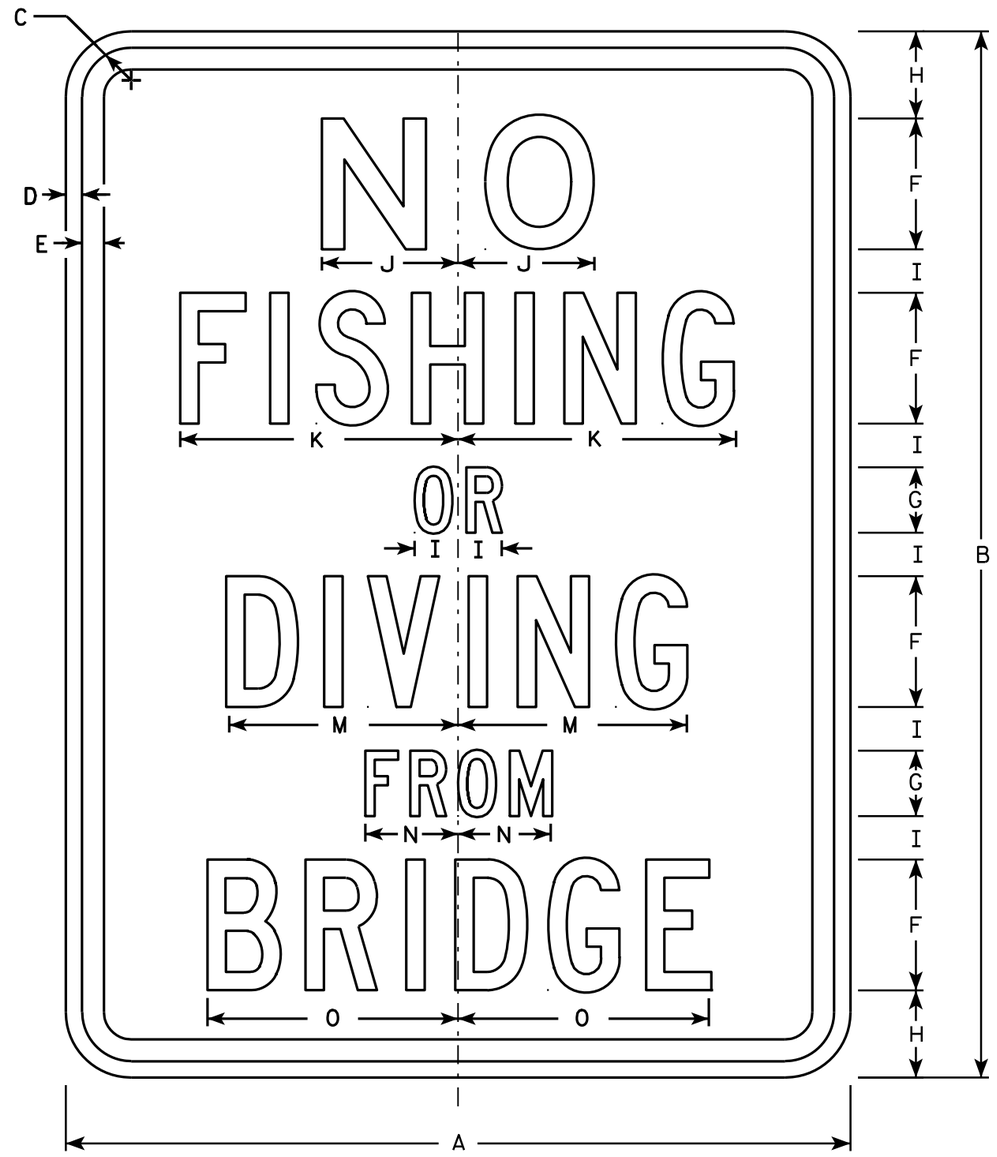
STANDARD SIGN
R1-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 12/03/10 PLATE NO. R1-1.12

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 106	E



R9-56

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 - 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 E.
   Lines 2, 3, 4, 5 and 6 are 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																											
2S	18	24	1 1/8	3/8	1/2	3	1 1/2	2	1	3 1/8	6 3/8		5 1/4	2 1/8	5 3/4												3.0
2M	18	24	1 1/8	3/8	1/2	3	1 1/2	2	1	3 1/8	6 3/8		5 1/4	2 1/8	5 3/4												3.0
3																											
4																											
5																											

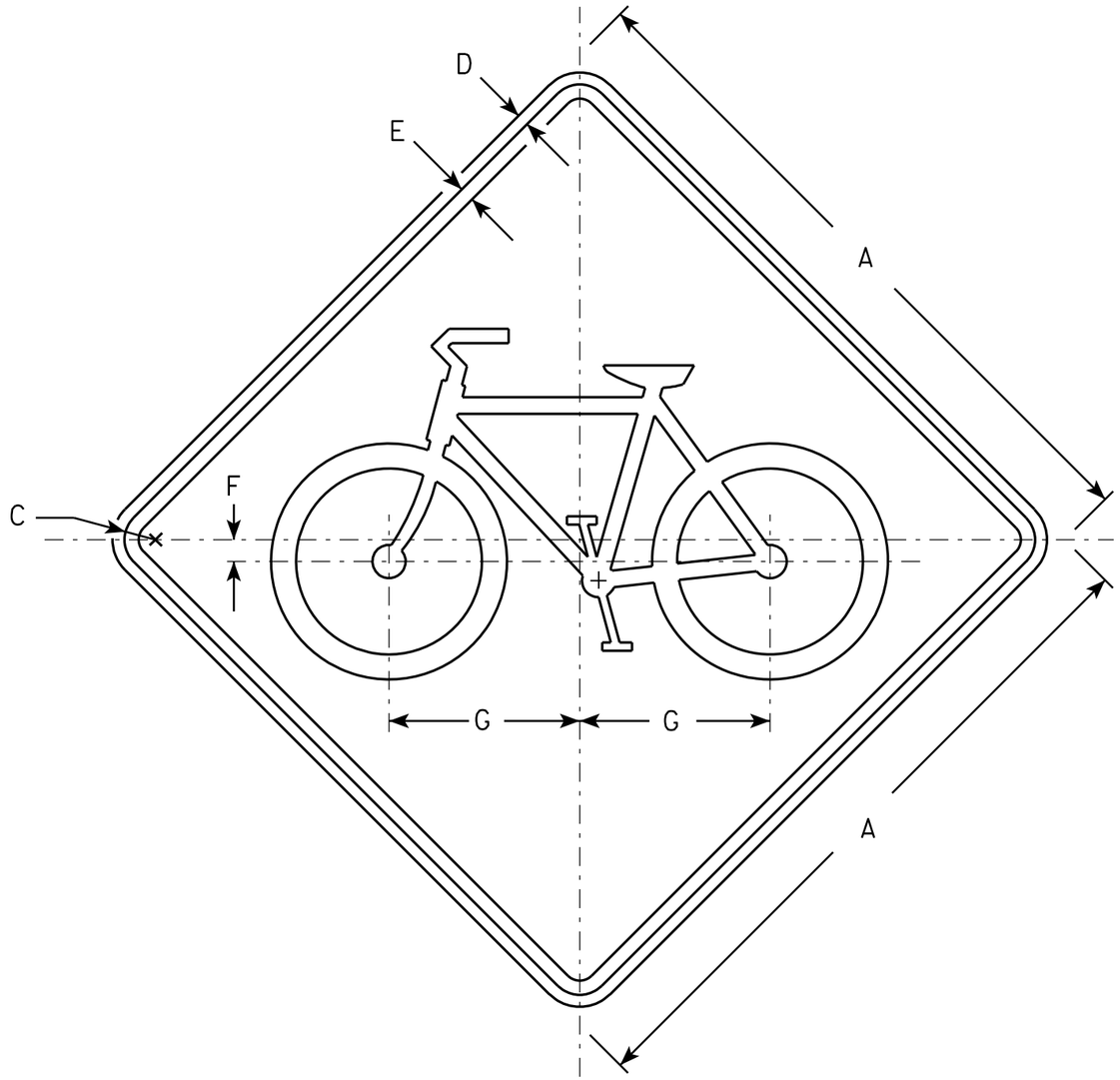
STANDARD SIGN
R9-56

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 4/4/2011 PLATE NO. R9-56.5

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 107	E



W11-1

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
   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	24		1 1/8	3/4	1/2	3/4	6 5/8																				4.0
2S	30		1 3/8	1/2	5/8	1	8 1/2																				6.25
2M	36		1 5/8	5/8	3/4	1 1/4	10																				9.0
3	36		1 5/8	5/8	3/4	1 1/4	10																				9.0
4	48		2 1/4	3/4	1	1 5/8	13 3/8																				16.0
5																											16.0

STANDARD SIGN
W11-1

WISCONSIN DEPT OF TRANSPORTATION

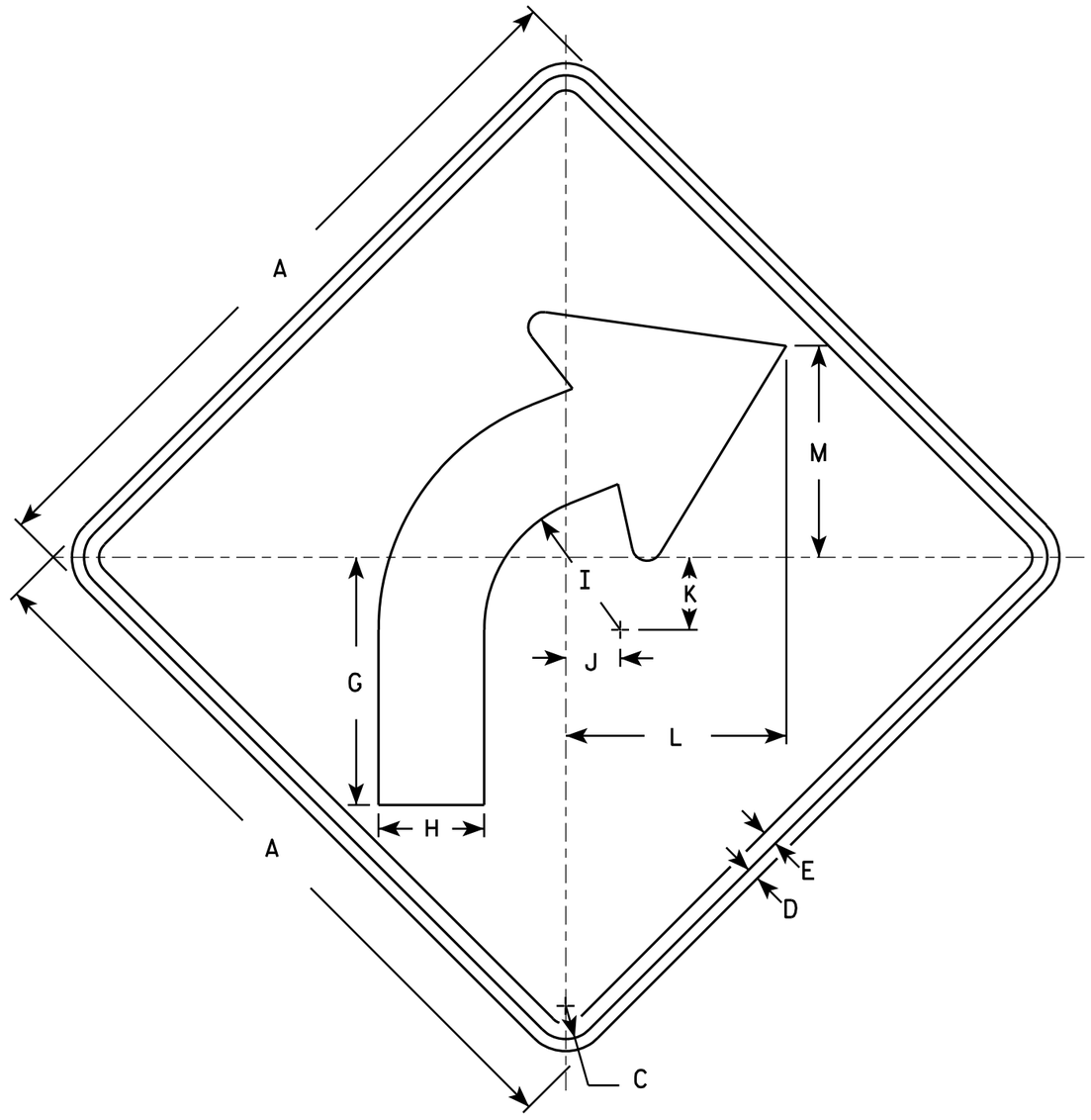
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 12/21/10 PLATE NO. W11-1.9

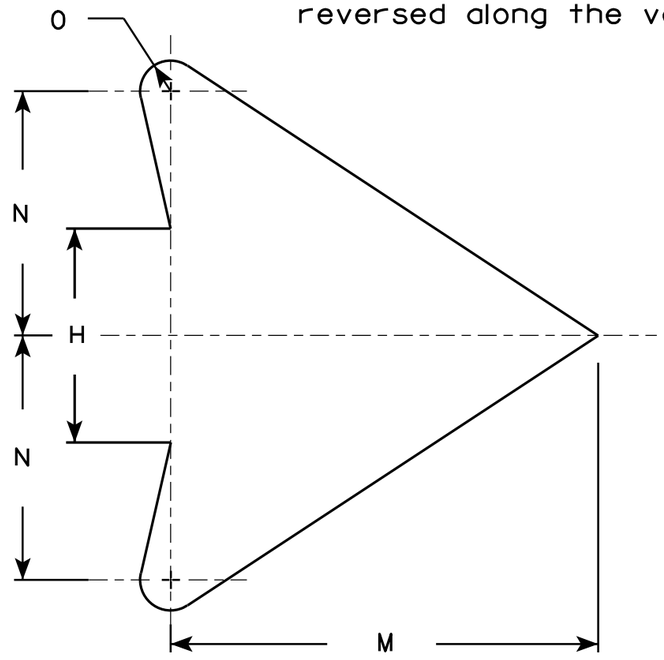
PROJECT NO: | HWY: | COUNTY: | SHEET NO: 108 | E

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. W1-2L is the same as W1-2R except the arrow is reversed along the vertical centerline.



W1-2R



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		8 1/4	3 1/2	4 1/2	1 3/4	2 3/8	7 1/4	7	4	1/2												4.0
2S	30		1 3/8	1/2	5/8		10 1/4	4 3/8	5 5/8	2 1/4	3	9 1/8	8 3/4	5	5/8												6.25
2M	36		1 5/8	5/8	3/4		12 3/8	5 1/4	6 3/4	2 5/8	3 1/2	10 7/8	10 1/2	6	3/4												9.0
3	36		1 5/8	5/8	3/4		12 3/8	5 1/4	6 3/4	2 5/8	3 1/2	10 7/8	10 1/2	6	3/4												9.0
4	36		1 5/8	5/8	3/4		12 3/8	5 1/4	6 3/4	2 5/8	3 1/2	10 7/8	10 1/2	6	3/4												9.0
5	48		2 1/4	3/4	1		16 1/2	7	9	3 1/2	4 5/8	14 1/2	14	8	1												16.0

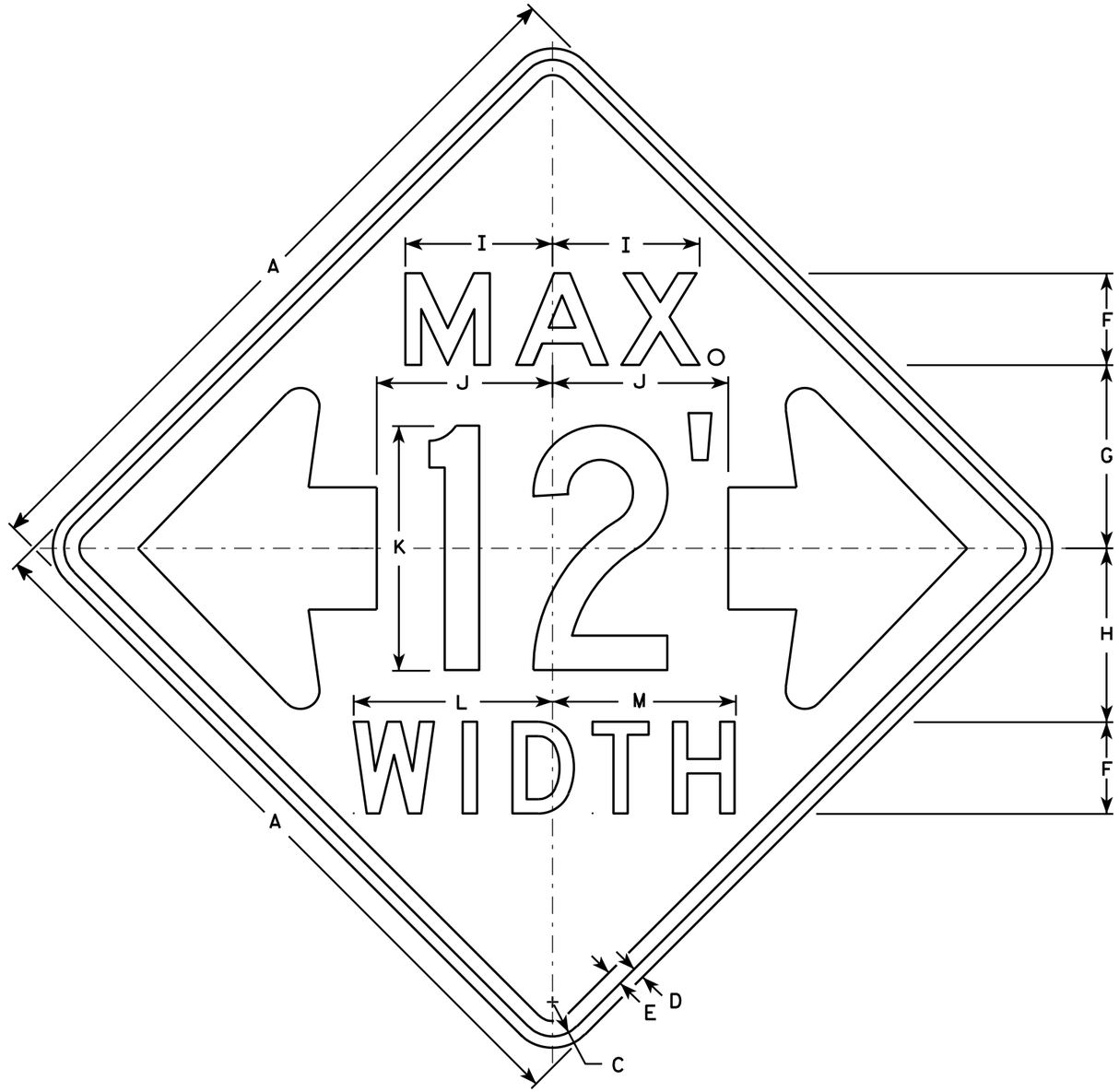
STANDARD SIGN
W1-2

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 5/15/12 PLATE NO. W1-2.10

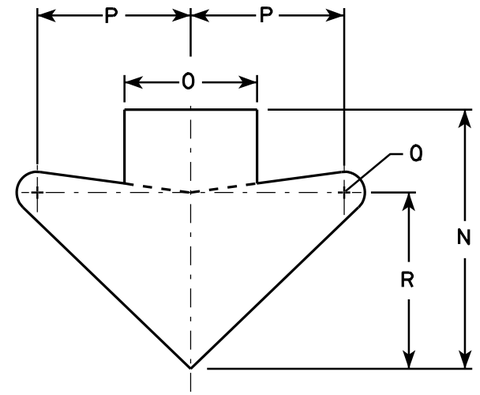
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 109	E



W12-52

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. The top line is series E, the numerals are series C, and the bottom line is series D.
6. Substitute appropriate numerals and adjust spacing as required.



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																											
2S	48		2 1/4	3/4	1	6	12	11 3/8	9 5/8	11 1/2	16	13	12	15 5/8	8	9 1/4	1 1/4	10 5/8									16.0
2M	48		2 1/4	3/4	1	6	12	11 3/8	9 5/8	11 1/2	16	13	12	15 5/8	8	9 1/4	1 1/4	10 5/8									16.0
3																											
4																											
5																											

STANDARD SIGN
W12-52

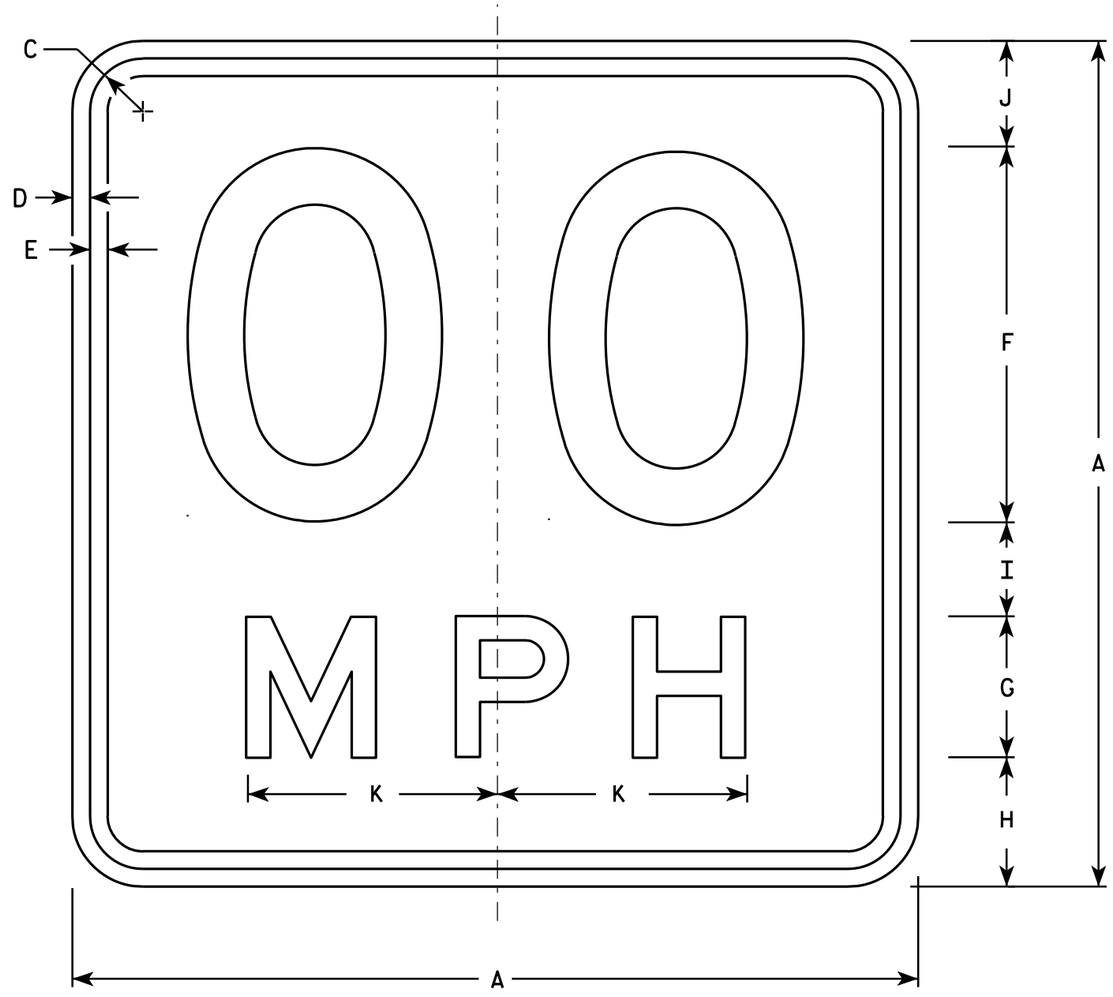
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/16/11 PLATE NO. W12-52.7

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 110 | E

FILE NAME : C:\Users\PROJECTS\tr_stdplate\W1252.DGN PLOT DATE : 16-MAR-2011 14:45 PLOT BY : mscj9h PLOT NAME : PLOT SCALE : 9.137199:1.000000
WISDOT/CADDS SHEET 42



W13-1

* For 30" x 30" Warning Signs, use 18" x 18" W13-1 signs.
For 36" x 36" Warning Signs, use 24" x 24" W13-1 signs.

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. 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	18		1 1/8	3/8	3/8	8	3	2 3/4	2	2 1/4	5 3/8																2.25
*	2S	18		1 1/8	3/8	3/8	8	3	2 3/4	2	2 1/4	5 3/8																2.25
*	2M	18		1 1/8	3/8	3/8	8	3	2 3/4	2	2 1/4	5 3/8																2.25
	3	24		1 1/8	3/8	1/2	10	4	4	2 3/4	3 1/4	6 5/8																4.00
	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
W13-1

WISCONSIN DEPT OF TRANSPORTATION

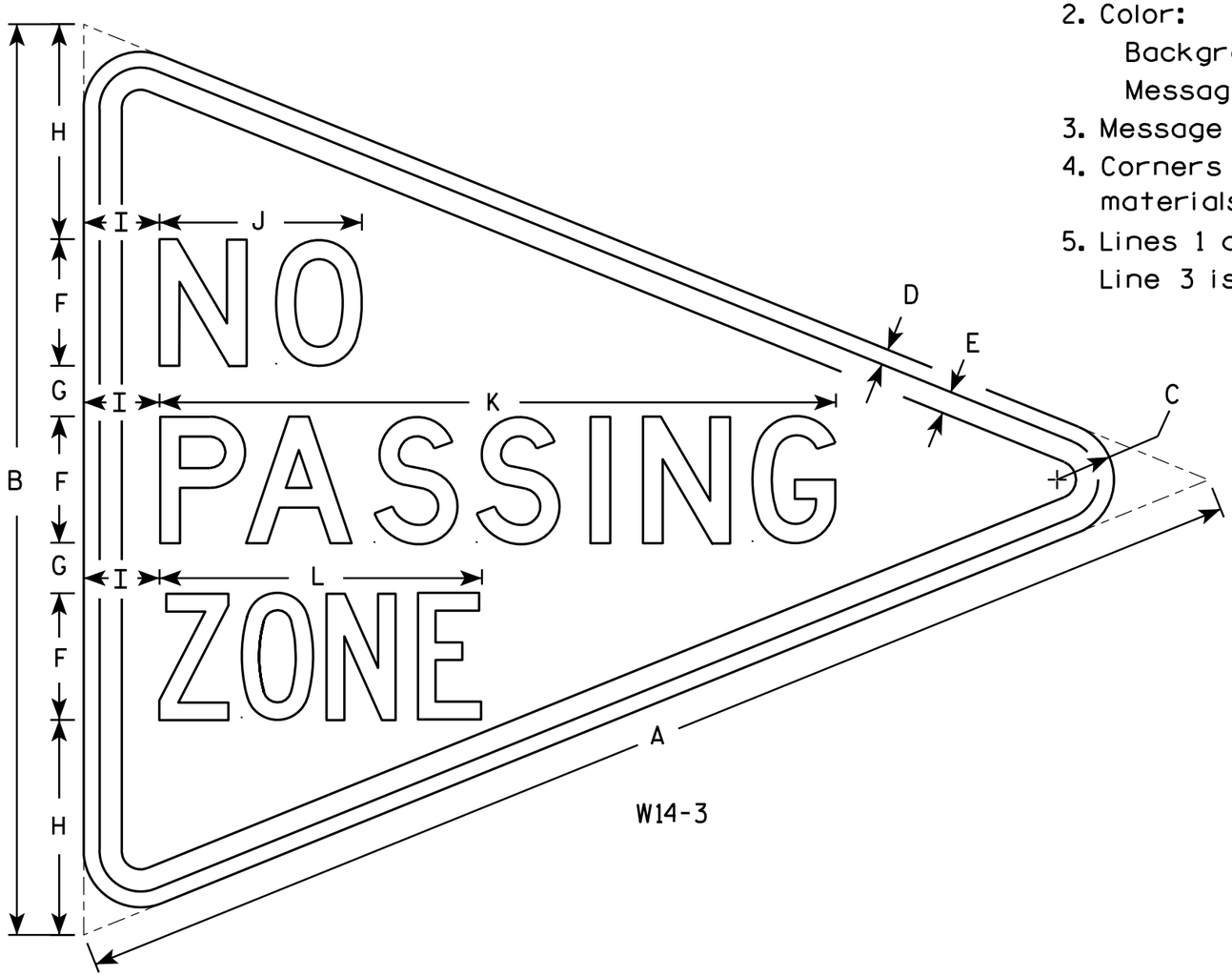
APPROVED Matthew R Rauch
For State Traffic Engineer

DATE 5/31/12 PLATE NO. W13-1.16

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 111 | E

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. Message Series - See note 5
4. Corners and borders shall be rounded on all base materials for this sign.
5. Lines 1 and 2 are Series D.
   Line 3 is series C.



W14-3

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																											
2S	48	36	2 1/4	5/8	7/8	5	2	8 1/2	3	8	26 3/4	12 3/4															6.0
2M	48	36	2 1/4	5/8	7/8	5	2	8 1/2	3	8	26 3/4	12 3/4															6.0
3	64	48	3	3/4	1 1/4	6	3	12	4	10 3/4	33 5/8	16 1/2															10.7
4																											
5																											

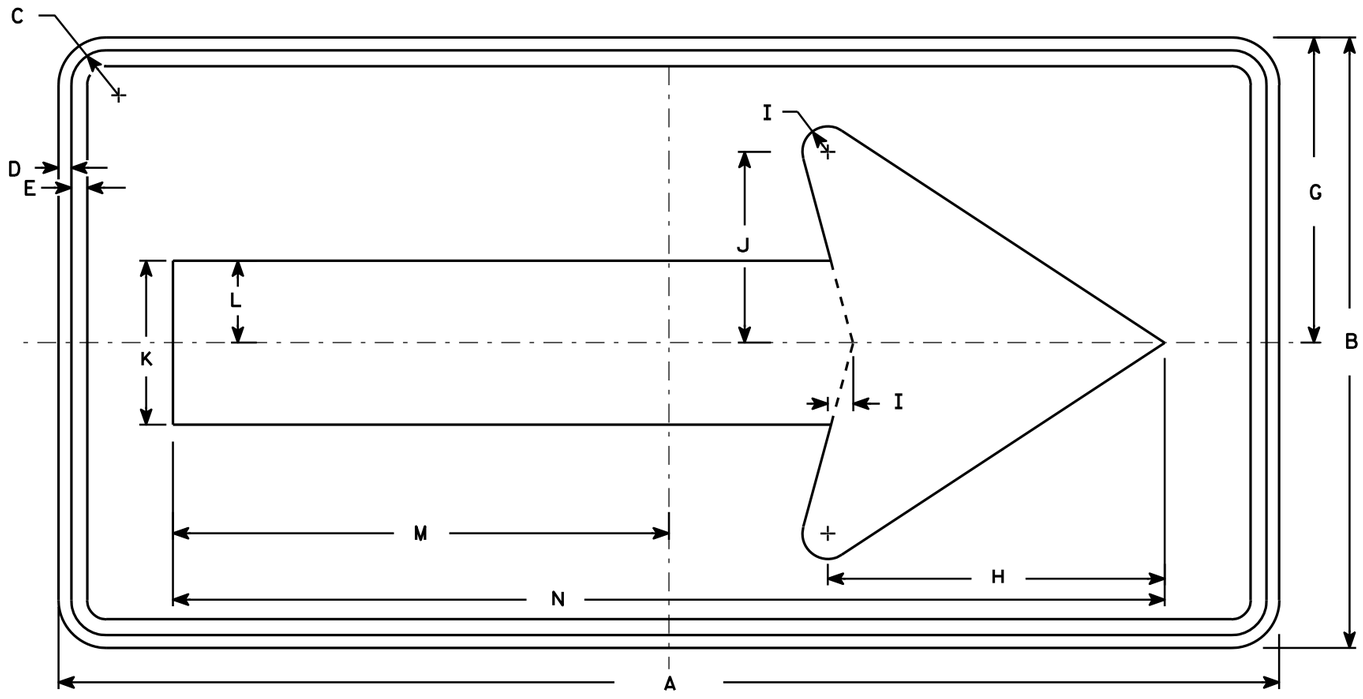
STANDARD SIGN
W14-3

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 6/7/10 PLATE NO. W14-3.9

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 112	E



W1-6

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.

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	18	1 1/8	3/8	3/8		9	10	3/4	5 5/8	4 3/4	2 3/8	14 5/8	29 1/4													4.5
2S	48	24	1 3/8	1/2	5/8		12	13 1/4	1	7 1/2	6 1/2	3 1/4	19 1/2	39													8.0
2M	48	24	1 3/8	1/2	5/8		12	13 1/4	1	7 1/2	6 1/2	3 1/4	19 1/2	39													8.0
3	60	30	1 3/8	1/2	5/8		15	16 1/4	1 1/4	9 1/4	8	4	24 3/8	48 3/4													12.5
4	60	30	1 3/8	1/2	5/8		15	16 1/4	1 1/4	9 1/4	8	4	24 3/8	48 3/4													12.5
5	96	48	2 1/4	3/4	1		24	26 1/2	2	15	13	6 1/2	39	78													32.0

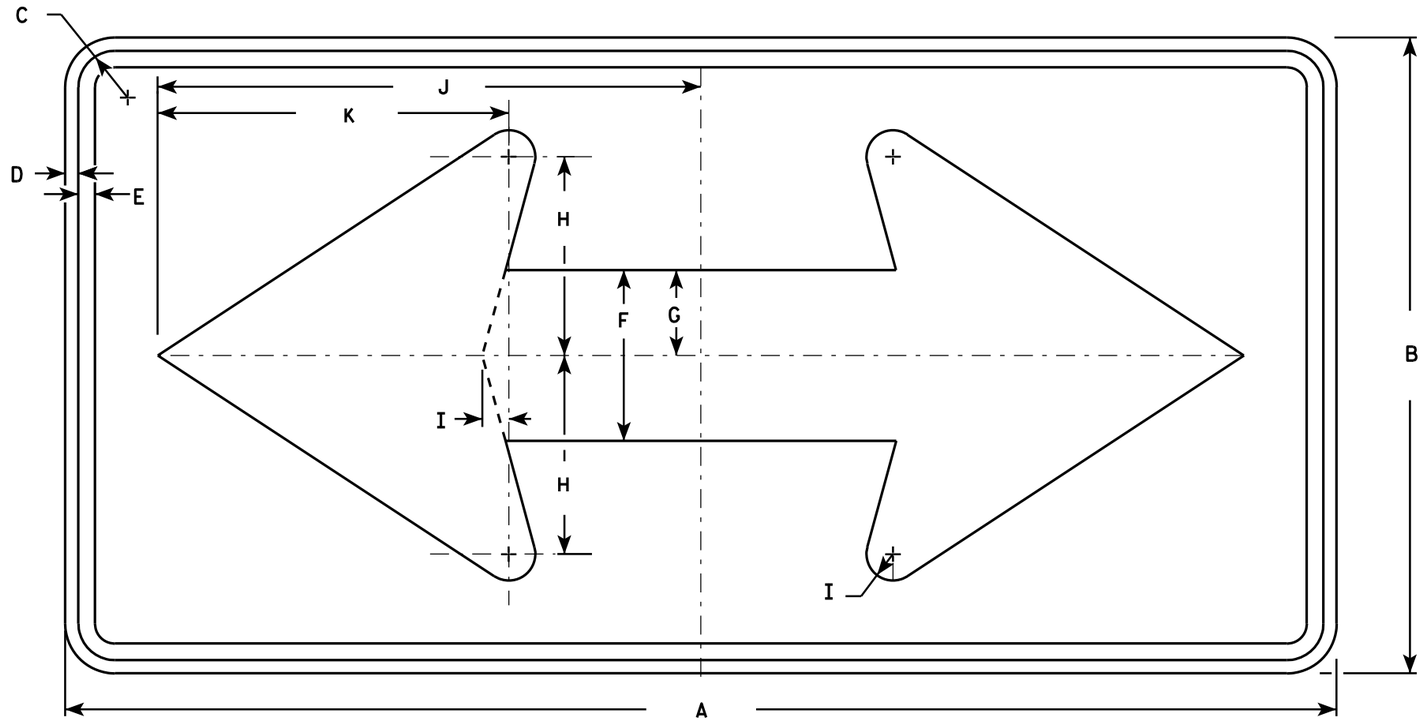
STANDARD SIGN
W1-6

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 6/7/10 PLATE NO. W1-6.8

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 113



W1-7

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.

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	18	1 1/8	3/8	1/2	5	2 1/2	5 3/4	3/4	15 5/8	10 1/8																4.5
2S	48	24	1 3/8	1/2	5/8	6 1/2	3 1/4	7 1/2	1	20 1/2	13 1/4																8.0
2M	48	24	1 3/8	1/2	5/8	6 1/2	3 1/4	7 1/2	1	20 1/2	13 1/4																8.0
3	60	30	1 3/8	1/2	5/8	8	4	9 1/4	1 1/4	25 3/8	16 1/4																12.5
4	60	30	1 3/8	1/2	5/8	8	4	9 1/4	1 1/4	25 3/8	16 1/4																12.5
5	96	48	2 1/4	3/4	1	13	6 1/2	15	2	41	26 1/2																32.0

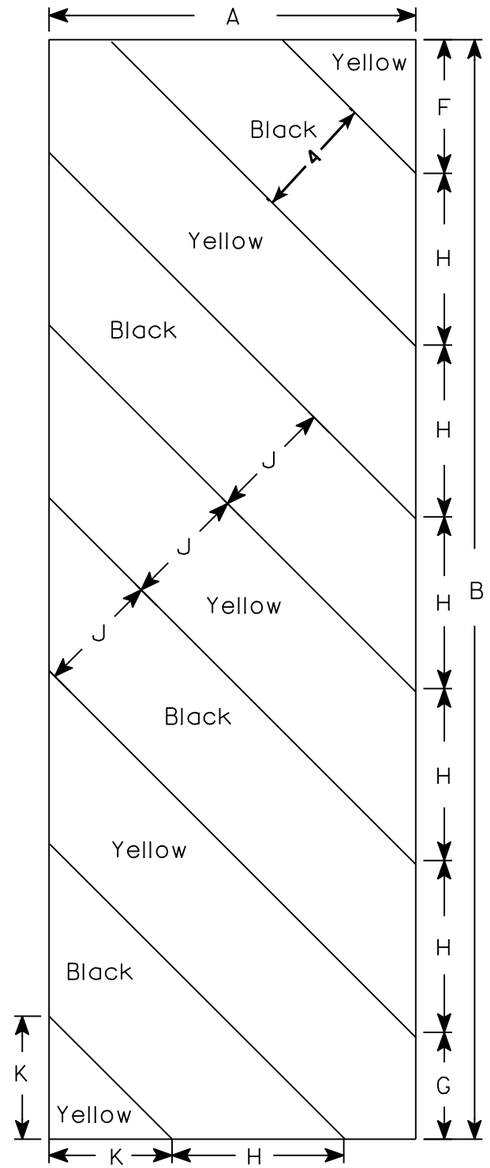
STANDARD SIGN
W1-7

WISCONSIN DEPT OF TRANSPORTATION

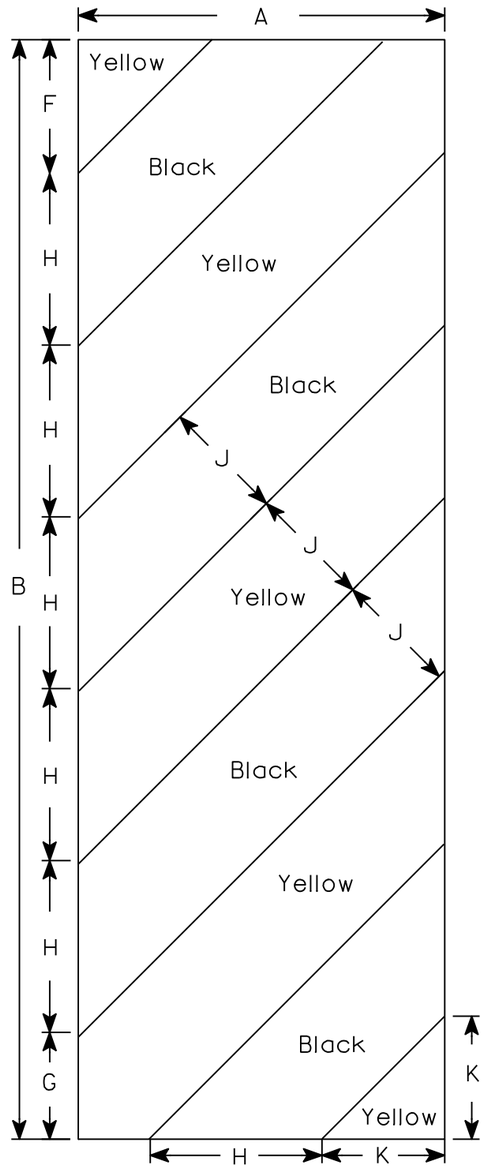
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 6/7/10 PLATE NO. W1-7.7

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 114 | 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

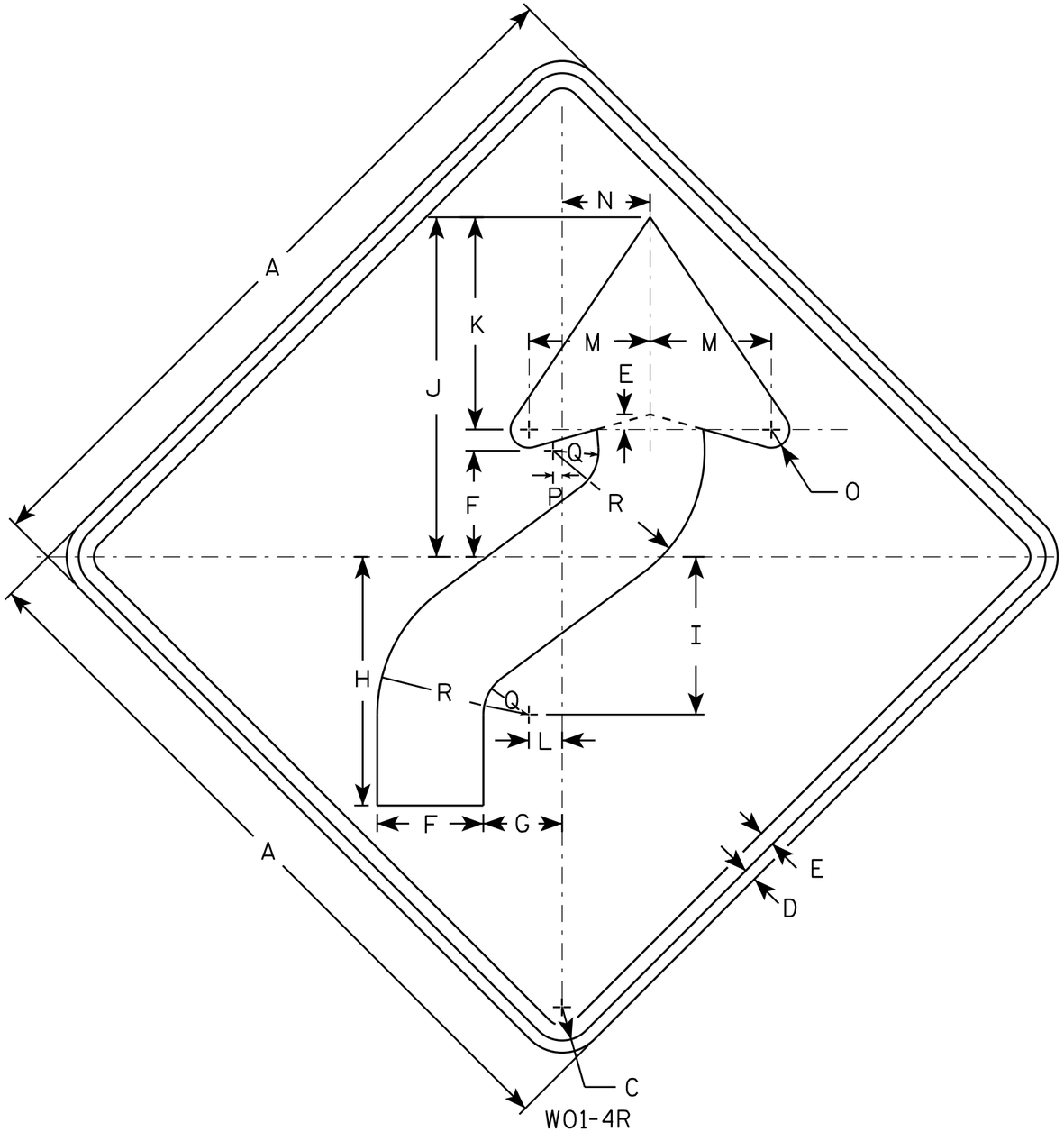
W5-52L & W5-52R

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: 115 | E



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

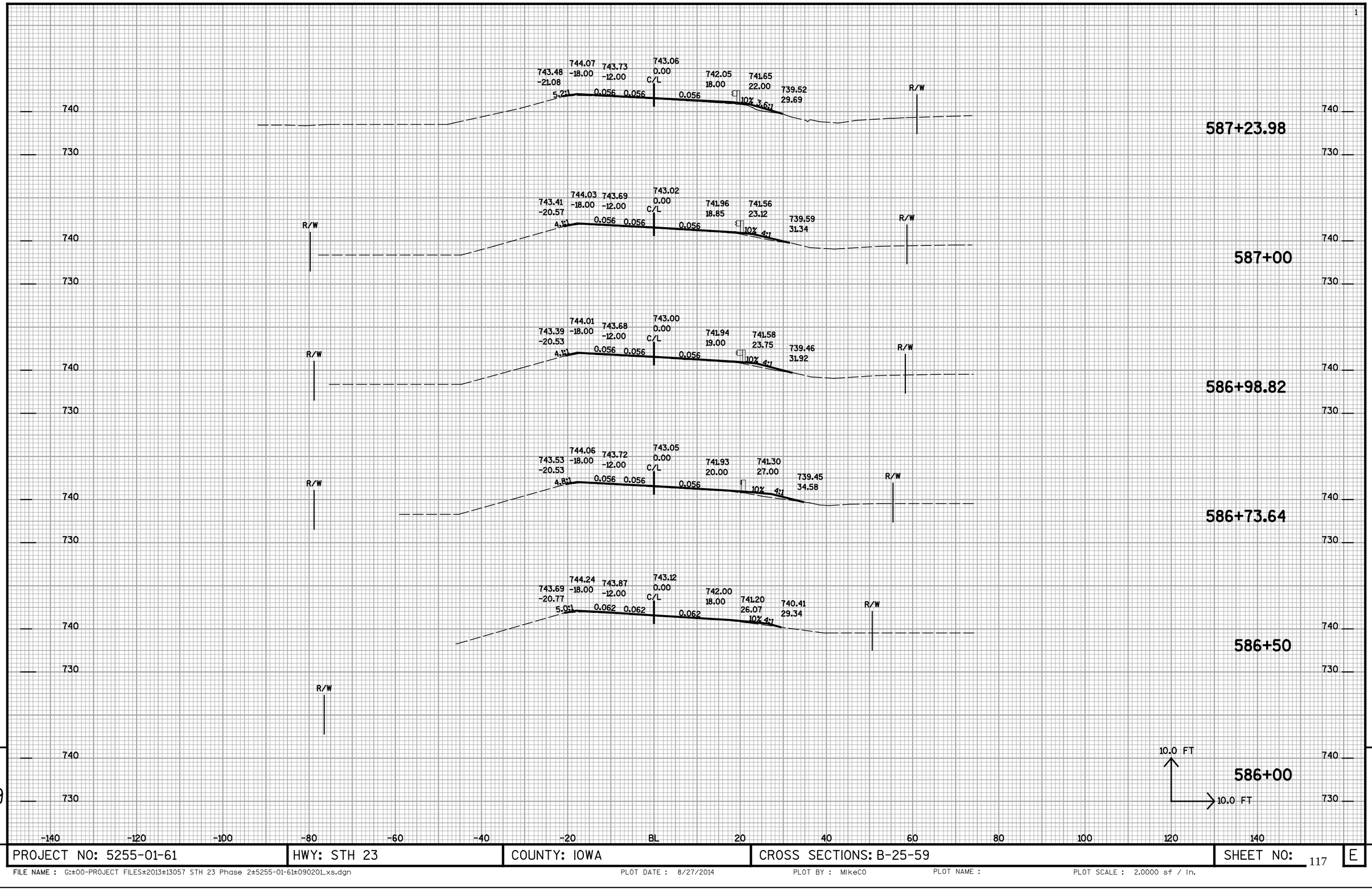
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 11/18/13 PLATE NO W01-4.1

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

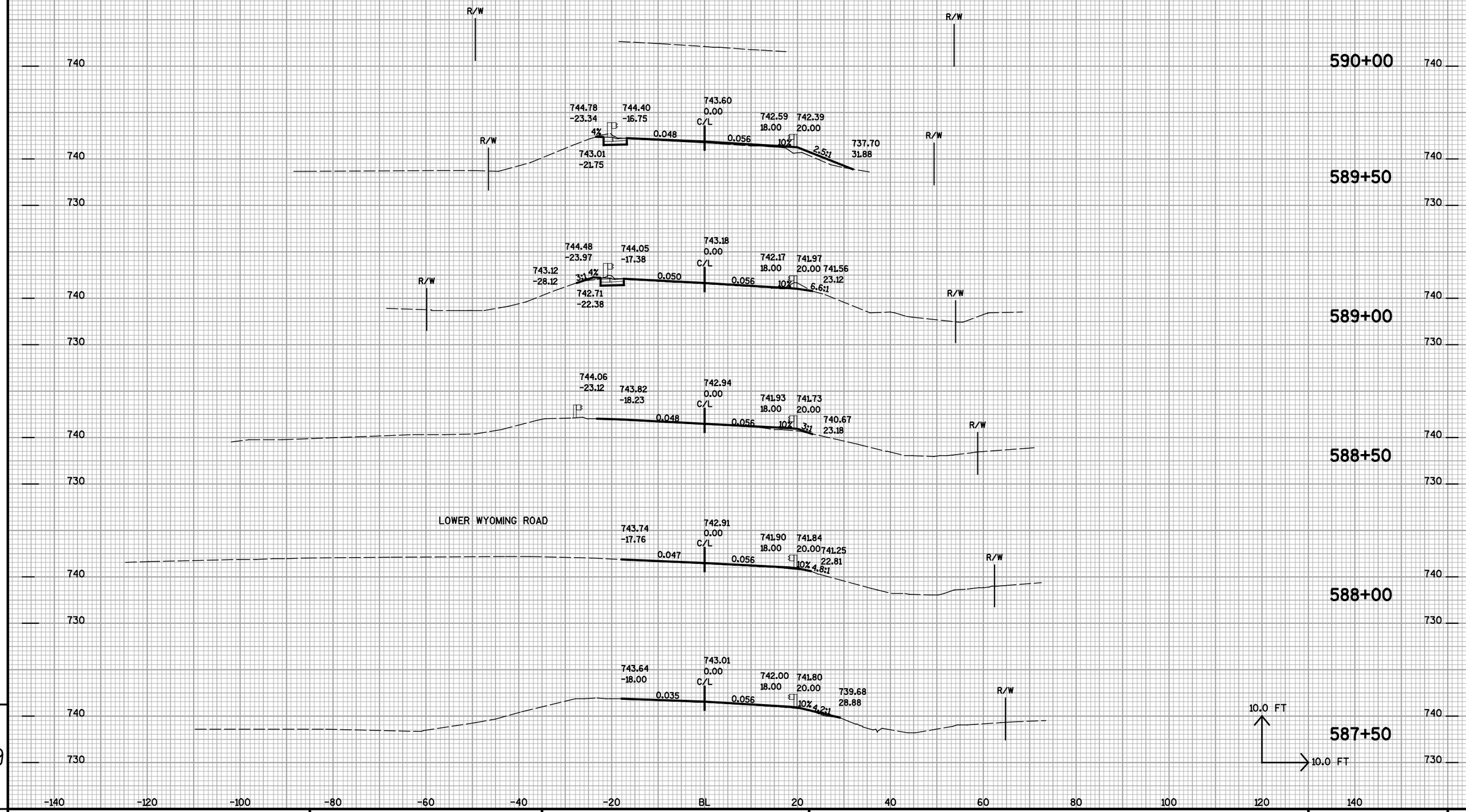
FILE NAME : C:\CAEfiles\Projects\tr_stdplate\W014.DGN PLOT DATE : 28-FEB-2014 11:35 PLOT BY : mscj9h PLOT NAME : PLOT SCALE : 6.755110:1.000000 WISDOT/CADDS SHEET 42



PROJECT NO: 5255-01-61	HWY: STH 23	COUNTY: IOWA	CROSS SECTIONS: B-25-59	SHEET NO: 117	E

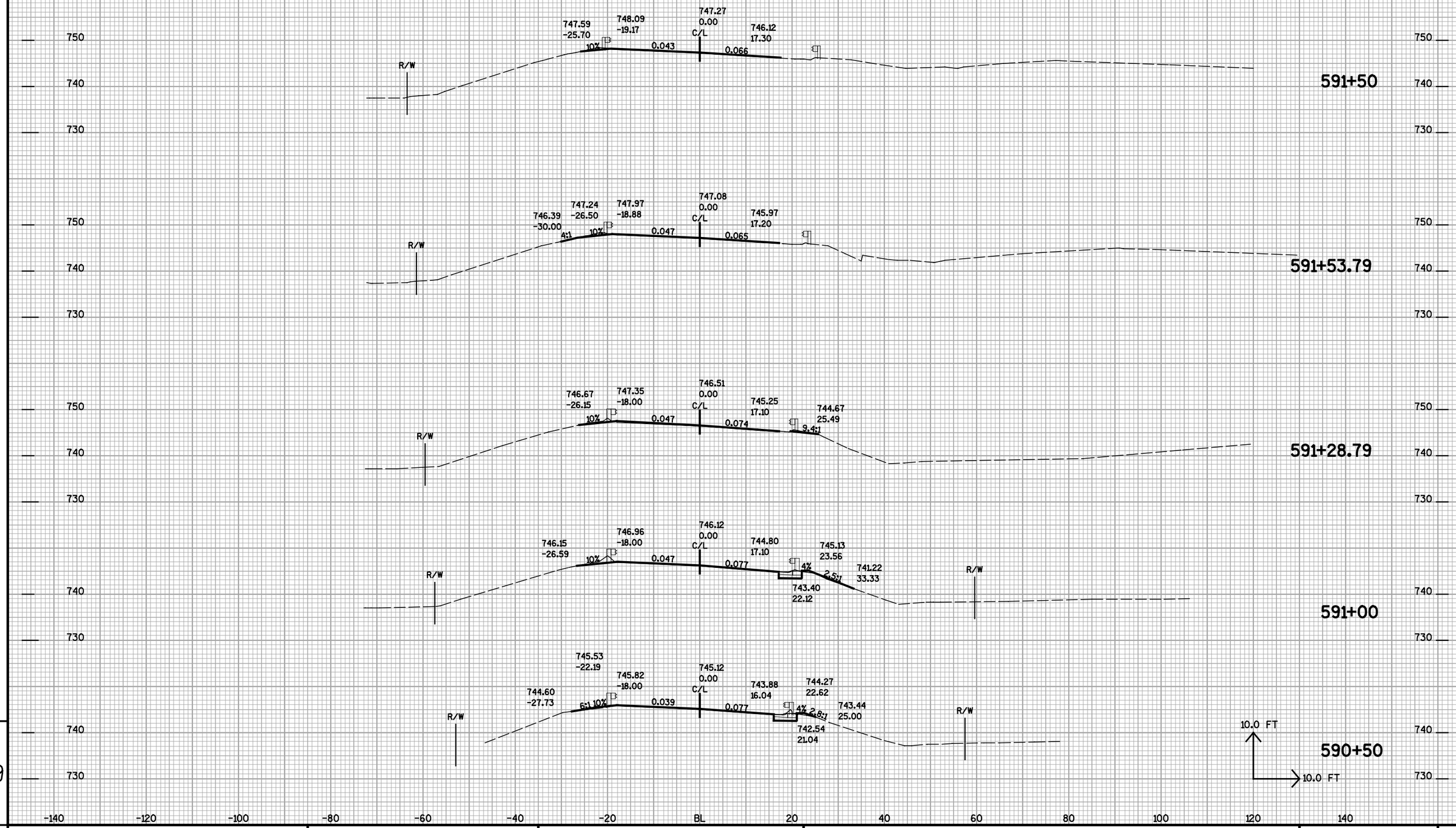
FILE NAME : G:±00-PROJECT FILES±2013±13057 STH 23 Phase 2±5255-01-61±090201_xs.dgn PLOT DATE : 8/27/2014 PLOT BY : MIkeCO PLOT NAME : PLOT SCALE : 2.0000 sf / in.

STRUCTURE B-25-59



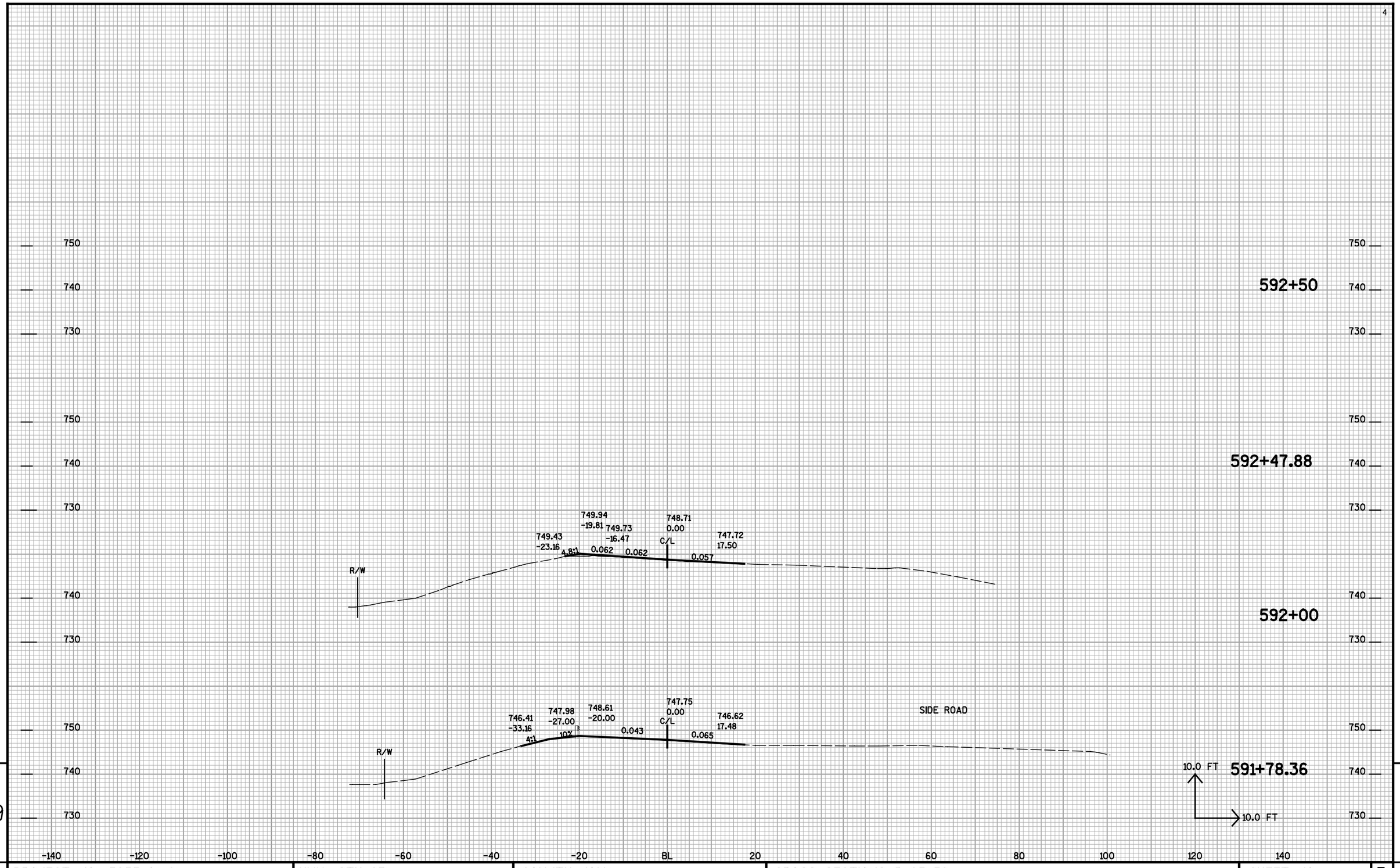
PROJECT NO: 5255-01-61	HWY: STH 23	COUNTY: IOWA	CROSS SECTIONS: B-25-59	SHEET NO: 118	E

FILE NAME : G:±00-PROJECT FILES±2013±13057 STH 23 Phase 2±5255-01-61±090201_xs.dgn PLOT DATE : 8/27/2014 PLOT BY : MIkeCO PLOT NAME : PLOT SCALE : 2.0000 sf / in.



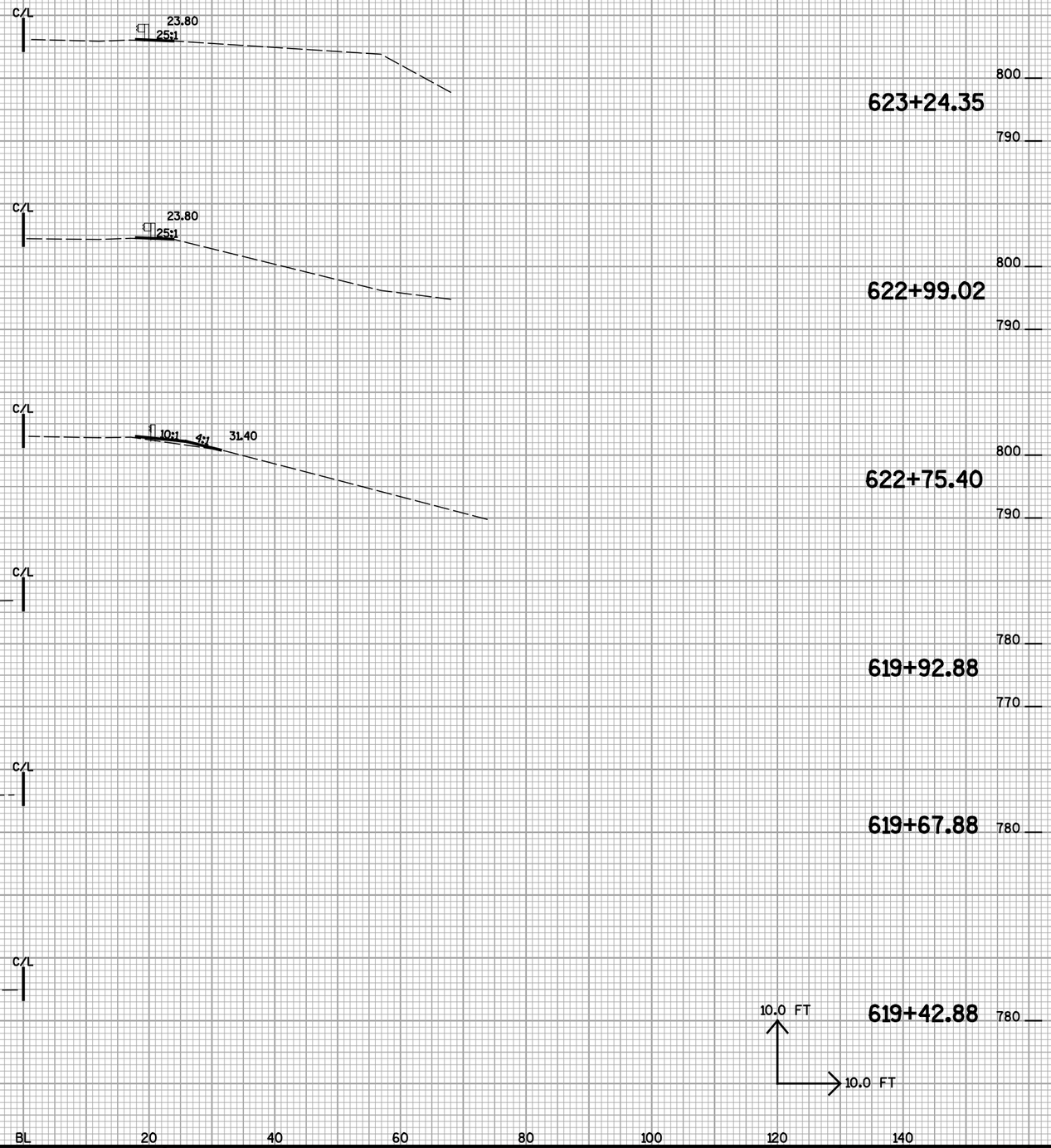
PROJECT NO: 5255-01-61	HWY: STH 23	COUNTY: IOWA	CROSS SECTIONS: B-25-59	SHEET NO: 119	E

FILE NAME : G:±00-PROJECT FILES±2013±13057 STH 23 Phase 2±5255-01-61±090201_xs.dgn PLOT DATE : 8/28/2014 PLOT BY : JimO PLOT NAME : PLOT SCALE : 2.0000 sf / In.



PROJECT NO: 5255-01-61	HWY: STH 23	COUNTY: IOWA	CROSS SECTIONS: B-25-59	SHEET NO: 120	E

FILE NAME : G:±00-PROJECT FILES±2013±13057 STH 23 Phase 2±5255-01-61±090201_xs.dgn PLOT DATE : 8/28/2014 PLOT BY : JlmO PLOT NAME : PLOT SCALE : 2.0000 sf / In.

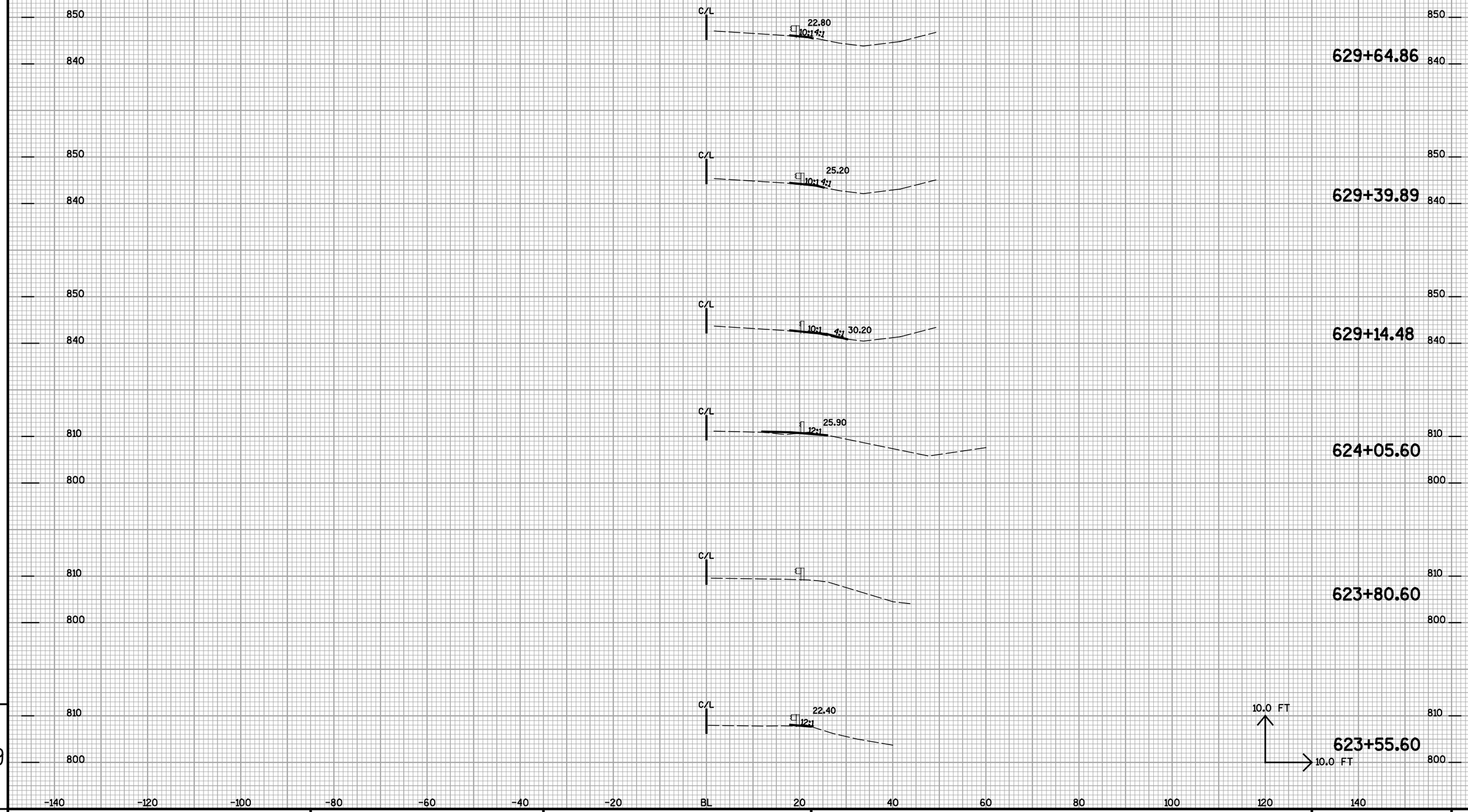


9

9

PROJECT NO: 5255-01-61	HWY: STH 23	COUNTY: IOWA	CROSS SECTIONS: MGS ENERGY ABSORBING TERMINALS	SHEET NO: 121	E

FILE NAME : G:±00-PROJECT FILES±2013±13057 STH 23 Phase 2±5255-01-61±090202_xs.dgn PLOT DATE : 8/27/2014 PLOT BY : MIkeCO PLOT NAME : PLOT SCALE : 2.0000 sf / in.

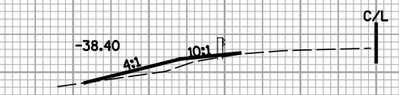


9

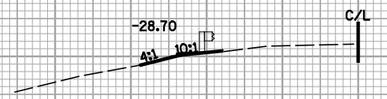
9

PROJECT NO: 5255-01-61	HWY: STH 23	COUNTY: IOWA	CROSS SECTIONS: MGS ENERGY ABSORBING TERMINALS	SHEET NO: 122	E

FILE NAME : G:±00-PROJECT FILES±2013±13057 STH 23 Phase 2±5255-01-61±090202_xs.dgn PLOT DATE : 8/27/2014 PLOT BY : MikeCO PLOT NAME : PLOT SCALE : 2.0000 sf / in.



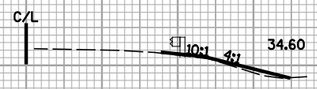
633+88.04



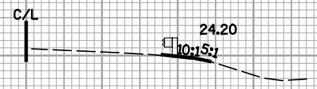
633+62.60

633+37.20

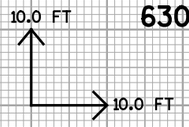
630+71.09



630+46.11



630+21.13



870 860 870 860 870 860 850

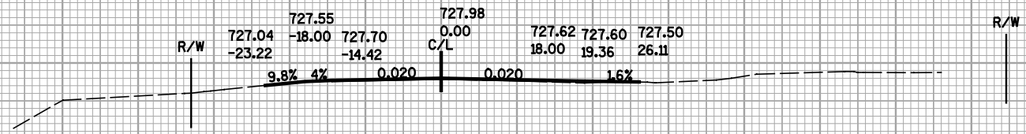
850 840 850 840 850 840

-140 -120 -100 -80 -60 -40 -20 BL 20 40 60 80 100 120 140

9 9

PROJECT NO: 5255-01-61	HWY: STH 23	COUNTY: IOWA	CROSS SECTIONS: MGS ENERGY ABSORBING TERMINALS	SHEET NO: 123	E

FILE NAME : G:±00-PROJECT FILES±2013±13057 STH 23 Phase 2±5255-01-61±090202_xs.dgn PLOT DATE : 8/28/2014 PLOT BY : JimO PLOT NAME : PLOT SCALE : 2.0000 sf / in.



707+00

706+83.97

706+76.63

706+50

706+13.97

706+00

10.0 FT
10.0 FT

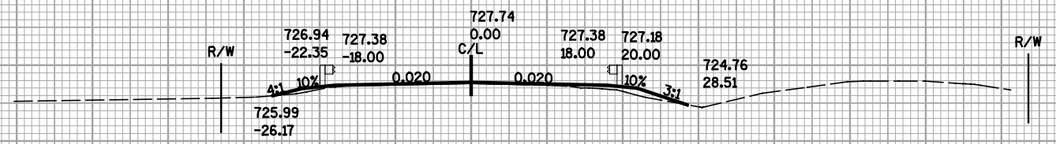
730
720

-140 -120 -100 -80 -60 -40 -20 BL 20 40 60 80 100 120 140

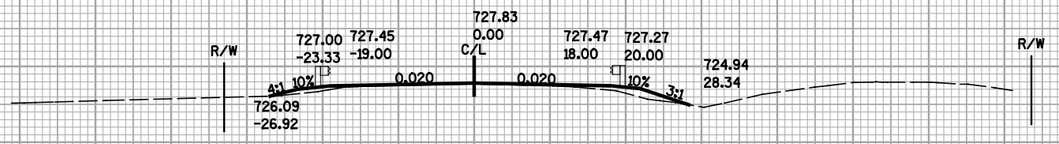
9

PROJECT NO: 5255-01-61	HWY: STH 23	COUNTY: IOWA	CROSS SECTIONS: B-25-60	SHEET NO: 124	E

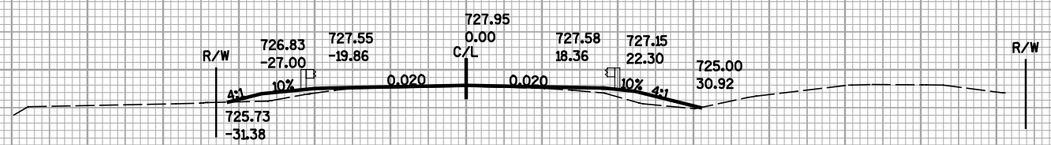
FILE NAME : G:±00-PROJECT FILES±2013±13057 STH 23 Phase 2±5255-01-61±090203_xs.dgn PLOT DATE : 8/27/2014 PLOT BY : MIkeCO PLOT NAME : PLOT SCALE : 2.0000 sf / In.



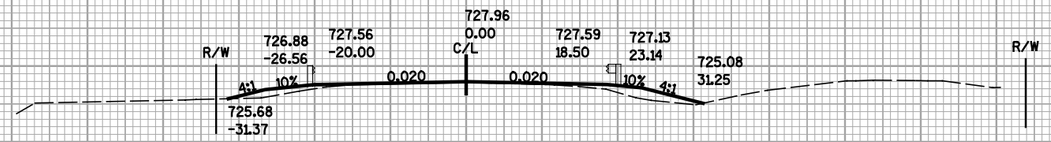
707+96.60



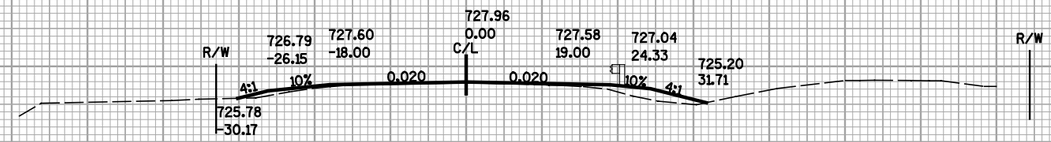
707+71.60



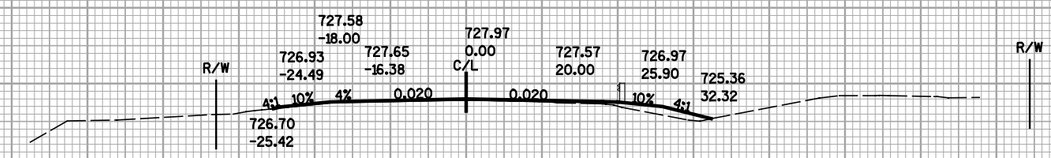
707+58.93



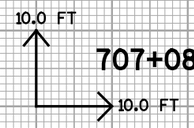
707+46.60



707+33.97



707+08.97

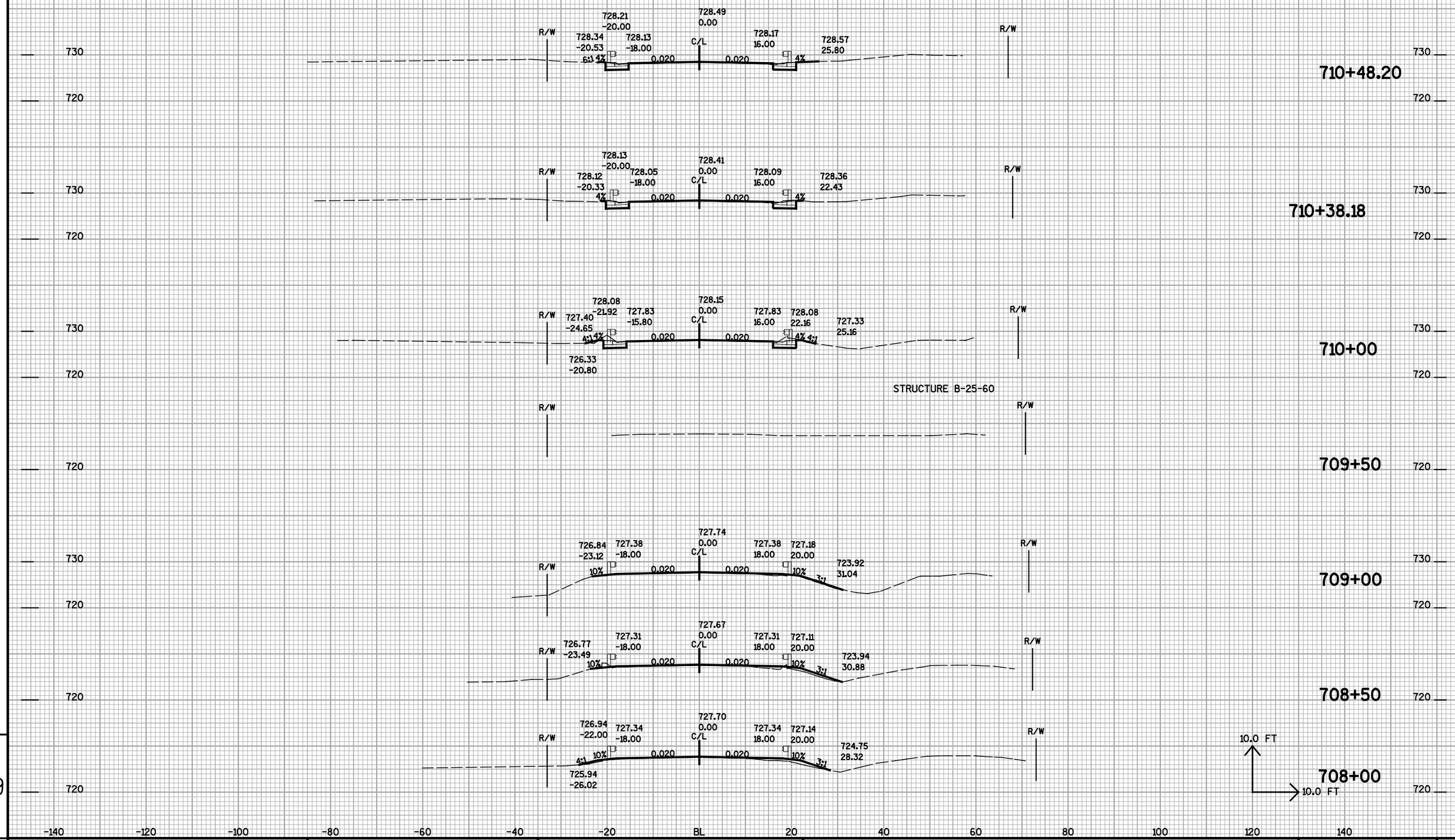


730
720
-140
-120
-100
-80
-60
-40
-20
BL
20
40
60
80
100
120
140

9

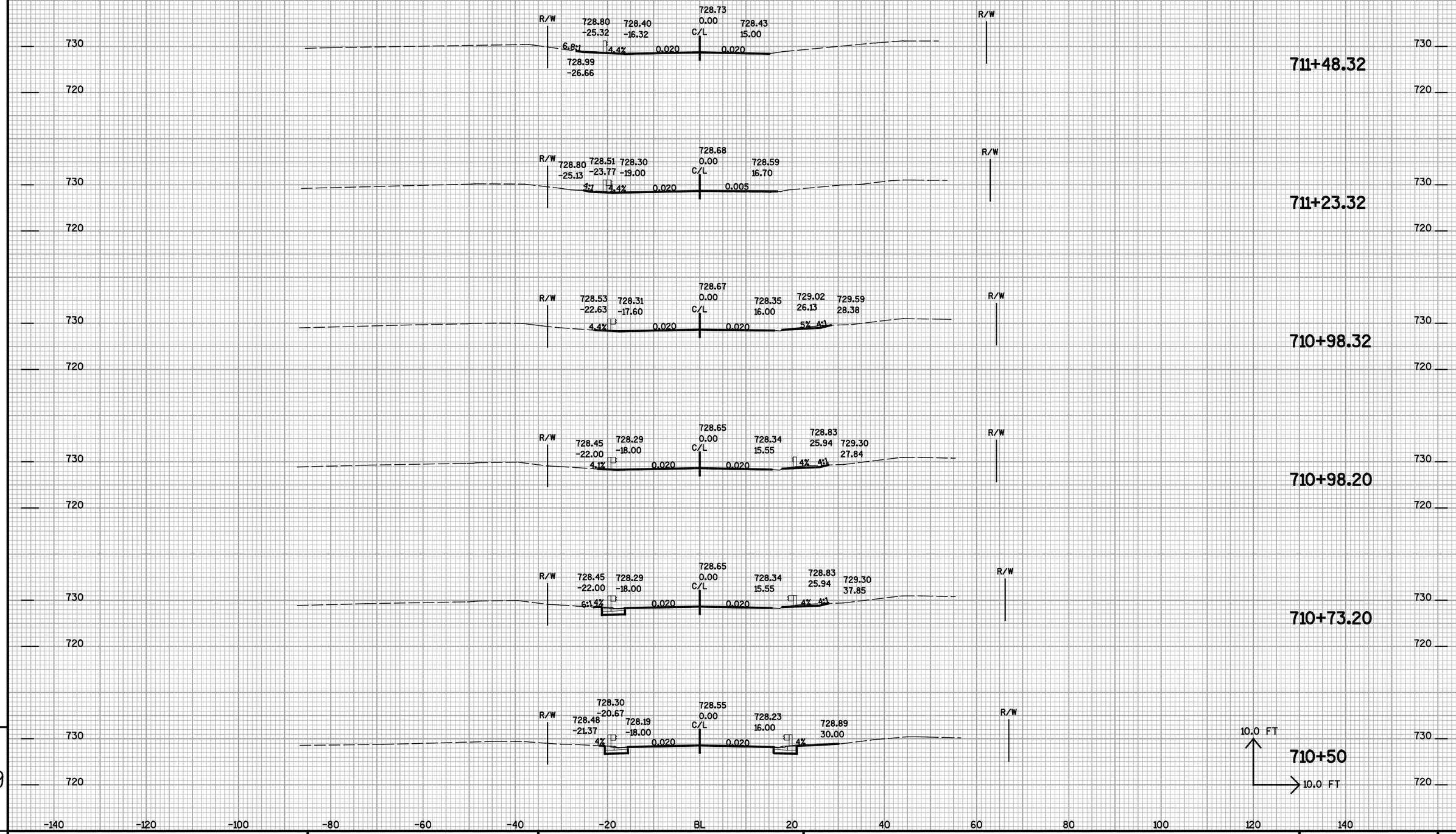
PROJECT NO: 5255-01-61	HWY: STH 23	COUNTY: IOWA	CROSS SECTIONS: B-25-60	SHEET NO: 125	E

FILE NAME : G:±00-PROJECT FILES±2013±13057 STH 23 Phase 2±5255-01-61±090203_xs.dgn PLOT DATE : 8/27/2014 PLOT BY : MIkeCO PLOT NAME : PLOT SCALE : 2.0000 sf / In.



PROJECT NO: 5255-01-61	HWY: STH 23	COUNTY: IOWA	CROSS SECTIONS: B-25-60	SHEET NO: 126	E

FILE NAME : G:±00-PROJECT FILES±2013±13057 STH 23 Phase 2±5255-01-61±090203_xs.dgn PLOT DATE : 8/27/2014 PLOT BY : MikeCO PLOT NAME : PLOT SCALE : 2.0000 sf / in.



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PROJECT NO: 5255-01-61	HWY: STH 23	COUNTY: IOWA	CROSS SECTIONS: B-25-60	SHEET NO: 127	E

FILE NAME : G:±00-PROJECT FILES±2013±13057 STH 23 Phase 2±5255-01-61±090203_xs.dgn PLOT DATE : 8/27/2014 PLOT BY : MIkeCO PLOT NAME : PLOT SCALE : 2.0000 sf / In.

730
720
730
720
730
720
730
720
730
720
730
720
730
720

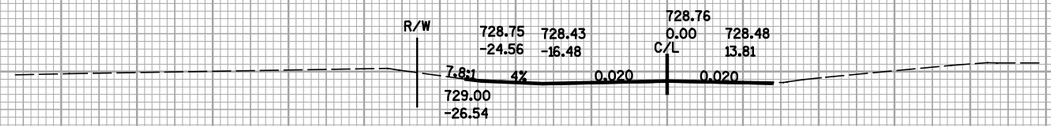
712+50

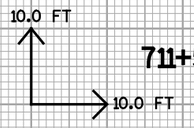
712+18.18

712+00

711+68.14

711+50





-140 -120 -100 -80 -60 -40 -20 BL 20 40 60 80 100 120 140

9

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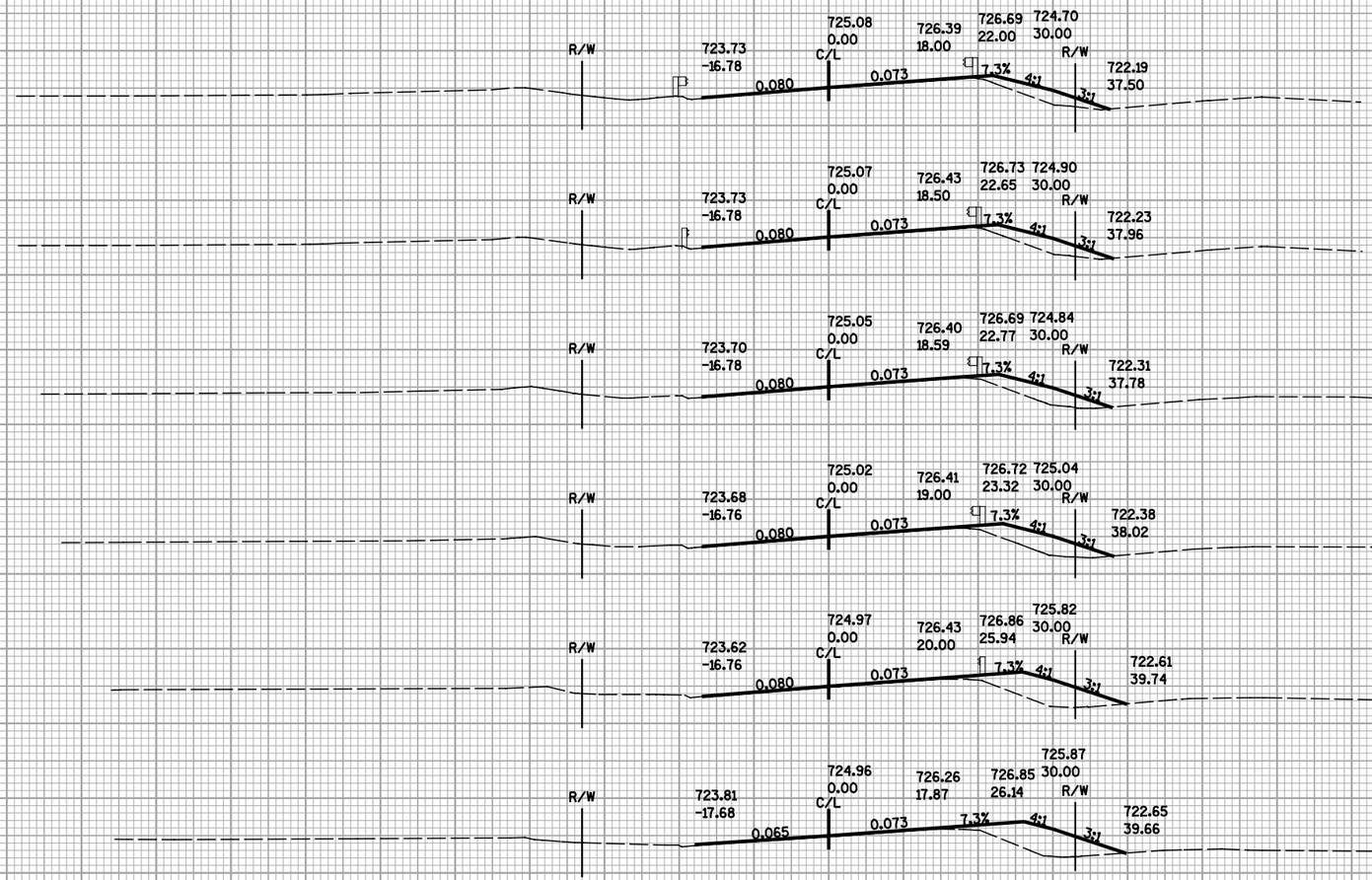
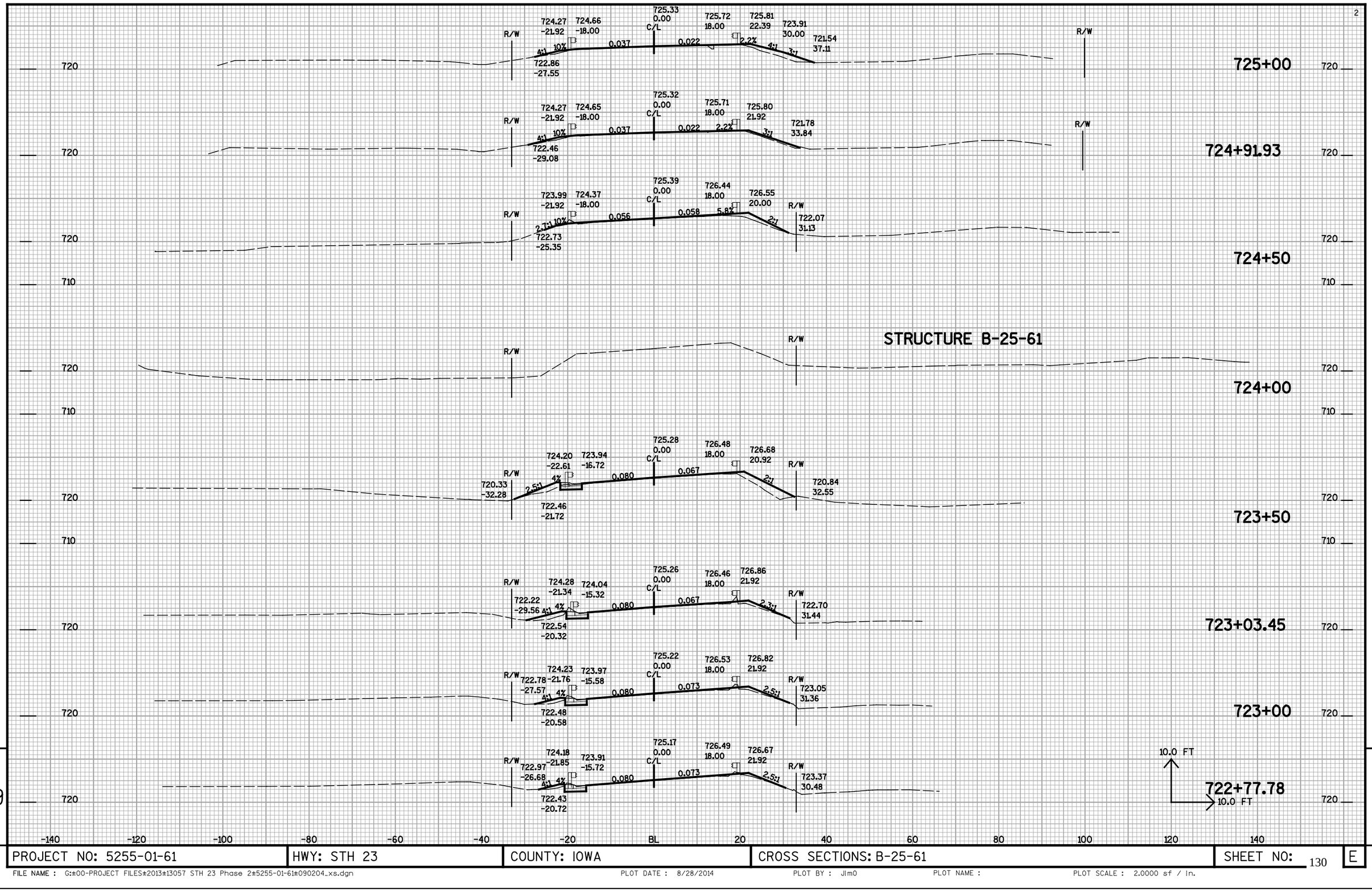
PROJECT NO: 5255-01-61	HWY: STH 23	COUNTY: IOWA	CROSS SECTIONS: B-25-60	SHEET NO: 128	E

FILE NAME : G:±00-PROJECT FILES±2013±13057 STH 23 Phase 2±5255-01-61±090203_xs.dgn PLOT DATE : 8/27/2014 PLOT BY : MIkeCO PLOT NAME : PLOT SCALE : 2.0000 sf / In.



PROJECT NO: 5255-01-61	HWY: STH 23	COUNTY: IOWA	CROSS SECTIONS: B-25-61	SHEET NO: 129	E

FILE NAME : G:±00-PROJECT FILES±2013±13057 STH 23 Phase 2±5255-01-61±090204_xs.dgn PLOT DATE : 8/27/2014 PLOT BY : MikeCO PLOT NAME : PLOT SCALE : 2.0000 sf / in.



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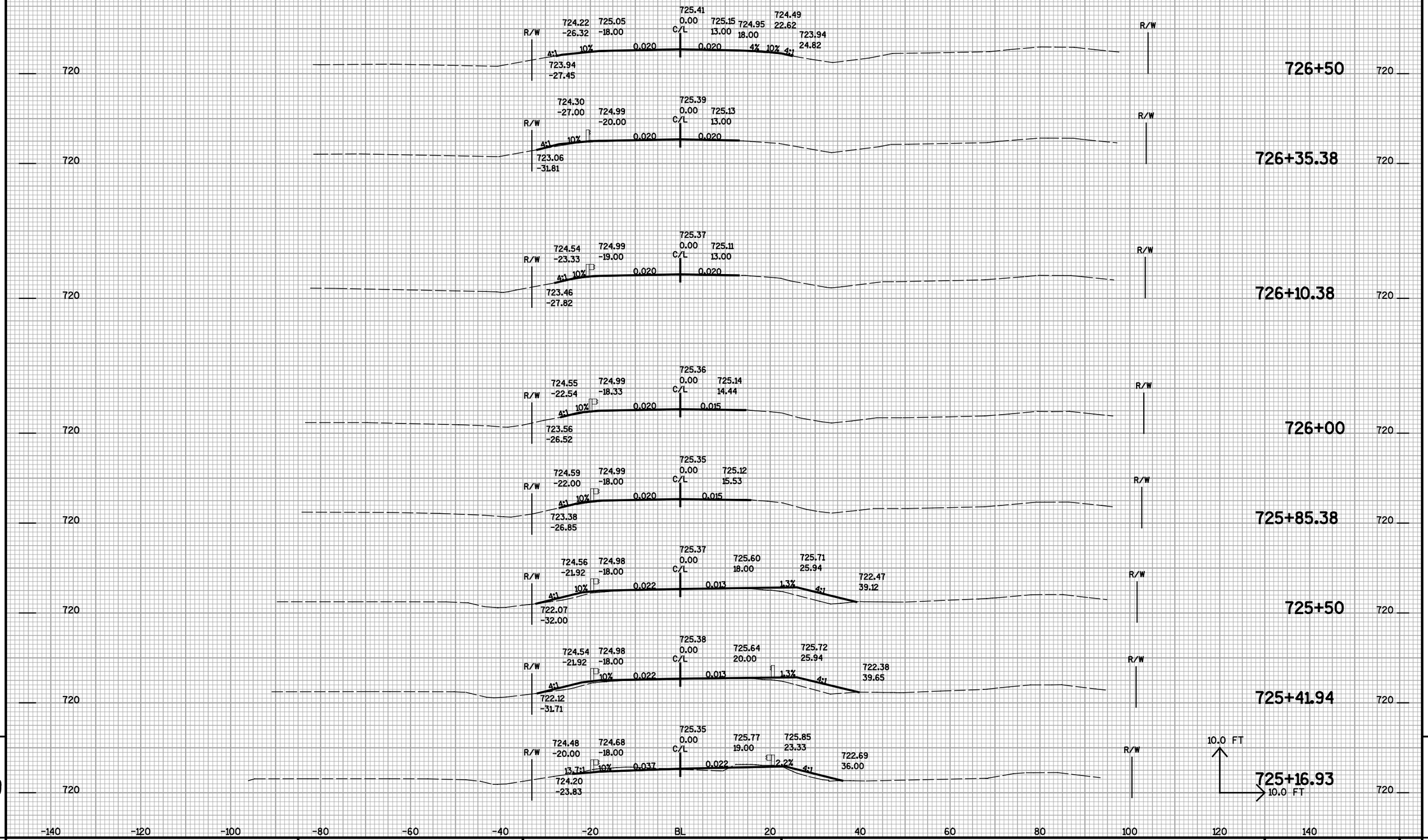
PROJECT NO: 5255-01-61	HWY: STH 23	COUNTY: IOWA	CROSS SECTIONS: B-25-61	SHEET NO: 130	E

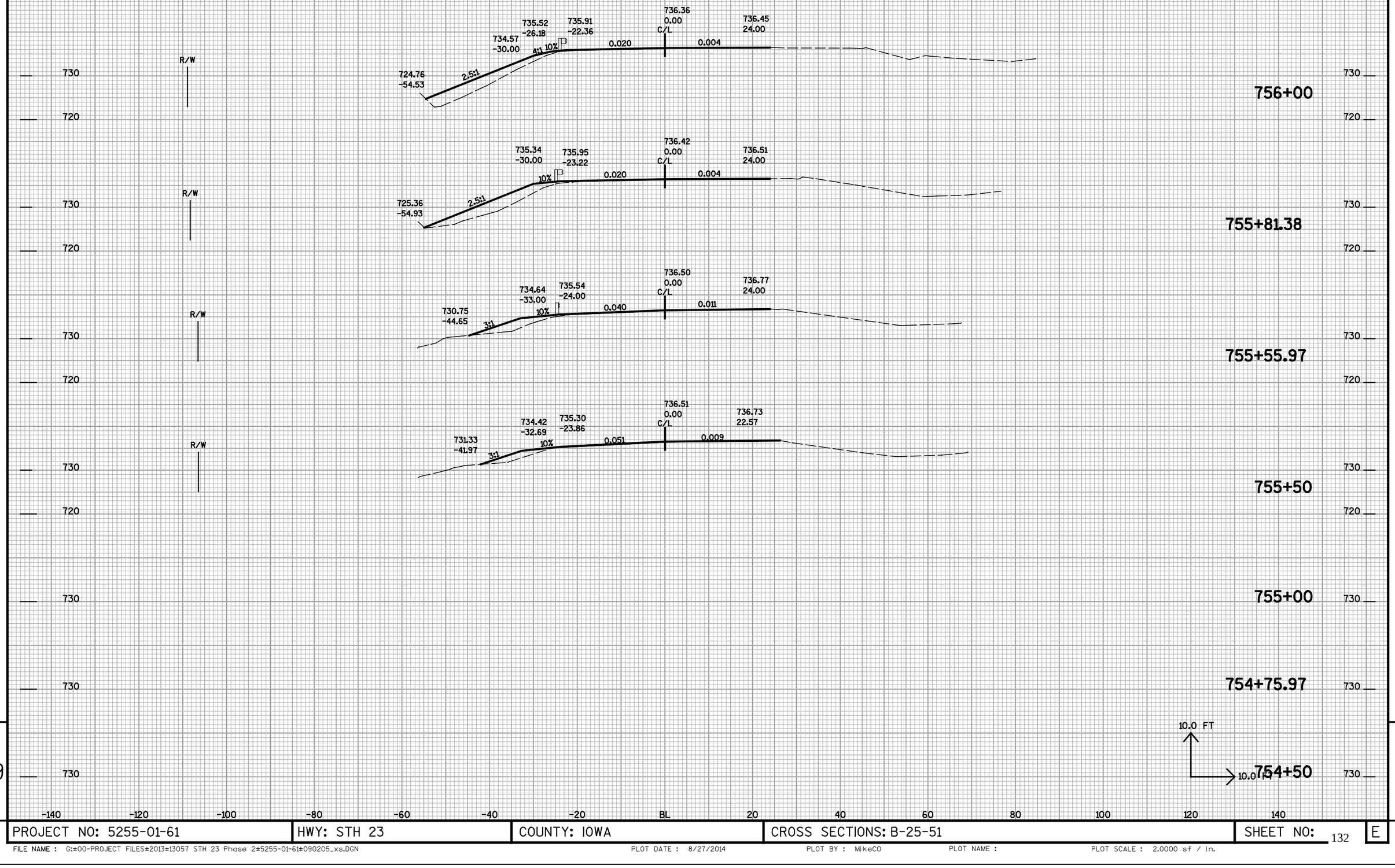


9

9

PROJECT NO: 5255-01-61	HWY: STH 23	COUNTY: IOWA	CROSS SECTIONS: B-25-61	SHEET NO: 131	E

FILE NAME : G:±00-PROJECT FILES±2013±13057 STH 23 Phase 2±5255-01-61±090204_xs.dgn PLOT DATE : 8/28/2014 PLOT BY : JimO PLOT NAME : PLOT SCALE : 2.0000 sf / in.

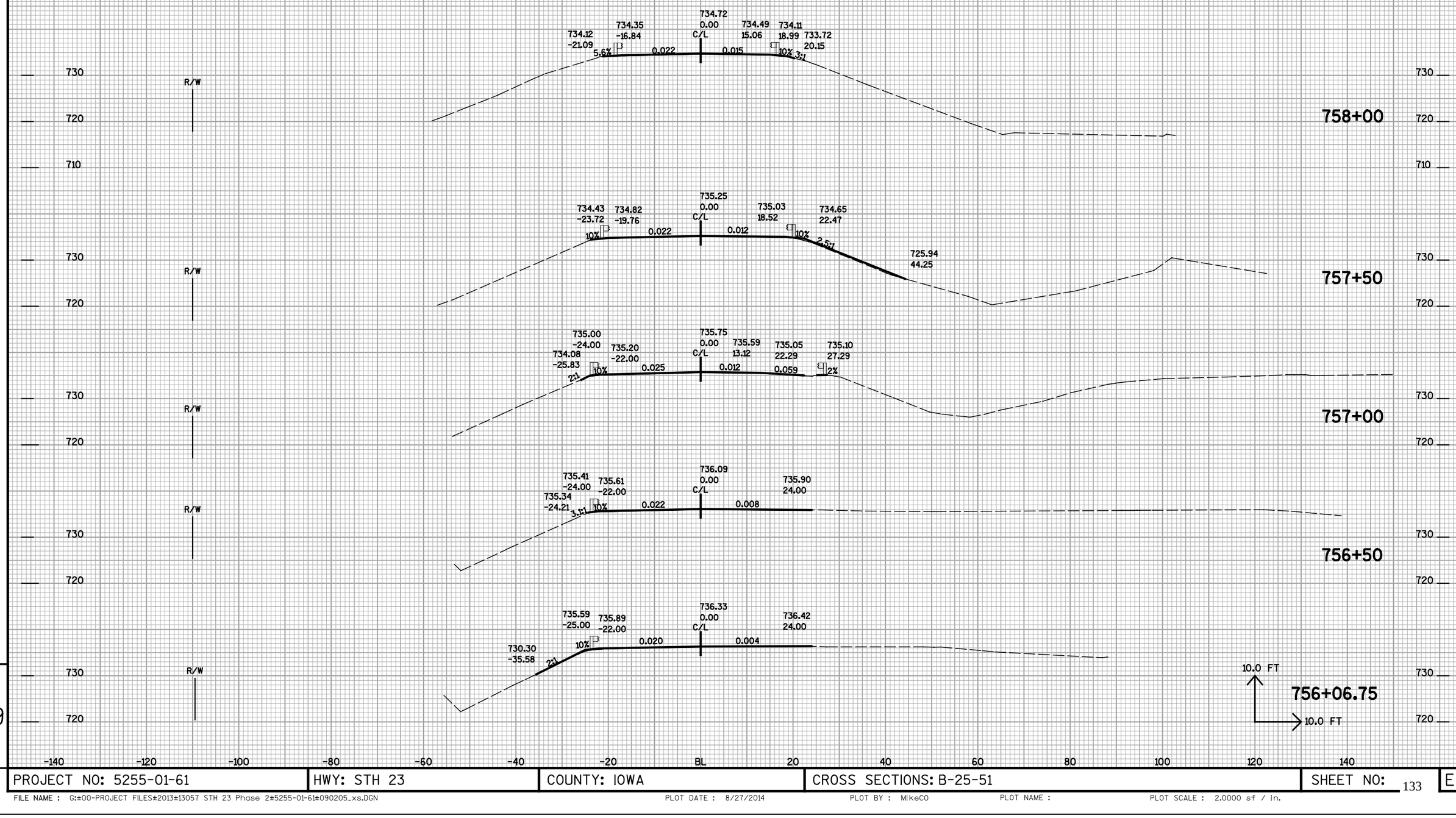


9

9

PROJECT NO: 5255-01-61	HWY: STH 23	COUNTY: IOWA	CROSS SECTIONS: B-25-51	SHEET NO: 132	E

FILE NAME : G:±00-PROJECT FILES±2013±13057 STH 23 Phase 2±5255-01-61±090205_xs.DGN PLOT DATE : 8/27/2014 PLOT BY : MikeCO PLOT NAME : PLOT SCALE : 2.0000 sf / in.

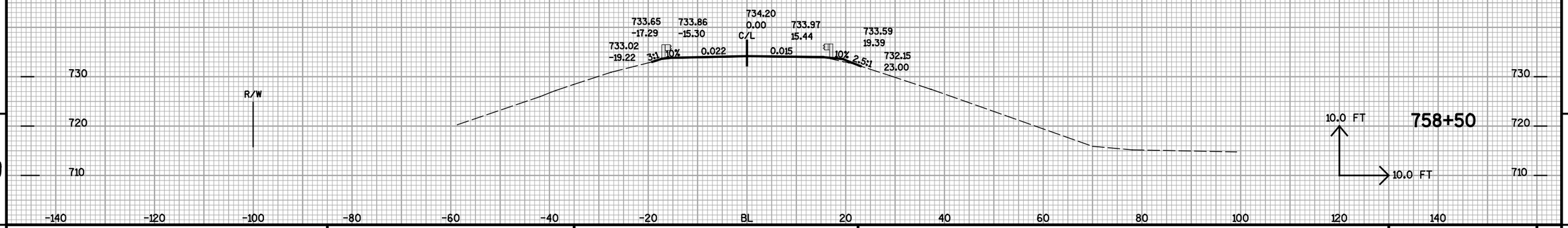


9

9

PROJECT NO: 5255-01-61	HWY: STH 23	COUNTY: IOWA	CROSS SECTIONS: B-25-51	SHEET NO: 133	E

FILE NAME : G:±00-PROJECT FILES±2013±13057 STH 23 Phase 2±5255-01-61±090205_xs.DGN PLOT DATE : 8/27/2014 PLOT BY : MikeCO PLOT NAME : PLOT SCALE : 2.0000 sf / in.



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9

PROJECT NO: 5255-01-61	HWY: STH 23	COUNTY: IOWA	CROSS SECTIONS: B-25-51	SHEET NO: 134	E

FILE NAME : G:±00-PROJECT FILES±2013±13057 STH 23 Phase 2±5255-01-61±090205_xs.DGN PLOT DATE : 8/27/2014 PLOT BY : MikeCO PLOT NAME : PLOT SCALE : 2.0000 sf / in.

Notes

Wisconsin Department of Transportation

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