GRE

MARCH 2018

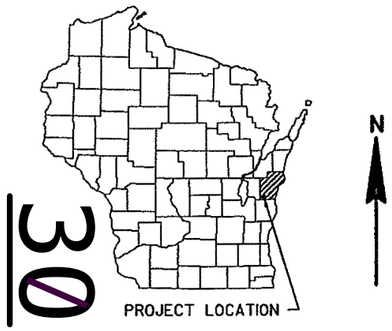
PROJECT ID: 4318-03-71

MUTH- N/A

COUNTY: MANITOWOC

ORDER OF SHEETS

TOTAL SHEETS = 54



DESIGN DESIGNATION

A.A.D.T.	2018	=	1950
A.A.D.T.	2038	=	2200
D.H.V.		=	5.0
D.D.		=	60/40
T.		=	6.0%
DESIGN SPEED		=	60 MPH
ESALS		=	280,000

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 (300'EB')
- 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)
- OVERHEAD UTILITY (OH)
- FIBER OPTIC (FO)
- GAS (G)
- SANITARY SEWER (SAN)
- STORM SEWER (SS)
- TELEPHONE (T)
- WATER (W)
- UTILITY PEDESTAL
- POWER POLE
- TELEPHONE POLE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

T SCHLESWIG, CTH X

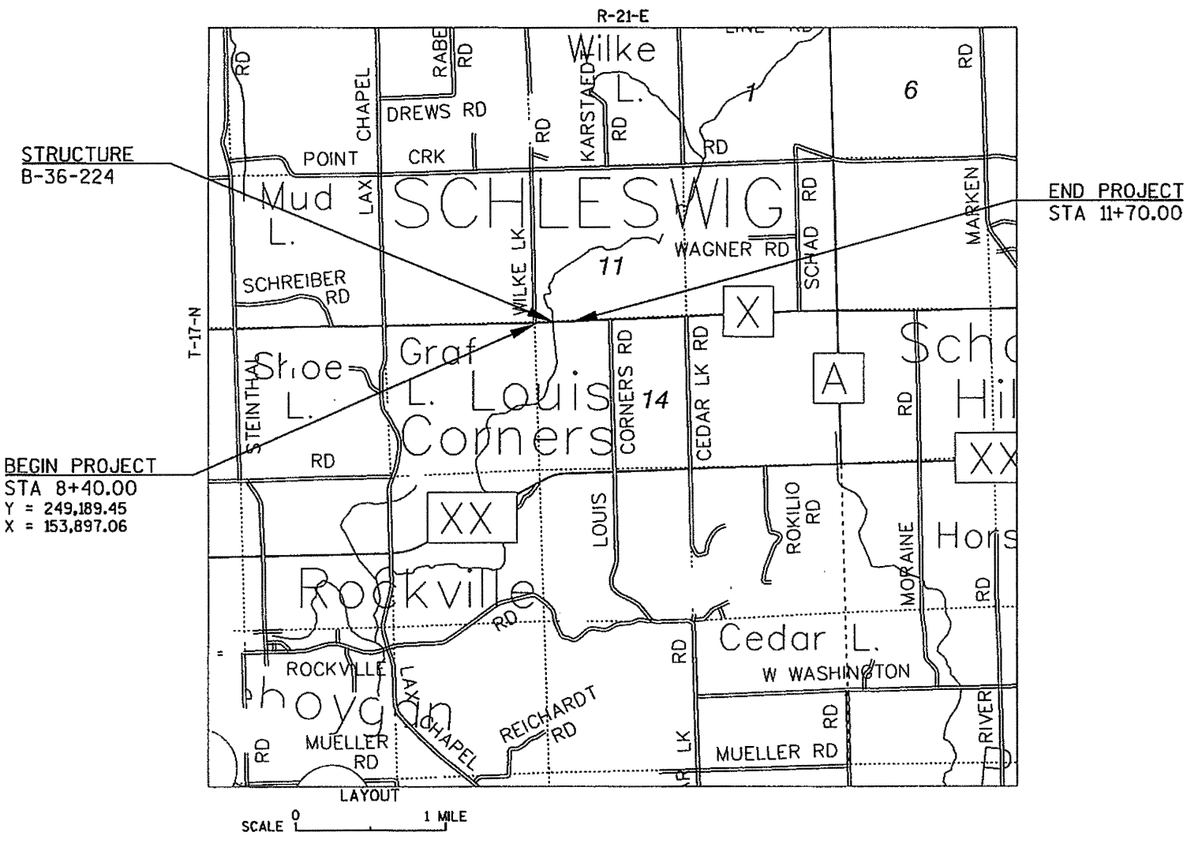
SHEBOYGAN RIVER BRIDGE

CTH X

MANITOWOC COUNTY

STATE PROJECT NUMBER
4318-03-71

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
4318-03-71		



TOTAL NET LENGTH OF CENTERLINE = 0.063 MI

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

ACCEPTED FOR
MANITOWOC COUNTY

DATE: 10/20/2017 _____ HIGHWAY COMMISSIONER

ORIGINAL PLANS PREPARED BY

MSA PROFESSIONAL SERVICES
TRANSPORTATION • MUNICIPAL
ENVIRONMENT • ENVISION-MENTAL
1230 South Boulevard Baraboo, WI 53913
608-356-2771 1-800-362-4505 Fax: 608-356-2770

WISCONSIN
JOSHUA R. SWENO
E-44384
WAUNAKEE WI
PROFESSIONAL ENGINEER

DATE: 10/20/17 _____ (PROFESSIONAL ENGINEER)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	MSA PROFESSIONAL SERVICES, INC.
Designer	MSA PROFESSIONAL SERVICES, INC.
Management Consultant	JT Engineering, Inc.

APPROVED FOR THE MANAGEMENT CONSULTANT

DATE: 10/23/17 _____ (Signature)

E

STANDARD ABBREVIATIONS

AC	ACRE
AGG	AGGREGATE
<	ANGLE
ASPH	ASPHALTIC
AC	ASPHALT CEMENT
ADT	AVERAGE DAILY TRAFFIC
B & B	BALLED AND BURLAPPED
BM	BENCH MARK
CB	CATCH BASIN
℄ OR C/L	CENTER LINE
C-C	CENTER TO CENTER
CONC	CONCRETE
CO	COUNTY
CTH	COUNTY TRUNK HIGHWAY
CY	CUBIC YARD
CULV	CULVERT
CP	CULVERT PIPE
CPRC	CULVERT PIPE REINFORCED CONCRETE
C & G	CURB AND GUTTER
D	DEGREE OF CURVE
DHV	DESIGN HOUR VOLUME
DIA OR ϕ	DIAMETER
DIST	DISTRICT
DWY	DRIVEWAY
E	EAST
X	EAST GRID COORDINATE
EB	EASTBOUND
ELEC	ELECTRIC
EL OR ELEV	ELEVATION
EMB	EMBANKMENT
EW	ENDWALL
ESALS	EQUIVALENT SINGLE AXLE LOADS
EXC	EXCAVATION
EBS	EXCAVATION BELOW SUBGRADE
EXIST	EXISTING
EXP	EXPANSION
F-F	FACE TO FACE
FERT	FERTILIZER
FE	FIELD ENTRANCE
F/L	FLOW LINE
FT	FOOT
GN	GRID NORTH
HR	HANDICAP RAMP
HT	HEIGHT
CWT	HUNDREDWEIGHT
HYD	HYDRANT
IN DIA	INCH DIAMETER
INL	INLET
ID	INSIDE DIAMETER
I	INTERSECTION ANGLE
IE	INVERT ELEVATION
IP	IRON PIPE OR PIN
JCT	JUNCTION
L	LENGTH OF CURVE
LF	LINEAR FOOT
LC	LONG CHORD OF CURVE
LCB	LONG CHORD BEARING
LS	LUMP SUM
MH	MANHOLE
N	NORTH
Y	NORTH GRID COORDINATE
OE	OUTLET ELEVATION
OL	OUT LOT
OD	OUTSIDE DIAMETER
OH	OVERHEAD LINES
PAVT	PAVEMENT
PLE	PERMANENT LIMITED EASEMENT
PC	POINT OF CURVATURE
PI	POINT OF INTERSECTION
PT	POINT OF TANGENCY
PCC	PORTLAND CEMENT CONCRETE
LB	POUND
PE	PRIVATE ENTRANCE
R OR RAD	RADIUS
RR	RAILROAD
R	RANGE
℞ OR R/L	REFERENCE LINE
REQD	REQUIRED
RT	RIGHT
R/W	RIGHT-OF-WAY
RD	ROAD
SALV	SALVAGED
SAN	SANITARY SEWER
SECT	SECTION
SHLDR	SHOULDER
SW	SIDEWALK
S	SOUTH
SB	SOUTHBOUND
SPECS	SPECIFICATIONS
SQ	SQUARE
SF OR SQ FT	SQUARE FEET
SY	SQUARE YARD
SSPRC	STORM SEWER PIPE REINFORCED CONCRETE
STD	STANDARD
SDD	STANDARD DETAIL DRAWINGS
STH	STATE TRUNK HIGHWAYS
STA	STATION
SS	STORM SEWER
T	TANGENT
TEL	TELEPHONE
TEMP	TEMPORARY
TLE	TEMPORARY LIMITED EASEMENT
T	TON
TC	TOP OF CURB
TN	TOWN
TRANS	TRANSITION
T	TRUCKS (percent of)
TYP	TYPICAL
UNCL	UNCLASSIFIED
USH	UNITED STATES HIGHWAY
VAR	VARIABLE
VERT	VERTICAL
VC	VERTICAL CURVE
VOL	VOLUME
WM	WATER MAIN
WV	WATER VALVE
W	WEST
WB	WESTBOUND
YD	YARD

RUNOFF COEFFICIENT TABLE

	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
LAND USE:	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS	.08 .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 = 0.83 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.83 ACRES

DNR LIAISON

WISCONSIN DEPARTMENT OF
NATURAL RESOURCES
ATTN: MATT SCHAEVE
DNR SERVICE CENTER
2984 SHAWANO AVENUE
GREEN BAY, WI 54313
920-366-1544
MATTHEW.SCHAEVE@WISCONSIN.GOV

UTILITIES

BURIED TELEPHONE:
FRONTIER COMMUNICATIONS
ATTN: RUSS RYAN
118 DIVISION STREET
PLYMOUTH, WI 53703
920-583-3275
RUSSELL.W.RYAN@FTR.COM

OVERHEAD ELECTRIC:
WISCONSIN PUBLIC SERVICE CORPORATION
ATTN: JON JOANIS
2850 S ASHLAND AVENUE
GREEN BAY, WI 54304
920-617-5064
JWJOANIS@WISCONSINPUBLICSERVICE.COM

* NOT A DIGGERS HOTLINE MEMBER

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

GENERAL NOTES

DISTURBED AREAS WITHIN THE RIGHT-OF-WAY, EXCEPT THE AREAS WITHIN THE FINISHED SHOULDER POINTS, SHALL BE FERTILIZED, SEEDED AND STABILIZED WITH EROSION MAT AS DIRECTED BY THE ENGINEER.

THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE AREA THAT ARE NOT SHOWN.

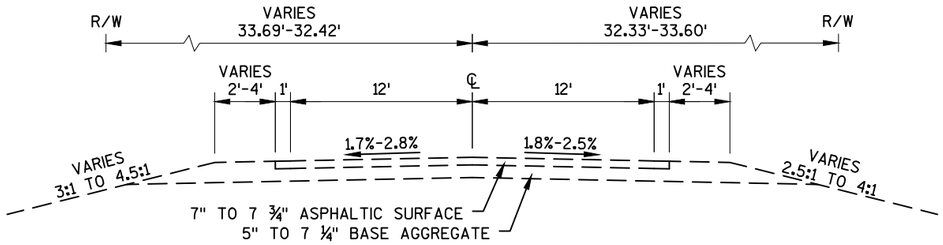
NO TREES OR SHRUBS ARE TO BE REMOVED WITHOUT APPROVAL OF THE ENGINEER.

ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO NAVD 88 (2007). BENCHMARKS WERE ESTABLISHED IN THE FIELD USING GPS TECHNOLOGY.

THE 4" ASPHALTIC SURFACE SHALL CONSIST OF A 1 ¾" UPPER LAYER, AND A 2 ¼" LOWER LAYER. USE 12.5MM NOMINAL AGGREGATE FOR THE UPPER LAYER AND 19.0MM NOMINAL AGGREGATE FOR THE LOWER LAYER.

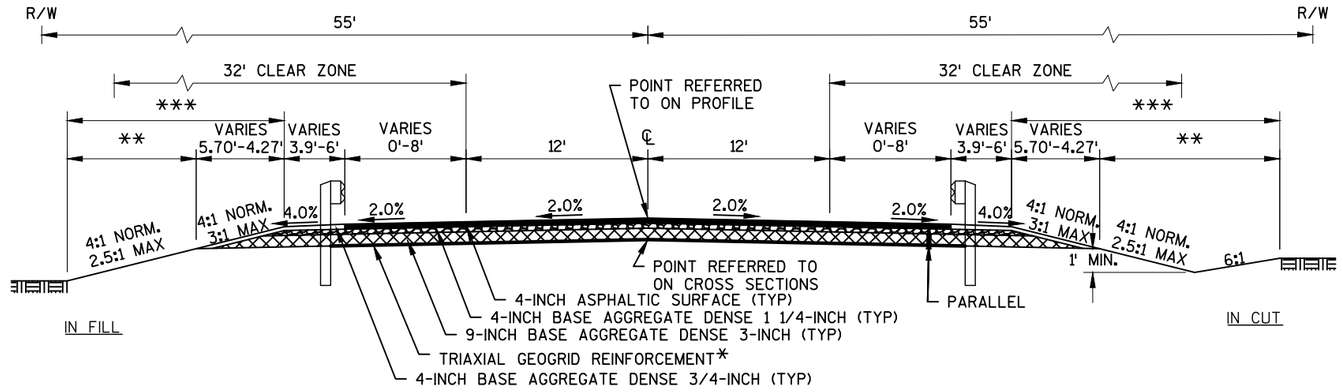
PLACE SILT FENCE AND TURBIDITY BARRIER AS SHOWN ON THE PLAN OR AS DIRECTED BY THE ENGINEER AND IN PLACE PRIOR TO CONSTRUCTION OR BRIDGE REMOVAL.

WETLANDS ARE PRESENT. AREAS OUTSIDE THE SLOPE INTERCEPTS SHALL NOT BE DISTURBED IN WETLAND AREAS.



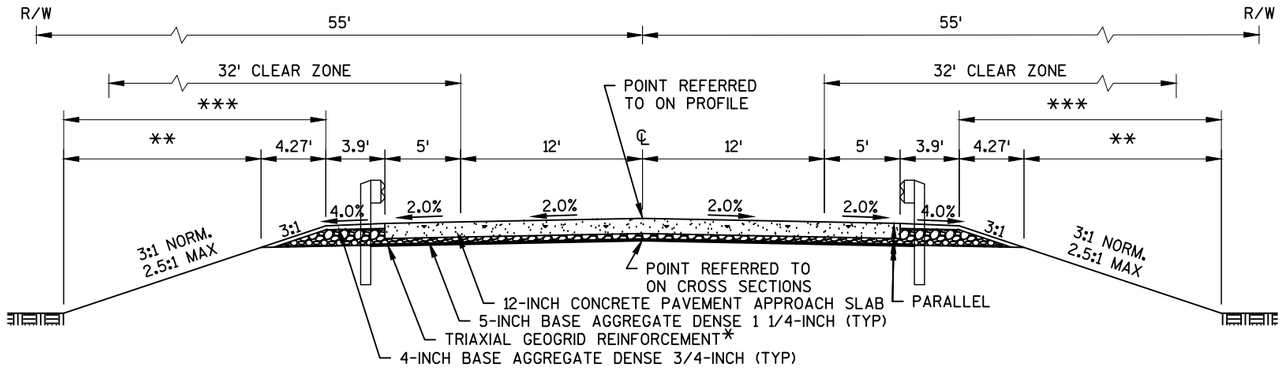
EXISTING TYPICAL SECTION

STA 8+40.0 - STA 9+88.6
STA 10+11.8 - STA 11+70.0



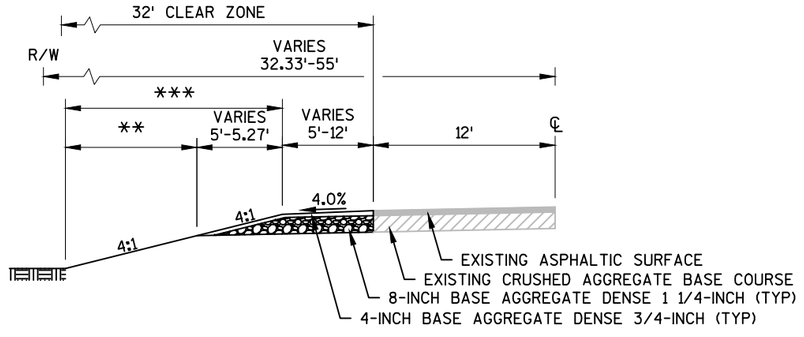
FINISHED TYPICAL SECTION

STA 8+40.00 - STA 9+75.42
STA 10+34.58 - STA 11+70.00



FINISHED TYPICAL SECTION

STA 9+75.42 - STA 9+90.42
STA 10+19.58 - STA 10+34.58



FINISHED TYPICAL SECTION
FOR WIDENING AREAS

STA 7+50.00 - STA 8+40.00
STA 11+70.00 - STA 12+50.00

NOTES:

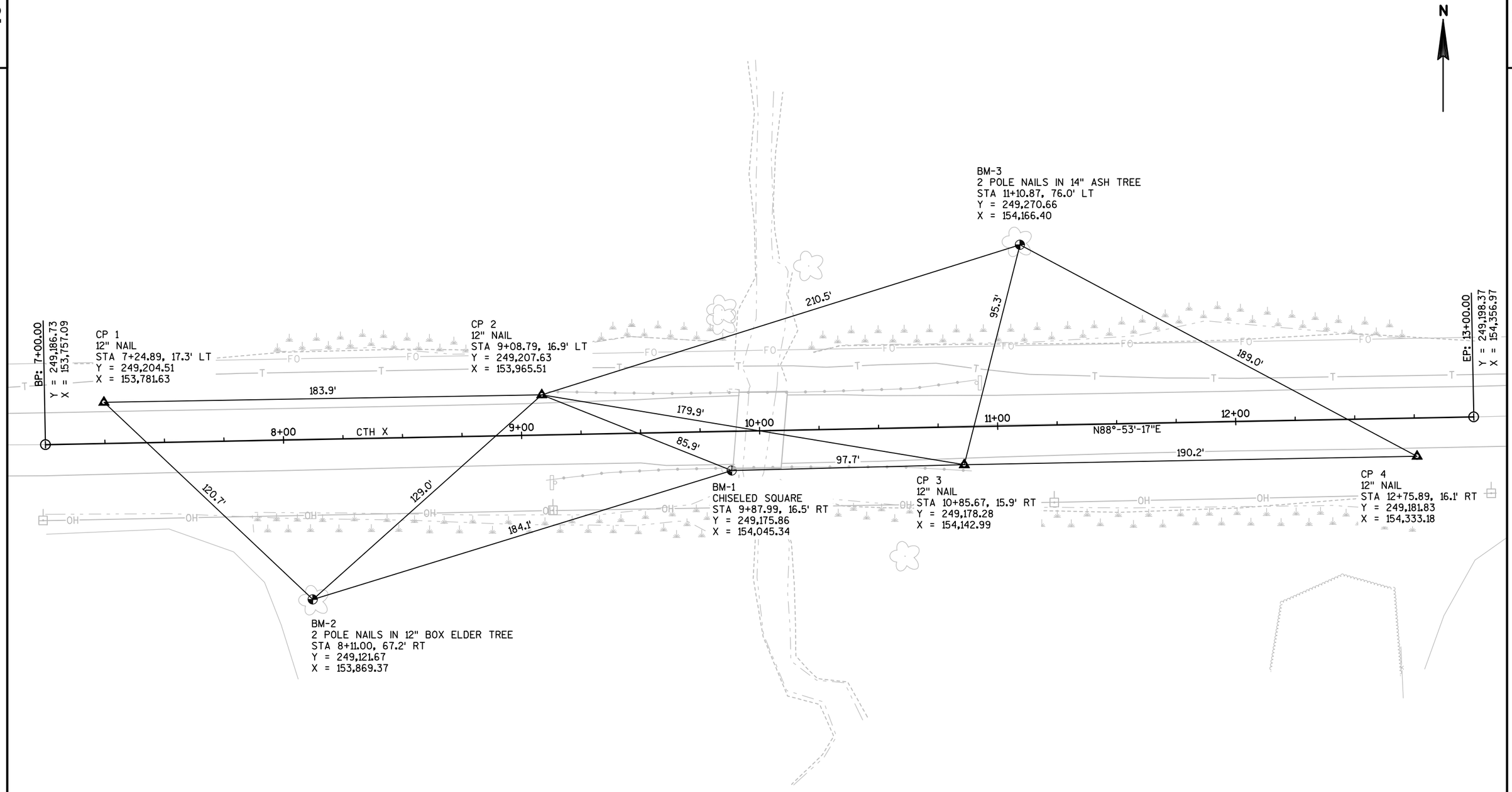
* WIDTH OF TRIAXIAL GEOGRID REINFORCEMENT VARIES. THE WIDTH SHALL EXTEND TO THE FACE OF THE BEAMGUARD WITHIN THE MGS BEAM GUARD LIMITS (STA 8+50 - STA 11+60). FROM STA 8+40 TO STA 8+50 AND FROM STA 11+60 TO STA 11+70 THE WIDTH SHALL EXTEND 4' PAST THE EDGE OF PAVEMENT

** TOPSOIL AND EROSION MAT URBAN CLASS I, TYPE B LIMITS

*** SEEDING MIXTURE #20, SEEDING TEMPORARY, & FERTILIZER TYPE B LIMITS

PROJECT NO: 4318-03-71	HWY: CTH X	COUNTY: MANITOWOC	TYPICAL SECTIONS	SHEET 3	E

2



PROJECT TIES

ALL DISTANCES ARE SLOPE DISTANCES

PROJECT NO: 4318-03-71	HWY: CTH X	COUNTY: MANITOWOC	PROJECT CONTROL POINTS, TIES & COORDINATES	SHEET 4 E

4318-03-71

Line	Item	Item Description	Unit	Total	Qty
0002	201.0105	Clearing	STA	2.000	2.000
0004	203.0500.S	Removing Old Structure Over Waterway (station) 01. 10+00	LS	1.000	1.000
0006	205.0100	Excavation Common **P**	CY	682.000	682.000
0008	206.1000	Excavation for Structures Bridges (structure) 01. B-36-224	LS	1.000	1.000
0010	208.0100	Borrow **P**	CY	218.000	218.000
0012	210.1500	Backfill Structure Type A	TON	410.000	410.000
0014	213.0100	Finishing Roadway (project) 01. 4318-03-71	EACH	1.000	1.000
0016	305.0110	Base Aggregate Dense 3/4-Inch	TON	175.000	175.000
0018	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	510.000	510.000
0020	305.0130	Base Aggregate Dense 3-Inch	TON	830.000	830.000
0022	415.0410	Concrete Pavement Approach Slab	SY	114.000	114.000
0024	455.0605	Tack Coat	GAL	54.000	54.000
0026	465.0105	Asphaltic Surface	TON	236.000	236.000
0028	502.0100	Concrete Masonry Bridges	CY	144.000	144.000
0030	502.3200	Protective Surface Treatment	SY	165.000	165.000
0032	505.0400	Bar Steel Reinforcement HS Structures	LB	4,280.000	4,280.000
0034	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	14,350.000	14,350.000
0036	513.4061	Railing Tubular Type M (structure) 01. B-36-224	LF	114.000	114.000
0038	516.0500	Rubberized Membrane Waterproofing	SY	22.000	22.000
0040	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	350.000	350.000
0042	606.0300	Riprap Heavy	CY	215.000	215.000
0044	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	220.000	220.000
0046	614.0920	Salvaged Rail	LF	320.000	320.000
0048	614.2300	MGS Guardrail 3	LF	150.000	150.000
0050	614.2500	MGS Thrie Beam Transition	LF	157.600	157.600
0052	614.2610	MGS Guardrail Terminal EAT	EACH	4.000	4.000
0054	619.1000	Mobilization	EACH	1.000	1.000
0056	624.0100	Water	MGAL	46.000	46.000
0058	625.0100	Topsoil	SY	1,300.000	1,300.000
0060	628.1504	Silt Fence	LF	990.000	990.000
0062	628.1520	Silt Fence Maintenance	LF	990.000	990.000
0064	628.1905	Mobilizations Erosion Control	EACH	5.000	5.000
0066	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0068	628.2008	Erosion Mat Urban Class I Type B	SY	1,300.000	1,300.000
0070	628.6005	Turbidity Barriers	SY	170.000	170.000
0072	628.7570	Rock Bags	EACH	20.000	20.000
0074	629.0210	Fertilizer Type B	CWT	1.150	1.150
0076	630.0120	Seeding Mixture No. 20	LB	50.000	50.000

4318-03-71

Line	Item	Item Description	Unit	Total	Qty
0078	630.0200	Seeding Temporary	LB	50.000	50.000
0080	634.0612	Posts Wood 4x6-Inch X 12-FT	EACH	4.000	4.000
0082	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0084	638.2602	Removing Signs Type II	EACH	4.000	4.000
0086	638.3000	Removing Small Sign Supports	EACH	4.000	4.000
0088	642.5001	Field Office Type B	EACH	1.000	1.000
0090	643.0420	Traffic Control Barricades Type III	DAY	1,480.000	1,480.000
0092	643.0705	Traffic Control Warning Lights Type A	DAY	2,220.000	2,220.000
0094	643.0900	Traffic Control Signs	DAY	1,184.000	1,184.000
0096	643.5000	Traffic Control	EACH	1.000	1.000
0098	645.0111	Geotextile Type DF Schedule A	SY	110.000	110.000
0100	645.0120	Geotextile Type HR	SY	420.000	420.000
0102	646.1020	Marking Line Epoxy 4-Inch	LF	1,065.000	1,065.000
0104	650.4500	Construction Staking Subgrade	LF	446.000	446.000
0106	650.5000	Construction Staking Base	LF	446.000	446.000
0108	650.6500	Construction Staking Structure Layout (structure) 01. B-36-224	LS	1.000	1.000
0110	650.9910	Construction Staking Supplemental Control (project) 01. 4318-03-71	LS	1.000	1.000
0112	650.9920	Construction Staking Slope Stakes	LF	446.000	446.000
0114	690.0150	Sawing Asphalt	LF	51.000	51.000
0116	715.0415	Incentive Strength Concrete Pavement	DOL	500.000	500.000
0118	715.0502	Incentive Strength Concrete Structures	DOL	864.000	864.000
0120	SPV.0180	Special 01. Geogrid Reinforcement	SY	1,200.000	1,200.000
0122	SPV.0195	Special 01. Select Crushed Material for Riprap Voids	TON	101.000	101.000

3

CLEARING

STATION - STATION	LOCATION	201.0105 CLEARING STA
9+00 - 11+00	LT & RT	2
	TOTALS:	2

EARTHWORK

STATION - STATION	**P** 205.0100 EXCAVATION COMMON CY (3)	FILL CY (1)	EXPANDED FILL CY (2)	UNUSABLE PAVEMENT CY (1)	**P** 208.0100 BORROW CY
7+50.00 - 9+89.75	358	245	319	86	47
10+20.25 - 12+50.00	324	302	394	101	171
TOTALS:	682	547	713	187	218

(1) - NOT A BID ITEM - FOR INFORMATIONAL PURPOSES ONLY.
(2) - FILL EXPANSION 30%
(3) - EXISTING ASPHALTIC PAVEMENT IS INCLUDED IN COMMON EXCAVATION TOTALS. SEE EARTHWORK TABLE.
P - PAY PLAN QUANTITY

BASE AGGREGATE ITEMS

STATION - STATION	305.0110 BASE AGGREGATE DENSE 3/4-INCH TON	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TON	305.0130 BASE AGGREGATE DENSE 3-INCH TON	624.0100 WATER (1) MGAL
7+50.00 - 9+89.75	90	260	415	23.0
10+20.25 - 12+50.00	85	250	415	23.0
TOTALS:	175	510	830	46

(1) - ADDITIONAL QUANTITIES LISTED ELSEWHERE

GEOGRID REINFORCEMENT

STATION - STATION	SPV.0180.01 GEOGRID REINFORCEMENT SY
8+40 - 9+89.75	600
10+20.25 - 11+70.00	600
TOTALS:	1200

APPROACH SLABS

STATION - STATION	415.0410 CONCRETE PAVEMENT APPROACH SLAB SY
9+75.42 - 9+90.42	57
10+19.58 - 10+34.58	57
TOTALS:	114

ASPHALT PAVEMENT ITEMS

STATION - STATION	455.0605 TACK COAT GAL	465.0105 ASPHALTIC SURFACE TON
8+40.00 - 9+75.42	27	118
10+34.58 - 11+70.00	27	118
TOTALS:	54	236

REMOVING GUARDRAIL

STATION - STATION	LOCATION	614.0920 SALVAGED RAIL LF
9+10 - 9+89	RT	80
9+12 - 9+92	LT	80
10+09 - 10+89	RT	80
10+12 - 10+91	LT	80
	TOTALS:	320

GUARDRAIL ITEMS

STATION - STATION	LOCATION	614.2300 MGS GUARDRAIL 3 LF	614.2500 MGS THRIE BEAM TRANSITION LF	614.2610 MGS GUARDRAIL TERMINAL EAT EACH
8+50.23 - 9+80.25	RT	37.5	39.4	1
8+50.23 - 9+80.25	LT	37.5	39.4	1
10+29.75 - 11+59.77	LT	37.5	39.4	1
10+29.75 - 11+59.77	RT	37.5	39.4	1
	TOTALS:	150	157.6	4

RESTORATION ITEMS

STATION - STATION	LOCATION	625.0100 TOPSOIL SY	629.0210 FERTILIZER TYPE B CWT	630.0120 SEEDING MIXTURE NO. 20 LB	630.0200 SEEDING TEMPORARY LB
7+50 - 9+77	LT	280	0.25	11	11
7+50 - 9+77	RT	320	0.30	12	12
10+32 - 12+50	LT	215	0.20	9	9
10+32 - 12+50	RT	305	0.25	11	11
UNDISTRIBUTED	---	180	0.15	7	7
	TOTALS:	1300	1.15	50	50

SILT FENCE

STATION - STATION	LOCATION	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF	628.6005 TURBIDITY BARRIERS SY
7+50 - 10+00	LT & RT	500	500	81
10+08 - 12+50	LT & RT	490	490	79
UNDISTRIBUTED	---	---	---	10
	TOTALS:	990	990	170

EROSION CONTROL ITEMS

STATION - STATION	LOCATION	628.2008 EROSION MAT URBAN CLASS I TYPE B SY	628.7570 ROCK BAGS LF
7+50 - 9+77	LT	280	---
7+50 - 9+77	RT	320	---
8+10	RT	---	5
8+70	RT	---	5
9+30	RT	---	5
10+32 - 12+50	LT	215	---
10+32 - 12+50	RT	305	---
UNDISTRIBUTED	RT	180	5
	TOTALS:	1300	20

3

MOBILIZATION EROSION CONTROL

DESCRIPTION	628.1905 MOBILIZATION EROSION CONTROL EACH	628.1910 MOBILIZATION EMERGENCY EROSION CONTROL EACH
PROJECT 4318-03-71	5	2
TOTALS:	5	2

SIGNING ITEMS

STATION	LOCATION	SIGN CODE	SIZE	634.0612 WOOD POSTS EACH	637.2230 SIGNS TYPE II REFLECTIVE F SF	638.2602 REMOVING SIGNS TYPE II EACH	638.3000 REMOVING SMALL SIGN SUPPORTS EACH	COMMENTS
9+14	RT	---	---	---	---	---	---	WEIGHT LIMIT POSTING (REMOVED BY COUNTY)
9+77	RT	W5-52R	12"x36"	1	3	---	---	OBJECT MARKER
9+77	LT	W5-52L	12"x36"	1	3	---	---	OBJECT MARKER
9+37	RT	---	---	---	---	1	1	EXISTING OBJECT MARKER
9+39	LT	---	---	---	---	1	1	EXISTING OBJECT MARKER
10+62	RT	---	---	---	---	1	1	EXISTING OBJECT MARKER
10+64	LT	---	---	---	---	1	1	EXISTING OBJECT MARKER
10+32	RT	W5-52L	12"x36"	1	3	---	---	OBJECT MARKER
10+32	LT	W5-52R	12"x36"	1	3	---	---	OBJECT MARKER
10+92	LT	---	---	---	---	---	---	WEIGHT LIMIT POSTING (REMOVED BY COUNTY)
		TOTALS:		4	12	4	4	

TRAFFIC CONTROL ITEMS

LOCATION	DAYS	TRAFFIC CONTROL BARRICADES TYPE III EACH	643.0420 TRAFFIC CONTROL BARRICADES TYPE III DAYS	TRAFFIC CONTROL WARNING LIGHTS TYPE A EACH	643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A DAYS	TRAFFIC CONTROL SIGNS EACH	643.0900 TRAFFIC CONTROL SIGNS DAYS
WILKE LAKE RD INTERSECTION	74	2	148	4	296	3	222
BEGINNING OF PROJECT	74	7	518	10	740	4	296
END OF PROJECT	74	7	518	10	740	4	296
LOUIS CORNERS RD INTERSECTION	74	2	148	4	296	3	222
UNDISTRUBUTED	74	2	148	2	148	2	148
TOTALS:			1,480		2,220		1,184

PAVEMENT MARKING

STATION - STATION	LOCATION	646.1020 MARKING LINE EPOXY 4-INCH YELLOW LF	646.1020 MARKING LINE EPOXY 4-INCH WHITE LF
8+40 - 11+70	CENTERLINE	405	---
8+40 - 11+70	LT EDGE LINE	---	330
8+40 - 11+70	RT EDGE LINE	---	330
	TOTALS:	405	660

CONSTRUCTION STAKING

STATION - STATION	650.4500 CONSTRUCTION STAKING SUBGRADE LF	650.5000 CONSTRUCTION STAKING BASE LF	650.9920 CONSTRUCTION STAKING SLOPE STAKES LF	650.9910 CONSTRUCTION STAKING SUPPLEMENTAL CONTROL 4318-03-71 LS
7+50 - 9+78	228	228	228	---
10+32 - 12+50	218	218	218	---
4318-03-71	---	---	---	1
TOTALS:	446	446	446	1

SAWING PAVEMENT ITEMS

STATION	690.0150 SAWING ASPHALT LF
8+40	26
11+70	25
TOTAL:	51

3

R/W PROJECT NUMBER	SHEET NUMBER	TOTAL SHEETS
4318-03-00		
CONSTRUCTION PROJECT NUMBER 4318-03-71	4.01	2

PLAT OF RIGHT OF WAY REQUIRED FOR

T SCHLESWIG, CTH X SHEBOYGAN RIVER BRIDGE

CTH X — MANITOWOC COUNTY

CONVENTIONAL SYMBOLS

- SECTION LINE
- QUARTER LINE
- SIXTEENTH LINE
- NEW REFERENCE LINE
- NEW R/W LINE
- EXISTING R/W OR HE LINE
- PROPERTY LINE (P.L.)
- LOT, TIE & OTHER MINOR LINES
- SLOPE INTERCEPT
- CORPORATE LIMITS
- UNDERGROUND FACILITY (COMMUNICATIONS, ELECTRIC, ETC) — W (TYPE)
- NEW R/W (FEE OR HE) (HATCHING VARIES BY OWNER)
- TEMPORARY LIMITED EASEMENT AREA
- EASEMENT AREA (PERMANENT LIMITED OR RESTRICTED DEVELOPMENT)
- TRANSMISSION STRUCTURES
- BUILDING — TO BE REMOVED
- BRIDGE
- SECTION CORNER SYMBOL (10, 23, 24, 16, 15, 9)
- SECTION CORNER MONUMENT
- GEODETIC SURVEY MONUMENT
- SIXTEENTH CORNER MONUMENT
- SIGN
- OFF-PREMISE SIGN (01-25)
- R/W MONUMENT (TO BE SET)
- NON-MONUMENTED R/W POINT
- FOUND IRON PIN (1-INCH UNLESS NOTED) IP

	COMPENSABLE	NON-COMPENSABLE
ELECTRIC POLE	■	□
TELEPHONE POLE	●	○
PEDESTAL (LABEL TYPE) (TV, TEL, ELEC, ETC.)	⧓	⧒

- ACCESS RESTRICTED BY ACQUISITION
- NO ACCESS (BY STATUTORY AUTHORITY)
- ACCESS RESTRICTED (BY PREVIOUS PROJECT OR CONTROL)
- NO ACCESS (NEW HIGHWAY)
- PARCEL NUMBER (25) — UTILITY NUMBER (40)
- PARALLEL OFFSETS

CONVENTIONAL ABBREVIATIONS

ACCESS RIGHTS	AR	POINT OF INTERSECTION	PI
ACRES	AC	PROPERTY LINE	PL
AHEAD	AH	RECORDED AS	(100')
ALUMINUM	ALUM	REEL / IMAGE	R/I
AND OTHERS	ET AL	REFERENCE LINE	R/L
BACK	BK	REMAINING	REM
BLOCK	BLK	RESTICTIVE DEVELOPMENT EASEMENT	RDE
CENTERLINE	C/L	RIGHT	RT
CERTIFIED SURVEY MAP	CSM	RIGHT OF WAY	R/W
CONCRETE	CONC	SECTION	SEC
COUNTY	CO	SEPTIC VENT	SEPV
COUNTY TRUNK HIGHWAY	CTH	SQUARE FEET	SF
DISTANCE	DIST	STATE TRUNK HIGHWAY	STH
CORNER	COR	STATION	STA
DOCUMENT NUMBER	DOC	TELEPHONE PEDESTAL	TP
EASEMENT	EASE	TEMPORARY LIMITED EASEMENT	TLE
EXISTING	EX	TRANSPORTATION PROJECT PLAT	TPP
GAS VALVE	GV	UNITED STATES HIGHWAY	USH
GRID NORTH	GN	VOLUME	V
HIGHWAY EASEMENT	HE		
IDENTIFICATION	ID		
LAND CONTRACT	LC		
LEFT	LT		
MONUMENT	MON		
NATIONAL GEODETIC SURVEY NUMBER	NGS NO		
OUTLOT	OL		
PAGE	P		
POINT OF TANGENCY	PT		
PERMANENT LIMITED EASEMENT	PLE		
POINT OF BEGINNING	POB		
POINT OF CURVATURE	PC		
POINT OF COMPOUND CURVE	PCC		

CURVE DATA

LONG CHORD	LCH
LONG CHORD BEARING	LCB
RADIUS	R
DEGREE OF CURVE	D
CENTRAL ANGLE	Δ/DELTA
LENGTH OF CURVE	L
TANGENT	T
DIRECTION AHEAD	DA
DIRECTION BACK	DB

NOTES:

POSITIONS SHOWN ON THIS PLAT ARE WISCONSIN COORDINATE REFERENCE SYSTEM COORDINATES (WISCRS), MANITOWOC COUNTY, NAD 83 (2011) IN US SURVEY FEET. VALUES SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

RIGHT OF WAY MONUMENTS ARE TYPE 2 MONUMENTS (TYPICALLY ¾" X 24" REBAR) AND ARE PLACED PRIOR TO THE COMPLETION OF THE PROJECT.

RIGHT OF WAY BOUNDARIES ARE DEFINED WITH COURSES OF THE PERIMETER OF THE HIGHWAY LANDS REFERENCED TO THE U.S. PUBLIC LAND SURVEY OR OTHER SURVEYS OF PUBLIC RECORD.

CONVENTIONAL UTILITY SYMBOLS

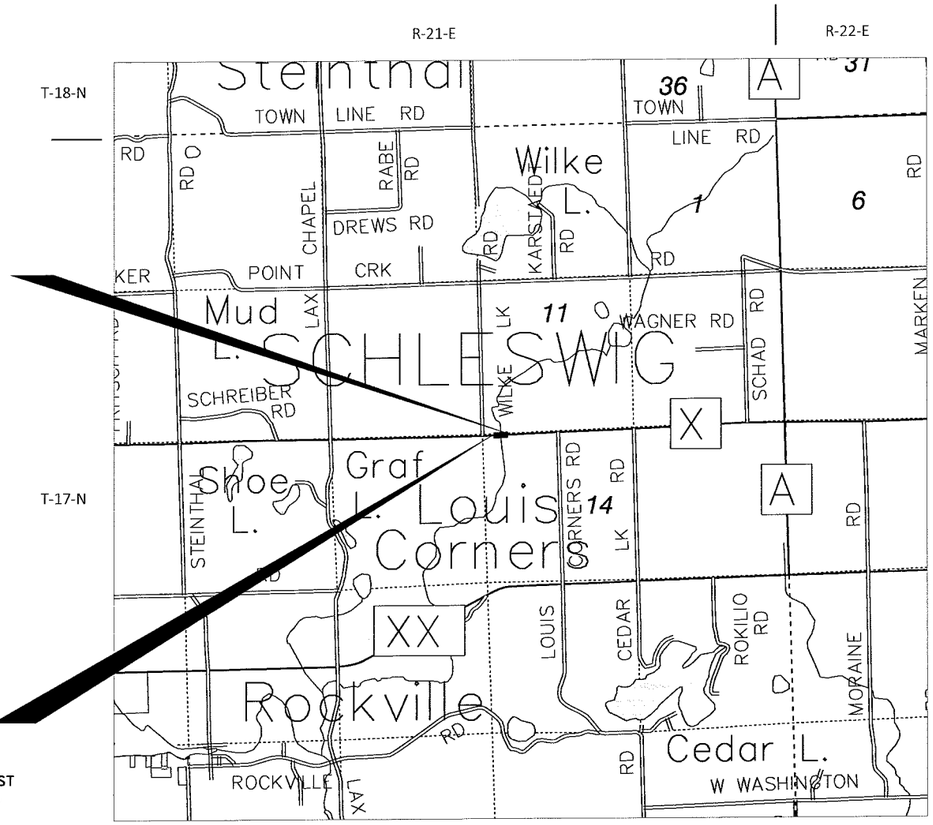
- WATER — W
- GAS — G
- TELEPHONE — T
- OVERHEAD TRANSMISSION LINES — OH
- ELECTRIC — E
- CABLE TELEVISION — TV
- FIBER OPTIC — FO
- SANITARY SEWER — SAN
- STORM SEWER — SS

CAUTION
THIS PLAT IS FOR ILLUSTRATIVE PURPOSES ONLY. DEEDS MUST BE CHECKED TO DETERMINE PROPERTY BOUNDARIES.

N

END RELOCATION
ORDER STA. 12+50.00
Y = 249,197.41
X = 154,306.98
28.73 FEET SOUTH OF AND 1,738.47 FEET WEST OF THE SOUTH QUARTER CORNER OF SECTION 11, T-17-N, R-21-E, TOWN OF SCHLESWIG, MANITOWOC COUNTY, WI

BEGIN RELOCATION
ORDER STA. 7+50.00
Y = 249,187.70
X = 153,807.08
5.95 FEET NORTH OF AND 393.60 FEET EAST OF THE SOUTHWEST CORNER OF SECTION 11, T-17-N, R-21-E, TOWN OF SCHLESWIG, MANITOWOC COUNTY, WI



LAYOUT
SCALE 0 — 1 MILE

TOTAL NET LENGTH OF CENTERLINE = 0.095 MI

ORIGINAL PLAT PREPARED BY

MSA PROFESSIONAL SERVICES
TRANSPORTATION • MUNICIPAL DEVELOPMENT • ENVIRONMENTAL
1230 South Boulevard Baraboo, WI 53913
608-356-2771 1-800-362-4505 Fax: 608-356-2770
Web Address: www.msa-ps.com

WISCONSIN
GREGORY P. RHINEHART
S-1478
FRIENDSHIP, WI
LAND SURVEYOR

3/7/2017 (Date)

Gregory P. Rhinehart (Professional Land Surveyor)

REVISION DATE

APPROVED FOR MANITOWOC COUNTY

DATE: 3/8/2017 (Signature)

FILE NAME : P:\9300S\9300S\9306\09306023\CADD\RW\PRWAY.DWG
LAYOUT NAME - 040101_RW
PLOT DATE : 3/7/2017 11:55 AM
PLOT BY : BRAD LEE
PLOT NAME :
WISDOT/CADDS SHEET 50

SCHEDULE OF LANDS & INTERESTS REQUIRED

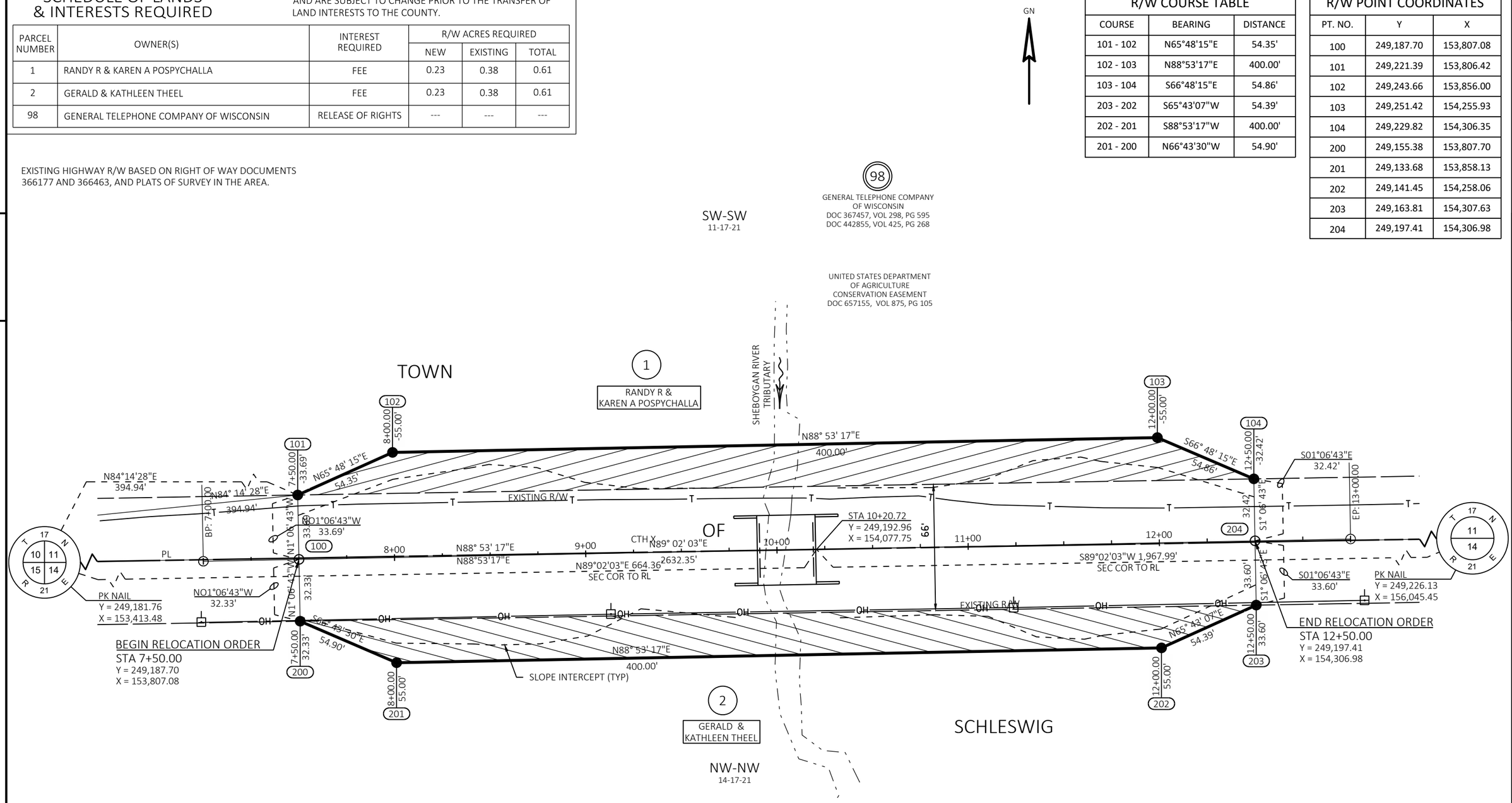
OWNER'S NAMES ARE SHOWN FOR REFERENCE PURPOSES ONLY AND ARE SUBJECT TO CHANGE PRIOR TO THE TRANSFER OF LAND INTERESTS TO THE COUNTY.

PARCEL NUMBER	OWNER(S)	INTEREST REQUIRED	R/W ACRES REQUIRED		
			NEW	EXISTING	TOTAL
1	RANDY R & KAREN A POSPYCHALLA	FEE	0.23	0.38	0.61
2	GERALD & KATHLEEN THEEL	FEE	0.23	0.38	0.61
98	GENERAL TELEPHONE COMPANY OF WISCONSIN	RELEASE OF RIGHTS	---	---	---

EXISTING HIGHWAY R/W BASED ON RIGHT OF WAY DOCUMENTS 366177 AND 366463, AND PLATS OF SURVEY IN THE AREA.

R/W COURSE TABLE		
COURSE	BEARING	DISTANCE
101 - 102	N65°48'15"E	54.35'
102 - 103	N88°53'17"E	400.00'
103 - 104	S66°48'15"E	54.86'
203 - 202	S65°43'07"W	54.39'
202 - 201	S88°53'17"W	400.00'
201 - 200	N66°43'30"W	54.90'

R/W POINT COORDINATES		
PT. NO.	Y	X
100	249,187.70	153,807.08
101	249,221.39	153,806.42
102	249,243.66	153,856.00
103	249,251.42	154,255.93
104	249,229.82	154,306.35
200	249,155.38	153,807.70
201	249,133.68	153,858.13
202	249,141.45	154,258.06
203	249,163.81	154,307.63
204	249,197.41	154,306.98



4

4

REVISION DATE	DATE MARCH 7, 2017	SCALE, FEET 0 25 50	HWY: CTH X	STATE R/W PROJECT NUMBER 4318-03-00	PLAT SHEET 4.02
	GRID FACTOR N/A		COUNTY: MANITOWOC	CONSTRUCTION PROJECT NUMBER 4318-03-71	PS&E SHEET 10 E

FILE NAME : PRWAY.DWG
LAYOUT NAME - 040102_rw

PLOT DATE : 3/7/2017 11:55 AM PLOT BY : BRAD LEE PLOT NAME : PLOT SCALE : ##########

WISDOT/CADDS SHEET 75

BENCH MARKS			
NO.	STATION	DESCRIPTION	ELEV.
1	9+87.99, 16.5' RT	CHIS SQ ON SW CORNER BRIDGE ABUT	878.09
2	8+11.00, 67.2' RT	2 POLE NAILS IN 12" BOX ELDER TREE	877.59
3	11+10.87, 76.0' LT	2 POLE NAILS IN 14" ASH TREE	873.49

CONCRETE PAVEMENT APPROACH SLAB

LEGEND
- SILT FENCE
- RIPRAP
- TURBIDITY BARRIER
- ROCK BAGS
- SURFACE WATER FLOW

N

RANDY & KAREN POSPYCHALLA

GERALD & KATHLEEN THEEL

BURIED TELEPHONE (FRONTIER COMMUNICATIONS) (TO BE DISCONTINUED)

BURIED FIBER OPTIC (FRONTIER COMMUNICATIONS) (TO REMAIN IN PLACE)

MGS EAT TERMINAL (TYP.)

MGS GUARDRAIL (TYP.)

WETLAND LIMITS (TYP.)

STRUCTURE B-36-224

EXISTING R/W

SALVAGED RAIL

SAWCUT

CTH X (ASPHALT)

N88° 53' 17"E

BM-1

BM-2

BM-3

EXISTING STRUCTURE B-36-194 (TO BE REMOVED)

FINISHED RIGHT DITCH

GEOTEXTILE FABRIC TYPE HR & RIPRAP HEAVY

OVERHEAD ELECTRIC (WISCONSIN PUBLIC SERVICE CORPORATION) (TO BE RELOCATED)

SLOPE INTERCEPT (TYP)

SHEBOYGAN RIVER TRIBUTARY

66'

BEGIN CONSTRUCTION
STA 7+50

BEGIN PROJECT
STA 8+40
Y = 249,189.45
X = 153,897.06

END CONSTRUCTION
STA 12+50

END PROJECT
STA 11+70
Y = 249,195.85
X = 154,227.00

PI = 7+00.00
Y = 249,186.73
X = 153,757.09

PI = 13+00.00
Y = 249,198.37
X = 154,356.97

VCL = 370.00
K = 135.99

REMOVE EXISTING BRIDGE B-36-194
STA 10+00
SINGLE SPAN FLAT CONCRETE SLAB
31.0 FT CLEAR ROADWAY WIDTH
23.2 FT OVERALL LENGTH
6° SKEW LHF

STA 10+05, STRUCTURE B-36-224
SINGLE SPAN FLAT CONCRETE SLAB
34.0 FT CLEAR ROADWAY WIDTH
30.5 FT OVERALL LENGTH
0° SKEW

FINISHED PROFILE

EXISTING PROFILE

HIGH WATER 100 ELEV. 875.47

O_2 ELEV. 873.57

-1.56%
-1.00%
-2.00%
-2.56%
1.16%

STA 8+00.00 EL 881.37
VPC STA 8+43.36 VPC EL 880.69
VPI STA 10+28.36 VPI EL 877.80
STA 12+23.71 EL 880.06
VPT STA 12+13.36 VPT EL 879.94

EARTHWORK SUMMARY
STA 7+50 - STA 12+50

EXC. COMMON	**P**	682 CY
FILL		547 CY
FILL EXPANSION		30%
BORROW	**P**	218 CY

P - PAY PLAN QUANTITY

EXISTING	PROPOSED
883.37	
882.31	
881.37	
	880.59
	879.93
	879.44
	879.15
	879.03
	879.10
	879.35

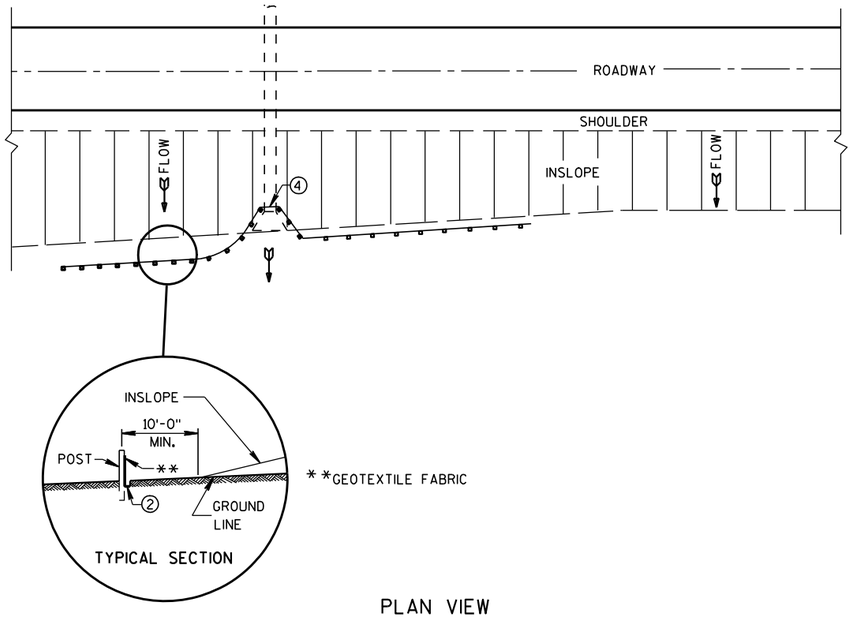
PROJECT NO: 4318-03-71	HWY: CTH X	COUNTY: MANITOWOC	PLAN AND PROFILE: CTH X	SHEET 11	E

FILE NAME : P:\9300S\9300S\9306\09306023\CADD\DESIGN\ALIPROFS\ALIPROFS_CTH_X.DWG
LAYOUT NAME - ALIPROFS_CTH_X - 050101_PP

PLOT DATE : 10/3/2017 6:16 AM PLOT BY : BRAD LEE PLOT NAME : PLOT SCALE : 1 IN:40 FT

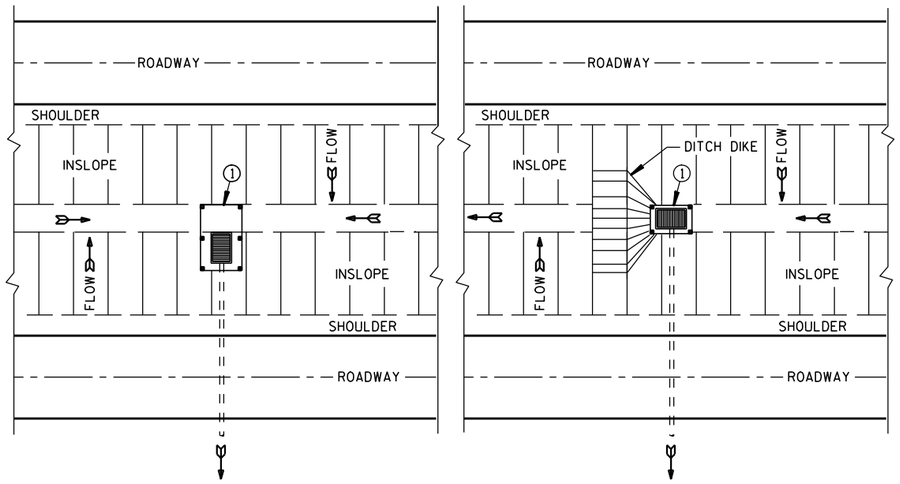
Standard Detail Drawing List

08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
12A03-10	NAME PLATE (STRUCTURES)
13B02-08A	CONCRETE PAVEMENT APPROACH SLAB
14B42-05A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-05B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-05C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-05D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-03A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-03B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-03C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-04A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15C02-06A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C06-09	SIGNING & MARKING FOR TWO LANE BRIDGES
15C11-07B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15D38-02A	TEMPORARY TRAFFIC CONTROL SIGN MOUNTING
15D38-02B	ATTACHMENT OF SIGNS TO POSTS



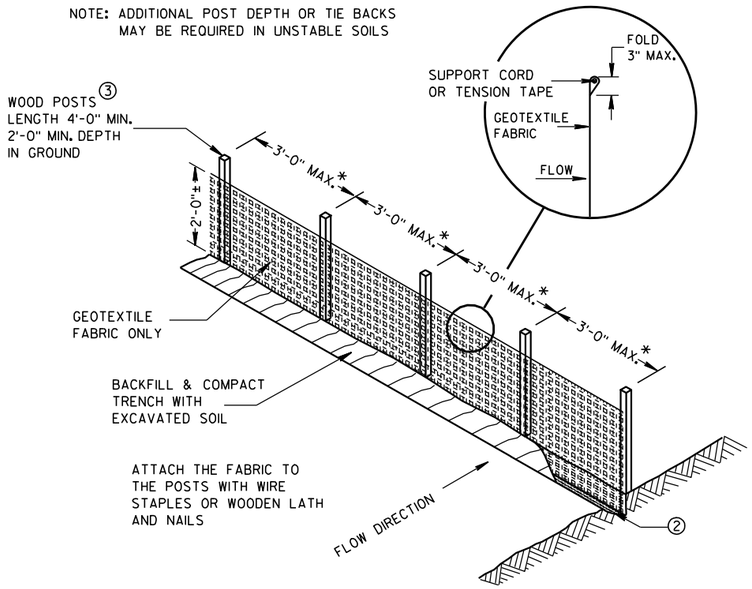
PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



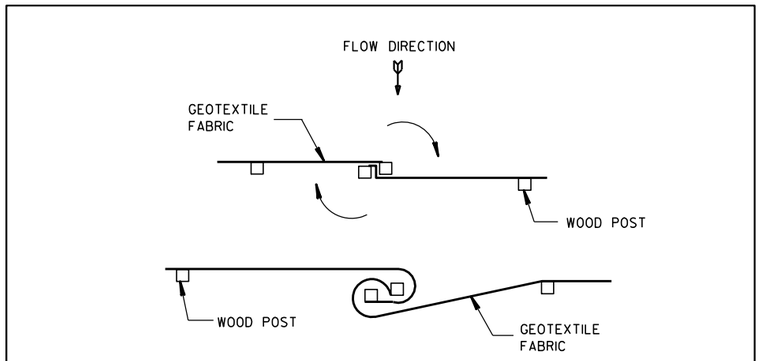
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

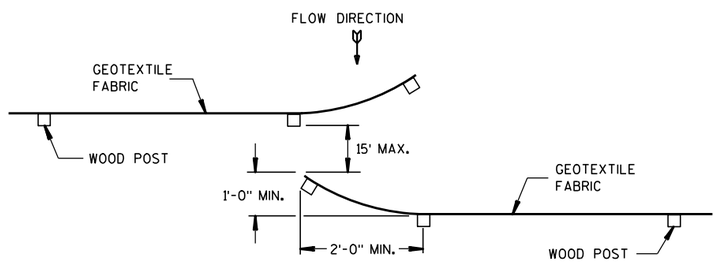


*NOTE: 8'-0" POST SPACING ALLOWED IF A WOVEN GEOTEXTILE FABRIC IS USED.

SILT FENCE



TWIST METHOD



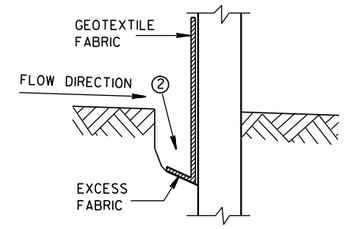
HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE 5

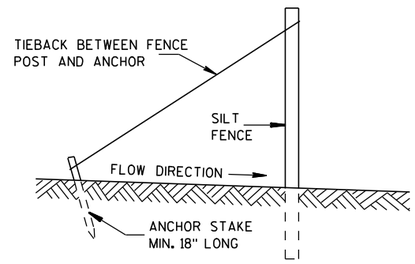
GENERAL NOTES

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 TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

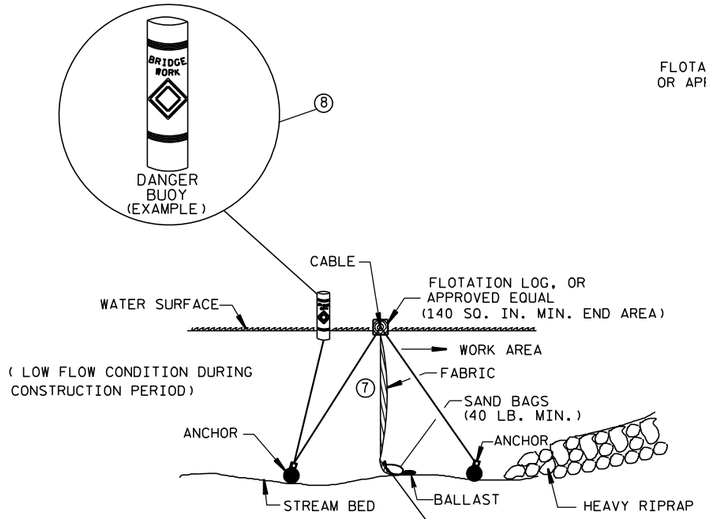
SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

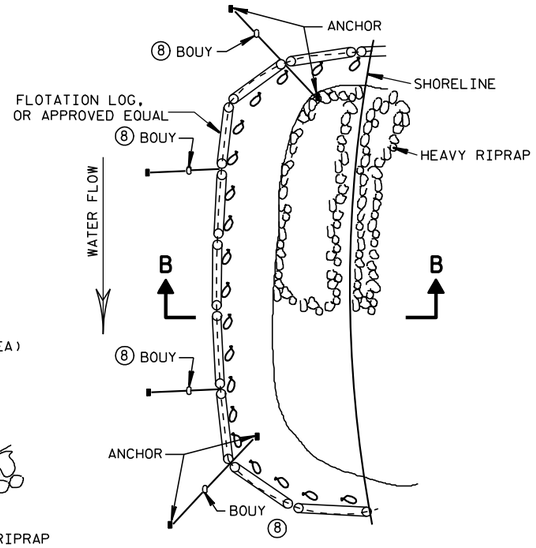
APPROVED
4-29-05 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

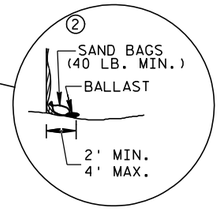
S.D.D. 8 E 9-6

S.D.D. 8 E 9-6

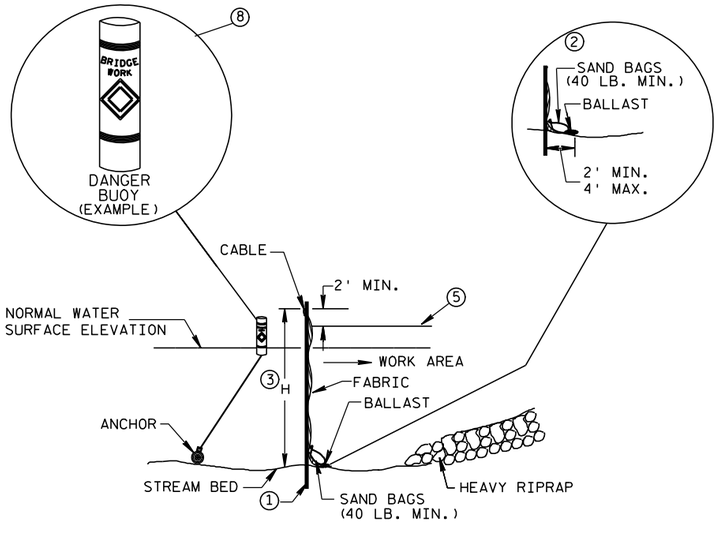


SECTION B-B

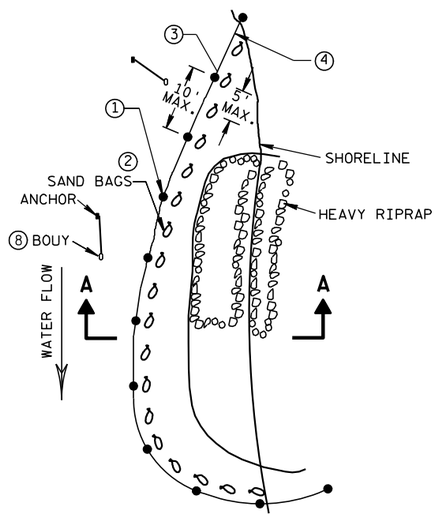




TURBIDITY BARRIER FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6



SECTION A-A



PLAN VIEW

TURBIDITY BARRIER STANDARD POST INSTALLATION

TURBIDITY BARRIER PLACEMENT DETAILS

GENERAL NOTES

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

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

① DRIVEN STEEL POSTS, PIPES, OR CHANNELS. LENGTH SHALL BE SUFFICIENT TO SECURELY SUPPORT BARRIER AT HIGH WATER ELEVATIONS.

② SANDBAGS TO BE USED AS ADDITIONAL BALLAST WHEN ORDERED BY THE ENGINEER TO MEET ADVERSE FIELD CONDITIONS. SPACE AS APPROPRIATE FOR SITE CONDITIONS.

③ WHEN BARRIER HEIGHT, H, EXCEEDS 8 FT., POST SPACING MAY NEED TO BE DECREASED.

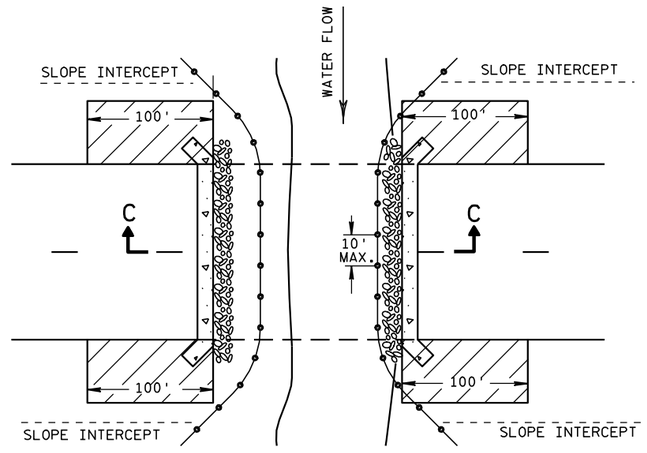
④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.

⑤ ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD. MIMIMUM BARRIER HEIGHT SHALL BE 2'GREATER THAN EITHER THE O2 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WICHEVER IS GREATER.

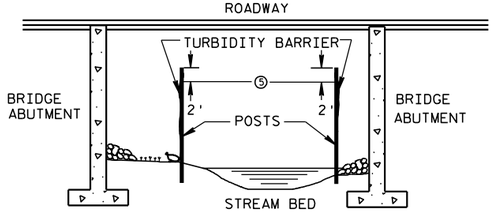
⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BED ROCK PREVENTS THE INSTALLATION OF POSTS.

⑦ ALLOW SUFFICIENT SLACK VERTICALLY AND HORIZONTALLY SO THAT SEDIMENT BUILD UP WILL NOT SEPARATE OR LOWER THE TURBIDITY BARRIER.

⑧ USE AS DIRECTED BY COAST GUARD OR DNR PERMIT WHEN WORKING IN NAVIGABLE WATERWAYS.



PLAN VIEW



SECTION C-C

TURBIDITY BARRIER DETAIL SHOWING TYPICAL PLACEMENT AT STRUCTURES

TURBIDITY BARRIER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/04/02 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

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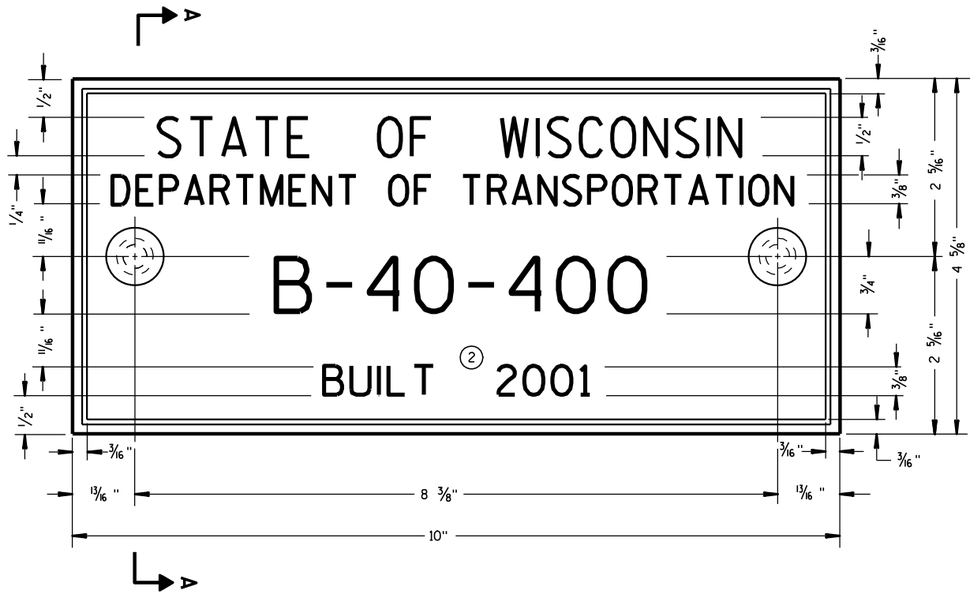
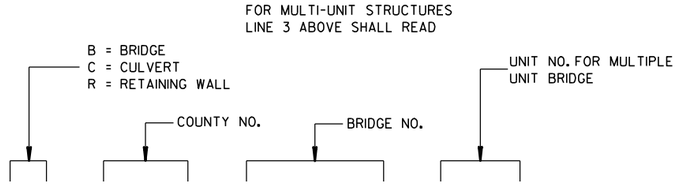
S.D.D. 8 E 11-2



TYPICAL NAME PLATE

(BRIDGES, CULVERTS, AND RETAINING WALLS)



NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

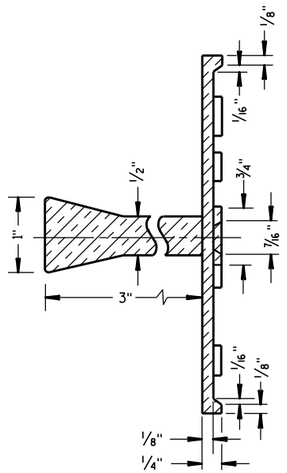
GENERAL NOTES

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

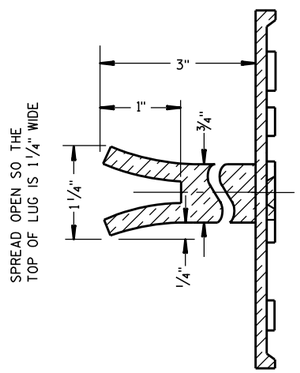
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

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

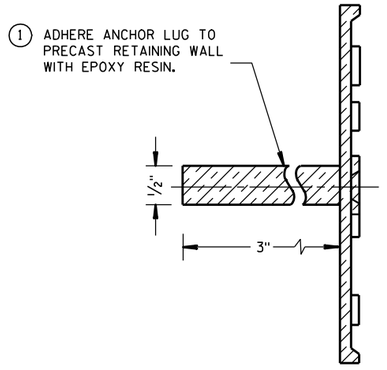
(2) REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



SECTION A-A



ALTERNATE LUG



ALTERNATE LUG

(FOR ATTACHMENT TO PRECAST STRUCTURES)

NAME PLATE (STRUCTURES)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
3/26/10 DATE	/S/ Scot Beck -- CHIEF STRUCTURAL DEVELOP ENGINEER
FHWA	

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S.D.D. 12 A 3-10

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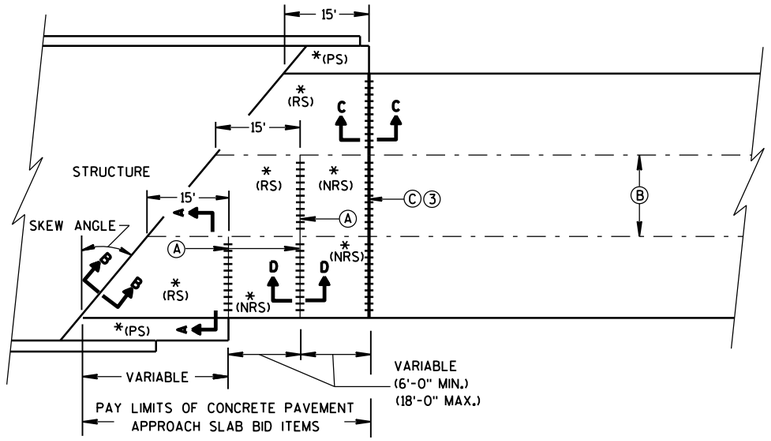
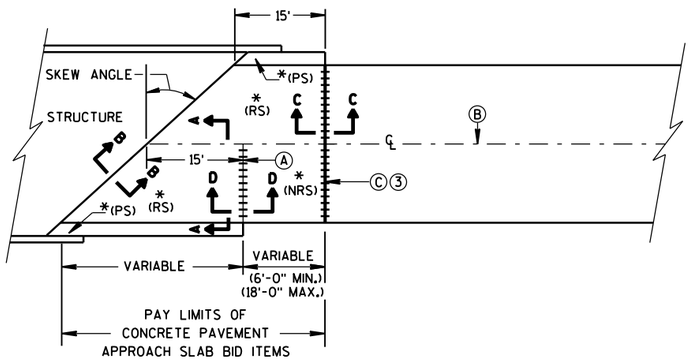
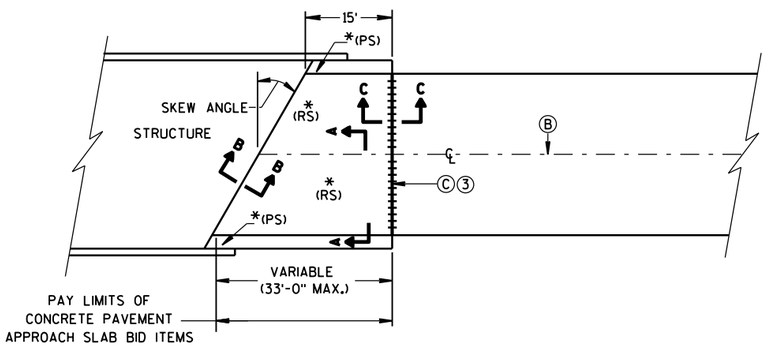
S.D.D. 12 A 3-10



SKEWED APPROACH
(PAVEMENT MORE THAN 2 LANES)



SKEWS >20°
(PAVEMENT WIDTH ≤30')



SKEWS ≤20°
(PAVEMENT WIDTH ≤30')

APPROACH SLAB AND ADJACENT PAVEMENT

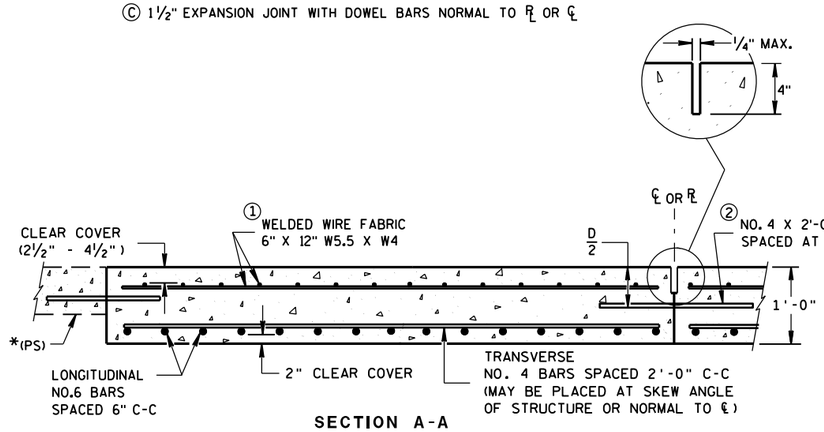
*(RS) = REINFORCED CONCRETE SLAB
*(PS) = PAVED CONCRETE SHOULDER OR CONCRETE DRAINAGE SLAB
(SEE DETAILS ELSEWHERE IN THE PLAN)
*(NRS) = NON-REINFORCED CONCRETE SLAB

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

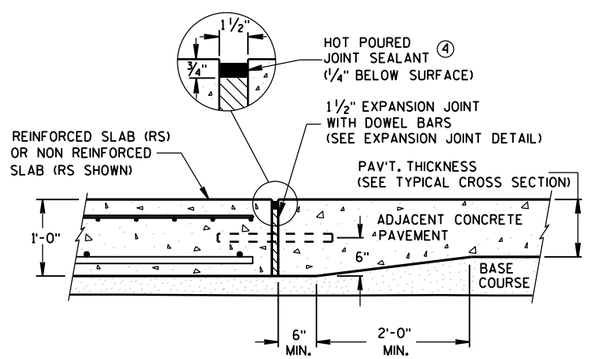
Ⓐ STANDARD CONTRACTION JOINT NORMAL TO ℄ OR ℄

Ⓑ STANDARD LONGITUDINAL JOINT WITH TIE BARS.

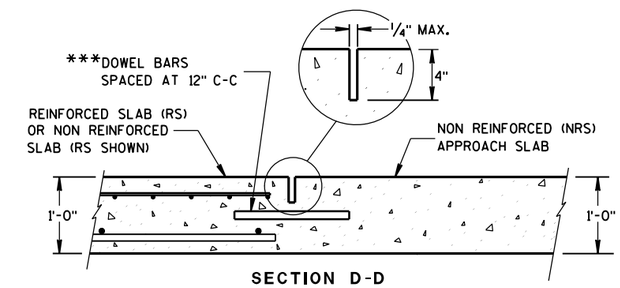
Ⓒ 1½" EXPANSION JOINT WITH DOWEL BARS NORMAL TO ℄ OR ℄



SECTION A-A
REINFORCEMENT POSITIONING DETAIL



SECTION C-C
TRANSITION DETAIL
APPROACH SLAB TO ADJACENT PAVEMENT



SECTION D-D
CONTRACTION JOINT

GENERAL NOTES

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

TACK WELD DOWEL BARS TO THE BASKETS ON ALTERNATE ENDS.

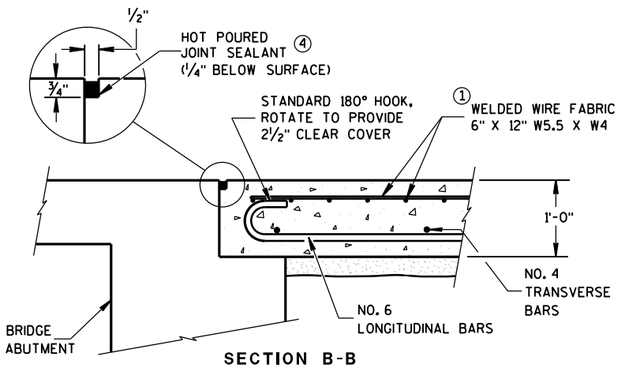
① THE CONTRACTOR MAY USE NO. 4 BARS SPACED AT 2'-0" C-C IN BOTH THE LONGITUDINAL AND TRANSVERSE DIRECTIONS FOR TOP REINFORCEMENT AS AN ALTERNATIVE TO THE WELDED WIRE FABRIC.

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

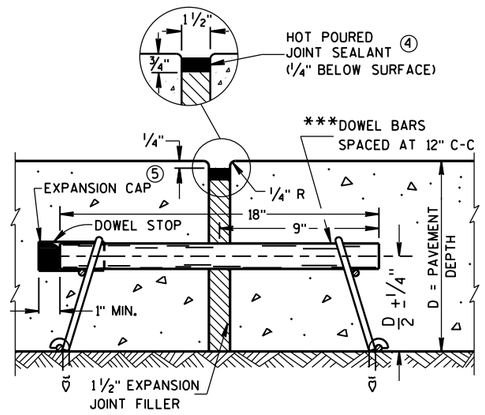
③ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING AN HMA PAVEMENT.

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

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



SECTION B-B
BEND DETAIL
BOTTOM REINFORCEMENT



EXPANSION JOINT DETAIL

CONCRETE PAVEMENT APPROACH SLAB

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

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

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.

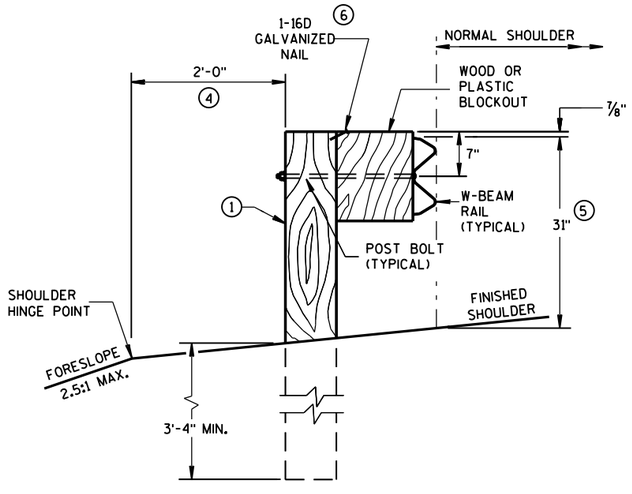
② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.

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).

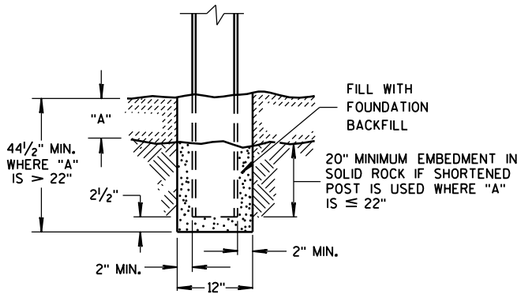
⑤ FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ± 1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27¾" TO 32".

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.



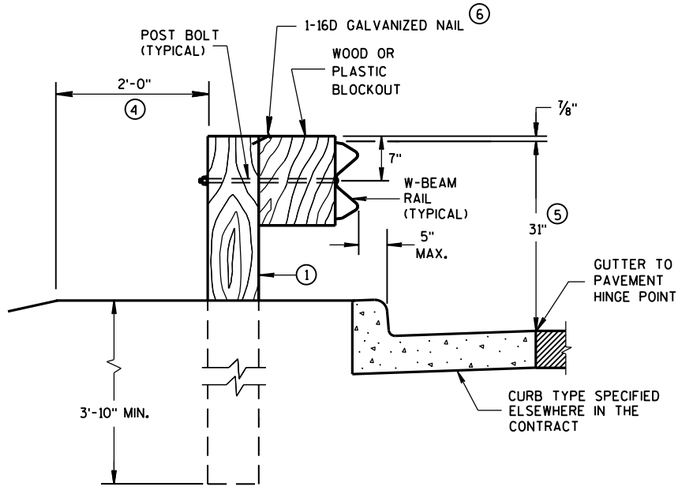
END VIEW

LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



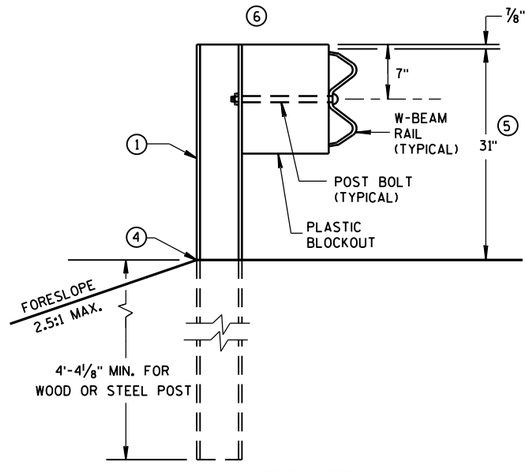
END VIEW

SETTING STEEL OR WOOD POST IN ROCK ③



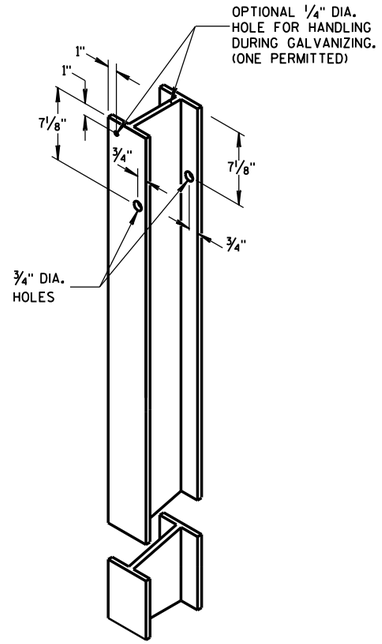
END VIEW

LOCATED ALONG A CURBED ROADWAY

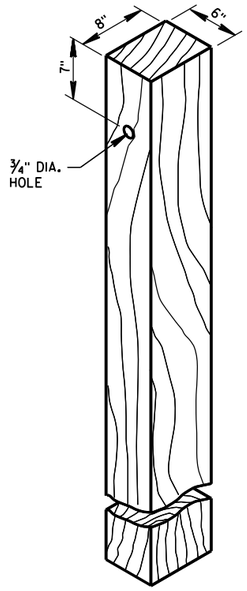


END VIEW

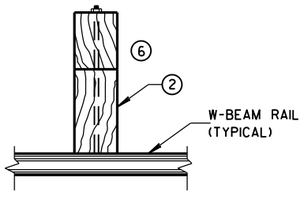
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



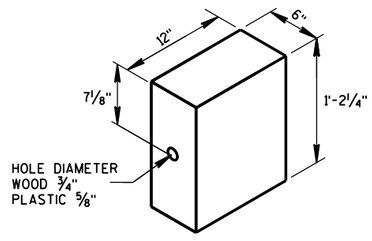
STEEL POST &
HOLE PUNCHING DETAIL
(w6X9) ①



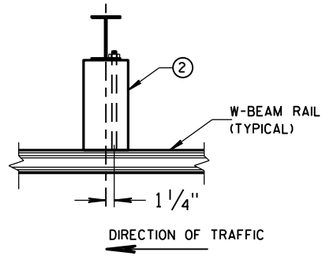
WOOD POST
(6" X 8") NOMINAL ①



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

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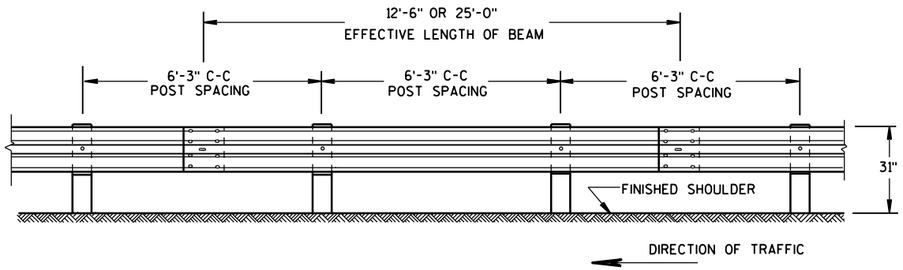
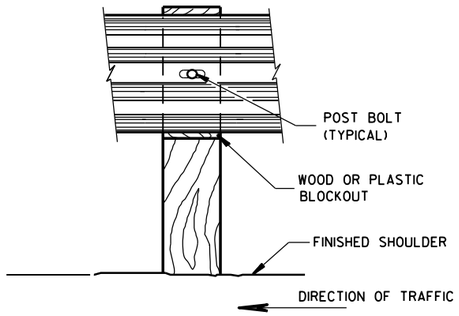
S.D.D. 14 B 42-5a



FRONT VIEW

POST SPACING STANDARD INSTALLATION



FRONT VIEW AT WOOD POST

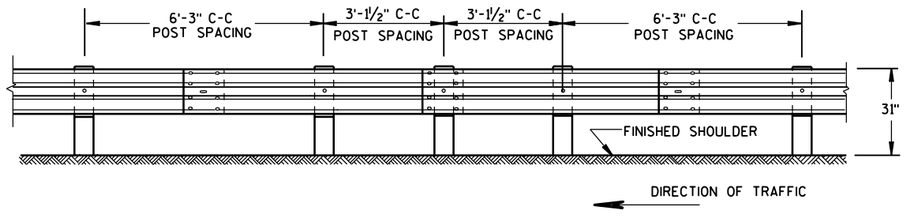
GENERAL NOTES

(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.

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

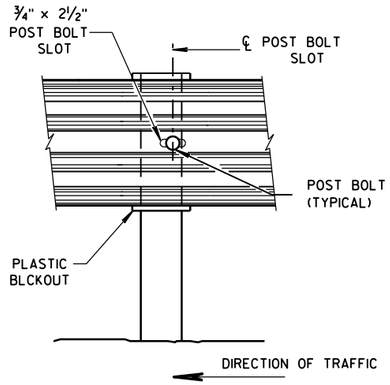
POST BOLTS ARE A 5/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 5/8" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

GUARD RAIL SPLICE BOLTS ARE A 5/8" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.

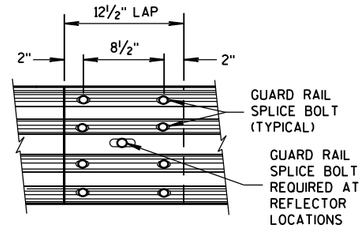


FRONT VIEW

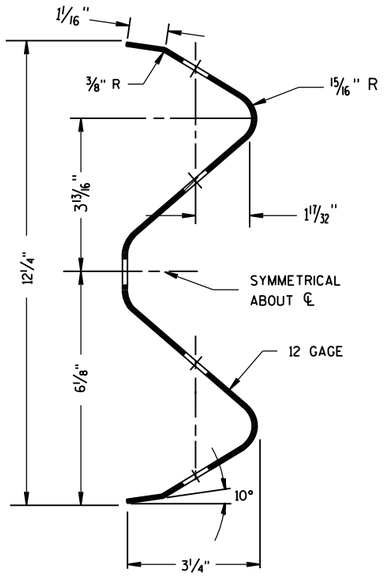
HALF POST SPACING (HS) AND HALF POST SPACING WITH LONGER POSTS (K)



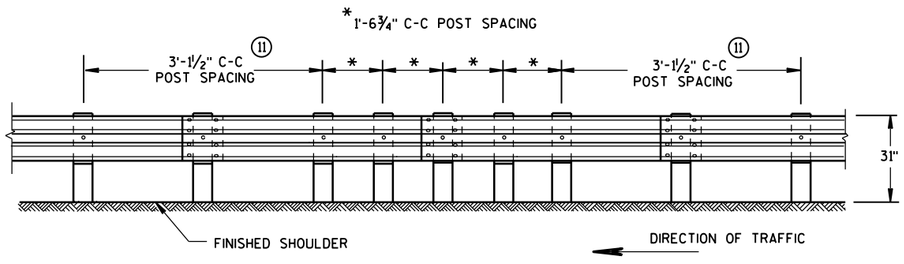
FRONT VIEW AT STEEL POST



FRONT VIEW
MID-SPAN BEAM SPLICE

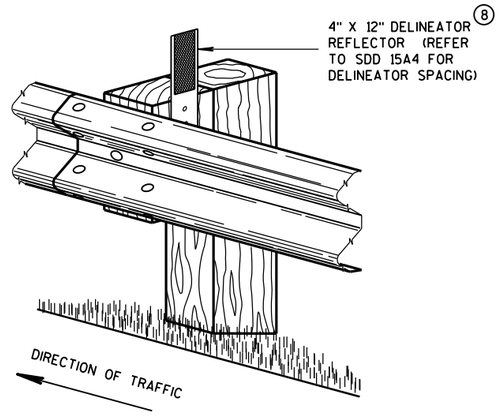


SECTION THRU W-BEAM RAIL



FRONT VIEW

QUARTER POST SPACING (QS)



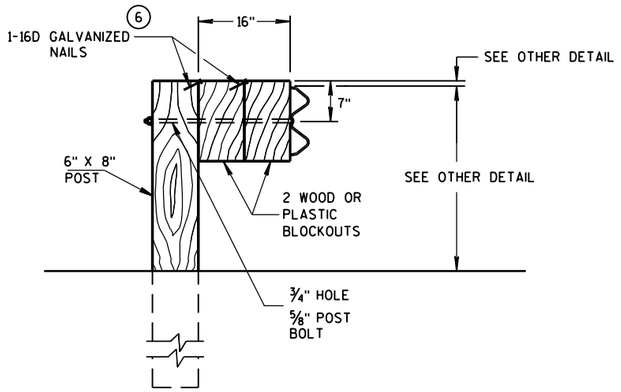
ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

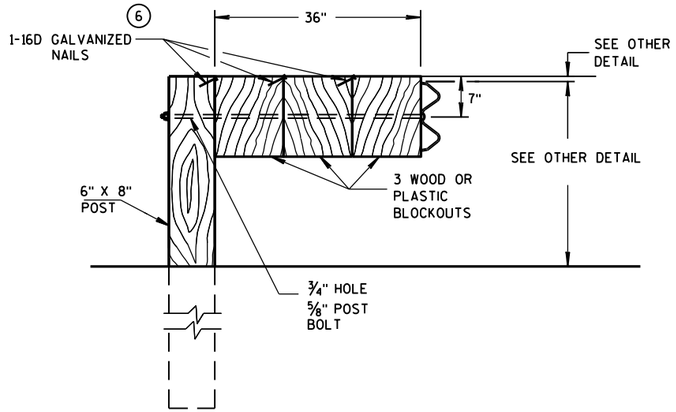
6

S.D.D. 14 B 42-5b



DETAIL FOR 16" BLOCKOUT DEPTH

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

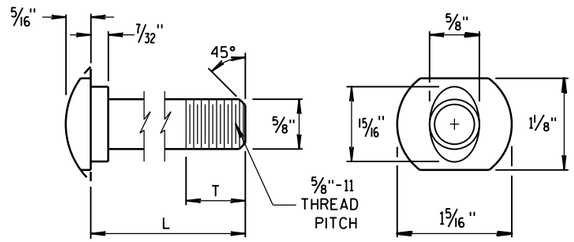


DETAIL FOR 36" BLOCKOUT DEPTH

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

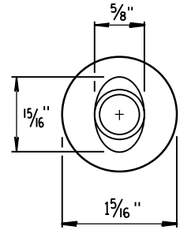
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

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

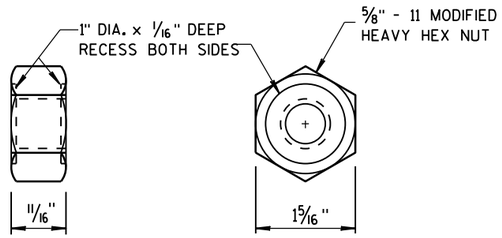


POST BOLT TABLE

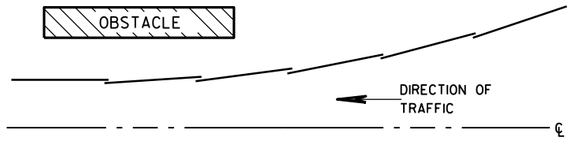
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



ALTERNATE BOLT HEAD

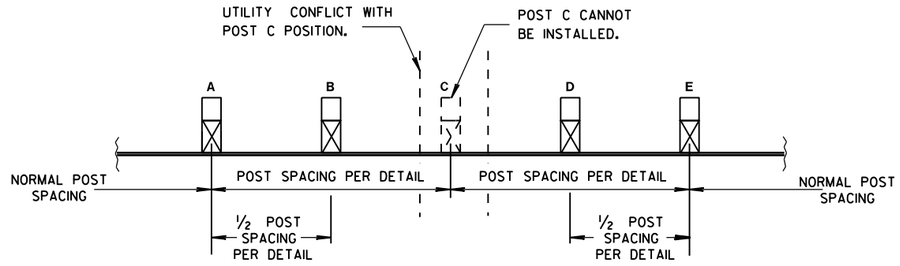


POST BOLT, SPLICE BOLT AND RECESS NUT

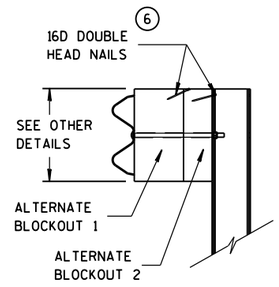


PLAN VIEW

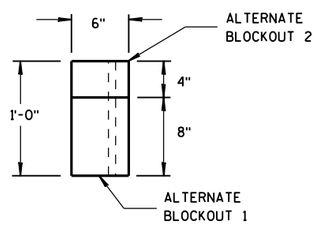
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



SIDE VIEW



TOP VIEW

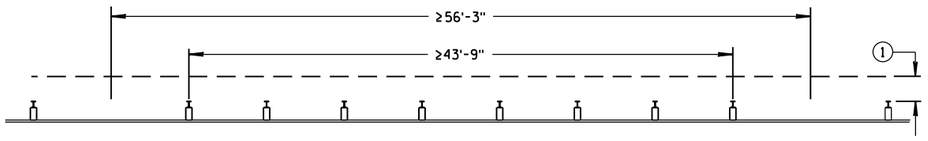
ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

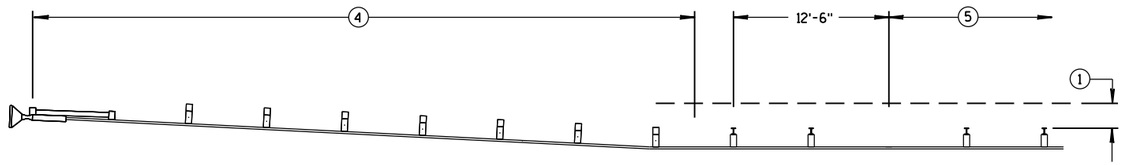
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

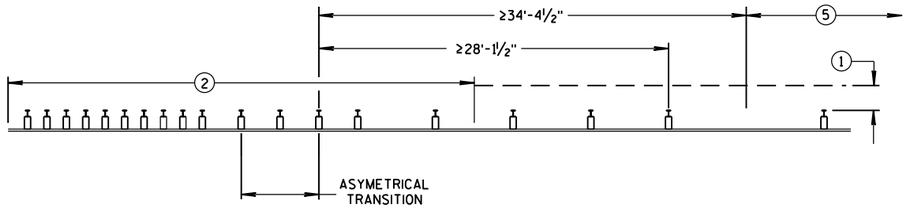
S.D.D. 14 B 42-5c



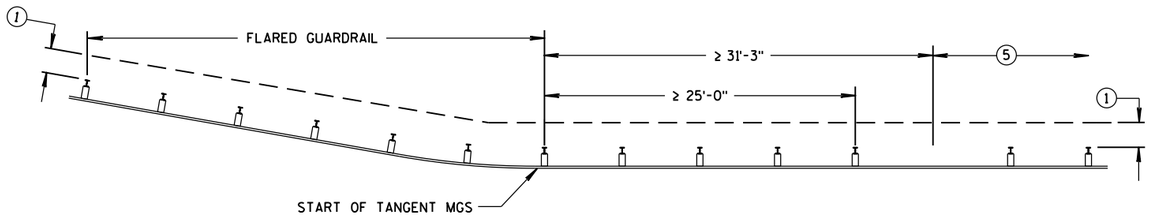
MISSING POST IN NORMAL BEAM GUARD RUN



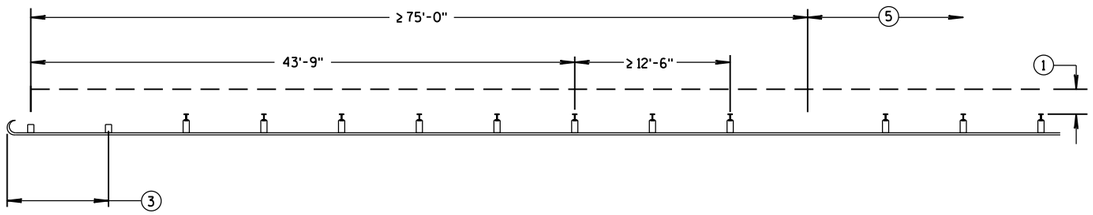
MISSING POST IN NORMAL BEAM GUARD RUN NEAR EAT



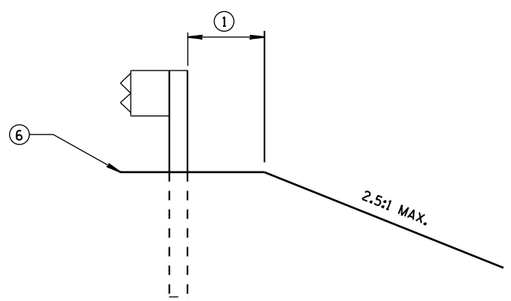
MISSING POST NEAR APPROACH THRIE BEAM TRANSITION



MISSING POST IN NORMAL BEAM GUARD RUN
NEAR FLARED BEAM GUARD



MISSING POST IN NORMAL BEAM GUARD RUN
NEAR TYPE 2 TERMINAL



CROSS SECTION VIEW

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

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017
DATE
FHWA

/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR

6

S.D.D. 14 B 42-5d

6

S.D.D. 14 B 42-5d

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.

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

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

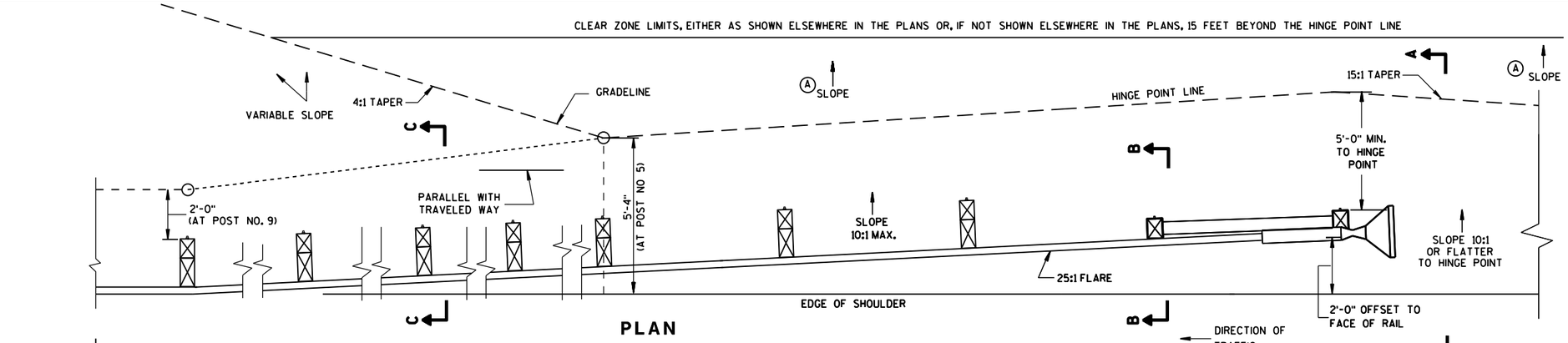
SEE SDD 14B42 FOR MORE INFORMATION.

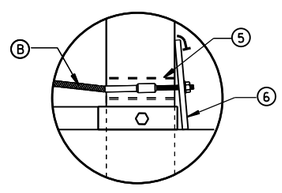
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

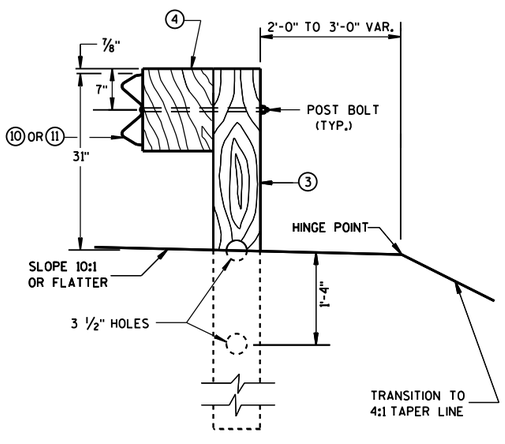
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

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

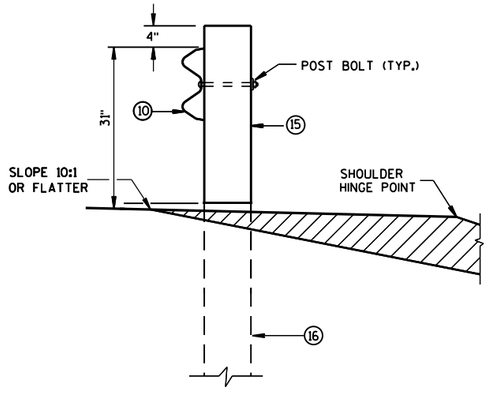
THE CENTER OF THE UPPER 3½" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE.



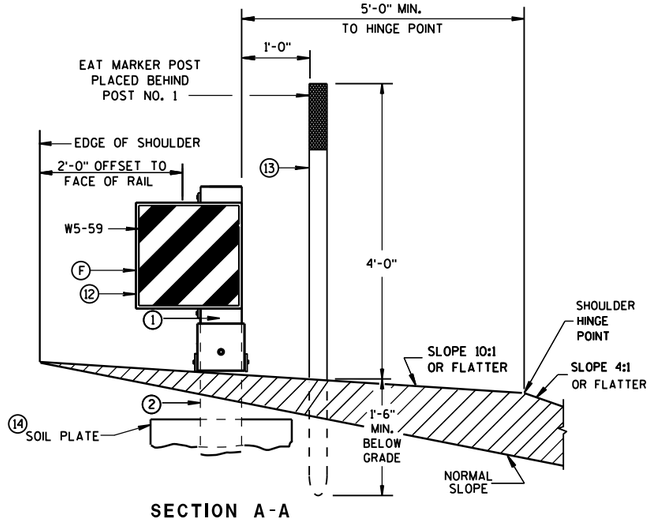




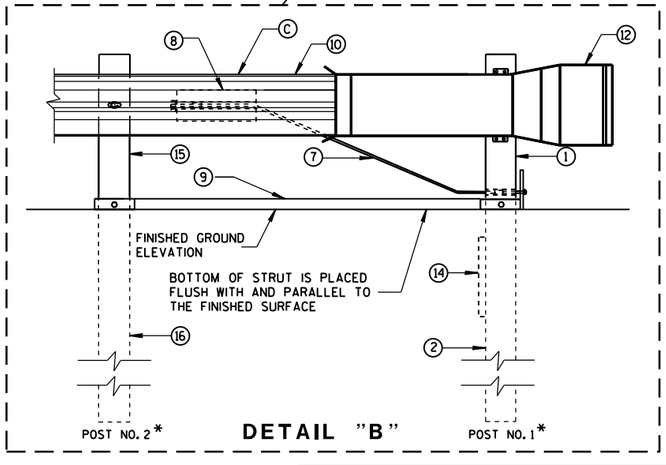
SECTION C-C
TYPICAL AT POST NOS. 3-9



SECTION B-B
TYPICAL AT POST NO. 2*



SECTION A-A
TYPICAL AT POST NO. 1*



DETAIL "B"

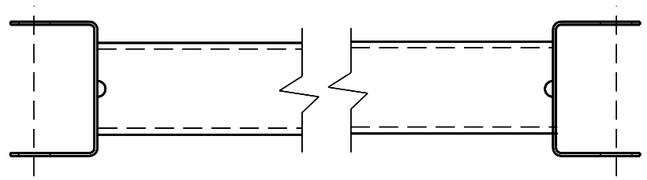
MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
STATE OF WISCONSIN DEPARTMENT OF TRANSPO

6

S.D.D. 14 B 44-3a

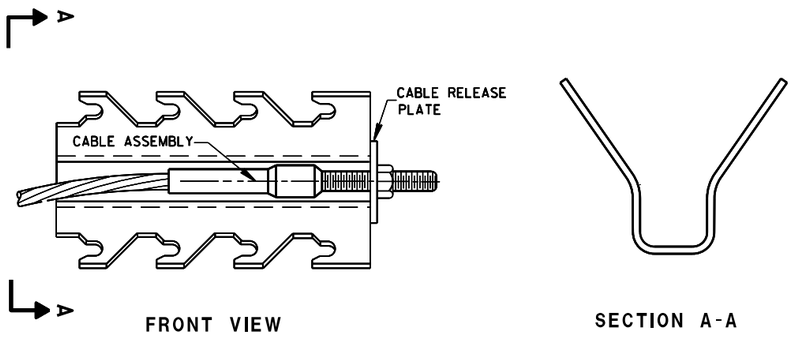
6

S.D.D. 14 B 44-3a



⑨ Ⓗ

GENERIC GROUND STRUT



FRONT VIEW

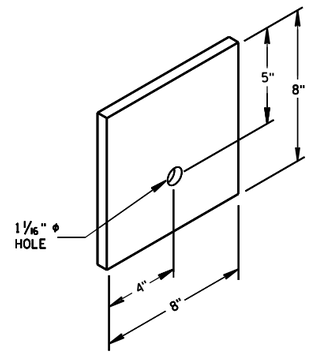
SECTION A-A

GENERIC ANCHOR CABLE BOX

⑧ Ⓗ

BILL OF MATERIALS

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



BEARING PLATE

⑥

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

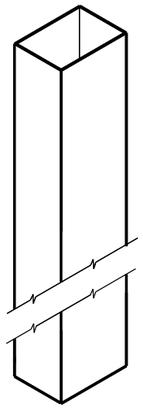
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

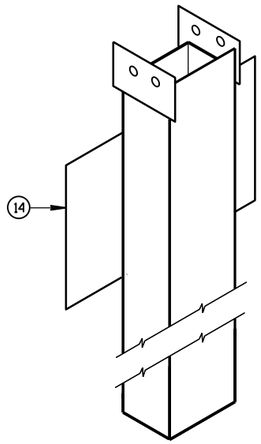
S.D.D. 14 B 44-3b

6

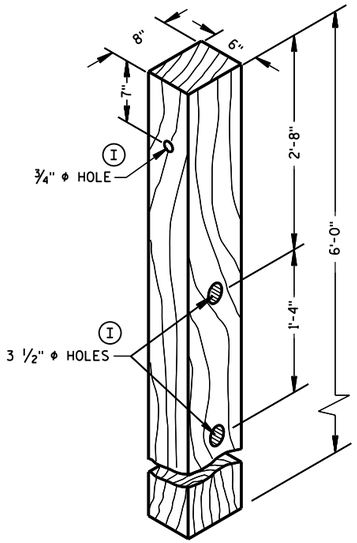
S.D.D. 14 B 44-3b



UPPER POST NO. 1 (1)

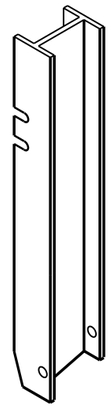


LOWER POST NO. 1 (2)

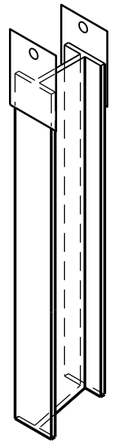


POSTS NUMBER 3-9

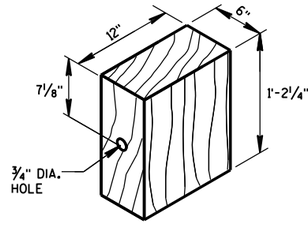
WOOD CRT POST (3)



UPPER POST NO. 2 (15)

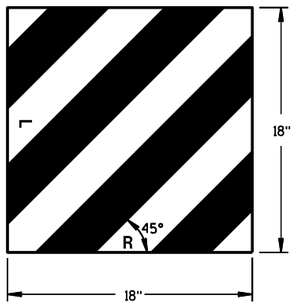


LOWER POST NO. 2 (16)



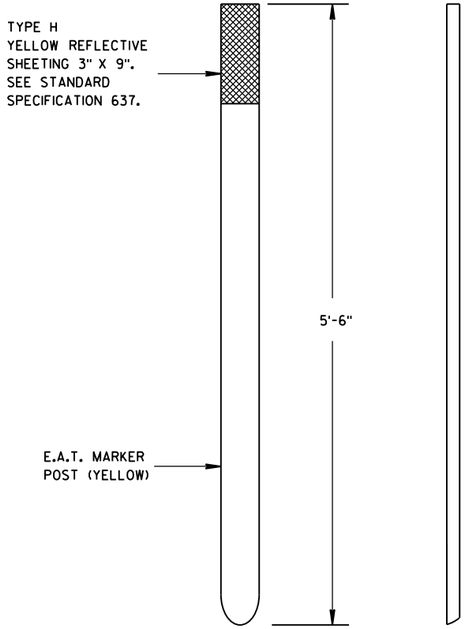
WOOD BLOCKOUT (4)

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



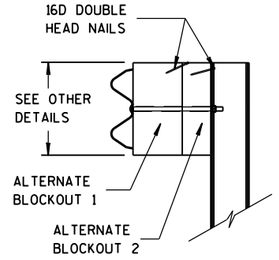
W5-59

REFLECTIVE SHEETING DETAIL (H)

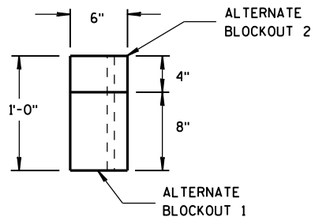


FRONT VIEW SIDE VIEW

E.A.T. MARKER POST (13)



SIDE VIEW



TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

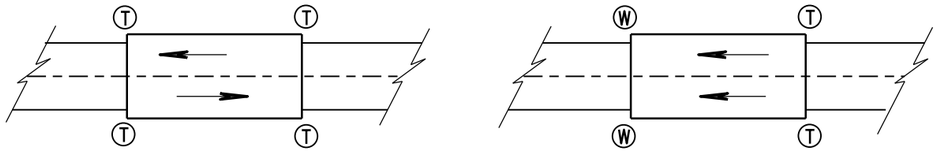
June 2017
DATE

/S/ Rodney Taylor
ROADWAY STANDARDS
UNIT SUPERVISOR

FHWA

6

S.D.D. 14 B 44-3c



TWO WAY TRAFFIC

ONE WAY TRAFFIC

Ⓣ THRIE BEAM CONNECTION

Ⓦ W-BEAM CONNECTION WHEN REQUIRED

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

GENERAL NOTES

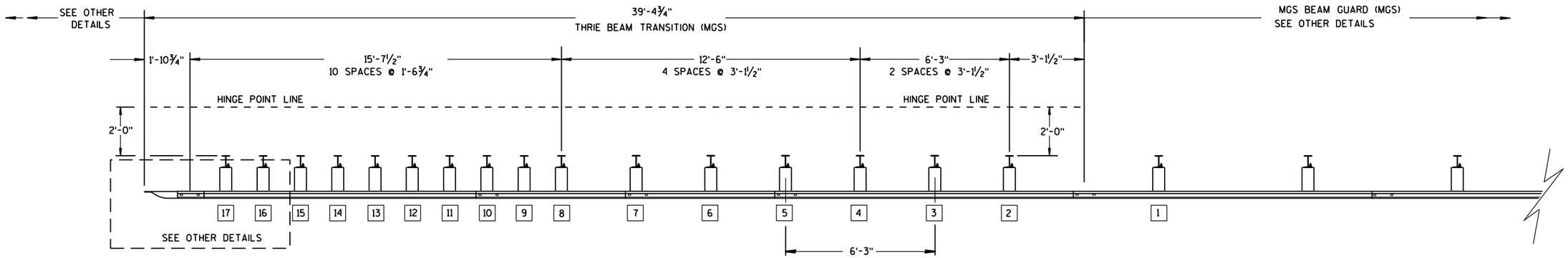
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2½", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

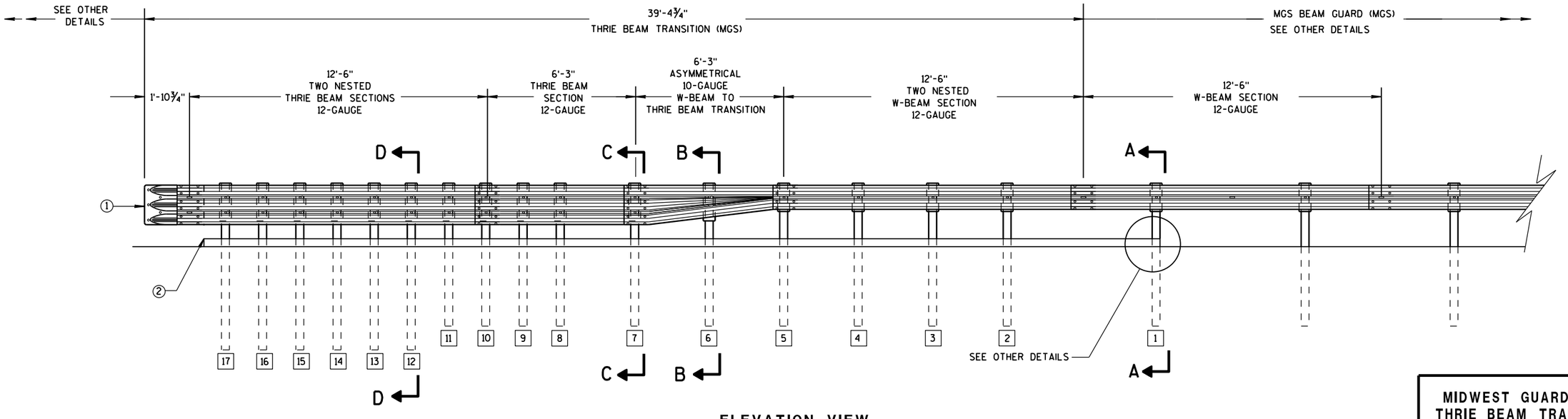
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

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

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



PLAN VIEW



ELEVATION VIEW

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

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

6

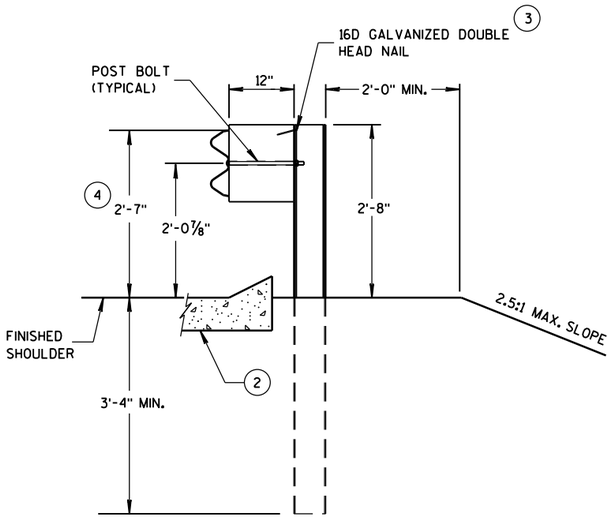
S.D.D. 14 B 45-4a

GENERAL NOTES

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

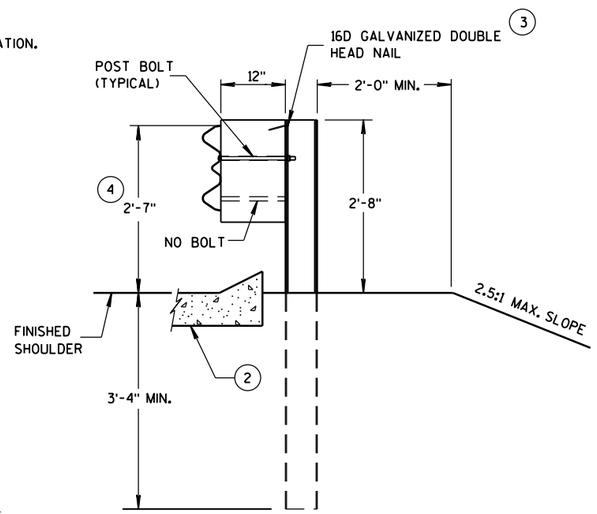
(3) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

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



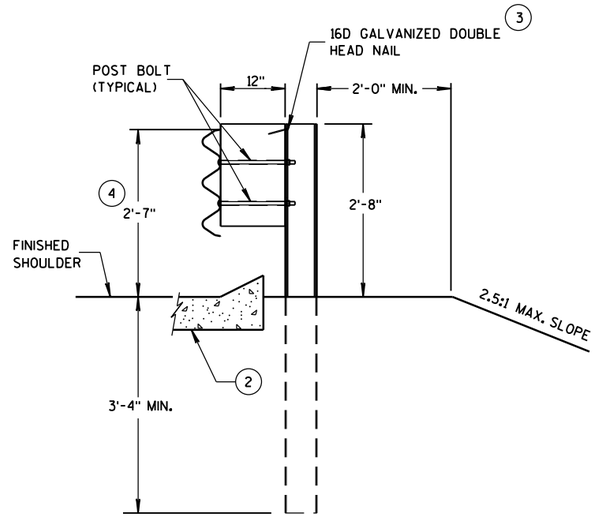
SECTION A-A

POSTS 1-5



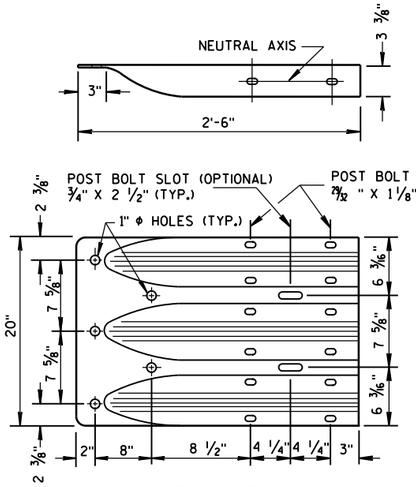
SECTION B-B

POST 6



SECTION C-C

POSTS 7-11



THRIE BEAM TERMINAL CONNECTOR

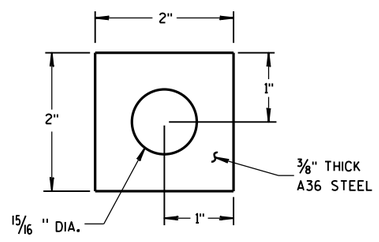
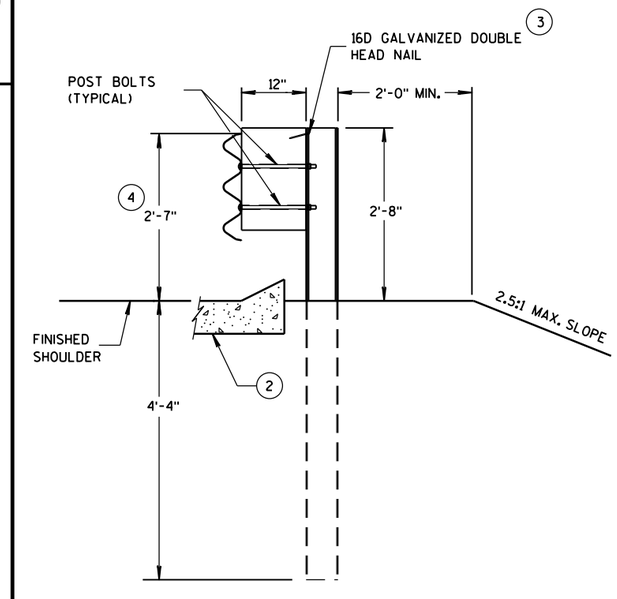
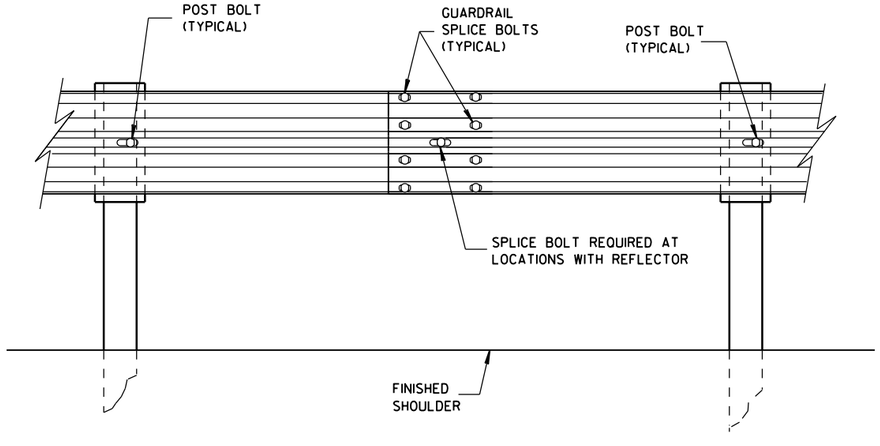


PLATE WASHER DETAIL

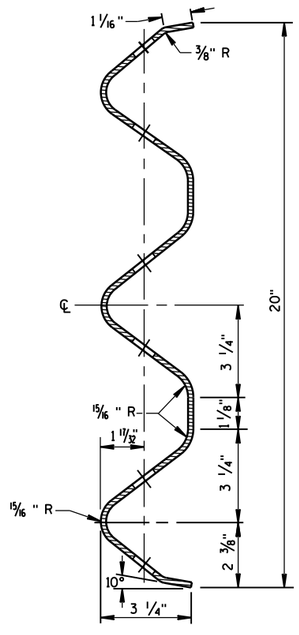


SECTION D-D

POSTS 12-17



SPLICE DETAIL



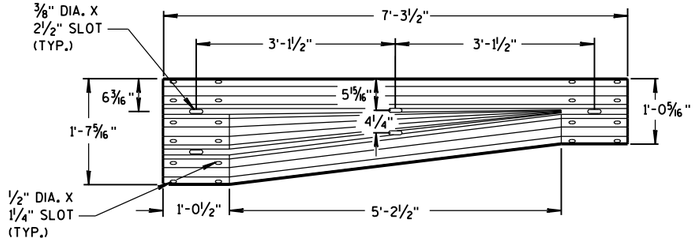
SECTION THRU THRIE BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

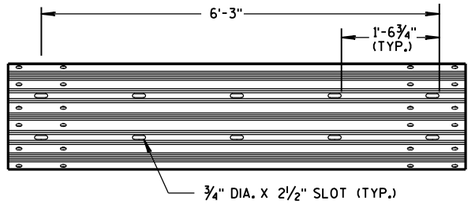
STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

6

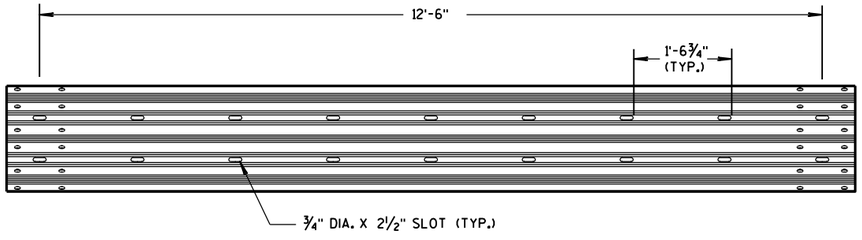
S.D.D. 14 B 45-4b



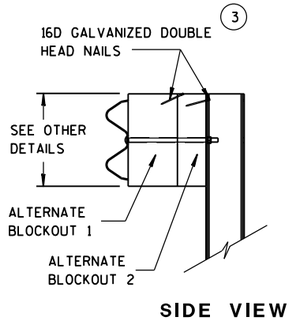
W-BEAM TO THRIE BEAM TRANSITION SECTION



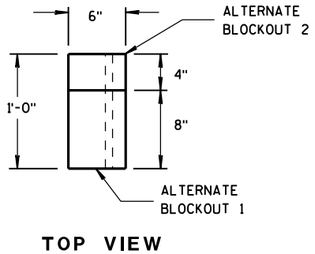
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

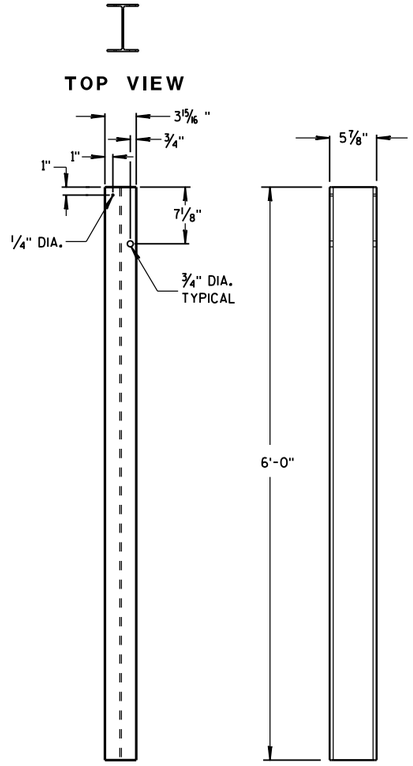


SIDE VIEW



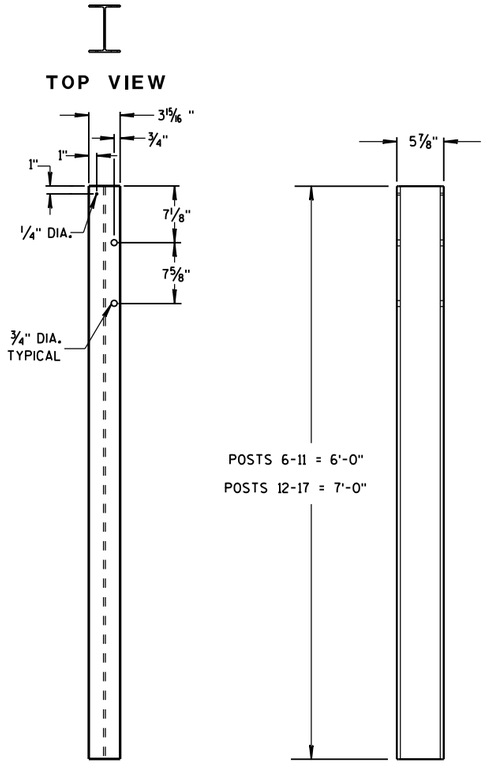
TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL



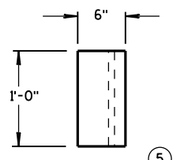
FRONT VIEW SIDE VIEW

STEEL POSTS 1-5

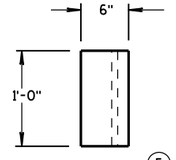


FRONT VIEW SIDE VIEW

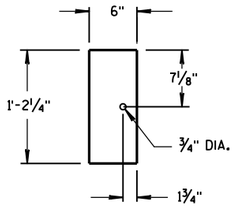
STEEL POSTS 6-17



TOP VIEW (5)

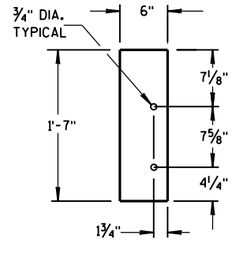


TOP VIEW (5)



FRONT VIEW

BLOCKOUT POSTS 1-5



FRONT VIEW

BLOCKOUT POSTS 6-17

GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

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

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

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

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

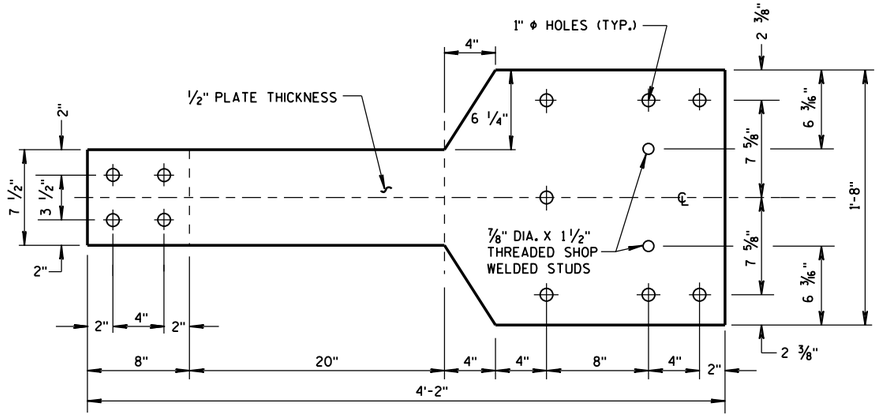
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

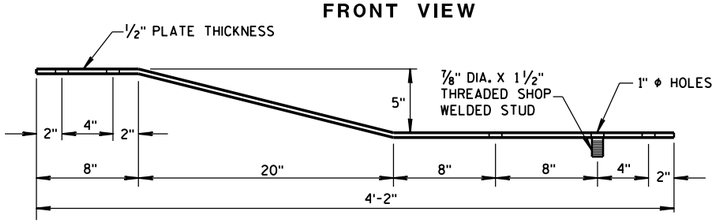
S.D.D. 14 B 45-4c

GENERAL NOTES

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

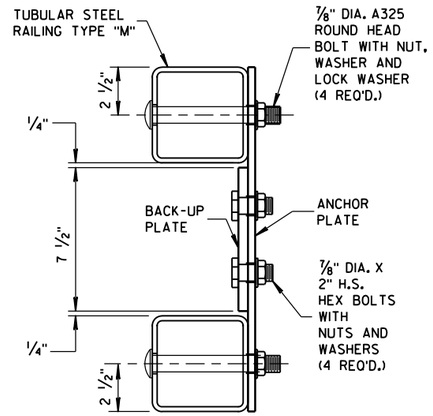


FRONT VIEW

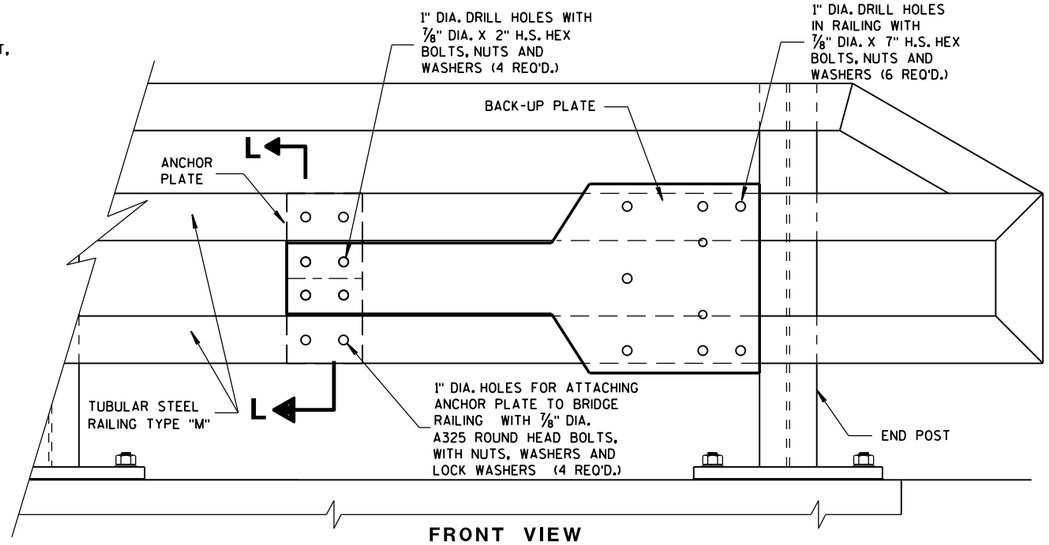


PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

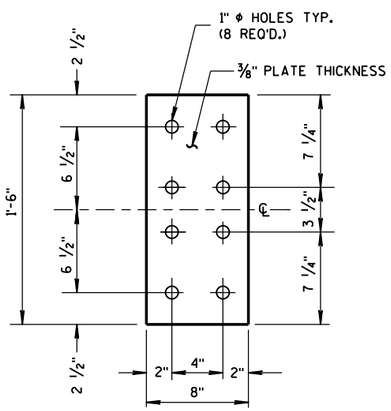


SECTION L-L



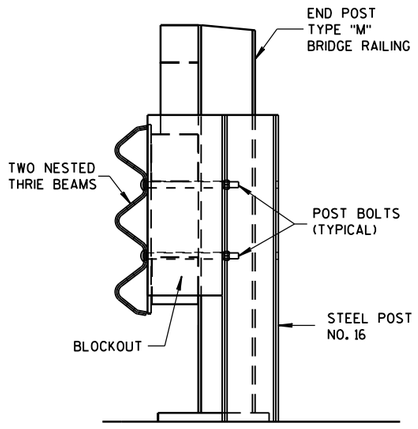
FRONT VIEW

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

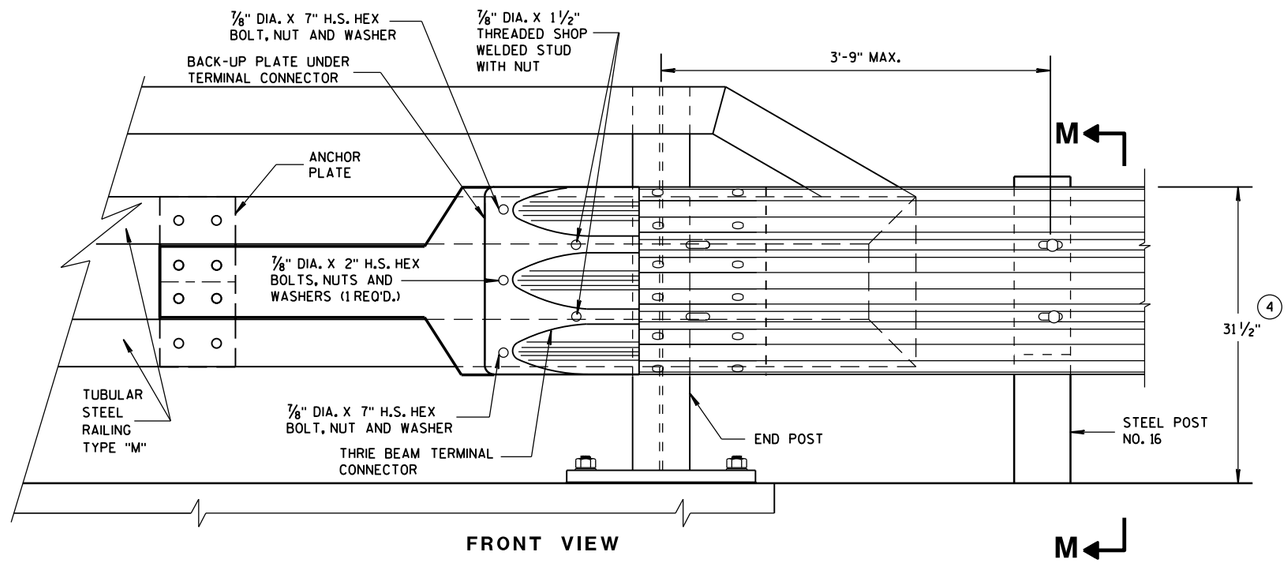


FRONT VIEW

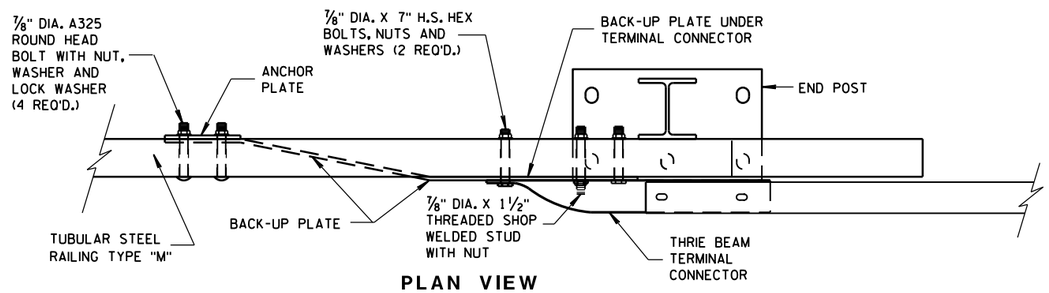
ANCHOR PLATE DETAIL, TYPE "M"



SECTION M-M



FRONT VIEW



PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

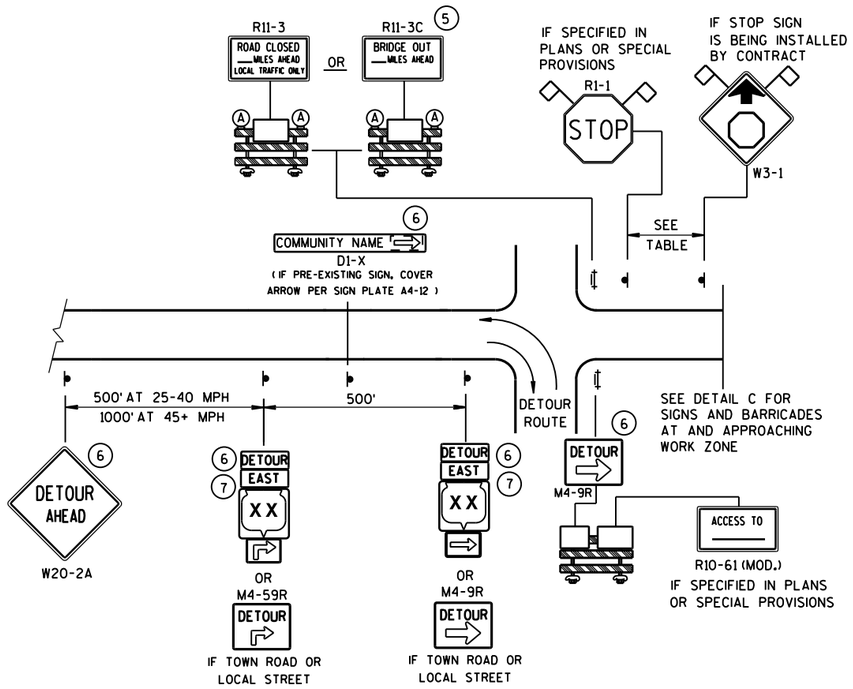
APPROVED
June, 2015 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER
FHWA

6

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

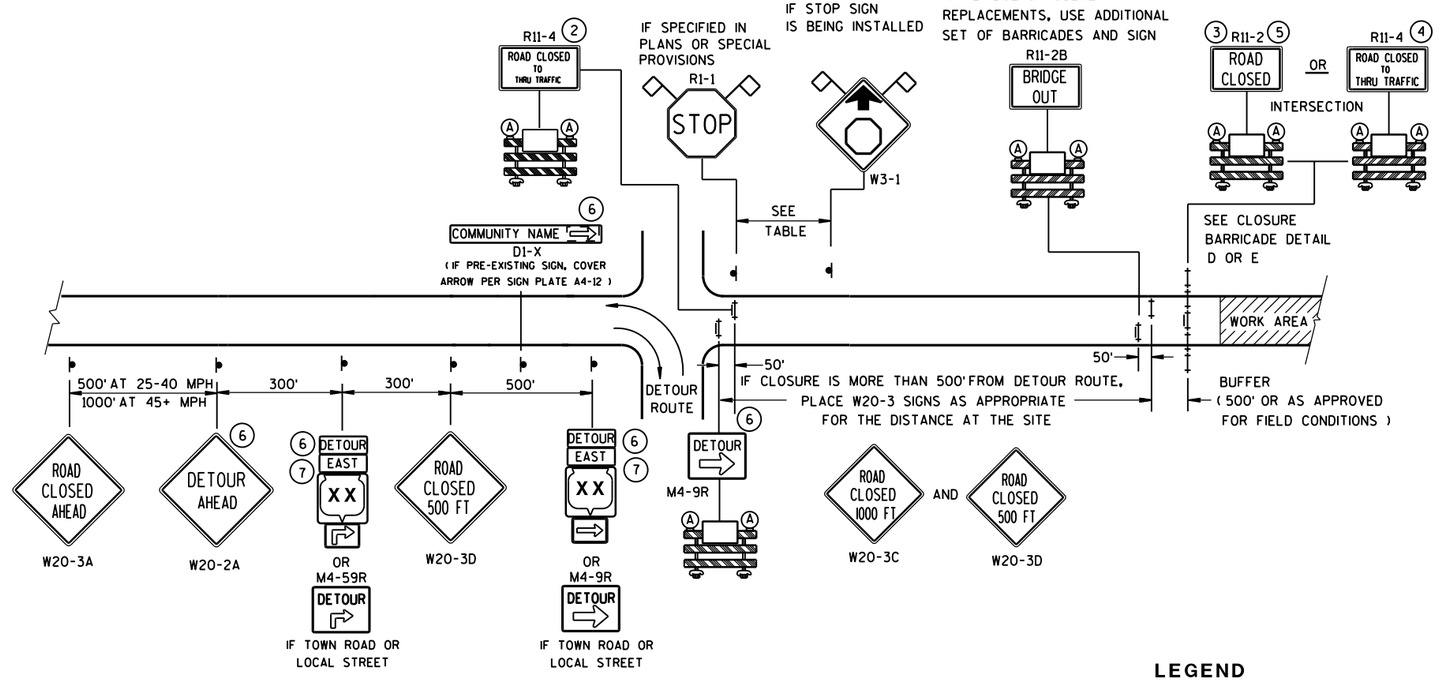
6

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



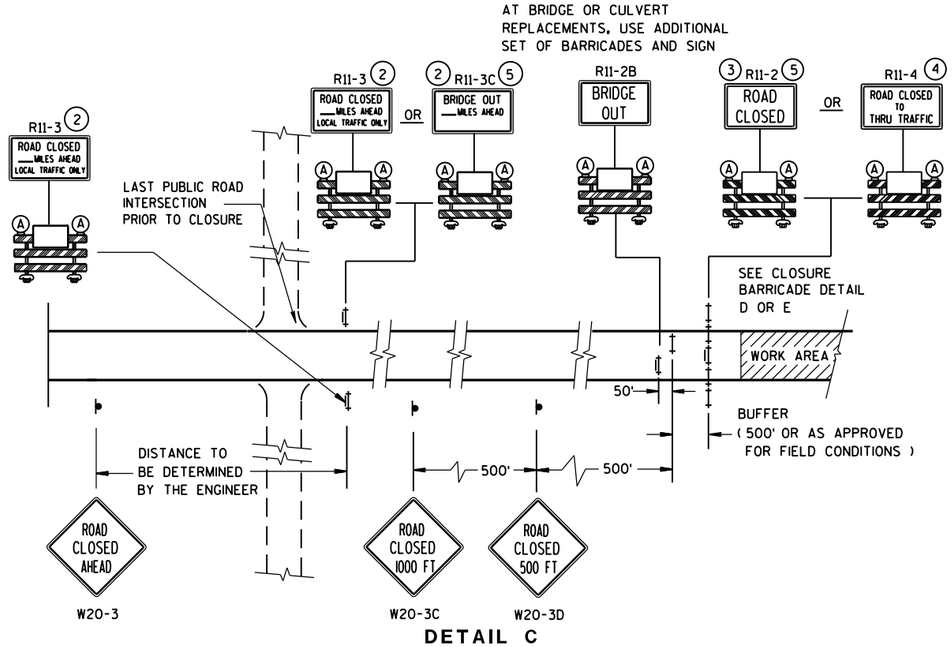
DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR

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



DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR

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



DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

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

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

LEGEND

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

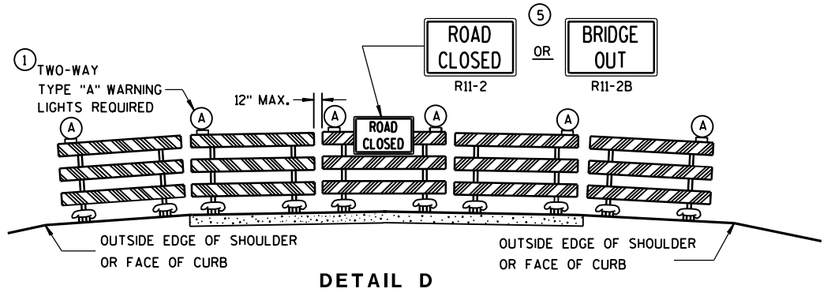
BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

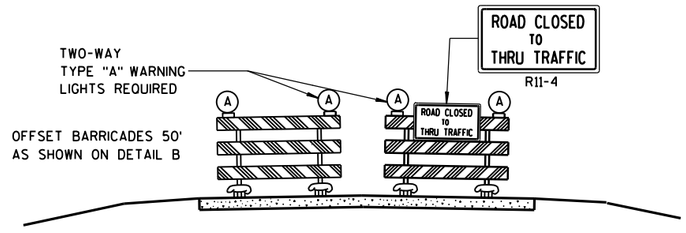
S.D.D. 15 C 2-6a



DETAIL D

ROAD CLOSURE BARRICADE DETAIL

APPROACH VIEW



DETAIL E

LANE CLOSURE BARRICADE DETAIL

APPROACH VIEW

SEE SDD 15C2-SHEET "**a**" FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

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

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

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:
- R11-2 SHALL BE 48" X 30".
- R11-3, R11-4 AND R10-61 SHALL BE 60" X 30".
- M4-9 SHALL BE 30" X 24".
- M3-X SHALL BE 24" X 12". (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS.)
- M4-8 SHALL BE 24" X 12". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
- M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)
- M05-1 AND M06-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.
- R1-1 SHALL BE 36" X 36".

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

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

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

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

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

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

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

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

Sept. 2015 — DATE

/S/ Peter Amakobe Atepe
STATEWIDE WORK ZO... SAFETY ENGI... — FHWA — FIC

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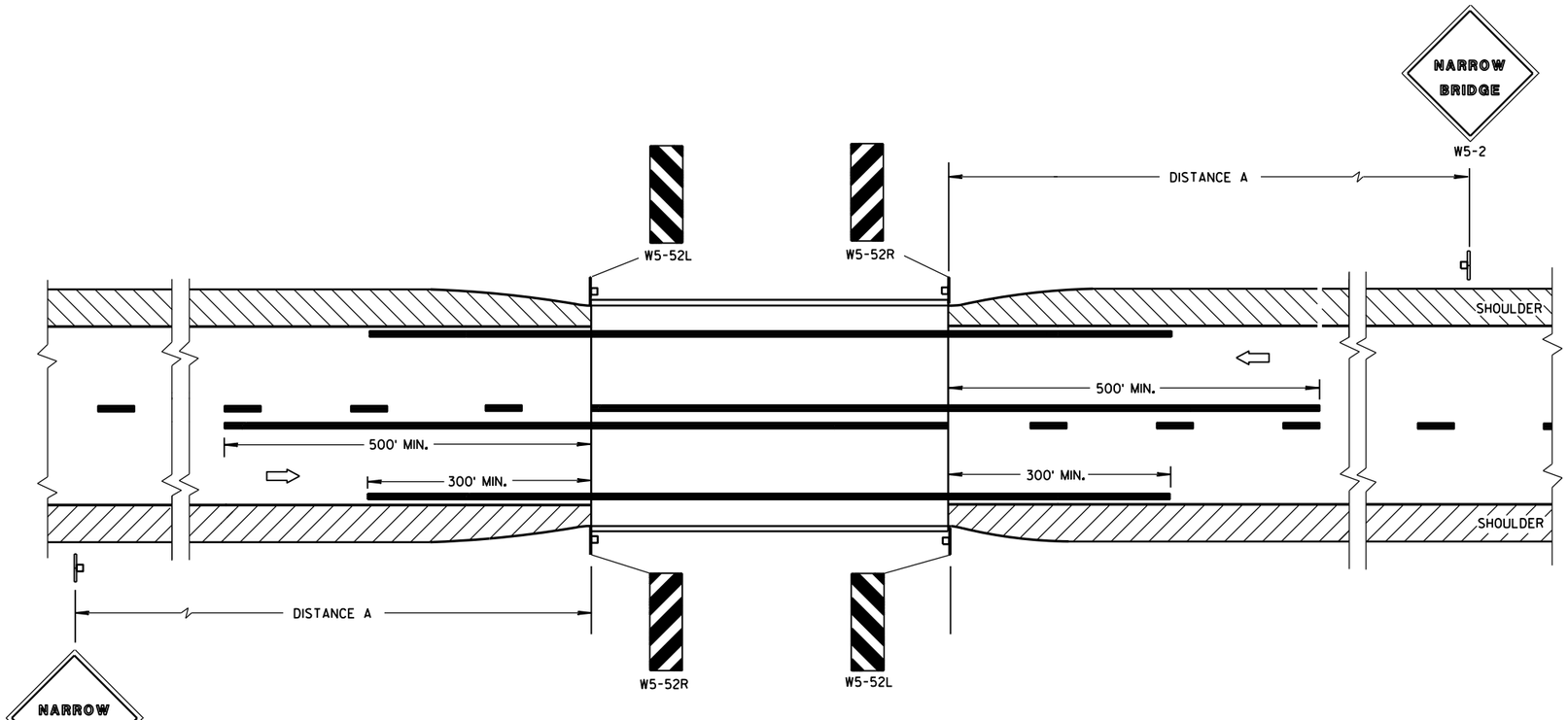
S.D.D. 15 C 2-6b



SITUATION 1

WARRANTING CRITERIA:
BRIDGE WIDTH IS AT LEAST 16 FEET BUT LESS THAN 24 FEET.

DISTANCE TABLE

POSTED OR 85th PERCENTILE SPEED	DISTANCE "A"
25	150'
30	200'
35	250'
40	300'
45	400'
50	550'
55	750'

GENERAL NOTES

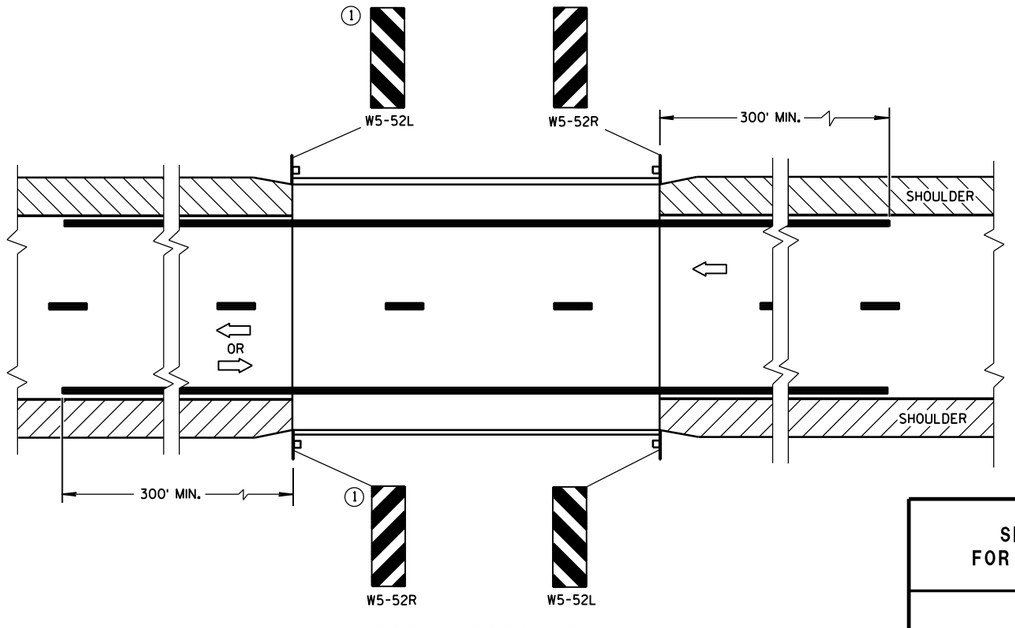
DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

LOCATE W5-52 SIGN POST(S) BEHIND GUARDRAIL WHEN PRESENT.

PLACE THE EDGE OF THE W5-52 SIGN IN LINE WITH FACE OF CURB OR PARAPET.

(1) OMIT ON ONE-WAY TRAVELLED WAYS.

⇨ DIRECTION OF TRAFFIC



SITUATION 2

WARRANTING CRITERIA:

1. BRIDGE WIDTH IS AT LEAST 24 FEET AND
2. BRIDGE SHOULDER WIDTH IS LESS THAN 6 FEET.

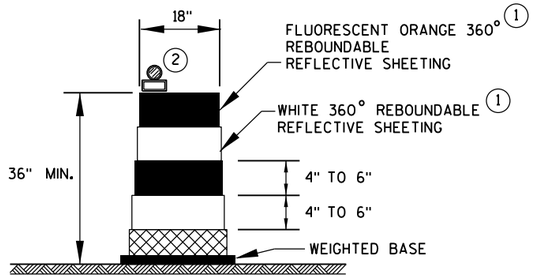
SIGNING & MARKING FOR TWO LANE BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

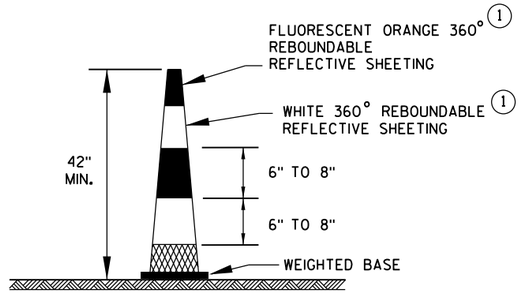
APPROVED
June 2017 — DATE
/S/ Matthew R. Rauch — STATE SIGNING AND MARKING ENGINEER
FHWA

S.D.D. 15 C 6-9

S.D.D. 15 C 6-9



DRUM

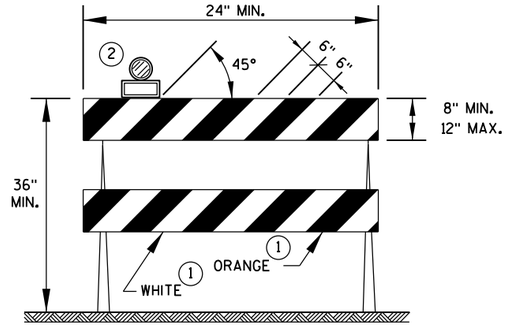


42" CONE

DO NOT USE IN TAPERS
1/2 SPACING OF DRUMS

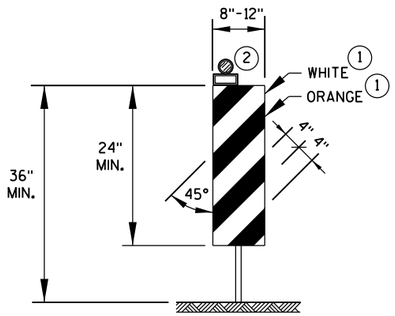
GENERAL NOTES

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



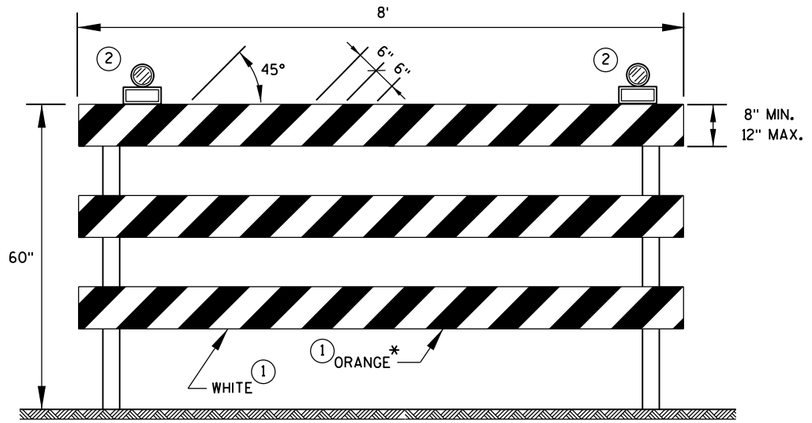
TYPE 2 BARRICADE

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



VERTICAL PANEL

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



TYPE 3 BARRICADE

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

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

CHANNELIZING DEVICES
DRUMS, CONES, BARRICADES AND VERTICAL PANELS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

June 2017	/S/ Andrew Heidtke
DATE	WORK ZONE ENG

FHWA

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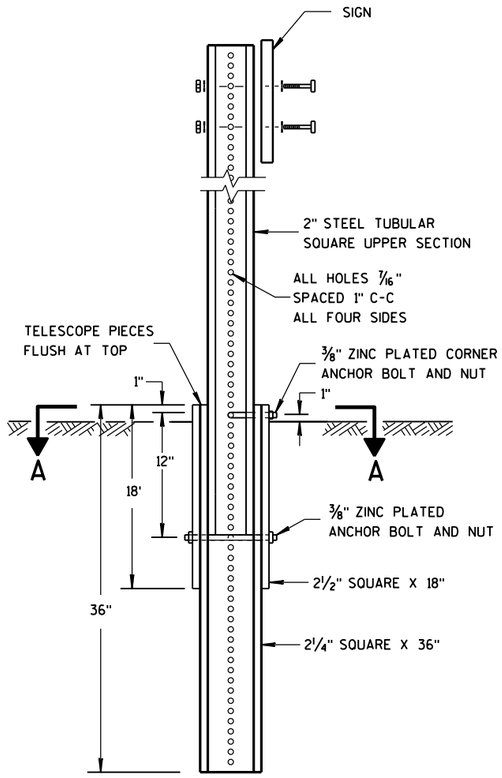
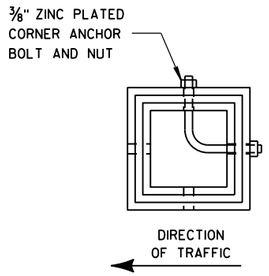
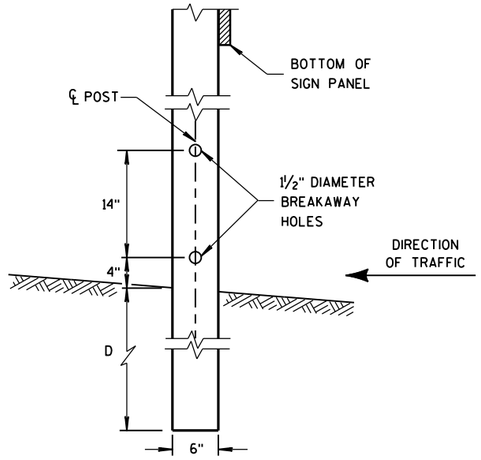
S.D.D. 15 C 11-7b



DETAIL OF TUBULAR STEEL SIGN POST



SECTION A-A



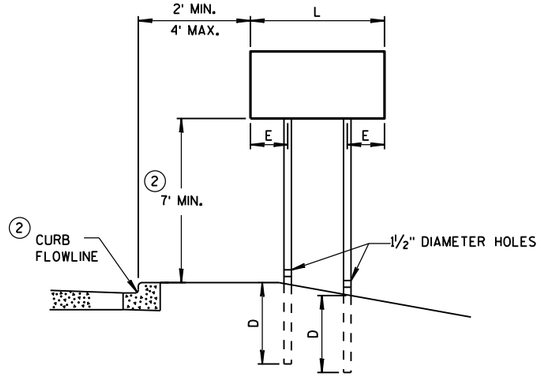
4"x6" WOOD POST MODIFICATION

GENERAL NOTES

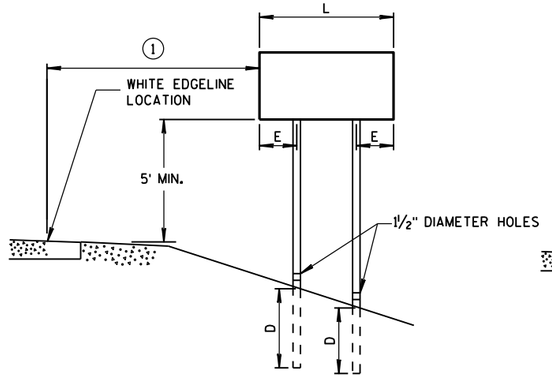
(1) 6 FEET FROM THE EDGE OF PAVEMENT (EDGE LINE LOCATION) UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER. LATERAL OFFSET SHOULD BE ADJUSTED TO AVOID THE DITCH FLOWLINE.

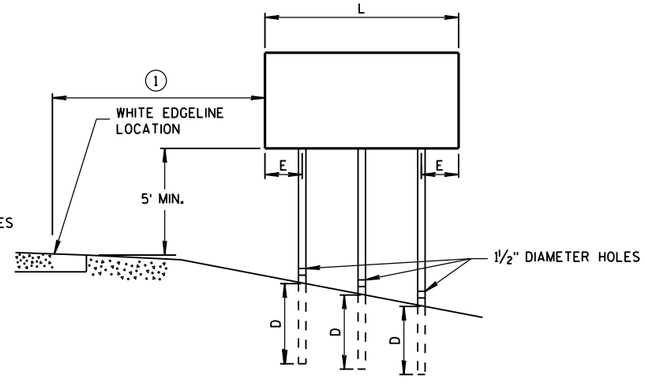
(2) THE EXISTENCE OF CURB AND GUTTER DOES NOT IN ITSELF MANDATE THE VERTICAL CLEARANCE ILLUSTRATED. THAT HEIGHT IS TYPICALLY MEASURED WHERE THERE IS SIDEWALK ADJACENT TO THE ROADWAY OR PARKING IS PERMITTED. IN THE ABSENCE OF SIDEWALK, VERTICAL CLEARANCE IS MEASURED FROM THE TOP OF THE CURB. IF NO SIDEWALK AND NO PARKING, VERTICAL CLEARANCE MAY BE REDUCED TO 5 FOOT MINIMUM. OFFSET OF SIGNS IS MEASURED FROM THE CURB FLOWLINE.

(3) FOR SIGNS REQUIRING 4 POSTS, SPACE INTERMEDIATE POSTS EVENLY.



URBAN AREA





RURAL AREA

POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

TUBULAR STEEL POSTS

AREA OF SIGN INSTALLATION (SQ. FT.)	NUMBER OF REQUIRED TUBULAR STEEL POSTS
9 OR LESS	1
GREATER THAN 9 LESS THAN OR EQUAL TO 18	2
GREATER THAN 18 LESS THAN OR EQUAL TO 27	3

SIGNS WIDER THAN 3 FEET OR LARGER THAN 9 SQ. FT. SHALL BE MOUNTED ON MULTIPLE POSTS (SEE ABOVE TABLE).

SIGNS LARGER THAN 27 SQ. FT. SHALL NOT BE MOUNTED ON TUBULAR STEEL POSTS.

WOOD POST EMBEDMENT DEPTH

AREA OF SIGN INSTALLATION (SQ. FT.)	D (MIN)
20 OR LESS	4'
GREATER THAN 20	5'

4" X 6" WOOD POST

POST SPACING REQUIREMENTS		NUMBER OF WOOD POSTS REQUIRED
L	E	
48" OR LESS AND LESS THAN 20 SQ. FT.	-	1
LESS THAN 60"	12"	2
60" TO 120"	L/5	2
GREATER THAN 120" LESS THAN 168"	12"	3
168" AND GREATER	12"	4

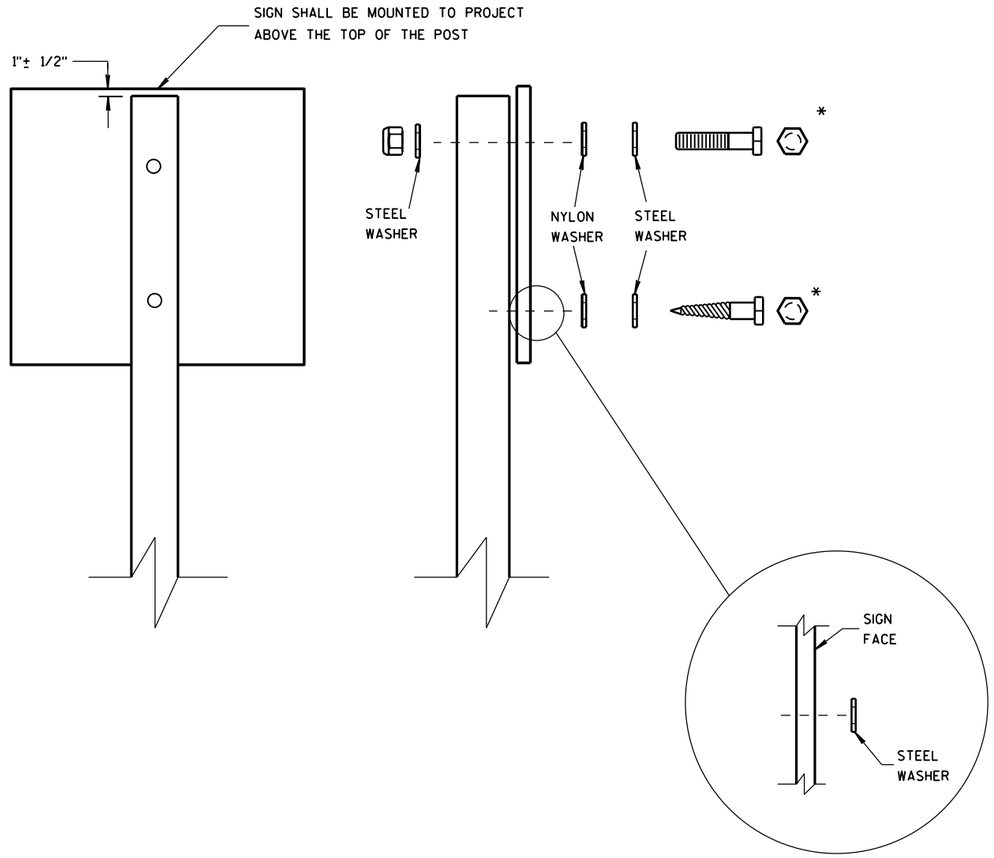
SEE NOTE (3)

TEMPORARY TRAFFIC CONTROL SIGN MOUNTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

S.D.D. 15 D 38-2a



WASHER PLACEMENT WHEN SIGN HAS OTHER THAN TYPE H OR TYPE F FACE

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

* TWO DIFFERENT FASTENING SYSTEMS ARE SHOWN FOR ILLUSTRATION PURPOSES. ON ANY INDIVIDUAL SIGN, EITHER ONE OR THE OTHER SYSTEM SHALL BE USED. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA. FOR A SINGLE POST INSTALLATION, ALL SIGNS GREATER THAN 9 SQ. FT. REQUIRE THE USE OF 3 FASTENERS.

6

6

S.D.D. 15 D 38-2b

S.D.D. 15 D 38-2b

ATTACHMENT OF SIGNS TO POSTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

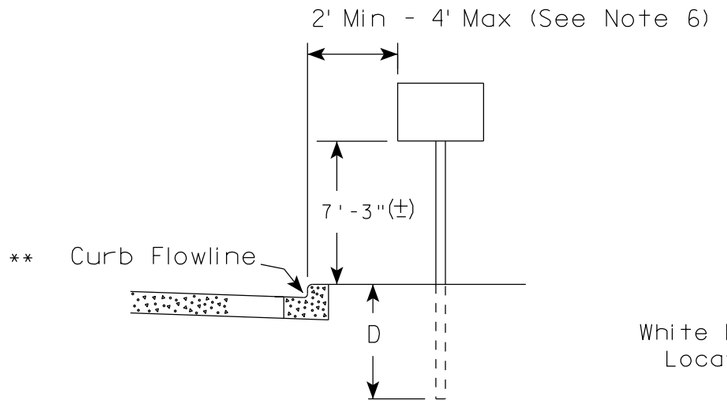
APPROVED

June 2017
DATE

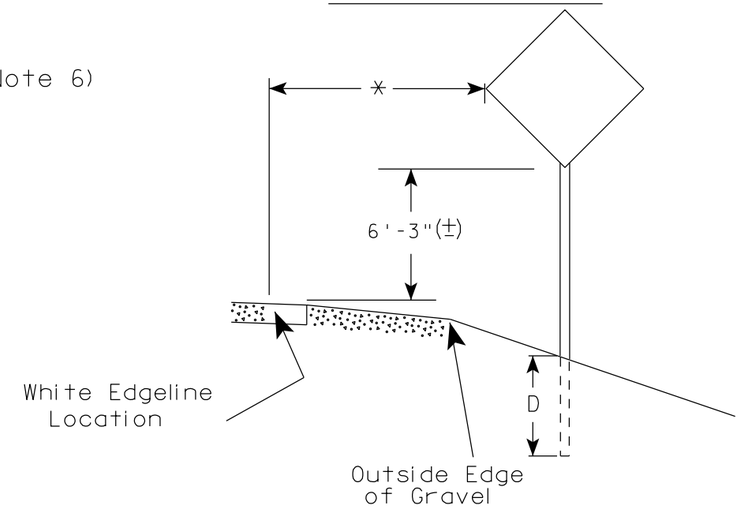
/S/ Andrew Heldtke
WORK ZONE ENG

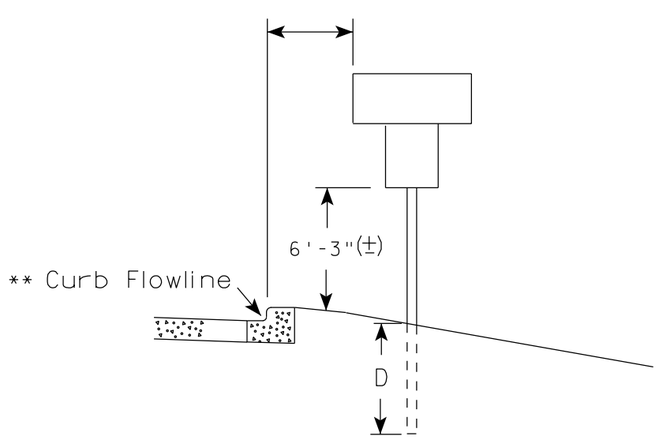
FHWA

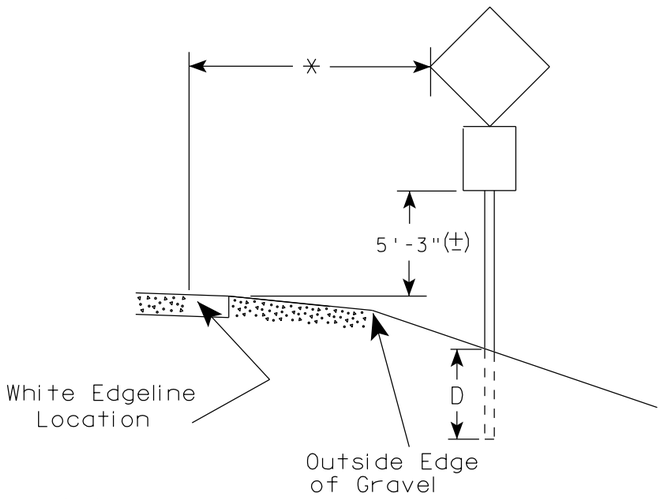
URBAN AREA



RURAL AREA (See Note 2)







** The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs is measured from the flow line.

* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

POST EMBEDMENT DEPTH

Area of Sign Installation (Sq. Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

GENERAL NOTES

1. Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on 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 signs shall be mounted at a height of 5'-3" (±) or as directd 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" (±).

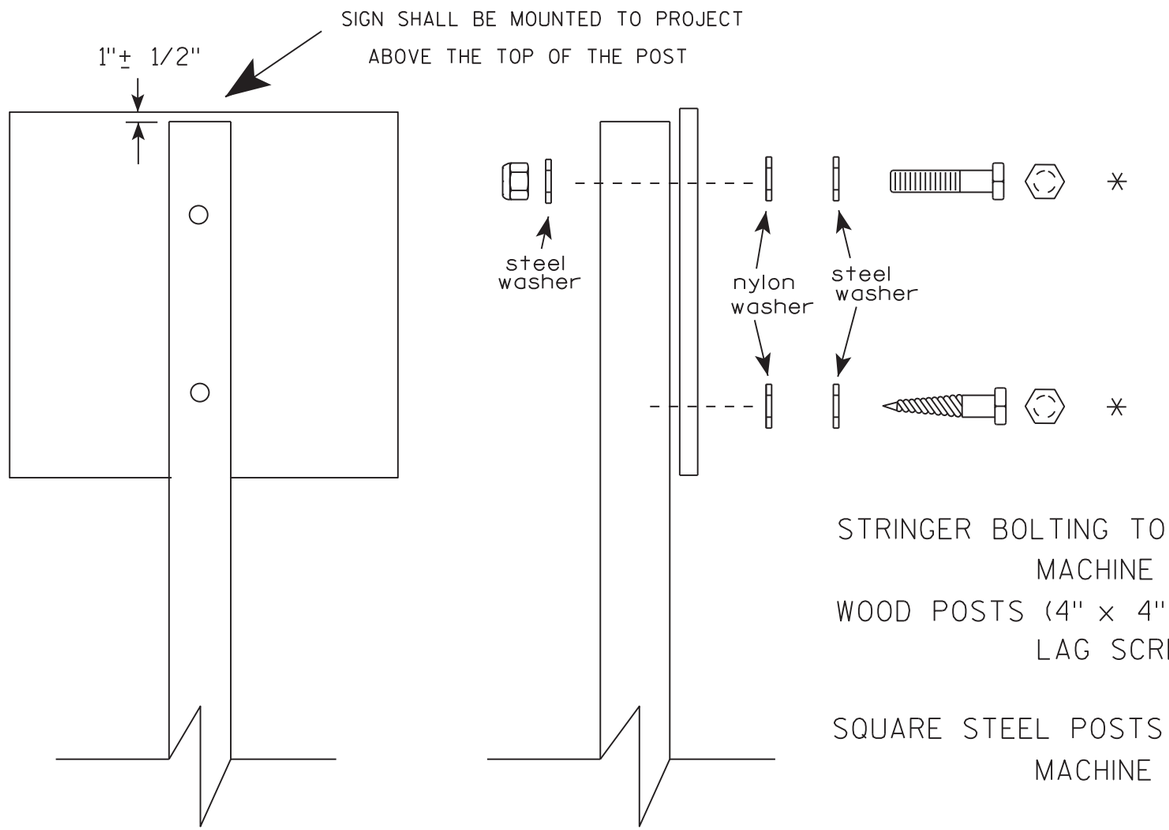
TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 7/23/15 PLATE NO. A4-3.20

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E



Nuts, bolts and lags used for mounting signs shall have hexagonal heads and shall be either :

a. Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3

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

Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)

MACHINE BOLTS - 5/16" X 1-3/4" Length w/ lock nuts

WOOD POSTS (4" x 4" or 4" x 6")

LAG SCREWS - 3/8" X 3" (NO STRINGERS ON BACK OF SIGN)

3/8" X 4" (STRINGERS ON BACK OF SIGN)

SQUARE STEEL POSTS (2" x 2")

MACHINE BOLTS - 3/8" X 3-1/4" Length w/ nuts (NO STRINGER ON BACK OF SIGN)

3/8" X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)

RIVETS - 9/32 " (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH

WASHERS (ALL POSTS) -

1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL

1-1/4" O.D. X 3/8" I.D. X .080 NYLON

* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require the use of 3 fasteners.

ATTACHMENT OF SIGNS TO POSTS

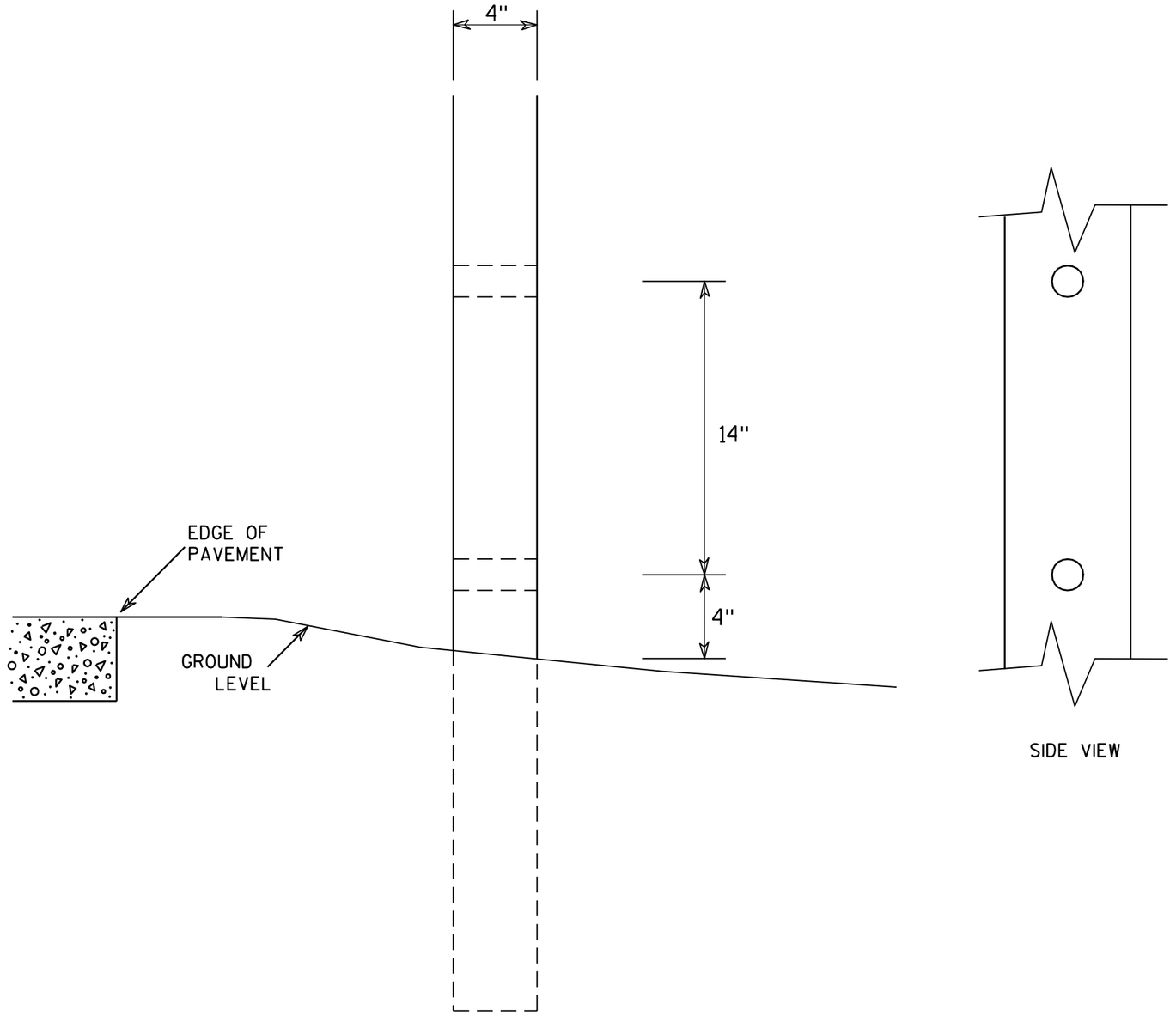
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 8/11/16 PLATE NO. A4-8.8

PROJECT NO:

SHEET NO: E



SIDE VIEW

GENERAL NOTES

1. All 4 x 6 Wood Posts shall be modified by having two 1½" diameter holes drilled perpendicular to the roadway centerline.

7

7

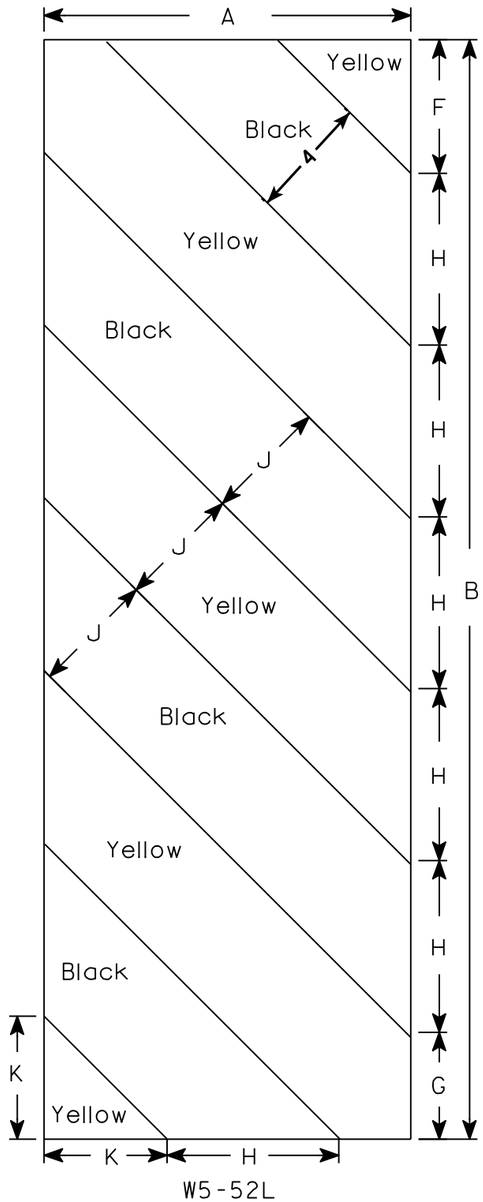
4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

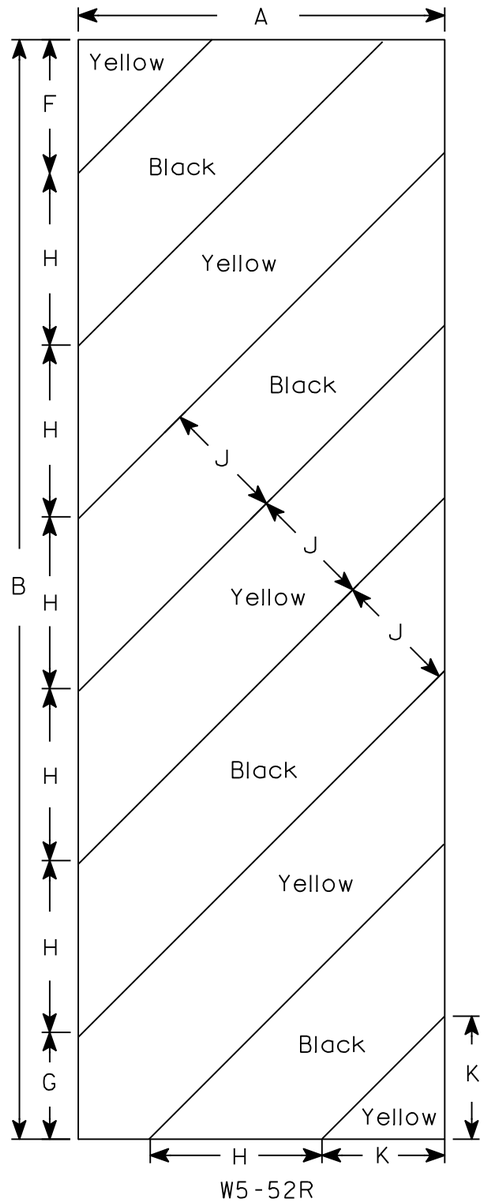
APPROVED Chester J Spang
for State Traffic Engineer

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

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 36	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

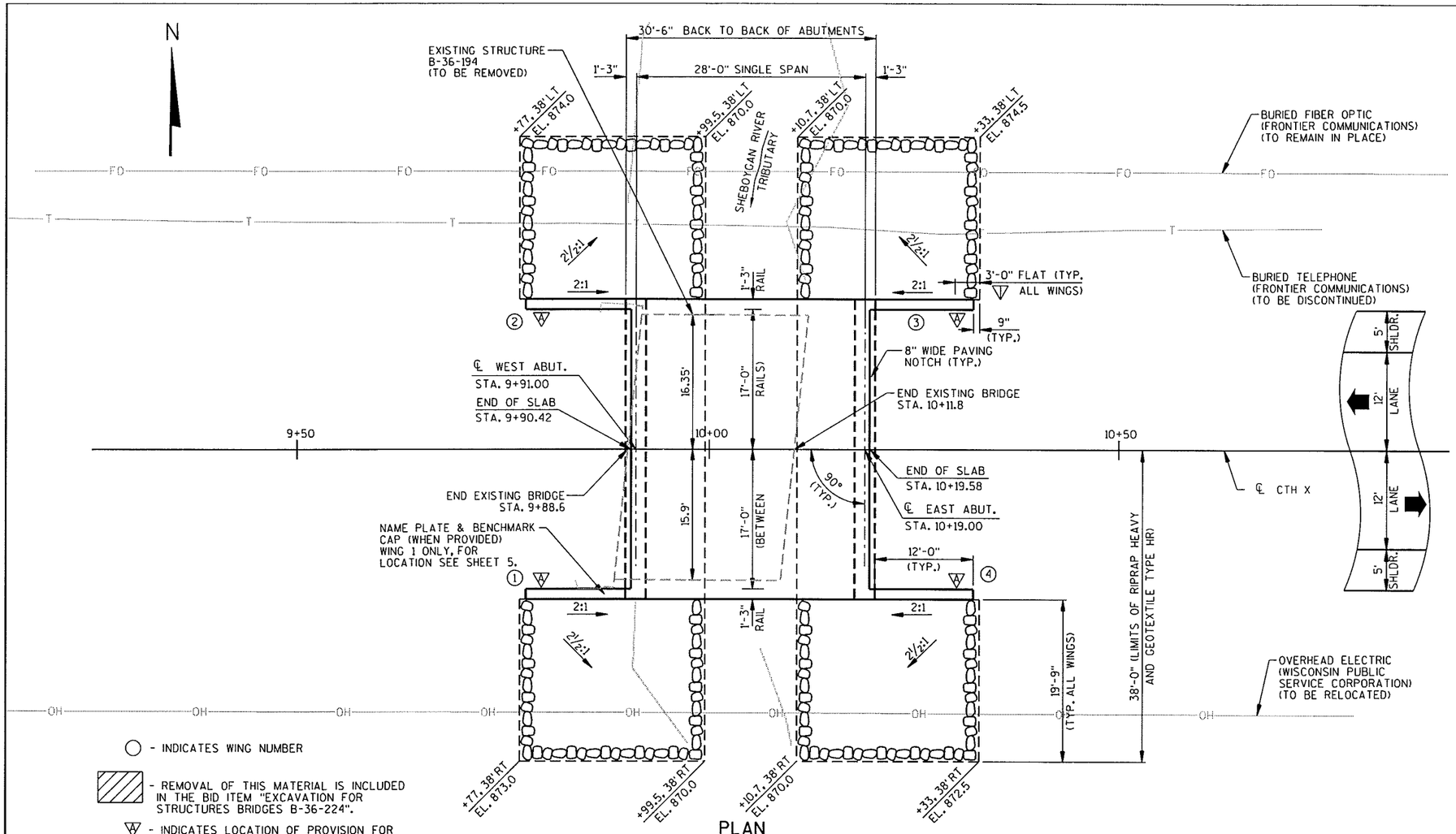
W5-52L & W5-52R

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: 37	E



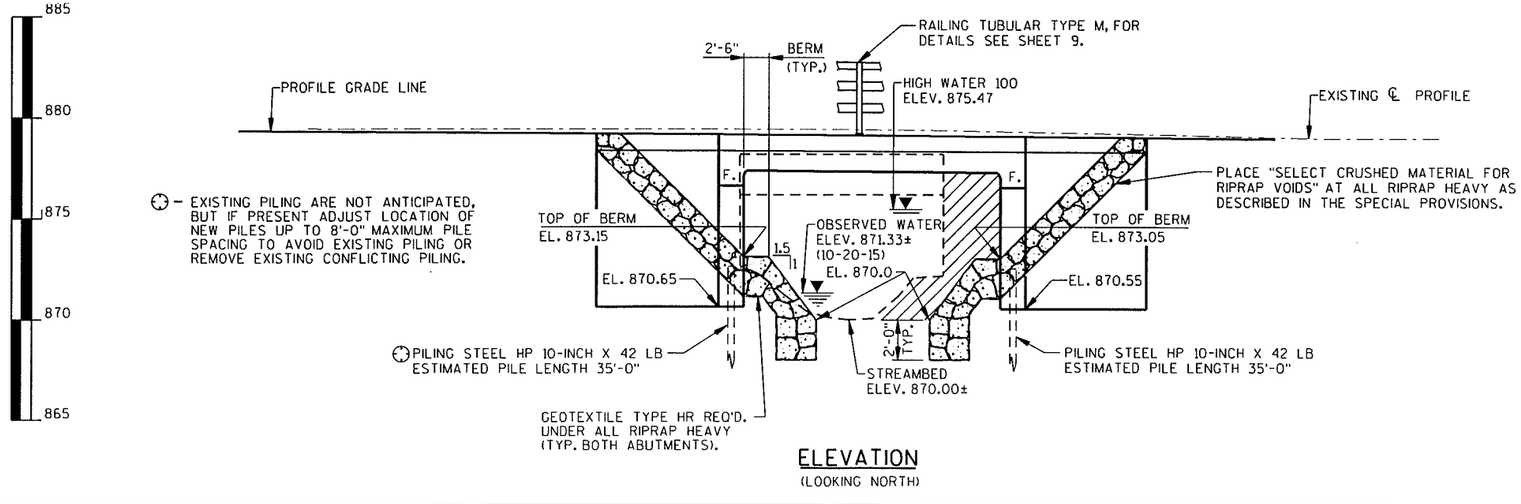
○ - INDICATES WING NUMBER

▨ - REMOVAL OF THIS MATERIAL IS INCLUDED IN THE BID ITEM "EXCAVATION FOR STRUCTURES BRIDGES B-36-224".

▽ - INDICATES LOCATION OF PROVISION FOR THRIE BEAM GUARD ATTACHMENT AT WING.

▽ - INSTALL RIPRAP HEAVY FLAT AT WING ENDS.

PLAN
(SINGLE SPAN FLAT CONCRETE SLAB)



⊖ - EXISTING PILING ARE NOT ANTICIPATED, BUT IF PRESENT ADJUST LOCATION OF NEW PILES UP TO 8'-0" MAXIMUM PILE SPACING TO AVOID EXISTING PILING OR REMOVE EXISTING CONFLICTING PILING.

ELEVATION
(LOOKING NORTH)

STATE PROJECT NUMBER

4318-03-71

BENCHMARKS ⌖ NAVD 88

NO.	STA./OFFSET	DESCRIPTION	ELEV.
1	9+87.99, 16.5' RT.	CHIS SO ON SW CORNER BRIDGE ABUT	878.09
2	8+11.00, 67.2' RT.	2 POLE NAILS IN 12" BOX ELDER TREE	877.59
3	11+10.87, 76.0' LT.	2 POLE NAILS IN 14" ASH TREE	873.49

DESIGN DATA

LIVE LOAD;
- DESIGN LOADING : HL-93
- INVENTORY RATING FACTOR : 1.06
- OPERATIONAL RATING FACTOR : 1.37

TRAFFIC DATA;
- A.A.D.T. (2018) = 1950
- A.A.D.T. (2038) = 2200
- R.D.S. = 60 MPH

WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 250 KIPS.

STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 POUNDS PER SQUARE FOOT.

MATERIAL PROPERTIES;
- CONCRETE MASONRY, SUPERSTRUCTURE ——— f'_c = 4,000 P.S.I.
- CONCRETE MASONRY, ALL OTHER ——— f'_c = 3,500 P.S.I.
- HIGH-STRENGTH BAR STEEL REINFORCEMENT, GRADE 60 ——— f_y = 60,000 P.S.I.

FOUNDATION DATA;

ABUTMENTS TO BE SUPPORTED ON PILING STEEL HP 10-INCH X 42 LB. DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 150 TONS ✳ PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED PILE LENGTHS ARE 35'-0" AT THE WEST ABUTMENT AND 35'-0" AT THE EAST ABUTMENT.

✳ THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS THE REQUIRED DRIVING RESISTANCE MULTIPLIED BY A RESISTANCE FACTOR OF 0.5 USING MODIFIED GATES TO DETERMINE DRIVEN PILE CAPACITY.

HYDRAULIC DATA;

100 YEAR FREQUENCY
- DRAINAGE AREA ——— 8.2 SQ. MI.
- Q_{100} ——— 550 C.F.S.
- VELOCITY ——— 5.97 FT./SEC.
- WATERWAY AREA ——— 92 SQ. FT.
- SCOUR CRITICAL CODE ——— 8
- HIGH WATER 100 ELEVATION ——— 875.47
- Q_2 ELEVATION (140 C.F.S.) ——— 873.57
- Q_2 VELOCITY ——— 2.27 FT./SEC.

ROADWAY OVERFLOW DESIGN FREQUENCY
- OVERTOPPING FREQUENCY ——— > 100 YEARS

LIST OF DRAWINGS

CONSULTANT DESIGN CONTACT:
JOSHUA SWENO
(608) 355-8852

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

WISCONSIN JOSHUA R. SWENO E-44384 WAUNAKEE WI PROFESSIONAL ENGINEER
11/01/17

NO.	DATE	REVISION	BY

MSA PROFESSIONAL SERVICES
TRANSPORTATION · MUNICIPAL DEVELOPMENT · ENVIRONMENTAL
1230 South Boulevard Baraboo, WI 53913
608-356-2771 1-800-362-4505 Fax: 608-356-2770

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
ACCEPTED William C. Dreher SDR 11/09/17
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-36-224

CTH X OVER SHEBOYGAN RIVER TRIBUTARY

COUNTY	TOWN ~~CITY/VILLAGE~~
MANITOWOC	SCHLESWIG

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPEC.

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
DHW	JRS	RLR	JRS

GENERAL PLAN

SHEET 38 9

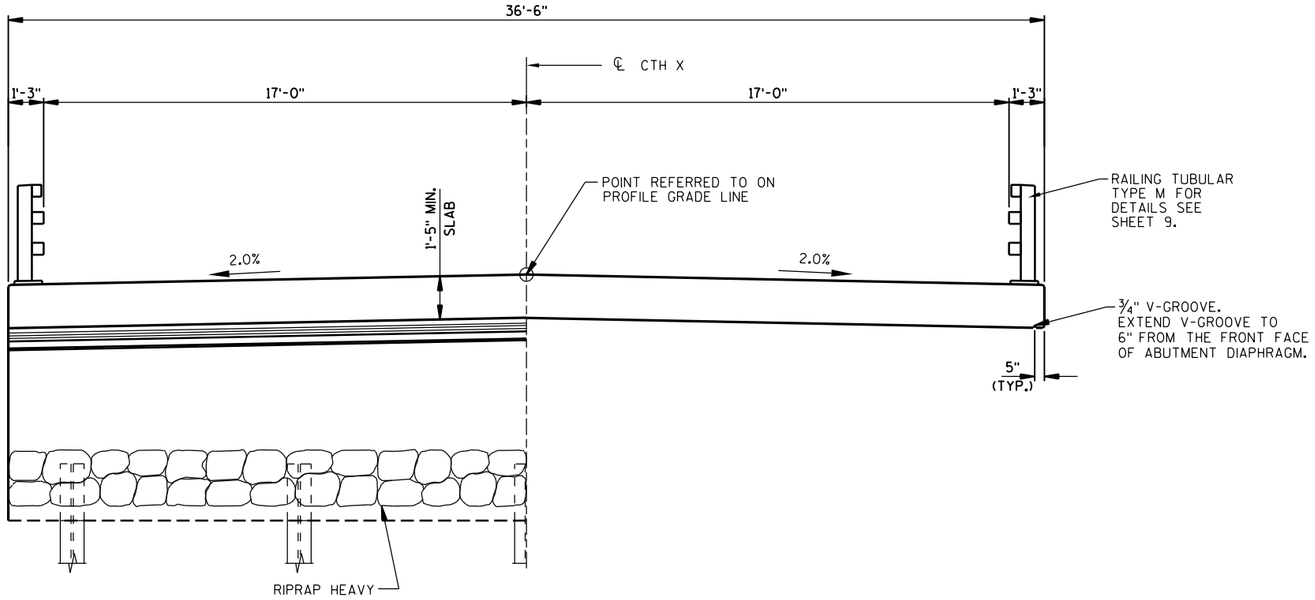
8

8

FILE= 9306023_01.DGN
DATE= 10/26/2017

STATE PROJECT NUMBER

4318-03-71



AT ABUTMENTS IN SPAN

CROSS SECTION THRU BRIDGE

(LOOKING EAST)

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

THE FIRST DIGIT OF A THREE DIGIT BAR MARK SIGNIFIES THE BAR SIZE.

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

THE EXISTING GROUNDLINE SHALL BE THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES" FOR THE ABUTMENTS.

SLAB FALSEWORK SHALL BE SUPPORTED ON PILES OR THE SUBSTRUCTURE, UNLESS AN ALTERNATE METHOD IS APPROVED BY THE ENGINEER.

THIS STRUCTURE WILL REPLACE THE EXISTING STRUCTURE, B-36-194, A 23.2 FT. LONG, SINGLE SPAN CONCRETE FLAT SLAB ON CONCRETE ABUTMENTS WITH 31 FT. CLEAR ROAD WIDTH.

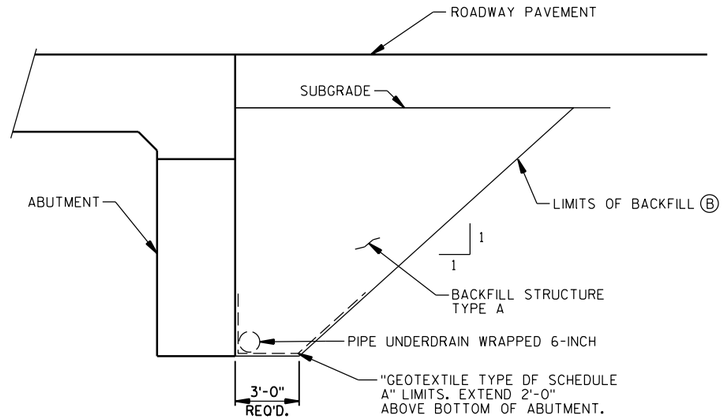
Ⓑ-BACKFILL PAY LIMITS, BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.

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

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

PROTECTIVE SURFACE TREATMENT SHALL BE APPLIED TO THE TOP AND EDGES OF SLAB, TO THE OUTSIDE 1'-0" OF THE UNDERSIDE OF SLAB, TO THE TOPS OF WINGS, AND TO THE EXPOSED FRONT FACES OF WINGS.

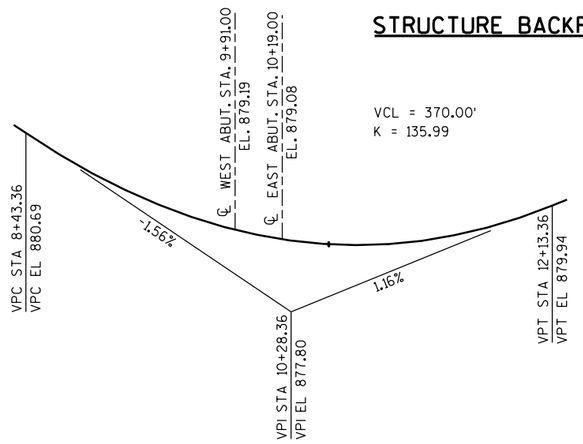
ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO USGS NAVD 88 (2007). BENCHMARK REFERENCES AT THE PROJECT SITE WERE SET BY THE CONSULTANT USING GPS TECHNOLOGY.



STRUCTURE BACKFILL DETAIL

TOTAL ESTIMATED QUANTITIES

ITEM NUMBER	BID ITEM	UNIT	WEST ABUT.	EAST ABUT.	SUPER	TOTAL
203.0500.S.01	REMOVING OLD STRUCTURE OVER WATERWAY STATION 10+00	LS	-	-	-	1
206.1000.01	EXCAVATION FOR STRUCTURES BRIDGES B-36-224	LS	-	-	-	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	205	205	-	410
502.0100	CONCRETE MASONRY BRIDGES	CY	41	41	62	144
502.3200	PROTECTIVE SURFACE TREATMENT	SY	15	15	135	165
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	2,140	2,140	-	4,280
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	1,660	1,660	11,030	14,350
513.4061.01	RAILING TUBULAR TYPE M B-36-224	LF	-	-	114	114
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	11	11	-	22
550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	175	175	-	350
606.0300	RIPRAP HEAVY	CY	110	105	-	215
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	110	110	-	220
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	55	55	-	110
645.0120	GEOTEXTILE TYPE HR	SY	210	210	-	420
SPV.0195.01	SELECT CRUSHED MATERIAL FOR RIPRAP VOIDS	TON	51	50	-	101
	NON-BID ITEMS					
	PREFORMED FILLER	SIZE				½" & ¾"



PROFILE GRADE LINE - CTH X

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-36-224

DRAWN BY RLR | PLANS CK'D. JRS

CROSS SECTION, QUANTITIES & NOTES

SHEET 2 OF 9

39

FILE= 9306023_02.DGN
DATE= 7/28/2017

8

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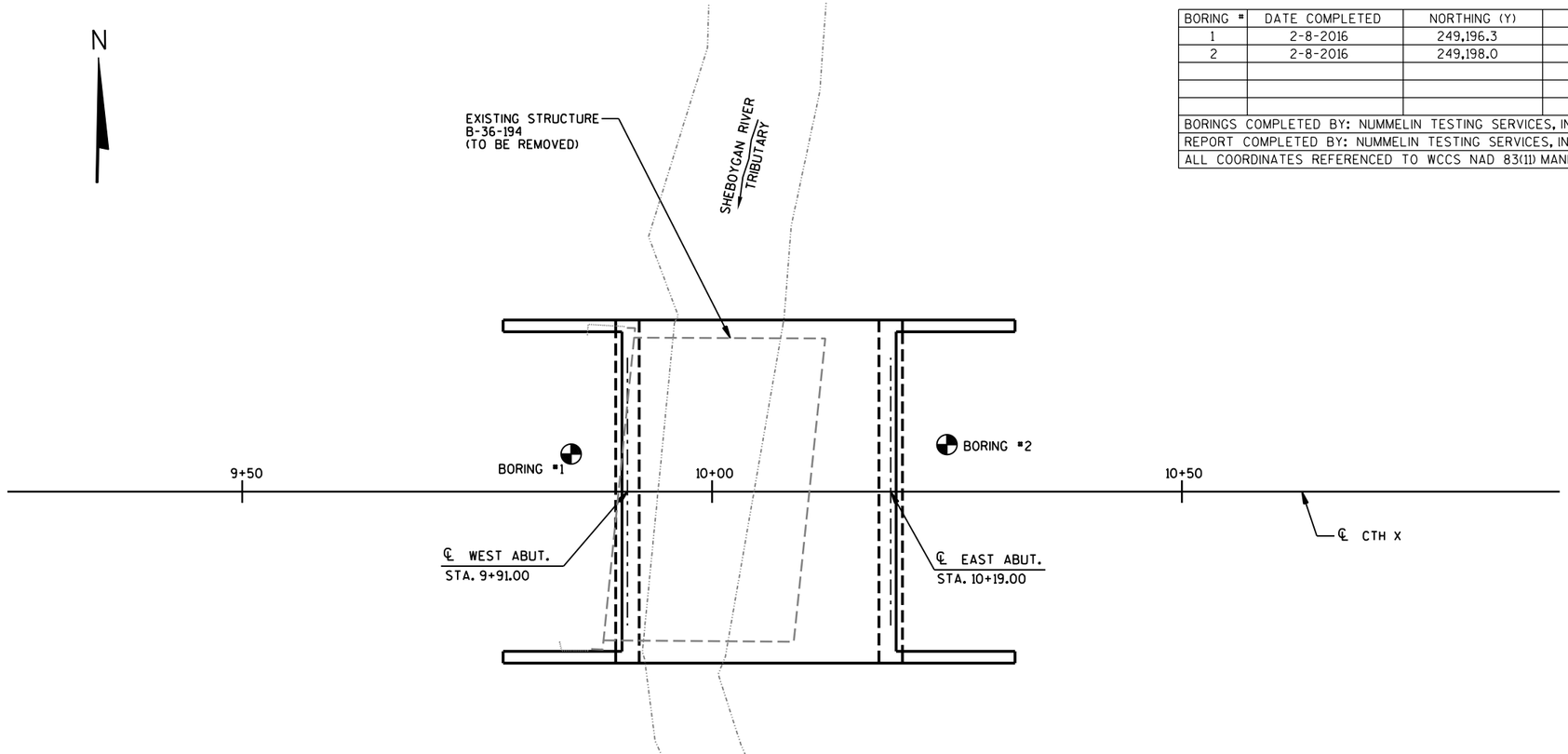
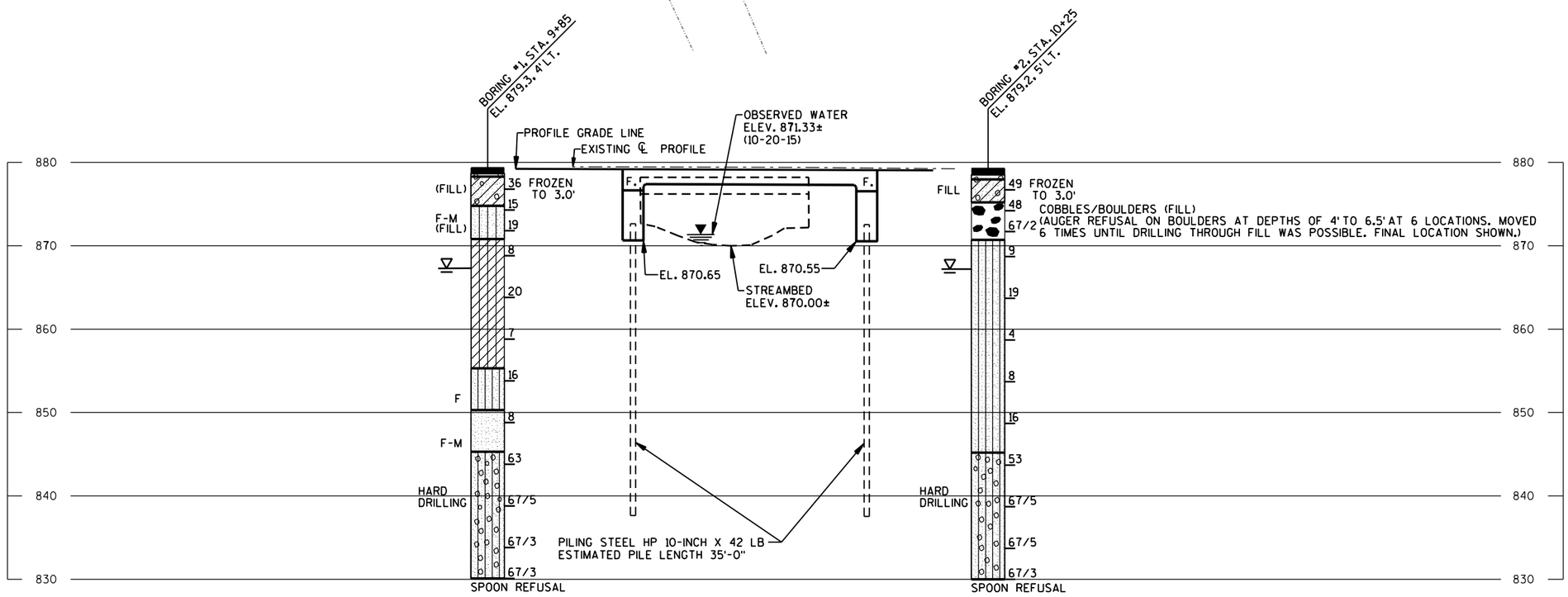
9306023_02.dgn 7/28/2017 9:33:38 AM jsweno

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	2-8-2016	249,196.3	154,042.0
2	2-8-2016	249,198.0	154,081.9
BORINGS COMPLETED BY: NUMMELIN TESTING SERVICES, INC.			
REPORT COMPLETED BY: NUMMELIN TESTING SERVICES, INC.			
ALL COORDINATES REFERENCED TO WCCS NAD 83(11) MANITOWOC COUNTY			





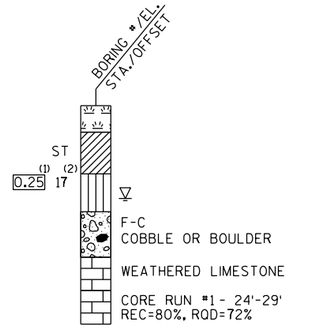
STATE PROJECT NUMBER

4318-03-71

MATERIAL SYMBOLS

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

LEGEND OF BORING



(1) UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)

(2) UNLESS OTHERWISE, SPECIFIED THE SPT 'N' VALUE IS BASED ON AASHTO T-206, STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.

GROUND WATER ELEVATION

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

ABBREVIATIONS

F-FINE M-MEDIUM C-COARSE ST-SHELBY TUBE

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

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

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-36-224

DRAWN BY RLR | PLANS CK'D. JRS

SUBSURFACE EXPLORATION

SHEET 3 OF 9
40

8

8

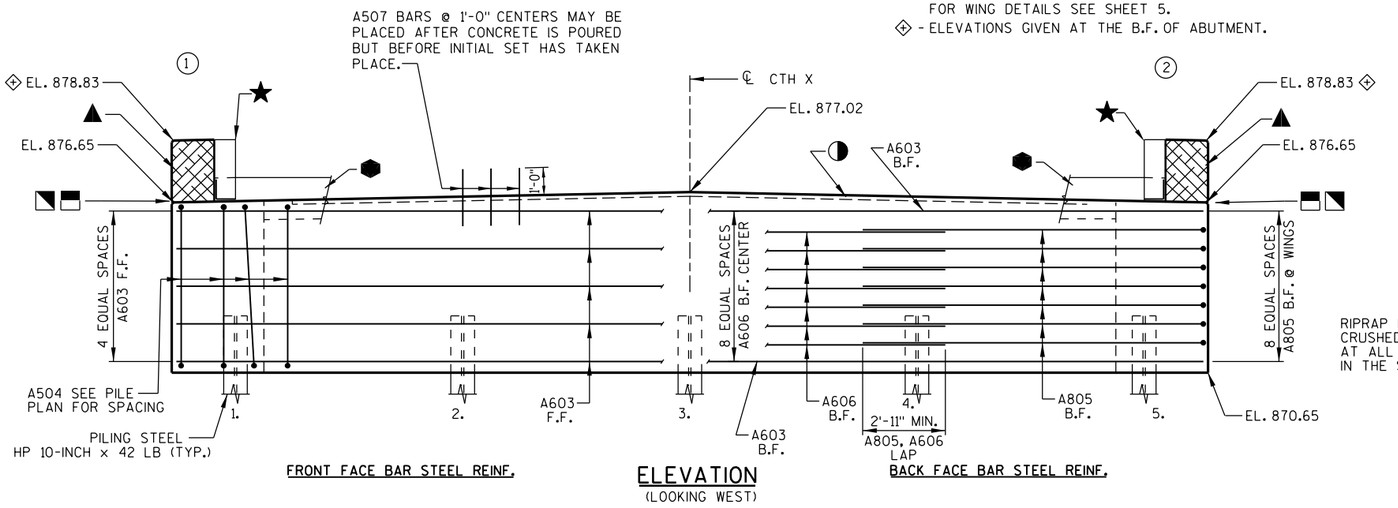
FILE= 9306023_03.DGN

9306023_03.dgn 3/7/2016 3:29:57 PM rrabska

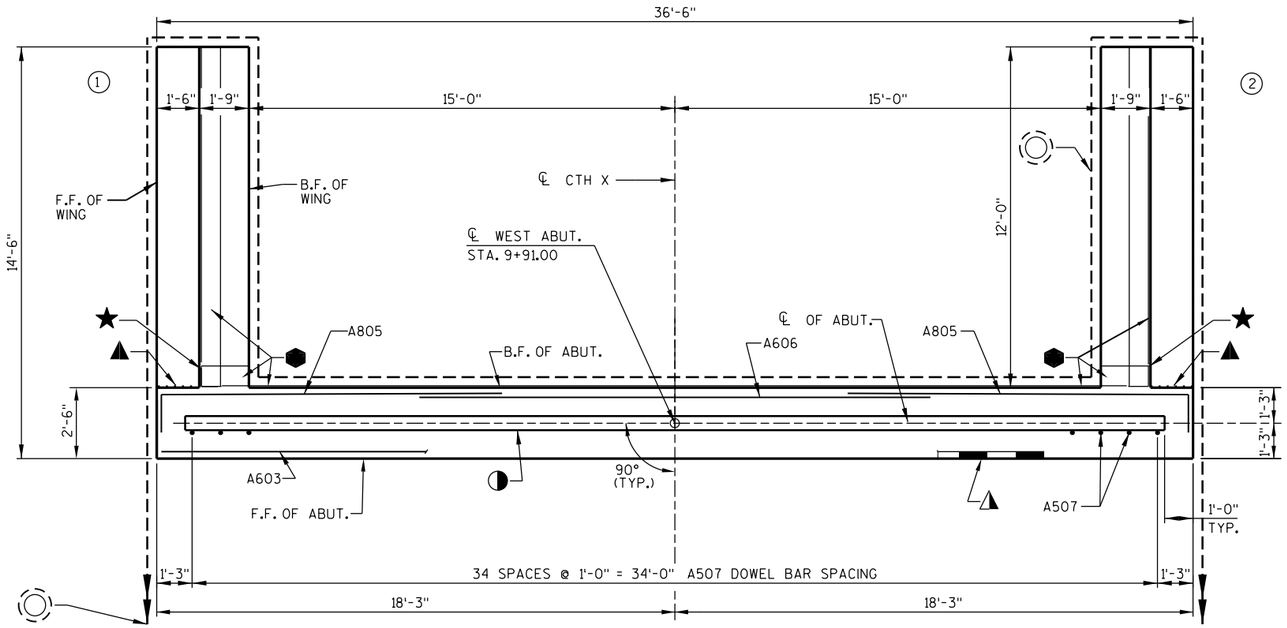
STATE PROJECT NUMBER

4318-03-71

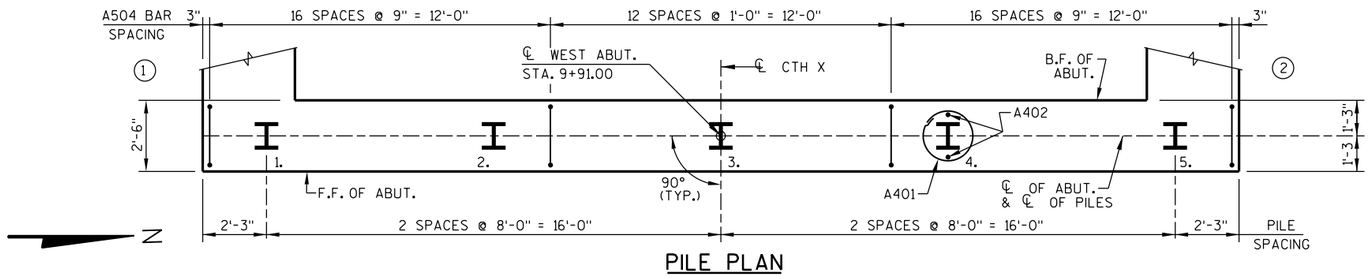
NOTE:
FOR WING DETAILS SEE SHEET 5.
◈ - ELEVATIONS GIVEN AT THE B.F. OF ABUTMENT.



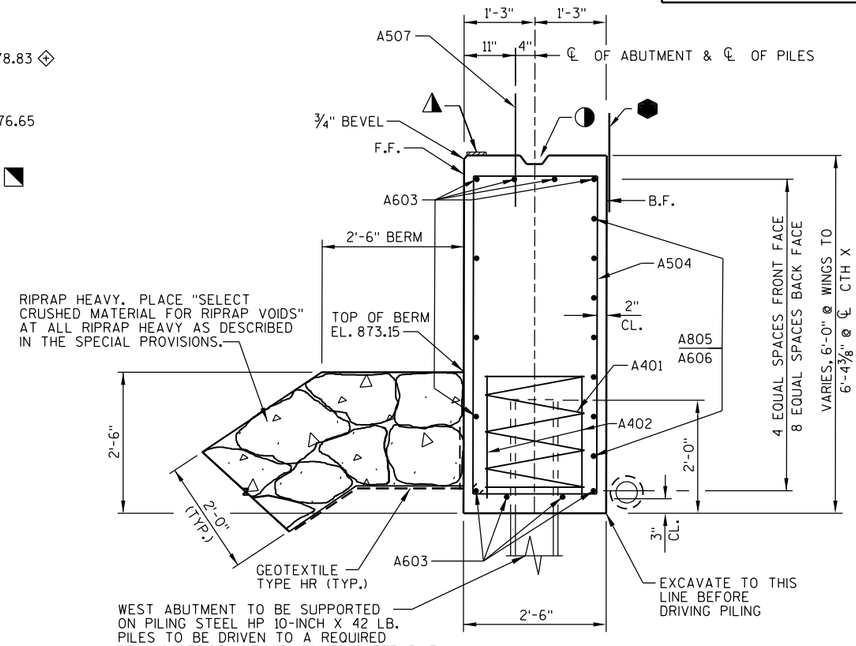
ELEVATION
(LOOKING WEST)



PLAN



PILE PLAN



TYPICAL SECTION THRU ABUTMENT

LEGEND

- OPTIONAL KEYED CONSTRUCTION JOINT ON WING FORMED BY BEVELED 2x6. IF JOINT IS USED PLACE ⬢ ON B.F. OF WING.
- ¾" "V" GROOVE ON FRONT FACE OF WING WALL, REQ'D. ONLY WHERE CONST. JOINT IS USED.
- KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2x6.
- ½" FILLER EXTEND AS SHOWN. SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF FILLER WITH NON-STAINING GRAY, NON-BITUMINOUS JOINT SEALER. (1" DEEP & HOLD ⅛" BELOW SURFACE OF CONCRETE).
- 4"x ¾" FILLER, EXTEND FULL LENGTH OF ABUTMENT BETWEEN EDGES OF SLAB.
- VERTICAL 18" WIDE RUBBERIZED MEMBRANE WATERPROOFING. EXTEND FROM BRIDGE SEAT TO TOP OF WINGS.
- HORIZONTAL 18" WIDE RUBBERIZED MEMBRANE WATERPROOFING. EXTEND BETWEEN WINGS. PLACE BOTTOM HALF HORIZONTAL AT HAUNCHED AREA OF WINGS AT CONSTRUCTION JOINT.
- PIPE UNDERDRAIN WRAPPED 6-INCH. EXTEND THRU GEOTEXTILE TYPE HR AT FACE OF RIPRAP HEAVY. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. PROVIDE RODENT PROTECTION AT ENDS OF PIPE, SEE RODENT SHIELD DETAIL, SHEET 7.
- ◯ - INDICATES WING NUMBER.

F.F. - FRONT FACE B.F. - BACK FACE CL. - CLEAR

NO.	DATE	REVISION	BY

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STRUCTURE B-36-224

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WEST ABUTMENT

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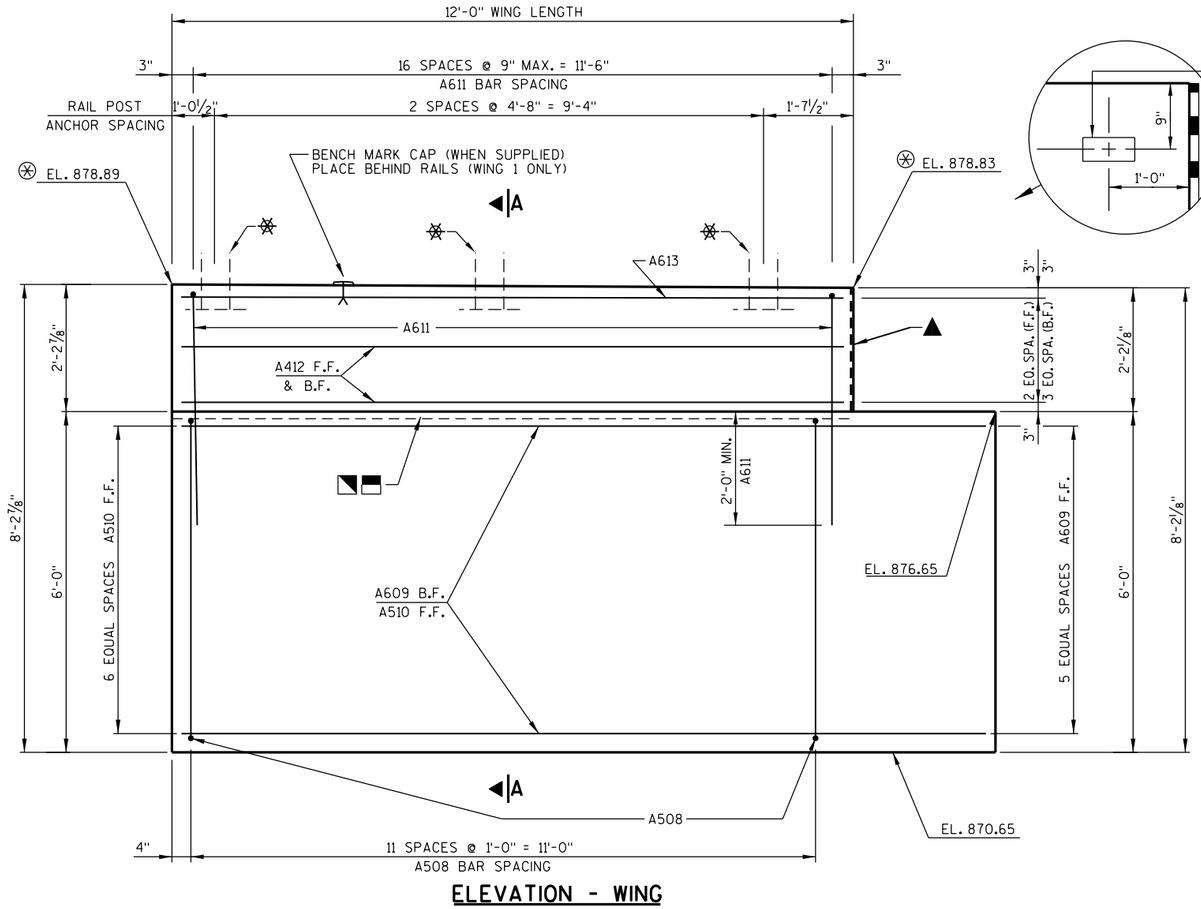
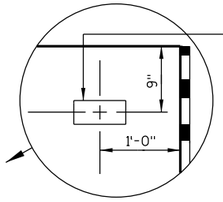
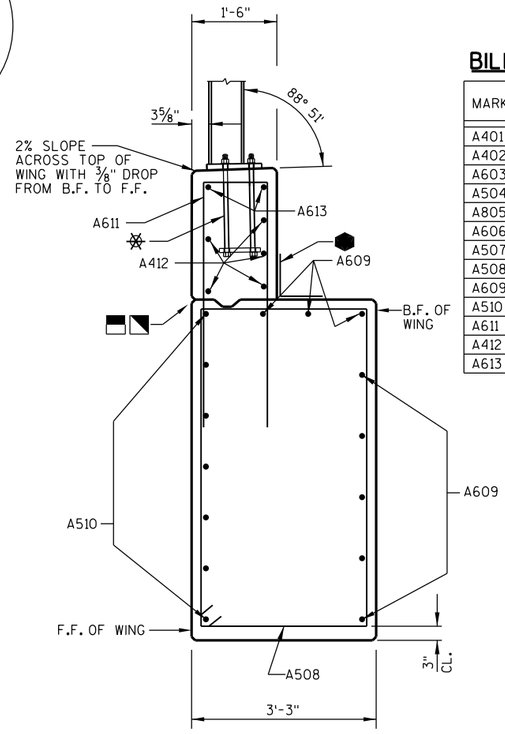


ELEVATION - WING



⊛ - FOR RAIL POST ANCHOR DETAILS SEE SHEET 9.

⊛ - ELEVATIONS ARE GIVEN AT THE F.F. OF WING.

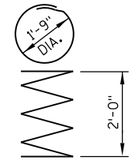


SECTION A-A THRU WING

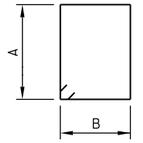
BILL OF BARS (WEST ABUT.) (COATED) 1660 LBS. (UNCOATED) 2140 LBS.

MARK	NUMBER REQUIRED COATED	NUMBER REQUIRED UNCOATED	LENGTH	BENT	LOCATION
A401	-	5	28'-0"	X	ABUTMENT BODY - 1 SPIRAL WRAP @ EACH PILE
A402	-	10	2'-3"		ABUTMENT BODY - 2 PER PILE - VERT.
A603	-	11	36'-2"		ABUTMENT BODY - F.F., TOP & BOTTOM - HORIZ.
A504	-	45	16'-0"	X	ABUTMENT BODY - STIRRUP - VERT.
A805	-	14	13'-2"	X	ABUTMENT BODY - B.F. @ WINGS - HORIZ.
A606	-	7	18'-0"		ABUTMENT BODY - B.F. @ CENTER - HORIZ.
A507	35	-	2'-0"		ABUTMENT BODY - TOP - DOWELS - VERT.
A508	24	-	17'-8"	X	WINGS 1 & 2 - BASE - STIRRUP - VERT.
A609	16	-	13'-11"		WINGS 1 & 2 - BASE - B.F. & TOP - HORIZ.
A510	14	-	14'-2"		WINGS 1 & 2 - BASE - F.F. - HORIZ.
A611	34	-	9'-0"	X	WINGS 1 & 2 - TOP - STIRRUP - VERT.
A412	10	-	11'-8"		WINGS 1 & 2 - TOP - F.F. & B.F. - HORIZ.
A613	4	-	11'-8"		WINGS 1 & 2 - TOP - F.F. & B.F. - HORIZ.

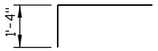
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.



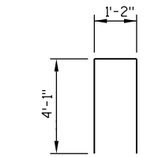
A401



MARK	A	B
A504	5'-6"	2'-2"
A508	5'-7"	2'-11"

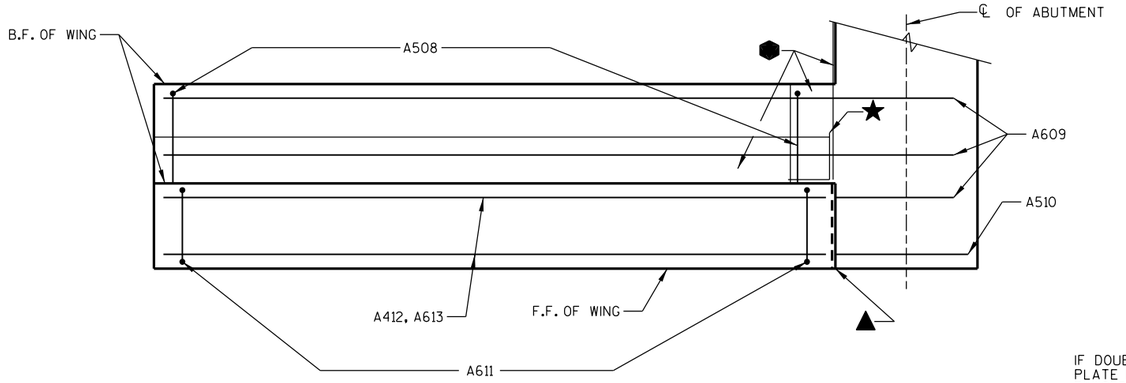


A805
STD. 90° HOOK

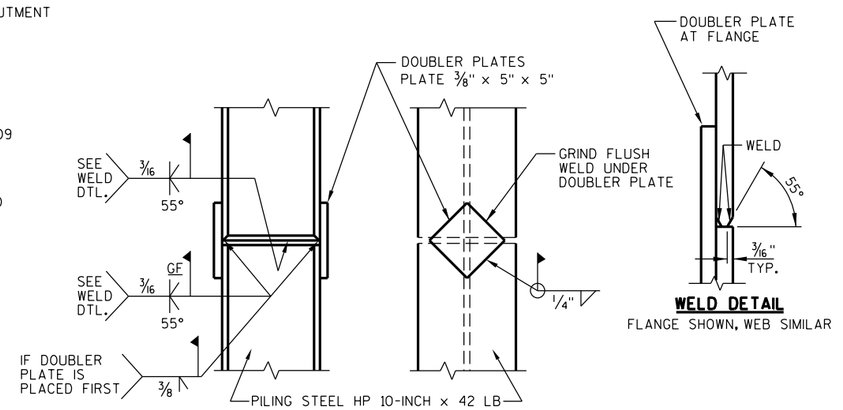


A611

NOTE:
WING 1 SHOWN
WING 2 SIMILAR



PLAN - WING



PILE SPLICE DETAILS

WELD DETAIL
FLANGE SHOWN, WEB SIMILAR

SEE SHEET 4 LEGEND FOR DESCRIPTION OF

NO.	DATE	REVISION	BY

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DEPARTMENT OF TRANSPORTATION

STRUCTURE B-36-224

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WEST ABUTMENT DETAILS

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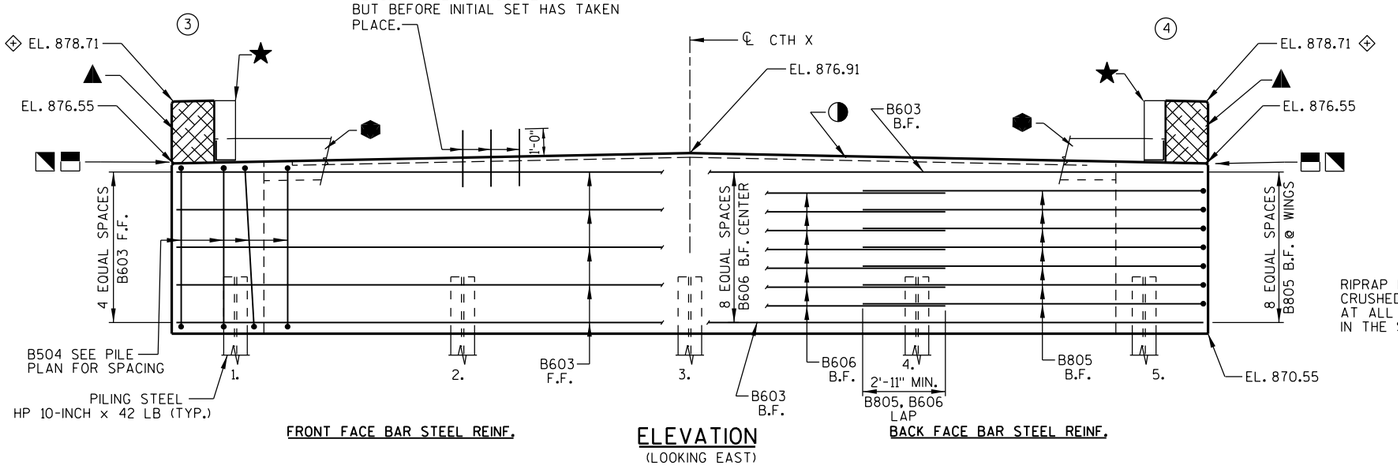
NOTE:
FOR WING DETAILS SEE SHEET 7.
◈ - ELEVATIONS GIVEN AT THE B.F. OF ABUTMENT.

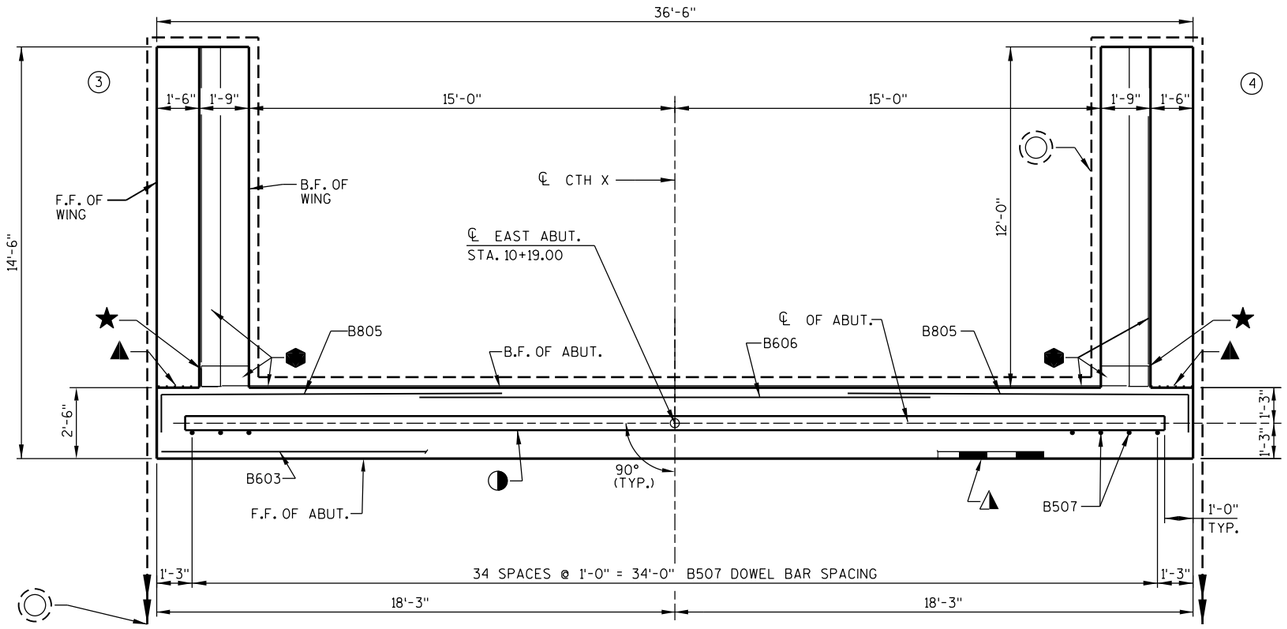
B507 BARS @ 1'-0" CENTERS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE.



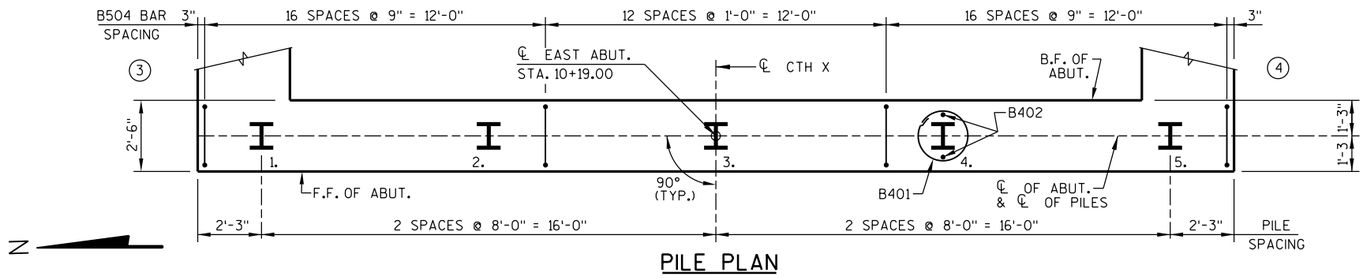
FRONT FACE BAR STEEL REINF.

BACK FACE BAR STEEL REINF.

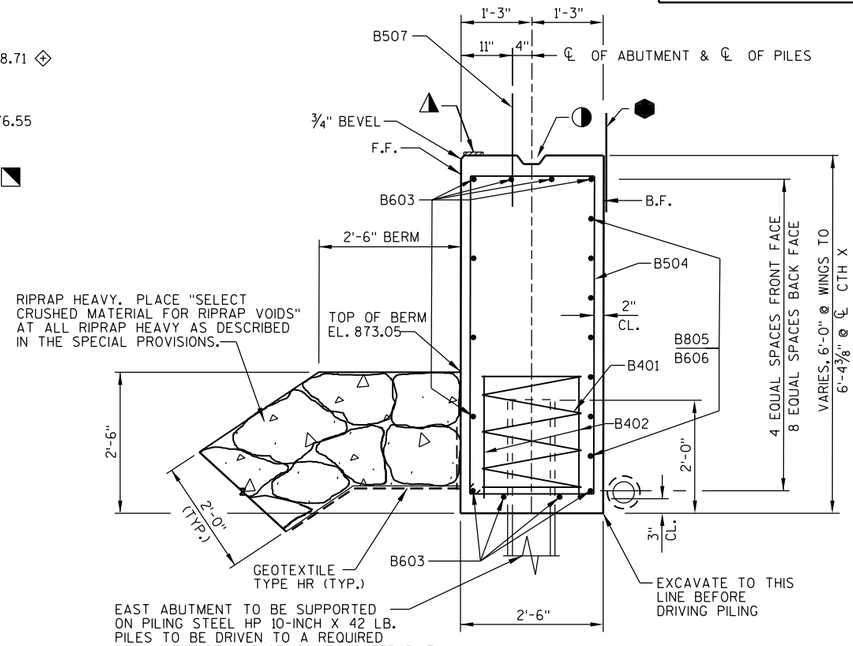
ELEVATION
(LOOKING EAST)



PLAN



PILE PLAN



TYPICAL SECTION THRU ABUTMENT

LEGEND

- – OPTIONAL KEYED CONSTRUCTION JOINT ON WING FORMED BY BEVELED 2x6. IF JOINT IS USED PLACE ⬢ ON B.F. OF WING.
- – ¾" "V" GROOVE ON FRONT FACE OF WING WALL, REQ'D. ONLY WHERE CONST. JOINT IS USED.
- – KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2x6.
- – ½" FILLER EXTEND AS SHOWN. SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF FILLER WITH NON-STAINING GRAY, NON-BITUMINOUS JOINT SEALER. (1" DEEP & HOLD ⅛" BELOW SURFACE OF CONCRETE).
- – 4"x ¾" FILLER, EXTEND FULL LENGTH OF ABUTMENT BETWEEN EDGES OF SLAB.
- ★ – VERTICAL 18" WIDE RUBBERIZED MEMBRANE WATERPROOFING. EXTEND FROM BRIDGE SEAT TO TOP OF WINGS.
- ⬢ – HORIZONTAL 18" WIDE RUBBERIZED MEMBRANE WATERPROOFING. EXTEND BETWEEN WINGS. PLACE BOTTOM HALF HORIZONTAL AT HAUNCHED AREA OF WINGS AT CONSTRUCTION JOINT.
- ◎ – PIPE UNDERDRAIN WRAPPED 6-INCH. EXTEND THRU GEOTEXTILE TYPE HR AT FACE OF RIPRAP HEAVY. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. PROVIDE RODENT PROTECTION AT ENDS OF PIPE, SEE RODENT SHIELD DETAIL, SHEET 7.
- ◯ – INDICATES WING NUMBER. F.F. - FRONT FACE B.F. - BACK FACE CL. - CLEAR

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STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-36-224

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EAST ABUTMENT

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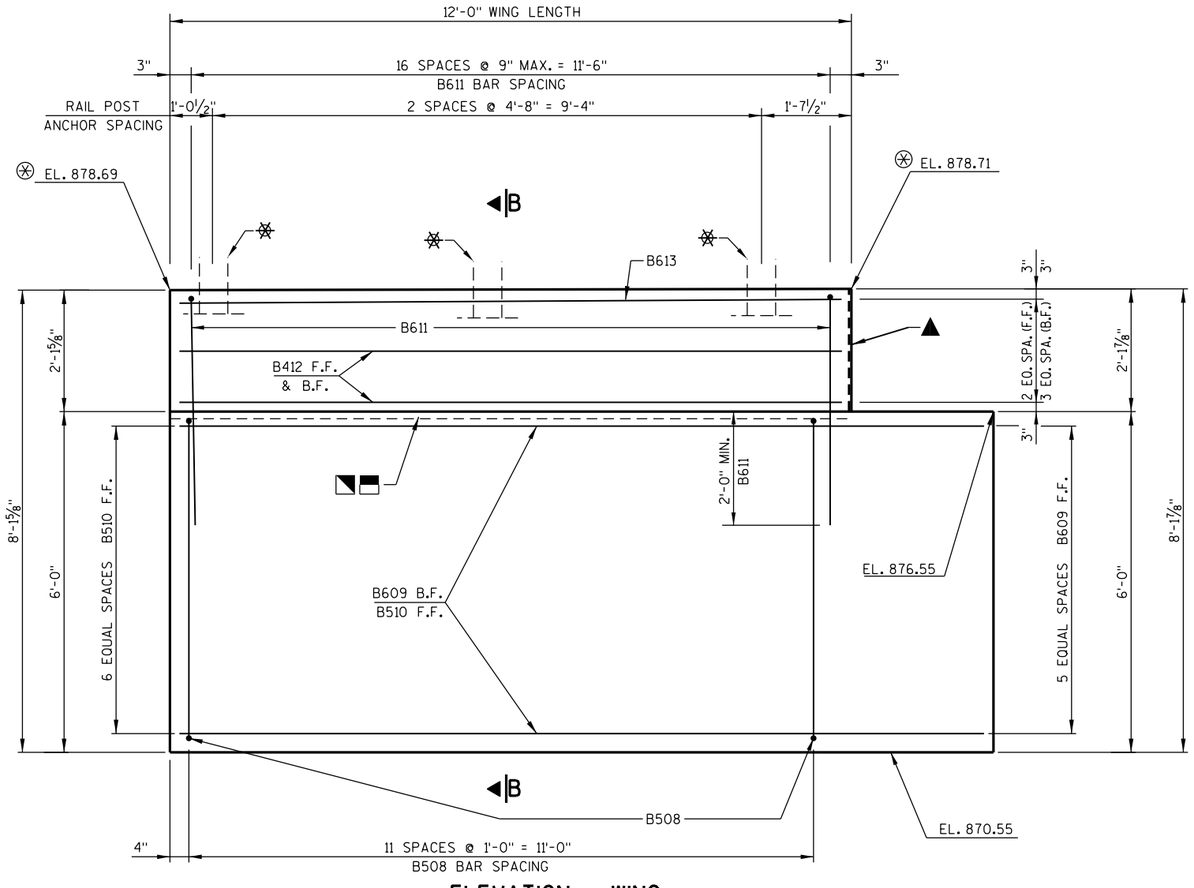
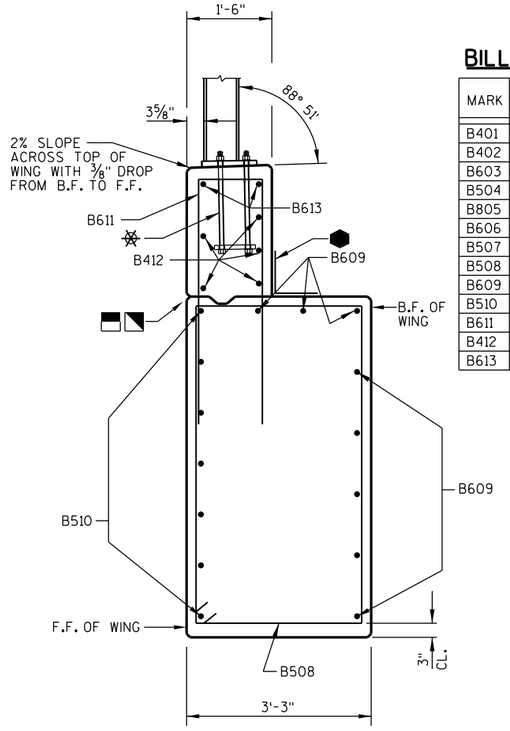


ELEVATION - WING

- FOR RAIL POST ANCHOR DETAILS SEE SHEET 9.

- ELEVATIONS ARE GIVEN AT THE F.F. OF WING.

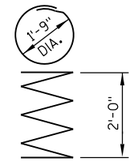


SECTION B-B THRU WING

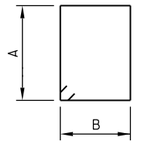
BILL OF BARS (EAST ABUT.) (COATED) 1660 LBS. (UNCOATED) 2140 LBS.

MARK	NUMBER REQUIRED COATED	NUMBER REQUIRED UNCOATED	LENGTH	BENT	LOCATION
B401	-	5	28'-0"	X	ABUTMENT BODY - 1 SPIRAL WRAP @ EACH PILE
B402	-	10	2'-3"		ABUTMENT BODY - 2 PER PILE - VERT.
B603	-	11	36'-2"		ABUTMENT BODY - F.F., TOP & BOTTOM - HORIZ.
B504	-	45	16'-0"	X	ABUTMENT BODY - STIRRUP - VERT.
B805	-	14	13'-2"	X	ABUTMENT BODY - B.F. @ WINGS - HORIZ.
B606	-	7	18'-0"		ABUTMENT BODY - B.F. @ CENTER - HORIZ.
B507	35	-	2'-0"		ABUTMENT BODY - TOP - DOWELS - VERT.
B508	24	-	17'-8"	X	WINGS 3 & 4 - BASE - STIRRUP - VERT.
B609	16	-	13'-11"		WINGS 3 & 4 - BASE - B.F. & TOP - HORIZ.
B510	14	-	14'-2"		WINGS 3 & 4 - BASE - F.F. - HORIZ.
B611	34	-	8'-10"	X	WINGS 3 & 4 - TOP - STIRRUP - VERT.
B412	10	-	11'-8"		WINGS 3 & 4 - TOP - F.F. & B.F. - HORIZ.
B613	4	-	11'-8"		WINGS 3 & 4 - TOP - F.F. & B.F. - HORIZ.

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

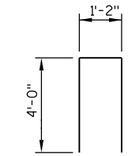


B401



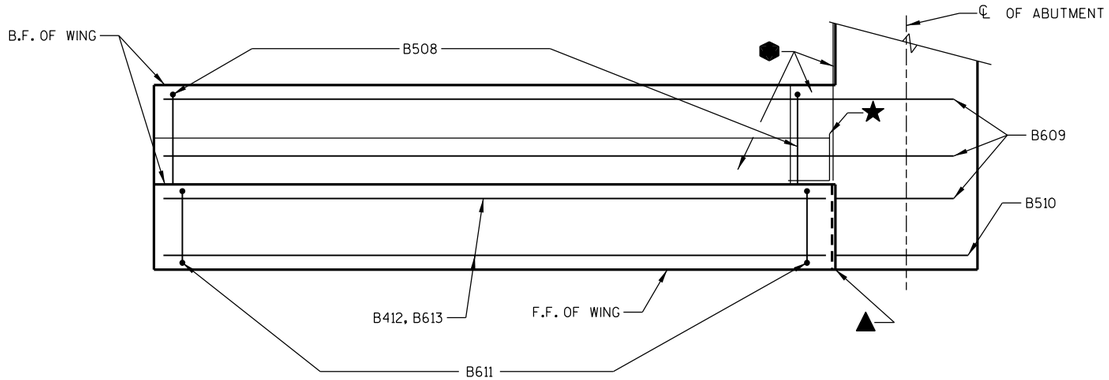
MARK	A	B
B504	5'-6"	2'-2"
B508	5'-7"	2'-11"

B805
STD. 90° HOOK



B611

NOTE:
WING 3 SHOWN
WING 4 SIMILAR

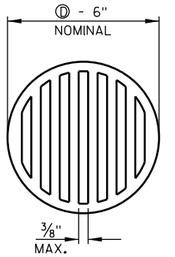


PLAN - WING

RODENT SHIELD NOTES:

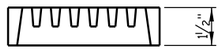
ORIENT SHIELD SO SLOTS ARE VERTICAL.

THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALLY AVAILABLE AS A FLOOR STRAINER.
A PIPE COUPLING IS REQUIRED FOR THE ATTACHEMENT OF THIS SHIELD TO THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 x 1-INCH STAINLESS STEEL SHEET METAL SCREWS. THE RODENT SHIELD, PIPE COUPLING AND SCREWS SHALL BE INCLUDED IN THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".



RODENT SHIELD

Ⓓ - DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING.



SECTION R-R

SEE SHEET 6 LEGEND FOR DESCRIPTION OF

NO.	DATE	REVISION	BY

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DEPARTMENT OF TRANSPORTATION

STRUCTURE B-36-224

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EAST ABUTMENT DETAILS

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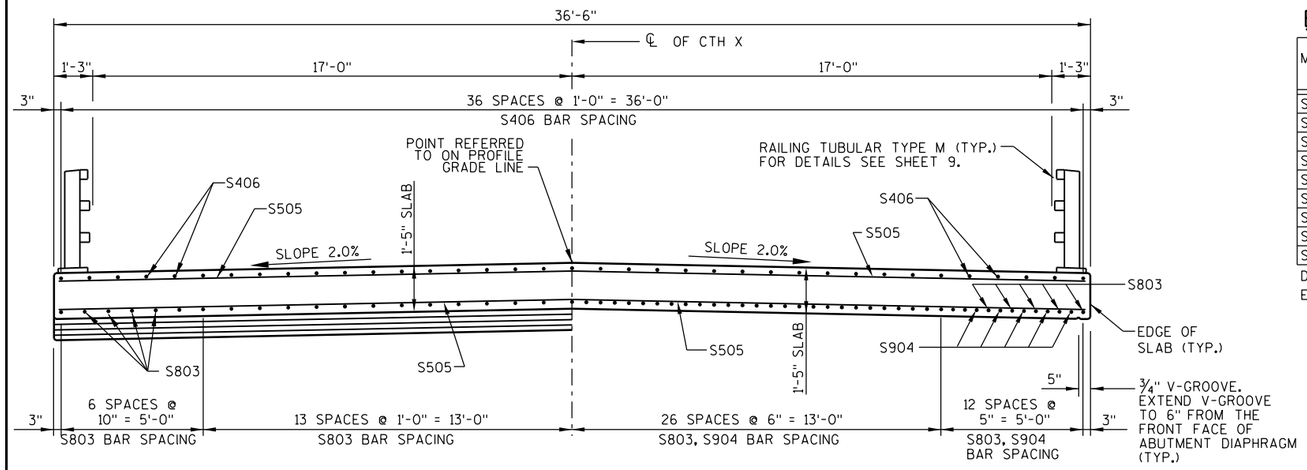
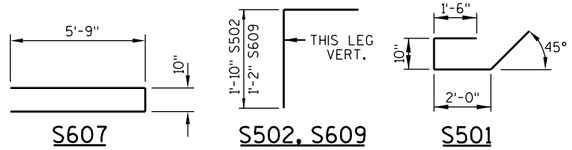
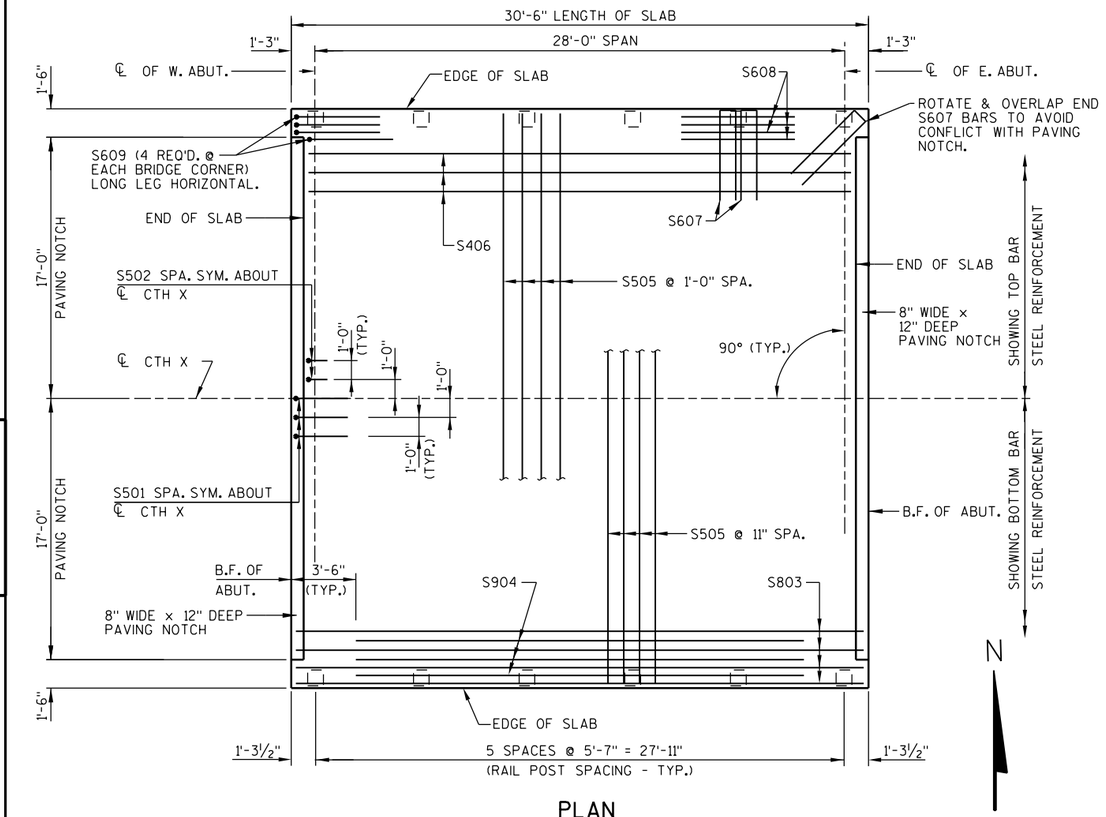


AT ABUTMENTS IN SPAN

CROSS SECTION THRU BRIDGE

(LOOKING EAST)



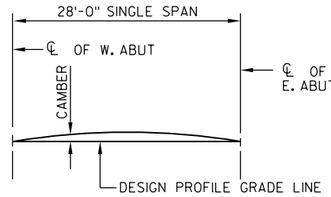


PLAN

BILL OF BARS (COATED) 11,030 LBS.

MARK	NO. REQ'D.	LENGTH	BENT	LOCATION
S501	74	6'-0"	X	DIAPHRAGM @ ABUTS. - LONGIT.
S502	74	3'-2"	X	DIAPHRAGM @ ABUTS. - VERT.
S803	39	30'-2"		SLAB BOTTOM - LONGIT.
S904	38	23'-6"		SLAB BOTTOM - LONGIT.
S505	68	36'-2"		SLAB TOP & BOTTOM - TRANS.
S406	37	28'-10"		SLAB TOP - LONGIT.
S607	24	12'-0"	X	SLAB TOP @ RAIL POST, 2 PER POST
S608	32	6'-0"		SLAB TOP @ RAIL POST, 4 PER POST
S609	16	6'-0"	X	SLAB TOP @ RAIL END POST AS NOTED

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.
EPOXY COAT ALL SUPERSTRUCTURE BAR STEEL REINFORCEMENT.



CAMBER DIAGRAM

CAMBER SPANS AS SHOWN ABOVE AND IN THE TABLE OF VALUES TO PROVIDE FOR DEAD LOAD DEFLECTION AND FUTURE CREEP. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT. DEAD LOAD DEFLECTION APPROXIMATES 1/3 OF CAMBER VALUES SHOWN.

TO DETERMINE FALSEWORK ELEVATION AT EDGE OF SLAB, CROWN OR REFERENCE LINE, FOLLOW THIS PROCEDURE:

TOP OF SLAB ELEVATION AT FINAL GRADE

\- SLAB THICKNESS

\+ CAMBER

\+ FORM SETTLEMENT/DEFLECTION DUE TO PLACEMENT OF SLAB CONCRETE (TO BE COMPUTED BY THE CONTRACTOR)

= TOP OF SLAB FALSEWORK ELEVATION

GENERAL NOTES

ALL SLAB THICKNESS DIMENSIONS ARE MINIMUM. ANY TOLERANCES NECESSARY TO CORRECT CONSTRUCTION DISCREPANCIES ARE TO BE PLUS (+).

TOP TRANSVERSE BARS IN SLAB SHALL BE SUPPORTED BY INDIVIDUAL BAR CHAIRS AT APPROXIMATELY 3'-0" CENTERS EACH WAY. BOTTOM LONGITUDINAL BARS SHALL BE SUPPORTED BY CONTINUOUS BAR CHAIRS AT APPROXIMATELY 4'-0" CENTERS.

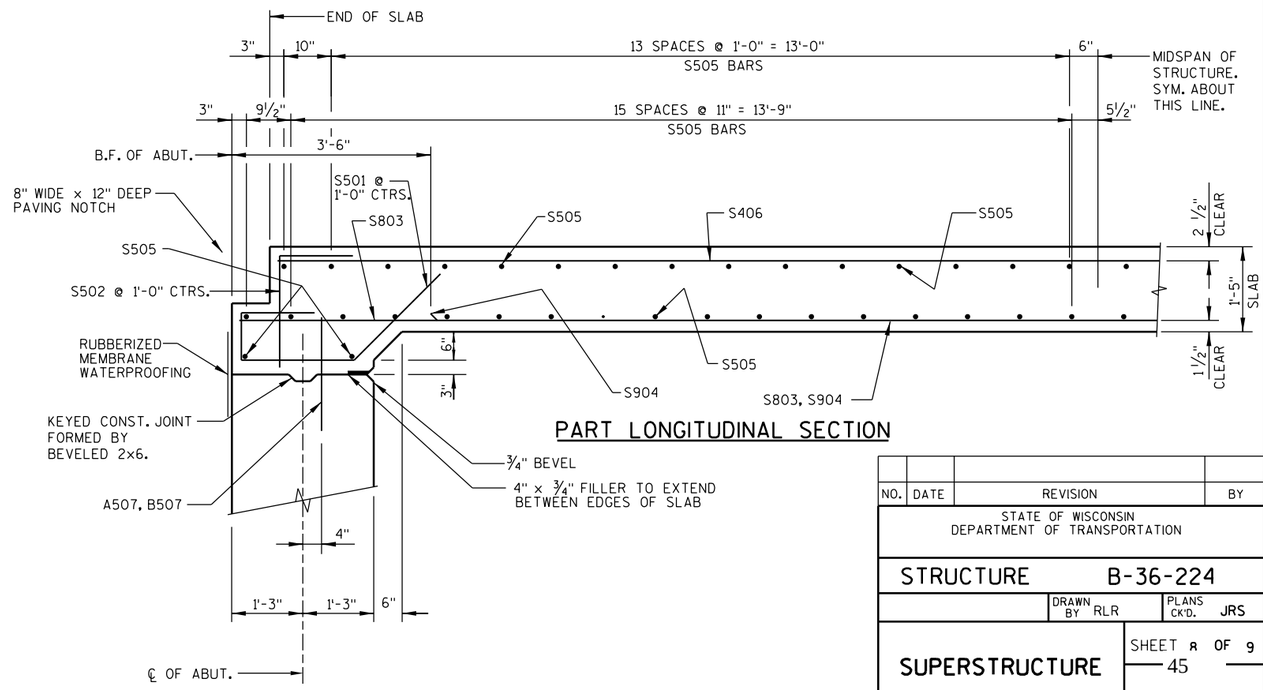
SURVEY TOP OF SLAB ELEVATIONS

LOCATION	SPAN POINT	SOUTH SLAB EDGE	C/L CTH X	NORTH SLAB EDGE
WEST ABUT.	1.0			
	1.5			
EAST ABUT.	2.0			

PRIOR TO RELEASING SLAB FALSEWORK, TAKE TOP OF SLAB ELEVATIONS AT THE ℄ OF ABUTMENTS AND AT THE 0.5 PTS. TO VERIFY CAMBER. TAKE ELEVATIONS ALONG EDGE OF SLAB AND CROWN OR ℄. RECORD THE ELEVATIONS IN THE ABOVE TABLE FOR THE "AS BUILT" PLANS.

TOP OF SLAB ELEVATIONS AND CAMBER VALUES

LOCATION	SPAN POINT	SOUTH SLAB EDGE	C/L CTH X	NORTH SLAB EDGE	CAMBER VALUE (INCHES)
WEST ABUT.	1.0	878.82	879.19	878.82	0.0
	1.1	878.81	879.17	878.81	0.2
	1.2	878.80	879.16	878.80	0.3
	1.3	878.78	879.15	878.78	0.4
	1.4	878.77	879.14	878.77	0.5
	1.5	878.76	879.13	878.76	0.5
	1.6	878.75	879.12	878.75	0.5
	1.7	878.74	879.11	878.74	0.4
	1.8	878.73	879.10	878.73	0.3
	1.9	878.72	879.09	878.72	0.2
EAST ABUT.	2.0	878.72	879.08	878.72	0.0



PART LONGITUDINAL SECTION

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-36-224

DRAWN BY RLR | PLANS CK'D. JRS

SUPERSTRUCTURE

SHEET 8 OF 9
45

FILE= 9306023_08.DGN
DATE= 7/27/2017

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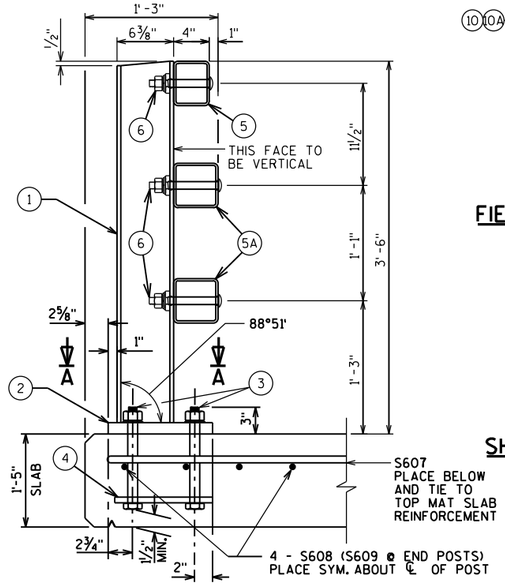
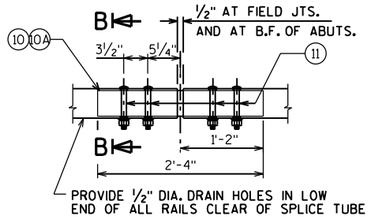
9306023_08.dgn 7/27/2017 2:55:53 PM rrabska

STATE PROJECT NUMBER

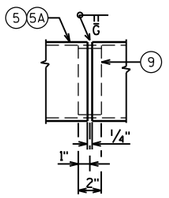
4318-03-71



SECTION THRU RAILING ON SLAB

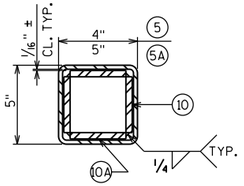


FIELD ERECTION JOINT DETAIL

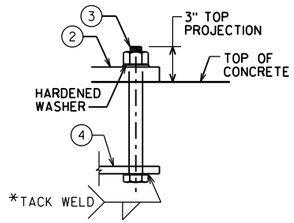


SHOP RAIL SPLICE DETAIL

(LOCATION MUST BE SHOWN ON SHOP DRAWINGS)

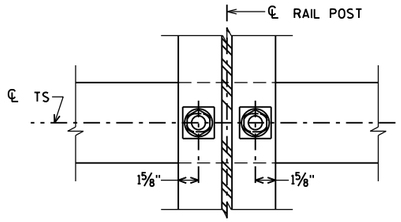


SECTION B-B

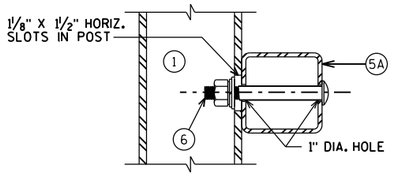


ANCHOR BOLTS

*FOR ANCHOR BOLTS IN WINGS TACK WELD MAY BE USED IN FIELD AFTER ANCHOR PLATE IS IN POSITION IF REQ'D FOR CONSTRUCTIBILITY



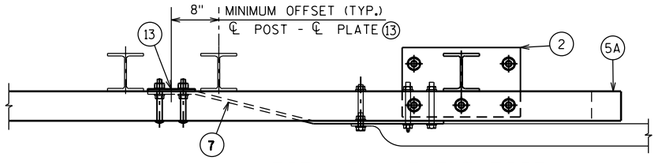
SECTION THRU POST WEB



SECTION THRU RAIL

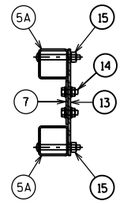
NOTE: CONNECTIONS AT LOWER RAILS SHOWN. CONNECTIONS AT TOP RAIL SIMILAR.

TYPICAL RAIL TO POST CONNECTIONS

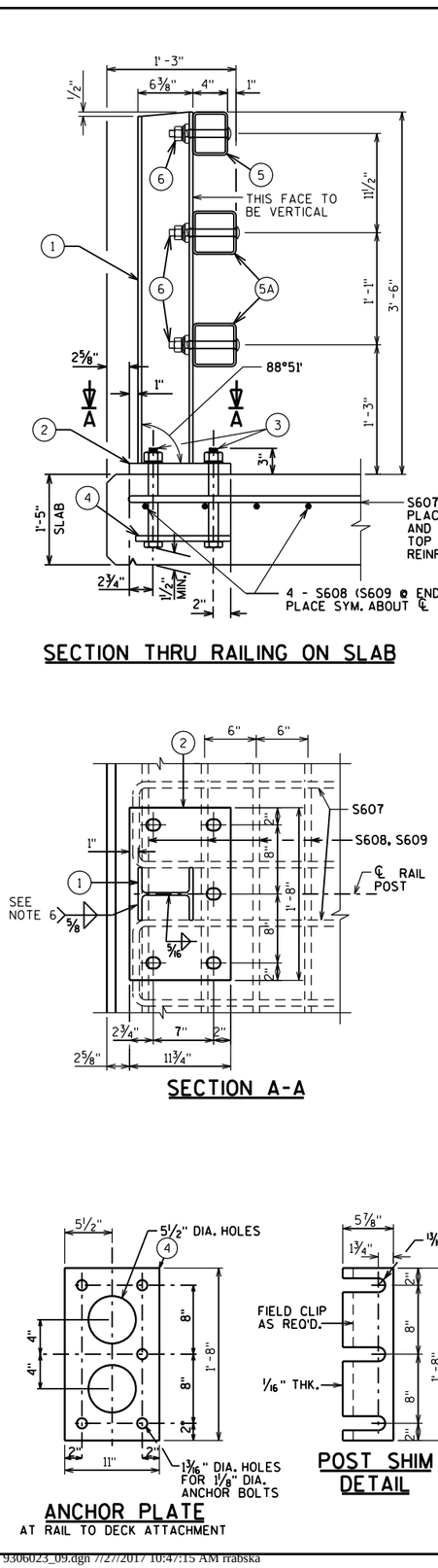


TOP VIEW AT END POST

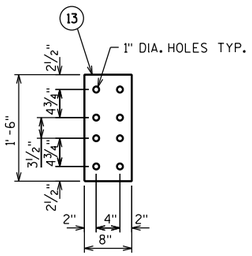
(THRIE BEAM RAIL ATTACHMENT)



SECTION C-C

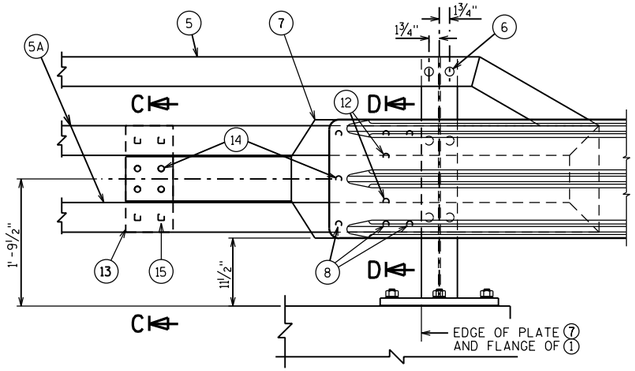


SECTION A-A



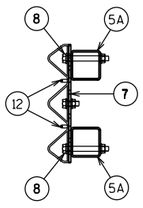
ANCHOR PLATE

AT BEAM GUARD ATTACHMENT



DETAIL AT END POST

(THRIE BEAM RAIL ATTACHMENT)



SECTION D-D

LEGEND

(1) W6 x 25 WITH 1 1/8" X 1 1/2" HORIZ. SLOTS ON EACH SIDE OF POST FOR BOLT NO. 6. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.

(2) PLATE 1'-1 1/4" x 1'-1 3/4" x 1'-8" WITH 1 5/16" X 1 5/8" SLOTTED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN. SLOTS PARALLEL TO SHORT SIDE OF PLATE.

(3) ASTM A449 - 1 1/8" DIA. ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED). 5 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. USE 1'-3" LONG IN SLAB STRUCTURE. USE 1'-9" LONG IN ABUTMENT WINGS. (AN EQUIVALENT THREADED ROD WITH NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQ'D. FOR CONSTRUCTIBILITY).

(4) 5/8" x 11" x 1'-8" ANCHOR PLATE (GALVANIZED) WITH 13/16" DIA. HOLES FOR ANCHOR BOLTS NO. 3

(5) TS 5 x 4 x 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.

(5A) TS 5 x 5 x 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.

(6) 7/8" DIA. A325 SLOTTED ROUND HEAD BOLT WITH NUT, 3/16" X 1 5/8" X 1 5/8" WASHER, AND LOCK WASHER (2 REQ'D. AT EACH RAIL TO POST LOCATION.)

(7) 1/2" THK. BACK-UP PLATE WITH 2 - 7/8" X 1 1/2" THREADED SHOP WELDED STUDS (NO. 12). BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES NO. 5A.

(8) 1" DIA. HOLES IN PLATE NO. 7 & TUBES NO. 5A FOR 7/8" DIA. A325 BOLTS WITH HEX NUTS AND WASHERS. 6 HOLES IN TUBES AND PLATE NO. 7.

(9) SPLICE SLEEVE FABRICATED FROM 1/4" PLATE. PROVIDE "SLIDING FIT".

(10) 3/8" X 3 5/8" X 2'-4" PLATE. 2 PER RAIL. USED IN NO. 5 & 5A.

(10A) 3/8" X 2 5/8" X 2'-4" PLATE USED IN NO. 5, 3/8" X 3 5/8" X 2'-4" PLATE USED IN NO. 5A. 2 PER RAIL.

(11) 7/8" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. USE 5/8 " X 1 1/4" LONGIT. SLOTTED HOLES AT FIELD JOINTS IN PLATE NO. 10A.

(12) 7/8" DIA. X 1 1/2" LONG THREADED SHOP WELDED STUDS (2 REQ'D).

(13) 3/8" X 8" X 1'-6" ANCHOR PLATE. BOLT TO RAIL AS SHOWN IN DETAIL. REQ'D. AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYM. ABOUT TUBES NO. 5A.

(14) 7/8" DIA. X 2" LONG A325 HEX BOLT WITH NUT AND WASHER (5 REQUIRED).

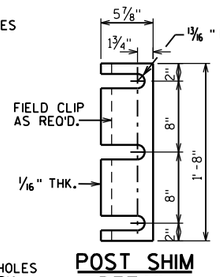
(15) 1" DIA. HOLES IN TUBES NO. 5A FOR 7/8" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER (4 REQ'D.). 4 HOLES IN TUBES.

GENERAL NOTES

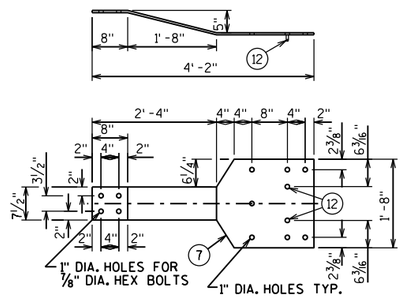
1. BID ITEM SHALL BE "RAILING TUBULAR TYPE M B-36-224" WHICH INCLUDES ALL ITEMS SHOWN.
2. RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED FY = 50 KSI. ANCHOR PLATES, AND SPLICE TUBE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.
3. THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL 1/8 TURN.
4. RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE.
5. ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
6. WELD IS THE SAME ON BOTH FLANGES. FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING.
7. FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 AND CAULK AROUND PERIMETER OF PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D. FOR ALIGNMENT.
8. POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.
9. ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS & STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING BY S.S.P.C. SPECIFICATIONS.
10. PAINTING IS NOT REQUIRED.
11. THIS RAILING MEETS NCHRP REPORT 350 EVALUATION CRITERIA FOR TEST LEVEL 4 (TL-4).

ANCHOR PLATE

AT RAIL TO DECK ATTACHMENT

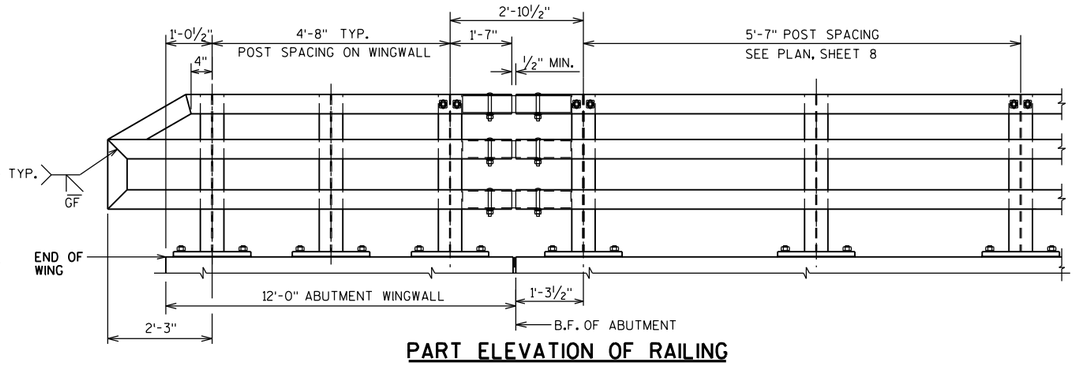


POST SHIM DETAIL



BACK-UP PLATE DETAIL

AT BEAM GUARD ATTACHMENT



PART ELEVATION OF RAILING

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-36-224

DRAWN BY RLR | PLANS CK'D. JRS

RAILING TUBULAR TYPE M

SHEET 9 OF 9

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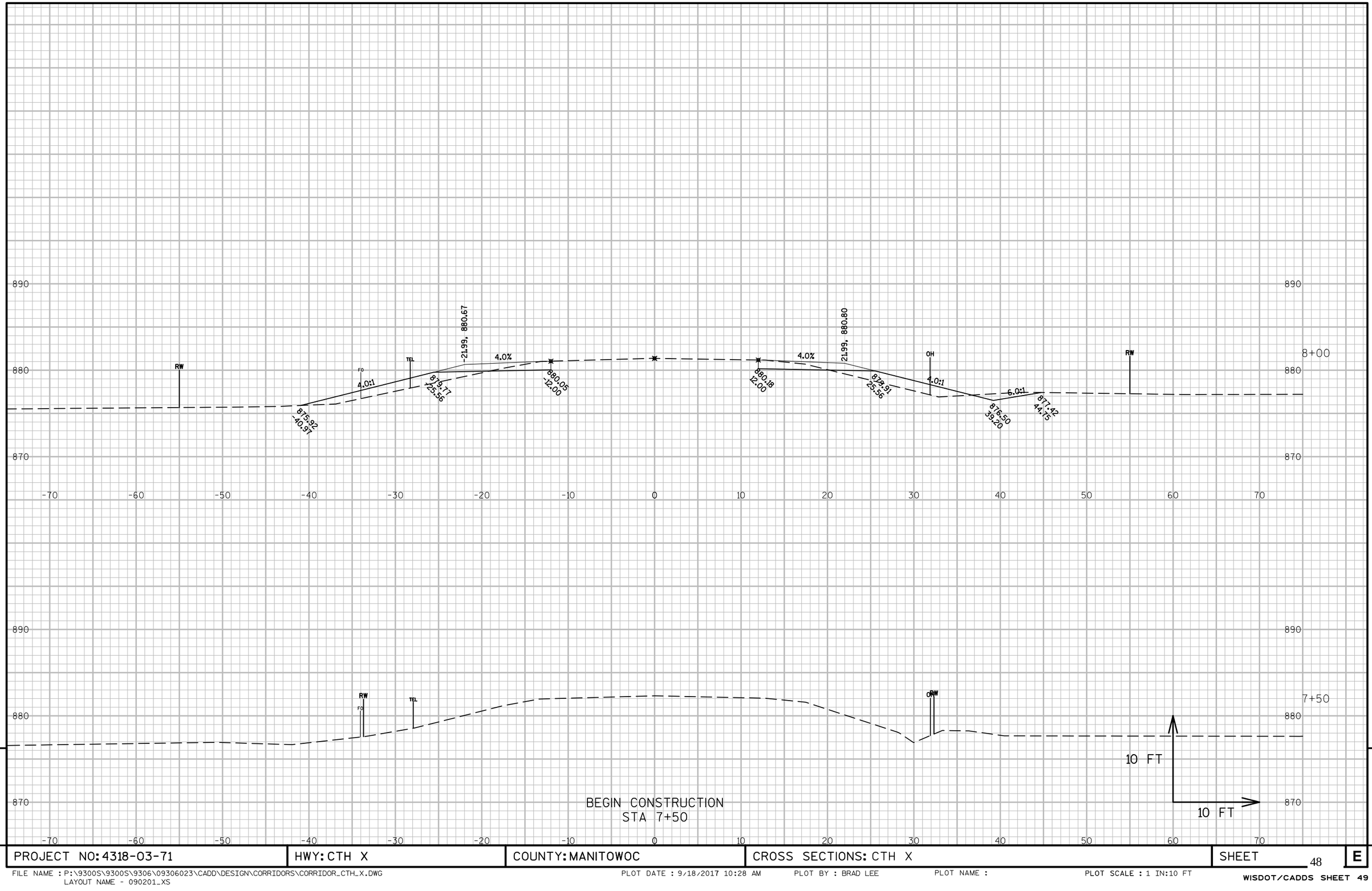
FILE= 9306023_09.DGN
DATE= 7/27/2017

9306023_09.dgn 7/27/2017 10:47:15 AM rrabska

PROJECT I.D. 4318-03-71 EARTHWORK SUMMARY

STA	EXCAVATION COMMON CY	EXCAVATION ROCK CY	FILL (1) CY	EXPANDED FILL (2) CY	WASTE CY	BORROW CY
7+50.00						
	12	0	30	39	-27	27
8+00.00						
	48	0	64	83	-35	35
8+40.00						
	19	0	23	30	-11	11
8+50.23						
	48	0	54	70	-22	22
8+75.23						
	50	0	32	42	8	-8
9+00.23						
	57	0	13	17	40	-40
9+28.35						
	100	0	22	29	71	-71
9+77.75						
	24	0	7	9	15	-15
9+89.75						
STRUCTURE B-36-224						
10+20.25						
	25	0	9	12	13	-13
10+32.25						
	97	0	29	38	59	-59
10+81.65						
	50	0	17	22	28	-28
11+09.77						
	44	0	43	56	-12	12
11+34.77						
	46	0	69	90	-44	44
11+59.77						
	19	0	27	35	-16	16
11+70.00						
	34	0	63	82	-48	48
12+00.00						
	9	0	45	59	-50	50
12+50.00						
SUBTOTALS						
WEST APPROACH	358	0	245	319	39	-39
EAST APPROACH	324	0	302	394	-70	70
UNUSABLE PAVEMENT (3)						187
TOTALS	**682**	**0**	**547**	**713**	**-31**	**218**

(1) - NOT A BID ITEM - FOR INFORMATIONAL PURPOSES ONLY.
(2) - FILL EXPANSION 30%
(3) - EXISTING PAVEMENT BASED ON AVE THK OF 7" AT THE W. APPR & 7.75" AT THE E. APPR OF ASPHALT PER BORING LOG.



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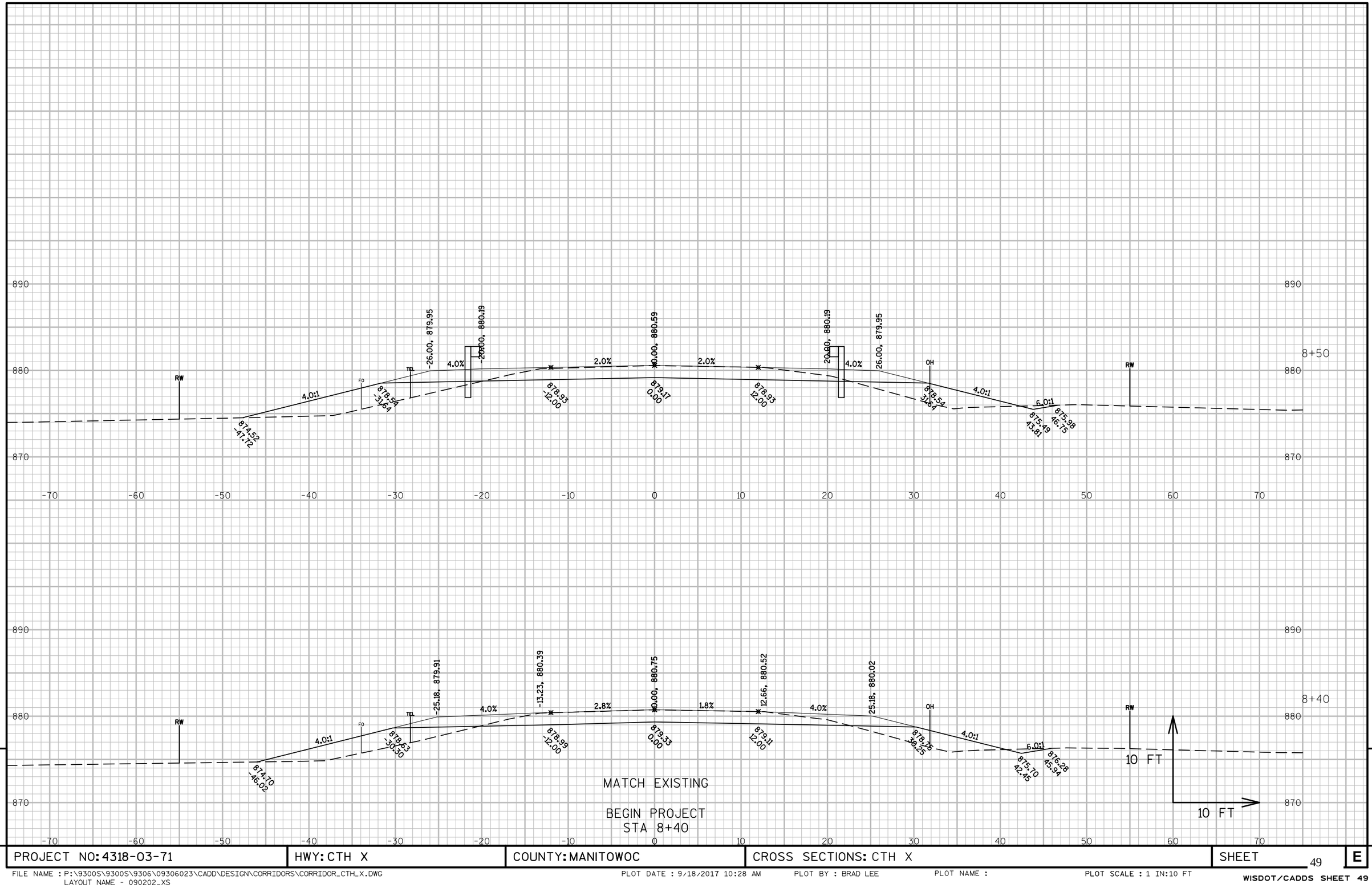
LAYOUT NAME - 090201_XS

PLOT DATE : 9/18/2017 10:28 AM PLOT BY : BRAD LEE PLOT NAME : PLOT SCALE : 1 IN:10 FT



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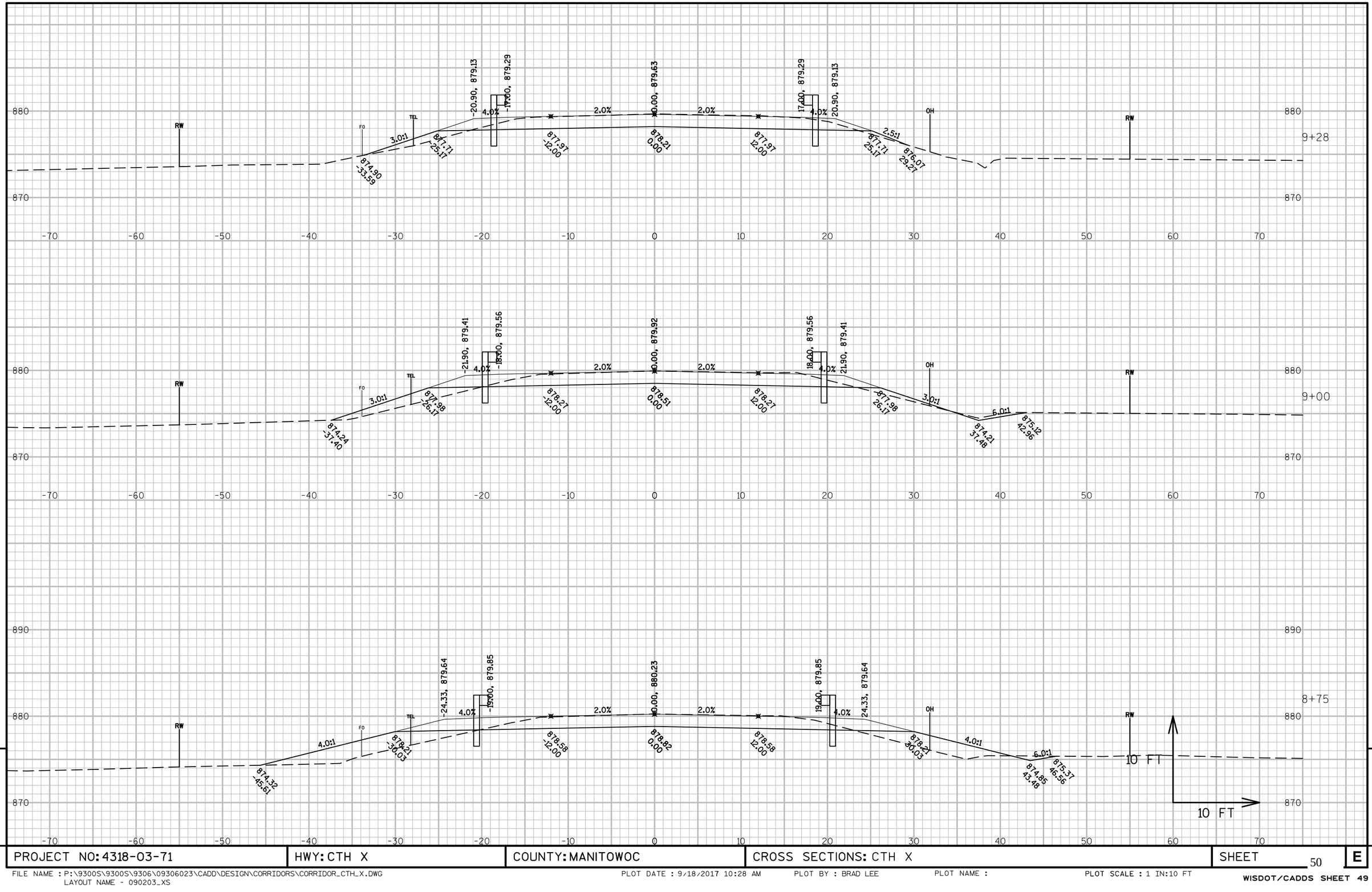
WISDOT/CADDS SHEET 49



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PROJECT NO: 4318-03-71	HWY: CTH X	COUNTY: MANITOWOC	CROSS SECTIONS: CTH X	SHEET 51	E

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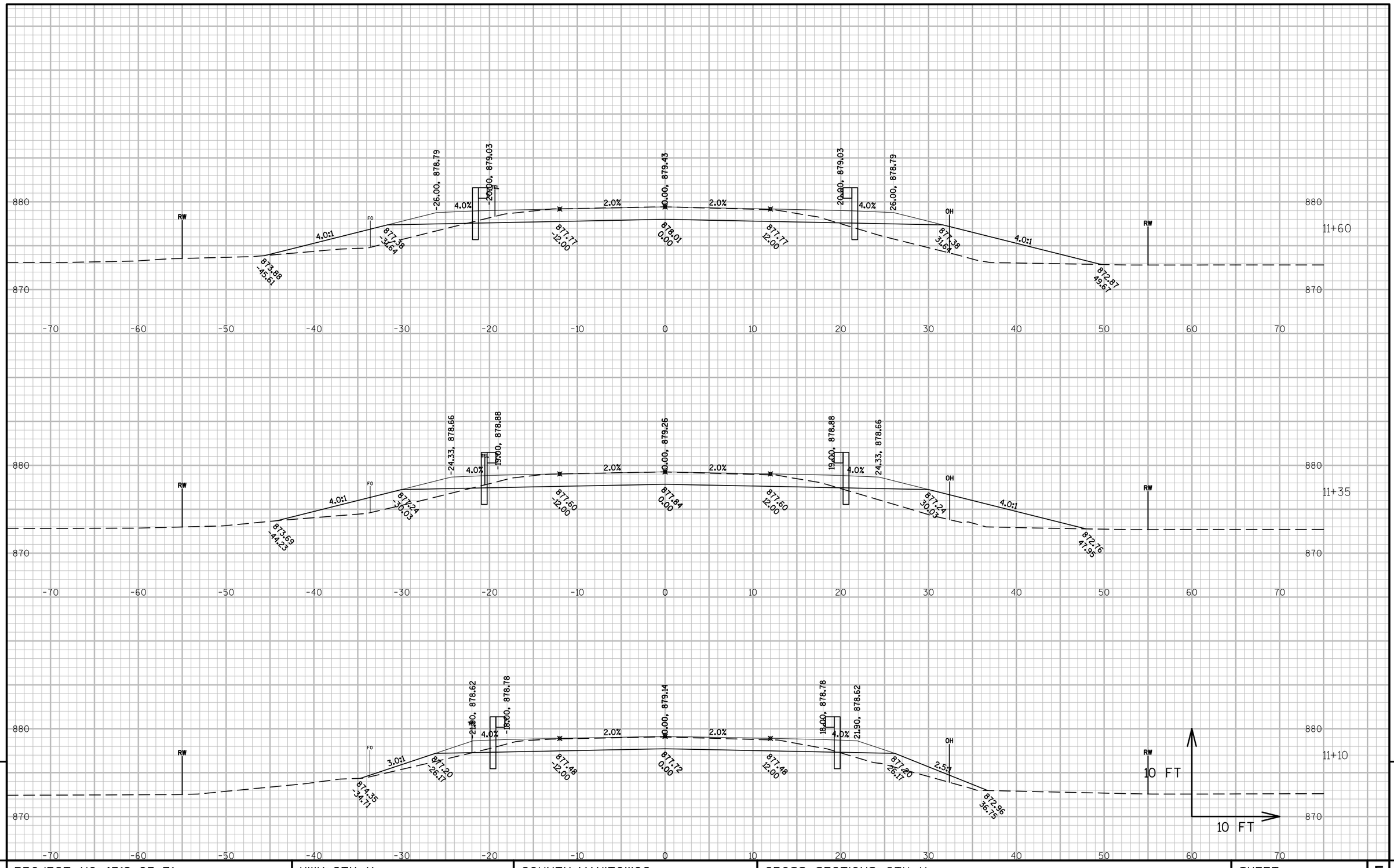

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PROJECT NO: 4318-03-71	HWY: CTH X	COUNTY: MANITOWOC	CROSS SECTIONS: CTH X	SHEET 52	E

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LAYOUT NAME - 090205_XS

PLOT DATE : 9/18/2017 10:28 AM PLOT BY : BRAD LEE PLOT NAME : PLOT SCALE : 1 IN:10 FT

END CONSTRUCTION
STA 12+50

12+50

END PROJECT
STA 11+70

MATCH EXISTING

12+00

11+70

10 FT

10 FT

PROJECT NO: 4318-03-71	HWY: CTH X	COUNTY: MANITOWOC	CROSS SECTIONS: CTH X	SHEET 53 E

FILE NAME : P:\9300S\9300S\9306\09306023\CADD\DESIGN\CORRIDORS\CORRIDOR_CTH_X.DWG
LAYOUT NAME - 090206_XS

PLOT DATE : 9/18/2017 10:28 AM PLOT BY : BRAD LEE PLOT NAME : PLOT SCALE : 1 IN:10 FT

Wisconsin Department of Transportation

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