

SWL
PROJECT ID: 5108-00-74
WITH:

COUNTY: GRANT

APRIL 2014
ORDER OF SHEETS

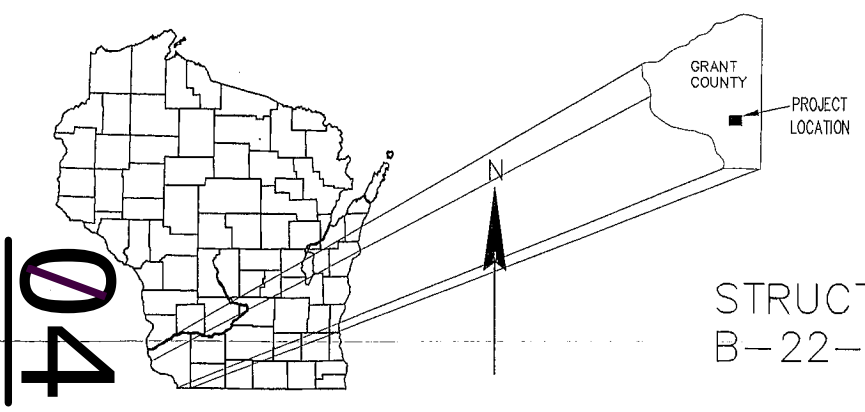
Section No.	1	Title
Section No.	2	Typical Sections and Details (includes Erosion Control)
Section No.	3	Estimate of Quantities
Section No.	3	Miscellaneous Quantities
Section No.	4	Right of Way Plat
Section No.	5	Plan and Profile
Section No.	6	Standard Detail Drawings
Section No.	7	Sign Plates
Section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

TOTAL SHEETS = 48

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
PLAN OF PROPOSED IMPROVEMENT

TOWN OF ELLENBORO, AIRPORT ROAD
(BRANCH PLATTE RIVER BRIDGE B-22-0280)
TOWN ROAD
GRANT COUNTY

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
5108-00-74	WISC 2014097	1



STATE PROJECT NUMBER
5108-00-74

END PROJECT
STA. 11+50
Y = 501138.93
X = 841078.28

STRUCTURE
B-22-0280

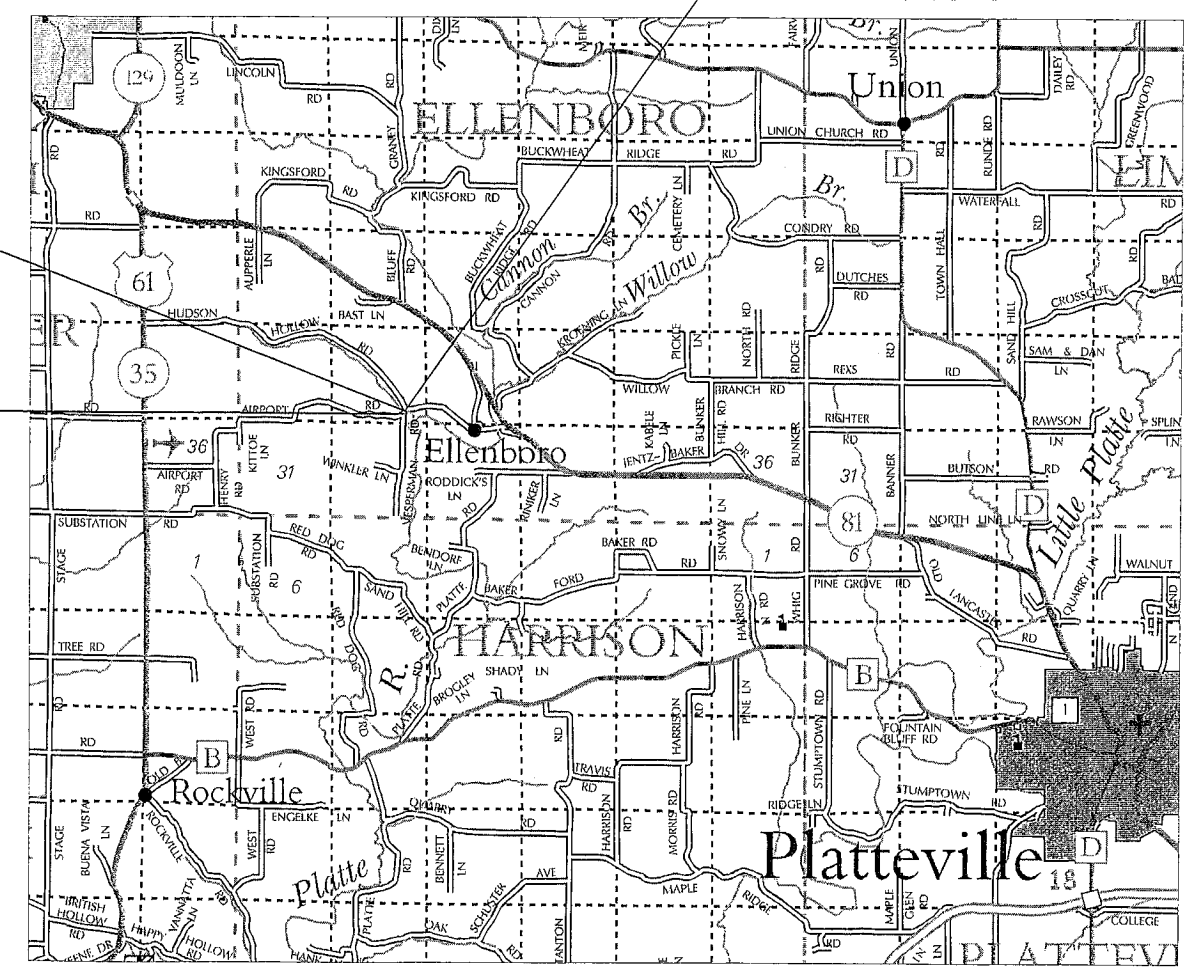
DESIGN DESIGNATION

A.A.D.T. (2013)	= 75
A.A.D.T. (2034)	= 95
D.H.V.	= N/A
D.D.	= N/A
T.	= 240
DESIGN SPEED	= 25 mph
ESALS	= 14,600

BEGIN PROJECT
STA. 9+00
Y = 500923.45
X = 840963.70

CONVENTIONAL SYMBOLS

PLAN		PROFILE	
CORPORATE LIMITS	////	GRADE LINE	—
PROPERTY LINE	----	ORIGINAL GROUND	~
LOT LINE	-----	MARSH OR ROCK PROFILE (To be noted as such)	ROCK
LIMITED HIGHWAY EASEMENT	----	SPECIAL DITCH	—
EXISTING RIGHT OF WAY	----	GRADE ELEVATION	95.36
PROPOSED OR NEW R/W LINE	----	CULVERT (Profile View)	□
SLOPE INTERCEPT	----	UTILITIES	
REFERENCE LINE	----	ELECTRIC	— E —
EXISTING CULVERT	—	FIBER OPTIC	— FO —
PROPOSED CULVERT (Box or Pipe)	—	GAS	— G —
HIGH VOLTAGE TRANSMISSION LINE	—	SANITARY SEWER	— SAN —
WETLANDS	—	STORM SEWER	— SS —
WOODED OR SHRUB AREA	—	TELEPHONE	— T —
		WATER	— W —
		UTILITY PEDESTAL	□
		POWER POLE	□
		TELEPHONE POLE	□



LAYOUT
SCALE 0 1 MI.
TOTAL NET LENGTH OF CENTERLINE = 0.047 MI.

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATES, GRANT 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
TOWN of ELLENBORO
10/24/2013 (Date) James D. Hoffmann Town Chairperson

ACCEPTED FOR
COUNTY of GRANT
10/23/13 (Date) David J. Pawlitz County Highway Commissioner

iiw
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WISCONSIN
BRADLEY J. MOOTZ
E-38375
SHULLSBURG WI
PROFESSIONAL ENGINEER

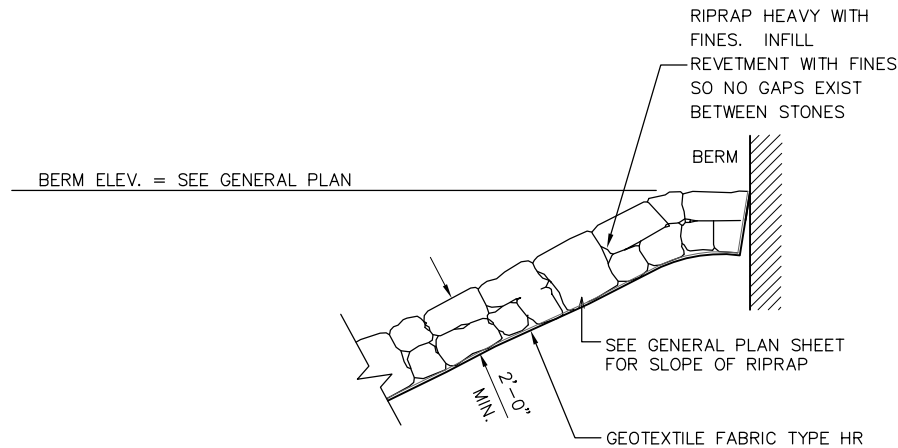
10/28/2013 (Date) [Signature] (Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

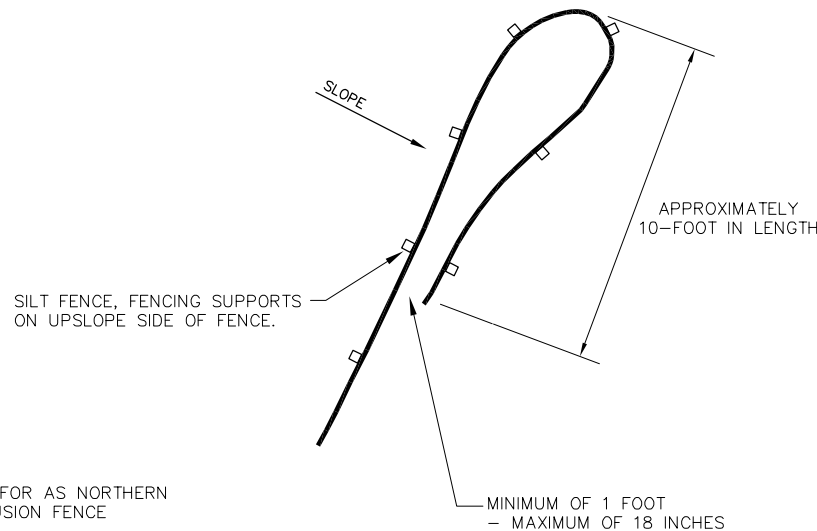
PREPARED BY
Surveyor iiw, P.C.
Designer iiw, P.C.
Management Consultant KJOHNSON ENGINEERS, INC.
C.O. Examiner

APPROVED FOR THE DEPARTMENT
DATE: 10/30/2013
Kirk A. Johnson (Management Consultant Signature)

E



RIP RAP BANK STABILIZATION
DETAIL



FROG EXCLUSION FENCING
FOR NORTHERN CRICKET FROG

STANDARD ABBREVIATIONS

Δ	CENTRAL ANGLE	L	LEFT	ROW	RIGHT-OF-WAY
AD	ALGEBRAIC DIFFERENCE	MAX	MAXIMUM	R	RIGHT
BM	BENCH MARK	N	NORTH	S	SOUTH
CL	CENTERLINE	PC	POINT OF CURVE	STA	STATION
ELEV	ELEVATION	PI	POINT OF INTERSECTION	TYP	TYPICAL
EX	EXISTING	PROP	PROPOSED	VC	VERTICAL CURVE
HMA	HOT MIX ASPHALT	PT	POINT OF TANGENCY	W	WEST
K	RATE OF VERTICAL CURVATURE	PVI	POINT OF VERTICAL INTERSECTION	W'ERLY	WESTERLY
LEN	LENGTH OF CURVE	RAD	RADIUS		

GENERAL NOTES

THE NE AND SE QUADRANTS ARE WETLAND AREAS, DO NOT DISTURB AREA BEYOND THE SILT FENCE INSTALLED AS NORTHERN CRICKET FROG EXCLUSION FENCE.

3.5" ASPHALTIC SURFACE SHALL BE CONSTRUCTED WITH A 1 3/4" UPPER LAYER AND A 1 3/4" LOWER LAYER WITH 1/2" NOMINAL SIZE AGGREGATE.

CURVE DATA IS BASED ON THE ARC DEFINITION.

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

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

SEED MIXTURES AS NOTED IN SPECIAL PROVISIONS AND APPROVED BY THE DNR SHALL BE USED IN THE PROJECT AND SHALL BE PLACED AS SHOWN IN THE PLANS AND/OR AS DIRECTED BY THE ENGINEER.

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

CUT VOLUMES SHOWN ON THE EARTHWORK SUMMARY SHEET DO NOT INCLUDE THE QUANTITY GENERATED FROM THE ITEM "EXCAVATION FOR STRUCTURES BRIDGES" AND THE EXCAVATION REQUIRED TO PLACE THE ITEM "RIPRAP HEAVY WITH FINES".

FILL VOLUMES SHOWN ON THE EARTHWORK SUMMARY SHEET DO NOT INCLUDE THE QUANTITY REQUIRED FOR THE ITEM "BACKFILL STRUCTURE SPECIAL".

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

HORIZONTAL CONTROL: THE WISCONSIN COUNTY COORDINATE SYSTEM COORDINATES SHOWN ON THIS PLAN ARE GRID/GROUND VALUES AND THE COMBINATION FACTOR USED IS 0.9999585.

VERTICAL CONTROL: THE ELEVATIONS ON THE PROJECT ARE BASED ON NAVD 88.

HORIZONTAL CONTROL: THE POSITIONS SHOWN ON THE PROJECT ARE BASED ON WISCONSIN COORDINATES, GRANT 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.

WISCONSIN DEPARTMENT OF
NATURAL RESOURCES CONTACT

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catherine.bleser@wisconsin.gov

DESIGN CONSULTANT

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4155 PENNSYLVANIA AVE.
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ATTN: BRADLEY J. MOOTZ, PE
EMAIL: b.mootz@iiwengr.com

GRANT COUNTY CONTACT

DAVID LAMBERT
GRANT COUNTY HIGHWAY COMMISSIONER
PO BOX 150
LANCASTER, WISCONSIN 53813
VOICE: 608-723-2595
EMAIL: dlambert@co.grant.wi.gov

ELECTRIC

DAIRYLAND POWER COOPERATIVE
3200 EAST AVENUE SOUTH
LA CROSSE, WI 54601
ATTN: BOB BROIHahn
VOICE: 608-723-7539
EMAIL: rrb@daireynet.com

TELEPHONE

TDS TELECOM
P.O. BOX 5158
MADISON, WI 53705-0158
ATTN: MATTHEW WINGERT
VOICE: 608-685-3211
EMAIL: matthew.wingert@tdstelecom.com

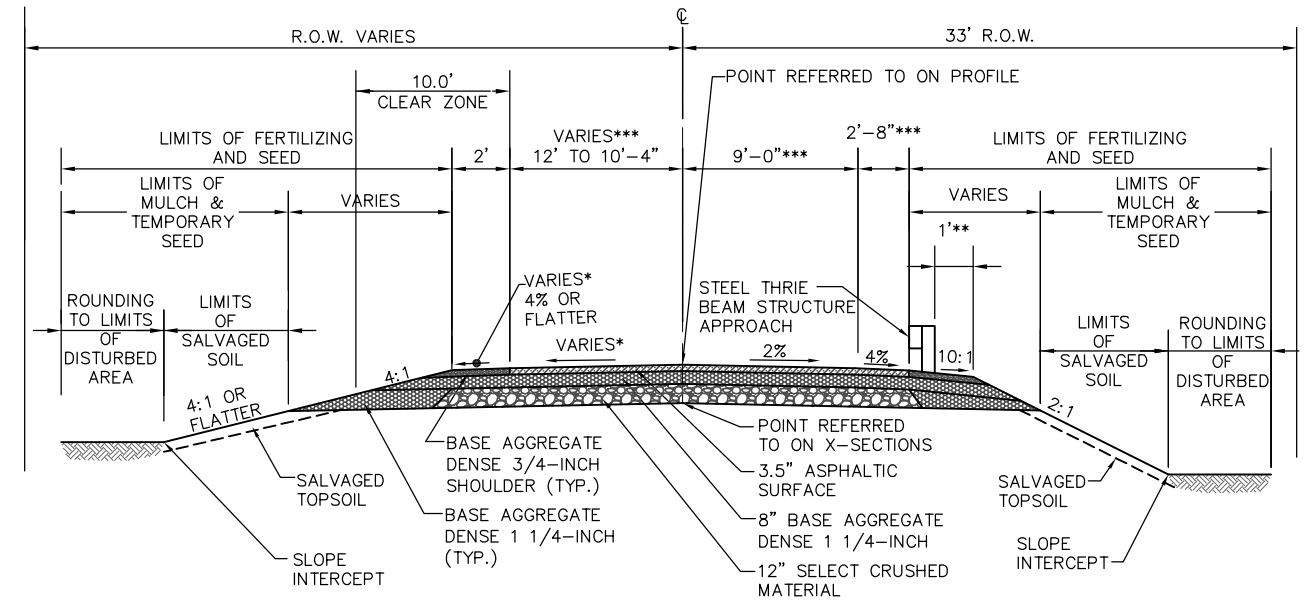
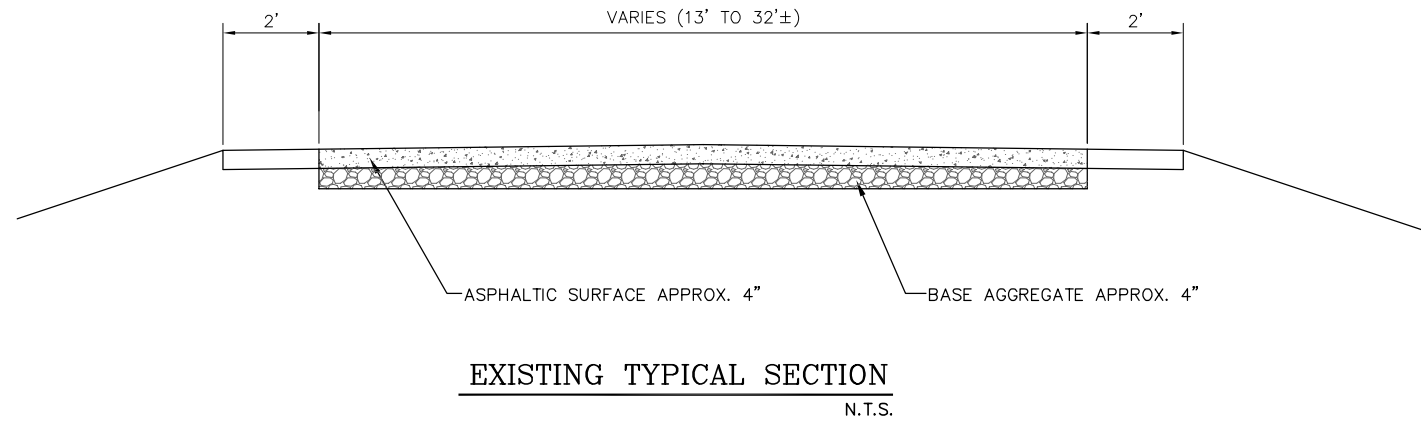
TOWN OF ELLENBORO CONTACT

JIM BROIHahn
TOWN OF ELLENBORO CHAIR
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** DENOTES UTILITIES NOT A MEMBER OF DIGGERS HOTLINE



*SEE CROSS SECTIONS

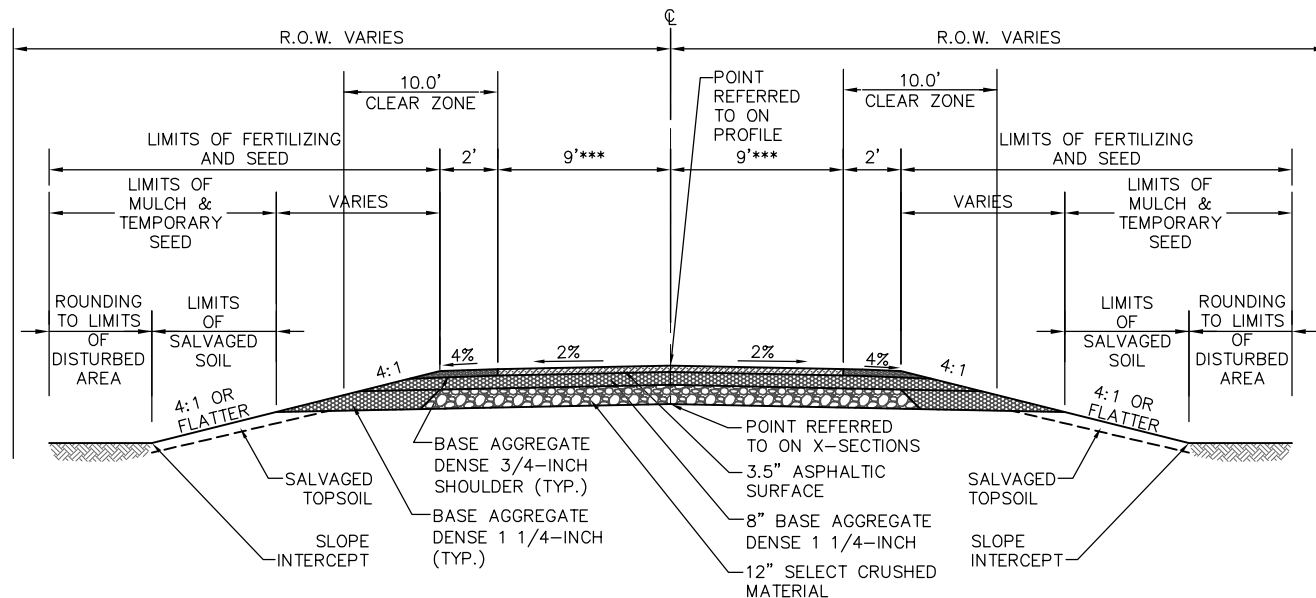
** LONGER BEAM GUARD POSTS WITH AN EMBEDMENT DEPTH OF 4'-6" ARE REQUIRED WHEREVER A 2' DISTANCE FROM THE BACK OF THE POST TO THE HINGE POINT IS NOT AVAILABLE.

*** TAPER PAVEMENT TO FULL WIDTH OF BRIDGE (24') WITHIN 50' OF BRIDGE

TYPICAL SECTION

AIRPORT ROAD
STATION 10+35 TO 10+61

12" SELECT CRUSHED MATERIAL NOT REQUIRED IN AREA WHERE BACKFILL MATERIAL IS PLACED FOR ABUTMENTS

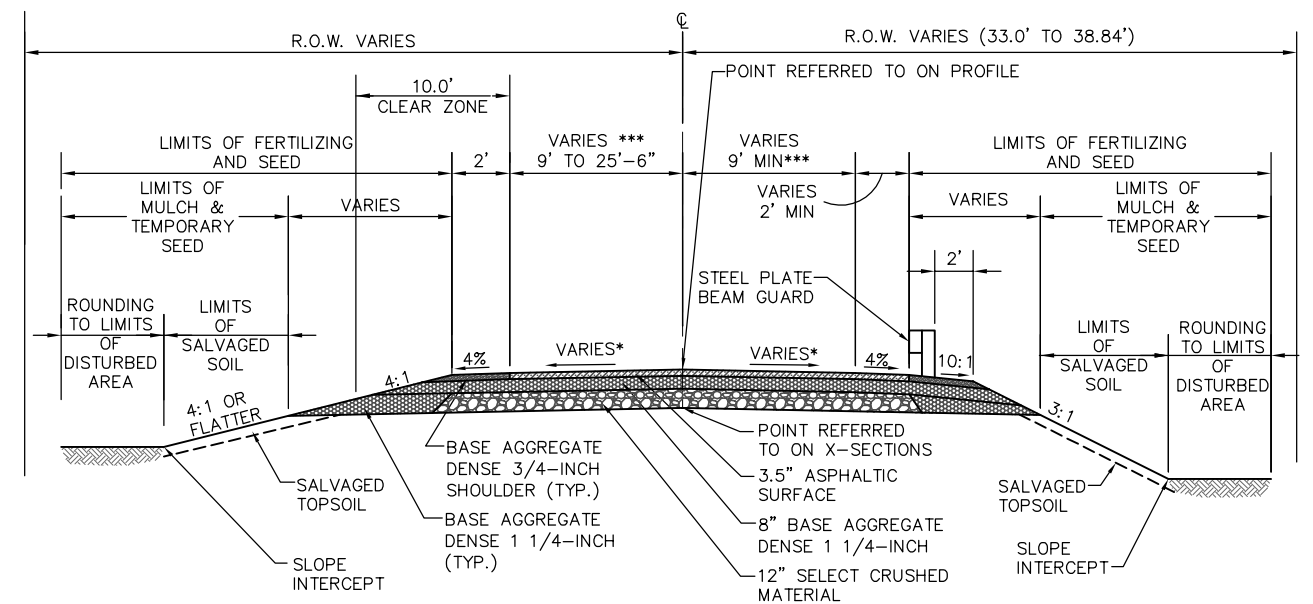


TYPICAL SECTION

AIRPORT ROAD
STATION 9+00 TO 9+90

12" SELECT CRUSHED MATERIAL NOT REQUIRED IN AREA WHERE BACKFILL MATERIAL IS PLACED FOR ABUTMENTS

*** TAPER PAVEMENT TO FULL WIDTH OF BRIDGE (24') WITHIN 50' OF BRIDGE

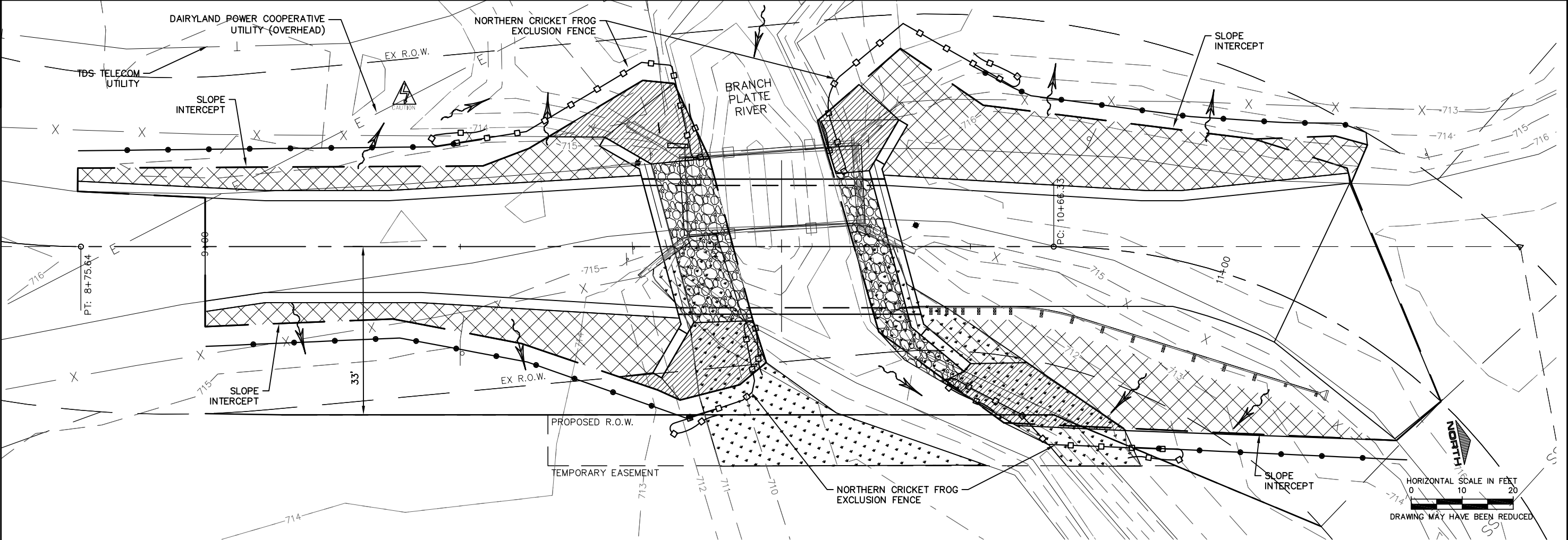


TYPICAL SECTION

AIRPORT ROAD
STATION 10+61 TO 11+15

*SEE CROSS SECTIONS

*** TAPER PAVEMENT TO FULL WIDTH OF BRIDGE (24') WITHIN 50' OF BRIDGE



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	.16	.22	.12	.20	.27	.15	.24	.33	.19	.28	.38
	.22	.30	.38	.26	.34	.44	.30	.37	.50	.34	.41	.56
MEDIAN STRIP-TURF	.19	.20	.24	.19	.22	.26	.20	.23	.30	.20	.25	.30
	.24	.26	.30	.25	.28	.33	.26	.30	.37	.27	.32	.40
SIDE SLOPE-TURF			.25			.27			.28			.30
			.32			.34			.36			.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 = 0.464 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.253 ACRES
RUNOFF FROM A BRANCH OF THE PLATTE RIVER IS RECEIVED BY THE LITTLE PLATTE RIVER

LEGEND

EROSION MAT CLASS II, TYPE C, NORTHERN CRICKET FROG SEED MIX, NURSE CROP, AND TEMPORARY SEED AREAS

SILT FENCE

NORTHERN CRICKET FROG EXCLUSION FENCE

SURFACE WATER FLOW

RIPRAP, NORTHERN CRICKET FROG SEED MIX, NURSE CROP, AND TEMPORARY SEED AREAS

WETLAND

NO. 20 SEED MIX AND TEMPORARY SEED AREAS

BENCH MARKS

DATE 06FEB14		E S T I M A T E O F Q U A N T I T I E S			
LINE					5108-00-74
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0010	203.0700. S	REMOVING OLD STRUCTURE OVER WATERWAY WITH DEBRIS CAPTURE SYSTEM (STATION) 01. 10+11. 20	LS	1. 000	1. 000
0020	205.0100	EXCAVATION COMMON **P**	CY	190. 000	190. 000
0030	206.1000	EXCAVATION FOR STRUCTURES BRIDGES (STRUCTURE) 01. B-22-0280	LS	1. 000	1. 000
0040	213.0100	FINISHING ROADWAY (PROJECT) 01. 5108-00-74	EACH	1. 000	1. 000
0050	305.0110	BASE AGGREGATE DENSE 3/4-INCH	TON	30. 000	30. 000
0060	305.0120	BASE AGGREGATE DENSE 1 1/4-INCH	TON	360. 000	360. 000
0070	312.0110	SELECT CRUSHED MATERIAL	TON	300. 000	300. 000
0080	455.0605	TACK COAT	GAL	13. 000	13. 000
0090	465.0105	ASPHALTIC SURFACE	TON	94. 000	94. 000
0100	502.0100	CONCRETE MASONRY BRIDGES	CY	173. 000	173. 000
0110	502.3200	PROTECTIVE SURFACE TREATMENT	SY	175. 000	175. 000
0120	505.0405	BAR STEEL REINFORCEMENT HS BRIDGES	LB	4, 650. 000	4, 650. 000
0130	505.0605	BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	19, 720. 000	19, 720. 000
0140	513.4060	RAILING TUBULAR TYPE M (STRUCTURE) 01. B-22-0280	LS	1. 000	1. 000
0150	516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	12. 000	12. 000
0160	550.0500	PILE POINTS	EACH	18. 000	18. 000
0170	550.1120	PILING STEEL HP 12-INCH X 53 LB	LF	450. 000	450. 000
0180	612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	140. 000	140. 000
0190	614.0200	STEEL THRIE BEAM STRUCTURE APPROACH	LF	21. 000	21. 000
0200	614.0305	STEEL PLATE BEAM GUARD CLASS A	LF	12. 500	12. 500
0210	614.0370	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL	EACH	1. 000	1. 000
0220	619.1000	MOBILIZATION	EACH	1. 000	1. 000
0230	625.0500	SALVAGED TOPSOIL	SY	350. 000	350. 000
0240	627.0200	MULCHING	SY	300. 000	300. 000
0250	628.1504	SILT FENCE	LF	370. 000	370. 000
0260	628.1520	SILT FENCE MAINTENANCE	LF	370. 000	370. 000
0270	628.1905	MOBILIZATIONS EROSION CONTROL	EACH	4. 000	4. 000
0280	628.1910	MOBILIZATIONS EMERGENCY EROSION CONTROL	EACH	2. 000	2. 000
0290	628.2027	EROSION MAT CLASS II TYPE C	SY	105. 000	105. 000
0300	629.0210	FERTILIZER TYPE B	CWT	1. 000	1. 000
0310	630.0120	SEEDING MIXTURE NO. 20	LB	7. 000	7. 000
0320	630.0200	SEEDING TEMPORARY	LB	17. 000	17. 000
0330	630.0400	SEEDING NURSE CROP	LB	1. 400	1. 400
0340	633.5100	MARKERS ROW	EACH	7. 000	7. 000
0350	634.0612	POSTS WOOD 4X6-INCH X 12-FT	EACH	4. 000	4. 000
0360	634.0614	POSTS WOOD 4X6-INCH X 14-FT	EACH	2. 000	2. 000
0370	637.2230	SIGNS TYPE II REFLECTIVE F	SF	24. 500	24. 500
0380	638.2602	REMOVING SIGNS TYPE II	EACH	9. 000	9. 000
0390	638.3000	REMOVING SMALL SIGN SUPPORTS	EACH	7. 000	7. 000
0400	642.5001	FIELD OFFICE TYPE B	EACH	1. 000	1. 000
0410	643.0100	TRAFFIC CONTROL (PROJECT) 01. 5108-00-74	EACH	1. 000	1. 000
0420	645.0120	GEOTEXTILE FABRIC TYPE HR	SY	72. 000	72. 000
0430	650.4500	CONSTRUCTION STAKING SUBGRADE	LF	203. 000	203. 000
0440	650.5000	CONSTRUCTION STAKING BASE	LF	203. 000	203. 000
0450	650.6500	CONSTRUCTION STAKING STRUCTURE LAYOUT (STRUCTURE) 01. B-22-0280	LS	1. 000	1. 000
0460	650.9910	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) 01. 5108-00-74	LS	1. 000	1. 000

DATE 06FEB14			E S T I M A T E O F Q U A N T I T I E S		
LINE			5108-00-74		
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0470	650.9920	CONSTRUCTION STAKING SLOPE STAKES	LF	203.000	203.000
0480	715.0502	INCENTIVE STRENGTH CONCRETE STRUCTURES	DOL	1,083.000	1,083.000
0490	SPV.0035	SPECIAL 01. BACKFILL STRUCTURE SPECIAL	CY	177.000	177.000
0500	SPV.0035	SPECIAL 02. RIPRAP HEAVY WITH FINES	CY	65.000	65.000
0510	SPV.0085	SPECIAL 01. NORTHERN CRICKET FROG SEED	LB	0.500	0.500
		MIX			
0520	SPV.0090	SPECIAL 01. NORTHERN CRICKET FROG	LF	420.000	420.000
		EXCLUSION FENCE			
0530	SPV.0090	SPECIAL 02. EXCLUSION FENCE MAINTENANCE	LF	420.000	420.000

REMOVING SIGNS, TYPE II AND SMALL SIGN SUPPORTS

LOCATION	(638.2602) REMOVING SIGNS TYPE II	(638.3000) REMOVING SMALL SIGN SUPPORTS
	EACH	EACH
4 CORNERS OF EXISTING BRIDGE	6	4
OTHER POSTED SIGNS	3	3
CATEGORY 0010 TOTAL	9	7

SIGNS TYPE II REFLECTIVE F

LOCATION	TYPE	(637.2230) SIGNS TYPE II REFLECTIVE F SF
4 CORNERS OF BRIDGE	W5-52, LT. & RT.	12
STA. 9+50 RT.	W1-10	6.25
STA. 10+72 LT.	W1-10	6.25
CATEGORY 0010 TOTALS		24.5

EROSION CONTROL MOBILIZATIONS

LOCATION	(628.1905) MOBILIZATIONS EROSION CONTROL	(628.1910) MOBILIZATIONS EMERGENCY EROSION CONTROL
	(EACH)	(EACH)
UNDISTRIBUTED	4	2
CATEGORY 0010 TOTALS	4	2

POSTS WOOD

LOCATION		(634.0612) POSTS WOOD 4X6X12	(634.0614) POSTS WOOD 4X6X14
		EACH	EACH
4 CORNERS OF BRIDGE		4	0
STA. 9+50 RT.		0	1
STA. 10+72 LT.		0	1
CATEGORY 0010 TOTALS		4	2

EARTHWORK SUMMARY

SHRINKAGE FACTOR = 30%

STATION - STATION	LOCATION	(205.0100) EXCAVATION COMMON	FILL
		(CY)	(CY)
STA. 9+00-9+89	MAINLINE	90	15
STA. 10+36-11+50	MAINLINE	100	105
CATEGORY 0010 TOTALS		190	120
NOTE: SEE CROSS SECTIONS FOR MAINLINE EARTHWORK SUMMARY			

SELECT CRUSHED MATERIAL

STATION - STATION	LOCATION	(312.0110) SELECT CRUSHED MATERIAL
		(TON)
STA. 9+00-9+80	MAINLINE	115
STA. 10+50-11+50	MAINLINE	185
CATEGORY 0010 TOTALS		300

BASE AGGREGATE DENSE

STATION - STATION	LOCATION	(305.0120) 1 1/4-INCH BASE	(305.0110) 3/4-INCH SHLD.
		(TON)	(TON)
STA. 8+75-9+89	MAINLINE	160	10
STA. 10+36-11+50	MAINLINE	200	20
CATEGORY 0010	TOTALS	360	30

ASPHALTIC ITEMS

STATION - STATION	LOCATION	(465.0105) ASPHALTIC SURFACE	(455.0605) TACK COAT
		(TON)	(GAL.)
STA. 9+00-9+89	MAINLINE	38	5
STA. 10+36-11+50	MAINLINE	56	8
CATEGORY 0010 TOTALS		94	13

LAYOUT ITEMS

STATION - STATION	LOCATION	(650.4500) CONSTRUCTION STAKING SUBGRADE	(650.5000) CONSTRUCTION STAKING BASE	(650.9910) CONSTRUCTION STAKING SUPPLEMENTAL CONTROL	(650.9920) CONSTRUCTION STAKING SLOPE STAKES	(650.6500) CONSTRUCTION STAKING STRUC.LAYOUT
		(LF)	(LF)	(LS)	(LF)	(LS)
STA. 9+00-9+89	MAINLINE	89	89	.5	89	--
STA. 10+12.98	MAINLINE					1
STA. 10+36-11+50	MAINLINE	114	114	.5	114	--
CATEGORY 0010 TOTALS		203	203	1	203	
CATEGORY 0020						1

ROW MARKER

STATION - STATION	LOCATION	(633.5100) ROW MARKER
		(EA)
STA. 9+00-9+89	RT	2
STA. 9+00-9+89	LT	2
STA. 10+36-11+50	RT	2
STA. 10+36-11+50	LT	1
CATEGORY 0010 TOTALS		7

SILT FENCE

STATION - STATION	LOCATION	(628.1520) SILT FENCE	(628.1520) SILT FENCE MAINTENANCE	(SPV.0090.01) NORTHERN CRICKET FROG EXCLUSION FENCE	(SPV.0090.02) EXCLUSION FENCE MAINTENANCE
		(LF)	(LF)	(LF)	(LF)
STA. 8+75-9+89	MAINLINE	155	155	160	160
STA. 10+36-11+50	MAINLINE	140	140	170	170
UNDISTRIBUTED	MAINLINE	75	75	90	90
CATEGORY 0010	TOTALS	370	370	420	420

GUARDRAIL

STATION - STATION	LOCATION	(614.0200) STEEL THRIE BEAM STRUCTURE APPROACH	(614.0305) STEEL PLATE BEAM GUARD CLASS A	(614.0370) STEEL PLATE BEAM GUARD EAT
		(LF)	(LF)	(EACH)
STA. 10+37 - 11+30	RT	21	12.5	1
CATEGORY 0010 TOTALS		21	12.5	1

FINISHING ITEMS

STATION - STATION	LOCATION	(625.0500) SALVAGED TOPSOIL	(627.0205) MULCHING	(629.0210) FERTILIZER TYPE B	(SPV.0085.01) NORTHERN CRICKET FROG SEED MIX	(630.0120) SEEDING MIXTURE NO. 20	(630.0200) SEEDING TEMPORARY	(628.2027) EROSION MAT CLASS II TYPE C	(630.0400) SEEDING NURSE CROP
		(SY)	(SY)	(CWT)	(LB)	(LB)	(LB)	(SY)	(LB)
STA. 9+00-9+89	RT	50	30	0.2	0.07	1.5	4	30	0.4
STA. 8+75-9+89	LT	40	10	0.2	0.07	1.5	4	30	0.4
STA. 10+36-11+50	RT	105	100	0.4	0.07	1.5	4	25	0.4
STA. 10+36-11+50	LT	155	160	0.2	0.05	2.5	5	20	0.2
UNDISTRIBUTED					0.24				
CATEGORY 0010	TOTALS	350	300	1.0	0.5	7.0	17	105	1.4

CONVENTIONAL SIGNS AND ABBREVIATIONS

STATE, COUNTY OR TOWN LINE
SECTION LINE
QUARTER LINE
SIXTEENTH LINE
NEW REFERENCE LINE
NEW R/W LINE
EXISTING R/W LINE
PROPERTY LINE
CORPORATE LIMITS
LOT, TIE AND OTHER
MINOR LINES
SLOPE INTERCEPTS
UNDERGROUND FACILITY
UNDERGROUND TELEPHONE
FENCE
TEMPORARY LIMITED EASEMENT
EASEMENT FOR HIGHWAY
BEAM GUARD
TRANSMISSION STRUCTURES
OVERHEAD ELECTRIC LINE
RAIL LINE

SECTION CORNER

NOTATION FOR
COMBUSTIBLE
FLUIDSNOTATION FOR
HIGH VOLTAGE
TRANSMISSION LINES

BRIDGE

STREAM OR RIVER

LAKE

CULVERT (BOX PIPE OR
CATTLE PASS)

SIGN

FOUNDATION
OR RUIN

BUILDING

CEMETERY

R/W MONUMENT
NON-MONUMENTED

R/W POINT

IRON PIN/PIPE

VALVE

WINDMILL

MANHOLE (SEPTIC,
VENT, WELL, ETC)

GAS PUMPS

BUSHES

TREE (DECIDUOUS)

(CONIFEROUS)

WOODS

ENCROACHING SIGN

FOUNDATION
OR RUIN

BUILDING

CEMETERY

R/W MONUMENT
NON-MONUMENTED

R/W POINT

IRON PIN/PIPE

VALVE

WINDMILL

MANHOLE (SEPTIC,
VENT, WELL, ETC)

GAS PUMPS

BUSHES

TREE (DECIDUOUS)

(CONIFEROUS)

WOODS

ENCROACHING SIGN

THE AREAS SHOWN IN THE TOTAL COLUMN MAY BE APPROXIMATE AND ARE DERIVED FROM
TAX ROLLS OR OTHER AVAILABLE SOURCES AND MAY NOT INCLUDE LANDS OF THE OWNER
WHICH ARE NOT CONTIGUOUS TO THE AREA TO BE ACQUIRED.

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

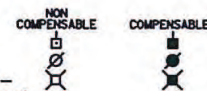
SCHEDULE OF LANDS & INTERESTS REQUIRED

PARCEL NUMBER	OWNERS	INTEREST REQUIRED	TOTAL ACRES	R.O.W. AREA ACQUIRED			TOTAL REMAINING ACRES	T.L.E. ACRES	SHEET
				NEW	EXISTING	TOTAL			
①	W. BRUCE JOHNSON, & DIANE H. RAMSEY	FEE & TLE	40.0	0.04 AC.	0.39 AC.	0.43 AC.	39.57	0.03	4.02

NO ACCESS (BY ACQUISITION)
NO ACCESS (BY STATUTORY AUTHORITY)
NO ACCESS (BY PREVIOUS PROJECT)



ELECTRIC POLE
TELEPHONE POLE
PEDESTAL (LABEL TYPE -
COMMUNICATIONS, ELECTRIC)



ACRES
ALSO KNOWN AS
ANTENNA
BUILDING
CERTIFIED SURVEY MAP
CORNER
CORRUGATED STEEL CULVERT PIPE
CREEK
DISTANCE
DOCUMENT
ELECTRIC PEDESTAL
GARAGE
GAS VALVE
HOUSE
IRON PIPE
LENGTH
LIMITED
LONG CHORD
LONG CHORD BEARING
MANHOLE
MONUMENT

AC.
A/K/A
ANT.
BLDG.
C.S.M.
COR.
C.S.C.P.
CR.
DIST.
DOC.
E.P.
G.
GV
H.
LP.
L.
LTD.
L.C.
L.C.B.
MH
MON.

NUMBER
PAGE
PERMANENT LIMITED EASEMENT
PIPE UNDERDRAIN DRAIN TILE
POINT OF BEGINNING
PROPERTY LINE
RADIUS
REFERENCE LINE
RIGHT OF WAY
RIVER
SECTION
SHED
SQUARE FEET
STATION
TANGENT
TANK
TELEPHONE PEDESTAL
TEMPORARY INTEREST
TEMPORARY LIMITED EASEMENT
VOLUME
WALL
WATER VALVE

NO.
PG.
P.L.E.
P.U.D.T.
P.O.B.
P.L.
R.
R/L
R.O.W.
R.
SEC.
S.
S.F.
STA.
TAN.
T.
T.P.
T.I.
T.L.E.
VOL.
W.
WV

BEGIN RELOCATION ORDER

STA. 9+00

552.57' NORTH AND 1296.33' WEST
OF THE SE CORNER OF SECTION 29, T4N, R2W
Y = 500923.45
X = 840963.70

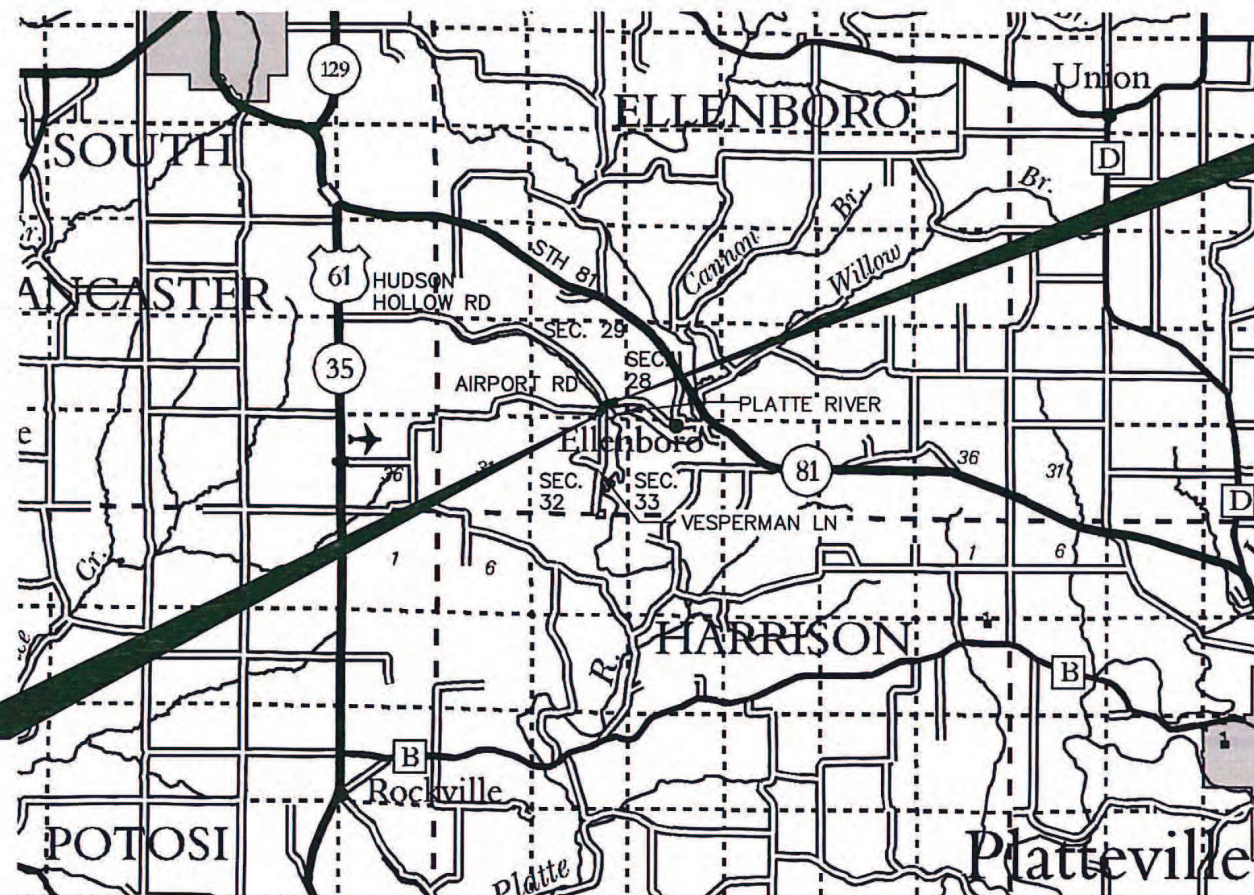
NOTES:

POSITIONS SHOWN ON THIS PLAT ARE WISCONSIN COUNTY COORDINATES, GRANT 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 3/4" X 24" REBAR) AND WILL
BE 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 SYSTEM OR OTHER "SURVEYS OF PUBLIC
RECORD".

EXISTING RIGHT-OF-WAY ESTABLISHED FROM THE CENTERLINE OF EXISTING AIRPORT ROAD
PRESUMED TO BE 66 FEET WIDE EASEMENT BY WISCONSIN STATUTE 82.31.



END RELOCATION ORDER

STA. 11+50

768.06' NORTH AND 1181.75'
WEST OF THE SE CORNER OF
SECTION 29, T4N, R2W
Y = 501138.93
X = 841078.28

ACCEPTED FOR

TOWN of ELLENBORO

10/25/2013
(Date) *[Signature]*
Town Chairperson

IIV, P.C. ORIGINAL PLAT PREPARED BY

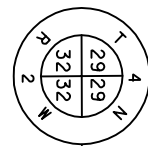
iiv

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HAZEL GREEN, WI HAZEL GREEN, WI
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800-556-4491
www.iivw.com

10-24-13
(Date) *[Signature]*
(Signature)

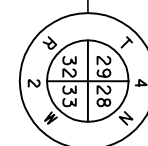


S 1/4 CORNER SEC. 29
FOUND GRANT COUNTY MONUMENT
Y = 500403.82 (N)
X = 839619.42 (E)

4

N89° 17' 07"W 2640.82'

N89° 17' 07"W 1320.41'



SE CORNER SEC. 29
FOUND GRANT COUNTY MONUMENT
Y = 500370.88 (N)
X = 842260.03 (E)

NOTE:
BASIS OF EXISTING RIGHT OF WAY:
66' EASEMENT BY STATUTE 82.31

POINT TABLE		
POINT #	(Y) NORTHING	(X) EASTING
101	500911.788	840994.311
102	500925.711	840999.877
104	501067.123	841053.781
105	501108.331	841092.915
106	501168.013	841064.377
107	501153.911	841037.510
108	501057.852	840966.850
109	500941.593	840934.498
110	500935.306	840932.591

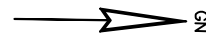
CURVE TABLE						
CURVE #	LENGTH	RADIUS	DELTA	CHORD LENGTH	CHORD BEARING	TANGENT
C1	6.57	142.00	2° 39' 05"	6.57	N16° 52' 34"E	3.29
C2	1.11	142.00	0° 26' 47"	1.11	N18° 25' 30"E	0.55
C4	133.59	142.00	53° 54' 02"	128.71	N45° 35' 54"E	72.20
C5	194.23	208.00	53° 30' 12"	187.25	N45° 47' 49"E	104.85
C6	93.34	168.00	31° 49' 59"	92.14	N83° 24' 17"E	47.91
C7	30.38	168.00	10° 21' 45"	30.34	N62° 18' 25"E	15.23
C8	121.91	168.00	41° 34' 32"	119.25	N36° 20' 17"E	63.78
C9	95.97	102.00	53° 54' 41"	92.47	S42° 30' 21"W	51.87
C10	53.16	102.00	29° 51' 35"	52.56	S84° 23' 29"W	27.20

PROPOSED ROW
T.L.E. SLOPES
0.03 ACRES

SE-SE
29-4-2
TOWN OF ELLENBORO

PC STA=10+66.33 Y 501078.88 X 841022.95
PI STA=11+57.79 Y 501164.33 X 841055.52
PT STA=12+18.92 Y 501147.91 X 841145.49

SW-SE
29-4-2
TOWN OF ELLENBORO



4

REVISION DATE ----- ----- -----	DATE 10/2013	SCALE, FEET 0 20' 40'	HWY: AIRPORT ROAD	STATE R/W PROJECT NUMBER 5108-00-04	PLAT SHEET 4.02	E
	GRID FACTOR -----N/A----		COUNTY: GRANT	CONSTRUCTION PROJECT NUMBER 5108-00-74	PS&E SHEET -----	

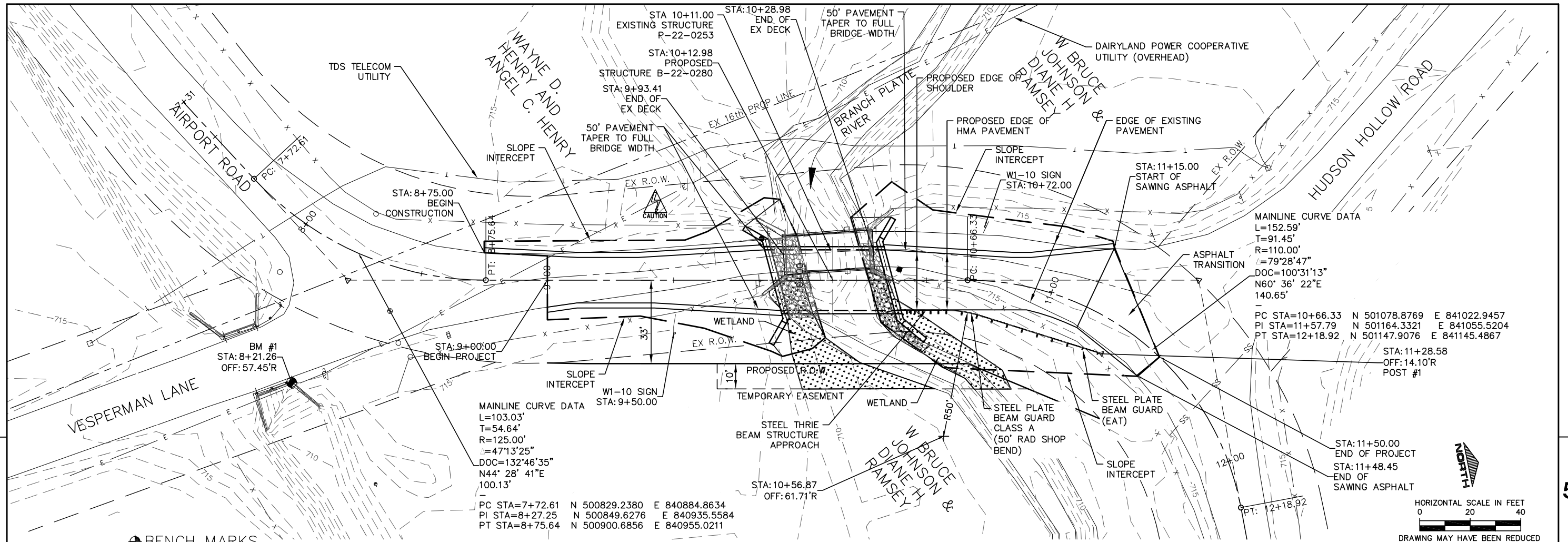
FILE NAME: P:\12\123\123-01\Drawings\Survey\12123-01 ROW Plats.dwg

PLOT DATE : 11/1/2013 3:10:36 PM

PLOT BY :

PLOT NAME :

PLOT SCALE :

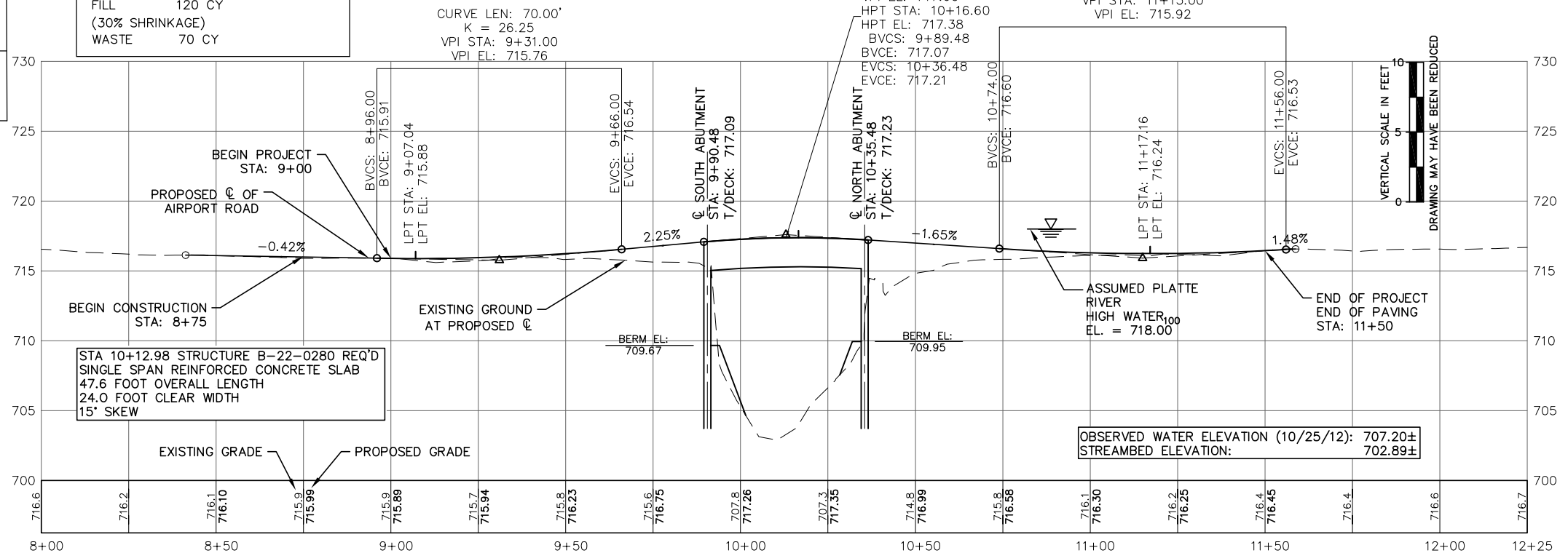


BENCH MARKS

NO.	STATION/OFFSET	DESCRIPTION	ELEVATION
1	8+21.26 57.45' R	CHISELED SQUARE ON NE COR HEADWALL, OF CONC. BOX CULVERT	716.75
2	11+42.38 286.78' L	MAG NAIL WITH ORANGE PLASTIC WASHER SET IN POST	720.76

EARTHWORK SUMMARY

MAINLINE STA 8+75 TO 11+50
 COMMON 190 CY
 FILL 120 CY
 (30% SHRINKAGE)
 WASTE 70 CY



Standard Detail Drawing List

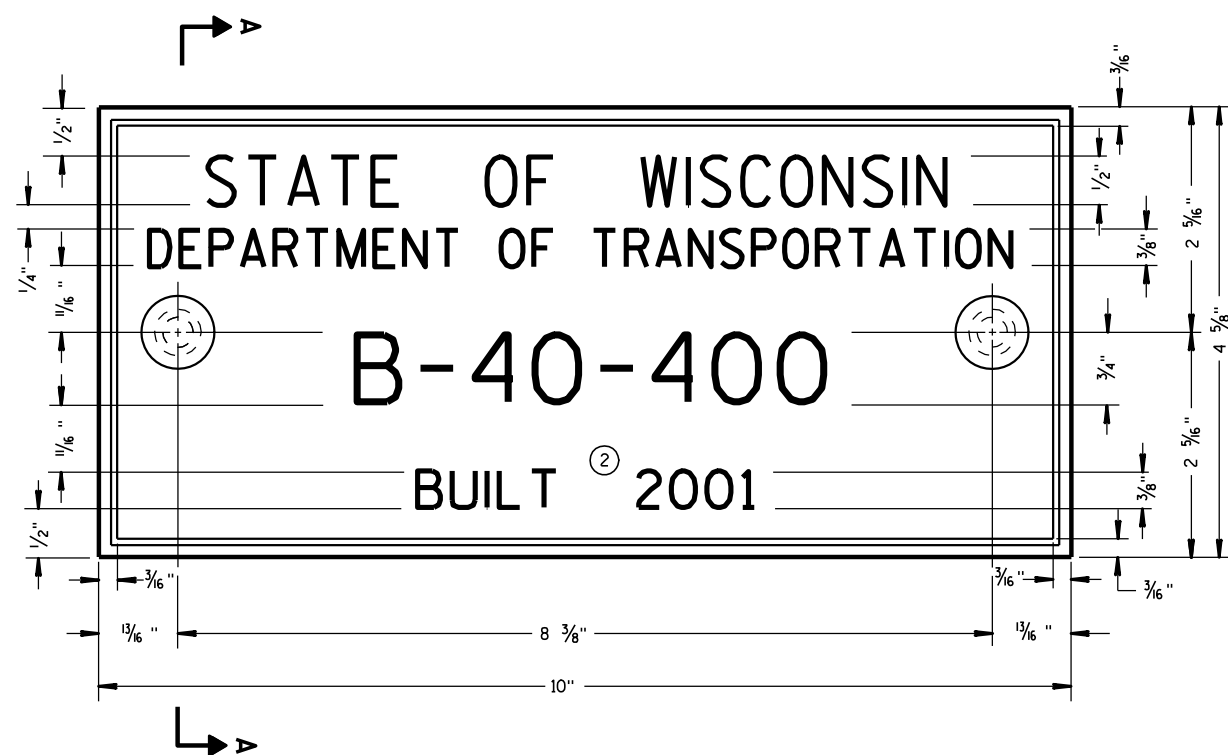
08E09-06	SILT FENCE
12A03-10	NAME PLATE (STRUCTURES)
14B15-07A	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-07B	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-07C	STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS
14B18-06A	STEEL PLATE BEAM GUARD, CLASS "A" (AT BRIDGES, OBSTACLES AND SIDEROADS/DRIVEWAYS)
14B20-11A	STEEL THRIE BEAM STRUCTURE APPROACH
14B20-11F	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO BRIDGE RAILING TYPE "M"
14B20-11G	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTOR PLATE DETAIL
14B24-07A	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B24-07B	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B24-07C	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
15A01-11	MARKER POST FOR RIGHT-OF-WAY
15C02-05A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-05B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C06-06	SIGNING & MARKING FOR TWO LANE BRIDGES
15D28-02	TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY



- 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 1½" X 1½" 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.

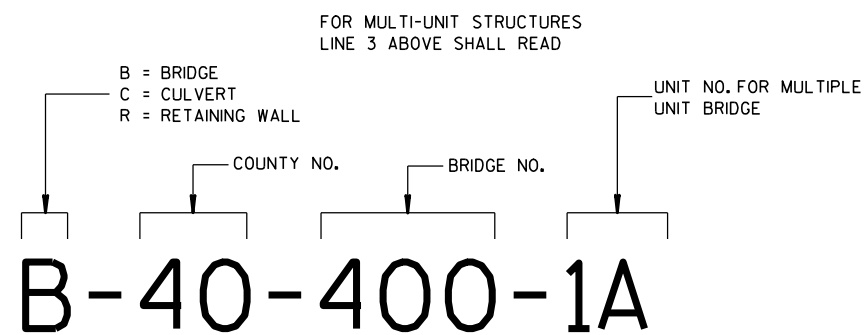


SILT FENCE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED <u>4-29-05</u> DATE	<u>/S/ Beth Cannestra</u> CHIEF ROADWAY DEVELOPMENT ENGINEER



TYPICAL NAME PLATE

(BRIDGES, CULVERTS, AND RETAINING WALLS)



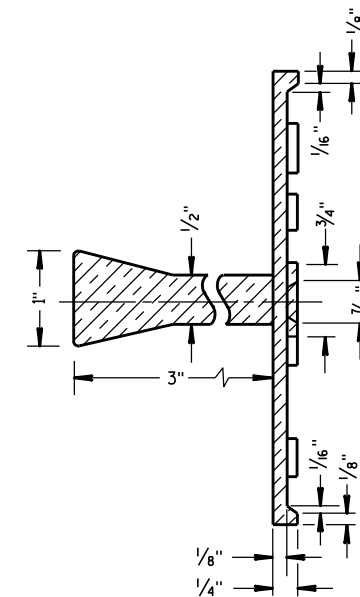
NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

GENERAL NOTES

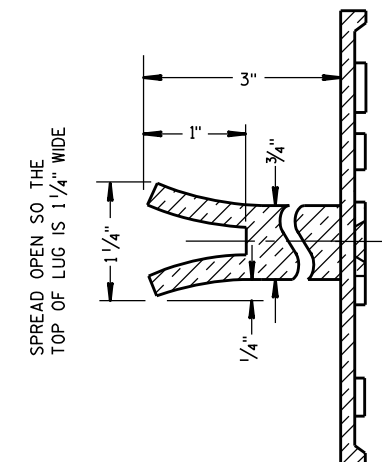
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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

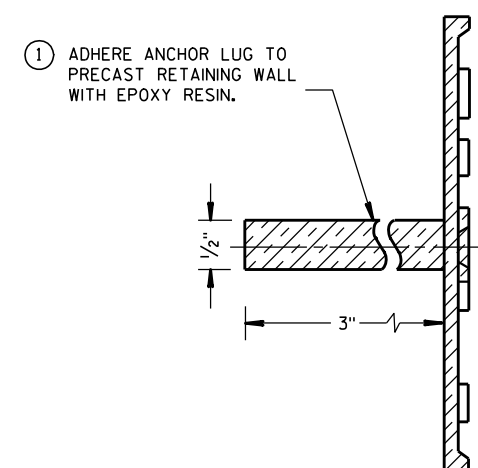
- ① EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- ② REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



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 Becker
CHIEF STRUCTURAL DEVELOPMENT ENGINEER

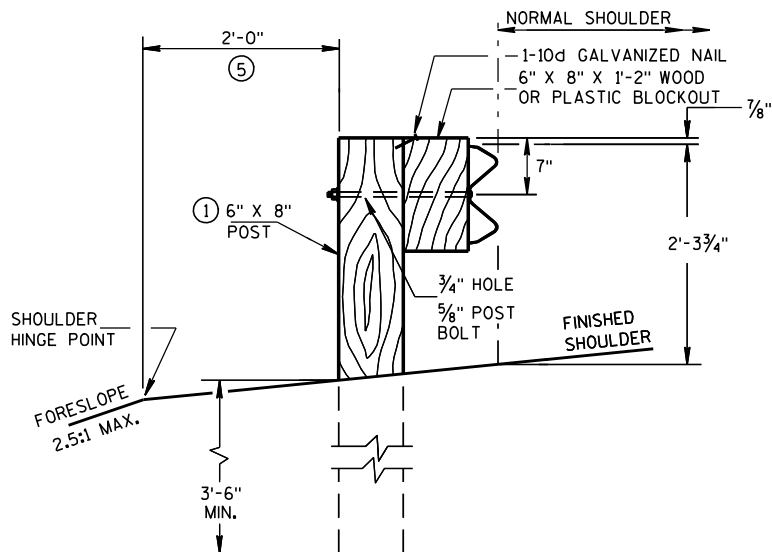
FHWA

GENERAL NOTES

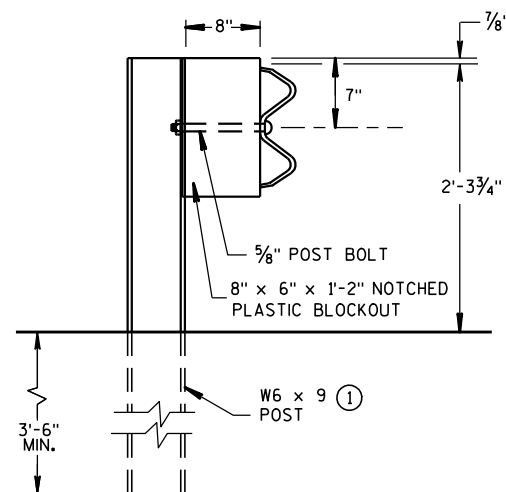
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, AND THE APPLICABLE SPECIAL PROVISIONS.

- ① W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POSTS WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS. APPROVED PLASTIC BLOCKOUT DESIGNS MAY VARY FROM THIS TYPICAL DETAIL WHEN USED IN CONJUNCTION WITH STEEL POSTS.
DO NOT MIX STEEL POSTS AND WOOD POSTS IN A SINGLE INSTALLATION.
- ② USE STRUCTURAL STEEL POSTS CONFORMING TO ASTM A 36. GALVANIZED POSTS ACCORDING TO AASHTO M 111 EITHER SET THE POSTS IN DRILLED HOLES OR DRIVE TO GRADE. REMOVE MUSHROOMING CAUSED BY DRIVING AND REPAIR DAMAGED SPALTER COATING ON GALVANIZED POSTS.
- ③ INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ④ USE EITHER WOOD OR APPROVED PLASTIC BLOCKOUTS ON WOOD POSTS.
- ⑤ IF THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING, W BEAM (LHW).
- ⑥ IF ROCK IS ENCOUNTERED DURING EXCAVATION, THE ENGINEER MAY APPROVE USING A 12 INCH DIAMETER POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE APPROXIMATELY 2 1/2 INCHES DEEP. CUT THE POSTS TO LENGTH AND PLACE IN THE HOLE. BACKFILL WITH MATERIAL EXCAVATED FROM THE HOLE AND COMPACT ADEQUATELY.

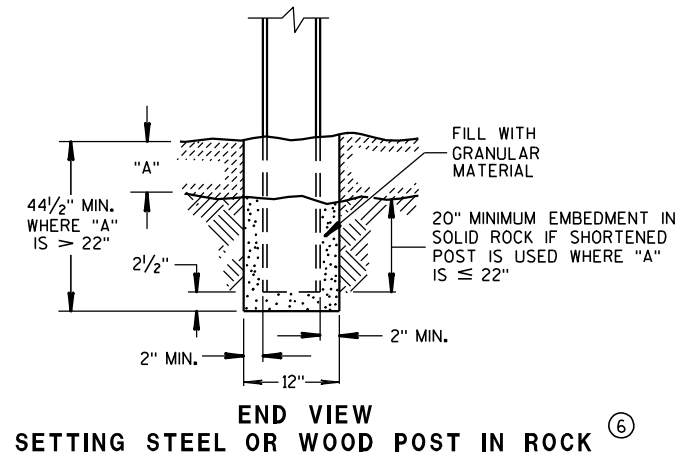
INSTALL BEAM GUARD SECTIONS AND ALL NECESSARY HARDWARE ACCORDING TO THE APPLICABLE PLAN AND CURRENT STANDARD AND SUPPLEMENTAL SPECIFICATIONS. ALL DIMENSIONS ARE SUBJECT TO MANUFACTURER'S TOLERANCES EXCEPT WHERE ALLOWABLE TOLERANCES ARE SHOWN.



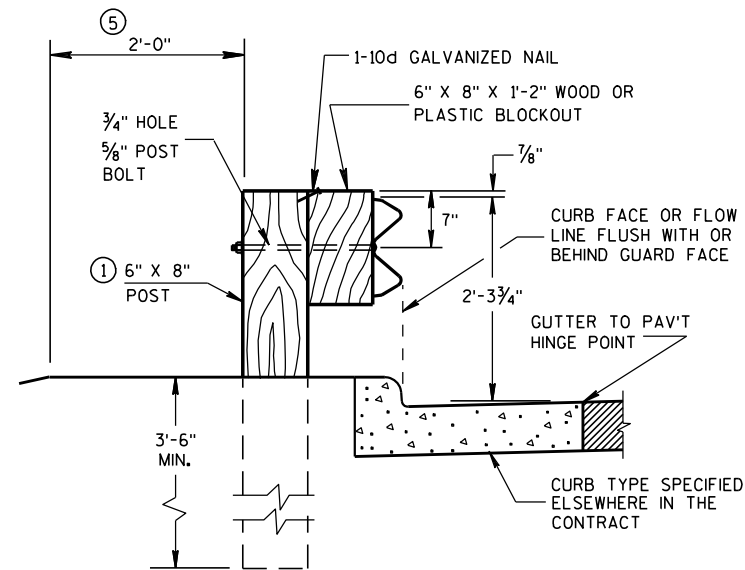
END VIEW
LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



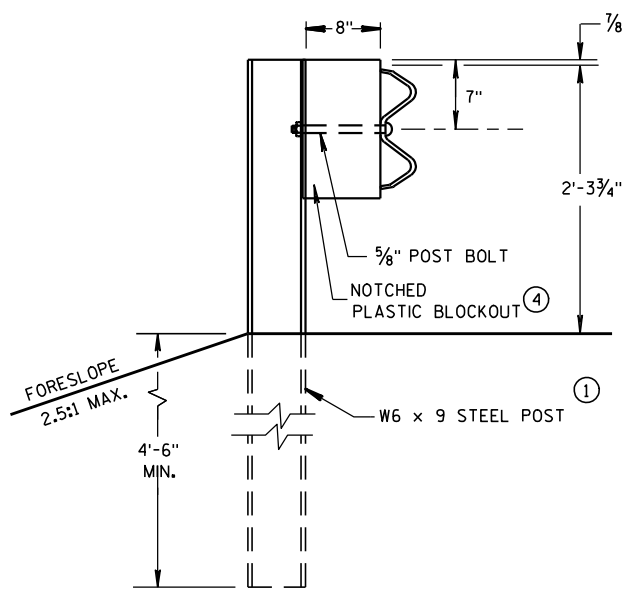
END VIEW
STEEL POST & NOTCHED
PLASTIC BLOCKOUT ALTERNATIVE
STANDARD INSTALLATION



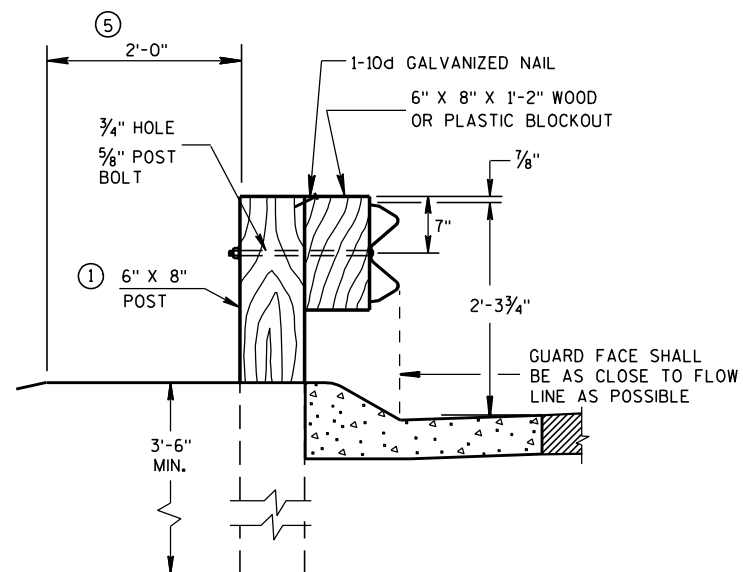
END VIEW
SETTING STEEL OR WOOD POST IN ROCK ⑥



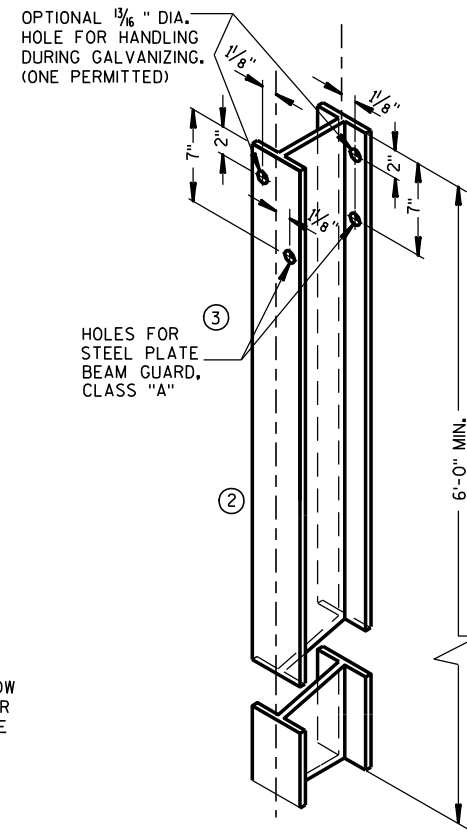
END VIEW
LOCATED ALONG A CURBED ROADWAY



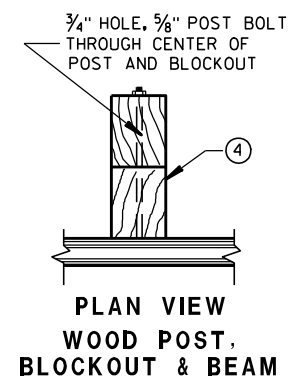
END VIEW
LONGER POST AT HALF
POST SPACING W BEAM
(LHW)



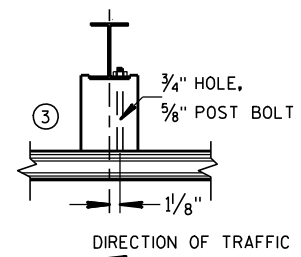
END VIEW
LOCATED ALONG A
MOUNTABLE CURBED ROADWAY



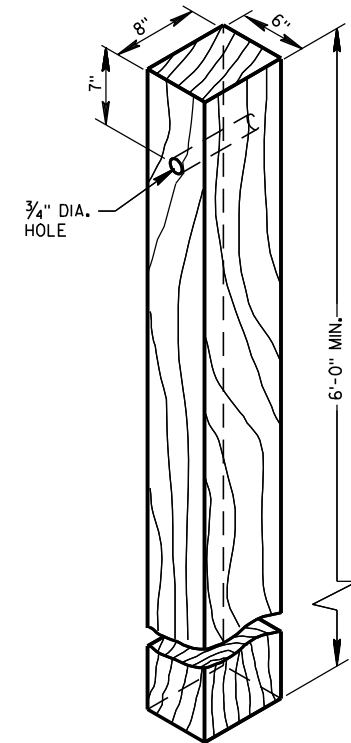
STEEL POST &
HOLE PUNCHING DETAIL
(W6 X 9) ①
ALL HOLES 1 3/8" DIAMETER EXCEPT AS NOTED



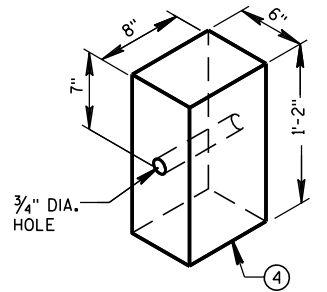
PLAN VIEW
WOOD POST,
BLOCKOUT & BEAM



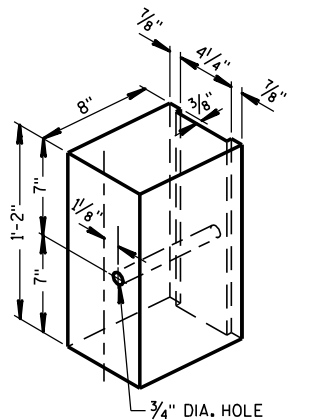
PLAN VIEW
STEEL POST, NOTCHED
PLASTIC BLOCKOUT & BEAM



WOOD POST
(6" X 8") NOMINAL



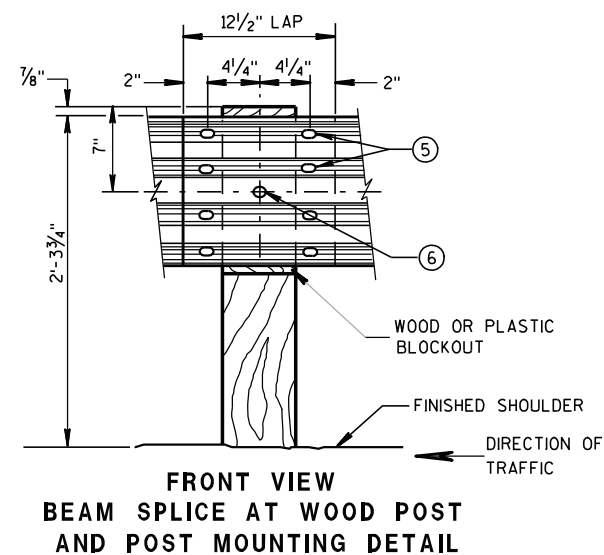
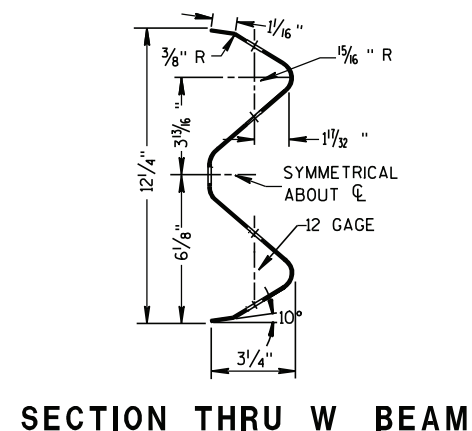
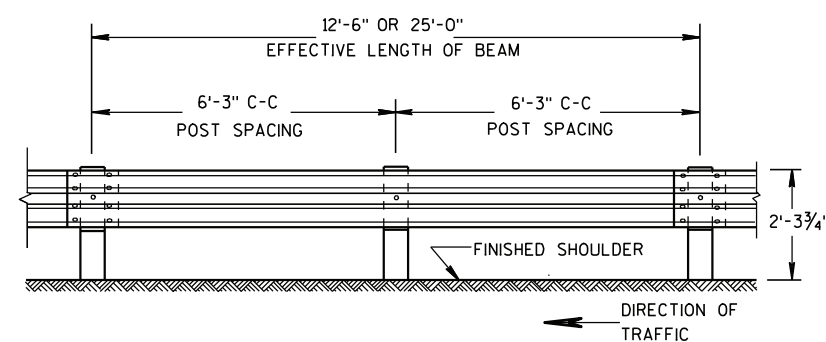
WOOD OR PLASTIC
BLOCKOUT FOR
WOOD POSTS



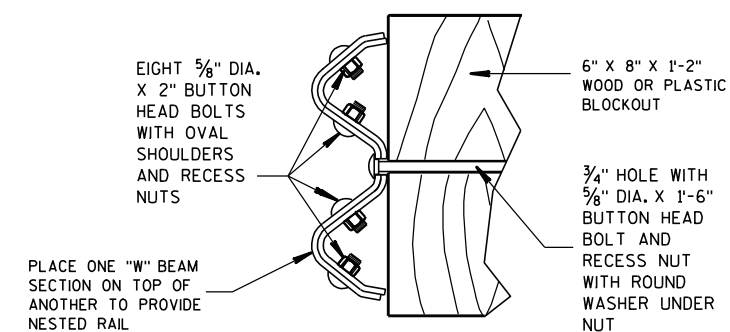
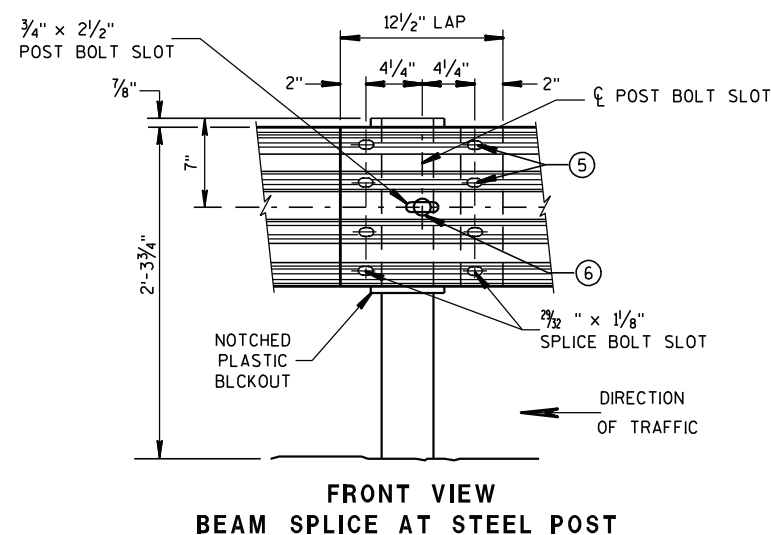
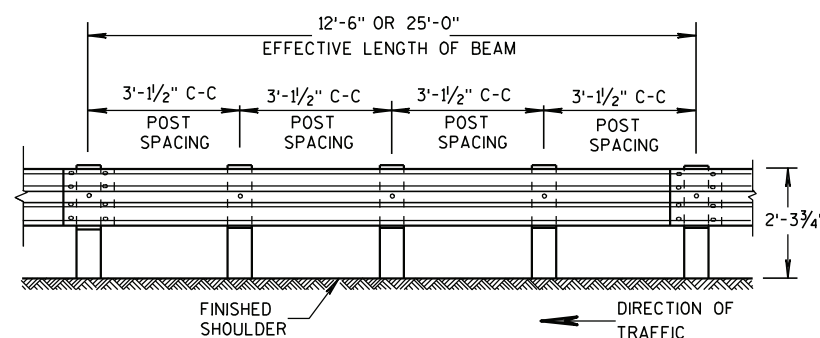
TYPICAL NOTCHED
PLASTIC BLOCKOUT
FOR STEEL POSTS ①

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

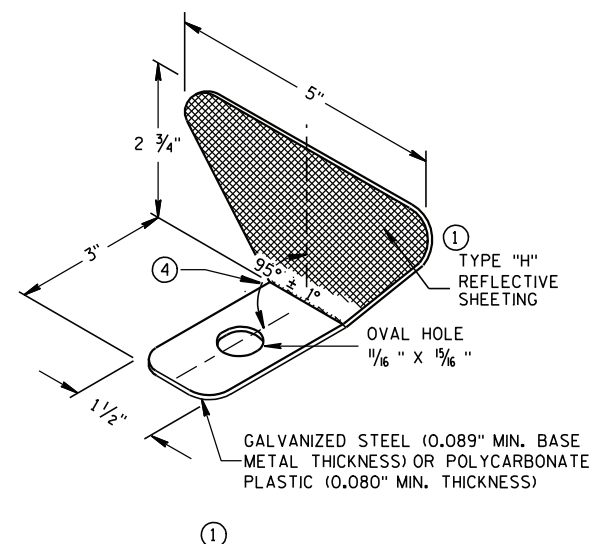
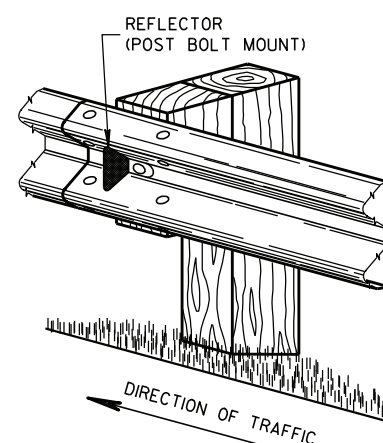


- ## GENERAL NOTES
- ① PROVIDE TYPE "H" SILVER REFLECTIVE SHEETING ON ALL REFLECTORS EXCEPT THOSE LOCATED ALONG THE LEFT EDGE OF ONE-WAY ROADWAYS, WHICH SHALL BE PROVIDED WITH TYPE "H" YELLOW REFLECTIVE SHEETING.
 - ② DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING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



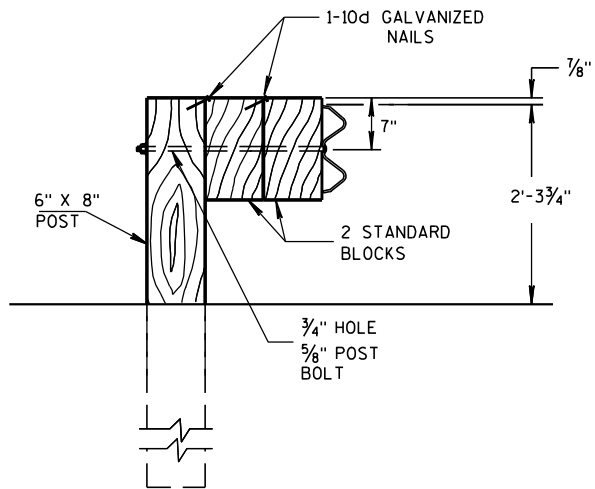
NESTED W BEAM (NW)
USE ALL OTHER STANDARD BEAM GUARD DETAILS FOR
CONSTRUCTING NESTED W BEAM (NW)

	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200' > 200'	50' C-C 100' C-C	1 1	3
TWO WAY TRAFFIC	< 200' > 200'	25' C-C 50' C-C	1 (3)	6
TWO WAY TRAFFIC	< 200' > 200'	50' C-C 100' C-C	2 (4)	3



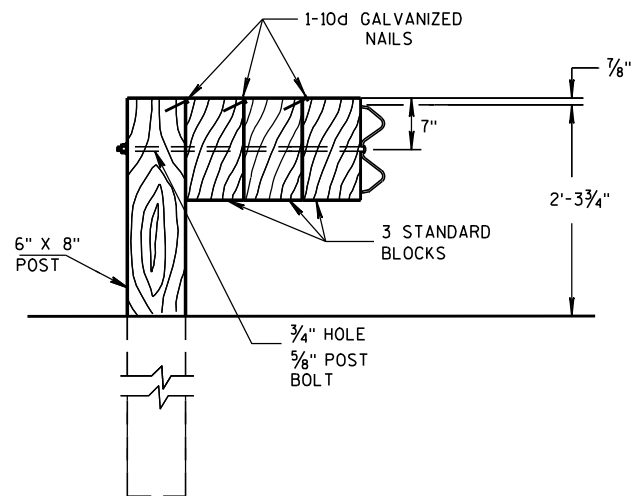
STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DETAIL FOR DOUBLE BLOCKS

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

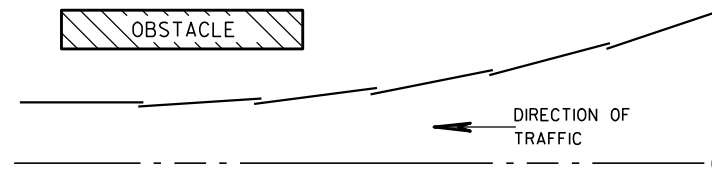


DETAIL FOR TRIPLE BLOCKS

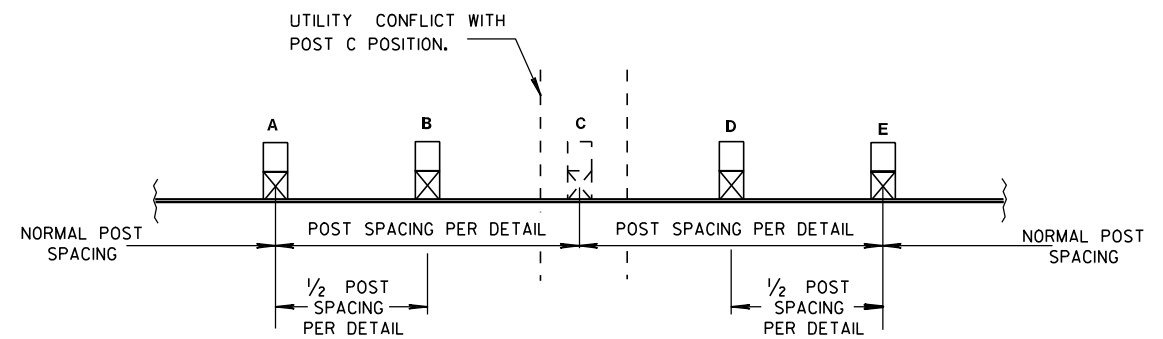
TRIPLE BLOCK DETAIL IS LIMITED TO ONE
LOCATION WITHIN A BEAM GUARD RUN.

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

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



PLAN VIEW BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

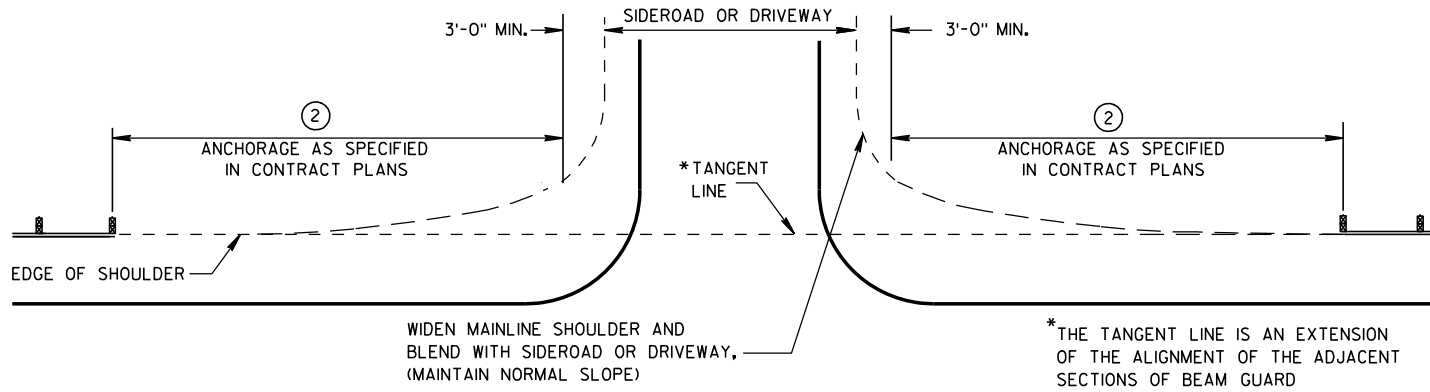
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5/23/11

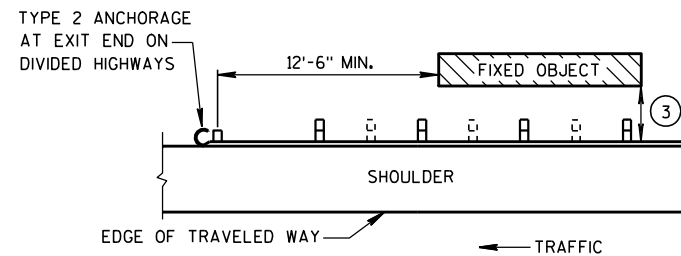
DATE

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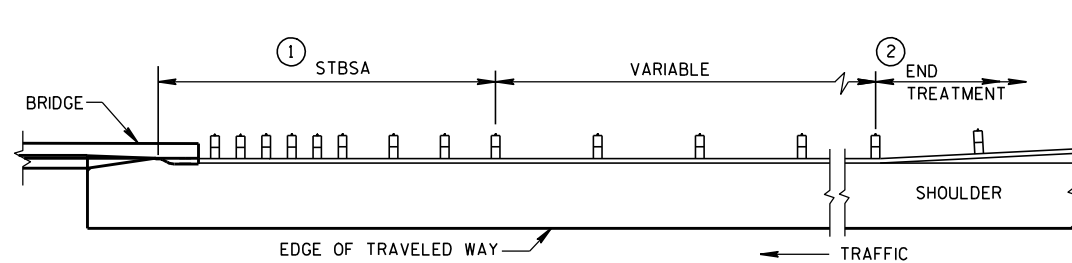
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER



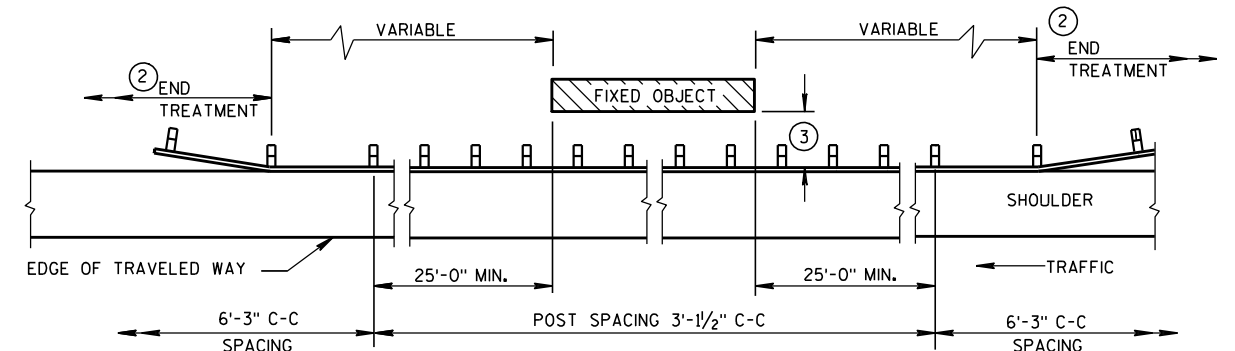
BEAM GUARD AT SIDEROADS OR DRIVEWAYS



BEAM GUARD AT OBSTACLES EXIT END - ONE WAY TRAFFIC



BEAM GUARD AT FULL WIDTH BRIDGES

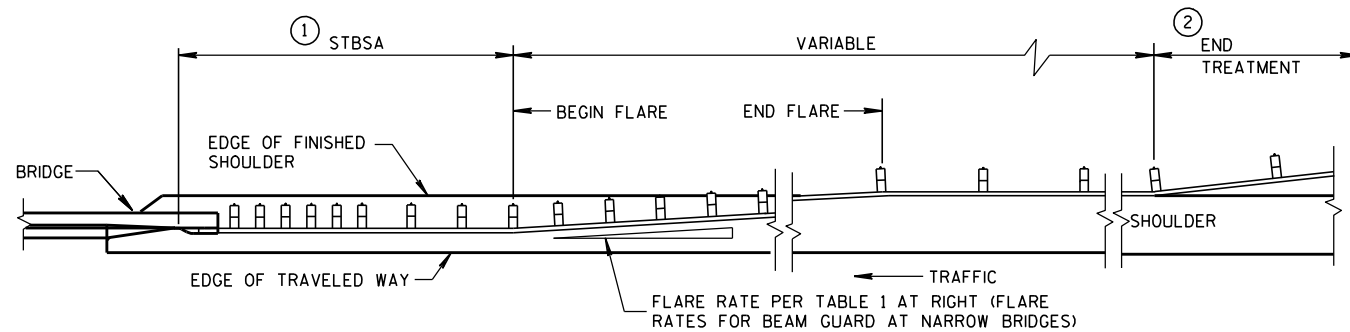


BEAM GUARD AT OBSTACLES - TWO WAY TRAFFIC

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

TABLE 1
FLARE RATES FOR BEAM
GUARD AT NARROW BRIDGES

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



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

GENERAL NOTES

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

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

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

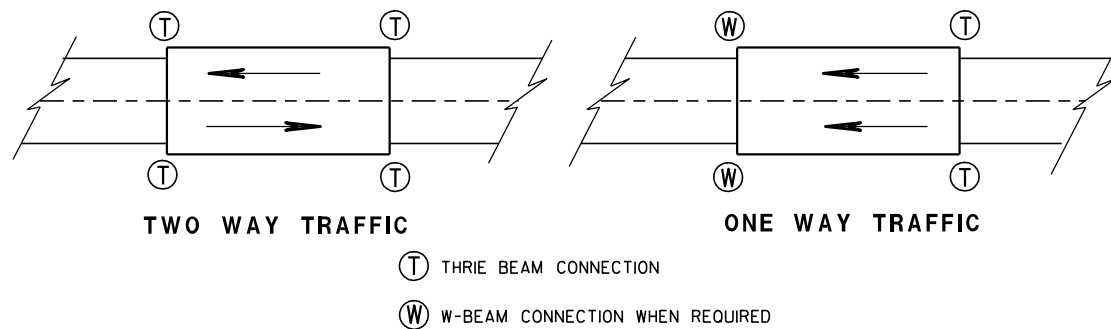
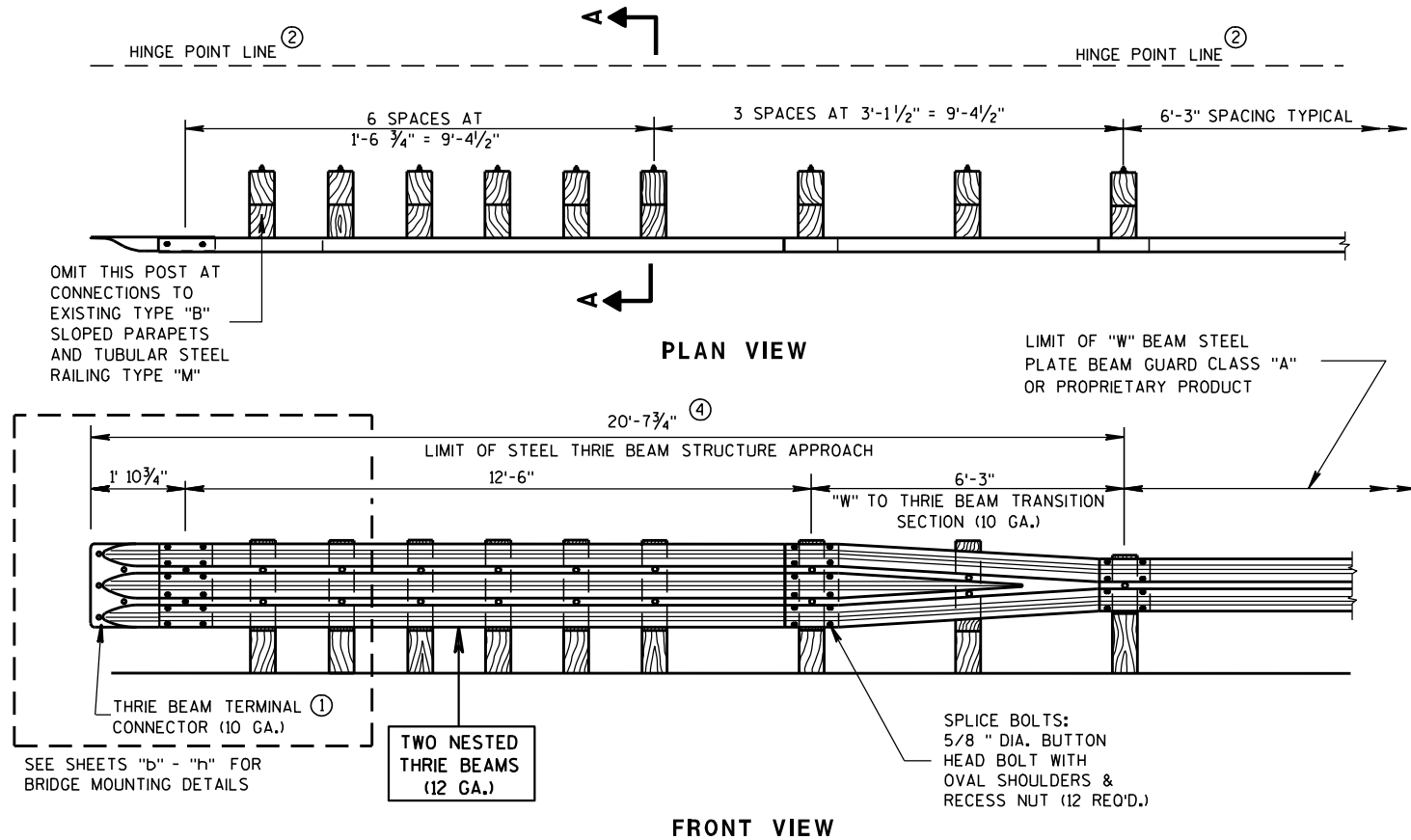
- STEEL THRIE BEAM STRUCTURAL APPROACH (STBSA) - SEE CURRENT SDD 14B20.
- USE AN APPROVED END TREATMENT FOR THE TRAFFIC APPROACH SIDE OF BRIDGE/OBSTACLES. USE TYPE 2 ANCHORAGE ONLY AT THE DOWNSTREAM ENDS OF BEAM GUARD LOCATED ALONG ROADWAYS WITH ONE WAY TRAFFIC.

MINIMUM LATERAL DISTANCE FROM FACE OF BEAM GUARD TO FIXED OBJECT	POST SPACING
3'-6"	3' - 1 1/2"
4'-6"	6' - 3"

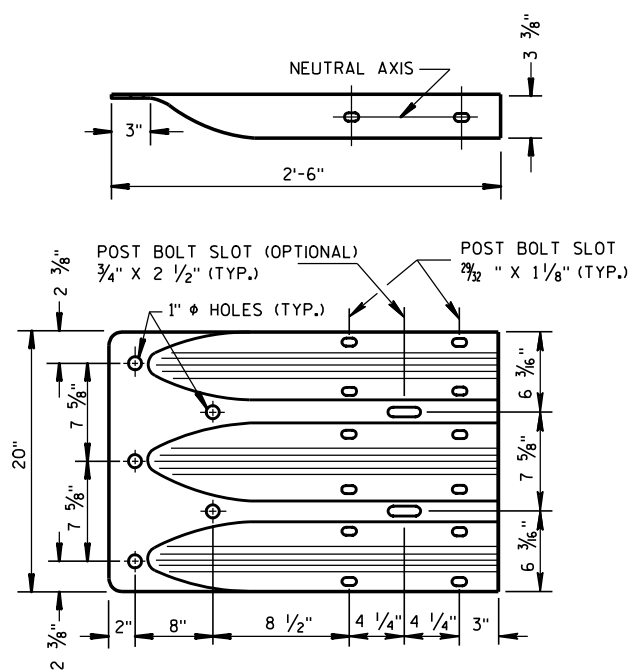
STEEL PLATE BEAM GUARD
CLASS "A"
AT BRIDGES, OBSTACLES
AND SIDEROADS/DRIVEWAYS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

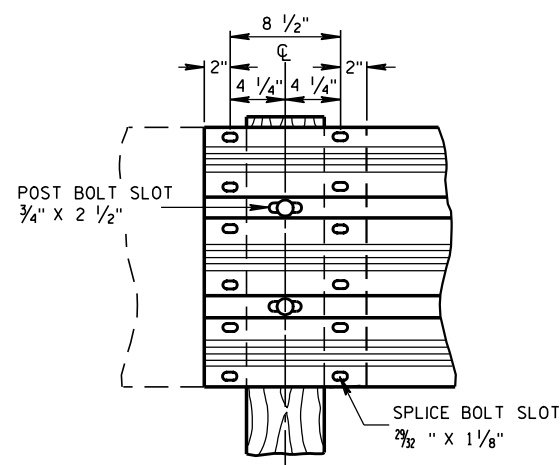
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8-21-07
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



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



THRIE BEAM TERMINAL CONNECTOR



THRIE BEAM SPLICE

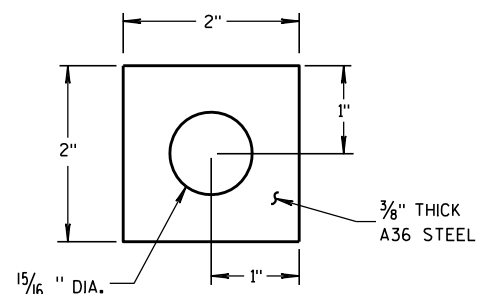
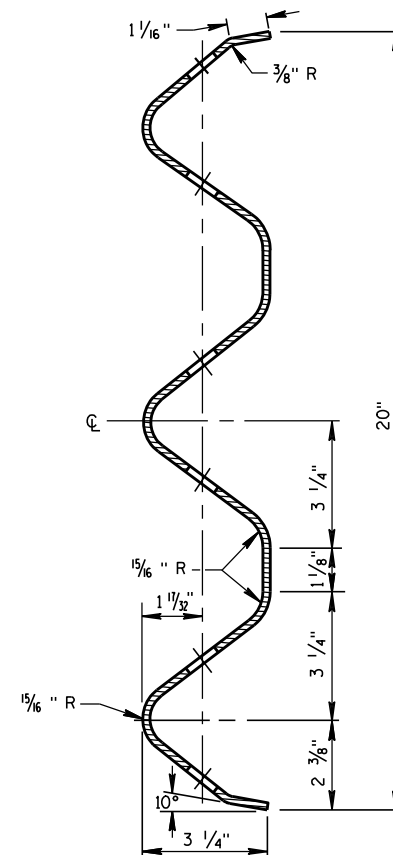


PLATE WASHER DETAIL



SECTION THRU THRIE BEAM RAIL ELEMENT

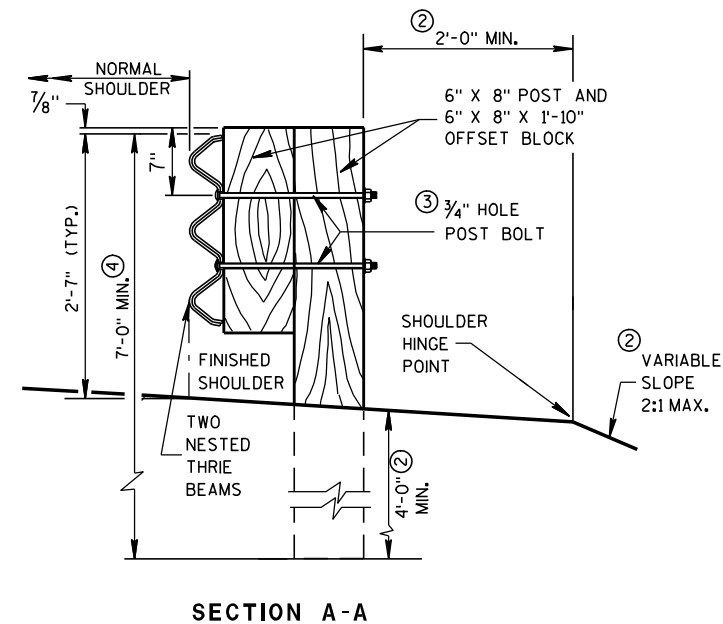
GENERAL NOTES

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

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

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

- ① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.
- ② MINIMUM EMBEDMENT SHALL BE 4'-0". WHERE EXISTING CONDITIONS DO NOT PERMIT THE APPROPRIATE EARTHWORK SHOWN ON THE PLAN TYPICAL SECTIONS OR DETAILS, THE ENGINEER MAY ALLOW THE REDUCTION OR ELIMINATION OF THE 2 FOOT DISTANCE TO THE HINGE POINT. OTHERWISE BUILD AS THE PLAN SHOWS OR AS THE ENGINEER DIRECTS. IF THE 2 FOOT DISTANCE TO THE HINGE POINT IS REDUCED OR ELIMINATED, INCREASE THE POST EMBEDMENT DEPTH TO 4'-6" OR MORE.
- ③ POST BOLTS ARE 5/8" DIAMETER ASTM A307 BUTTON HEAD BOLT. A POST BOLT REQUIRES A 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX AND A 5/8" DIAMETER F844 FLAT WASHER. LENGTH OF POST BOLT MAY VARY.
- ④ ALL WOOD POSTS MUST BE 6" X 8" AND AT LEAST 7'-0" LONG.



STEEL THRIE BEAM STRUCTURE APPROACH

STATE OF WISCONSIN
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8/31/2012

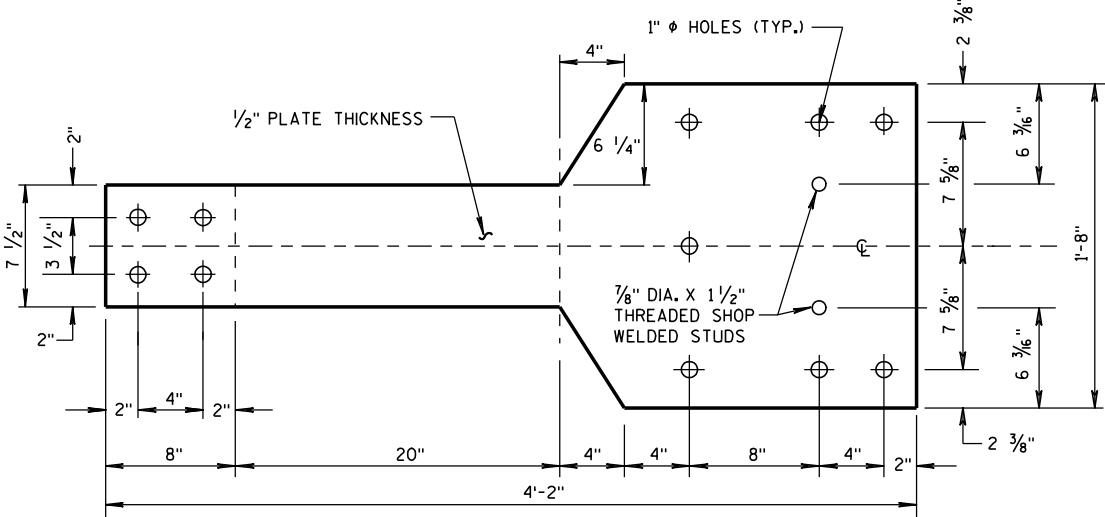
DATE

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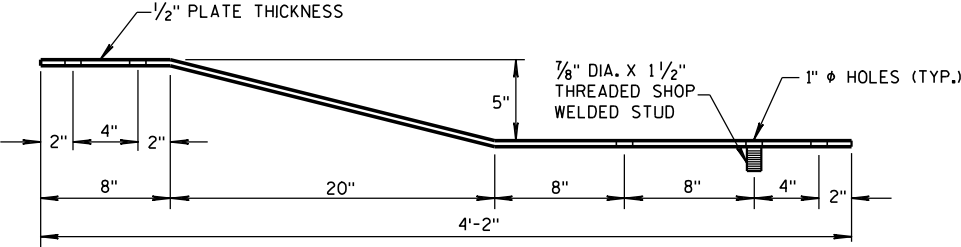
/s/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

GENERAL NOTES

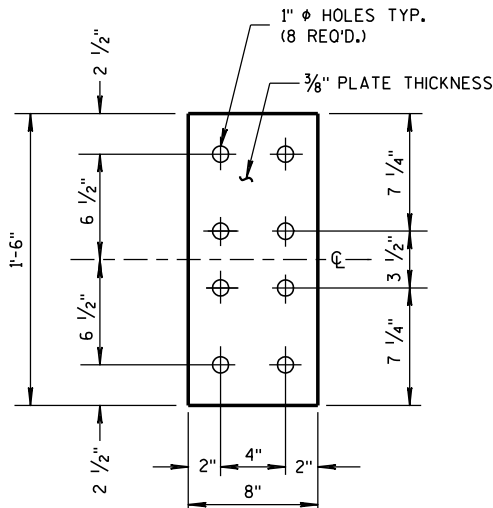
① VARY THIS DIMENSION DEPENDING ON ABUTMENT TYPE, WINGWALL DETAILS, AND ANGLE OF SKEW. PLACE THE FIRST WOOD POST OFF THE BRIDGE SHALL BE AS CLOSE AS FEASIBLE TO THE STEEL END POST.



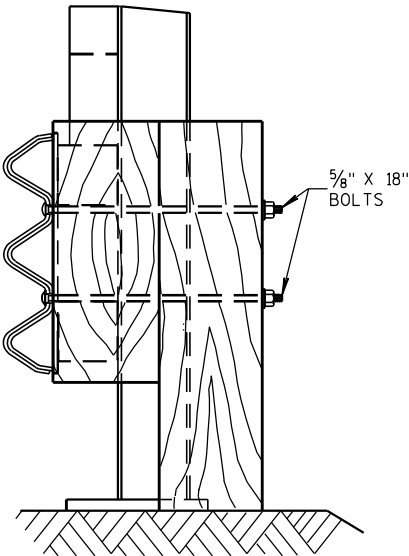
FRONT VIEW



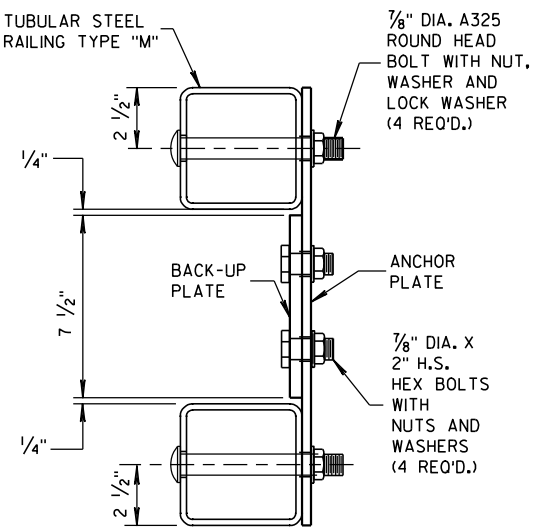
PLAN VIEW
BACK-UP PLATE DETAIL, TYPE "M"



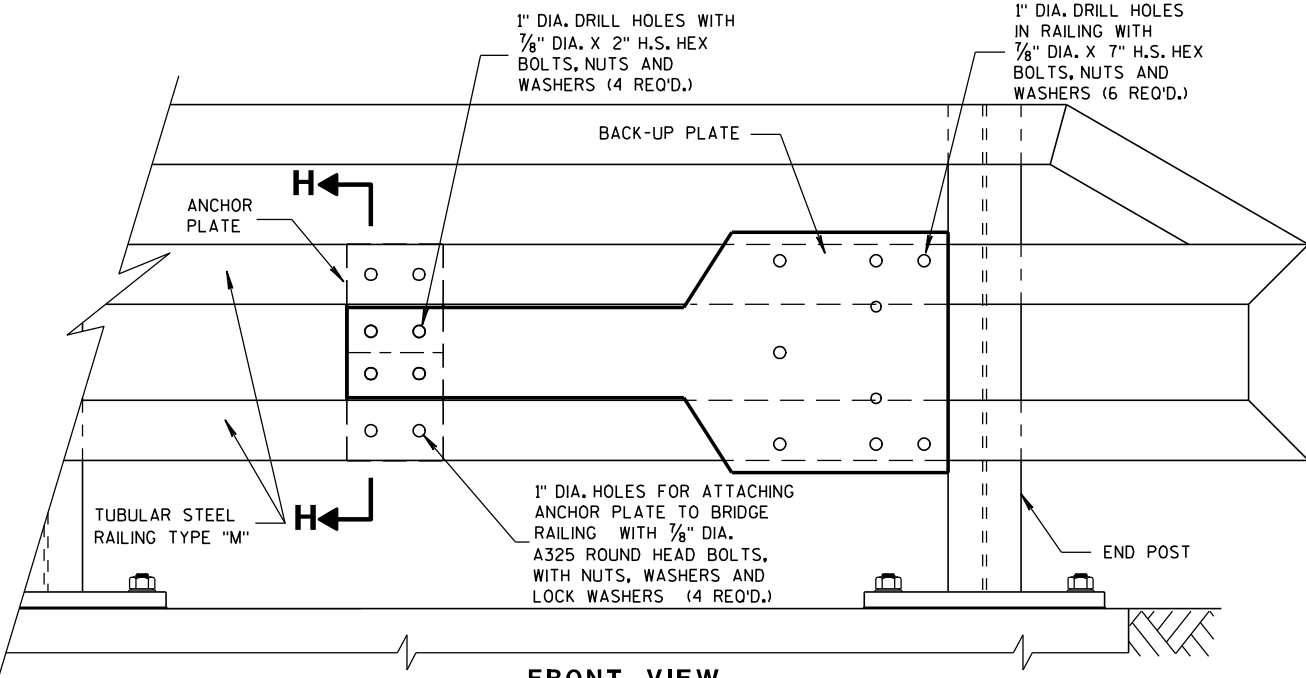
FRONT VIEW
ANCHOR PLATE DETAIL, TYPE "M"



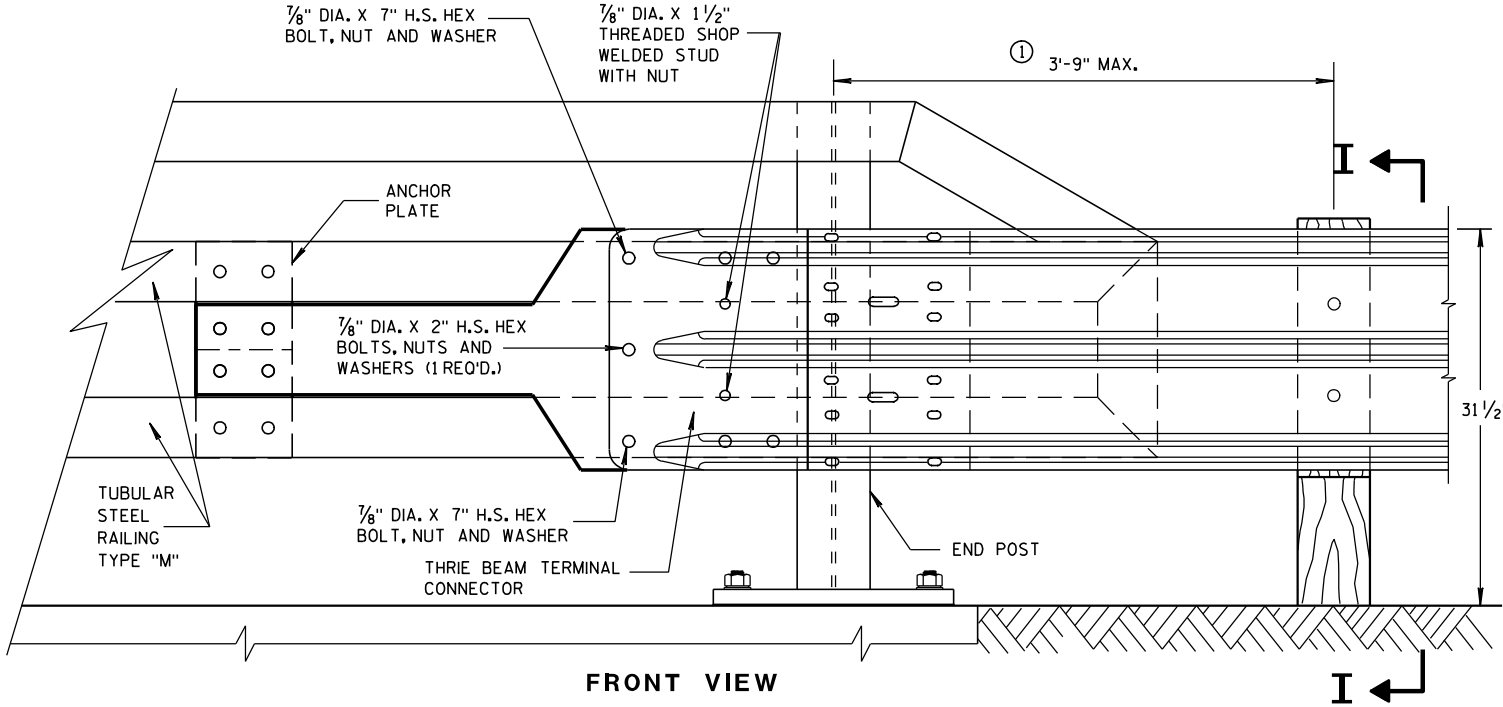
SECTION I-I



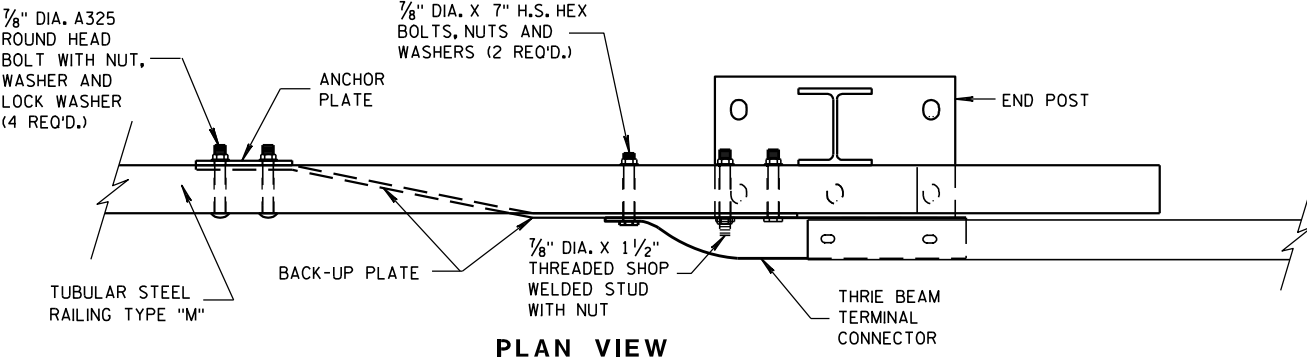
SECTION H-H



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



FRONT VIEW

















PLAN VIEW
THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



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

STEEL THRIE BEAM STRUCTURE APPROACH

COVER PLATE PANELS ARE $\frac{3}{16}$ " THICK.

ALL STIFFENERS ARE $\frac{1}{4}$ " THICK.

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

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

ALL HOLE DIAMETERS SHALL BE 1".

FOR OPPOSITE SIDE INSTALLATION MIRROR DRAWINGS.

- ① STIFFENERS LOCATED AT THE OUTSIDE EDGES OF THE COVER PLATES SHALL BE WELDED AS FOLLOWS:
SINGLE BEVEL GROOVE WELD ON EXTERNAL SIDES AND $\frac{3}{16}$ " FILLET WELD BY 1" LONG SPACED AT 2" ON INTERNAL SIDES.
- ② STIFFENERS LOCATED ON THE INSIDE OF THE COVER PLATE SHALL BE WELDED AS FOLLOWS:
 $\frac{3}{16}$ " FILLET WELD BY 1" LONG SPACED AT 2".

APPROVED

8/31/2012 /s/ Jerry H. Zogg

DATE ROADWAY STANDARDS DEVELOPMENT

FHWA ENGINEER

BILL OF MATERIALS

NOTE NO.	QTY.	DESCRIPTION
①	4	WOOD BREAKAWAY TERMINAL POST: 5 1/2" X 7 1/2" X 3'-9"
②	**	STEEL TUBE: OPTION 1 - QUANTITY OF 4 TS 8" X 6" X 0.188", 4'-6" LONG OR OPTION 2 - QUANTITY OF 2 TS 8" X 6" X 0.188", 6'-0" AND 2 TS 8" X 6" X 0.188", 4'-6" LONG
③	2	SOIL PLATE: 2'-0" X 1'-6" X 1/4" **
④	4	WOOD BREAKAWAY CRT POST: 6" X 8" X 6'-0"
⑤	6	WOOD OFFSET BLOCKS: 6' X 8" X 1'-2"
⑥	1	PIPE SLEEVE: 2" X 5 1/2" STANDARD PIPE
⑦	1	BEARING PLATE
⑧	1	BCT CABLE ASSEMBLY
⑨	1	CABLE ANCHOR BOX
⑩	1	STRUT & YOKE
⑪	1	STEEL PLATE BEAM, END PANEL 12 GA, 13'-6 1/2" LONG FOR SKT-350, ET-2000 AND ET-2000 PLUS
⑫	3	STEEL PLATE BEAM: 12 GA, 13'-6 1/2"
⑬	1	ET-2000/ET-2000 PLUS GUARDRAIL EXTRUDER OR SKT-350 IMPACT HEAD: AS FURNISHED BY MANUFACTURER
⑭	1	REFLECTIVE SHEETING TYPE H: 18" X 18"
⑮	1	E.A.T. MARKER POST

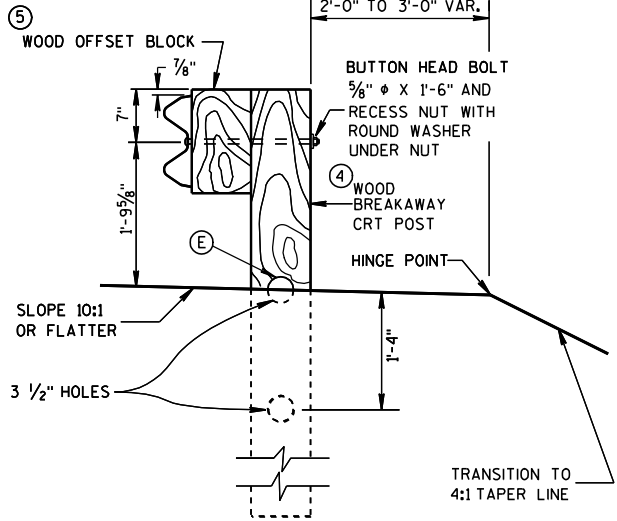
GENERAL NOTES

FOLLOW MANUFACTURE'S BOLTING RECOMMENDATIONS. IF NONE ARE AVAILABLE, INSTALL 5/8" ϕ X 1'-6" BUTTON HEAD BOLTS AT ALL POSTS EXCEPT FOR POST 1.

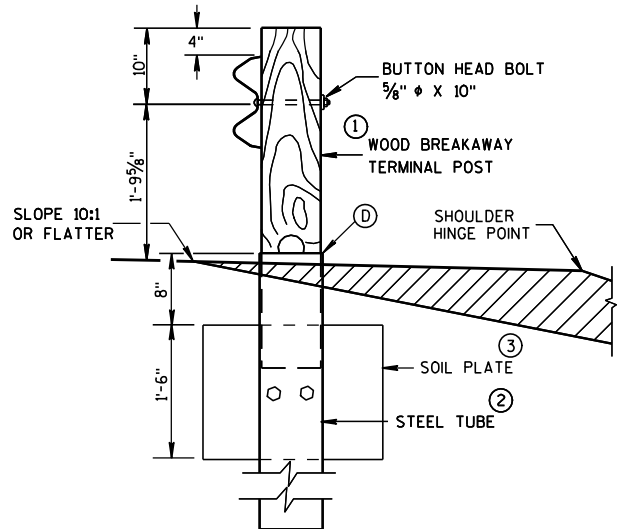
- (A) THE SLOPE IN THE AREA BOUNDED BY THE EXTENDED VEHICLE RUNOUT PATH (EVRP), THE HINGE POINT LINE (HPL), AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
- (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED.
- (C) THE 13 SLOT FIRST RAIL PANEL MAY BE USED IN LIEU OF THE 3 SLOT RAIL PANEL ON SKT-350 ONLY.
- (D) THE TOP OF THE STEEL TUBE ON POSTS 1 THROUGH 4 SHALL NOT BE MORE THAN 3" ABOVE THE FINISH GROUND ELEVATION.
- (E) THE CENTER OF THE UPPER 3 1/2" DIAMETER HOLE ON POST 5 THROUGH 8 SHALL BE 3/4" ABOVE THE FINISHED GROUND LINE.
- (F) SHEETING IS ATTACHED TO 0.040 ALUMINUM SHEET AND ATTACHED TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS, ONE SCREW PER CORNER OF E.A.T. STEEL POSTS SHALL NOT BE ALLOWED FOR USE WITH ENERGY ABSORBING TERMINALS.
- DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

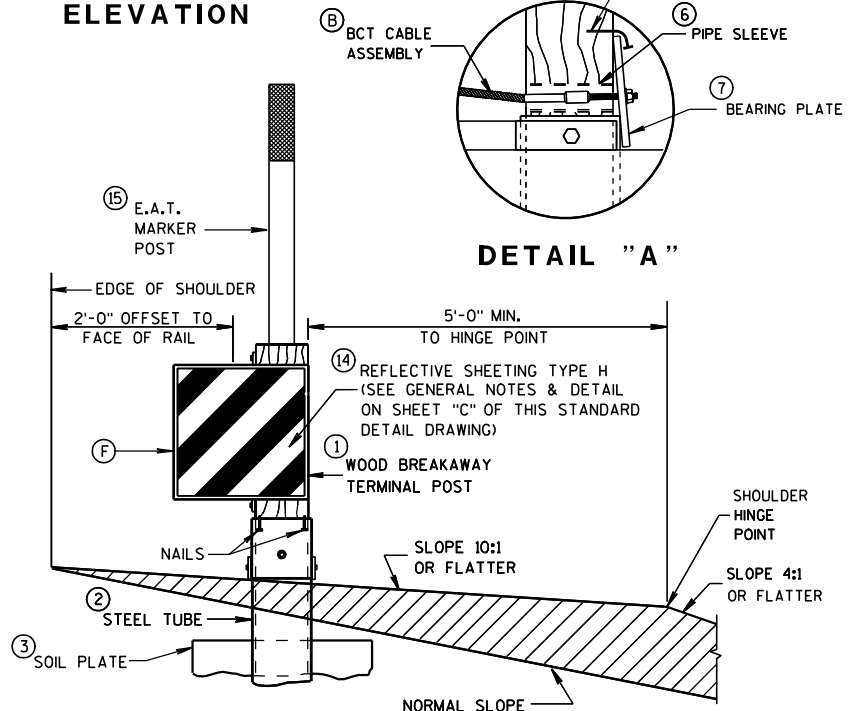
** SDD SHOWS 4 - 54 INCH STEEL TUBES WITH SOIL PLATES INSTALLED ON POST 1 AND POST 2. POST 3 AND 4 DO NOT NEED SOIL PLATES. AN ALTERNATIVE INSTALLATION WOULD CONSIST OF 2 - 72 INCH STEEL TUBES ON POST 1 AND POST 2 AND 54 INCH TUBES ON POSTS 3 AND 4. THE ALTERNATIVE INSTALLATION DOES NOT REQUIRE SOIL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



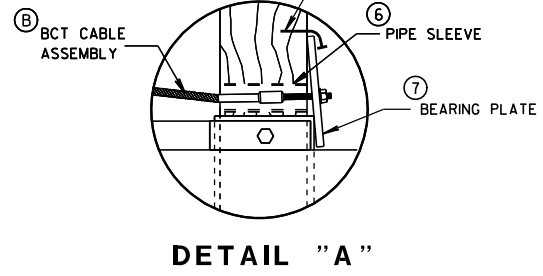
SECTION C-C
TYPICAL AT POST NOS. 6, 8



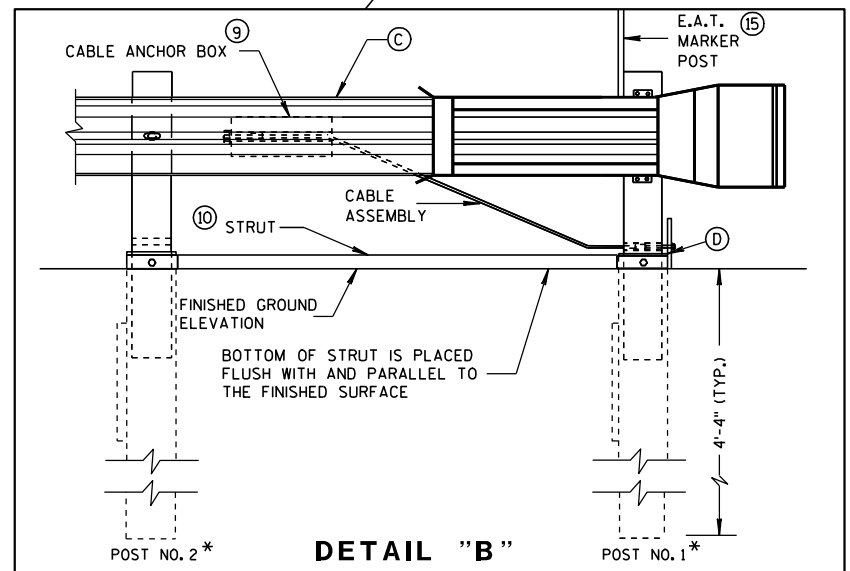
SECTION B-B
TYPICAL AT POST NO. 2*



SECTION A-A
TYPICAL AT POST NO. 1*



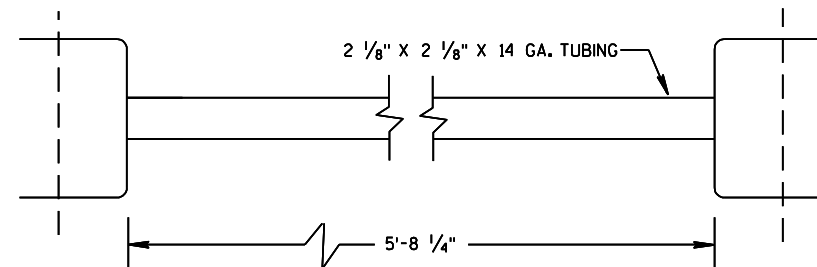
DETAIL "A"



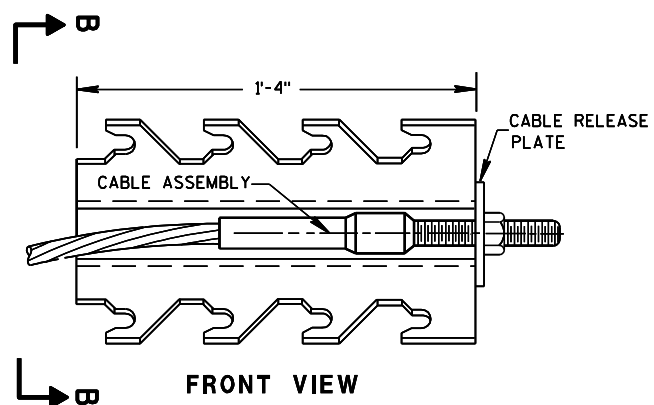
DETAIL "B"

STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



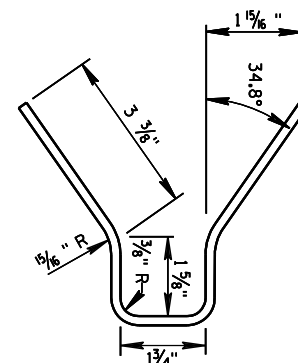
⑩ STRUT DETAIL (SKT-350)



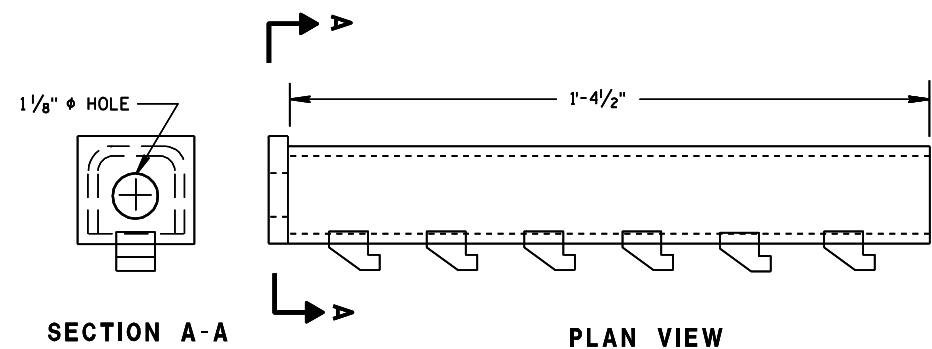
FRONT VIEW

⑨ CABLE ANCHOR BOX (SKT-350)

(SKT-350)



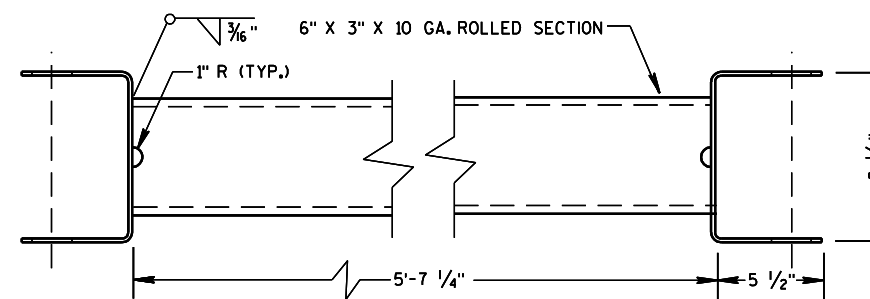
SECTION B-B



SECTION A-A

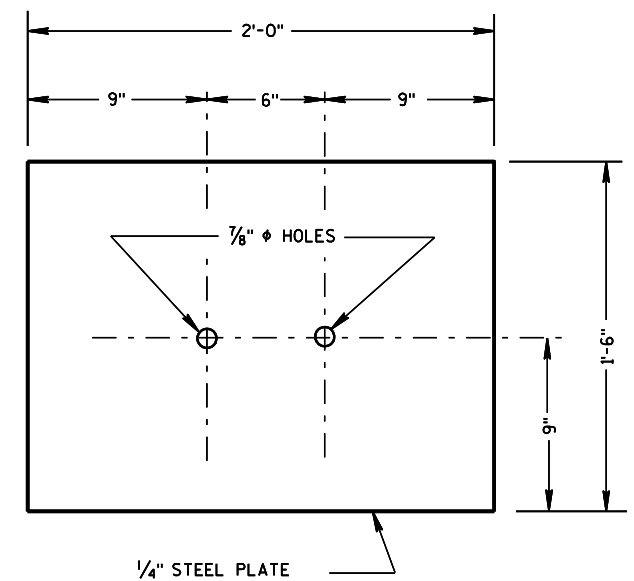
PLAN VIEW

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



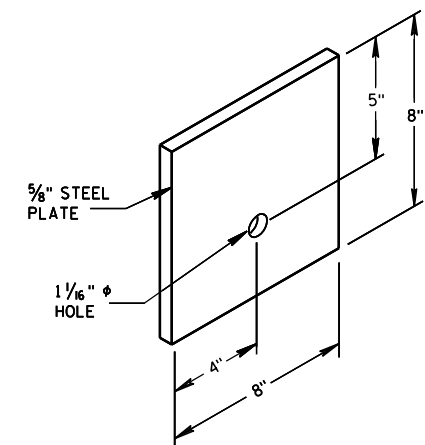
⑩ STRUT DETAIL (ET-2000/ET-2000 PLUS)

(ET-2000/ET-2000 PLUS)



1/4" STEEL PLATE

③ SOIL PLATE
(SKT-350, ET-2000/ET-2000 PLUS)

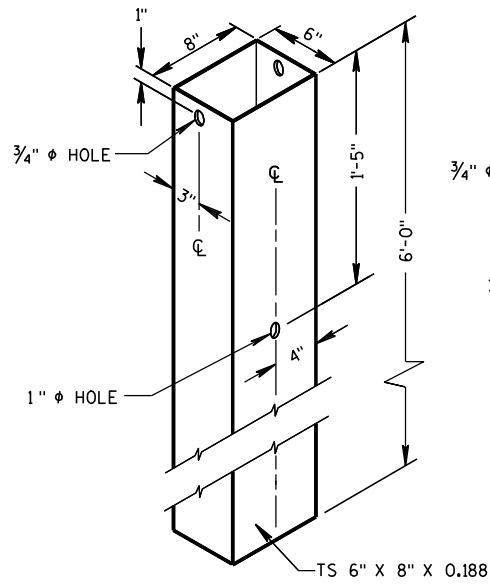


⑦ STEEL BEARING PLATE

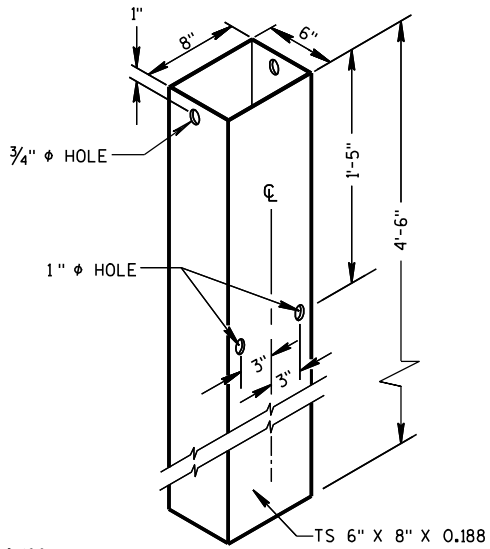
(SKT-350, ET-2000/ET-2000 PLUS)

STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL

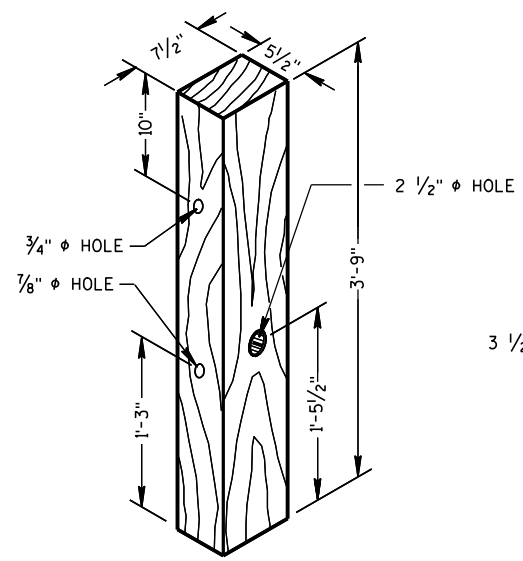
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



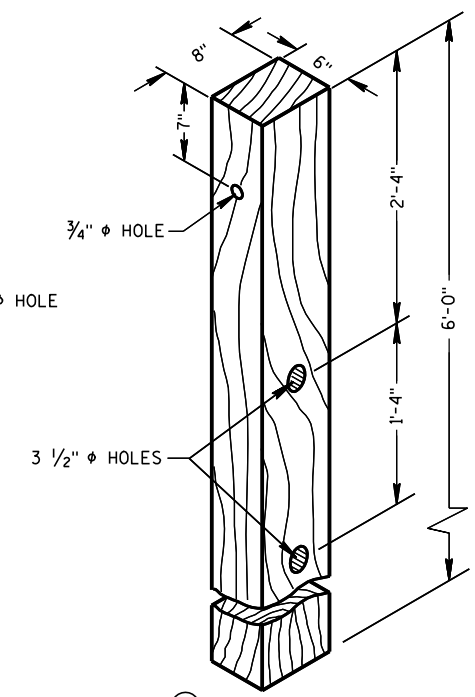
② **72" STEEL TUBE**
(POSTS NO. 1-4)



② **54" STEEL TUBE**
(POSTS NO. 1-4)

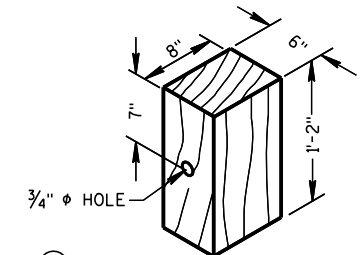


① **TERMINAL POST**
(POSTS NO. 1-4)

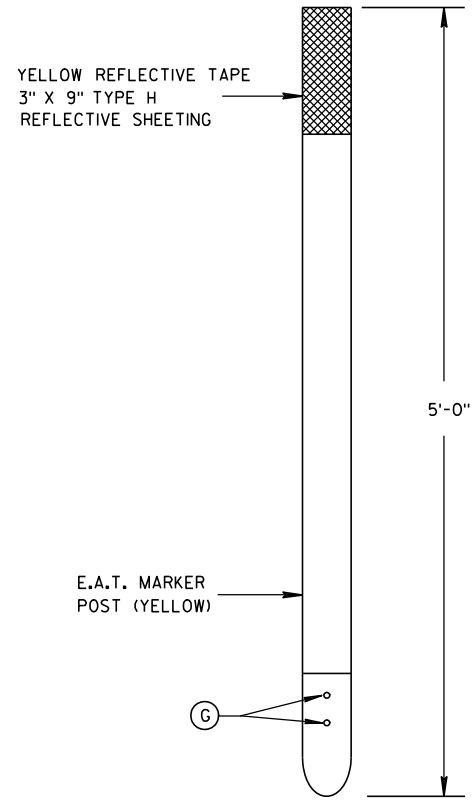


④ **CRT POST**
(POSTS NO'S 5-8)

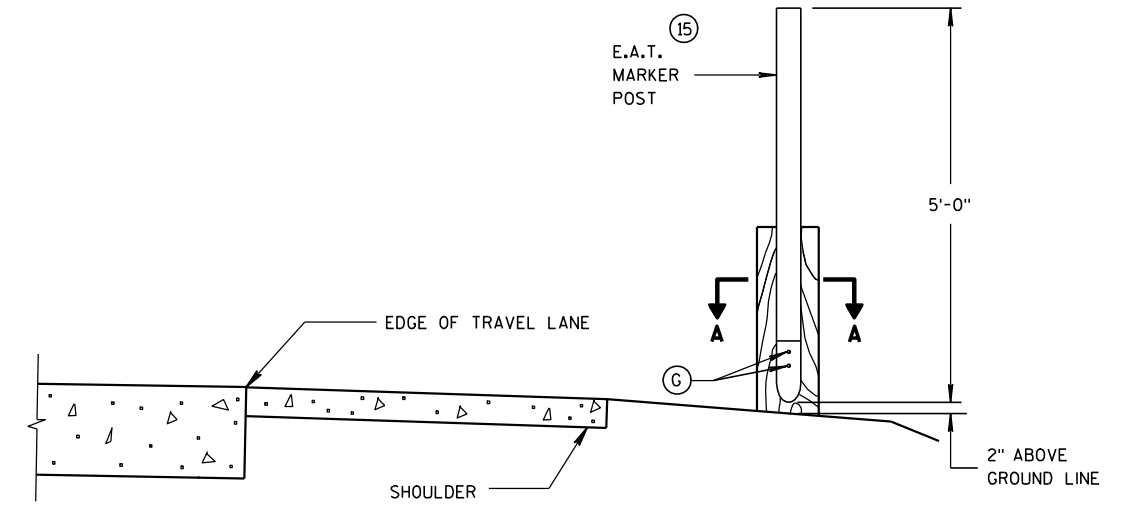
WOOD BREAKAWAY POSTS



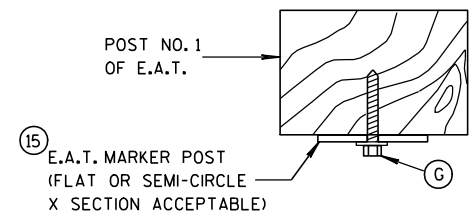
⑤ **WOOD OFFSET BLOCK**
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



FRONT VIEW **SIDE VIEW**
⑮ **E.A.T. MARKER POST**



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



SECTION A-A

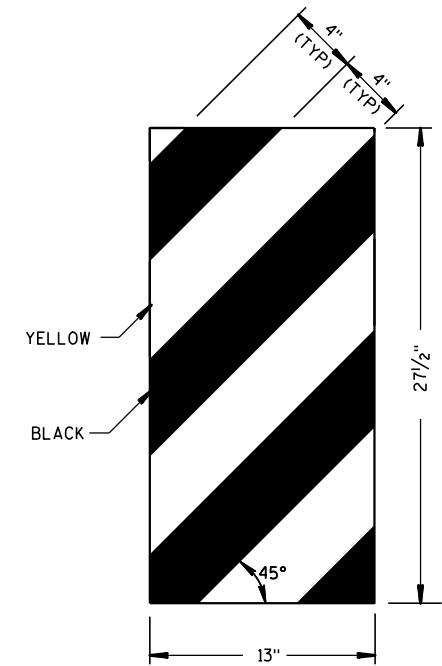
GENERAL NOTES

STEEL PLATE BEAM GUARD, ENERGY ABSORBING TERMINAL SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE EACH, WHICH SHALL INCLUDE HARDWARE, STEEL PLATE BEAM GUARD, POSTS, REFLECTIVE SHEETING AND INSTALLATION AS SHOWN.

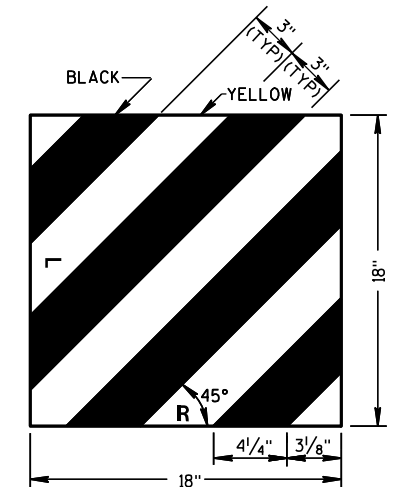
WHEN ROCK IS ENCOUNTERED DURING EXCAVATION, A 12 INCH DIA. POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK MAY BE USED IF APPROVED BY THE ENGINEER. GRANULAR MATERIAL SHALL BE PLACED IN THE BOTTOM OF THE HOLE APPROXIMATELY 2 1/2" INCHES DEEP TO PROVIDE DRAINAGE. THE SOIL TUBES SHALL BE FIELD CUT TO LENGTH, PLACED IN THE HOLE AND BACKFILLED WITH ADEQUATELY COMPACTED MATERIAL EXCAVATED FROM THE HOLE.

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

⑮ 1/2" DIA. X 3" LAG BOLT WITH WASHER.



ET-2000 PLUS ONLY



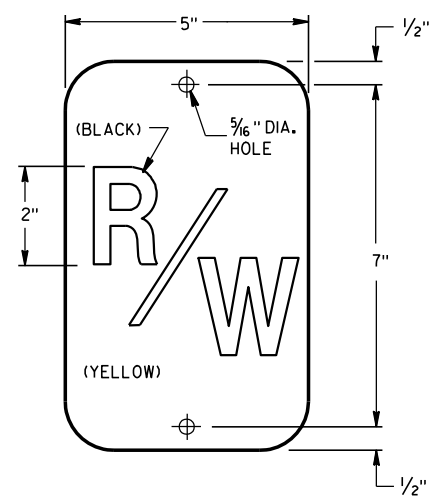
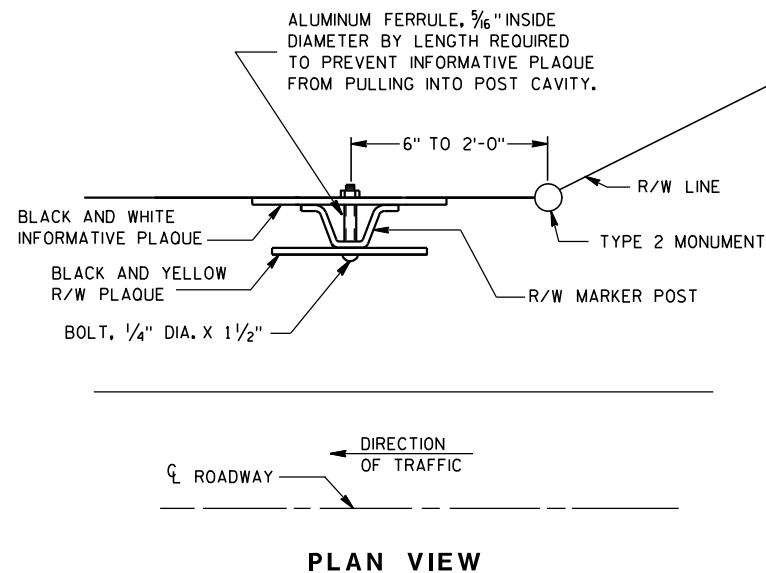
ET-2000 AND SKT-350

⑭ **REFLECTIVE SHEETING DETAILS**

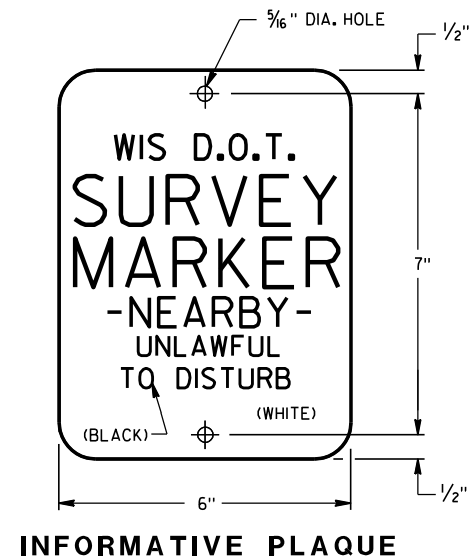
**STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
4-12-10 DATE /S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



THE RIGHT-OF-WAY PLAQUE AND INFORMATIVE PLAQUE WILL BE FURNISHED BY THE WISCONSIN DEPARTMENT OF TRANSPORTATION.



GENERAL NOTES

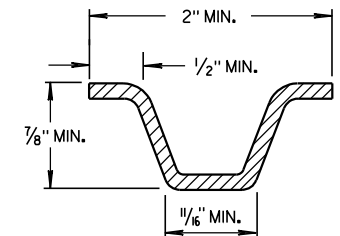
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

A STEEL MARKER POST FOR RIGHT-OF-WAY SHALL BE PLACED IN THE RIGHT-OF-WAY, WITH THE BACK OF THE POST ON THE LONGER RIGHT-OF-WAY TANGENT, 6 INCHES TO 24 INCHES FROM EACH TYPE 2 MONUMENT TO SERVE AS A GUARD POST, AND AT OTHER LOCATIONS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

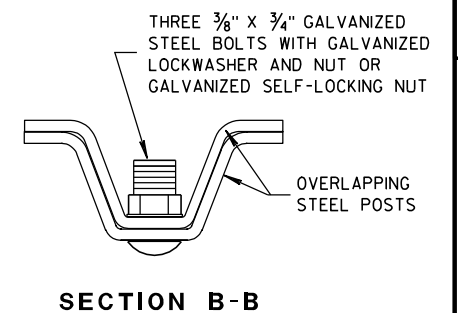
THE "R/W" PLAQUE SHALL FACE THE ROADWAY AND THE INFORMATIVE PLAQUE SHALL FACE AWAY FROM THE ROADWAY. R/W AND INFORMATIVE PLAQUES WILL BE FURNISHED BY THE DEPARTMENT OF TRANSPORTATION.

STEEL MARKER POSTS SHALL MEET THE MINIMUM MATERIAL REQUIREMENTS FOR STEEL DELINEATOR POSTS; EXCEPT POSTS PAINTED WITH FEDERAL YELLOW ENAMEL NEED NOT BE ZINC COATED.

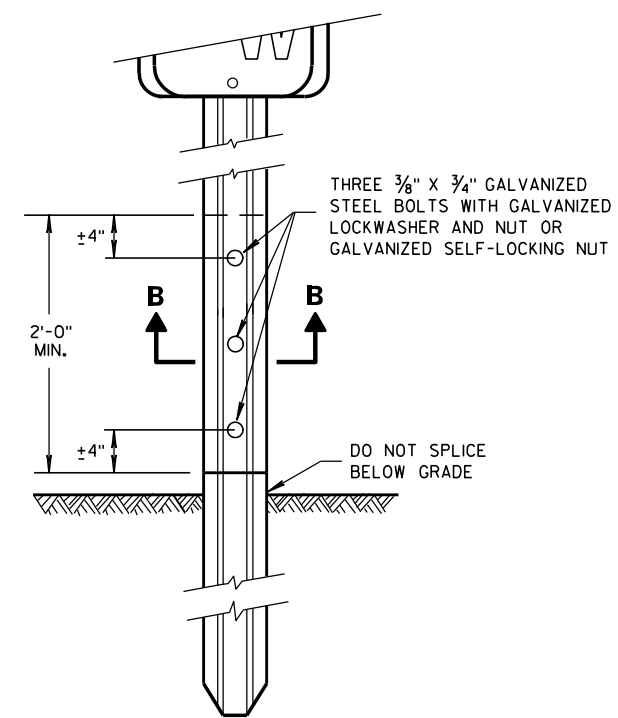
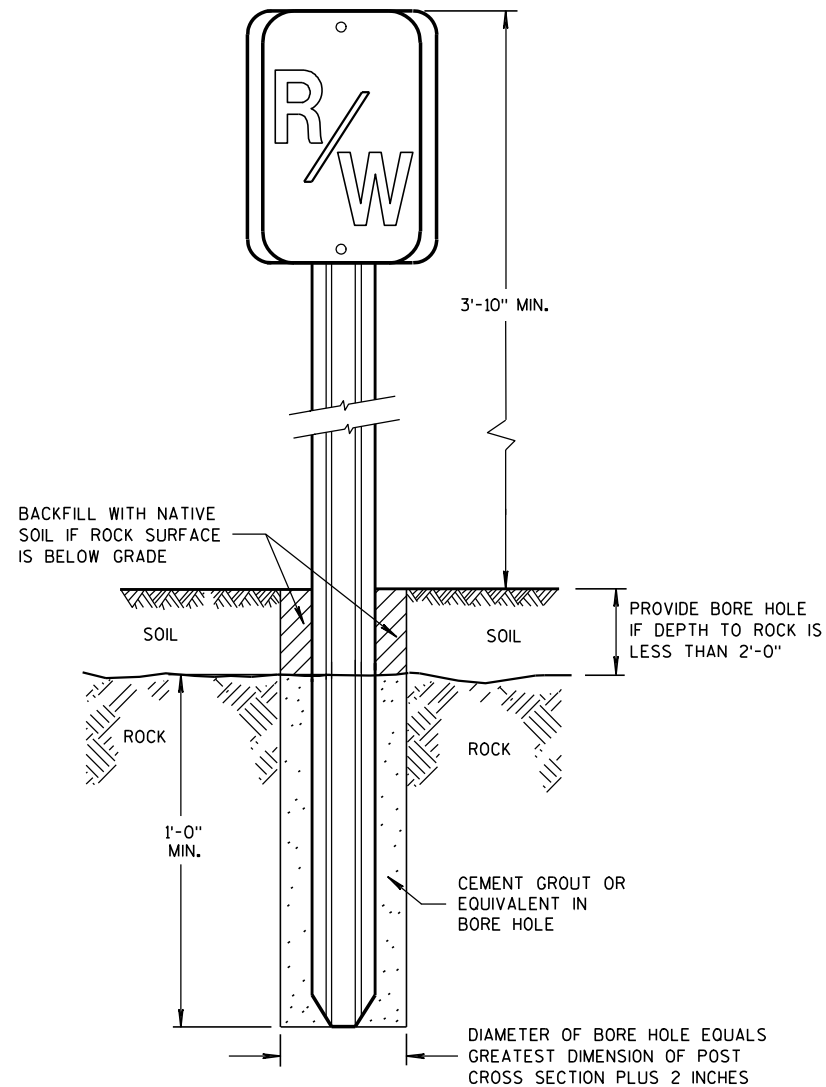
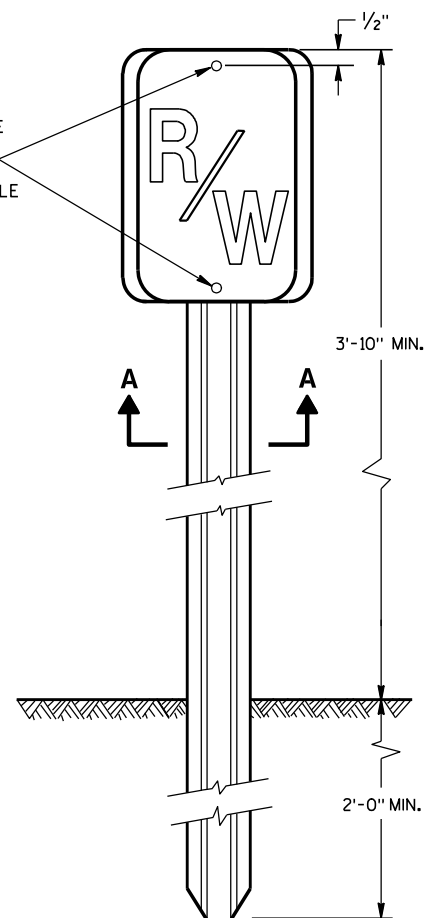
- ① IN AREAS OF SOLID ROCK, DRILL A BORE HOLE 2" GREATER THAN THE WIDEST DIMENSION OF THE POST CROSS SECTION INTO THE ROCK TO A MINIMUM DEPTH OF 12 INCHES. CUT OR SPLICE THE POST SO THAT A MINIMUM LENGTH OF 3'-10" PROTRUDES ABOVE THE GROUND. BLOW OUT THE BORE HOLE IN THE ROCK USING COMPRESSED AIR. FILL THE BORE HOLE WITH CEMENT GROUT, OR EQUIVALENT, DEPENDING ON THE STABILITY OF THE ROCK,



MIN. WEIGHT 1.12 LB./FT.
SECTION A-A



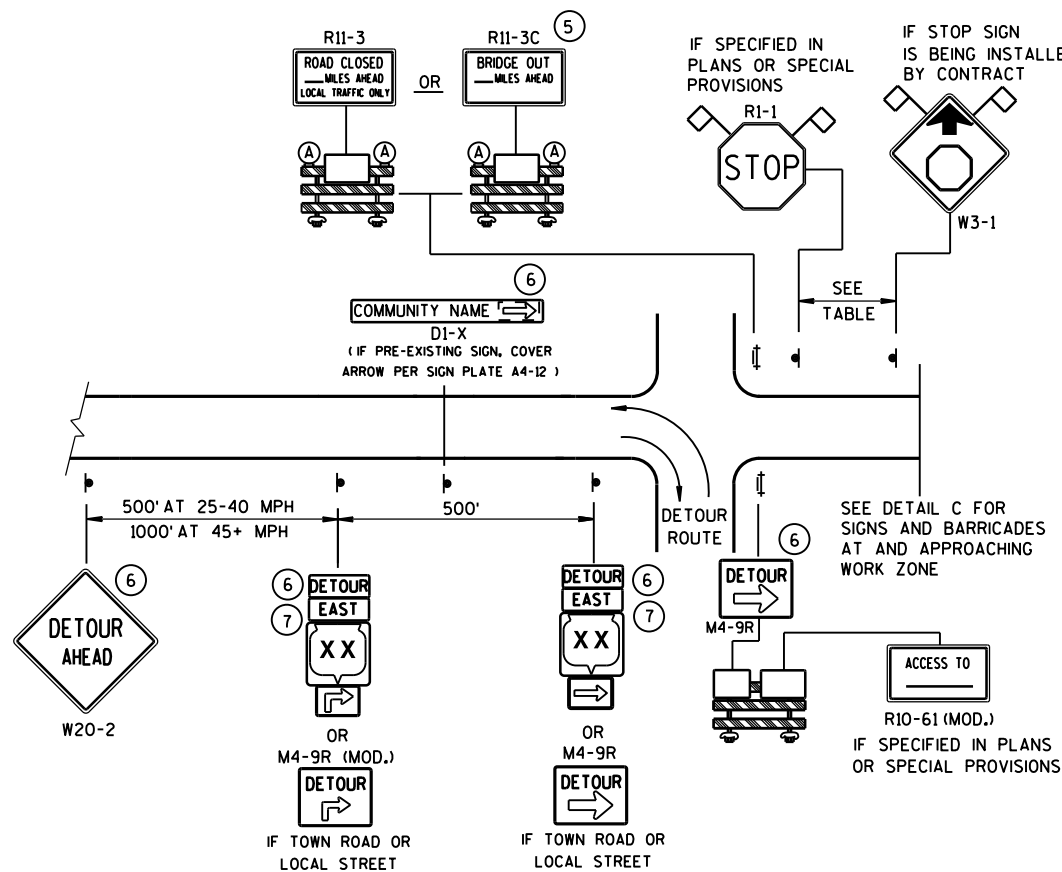
STEEL POSTS SHALL HAVE 2 - $\frac{3}{8}$ " HOLES 7" APART. POST WITH ADDITIONAL HOLES WILL BE ACCEPTABLE



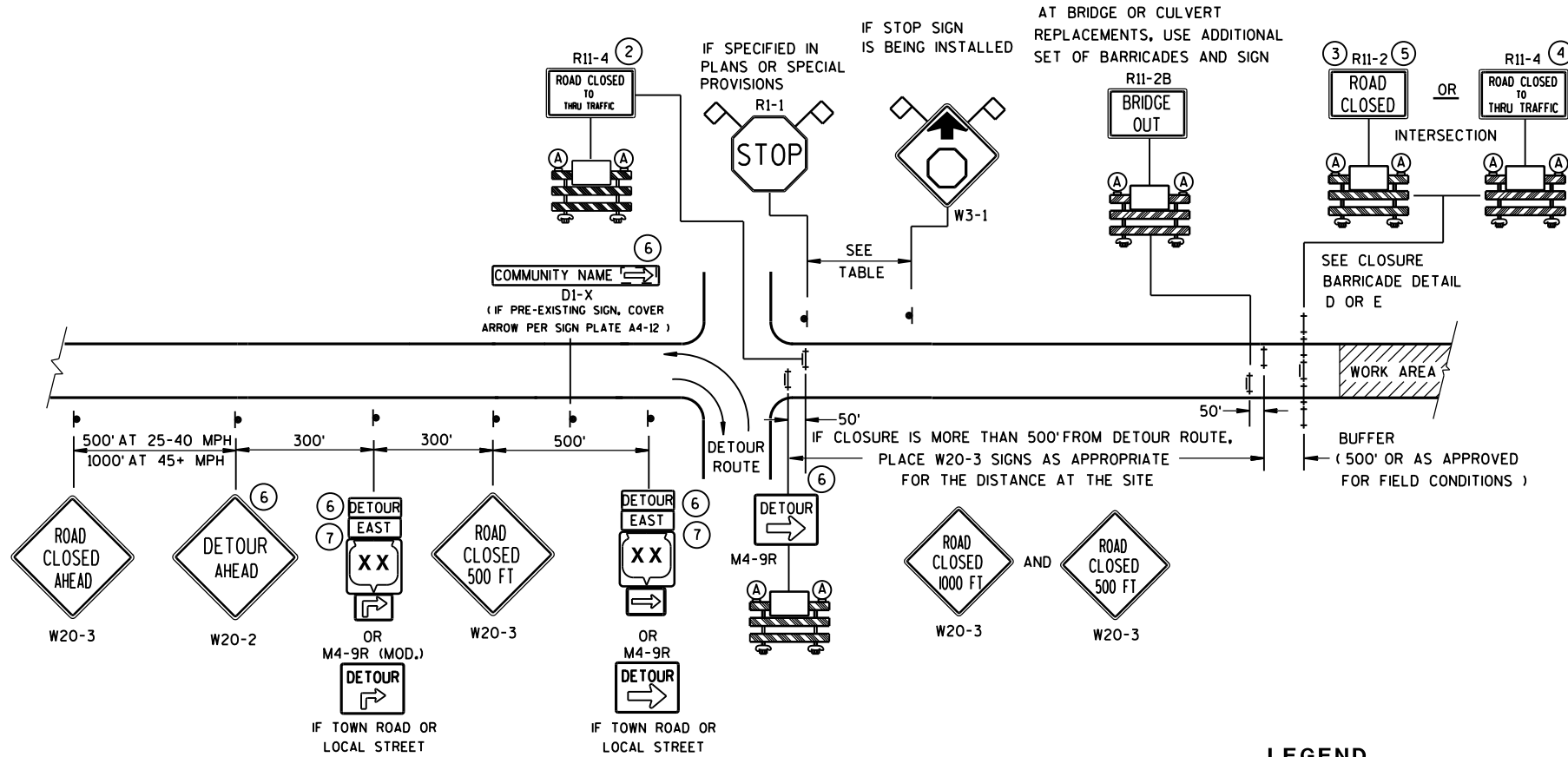
**MARKER POST
FOR RIGHT-OF-WAY**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

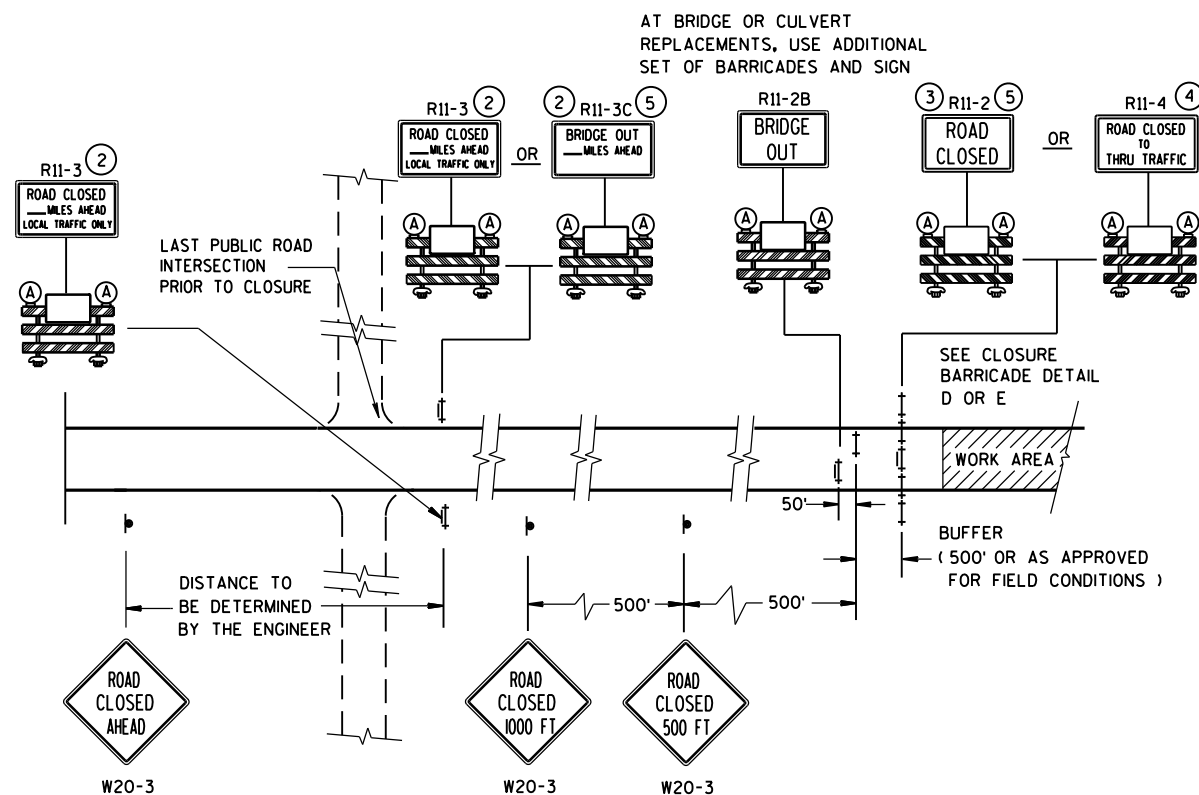
APPROVED
4/27/09 /S/ Ray Kumapayi
DATE CHIEF SURVEYING AND MAPPING ENGINEER
FHWA



DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR
WORK ZONE GREATER THAN 1/2 MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR
WORK ZONE LESS THAN 1/2 MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

LEGEND

- SIGN ON PERMANENT SUPPORT
- ⊥ TYPE III BARRICADE
- ⊥ TYPE III BARRICADE WITH ATTACHED SIGN
- Ⓐ TYPE "A" WARNING LIGHT (FLASHING)

WORK AREA

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

M05-1 OR M06-1

FLAGS, 16" X 16" MIN., (ORANGE)

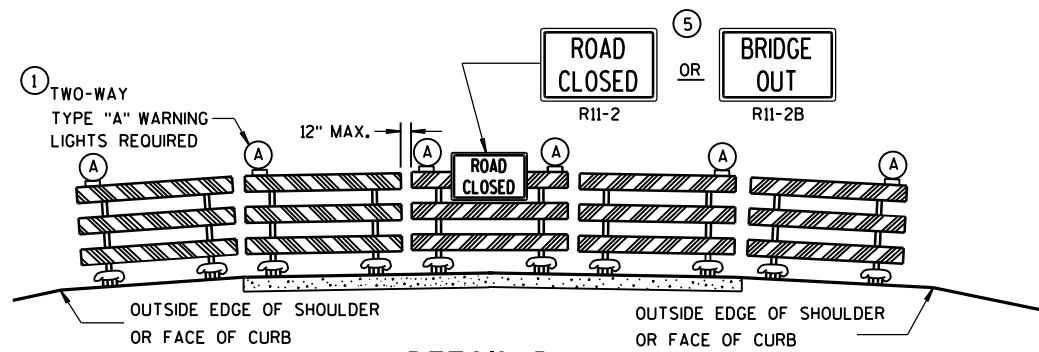
SPEED LIMIT (MPH)	"STOP AHEAD" ADVANCE WARNING DISTANCE (FT)
25	200
30	200
35	350
40	350
45	500
50	550
55	750

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

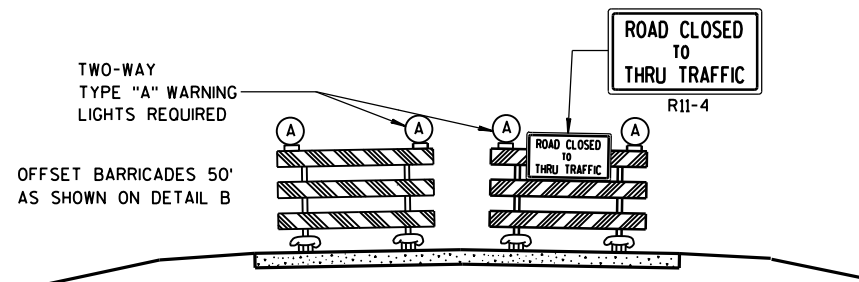
BARRICADES AND SIGNS
FOR
MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



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.

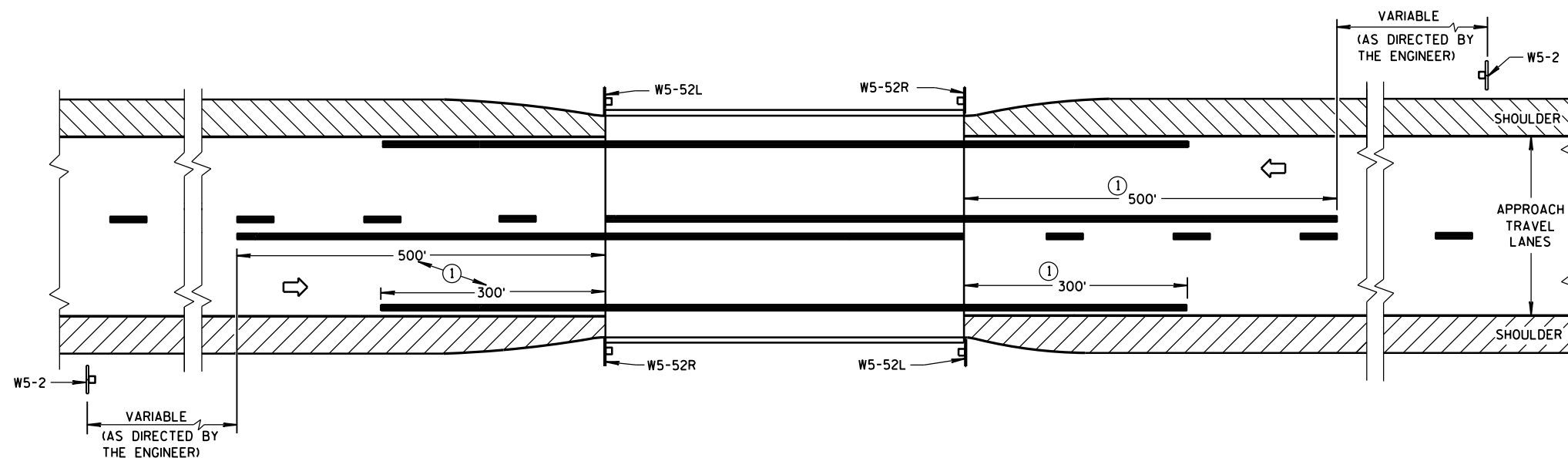
R1-1 SHALL BE 36" X 36".

- 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

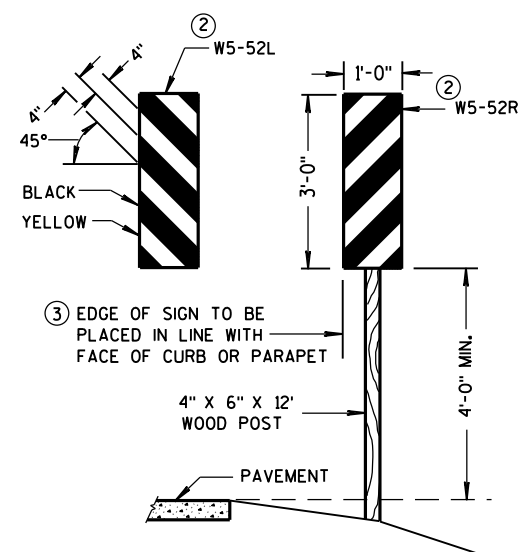
8/2013 /S/ Travis Feltes
DATE STATE TRAFFIC ENGINEER OF DESIGN
FHWA



SITUATION 1

WARRANTING CRITERIA:

BRIDGE WIDTH IS AT LEAST 18 FEET BUT LESS THAN 24 FEET



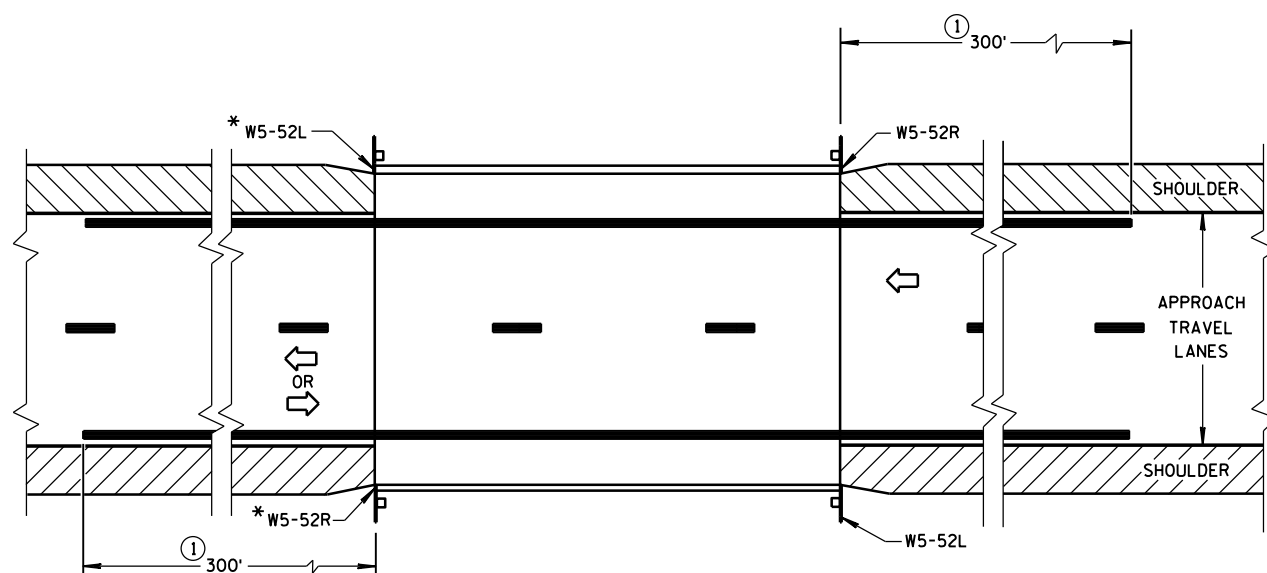
OBJECT MARKER PLACEMENT

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.

PAVEMENT MARKING SHOWN ON THIS DRAWING IS NOT REQUIRED UNLESS OTHERWISE SPECIFIED IN THE CONTRACT. WHEN SPECIFIED, PAVEMENT MARKING SHALL CONFORM TO THIS DRAWING AND OTHER CONTRACT REQUIREMENTS.

- ① MINIMUM DISTANCE UNLESS OTHERWISE SHOWN ON THE PLAN.
- ② FACE OF OBJECT MARKERS W5-52R, AND W5-52L SHALL BE COVERED WITH TYPE F REFLECTIVE SHEETING.
- ③ LOCATE OBJECT MARKER POST(S) BEHIND GUARDRAIL WHEN PRESENT.

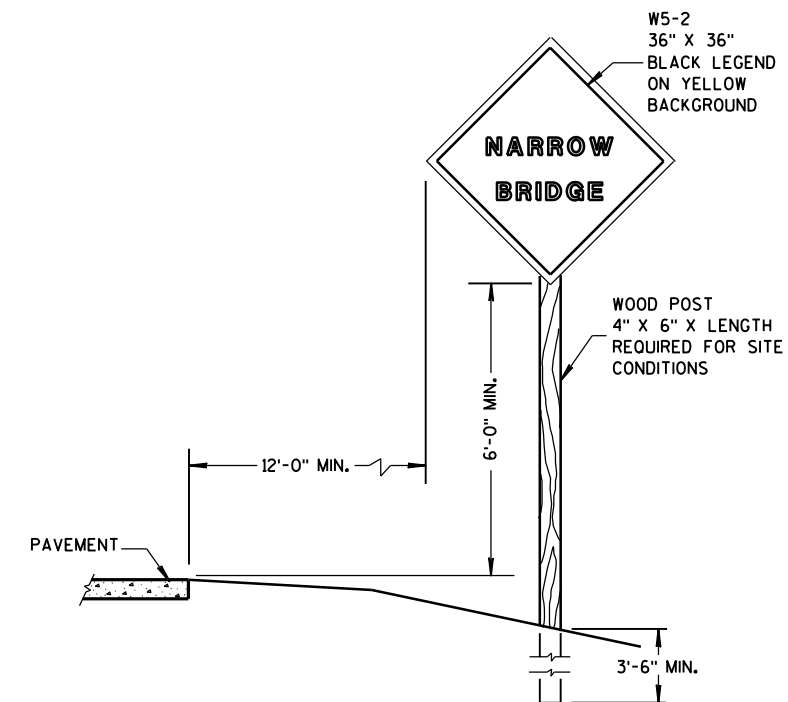


*OMIT ON ONE-WAY TRAVELLED WAYS

SITUATION 2

WARRANTING CRITERIA:

1. BRIDGE WIDTH IS AT LEAST 24 FEET AND
2. BRIDGE IS LESS THAN 6 FEET WIDER (ON EACH SIDE) THAN APPROACH TRAVEL LANES.



SIGN PLACEMENT

SIGNING & MARKING FOR TWO LANE BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/4/2013
DATE

FHWA

/S/ Travis Feltes

STATE TRAFFIC ENGINEER OF DESIGN

GENERAL NOTES

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

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

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

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

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

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

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

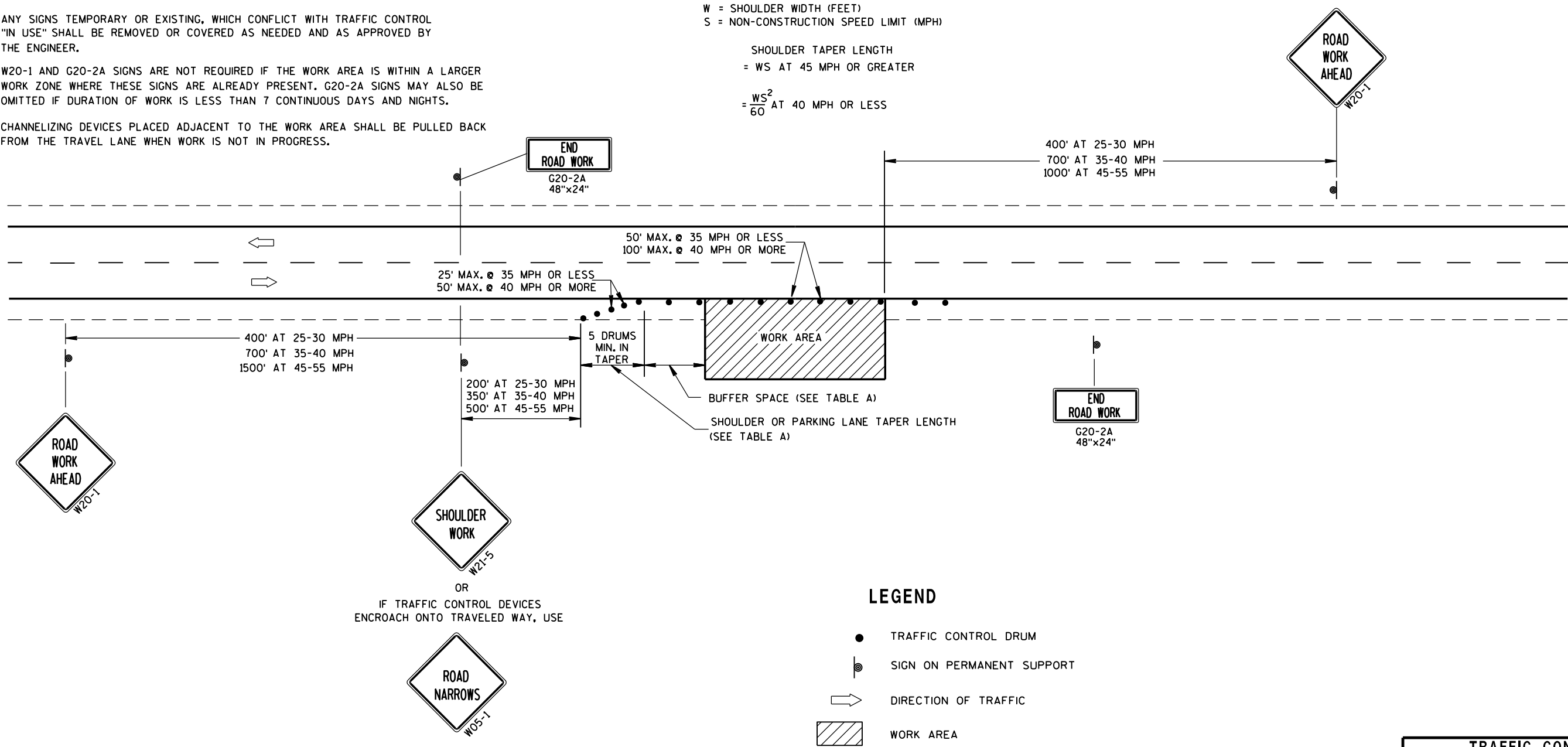
TABLE A

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

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

SHOULDER TAPER LENGTH
= WS AT 45 MPH OR GREATER

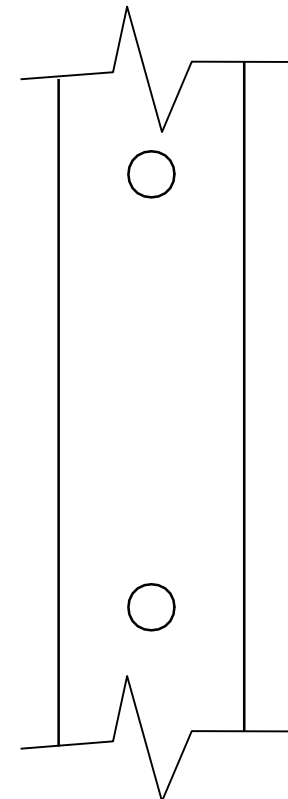
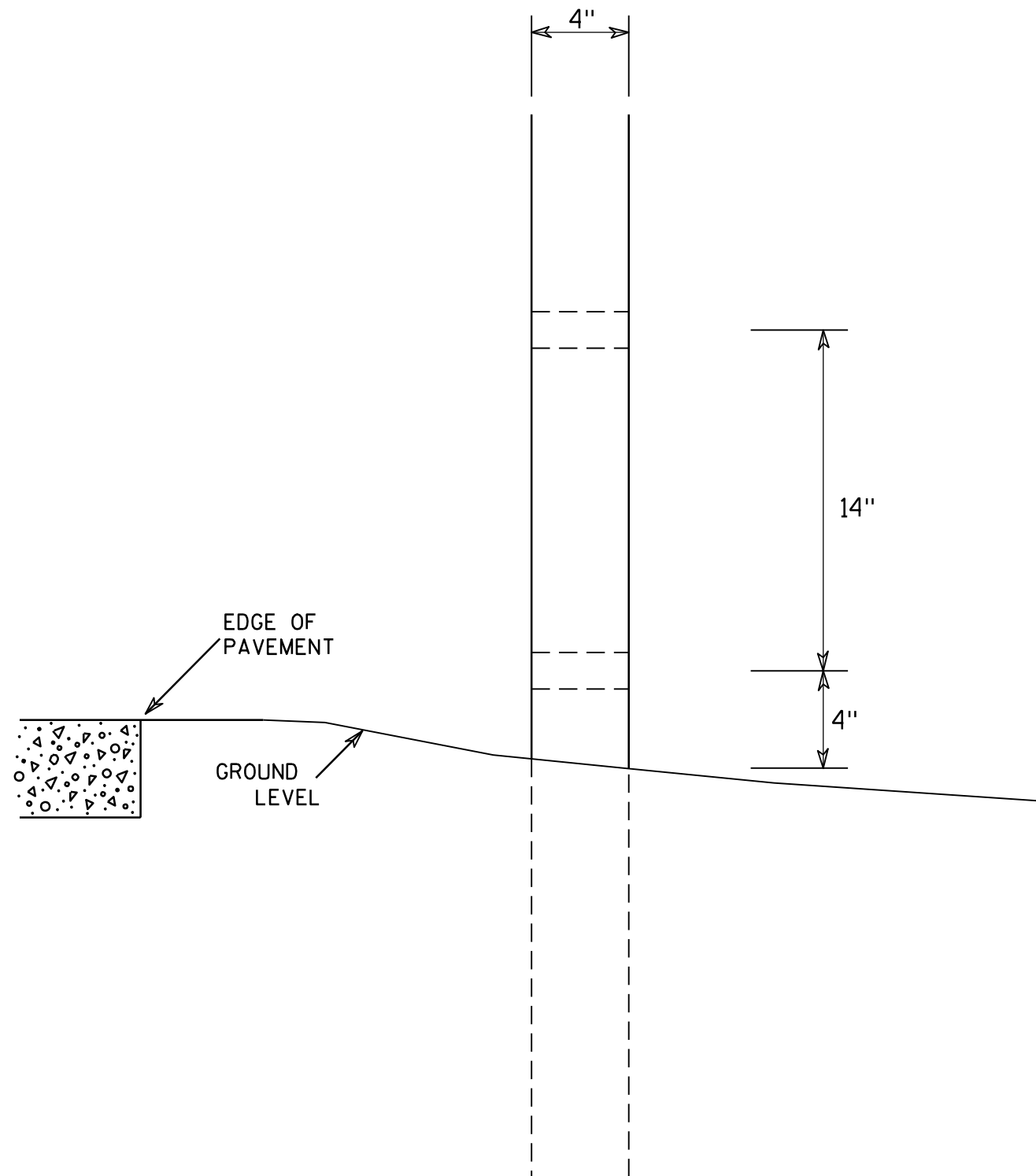
= $\frac{WS^2}{60}$ AT 40 MPH OR LESS



LEGEND

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

TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 8/2013 DATE	/S/ Travis Feltes STATE TRAFFIC ENGINEER OF DESIGN
FHWA	



SIDE VIEW

GENERAL NOTES

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

4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Chester J. Spang
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

PROJECT NO: 5108-00-74

HWY: AIRPORT ROAD

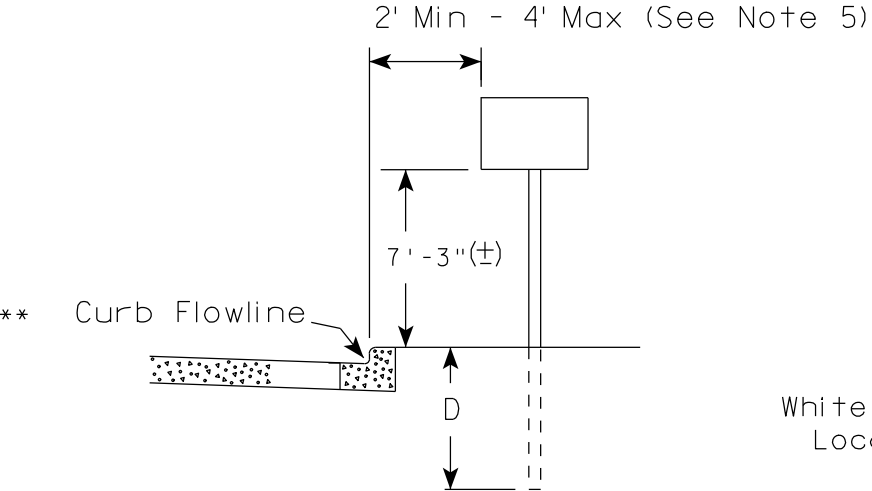
COUNTY: GRANT

SIGN PLATES

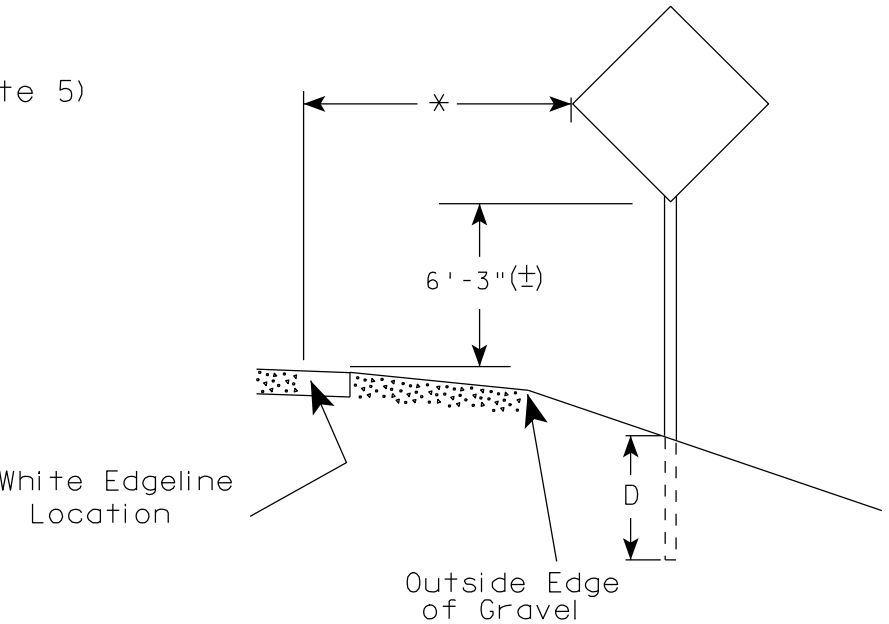
SHEET NO:

E

URBAN AREA



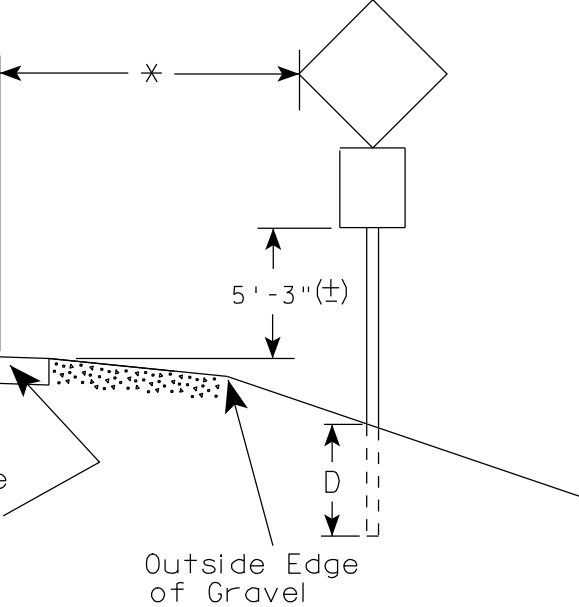
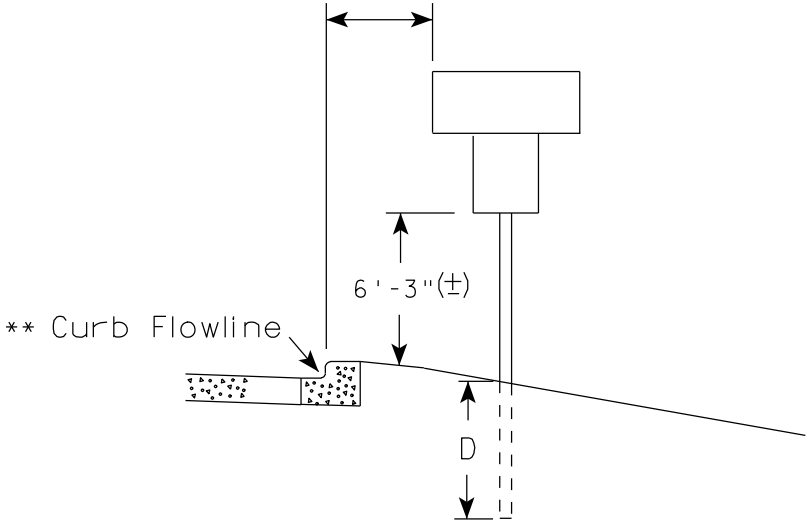
RURAL AREA (See Note 2)



GENERAL NOTES

1. Signs wider than 4 feet or larger than 20 sq. ft. 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 (A4-5) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
5. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±).
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. The (±) tolerance for mounting height is 3 inches.
8. Folding stop signs (R1-1F) shall be mounted at a height of 5'-3" (±) or as directed by the Engineer.
9. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Clearance Markers (W5-52), Mile Markers (D10 series) & End of Road Markers (W5-56 & W5-56A) shall be mounted at a height of 4'-3" (±).

2' Min - 4' Max (See Note 5)



POST EMBEDMENT DEPTH

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

✱✱ 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.

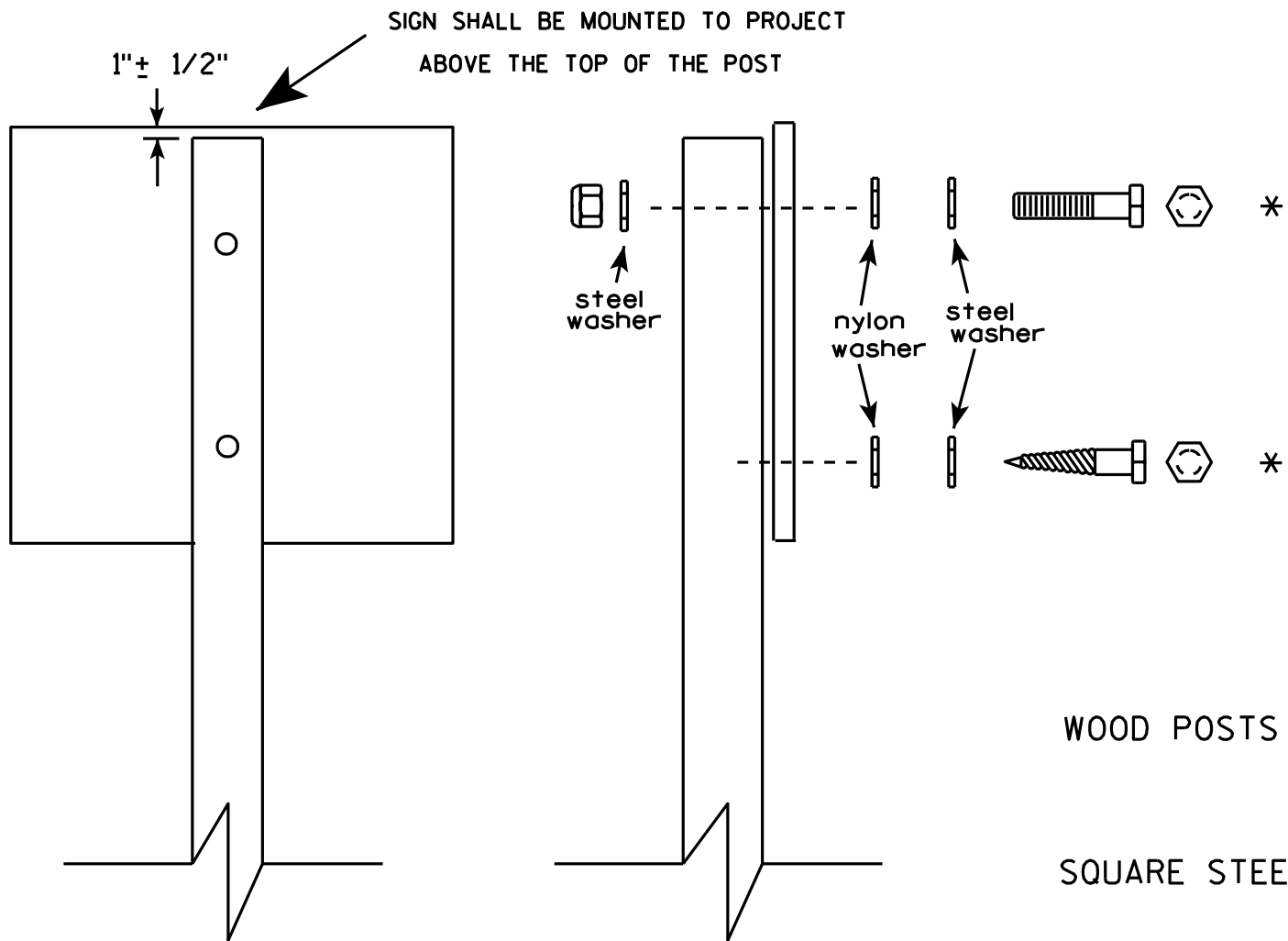
* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 9/21/2011 PLATE NO. A4-3.16

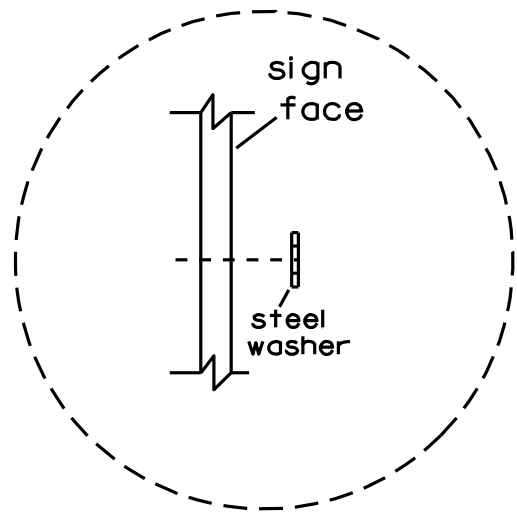


Nuts, bolts and lags used for mounting signs shall have hexagonal heads and shall be either :

- a. Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3
- b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

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

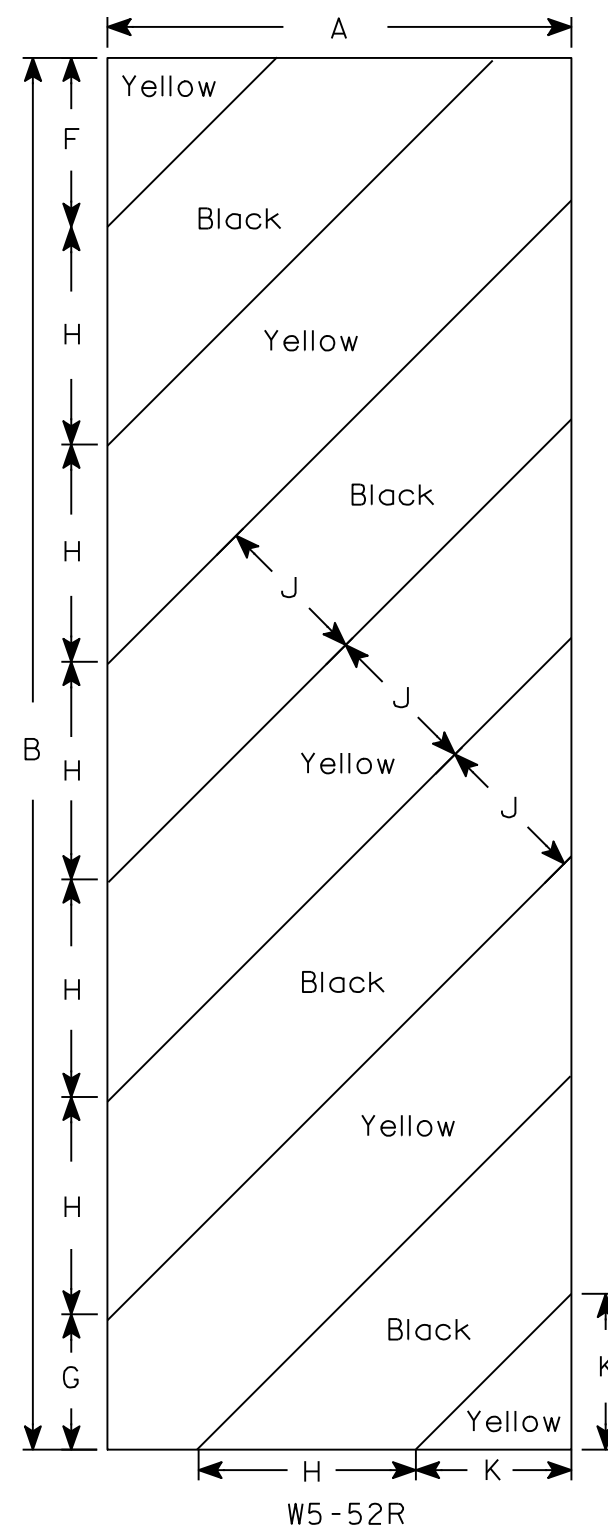
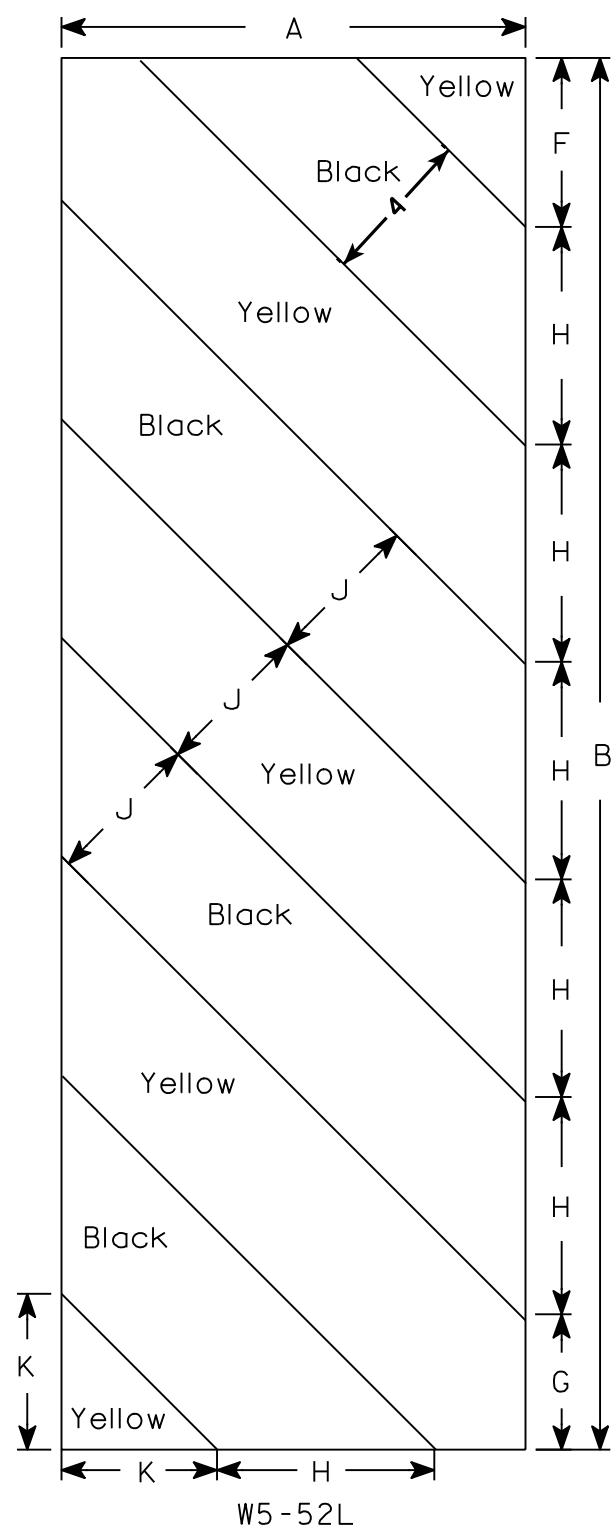
- WOOD POSTS (4" x 4" or 4" x 6")
LAG SCREWS - 3/8" X 3"
MACHINE BOLTS - 5/16" X 6-1/2" or 7" Length w/ nuts
- SQUARE STEEL POSTS (2" x 2")
MACHINE BOLTS - 3/8" X 3-1/4" Length w/ nuts
RIVETS - 9/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL
O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH
- WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON for all Type H signs.



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

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

ATTACHMENT OF SIGNS TO POSTS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 3/23/10	PLATE NO. A4-8.7



NOTES

1. Sign is Type II - Type H 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.

[illegible]

STANDARD SIGN
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer
DATE 3/22/11 PLATE NO. W5-52.8

PROJECT NO: 5108-00-74

HWY:	AIRPORT ROAD
------	--------------

COUNTY: GRANT

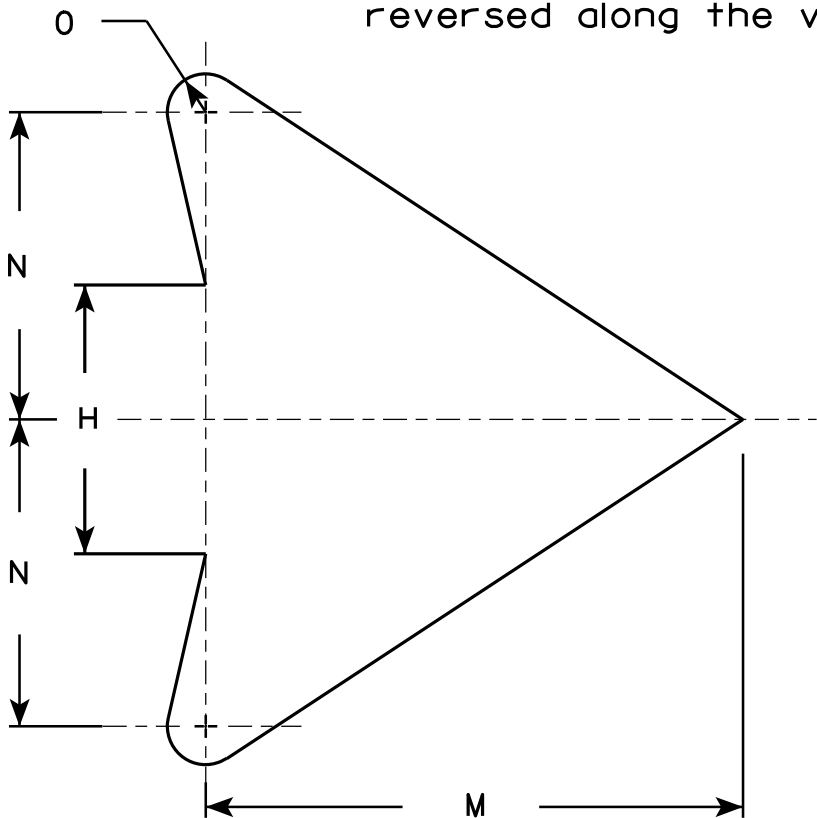
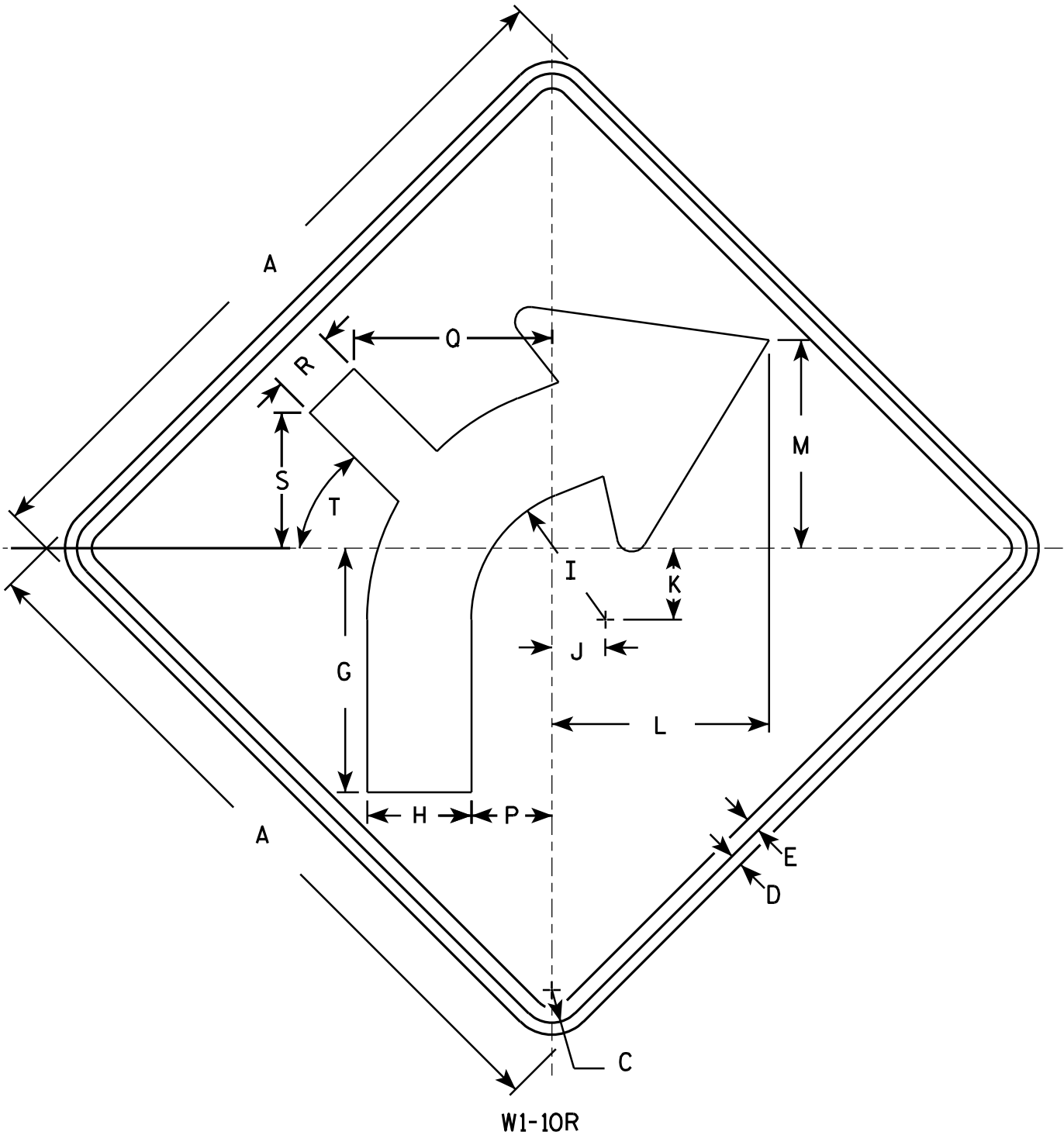
SIGN PLATES

SHEET NO:

E

NOTES

- 1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- 2. Color:
Background - Yellow
Message - Black
- 3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- 4. W1-10L is the same as W1-10R except the arrow is reversed along the vertical centerline.



ARROW DETAIL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24		1 1/8	3/8	1/2		8 1/4	3 1/2	4 1/2	1 3/4	2 3/8	7 1/4	7	4	1/2	2 5/8	6 5/8	2 1/8	4 1/2	45°							4.0
2S	30		1 3/8	1/2	5/8		10 1/4	4 3/8	5 5/8	2 1/4	3	9 1/8	8 3/4	5	5/8	3 3/8	8 3/8	2 5/8	5 3/4	45°							6.25
2M	36		1 5/8	5/8	3/4		12 3/8	5 1/4	6 3/4	2 5/8	3 1/2	10 7/8	10 1/2	6	3/4	4	10	3 1/4	6 7/8	45°							9.0
3	36		1 5/8	5/8	3/4		12 3/8	5 1/4	6 3/4	2 5/8	3 1/2	10 7/8	10 1/2	6	3/4	4	10	3 1/4	6 7/8	45°							9.0
4	36		1 5/8	5/8	3/4		12 3/8	5 1/4	6 3/4	2 5/8	3 1/2	10 7/8	10 1/2	6	3/4	4	10	3 1/4	6 7/8	45°							9.0
5	48		2 1/4	3/4	1		16 1/2	7	9	3 1/2	4 5/8	14 1/2	14	8	1	5 3/8	13 1/4	4 1/4	9 1/8	45°							16.0

STANDARD SIGN
W1-10

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 5/17/12 PLATE NO. W1-10.3

INDICATES WING NUMBER
INDICATES RIPRAP HEAVY EXTENTS

STATE PROJECT NUMBER

5108-00-74

DESIGN DATA

LIVE LOAD:
DESIGN RATING _____ HL-93
INVENTORY RATING FACTOR _____ RF=1.143
OPERATING RATING FACTOR _____ RF=1.481
MAXIMUM STANDARD PERMIT
VEHICLE (WS-SPV) _____ 250 Kips

STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 P.S.F.

ULTIMATE DESIGN STRESSES:

CONCRETE MASONRY, SLAB _____ $f'_c = 4,000$ P.S.I.
ALL OTHER _____ $f'_c = 3,500$ P.S.I.
HIGH STRENGTH BAR STEEL
REINFORCEMENT, GRADE 60 _____ $F_y = 60,000$ P.S.I.

FOUNDATION DATA

ABUTMENTS TO BE SUPPORTED ON PILING STEEL HP 12-INCH x 53 LB. WITH A REQUIRED DRIVING RESISTANCE OF 220 TONS* PER PILE. ESTIMATE 25' ABUT. BODY PILE LENGTHS AND 25' WING PILE LENGTHS.

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

HYDRAULIC DATA

100 YEAR FREQUENCY
DRAINAGE AREA _____ 5.14 SQ. MI.
 Q_{100} TOTAL _____ 1670 C.F.S.
THROUGH STRUCTURE _____ 1670 C.F.S.
OVERTOPPING ROADWAY _____ 0 C.F.S.
VELOCITY - THROUGH STRUCTURE _____ 5.36 F.P.S.
WATERWAY AREA - THROUGH STRUCTURE _____ 312 SQ.FT.
HIGH WATER $_{100}$ ELEVATION _____ 714.00
OVERFLOW FREQUENCY _____ > 100 YEAR
SCOUR CRITICAL CODE _____ 8
EROSION CONTROL
 Q_2 TOTAL _____ 250 C.F.S.
HIGH WATER $_2$ ELEVATION _____ 710.35
ESTIMATED PLATE RIVER
H.W. $_{100}$ ELEVATION _____ 718.00

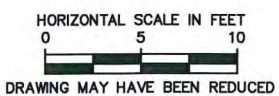
SEE EROSION CONTROL PLAN FOR LOCATION OF EROSION MAT.

LIST OF DRAWINGS

1. GENERAL PLAN
2. CROSS SECTIONS AND QUANTITIES
3. SUBSURFACE EXPLORATION
4. SOUTH ABUTMENT
5. SOUTH ABUTMENT DETAILS
6. NORTH ABUTMENT
7. NORTH ABUTMENT DETAILS
8. ABUTMENT DETAILS
9. SUPERSTRUCTURE
10. RAILING TUBULAR TYPE M

BENCH MARKS

NO.	STATION/OFFSET	DESCRIPTION	ELEVATION
1	8+21.26 57.45' R	CHISELED SQUARE ON NE COR HEADWALL, OF CONC. BOX CULVERT	716.75
2	11+42.38 286.78' L	MAG NAIL WITH ORANGE PLASTIC WASHER SET IN POST	720.76



RAILING TUBULAR TYPE M

PLAN B-22-0280
(SINGLE-SPAN REINFORCED CONCRETE SLAB STRUCTURE)

RIPRAP HEAVY LAYOUT TABLE

POINT	STATION	OFFSET
A	9+87	16.2L
B	9+99	17.5L
C	9+95	14.9R
D	10+08	14.5R
E	10+30	14.9L
F	10+23	14.3L
G	10+32	16.8R
H	10+37	22.2R
I	10+48	28.6R
J	10+52	25.7R

DESIGN SPECIFICATIONS

AASHTO LRFD SPEC. 2012

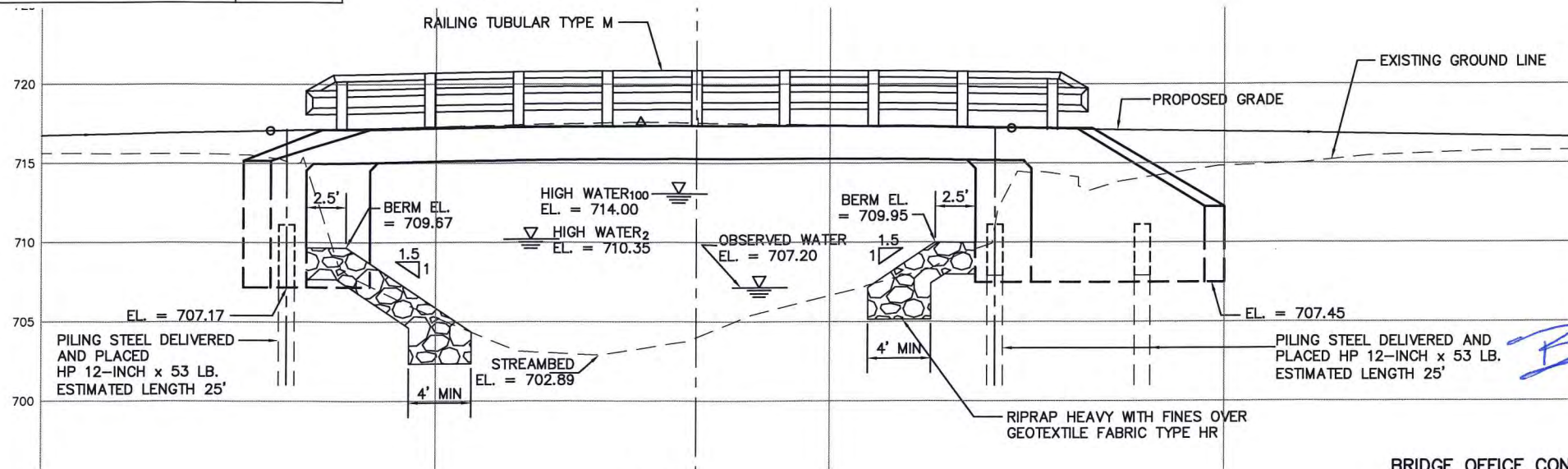
TRAFFIC DATA

A.D.T. (2013) _____ 75
A.D.T. (2033) _____ 95
DESIGN SPEED _____ 25 M.P.H.



BRIDGE OFFICE CONTACT
WILLIAM DREHER
(608) 261-8205

DESIGN CONSULTANT
BRADLEY J. MOOTZ, PE
(563) 556-2464



ELEVATION
(NORMAL TO BRANCH OF PLATTE RIVER FLOOD FLOWS)

NO.	DATE	REVISION	BY
iiw INTEGRITY. EXPERTISE. SOLUTIONS. DUBUQUE, IA DUBUQUE, IA 4155 PENNSYLVANIA AVE. 1151 BADGER RD. DUBUQUE, IA 52002 HAZEL GREEN, WI 53811 800-556-4491 www.iwengr.com			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED		02/04/14 WILLIAM C. DREHER CHIEF STRUCTURES DESIGN ENGINEER	
STRUCTURE B-22-0280			
AIRPORT ROAD OVER BRANCH PLATTE RIVER			
COUNTY	GRANT	TOWN/CITY/VILLAGE	ELLENBORO
DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS			
DESIGNED BY	BJM	DESIGN CK'D.	CEW
DRAWN BY	DJS	PLANS CK'D.	JPN
GENERAL PLAN			SHEET 1 OF 10

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

THE SLOPE OF FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH RIPRAP HEAVY WITH FINES AND GEOTEXTILE FABRIC - TYPE "HR" TO THE EXTENT SHOWN ON THIS SHEET AND IN THE ABUTMENT DETAILS.

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 SPECIAL.

AT ABUTMENTS, CONCRETE POURED UNDER WATER WILL BE ALLOWED AND SHALL BE DONE IN ACCORDANCE WITH SECTION 502.3.5.3 OF THE STANDARD SPECIFICATIONS.

THE EXISTING STRUCTURE (P-22-0253) IS A SINGLE-SPAN CONCRETE DECK, STEEL GIRDER STRUCTURE SUPPORTED ON CONCRETE FULL RETAINING ABUTMENTS 36' OVERALL LENGTH BY 16' CLEAR ROADWAY WIDTH WHICH SHALL BE REMOVED.

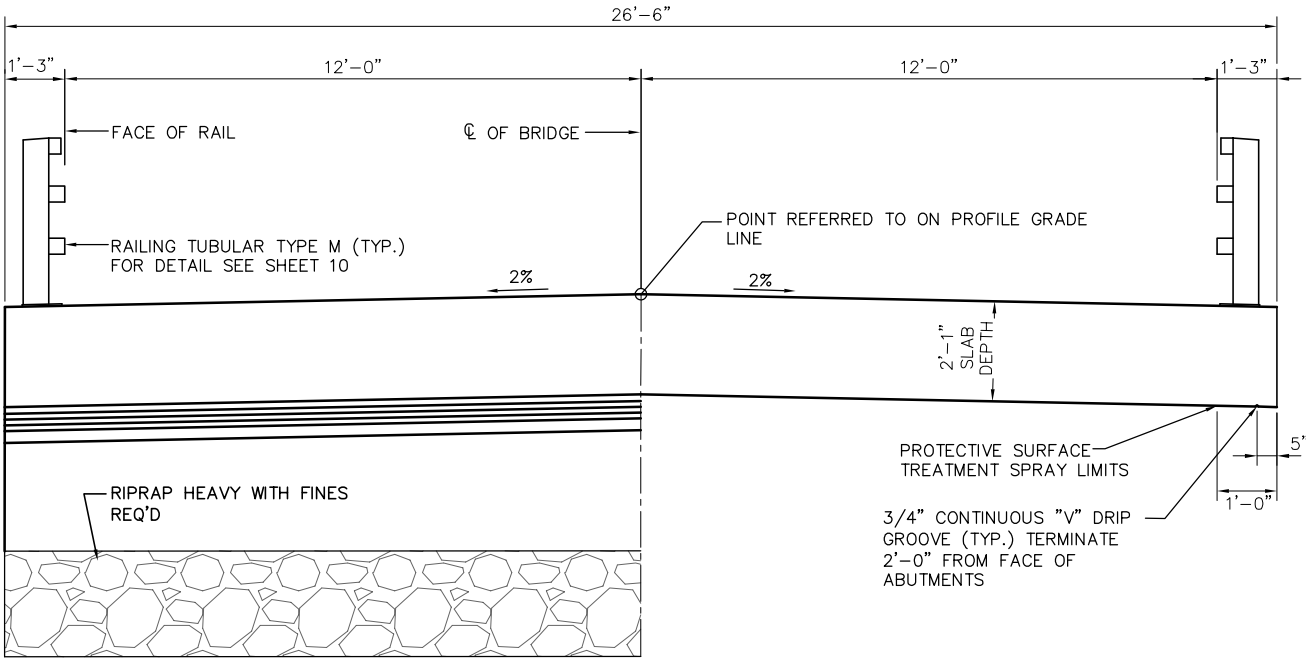
SLAB FALSEWORK SHALL BE SUPPORTED ON PILES OR THE SUBSTRUCTURE UNLESS AN ALTERNATE METHOD IS APPROVED BY THE ENGINEER.

PROTECTIVE SURFACE TREATMENT IS TO BE APPLIED TO THE TOP AND SIDES OF THE DECK, TOP OF WINGS AND UNDER STRUCTURE IN AREA OF DRIP EDGE AS SHOWN (CONCRETE MATERIAL ONLY).

ALL STATIONS & ELEVATIONS SHOWN ARE IN FEET.

THE UPPER LIMITS OF EXCAVATION FOR STRUCTURES FOR THE ABUTMENTS SHALL BE THE BOTTOM OF SLOPE PROTECTION.

THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

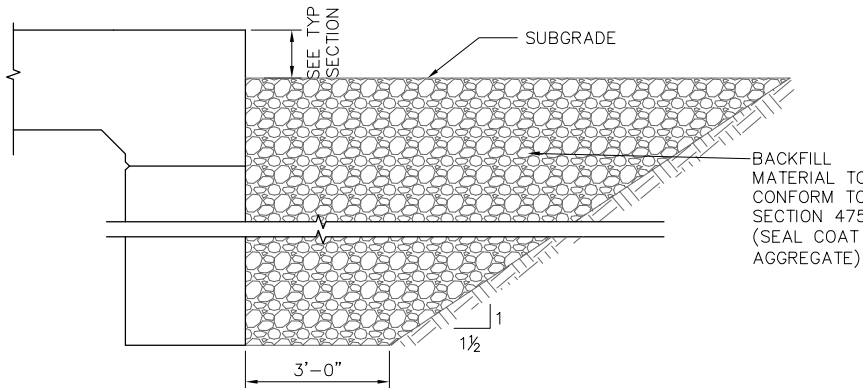


AT ABUT.

IN SPAN

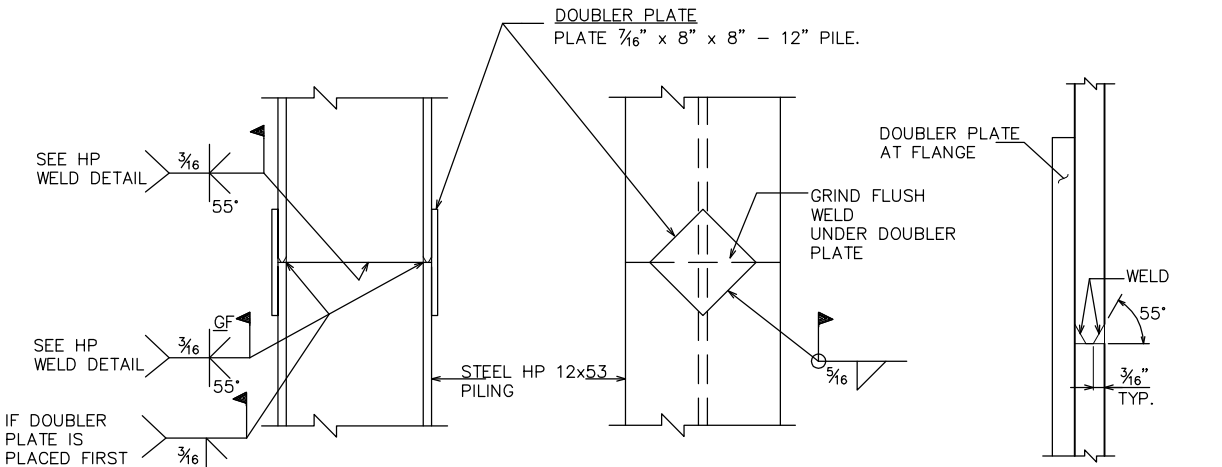
CROSS SECTION THROUGH ROADWAY

LOOKING NORTH

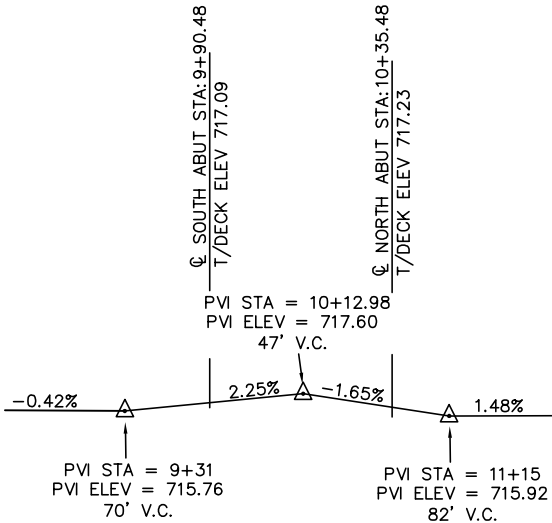


BACKFILL STRUCTURE SPECIAL DETAIL

(TYPICAL AT BOTH ABUTMENTS)



STEEL 'HP' SHAPES




PROPOSED GRADE ON AIRPORT RD

NOT TO SCALE

PILE RESISTANCE			
PILE SIZE	SHELL THICKNESS	FACTORED	REQUIRED
		AXIAL COMPRESSION RESISTANCE (Pr) (TONS)	DRIVING RESISTANCE (Rn _{dyn}) (TONS)
12x53	NA	110	220

TOTAL ESTIMATED QUANTITIES						
BID ITEM NUMBER	BID ITEMS	UNIT	N. ABUT	SUPER.	S. ABUT.	TOTAL
203.0700.S	Removing Old Structure Over Waterway With Debris Capture System (STA 10+11.20)	LS	-	-	-	1
206.1000	Excavation for Structures Bridges (B-22-0280)	LS	-	-	-	1
502.0100	Concrete Masonry Bridges	CY	36	102	35	173
502.3200	Protective Surface Treatment	SY	-	175	-	175
505.0405	Bar Steel Reinforcement HS Bridges	LB	2330	-	2320	4650
505.0605	Bar Steel Reinforcement HS Coated Bridges	LB	1580	16630	1510	19720
513.4060	Railing Tubular Type M (B-22-0280)	LS	-	-	-	1
516.0500	Rubberized Membrane Waterproofing	SY	6	-	6	12
550.0500	Pile Points	EACH	9	-	9	18
550.1120	Piling Steel HP 12-Inch X 53 Lb	LF	225	-	225	450
612.0406	Pipe Underdrain Wrapped 6-Inch	LF	70	-	70	140
SPV.0035.01	Backfill Structure Special	CY	93	-	84	177
SPV.0035.02	Riprap Heavy with Fines	CY	31	-	34	65
645.0120	Geotextile Fabric Type HR	SY	31	-	41	72
	Non Bid-items					
	Filler	SIZE	-	-	-	1/2" & 3/4"
	Name Plate	EACH				1

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		DUBUQUE, IA		HAZEL GREEN, WI
		4155 PENNSYLVANIA AVE.		1151 BADGER RD.
		DUBUQUE, IA 52002		HAZEL GREEN, WI 53811
		800-556-4491		
		www.iiwengr.com		
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION				
STRUCTURE B-22-0280				
		DRAWN BY DJS		PLANS CK'D.
CROSS SECTION AND QUANTITIES				SHEET 2 OF 10

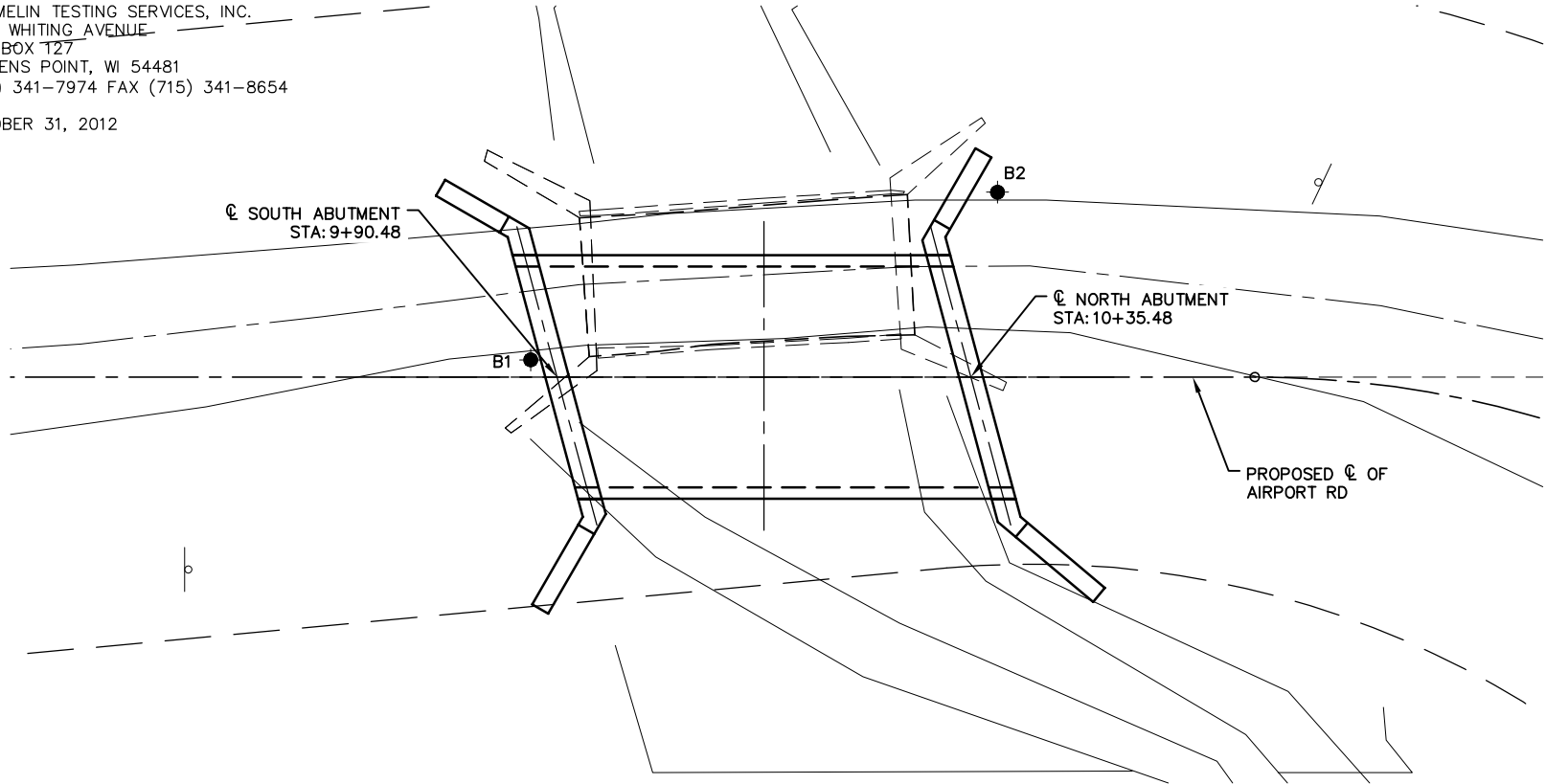
SOIL BORINGS

BY: NUMMELIN TESTING SERVICES, INC.
3217 WHITING AVENUE
P.O. BOX 127
STEVENS POINT, WI 54481
(715) 341-7974 FAX (715) 341-8654

ON: OCTOBER 31, 2012

STATE PROJECT NUMBER

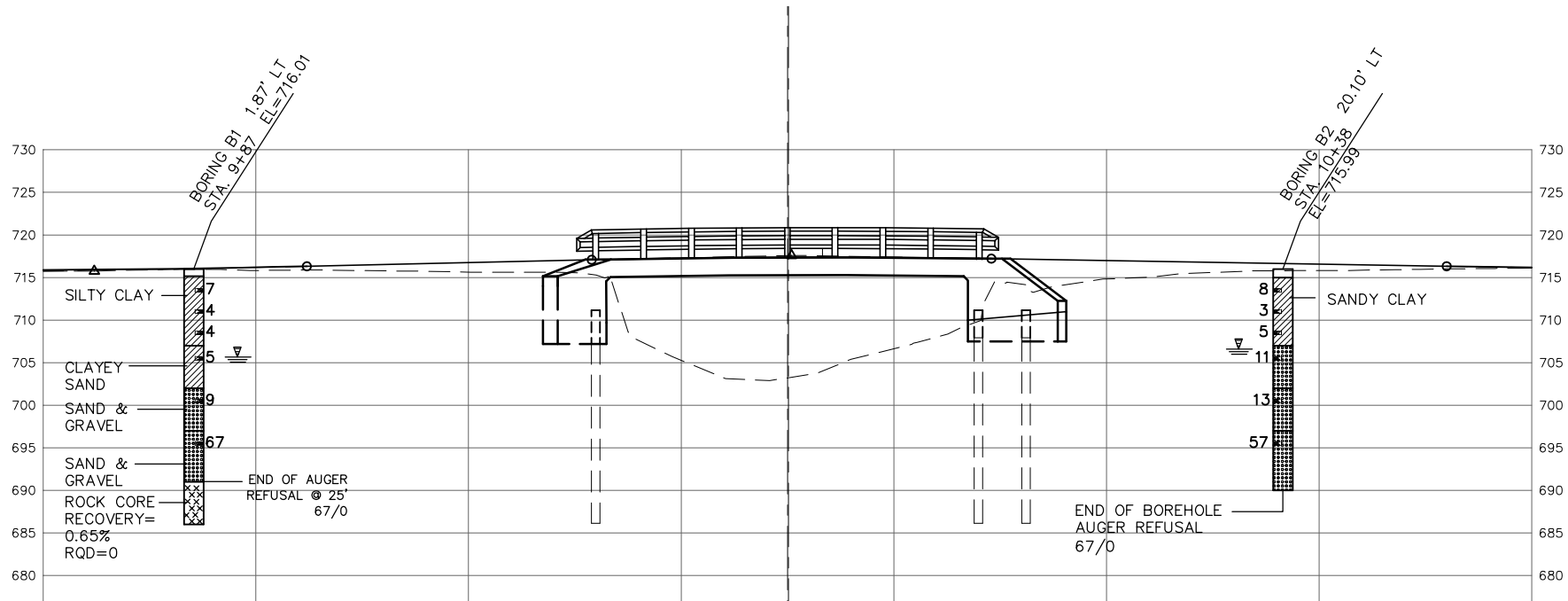
5108-00-74



PLAN B-22-0280
(SINGLE-SPAN REINFORCED CONCRETE SLAB BRIDGE)

BENCH MARKS

NO.	STATION/ OFFSET	DESCRIPTION	ELEVATION
1	8+21.26 57.45' R	CHISELED SQUARE ON NE COR HEADWALL, OF CONC. BOX CULVERT	716.75
2	11+42.38 286.78' L	MAG NAIL WITH ORANGE PLASTIC WASHER SET IN POST	720.76



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

MATERIAL SYMBOLS
TOPSOIL SILT SANDSTONE
SAND PEAT LIMESTONE
GRAVEL CLAY IGNEOUS ROCK

LEGEND OF PROBING
PROBING NO.
STA.
ELEVATION
95/6=95 BLOWS FOR 6"
PENETRATION
PROBING TAKEN WITH
A 350# WT.
FALLING 18" ON A 2"
O.D. POINT.
7 AVERAGE BLOWS PER FOOT
REFUSAL 95/6

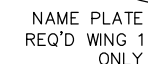
LEGEND OF BORING
BORING NO.
STA.
ELEV.
UNCONFINED
STRENGTH 7.7
BLOWS PER FT.
USING 140# WT.
FALLING 30"
WASH SAMPLE
SHELBY TUBE S.T.
GROUND WATER
ELEVATION
NO GROUND WATER
OBSERVED ABOVE
THIS ELEVATION
FILL
SILT
LEAN CLAY
LIMESTONE

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

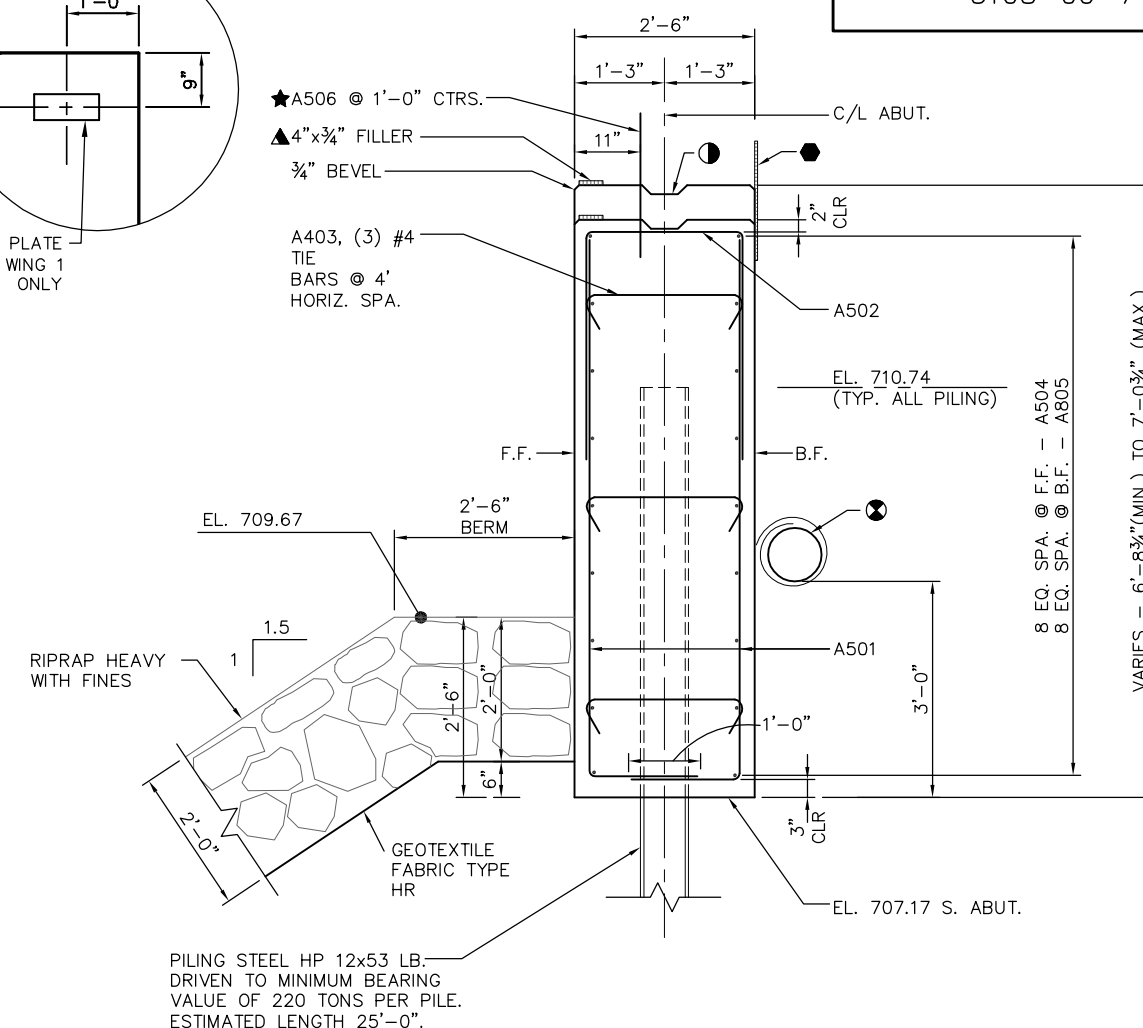
SUBSURFACE EXPLORATION FOR FOUNDATION
DESIGN AND BIDDERS INFORMATION

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

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INTEGRITY. EXPERTISE. SOLUTIONS. DUBUQUE, IA HAZEL GREEN, WI 4155 PENNSYLVANIA AVE. 1151 BADGER RD. DUBUQUE, IA 52002 HAZEL GREEN, WI 53811 800-556-4491 www.iwengr.com			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-22-0280			
DRAWN BY DJS		PLANS CK'D.	
SUBSURFACE EXPLORATION		SHEET 3 OF 10	



ELEVATION
(SOUTH ABUTMENT LOOKING SOUTH)



TYPICAL SECTION THROUGH ABUTMENT

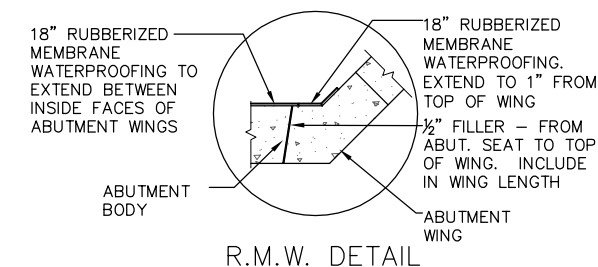
NOTES


1. SOME BARS HAVE BEEN OMITTED FOR CLARITY. SEE SHEET 7 FOR BILL OF BARS.
2. DO NOT PLACE FILL ABOVE 3'-0" FROM BOTTOM OF ABUTMENT UNTIL SUPERSTRUCTURE IS IN PLACE.
3. SPACE A403 BARS TO MISS PILING.
4. BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

F.F. = FRONT FACE
B.F. = BACK FACE

LEGEND

- ① KEYED CONSTRUCTION JOINT FORMED BY SURFACED & BEVELED 2x6
- ☑ VERTICAL 18" RUBBERIZED MEMBRANE WATERPROOFING, EXTEND FROM 9" BELOW BRIDGE SEAT TO 1" BELOW TOP OF WINGS.
- 18" RUBBERIZED MEMBRANE WATERPROOFING (HORIZONTAL)
- ▲ ½" FILLER EXTEND AS SHOWN. SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONC.)
- ▲ 4"x¾" FILLER, EXTEND FULL LENGTH OF ABUTMENTS BETWEEN EDGES OF SLAB.
- ★ A506 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE . EMBED BAR 1'-0".
- ⊗ PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN. SEE DETAIL ON ABUTMENT DETAIL SHEET.
- PILE SPACING MEASURED AT BASE OF SHAFT.
- SEAL ALL EXPOSED HORIZ. AND VERT. SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONC.)



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STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-22-0280			
		DRAWN BY DJS	PLANS CK'D.
SOUTH ABUTMENT		SHEET 4 OF 1	

COATED 1511 LBS., UNCOATED 2317 LBS.

BILL OF BARS (SOUTH ABUTMENT)

MARK	COAT	NO. REQ'D	LENGTH	BENT	LOCATION
A501		64	7'-9"	X	BODY, VERT., F.F. & B.F.
A502		32	10'-7"	X	BODY, TOP
A403		24	2'-9"	X	TIE BARS
A504		9	32'-2"		BODY, HORIZ., F.F.
A805		18	22'-11"	X	BODY, HORIZ., B.F.
A506	X	27	2'-0"		BODY, VERT., DOWELS
A407	X	28	10'-7"	X	WING 1, VERT.
A408	X	3	9'-5"		WING 1, VERT.
A509	X	9	13'-7"	X	WING 1, HORIZ., F.F.
A410	X	1	12'-5"	X	WING 1, HORIZ., TOP, F.F.
A411	X	1	9'-8"	X	WING 1, HORIZ., TOP, F.F.
A412	X	1	6'-10"	X	WING 1, HORIZ., TOP, F.F.
A413	X	1	12'-3"	X	WING 1, TOP, F.F.
A414	X	4	6'-0"		WING 1, HORIZ., TOP
A415	X	1	12'-0"		WING 1, HORIZ., TOP, B.F.
A416	X	1	9'-3"		WING 1, HORIZ., TOP, B.F.
A417	X	1	6'-5"		WING 1, HORIZ., TOP, B.F.
A418	X	1	13'-1"	X	WING 1, TOP, B.F.
A819	X	9	14'-8"	X	WING 1, HORIZ., B.F.
A420	X	24	11'-0"	X	WING 2, VERT.
A421	X	3	9'-3"		WING 2, VERT.
A522	X	9	11'-7"	X	WING 2, HORIZ., F.F.
A423	X	2	11'-7"	X	WING 2, HORIZ., F.F.
A424	X	1	8'-5"	X	WING 2, HORIZ., F.F.
A425	X	1	10'-3"	X	WING 2, TOP, F.F.
A826	X	9	12'-8"	X	WING 2, HORIZ., B.F.
A427	X	2	11'-4"		WING 2, HORIZ., B.F.
A428	X	1	8'-2"		WING 2, HORIZ., B.F.
A429	X	1	11'-6"	X	WING 2, HORIZ., TOP, B.F.
A430	X	2	4'-0"		WING 1 & 2, VERT., TOP
A431	X	4	7'-1"	X	WING 2, HORIZ., TOP

NOTES:

- SPACE A407 BARS TO MISS PILING.
- THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE. DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR. * LENGTH SHOWN IS AN AVERAGE LENGTH ONLY. SEE BAR SERIES TABLE FOR ACTUAL BAR LENGTH.

BAR SERIES TABLE

MARK	NO. REQ'D	LENGTH
A407	2 SERIES OF 14	9'-3" TO 11'-11"
A420	2 SERIES OF 12	10'-3" TO 11'-9"

MARK	A	B
A413	165'13'	2'-2"
A418	165'12'	3'-0"
A425	169'21'	2'-4"
A429	169'21'	3'-6"

PLAN VIEW - WING 2

A805, A509, A410,
A411, A412, A819,
A522, A423, A424,
A826

A413, A418, A425, A429

A407 & A420

A403

A414

A501

A431

A502

F.F. ELEVATION - WING 1

SECTION A-A

B.F. ELEVATION - WING 1

PLAN VIEW - WING 1


F.F. ELEVATION - WING 2

SECTION B-B

B.F. ELEVATION - WING 2



- KEED CONSTRUCTION JOINT FORMED BY SURFACED & BEVELED 2x6
- VERTICAL 18" RUBBERIZED MEMBRANE WATERPROOFING, EXTEND FROM 9" BELOW BRIDGE SEAT TO 1" BELOW TOP OF WINGS.
- 18" RUBBERIZED MEMBRANE WATERPROOFING (HORIZONTAL)
- ▲ ½" FILLER EXTEND AS SHOWN. SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ½" BELOW SURFACE OF CONC.)
- ▲ 4"x¾" FILLER, EXTEND FULL LENGTH OF ABUTMENTS BETWEEN EDGES OF SLAB.
- ★ B506 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE IT HAS TAKEN ITS INITIAL SET. EMBED BAR 1'-0".
- PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN. SEE DETAIL ON ABUTMENT DETAIL SHEET.
- PILE SPACING MEASURED AT BASE OF SHAFT.
- SEAL ALL EXPOSED HORIZ. AND VERT. SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ½" BELOW SURFACE OF CONC.)

NO.	DATE	REVISION	BY
 <div> <p>INTEGRITY. EXPERTISE. SOLUTIONS.</p> <hr/> <p>DUBUQUE, IA HAZEL GREEN, WI 4155 PENNSYLVANIA AVE. 1151 BADGER RD. DUBUQUE, IA 52002 HAZEL GREEN, WI 53811 800-556-4491 www.iiwengr.com</p> </div>			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-22-0280			
DRAWN BY		PLANS	
DJS		CK'D.	
NORTH ABUTMENT		SHEET 6 OF 10	

COATED 1576 LBS., UNCOATED 2332 LBS.

BILL OF BARS (NORTH ABUT)

MARK	COAT	NO. REQ'D	LENGTH	BENT	LOCATION
B501		64	7'-8"	X	BODY, VERT., F.F. & B.F.
B502		32	10'-7"	X	BODY, TOP
B403		24	2'-9"	X	BODY TIE BARS
B504		9	31'-9"		BODY, HORIZ., F.F.
B805		18	23'-5"	X	BODY, HORIZ., B.F.
B506	X	27	2'-0"		BODY, VERT., DOWELS
B407	X	26	11'-2"	X	WING 3, VERT.
B408	X	3	9'-2"		WING 3, VERT.
B509	X	9	12'-5"	X	WING 3, HORIZ., F.F. LOWER
B410	X	2	12'-5"	X	WING 3, HORIZ., TOP, F.F.
B411	X	1	9'-6"	X	WING 3, HORIZ., TOP, F.F.
B412	X	1	11'-0"	X	WING 3, HORIZ., TOP, F.F.
B413	X	4	6'-0"	X	WING 3, HORIZ., TOP
B414	X	2	12'-0"		WING 3, HORIZ., TOP, B.F.
B415	X	1	9'-4"		WING 3, HORIZ., TOP, B.F.
B416	X	1	11'-10"	X	WING 3, HORIZ., TOP, B.F.
B817	X	9	13'-7"	X	WING 3, HORIZ., B.F. LOWER
B418	X	32	9'-3"	X	WING 4, VERT.
B419	X	3	9'-1"		WING 4, VERT.
B520	X	6	14'-6"	X	WING 4, HORIZ., F.F. LOWER
B521	X	3	12'-3"	X	WING 4, HORIZ., F.F. LOWER
B422	X	3	8'-0"	X	WING 4, HORIZ., TOP, F.F.
B423	X	1	13'-10"	X	WING 4, HORIZ., F.F.
B824	X	6	16'-2"	X	WING 4, HORIZ., B.F.
B825	X	3	13'-10"	X	WING 4, HORIZ., B.F.
B426	X	3	7'-10"		WING 4, HORIZ., TOP, B.F.
B427	X	1	15'-8"	X	WING 4, HORIZ., TOP, B.F.
B428	X	2	4'-0"		WING 3 & 4, VERT., TOP
B429	X	4	6'-10"	X	WING 4 HORIZ., TOP

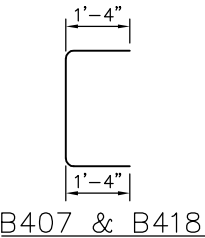
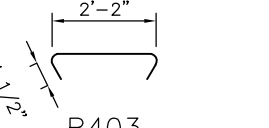
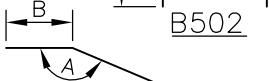
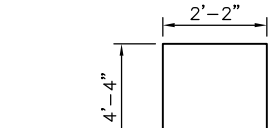
NOTES:

- SPACE B407 & B418 BARS TO MISS PILING.
- THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE. DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR. * LENGTH SHOWN IS AN AVERAGE LENGTH ONLY. SEE BAR SERIES TABLE FOR ACTUAL BAR LENGTH.

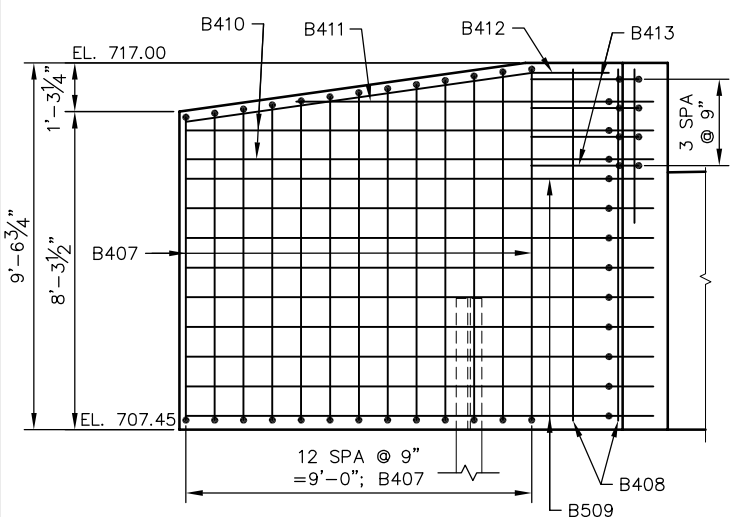
BAR SERIES TABLE

MARK	NO. REQ'D	LENGTH
B407	2 SERIES OF 13	10'-6" TO 11'-9"
B418	2 SERIES OF 16	7'-0" TO 11'-7"
B521	1 SERIES OF 3	10'-5" TO 14'-1"
B422	1 SERIES OF 3	5'-10" TO 10'-3"
B825	1 SERIES OF 3	12'-0" TO 15'-7"
B426	1 SERIES OF 3	6'-0" TO 9'-7"

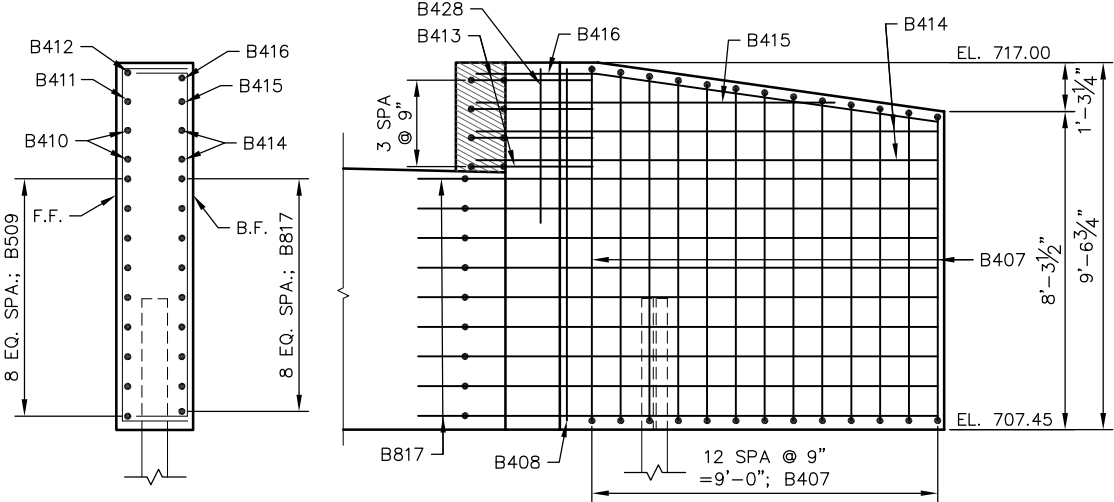
MARK	A	B
B412	171'58"	2'-0"
B416	171'58"	3'-0"
B423	156'56"	2'-4"
B427	156'54"	4'-0"



45' - WING 3
35' - WING 4
B805, B509, B410, B817,
B520, B521 B824, B825

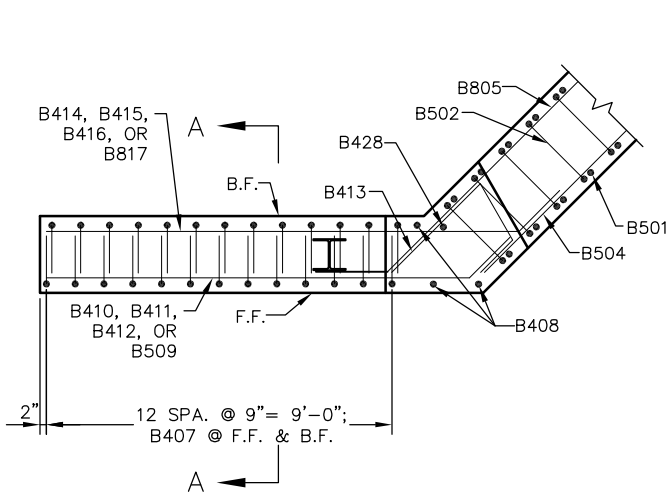


F.F. ELEVATION - WING 3

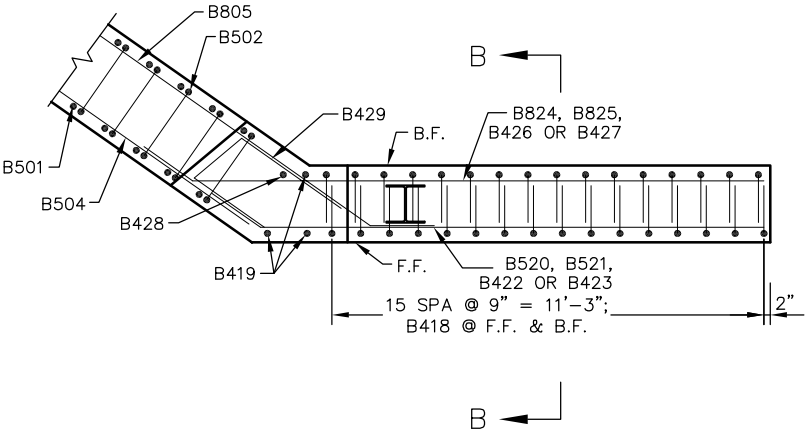


B.F. ELEVATION - WING 3

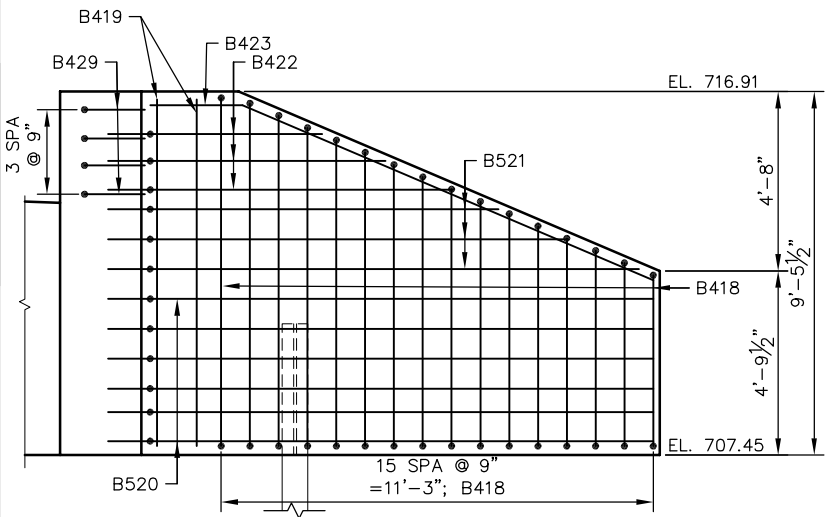
SECTION A-A



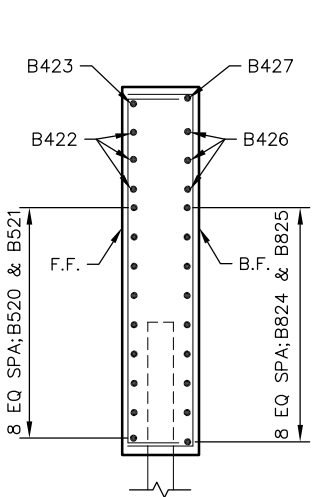
PLAN VIEW - WING 3



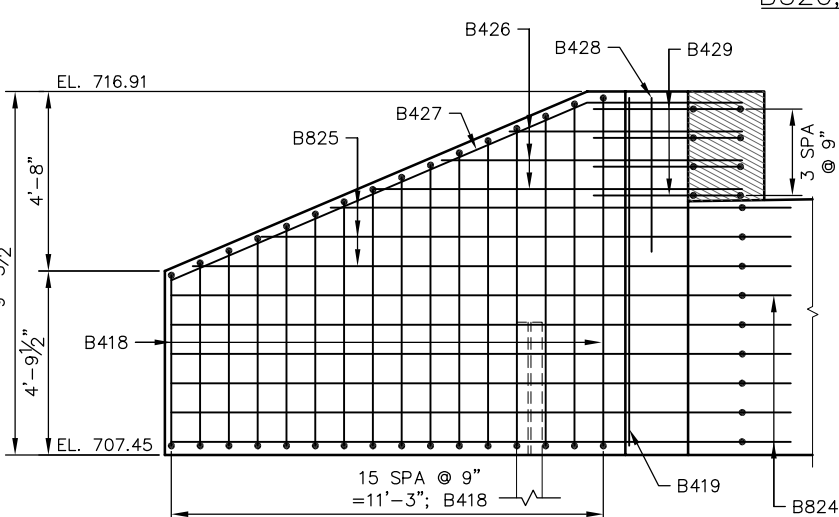
PLAN VIEW - WING 4



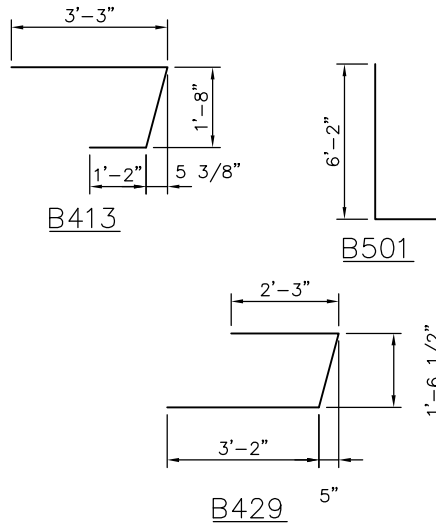
F.F. ELEVATION - WING 4



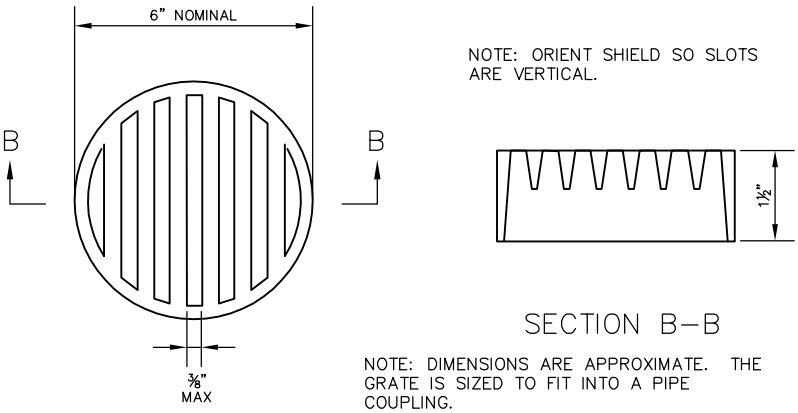
SECTION B-B



B.F. ELEVATION - WING 4



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DUBUQUE, IA 52002		HAZEL GREEN, WI 53811	
800-556-4491		www.iiwengr.com	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-22-0280			
DRAWN BY: DJS		PLANS CK'd:	
NORTH ABUTMENT		SHEET 7 OF 10	



THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE OUTFALL PIPE. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 x 1-INCH STAINLESS STEEL SHEET METAL SCREWS.

THE OUTFALL PIPE INCLUDING ALL FITTINGS AND THE RODENT SHIELD SHALL BE MEASURED AND PAID FOR AS PIPE UNDERDRAIN UNPERFORATED.

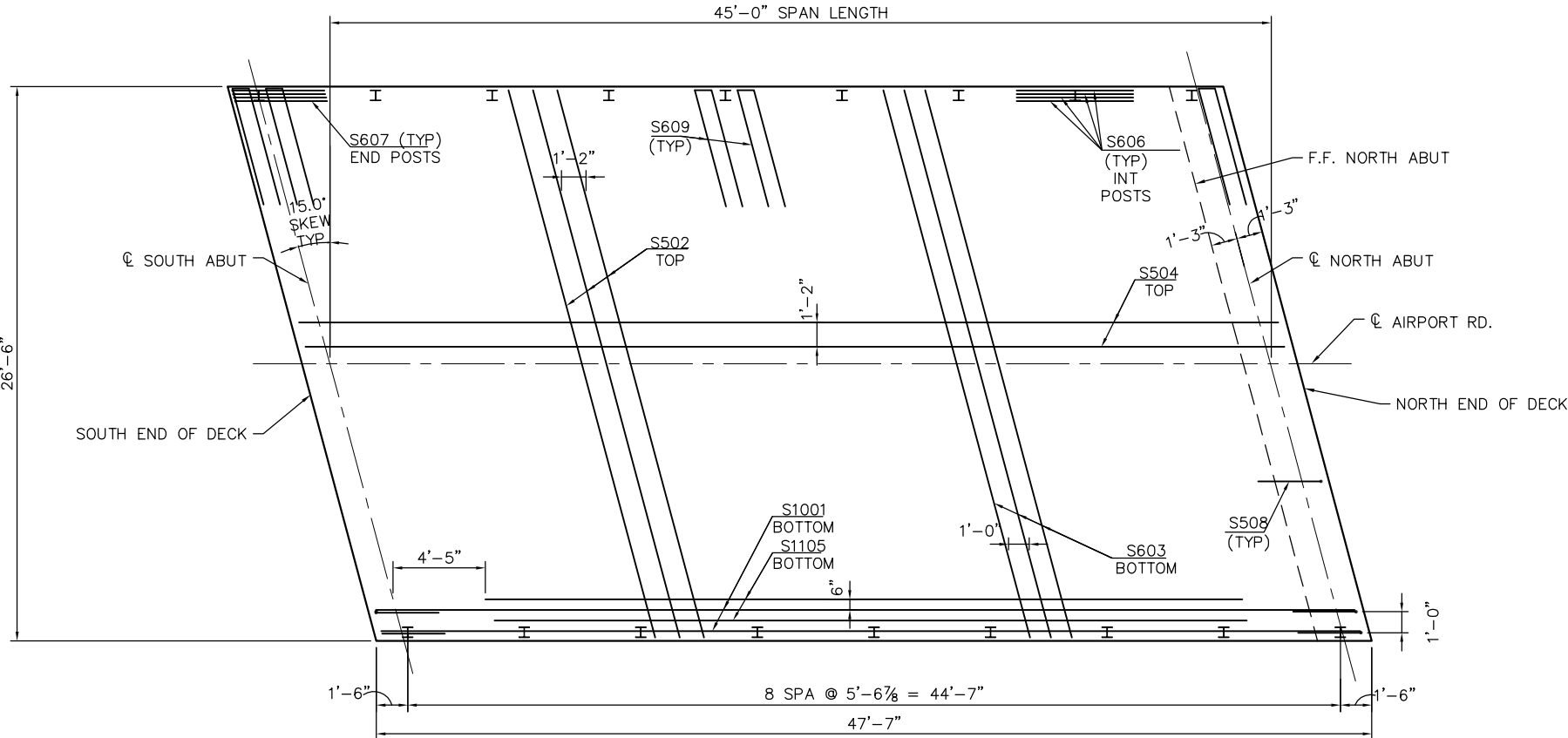
RODENT SHIELD

NO.	DATE	REVISION	BY
<div><div><div>iiw</div></div><div><div>INTEGRITY. EXPERTISE. SOLUTIONS.</div><div>DUBUQUE, IA HAZEL GREEN, WI</div><div>4155 PENNSYLVANIA AVE. 1151 BADGER RD.</div><div>DUBUQUE, IA 52002 HAZEL GREEN, WI 53811</div><div>800-556-4491</div><div>www.iiwengr.com</div></div></div>			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-22-0280			
DRAWN BY DJS		PLANS CK'D.	
ABUTMENT DETAILS			SHEET 8 OF 10

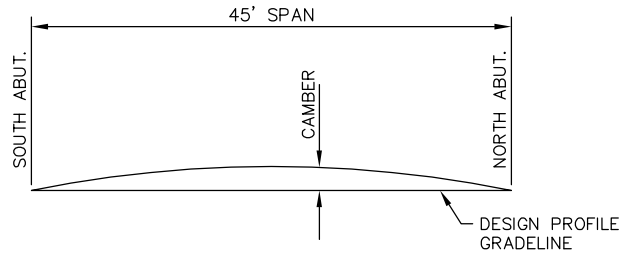
COATED 16634 LBS.

BILL OF BARS					
MARK	COAT	NO. REQD	LENGTH	BENT	LOCATION
S1001	X	27	47'-3"		SLAB, LONG., BOTTOM
S502	X	48	27'-1"		SLAB, TRANS., TOP
S603	X	48	27'-1"		SLAB, TRANS., BOTTOM
S504	X	23	47'-3"		SLAB, LONG., TOP
S1105	X	26	36'-2"		SLAB, LONG., BOTTOM
S606	X	56	6'-0"		SLAB, TOP, AT INTERIOR POSTS
S607	X	16	6'-0"	X	SLAB, TOP, AT END POSTS
S508	X	54	7'-3"	X	SLAB, LONG., ENDS
S609	X	36	12'-0"	X	SLAB, TOP, AT RAIL POSTS

TOP OF SLAB ELEVATIONS AND CAMBER VALUES				
LOCATION	W. DECK EDGE ELEV.	C/L ROADWAY ELEV.	E. DECK EDGE ELEV.	CAMBER (INCHES)
S. ABUT.	716.75	717.09	716.90	0.0
1/10	716.85	717.18	716.98	0.5
2/10	716.94	717.26	717.04	1.0
3/10	717.00	717.31	717.08	1.4
4/10	717.06	717.35	717.10	1.6
5/10	717.09	717.37	717.11	1.7
6/10	717.11	717.38	717.10	1.6
7/10	717.11	717.36	717.08	1.4
8/10	717.10	717.34	717.04	1.0
9/10	717.06	717.29	716.98	0.5
N. ABUT.	717.01	717.23	716.91	0.0



PLAN



CAMBER DIAGRAM

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

NOTES

1. 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.
2. ALL SLAB THICKNESS DIMENSIONS ARE MINIMUM. ANY TOLERANCES NECESSARY TO CORRECT CONSTRUCTION DISCREPANCIES ARE TO BE PLUS (+).
3. TRANSVERSE BARS SHALL BE PLACED PARALLEL TO THE CENTERLINE OF SUBSTRUCTURE UNITS

** SEE SHEET 6 FOR PLACEMENT OF B506 AND SHEET 4 FOR PLACEMENT OF A506.

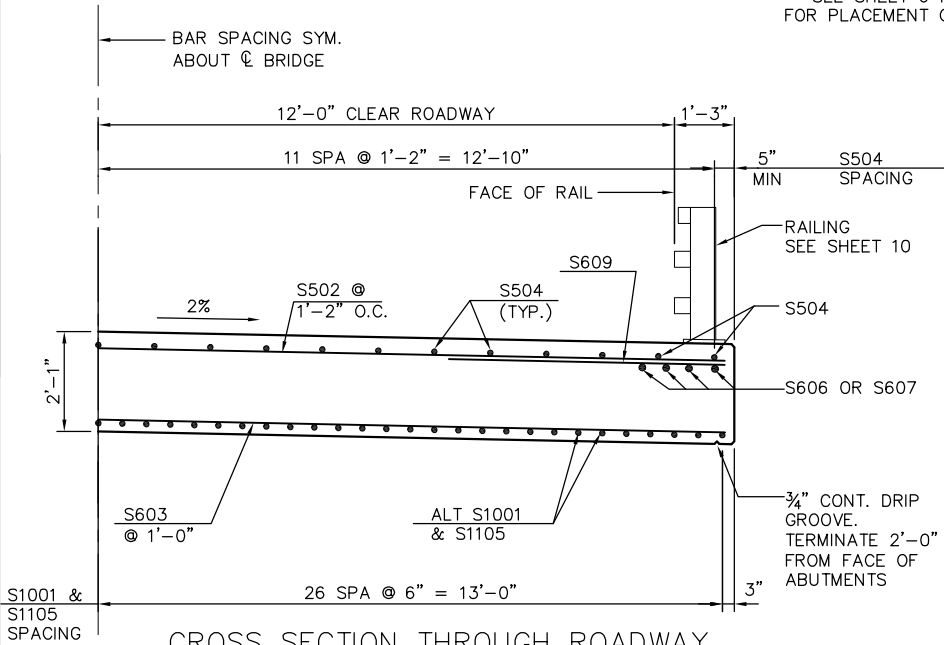
TO DETERMINE FALSEWORK ELEVATION AT EDGE OF SLAB, CROWN OR REFERENCE LINE FOLLOW THIS PROCEDURE:

LESS
PLUS
PLUS
EQUALS
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.

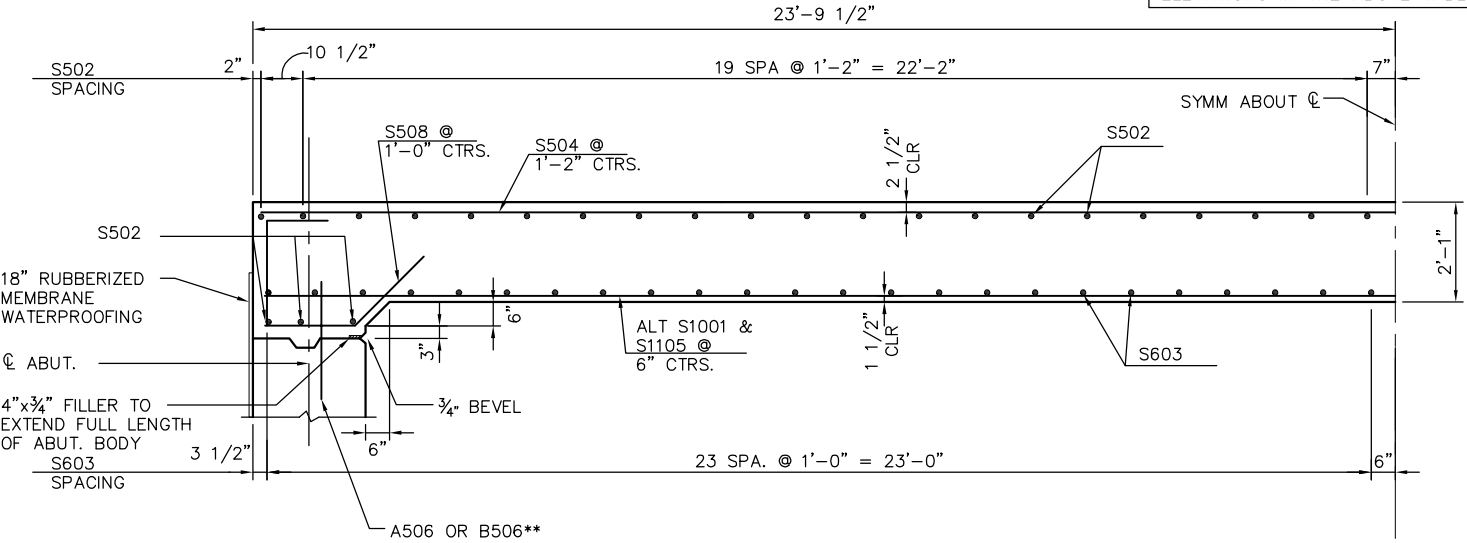
SURVEY TOP OF SLAB ELEVATIONS

	ABUTMENT	5/10 PT.	ABUTMENT
DECK EDGE			
CROWN OR C/L			
DECK EDGE			

PRIOR TO RELEASING SLAB FALSEWORK, TAKE TOP OF DECK ELEVATIONS AT THE CENTERLINE OF ABUTMENTS AND AT 5/10 PTS. TO VERIFY CAMBER. TAKE ELEVATIONS ALONG GUTTER LINES AND CROWN OR CENTER LINE. RECORD THE ELEVATIONS IN THE ABOVE TABLE FOR THE "AS BUILT" PLANS.

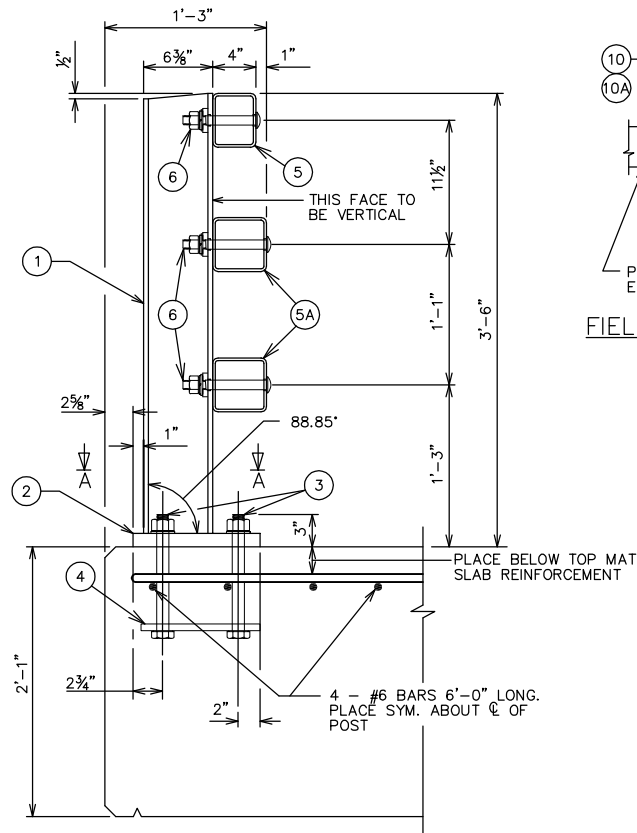


CROSS SECTION THROUGH ROADWAY

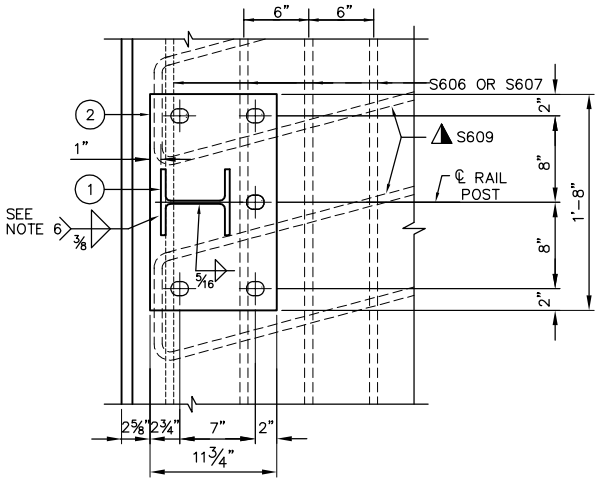


PARTIAL LONGIT. SECTION THROUGH ROADWAY

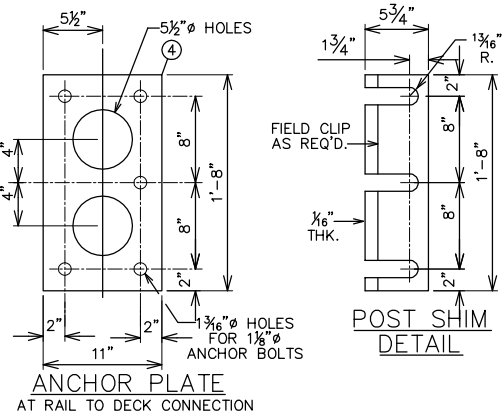
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DUBUQUE, IA		HAZEL GREEN, WI		
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DUBUQUE, IA 52002		HAZEL GREEN, WI 53811		
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STRUCTURE B-22-0280				
		DRAWN BY DJS		PLANS CK'D.
SUPERSTRUCTURE			SHEET 9 OF 10	



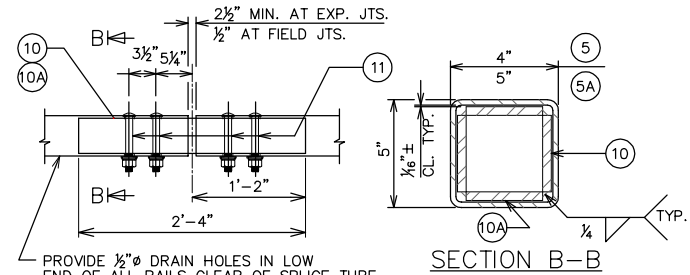
SECTION THRU RAILING ON DECK



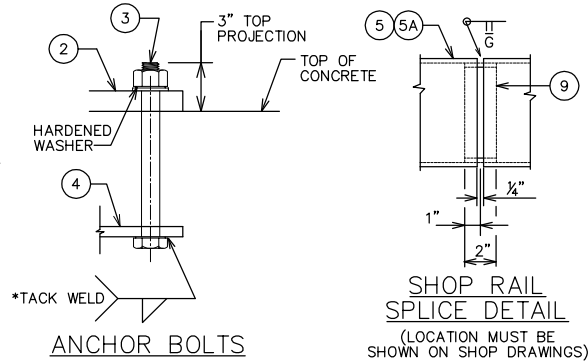
SECTION A-A



ANCHOR PLATE AT RAIL TO DECK CONNECTION



FIELD ERECTION JOINT DETAIL



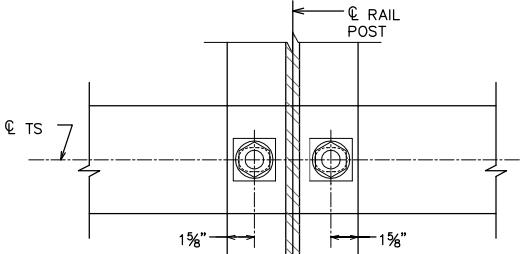
ANCHOR BOLTS

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

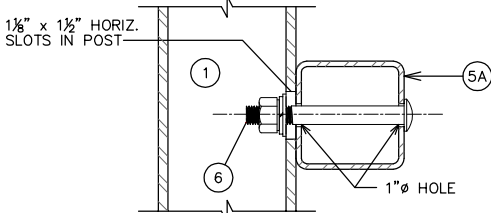
SECTION B-B

SHOP RAIL SPLICE DETAIL

(LOCATION MUST BE SHOWN ON SHOP DRAWINGS)



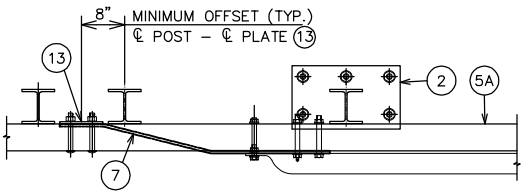
SECTION THRU POST WEB



SECTION THRU RAIL

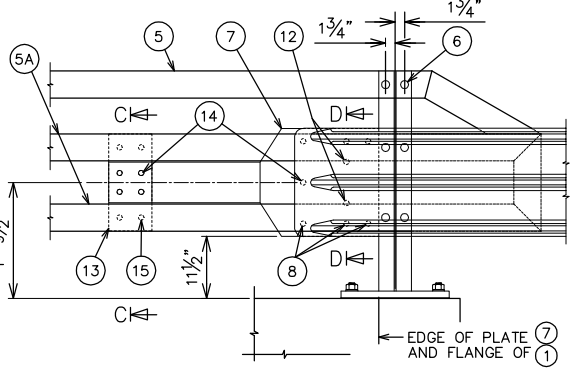
NOTE: CONNECTIONS AT LOWER RAILS SHOWN. CONNECTIONS AT TOP RAIL SIMILAR.

TYPICAL RAIL TO POST CONNECTIONS



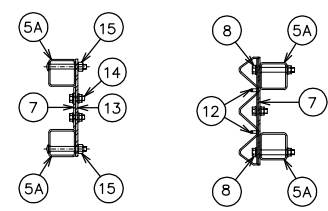
TOP VIEW AT END POST

(THIR BEAM RAIL ATTACHMENT)

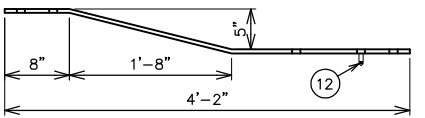


DETAIL AT END POST

(THIR BEAM RAIL ATTACHMENT)

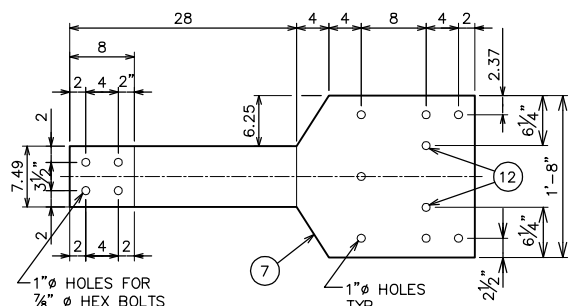


SECTION C-C SECTION D-D



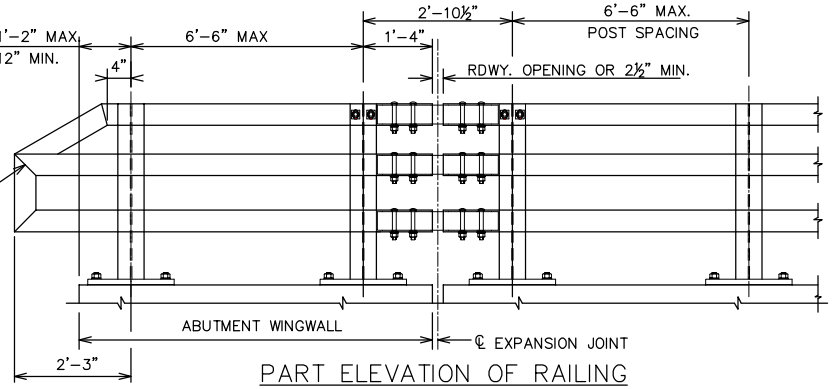
BACK-UP PLATE DETAIL

AT BEAM GUARD ATTACHMENT



BACK-UP PLATE DETAIL

AT BEAM GUARD ATTACHMENT



PART ELEVATION OF RAILING

LEGEND

- 1 W6 x 25 WITH 1 1/2" X 1 1/2" HORIZONTAL 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 1/4" x 1 1/4" x 1'-8" WITH 1 1/2" X 1 1/2" SLOTTED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN. SLOTS PARALLEL TO SHORT SIDE OF PLATE
- 3 ASTM A449 - 1 1/2" 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'-9" LONG IN ABUTMENT WINGS. AT POSTS ON CONCRETE SLAB SUPERSTRUCTURES WHERE THE SLAB THICKNESS IS > 16" USE 1'-3" LONG. USE 10 3/4" LONG AT ALL OTHER LOCATIONS. (AN EQUIVALENT THREADED ROD WITH NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQ'D. FOR CONSTRUCTIBILITY.)
- 4 3/8" x 11" x 1'-8" ANCHOR PLATE (GALVANIZED) WITH 1 1/2" 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, 3/8" X 1 1/2" X 1 1/2" 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 (ITEM 12). BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THIR 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 3/8" X 2'-4" PLATE. 2 PER RAIL. USED IN NO. 5 & 5A.
- 10A 3/8" X 2 3/8" X 2'-4" PLATE USED IN NO. 5, 3/8" X 3 3/8" X 2'-4" PLATE USED IN NO. 5A. 2 PER RAIL.
- 11 7/8" A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. USE 1 1/2" X 1 1/2" LONGIT. SLOTTED HOLES AT FIELD JOINTS AND 1 1/2" X 2 1/4" MIN. LONGIT. SLOTTED HOLES AT EXP. 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" PLATE. BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THIR BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES NO. 5A.
- 14 7/8" DIA. X 2" LONG A325 HEX BOLT WITH NUT AND WASHER.
- 15 1" DIA. HOLES IN TUBES NO. 5A FOR 7/8" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. 4 HOLES IN TUBES.

GENERAL NOTES

- BID ITEM SHALL BE "RAILING TUBULAR TYPE M B-22-0280" WHICH INCLUDES ALL ITEMS SHOWN.
- 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.
- THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL 1/2 TURN.
- RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE. RAILS SHALL BE SPLICED IN A PANEL OVER EXPANSION JOINTS.
- ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
- WELD IS THE SAME ON BOTH FLANGES. FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING.
- 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.
- 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.
- 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.
- WHEN PAINTING IS REQUIRED, ALL MATERIAL EXCEPT ANCHORAGE DETAIL (NO. 3 & 4) SHALL BE PAINTED OVER GALVANIZING WITH APPROVED TIE COAT AND TOP COAT.
- THIS RAILING MEETS NCHRP REPORT 350 EVALUATION CRITERIA FOR TEST LEVEL 4 (TL-4).
- PLACE FIRST BOTTOM LONGITUDINAL BAR CLEAR OF DRIP GROOVE.

▲ TIE TO TOP MAT OF STEEL.
WEIGHT = 75#/LF (BASED ON 6'-6" POST SPACING.)

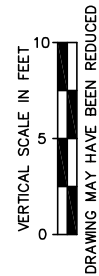
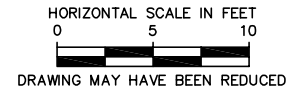
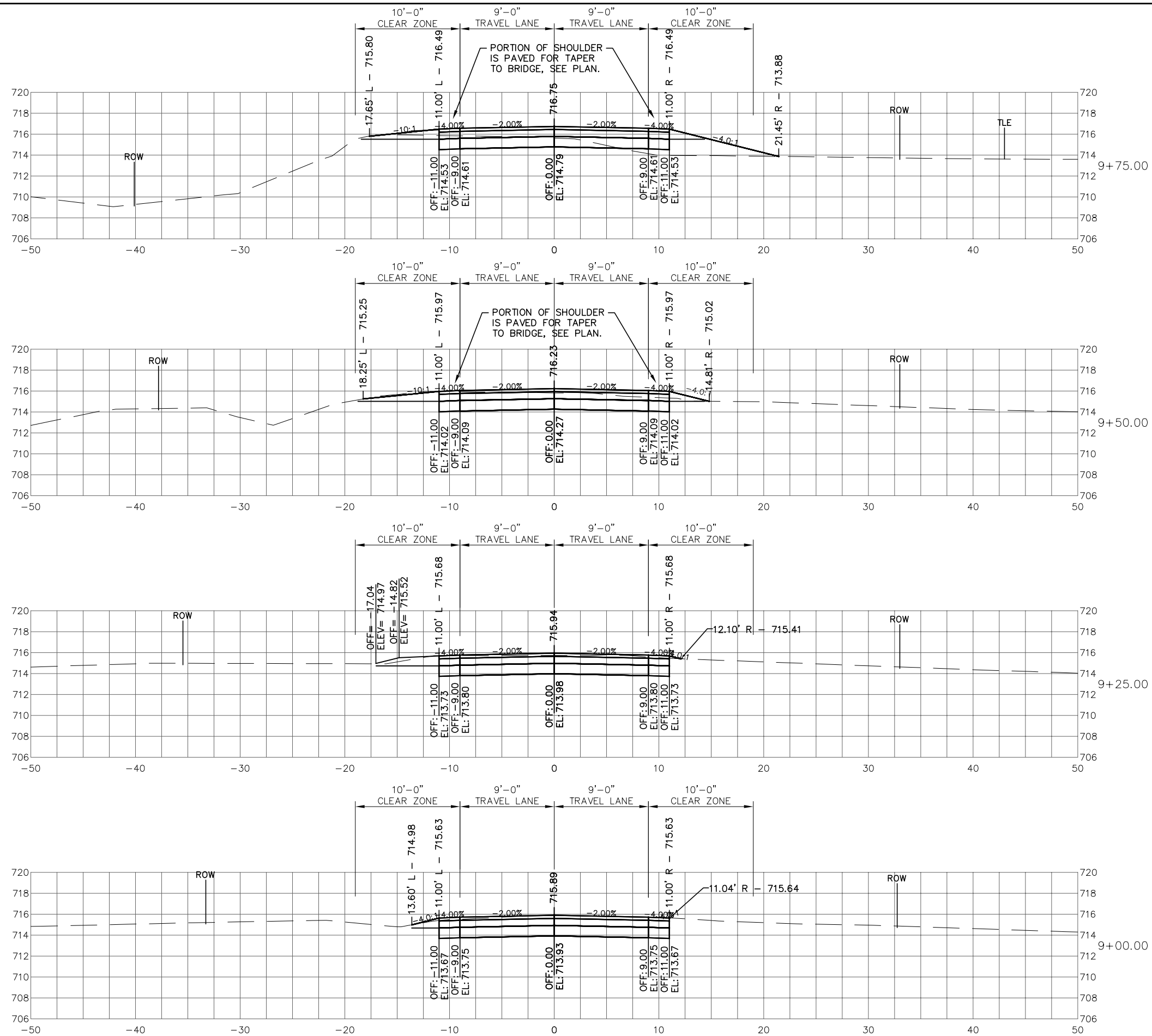
NO.	DATE	REVISION	BY		
INTEGRITY. EXPERTISE. SOLUTIONS.					
DUBUQUE, IA		HAZEL GREEN, WI			
4155 PENNSYLVANIA AVE.		1151 BADGER RD.			
DUBUQUE, IA 52002		HAZEL GREEN, WI 53811			
800-556-4491		www.iiwengr.com			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION					
STRUCTURE B-22-0280					
		DRAWN BY DJS	PLANS CK'D.		
TUBULAR STEEL RAILING TYPE "M"			SHEET 10 OF 10		

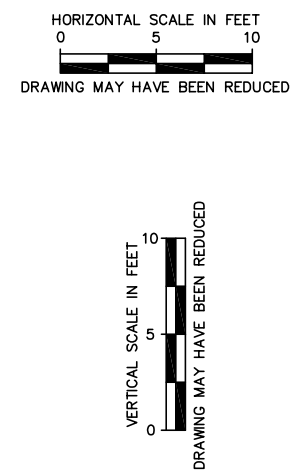
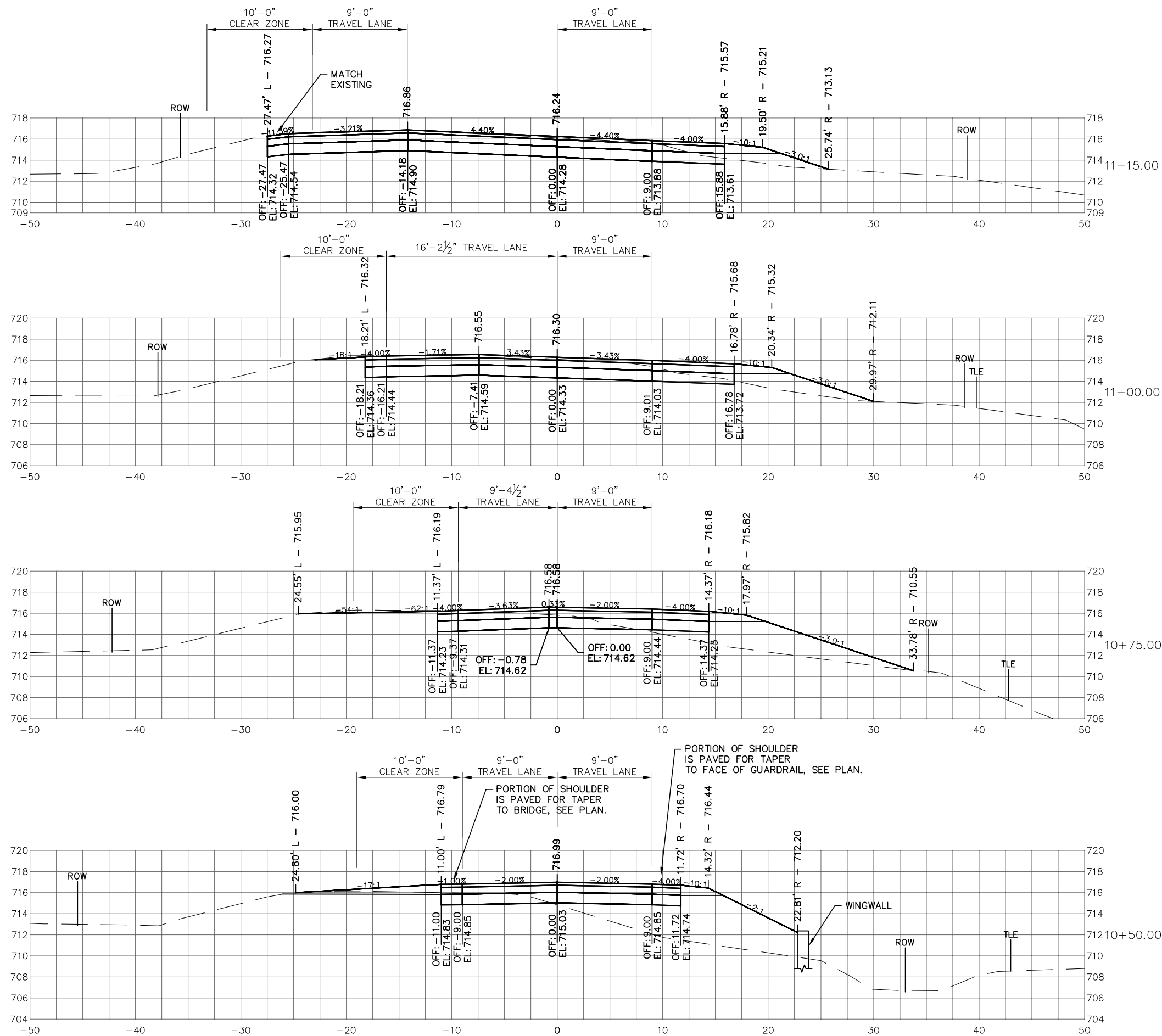
SOUTH OF BRIDGE – AVERAGE END AREAS							
Total Volume Table							
Station	Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
9+00.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9+13.90	40.17	0.04	10.34	0.01	10.34	0.01	10.33
9+25.00	40.43	1.24	16.57	0.34	26.91	0.36	26.55
9+50.00	35.45	1.39	35.13	1.58	62.04	1.94	60.10
9+75.00	15.70	16.37	23.68	10.69	85.72	12.63	73.09

NORTH OF BRIDGE – AVERAGE END AREAS							
Total Volume Table							
Station	Cut Area	Fill Area	Cut Vol	Fill Vol	Cum Cut Vol	Cum Fill Vol	Net Vol
10+50.00	9.09	72.17	0.00	0.00	0.00	0.00	0.00
10+75.00	26.21	40.60	16.63	64.67	16.63	64.67	–48.04
11+00.00	57.27	16.90	40.11	28.09	56.74	92.76	–36.02
11+15.00	76.45	10.28	39.12	7.94	95.86	100.71	–4.84

EARTHWORK AT BRIDGE ABUTMENTS, INCLUDED IN BID ITEM EXCAVATION FOR STRUCTURES
CUT 177 CY
FILL 0 CY
(INCLUDES 30% SHRINKAGE)
WASTE 177 CY

EARTHWORK SUMMARY
CUT 190 CY
FILL 120 CY
(INCLUDES 30% SHRINKAGE)
WASTE 70 CY





Notes



Wisconsin Department of Transportation

Dedicated people creating transportation solutions
through innovation and exceptional service.

<http://www.dot.wisconsin.gov>