WIS FEB 2015

PROJECT ID: 6170-00-71
WITH: N/A

28

COUNTY: WAUSHARA

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
6170-00-71	WISC 2014441	1

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

COLOMA - REDGRANITE
WHITE RIVER BRIDGE, B-69-0048
STH 21
WAUSHARA COUNTY

STATE PROJECT NUMBER
6170-00-71

ORDER OF SHEETS

TOTAL SHEETS = 90

DESIGN DESIGNATION

		STH 21
A.A.D.T. (2017)	=	4,500
A.A.D.T. (2037)	=	5,400
D.H.V. (K100, 2033)	=	670
D.D.	=	61/39
T. (DHV)	=	14.7%
DESIGN SPEED	=	55 MPH
ESALS	=	1,408,900

CONVENTIONAL SYMBOLS

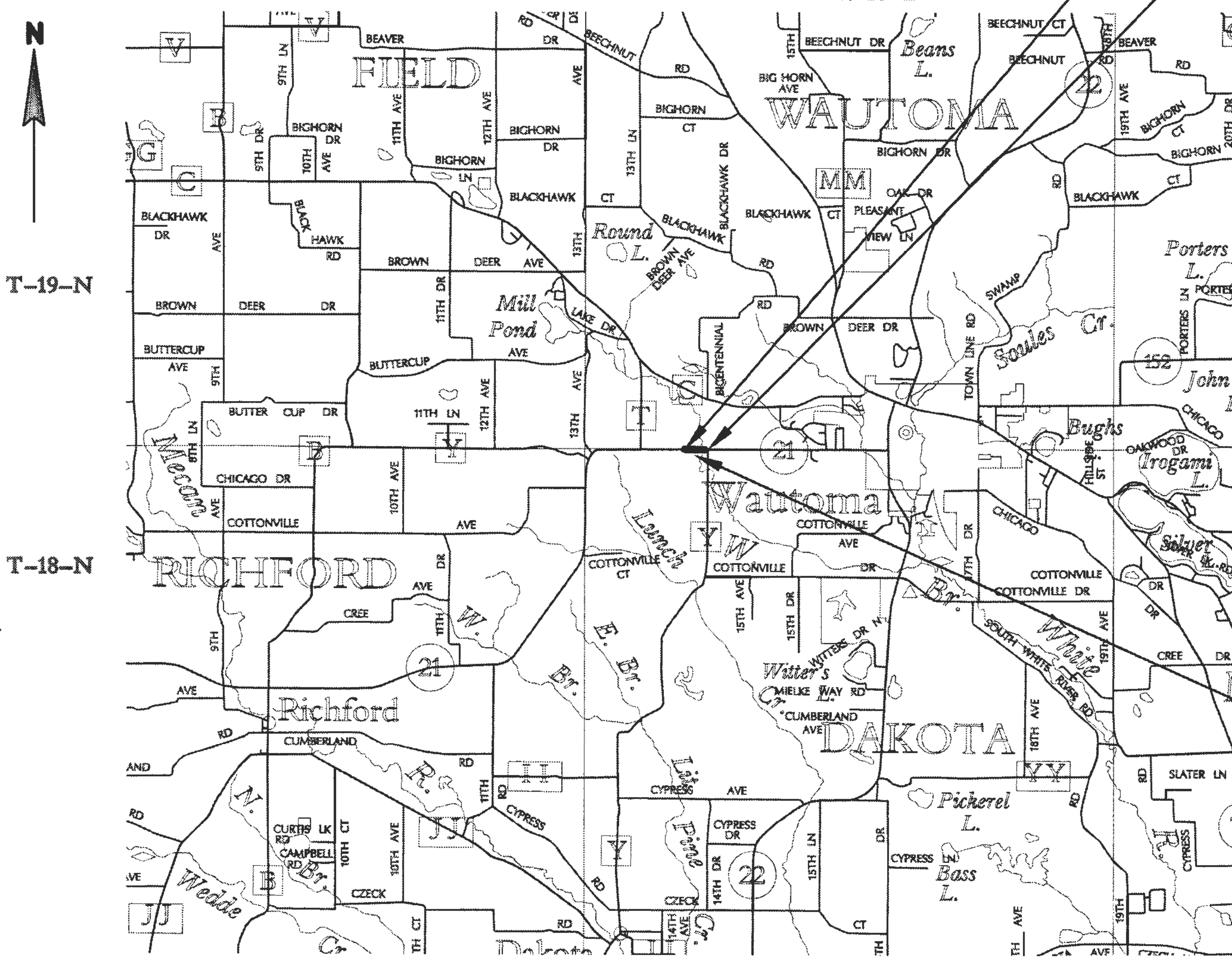
PLAN
CORPORATE LIMITS
PROPERTY LINE (PL + 58.1)
LOT LINE
LIMITED HIGHWAY EASEMENT
EXISTING RIGHT OF WAY
PROPOSED OR NEW R/W LINE
SLOPE INTERCEPT
REFERENCE LINE
EXISTING CULVERT
PROPOSED CULVERT (Box or Pipe)
COMBUSTIBLE FLUIDS (CAUTION)
MARSH AREA
WOODED OR SHRUB AREA

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

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

BEGIN PROJECT 6170-00-71
STA 584+00
Y = 131286.468
X = 368314.961

END PROJECT 6170-00-71
STA 586+75



STRUCTURE B-69-48

LAYOUT

SCALE 0 1 MI. 2 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.052 MI.

COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), WAUSHARA COUNTY, NAD 1983 (91)

ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 NAVD 88 (91)

ORIGINAL PLANS PREPARED BY
OMNI ASSOCIATES

WISCONSIN PROFESSIONAL ENGINEER
JUDITH ANN WILSON
E-22940
NEENAH, WI
7/22/14

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	OMNNI ASSOCIATES
Designer	OMNNI ASSOCIATES
Project Manager	DANIEL HOLLOWAY, PE
Regional Examiner	CHERYL SIMON, P.E.
Regional Supervisor	MICHAEL KRETSCHMER, PE

APPROVED FOR THE DEPARTMENT
DATE: 07/24/2014 (Signature)

E

GENERAL NOTES

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

STATIONING, DISTANCES, AND OFFSETS FOR SIGNS SHOWN ON PLANS ARE APPROXIMATE.

WHEN THE QUANTITY OF THE ITEM OF BASE OR ASPHALT PAVEMENT IS MEASURED FOR PAYMENT BY THE TON, THE DEPTH IS APPROXIMATE AND THE ACTUAL THICKNESS WILL DEPEND ON THE DISTRIBUTION OF THE MATERIAL AS DIRECTED BY THE ENGINEER.

CONTRACTOR WILL BE RESPONSIBLE FOR RESHAPING AND SEEDING ANY PREVIOUSLY GRASSED AREAS WHICH ARE DISTURBED BY HIS OPERATION OUTSIDE THE NORMAL CONSTRUCTION LIMITS.

UTILITIES

ELECTRIC	ADAMS COLUMBIA ELECTRIC COOPERATIVE N1519 HWY 22 PO BOX 900 WAUTOMA, WI 54982 ATTN: JON TRZESNIAK TELEPHONE: 800-831-8629, EXT. 424 EMAIL: jtrzesniak@acecwi.com
COMMUNICATIONS	CENTURYLINK 144 N PEARL STREET PO BOX 70 BERLIN, WI 54923 ATTN: ROSS HARTWIG TELEPHONE: 920-361-8425 EMAIL: ross.hartwig@centurylink.com

OTHER CONTACTS

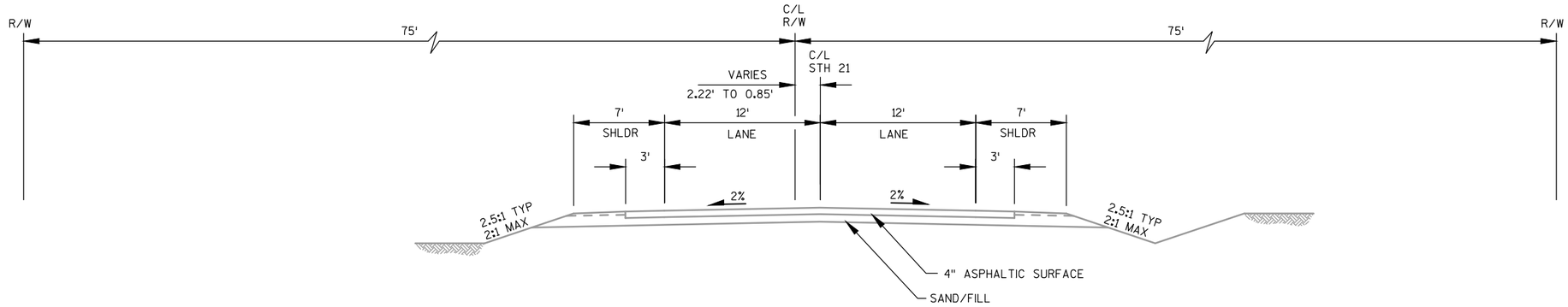
DNR LIAISON	WISCONSIN DEPARTMENT OF NATURAL RESOURCES WAUTOMA SERVICE CENTER 427 EAST TOWER DRIVE, SUITE 100 WAUTOMA, WI 54982 ATTN: BOBBI JO FISCHER TELEPHONE: 920-787-3015 EMAIL: bobbi.fischer@wisconsin.gov

EROSION CONTROL NOTES

RUNOFF COEFFICIENT FOR THIS PROJECT: EXISTING PAVEMENT 0.95, EXISTING SLOPES 0.30, NEW PAVEMENT 0.95, NEW SLOPES 0.30.

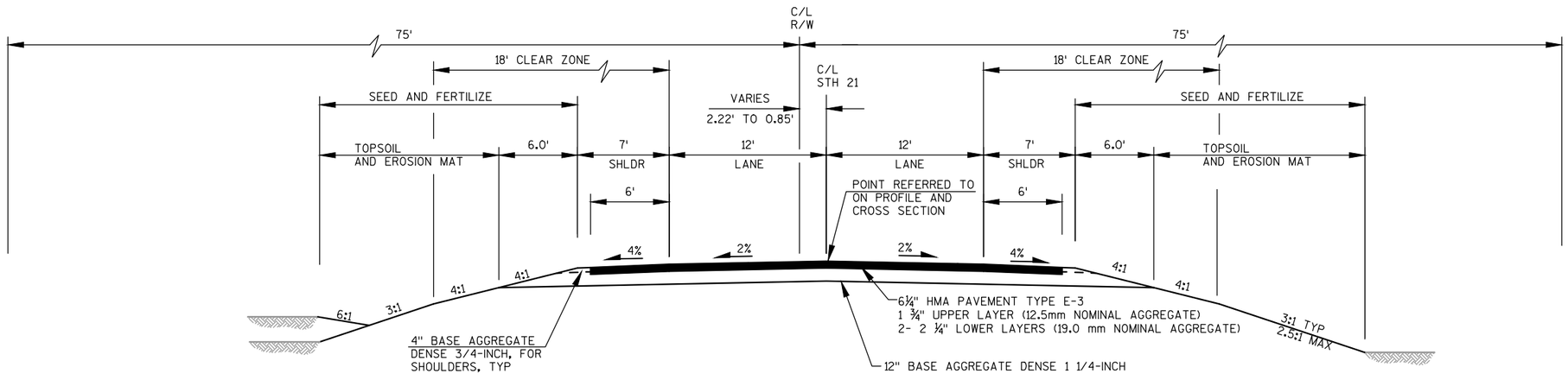
TOTAL PROJECT AREA = 1.997 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.759 ACRES

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



TYPICAL EXISTING SECTION - STH 21

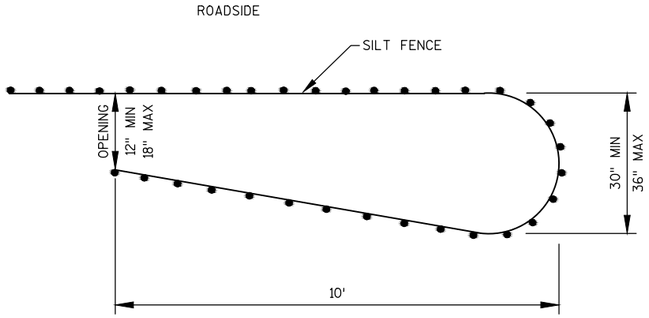
STA 584+00 TO STA 586+75



TYPICAL FINISHED SECTION - STH 21

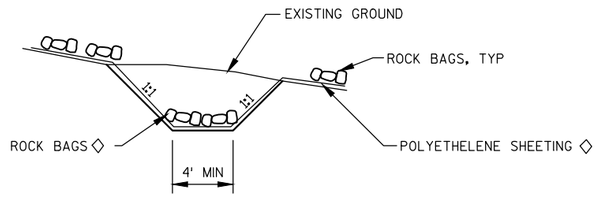
STA 584+00 TO STA 586+75

PROJECT NO: 6170-00-71	HWY: STH 21	COUNTY: WAUSHARA	TYPICAL SECTIONS	SHEET 3	E



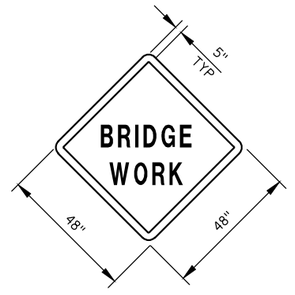
NOTES:
SILT FENCE POSTS FOR THE TURN-AROUND SHOULD BE ON THE OUTSIDE OF THE TURN-AROUND AND TRENCHED IN ACCORDING TO SILT FENCE REQUIREMENTS.

TEMPORARY SMALL ANIMAL BARRIER



TEMPORARY CHANNEL

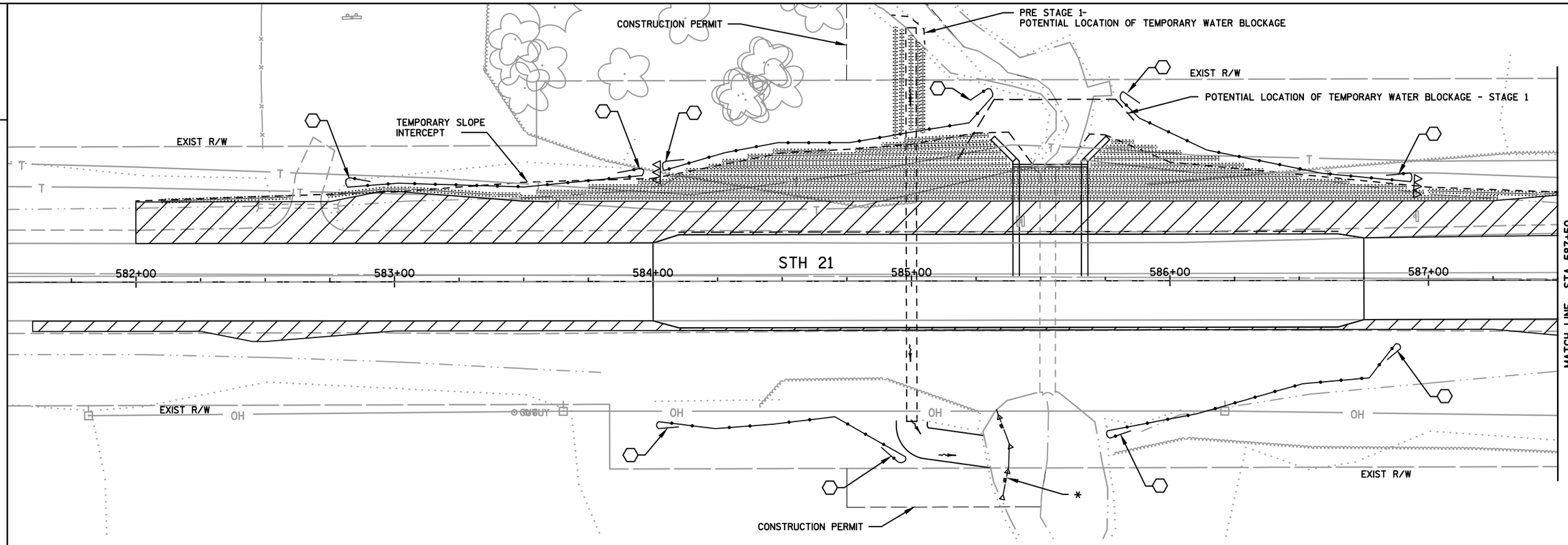
◇ INCIDENTAL TO TEMPORARY WATER DIVERSION

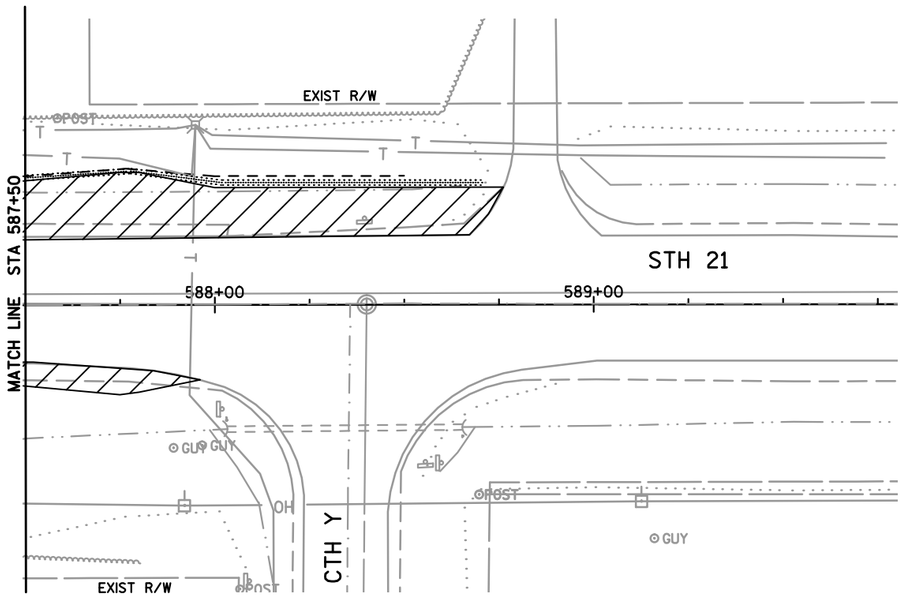


TEMPORARY SIGN DETAILS

12-INCH BLACK BLOCK LETTERING.

ALL SIGNS SHALL CONFORM TO THE UNIFORM WATERWAY MARKING SYSTEM SET FORTH IN SECTION NR 5.09 WISCONSIN ADMINISTRATIVE CODE.





NOTE

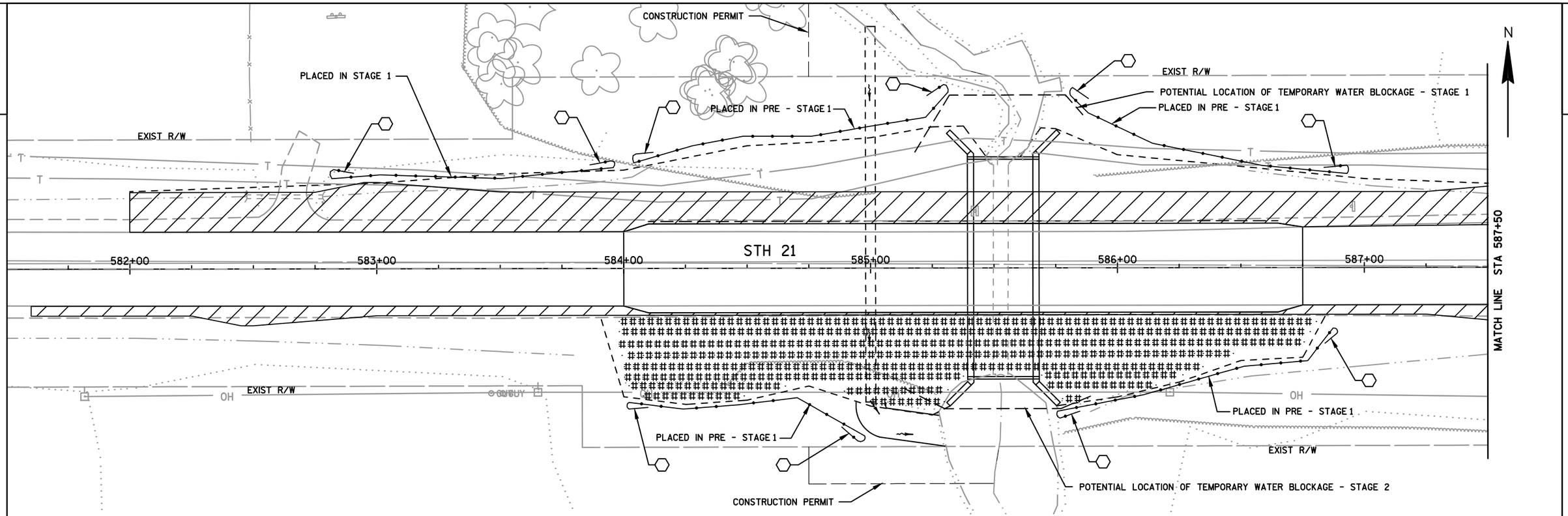
PLACE ALL ITEMS IN STAGE 1 UNLESS NOTED OTHERWISE.

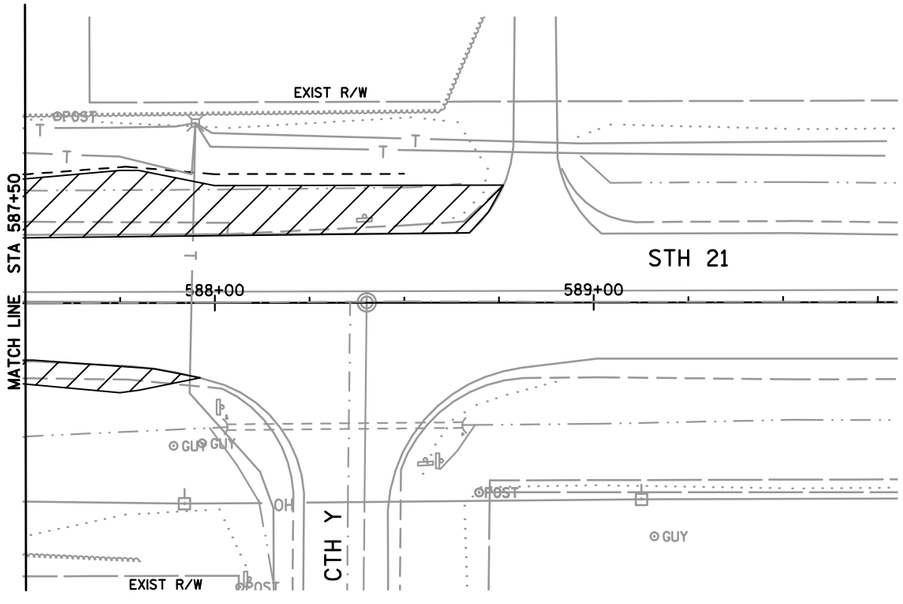
LEGEND

- TEMPORARY PAVEMENT
- TEMPORARY SEED AND MULCH
- SILT FENCE; PRE-STAGE 1
- TEMPORARY DITCH CHECK
- TEMPORARY SMALL ANIMAL BARRIER; PRE-STAGE 1
- TURBIDITY BARRIER; PRE-STAGE 1
- * INSTALL PRIOR TO CONSTRUCTION OF TEMPORARY WATER DIVERSION. REMOVE WHEN TEMPORARY DIVERSION IS COMPLETE.

PROJECT NO: 6170-00-71	HWY: STH 21	COUNTY: WAUSHARA	EROSION CONTROL - PRE-STAGE 1 AND STAGE 1	SHEET 5	E

2

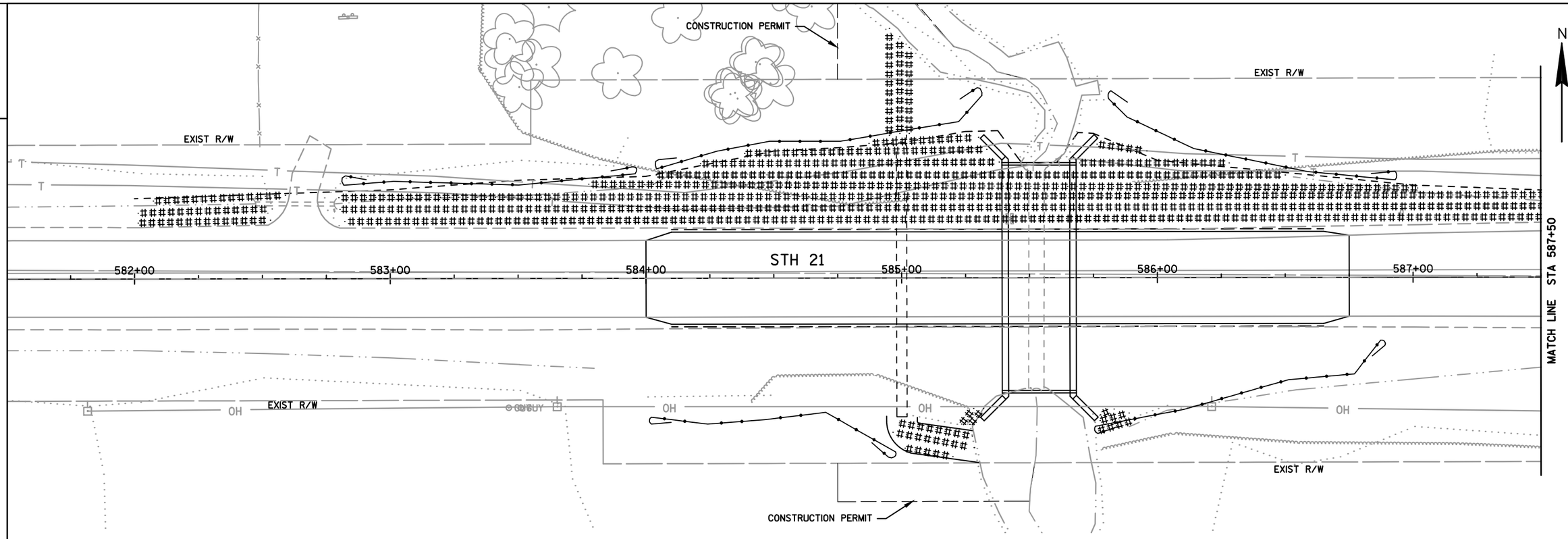


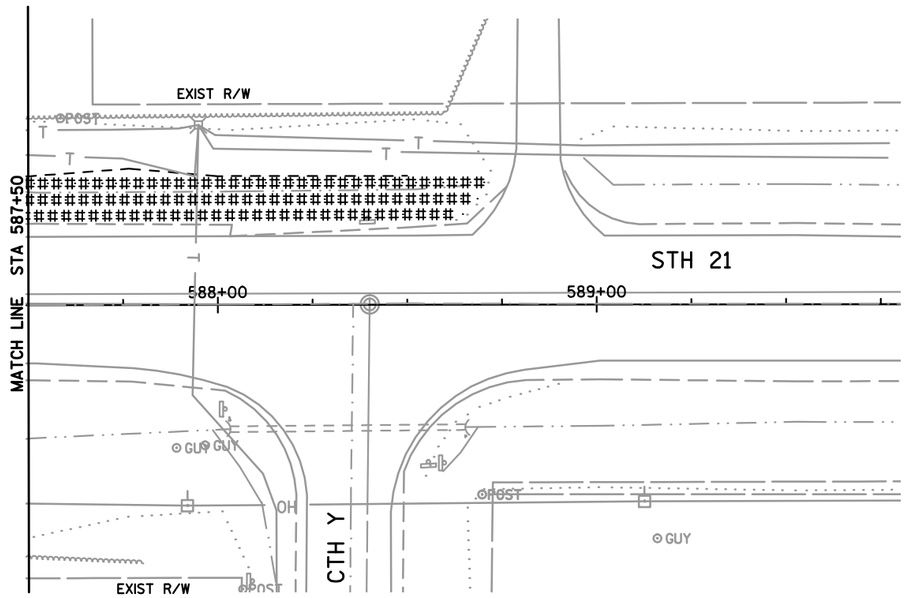


LEGEND

- TEMPORARY PAVEMENT
- TEMPORARY SEED AND MULCH
- PERMANENT SEED AND EROSION MAT
- SILT FENCE
- TEMPORARY DITCH CHECK
- TEMPORARY SMALL ANIMAL BARRIER
- TURBIDITY BARRIER

PROJECT NO: 6170-00-71	HWY: STH 21	COUNTY: WAUSHARA	EROSION CONTROL - STAGE 2	SHEET 6	E





LEGEND

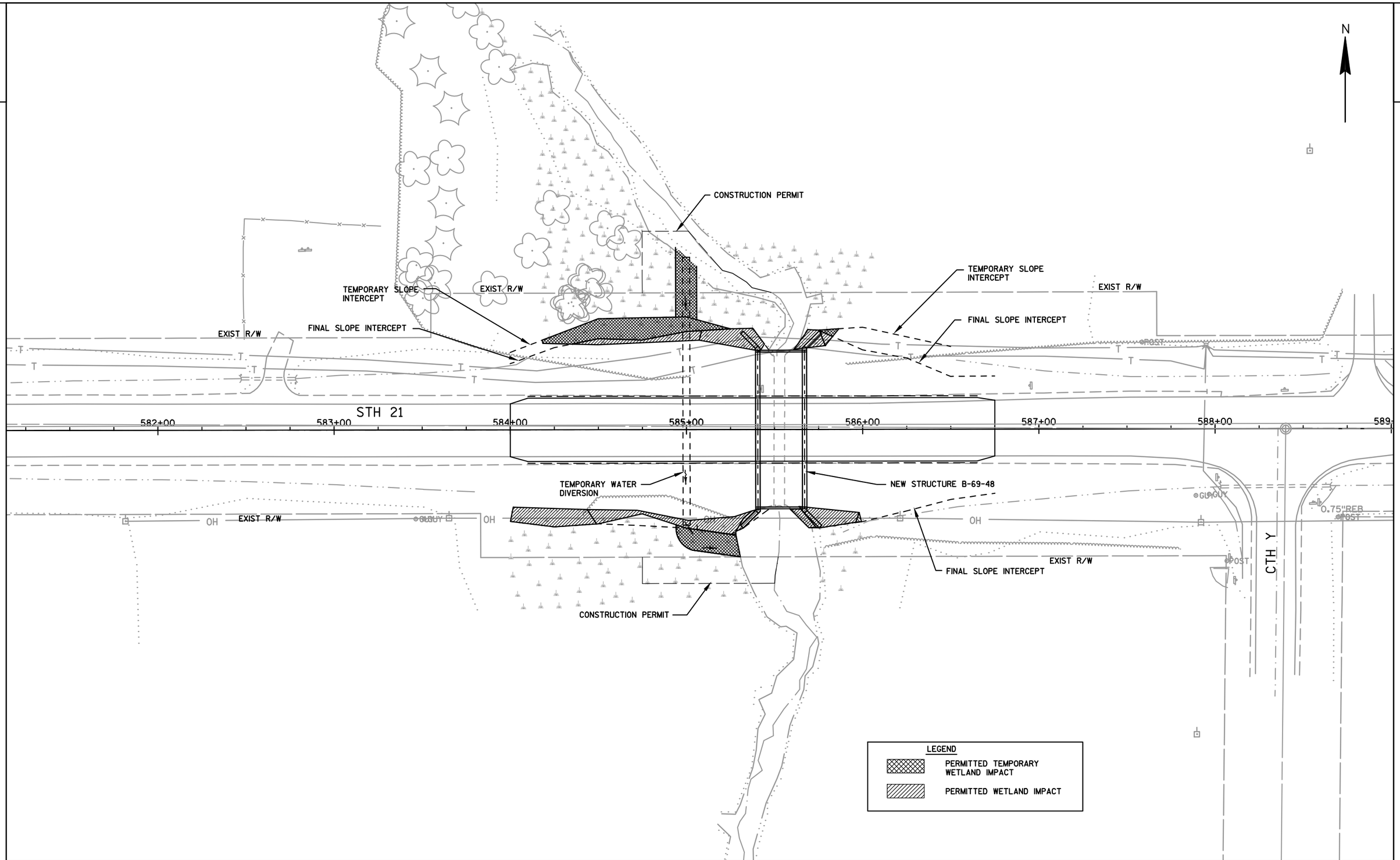
PERMANENT SEED AND EROSION MAT

SILT FENCE; PLACED IN PRE - STAGE 1

NOTE: RESTORE ALL WETLAND AREAS THAT ARE TEMPORARY IMPACTS TO ORIGINAL GRADE AND CONDITION.

PROJECT NO: 6170-00-71	HWY: STH 21	COUNTY: WAUSHARA	EROSION CONTROL - POST STAGE 2	SHEET 7	E

2



PROJECT NO: 6170-00-71	HWY: STH 21	COUNTY: WAUSHARA	PERMITTED WETLAND IMPACTS	SHEET 8	E

2

N

WEST 21 M102

WHITE RIVER M101

WHITE RIVER M103

ACCESS HIGHWAY SPONSOR M104

COUNTY Y M105

W1-7 M106

582+00 583+00 584+00 585+00 586+00 587+00 588+00 589+00

STH 21

OH GUY OH OH OH GUY POST GUY POST

CTH Y

COUNTY Y ESTR

PAVEMENT MARKING EPOXY, 4-INCH, WHITE EDGELINE

PAVEMENT MARKING EPOXY, 4-INCH, YELLOW (12.5' LINE, 37.5' GAP)

LEGEND

- EXISTING SIGN MOUNTED ON POST(S)
- EXISTING SIGN MOUNTED ON SIGNAL, UTILITY POLE, OR SIGN BRIDGE
- PROPOSED SIGN MOUNTED ON POST(S)
- PROPOSED SIGN MOUNTED ON SIGNAL, UTILITY POLE, OR SIGN BRIDGE
- FLAGS; 16"X16" MIN, ORANGE
- (000) PROPOSED SIGN
- (M000) MOVE EXISTING SIGN
- (R000) REMOVE EXISTING SIGN
- ESTR EXISTING SIGN TO REMAIN

PROJECT NO: 6170-00-71	HWY: STH 21	COUNTY: WAUSHARA	PAVEMENT MARKING & PERMANENT SIGNING	SHEET 9	E

TRAFFIC CONTROL GENERAL NOTES

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

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

3. ALL SIGNS SHALL BE 48" x 48" UNLESS OTHERWISE NOTED.

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

5. FOR NIGHTTIME OPERATION, ALL DRUMS IN TAPERS SHALL HAVE A TYPE C WARNING LIGHT.

6. TEMPORARY PAVEMENT MARKINGS PLACED ON NEW PAVEMENTS OR PAVEMENT TO REMAIN IN PLACE SHALL BE REMOVABLE TAPE. TEMPORARY PAVEMENT MARKINGS ON PAVEMENTS TO BE REMOVED MAY BE PAINT.

7. ALL TEMPORARY PAVEMENT MARKING FROM PREVIOUS STAGE(S) OR PHASE(S) IN CONFLICT WITH TEMPORARY PAVEMENT SHOWN IN CURRENT STAGE OR PHASE SHALL BE REMOVED.

8. PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE PLACED APPROXIMATELY 1 MILE IN ADVANCE OF THE PROJECT, ONE WEEK IN ADVANCE OF INITIAL LANE CLOSURE AND AS NEEDED THROUGHOUT THE PROJECT.

9. SEE ADDITIONAL TRAFFIC CONTROL DETAIL SHEETS AND STANDARD DETAIL DRAWINGS FOR ADDITIONAL TRAFFIC CONTROL REQUIREMENTS.

6170-00-71 CONSTRUCTION STAGING SUMMARY

STH 21 WILL REMAIN OPEN DURING CONSTRUCTION WITH ONE LANE OF TRAFFIC MAINTAINED AT ALL TIMES. TEMPORARY TRAFFIC SIGNALS WILL BE UTILIZED TO DIRECT TWO-WAY TRAFFIC THROUGH THE WORK ZONE.

INSTALL WIDTH RESTRICTION SIGNS PER SDD "TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS". WIDTH LISTED ON SIGN TO BE 11'.

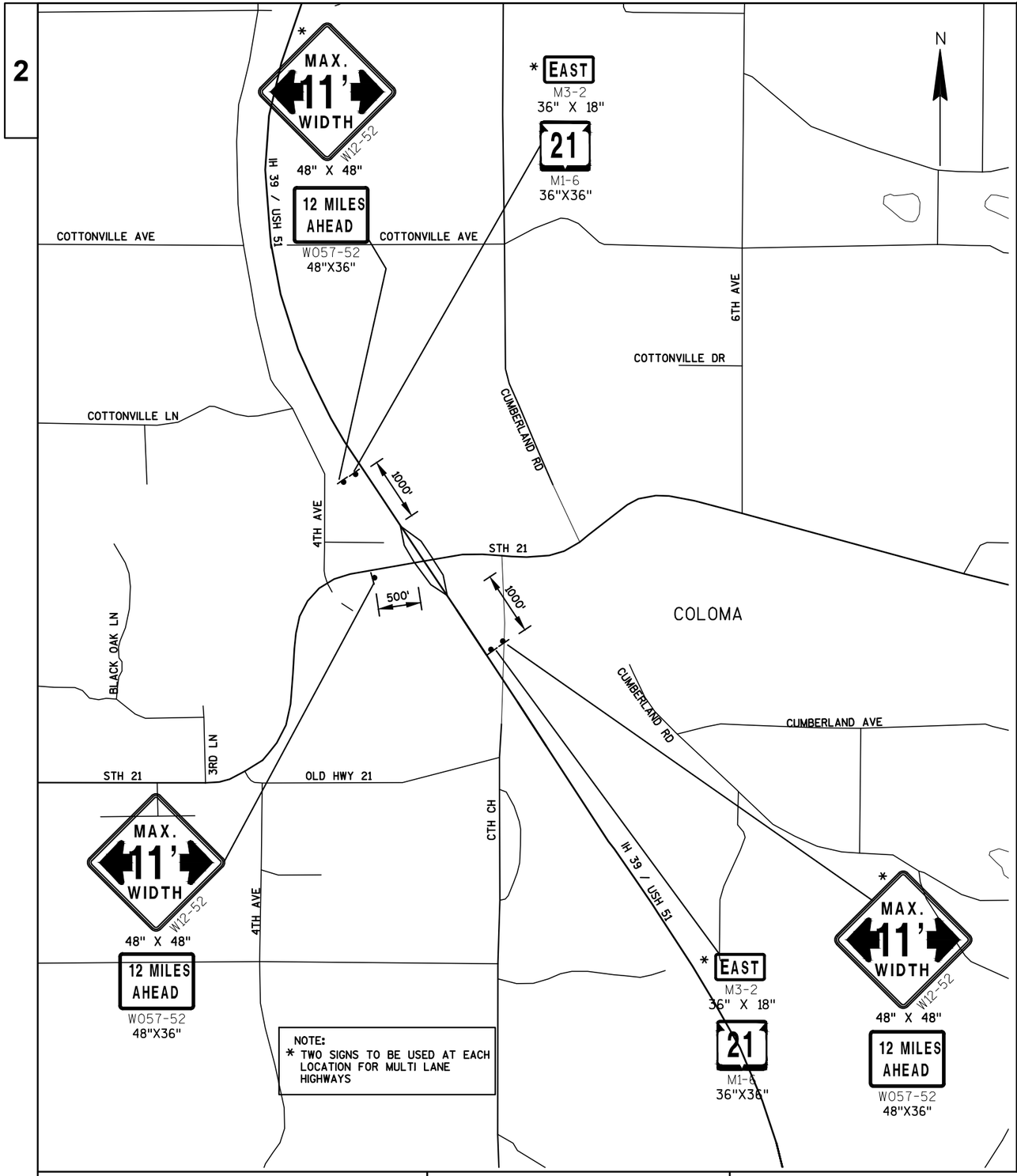
PRE-STAGE 1:
- INSTALL TEMPORARY ASPHALTIC SURFACE ON NORTH EDGE OF STH 21 FOR THE "LANE SHIFT" PER SDD "TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)".
- UTILIZING THE "LANE SHIFT", INSTALL SOUTH HALF OF THE TEMPORARY WATER DIVERSION.
- INSTALL TEMPORARY ASPHALTIC SURFACE ON THE SOUTH EDGE OF STH 21.

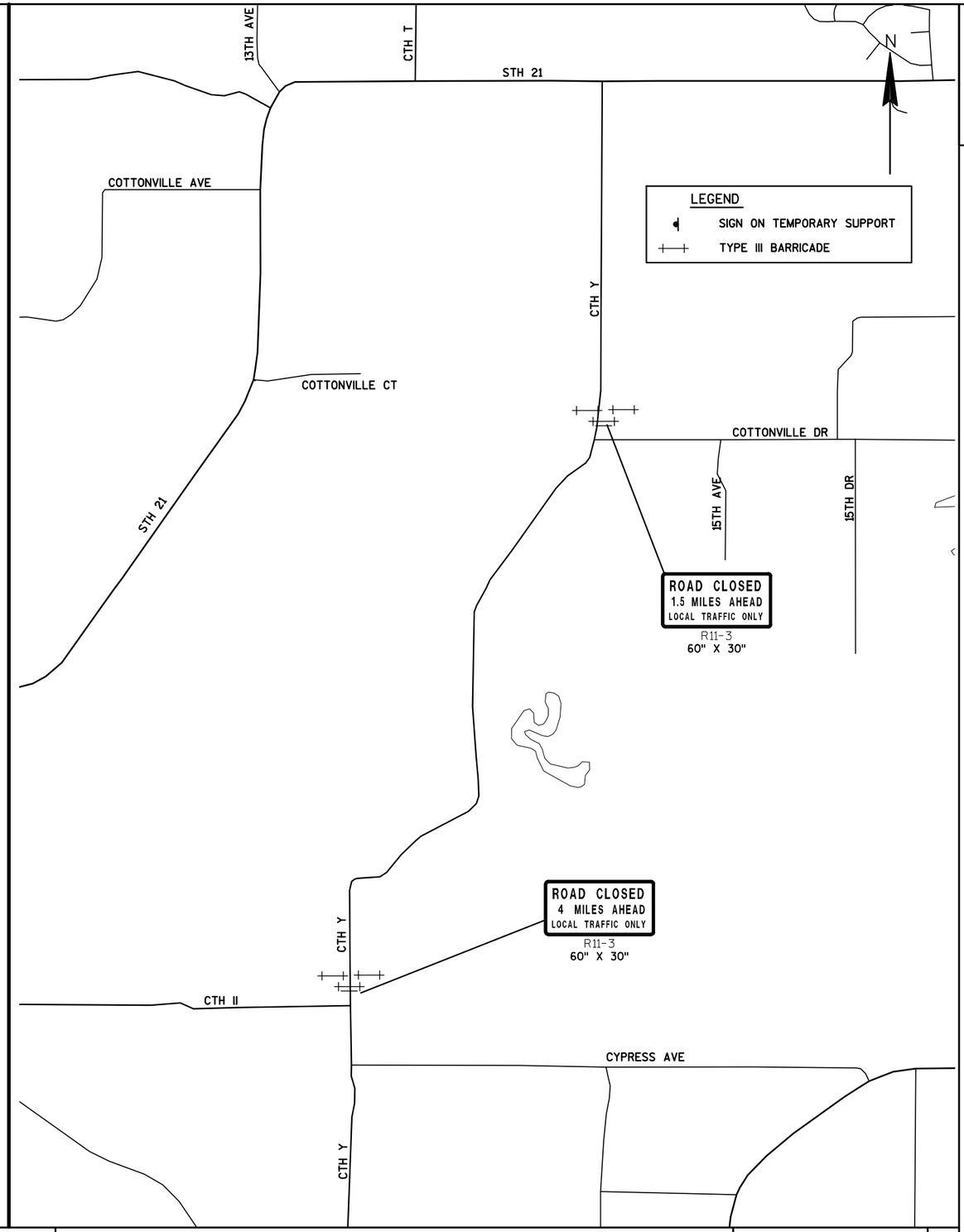
STAGE 1:
- INSTALL TEMPORARY TRAFFIC SIGNALS AND TEMPORARY CONCRETE BARRIER.
- CLOSE THE WESTBOUND LANE AND CTH Y.
- TWO-WAY TRAFFIC WILL UTILIZE EASTBOUND LANE AND TEMPORARY ASPHALT AS DIRECTED BY TEMPORARY TRAFFIC SIGNALS.
- CONSTRUCT NORTH HALF OF THE TEMPORARY WATER DIVERSION AND DIVERT RIVER.
- CONSTRUCT NORTH HALF OF BRIDGE AND ROADWAY.
- INSTALL ADDITIONAL TEMPORARY ASPHALTIC SURFACE ON THE NORTH EDGE OF STH 21 FOR STAGE 2 TRAFFIC.

STAGE 2:
- RELOCATE TEMPORARY CONCRETE BARRIER.
- KEEP CTH Y CLOSED.
- CLOSE EASTBOUND LANE.
- TWO-WAY TRAFFIC WILL UTILIZE WESTBOUND LANE AND TEMPORARY ASPHALT AS DIRECTED BY TEMPORARY TRAFFIC SIGNALS.
- CONSTRUCT SOUTH HALF OF BRIDGE AND ROADWAY.
- REMOVE TEMPORARY ASPHALTIC SURFACE ON SOUTH EDGE OF STH 21.
- RESTORE FLOW TO WEST BRANCH WHITE RIVER AND REMOVE TEMPORARY WATER DIVERSION.

POST STAGE 2:
- REMOVE TEMPORARY PAVEMENT AND EXCESS FILL USING SDD "TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)".

2





2

PROJECT NO: 6170-00-71	HWY: STH 21	COUNTY: WAUSHARA	TRAFFIC CONTROL - TEMPORARY SIGNING DETAILS	SHEET 11	E

2

N

BROWN DEER DR

STH 73

STH 22

TOWN LINE RD

STH 73/ W MAIN ST

CTH C

STH 21

STH 22
S CAMBRIDGE ST

WAUTOMA

COTTONVILLE AVE

STH 22

MAX.
11'
WIDTH
W12-52
48" X 48"

2 MILES
AHEAD
W057-52
48"X36"

LEGEND
SIGN ON TEMPORARY SUPPORT
TYPE III BARRICADE

MAX.
11'
WIDTH
W12-52
48" X 48"

2.5 MILES
AHEAD
W057-52
48"X36"

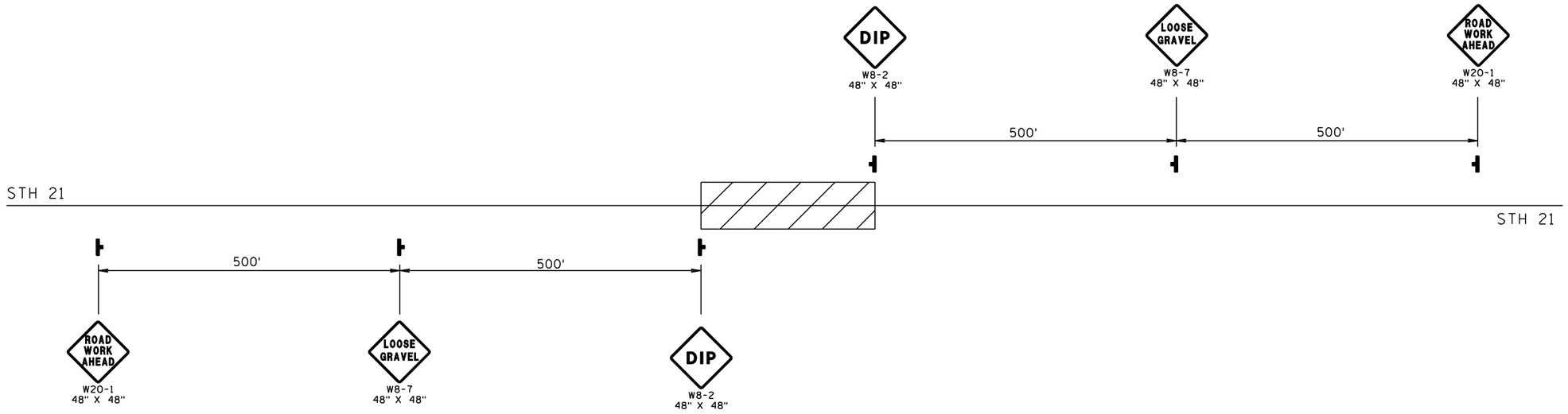
WEST
M3-4
24"X12"

21
M1-6
24"X24"

PROJECT NO: 6170-00-71	HWY: STH 21	COUNTY: WAUSHARA	TRAFFIC CONTROL - TEMPORARY SIGNING DETAILS	SHEET 12	E

FILE NAME : F:\TR\JOBS\E2090A13\CIVIL 3D 2012\SHEETSPLAN\61700071_025000_TC.DWG
61700071_025002_tc
PLOT DATE : 5/7/2014 3:24 PM
PLOT BY : OMNNI ASSOCIATES, INC - DAVE PERRY

2



CULVERT PIPE AREA

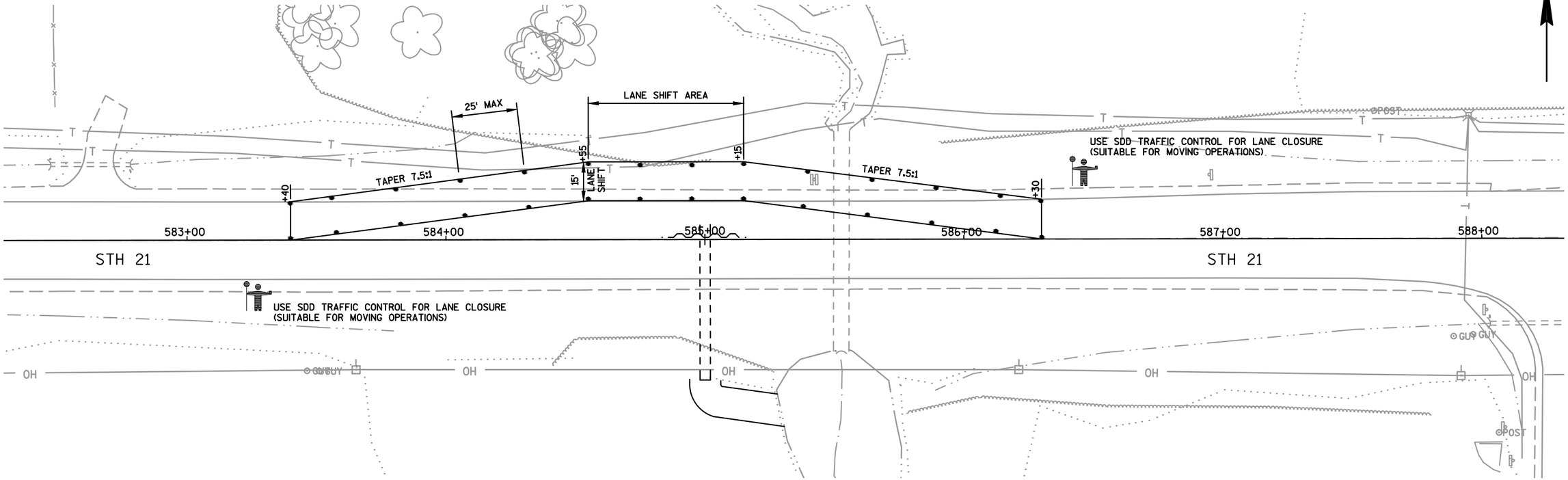
TEMPORARY SIGNING AT CULVERT INSTALLATION

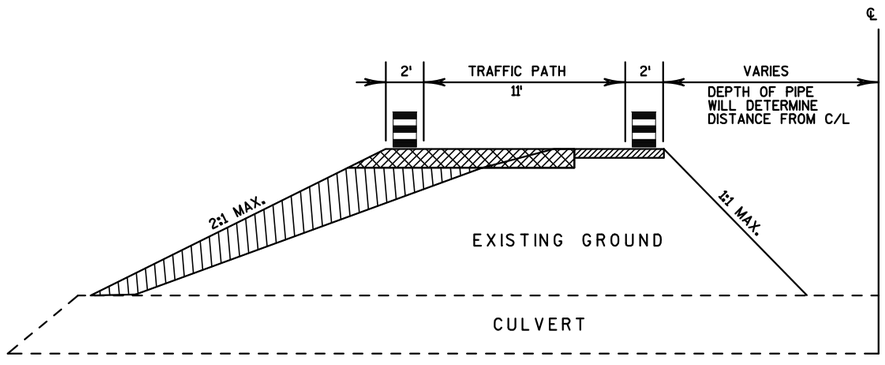
STA 585+00

NOTE: THIS DETAIL APPLIES IF ASPHALT SURFACE IS NOT RESTORED ON STH 21

PROJECT NO: 6170-00-71	HWY: STH 21	COUNTY: WAUSHARA	TEMPORARY SIGNING DETAIL - PRE-STAGE 1	SHEET 13	E

2





LANE SHIFT DETAIL

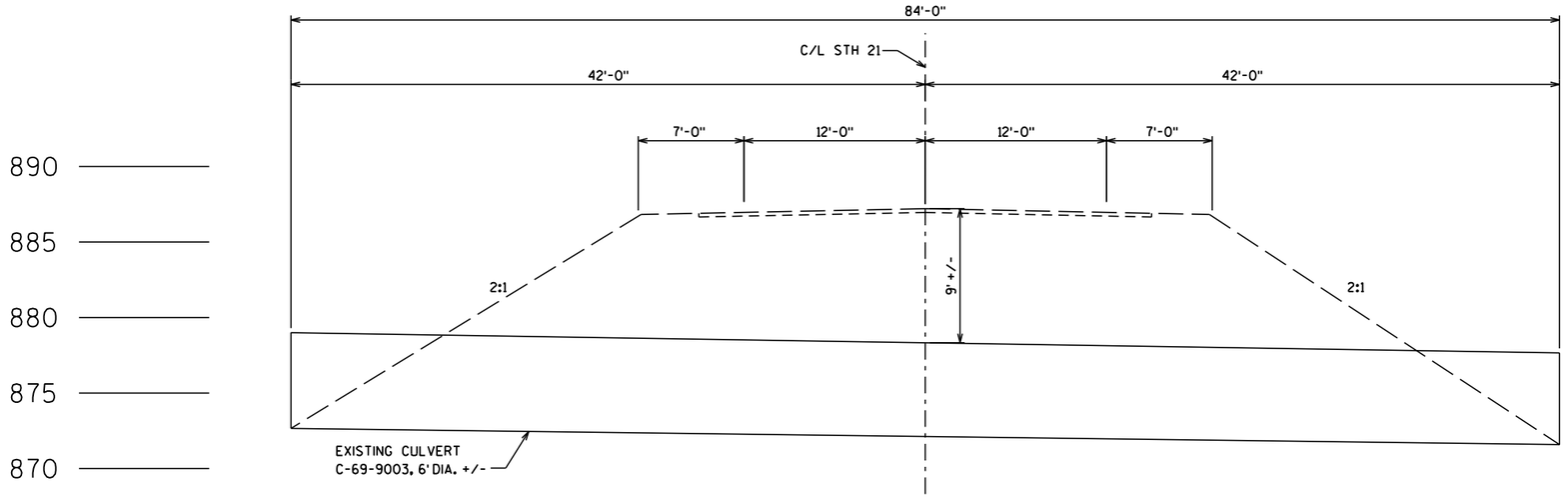
NOTES

1. THE TAPER SHOULD EXTEND ACROSS THE SHOULDER UNLESS DOING SO WOULD GREATLY CONFLICT WITH THE WORK OPERATION
2. ALL LANE CLOSURE SIGNS SHALL BE REMOVED OR COVERED AND ALL DEVICES REMOVED BEYOND THE SHOULDER WHEN WORK IS NOT IN PROGRESS AND THE LANE IS RESTORED TO ORGINAL CONFIGURATION.
3. CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED AWAY FROM TRAVEL LANE WHEN FLAGGING OPERATIONS ARE NOT IN USE.

KEY

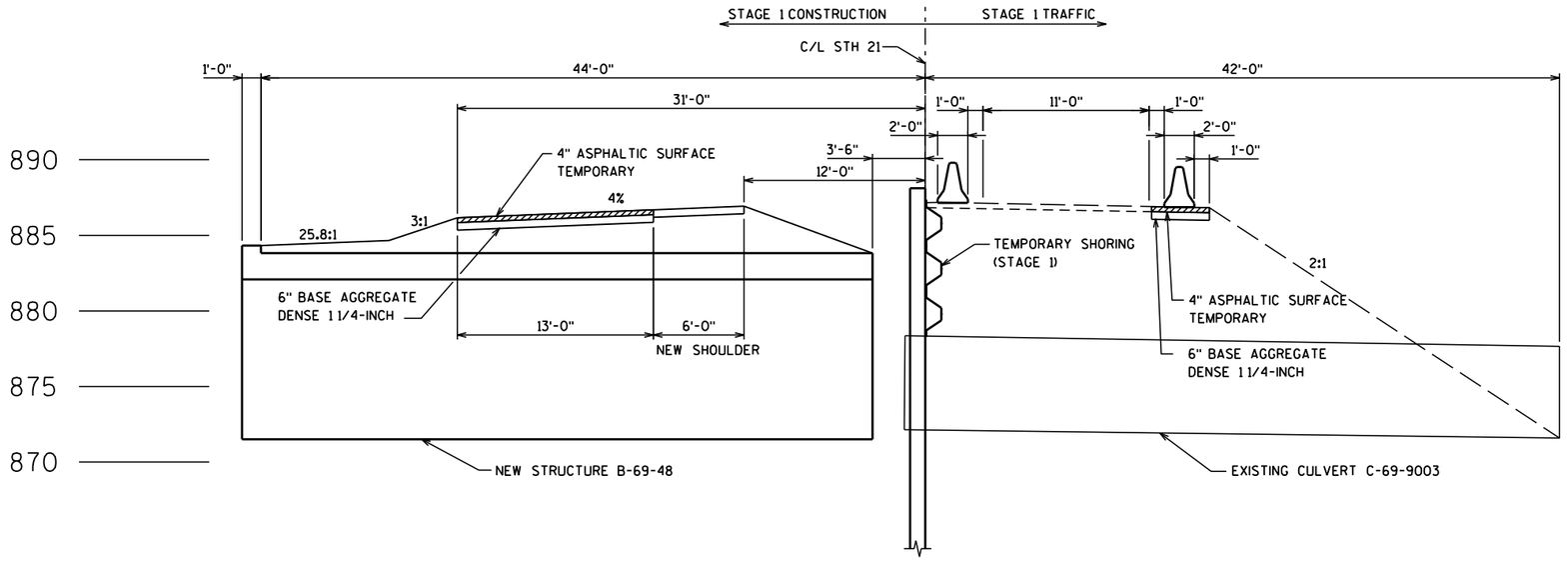
- TRAFFIC CONTROL DRUM WITHOUT WARNING LIGHT
- FILL - INCIDENTAL TO LANE SHIFT ITEM
- 4" ASPHALTIC SURFACE TEMPORARY OVER 6" BASE AGGREGATE DENSE 1 1/4-INCH
- EXISTING ASPHALT
- TEMPORARY SHORING

PROJECT NO: 6170-00-71	HWY: STH 21	COUNTY: WAUSHARA	TEMPORARY LANE SHIFT - PRE-STAGE 1	SHEET 14	E



CROSS SECTION OF EXISTING CONDITION

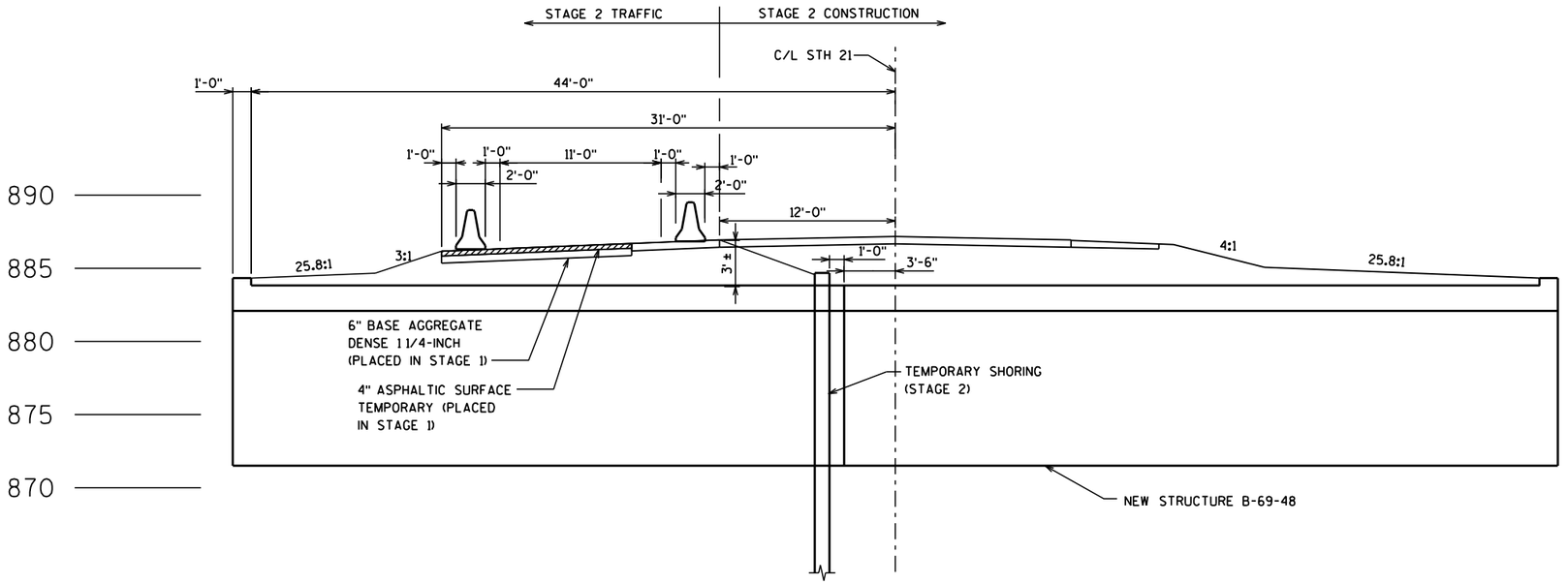
(LOOKING EAST)



CROSS SECTION - STAGE 1 TRAFFIC/CONSTRUCTION

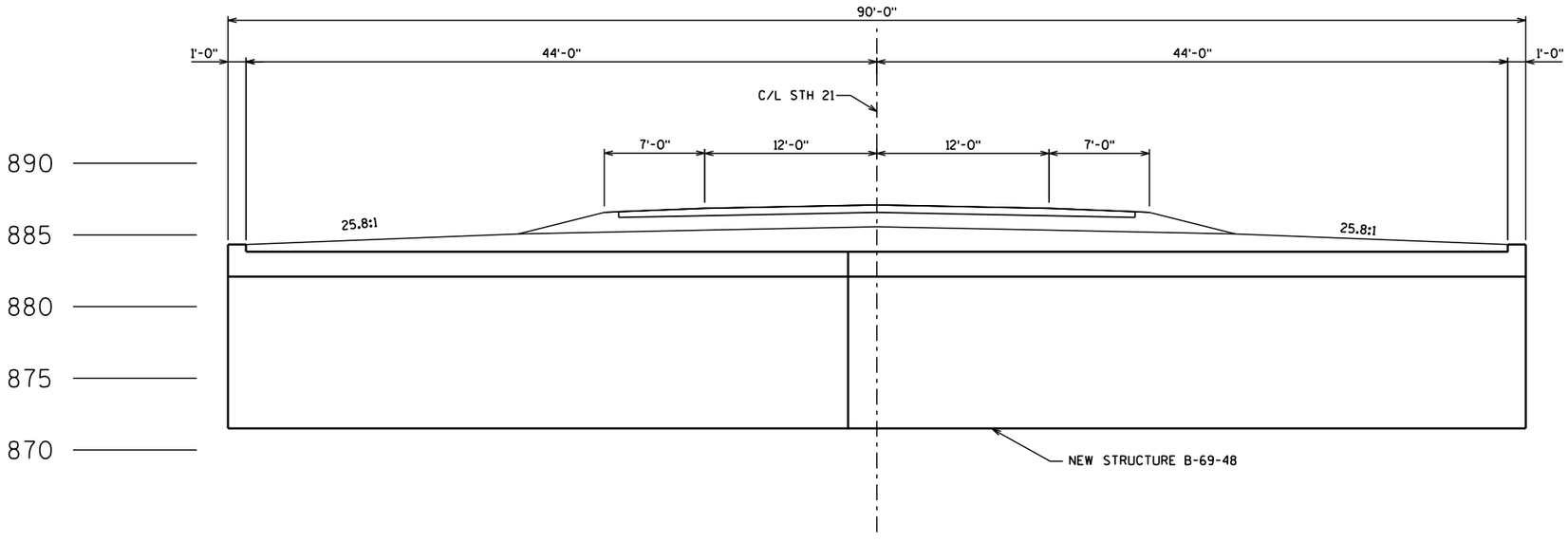
(LOOKING EAST)

PROJECT NUMBER: 6170-00-71	HWY: STH 21	COUNTY: WAUSHARA	TRAFFIC STAGING	SCALE, FEET	SHEET NO: 15	E



CROSS SECTION - STAGE 2 TRAFFIC/CONSTRUCTION

(LOOKING EAST)



CROSS SECTION - FINAL CONDITION

(LOOKING EAST)

PROJECT NUMBER: 6170-00-71	HWY: STH 21	COUNTY: WAUSHARA	TRAFFIC STAGING	SCALE, FEET	SHEET NO: 16	E

FILE NAME : F:\TR\JOBS\E2090A13\Sheets\TRAFFIC CONTROL\61700071_025300_tc.dgn PLOT DATE : 6/5/2014 7:47:10 AM PLOT BY : perryd PLOT NAME : ORG DATE : Originator : OMNNI ASSOCIATES, INC. PLOT SCALE : 10.0285 ' / IN.

WISDOT/CADDS SHEET 42

LEVELS ON - 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55, 57,58,59,60,61,62,63

2

ROAD CLOSED
R11-2
48" X 30"

BRIDGE WORK
48"X48"

STOP HERE ON RED
R10-6
24"X36"

W01-4R

N

CONSTRUCTION PERMIT

POTENTIAL LOCATION OF TEMPORARY WATER BLOCKAGE ◊

REFER TO SDD "TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS" FOR ADVANCE SIGNING

EXIST R/W

15' 75' 50' 100' 50' 50' 75' 15'

TEMPORARY PAVEMENT MARKING, STOP LINE, REMOVABLE TAPE 24-INCH

ACCESS FOR CONSTRUCTION EQUIPMENT

STH 21

582+00 583+00 584+00 585+00 586+00 587+00 588+00 589+00

581+60 19' RT

583+00 4' RT

587+25 4' RT

11' TRAFFIC LANE/ 13' CLEAR

4'

CC

+45 23' RT

+00 19' RT

+25 19' RT

+75 23' RT

TEMPORARY SHORING

OH GUGUY POST

CONSTRUCTION PERMIT

TEMPORARY PAVEMENT MARKING, REMOVABLE TAPE, 4-INCH, WHITE EDGELINE

700 FEET TEMPORARY PAVEMENT MARKING, REMOVABLE TAPE, 4-INCH, YELLOW CENTERLINE

705'

CTH Y

CLOSE ROAD APPROACH DURING CONSTRUCTION, REFER TO SDD "BARRICADES AND SIGNS FOR SIDEROAD CLOSURES"

NOTE:
WIDTH RESTRICTION SIGNS TO SHOW MAX 11' WIDTH, INSTALLED PER SDD "TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS".

◊ TEMPORARY WATER BLOCKADE INCIDENTAL TO PAY ITEM "TEMPORARY WATER DIVERSION".

LEGEND

- WORK AREA
- X X X REMOVE EXISTING PAVEMENT MARKING
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- ASPHALTIC SURFACE TEMPORARY
- DIRECTION OF TRAFFIC
- TYPE III BARRICADE
- TEMPORARY TRAFFIC SIGNAL
- SIGN ON TEMPORARY SUPPORT
- TEMPORARY PRECAST CONCRETE BARRIER
- CC CRASH CUSHION TEMPORARY

PROJECT NO: 6170-00-71	HWY: STH 21	COUNTY: WAUSHARA	TRAFFIC CONTROL-STAGE 1	SHEET 17	E

2

ROAD CLOSED
R11-2
48" X 30"

BRIDGE WORK
48"X48"

STOP HERE ON RED
R10-6
24"X36"

W01-4R

N

CONSTRUCTION PERMIT

POTENTIAL LOCATION OF TEMPORARY WATER BLOCKAGE ◊

EXIST R/W

REFER TO SDD "TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS" FOR ADVANCE SIGNING

15' 75' 100' 50' 50' 50' 75' 15'

+00 26' LT
+50 31' LT
+75 31' LT
+90 35' LT
+80 35' LT
+25 31' LT
+00 31' LT

4%

STH 21

11' LANE
13' CLEAR

582+00 583+00 584+00 585+00 586+00 587+00 588+00 589+00

583+50 16' LT

587+25 16' LT

TEMPORARY SHORING

ACCESS FOR CONSTRUCTION EQUIPMENT

TEMPORARY PAVEMENT MARKING, STOP LINE, REMOVABLE TAPE 24-INCH

TEMPORARY PAVEMENT MARKING, REMOVABLE TAPE, 4-INCH, WHITE EDGELINE

CONSTRUCTION PERMIT

EXIST R/W

POTENTIAL LOCATION OF TEMPORARY WATER BLOCKAGE ◊

TEMPORARY PAVEMENT MARKING, STOP LINE, REMOVABLE TAPE 24-INCH

CTH Y

BRIDGE WORK
48"X48"

ROAD CLOSED
R11-2
48" X 30"

CLOSE ROAD APPROACH DURING CONSTRUCTION, REFER TO SDD "BARRICADES AND SIGNS FOR SIDEROAD CLOSURES"

700 FEET TEMPORARY PAVEMENT MARKING, REMOVABLE TAPE, 4-INCH, YELLOW CENTERLINE

700 FEET TEMPORARY PAVEMENT MARKING, REMOVABLE TAPE, 4-INCH, YELLOW CENTERLINE

705'

NOTE:
WIDTH RESTRICTION SIGNS TO SHOW MAX 11' WIDTH, INSTALLED PER SDD "TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS".

◊ TEMPORARY WATER BLOCKADE INCIDENTAL TO PAY ITEM "TEMPORARY WATER DIVERSION".

LEGEND

- WORK AREA
- X X X REMOVE EXISTING PAVEMENT MARKING
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- ASPHALTIC SURFACE TEMPORARY
- DIRECTION OF TRAFFIC
- TYPE III BARRICADE
- TEMPORARY TRAFFIC SIGNAL
- SIGN ON TEMPORARY SUPPORT
- TEMPORARY PRECAST CONCRETE BARRIER
- CC CRASH CUSHION TEMPORARY

PROJECT NO: 6170-00-71	HWY: STH 21	COUNTY: WAUSHARA	TRAFFIC CONTROL-STAGE 2	SHEET 18	E

2

SEQUENCE OF OPERATIONS				
STRUCTURE: B-69-0048 STH 21				
PRE - TIMED CYCLE 1 = 130 seconds				
TIME: 6:00 AM - 6:00 PM				
INTERVAL	EB A1, A2	WB B1, B2	INTERVAL LENGTH (SEC)	% OF CYCLE
PHASE A	G	R	45	34.9%
CLEARANCE	Y	R	4	3.1%
CLEARANCE	R	R	24	18.3%
PHASE B	R	G	29	22.3%
CLEARANCE	R	Y	4	3.1%
CLEARANCE	R	R	24	18.3%
			130	100.0%

SEQUENCE OF OPERATIONS				
STRUCTURE: B-69-0048 STH 21				
PRE - TIMED CYCLE 2 = 100 seconds				
TIME: 6:00 PM - 6:00 AM				
INTERVAL	EB A1, A2	WB B1, B2	INTERVAL LENGTH (SEC)	% OF CYCLE
PHASE A	G	R	27	27.1%
CLEARANCE	Y	R	4	4.0%
CLEARANCE	R	R	24	23.8%
PHASE B	R	G	17	17.3%
CLEARANCE	R	Y	4	4.0%
CLEARANCE	R	R	24	23.8%
			100	100.0%

NOTES:

1. G = GREEN, Y = YELLOW, R = RED

2. THE ALL-RED CLEARANCE (INTERVAL 3 & 6) IS BASED ON A STOPLINE TO STOPLINE DISTANCE = 705 FT. IF THIS DISTANCE IS MODIFIED IN THE FIELD, CONTACT CHRIS DROES, NC REGION, AT 715-365-5749 FOR TRAFFIC TIMING MODIFICATIONS.

DATE 09OCT14 E S T I M A T E O F Q U A N T I T I E S

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	6170-00-71 QUANTITY
0010	201.0105	CLEARING	STA	3.000	3.000
0020	201.0205	GRUBBING	STA	3.000	3.000
0030	203.0200	REMOVING OLD STRUCTURE (STATION) 01. 585+53.75	LS	1.000	1.000
0040	204.0110	REMOVING ASPHALTIC SURFACE	SY	215.000	215.000
0050	205.0100	EXCAVATION COMMON	CY	1,310.000	1,310.000
0060	206.1000	EXCAVATION FOR STRUCTURES BRIDGES (STRUCTURE) 01. B-69-48	LS	1.000	1.000
0070	208.0100	BORROW	CY	820.000	820.000
0080	210.0100	BACKFILL STRUCTURE	CY	1,316.000	1,316.000
0090	213.0100	FINISHING ROADWAY (PROJECT) 01. 6170-00-71	EACH	1.000	1.000
0100	305.0110	BASE AGGREGATE DENSE 3/4-INCH	TON	140.000	140.000
0110	305.0120	BASE AGGREGATE DENSE 1 1/4-INCH	TON	1,475.000	1,475.000
0120	455.0105	ASPHALTIC MATERIAL PG58-28	TON	22.000	22.000
0130	455.0605	TACK COAT	GAL	28.000	28.000
0140	460.1103	HMA PAVEMENT TYPE E-3	TON	400.000	400.000
0150	460.2000	INCENTIVE DENSITY HMA PAVEMENT	DOL	260.000	260.000
0160	465.0125	ASPHALTIC SURFACE TEMPORARY	TON	310.000	310.000
0170	502.0100	CONCRETE MASONRY BRIDGES	CY	389.000	389.000
0180	502.6500	PROTECTIVE COATING CLEAR	GAL	2.000	2.000
0190	505.0405	BAR STEEL REINFORCEMENT HS BRIDGES	LB	11,600.000	11,600.000
0200	505.0605	BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	38,130.000	38,130.000
0210	511.1200	TEMPORARY SHORING (STRUCTURE) 01. B-69-48	SF	1,190.000	1,190.000
0220	511.1300	TEMPORARY SHORING (LOCATION) 01. STA. 585+00	SF	150.000	150.000
0230	516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	44.000	44.000
0240	516.0610.S	SHEET MEMBRANE WATERPROOFING FOR TOP SLAB (STRUCTURE) 02. B-69-48	SY	307.000	307.000
0250	550.2106	PILING CIP CONCRETE 10 3/4 X 0.365-INCH	LF	1,500.000	1,500.000
0260	603.8000	CONCRETE BARRIER TEMPORARY PRECAST DELIVERED	LF	1,439.000	1,439.000
0270	603.8125	CONCRETE BARRIER TEMPORARY PRECAST INSTALLED	LF	1,885.000	1,885.000
0280	606.0300	RIPRAP HEAVY	CY	180.000	180.000
0290	612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	270.000	270.000
0300	614.0905	CRASH CUSHIONS TEMPORARY	EACH	8.000	8.000
0310	619.1000	MOBILIZATION	EACH	1.000	1.000
0320	624.0100	WATER	MGAL	10.000	10.000
0330	625.0100	TOPSOIL	SY	3,000.000	3,000.000
0340	627.0200	MULCHING	SY	900.000	900.000
0350	628.1504	SILT FENCE	LF	1,050.000	1,050.000
0360	628.1520	SILT FENCE MAINTENANCE	LF	1,050.000	1,050.000
0370	628.1905	MOBILIZATIONS EROSION CONTROL	EACH	4.000	4.000
0380	628.1910	MOBILIZATIONS EMERGENCY EROSION CONTROL	EACH	2.000	2.000
0390	628.2008	EROSION MAT URBAN CLASS I TYPE B	SY	3,000.000	3,000.000
0400	628.6005	TURBIDITY BARRIERS	SY	18.000	18.000
0410	628.7504	TEMPORARY DITCH CHECKS	LF	40.000	40.000
0420	628.7570	ROCK BAGS	EACH	50.000	50.000
0430	629.0210	FERTILIZER TYPE B	CWT	1.000	1.000
0440	630.0130	SEEDING MIXTURE NO. 30	LB	30.000	30.000
0450	630.0160	SEEDING MIXTURE NO. 60	LB	4.000	4.000
0460	630.0175	SEEDING MIXTURE NO. 75	LB	11.000	11.000

3

DATE 09OCT14 E S T I M A T E O F Q U A N T I T I E S

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	6170-00-71 QUANTITY
0470	630.0200	SEEDING TEMPORARY	LB	24.000	24.000
0480	634.0614	POSTS WOOD 4X6-INCH X 14-FT	EACH	2.000	2.000
0490	638.2102	MOVING SIGNS TYPE II	EACH	6.000	6.000
0500	638.4000	MOVING SMALL SIGN SUPPORTS	EACH	3.000	3.000
0510	642.5001	FIELD OFFICE TYPE B	EACH	1.000	1.000
0520	643.0100	TRAFFIC CONTROL (PROJECT) 01. 6170-00-71	EACH	1.000	1.000
0530	643.0300	TRAFFIC CONTROL DRUMS	DAY	2,512.000	2,512.000
0540	643.0420	TRAFFIC CONTROL BARRICADES TYPE III	DAY	1,680.000	1,680.000
0550	643.0705	TRAFFIC CONTROL WARNING LIGHTS TYPE A	DAY	960.000	960.000
0560	643.0715	TRAFFIC CONTROL WARNING LIGHTS TYPE C	DAY	1,440.000	1,440.000
0570	643.0900	TRAFFIC CONTROL SIGNS	DAY	6,420.000	6,420.000
0580	643.1050	TRAFFIC CONTROL SIGNS PCMS	DAY	14.000	14.000
0590	645.0120	GEOTEXTILE FABRIC TYPE HR	SY	210.000	210.000
0600	646.0106	PAVEMENT MARKING EPOXY 4-INCH	LF	1,345.000	1,345.000
0610	646.0406	PAVEMENT MARKING SAME DAY EPOXY 4-INCH	LF	177.000	177.000
0620	646.0600	REMOVING PAVEMENT MARKINGS	LF	1,413.000	1,413.000
0630	649.0400	TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH	LF	5,180.000	5,180.000
0640	649.1400	TEMPORARY PAVEMENT MARKING STOP LINE REMOVABLE TAPE 24-INCH	LF	24.000	24.000
0650	650.4500	CONSTRUCTION STAKING SUBGRADE	LF	1,635.000	1,635.000
0660	650.5000	CONSTRUCTION STAKING BASE	LF	1,635.000	1,635.000
0670	650.6500	CONSTRUCTION STAKING STRUCTURE LAYOUT (STRUCTURE) 01. B-69-48	LS	1.000	1.000
0680	650.9910	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) 01. 6170-00-71	LS	1.000	1.000
0690	650.9920	CONSTRUCTION STAKING SLOPE STAKES	LF	1,635.000	1,635.000
0700	661.0100	TEMPORARY TRAFFIC SIGNALS FOR BRIDGES (STRUCTURE) 01. B-69-48	LS	1.000	1.000
0710	690.0150	SAWING ASPHALT	LF	60.000	60.000
0720	715.0502	INCENTIVE STRENGTH CONCRETE STRUCTURES	DOL	2,334.000	2,334.000
0730	ASP.1T0A	ON-THE-JOB TRAINING APPRENTICE AT $5. 00/HR	HRS	1,200.000	1,200.000
0740	ASP.1T0G	ON-THE-JOB TRAINING GRADUATE AT $5.00/HR	HRS	600.000	600.000
0750	SPV.0060	SPECIAL 01. BOULDER RETARDS	EACH	12.000	12.000
0760	SPV.0060	SPECIAL 02. LANE SHIFT	EACH	1.000	1.000
0770	SPV.0105	SPECIAL 02. TEMPORARY WATER DIVERSION	LS	1.000	1.000
0780	SPV.0195	SPECIAL 01. SELECT CRUSHED MATERIAL FOR TRAVEL CORRIDOR	TON	36.000	36.000

3

CLEARING & GRUBBING

STATION	LOCATION	201.0105 CLEARING STATION	201.0205 GRUBBING STATION
584+00 - 587+00	STH 21	3	3
	TOTALS	**3**	**3**

REMOVING ASPHALTIC SURFACE

STAGE	STATION	LOCATION	204.0110 SY
2	584+00 - 587+00	STH 21	215
		TOTAL	**215**

EARTHWORK SUMMARY

STAGE	STATION TO STATION	EXCAVATION COMMON 205.0100 (CY)	AVAILABLE MATERIAL (CY) NOTE 1	UNEXPANDED FILL (CY)	EXPANDED FILL (CY) FACTOR 1.25	MASS ORDINATE +/- (CY) NOTE 14	WASTE (CY)	BORROW (CY) 208.0100	BORROW (CY) 208.0100 (ROUNDED)
STAGE 1	581+50 - 588+84	327	327	710	888	-561	0	561	560
STAGE 2	584+00 - 586+75	377	377	508	635	-259	0	259	260
POST STAGE 2	581+50 - 588+84	605	605	0	0	605	605	0	0
	TOTALS	1,309	1,309	1,219	1,523	-215	605	819	820
	ROUNDED TOTALS	**1,310**						**820**	

1) ALL EXCAVATED ASPHALT MATERIAL ASSUMED USABLE AS FILL.

14) MASS ORDINATE = (AVAILABLE MATERIAL) - (EXPANDED FILL).

BASE AGGREGATE DENSE AND WATER

STAGE	STATION TO STATION	LOCATION	305.0110 BASE AGGREGATE DENSE 3/4-INCH TON	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TON	624.0100 WATER MGAL
PRE-STAGE 1	581+60 - 588+00 RT WIDENING	STH 21	---	110	1
STAGE 1	584+00 - 586+75 MAINLINE	STH 21	---	130	1
STAGE 1	582+00 - 588+65, LT WIDENING	STH 21	---	365	2
STAGE 2	584+00 - 586+75 MAINLINE	STH 21	13	755	5
STAGE 2	581+60 - 588+00 RT SHLDR RESTORATION	STH 21	35	---	---
POST STAGE 2	584+00 - 586+75 MAINLINE	STH 21	13	115	1
POST STAGE 2	582+00 - 588+65, LT SHLDR RESTORATION	STH 21	52	---	---
	UNDISTRIBUTED	STH 21	27	---	---
		TOTALS	**140**	**1,475**	**10**

ASPHALTIC ITEMS

STATION TO STATION	LOCATION	455.0105 ASPHALTIC MATERIAL PG 58-28 TON	455.0605 TACK COAT GAL	460.1103 HMA PAVEMENT E-3 TON
584+00 - 586+75	STH 21	22	28	400
	TOTALS	**22**	**28**	**400**

ASPHALTIC SURFACE TEMPORARY

STAGE	STATION TO STATION	LOCATION	465.0125 ASPHALTIC SURFACE TEMPORARY TON
PRE-STAGE 1	581+60 - 588+00 RT	STH 21, RT	72
STAGE 1	582+00 - 588+65 LT	STH 21, LT	239
		TOTALS	**310**

TEMPORARY SHORING

STATION	LOCATION	511.1300 SF
585+00 (PRE-STAGE 1)	STH 21	150
	TOTAL	**150**

3

3

TEMPORARY CONCRETE BARRIER

STAGE	STA	TO	STA	LOCATION	DIR	603.8000 CONCRETE BARRIER TEMPORARY PRECAST DELIVERED LF	603.8125 CONCRETE BARRIER TEMPORARY PRECAST INSTALLED LF	614.0905 CRASH CUSHIONS TEMPORARY ** EACH	CRASH CUSHION OBJECT MARKING PATTERN
1	582+50	-	587+75	STH 21	OUTSIDE EDGE	526	526	2	OM-3R, OM-3L
	583+00	-	587+50	STH 21	INSIDE EDGE	446	446	2	OM-3L, OM 3R
2	582+50	-	587+25	STH 21	INSIDE EDGE	7	453	2	OM-3R, OM-3L
	583+00	-	587+75	STH 21	OUTSIDE EDGE	460	460	2	OM-3L, OM 3R
					TOTALS	**1,439**	**1,885**	**8**	

** CRASH CUSHION DESIGN PARAMETERS
CRASH TEST CONDITION TL-3
WIDTH REQUIREMENTS L = 22', N = 6', F = 2'

EROSION CONTROL ITEMS

STATION TO STATION	LOCATION	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH	628.7504 TEMPORARY DITCH CHECKS LF	628.7570 ROCK BAGS EACH
582+80 - BRIDGE, LT	STH 21	360	360	---	---	10	---
584+00 - BRIDGE, RT	STH 21	150	150	---	---	---	---
BRIDGE - 587+00, LT	STH 21	170	170	---	---	10	---
BRIDGE - 586+90, RT	STH 21	160	160	---	---	---	---
UNDISTRIBUTED	STH 21	210	210	4	2	20	50
TOTALS		**1,050**	**1,050**	**4**	**2**	**40**	**50**

TURBIDITY BARRIER

STATION	LOCATION	628.6005 SY
585+30 RT	STH 21	18
TOTAL		**18**

LANDSCAPING

STAGE	STATION TO STATION	LOCATION	625.0100 TOPSOIL SY	627.0200 MULCHING SY	628.2008 EROSION MAT URBAN CLASS I TYPE B SY	630.0200 SEEDING TEMPORARY LB	630.0130 SEEDING MIXTURE NO 30 LB	630.0160 SEEDING MIXTURE NO 60 LB	630.0175 SEEDING MIXTURE NO 75 LB	629.0210 FERTILIZER TYPE B CWT
1	582+00 - 588+50, LT	STH 21	---	700	---	19	---	---	---	---
2	584+00 - 587+00, RT	STH 21	1,000	---	1,000	---	12	---	3	0.3
POST STAGE 2	582+00 - 588+50, LT	STH 21	1,600	---	1,600	---	12	3	6	0.3
	UNDISTRIBUTED	STH 21	400	200	400	5	6	1	2	0.4
TOTALS			**3,000**	**900**	**3,000**	**24**	**30**	**4**	**11**	**1**

MOVING SIGNS TYPE II

SIGN NO.	STATION	REFERNCE LINE	FACE DIRECTION	DESCRIPTION	634.0614 POSTS WOOD 4X6 INCH 14 FT EACH	638.2102 MOVING SIGNS TYPE II EACH	638.4000 MOVING SMALL SIGN SUPPORTS EACH	REMARKS
M101	585+35 , RT	STH 21	EB	WHITE RIVER	1	1	---	
M102	583+50 , LT	STH 21	WB	WEST/STH 21 ASSEMBLY	---	1	1	
M103	585+75 , LT	STH 21	WB	WHITE RIVER	1	1	---	
M104	586+94 , LT	STH 21	WB	ADOPT A HIGHWAY	---	1	1	
M105	588+39 , LT	STH 21	WB	COUNTY Y/DIRECTIONAL ARROWS ASSEMBLY	---	1	1	
M106	588+39 , LT	STH 21	NB	DOUBLE ARROW	---	1	---	ON SAME POST AS SIGN M105
				TOTALS	**2**	**6**	**3**	

TRAFFIC CONTROL

STAGE	LOCATION	EST. SERVICE PERIOD DAYS	643.0100 TRAFFIC CONTROL (PROJECT) EACH	643.0300 DRUMS NO	643.0300 DRUMS DAYS	643.0420 BARRICADES TYPE III NO	643.0420 BARRICADES TYPE III DAYS	643.0705 WARNING LIGHTS TYPE A NO	643.0705 WARNING LIGHTS TYPE A DAYS	643.0715 WARNING LIGHTS TYPE C NO	643.0715 WARNING LIGHTS TYPE C DAYS	643.0900 SIGNS NO	643.0900 SIGNS DAYS	643.1050 SIGNS PCMS NO	643.1050 SIGNS PCMS DAYS	661.0100 TEMPORARY TRAFFIC SIGNALS FOR BRIDGES (STRUCTURE) LS	REMARKS
PROJECT 6170-00-71			1	---	---	---	---	---	---	---	---	---	---	---	---	1	
PRE-STAGE 1	STH 21	2	---	26	52	---	---	---	---	---	---	6	12	2	14	---	NOTE A
	STH 21 AT I-39	2	---	---	---	---	---	---	---	---	---	18	36	---	---	---	
	STH 21 AT STH 22/STH 73	2	---	---	---	---	---	---	---	---	---	6	12	---	---	---	
1	STH 21	60	---	20	1,200	3	180	2	120	10	600	26	1,560	---	---	---	
	CTH Y	60	---	---	---	5	300	2	120	---	---	1	60	---	---	---	
	STH 21 AT I-39	60	---	---	---	---	---	---	---	---	---	18	1,080	---	---	---	
	STH 21 AT STH 22/STH 73	60	---	---	---	---	---	---	---	---	---	6	360	---	---	---	
	CTH Y AT CTH II	60	---	---	---	3	180	2	120	---	---	1	60	---	---	---	
	CTH Y AT COTTONVILLE	60	---	---	---	3	180	2	120	---	---	1	60	---	---	---	
2	STH 21	60	---	21	1,260	3	180	2	120	14	840	26	1,560	---	---	---	
	CTH Y	60	---	---	---	5	300	2	120	---	---	1	60	---	---	---	
	STH 21 AT I-39	60	---	---	---	---	---	---	---	---	---	18	1,080	---	---	---	
	STH 21 AT STH 22/STH 73	60	---	---	---	---	---	---	---	---	---	6	360	---	---	---	
	CTH Y AT CTH II	60	---	---	---	3	180	2	120	---	---	1	60	---	---	---	
	CTH Y AT COTTONVILLE	60	---	---	---	3	180	2	120	---	---	1	60	---	---	---	
	TOTALS		**1**		**2,512**		**1,680**		**960**		**1,440**		**6,420**		**14**	**1**	

NOTE A: INSTALL PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) ONE WEEK IN ADVANCE OF INITIAL LANE CLOSURE APPROXIMATELY ONE MILE IN ADVANCE OF PROJECT.

PORTABLE CHANGEABLE MESSAGE SIGNS

			PRIOR TO CONSTRUCTION		STAGE 1		STAGE 2		POST STAGE 2	
SITE NO	LOCATION	ROADWAY CONDITION/ CONSTRUCTION	FRAME I (2 SEC)	FRAME II (2 SEC)	FRAME I (2 SEC)	FRAME II (2 SEC)	FRAME I (2 SEC)	FRAME II (2 SEC)	FRAME I (2 SEC)	FRAME II (2 SEC)
E1	ONE MILE WEST OF PROJECT SITE	GENERAL	STH 21 ROAD WORK	BEGINS XX/XX/XX	(NO MESSAGE)		(NO MESSAGE)		(NO MESSAGE)	
W1	ONE MILE EAST OF PROJECT SITE	GENERAL	STH 21 ROAD WORK	BEGINS XX/XX/XX	(NO MESSAGE)		(NO MESSAGE)		(NO MESSAGE)	

PAVEMENT MARKING

STAGE	STATION	TO	STATION	LOCATION	646.0106 PAVEMENT MARKING EPOXY 4-INCH (WHITE) LF	646.0406 PAVEMENT MARKING SAME DAY EPOXY 4-INCH (YELLOW) LF	COMMENTS
2	581+60	-	588+00	STH 21	640	---	WHITE EDGELINE
2	581+60	-	588+65	STH 21	---	177	YELLOW CENTERLINE
2	581+60	-	588+65	STH 21	705	---	WHITE EDGELINE
				TOTALS	**1,345**	**177**	

REMOVING PAVEMENT MARKINGS

STA	TO	STA	LOCATION	LENGTH	646.0600 REMOVING PAVEMENT MARKINGS LF	NOTES
CATEGORY 0010						
581+60	-	584+00	STH 21	240	60	EXISTING = 4" SKIP DASH
586+75	-	588+65	STH 21	190	48	EXISTING = 4" SKIP DASH
581+60	-	588+00	STH 21	640	640	EXISTING = 4" EDGELINE
582+00	-	588+65	STH 21	665	665	EXISTING = 4" EDGELINE
				TOTAL	**1,413**	

TEMPORARY PAVEMENT MARKING

STAGE	STA	TO	STA	LOCATION	649.0400 TEMP PVT MARKING REMOVABLE TAPE 4-INCH LF	649.1400 TEMP PVT MARKING STOP LINE REMOVABLE TAPE 24-INCH LF	NOTES
1	574+60	-	581+60	STH 21	1,400	---	4" DOUBLE YELLOW CENTERLINE
1	588+65	-	595+65	STH 21	1,400	---	4" DOUBLE YELLOW CENTERLINE
1	581+60	-	581+60	STH 21	---	12	
1	588+65	-	588+65	STH 21	---	12	
1	581+60	-	588+00 LT.	STH 21	640	---	4" WHITE EDGELINE LT.
1	582+50	-	587+75 RT.	STH 21	532	---	4" WHITE EDGELINE RT.
2	582+00	-	588+65 LT.	STH 21	666	---	4" WHITE EDGELINE LT.
2	582+40	-	587+75 RT.	STH 21	542	---	4" WHITE EDGELINE RT.
				TOTALS	**5,180**	**24**	

CONSTRUCTION STAKING

STAGE	STATION TO STATION	LOCATION	650.4500 SUBGRADE LF	650.5000 BASE LF	650.6500 STRUCTURE LAYOUT LS	650.9910 SUPPLEMENTAL CONTROL LS	650.9920 SLOPE STAKES LF
1	582+00 - 588+80	STH 21	680	680	---	---	680
	STRUCTURE - B-69-48	STH 21	---	---	1	---	---
2	584+00 - 586+75	STH 21	275	275	---	---	275
	STRUCTURE - B-69-48	STH 21	---	---	INCIDENTAL	---	---
POST STAGE 2	582+00 - 588+80	STH 21	680	680	---	---	680
		TOTALS	**1,635**	**1,635**	**1**	**1**	**1,635**

SAWING ASPHALT

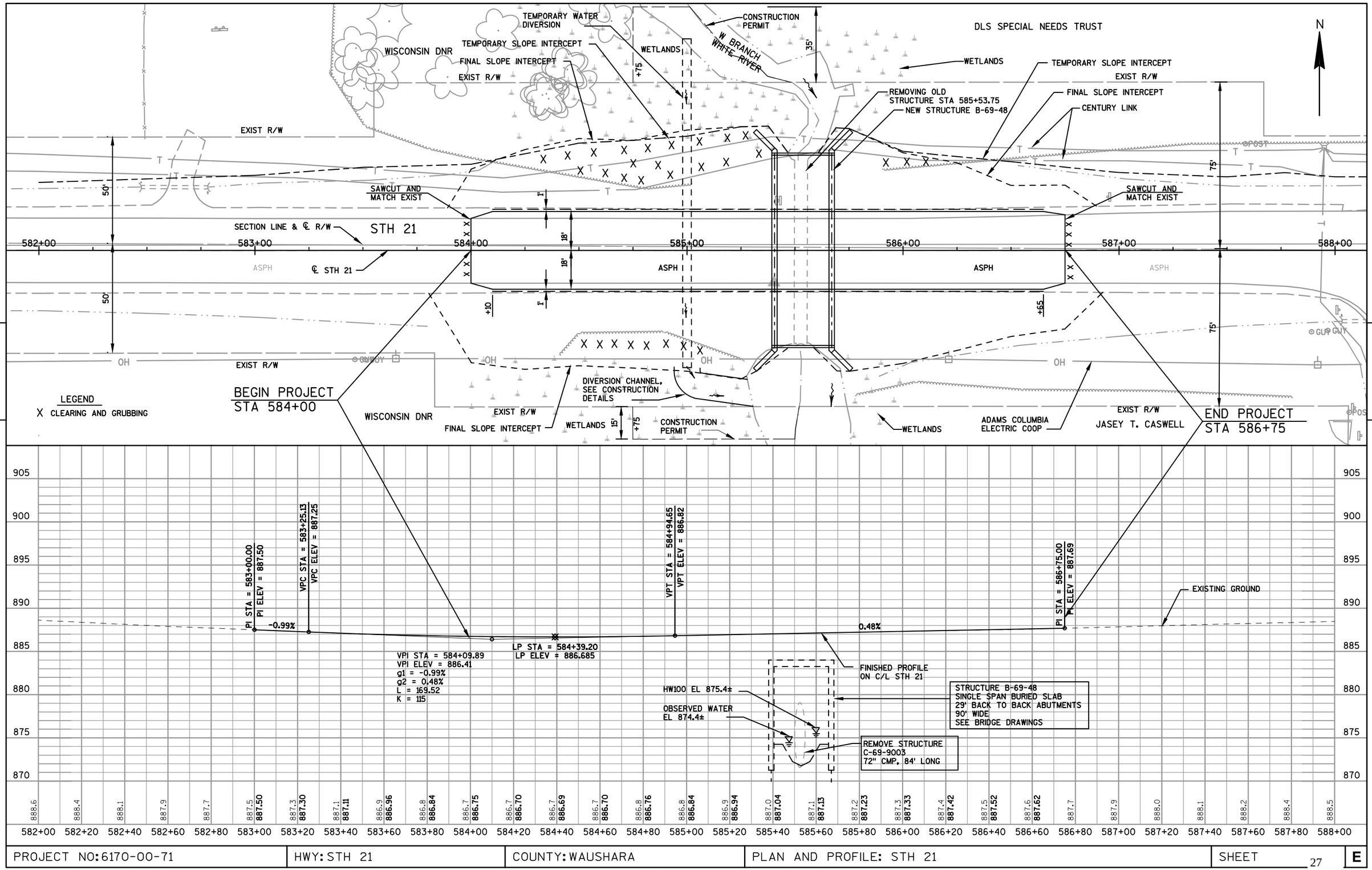
STATION	LOCATION	690.0150 SAWING ASPHALT LF
584+00	STH 21	30
586+75	STH 21	30
	TOTAL	**60**

LANE SHIFT

STATION	LOCATION	SPV.0060.02 LANE SHIFT EACH
585+50	STH 21	1
	TOTAL	**1**

TEMPORARY WATER DIVERSION

STATION	LOCATION	SPV.0105.01 TEMPORARY WATER DIVERSION LS
585+00	STH 21	1
	TOTAL	**1**

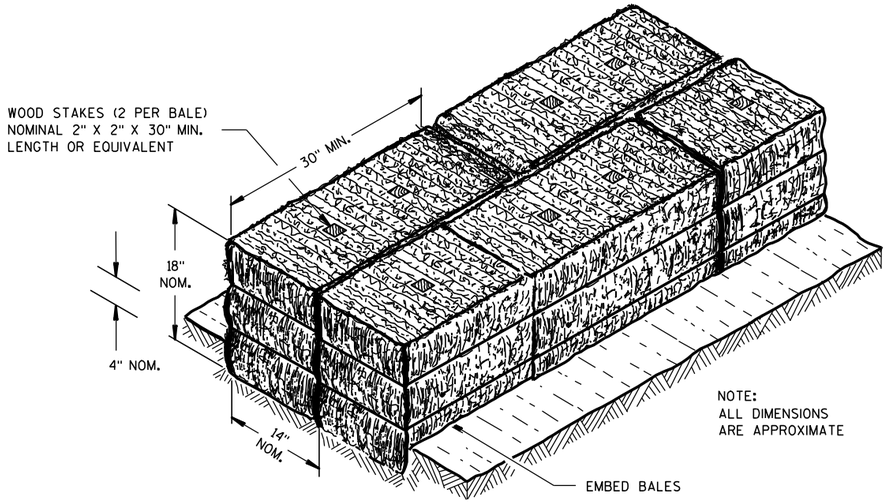


PROJECT NO: 6170-00-71	HWY: STH 21	COUNTY: WAUSHARA	PLAN AND PROFILE: STH 21	SHEET 27	E

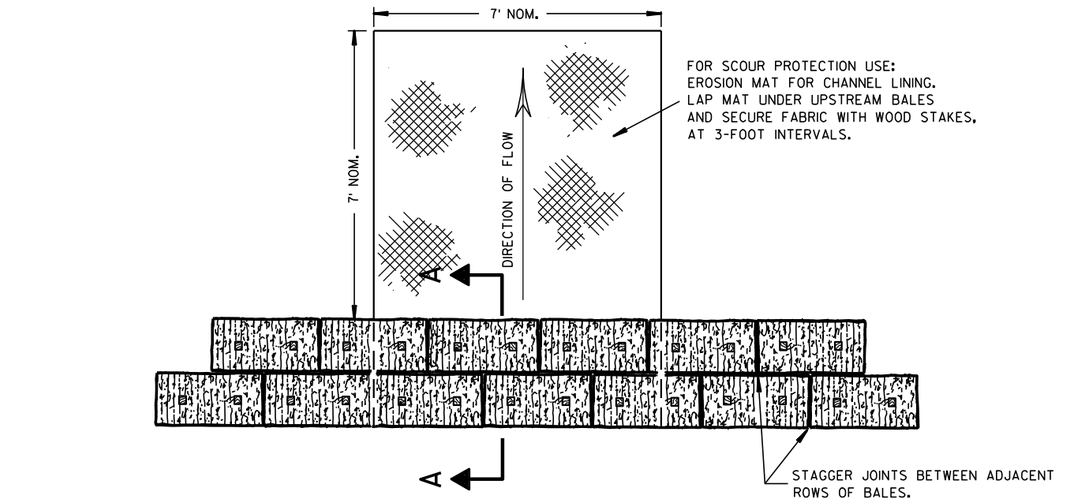
Standard Detail Drawing List

08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
09G02-03A	BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION
09G02-03B	BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION
09G02-03C	BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION
12A03-10	NAME PLATE (STRUCTURES)
14B07-14A	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14B	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14C	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14D	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14E	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14F	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14G	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14H	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B08-01A	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-01B	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-01C	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-01D	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-01E	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
15C03-02	BARRICADES AND SIGNS FOR SIDEROAD CLOSURES
15C08-16A	PAVEMENT MARKING (MAINLINE)
15C08-16B	PAVEMENT MARKING (INTERSECTIONS)
15C12-04	TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)
15D28-02	TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY
15D33-03	TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS

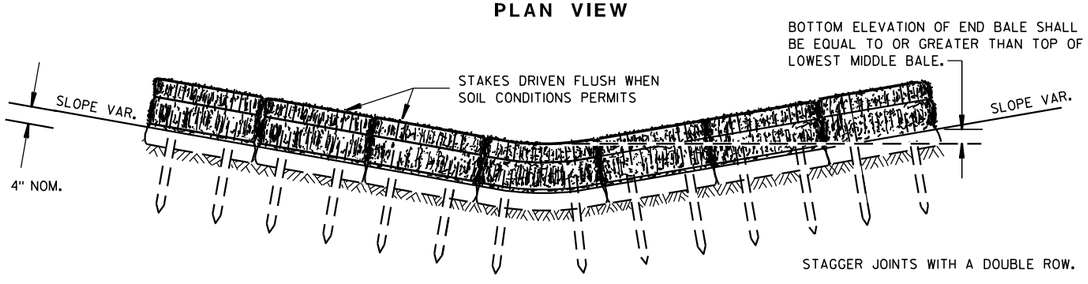
6



SECTION A-A



PLAN VIEW



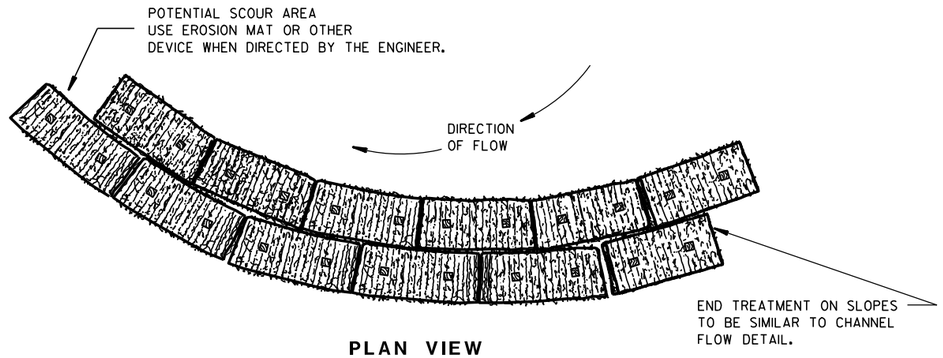
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

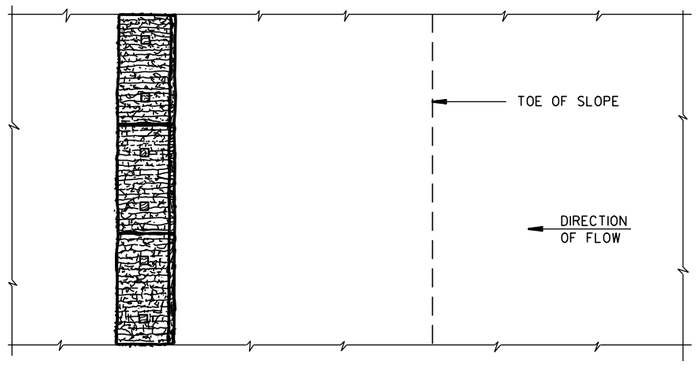
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

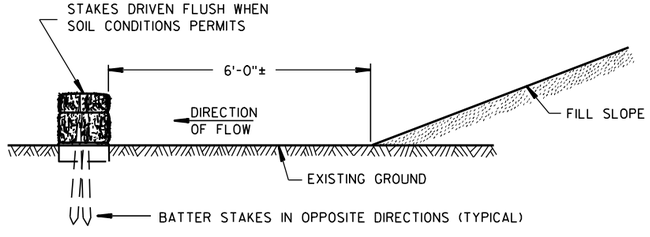


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

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

FHWA

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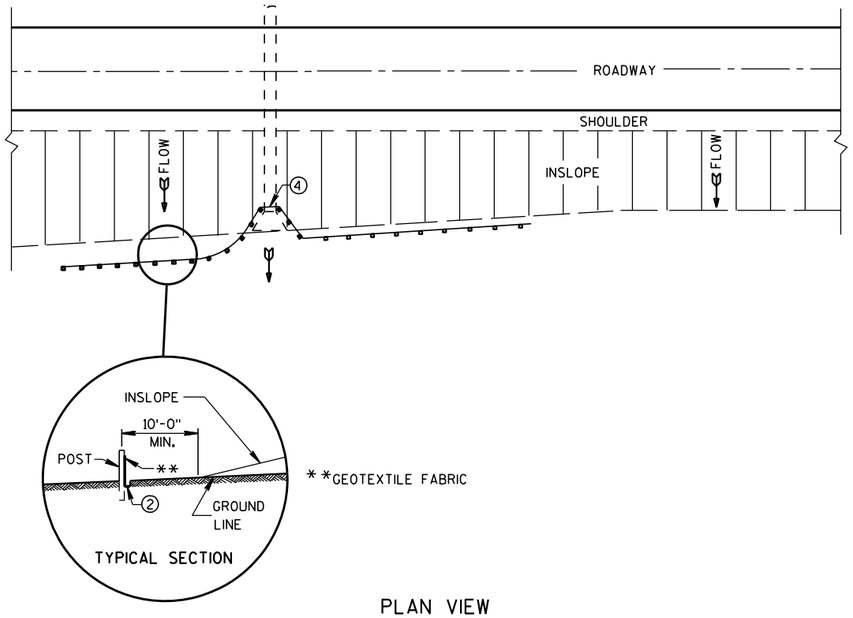
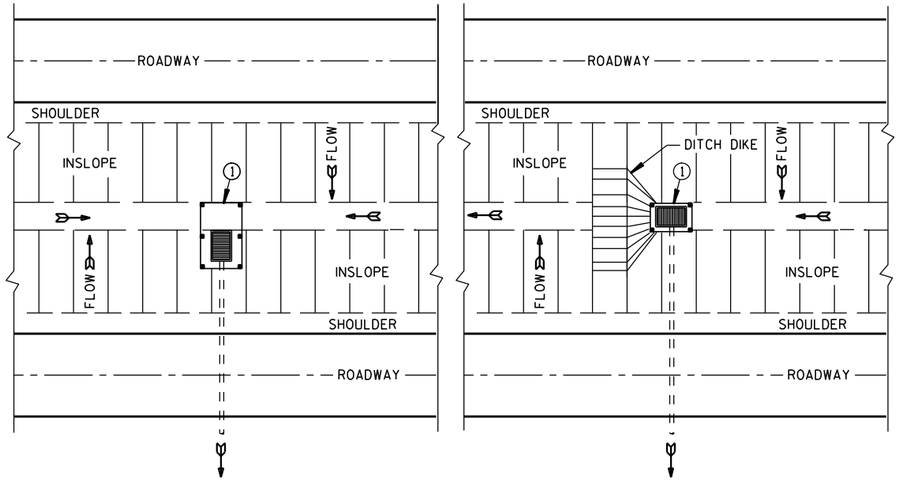
S.D.D. 8 E 8-3



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

GENERAL NOTES

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

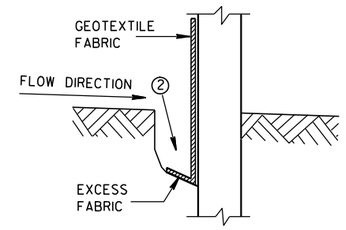
① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.

② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.

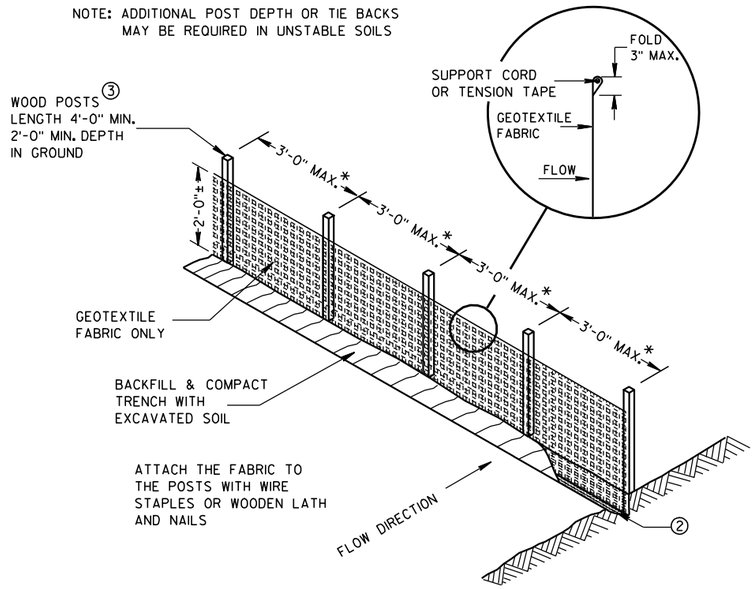
③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 1⅛" X 1⅛" OF OAK OR HICKORY.

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

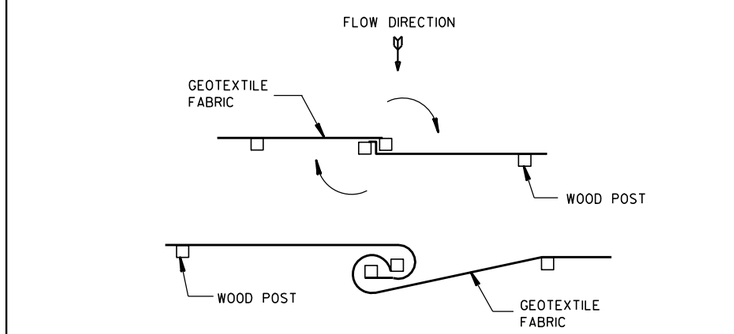
⑤ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



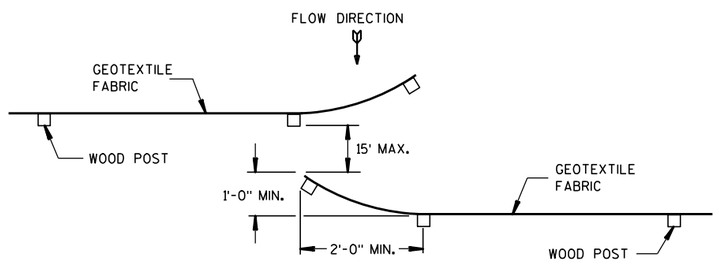
TRENCH DETAIL



SILT FENCE

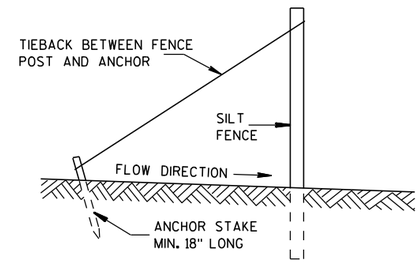


TWIST METHOD



HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE ⑤



SILT FENCE TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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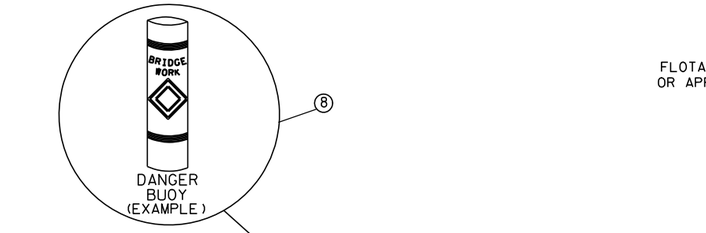
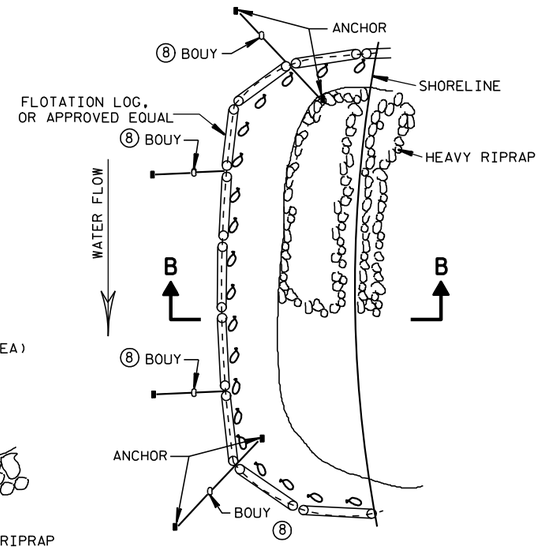
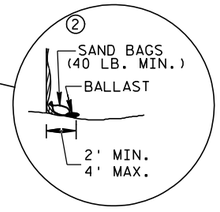
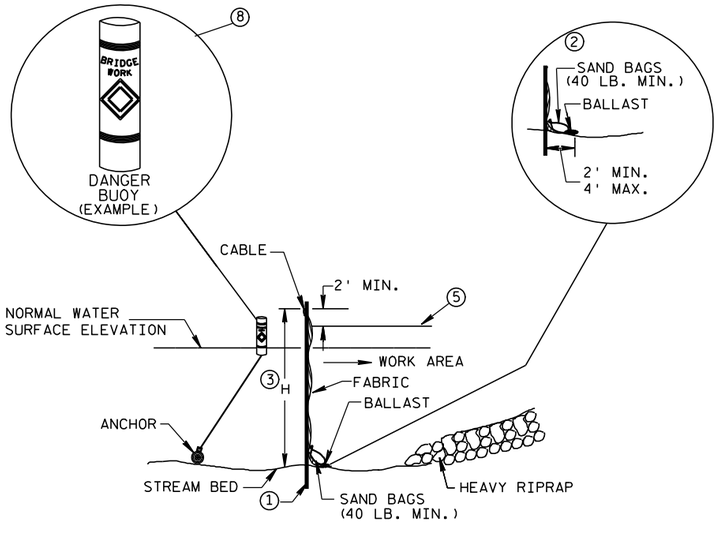


SECTION B-B

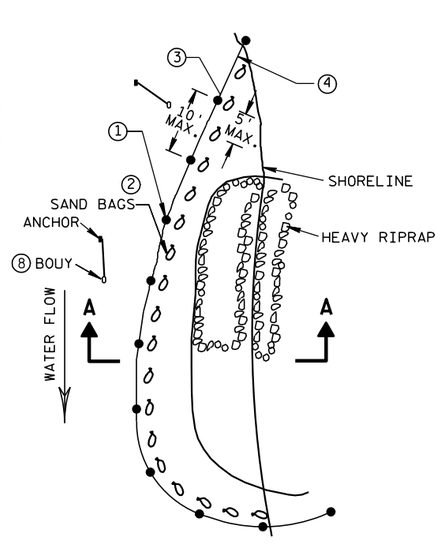




TURBIDITY BARRIER FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6



SECTION A-A



PLAN VIEW

TURBIDITY BARRIER STANDARD POST INSTALLATION

TURBIDITY BARRIER PLACEMENT DETAILS

GENERAL NOTES

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

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

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

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

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

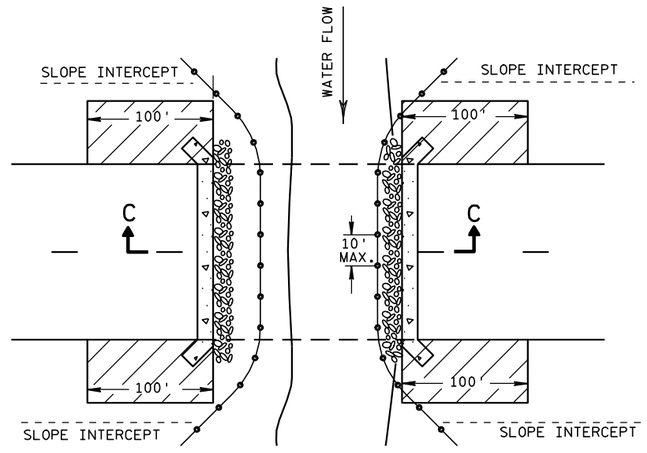
④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.

⑤ ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD. MIMIMUM BARRIER HEIGHT SHALL BE 2'GREATER THAN EITHER THE 02 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WICHEVER IS GREATER.

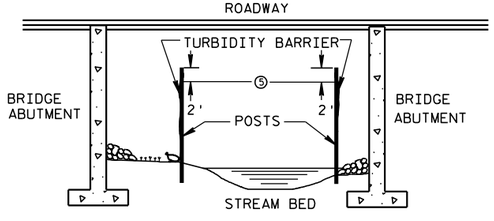
⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BED ROCK PREVENTS THE INSTALLATION OF POSTS.

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

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



PLAN VIEW



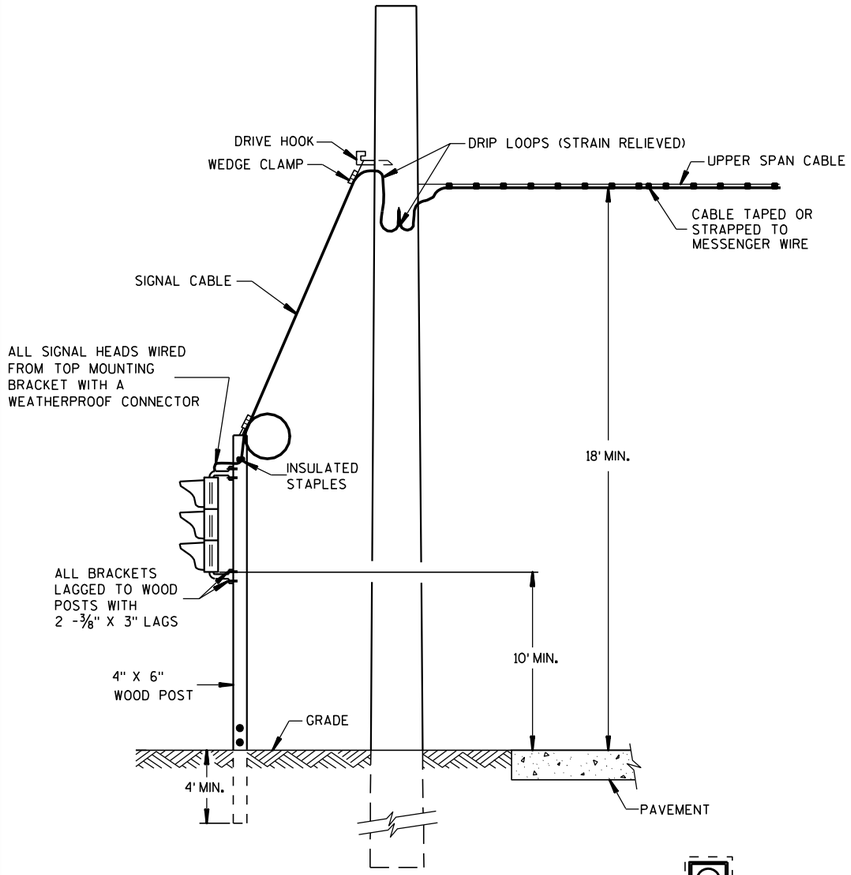
SECTION C-C

TURBIDITY BARRIER DETAIL SHOWING TYPICAL PLACEMENT AT STRUCTURES

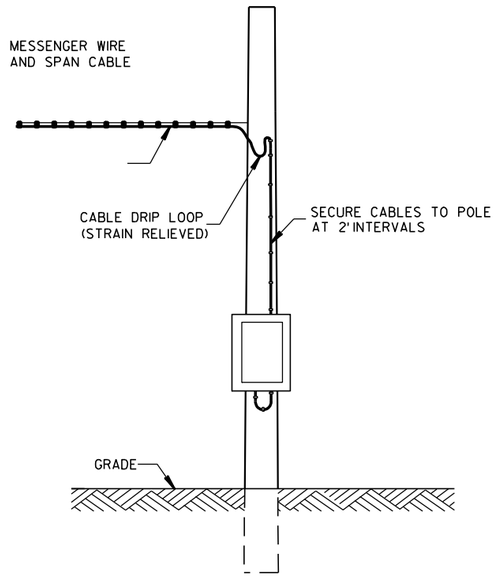
TURBIDITY BARRIER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



TYPICAL DROP TO TRAFFIC SIGNAL FACE



POLE MOUNT CABINET INSTALLATION

GENERAL NOTES

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

POLE MOUNTED TRAFFIC SIGNAL CONTROL CABINET MAYBE MOUNTED ON THE SERVICE POLE IF THE ELECTRICAL UTILITY ALLOWS THE INSTALLATION.

WHEN UTILITY PLOLES ARE USED TO SPAN THE TEMPORARY OVERHEAD CABLE, WRITTEN PERMISSION MUST BE OBTAINED FROM THE OWNER OF THE POLES AND GIVEN TO THE PROJECT MANAGER. ALL PERTINENT UTILITY AND CODE CLEARANCES SHALL BE MAINTAINED.

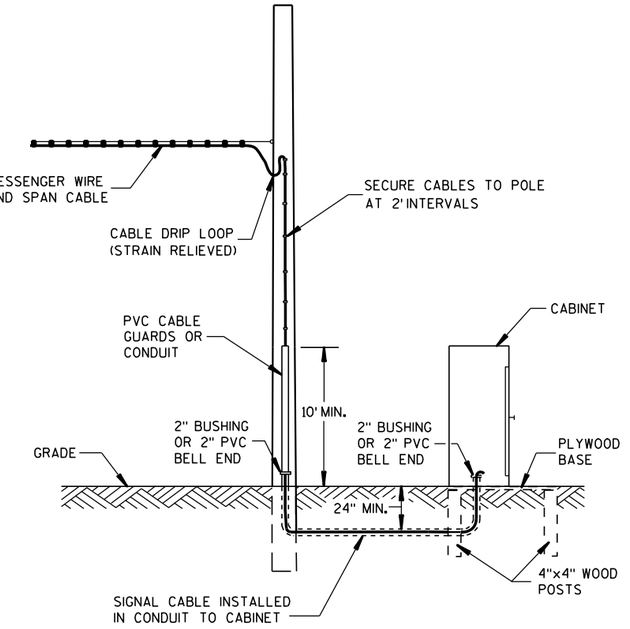
WOOD POLES (NONBREAKAWAY) SHALL BE NO CLOSER TO EDGE OF PAVEMENT THAN OFFSET DISTANCE CHART ALLOWS OR 4 FEET BEHIND PROTECTIVE BARRIER (BEAMGUARD, ETC.).

WOOD POSTS (BREAKAWAY) SHALL BE NO CLOSER THAN 2 FEET OUTSIDE OF SHOULDER.

VERTICAL CLEARANCE ETC. PER NEC.

TRAFFIC SIGNAL FACES SHALL BE TYPICALLY PLACED 12 FEET FROM EDGE OF PAVEMENT.

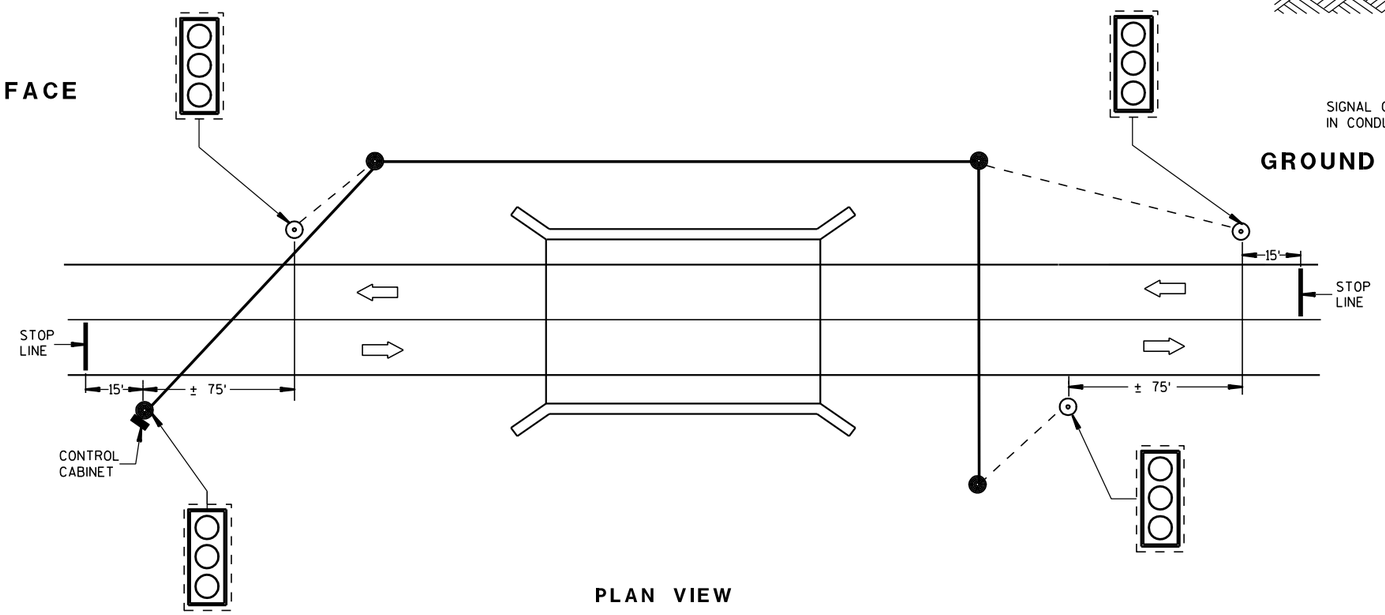
EACH TRAFFIC SIGNAL FACE SHALL HAVE A BACKPLATE.



GROUND MOUNT CABINET INSTALLATION

OFFSET DISTANCES FOR TEMPORARY NON-BREAKAWAY POLES	
SPEED LIMIT	OFFSET DISTANCE**
GREATER THAN 45 MPH	18 FT
45 MPH OR LESS	12 FT
45 MPH OR LESS W/ CURBS	2 FT

**NOTE: OFFSET MEASURED FROM OUTER EDGE OF OUTSIDE THRU LANE.



PLAN VIEW

TYPICAL BRIDGE TEMPORARY TRAFFIC SIGNAL LOCATION

LEGEND

- WOOD POLE (NONBREAKAWAY)
- WOOD POST (BREAKAWAY)
- SIGNAL CABLE
- SIGNAL CABLE W/MESSENGER
- LED TRAFFIC SIGNAL FACE WITH BACKPLATE (3-12")
- DIRECTION OF TRAFFIC

MINIMUM POLE LENGHTS	CLASS	MINIMUM BURIAL DEPTHS
25 FEET	V	5 FEET
30 FEET	V	6 FEET
35 FEET	IV	7 FEET
40 FEET	IV	8 FEET
45 FEET	IV	9 FEET

BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
3/2/2011 DATE
/S/ Thomas J. Gosling STATE ELECTRICAL ENGI
32
HWYS
FHWA

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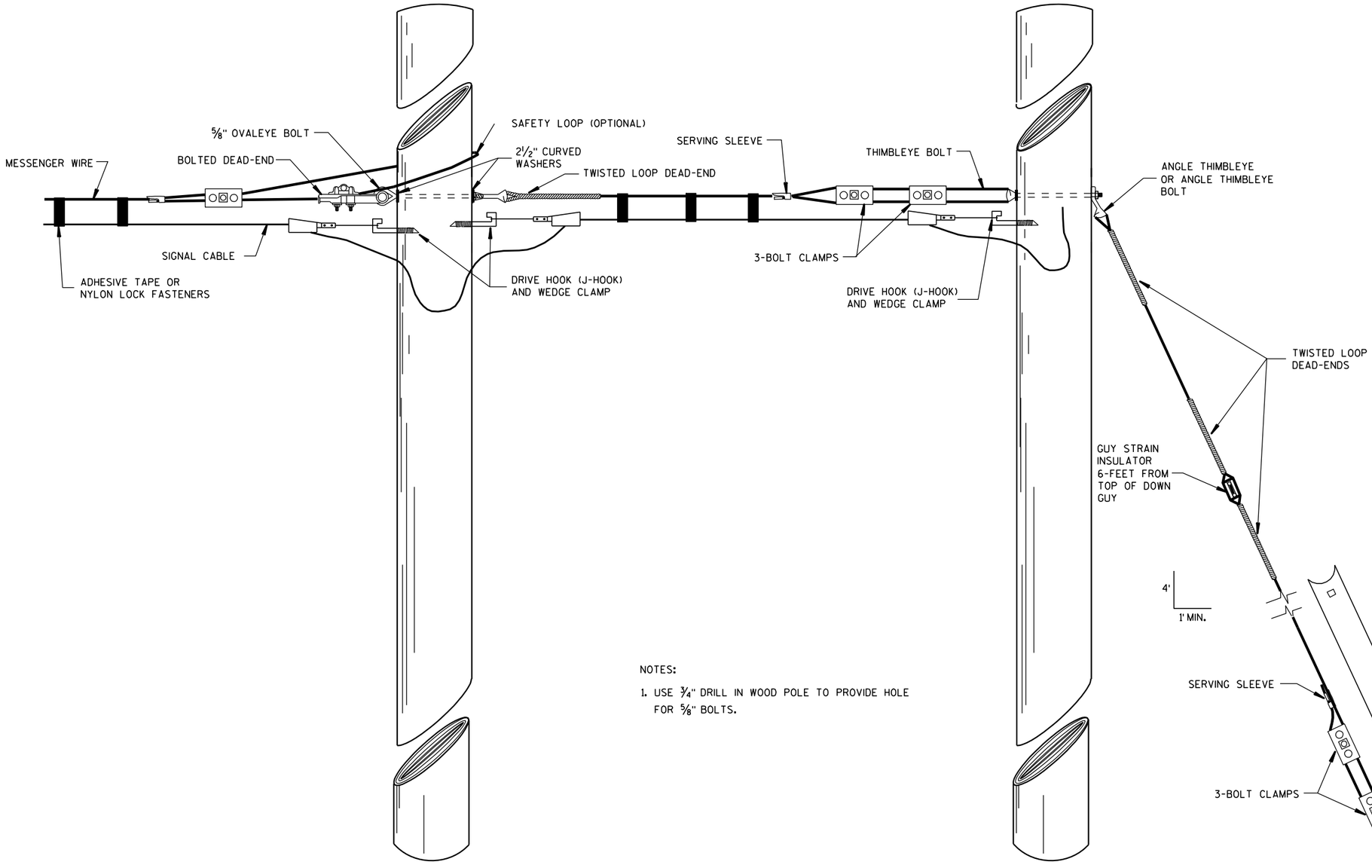

SPAN WIRE POLE

GUY POLE

NOTES:

1. USE 3/4" DRILL IN WOOD POLE TO PROVIDE HOLE FOR 5/8" BOLTS.

TYPICAL DEAD-ENDINGS OR GUYING

BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/2/2011 DATE

/S/ Thomas J. G[illegible] STATE ELECTRICAL ENGI

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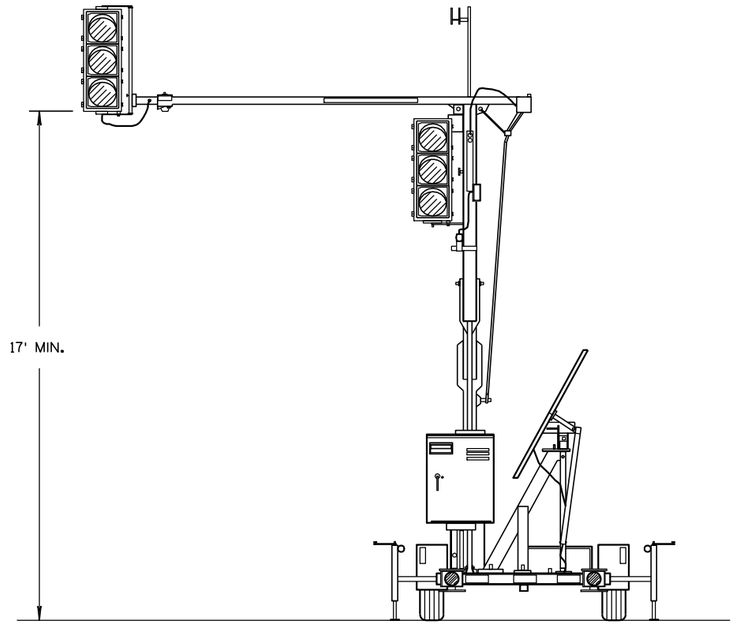
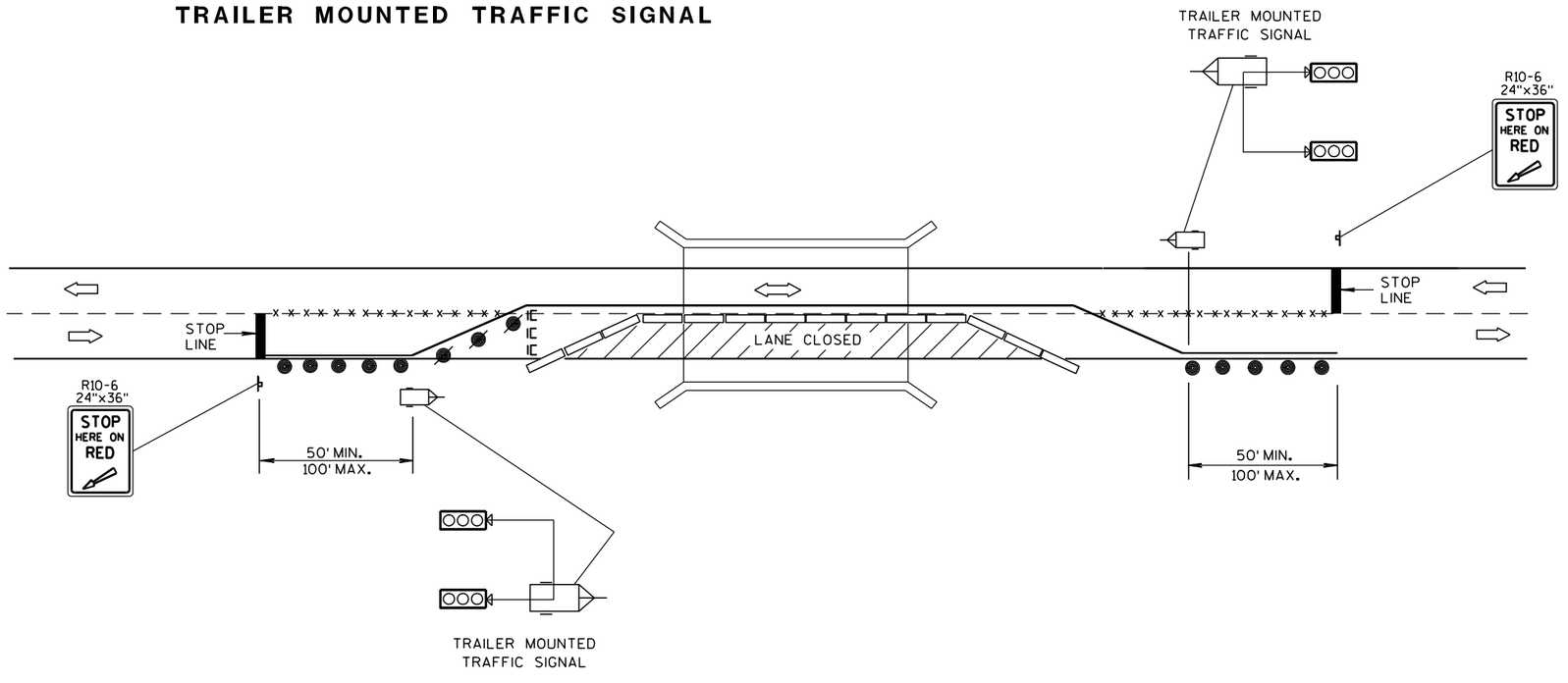


TRAILER MOUNTED TRAFFIC SIGNAL

GENERAL NOTES

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

SIGNING, PAVEMENT MARKING AND LANE CONTROL REQUIREMENTS SHALL CONFORM TO STANDARD DETAIL DRAWING 15 D 33.



TYPICAL TRAILER MOUNTED TRAFFIC SIGNAL LOCATION

LEGEND

- POST MOUNTED SIGN
- REMOVING PAVEMENT MARKING
- TYPE III BARRICADE WITH SIGN
- DRUM WITH/WITHOUT WARNING LIGHT, TYPE C (STEADY-BURN)
- TEMPORARY PRECAST CONCRETE BARRIER
- TRAILER MOUNTED TRAFFIC SIGNAL
- DIRECTION OF TRAFFIC FLOW

BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/2/2011 — DATE

/S/ Thomas J. Gosling — STATE ELECTRICAL ENGI

FHWA

HWYS

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S.D.D. 9 G 2-3c

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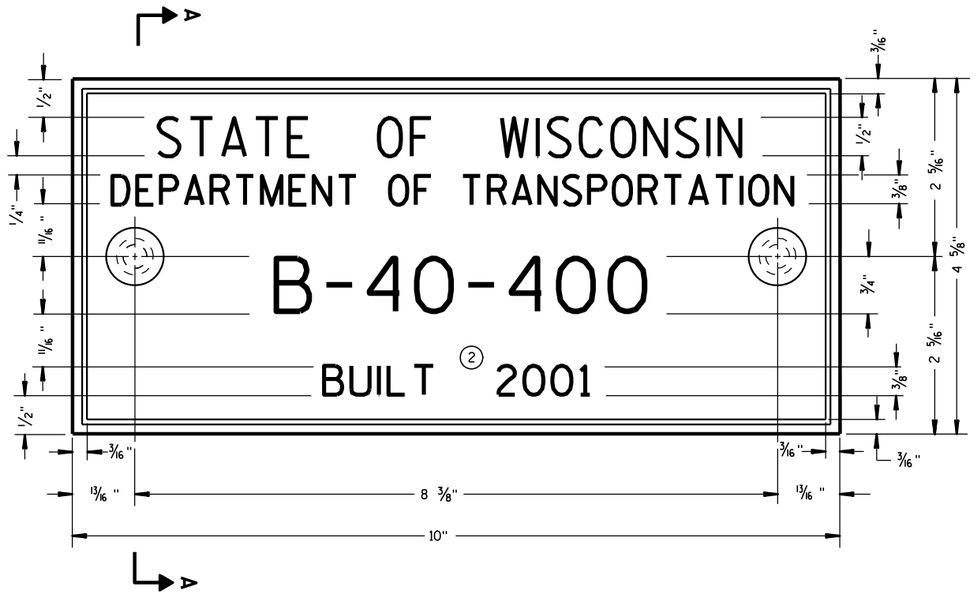
S.D.D. 9 G 2-3c



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

NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

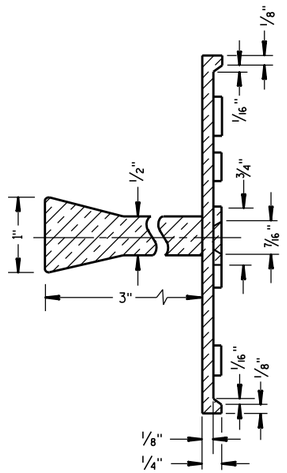
GENERAL NOTES

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

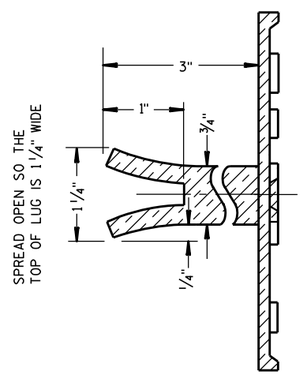
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

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

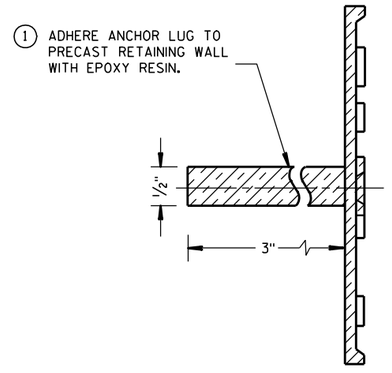
(2) REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



SECTION A-A



ALTERNATE LUG



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

NAME PLATE (STRUCTURES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

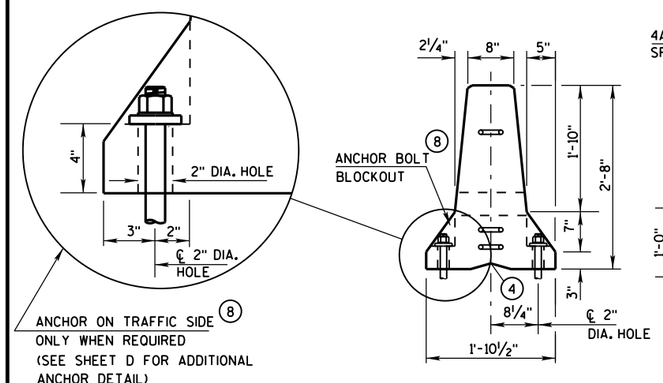
3/26/10 DATE

/S/ Scot Beck -- CHIEF STRUCTURAL DEVELOPMENT ENGINEER

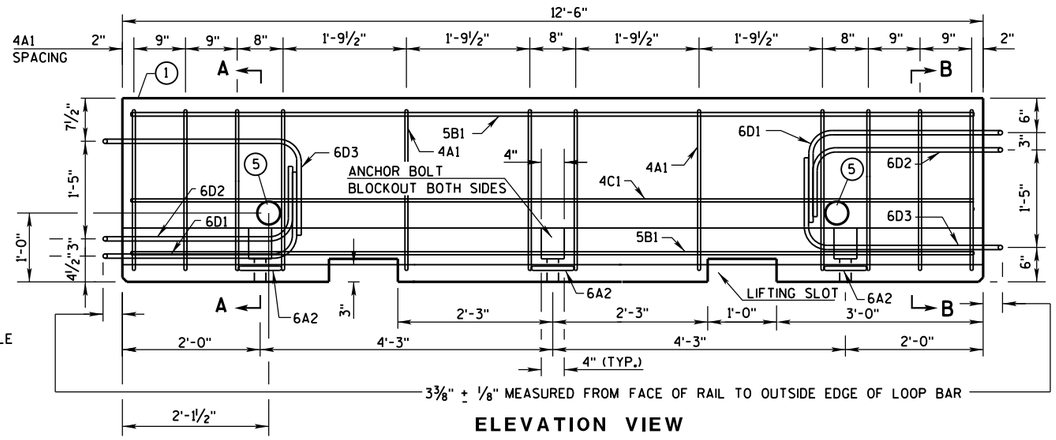
FHWA

6

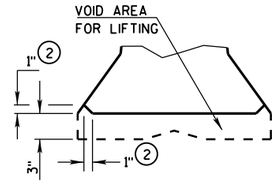
S.D.D. 12 A 3-10



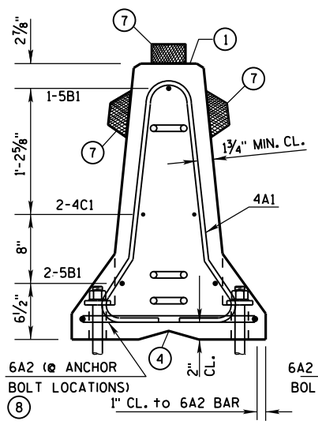
END VIEW



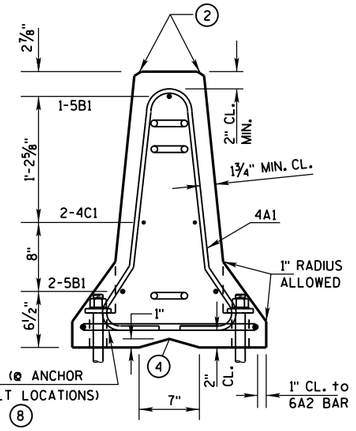
ELEVATION VIEW



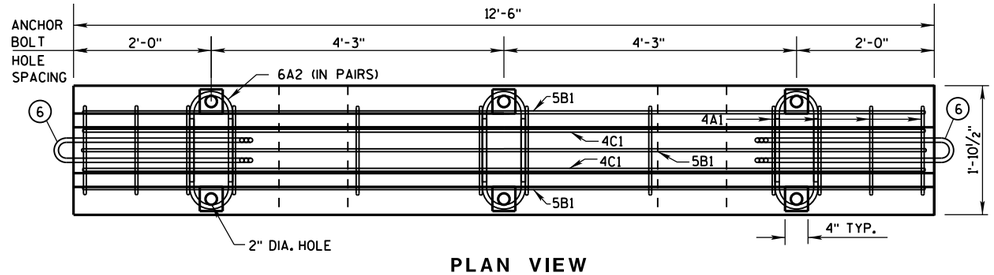
DETAIL "B"
LIFTING SLOT DETAIL



SECTION A-A
(STIRRUP PLACEMENT)

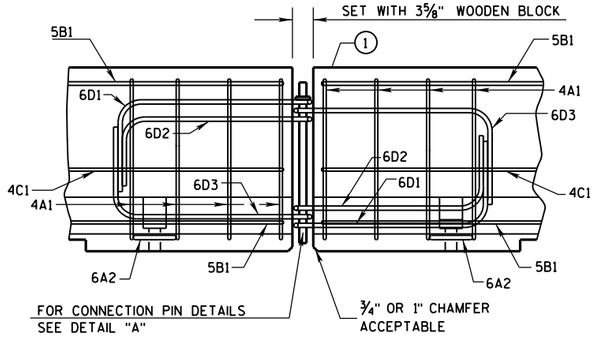


SECTION B-B
(STIRRUP PLACEMENT)

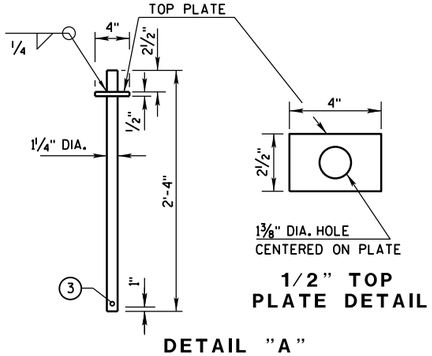


PLAN VIEW

DETAILS OF BARRIER SECTION

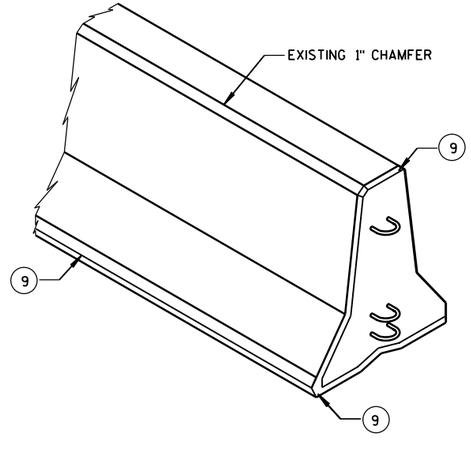


DETAILS OF BARRIER CONNECTION



1/2" TOP
PLATE DETAIL

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



GENERAL NOTES

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

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

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

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

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

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

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

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

(2) 1" CHAMFER TO PREVENT SPALLING.

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

(4) "V" NOTCH IS OPTIONAL.

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

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

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

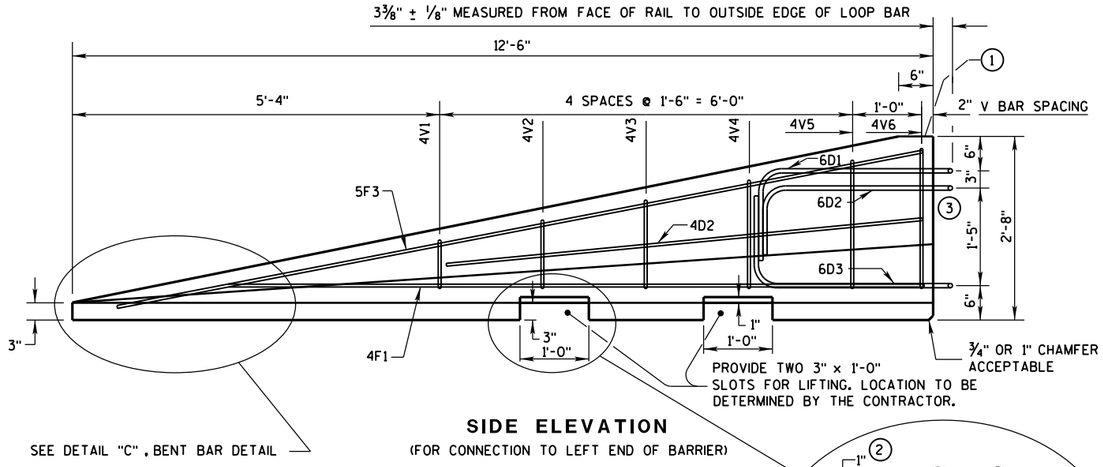
(8) SEE SHEET D FOR ANCHORING CRITERIA.

(9) 1" CHAMFER OPTIONAL.

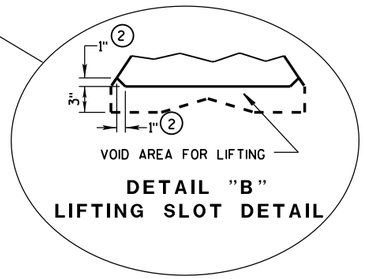
CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

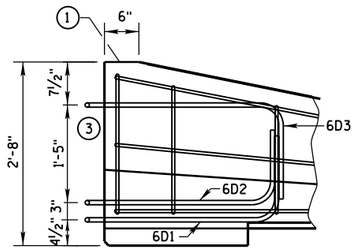
6
S.D.D. 14 B 7-14a



SIDE ELEVATION
(FOR CONNECTION TO LEFT END OF BARRIER)



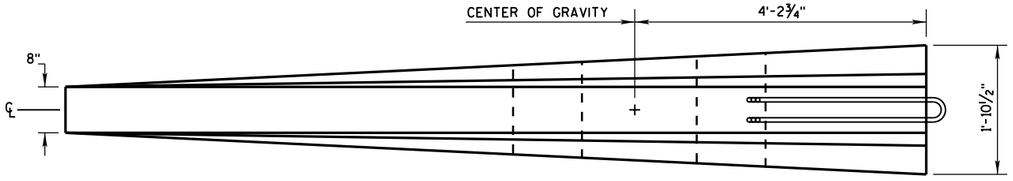
DETAIL "B"
LIFTING SLOT DETAIL



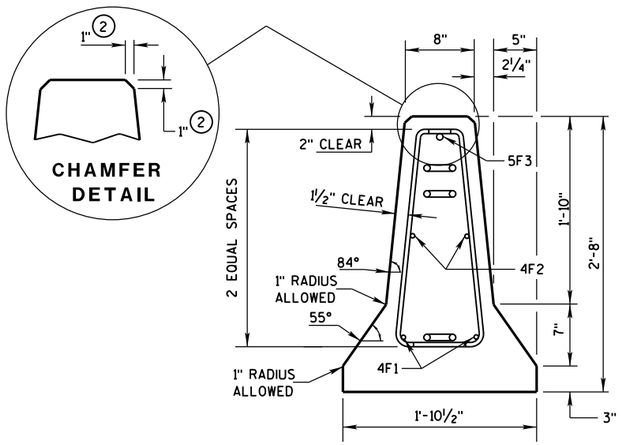
SIDE ELEVATION
LOOP BAR ASSEMBLY INVERTED
FOR OPPOSITE END.
(FOR CONNECTION TO RIGHT END OF BARRIER)

GENERAL NOTES

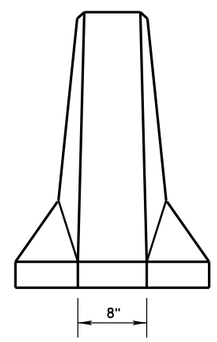
1. MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
   a. TYPE WICBTP
   b. MANUFACTURER
   c. DATE MANUFACTURED (MONTH AND YEAR)
2. 1" CHAMFER TO PREVENT SPALLING.
3. NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.



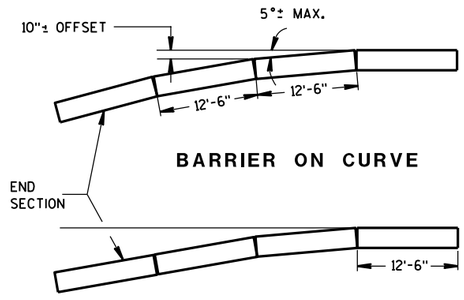
PLAN VIEW



END SECTION



FRONT ELEVATION



BARRIER ON CURVE

FLARE AT BARRIER END

POSTED SPEED, (MPH)	FLARE RATE
40 OR LESS	6:1
45 OR GREATER	8:1

DETAILS OF BARRIER TAPER SECTION

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

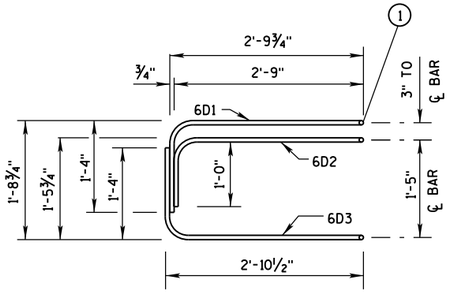
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6
S.D.D. 14 B 7-14b

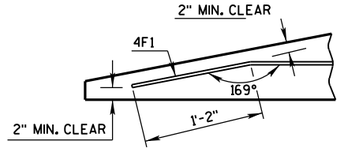
BARRIER TAPER SECTION BILL OF MATERIALS

(PER 12'-6" BARRIER TAPER SECTION)

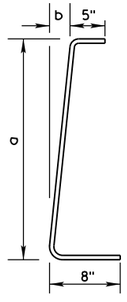
BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4V1	4	2	1'-11"
4V2	4	2	2'-2"
4V3	4	2	2'-6"
4V4	4	2	2'-9"
4V5	4	2	3'-2"
4V6	4	2	3'-4"
4F1	4	2	12'-0"
4F2	4	2	7'-6"
5F3	5	1	11'-9"
LOOP ASSEMBLY			
6D1	6	1	8'-5"
6D2	6	1	7'-7"
6D3	6	1	8'-6"



ELEVATION
LOOP BAR ASSEMBLY



DETAIL "C"
BENT BAR DETAIL



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

4V BARS
2 AT EACH SIZE REQUIRED
FOR STIRRUP ASSEMBLY

TAPER BARRIER SECTION

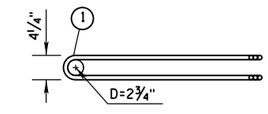
GENERAL NOTES

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

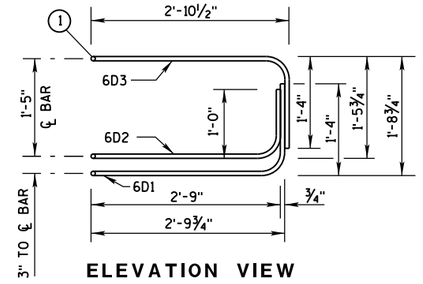
BARRIER SECTION BILL OF MATERIALS

(PER 12'-6" BARRIER SECTION)

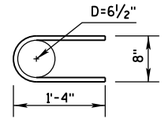
BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4A1	4	12	6'-0"
6A2	6	6	2'-11"
5B1	5	3	12'-2"
4C1	4	2	12'-2"
LOOP ASSEMBLY			
6D1	6	2	8'-5"
6D2	6	2	7'-7"
6D3	6	2	8'-6"



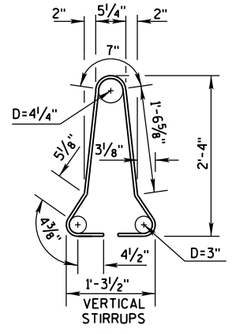
PLAN VIEW
LOOP BAR ASSEMBLY
(MARKED END SHOWN, INVERT FOR OTHER END)



ELEVATION VIEW



6A2



4A1

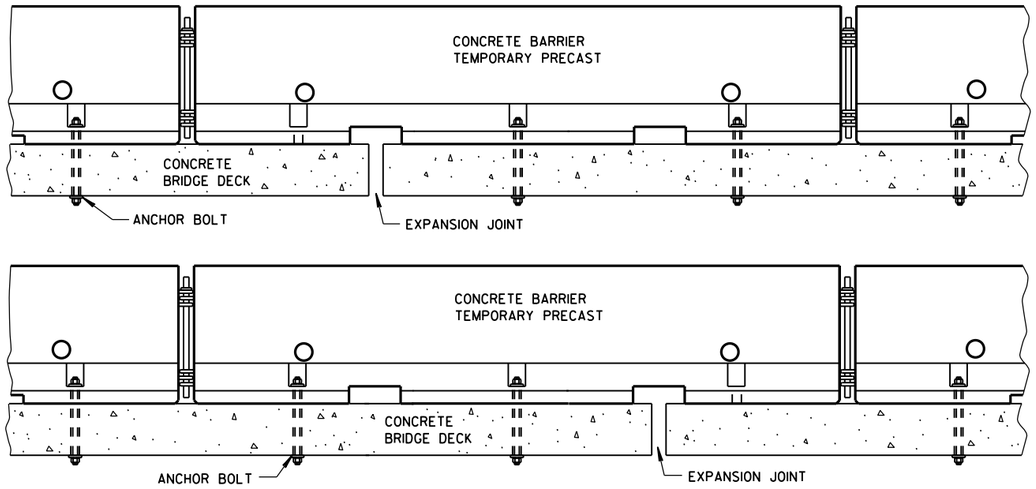
BARRIER SECTION

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

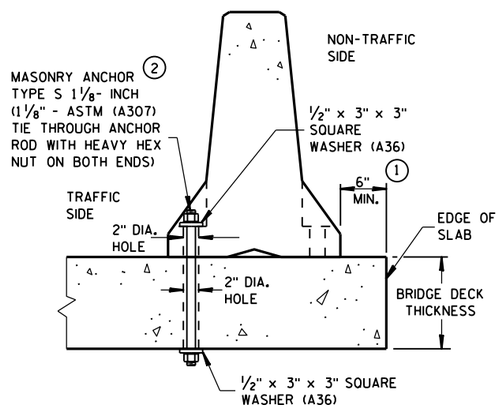
6

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



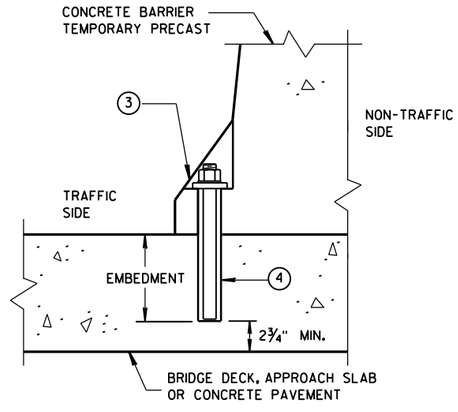
TREATMENT AT BRIDGE DECK EXPANSION JOINTS

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



THROUGH BOLTED ANCHOR INSTALLATION ON BRIDGE DECK

(DO NOTUSE ON CONCRETE BRIDGE DECK WITH ASPHALT OVERLAY)



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

(DO NOT USE ON CONCRETE WITH AN ASPHALTIC OVERLAY)

GENERAL NOTES

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

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

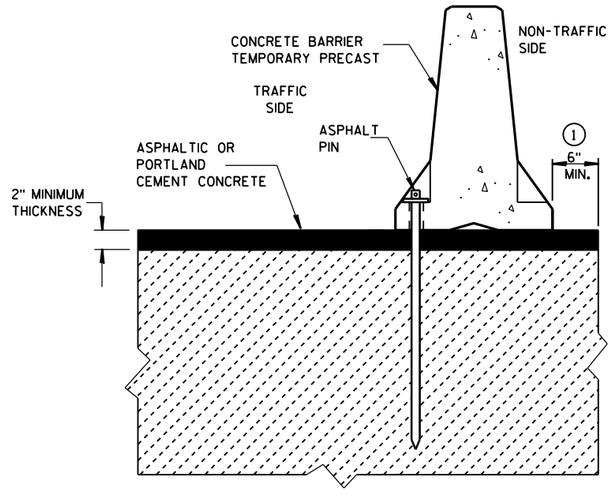
② ANCHORING IS INCIDENTAL TO CONCRETE BARRIER TEMPORARY PRECAST.

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

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

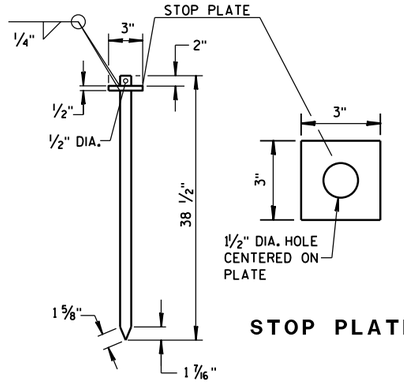
③ 1⅛" DIAMENTER A307 THREADED ROD, ½" X 3" X 3" SQUARE PLATE WASHER WITH ASTM A36 STEEL, ASTM A563A HEAVY HEX NUT.

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



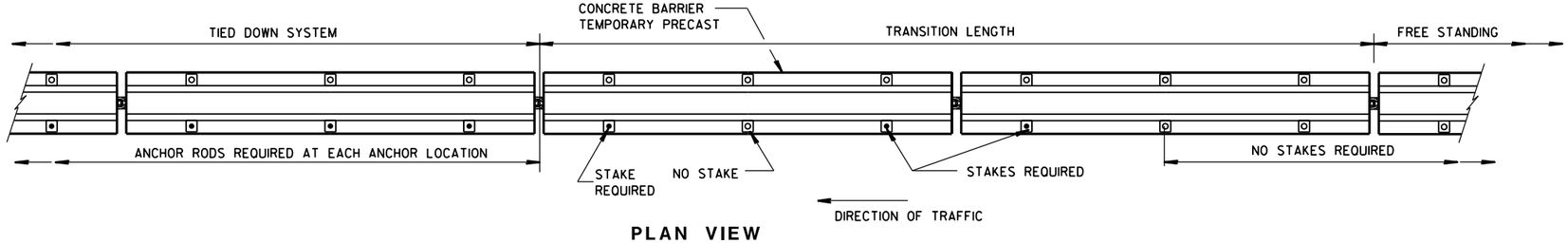
STAKE DOWN INSTALLATION FOR ASPHALTIC OR PORTLAND CEMENT CONCRETE SURFACE

(STAKING IS INCIDENTAL TO CONCRETE BARRIER TEMPORARY PRECAST)



STOP PLATE

ASPHALT PIN
(ASTM A36 STEEL)



PLAN VIEW

FREE STANDING TRANSITION TO TIED-DOWN SYSTEM

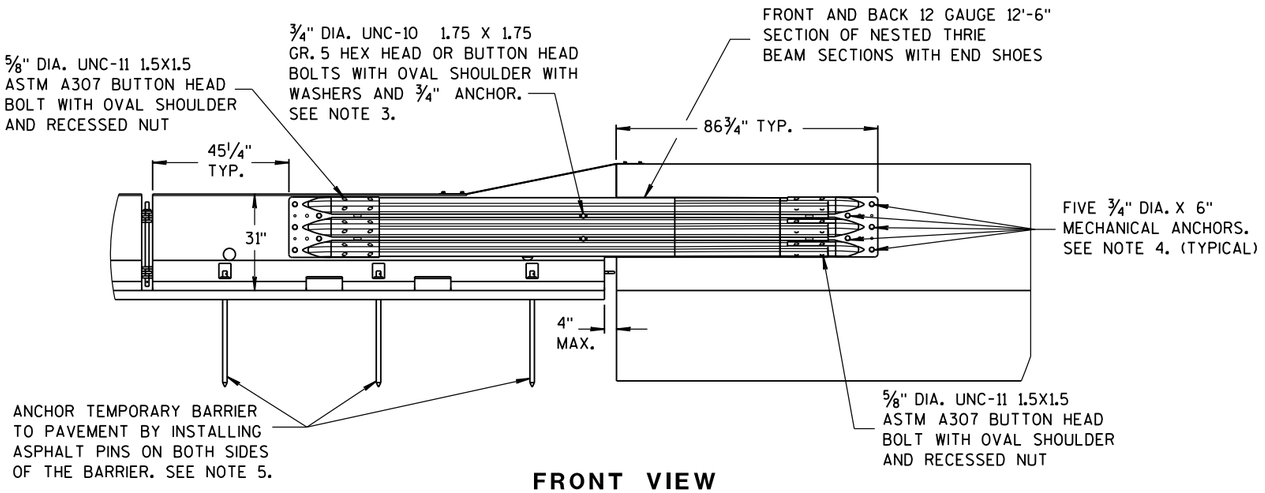
(PLACE TRANSITION IN A TANGENT SECTION OF BARRIER PARALLEL TO THE ROADWAY. IF TRANSITION OCCURS ON STRUCTURAL SLAB, ANCHOR AS SHOWN.)

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

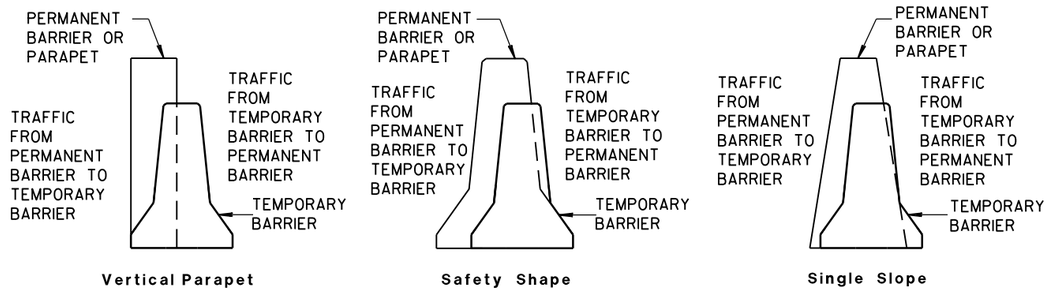
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

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



FRONT VIEW



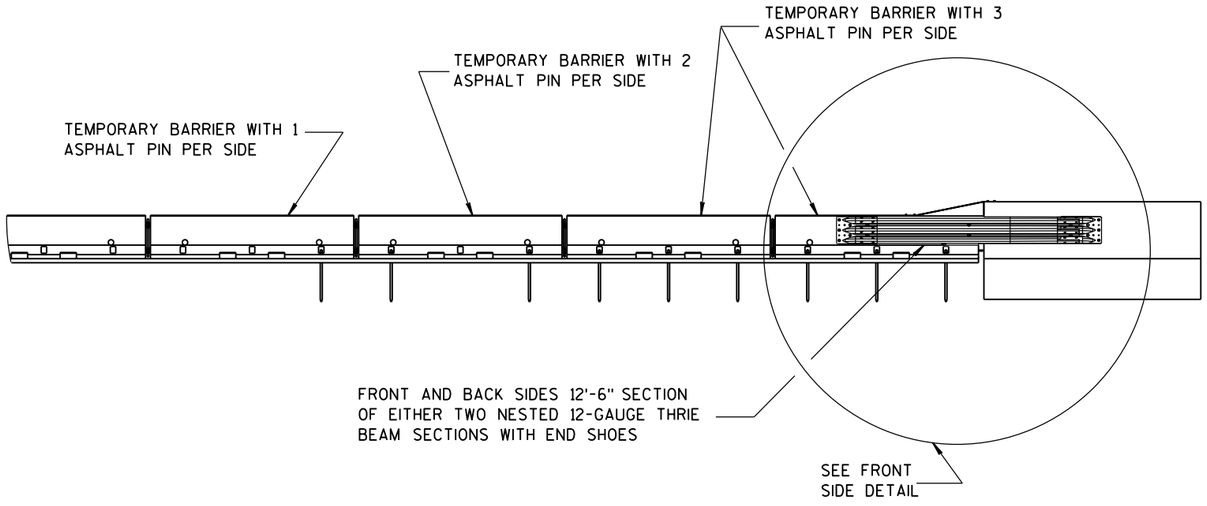
TEMPORARY BARRIER PLACEMENT FOR BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM

NOTES

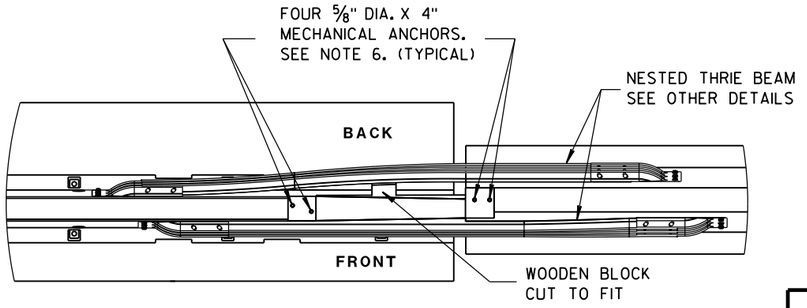
NESTED THRIE BEAM IS REQUIRED ON BOTH SIDES OF THE TEMPORARY BARRIER FOR ALL INSTALLATIONS.

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

BACK VIEW



FRONT VIEW



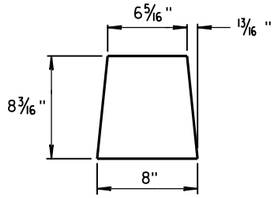
PLAN VIEW

BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM

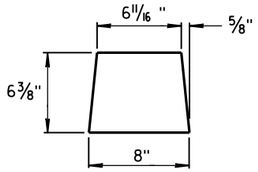
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

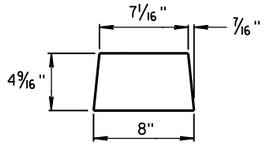
6
S.D.D. 14 B 7-14e



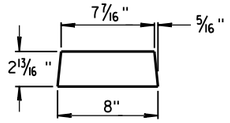
GUSSET 1



GUSSET 2

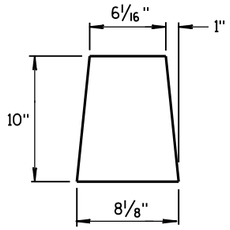


GUSSET 3

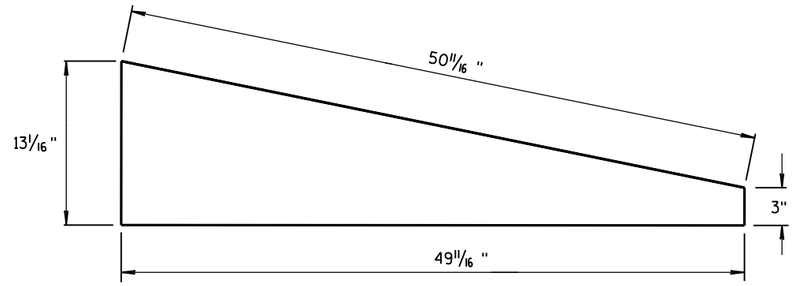


GUSSET 4

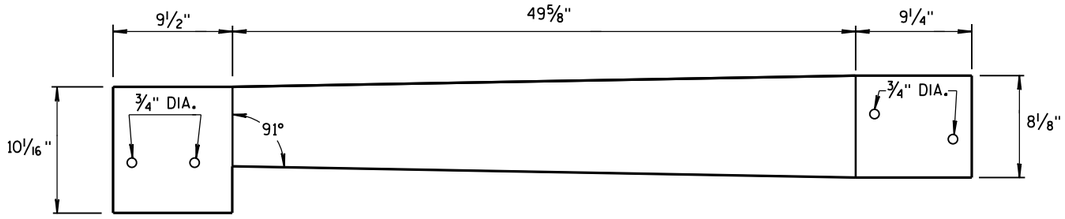
GUSSETS

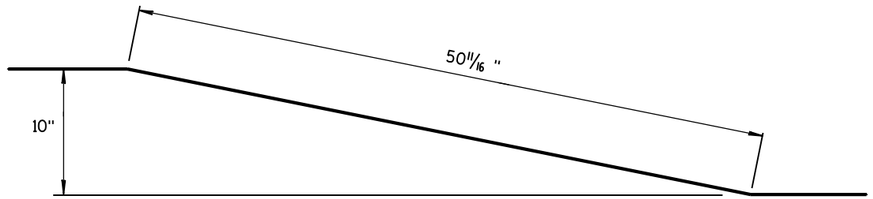


END PLATE



SIDE PLATE

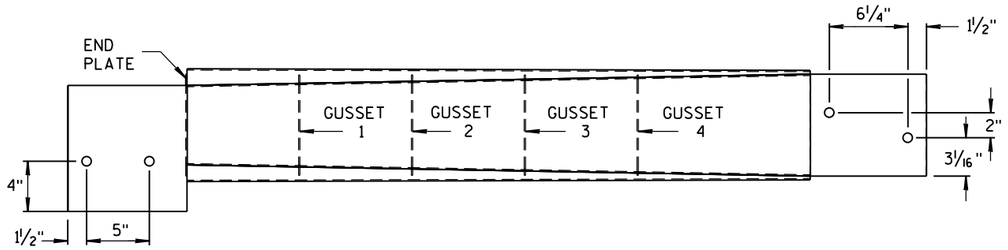


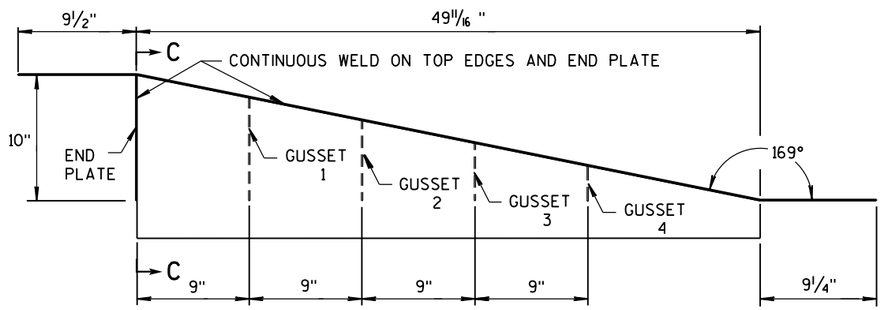


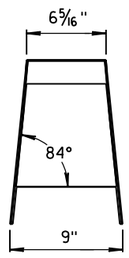
TOP PLATE

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

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







SECTION C-C

NOTES

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

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

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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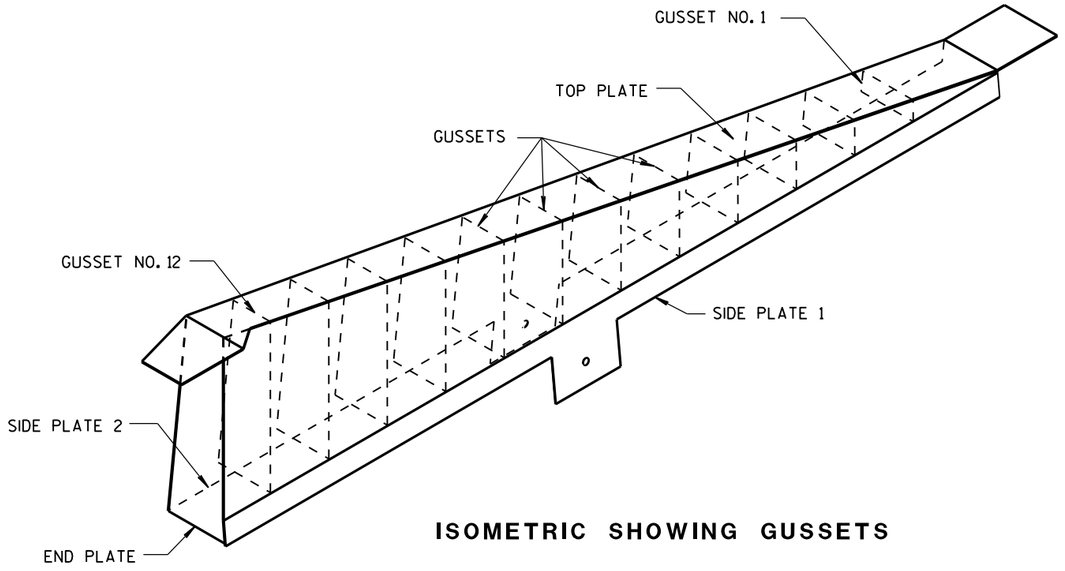
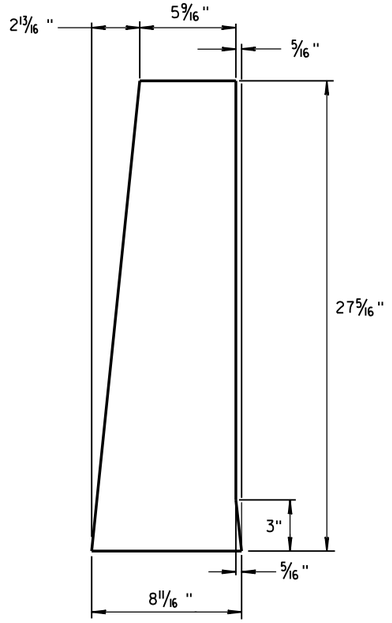
S.D.D. 14 B 7-14f

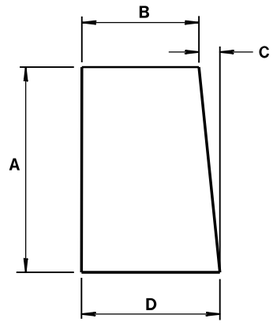


ISOMETRIC SHOWING GUSSETS



END PLATE

1/8" STEEL PLATE



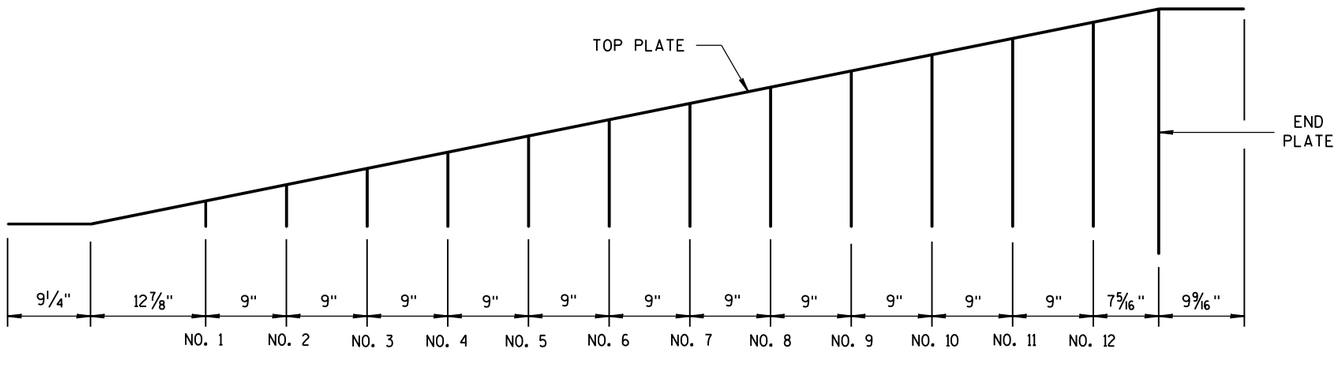
GUSSETS 1 - 12

ALL GUSSETS 1/8" STEEL PLATE

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

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

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



GUSSET LOCATION

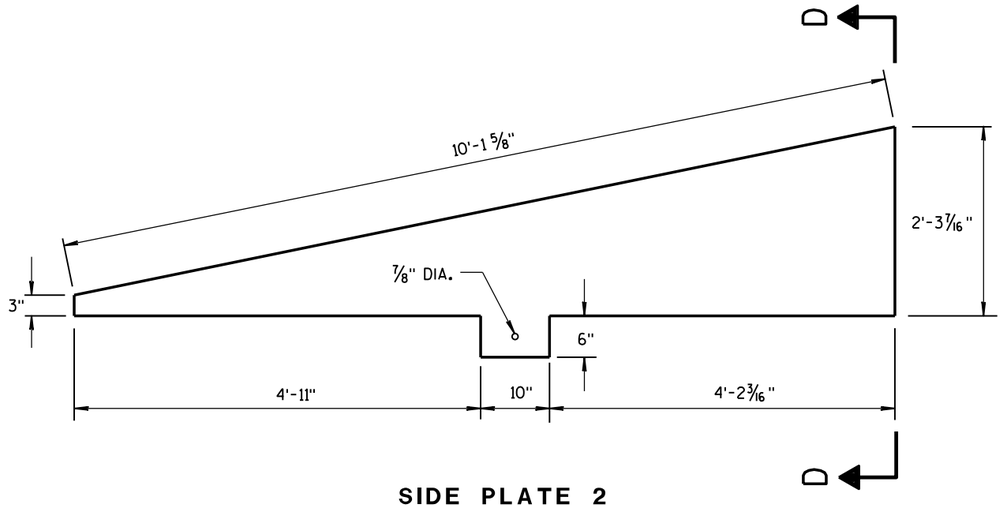
CAP DETAILS FOR TEMPORARY CONCRETE BARRIER TO 56" PERMANENT CONCRETE BARRIER

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

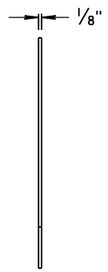
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

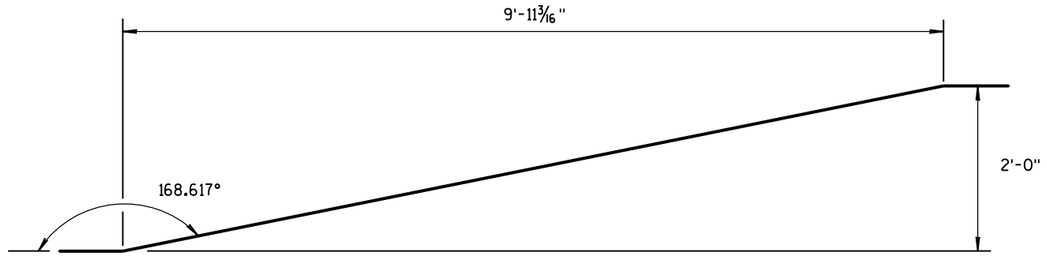
S.D.D. 14 B 7-14g



SIDE PLATE 2

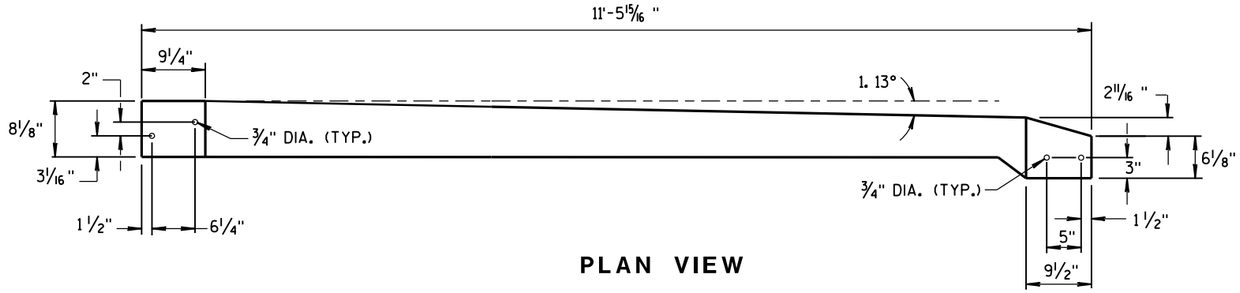


END VIEW



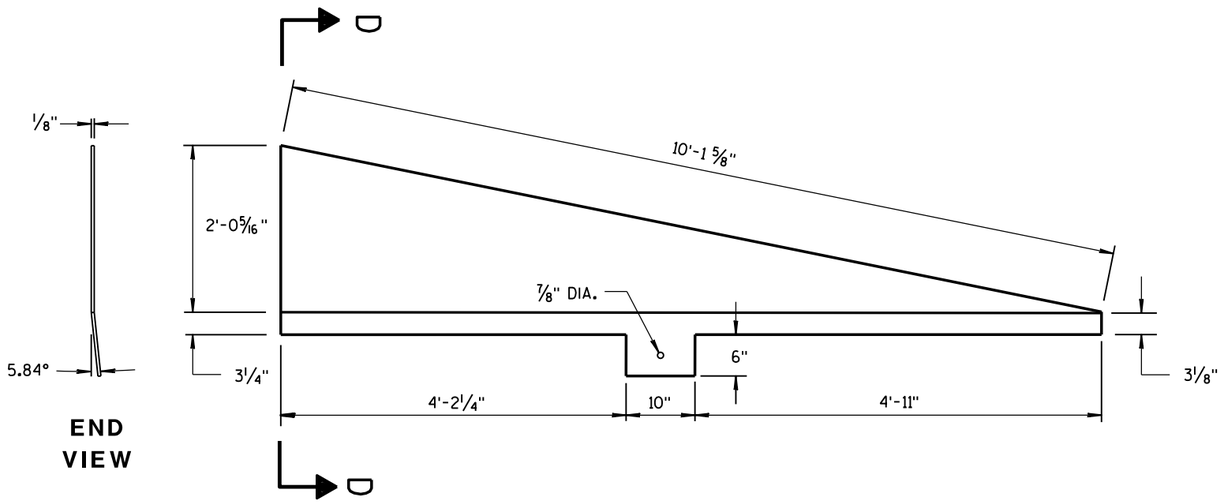
SIDE VIEW

TOP PLATE



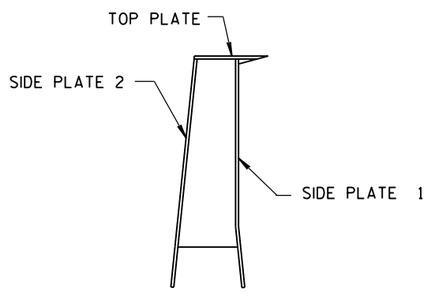
PLAN VIEW

TOP PLATE



END VIEW

SIDE PLATE 1



SECTION D-D

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

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

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

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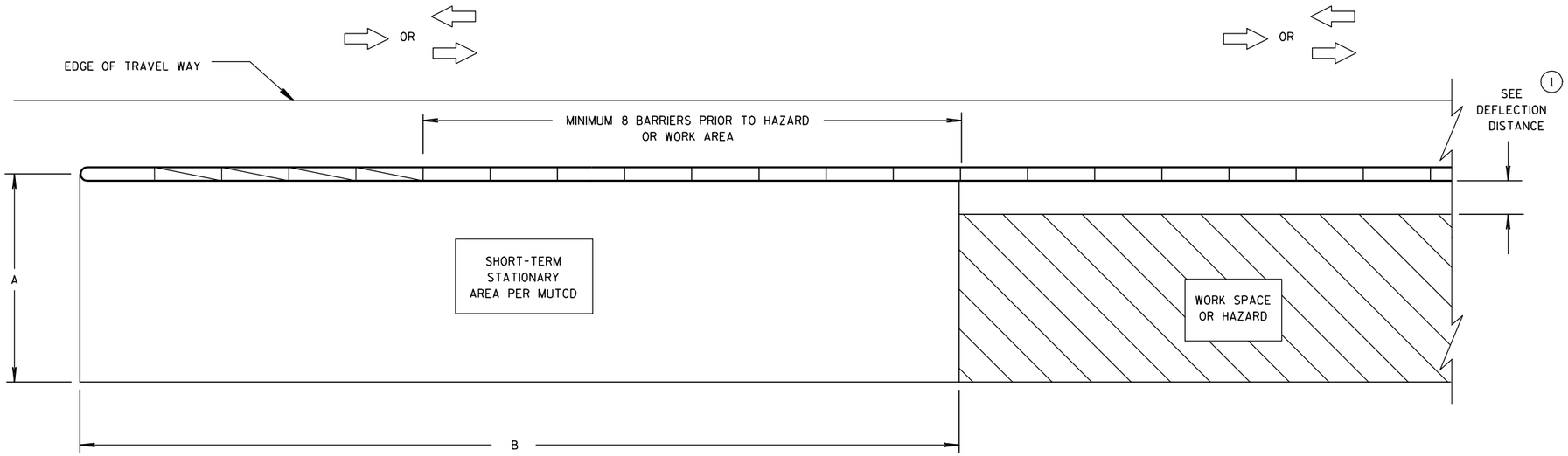
S.D.D. 14 B 7-14h



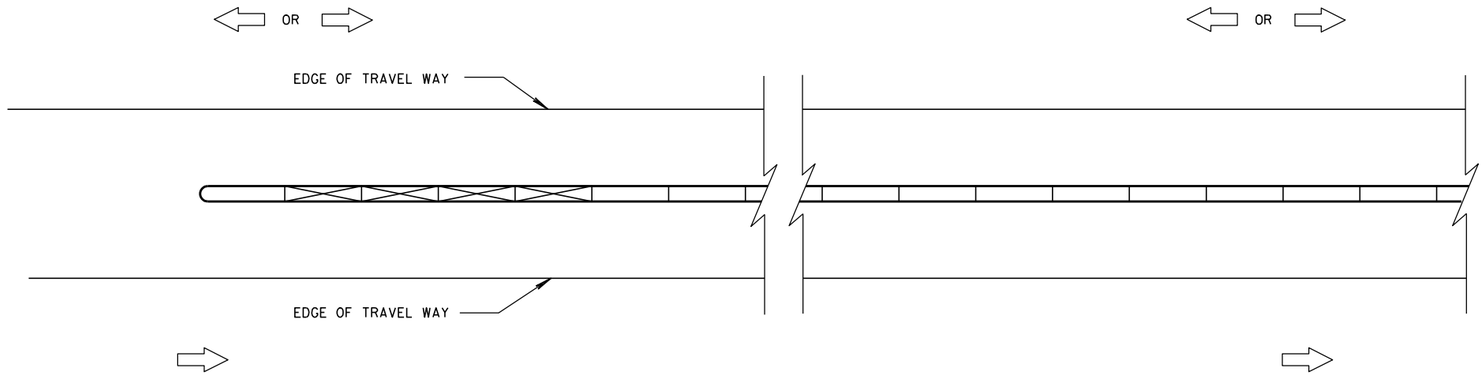
CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER INSTALLATION FOR TRAFFIC ON ONE SIDE OF BARRIER

DIMENSION A TABLE (2)

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

DIMENSION B TABLE (2)

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



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

LEGEND

DIRECTION OF TRAVEL

CRASH CUSHION OR SAND BARREL ARRAY

SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS

SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS

3 PINS PLACED ON TRAFFIC SIDE OF BARRIER

PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET

FREE STANDING TEMPORARY BARRIER

GENERAL NOTES

SEE STANDARD DETAIL DRAWING 14B7 FOR MORE INFORMATION.

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

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

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

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

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

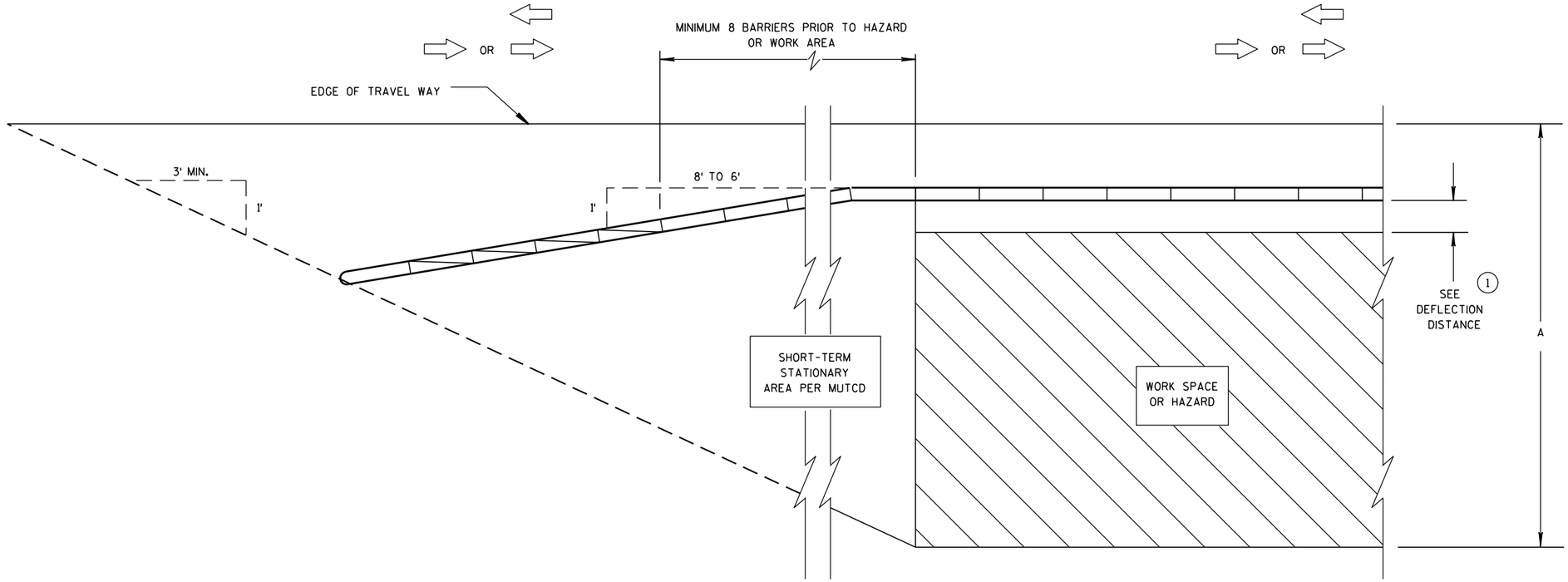
(1) FOR DEFLECTION INFORMATION SEE STANDARD DETAIL DRAWING 14B7.

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

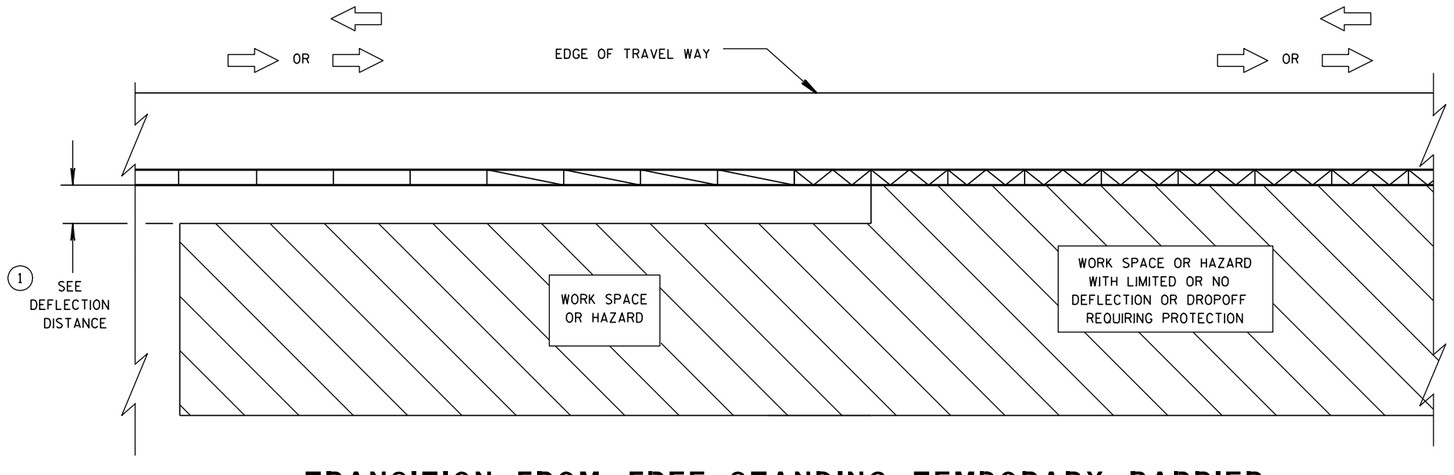
CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6
S.D.D. 14 B 8-1a



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



TRANSITION FROM FREE STANDING TEMPORARY BARRIER TO ANCHORED BARRIER

LEGEND

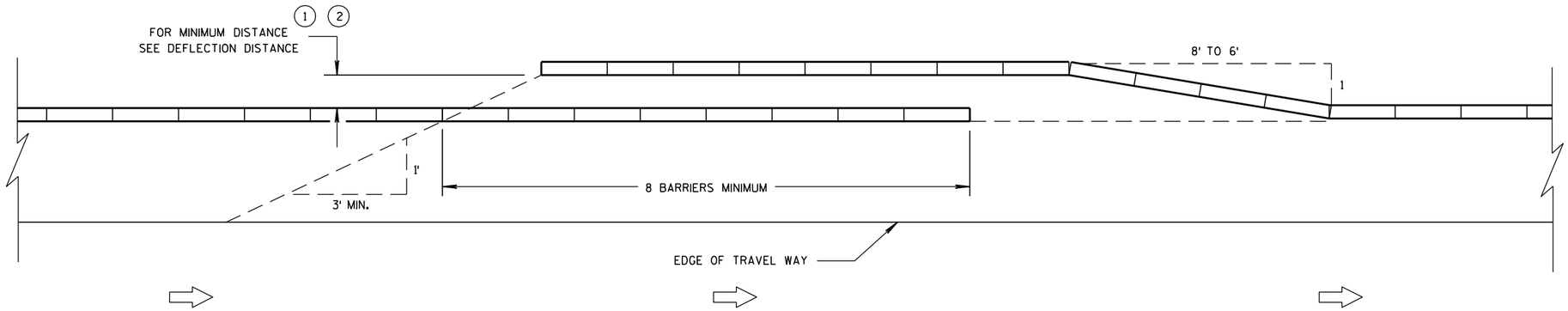
- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

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

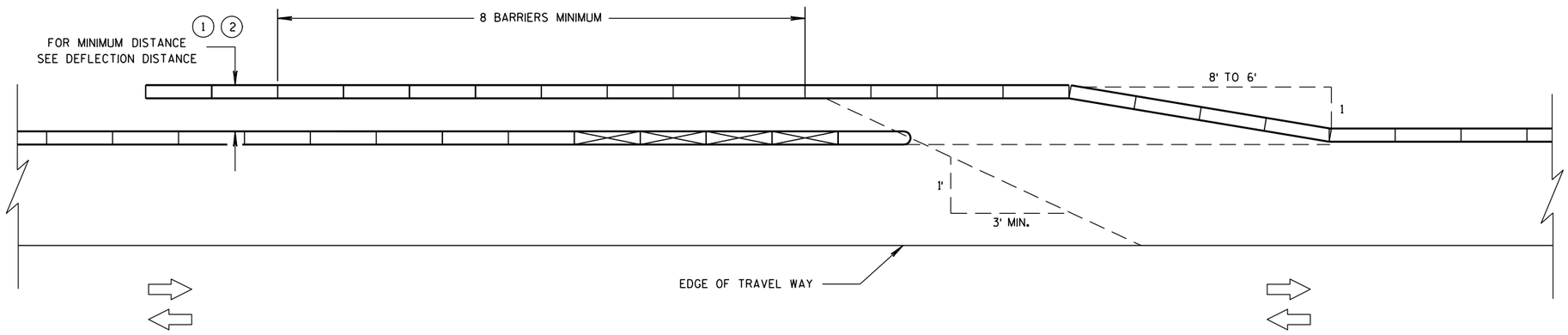
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

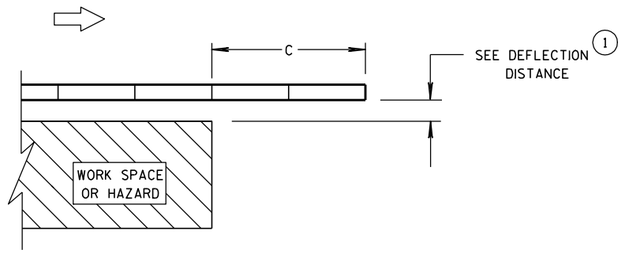
S.D.D. 14 B 8-1b



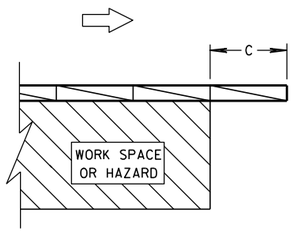
TEMPORARY BARRIER OVERLAP - ONE-WAY TRAFFIC



TEMPORARY BARRIER OVERLAP - TWO-WAY TRAFFIC



ENDING TEMPORARY BARRIER DOWNSTREAM - UNANCHORED



ENDING TEMPORARY BARRIER DOWNSTREAM - ANCHORED

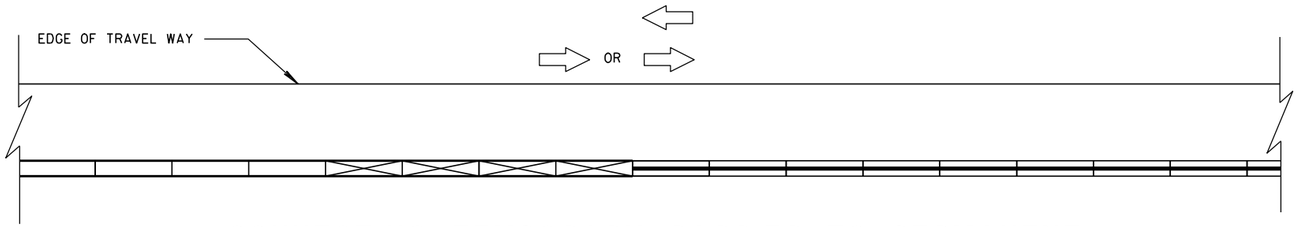
LEGEND

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

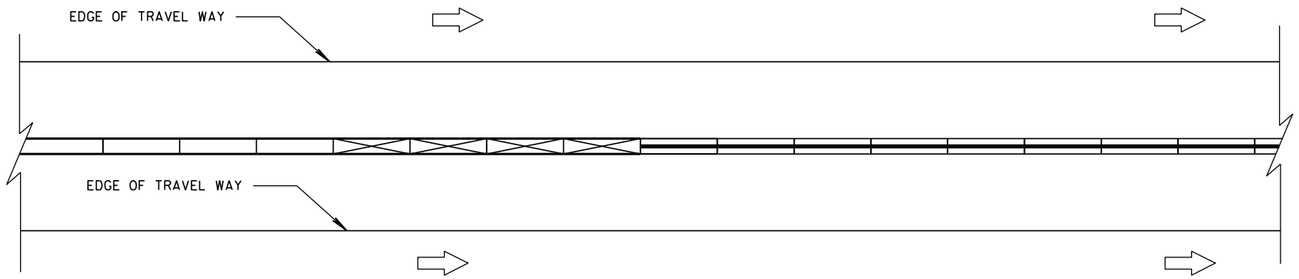
CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6
S.D.D. 14 B 8-1c



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



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

LEGEND

DIRECTION OF TRAVEL

CRASH CUSHION OR SAND BARREL ARRAY

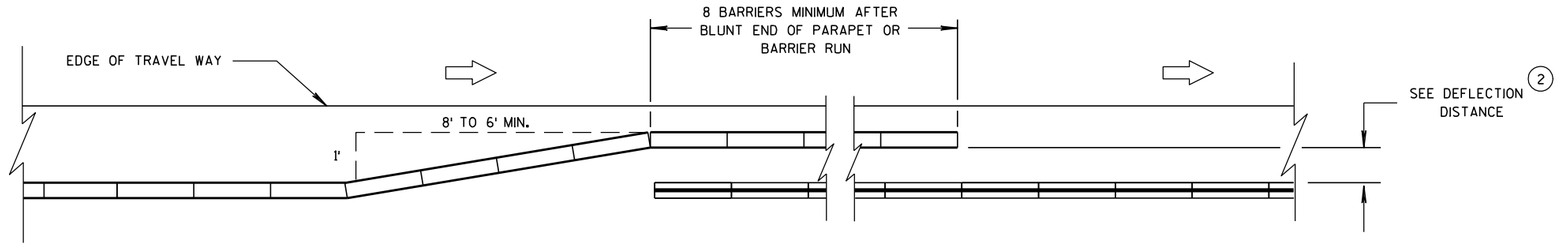
SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS

SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS

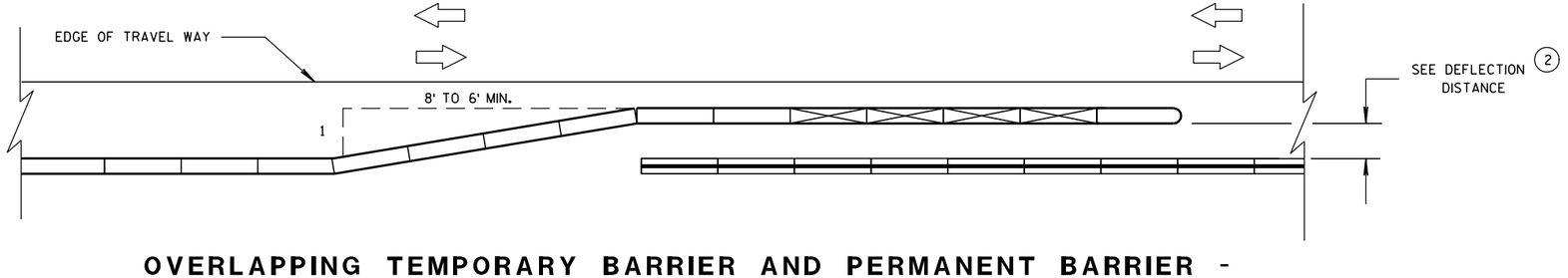
3 PINS PLACED ON TRAFFIC SIDE OF BARRIER

PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET

FREE STANDING TEMPORARY BARRIER



OVERLAPPING TEMPORARY BARRIER AND PERMANENT BARRIER - ONE WAY TRAFFIC



OVERLAPPING TEMPORARY BARRIER AND PERMANENT BARRIER - TWO WAY TRAFFIC

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

LEGEND

DIRECTION OF TRAVEL

CRASH CUSHION OR SAND BARREL ARRAY

SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS

SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS

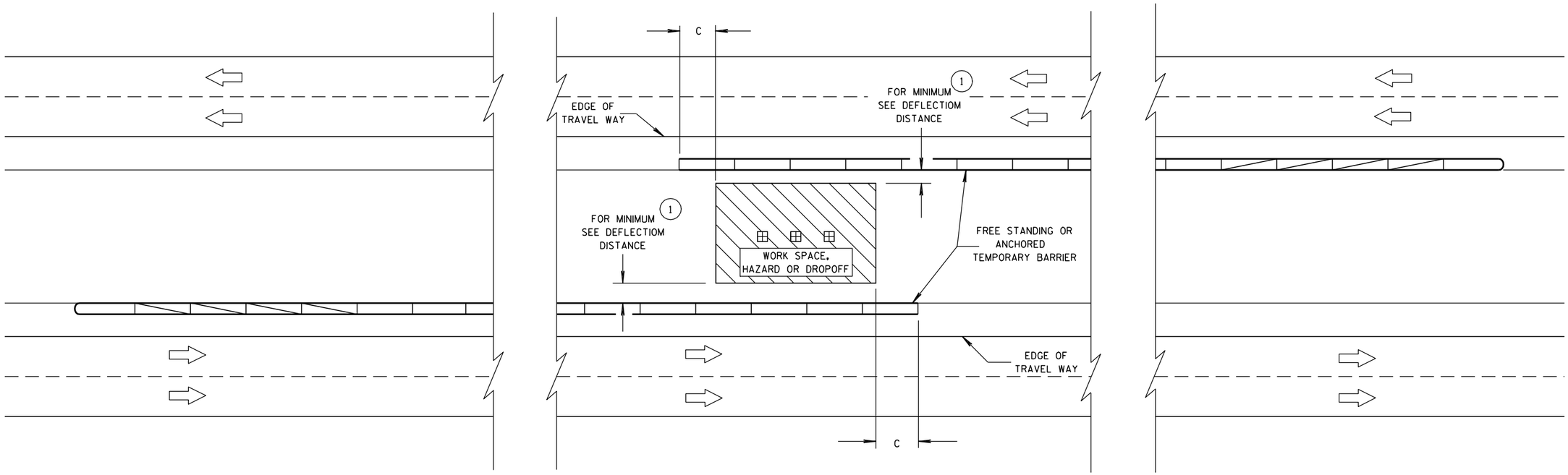
3 PINS PLACED ON TRAFFIC SIDE OF BARRIER

PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET

FREE STANDING TEMPORARY BARRIER

DIMENSION C TABLE (2)

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



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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/31/2012
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINNER

48

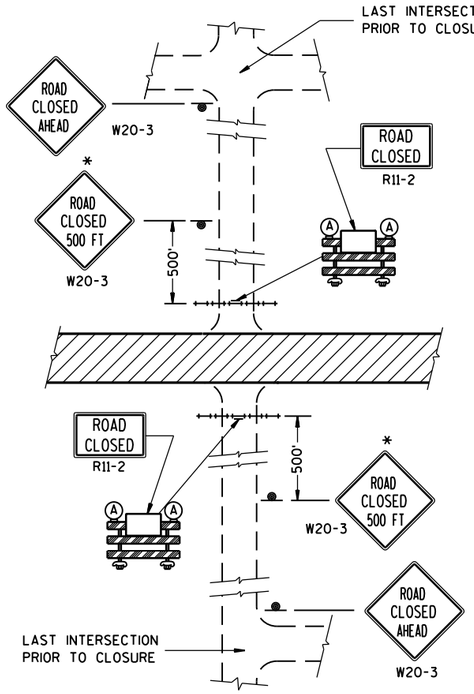
FHWA

6

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

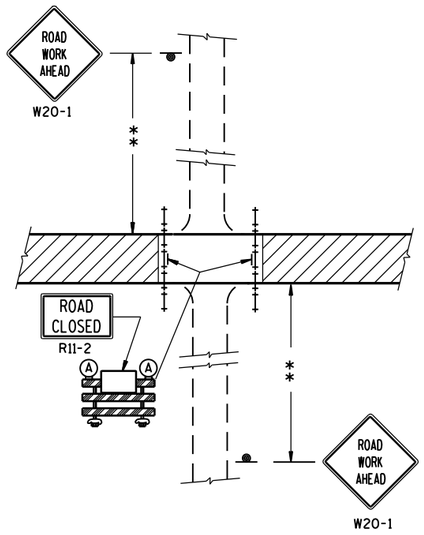
6

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



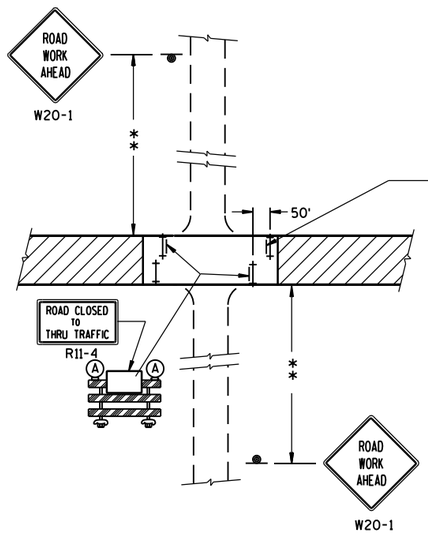
DETAIL 1

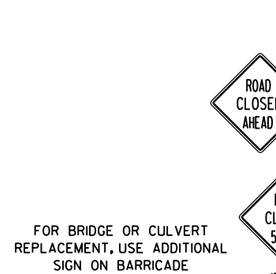
(NO ACCESS TO PROJECT)



DETAIL 2

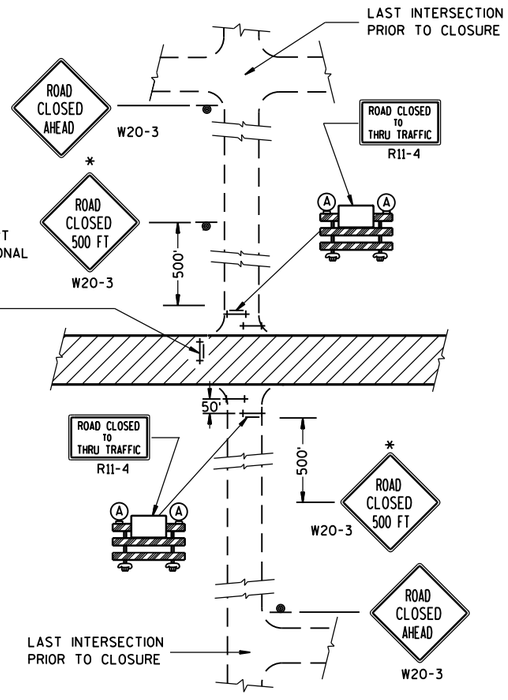
(PUBLIC CROSS-TRAFFIC MAINTAINED. NO ACCESS TO PROJECT).





DETAIL 3

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



DETAIL 4

(CONTRACTOR, LOCAL BUSINESS AND RESIDENT ACCESS TO PROJECT)

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

LEGEND

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

BARRICADES AND SIGNS FOR SIDEROAD CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

S.D.D. 15 C 3-2

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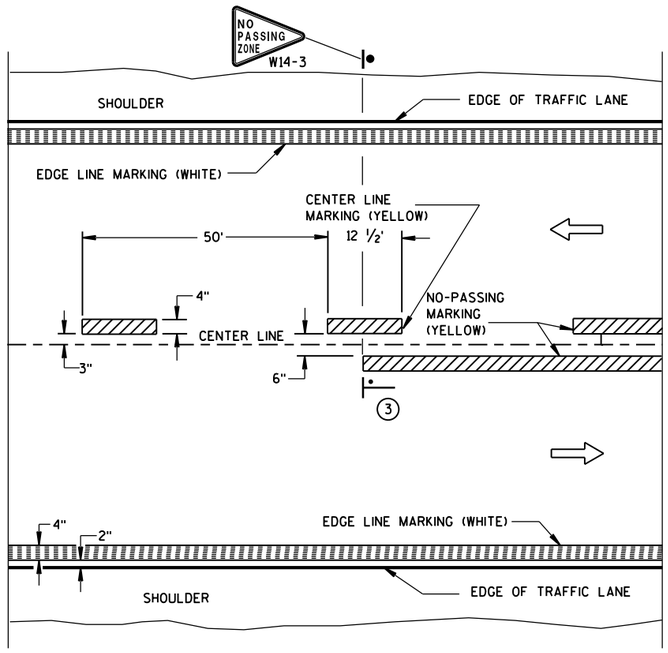
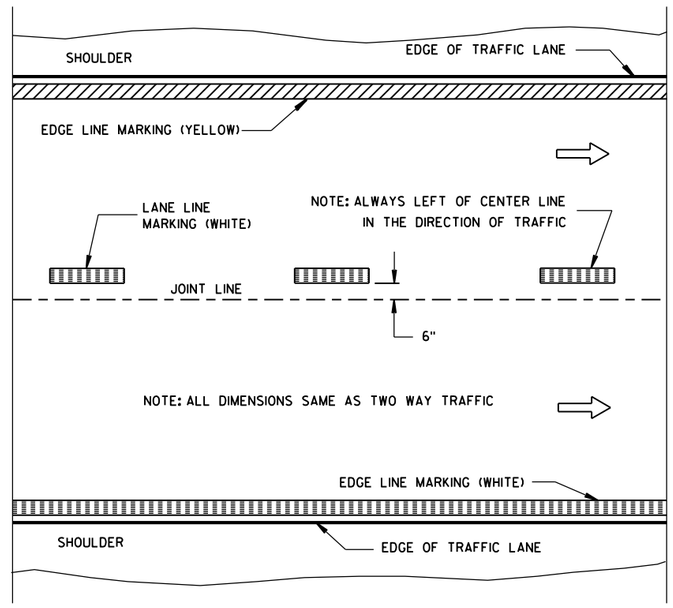
S.D.D. 15 C 3-2

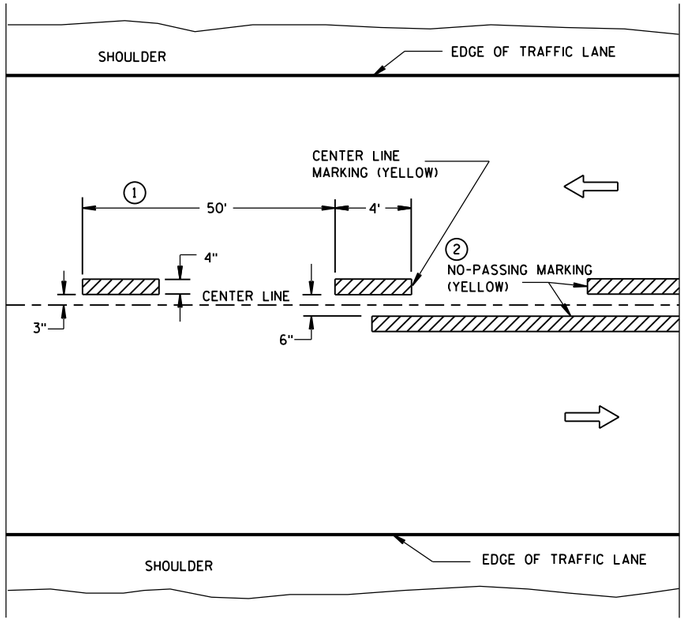


TWO WAY TRAFFIC

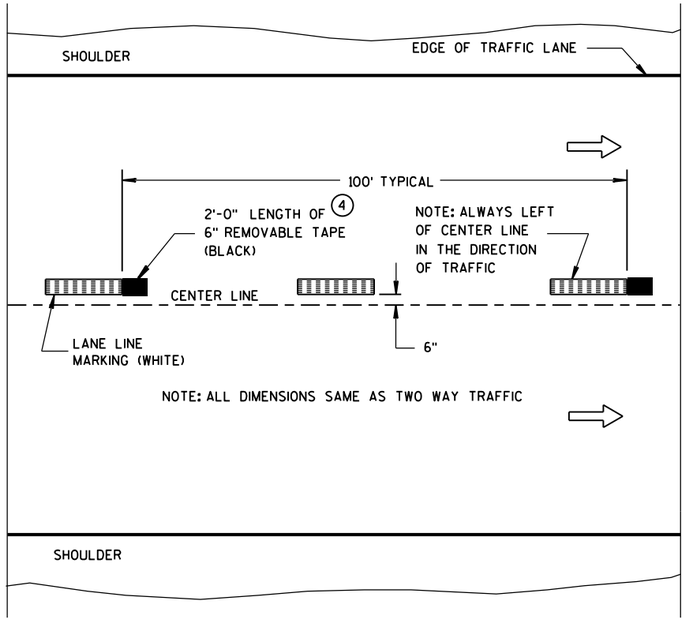


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY (INTERMEDIATE) PAVEMENT MARKING

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

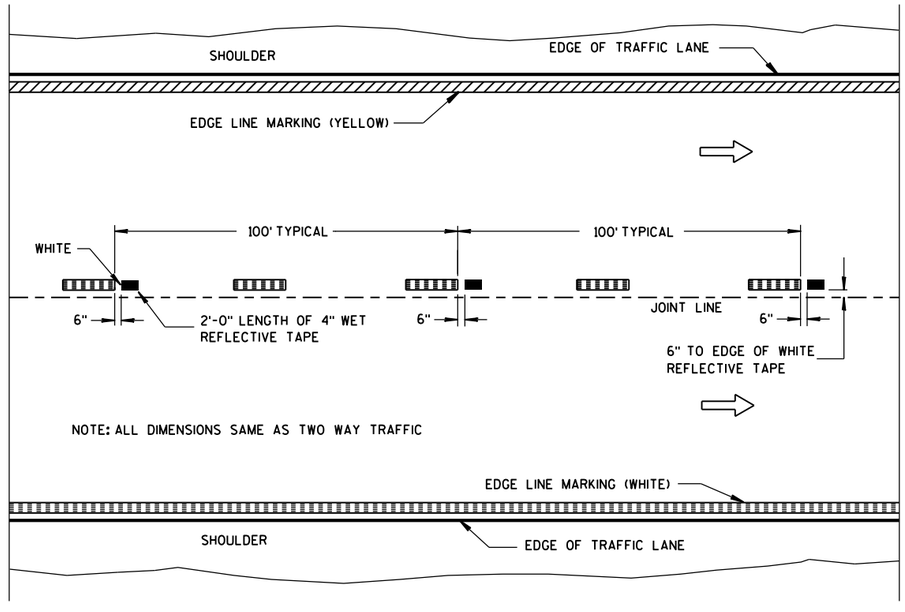
GENERAL NOTES

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

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

NOTE

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL



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

LEGEND

"T" MARKING

POST MOUNTED SIGN

PAVEMENT MARKING (MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

5-13-2013 — DATE

/S/ Travis Feltes — STATE TRAFFIC E

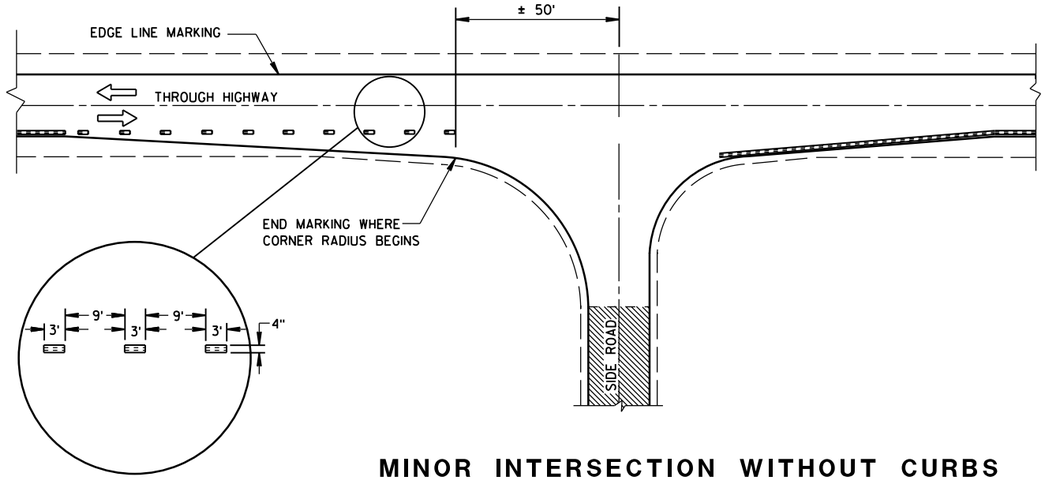
FHWA

6

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

6

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



MINOR INTERSECTION WITHOUT CURBS

GENERAL NOTES

EDGE LINES SHALL BE OMITTED THROUGH INTERSECTIONS. EDGE LINES SHALL BE CONTINUED THROUGH DRIVEWAYS.

(1) WHEN DISTANCE "A" IS LESS THAN 250 FEET, OMIT LANE LINE.

(2) WHEN DISTANCE "B" IS LESS THAN 100 FEET, OMIT CHANNELIZING LANE LINE.

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

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

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

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

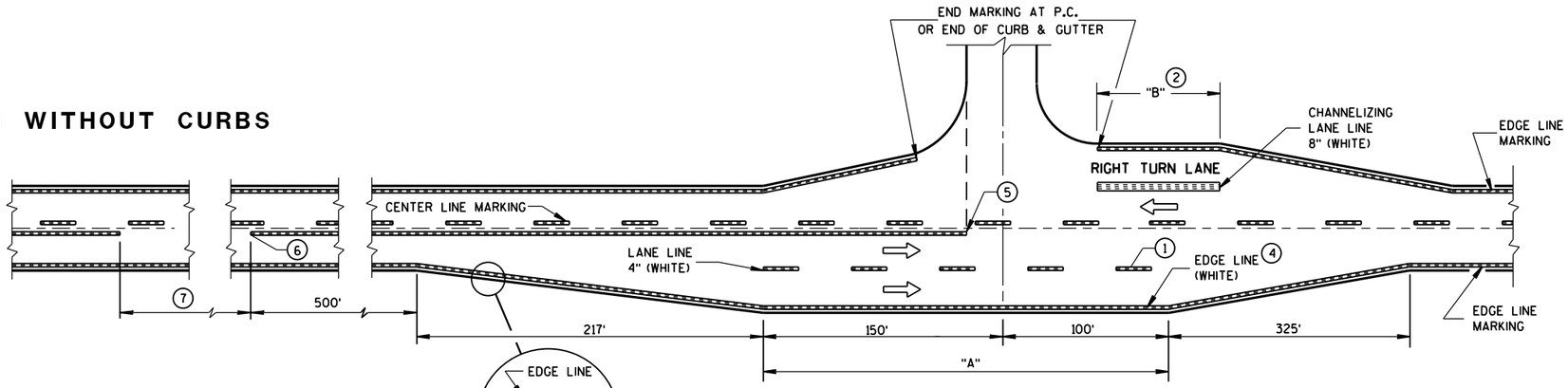
(7) IF THE DISTANCE BETWEEN 2 SUCCESSIVE NO-PASSING ZONES IS LESS THAN THE MINIMUM DISTANCE BETWEEN ZONES, CONNECT THE 2 ZONES.

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

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL

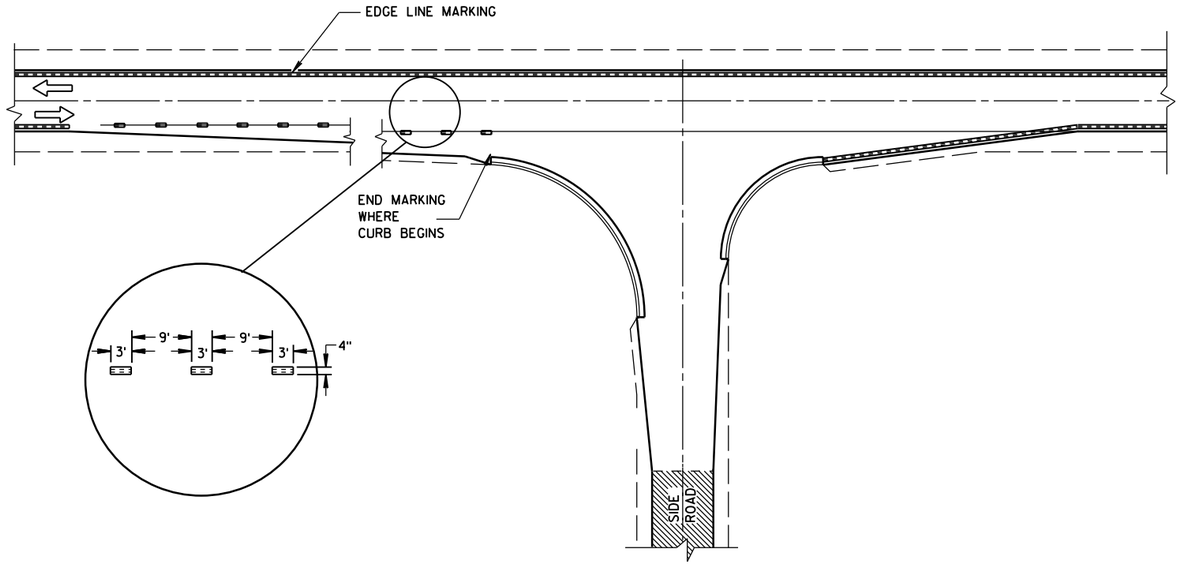
(7)

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



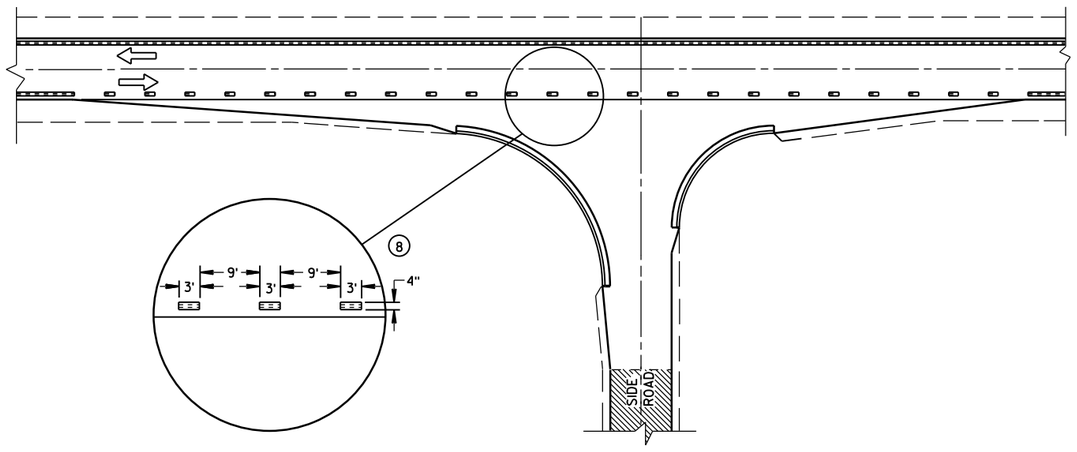
MAJOR INTERSECTIONS

(INTERSECTION WITH FULL RIGHT TURN LANE OR BYPASS LANES)



MINOR INTERSECTION WITH CURBS

(TYPICAL MARKING)



MINOR INTERSECTION WITH CURBS

(3) (FOR SPECIAL CONDITIONS AS SPECIFIED)

PAVEMENT MARKING
(INTERSECTIONS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

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

6

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

LEGEND

SIGN ON PORTABLE OR PERMANENT SUPPORT

DIRECTION OF TRAFFIC

WORK AREA

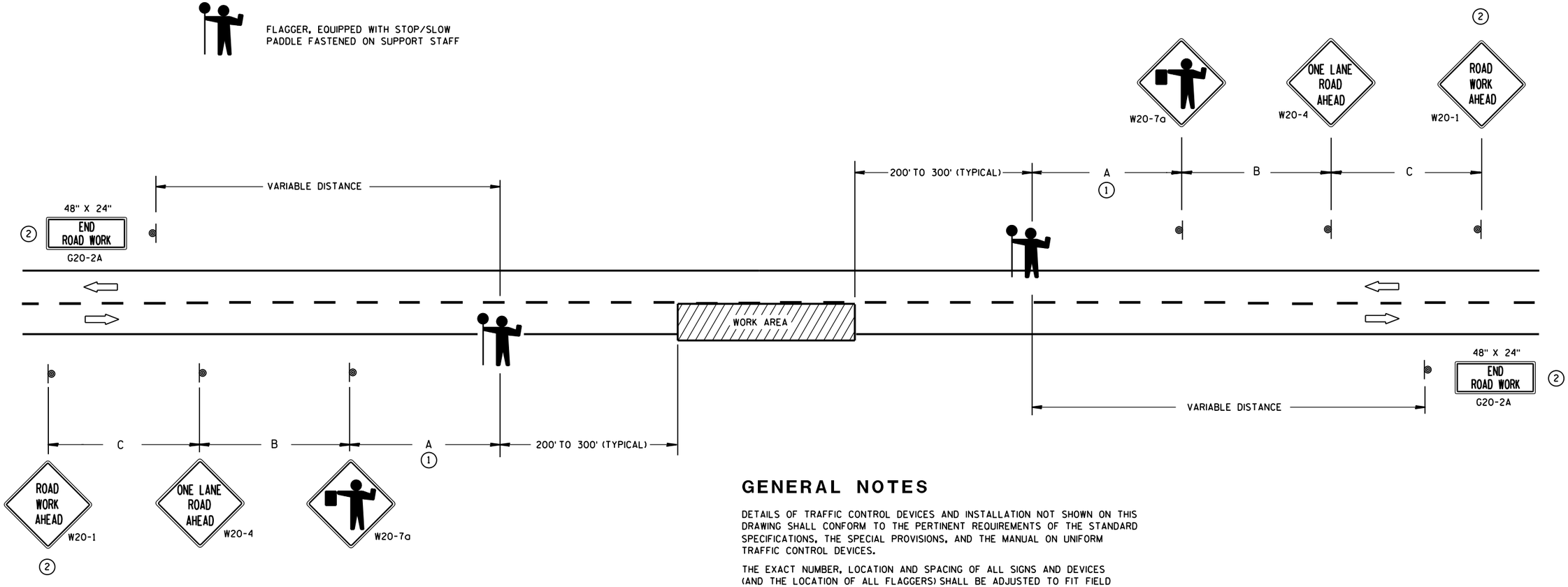
FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

SIGN SPACING TABLE

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

W3-4

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



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

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

GENERAL NOTES

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

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

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

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

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

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

TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

S.D.D. 15 C 12-4

6

S.D.D. 15 C 12-4

GENERAL NOTES

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

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

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

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

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

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

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

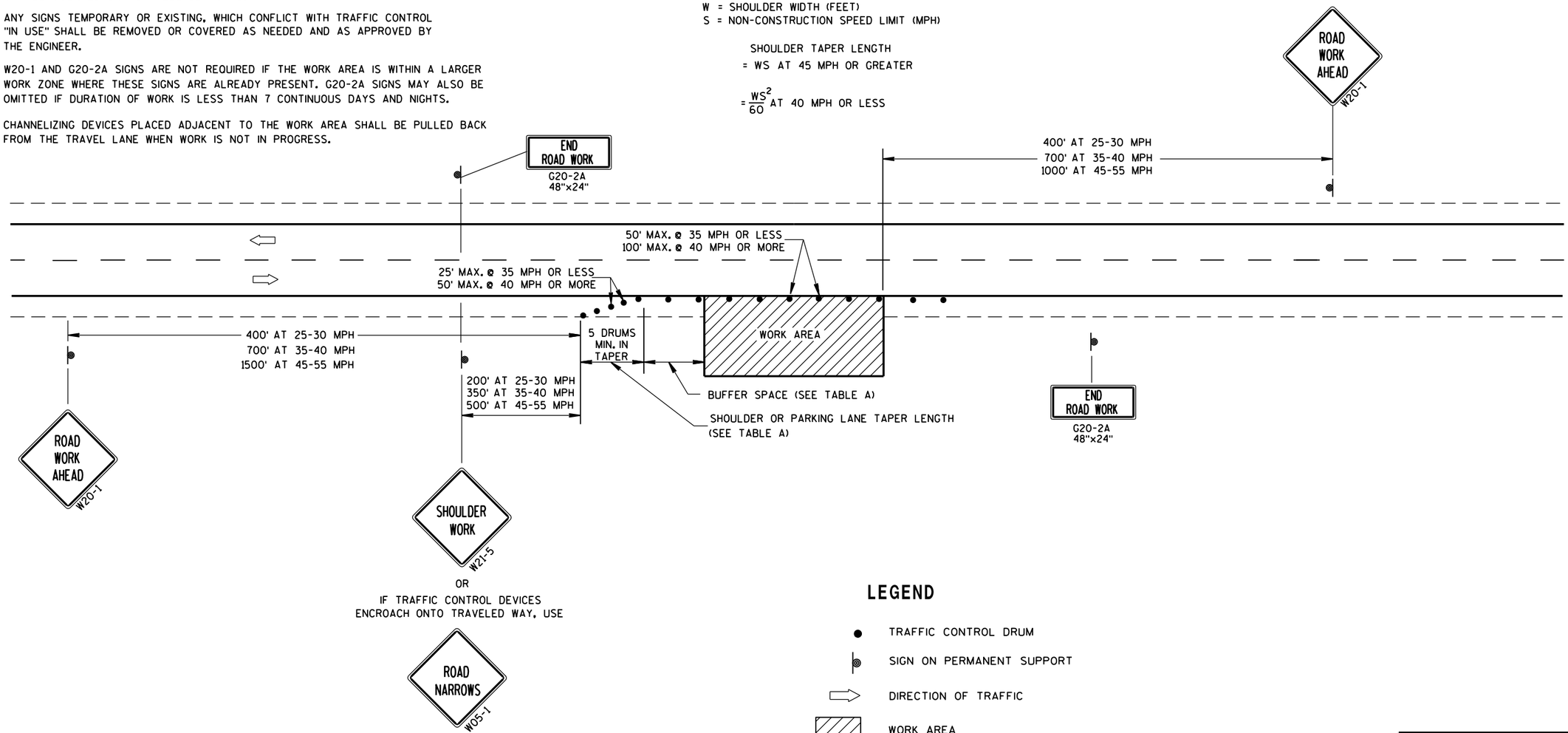
TABLE A

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

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

SHOULDER TAPER LENGTH
= WS AT 45 MPH OR GREATER

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



LEGEND

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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/2013 DATE

/S/ Travis Feltes
STATE TRAFFIC ENGINEER

FHWA

6

S.D.D. 15 D 28-2

LEGEND

- SIGN ON PERMANENT SUPPORT
- REMOVING PAVEMENT MARKING
- TYPE III BARRICADE WITH ATTACHED SIGN
- CONCRETE BARRIER TEMPORARY PRECAST
- FLAGS, 16" x 16" MIN., (ORANGE)
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- ASPHALTIC PAVEMENT WIDENING
- DIRECTION OF TRAFFIC
- 4" X 6" WOOD POST
- TEMPORARY SIGNAL WITH BACKPLATE AND 12-INCH LENSES ON BREAKAWAY POLE

W057-52
36"x24"

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

GENERAL NOTES

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

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

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

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

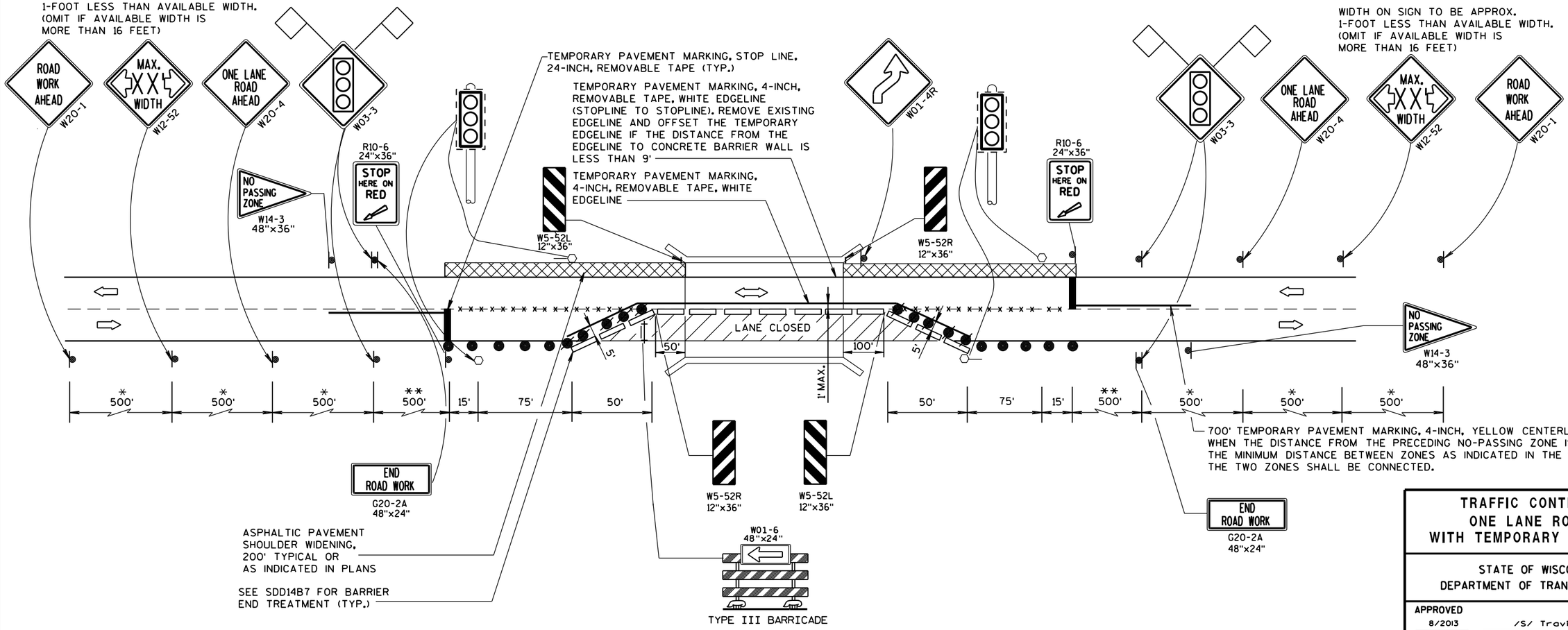
SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

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

PLACE TEMPORARY PAVEMENT MARKING EDGELINE AND CENTERLINE, AND REMOVE EXISTING PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS OR AS NOTED ON DETAIL.

* 500-FOOT SPACING SHOWN IS FOR ROADWAYS WITH A PRE-CONSTRUCTION REGULATORY SPEED LIMIT OF 45 MPH OR MORE. FOR 35-40 MPH, USE 350-FOOT TYPICAL SPACING. FOR 25-30 MPH, USE 200-FOOT TYPICAL SPACING.

** USE 300' SPACING IF PRE-CONSTRUCTION REGULATORY SPEED LIMIT IS 35 MPH OR LESS.



TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

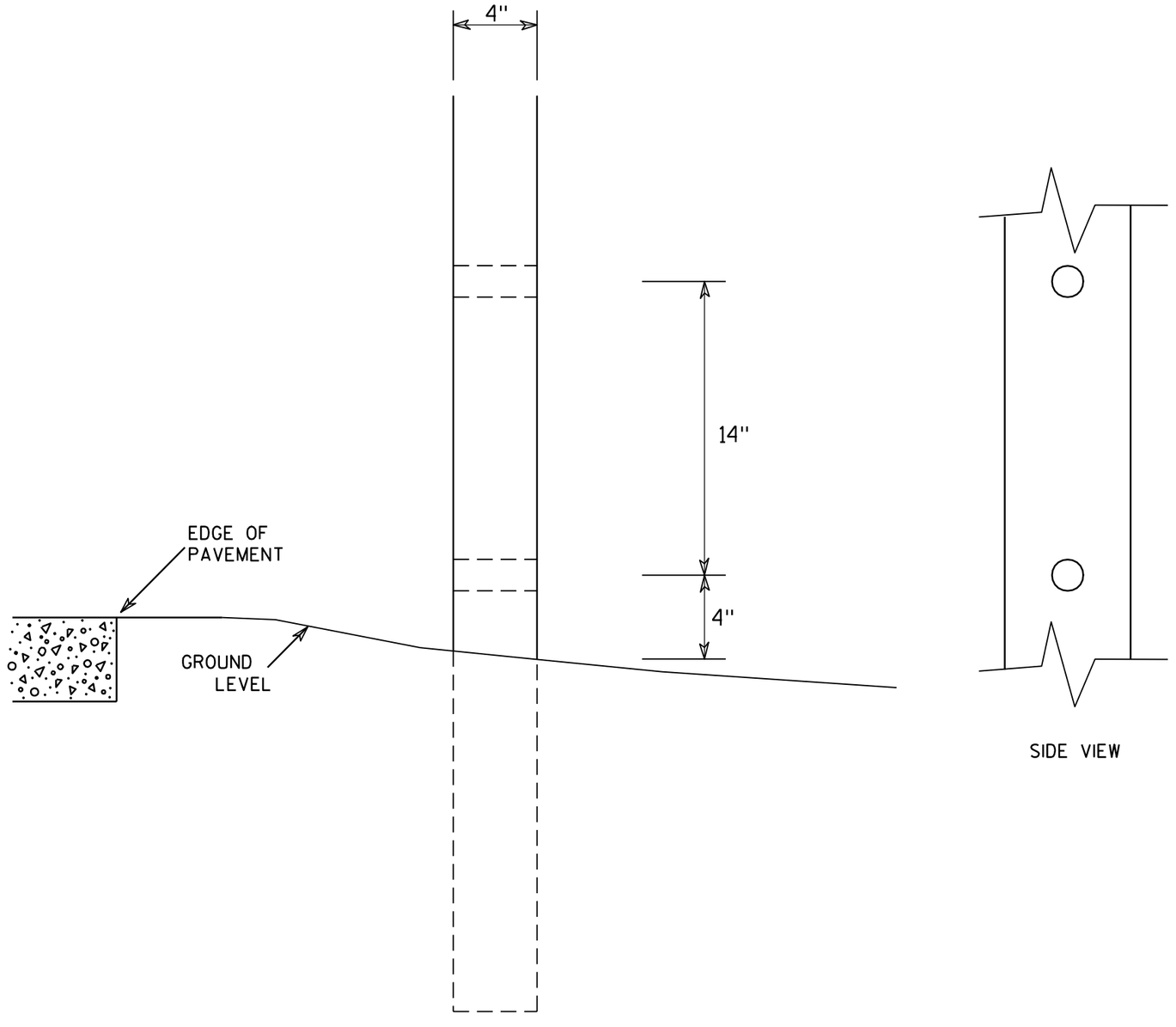
8/2013 — DATE

/S/ Travis Feltes — STATE TRAFFIC ENGINEER

FHWA

6

S.D.D. 15 D 33-3



SIDE VIEW

GENERAL NOTES

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

7

7

4 X 6 WOOD POST MODIFICATIONS

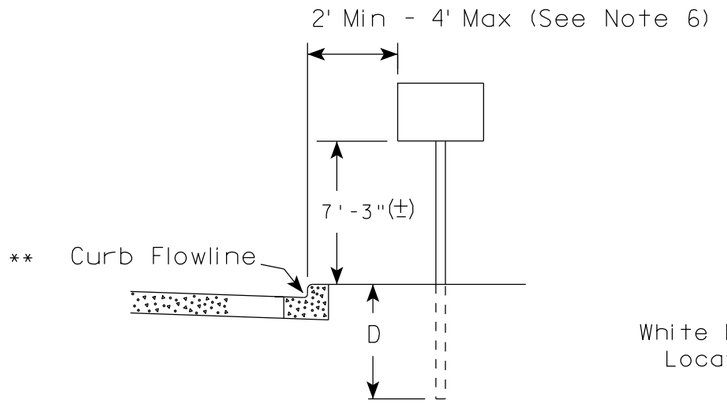
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Chester J Spang for State Traffic Engineer

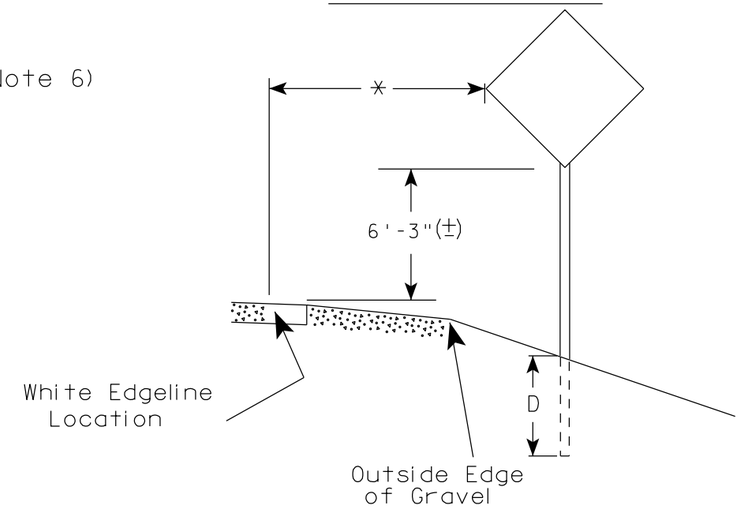
DATE 3/27/97 PLATE NO. A4-11.2

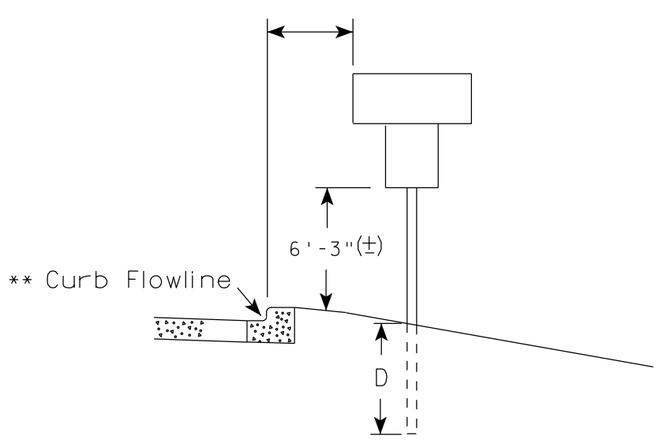
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 55	E

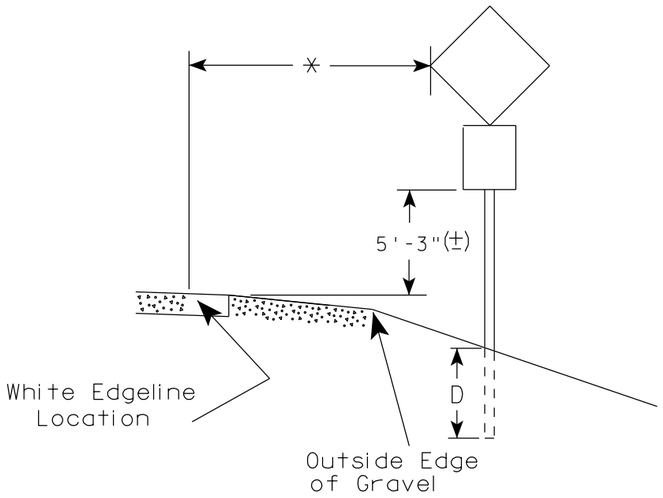
URBAN AREA



RURAL AREA (See Note 2)







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

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

GENERAL NOTES

1. Signs wider than 4 feet, 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on barrier wall, see A4-10 sign plate.
3. For expressways and freeways, mounting height is 7'- 3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. Minimum mounting height for J assemblies (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), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series) & End of Rod Markers (W5-56 & W5-56A) shall be mounted at a height of 4'-3" (+).

POST EMBEDMENT DEPTH

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

TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 9/30/13 PLATE NO. A4-3.18

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

7

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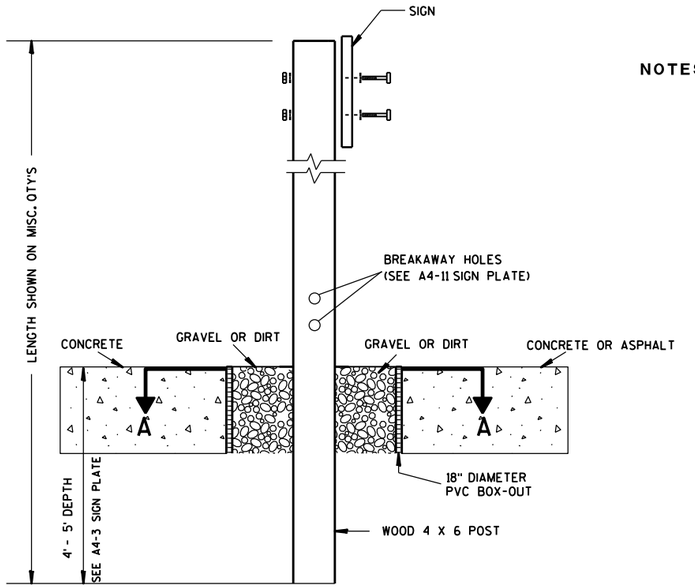
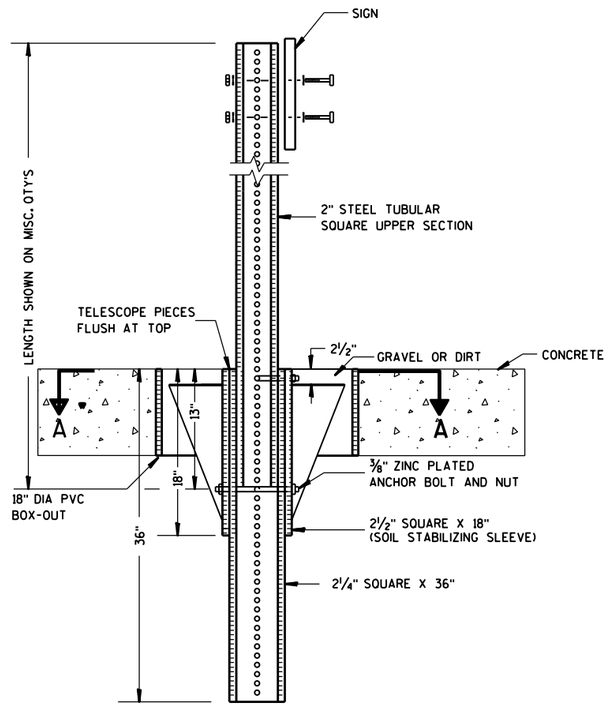


ELEVATION VIEW

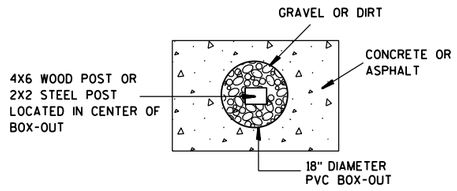
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

NOTES:
1. ALL MATERIAL TO BE APPROVED BY ENGINEER PRIOR TO INSTALLATION
2. SEE SIGN PLATE A4-8 FOR SIGN HARDWARE REQUIREMENTS
3. 18 INCH X 18 INCH SQUARE BOX-OUTS MAY BE USED FOR INSTALLATIONS IN EXISTING CONCRETE OR ASPHALT LOCATIONS.



ELEVATION VIEW

DETAIL OF STEEL 2 X 2 SIGN POST IN BOX-OUT



PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST BOX-OUTS A4-3B

WISCONSIN DEPT OF TRANSPORTATION

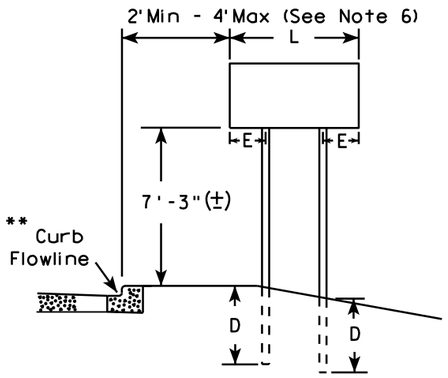
APPROVED Matthew R Rauch
for State Traffic Engineer

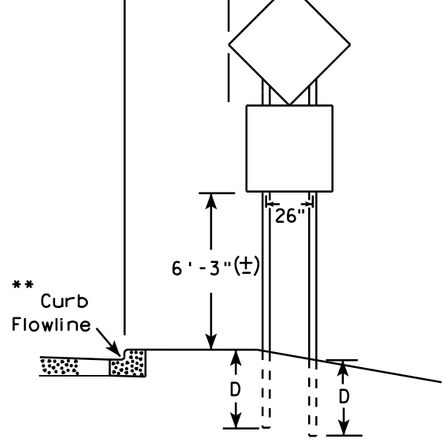
DATE 1/27/14 PLATE NO. A4-3B.1

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

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

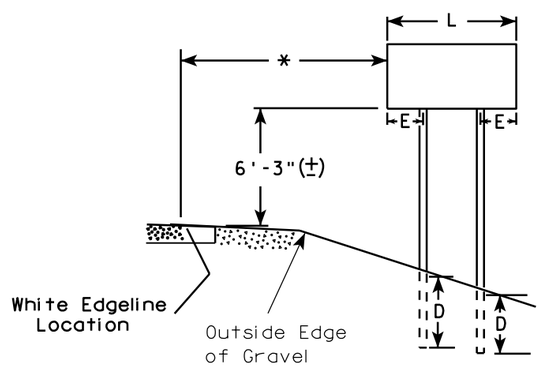
URBAN AREA

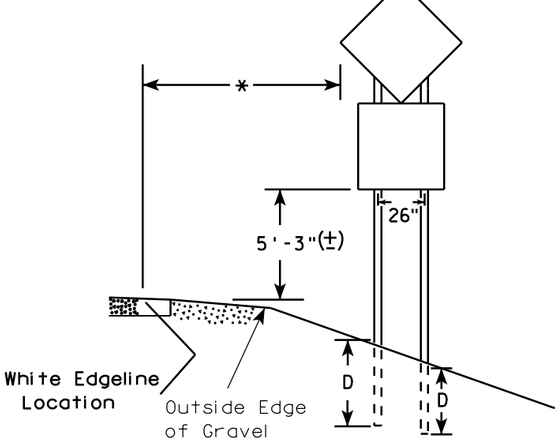




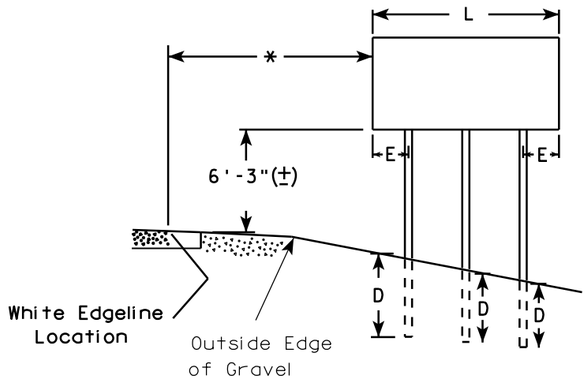
48" DIAMOND WARNING SIGN

RURAL AREA (See Note 3)





48" DIAMOND WARNING SIGN



GENERAL NOTES

1. For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
2. See tables below for required number of posts.
3. For expressways and freeways, mounting height is 7'-3" (±) or 6'-3" (±) depending upon existence of sub-sign.
4. The (±) tolerance for mounting height is 3 inches.
5. Minimum mounting height for J assemblies (A4-5) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. Folding stop signs (R1-1F) shall be mounted at a height of 5'-3" (±) or as directed by the engineer.
8. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Clearance Markers (W5-52), Mile Markers (D10 series) & End of Road Markers (W5-56 & W5-56A) shall be mounted at a height of 4"-3" (±).

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

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

*** See A4-3 sign plate for signs 4' or less in width or less than 20 S.F. in area.

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

***

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

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

POST EMBEDMENT DEPTH

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

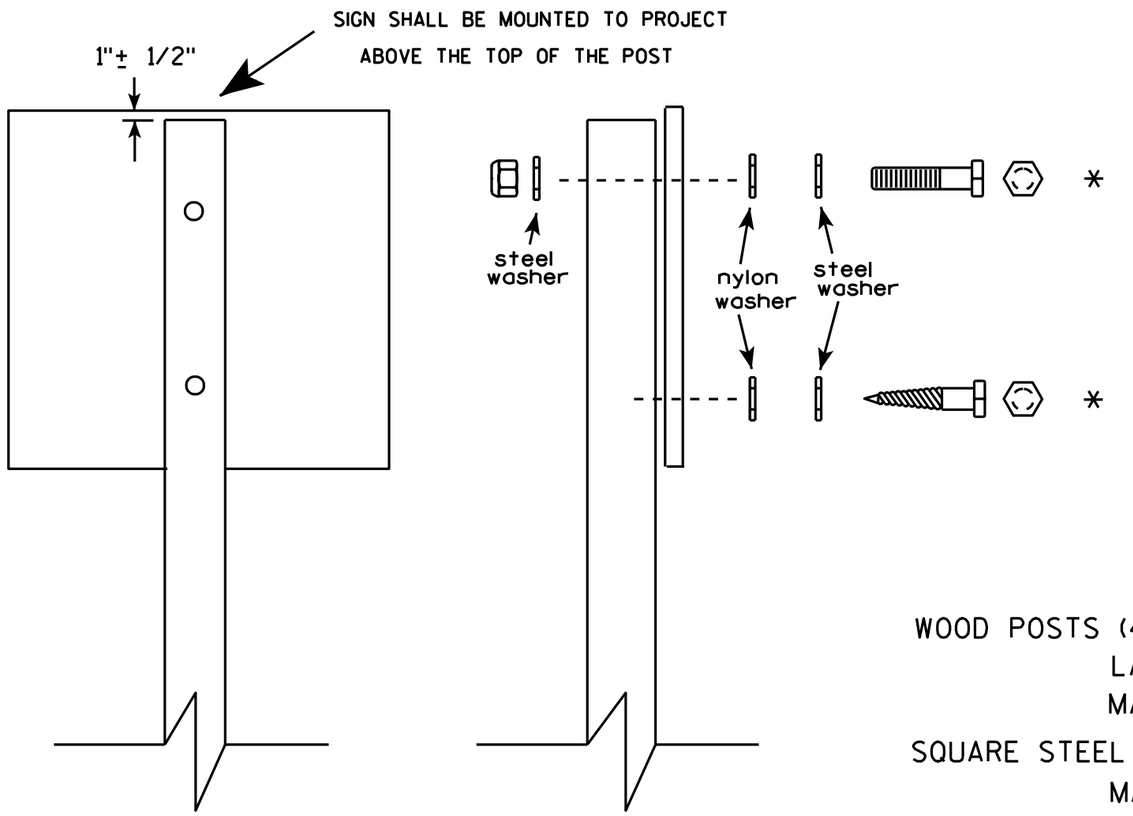
TYPICAL INSTALLATION OF TYPE II SIGNS ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 4/29/14 PLATE NO. A4-4 13

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E



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

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

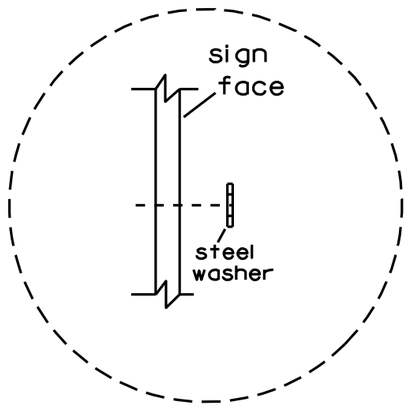
b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

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

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

SQUARE STEEL POSTS (2" x 2")
MACHINE BOLTS - 3/8" X 3-1/4" Length w/ nuts
RIVETS - 9/32 " (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL
O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH

WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON for all Type H signs.



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

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

ATTACHMENT OF SIGNS TO POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

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

7

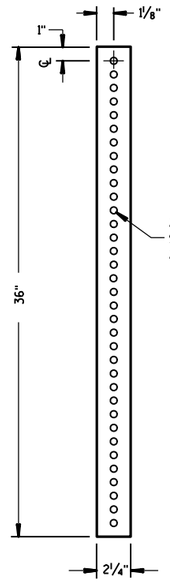
7

PROJECT NO:

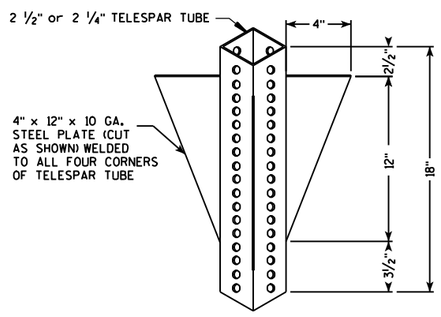
SHEET NO: 59 E

TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM

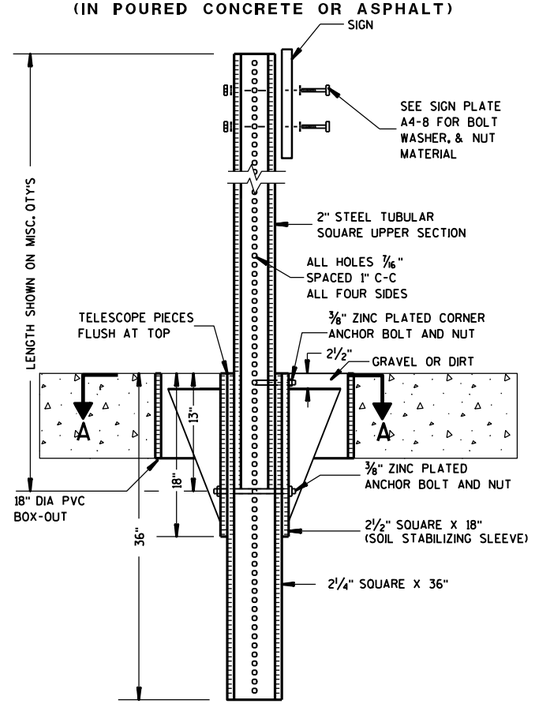
2 1/4 " SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH



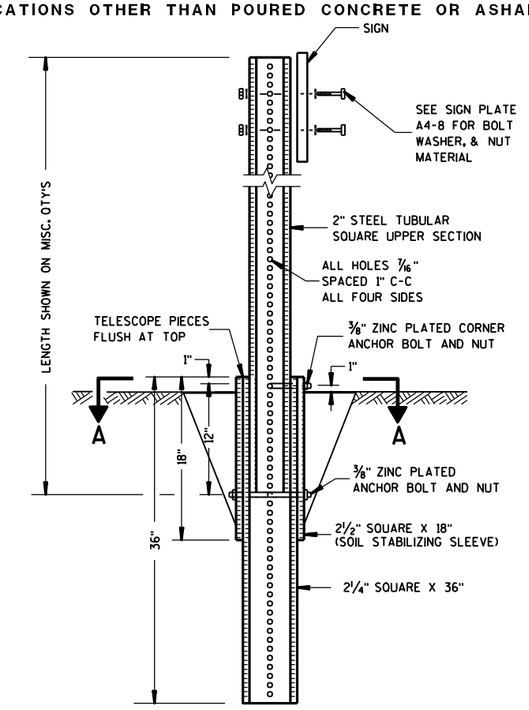
2 1/2 " SQUARE
12 GAUGE
OMNI-DIRECTIONAL
PERFORATED
SOIL STABILIZING SLEEVE
GALVANIZED FINISH

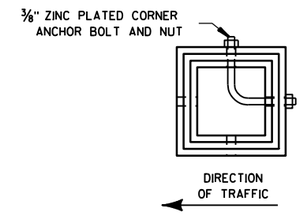


DETAIL OF TUBULAR STEEL SIGN POST
(IN POURED CONCRETE OR ASPHALT)



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





SECTION A-A

Area of Sign Installation (Sq. Ft.)	Number of Required Posts
9 or less	1
Greater than 9 less than or equal to 18	2
Greater than 18 less than or equal to 27	3

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

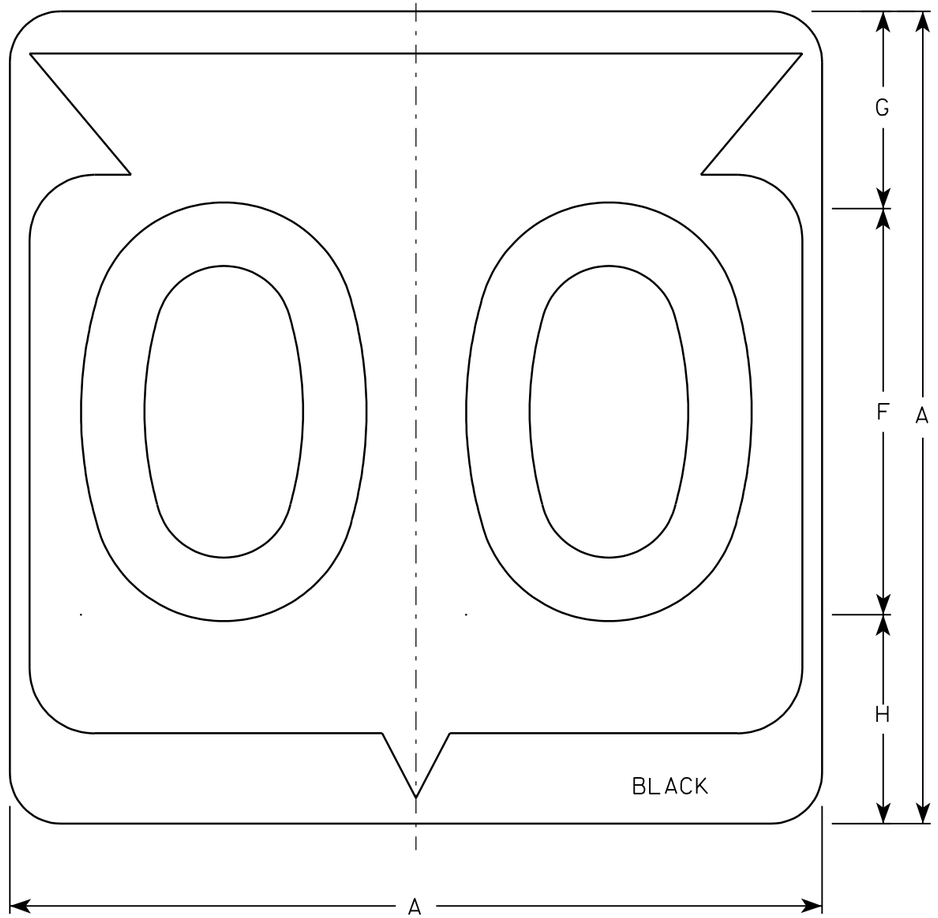
TUBULAR STEEL SIGN POST A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 5/30/12 PLATE NO. A4-9.7

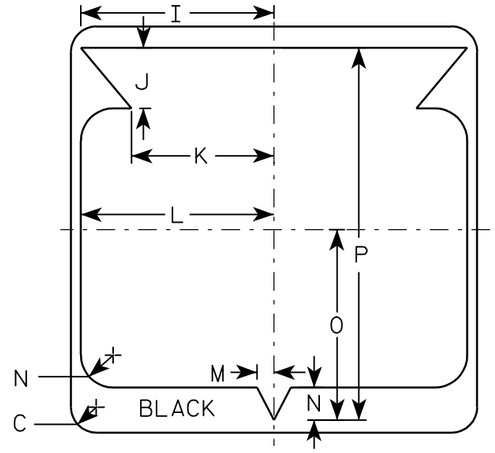
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 60	E



M1-6

NOTES

1. Sign is Type II - See Note 6 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White & Black - See Note 6
   Message - Black
3. Message Series - See note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate Series numerals and adjust spacing as per plate A10-1.
6. Permanent Signs
   Background - Type H Reflective
   Detour or temporary Signs
   Background - Reflective



Metric equivalent for this sign is:

SIZE	
1	
2	600 mm X 600 mm
3	900 mm X 900 mm
4	900 mm X 900 mm
5	900 mm X 900 mm

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.	Area m2
1																												
2	24		1 1/2			12	5 1/2	6 1/2	10 1/4	2 1/2	8 7/8	11 1/2	1	1 7/8	11 1/4	21 7/8											4.0	.36
3	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0	.81
4	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0	.81
5	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0	.81

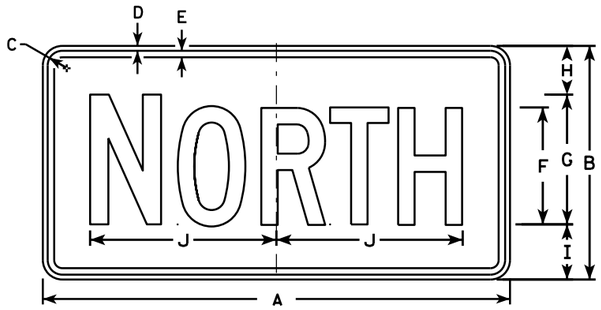
STATE ROUTE MARKER M1-6 FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

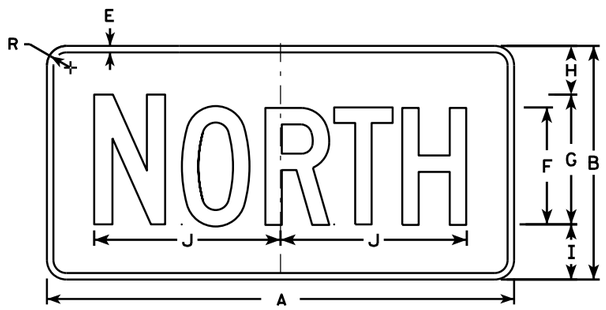
APPROVED Chester J Spang for State Traffic Engineer

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

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 61	E



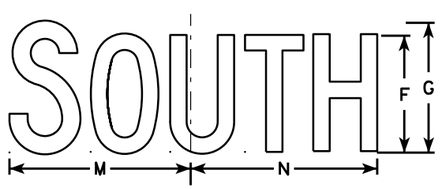
M3-1
MK3-1
MM3-1
MN3-1



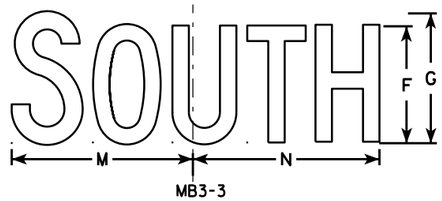
MB3-1

M3-2
MK3-2
MM3-2
MN3-2

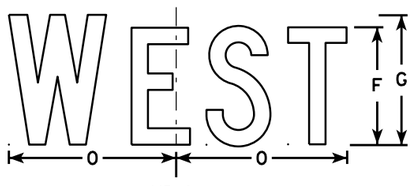
MB3-2



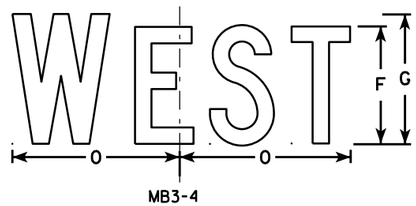
M3-3
MK3-3
MM3-3
MN3-3



MB3-3



M3-4
MK3-4
MM3-4
MN3-4



MB3-4

NOTES

1. All Signs Type II - Type H
2. Color:
   Background - See note 5
   Message - See note 5
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. M3-1 thru M3-4 Background - White
   Message - Black
   MB3-1 thru MB3-4 Background - Blue
   Message - White
   MK3-1 thru MK3-4 Background - Green
   Message - White
   MM3-1 thru MM3-4 Background - White
   Message - Green
   MN3-1 thru MN3-4 Background - Brown
   Message - White
6. Note the first letter of each direction is larger than the remainder of the message.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	12	1 1/8	3/8	3/8	6	7	2 1/4	2 3/4	10 1/4	7 7/8	8 3/8	10 1/4	9 3/4	8 3/4			1 1/2									2.00
3	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5
4	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5
5	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5

STANDARD SIGNS
M3-1 thur M3-4
SERIES

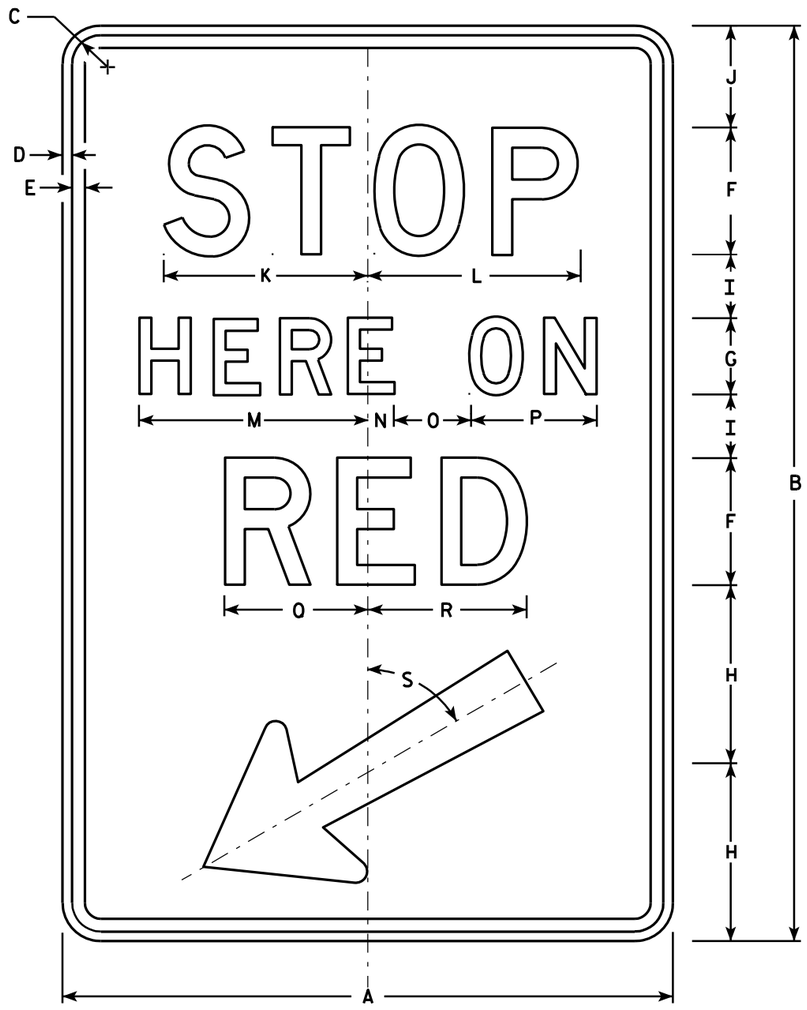
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch for State Traffic Engineer

DATE 6/30/14 PLATE NO M3-1.13

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

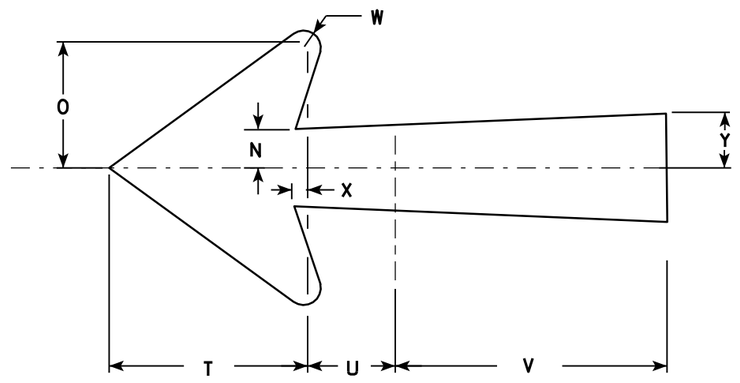
7



R10-6

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White
   Message - Black
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



Arrow Detail

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	O	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	24	36	1 1/8	3/8	1/2	5	3	7	2 1/2	4	8	8 3/8	9	1	3	5	5 5/8	6 1/4	60°	5 1/4	2 1/4	7 1/8	1/2	3/8	1 3/8		6.0
2M	24	36	1 1/8	3/8	1/2	5	3	7	2 1/2	4	8	8 3/8	9	1	3	5	5 5/8	6 1/4	60°	5 1/4	2 1/4	7 1/8	1/2	3/8	1 3/8		6.0
3																											
4																											
5																											

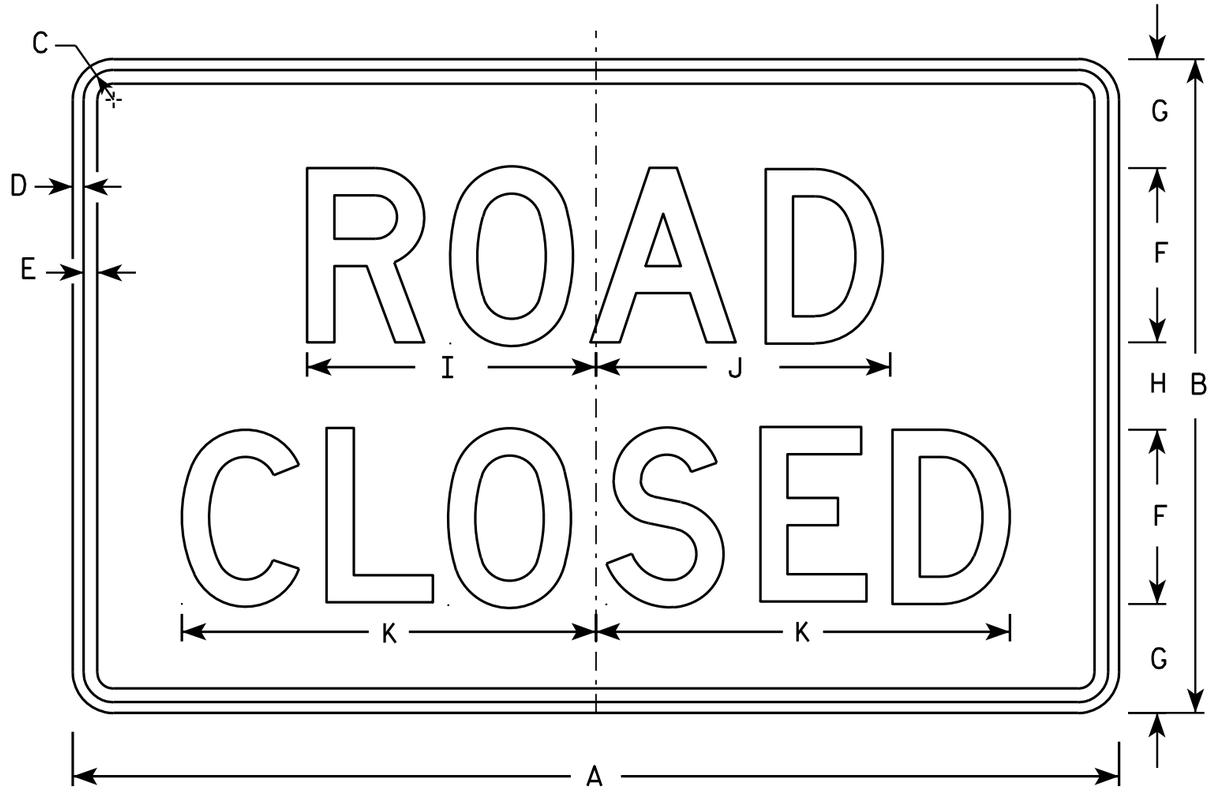
STANDARD SIGN
R10-6

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 4/5/11 PLATE NO. R10-6.6

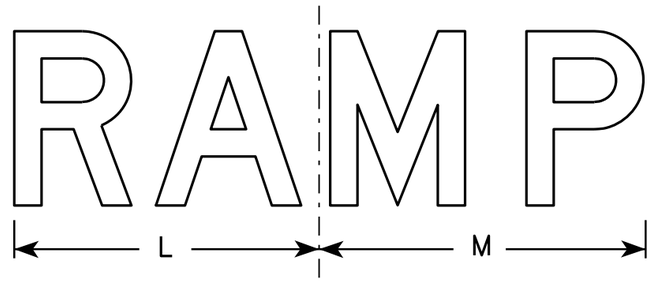
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 63	E



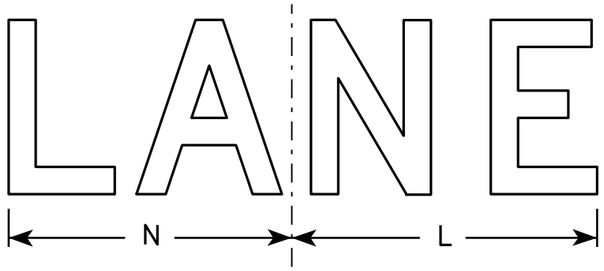
R11-2

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White
   Message - Black
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Modify the message as required.



R11-2R



R11-2L

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13													10.0
2M	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13													10.0
3	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13													10.0
4	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13													10.0
5	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13													10.0

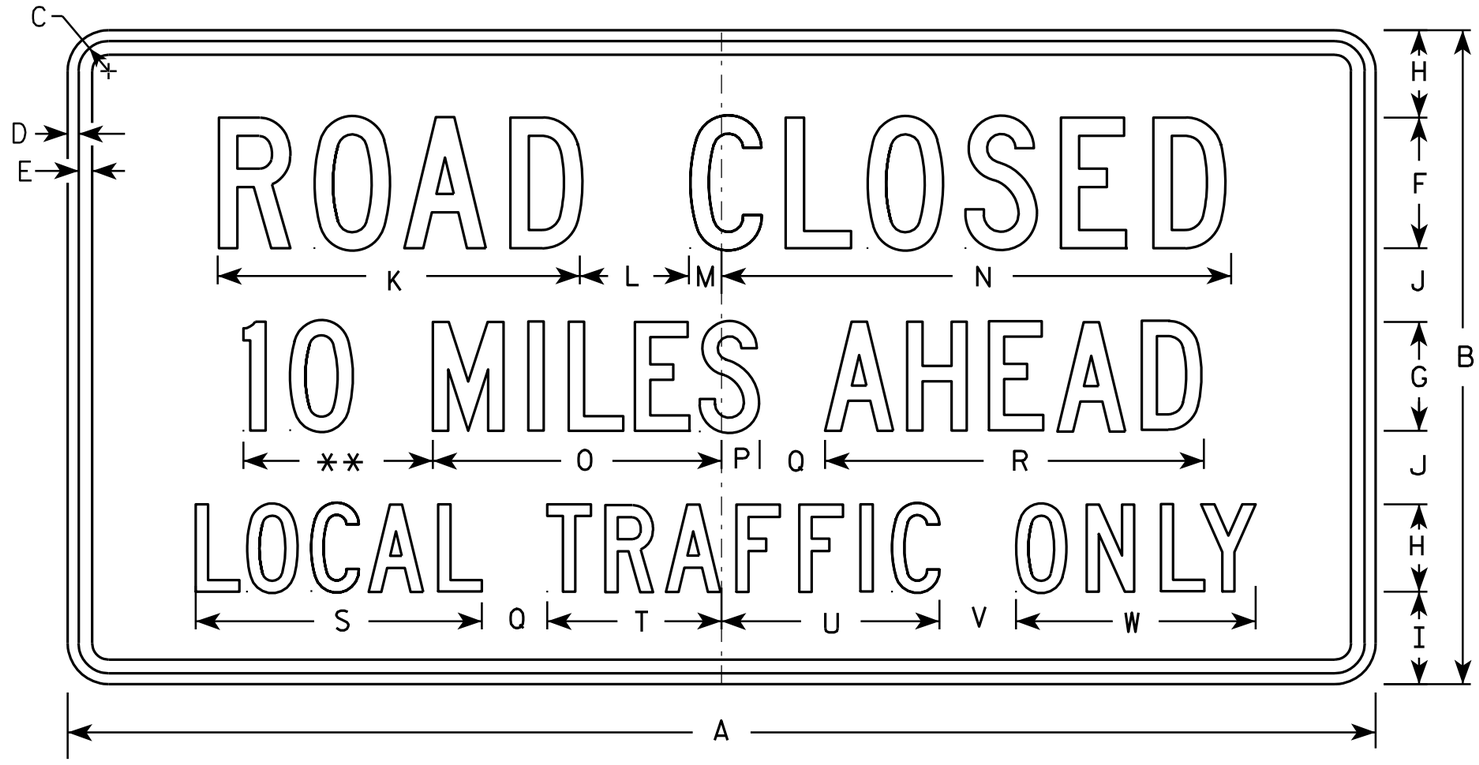
STANDARD SIGN
R11-2

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 4/1/11 PLATE NO. R11-2.10

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 64	E



R11-3

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White
   Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate numerals and optically adjust spacing to achieve proper balance.

** See Note 5

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	18	1 3/8	1/2	5/8	4	3	2 1/2	2	2	11 1/8	3	1 1/8	15 1/4	8	1 1/2	2	10 3/4	8 3/8	4 3/4	6 1/2	2	6 3/4				4.5
2S	60	30	1 3/8	1/2	5/8	6	5	4	4 1/4	3 3/8	16 5/8	5	1 1/2	23	13 1/4	1 3/4	3	17 3/8	13 1/8	8	10	3 1/2	11				12.5
2M	60	30	1 3/8	1/2	5/8	6	5	4	4 1/4	3 3/8	16 5/8	5	1 1/2	23	13 1/4	1 3/4	3	17 3/8	13 1/8	8	10	3 1/2	11				12.5
3																											
4																											
5																											

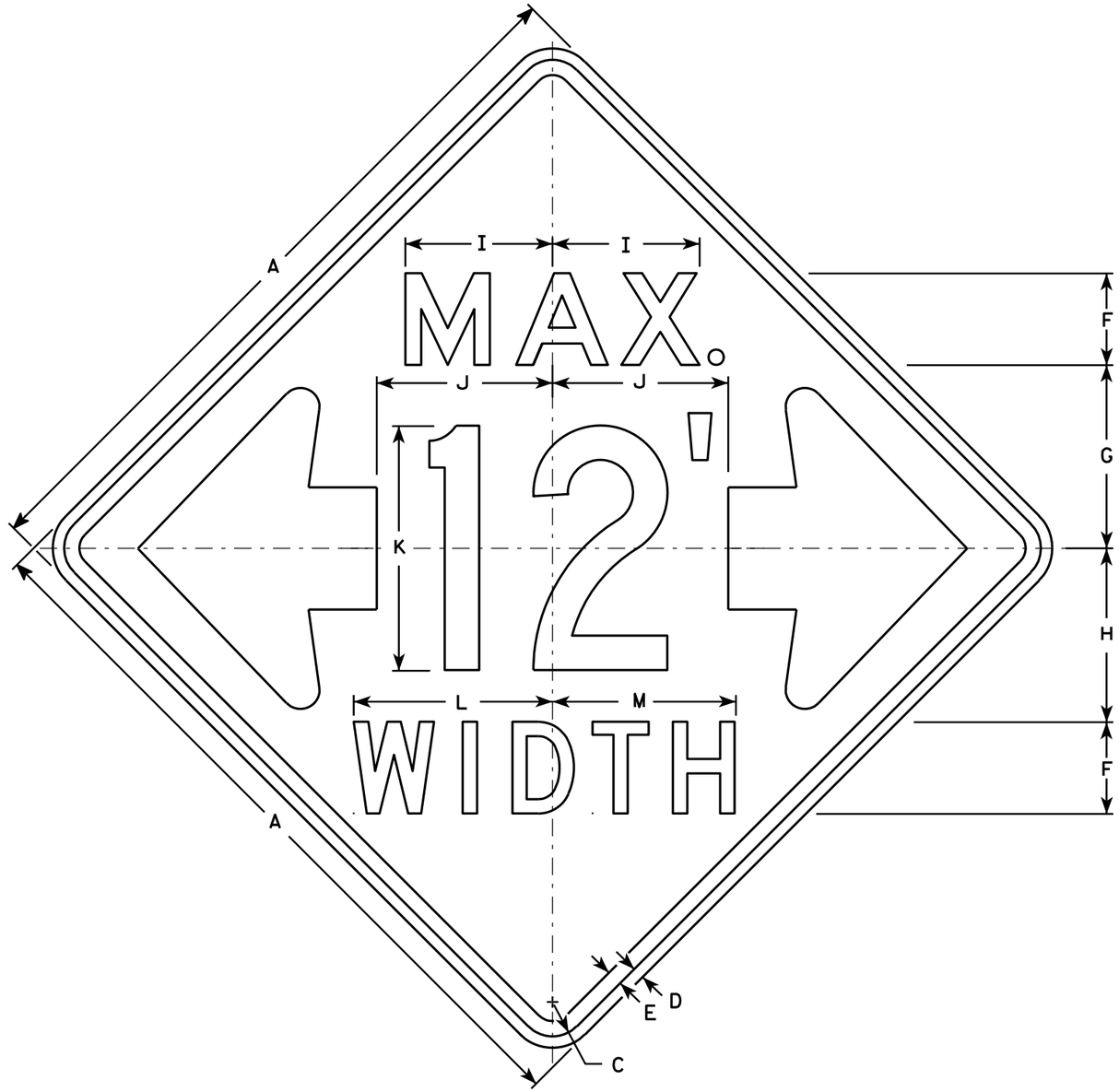
STANDARD SIGN
R11-3

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 4/1/11 PLATE NO. R11-3.6

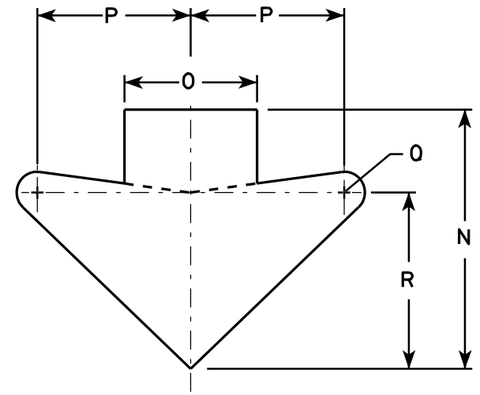
PROJECT NO: | HWY: | COUNTY: | SHEET NO: 65 | E



W12-52

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Orange
   Message - Black
3. Message Series - See note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. The top line is series E, the numerals are series C, and the bottom line is series D.
6. Substitute appropriate numerals and adjust spacing as required.



ARROW DETAIL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48		2 1/4	3/4	1	6	12	11 3/8	9 5/8	11 1/2	16	13	12	15 5/8	8	9 1/4	1 1/4	10 5/8									16.0
2M	48		2 1/4	3/4	1	6	12	11 3/8	9 5/8	11 1/2	16	13	12	15 5/8	8	9 1/4	1 1/4	10 5/8									16.0
3																											
4																											
5																											

STANDARD SIGN
W12-52

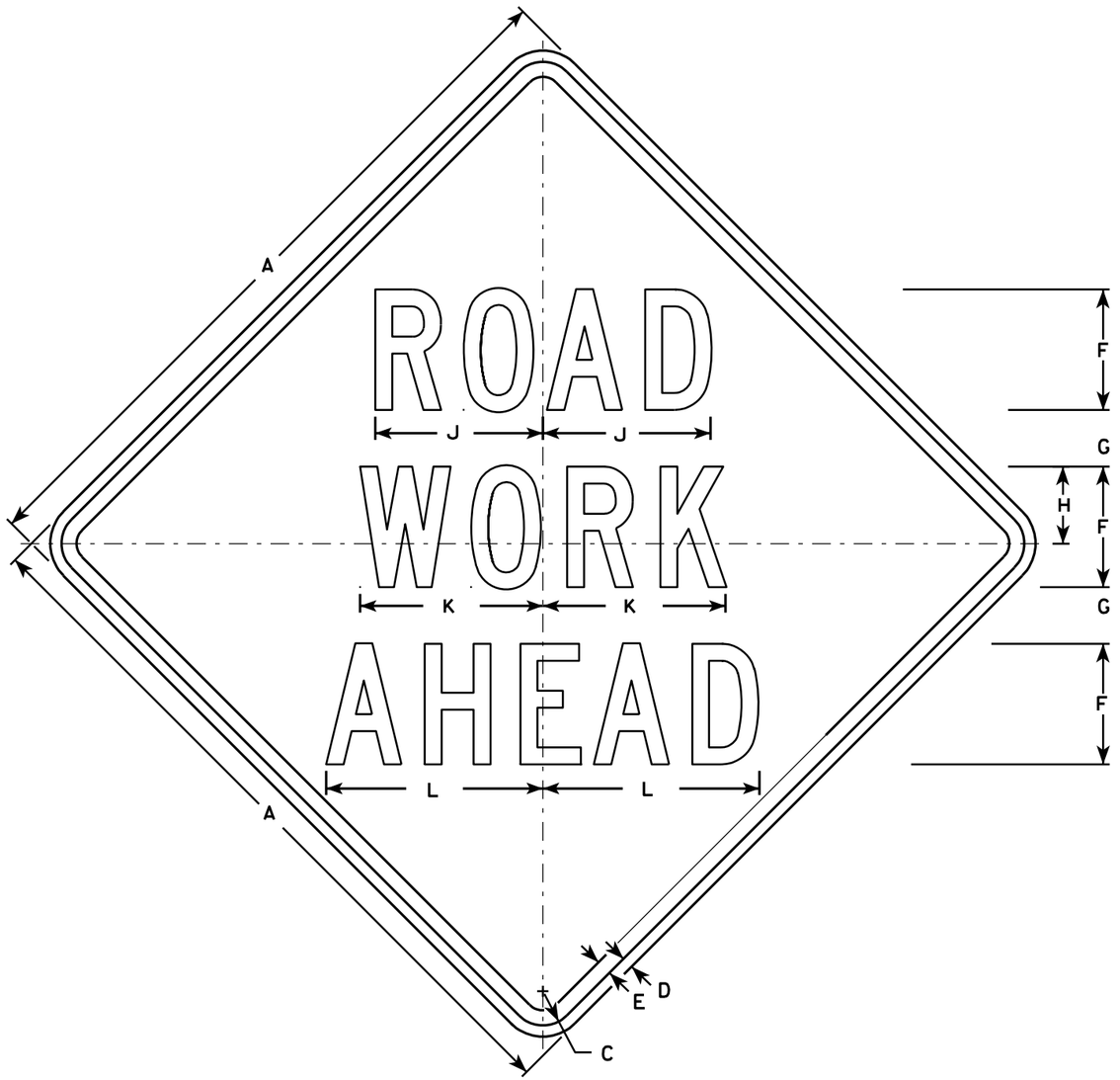
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

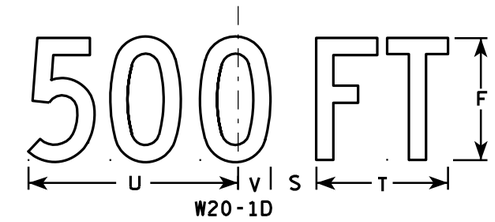
DATE 3/16/11 PLATE NO. W12-52.7

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 66 | E

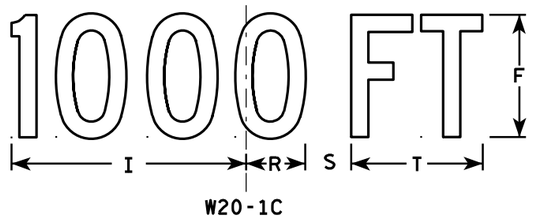
FILE NAME : C:\Users\PROJECTS\tr_stdplate\W1252.DGN PLOT DATE : 16-MAR-2011 14:45 PLOT BY : mscj9h PLOT NAME : PLOT SCALE : 9.137199:1.000000
WISDOT/CADDS SHEET 42



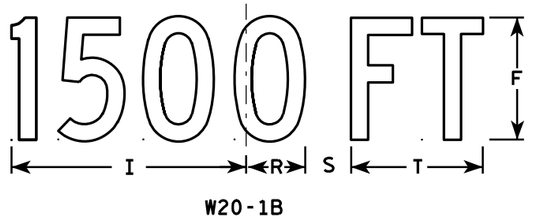
W20-1A



W20-1D

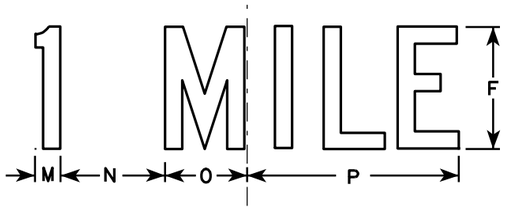


W20-1C



W20-1B

W20-1G



W20-1F

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Orange
   Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 3/8	1/2	5/8	5	2 5/8	3 1/4	10 1/8	7	7 5/8	8 7/8	1 1/8	4 1/2	3 1/2	9		2 1/2	1 7/8	5 5/8	9	1 3/8	8	1 3/4	10 3/4	6	9.0
2S	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8		3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
2M	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8		3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
3	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8		3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
4	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8		3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
5	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8		3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0

STANDARD SIGN
W20-1A, B, C, D, F & G

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/18/11 PLATE NO. W20-1.9

PROJECT NO:

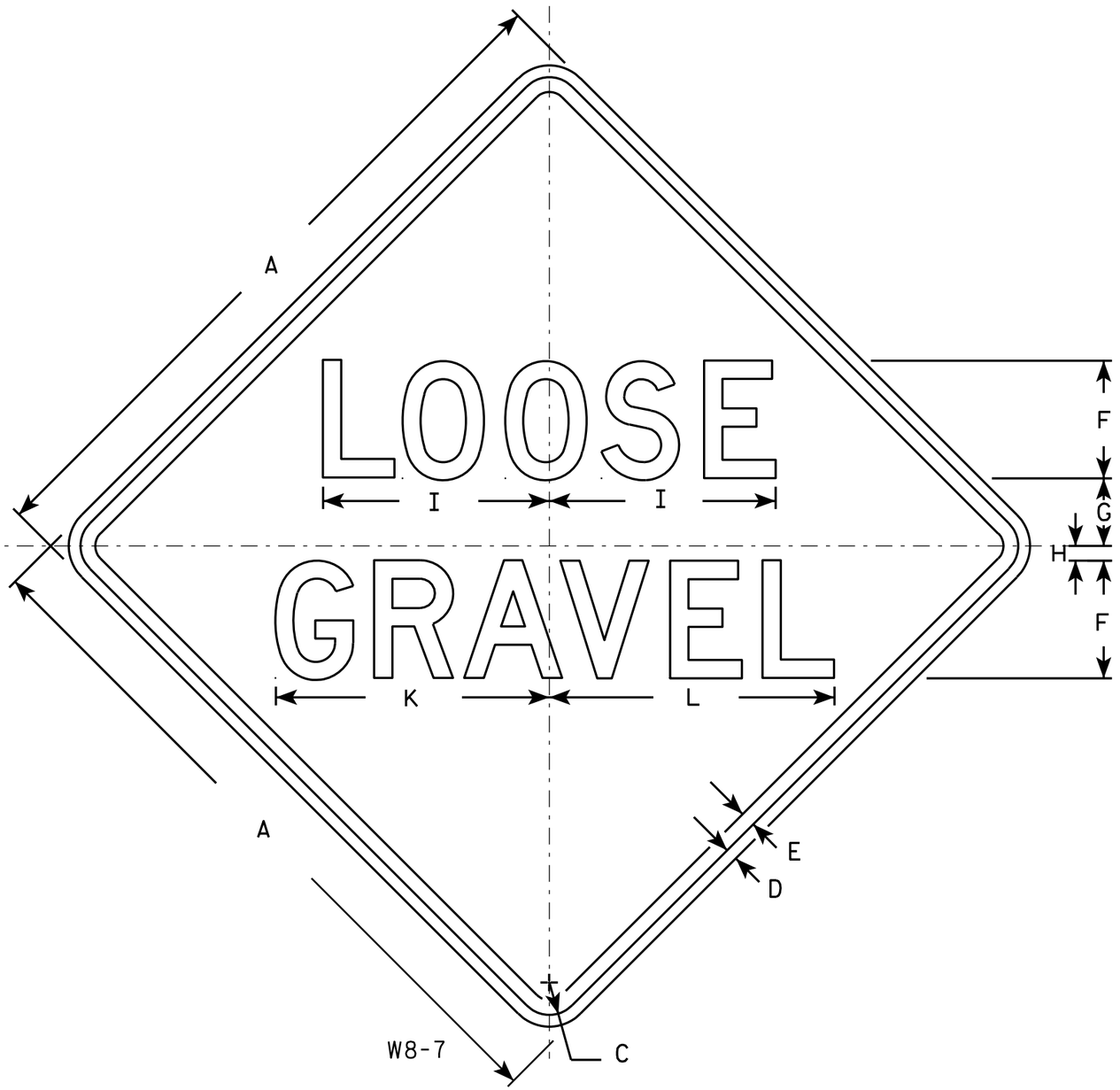
SHEET NO: 67 E

FILE NAME : C:\Users\PROJECTS\tr_stdplate\W201.DGN PLOT DATE : 18-MAR-2011 09:56 PLOT BY : mscj9h

WISDOT/CADDS SHEET 42

7

7



NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Orange
   Message - Black
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

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	4	2 3/4	1/2	7 3/4		9 1/4	9 3/4															4.0
2S	36		1 5/8	5/8	3/4	6	4 1/8	3/4	11 5/8		14	14 1/2															9.0
2M	36		1 5/8	5/8	3/4	6	4 1/8	3/4	11 5/8		14	14 1/2															9.0
3	36		1 5/8	5/8	3/4	6	4 1/8	3/4	11 5/8		14	14 1/2															9.0
4	36		1 5/8	5/8	3/4	6	4 1/8	3/4	11 5/8		14	14 1/2															9.0
5	48		2 1/4	3/4	1	8	5 1/2	1	15 1/2		18 5/8	19 3/8															16.0

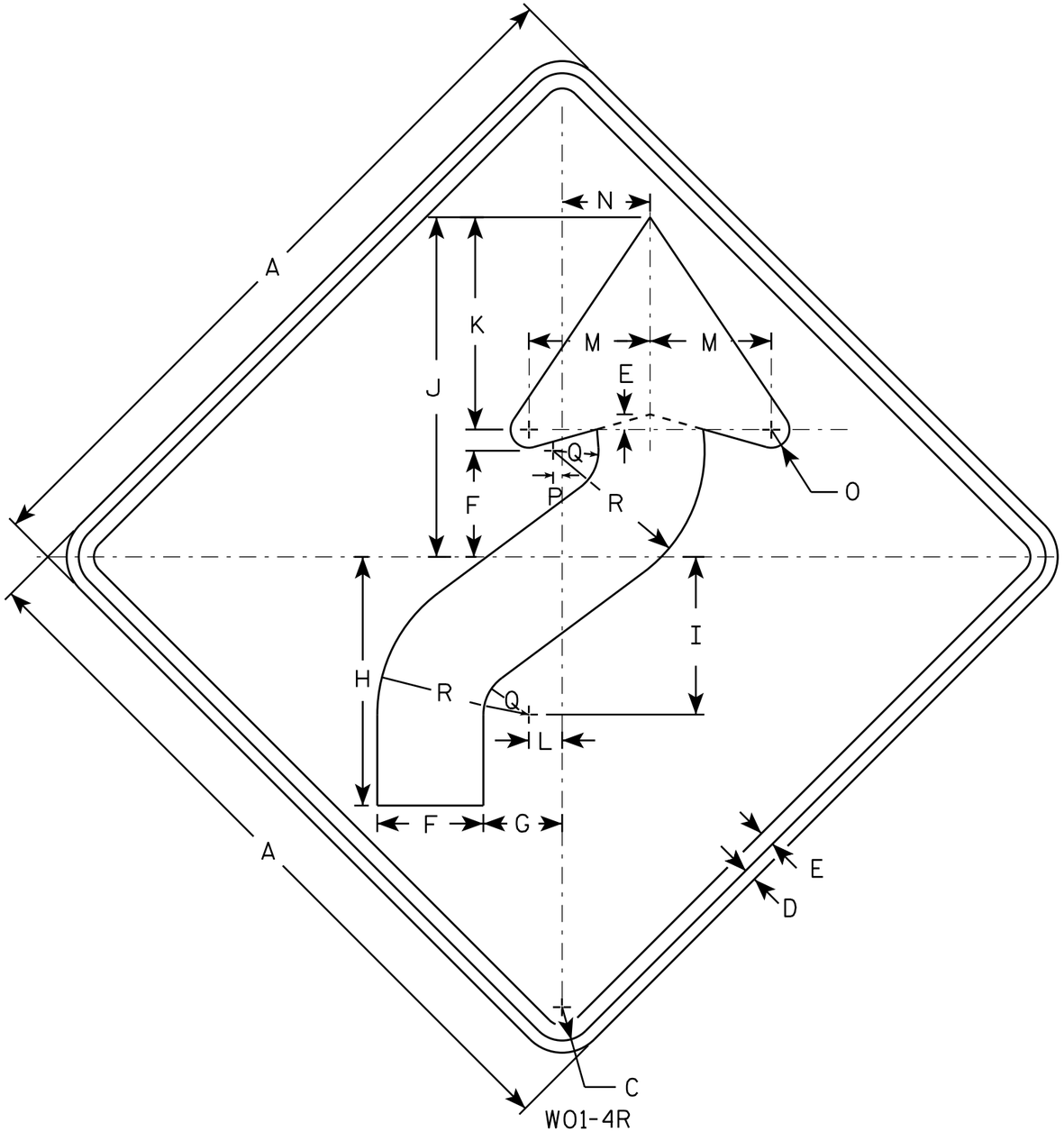
STANDARD SIGN
W8-7

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 5/30/12 PLATE NO. W8-7.7

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 68	E



W01-4R

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Orange
   Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. W01-4L is the same as W01-4R except the arrow is reversed along the vertical centerline.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	5 1/4	4	12 3/8	7 7/8	16 7/8	10 1/2	1 5/8	6	4 1/2	1	1/2	2 1/4	7 1/2									9.0
2S	48		2 1/4	3/4	1	7	5 1/4	16 1/2	10 1/2	22 1/2	14	2 1/4	8	6	1 1/4	5/8	3	10									16.0
2M	48		2 1/4	3/4	1	7	5 1/4	16 1/2	10 1/2	22 1/2	14	2 1/4	8	6	1 1/4	5/8	3	10									16.0
3	48		2 1/4	3/4	1	7	5 1/4	16 1/2	10 1/2	22 1/2	14	2 1/4	8	6	1 1/4	5/8	3	10									16.0
4	48		2 1/4	3/4	1	7	5 1/4	16 1/2	10 1/2	22 1/2	14	2 1/4	8	6	1 1/4	5/8	3	10									16.0
5	48		2 1/4	3/4	1	7	5 1/4	16 1/2	10 1/2	22 1/2	14	2 1/4	8	6	1 1/4	5/8	3	10									16.0

STANDARD SIGN
W01-4

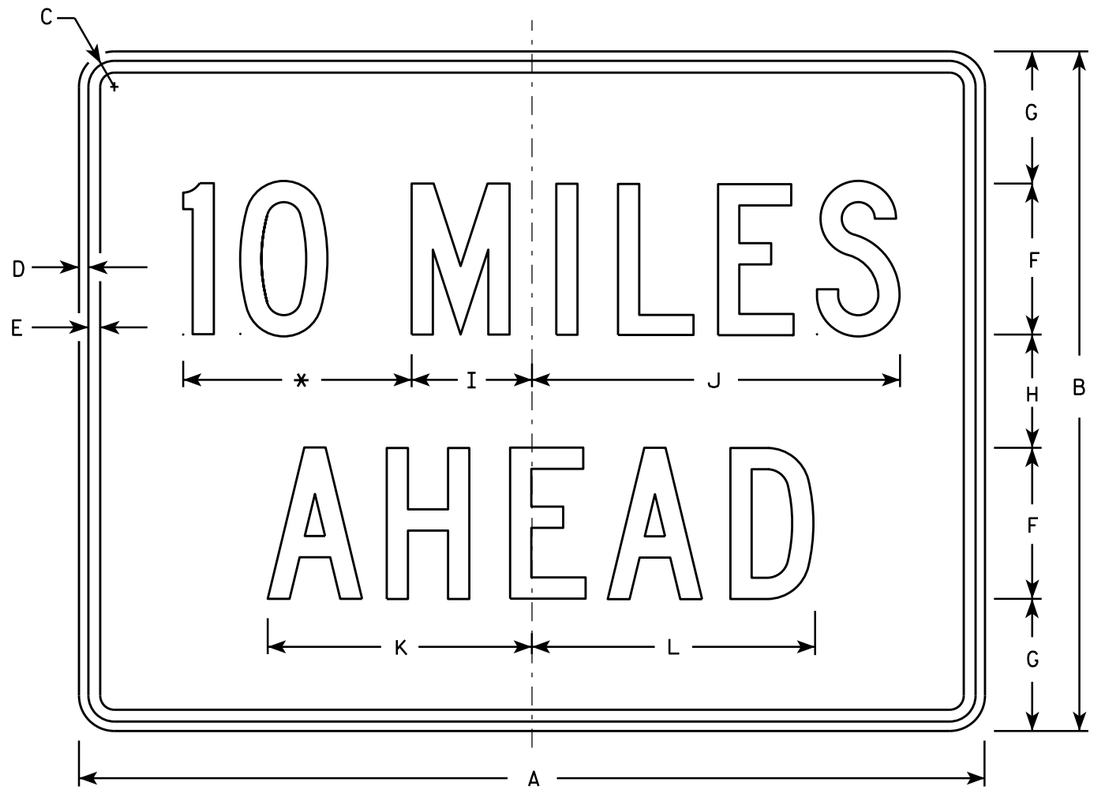
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

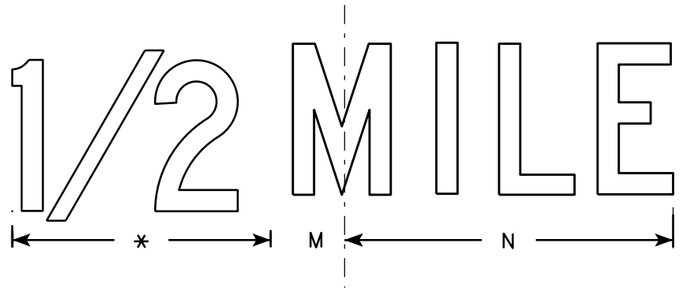
DATE 11/18/13 PLATE NO W01-4.1

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

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



W057-52



NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Orange
   Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate numerals and optically adjust spacing to achieve proper balance.

* See note 5

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	24	1 1/8	3/8	1/2	6	4 1/2	3	4 3/4	14 5/8	10 5/8	11 3/8	2	13													6.0
2S	48	36	1 3/8	1/2	5/8	8	7	6	6 3/8	19 1/2	14	15	2 3/4	17 3/8													12.0
2M	48	36	1 3/8	1/2	5/8	8	7	6	6 3/8	19 1/2	14	15	2 3/4	17 3/8													12.0
3	48	36	1 3/8	1/2	5/8	8	7	6	6 3/8	19 1/2	14	15	2 3/4	17 3/8													12.0
4	48	36	1 3/8	1/2	5/8	8	7	6	6 3/8	19 1/2	14	15	2 3/4	17 3/8													12.0
5	48	36	1 3/8	1/2	5/8	8	7	6	6 3/8	19 1/2	14	15	2 3/4	17 3/8													12.0

STANDARD SIGN
W057-52

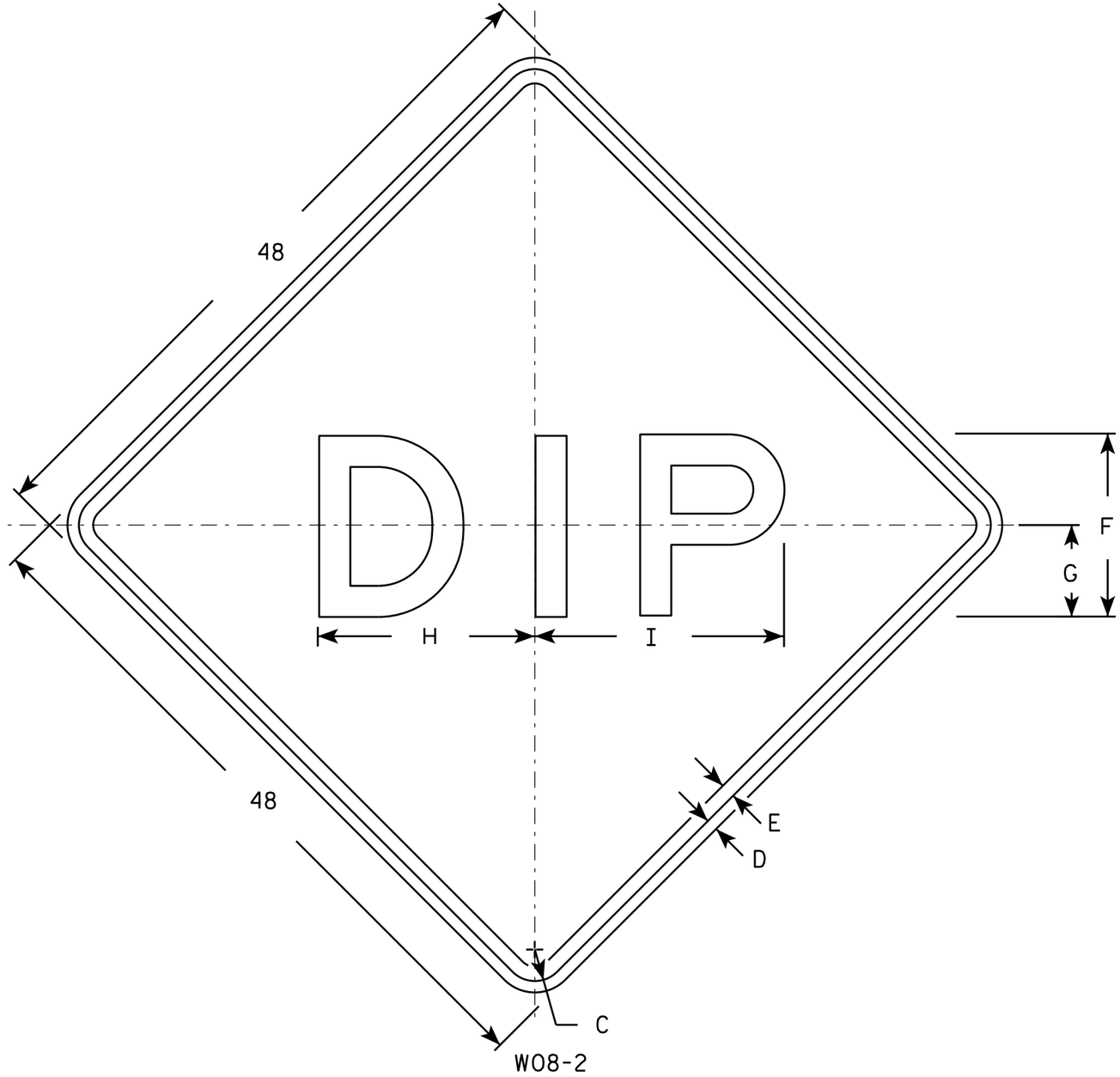
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 11/20/13 PLATE W057-52.1

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

FILE NAME : C:\CAEfiles\Projects\tr_stdplate\W05752.DGN PLOT DATE : 28-FEB-2014 11:42 PLOT BY : mscj9h PLOT NAME : PLOT SCALE : 8.026599:1.000000 WISDOT/CADDS SHEET 42



NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Yellow
   Message - Black
3. Message Series - E
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	10	5	11 7/8	13 1/2																		9.0
2S	48		2 1/4	3/4	1	12	6	14 1/4	16 1/4																		16.0
2M	48		2 1/4	3/4	1	12	6	14 1/4	16 1/4																		16.0
3	48		2 1/4	3/4	1	12	6	14 1/4	16 1/4																		16.0
4	48		2 1/4	3/4	1	12	6	14 1/4	16 1/4																		16.0
5	48		2 1/4	3/4	1	12	6	14 1/4	16 1/4																		16.0

STANDARD SIGN
W08-2

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 11/20/13 PLATE 1[illegible]3-2.1

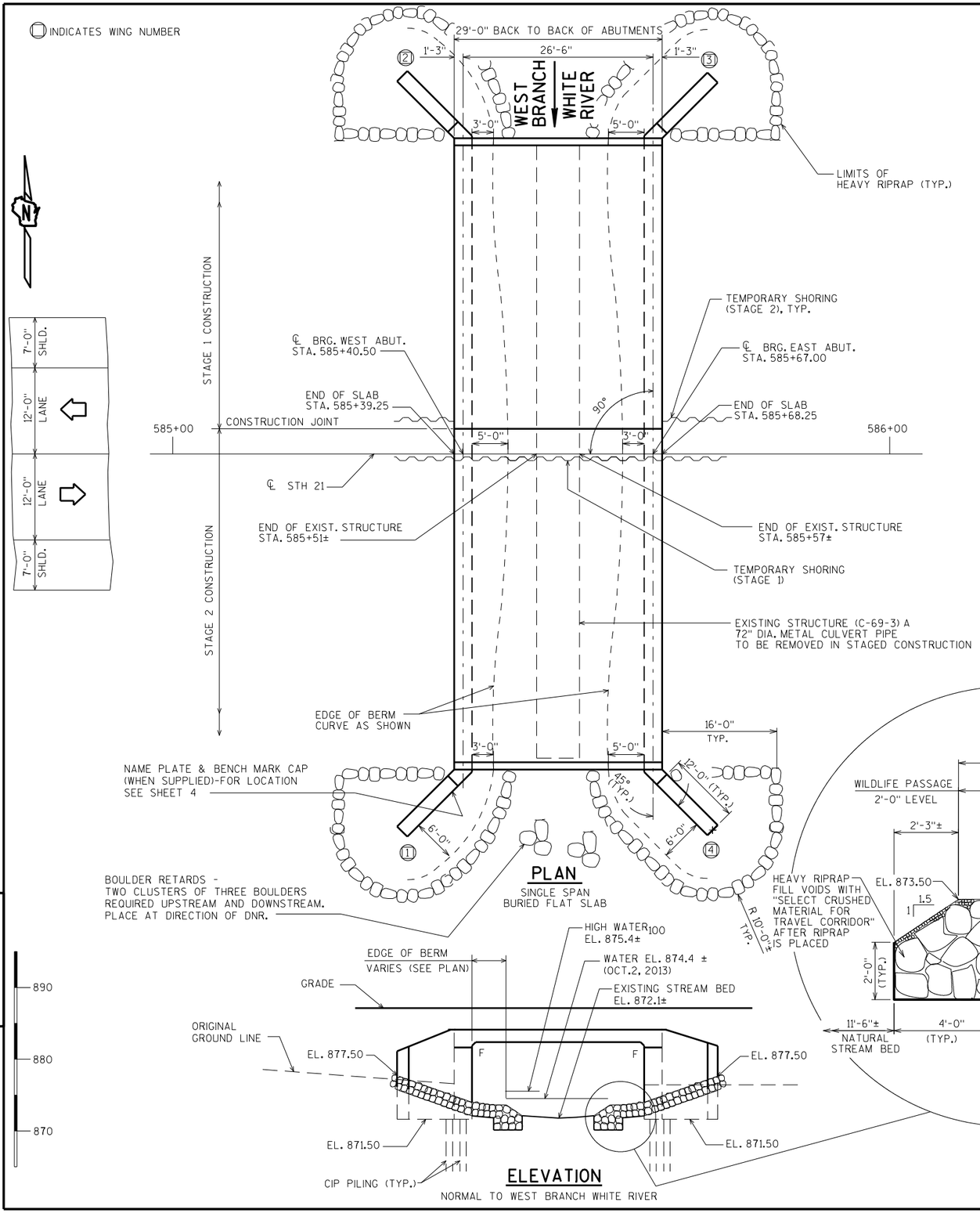
PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

FILE NAME : C:\CAEFiles\Projects\tr_stdplate\W082.DGN PLOT DATE : 20-NOV-2013 13:01 PLOT BY : mscsja PLOT NAME : PLOT SCALE : 6.827959:1.000000
WISDOT/CADDS SHEET 42

STATE PROJECT NUMBER

6170-00-71

INDICATES WING NUMBER



PLAN

SINGLE SPAN
BURIED FLAT SLAB

ELEVATION

NORMAL TO WEST BRANCH WHITE RIVER

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HL-93
INVENTORY RATING FACTOR: RF=1.04
OPERATING RATING FACTOR: RF=1.35
WISCONSIN STANDARD PERMIT VEHICLE (WIS.-SPV): 217 (KIPS)

EARTH LOAD:

DESIGNED FOR 0.5 FT TO 3 FT OF FILL

ULTIMATE DESIGN STRESSES:

CONCRETE MASONRY SLAB — f'c = 4,000 P.S.I. ALL OTHER — f'c = 3,500 P.S.I.
BAR STEEL REINFORCEMENT, GRADE 60 — fy = 60,000 P.S.I.

FOUNDATION DATA

ABUTMENTS TO BE SUPPORTED ON CIP 10 3/4" X 0.365" PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 135 TONS ** PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 50'-0" LONG.

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

HYDRAULIC DATA

100 YEAR FREQUENCY

Q_{100} = 175 C.F.S.
VEL. =5.1 F.P.S.
HW.= EL. 875.39
WATERWAY AREA= 31 SQ. FT.
DRAINAGE AREA= 15.9 SQ. MI.
ROAD OVERTOPPING = NA
SCOUR CRITICAL CODE = 8

2 YEAR FREQUENCY

Q_2 =70 C.F.S.
$HW._2$ = EL. 874.19

TRAFFIC VOLUME

STH 21

A.D.T.=4,500 (2017)
R.D.S.=55 M.P.H.

LIST OF DRAWINGS

STRUCTURE DESIGN CONTACTS:
MICAH BROOKS (608) 266-5080
LAURA SHADEWALD (608) 267-9592

NO.	DATE	REVISION	BY

Plans Prepared By WISDOT
BUREAU OF STRUCTURES

ACCEPTED William C. Dreher LEAD — CHIEF STRUCTURES DESIGN ENGINEER — 8/4/14 DATE

STRUCTURE B-69-48

STH 21 OVER WEST BRANCH WHITE RIVER

COUNTY WAUSHARA | TOWN ~~CITY/VILLAGE~~ DAKOTA

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
MWB	BLB	PMM	DFD

GENERAL PLAN

SHEET 1 OF 9

72

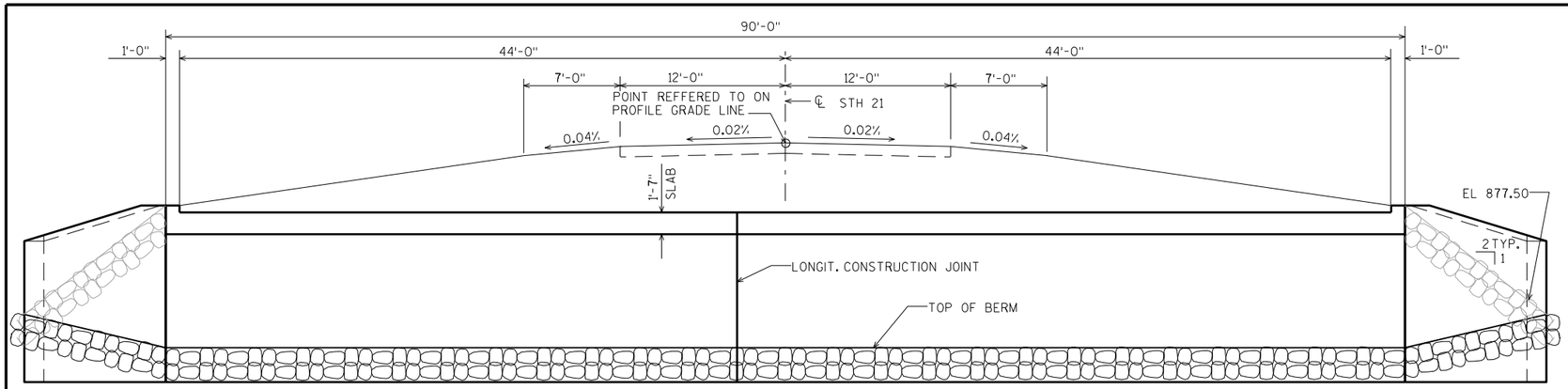
I.D. 6170-00-01A

DATE: MAY 2014

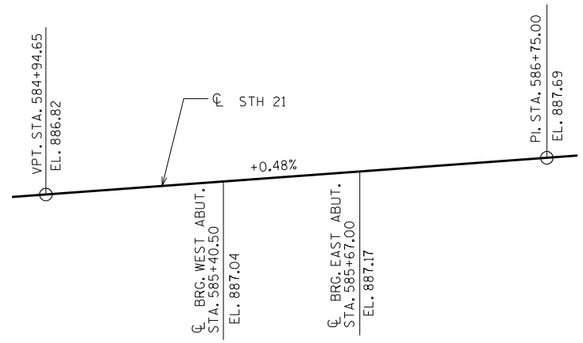
SCALE = 8

STATE PROJECT NUMBER

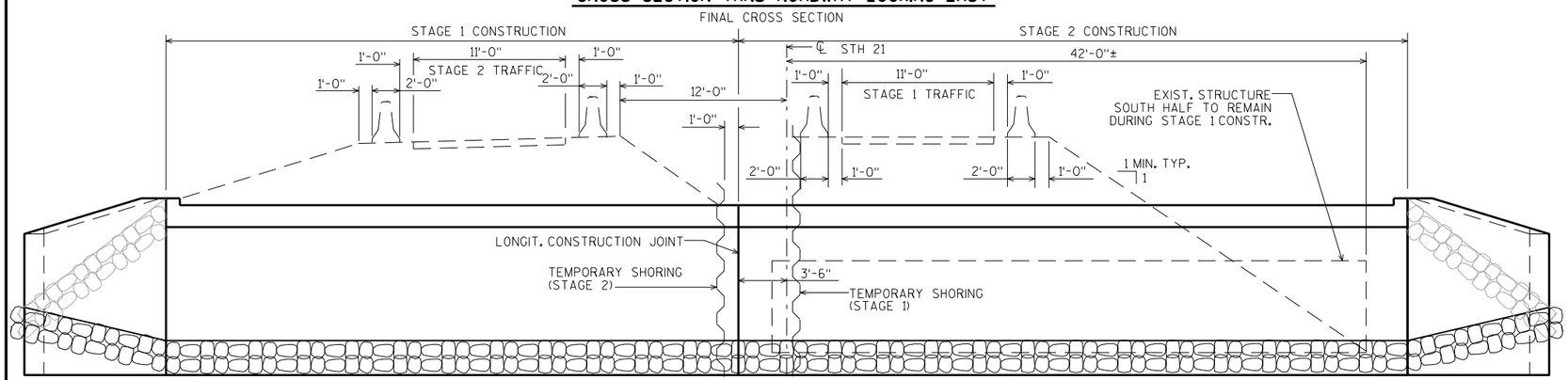
6170-00-71



CROSS SECTION THRU ROADWAY LOOKING EAST

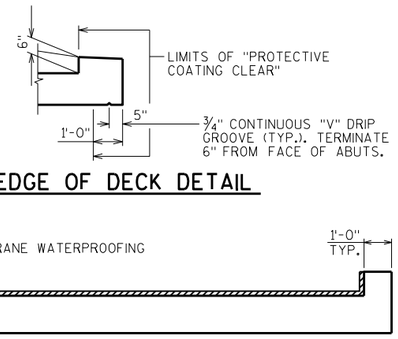


PROFILE GRADE LINE STH 21



CROSS SECTION THRU ROADWAY LOOKING EAST

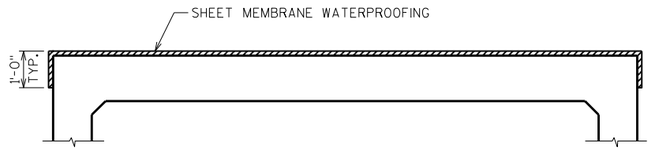
SHOWING STAGE CONSTRUCTION



EDGE OF DECK DETAIL

CROSS SECTION THRU STRUCTURE

SHOWING SHEET MEMBRANE WATERPROOFING LIMITS



ELEVATION THRU STRUCTURE

SHOWING SHEET MEMBRANE WATERPROOFING LIMITS

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	SUPER.	WEST ABUT.	EAST ABUT.	TOTALS
203.0200	REMOVING OLD STRUCTURE STA. 585+53.75	LS	———	———	———	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-69-48	LS	———	———	———	1
210.0100	BACKFILL STRUCTURE	CY	———	658	658	1,316
502.0100	CONCRETE MASONRY BRIDGES	CY	173	108	108	389
502.6500	PROTECTIVE COATING CLEAR	GAL	2	———	———	2
505.0405	BAR STEEL REINFORCEMENT HS BRIDGES	LB	———	5,800	5,800	11,600
505.0605	BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	25,450	6,340	6,340	38,130
511.1200	TEMPORARY SHORING B-69-48	SF	———	———	———	1,190
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	———	22	22	44
516.0610.S	SHEET MEMBRANE WATERPROOFING FOR TOP SLAB B-69-48	SY	307	———	———	307
550.2106	PILING CIP CONCRETE 10 3/4 X 0.365-INCH	LF	———	750	750	1,500
606.0300	RIPRAP HEAVY	CY	———	90	90	180
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	———	135	135	270
645.0120	GEOTEXTILE FABRIC TYPE HR	SY	———	105	105	210
SPV. 0060	BOULDER RETARDS	EA	———	———	———	12
SPV. 0195	SELECT CRUSHED MATERIAL FOR TRAVEL CORRIDOR	TON	———	18	18	36
			———	———	———	
			———	———	———	
			———	———	———	
	NON-BID ITEMS					
	BRIDGE SEAT PROTECTION	L.S.	———	———	———	1
	FILLER	SIZE	———	———	———	½" & ¾"

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

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

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

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

THE GRADATION OF THE STRUCTURE BACKFILL SHALL MEET THE REQUIREMENTS OF SECTION 209.2.2 OF THE STANDARD SPECIFICATIONS FOR GRADE 1 MATERIAL.

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 SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH HEAVY RIPRAP AND GEOTEXTILE FABRIC TYPE 'HR' TO THE EXTENT SHOWN ON SHEET 1 AND IN THE ABUTMENT DETAILS.

PLACE SHEET MEBRANE WATERPROOFING ON ENTIRE TOP SLAB, BETWEEN 1'-0" WIDE HEADERS AND EXTEND 1'-0" DOWN AT ABUTMENT ENDS.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-69-48

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CROSS SECTION & QUANTITIES

SHEET 2

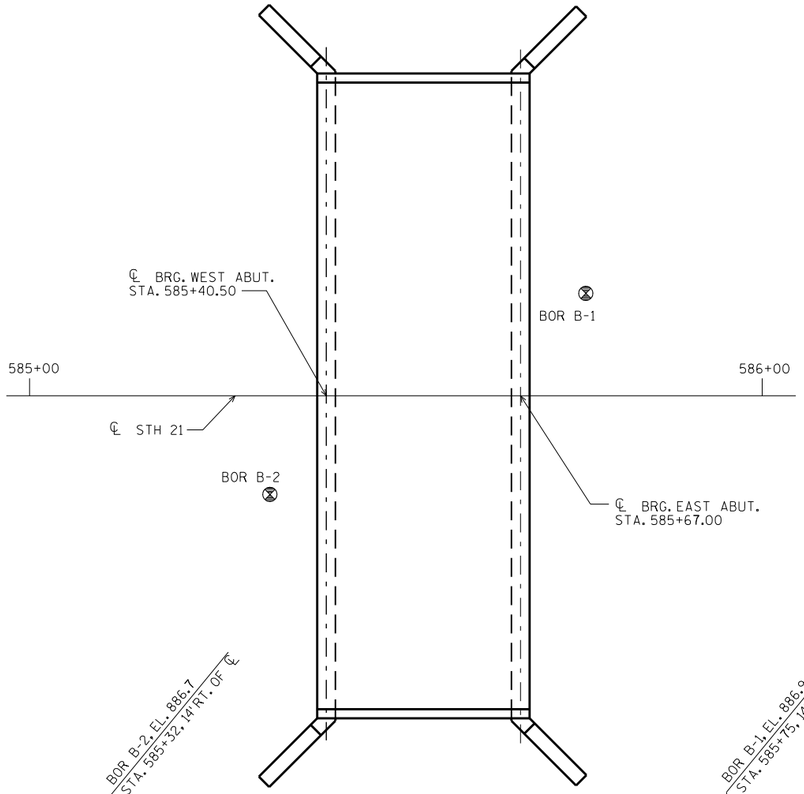
73

8

8

SCALE = 5

STH 21 OVER WEST BRANCH WHITE RIVER
DAKOTA



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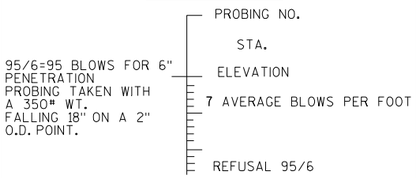
ABBREVIATIONS

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

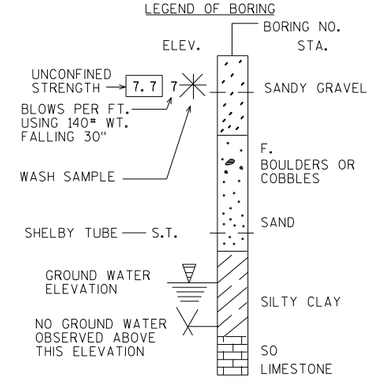
MATERIAL SYMBOLS

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

LEGEND OF PROBING



LEGEND OF BORING



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.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
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STRUCTURES DESIGN SECTION

STRUCTURE B-69-48

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SUBSURFACE EXPLORATION

SHEET 3

74

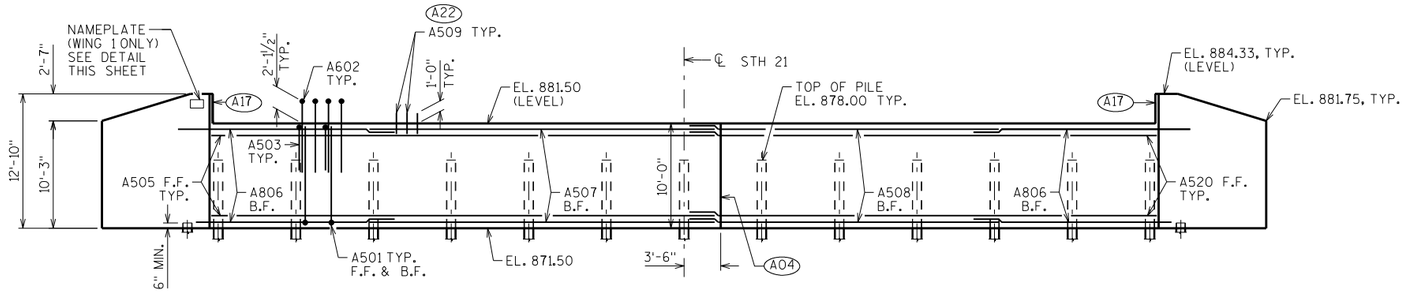
8

8

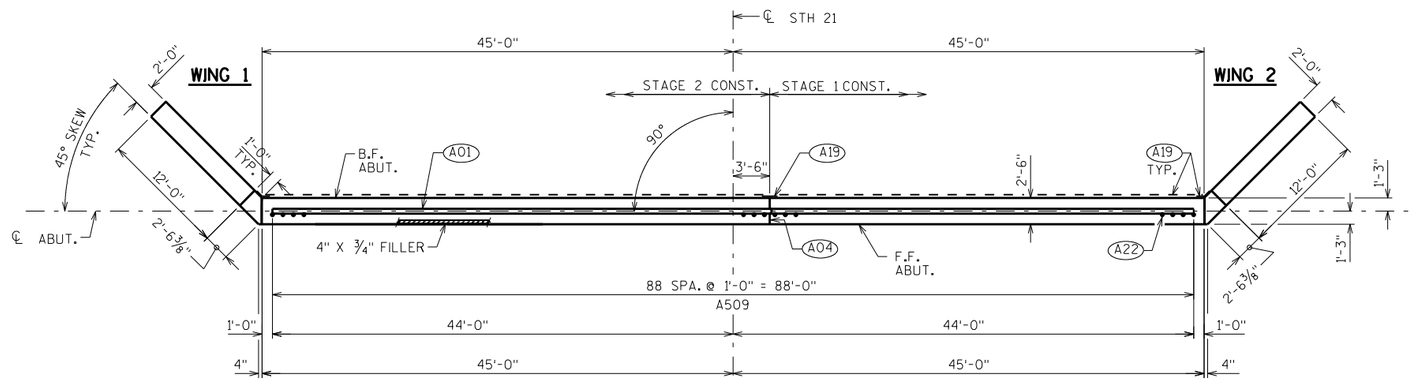
SCALE =

STATE PROJECT NUMBER

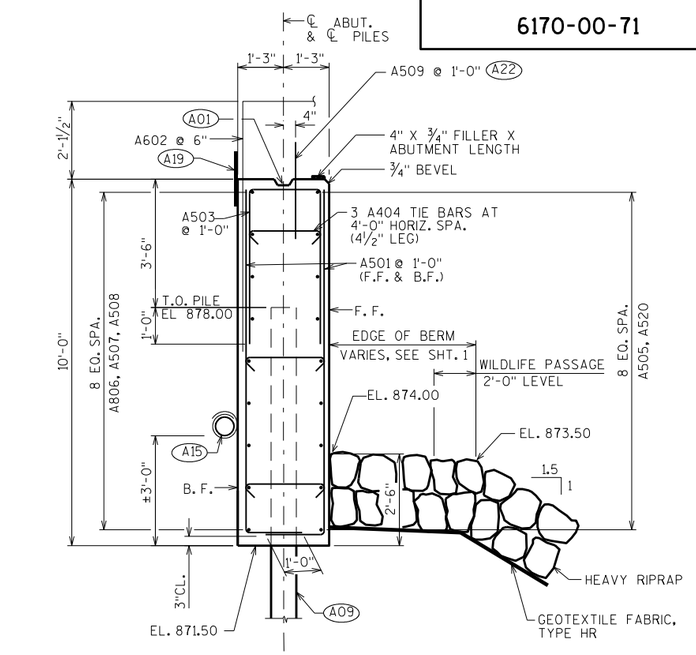
6170-00-71



ELEVATION - LOOKING WEST

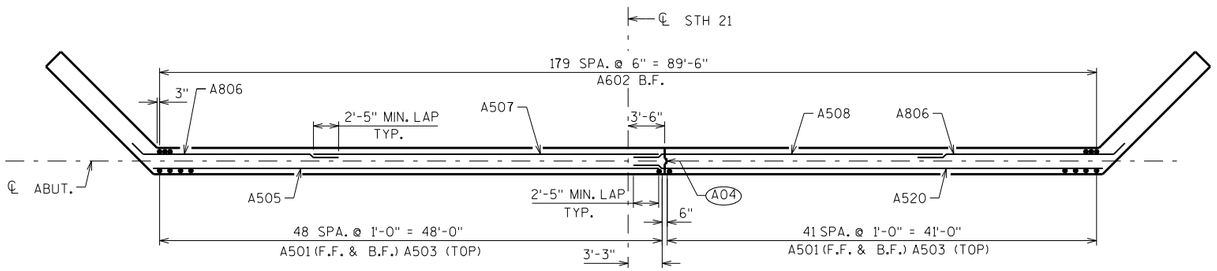


PLAN

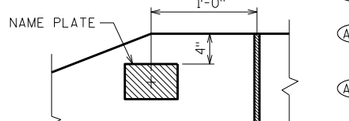


SECTION THRU ABUTMENT BODY

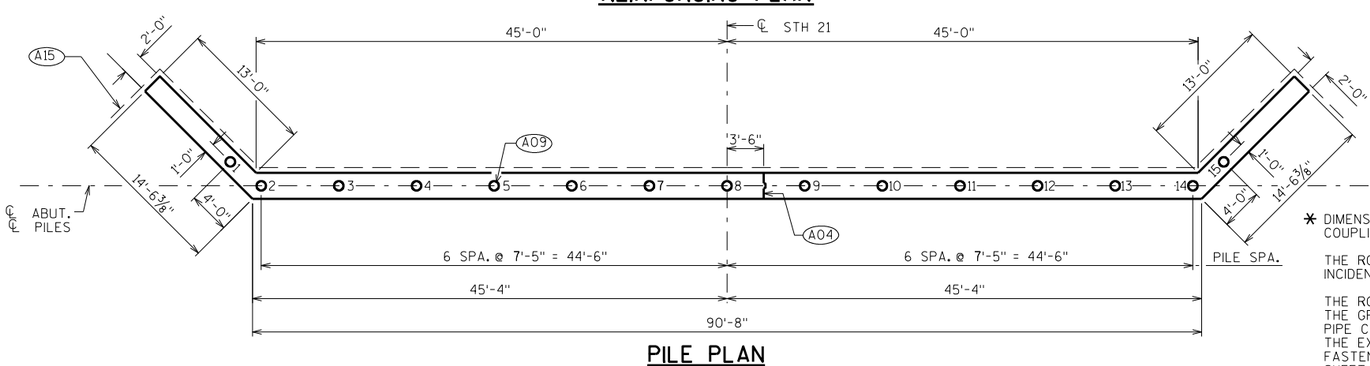
DO NOT PLACE BACKFILL ABOVE 3'-0" FROM BOTTOM OF ABUTMENT UNTIL SUPERSTRUCTURE IS IN PLACE.



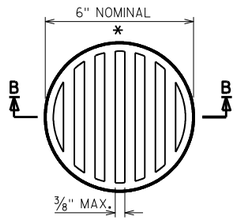
REINFORCING PLAN



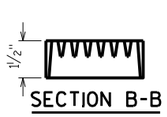
NAME PLATE LOCATION WING 1



PILE PLAN



RODENT SCREEN DETAIL



SECTION B-B

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THE RODENT SCREEN SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALLY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SCREEN TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SCREEN SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH SHEET METAL SCREWS.

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(A04) VERT. CONSTRUCTION JOINT: KEYWAY FORMED BY A BEVELED 2 × 8. 3/4" "V" GROOVE @ THE FRONT FACE AND 18" R.M.W. @ BACKFACE.

(A09) SUPPORT ABUTMENT ON 10-3/4" × 0.365-INCH CAST-IN-PLACE CONCRETE PILING, ESTIMATED 50'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 135 TONS PER PILE.

(A15) PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SCREEN REQUIRED.

(A17) 1/2" FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.

(A19) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

(A22) A509 BARS SPACED @ 1'-0" CTRS. MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. (EMBED 1'-0" INTO CONC.)

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STRUCTURES DESIGN SECTION

STRUCTURE B-69-48

DRAWN BY PMM | PLANS CK'D. DFD

WEST ABUTMENT

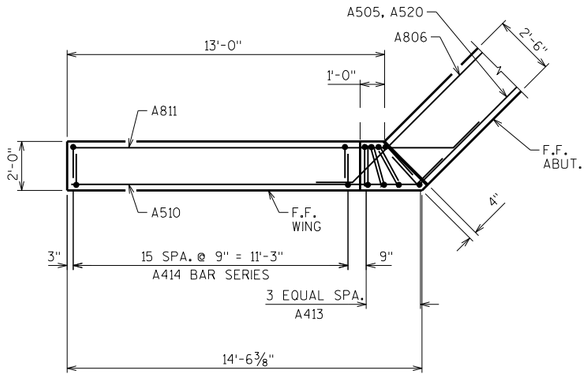
SHEET 4

75

SCALE = 7.0

8

8



WING PLAN

WING 1 SHOWN, WING 2 MIRRORED

(A03) OPTIONAL CONST. JOINT: KEYWAY FORMED BY BEVELED 2 X 6. (18" R.M.W. @ B.F. & 3/4" "V" GROOVE @ F.F. IF JOINT IS USED).

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(A19) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING AT BACKFACE OF OPTIONAL CONSTRUCTION JOINT AT WING. COST INCIDENTAL TO BID ITEM "CONC. MASONRY BRIDGES"

STATE PROJECT NUMBER

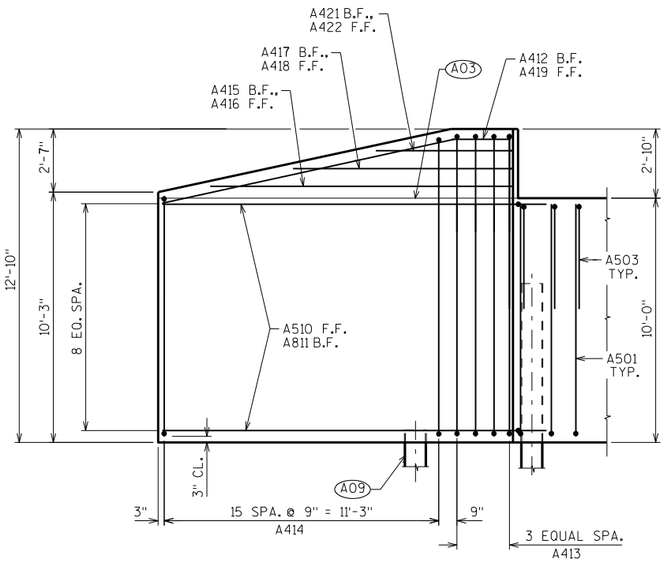
6170-00-71

BILL OF BARS

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

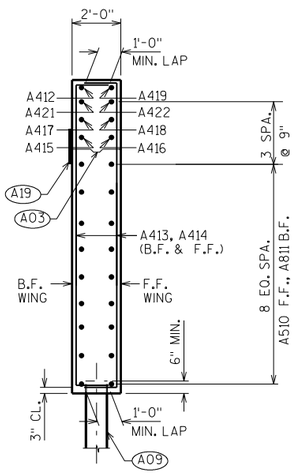
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
A501		182	11'-5"	X		BODY - VERT. - F.F. & B.F.
A602	X	180	15'-6"	X		BODY - VERT. - B.F. CORNER BARS
A503		91	10'-7"	X		BODY - VERT. - TOP
A404		75	2'-9"	X		BODY - VERT. - TIE BARS
A505		9	48'-10"			BODY - HORIZ. - F.F. - STAGE 2
A806		18	21'-2"	X		BODY - HORIZ. - B.F.
A507		9	33'-8"			BODY - HORIZ. - B.F. - STAGE 2
A508		9	29'-3"			BODY - HORIZ. - B.F. - STAGE 1
A509	X	89	2'-0"			DOWEL BARS
A510	X	18	15'-8"	X		WINGS 1&2 - HORIZ. - F.F. - BOTTOM
A811	X	18	17'-2"	X		WINGS 1&2 - HORIZ. - B.F. - BOTTOM
A412	X	2	13'-0"	X		WINGS 1&2 - HORIZ. - B.F. - TOP
A413	X	16	15'-7"	X		WINGS 1&2 - VERT. - F.F. & B.F.
A414	X	64	13'-8"	X	▲	WINGS 1&2 - VERT. - F.F. & B.F.
A415	X	2	10'-7"			WINGS 1&2 - HORIZ. - B.F.
A416	X	2	12'-2"			WINGS 1&2 - HORIZ. - F.F.
A417	X	2	7'-2"			WINGS 1&2 - HORIZ. - B.F.
A418	X	2	8'-8"			WINGS 1&2 - HORIZ. - F.F.
A419	X	2	14'-7"	X		WINGS 1&2 - HORIZ. - F.F.
A520		9	44'-5"			BODY - HORIZ. - F.F. - STAGE 1
A421	X	2	3'-8"			WINGS 1&2 - HORIZ. - B.F.
A422	X	2	5'-2"			WINGS 1&2 - HORIZ. - F.F.

▲ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

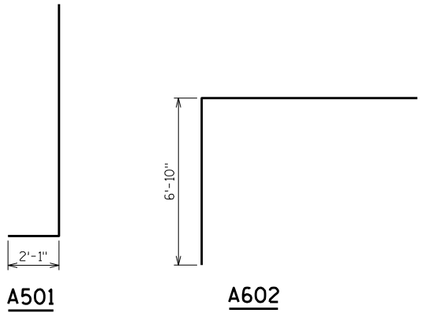


WING ELEVATION

WING 1 SHOWN, WING 2 MIRRORED



SECTION THRU WING



A501

A602

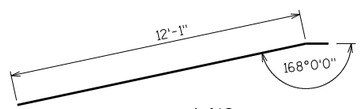
A503, A404, A413

A414

BAR SERIES TABLE

MARK	NO. REQD.	LENGTH
A414	4 SERIES OF 16	12'-4" TO 14'-9"

BUNDLE AND TAG EACH SERIES SEPARATELY.



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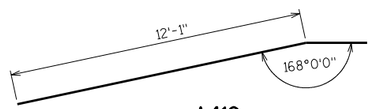
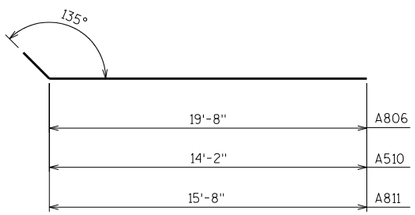
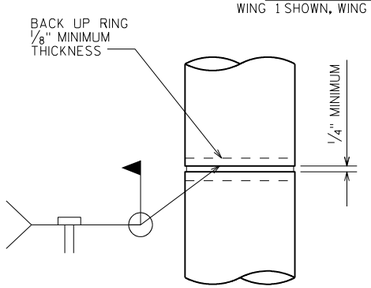


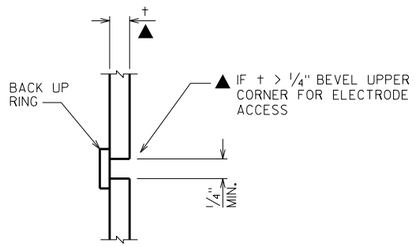
A419



A806, A510, A811



CAST-IN-PLACE 'PIPE PILE'



C.I.P. PILE WELD DETAIL

PILE DETAILS

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-69-48

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WEST ABUTMENT DETAILS

SHEET 5

76

SCALE = 3.0

8

STATE PROJECT NUMBER

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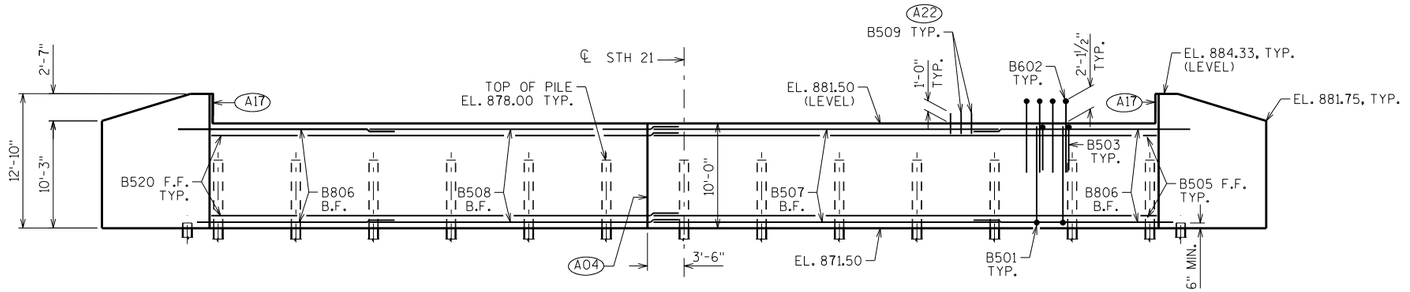
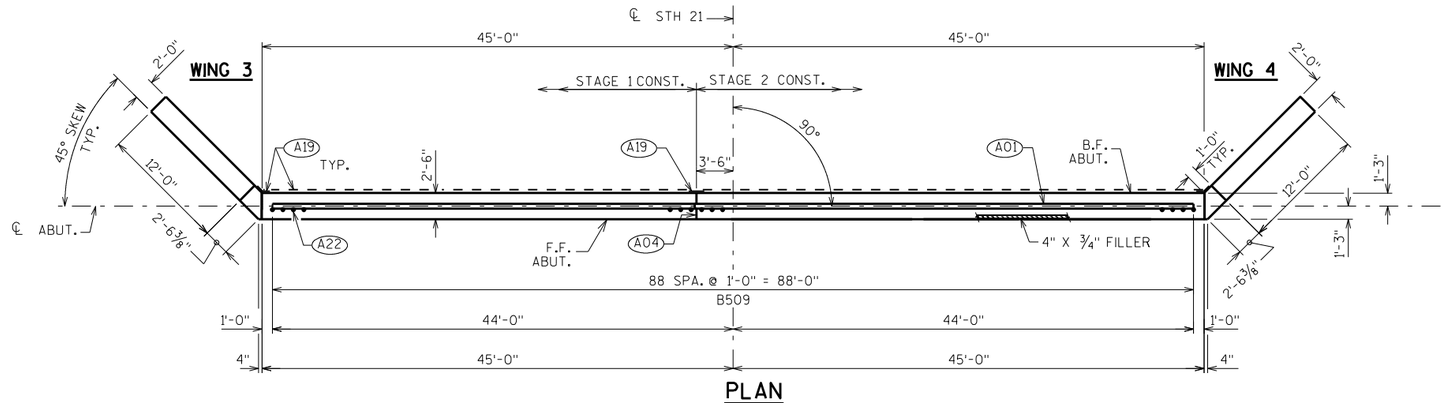
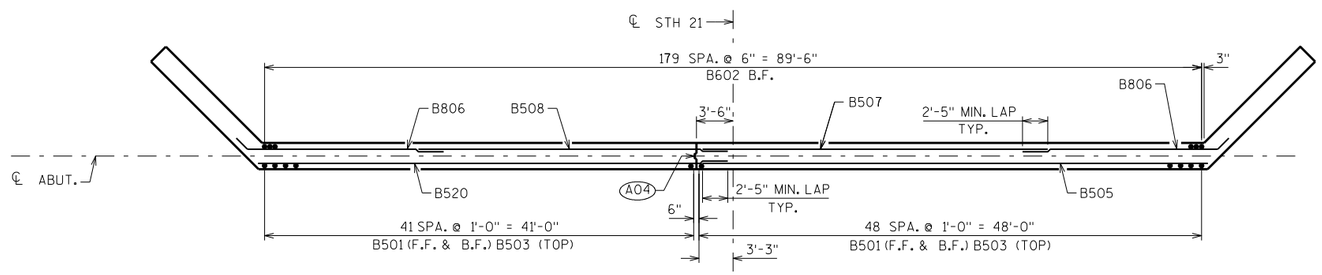


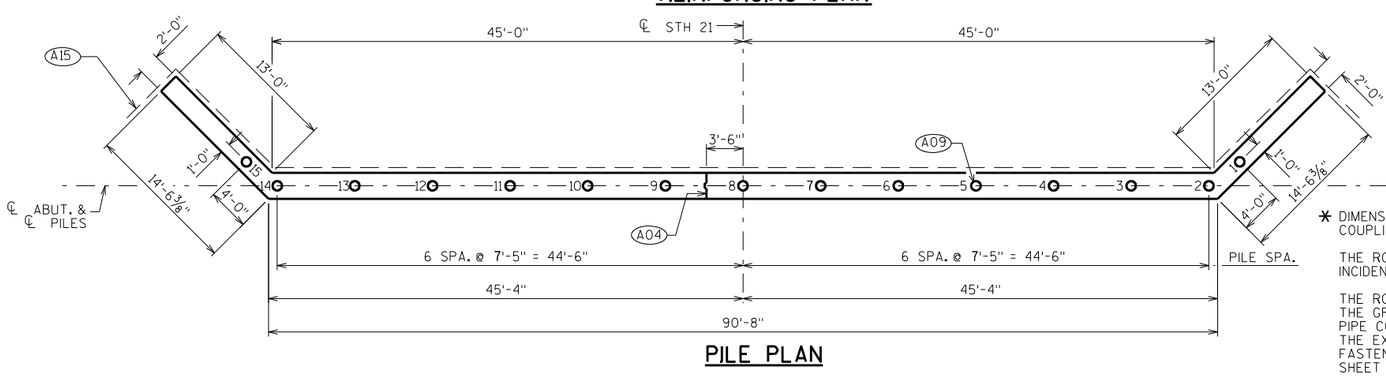
ELEVATION - LOOKING WEST



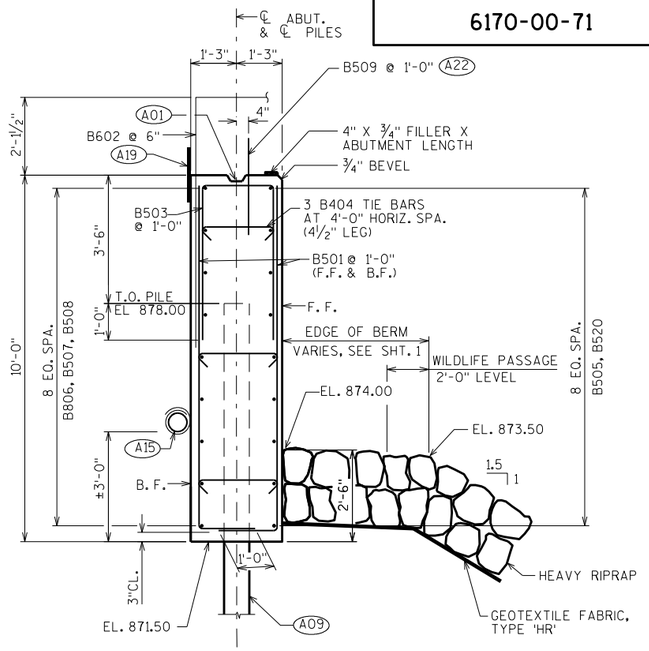
PLAN



REINFORCING PLAN

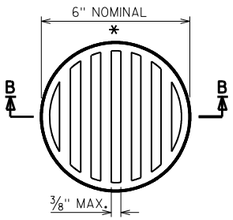


PILE PLAN

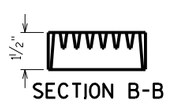


SECTION THRU ABUTMENT BODY

DO NOT PLACE BACKFILL ABOVE 3'-0" FROM BOTTOM OF ABUTMENT UNTIL SUPERSTRUCTURE IS IN PLACE.



RODENT SCREEN DETAIL



SECTION B-B

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STRUCTURE B-69-48

DRAWN BY PMM | PLANS CK'D. DFD

EAST ABUTMENT

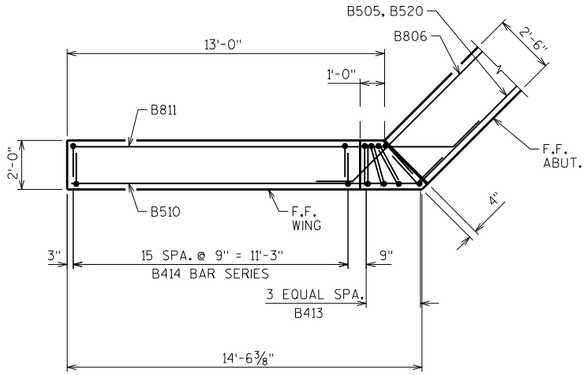
SHEET 6

77

SCALE = 7.0

8

8



WING PLAN

WING 3 SHOWN, WING 4 MIRRORED

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STATE PROJECT NUMBER

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BILL OF BARS

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

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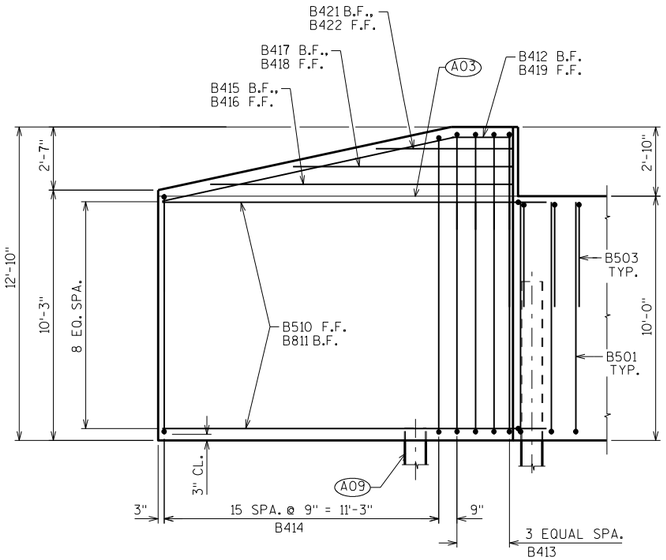
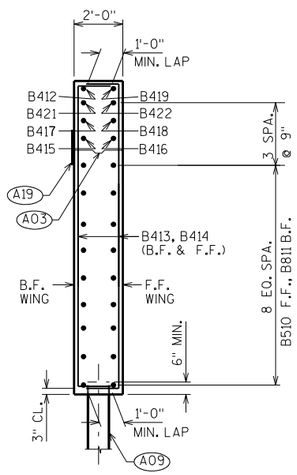
B806		18	21'-2"	X		BODY - HORIZ. - B.F.
B507		9	33'-8"			BODY - HORIZ. - B.F. - STAGE 2
B508		9	29'-3"			BODY - HORIZ. - B.F. - STAGE 1
B509	X	89	2'-0"			DOWEL BARS
B510	X	18	15'-8"	X		WINGS 1&2 - HORIZ. - F.F. - BOTTOM
B811	X	18	17'-2"	X		WINGS 1&2 - HORIZ. - B.F. - BOTTOM
B412	X	2	13'-0"	X		WINGS 1&2 - HORIZ. - B.F. - TOP
B413	X	16	15'-7"	X		WINGS 1&2 - VERT. - F.F. & B.F.
B414	X	64	13'-8"	X	⚠	WINGS 1&2 - VERT. - F.F. & B.F.
B415	X	2	10'-7"			WINGS 1&2 - HORIZ. - B.F.
B416	X	2	12'-2"			WINGS 1&2 - HORIZ. - F.F.
B417	X	2	7'-2"			WINGS 1&2 - HORIZ. - B.F.
B418	X	2	8'-8"			WINGS 1&2 - HORIZ. - F.F.
B419	X	2	14'-7"	X		WINGS 1&2 - HORIZ. - F.F.
B520		9	44'-5"			BODY - HORIZ. - F.F. - STAGE 1
B421	X	2	3'-8"			WINGS 1&2 - HORIZ. - B.F.
B422	X	2	5'-2"			WINGS 1&2 - HORIZ. - F.F.

⚠ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

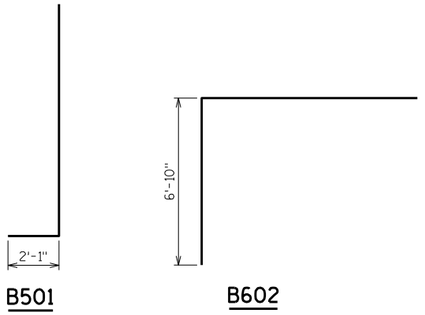


WING ELEVATION

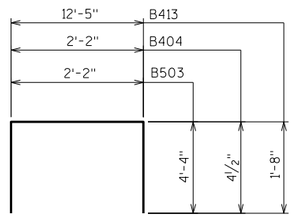
WING 3 SHOWN, WING 4 MIRRORED



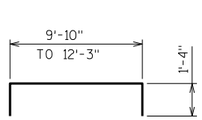
SECTION THRU WING



B501 B602



B503, B404, B413

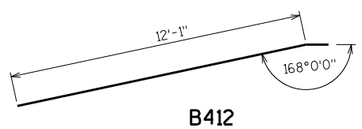


B414

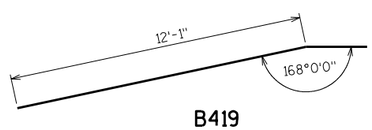
BAR SERIES TABLE

MARK	NO. REQD.	LENGTH
B414	4 SERIES OF 16	12'-4" TO 14'-9"

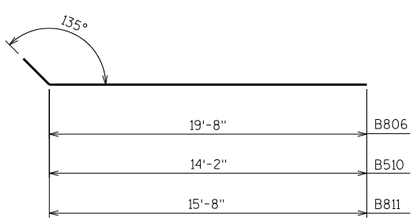
BUNDLE AND TAG EACH SERIES SEPARATELY.



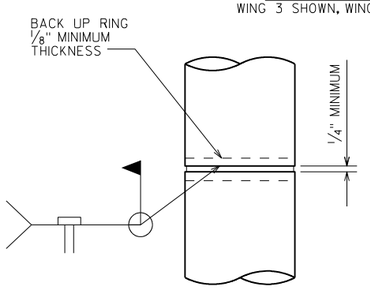
B412



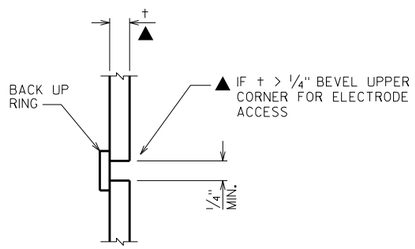
B419



B806, B510, B811



CAST-IN-PLACE 'PIPE PILE'



C.I.P. PILE WELD DETAIL

PILE DETAILS

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-69-48

DRAWN BY PMM | PLANS CK'D. DFD

EAST ABUTMENT DETAILS

SHEET 7

78

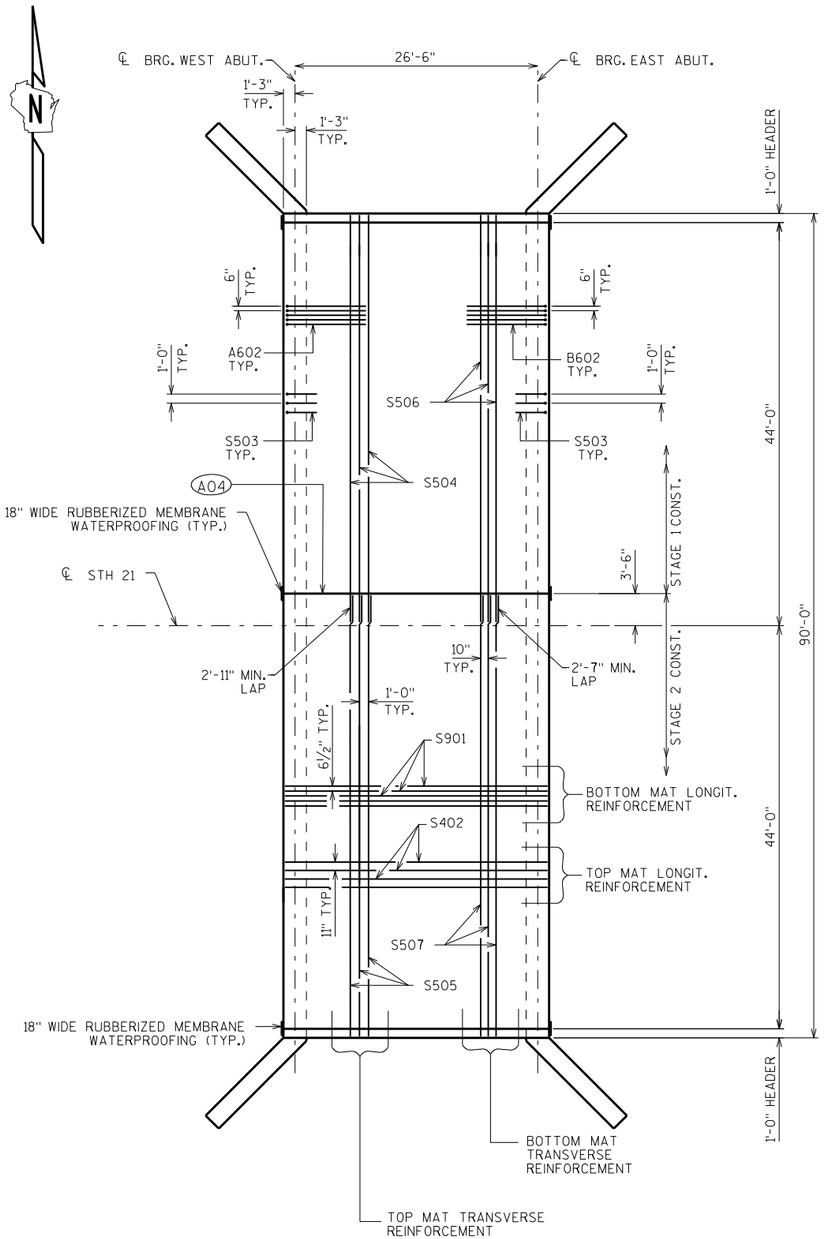
SCALE = 3.0

8

8

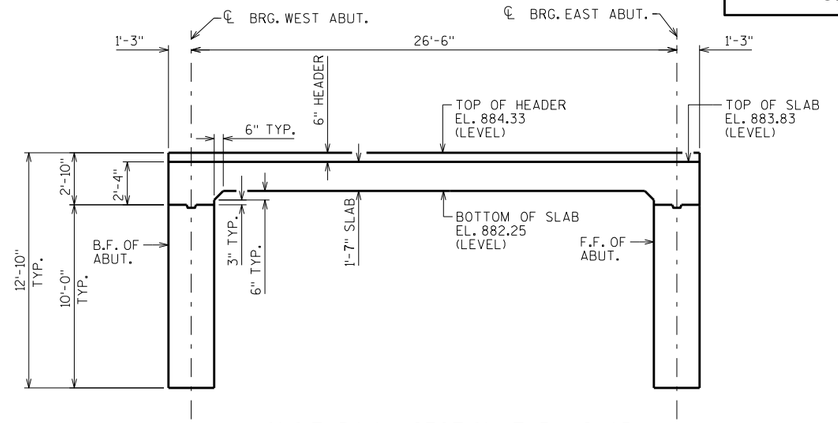
STATE PROJECT NUMBER

6170-00-71



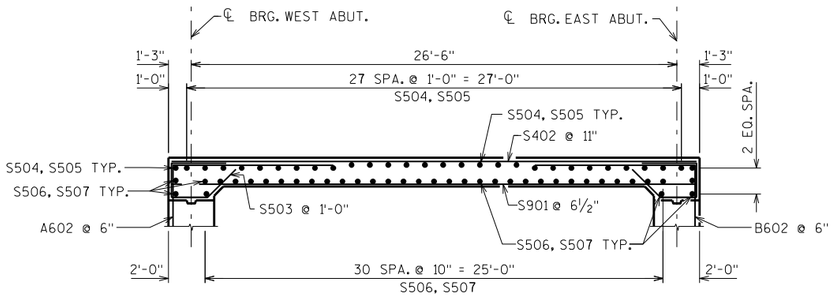
PLAN

A04 CONSTRUCTION JOINT: KEYWAY FORMED BY A BEVELED 2 X 8.



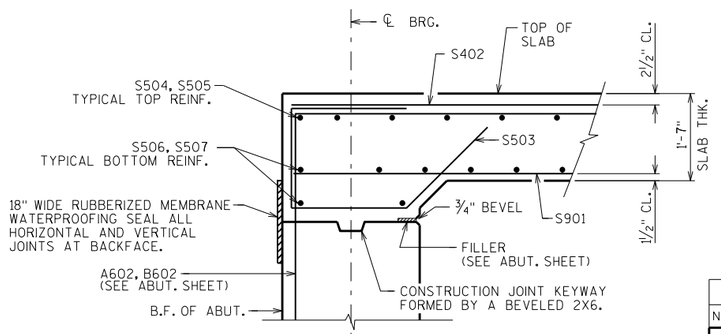
LONGITUDINAL SECTION THRU SLAB

CONCRETE EXTENTS



LONGITUDINAL SECTION THRU SLAB

REINFORCEMENT LAYOUT



REINF. DETAIL AT ABUT.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-69-48

DRAWN BY PMM | PLANS CK'D. DFD

SUPERSTRUCTURE

SHEET 8

79

SCALE = 8.0

8

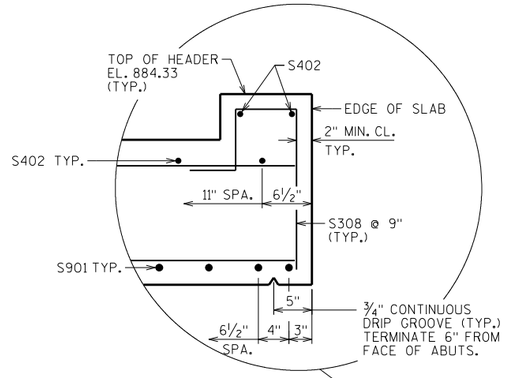
8

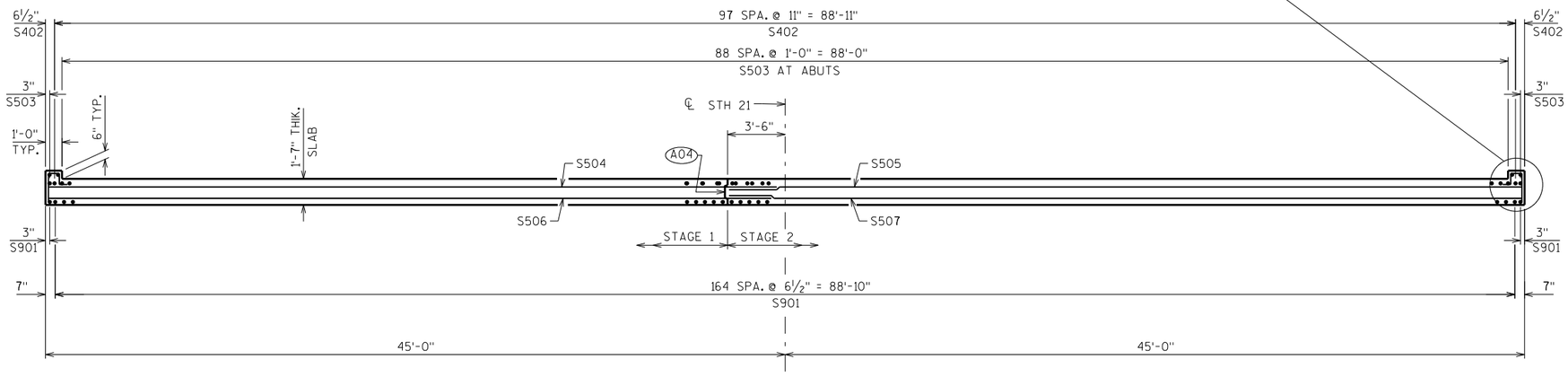
STATE PROJECT NUMBER
6170-00-71

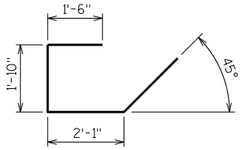
BILL OF BARS

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

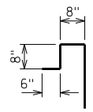
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
S901	X	167	28'-8"			SLAB - LONGITUDINAL - BOTTOM
S402	X	102	28'-8"			SLAB/HEADER - LONGITUDINAL - TOP
S503	X	91	7'-0"	X		SLAB - VERT. AT ABUTS
S504	X	30	44'-4"			SLAB - TRANSVERSE - TOP STAGE 1
S505	X	30	48'-3"			SLAB - TRANSVERSE - TOP STAGE 2
S506	X	37	43'-11"			SLAB - TRANSVERSE - BOTTOM STAGE 1
S507	X	37	48'-3"			SLAB - TRANSVERSE - BOTTOM STAGE 2
S308	X	78	3'-4"	X		HEADER - VERT.







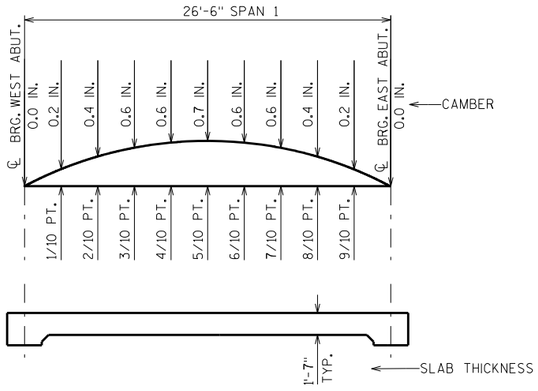
S503



S308

CROSS SECTION THRU SLAB - LOOKING EAST

A04 LONGITUDINAL CONSTRUCTION JOINT: KEYWAY FORMED BY A BEVELED 2 X 8.



CAMBER AND SLAB THICKNESS DIAGRAM

CAMBER SPAN AS SHOWN TO PROVIDE FOR DEADLOAD DEFLECTION & FUTURE CREEP. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT. CAMBER BASED ON 3 TIMES THE DEAD LOAD DEFLECTION.

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

	TOP OF SLAB ELEVATION AT FINAL GRADE
LESS	SLAB THICKNESS
PLUS	CAMBER
PLUS	FORM SETTLEMENT/DEFLECTION DUE TO PLACEMENT OF SLAB CONCRETE (TO BE COMPUTED BY THE CONTRACTOR)
EQUALS	TOP OF SLAB FALSEWORK ELEVATION.

NOTES

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

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

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-69-48

DRAWN BY PMM | PLANS CK'D. DFD

SUPERSTRUCTURE DETAILS

SHEET 9

80

SCALE = 4.0

STH 21 – STAGE 1

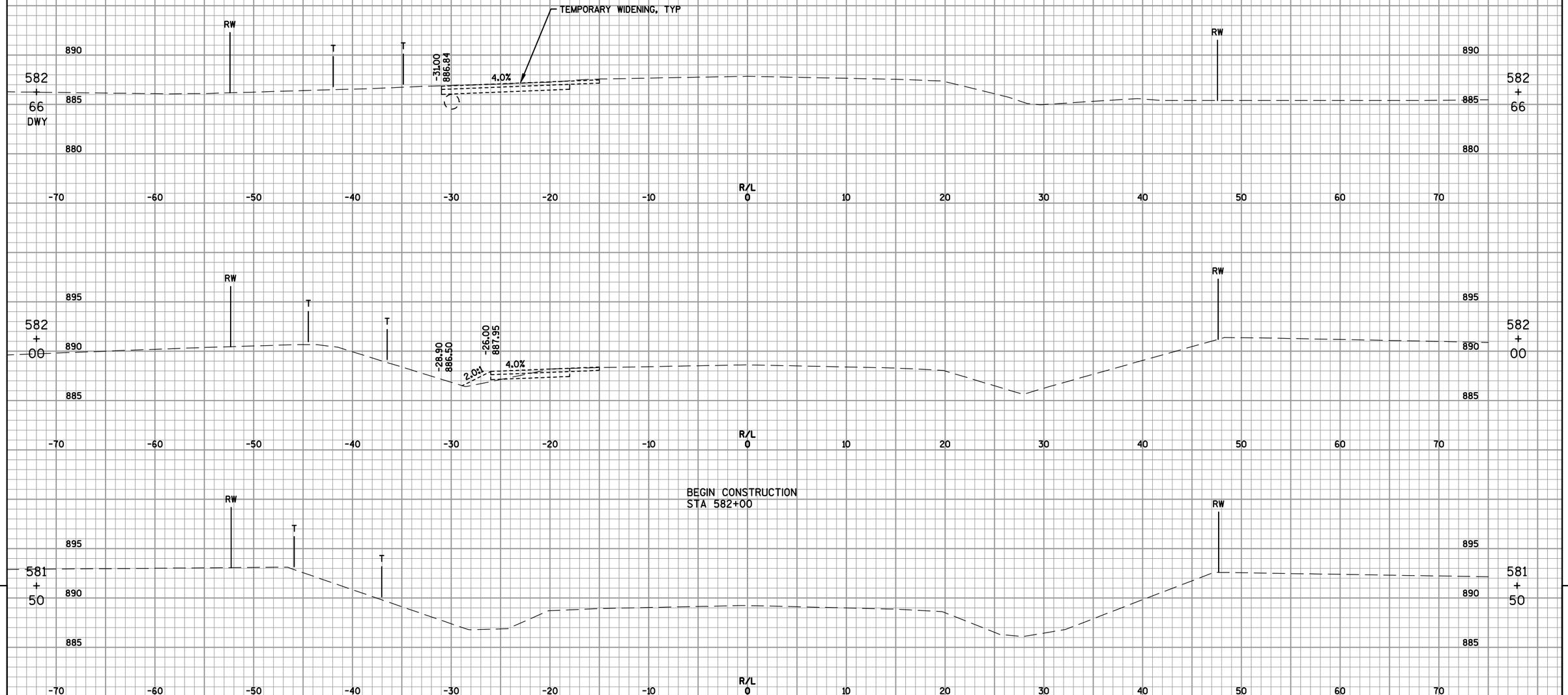
STATION	AREA (SF)		Incremental Vol (CY) (Unadjusted)		Cumulative Vol (CY)		Mass Ordinate
	Cut	Fill	Cut	Fill	Cut 1.00	Expanded Fill 1.25	
581+80.00	0	0	0	0	0	0	0
582+00.00	4	1	1	0	1	0	1
582+66.00	11	0	18	1	20	2	18
583+00.00	4	12	9	8	29	11	18
583+50.00	4	11	7	21	37	38	-1
584+00.00	2	25	6	33	42	80	-38
584+00.00	25	25	0	0	42	80	-38
584+50.00	25	68	46	86	89	187	-99
585+00.00	25	79	46	136	135	358	-223
585+17.75	25	126	16	67	151	442	-290
585+50.00	25	47	30	103	181	571	-390
585+89.75	25	95	37	105	218	702	-484
586+00.00	25	48	9	27	227	735	-508
586+50.00	25	19	46	62	274	813	-539
586+75.00	25	15	23	16	297	833	-536
586+75.00	3	15	0	0	297	833	-536
587+00.00	4	7	3	10	300	845	-545
587+50.00	4	4	7	10	308	858	-551
588+00.00	4	5	7	8	315	869	-554
588+50.00	4	5	7	9	322	880	-558
588+84.00	4	5	5	6	327	888	-561

STH 21 – STAGE 2

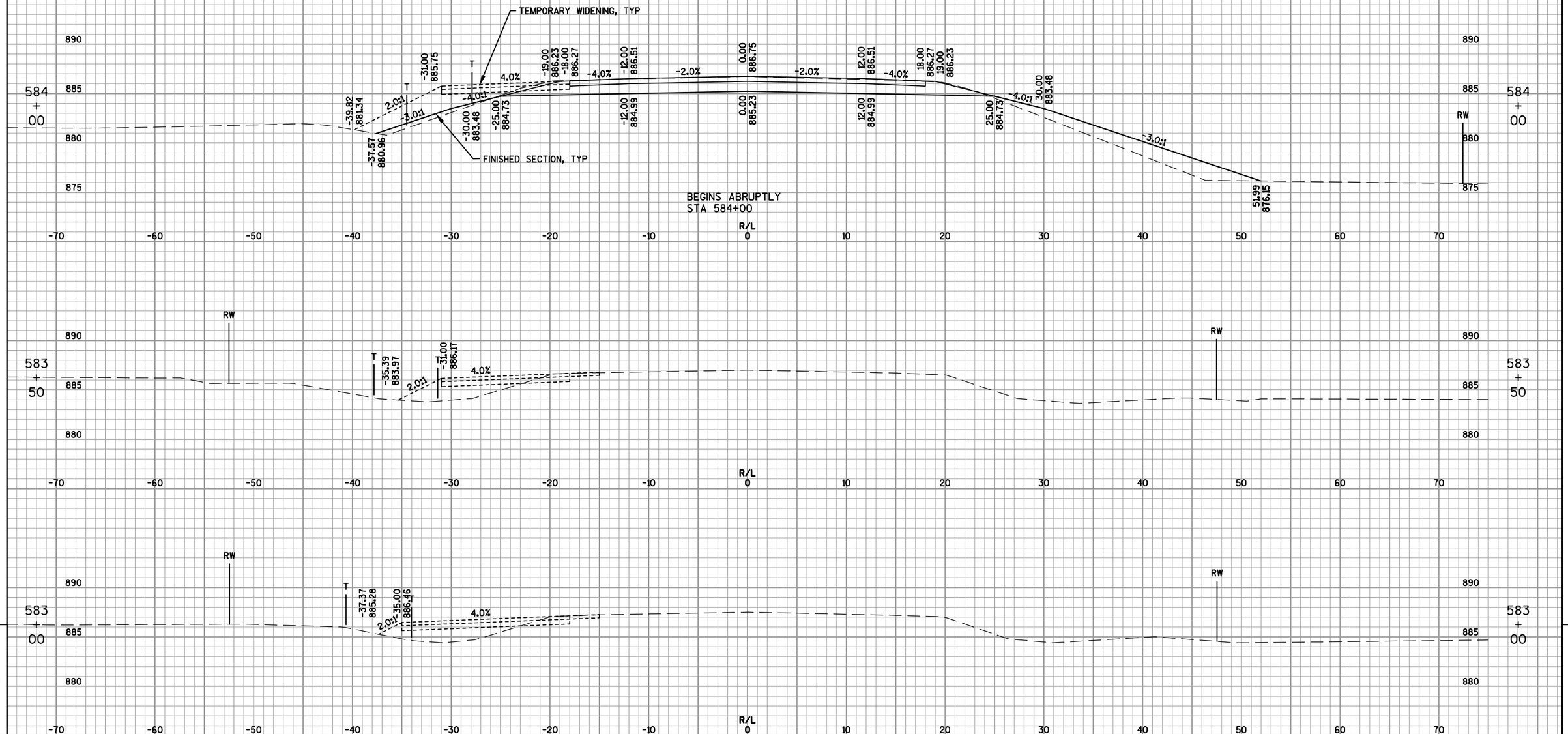
STATION	AREA (SF)		Incremental Vol (CY) (Unadjusted)		Cumulative Vol (CY)		Mass Ordinate
	Cut	Fill	Cut	Fill	Cut 1.00	Expanded Fill 1.25	
581+80.00	0	0	0	0	0	0	0
582+00.00	0	0	0	0	0	0	0
582+66.00	0	0	0	0	0	0	0
583+00.00	0	0	0	0	0	0	0
583+50.00	0	0	0	0	0	0	0
584+00.00	0	30	0	28	0	35	-35
584+00.00	37	30	0	0	0	35	-35
584+50.00	37	53	69	77	69	131	-62
585+00.00	37	37	69	83	137	235	-98
585+17.75	37	97	24	44	161	290	-129
585+50.00	37	60	44	94	206	407	-202
585+89.75	37	94	54	113	260	549	-289
586+00.00	37	34	14	24	274	579	-305
586+50.00	37	7	69	38	343	627	-284
586+75.00	37	4	34	5	377	633	-256
586+75.00	0	4	0	0	377	633	-256
587+00.00	0	0	0	2	377	635	-259
587+50.00	0	0	0	0	377	635	-259
588+00.00	0	0	0	0	377	635	-259
588+50.00	0	0	0	0	377	635	-259
588+84.00	0	0	0	0	377	635	-259

STH 21 – POST STAGE 2

STATION	AREA (SF)		Incremental Vol (CY) (Unadjusted)		Cumulative Vol (CY)		Mass Ordinate
	Cut	Fill	Cut	Fill	Cut 1.00	Expanded Fill 1.25	
581+80.00	0	0	0	0	0	0	0
582+00.00	6	0	2	0	2	0	2
582+66.00	11	0	21	0	23	0	23
583+00.00	27	0	24	0	47	0	47
583+50.00	23	0	46	0	93	0	93
584+00.00	32	0	51	0	144	0	144
584+00.00	32	0	0	0	144	0	144
584+50.00	36	0	63	0	207	0	207
585+00.00	36	0	67	0	274	0	274
585+17.75	36	0	24	0	297	0	297
585+50.00	15	0	30	0	328	0	328
585+89.75	36	0	38	0	365	0	365
586+00.00	36	0	14	0	379	0	379
586+50.00	30	0	61	0	440	0	440
586+75.00	26	0	26	0	466	0	466
586+75.00	26	0	0	0	466	0	466
587+00.00	19	0	21	0	487	0	487
587+50.00	17	0	33	0	520	0	520
588+00.00	17	0	31	0	552	0	552
588+50.00	17	0	31	0	583	0	583
588+84.00	17	0	21	0	605	0	605



PROJECT NO: 6170-00-71	HWY: STH 21	COUNTY: WAUSHARA	CROSS SECTIONS: STH 21	SHEET 84	E



PROJECT NO: 6170-00-71	HWY: STH 21	COUNTY: WAUSHARA	CROSS SECTIONS: STH 21	SHEET 85	E

585 + 50

-44.00 884.33 | -35.25 884.67 | -31.00 886.09 | -19.00 886.57 | -18.00 886.61 | -12.00 886.85 | 0.00 887.09 | 12.00 886.85 | 18.00 886.61 | 19.00 886.57 | 44.00 884.33

25.8:1 | 3.0:1 | 4.0% | -4.0% | -2.0% | -2.0% | -4.0% | -25.8:1

-25.00 885.07 | -12.00 885.33 | 0.00 885.57 | 12.00 885.33 | 25.00 885.07

T | T | RW

890 / 885 / 880 / 875 / 870 / 865

-70 -60 -50 -40 -30 -20 -10 R/L 0 10 20 30 40 50 60 70

585 + 00

-31.00 885.84 | -19.06 886.33 | -18.00 886.36 | -12.00 886.60 | 0.00 886.84 | 12.00 886.60 | 18.00 886.36 | 19.00 886.32 | 30.00 883.57

4.0% | -4.0% | -2.0% | -2.0% | -4.0% | -4.0:1 | -4.0:1

-30.00 883.57 | -25.00 884.82 | -12.00 885.08 | 0.00 885.32 | 12.00 885.08 | 25.00 884.82

-46.72 878.00 | -3.0:1 | 2.0:1 | -3.0:1

-52.77 874.96 | -56.01 874.90 | -55.41 874.94

150' ± OF 48" CMP TEMPORARY DIVERSION PIPE; SLOPE 1%

REMOVE* | ABANDON IN PLACE AND FILL WITH CONCRETE PER SPECIFICATION*

EL 870.0±

* WHEN DIVERSION IS NO LONGER NEEDED

890 / 885 / 880 / 875 / 870

-70 -60 -50 -40 -30 -20 -10 R/L 0 10 20 30 40 50 60 70

TEMPORARY WIDENING, TYP

584 + 50

-31.00 885.69 | -19.00 886.17 | -18.00 886.21 | -12.00 886.45 | 0.00 886.69 | 12.00 886.45 | 18.00 886.21 | 19.00 886.17 | 30.00 883.42

4.0% | -4.0% | -2.0% | -2.0% | -4.0% | -4.0:1 | -4.0:1

-30.00 883.42 | -25.00 884.67 | -12.00 884.93 | 0.00 885.17 | 12.00 884.93 | 25.00 884.67

-49.57 876.40 | -46.61 877.88 | -3.0:1 | 2.0:1 | -3.0:1

-51.73 876.18 | 53.39 875.62

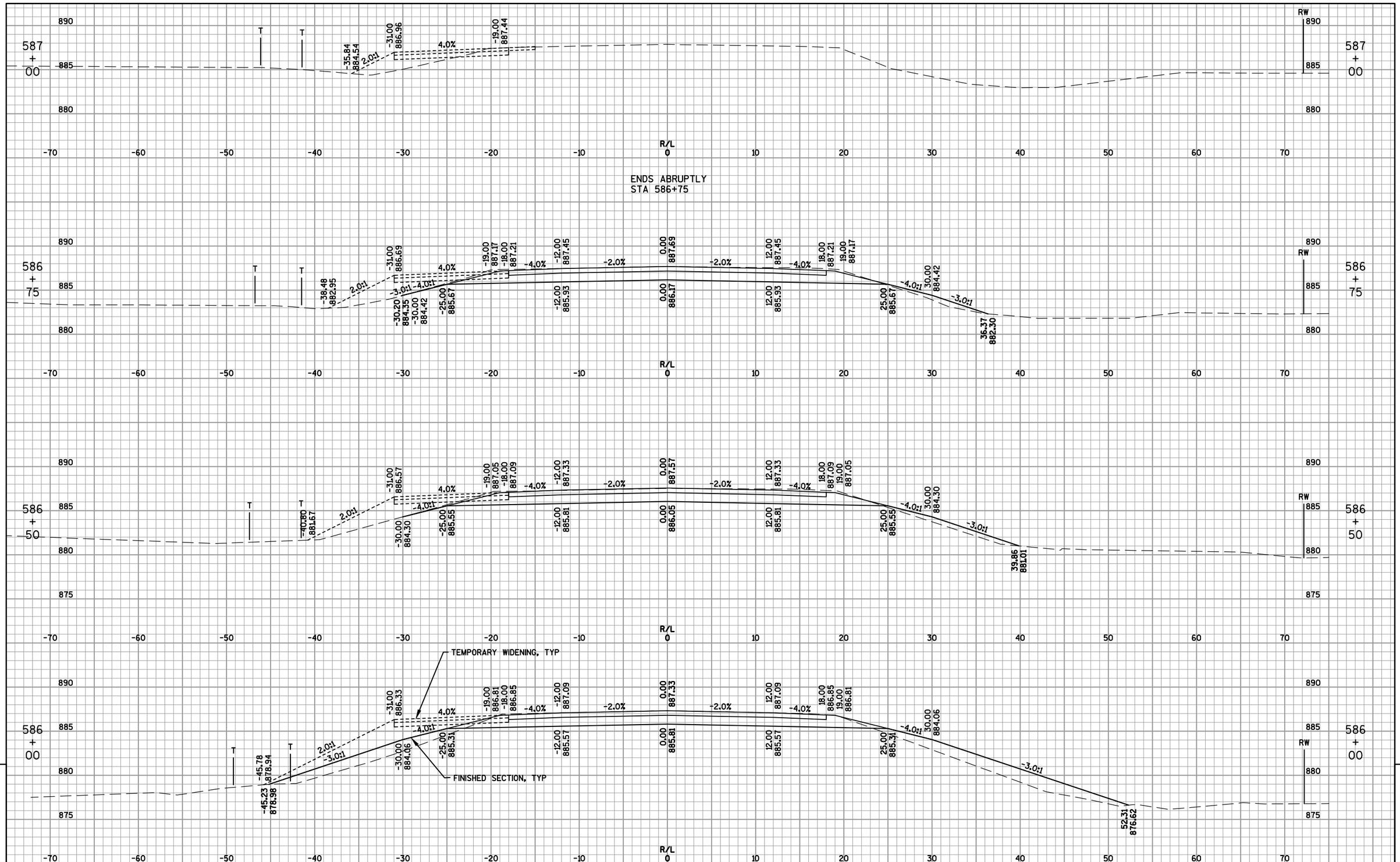
FINISHED SECTION, TYP

890 / 885 / 880 / 875 / 870

-70 -60 -50 -40 -30 -20 -10 R/L 0 10 20 30 40 50 60 70

9 | 9

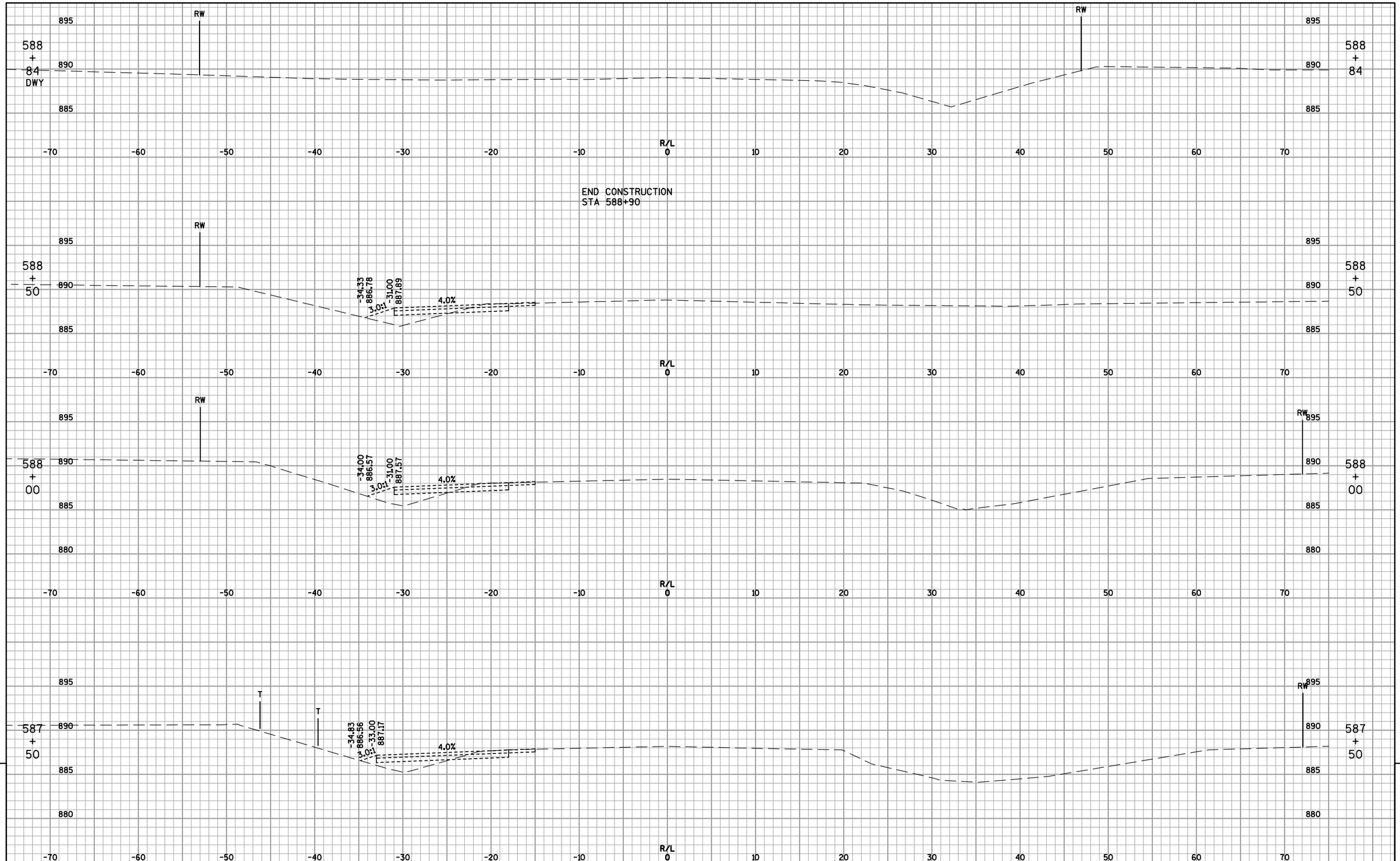
PROJECT NO: 6170-00-71	HWY: STH 21	COUNTY: WAUSHARA	CROSS SECTIONS: STH 21	SHEET 86	E



9

9

PROJECT NO: 6170-00-71	HWY: STH 21	COUNTY: WAUSHARA	CROSS SECTIONS: STH 21	SHEET 87	E



9

PROJECT NO: 6170-00-71	HWY: STH 21	COUNTY: WAUSHARA	CROSS SECTIONS: STH 21	SHEET 88	E

FILE NAME : F:\TR\JOBS\E2090A13\CIVIL 3D 2012\SHEETSPLAN\61700071_090200_XS.DWG
61700071_090204_xs

PLOT DATE : 6/5/2014 9:12 AM

PLOT BY : OMNNI ASSOCIATES, INC - DAVE PERRY

Notes

Wisconsin Department of Transportation

Dedicated people creating transportation solutions
through innovation and exceptional service.

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