RHI

APR 2016

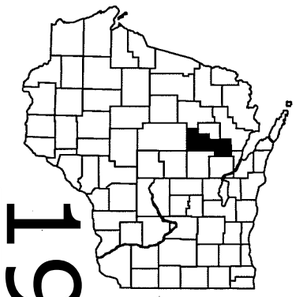
PROJECT ID: 1058-21-70

WITH:

COUNTY: SHAWANO

ORDER OF SHEETS

TOTAL SHEETS = 194



N

DESIGN DESIGNATION

A.A.D.T.	2015	= 4,200
A.A.D.T.	2035	= 5,600
D.H.V.		= 722
D.D.		= 60/40
T.		= 18.4%
DESIGN SPEED		= 70
ESALS		= 2,473,496

CONVENTIONAL SYMBOLS

PLAN

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

PROFILE

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

UTILITIES

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

STATE OF WISCONSIN

DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

WITTENBERG - SHAWANO

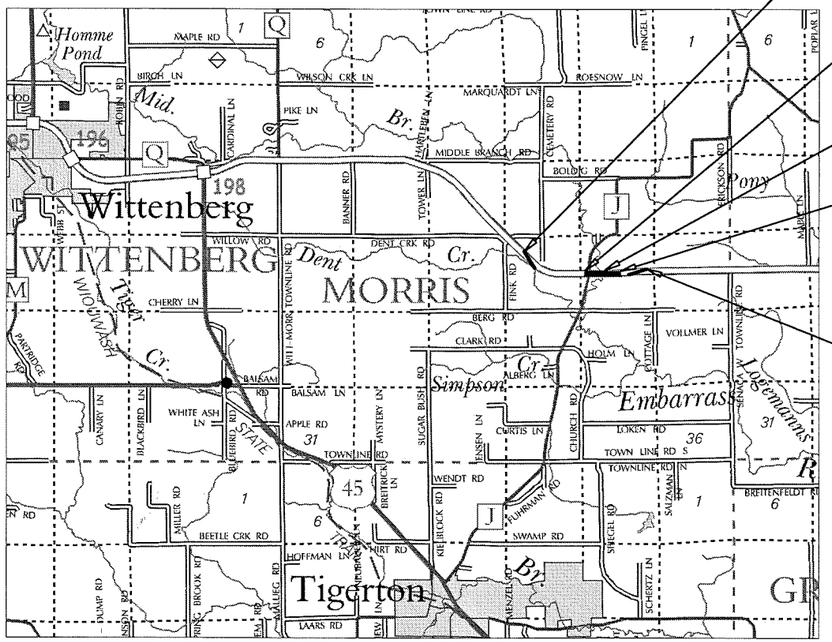
EMBARRASS RIVER BRIDGE B-58-128

STH 29

SHAWANO COUNTY

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
1058-21-70		

STATE PROJECT NUMBER
1058-21-70



BEGIN CONSTRUCTION
STA 28+25 CROSS OVER (WEST XO)

BEGIN PROJECT
STA 85+75

STRUCTURE B-58-128
STA 93+00 WESTBOUND LANES

END PROJECT
STA 100+75

END CONSTRUCTION
STA 137+40 CROSS OVER (EAST XO)

LAYOUT
SCALE 0 1 MI

TOTAL NET LENGTH OF CENTERLINE = 0.284 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATES, SHAWANO COUNTY, NAD83 (1991), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 NAVD 88 (1991).

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	AL OLEINIK & POB
Designer	BARBARA HETH
Project Manager	JIM VOLKMANN
Regional Examiner	CHERYL SIMON
Regional Supervisor	MIKE WENDT

APPROVED FOR THE DEPARTMENT

DATE: 10/30/15 Michael Wendt P.E.
(Signature)

E

FILE NAME : N:\PDS\C3D\10582170\SHEETSPLAN\010101_TI.DWG

PLOT DATE : 10/30/2015 1:43 PM

PLOT BY : HETH, BARBARA L

PLOT NAME :

WISDOT/CADDS SHEET 10

GENERAL NOTES

1. WHEN THE QUANTITY OF THE ITEM OF BASE AGGREGATE DENSE OR HMA PAVEMENT IS MEASURED FOR PAYMENT BY THE TON, THE DEPTH OR THICKNESS OF THE LAYER SHOWN ON THE PLAN IS APPROXIMATE & THE ACTUAL THICKNESS WILL DEPEND ON THE DISTRIBUTION ON THE MATERIAL AS DIRECTED BY THE ENGINEER.

2. RADII ARE MEASURED TO THE EDGE OF PAVEMENT.

3. THE LOCATION OF EXISTING & PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN ON THE PLAN.

4. LENGTHS OF TRANSITIONS SHALL BE COMPUTED WITH TWO–THIRDS OF THE RUNOFF ON THE TANGENT APPROACH AND ONE–THIRD WITHIN THE CURVE. SEE PLAN FOR RATE OF THE SUPERELEVATION AND RELATED DATA. ST IS THE SUPERELEVATION TRANSITION LENGTH. RO IS THE LENGTH OF RUNOFF.

5. THE R/W HAS NOT BEEN FIELD SURVEYED FOR THIS PROJECT R/W SHOWN IN THE PLAN IS BASED ON THE AS–BUILT PLAN.

CONTACTS

DEPARTMENT OF NATURAL RESOURCES NORTHEAST REGION
2984 SHAWANO AVE
GREEN BAY, WI 54313–6727
JIM DOPERALSKI 920–662–5119
EMAIL: JAMES.DOPERALKSI@WISCONSIN.GOV

FRONTIER COMMUNICATIONS COMMUNICATION LINES
JAMES JASKOWSKI
26 WEST 12TH STREET
CLINTONVILLE, WI 54929
OFFICE: 715–823–1227
CELL: 715–853–6843
EMAIL: JAMES.JASKOWSKI@FTR.COM

CENTRAL WISCONSIN ELECTRIC COOPERATIVE ELECTRICITY
KEVIN KURTZWEIL
PO BOX 100
ROSHOLT, WI 54473
OFFICE: 715–677–2211
CELL: 715–701–2040
EMAIL: KEVIN.KURTZWEIL@CWECOOP.COM

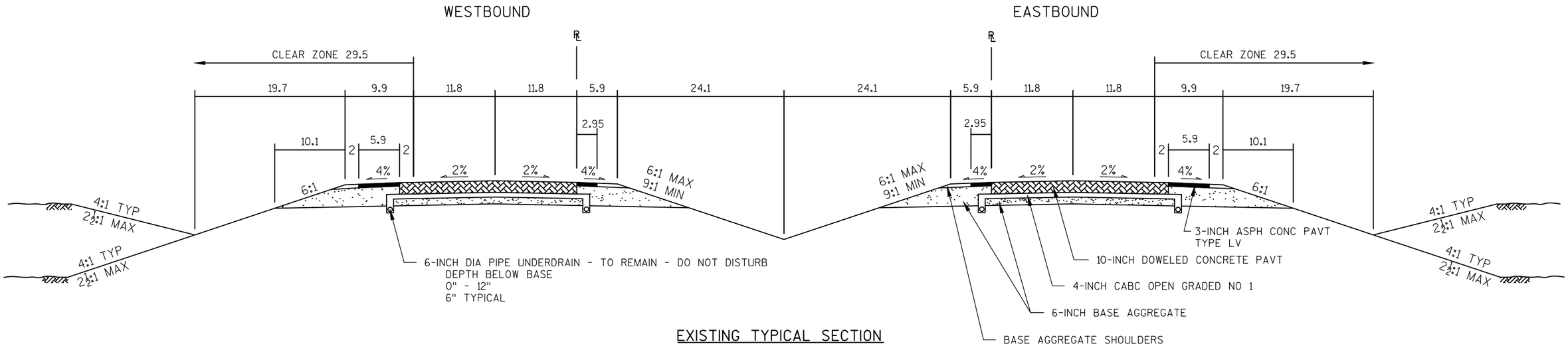
AS–BUILT PLANS USED

1059–16–79 (metric plan)

2

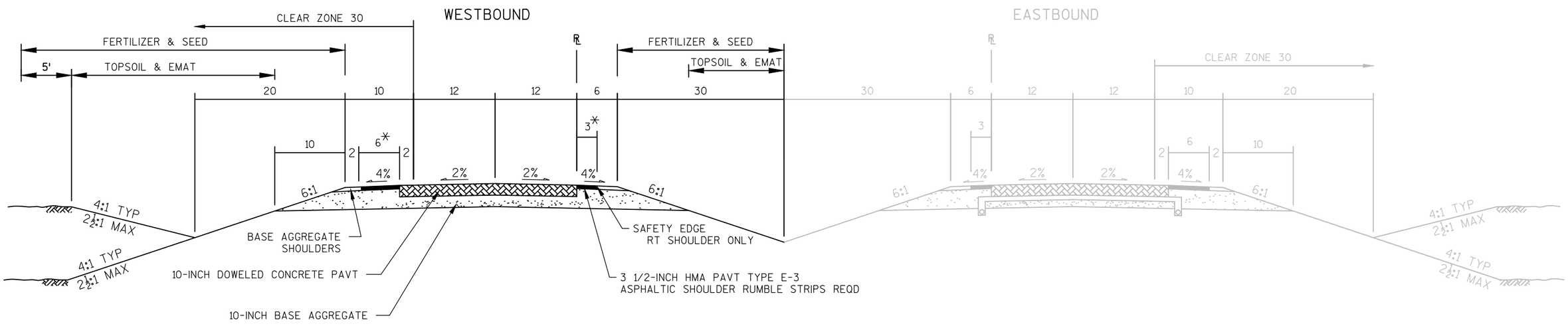
DIGGERS HOTLINE
Dial 811 or (800)242-8511
www.DiggersHotline.com

PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	PLAN: GENERAL NOTES	SHEET 2	E



EXISTING TYPICAL SECTION

STA 85+75 TO STA 100+75

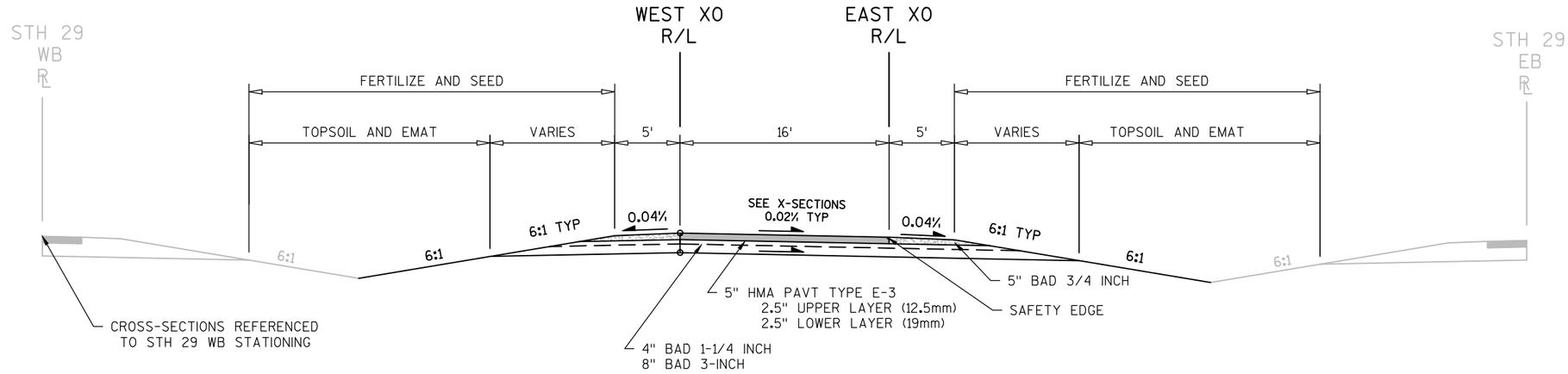


* PULVERIZE EXISTING 3-1/2" ASPHALT SHOULDERS.
RELAY TO EXISTING WIDTH.

PROPOSED TYPICAL SECTION

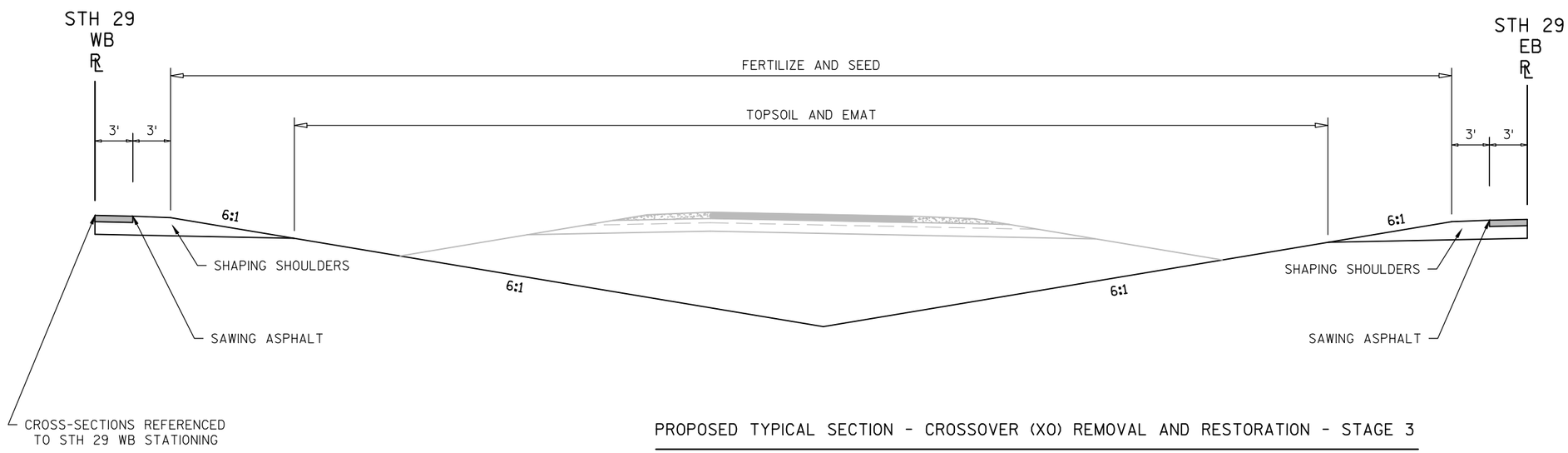
STA 85+75 TO STA 100+75

PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	TYPICAL SECTIONS	SHEET 3	E



PROPOSED TYPICAL SECTION - CROSSOVER (XO) - STAGE 1

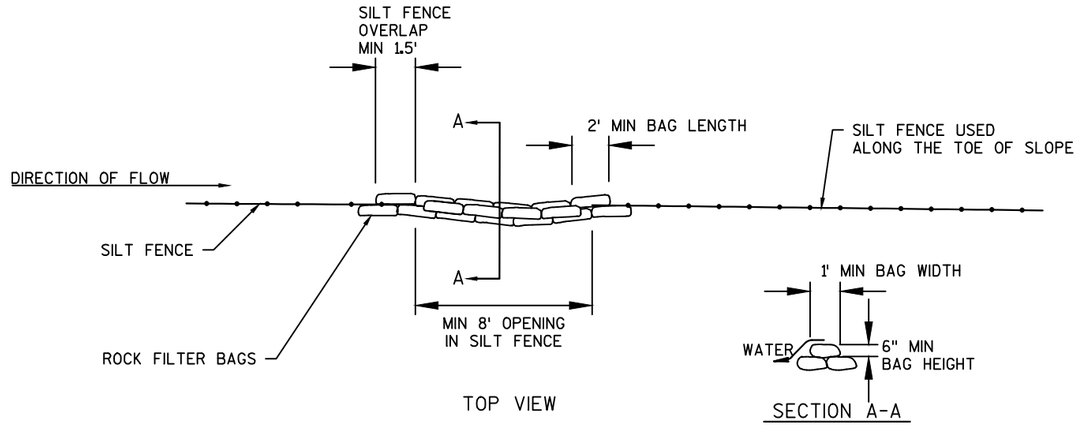
STA 28+25 - 44+13 WB WEST XO
STA 119+00 - 137+40 WB EAST XO



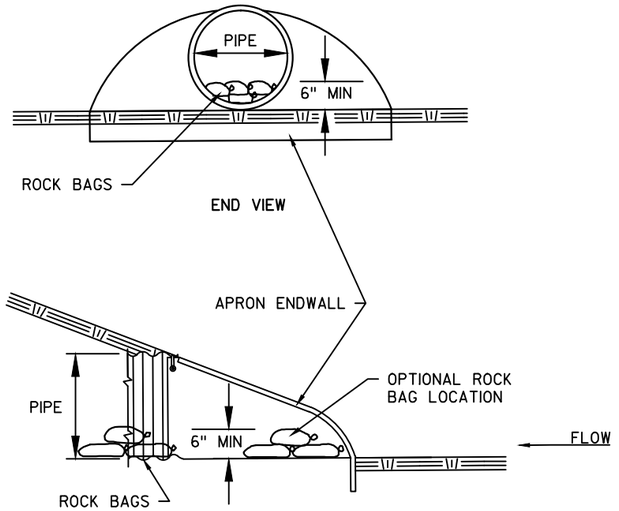
PROPOSED TYPICAL SECTION - CROSSOVER (XO) REMOVAL AND RESTORATION - STAGE 3

STA 28+25 - 44+13 WB WEST XO
STA 119+00 - 137+40 WB EAST XO

PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	PLAN: TYPICAL SECTIONS - CROSSOVERS	SHEET 4	E

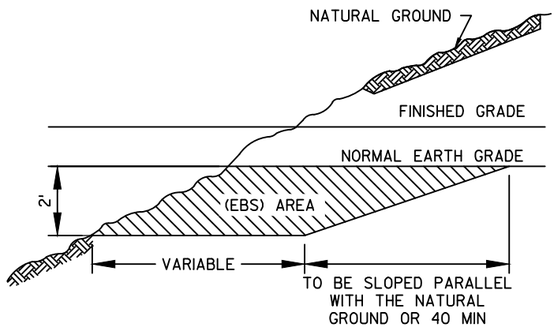


ROCK BAGS USED FOR SILT FENCE RELIEF



CULVERT PIPE CHECK

(INSTALL ON INLET END ONLY)



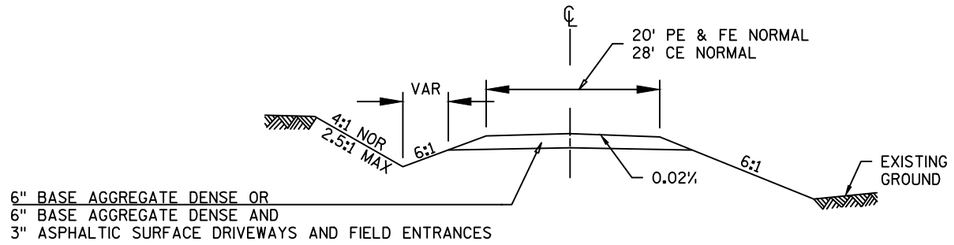
EXACT LOCATIONS OF (EBS) SECTIONS SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

(EBS) AREA TO BE BACKFILLED WITH MATERIAL ACCEPTABLE TO THE ENGINEER. BACKFILL MUST BE HOMOGENOUS WITH ADJOINING FILL MATERIAL.

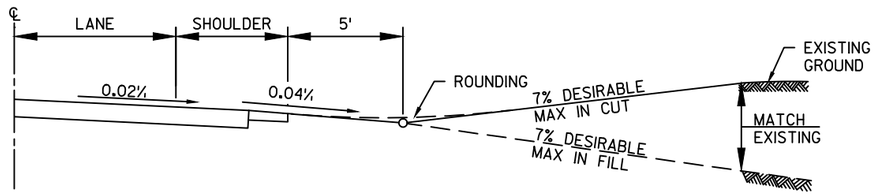
THE FILL SECTION WITHIN 100' OF THE MOUTH OF THE CUT MUST BE KEPT 2' BELOW SUBGRADE UNTIL (EBS) IS COMPLETED.

LATERAL LIMITS OF EXCAVATION SHALL BE SUBGRADE SHOULDER POINTS.

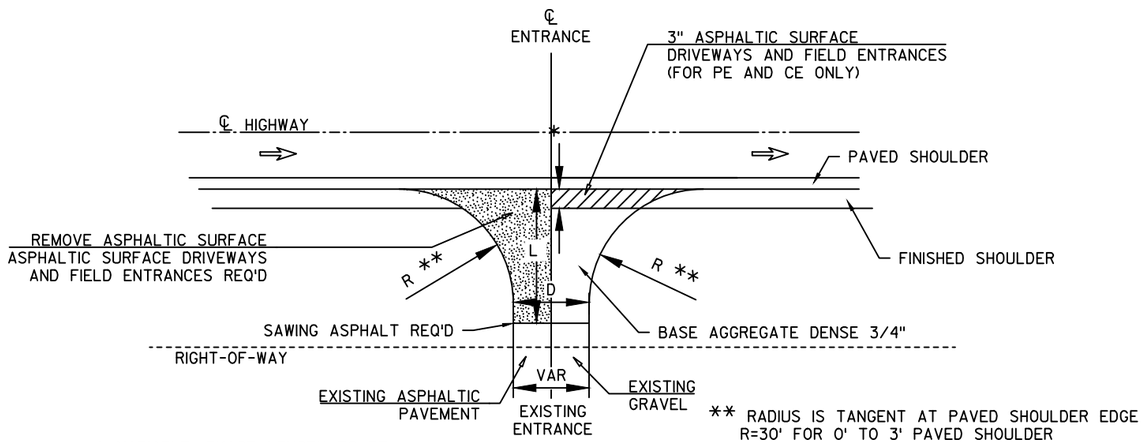
PROFILE FOR UNDERCUT SECTION



TYPICAL CROSS SECTION

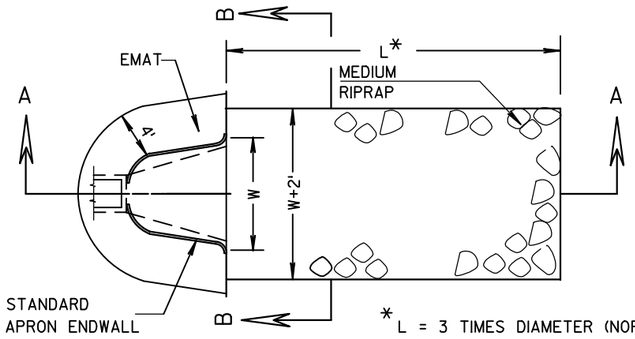


TYPICAL PROFILE VIEW

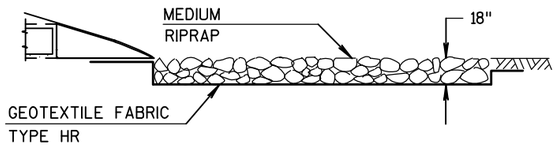


PLAN VIEW

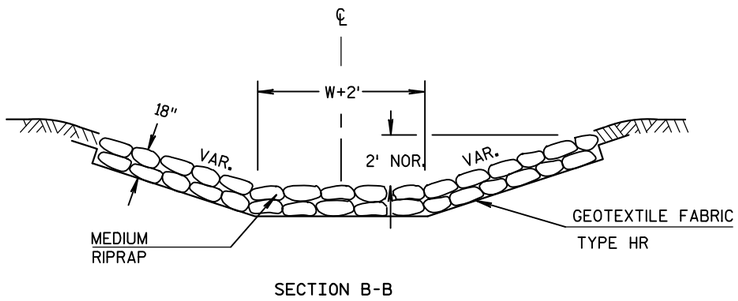
RURAL DRIVEWAY INTERSECTION
(PE, FE & CE)



*L = 3 TIMES DIAMETER (NORMAL) OR 10' MIN

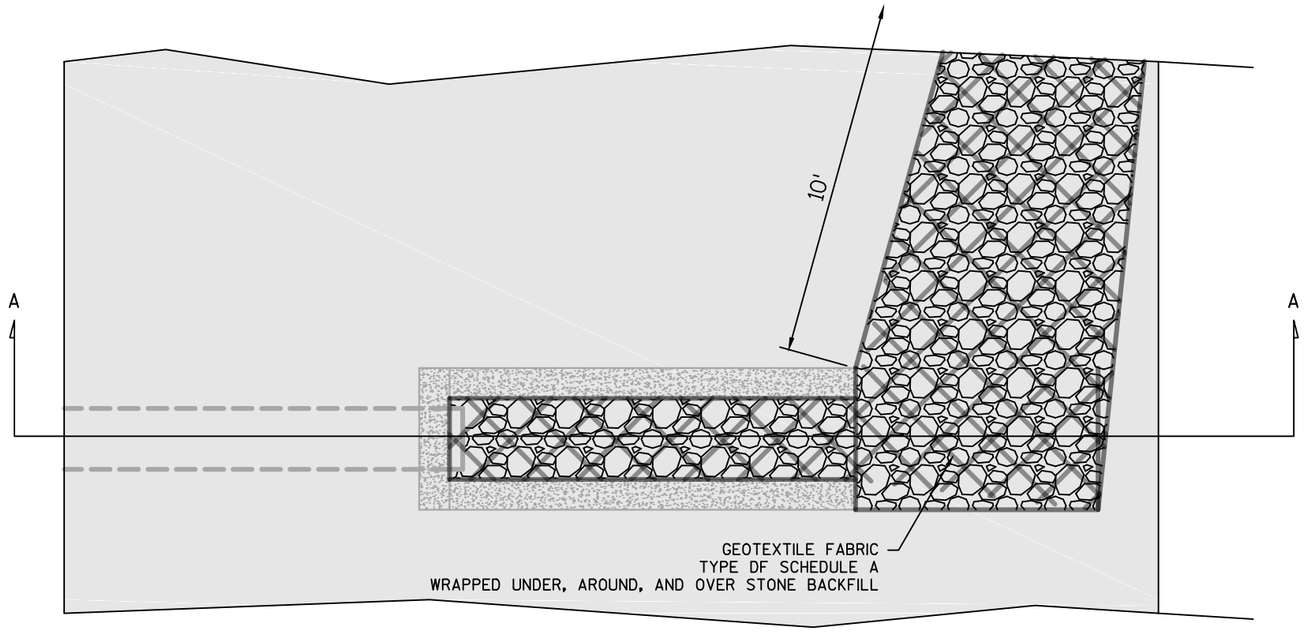


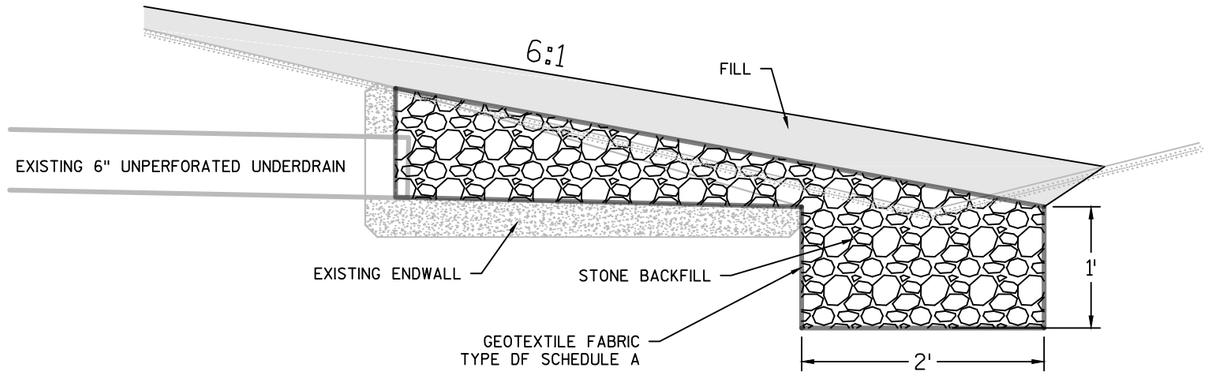
SECTION A-A



SECTION B-B

EMAT, RIPRAP MEDIUM AND GEOTEXTILE FABRIC DETAIL
AT ARPON ENDWALL

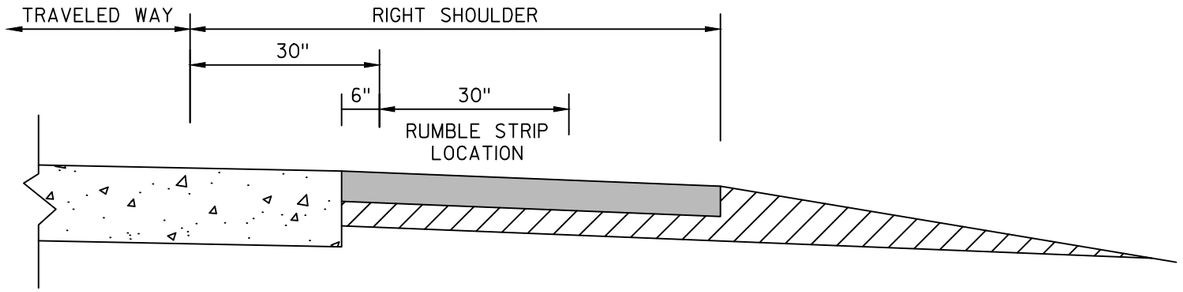




SECTION A-A

STONE BACKFILL

STA 96+80 LT, RT
STA 97+88 LT, RT



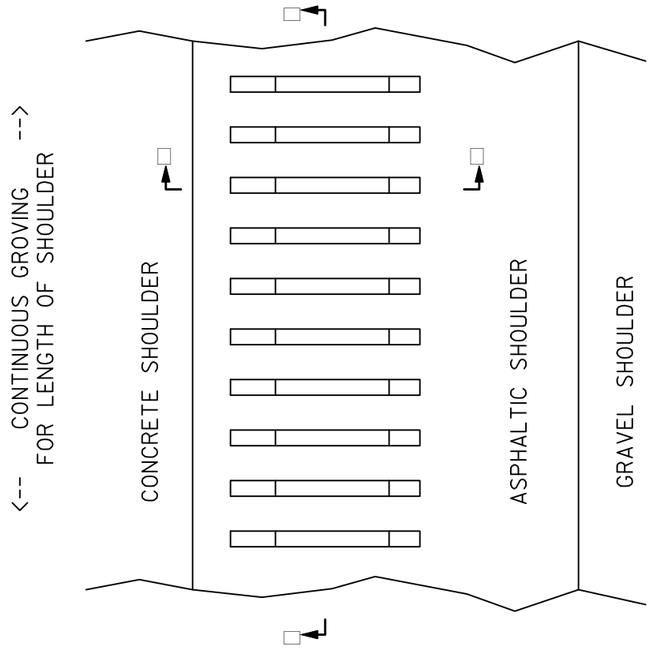
SECTION VIEW

(Concete Pavement extends into RT Shoulder)

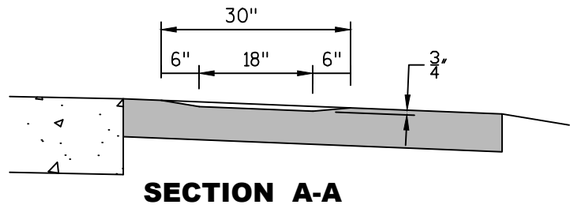
NOTES:

DETAILS OF CONSTRUCTION SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

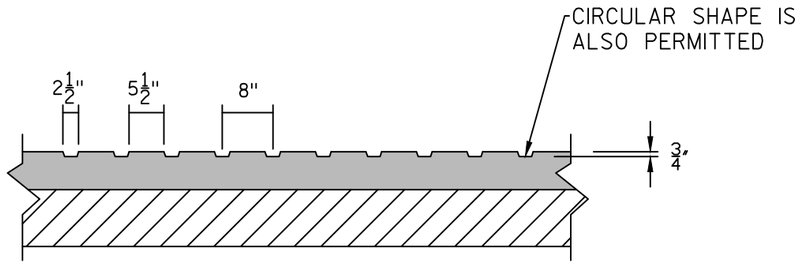
FINISH ROLLING OF THE ASPHALT SHOULDER SHALL INCLUDE THE SURFACE OVER THE RUMBLE STRIP DEPRESSIONS.



PLAN VIEW



SECTION A-A



SECTION B-B

ASPHALTIC SHOULDER RUMBLE STRIPS

PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CONSTRUCTION DETAILS	SHEET 8	E

LENGEND
⇦ DIRECTION OF TRAVEL

WIDEN HMA SHOULDERS FOR TURN LANES
LT: 350' LENGTH LANE, 125' TAPER
RT: 450' LENGTH LANE, 150' TAPER

SALVAGED APRON ENDWALLS FOR UNDERDRAIN
STA 88+82 LT & RT
STA 91+34 LT & RT
STA 91+35 LT & RT
STA 93+68 RT
STA 93+83 LT

STONE BACKFILL
STA 96+80 LT & RT
STA 91+34 LT & RT
STA 93+83 LT

BEGIN PROJECT
85+75

CTH J NORTH

10'
12'
12'
12'
SAWCUT

PI: 86+65.96
PI: 86+65.96

89+25.45
-36.00'
TAP1

90+50.45
-32.00'
TAP2

SIGN

RIP

90+25.00
12.00'
TAP3

91+73.82
3.07'

EP: 20+00.00

BP: 20+00.00

20+00

B-58-128

PI: 92+36.04
PI: 92+36.04

BEGIN
15:1
FLARE
94+57.28
-33.99'

94+82.29
-35.66'
P9
15:1 FLAIR

95+07.28
-37.34'
P5

95+44.78
-39.83'
P1

96+91.86
-32.00'

97+36.45
-34.00'

PC: 98+48.13
PC: 98+48.13

RIPRAP

CONCRETE CURB INTEGRAL 30-INCH TYPE J
STA 92+22-92+33 LT
STA 92+31-92+42 RT

94+05.56
6.00'
P11

94+30.56
6.00'
P10

BEGIN
15:1
FLARE

95+18.06
11.42'
P3

95+43.06
12.98'

95+68.07
14.53'
P1

91+73.82
3.07'

STH 29 WB RL

97+40.96
3.00'

98+00.62
6.00'

MGS GUARADRAIL
STA 93+55 - 95+44 LT
STA 93+66 - 95+68 RT

EB RL

EB EDGE OF LANE

23.4059

834+22.83
33.50'

834+83.41
33.50'

835+08.41
34.98'

835+33.41
35.50'

836+32.66
33.50'

1834+31.92
9.90'

1834+92.50
9.90'
P4

1835+17.50
11.38'
P3

1835+42.50
11.90'
P1

1836+41.75
9.90'

BP: 1834+00.00

EP: 1837+00.00

STATION/OFFSET FROM
EB RL AND
EB EDGE OF LANE

GUARDRAIL TEMPORARY
STA 1834+22 - 1835+42 RT
CONSTRUCT WITH BAD, NO HMA REQUIRED
INSTALL IN STAGE 0
REMOVE IN STAGE 4

PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CONSTRUCTION DETAIL	SHEET 9	E

2

2

N

SIGN

26' LT

12' LT

PC: 86+65.96

1027.63 1026.37 1025.24 1024.23 1023.34 1022.57 1021.92 1021.40 1021.00 1020.73 1020.57

1027.91 1026.65 1025.52 1024.51 1023.62 1022.85 1022.20 1021.68 1021.28 1021.01 1020.85

1027.67 1026.41 1025.28 1024.27 1023.38 1022.61 1021.96 1021.44 1021.04 1020.77 1020.61

86 87 88 89 90 91

826 828 830

CURB GRADES FLANGE FLOWLINE

92+22 LT 32.17' 1020.58 34' 1020.47

92+32.47 LT 32.17' 1020.63 34' 1020.52

RIPRAP

PC: 92+36.04

1020.54 1020.63 1020.770 1020.840 1021.120 1021.390 1021.70 1022.09 1022.55 1023.09 1023.71 1024.40 1025.17 1025.88

1020.82 1020.91 1021.050 1021.120 1021.140 1021.670 1021.98 1022.37 1022.83 1023.37 1023.99 1024.68 1025.45 1026.16

1020.58 1020.67 1020.81 1020.88 1021.16 1021.43 1021.74 1022.13 1022.59 1023.13 1023.75 1024.44 1025.21 1026.06

92 93 94 95 96 97

CURB GRADES FLANGE FLOWLINE

92+33 RT 4.19' 1020.71 6.02' 1020.60

92+36 RT 4.22' 1020.73 6.05' 1020.61

92+42.6 RT 4.17 1020.76 6.00 1020.64

SHOULDER TAPER

91+75 LT 4% TO 92+22 2%

91+50 RT 4% TO 91+75 2%

93+70 LT&RT 2% TO 94+30 4%

RIPRAP

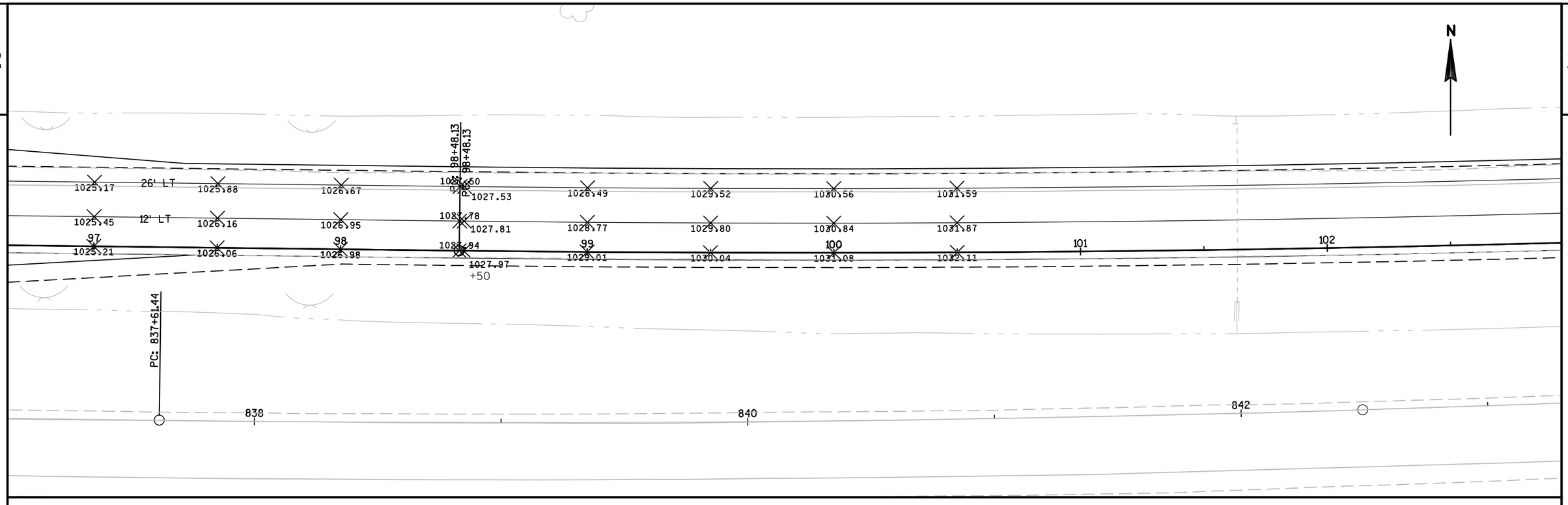
RIPRAP

PC: 837+61.44

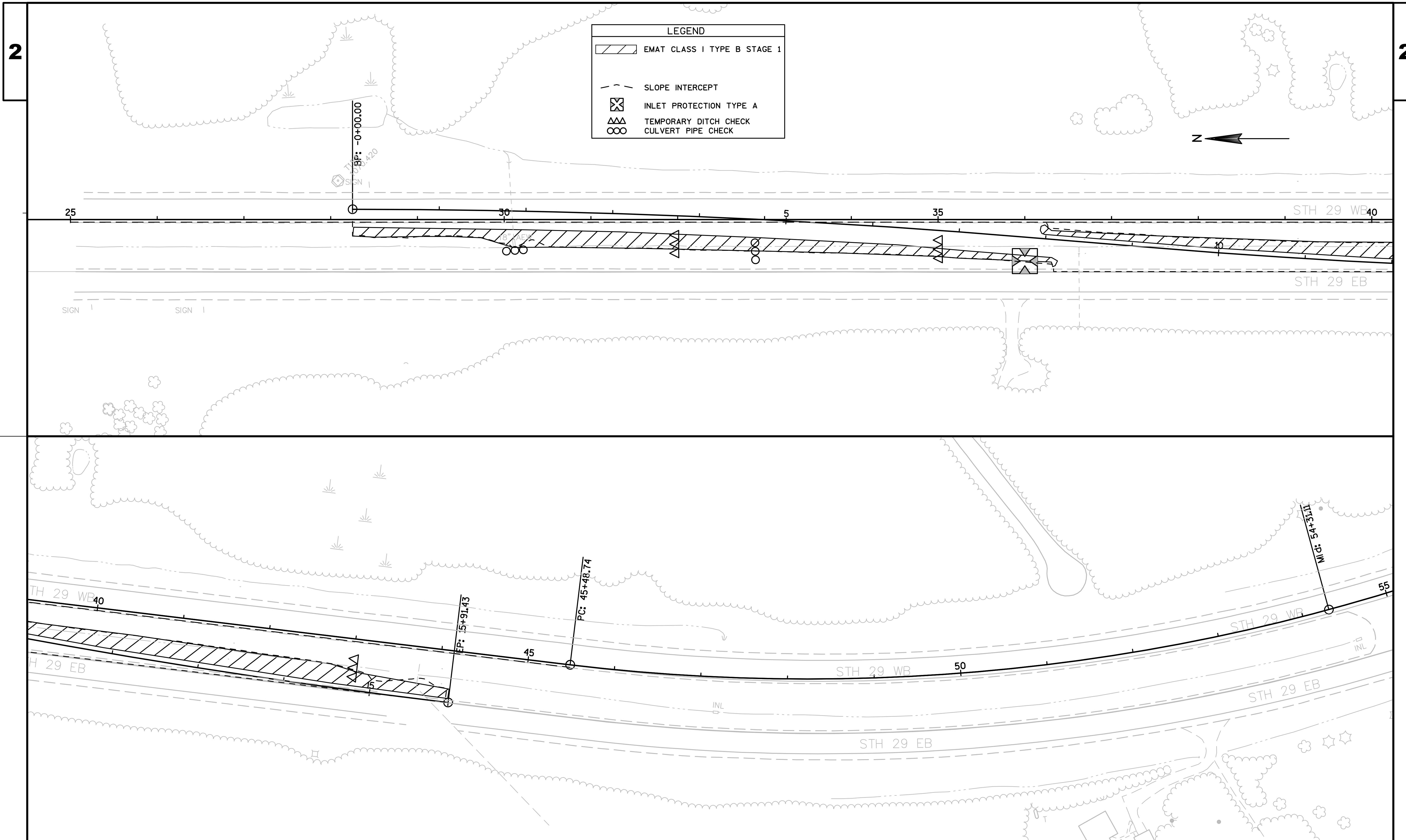
832 834 836

PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CONSTRUCTION DETAILS: PAVEMENT GRADES	SHEET 10	E

2



PROJECT NO:1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CONSTRUCTION DETAILS: PAVEMENT GRADES	SHEET 11	E

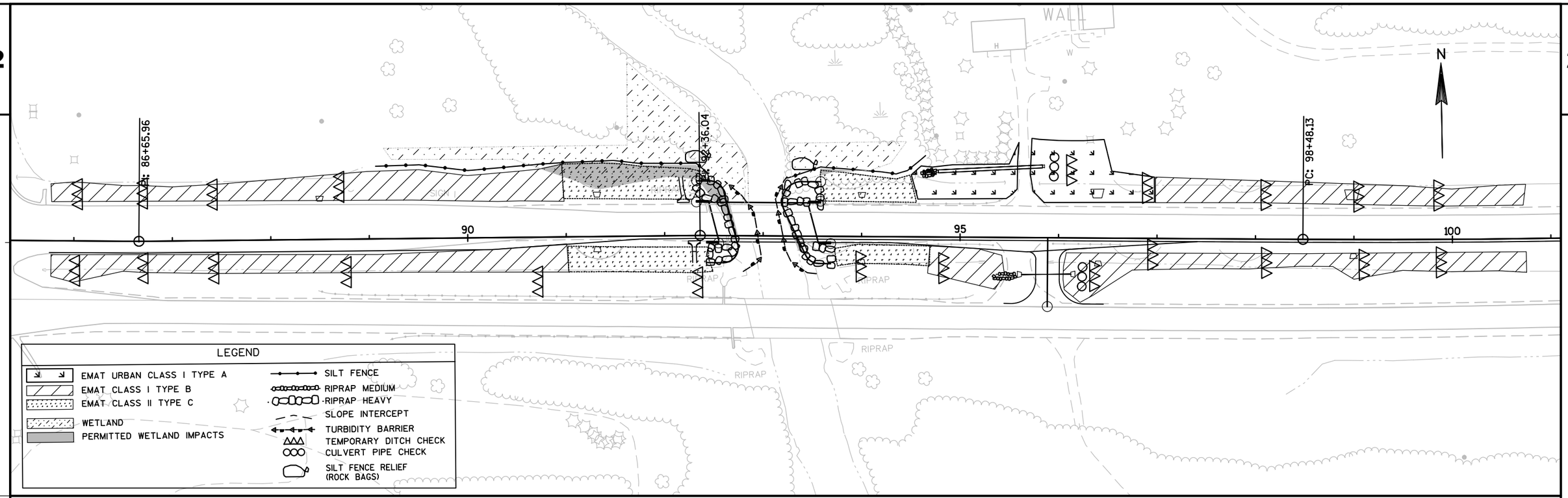


PROJECT NO:1058-21-70	HWY:STH 29	COUNTY:SHAWANO	EROSION CONTROL - STAGE 1 - WEST XO	SHEET 12 E

FILE NAME : N:\PDS\C3D\10582170\DESIGN\ALIPROFS\EROSIONCONTROL.DWG PLOT DATE : 11/2/2015 10:09 AM PLOT BY : HETH, BARBARA L PLOT NAME : PLOT SCALE : 1:100_XREF WISDOT/CADDS SHEET 44

2

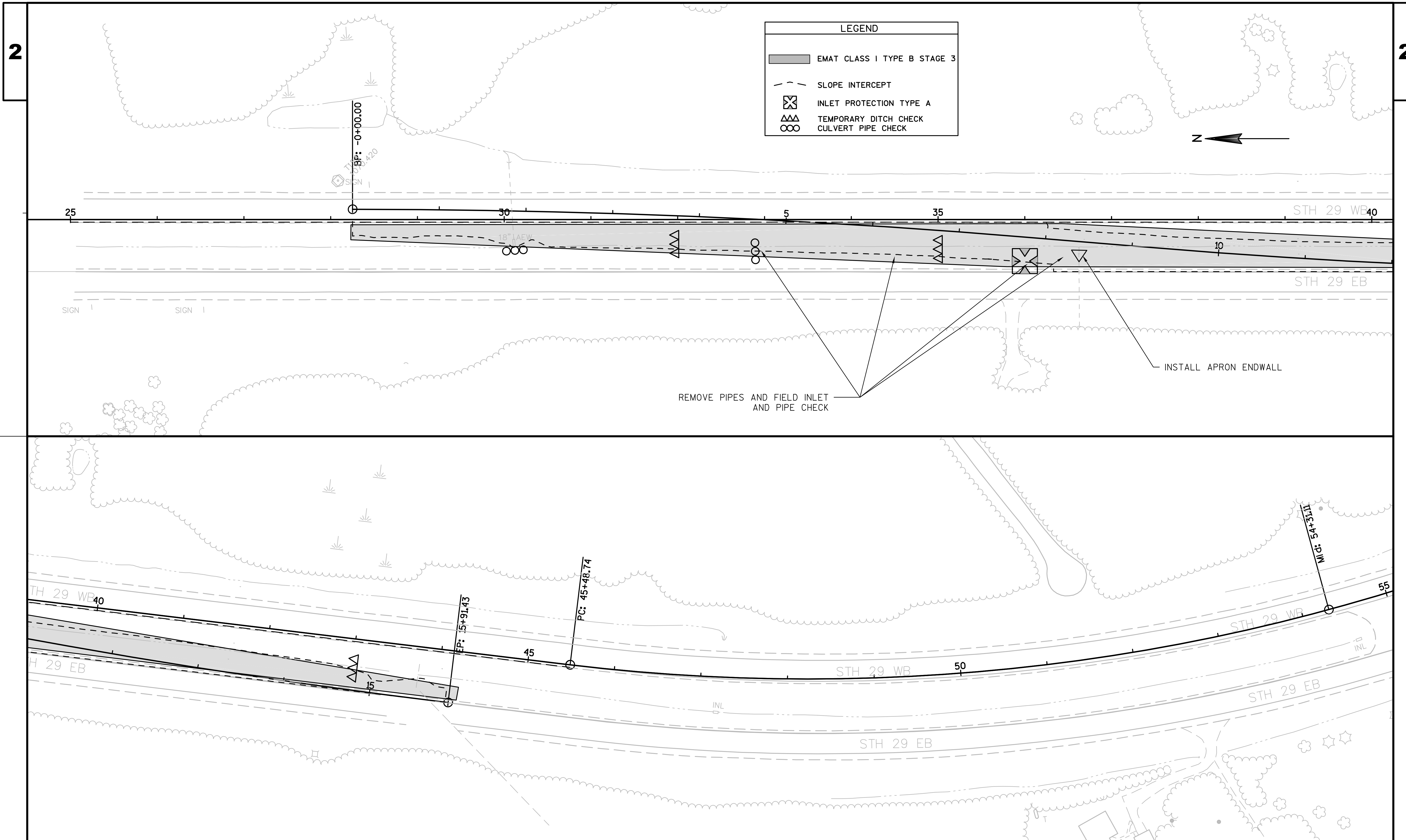
PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	EROSION CONTROL - STAGE 1 - EAST XO	SHEET 13	E



RUNOFF COEFFICIENT TABLE

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

TOTAL PROJECT AREA = _____15.0__ ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = _____8.1__ACRES



PROJECT NO:1058-21-70	HWY:STH 29	COUNTY:SHAWANO	EROSION CONTROL - STAGE 3 - WEST XO	SHEET 15	E

FILE NAME : N:\PDS\C3D\10582170\DESIGN\ALIPROFS\EROSIONCONTROL.DWG PLOT DATE : 11/2/2015 10:09 AM PLOT BY : HETH, BARBARA L PLOT NAME : PLOT SCALE : 1:100_XREF

2

LEGEND

- EMAT CLASS I TYPE B STAGE 3
- SLOPE INTERCEPT
- INLET PROTECTION TYPE A
- TEMPORARY DITCH CHECK
- CULVERT PIPE CHECK

N

RIPRAP

Mid: 117+87.48

PT: 121+78.22

PI: 126+78.22

PRC: 10+55.57

STH 29 WB

120 125 130

10

STH 29 EB

PRC: 10+55.57

EP: 20+69.66

130 135 140

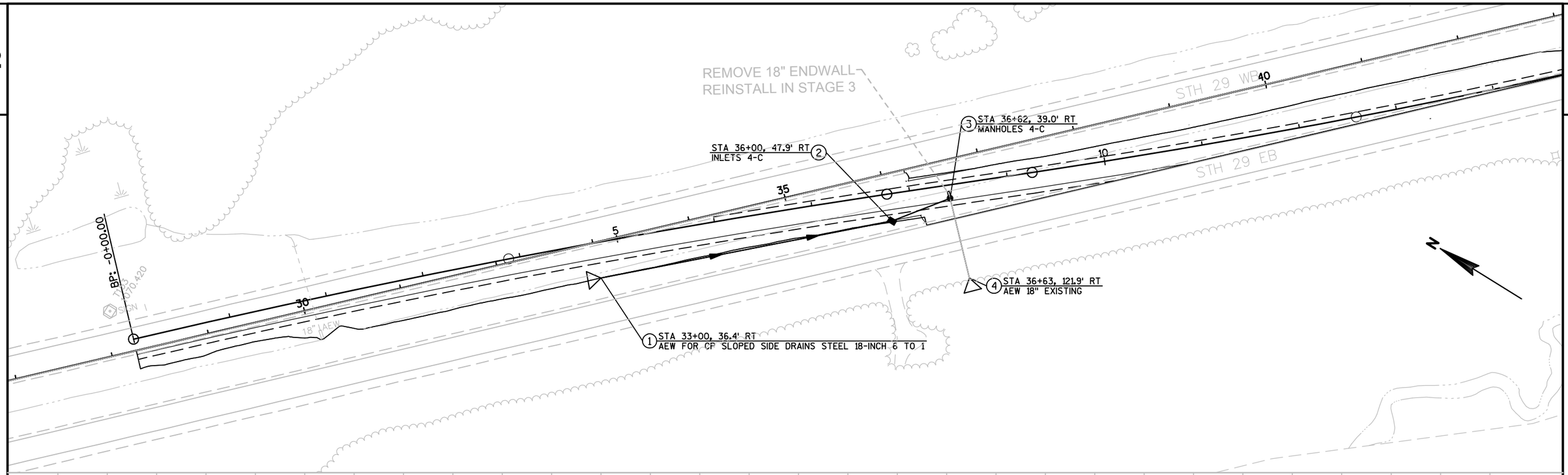
10 15 20

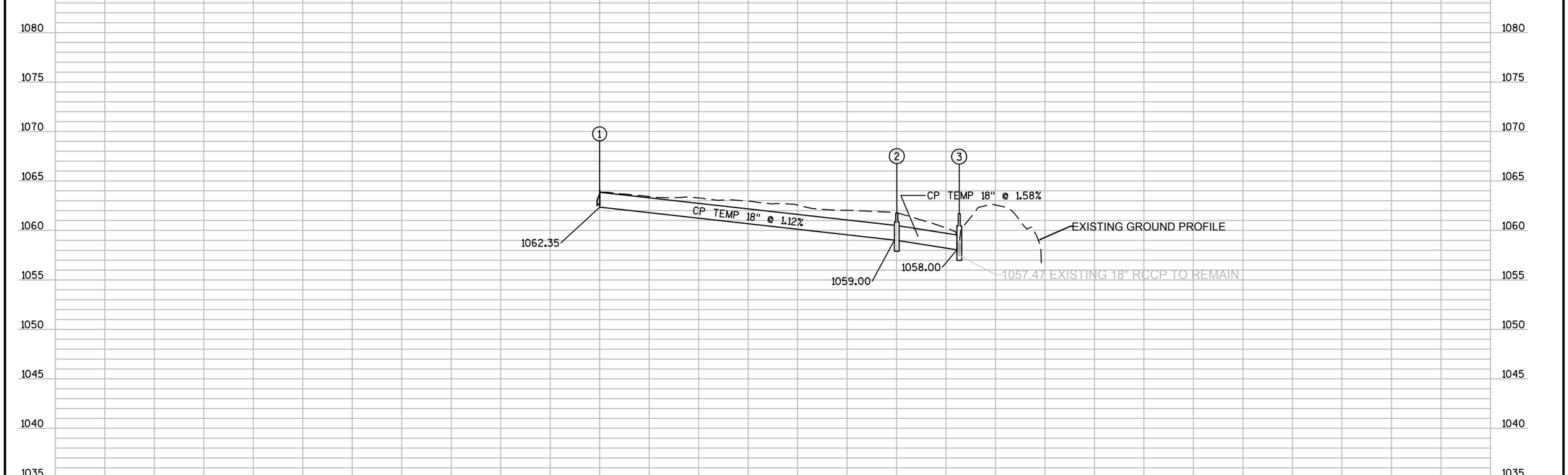
STH 29 WB

STH 29 EB

PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	EROSION CONTROL - STAGE 3 - EAST XO	SHEET 16	E

2





PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	STORM SEWER	SHEET 17	E

KEY
- REMOVING SIGNS TYPE 2
- REMOVING SMALL SIGN SUPPORTS
- SIGNS REFLECTIVE TYPE 2
- SIGNS ON DOUBLE SUPPORT
- SIGNS ON SINGLE SUPPORT

N

1 — STOP TO REMAIN; DIVIDED HIGHWAY R6-3 30"X24"

2 — STOP TO REMAIN; DIVIDED HIGHWAY R6-3 30"X24"

3 — R3-1 24"X24"

4 — R4-7 24"X30"

5 — COUNTY J M1-5A 36"X36"; M6-4 36"x36"; J13-1 36"X72"

6 — DO NOT ENTER R5-1 36"X36"

7 — MILE 204 D10-3 12"X48"

8 — WRONG WAY R5-1A 36"X24"; T174 1009.980

9 — TIGERTON / BOWLER E10-82 36"x84"

10 — S3-1 48"X48"

11 — S3-1 48"X48"

12 — W5-52L 18x54

13 — W5-52R 18x54

14 — W5-52L 18x54

15 — W5-52R 18x54

16 — EMBARRASS RIVER I3-1 84"X36"

17 — JCT M2-1 30"x21"; COUNTY J M1-5A 36"X36"; J4-1 36"X57"

Pi: 86+65.96

Pi: 92+36.04

84 86 88 90 92 94 96 98

C.T.H. "J"

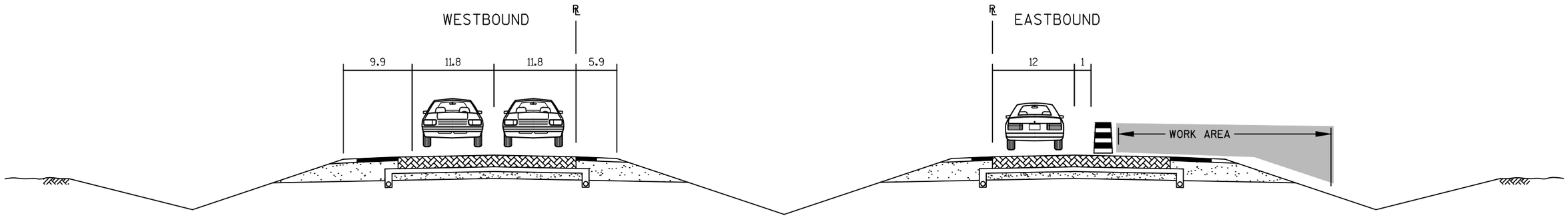
SEPTIC

WALL

RIPRAP

SIGN

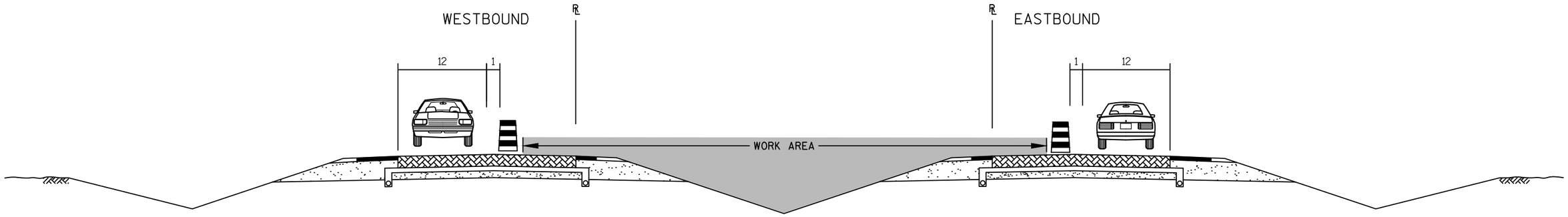
PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	PERMANENT SIGNING	SHEET 18	E



STAGE 0
CONSTRUCT EASTBOUND GUARDRAIL AND GRADE

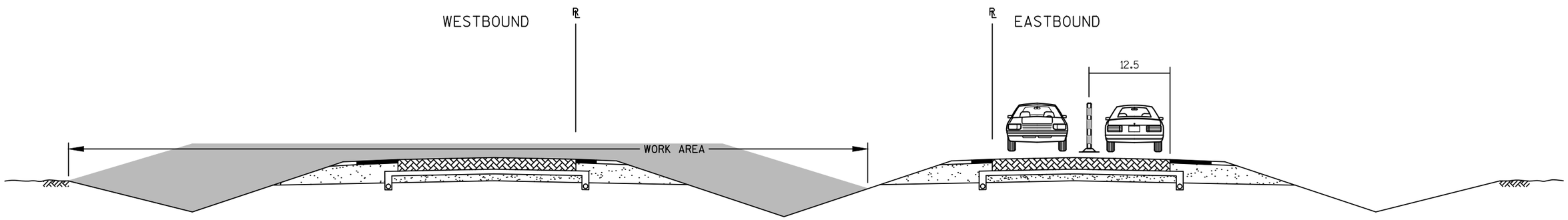
STAGE 4
REMOVE EASTBOUND GUARDRAIL AND RESTORE

2



STAGE 1
CONSTRUCT WEST & EAST CROSSOVERS

STAGE 3
REMOVE CROSSOVERS AND RESTORATION



STAGE 2
STA 85+75 - 100+75
CONSTRUCT BRIDGE AND APPROACHES

PROJECT NO:1058-21-70	HWY: STH 29	COUNTY: SHAWANO	TRAFFIC CONTROL - STAGE 1, STAGE 2, STAGE3	SHEET 20	E

2

LEGEND	
	BARRICADE TYPE III WTH ATTACHED SIGN
	ARROW BOARDS
	DRUMS
	DRUMS WITH WARNING LIGHT TYPE C
	WARNING LIGHTS TYPE A
	SIGN ON TEMPORARY SUPPORT

N

STA 26+00

CTH J

ROAD WORK AHEAD W20-1-A

ROAD WORK 1 MILE W20-1-F

RIGHT LANE CLOSED 1/2 MILE W20-5-G

RIGHT LANE CLOSED 1500 FT W20-5-B

W04-2R

75

INL

815

820

825

SIGN I

RIPRAP

2400'

1025'

575'

1000'

780'

24

22

21

18

16

CTH J

ROAD WORK AHEAD W20-1-A

SEE SDD TRAFFIC CONTROL LANE CLOSURE

PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	TRAFFIC CONTROL - STAGE 0, STAGE 4	SHEET 21	E

FILE NAME : N:\PDS\C3D\10582170\SHEETSPLAN\026001-S0.DWG PLOT DATE : 9/16/2015 11:15 AM PLOT BY : BAIER, GERARD M PLOT NAME : PLOT SCALE : **********

2

2

LEGEND

- BARRICADE TYPE III WTH ATTACHED SIGN
- ARROW BOARDS
- DRUMS
- DRUMS WITH WARNING LIGHT TYPE C
- WARNING LIGHTS TYPE A
- SIGN ON TEMPORARY SUPPORT

N

SEPTIC

WALL

H

W

G

SIGN 1

RIPRAP

90

95

100

830

835

840

500'

END ROAD WORK
G20-2A
48"X24"

END ROAD WORK
G20-2A
48"X24"

R11-2-L
48" X 30"
LANE CLOSED
TYPE III BARRICADE

R11-2-L
48" X 30"
LANE CLOSED
TYPE III BARRICADE

SEE SDD TRAFFIC CONTROL LANE CLOSURE

PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	TRAFFIC CONTROL - STAGE 0, STAGE 4	SHEET 22	E

FILE NAME : N:\PDS\C3D\10582170\SHEETSPLAN\026001-S0.DWG PLOT DATE : 9/16/2015 11:15 AM PLOT BY : BAIER, GERARD M PLOT NAME : PLOT SCALE : 1:100_XREF

WISDOT/CADDS SHEET 42

2

2

Middle Branch Lane

STH 29 WB

STH 29 EB

Tower Lane

MB

LOCATE MB 300' EAST OF CURB & GUTTER
IN SE QUADRANT OF TOWER LANE

MESSAGES FOR STH 29 EB & WB:

1. BEFORE STAGE 1 BEGINS -
ROAD WORK BEGINS
DAY, MONTH, DATE

2. AFTER STAGE 1 BEGINS -
LANE CLOSED AHEAD

All MB's:
START USING MB 7 DAYS BEFORE STAGE 1 BEGINS
USE FOR 10 DAYS

700 705 710

ROAD WORK 1 MILE
W20-1-F

N

GENERAL NOTE

SEE FOLLOWING FOR MORE INFORMATION:
SDD BARRICADES AND SIGNS FOR SIDE ROAD CLOSURES
SDD BARRICADES AND SIGNS FOR MAINLINE CLOSURES
SDD FLEXIBLE TUBULAR MARKER POST, ANCHOR & BASES
SDD TRAFFIC CONTROL, TWO LANE TWO WAY OPERATION
SDD TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION

710 715 720 725 730 735 740

STH 29 EB

ROAD WORK 1 MILE
W20-1-F

SPEED LIMIT 55
W03-5
48"x48"

LEFT LANE CLOSED 1/2 MILE
W20-5-G

LEGEND

- BARRICADE TYPE III
- BARRICADE TYPE III WTH ATTACHED SIGN
- ARROW BOARDS
- SIGN ON PERMANENT SUPPORT
- FLEXIBLE TUBULAR MARKER
- DRUMS
- DRUMS WITH WARNING LIGHT TYPE C
- WARNING LIGHTS TYPE A
- MB PORTABLE CHANGEABLE MESSAGE BOARD
- TEMP PAVEMENT MARKING MASK-OUT TAPE 6-INCH

PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	TRAFFIC CONTROL - STAGE 1 & STAGE 3	SHEET 23	E

2

STH 29 WB

SPEED LIMIT 55
R2-1
48"x60"

LEFT LANE CLOSED 1500 FT
W20-5S-B

W04-2L

SPEED LIMIT 65
R2-1
48"X60"

ROAD WORK AHEAD
W20-1-A

END ROAD WORK
G20-2A
48" X 24"

END ROAD WORK
G20-2A
48" X 24"

SPEED LIMIT 55
R2-1
48"x60"

SPEED LIMIT 65
COVER
STA 765+10

STA 761+50

STA 766+50

DENT CREEK RD.

FINK RD

S.T.H. 29

NOTE:
CONSTRUCT WEST XO
FOR USE IN STAGE 2

R11-2-L
48" X 30"
LANE CLOSED
TYPE III BARRICADE

LEGEND

- BARRICADE TYPE III
- BARRICADE TYPE III WTH ATTACHED SIGN
- ARROW BOARDS
- SIGN ON PERMANENT SUPPORT
- FLEXIBLE TUBULAR MARKER
- DRUMS
- DRUMS WITH WARNING LIGHT TYPE C
- WARNING LIGHTS TYPE A
- MB PORTABLE CHANGEABLE MESSAGE BOARD
- TEMP PAVEMENT MARKING MASK-OUT TAPE 6-INCH

PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	TRAFFIC CONTROL - STAGE 1 & STAGE 3	SHEET 24	E

2

LEGEND

- BARRICADE TYPE III
- BARRICADE TYPE III WTH ATTACHED SIGN
- ARROW BOARDS
- SIGN ON PERMANENT SUPPORT
- FLEXIBLE TUBULAR MARKER
- DRUMS
- DRUMS WITH WARNING LIGHT TYPE C
- WARNING LIGHTS TYPE A
- MB — PORTABLE CHANGEABLE MESSAGE BOARD
- TEMP. PAVEMENT MARKING MASK-OUT TAPE 6-INCH

R11-2-L 48" X 30" LANE CLOSED — TYPE III BARRICADE

SPEED LIMIT 55 R2-1 48"x60"

STOP TO REMAIN

DIVIDED HIGHWAY NOW OPEN USE PROPER LANE REMOVE

ROAD WORK AHEAD W20-1-A

STA 26+00

STA 14+25 RT MB

CTH J

S.T.H. 29

MESSAGES FOR CTH J:

1. BEFORE STAGE 1 WORK BEGINS - ROAD WORK BEGINS DAY, MONTH, DATE

2. AFTER STAGE 1 WORK BEGINS - TWO LANE ROAD AHEAD

All MB's:
START USING MB 7 DAYS BEFORE STAGE 1 BEGINS
USE FOR 10 DAYS

N

PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	TRAFFIC CONTROL - STAGE 1 & STAGE 3	SHEET 25	E

LEGEND

- BARRICADE TYPE III
- BARRICADE TYPE III WTH ATTACHED SIGN
- ARROW BOARDS
- SIGN ON PERMANENT SUPPORT
- FLEXIBLE TUBULAR MARKER
- DRUMS
- DRUMS WITH WARNING LIGHT TYPE C
- WARNING LIGHTS TYPE A
- MB PORTABLE CHANGEABLE MESSAGE BOARD
- TEMP PAVEMENT MARKING MASK-OUT TAPE 6-INCH

R11-2-L
48" X 30"
LANE CLOSED
TYPE III BARRICADE

R11-2-L
48" X 30"
LANE CLOSED
TYPE III BARRICADE

R11-2-L
48" X 30"
LANE CLOSED
TYPE III BARRICADE

PT: 18+72.88

END ROAD WORK
G20-2A
48" X 24"

END ROAD WORK
G20-2A
48" X 24"

SPEED LIMIT 65
R2-1
48"X60"

NOTE:
CONSTRUCT EAST XO
FOR USE IN STAGE 2

W04-2L

LEFT LANE CLOSED 1500 FT
W20-55-B

SPEED LIMIT 55
R2-1
48x60

LEFT LANE CLOSED 1/2 MILE
W20-55-C

S.T.H. 29

SENECA RD

RUINS

PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	TRAFFIC CONTROL - STAGE 1 & STAGE 3	SHEET 26	E

LOCATE MB APPROXIMATELY 100' EAST OF PE

MESSAGES FOR STH 29 EB & WB:

1. BEFORE STAGE 1 BEGINS -
ROAD WORK BEGINS
DAY, MONTH, DATE

2. AFTER STAGE 1 BEGINS -
LANE CLOSED AHEAD

All MB's:
START USING MB 7 DAYS BEFORE STAGE 1 BEGINS
USE FOR 10 DAYS

N

SPEED LIMIT 55
W03-5
48×48

ROAD WORK 1 MILE
W20-1-FF

MB

53'
100'

RAMP

7_713
7_712
7_711
7_710
7_709
7_708

SIGN
SEPTIC
MAPLE LN.

S.T.H. 29
S.T.H. 29

PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	TRAFFIC CONTROL - STAGE 1 & STAGE 3	SHEET 27	E

2

2

LEGEND

- BARRICADE TYPE III
- BARRICADE TYPE III WTH ATTACHED SIGN
- ARROW BOARDS
- SIGN ON PERMANENT SUPPORT
- FLEXIBLE TUBULAR MARKER
- DRUMS
- DRUMS WITH WARNING LIGHT TYPE C
- WARNING LIGHTS TYPE A
- MB PORTABLE CHANGEABLE MESSAGE BOARD
- TEMP PAVEMENT MARKING MASK-OUT TAPE 6-INCH

N

710 715 720 725 730 735

STH 29 EB

ROAD WORK 1 MILE
W20-1-F

SPEED LIMIT 55
W03-5
48"x48"

LEFT LANE CLOSED 1/2 MILE
W20-55-G

PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	TRAFFIC CONTROL - STAGE 2	SHEET 28	E

2

STH 29 WB

SPEED LIMIT 65 R2-1 48"X60"

STA 761+50

END ROAD WORK G20-2A 48" X 24"

END ROAD WORK G20-2A 48" X 24"

STA 766+50

SPEED LIMIT 55 R2-1 48"x60"

LEFT LANE CLOSED 1500 FT W20-5S-B

W04-2L

SPEED LIMIT 55 R2-1 48"x60"

SPEED LIMIT 65 COVER

ROAD WORK AHEAD W20-1-4

W01-6 48"X24"

TYPE III BARRICADE

TYPE III BARRICADE

W01-4R

RII-2-L 48"X30"

LANE CLOSED

TYPE III BARRICADE

W06-3 48"X48"

NEXT 1.5 MILES W57-51 48"X24"

W06-3 36"x48"

DO NOT PASS R4-1 36"x48"

LEGEND

- BARRICADE TYPE III
- BARRICADE TYPE III WTH ATTACHED SIGN
- ARROW BOARDS
- SIGN ON PERMANENT SUPPORT
- FLEXIBLE TUBULAR MARKER
- DRUMS
- DRUMS WITH WARNING LIGHT TYPE C
- WARNING LIGHTS TYPE A
- MB PORTABLE CHANGEABLE MESSAGE BOARD
- TEMP PAVEMENT MARKING MASK-OUT TAPE 6-INCH

PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	TRAFFIC CONTROL - STAGE 2	SHEET 29	E

2

W06-3
48"X48"

NEXT
1.0 MILES
W57-51
48"X24"

SPEED
LIMIT
55
R2-1
48"x60"

R11-4
60"X30"
ROAD CLOSED
TO
THRU TRAFFIC
TYPE III BARRICADE

ROAD
WORK
AHEAD
W20-1-A

STOP
COVER

STA 26+00

CTH J

R11-2-B
48" X 30"
BRIDGE
OUT
TYPE III BARRICADE

TEMP PAVEMENT MARKING STOP LINE
REMOVALBE TAPE 18-INCH

STOP
R1-1
36" X 36"

STOP
TO REMAIN

SPEED
LIMIT
55
R2-1
48"x60"

W06-3
48"X48"
NEXT
1.0 MILES
W57-51
48"X24"

ROAD
WORK
AHEAD
W20-1-A

LEGEND

- BARRICADE TYPE III
- BARRICADE TYPE III WTH ATTACHED SIGN
- ARROW BOARDS
- SIGN ON PERMANENT SUPPORT
- FLEXIBLE TUBULAR MARKER
- DRUMS
- DRUMS WITH WARNING LIGHT TYPE C
- WARNING LIGHTS TYPE A
- MB PORTABLE CHANGEABLE MESSAGE BOARD
- TEMP PAVEMENT MARKING MASK-OUT TAPE 6-INCH

N

R11-2-B
48" X 30"
BRIDGE
OUT
TYPE III BARRICADE

W06-3
36"x48"

DO
NOT
PASS
R4-1
36"x48"

TYPE III BARRICADE

N

PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	TRAFFIC CONTROL - STAGE 2	SHEET 30	E

2

2

W06-3
48"X48"

NEXT
1.5 MILES
W57-51
48"X24"

R11-2-B
48" X 30"
BRIDGE
OUT
TYPE III BARRICADE

W01-6
48" X 24"
TYPE III BARRICADE

PT: 18+72.88

W01-4L

N

125 130 135 140 145 150
865 870 875 880 885 890
S.T.H. 29

END
ROAD WORK
G20-2A
48" X 24"

END
ROAD WORK
G20-2A
48" X 24"

SPEED
LIMIT
65
R2-1
48"X60"

RUINS

LEGEND

- BARRICADE TYPE III
- BARRICADE TYPE III WTH ATTACHED SIGN
- ARROW BOARDS
- SIGN ON PERMANENT SUPPORT
- FLEXIBLE TUBULAR MARKER
- DRUMS
- DRUMS WITH WARNING LIGHT TYPE C
- WARNING LIGHTS TYPE A
- MB PORTABLE CHANGEABLE MESSAGE BOARD
- TEMP PAVEMENT MARKING MASK-OUT TAPE 6-INCH

660' TAPER

W04-2R

RIGHT LANE
CLOSED
1500 FT
W20-5-B

SPEED
LIMIT
55
R2-1
48x60

RIGHT LANE
CLOSED
1/2 MILE
W20-5-G

155 160 165 170 171
895 900 905 910 911
S.T.H. 29
S.T.H. 29

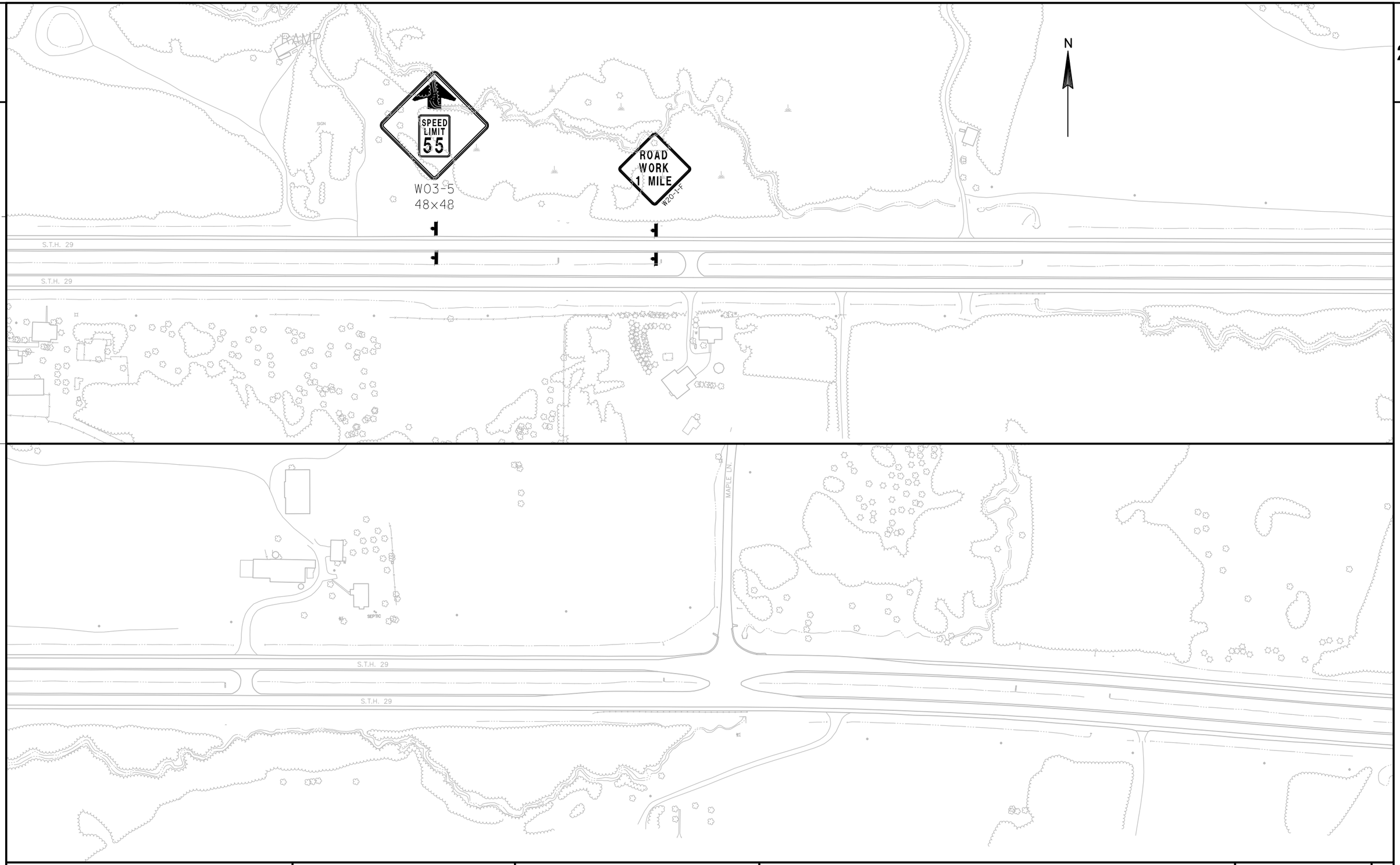
N

SENECA RD

PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	TRAFFIC CONTROL - STAGE 2	SHEET 31	E

FILE NAME : N:\PDS\C3D\10582170\SHEETSPLAN\026101-S2.DWG PLOT DATE : 9/18/2015 1:53 PM PLOT BY : BAIER, GERARD M PLOT NAME : PLOT SCALE : 1 IN:200 FT

2



PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	TRAFFIC CONTROL - STAGE 2	SHEET 32	E

FILE NAME : N:\PDS\C3D\10582170\SHEETSPLAN\026101-S2.DWG PLOT DATE : 9/18/2015 1:53 PM PLOT BY : BAIER, GERARD M PLOT NAME : PLOT SCALE : ********** WISDOT/CADDS SHEET 44

DATE 03FEB16 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	1058-21-70 QUANTITY
0010	201.0205	Grubbing	STA	3.000	3.000
0020	203.0100	Removing Small Pipe Culverts	EACH	5.000	5.000
0030	203.0600.S	Removing Old Structure Over Waterway With Minimal Debris (station) 01. 93+00	LS	1.000	1.000
0040	204.0100	Removing Pavement	SY	2,200.000	2,200.000
0050	204.0165	Removing Guardrail	LF	495.000	495.000
0060	204.0180	Removing Delineators and Markers	EACH	7.000	7.000
0070	204.0190	Removing Surface Drains	EACH	2.000	2.000
0080	204.0210	Removing Manholes	EACH	1.000	1.000
0090	204.0245	Removing Storm Sewer (size) 01. 18-Inch	LF	362.000	362.000
0100	205.0100	Excavation Common	CY	7,508.000	7,508.000
0110	206.1000	Excavation for Structures Bridges (structure) 01. B-58-128	LS	1.000	1.000
0120	208.0100	Borrow	CY	5,140.000	5,140.000
0130	210.0100	Backfill Structure	CY	300.000	300.000
0140	213.0100	Finishing Roadway (project) 01. 1058-21-70	EACH	1.000	1.000
0150	305.0110	Base Aggregate Dense 3/4-Inch	TON	3,100.000	3,100.000
0160	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	8,700.000	8,700.000
0170	305.0130	Base Aggregate Dense 3-Inch	TON	4,300.000	4,300.000
0180	305.0500	Shaping Shoulders	STA	32.000	32.000
0190	325.0100	Pulverize and Relay	SY	2,100.000	2,100.000
0200	340.0100	Cracking and Seating	SY	1,900.000	1,900.000
0210	415.0100	Concrete Pavement 10-Inch	SY	4,140.000	4,140.000
0220	415.0210	Concrete Pavement Gaps	EACH	1.000	1.000
0230	415.0410	Concrete Pavement Approach Slab	SY	170.000	170.000
0240	416.0610	Drilled Tie Bars	EACH	24.000	24.000
0250	440.4410	Incentive IRI Ride	DOL	1,480.000	1,480.000
0260	455.0105	Asphaltic Material PG58-28	TON	110.000	110.000
0270	455.0605	Tack Coat	GAL	500.000	500.000
0280	460.1103	HMA Pavement Type E-3	TON	1,920.000	1,920.000
0290	460.2000	Incentive Density HMA Pavement	DOL	1,230.000	1,230.000
0300	465.0110	Asphaltic Surface Patching	TON	75.000	75.000
0310	465.0120	Asphaltic Surface Driveways and Field Entrances	TON	15.000	15.000
0320	465.0315	Asphaltic Flumes	SY	40.000	40.000
0330	465.0400	Asphaltic Shoulder Rumble Strips	LF	1,510.000	1,510.000
0340	502.0100	Concrete Masonry Bridges	CY	271.000	271.000
0350	502.3200	Protective Surface Treatment	SY	105.000	105.000
0360	503.0137	Prestressed Girder Type I 36W-Inch	LF	792.000	792.000
0370	505.0100	Bar Steel Reinforcement Structures	LB	5,120.000	5,120.000
0380	505.0400	Bar Steel Reinforcement HS Structures	LB	31,640.000	31,640.000
0390	506.2605	Bearing Pads Elastomeric Non-Laminated	EACH	16.000	16.000
0400	506.4000	Steel Diaphragms (structure) 01. B-58-128	EACH	14.000	14.000
0410	509.5100.S	Polymer Overlay	SY	447.000	447.000
0420	516.0500	Rubberized Membrane Waterproofing	SY	24.000	24.000
0430	520.4018	Culvert Pipe Temporary 18-Inch	LF	363.000	363.000
0440	521.0124	Culvert Pipe Corrugated Steel 24-Inch	LF	50.000	50.000
0450	521.0735	Pipe Arch Corrugated Steel 35x24-Inch	LF	106.000	106.000
0460	521.1235	Apron Endwalls for Pipe Arch Steel 35x24-Inch	EACH	2.000	2.000
0470	521.1518	Apron Endwalls for Culvert Pipe Sloped Side Drains Steel 18-Inch 6 to 1	EACH	1.000	1.000

3

DATE 03FEB16 — 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	1058-21-70 QUANTITY
0480	521.1524	Apron Endwalls for Culvert Pipe Sloped Side Drains Steel 24-Inch 6 to 1	EACH	2.000	2.000
0490	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	935.000	935.000
0500	601.0155	Concrete Curb Integral Type J	LF	23.000	23.000
0510	606.0200	Riprap Medium	CY	30.000	30.000
0520	606.0300	Riprap Heavy	CY	340.000	340.000
0530	611.0612	Inlet Covers Type C	EACH	1.000	1.000
0540	611.2004	Manholes 4-FT Diameter	EACH	1.000	1.000
0550	611.3004	Inlets 4-FT Diameter	EACH	1.000	1.000
0560	611.8120.S	Cover Plates Temporary	EACH	1.000	1.000
0570	612.0206	Pipe Underdrain Unperforated 6-Inch	LF	70.000	70.000
0580	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	162.000	162.000
0590	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	4.000	4.000
0600	614.1000	MGS Guardrail Temporary	LF	115.000	115.000
0610	614.2300	MGS Guardrail 3	LF	175.000	175.000
0620	614.2500	MGS Thrie Beam Transition	LF	78.000	78.000
0630	614.2610	MGS Guardrail Terminal EAT	EACH	2.000	2.000
0640	618.0100	Maintenance And Repair of Haul Roads (project) 01. 1058-21-70	EACH	1.000	1.000
0650	619.1000	Mobilization	EACH	1.000	1.000
0660	624.0100	Water	MGAL	200.000	200.000
0670	625.0100	Topsoil	SY	25,150.000	25,150.000
0680	627.0200	Mulching	SY	3,000.000	3,000.000
0690	628.1504	Silt Fence	LF	750.000	750.000
0700	628.1520	Silt Fence Maintenance	LF	200.000	200.000
0710	628.1905	Mobilizations Erosion Control	EACH	9.000	9.000
0720	628.1910	Mobilizations Emergency Erosion Control	EACH	5.000	5.000
0730	628.2004	Erosion Mat Class I Type B	SY	28,000.000	28,000.000
0740	628.2006	Erosion Mat Urban Class I Type A	SY	1,500.000	1,500.000
0750	628.2027	Erosion Mat Class II Type C	SY	1,800.000	1,800.000
0760	628.6005	Turbidity Barriers	SY	240.000	240.000
0770	628.6510	Soil Stabilizer Type B	ACRE	0.500	0.500
0780	628.7005	Inlet Protection Type A	EACH	1.000	1.000
0790	628.7504	Temporary Ditch Checks	LF	800.000	800.000
0800	628.7555	Culvert Pipe Checks	EACH	16.000	16.000
0810	628.7560	Tracking Pads	EACH	1.000	1.000
0820	628.7570	Rock Bags	EACH	60.000	60.000
0830	629.0210	Fertilizer Type B	CWT	25.000	25.000
0840	630.0120	Seeding Mixture No. 20	LB	1,000.000	1,000.000
0850	630.0140	Seeding Mixture No. 40	LB	50.000	50.000
0860	630.0160	Seeding Mixture No. 60	LB	50.000	50.000
0870	630.0200	Seeding Temporary	LB	150.000	150.000
0880	630.0300	Seeding Borrow Pit	LB	200.000	200.000
0890	633.0100	Delineator Posts Steel	EACH	7.000	7.000
0900	633.0500	Delineator Reflectors	EACH	7.000	7.000
0910	633.5200	Markers Culvert End	EACH	1.000	1.000
0920	634.0616	Posts Wood 4x6-Inch X 16-FT	EACH	15.000	15.000
0930	634.0618	Posts Wood 4x6-Inch X 18-FT	EACH	4.000	4.000
0940	637.2210	Signs Type II Reflective H	SF	177.500	177.500
0950	638.2602	Removing Signs Type II	EACH	15.000	15.000
0960	638.3000	Removing Small Sign Supports	EACH	14.000	14.000
0970	642.5201	Field Office Type C	EACH	1.000	1.000
0980	643.0100	Traffic Control (project) 01. 1058-21-70	EACH	1.000	1.000

3

DATE 03FEB16 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	1058-21-70 QUANTITY
0990	643.0300	Traffic Control Drums	DAY	21,230.000	21,230.000
1000	643.0420	Traffic Control Barricades Type III	DAY	2,280.000	2,280.000
1010	643.0500	Traffic Control Flexible Tubular Marker Posts	EACH	150.000	150.000
1020	643.0600	Traffic Control Flexible Tubular Marker Bases	EACH	135.000	135.000
1030	643.0705	Traffic Control Warning Lights Type A	DAY	3,410.000	3,410.000
1040	643.0715	Traffic Control Warning Lights Type C	DAY	4,780.000	4,780.000
1050	643.0800	Traffic Control Arrow Boards	DAY	550.000	550.000
1060	643.0900	Traffic Control Signs	DAY	8,300.000	8,300.000
1070	643.0920	Traffic Control Covering Signs Type II	EACH	2.000	2.000
1080	643.1050	Traffic Control Signs PCMS	DAY	30.000	30.000
1090	645.0111	Geotextile Fabric Type DF Schedule A	SY	60.000	60.000
1100	645.0120	Geotextile Fabric Type HR	SY	576.000	576.000
1110	646.0106	Pavement Marking Epoxy 4-Inch	LF	6,165.000	6,165.000
1120	646.0126	Pavement Marking Epoxy 8-Inch	LF	750.000	750.000
1130	646.0805.S	Pavement Marking Outfall	EACH	24.000	24.000
1140	649.0400	Temporary Pavement Marking Removable Tape 4-Inch	LF	21,450.000	21,450.000
1150	649.0506	Temporary Pavement Marking Removable Mask-Out Tape 6-Inch	LF	5,800.000	5,800.000
1160	649.1200	Temporary Pavement Marking Stop Line Removable Tape 18-Inch	LF	38.000	38.000
1170	650.4000	Construction Staking Storm Sewer	EACH	3.000	3.000
1180	650.4500	Construction Staking Subgrade	LF	5,210.000	5,210.000
1190	650.5000	Construction Staking Base	LF	3,810.000	3,810.000
1200	650.6500	Construction Staking Structure Layout (structure) 01. B-58-128	LS	1.000	1.000
1210	650.7000	Construction Staking Concrete Pavement	LF	1,400.000	1,400.000
1220	650.9910	Construction Staking Supplemental Control (project) 01. 1058-21-70	LS	1.000	1.000
1230	650.9920	Construction Staking Slope Stakes	LF	9,020.000	9,020.000
1240	690.0150	Sawing Asphalt	LF	3,470.000	3,470.000
1250	690.0250	Sawing Concrete	LF	85.000	85.000
1260	715.0415	Incentive Strength Concrete Pavement	DOL	500.000	500.000
1270	715.0502	Incentive Strength Concrete Structures	DOL	1,626.000	1,626.000
1280	SPV.0035	Special 01. Stone Backfill	CY	6.000	6.000
1290	SPV.0060	Special 01. Salvage Apron Endwalls for Underdrain Reinforced Concrete 6-Inch	EACH	12.000	12.000
1300	SPV.0060	Special 02. Protect and Restore Apron Endwalls for Underdrain Reinforced Concrete 6"	EACH	13.000	13.000
1310	SPV.0090	Special 01. Removing Existing Timber Piling	LF	25.000	25.000
1320	SPV.0105	Special 01. Concrete Pavement Joint Layout	LS	1.000	1.000
1330	SPV.0120	Special 01. Water for Seeded Areas	MGAL	30.000	30.000
1340	SPV.0180	Special 01. Preparing Topsoil for Lawn Type Turf	SY	1,300.000	1,300.000

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A	B	C	D	E	F	G	O	P	Q	R	S	T
Stage	**From/To Station**	**Location**	**Common Excavation (1)**	Item # 205.0100	**Salvaged/ Unusable Pavement Material (4)**	**Available Material (5)**	**Unexpanded Fill**	**Expanded Fill (13)**	**Mass Ordinate +/- (14)**	**Waste**	**Borrow**	**Comment:**
			Cut (2) C3D	**EBS Excavation (3) C3D**		D-F	**C3D**	**Factor**	G-P			
Stage 1								**1.30**			Item #208.0100	
West XO	28+00/45+00	STH 29 WB	741	0	0	741	873	1,135	-394	0	-394	
East XO	119+00/137+40	STH 29 WB	832	0	0	832	1,083	1,408	-576	0	-576	
Stage 1 Subtotal			**1,573**	0	0	**1,573**	**1,956**	**2,544**	**-970**	0	**-970**	
Stage 2												
STH 29-EWK-Detail_121015.xml	85+75/100+75	STH 29 WB	**1,350**	0	533	**817**	**3,836**	**4,987**	**-4,170**	**533**	**-4,170**	
Stage 3												
West XO	28+00/45+00	STH 29 WB	2,166	0	0	2,166	62	81	2,085	2,085	0	
East XO	119+00/137+40	STH 29 WB	2,419	0	0	2,678	67	87	2,591	2,591	0	
Stage 3 Subtotal			**4,585**	0	0	**4,844**	**129**	**168**	**4,676**	**4,676**	**0**	
Grand Total			**7,508**	**0**	533	7,234	5,921	7,699		5,209	**-5,140**	
		Total Common	**7,508**									

1) Common Excavation is the sum of the Cut and EBS Excavation columns. Item number 205.0100
2) Salvaged/Unsuable Pavement Material is included in Cut.
3) EBS Excavation to be backfilled with Borrow material.
4) Salvaged/Unusable Pavement Material is concrete pavement. See locations for removing concrete pavement elsewhere in the plan. Backfill with Base Aggregate Dense 1 1/4-inch.
5) Available Material = Cut - (Salvaged/Unusuable Pavement Material)
13) Expanded Fill. Factor = 1.30

Expanded Fill = (Unexpanded Fill - Rock* Rock Factor - Reduced Marsh - Reduced EBS) * Fill Factor

14) The Mass Ordinate + or - Qty calculated for the Stage.
Plus (+)quantity is an excess of material within the Stage.
Minus (-) quantity is a shortage of material within the Stage.

ALL ITEMS ARE IN CATEGORY 0010

ITEMS ARE IN CATEGORY 0010 UNLESS NOTED OTHERWISE

GRUBBING **201.0205**

GRUBBING

LOCATION	STA
93+00 - 96+00	3

REMOVING SMALL PIPE CULVERTS **203.0100**

LOCATION	EACH	TYPE	SIZE
95+61 RT - MAINT XO	1	CMCP	24" x 64'
95+65 LT PE	1	CMCP	18" x 61'
36+62 WB RT STAGE 1*	1	RCCP	18" AEW
UNDISTRIBUTED	2		
TOTAL	5		

* ENDWALL TO BE INSTALLED IN STAGE 3.

REMOVING PAVEMENT **204.0100**

LOCATION	SY
85+75 - 90+00	1,228
92+00 - 92+70	233
93+40 - 93+60	83
98+48 - 100+75	656
TOTAL	2,200

REMOVING GUARDRAIL **204.0165**

LOCATION	LF
92+52 - 95+43 LT	234
93+42 - 95+33 RT	192
95+94 - 96+69 RT	69
TOTAL	495

*W RAIL IS INCLUDED IN REMOVING OLD STRUCTURE

REMOVING DELINEATORS AND MARKERS **204.0180**

LOCATION	EACH
86+05 - 97+25 LT	7

REMOVING SURFACE DRAINS **204.0190**

LOCATION	EACH
92+44 LT	1
92+64 RT	1
TOTAL	2

REMOVING MANHOLES **204.0210**

LOCATION	EACH
36+00 WB RT STAGE 3	1

REMOVING STORM SEWER SIZE 18-INCH **203.0245**

LOCATION	LF	TYPE	COMMENT
33+00 - 36+00 WB RT	300	CMCP	STAGE 3
36+00 - 36+62 WB RT	62	CMCP	STAGE 3
TOTAL	362		

BASE AGGREGATE DENSE 3/4-INCH, 1 1/4-INCH, 3-INCH

LOCATION		**305.0110** BASE 3/4" TON	**305.0120** BASE 1 1/4" TON	**305.0130** BASE 3" TON
85+75 - 100+75		1,500	6,000	0
87+00 - 90+00*		0	330	0
98+00 - 99+00*		0	120	0
1834+22 - 1836+40 RT**	STAGE 0	20	0	0
WEST XO	STAGE 1	400	925	2,100
EAST XO	STAGE 1	400	925	2,200
WEST XO	STAGE 3	350	0	0
EAST XO	STAGE 3	400	0	0
PE'S & CE'S		30	0	0
TEMPORARY		0	400	0
TOTAL		3,100	8,700	4,300

*BACKFILL PAVEMENT REMOVAL AREAS BELOW SUBGRADE
**GUARDRAIL TEMPORARY

SHAPING SHOULDERS **305.0500**

LOCATION (STAGE 3)	STA	
28+00 - 36+00 RT WB	8	
37+00 - 44+00 RT WB	7	on EB lanes
120+00 - 131+00 RT WB	11	
131+00 - 137+00 RT WB	6	on EB lanes
TOTAL	32	

PULVERIZE AND RELAY **325.0100**

LOCATION	SY
85+75 - 100+75 SHOULDERS	2,100

CRACKING AND SEATING **340.0100**

LOCATION	SY
90+00 - 92+00	600
93+60 - 98+00	1,300
TOTAL	1,900

CONCRETE PAVEMENT 10-INCH **415.0100**

LOCATION	SY	LOCATION
85+75 - 100+75	4,050	
92+22 - 92+42 LT SHLD	12	FLUME, APPROACH SLAB
92+31 - 92+54 RT SHLD	7	FLUME, APPROACH SLAB
93+45 - 93+70 LT SHLD	35	APPROACH SLAB
93+56 - 93+70 RT SHLD	36	APPROACH SLAB
TOTAL	4,140	

CONCRETE PAVEMENT GAPS **415.0210**

LOCATION	EACH
95+50 - 95+65 LT	1

CONCRETE PAVEMENT APPROACH SLAB **415.0410**

LOCATION	SY
92+31- 92+53	85
93+55 -93+70	85
TOTAL	170

DRILLED TIE BARS **416.0610**

LOCATION	EACH
85+75 PROJECT START	12
100+75 PROJECT END	12
TOTAL	24

ITEMS ARE IN CATEGORY 0010 UNLESS NOTED OTHERWISE

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HMA TYPE E-3
ASPHALTIC MATERIAL PG58-34
TACK COAT

LOCATION		455.0105 PG58-28 TON	455.0605 TACK COAT GAL	460.1103 HMA TON
2 XO's	STAGE 1	70	300	1,170
85+75 - 100+75	STAGE 2	40	200	750
TOTAL		110	500	1,920

CONCRETE CURB INTEGRAL 30-INCH TYPE J

LOCATION	601.0155 LF
92+22 - 92+32.5 LT	12
92+31 - 92+42.6 RT	11
TOTAL	23

3

ASPHALTIC SURFACE PATCHING* **465.0110**

LOCATION	TON
STH 29 EB SHLDS - UNDISTRIBUTED	75

*INCLUDES REMOVAL OF EXISTING MATERIAL
REPLACE WITH 3.5" DEPTH OF E-3 MIX.

ASPHALTIC SURFACE DRIVEWAYS & FIELD ENTRANCES

LOCATION	465.0120 TONS
95+66 LT PE	5
95+65 RT MAINT XO	10
TOTAL	15

RIPRAP MEDIUM
GEOTEXTILE FABRIC TYPE HR

LOCATION	606.0200 RIPRAP MEDIUM CY	645.0120 FRABRIC TYPE HR SY
94+67 LT	12	30
95+20 RT	12	30
UNDISTRIBUTED	6	10
TOTAL	30	70

ASPHALTIC FLUMES **465.0315**

LOCATION	SY
85+75 LT	13
92+20 LT	14
92+30 RT	13
TOTAL	40

ASPHALTIC SHOULDER RUMBLE STRIPS **465.0400**

LOCATION	LF
93+70 - 100+75 LT & RT	1,510

MGS GUARDRAIL TEMPORARY

LOCATION	614.1000 GUARDRAIL TEMPORARY LF	FOR INORMATION ONLY MGS GUARDRAIL 3 LF	THRIE BEAM TRANSITION LF	MGS EAT EACH
834+22 - 835+33.41 EB RT	115	25	39.4	1

CULVERT PIPECORRUGATED STEEL 24-INCH
APRON ENDWALLS FOR CULVERT PIPE SLOPED SIDE DRAINS STEEL 6 TO 1

LOCATION	521.0124 PIPE 24-INCH LF	521.1524 ENDWALLS 24-INCH EACH	MINIMUM STEEL THICKNESS INCHES
95+89 RT MEDIAN XO	50	2	0.064

*SEE STORM SEWER SCHEDULE FOR ADDITIONAL PIPE INFORMATION

PIPE ARCH CORRUGATED STEEL 35x24-INCH
APRON ENDWALLS FOR PIPE ARCH STEEL 35x24-INCH

LOCATION	521.0735 PIPE ARCH LF	521.1235 ENDWALLS EACH	MINIMUM STEEL THICKNESS INCHES
95+67 LT PE	106	2	0.079

MGS GUARDRAIL 3
MGS THRIE BEAM TRANSITION
MGS GUARDRAIL TERMINAL EAT
MGS GUARDRAIL TERMINAL TYPE 2

LOCATION	614.2300 MGS GUARDRAIL 3 LF	614.2500 THRIE BEAM TRANSITION LF	614.2610 MGS EAT EACH
93+55 - 95+44 LT	100	39	1
93+66 - 95+68 RT	75	39	1
TOTAL	175	78	2

PIPE UNDERDRAIN UNPERFORATED 6-INCH
SALVAGE APRON ENWALLS FOR UNDERDRAIN REINFORCED CONCRETE ENDWALLS 6-INCH
PROTECT & RESTORE APRON ENDWALLS FOR UNDERDRAIN REINFORCED CONCRETE ENDWALI

	612.0206		**SPV.0060.01**	**SPV.0060.02**
	UNPERFORATED LF		SALVAGE	PROTECT
LOCATION	LT	RT	EACH	EACH
WEST XO STAGE 1				
34+19 MEDIAN WB	0	0	0	1
36+69 MEDIAN WB & EB	0	0	0	2
39+15 MEDIAN EB	0	0	0	1
41+61 MEDIAN EB	0	0	0	1
EAST XO - STAGE1				
124+34 MEDIAN EB	0	0	0	1
126+80 MEDIAN WB & EB	0	0	0	2
129+26 MEDIAN WB & EB	0	0	0	2
131+72 MEDIAN WB & EB	0	0	0	2
136+31 MEDIAN WB	0	0	0	1
STAGE 2				
88+82 LT & RT	7	10	2	0
91+34 LT & RT	5	5	2	0
91+35 LT & RT	5	5	2	0
93+68 RT	0	12	2	0
93+83 LT	9	0	2	0
UNDISTRIBUTED	12	0	2	0
TOTAL	70		12	13

WATER **624.0100**

LOCATION	MGAL
UNDISTRIBUTED	200

EROSION MAT

LOCATION	**628.2004** E-MAT CLASS I TYPE B SY	**628.2006** E-MAT URBAN CLASS I TYPE A SY	**628.2027** E-MAT CLASS II TYPE C SY
85+75 -100+75	8,000	0	0
94+50 - 97+00 LT	0	1,250	0
91+00 - 94+42 LT	0	0	550
91+00 - 92+45 RT	0	0	425
93+58 - 94+53 LT	0	0	300
93+75 - 94+70 RT	0	0	225
28+25 - 46+11 WEST XO STAGE 1	2,520	0	0
120+00 - 137+00 EAST XO STAGE 1	3,200	0	0
28+23 - 44+24 EAST XO STAGE 3	7,030	0	0
119+30 - 137+10 WEST XO STAGE 3	5,970	0	0
UNDISTRIBUTED	1,280	250	300
TOTAL	28,000	1,500	1,800

ITEMS ARE IN CATEGORY 0010 UNLESS NOTED OTHERWISE

SILT FENCE
SILT FENCE MAINTENANCE

LOCATION	FENCE **628.1504** LF	MAINT **628.1520** LF
88+75 - 92+57 LT	410	100
93+25 - 94+50 LT	135	30
93+75 - 94+50 RT	50	20
UNDISTRIBUTED	155	50
TOTAL	750	200

MOBILIZATIONS EROSION CONTROL

LOCATION	**628.1905** MOB EACH	**628.1910** MOB EMERGENCY EACH
PROJECT	9	5

TURBIDITY BARRIERS **628.6005**

LOCATION	LF
W ABUTMENT	120
E ABUTMENT	120
TOTAL	240

INLET PROTECTION TYPE A **628.7005** TYPE A

LOCATION	EACH
36+00 RT STR3	1

LANDSCAPING ITEMS

LOCATION	**625.0100** TOPSOIL SY	**627.0200** MULCHING SY	**628.6510** SOIL STABILIZER TYPE B ACRE	**629.0210** FERT TYPE B CWT	**630.0120** SEED NO. 20 LB	**630.014*** SEED NO. 40 LB	**630.016*** SEED NO. 60 LB	**630.0200** SEED TEMP LB	**630.0300** SEED BORROW PIT LB
85+75 - 100+75	8,000	0	0.25	5	200	35	25	0	0
WEST XO STAGE 1	2,500	0	0	1	50	0	0	50	0
EAST XO STAGE 1	3,750	0	0	1	50	0	0	50	0
WEST XO STAGE 3	5,300	0	0.12	4	150	0	0	0	0
EAST XO STAGE 3	5,600	0	0.13	4	150	0	0	0	0
SHOULDERS (PROJECT & XO's)	0	0	0	7	200	0	0	0	0
BORROW PIT	0	3,000	0	3	0	0	0	0	200
UNDISTRIBUTED	0	0	0	0	200	15	25	50	0
TOTAL	25,150	3,000	0.50	25	1,000	50	50	150	200

SEE EROSION CONTROL PLAN FOR LOCATIONS

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TEMPORARY DITCH CHECKS **628.7504**

LOCATION	STAGE 1 LF	STAGE 2 LF	STAGE 3 LF
32+00 RT WEST XO	30	---	30
35+00 RT WEST XO	30	---	30
43+00 RT WEST XO	40	---	40
86+00 LT & RT	---	30	---
86+75 LT & RT	---	30	---
87+50 LT & RT	---	30	---
88+75 LT & RT	---	30	---
90+75 RT		15	
92+38 RT		15	
93+95 RT		15	
94+80 RT		15	
96+00 LT & RT	---	30	---
97+00 LT & RT	---	30	---
98+10 LT & RT	---	30	---
99+00 LT & RT	---	30	---
99+85 LT & RT	---	30	---
122+00 RT EAST XO	15	---	15
124+00 RT EAST XO	15	---	15
125+50 RT EAST XO	15	---	15
127+00 RT EAST XO	15	---	15
UNDISTRIBUTED	40	70	40
SUBTOTAL	200	400	200
TOTAL		**800**	

CULVERT PIPE CHECKS **628.7555**

LOCATION	EACH
30+00 WB RT - MEDIAN	4
33+00 WB RT	4
95+88 LT & RT	8
TOTAL	16

TRACKING PADS **628.7560**

LOCATION	EACH
PROJECT	1

ROCK BAGS **628.7570**

LOCATION	EACH
92+35 LT SILT FENCE RELIEF	20
93+45 LT SILT FENCE RELIEF	20
UNDISTRIBUTED	20
TOTAL	60

DELINEATOR POSTS
DELINEATOR REFLECTORS

LOCATION			**633.0100** POSTS EACH	**633.0500** REFLECTORS YELLOW EACH	WHITE EACH
86+05 LT			2	1	1
90+05 LT			1	--	1
90+25 LT	START	LT TURN TAPER	1	1	--
91+75 LT	END	LT TURN TAPER	1	1	--
94+00 LT			1	--	1
97+27 LT			1	--	1
SUBTOTAL			7	3	4
TOTAL			**7**	**7**	

ITEMS ARE IN CATEGORY 0010 UNLESS NOTED OTHERWISE

MARKERS CULVERT END **633.5200**

LOCATION		EACH
36+62 39' RT	STAGE 3	1

3

TRAFFIC CONTROL ITEMS

LOCATION	**643.0300** DRUMS DAY	**643.0420** BARRICADES TYPE III DAY	**643.0705** LIGHTS TYPE A DAY	**643.0715** LIGHTS TYPE C DAY	**643.0800** ARROW BOARDS DAY	**643.0900** SIGNS DAY	**643.1050** SIGNS PCMS DAY*
PROJECT	21,110	2,274	3,398	4,732	547	8,252	30
STAGES 0 AND 4	120	6	12	48	3	48	0
TOTAL	21,230	2,280	3,410	4,780	550	8,300	30

*Start using 7 days before stage1 begins in three locations. Use for 10 days.

TRAFFIC CONTOL FLEXIBLE TUBULAR MARKER POSTS & BASES

LOCATION	**643.0500** POSTS EACH	**643.0600** BASES EACH
780+00 - 824+50 EB	55	50
826+00 - 868+50 EB	95	85
TOTAL	150	135

COVERING SIGNS TYPE II **643.0920**

LOCATION		EACH	NUMBER OF CYCLES	COMMENT
765+00 EB RT	SPEED LIMIT 65	1	1	Cover in Stages 1-3
21+44 CTH J RT	STOP	1	1	Cover in Stage 2
TOTAL		2		

GEOTEXTILE FABRIC TYPE DF SCHEDULE A
STONE BACKFILL*

LOCATION	**645.0111** FABRIC SY	**SPV.0035.01** STONE BACKFILL CY
96+80 LT & RT	20	2
97+90 LT & RT	20	2
UNDISTRIBUTED	20	2
TOTAL	60	6

LENGTH FROM ENDWALL = 10'

PERMANENT SIGNING

ALL ITEMS ARE IN CATEGORY 0010

SIGN #	STA	LOCATION/DIRECTION LT	RT	COMMENTS OR SIGN MESSAGE	SIGN CODE	LENGTH INCHES	WIDTH INCHES	634.0616 POSTS WOOD 4"x6"x16' EACH	634.0618 POSTS WOOD 4"x6"x18' EACH	637.2210 SIGN TYPE II REFLECTIVE H SF	638.2602 REMOVING SIGNS TYPE II EACH	638.3000 REMOVING SMALL SIGN SUPPORTS EACH	GENERAL NOTES
1	2144 CTH J	S		DIVIDED HIGHWAY NOW OPEN				0	0	0	1	0	Remove at end of stage 1
1	2144 CTH J	S		DIVIDED HIGHWAY	R6-3	30	24	0	0	5.00	1	0	Use existing post
2	1950 CTH J		N	DIVIDED HIGHWAY NOW OPEN				0	0	0	1	0	Remove at end of stage 1
2	1950 CTH J			DIVIDED HIGHWAY	R6-3	30	24	1	0	5.00	1	1	
3	8555	W		NO LEFT TURN	R3-1	24	24	1	0	4.00	1	1	
4	8592	S		KEEP RIGHT	R4-7	36	48	1	0	12.00	1	1	
5	8512	W		CTH J and DOUBLE ARROW	J3-1	36	66	0	0	16.50	1	1	
6	8650		N	DO NOT ENTER	R5-1	36	36	1	0	9.00	1	1	
7	8670	W		MILE 204	D10-1	12	24	1	0	2.00	1	1	
8	8937		E on W	WRONG WAY	R5-1A	42	30	1	0	8.75	1	1	
9	**8987**	W		<== TIGERTON BOWLER ==>	D1-2	84	36	0	2	21.00	1	2	
10	9136	W		SCHOOL BUS STOP AHEAD	S3-1	48	48	2	0	16.00	1	1	
11	9136		W	SCHOOL BUS STOP AHEAD	S3-1	48	48	2	0	16.00	1	1	
12	9272	E		BRIDGE HASH MARKS	W5-52L	18	54	1	0	6.75	0	0	
13	9285		E	BRIDGE HASH MARKS	W5-52R	18	54	1	0	6.75	0	0	
14	9345	W		BRIDGE HASH MARKS	W5-52L	18	54	1	0	6.75	0	0	
15	9356		W	BRIDGE HASH MARKS	W5-52R	18	54	1	0	6.75	0	0	
16	9453		W	EMBARRASS RIVER	I-3-1	84	36	0	2	21.00	1	2	
17	9717	W		JCT and CTH J	J1-1	36	57	1	0	14.25	1	1	
				TOTALS				**15**	**4**	**177.5**	**15**	**14**	

ITEMS ARE IN CATEGORY 0010 UNLESS NOTED OTHERWISE

3

PAVEMENT MARKING EPOXY

LOCATION		646.0106 4-INCH YELLOW LF	646.0106 4-INCH WHITE LF	646.0126 8-INCH WHITE LF	COMMENT
STH 29 WB					STAGE 2
85+75 - 100+75					
YELLOW EDGELINE		1,500			
WHITE CENTERLINE			375		
WHITE EDGELINE			1,500		
85+75 - 89+25 LT	RT TURN LANE			300	
85+75 - 90+25 RT	LT TURN LANE			450	
WEST XO					STAGE 3
29+50 - 34+00 WB CL			115		
29+00 - 34+00 WB RT		450			
776+50 - 783+00 EB LT		650			
778+00 - 783+00 EB CL			125		
EAST XO					STAGE 3
132+00 - 142+00 WB CL			250		
132+00 - 138+00 WB RT		600			
863+00 - 868+50 EB LT		550			
862+00 - 864+00 EB CL		0	50	0	
SUBTOTAL		3,750	2,415	750	
TOTAL		**6,165**		**750**	

PAVEMENT MARKING OUTFALL **646.035.S**

LOCATION	OUTFALL EACH
34+19 MEDIAN WB	1
36+69 MEDIAN WB & EB	2
39+15 MEDIAN EB	1
41+61 MEDIAN EB	1
86+08 LT & RT	2
88+87 LT & RT	2
91+49 LT & RT	2
91+50 LT & RT	2
93+63 LT & RT	2
96+09 LT & RT	2
97+90 LT & RT	2
124+34 MEDIAN EB	1
126+80 MEDIAN EB	1
129+26 MEDIAN EB	1
131+72 MEDIAN WB	1
136+31 MEDIAN WB	1
TOTAL	24

TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH
TEMPORARY PAVEMENT MARKING STOP LINE REMOVABLE TAPE 18-INCH
TEMPORARY PAVEMENT MARKING REMOVABLE MASK -OUT TAPE 6-INCH

LOCATION	649.0400 YELLOW TAPE 4-INCH LF	649.0400 WHITE TAPE 4-INCH LF	649.1200** STOP LINE LF	649.0506* MASK-OUT TAPE 6-INCH LF
20+23 CTH J NORTH LT			38	
780+00 - 868+50 DOUBLE CL	17,100			
5+00 - 12+50 WEST XO LT	750			
2+00 - 9+50 WEST XO RT		750		
0+00 - 12+50 EAST XO LT		1,250		
2+50 - 18+50 EAST XO RT	1,600			
29+50 - 34+00 WB CL				450
29+00 - 34+00 WB RT				450
777+00 - 783+00 EB LT				600
778+00 - 783+00 EB CL				500
132+00 - 142+00 WB CL				1,000
132+00 - 138+00 WB RT				600
860+00 - 871+00 EB LT				1,100
860+00 - 871+00 EB CL				1,100
TOTAL	19,450	2,000	38	5,800

21,450

*See Traffic Control Sheets Stages 1 and 3
** See Traffic Control Sheets Stage 2

CONSTRUCTION STAKING

LOCATION	650.4000 STORM SEWER EACH	650.4500 SUBGRADE LF	650.5000 BASE LF	650.7000 CONCRETE PAVEMENT LF	650.9920 SLOPE STAKES LF
85+75 - 100+75	0	1,400	0	1,400	1,400
28+25 - 44+13 WEST XO	3	1,588	1,588	0	3,176 *
118+57 - 140+78 EAST XO	0	2,222	2,222	0	4,444 *
TOTAL	3	5,210	3,810	1,400	9,020

*STAGES 1,3

SAWING ASPHALT **690.0150**

LOCATION	LF	COMMENT
95+65 LT PE	10	Stage 2
CROSSOVER SHOULDERS		Stage 3
28+25 - 36+00	775	
36+00 - 44+43	845	on EB lanes
119+00 - 131+00	1,200	
131+00 - 137+40	640	on EB lanes
TOTAL	3,470	

SAWING CONCRETE **690.0250**

LOCATION	LF	COMMENT
85+75	45	Stage 2
100+75	40	Stage 2
TOTAL	85	

WATER FOR SEEDED AREAS
PREPARATION OF TOPSOIL FOR LAWN TYPE TURF

	SPV.0120.01 WATER-SEED MGAL	SPV.0180.02 PREPARATION SY
94+50 - 97+50 LT	30	1,300

FILE NAME : 98350370_030201_mq PLOT DATE: 01-26-15 PLOT BY : dotbyh

GENERAL NOTES

All items are in category 0010.

Offset is to proposed structure center.

See storm sewer sheet for storm sewer profile.

Structure depth is from grate elev to lowest pipe flowline.

*Last 3 pipes requre joint ties for concrete endwalls.

Grate elevation is to end of pipe

Install storm sewer in stage 1 and remove in stage 3.

				STRUCT TYPE													
		GRATE		INL	MH	ENDWALL						SIZE	LENGTH	SLOPE	INLET	DISCH	
STRUCTURE	STATION	ELEV	DEPTH	DIAM	DIAM	IN	COVER	REMARKS	PIPE	FROM	TO	IN	FT	%	ELEV	ELEV	TYPE OF PIPE
1	33+00 36.4' RT	1062.35				18			1-2	1	2	18	300	1.12	1062.35	1059.00	CULVERT PIPE TEMP 18-INCH
2	36+00 47.9' RT	1061.75	2.8	4			INLET - C		2-3	2	3	18	63	1.59	1059.00	1058.00	CULVERT PIPE TEMP 18-INCH
3	36+62 38.9' RT	1061.70	4.2		4		COVER PLATE	SALVAGE EXISTING CONC ENDWALL. INSTALL IN STAGE 3	3-4	3	4	18	83	1.25	1057.47	1056.43	EXISTING CPRC CLASS III
4	36+63 121.9' RT	1056.43				18		EXISTING ENDWALL									

SUMMARY	BID ITEM	QUANTITY	
CULVERT PIPE TEMP 18-INCH	520.4018	363	LF
ARPON ENDWALLS FOR CP 18-INCH	520.1018	1	EACH
MANHOLES 4-FT DIAMETER	611.2004	1	EACH
INLETS 4-FT DIAMETER	611.3004	1	EACH
INLET COVERS TYPE C	611.0612	1	EACH
COVER PLATES TEMPORARY	611.8120.S	1	EACH

BEGIN CONSTRUCTION
STA 28+25

BP: -0+00.00
PT: 7+77.05
PC: 9+25.85
EP: 15+91.43
PC: 45+48.74

STH 29 WB
STH 29 EB
DENT CREEK RD.
FINK RD
SIGN
CANOPY
18" AEW
INL

WEST CROSSOVER
PI STA = 3+88.74
Y = 281826.47
X = 748801.75
DELTA = 4°43'53"
D = 0°36'32"
T = 388.74
L = 777.05
R = 9410.00
PC STA = -0+00.00
PT STA = 7+77.05
SE = NC

WEST CROSSOVER
PI STA = 12+58.83
Y = 281162.22
X = 749364.42
DELTA = 4°43'53"
D = 0°42'39"
T = 332.98
L = 665.58
R = 8060.00
PC STA = 9+25.85
PT STA = 15+91.43
SE = RC

1100
1090
1080
1070
1060
1050
1040
1030
1020

20 25 30 35 40 45

1083.41 1083.39 1082.90 1082.42 1081.30 1080.44 1079.13 1077.95 1076.68 1075.19 1073.97 1072.94 1071.53 1070.44 1069.25 1068.07 1066.85 1065.60 1064.30 1063.18 1062.04 1060.72 1059.37 1057.95 1056.42 1055.00 1053.57 1052.36 1051.46

PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	PLAN AND PROFILE: STH 29 WB	SHEET 44	E

FILE NAME : N:\PDS\C3D\10582170\SHEETSOTHER\29PRL_200SCALE.DWG PLOT DATE : 10/9/2015 5:29 PM PLOT BY : HETH, BARBARA L PLOT NAME : ---------- PLOT SCALE : 1 IN:200 FT

PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	PLAN AND PROFILE: WEST XO - STAGE 1	SHEET 45	E

FILE NAME : N:\PDS\C3D\10582170\SHEETSPLAN\050120-PP.DWG
LAYOUT NAME - 050121-PP

PLOT DATE : 10/9/2015 3:50 PM PLOT BY : HETH, BARBARA L PLOT NAME : PLOT SCALE : 1 IN:200 FT

WISDOT/CADDS SHEET 44

PI STA = 54+77.47
Y = 280217.45
X = 750394.00
DELTA = 44°07'21"
D = 2°30'01"
T = 928.73
L = 1764.75
R = 2291.63
PC STA = 45+48.74
PT STA = 63+13.49

PI STA = 794+86.83
Y = 280158.25
X = 750368.34
DELTA = 44°07'08"
D = 2°30'00"
T = 928.73
L = 1764.76
R = 2291.84
PC STA = 785+58.10
PT STA = 803+22.86

PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	PLAN AND PROFILE: STH 29 WB	SHEET 46	E

BENCH MARKS

NO.	STATION	DESCRIPTION	ELEV.
1	92+72	WB 7.5' RT SW WING WALL	1018.81
2	833+15	EB 34.7' RT SW WING WALL	1022.51
.			

STA 92+55
STRUCTURE B–58–128 REQUIRED
SINGLE SPAN PRESTRESSED GIRDER TYPE I 36W-inch, 40' CLEAR ROADWAY
SKEW 15° RHF

STA 92+69
REMOVE EXISTING STRUCTURE B–58–710
SINGLE SPAN STEEL GIRDER BRIDGE
72' LENGTH x 39' WIDTH

PROJECT NO:1058–21–70	HWY:STH 29	COUNTY:SHAWANO	PLAN AND PROFILE: STH 29 WB	SHEET 47	E

.32

.13
3.94

END PROJECT
STA 100+75

PI STA = 117+87.63
Y = 280252.97
X = 756793.44
DELTA = 3°51'46"
D = 0°29'39"
T = 390.88
L = 781.46
R = 11591.33
PC STA = 113+96.75
PT STA = 121+78.22
SE = NC

PI: 103+36.32
PT: 108+23.94
PC: 113+96.75
PI: 117+87.63
PT: 121+78.22
PI: 126+78.22
PRC: 10+55.57

RIPRAP
STH 29 WB
STH 29 EB
WE
FE
GUY

PI STA = 858+22.90
Y = 280194.19
X = 756793.24
DELTA = 3°56'54"
D = 0°30'19"
T = 390.88
L = 781.46
R = 11339.74
PC STA = 854+32.01
PT STA = 862+13.47
SE = 2.0%

EB LANE

EAST XO
PI STA = 6+45.71
Y = 280183.72
X = 757684.35
DELTA = 4°59'39"
D = 0°36'32"
T = 410.37
L = 820.22
R = 9410.00
PC STA = 2+35.34
PT STA = 10+55.57
SE = NC

EAST XO
PI STA = 14+64.48
Y = 280256.27
X = 758500.41
DELTA = 4°58'35"
D = 0°36'32"
T = 408.91
L = 817.31
R = 9410.00
PC STA = 10+55.57
PT STA = 18+72.88
SE = NC

1080
1070
1060
1050
1040
1030
1020
1010
1000

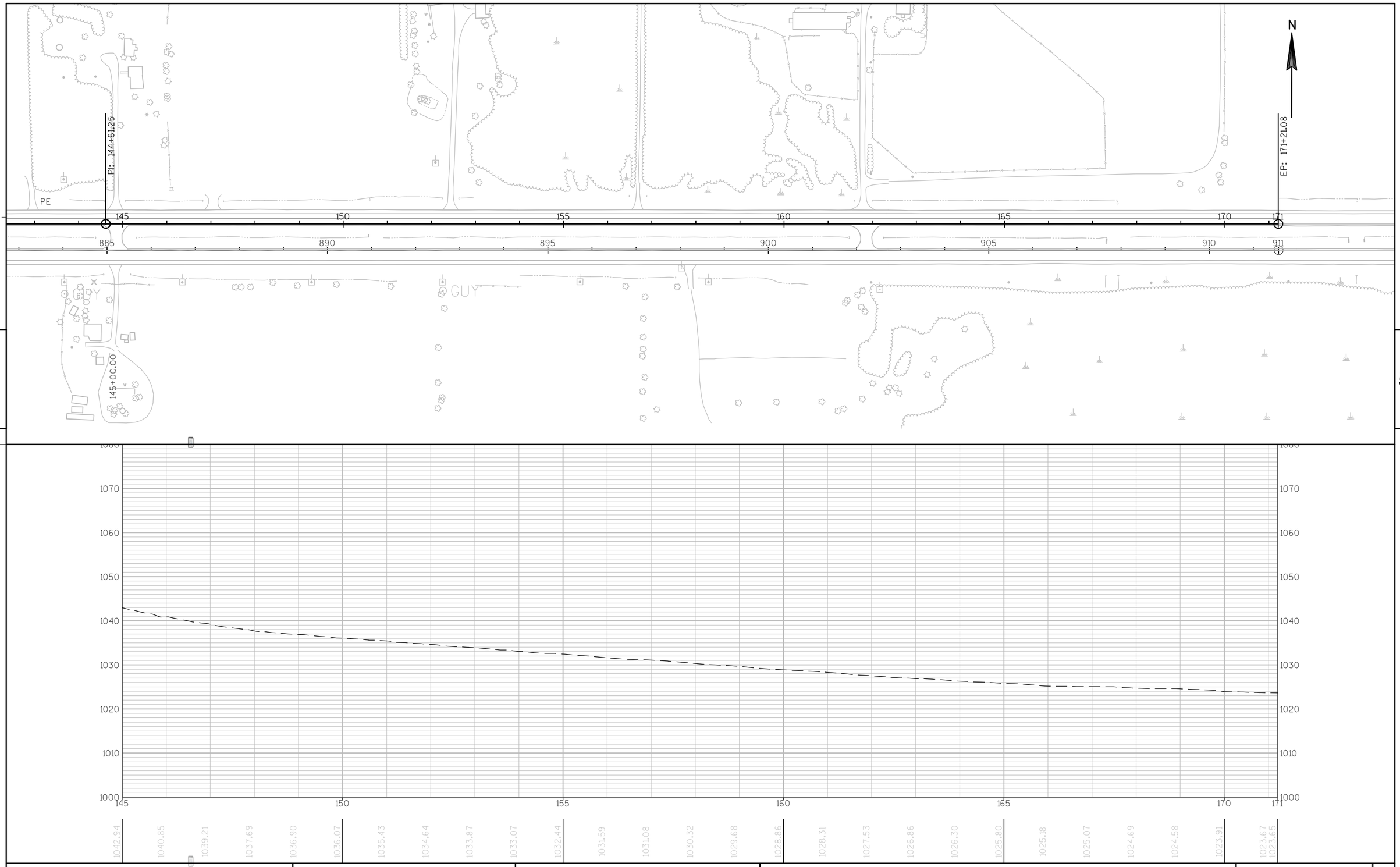
105 110 115 120 125 130 134

1039.35 1040.25 1040.71 1041.20 1042.11 1042.30 1042.94 1043.58 1044.07 1044.14 1044.85 1045.56 1046.30 1047.08 1047.97 1048.78 1049.51 1050.43 1051.61 1052.60 1053.67 1054.81 1056.00 1057.09 1057.94 1058.59 1059.11 1059.52 1059.86 1059.96

PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	PLAN AND PROFILE: STH 29 WB	SHEET 48	E

FILE NAME : N:\PDS\C3D\10582170\SHEETSOTHER\29PRL_200SCALE.DWG PLOT DATE : 10/9/2015 4:59 PM PLOT BY : HETH, BARBARA L PLOT NAME : ---------- PLOT SCALE : 1 IN:200 FT

WISDOT/CADDS SHEET 44



PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	PLAN AND PROFILE: STH 29 WB	SHEET 49	E

FILE NAME : N:\PDS\C3D\10582170\SHEETSOTHER\29PRL_200SCALE.DWG PLOT DATE : 10/9/2015 5:15 PM PLOT BY : HETH, BARBARA L PLOT NAME : ---------- PLOT SCALE : 1 IN:200 FT

WISDOT/CADDS SHEET 44

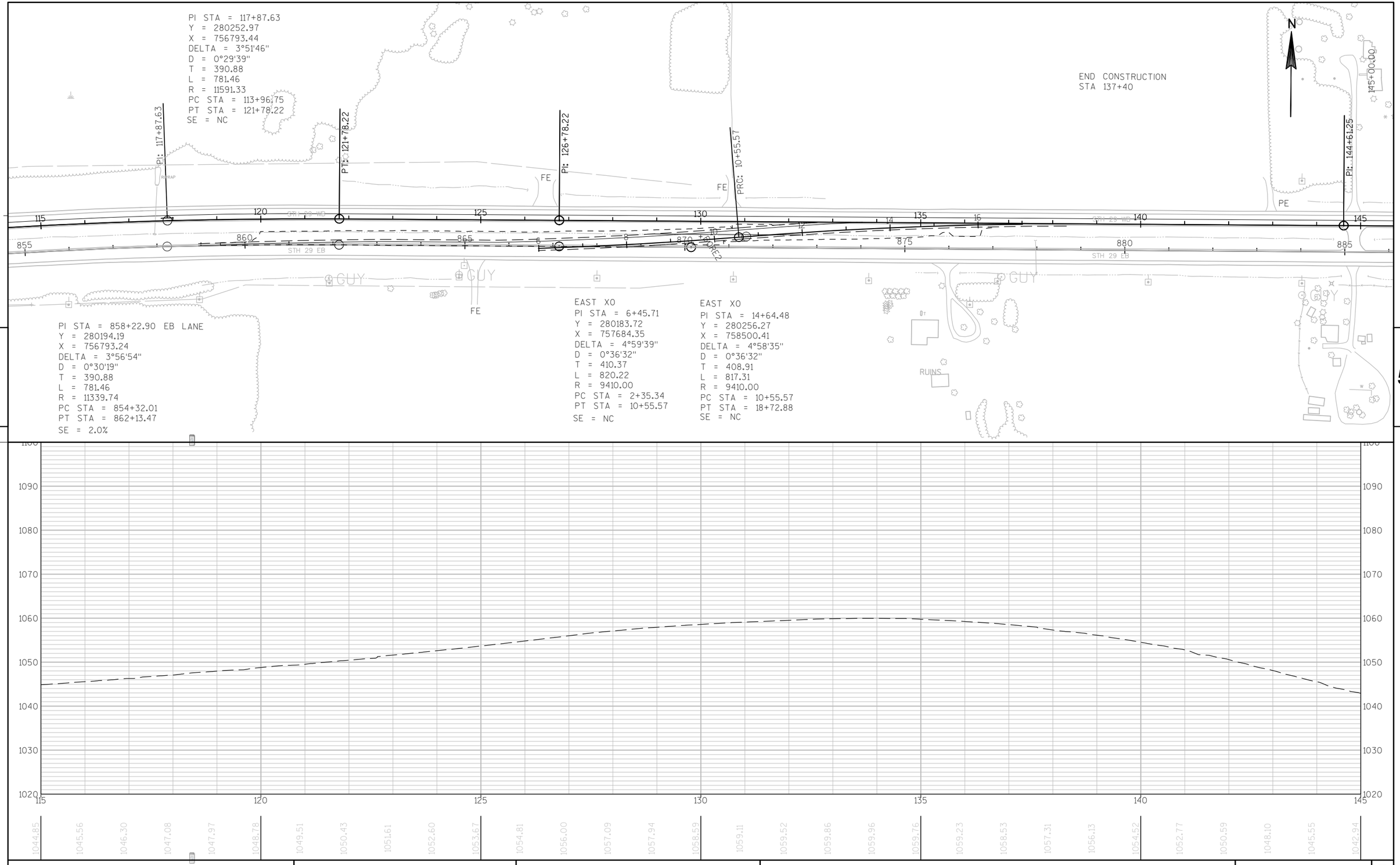
PI STA = 117+87.63
Y = 280252.97
X = 756793.44
DELTA = 3°51'46"
D = 0°29'39"
T = 390.88
L = 781.46
R = 11591.33
PC STA = 113+96.75
PT STA = 121+78.22
SE = NC

END CONSTRUCTION
STA 137+40

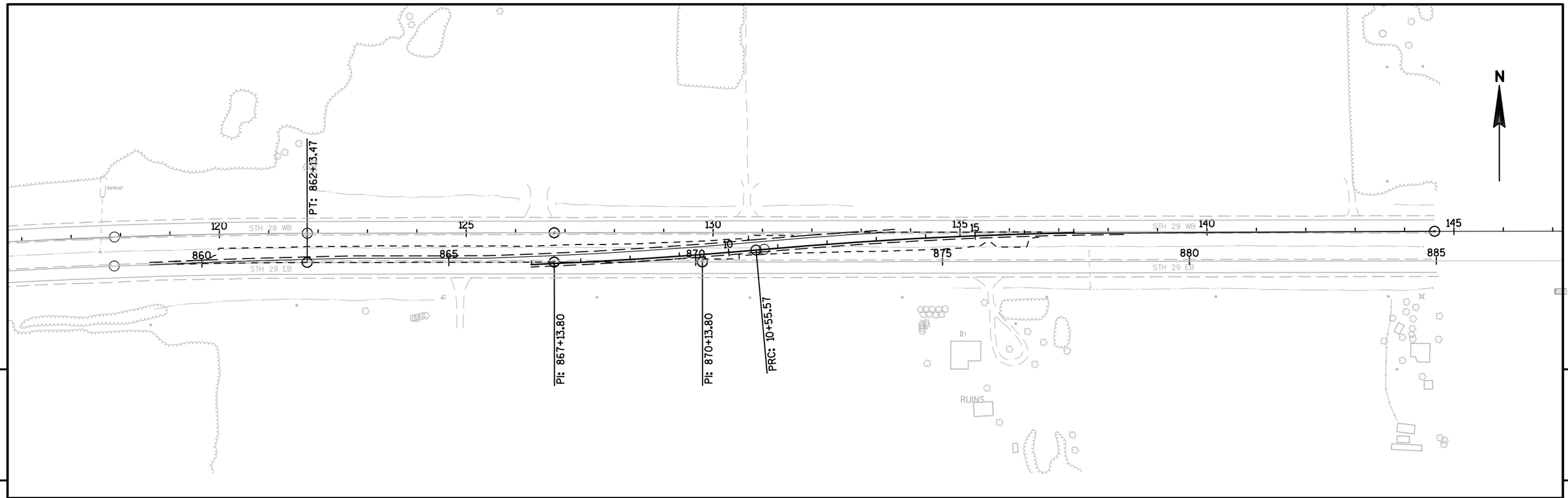
PI STA = 858+22.90 EB LANE
Y = 280194.19
X = 756793.24
DELTA = 3°56'54"
D = 0°30'19"
T = 390.88
L = 781.46
R = 11339.74
PC STA = 854+32.01
PT STA = 862+13.47
SE = 2.0%

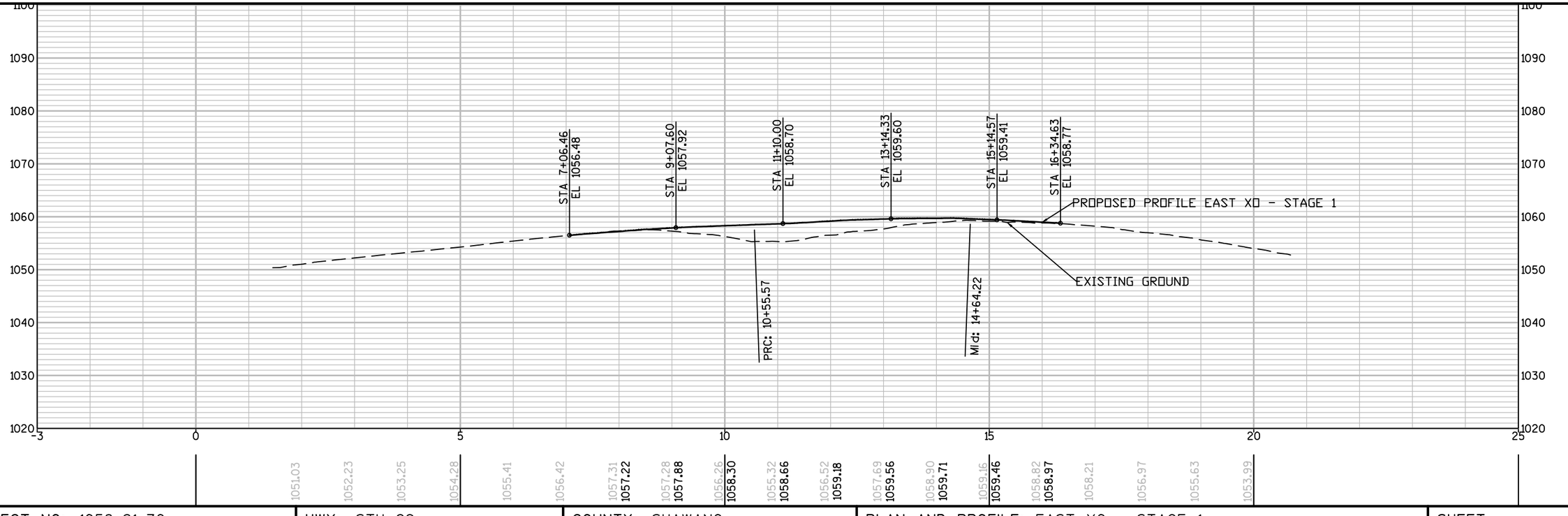
EAST XO
PI STA = 6+45.71
Y = 280183.72
X = 757684.35
DELTA = 4°59'39"
D = 0°36'32"
T = 410.37
L = 820.22
R = 9410.00
PC STA = 2+35.34
PT STA = 10+55.57
SE = NC

EAST XO
PI STA = 14+64.48
Y = 280256.27
X = 758500.41
DELTA = 4°58'35"
D = 0°36'32"
T = 408.91
L = 817.31
R = 9410.00
PC STA = 10+55.57
PT STA = 18+72.88
SE = NC



PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	PLAN AND PROFILE: STH 29 WB	SHEET 50	E



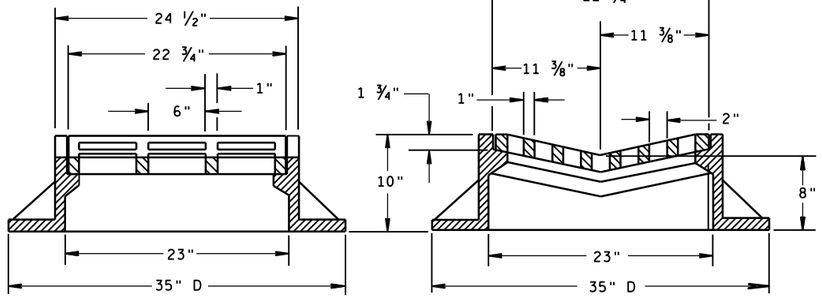


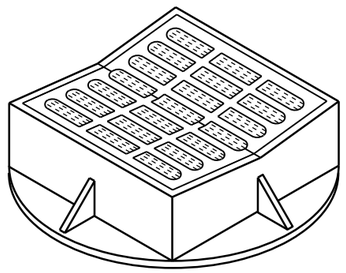
PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	PLAN AND PROFILE: EAST XO - STAGE 1	SHEET	E

FILE NAME : N:\PDS\C3D\10582170\SHEETSPLAN\050120-PP.DWG
LAYOUT NAME - 050123-PP
PLOT DATE : 10/9/2015 3:47 PM PLOT BY : HETH, BARBARA L PLOT NAME : PLOT SCALE : 1 IN:200 FT
WISDOT/CADDS SHEET 44

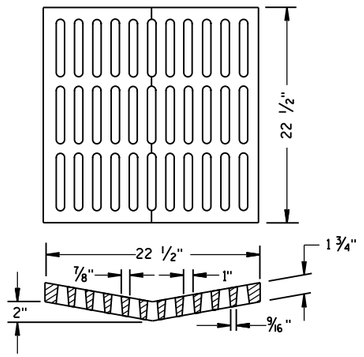
Standard Detail Drawing List

08A05-19B	INLET COVERS TYPE B, B-A, C, MS, MS-A, & WM
08B09-01	MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER
08D01-17	CONCRETE CURB, CONCRETE CURB AND GUTTER AND TIES
08D04-05	CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES
08D15-04A	EDGEDRAIN OUTLET AND OUTFALL MARKERS
08D15-04B	EDGEDRAIN AND BASE AGGREGATE OPEN GRADED
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08E11-02	TURBIDITY BARRIER
08E14-01	TRACKING PAD
08F07-05	STEEL APRON ENDWALLS FOR CULVERT PIPE AND PIPE ARCH SLOPED SIDE FRAINS
11A01-05	MAINTENANCE CROSSOVER FOR FREEWAYS
12A03-10	NAME PLATE (STRUCTURES)
13B02-07A	CONCRETE BRIDGE APPROACH
13C01-17	CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES
13C11-11A	RURAL DOWELED CONCRETE PAVEMENT
13C11-11B	RURAL DOWELED CONCRETE PAVEMENT
13C18-02A	CONCRETE PAVEMENT JOINTING
13C18-02C	CONCRETE PAVEMENT JOINT TIES
14B42-03A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-03B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-03C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-02A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
15A02-08	DELINEATOR POST, DELINEATOR, AND DELINEATOR BRACKET WITH REFLECTIVE SHEETING
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15A06-02	DELINEATOR LAYOUT
15C02-05A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C03-02	BARRICADES AND SIGNS FOR SIDEROAD CLOSURES
15C08-16A	PAVEMENT MARKING (MAINLINE)
15C08-16E	PAVEMENT MARKING (LEFT TURN LANE)
15C11-05	FLEXIBLE TUBULAR MARKER POST, ANCHOR & BASES
15D06-03	TRAFFIC CONTROL, TWO LANE TWO WAY OPERATION
15D09-03	TRAFFIC CONTROL, SINGLE LANE CROSSOVER EXIT
15D11-05	TRAFFIC CONTROL, SINGLE LANE CROSSOVER
15D12-05A	TRAFFIC CONTROL, LANE CLOSURE
15D12-05B	TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION



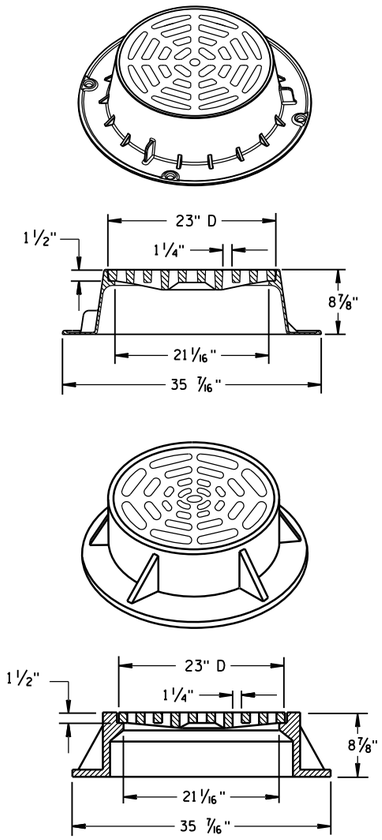


TYPE "B"



ALTERNATIVE GRATE FOR TYPE "B" COVER

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



TYPE "C"

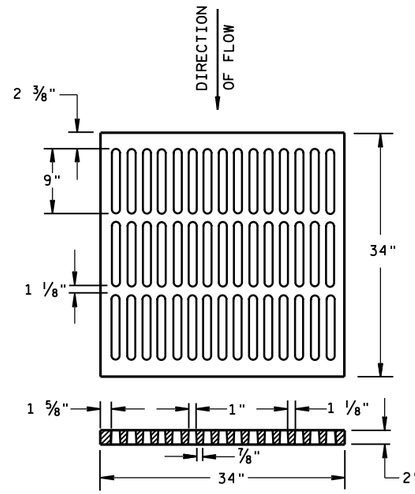
NOTE: EITHER CASTING IS ACCEPTABLE

GENERAL NOTES

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

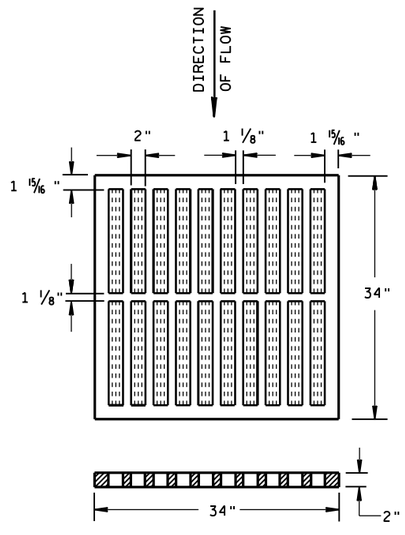
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR CATCH BASIN, MANHOLE AND INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

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



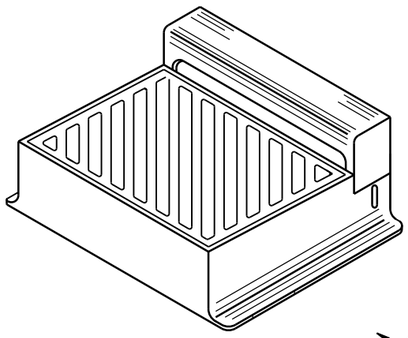
ALTERNATIVE TYPE "MS"

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

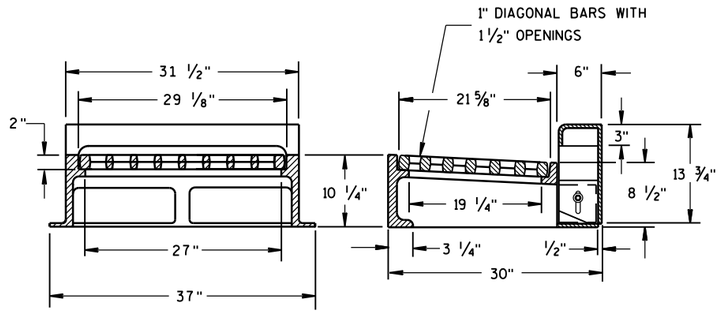


TYPE "MS"

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



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



NOTE: CURB BOX HEIGHT ADJUSTABLE 6" TO 9"

TYPE "WM"

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

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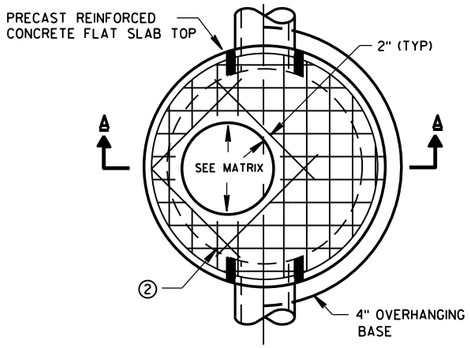
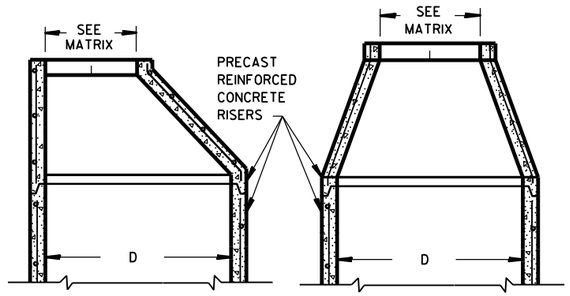
S.D.D. 8 A 5-19b

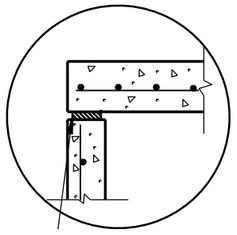


PLAN VIEW CIRCULAR OPENING

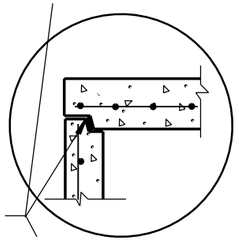


OPTIONAL PRECAST REINFORCED CONCRETE ECCENTRIC TOP

OPTIONAL PRECAST REINFORCED CONCRETE CONCENTRIC TOP

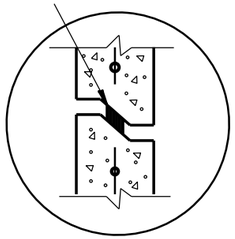


TOP WITH PLAIN END JOINT



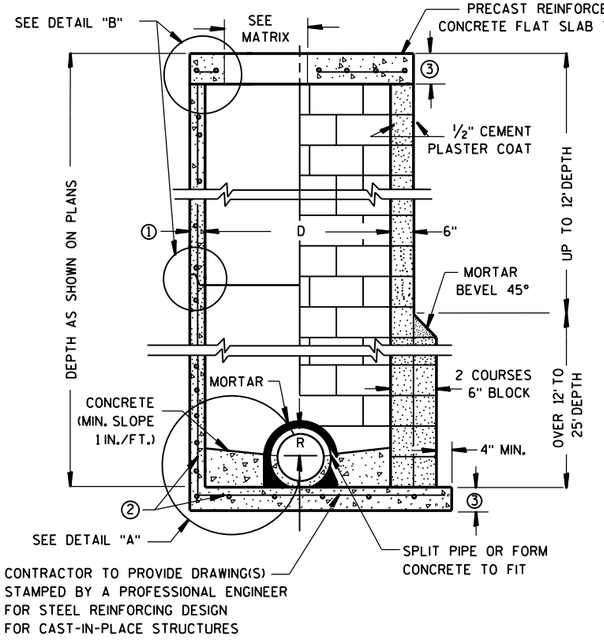
JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C990 (TYP)

TOP WITH TONGUE AND GROOVE JOINT



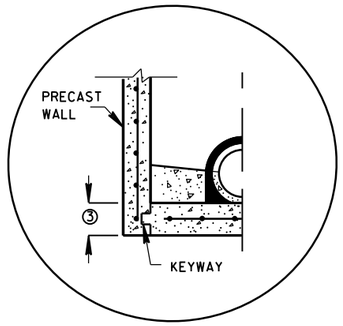
RISER WITH TONGUE AND GROOVE JOINT

DETAIL "B"

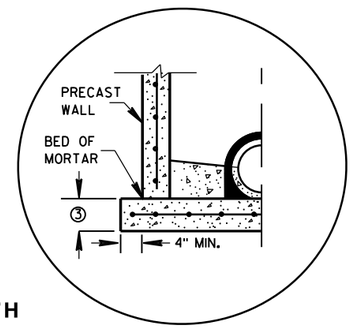


PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE

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

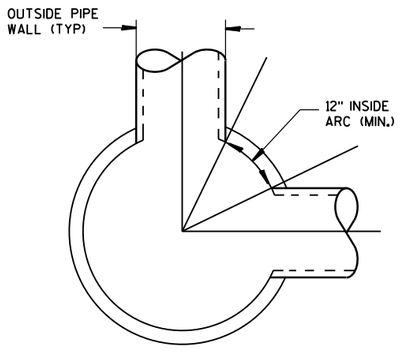


PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION



SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

DETAIL "A"



DETAIL "C"

GENERAL NOTES

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

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

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

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

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

PRECAST REINFORCED CONE TOPS (ECCENTRIC OR CONCENTRIC) OR PRECAST REINFORCED FLAT SLAB TOPS MAY BE USED ON CONCRETE BLOCK STRUCTURES. THE CONE TOPS SHALL BE INSTALLED ON A BED OF MORTAR.

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

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

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

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

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

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

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

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

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

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

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

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

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

MANHOLE COVER OPENING MATRIX

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

PIPE MATRIX

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

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

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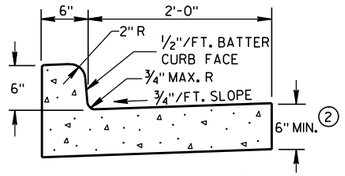
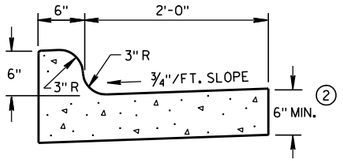
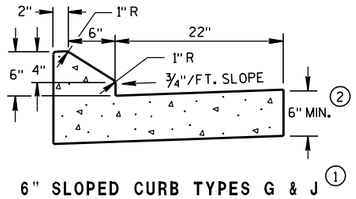


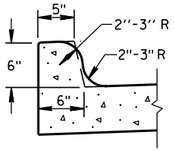
TYPES A & D (1)



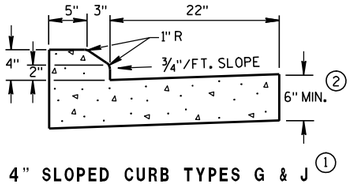
TYPES K & L (1)



6" SLOPED CURB TYPES G & J (1)

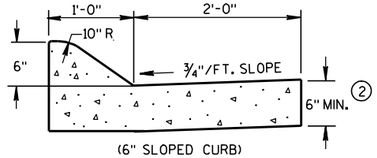


OPTIONAL CURB SHAPE FOR TYPES K & L (1)

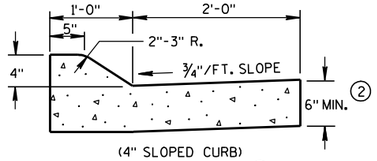


4" SLOPED CURB TYPES G & J (1)

CONCRETE CURB & GUTTER 30"

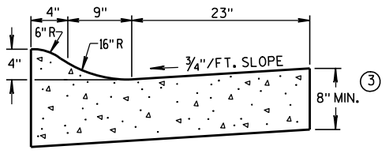


(6" SLOPED CURB)



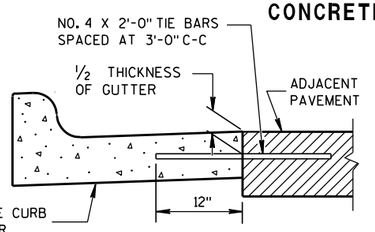
(4" SLOPED CURB)

TYPES A & D (1)

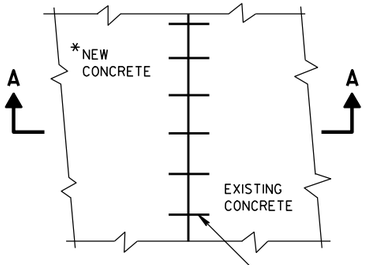


4" SLOPED CURB TYPES R & T (1) (4)

CONCRETE CURB & GUTTER 36"

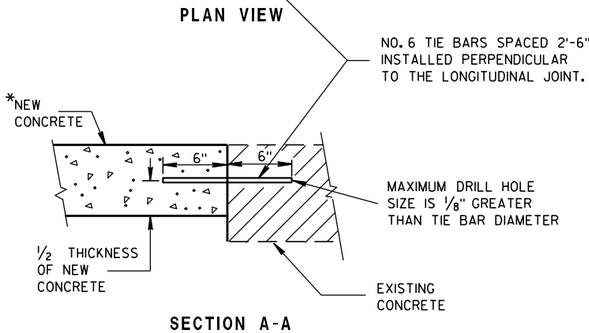


TYPICAL TIE BAR LOCATION (1)



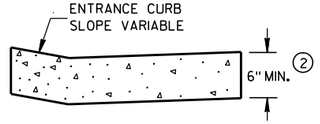
*NEW CURB & GUTTER, SURFACE DRAINS, CONCRETE PAVEMENT OR OTHER NEW CONCRETE.

PLAN VIEW

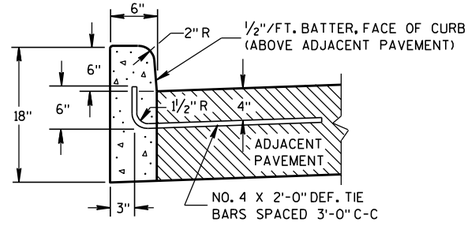


SECTION A-A

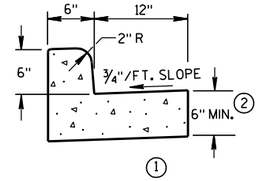
TIE BARS DRILLED INTO EXISTING PAVEMENT



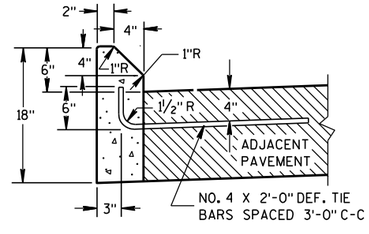
DRIVEWAY ENTRANCE CURB
(WHEN DIRECTED BY THE ENGINEER)



(1)
TYPES A & D

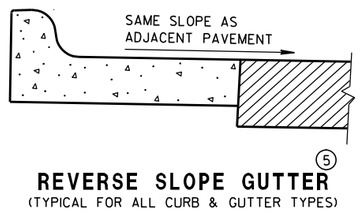


(1)
TYPES A & D
CONCRETE CURB & GUTTER 18"

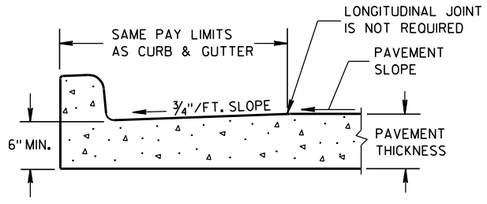


(1)
TYPES G & J

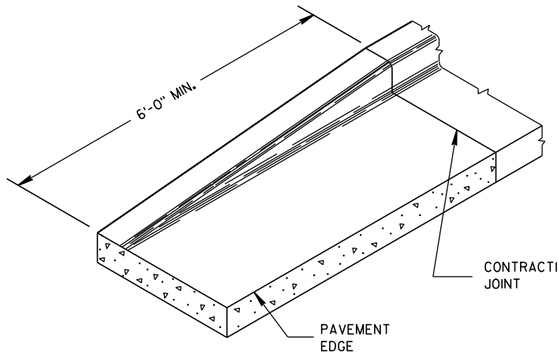
CONCRETE CURB



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



PARTIAL SECTION OF PAVEMENT WITH INTEGRAL CURB & GUTTER



END SECTION CURB & GUTTER

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

CONCRETE CURB, CONCRETE CURB & GUTTER AND TIES

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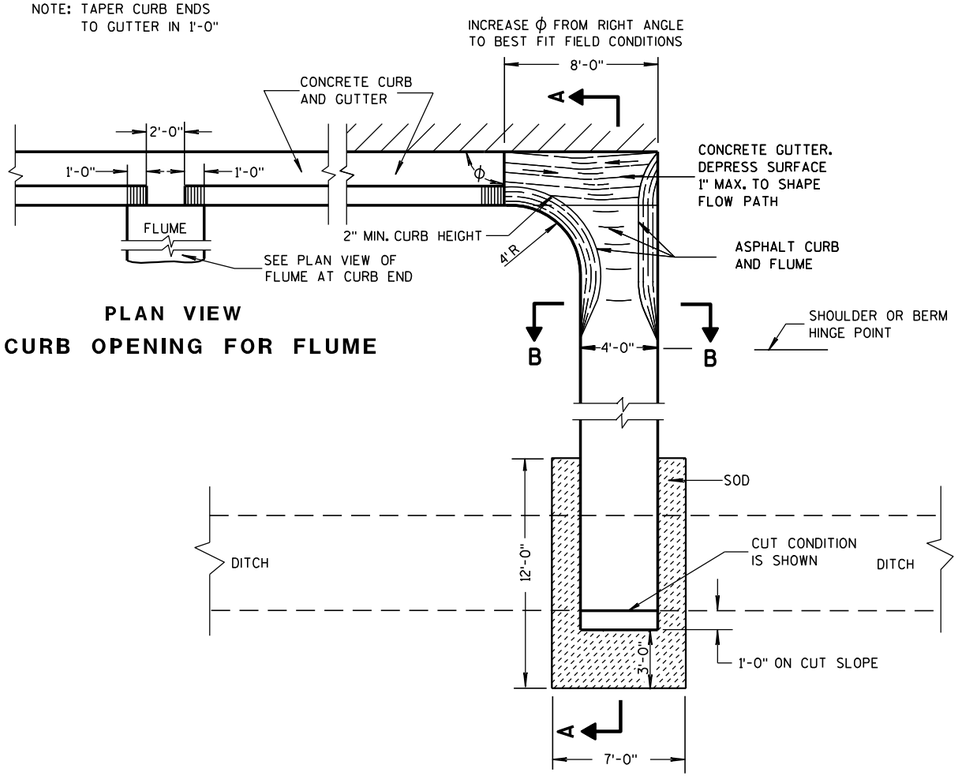
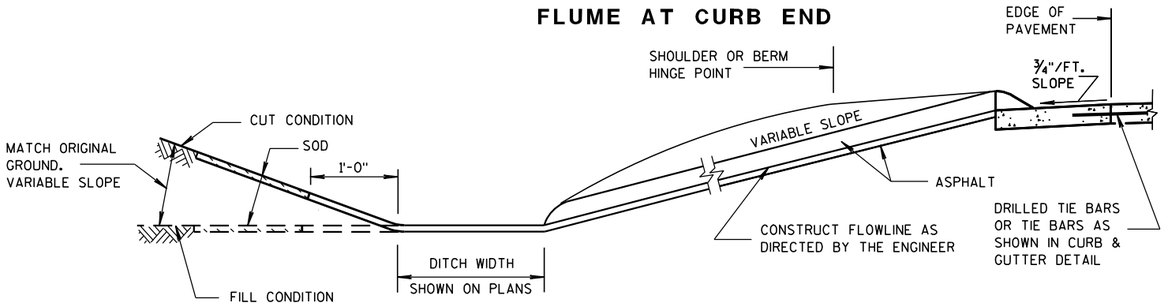
ASPHALTIC FLUME

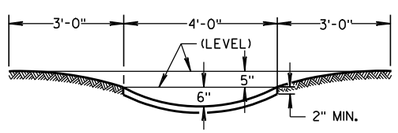


PLAN VIEW
CURB OPENING FOR FLUME

PLAN VIEW
FLUME AT CURB END



SECTION A-A



SECTION B-B

GENERAL NOTES

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

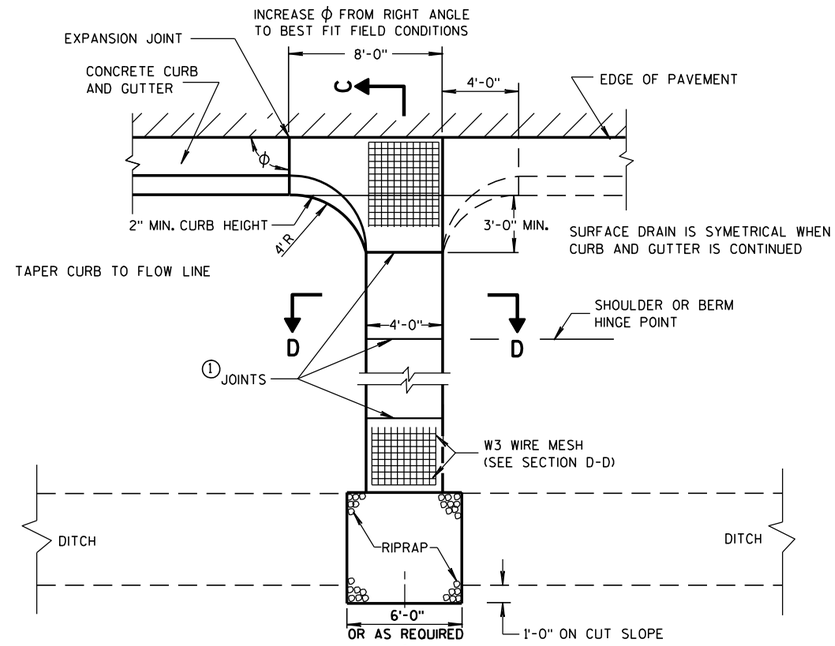
WELDED STEEL WIRE FABRIC SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATION M55.

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

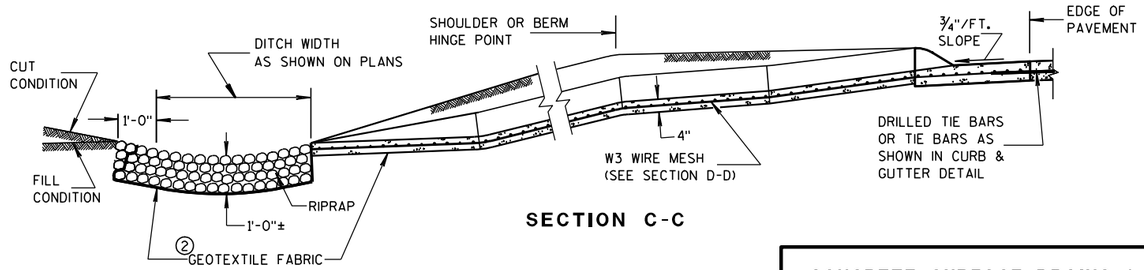
② GEOTEXTILE FABRIC TYPE "R" SHALL UNDERLAY THE FULL LENGTH AND WIDTH OF THE CONCRETE SURFACE DRAIN AND RIPRAP.

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

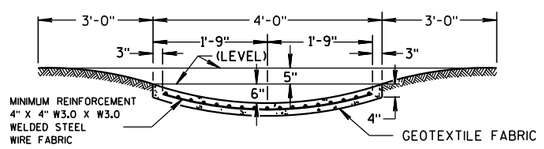
③ CONCRETE SURFACE DRAIN



PLAN VIEW



SECTION C-C



SECTION D-D

CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES

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S.D.D. 8 D 4-5

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) UNPERFORATED PIPE UNDERDRAIN AND FITTINGS FURNISHED FOR OUTFALL PIPE SHALL MEET THE REQUIREMENTS OF ONE OF THE FOLLOWING SPECIFICATIONS:

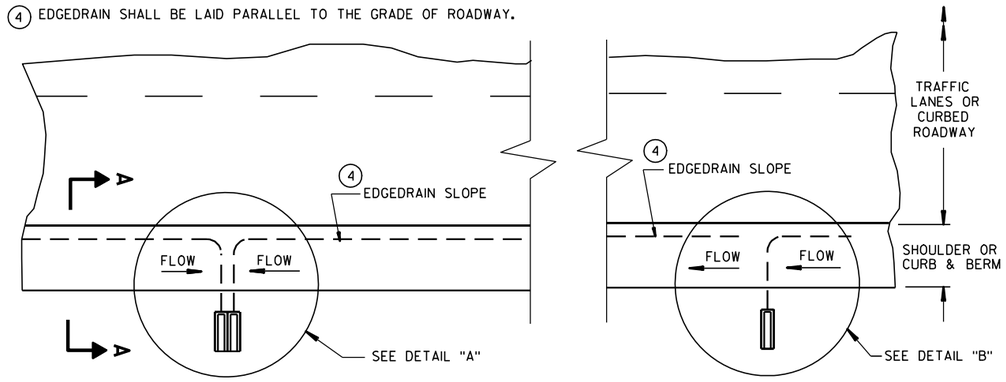
POLYVINYL CHLORIDE (PVC) PLASTIC DRAIN, WASTE, AND VENT PIPE AND FITTINGS, ASTM D 2665, SCHEDULE 40 PVC.

TYPE PSM POLYVINYL CHLORIDE (PVC) SEWER PIPE AND FITTINGS, ASTM D 3034, SDR 23.5 PVC SEWER PIPE.

(2) MAXIMUM SPACING OF EDGEDRAIN OUTLETS SHALL BE 250 FEET UNLESS OTHERWISE SPECIFIED IN THE CONTRACT OR DIRECTED BY THE ENGINEER.

(3) EDGEDRAIN SHALL BE CONNECTED TO INLETS REGARDLESS OF FLOW DIRECTION FOR DRAINAGE AND MAINTENANCE ACCESS.

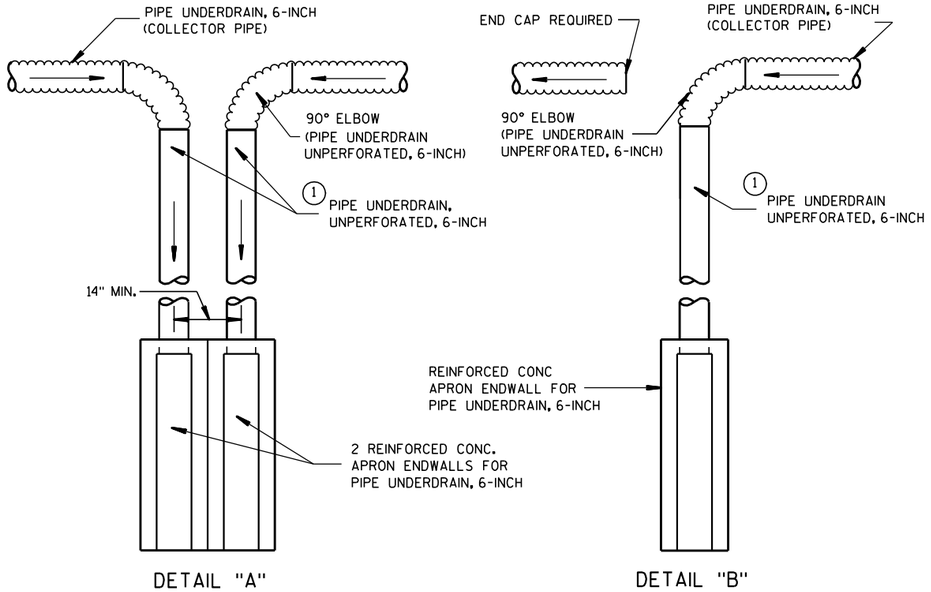
(4) EDGEDRAIN SHALL BE LAID PARALLEL TO THE GRADE OF ROADWAY.



PLAN VIEW

ROADWAY WITH SHOULDERS OR CURBS

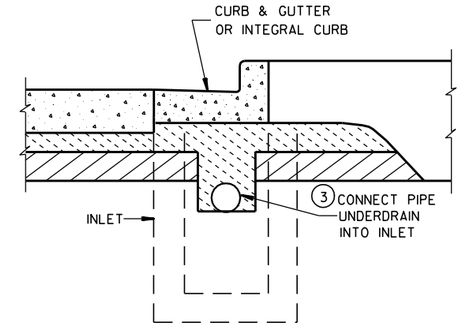
(EDGEDRAIN OUTLETS TO ROADSIDE) (2)



DETAIL "A"
TO BE USED AT LOW POINT LOCATIONS

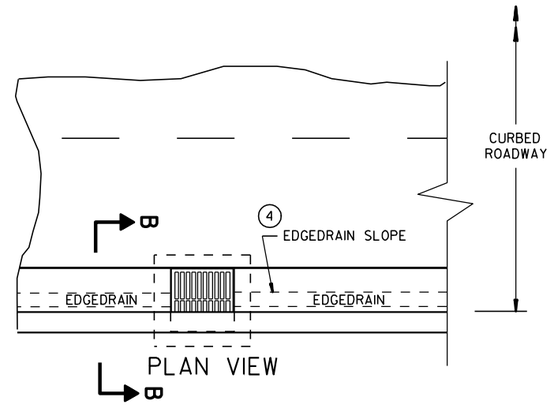
DETAIL "B"
TO BE USED AT INTERMEDIATE LOCATIONS

TYPICAL DRAIN OUT DETAILS



SECTION B-B

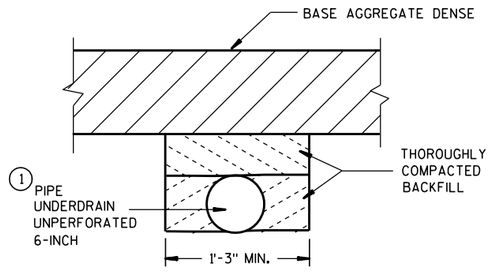
URBAN CROSS SECTION



PLAN VIEW

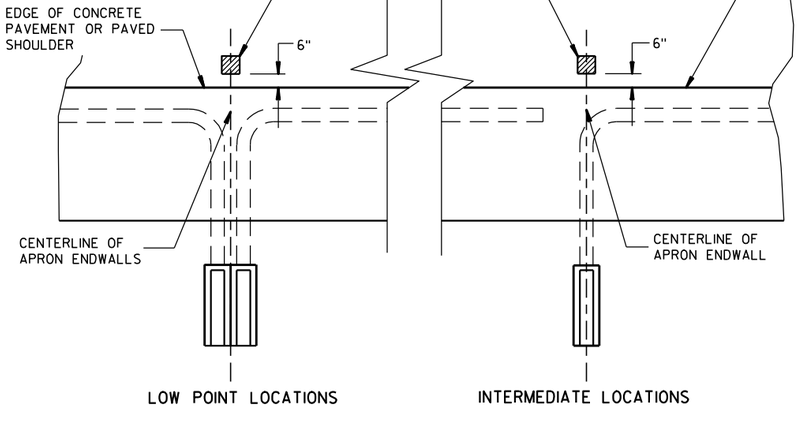
ROADWAY WITH CURBS

(EDGEDRAIN CONNECTS INTO INLET STRUCTURE)



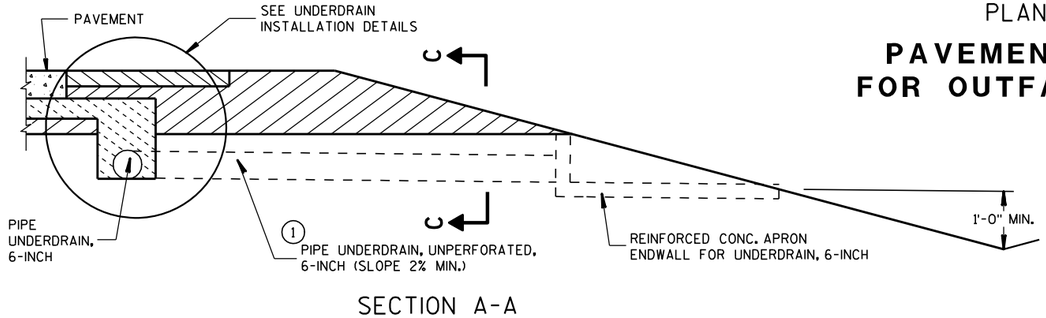
SECTION C-C

(TRENCH FOR OUTFALL PIPE)



PLAN VIEW

PAVEMENT MARKING FOR OUTFALL MARKERS



SECTION A-A

RURAL CROSS SECTION

EDGEDRAIN OUTLET AND OUTFALL MARKERS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

S.D.D. 8 D 15-4a

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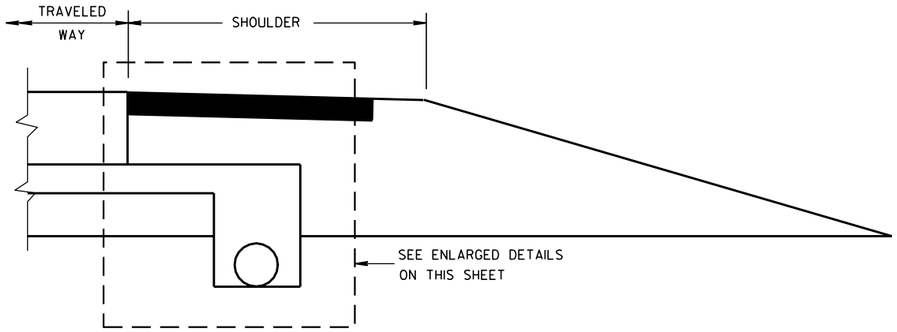
S.D.D. 8 D 15-4a



RURAL CROSS SECTION

GENERAL NOTES

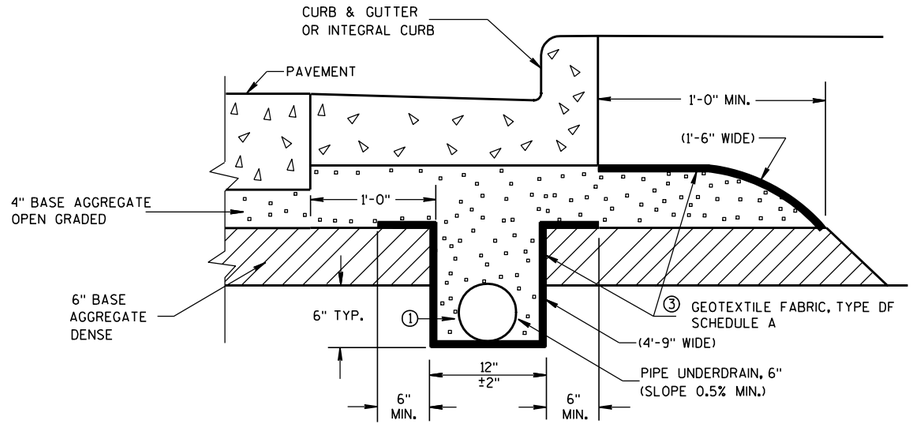
THE DIMENSIONS SHOWN ON THE TYPICAL CROSS SECTIONS WILL GOVERN IN THE EVENT THERE IS A CONFLICT WITH THE DETAILS SHOWN ON THIS DRAWING.

PIPE UNDERDRAIN SHALL BE LAID PARALLEL TO THE GRADE OF THE ROADWAY.

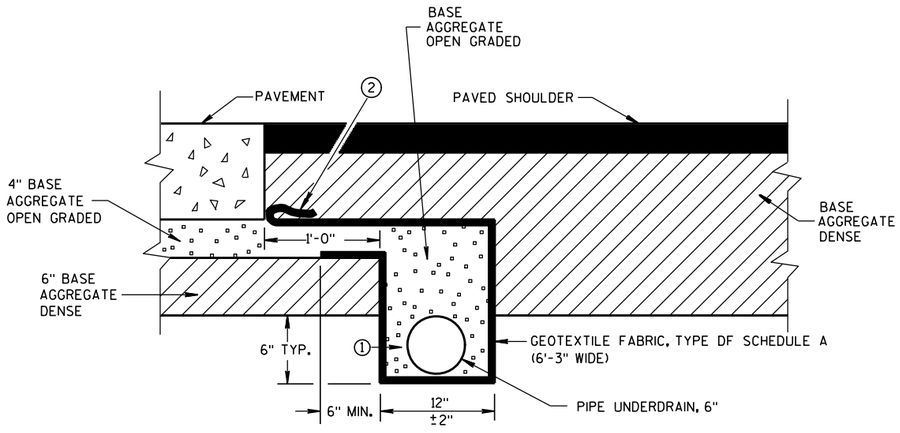
① TRENCH BACKFILL WILL BE PAID FOR AS BASE AGGREGATE OPEN GRADED.

② FOLD OVER EXCESS GEOTEXTILE FABRIC AT THIS LOCATION.

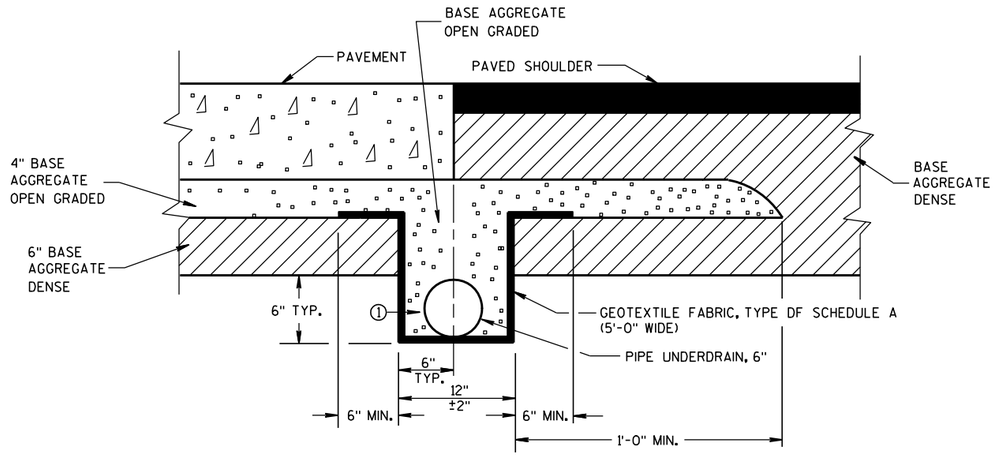
③ TOTAL FABRIC WIDTH IS 6'-3" FOR PAYMENT.



EDGEDRAIN IN URBAN ROADWAY



POST PAVING INSTALLATION
(QUANTITIES ARE BASED ON THIS DETAIL)



PRE-PAVING INSTALLATION ALTERNATE

EDGEDRAIN IN RURAL ROADWAY

EDGEDRAIN AND BASE AGGREGATE OPEN GRADED

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

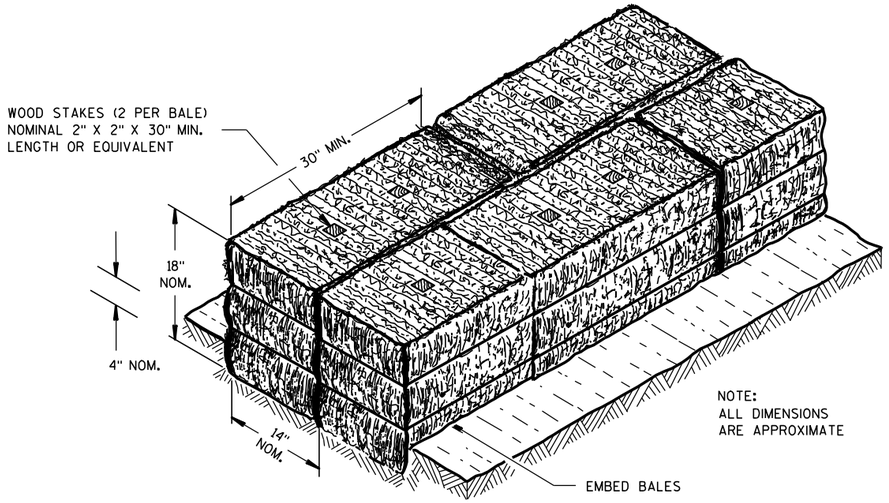
APPROVED

3/21/07 DATE — /S/ Steven W. [illegible] CHIEF MATERIALS MANAGER

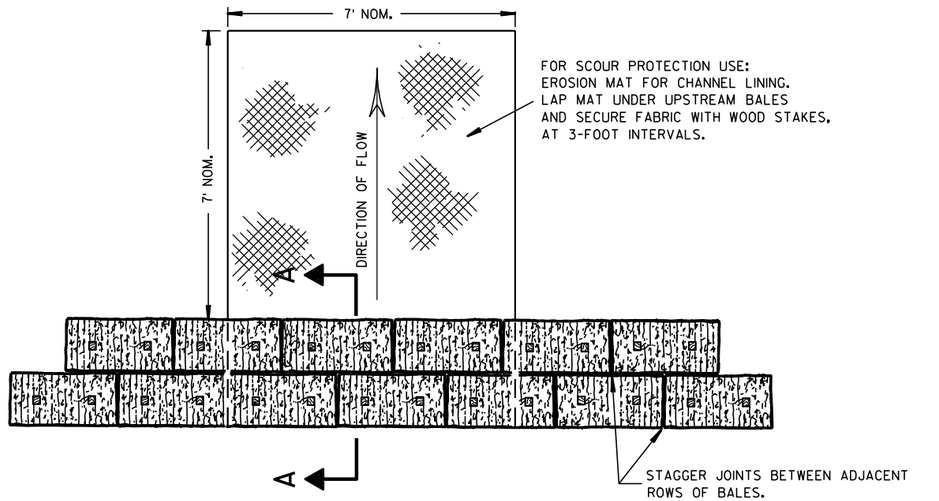
FHWA

6

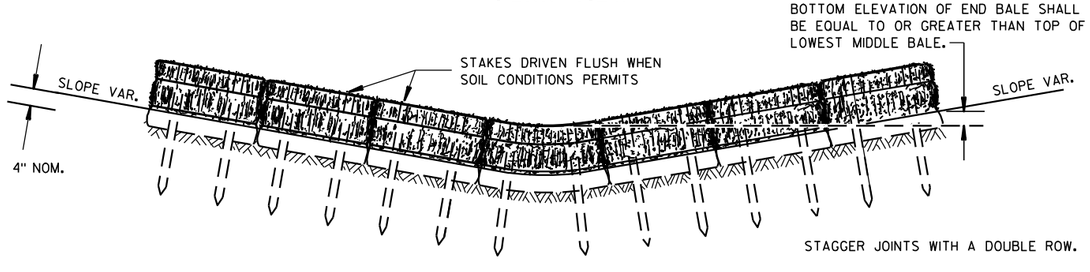
S.D.D. 8 D 15-4b



SECTION A-A



PLAN VIEW



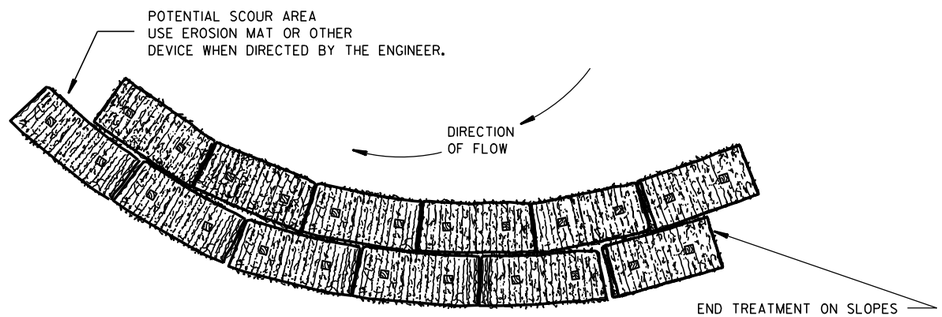
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

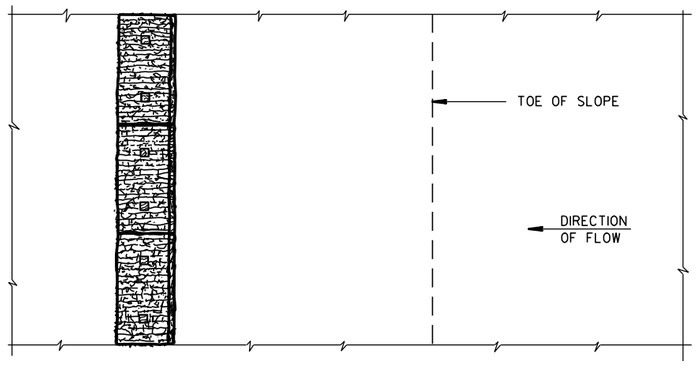
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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.

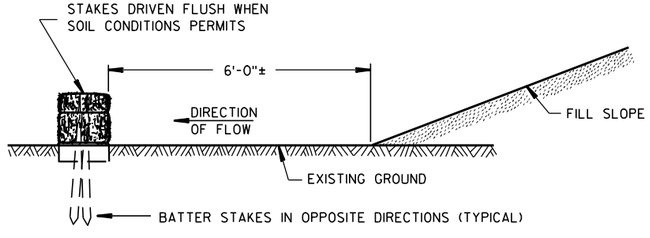


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

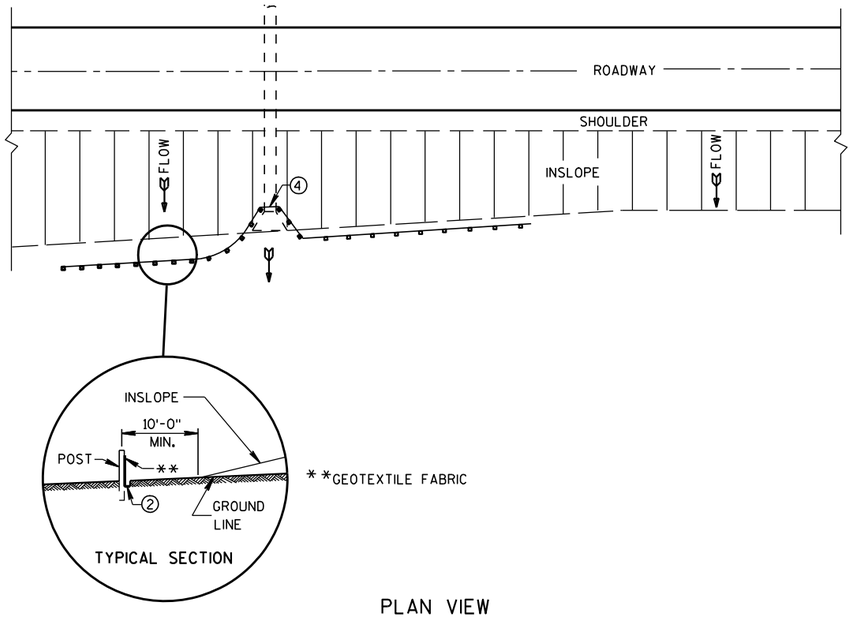
WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS

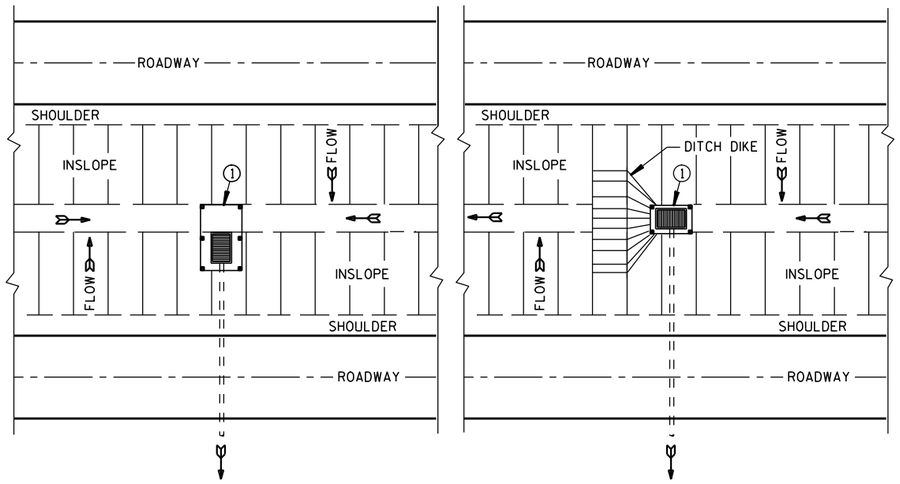
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



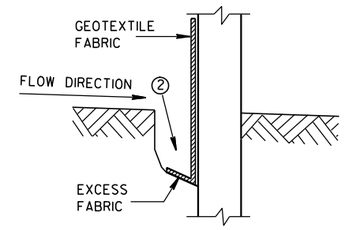
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

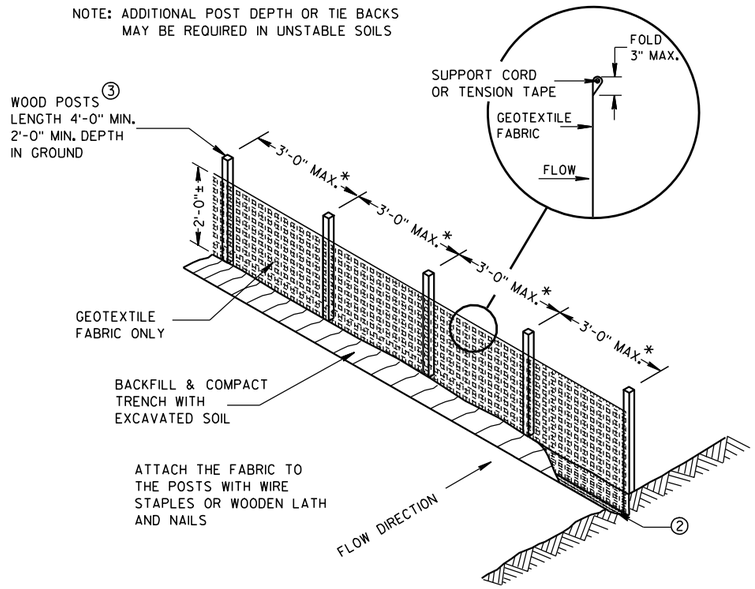
GENERAL NOTES

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

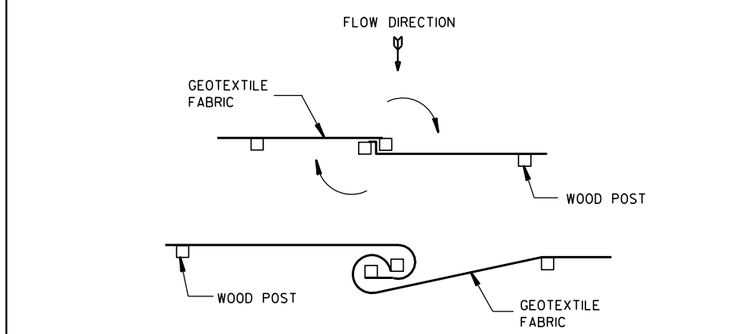
1. HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL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



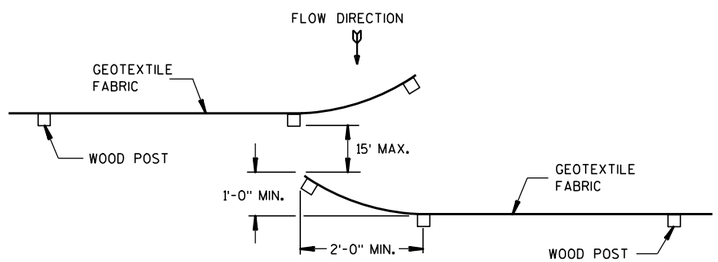
TRENCH DETAIL



SILT FENCE

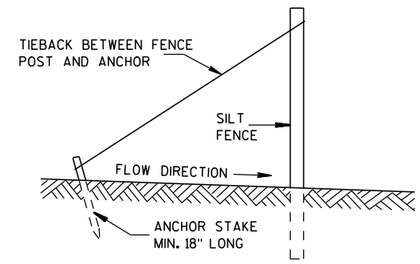


TWIST METHOD



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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S.D.D. 8 E 9-6

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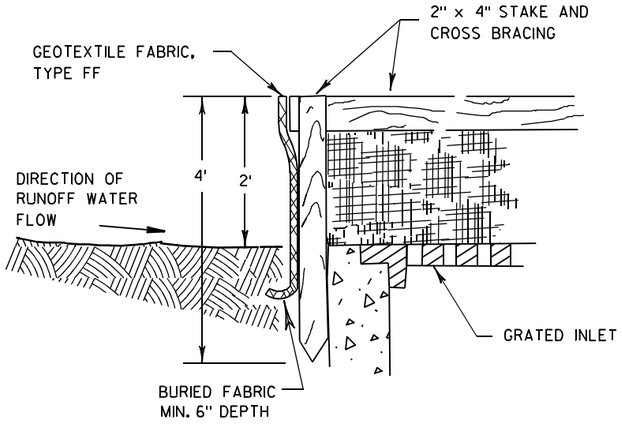
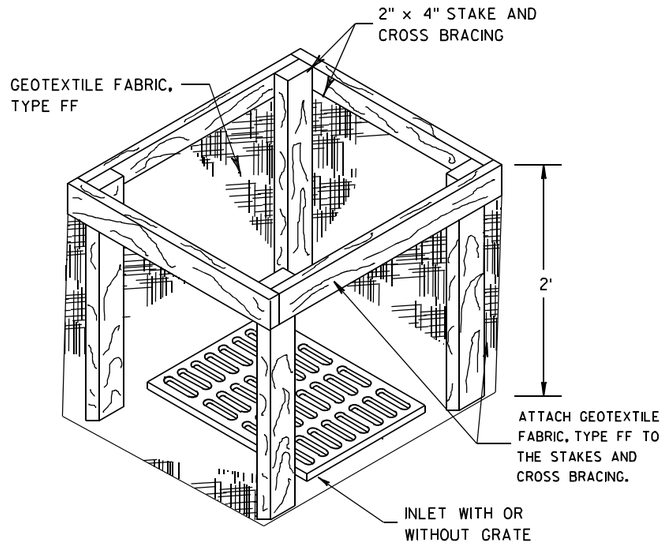
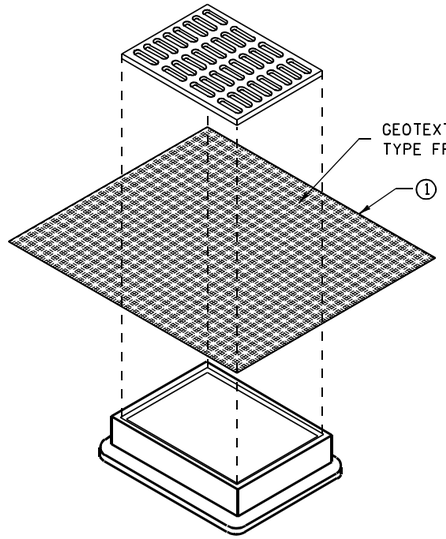
S.D.D. 8 E 9-6



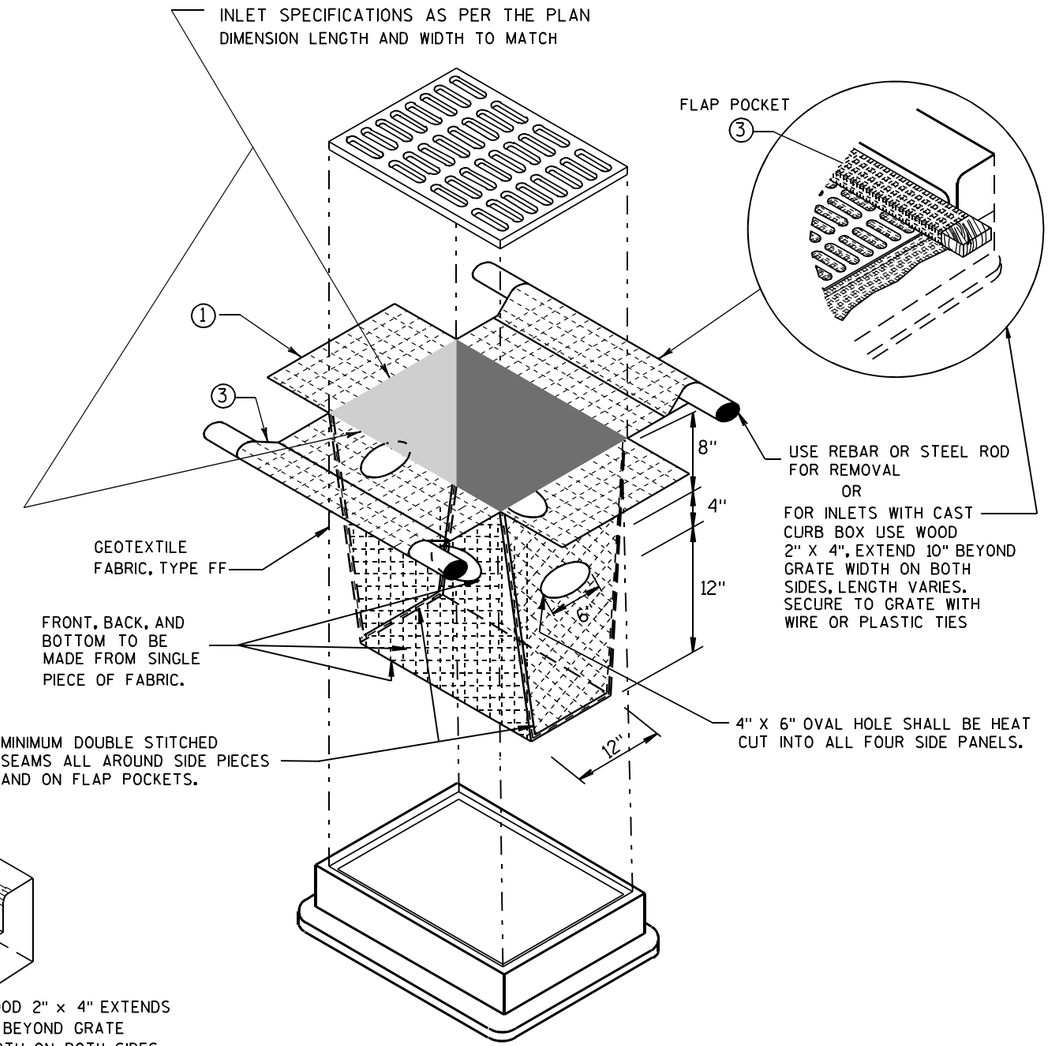


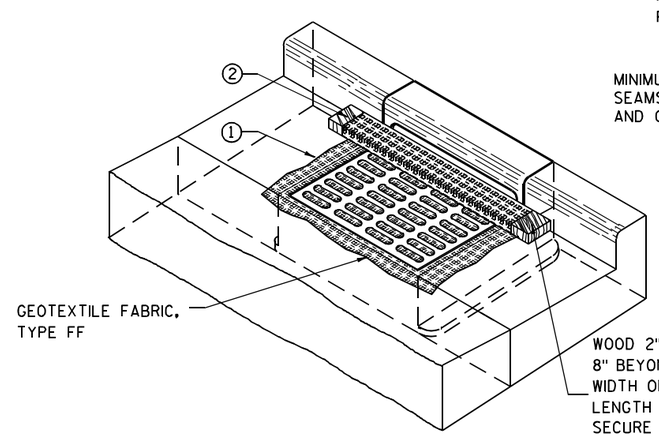
INLET PROTECTION, TYPE A



INLET PROTECTION, TYPE B
(WITHOUT CURB BOX)

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





INLET PROTECTION, TYPE C (WITH CURB BOX)

INLET PROTECTION, TYPE D

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

GENERAL NOTES

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

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

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

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

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

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

INSTALLATION NOTES

TYPE B & C

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

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

TYPE D

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

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

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

INLET PROTECTION
TYPE A, B, C, AND D

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

10/16/02
DATE

/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA

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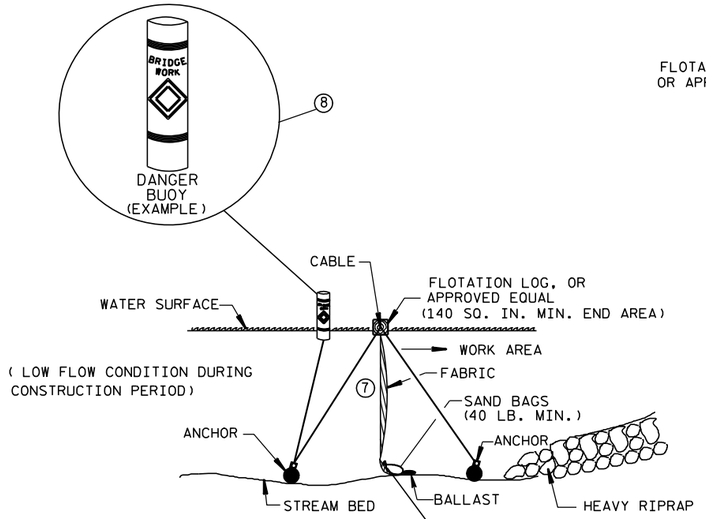
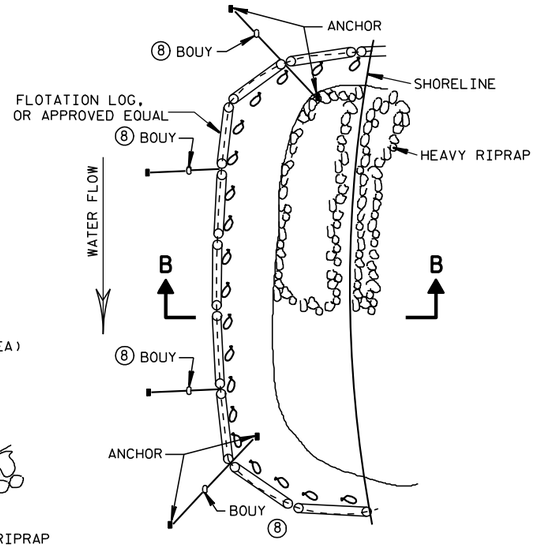
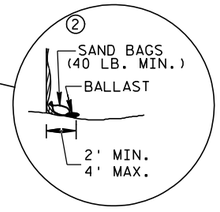
S.D.D. 8 E 10-2

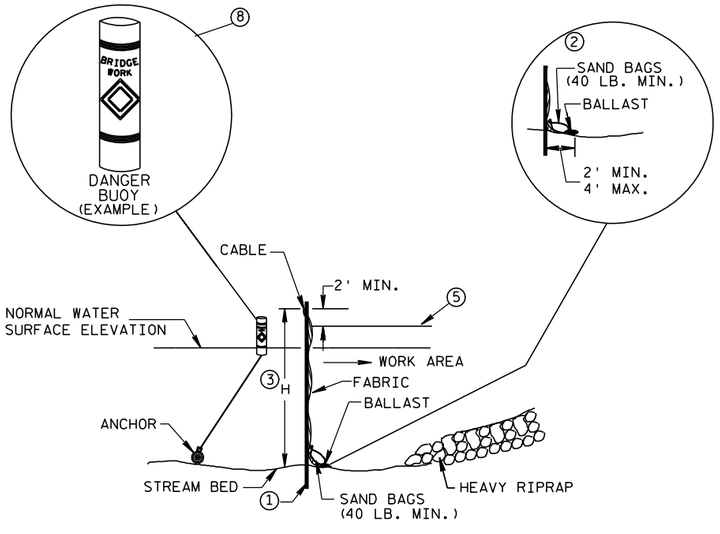


SECTION B-B

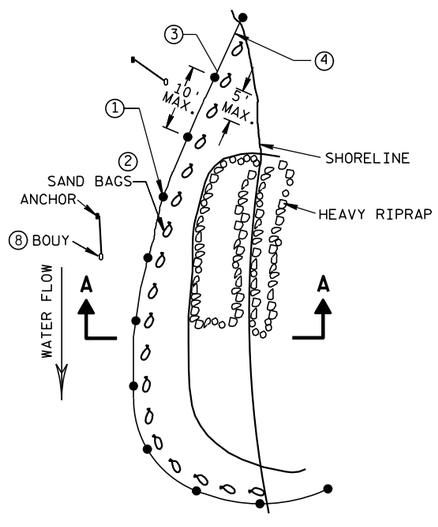




TURBIDITY BARRIER FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6



SECTION A-A



PLAN VIEW

TURBIDITY BARRIER STANDARD POST INSTALLATION

TURBIDITY BARRIER PLACEMENT DETAILS

GENERAL NOTES

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

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

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

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

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

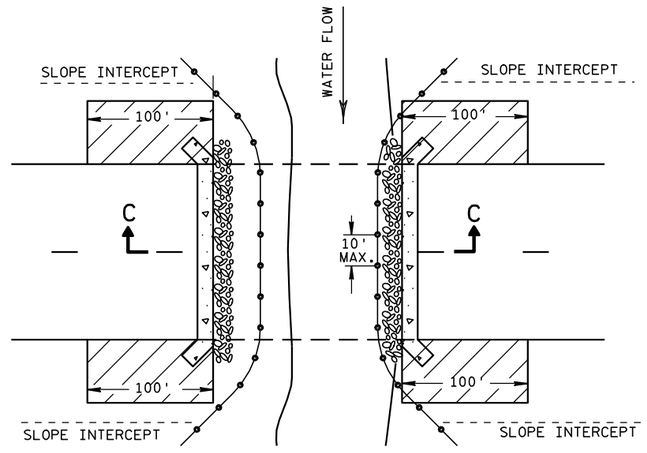
④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.

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

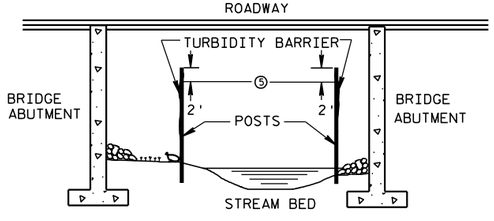
⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BED ROCK PREVENTS THE INSTALLATION OF POSTS.

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

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



PLAN VIEW



SECTION C-C

TURBIDITY BARRIER DETAIL SHOWING TYPICAL PLACEMENT AT STRUCTURES

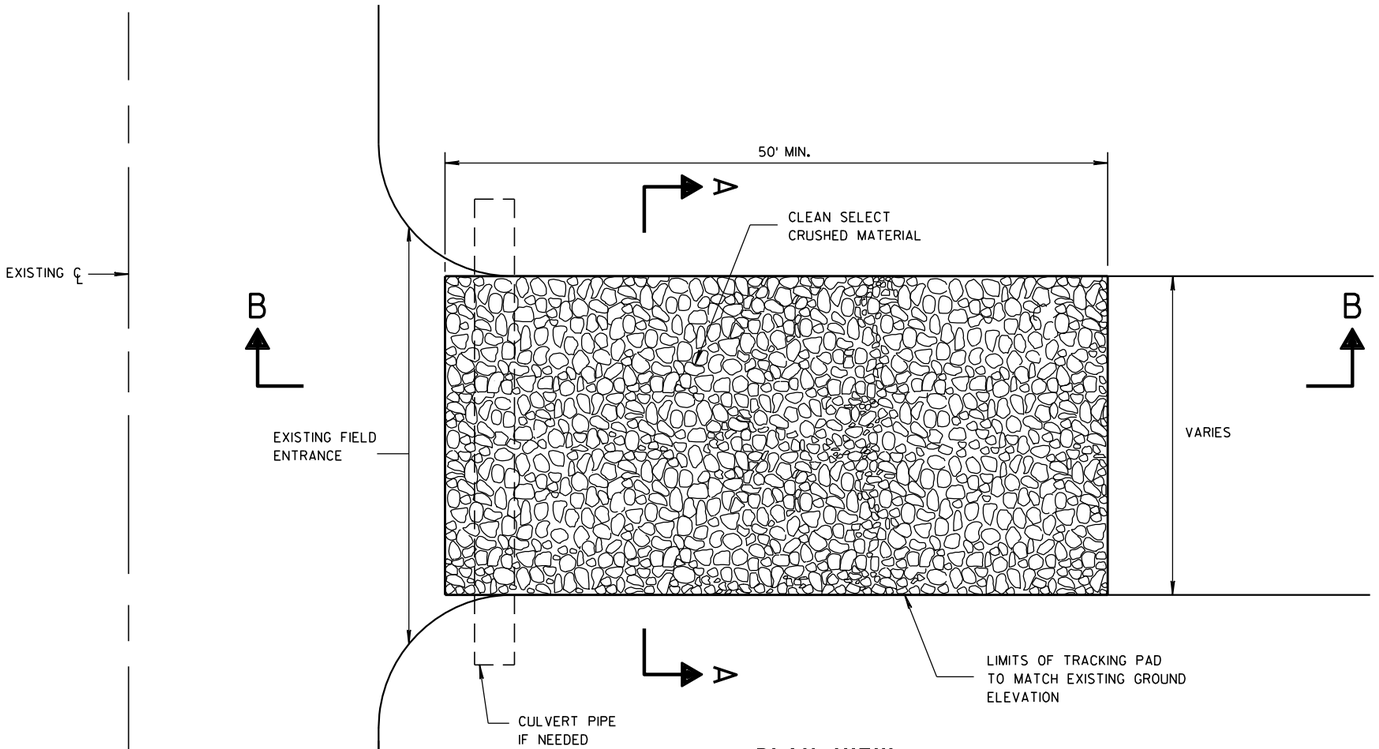
TURBIDITY BARRIER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

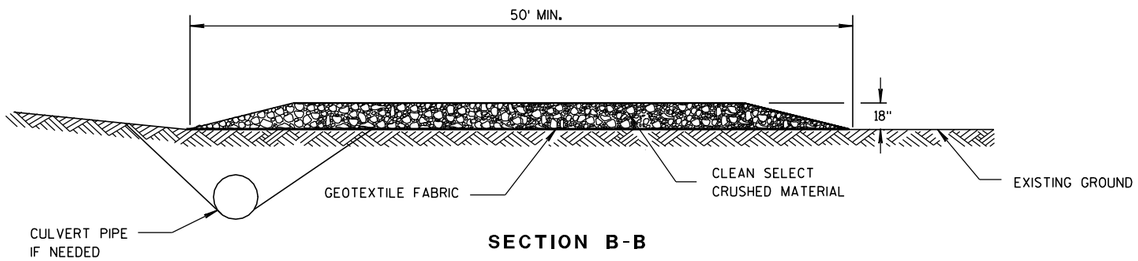
APPROVED
6/04/02 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

S.D.D. 8 E 11-2



PLAN VIEW



SECTION B-B

GENERAL NOTES

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

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

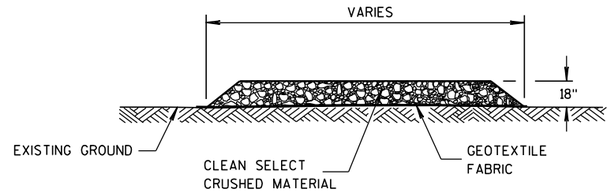
TRACKING PAD TO BE REMOVED AFTER CONSTRUCTION IS COMPLETED.

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

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

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

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



SECTION A-A

TRACKING PAD

TRACKING PAD	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 3/24/2011 DATE FHWA	/S/ Jerry H. Zoda ROADWAY STANDARDS ENGINEER
63	ENT

S.D.D. 8 E 14-1
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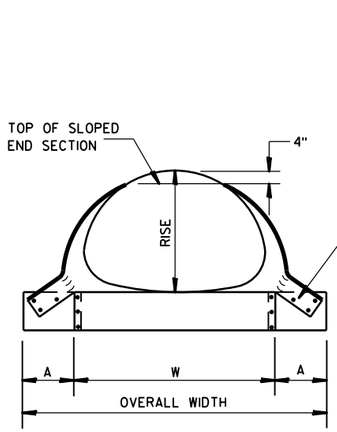
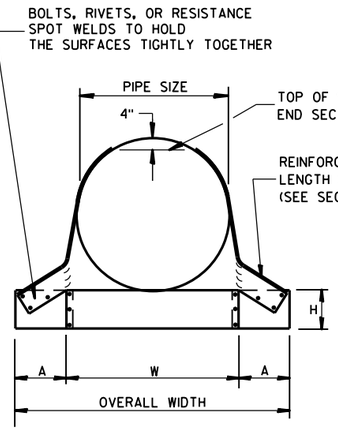
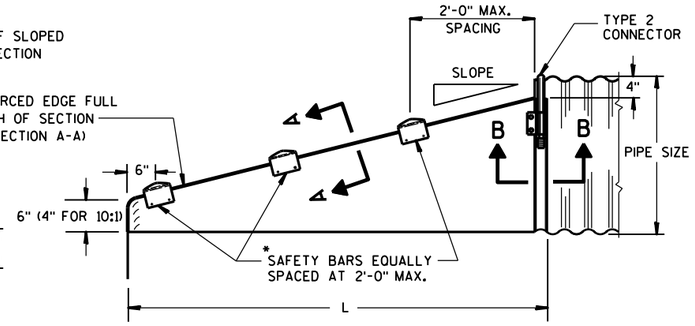


FRONT VIEW



FRONT VIEW



SIDE VIEW

GENERAL NOTES

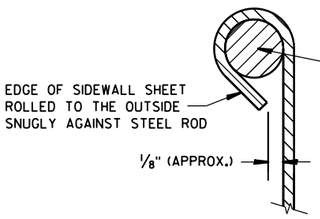
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

SLOPED END SECTIONS SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS, SECTION 521 FOR STEEL APRON ENDWALLS.

SAFETY BARS SHALL BE FABRICATED FROM GALVANIZED STEEL PIPE MEETING THE REQUIREMENTS OF ASTM A-53, GRADE B, SCHEDULE 40 OR APPROVED EQUAL.

STEEL APRON ENDWALLS FOR CULVERT PIPE
SLOPED SIDE DRAINS

PIPE DIA. (IN.)	MIN. THICK. (Inches)	DIMENSIONS (Inches)				L DIMENSIONS					
		A	H	W	OVERALL WIDTH	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES
15	.064	8	6	21	37	4:1	20	6:1	30	10:1	70
18	.064	8	6	24	40	4:1	32	6:1	48	10:1	100
21	.064	8	6	27	43	4:1	44	6:1	66	10:1	130
24	.064	8	6	30	46	4:1	56	6:1	84	10:1	160
30	.109	12	9	36	60	4:1	80	6:1	120	10:1	220
36	.109	12	9	42	66	4:1	104	6:1	156	10:1	280
42	.109	16	12	48	80	4:1	128	6:1	192	——	——
48	.109	16	12	54	86	4:1	152	6:1	228	——	——
54	.109	16	12	60	92	4:1	176	6:1	264	——	——
60	.109	16	12	66	98	4:1	200	6:1	300	——	——



SECTION A-A

*NOTE:
THREE SAFETY BARS ARE SHOWN. ACTUAL NUMBER OF BARS REQUIRED AT A 2'-0" C-C MAX. SPACING WILL VARY DEPENDING ON THE LENGTH OF THE END SECTION.

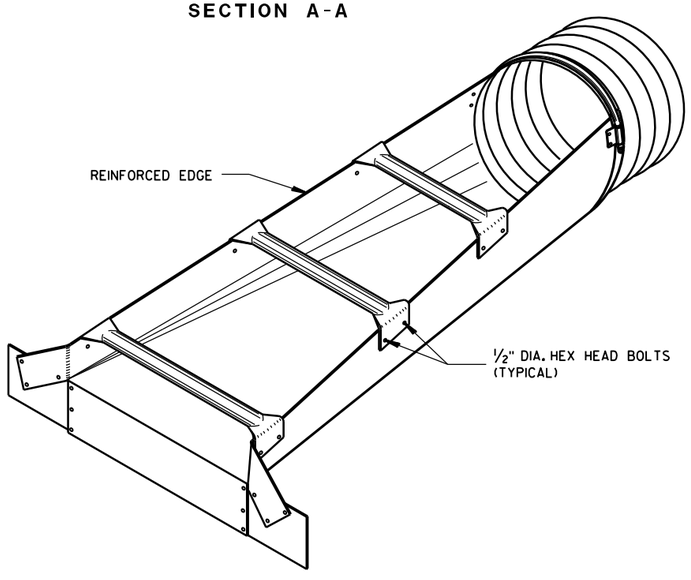
3" GALVANIZED PIPE. FLATTEN ENDS, THEN BEND OUTSIDE 4" TO MATCH END SECTION SIDES.

DETAIL OF SAFETY BAR

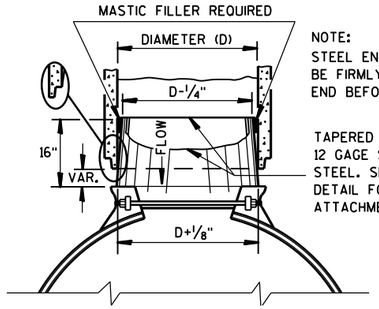
STEEL APRON ENDWALLS FOR PIPE ARCH
SLOPED SIDE DRAINS

EQUIV. DIA. (Inches)	(Inches) SPAN	(Inches) RISE	MIN. THICK. (Inches) ①	DIMENSIONS (Inches) A	H	W	OVERALL WIDTH	L DIMENSIONS SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES
15	17	13	.064 *	7	6	30	44	4:1	19	6:1	30	10:1 ②	70
18	21	15	.064 *	8	6	27	43	4:1	20	6:1	30	10:1	70
21	24	18	.064 *	8	6	30	46	4:1	32	6:1	48	10:1	100
24	28	20	.064 *	8	6	34	50	4:1	40	6:1	60	10:1	120
30	35	24	.079 *	12	9	41	65	4:1	56	6:1	84	10:1	160
36	42	29	.109 *	12	9	48	72	4:1	76	6:1	114	10:1	210
42	49	33	.109	16	12	55	87	4:1	92	6:1	138	——	——
48	57	38	.109	16	12	63	95	4:1	112	6:1	168	——	——
54	64	43	.109	16	12	70	102	4:1	132	6:1	198	——	——

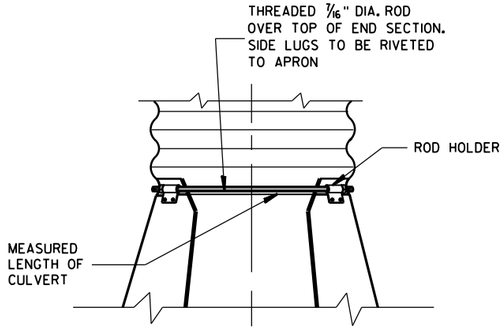
① * MINIMUM THICKNESS OF ALL 10:1 SLOPED SIDE DRAINS IS 0.109".
② ACTUAL SLOPE GREATER THAN 10:1.



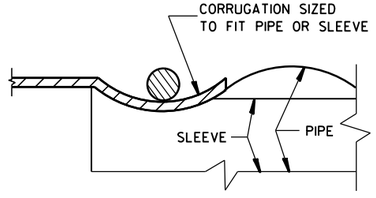
ISOMETRIC VIEW



STEEL ADAPTER SLEEVE FOR CONCRETE PIPE



TYPE 2
CONNECTION DETAIL



SECTION B-B

STEEL APRON ENDWALLS FOR CULVERT PIPE AND PIPE ARCH SLOPED SIDE DRAINS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
9/14/2012 — DATE
/S/ Jerry H. Zoda — ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

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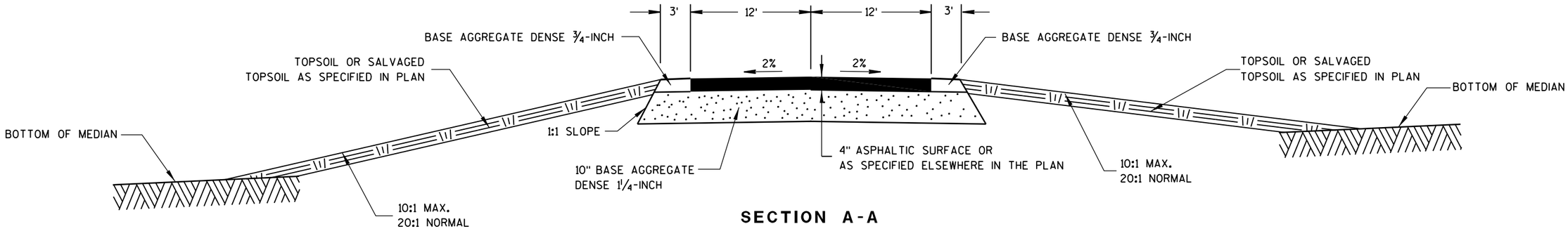
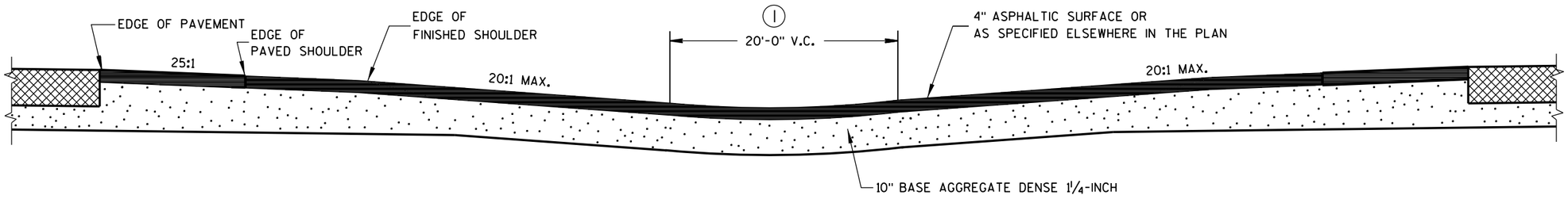
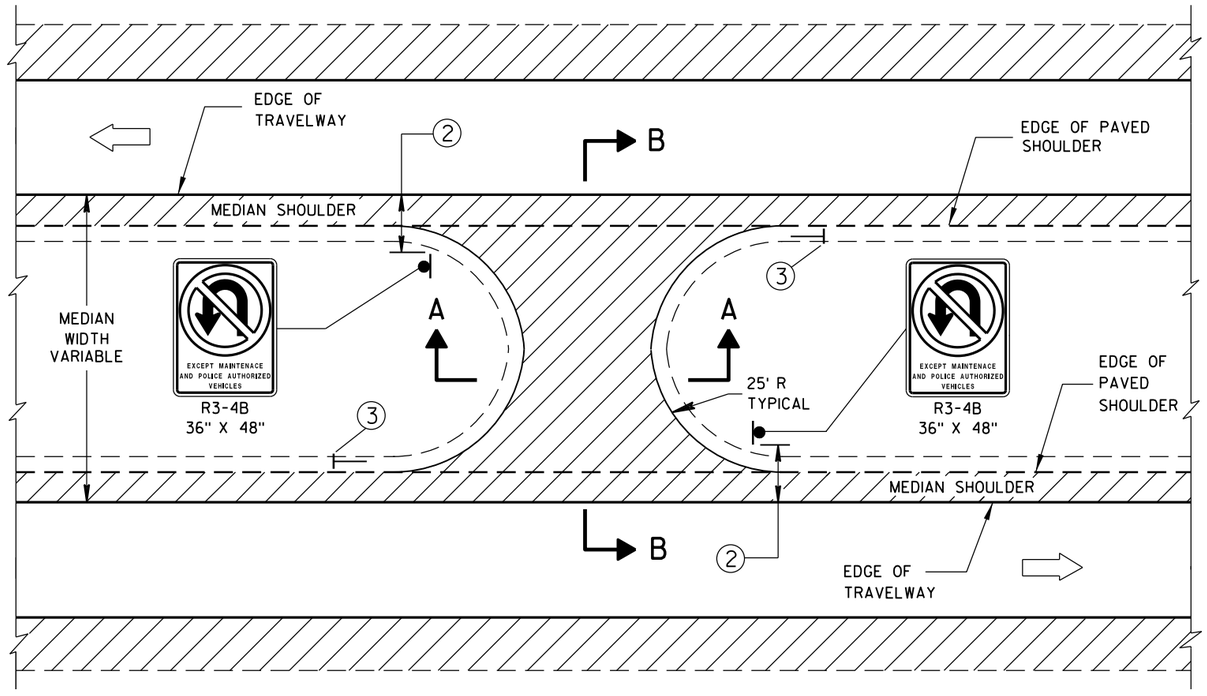
S.D.D. 8 F 7-5



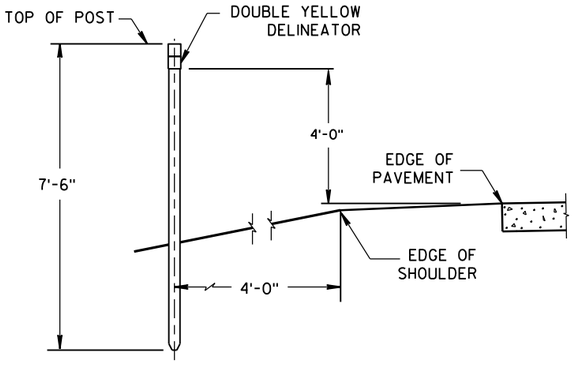
SECTION A-A



SECTION B-B



PLAN VIEW



DOUBLE YELLOW DELINEATOR INSTALLATION

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) ADJUST VERTICAL CURVE LOCATION LATERALLY TO MAINTAIN 20:1 MAX.

(2) SIGNING DETAILS AND SPECIFICATIONS ARE PROVIDED ELSEWHERE IN THE CONTRACT.

(3) INSTALL DOUBLE YELLOW DELINEATOR. SEE STANDARD DETAIL DRAWING 15A2.

MAINTENANCE CROSSOVER FOR FREEWAYS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/2013 — DATE

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

FHWA

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S.D.D. 11 A 1-5

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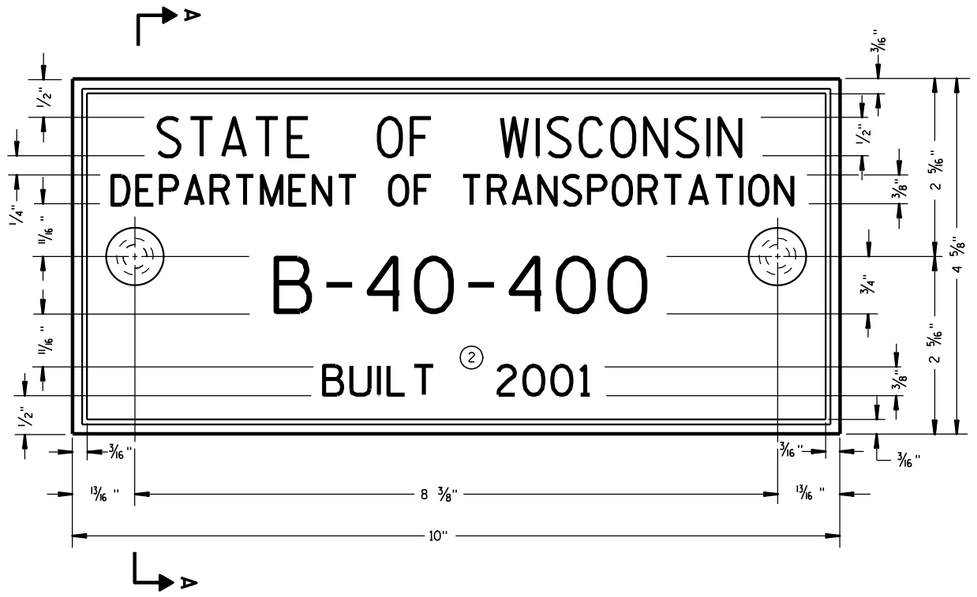
S.D.D. 11 A 1-5



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

FOR MULTI-UNIT STRUCTURES
LINE 3 ABOVE SHALL READ

B = BRIDGE
C = CULVERT
R = RETAINING WALL

COUNTY NO.

BRIDGE NO.

UNIT NO. FOR MULTIPLE UNIT BRIDGE

B-40-400-1A

NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

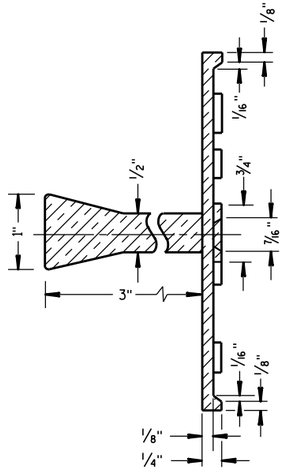
GENERAL NOTES

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

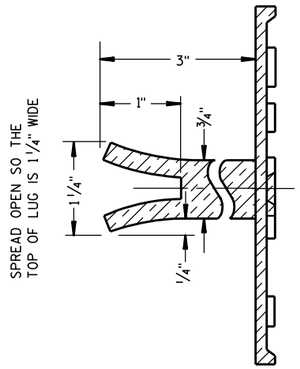
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

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

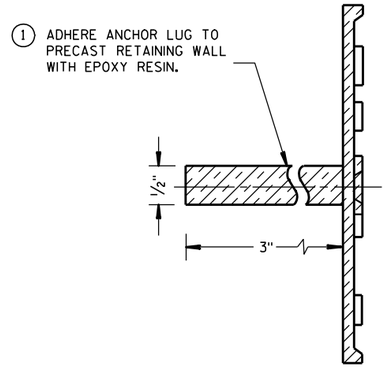
(2) REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



SECTION A-A



ALTERNATE LUG



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

NAME PLATE (STRUCTURES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/26/10 DATE

/S/ Scot Beck -- CHIEF STRUCTURAL DEVELOP ENGINEER

FHWA

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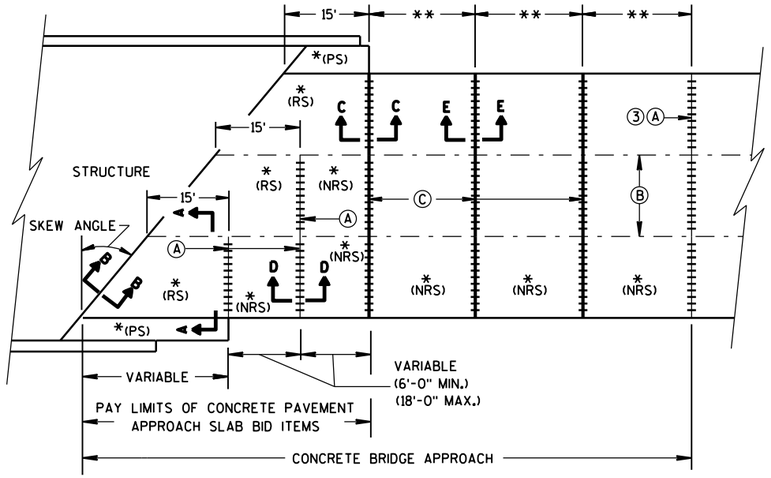
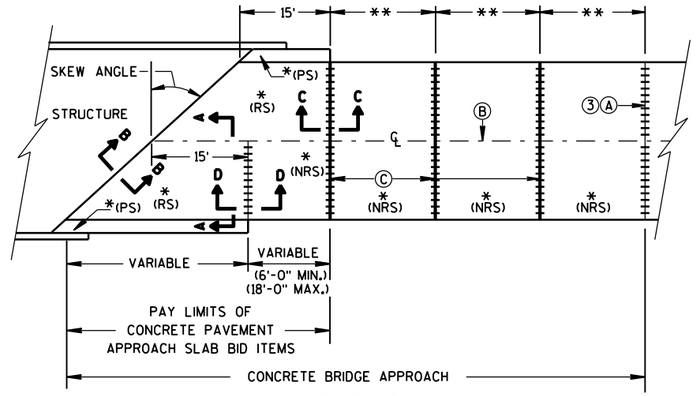
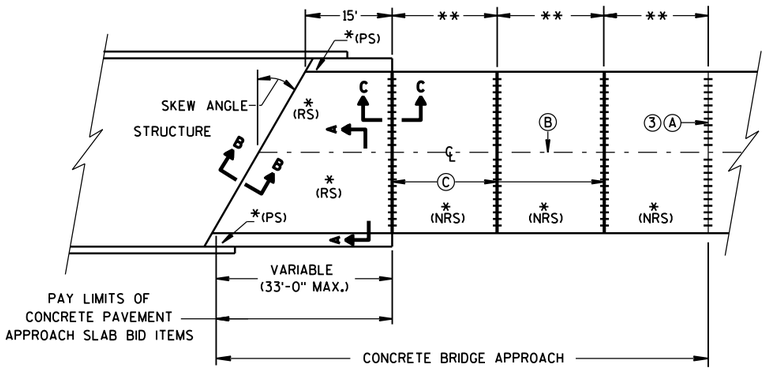
S.D.D. 12 A 3-10



SKEWED APPROACH
(PAVEMENT MORE THAN 2 LANES)



SKEWS >30°
(PAVEMENT WIDTH ≤30')



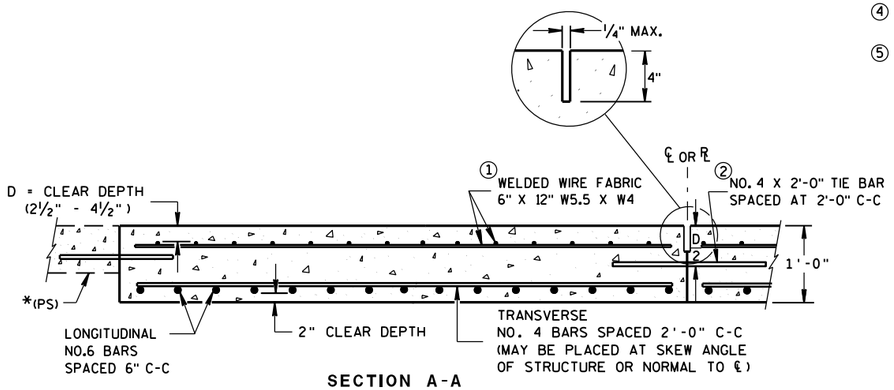
SKEWS ≤30°
(PAVEMENT WIDTH ≤30')

APPROACH SLAB AND ADJACENT PAVEMENT

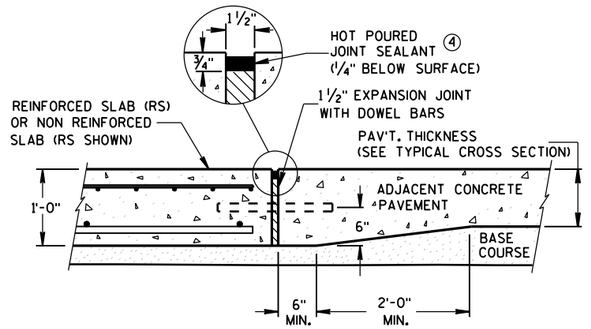
*(RS) = REINFORCED CONCRETE SLAB
*(PS) = PAVED CONCRETE SHOULDER: CONCRETE PAVEMENT, OR CONCRETE SURFACE DRAIN (SEE DETAILS ELSEWHERE IN THE PLAN)
*(NRS) = NON-REINFORCED CONCRETE SLAB

**STANDARD TRANSVERSE JOINT SPACING (SEE SDD 13C4, SDD 13C11, & SDD 13C13)
***STANDARD DOWEL BAR DIAMETER (SEE SDD 13C11, & SDD 13C13)

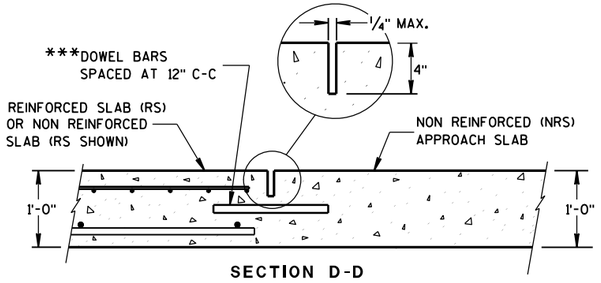
Ⓐ STANDARD CONTRACTION JOINT NORMAL TO ℄ OR ℄
Ⓑ STANDARD LONGITUDINAL JOINT AND TIE BARS.
Ⓒ 1½" EXPANSION JOINT WITH DOWEL BARS NORMAL TO ℄ OR ℄



SECTION A-A
REINFORCEMENT POSITIONING DETAIL



SECTION C-C
TRANSITION DETAIL
APPROACH SLAB TO ADJACENT PAVEMENT



SECTION D-D
CONTRACTION JOINT

GENERAL NOTES

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

TACK WELD DOWEL BARS TO THE BASKETS ON ALTERNATE ENDS.

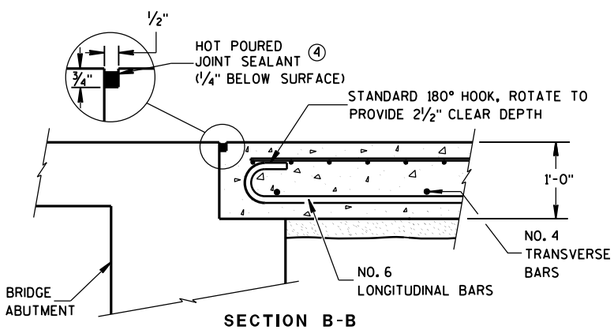
① THE CONTRACTOR MAY USE NO. 4 BARS SPACED AT 2'-0" C-C IN BOTH THE LONGITUDINAL AND TRANSVERSE DIRECTIONS FOR TOP REINFORCEMENT AS AN ALTERNATIVE TO THE WELDED WIRE FABRIC.

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

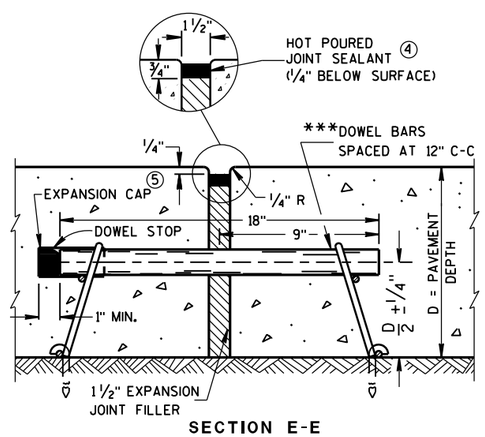
③ DO NOT DOWEL A CONTRACTION JOINT THAT ABUTS AN HMA PAVEMENT.

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

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



SECTION B-B
BEND DETAIL
BOTTOM REINFORCEMENT



SECTION E-E
EXPANSION JOINT

CONCRETE BRIDGE APPROACH

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2014 — DATE
/S/ Deb Bischoff — PAVEMENT POLICY & DE
EER
FHWA

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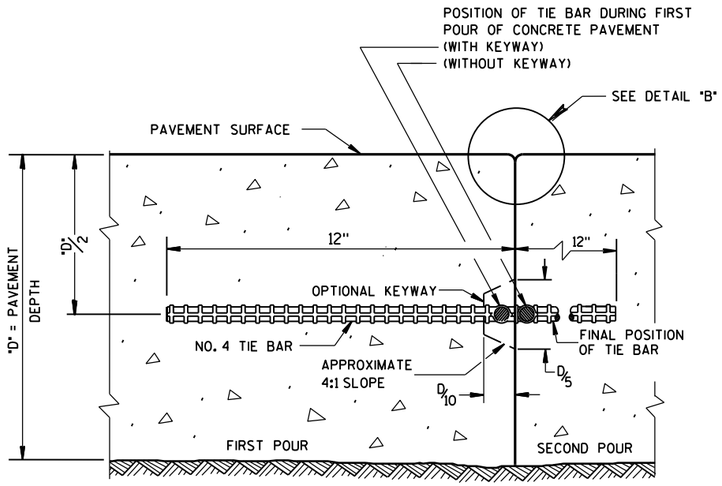
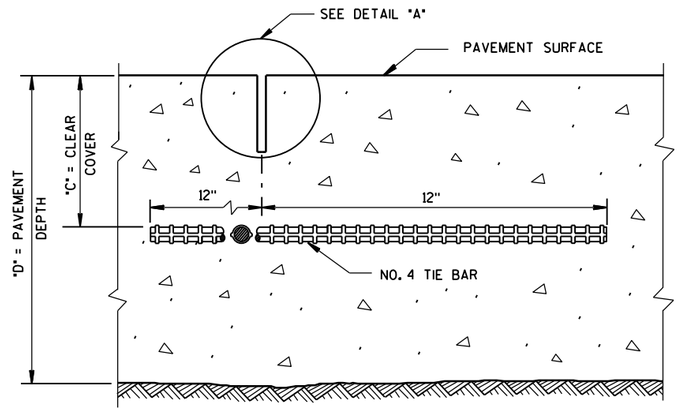


CONSTRUCTION JOINT



SAWED JOINT

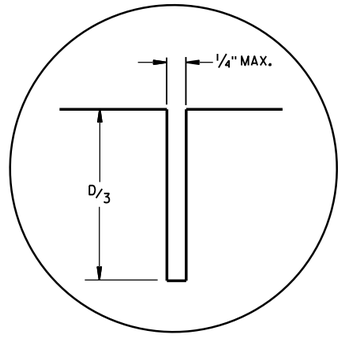
GENERAL NOTES

DO NOT SEAL OR FILL LONGITUDINAL JOINTS.

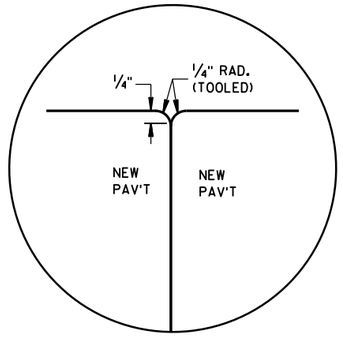
CREATE A LONGITUDINAL JOINT FOR PAVEMENT WIDTHS GREATER THAN 15 FEET.

CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.

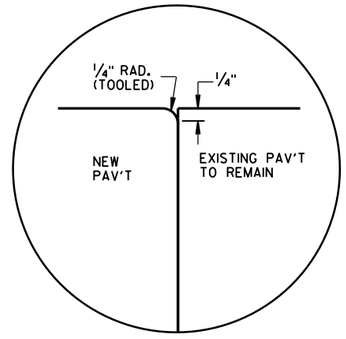
(1) ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.



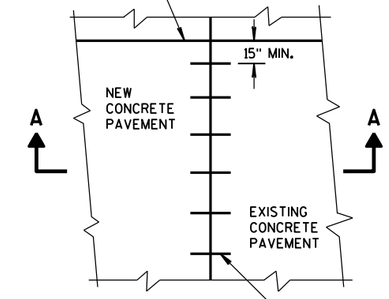
DETAIL "A"



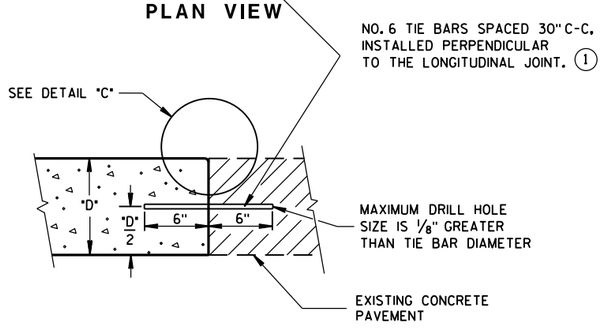
DETAIL "B"



DETAIL "C"



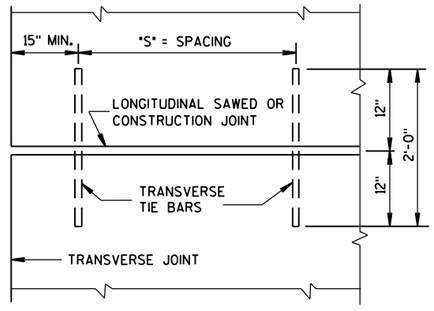
PLAN VIEW



SECTION A-A
LONGITUDINAL CONSTRUCTION JOINT TIE BARS ANCHORED INTO EXISTING PAVEMENT

TIE BAR TABLE

PAVEMENT DEPTH "D"	CLEAR COVER "C"	MAXIMUM TIE BAR SPACING "S"	
		PAVEMENT WIDTH	
		24' OR 26'	≥30'
6, 6 1/2"	3"±1/2"	48"	42"
7, 7 1/2"	3 1/4"±1"	45"	36"
8, 8 1/2"	3 3/4"±1"	39"	30"
9, 9 1/2"	4 1/4"±1"	33"	27"
10, 10 1/2"	4 3/4"±1"	30"	24"
11, 11 1/2"	5 1/4"±1"	27"	21"
12"	5 3/4"±1"	24"	21"



PLAN VIEW
SHOWING LOCATION OF TIE BARS

CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

9/2014 — DATE

/S/ Deb Bischoff — PAVEMENT POLICY & DE ... NEER

FHWA

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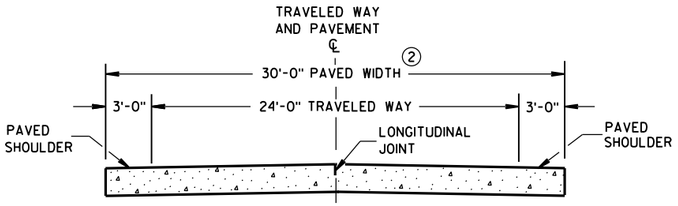
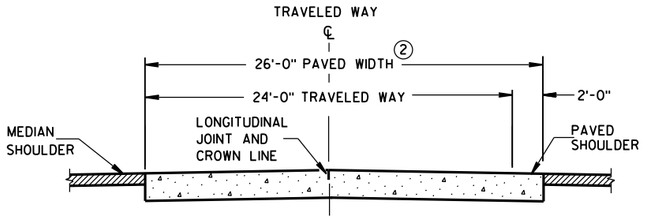
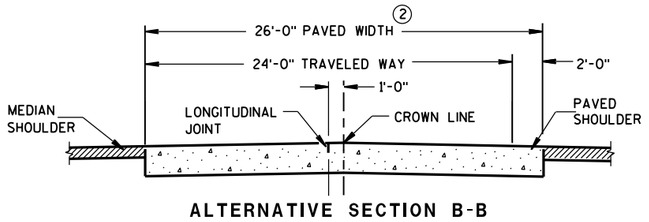


SECTION A-A ①

TWO-LANE TWO-WAY HIGHWAY



SECTION B-B



ALTERNATIVE SECTION B-B ①

DIVIDED HIGHWAY

GENERAL NOTES

CONTRACTION JOINTS

CONSTRUCT TRANSVERSE CONTRACTION JOINTS NORMAL TO THE CENTERLINE. SHOW THE LOCATION OF CONTRACTION JOINTS THROUGH INTERSECTIONS ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

DO NOT SEAL OR FILL CONTRACTION JOINTS.

INSTALL DOWEL BARS PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.

FOR PAVEMENT SLABS OF VARYING WIDTHS, LOCATE THE OUTER MOST DOWEL BAR SO THAT THE CENTER OF THE BAR IS A MINIMUM OF 6 INCHES AND A MAXIMUM OF 18 INCHES FROM THE FREE EDGE OF PAVEMENT.

CONSTRUCTION JOINTS

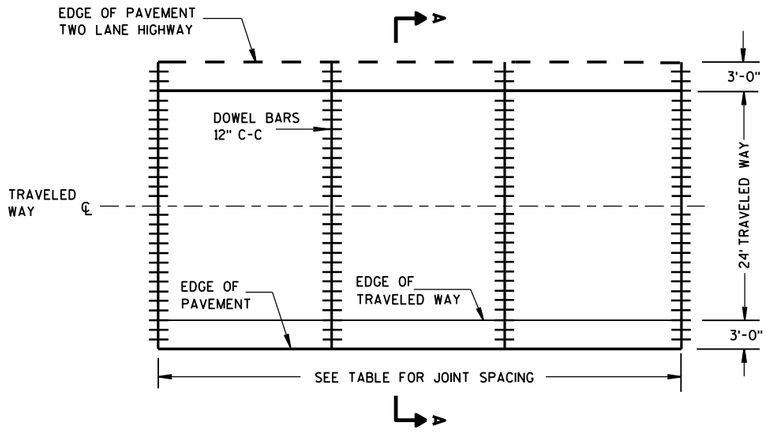
LOCATE CONSTRUCTION JOINTS A MINIMUM OF 6 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO CONTRACTION JOINTS.

① REFER TO TYPICAL CROSS SECTIONS FOR ADDITIONAL DETAILS.

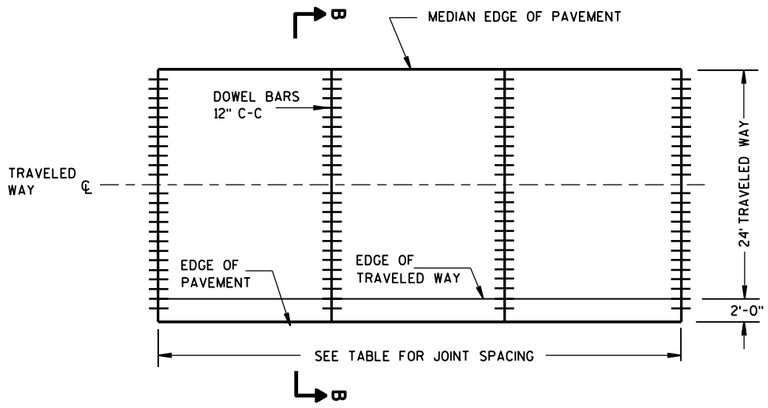
② MEASURE THE ENTIRE PAVED WIDTH INCLUDING THE PORTION(S) LABELED PAVED SHOULDER AS CONCRETE PAVEMENT.

PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

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



CONTRACTION JOINT LAYOUT
FOR TWO-LANE TWO-WAY HIGHWAY



CONTRACTION JOINT LAYOUT
FOR DIVIDED HIGHWAY

RURAL DOWELED
CONCRETE PAVEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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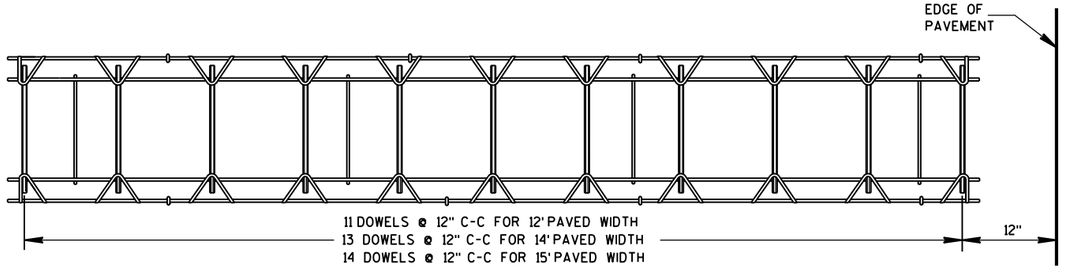
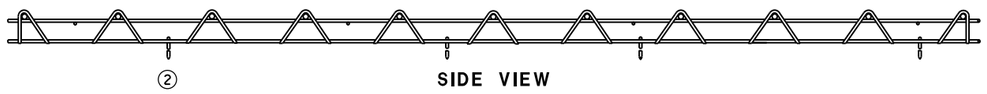
S.D.D. 13 C 11-11a



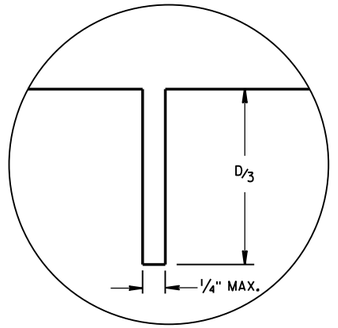
PLAN VIEW



SIDE VIEW

(NORMAL TO CENTERLINE)

CONTRACTION JOINT DOWEL ASSEMBLY ①



JOINT DETAIL

GENERAL NOTES

① OBTAIN THE ENGINEER'S APPROVAL FOR THE USE OF ALTERNATIVE DESIGNS OF THE DOWEL ASSEMBLY. USE MECHANICAL DOWEL BAR INSERTERS OR DOWEL ASSEMBLIES WHEN CONSTRUCTING CONTRACTION JOINTS.

② SECURE BASKETS WITH ANCHORS TO HOLD DOWEL BARS IN THE CORRECT POSITION AND ALIGNMENT. TYPE, LOCATION, NUMBER AND LENGTH OF ANCHORS ARE DEPENDENT UPON FIELD CONDITIONS.

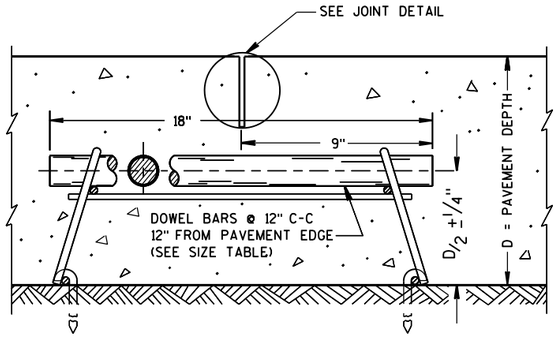
③ FORM OR SAW CONSTRUCTION JOINTS. PROVIDE A 1/4-INCH RADIUS AT FORMED JOINTS.

④ PROVIDE A SMOOTH VERTICAL FACE FOR THE ENTIRE DEPTH OF THE PAVEMENT WHEN FORMING CONSTRUCTION JOINTS.

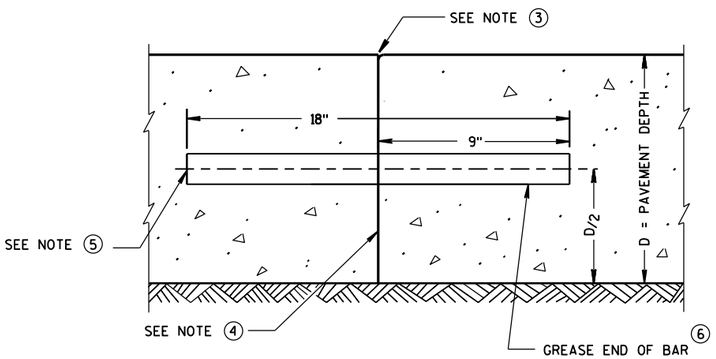
⑤ INSTALL DOWEL BARS AT CONSTRUCTION JOINTS BY FORMING OR DRILLING. INSTALL FORMED DOWEL BARS 12 INCHES C-C AND 12 INCHES FROM PAVEMENT EDGE. REMOVE EXCESS CONCRETE FROM THE FREE END OF THE DOWEL BAR IF DOWEL BARS ARE FORMED THROUGH A HEADER BOARD. INSTALL DRILLED DOWEL BARS ACCORDING TO *DRILLED DOWEL BAR CONSTRUCTION JOINT* DETAIL.

⑥ APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.

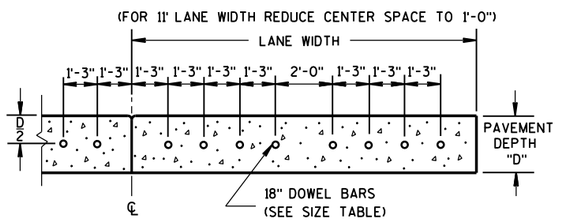
⑦ ANCHOR DOWEL BARS INTO DRILLED HOLES WITH AN EPOXY. MAXIMUM DRILLED HOLE SIZE IS 1/8-INCH GREATER THAN DOWEL BAR DIAMETER, 9 INCHES IN LENGTH.



DOWELED CONTRACTION JOINT



TRANSVERSE CONSTRUCTION JOINT



DRILLED DOWEL BAR CONSTRUCTION JOINT ⑦

RURAL DOWELED CONCRETE PAVEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

5/3/2013 DATE

/S/ Deb Bischoff
PAVEMENT POLICY & DE ENGINEER

FHWA

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S.D.D. 13 C 11-11b

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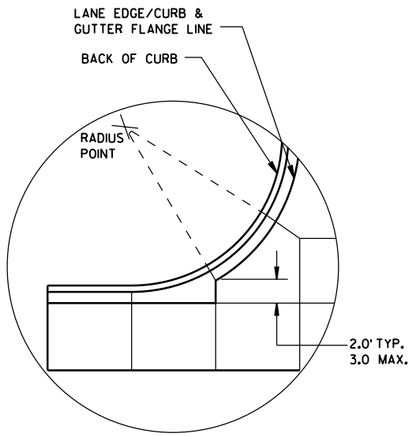
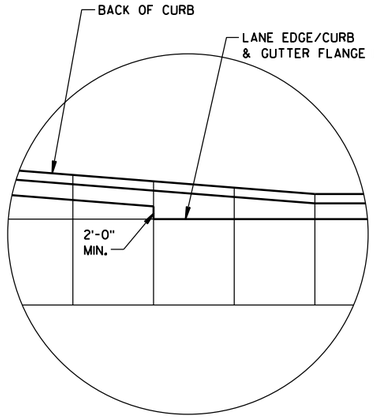
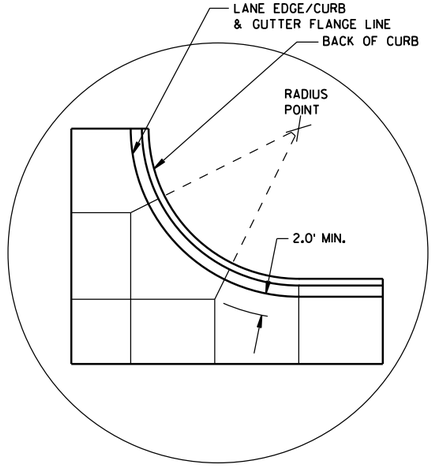
S.D.D. 13 C 11-11b



DETAIL "A"



DETAIL "B"



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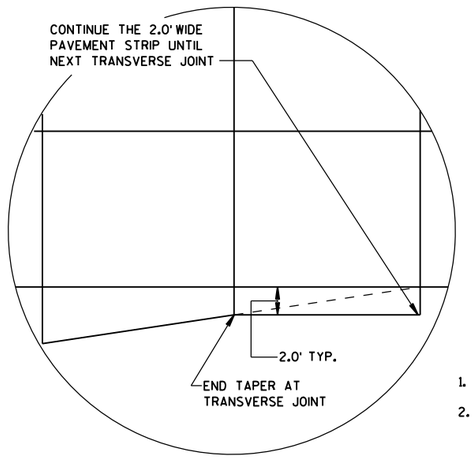


DETAIL "D"

GENERAL NOTES

THE PRIMARY ROADWAY CONTROLS THE TRANSVERSE JOINT PATTERN.

ALIGN NEW JOINTS WITH EXISTING JOINTS OR CRACKS.

CONSTRUCT TRANSVERSE JOINTS PERPENDICULAR TO THE ROADWAY.

ADJUST TRANSVERSE JOINTS TO ALIGN WITH UTILITY FIXTURES (E.G. MANHOLES AND INLETS) IN THE PAVEMENT STRUCTURE WHEN POSSIBLE. WATER VALVES DO NOT REQUIRE JOINT ADJUSTMENT.

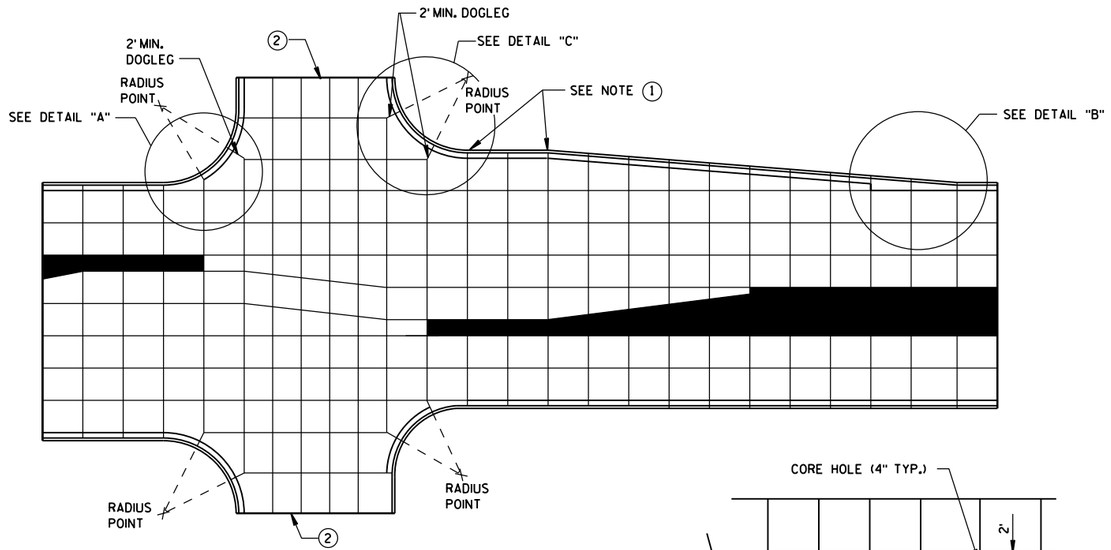
AVOID SLABS LESS THAN 2 FEET WIDE OR GREATER THAN 15 FEET WIDE.

SEE TABLE FOR TRANSVERSE JOINT SPACING. JOINT SPACING SPECIFIED IS MAXIMUM AND ACTUAL SPACING CAN BE ADJUSTED TO ACCOMMODATE INTERSECTIONS.

AVOID ANGLES LESS THAN 60° BY DOGLEGGING JOINTS THROUGH CURVE RADIUS POINTS. USE 90° ANGLES WHEN POSSIBLE.

CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.

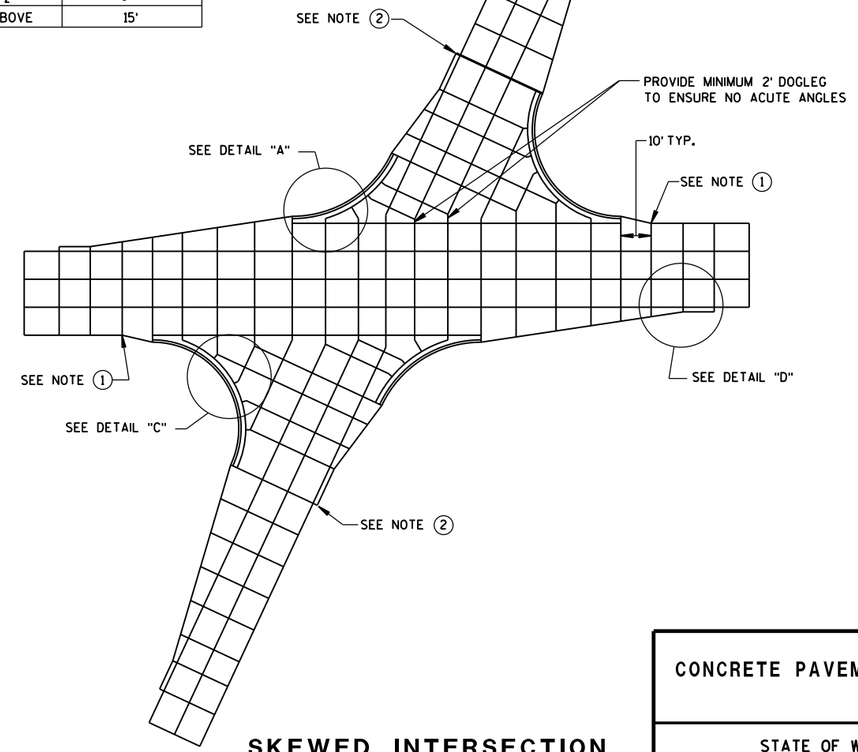
1. PROVIDE TRANSVERSE JOINTS AT ALL PAVEMENT WIDTH CHANGES.
2. CONSTRUCT DOWELED EXPANSION JOINT ON THE SIDE ROAD OF AN INTERSECTION IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH. ALIGN EXPANSION JOINT WITH EDGE OF RADIUS.
3. THE ENGINEER MAY APPROVE SLIGHT VARIATIONS FROM THESE JOINTING DETAILS.



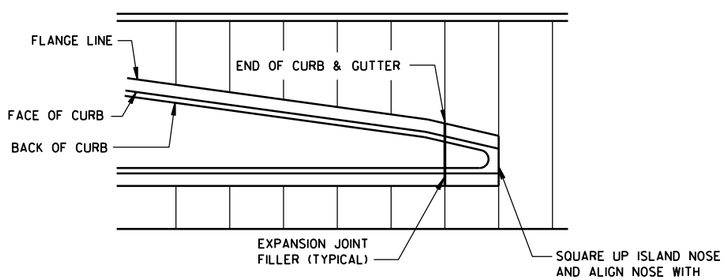
STANDARD INTERSECTION

PAVEMENT DEPTH AND JOINT SPACING TABLE

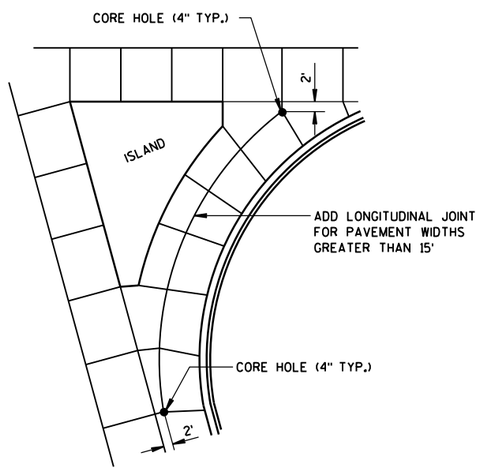
PAVEMENT DEPTH (D)	CONTRACTION JOINT SPACING
6", 6½"	12'
7", 7½"	14'
8" & ABOVE	15'



SKEWED INTERSECTION



APPROACH TO MEDIAN



LARGE RIGHT TURN

CONCRETE PAVEMENT JOINTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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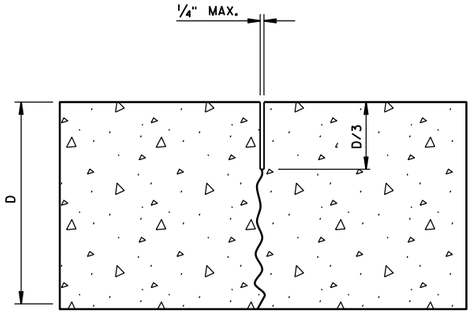
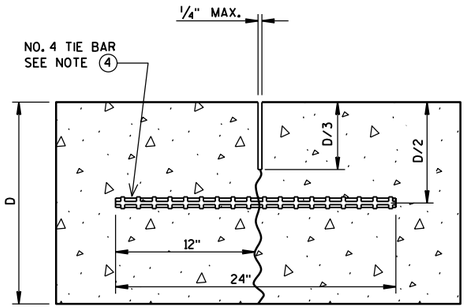
S.D.D. 13 C 18-2a



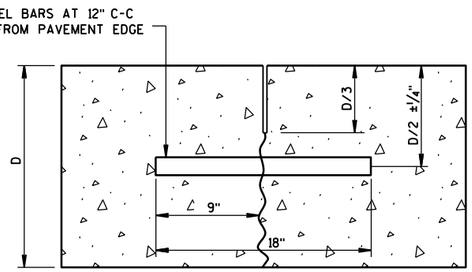
UNDOWELED-TRANSVERSE



TIED LONGITUDINAL

GENERAL NOTES

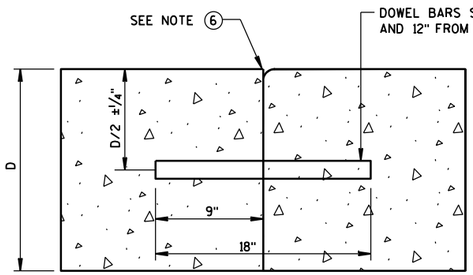
1. USE DOWELED EXPANSION JOINTS ON SIDE ROADS AT INTERSECTIONS (TO ISOLATE THE SIDE ROAD FROM THE THROUGH STREET) IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH.
2. SPACE CONTRACTION JOINTS IN ACCORDANCE WITH 13C4, 13C11 OR 13C13.
3. LOCATE CONSTRUCTION JOINTS A MINIMUM OF 6 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO CONTRACTION JOINTS.
4. SPACE TIE BARS AT LONGITUDINAL CONSTRUCTION OR CONTRACTION JOINTS IN ACCORDANCE WITH SDD 13C1.
5. CONSTRUCTION JOINTS CAN BE FORMED OR SAWED.
6. IF JOINT IS FORMED, PROVIDE A 1/4-INCH RADIUS.



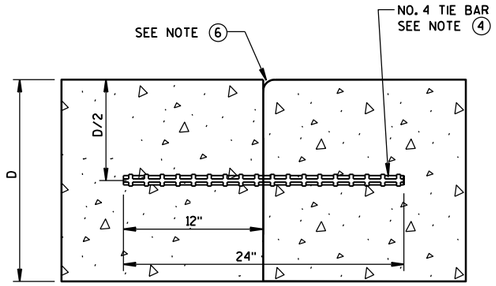
DOWELED-TRANSVERSE

CONTRACTION JOINTS

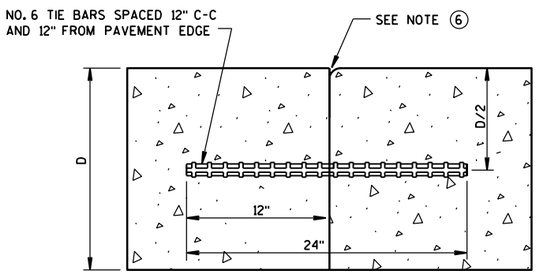
SEE NOTE (2)



DOWELED TRANSVERSE

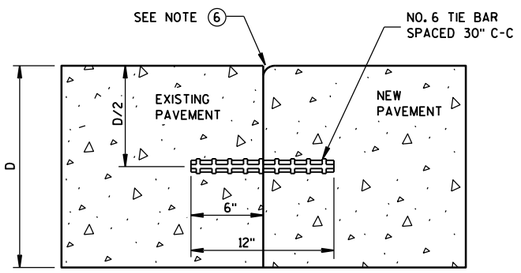


TIED LONGITUDINAL



TIED TRANSVERSE

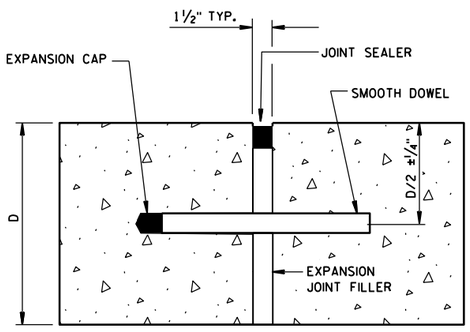
(FOR USE ON NON-DOWELED PAVEMENTS ONLY)



TIED LONGITUDINAL TO EXISTING

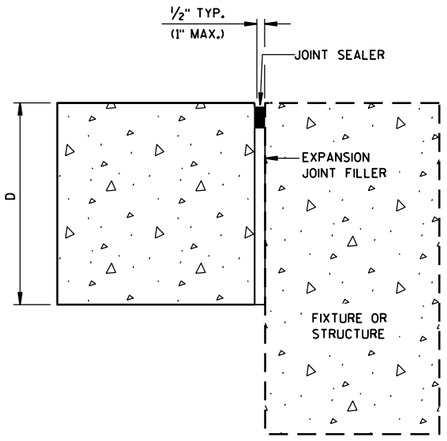
CONSTRUCTION JOINTS

SEE NOTE (5)



DOWELED-TRANSVERSE

SEE NOTE (1)



UNTIED-LONGITUDINAL

EXPANSION JOINTS

CONCRETE PAVEMENT
JOINT TYPES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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S.D.D. 13 C 18-2c

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S.D.D. 13 C 18-2c

GENERAL NOTES

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

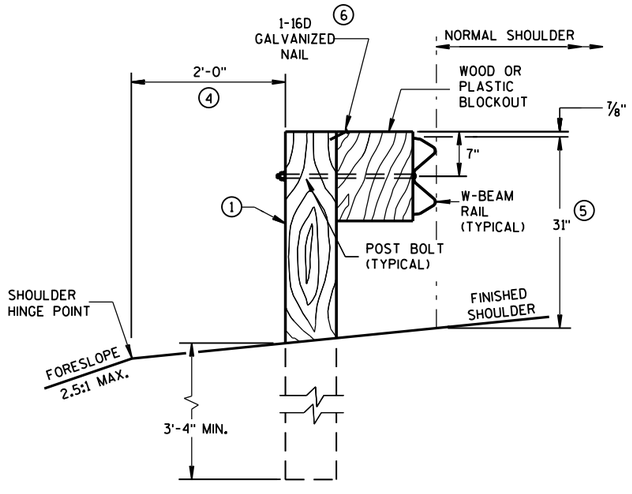
(2) USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.

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

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

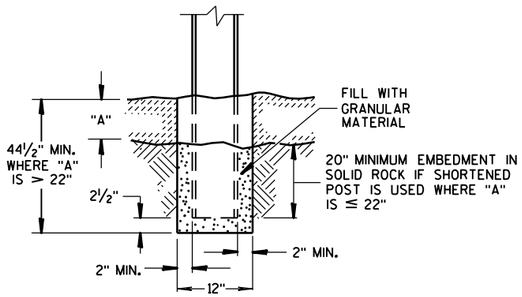
(5) FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ± 1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27¾" TO 32".

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



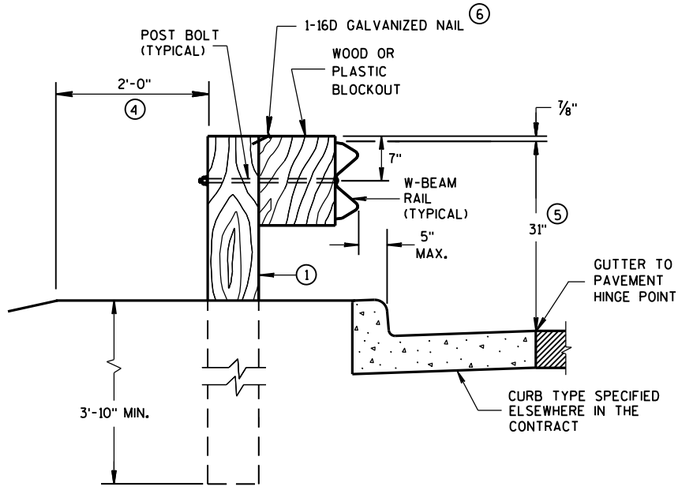
END VIEW

LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



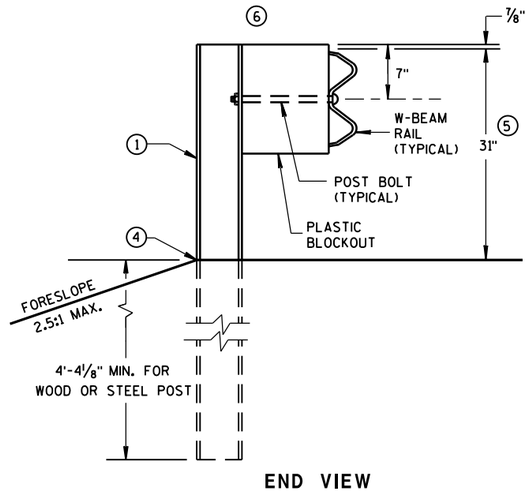
END VIEW

SETTING STEEL OR WOOD POST IN ROCK (3)



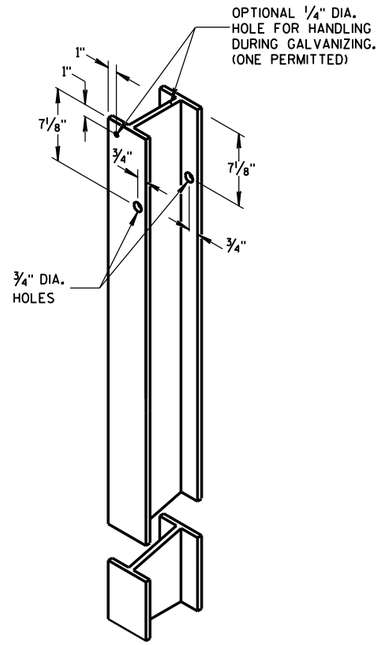
END VIEW

LOCATED ALONG A CURBED ROADWAY

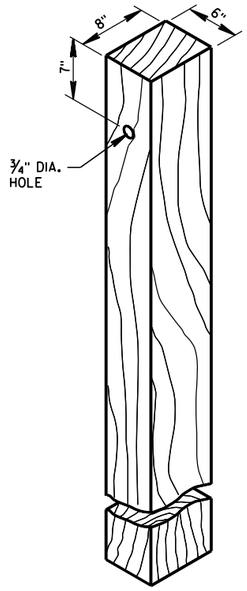


END VIEW

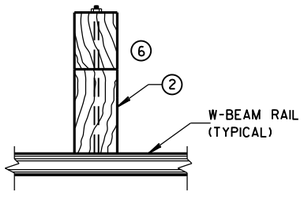
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



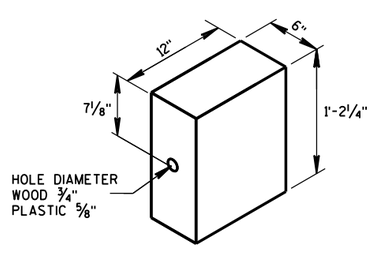
STEEL POST &
HOLE PUNCHING DETAIL
(w6X9) (1)



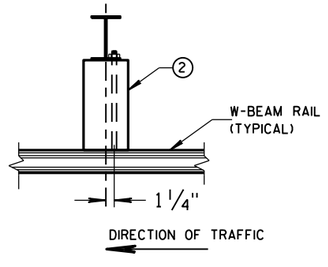
WOOD POST
(6" X 8") NOMINAL (1)



PLAN VIEW
WOOD POST,
BLOCKOUT & BEAM



WOOD OR
PLASTIC BLOCKOUT (2)



PLAN VIEW
STEEL POST,
PLASTIC BLOCKOUT & BEAM

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

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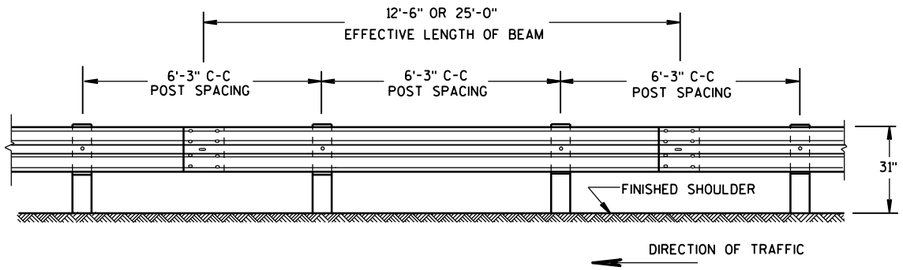
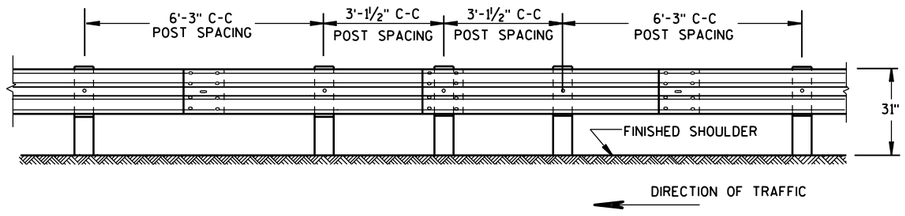
S.D.D. 14 B 42-3a



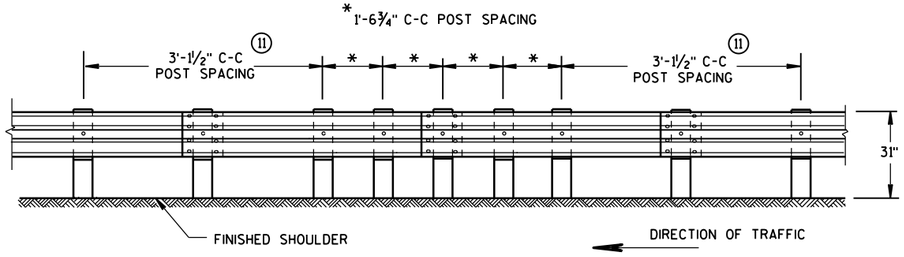
FRONT VIEW

POST SPACING STANDARD INSTALLATION



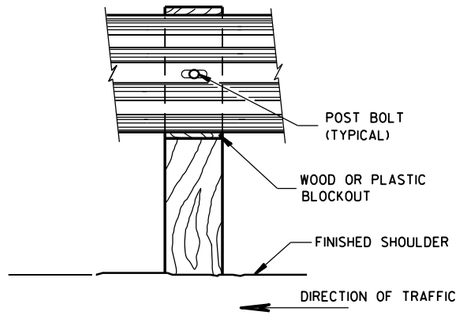
FRONT VIEW

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

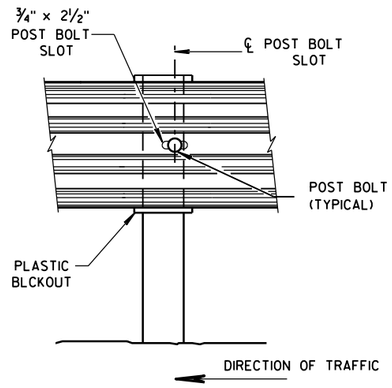


FRONT VIEW

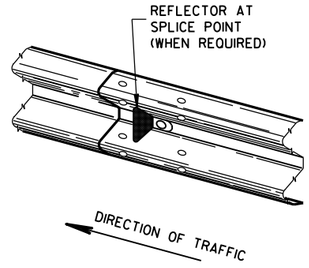
QUARTER POST SPACING (QS)

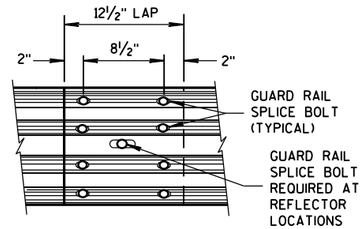


FRONT VIEW AT WOOD POST



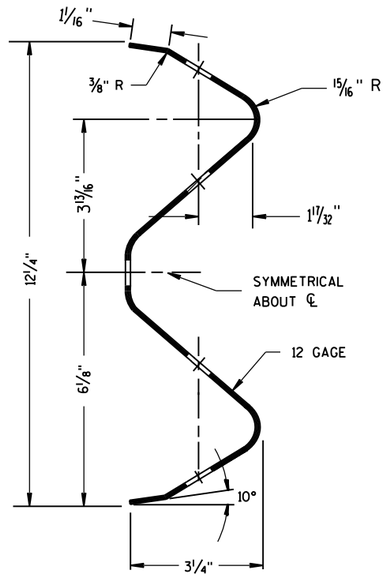
FRONT VIEW AT STEEL POST



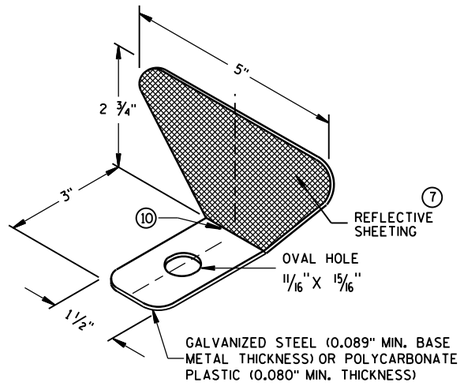


FRONT VIEW

MID-SPAN BEAM SPLICE



SECTION THRU W-BEAM RAIL



ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION ⑦

GENERAL NOTES

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

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

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

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

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

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

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

REFLECTOR SPACING ⑧

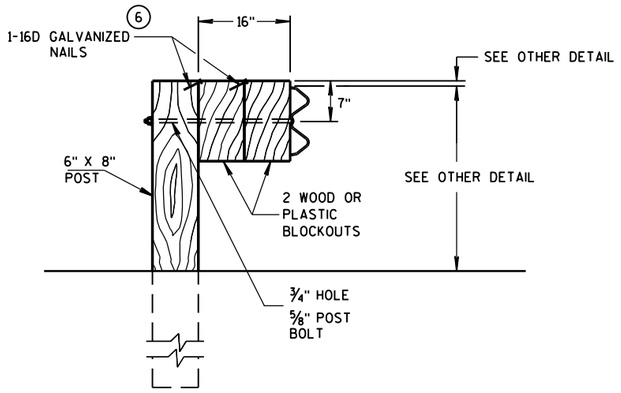
	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200' > 200'	50' C-C 100' C-C	1 1	3
TWO WAY TRAFFIC	< 200' > 200'	25' C-C 50' C-C	1 ⑨ 1	6
TWO WAY TRAFFIC	< 200' > 200'	50' C-C 100' C-C	2 2 ⑩	3

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

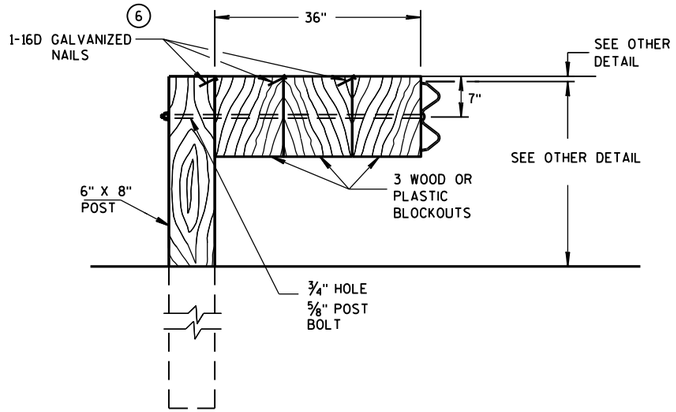
6

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



DETAIL FOR 16" BLOCKOUT DEPTH

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

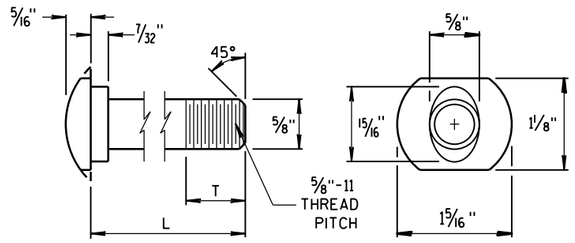


DETAIL FOR 36" BLOCKOUT DEPTH

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

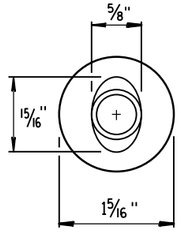
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

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

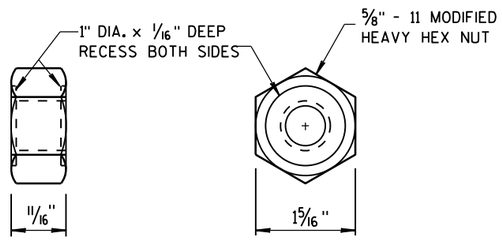


POST BOLT TABLE

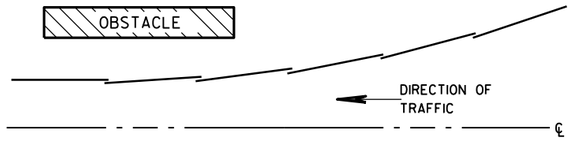
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



ALTERNATE BOLT HEAD

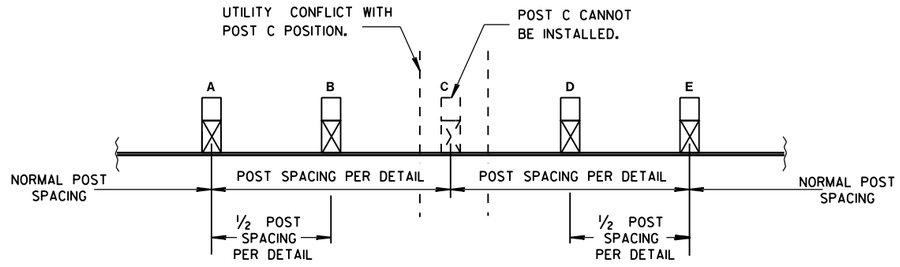


POST BOLT AND RECESS NUT

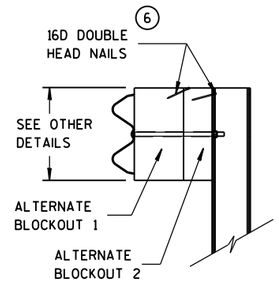


PLAN VIEW

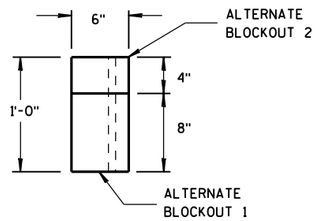
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



SIDE VIEW



TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2014
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS (75 ENT
ENGINEER
FHWA

6

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

6

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

GENERAL NOTES

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

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

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

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

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

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

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

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

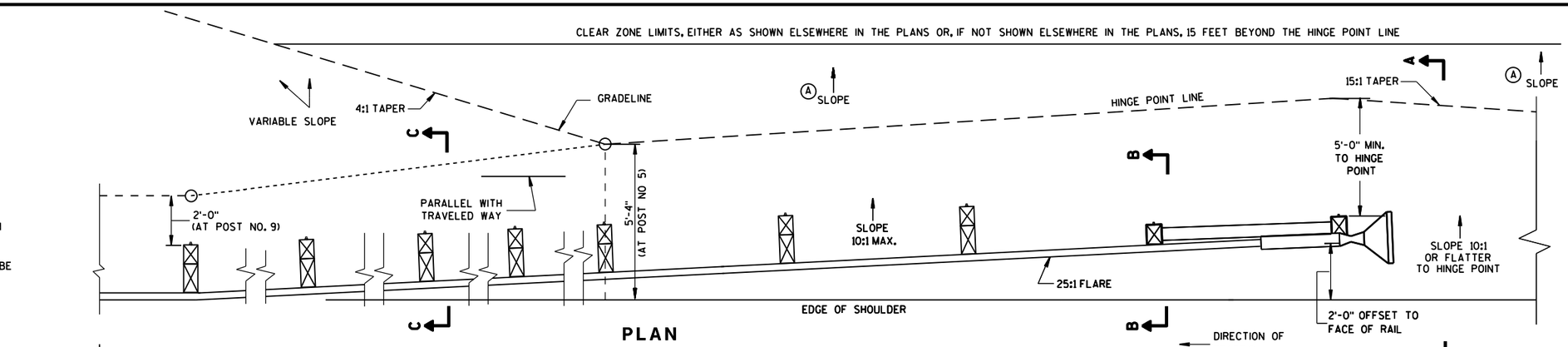
SEE SDD 14B42 FOR MORE INFORMATION.

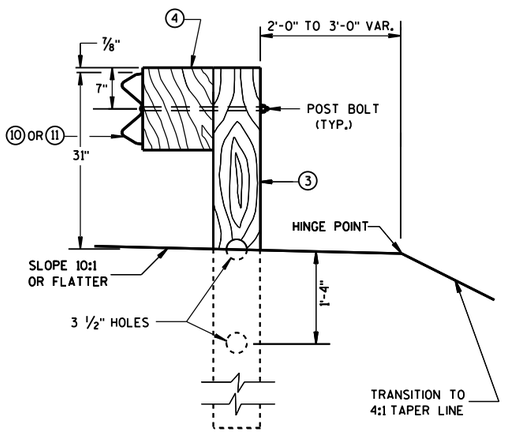
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

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

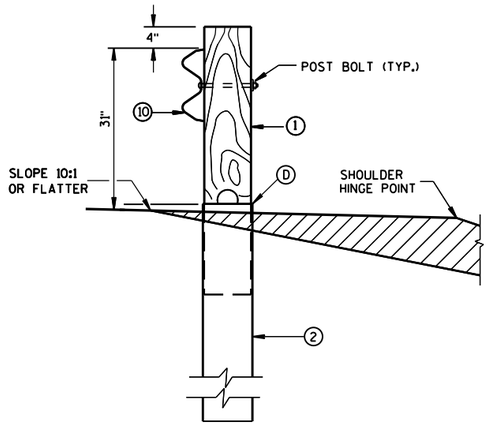
W-BEAM RAIL SPLICES ARE LOCATED AT POST NUMBER 3, AND BETWEEN POST 5 AND 6, BETWEEN POSTS 7 AND 8, AND MIDDLE OF THE SPAN AFTER POST 9.

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

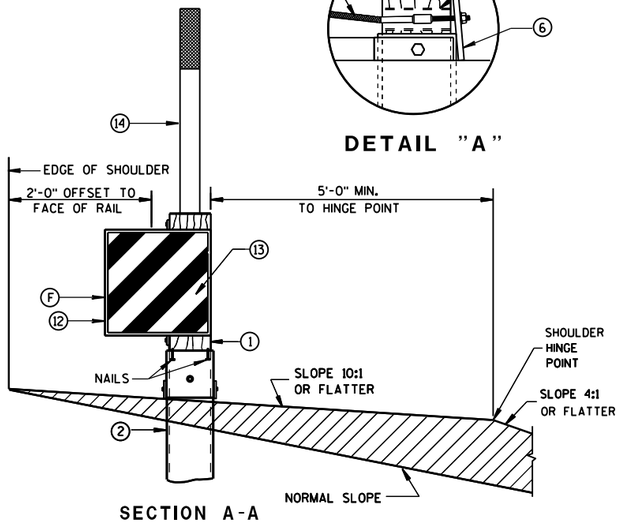




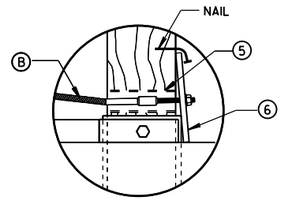
SECTION C-C
TYPICAL AT POST NOS. 3-9



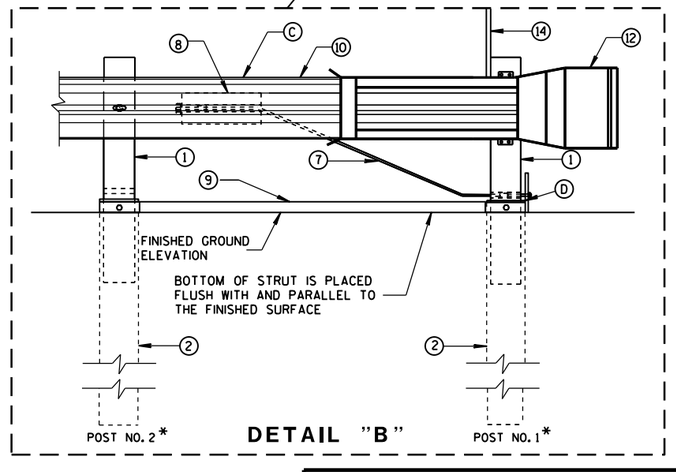
SECTION B-B
TYPICAL AT POST NO. 2*



SECTION A-A
TYPICAL AT POST NO. 1*



DETAIL "A"



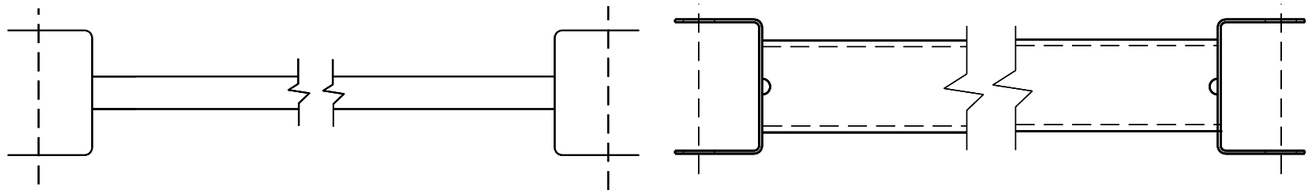
DETAIL "B"

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

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

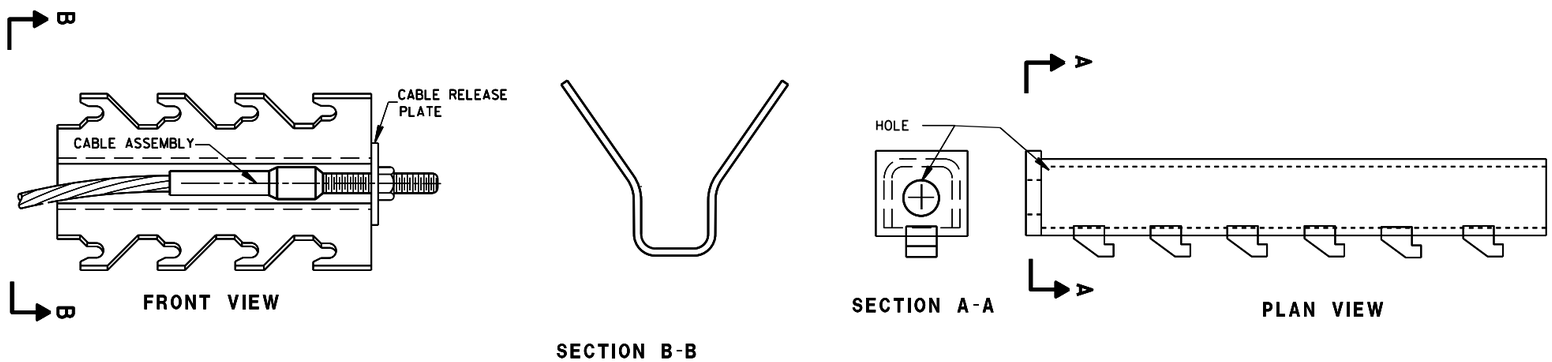
S.D.D. 14 B 44-2a



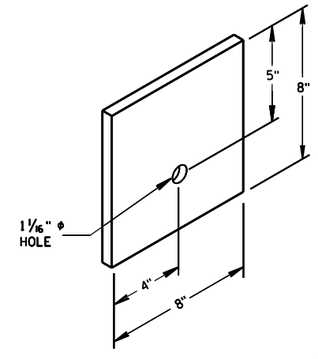
GENERIC GROUND STRUT (9) (H)

BILL OF MATERIALS

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



GENERIC ANCHOR CABLE BOX (8) (H)



BEARING PLATE (6)

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

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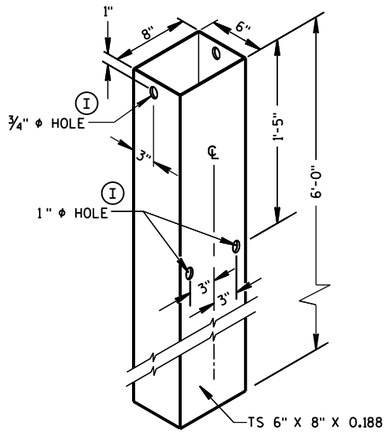
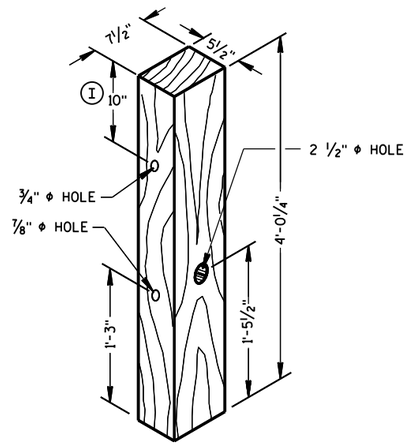
S.D.D. 14 B 44-2b

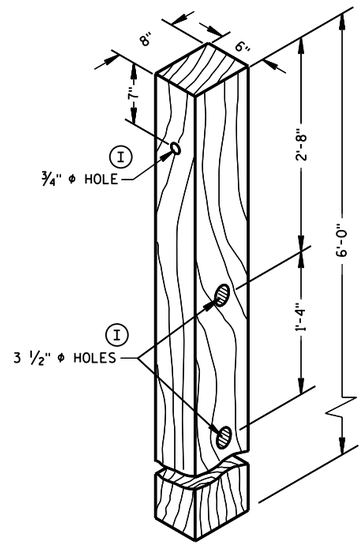


FOUNDATION TUBE (2)



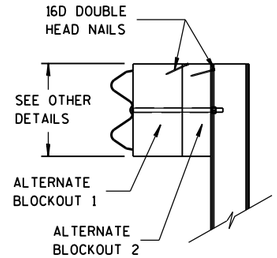
POSTS NUMBER 1 AND 2

WOOD BREAKAWAY POST (1)

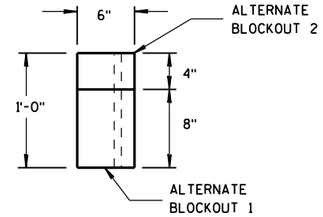


POSTS NUMBER 3-9

WOOD CRT POST (3)

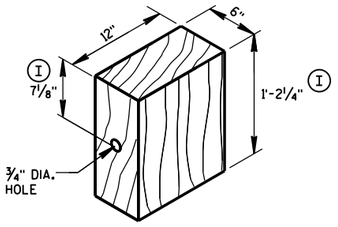


SIDE VIEW



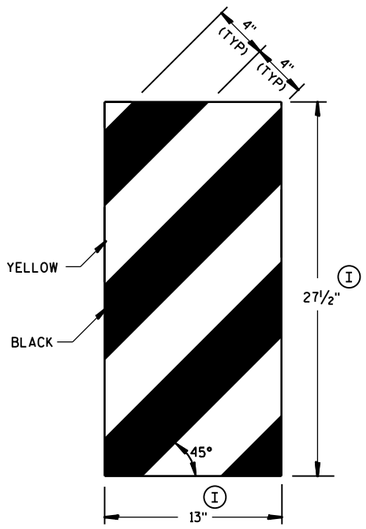
TOP VIEW

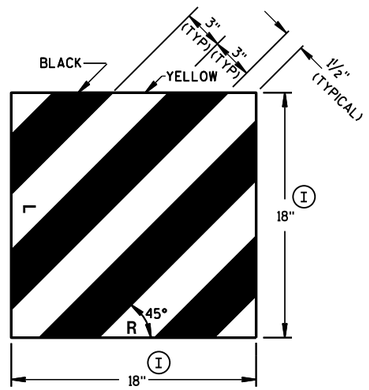
ALTERNATE WOOD BLOCKOUT DETAIL



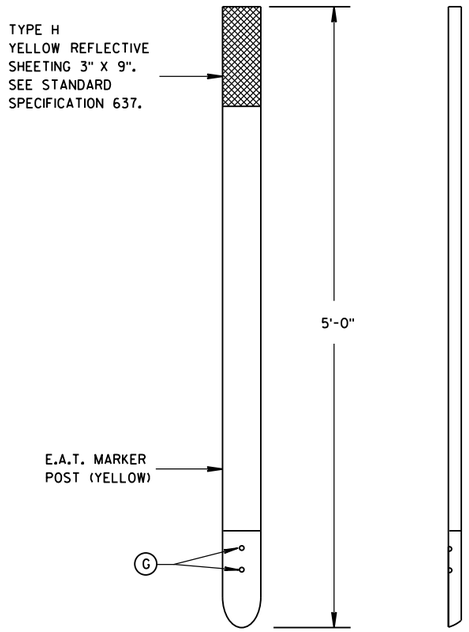
WOOD BLOCKOUT (4)

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





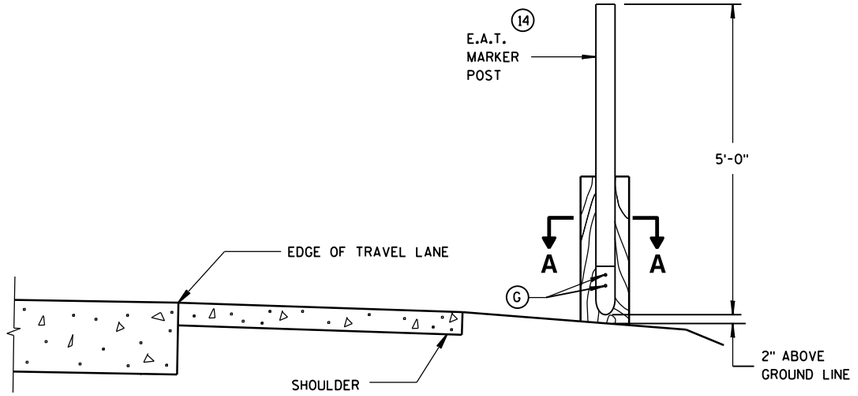
GENERIC REFLECTIVE SHEETING (13) (H)



FRONT VIEW

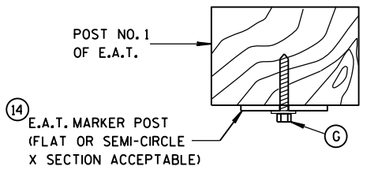
SIDE VIEW

E.A.T. MARKER POST (14)



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

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



SECTION A-A

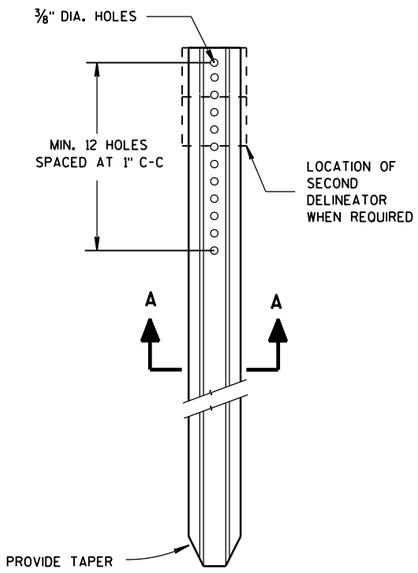
MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

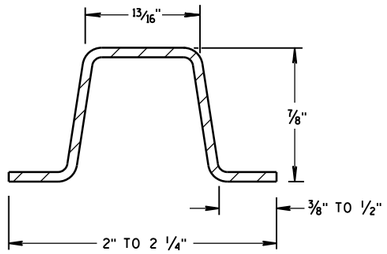
APPROVED
June 2014 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER
FHWA

6

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

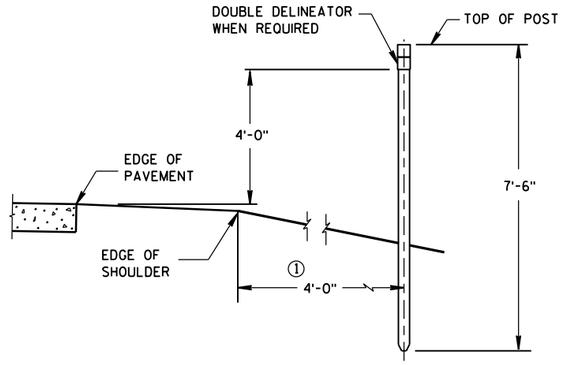


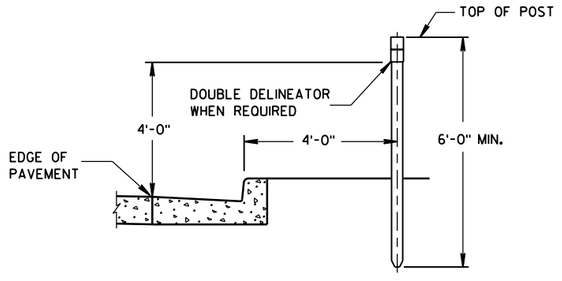
DELINEATOR POST



SECTION A-A

WEIGHT 1.12 LBS PER FT. ± 0.1 LB.



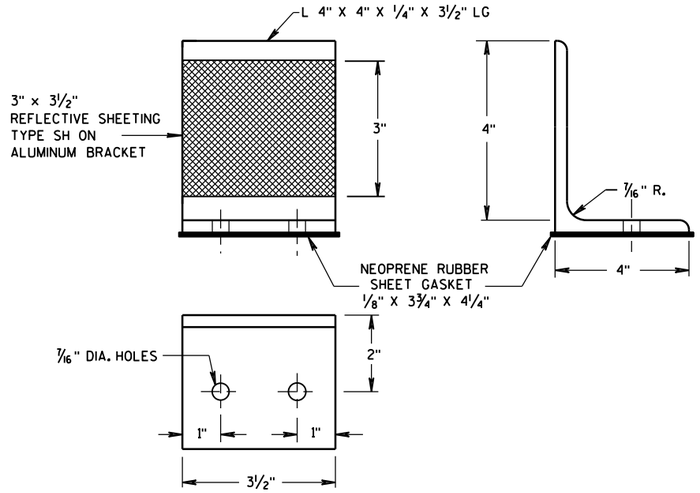


TYPICAL INSTALLATIONS OF DELINEATOR POSTS

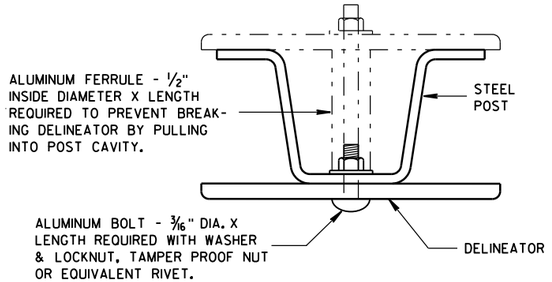
GENERAL NOTES

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

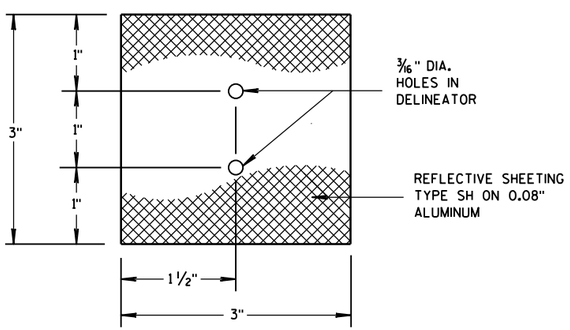
① DELINEATORS SHALL BE PLACED AT A CONSTANT DISTANCE FROM THE EDGE OF THE SHOULDER FOR THE LENGTH OF THE INSTALLATION.



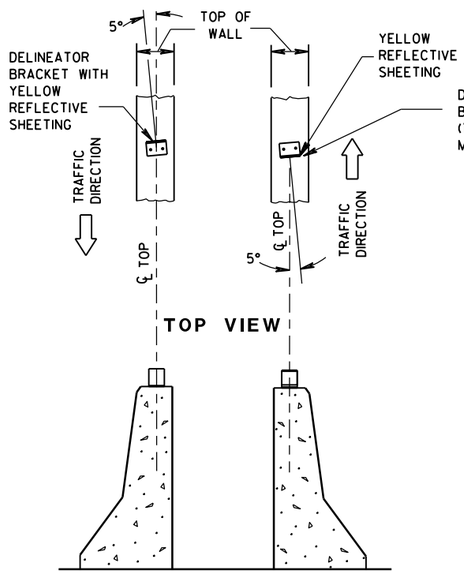
DELINEATOR BRACKET



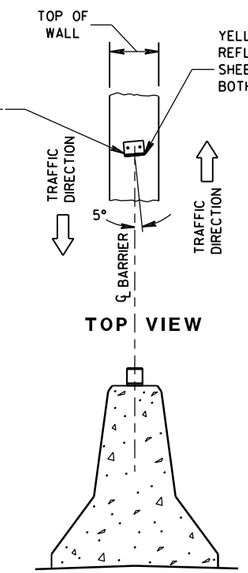
MOUNTING DETAIL FOR DELINEATOR



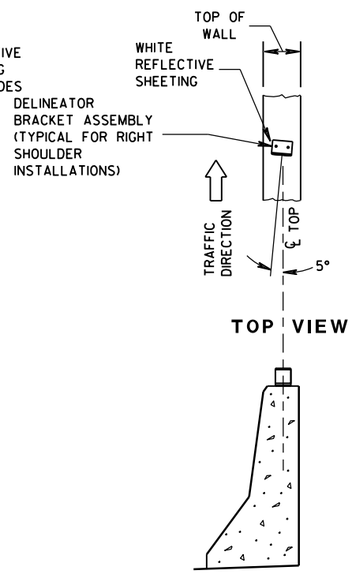
3"x 3" DELINEATOR



DOUBLE BARRIERS IN MEDIAN

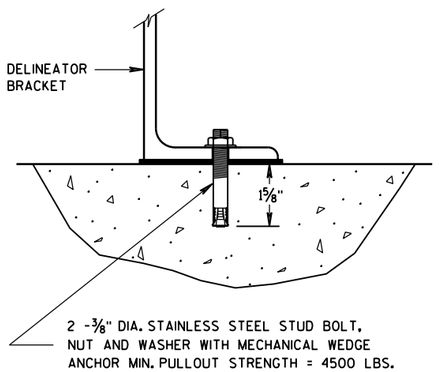


MEDIAN BARRIER



BARRIER LOCATED TO RT. OF TRAFFIC FLOW

LOCATION AND AIMING DETAILS FOR DELINEATOR BRACKETS MOUNTED ON CONCRETE BARRIERS



DELINEATOR BRACKET MOUNTING DETAIL

DELINEATOR POST, DELINEATOR, AND DELINEATOR BRACKET WITH REFLECTIVE SHEETING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
7/2013 — DATE
/S/ Travis Feltes — STATE TRAFFIC E
FHWA

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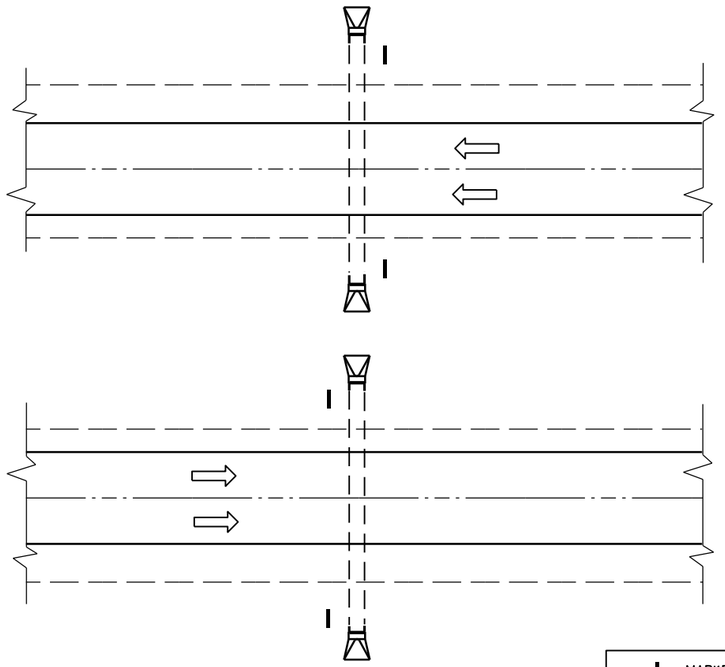
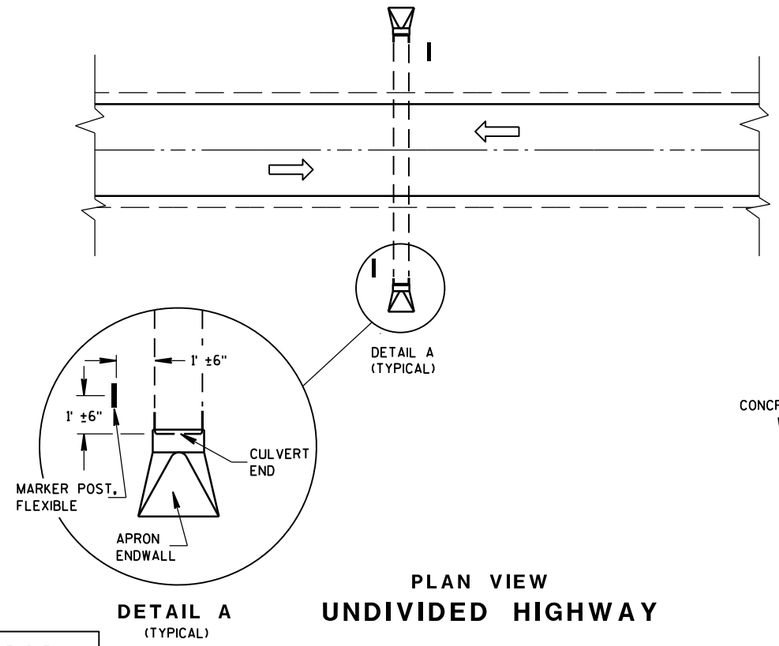
S.D.D. 15 A 2-8



PLAN VIEW

DIVIDED HIGHWAY



DETAIL A
(TYPICAL)

PLAN VIEW

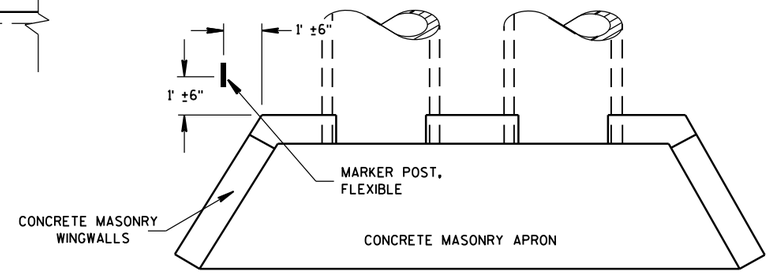
UNDIVIDED HIGHWAY

MARKER POST, FLEXIBLE

DIRECTION OF TRAFFIC FLOW

GENERAL NOTES

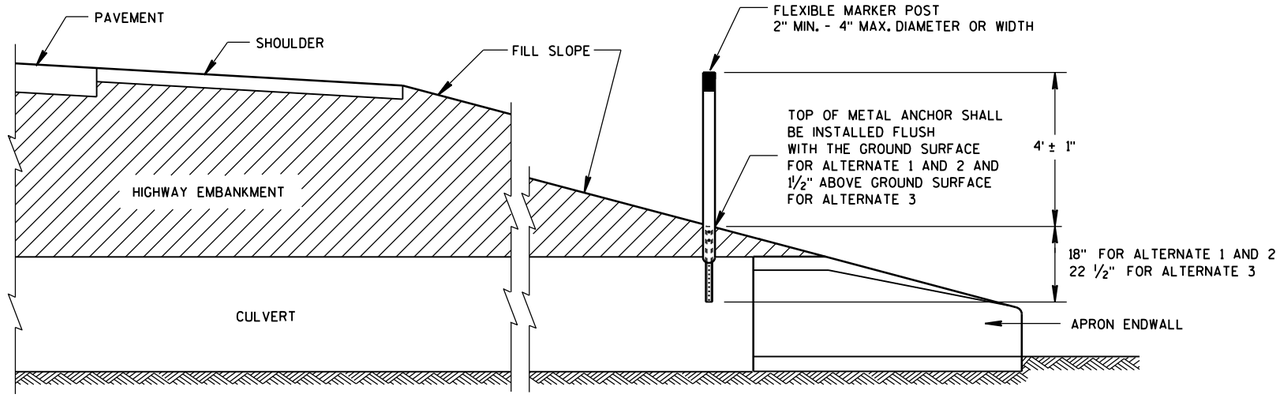
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.



PLAN VIEW

CONCRETE MASONRY ENDWALLS FOR CULVERT PIPE AND PIPE ARCH

FLEXIBLE MARKER POST LOCATION



CROSS SECTION

FLEXIBLE MARKER POST

FLEXIBLE MARKER POST FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

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S.D.D. 15 A 3-2a

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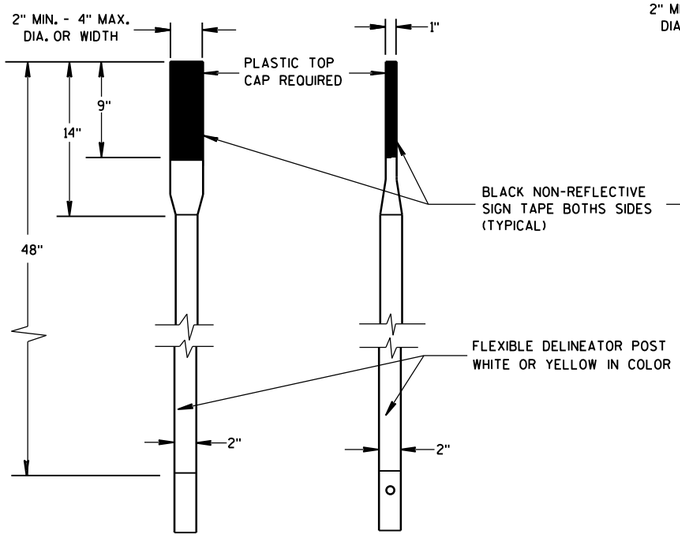
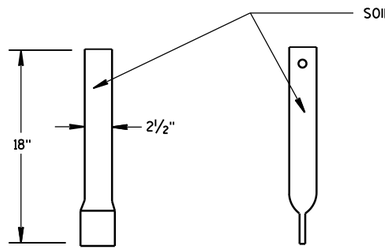
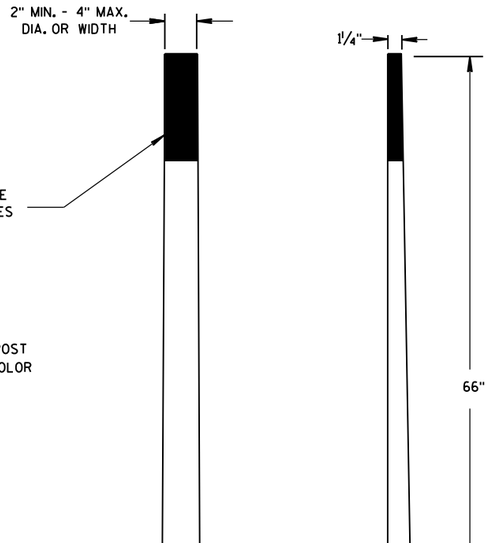
S.D.D. 15 A 3-2a





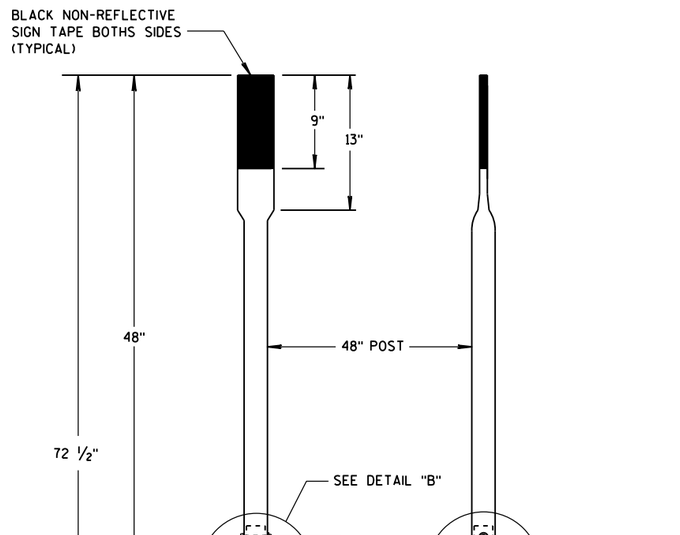
FRONT VIEW SIDE VIEW

ALTERNATE 1



FRONT VIEW SIDE VIEW

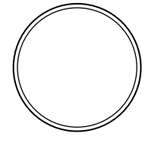
ALTERNATE 2



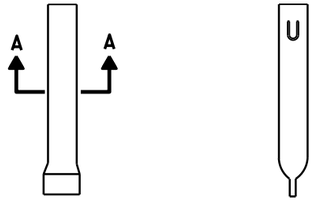
FRONT VIEW SIDE VIEW

ALTERNATE 3

FLEXIBLE MARKER POSTS

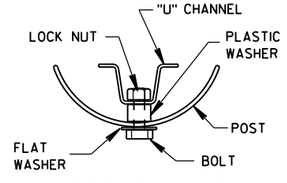


SECTION A-A

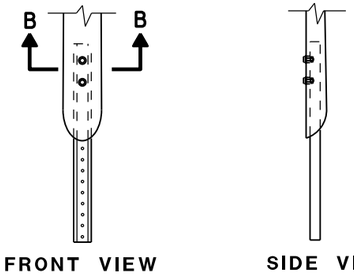


FRONT VIEW SIDE VIEW

ALTERNATE 1

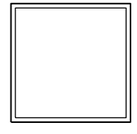


SECTION B-B

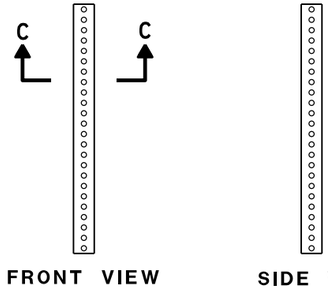


FRONT VIEW SIDE VIEW

ALTERNATE 2



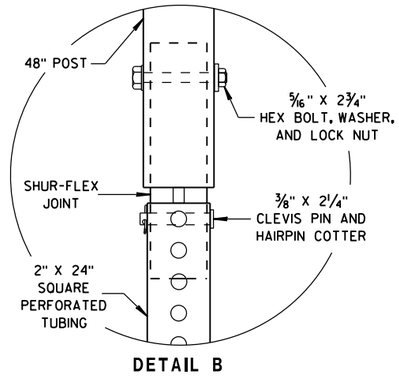
SECTION C-C



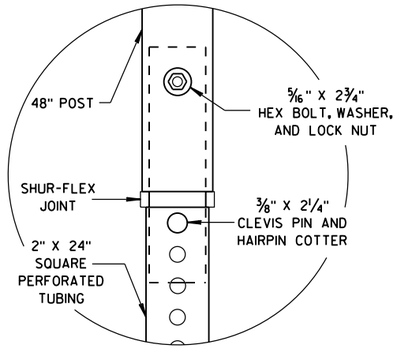
FRONT VIEW SIDE VIEW

ALTERNATE 3

FLEXIBLE MARKER POST ANCHORS



DETAIL B



DETAIL C

FLEXIBLE MARKER POST
FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/1/2012
DATE
/S/ Travis Feltes
STATE TRAFFIC ENGINEER
IGN
FHWA

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S.D.D. 15 A 3-2b

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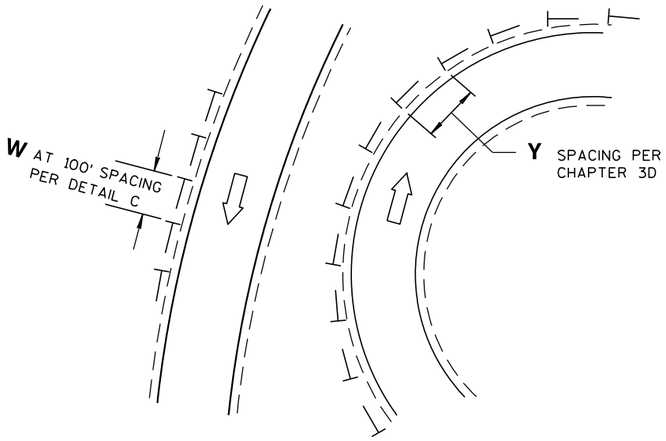
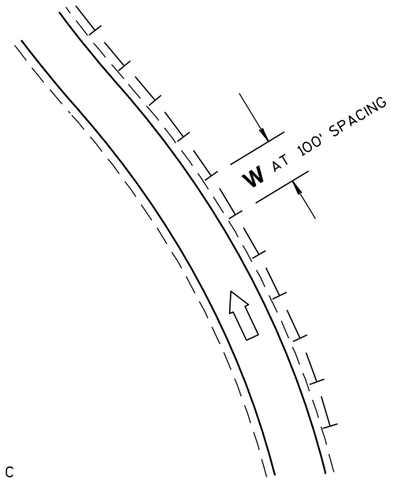
S.D.D. 15 A 3-2b

GENERAL NOTES

* USE DOUBLE DELINEATOR ALONG ACCELERATION-DECELERATION LANES AND TAPERS. USE SINGLE DELINEATOR WHEN RAMP PAVEMENT IS FULL WIDTH.



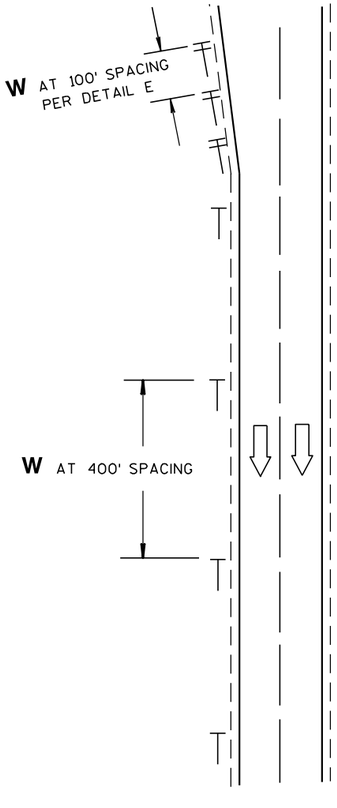
DETAIL A
DELINEATOR LAYOUT AT CURVED RAMP



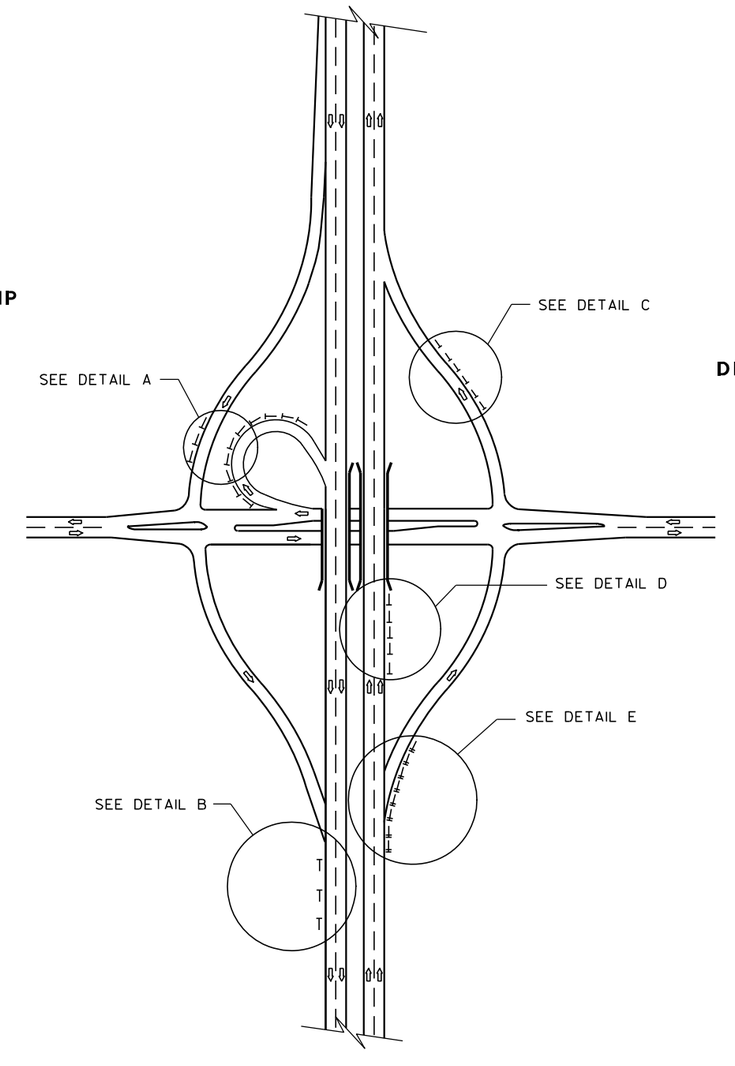
DETAIL C
DELINEATOR LAYOUT ALONG RAMP

LEGEND

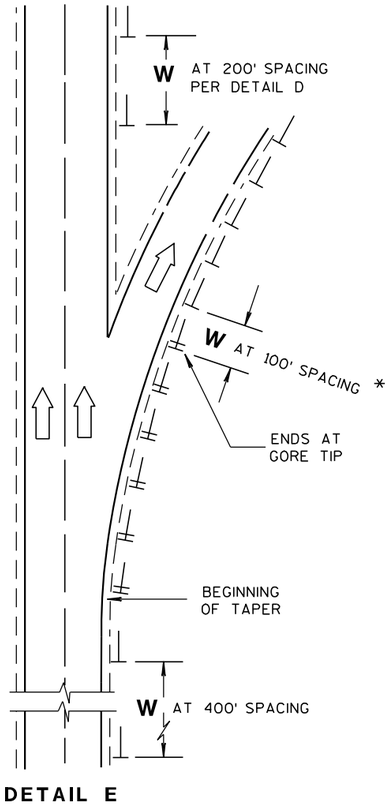
- DIRECTION OF TRAFFIC FLOW
- SINGLE DELINEATOR
- DOUBLE DELINEATOR
- W — WHITE
- Y — YELLOW



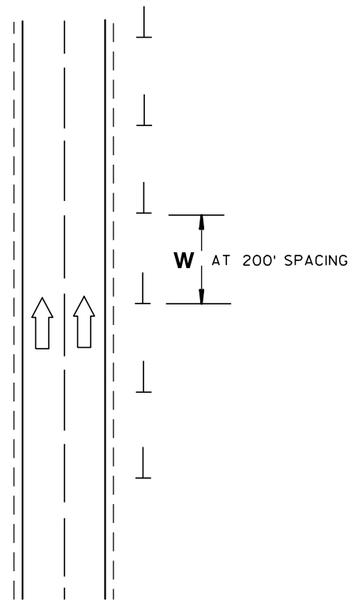
DETAIL B
DELINEATOR LAYOUT ALONG MAINLINE



DELINEATOR LAYOUT



DETAIL E
DELINEATOR LAYOUT FOR ACCELERATION - DECELERATION LANES AND TAPERS AT RAMPS



DETAIL D
DELINEATOR LAYOUT BETWEEN INTERCHANGE RAMPS

DELINEATOR LAYOUT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
2/5/09 DATE
/S/ Thomas N. Nothdurft STATE TRAFFIC ENGINEER
FHWA

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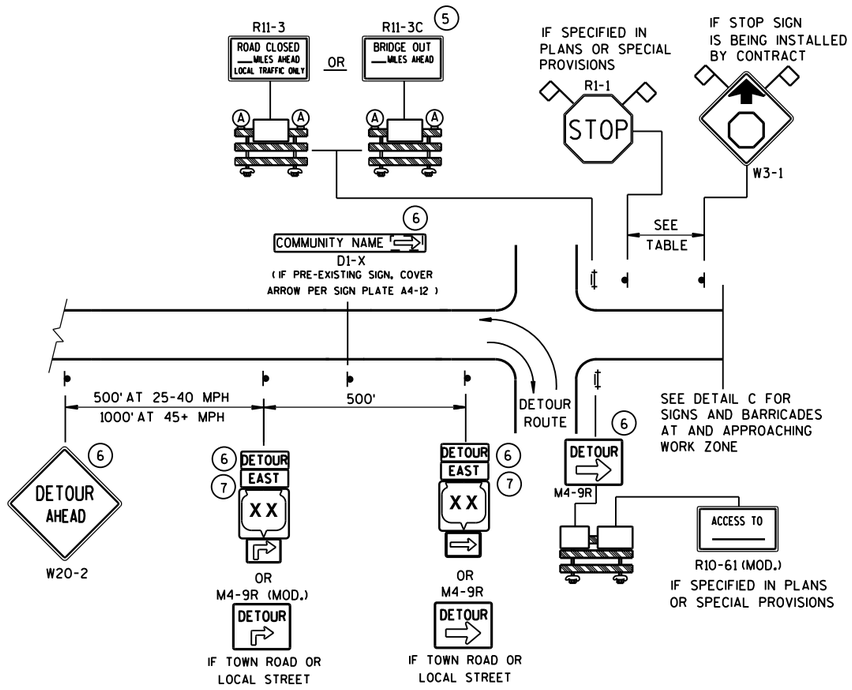
S.D.D. 15 A 6-2

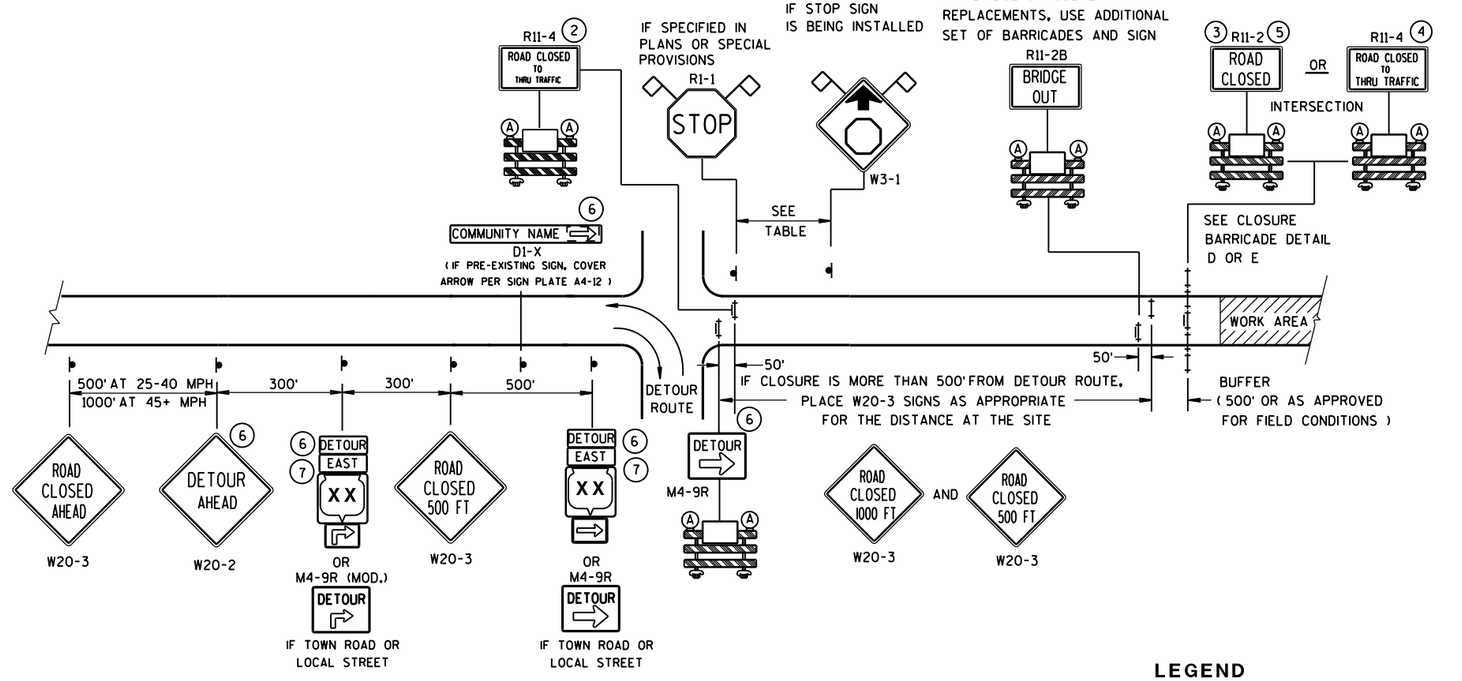
6

S.D.D. 15 A 6-2



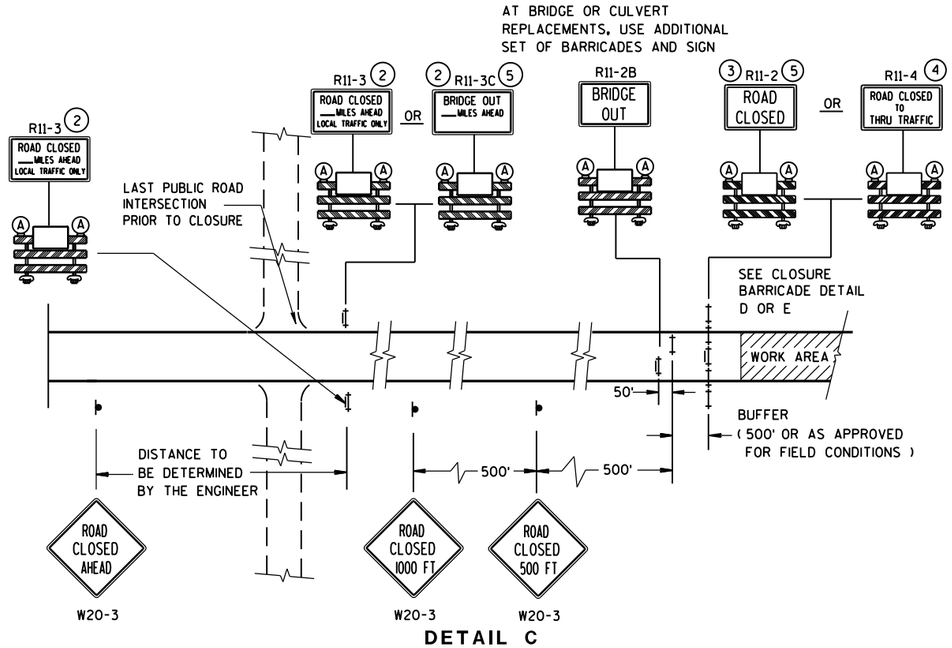
DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR

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



DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR

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



DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

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

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

LEGEND

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

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

8/2013 DATE

/S/ Travis Feltes
STATE TRAFFIC ENGINEER

FHWA

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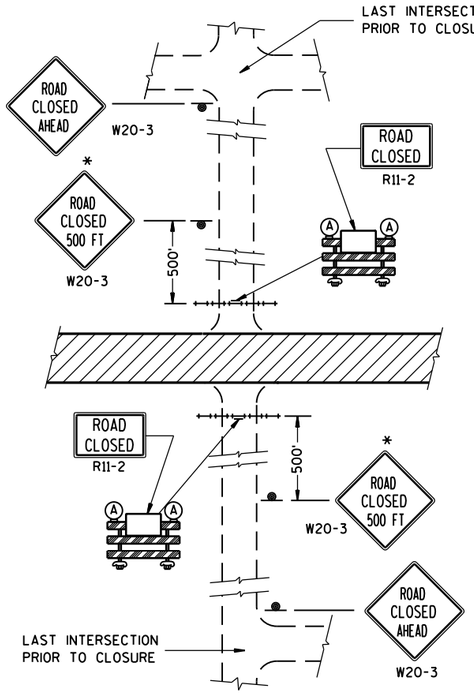
S.D.D. 15 C 2-5a

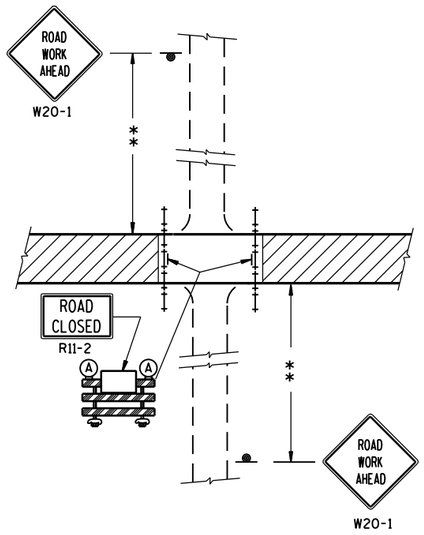
6

S.D.D. 15 C 2-5a



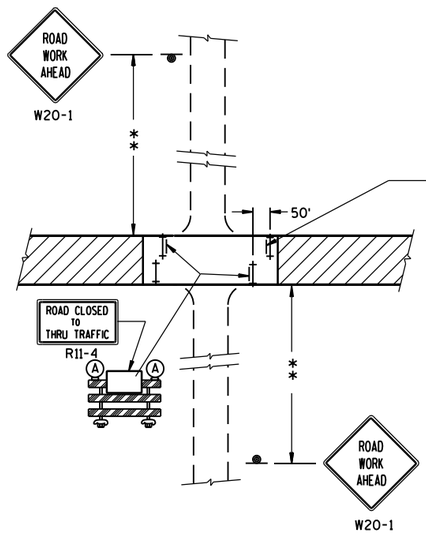
DETAIL 1

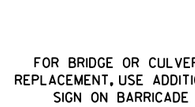
(NO ACCESS TO PROJECT)



DETAIL 2

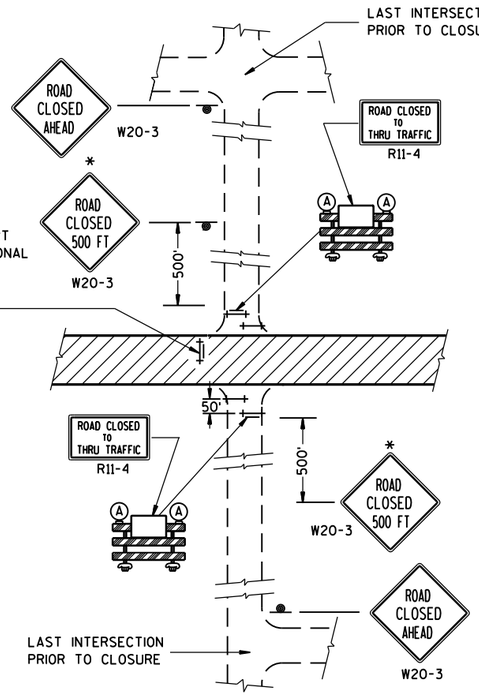
(PUBLIC CROSS-TRAFFIC MAINTAINED. NO ACCESS TO PROJECT).





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

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S.D.D. 15 C 3-2

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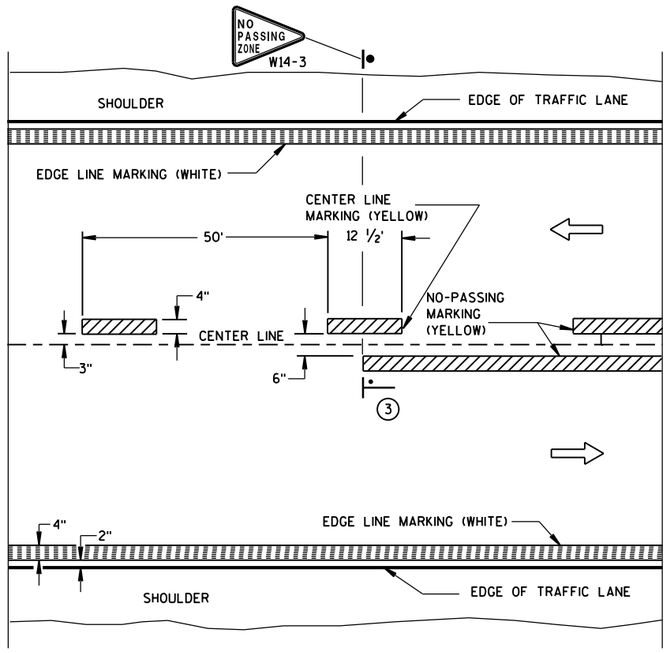
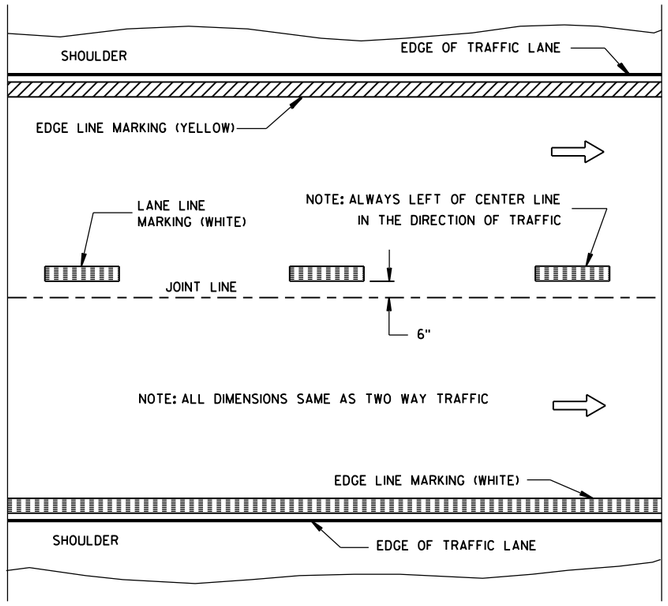
S.D.D. 15 C 3-2

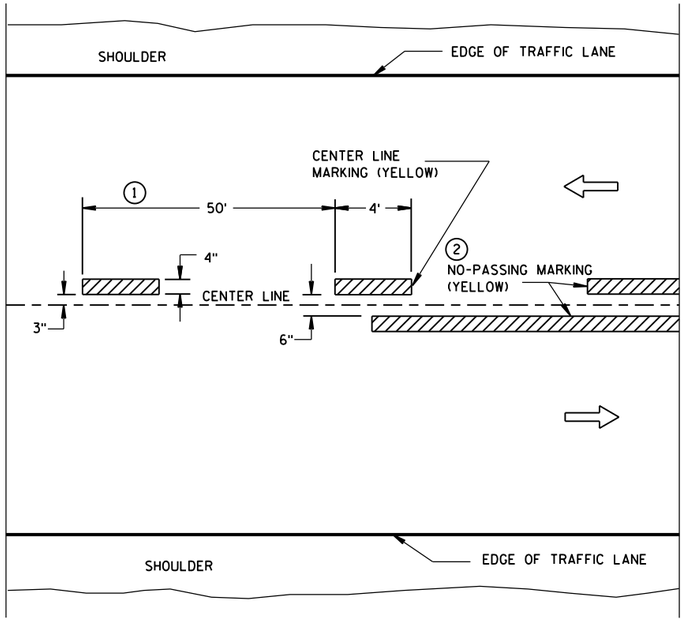


TWO WAY TRAFFIC

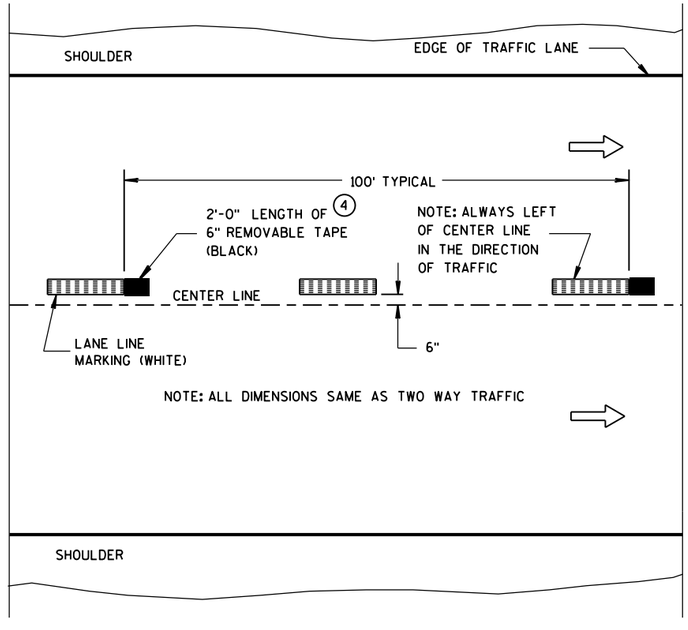


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY (INTERMEDIATE) PAVEMENT MARKING

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

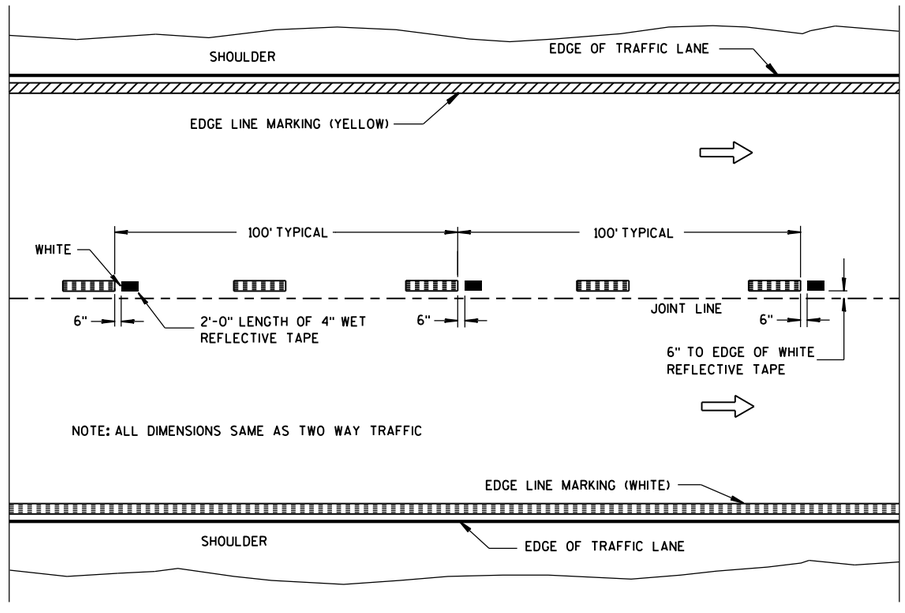
GENERAL NOTES

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

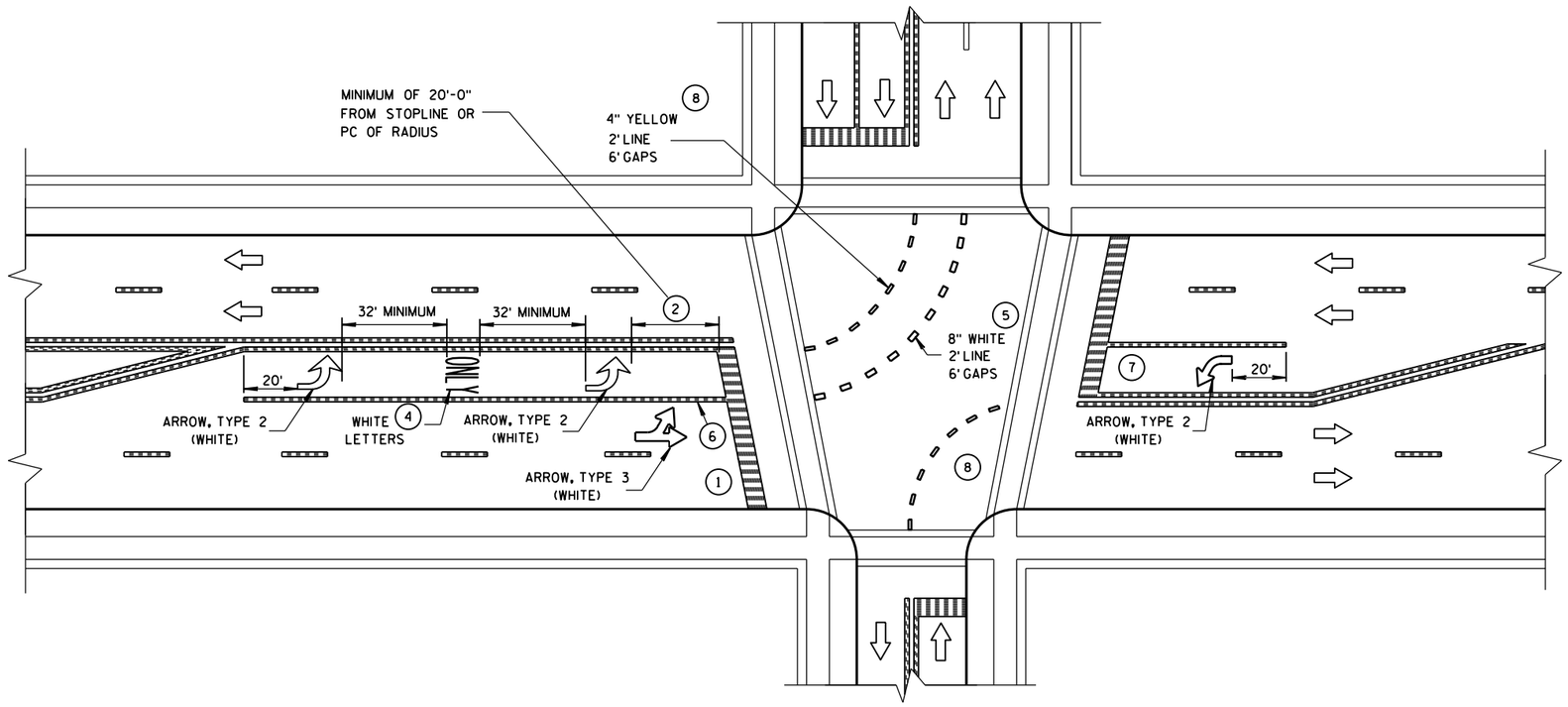
APPROVED
5-13-2013 DATE
/S/ Travis Feltes STATE TRAFFIC E
FHWA

6

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

6

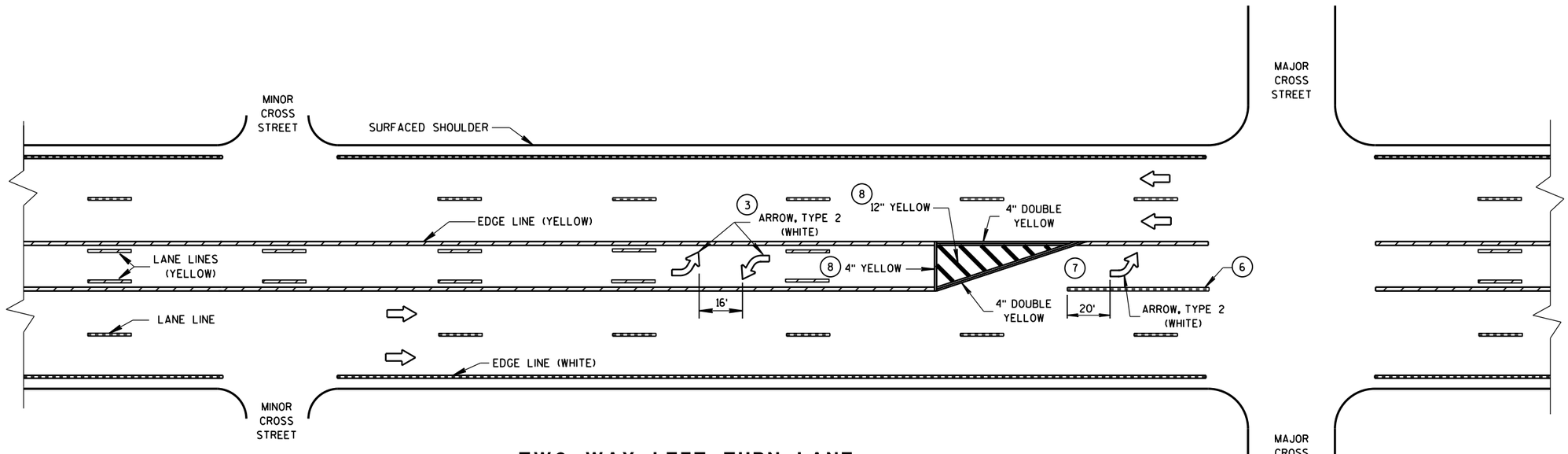
S.D.D. 15 C 8-16a



GENERAL NOTES

1. STOP BAR IS REQUIRED ONLY WHEN SPECIFIED IN THE CONTRACT.
2. DISTANCE MAY BE ADJUSTED TO ACCOMODATE SHORT LEFT TURN LANES. AS APPROVED BY THE ENGINEER.
3. A SET OF ARROWS IS REQUIRED EVERY 400 FEET OR NEAR INTERSECTIONS OR DRIVEWAYS WITH TURNING TRAFFIC.
4. ADD EXTRA SETS OF ONE ARROW AND ONE ONLY PER 160 FEET OR WHEN ON A CURVE.
5. 8" WHITE WITH 2' LINE 6' GAPS FOR DUAL TURN LANE.
6. 8" WHITE
7. ADD SECOND ARROW WHEN TURN BAY IS GREATER THAN OR EQUAL TO 108 FEET.
8. REQUIRED ONLY WHEN SPECIFIED IN THE CONTRACT.

NOTE:
ARROW SYMBOL (⇨)
SHOWS DIRECTION OF TRAVEL



TWO WAY LEFT TURN LANE

PAVEMENT MARKING (LEFT TURN LANE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

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

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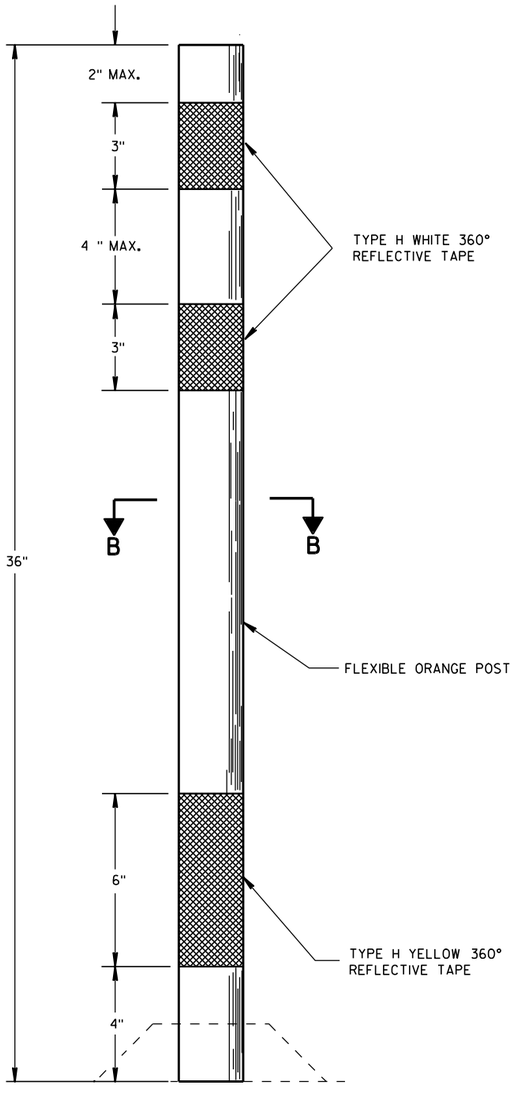
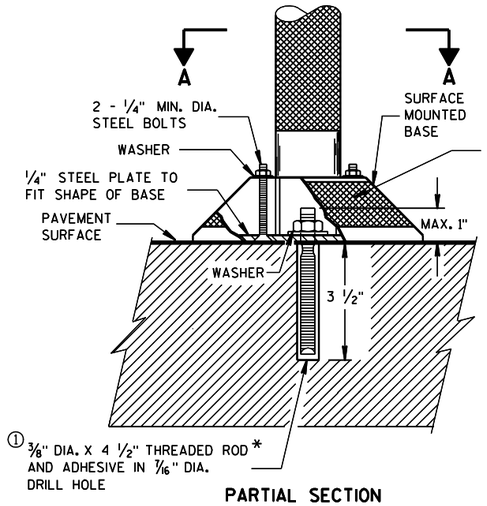
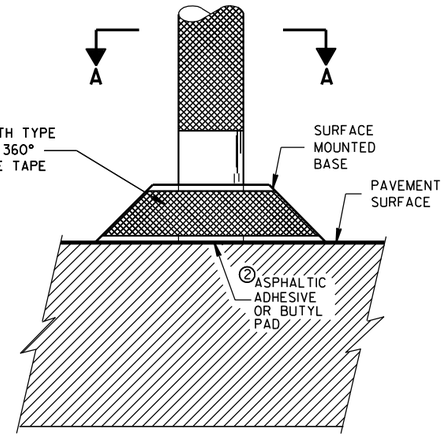
S.D.D. 15 C 8-16e



FLEXIBLE TUBULAR MARKER POST



PARTIAL SECTION TO SHOW BOLTS



POST BASES ON NEW OR EXISTING PAVEMENT

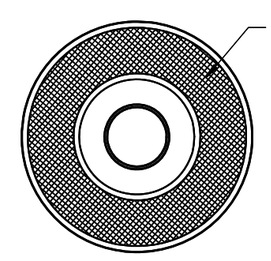
GENERAL NOTES

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

SURFACE MOUNTED BASES SHALL BE FURNISHED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS TO BE COMPATIBLE WITH FLEXIBLE TUBULAR MARKER POSTS TO A SIZE AND SHAPE THAT WILL PROVIDE A STABLE POST FOUNDATION WHEN SECURED TO THE PAVEMENT.

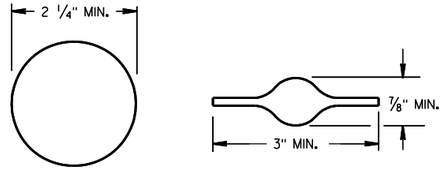
① THREADED ROD SHALL BE MACHINED DOWN TO 0.280 INCH DIA. 1 1/4 INCHES FROM THE TOP.

② THE ASPHALTIC ADHESIVE OR BUTYL PAD FURNISHED SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.



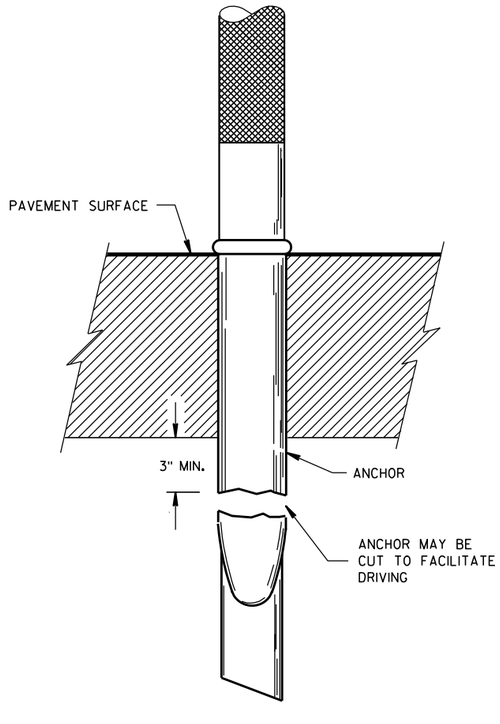
SECTION A-A

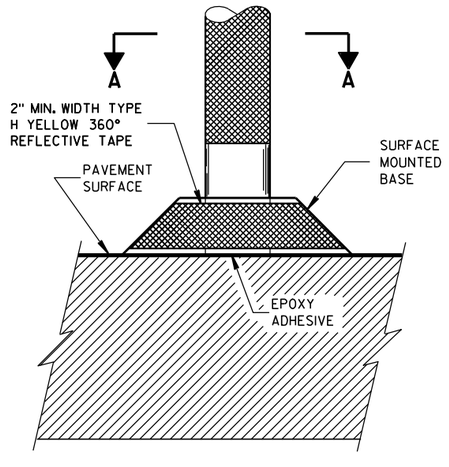
SURFACE MOUNTED BASE



SECTION B-B

ALTERNATIVE SHAPES





POST ANCHOR AND BASE ON PAVEMENT WHICH WILL BE REMOVED

FLEXIBLE TUBULAR MARKER POST, ANCHOR & BASES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

2/17/94 DATE

/S/ Chester J. [illegible] DIRECTOR, OFFICE O

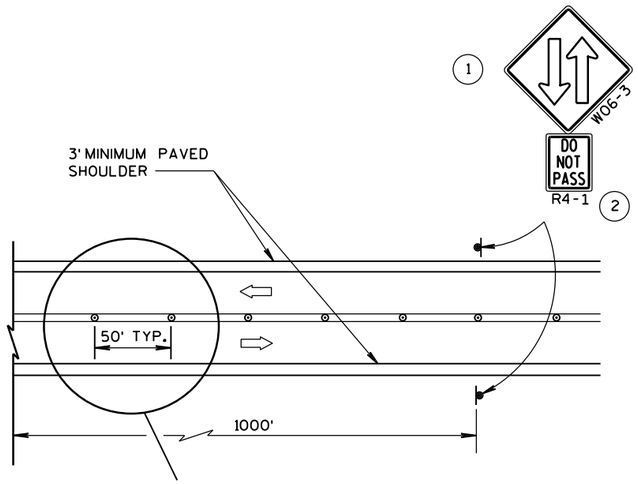
FHWA

6

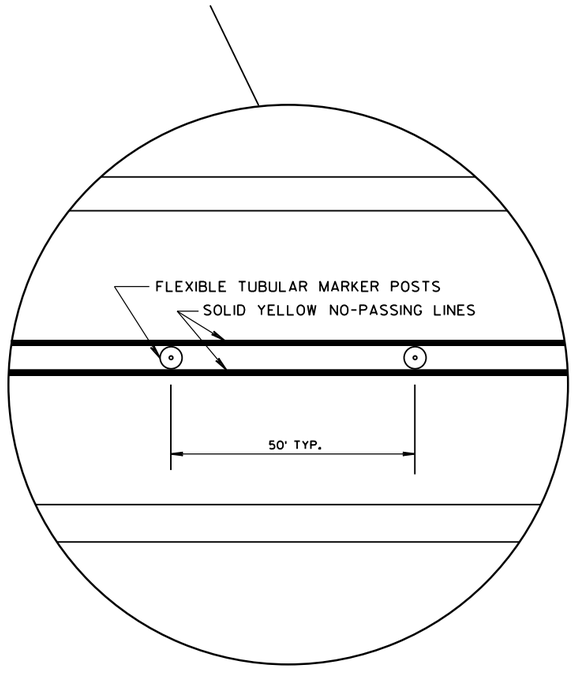
S.D.D. 15 C 11-5

6

S.D.D. 15 C 11-5



TWO LANE, TWO WAY OPERATION



LEGEND

- SIGN ON PERMANENT SUPPORT
- DELINEATOR FLEXIBLE/TUBULAR MARKER
- DIRECTION OF TRAFFIC

GENERAL NOTES

ALL SIGNS ARE 48"x48" UNLESS OTHERS NOTED.

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

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH THE TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER. NO WARNING LIGHTS SHALL BE WORKING ON "COVERED" OR "DOWNED" SIGNS.

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

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

A SINGLE ROW OF FLEXIBLE TUBULAR MARKERS ON CENTERLINE EXTEND FOR THE ENTIRE LENGTH OF TWO-WAY TRAFFIC AT 50-FOOT SPACING.

COVER EXISTING CENTERLINE STRIPE WITH TEMPORARY PAVEMENT MARKING, 4-INCH DOUBLE YELLOW.

THE W06-3 WITH THE W057-51 SHALL BE LOCATED 200 FEET BEYOND THE END OF THE ACCELERATION LANE OF EACH ENTRANCE RAMP AND/OR 500 FEET BEYOND ANY SIDEROAD. THE W06-3 WITH THE R4-1 SHALL BE LOCATED 1000 FEET BEYOND THE W06-3 AND THE W057-51 AND THE SIGNS SHALL BE ALTERNATED WITH ONE MILE INTERVALS BETWEEN W06-3 SIGNS.

(2) CONVENTIONAL: 24"x30"
FREEWAY AND EXPRESSWAY: 36"x48"

TRAFFIC CONTROL, TWO LANE TWO WAY OPERATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

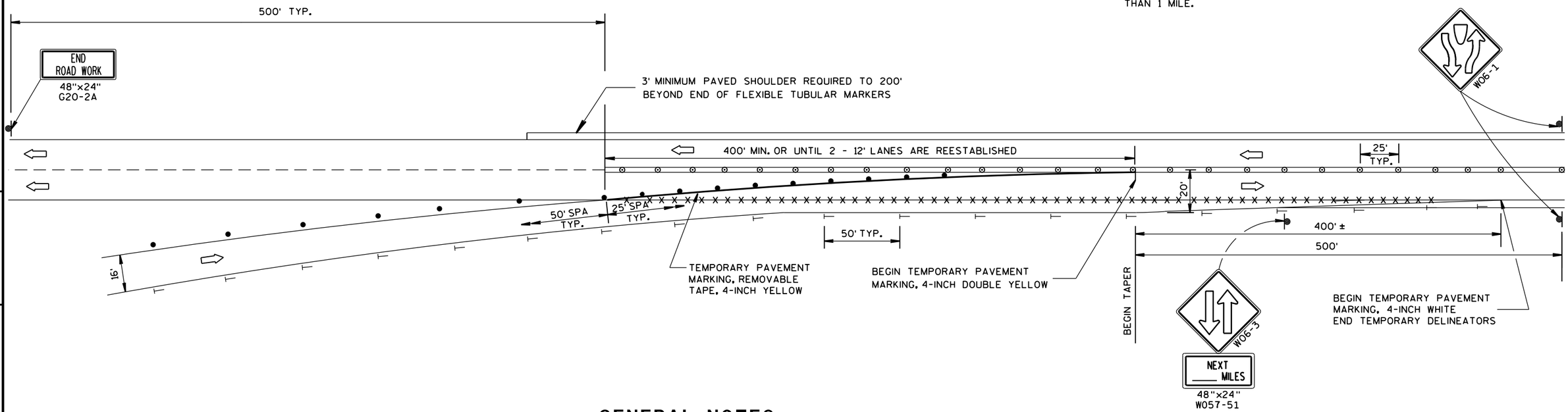
APPROVED
8/2013 DATE
/S/ Travis Feltes STATE TRAFFIC ENGINEER
SIGN
FHWA

6

S.D.D. 15 D 6-3

LEGEND

- SIGN ON PERMANEMT SUPPORT
- TRAFFIC CONTROL DRUM
- DELINEATOR FLEXIBLE/TUBULAR MARKER
- TEMPORARY DELINEATOR (STEEL POST W/SINGLE DELINEATOR) COLOR OF DELINEATOR SHALL MATCH THE COLOR OF THE RESPECTIVE EDGELINE MARKING
- REMOVE PAVEMENT MARKINGS
- DIRECTION OF TRAFFIC



REPEAT EVERY 1/4 MILE IF PROJECT IS LONGER THAN 1 MILE.

GENERAL NOTES

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

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

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH THE TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER. NO WARNING LIGHTS SHALL BE WORKING ON "COVERED" OR "DOWNED" SIGNS.

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

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

TEMPORARY PAVEMENT MARKING REMOVABLE TAPE SHALL BE USED WHEN CROSSING PERMANENT ROADWAY SURFACES THAT WILL REMAIN AFTER USE OF CROSSOVER.

TRAFFIC CONTROL, SINGLE LANE CROSSOVER EXIT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/2013 DATE

/S/ Travis Feltes
STATE TRAFFIC ENGINEER

SIGN

FHWA

6

S.D.D. 15 D 9-3

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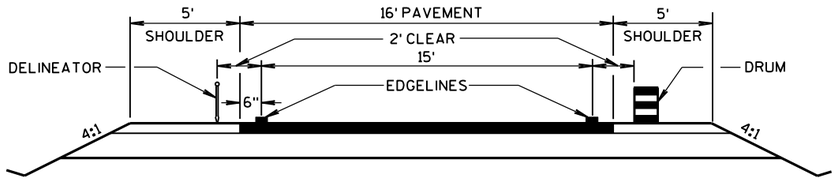
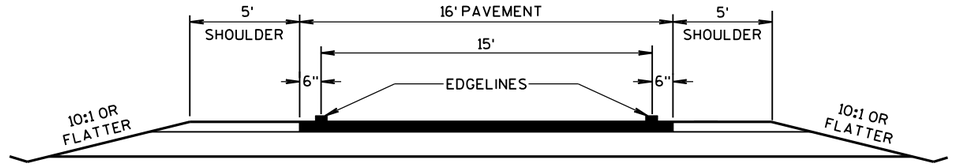
S.D.D. 15 D 9-3



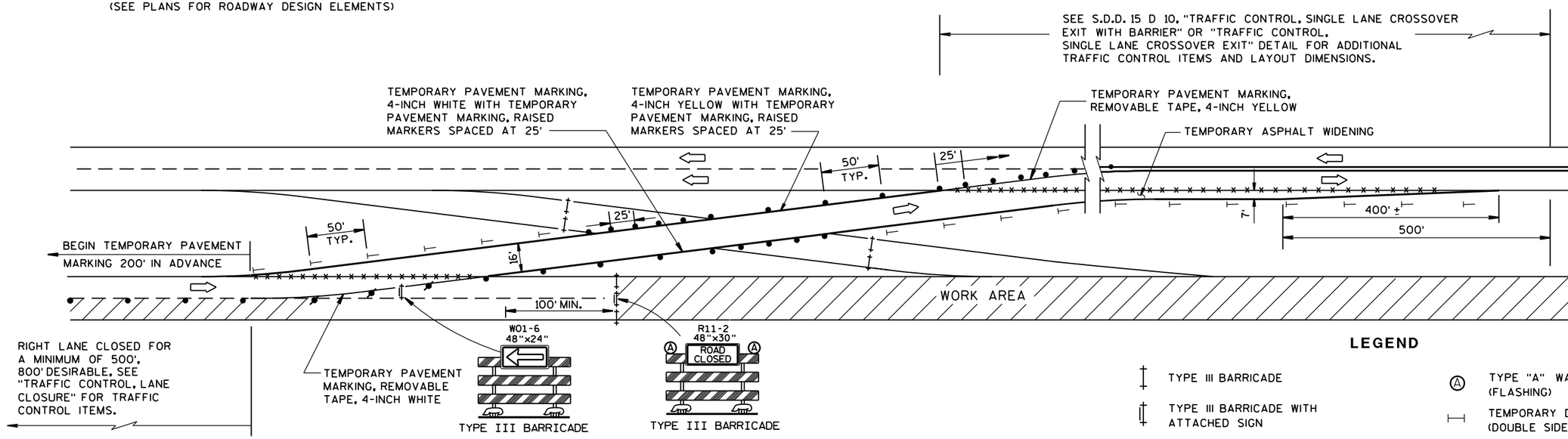
TYPICAL TEMPORARY CROSSOVER ROADWAY DIMENSIONS

(SEE PLANS FOR ROADWAY DESIGN ELEMENTS)



TYPICAL CROSSOVER TO REMAIN IN PLACE ROADWAY DIMENSIONS

(SEE PLANS FOR ROADWAY DESIGN ELEMENTS)



LEGEND

- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TRAFFIC CONTROL DRUM
- TEMPORARY DELINEATOR (STEEL POST W/SINGLE DELINEATOR) COLOR OF DELINEATOR SHALL MATCH THE COLOR OF THE RESPECTIVE EDGELINE MARKING
- TYPE "A" WARNING LIGHT (FLASHING)
- TEMPORARY DELINEATOR (DOUBLE SIDED)
- REMOVING PAVEMENT MARKINGS
- DELINEATOR FLEXIBLE/ TUBULAR MARKER
- DIRECTION OF TRAFFIC
- WORK AREA

GENERAL NOTES

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

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

TEMPORARY PAVEMENT MARKING REMOVABLE TAPE SHALL BE USED WHEN CROSSING PERMANENT ROADWAY SURFACES THAT WILL REMAIN AFTER USE OF CROSSOVER AND TEMPORARY PAVEMENT MARKING WHERE USED.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

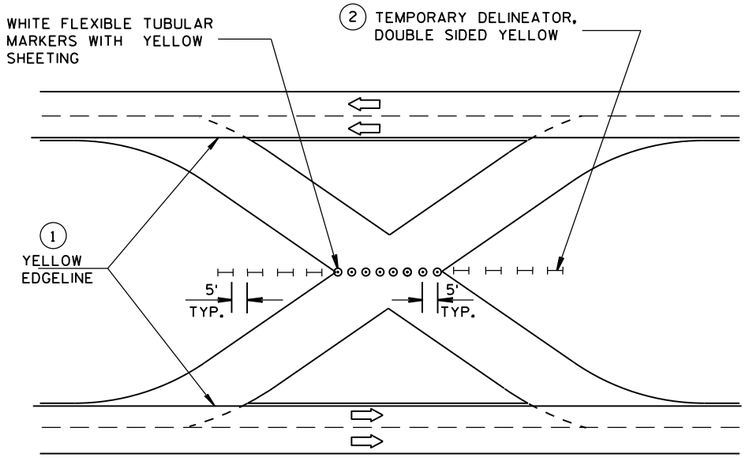
"WO" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH THE TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER. NO WARNING LIGHTS SHALL BE WORKING ON "COVERED" OR "DOWNED" SIGNS.

REVERSE DEVICES WHEN OTHER LEG OF CROSSOVER IS IN USE.

(1) FOR PERMANENT CROSSOVER, PAVEMENT MARKING SHOULD CONFORM TO SECTION 646 OF THE STANDARD SPECIFICATIONS.

(2) FOR PERMANENT CROSSOVER, INSTALL PERMANENT DELINEATORS ACCORDING TO SECTION 633 OF THE STANDARD SPECIFICATIONS.



TRAFFIC CONTROL FOR CROSSOVER THAT IS NOT IN USE

TRAFFIC CONTROL, SINGLE LANE CROSSOVER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

9/2014 DATE — /S/ Travis Feltes STATE TRAFFIC ENGINEE — SIGN

FHWA

6

S.D.D. 15 D 11-5

6

S.D.D. 15 D 11-5

LEGEND

- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON PERMENENT SUPPORT
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TRAFFIC CONTROL DRUM
- FLASHING ARROW BOARD
- (A) TYPE "A" WARNING LIGHT (FLASHING)
- REMOVING PAVEMENT MARKING
- DIRECTION OF TRAFFIC
- WORK AREA

GENERAL NOTES

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

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

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

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

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

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER. NO WARNING LIGHTS SHALL BE WORKING ON "COVERED" OR "DOWNED" SIGNS.

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

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

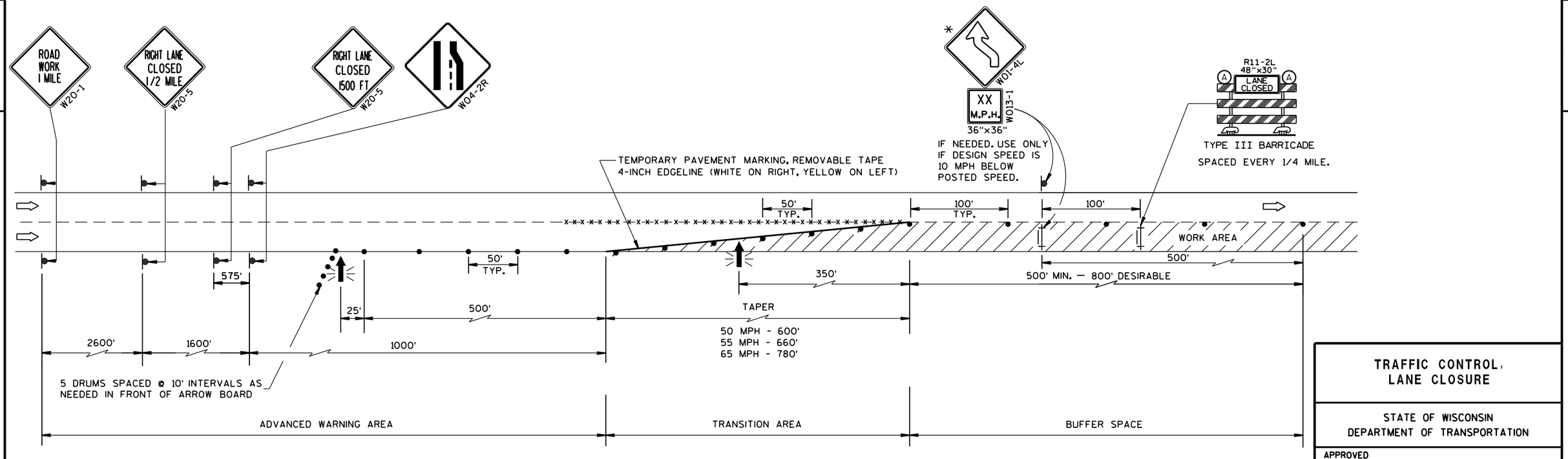
REMOVE PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE FOR LONGER THAN 4 OR MORE DAYS AND NIGHTS.

WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

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

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

* THE LEFT REVERSE CURVE SIGN (WO1-4L) IS ONLY REQUIRED WHEN THIS DETAIL IS USED IN COMBINATION WITH "SINGLE LANE CROSSOVER" DETAIL.



TRAFFIC CONTROL, LANE CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Feb. 2015 — DATE
/S/ Travis Feltes — STATE TRAFFIC ENGINEER
FHWA

S.D.D. 15 D 12-5a

S.D.D. 15 D 12-5a

LEGEND

- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON PERMENENT SUPPORT
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TRAFFIC CONTROL DRUM
- FLASHING ARROW BOARD
- (A) TYPE "A" WARNING LIGHT (FLASHING)
- REMOVING PAVEMENT MARKING
- DIRECTION OF TRAFFIC
- WORK AREA

GENERAL NOTES

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

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

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

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

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

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER. NO WARNING LIGHTS SHALL BE WORKING ON "COVERED" OR "DOWNED" SIGNS.

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

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

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

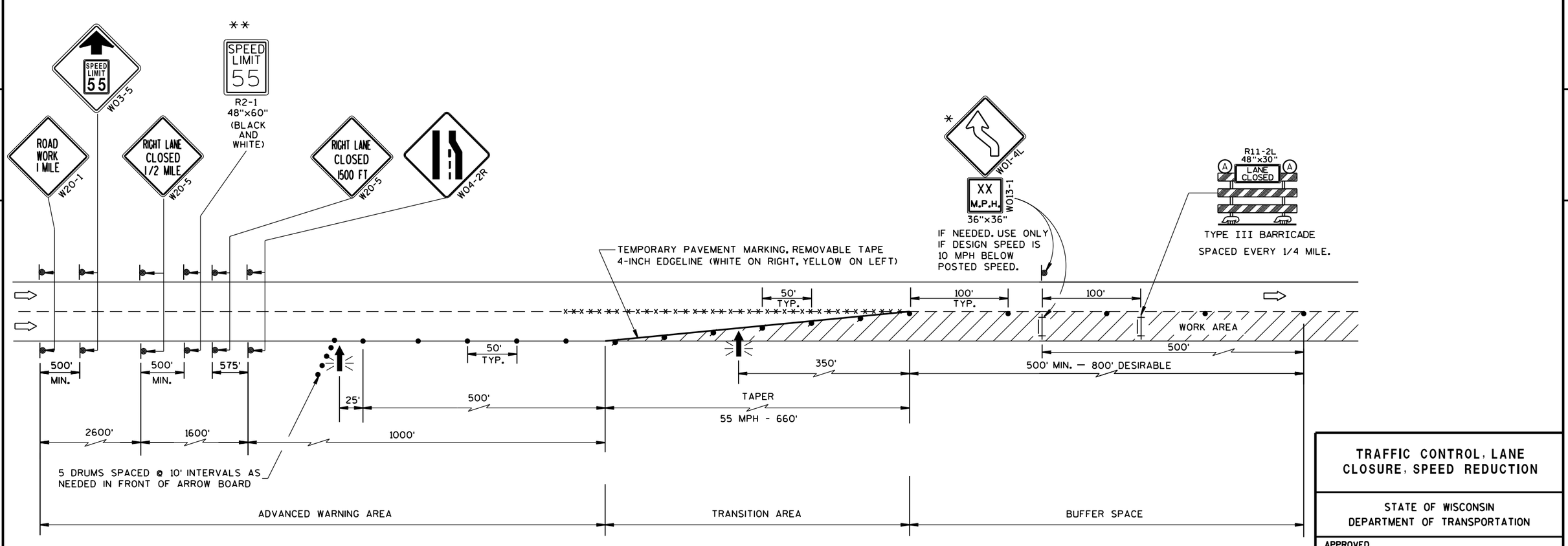
WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

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

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

* THE LEFT REVERSE CURVE SIGN (WO1-4L) IS ONLY REQUIRED WHEN THIS DETAIL IS USED IN COMBINATION WITH "SINGLE LANE CROSSOVER" DETAIL.

** A SPEED LIMIT SIGN SHALL BE LOCATED 1500 FEET BEYOND THE END OF THE ACCELERATION LANE OF EACH ENTRANCE RAMP. THERE SHOULD BE A SPEED LIMIT SIGN INCORPORATED A MINIMUM OF EVERY 2 OR 3 MILES. INCLUDE A 65 MPH RESUME SPEED LIMIT SIGN 200 FEET MINIMUM (500 FEET DESIREABLE) BEYOND THE "END OF ROADWORK" SIGN.



TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

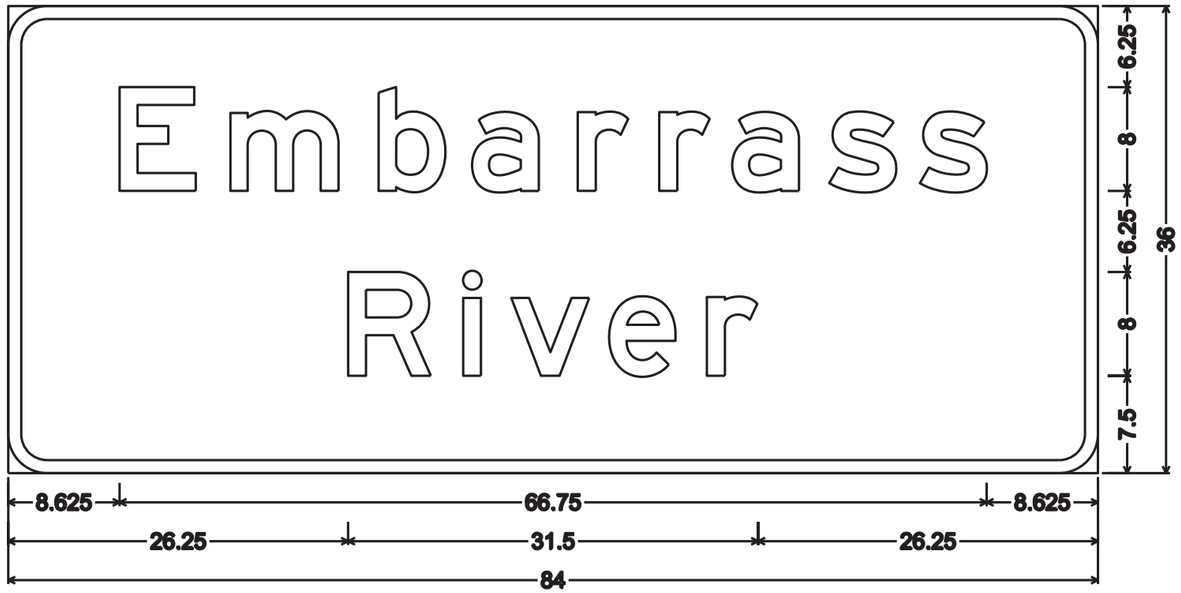
APPROVED
Feb. 2015 — DATE
/S/ Travis Feltes — STATE TRAFFIC ENGINEER
FHWA

S.D.D. 15 D 12-5b

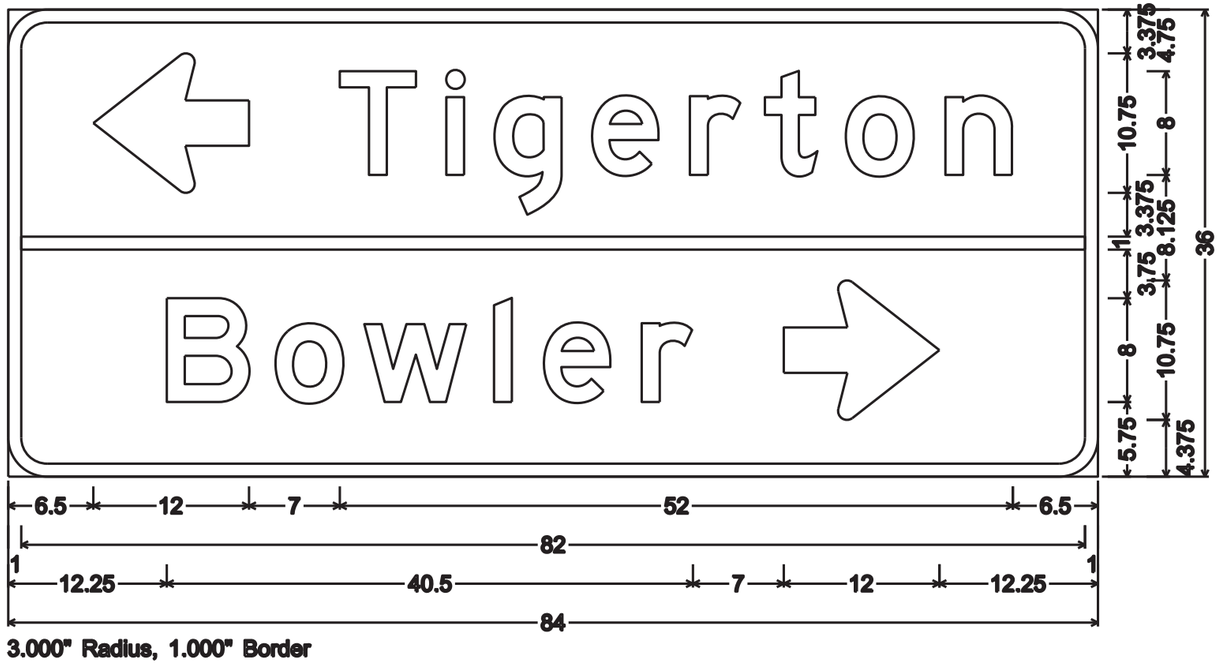
S.D.D. 15 D 12-5b

NOTES

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



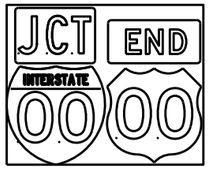
3.000" Radius, 1.000" Border



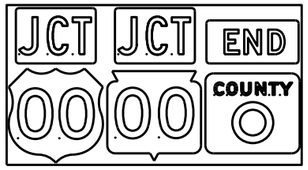
3.000" Radius, 1.000" Border

TYPICAL ASSEMBLIES

J1-1

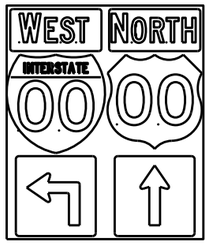


J1-2

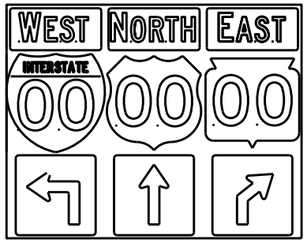


J1-3

J2-1



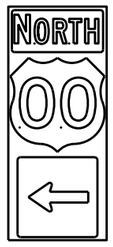
J2-2



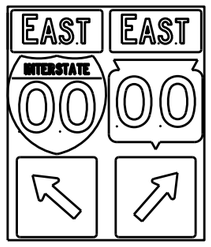
J2-3

JV

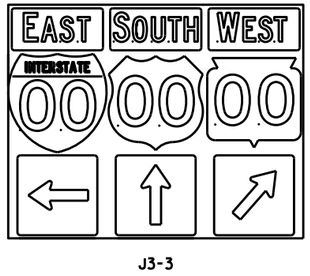
(Typical Vertical J-Assembly
See Note 10 and 11)



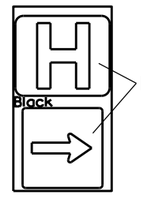
J3-1



J3-2



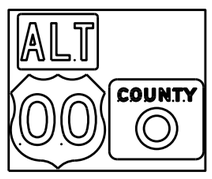
J3-3



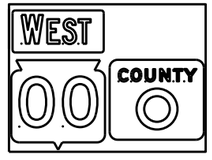
Blue Background

JH-1

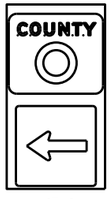
J4-1



J4-2



J4-2



J13-1

J12-1

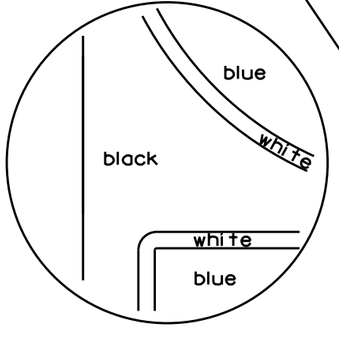
J32-1

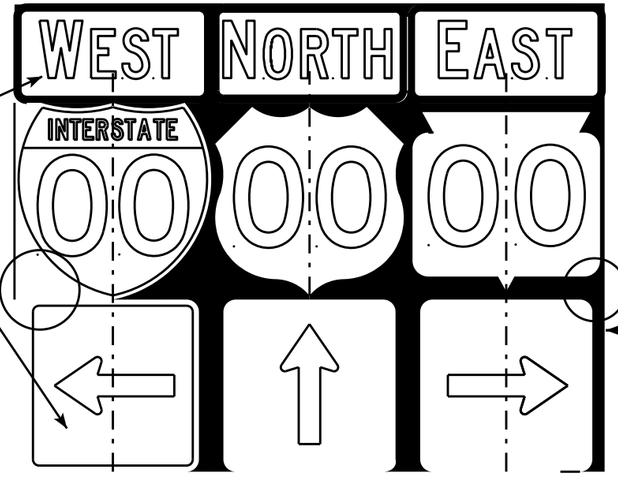
J33-1

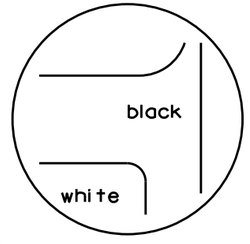
J23-1

J22-1

blue background
with interstate







black background

NOTES

1. Signs are Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Black Non-reflective
   Message - see Note 5
3. Message Series - See Note 5
4. Corners shall be square or rounded if base material is plywood. If base material is metal the corners shall be rounded.
5. The colors and message spacing on each marker shall be according to the applicable route marker panel specifications.
6. Certain marker heads require the component pieces to be the same color. As an example, all the components used with an M1-1 Interstate marker shall be blue.
7. Single panel j-assemblies shall only be used with route marker shields that are same size. If the route marker shields are different size use multiple piece component.
8. Route assemblies that have 24 inch route shields and have dimensions greater than 48 inches (both vertical and horizontal) shall have one horizontal splice between the arrows and route shields. Vertical splices shall not be used on route assemblies with a horizontal dimension of 144 inches or less. The contractor shall not use more than one vertical joint per sign and the joint shall be between route shields.
9. Route assemblies that have 36 inch shields and have dimensions greater than 48 inchs (both vertical and horizontal) shall have two horizontal splices. One horizontal splice shall be between the cardinal direction and route shields and the other horizontal splice shall be between the arrows and route shields. Vertical splices shall not be used on route assemblies with a horizontal dimension of 144 or less. The contractor shall not use more than one vertical joint per sign and the joint shall be between route shields.
10. All Vertical J Assemblies are given a Sign Code of JV
11. For JV Assemblies that have a mixture of Interstate and non Interstate shields, arrows and cardinals shall be white on blue.

ROUTE MARKERS & COMPONENTS
IN TYPICAL ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

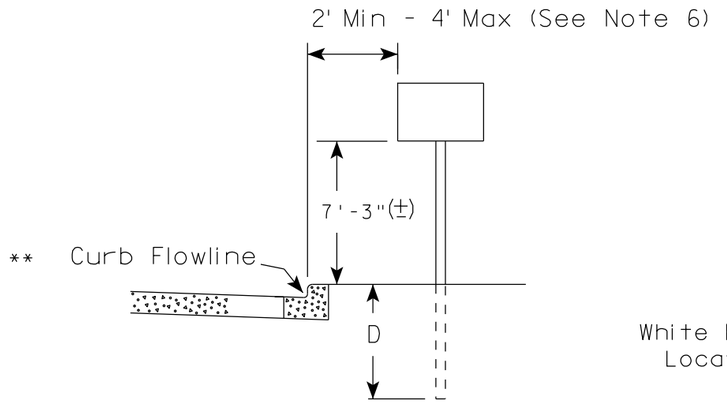
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 2/06/14 PL... A2-1S.8

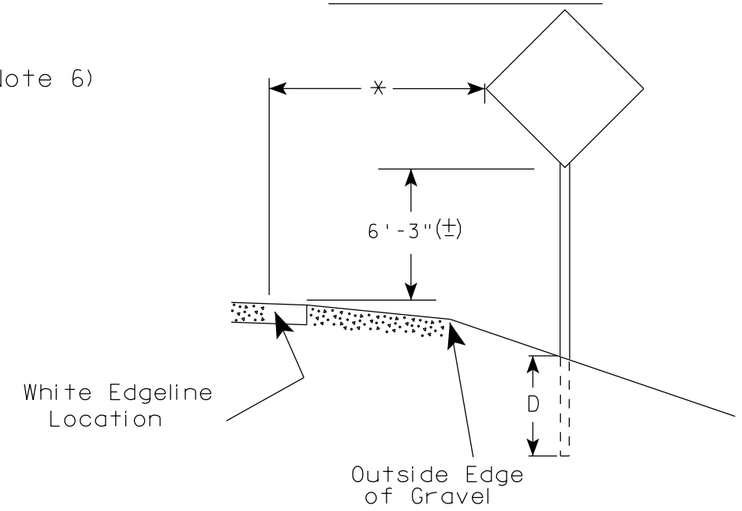
PROJECT NO: | SHEET NO: E

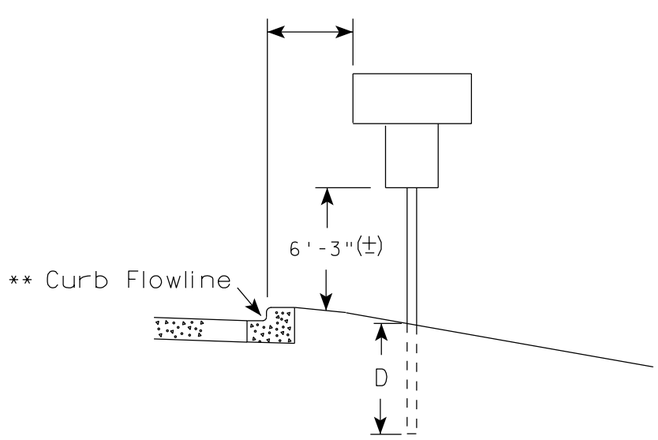
FILE NAME : C:\CAEFiles\Projects\tr_stdplate\A21S.DGN PLOT DATE : 06-FEB-2014 14:10 PLOT BY : mscsja PLOT NAME :
WISDOT/CADDS SHEET 42

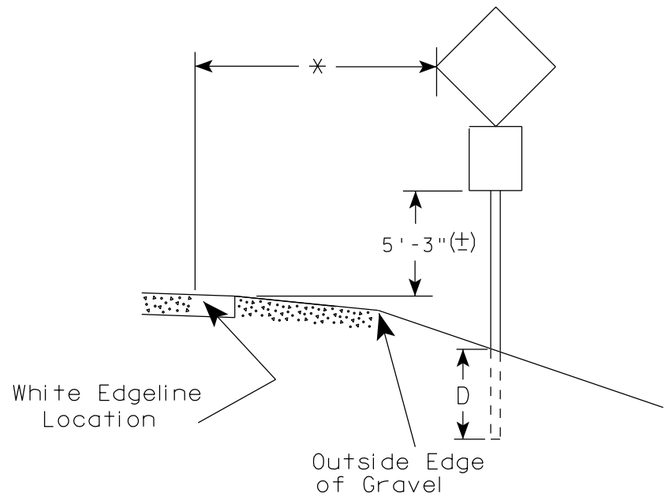
URBAN AREA



RURAL AREA (See Note 2)







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

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

POST EMBEDMENT DEPTH

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

GENERAL NOTES

1. Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on barrier wall, see A4-10 sign plate.
3. For expressways and freeways, mounting height is 7'- 3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. Minimum mounting height for J assemblies (A2-1S) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
5. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±).
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. The (±) tolerance for mounting height is 3 inches.
8. Folding signs shall be mounted at a height of 5'-3" (±) or as directd by the Engineer.
9. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).

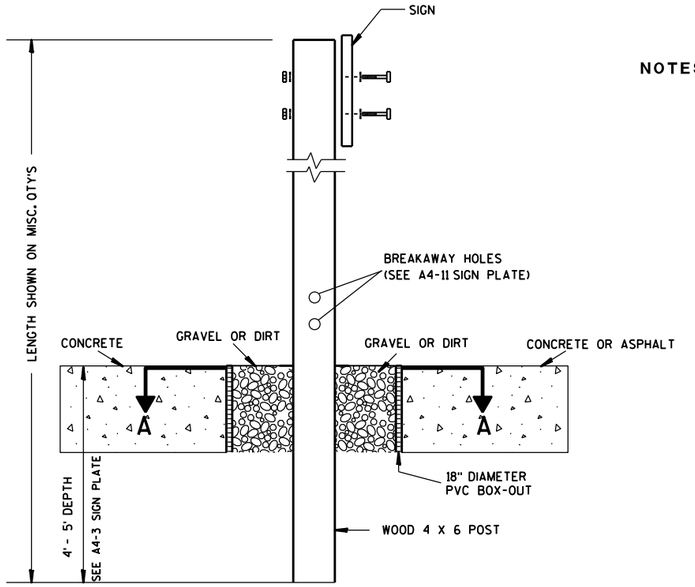
TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

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

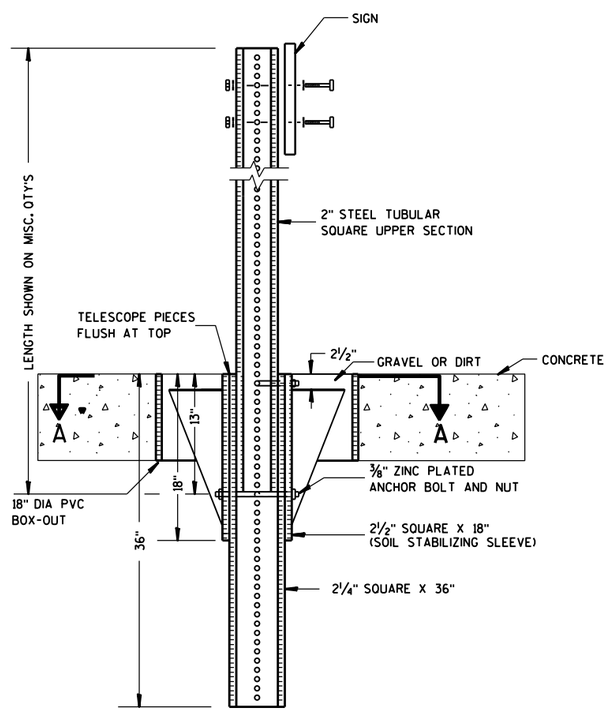
PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E



ELEVATION VIEW

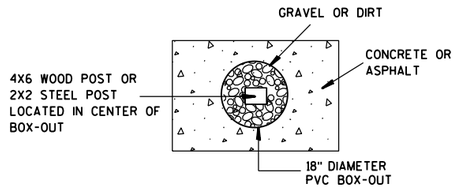
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

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

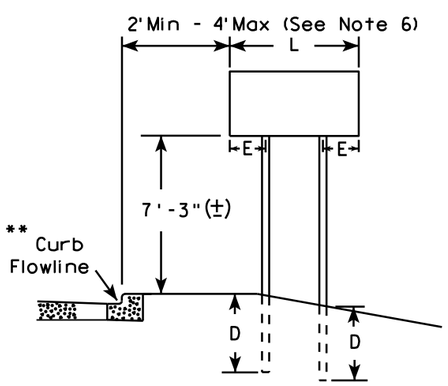
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

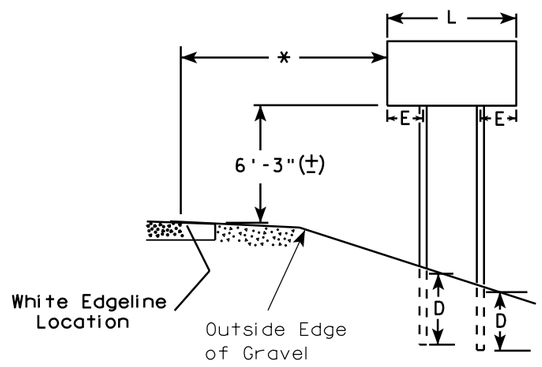
DATE 1/27/14 PLATE NO. A4-3B.1

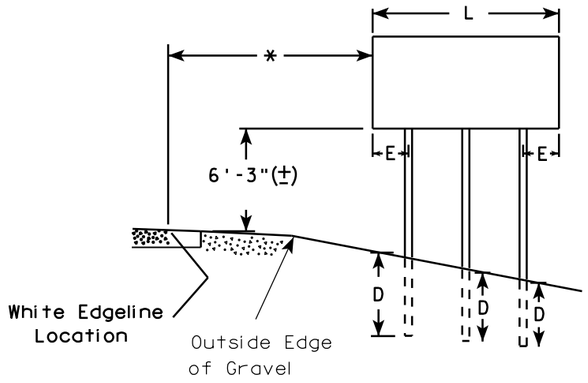
PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

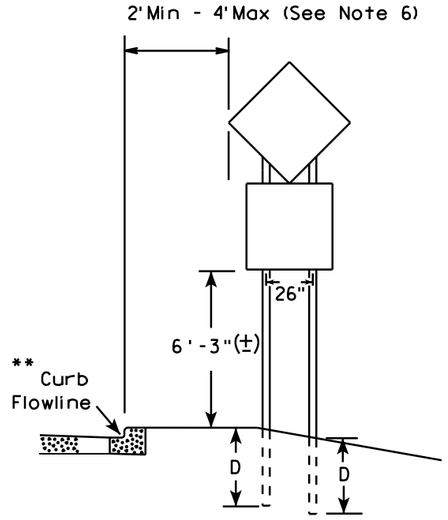
URBAN AREA



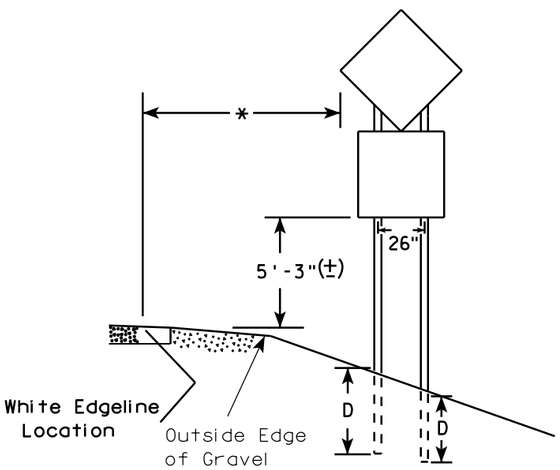
RURAL AREA (See Note 3)







48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

GENERAL NOTES

1. For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
2. See tables below for required number of posts.
3. For expressways and freeways, mounting height is 7'-3" (±) or 6'-3" (±) depending upon existence of sub-sign.
4. The (±) tolerance for mounting height is 3 inches.
5. Minimum mounting height for J assemblies (A2-1S) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the engineer.
8. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4"-3" (±).

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

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

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

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

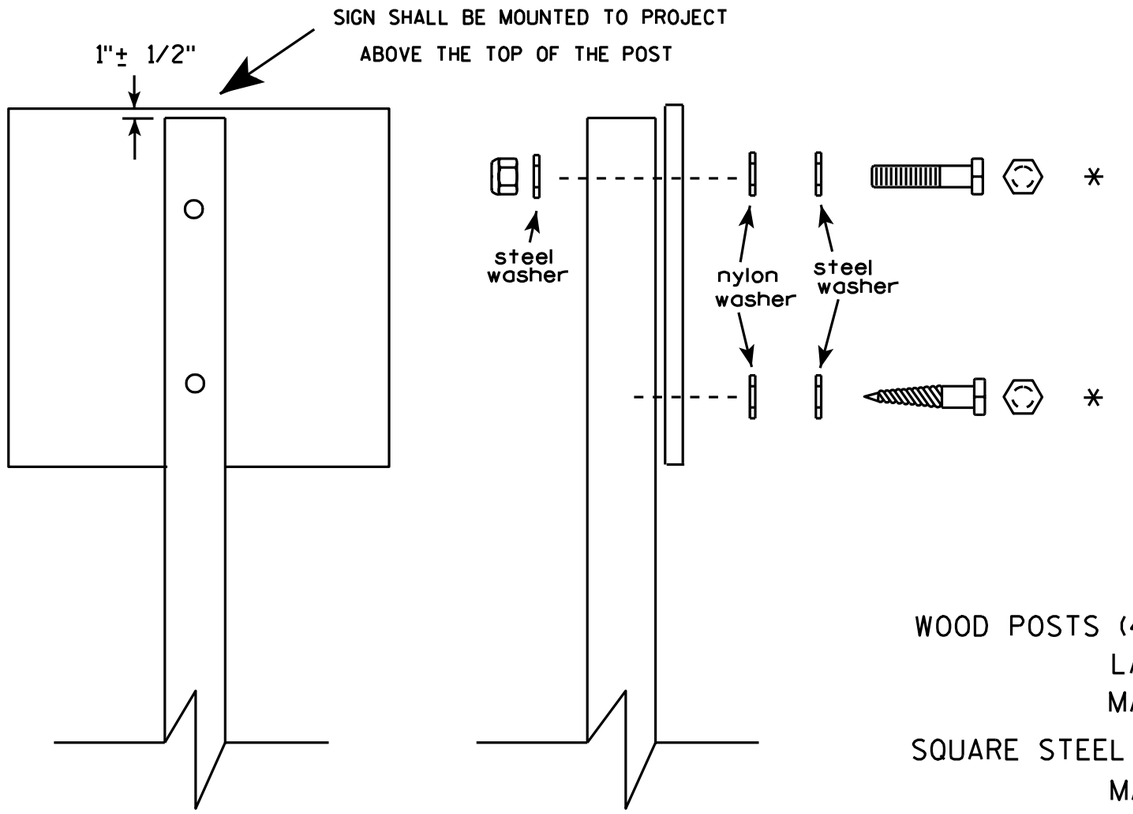
DATE 7/23/15 PLATE NO. A4-4 14

97

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

FILE NAME : C:\CAEfiles\Projects\tr_stdplate\A44.DGN PLOT DATE : 23-JUL-2015 15:23 PLOT BY : mscj9h PLOT NAME : PLOT SCALE : 107.021305:1.000000

WISDOT/CADDS SHEET 42



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

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

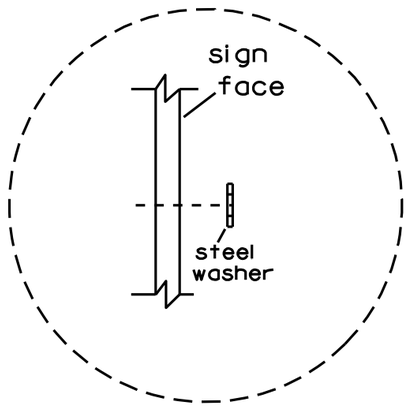
b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

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

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

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

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



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

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

ATTACHMENT OF SIGNS TO POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

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

7

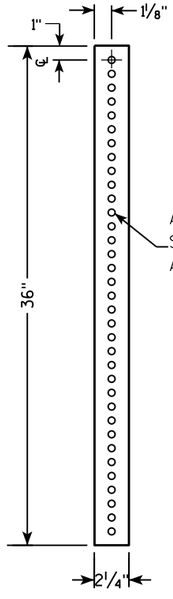
7

PROJECT NO:

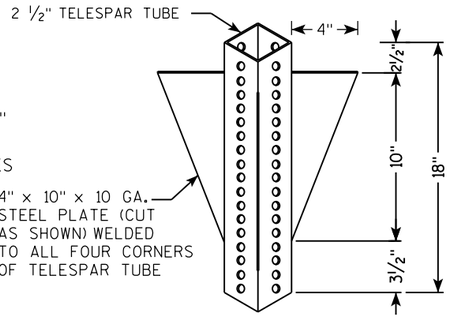
SHEET NO: 98 E

TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM

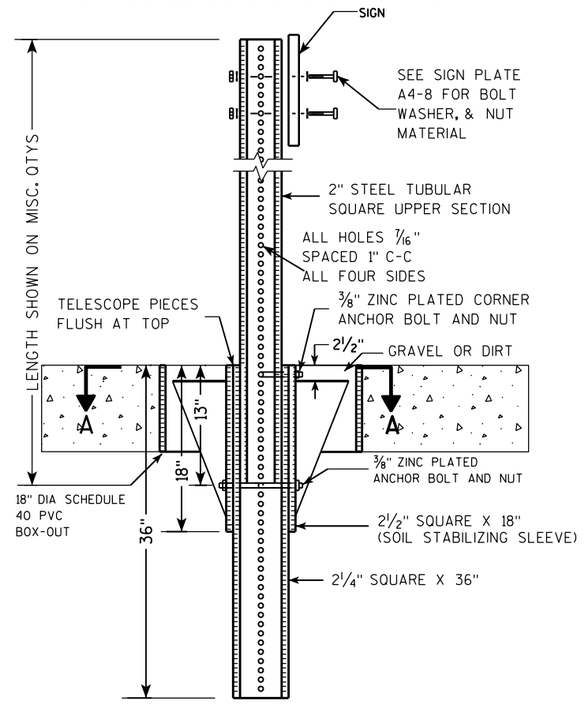
2 1/4 " SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH



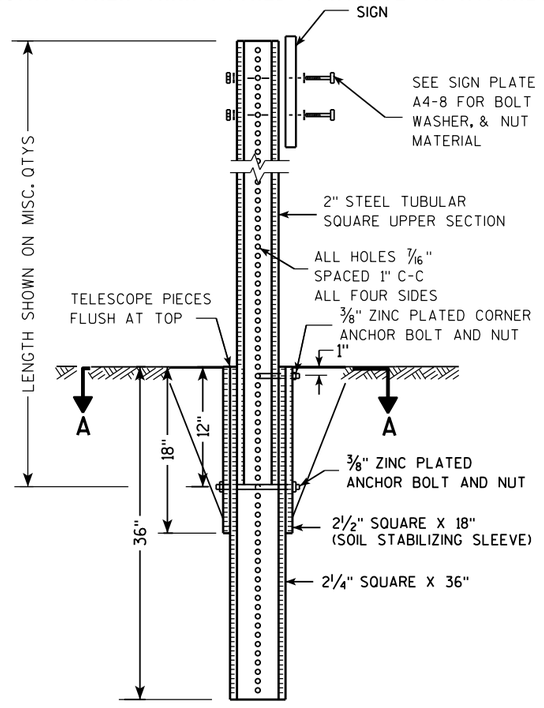
2 1/2 " SQUARE
12 GAUGE
OMNI-DIRECTIONAL
PERFORATED
SOIL STABILIZING SLEEVE
GALVANIZED FINISH

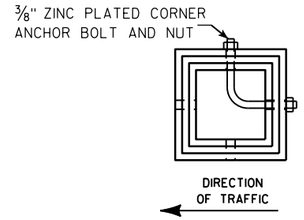


DETAIL OF TUBULAR STEEL SIGN POST
(IN POURED CONCRETE OR ASPHALT)



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





SECTION A-A

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

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

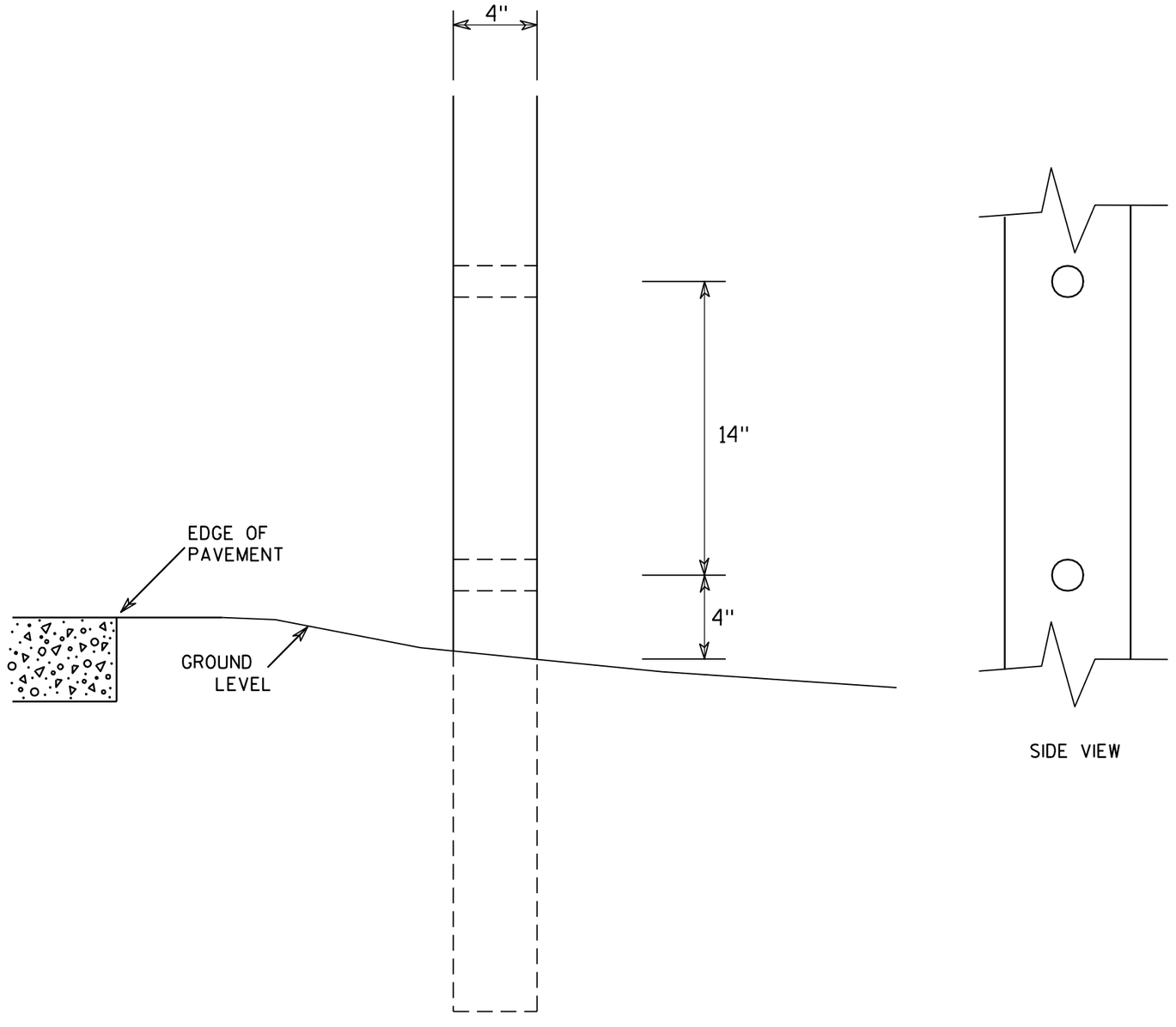
TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 2/05/15 PLATE 99 A4-9.9

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E



SIDE VIEW

GENERAL NOTES

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

7

7

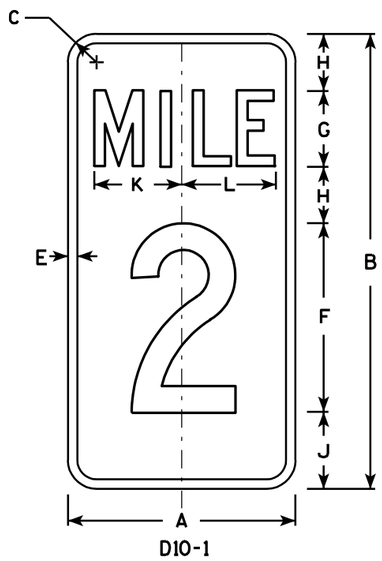
4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

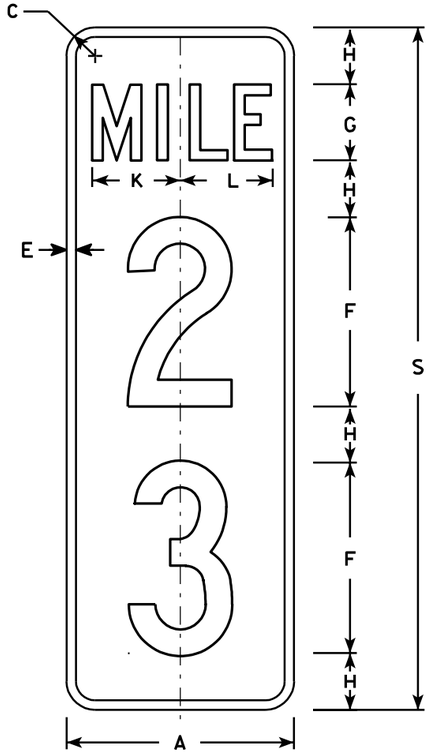
APPROVED Chester J Spang for State Traffic Engineer

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

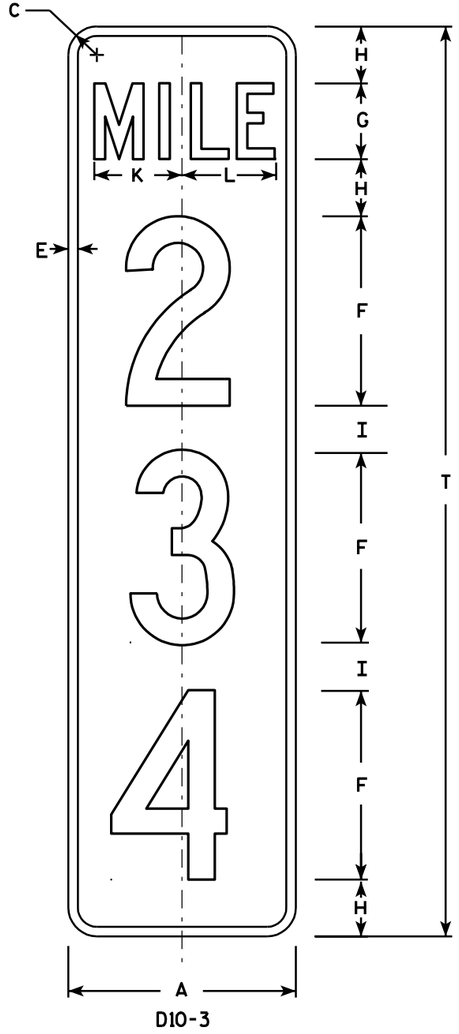
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 100	E



D10-1



D10-2



D10-3

NOTES

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

Metric equivalent for this sign is:

PHY. SIZE	
12 X 24	300 mm X 600 mm
12 X 36	300 mm X 900 mm
12 X 48	300 mm X 1200 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
1																										
2																										
3																										
4	12	24	1 ½		½	10	4	3	2 ½	4	4 ⅝	4 ⅞							36	48						
5	12	24	1 ½		½	10	4	3	2 ½	4	4 ⅝	4 ⅞							36	48						

D10-1	D10-2	D10-3
Area sq. ft.	Area sq. ft.	Area sq. ft.
2.0	3.0	4.0
Area m2	Area m2	Area m2
.19	.28	.38

STANDARD SIGN
D10-1 , D10-2 & D10-3

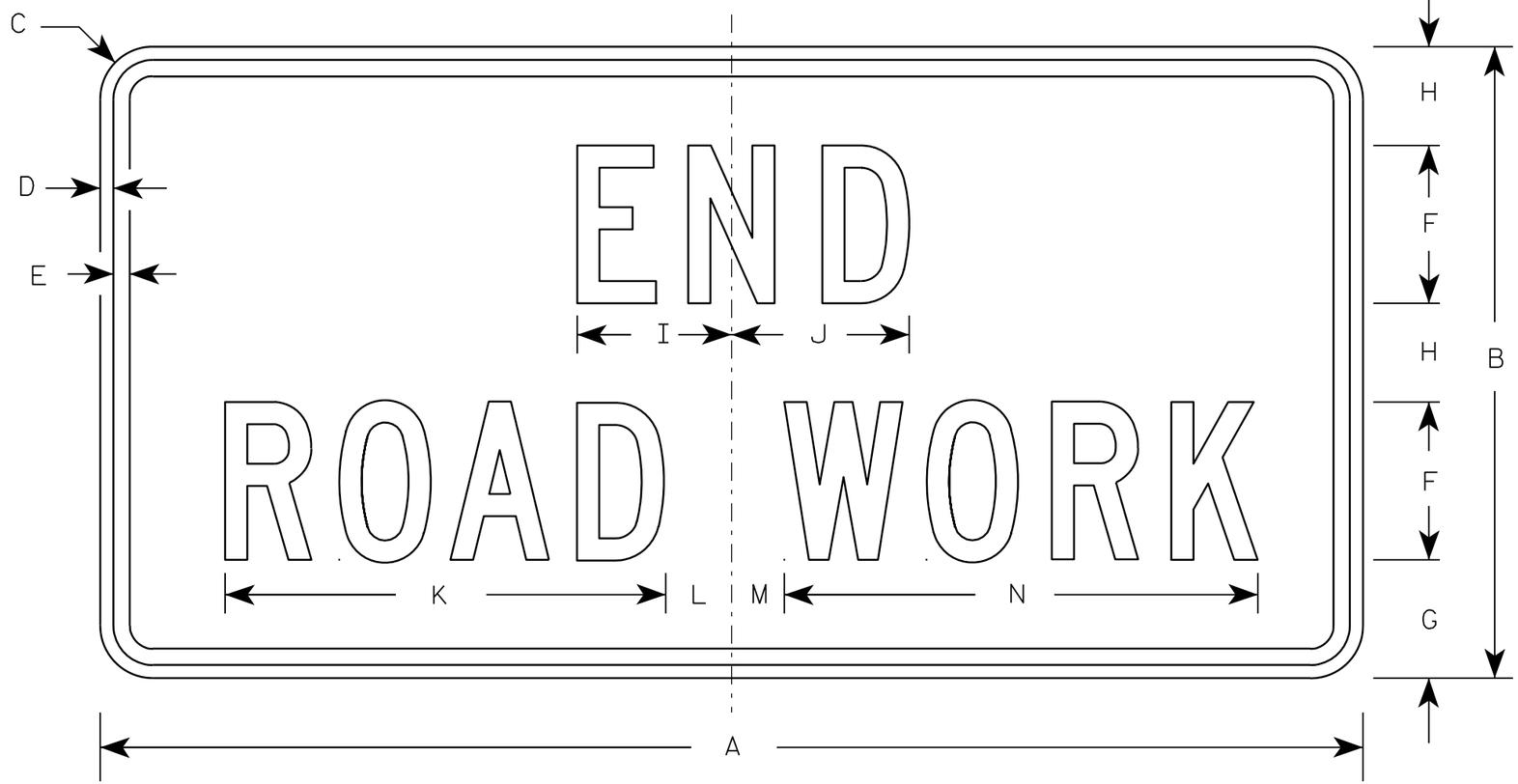
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Chester J Spang
for Director, Office of Traffic

DATE 1/16/02 PLATE NO. D10-3.2

PROJECT NO:

SHEET NO: 101 E



G20-2A

NOTES

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

Metric equivalent for this sign is:

SIZE	
1	900 mm X 450 mm
2	1200 mm X 600 mm
3	1200 mm X 600 mm
4	1200 mm X 600 mm
5	1200 mm X 600 mm

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.	Area m2
1	36	18	1 1/8	3/8	1/2	4	3 3/4	2 1/2	4 1/8	4 1/8	11 1/8	2	1	12 1/8													4.5	0.41
2	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
3	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
4	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
5	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72

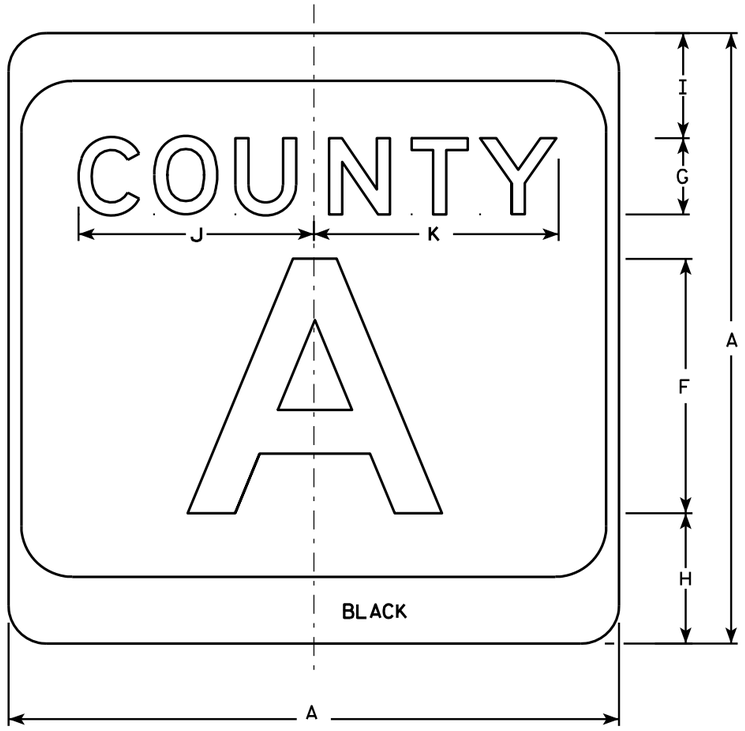
STANDARD SIGN
G20-2A

WISCONSIN DEPT OF TRANSPORTATION

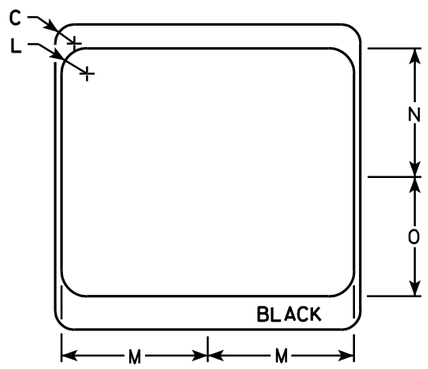
APPROVED Matthew R Rauch
for State Traffic Engineer

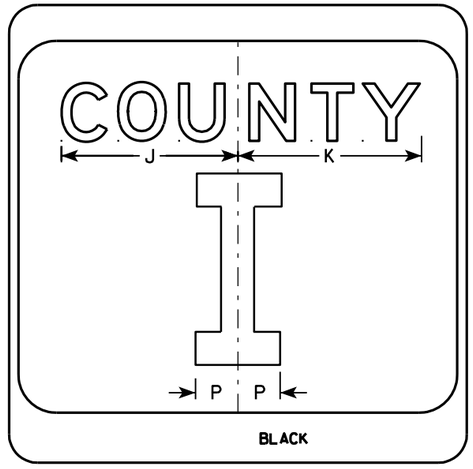
DATE 9/30/09 PLATE NO. G20-2A.8

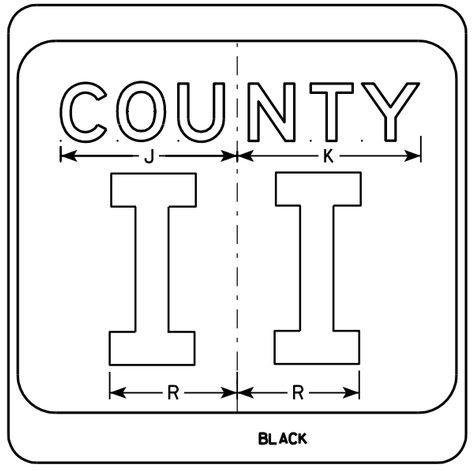
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 102	E



M1-5A







NOTES

1. Sign is Type II - see Note 7 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White & Black - See Note 7
   Message - Black
3. Message Series - see Note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Message Series E for 1 letter.
   Message Series D for 2 letters unless message is too big then Series C.
   Message Series C for 3 letters unless message is too big then Series B.
6. Substitute appropriate letters & optically center to achieve proper balance.
7. Permanent Signs
   Background - Type H Reflective
   Detour or temporary Signs
   Background - Reflective

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24		1 1/2			10	3	5 1/8	4 1/8	9 1/4	9 5/8	2	11 1/2	10 1/8	9 3/8	2 1/4		6 5/8									4.0
3	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0
4	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0
5	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0

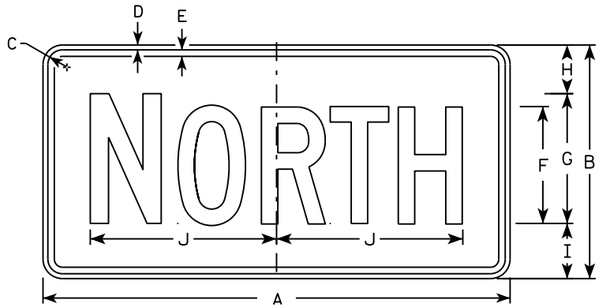
CTH MARKER
M1-5A FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

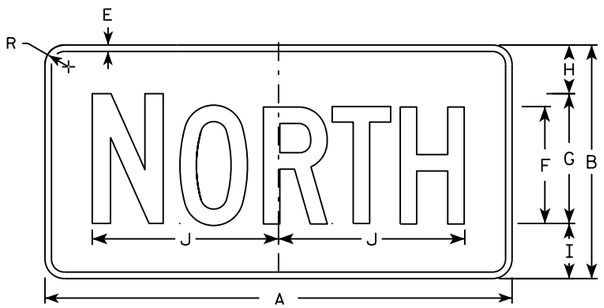
APPROVED Matthew R Rauch
for State Traffic Engineer

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

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 103	E



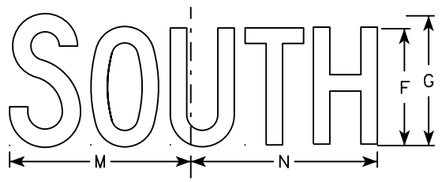
M3-1
MM3-1
MP3-1



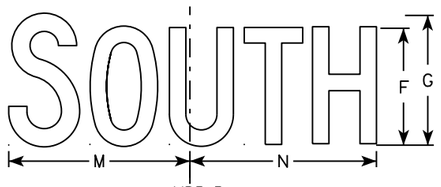
MB3-1
MK3-1
MN3-1

M3-2
MM3-2
MP3-2

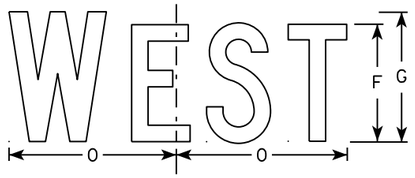
MB3-2
MK3-2
MN3-2



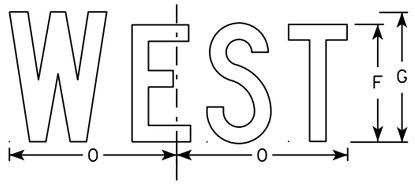
M3-3
MM3-3
MP3-3



MB3-3
MK3-3
MN3-3



M3-4
MM3-4
MP3-4



MB3-4
MK3-4
MN3-4

NOTES

1. All Signs Type II - Type H
2. Color:
   Background - See note 5
   Message - See note 5
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. M3-1 thru M3-4 Background - White
   Message - Black
   MB3-1 thru MB3-4 Background - Blue
   Message - White
   MK3-1 thru MK3-4 Background - Green
   Message - White
   MM3-1 thru MM3-4 Background - White
   Message - Green
   MN3-1 thru MN3-4 Background - Brown
   Message - White
   MP3-1 thru MP3-4 Background - White
   Message - Blue
6. Note the first letter of each direction is larger than the remainder of the message.

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

STANDARD SIGNS
M3-1 thur M3-4
SERIES

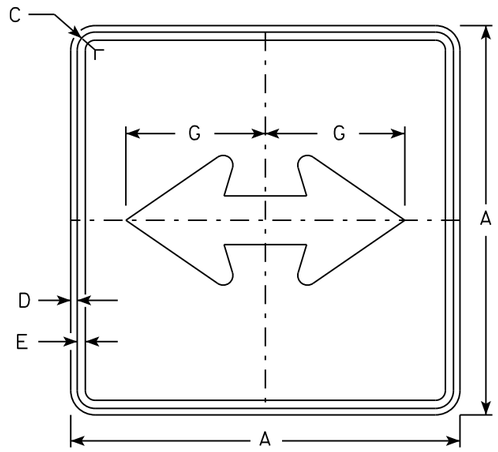
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew P Rauch for State Traffic Engineer

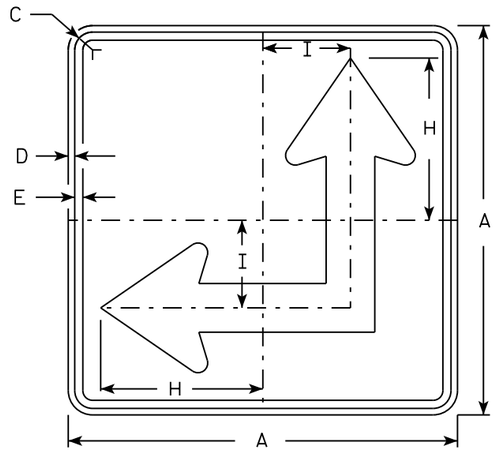
DATE 10/15/15 PLATE NO M3-1.14

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

FILE NAME : C:\CAEfiles\Projects\tr_stdplate\M31.DGN PLOT DATE : 01-DEC-2015 17:54 PLOT BY : $$ plotuser $$ PLOT NAME : PLOT SCALE : 11.675051:1.000000



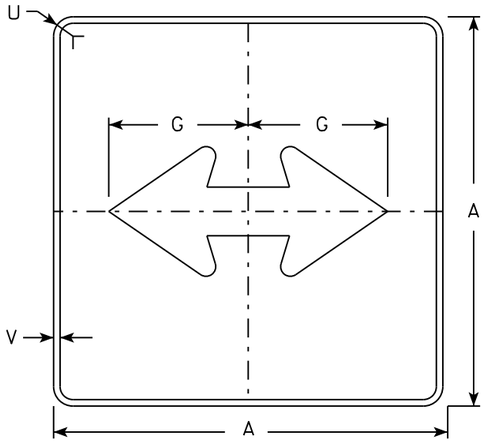
M6-4
MM6-4
MO6-4
MP6-4



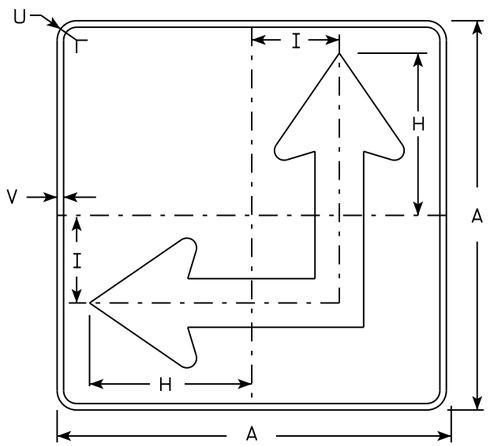
M6-6
MM6-6
MO6-6
MP6-6

NOTES

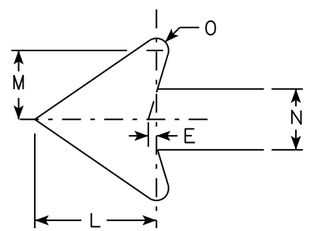
1. Signs are Type II - Type H except as Shown
2. Color:
   Background - See Note 4
   Message - See Note 4
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. M6-4 and M6-6 Background - White
   Message - Black
   MB6-4 and MB6-6 Background - Blue
   Message - White
   MK6-4 and MK6-6 Background - Green
   Message - White
   MM6-4 and MM6-6 Background - White
   Message - Green
   MN6-4 and MN6-6 Background - Brown
   Message - White
   MO6-4 and MO6-6 Background - Orange - Type F Reflective
   Message - Black
   MP6-4 and MP6-6 Background - White
   Message - Blue
   MR6-4 and MR6-6 Background - Brown
   Message - Yellow
5. M6-6R same as M6-6L except arrow points ahead and right.



MB6-4
MK6-4
MN6-4
MR6-4



MB6-6
MK6-6
MN6-6
MR6-6



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	21		1 1/8	3/8	3/8		7 1/2	8 3/4	4 1/4			5 1/4	3	2 5/8	1/2						1 1/2	1/2					3.06
3	30		1 3/8	1/2	5/8		10 3/4	12 1/2	6 3/4			7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25
4	30		1 3/8	1/2	5/8		10 3/4	12 1/2	6 3/4			7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25
5	30		1 3/8	1/2	5/8		10 3/4	12 1/2	6 3/4			7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25

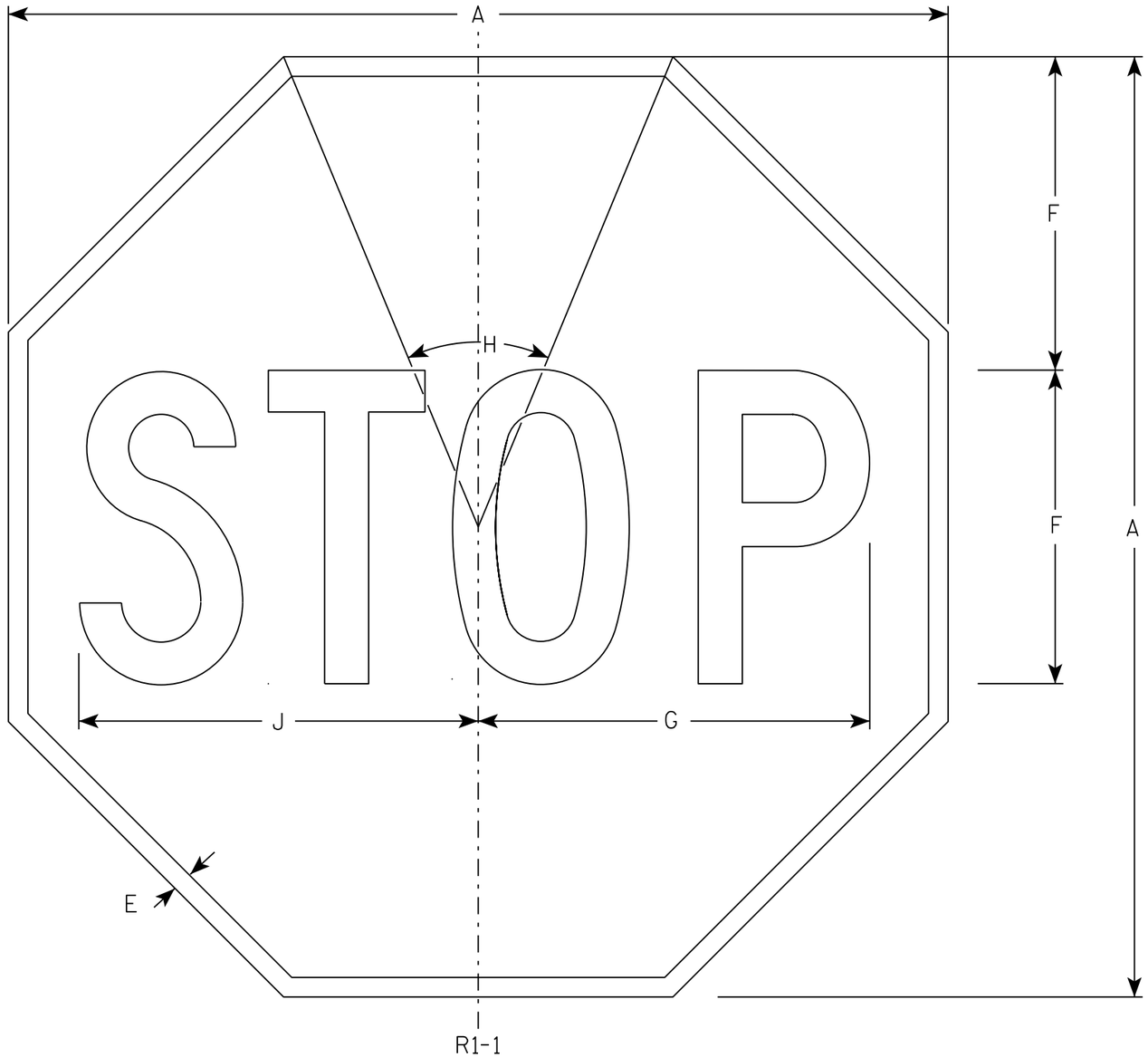
STANDARD SIGN
M6-4 & M6-6
SERIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 10/15/15 PLATE 105 M6-4.10

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



NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Red
   Message - White
3. Message Series - C

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30				5/8	10	12 1/2	45°		12 3/4																	5.18
2S	30				5/8	10	12 1/2	45°		12 3/4																	5.18
2M	36				3/4	12	15	45°		15 3/8																	7.46
3	36				3/4	12	15	45°		15 3/8																	7.46
4	48				1	16	20	45°		20 1/2																	13.25
5	48				1	16	20	45°		20 1/2																	13.25
6	18				3/8	6	7 3/4	45°		7 3/4																	1.86
7	12				1/4	4	5	45°		5 1/8																	0.78

STANDARD SIGN
R1-1

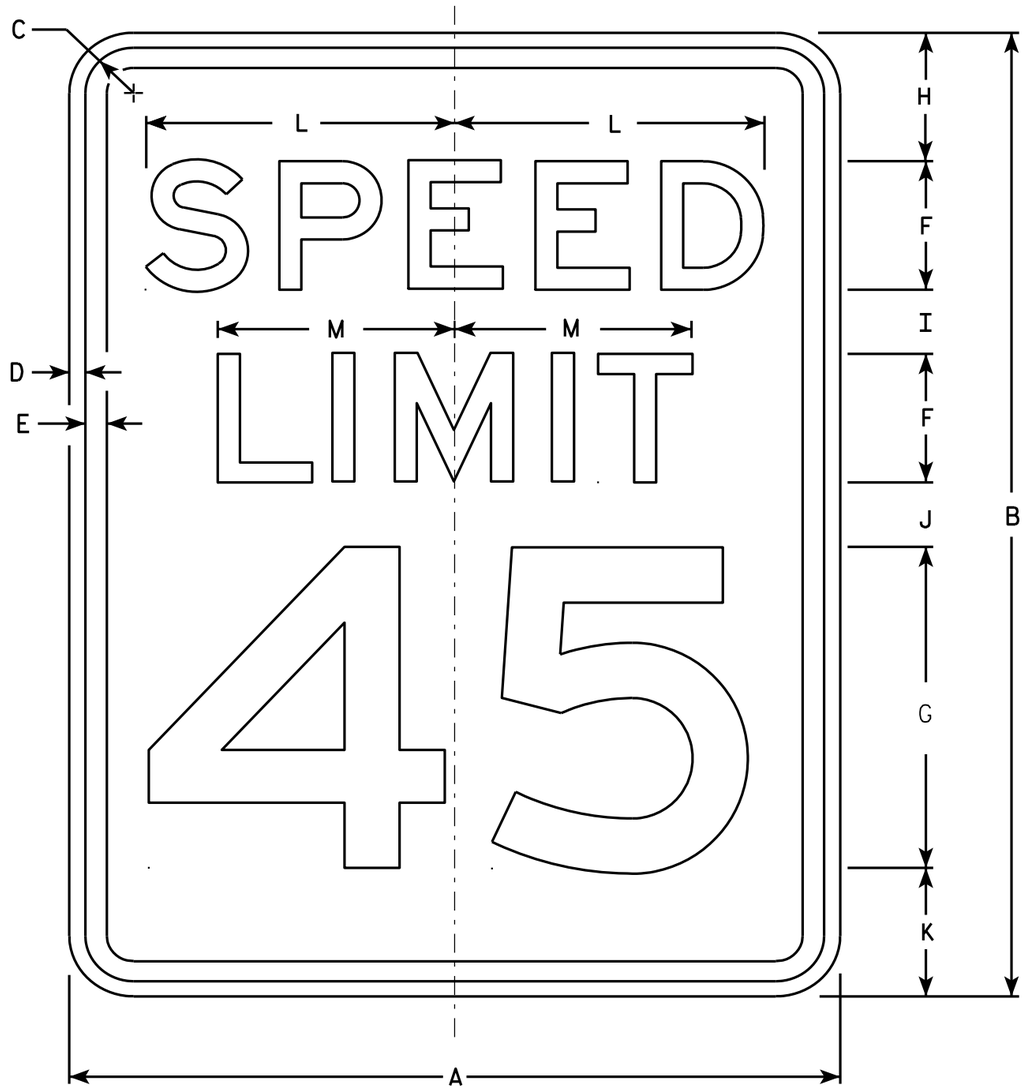
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 11/12/15 PLATE R1-1.13

PROJECT NO:	HWY:	COUNTY:		SHEET NO: E

FILE NAME : C:\CAEfiles\Projects\tr_stdplate\R11.DGN PLOT DATE : 01-DEC-2015 18:07 PLOT BY : $$ plotuser $$ PLOT NAME : PLOT SCALE : 4.378143:1.000000



R2-1

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White
   Message - 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.
5. Substitute appropriate numerals and optically adjust spacing to achieve proper balance.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	18	24	1 1/8	3/8	1/2	3	8	3	2	2	3	7 1/4	5 1/2														3.0
2S	24	30	1 1/8	3/8	1/2	4	10	3	2 1/4	3 3/8	3 3/8	9 5/8	7 3/8														5.0
2M	30	36	1 3/8	1/2	5/8	5	12	5	2 1/2	2 1/2	4	12	9 1/4														7.5
3	36	48	1 3/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
4	36	48	1 3/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
5	48	60	2 1/4	3/4	1	8	20	6	4 1/2	6 3/4	6 3/4	19 1/4	14 5/8														20.0

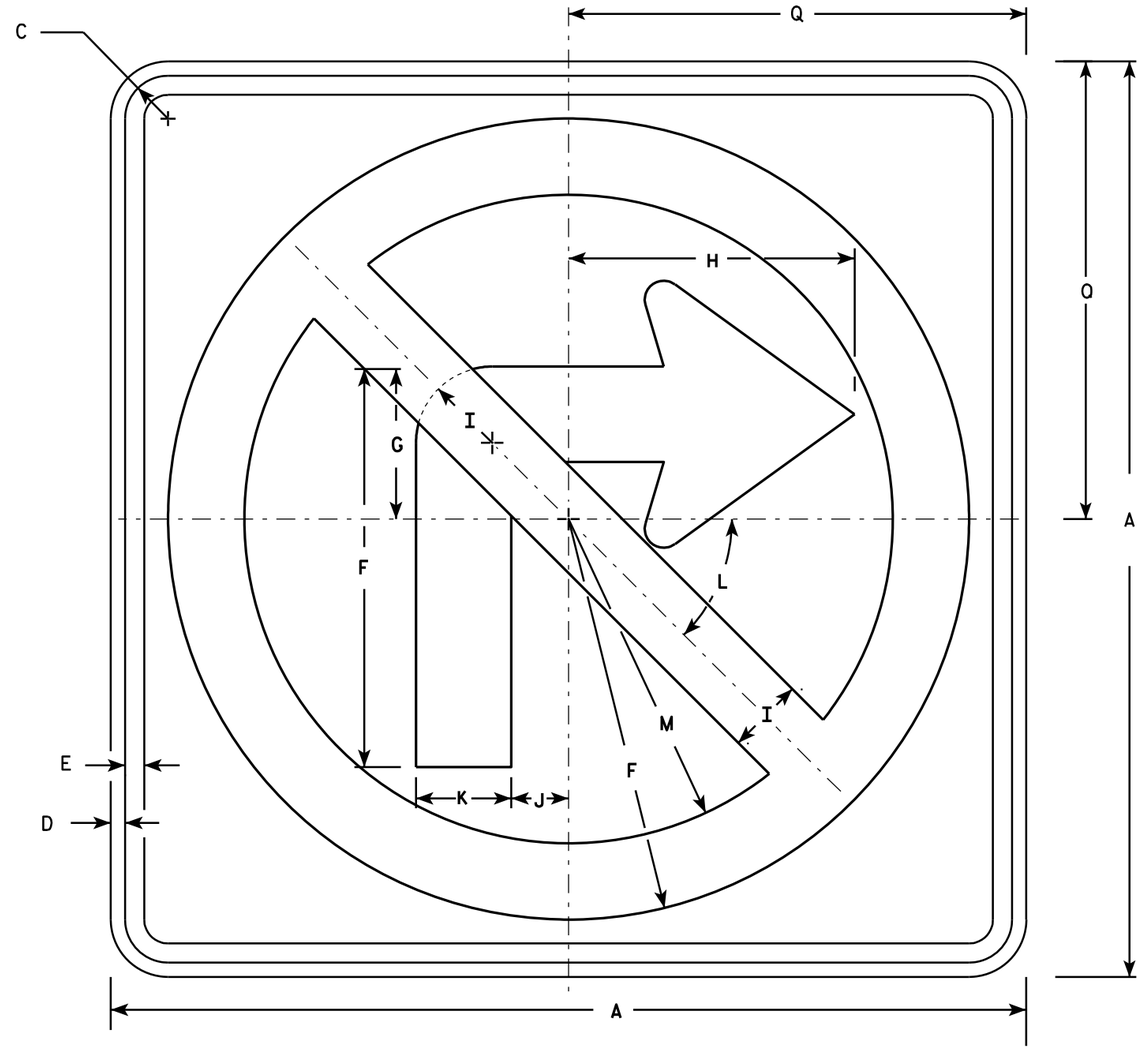
STANDARD SIGN
R2-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 5/26/10 PLATE NO. R2-1.13

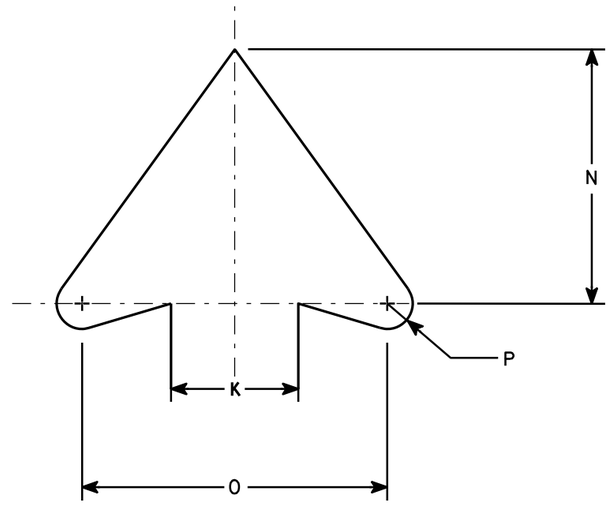
PROJECT NO: | HWY: | COUNTY: | SHEET NO: 107 | E



R3-1

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White
   Message - See note 4
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. Border & Arrow are non reflective black, the circle with diagonal bar is reflective red.



ARROW DETAIL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24		1 1/8	3/8	1/2	10 1/2	4	7 1/2	2	1 1/2	2 1/2	45	8 1/2	5	6	1/2	12										4.0
2S	24		1 1/8	3/8	1/2	10 1/2	4	7 1/2	2	1 1/2	2 1/2	45°	8 1/2	5	6	1/2	12										4.0
2M	36		1 5/8	5/8	3/4	15 3/4	6	11 1/4	3	2 1/4	3 3/4	45	12 3/4	7 1/2	9	3/4	18										9.0
3	36		1 5/8	5/8	3/4	15 3/4	6	11 1/4	3	2 1/4	3 3/4	45	12 3/4	7 1/2	9	3/4	18										9.0
4	36		1 5/8	5/8	3/4	15 3/4	6	11 1/4	3	2 1/4	3 3/4	45°	12 3/4	7 1/2	9	3/4	18										9.0
5	48		2 1/4	3/4	1	21	8	15	4	3	5	45°	17	10	12	1	24										16.0

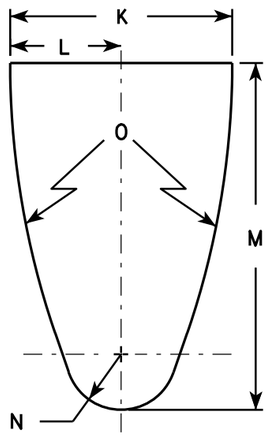
STANDARD SIGN
R3-1

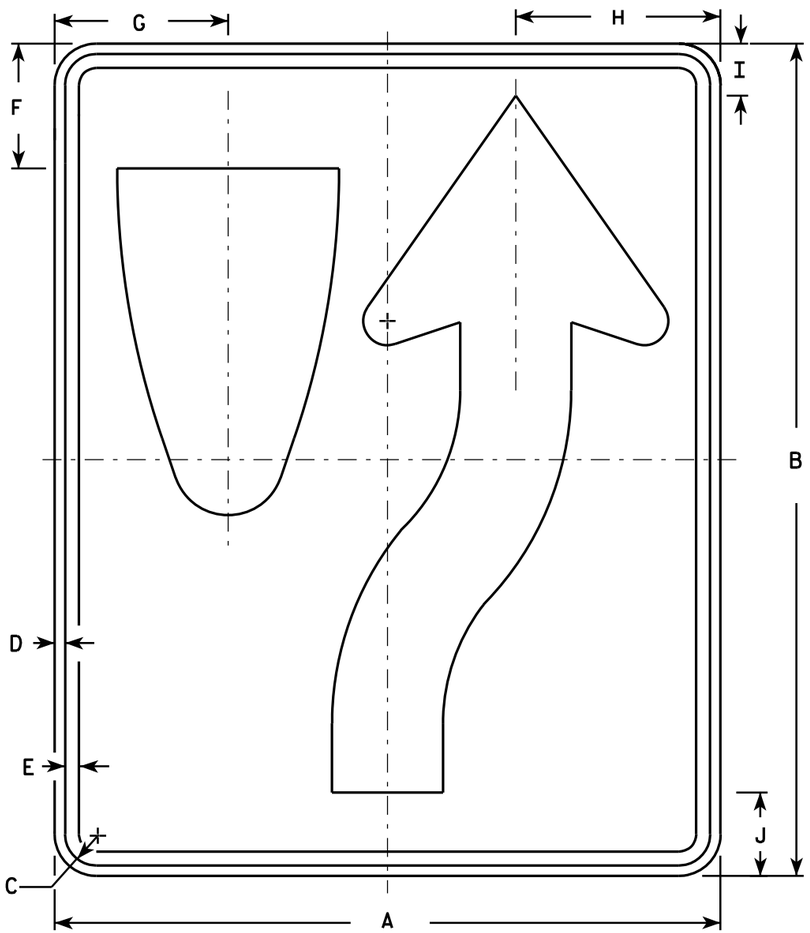
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 12/08/10 PLATE NO. R3-1.5

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

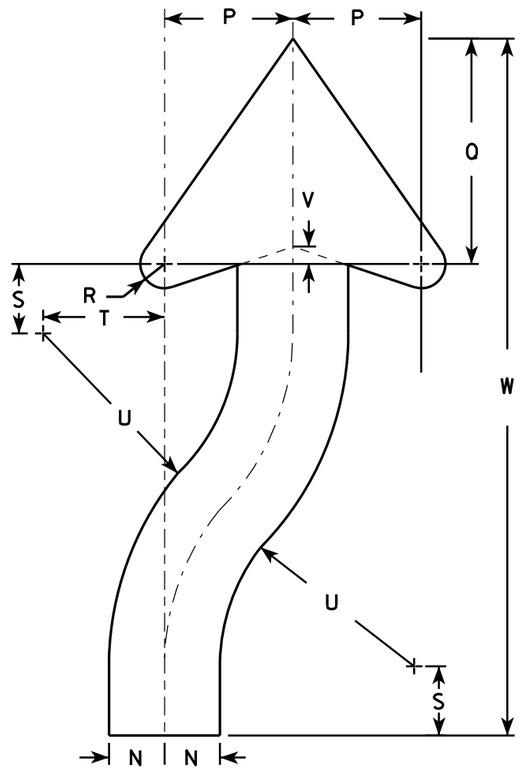




R4-7

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition. material is plywood but borders shall be rounded
2. Color:
   Background - White
   Message - Black
3. Corners may be square or rounded when base as shown. When base material is metal, the corners and borders shall be rounded.
4. R4-8 is the same as R4-7 except Legend is reversed.



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	18	24	1 1/8	3/8	1/2	3 3/8	4 3/4	5 1/2	1 3/8	2 1/4	6	3	9 3/8	1 1/2	22 1/2	3 1/2	6 1/8	5/8	1 7/8	3 1/4	6 3/4	1/2	20 3/8				3.0
2S	24	30	1 1/8	3/8	1/2	4 1/2	6 1/4	7 3/8	1 7/8	3	8	4	12 1/2	2	30	4 5/8	8 1/8	7/8	2 1/2	4 3/8	9	5/8	25 1/8				5.0
2M	24	30	1 1/8	3/8	1/2	4 1/2	6 1/4	7 3/8	1 7/8	3	8	4	12 1/2	2	30	4 5/8	8 1/8	7/8	2 1/2	4 3/8	9	5/8	25 1/8				5.0
3	36	48	1 3/4	1/2	5/8	6 3/4	9 3/8	11 1/8	2 7/8	4 1/2	12	6	18 3/4	3	45	6 7/8	12 1/4	1 1/4	3 3/4	6 5/8	13 1/2	1	40 3/4				12.0
4	36	48	1 3/4	1/2	5/8	6 3/4	9 3/8	11 1/8	2 7/8	4 1/2	12	6	18 3/4	3	45	6 7/8	12 1/4	1 1/4	3 3/4	6 5/8	13 1/2	1	40 3/4				12.0
5	48	60	2 1/4	3/4	1	9	12 1/2	14 3/4	3 3/4	6	16	8	25	4	60	9 1/4	16 1/4	1 5/8	5	8 3/4	18	1 1/4	50 1/4				20.0

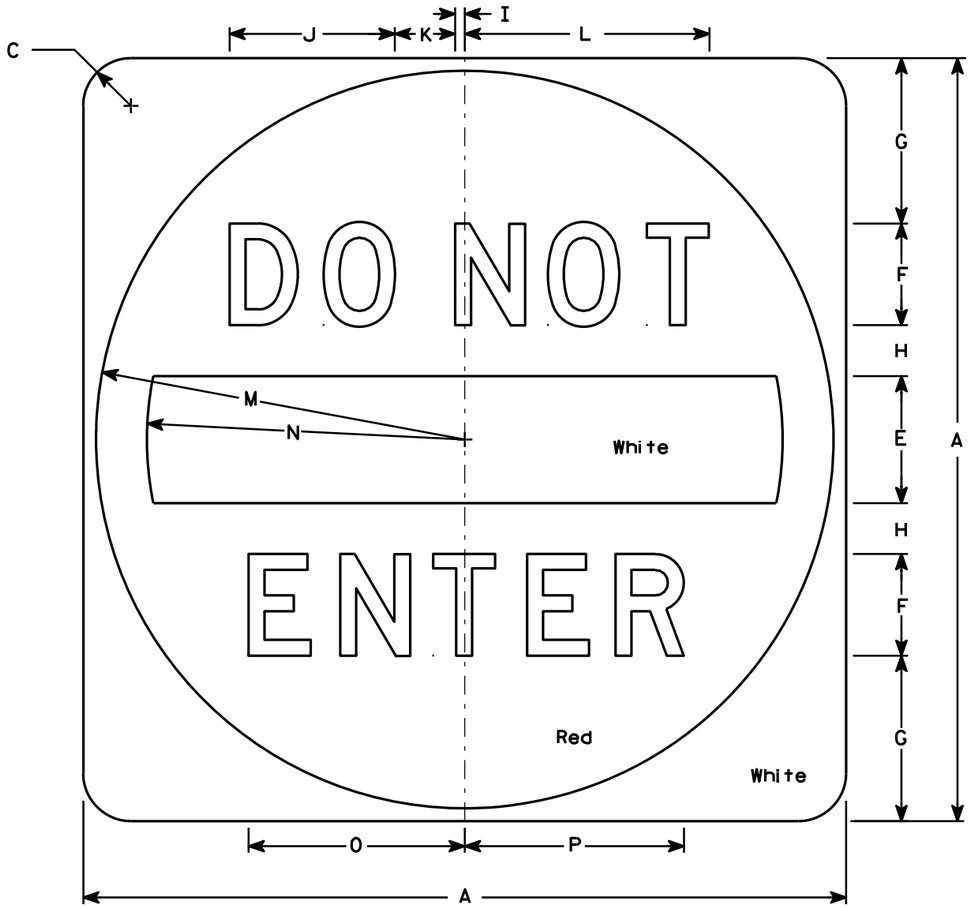
STANDARD SIGN
R4-7 & R4-8

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch for State Traffic Engineer

DATE 3/25/2011 PLATE NO. R4-7.8

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



R5-1

NOTES

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

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	30		1 7/8		5	4	6 1/2	2	3/8	6 1/2	2 3/8	9 5/8	14 1/2	12 1/2	8 1/2	8 5/8											6.26
2M	36		2 1/4		6	5	7 1/2	2 1/2	1/2	8 1/8	3	12 1/8	17 1/2	15	10 5/8	10 3/4											9.0
3	36		2 1/4		6	5	7 1/2	2 1/2	1/2	8 1/8	3	12 1/8	17 1/2	15	10 5/8	10 3/4											9.0
4	36		2 1/4		6	5	7 1/2	2 1/2	1/2	8 1/8	3	12 1/8	17 1/2	15	10 5/8	10 3/4											9.0
5	48		3		8	6	11	3	5/8	9 3/4	3 5/8	14 1/2	23 1/2	20	12 3/4	12 7/8											16.0

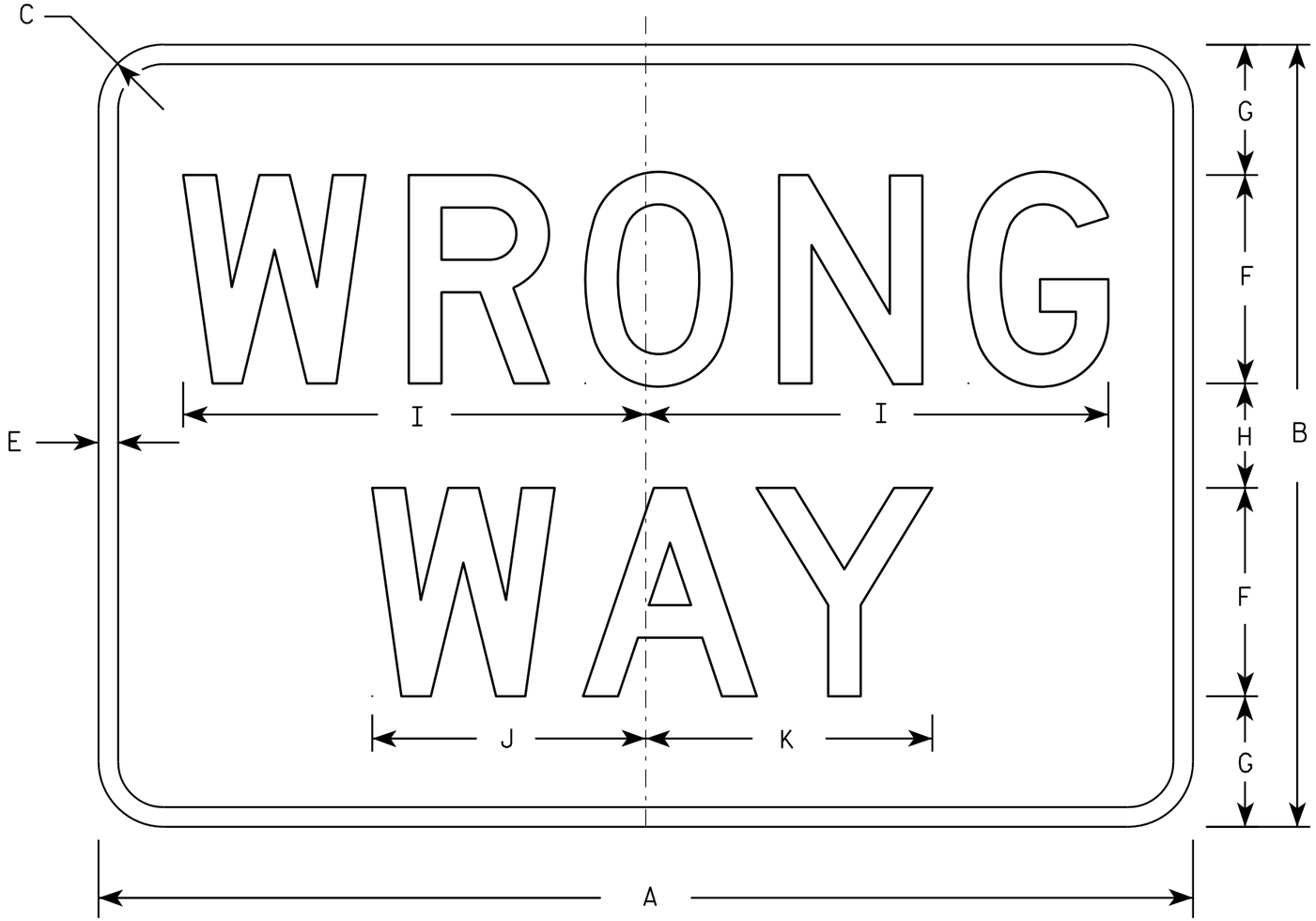
STANDARD SIGN
R5-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 12/17/10 PLATE NO. R5-1.15

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



R5-1A

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Red
   Message - White
3. Message Series - 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	30	18	1 1/2		1/2	5	3	2	11	6 1/2	6 7/8																3.75
2S	36	24	2		5/8	6	4 1/2	3	13 1/4	7 7/8	8 1/4																6.00
2M	42	30	2 1/2		3/4	8	5	4	17 3/4	10 1/2	11																8.75
3	42	30	2 1/2		3/4	8	5	4	17 3/4	10 1/2	11																8.75
4	42	30	2 1/2		3/4	8	5	4	17 3/4	10 1/2	11																8.75
5	42	30	2 1/2		3/4	8	5	4	17 3/4	10 1/2	11																8.75

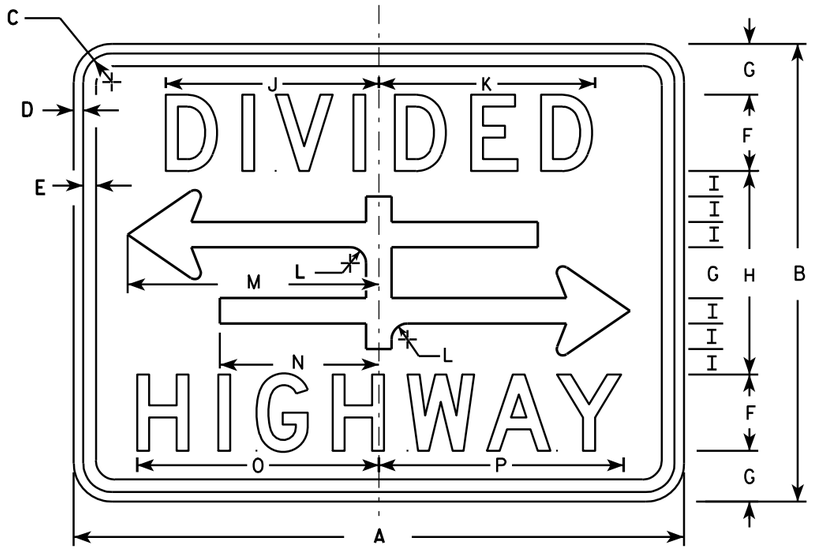
STANDARD SIGN
R5-1A

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 12/17/10 PLATE NO. R5-1A.2

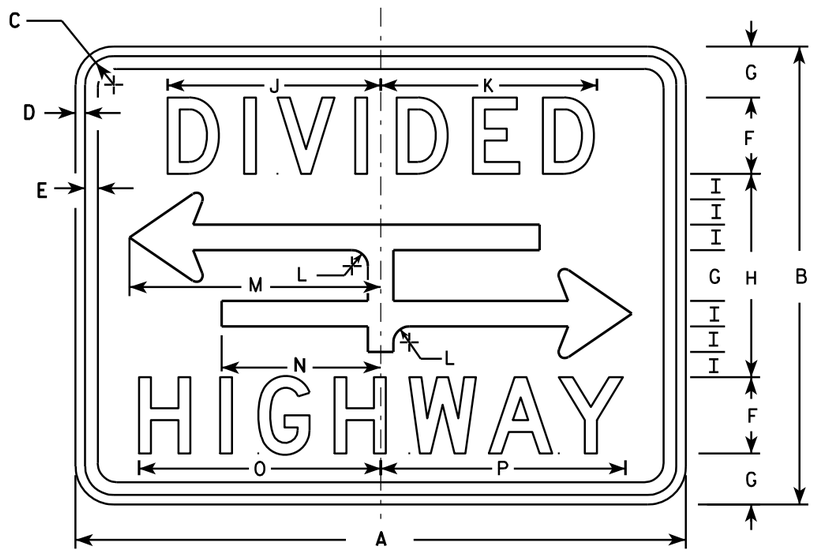
PROJECT NO: | HWY: | COUNTY: | SHEET NO: 111 | E



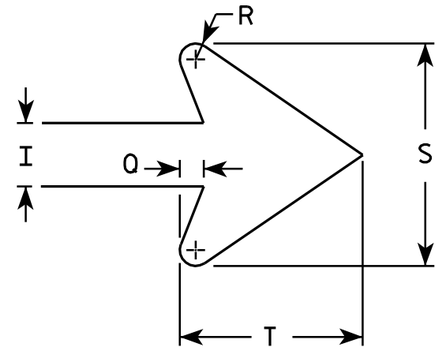
R6-3

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 - 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.



R6-3A



ARROW DETAIL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24	18	1 1/8	3/8	3/8	3	2	8	1	8 3/8	8 1/2	5/8	9 7/8	6 1/4	9 1/2	9 5/8	3/8	1/4	3 1/2	2 3/4							3.0
2S	30	24	1 1/8	3/8	1/2	4	2 5/8	10 3/4	1 3/8	10 1/2	10 5/8	7/8	12 1/2	7 7/8	12 1/4	12 3/8	1/2	3/8	4 5/8	3 5/8							5.0
2M	30	24	1 1/8	3/8	1/2	4	2 5/8	10 3/4	1 3/8	10 1/2	10 5/8	7/8	12 1/2	7 7/8	12 1/4	12 3/8	1/2	3/8	4 5/8	3 5/8							5.0
3																											
4																											
5																											

STANDARD SIGN
R6-3 & R6-3A

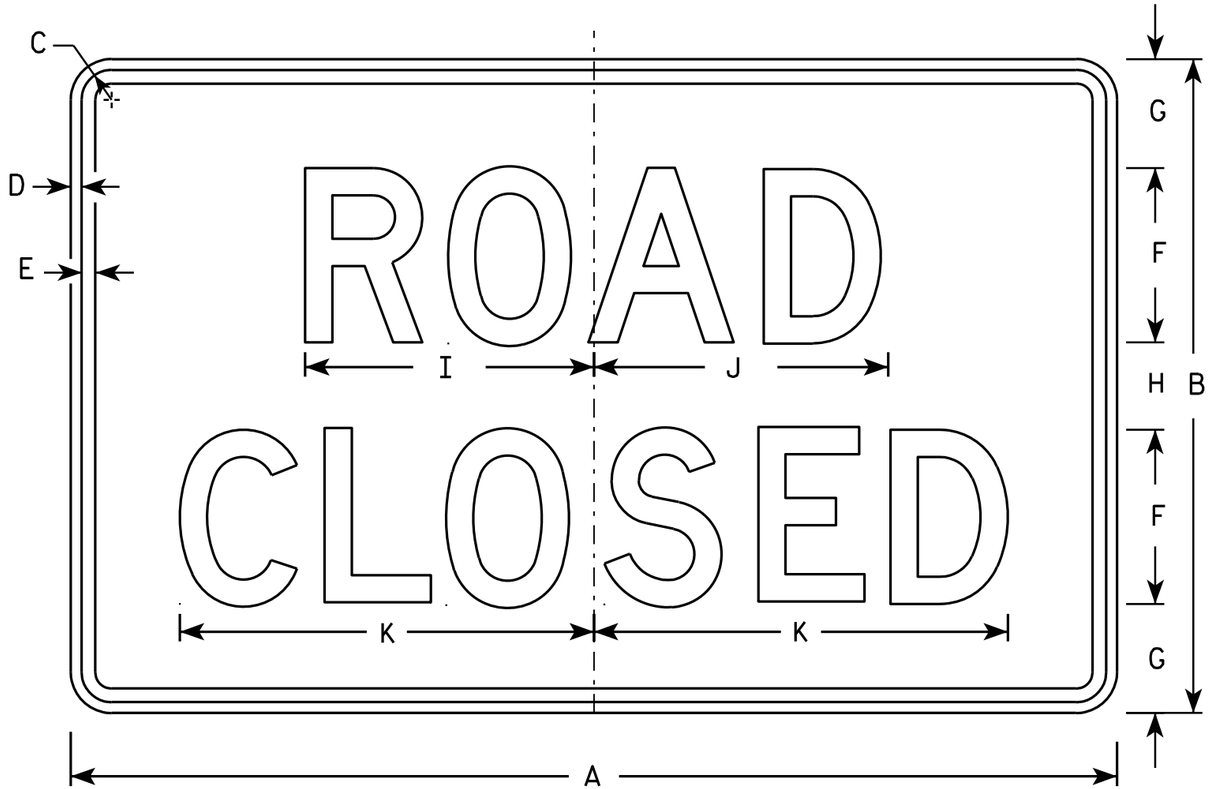
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/31/2011 PLATE NO. R6-3.5

PROJECT NO:

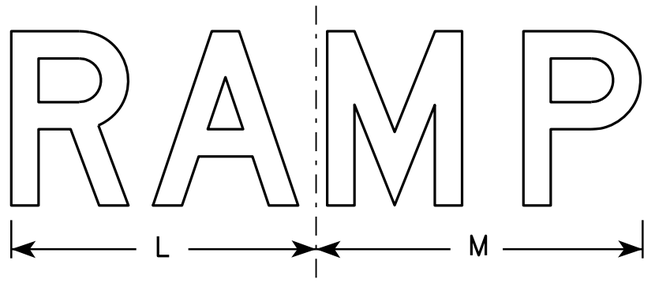
SHEET NO: 112 E



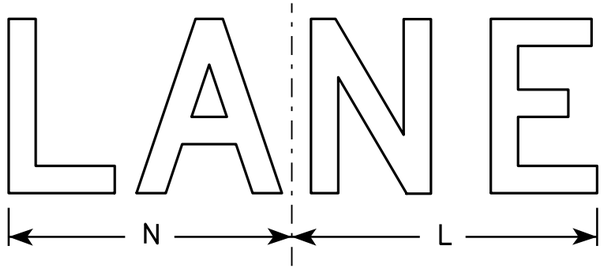
R11-2

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

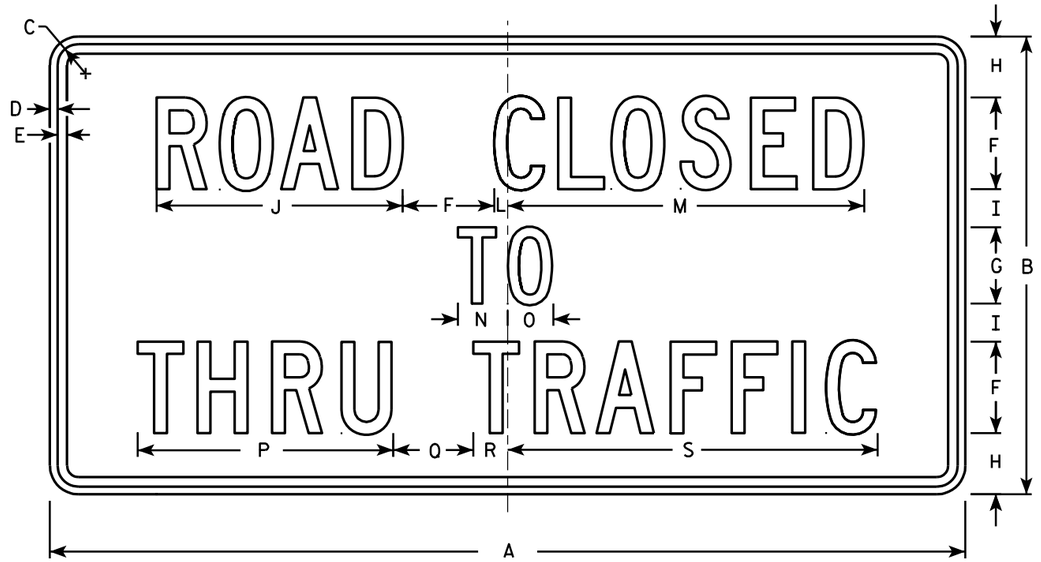
APPROVED Matthew R Rauch
for State Traffic Engineer

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

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 113	E

FILE NAME : C:\Users\PROJECTS\tr_stdplate\R112.DGN PLOT DATE : 01-APR-2011 14:25 PLOT BY : mscj9h PLOT NAME : PLOT SCALE : 6.952219:1.000000

WISDOT/CADDS SHEET 42



R11-4

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.

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	60	30	1 3/8	1/2	5/8	6	5	4	2 1/2	16 1/8		7/8	23 3/8	3 1/4	3	16 3/4	5 1/4	2 1/4	24 1/4								12.5
2M	60	30	1 3/8	1/2	5/8	6	5	4	2 1/2	16 1/8		7/8	23 3/8	3 1/4	3	16 3/4	5 1/4	2 1/4	24 1/4								12.5
3																											
4																											
5																											

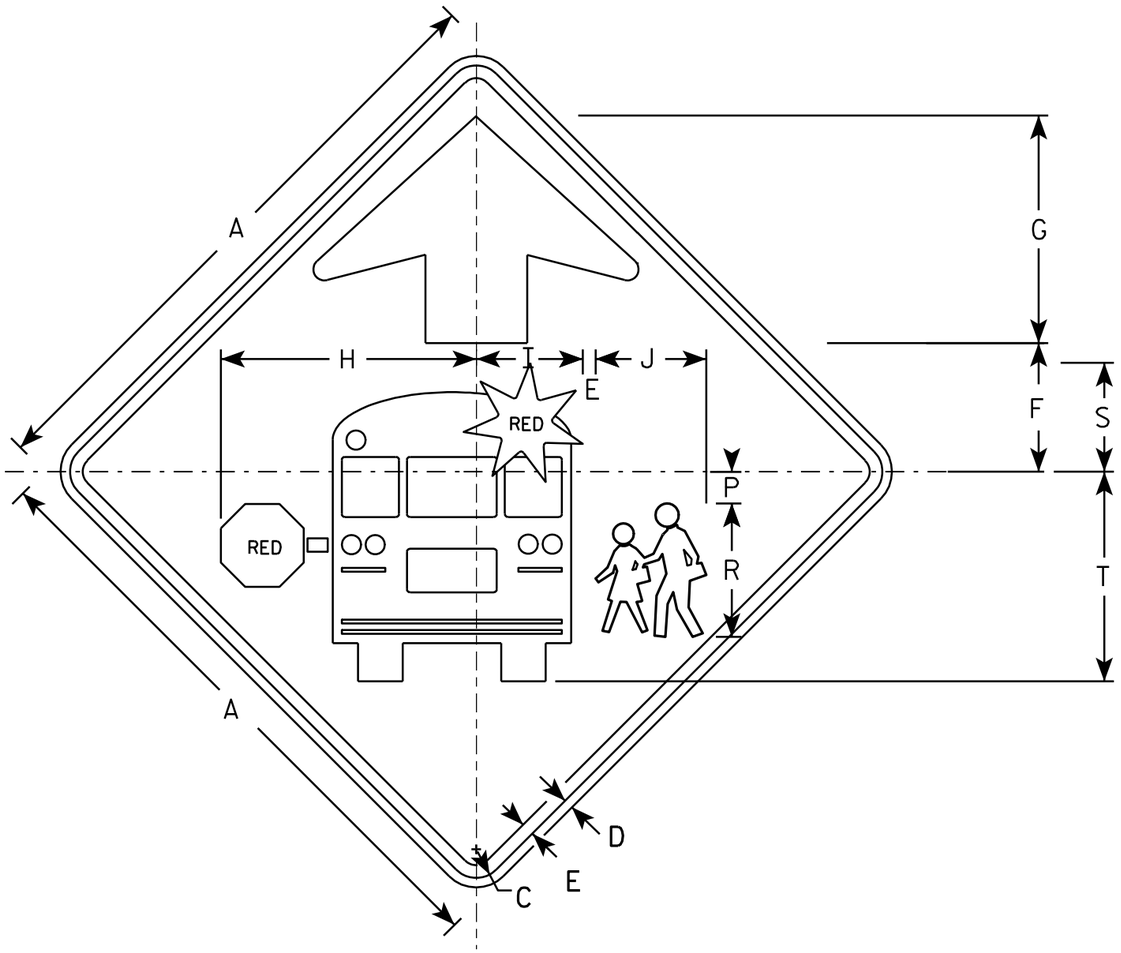
STANDARD SIGN
R11 - 4

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch for State Traffic Engineer

DATE 4/1/11 PLATE NO. R11-4.3

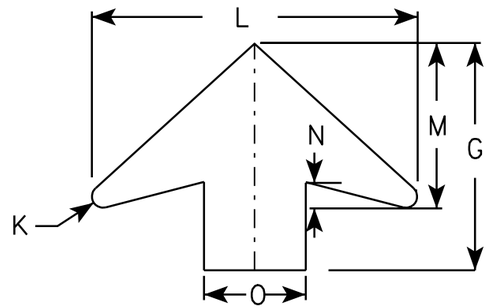
PROJECT NO: | HWY: | COUNTY: | SHEET NO: 114 | E



S3-1

NOTES

1. All Signs Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - YELLOW-GREEN
   Message - BLACK except as noted
   Circles except PEDS- RED BACKGROUND
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.



ARROW DETAIL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30		1 3/8	1/2	5/8	6 1/4	11 1/4	12 1/2	5 1/4	5 1/2	1/2	16	8	1 1/4	5	1 1/2		6 5/8	5 3/8	10 3/8							6.25
2	36		1 5/8	5/8	3/4	7 1/2	13 1/2	15 1/8	6 1/4	6 1/2	5/8	19 1/4	9 3/4	1 5/8	6	1 7/8		7 7/8	6 3/8	12 3/8							9.0
3	48		2 1/4	3/4	1	10	17 7/8	20 1/8	8 3/8	8 3/4	7/8	25 5/8	13	2	8	2 1/2		10 1/2	8 1/2	16 1/2							16.0
4	48		2 1/4	3/4	1	10	17 7/8	20 1/8	8 3/8	8 3/4	7/8	25 5/8	13	2	8	2 1/2		10 1/2	8 1/2	16 1/2							16.0
5																											

STANDARD SIGN
S3-1

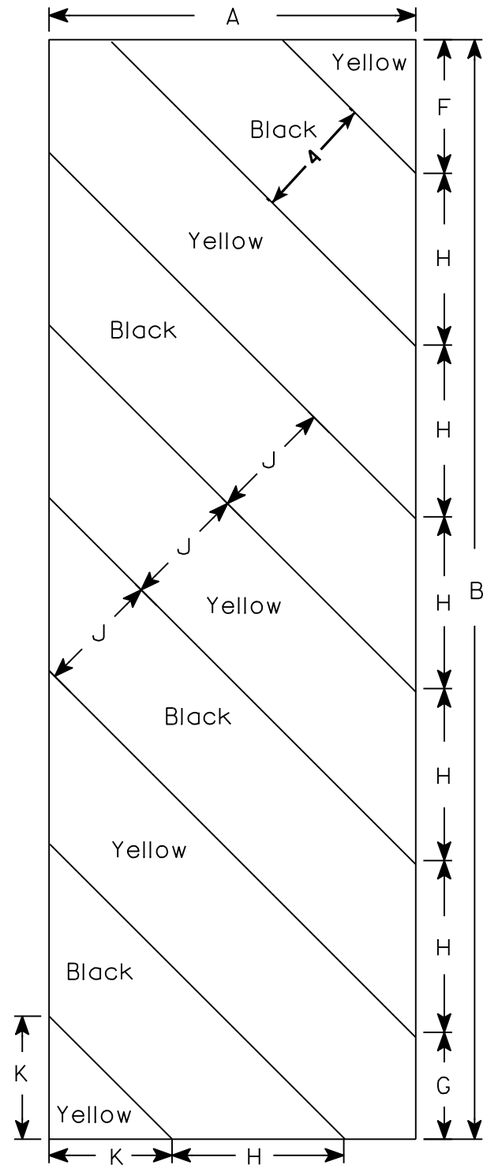
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

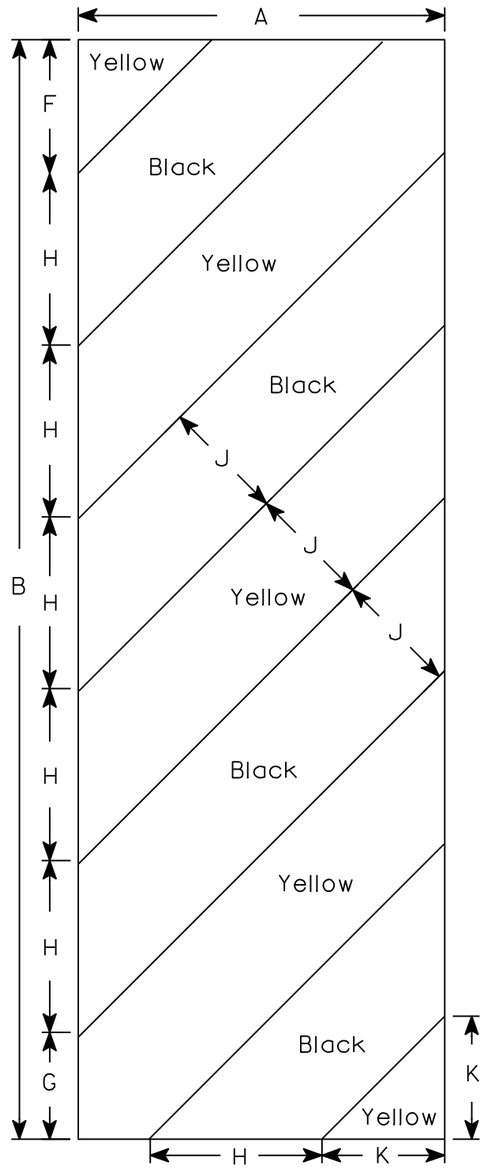
DATE 6/8/10 PLATE NO. S3-1.6

PROJECT NO:

SHEET NO: 115 E



W5-52L



W5-52R

NOTES

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

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	12	36				4 3/8	3 1/2	5 5/8	45°	4	4																3.0
2M	12	36				4 3/8	3 1/2	5 5/8	45°	4	4																3.0
3	18	54				6	5 1/2	8 1/2	45°	6	6 9/16																6.75
4																											
5																											

STANDARD SIGN

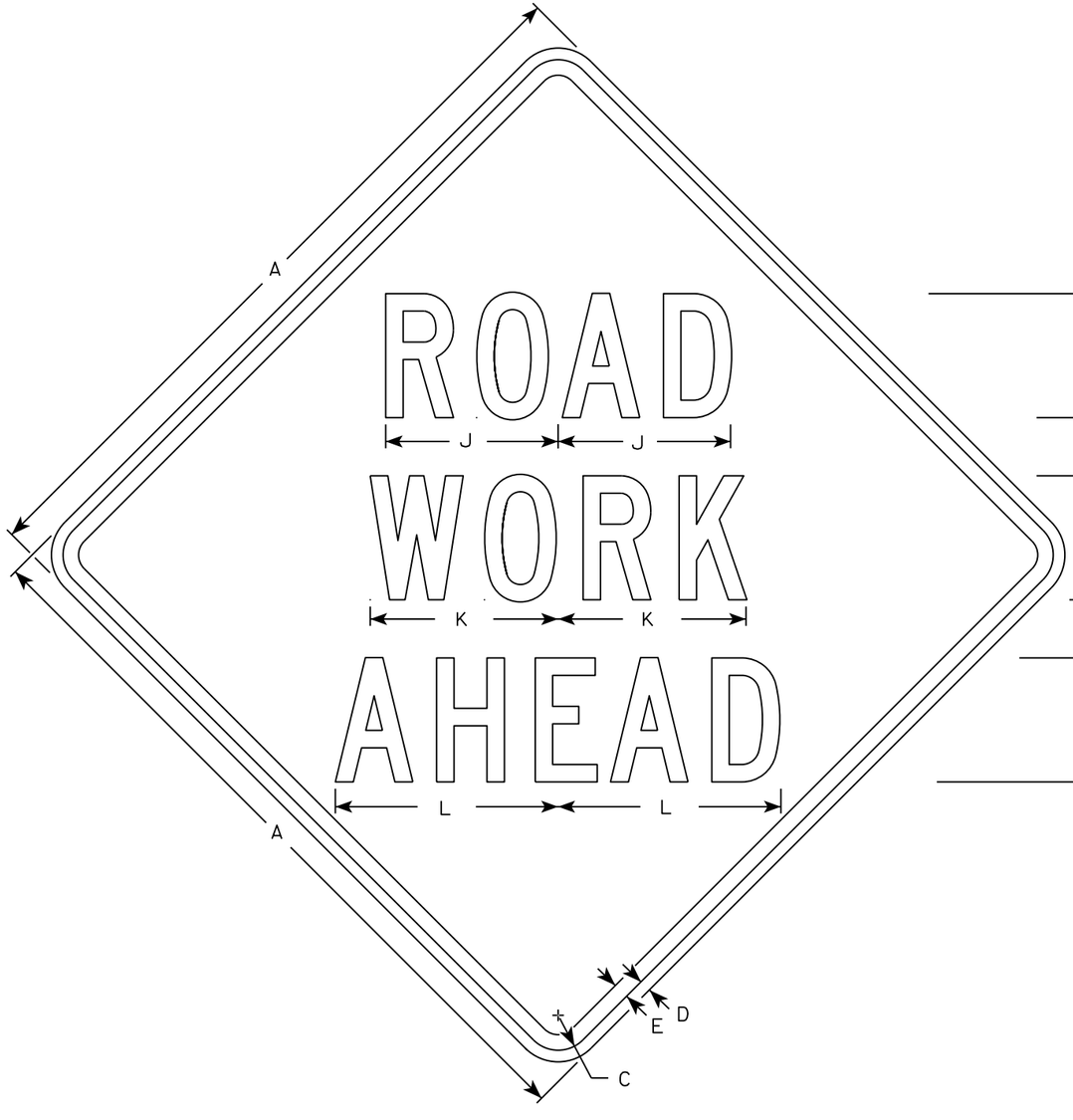
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

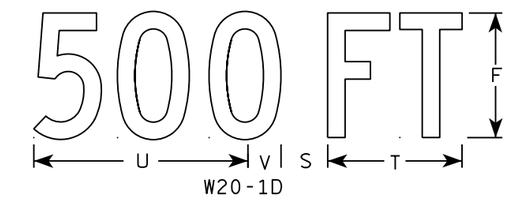
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 5/29/12 PLATE NO. W5-52.9

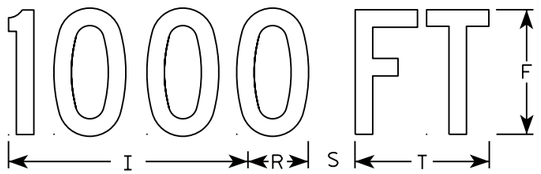
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 116	E



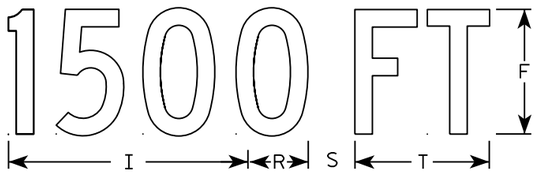
W20-1A



W20-1D

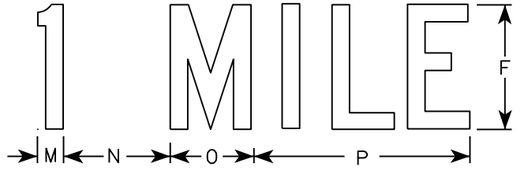


W20-1C

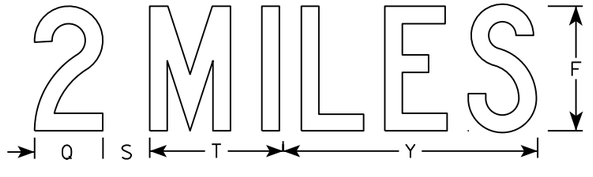


W20-1B

W20-1G



W20-1F



W20-1E

NOTES

1. Sign is Type II - Type F Reflective
2. Color:
   Background - Orange
   Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

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	2 1/4	5 5/8	9	1 3/8	8	1 3/4	10 3/4	6	9.0
2S	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
2M	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
3	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
4	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
5	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0

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

WISCONSIN DEPT OF TRANSPORTATION

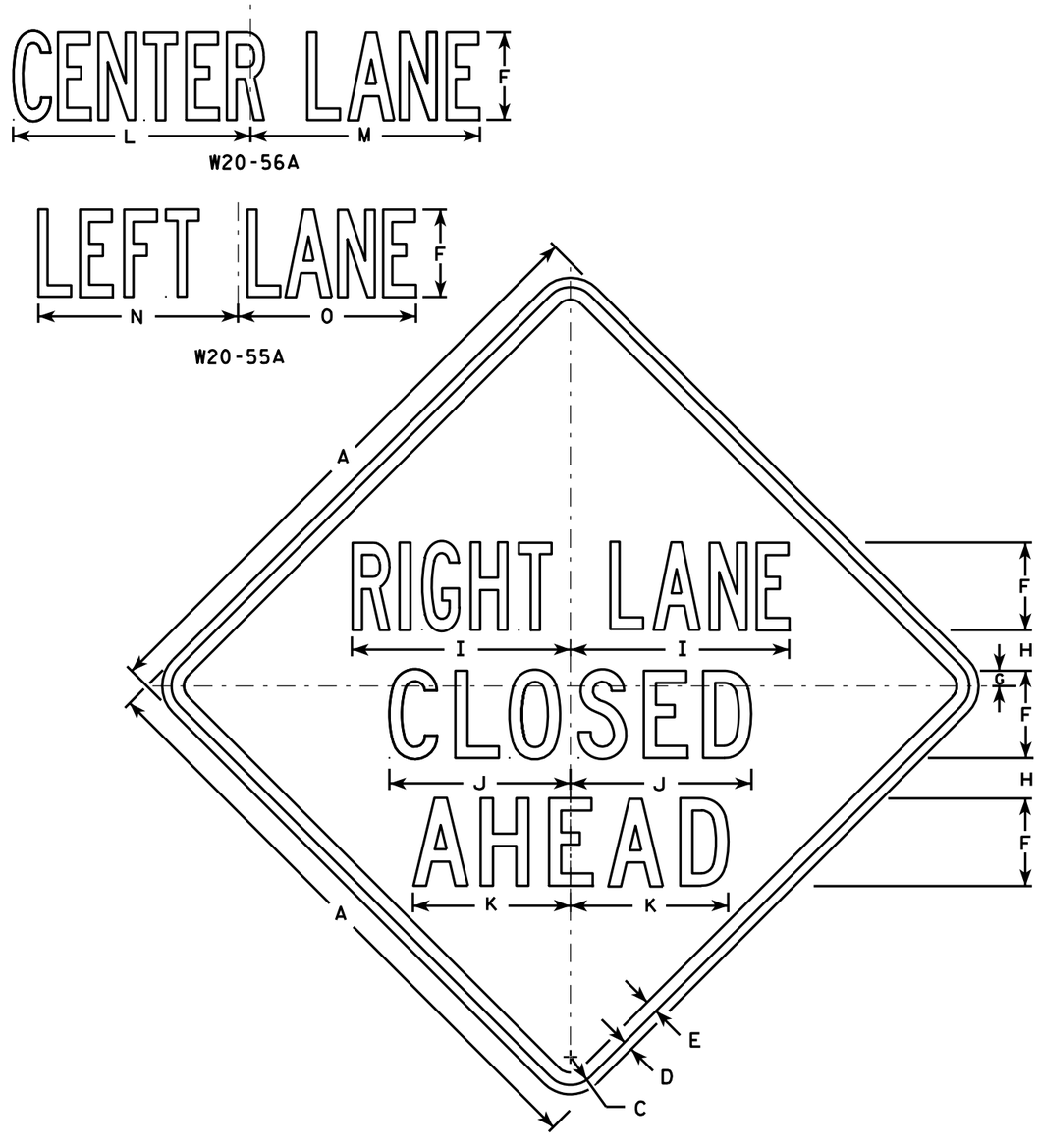
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 5/07/15 PLATE NO. W20-1.10

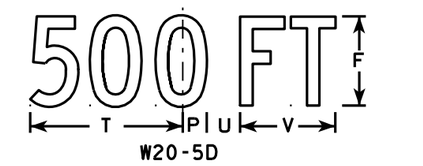
PROJECT NO:

SHEET NO: E

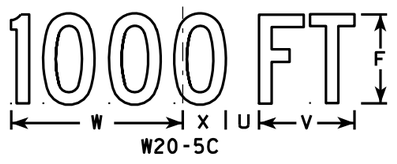
FILE NAME : C:\CAEfiles\Projects\tr_stdplate\W201.DGN PLOT DATE : 01-DEC-2015 18:24 PLOT BY : $$ plotuser $$



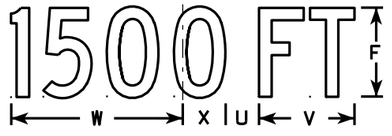
W20-5A



W20-5D



W20-5C



W20-5B

W20-5G

W20-5F

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Orange
   Message - Black
3. Message Series - See Note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. " _____ LANE" is Series B.
   All other copy is Series C.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	6	1 5/8	5/8	3/4	5	1/8	2 1/2	13 1/8	10 3/4	9 1/2	14 1/4	13 5/8	12	12	1 3/8	1 1/8	4 1/2	3 1/2	9	1 1/8	5 5/8	10 1/8	2 1/2	1 3/4	8	9.0
2S	48	8	2 1/4	3/4	1	7	1 1/4	3 1/4	17 1/2	14 3/8	12 5/8	19	18 3/8	16	14 1/4	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0
2M	48	8	2 1/4	3/4	1	7	1 1/4	3 1/4	17 1/2	14 3/8	12 5/8	19	18 3/8	16	14 1/4	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0
3	48	8	2 1/4	3/4	1	7	1 1/4	3 1/4	17 1/2	14 3/8	12 5/8	19	18 3/8	16	14 1/4	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0
4	48	8	2 1/4	3/4	1	7	1 1/4	3 1/4	17 1/2	14 3/8	12 5/8	19	18 3/8	16	14 1/4	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0
5	48	8	2 1/4	3/4	1	7	1 1/4	3 1/4	17 1/2	14 3/8	12 5/8	19	18 3/8	16	14 1/4	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0

STANDARD SIGN
W20-5A, B, C, D, F & G

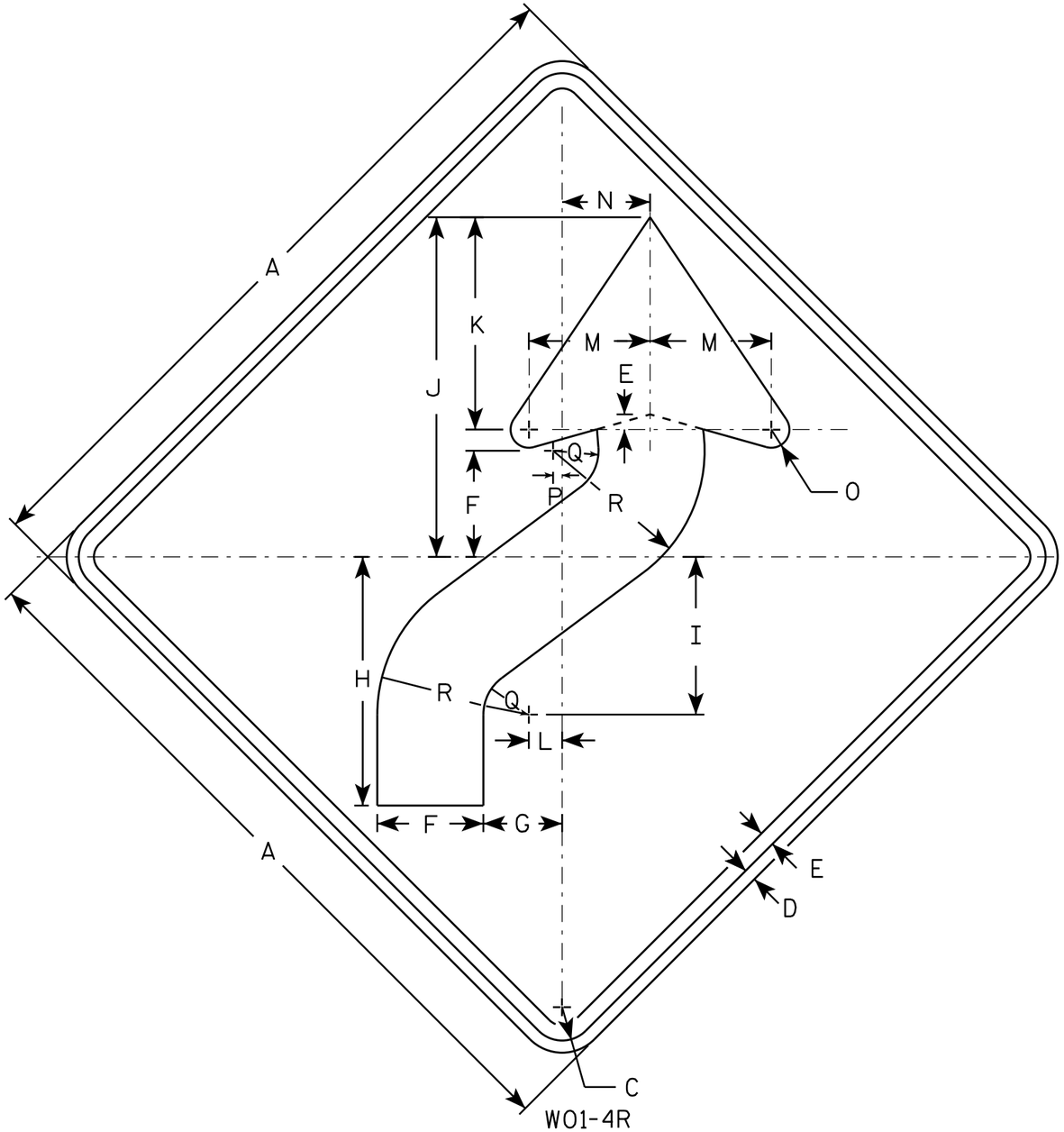
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/18/11 PLATE NO. W20-5.11

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 118	E

FILE NAME : C:\Users\PROJECTS\tr_stdplate\W205.DGN PLOT DATE : 18-MAR-2011 12:15 PLOT BY : mscj9h PLOT NAME : PLOT SCALE : 11.918087:1.000000
WISDOT/CADDS SHEET 42



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

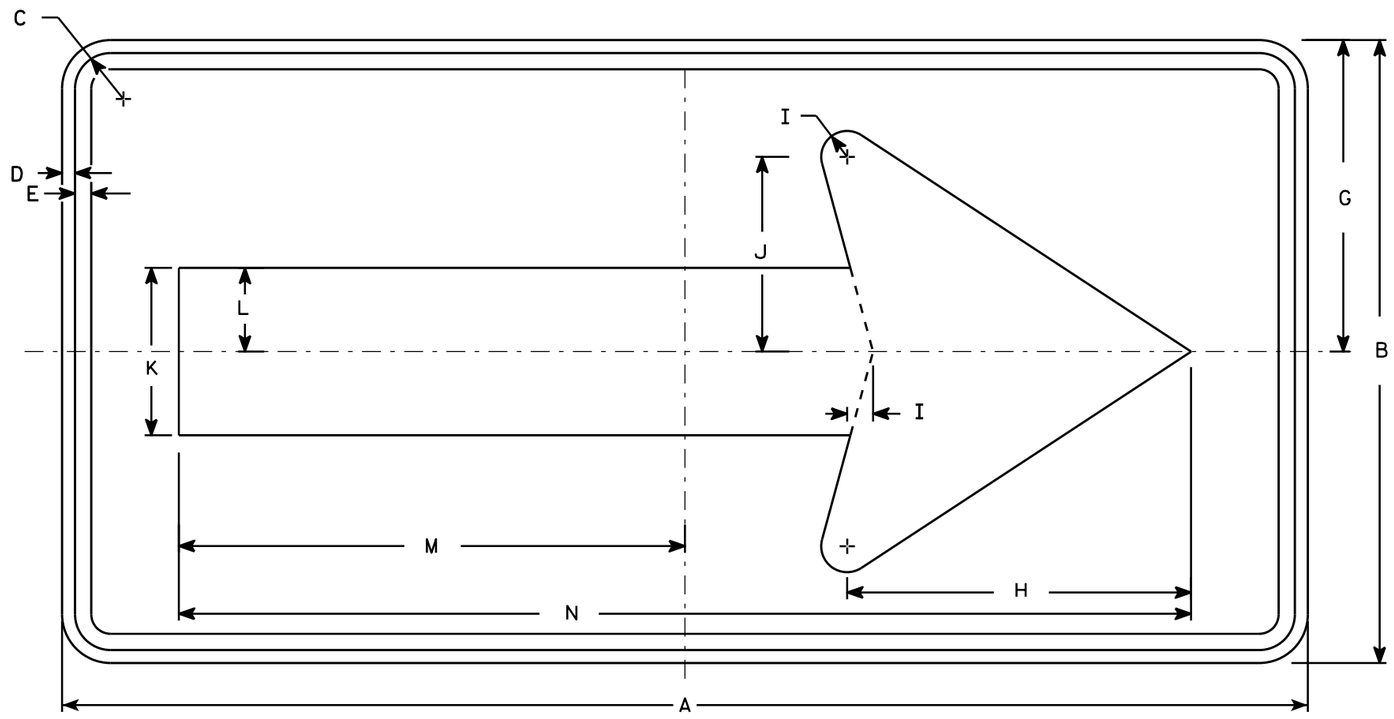
WISCONSIN DEPT OF TRANSPORTATION

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



W01-6

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - 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.

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	24	1 3/8	1/2	5/8		12	13 1/4	1	7 1/2	6 1/2	3 1/4	19 1/2	39													8.0
2M	48	24	1 3/8	1/2	5/8		12	13 1/4	1	7 1/2	6 1/2	3 1/4	19 1/2	39													8.0
3	60	30	1 3/8	1/2	5/8		15	16 1/4	1 1/4	9 1/4	8	4	24 3/8	48 3/4													12.5
4	60	30	1 3/8	1/2	5/8		15	16 1/4	1 1/4	9 1/4	8	4	24 3/8	48 3/4													12.5
5	60	30	1 3/8	1/2	5/8		15	16 1/4	1 1/4	9 1/4	8	4	24 3/8	48 3/4													12.5

STANDARD SIGN
W01-6

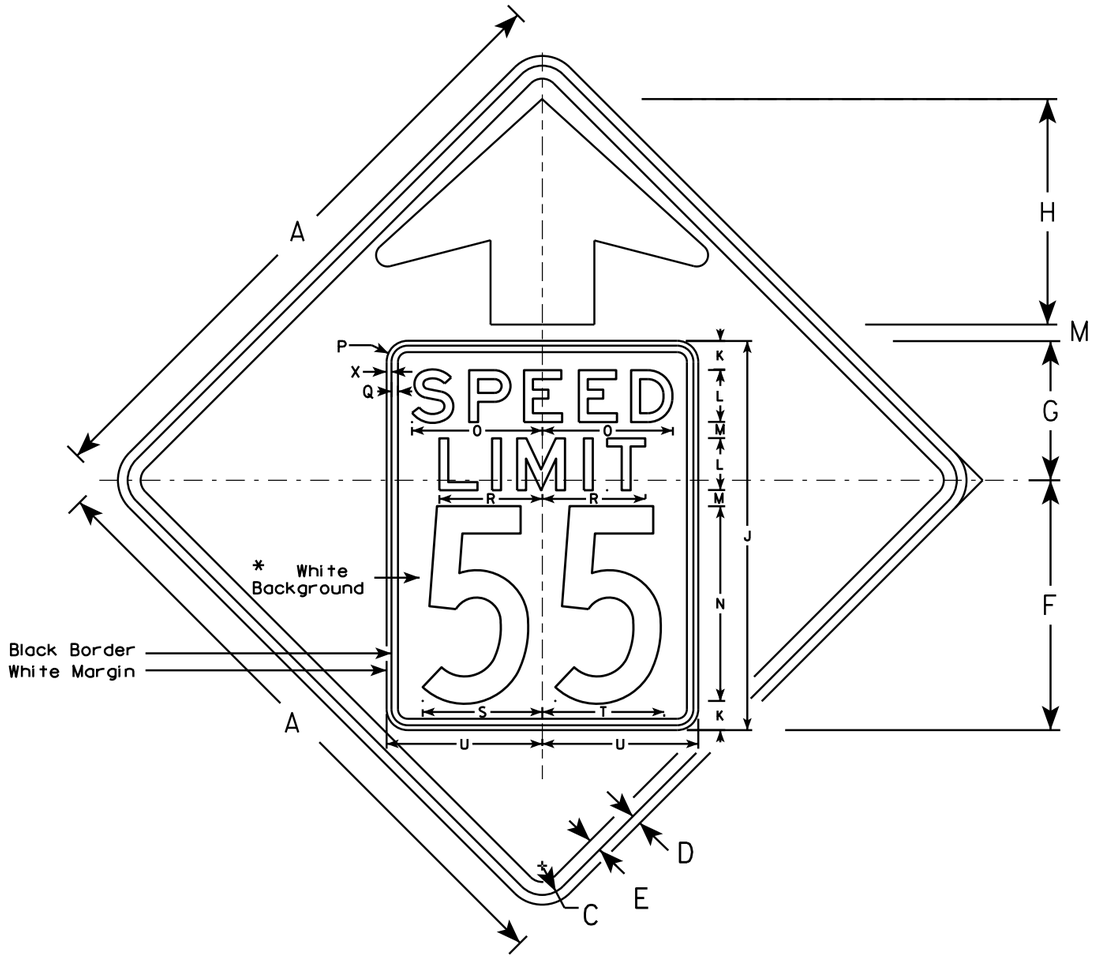
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 11/18/13 PLATE W01-6.1

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

FILE NAME : C:\CAEfiles\Projects\tr_stdplate\W016.DGN PLOT DATE : 28-FEB-2014 11:37 PLOT BY : mscj9h PLOT NAME : PLOT SCALE : 5.837526:1.000000 WISDOT/CADDS SHEET 42

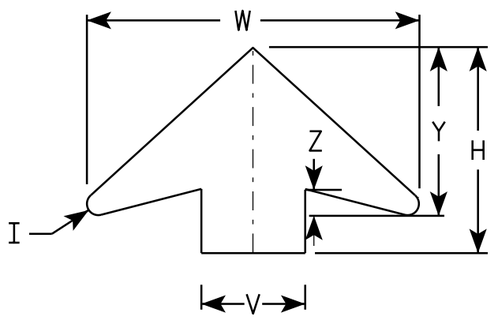


W03-5

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 for numbers Series E for wording
4. Substitute appropriate numerals and optically adjust spacing to achieve proper balance

*Speed Limit Sign shall have a White Background



ARROW DETAIL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	14 1/2	9 1/2	11 1/2	5/8	24	2	3	1	12	7 1/8	1 1/2	3/8	5 3/4	7 1/4	7 1/8	9	6	19 1/4	3/8	9 3/4	1 5/8	9.0
2S	48		2 1/4	3/4	1	19 1/4	10 3/4	17 3/8	7/8	30	2 1/4	4	1 1/4	15	10	1 5/8	1/2	8	9 1/4	9 3/8	12	8	25 5/8	3/8	13	2	16.0
2M	48		2 1/4	3/4	1	19 1/4	10 3/4	17 3/8	7/8	30	2 1/4	4	1 1/4	15	10	1 5/8	1/2	8	9 1/4	9 3/8	12	8	25 5/8	3/8	13	2	16.0
3	48		2 1/4	3/4	1	19 1/4	10 3/4	17 3/8	7/8	30	2 1/4	4	1 1/4	15	10	1 5/8	1/2	8	9 1/4	9 3/8	12	8	25 5/8	3/8	13	2	16.0
4	48		2 1/4	3/4	1	19 1/4	10 3/4	17 3/8	7/8	30	2 1/4	4	1 1/4	15	10	1 5/8	1/2	8	9 1/4	9 3/8	12	8	25 5/8	3/8	13	2	16.0
5	48		2 1/4	3/4	1	19 1/4	10 3/4	17 3/8	7/8	30	2 1/4	4	1 1/4	15	10	1 5/8	1/2	8	9 1/4	9 3/8	12	8	25 5/8	3/8	13	2	16.0

STANDARD SIGN
W03-5

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

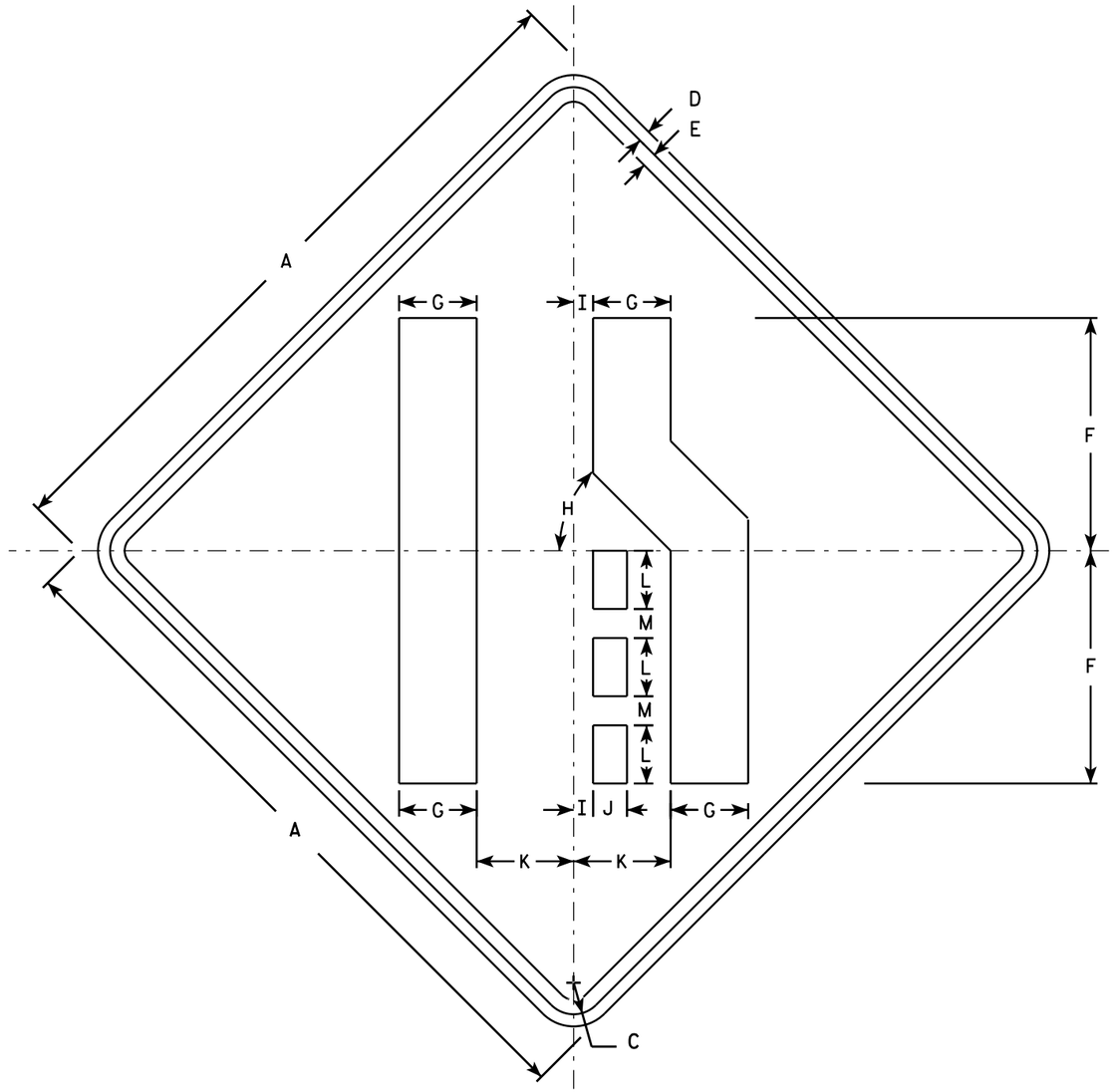
DATE 11/20/13 PLATE W03-5.1

PROJECT NO: SHEET NO: E

FILE NAME : C:\CAEFiles\Projects\tr_stdplate\W035.DGN PLOT DATE : 20-NOV-2013 11:32 PLOT BY : mscsja

WISDOT/CADDS SHEET 42

7 7



W04-2R

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Orange
   Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. W04-2L is the same as W04-2R except the symbol is reversed along the vertical centerline.

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

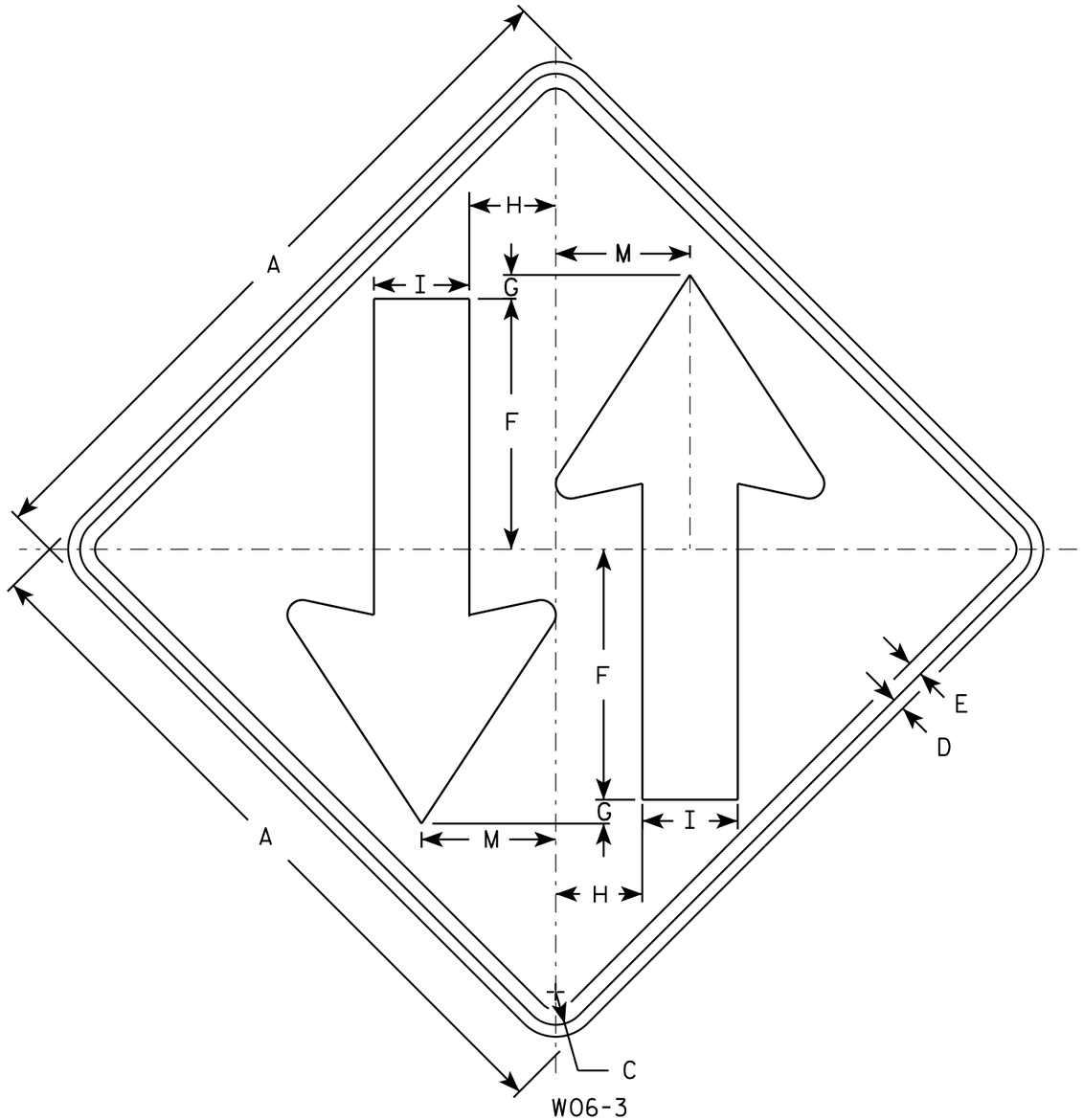
STANDARD SIGN
W04-2

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 11/20/13 PLATE 122 W04-2.1

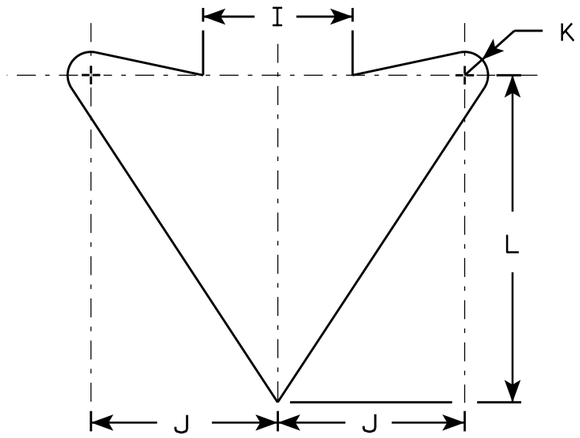
PROJECT NO: | SHEET NO: E



W06-3

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.



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	36		1 5/8	5/8	3/4	12	1	4 1/4	5	6	3/4	10 1/2	6 3/4														9.0
2S	48		2 1/4	3/4	1	15 1/2	1	6	6	8	1	14	9														16.0
2M	48		2 1/4	3/4	1	15 1/2	1	6	6	8	1	14	9														16.0
3	48		2 1/4	3/4	1	15 1/2	1	6	6	8	1	14	9														16.0
4	48		2 1/4	3/4	1	15 1/2	1	6	6	8	1	14	9														16.0
5	48		2 1/4	3/4	1	15 1/2	1	6	6	8	1	14	9														16.0

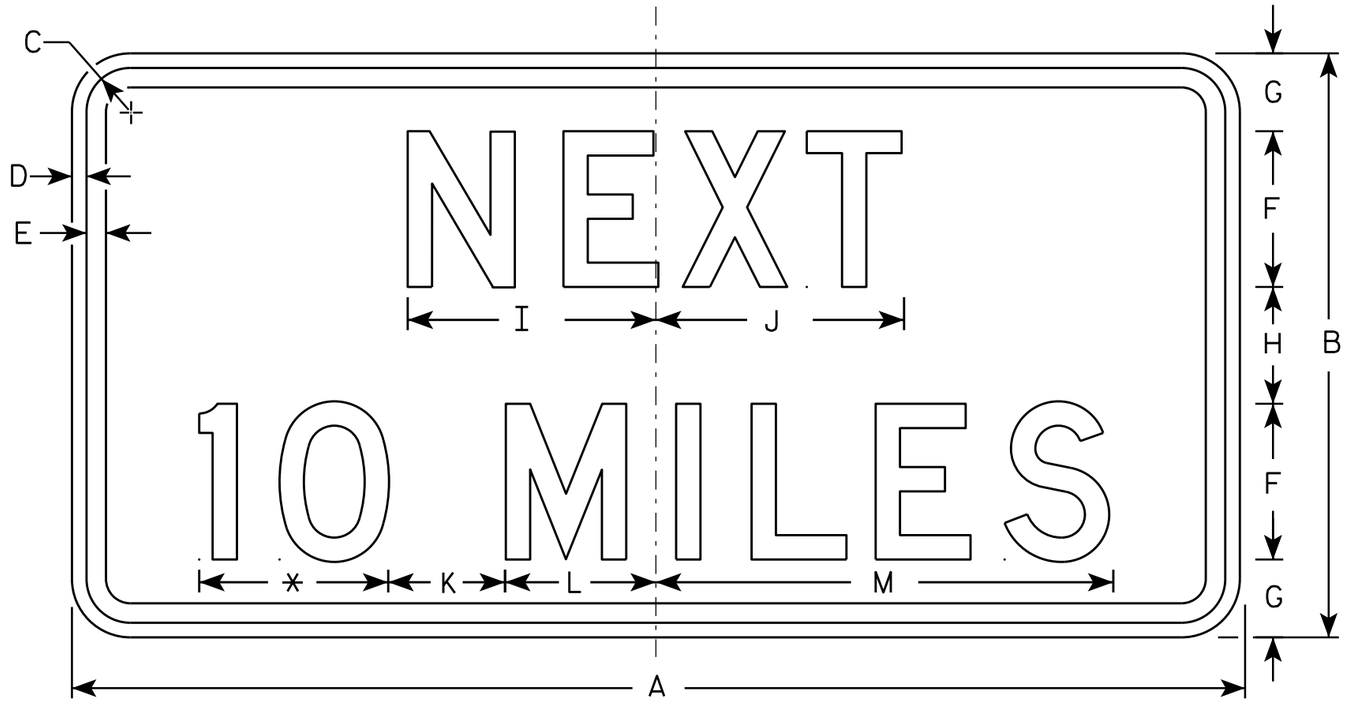
STANDARD SIGN
W06-3

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 11/20/13 PLATE 123 W06-3.1

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E



W057-51

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.
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 1/8	3/8	1/2	5	2 5/8	2 3/4	7 7/8	8	5	4 1/8	15 3/8														4.5
2S	48	24	1 3/8	1/2	5/8	6	3 1/2	5	10	10 1/8	6	5 5/8	19														8.0
2M	48	24	1 3/8	1/2	5/8	6	3 1/2	5	10	10 1/8	6	5 5/8	19														8.0
3	48	24	1 3/8	1/2	5/8	6	3 1/2	5	10	10 1/8	6	5 5/8	19														8.0
4	48	24	1 3/8	1/2	5/8	6	3 1/2	5	10	10 1/8	6	5 5/8	19														8.0
5	48	24	1 3/8	1/2	5/8	6	3 1/2	5	10	10 1/8	6	5 5/8	19														8.0

STANDARD SIGN
W057-51

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew L Rauch
for State Traffic Engineer

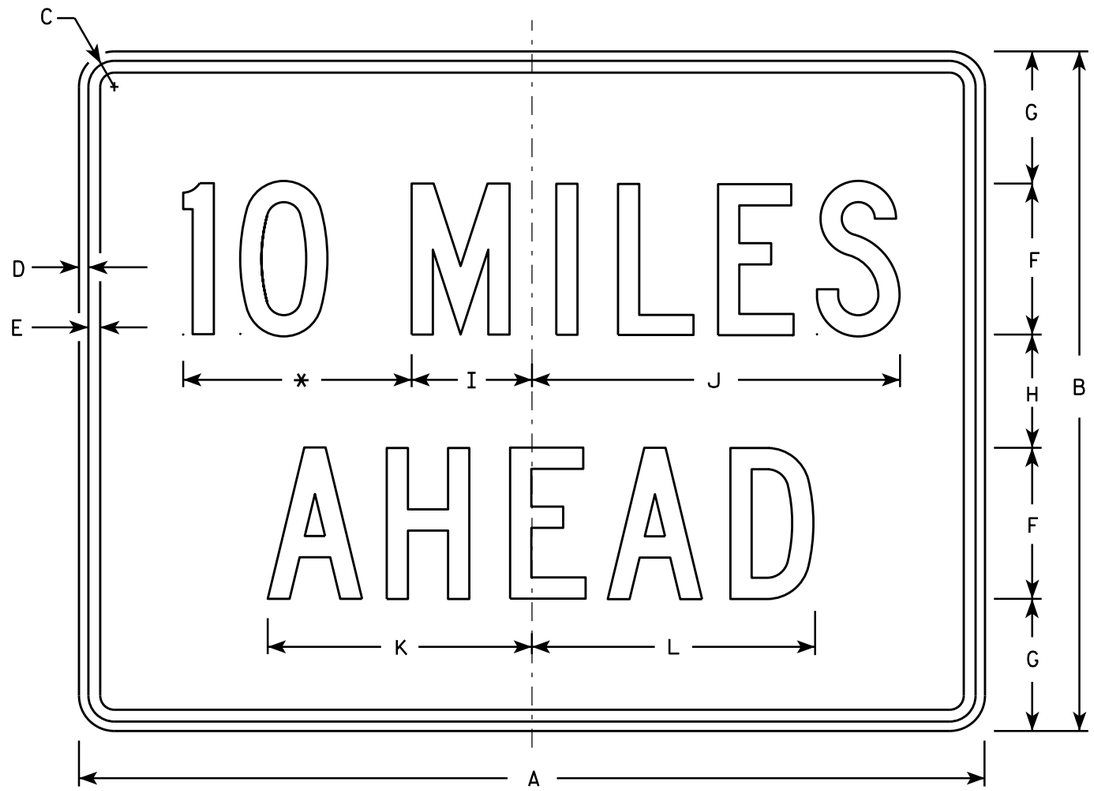
DATE 11/20/13 PLATE W057-51.1

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

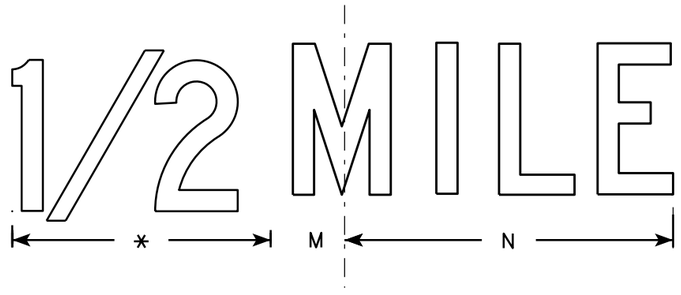
FILE NAME : C:\CAEfiles\Projects\tr_stdplate\W05751.DGN PLOT DATE : 28-FEB-2014 11:42 PLOT BY : mscj9h PLOT NAME : PLOT SCALE : 3.891684:1.000000
WISDOT/CADDS SHEET 42

7

7



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

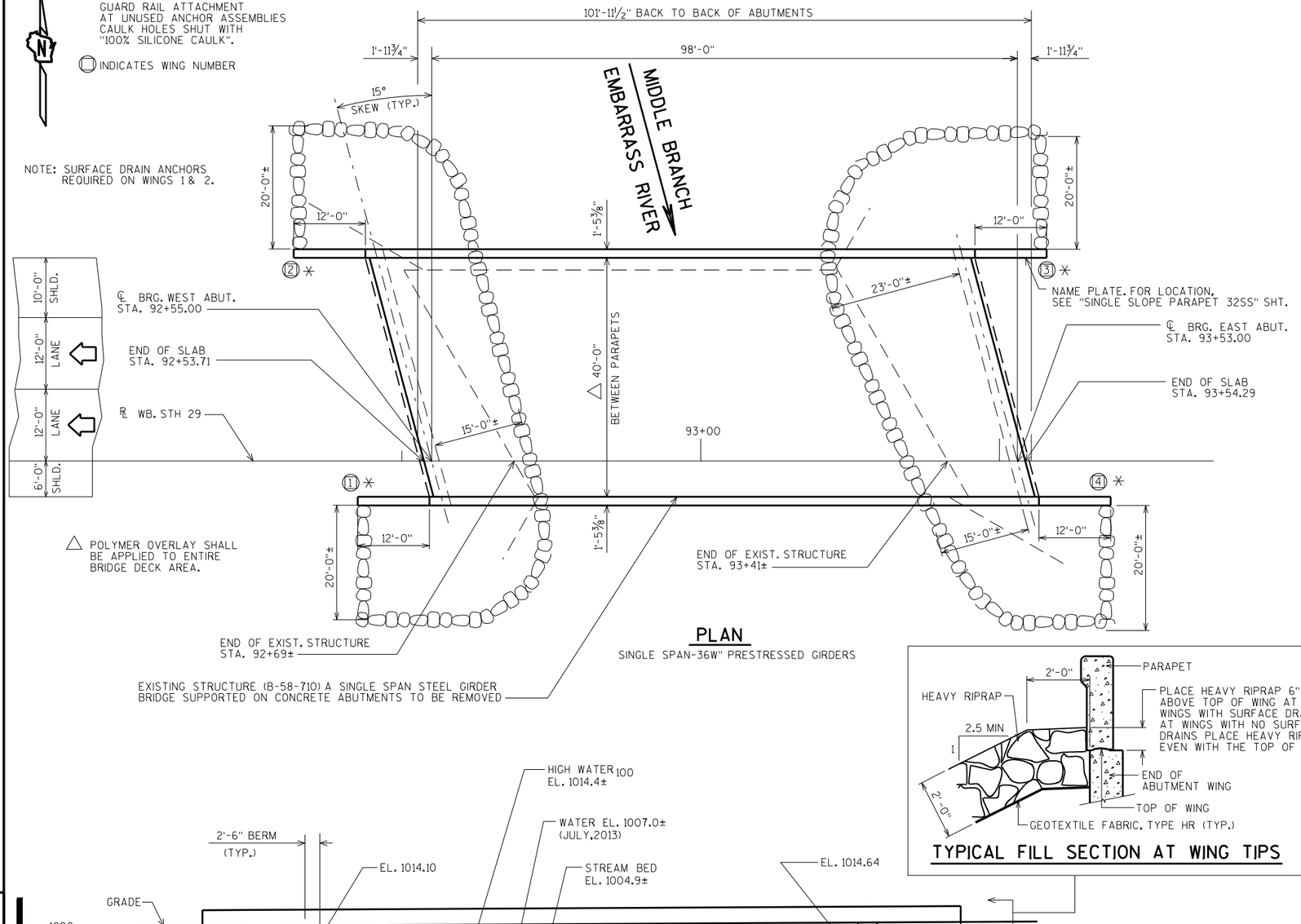
STATE PROJECT NUMBER

1058-21-70

* PROVIDE FOR THRIE BEAM GUARD RAIL ATTACHMENT AT UNUSED ANCHOR ASSEMBLIES CAULK HOLES SHUT WITH "100% SILICONE CAULK".

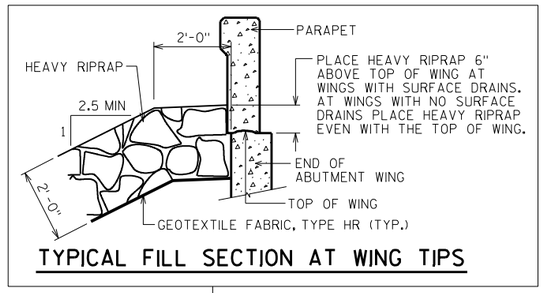
(1) INDICATES WING NUMBER

NOTE: SURFACE DRAIN ANCHORS REQUIRED ON WINGS 1 & 2.

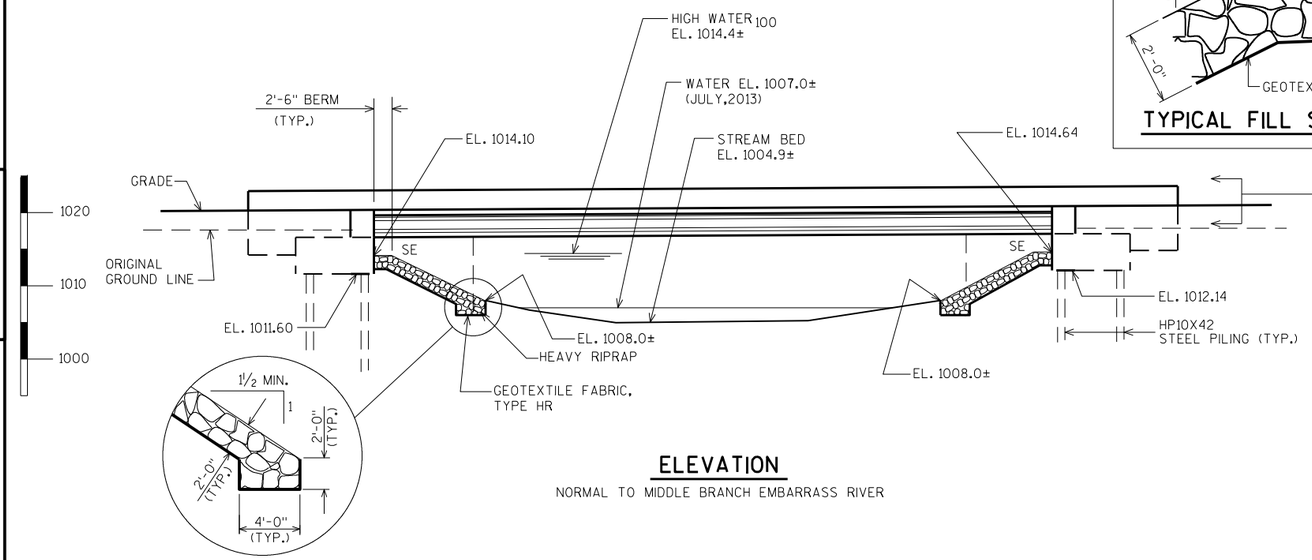


PLAN

SINGLE SPAN-36W" PRESTRESSED GIRDERS



TYPICAL FILL SECTION AT WING TIPS



ELEVATION

NORMAL TO MIDDLE BRANCH EMBARRASS RIVER

DESIGN DATA

LIVE LOAD:

DESIGN LOADING; HL-93
INVENTORY RATING FACTOR: RF=1.19
OPERATING RATING FACTOR: RF=1.61
WISCONSIN STANDARD PERMIT VEHICLE (WIS.-SPV): 250 (KIPS)

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

MATERIAL PROPERTIES:

CONCRETE MASONRY 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.

36W" PRESTRESSED GIRDERS, CONCRETE MASONRY — f'c = 8,000 P.S.I.
STRANDS- 0.6" DIA. WITH ULTIMATE TENSILE STRENGTH OF 270,000 P.S.I.

FOUNDATION DATA

ABUTMENTS TO BE SUPPORTED ON HP10X42 STEEL PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS ** PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA.
ESTIMATED PILE LENGTHS:
WEST ABUTMENT_____35 FEET
EAST ABUTMENT_____50 FEET

** 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} =2,300 C.F.S.
VEL. =5.1 F.P.S.
HW.= EL. 1014.4
WATERWAY AREA= 448 SQ. FT.
DRAINAGE AREA= 93.0 SQ. MI.
ROAD OVERTOPPING = NA
SCOUR CRITICAL CODE = 8

2 YEAR FREQUENCY

Q_2 =790 C.F.S.
$HW._2$ = EL. 1011.8

TRAFFIC VOLUME

STH 29
A.D.T.=5,500 (2035)
R.D.S.=70 M.P.H.

LIST OF DRAWINGS

STRUCTURE DESIGN CONTACTS:
PHILIP MEINEL (608) 261-2590
LAURA SHADEWALD (608) 267-9592

NO.	DATE	REVISION	BY

Plans Prepared By WISDOT
BUREAU OF STRUCTURES

ACCEPTED William C. Dreher LLS 1/20/16
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-58-128

WB. STH 29 OVER MIDDLE BR. EMBARRASS RIVER

COUNTY SHAWANO | TOWN/~~CITY/VILLAGE~~ MORRIS

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
PMM	ARC	PMM	ARC

GENERAL PLAN

SHEET 1 OF 13

126

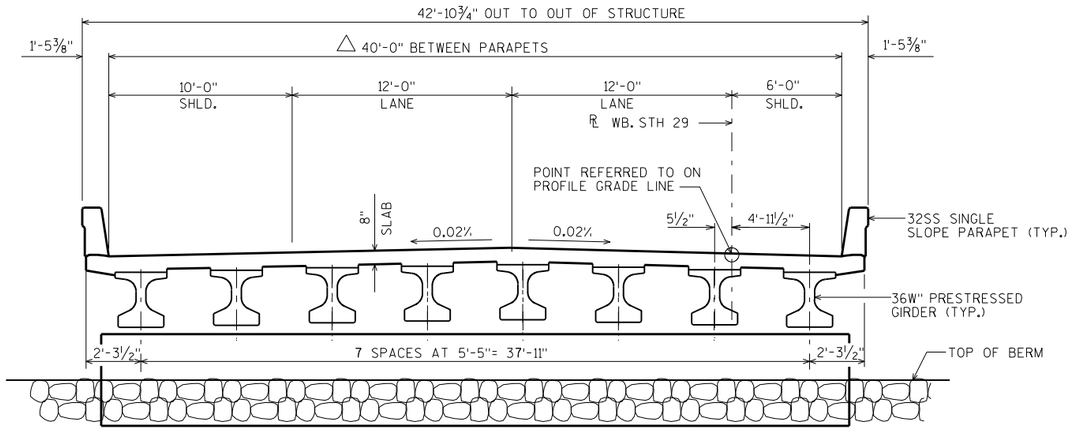
I.D. 1058-21-00

DATE: OCT. 2014

8

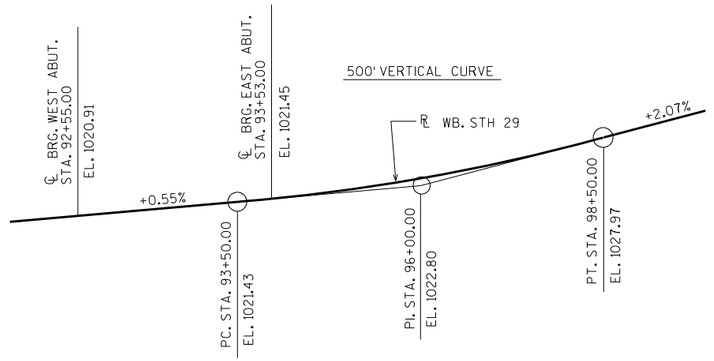
8

SCALE = 10



CROSS SECTION THRU ROADWAY LOOKING EAST

△ POLYMER OVERLAY SHALL BE APPLIED TO ENTIRE BRIDGE DECK AREA.



PROFILE GRADE LINE ℄ WB. STH 29

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	WEST ABUT.	SUPER.	EAST ABUT.	TOTALS
203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STA. 93+00	LS	———	———	———	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-58-128	LS	———	———	———	1
210.0100	BACKFILL STRUCTURE	CY	150	———	150	300
502.0100	CONCRETE MASONRY BRIDGES	CY	46	179	46	271
502.3210	PIGMENTED SURFACE SEALER	SY	10	85	10	105
503.0137	PRESTRESSED GIRDER TYPE I 36W-INCH	LF	———	792	———	792
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	2,560	———	2,560	5,120
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	2,280	27,110	2,250	31,640
506.2605	BEARING PADS ELASTOMERIC NON-LAMINATED	EACH	8	———	8	16
506.4000	STEEL DIAPHRAGMS B-58-128	EACH	———	14	———	14
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	12	———	12	24
509.5100.S	POLYMER OVERLAY	SY	———	447	———	447
550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	385	———	550	935
606.0300	RIPRAP HEAVY	CY	165	———	175	340
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	81	———	81	162
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	———	4	———	4
645.0120	GEOTEXTILE FABRIC TYPE HR	SY	246	———	260	506
SPV.0090	REMOVING EXISTING TIMBER PILING	LF	25	———	———	25
			———	———	———	
			———	———	———	
	NON-BID ITEMS					
	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.

ELASTOMERIC BEARING PADS NEED NOT BE INDIVIDUALLY MOLDED PROVIDED THE CUT EDGES ARE SMOOTH AND TRUE.

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

PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE FRONT FACE AND THE TOP OF THE PARAPET, INCLUDING PARAPETS ON ABUTMENT WINGS.

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.

REMOVE AND SALVAGE THE EXISTING RAILINGS (INCLUDING RAILS, POSTS AND ALL ASSOCIATED HARDWARE). AFTER REMOVAL, THE RAILINGS ARE TO BE SET ASIDE AND SHALL REMAIN THE PROPERTY OF THE STATE OF WISCONSIN. THE CONTRACTOR WILL COORDINATE WITH SHAWANO COUNTY HIGHWAY DEPARTMENT, AS TO WHEN THE RAILINGS ARE TO BE PICKED UP. THIS SHALL BE INCIDENTAL TO "REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STA. 93+00".

8

8

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-58-128

DRAWN BY PMM | PLANS CK'D. ARC

CROSS SECTION & QUANTITIES

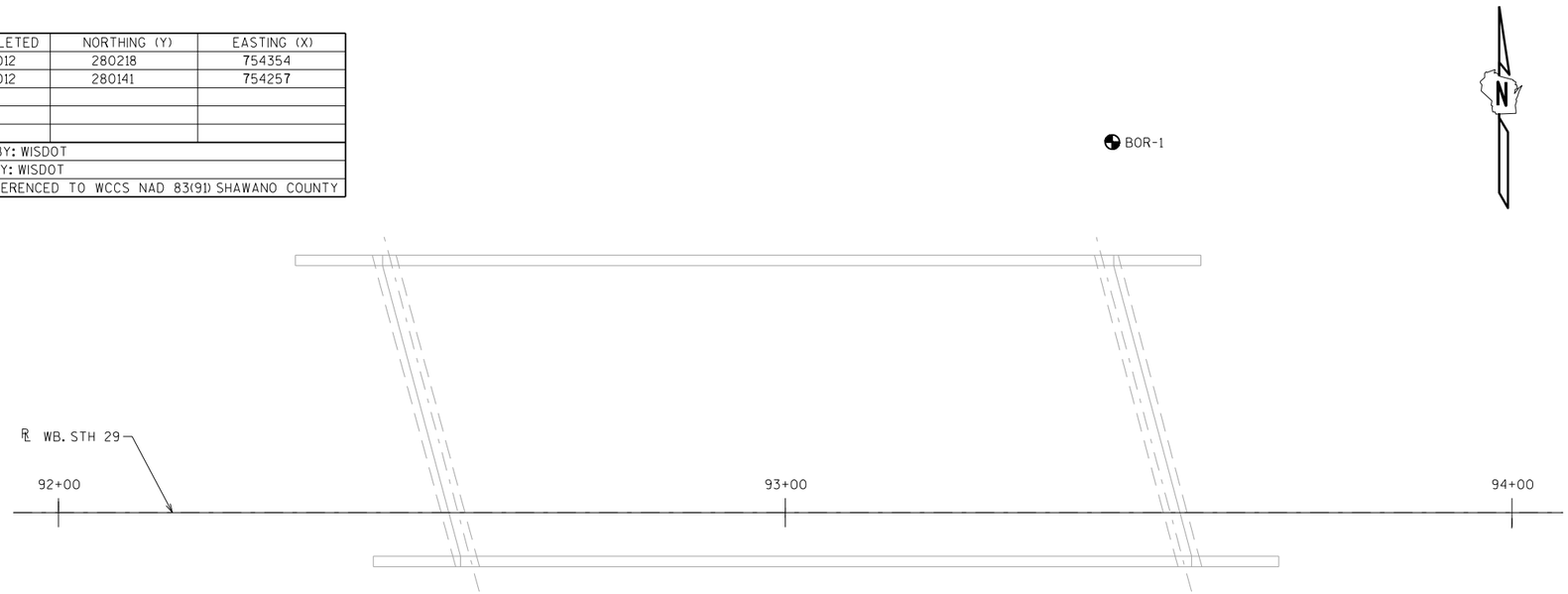
SHEET 2

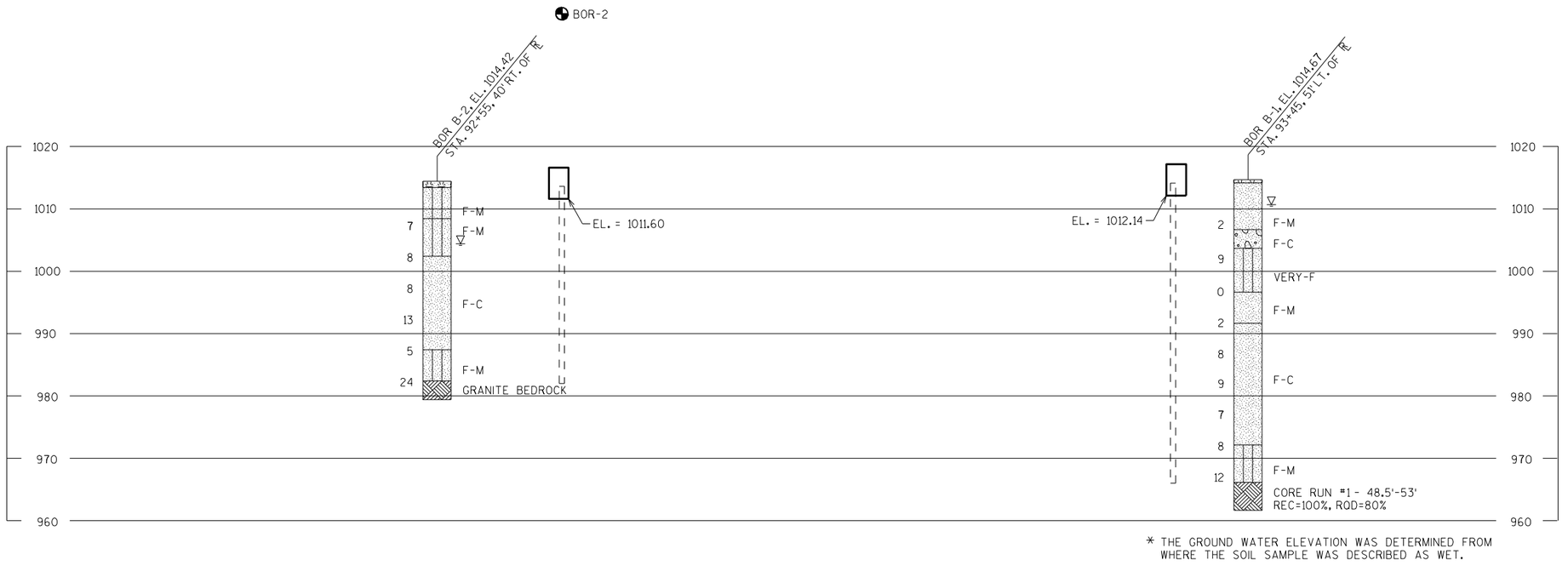
127

SCALE = 4

WHITTENBERG - SHAWANO
WB STH 29 OVER MIDDLE BRANCH EMBARRASS RIVER

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	4/30/2012	280218	754354
2	4/30/2012	280141	754257
BORINGS COMPLETED BY: WISDOT			
REPORT COMPLETED BY: WISDOT			
ALL COORDINATES REFERENCED TO WCCS NAD 83(91) SHAWANO COUNTY			





* THE GROUND WATER ELEVATION WAS DETERMINED FROM WHERE THE SOIL SAMPLE WAS DESCRIBED AS WET.

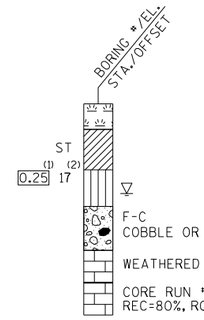
STATE PROJECT NUMBER

1058-21-70

MATERIAL SYMBOLS

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

LEGEND OF BORING



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

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

GROUND WATER ELEVATION

- AT TIME OF DRILLING
- END OF DRILLING
- AFTER DRILLING

ABBREVIATIONS

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

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

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

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-58-128

DRAWN BY PMM | PLANS CK'D. ARC

SUBSURFACE EXPLORATION

SHEET 3

128

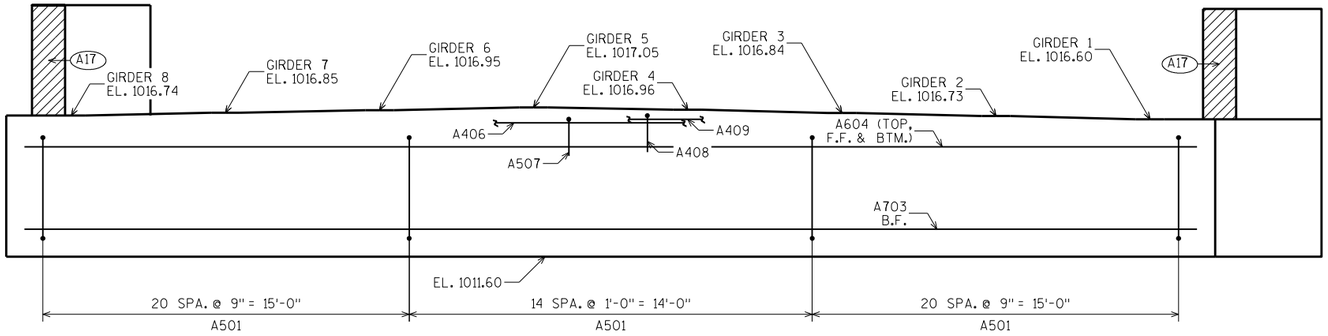
8

8

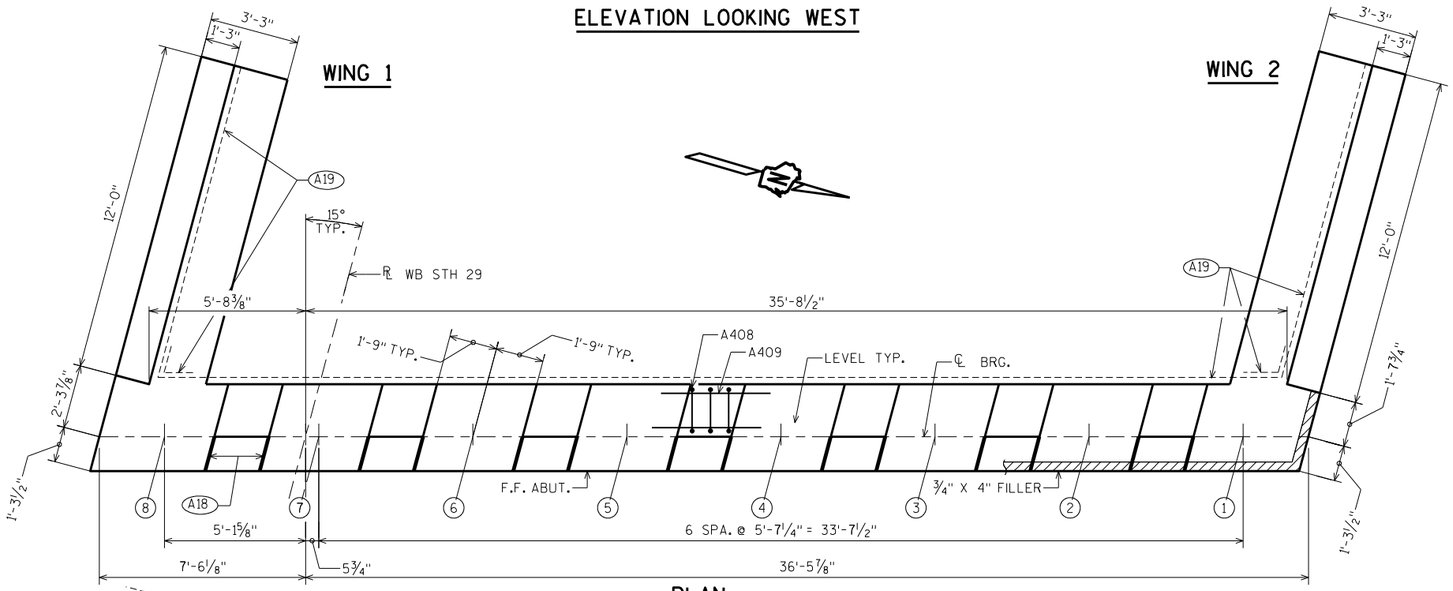
SCALE = 10

STATE PROJECT NUMBER

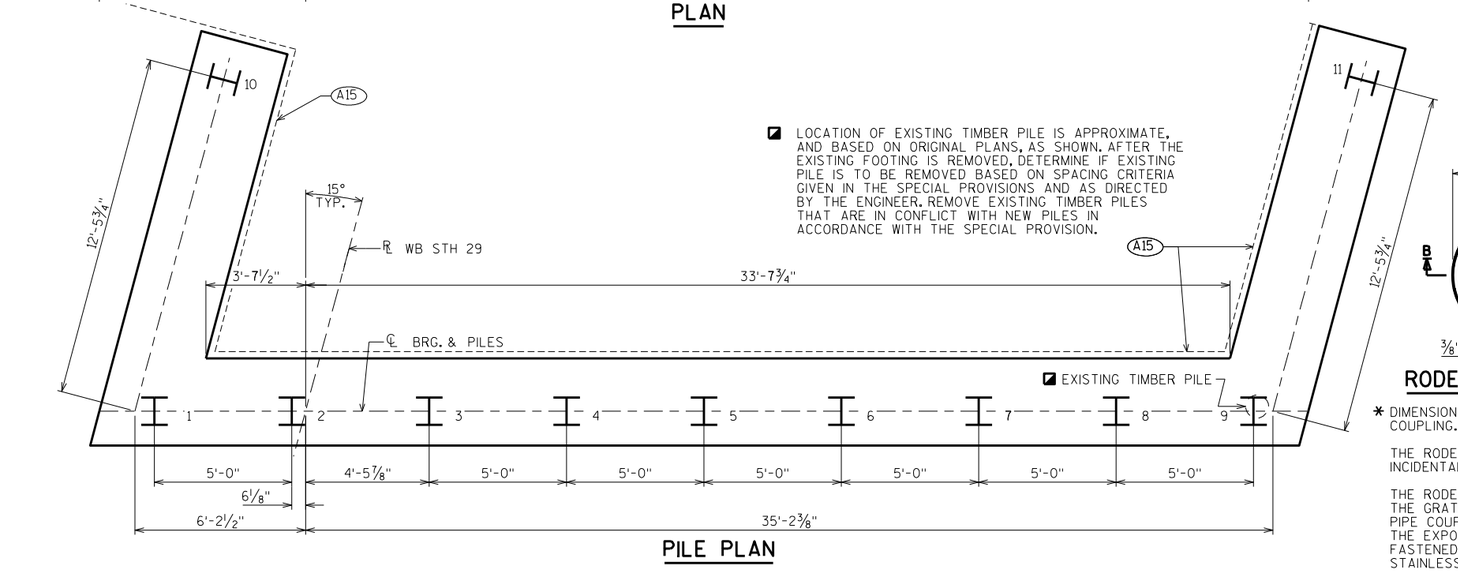
1058-21-70



ELEVATION LOOKING WEST

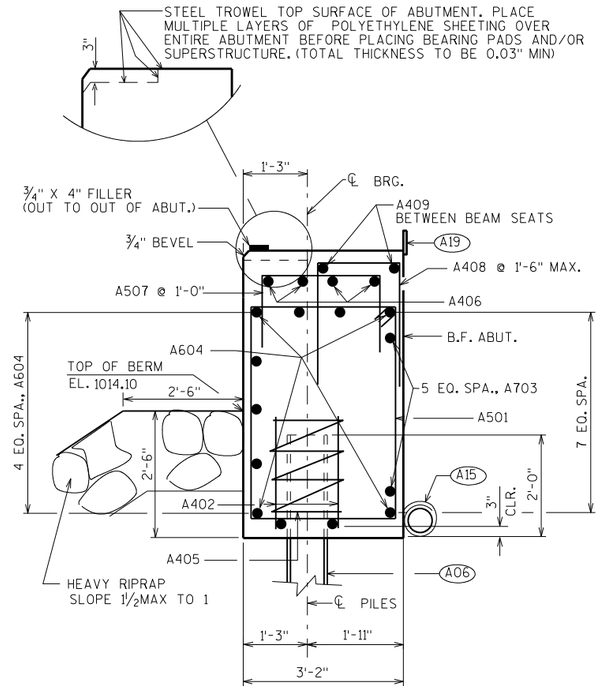


PLAN



■ LOCATION OF EXISTING TIMBER PILE IS APPROXIMATE, AND BASED ON ORIGINAL PLANS, AS SHOWN. AFTER THE EXISTING FOOTING IS REMOVED, DETERMINE IF EXISTING PILE IS TO BE REMOVED BASED ON SPACING CRITERIA GIVEN IN THE SPECIAL PROVISIONS AND AS DIRECTED BY THE ENGINEER. REMOVE EXISTING TIMBER PILES THAT ARE IN CONFLICT WITH NEW PILES IN ACCORDANCE WITH THE SPECIAL PROVISION.

PILE PLAN



SECTION THRU BODY

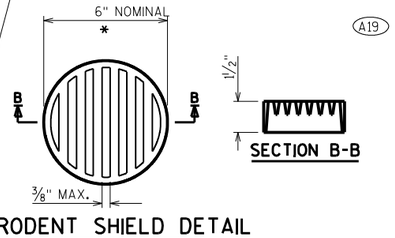
(A06) SUPPORT ABUTMENT ON HP 10 x 42 STEEL PILING, ESTIMATED 35 FEET LONG WITH A REQUIRED DRIVING RESISTANCE OF 180 TONS PER PILE.

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

(A18) 3/4" CORK FILLER UP VERT. BEAM SEAT FACES THAT RUN PARALLEL WITH GIRDER.

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



RODENT SHIELD DETAIL

* DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.

THE RODENT SHIELD, PIPE COUPLING AND SCREWS SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

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

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-58-128

DRAWN BY PMM | PLANS CK'D. ARC

WEST ABUTMENT

SHEET 4

129

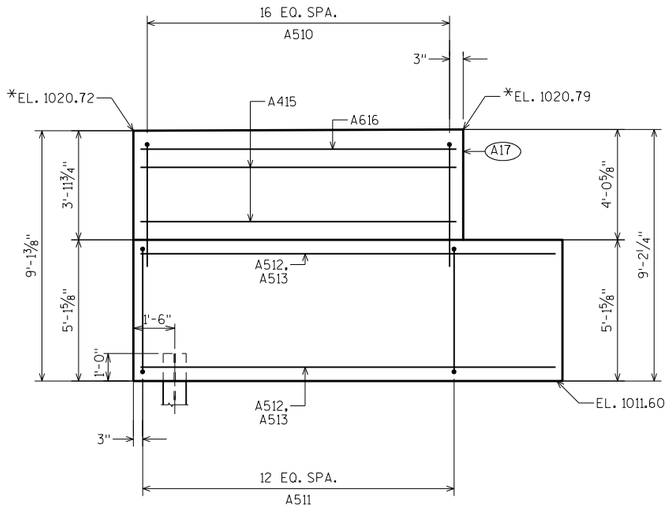
SCALE = 2.67

8

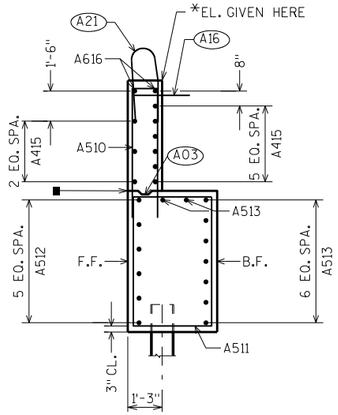
8

STATE PROJECT NUMBER

1058-21-70



WING 1 ELEVATION



WING 1 SECTION

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

(A16) A414 & A421 BARS SPACED @ 1'-0" CTRS. EMBED 1'-0" INTO WING CONC. LOCATE 3" DOWN FROM TOP OF WING @ BACKFACE TO 6" DOWN @ WING TIP. (DRILLED IN EPOXY ANCHORED #4 BARS 2'-0" LONG MAY BE USED.) COST INCIDENTAL TO BID ITEM "BAR STEEL REINFORCEMENT HS COATED BRIDGES".

(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.

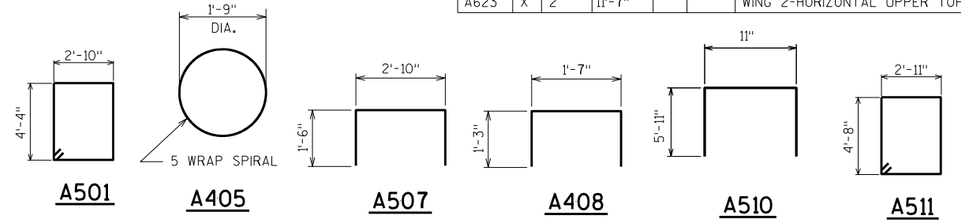
(A21) FOR PPT. BARS & DIMENSION SEE PARAPET SHT.

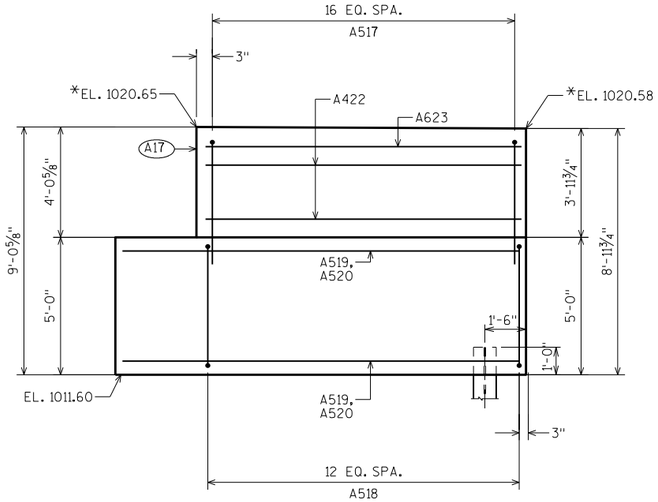
■ ¾" V GROOVE OF FRONT FACE OF WINGWALL.

BILL OF BARS

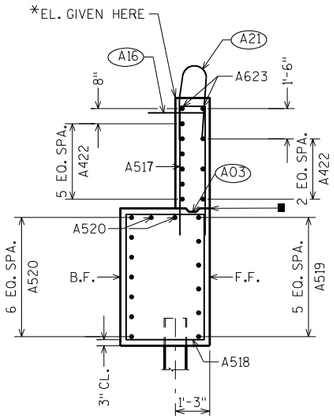
NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES BAR SIZE.

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
A501		55	15'-0"	X		BODY-STIRRUPS
A402		18	2'-3"			PILES- 2 PER PILE
A703		6	42'-10"			BODY-HORIZONTAL-B.F.
A604		11	43'-8"			BODY-HORIZONTAL-TOP, F.F. & BTM.
A405		9	28'-0"	X		PILES-1 PER PILE
A406		4	19'-2"			BODY-HORIZ. OVER GIRS. 4-6
A507		20	5'-7"	X		BODY-TOP-VERT. OVER GIRS. 4-6
A408		21	3'-11"	X		BODY-TOP-VERT. BETWEEN BEAM SEATS
A409		14	4'-0"			BODY-HORIZ.-TOP-BETWEEN BEAM SEATS
A510	X	17	12'-6"	X		WING 1-VERTICAL UPPER TOP
A511	X	13	15'-10"	X		WING 1-STIRRUP
A512	X	6	15'-2"			WING 1-HORIZONTAL LOWER F.F.
A513	X	9	13'-1"			WING 1-HORIZONTAL LOWER B.F. & TOP
A414	X	13	2'-0"			WING 1-HORIZ.-SURFACE DRAIN ANCHORS
A415	X	9	11'-7"			WING 1-HORIZONTAL UPPER F.F./B.F.
A616	X	2	11'-7"			WING 1-HORIZONTAL UPPER TOP
A517	X	17	12'-6"	X		WING 2-VERTICAL UPPER TOP
A518	X	13	15'-8"	X		WING 2-STIRRUP
A519	X	6	14'-7"			WING 2-HORIZONTAL LOWER F.F.
A520	X	9	14'-2"			WING 2-HORIZONTAL LOWER B.F. & TOP
A421	X	13	2'-0"			WING 2-HORIZ.-SURFACE DRAIN ANCHORS
A422	X	9	11'-7"			WING 2-HORIZONTAL UPPER F.F./B.F.
A623	X	2	11'-7"			WING 2-HORIZONTAL UPPER TOP

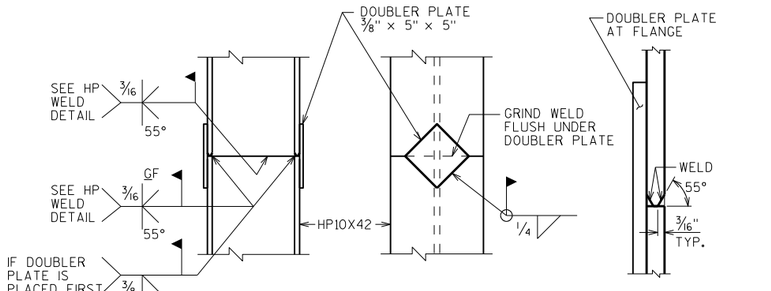




WING 2 ELEVATION



WING 2 SECTION



STEEL 'HP' SHAPE

HP WELD DETAIL
FLANGE SHOWN, WEB SIMILAR

PILE DETAILS

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-58-128

DRAWN BY PMM | PLANS CK'D. ARC

WEST ABUTMENT DETAILS

SHEET 5

130

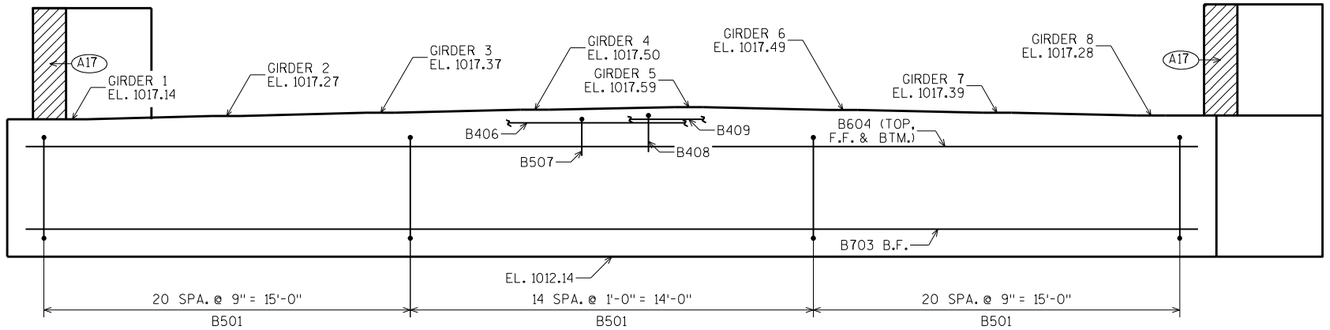
SCALE = 2.67

8

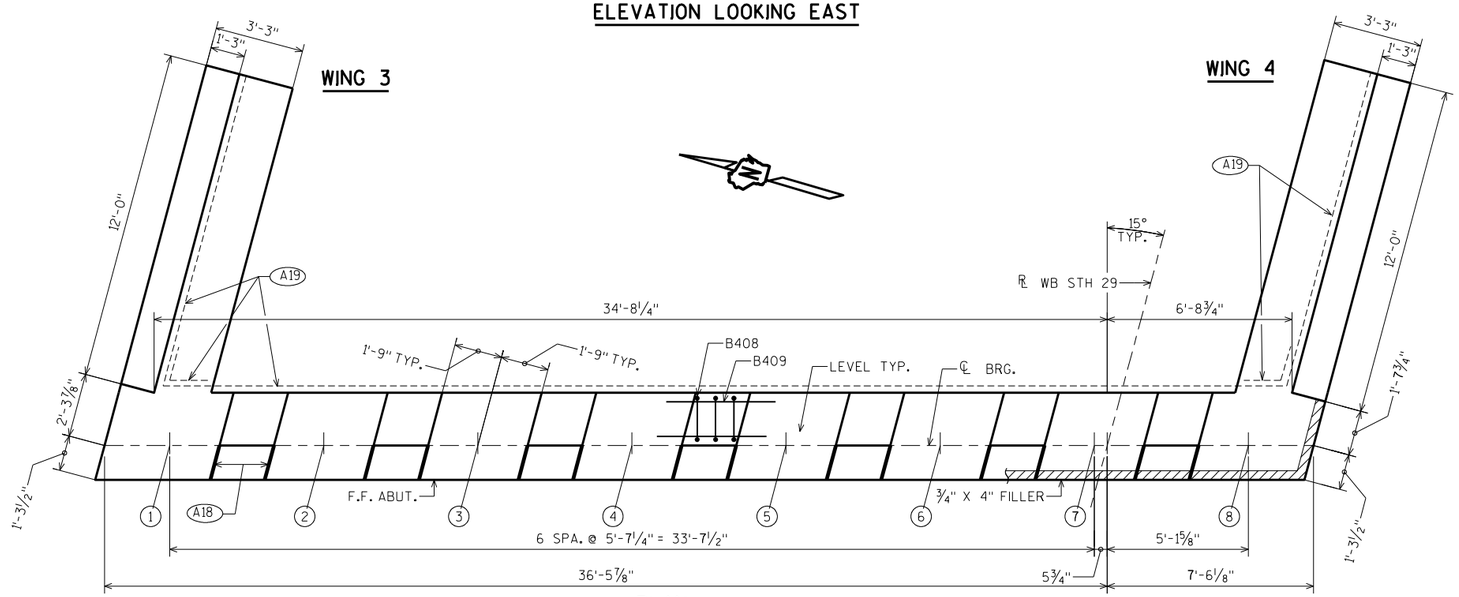
8

STATE PROJECT NUMBER

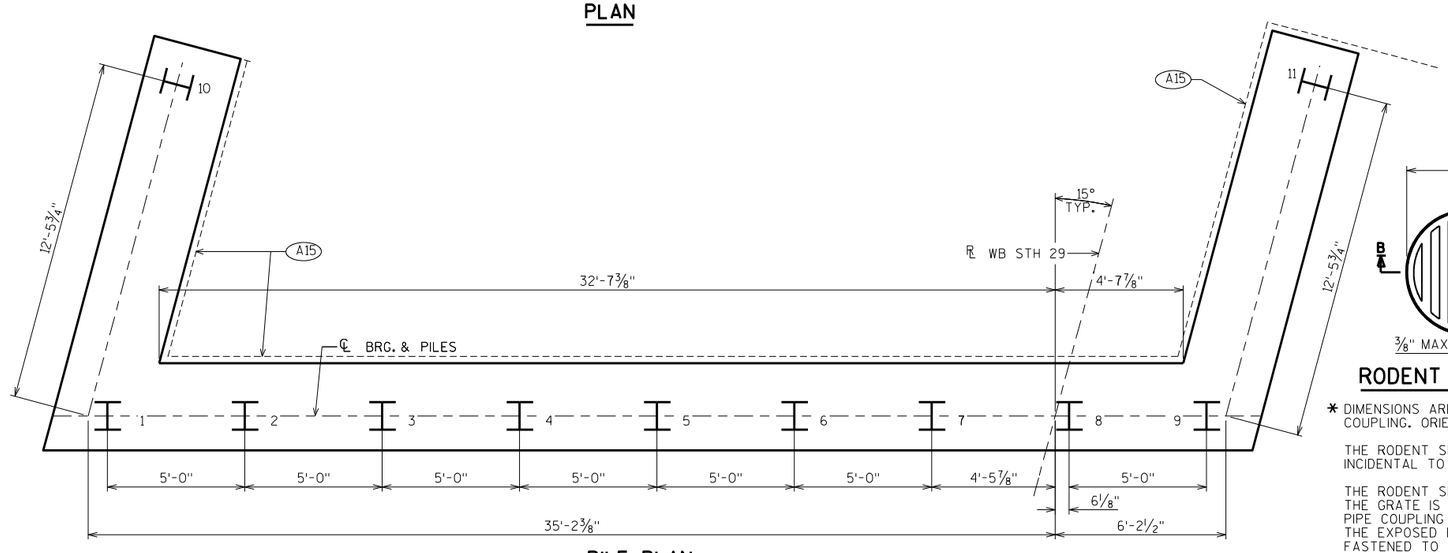
1058-21-70



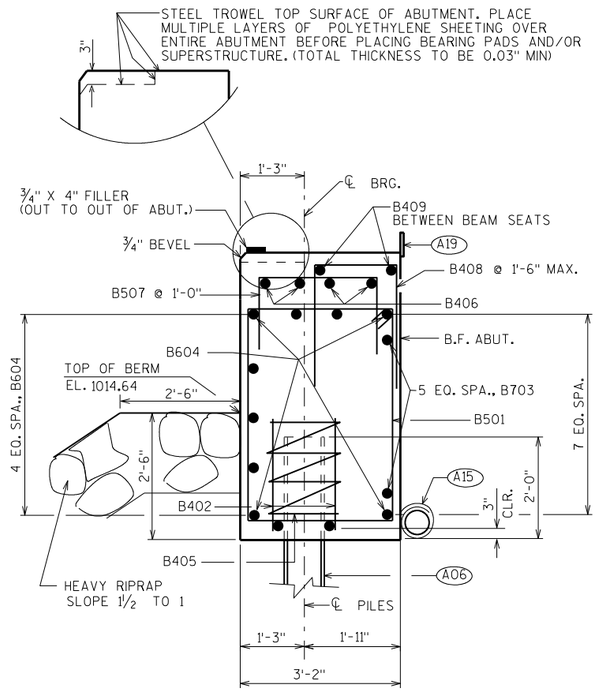
ELEVATION LOOKING EAST



PLAN



PILE PLAN



SECTION THRU BODY

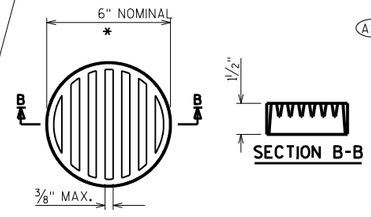
(A06) SUPPORT ABUTMENT ON HP 10 x 42 STEEL PILING, ESTIMATED 50 FEET LONG WITH A REQUIRED DRIVING RESISTANCE OF 180 TONS PER PILE.

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

(A18) 3/4" CORK FILLER UP VERT. BEAM SEAT FACES THAT RUN PARALLEL WITH GIRDER.

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



RODENT SHIELD DETAIL

* DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.

THE RODENT SHIELD, PIPE COUPLING AND SCREWS SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

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

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-58-128

DRAWN BY PMM | PLANS CK'D. ARC

EAST ABUTMENT

SHEET 6

131

SCALE = 2.67

8

8

STATE PROJECT NUMBER

1058-21-70

(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).

(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.

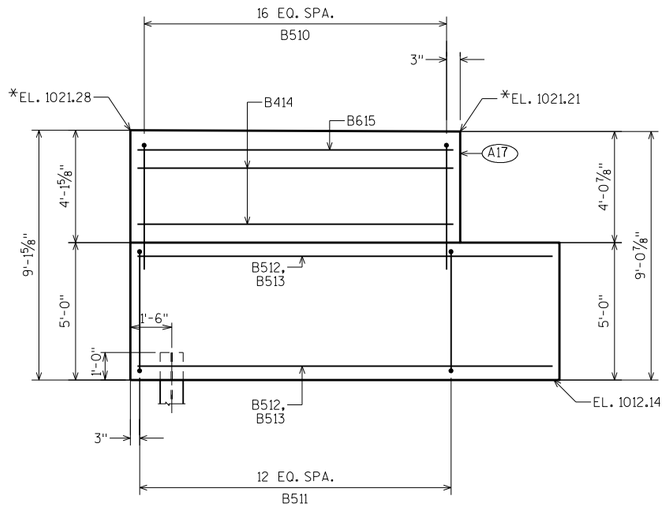
(A21) FOR PPT. BARS & DIMENSION SEE PARAPET SHT.

■ 3/4" V GROOVE OF FRONT FACE OF WINGWALL.

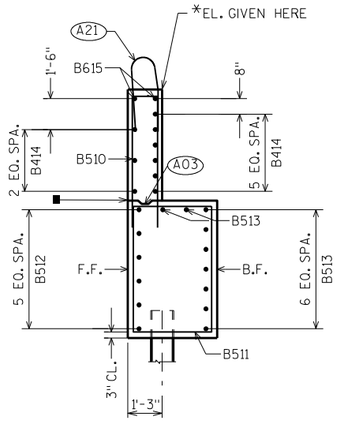
BILL OF BARS

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

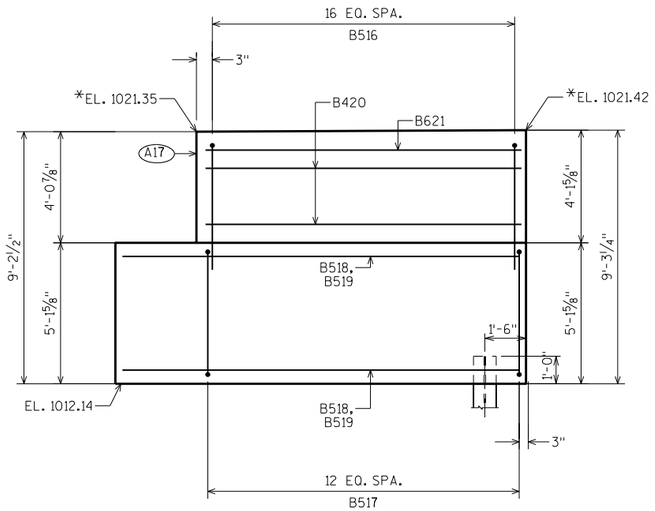
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
B501		55	15'-0"	X		BODY-STIRRUPS
B402		18	2'-3"			PILES- 2 PER PILE
B703		6	42'-10"			BODY-HORIZONTAL-B.F.
B604		11	43'-8"			BODY-HORIZONTAL-TOP, F.F. & BTM.
B405		9	28'-0"	X		PILES-1 PER PILE
B406		4	19'-2"			BODY-HORIZ. OVER GIRS. 4-6
B507		20	5'-7"	X		BODY-TOP-VERT. OVER GIRS. 4-6
B408		21	3'-11"	X		BODY-TOP-VERT. BETWEEN BEAM SEATS
B409		14	4'-0"			BODY-HORIZ.-TOP-BETWEEN BEAM SEATS
B510	X	17	12'-8"	X		WING 3-VERTICAL UPPER TOP
B511	X	13	15'-8"	X		WING 3-STIRRUP
B512	X	6	15'-2"			WING 3-HORIZONTAL LOWER F.F.
B513	X	9	13'-1"			WING 3-HORIZONTAL LOWER B.F. & TOP
B414	X	9	11'-7"			WING 3-HORIZONTAL UPPER F.F./B.F.
B615	X	2	11'-7"			WING 3-HORIZONTAL UPPER TOP
B516	X	17	12'-8"	X		WING 4-VERTICAL UPPER TOP
B517	X	13	15'-10"	X		WING 4-STIRRUP
B518	X	6	14'-7"			WING 4-HORIZONTAL LOWER F.F.
B519	X	9	14'-2"			WING 4-HORIZONTAL LOWER B.F. & TOP
B420	X	9	11'-7"			WING 4-HORIZONTAL UPPER F.F./B.F.
B621	X	2	11'-7"			WING 4-HORIZONTAL UPPER TOP



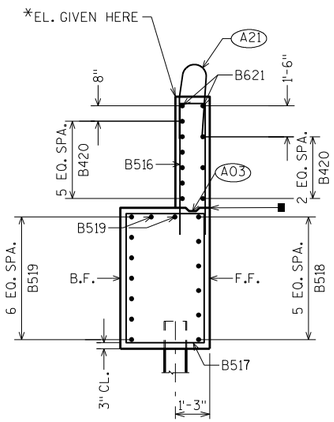
WING 3 ELEVATION



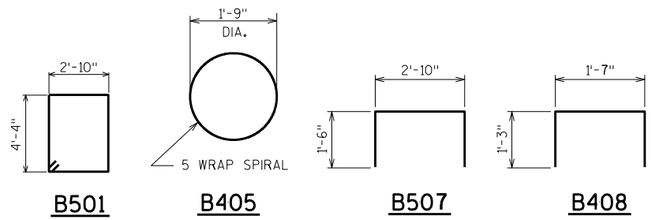
WING 3 SECTION

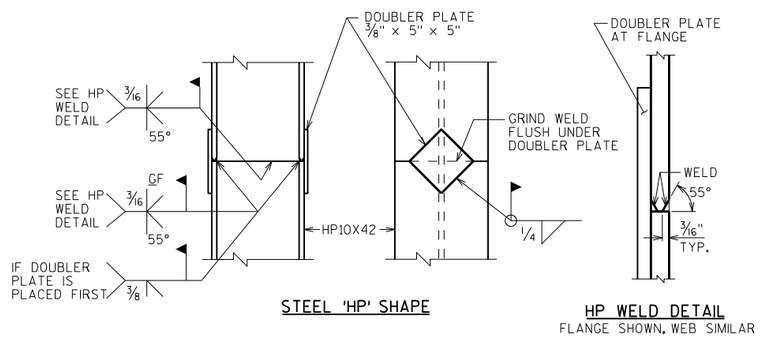


WING 4 ELEVATION



WING 4 SECTION





STEEL 'HP' SHAPE

HP WELD DETAIL
FLANGE SHOWN, WEB SIMILAR

PILE DETAILS

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-58-128

DRAWN BY PMM | PLANS CK'D. ARC

EAST ABUTMENT DETAILS

SHEET 7

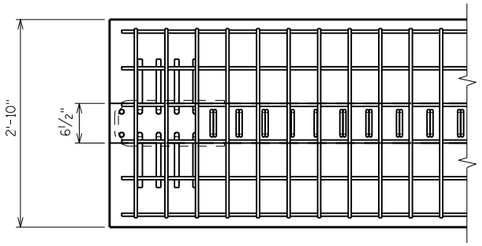
132

SCALE = 2.67

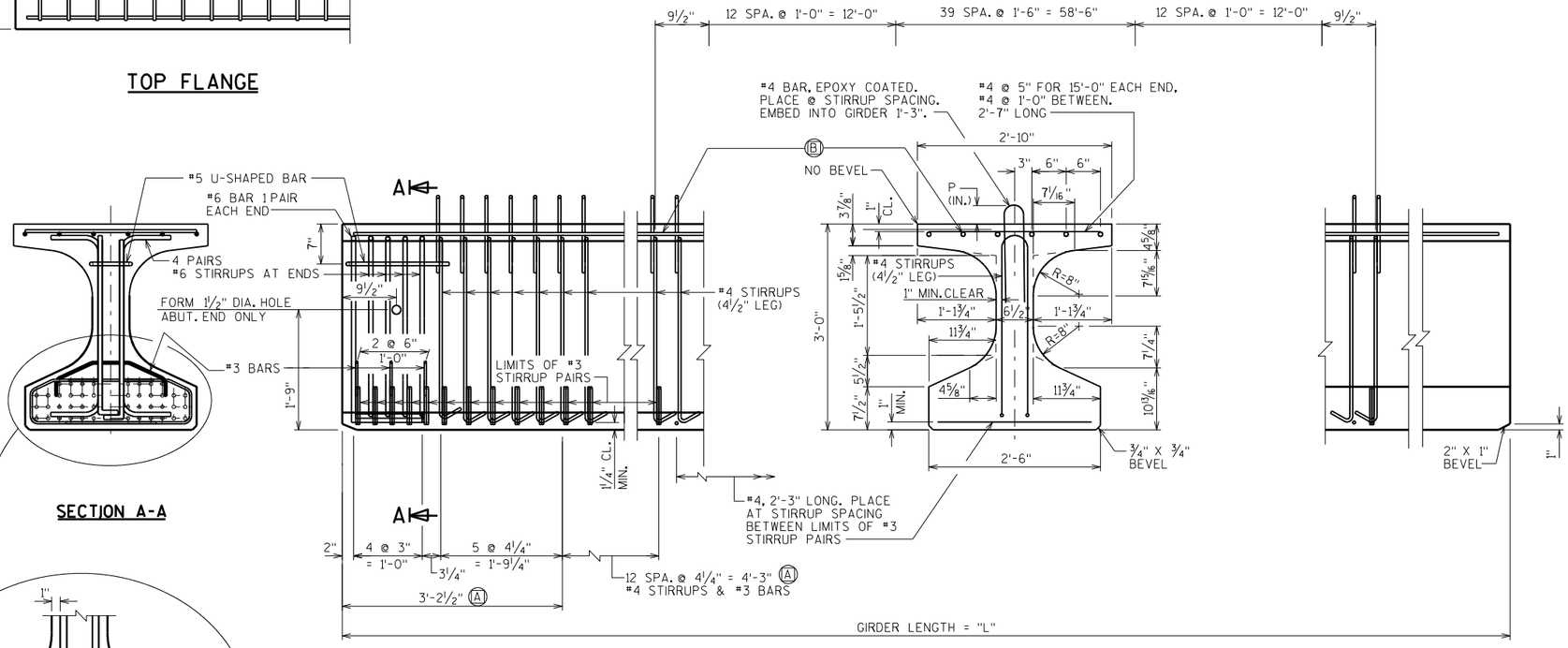
8

STATE PROJECT NUMBER

1058-21-70



TOP FLANGE

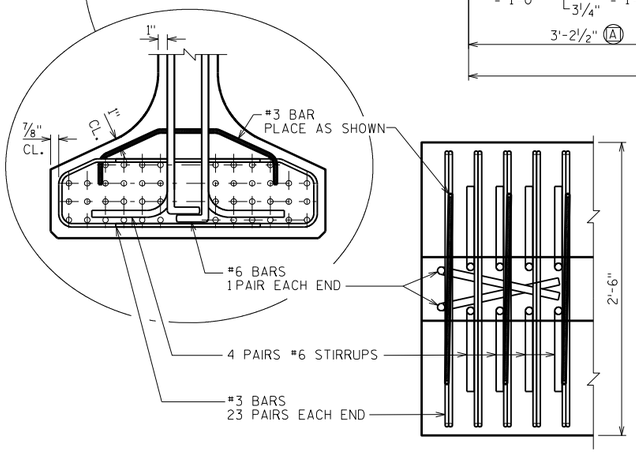


SECTION A-A

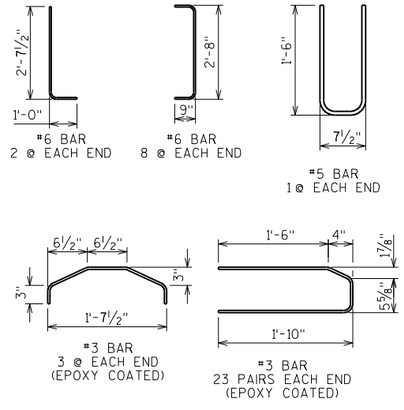
SIDE VIEW & TYP. SECTION IN SPAN

Ⓐ DETAIL TYP. AT EACH END

Ⓑ 6 #4 BARS, FULL LENGTH, MIN. LAP = 1'-11"



BOTTOM FLANGE



NOTES

TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY, EXCEPT THE THE OUTSIDE 8" OF GIRDER, WHICH SHALL RECEIVE A SMOOTH FINISH. AN APPROVED CONCRETE SEALER SHALL BE APPLIED TO ALL SMOOTH SURFACES INCLUDING THE OUTSIDE 8" OF THE TOP FLANGE.

DO NOT APPLY CONCRETE SEALER TO SURFACES RECEIVING APPLICATION OF CONCRETE STAINING.

THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS.

STRANDS SHALL BE FLUSH WITH THE END OF GIRDER. FOR GIRDER ENDS EMBEDDED COMPLETELY IN CONCRETE, ENDS OF STRANDS SHALL BE COATED WITH NON-BITUMINOUS JOINT SEALER. FOR GIRDER ENDS THAT ARE FINALLY EXPOSED, COAT THE GIRDER ENDS, EXPOSED STRAND ENDS AND ALL NON-BONDING SURFACES WITHIN 2 FEET OF THE GIRDER ENDS WITH A NON-PIGMENTED EPOXY CONFORMING TO AASHTO M-235 TYPE III, GRADE 2, CLASS B OR C. THE EPOXY SHALL BE APPLIED AT LEAST 3 DAYS AFTER MOIST CURING HAS CEASED AND PRIOR TO APPLICATION OF THE SEALER.

ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

SPACING SHOWN FOR #4 STIRRUPS IS FOR GRADE 60 REINFORCEMENT.

AN ALTERNATE EQUIVALENT OF WELDED WIRE FABRIC (WWF) ASTM A497 MAY BE SUBSTITUTED FOR THE STIRRUP REINFORCEMENT SHOWN, UPON APPROVAL OF THE STRUCTURES DEVELOPMENT SECTION.

PRESTRESSING STRANDS SHALL BE 0.6" DIA. -7 WIRE LOW-RELAXATION STRANDS WITH AN ULTIMATE STRENGTH OF 270,000 psi.

FOR DIAPHRAGM INSERT & CONNECTION DETAILS SEE "STEEL DIAPHRAGM" SHEET.

✳ MINIMUM CYLINDER STRENGTH OF CONCRETE @ TIME OF TRANSFER OF PRESTRESS FORCE.

GIRDER DATA

SPAN	GIRDER	GIRDER LENGTH "L"	DEAD LOAD DEFL. (IN.)									CONC. STRGTH. f'c (p.s.i.)	"P" 1ST ⅓ OF GIRDER	"P" MID ⅓ OF GIRDER	"P" END ⅓ OF GIRDER	DIA. OF STRAND (IN.)	DRAPED PATTERN						UNDRAPED PATTERN	
			1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10						TOTAL NO. OF STRANDS	f'ci (P.S.I.)	(IN.) "A"	"B" MIN.	"B" MAX.	"C"	TOTAL NO. OF STRANDS	f'ci (P.S.I.)
1	ALL	99.00	0.8	1.4	1.9	2.3	2.4	2.3	1.9	1.4	0.8	8000	8	7	8	0.60	36	6450	31.0	11.5	14.5	5.0	0	0

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-58-128

DRAWN BY PMM | PLANS CK'D. ARC

36W" PRESTRESSED GIRDER

SHEET 8

133

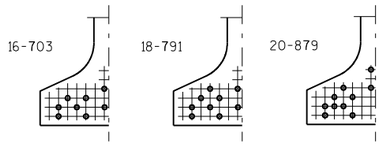
SCALE = 1

8

8

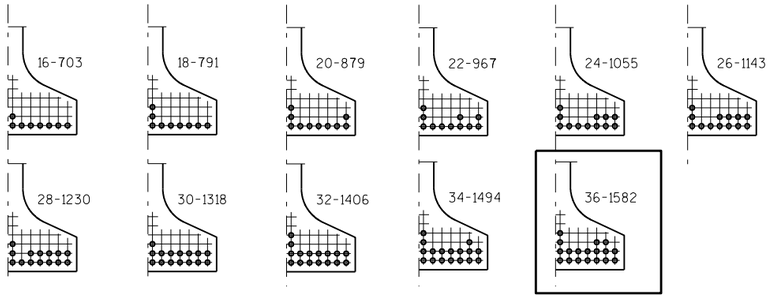
STATE PROJECT NUMBER

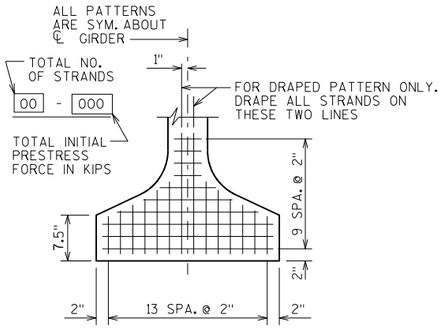
1058-21-70



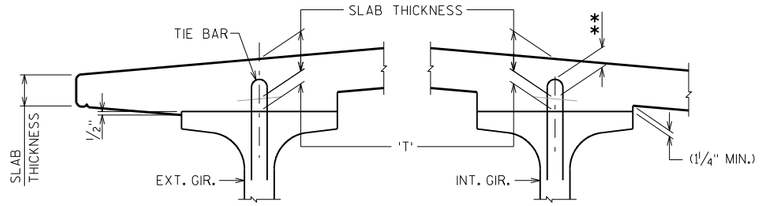
STANDARD ARRANGEMENTS TO RAISE CENTER OF GRAVITY TO AVOID DRAPING OF STRANDS

0.6"Φ STRANDS





TYP. STRAND PATTERN



SLAB HAUNCH DETAIL

IF 1¼" MINIMUM HAUNCH HEIGHT AT EDGE OF GIRDER CANNOT BE MAINTAINED, THE GRADE LINE MAY BE REVISED BY THE ENGINEER AT THE OPTION OF THE CONTRACTOR, THE PLAN SLAB THICKNESS SHALL BE HELD. NOTIFY THE STRUCTURES SECTION IF THE GRADE LINE IS RAISED FROM THE PLAN PROFILE BY MORE THAN ½" OR,

** IF 3" MINIMUM DECK EMBEDMENT OF TIE BAR CANNOT BE OBTAINED.

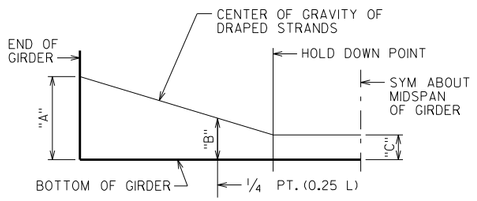
TO DETERMINE 'T', ELEV. OF TOP OF GIR'S. AT ℄ OF SUBSTRUCTURE UNITS & AT 1/10 POINTS OF EACH SPAN SHALL BE TAKEN. THEN FOLLOW THIS PROCESS:

TOP OF DECK ELEV. AT FINAL GRADE
- TOP OF GIRDER ELEVATION
+ DEAD LOAD DEFLECTION
- SLAB THICKNESS
= HAUNCH HEIGHT 'T'

NOTE: AN AVERAGE HAUNCH ('T') OF 3.20" WAS USED IN THE QUANTITY "CONCRETE MASONRY BRIDGES".

ARRANGEMENT AT ℄ SPAN - FOR GIRDERS WITH DRAPED STRANDS

0.6"Φ STRANDS



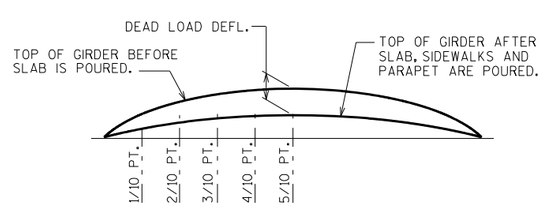
DRAPED STRAND PROFILE

SPAN	CAMBER*
1	4.42

*THE THEORETICAL INITIAL CAMBER VALUE AT THE TIME OF STRAND RELEASE AT MIDSPAN MULTIPLIED BY A FACTOR OF 1.4 TO ACCOUNT FOR CAMBER GROWTH FROM THE TIME OF STRAND RELEASE TO JOBSITE PLACEMENT.

THESE VALUES ARE NOT TO BE USED IN DETERMINING 'T', USE ACTUAL GIRDER SHOTS.

THESE VALUES ARE FOR INFORMATIONAL PURPOSES ONLY.



DEAD LOAD DEFLECTION DIAGRAM

8

8

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-58-128

DRAWN BY PMM | PLANS CK'D. ARC

36W" PRESTRESSED GIRDER DETAILS

SHEET 9

134

SCALE = 1

STATE PROJECT NUMBER

1058-21-70

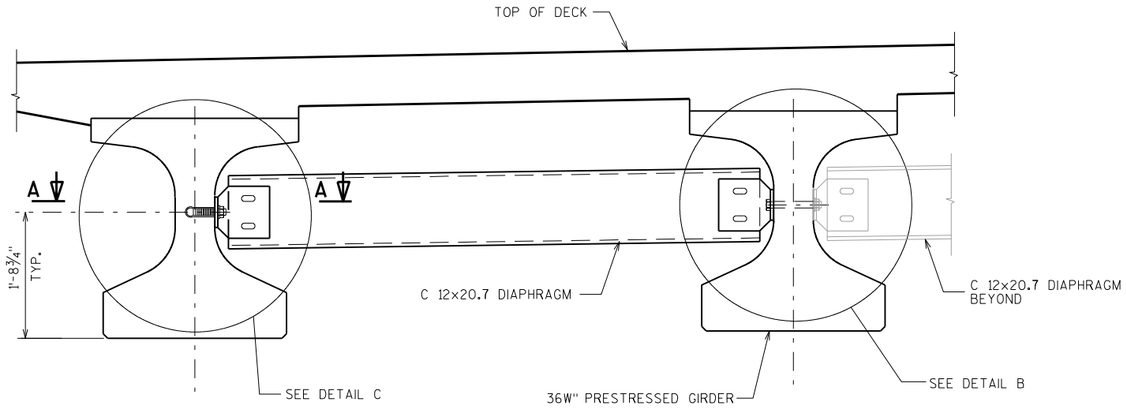
NOTES

ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS B-58-128", EACH.

EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.

ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36. ALL BOLTS, NUTS AND WASHERS SHALL BE ASTM A325 TYPE 1.

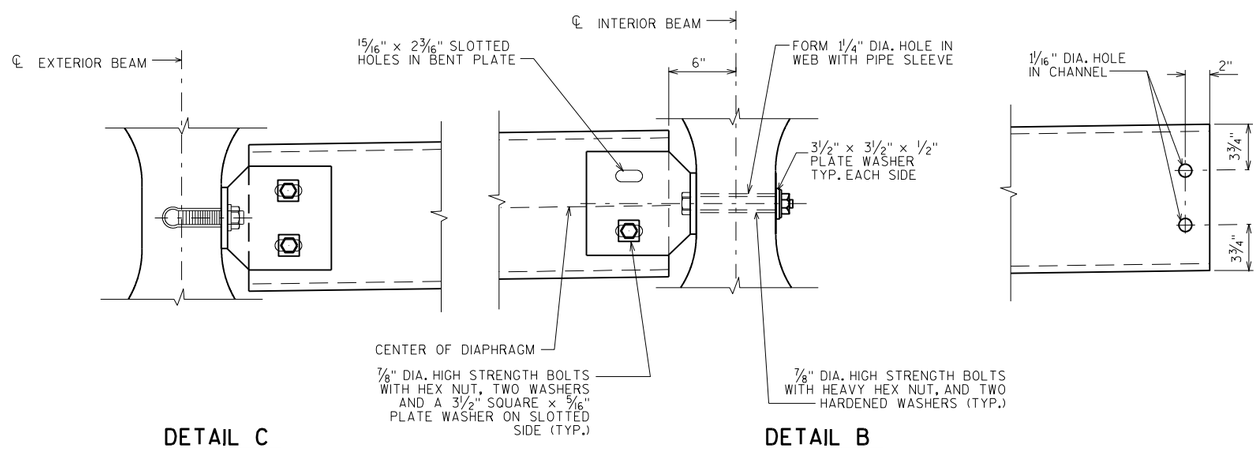
ALL DIAPHRAGM STRUCTURAL STEEL SHOWN SHALL BE HOT-DIPPED GALVANIZED. ALL BOLTS, NUTS AND WASHERS SHALL BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C. GALVANIZED NUTS SHALL BE TAPPED OVERSIZE IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM A563 AND SHALL MEET THE REQUIREMENTS OF SUPPLEMENTARY REQUIREMENT S1 OF ASTM A563. LUBRICANT AND TEST FOR COATED NUTS.



EXTERIOR GIRDER

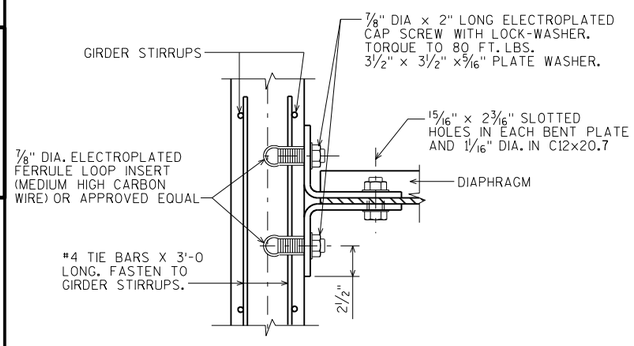
INTERIOR GIRDER

PART TRANSVERSE SECTION AT DIAPHRAGM



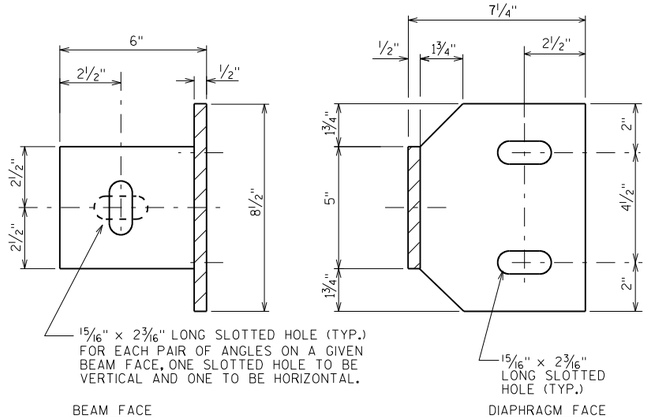
DETAIL C

DETAIL B



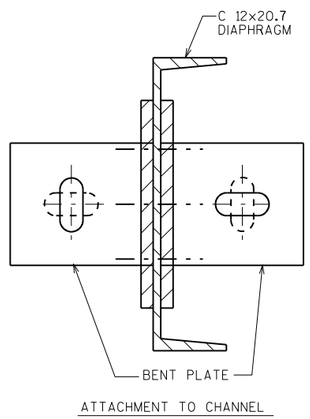
SECTION A-A

(FOR EXTERIOR ATTACHMENT)



BEAM FACE

DIAPHRAGM FACE



ATTACHMENT TO CHANNEL

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-58-128

DRAWN BY PMM | PLANS CK'D. ARC

STEEL DIAPHRAGM

SHEET 10

135

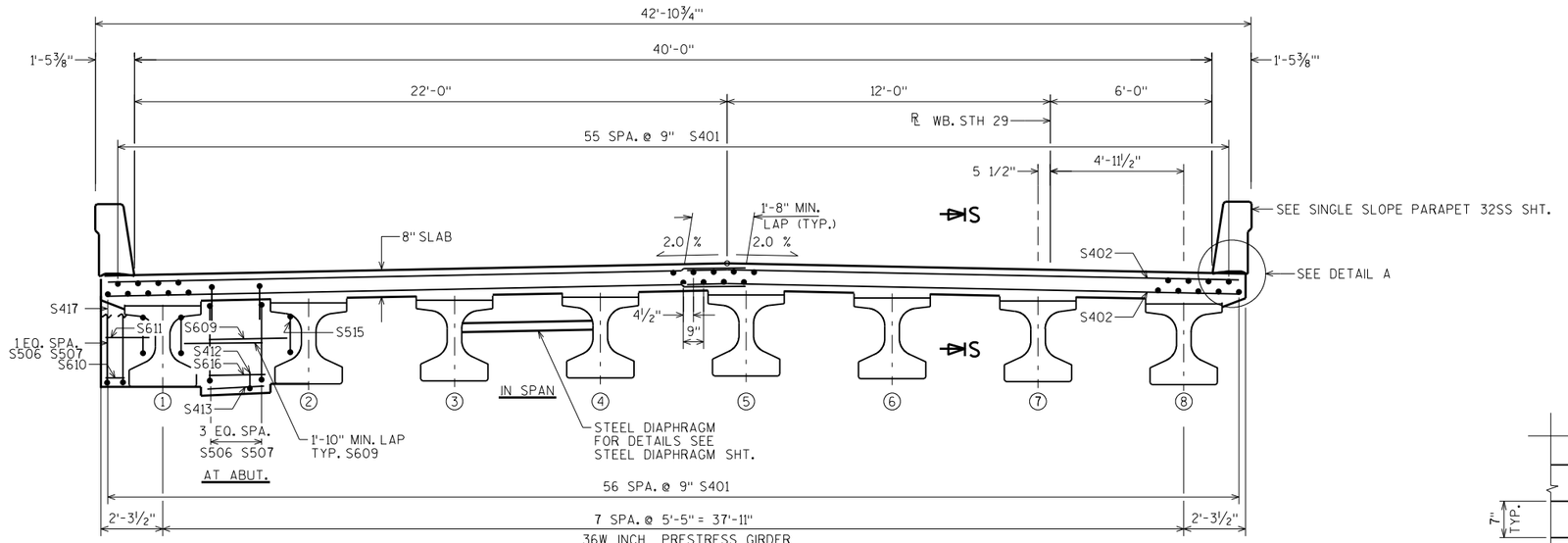
SCALE = 1

8

8

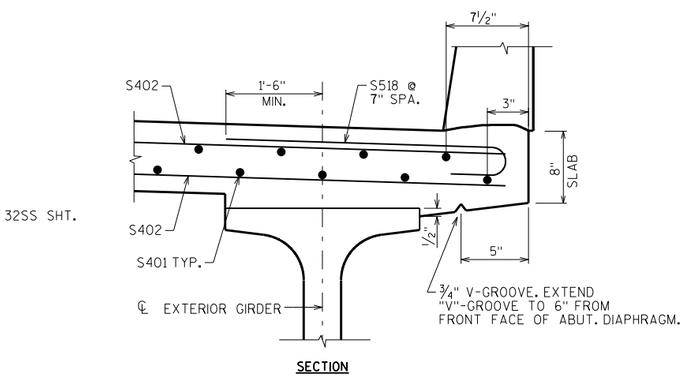
STATE PROJECT NUMBER

1058-21-70

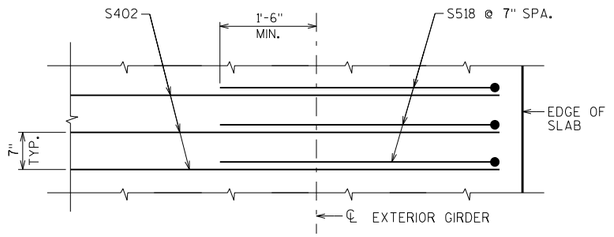


CROSS SECTION THRU ROADWAY

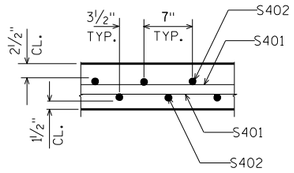
(LOOKING EAST)



SECTION



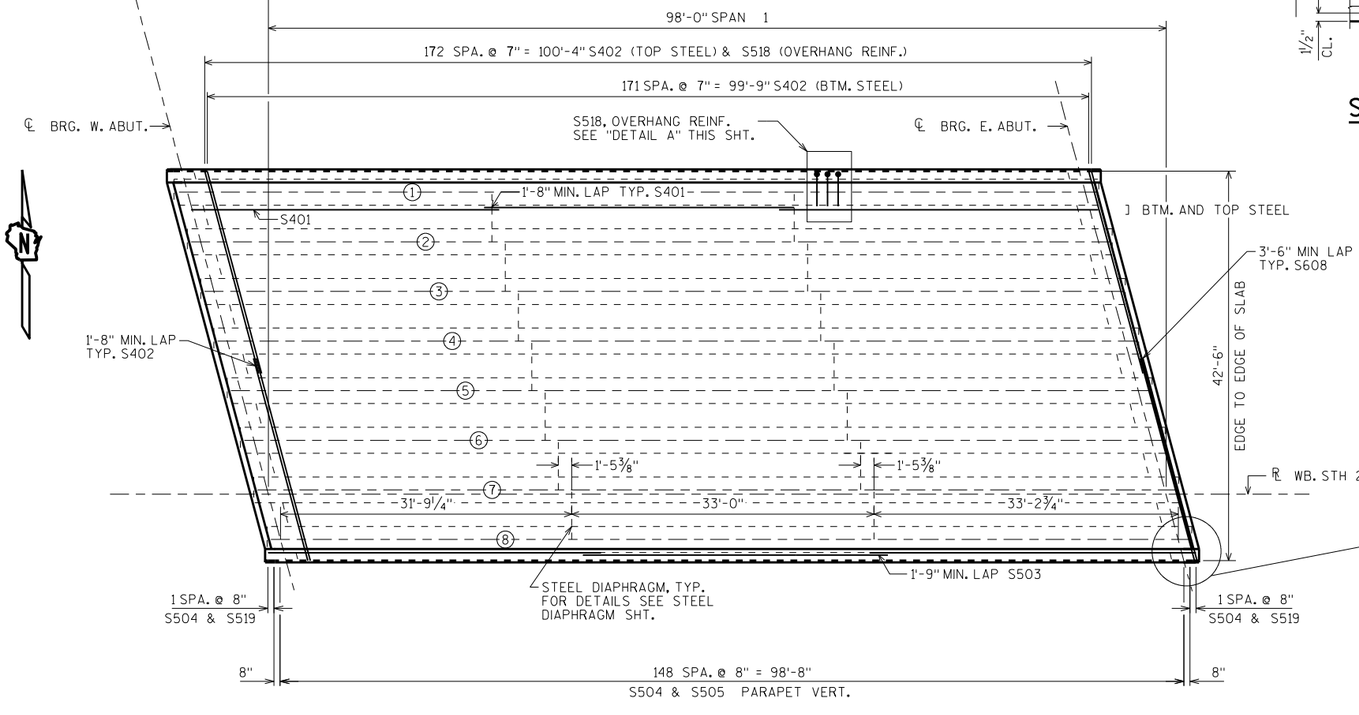
PLAN



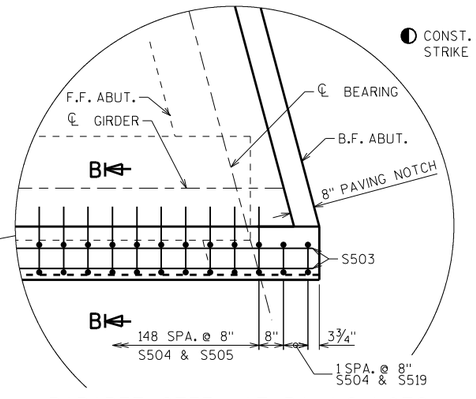
SECTION S-S

DETAIL A

NOTE: PARAPET REINF. NOT SHOWN FOR CLARITY.

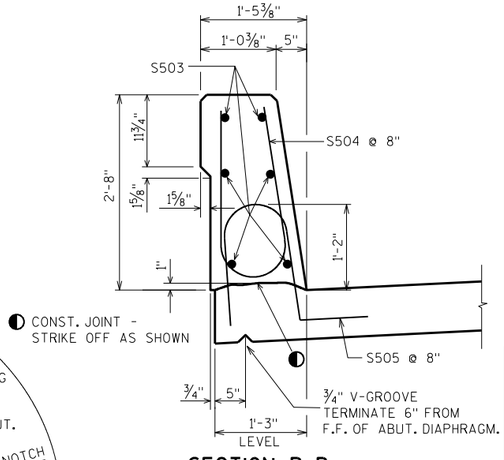


PLAN



PARAPET STEEL AT PAVING NOTCH

NOTE: SE CORNER OF DECK SHOWN.
OTHER CORNER LOCATIONS SIMILAR.



SECTION B-B

NOTE: DECK REINF. AND GIRDER NOT SHOWN FOR CLARITY.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-58-128

DRAWN BY PMM | PLANS CK'D. ARC

SUPERSTRUCTURE

SHEET 11

136

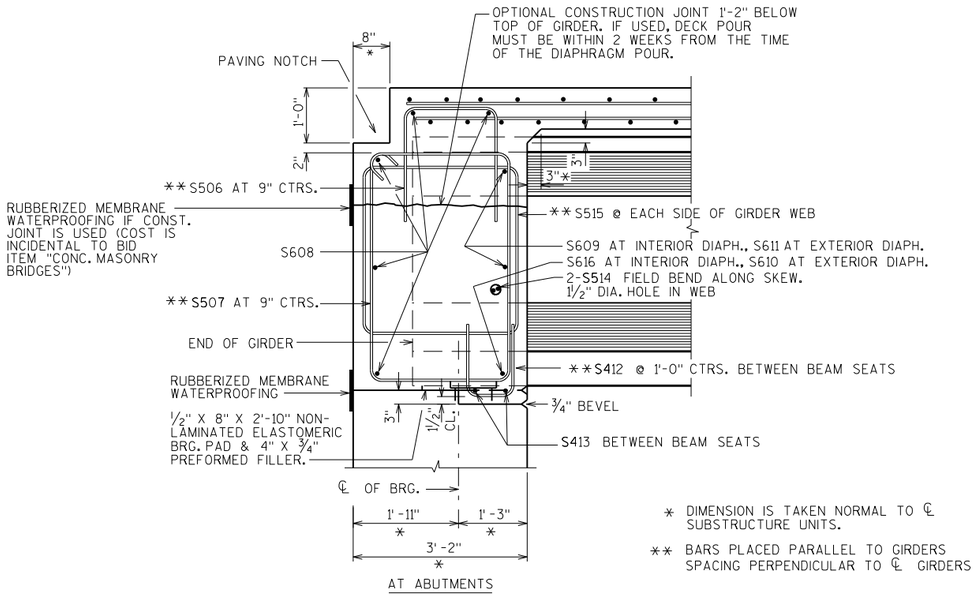
8

8

SCALE = 8

STATE PROJECT NUMBER

1058-21-70

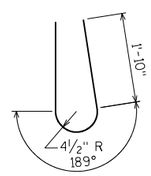


PART LONGIT. SECTION

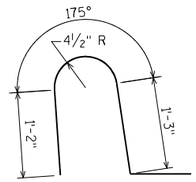
BILL OF BARS

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

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
S401	X	339	34'-7"			LONGITUDINAL TOP & BOTTOM
S402	X	690	22'-8"			TRANSVERSE TOP & BOTTOM
S503	X	36	35'-1"			PARAPET 32SS HORIZONTAL
S504	X	306	5'-0"	X		PARAPET 32SS VERTICAL
S505	X	298	4'-5"	X		PARAPET 32SS VERTICAL
S506	X	64	5'-9"	X		ABUT. DIAPHRAGM VERT.
S507	X	64	11'-10"	X		ABUT. DIAPHRAGM VERT. STIRRUP
S608	X	20	23'-7"			ABUT. DIAPHRAGM HORIZ.
S609	X	56	3'-5"			ABUT. DIAPHRAGM HORIZ. INT.
S610	X	4	3'-10"	X		ABUT. DIAPHRAGM HORIZ. EXT.
S611	X	8	5'-10"	X		ABUT. DIAPHRAGM HORIZ. EXT.
S412	X	42	3'-3"	X		ABUT. DIAPHRAGM VERT.
S413	X	28	1'-7"			ABUT. DIAPHRAGM HORIZ.
S514	X	32	6'-0"			ABUT. DIAPHRAGM THRU GIRDER WEB
S515	X	32	9'-2"	X		ABUT. DIAPHRAGM VERT. ADJ. GIRDER WEB
S616	X	14	2'-8"			ABUT. DIAPHRAGM HORIZ. INT.
S417	X	8	3'-8"			ABUT. DIAPHRAGM END VERT.
S518	X	346	4'-3"	X		TRANSVERSE TOP-DECK OVERHANG
S519	X	8	5'-10"	X		PARAPET 32SS VERT. AT PAVING NOTCH



S504



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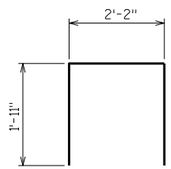

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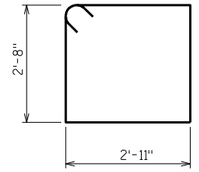
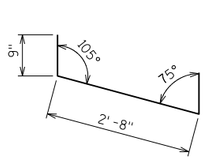
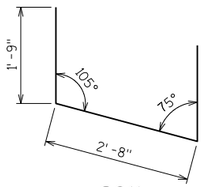


S507



S610



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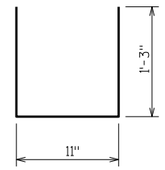

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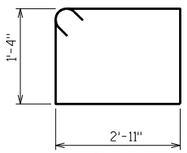
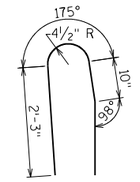
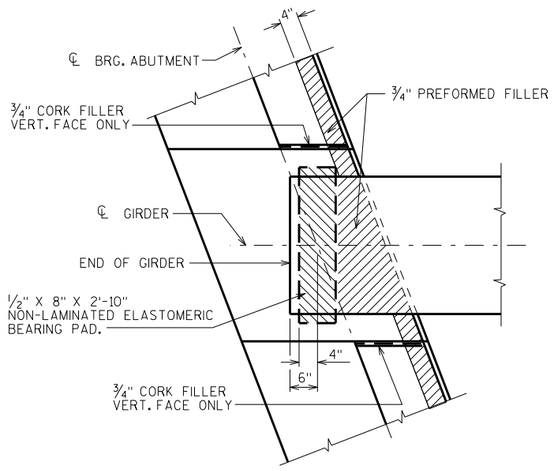


S515



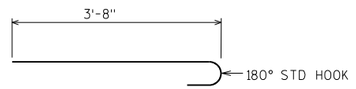
S519



BEARING PAD DETAIL

TOP OF DECK ELEVATIONS

	W. ABUT.	1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10	E. ABUT.
EOD	1020.66	1020.71	1020.77	1020.82	1020.88	1020.93	1020.98	1021.04	1021.09	1021.14	1021.20
GIR. 1	1020.68	1020.74	1020.79	1020.84	1020.90	1020.95	1021.01	1021.06	1021.11	1021.17	1021.22
GIR. 2	1020.80	1020.85	1020.91	1020.96	1021.01	1021.07	1021.12	1021.18	1021.23	1021.28	1021.34
GIR. 3	1020.91	1020.97	1021.02	1021.08	1021.13	1021.18	1021.24	1021.29	1021.35	1021.40	1021.45
GIR. 4	1021.03	1021.09	1021.14	1021.19	1021.25	1021.30	1021.35	1021.41	1021.46	1021.52	1021.57
GIR. 5	1021.12	1021.17	1021.23	1021.28	1021.33	1021.39	1021.44	1021.50	1021.55	1021.60	1021.66
GIR. 6	1021.02	1021.07	1021.13	1021.18	1021.23	1021.29	1021.34	1021.40	1021.45	1021.50	1021.56
GIR. 7	1020.92	1020.97	1021.03	1021.08	1021.13	1021.19	1021.24	1021.30	1021.35	1021.40	1021.46
GIR. 8	1020.82	1020.87	1020.93	1020.98	1021.03	1021.09	1021.14	1021.20	1021.25	1021.30	1021.36
EOD	1020.80	1020.85	1020.91	1020.96	1021.01	1021.07	1021.12	1021.18	1021.23	1021.28	1021.34



S518

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-58-128

DRAWN BY PMM | PLANS CK'D. ARC

SUPERSTRUCTURE DETAILS

SHEET 12

137

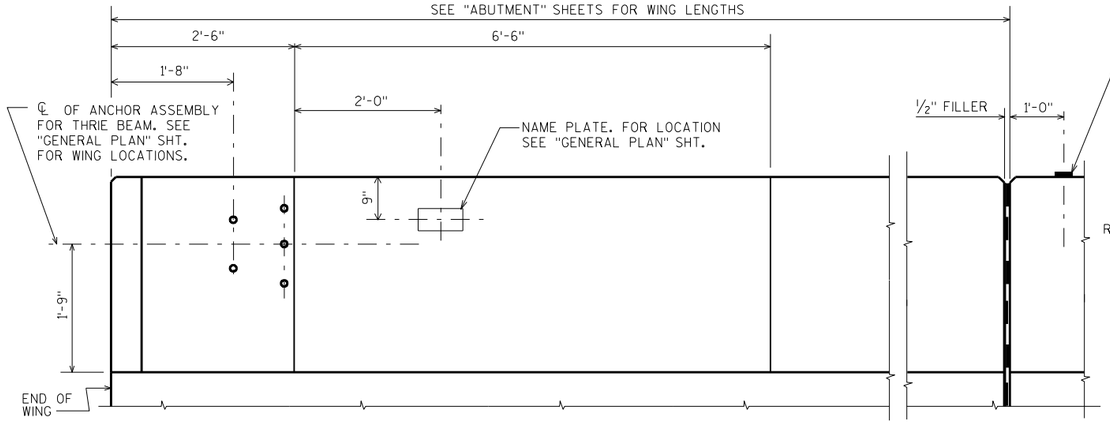
SCALE = 1.33

8

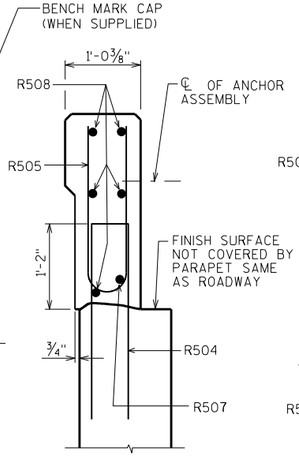
8

STATE PROJECT NUMBER

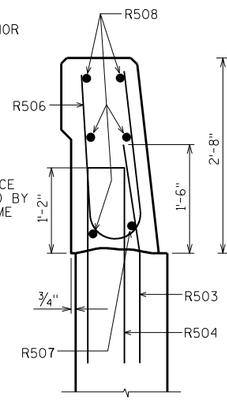
1058-21-70



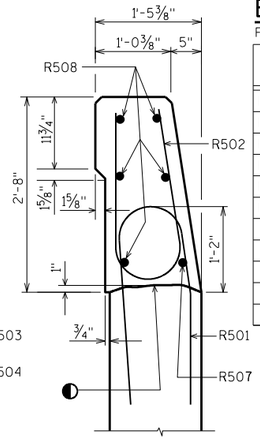
INSIDE ELEVATION



SECTION A



SECTION B

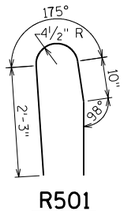


SECTION C

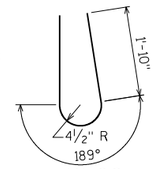
BILL OF BARS

FOR ABUTMENT PARAPETS

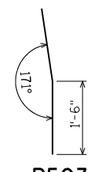
BAR MARK	COAT	WEST ABUT.	EAST ABUT.	LENGTH	BENT	BAR SERIES	LOCATION
R501	X	12	12	5'-10"	X		PARAPET VERT.
R502	X	12	12	5'-0"	X		PARAPET VERT.
R503	X	24	24	3'-0"	X		PARAPET VERT.
R504	X	34	34	5'-7"	X		PARAPET VERT.
R505	X	22	22	4'-9"	X		PARAPET VERT.
R506	X	12	12	4'-10"	X		PARAPET VERT.
R507	X	2	2	11'-6"	X		PARAPET HORIZ.
R508	X	10	10	11'-6"			PARAPET HORIZ.



R501

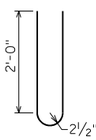


R502

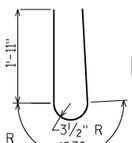


R503

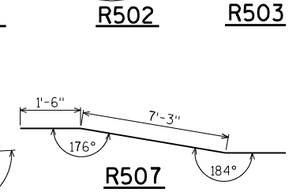
R504



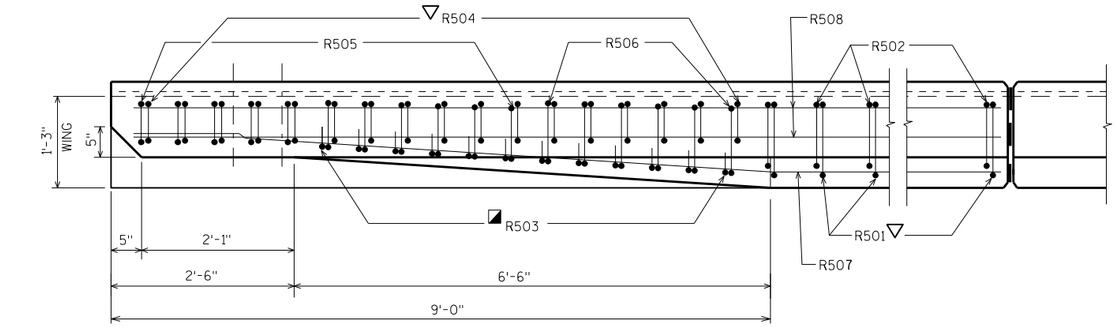
R505



R506

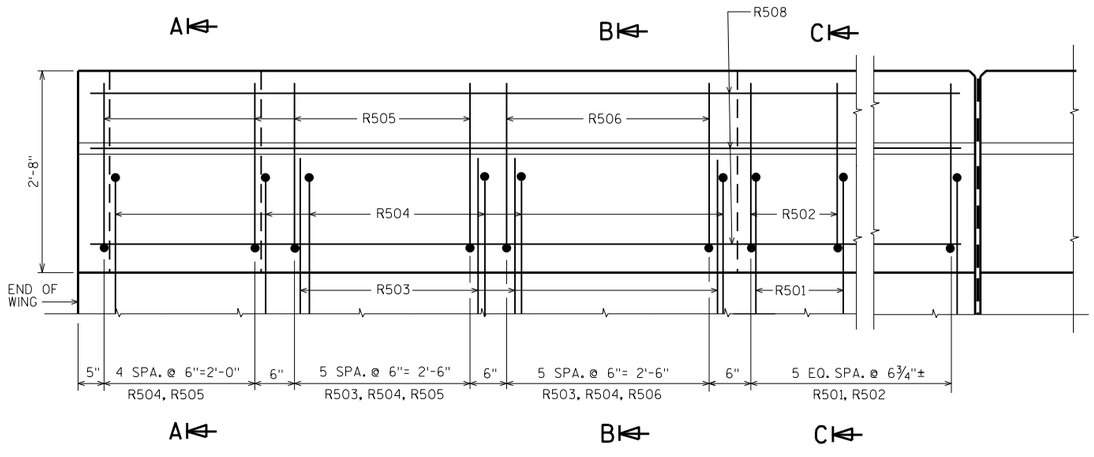


R507

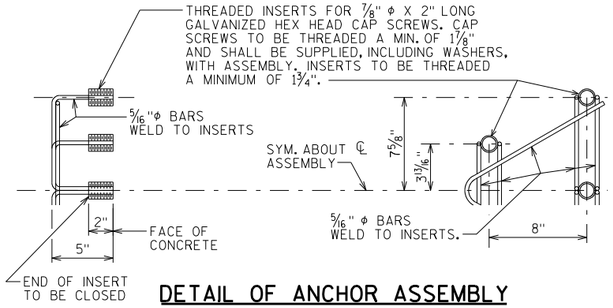


PLAN

OPTIONAL CONSTRUCTION JOINTS IN THE PARAPETS MAY BE USED. RUN BAR REINF. THRU THE JOINT. LAP LONGIT. BARS A MIN. OF 1'-9". MIN. JOINT SPACING OF 80'-0". DEFINE CONST. JOINT WITH A ¾" - 'V' GROOVE.



OUTSIDE ELEVATION



DETAIL OF ANCHOR ASSEMBLY

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

ASSEMBLY SHALL BE BID ITEM "ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD", EACH.

◐ CONST. JOINT - STRIKE OFF AS SHOWN.

◪ R503 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. USE CARE TO PLACE R503 BARS CORRECTLY ALONG TRANSITION OF PARAPET.

▽ R501 AND R504 BARS TO BE TIED TO WING STEEL BEFORE WING IS POURED.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-58-128

DRAWN BY PMM | PLANS CK'D. ARC

SINGLE SLOPE PARAPET 32SS

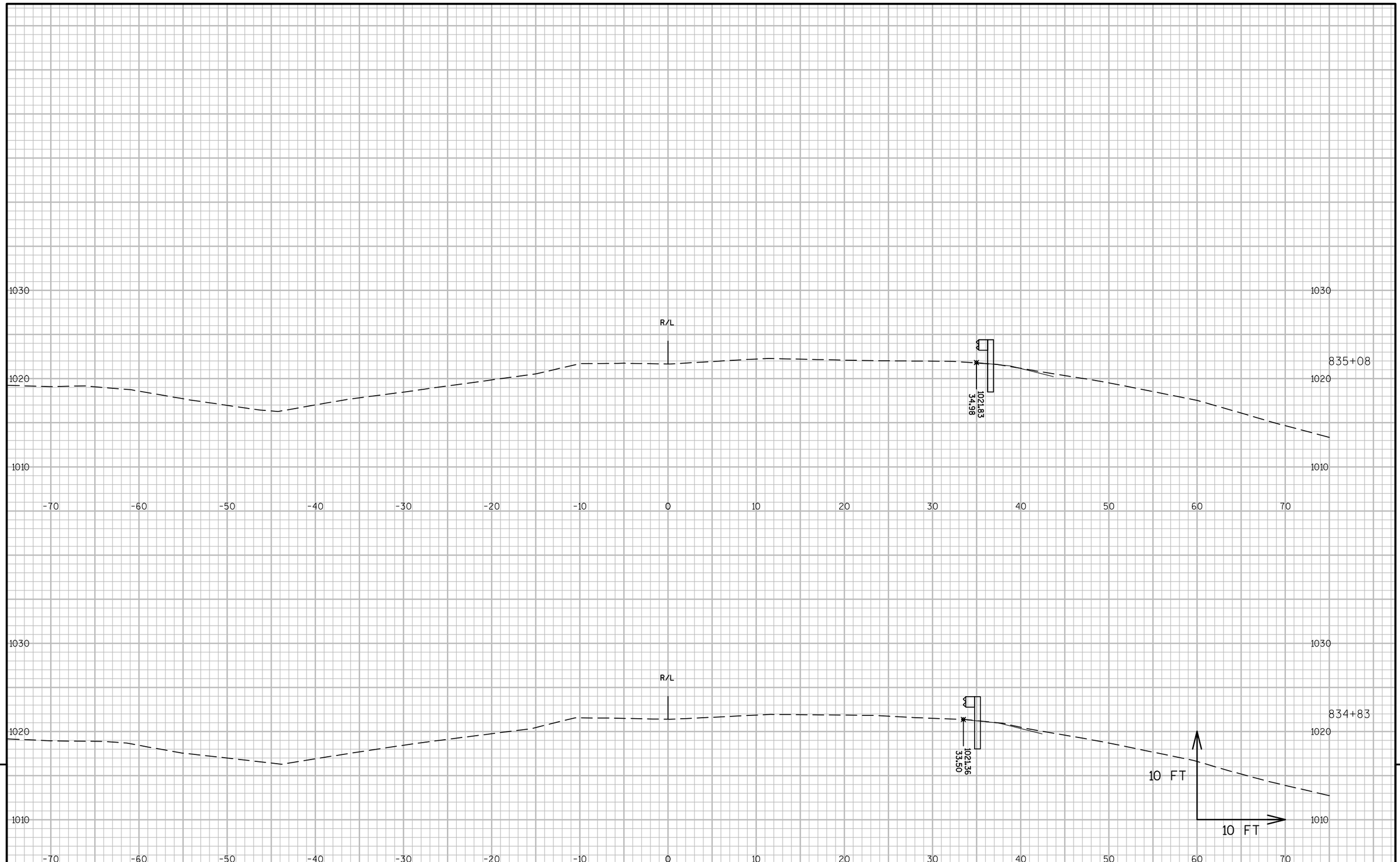
SHEET 13

138

SCALE = 1

8

8



9

9

PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: STH 29 EB - MGS GUARDRAIL TEMPORARY	SHEET 139	E

FILE NAME : N:\PDS\C3D\10582170\DESIGN\XSECTIONS\090104_XS_BG_TEMP.DWG
LAYOUT NAME - 090104-1 XS BG TEMP

PLOT DATE : 8/27/2015 5:32 PM PLOT BY : HETH, BARBARA L PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49

9

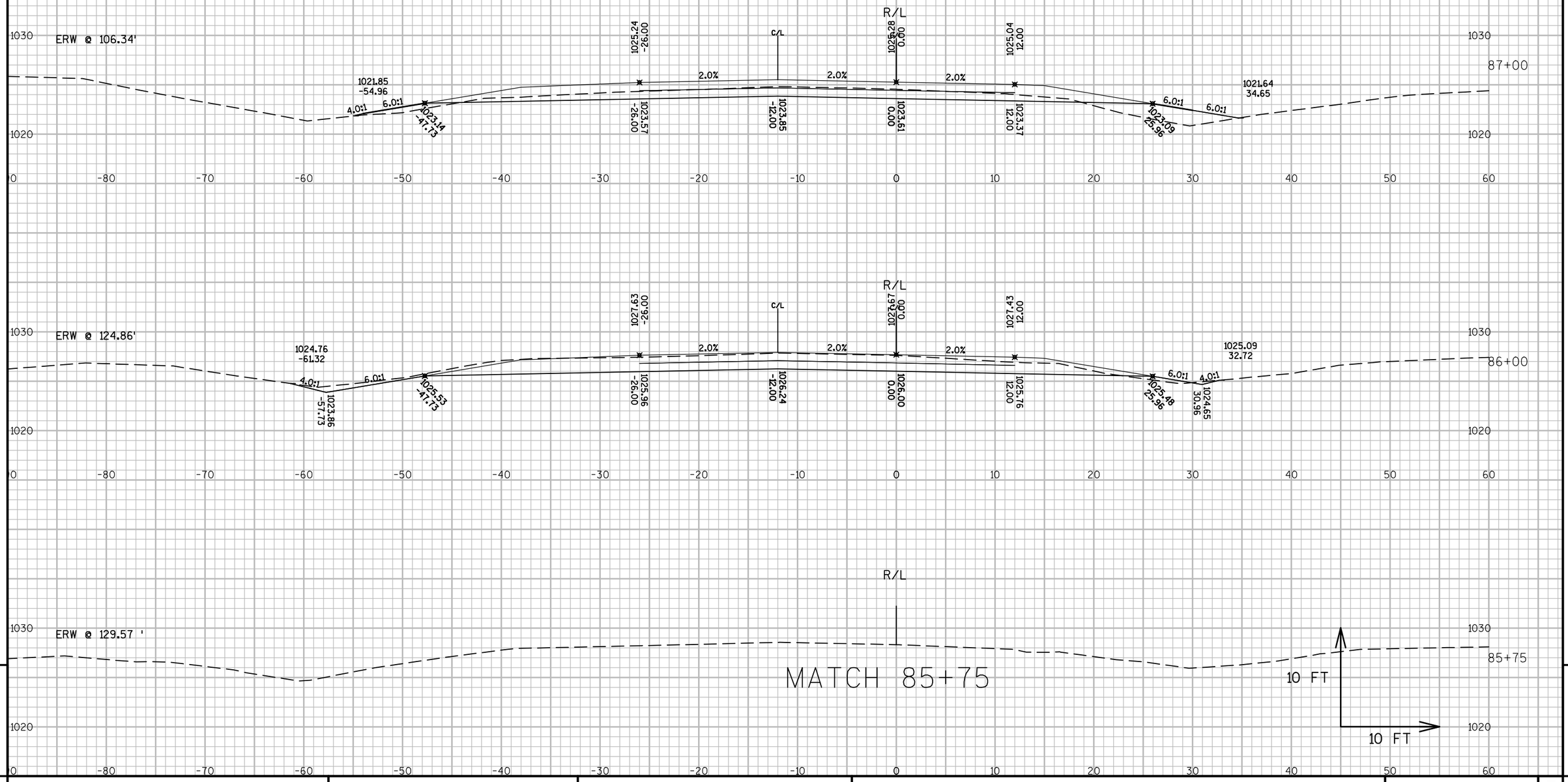
9

PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: STH 29 EB - MGS GUARDRAIL TEMPORARY	SHEET 140	E

FILE NAME : N:\PDS\C3D\10582170\DESIGN\XSECTIONS\090104_XS_BG_TEMP.DWG
LAYOUT NAME - 090104-2 XS BG TEMP

PLOT DATE : 8/27/2015 5:32 PM PLOT BY : HETH, BARBARA L PLOT NAME : PLOT SCALE : 1 IN:10 FT

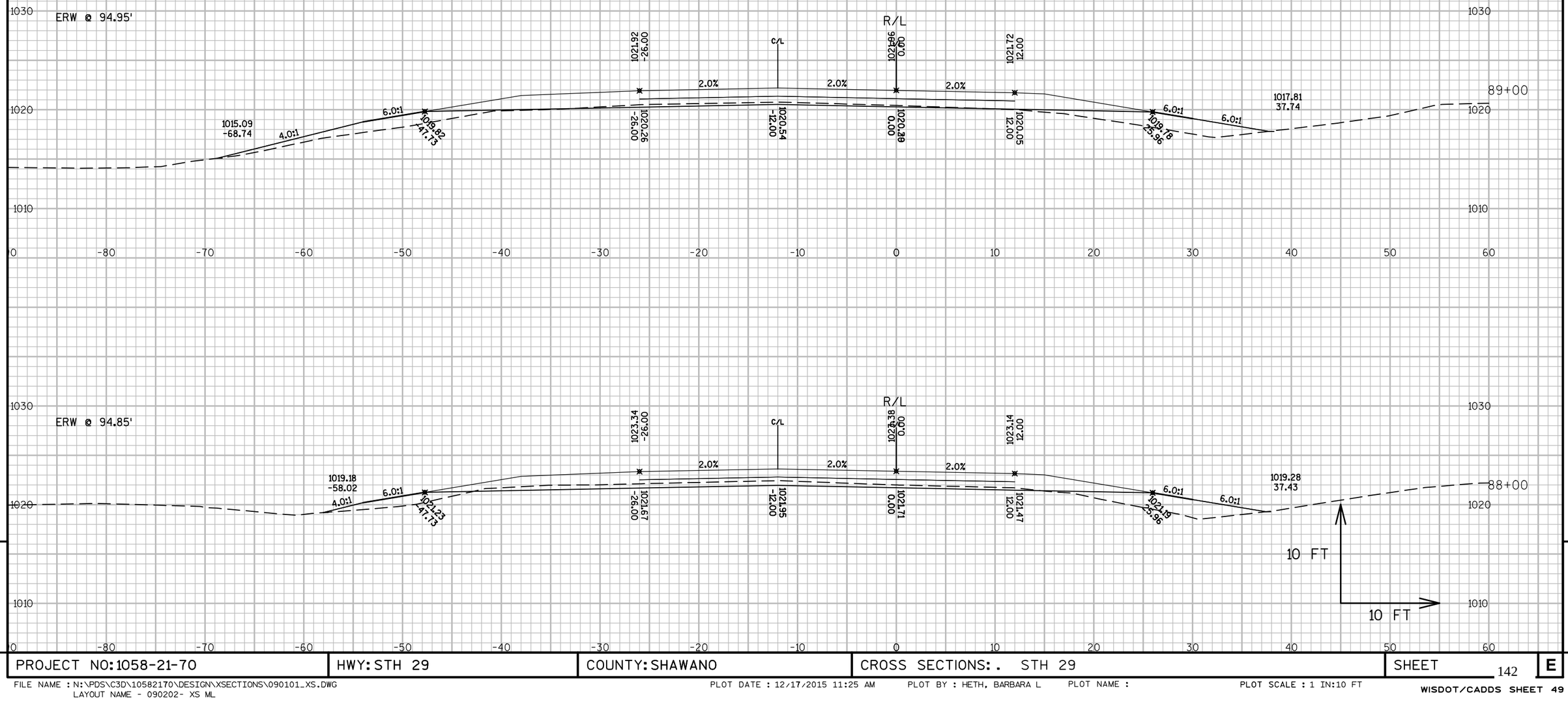
ERW = EXISTING RIGHT OF WAY



9

PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: STH 29	SHEET 141	E

9

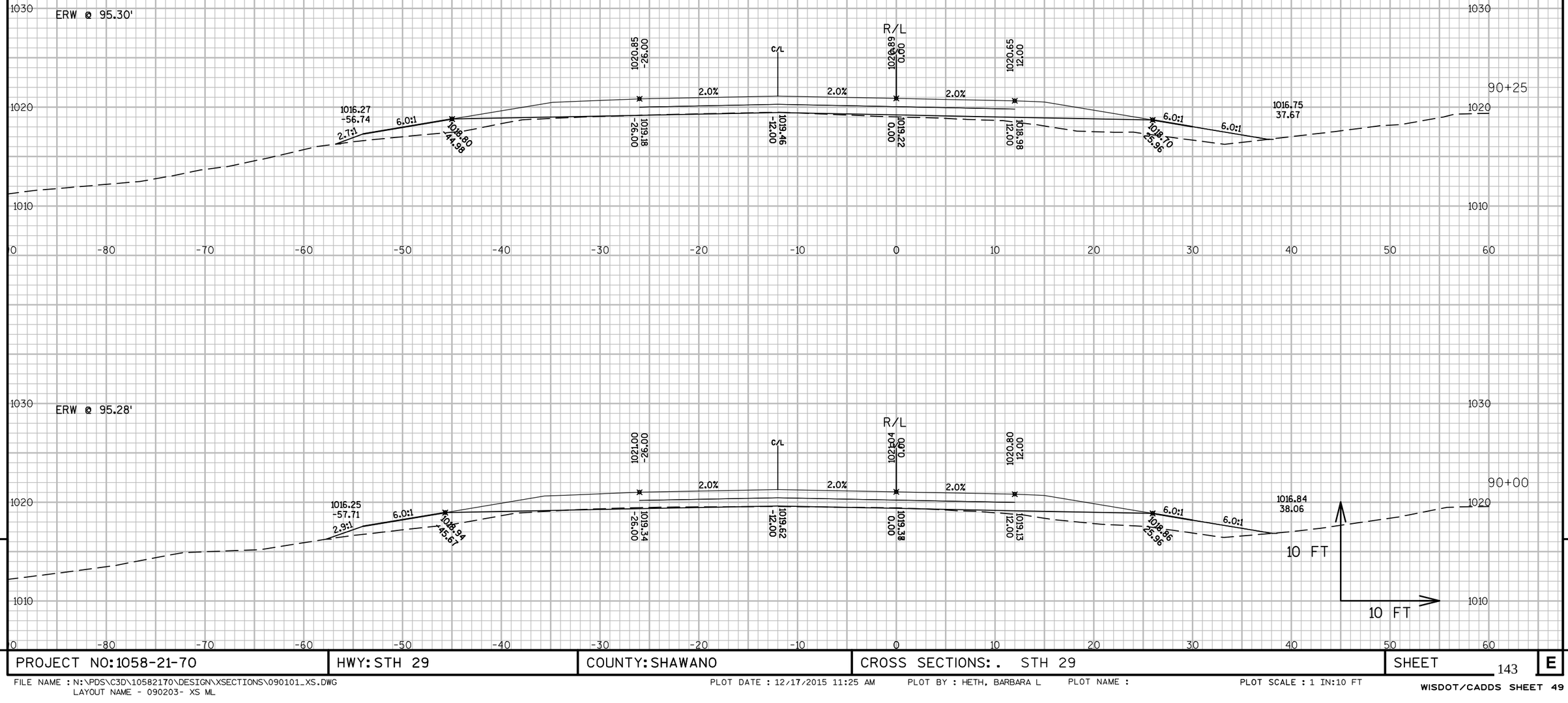


PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: . STH 29	SHEET 142 E

FILE NAME : N:\PDS\C3D\10582170\DESIGN\XSECTIONS\090101_XS.DWG
LAYOUT NAME - 090202- XS ML

PLOT DATE : 12/17/2015 11:25 AM PLOT BY : HETH, BARBARA L PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



9

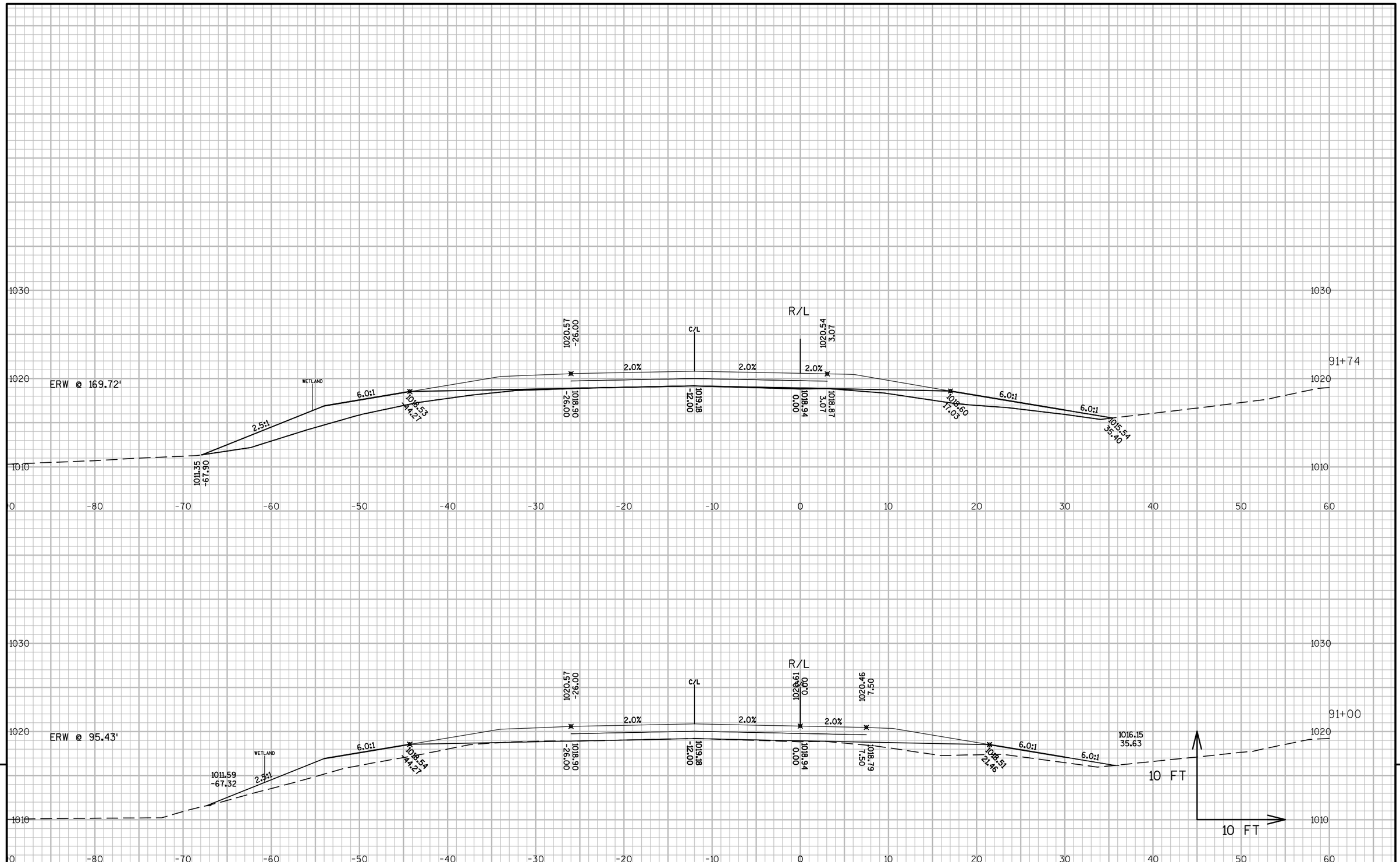
9

PROJECT NO:1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: . STH 29	SHEET 143	E

FILE NAME : N:\PDS\C3D\10582170\DESIGN\XSECTIONS\090101_XS.DWG
LAYOUT NAME - 090203- XS ML

PLOT DATE : 12/17/2015 11:25 AM PLOT BY : HETH, BARBARA L PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



9

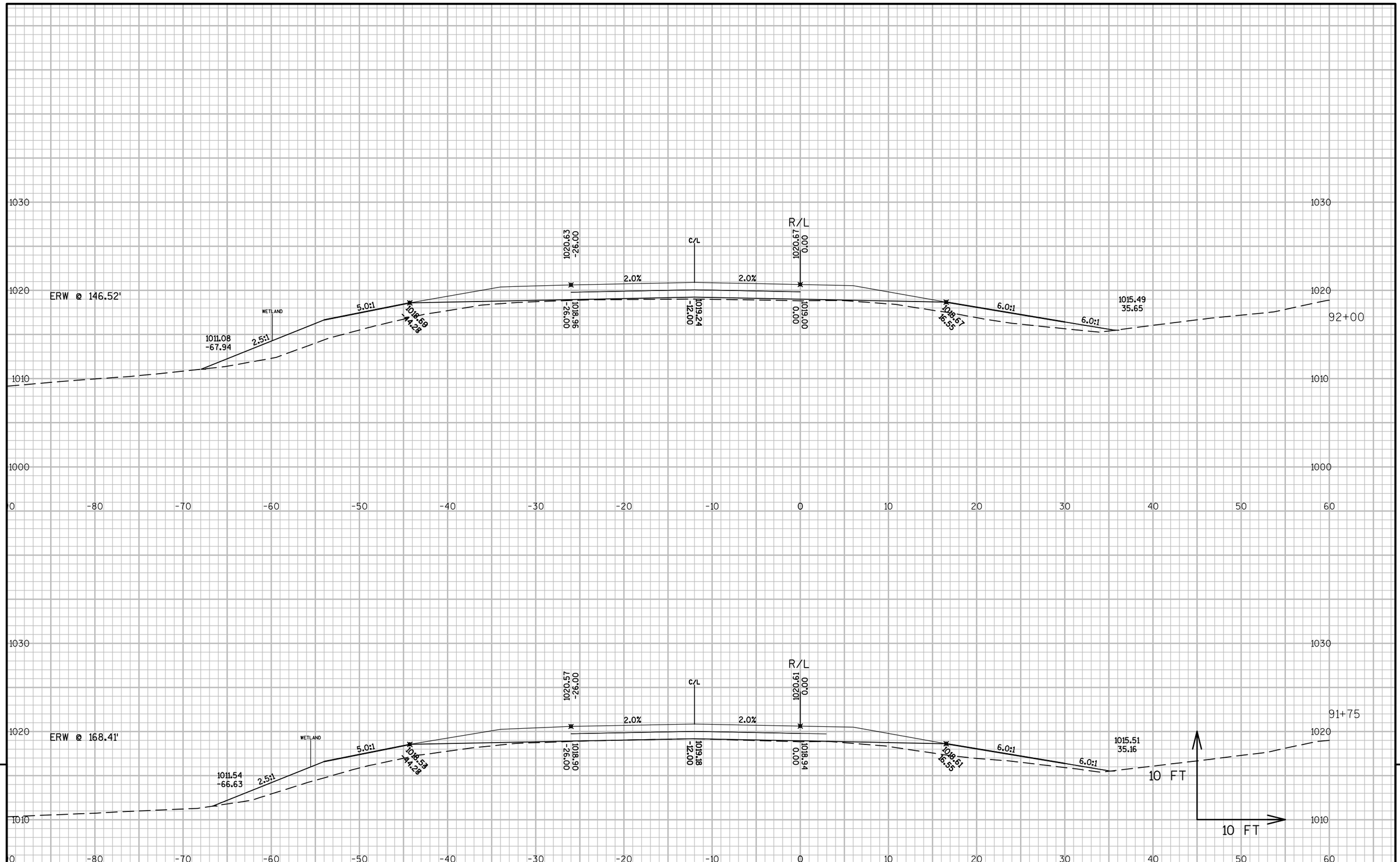
9

PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: . STH 29	SHEET 144	E

FILE NAME : N:\PDS\C3D\10582170\DESIGN\XSECTIONS\090101_XS.DWG
LAYOUT NAME - 090204- XS ML

PLOT DATE : 12/17/2015 11:25 AM PLOT BY : HETH, BARBARA L PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: . STH 29	SHEET 145	E

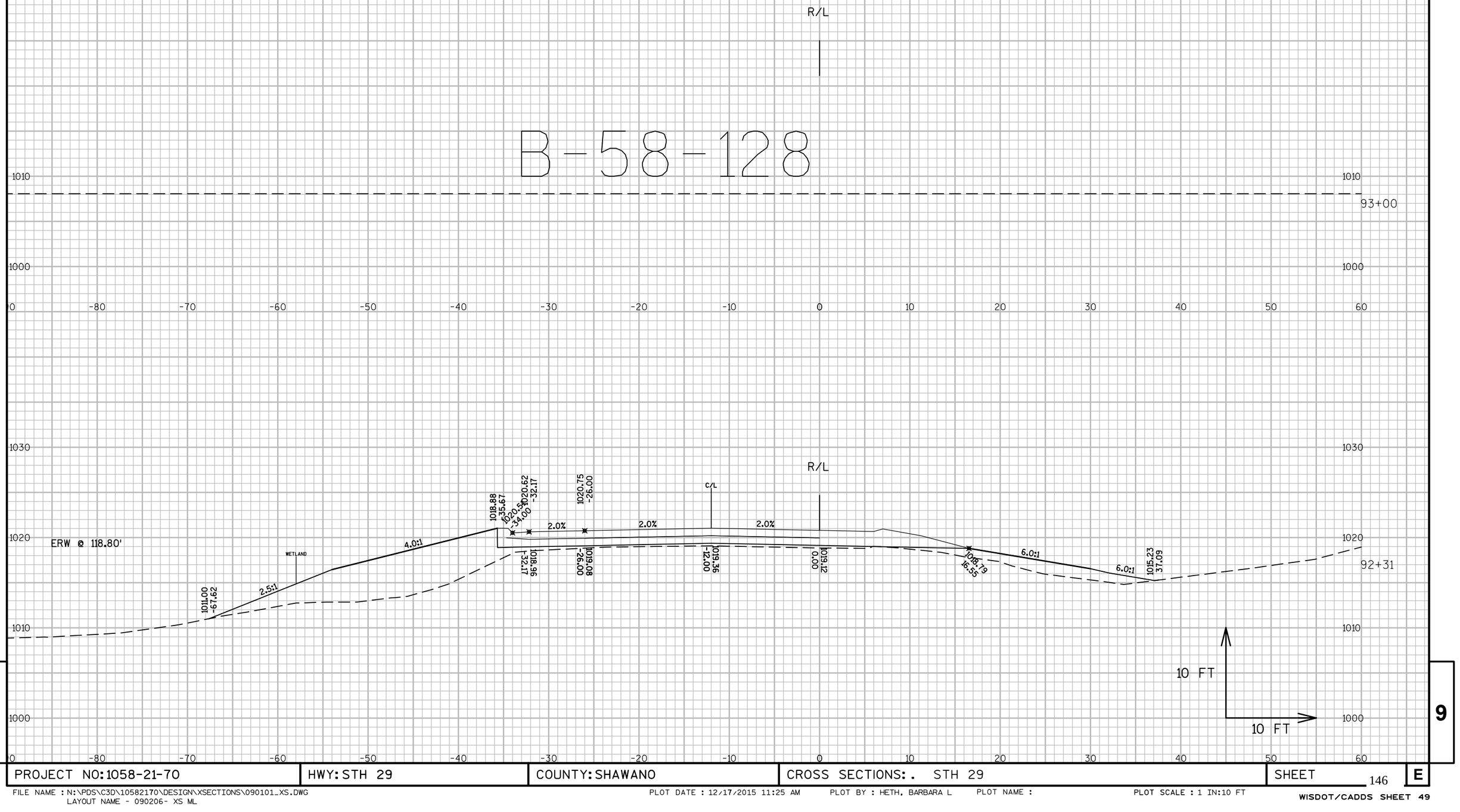
FILE NAME : N:\PDS\C3D\10582170\DESIGN\XSECTIONS\090101_XS.DWG
LAYOUT NAME - 090205- XS ML

PLOT DATE : 12/17/2015 11:25 AM PLOT BY : HETH, BARBARA L PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49

ERW = EXISTING RIGHT OF WAY

B-58-128



9

9

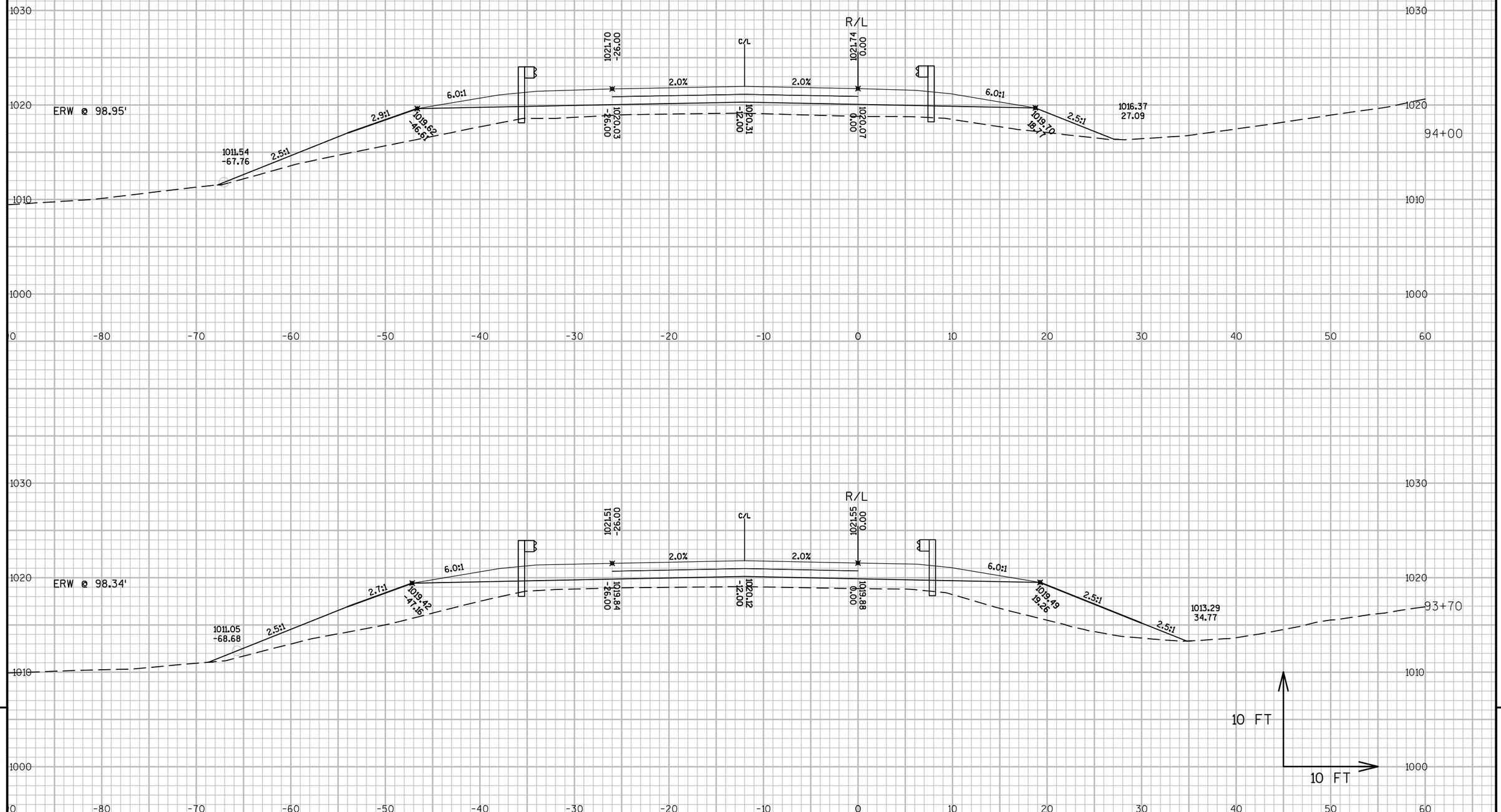
PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: . STH 29	SHEET 146	E

FILE NAME : N:\PDS\C3D\10582170\DESIGN\XSECTIONS\090101_XS.DWG
LAYOUT NAME - 090206- XS ML

PLOT DATE : 12/17/2015 11:25 AM PLOT BY : HETH, BARBARA L PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49

ERW = EXISTING RIGHT OF WAY



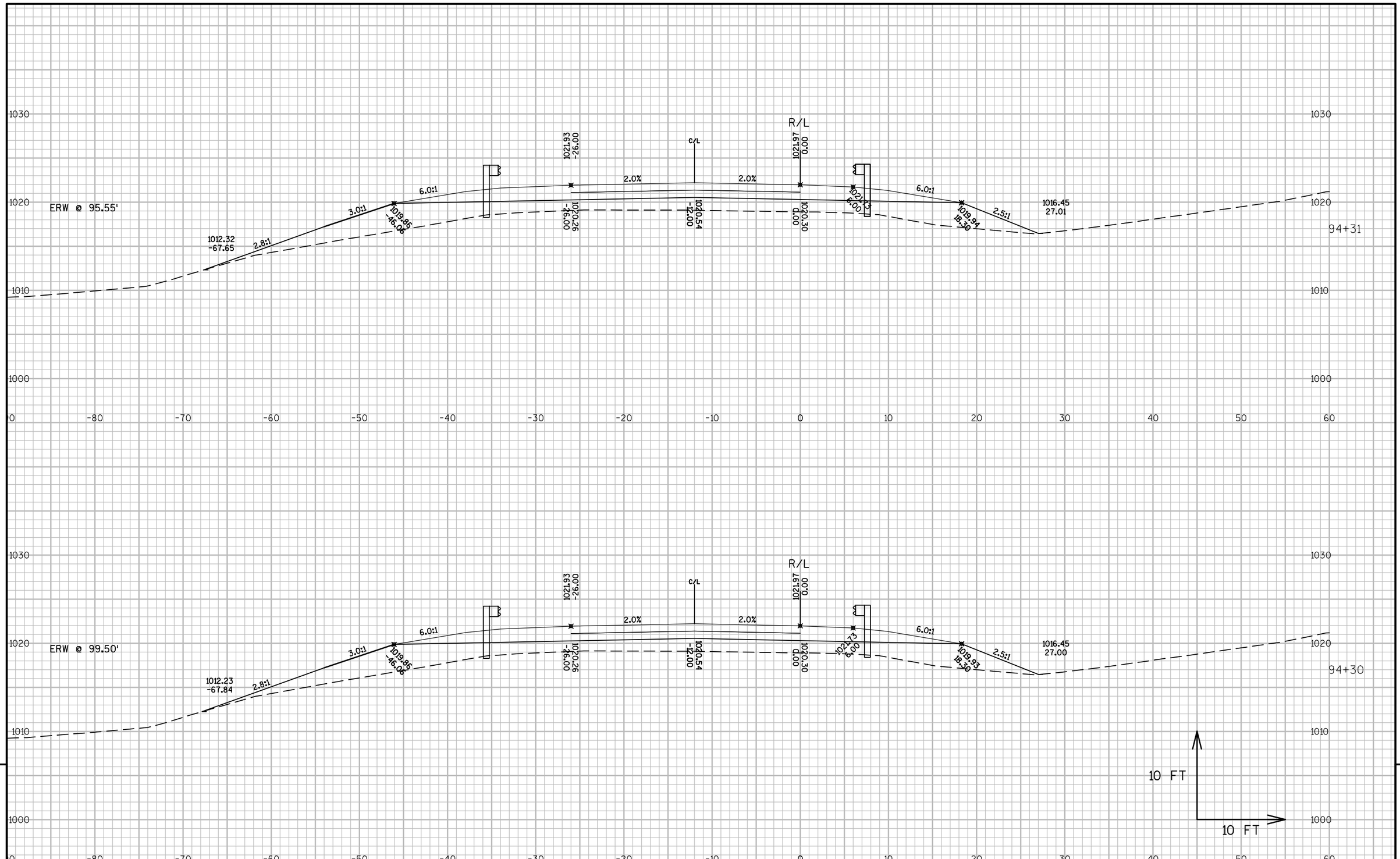
9 9

PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: . STH 29	SHEET 147 E

FILE NAME : N:\PDS\C3D\10582170\DESIGN\XSECTIONS\090101_XS.DWG
LAYOUT NAME - 090207- XS ML

PLOT DATE : 12/17/2015 11:25 AM PLOT BY : HETH, BARBARA L PLOT NAME : PLOT SCALE : 1 IN:10 FT

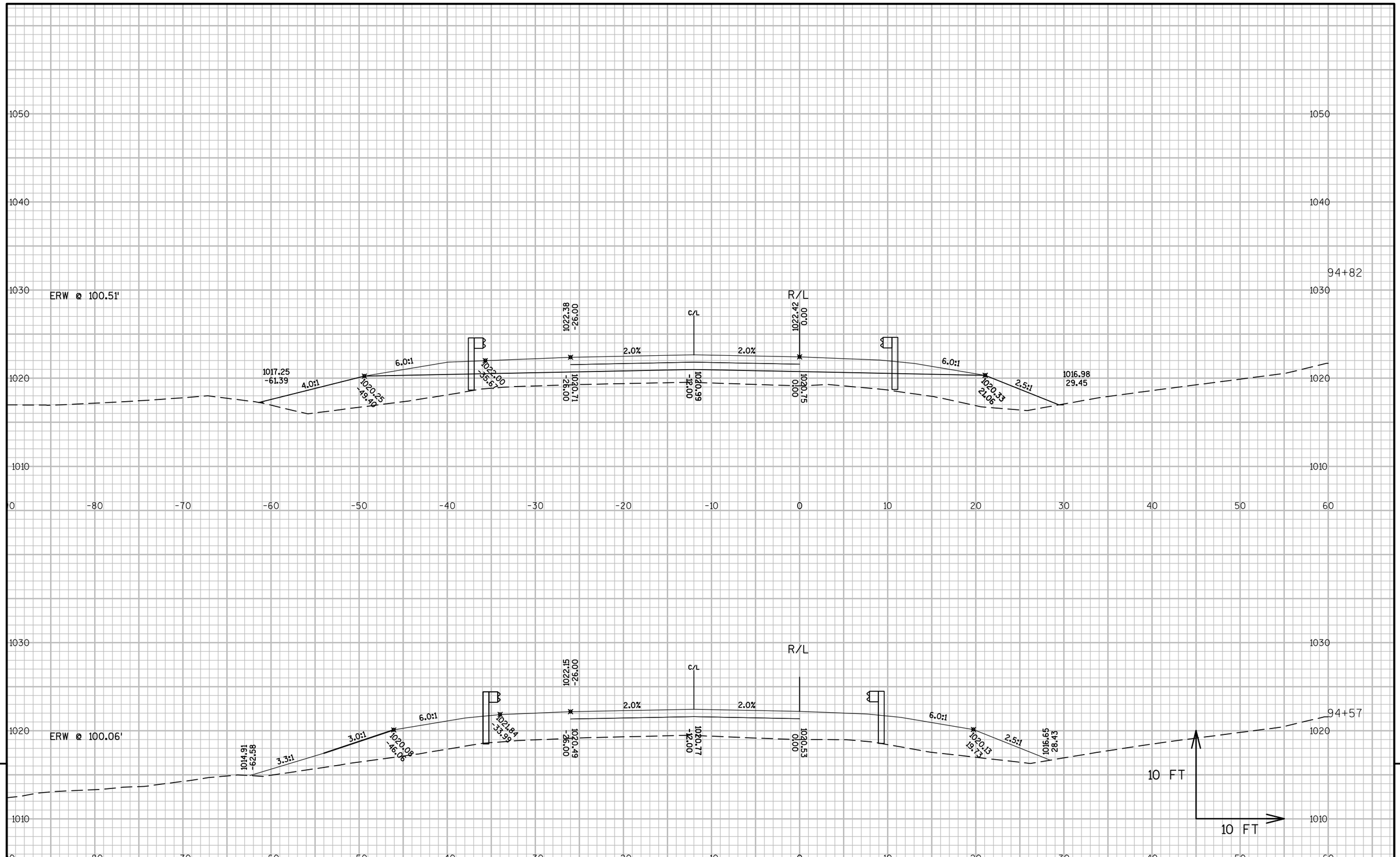
WISDOT/CADDS SHEET 49



9	PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: . STH 29	SHEET 148 E

FILE NAME : N:\PDS\C3D\10582170\DESIGN\XSECTIONS\090101_XS.DWG
LAYOUT NAME - 090208- XS ML

PLOT DATE : 12/17/2015 11:25 AM PLOT BY : HETH, BARBARA L PLOT NAME : PLOT SCALE : 1 IN:10 FT

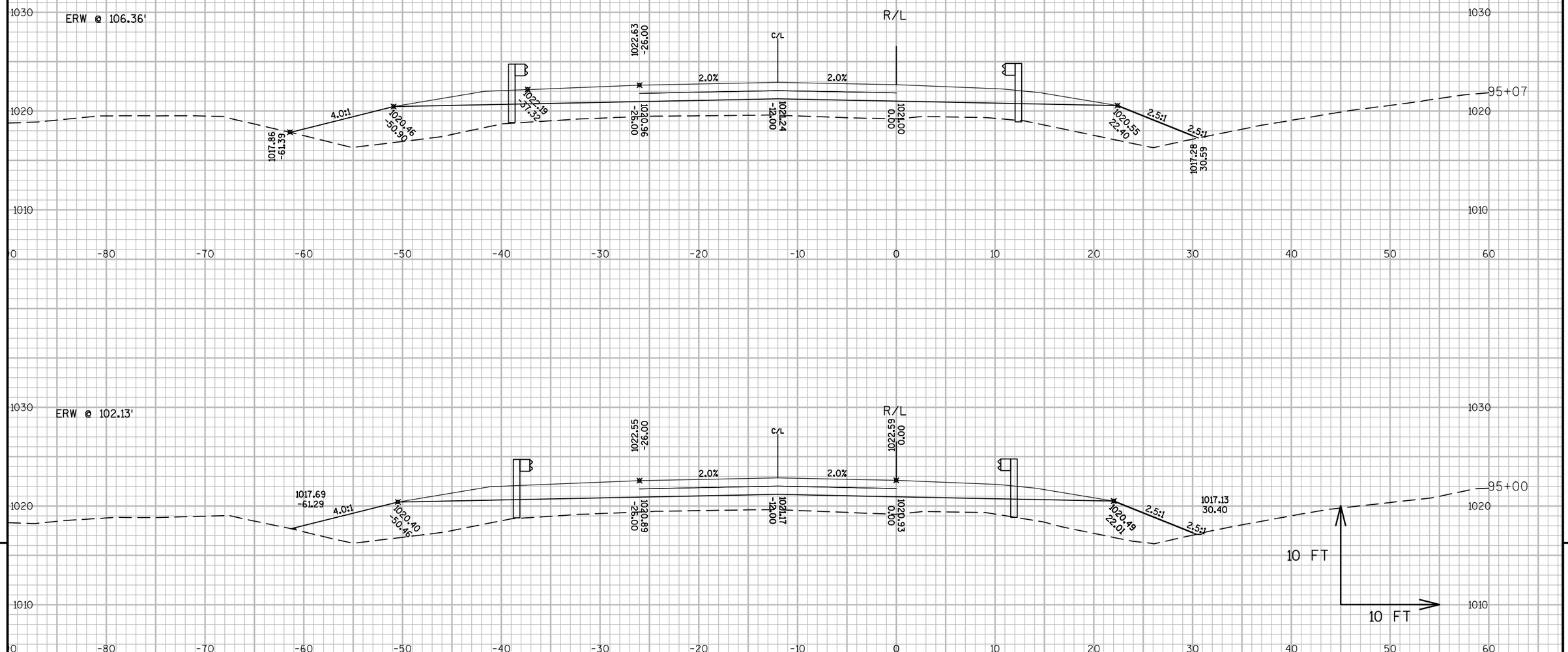


PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: . STH 29	SHEET 149 E

FILE NAME : N:\PDS\C3D\10582170\DESIGN\XSECTIONS\090101_XS.DWG
LAYOUT NAME - 090209- XS ML

PLOT DATE : 2/15/2016 1:10 PM PLOT BY : HETH, BARBARA L PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49

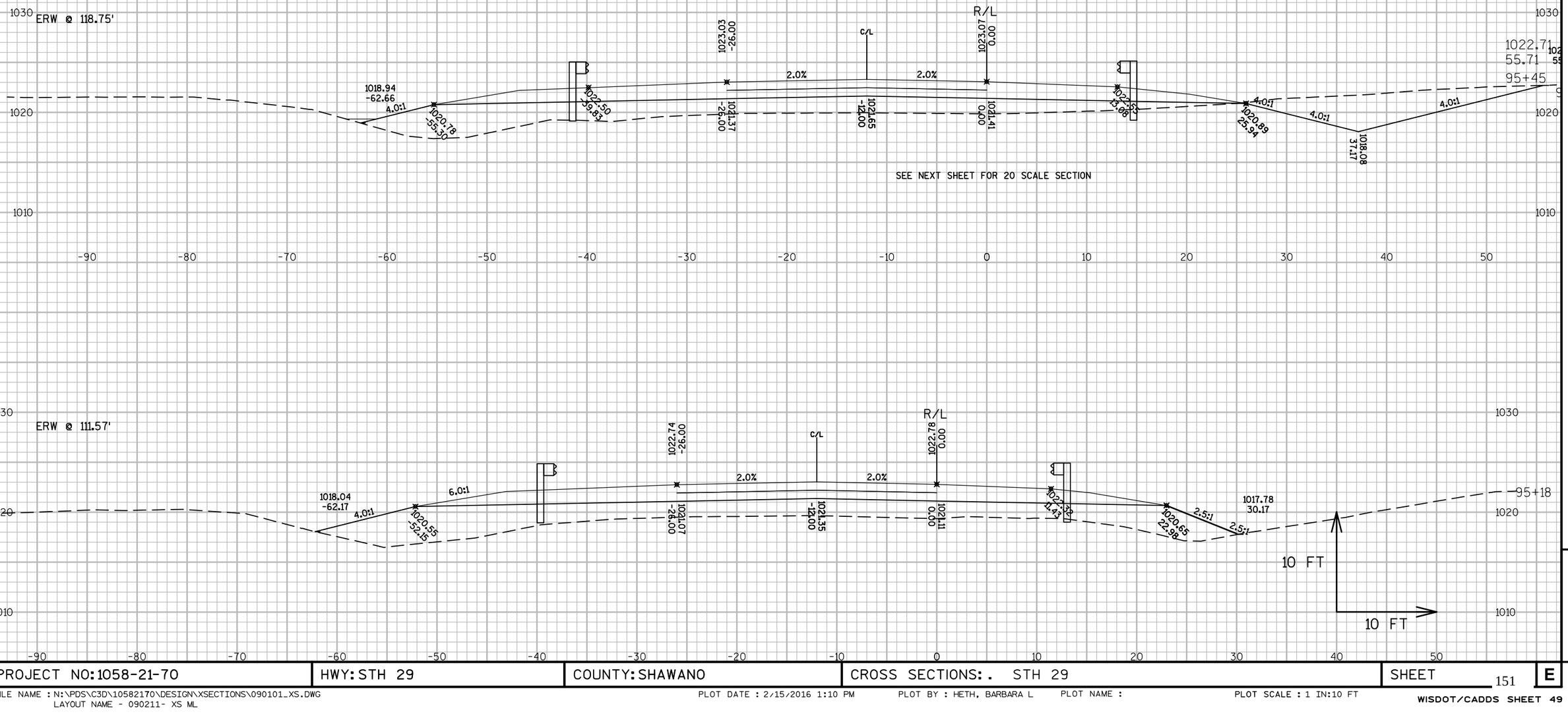


PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: . STH 29	SHEET 150 E

FILE NAME : N:\PDS\C3D\10582170\DESIGN\XSECTIONS\090101_XS.DWG
LAYOUT NAME - 090210- XS ML

PLOT DATE : 2/15/2016 1:10 PM PLOT BY : HETH, BARBARA L PLOT NAME : PLOT SCALE : 1 IN:10 FT

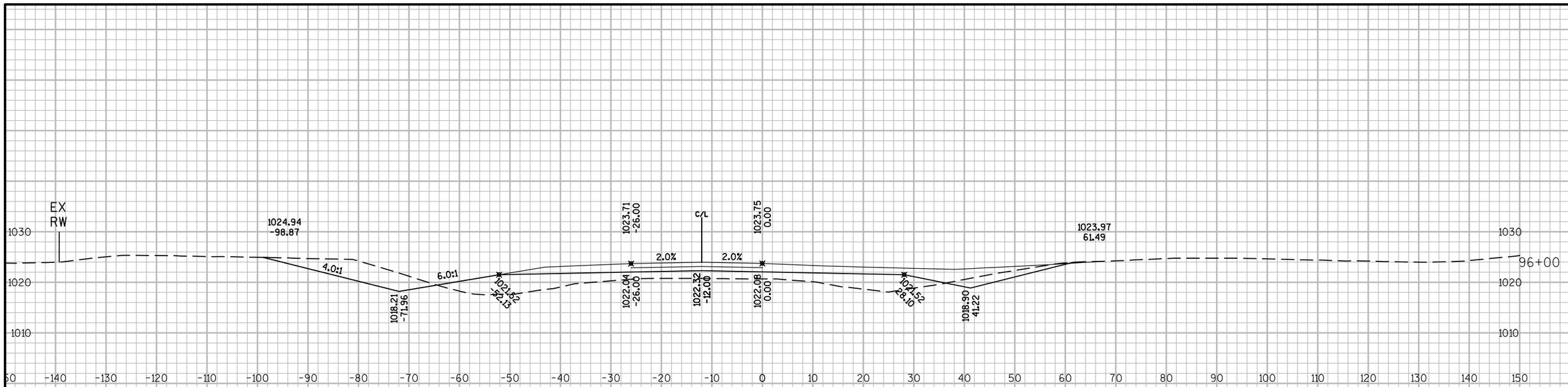
WISDOT/CADDS SHEET 49

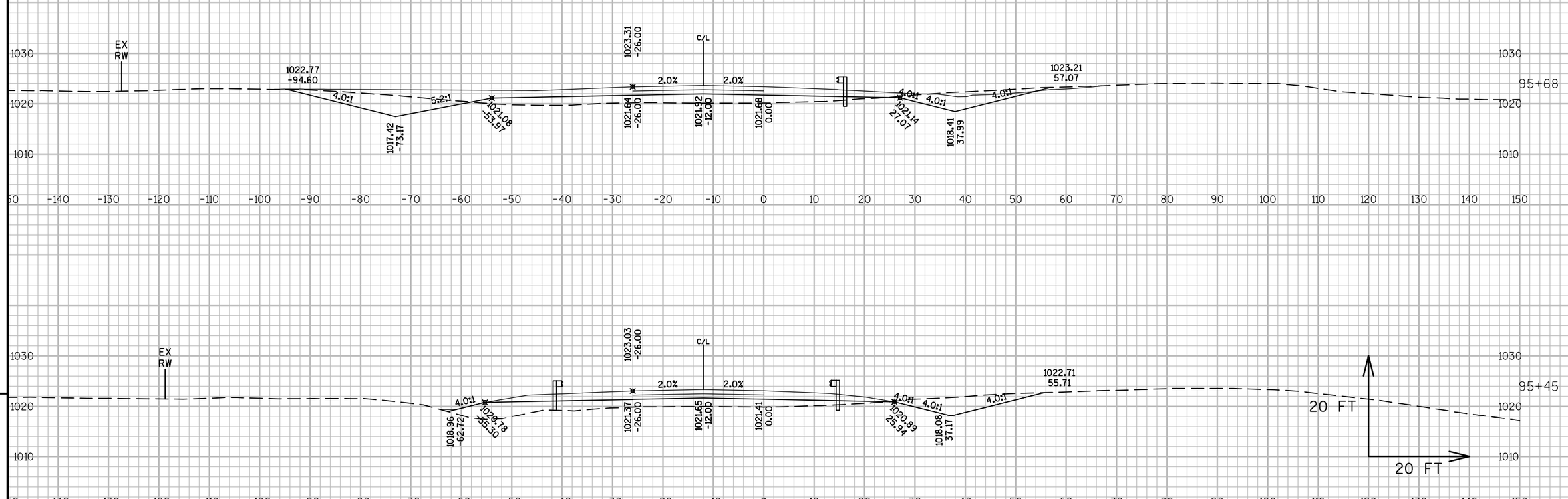


9

9

PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: . STH 29	SHEET 151	E





9

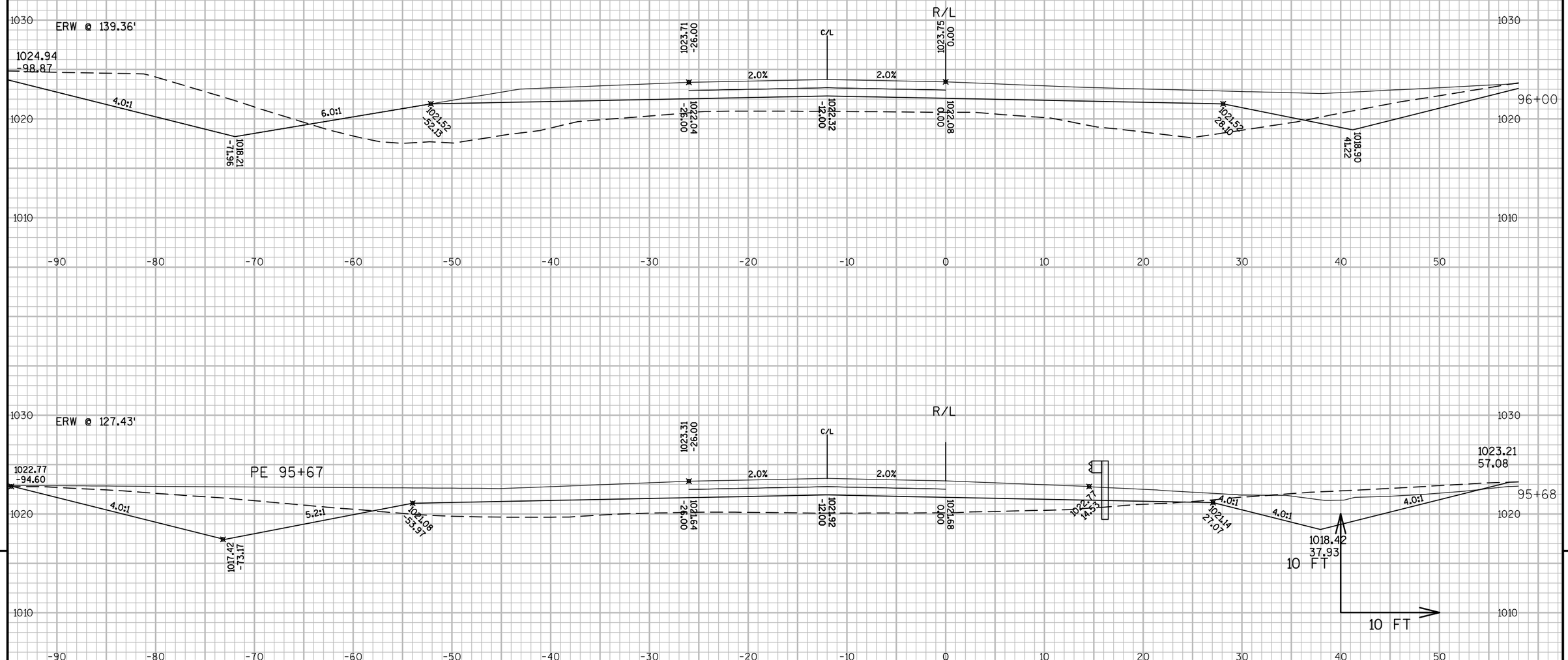
9

PROJECT NO: 1580-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: 95+45 TO 96+00 20 SCALE	SHEET 152	E

FILE NAME : N:\PDS\C3D\10582170\DESIGN\XSECTIONS\090101_XS - 20 SCALE.DWG
LAYOUT NAME - SECTION SHEET - (1)

PLOT DATE : 2/15/2016 1:21 PM PLOT BY : HETH, BARBARA L PLOT NAME : PLOT SCALE : 1 IN:20 FT

WISDOT/CADDS SHEET 49



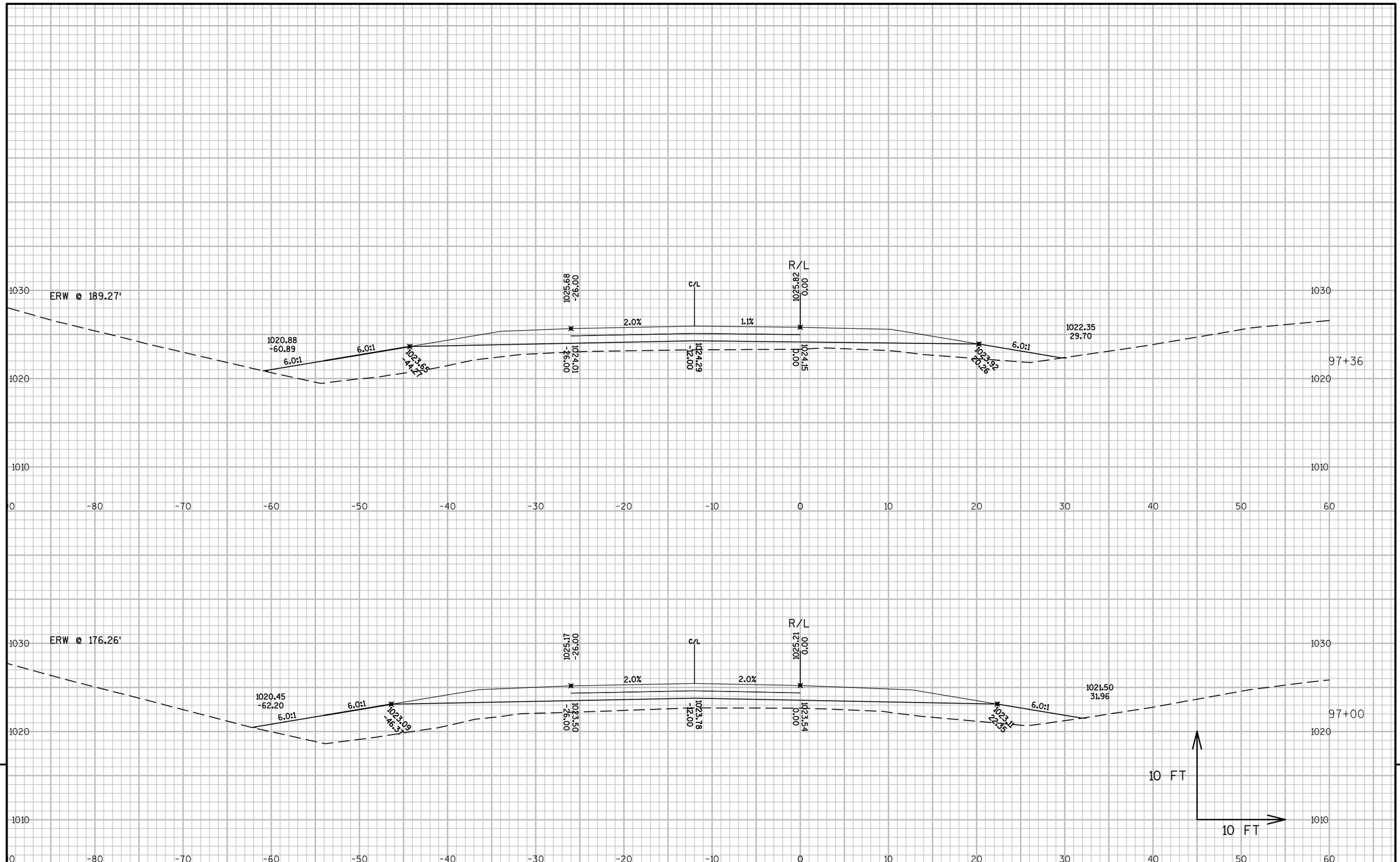
9

9

PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: . STH 29	SHEET 153	E

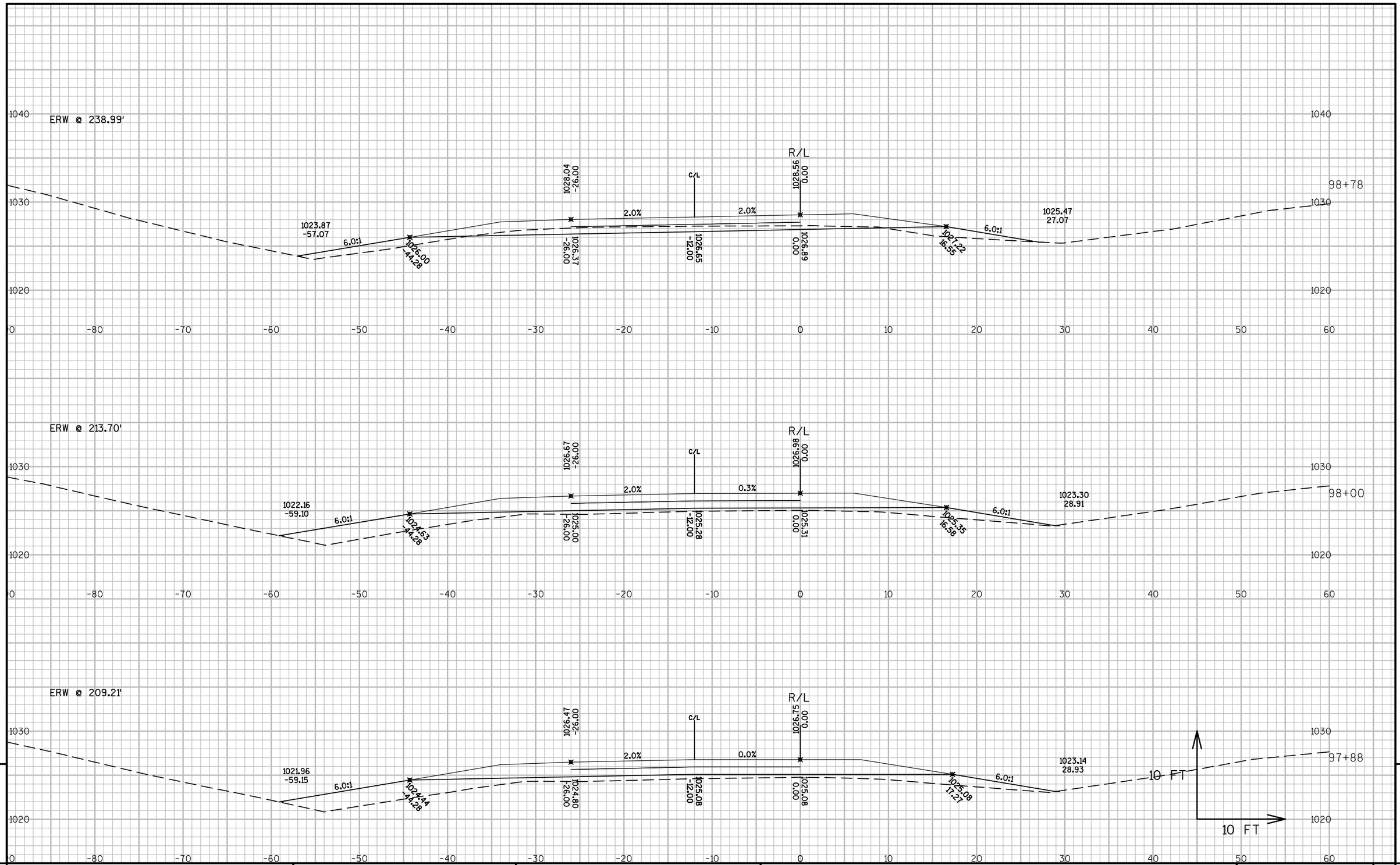
FILE NAME : N:\PDS\C3D\10582170\DESIGN\XSECTIONS\090101_XS.DWG
LAYOUT NAME - 090212- XS ML

PLOT DATE : 2/15/2016 1:10 PM PLOT BY : HETH, BARBARA L PLOT NAME : PLOT SCALE : 1 IN:10 FT



PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: . STH 29	SHEET 154 E

FILE NAME : N:\PDS\C3D\10582170\DESIGN\XSECTIONS\090101_XS.DWG
LAYOUT NAME - 090213- XS ML
PLOT DATE : 2/15/2016 1:10 PM PLOT BY : HETH, BARBARA L PLOT NAME : PLOT SCALE : 1 IN:10 FT
WISDOT/CADDS SHEET 49

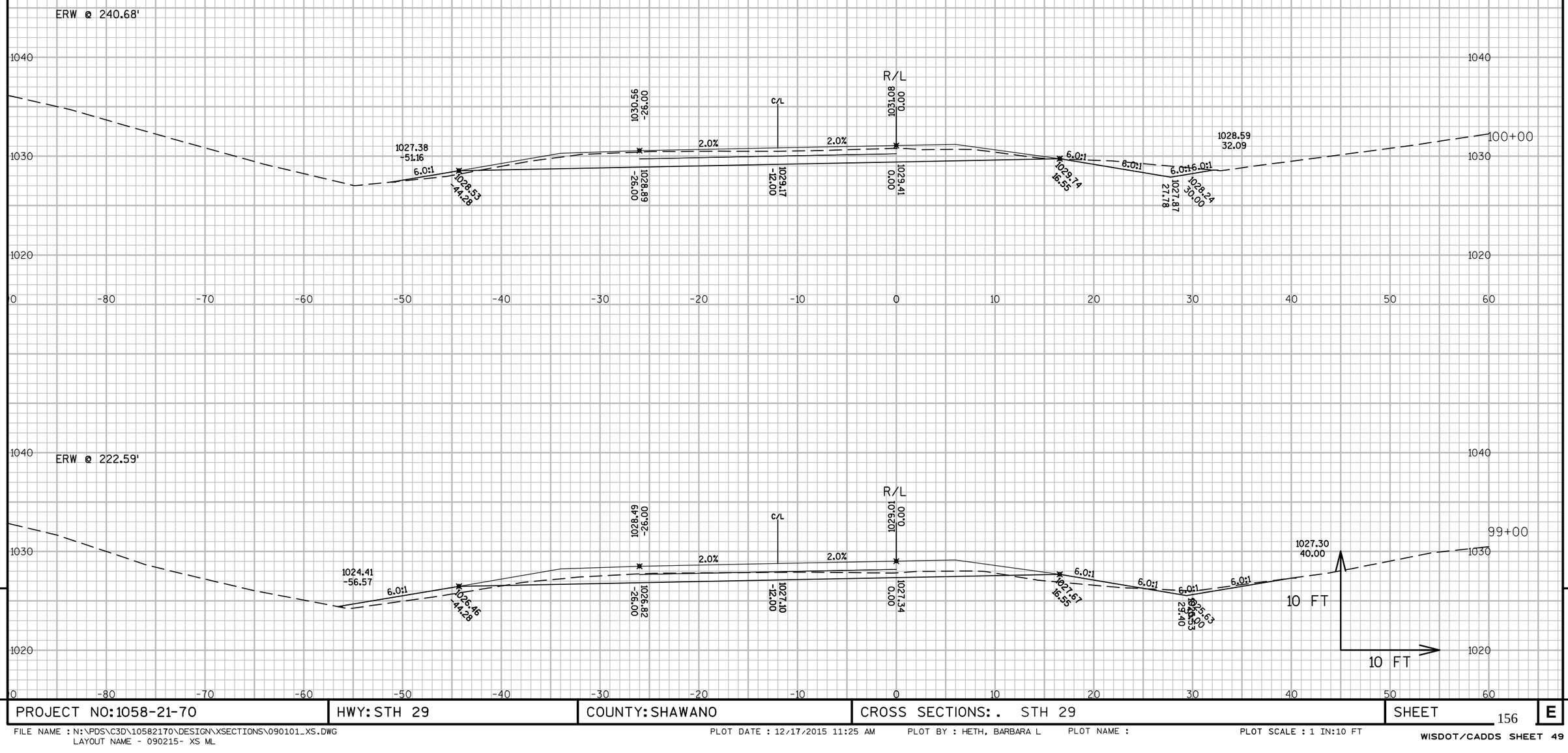


9

9

PROJECT NO:1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: . STH 29	SHEET 155	E

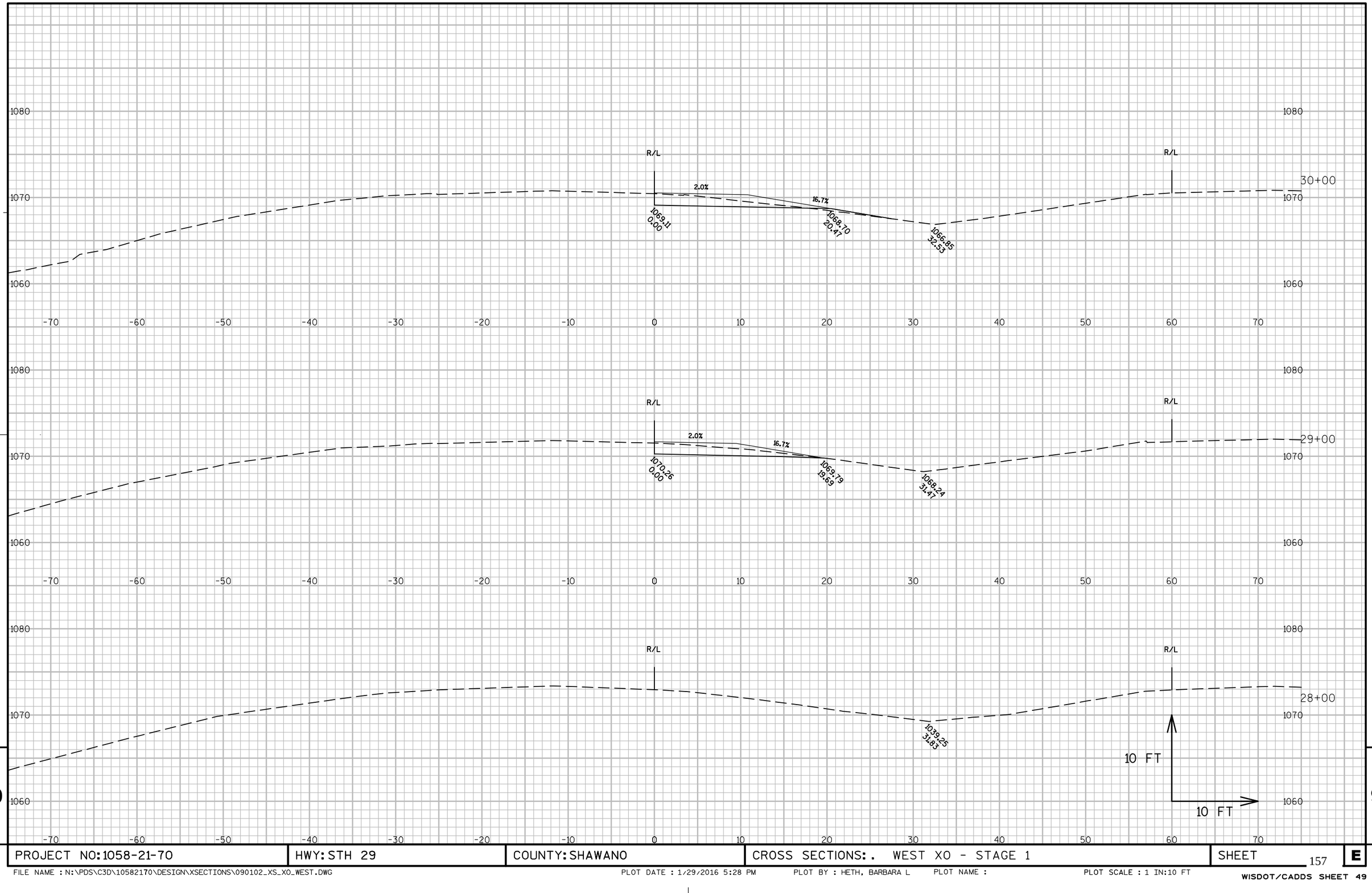
MATCH 100+75



9

9

PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: . STH 29	SHEET 156	E



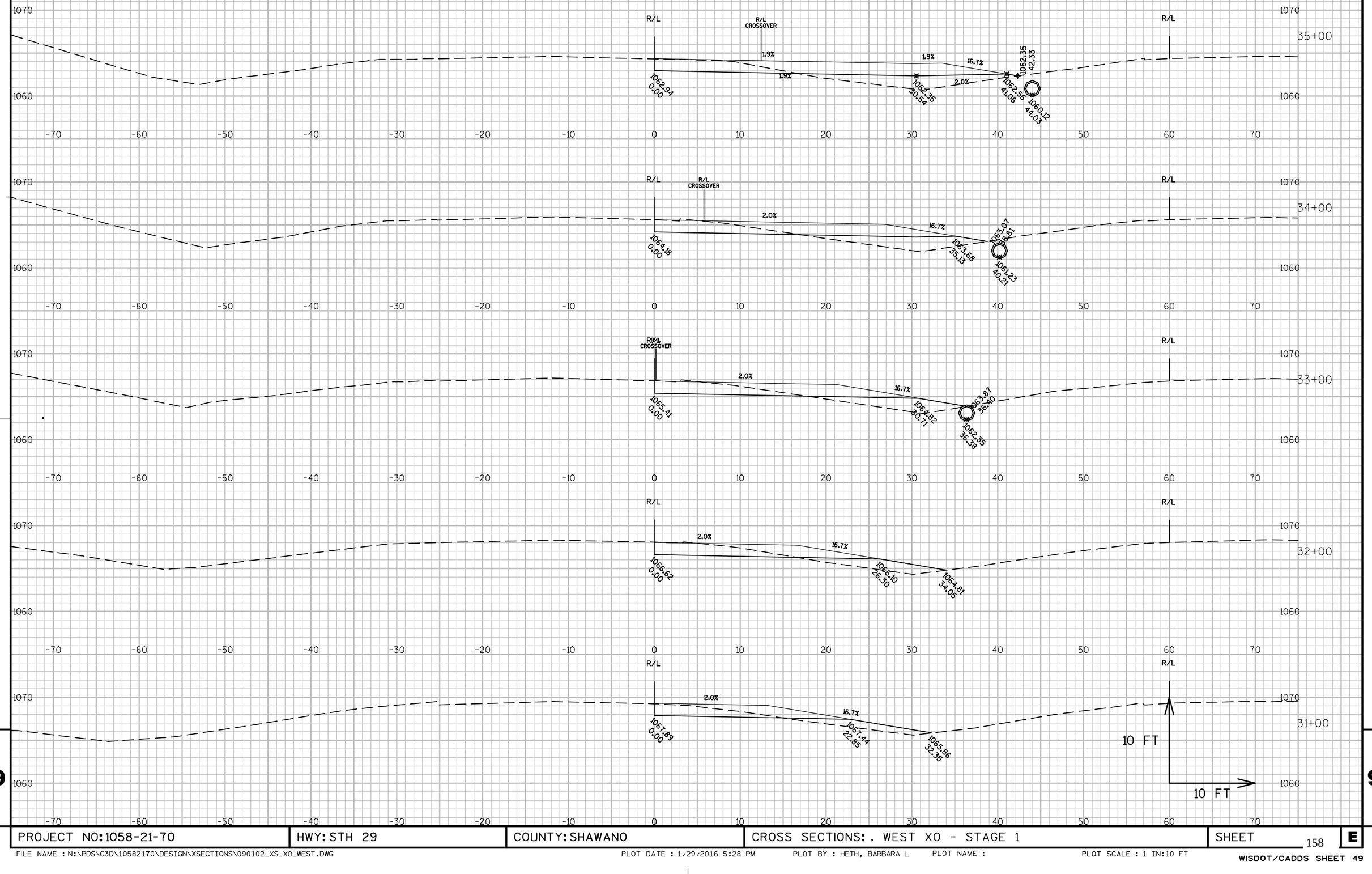
9

9

PROJECT NO:1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: . WEST XO - STAGE 1	SHEET 157	E

FILE NAME : N:\PDS\C3D\10582170\DESIGN\XSECTIONS\090102_XS_XO_WEST.DWG PLOT DATE : 1/29/2016 5:28 PM PLOT BY : HETH, BARBARA L PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



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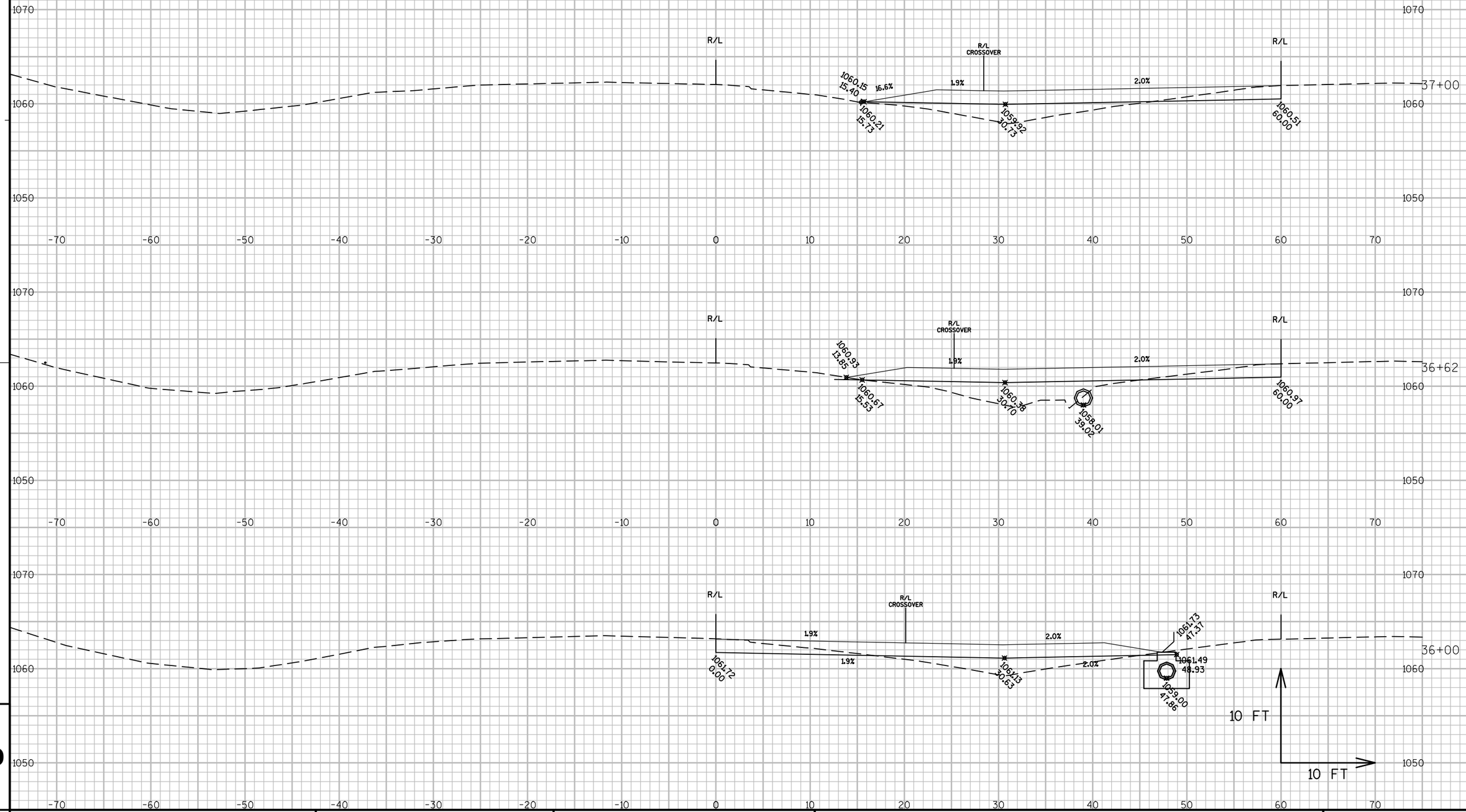
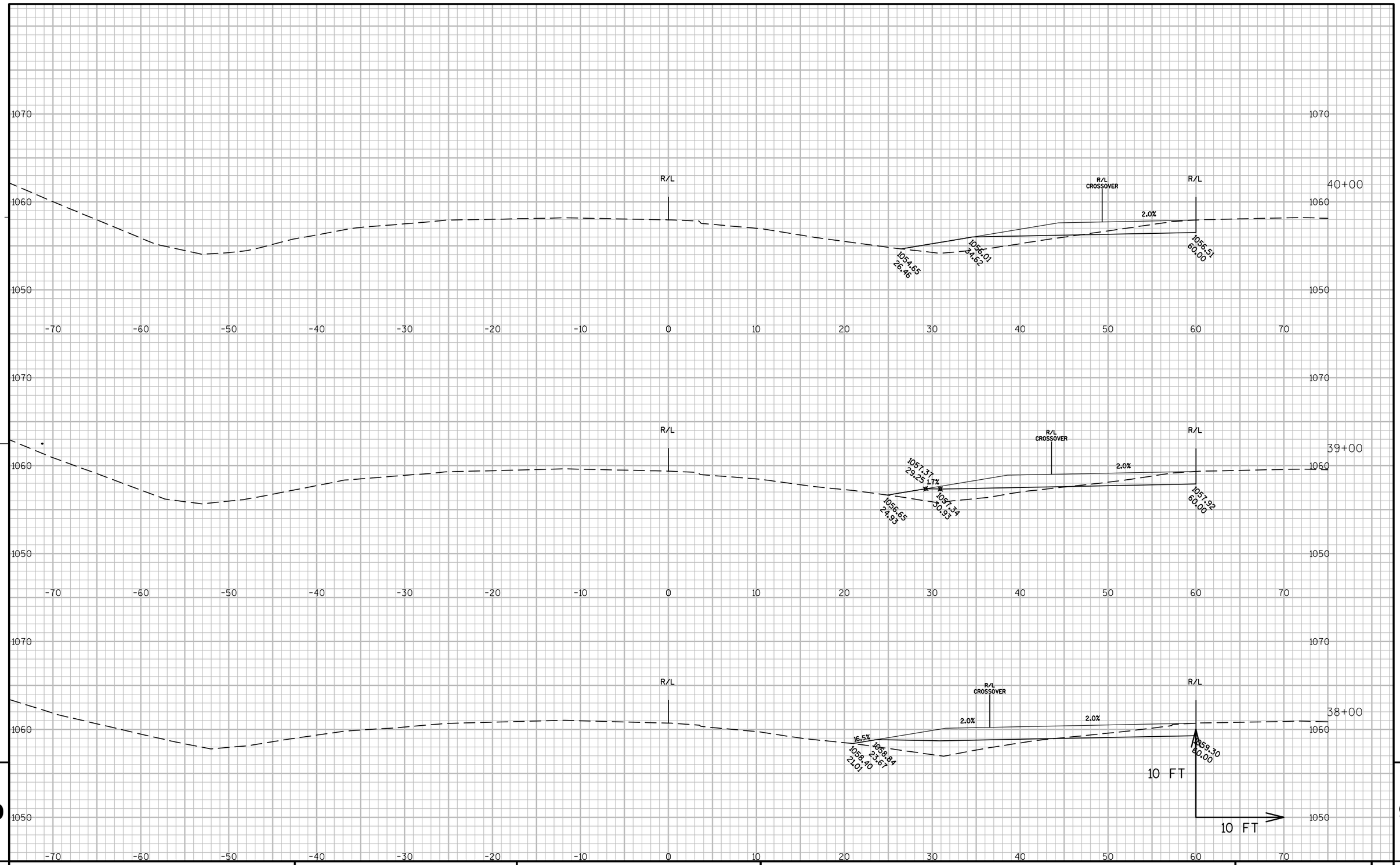
PROJECT NO:1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: . WEST XO - STAGE 1	SHEET 158	E



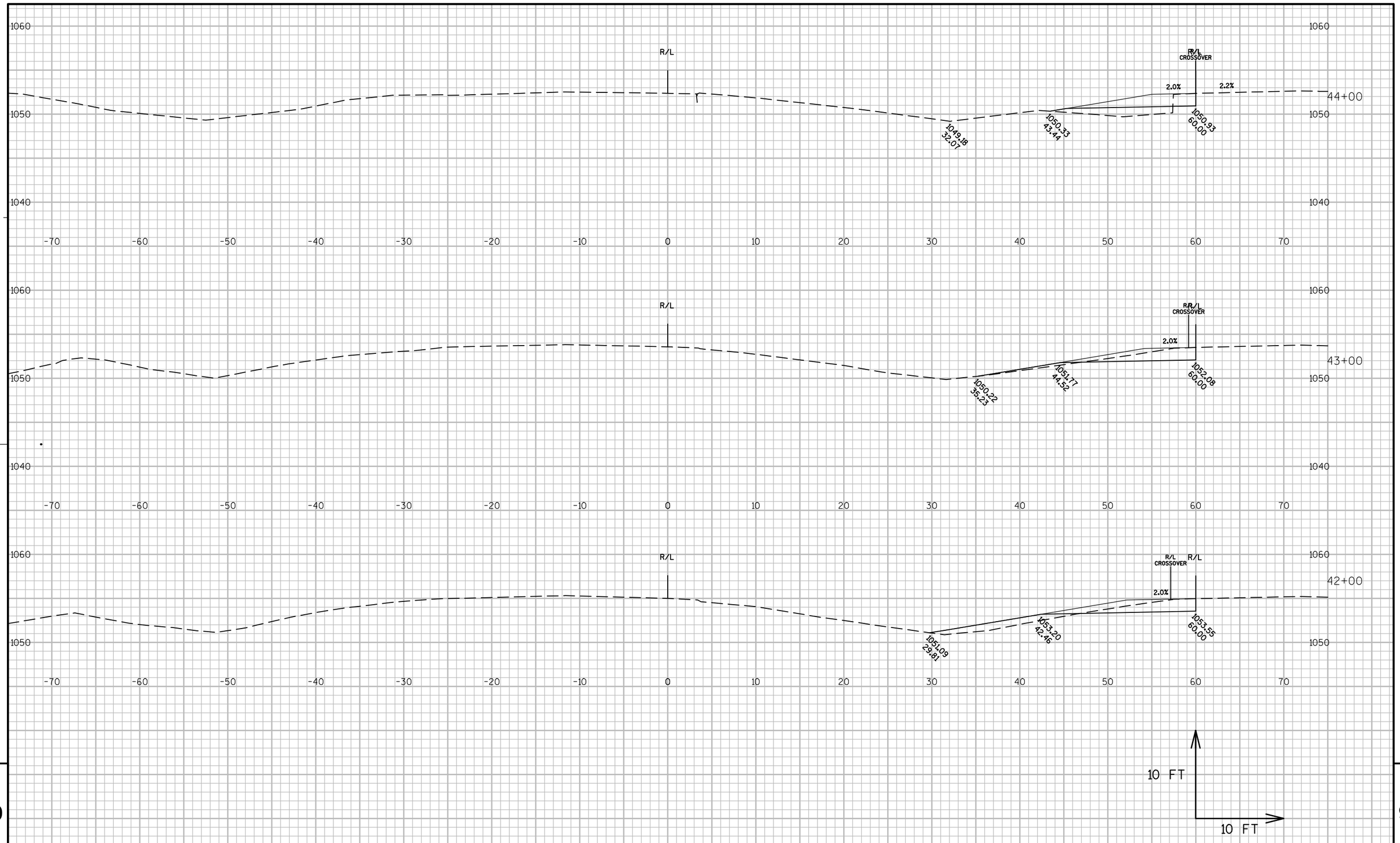
PROJECT NO:1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: . WEST XO - STAGE 1	SHEET 159	E

FILE NAME : N:\PDS\C3D\10582170\DESIGN\XSECTIONS\090102_XS_XO_WEST.DWG PLOT DATE : 1/29/2016 5:29 PM PLOT BY : HETH, BARBARA L PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



PROJECT NO:1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: . WEST XO - STAGE 1	SHEET 160	E



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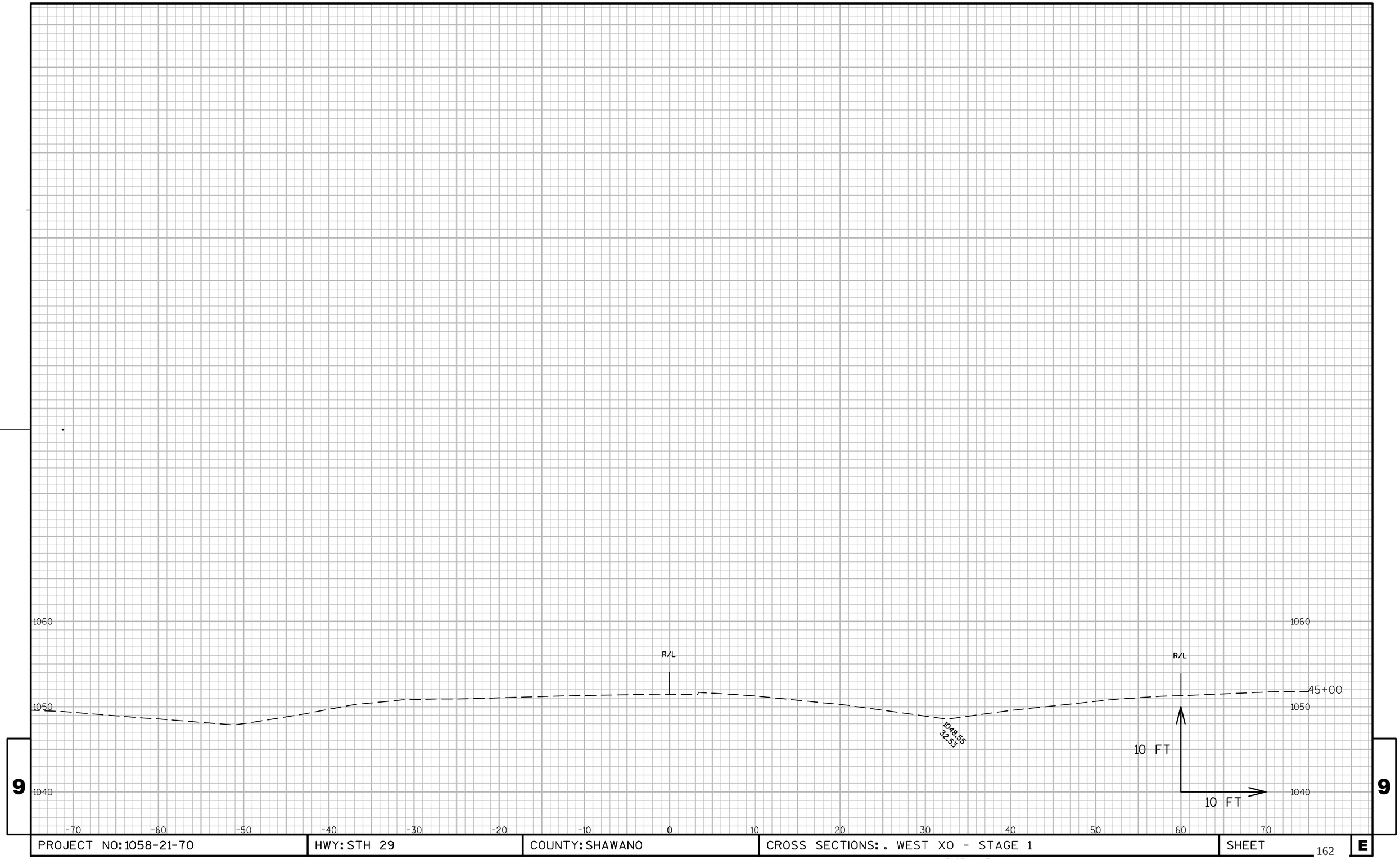
PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: . WEST XO - STAGE 1	SHEET 161	E

FILE NAME : N:\PDS\C3D\10582170\DESIGN\XSECTIONS\090102_XS_XO_WEST.DWG PLOT DATE : 1/29/2016 5:29 PM PLOT BY : HETH, BARBARA L PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



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PROJECT NO:1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: . WEST XO - STAGE 1	SHEET 162	E

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PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: EAST XO - STAGE 1	SHEET 163	E

FILE NAME : N:\PDS\C3D\10582170\DESIGN\XSECTIONS\090103_XS_XO_EAST_CORRIDOR.DWG
LAYOUT NAME - 090301 EAST XO

PLOT DATE : 1/28/2016 2:30 PM PLOT BY : HETH, BARBARA L PLOT NAME : PLOT SCALE : 1 IN:10 FT

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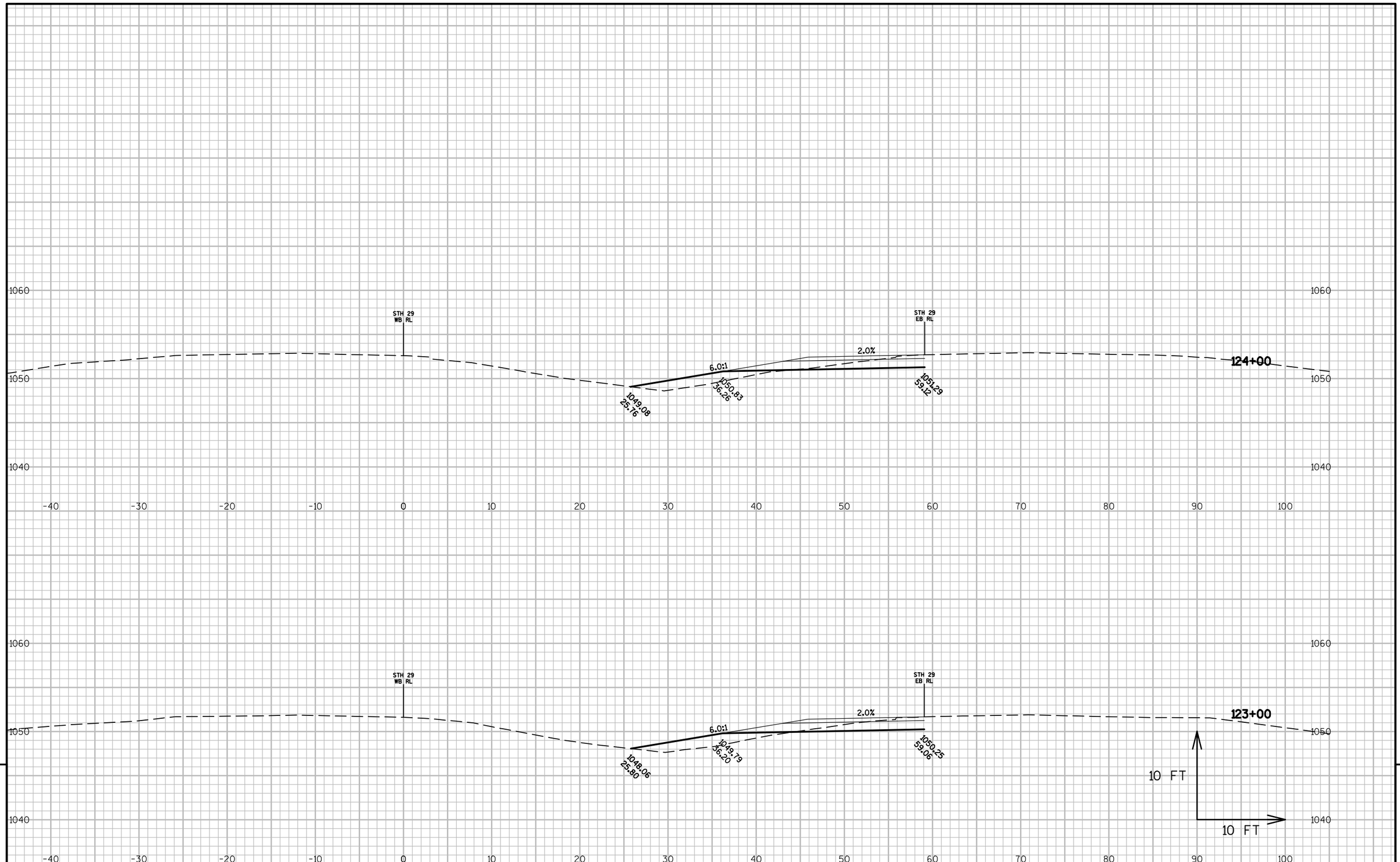
PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: EAST XO - STAGE 1	SHEET 164	E

FILE NAME : N:\PDS\C3D\10582170\DESIGN\XSECTIONS\090103_XS_XO_EAST_CORRIDOR.DWG
LAYOUT NAME - 090302 EAST XO

PLOT DATE : 1/28/2016 2:31 PM PLOT BY : HETH, BARBARA L PLOT NAME : PLOT SCALE : 1 IN:10 FT



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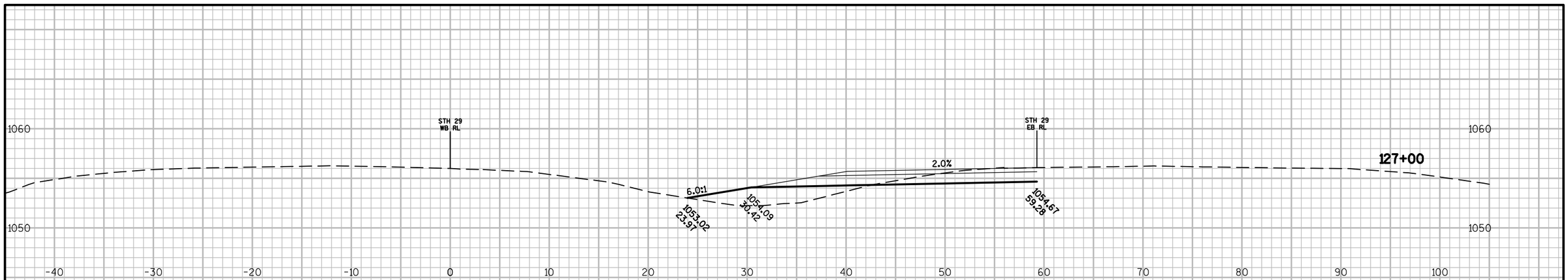
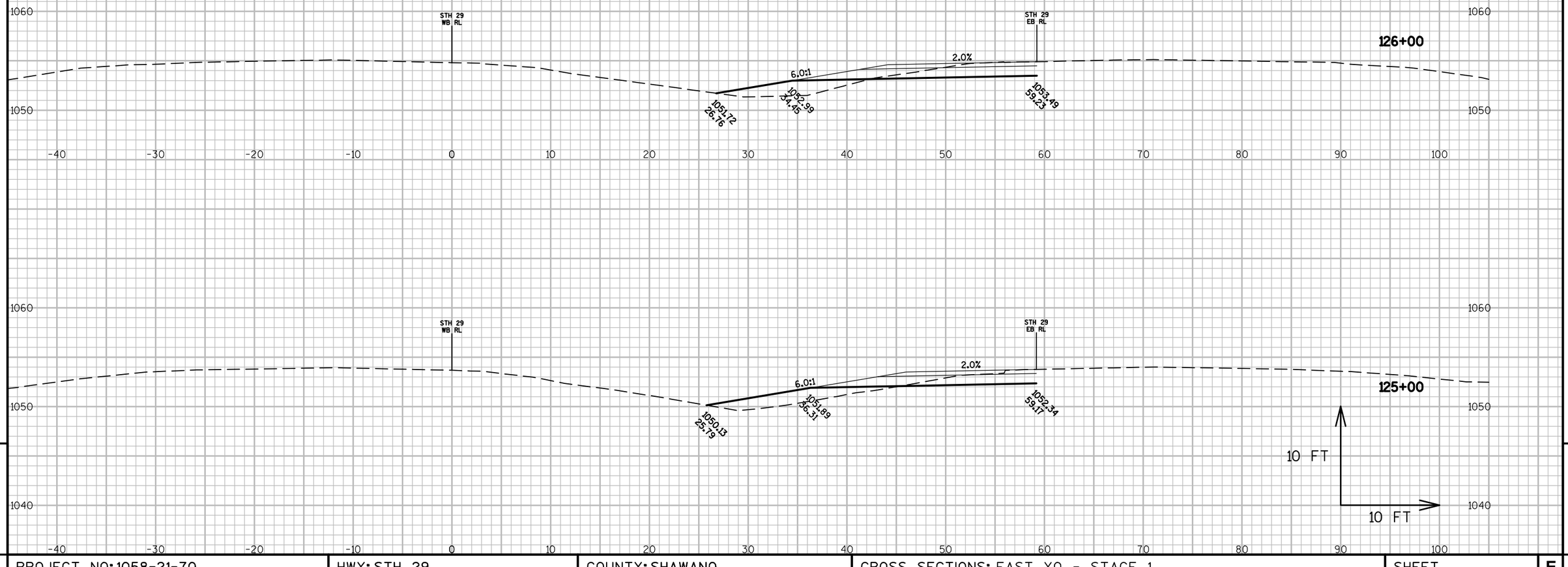
PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: EAST XO - STAGE 1	SHEET 165	E

FILE NAME : N:\PDS\C3D\10582170\DESIGN\XSECTIONS\090103_XS_XO_EAST_CORRIDOR.DWG
LAYOUT NAME - 090303 EAST XO

PLOT DATE : 1/28/2016 2:31 PM PLOT BY : HETH, BARBARA L PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49





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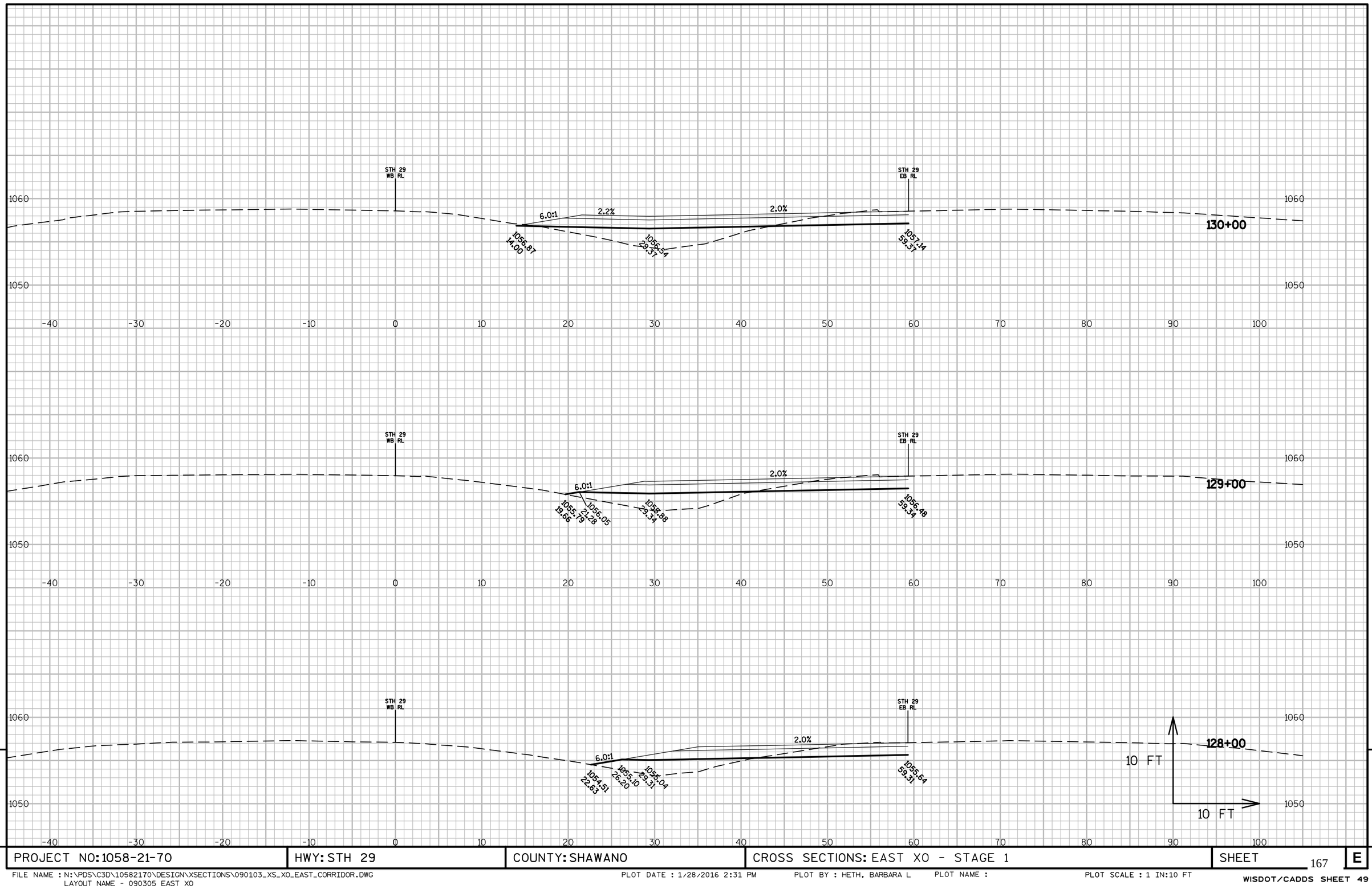
PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: EAST XO - STAGE 1	SHEET	E

FILE NAME : N:\PDS\C3D\10582170\DESIGN\XSECTIONS\090103_XS_XO_EAST_CORRIDOR.DWG
LAYOUT NAME - 090304 EAST XO

PLOT DATE : 1/28/2016 2:31 PM PLOT BY : HETH, BARBARA L PLOT NAME : PLOT SCALE : 1 IN:10 FT



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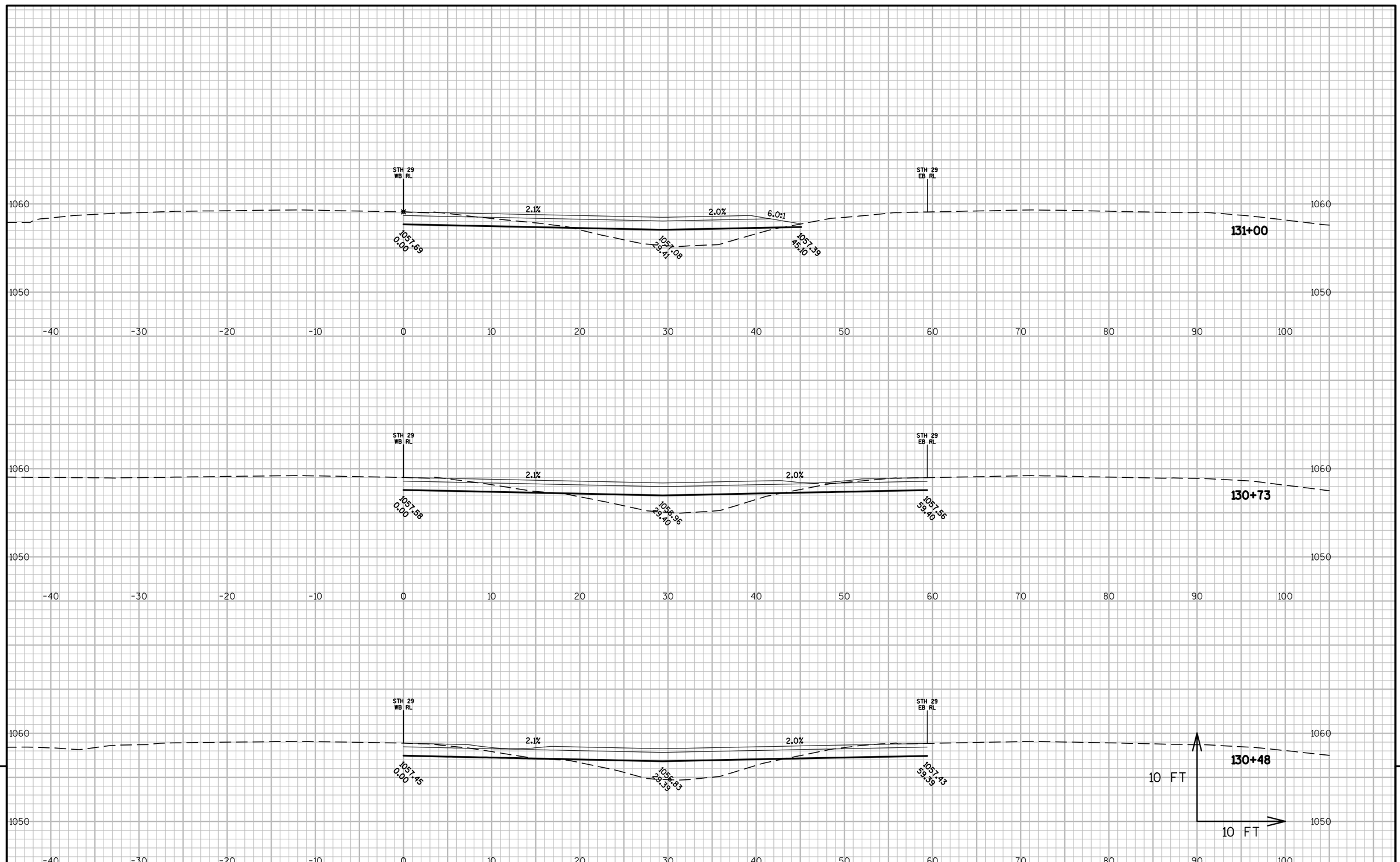
PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: EAST XO - STAGE 1	SHEET 167	E

FILE NAME : N:\PDS\C3D\10582170\DESIGN\XSECTIONS\090103_XS_XO_EAST_CORRIDOR.DWG
LAYOUT NAME - 090305 EAST XO

PLOT DATE : 1/28/2016 2:31 PM PLOT BY : HETH, BARBARA L PLOT NAME : PLOT SCALE : 1 IN:10 FT



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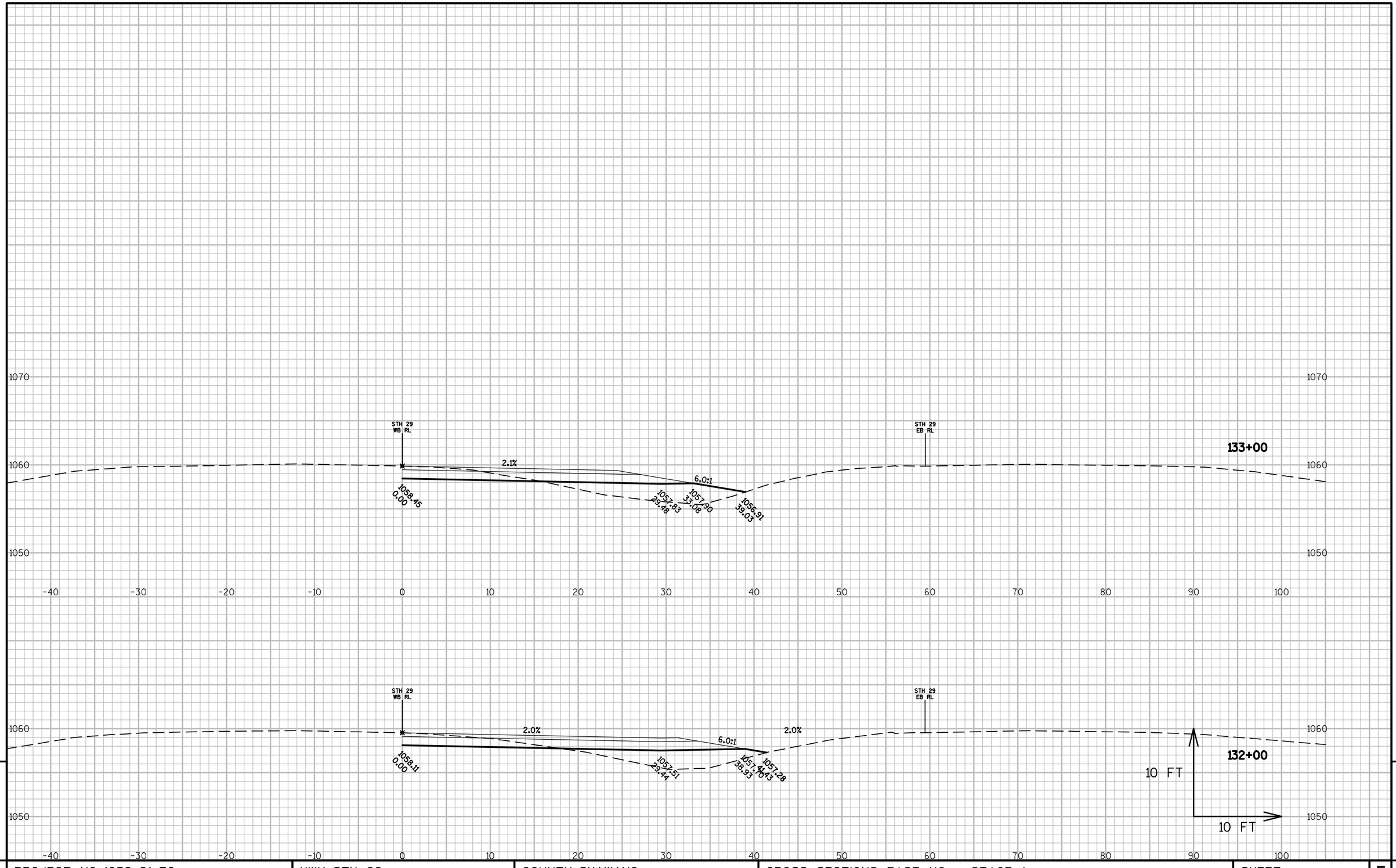
PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: EAST XO - STAGE 1	SHEET 168	E

FILE NAME : N:\PDS\C3D\10582170\DESIGN\XSECTIONS\090103_XS_XO_EAST_CORRIDOR.DWG
LAYOUT NAME - 090306 EAST XO

PLOT DATE : 1/28/2016 2:31 PM PLOT BY : HETH, BARBARA L PLOT NAME : PLOT SCALE : 1 IN:10 FT



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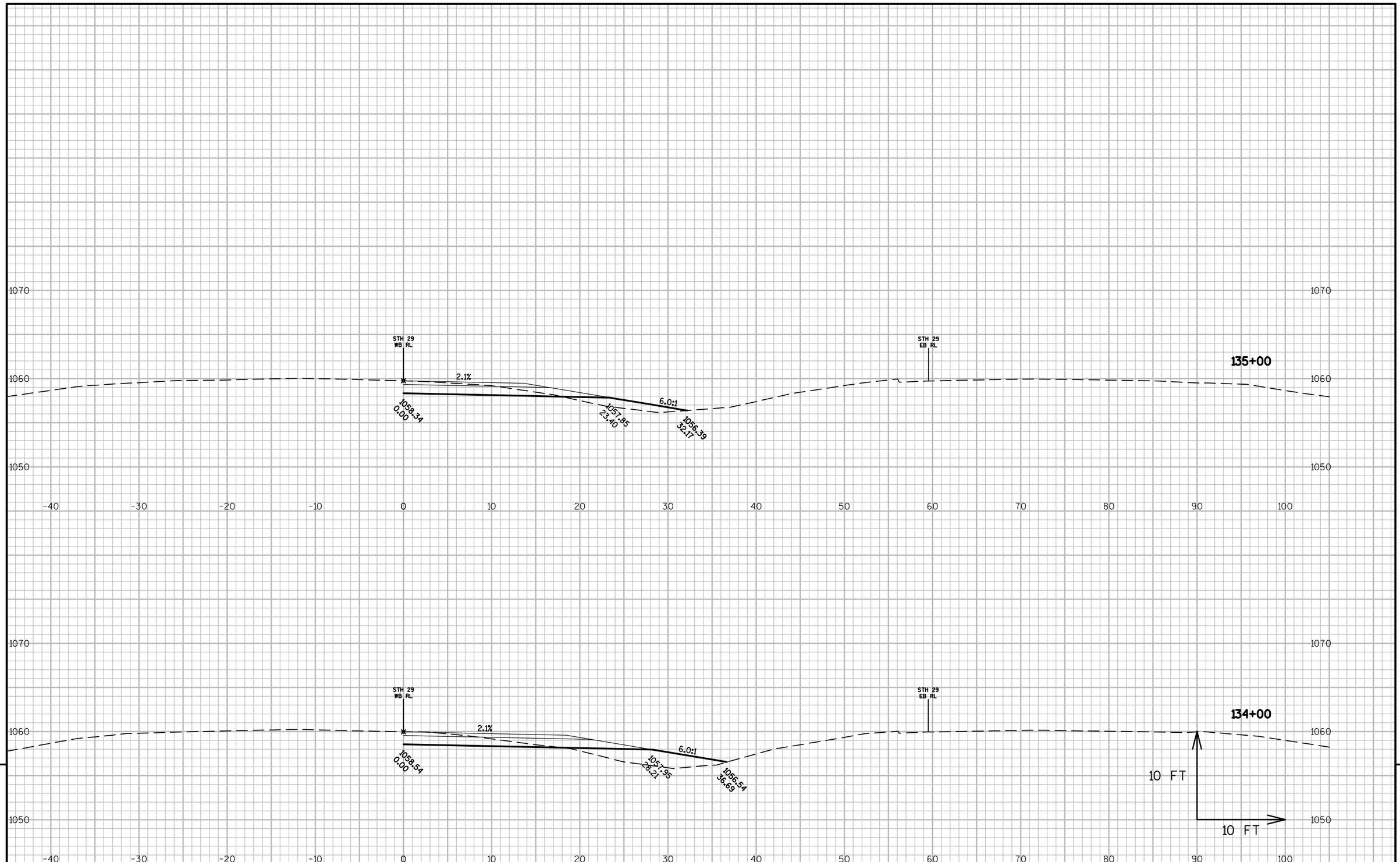
PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: EAST XO - STAGE 1	SHEET	E

FILE NAME : N:\PDS\C3D\10582170\DESIGN\XSECTIONS\090103_XS_XO_EAST_CORRIDOR.DWG
LAYOUT NAME - 090307 EAST XO

PLOT DATE : 1/28/2016 2:31 PM PLOT BY : HETH, BARBARA L PLOT NAME : PLOT SCALE : 1 IN:10 FT



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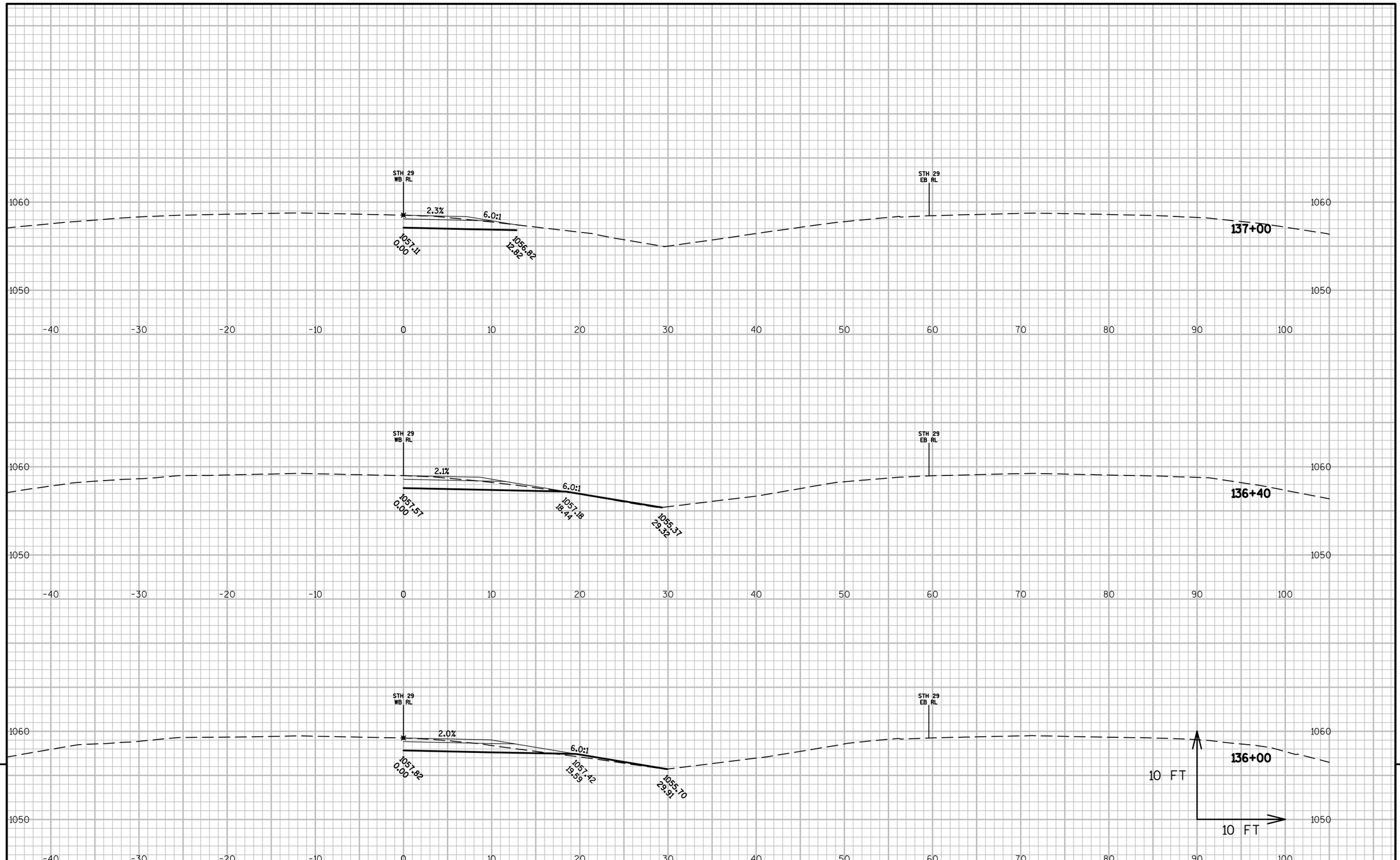
PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: EAST XO - STAGE 1	SHEET 170	E

FILE NAME : N:\PDS\C3D\10582170\DESIGN\XSECTIONS\090103_XS_XO_EAST_CORRIDOR.DWG
LAYOUT NAME - 090308 EAST XO

PLOT DATE : 1/28/2016 2:31 PM PLOT BY : HETH, BARBARA L PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



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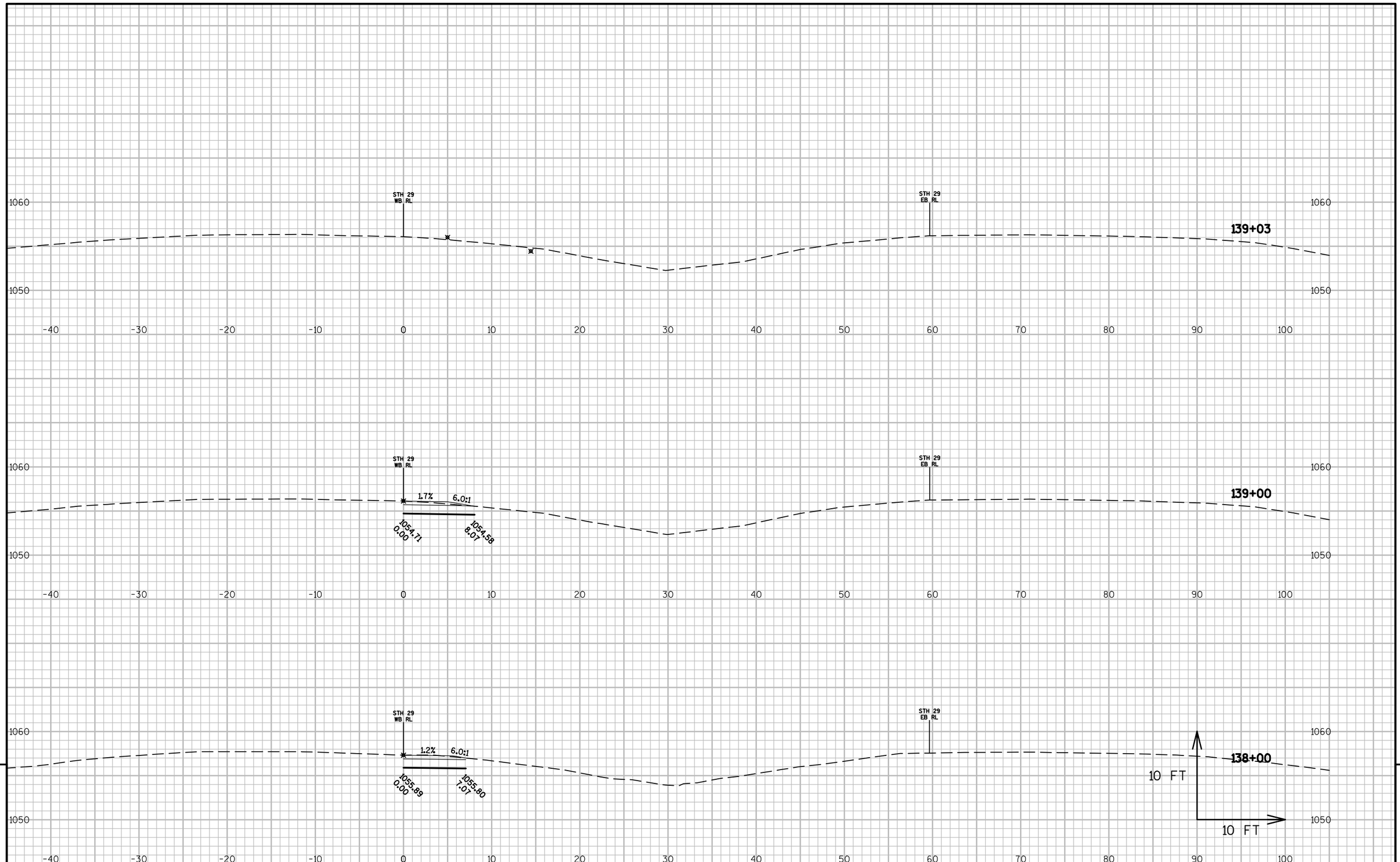
PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: EAST XO - STAGE 1	SHEET 171	E



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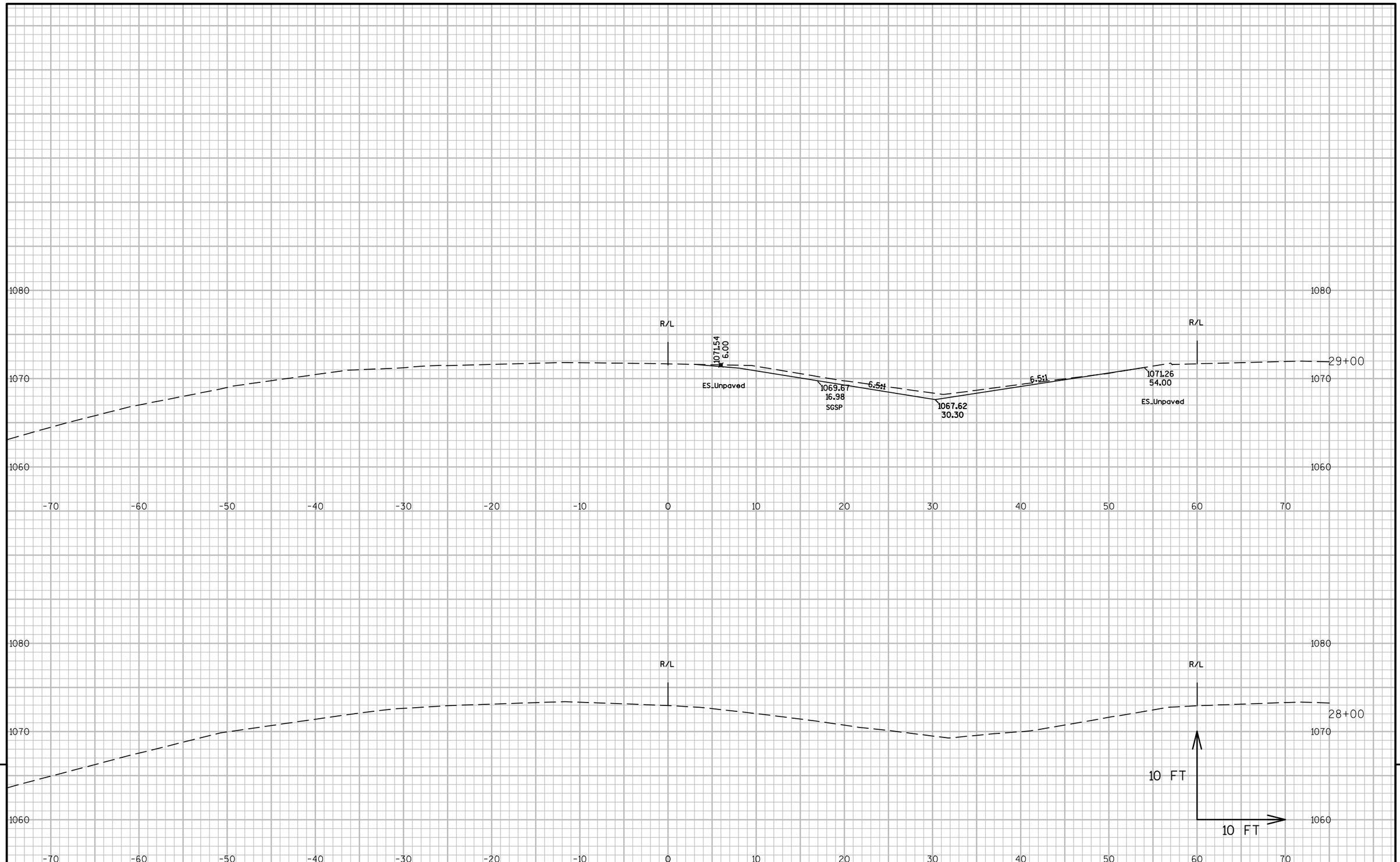
PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: EAST XO - STAGE 1	SHEET 172	E

FILE NAME : N:\PDS\C3D\10582170\DESIGN\XSECTIONS\090103_XS_XO_EAST_CORRIDOR.DWG
LAYOUT NAME - 090310 EAST XO

PLOT DATE : 1/28/2016 2:31 PM PLOT BY : HETH, BARBARA L PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49

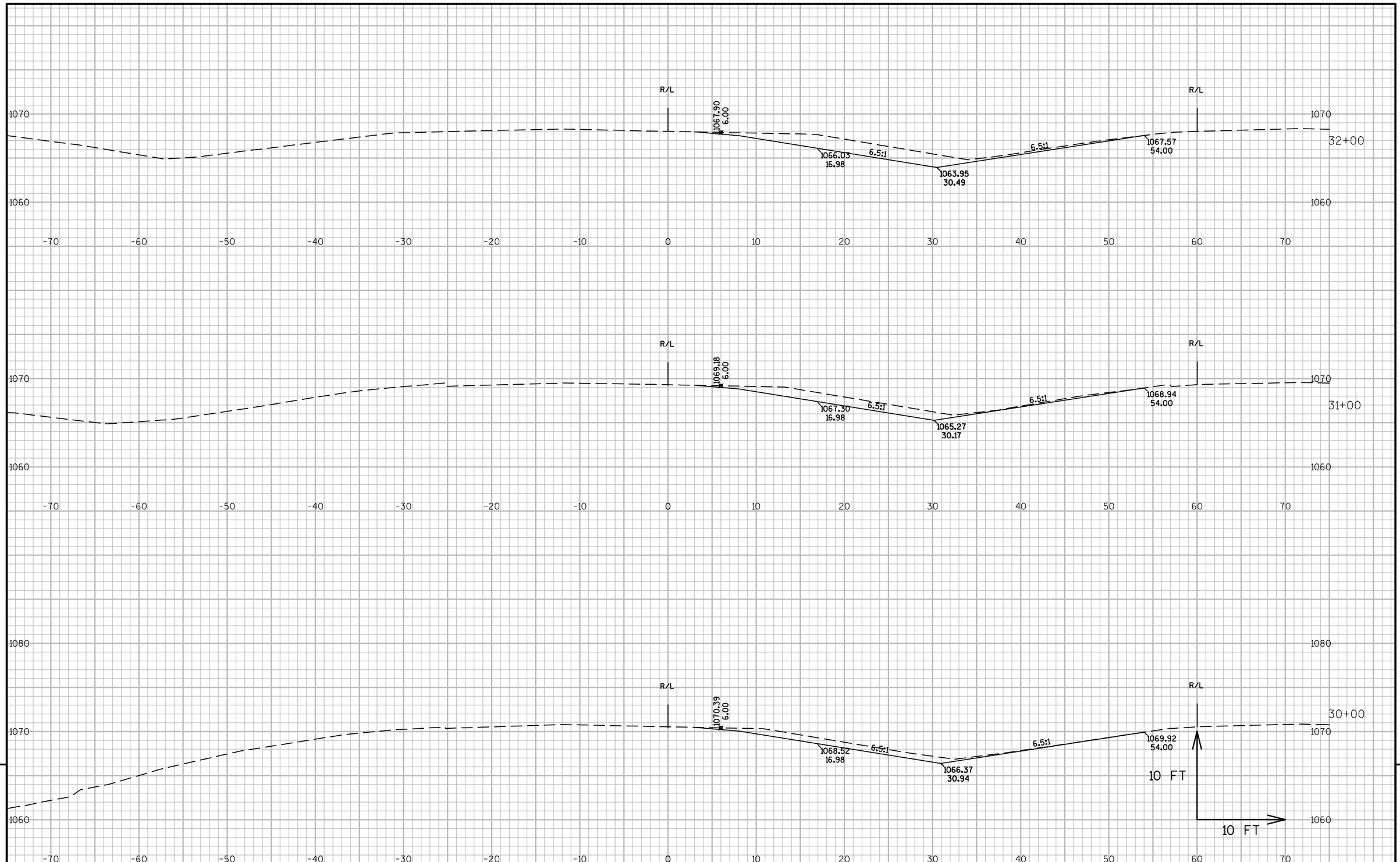


PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: WEST XO - STAGE 3	SHEET 173	E

FILE NAME : N:\PDS\C3D\10582170\DESIGN\XSECTIONS\090301_XS_XO-WEST_STAGE3.DWG
LAYOUT NAME - 090301-WXO-STAGE3

PLOT DATE : 8/6/2015 3:47 PM PLOT BY : HETH, BARBARA L PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49

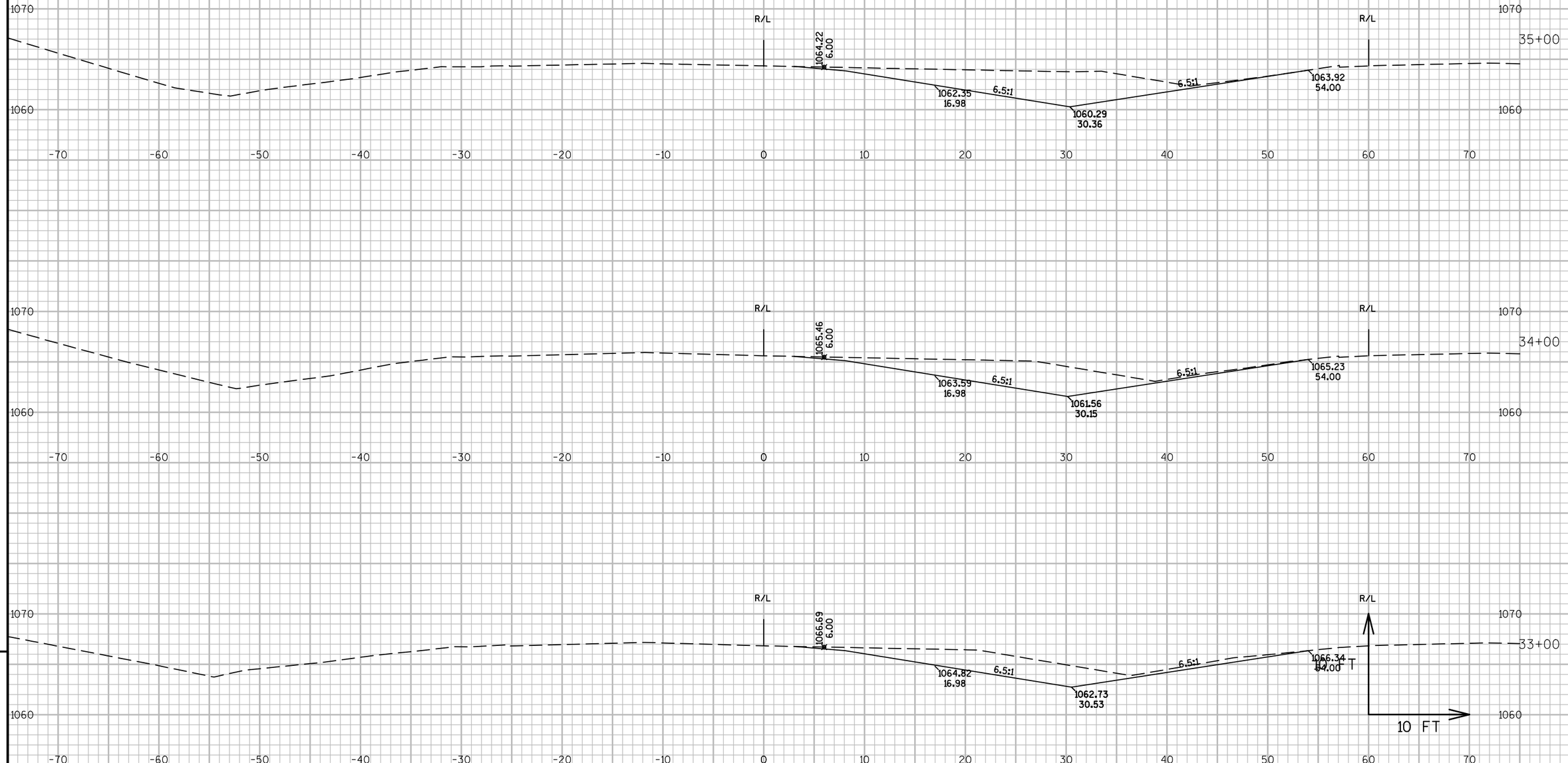


PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: WEST XO - STAGE 3	SHEET 174	E

FILE NAME : N:\PDS\C3D\10582170\DESIGN\XSECTIONS\090301_XS_XO-WEST_STAGE3.DWG
LAYOUT NAME - 090302-WXO-STAGE3

PLOT DATE : 8/6/2015 3:47 PM PLOT BY : HETH, BARBARA L PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49

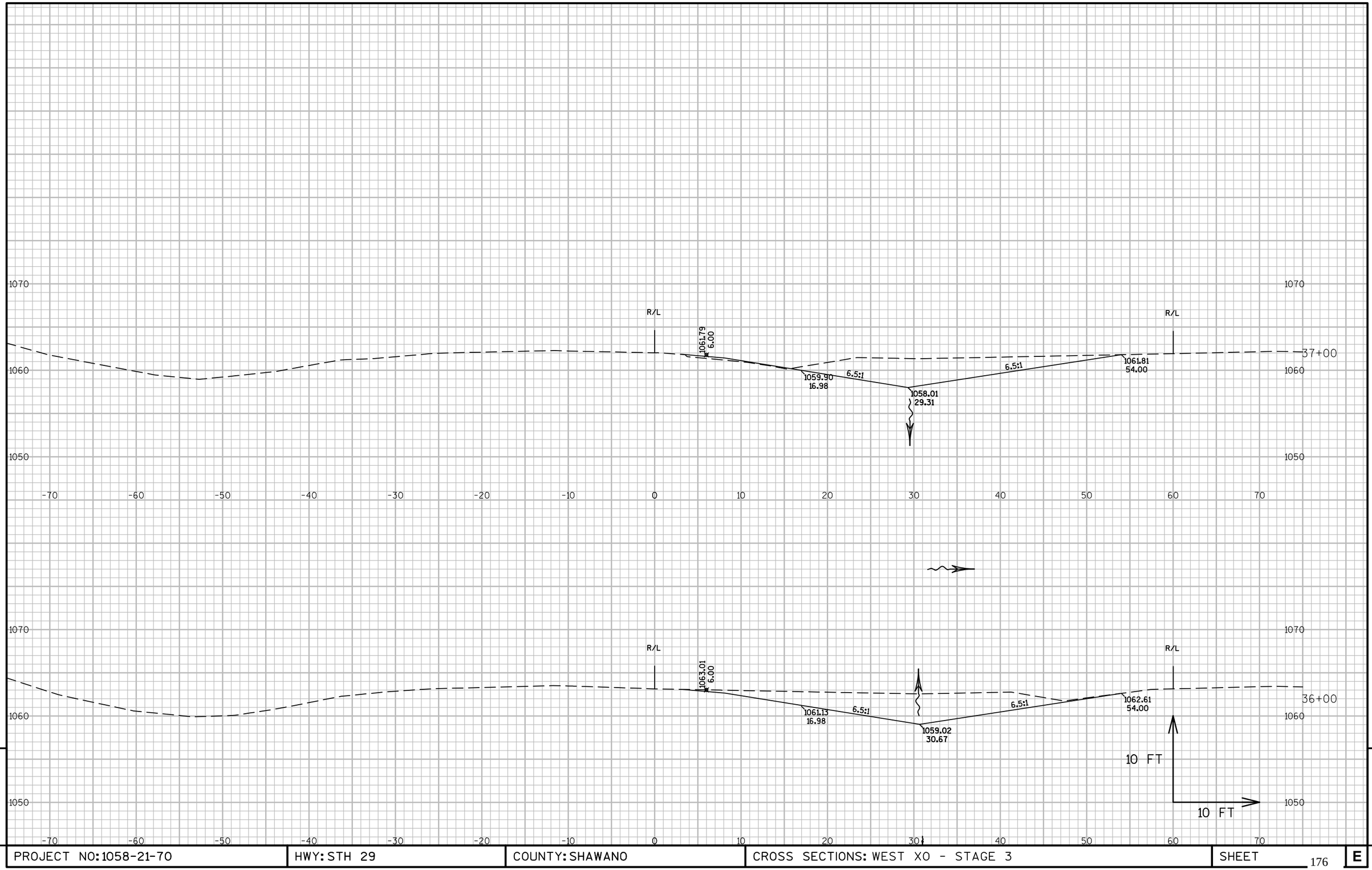


PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: WEST XO - STAGE 3	SHEET 175	E

FILE NAME : N:\PDS\C3D\10582170\DESIGN\XSECTIONS\090301_XS_XO-WEST_STAGE3.DWG
LAYOUT NAME - 090303-WXO-STAGE3

PLOT DATE : 8/6/2015 3:47 PM PLOT BY : HETH, BARBARA L PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



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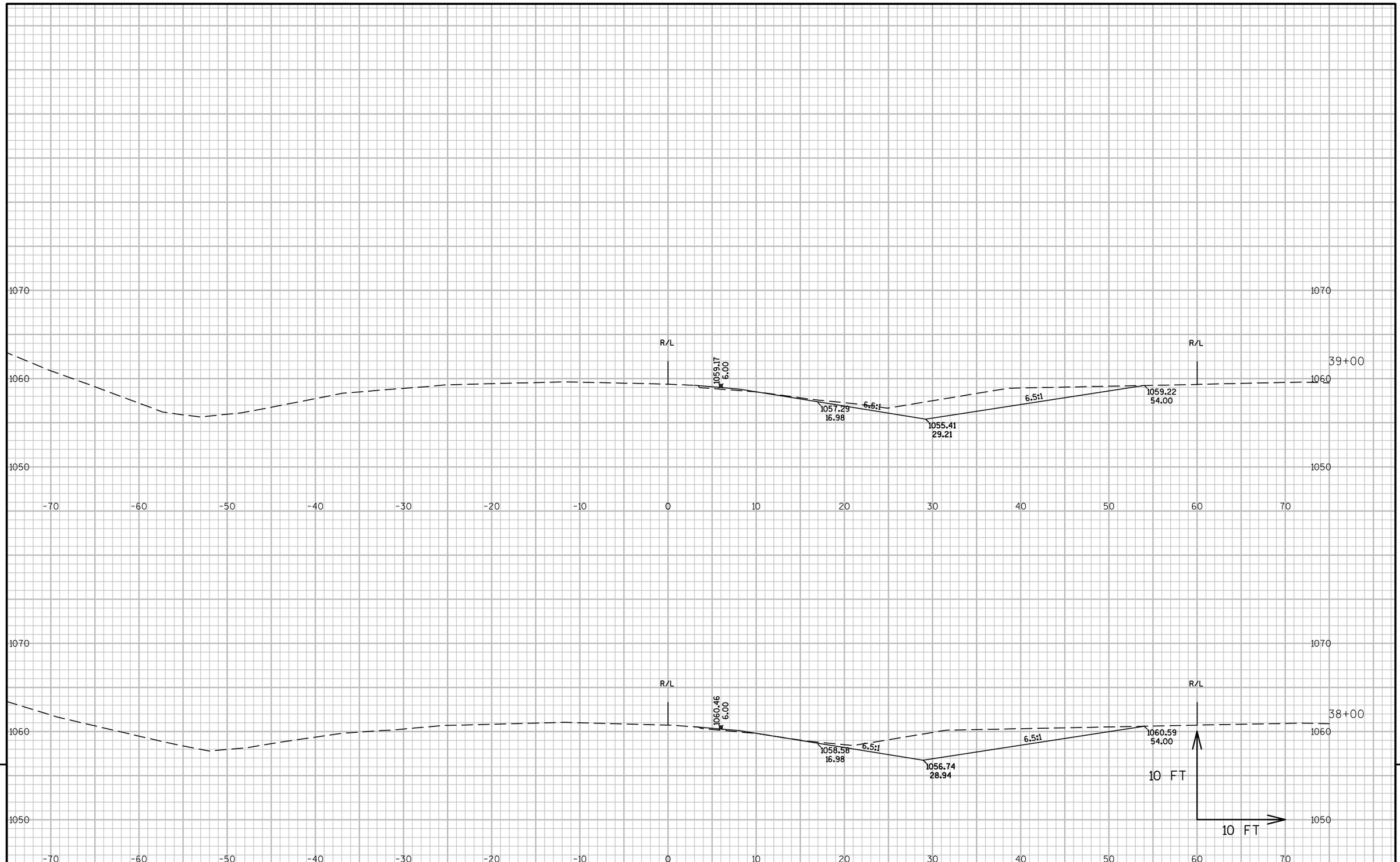
PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: WEST XO - STAGE 3	SHEET 176	E

FILE NAME : N:\PDS\C3D\10582170\DESIGN\XSECTIONS\090301_XS_XO-WEST_STAGE3.DWG
LAYOUT NAME - 090304-WXO-STAGE3

PLOT DATE : 8/6/2015 3:47 PM PLOT BY : HETH, BARBARA L PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



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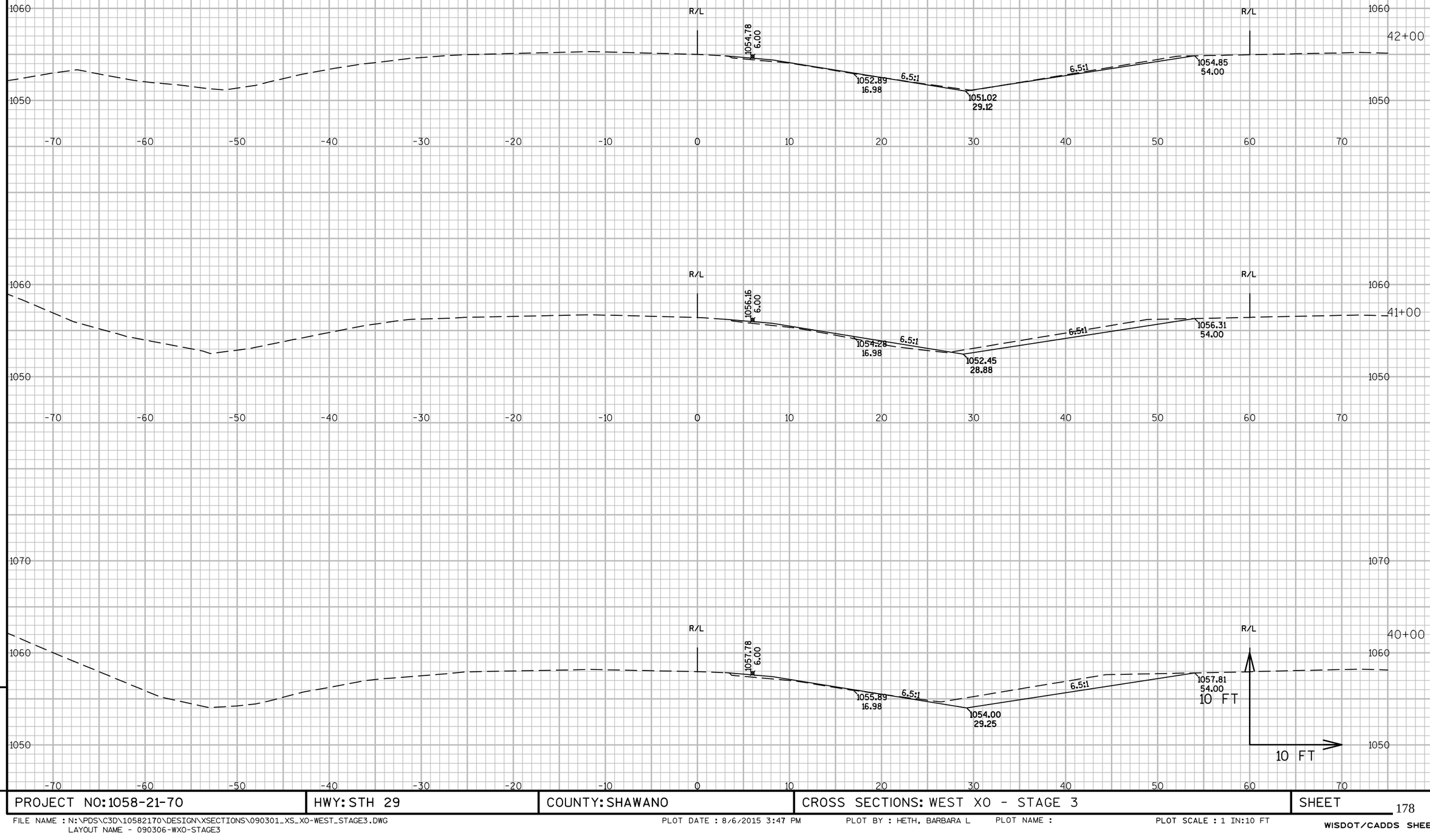
PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: WEST XO - STAGE 3	SHEET 177	E

FILE NAME : N:\PDS\C3D\10582170\DESIGN\XSECTIONS\090301_XS_XO-WEST_STAGE3.DWG
LAYOUT NAME - 090305-WXO-STAGE3

PLOT DATE : 8/6/2015 3:47 PM PLOT BY : HETH, BARBARA L PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



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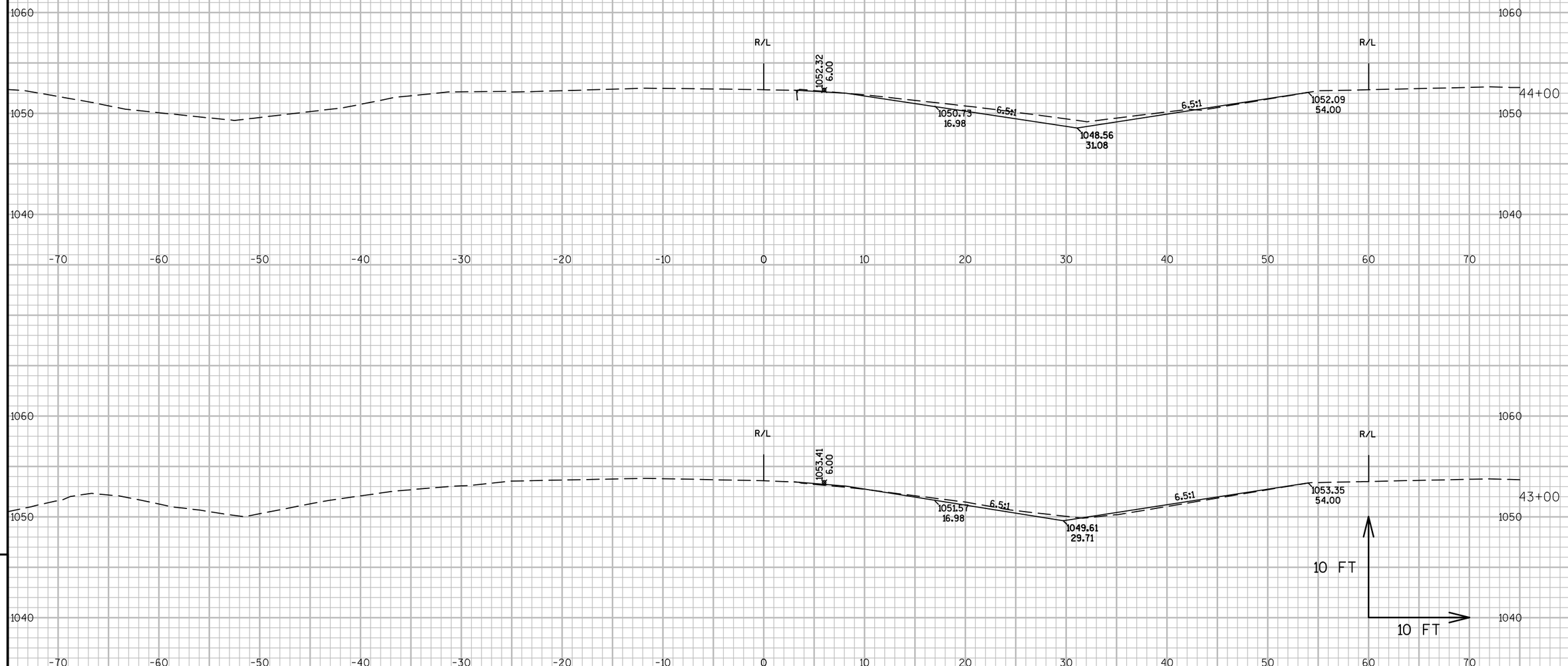
PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: WEST XO - STAGE 3	SHEET	E

FILE NAME : N:\PDS\C3D\10582170\DESIGN\XSECTIONS\090301_XS_XO-WEST_STAGE3.DWG
LAYOUT NAME - 090306-WXO-STAGE3

PLOT DATE : 8/6/2015 3:47 PM PLOT BY : HETH, BARBARA L PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



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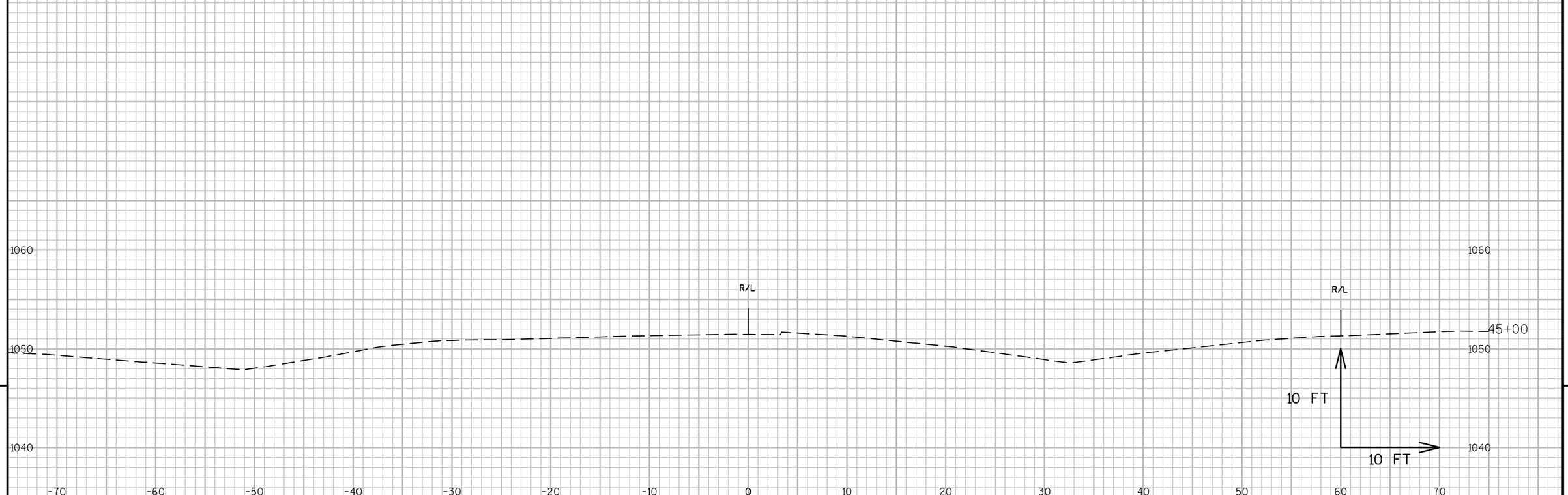
PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: WEST XO - STAGE 3	SHEET 179	E

FILE NAME : N:\PDS\C3D\10582170\DESIGN\XSECTIONS\090301_XS_XO-WEST_STAGE3.DWG
LAYOUT NAME - 090307-WXO-STAGE3

PLOT DATE : 8/6/2015 3:47 PM PLOT BY : HETH, BARBARA L PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



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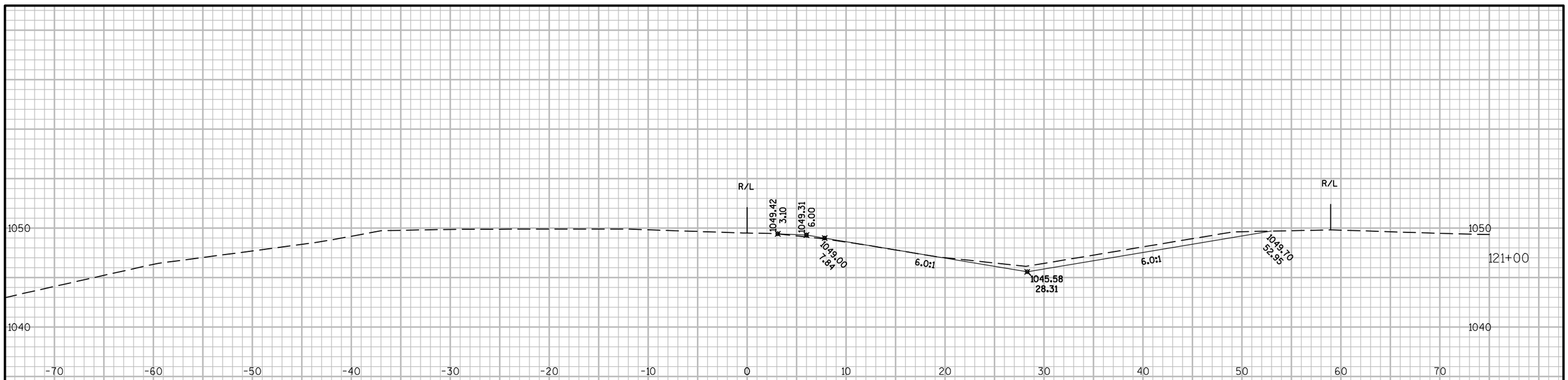
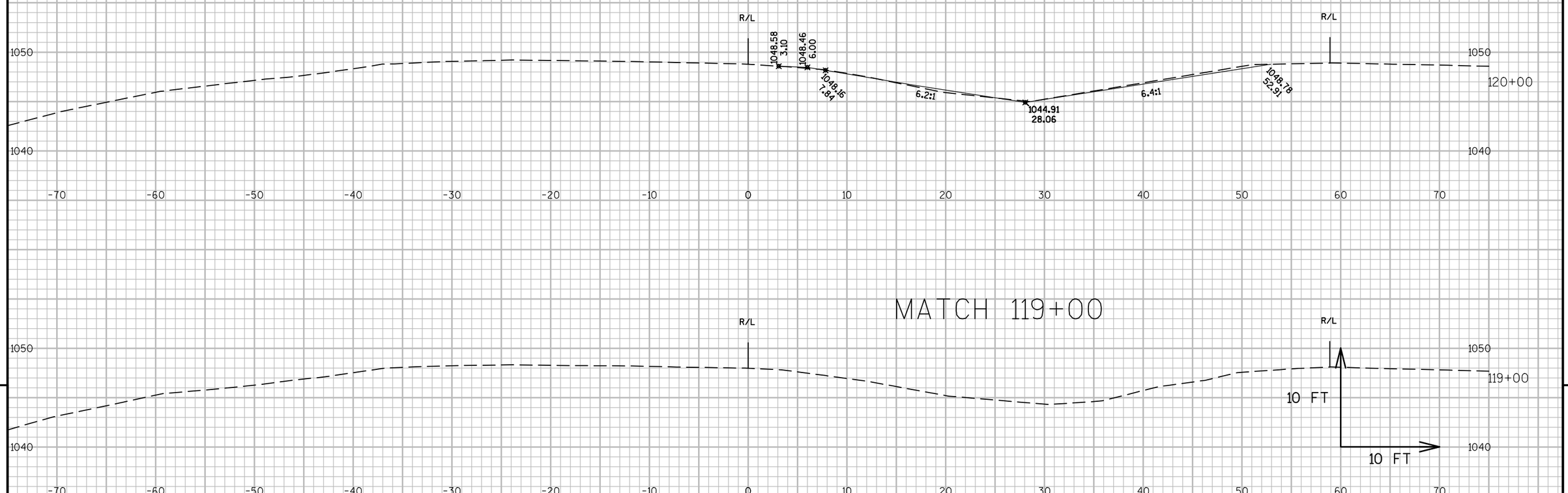
PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: WEST XO - STAGE 3	SHEET 180	E

FILE NAME : N:\PDS\C3D\10582170\DESIGN\XSECTIONS\090301_XS_XO-WEST_STAGE3.DWG
LAYOUT NAME - 090308-WXO-STAGE3

PLOT DATE : 8/6/2015 3:47 PM PLOT BY : HETH, BARBARA L PLOT NAME : PLOT SCALE : 1 IN:10 FT





MATCH 119+00

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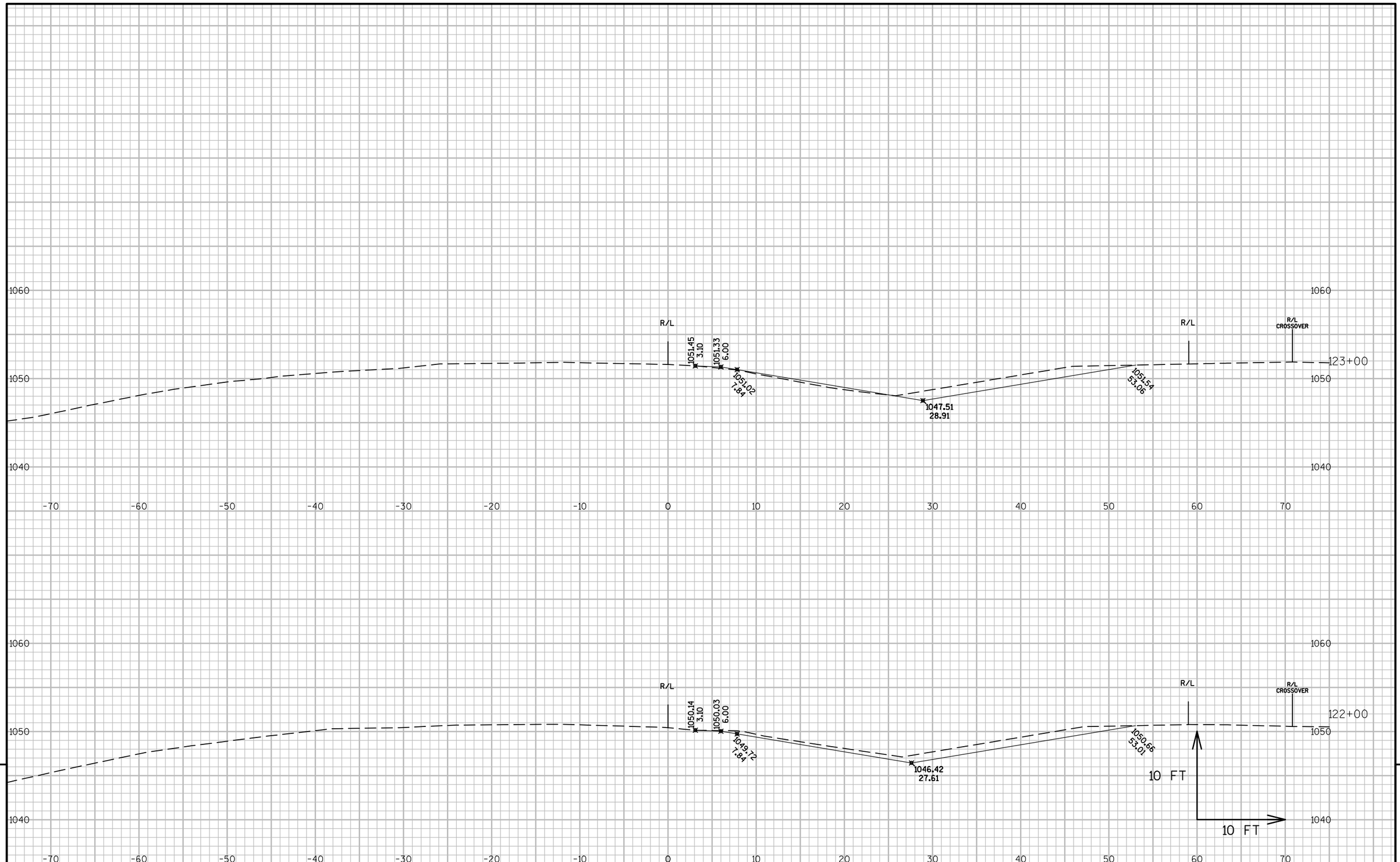
PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: EAST XO - STAGE 3	SHEET 181	E

FILE NAME : N:\PDS\C3D\10582170\DESIGN\XSECTIONS\090301_XS_XO-EAST_STAGE3.DWG
LAYOUT NAME - 090301-EXO STAGE3

PLOT DATE : 1/28/2016 3:02 PM PLOT BY : HETH, BARBARA L PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



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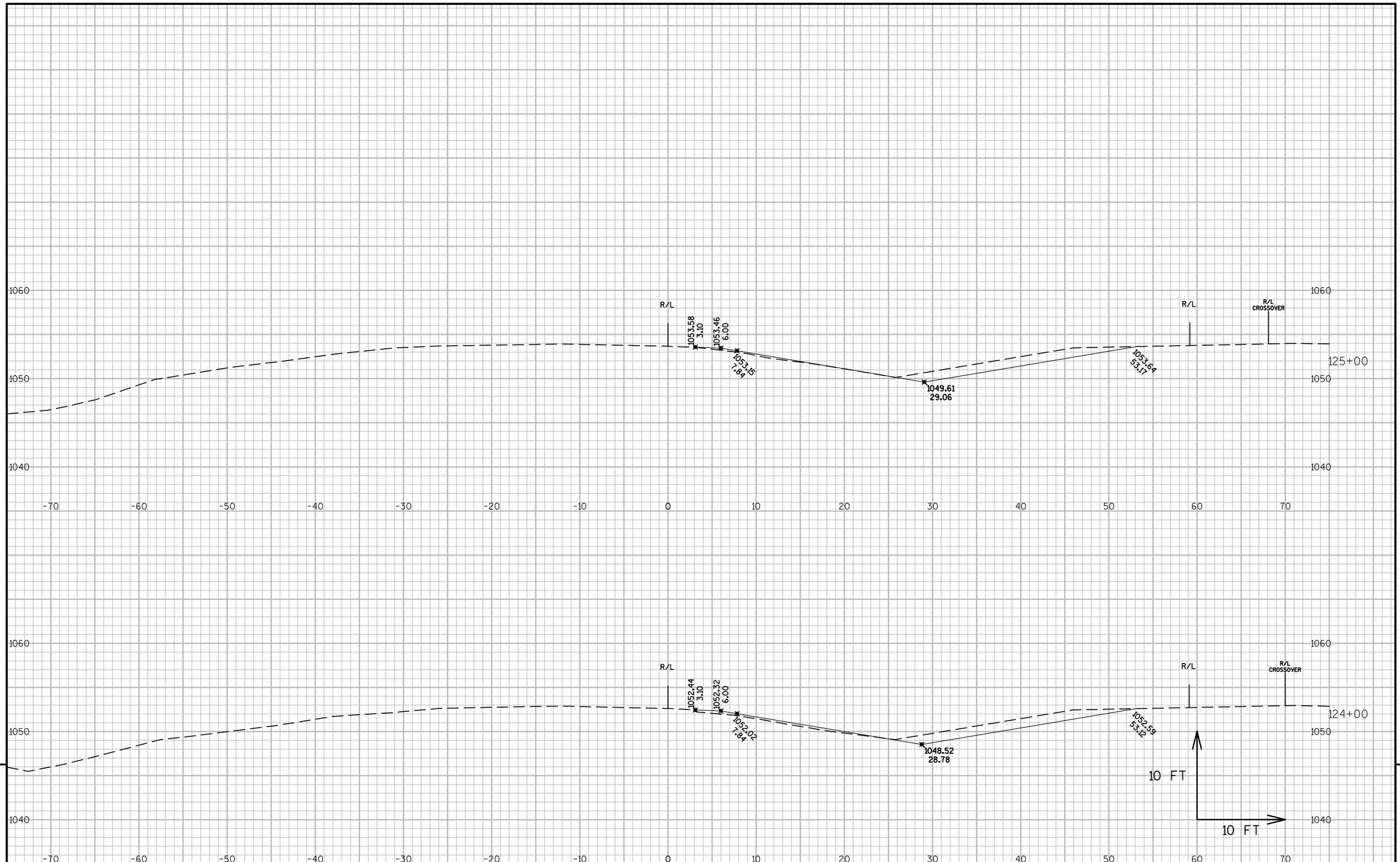
PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: EAST XO - STAGE 3	SHEET 182	E

FILE NAME : N:\PDS\C3D\10582170\DESIGN\XSECTIONS\090301_XS_XO-EAST_STAGE3.DWG
LAYOUT NAME - 090302-EXO STAGE3

PLOT DATE : 1/28/2016 3:02 PM PLOT BY : HETH, BARBARA L PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



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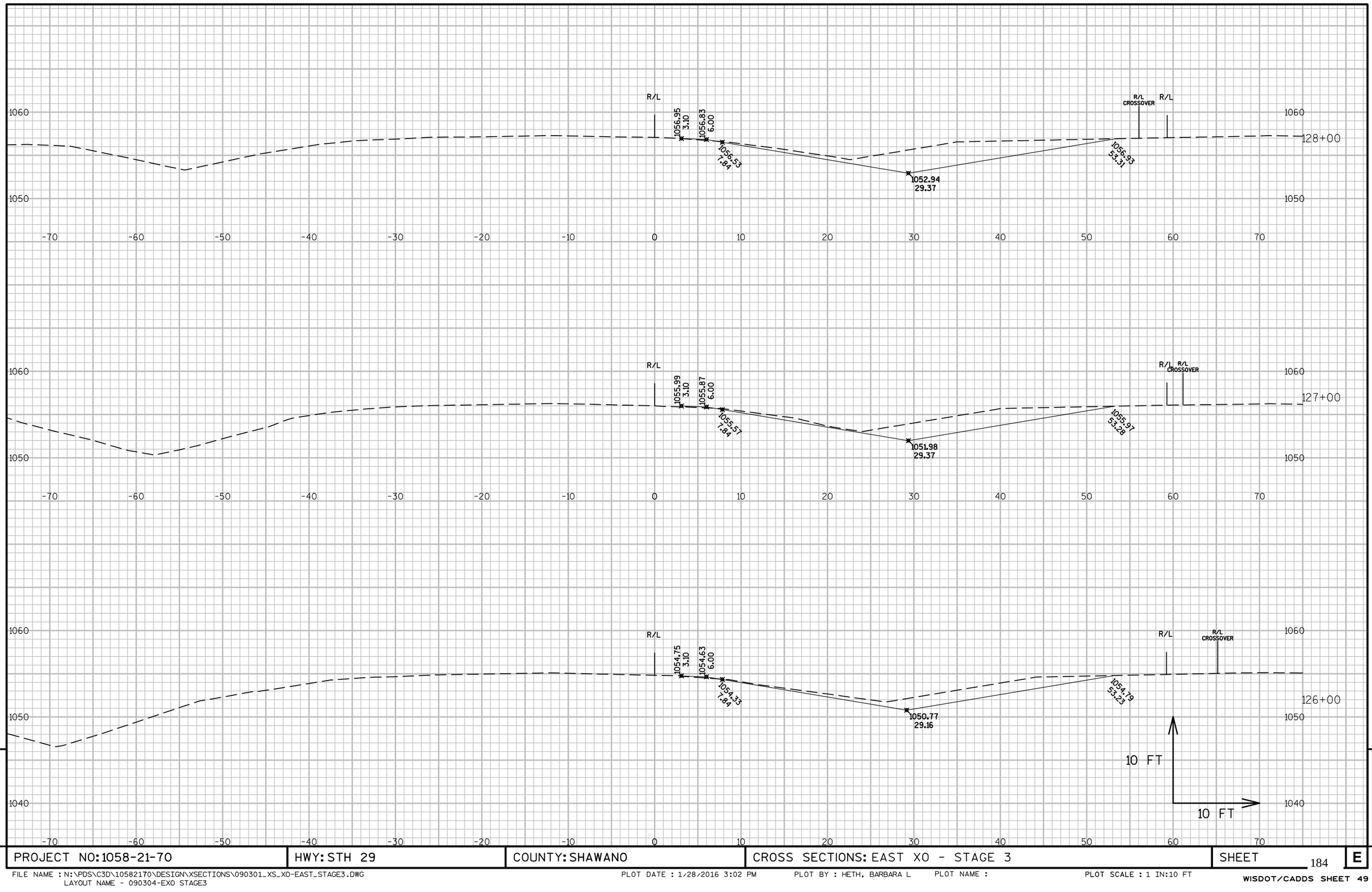
PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: EAST XO - STAGE 3	SHEET 183	E

FILE NAME : N:\PDS\C3D\10582170\DESIGN\XSECTIONS\090301_XS_XO-EAST_STAGE3.DWG
LAYOUT NAME - 090303-EXO STAGE3

PLOT DATE : 1/28/2016 3:02 PM PLOT BY : HETH, BARBARA L PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49

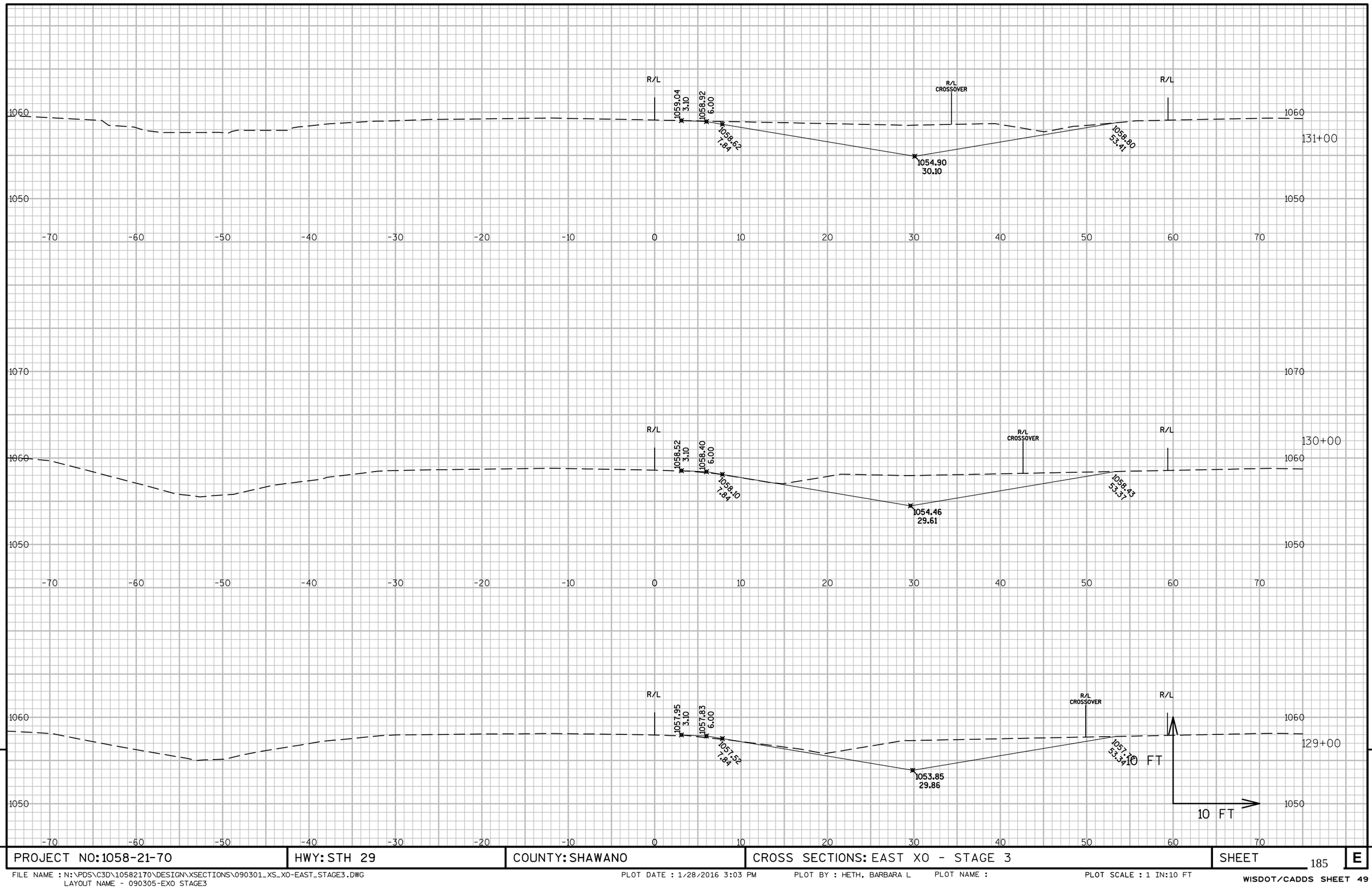


PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: EAST XO - STAGE 3	SHEET 184	E

FILE NAME : N:\PDS\C3D\10582170\DESIGN\XSECTIONS\090301_XS_XO-EAST_STAGE3.DWG
LAYOUT NAME - 090304-EXO STAGE3

PLOT DATE : 1/28/2016 3:02 PM PLOT BY : HETH, BARBARA L PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



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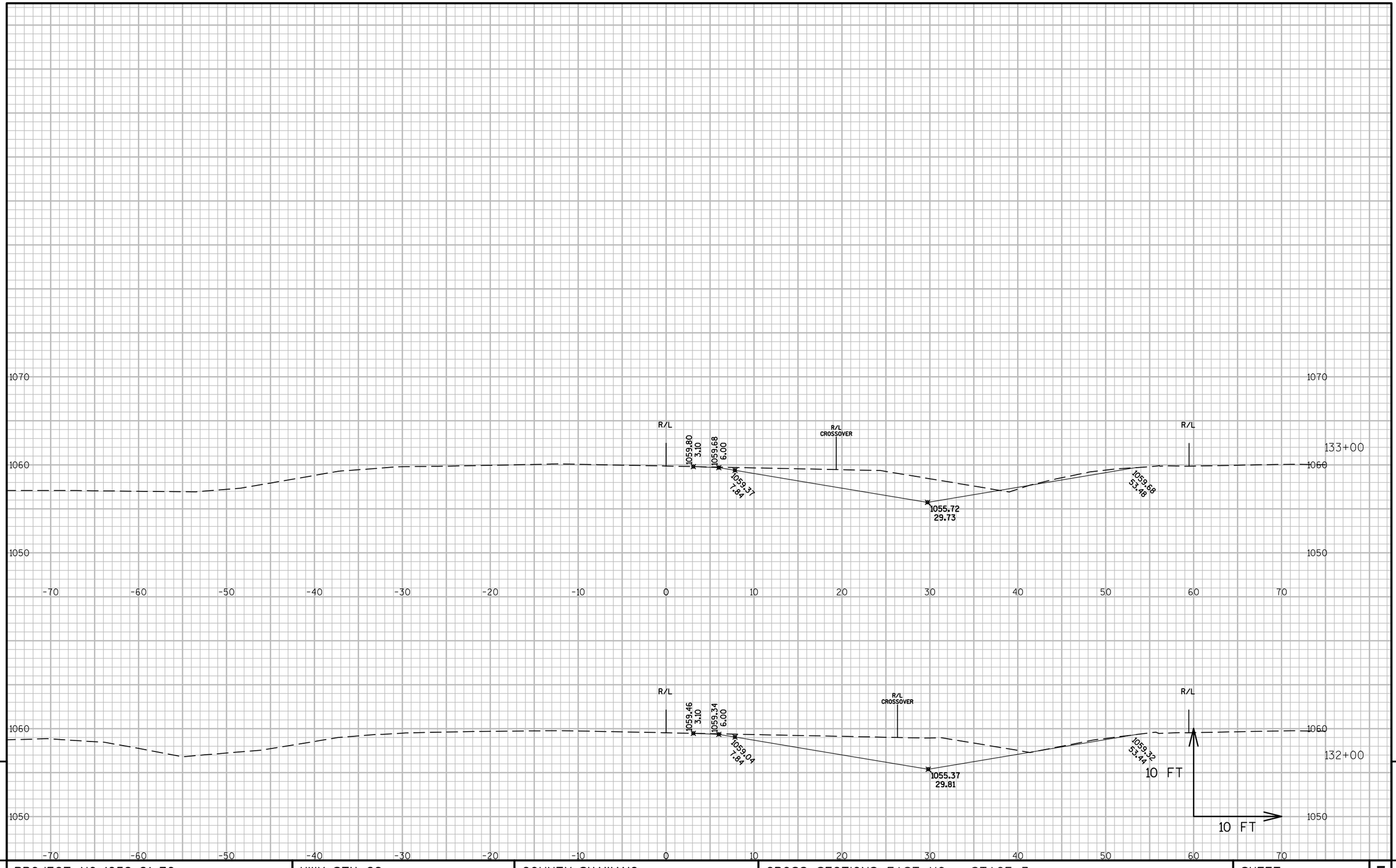
PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: EAST XO - STAGE 3	SHEET 185	E

FILE NAME : N:\PDS\C3D\10582170\DESIGN\XSECTIONS\090301_XS_XO-EAST_STAGE3.DWG
LAYOUT NAME - 090305-EXO STAGE3

PLOT DATE : 1/28/2016 3:03 PM PLOT BY : HETH, BARBARA L PLOT NAME : PLOT SCALE : 1 IN:10 FT



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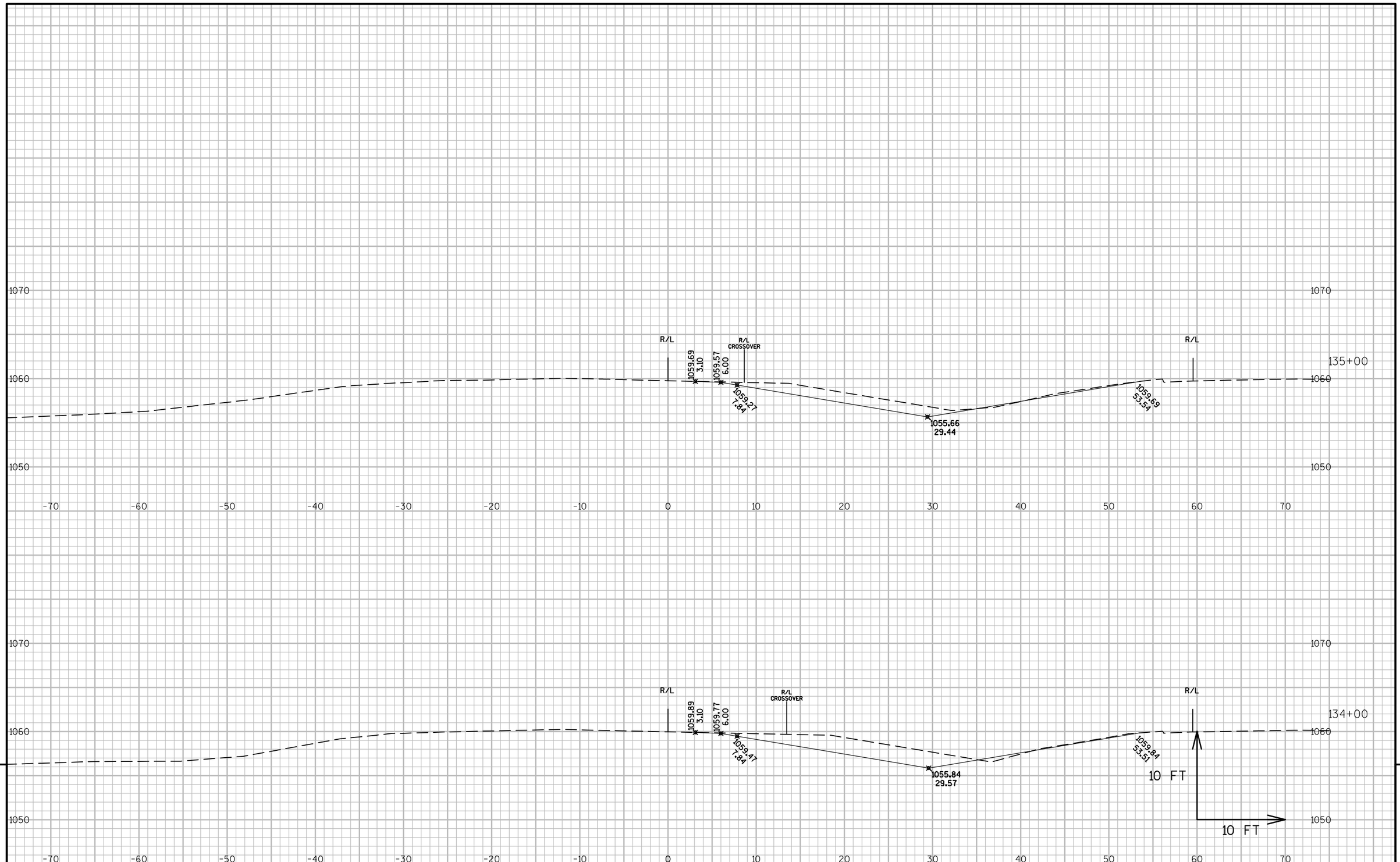
PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: EAST XO - STAGE 3	SHEET 186	E

FILE NAME : N:\PDS\C3D\10582170\DESIGN\XSECTIONS\090301_XS_XO-EAST_STAGE3.DWG
LAYOUT NAME - 090306-EXO STAGE3

PLOT DATE : 1/28/2016 3:03 PM PLOT BY : HETH, BARBARA L PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49

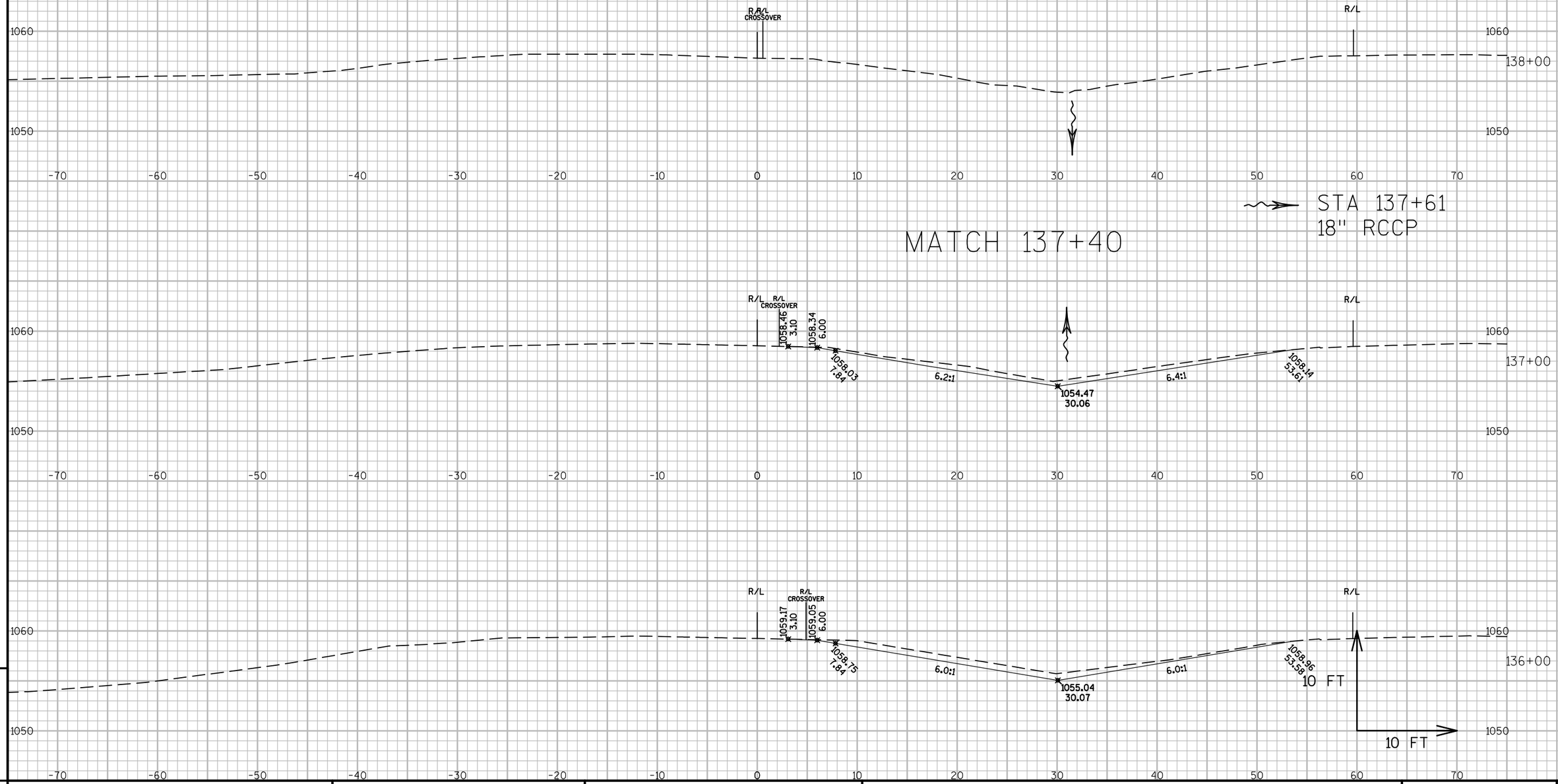


PROJECT NO: 1058-21-70	HWY: STH 29	COUNTY: SHAWANO	CROSS SECTIONS: EAST XO - STAGE 3	SHEET 187	E

FILE NAME : N:\PDS\C3D\10582170\DESIGN\XSECTIONS\090301_XS_XO-EAST_STAGE3.DWG
LAYOUT NAME - 090307-EXO STAGE3

PLOT DATE : 1/28/2016 3:03 PM PLOT BY : HETH, BARBARA L PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



FILE NAME : N:\PDS\C3D\10582170\DESIGN\XSECTIONS\090301_XS_XO-EAST_STAGE3.DWG
LAYOUT NAME - 090308-EXO STAGE3

PLOT DATE : 1/28/2016 3:03 PM PLOT BY : HETH, BARBARA L PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49

STAGE 1	AREA (SF)			Incremental Vol (CY) (Unadjusted)			Cumulative Vol (CY)			
									Expanded EBS	
STATION	Cut	Fill	EBS	Cut	Fill	EBS	Cut	Expanded Fill	Backfill	Mass Ordinate
							1.00	1.30	1.00	
28+00	0.00	0.00	0.00	0	0	0	0	0	0	0.00
29+00	14.53	0.00	0.00	27	0	0	27	0	0	26.91
30+00	13.49	1.17	0.00	52	2	0	79	3	0	76.00
31+00	12.47	9.90	0.00	48	20	0	127	29	0	97.42
32+00	16.50	13.25	0.00	54	43	0	181	85	0	95.33
33+00	17.30	16.24	0.00	63	55	0	243	156	0	86.92
34+00	16.44	20.26	0.00	62	68	0	306	244	0	61.54
35+00	17.13	23.29	0.00	62	81	0	368	349	0	18.89
36+00	14.10	24.72	0.00	58	89	0	426	464	0	-38.83
36+62	12.22	35.99	0.00	30	70	0	456	555	0	-99.23
37+00	10.72	28.54	0.00	16	45	0	472	614	0	-142.13
38+00	11.10	20.89	0.00	40	92	0	512	733	0	-220.71
39+00	10.50	16.65	0.00	40	70	0	552	823	0	-271.09
40+00	10.41	17.40	0.00	39	63	0	591	905	0	-314.35
41+50	10.36	14.99	0.00	58	90	0	649	1,022	0	-373.62
42+00	11.20	9.90	0.00	20	23	0	669	1,052	0	-383.62
43+00	10.41	1.79	0.00	40	22	0	709	1,081	0	-371.73
44+00	3.57	10.41	0.00	26	23	0	735	1,110	0	-375.21
45+00	0.00	0.00	0.00	7	19	0	**741**	**1,135**	0	**-393.67**
			TOTAL	**741**	**873**					

STAGE 1	AREA (SF)			Incremental Vol (CY) (Unadjusted)			Cumulative Vol (CY)			
STATION	Cut	Fill	EBS	Cut	Fill	EBS	Cut 1.00	Expanded Fill 1.30	Expanded EBS Backfill 1.00	Mass Ordinate
119+00	0.00	0.00	0.00	0	0	0	0	0	0	0.00
120+00	14.81	4.13	0.00	27	8	0	27	10	0	17.48
121+00	16.80	5.36	0.00	59	18	0	86	33	0	53.18
122+00	13.41	10.76	0.00	56	30	0	142	72	0	70.33
123+00	12.29	14.03	0.00	48	46	0	190	131	0	58.25
124+00	11.27	12.44	0.00	44	49	0	233	195	0	38.16
125+00	12.05	15.87	0.00	43	52	0	276	263	0	13.19
126+00	16.65	13.42	0.00	53	54	0	329	334	0	-4.18
127+00	16.70	20.59	0.00	62	63	0	391	416	0	-24.30
128+00	17.77	20.06	0.00	64	75	0	455	513	0	-58.33
129+00	12.56	25.21	0.00	56	84	0	511	622	0	-111.14
130+00	4.45	33.14	0.00	31	108	0	543	763	0	-220.11
131+00	5.15	27.06	0.00	18	111	0	561	908	0	-347.27
132+00	9.00	28.00	0.00	26	102	0	587	1,040	0	-453.62
133+00	14.73	31.61	0.00	44	110	0	631	1,184	0	-553.17
134+00	15.48	19.58	0.00	56	95	0	687	1,307	0	-620.47
135+00	17.06	8.91	0.00	60	53	0	747	1,376	0	-628.81
136+00	14.34	2.20	0.00	58	21	0	805	1,402	0	-597.41
137+00	0.00	0.00	0.00	27	4	0	832	1,408	0	-576.15
138+00	0.00	0.00	0.00	0	0	0	**832**	**1,408**	0	**-576.15**
			TOTAL	**832**	**1,083**					

STATION	AREA (SF) Cut	Fill	EBS	Incremental Vol (CY) (Unadjusted) Cut	Salvaged / Unusable Pavement Material	Fill	EBS	Cumulative Vol (CY) Cut 1.00	Expanded Fill 1.25	Reduced EBS In Fill 1	Mass Ordinate
85+75	0.00	0.00	0	0	0	0	0	0	0	0	0
86+00	97.15	1.63	0	45	0	1	0	45	1	0	44
87+00	45.68	19.94	0	264	0	40	0	309	51	0	259
88+00	20.87	32.40	0	123	0	97	0	433	172	0	261
89+00	7.36	43.67	0	52	0	141	0	485	348	0	137
90+00	1.47	44.04	0	16	0	162	0	501	551	0	-50
90+25	0.38	49.64	0	1	0	43	0	502	605	0	-103
91+00	0.50	56.41	0	1	0	147	0	503	789	0	-286
91+73.82	0.02	66.01	0	1	0	167	0	504	999	0	-495
91+75	0.00	59.54	0	0	0	3	0	504	1,002	0	-498
92+00	0.00	77.81	0	0	0	64	0	504	1,082	0	-577
92+31	0.01	143.02	0	0	0	127	0	504	1,240	0	-736
93+00 Bridge	**0.00**	**0.00**	**0**	**0**	**0**	**183**	**0**	**504**	**1,469**	**0**	**-964**
93+70	0.00	177.17	0	0	0	230	0	504	1,756	0	-1251
94+00	0.00	141.74	0	0	0	177	0	504	1,977	0	-1473
94+30	0.00	148.43	0	0	0	161	0	504	2,179	0	-1674
94+30.56	0.00	148.61	0	0	0	3	0	504	2,182	0	-1678
94+57.28	0.00	0.00	0	0	0	74	0	504	2,274	0	-1770
94+82.29	0.00	180.15	0	0	0	83	0	504	2,379	0	-1874
95+00	0.00	185.28	0	0	0	120	0	504	2,528	0	-2024
95+07.28	0.00	185.70	0	0	0	50	0	504	2,591	0	-2087
95+18.06	0.00	184.27	0	0	0	74	0	504	2,683	0	-2179
95+44.78	57.69	141.27	0	29	0	161	0	533	2,885	0	-2352
95+68.07	138.27	110.20	0	85	0	108	0	617	3,020	0	-2403
96+00	100.00	208.30	0	141	0	188	0	758	3,256	0	-2498
97+00	0.00	150.00	0	185	0	664	0	943	4,085	0	-3142
97+36.45	0.00	116.85	0	0	0	180	0	943	4,310	0	-3367
97+88.13	0.00	73.96	0	0	0	183	0	943	4,538	0	-3595
98+00	0.00	64.57	0	0	0	30	0	943	4,577	0	-3633
98+78.13	23.68	23.38	0	34	0	127	0	978	4,736	0	-3758
99+00	35.98	13.95	0	24	0	15	0	1,002	4,754	0	-3753
100+00	75.99	1.84	0	207	0	29	0	1,209	4,791	0	-3582
101+00	0.00	0.00	0	141	0	3	0	1,350	4,795	0	-3446
		TOTALS		**1,350**	**0**	**3,836**					

STAGE 3	AREA (SF)			Incremental Vol (CY) (Unadjusted)			Cumulative Vol (CY)			
STATION	Cut	Fill	EBS	Cut	Fill	EBS	Cut	Expanded Fill	Expanded EBS Backfill	Mass Ordinate
							1.00	1.30	1.00	
28+00	0.00	0.00	0.00	0	0	0	0	0	0	0.00
29+00	17.44	0.12	0.00	32	0	0	32	0	0	32.00
30+00	17.84	0.00	0.00	65	0	0	98	1	0	97.04
31+00	25.36	0.00	0.00	80	0	0	178	1	0	177.04
32+00	36.25	0.00	0.00	114	0	0	292	1	0	291.12
33+00	49.15	0.00	0.00	158	0	0	450	1	0	449.27
34+00	57.17	0.00	0.00	197	0	0	647	1	0	646.17
35+00	68.83	0.00	0.00	233	0	0	880	1	0	879.51
36+00	81.55	0.00	0.00	278	0	0	1,159	1	0	1,158.00
37+00	67.90	1.84	0.00	277	3	0	1,435	5	0	1,430.31
38+00	56.12	0.82	0.00	230	5	0	1,665	11	0	1,653.55
39+00	44.08	1.04	0.00	186	3	0	1,851	16	0	1,834.61
40+00	26.88	2.07	0.00	131	6	0	1,982	23	0	1,958.52
41+00	13.39	5.24	0.00	75	14	0	2,056	41	0	2,015.48
42+00	3.41	1.46	0.00	31	12	0	2,088	57	0	2,030.44
43+00	4.68	3.30	0.00	15	9	0	2,103	69	0	2,033.97
44+00	14.70	0.80	0.00	36	8	0	2,138	78	0	2,059.98
45+00	0.00	0.00	0.00	27	1	0	**2,166**	**80**	0	**2,085.27**
			TOTALS	**2,166**	**62**					

Notes

Wisconsin Department of Transportation

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