GRE APR 13

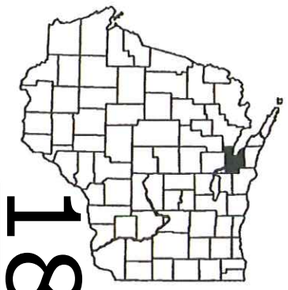
PROJECT ID: 1133-06-88

WITH:

COUNTY: BROWN

ORDER OF SHEETS

TOTAL SHEETS = 118



118

N

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

DE PERE - SUAMICO

ORANGE LANE - GLORY ROAD

USH 41

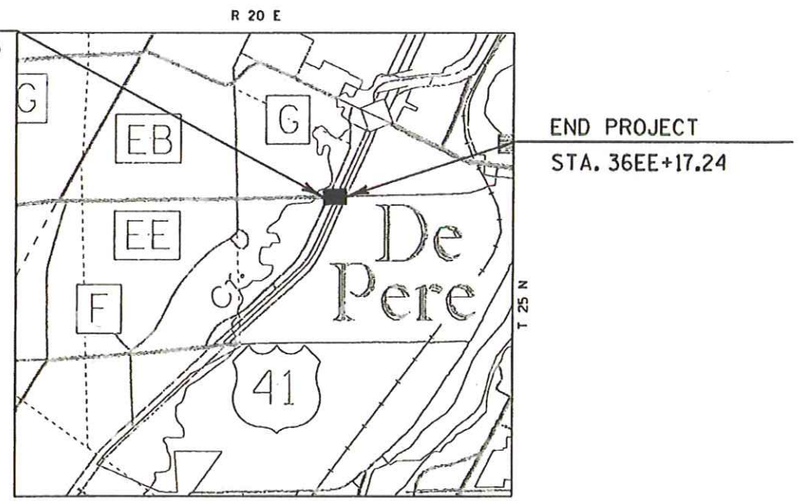
BROWN COUNTY

STATE PROJECT NUMBER
1133-06-88

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
1133-06-88	WISC 2013219	1

1133-06-88
GRANT ST RECONSTRUCTION

BEGIN PROJECT
STA. 29EE+30.00
X = 541895.25
Y = 78344.98



END PROJECT
STA. 36EE+17.24

DESIGN DESIGNATION

		GRANT ST	MID VALLEY DR
A.A.D.T. (2015)	=	5,550-6,970	2,390-3,280
A.A.D.T. (2035)	=	8,430-11,460	3,900-5,660
D.H.V.	=	1,250-1,520	860-1,010
D.D.	=	59/41	59/41
T.	=	5%	9%
DESIGN SPEED	=	30-40	30-50
ESALS	=	868,700	576,700

CONVENTIONAL SYMBOLS

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

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

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

LAYOUT
SCALE 0 0.5 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.130 MI.

COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN STATE PLANE COORDINATE SYSTEM (WSPCS), NAD 83 (91) BROWN COUNTY.

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

ORIGINAL PLANS PREPARED BY

HNTB 11414 WEST PARK PLACE MILWAUKEE, WI 53224 (414) 359-2300

WISCONSIN PROFESSIONAL ENGINEER
LAUREN A. ZIDEK
E-42400
MILWAUKEE
WI

10/16/2012 (Date) (Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	NE REGION
Designer	HNTB CORPORATION
Project Manager	KURT PETERS
Regional Examiner	
Regional Supervisor	CHAD DEGRAVE
C.O. Examiner	CYLE HAAG

APPROVED FOR THE DEPARTMENT
DATE: 10/17/12 (Signature)

E

UTILITY AND PROJECT CONTACTS

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GREEN BAY, WI. 54301
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WATER SYSTEMS MANAGER
ATTN: ROBERT MICHAELSON
C/O MANITOWOC PUBLIC UTILITIES
1323 SOUTH 8TH STREET
P.O. BOX 1090
MANITOWOC, WI 54220
PHONE: 920-686-4354
MOBILE: 920-374-0959
EMAIL: rmichaelson@mpu.org

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ASSISTANT CITY ENGINEER
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DE PERE, WI 54115
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MOBILE: 920-639-1019
EMAIL: kheyrman@mail.de-pere.org

NET-LEC/NSIGHT/CELLCOM
OSP MANAGER
ATTN: DENNIS LAFAVE
C/O MI-TECH SERVICES
1700 INDUSTRIAL DRIVE
GREEN BAY, WI 54302
PHONE: 920-619-9774
MOBILE: 920-619-9774
EMAIL: DLAFAVE@MI-TECH.US

TIME WARNER CABLE
CONSTRUCTION ADMINISTRATOR
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3520 DESTINATION DR
APPLETON, WI 54915
PHONE: 920-831-9249
MOBILE: 920-378-0444
EMAIL: Vince.Albin@TWCable.com

TOWN OF LAWRENCE WATER & SANITARY UTILITY
MANAGER
ATTN: GREG LITTLE
2595 FRENCH ROAD
DE PERE, WI 54115
PHONE: 920-336-9131
MOBILE: 920-366-6279
EMAIL: greg@townoflawrence.org

WISCONSIN PUBLIC SERVICE CORPORATION - ELECTRIC
ELECTRIC DESIGN ENGINEER
ATTN: RANDY STEIER
2850 SOUTH ASHLAND AVENUE
P.O. BOX 19001
GREEN BAY, WI. 54307
PHONE: 920-617-5167
MOBILE: 920-655-1596
EMAIL: RDSteier@WisconsinPublicService.com

WISCONSIN PUBLIC SERVICE CORPORATION - GAS
GAS ENGINEER
ATTN: PHIL MAUERMANN
2850 SOUTH ASHLAND AVENUE
P.O. BOX 19001
GREEN BAY, WI. 54307-9001
PHONE: 920-617-5092
MOBILE: 920-606-8448
EMAIL: pgmauermann@wisconsinpublicservice.com

WISDOT
MR. KURT PETERS
USH 41 BROWN COUNTY PROJECT OFFICE
1940 WEST MASON STREET
GREEN BAY, WI 54303
(920) 492-2213
KURT.PETERS@DOT.WI.GOV

DIGGERS HOTLINE

Call 811 3 Work Days Before You Dig
or Toll Free (800) 242-8511
Hearing Impaired TDD (800) 542-2289
www.DiggersHotline.com

DNR LIAISON

WISCONSIN DEPARTMENT OF NATURAL RESOURCES
NORTHEAST REGION HEADQUARTERS
2984 SHAWANO AVENUE
P.O. BOX 10488
GREEN BAY, WI. 54307-0448
ATTN: JIM DOPERALSKI JR.
PHONE: 920-662-5119
EMAIL: james.doperalski@wisconsin.gov

ALIGNMENT ABBREVIATIONS

EE	GRANT ST
MV	MID VALLEY DR

ORDER OF DETAIL SHEETS

OTHER DESIGNERS INCLUDE:

DESIGN, PLANS, SPECIFICATIONS, AND ESTIMATE FOR SIGN REMOVAL AND PERMANENT SIGNING PROVIDED BY WISCONSIN DEPARTMENT OF TRANSPORTATION

UTILITY COORDINATION AND UTILITY SPECIFICATIONS PROVIDED BY BECHER-HOPPE ASSOCIATES, INC.

DESIGN, PLANS, SPECIFICATIONS, AND ESTIMATE FOR LIGHTING PROVIDED BY KL ENGINEERING

GENERAL NOTES

THE LOCATION OF EXISTING OR PROPOSED UTILITIES AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY FACILITIES WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN.

THE CONTRACTOR SHALL NOTIFY DIGGERS HOTLINE AND AFFECTED UTILITIES PRIOR TO THE START OF WORK. ANY UTILITY WHICH IS NOT A MEMBER OF DIGGERS HOTLINE MUST BE CONTACTED SEPARATELY.

NO TREES AND SHRUBS SHALL BE REMOVED WITHOUT APPROVAL OF THE ENGINEER.

STORAGE OF ANY MATERIAL WILL NOT BE PERMITTED IN WETLANDS.

DISTURBED AREAS WITHIN THE RIGHT-OF-WAY, ARE TO BE TOPSOILED, SEEDED, FERTILIZED AND MULCHED AS DIRECTED BY THE ENGINEER.

INLET AND DISCHARGE ELEVATIONS FOR DRAINAGE STRUCTURES SHOWN ON THE PLAN MAY BE ADJUSTED BY THE ENGINEER TO FIT FIELD CONDITIONS.

ALL MANHOLE AND INLET OFFSETS ARE GIVEN TO THE CENTER OF THE STRUCTURE. PRIOR TO ORDERING DRAINAGE PIPES AND STRUCTURES THE CONTRACTOR SHALL VERIFY RELATED DRAINAGE INFORMATION IN THE PLANS WITH THE ENGINEER.

THE EROSION CONTROL FEATURES AS SHOWN ON THE PLANS ARE AT SUGGESTED LOCATIONS. EXACT LOCATIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.

EXISTING PIPE CULVERT SIZES SHOWN ARE APPROXIMATE AND CONTRACTOR WILL BASE BID ON ACTUAL FIELD CONDITIONS.

TRAFFIC CONTROL DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.

CURB AND GUTTER GRADES ARE GIVEN AT THE FLANGE. CURB RADII ARE SHOWN TO THE FACE OF CURB.

BROKEN CONCRETE CONTAINING RE-BAR OR STEEL MESH SHALL NOT BE USED AS RIPRAP.

REMOVING CONCRETE INCLUDES ANY MESH OR REINFORCEMENT THAT MAY BE PART OF THE PAVEMENT STRUCTURE.

WHERE PROPOSED STORM SEWER TIES INTO EXISTING STORM SEWER, THE EXISTING INVERTS ARE TO BE VERIFIED IN THE FIELD PRIOR TO INSTALLING UPSTREAM AND DOWNSTREAM SYSTEM.

REMOVING STORM SEWER ENDWALLS IS INCIDENTAL TO REMOVING STORM SEWER ITEM.

THE FOLLOWING LOCATIONS WHERE UNDER CONSTRUCTION IN 2012 AND 2013:
1. USH 41 ORANGE LANE TO GLORY ROAD NORTHBOUND AND SOUTHBOUND
FIELD VERIFY EXISTING CONDITIONS

TACK COAT HAS BEEN ESTIMATED AT THE APPLICATION RATE OF 0.025 GALLON PER SQUARE YARD AND SHALL BE APPLIED BETWEEN ALL LAYERS OF ASPHALTIC PAVEMENT.

REINFORCED CONCRETE APRON ENDWALLS AND ADJOINING TWO SECTIONS OF CONCRETE PIPE SHALL BE TIED TOGETHER AS SHOWN ON THE STANDARD DETAIL DRAWINGS AND AS LOCATED IN THE MISCELLANEOUS QUANTITIES. JOINT TIES SHALL BE INCIDENTAL ITEMS INCLUDED IN THE COST OF THE CONCRETE PIPE.

STORM SEWER SHOWN ON CROSS SECTIONS IS APPROXIMATE. SEE STORM SEWER PLAN AND PROFILES FOR MORE DETAILS.

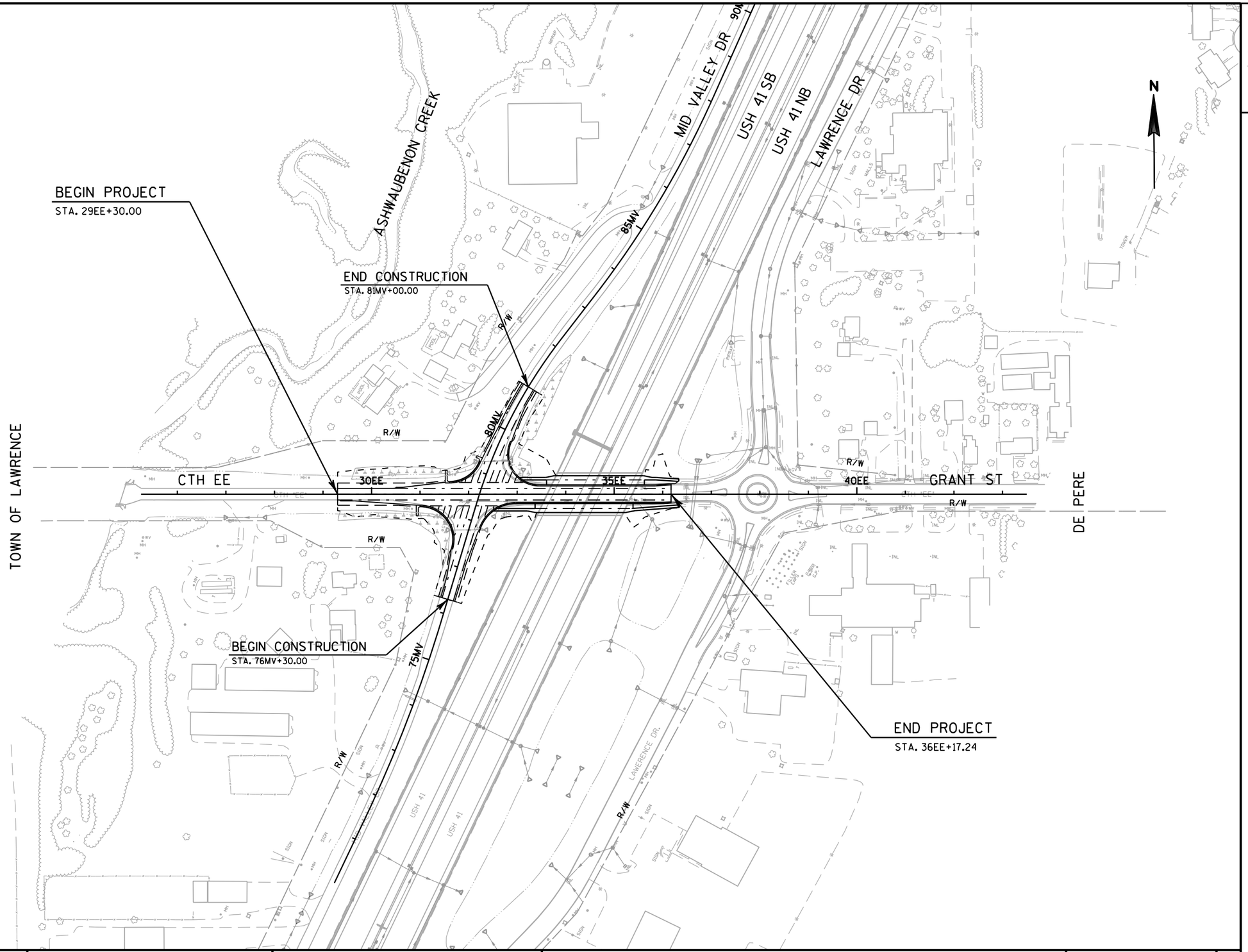
CLASS OF STORM SEWER PIPES MAY NOT SUPPORT CONSTRUCTION TRAFFIC OR MACHINERY.

STANDARD ABBREVIATIONS

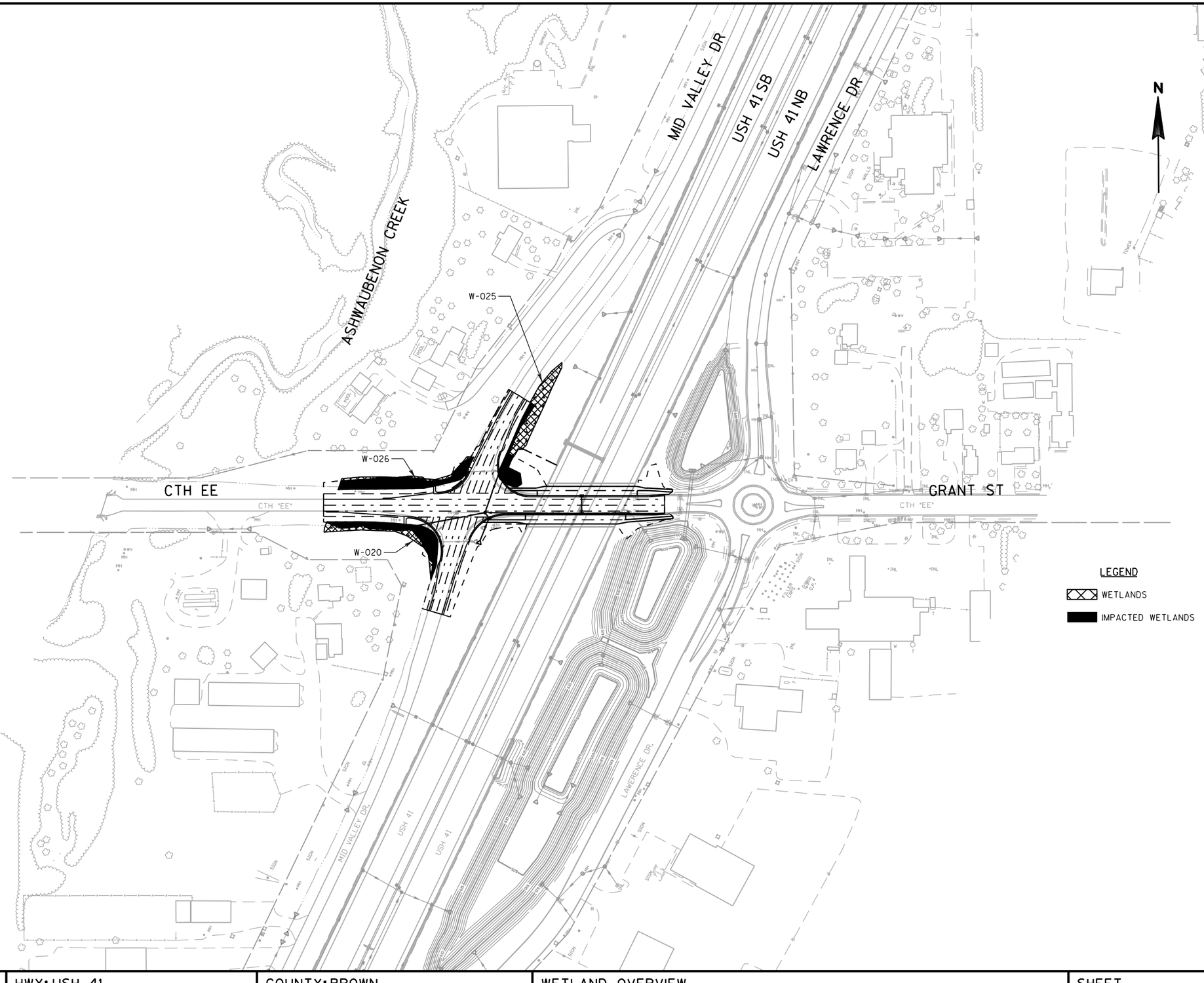
AH	AHEAD
ASPH.	ASPHALT
BK	BACK
BM	BENCHMARK
CE	COMMERCIAL ENTRANCE
C&G	CURB AND GUTTER
CABC	CRUSHED AGGREGATE BASE COURSE
C/L	CENTERLINE
CL	CLASS
CONC.	CONCRETE
CMCP	CORRUGATED METAL CULVERT PIPE
CP-	CONTROL POINT
CP	CULVERT PIPE
CPRC	CULVERT PIPE REINFORCED CONCRETE
C.Y.	CUBIC YARDS
D	DEGREE OF CURV
EB	EASTBOUND
EL	ELEVATION
E.O.R.	END OF RADIUS
EX.	EXISTING
EXC.	EXCAVATION
FE	FIELD ENTRANCE
F.L.	FLOWLINE
F.S.	FULL SUPER
HMA	HOT MIX ASPHALT
INV.	INVERT
L	LENGTH OF CURVE
LF	LINEAL FOOT
LHF	LEFT HAND FORWARD
LT.	LEFT
MH	MANHOLE
MIN.	MINIMUM
N.C.	NORMAL CROWN
NB	NORTHBOUND
NOR	NORMAL
N.T.S.	NOT TO SCALE
PC	POINT OF CURVE
PE	PRIVATT ENTRANCE
PGL	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
P.L.E.	PERMANENT LIMITED EASEMENT
PT	POINT OF TANGENT
RAD.	RADIUS
RBT	ROUNDABOUT
R.C.	REVERSE CROWN
R/L	REFERENCE LINE
REQ'D	REQUIRED
RHF	RIGHT HAND FORWARD
RT.	RIGHT
R/W	RIGHT OF WAY
SB	SOUTHBOUND
SDD	STANDARD DETAIL DRAWING
SE	SUPERELEVATION
SF	SQUARE FOOT
STA.	STATION
SY	SQUARE YARD
T	LENGTH OF TANGENT
T.I.	TEMPORARY INTEREST
T/L	TRANSIT LINE
TLE	TEMPORARY LIMITED EASMENT
TYP.	TYPICAL
VAR.	VARIES
WB	WESTBOUND
W/L	WETLAND

2

2



PROJECT NO: 1133-06-88	HWY: USH 41	COUNTY: BROWN	PROJECT OVERVIEW	SHEET 3	E



PROJECT NO: 1133-06-88	HWY: USH 41	COUNTY: BROWN	WETLAND OVERVIEW	SHEET 4	E

FILE NAME : \\milw00\ingrproj\43170\0600\0688_Grant_St\ee_020202_wo.dgn PLOT DATE : 10/25/2012 PLOT BY : lzidek PLOT NAME : PLOT SCALE : 200:1

WISDOT/CADDS SHEET 42

2

2

ASHWAUBENON CREEK

MID VALLEY DR

USH 41 SB

USH 41 NB

CTH EE

GRANT ST

LAWRENCE DR

26EE 28EE 30EE 32EE 34EE 36EE 38EE 40EE

84MV 82MV 80MV 78MV 76MV 74MV

N

LEGEND

PHRAGMITIES

EXCAVATION OF PHRAGMITITES SOIL

PROJECT NO: 1133-06-88	HWY: USH 41	COUNTY: BROWN	INVASIVE SPECIES OVERVIEW	SHEET 5	E

FILE NAME : \\milw00\ingrproj\43170\0600\0688_Grant_St\ee_020203_is.dgn PLOT DATE : 10/25/2012 PLOT BY : lzidek PLOT NAME : PLOT SCALE : 100:1

WISDOT/CADDS SHEET 42

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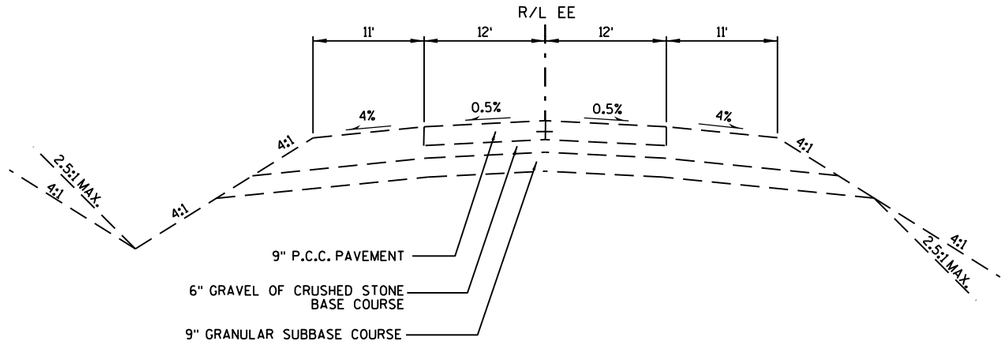
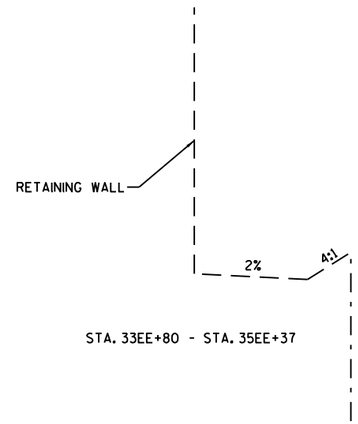
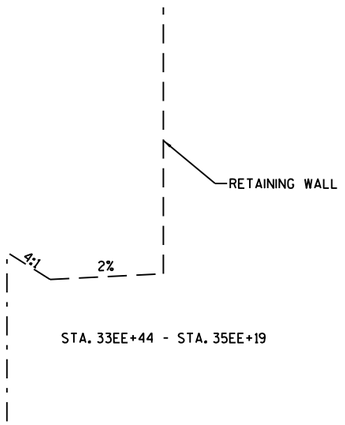


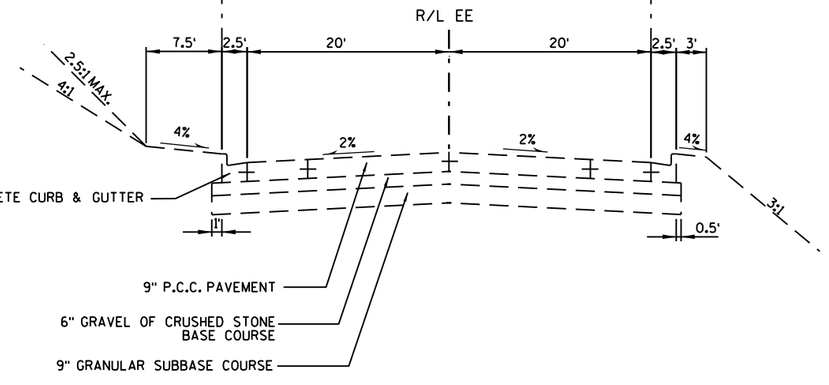
TYPICAL EXISTING SECTION

GRANT ST

STA. 29EE+30 - STA. 32EE+29







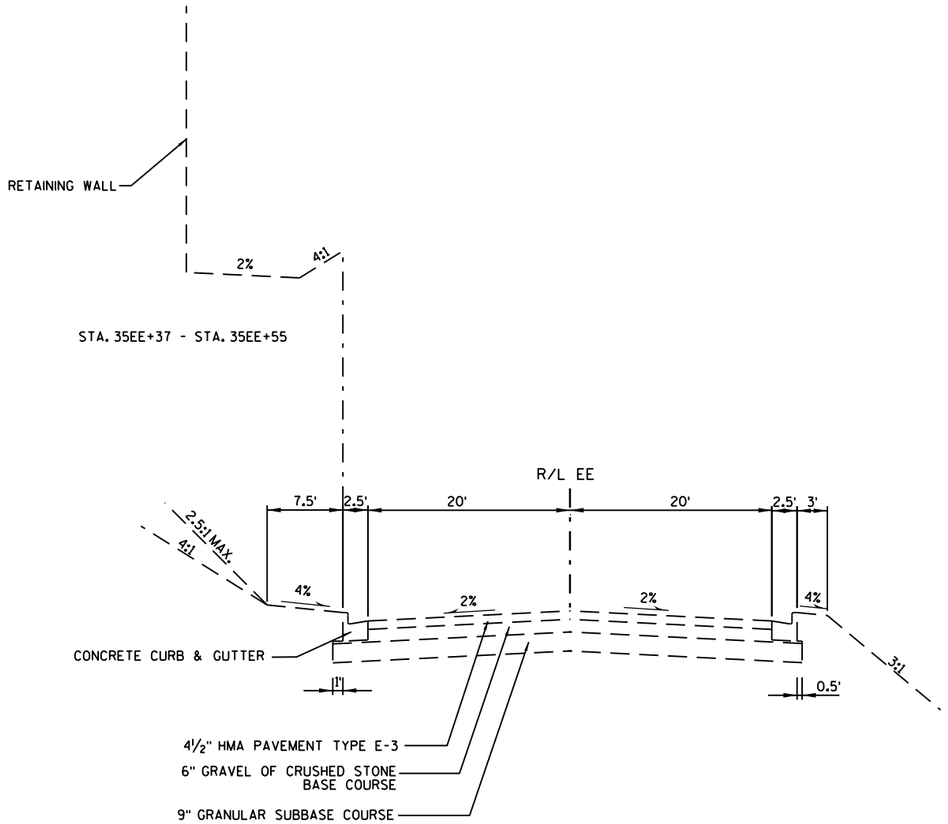
TYPICAL EXISTING SECTION

GRANT ST

STA. 32EE+29 - STA. 35EE+37

PROJECT NO: 1133-06-88	HWY: USH 41	COUNTY: BROWN	TYPICAL SECTIONS	SHEET 6	E

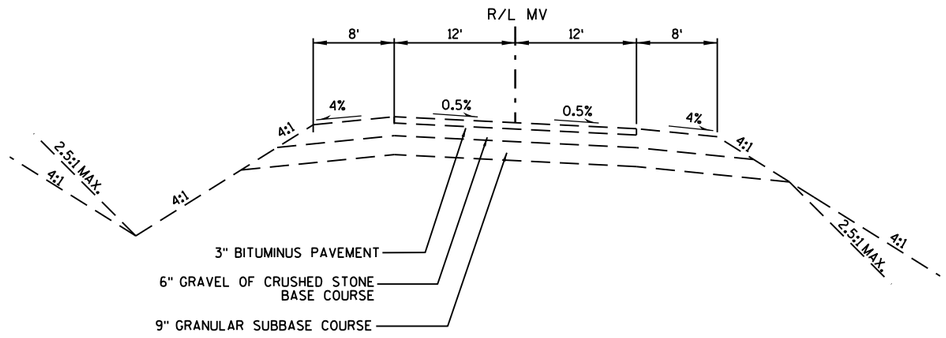
2



TYPICAL EXISTING SECTION

GRANT ST

STA. 35EE+37 - STA. 36EE+17

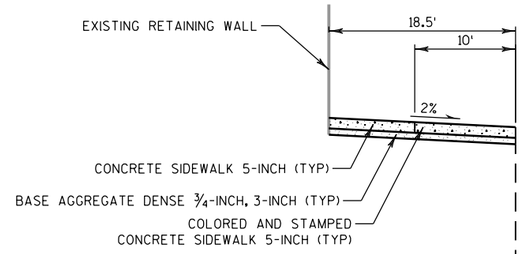


TYPICAL EXISTING SECTION

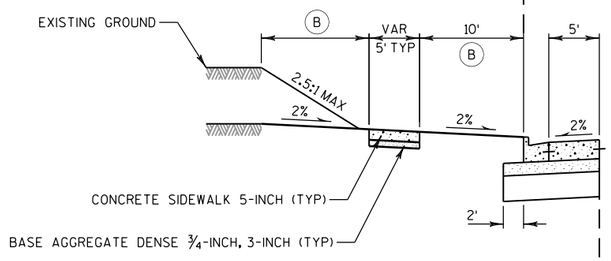
MID VALLEY DR

STA. 76EE+30 - STA. 81MV+00

PROJECT NO: 1133-06-88	HWY: USH 41	COUNTY: BROWN	TYPICAL SECTIONS	SHEET 7	E

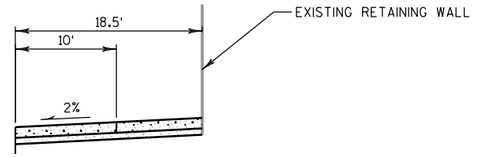


STA. 33EE+60.56 - STA. 35EE+62.26

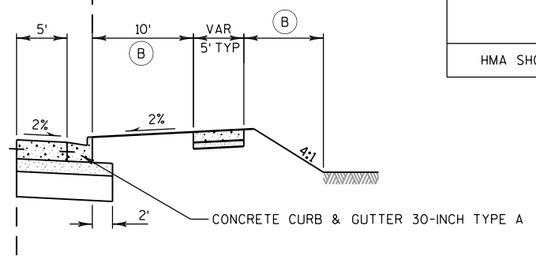


STA. 33EE+04.64 - STA. 33EE+60.56
STA. 35EE+62.26 - STA. 36EE+17.24

STA. 31EE+59.86 - STA. 32EE+25.07



STA. 33EE+36.98 - STA. 35EE+38.68

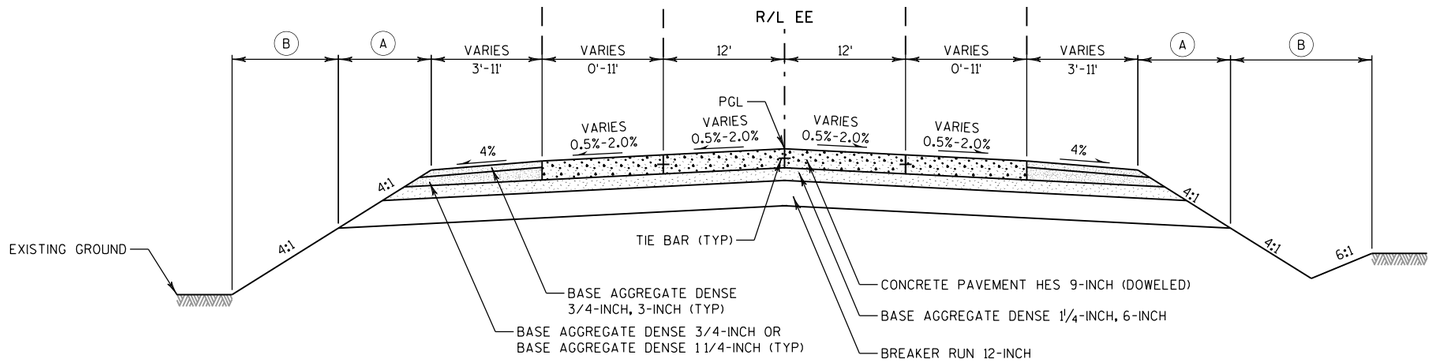


STA. 32EE+51.57 - STA. 33EE+36.98
STA. 35EE+38.68 - STA. 36EE+17.24

STA. 31EE+00.24 - STA. 31EE+70.24

ALL TYPES OF HMA PAVEMENT SHALL BE CONSTRUCTED WITH THE FOLLOWING LAYERS AND GRADATIONS:

LOCATION	PAVEMENT TYPE	TOTAL LAYERS PAVEMENT THICKNESS	LAYERS	NOMINAL MAXIMUM SIZE GRADATION	ASPHALTIC MATERIAL
HMA SHOULDER PAVEMENT	E-0.3	5"	2" UPPER 3" LOWER	12.5mm 19mm	PG58-28



TYPICAL FINISHED SECTION
GRANT ST

STA. 29EE+30.00 - STA. 36EE+17.24

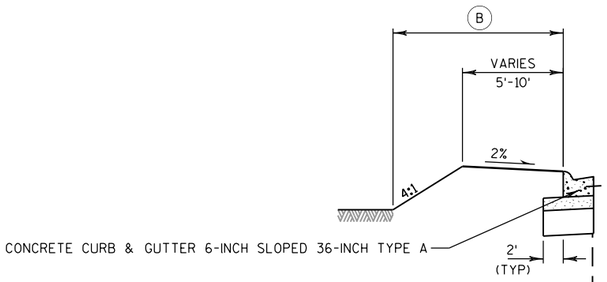
(A) SEED AND FERTILIZER

(B) TOPSOIL, SEED, FERTILIZER AND MULCH OR EROSION MAT

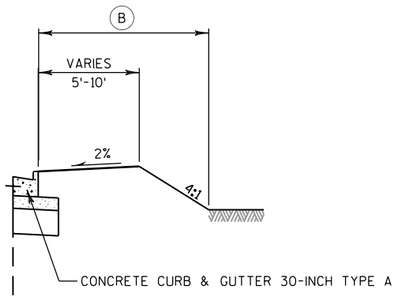
PROJECT NO: 1133-06-88	HWY: USH 41	COUNTY: BROWN	TYPICAL SECTIONS	SHEET 8	E

ALL TYPES OF HMA PAVEMENT SHALL BE CONSTRUCTED WITH THE FOLLOWING LAYERS AND GRADATIONS:

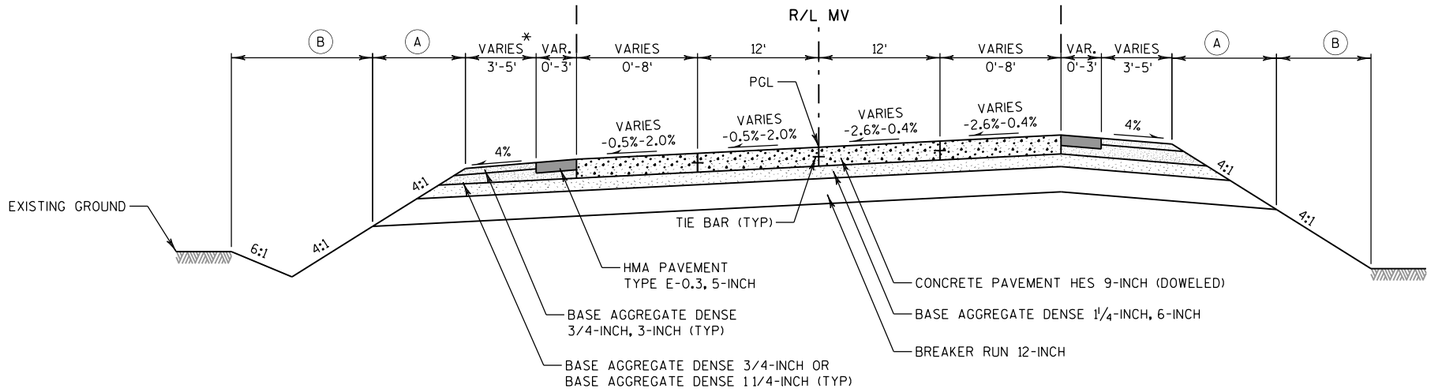
LOCATION	PAVEMENT TYPE	TOTAL LAYERS PAVEMENT THICKNESS	LAYERS	NOMINAL MAXIMUM SIZE GRADATION	ASPHALTIC MATERIAL
HMA SHOULDER PAVEMENT	E-0.3	5"	2" UPPER 3" LOWER	12.5mm 19mm	PG58-28



STA. 77MV+32.29 - STA. 78MV+02.29
STA. 78MV+81.73 - STA. 79MV+20.40



STA. 77MV+90.29 - STA. 78MV+31.31
STA. 79MV+11.85 - STA. 79MV+82.69



TYPICAL FINISHED SECTION

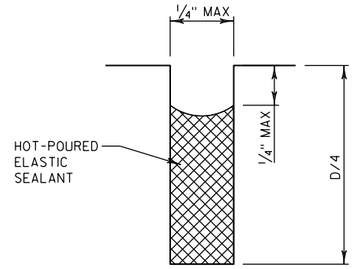
MID VALLEY DR

STA. 76MV+30.00 - STA. 78MV+31.31
STA. 78MV+81.73 - STA. 81MV+00.00

* UNDERDRAIN FROM STA 78MV+75 TO STA 81MV+00
SEE "SHOULDER UNDERDRAIN TRENCH" CONSTRUCTION DETAIL

(A) SEED AND FERTILIZER

(B) TOPSOIL, SEED, FERTILIZER AND MULCH OR EROSION MAT

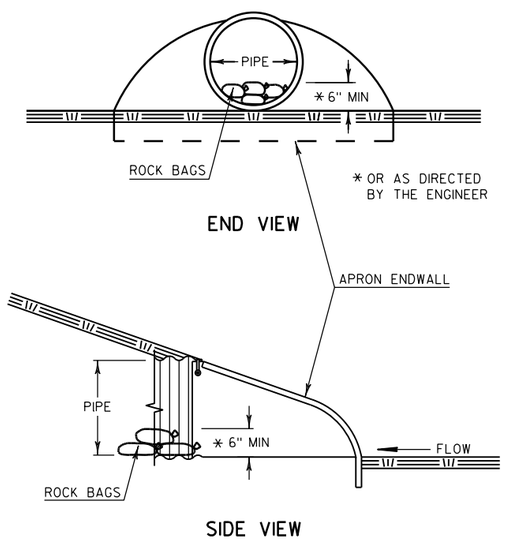


D = PAVEMENT DEPTH

CONCRETE JOINT SEALER DETAIL
(HOT-POURED ELASTIC JOINT)

LONGITUDINAL, TRANSVERSE, AND CONSTRUCTION JOINTS

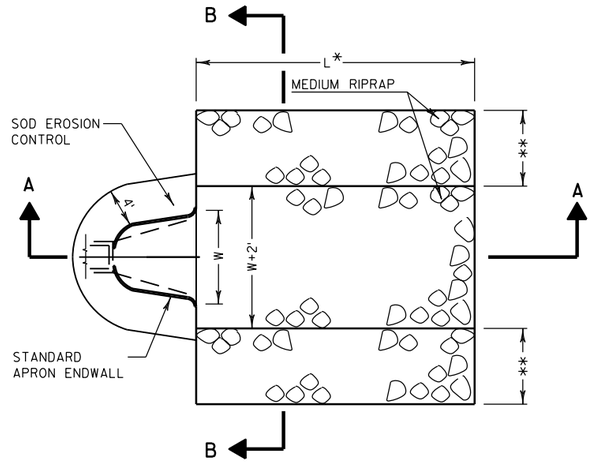
GRANT ST
MID VALLEY DR



SIDE VIEW

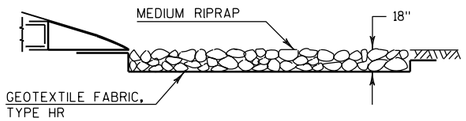
ESTIMATED BAG SIZE = 24" X 12" X 6"	
PIPE SIZE	ESTIMATED NO. OF BAGS
12"	1
15"	2
18"	2
24"	3
30"	5
36"	7
42"	7
48"	10
54"	10
60"	13
72"	16
30"X19"	5
38"X24"	7
53"X34"	10
60"X38"	13
76"X48"	18

CULVERT PIPE CHECKS

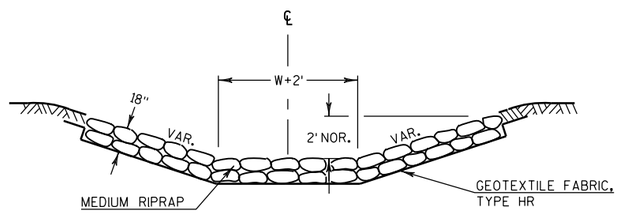


* L = 3 TIMES DIAMETER (NOR.) OR 10' MIN. OR AS DIRECTED BY THE ENGINEER

** = ADDITIONAL WIDTH TO MATCH TOP OF SLOPE



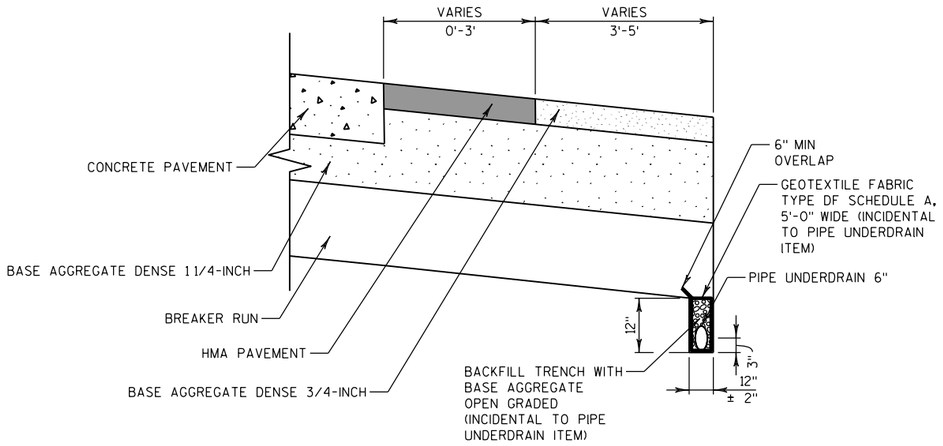
SECTION A-A



SECTION B-B

SOD, MEDIUM RIPRAP AND GEOTEXTILE FABRIC DETAIL AT APRON ENDWALLS

ROADWAY	OFFSET	STATION TO STATION
MID VALLEY DR	LT	78MV+75 - 81MV+00



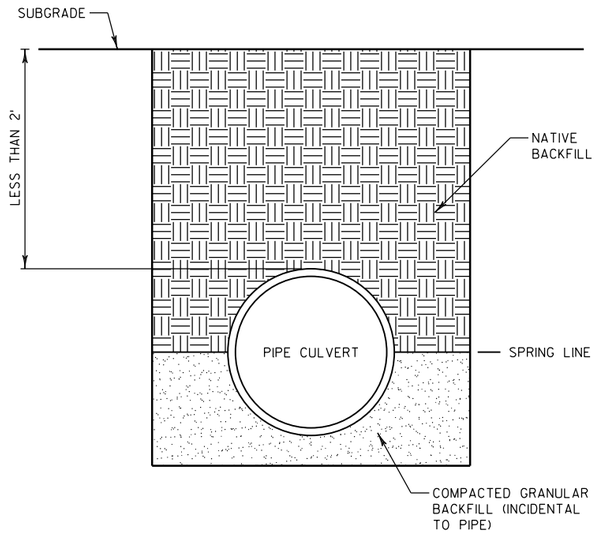
SHOULDER UNDERDRAIN TRENCH DETAIL

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											

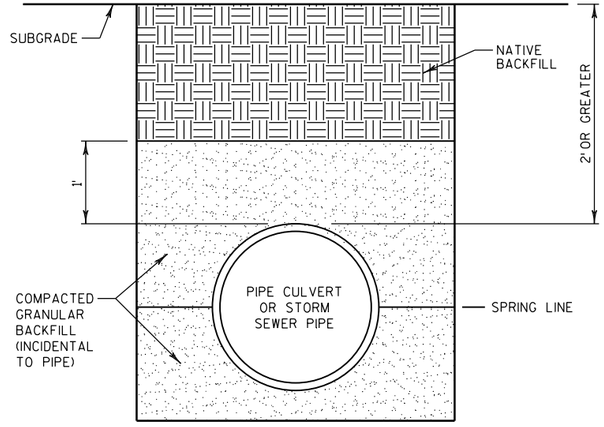
TOTAL PROJECT AREA = 5 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 2.1 ACRES

NOTE: NATIVE BACKFILL SHALL BE
FREE OF LARGE LUMPS, CLODS, OR ROCK.

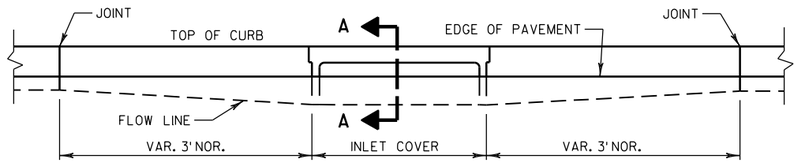


TRENCH BACKFILL DETAIL FOR
SHALLOW PIPE CULVERTS

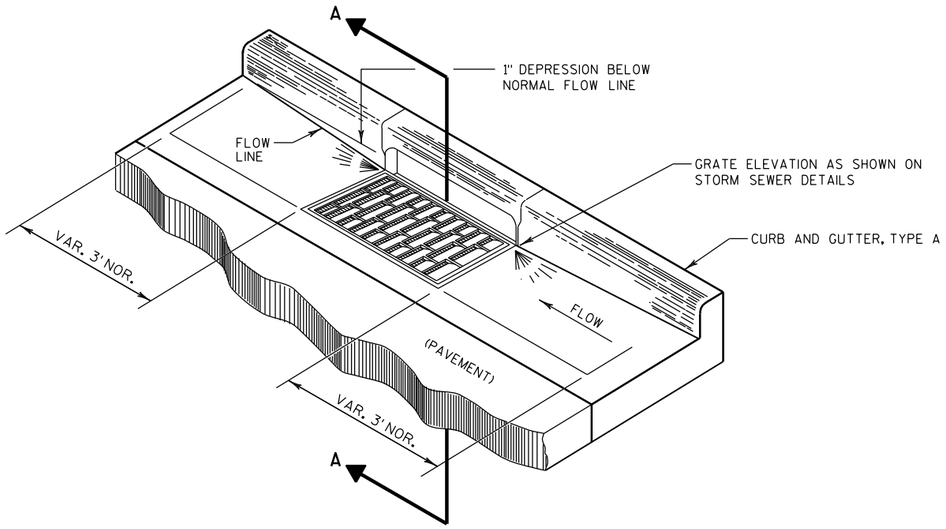
NOTE: NATIVE BACKFILL SHALL BE
FREE OF LARGE LUMPS, CLODS, OR ROCK.

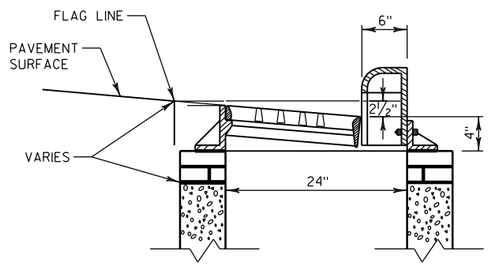


TRENCH BACKFILL DETAIL
FOR NORMAL DEPTH PIPE CULVERTS
AND STORM SEWER PIPE INSTALLATIONS



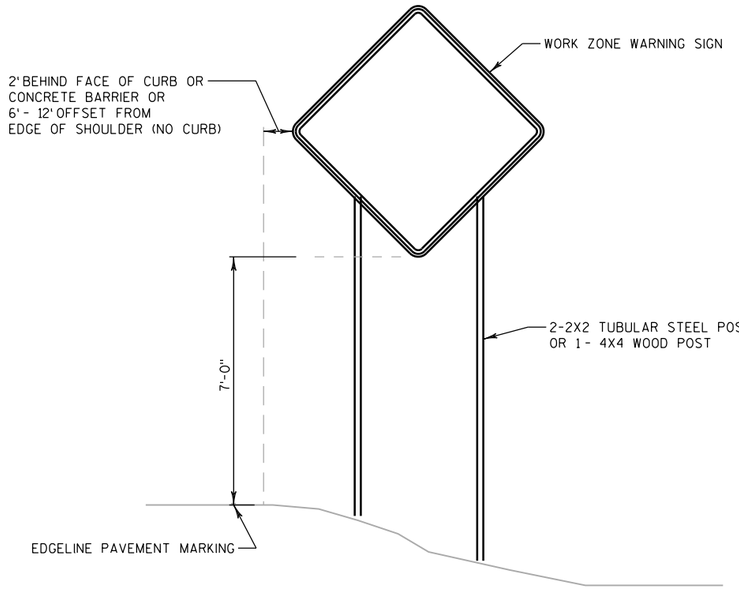
ELEVATION





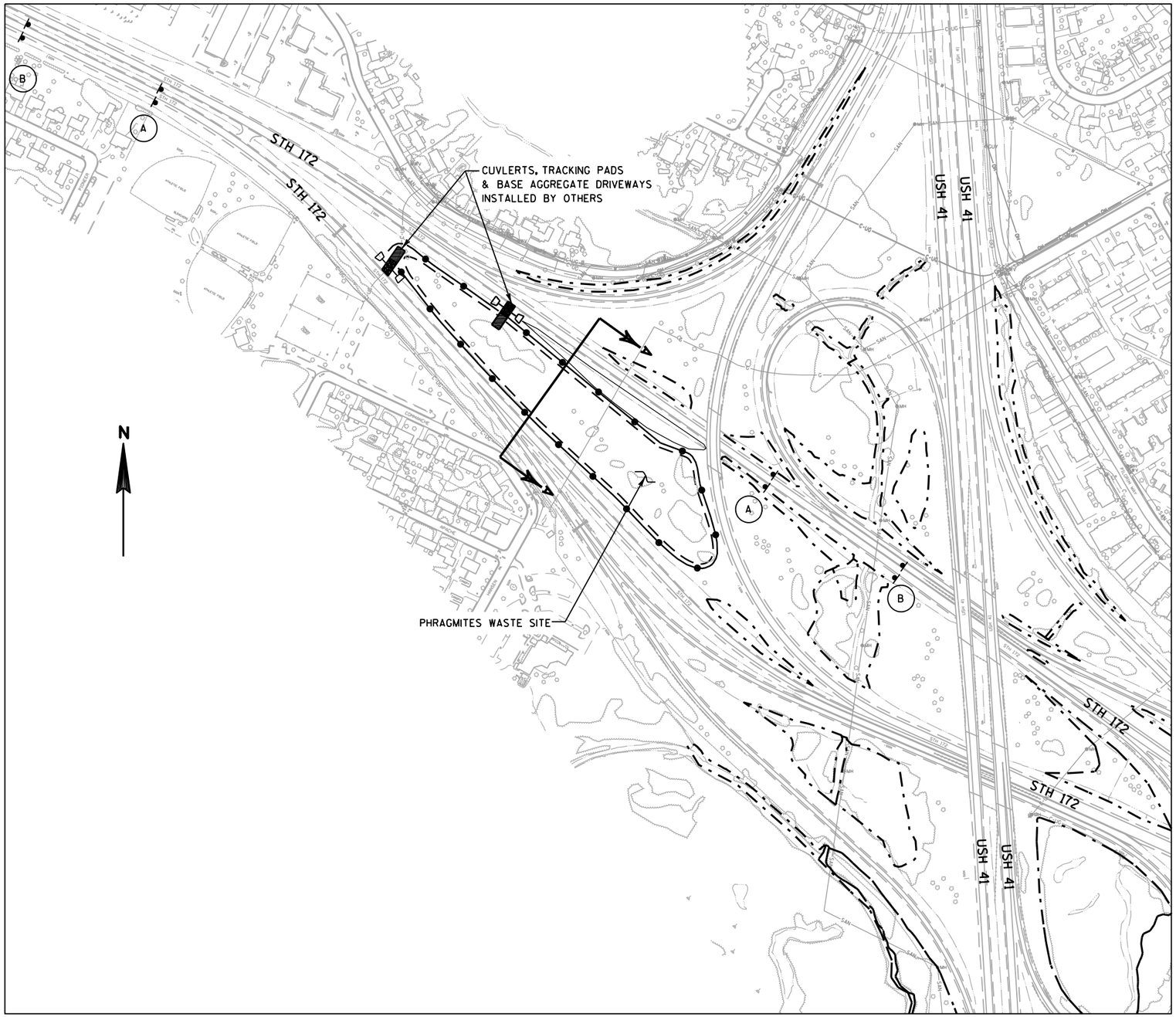
SECTION A-A

DETAIL OF CURB AND GUTTER AT INLETS



TYPICAL TEMPORARY TRAFFIC CONTROL DETAIL
MOUNTING ON FIXED SUPPORT

LONG TERM
7 DAYS OR MORE



NOTE: PHRAGMITES WASTE SITE HAS BEEN CLEARED AND GRUBBED BY OTHERS

LEGEND

DELINEATED WETLAND BOUNDARY

SILT FENCE INSTALLED BY OTHERS/MAINTAINED BY CONTRACTOR **

SIGN SUPPORT

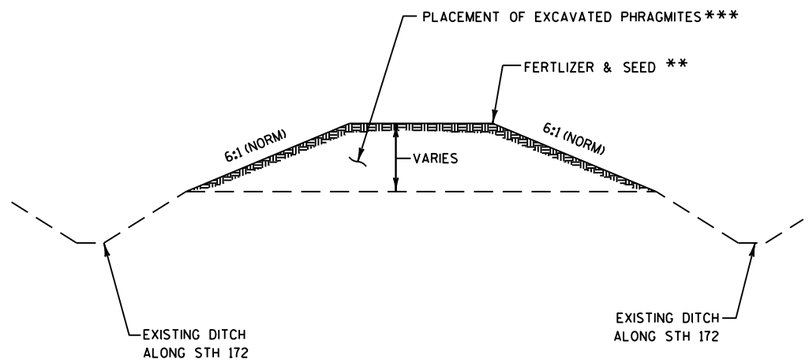
A — TRUCKS ENTERING & LEAVING W08-6A

B — ROAD WORK AHEAD W20-1

NOTES:
REMOVE SIGNS WHEN NOT IN USE

CONFORM TO THE TRAFFIC REQUIREMENTS IN THE SPECIAL PROVISIONS AND AS DIRECTED BY THE ENGINEER WHEN ACCESSING THE SITE

*** BURY ANY PHRAGMITES MATERIAL AT LEAST 18-INCHES BELOW THE FINISHED SURFACE

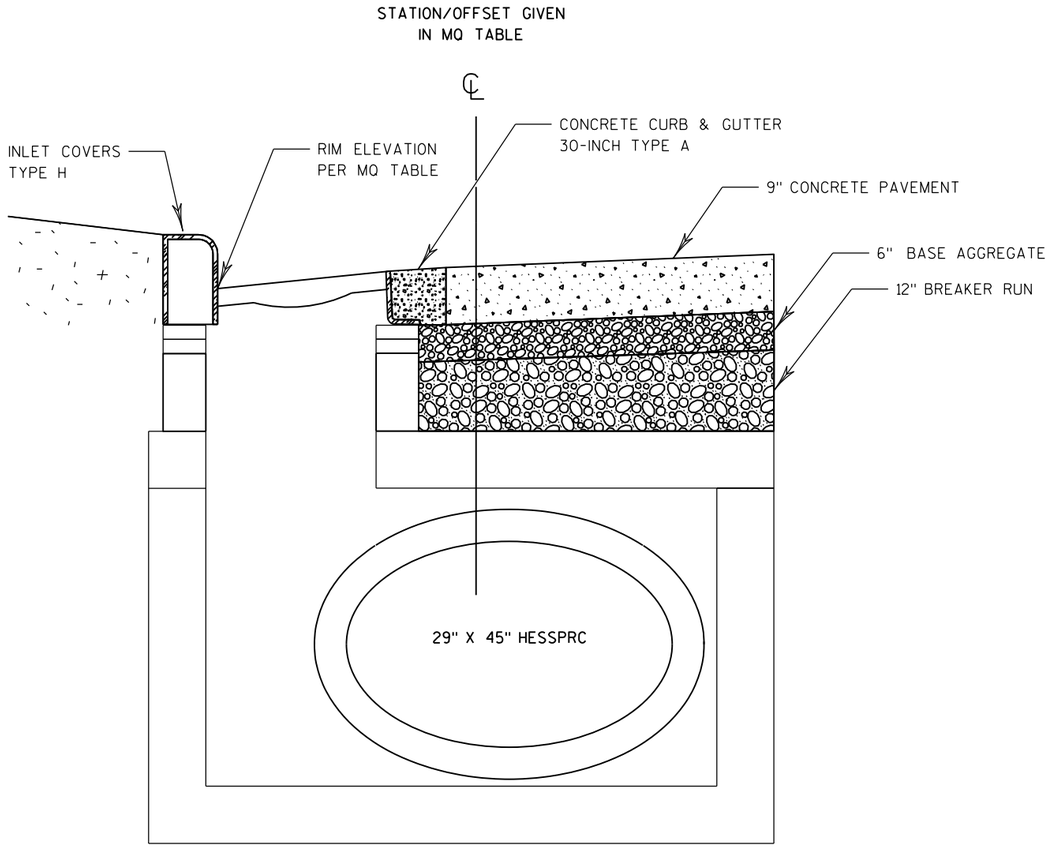


SECTION A-A

** PAID FOR UNDER THE PERTINENT ITEMS PROVIDED IN THE CONTRACT

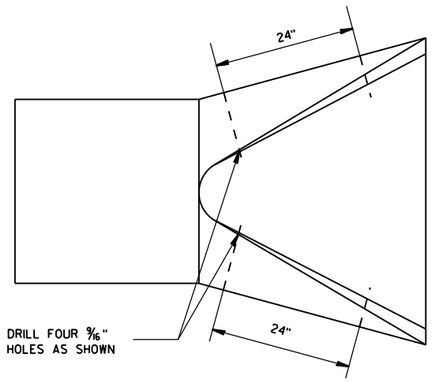
BROWN COUNTY PHRAGMITES WASTE SITE DETAIL

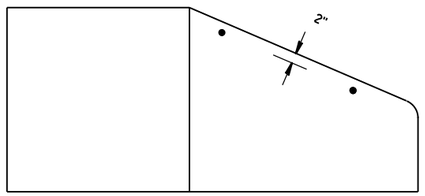
PROJECT NO: 1133-06-88	HWY: USH 41	COUNTY: BROWN	CONSTRUCTION DETAILS	SHEET 14	E

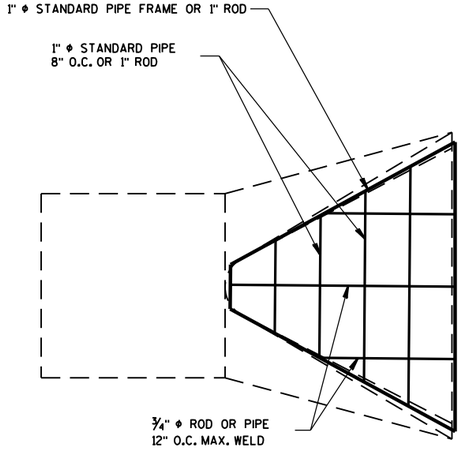


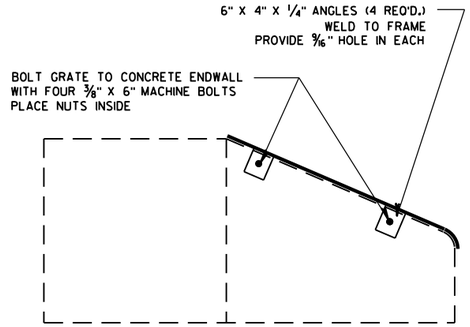
STRUCTURE 101

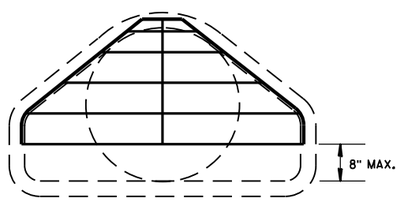
INLET COVER OFFSET FROM CENTER OF STRUCTURE
MANHOLE 8-FT DIAMETER WITH H INLET COVER











PIPE GRATE DETAIL

2

ASHWAUBENON CREEK

MID VALLEY DR

USH 41 SB

USH 41 NB

CTH EE

GRANT ST

LAWRENCE DR

84MV

82MV

80MV

78MV

76MV

74MV

26EE 28EE 30EE 32EE 34EE 36EE 38EE 40EE

RM

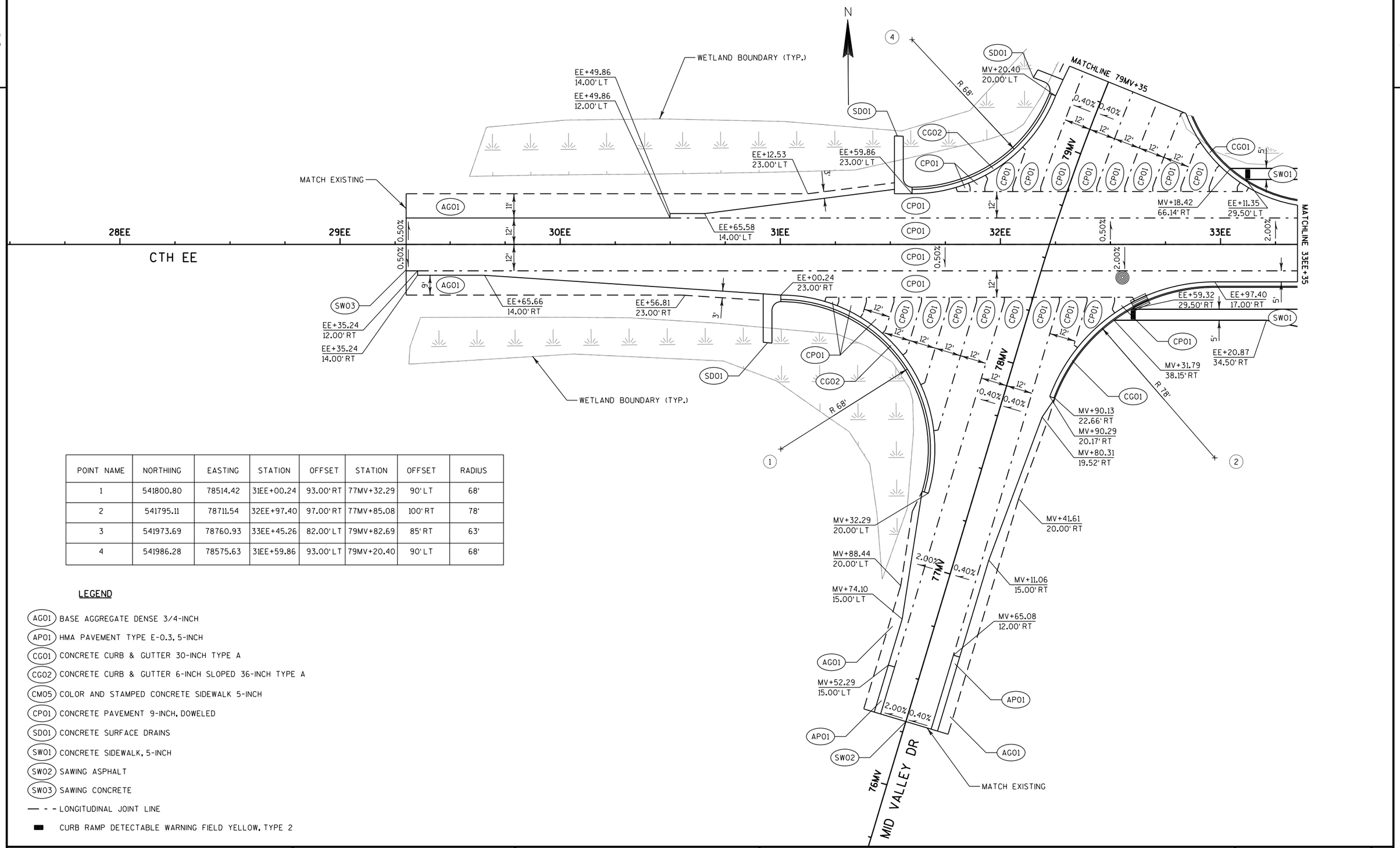
N

REMOVAL LEGEND

- REMOVING CURB AND CUTTER
- REMOVING SMALL PIPE CULVERT
- REMOVING INLETS
- REMOVING MANHOLES
- RM — REMOVING STORM SEWER
- REMOVING PAVEMENT
- SLOPE INTERCEPT
- X X X SAWING ASPHALT
- SAWING CONCRETE

PROJECT NO: 1133-06-88	HWY: USH 41	COUNTY: BROWN	REMOVAL PLANS	SHEET	E

FILE NAME : \\milw00\ingrproj\43170\0600\0688_Grant_St\ee_021101_rm.dgn PLOT DATE : 10/25/2012 PLOT BY : lzidek PLOT NAME : PLOT SCALE : 100:1



POINT NAME	NORTHING	EASTING	STATION	OFFSET	STATION	OFFSET	RADIUS
1	541800.80	78514.42	31EE+00.24	93.00' RT	77MV+32.29	90' LT	68'
2	541795.11	78711.54	32EE+97.40	97.00' RT	77MV+85.08	100' RT	78'
3	541973.69	78760.93	33EE+45.26	82.00' LT	79MV+82.69	85' RT	63'
4	541986.28	78575.63	31EE+59.86	93.00' LT	79MV+20.40	90' LT	68'

LEGEND

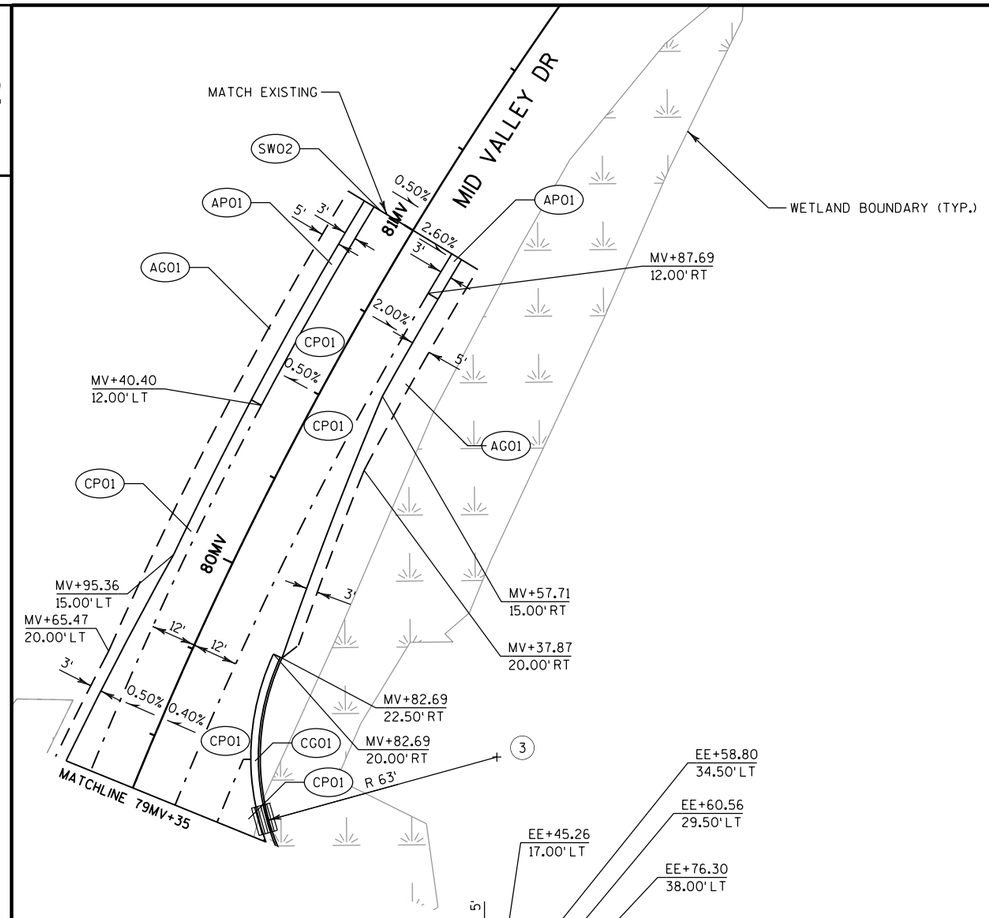
- AGO1 BASE AGGREGATE DENSE 3/4-INCH
- APO1 HMA PAVEMENT TYPE E-0.3, 5-INCH
- CGO1 CONCRETE CURB & GUTTER 30-INCH TYPE A
- CGO2 CONCRETE CURB & GUTTER 6-INCH SLOPED 36-INCH TYPE A
- CMO5 COLOR AND STAMPED CONCRETE SIDEWALK 5-INCH
- CPO1 CONCRETE PAVEMENT 9-INCH, DOWELED
- SDO1 CONCRETE SURFACE DRAINS
- SWO1 CONCRETE SIDEWALK, 5-INCH
- SWO2 SAWING ASPHALT
- SWO3 SAWING CONCRETE
- — - - LONGITUDINAL JOINT LINE
- ▬ CURB RAMP DETECTABLE WARNING FIELD YELLOW, TYPE 2

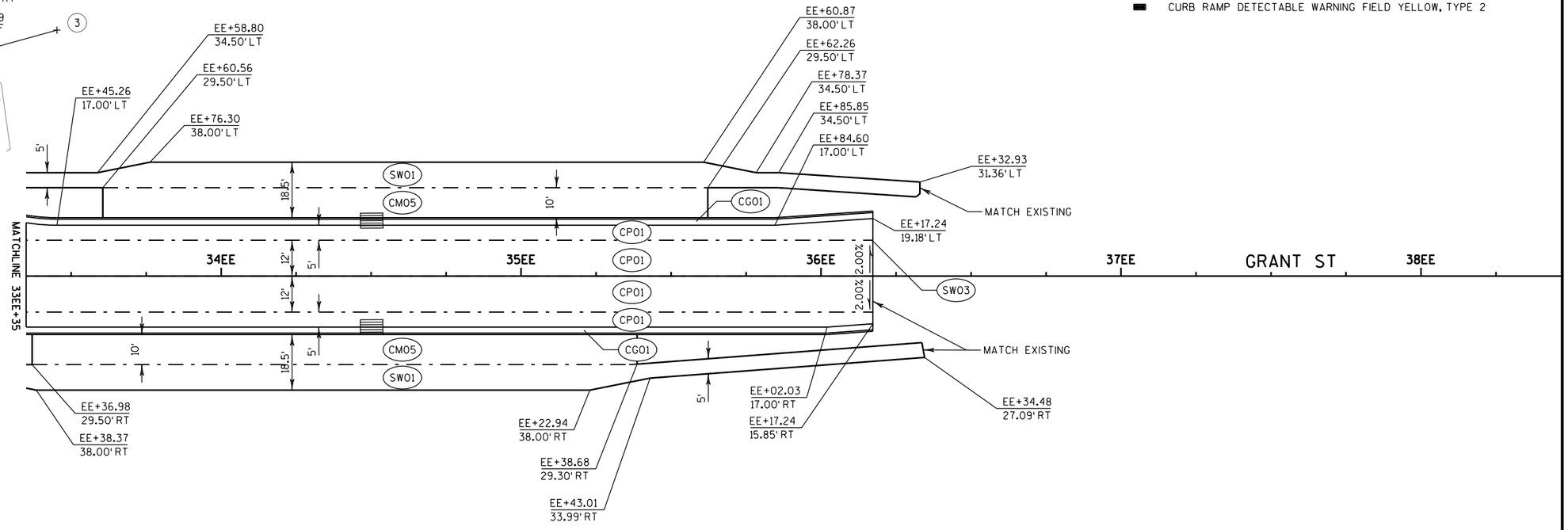
PROJECT NO: 1133-06-88	HWY: USH 41	COUNTY: BROWN	PAVING DETAILS	SHEET 17	E

2

POINT NAME	NORTHING	EASTING	STATION	OFFSET	STATION	OFFSET	RADIUS
3	541973.69	78760.93	33EE+45.26	82.00' LT	79MV+82.69	85' RT	63'

N

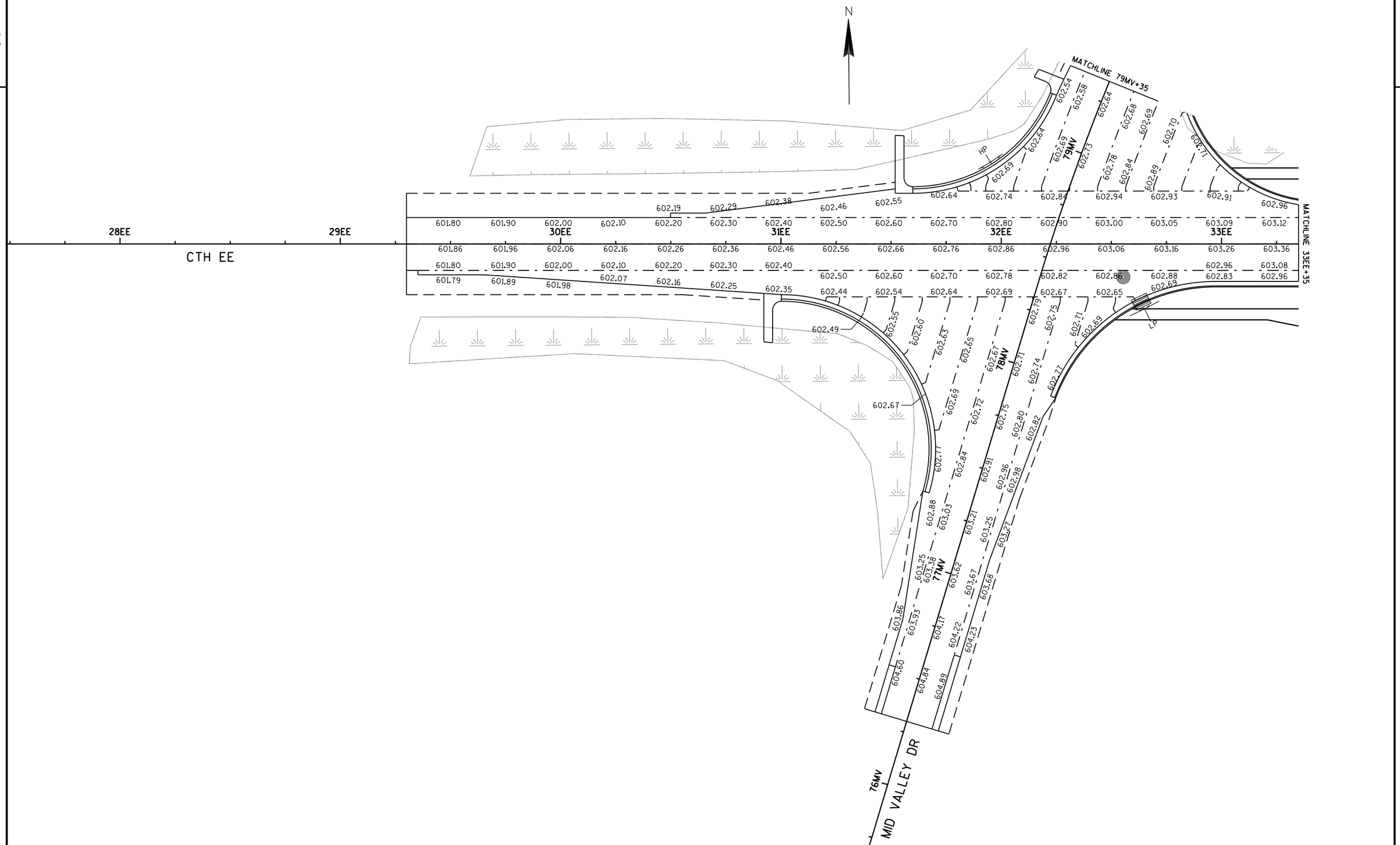




LEGEND

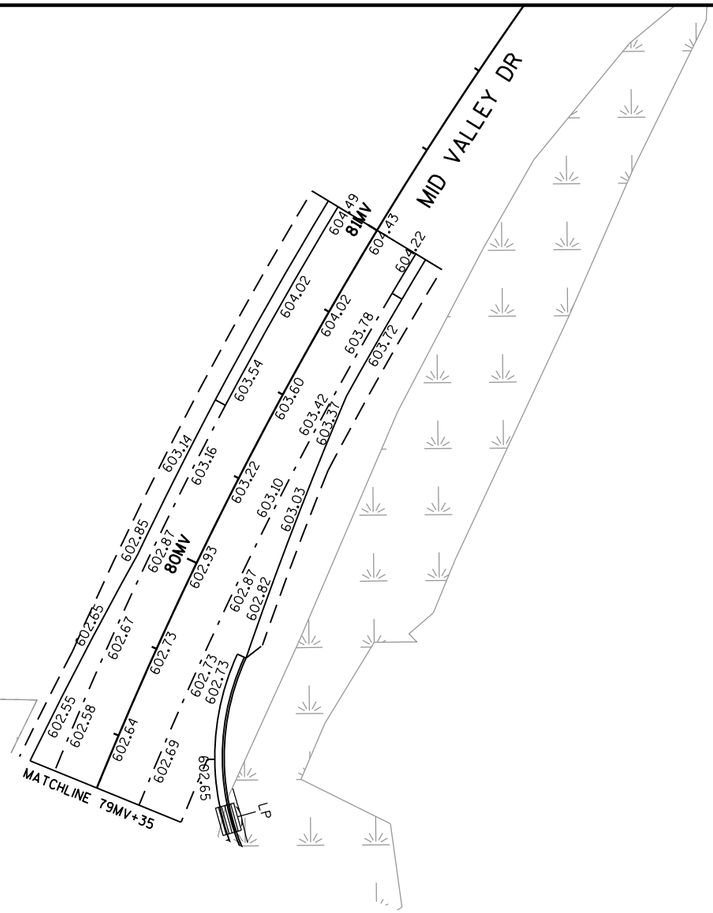
- AG01 BASE AGGREGATE DENSE 3/4-INCH
- AP01 HMA PAVEMENT TYPE E-0.3, 5-INCH
- CG01 CONCRETE CURB & GUTTER 30-INCH TYPE A
- CG02 CONCRETE CURB & GUTTER 6-INCH SLOPED 36-INCH TYPE A
- CM05 COLOR AND STAMPED CONCRETE SIDEWALK 5-INCH
- CP01 CONCRETE PAVEMENT 9-INCH, DOWELED
- SD01 CONCRETE SURFACE DRAINS
- SW01 CONCRETE SIDEWALK, 5-INCH
- SW02 SAWING ASPHALT
- SW03 SAWING CONCRETE
- — - - LONGITUDINAL JOINT LINE
- ▬ CURB RAMP DETECTABLE WARNING FIELD YELLOW, TYPE 2

2



PROJECT NO: 1133-06-88	HWY: USH 41	COUNTY: BROWN	PAVING GRADES	SHEET 19	E

2



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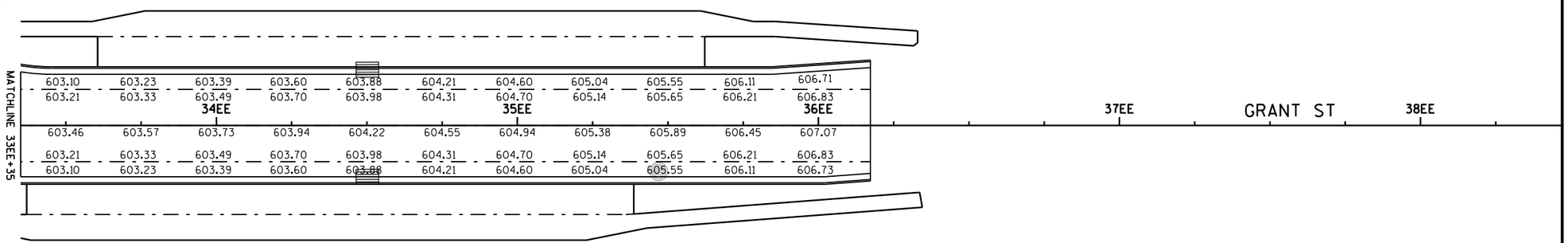


PROJECT NO: 1133-06-88	HWY: USH 41	COUNTY: BROWN	PAVING GRADES	SHEET 20	E

2

2

N

80MV

R/L MV

79MV

49.8'

44.3'

19.4'

27.2'

24'

24'

GRANT ST

30EE

31EE

32EE

33EE

34EE

35EE

24'

37.2'

28.6'

25.6'

40.8'

R/L EE

58.4'

78MV

77MV

MID VALLEY DR

PROJECT NO: 1133-06-88	HWY: USH 41	COUNTY: BROWN	CROSS SECTION MATCHLINES	SHEET 21	E

2

2

EROSION CONTROL LEGEND

- SILT FENCE
- SURFACE WATER FLOW
- SLOPE INTERCEPT
- (A) INLET PROTECTION TYPE A
- (D) INLET PROTECTION TYPE D
- CULVERT DITCH CHECK
- RIPRAP MEDIUM
- TEMPORARY DITCH CHECKS

NOTES

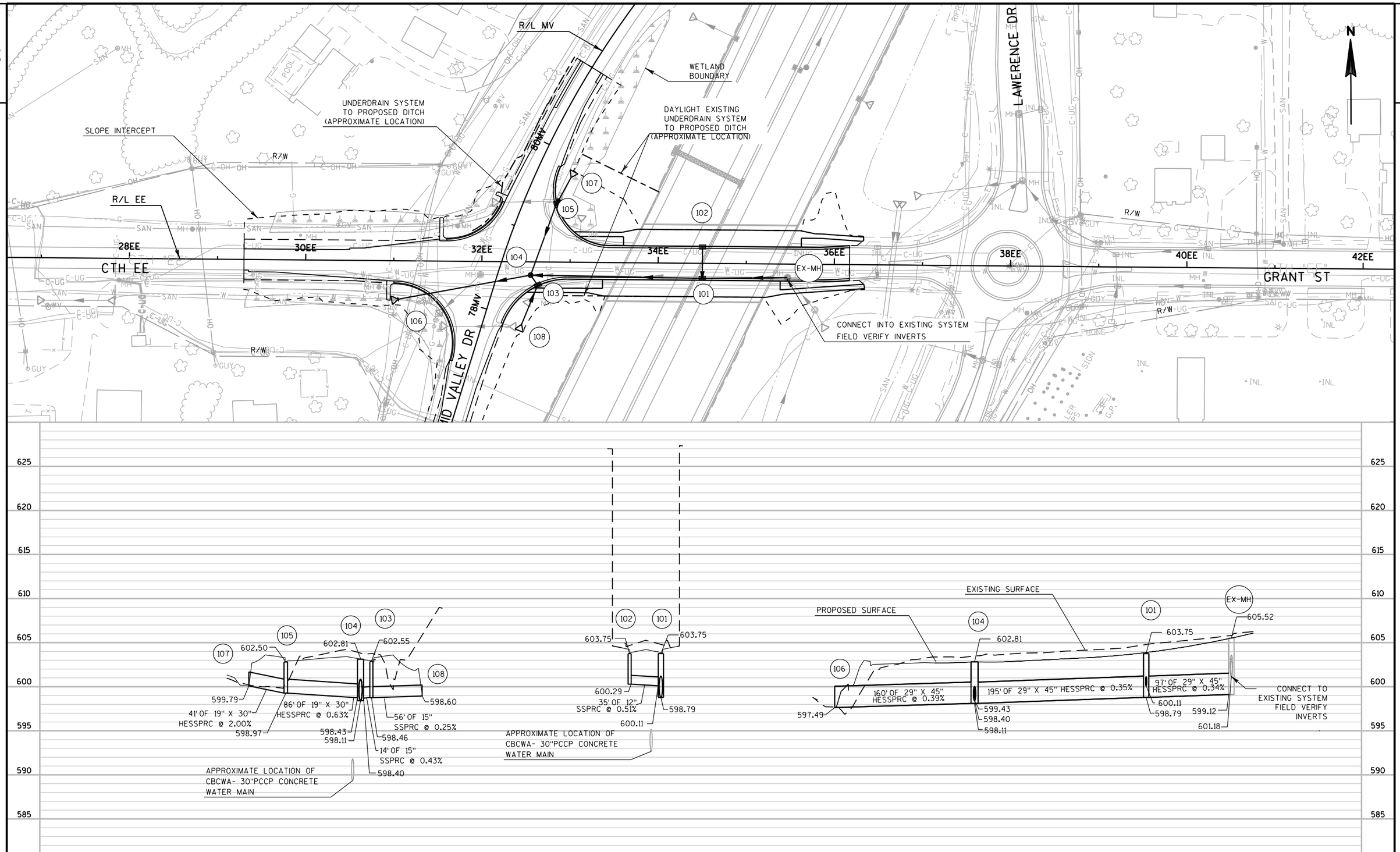
1) WHEN INLET PROTECTION TYPE A AND TYPE D ARE INDICATED AT THE SAME LOCATION, USE TYPE A PRIOR TO THE PLACEMENT OF CURB AND GUTTER AND USE TYPE D AFTER THE INLET CASTINGS ARE IN PLACE.

ASHWAUBENON CREEK
MID VALLEY DR
USH 41 SB
USH 41 NB
CTH EE
GRANT ST
LAWRENCE DR
84MV
82MV
80MV
78MV
76MV
74MV
26EE
28EE
30EE
32EE
34EE
36EE
38EE
40EE
N

PROJECT NO: 1133-06-88	HWY: USH 41	COUNTY: BROWN	EROSION CONTROL - STAGE 1	SHEET 22	E

FILE NAME : \\milw00\ingrproj\43170\0600\0688_Grant_St\ee_022001_ec.dgn PLOT DATE : 10/25/2012 PLOT BY : lzidek PLOT NAME : PLOT SCALE : 100:1

WISDOT/CADDS SHEET 42



PROJECT NO: 1133-06-88	HWY: USH 41	COUNTY: BROWN	STORM SEWER	SHEET 23	E

FILE NAME : \\milw00\ingrproj\43170\0600\0688_Grant_St\ee_022501_ss.dgn PLOT DATE : 10/25/2012 PLOT BY : lzidek PLOT NAME : PLOT SCALE : 100:1

2

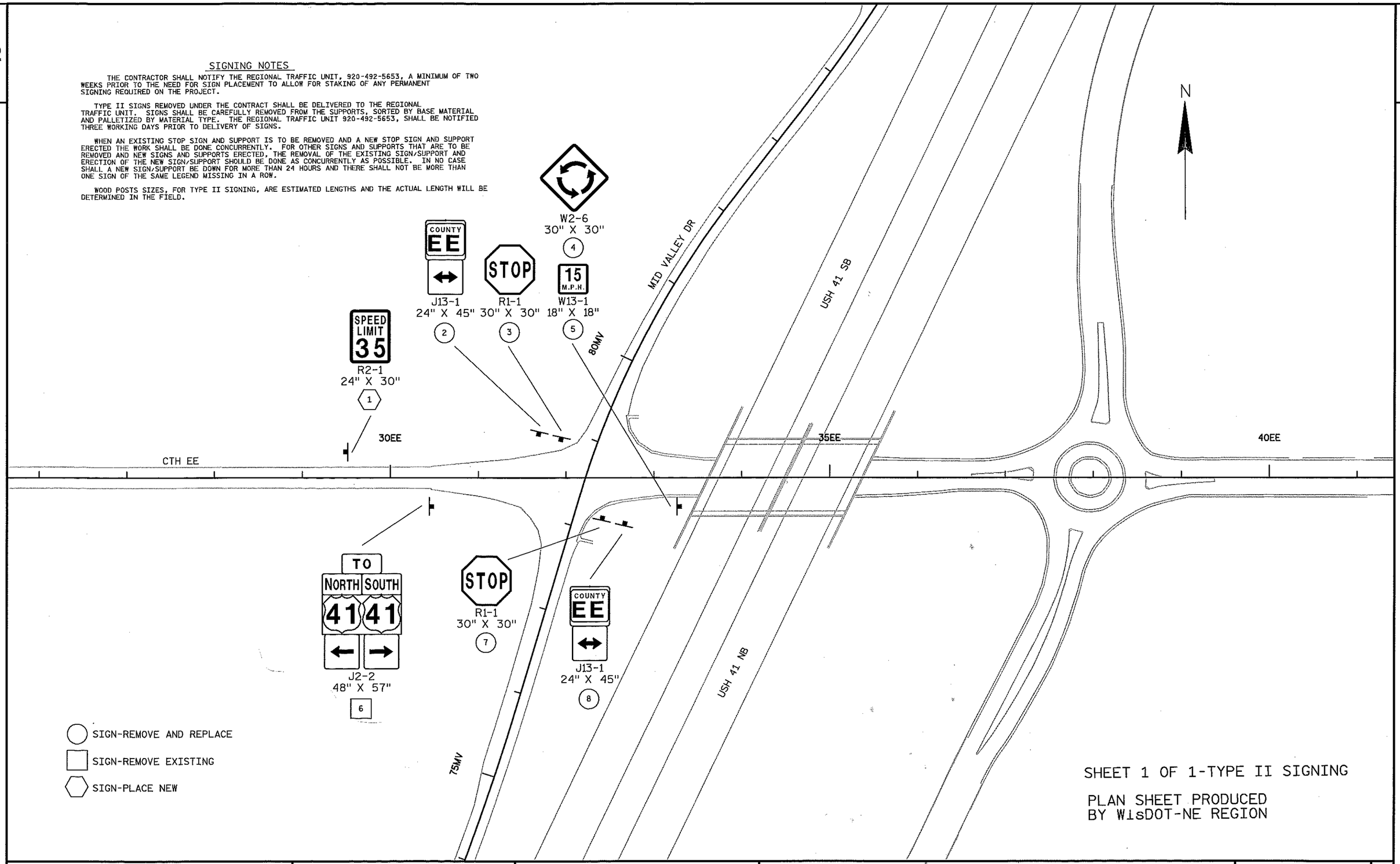
SIGNING NOTES

THE CONTRACTOR SHALL NOTIFY THE REGIONAL TRAFFIC UNIT, 920-492-5653, A MINIMUM OF TWO WEEKS PRIOR TO THE NEED FOR SIGN PLACEMENT TO ALLOW FOR STAKING OF ANY PERMANENT SIGNING REQUIRED ON THE PROJECT.

TYPE II SIGNS REMOVED UNDER THE CONTRACT SHALL BE DELIVERED TO THE REGIONAL TRAFFIC UNIT. SIGNS SHALL BE CAREFULLY REMOVED FROM THE SUPPORTS, SORTED BY BASE MATERIAL AND PALLETIZED BY MATERIAL TYPE. THE REGIONAL TRAFFIC UNIT 920-492-5653, SHALL BE NOTIFIED THREE WORKING DAYS PRIOR TO DELIVERY OF SIGNS.

WHEN AN EXISTING STOP SIGN AND SUPPORT IS TO BE REMOVED AND A NEW STOP SIGN AND SUPPORT ERECTED THE WORK SHALL BE DONE CONCURRENTLY. FOR OTHER SIGNS AND SUPPORTS THAT ARE TO BE REMOVED AND NEW SIGNS AND SUPPORTS ERECTED, THE REMOVAL OF THE EXISTING SIGN/SUPPORT AND ERECTION OF THE NEW SIGN/SUPPORT SHOULD BE DONE AS CONCURRENTLY AS POSSIBLE. IN NO CASE SHALL A NEW SIGN/SUPPORT BE DOWN FOR MORE THAN 24 HOURS AND THERE SHALL NOT BE MORE THAN ONE SIGN OF THE SAME LEGEND MISSING IN A ROW.

WOOD POSTS SIZES, FOR TYPE II SIGNING, ARE ESTIMATED LENGTHS AND THE ACTUAL LENGTH WILL BE DETERMINED IN THE FIELD.



SHEET 1 OF 1-TYPE II SIGNING

PLAN SHEET PRODUCED
BY WisDOT-NE REGION

PROJECT NO: 1133-06-88	HWY: CTH EE	COUNTY: BROWN	PERMANENT SIGNING - TYPE II	SHEET 24	E

GENERAL NOTES

THE EXACT LOCATION OF THE ELECTRICAL METER SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD. ADJUST ALL LOCATIONS AROUND SITE CONDITIONS INCLUDING TOPOGRAPHY AND UTILITIES.

CONFER WITH THE LOCAL UTILITY TO DETERMINE WHICH SIDE THE ELECTRICAL SERVICE LATERAL WILL APPROACH.

CONTRACTOR MUST PROVIDE UTILITY APPROVED METER SOCKET AND INSTALL PER UTILITY AND MANUFACTURER'S REQUIREMENTS.

SERVICE CONDUCTOR ENTRANCES SHALL BE RIGID METALLIC CONDUIT, NIPPLES AND/OR CONDULETS AS REQUIRED.

SERVICE CONDUCTOR ENTRANCES SHALL BE SIZED AND LOCATED AS REQUIRED BY THE LOCAL UTILITY AND IN ACCORDANCE WITH APPROPRIATE ARTICLES OF THE LATEST ACCEPTED NATIONAL ELECTRICAL CODE.

IF MORE THAN TWO GROUNDING ELECTRODES ARE REQUIRED, THE DISTANCE APART SHALL BE 6-FEET OR PER LOCAL UTILITY REGULATIONS.

ALL MOUNTING CHANNEL AND HARDWARE SHALL BE STAINLESS STEEL.

COORDINATE THE LAYOUT AND INSTALLATION OF ALL EQUIPMENT SHOWN WITH THE VILLAGE OF DEPERE AND THE UTILITY. THE LOCATION AND ARRANGEMENT OF ALL EQUIPMENT SHOWN IS APPROXIMATE AND SHALL BE VERIFIED IN THE FIELD.

SEE STANDARD DETAIL DRAWING "CABINET SERVICE INSTALLATION (METER BREAKER PEDESTAL)" FOR ADDITIONAL INFORMATION NOT SHOWN ON THIS DETAIL.

STREET LIGHTING PLANS PREPARED BY

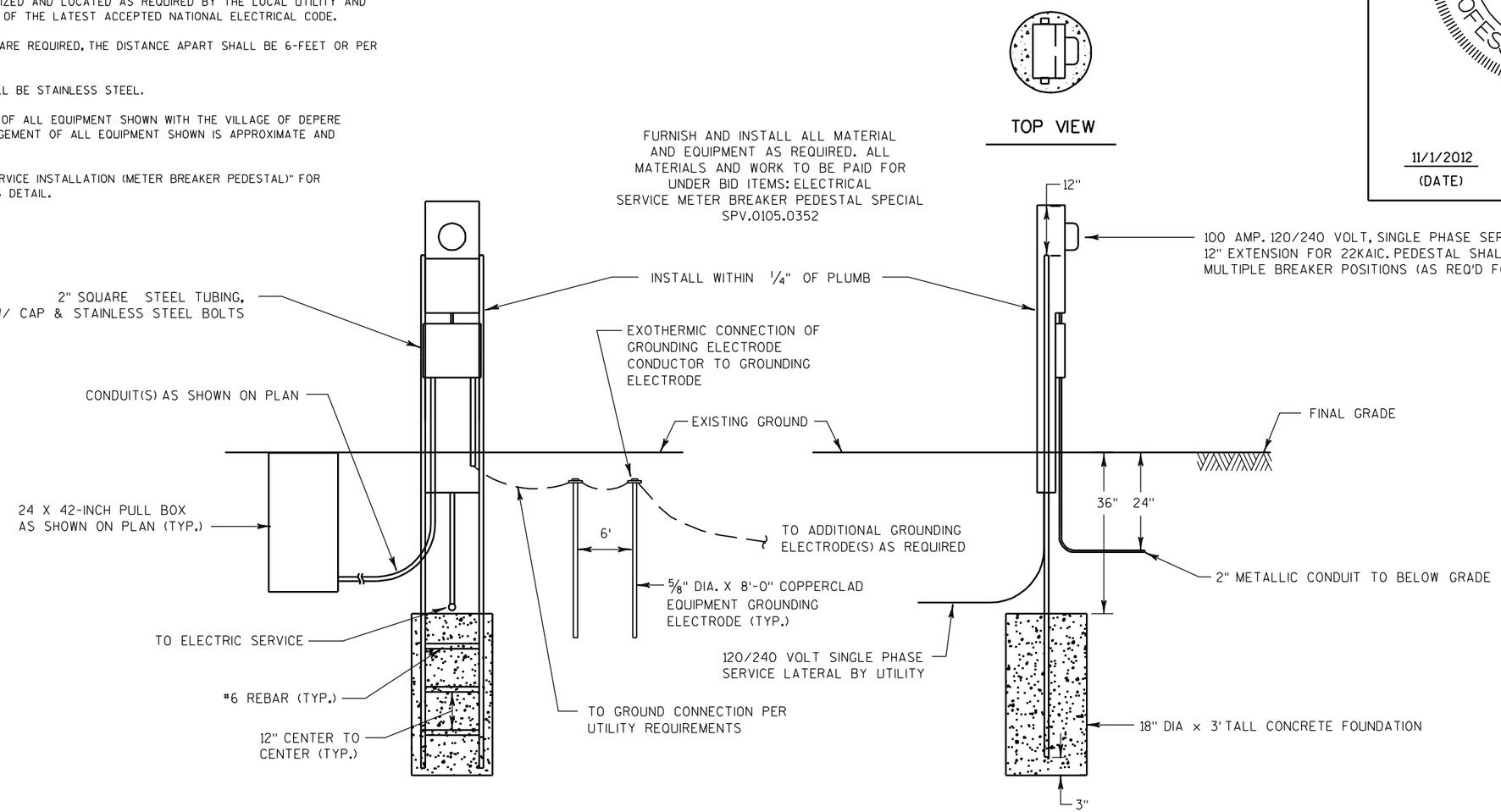
WISCONSIN PROFESSIONAL ENGINEER

MIKE D. SCARMON
E-37613
EVANSVILLE, WI

11/1/2012 (DATE)

(SIGNATURE)

FURNISH AND INSTALL ALL MATERIAL AND EQUIPMENT AS REQUIRED. ALL MATERIALS AND WORK TO BE PAID FOR UNDER BID ITEMS: ELECTRICAL SERVICE METER BREAKER PEDESTAL SPECIAL SPV.0105.0352



ELECTRICAL SERVICE METER BREAKER PEDESTAL SPECIAL

NOT TO SCALE

NOTES:

1) SEE EXISTING STRUCTURE PLANS FOR ADDITIONAL INFORMATION. STRUCTURES WERE CONSTRUCTED UNDER PROJECT ID 1133-06-71.

2) ALL WORK MUST CONFORM TO THE NATIONAL ELECTRIC CODE.

3) REFER TO STANDARD DETAIL DRAWING "ELECTRICAL DETAILS UNDERDECK LIGHTING" FOR ADDITIONAL INFORMATION NOT SHOWN ON THIS DETAIL

4) ALL CONDUIT, BOXES AND FITTINGS SHALL BE RATED WATERTIGHT.

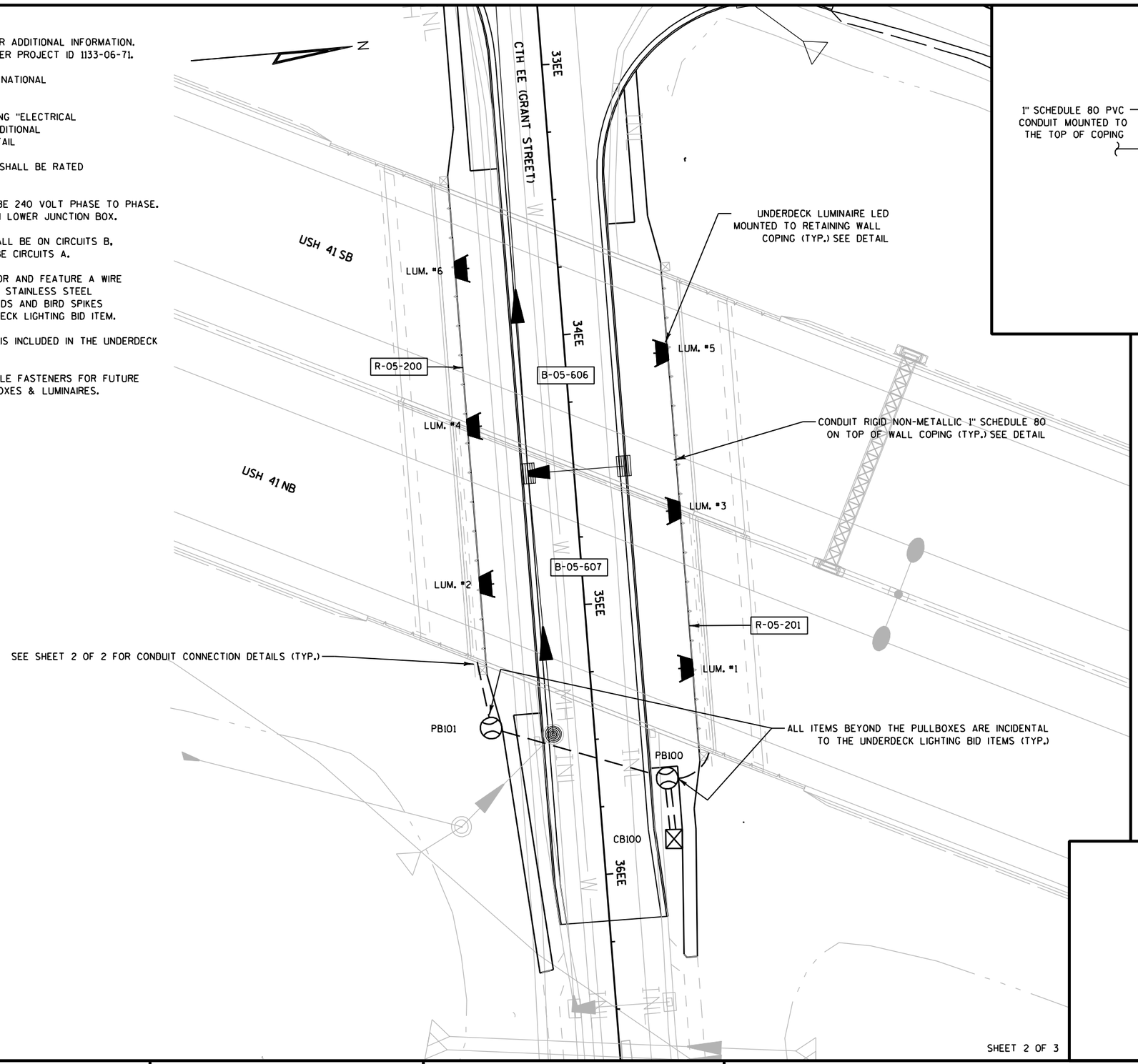
5) UNDERDECK LIGHT CIRCUITS SHALL BE 240 VOLT PHASE TO PHASE. WIRING SHALL BE 12 AWG MIN. FUSE IN LOWER JUNCTION BOX.

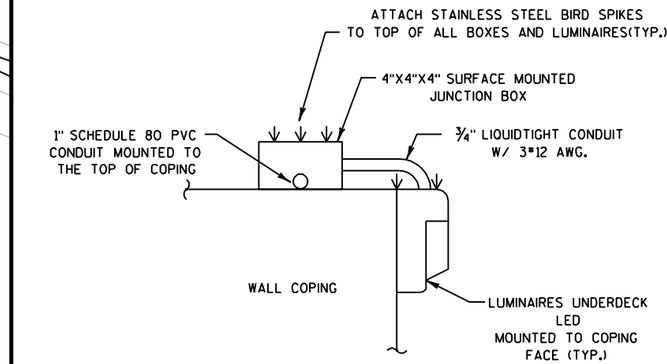
6) LUMINARIES ON WALL R-05-200 SHALL BE ON CIRCUITS B, AND LUMINAIRES ON R-05-201 SHALL BE CIRCUITS A.

7) LUMINAIRE SHALL BE BLACK IN COLOR AND FEATURE A WIRE VANDAL GUARD. FURNISH AND INSTALL STAINLESS STEEL BIRD SPIKES AS SHOWN. VANDAL GUARDS AND BIRD SPIKES SHALL BE INCIDENTAL TO THE UNDERDECK LIGHTING BID ITEM.

8) ALL WIRING FROM JUNCTION BOXES IS INCLUDED IN THE UNDERDECK LIGHTING ITEM.

9) ATTACH BIRD SPIKES WITH REMOVABLE FASTENERS FOR FUTURE MAINTENANCE ACCESS TO JUNCTION BOXES & LUMINAIRES.



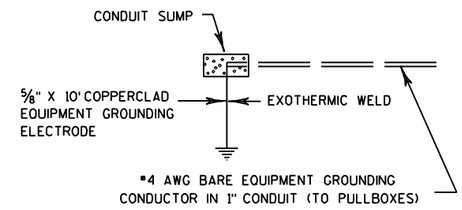


TYPICAL LUMINAIRE MOUNTING

NO SCALE

MAJOR QUANTITIES - UNDERDECK LIGHTING (EQUAL AMOUNTS PER STRUCTURE)	
ELECTRICAL WIRE LIGHTING 12 AWG.	875 LF
EQUIPMENT GROUNDING ELECTRODE	1 EA
1" STEEL CONDUIT	20 LF
1" SCHEDULE 80 CONDUIT	160 EA
¾" LIQUIDTIGHT CONDUIT	12 LF
2" STEEL CONDUIT	25 LF
18"X12"X6" JUNCTION BOX	2 EA
4"X4"X4" JUNCTION BOX	3 EA
BIRD SPIKES	1 LS

NOTE: ALL ITEMS LISTED ABOVE ARE TO BE PAID FOR UNDER "UNDERDECK LIGHTING (R-05-200)" BID ITEM 659.0600.001 (L.S.) AND "UNDERDECK LIGHTING (R-05-201)" BID ITEM 659.0600.002 (L.S.)

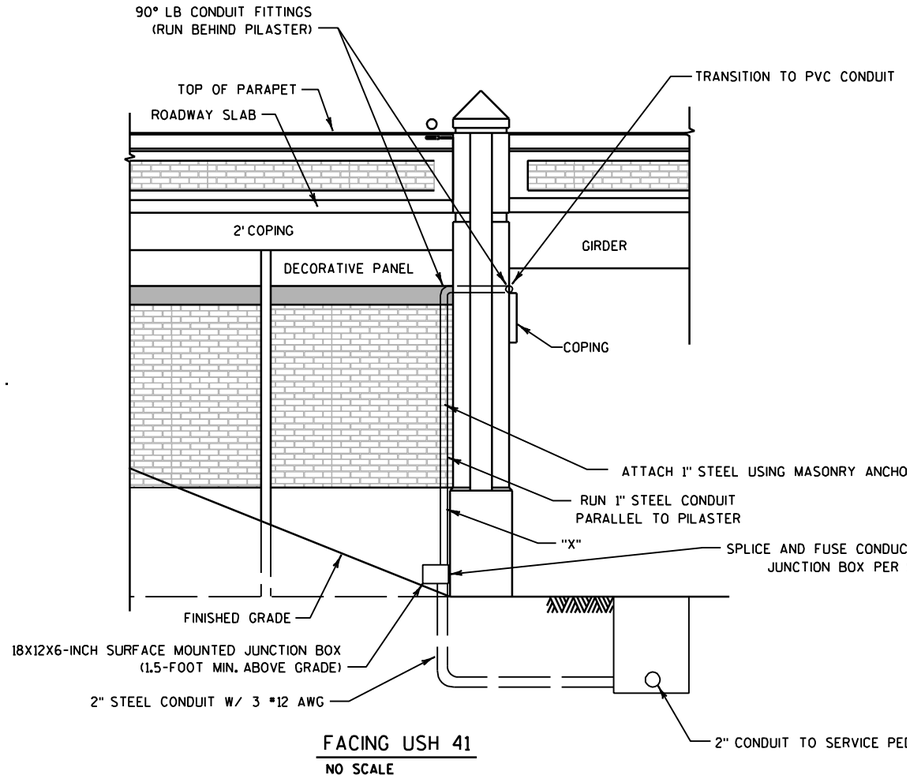


EQUIPMENT GROUNDING ELECTRODE DETAIL

NO SCALE

SHEET 2 OF 3

PROJECT NO: 1133-06-88	HWY: USH 41	COUNTY: BROWN	R-05-200/201 UNDERDECK LIGHTING DETAIL 1 OF 2	SHEET 26	E

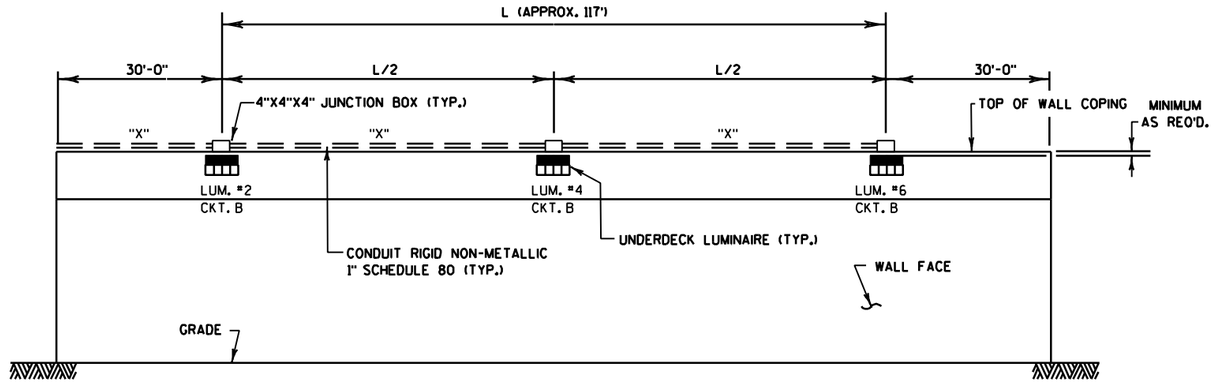


FACING USH 41

NO SCALE

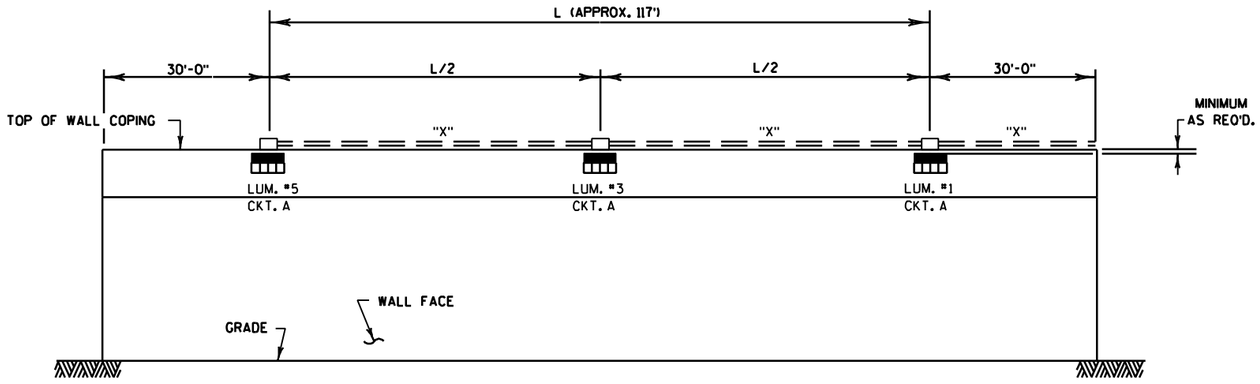
WIRING LEGEND

"X" = 3 - #12 AWG



FACING SOUTH ABUTMENT (R-05-200)

NO SCALE



FACING NORTH ABUTMENT (R-05-201)

NO SCALE

NOTE: ENSURE LUMINAIRE MOUNTING BOXES ARE NOT PLACED DIRECTLY BELOW THE GAP BETWEEN STRUCTURES

SHEET 3 OF 3

PROJECT NO: 1133-06-88	HWY: USH 41	COUNTY: BROWN	R-05-200/201 UNDERDECK LIGHTING DETAIL 2 OF 2	SHEET 27	E

2

N

MID VALLEY DR

84MV

82MV

78MV

76MV

74MV

MV+00.00
MATCH EXISTING

MV+40.40

MV+87.69

MV+20.40

MV+82.69

LOCATING NO-PASSING ZONE
STA. 29EE+30.00 TO STA. 32EE+80.26

EE+66.62

EE+49.86

EE+30.00
MATCH EXISTING

EE+45.26

EE+17.24
MATCH EXISTING

EE+04.83

EE+35.24

EE+48.94

EE+97.40

MV+38.97

MV+90.29

MV+52.29

MV+65.08

MV+30.00
MATCH EXISTING

12'

26EE 28EE 30EE 32EE 34EE 36EE 38EE 40EE

CTH EE

GRANT ST

LEGEND

1. PAVEMENT MARKING EPOXY 4-INCH (WHITE)
2. PAVEMENT MARKING EPOXY 4-INCH (DOUBLE YELLOW)
3. PAVEMENT MARKING EPOXY 4-INCH (DOT PATTERN WHITE)
(3 FT LINE 9 FT SKIP)

PROJECT NO: 1133-06-88	HWY: USH 41	COUNTY: BROWN	PAVEMENT MARKING	SHEET 28	E

FILE NAME : \\milw00\ingrproj\43170\0600\0688_Grant_St\ee_024501_pm.dgn PLOT DATE : 10/25/2012 PLOT BY : lzidek PLOT NAME : PLOT SCALE : 100:1

LEGEND

- TYPE III BARRICADE
- TYPE III BARRICADE WTH ATTACHED SIGN
- SIGN ON PERMANENT SUPPORT
- SIGN ON TEMPORARY SUPPORT
- WORK AREA
- DIRECTION OF TRAFFIC

NOTE

FOR ROAD CLOSURES ON GRANT ST/CTH EE AND MID VALLEY DR SEE SDD "BARRICADES AND SIGNS FOR MAINLINE CLOSURES" FOR TRAFFIC CONTROL DEVICES.

STAGE 1

CONSTRUCTION:

- CONSTRUCT GRANT ST FROM STA 29EE+30.00 TO STA 36EE+17.24
- CONSTRUCT MID VALLEY DR FROM STA 76MV+30.00 TO 81MV+00.00

TRAFFIC:

- GRANT ST IS CLOSED
- MID VALLEY DR IS CLOSED

ROAD CLOSED
3/4 MILES AHEAD
LOCAL TRAFFIC ONLY
R11-3
60" X 30"

PLACE AT THE INERSECTION OF MID VALLEY DR AND CTH G/MAIN AVE

ROAD CLOSED
R11-2
48" X 30"

ROAD CLOSED
R11-2
48" X 30"

ROAD CLOSED
1 3/4 MILES AHEAD
LOCAL TRAFFIC ONLY
R11-3
60" X 30"

PLACE AT THE INERSECTION OF CTH EE AND PACKERLAND DR

ROAD CLOSED
R11-2
48" X 30"

ROAD CLOSED
1 3/4 MILES AHEAD
LOCAL TRAFFIC ONLY
R11-3
60" X 30"

PLACE AT THE INERSECTION OF MID VALLEY DR AND PDQ DR

ROAD CLOSED
1/2 MILES AHEAD
LOCAL TRAFFIC ONLY
R11-3
60" X 30"

PLACE AT THE INERSECTION OF GRANT ST AND ALLARD ST

ROAD CLOSED
R11-2
48" X 30"

SIDEWALK CLOSED
R9-9
24" X 12"

SIDEWALK CLOSED
R9-9
24" X 12"

ROAD WORK AHEAD
W20-1
48" X 48"

ROAD WORK AHEAD
W20-1
48" X 48"

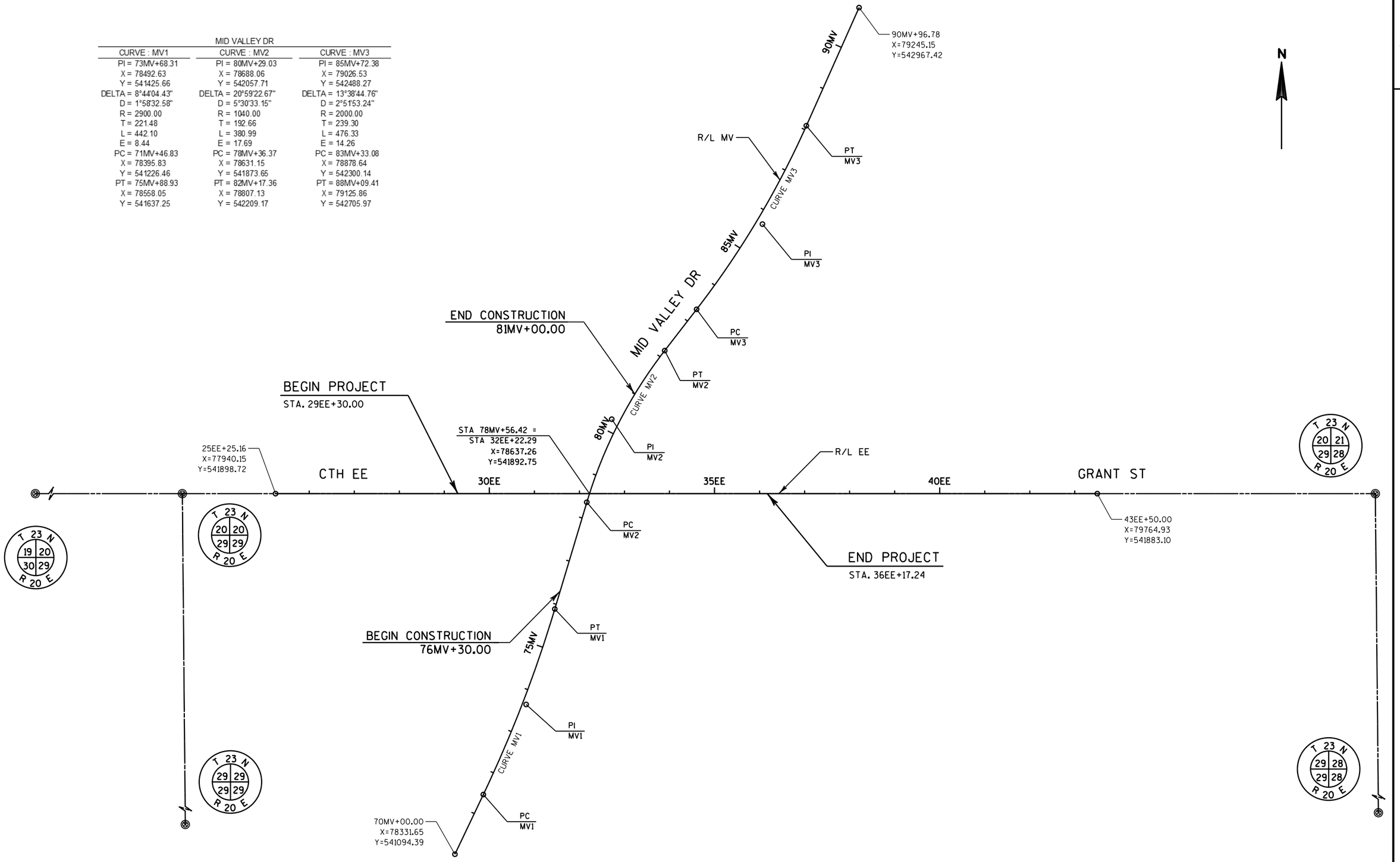
ASHWAUBENON CREEK
MID VALLEY DR
USH 41 SB
USH 41 NB
LAWRENCE DR
CTH EE
GRANT ST
26EE
28EE
30EE
32EE
34EE
36EE
38EE
40EE
86MV
84MV
82MV
80MV
78MV
76MV
500' MAX
N

PROJECT NO: 1133-06-88	HWY: USH 41	COUNTY: BROWN	TRAFFIC CONTROL PLANS - STAGE 1	SHEET 29	E

2

MID VALLEY DR

CURVE : MV1	CURVE : MV2	CURVE : MV3
PI = 73MV+68.31	PI = 80MV+29.03	PI = 85MV+72.38
X = 78492.63	X = 78688.06	X = 79026.53
Y = 541425.66	Y = 542057.71	Y = 542488.27
DELTA = 8°44'04.43"	DELTA = 20°59'22.67"	DELTA = 13°38'44.76"
D = 1°58'32.58"	D = 5°30'33.15"	D = 2°51'53.24"
R = 2900.00	R = 1040.00	R = 2000.00
T = 221.48	T = 192.66	T = 239.30
L = 442.10	L = 380.99	L = 476.33
E = 8.44	E = 17.69	E = 14.26
PC = 71MV+46.83	PC = 78MV+36.37	PC = 83MV+33.08
X = 78395.83	X = 78631.15	X = 78878.64
Y = 541226.46	Y = 541873.65	Y = 542300.14
PT = 75MV+88.93	PT = 82MV+17.36	PT = 88MV+09.41
X = 78558.05	X = 78807.13	X = 79125.86
Y = 541637.25	Y = 542209.17	Y = 542705.97



PROJECT NO: 1133-06-88	HWY: USH 41	COUNTY: BROWN	ALIGNMENT PLAN	SHEET	E

FILE NAME : \\milw00\ingrproj\43170\0600\0688_Grant_St\ee_027201_ad.dgn PLOT DATE : 10/25/2012 PLOT BY : lzidek PLOT NAME : PLOT SCALE : 200:1
WISDOT/CADDS SHEET 42

DATE 30JAN13 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	1133-06-88 QUANTITY
0010	108.4400	CPM PROGRESS SCHEDULE	EACH	2.000	2.000
0020	203.0100	REMOVING SMALL PIPE CULVERTS	EACH	2.000	2.000
0030	204.0100	REMOVING PAVEMENT **P**	SY	3,350.000	3,350.000
0040	204.0150	REMOVING CURB & GUTTER **P**	LF	160.000	160.000
0050	204.0210	REMOVING MANHOLES	EACH	1.000	1.000
0060	204.0220	REMOVING INLETS	EACH	2.000	2.000
0070	204.0245	REMOVING STORM SEWER (SIZE) 001. 10-INCH	LF	20.000	20.000
0080	204.0245	REMOVING STORM SEWER (SIZE) 002. 12-INCH	LF	20.000	20.000
0090	204.0245	REMOVING STORM SEWER (SIZE) 003. 24-INCH	LF	410.000	410.000
0100	205.0100	EXCAVATION COMMON **P**	CY	7,850.000	7,850.000
0110	213.0100	FINISHING ROADWAY (PROJECT) 001. 1133-06-88	EACH	1.000	1.000
0120	305.0110	BASE AGGREGATE DENSE 3/4-INCH	TON	330.000	330.000
0130	305.0120	BASE AGGREGATE DENSE 1 1/4-INCH	TON	3,050.000	3,050.000
0140	311.0110	BREAKER RUN	TON	6,900.000	6,900.000
0150	415.1090	CONCRETE PAVEMENT HES 9-INCH	SY	4,940.000	4,940.000
0160	416.0620	DRILLED DOWEL BARS	EACH	23.000	23.000
0170	416.1010	CONCRETE SURFACE DRAINS **P**	CY	3.600	3.600
0180	455.0105	ASPHALTIC MATERIAL PG58-28	TON	0.700	0.700
0190	455.0605	TACK COAT	GAL	1.000	1.000
0200	460.1100	HMA PAVEMENT TYPE E-0.3	TON	12.000	12.000
0210	522.1015	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 15-INCH	EACH	1.000	1.000
0220	523.0519	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL 19X30-INCH	EACH	1.000	1.000
0230	523.0529	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL 29X45-INCH	EACH	1.000	1.000
0240	601.0409	CONCRETE CURB & GUTTER 30-INCH TYPE A **P**	LF	820.000	820.000
0250	601.0555	CONCRETE CURB AND GUTTER 6-INCH SLOPED 36-INCH TYPE A **P**	LF	215.000	215.000
0260	602.0410	CONCRETE SIDEWALK 5-INCH **P**	SF	4,950.000	4,950.000
0270	602.0505	CURB RAMP DETECTABLE WARNING FIELD YELLOW **P**	SF	16.000	16.000
0280	606.0200	RIPRAP MEDIUM	CY	8.000	8.000
0290	608.0412	STORM SEWER PIPE REINFORCED CONCRETE CLASS IV 12-INCH	LF	35.000	35.000
0300	608.0415	STORM SEWER PIPE REINFORCED CONCRETE CLASS IV 15-INCH	LF	70.000	70.000
0310	610.0419	STORM SEWER PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL CLASS HE-IV 19X30-INCH	LF	127.000	127.000
0320	610.0429	STORM SEWER PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL CLASS HE-IV 29X45-INCH	LF	452.000	452.000
0330	611.0420	RECONSTRUCTING MANHOLES	EACH	1.000	1.000
0340	611.0535	MANHOLE COVERS TYPE J-SPECIAL	EACH	1.000	1.000
0350	611.0624	INLET COVERS TYPE H	EACH	2.000	2.000
0360	611.0639	INLET COVERS TYPE H-S	EACH	2.000	2.000
0370	611.2008	MANHOLES 8-FT DIAMETER	EACH	2.000	2.000
0380	611.3003	INLETS 3-FT DIAMETER	EACH	2.000	2.000
0390	611.3004	INLETS 4-FT DIAMETER	EACH	1.000	1.000
0400	611.9800.S	PIPE GRATES	EACH	2.000	2.000
0410	612.0106	PIPE UNDERDRAIN 6-INCH	LF	235.000	235.000

3

DATE 30JAN13 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	1133-06-88 QUANTITY
0420	612.0206	PIPE UNDERDRAIN UNPERFORATED 6-INCH	LF	65.000	65.000
0430	612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	175.000	175.000
0440	612.0700	DRAIN TILE EXPLORATION	LF	100.000	100.000
0450	612.0806	APRON ENDWALLS FOR UNDERDRAIN REINFORCED CONCRETE 6-INCH	EACH	3.000	3.000
0460	618.0100	MAINTENANCE AND REPAIR OF HAUL ROADS (PROJECT) 001. 1133-06-88	EACH	1.000	1.000
0470	619.1000	MOBILIZATION	EACH	1.000	1.000
0480	624.0100	WATER	MGAL	215.000	215.000
0490	625.0100	TOPSOIL	SY	2,850.000	2,850.000
0500	627.0200	MULCHING	SY	2,850.000	2,850.000
0510	628.1504	SILT FENCE	LF	765.000	765.000
0520	628.1520	SILT FENCE MAINTENANCE	LF	765.000	765.000
0530	628.1905	MOBILIZATIONS EROSION CONTROL	EACH	3.000	3.000
0540	628.1910	MOBILIZATIONS EMERGENCY EROSION CONTROL	EACH	3.000	3.000
0550	628.7005	INLET PROTECTION TYPE A	EACH	5.000	5.000
0560	628.7020	INLET PROTECTION TYPE D	EACH	9.000	9.000
0570	628.7504	TEMPORARY DITCH CHECKS	LF	35.000	35.000
0580	628.7555	CULVERT PIPE CHECKS	EACH	14.000	14.000
0590	628.7560	TRACKING PADS	EACH	3.000	3.000
0600	629.0210	FERTILIZER TYPE B	CWT	3.000	3.000
0610	630.0130	SEEDING MIXTURE NO. 30	LB	70.000	70.000
0620	631.0300	SOD WATER	MGAL	0.500	0.500
0630	631.1100	SOD EROSION CONTROL	SY	15.000	15.000
0640	633.5200	MARKERS CULVERT END	EACH	3.000	3.000
0650	634.0614	POSTS WOOD 4X6-INCH X 14-FT	EACH	3.000	3.000
0660	634.0616	POSTS WOOD 4X6-INCH X 16-FT	EACH	3.000	3.000
0670	637.0202	SIGNS REFLECTIVE TYPE II	SF	38.860	38.860
0680	638.2602	REMOVING SIGNS TYPE II	EACH	7.000	7.000
0690	638.3000	REMOVING SMALL SIGN SUPPORTS	EACH	7.000	7.000
0700	643.0100	TRAFFIC CONTROL (PROJECT) 001. 1133-06-88	EACH	1.000	1.000
0710	643.0420	TRAFFIC CONTROL BARRICADES TYPE III	DAY	1,170.000	1,170.000
0720	643.0705	TRAFFIC CONTROL WARNING LIGHTS TYPE A	DAY	1,716.000	1,716.000
0730	643.0900	TRAFFIC CONTROL SIGNS	DAY	952.000	952.000
0740	643.1050	TRAFFIC CONTROL SIGNS PCMS	DAY	28.000	28.000
0750	645.0120	GEOTEXTILE FABRIC TYPE HR **P**	SY	15.000	15.000
0760	645.0130	GEOTEXTILE FABRIC TYPE R **P**	SY	35.000	35.000
0770	646.0106	PAVEMENT MARKING EPOXY 4-INCH	LF	2,340.000	2,340.000
0780	646.0805.S	PAVEMENT MARKING OUTFALL	EACH	1.000	1.000
0790	648.0100	LOCATING NO-PASSING ZONES	MI	0.070	0.070
0800	652.0225	CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH **P**	LF	120.000	120.000
0810	652.0615	CONDUIT SPECIAL 3-INCH **P**	LF	150.000	150.000
0820	653.0140	PULL BOXES STEEL 24X42-INCH	EACH	2.000	2.000
0830	655.0610	ELECTRICAL WIRE LIGHTING 12 AWG **P**	LF	470.000	470.000
0840	659.0600	UNDERDECK LIGHTING (LOCATION) 001. R-05-200	LS	1.000	1.000
0850	659.0600	UNDERDECK LIGHTING (LOCATION) 002. R-05-201	LS	1.000	1.000
0860	690.0150	SAWING ASPHALT	LF	50.000	50.000
0870	690.0250	SAWING CONCRETE	LF	60.000	60.000
0880	715.0415	INCENTIVE STRENGTH CONCRETE PAVEMENT	DOL	1,482.000	1,482.000
0890	ASP.1T0A	ON-THE-JOB TRAINING APPRENTICE AT $5.00/HR	HRS	1,200.000	1,200.000

DATE 30JAN13 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	1133-06-88 QUANTITY
0900	ASP.1T0G	ON-THE-JOB TRAINING GRADUATE AT $5.00/HR	HRS	540.000	540.000
0910	SPV.0035	SPECIAL 001. EXCAVATION OF PRAGMITES SOIL	CY	85.000	85.000
0920	SPV.0060	SPECIAL 150. SEDIMENTATION BASIN	EACH	3.000	3.000
0930	SPV.0060	SPECIAL 351. LUMINAIRES UNDERDECK LED	EACH	6.000	6.000
0940	SPV.0075	SPECIAL 150. STREET SWEEPING	HRS	25.000	25.000
0950	SPV.0105	SPECIAL 001. CONCRETE PAVEMENT JOINT LAYOUT	LS	1.000	1.000
0960	SPV.0105	SPECIAL 002. SURVEY PROJECT 1133-06-88	LS	1.000	1.000
0970	SPV.0105	SPECIAL 352. ELECTRICAL SERVICE METER BREAKER PEDESTAL SPECIAL (CB100)	LS	1.000	1.000
0980	SPV.0165	SPECIAL 001. COLORED AND STAMPED CONCRETE SIDEWALK 5-INCH	SF	4,050.000	4,050.000
0990	SPV.0180	SPECIAL 001. GEOGRID REINFORCEMENT	SY	3,000.000	3,000.000
1000	SPV.0180	SPECIAL 004. CONCRETE JOINT SEALER	SY	4,940.000	4,940.000

REMOVING SMALL PIPE CULVERT

CATEGORY	STATION	LOCATION	SIZE INCH	LENGTH FEET	TYPE	203.0100 REMOVING SMALL PIPE CULVERT EACH
0010	MID VALLEY DR					
	77MV+80	LT/RT	24	70	CMCP	1
	79MV+30	LT/RT	24	64	CMCP	1
	TOTAL					2

REMOVING CURB & GUTTER

CATEGORY	STATION	LOCATION	204.0150 REMOVING CURB & GUTTER LF
0010	GRANT ST		
	35EE+37 - 36EE+17	LT	80
	35EE+37 - 36EE+17	RT	80
	TOTAL		160

REMOVING MANHOLES

CATEGORY	STATION	LOCATION	204.0210 REMOVING MANHOLES EACH
0010	GRANT ST		
	32EE+00	RT	1
	TOTAL		1

3

REMOVING STORM SEWER

CATEGORY	STATION	LOCATION	204.0245.001 REMOVING STORM SEWER 10-INCH LF	204.0245.002 REMOVING STORM SEWER 12-INCH LF	204.0245.003 REMOVING STORM SEWER 24-INCH LF
0010	GRANT ST				
	31EE+60	RT	--	--	60
	32EE+00	LT	--	--	350
0010	MID VALLEY DR				
	78MV+25	RT	20	--	--
	79MV+10	RT	--	20	--
	TOTAL		20	20	410

REMOVING INLETS

CATEGORY	STATION	LOCATION	204.0220 REMOVING INLETS EACH
0010	GRANT ST		
	32EE+65	RT	1
	33EE+10	LT	1
	TOTAL		2

REMOVING PHRAGMITES

CATEGORY	LOCATION	SPV.0035.001 EXCAVATION OF PRAGMITES SOIL CY
0010	GRANT ST	
	UNDISTRIBUTED	85
	TOTAL	85

REMOVING PAVEMENT

CATEGORY	LOCATION	204.0100 REMOVING PAVEMENT SY
0010	GRANT ST	
	29EE+30 - 34EE+17	3350
	TOTAL	3350

3

Division	From/To Station	Location	Common Excavation (1) (Item 205.0100) Cut (2)	EBS Excavation (3)	Salvaged/ Unusable Pavement Material (4) (6)	Available Material (5)	Expanded EBS Backfill (7) Factor 1.30	Unexpanded Fill	Expanded Fill (9) Factor 1.20	Mass Ordinate +/- (10)	Waste	Borrow item 208.0100	Comment:
1	STA. 29EE+30 TO 36EE+17	GRANT ST	3,793	379	688	3,106	493	130	156	2,456			
Division 1 Subtotal			3,793	379	688	3,106	493	130	156	2,456	2,456	0	
2	STA. 76MV+30 TO 81MV+00	MID VALLEY DR	2,148	215	112	2,035	279	411	494	1,262			
Division 2 Subtotal			2,148	215	112	2,035	279	411	494	1,262	1,262	0	
	Project		0	1,315	0	0	1,710	0	0	-1,710			FOR POOR SOILS FOUND ON PROJECT SITE
Undistributed Subtotal			0	1,315	0	0	1,710	0	0	-1,710	-1,710	0	
Grand Total			5,941	1,909	800	5,141	773	542	650	3,718	3,718	0	
		Total Common Exc		7,850									

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 or Cut; Accounts for 4" Topsoil Removal (not to be reused in fill)
4) Salvaged/Unusable Pavement Material - Asphaltic Pavement
5) Available Material = Cut - Salvaged/Unusable Pavement Material
6) EBS not to be reused as fill material, not included in Mass Ordinate
7) Expanded EBS Backfill - This is to be filled with Borrow or Cut material. EBS Backfill Factor = 1.3.
8) The estimated area outside the 1:1 fill slopes where excavated EBS or excess topsoil material is placed.
9) Expanded Fill. Factor = 1.20
Expanded Fill = (Unexpanded Fill - Reduced EBS) * Fill Factor
If Reduced EBS > than volume available outside of the 1:1 slope
Subtract only available volume. Remaining volume or reduced EBS is considered waste.
10) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material within the Division. Minus indicates a shortage of material within the Division.

BASE AGGREGATE ITEMS

CATEGORY	STATION	305.0110 BASE AGGREGATE DENSE 3/4-INCH TON	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TON	311.0110 BREAKER RUN TON	COMMENTS
0010	GRANT ST				
	29EE+30 - 36EE+17	150	1840	2900	
	MID VALLEY DR				
	76MV+30 - 81MV+00	150	930	1700	
	UNDISTRIBUTED	30	280	2300	FOR POOR SOILS FOUND ON PROJECT SITE
	TOTAL	330	3050	6900	

ASPHALTIC ITEMS

CATEGORY	STATION	455.0105 ASPHALTIC MATERIAL PG58-28 TON	455.0605 TACK COAT GAL	460.1100 HMA PAVEMENT TYPE E-0.3 TON
0010	MID VALLEY DR			
	76MV+30 - 81MV+00	0.7	1	12
	TOTAL	0.7	1	12

3

CONCRETE ITEMS

CATEGORY	STATION	415.1090 CONCRETE PAVEMENT HES 9-INCH SY	416.0620 DRILLED DOWEL BARS EACH	416.1010 CONCRETE SURFACE DRAIN CY	602.0410 CONCRETE SIDEWALK 5-INCH SF	602.0505 CURB RAMP DETECTABLE WARNING FIELD YELLOW SY	SPV.0165.001 COLORED AND STAMPED CONCRETE SIDEWALK 5-INCH SF	SPV.0180.004 CONCRETE JOINT SEALER SY
0010	GRANT ST							
	29EE+30 - 36EE+17	2840	--	2.8	4950	16	--	2840
	33EE+37 - 35EE+62	--	--	--	--	--	4050	--
	29EE+30	--	9	--	--	--	--	--
	36EE+17	--	14	--	--	--	--	--
	MID VALLEY DR							
	76MV+30 - 81MV+00	2100	--	0.8	--	--	--	2100
	TOTAL	4940	23	3.6	4950	16	4050	4940

STORM SEWER ITEMS

CATEGORY	STRUCTURE NUMBER	STATION	OFFSET	LOCATION	FLANGE OR RIM	LOWEST INVERT	STRUCTURE DEPTH	522.1015 APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 15-INCH EACH	523.0519 APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE HORIZANTAL ELLIPTICAL 19X30-INCH EACH	523.0529 APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE HORIZANTAL ELLIPTICAL 29X45-INCH EACH	611.0420 RECONSTRUCTING MANHOLES EACH	611.2008 MANHOLE 8-FT DIAMETER EACH	611.3004 INLETS 4-FT DIAMETER EACH	611.3003 INLETS 3-FT DIAMTER EACH	611.0535 MANHOLE COVERS TYPE J-SPECIAL	611.0624 INLET COVER TYPE H EACH	611.0639 INLET COVER TYPE H-S EACH	633.5200 MARKERS CULVERT END EACH	611.9800.S PIPE GRATES EACH	COMMENTS
1000	101	34EE+50	17.0' RT	CTH EE	603.75	598.79	4.96	--	--	--	--	1	--	--	--	1	--	--	--	SEE CONSTRUCTION DETAIL
	102	34EE+50	18.5' LT	CTH EE	603.75	600.29	3.46	--	--	--	--	--	--	1	--	1	--	--	--	
	103	78MV+44	47.2' RT	MIDVALLEY DR	602.55	598.46	4.09	--	--	--	--	--	--	1	--	--	1	--	--	
	104	78MV+52	36.1' RT	MIDVALLEY DR	602.81	598.11	4.70	--	--	--	--	1	--	--	1	--	--	--	--	
	105	79MV+41	35.2' RT	MIDVALLEY DR	602.50	598.97	3.53	--	--	--	--	--	1	--	--	--	1	--	--	
	106	30EE+98	45.1' RT	MIDVALLEY DR	--	597.49	--	--	--	1	--	--	--	--	--	--	--	1	1	
	107	79MV+84	38.7' RT	MIDVALLEY DR	--	599.79	--	--	1	--	--	--	--	--	--	--	--	1	1	
	108	77MV+88	42.3' RT	MIDVALLEY DR	--	598.60	--	1	--	--	--	--	--	--	--	--	--	1	--	
	EX-MH	35EE+47	15.2' RT	CTH EE	605.52	599.12	6.40	--	--	--	1	--	--	--	--	--	--	--	--	
	TOTALS							1	1	1	1	2	1	2	1	2	2	3	2	

STORM SEWER GENERAL NOTES

1) JOINT TIES FOR CONCRETE PIPE SHALL BE PROVIDED AT ALL CONCRETE APRON ENDWALLS. APRON ENDWALLS SHALL BE TIED FOR THE LAST THREE JOINTS AT PIPE ENDS. THE COST OF THESE TIES SHALL BE INCIDENTAL TO THE COST OF THE PIPE.
2) STATIONS AND OFFSETS ARE TO THE CENTER OF STRUCTURE - SEE DETAIL FOR STRUCTURE PLACEMENT
4) STATION/ OFFSET OF CONCRETE APRON ENDWALLS ARE TO END OF ENDWALL.
5) PIPE LENGTHS AND SLOPES ARE MEASURED TO THE CENTER OF STRUCTURES OR THE END OF APRON ENDWALLS.
6) RIM ELEVATIONS ARE GIVEN AT THE FLOW LINE FOR INLET GRATES OR THE CENTER OF THE MANHOLE COVER FOR MANHOLES UNLESS OTHERWISE NOTED.
7) STRUCTURE DEPTH = RIM ELEVATION - INVERT
8) PROVIDE 0.5' ADJUSTING RINGS WHERE ONLY A NEW COVER IS CALLED FOR. INCIDENTAL TO COVER.
9) FIELD VERIFY EXISTING PIPE INVERTS AND RECALCULATE SLOPE IF NECESSARY.
10) CONTRACTOR SHALL VERIFY EXISTING PIPE SIZES, MATERIALS AND INVERT ELEVATION WHEN CONNECTING NEW STORM SEWER INTO EXISTING PIPES PRIOR TO MANUFACTURING STRUCTURES.
11) FLAT SLAB TOP WITH 24-INCH x 36-INCH RECTANGULAR OPENING REQUIRED ON ALL MANHOLES AND INLETS WITH TYPE H OR HS INLET COVERS.

STORM SEWER PIPES

CATEGORY	FROM STR	TO STR	LOCATION	INVERT ELEV FT	DISCH ELEV FT	SLOPE	608.0412 STORM SEWER PIPE REINFORCED CONCRETE CLASS IV 12-INCH LF	608.0415 STORM SEWER PIPE REINFORCED CONCRETE CLASS IV 15-INCH LF	610.0419 STORM SEWER PIPE REINFORCED HORIZONTAL ELLIPTICAL CLASS HE- IV 19X30-INCH	610.0429 STORM SEWER PIPE REINFORCED HORIZONTAL ELLIPTICAL CLASS HE- IV 29X45-INCH LF
1000	EX-MH	101	CTH EE	599.12	598.79	0.34%	--	--	--	97
	101	104	CTH EE	598.79	598.11	0.35%	--	--	--	195
	104	106	CTH EE	598.11	597.49	0.39%	--	--	--	160
	102	101	CTH EE	600.29	600.11	0.51%	35	--	--	--
	107	105	MIDVALLEY DR	599.79	598.97	2.00%	--	--	41	--
	105	104	MIDVALLEY DR	598.97	598.43	0.63%	--	--	86	--
	103	104	MIDVALLEY DR	598.46	598.40	0.43%	--	14	--	--
	108	103	MIDVALLEY DR	598.60	598.46	0.25%	--	56	--	--
	TOTALS						35	70	127	452

PIPE UNDERDRAIN WRAPPED 6-INCH

STATION	OFFSET	LOCATION	612.0406 PIPE UNDERDRAIN WRAPPED 6-INCH LF	COMMENTS
79MV+16 - 79MV+81	RT	MIDVALLEY NORTH	80	CONNECT TO STRUCTURE 105
78MV+06-33EE+12	RT	MIDVALLEY SOUTH	95	CONNECT TO STRUCTURE 103
STAGE 2A SUBTOTAL			175	

PIPE UNDERDRAIN ITEMS

CATEGORY	STATION	LOCATION	612.0106 PIPE UNDERDRAIN 6-INCH LF	612.0206 PIPE UNDERDRAIN UNPERFORATED 6-INCH LF	612.0700 DRAIN TILE EXPLORATION LF	612.0806 APRON ENDWALLS FOR UNDERDRAIN REINFORECED CONCRETE 6-INCH EACH	646.0805.S PAVEMENT MARKING OUTFALL EACH
0010	MID VALLEY DR						
	R-05-200		--	--	50	1	--
	R-05-201		--	--	50	1	--
	79MV+25 - 81MV+00	LT	235	15	--	1	1
	UNDISTRIBUTED		--	50	--	--	--
	TOTAL		235	65	100	3	1

TRACKING PADS

CATEGORY	STATION	628.7560 TRACKING PADS EACH
0010	GRANT ST	
	UNDISTRIBUTED	3
	TOTAL	3

CONCRETE CURB & GUTTER

CATEGORY	STATION	LOCATION	601.0409 CONCRETE CURB AND GUTTER 30-INCH TYPE A LF	601.0555 CONCRETE CURB AND GUTTER 6-INCH SLOPED 36-INCH TYPE A LF
0010	GRANT ST			
	32EE+00 - 36EE+17	LT	402	84
	32EE+00 - 36EE+17	RT	418	131
	TOTAL		820	215

GEOTEXTILE FABRIC

CATEGORY	STATION	645.0120 GEOTEXTILE FABRIC TYPE HR SY	645.0130 GEOTEXTILE FABRIC TYPE R SY
0010	GRANT ST		
	31EE+20	15	--
	30EE+95	--	14
	31EE+55	--	13
	MID VALLEY DR		
	79MV+25	--	8
	TOTAL	15	35

EROSION CONTROL ITEMS

CATEGORY	STATION	606.0200 RIPRAP MEDIUM CY	628.1504 SILT FENCE LF	625.1520 SILT FENCE MAINTENANCE LF	628.1905 MOBILIZATION EROSION CONTROL EACH	628.1910 MOBILIZATION EMERGENCY EROSION CONTROL EACH	628.7005 INLET PROTECTION TYPE A EACH	628.7020 INLET PROTECTION TYPE D EACH	628.7504 TEMPORARY DITCH CHECKS LF	628.7555 CULVERT PIPE CHECKS EACH
0010	GRANT ST									
	29EE+30 - 36EE+17	8	510	510	2	2	3	7	--	5
	MID VALLEY DR									
	76MV+30 - 81MV+00	--	--	--	1	1	1	1	--	5
	29EE+30	--	--	--	--	--	--	--	35	--
	PHRAGMITIES SITE	--	100	100	--	--	--	--	--	--
	UNDISTRIBUTED	--	155	155	--	--	1	1	--	4
	TOTAL	8	765	765	3	3	5	9	35	14

SEDIMENTATION BASIN

CATEGORY	LOCATION	SPV.0060.150 SEDIMENTATION BASIN EACH
0010	GRANT ST	
	UNDISTRIBUTED	3
	TOTAL	3

PAVEMENT MARKING

CATEGORY	STATION	646.0106 PAVEMENT MARKING EPOXY 4-INCH YELLOW LF	646.0106 PAVEMENT MARKING EPOXY 4-INCH WHITE LF	648.0100 LOCATING NO-PASSING ZONES MI
0010	GRANT ST			
	29EE+30 - 36EE+17	689	880	0.07
	MID VALLEY DR			
	76MV+30 - 81MV+00	387	384	--
	TOTAL	2340		0.07

GEOGRID

CATEGORY	STATION	SPV.0180.001 GEOGRID REINFORCEMENT SY	
0010	UNDISTRIBUTED	3000	FOR POOR SOILS FOUND ON PROJECT SITE
	TOTAL	3000	

SAW CUTTING ITEMS

CATEGORY	STATION	690.0150 SAWING ASPHALT LF	690.0250 SAWING CONCRETE LF
0010	GRANT ST		
	29EE+30	--	25
	36EE+17	--	35
	SUBTOTAL	--	60
	MID VALLEY DR		
	76MV+30	28	--
	81MV+00	22	--
	SUBTOTAL	50	--
	TOTAL	50	60

FILE NAME:\\Milw00\INGRPROJ\43170\eng\Quantities\0688_Grant_St\02_PSE_Bureau\MQ Tables\EE_B_030201_mq.pptx PLOT DATE : 10/26/2012 1:40:31 PM PLOT BY : Izidek PLOT NAME : PLOT SCALE : 1:1

3

TRAFFIC CONTROL ITEMS

CATEGORY	LOCATION	STAGE DURATION DAYS	643.0420 TRAFFIC CONTROL BARRICADES TYPE III EACH	643.0420 TRAFFIC CONTROL BARRICADES TYPE III DAYS	643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A EACH	643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A DAYS	643.0900 TRAFFIC CONTROL SIGNS EACH	643.0900 TRAFFIC CONTROL SIGNS DAYS	643.1050 TRAFFIC CONTROL SIGNS PCMS EACH	643.1050 TRAFFIC CONTROL SIGNS PCMS DAYS
0010	MID VALLEY DR									
	STAGE 1	39	30	1170	44	1716	24	936	4	28
	PHRAGMITIES SITE	2	--	--	--	--	8	16	--	--
	TOTAL			1170		1716		952		28

STREET SWEEPING

CATEGORY	STATION	SPV.0075.150 STREET SWEEPING HRS
0010	GRANT ST	
	29EE+30 - 36EE+17	25
	TOTAL	25

3

RESTORATION ITEMS

CATEGORY	STATION	631.0300 SOD WATER MGAL	631.1100 SOD EROSION CONTROL SY	630.0130 SEEDING MIXTURE NO. 30 LB	629.0210 FERTILIZER TYPE B CWT	624.0100 WATER MGAL	625.0100 TOPSOIL SY	627.0200 MULCHING SY
0010	GRANT ST							
	29EE+30 - 36EE+17	--	--	26	1.4	100	1300	1300
	31EE+20	.4	11	--	--	--	--	--
	MID VALLEY DR							
	76MV+30 - 81MV+00	--	--	43	1.5	115	1550	1550
	PHRAGMITIES SITE	--	--	1	0.1	--	--	--
	UNDISTRIBUTED	.1	4	--	--	--	--	--
	TOTAL	.5	15	70	3	215	2850	2850

3

ERECTION OF TYPE II SIGNS AND SUPPORTS

SIGN NO.	LOCATION	SIGN CODE	W X H	637.0202 SIGNS REFLECTIVE TYPE II S.F.	634.0614 POSTS WOOD 4x6x14 EACH	634.0616 POSTS WOOD 4x6x16 EACH	638.2602 REMOVING SIGNS TYPE II EACH	638.3000 REMOVING SIGN SUPPORTS EACH	REMARKS
1	CTH EE	R2-1	24" X 30"	5.00	1				35 MPH
2	NORTH OF CTH EE / MID VALLEY DR INTERSECTION	J13-1	24" X 45"	7.50		1	1	1	CTH EE, SEE PLAN SHEET
3	"	R1-1	30" X 30"	5.18	1		1	1	
4	BETWEEN MID VALLEY DR / USH 41	W2-6	30" X 30"	6.25		1	1	1	
5	"	W13-1	18" X 18"	2.25			1	1	15 MPH
6	CTH EE	J2-2					1	1	TO NORTH / SOUTH USH 41
7	SOUTHSIDE OF CTH EE / MID VALLEY DR INTERSECTION	R1-1	30" X 30"	5.18	1		1	1	
8	"	J13-1	24" X 45"	7.50		1	1	1	CTH EE, SEE PLAN SHEET
	PROJECT TOTALS			38.86	3	3	7	7	

PLAN SHEET PRODUCED
BY WisDOT - NE REGION

3

LIGHTING CONDUIT AND WIRE

FROM	-	TO	652.0225 CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH LF	652.0615 CONDUIT SPECIAL 3-INCH LF	655.0610 ELECTRICAL WIRE LIGHITNG 12 AWG LF
ALL ITEMS ARE CATEGORY 1100					
CB100	-	PB100	25	--	111
CB100	-	PB100	25	--	111
PB100	-	PB101	70	--	248
UNDISTRIBUTED			--	150	--
CATEGORY 1100 TOTALS			120	150	470

LIGHTING PULLBOXES

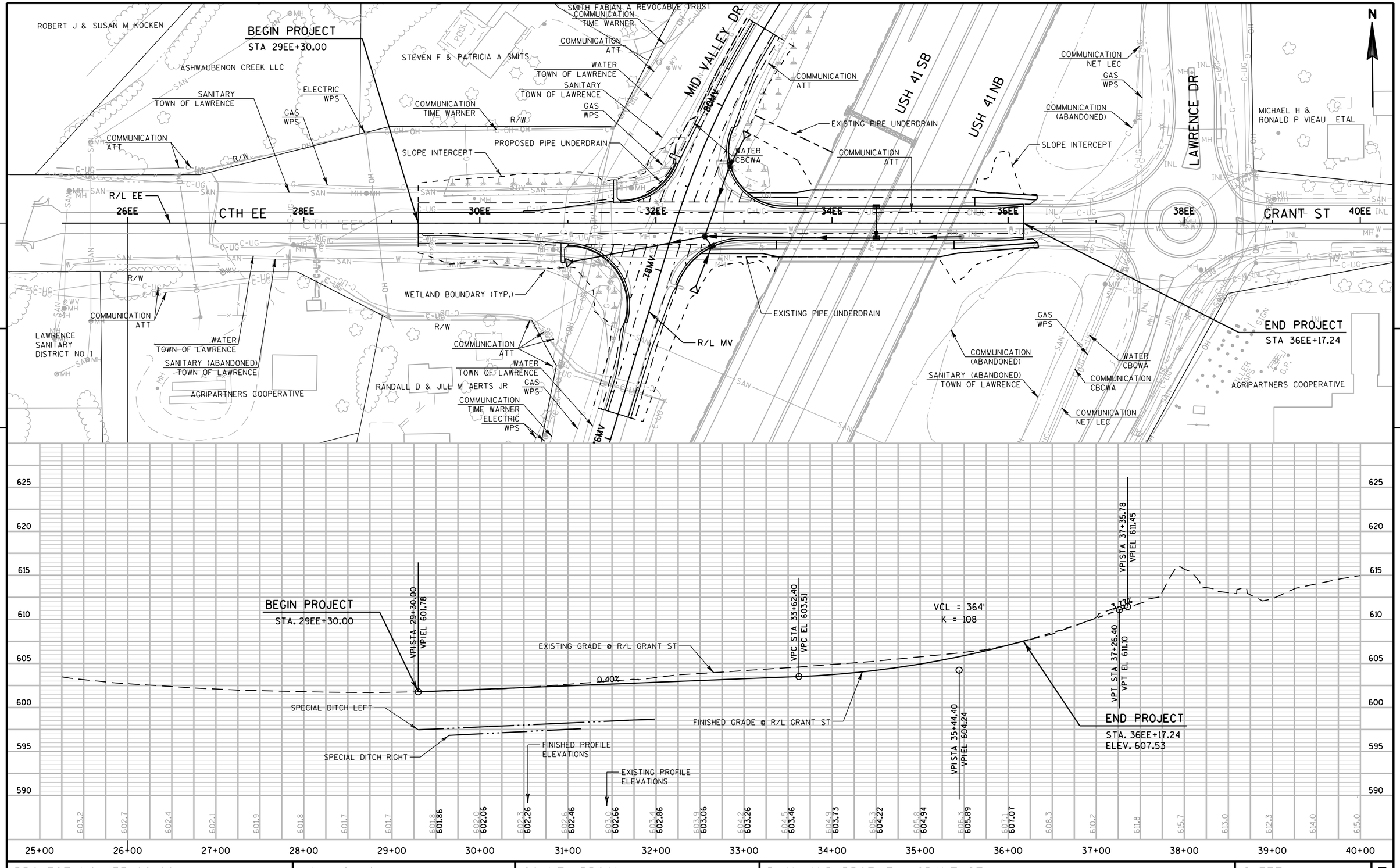
PULLBOX NUMBER	STATION	OFFSET	R/L	653.0140 PULLBOXES STEEL 24X42-INCH EACH
ALL ITEMS ARE CATEGORY 1100				
PB 100	35'EE'+66	25'	LT	1
PB 101	35'EE'+43	35'	RT	1
CATEGORY 1100 TOTALS				2

LIGHTING CONTROL

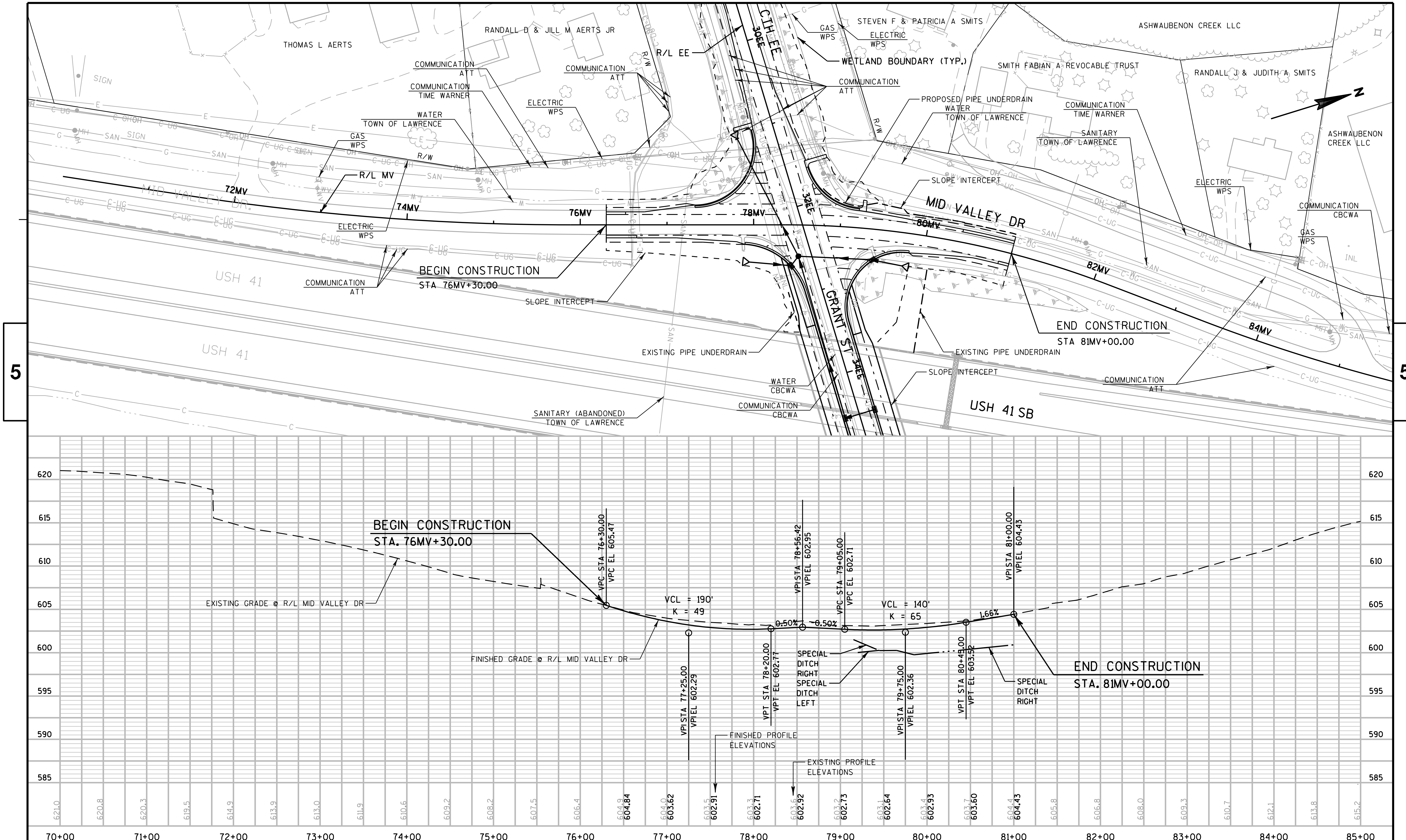
CABINET NUMBER	STATION	OFFSET	R/L	SPV.0105.0352 ELECTRICAL SERVICE METER BREAKER PEDESTAL SPECIAL (CB100) LS
ALL ITEMS ARE CATEGORY 1100				
CB100	35'EE'+89	26'	LT	1
CATEGORY 1100 TOTALS				1

UNDERDECK LIGHTING ITEMS

LOCATION	SPV.0060.0351 LUMINAIRES UNDERDECK LED EACH	659.0600.001 UNDERDECK LIGHTING (R-05-200) LS	659.0600.002 UNDERDECK LIGHTING (R-05-201) LS
ALL ITEMS ARE CATEGORY 1100			
(R-05-200)	3	1	--
(R-05-201)	3	--	1
PROJECT TOTALS	6	1	1



PROJECT NO: 1133-06-88	HWY: USH 41	COUNTY: BROWN	PLAN AND PROFILE - GRANT ST	SHEET 44	E

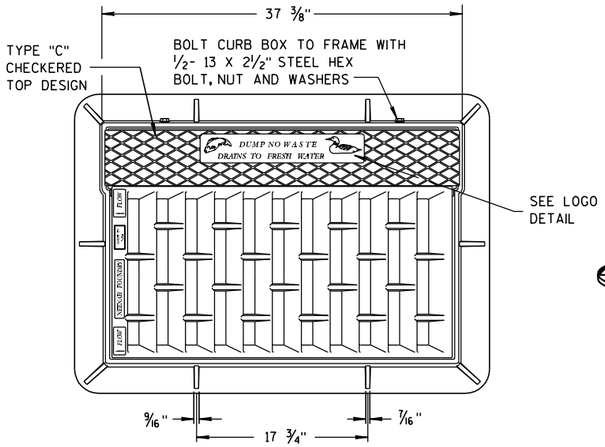

THOMAS L AERTS
RANDALL D & JILL M AERTS JR
STEVEN F & PATRICIA A SMITS
ASHWAUBENON CREEK LLC
SMITH FABIAN A REVOCABLE TRUST
RANDALL J & JUDITH A SMITS
ASHWAUBENON CREEK LLC
R/L EE
GAS WPS
ELECTRIC WPS
WETLAND BOUNDARY (TYP.)
COMMUNICATION ATT
COMMUNICATION TIME WARNER
ELECTRIC WPS
WATER TOWN OF LAWRENCE
GAS WPS
R/W
R/L MV
PROPOSED PIPE UNDERDRAIN
WATER TOWN OF LAWRENCE
COMMUNICATION TIME WARNER
SANITARY TOWN OF LAWRENCE
SLOPE INTERCEPT
MID VALLEY DR
MID VALLEY DR.
72MV
74MV
76MV
78MV
80MV
82MV
84MV
ELECTRIC WPS
COMMUNICATION CBCWA
GAS WPS
BEGIN CONSTRUCTION
STA 76MV+30.00
COMMUNICATION ATT
USH 41
SLOPE INTERCEPT
GRANT ST
END CONSTRUCTION
STA 81MV+00.00
EXISTING PIPE UNDERDRAIN
EXISTING PIPE UNDERDRAIN
USH 41
WATER CBCWA
SLOPE INTERCEPT
COMMUNICATION ATT
COMMUNICATION CBCWA
USH 41 SB
SANITARY (ABANDONED) TOWN OF LAWRENCE
5
5
620
615
610
605
600
595
590
585
BEGIN CONSTRUCTION
STA. 76MV+30.00
VPC STA 76+30.00
VPC EL 605.47
VPI STA 78+56.42
VPI EL 602.95
VPC STA 79+05.00
VPC EL 602.71
VPI STA 81+00.00
VPI EL 604.43
EXISTING GRADE @ R/L MID VALLEY DR
VCL = 190'
K = 49
VCL = 140'
K = 65
0.50%
-0.50%
1.66%
FINISHED GRADE @ R/L MID VALLEY DR
SPECIAL DITCH RIGHT
SPECIAL DITCH LEFT
SPECIAL DITCH RIGHT
END CONSTRUCTION
STA. 81MV+00.00
VPI STA 77+25.00
VPI EL 602.29
VPT STA 78+20.00
VPT EL 602.77
VPI STA 79+75.00
VPI EL 602.36
VPT STA 80+45.00
VPT EL 603.52
FINISHED PROFILE ELEVATIONS
EXISTING PROFILE ELEVATIONS
621.0
620.8
620.3
619.5
614.9
613.9
613.0
611.9
610.6
609.2
608.2
607.5
606.4
604.9 604.84
604.0 603.62
603.5 602.91
603.3 602.71
603.6 602.92
603.2 602.73
603.1 602.64
603.4 602.93
603.7 603.60
604.4 604.43
605.8
606.8
608.0
609.3
610.7
612.1
613.8
615.2
70+00
71+00
72+00
73+00
74+00
75+00
76+00
77+00
78+00
79+00
80+00
81+00
82+00
83+00
84+00
85+00

PROJECT NO:1133-06-88	HWY:USH 41	COUNTY:BROWN	PLAN AND PROFILE - MID VALLEY DR	SHEET 45	E

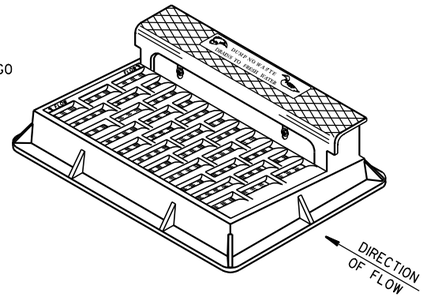
FILE NAME : \\milw00\ingrproj\43170\0600\0688_Grant_St\ee_050102_pp.dgn PLOT DATE : 10/25/2012 PLOT BY : lzidek PLOT NAME : PLOT SCALE : 100:1 WISDOT/CADDS SHEET 40

Standard Detail Drawing List

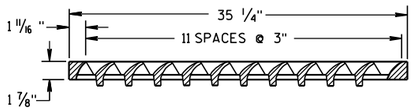
08A05-18A	INLET COVERS TYPE A, H, A-S, & H-S
08A05-18D	INLET COVER, TYPE BW, Z MANHOLE COVERS, TYPE K, J, J-S, L & M
08B09-01	MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER
08C06-01	INLETS 3-FT AND 4-FT DIAMETER
08D01-17	CONCRETE CURB, CONCRETE CURB AND GUTTER AND TIES
08D04-05	CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES
08D05-14A	CURB RAMPS TYPES 1 AND 1-A
08D05-14B	CURB RAMPS TYPES 2 AND 3
08D05-14C	CURB RAMPS TYPE 4A
08D05-14D	CURB RAMPS TYPE 4B
08D05-14E	CURB RAMPS TYPES 5, 6, 7A, 7B & 8
08D15-04A	EDGEDRAIN OUTLET AND OUTFALL MARKERS
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08E14-01	TRACKING PAD
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F02-01	APRON ENDWALLS FOR PIPE ARCH AND ELLIPTICAL PIPE
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
08F06-04	REINFORCED CONCRETE APRON ENDWALL FOR PIPE UNDERDRAIN
09A01-12A	AT-GRADE SIDE ROAD INTERSECTION, TYPES "B1", "B2", "C" AND D AND TEE INTERSECTION BYPASS LANE
09B02-07	CONDUIT
09B04-09	PULL BOX
09D01-04	CABINET SERVICE INSTALLATION (METER BREAKER PEDESTAL)
10A15-03A	ELECTRICAL DETAILS UNDERDECK LIGHTING
10A15-03B	ELECTRICAL DETAILS UNDERDECK LIGHTING
13A03-05	CONCRETE PAVEMENT SHOULDERS
13C01-15	CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES
13C11-10A	RURAL DOWELED CONCRETE PAVEMENT
13C11-10B	RURAL DOWELED CONCRETE PAVEMENT
13C13-07	URBAN DOWELED CONCRETE PAVEMENT
13C18-01A	CONCRETE PAVEMENT JOINTING
13C18-01B	CONCRETE PAVEMENT STEEL REINFORCEMENT
13C18-01C	CONCRETE PAVEMENT JOINT TIES
13C18-01D	CONCRETE PAVEMENT JOINTING AT UTILITY FIXTURES
15A03-01	MARKER POSTS, FLEXIBLE, FOR CULVERT END
15C02-04A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-04B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C08-15A	PAVEMENT MARKING (MAINLINE)
15C08-15B	PAVEMENT MARKING (INTERSECTIONS)
15D30-01	TRAFFIC CONTROL, SIDEWALK CLOSURE

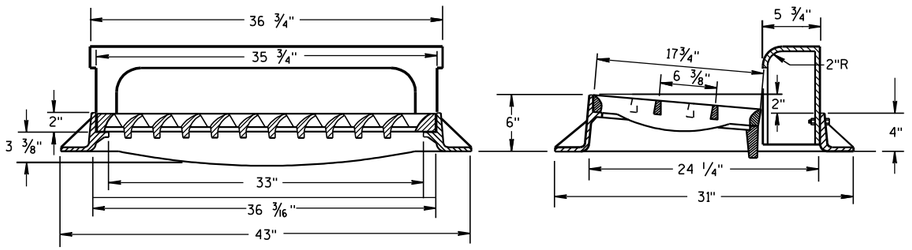


NOTE:
GRATE IS REVERSIBLE.



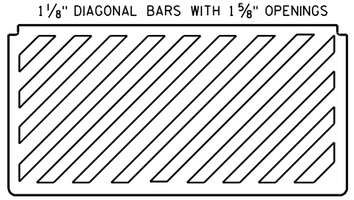
NOTE: CURB BOX HEIGHT ADJUSTABLE 6" TO 9"





TYPE "H"

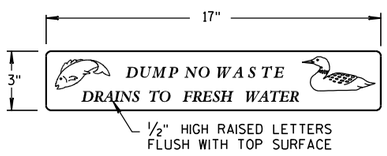
(APPROXIMATE WEIGHT 441 LBS.)
FRAME..... 181 LBS.
GRATE..... 146 LBS.
CURB BOX..... 114 LBS.



SPECIAL GRATE FOR TYPE "H" COVER

(MEASURES 35 1/4" X 17 3/4" X 2")
(APPROXIMATE WEIGHT 159 LBS.)
GRATE..... 159 LBS.

(NOTED AS TYPE H-S ON DRAINAGE TABLE)



LOGO DETAIL

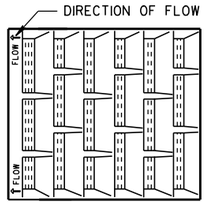
GENERAL NOTES

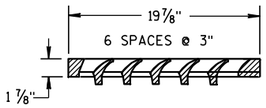
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

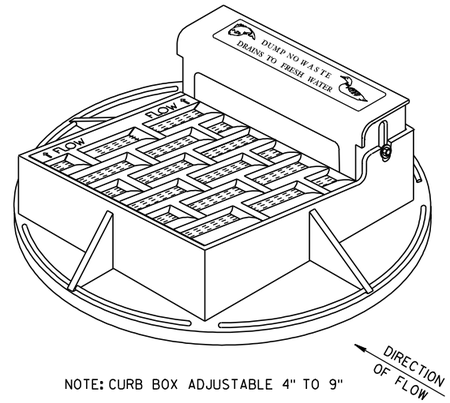
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR CATCH BASIN, MANHOLE AND INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

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

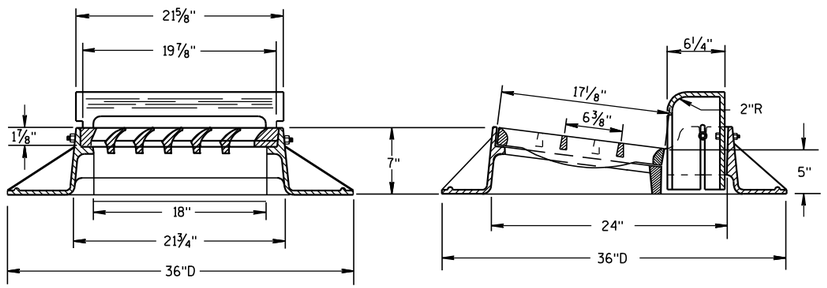
THE ACTUAL WEIGHT OF COVERS MAY VARY WITHIN 5 PERCENT, PLUS OR MINUS, OF THE APPROXIMATE WEIGHT.





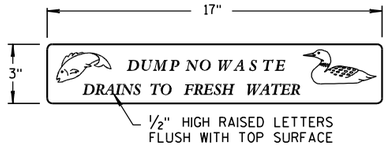


NOTE: CURB BOX ADJUSTABLE 4" TO 9"



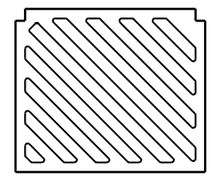
TYPE "A"

(APPROXIMATE WEIGHT 340 LBS.)
FRAME..... 185 LBS.
GRATE..... 71 LBS.
CURB BOX..... 84 LBS.



LOGO DETAIL

NOTE:
GRATE IS REVERSIBLE.



SPECIAL GRATE FOR TYPE "A" COVER

(MEASURES 19 3/4" X 17" X 1 7/8"
GRATE..... 84 LBS.

(NOTED AS TYPE A-S ON DRAINAGE TABLE)

INLET COVERS TYPE A, H, A-S, & H-S

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

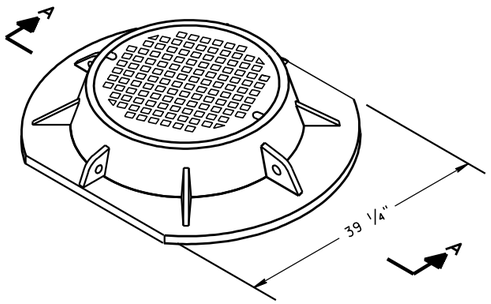
APPROVED
6/5/2012 DATE
/S/ Jerry H. [illegible]
ROADWAY STANDARDS ENGINEER
47
FHWA

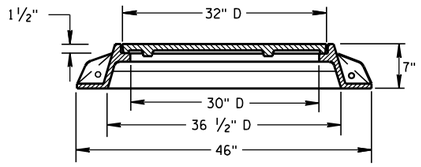
6

S.D.D. 8 A 5-18a

6

S.D.D. 8 A 5-18a



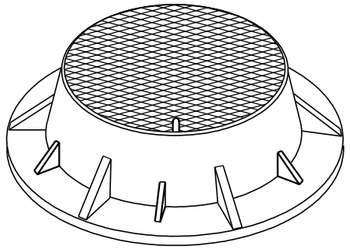


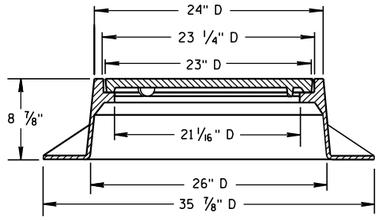
SECTION A-A

TYPE "K"

(APPROXIMATE WEIGHT 439 LBS.)

FRAME.....216 LBS.
LID.....223 LBS.

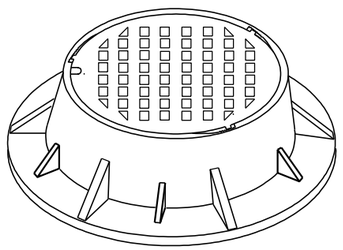


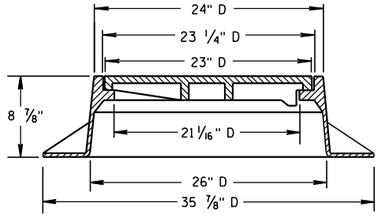


TYPE "J"

(APPROXIMATE WEIGHT 267 LBS.)

FRAME.....152 LBS.
LID.....115 LBS.





TYPE "J" SPECIAL

TYPE "B" NON-ROCKING SELF-SEAL LID

(APPROXIMATE WEIGHT 267 LBS.)

FRAME.....158 LBS.
LID.....109 LBS.

(NOTED AS TYPE J-S ON THE DRAINAGE TABLE)

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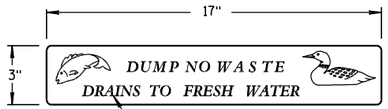
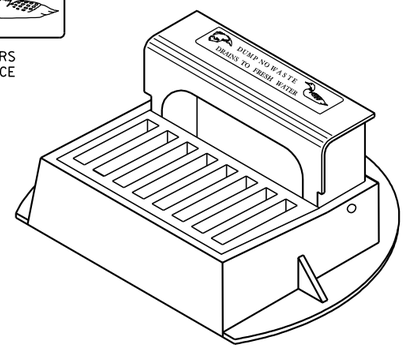
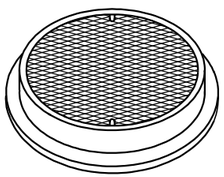
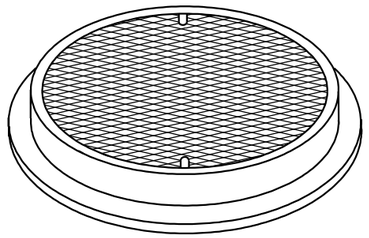
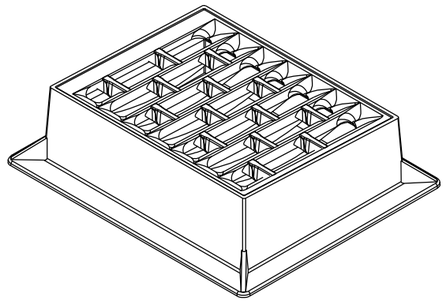


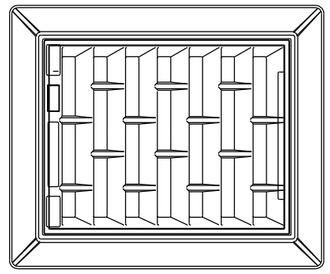
LOGO DETAIL

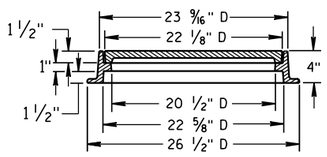








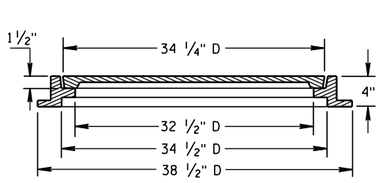




TYPE "L"

(APPROXIMATE WEIGHT 158 LBS.)

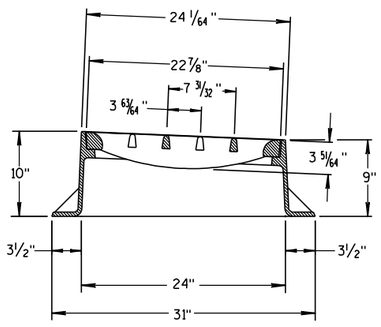
FRAME.....81 LBS.
LID.....77 LBS.

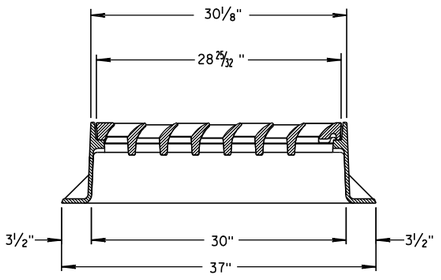


TYPE "M"

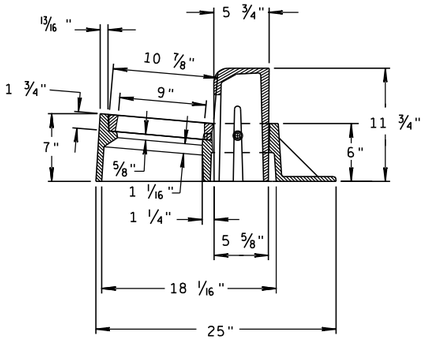
(APPROXIMATE WEIGHT 377 LBS.)

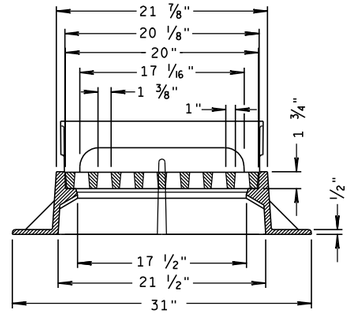
FRAME..... 125 LBS.
LID..... 252 LBS.





INLET COVER TYPE "BW"





INLET COVER TYPE "Z"

(APPROXIMATE WEIGHT 344 LBS.)

FRAME.....206 LBS.
GRATE..... 46 LBS.
CURB BOX..... 92 LBS.

INLET COVERS, TYPE BW, Z
MANHOLE COVERS, TYPE K, J, J-S, L & M

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

6/5/2012
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER

FHWA

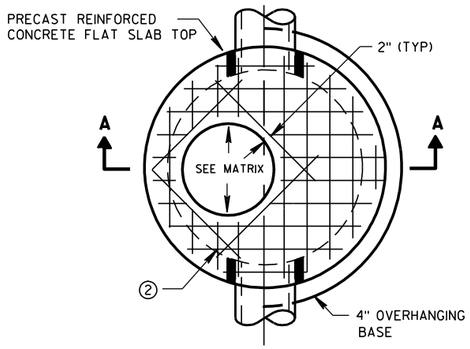
NT

6

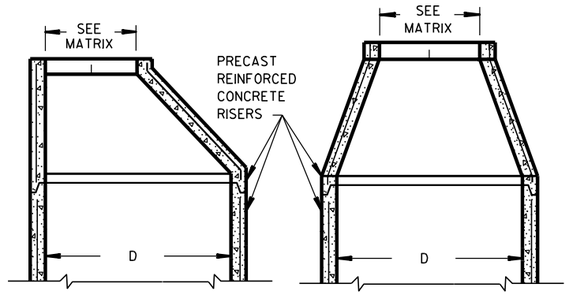
S.D.D. 8 A 5-18d

6

S.D.D. 8 A 5-18d

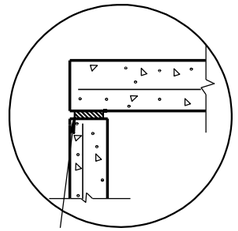


PLAN VIEW CIRCULAR OPENING

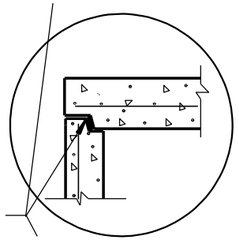


OPTIONAL PRECAST REINFORCED CONCRETE ECCENTRIC TOP

OPTIONAL PRECAST REINFORCED CONCRETE CONCENTRIC TOP

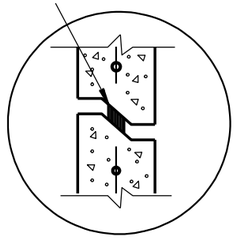


TOP WITH PLAIN END JOINT



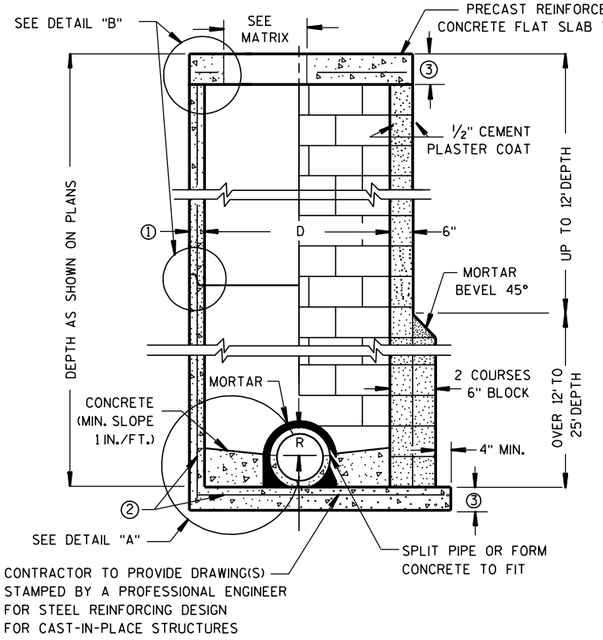
JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C990 (TYP)

TOP WITH TONGUE AND GROOVE JOINT



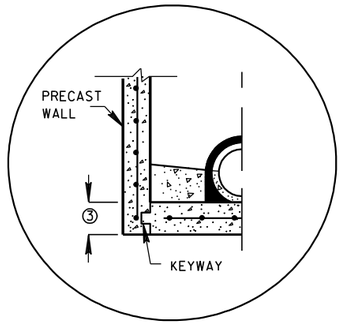
RISER WITH TONGUE AND GROOVE JOINT

DETAIL "B"

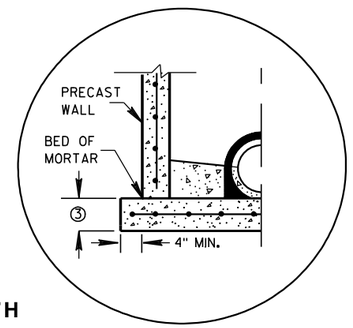


PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE

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

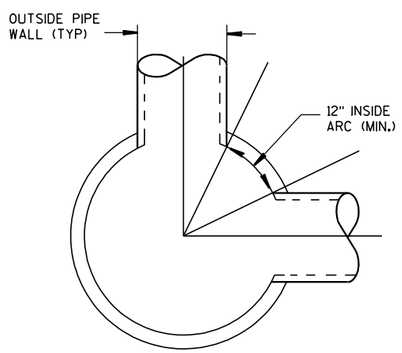


PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION



SEPERATE PRECAST REINFORCED CONCRETE BASE OPTION

DETAIL "A"



DETAIL "C"

GENERAL NOTES

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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 SEPERATE 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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

6/5/2012
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA

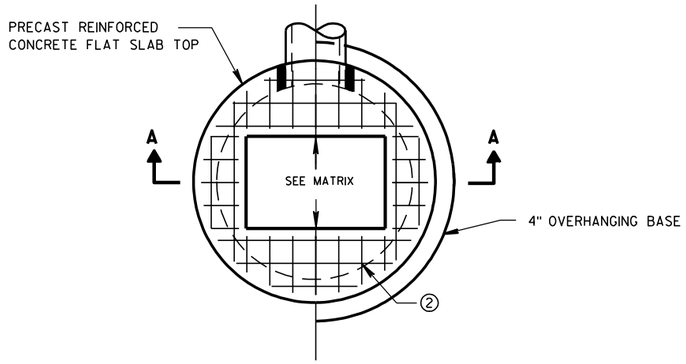
MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER

6

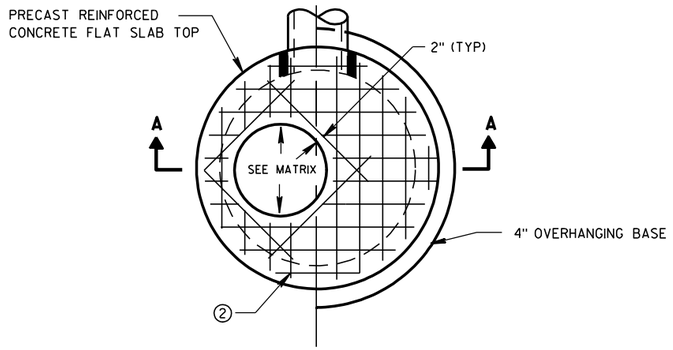
S.D.D. 8 B 9-1

6

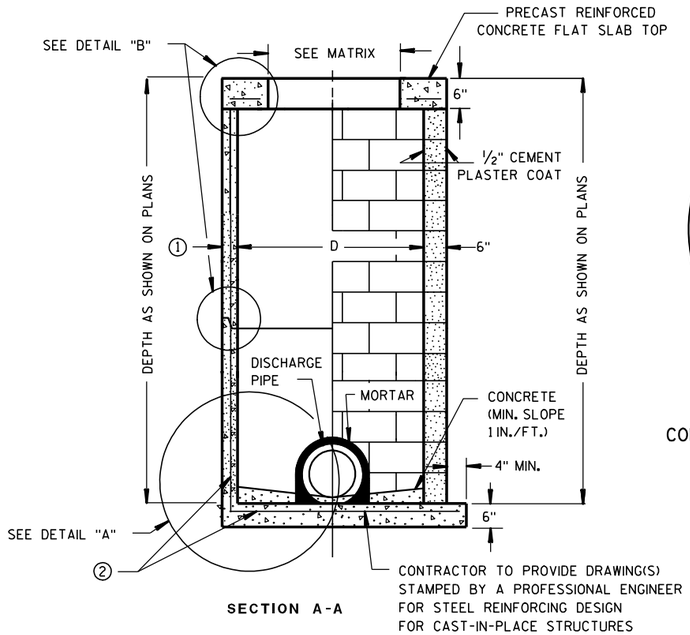
S.D.D. 8 B 9-1



PLAN VIEW RECTANGULAR OPENING



PLAN VIEW CIRCULAR OPENING



SECTION A-A

PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE

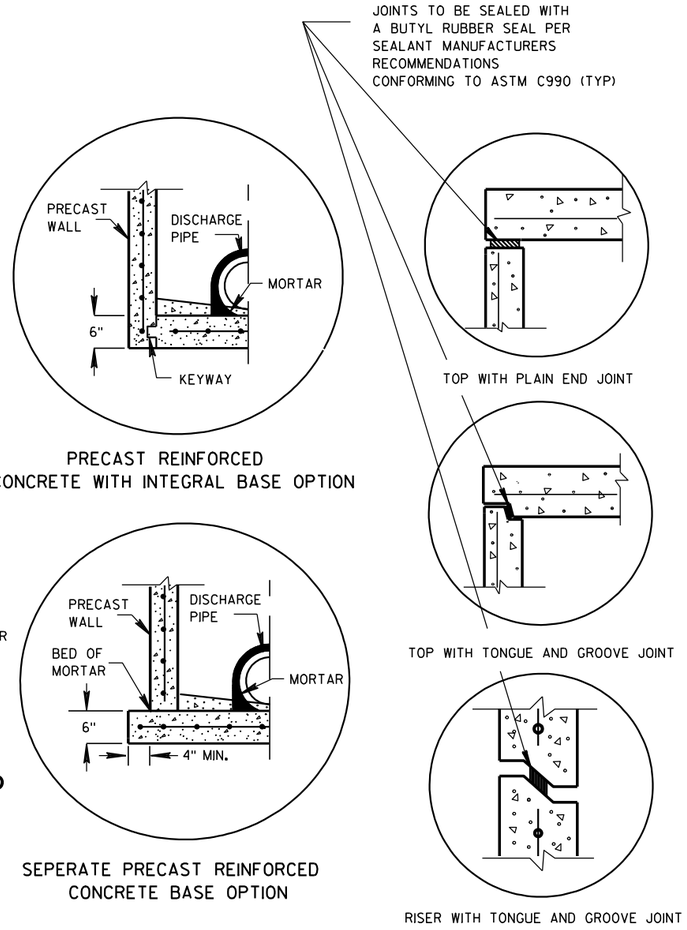
CONCRETE BLOCK WITH CAST-IN-PLACE OR PRECAST REINFORCED CONCRETE BASE ②

CIRCULAR INLETS W/ FLAT TOP

PRECAST REINFORCED
CONCRETE WITH INTEGRAL BASE OPTION

SEPERATE PRECAST REINFORCED
CONCRETE BASE OPTION

DETAIL "A"



DETAIL "B"

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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.

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

ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M199.

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

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

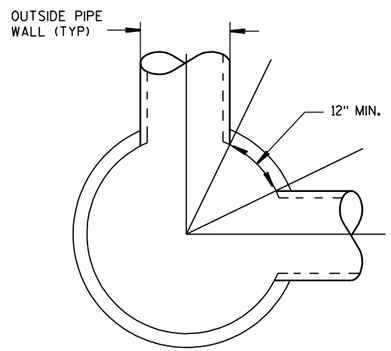
FOR ADDITIONAL CONFIGURATIONS, MAINTAIN A MINIMUM OF 12 INCHES AS MEASURED FROM THE INSIDE OF THE STRUCTURE WALL BETWEEN THE OUTSIDE PIPE WALLS OF ADJACENT PIPES. SEE DETAIL "C".

① MINIMUM WALL THICKNESS SHALL BE 4-IN FOR 3-FT DIAMETER AND 5-IN FOR 4-FT DIAMETER PRECAST INLETS.

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

INLET COVER OPENING MATRIX

	INLET COVER TYPE	ALL A'S	ALL B'S	BW	C	F	ALL H'S	S	T	V	WM	Z
INLET SIZE	OPENING SIZE (FT)											
3-FT	2 DIA.				X							X
	2X2	X	X					X		X		
4-FT	2 DIA.				X							X
	2X2	X	X					X		X		
	2X2.5			X				X	X	X	X	
	2X3						X					
	2.5X3					X						



DETAIL "C"

PIPE MATRIX

INLET SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES	
	180° SEPARATION (IN)	90° SEPARATION (IN)
3-FT	15	12
4-FT	24	18

INLETS 3-FT AND 4-FT DIAMETER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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6/5/2012 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER
FHWA

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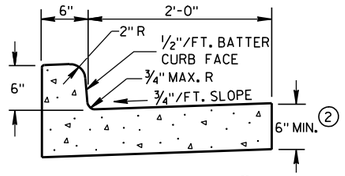
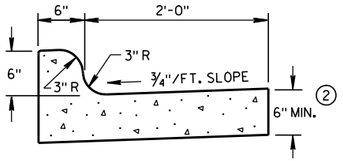
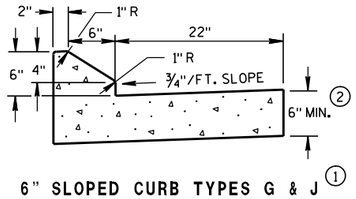


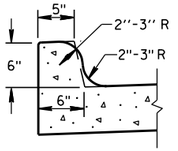
TYPES A & D (1)



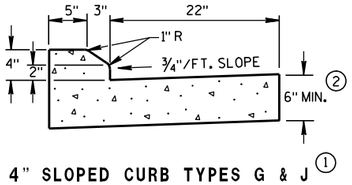
TYPES K & L (1)



6" SLOPED CURB TYPES G & J (1)

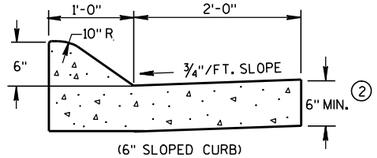


OPTIONAL CURB SHAPE FOR TYPES K & L (1)

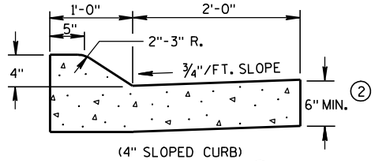


4" SLOPED CURB TYPES G & J (1)

CONCRETE CURB & GUTTER 30"

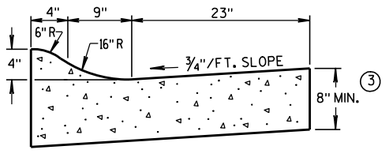


(6" SLOPED CURB)



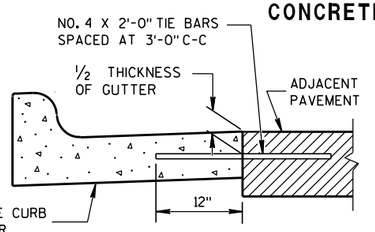
(4" SLOPED CURB)

TYPES A & D (1)



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

CONCRETE CURB & GUTTER 36"



TYPICAL TIE BAR LOCATION (1)

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

GENERAL NOTES

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

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

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

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

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

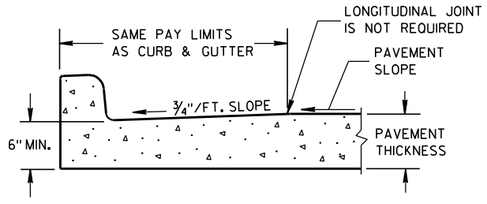
(1) TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K AND R.

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

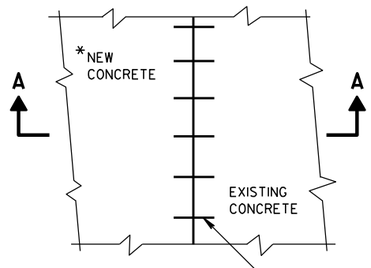
(3) THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.

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

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

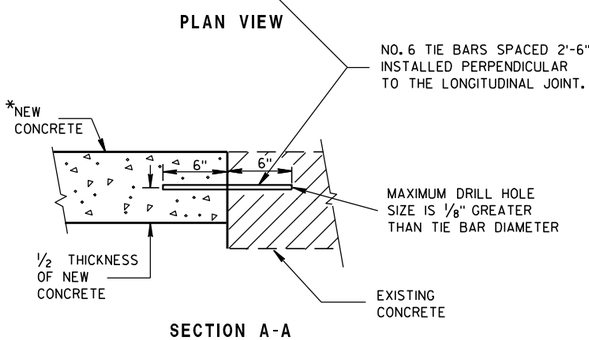


PARTIAL SECTION OF PAVEMENT WITH INTEGRAL CURB & GUTTER



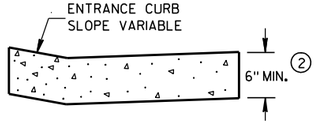
PLAN VIEW

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

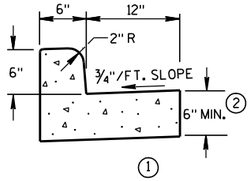


SECTION A-A

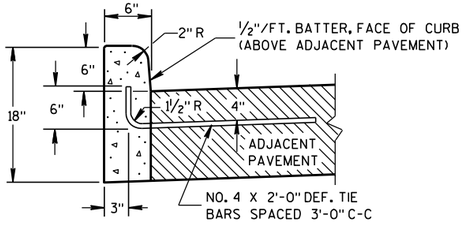
TIE BARS DRILLED INTO EXISTING PAVEMENT



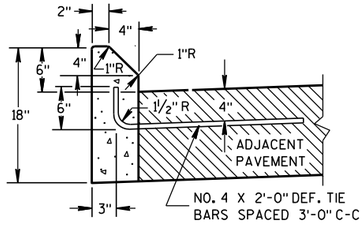
DRIVEWAY ENTRANCE CURB
(WHEN DIRECTED BY THE ENGINEER)



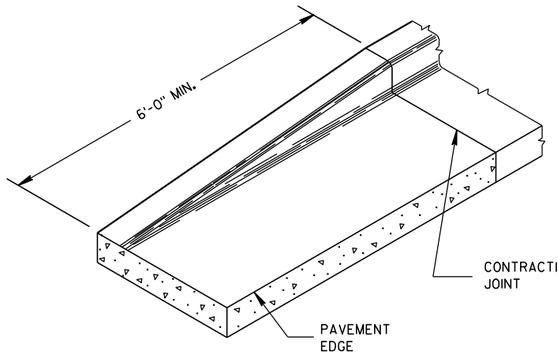
(1)
TYPES A & D
CONCRETE CURB & GUTTER 18"



(1)
TYPES A & D



(1)
TYPES G & J



END SECTION CURB & GUTTER

CONCRETE CURB

CONCRETE CURB, CONCRETE CURB & GUTTER AND TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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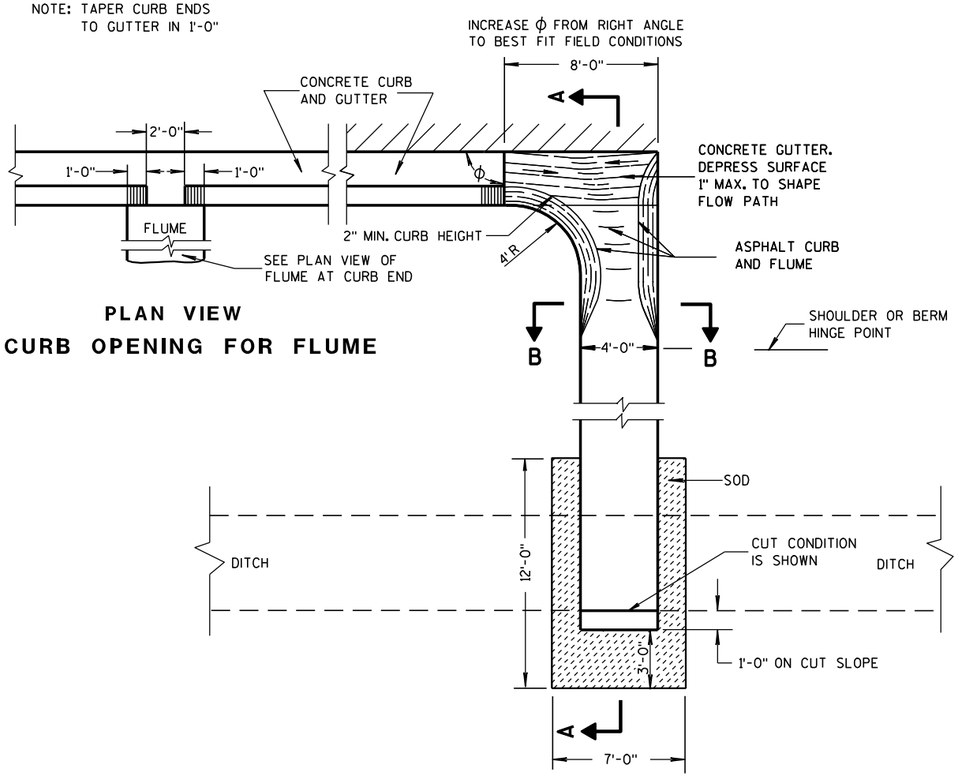
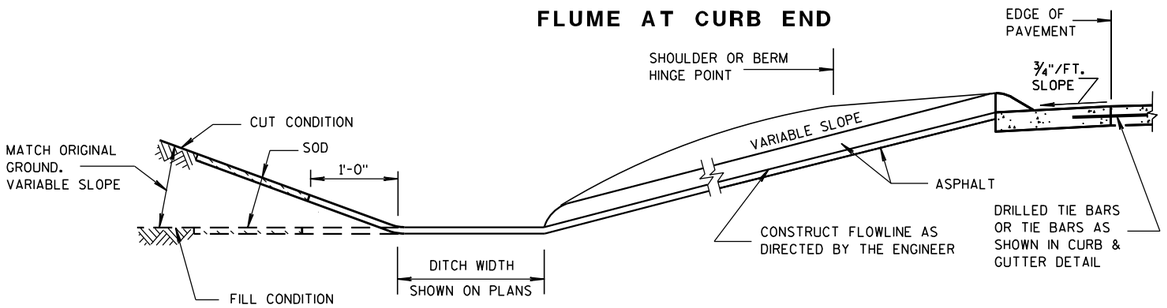
ASPHALTIC FLUME

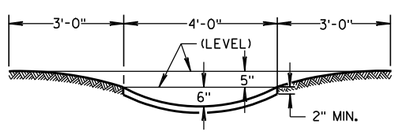


PLAN VIEW
CURB OPENING FOR FLUME

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.

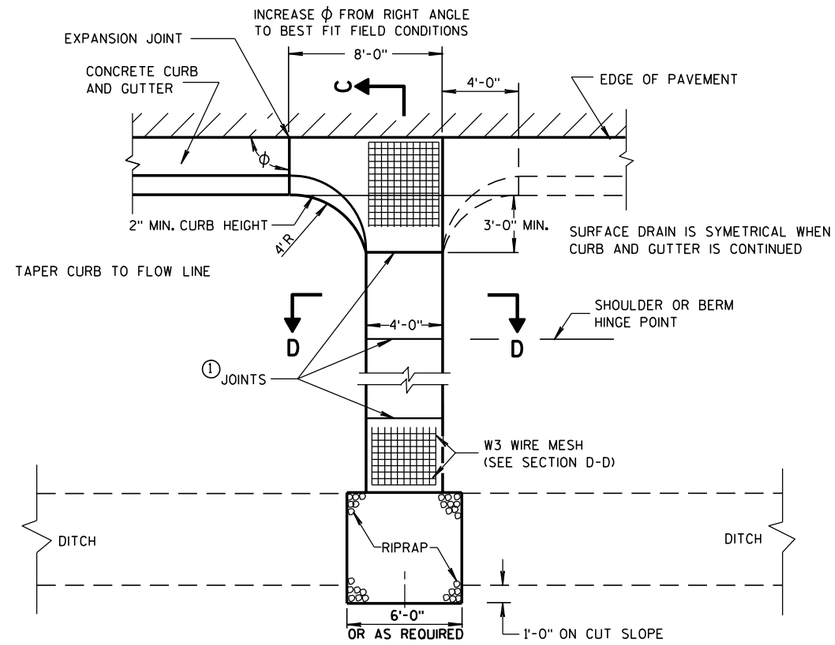
WELDED STEEL WIRE FABRIC SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATION M55.

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.

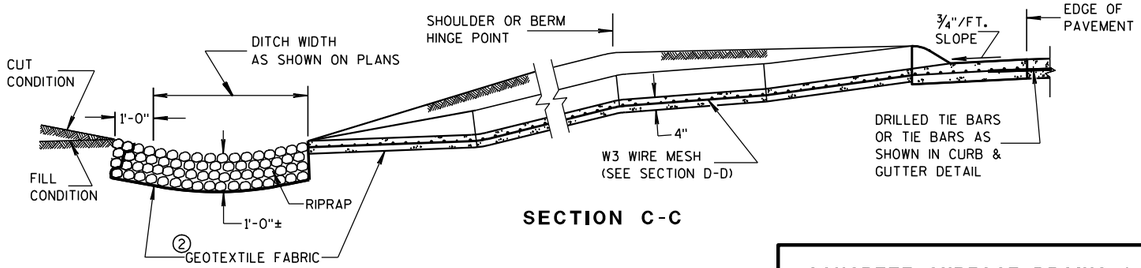
② GEOTEXTILE FABRIC TYPE "R" SHALL UNDERLAY THE FULL LENGTH AND WIDTH OF THE CONCRETE SURFACE DRAIN AND RIPRAP.

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

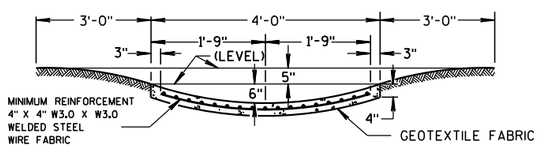
③ CONCRETE SURFACE DRAIN



PLAN VIEW



SECTION C-C



SECTION D-D

CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

9-4-08 DATE — /S/ Jerry H. ... ROADWAY STANDARDS ENGINEER — MENT

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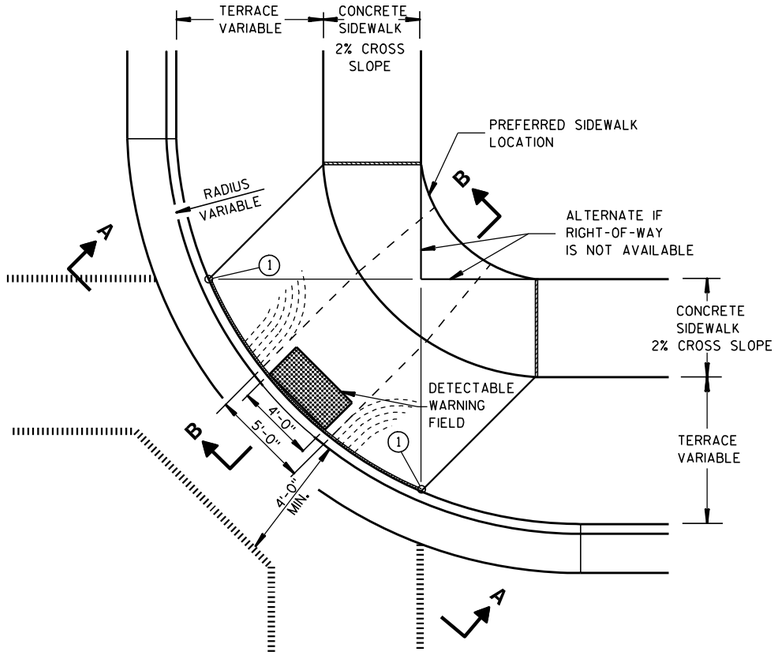
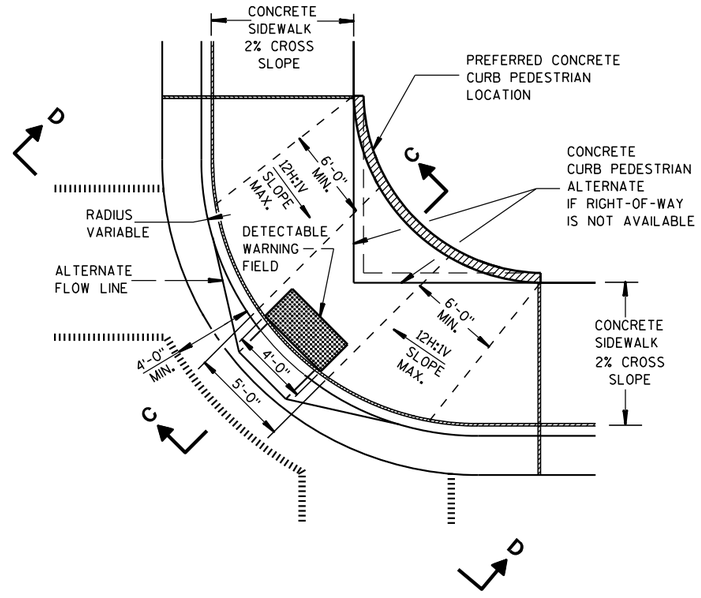


PLAN VIEW

TYPE 1 RAMP

(CENTER OF CORNER RADIUS)



PLAN VIEW

TYPE 1-A RAMP

(NO TERRACE)

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.

RAMPS SHALL BE BUILT AT 12H:1V OR FLATTER. WHEN NECESSARY, THE SIDEWALK ELEVATION MAY BE LOWERED TO MEET THE HIGH POINT ON THE RAMP.

TYPE 1 RAMPS SHALL HAVE A NORMAL SIDEWALK APRON AND CURB ON BOTH SIDES OF RAMP.

DETECTABLE WARNING FIELD SHALL BE MEASURED AND PAID BY THE SQUARE FOOT AS "CURB RAMP DETECTABLE WARNING FIELD". THE CONCRETE PEDESTRIAN CURB, IF NEEDED, SHALL BE MEASURED AND PAID BY THE LINEAL FOOT AS "CONCRETE CURB PEDESTRIAN". CONCRETE SIDEWALK IN THE CURB RAMP AREA SHALL BE MEASURED AND PAID BY THE SQUARE FOOT AS CONCRETE SIDEWALK, INCLUDING THE AREA UNDER THE DETECTABLE WARNING FIELD.

SELECT CURB RAMP DETECTABLE WARNING FIELD MATERIALS AND DEVICES FROM THE DEPARTMENT'S APPROVED MATERIALS LIST. THE COLOR OF THE DETECTABLE WARNING FIELD IS SPECIFIED ELSEWHERE AND IS INCIDENTAL TO THE BID ITEM OF "CURB RAMP DETECTABLE WARNING FIELD".

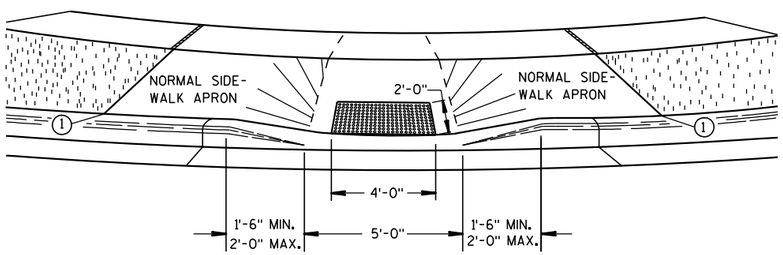
SURFACE TEXTURE OF THE RAMP SHALL BE OBTAINED BY COARSE BROOMING TRANSVERSE TO THE SLOPE OF THE RAMP.

(1) THIS POINT IS AN EXTENSION OF OUTSIDE EDGE OF APPROACHING SIDEWALK WHERE IT MEETS THE BACK OF CONCRETE CURB.

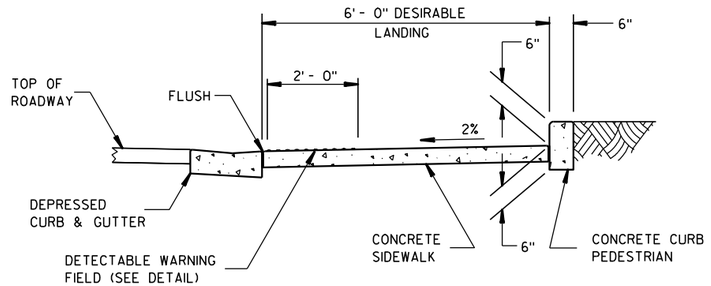
(2) GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. PROVIDE DRAINAGE AWAY FROM CURB RAMP AT GUTTER FLAG INTERFACE.

LEGEND

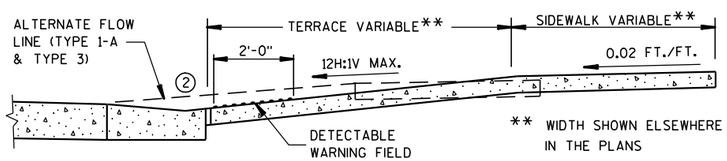
- ½" EXPANSION JOINT-SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)
- ALTERNATIVE LAYOUT



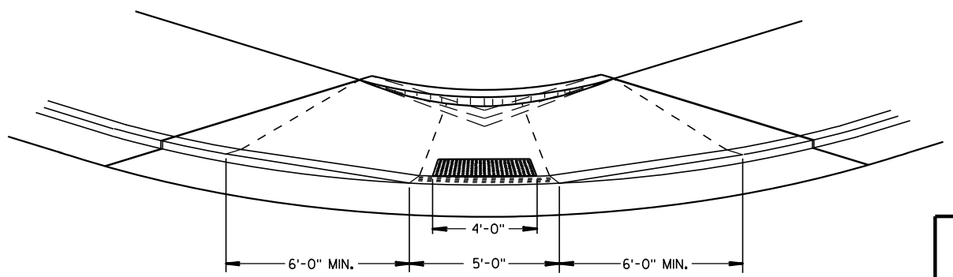
VIEW A-A



SECTION C-C



SECTION B-B



VIEW D-D

CURB RAMPS TYPES 1 AND 1-A

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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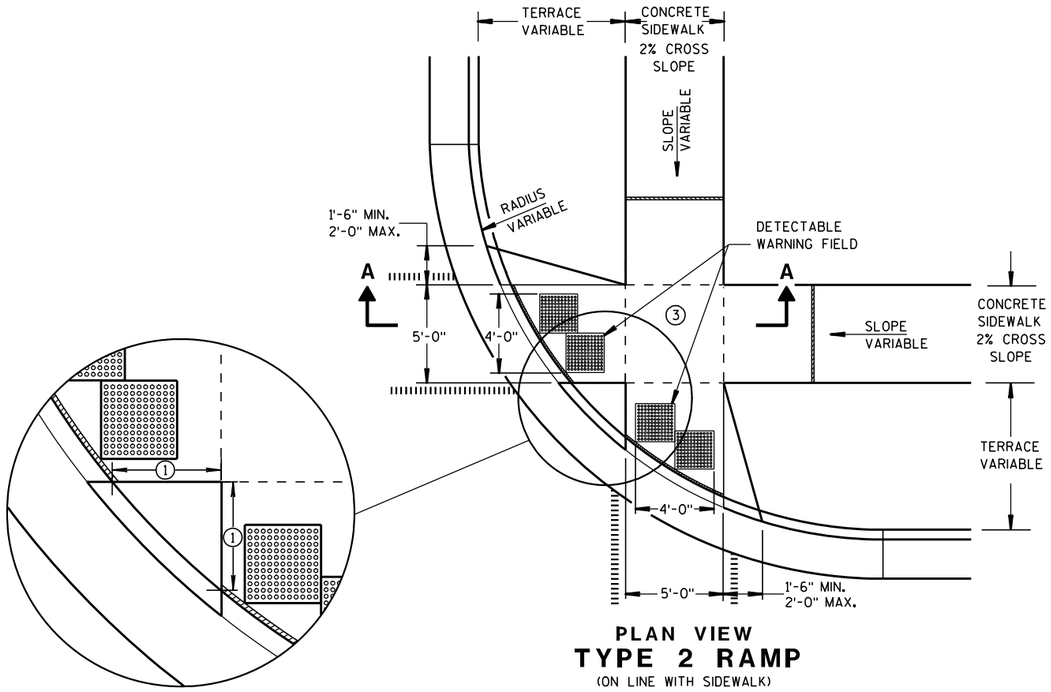
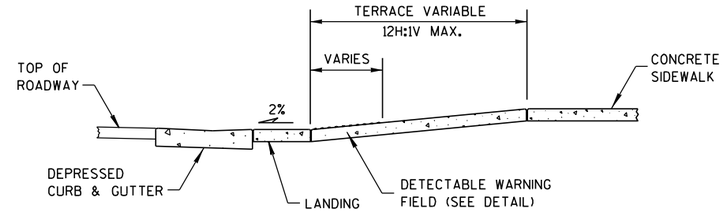
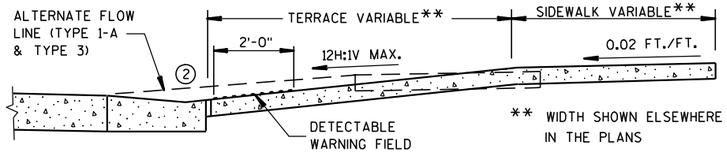


PLAN VIEW
TYPE 2 RAMP
(ON LINE WITH SIDEWALK)



SECTION A-A



SECTION B-B

GENERAL NOTES

USE THE TYPE 3 RAMP ONLY WHEN A TYPE 1 OR TYPE 2 CANNOT BE ACHIEVED BECAUSE OF FIELD CONDITIONS.

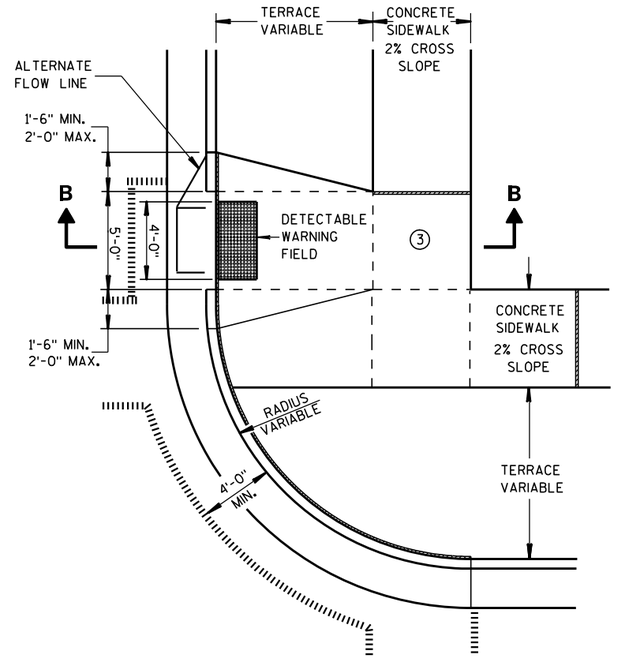
(1) WHEN THIS DISTANCE IS LESS THAN 6'-0" IT MAY BE DIFFICULT TO ACHIEVE A 12H:1V SLOPE, OR FLATTER, ON THE RAMP. REDUCE CURB HEIGHT IN TRIANGLE AREA TO ACHIEVE 12H:1V SLOPE, OR FLATTER, ON RAMP. 2" MINIMUM CURB HEIGHT.

(2) GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. PROVIDE DRAINAGE AWAY FROM CURB RAMP AT GUTTER FLAG INTERFACE.

(3) PROVIDE LANDING AT TOP OF RAMP WITH NO MORE THAN 2% SLOPE IN ANY DIRECTION.

LEGEND

- ½" EXPANSION JOINT-SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)
- ALTERNATIVE LAYOUT



PLAN VIEW
TYPE 3 RAMP
(OUTSIDE OF CROSSWALK AREA)

CURB RAMPS TYPES 2 AND 3

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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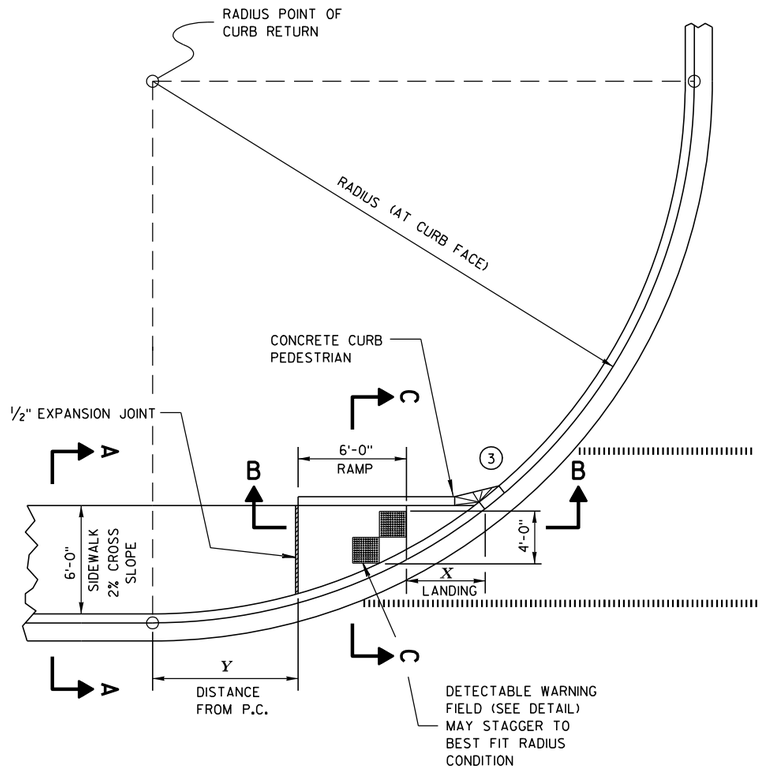
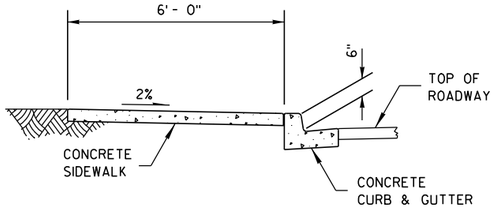


CURB RAMP TYPE 4A
PLAN VIEW

RADIUS (AT CURB FACE)	X	Y
20 FEET	6'-1¾"	2'-7¼"
30 FEET	7'-11¾"	4'-8¼"
40 FEET	9'-5¼"	6'-5"
50 FEET	10'-8¾"	7'-11¼"
60 FEET	11'-10¼"	9'-3½"

INTERMEDIATE RADII CAN BE INTERPOLATED



SECTION A-A

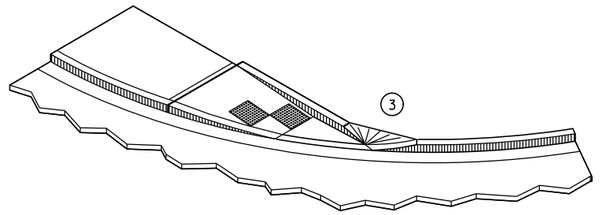
GENERAL NOTES

AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.

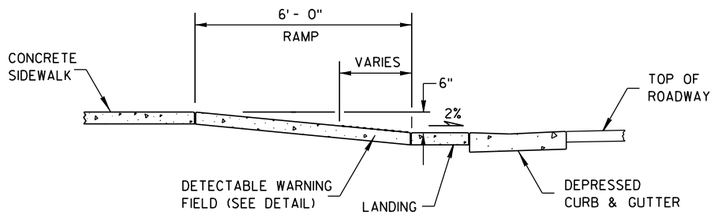
RAMP SLOPES SHALL NOT BE STEEPER THAN 12:1.

SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%.

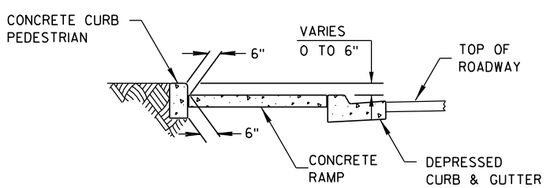
(3) INSTALL TRANSITION NOSE. (INCIDENTAL TO OTHER PAY ITEMS.) DO NOT MARK TRANSITION NOSE.



ISOMETRIC VIEW



SECTION B-B



SECTION C-C

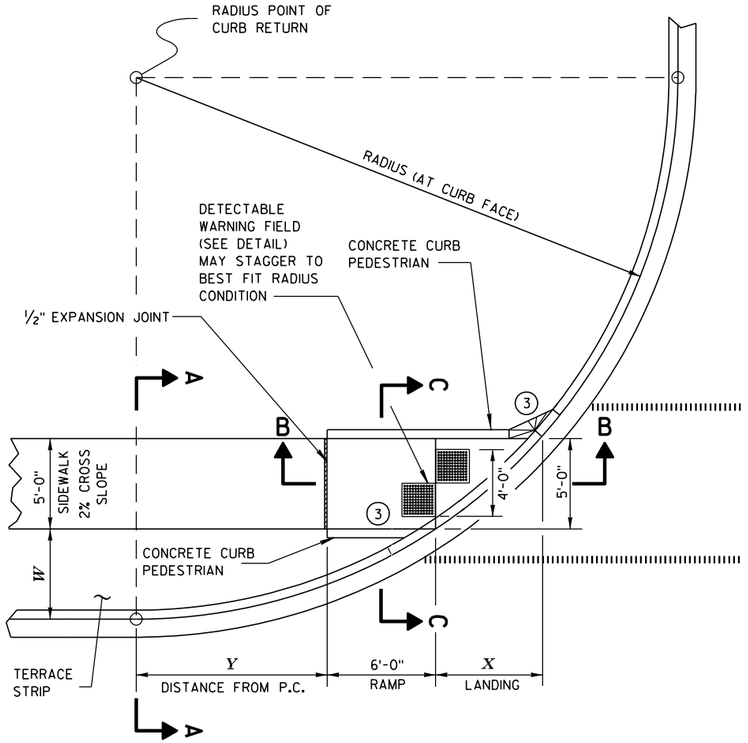
LEGEND

- ½" EXPANSION JOINT-SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)

CURB RAMPS TYPE 4A

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6
S.D.D. 8 D 5-14c



CURB RAMP TYPE 4B
PLAN VIEW

GENERAL NOTES

AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.

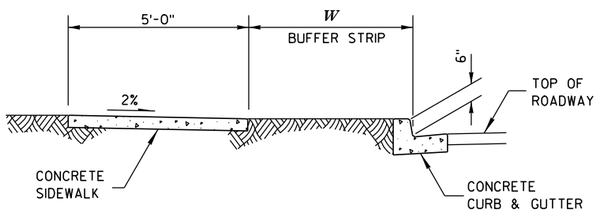
RAMP SLOPES SHALL NOT BE STEEPER THAN 12:1.

SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%.

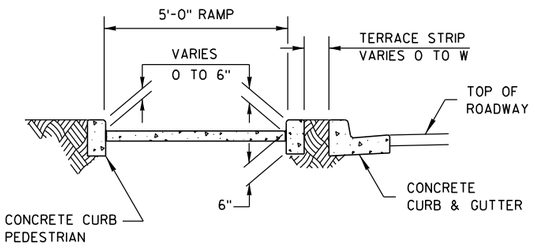
(3) INSTALL TRANSITION NOSE. (INCIDENTAL TO OTHER PAY ITEMS.) DO NOT MARK TRANSITION NOSE.

RADIUS (AT CURB FACE)	W = 3'- 0"		W = 4'- 0"		W = 5'- 0"		W = 6'- 0"		W = 7'- 0"	
	X	Y	X	Y	X	Y	X	Y	X	Y
20 FEET	5'-5½"	4'-6½"	4'-8½"	6'-0"	4'-1"	7'-2¾"	3'-7"	8'-3½"	3'-1½"	9'-2½"
30 FEET	7'-3¾"	7'-1"	6'-5½"	8'-11½"	5'-9¼"	10'-7"	5'-2½"	12'-0"	4'-8¾"	13'-3¼"
40 FEET	8'-9½"	9'-2½"	7'-10"	11'-5¼"	7'-1"	13'-4½"	6'-5¾"	15'-¾"	5'-11½"	16'-7¼"
50 FEET	10'-¾"	11'-¾"	9'-¼"	13'-7¼"	8'-2½"	15'-9½"	7'-6½"	17'-9"	6'-11¾"	19'-6¼"
60 FEET	11'-2½"	12'-8¾"	10'-¾"	15'-6½"	9'-2¼"	17'-11¾"	8'-5¾"	20'-1¾"	7'-10½"	22'-1½"
70 FEET	12'-2¾"	14'-3¼"	11'-¼"	17'-4"	10'-1"	19'-11¾"	9'-3¾"	22'-4¼"	8'-8¼"	24'-6¼"
80 FEET	13'-2"	15'-8½"	11'-10½"	18'-11¾"	10'-10¾"	21'-10"	10'-1"	24'-4¾"	9'-5"	26'-8¾"
90 FEET	14'- ½"	17'-½"	12'-8¼"	20'-6½"	11'-7¾"	23'-7"	10'-9¾"	26'-3¾"	10'-1¼"	28'-9½"
100 FEET	14'-10½"	18'-3¾"	13'-5½"	22'-0"	12'-4¼"	25'-2¾"	11'-5¾"	28'-1½"	10'-9"	30'-9"

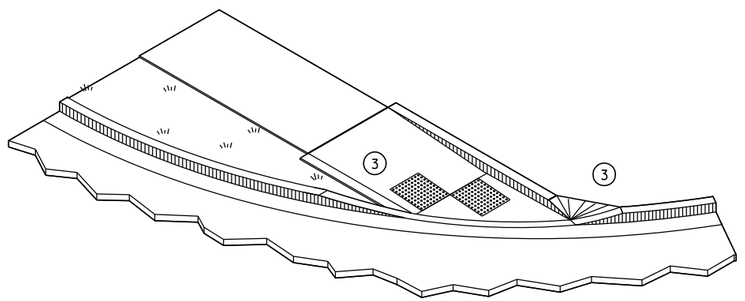
INTERMEDIATE RADII CAN BE INTERPOLATED



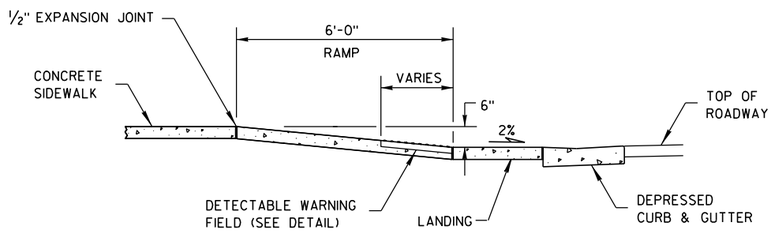
SECTION A-A



SECTION C-C



ISOMETRIC VIEW



SECTION B-B

LEGEND

½" EXPANSION JOINT-SIDEWALK

CONTRACTION JOINT FIELD LOCATED

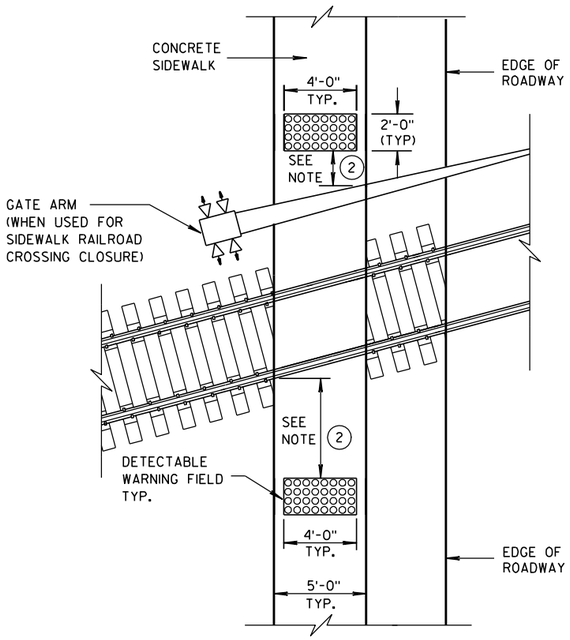
PAVEMENT MARKING CROSSWALK (WHITE)

CURB RAMPS TYPE 4B

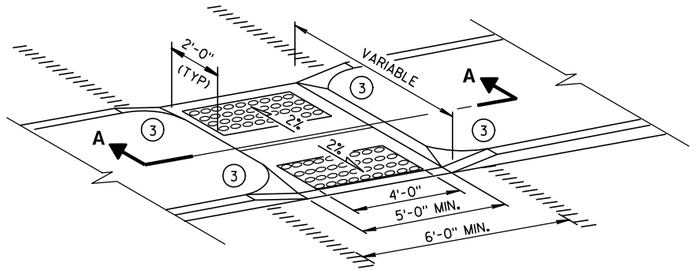
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

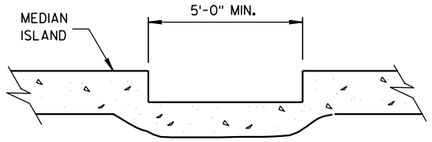
S.D.D. 8 D 5-14d



TYPE 8
DETECTABLE WARNINGS AT RAILROAD CROSSING



MEDIAN ISLAND
NON-ELEVATED CROSSING
TYPE 5



SECTION A-A

GENERAL NOTES

SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%.

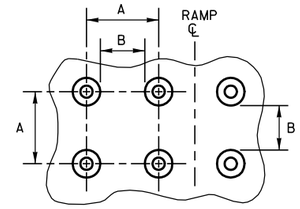
(1) SLOPE SIDEWALK TOWARD LANDING AS SHOWN WHERE THERE IS NO TERRACE OR WHERE THE TERRACE WIDTH IS LESS THAN 6 FEET WIDE.

(2) THE EDGE OF THE DETECTABLE WARNING FIELD NEAREST TO A RAILROAD CROSSING SHALL BE 1.5 FEET ± 0.1' FROM THE FACE OF THE GATE ARM IF THE GATE ARM EXTENDS ACROSS THE SIDEWALK. WHERE THERE IS NO PEDESTRIAN GATE, THE EDGE OF THE DETECTABLE WARNING FIELD NEAREST TO THE RAILROAD CROSSING SHALL BE 15 FEET FROM THE NEAREST RAIL.

(3) INSTALL TRANSITION NOSE. (INCIDENTAL TO OTHER PAY ITEMS.) DO NOT MARK TRANSITION NOSE.

LEGEND

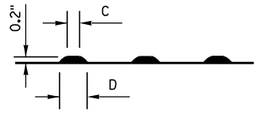
- ½" EXPANSION JOINT-SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)



PLAN VIEW

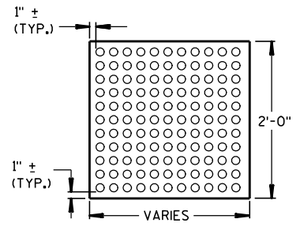
	MIN.	MAX.
A	1.6"	2.4"
B	0.65"	1.5"
C	*	*
D	0.9"	1.4"

* THE C DIMENSION IS 50% TO 65% OF THE D DIMENSION.



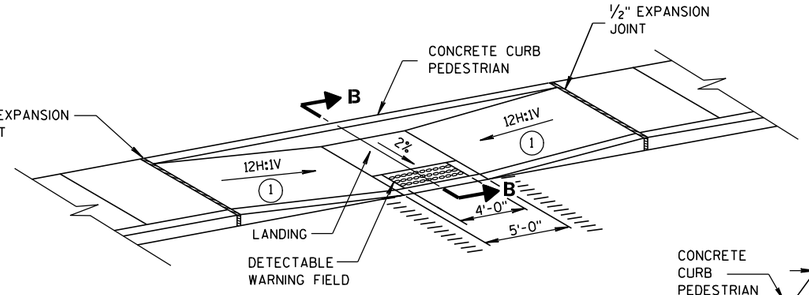
ELEVATION VIEW

TRUNCATED DOMES
DETECTABLE WARNING PATTERN DETAIL

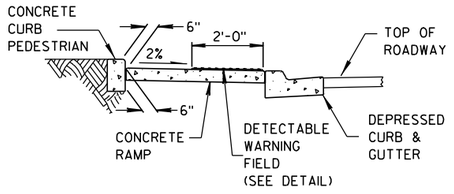


PLAN VIEW

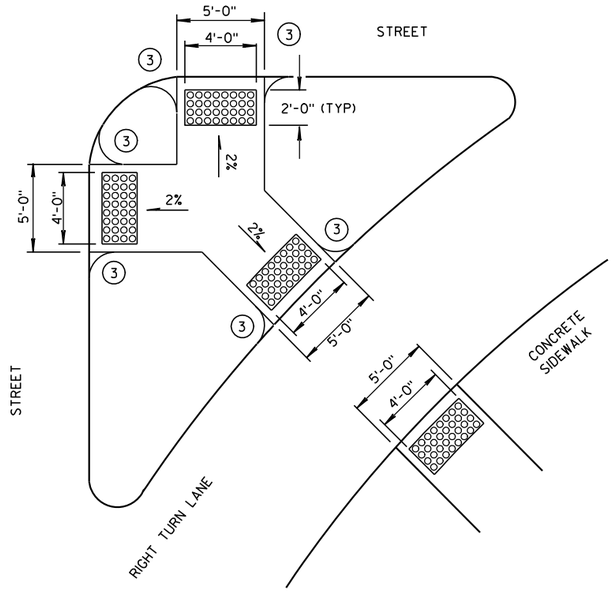
DETECTABLE WARNING FIELD (TYPICAL)



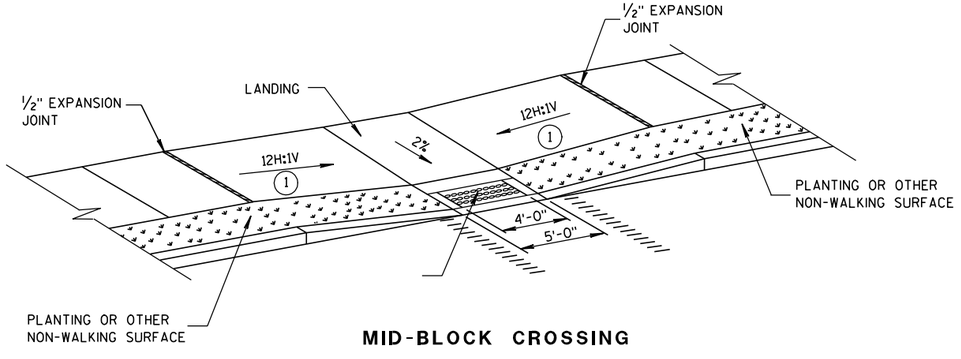
MID-BLOCK CROSSING
TYPE 7A



SECTION B-B



TYPE 6
DETECTABLE WARNING AT ISLANDS



MID-BLOCK CROSSING
TYPE 7B

NOTE: THESE PARALLEL AND PARALLEL/PERPENDICULAR CURB RAMPS MAY BE USED AT INTERSECTIONS AND MID BLOCK LOCATIONS.

CURB RAMPS
TYPES 5, 6, 7A, 7B & 8

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
2-9-10 DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER
FHWA

6
S.D.D. 8 D 5-14e

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:

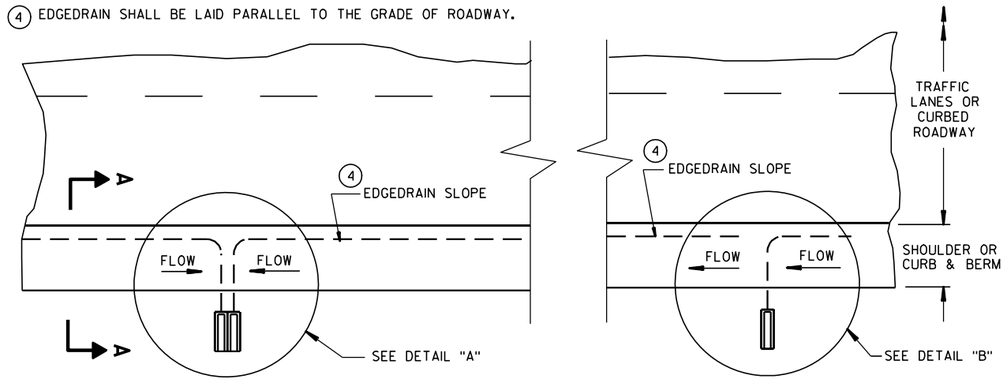
POLYVINYL CHLORIDE (PVC) PLASTIC DRAIN, WASTE, AND VENT PIPE AND FITTINGS, ASTM D 2665, SCHEDULE 40 PVC.

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.

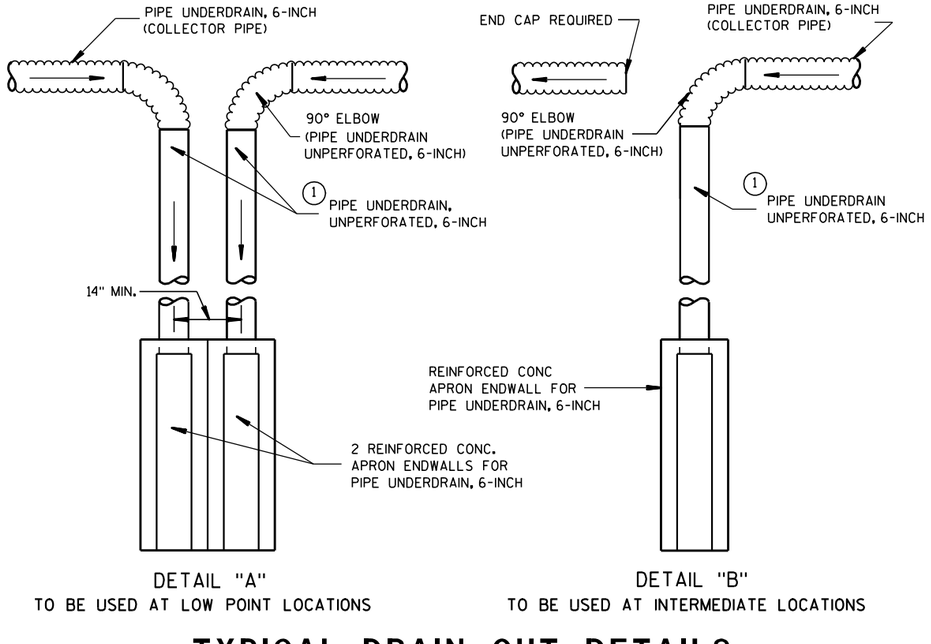
(4) EDGEDRAIN SHALL BE LAID PARALLEL TO THE GRADE OF ROADWAY.



PLAN VIEW

ROADWAY WITH SHOULDERS OR CURBS

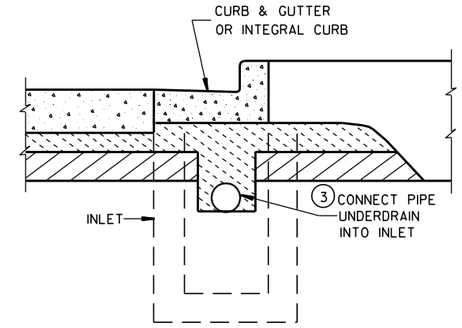
(EDGEDRAIN OUTLETS TO ROADSIDE) (2)



DETAIL "A"
TO BE USED AT LOW POINT LOCATIONS

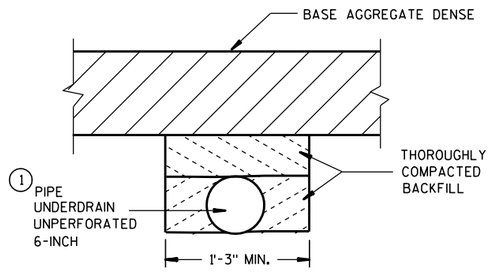
DETAIL "B"
TO BE USED AT INTERMEDIATE LOCATIONS

TYPICAL DRAIN OUT DETAILS



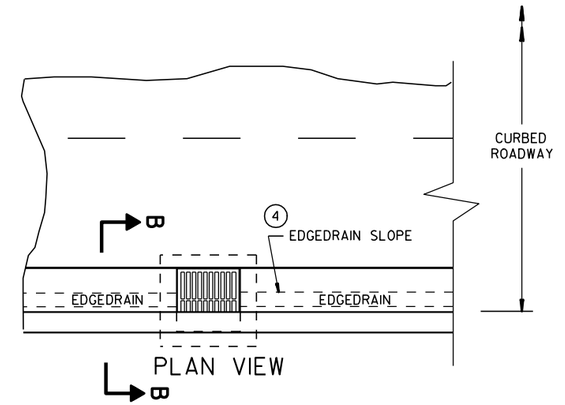
SECTION B-B

URBAN CROSS SECTION



SECTION C-C

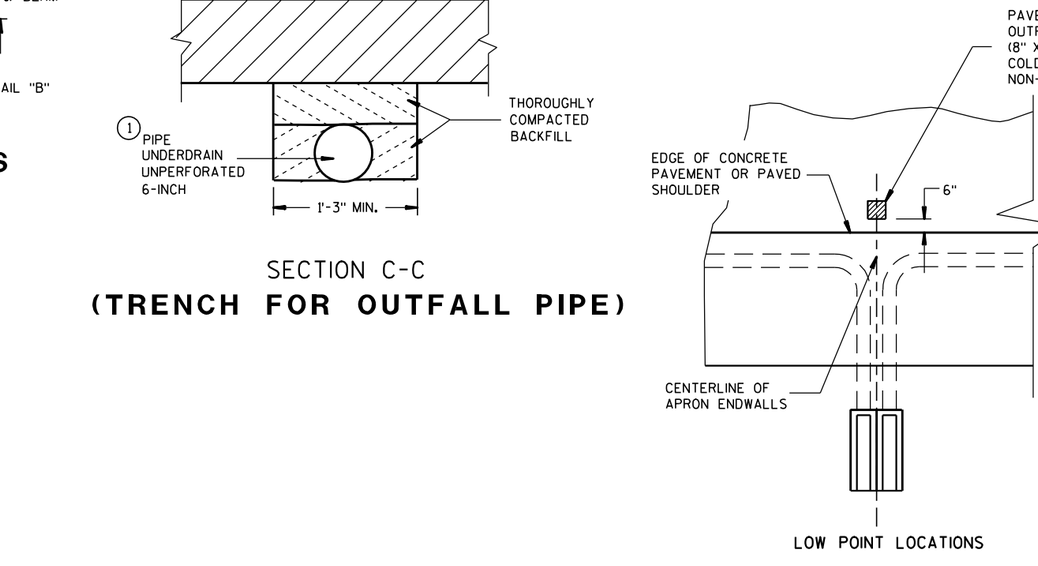
(TRENCH FOR OUTFALL PIPE)



PLAN VIEW

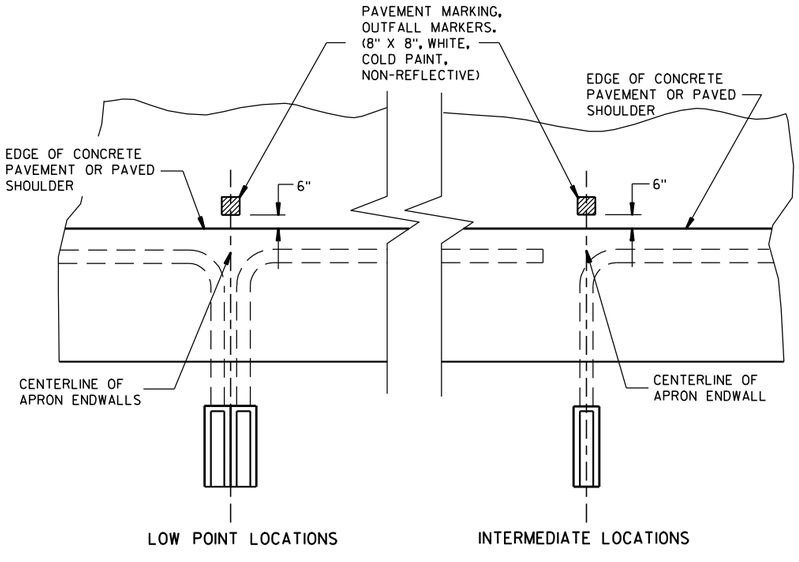
ROADWAY WITH CURBS

(EDGEDRAIN CONNECTS INTO INLET STRUCTURE)



SECTION A-A

RURAL CROSS SECTION



PLAN VIEW

PAVEMENT MARKING FOR OUTFALL MARKERS

EDGEDRAIN OUTLET AND OUTFALL MARKERS

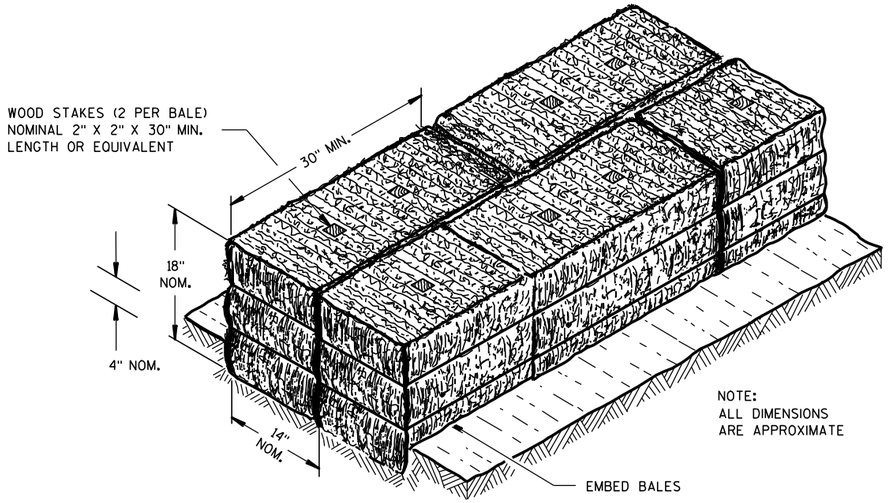
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

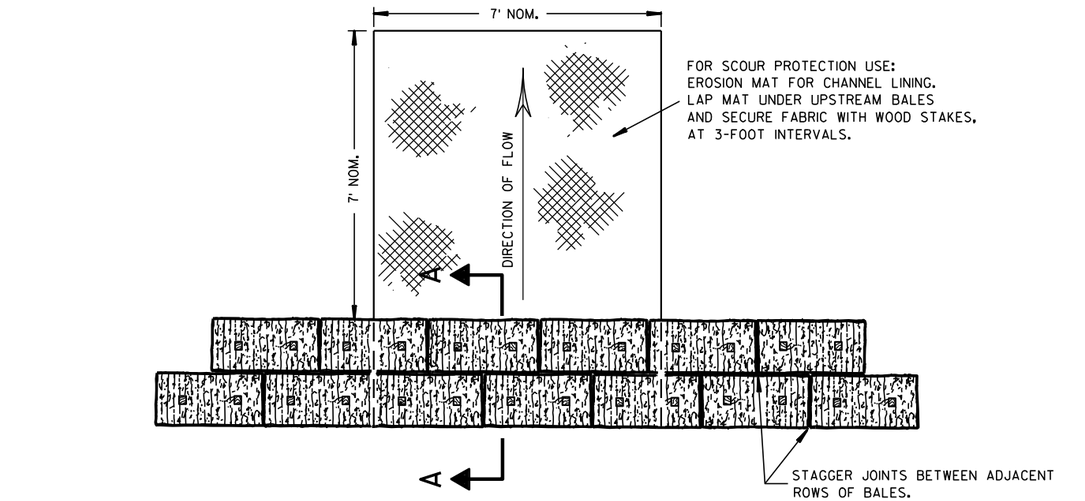
S.D.D. 8 D 15-4a

6

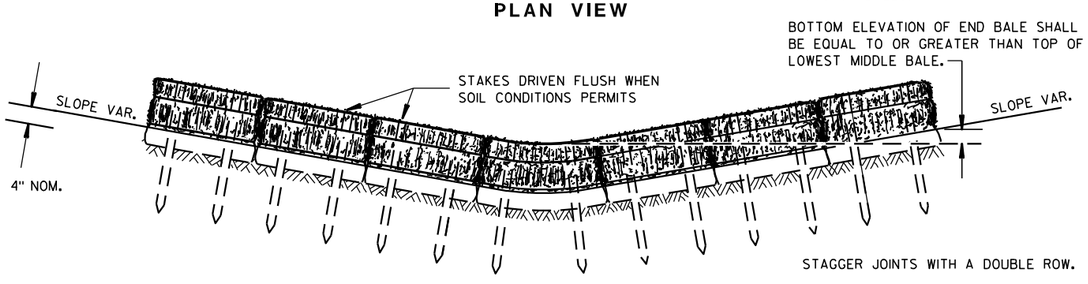
S.D.D. 8 D 15-4a



SECTION A-A



PLAN VIEW



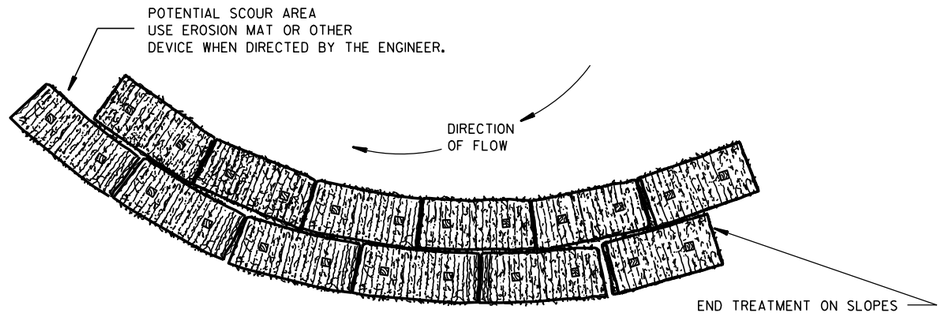
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

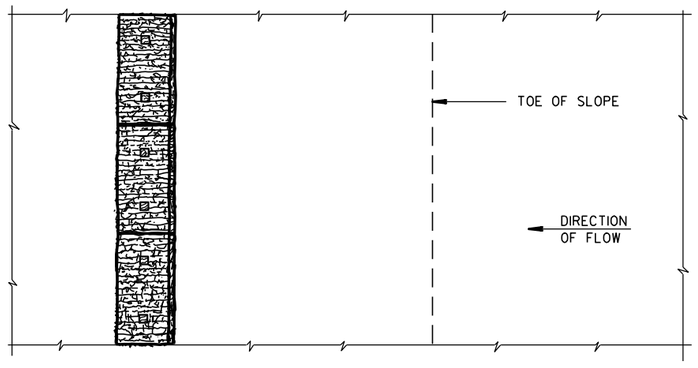
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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.

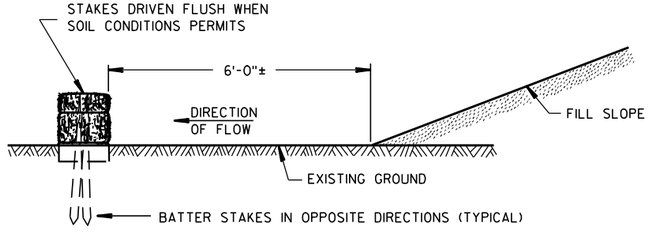


PLAN VIEW

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

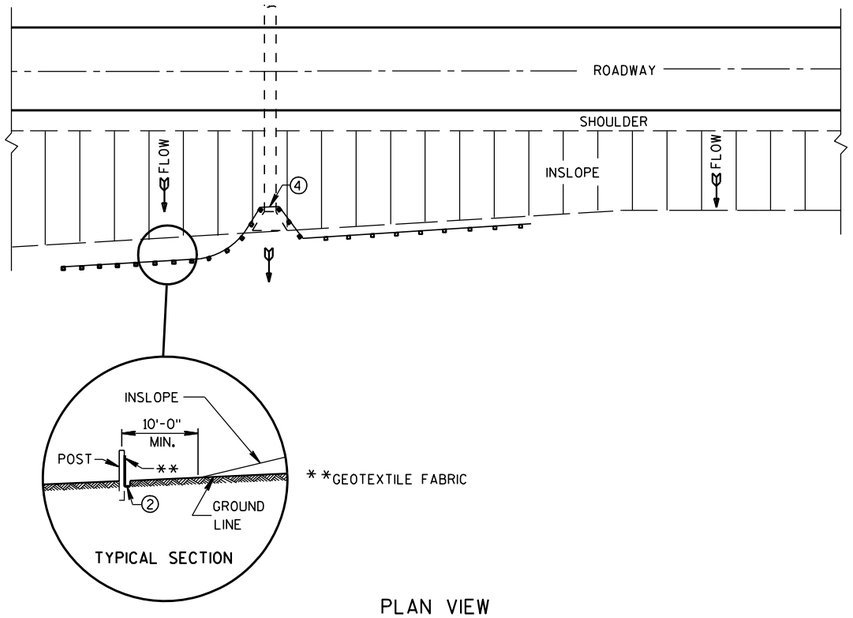
APPROVED
6/04/02 — DATE
/S/ Beth Cannestra — CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

S.D.D. 8 E 8-3

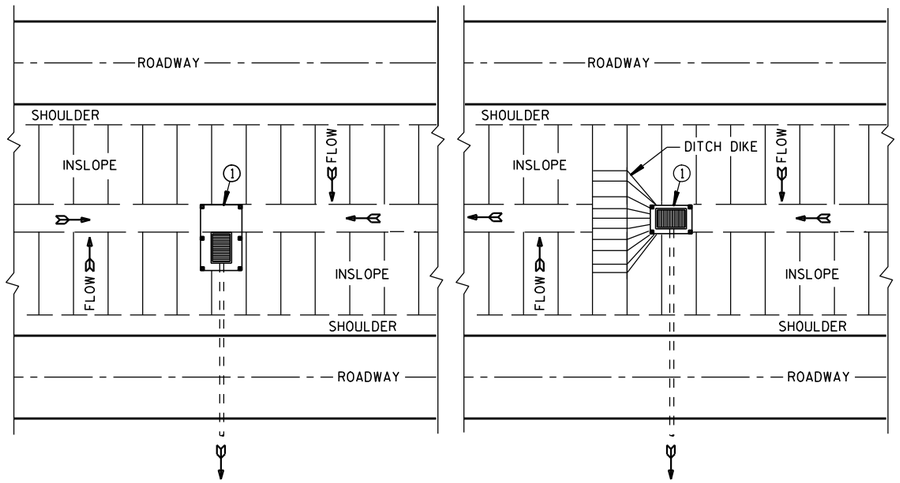
6

S.D.D. 8 E 8-3



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



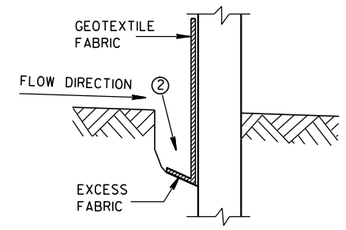
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

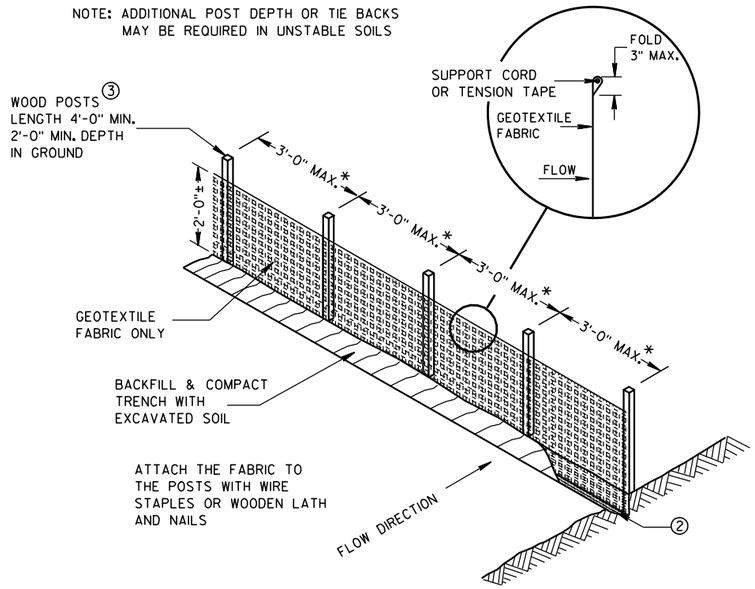
GENERAL NOTES

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

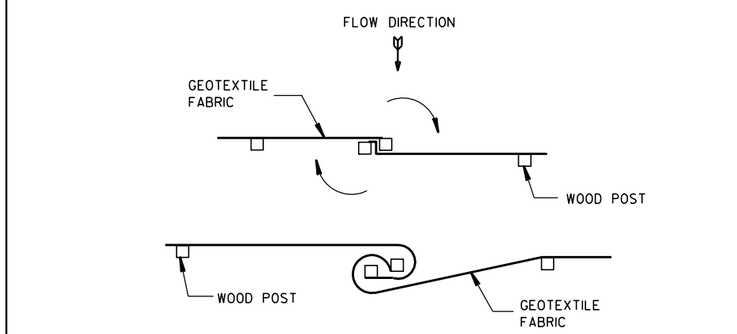
1. HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL BE A MINIMUM SIZE OF 1⅛" X 1⅛" OF OAK OR HICKORY.
4. SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
5. CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



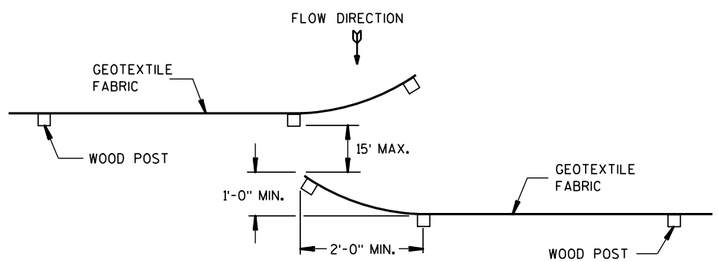
TRENCH DETAIL



SILT FENCE

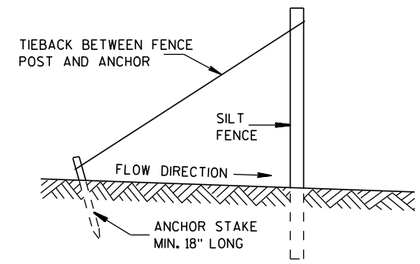


TWIST METHOD



HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE 5



SILT FENCE TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

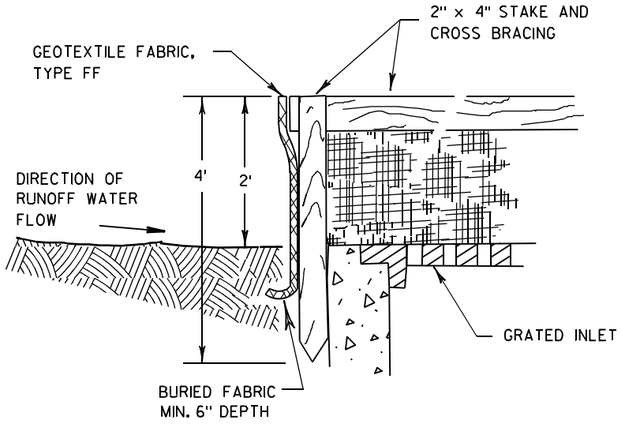
APPROVED
4-29-05 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

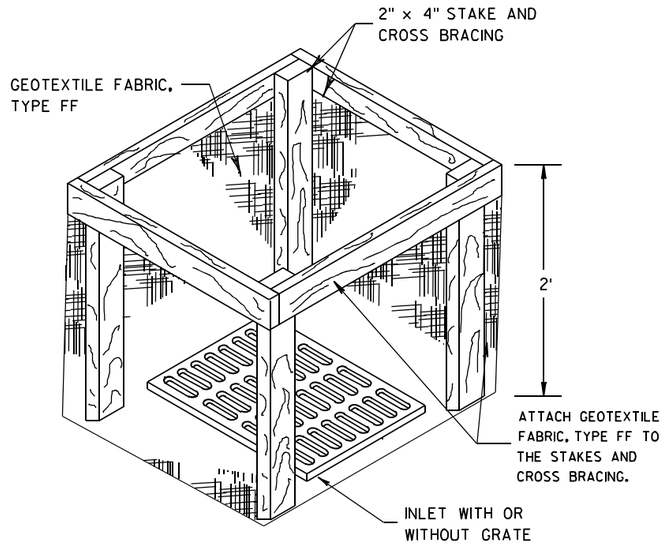
6

S.D.D. 8 E 9-6

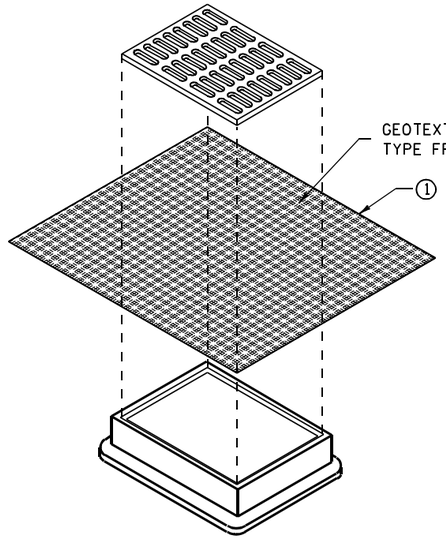
6

S.D.D. 8 E 9-6



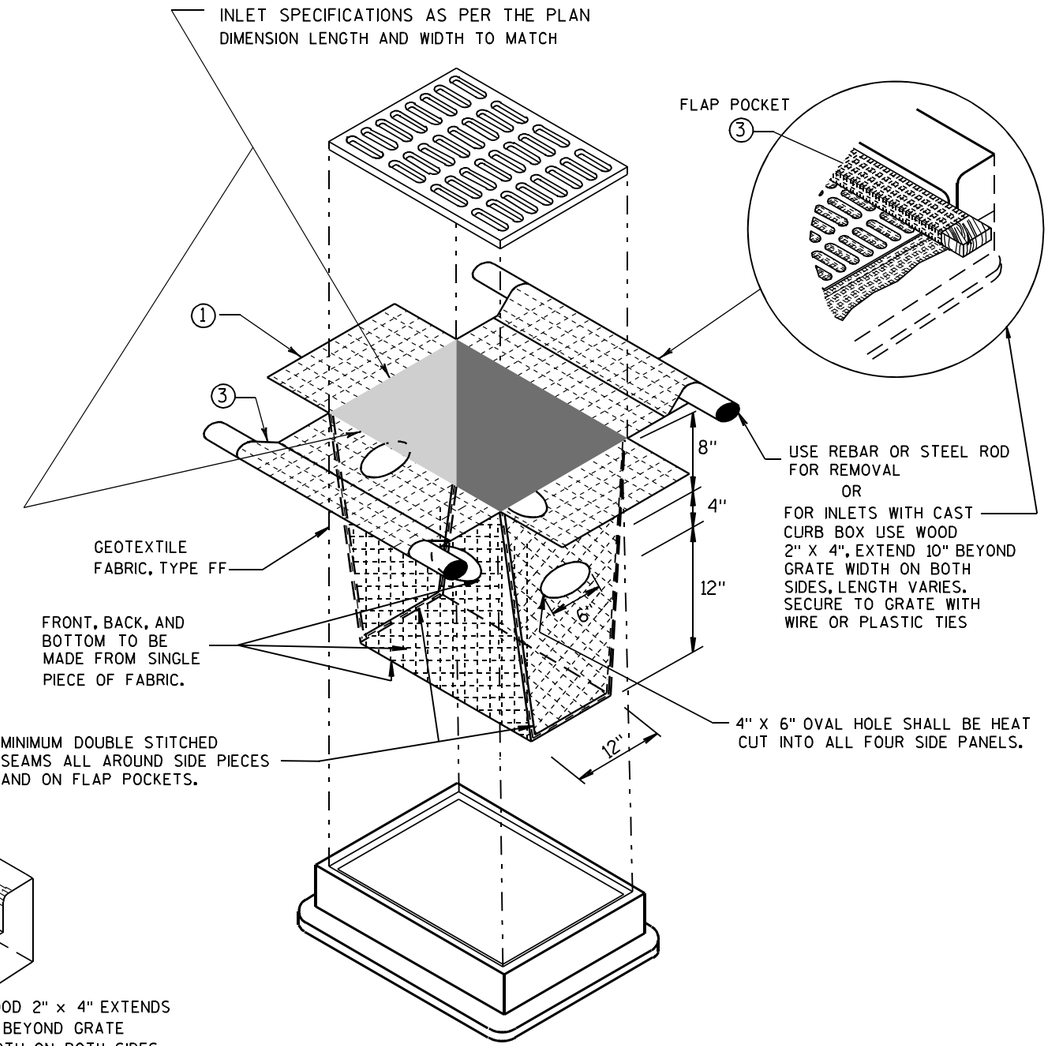


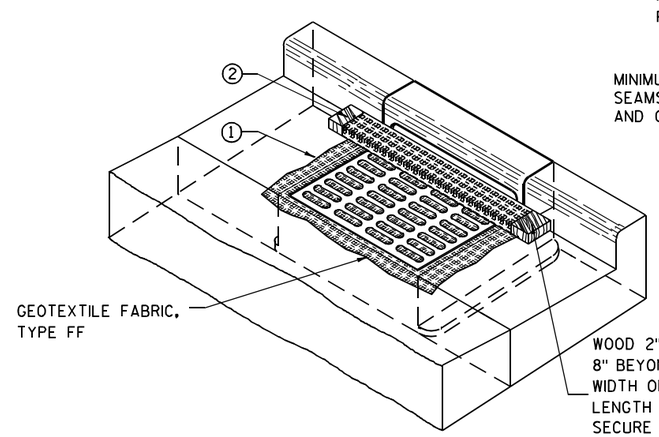
INLET PROTECTION, TYPE A



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

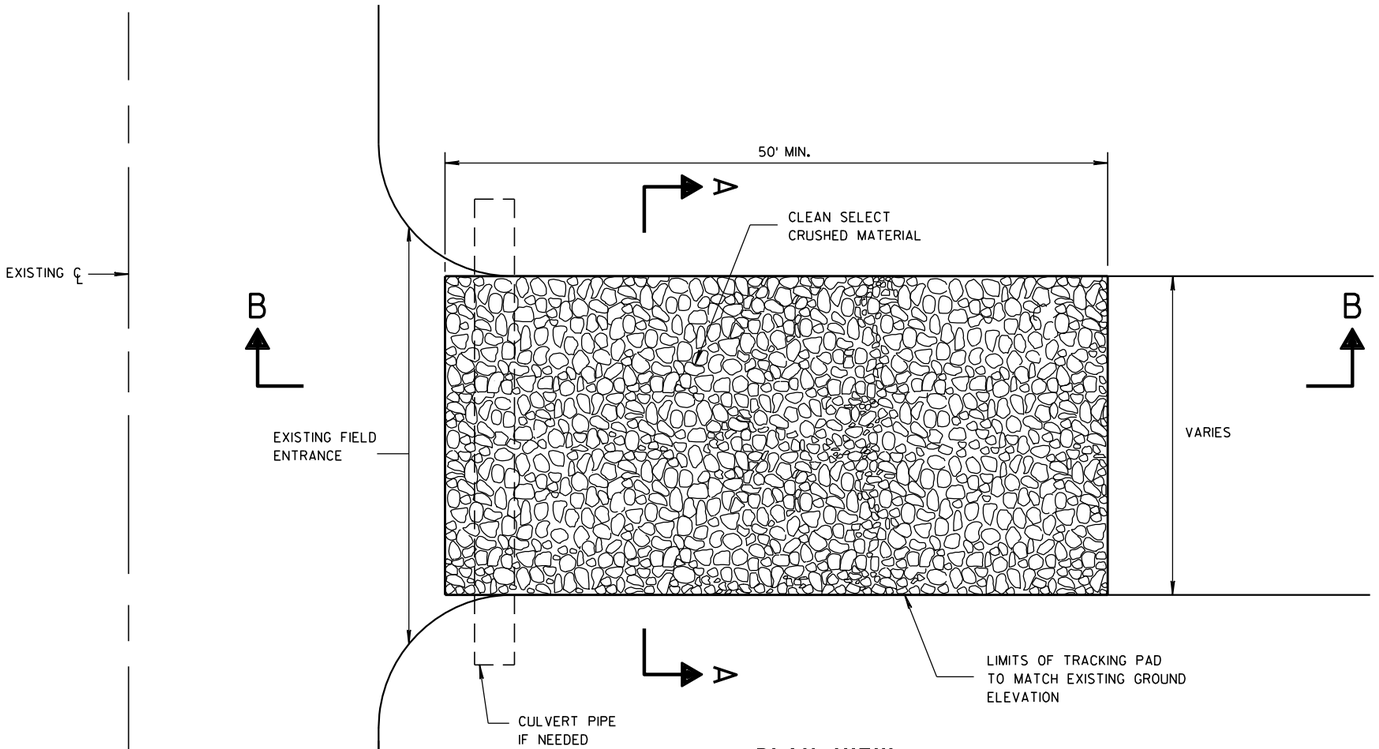
APPROVED

10/16/02
DATE

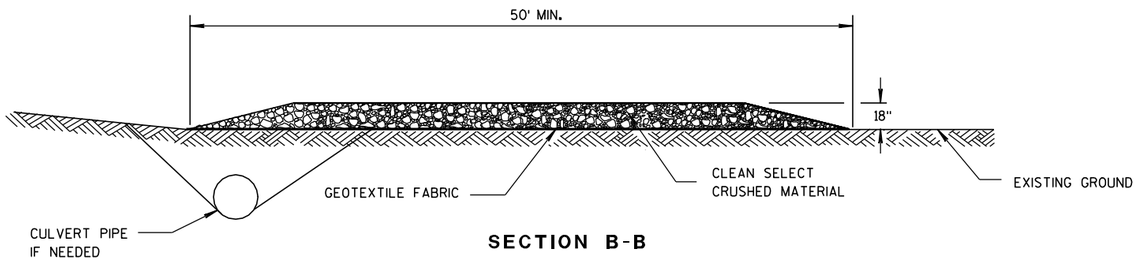
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA

6
S.D.D. 8 E 10-2



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.

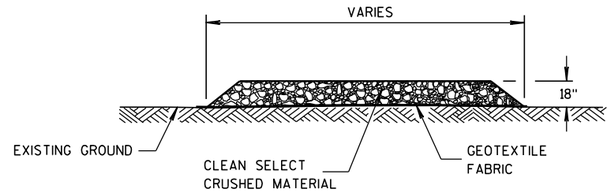
TRACKING PAD TO BE REMOVED AFTER CONSTRUCTION IS COMPLETED.

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
/S/ Jerry H. Zoda — ROADWAY STANDARDS ENGINEER
FHWA

6

S.D.D. 8 E 14-1

S.D.D. 8 E 14-1

METAL APRON ENDWALLS

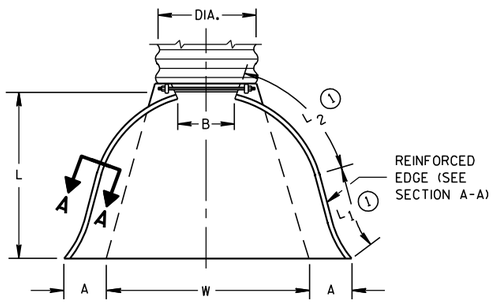
PIPE DIA. (IN.)	MIN. THICK. (Inches) STEEL	MIN. THICK. (Inches) ALUM.	DIMENSIONS (Inches) A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")	APPROX. SLOPE	BODY
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4	36	2 1/2 to 1	1 Pc.
21	.064	.060	9	12	6	36	18	29 5/8	42	2 1/2 to 1	1 Pc.
24	.064	.075	10	13	6	41	18	37 1/4	48	2 1/2 to 1	1 Pc.
30	.079	.075	12	16	8	51	18	52 1/4	60	2 1/2 to 1	1 Pc.
36	.079	.105	14	19	9	60	24	59 3/4	72	2 1/2 to 1	2 Pc.
42	.109	.105	16	22	11	69	24	75 5/8	84	2 1/2 to 1	2 Pc.
48	.109	.105	18	27	12	78	24	81	90	2 1/4 to 1	3 Pc.
54	.109	.105	18	30	12	84	30	85 1/2	102	2 1/4 to 1	3 Pc.
60	.109×	.105×	18	33	12	87	—	—	114	2 to 1	3 Pc.
66	.109×	.105×	18	36	12	87	—	—	120	2 to 1	3 Pc.
72	.109×	.105×	18	39	12	87	—	—	126	2 to 1	3 Pc.
78	.109×	.105×	18	42	12	87	—	—	132	1 1/2 to 1	3 Pc.
84	.109×	.105×	18	45	12	87	—	—	138	1 1/2 to 1	3 Pc.
90	.109×	.105×	18	37	12	87	—	—	144	1 1/2 to 1	3 Pc.
96	.109×	.105×	18	35	12	87	—	—	150	1 1/2 to 1	3 Pc.

× EXCEPT CENTER PANEL SEE GENERAL NOTES

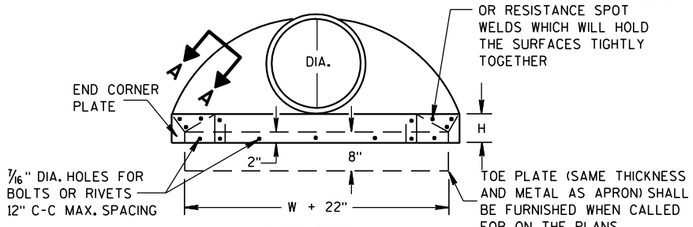
REINFORCED CONCRETE APRON ENDWALLS

PIPE DIA. (IN.)	DIMENSIONS (Inches) T	A	B	C	D	E	G	APPROX. SLOPE
12	2	4	24	48 7/8	72 1/8	24	2	3 to 1
15	2 1/4	6	27	46	73	30	2 1/4	3 to 1
18	2 1/2	9	27	46	73	36	2 1/2	3 to 1
21	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	3 to 1
24	3	9 1/2	43 1/2	30	73 1/2	48	3	3 to 1
27	3 1/4	10 1/2	49 1/2	24	73 1/2	54	3 1/4	3 to 1
30	3 1/2	12	54	19 3/4	73 1/2	60	3 1/2	3 to 1
36	4	15	63	34 3/4	97 3/4	72	4	3 to 1
42	4 1/2	21	63	35	98	78	4 1/2	3 to 1
48	5	24	72	26	98	84	5	3 to 1
54	5 1/2	27	65	* 33 1/4 - ** 35	* 98 1/4 - ** 100	90	5 1/2	2 2/5 to 1
60	6	* 30 - ** 35	60	39	99	96	5	2 to 1
66	6 1/2	* 24 - ** 30	* 72 - ** 78	* 21 - ** 27	99	102	5 1/2	2 to 1
72	7	* 24 - ** 36	78	21	99	108	6	2 to 1
78	7 1/2	* 24 - ** 36	78	21	99	114	6 1/2	2 to 1
84	8	36	90 1/2	21	111 1/2	120	6 1/2	1 1/2 to 1
90	8 1/2	41	87 1/2	24	111 1/2	132	6 1/2	1 1/2 to 1

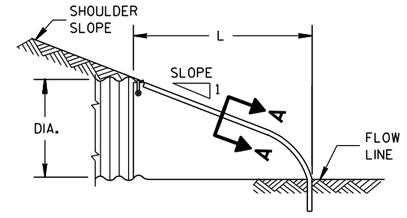
*MINIMUM
**MAXIMUM



PLAN VIEW

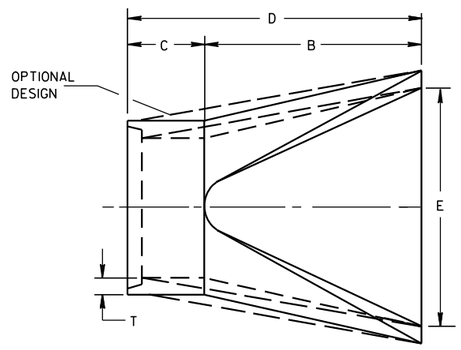


END VIEW

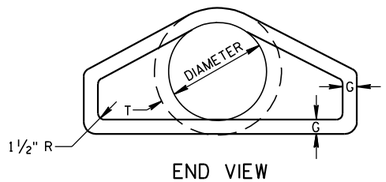


SIDE ELEVATION

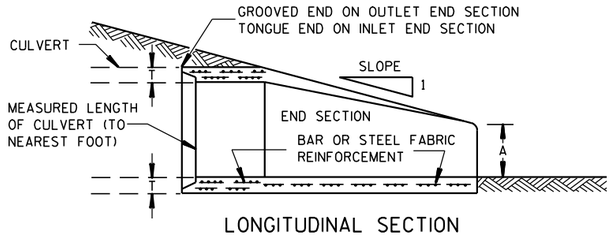
METAL ENDWALLS



PLAN

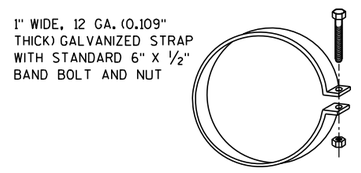


END VIEW



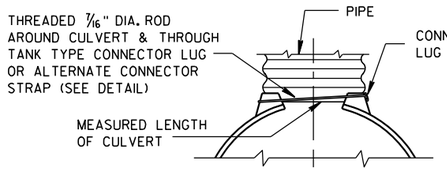
LONGITUDINAL SECTION

CONCRETE ENDWALLS

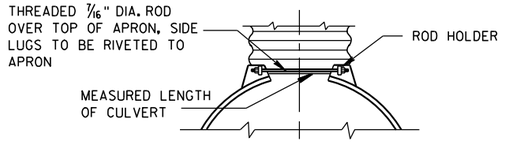


ALTERNATE FOR TYPE 1 CONNECTION

END SECTION CONNECTOR STRAP

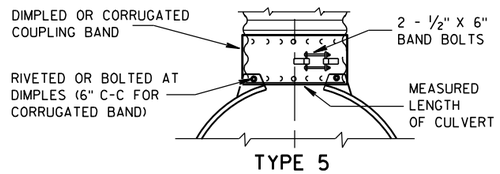


TYPE 1
FOR 12" THRU 24" CORR. PIPE



TYPE 2
FOR 30" THRU 96" CORR. PIPE

TYPE 3
FOR 42" THRU 96" CORR. PIPE



TYPE 5
ALTERNATE FOR:
ALL SIZES CORRUGATED CIRCULAR PIPE

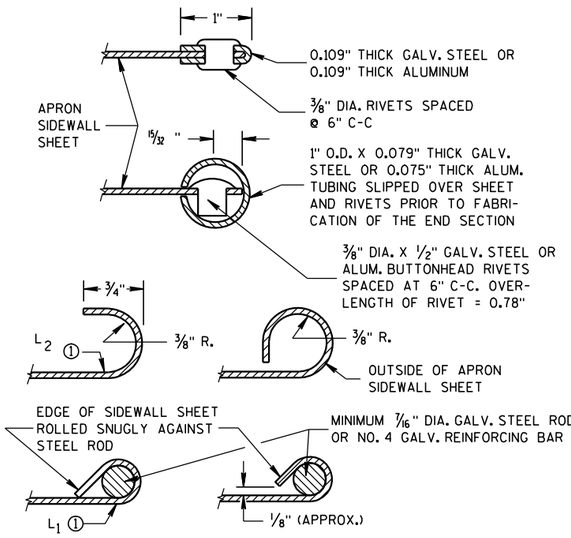
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL. AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

FOR CIRCUMFERENTIALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2, 3 OR 5 AS APPLICABLE.

FOR HELICALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2 OR 5.

FOR HELICALLY CORRUGATED PIPES WITH TWO CIRCUMFERENTIAL CORRUGATIONS AT EACH END USE ENDWALL CONNECTION DETAILS 1, 2 OR 3.

CONNECTION DETAILS



SECTION A-A

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.

CONCRETE CULVERT ENDWALLS MAY NOT BE USED WITH GALVANIZED STEEL OR ALUMINUM CULVERT PIPE OR VISE VERSA. GALVANIZED STEEL OR ALUMINUM ENDWALLS SHALL NORMALLY BE INSTALLED ON CULVERT PIPE OF THE SAME METAL.

ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT OF THE PIPE PERIMETER.

LAP SEAMS SHALL BE TIGHTLY JOINED BY GALVANIZED RIVETS OR BOLTS FOR STEEL UNITS AND ALUMINUM RIVETS AND BOLTS FOR ALUMINUM UNITS. FOR THE 60" THROUGH 96" DIAMETER APRON ENDWALL SIZES, THE REINFORCED EDGES AND CENTER PANEL SEAMS SHALL BE FURTHER REINFORCED WITH GALVANIZED STEEL OR ALUMINUM STIFFENER ANGLES. THE ANGLES SHALL BE ATTACHED BY GALVANIZED NUTS AND BOLTS FOR STEEL UNITS AND ALUMINUM NUTS AND BOLTS FOR ALUMINUM UNITS.

WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

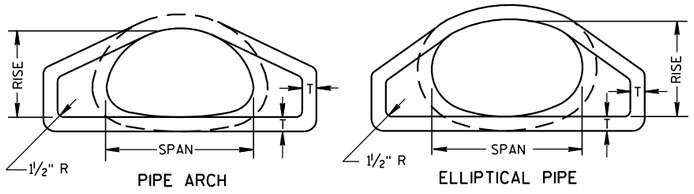
① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR CULVERT PIPE

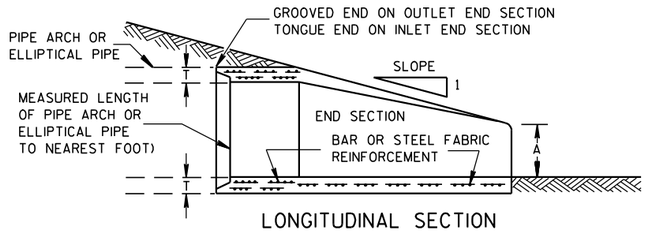
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
11/30/94 DATE
/S/ Rory L. Rhinesmith
CHIEF ROADWAY DEVELOP NEER
FHWA

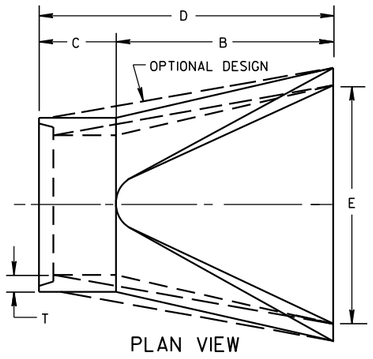
6
S.D.D. 8 F 1-11



END VIEW

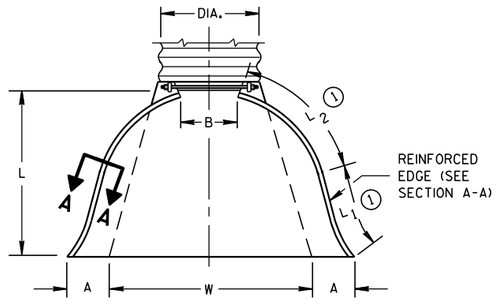


LONGITUDINAL SECTION

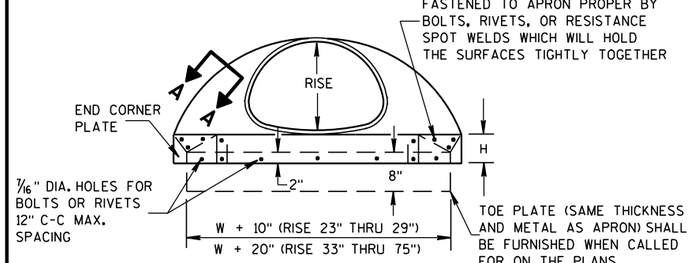


PLAN VIEW

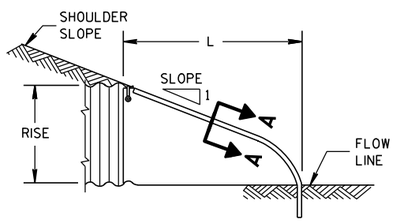
CONCRETE ENDWALLS



PLAN VIEW

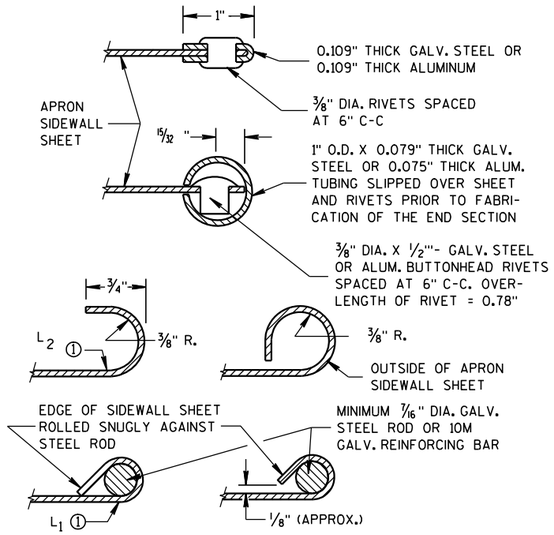


END VIEW



SIDE ELEVATION

METAL ENDWALLS



SECTION A-A

2- 2/3" X 1/2" CORRUGATIONS

EQUIV. DIA. (Inches)	(Inches) SPAN	(Inches) RISE	MIN. THICK. (Inches) STEEL	MIN. THICK. (Inches) ALUM.	DIMENSIONS (Inches) A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")	APPROX. SLOPE	BODY
15	17	13	.064	.060	7	9	6	19	14	16	30	2½ to 1	1 Pc.
18	21	15	.064	.060	7	10	6	23	14	19⅜	36	2½ to 1	1 Pc.
21	24	18	.064	.060	8	12	6	28	18	21¾	42	2½ to 1	1 Pc.
24	28	20	.064	.060	9	14	6	32	18	27½	48	2½ to 1	1 Pc.
30	35	24	.079	.075	10	16	6	39	18	37⅝	60	2½ to 1	1 Pc.
36	42	29	.079	.075	12	18	8	46	24	45⅜	75	2½ to 1	1 Pc.
42	49	33	.109	.105	13	21	9	53	24	54¾	85	2½ to 1	2 Pc.
48	57	38	.109	.105	18	26	12	63	24	68	90	2½ to 1	3 Pc.
54	64	43	.109	.105	18	30	12	70	24	72¾	102	2¼ to 1	3 Pc.
60	71	47	.109*	.105*	18	33	12	77	30	82¼	114	2¼ to 1	3 Pc.
66	77	52	.109*	.105*	18	36	12	77	—	—	126	2 to 1	3 Pc.
72	83	57	.109*	.105*	18	39	12	77	—	—	138	2 to 1	3 Pc.

3" X 1" CORRUGATIONS

EQUIV. DIA. (Inches)	(Inches) SPAN	(Inches) RISE	MIN. THICK. (Inches) STEEL	MIN. THICK. (Inches) ALUM.	DIMENSIONS (Inches) A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")	APPROX. SLOPE	BODY
48	53	41	.109	.105	18	26	12	63	24	72¾	90	2½ to 1	2 Pc.
54	60	46	.109	.105	18	30	12	70	30	82¼	102	2 to 1	2 Pc.
60	66	51	.109*	.105*	18	33	12	77	—	—	114	1½ to 1	3 Pc.
66	73	55	.109*	.105*	18	36	12	77	—	—	126	1½ to 1	3 Pc.
72	81	59	.109*	.105*	18	39	12	77	—	—	138	2 to 1	3 Pc.
78	87	63	.109*	.105*	22	38	12	77	—	—	148	1½ to 1	3 Pc.
84	95	67	.109*	.105*	22	34	12	77	—	—	162	1½ to 1	3 Pc.
90	103	71	.109*	.105*	22	38	12	77	—	—	174	1½ to 1	3 Pc.
96	112	75	.109*	.105*	24	40	12	77	—	—	174	1½ to 1	3 Pc.

NOTE: ALL SPLICES TO BE LAP RIVETED OR BOLTED.

* EXCEPT CENTER PANEL SEE GENERAL NOTES

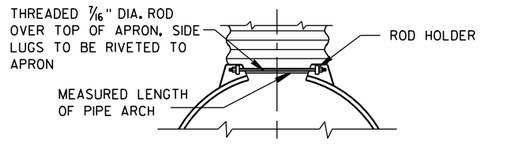
REINFORCED CONCRETE PIPE ARCH

EQUIV. DIA. (Inches)	DIMENSIONS (Inches) ** SPAN	** RISE	T	A	B	C	D	E	APPROX. SLOPE
24	29	18	3	8½	39	33	72	48	3 to 1
30	36	22	3½	9½	50	46	96	60	3 to 1
36	44	27	4	11⅛	60	36	96	72	3 to 1
42	51	31	4½	15 13/16	60	36	96	78	3 to 1
48	58	36	5	21	60	36	96	84	3 to 1
54	65	40	5½	25½	60	36	96	90	3 to 1
60	73	45	6	31	60	36	96	96	3 to 1
72	88	54	7	31	60	39	99	120	2 to 1
84	102	62	8	28½	83	19	102	144	2 to 1

REINFORCED CONCRETE ELLIPTICAL PIPE

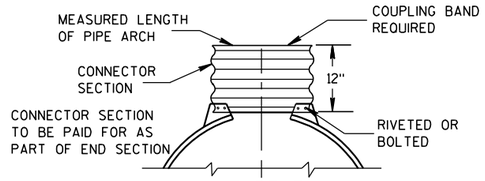
EQUIV. DIA. (Inches)	DIMENSIONS (Inches) ** SPAN	** RISE	T	A	B	C	D	E	APPROX. SLOPE
24	30	19	3¼	8½	39	33	72	48	3 to 1
30	38	24	3¾	9½	54	18	72	60	3 to 1
36	45	29	4½	11⅛	60	24	84	72	2½ to 1
42	53	34	5	15¾	60	36	96	78	2½ to 1
48	60	38	5½	21	60	36	96	84	2½ to 1
54	68	43	6	25½	60	36	96	90	2½ to 1
60	76	48	6½	30	60	36	96	96	2½ to 1

**NOMINAL SIZE



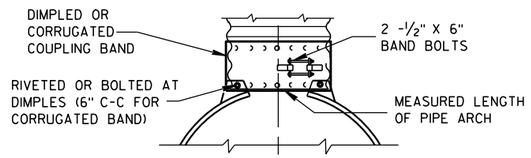
TYPE 2

FOR 17" X 13" THRU 112" X 75" PIPE ARCH



TYPE 3

FOR 64" X 43" THRU 112" X 75" PIPE ARCH



TYPE 5

ALTERNATE FOR:

ALL SIZES CORRUGATED PIPE ARCHES

NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL.

CONNECTION 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.

CONCRETE APRON ENDWALLS MAY NOT BE USED WITH GALVANIZED STEEL OR ALUMINUM CULVERT PIPE OR VISE VERSA. GALVANIZED STEEL OR ALUMINUM APRON ENDWALLS SHALL NORMALLY BE INSTALLED ON CULVERT PIPE OF THE SAME METAL.

ALL THREE PIECE STEEL APRON ENDWALLS FOR 66" X 51" PIPE ARCH AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 66" X 51" PIPE ARCH AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT OF THE PIPE ARCH PERIMETER.

LAP SEAMS SHALL BE TIGHTLY JOINED BY GALVANIZED RIVETS OR BOLTS FOR STEEL UNITS AND ALUMINUM RIVETS AND BOLTS FOR ALUMINUM UNITS. FOR THE 77" X 52" THROUGH 112" X 75" APRON ENDWALL SIZES, THE REINFORCED EDGES AND CENTER PANEL SEAMS SHALL BE FURTHER REINFORCED WITH GALVANIZED STEEL OR ALUMINUM STIFFENER ANGLES. THE ANGLES SHALL BE ATTACHED BY GALVANIZED NUTS AND BOLTS FOR STEEL UNITS AND ALUMINUM NUTS AND BOLTS FOR ALUMINUM UNITS.

WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

① FOR PIPE ARCH SIZES UP TO 73" X 55" A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR PIPE ARCH AND ELLIPTICAL PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

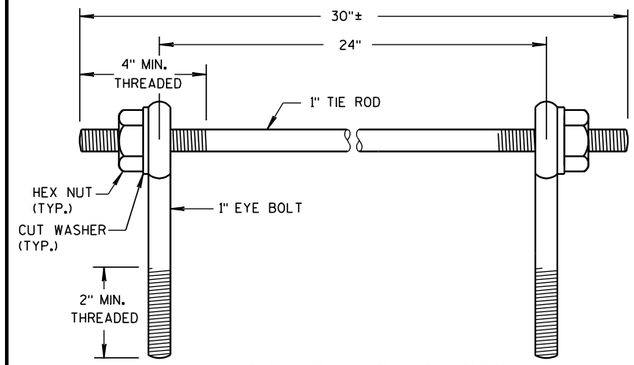
11/30/94 — DATE

/S/ Rory L. Rhinesmith — CHIEF ROADWAY DEVELOPMENT ENGINEER

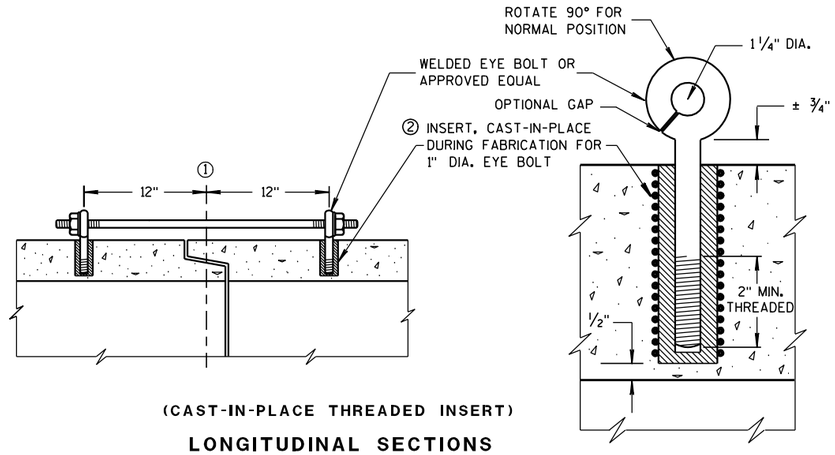
FHWA

6

S.D.D. 8 F 2-1



EYE BOLTS AND TIE ROD



(CAST-IN-PLACE THREADED INSERT)

LONGITUDINAL SECTIONS

EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 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 APPLICABLE SPECIAL PROVISIONS.

CONCRETE CULVERT AND STORM SEWER PIPE SHALL BE TIED TOGETHER IN THE MANNER ILLUSTRATED BY THIS DETAIL AT LOCATIONS DESIGNATED IN THE STANDARD SPECIFICATIONS AND THE PLAN. THE CONTRACTOR MAY USE EITHER ALTERNATE 1, 2 OR 3 FOR DRAINAGE STRUCTURES. ONLY ALTERNATE 1 AND 3 MAY BE USED FOR CATTLE PASSES, UNLESS OTHERWISE STATED IN THE CONTRACT. THE MATERIALS, FABRICATION AND WORK NECESSARY TO TIE THE PIPE BY THIS DETAIL WILL BE CONSIDERED INCIDENTAL TO THE PIPE AND APRON ENDWALLS IF REQUIRED.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR JOINT TIES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

JOINT TIES TO BE HOT-DIP GALVANIZED PER ASTM A 153.

① ℄ OF TONGUE AND GROOVE OR BELL AND SPIGOT JOINTS.

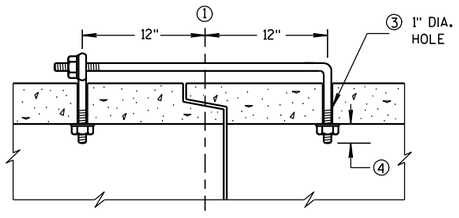
② THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.

③ HOLES SHALL BE CAST-IN-PLACE OR DRILLED 12 INCHES FROM ℄ OF TONGUE AND GROOVE.

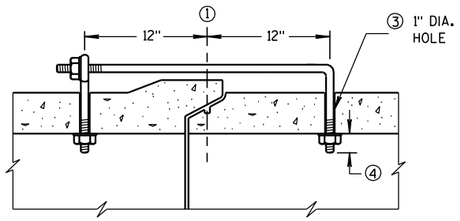
④ BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2 INCHES.

⑤ OPENING TO BE ROD DIAMETER PLUS 1 INCH.

⑥ LENGTH ADEQUATE TO EXTEND TO WITHIN 1/2 INCH OF THE INNER SURFACE OF THE PIPE.



(TONGUE & GROOVE PIPE)

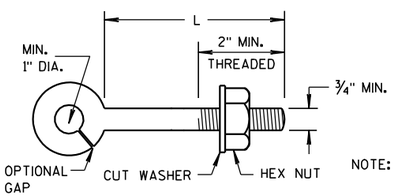


(MODIFIED BELL PIPE)

LONGITUDINAL SECTION

EYE BOLT DIMENSION TABLE

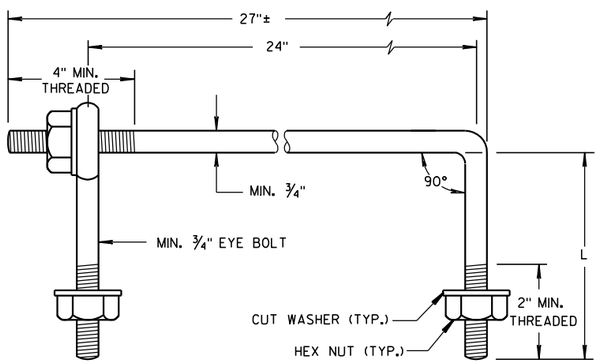
PIPE SIZE	L = LENGTH	
	TONGUE & GROOVE PIPE	MODIFIED BELL PIPE
18" TO 24"	4 1/2"	6 1/4"
30"	5"	7"
36"	5 1/2"	7"
42"	6"	
48"	6 1/2"	
60"	7 1/2"	
66"	8"	



NOTE:

EYE BOLT

NOTE: TWO EYE BOLTS MAY BE USED WITH A 30" LONG THREADED ROD IN LIEU OF THE 90° BENT TIE ROD.



EYE BOLT AND TIE ROD

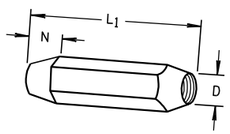
(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)

EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 2)

ADJUSTABLE TIE ROD TABLE

PIPE DIAMETER	TIE ROD DIAMETER	D	L_1	N
12-60	5/8	5/8	5	1/2
66-84	3/4	3/4	5	1/2
90-108	1	1	7	1 1/16

DIMENSIONS SHOWN ARE IN INCHES



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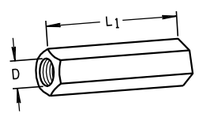
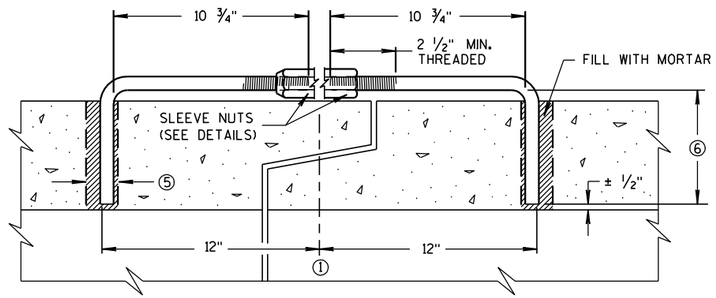


PLAIN

RIGHT AND LEFT THREADS

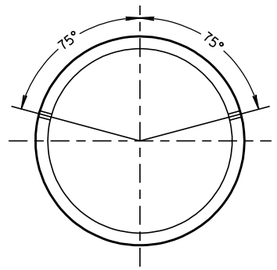
SLEEVE NUTS



LONGITUDINAL SECTION

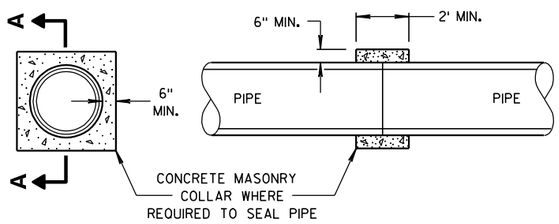
(JOINT TIES FOR 12" TO 108" DIA. CONCRETE PIPE)

ADJUSTABLE TIE ROD (ALTERNATE NO. 3)



PLACEMENT OF (2) CAST-IN-PLACE INSERTS OR HOLES DURING FABRICATION FOR PIPE SECTIONS REQUIRING TIE RODS

TRANSVERSE SECTION



SECTION A-A

CONCRETE COLLAR DETAIL

JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

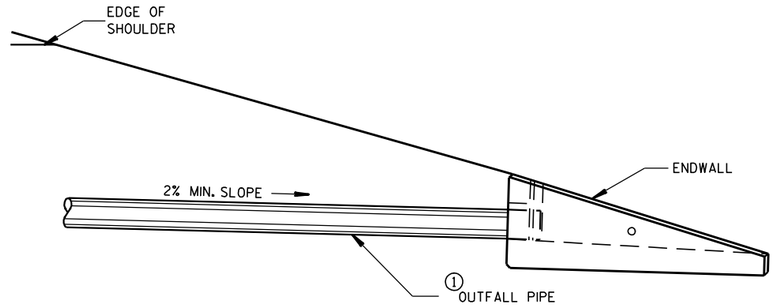
APPROVED
6/5/2012 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER
65
FHWA

6

S.D.D. 8 F 4-7

DIMENSIONS IN INCHES											
PIPE DIA.	A	B	C	D	E	F	G	H	J	L	Z
**4	6	12	5 1/4	9	8	32	36	11	2 3/8	6 1/2	4
6	8	14	7 1/4	11	10	42	44	13	3 5/8	8 1/2	6

**APRON ENDWALL FOR 6 INCH DIAMETER PIPE MAY BE SUBSTITUTED FOR THIS SIZE PROVIDED THE HOLE IN THE HEADWALL IS SIZED AND LOCATED TO CONFORM TO THE 4 INCH DIAMETER PIPE DIMENSIONS (C & J)



INSTALLATION DETAIL

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.

ALTERNATIVE DESIGNS WHICH PROVIDE EQUIVALENT CAPACITY AND STRENGTH MAY BE USED WHEN APPROVED BY THE ENGINEER. ENDWALL MAY BE EITHER PRECAST OR CAST-IN-PLACE CONCRETE.

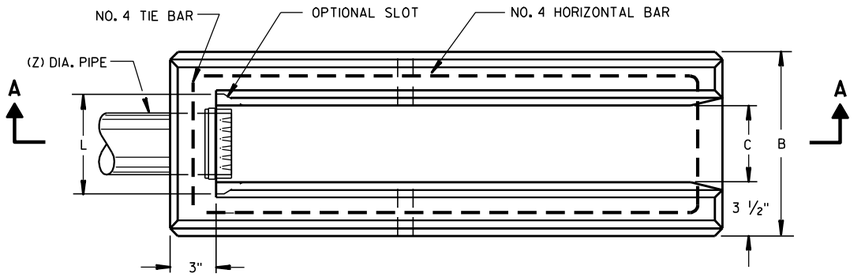
THE UNDERDRAIN PIPE SHALL BE FULLY INSERTED AND SEALED INTO THE ENDWALL WITH CEMENT MORTAR PRIOR TO BACKFILLING AROUND THE STRUCTURE.

THE UPPERMOST POINT OF THE ENDWALL SHALL BE PLACED FLUSH WITH THE ROADWAY SLOPE. ADJACENT EMBANKMENT SLOPES SHALL BE SHAPED TO FIT THE SIDES AND TOE OF THE ENDWALL. EXACT PLACEMENT OF THE OUTFALL PIPE AND ENDWALL SHALL BE DETERMINED BY THE ENGINEER TO MATCH THE ELEVATIONS AND FLOW DIRECTION OF THE ROADSIDE DITCH.

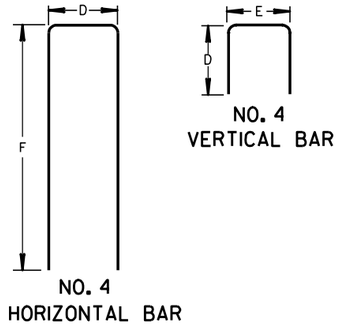
① THE OUTFALL PIPE UNDERDRAIN AND FITTINGS SHALL CONFORM TO THE REQUIREMENTS OF THE SPECIFICATION FOR POLY (VINYL CHORIDE) (PVC) PLASTIC DRAIN, WASTE AND VENT PIPE AND FITTINGS, ASTM DESIGNATION: D 2665, SCHEDULE 40 PVC OR THE STANDARD SPECIFICATION FOR TYPE PSM POLY (VINYL CHORIDE) (PVC) SEWER PIPE AND FITTINGS, ASTM DESIGNATION: D 3034, TYPE PSM SDR 23.5 PVC SEWER PIPE, ALL JOINTS SHALL BE SOLVENT WELDED.

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

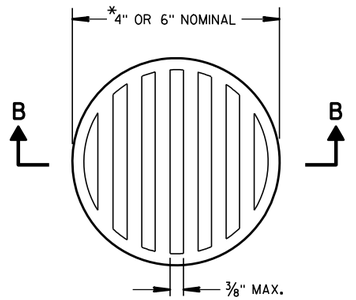
② THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALLY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE OUTFALL PIPE. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH STAINLESS STEEL SHEET METAL SCREWS.

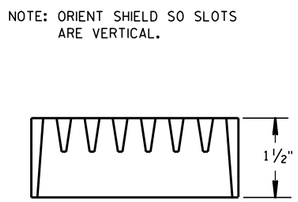


PLAN VIEW



BAR STEEL REINFORCEMENT DETAILS

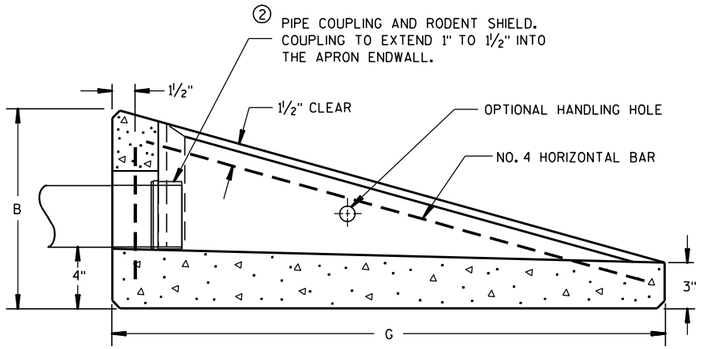




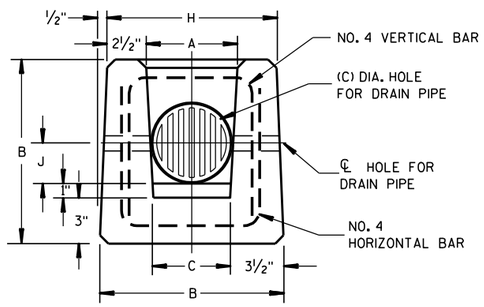
SECTION B-B

② RODENT SHIELD

*NOTE: DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING.



SECTION A-A



END VIEW

CONCRETE APRON ENDWALL FOR UNDERDRAIN

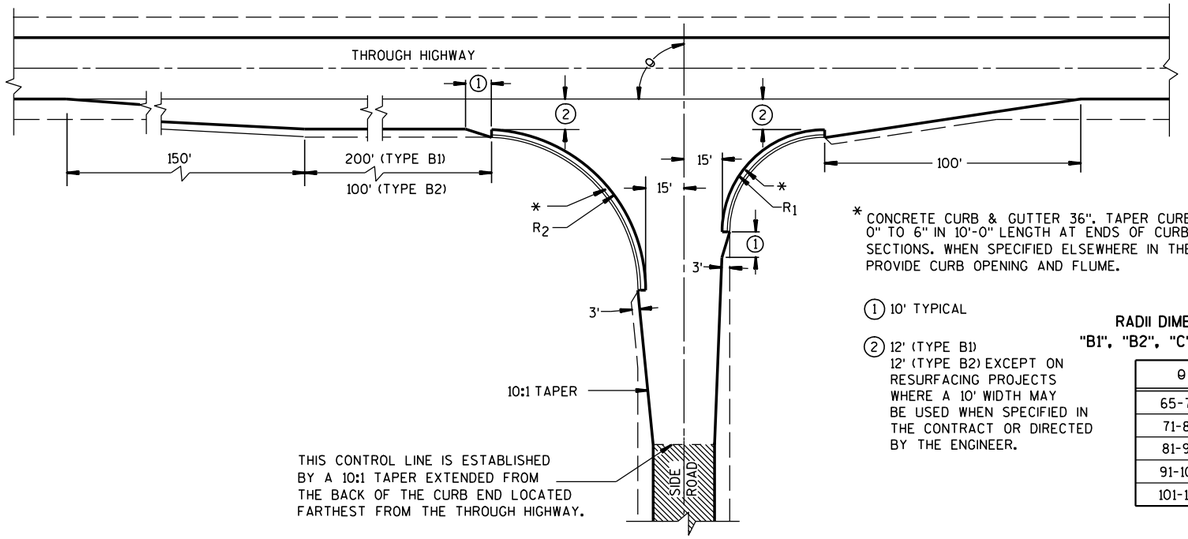
REINFORCED CONCRETE APRON ENDWALL FOR PIPE UNDERDRAIN

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
3/10/98 DATE
/S/ Rory L. Rhinesmith
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

S.D.D. 8 F 6-4



TYPE "B1" AND "B2"

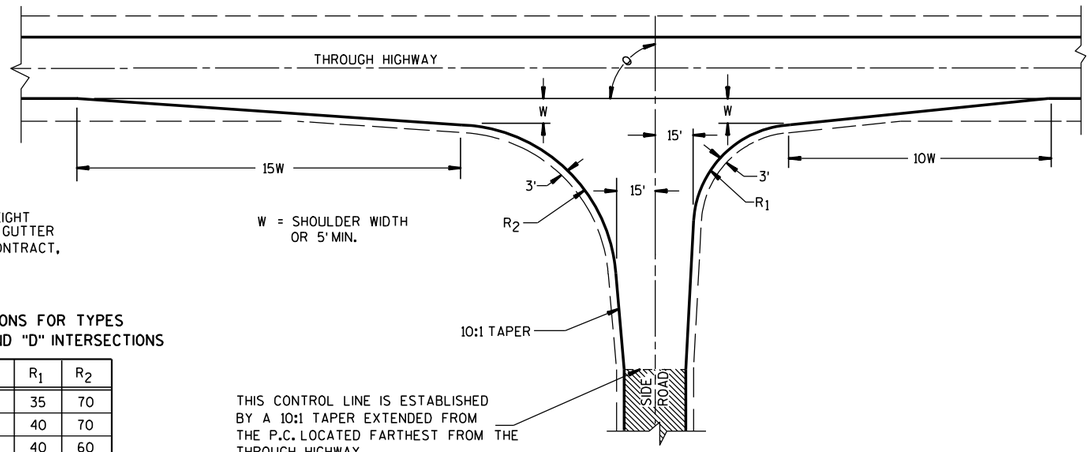
* CONCRETE CURB & GUTTER 36". TAPER CURB HEIGHT 0" TO 6" IN 10'-0" LENGTH AT ENDS OF CURB & GUTTER SECTIONS. WHEN SPECIFIED ELSEWHERE IN THE CONTRACT, PROVIDE CURB OPENING AND FLUME.

① 10' TYPICAL

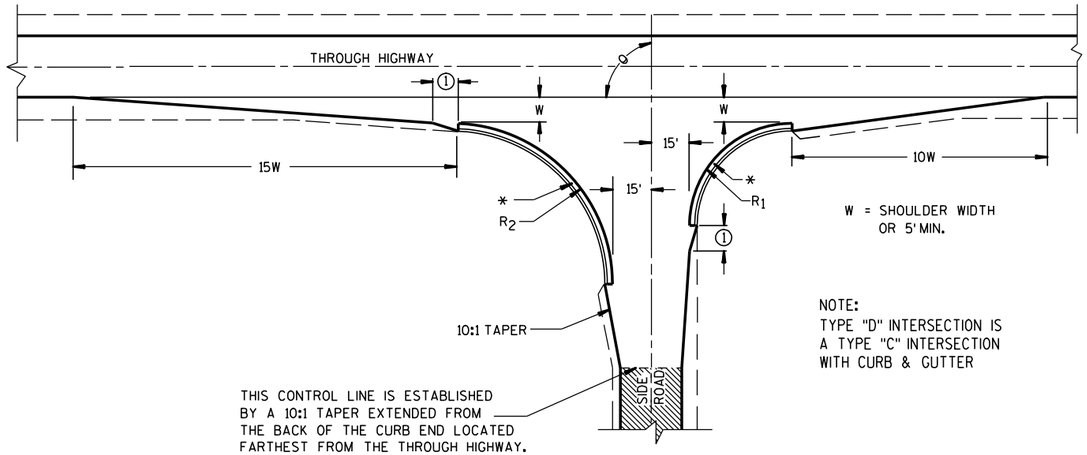
② 12' (TYPE B1)
12' (TYPE B2) EXCEPT ON RESURFACING PROJECTS WHERE A 10' WIDTH MAY BE USED WHEN SPECIFIED IN THE CONTRACT OR DIRECTED BY THE ENGINEER.

RADII DIMENSIONS FOR TYPES "B1", "B2", "C" AND "D" INTERSECTIONS

θ	R_1	R_2
65-70	35	70
71-80	40	70
81-90	40	60
91-100	50	55
101-110	60	45



TYPE "C"



TYPE "D"

NOTE:
TYPE "D" INTERSECTION IS A TYPE "C" INTERSECTION WITH CURB & GUTTER

GENERAL NOTES

DESIGNS MAY BE USED INTERCHANGEABLY IN COMBINATION OR SEPARATELY FOR ANY ONE COMPLETE INTERSECTION DEPENDING UPON INTERSECTION ANGLE AND SURFACING OF EACH APPROACH ROADWAY.

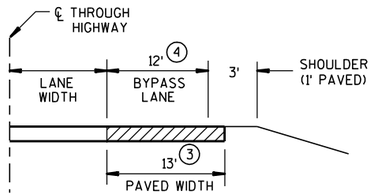
SIDE ROAD SURFACING NOTE

WHEN THE SIDE ROAD IS NOT PRESENTLY PAVED, PAVEMENT SHALL BE PLACED TO THE LIMITS SHOWN UNLESS OTHERWISE PROVIDED IN THE CONTRACT. WHERE THE CONSTRUCTION LIMITS ARE BEYOND THE PAVING LIMITS, CRUSHED AGGREGATE SURFACING SHALL BE PLACED BETWEEN THE PAVING LIMITS AND CONSTRUCTION LIMITS.

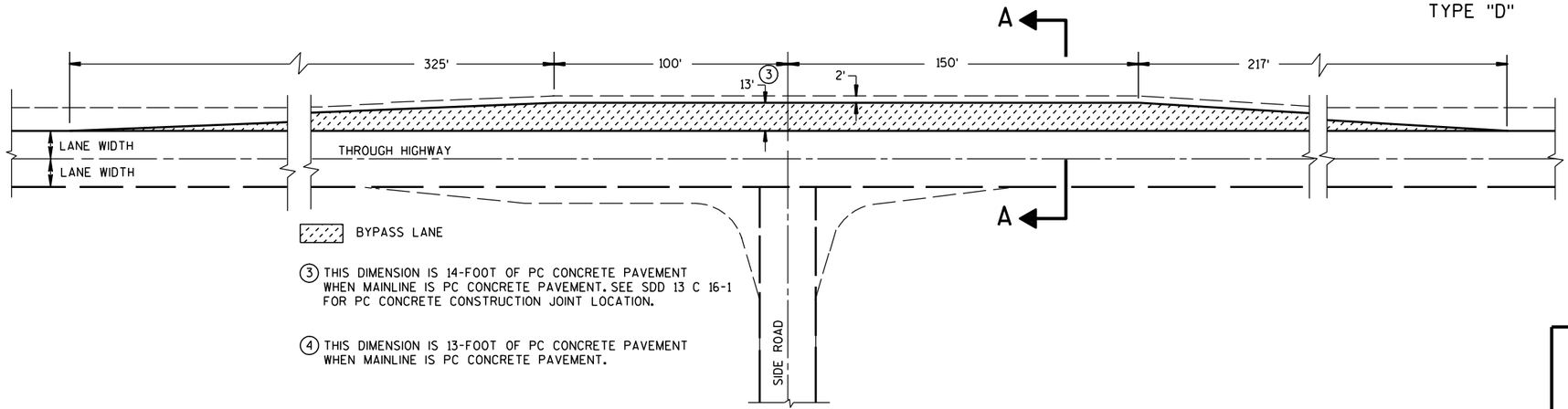
WHEN THE SIDE ROAD IS PRESENTLY PAVED, NEW PAVEMENT SHALL BE PLACED TO THE LIMITS OF DESIGN AS SHOWN AND BEYOND, IF NECESSARY, TO MEET EXISTING PAVEMENT.

WHEN THE SIDE ROAD IS THE CONSTRUCTION PROJECT, THE INTERSECTION SURFACING SHALL BE THE SAME AS FOR THE PROJECT.

▨ EXISTING SURFACE



SECTION A-A
(SHOWING BYPASS LANE AND SHOULDER)



③ THIS DIMENSION IS 14-FOOT OF PC CONCRETE PAVEMENT WHEN MAINLINE IS PC CONCRETE PAVEMENT. SEE SDD 13 C 16-1 FOR PC CONCRETE CONSTRUCTION JOINT LOCATION.

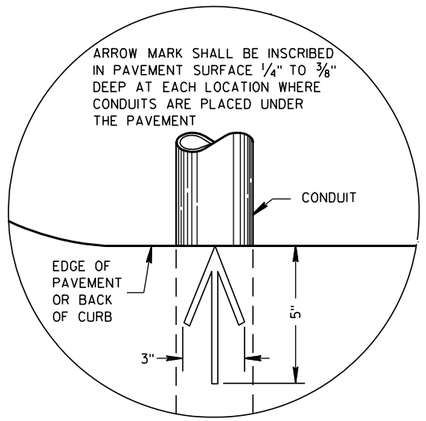
④ THIS DIMENSION IS 13-FOOT OF PC CONCRETE PAVEMENT WHEN MAINLINE IS PC CONCRETE PAVEMENT.

TEE INTERSECTION BYPASS LANE DETAIL

AT-GRADE SIDE ROAD INTERSECTION, TYPES "B1", "B2", "C" AND "D" AND TEE INTERSECTION BYPASS LANE

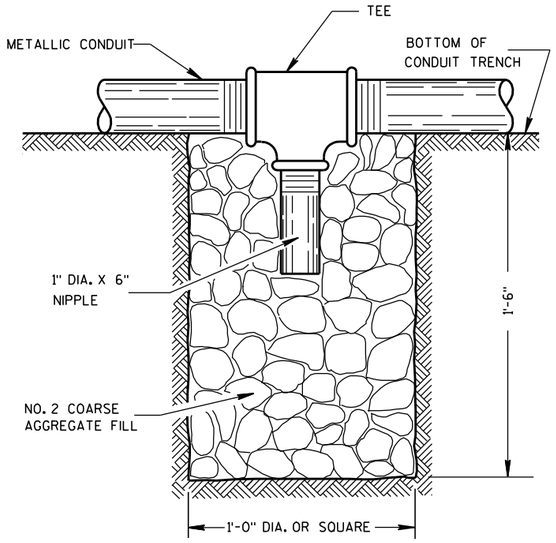
STATE OF WISCONSIN
DEPARTMENT OF TRANSPO...

6
S.D.D. 9 A 1-12a



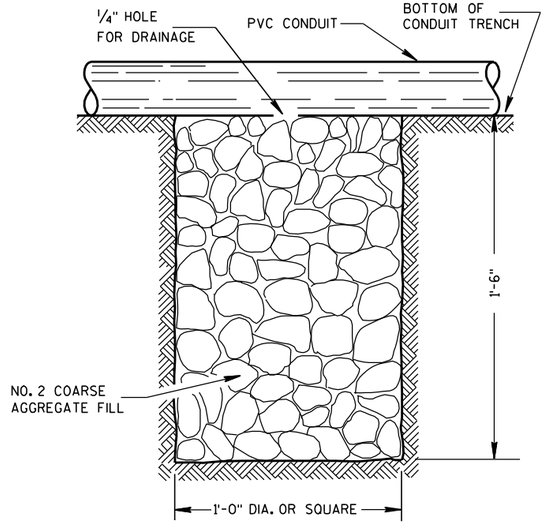
PLAN VIEW

ARROW MARK



NOTE: INSTALL AT LOCATIONS WHERE METALLIC CONDUITS CANNOT BE PITCHED TO DRAIN INTO A PULL BOX.

DRAIN SUMP FOR METALLIC CONDUIT



NOTE: INSTALL AT LOCATIONS WHERE PVC CONDUITS CANNOT BE PITCHED TO DRAIN INTO A PULL BOX.

DRAIN SUMP FOR PVC CONDUIT

GENERAL NOTES

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

METALLIC (STANDARD SPECIFICATION 652.2.2) OR NONMETALLIC (STANDARD SPECIFICATION 652.2.3) CONDUIT SHALL BE FURNISHED AND PLACED AS SHOWN.

DEPTH OF CONDUIT INSTALLED BELOW THE TRAVELED WAY SHALL BE 24 INCHES MINIMUM AND 36 INCHES MAXIMUM.

DEPTH OF CONDUIT INSTALLED THAT IS NOT BELOW THE TRAVELED WAY SHALL BE 18 INCHES MINIMUM AND 36 INCHES MAXIMUM.

ANY EXCEPTION TO THE MAXIMUM DEPTH SHALL BE ONLY WITH THE WRITTEN APPROVAL OF THE ENGINEER.

THE TRENCH SHALL NOT BE BACKFILLED PRIOR TO INSPECTION OF THE CONDUIT.

ALL METALLIC CONDUIT RACEWAY ENDS SHALL BE REAMED AND THREADED.

ALL METALLIC CONDUIT IN WHICH WIRE OR CABLE IS TO BE INSTALLED SHALL BE BUSHED WITH APPROVED THREADED BUSHINGS BEFORE INSTALLATION OF THE WIRE OR CABLE.

ALL METALLIC CONDUITS IN WHICH WIRE OR CABLE IS NOT TO BE INSTALLED SHALL BE CAPPED WITH THREADED PROTECTIVE CAPS, AS APPROVED BY THE ENGINEER.

ALL NONMETALLIC CONDUIT SHALL BE CAPPED OR PLUGGED IMMEDIATELY AFTER INSTALLATION AND SHALL REMAIN CAPPED OR PLUGGED UNTIL WIRE/CABLES ARE INSTALLED.

NONMETALLIC CONDUITS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED SHALL REMAIN CAPPED OR PLUGGED.

BENDING OF PVC ELECTRICAL CONDUIT SHALL BE ACCOMPLISHED BY USING A BLANKET OR EMERSION TYPE TANK DESIGNED FOR THE PURPOSE OF BENDING PVC ELECTRICAL CONDUIT.

ALL CUT ENDS SHALL BE TRIMMED INSIDE AND OUTSIDE TO REMOVE ALL ROUGH EDGES ON NONMETALLIC CONDUIT. (SEE NEC 347.5)

WHEN REQUIRED TO CONNECT NONMETALLIC CONDUIT TO METALLIC CONDUIT, ONLY U.L. LISTED ADAPTER FITTINGS SHALL BE USED.

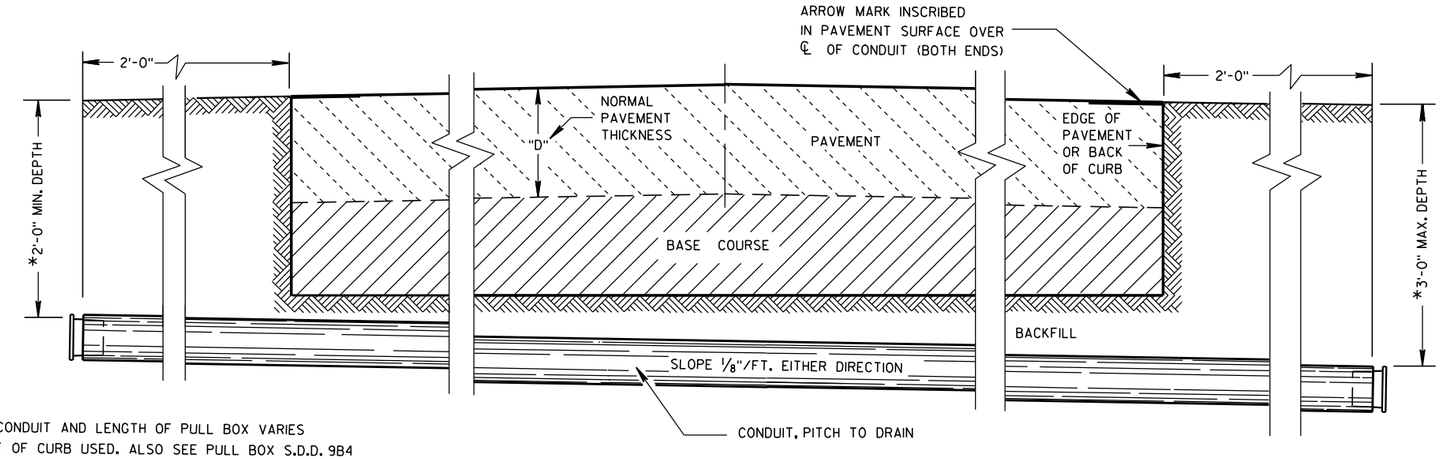
PRIOR TO CONDUIT ACCEPTANCE, CONDUIT CAPS OR PLUGS SHALL BE REMOVED, AND THE CAPS, PLUGS AND CONDUIT ENDS SHALL BE THOROUGHLY CLEANED AND THEN THE CAPS OR PLUGS REINSTALLED TO ENSURE THAT THE CAPS OR PLUGS CAN BE EASILY REMOVED IN THE FUTURE.

ALL CONDUIT BEING FURNISHED AND INSTALLED SHALL HAVE THE U.L. LABEL FIRMLY ATTACHED.

CONDUIT RUNS SHALL BE THE SAME SIZE OF CONDUIT FROM ONE END TO THE OTHER (FROM PULL BOX TO PULL BOX-OR-JUNCTION BOX TO JUNCTION BOX-OR-BASE TO BASE, ETC.).

POLY ROPE OR A PULL WIRE SHALL BE INSTALLED AS STATED IN THE STANDARD SPECIFICATION, ITEM 652.3.1.1.

ALL CONDUIT RUNS SHALL BE STRAIGHT (WITHOUT BENDS) FROM PULL BOX TO PULL BOX, PULL BOX TO BASE AND BASE TO BASE AS SHOWN ON THE PLANS.



*DEPTH OF CONDUIT AND LENGTH OF PULL BOX VARIES WITH HEIGHT OF CURB USED. ALSO SEE PULL BOX S.D.D. 9B4

SIDE ELEVATION

DETAIL FOR CONDUIT UNDER PAVED HIGHWAYS

CONDUIT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

10/23/03 — DATE

/S/ Balu Ananthanarayanan — STATE ELECTRICAL ENGI

FHWA — 68 — HWYS

TABLE OF NOMINAL DIMENSIONS AND WEIGHTS

DIMENSION IN INCHES		CORRUGATED STEEL PIPE								
PIPE DIAMETER (INSIDE)	A	12	12	12	18	18	18	24	24	24
PIPE LENGTH **	B	24	30	36	24	30	36	36	42	48
WALL THICKNESS	C	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064
COVER	D	10 1/4	10 1/4	10 1/4	16 1/4	16 1/4	16 1/4	22 1/4	22 1/4	22 1/4
FRAME	E	14 1/2	14 1/2	14 1/2	20 1/2	20 1/2	20 1/2	26 1/2	26 1/2	26 1/2
FRAME	F	8 1/2	8 1/2	8 1/2	14 1/2	14 1/2	14 1/2	20 1/2	20 1/2	20 1/2
FRAME	G	11 1/2	11 1/2	11 1/2	17 1/2	17 1/2	17 1/2	23 1/2	23 1/2	23 1/2
WEIGHT IN POUNDS *										
FRAME AND COVER		60	60	60	110	110	110	155	155	155

* THE ACTUAL WEIGHT OF THE MANHOLE FRAME AND COVER MAY VARY WITHIN 5 PERCENT PLUS OR MINUS OF THE WEIGHTS SHOWN.

** NORMALLY USED LENGTHS. THE PROJECT ENGINEER SHALL DETERMINE IF PIPE LENGTHS, OTHER THAN THOSE SPECIFIED, SHALL BE USED, TO A MAXIMUM OF 48" (CONTINUOUS LENGTH, NON-SPLICED). THE ADDITIONAL LENGTH SHALL BE INCIDENTAL TO THE PULL BOX BID PRICE.

GENERAL NOTES

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

ALL FRAMES AND COVERS SHALL BE HEAVY DUTY TYPE, SUITABLE FOR VEHICULAR TRAFFIC LOADS.

PULL BOXES LOCATED IN THE ROADWAYS SHALL HAVE LOCKING COVERS.

ENTRANCE HOLES INTO PULL BOXES SHALL BE CUT WITH A CIRCULAR HOLE SAW OR HYDRAULIC CONDUIT PUNCH. HOLE SIZE SHALL BE THE OUTSIDE DIAMETER OF THE CONDUIT THAT IS TO FIT IN THE OPENING PLUS NO MORE THAN 1/4".

THE CONTRACTOR SHALL NOT INSTALL WIRE IN ANY PULL BOX UNTIL ITS INSTALLATION HAS BEEN INSPECTED AND ACCEPTED BY THE ENGINEER.

GROUNDING LUGS (MECHANICAL CONNECTORS) SHALL BE U.L. LISTED AND APPROVED FOR USE WITH COPPER WIRE. THE MECHANICAL CONNECTION (INSIDE AND OUTSIDE) TO THE PULL BOX, SHALL BE TOTALLY AND PERMANENTLY SEALED WITH A SILICONE OR RUBBERIZED CAULKING COMPOUND AS APPROVED BY THE ENGINEER.

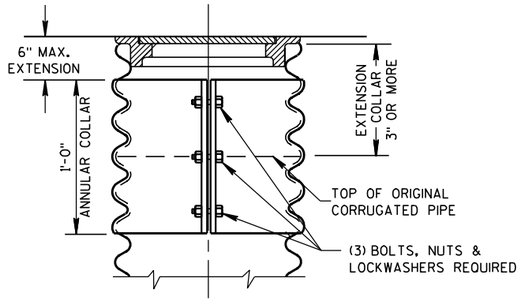
GROUNDING LUGS ARE NOT REQUIRED IN PULL BOXES WHEN VOLTAGES OF LESS THAN 50 VOLTS AC ARE THE ONLY VOLTAGES ENCOUNTERED IN THE BOXES.

ALL METALLIC CONDUIT IN WHICH WIRE AND/OR CABLE IS TO BE INSTALLED, SHALL BE BUSHED BEFORE INSTALLATION OF THE WIRE AND/OR CABLE.

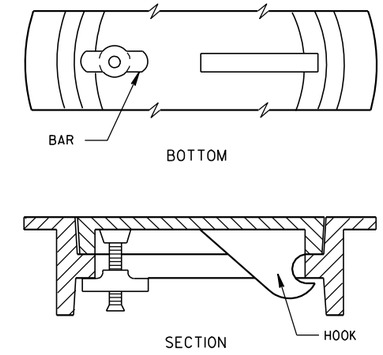
S.D.D. 9B2, "CONDUIT", APPLIES TO THIS DRAWING.

WHEN PULL BOXES ARE INSTALLED FOR FUTURE USE, DO NOT INSTALL THE EQUIPMENT GROUNDING LUG. THE EQUIPMENT GROUNDING LUG, THE EQUIPMENT GROUNDING ELECTRODE AND THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE REQUIRED AND INSTALLED UNDER A FUTURE WIRING CONTRACT.

IF PULL BOX EQUIPMENT GROUNDING IS REQUIRED USING AN EQUIPMENT GROUNDING ELECTRODE IN EACH PULL BOX, THE EQUIPMENT GROUNDING ELECTRODE SHALL BE 5/8" X 8'-0", COPPERCLAD AND BE EXOTHERMICALLY WELDED TO A #4 AWG, COPPER, STRANDED WIRE (BARE OR GREEN INSULATED). THE #4 AWG WIRE SHALL BE 4 FEET IN LENGTH, NEATLY COILED, TAPED AND AVAILABLE FOR USE WHEN REQUIRED.

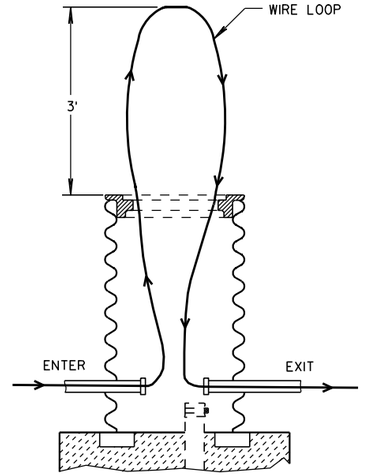


CORRUGATED PIPE EXTENDER

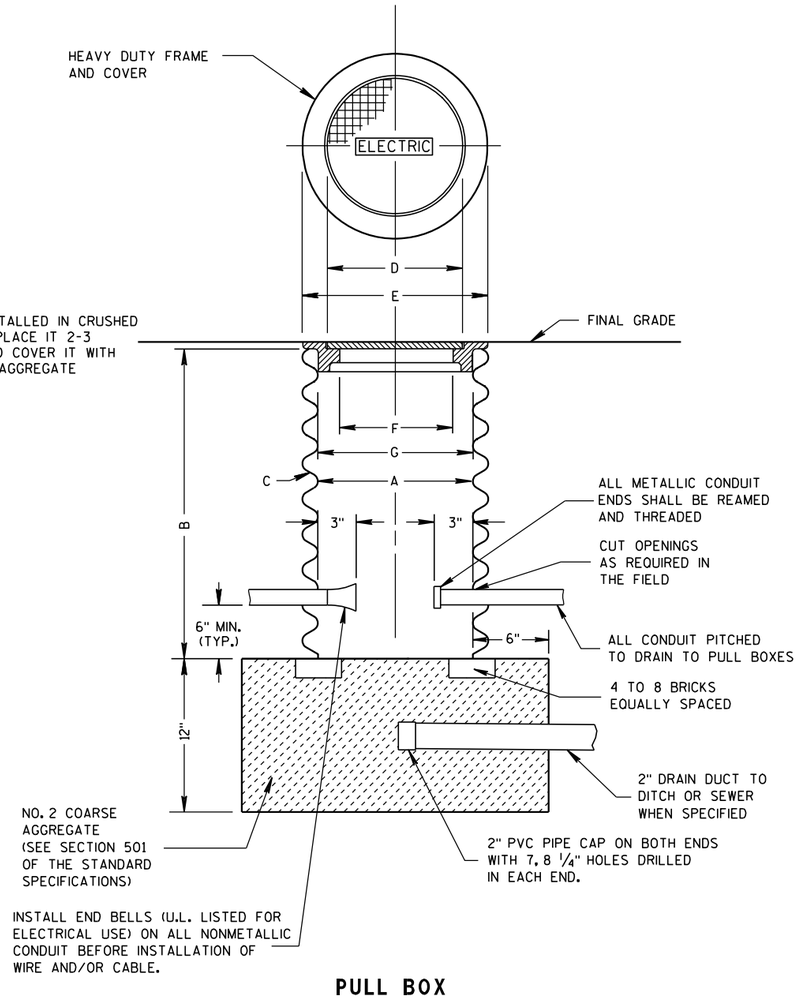


ALTERNATE COVER (LOCKING)

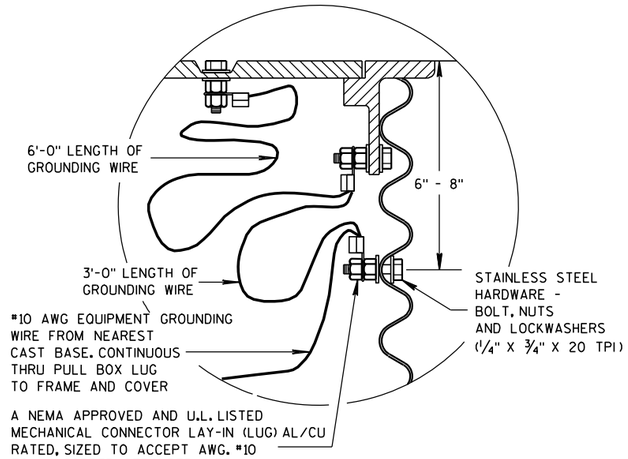
TIGHTENING BAR TYPE



MEASUREMENT DETAIL FOR WIRE/CABLE IN THE PULL BOX



PULL BOX



EQUIPMENT GROUNDING LUG AND LOCATION IN STEEL PULL BOXES

PULL BOX

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
9/27/06 DATE
/S/ Balu Ananthanarayanan
STATE ELECTRICAL ENGI
HWYS
FHWA

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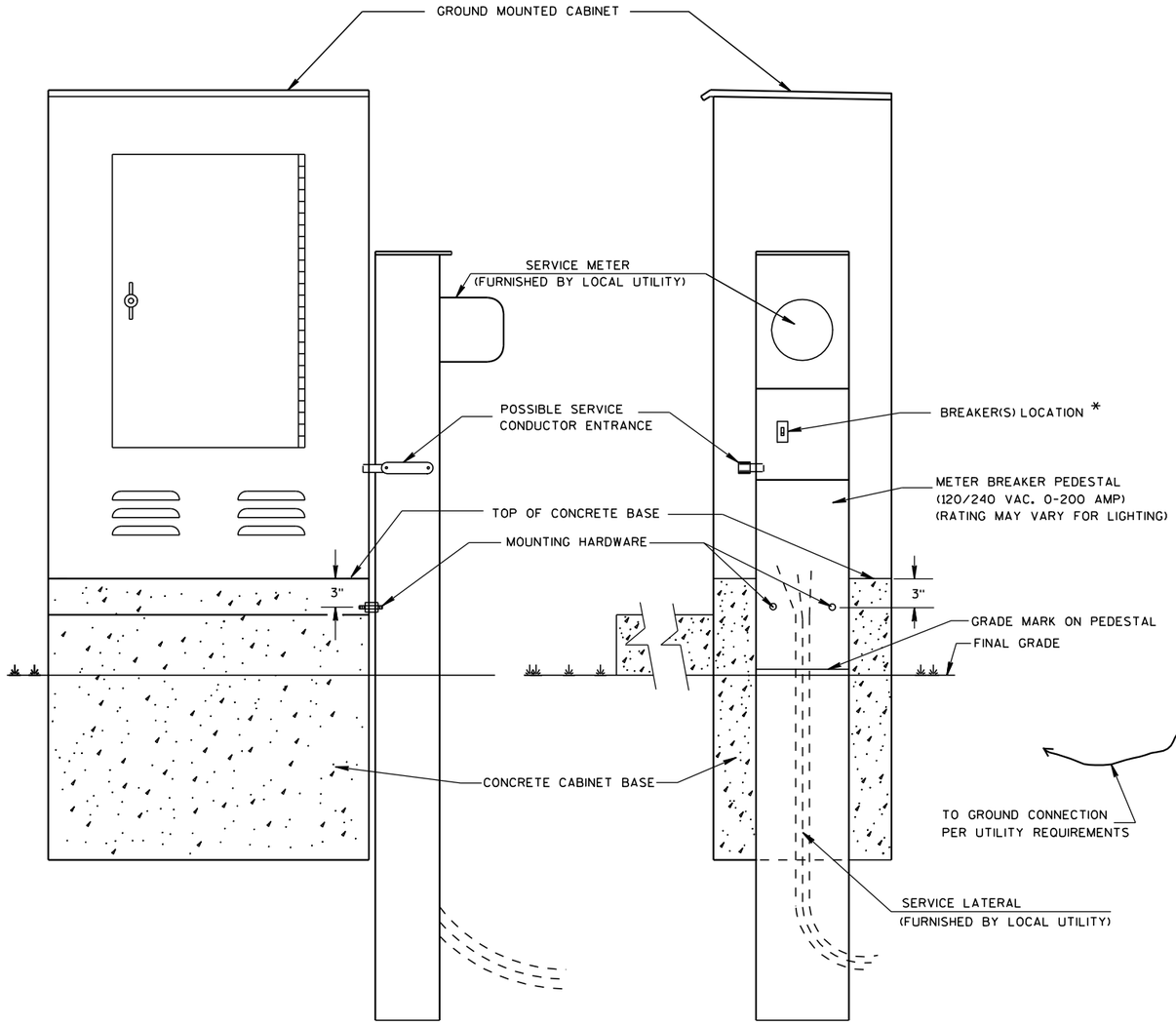

TYPICAL CABINET SERVICE INSTALLATION

GENERAL NOTES

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

THE EXACT LOCATION OF THE METER BREAKER PEDESTAL SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

THE TYPE OF CONCRETE CABINET BASE TO BE INSTALLED SHALL BE AS CALLED FOR IN THE PLANS.

TO FACILITATE FLUSH MOUNTING OF THE METER BREAKER PEDESTAL AGAINST THE SIDE OF THE CABINET BASE (IF FLUSH MOUNTING POSSIBLE. CONFER WITH THE LOCAL UTILITY TO DETERMINE WHICH SIDE OF THE CONCRETE BASE THE ELECTRICAL SERVICE LATERAL WILL APPROACH. THEN FORM THAT INDICATED SIDE FOR FULL SIDE DEPTH.

WHILE FLUSH MOUNTING IS THE MOST DESIRABLE MOUNTING CONFIGURATION UTILITY REQUIREMENTS MAY PRECLUDE THIS OPTION. CONTRACTOR MUST PROVIDE UTILITY APPROVED PEDESTAL AND INSTALL PER UTILITY AND MANUFACTURERS REQUIREMENTS.

SERVICE CONDUCTOR ENTRANCES SHALL BE RIGID METALLIC CONDUIT, NIPPLES AND/OR CONDULETS AS REQUIRED.

SERVICE CONDUCTOR ENTRANCES SHALL BE SIZED AND LOCATED AS REQUIRED BY THE LOCAL UTILITY AND IN ACCORDANCE WITH APPROPRIATE ARTICLES OF THE LATEST ACCEPTED NATIONAL ELECTRICAL CODE.

IF MORE THAN ONE GROUNDING ELECTRODE IS REQUIRED, THE DISTANCE APART SHALL BE 6 FEET OR PER LOCAL UTILITY REGULATIONS.

* SOME PEDESTAL LIGHTING PLANS SHOW MAIN LUGS ONLY.

CABINET SERVICE INSTALLATION (METER BREAKER PEDESTAL)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

10/27/09 — DATE

/S/ Joanna L. Bush — STATE ELECTRICAL ENGI

HWYS

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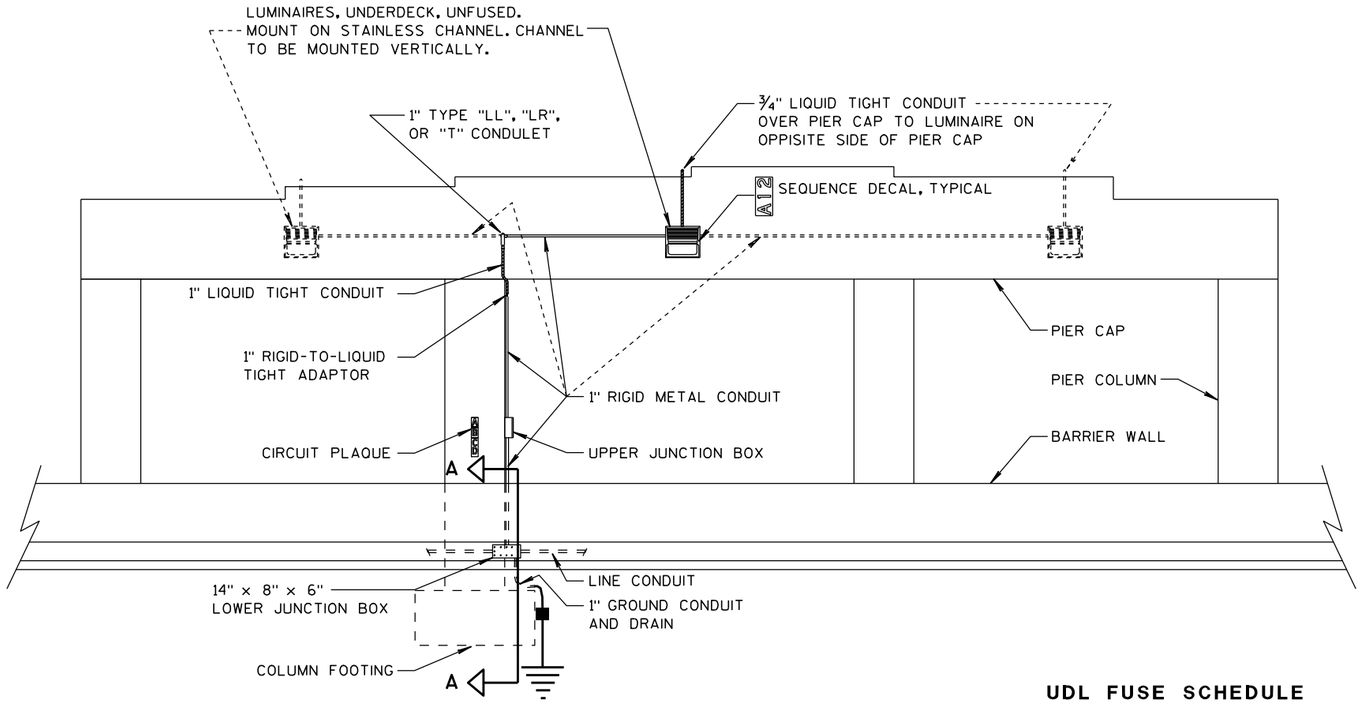
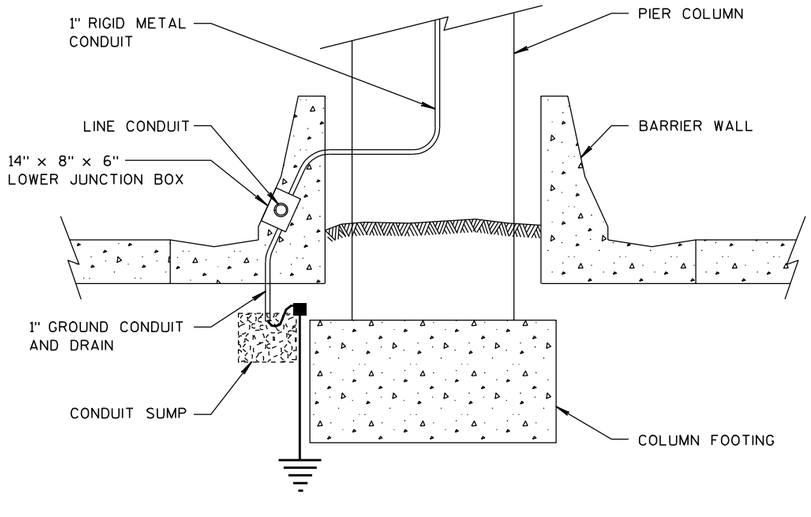


TYPICAL UNDERDECK LIGHTING INSTALLATION



SECTION "A-A"

UDL FUSE SCHEDULE

LINE VOLTAGE ϕ-GROUND	TOP JUNCTION BOX FUSES
120VAC	5 A
208VAC	5 A
240VAC	5 A
480VAC	3 A

GENERAL NOTES

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

USE THIS DETAIL IN CONJUNCTION WITH THE DETAIL FOR ELECTRICAL HANDHOLE WIRING, SUBSTITUTING THE LOWER JUNCTION BOX FOR THE HANDHOLE SHOWN IN THAT DETAIL.

THE GROUNDING ELECTRODE CONDUCTOR SHALL BE CONTINUOUS WITHOUT SPLICES FROM THE GROUNDING ELECTRODE THROUGH THE LUG OF THE LOWER JUNCTION BOX TO THE SPLICE.

THE PLANS WILL SHOW WHICH CIRCUIT LEGS(S) ARE CONNECTED TO EACH INSTALLATION AND THE REQUIRED NUMBER OF LUMINAIRES.

THE UPPER JUNCTION BOX (FOR FUSE ASSEMBLIES) SHALL CONFORM TO THE APPLICABLE PROVISIONS OF SECTION 653.2.2 OF THE STANDARD SPECIFICATIONS; SHALL BE SUITABLE FOR SURFACE MOUNTING WITH EXTERNAL MOUNTING LUGS; AND SHALL HAVE A HINGED COVER, WING-NUT FASTENERS, AND PADLOCK HASP. ALL HARDWARE SHALL BE STAINLESS STEEL. FURNISH O-Z/GEDNEY YW-120603, SPRING CITY HC-12-06-04, CROUSE-HINDS WTB-120604, OR APPROVED EQUAL.

MEDIAN CONFIGURATIONS VARY; NOT ALL CASES CAN BE SHOWN IN THIS DETAIL.

WIRING FOR THE FIRST LUMINAIRE PAIR IS SHOWN IN SOLID LINES. WIRING FOR ADDITIONAL LUMINAIRE PAIRS, WHERE REQUIRED, IS SHOWN IN DOTTED LINES.

LEGEND

A,B,X,Y,Z	UNGROUNDED CIRCUIT CONDUCTORS
N	GROUNDED CIRCUIT CONDUCTORS
GND	EQUIPMENT GROUNDING CONDUCTOR
P	POLE (ELECTRICAL CIRCUIT)
ϕ	PHASE (ELECTRICAL CURRENT)
	HANDHOLE GROUND LUG
	UNFUSED LUMINAIRE
	SINGLE POLE (1P) FUSE ASSEMBLY
	EQUIPMENT GROUNDING ELECTRODE
	TERMINAL
	SPLICE
	CONDUCTOR
	EXOTHERMIC WELD

ELECTRICAL DETAILS
UNDERDECK LIGHTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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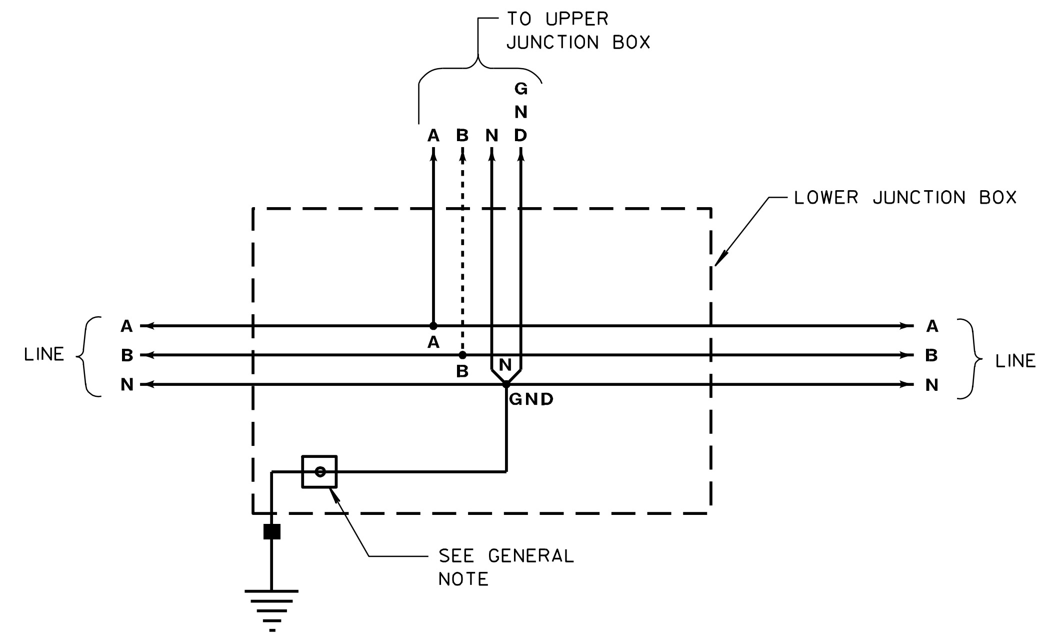
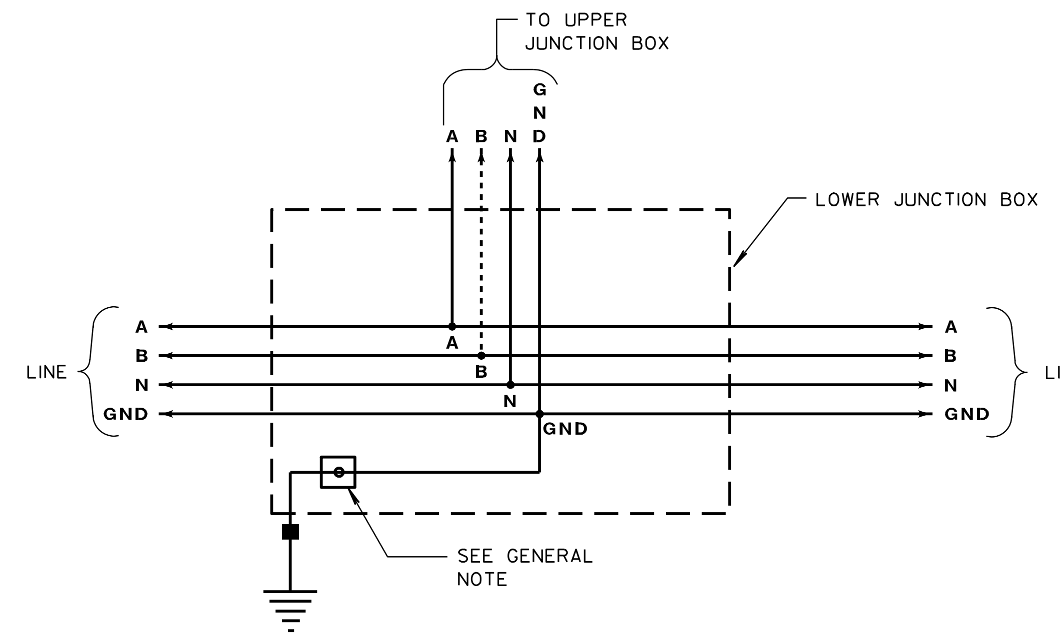
S.D.D. 10 A 15-3a



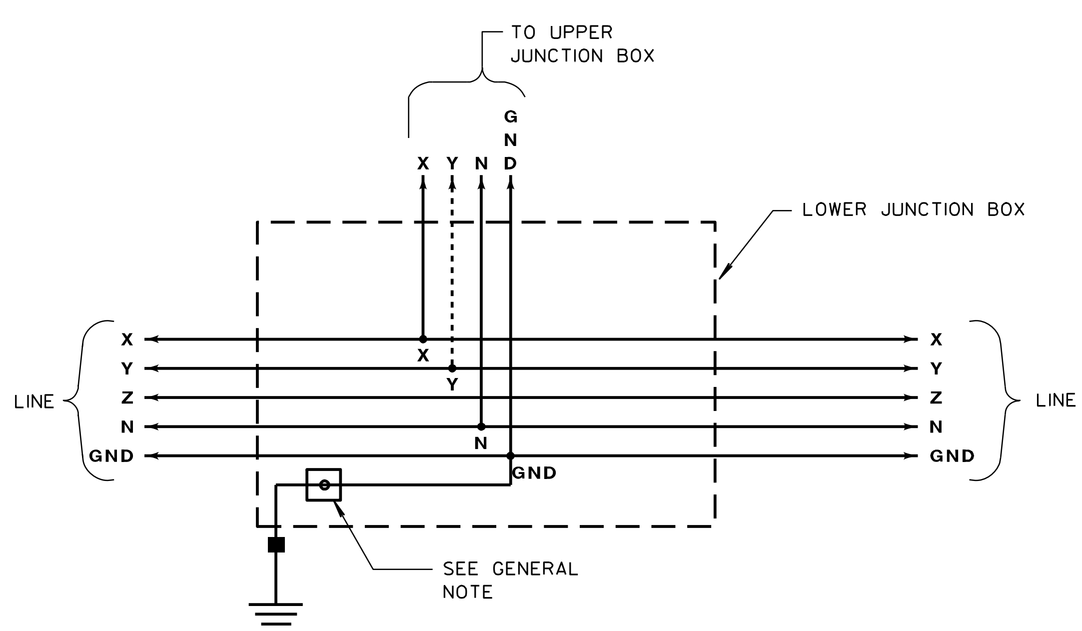
TYPICAL WIRING DIAGRAM, LOWER JUNCTION BOX

GROUNDED NEUTRAL SYSTEM
1-ϕ 240/480VAC OR 3 WIRE OR 480VAC 2 WIRE

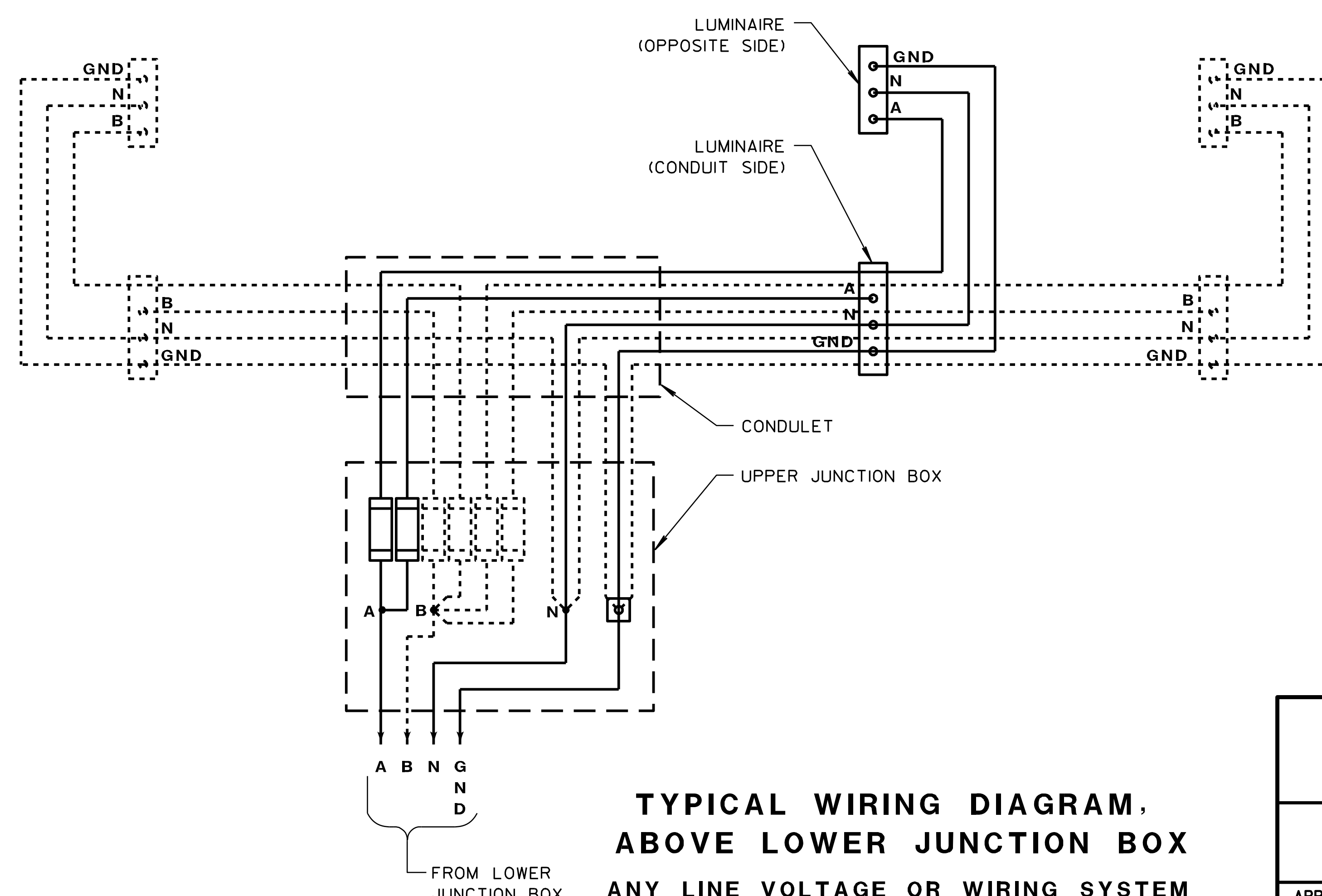


TYPICAL WIRING DIAGRAM, LOWER JUNCTION BOX

ISOLATED NEUTRAL SYSTEM
1-ϕ 120/240VAC OR 240/480VAC 3 WIRE



TYPICAL WIRING DIAGRAM, LOWER JUNCTION BOX
ISOLATED NEUTRAL SYSTEM
3-ϕ 208Y/120VAC OR 480Y/277VAC 4 WIRE

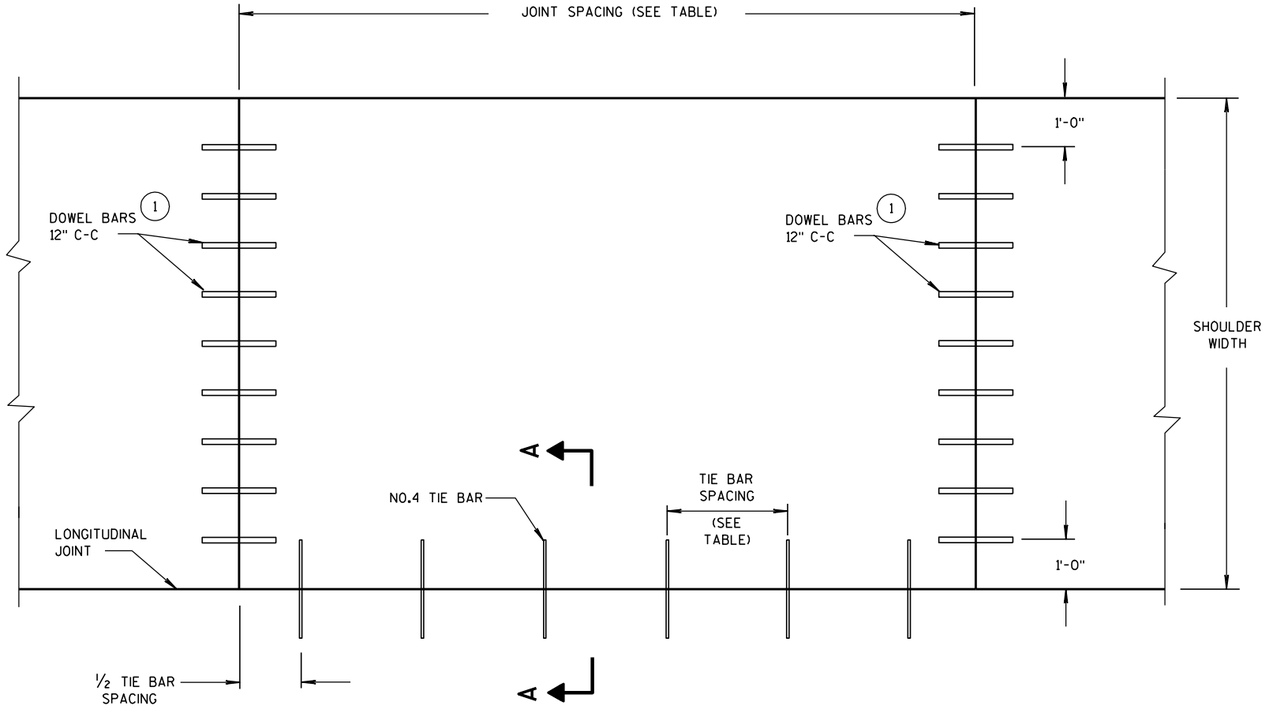


TYPICAL WIRING DIAGRAM,
ABOVE LOWER JUNCTION BOX
ANY LINE VOLTAGE OR WIRING SYSTEM
(NO. 14 AWG TAPS AND BRANCHES)

ELECTRICAL DETAILS
UNDERDECK LIGHTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/25/2010
DATE
/S/ John Corbin
STATE ELECTRICAL ENGI
HWYS
FHWA



PLAN VIEW

CONCRETE PAVEMENT SHOULDER

PAVEMENT TYPE OF TRAFFIC LANES	TIE BAR SPACING	SHOULDER JOINT SPACING
NON-REINFORCED	30"	MATCH JOINT SPACING OF ADJACENT TRAFFIC LANE
CONTINUOUSLY REINFORCED	30"	15' FOR 6' TO 10' WIDE SHOULDERS
CONTINUOUSLY REINFORCED	36"	12' FOR 3' WIDE SHOULDERS

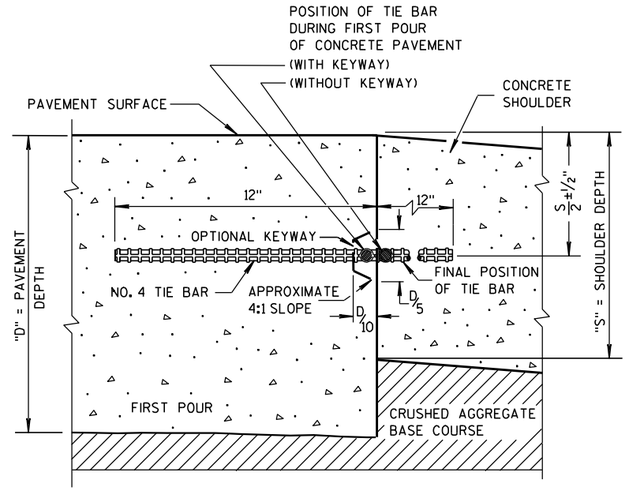
GENERAL NOTES

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.

TRANSVERSE JOINT DETAILS ARE SHOWN ELSEWHERE IN THE PLAN.

FINISH THE SHOULDER PAVEMENT CONFORMING TO SUBSECTION 415.3.8 OF THE STANDARD SPECIFICATIONS.

TIE BARS SHALL CONFORM TO SUBSECTION 505.2.4 OF THE STANDARD SPECIFICATIONS.



SECTION A-A

LONGITUDINAL CONSTRUCTION JOINT

(1)

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'

FOR DOWELED CONCRETE SHOULDERS WITH TRAPEZOIDAL CROSS SECTIONS, CHOSE THE APPROPRIATE DOWEL BAR DIAMETER BASED ON THE SMALLER PAVEMENT DEPTH (LIKELY THE OUTSIDE EDGE OF THE SHOULDER). IF USING BASKETS, USE BASKETS FOR THE AVERAGE THICKNESS OF THE CROSS SECTION.

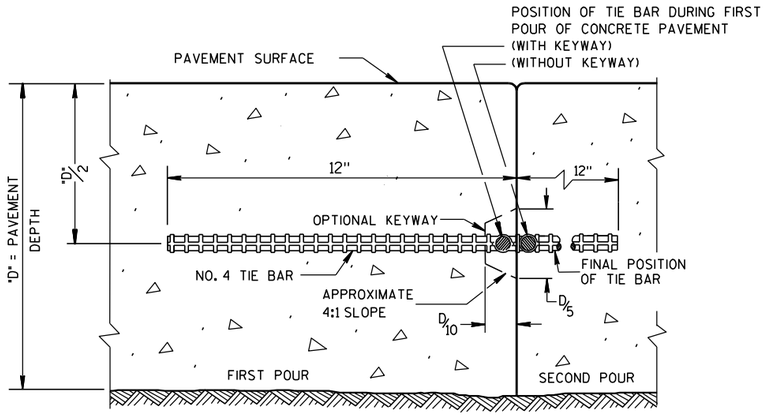
CONCRETE PAVEMENT SHOULDERS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

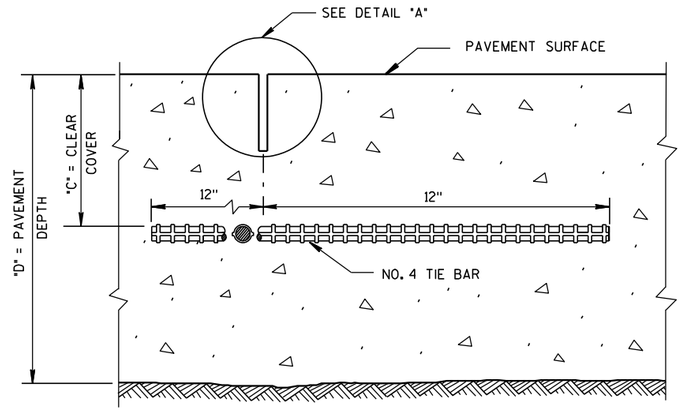
APPROVED
8/15/2011 — DATE
/S/ Deb Bischoff — PAVEMENT POLICY & D — ENGINEER
FHWA

6

S.D.D. 13 A 3-5



CONSTRUCTION JOINT



SAWED JOINT

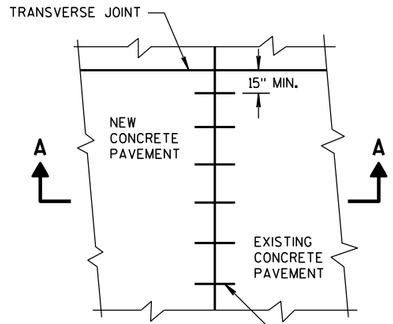
GENERAL NOTES

DO NOT SEAL OR FILL LONGITUDINAL JOINTS.

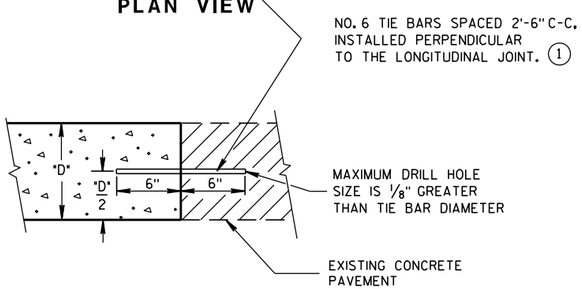
CREATE A LONGITUDINAL JOINT FOR PAVEMENT WIDTHS GREATER THAN 15 FEET.

CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.

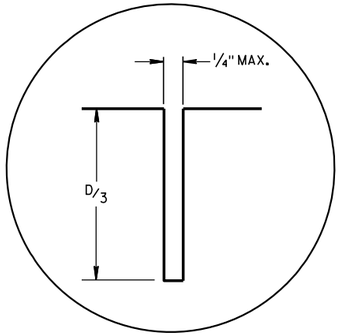
(1) ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.



PLAN VIEW

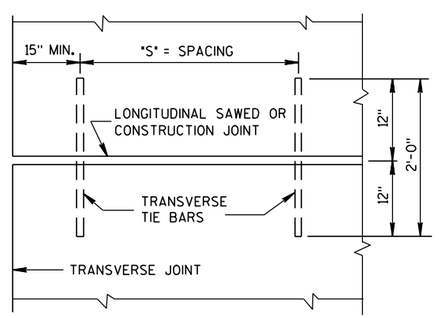


SECTION A-A
LONGITUDINAL CONSTRUCTION JOINT TIE BARS ANCHORED INTO EXISTING PAVEMENT



DETAIL "A"

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

10-5-2010 DATE

/S/ Deb Bischoff
PAVEMENT POLICY & DI 74 INEER

FHWA

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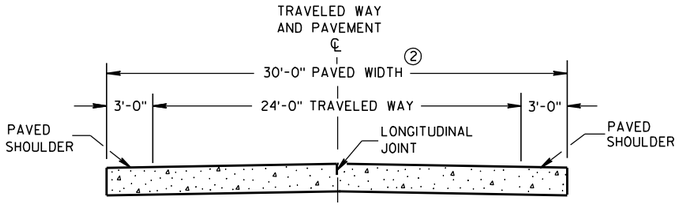
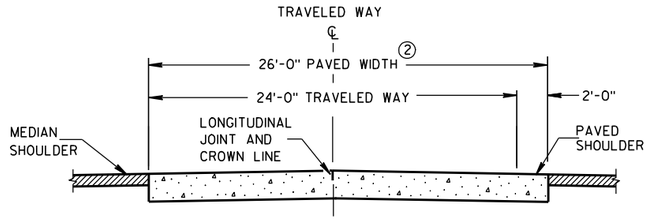
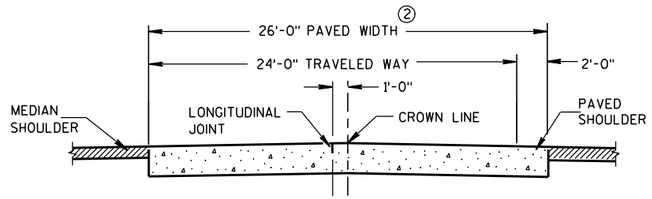


SECTION A-A ①

TWO-LANE TWO-WAY HIGHWAY



SECTION B-B



ALTERNATIVE SECTION B-B

①

DIVIDED HIGHWAY

GENERAL NOTES

CONTRACTION JOINTS

CONSTRUCT 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, CENTER THE DOWEL ASSEMBLY ACROSS THE LANES. LOCATE THE INNER AND OUTER MOST DOWEL BARS SO THAT THE CENTER OF THE BARS ARE A MINIMUM OF 6 INCHES AND A MAXIMUM OF 12 INCHES FROM THE LONGITUDINAL JOINT AND THE EDGE OF PAVEMENT.

CONSTRUCTION JOINTS

LOCATE CONSTRUCTION JOINTS A MINIMUM OF 4 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO CONTRACTION JOINTS.

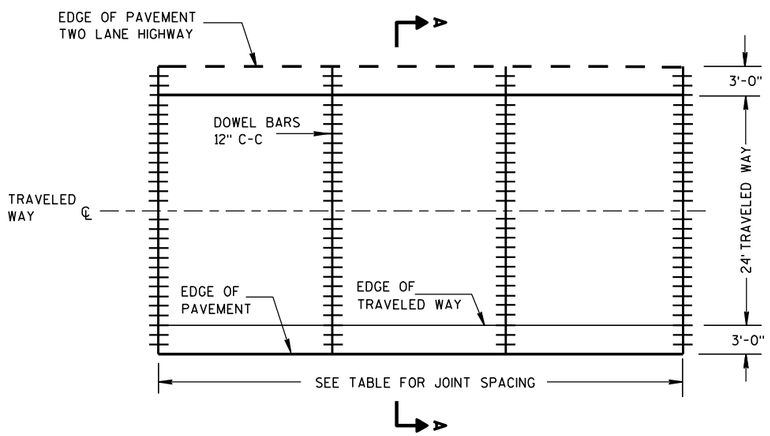
THE CONTRACTOR MAY INSERT TIE BARS THROUGH THE HEADER BOARD AFTER THE CONCRETE HAS BEEN PLACED.

① REFER TO TYPICAL CROSS SECTIONS FOR ADDITIONAL DETAILS.

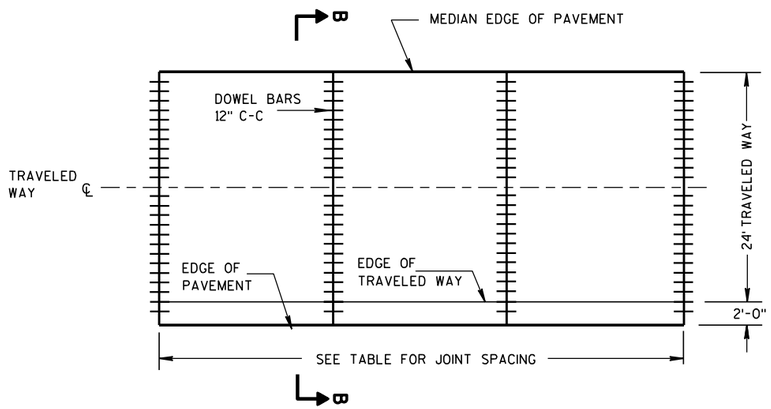
② MEASURE THE ENTIRE PAVED WIDTH INCLUDING THE PORTION(S) LABELED PAVED SHOULDER AS CONCRETE PAVEMENT.

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



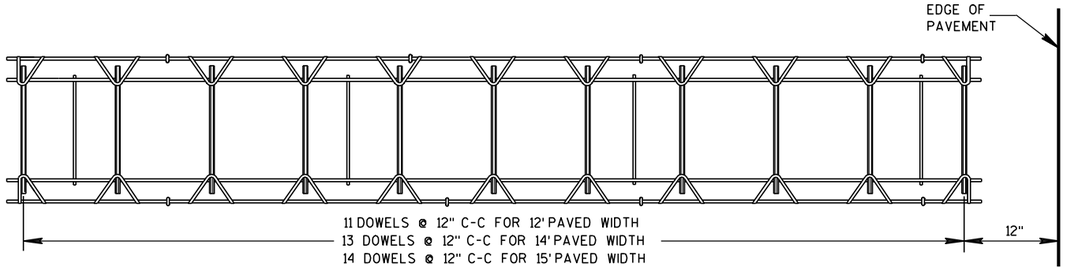
CONTRACTION JOINT LAYOUT FOR DIVIDED HIGHWAY

RURAL DOWELED CONCRETE PAVEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

S.D.D. 13 C 11-10a



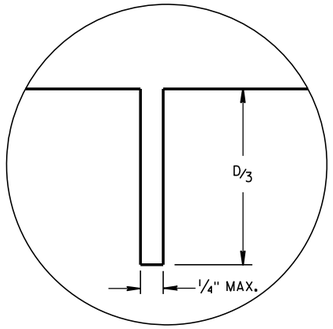
PLAN VIEW

⑤

SIDE VIEW

(NORMAL TO CENTERLINE)

CONTRACTION JOINT DOWEL ASSEMBLY ①



JOINT DETAIL

GENERAL NOTES

① THE ENGINEER MAY APPROVE THE USE OF ALTERNATIVE DESIGNS OF THE DOWEL ASSEMBLY. THE CONTRACTOR MAY USE MECHANICAL DOWEL BAR INSERTERS INSTEAD OF DOWEL ASSEMBLIES.

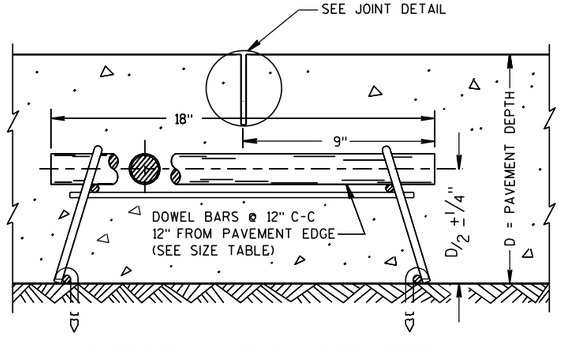
② ANCHOR DOWEL BARS INTO DRILLED HOLES WITH AN EPOXY.

③ APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.

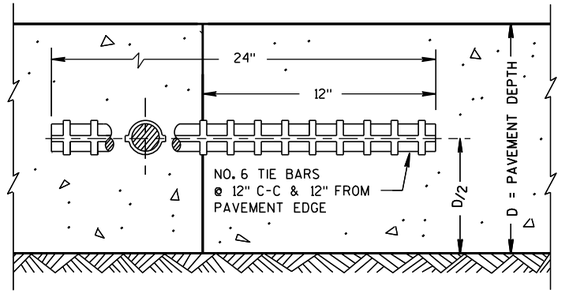
④ SPACE DOWEL BARS INSTALLED BY DRILLING 1'-3" ON CENTER. CENTER THE GROUPING OF DOWEL BARS INSIDE THE SLAB BASED ON ALL THE FOLLOWING SITUATIONS:

BETWEEN THE EDGES OF PAVEMENTS WITHOUT LONGITUDINAL JOINTS OR BETWEEN THE EDGE OF PAVEMENT AND NEAREST LONGITUDINAL JOINT OR BETWEEN TWO ADJACENT LONGITUDINAL JOINTS.

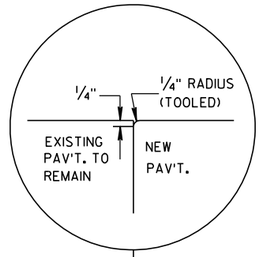
⑤ SECURE BASKETS WITH ANCHORS TO HOLD DOWEL BARS IN THE CORRECT POSITION AND ALIGNMENT. TYPE, LOCATION, NUMBER AND LENGTH OF ANCHORS ARE DEPENDENT UPON FIELD CONDITIONS.

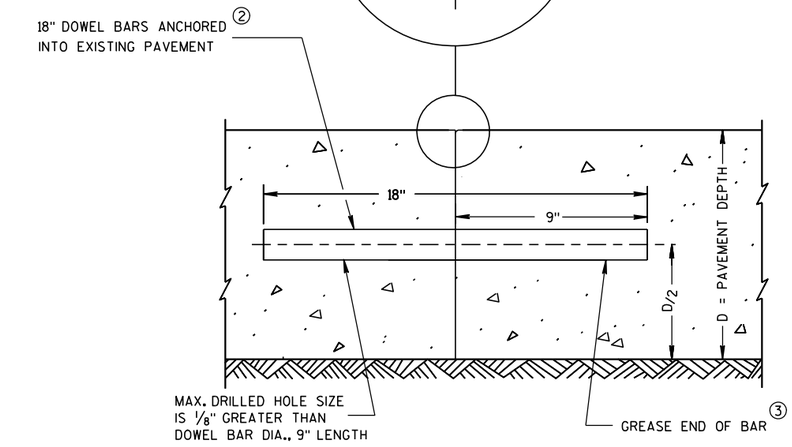


DOWELED CONTRACTION JOINT



CONSTRUCTION JOINT





TRANSVERSE CONTRACTION JOINTS ABUTTING EXISTING PAVEMENT

④ DOWEL BAR DETAIL

RIRAL DOWELED CONCRETE PAVEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
12/11/09 — DATE
/S/ Deb Bischoff — PAVEMENT POLICY & DESIGNER
FHWA

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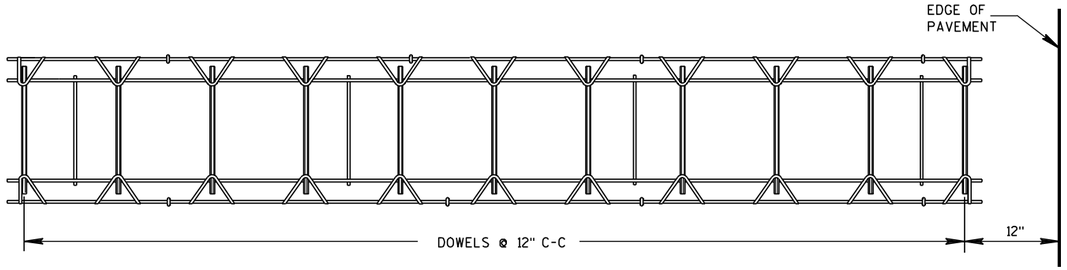
S.D.D. 13 C 11-10b



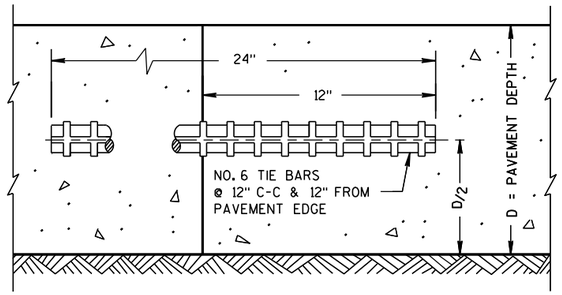
PLAN VIEW

SIDE VIEW

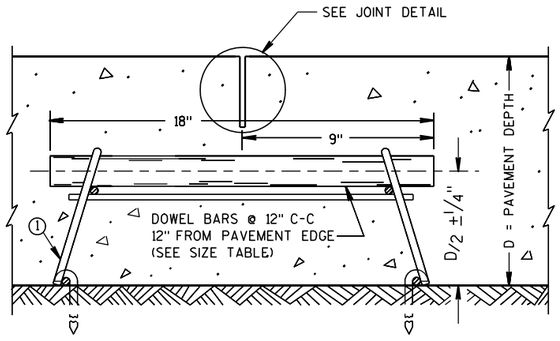
CONTRACTION JOINT DOWEL ASSEMBLY ①

PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

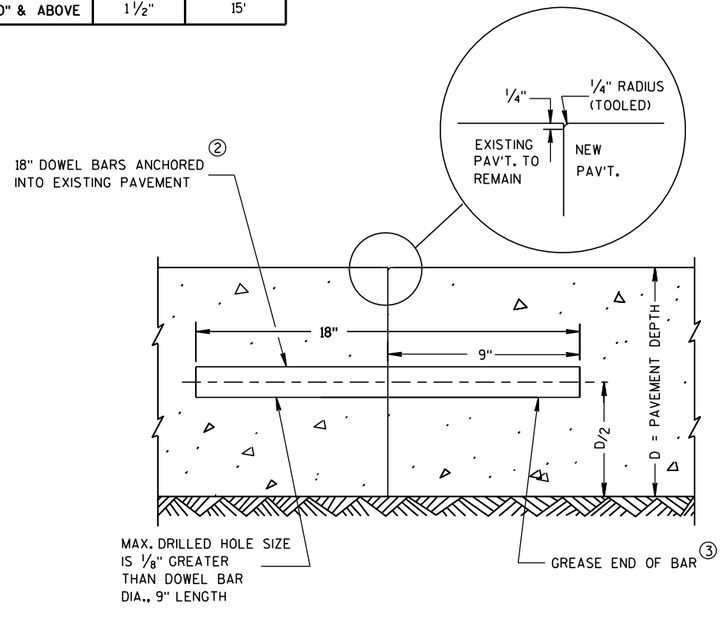
PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER	CONTRACTION JOINT SPACING
5 ½", 6",6 ½"	NONE	12'
7",7 ½"	1"	14'
8",8 ½"	1 ¼"	15'
9",9 ½"	1 ¼"	15'
10" & ABOVE	1 ½"	15'



TRANSVERSE CONSTRUCTION JOINT

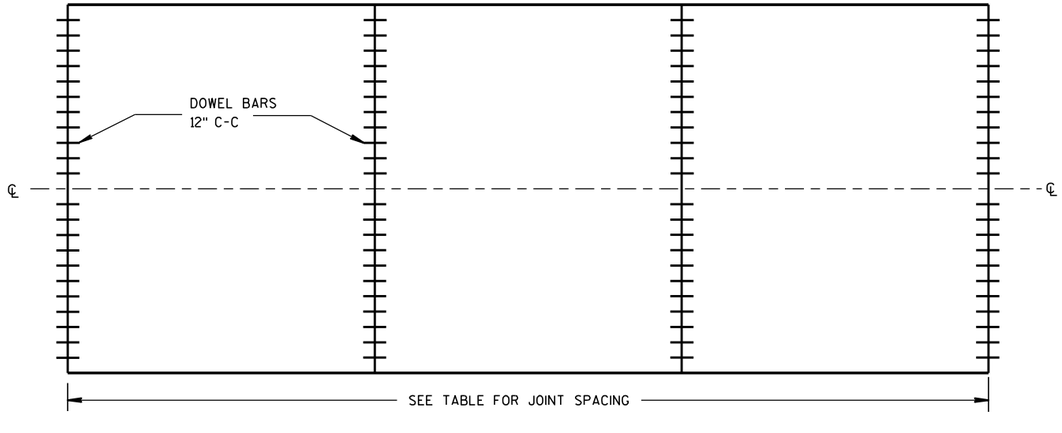


DOWELED CONTRACTION JOINT

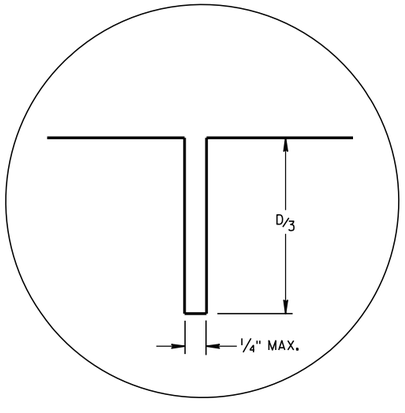


TRANSVERSE CONTRACTION JOINTS ABUTTING EXISTING PAVEMENT

④ DOWEL BAR DETAIL



CONTRACTION JOINT LOCATIONS



JOINT DETAIL

GENERAL NOTES

CONTRACTION JOINTS

CONSTRUCT 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, CENTER THE DOWEL ASSEMBLY ACROSS THE LANES. LOCATE THE INNER AND OUTER MOST DOWEL BARS SO THAT THE CENTER OF THE BARS ARE A MINIMUM OF 6 INCHES AND A MAXIMUM OF 12 INCHES FROM THE LONGITUDINAL JOINT AND THE EDGE OF PAVEMENT.

CONSTRUCTION JOINTS

LOCATE CONSTRUCTION JOINTS A MINIMUM OF 4 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO CONTRACTION JOINTS.

THE CONTRACTOR MAY INSERT TIE BARS THROUGH THE HEADER BOARD AFTER THE CONCRETE HAS BEEN PLACED.

① THE ENGINEER MAY APPROVE THE USE OF ALTERNATIVE DESIGNS OF THE DOWEL ASSEMBLY. THE CONTRACTOR MAY USE MECHANICAL DOWEL BAR INSERTERS INSTEAD OF DOWEL ASSEMBLIES.

② ANCHOR DOWEL BARS INTO DRILLED HOLES WITH AN EPOXY.

③ APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.

④ SPACE DOWEL BARS INSTALLED BY DRILLING 1'-3" ON CENTER. CENTER THE GROUPING OF DOWEL BARS INSIDE THE SLAB BASED ON ALL THE FOLLOWING SITUATIONS:

BETWEEN THE EDGES OF PAVEMENTS WITHOUT LONGITUDINAL JOINTS OR BETWEEN THE EDGE OF PAVEMENT AND NEAREST LONGITUDINAL JOINT OR BETWEEN TWO ADJACENT LONGITUDINAL JOINTS.

⑤ 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.

URBAN DOWELED CONCRETE PAVEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

12/11/2009 — DATE

/S/ Deb Bischoff — PAVEMENT POLICY & DE

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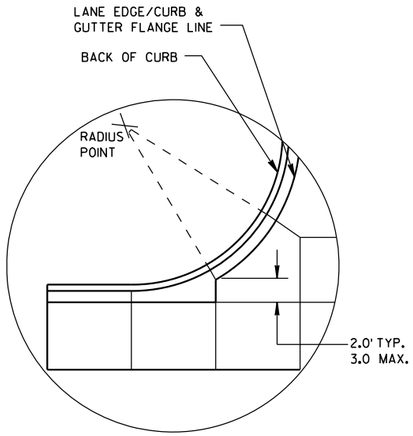
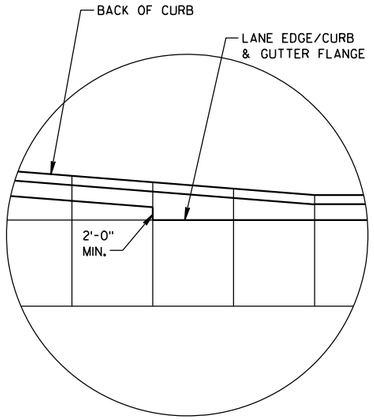
S.D.D. 13 C 13-7



DETAIL "A"



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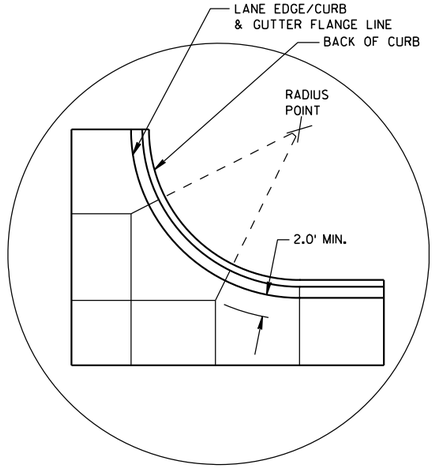
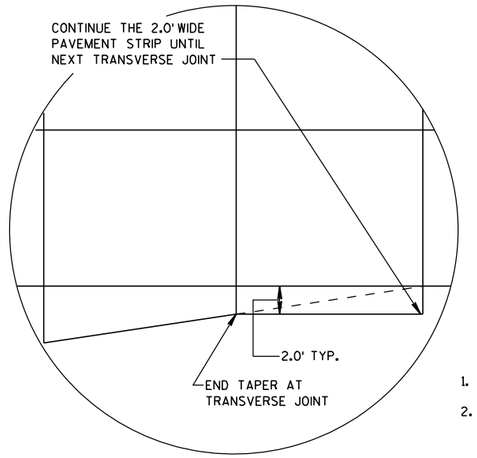


DETAIL "C"



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.

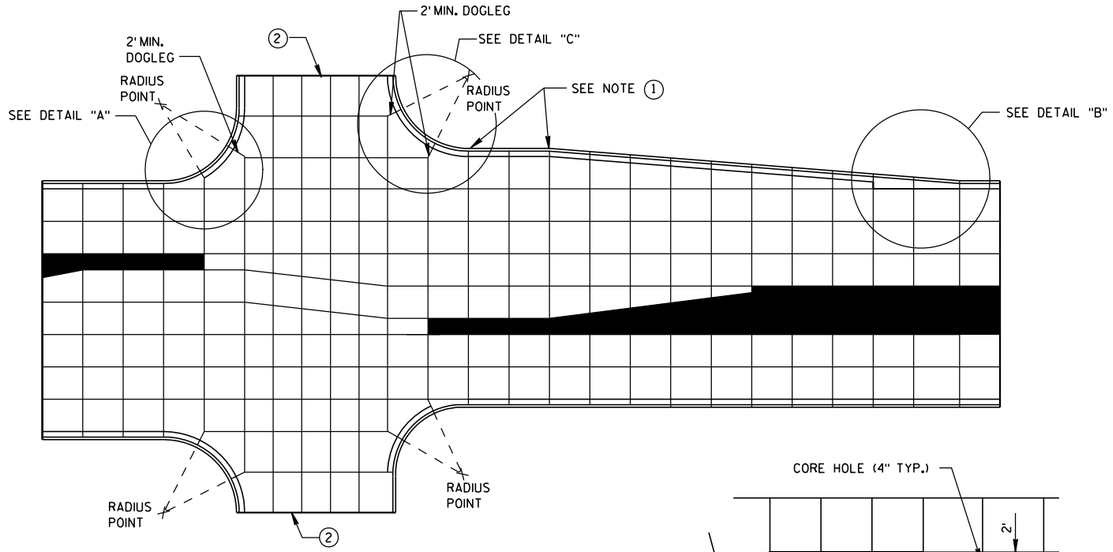
AVOID SLABS LESS THAN 2 FEET WIDE OR GREATER THAN 15 FEET WIDE.

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.

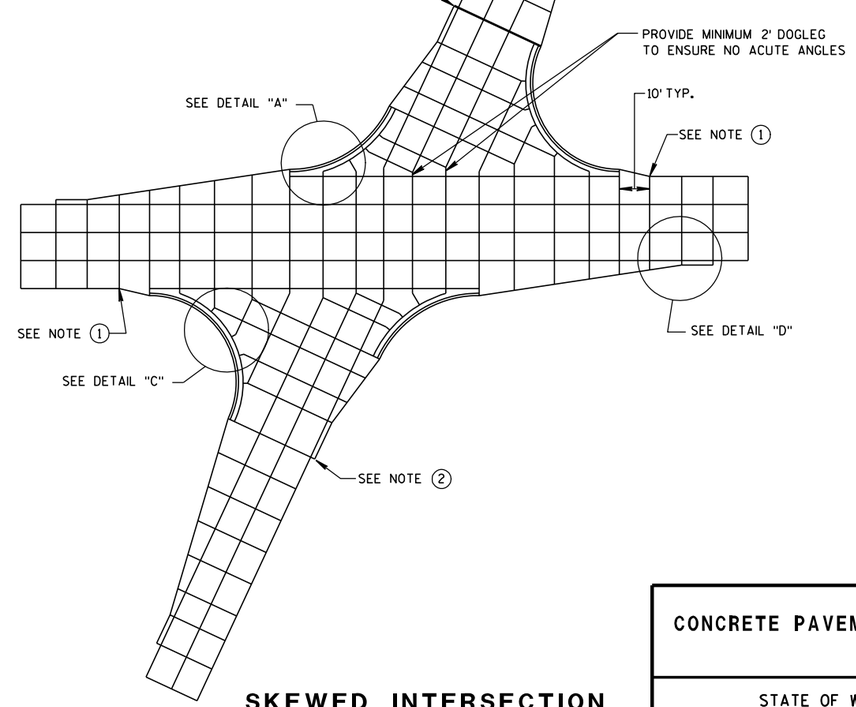
1. PROVIDE TRANSVERSE JOINTS AT ALL PAVEMENT WIDTH CHANGES.
2. CONSTRUCT DOWELED EXPANSION JOINT ON THE SIDE ROAD OF AN INTERSECTION IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH. ALIGN EXPANSION JOINT WITH EDGE OF RADIUS.
3. THE ENGINEER MAY APPROVE SLIGHT VARIATIONS FROM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



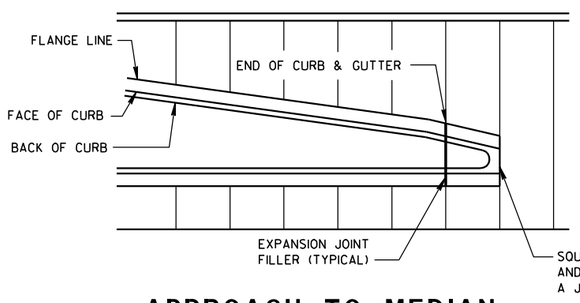
STANDARD INTERSECTION

PAVEMENT DEPTH AND JOINT SPACING TABLE

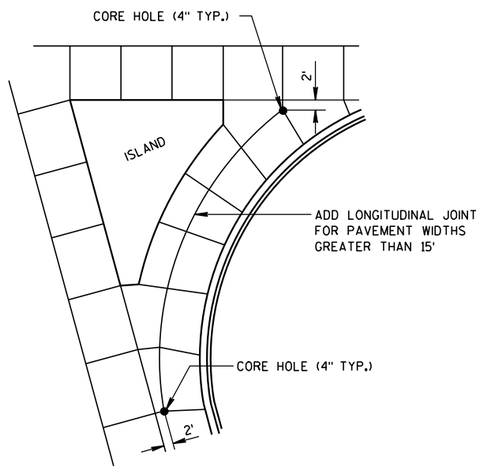
PAVEMENT DEPTH (D)	CONTRACTION JOINT SPACING
6", 6½"	12'
7", 7½"	14'
8" & ABOVE	15'



SKEWED INTERSECTION



APPROACH TO MEDIAN



LARGE RIGHT TURN

CONCRETE PAVEMENT JOINTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

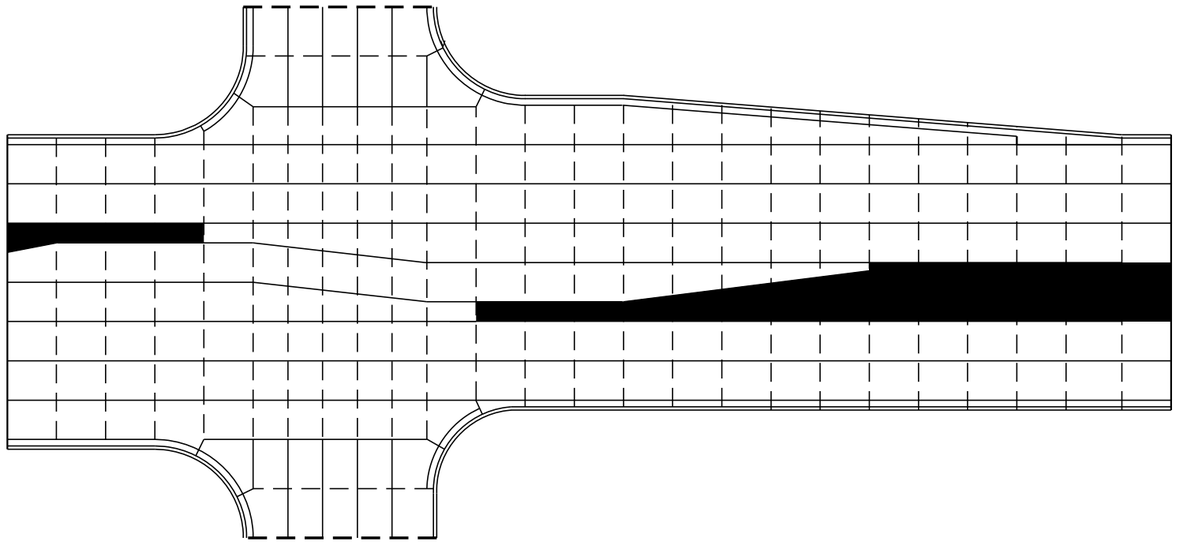
6
S.D.D. 13 C 18-1a

LEGEND

POTENTIAL DOWELED EXPANSION JOINT

DOWELED JOINT

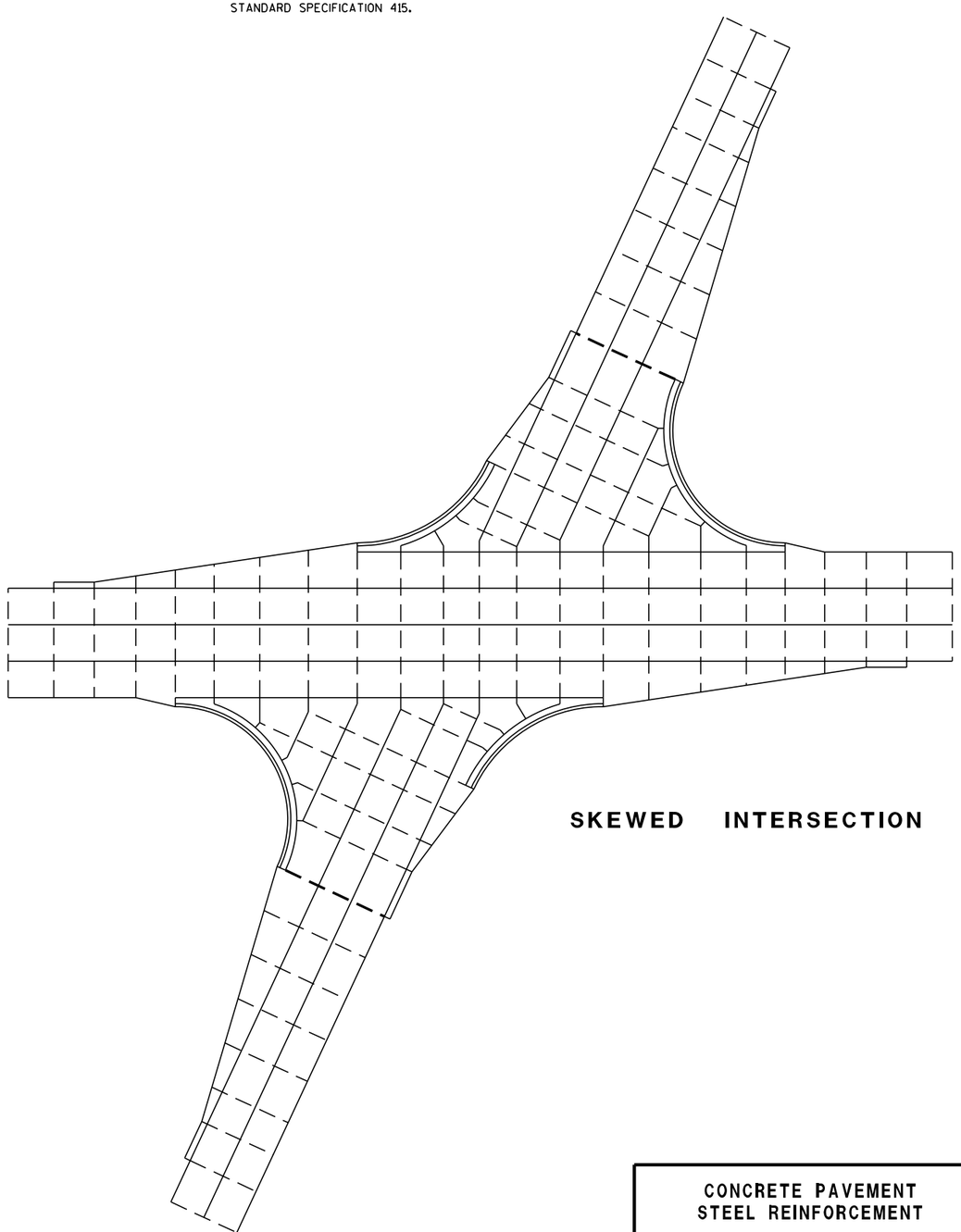
TIED JOINT



STANDARD INTERSECTION

GENERAL NOTES

USE AN EXPANSION JOINT FILLER MEETING THE REQUIREMENTS OF STANDARD SPECIFICATION 415.



SKEWED INTERSECTION

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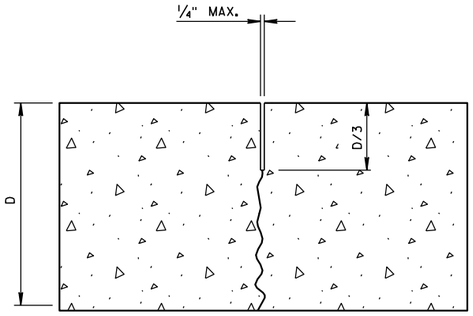
S.D.D. 13 C 18-1b

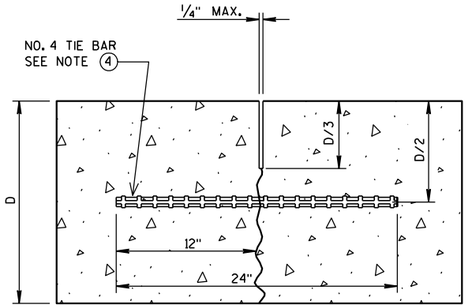
S.D.D. 13 C 18-1b

CONCRETE PAVEMENT
STEEL REINFORCEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



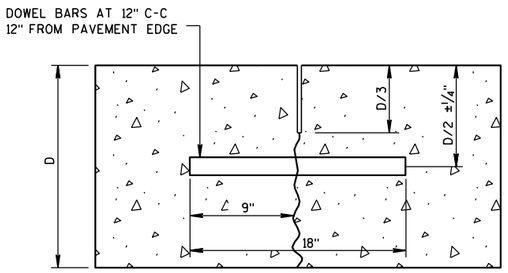
UNDOWELED-TRANSVERSE



TIED LONGITUDINAL

GENERAL NOTES

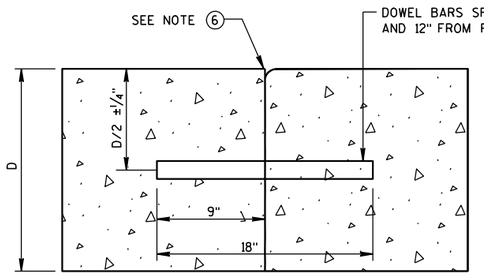
1. USE DOWELED EXPANSION JOINTS ON SIDE ROADS AT INTERSECTIONS (TO ISOLATE THE SIDE ROAD FROM THE THROUGH STREET) IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH.
2. SPACE CONTRACTION JOINTS IN ACCORDANCE WITH 13C4, 13C11 OR 13C13.
3. LOCATE CONSTRUCTION JOINTS A MINIMUM OF 4 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO THE 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.



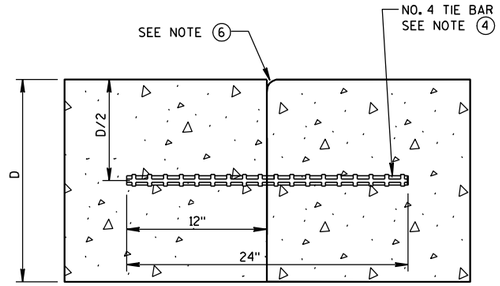
DOWELED-TRANSVERSE

CONTRACTION JOINTS

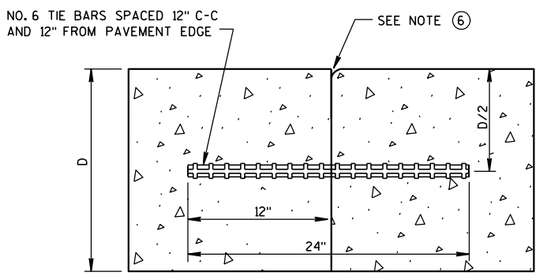
SEE NOTE (2)



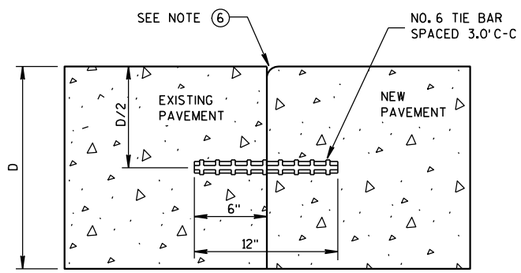
DOWELED TRANSVERSE



TIED LONGITUDINAL



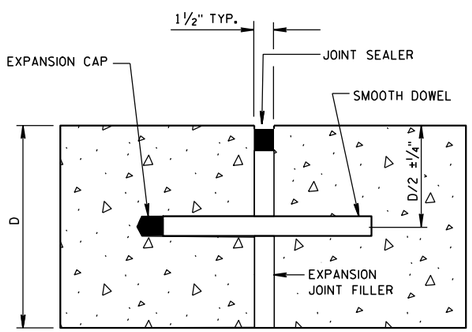
TIED TRANSVERSE
SEE NOTE (3)



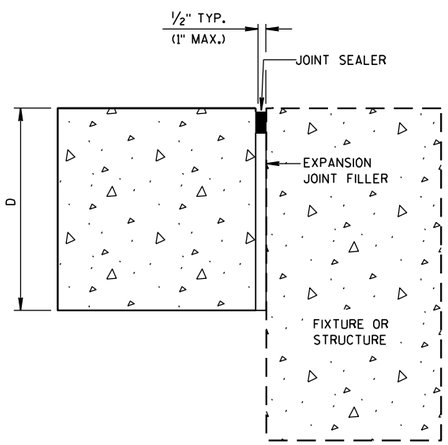
TIED LONGITUDINAL TO EXISTING

CONSTRUCTION JOINTS

SEE NOTE (5)



DOWELED-TRANSVERSE
SEE NOTE (1)



UNTIED-LONGITUDINAL

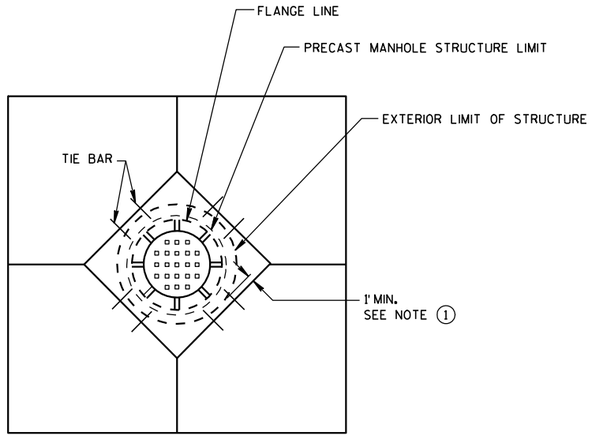
EXPANSION JOINTS

CONCRETE PAVEMENT
JOINT TYPES

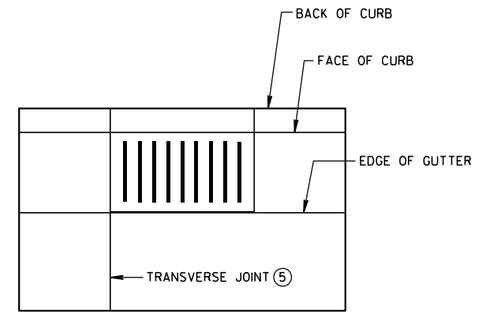
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

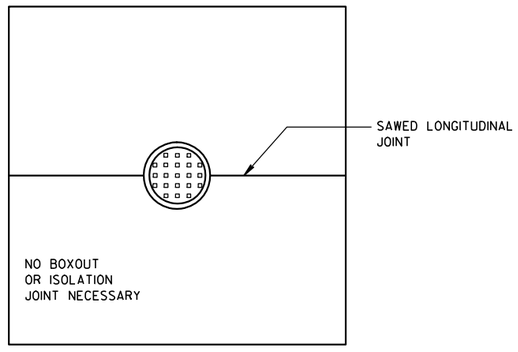
S.D.D. 13 C 18-1c



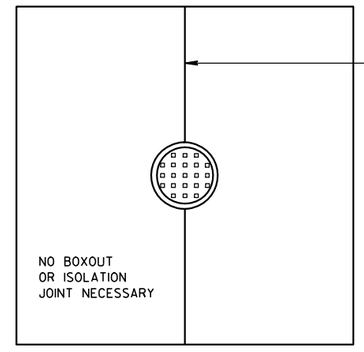
DIAGONAL MANHOLE BOXOUT FOR CONSTRUCTION JOINTS



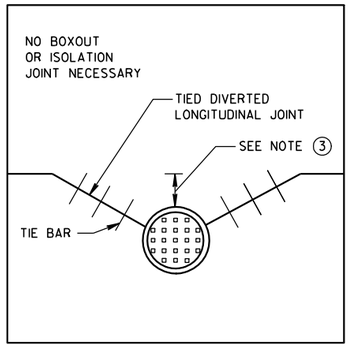
INLET WITH TRANSVERSE JOINT



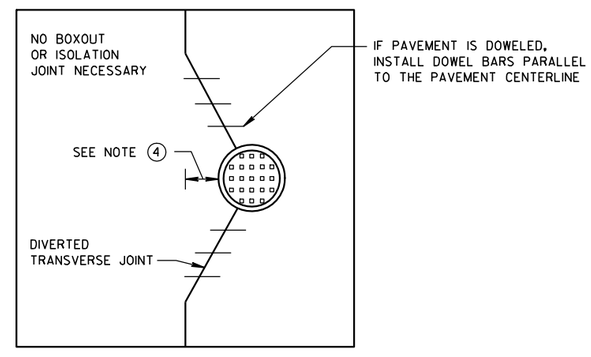
MANHOLE WITH LONGITUDINAL JOINT



MANHOLE WITH TRANSVERSE JOINT



MANHOLE WITH DIVERTED LONGITUDINAL CONTRACTION JOINT



MANHOLE WITH DIVERTED TRANSVERSE CONTRACTION JOINT

GENERAL NOTES

1. USE BOXOUTS WHEN UTILITY STRUCTURE IS IN THE PATH OF CONSTRUCTION JOINTS. PROVIDE A 1 FOOT MINIMUM CLEARANCE BETWEEN THE EXTERIOR LIMIT OF THE STRUCTURE TO THE DIAMOND BOXOUT.
2. ADJUST TRANSVERSE JOINT TO INTERSECT MANHOLE IF POSSIBLE.
3. IF DISTANCE BETWEEN THE LONGITUDINAL JOINT AND THE EDGE OF MANHOLE IS GREATER THAN 2 FEET, DO NOT DIVERT JOINT AND SAW LONGITUDINAL JOINT AS NORMAL. IF DISTANCE IS 2 FEET OR LESS, DIVERT LONGITUDINAL JOINT AT A 2:1 TAPER RATE TO THE CENTER OF THE MANHOLE.
4. IF DISTANCE FROM THE EDGE OF MANHOLE TO THE NEAREST TRANSVERSE JOINT IS GREATER THAN 4 FEET, REDIRECT JOINT TO INTERSECT MANHOLE. IF DISTANCE IS 4 FEET OR LESS, PLACE REBAR REINFORCEMENT AROUND MANHOLE.
5. ALIGN TRANSVERSE JOINT WITH ONE EDGE OF INLET WHEN PRACTICAL.

CONCRETE PAVEMENT JOINTING AT UTILITY FIXTURES

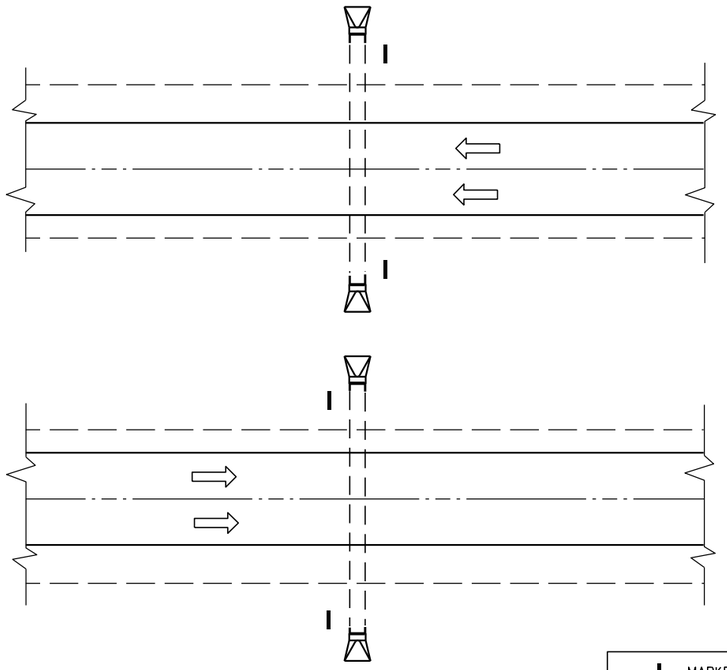
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10-5-2010
DATE
/S/ Deb Bischoff
PAVEMENT POLICY & D ENGINEER
FHWA

6
S.D.D. 13 C 18-1d

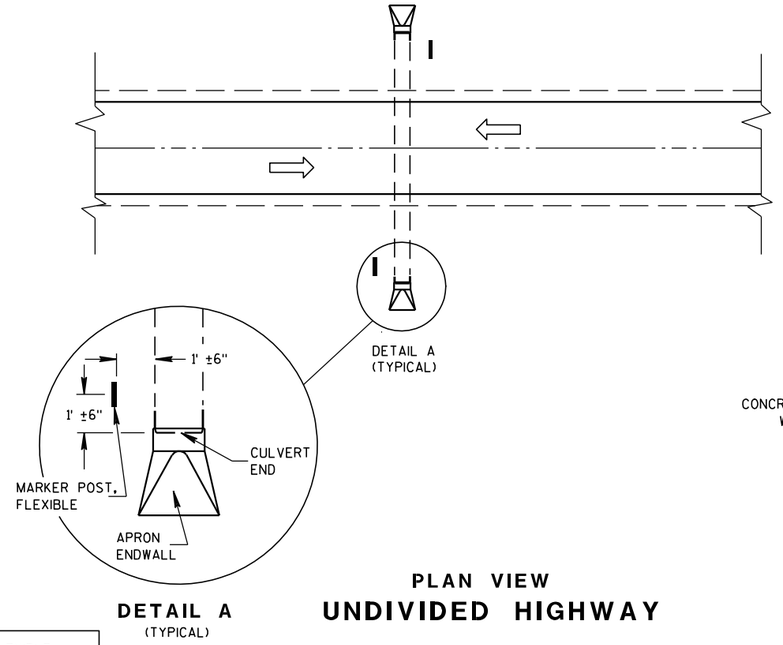
GENERAL NOTES

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

DIVIDED HIGHWAY

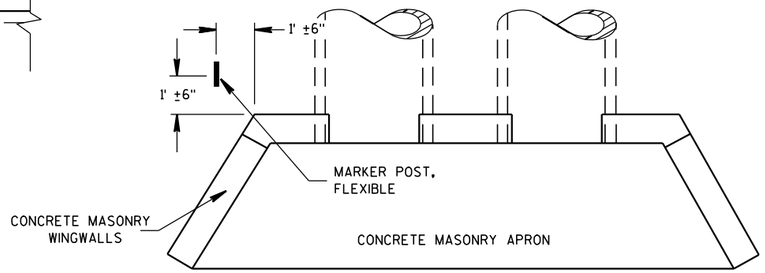


DETAIL A
(TYPICAL)

PLAN VIEW

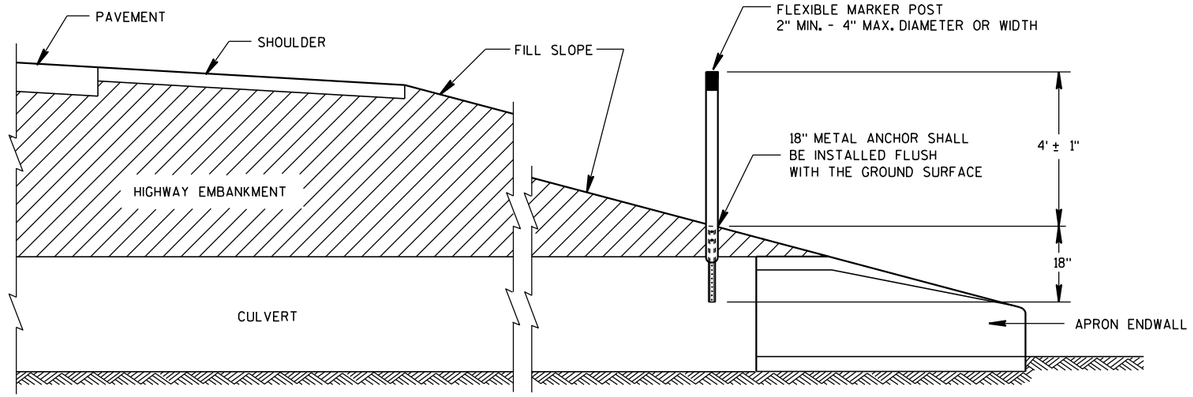
UNDIVIDED HIGHWAY

	MARKER POST, FLEXIBLE
	DIRECTION OF TRAFFIC FLOW



PLAN VIEW

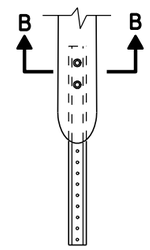
CONCRETE MASONRY ENDWALLS FOR CULVERT PIPE AND PIPE ARCH



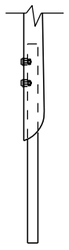
CROSS SECTION

FLEXIBLE MARKER POST

FLEXIBLE MARKER POST LOCATION

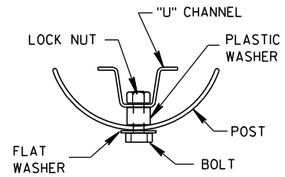


FRONT VIEW

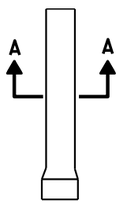


SIDE VIEW

CURVED MARKER



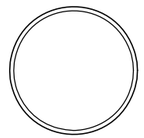
SECTION B-B



FRONT VIEW

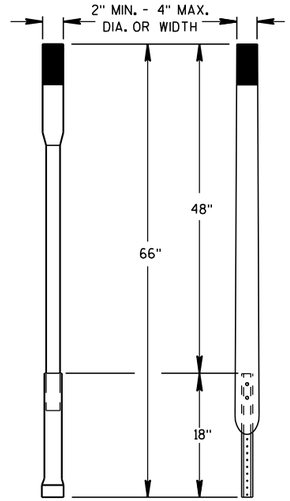
SIDE VIEW

ROUND MARKER



SECTION A-A

FLEXIBLE MARKER POST ANCHORS



ALTERNATE 1 ALTERNATE 2

FLEXIBLE MARKER POST

MARKER POST, FLEXIBLE, FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

10/1/98
DATE

/S/ Rory L. Rhinesmith
CHEIF ROADWAY DEVELOP ENGINEER

FHWA

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S.D.D. 15 A 3-1

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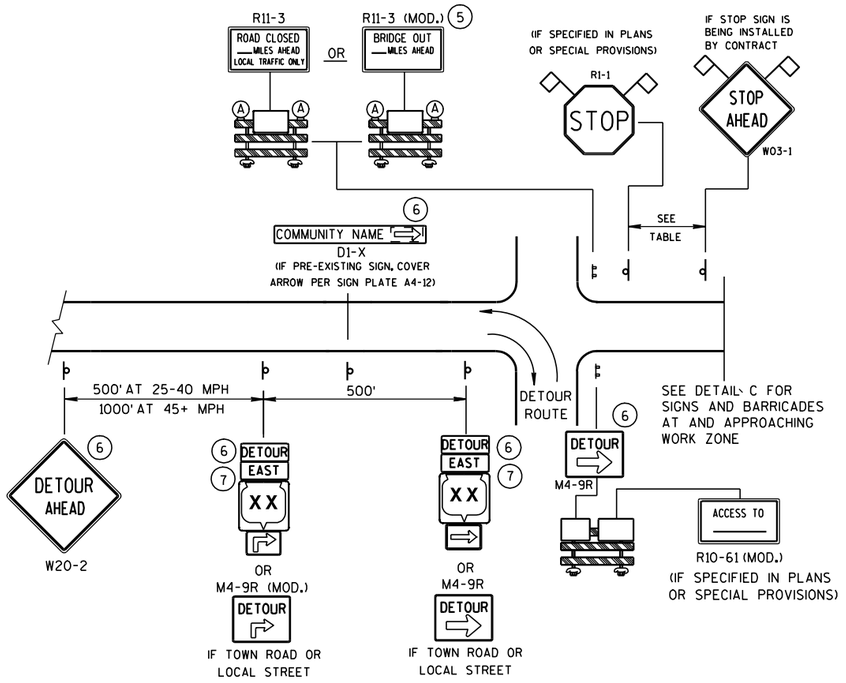
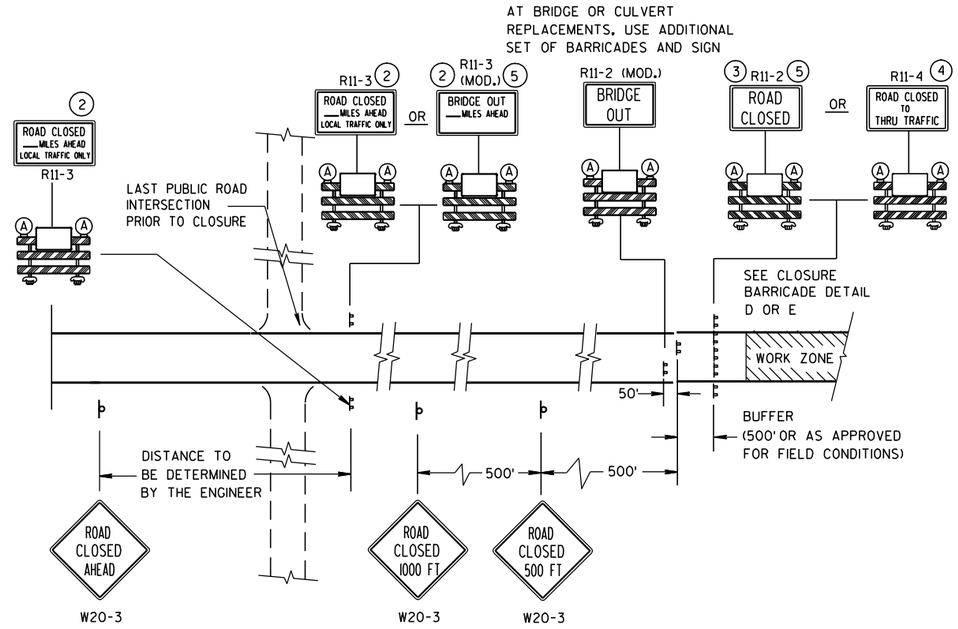
S.D.D. 15 A 3-1



DETAIL A

MAINLINE CLOSURE WITH POSTED DETOUR

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

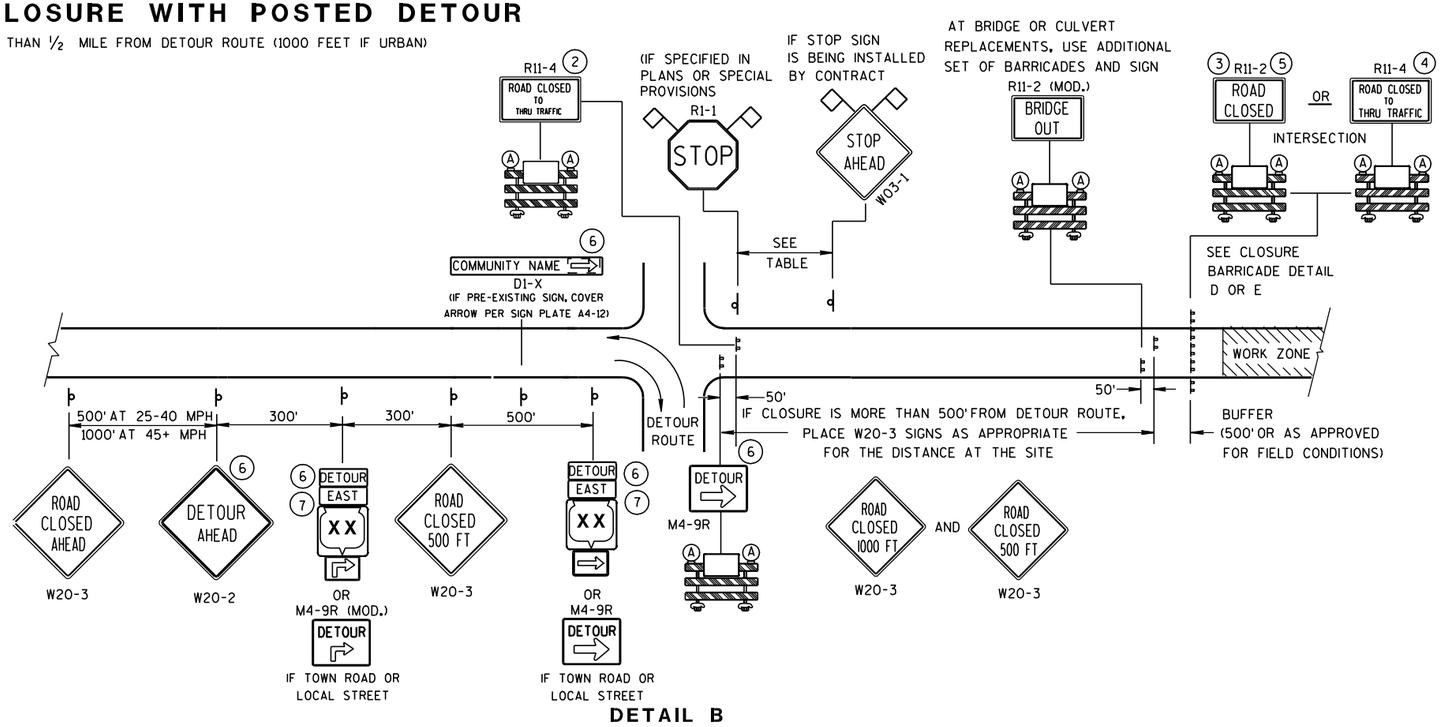


DETAIL C

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 15C2-4b
FOR GENERAL NOTES
AND FOOTNOTES ① THROUGH ⑦



DETAIL B

MAINLINE CLOSURE WITH POSTED DETOUR

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

LEGEND

- POST MOUNTED SIGN
- TYPE III BARRICADES
- (A) TYPE "A" LOW INTENSITY FLASHING WARNING LIGHT (FOR NIGHT USE)
- WORK ZONE
- DETOUR / EAST — M4-8 / M3-X
- XX — M1-4; COUNTY XX — M1-5A; XX — M1-6
- M05-1; M06-1
- FLAGS, 16" X 16" MIN., (ORANGE)

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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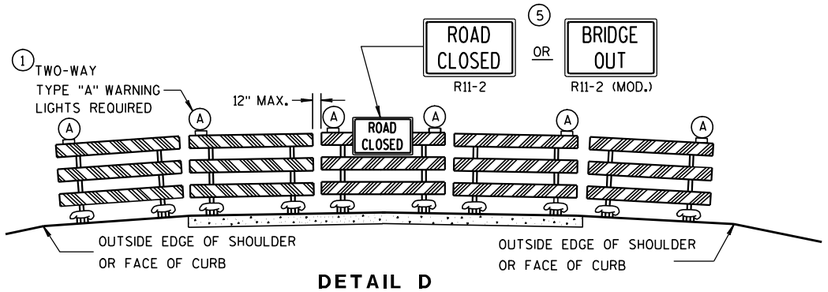
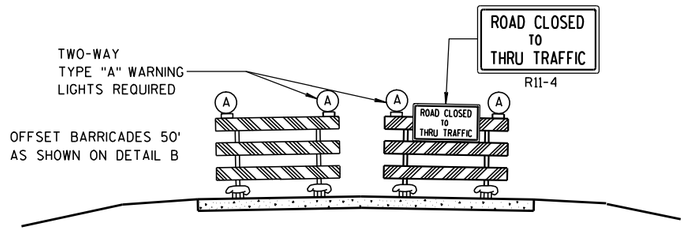
S.D.D. 15 C 2-4a



DETAIL D

ROAD CLOSURE BARRICADE DETAIL

APPROACH VIEW



DETAIL E

LANE CLOSURE BARRICADE DETAIL

APPROACH VIEW

SEE SDD 15C2-4a FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

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

THE REFLECTIVE SHEETING USED ON R11-2, R11-3, R11-4, R10-61 AND R1-1 SIGNS SHALL COMPLY WITH SUBSECTION 637.2.2.2 OF THE STANDARD SPECIFICATIONS.

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

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

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

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

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

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

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

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

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

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

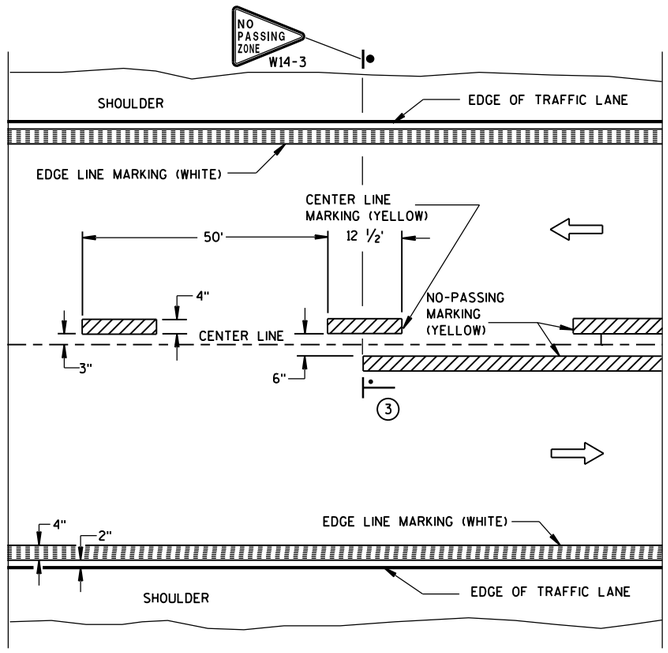
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

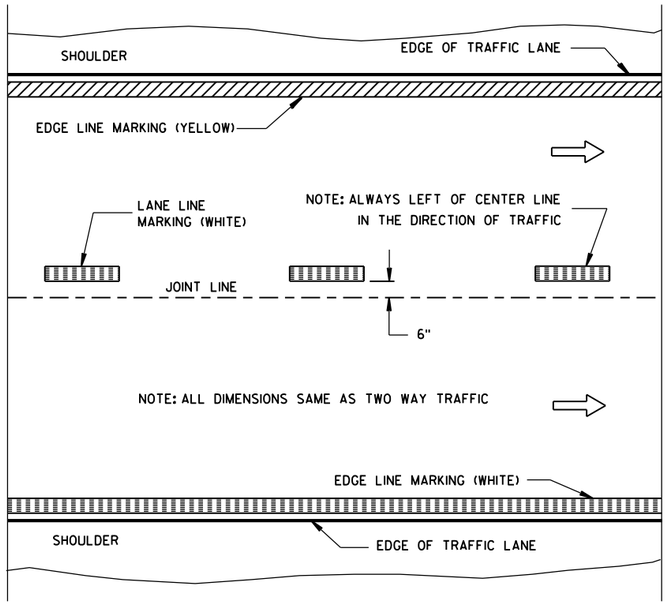
9/16/03 — DATE

/S/ Thomas N. [illegible] — CHIEF SIGNS AND MARKINGS ENGINEER

FHWA

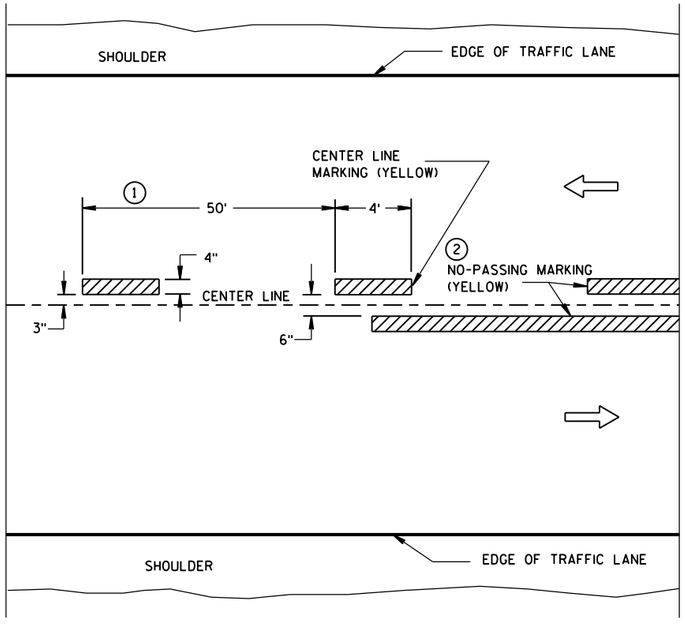


TWO WAY TRAFFIC

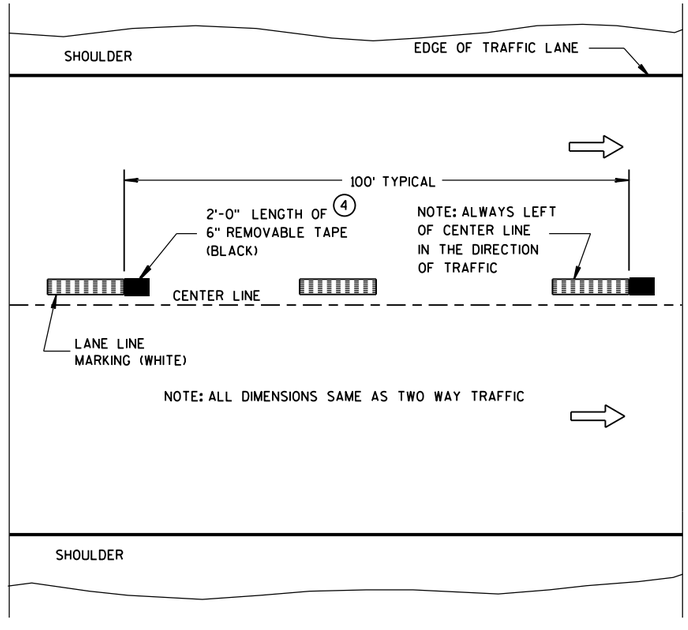


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY (INTERMEDIATE) PAVEMENT MARKING

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

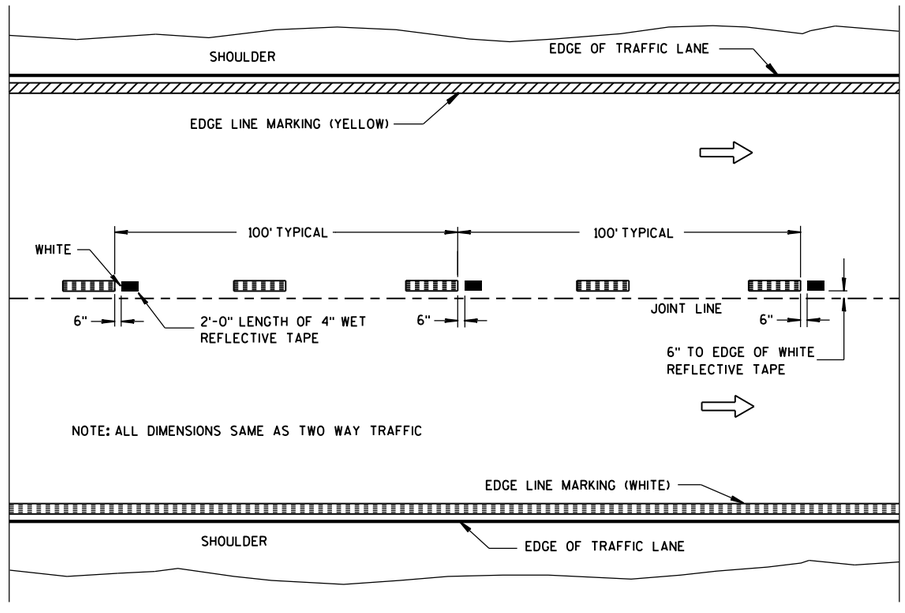
GENERAL NOTES

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
10-1-2012 — DATE
/S/ Travis Feltes — STATE TRAFFIC ENGINEER
FHWA

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

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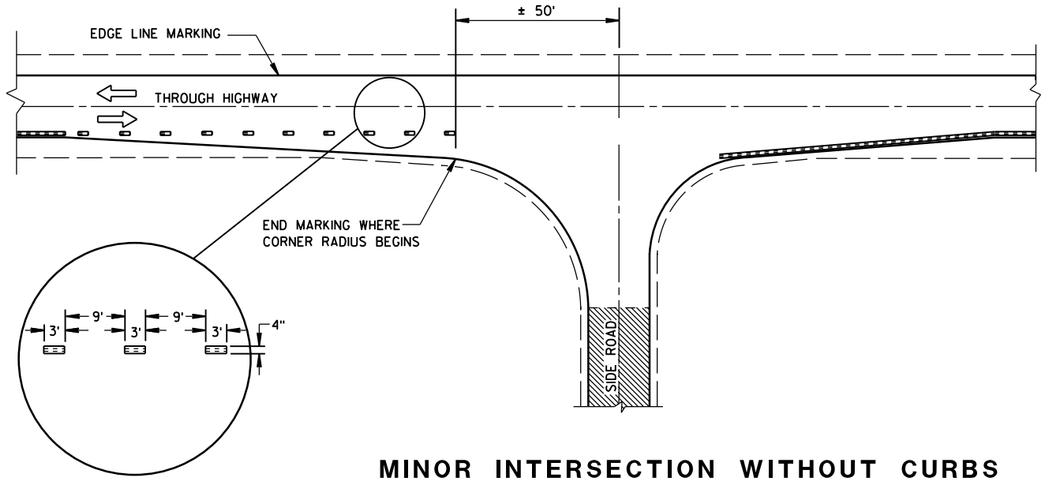
S.D.D. 15 C 8-15a



MINOR INTERSECTION WITHOUT CURBS

GENERAL NOTES

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

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

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

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

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

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

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

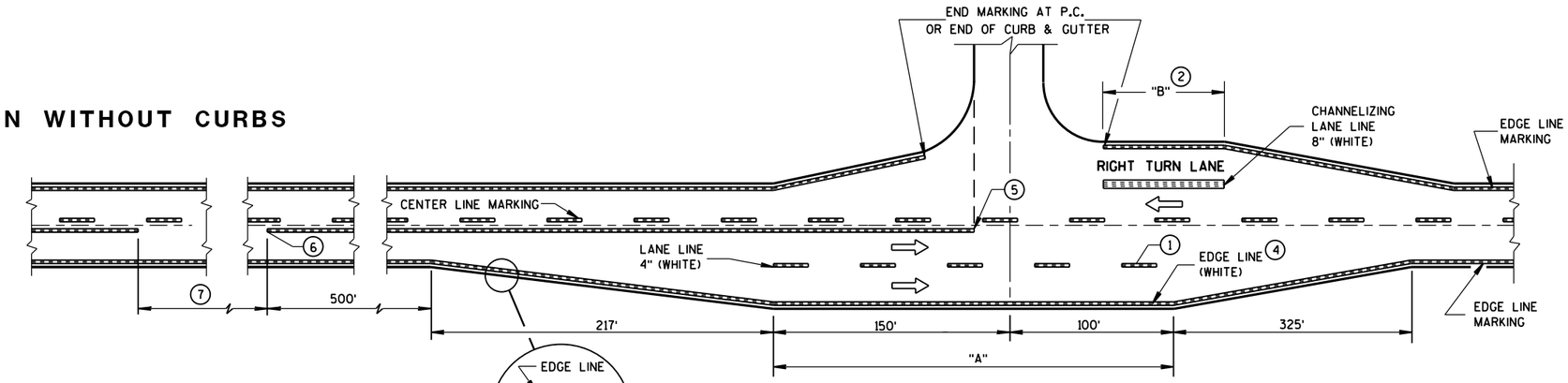
(7) IF THE DISTANCE BETWEEN 2 SUCCESSIVE NO-PASSING ZONES IS LESS THAN THE MINIMUM DISTANCE BETWEEN ZONES, CONNECT THE 2 ZONES.

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

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL

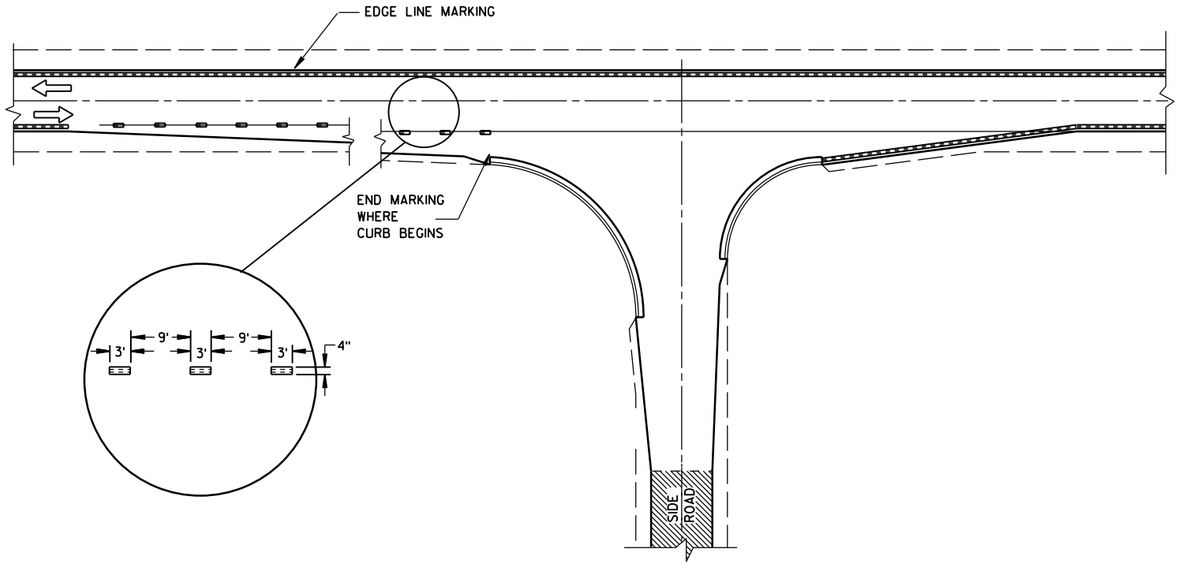
(7)

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



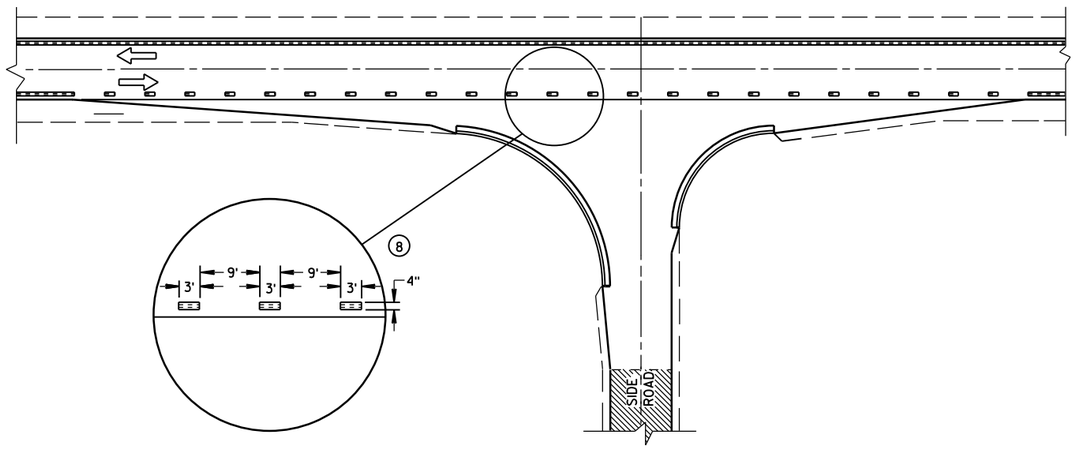
MAJOR INTERSECTIONS

(INTERSECTION WITH FULL RIGHT TURN LANE OR BYPASS LANES)



MINOR INTERSECTION WITH CURBS

(TYPICAL MARKING)



MINOR INTERSECTION WITH CURBS

(3) (FOR SPECIAL CONDITIONS AS SPECIFIED)

PAVEMENT MARKING
(INTERSECTIONS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

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

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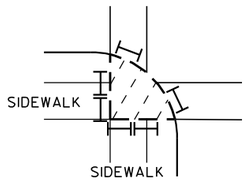
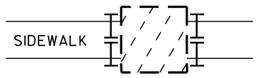
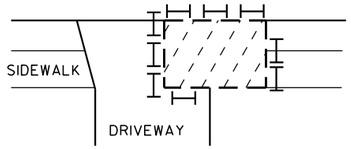
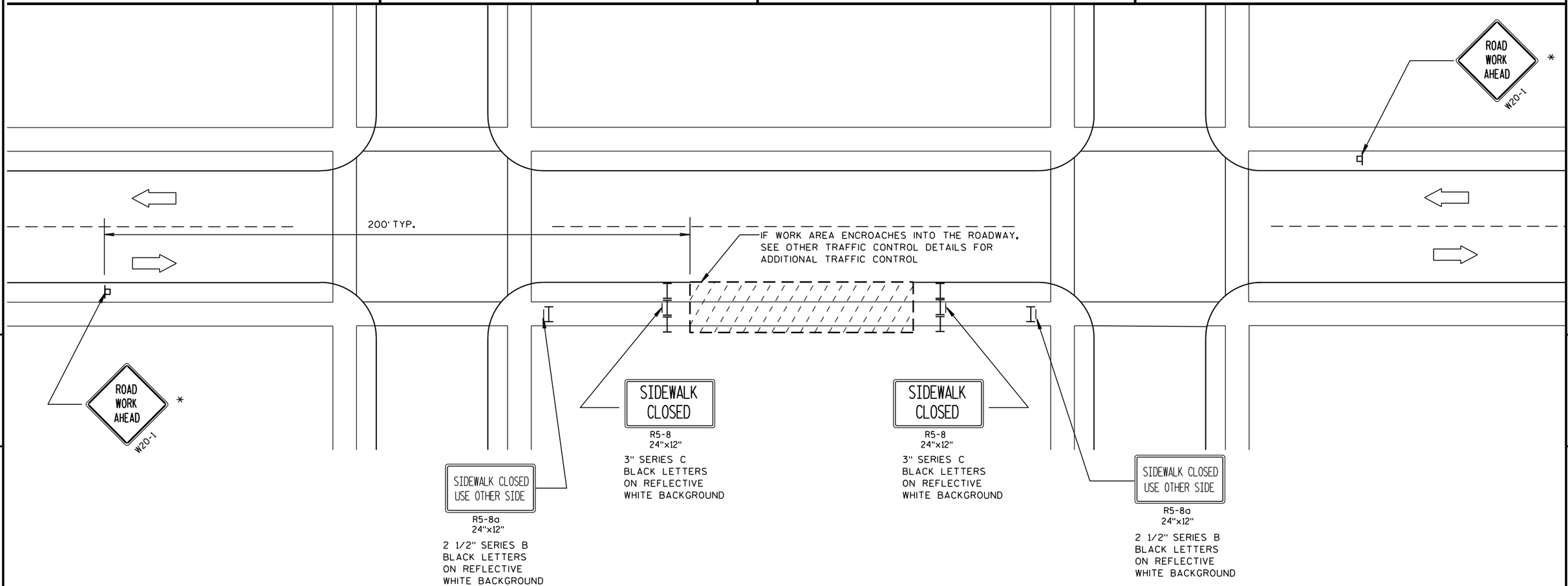
S.D.D. 15 C 8-15b

WARNING OF LOCALIZED SIDEWALK WORK AREAS









LEGEND

- POST MOUNTED SIGN
- TYPE II BARRICADE WITH/WITHOUT SIGN (ALL WITH ONE WARNING LIGHT, TYPE A, LOW-INTENSITY FLASHING)
- WORK AREA
- DIRECTION OF TRAFFIC FLOW

GENERAL NOTES :

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS, 36"x36" SIGNS MAY BE USED INSTEAD OF 48"x48" SIGNS, IF APPROVED BY DISTRICT TRAFFIC UNIT.

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

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

* "ROAD WORK AHEAD" SIGNS ARE NOT REQUIRED IF THE SIDEWALK CLOSURE OCCURS WITHIN A LARGER WORK ZONE WHERE ADVANCE WARNING SIGNS ARE ALREADY PRESENT, OR IF THE WORK AREA AND EQUIPMENT ARE MORE THAN 2 FEET BEHIND THE CURB.

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

TRAFFIC CONTROL, SIDEWALK CLOSURE

TRAFFIC CONTROL, SIDEWALK CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
5/23/2000 DATE
/S/ Chester J. [illegible]
CHIEF SIGNS AND MARK[illegible] ENGINEER
FHWA

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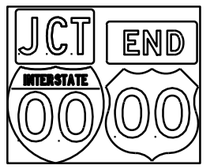
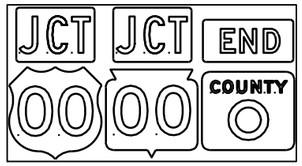
S.D.D. 15 D 30-1

TYPICAL ASSEMBLIES

J1-1

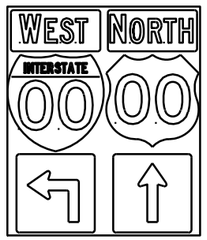


J1-2

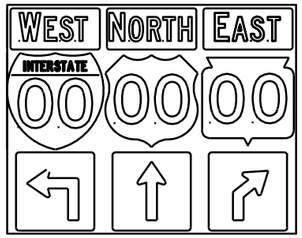


J1-3

J2-1

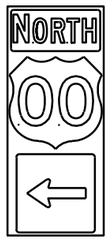


J2-2

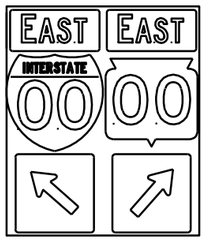


J2-3

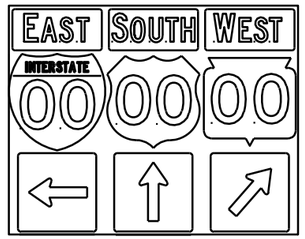
JV



J3-1

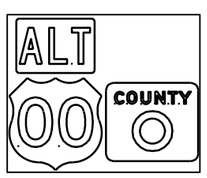


J3-2

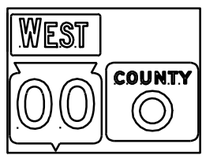


J3-3

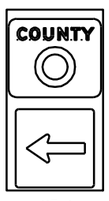
J4-1



J4-2



J4-2



J13-1

J12-1

J32-1

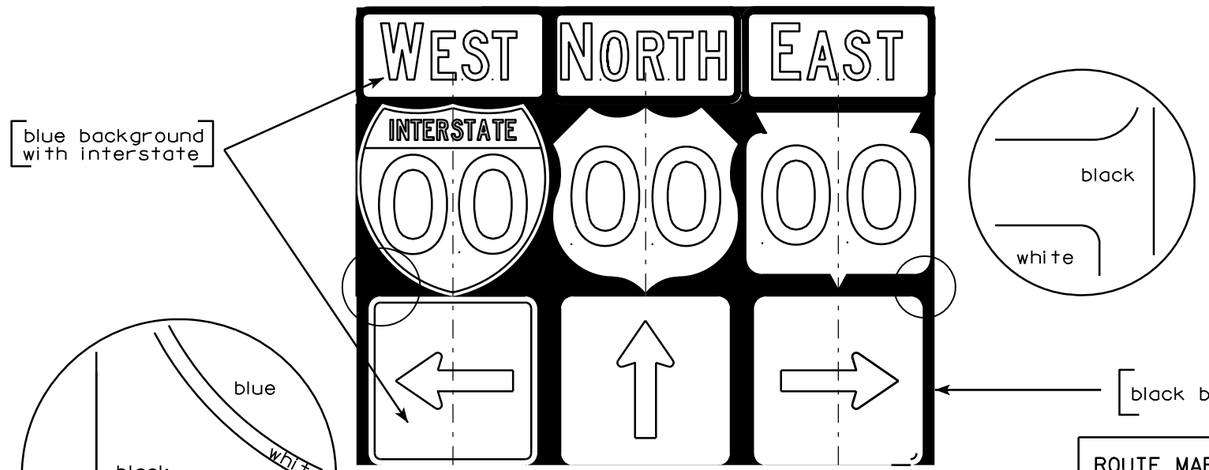
J33-1

J23-1

J22-1

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 since base material is plywood.
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.



ROUTE MARKERS & COMPONENTS IN TYPICAL ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

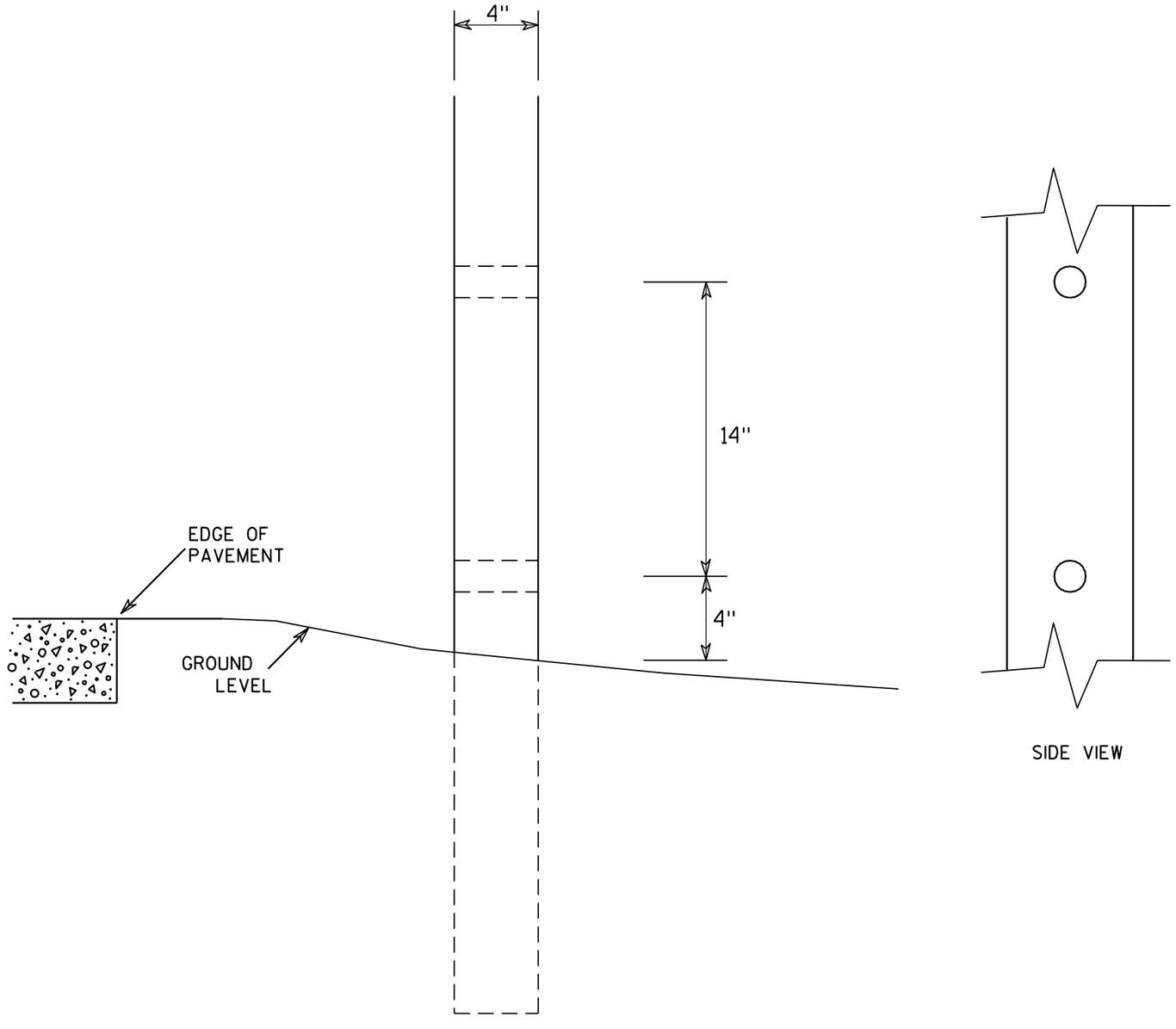
DATE 10/21/09 PLATE NO. A2-1S.6

7

7

PROJECT NO:

SHEET NO: 88 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

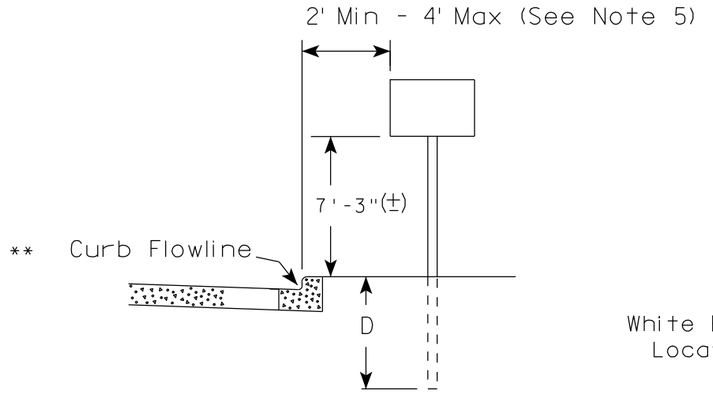
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Chester J Spang for State Traffic Engineer

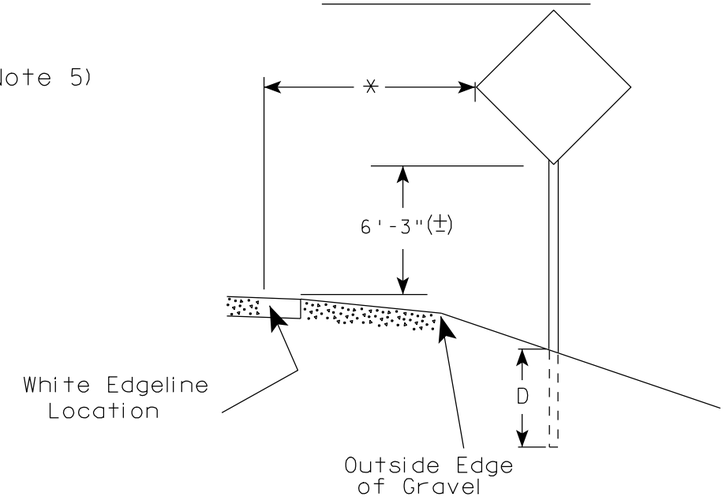
DATE 3/27/97 PLATE NO. A4-11.2

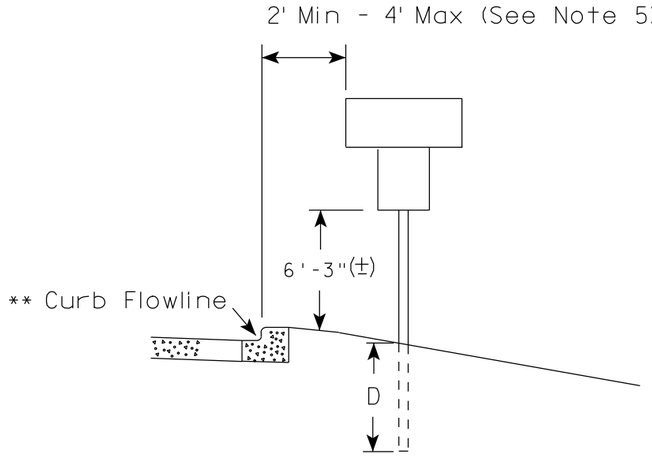
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 89	E

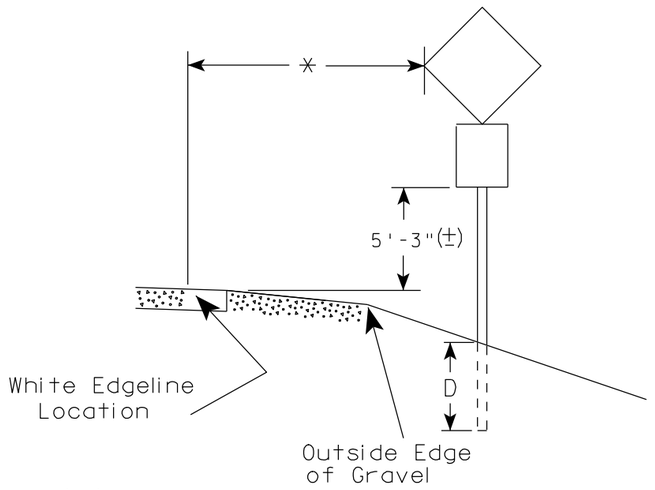
URBAN AREA



RURAL AREA (See Note 2)







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

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

GENERAL NOTES

1. Signs wider than 4 feet or larger than 20 sq. ft. shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on barrier wall, see A4-10 sign plate.
3. For expressways and freeways, mounting height is 7'- 3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. Minimum mounting height for J assemblies (A4-5) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
5. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±).
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. The (±) tolerance for mounting height is 3 inches.
8. Folding stop signs (R1-1F) shall be mounted at a height of 5'-3" (±) or as directed by the Engineer.
9. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Clearance Markers (W5-52), Mile Markers (D10 series) & End of Road Markers (W5-56 & W5-56A) shall be mounted at a height of 4'-3" (±).

POST EMBEDMENT DEPTH

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

TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch for State Traffic Engineer

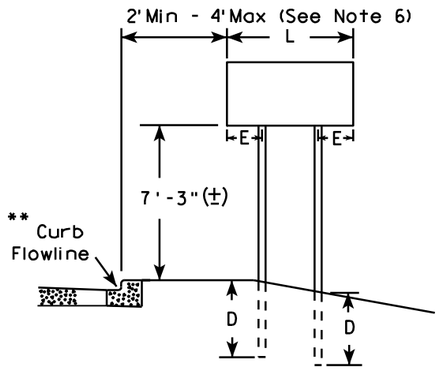
DATE 9/21/2011 PLATE NO. A4-3.16

7

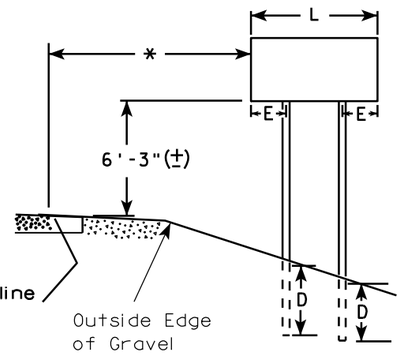
7

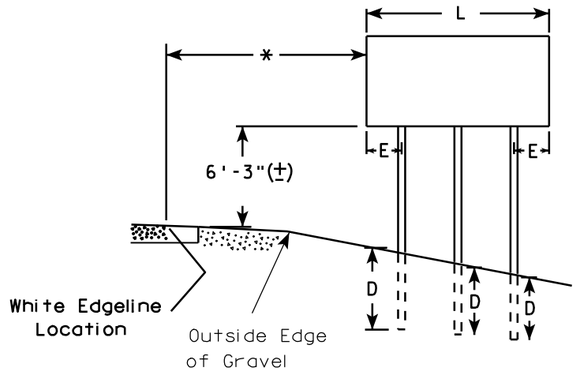
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 90	E

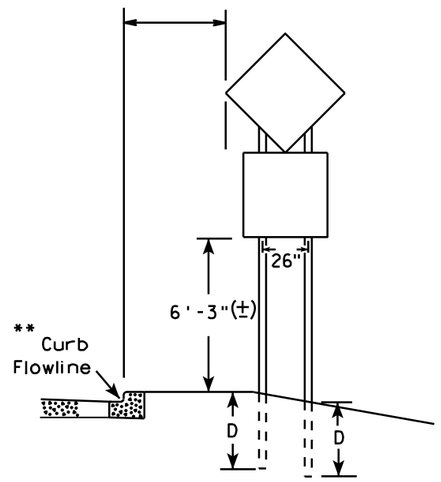
URBAN AREA



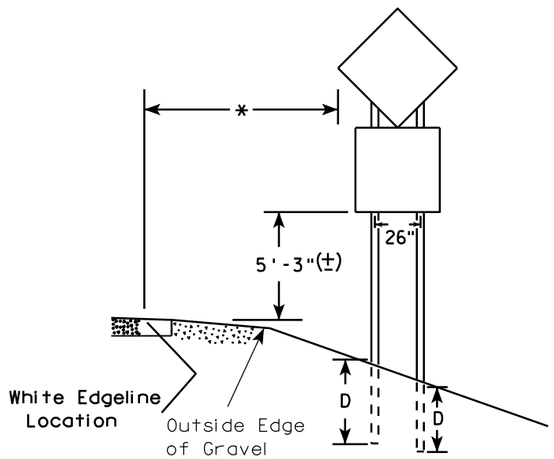
RURAL AREA (See Note 3)







48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

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'

GENERAL NOTES

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

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

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

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

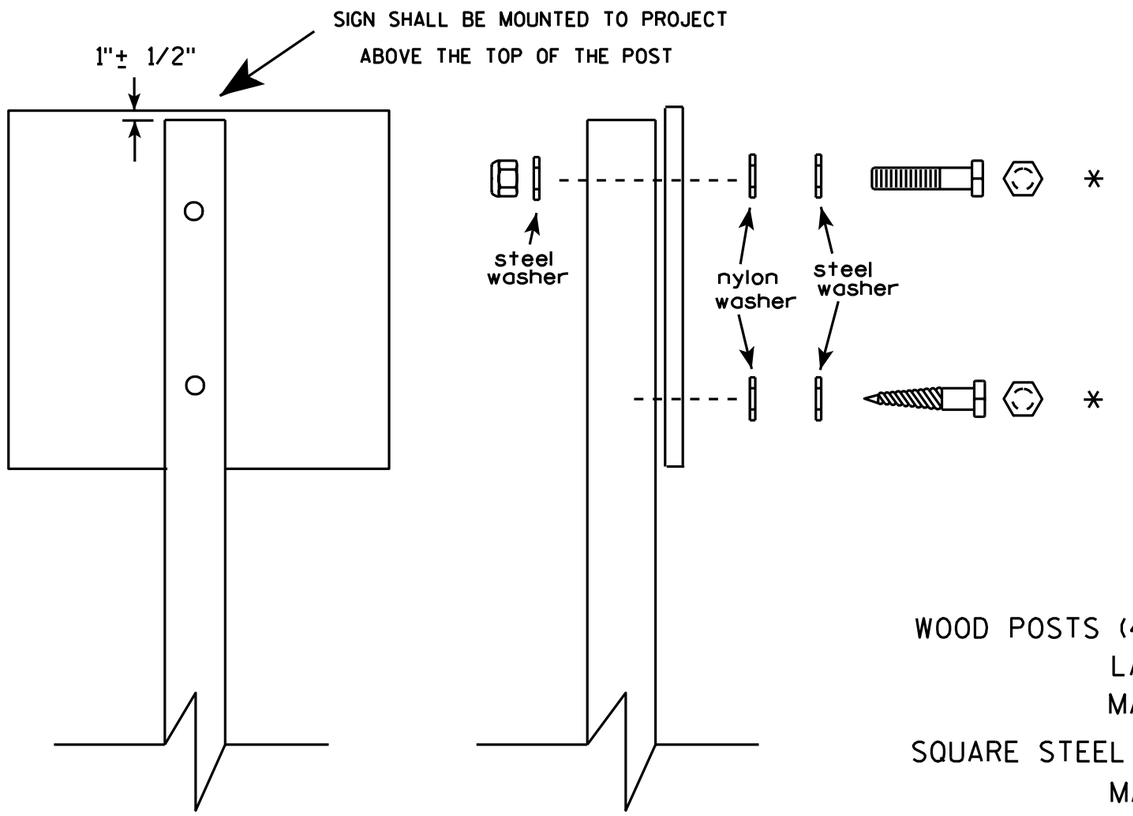
TYPICAL INSTALLATION OF TYPE II SIGNS ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 9/21/2011 PLATE NO. A4-4.11

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 91	E



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

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

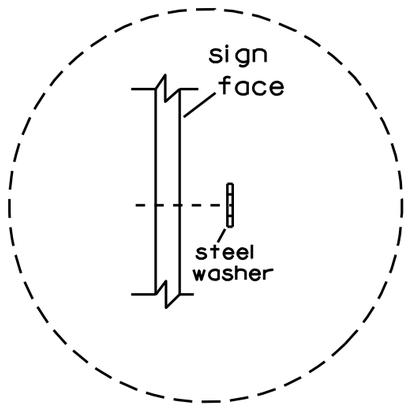
b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

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

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

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

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



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

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

ATTACHMENT OF SIGNS TO POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

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

7

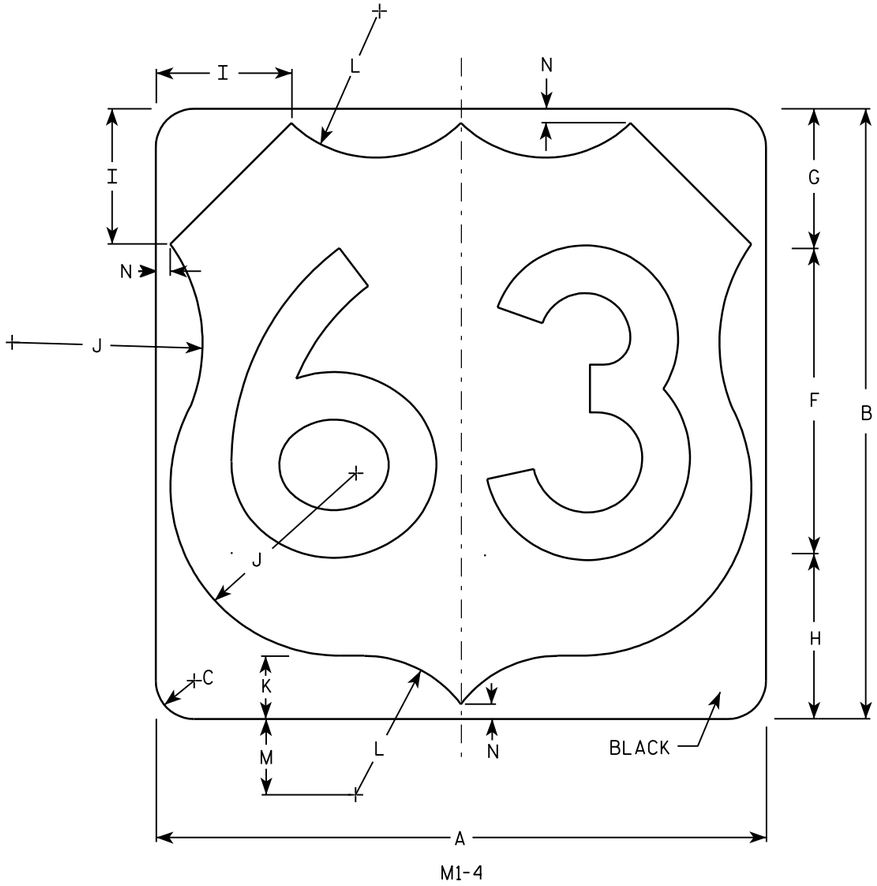
7

PROJECT NO:

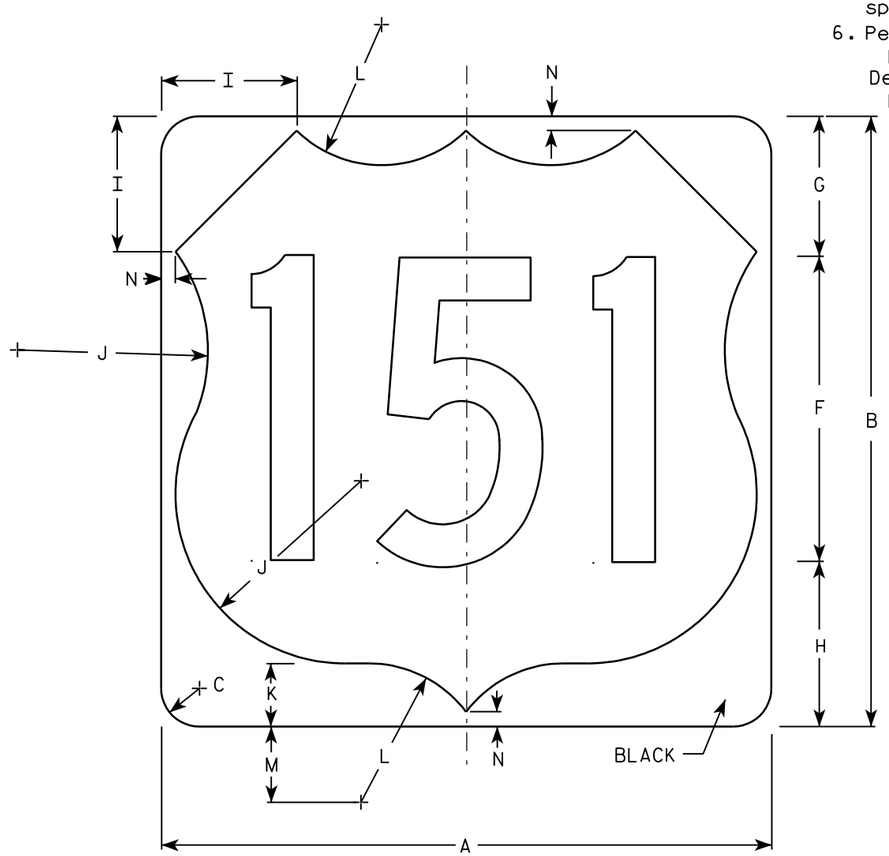
SHEET NO: 92 E

NOTES

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



M1-4



M1-4

Metric equivalent for this sign is:

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

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

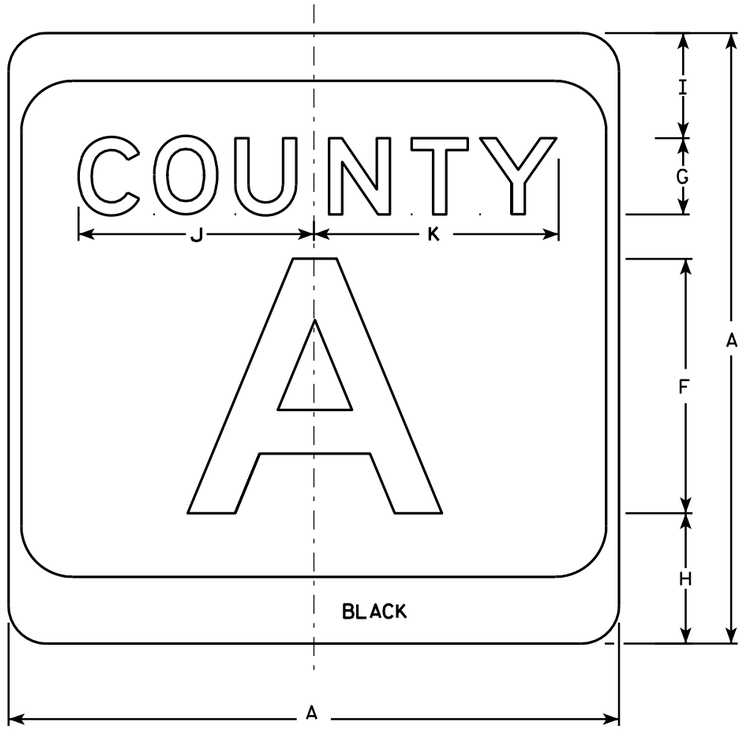
USH MARKER
M1-4 FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

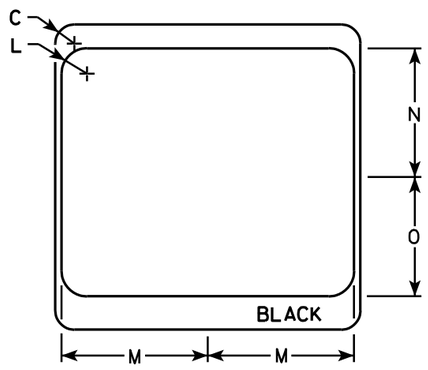
APPROVED Matthew R Rauch
for State Traffic Engineer

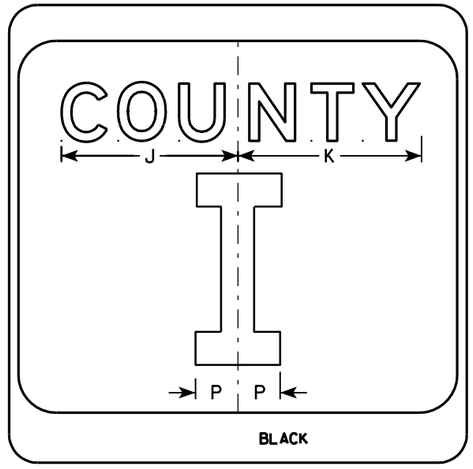
DATE 08/25/05 PLATE NO. M1-4.9

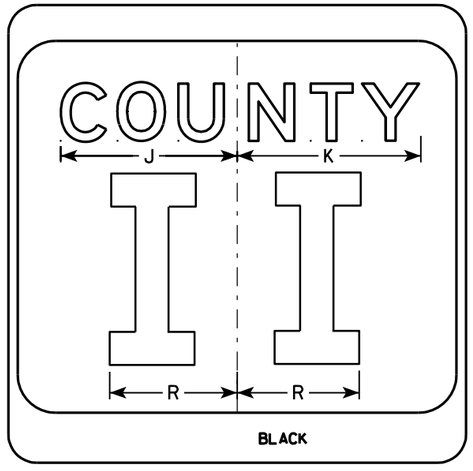
PROJECT NO: | HWY: | COUNTY: | SHEET NO: 93 | E



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

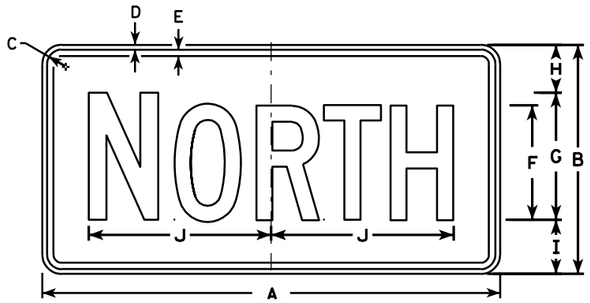
CTH MARKER
M1-5A FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

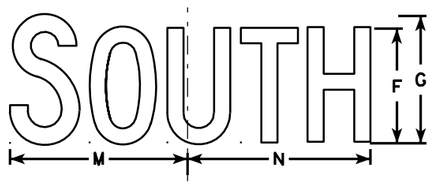
DATE 9/27/11 PLATE NO. M1-5A.8

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

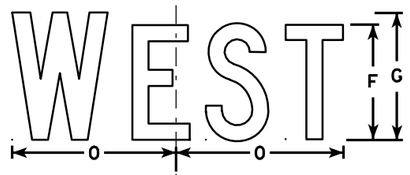


M3-1
MK3-1
MO3-1

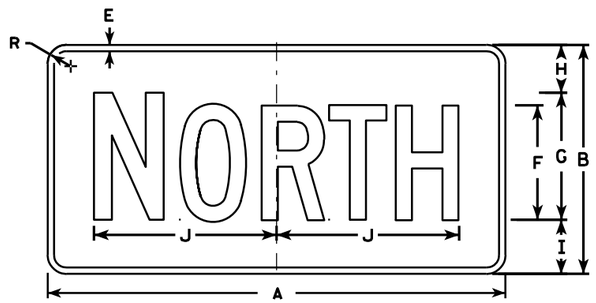
M3-2
MK3-2
MO3-2



M3-3
MK3-3
MO3-3

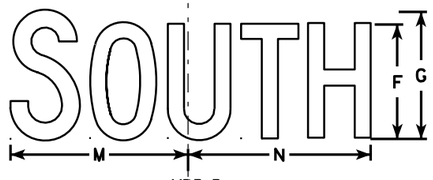


M3-4
MK3-4
MO3-4

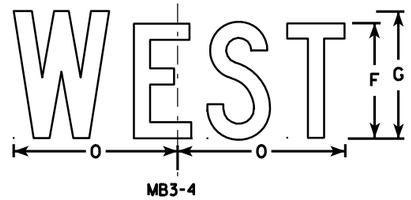


MB3-1
MG3-1
MM3-1
MN3-1

MB3-2
MG3-2
MM3-2
MN3-2



MB3-3
MG3-3
MM3-3
MN3-3



MB3-4
MG3-4
MM3-4
MN3-4

NOTES

1. All Signs Type II - See Note 5 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
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 - Type H Reflective
   (Detour or temporary signs - Reflective)
   Message - Black
   MB3-1 thru MB3-4 Background - Blue
   Message - White - Type H Reflective
   (Detour or temporary signs - Reflective)
   MG3-1 thru MG3-4 Background - Green
   Message - White - Type H Reflective
   MK3-1 thru MK3-4 Background - Green
   Message - White - Type H Reflective
   MM3-1 thru MM3-4 Background - White - Type H Reflective
   Message - Green
   MN3-1 thru MN3-4 Background - Brown
   Message - White - Type H Reflective
   M03-1 thru M03-4 Background - Orange - Reflective
   Message - Black
6. Note the first letter of each direction is larger than the remainder of the message.

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

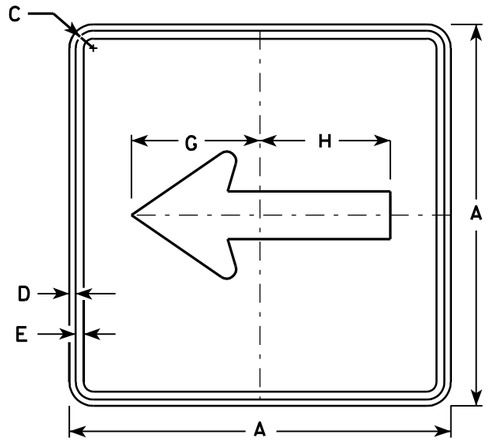
STANDARD SIGNS
M3-1 thur M3-4
SERIES

WISCONSIN DEPT OF TRANSPORTATION

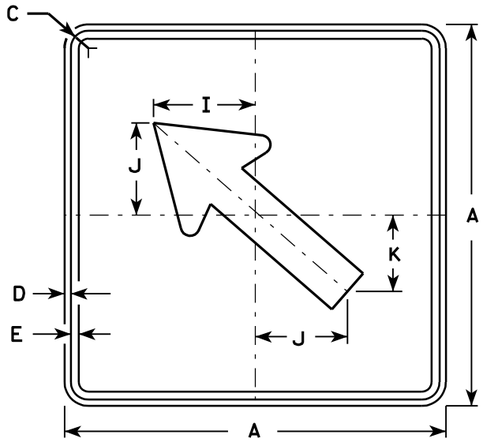
APPROVED Matthew R Rauch for State Traffic Engineer

DATE 11/10/10 PLATE NO. M3-1.12

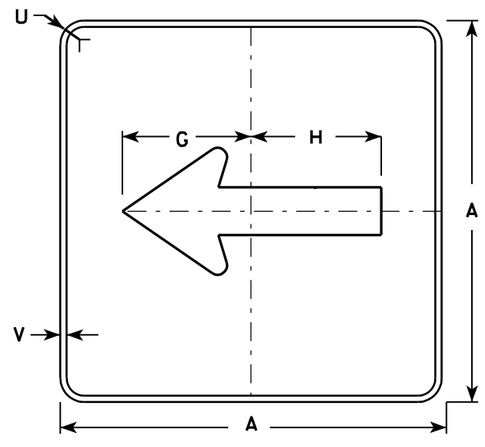
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 95	E



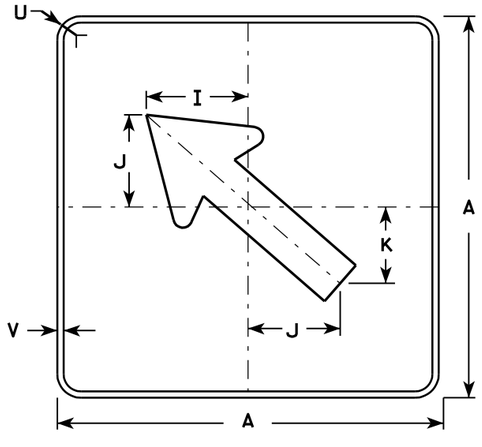
M6-1
MK6-1
MM6-1
MO6-1
MR6-1



M6-2
MK6-2
MM6-2
MO6-2
MR6-2



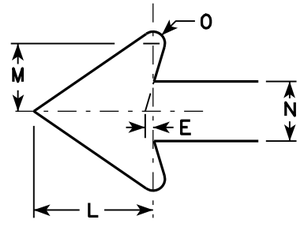
MB6-1
MG6-1
MN6-1



MB6-2
MG6-2
MN6-2

NOTES

1. Signs are Type II - See Note 4 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - See note 4
   Message - See note 4
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. M6-1 and M6-2 Background - White - Type H Reflective
   (Detour or temporary Signs - Reflective)
   Message - Black
   MB6-1 and MB6-2 Background - Blue
   Message - White - Type H Reflective
   (Detour or temporary Signs - Reflective)
   MG6-1 and MG6-2 Background - Green
   Message - White - Type H Reflective
   MK6-1 and MK6-2 Background - Green
   Message - White - Type H Reflective
   MM6-1 and MM6-2 Background - White - Type H Reflective
   Message - Green
   MN6-1 and MN6-2 Background - Brown
   Message - White - Type H Reflective
   MO6-1 and MO6-2 Background - Orange - Reflective
   Message - Black
   MR6-1 and MR6-2 Background - Brown
   Message - Yellow - Type H Reflective



Metric equivalent for this sign is:

SIZE	
1	
2	525 mm X 525 mm
3	750 mm X 750 mm
4	750 mm X 750 mm
5	750 mm X 750 mm

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.	Area m2
1																												
2	21		1 1/8	3/8	3/8		7 1/2	7 1/8	5 5/8	5	4 1/4	5 1/4	3	2 5/8	1/2						1 1/2	1/2					3.06	0.28
3	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25	0.56
4	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25	0.56
5	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25	0.56

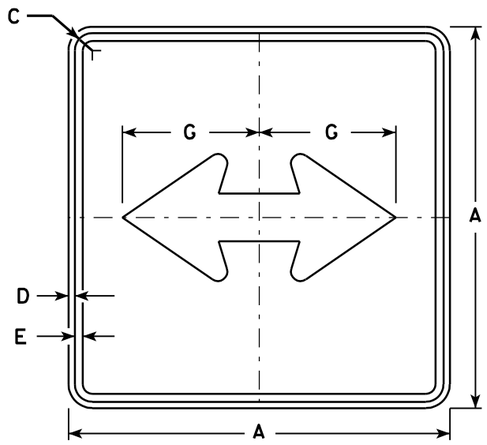
STANDARD SIGN M6-1 & M6-2 SERIES

WISCONSIN DEPT OF TRANSPORTATION

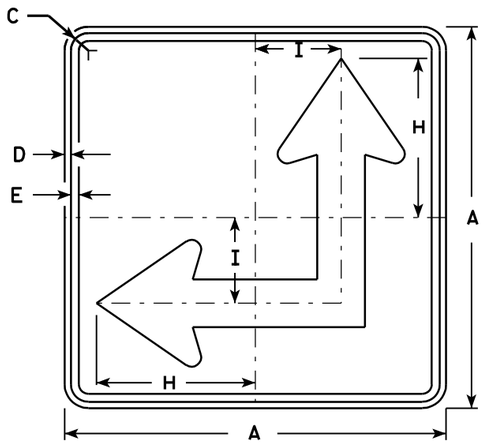
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/16/10 PLATE NO. M6-1.12

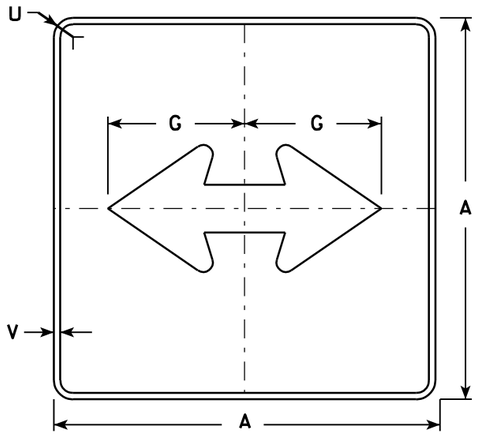
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 96	E



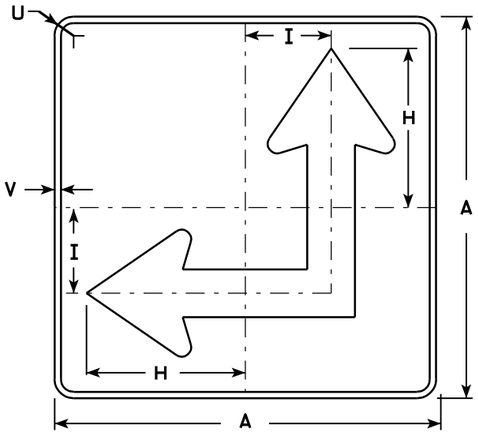
M6-4
MK6-4
MM6-4
MO6-4
MR6-4



M6-6
MK6-6
MM6-6
MO6-6
MR6-6



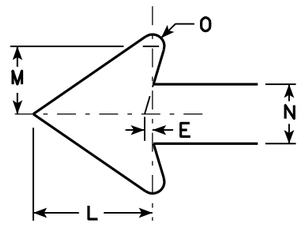
MB6-4
MG6-4
MN6-4



MB6-6
MG6-6
MN6-6

NOTES

1. Signs are Type II - See Note 4 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
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 - Type H Reflective
   (Detour or temporary Signs - Reflective)
   Message - Black
   MB6-4 and MB6-6 Background - Blue
   Message - White - Type H Reflective
   (Detour or temporary Signs - Reflective)
   MG6-4 and MG6-6 Background - Green
   Message - White - Type H Reflective
   MK6-4 and MK6-6 Background - Green
   Message - White - Type H Reflective
   MM6-4 and MM6-6 Background - White - Type H Reflective
   Message - Green
   MN6-4 and MN6-6 Background - Brown
   Message - White - Type H Reflective
   MO6-4 and MO6-6 Background - Orange - Reflective
   Message - Black
   MR6-4 and MR6-6 Background - Brown
   Message - Yellow - Type H Reflective
5. M6-6R same as M6-6L except arrow points ahead and right.



Metric equivalent for this sign is:

SIZE	
1	
2	525 mm X 525 mm
3	750 mm X 750 mm
4	750 mm X 750 mm
5	750 mm X 750 mm

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.	Area m2
1																												
2	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	0.28
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	0.56
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	0.56
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	0.56

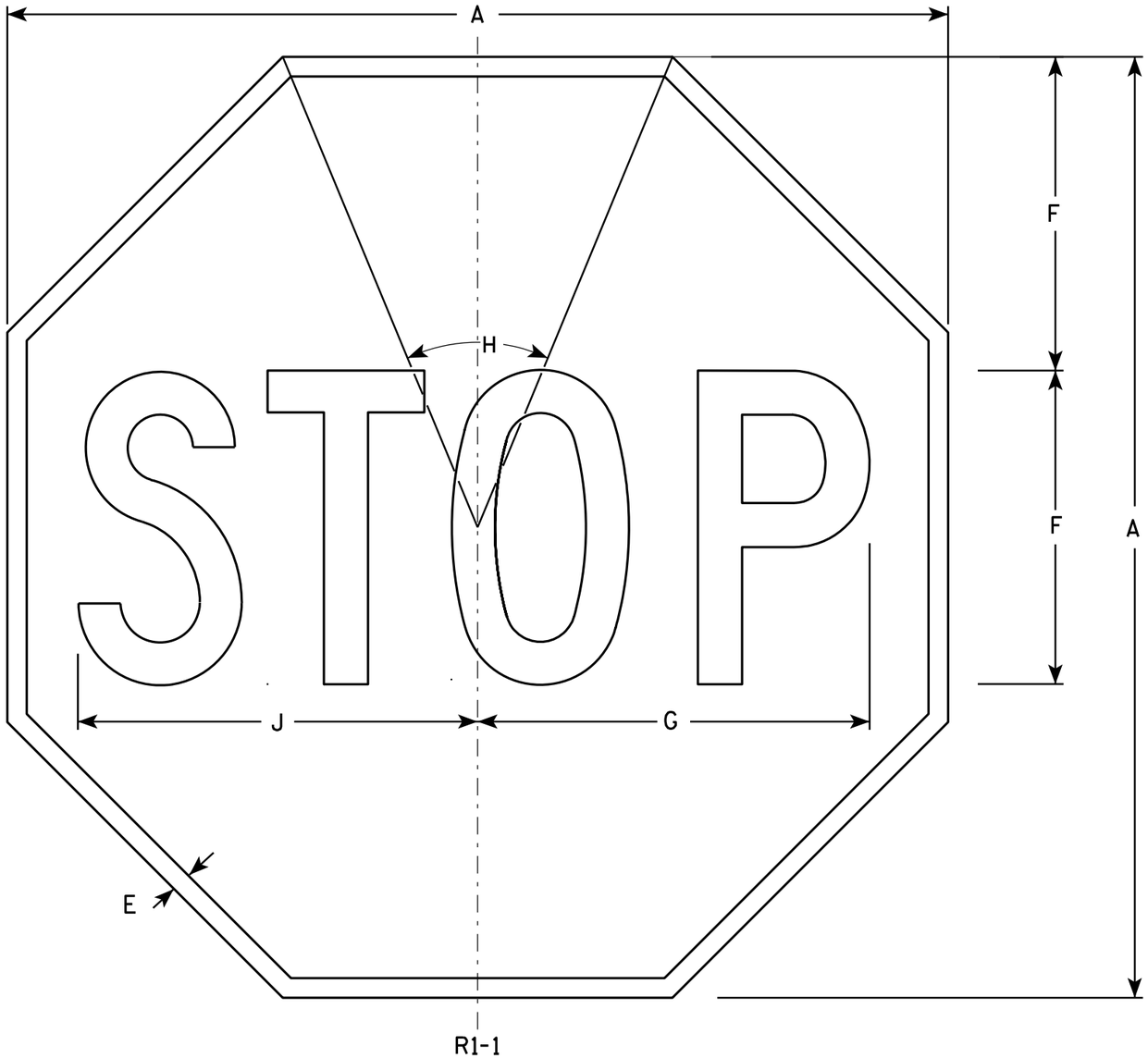
STANDARD SIGN M6-4 & M6-6 SERIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch for State Traffic Engineer

DATE 3/16/10 PLATE NO. M6-4.7

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 97	E



NOTES

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

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24				3/8	8	10	45°		10 1/4																	3.31
2S	30				5/8	10	12 1/2	45°		12 3/4																	5.18
2M	36				3/4	12	15	45°		15 3/8																	7.46
3	36				3/4	12	15	45°		15 3/8																	7.46
4	48				1	16	20	45°		20 1/2																	13.25
5	48				1	16	20	45°		20 1/2																	13.25
6	18				3/8	6	7 3/4	45°		7 3/4																	1.86
7	12				1/4	4	5	45°		5 1/8																	0.78

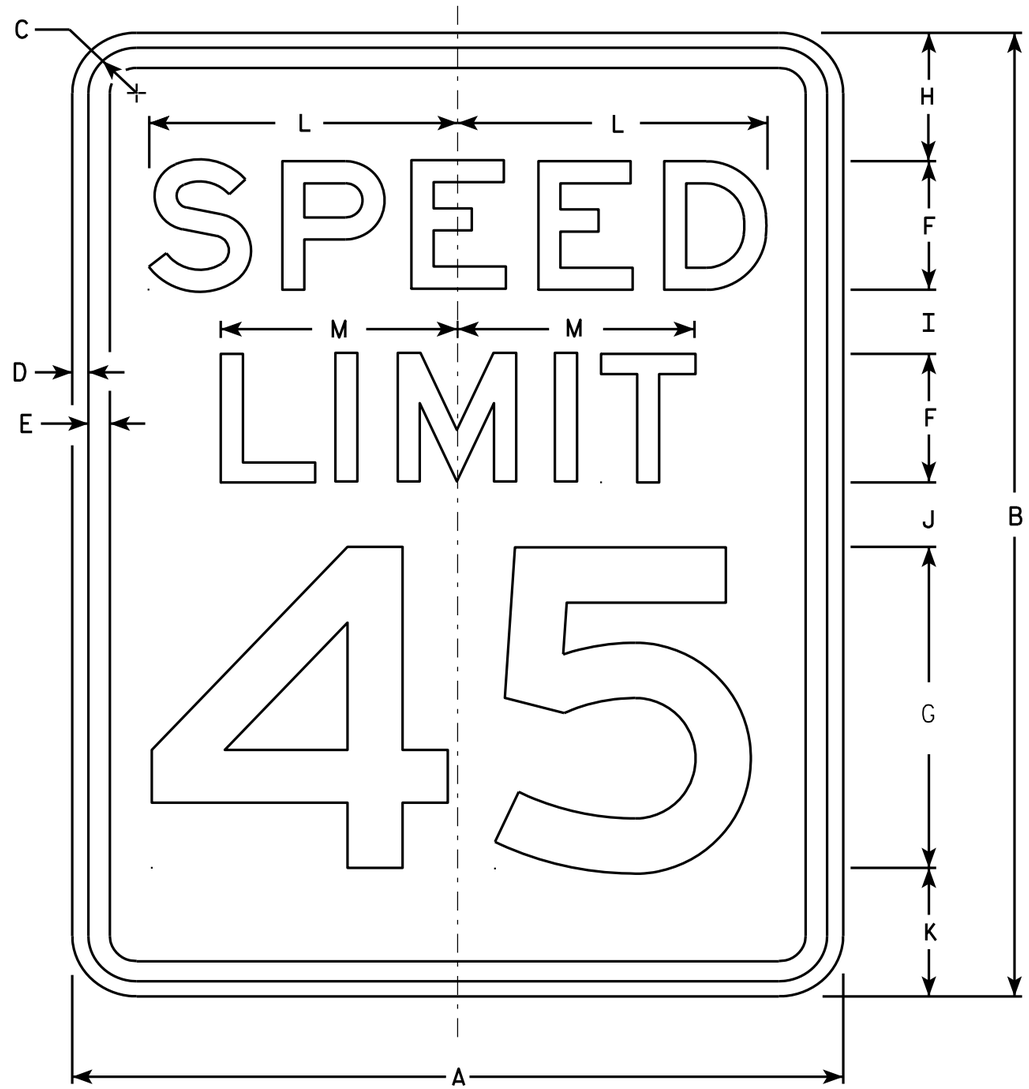
STANDARD SIGN
R1-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

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

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 98	E



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

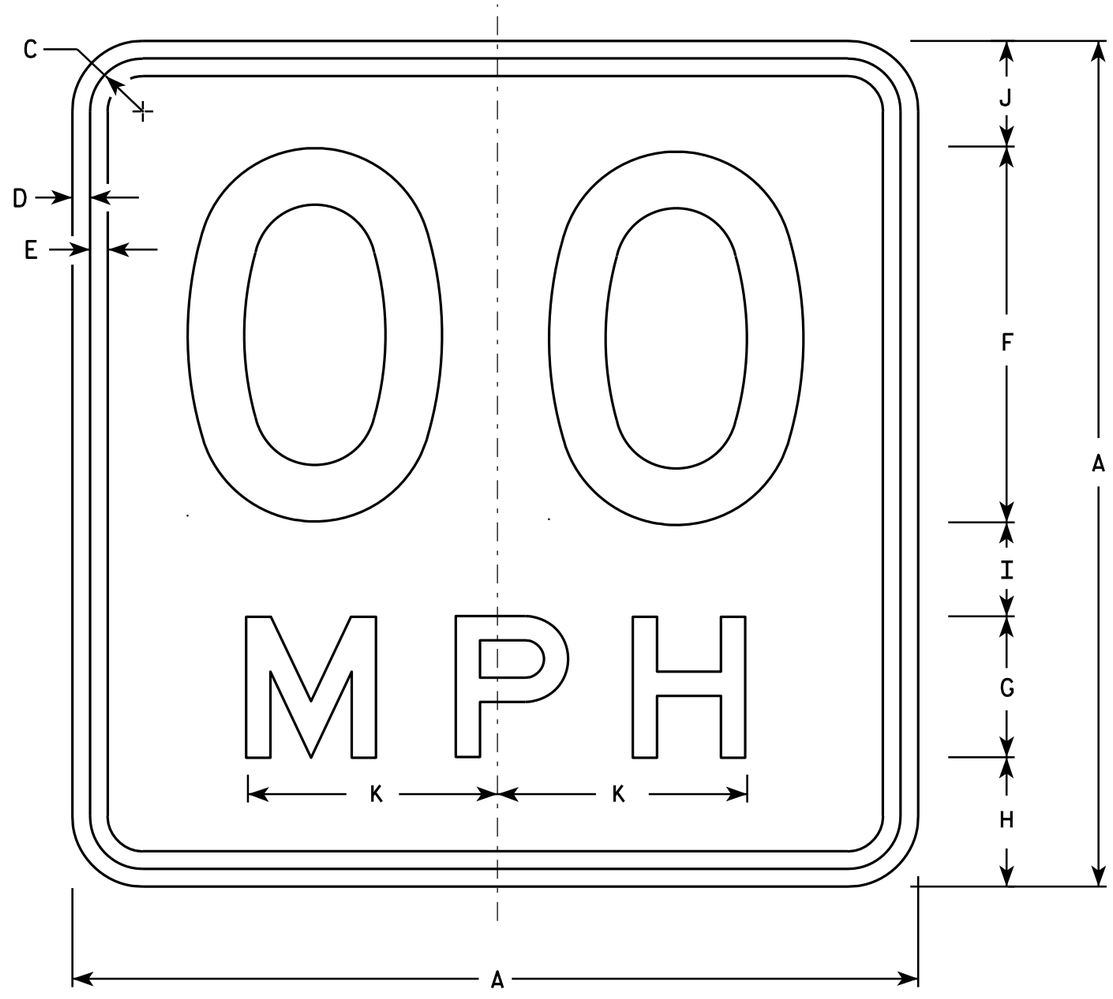
APPROVED Matthew R Rauch
for State Traffic Engineer

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

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

FILE NAME : C:\Users\PROJECTS\tr_stdplate\R21.DGN PLOT DATE : 28-MAY-2010 08:32 PLOT BY : ditjph PLOT NAME : PLOT SCALE : 4.717577:1.000000

WISDOT/CADDS SHEET 42



W13-1

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

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Yellow
   Message - Black
3. Message Series - See Note 6
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate numerals and optically space about centerline to achieve proper balance.
6. Line 1 is Series D
   Line 2 is Series E

	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
	1	18		1 1/8	3/8	3/8	8	3	2 3/4	2	2 1/4	5 3/8																2.25
*	2S	18		1 1/8	3/8	3/8	8	3	2 3/4	2	2 1/4	5 3/8																2.25
*	2M	18		1 1/8	3/8	3/8	8	3	2 3/4	2	2 1/4	5 3/8																2.25
	3	24		1 1/8	3/8	1/2	10	4	4	2 3/4	3 1/4	6 5/8																4.00
	4	36		1 5/8	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.00
	5	36		1 5/8	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.00

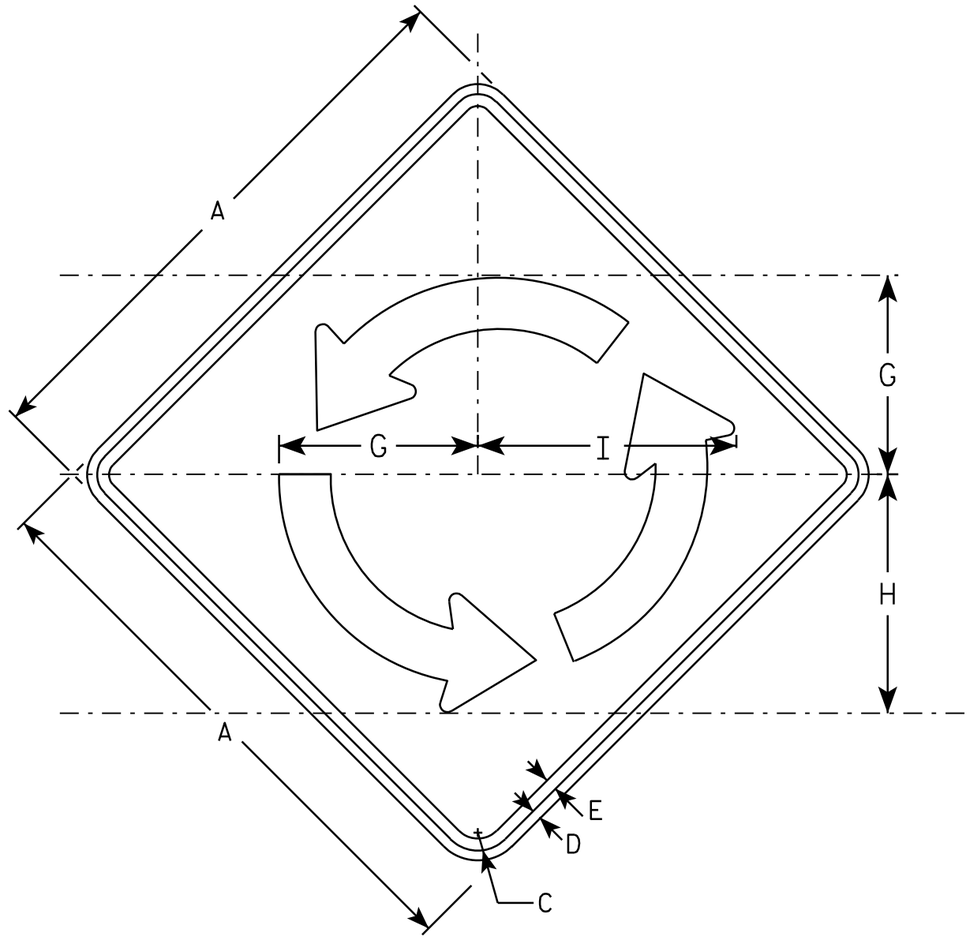
STANDARD SIGN
W13-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
For State Traffic Engineer

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

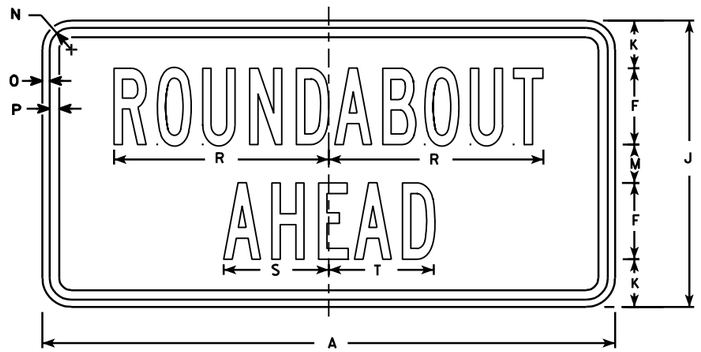
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 100	E



W2-6

NOTES

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



W2-6P

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	W2-6 Area sq. ft.	W2-6P Area sq. ft.
1																										
2S	30		1 3/8	1/2	5/8	4	10 3/8	12 1/2	13 1/2	15	2 1/2		2	1 1/8	3/8	1/2		11 1/4	5 1/2	5 1/2					6.25	3.12
2M	30		1 3/8	1/2	5/8	4	10 3/8	12 1/2	13 1/2	15	2 1/2		2	1 1/8	3/8	1/2		11 1/4	5 1/2	5 1/2					6.25	3.12
3	36		1 5/8	5/8	3/4	5	12 1/2	15	16 1/4	18	2 5/8		2 3/4	1 1/8	3/8	1/2		14	7	6 3/4					9.00	4.50
4	48		2 1/4	3/4	1	6	16 5/8	20	16 1/4	24	4 3/8		3 5/8	1 3/8	1/2	5/8		17	8 1/4	8 1/4					16.0	8.0
5																										

STANDARD SIGN
W2-6

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 6/29/12 PLATE NO. W2-6.5

PROJECT NO:

SHEET NO: 101 E

FILE NAME : C:\CAEFiles\Projects\tr_stdplate\W26.DGN PLOT DATE : 29-JUN-2012 10:15 PLOT BY : mscsja

WISDOT/CADDS SHEET 42

7

7

Notes:	
1 - Cut	Cut includes Salvaged/Unusable Pavement material
2 - Salvaged/Unusable Pavement Material	This does not show up in cross sections
3 - Fill	Does not include Unusable Pavement Exc volume
4 - EBS	EBS not to be reused as fill material, not included in Mass Ordinate
5 - Expanded EBS Backfill	Will be backfilled with Borrow or adequate Cut material
6 - Mass Ordinate	If EBS to be backfilled with Cut or Borrow (Using Cumulative Volumes): [Cut-Expanded Fill-Expanded EBS Backfill-Salvaged/Unusable Pavement]

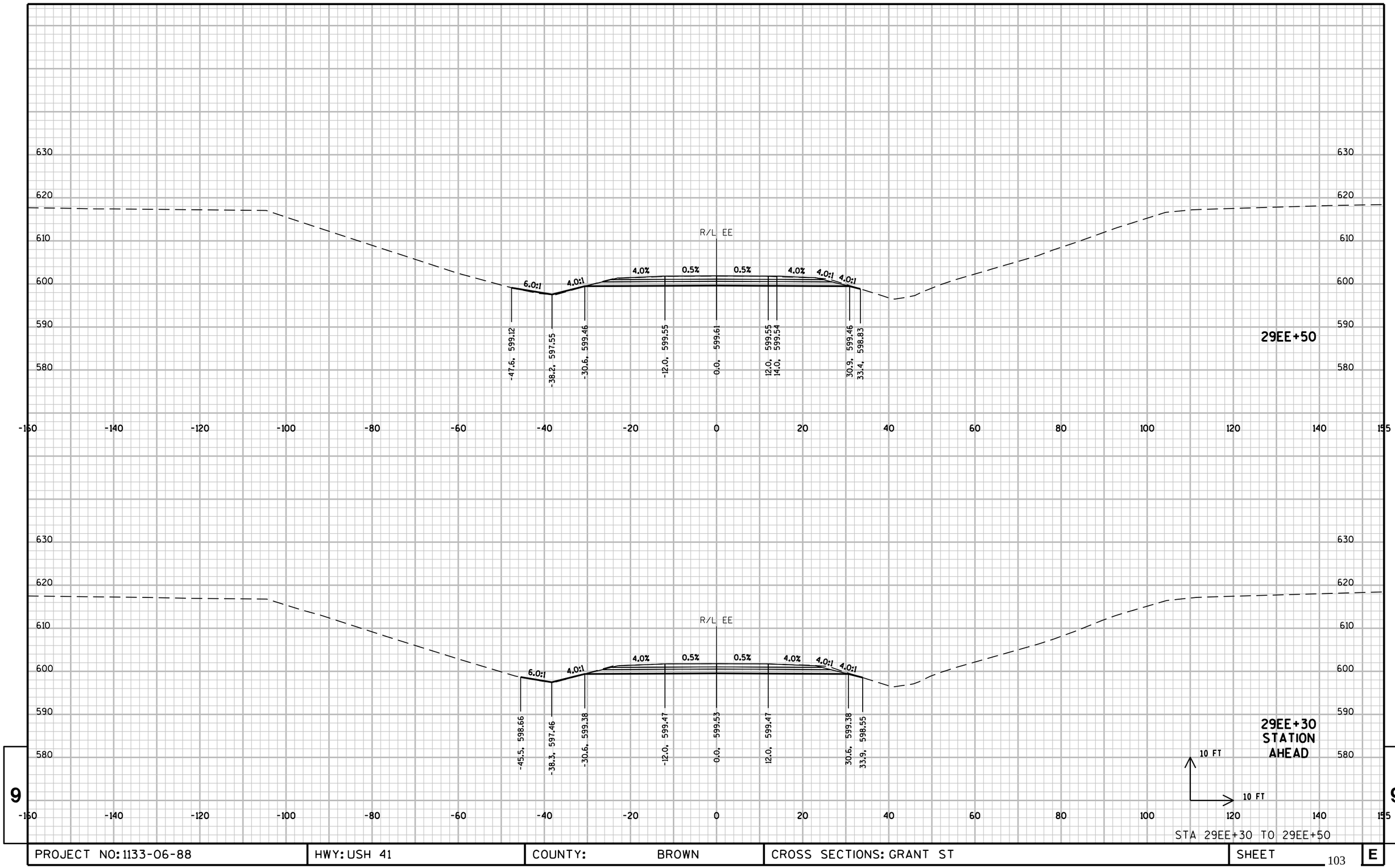
Division 1 GRANT ST

STATION	Real Station	Distance	AREA (SF)				Incremental Vol (CY) (Unadjusted)				Cumulative Vol (CY)				Mass Ordinate
			Cut	Salvaged/ Unusable Pavement Material	Fill	EBS	Cut	Salvaged/Unusable Pavement Material	Fill	EBS	Cut 1.00	Expanded Fill 1.20	Salvaged/Unusable Pavement Material 1.00	Expanded EBS Backfill 1.30	
							Note 1	Note 2	Note 3	Note 4	Note 1			Note 5	Note 6
29+30	2930	0	118.06	18.00	1.12	11.81	0	0.00	0.00	0.15	0.00	0.00	0.00	0.00	0
29+50	2950	20	115.33	18.02	2.71	11.53	86.44	13.34	1.42	8.64	86.44	1.70	13.34	11.24	60.16
30+00	3000	50	101.43	18.06	17.99	10.14	200.70	33.41	19.17	20.07	287.14	24.70	46.75	37.33	178.36
30+50	3050	50	111.41	20.38	17.54	11.14	197.07	35.59	32.90	19.71	484.22	64.18	82.34	62.95	274.75
31+00	3100	50	134.44	29.24	19.79	13.44	227.64	45.94	34.56	22.76	711.86	105.66	128.29	92.54	385.37
31+50	3150	50	133.75	35.75	12.78	13.38	248.32	60.18	30.16	24.83	960.18	141.85	188.46	124.82	505.05
32+00	3200	50	130.74	36.05	0.00	13.07	244.90	66.48	11.83	24.49	1205.08	156.05	254.94	156.66	637.43
32+50	3250	50	139.83	36.01	0.00	13.98	250.53	66.72	0.00	25.05	1455.61	156.05	321.66	189.23	788.67
33+00	3300	50	211.08	33.69	0.00	21.11	324.92	64.54	0.00	32.49	1780.52	156.05	386.20	231.47	1006.81
33+50	3350	50	184.79	30.22	0.00	18.48	366.55	59.18	0.00	36.65	2147.07	156.05	445.38	279.12	1266.53
34+00	3400	50	169.26	29.66	0.00	16.93	327.82	55.44	0.00	32.78	2474.89	156.05	500.82	321.74	1496.29
34+50	3450	50	165.07	29.86	0.00	16.51	309.56	55.11	0.00	30.96	2784.46	156.05	555.93	361.98	1710.50
35+00	3500	50	155.42	30.06	0.00	15.54	296.75	55.48	0.00	29.68	3081.21	156.05	611.41	400.56	1913.19
35+50	3550	50	180.36	14.84	0.07	18.04	310.91	41.57	0.06	31.09	3392.12	156.12	652.99	440.98	2142.02
36+00	3600	50	159.86	13.69	0.03	15.99	315.02	26.42	0.09	31.50	3707.14	156.24	679.41	481.93	2389.56
36+17	3617	17	110.58	13.14	0.03	11.06	86.34	8.57	0.02	8.63	3793.48	156.26	687.97	493.15	2456.10
						Column totals	3793.48	687.97	130.22	379.49					

Division 2 MID VALLEY DR

STATION	Real Station	Distance	AREA (SF)				Incremental Vol (CY) (Unadjusted)				Cumulative Vol (CY)				Mass Ordinate
			Cut	Salvaged/ Unusable Pavement Material	Fill	EBS	Cut	Salvaged/Unusable Pavement Material	Fill	EBS	Cut 1.00	Expanded Fill 1.20	Salvaged/Unusable Pavement Material 1.00	Expanded EBS Backfill 1.30	
							Note 1	Note 2	Note 3	Note 4	Note 1			Note 5	Note 6
76+30	7630.00	0	97.29	6.98	0.00	9.73	0	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0
76+50	7650.00	20.00	100.82	6.98	0.00	10.08	73.37	5.17	0.00	7.34	73.37	0.00	5.17	9.54	58.66
77+00	7700.00	50.00	112.66	6.98	2.61	11.27	197.67	12.93	2.42	19.77	271.04	2.90	18.10	35.24	214.80
77+50	7750.00	50.00	143.67	6.98	45.48	14.37	237.34	12.93	44.53	23.73	508.38	56.33	31.02	66.09	354.94
78+00	7800.00	50.00	224.07	6.98	55.19	22.41	340.50	12.93	93.21	34.05	848.88	168.19	43.95	110.36	526.39
78+40	7840.00	40.00	61.98	6.98	0.00	6.20	211.89	10.34	40.88	21.19	1060.77	217.25	54.29	137.91	651.33
78+75	7875.00	35.00	63.39	6.98	7.84	6.34	0.00	0.00	10.16	0.08	0.00	0.00	0.00	0.00	0.00
79+00	7900.00	25.00	197.64	6.98	48.51	19.76	120.85	6.46	26.09	12.08	120.85	31.31	6.46	15.71	67.37
79+50	7950.00	50.00	129.04	6.98	80.61	12.90	302.48	12.93	119.56	30.25	423.33	174.77	19.39	55.03	174.14
80+00	8000.00	50.00	126.22	6.98	0.00	12.62	236.35	12.93	74.64	23.64	659.68	264.34	32.31	85.76	277.27
80+50	8050.00	50.00	114.38	6.98	0.00	11.44	222.78	12.93	0.00	22.28	882.46	264.34	45.24	114.72	458.16
81+00	8100.00	50.00	106.24	6.98	0.00	10.62	204.28	12.93	0.00	20.43	1086.74	264.34	58.17	141.28	622.95
						Column totals	2147.51	112.46	411.48	214.95					

PROJECT NO: 1133-06-88	HWY: USH 41	COUNTY: BROWN	EARTHWORK QUANTITIES	SHEET: 102	E

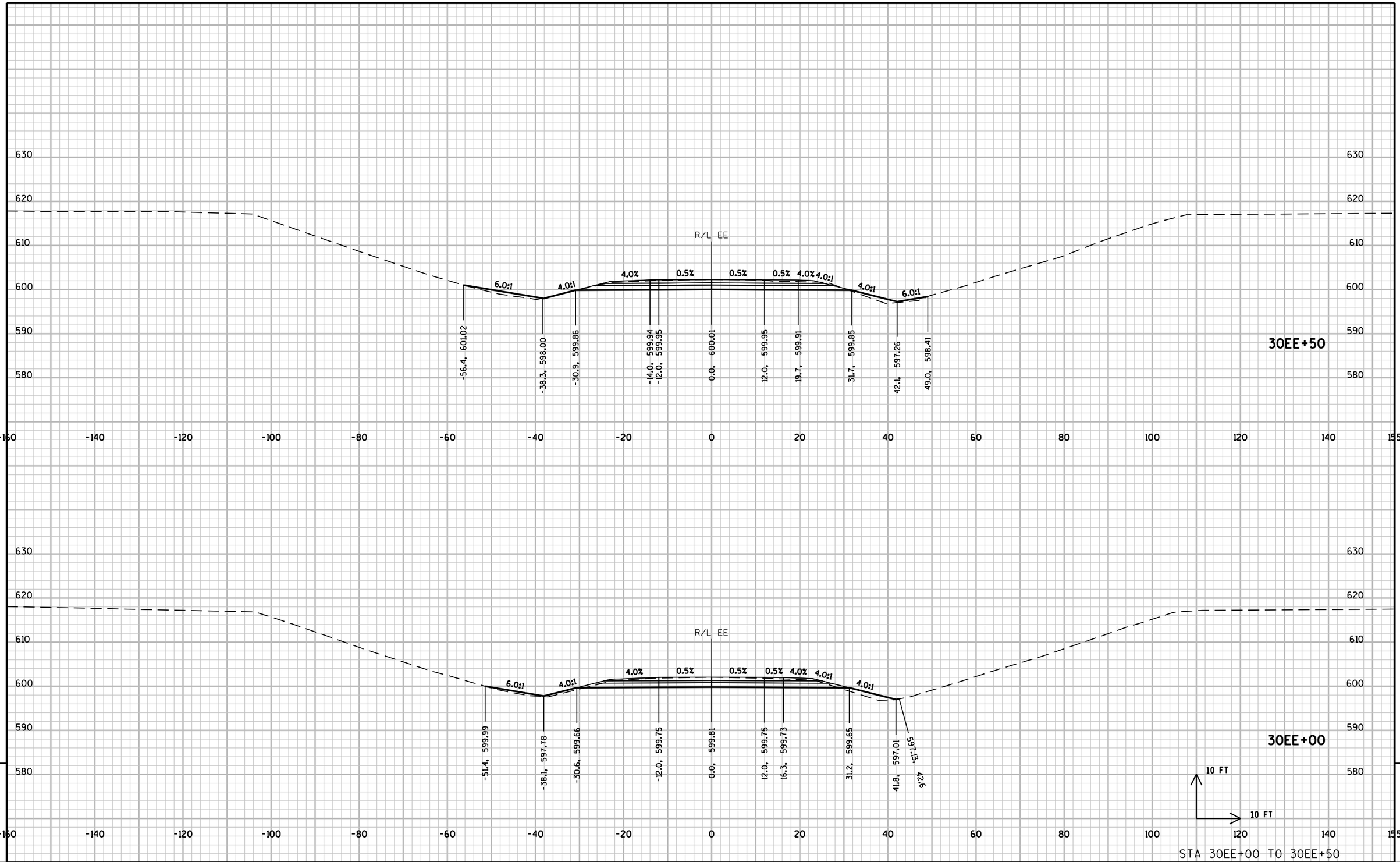


STA 29EE+30 TO 29EE+50

PROJECT NO: 1133-06-88	HWY: USH 41	COUNTY: BROWN	CROSS SECTIONS: GRANT ST	SHEET	E

FILE NAME : \\milw00\ingrproj\43170\0600\0688_Grant_St\ee_090201_xs_Grant.dgn PLOT DATE : 10/26/2012 PLOT BY : lzidek PLOT NAME : PLOT SCALE : 20:1

WISDOT/CADDS SHEET 21



9

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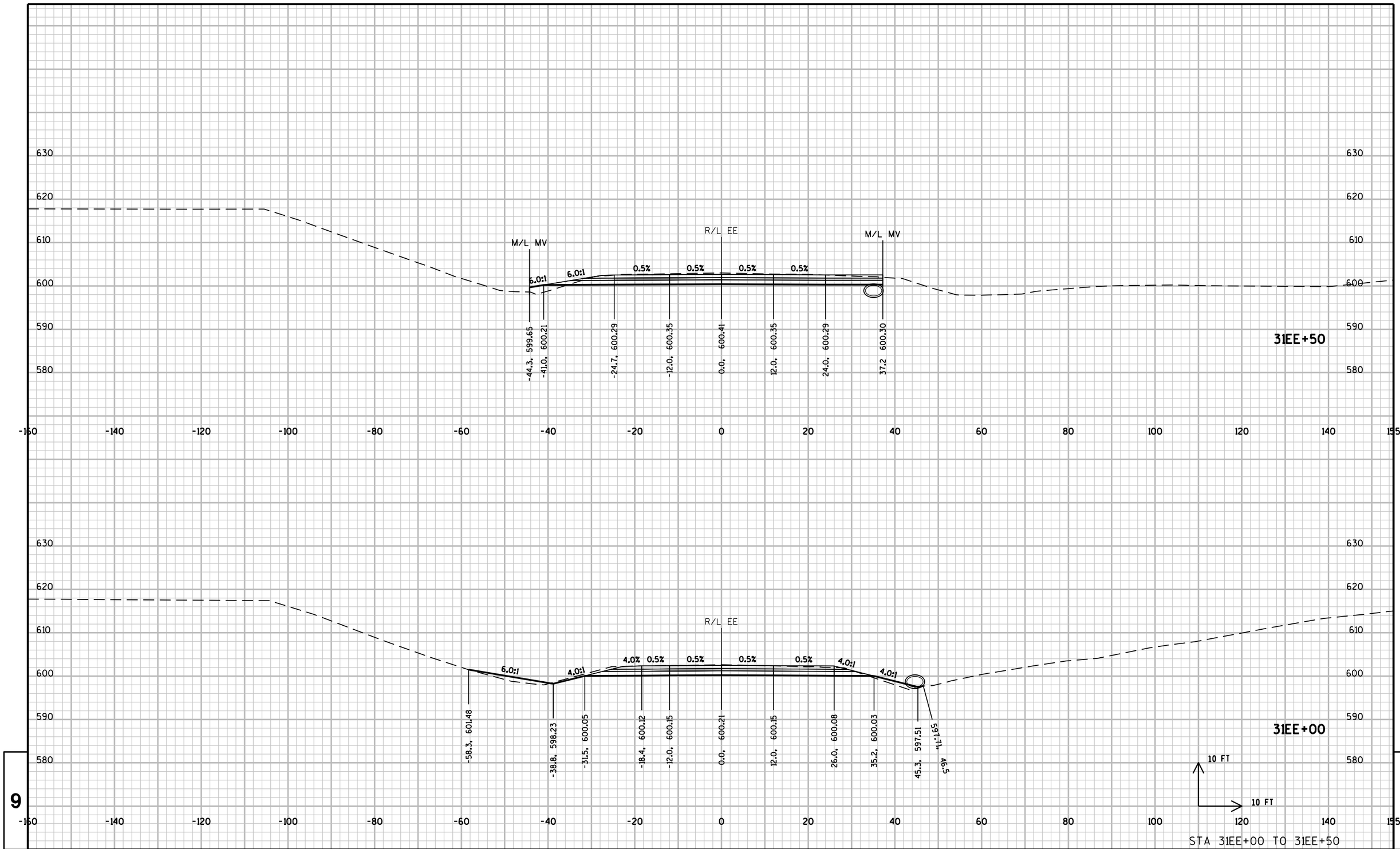
STA 30EE+00 TO 30EE+50

PROJECT NO: 1133-06-88	HWY: USH 41	COUNTY: BROWN	CROSS SECTIONS: GRANT ST	SHEET	E

FILE NAME : \\milw00\ingrproj\43170\0600\0688_Grant_St\ee_090201_xs_Grant.dgn PLOT DATE : 10/26/2012 PLOT BY : lzidek PLOT NAME : PLOT SCALE : 20:1

WISDOT/CADDS SHEET 21



9

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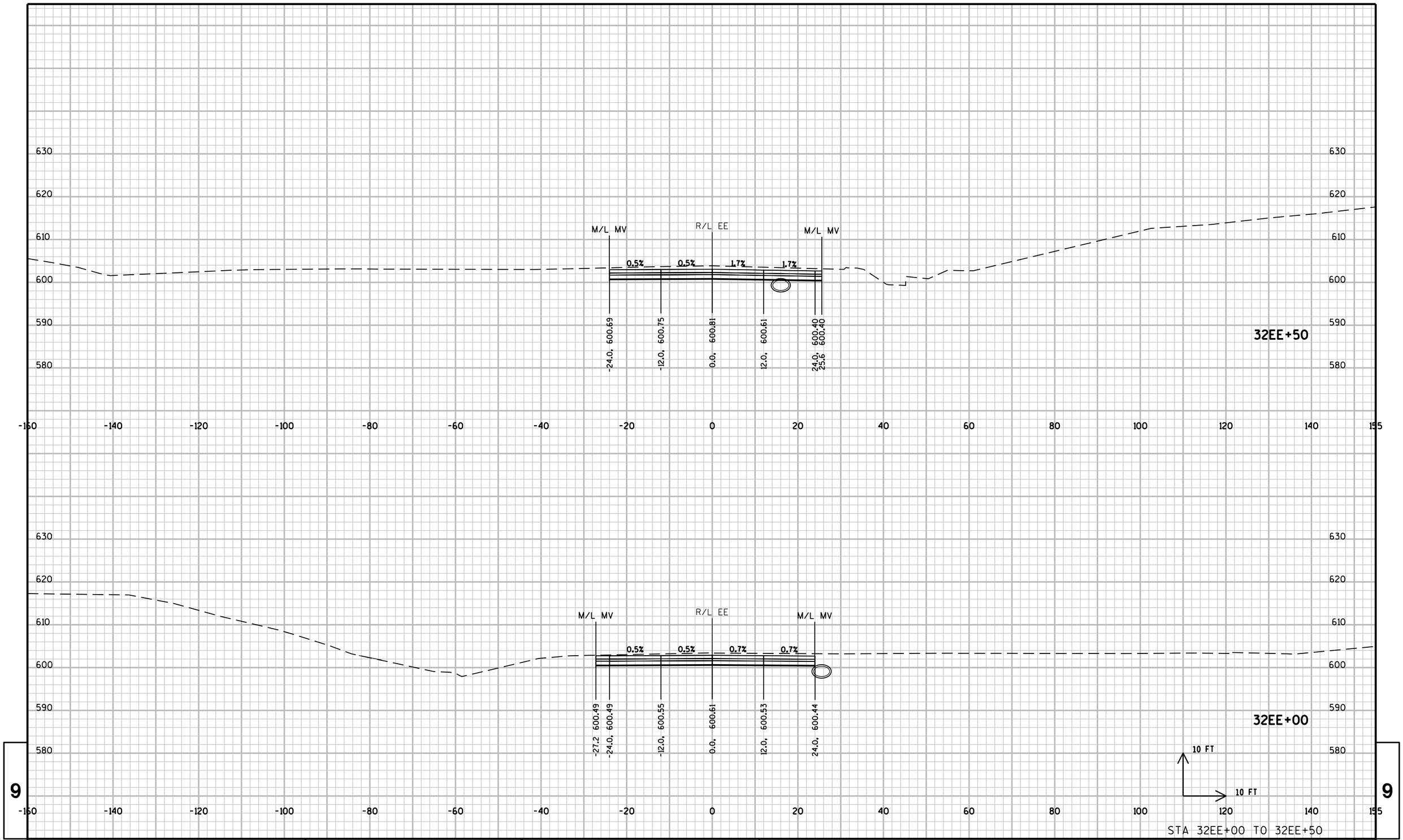
STA 31EE+00 TO 31EE+50

PROJECT NO: 1133-06-88	HWY: USH 41	COUNTY: BROWN	CROSS SECTIONS: GRANT ST	SHEET 105	E

FILE NAME : \\milw00\ingrproj\43170\0600\0688_Grant_St\ee_090201_xs_Grant.dgn PLOT DATE : 10/26/2012 PLOT BY : lzidek PLOT NAME : PLOT SCALE : 20:1

WISDOT/CADDS SHEET 21



9

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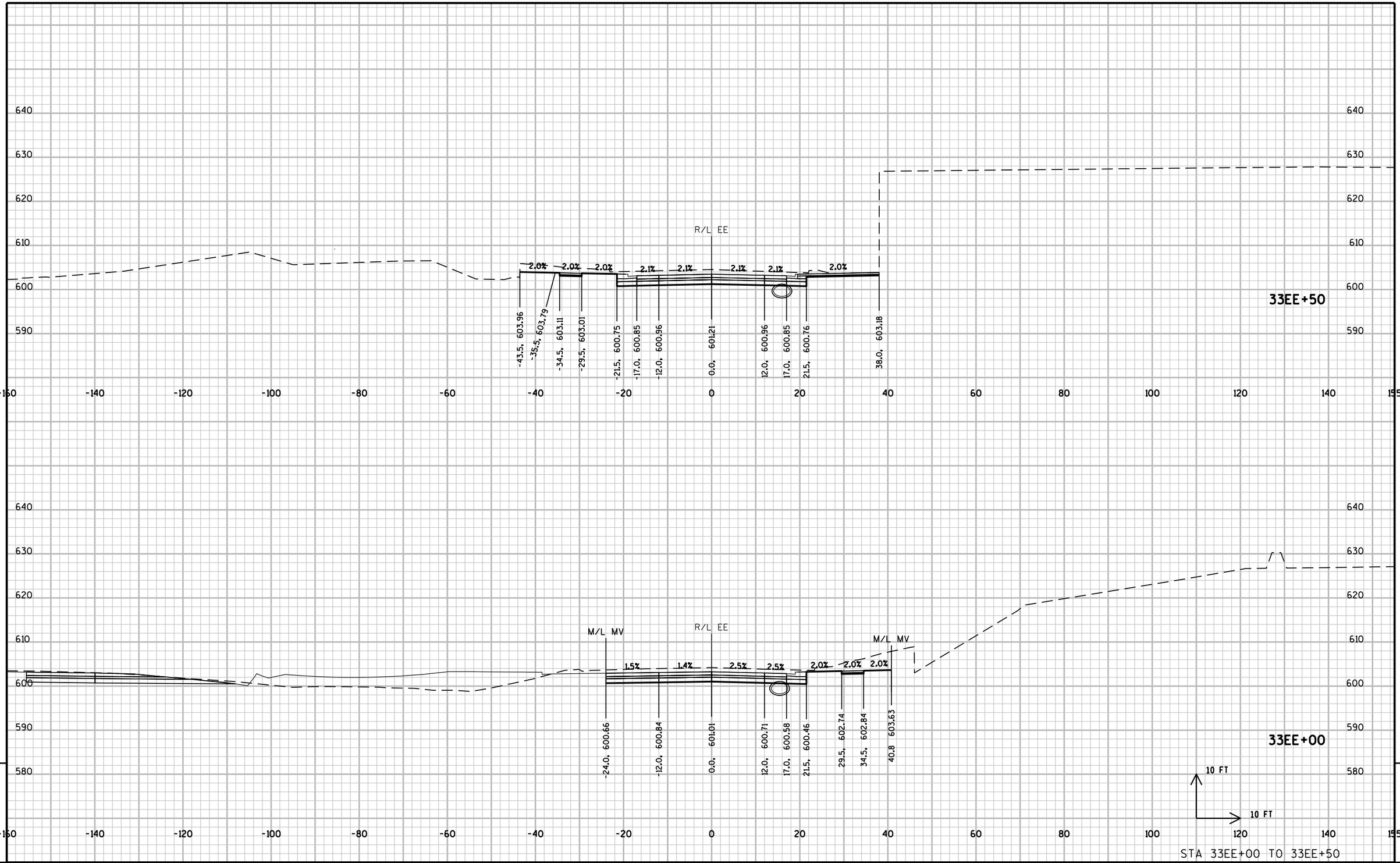
STA 32EE+00 TO 32EE+50

PROJECT NO: 1133-06-88	HWY: USH 41	COUNTY: BROWN	CROSS SECTIONS: GRANT ST	SHEET	E

FILE NAME : \\milw00\ingrproj\43170\0600\0688_Grant_St\ee_090201_xs_Grant.dgn PLOT DATE : 10/26/2012 PLOT BY : lzidek PLOT NAME : PLOT SCALE : 20:1

WISDOT/CADDS SHEET 21



9

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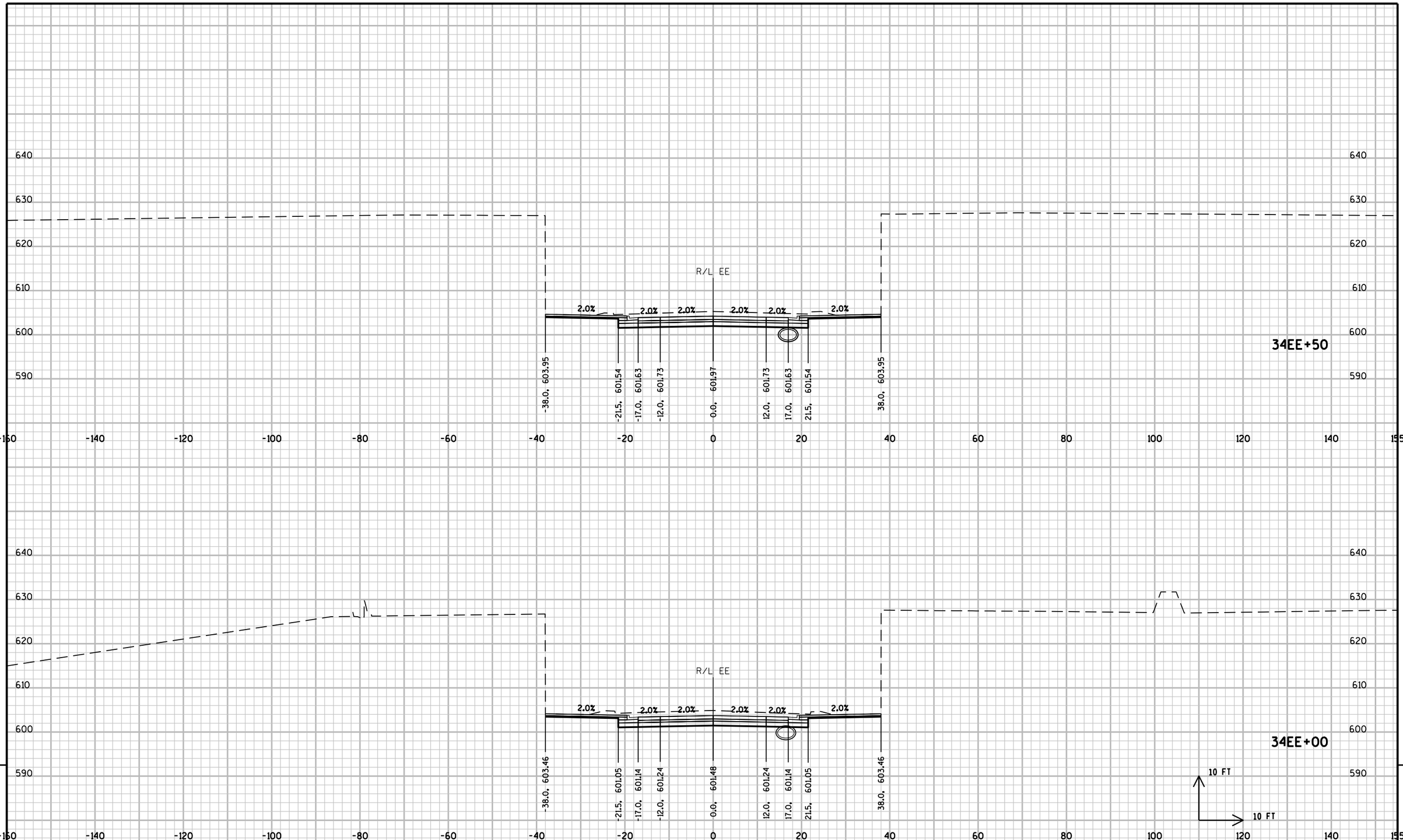
STA 33EE+00 TO 33EE+50

PROJECT NO: 1133-06-88	HWY: USH 41	COUNTY: BROWN	CROSS SECTIONS: GRANT ST	SHEET	E

FILE NAME : \\milw00\ingrproj\43170\0600\0688_Grant_St\ee_090201_xs_Grant.dgn PLOT DATE : 10/26/2012 PLOT BY : lzidek PLOT NAME : PLOT SCALE : 20:1

WISDOT/CADDS SHEET 21



9

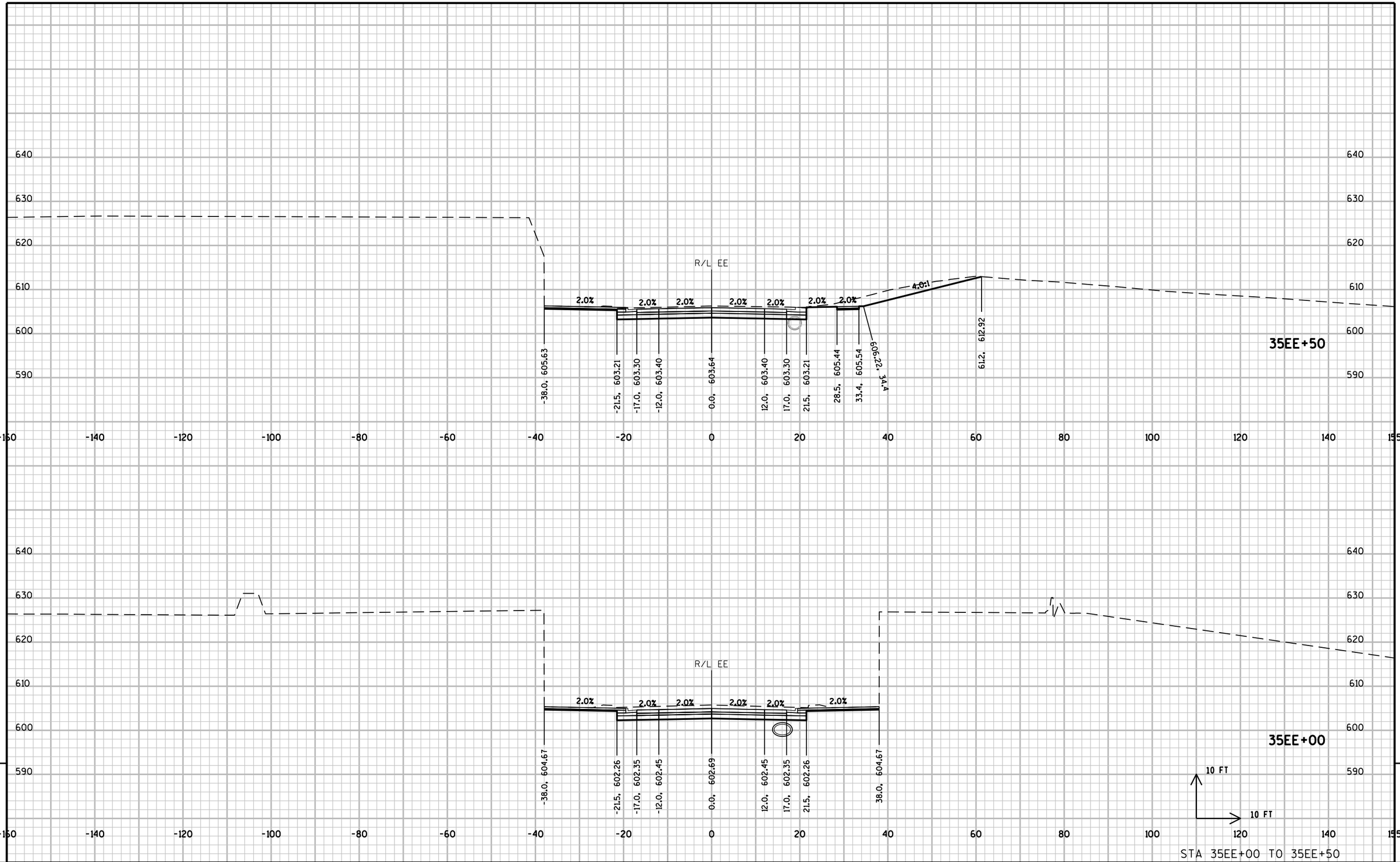
9

STA 34EE+00 TO 34EE+50

PROJECT NO: 1133-06-88	HWY: USH 41	COUNTY: BROWN	CROSS SECTIONS: GRANT ST	SHEET	E

FILE NAME : \\milw00\ingrproj\43170\0600\0688_Grant_St\ee_090201_xs_Grant.dgn PLOT DATE : 10/26/2012 PLOT BY : lzidek PLOT NAME : PLOT SCALE : 20:1

WISDOT/CADDS SHEET 21

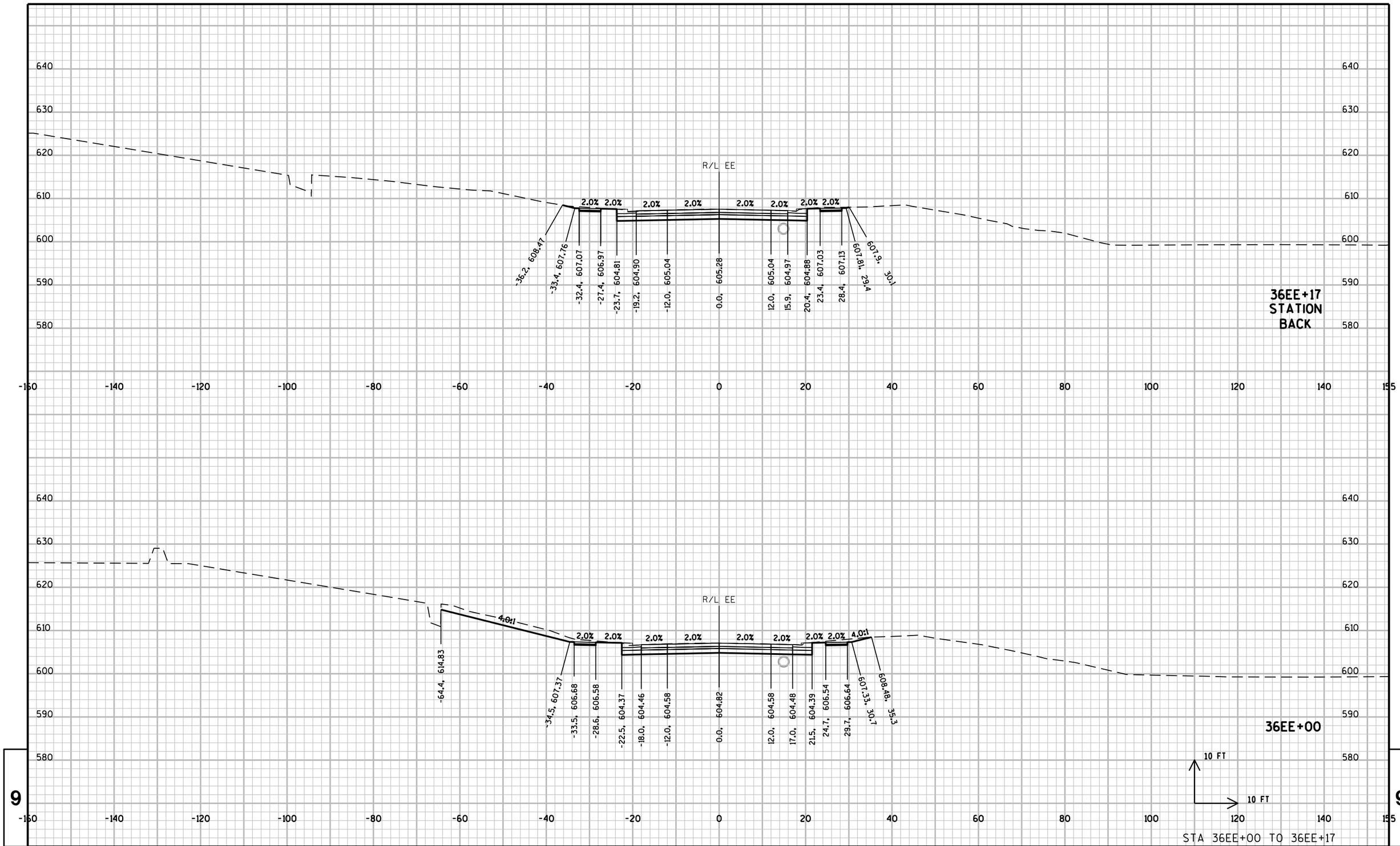


STA 35EE+00 TO 35EE+50

PROJECT NO: 1133-06-88	HWY: USH 41	COUNTY: BROWN	CROSS SECTIONS: GRANT ST	SHEET	E

FILE NAME : \\milw00\ingrproj\43170\0600\0688_Grant_St\ee_090201_xs_Grant.dgn PLOT DATE : 10/26/2012 PLOT BY : lzidek PLOT NAME : PLOT SCALE : 20:1

WISDOT/CADDS SHEET 21

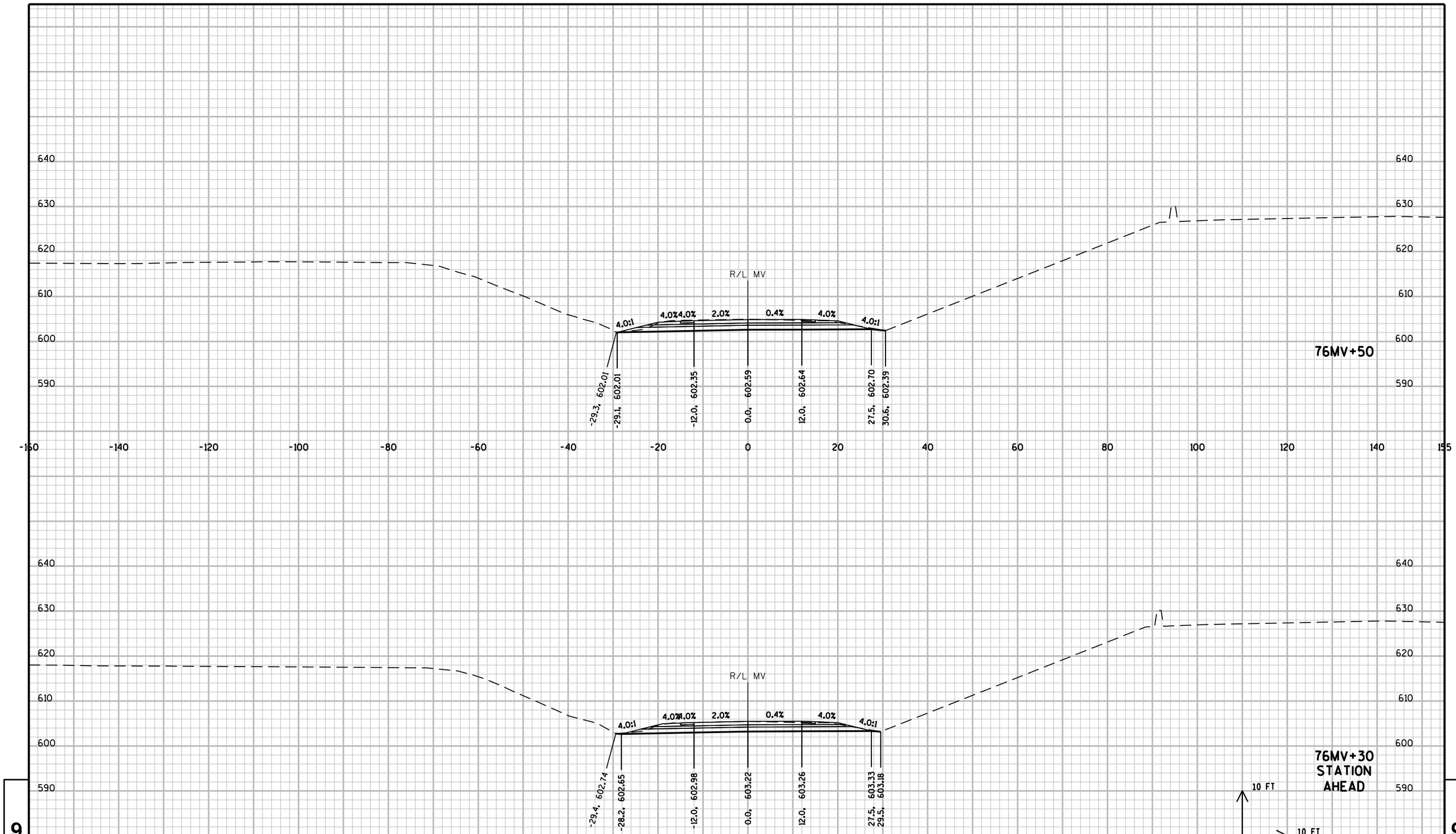


STA 36EE+00 TO 36EE+17

PROJECT NO: 1133-06-88	HWY: USH 41	COUNTY: BROWN	CROSS SECTIONS: GRANT ST	SHEET	E

FILE NAME : \\milw00\ingrproj\43170\0600\0688_Grant_St\ee_090201_xs_Grant.dgn PLOT DATE : 10/26/2012 PLOT BY : lzidek PLOT NAME : PLOT SCALE : 20:1

WISDOT/CADDS SHEET 21



STA 76MV+30 TO 76MV+50

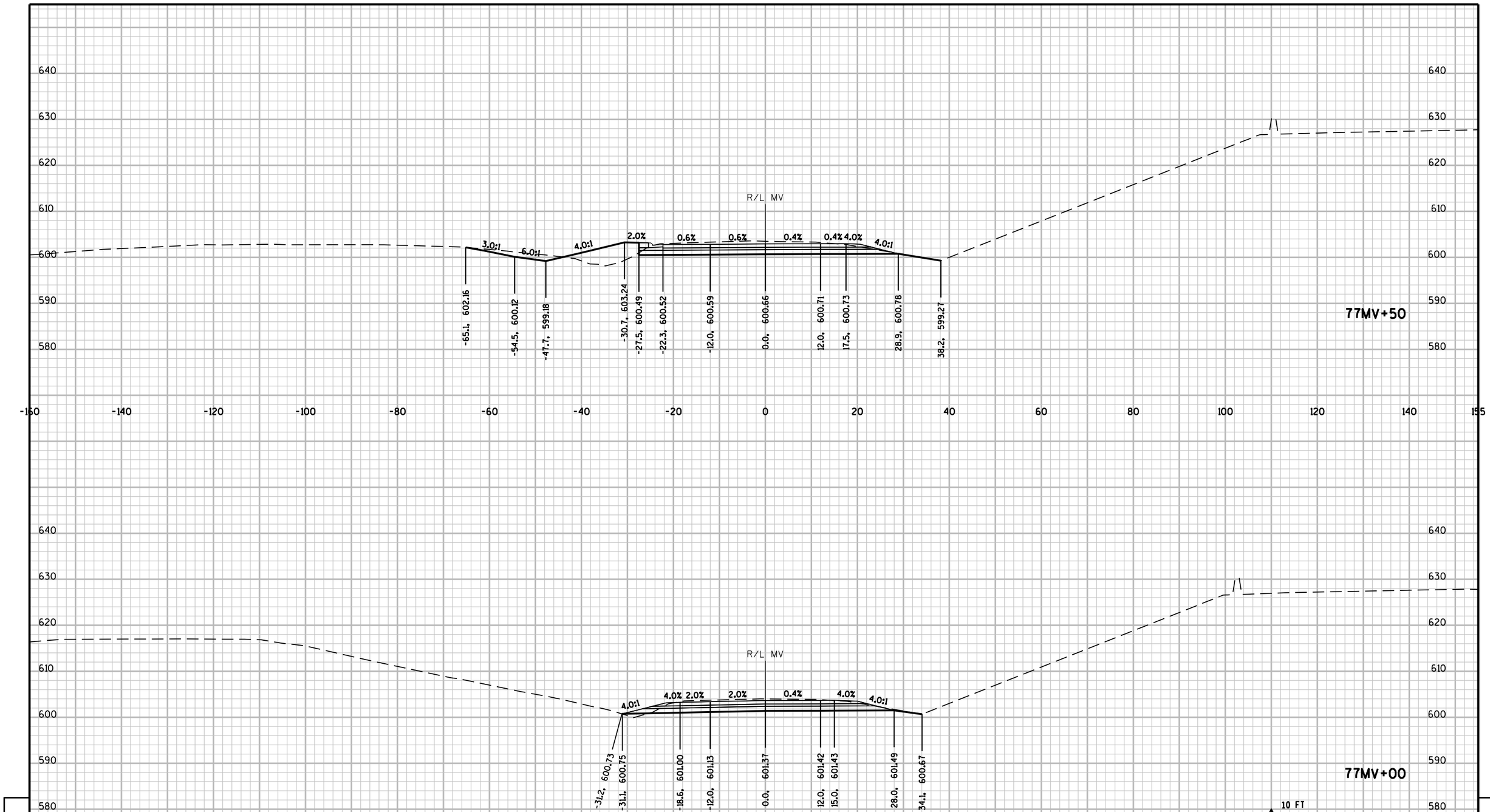
9

9

PROJECT NO: 1133-06-88	HWY: USH 41	COUNTY: BROWN	CROSS SECTIONS: MID VALLEY DR	SHEET 111	E

FILE NAME : \\milw00\ingrproj\43170\0600\0688_Grant_St\ee_090202_xs_MV.dgn PLOT DATE : 10/26/2012 PLOT BY : lzidek PLOT NAME : PLOT SCALE : 20:1

WISDOT/CADDS SHEET 21

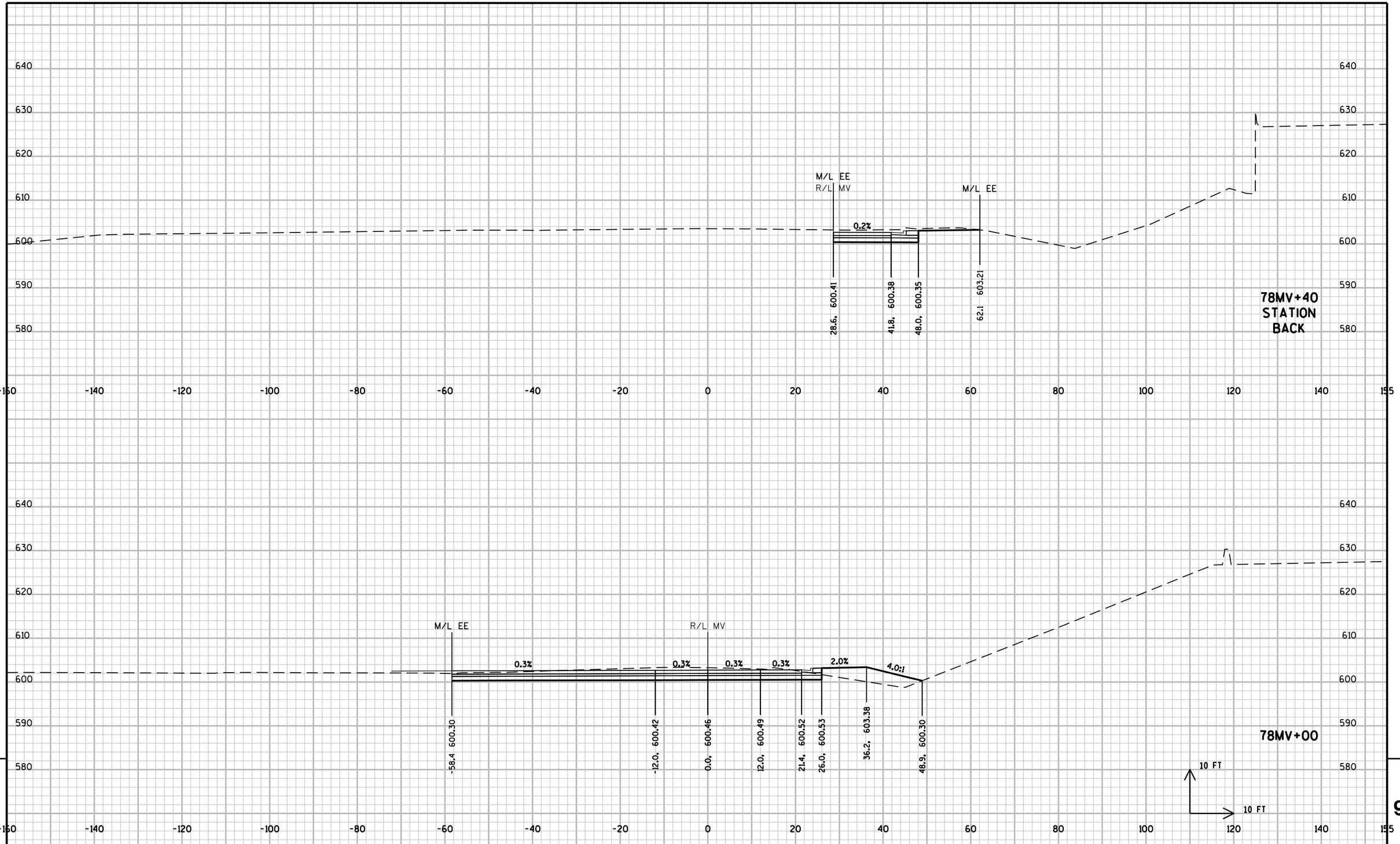


STA 77MV+00 TO 77MV+50

PROJECT NO: 1133-06-88	HWY: USH 41	COUNTY: BROWN	CROSS SECTIONS: MID VALLEY DR	SHEET	E

FILE NAME : \\milw00\ingrproj\43170\0600\0688_Grant_St\ee_090202_xs_MV.dgn PLOT DATE : 10/26/2012 PLOT BY : lzidek PLOT NAME : PLOT SCALE : 20:1

WISDOT/CADDS SHEET 21

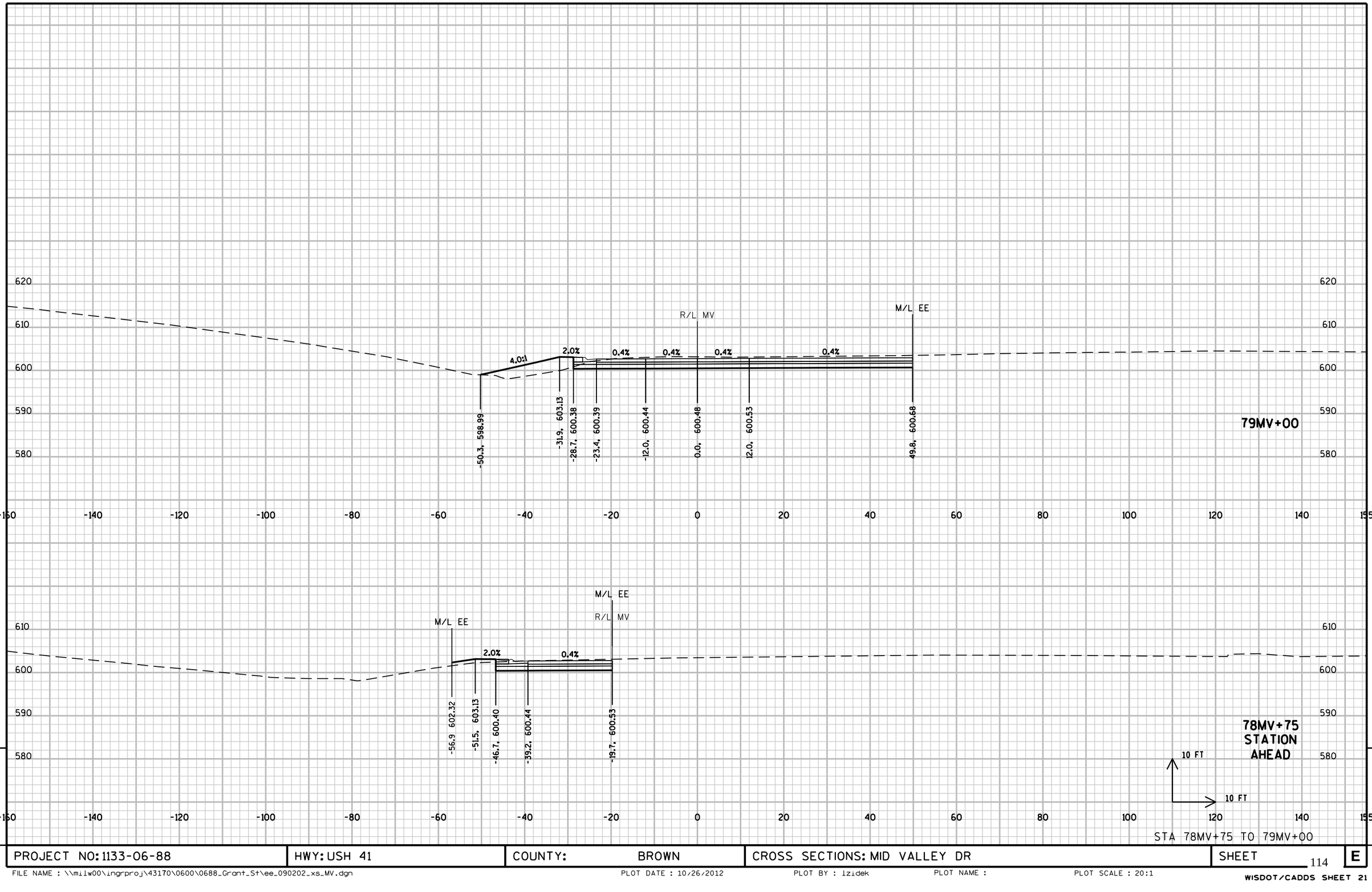


STA 78MV+00 TO 78MV+40

PROJECT NO: 1133-06-88	HWY: USH 41	COUNTY: BROWN	CROSS SECTIONS: MID VALLEY DR	SHEET	E

FILE NAME : \\milw00\ingrproj\43170\0600\0688_Grant_St\ee_090202_xs_MV.dgn PLOT DATE : 10/26/2012 PLOT BY : lzidek PLOT NAME : PLOT SCALE : 20:1

WISDOT/CADDS SHEET 21



STA 78MV+75 TO 79MV+00

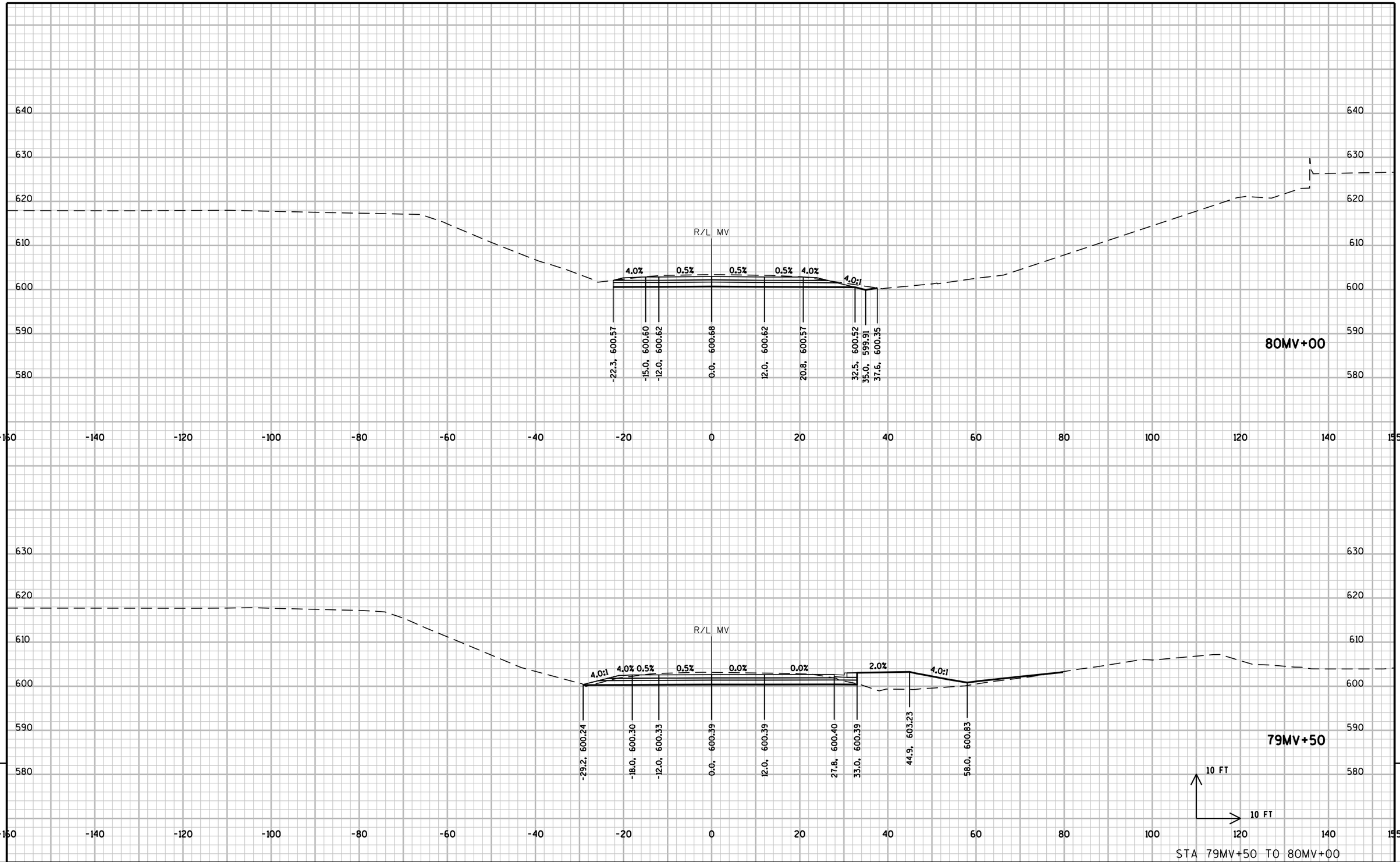
9

9

PROJECT NO: 1133-06-88	HWY: USH 41	COUNTY: BROWN	CROSS SECTIONS: MID VALLEY DR	SHEET	E

FILE NAME : \\milw00\ingrproj\43170\0600\0688_Grant_St\ee_090202_xs_MV.dgn PLOT DATE : 10/26/2012 PLOT BY : lzidek PLOT NAME : PLOT SCALE : 20:1

WISDOT/CADDS SHEET 21



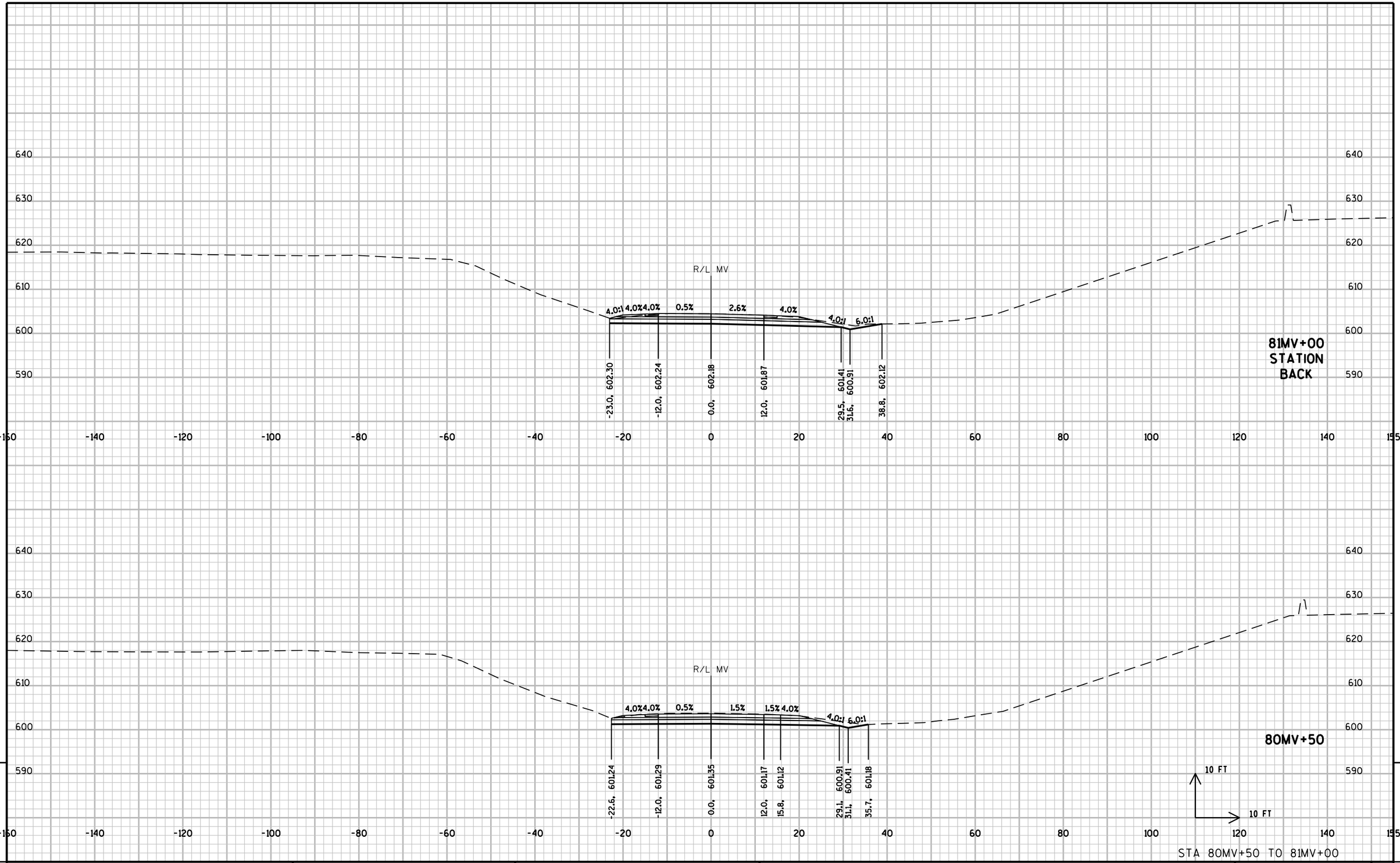
STA 79MV+50 TO 80MV+00

9 9

PROJECT NO: 1133-06-88	HWY: USH 41	COUNTY: BROWN	CROSS SECTIONS: MID VALLEY DR	SHEET 115	E

FILE NAME : \\milw00\ingrproj\43170\0600\0688_Grant_St\ee_090202_xs_MV.dgn PLOT DATE : 10/26/2012 PLOT BY : lzidek PLOT NAME : PLOT SCALE : 20:1

WISDOT/CADDS SHEET 21



STA 80MV+50 TO 81MV+00

9 9

PROJECT NO: 1133-06-88	HWY: USH 41	COUNTY: BROWN	CROSS SECTIONS: MID VALLEY DR	SHEET E

FILE NAME : \\milw00\ingrproj\43170\0600\0688_Grant_St\ee_090202_xs_MV.dgn PLOT DATE : 10/26/2012 PLOT BY : lzidek PLOT NAME : PLOT SCALE : 20:1

WISDOT/CADDS SHEET 21

Notes

Wisconsin Department of Transportation

Dedicated people creating transportation solutions
through innovation and exceptional service.

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