MAD

MAY 2019

PROJECT ID: 3080-09-60

WITH: N/A

COUNTY: JEFFERSON

ORDER OF SHEETS

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

TOTAL SHEETS = 92

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

JEFFERSON-WALES

CTH Y TO GRUENNERT STREET

USH 18

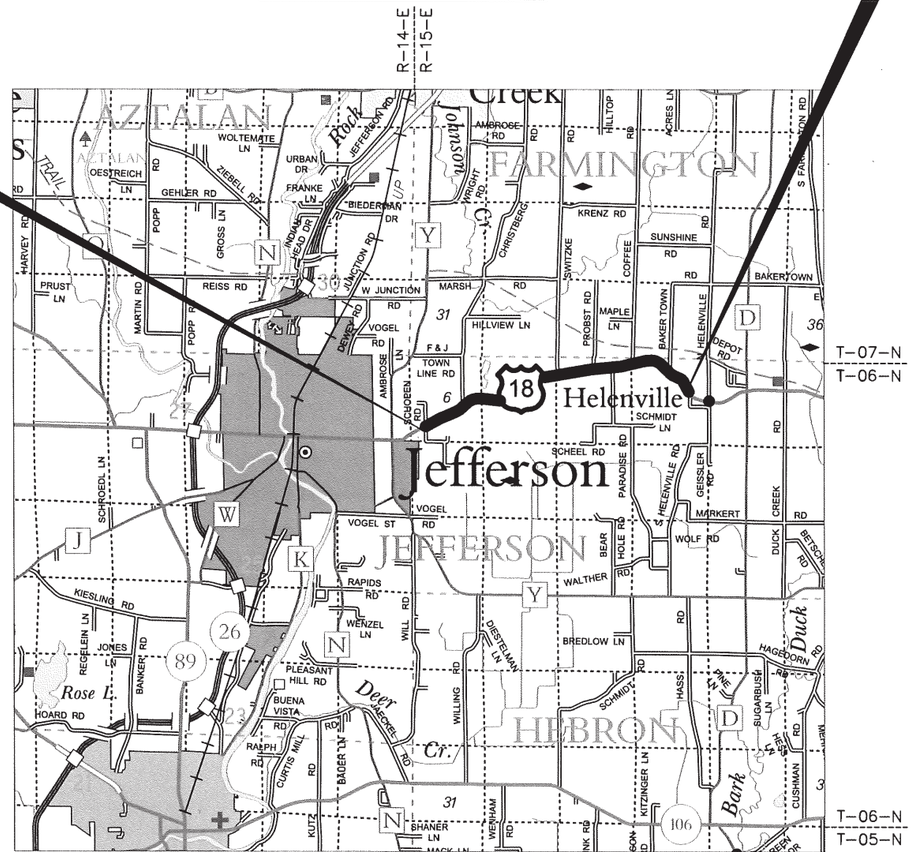
JEFFERSON COUNTY

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
3080-09-60	WISC 2019275	1

STATE PROJECT NUMBER
3080-09-60

BEGIN PROJECT
STA. 89+76.82
Y = 558,911.01
X = 863,203.77

END PROJECT
STA. 307+00.00



SCALE 0 2 MILE

TOTAL NET LENGTH OF CENTERLINE = 4.114 MILES

DESIGN DESIGNATION

A.A.D.T.	(2019)	=	2,600
A.A.D.T.	(2039)	=	3,000
D.H.V.	(2039)	=	215
D.D.		=	60/40
T.		=	12.5%
DESIGN SPEED		=	--------
ESALS		=	550,000

35 MPH (STA. 89+76.82-STA. 89+78)
45 MPH (STA. 89+78-STA. 112+39)
55 MPH (STA. 112+39-STA. 286+27)
45 MPH (STA. 286+27-STA. 296+69)
30 MPH (STA. 296+69-STA. 307+00)

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

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

ELEVATION SHOWN ON THIS PLAN ARE REFERENCE TO THE NORTH AMERICAN VERTICAL DATUM OF 1988, NAVD (2012).

ORIGINAL PLANS PREPARED BY

JEWELL
associates engineers, inc.
Engineers - Architects - Surveyors

WISCONSIN
ELLERY A. SCHAFFER
E-41742-6
SPRING GREEN, WI
PROFESSIONAL ENGINEER

12/18/2018 (Date)

(Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	JEWELL ASSOCIATES ENGINEERS, INC.
Designer	JEWELL ASSOCIATES ENGINEERS, INC.
Project Manager	MATTHEW DAPP, P.E.
Regional Examiner	SW REGION
Regional Supervisor	WILLIAM STROBEL, P.E.

APPROVED FOR THE DEPARTMENT

DATE: 1/2/2019 (Signature)

E

GENERAL NOTES

NO TREES OR SHRUBS ARE TO BE REMOVED UNLESS SUCH TREES OR SHRUBS HAVE FIRST BEEN INDICATED FOR REMOVAL BY THE ENGINEER IN THE FIELD.

EROSION CONTROL ITEMS IN THE MISC. QUAN. ARE SUGGESTED. EXACT LOCATIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD. MAINTAIN EROSION CONTROL ITEMS UNTIL SUCH TIME AS THE ENGINEER DETERMINES THE MEASURE IS NO LONGER NECESSARY. PROTECT WETLANDS AND OTHER WATERWAYS THAT ARE PRESENT WITHIN THE PROJECT LIMITS.

DISTURBED AREAS SHOWN WITHIN THE RIGHT-OF-WAY, EXCEPT THE AREAS WITHIN THE FINISHED SHOULDER POINTS ARE TO BE FERTILIZED (TYPE B), SEEDED (USE SEED MIX NO. 20), AND EROSION MAT URBAN CLASS I TYPE B AS DIRECTED BY THE ENGINEER. FERTILIZER (TYPE B) & SEEDING (SEEDING MIX NO. 20) ARE PAID FOR UNDER THE BID ITEM BARRIER SYSTEM GRADING SHAPING FINISHING.

PRIOR TO THE PLACEMENT OF GUARDRAIL, THE SHOULDERS SHALL BE PLACED, SHAPED, AND COMPACTED.

EXISTING SHOULDER AGGREGATE SHALL BE INCORPORATED INTO THE NEW SHOULDERS UNLESS OTHERWISE DIRECTED BY THE ENGINEER IN THE FIELD.

WHEN THE QUANTITY OF THE ITEM OF BASE AGGREGATE DENSE OR HMA PAVEMENT IS MEASURED FOR PAYMENT BY THE TON, THE DEPTH OR THICKNESS OF THE COURSE SHOWN ON THE PLANS IS APPROXIMATE, AND THE ACTUAL THICKNESS WILL DEPEND ON THE DISTRIBUTION OF THE MATERIAL AS DIRECTED BY THE ENGINEER IN THE FIELD.

REMOVAL OF ASPHALTIC SURFACES WHERE AN ABUTTING ASPHALTIC SURFACE IS TO REMAIN IN PLACE SHALL REQUIRE A VERTICAL EDGE MEETING THE APPROVAL OF THE ENGINEER IN THE FIELD.

HMA PAVEMENT QUANTITIES WERE CALCULATED USING 112 LB/SY/IN.

2-INCHES OF HMA PAVEMENT SHALL BE CONSTRUCTED WITH A SINGLE 2-INCH LAYER OF HMA PAVEMENT 4 LT 58-28 S.

PAVING LIMITS AT INTERSECTIONS ARE TO BE DETERMINED IN THE FIELD BY THE ENGINEER.

THE EXACT LOCATIONS AND LIMITS OF PRIVATE ENTRANCES, COMMERCIAL, AND FIELD ENTRANCES SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

APPLY TACK COAT TO MILLED SURFACE PRIOR TO PLACEMENT OF HMA PAVEMENT AT A RATE OF 0.07 GAL/SY.

THE CONTRACTOR'S PAVING OPERATIONS SHALL BE CONSISTENT WITH THE PLAN TYPICAL SECTIONS AND CONSTRUCTED TO PREVENT HMA LONGITUDINAL JOINTS FROM BEING LOCATED WITHIN A DRIVING, TURNING, OR PASSING LANE.

EXACT LOCATIONS FOR THE REMOVING DISTRESSED PAVEMENT MILLING SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

THE LOW SIDE SHOULDER SLOPE ON SUPERELEVATED SECTIONS EQUALS THE SUPERELEVATION WHEN THE SUPERELEVATION IS GREATER THAN 0.04 FT./FT. IF THE SUPERELEVATION IS LESS THAN OR EQUALS 0.04 FT./FT., THEN THE LOW SIDE SHOULDER SLOPE IS 0.04 FT./FT. THE HIGH SIDE SHOULDER SLOPE ON THE SUPERELEVATED SECTION EQUALS THE SUPERELEVATION.

FILL EXPANSION IS VARIABLE AND IS ESTIMATED AT 25%.

ADJUST DITCH GRADING AS NECESSARY TO FIELD CONDITIONS AND AS DIRECTED BY THE ENGINEER IN THE FIELD.

CURVE DATA IS BASED ON THE ARC DEFINITION.

FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT, ALL SIGNS RELATING TO THIS OPERATION SHALL BE COVERED OR REMOVED AND FACILITY RESTORED TO NORMAL OPERATIONS.

THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN. THE CONTRACTOR SHALL COORDINATE HIS CONSTRUCTION ACTIVITIES WITH A CALL TO "DIGGERS HOTLINE" AND/OR A DIRECT CALL TO THE UTILITIES THAT HAVE FACILITIES IN THE AREA. NOT ALL UTILITIES ARE MEMBERS OF DIGGERS HOTLINE.

CONSTRUCT CONCRETE SURFACE DRAIN AFTER BEAM GUARD POST PLACEMENT.

CONTRACTOR TO PROTECT HMOD 2J09, HMOD 2J10, HMOD 2J11 GPS AND KEEP CONSTRUCTION EQUIPMENT AT LEAST 10 FEET AWAY FROM HMOD 2J09, HMOD 2J10, HMOD 2J11 GPS.

ENSURE THAT HMOD 2J09, HMOD 2J10, HMOD 2J11 GPS IS/ARE NOT DISTURBED, BUMPED OR MOVED DURING THE DURATION OF THE PROJECT. NOTIFY JACOB ROCKWEILER IMMEDIATELY IF HMOD 2J09, HMOD 2J10, HMOD 2J11 GPS IS/ARE DISTURBED, BUMPED OR MOVED DURING CONSTRUCTION OPERATIONS.

JACOB ROCKWEILER, P.E., WISCONSIN HEIGHT MODERNIZATION PROGRAM MANAGER WITH THE WISCONSIN DEPARTMENT OF TRANSPORTATION WHOSE PHONE NUMBER IS (608) 516-6362 AND EMAIL IS jacob.rockweiler@dot.wi.gov

CONTACTS

WISCONSIN DEPARTMENT OF TRANSPORTATION:
WisDOT PROJECT MANAGER
2101 WRIGHT STREET
MADISON, WI 53704
ATTN: MATTHEW DAPP, P.E.
PH: (608) 246-5353
CELL: (608) 516-6481
EMAIL: matthew.dapp@dot.wi.gov

DESIGN CONSULTANT:
JEWELL ASSOCIATES ENGINEERS, INC.
560 SUNRISE DRIVE
SPRING GREEN, WI 53588
ATTN: ELLERY SCHAFFER, P.E.
PH: (608) 459-6027
CELL: (608) 341-8159
EMAIL: ellery.schaffer@jewellassoc.com

JEFFERSON COUNTY HIGHWAY DEPARTMENT
HIGHWAY OPERATIONS MANAGER
1425 SOUTH WISCONSIN DRIVE
JEFFERSON, WI 53549
ATTN: BRIAN UDOVICH
PH: (920) 723-7273
EMAIL: brianu@jeffersoncountywi.gov

WDNR LIAISON:
STATE OF WISCONSIN
DNR SERVICE CENTER
3911 FISH HATCHERY ROAD
FITCHBURG, WI 53711
ATTN: ERIC HEGGELUND
CELL: (608) 228-7927
EMAIL: eric.heggelund@wisconsin.gov

CITY OF JEFFERSON
CITY ENGINEER
ATTN: BILL PINNOW, P.E.
317 S MAIN ST
P.O. BOX 119
JEFFERSON, WI 53549
OFFICE: (920) 674-7727
EMAIL: bpinnow@jeffersonwis.com

TOWN OF JEFFERSON
TOWN CHAIRMAN
ATTN: MICHAEL HOLLINGER
N3687 SOUTH RAPIDS ROAD
JEFFERSON, WI 53549
OFFICE: (920) 650-0576
EMAIL: townchair@netwurx.net

UTILITIES

COMMUNICATION LINE
AT&T WISCONSIN
ATTN: CAROL ANASON
316 W WASHINGTON AVENUE
MADISON, WI 53701
OFFICE: (608) 252-2385
CELL: (920) 475-2799
EMAIL: ca2624@att.com

COMMUNICATION LINE
WINDSTREAM KDL, LLC.
ATTN: KEVIN PARRIS
1858 WRIGHT STREET
MADISON, WI 53704
OFFICE: (608) 819-5016
CELL: (608) 416-3291
EMAIL: Kevin.J.Parris@windstream.com

COMMUNICATION LINE
CHARTER COMMUNICATIONS
ATTN: RON FRASE
N3760 CTH DJ
JUNEAU, WI 53039
OFFICE: (920) 349-3202 EXT. 103
CELL: (608) 438-9648
EMAIL: Ronald.frase@charter.com

GAS/PETROLEUM
WE ENERGIES
ATTN: NICOLE SMULLEN
333 W EVERETT ST, RM A299
MILWAUKEE, WI 53203
OFFICE: (414) 221-5617
CELL: (414) 460-7190
EMAIL: Nicole.Smullen@we-energies.com

COMMUNICATION LINE
PAETEC COMMUNICATIONS, LLC
ATTN: KEVIN PARRIS
1858 WRIGHT STREET
MADISON, WI 53704
OFFICE: (608) 819-5016
CELL: (608) 416-3291
EMAIL: Kevin.J.Parris@windstream.com

SANITARY SEWER/WATER
CITY OF JEFFERSON
ATTN: WILLIAM PINNOW
317 S MAIN ST
P.O. BOX 119
JEFFERSON, WI 53549
OFFICE: (920) 674-7727
EMAIL: bpinnow@jeffersonwis.com

COMMUNICATION LINE
TDS TELECOM
ATTN: MATTHEW SCHULTE
16924 WEST VICTOR RD
NEW BERLIN, WI 53151
OFFICE: (262) 754-3063
CELL: (262) 409-1177
EMAIL: matt.schulte@tdstelecom.com

ELECTRICITY
WE ENERGIES
ATTN: NICOLE SMULLEN
333 W EVERETT ST, RM A299
MILWAUKEE, WI 53203
OFFICE: (414) 221-5617
CELL: (414) 460-7190
EMAIL: Nicole.Smullen@we-energies.com

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

LIST OF STANDARD ABBREVIATIONS

ABUT	Abutment
AC	Acre
AGG	Aggregate
AH	Ahead
<	Angle
ASPH	Asphaltic
AVG	Average
ADT	Average Daily Traffic
BAD	Base Aggregate Dense
BK	Back
BF	Back Face
BM	Bench Mark
BR	Bridge
C or C/L	Center Line
CC	Center to Center
C.E.	Commercial Entrance
CTH	County Trunk Highway
CR	Creek
CR	Crushed
CY or CU YD	Cubic Yard
CP	Culvert Pipe
C & G	Curb and Gutter
D	Degree of Curve
DHV	Design Hour Volume
DIA	Diameter
E	East
X	East Grid Coordinate
ELEC	Electric (al)
EL or ELEV	Elevation
ESALS	Equivalent Single Axle Loads
EBS	Excavation Below Subgrade
FF	Face to Face
F.E.	Field Entrance
F	Fill
FG	Finished Grade
FL or F/L	Flow Line
FT	Foot
FTG	Footing
GN	Grid North
HT	Height
CWT	Hundredweight
HYD	Hydrant
INL	Inlet
ID	Inside Diameter
INV	Invert
IP	Iron Pipe or Pin
IRS	Iron Rod Set
JT	Joint
JCT	Junction
LHF	Left-Hand Forward
L	Length of Curve
LIN FT or LF	Linear Foot
LC	Long Chord of Curve
MH	Manhole
MB	Mailbox
ML or M/L	Match Line
N	North
Y	North Grid Coordinate
OD	Outside Diameter
PLE	Permanent Limited Easement
PT	Point
PC	Point of Curvature
PI	Point of Intersection
PRC	Point of Reverse Curvature
PT	Point of Tangency
POC	Point On Curve
POT	Point on Tangent
PVC	Polyvinyl Chloride
PCC	Portland Cement Concrete
LB	Pound
PSI	Pounds Per Square Inch
P.E.	Private Entrance
R	Radius
RR	Railroad
R	Range
RL or R/L	Reference Line
RP	Reference Point
RCCP	Reinforced Concrete Culvert Pipe
REQD	Required
RES	Residence or Residential
RW	Retaining Wall
RT	Right
RHF	Right-Hand Forward
R/W	Right-of-Way
RD	Road
R	River
RDWY	Roadway
SALV	Salvaged
SAN S	Sanitary Sewer
SEC	Section
SHLDR	Shoulder
SHR	Shrinkage
SW	Sidewalk
S	South
SQ	Square
SF or SQ FT	Square Feet
SY or SQ YD	Square Yard
STD	Standard
SDD	Standard Detail Drawings
STH	State Trunk Highways
STA	Station
SS	Storm Sewer
SG	Subgrade
SE	Superelevation
SL or S/L	Survey Line
SV	Septic Vent
T	Tangent
TEL	Telephone
TEMP	Temporary
TI	Temporary Interest
TLE	Temporary Limited Easement
t	Ton
T or TN	Town
TRANS	Transition
TL or T/L	Transit Line
T	Trucks (percent of)
TYP	Typical
UNCL	Unclassified
UG	Underground Cable
USH	United States Highway
VAR	Variable
V	Velocity or Design Speed
VERT	Vertical
VC	Vertical Curve
VOL	Volume
WM	Water Main
WV	Water Valve
W	West
WB	Westbound
YD	Yard

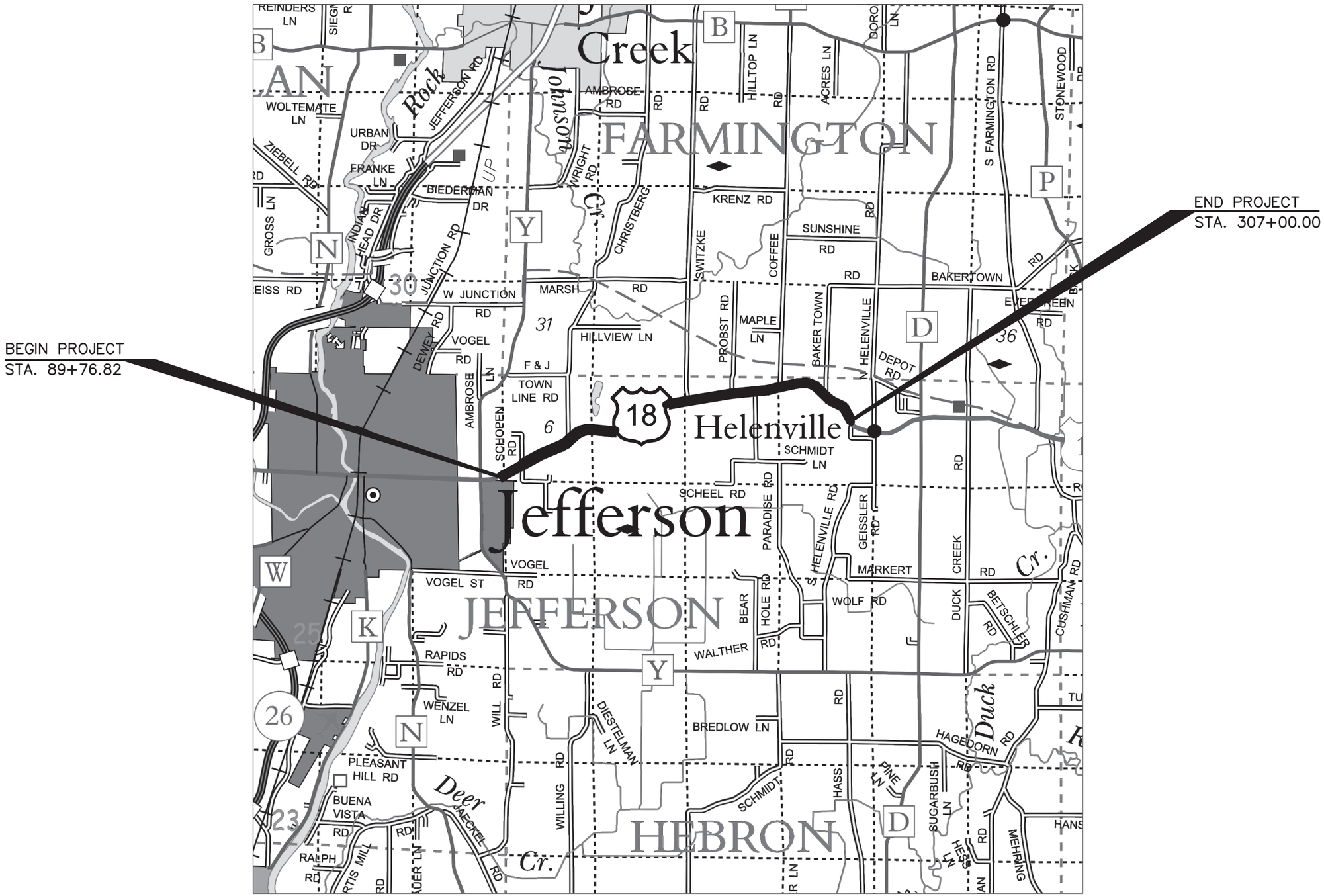
ORDER OF SECTION 2 SHEETS:

- WRITTEN MATERIAL
- PROJECT OVERVIEW
- TYPICAL SECTIONS
- CONSTRUCTION DETAILS (INCLUDES EROSION CONTROL PLAN)
- PLAN DETAILS

▲ CONTROL POINTS

No.	STATION	DESCRIPTION	Y	X
900	104+83	NGS/JEFFERSON, RT.	557,608.86	865,626.06
901	300+16	NGS/FARMINGTON, LT.	569,366.45	891,491.41
902	88+72	¾" REBAR SET, 18.3 LT.	558,873.76	863,103.43
903	99+03	¾" REBAR SET, 32.8' RT.	559,324.60	864,033.11
904	131+25	¾" REBAR SET, 36.6' LT.	560,800.54	866,878.46
905	137+18	¾" REBAR SET, 20.0' RT.	561,164.54	867,343.66
906	190+40	¾" REBAR SET, 25.0' LT.	562,720.64	872,148.35
907	244+32	¾" REBAR SET, 41.1' RT.	563,397.94	877,477.13
908	287+32	¾" REBAR SET, 42.6' LT.	563,167.30	881,495.34
909	307+93	¾" REBAR SET, 23.0' LT.	561,796.15	882,874.61

2



PROJECT NO: 3080-09-60	HWY: USH 18	COUNTY: JEFFERSON	PROJECT OVERVIEW	SHEET 3	E

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PLOT BY : JULIA ZEHNER
PLOT SCALE : 1" = 1'

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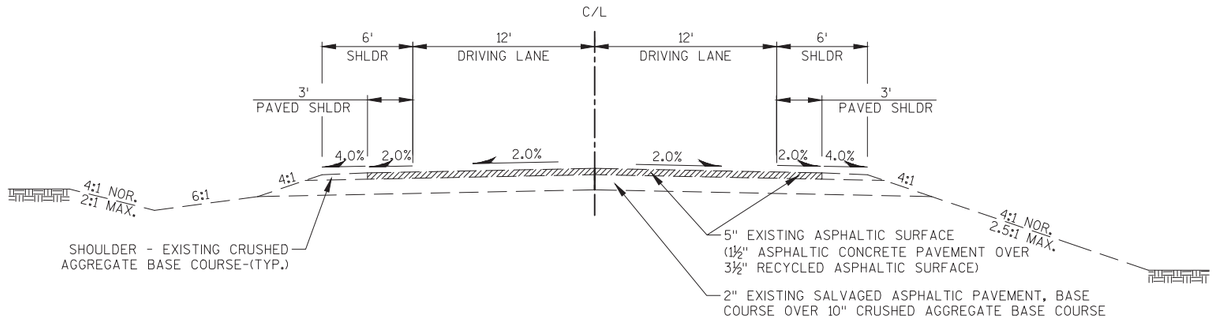
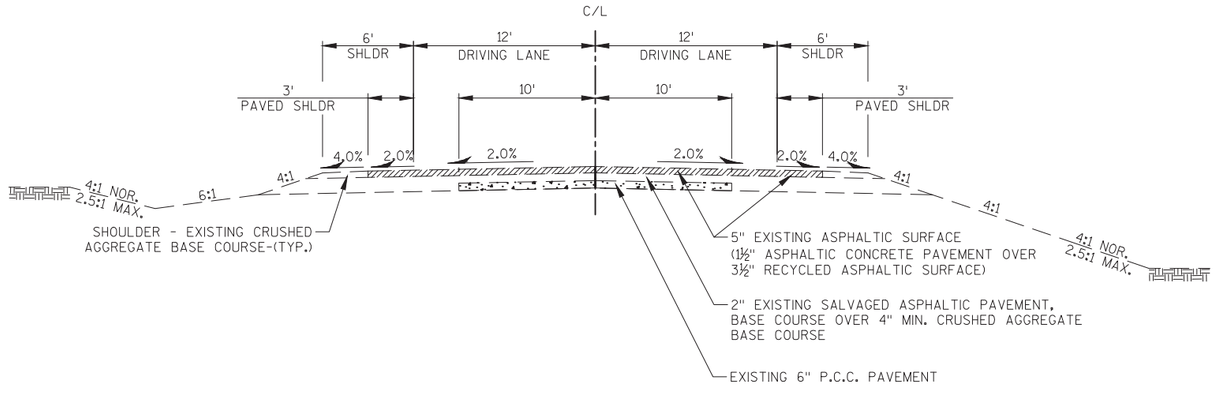


TYPICAL EXISTING SECTION

STA. 90+59 - STA. 92+00
STA. 109+00 - STA. 109+92
STA. 115+51 - STA. 124+68
STA. 169+80 - STA. 170+00
STA. 194+23 - STA. 233+23
STA. 240+60 - STA. 244+30
STA. 249+93 - STA. 259+00
STA. 282+05 - STA. 286+69
STA. 293+89 - STA. 296+64
STA. 302+56 - STA. 307+00

} EXCEPT AS DETAILED FOR HALF URBAN TYPICAL EXISTING SECTIONS



TYPICAL EXISTING SECTION

STA. 92+00 - STA. 109+00
STA. 148+80 - STA. 157+22
STA. 170+00 - STA. 176+84
STA. 185+42 - STA. 186+54

} EXCEPT AS DETAILED FOR HALF URBAN TYPICAL EXISTING SECTIONS

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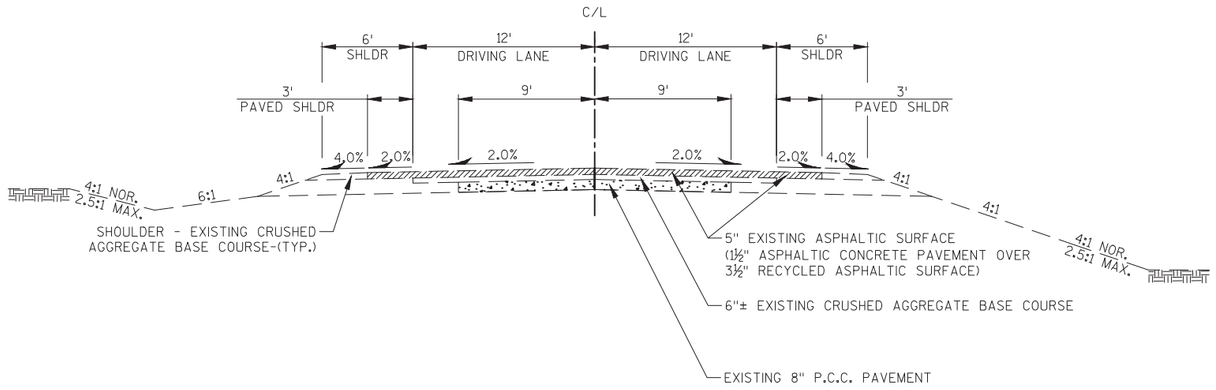
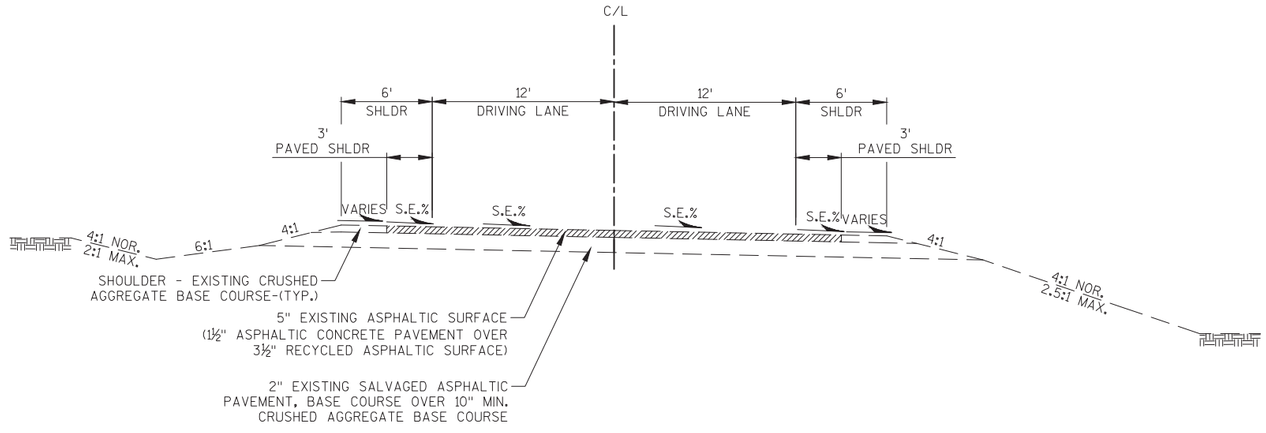


TYPICAL EXISTING SECTION

STA. 259+00 TO STA. 267+53



TYPICAL EXISTING SUPERELEVATED SECTION

STA. 89+76.82 - STA. 90+59
STA. 109+92 - STA. 115+51
STA. 124+68 - STA. 148+00
STA. 160+00 - STA. 169+80
STA. 189+00 - STA. 194+23
STA. 233+23 - STA. 240+60
STA. 244+30 - STA. 249+93
STA. 269+00 - STA. 282+05
STA. 286+69 - STA. 293+89
STA. 296+64 - STA. 302+56

PROJECT NO: 3080-09-60	HWY: USH 18	COUNTY: JEFFERSON	TYPICAL EXISTING SECTIONS	SHEET 5	E

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PLOT SCALE : 1" = 1'

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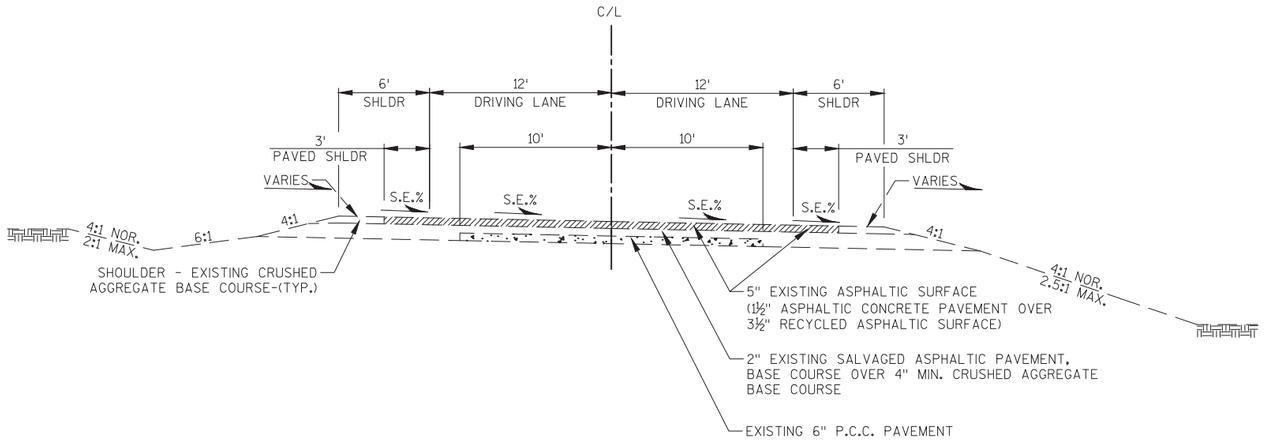
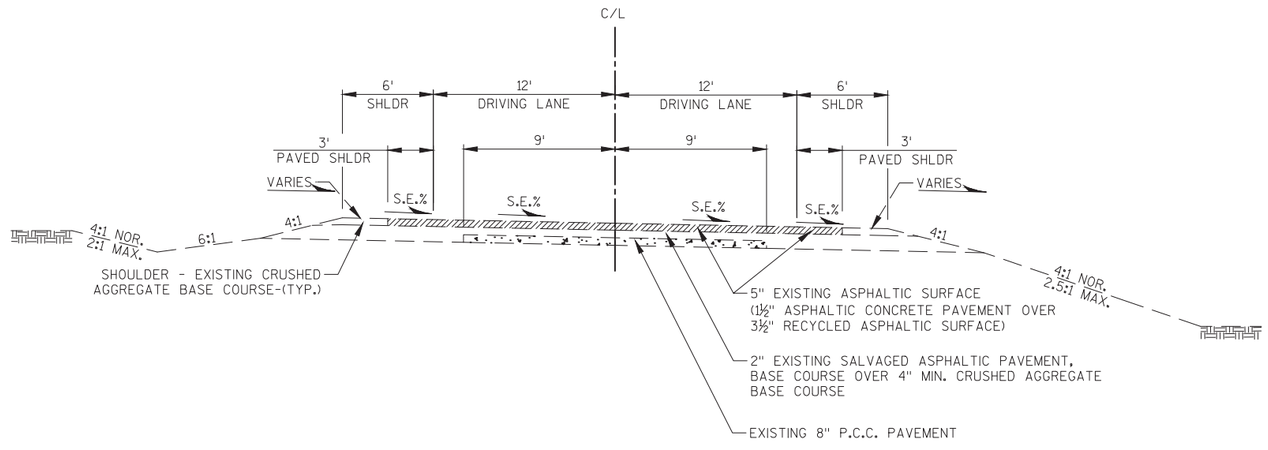


TYPICAL EXISTING SUPERELEVATED SECTION

STA. 148+00 - STA. 148+80
STA. 157+22 - STA. 160+00
STA. 176+84 - STA. 185+42
STA. 186+54 - STA. 189+00



TYPICAL EXISTING SUPERELEVATED SECTION

STA. 267+53 - STA. 269+00

PROJECT NO: 3080-09-60	HWY: USH 18	COUNTY: JEFFERSON	TYPICAL EXISTING SECTIONS	SHEET 6	E

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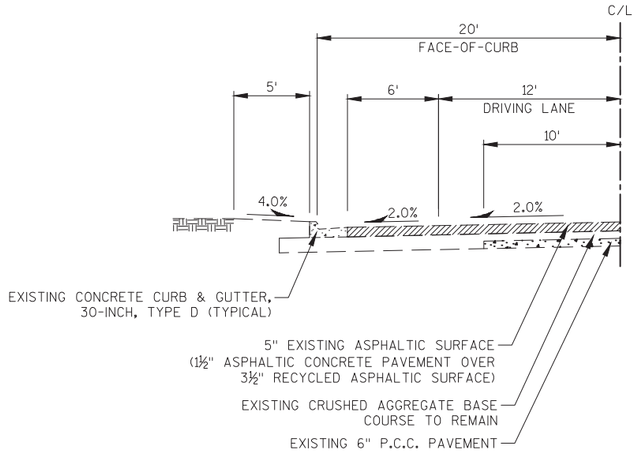
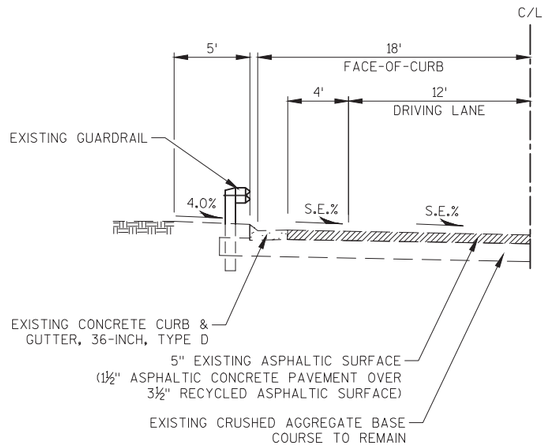


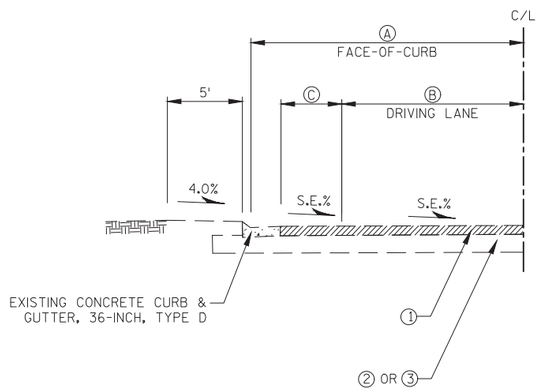
HALF URBAN TYPICAL EXISTING SECTION

STA. 98+12 - STA. 101+69, LT.



HALF URBAN TYPICAL EXISTING SUPERELEVATED SECTION

STA. 133+73 - STA. 137+45, LT.



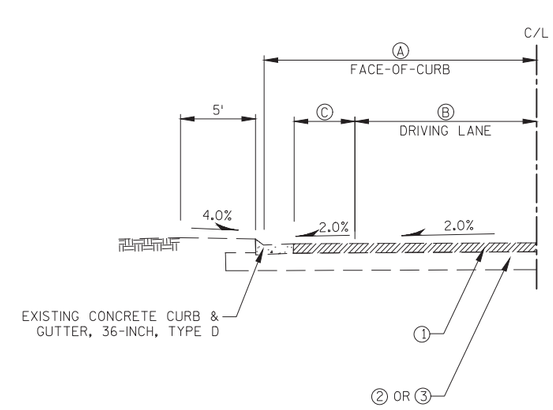
HALF URBAN TYPICAL EXISTING SUPERELEVATED SECTION

	Ⓐ (FT.)	Ⓑ (FT.)	Ⓒ (FT.)
STA. 134+15 - STA. 137+21, RT.	18	12	4
STA. 168+28 - STA. 169+80, LT.	18	12	4
STA. 178+53 - STA. 179+52, LT.	18	12	4
STA. 296+65 - STA. 302+56, RT.	18	12	4

① 5" EXISTING ASPHALTIC SURFACE (1½" ASPHALTIC CONCRETE PAVEMENT OVER 3½" RECYCLED ASPHALTIC SURFACE)

② 2" EXISTING SALVAGED ASPHALTIC PAVEMENT, BASE COURSE OVER 4" MIN. CRUSHED AGGREGATE BASE COURSE OVER 6" P.C.C. PAVEMENT

③ 2" EXISTING SALVAGED ASPHALTIC PAVEMENT, BASE COURSE OVER 10" CRUSHED AGGREGATE BASE COURSE



HALF URBAN TYPICAL EXISTING SECTION

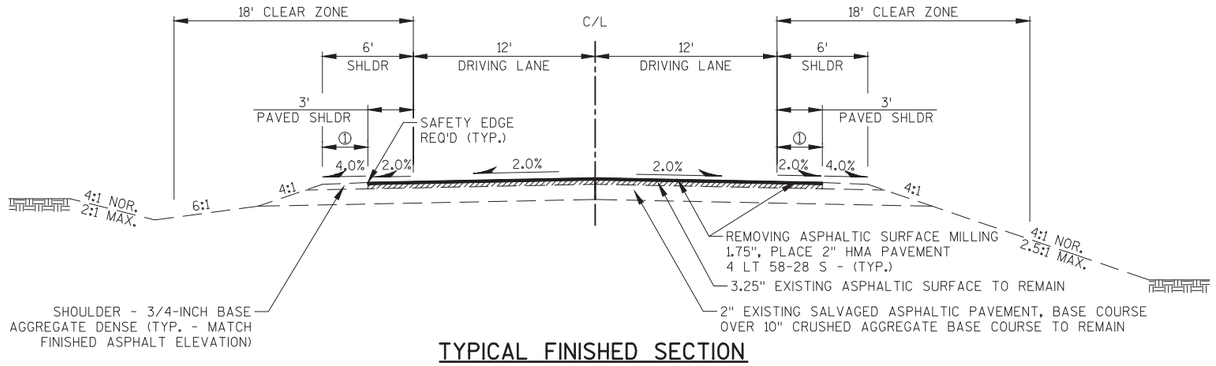
	Ⓐ (FT.)	Ⓑ (FT.)	Ⓒ (FT.)
STA. 169+80 - STA. 170+23, LT.	18	12	4
STA. 227+98 - STA. 230+34, LT.	18	12	4
STA. 252+02 - STA. 254+52, LT.	18	12	4
STA. 255+96 - STA. 258+55, RT.	18	12	4
STA. 285+99 - STA. 286+40, LT.	24	12	10
STA. 302+56 - STA. 307+00, RT.	18	12	4

① 5" EXISTING ASPHALTIC SURFACE (1½" ASPHALTIC CONCRETE PAVEMENT OVER 3½" RECYCLED ASPHALTIC SURFACE)

② 2" EXISTING SALVAGED ASPHALTIC PAVEMENT, BASE COURSE OVER 4" MIN. CRUSHED AGGREGATE BASE COURSE OVER 6" P.C.C. PAVEMENT

③ 2" EXISTING SALVAGED ASPHALTIC PAVEMENT, BASE COURSE OVER 10" CRUSHED AGGREGATE BASE COURSE

2

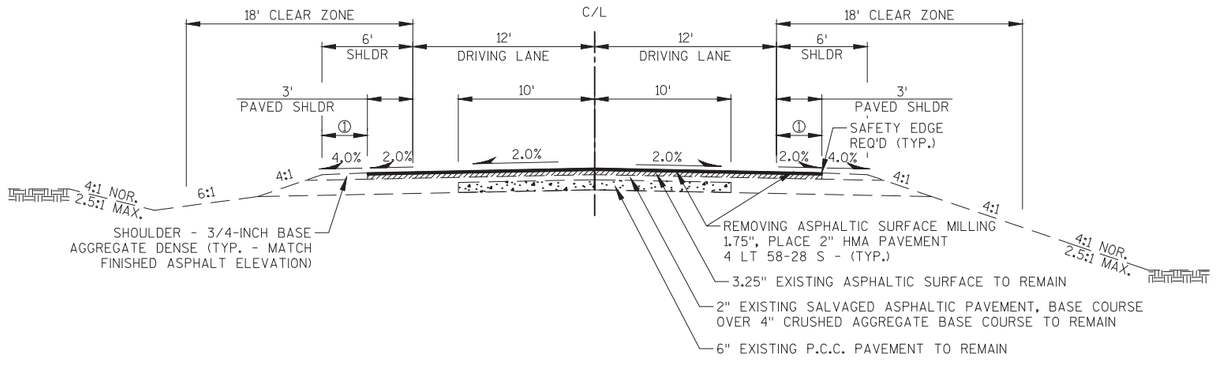


TYPICAL FINISHED SECTION

STA. 90+59 - STA. 92+00
STA. 109+00 - STA. 109+92
STA. 115+51 - STA. 124+68
STA. 169+80 - STA. 170+00
STA. 194+23 - STA. 233+23
STA. 240+60 - STA. 244+30
STA. 249+93 - STA. 259+00
STA. 282+05 - STA. 286+69
STA. 293+89 - STA. 296+64
STA. 302+56 - STA. 307+00

} EXCEPT AS DETAILED FOR HALF URBAN TYPICAL FINISHED SECTIONS

① SHAPING SHOULDERS REQ'D.



TYPICAL FINISHED SECTION

STA. 92+00 - STA. 109+00
STA. 148+80 - STA. 157+22
STA. 170+00 - STA. 176+84
STA. 185+42 - STA. 186+54

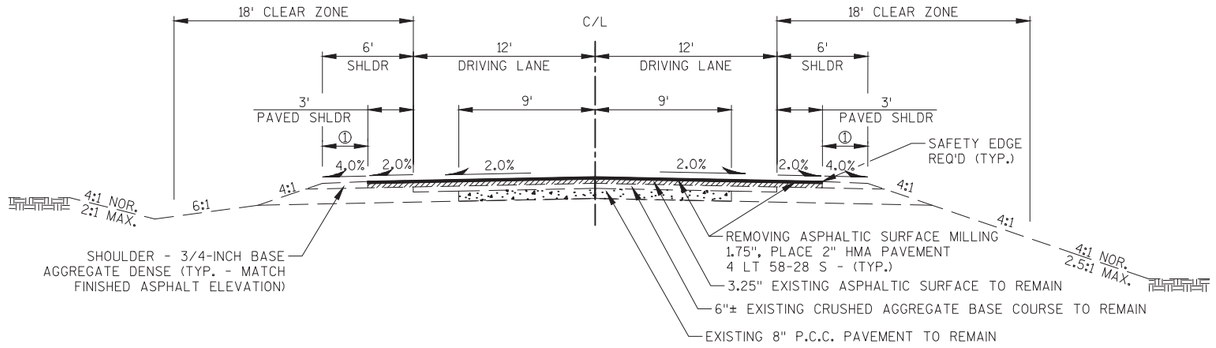
} EXCEPT AS DETAILED FOR HALF URBAN TYPICAL FINISHED SECTIONS

① SHAPING SHOULDERS REQ'D.

PROJECT NO: 3080-09-60	HWY: USH 18	COUNTY: JEFFERSON	TYPICAL FINISHED SECTIONS	SHEET 8	E

FILE NAME : S:\PROJECTS\W11572 USH 18 JEFFERSON COUNTY\SHEETSPLAN\TYPICALS\MAINLINE FINISHED TYPICAL.DWG
LAYOUT : TYP. FINISHED (1)
PLOT DATE : 1/16/2019
PLOT TIME : 1:51:23 PM
PLOT BY : JULIA ZEHNER
PLOT SCALE : 1" = 1'

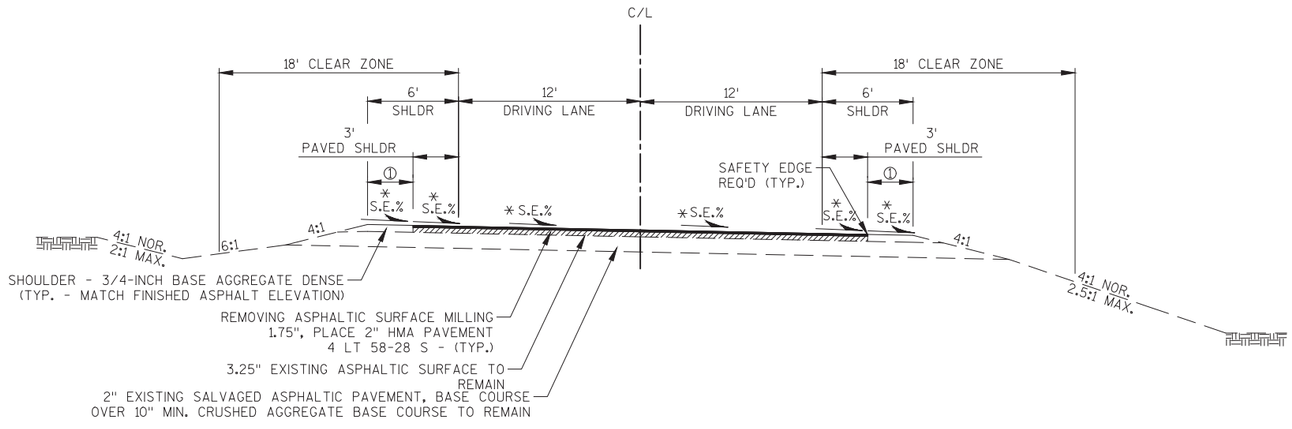
2



TYPICAL FINISHED SECTION

STA. 259+00 TO STA. 267+53

① SHAPING SHOULDERS REQ'D.



TYPICAL FINISHED SUPERELEVATED SECTION

STA. 89+76.82 - STA. 90+59
STA. 109+92 - STA. 115+51
STA. 124+68 - STA. 148+00
STA. 160+00 - STA. 169+80
STA. 189+00 - STA. 194+23
STA. 233+23 - STA. 240+60
STA. 244+30 - STA. 249+93
STA. 269+00 - STA. 282+05
STA. 286+69 - STA. 293+89
STA. 296+64 - STA. 302+56

① SHAPING SHOULDERS REQ'D.

* SEE SUPERELEVATION TABLE

PROJECT NO: 3080-09-60	HWY: USH 18	COUNTY: JEFFERSON	TYPICAL FINISHED SECTIONS	SHEET 9	E

FILE NAME : S:\PROJECTS\W11572 USH 18 JEFFERSON COUNTY\SHEETSPLAN\TYPICALS\MAINLINE FINISHED TYPICAL.DWG
LAYOUT : TYP. FINISHED (2)
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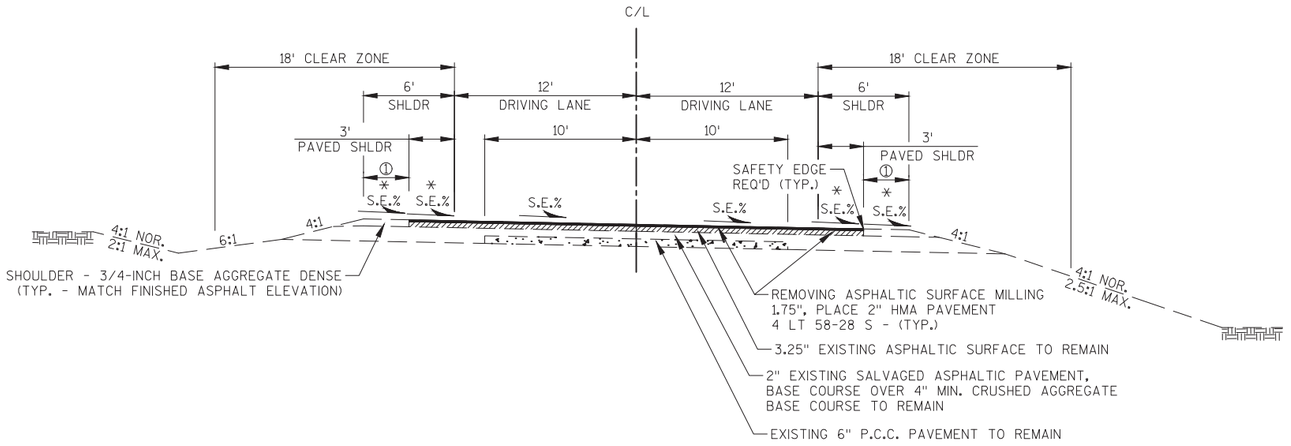
PLOT BY : JULIA ZEHNER
PLOT SCALE : 1" = 1'

2

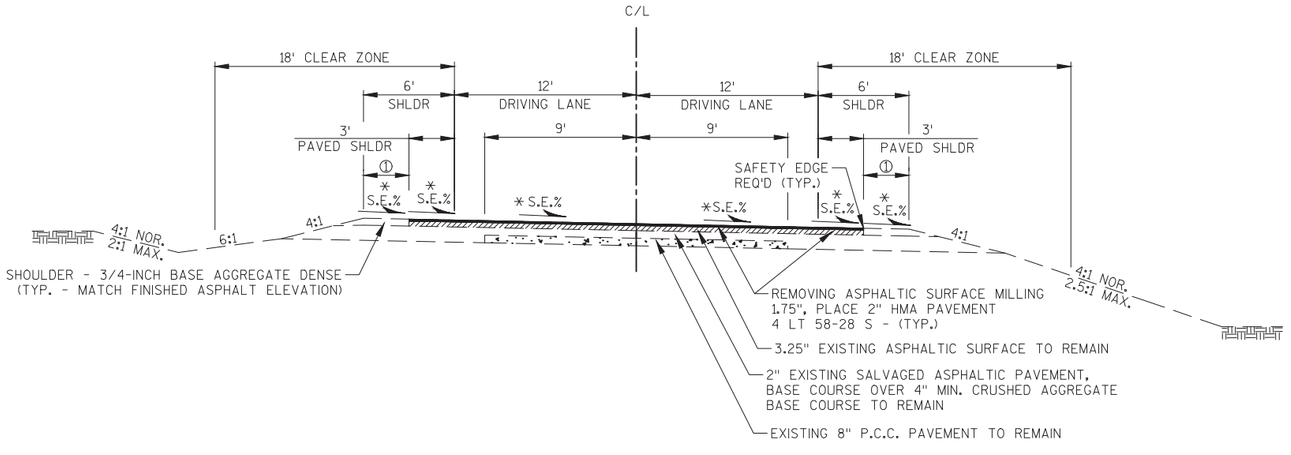


TYPICAL FINISHED SUPERELEVATED SECTION

STA. 148+00 - STA. 148+80
STA. 157+22 - STA. 160+00
STA. 176+84 - STA. 185+42
STA. 186+54 - STA. 189+00

① SHAPING SHOULDERS REQ'D.

* SEE SUPERELEVATION TABLE



TYPICAL FINISHED SUPERELEVATED SECTION

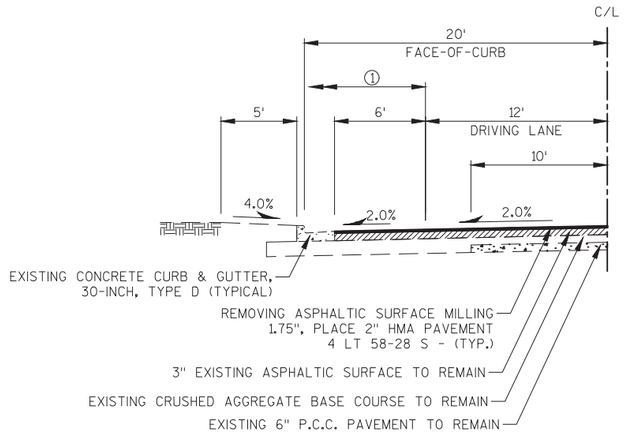
STA. 267+53 - STA. 269+00

① SHAPING SHOULDERS REQ'D.

* SEE SUPERELEVATION TABLE

PROJECT NO: 3080-09-60	HWY: USH 18	COUNTY: JEFFERSON	TYPICAL FINISHED SECTIONS	SHEET 10	E

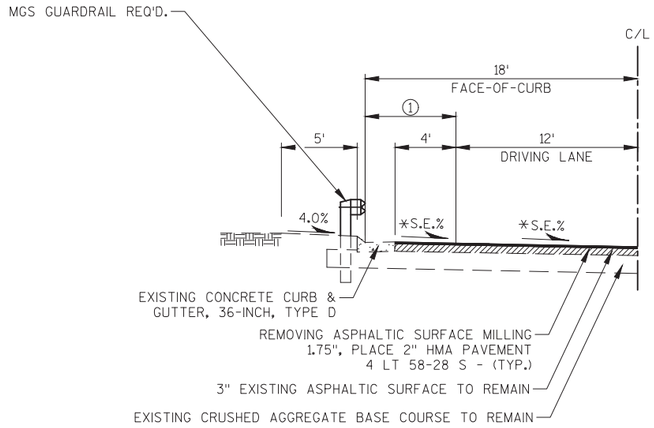
FILE NAME : S:\PROJECTS\W11572 USH 18 JEFFERSON COUNTY\SHEETSPLAN\TYPICALS\MAINLINE FINISHED TYPICAL.DWG
LAYOUT : TYP. FINISHED (3)
PLOT DATE : 1/16/2019
PLOT TIME : 1:51:31 PM
PLOT BY : JULIA ZEHNER
PLOT SCALE : 1" = 1'



HALF URBAN TYPICAL FINISHED SECTION

STA. 98+12 - STA. 101+69, LT.

① 6' LATERAL CLEARANCE

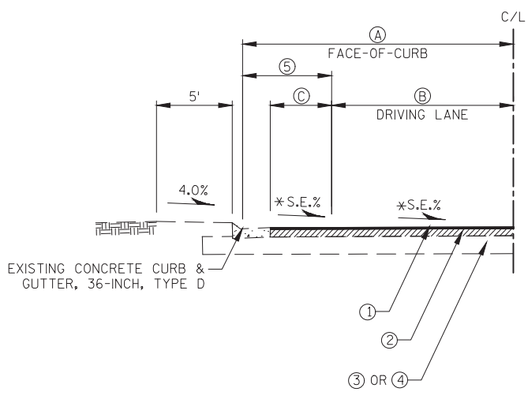


HALF URBAN TYPICAL FINISHED SUPERELEVATED SECTION

STA. 133+73 - STA. 137+45, LT.

① 6' LATERAL CLEARANCE

* SEE SUPERELEVATION TABLE



HALF URBAN TYPICAL FINISHED SUPERELEVATED SECTION

	Ⓐ (FT.)	Ⓑ (FT.)	Ⓒ (FT.)
STA. 134+15 - STA. 137+21, RT.	18	12	4
STA. 168+28 - STA. 169+80, LT.	18	12	4
STA. 178+53 - STA. 179+52, LT.	18	12	4
STA. 296+65 - STA. 302+56, RT.	18	12	4

① REMOVING ASPHALTIC SURFACE MILLING 1.75", PLACE 2" HMA PAVEMENT 4 LT 58-28 S

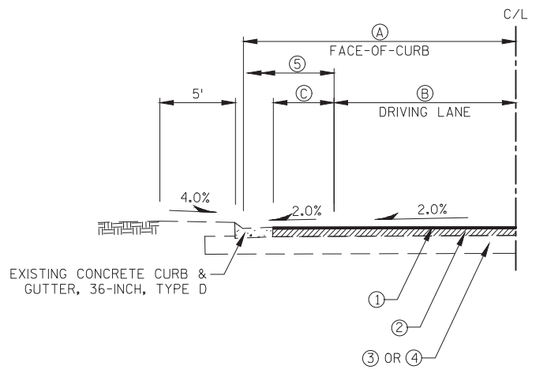
② 3" EXISTING ASPHALTIC SURFACE TO REMAIN

③ 2" EXISTING SALVAGED ASPHALTIC PAVEMENT, BASE COURSE OVER 4" MIN. CRUSHED AGGREGATE BASE COURSE OVER 6" P.C.C. PAVEMENT TO REMAIN

④ 2" EXISTING SALVAGED ASPHALTIC PAVEMENT, BASE COURSE OVER 10" CRUSHED AGGREGATE BASE COURSE TO REMAIN

⑤ 6' LATERAL CLEARANCE

* SEE SUPERELEVATION TABLE



HALF URBAN TYPICAL FINISHED SECTION

	Ⓐ (FT.)	Ⓑ (FT.)	Ⓒ (FT.)
STA. 169+80 - STA. 170+23, LT.	18	12	4
STA. 227+98 - STA. 230+34, LT.	18	12	4
STA. 252+02 - STA. 254+52, LT.	18	12	4
STA. 255+96 - STA. 258+55, RT.	18	12	4
STA. 285+99 - STA. 286+40, LT.	24	12	10
STA. 302+56 - STA. 307+00, RT.	18	12	4

① REMOVING ASPHALTIC SURFACE MILLING 1.75", PLACE 2" HMA PAVEMENT 4 LT 58-28 S

② 3" EXISTING ASPHALTIC SURFACE TO REMAIN

③ 2" EXISTING SALVAGED ASPHALTIC PAVEMENT, BASE COURSE OVER 4" MIN. CRUSHED AGGREGATE BASE COURSE OVER 6" P.C.C. PAVEMENT TO REMAIN

④ 2" EXISTING SALVAGED ASPHALTIC PAVEMENT, BASE COURSE OVER 10" CRUSHED AGGREGATE BASE COURSE TO REMAIN

⑤ 6' LATERAL CLEARANCE

* SEE SUPERELEVATION TABLE

SUPERELEVATION TABLE-CURVE 1

STATION	LEFT(%)	RIGHT(%)
89+76.82	MATCH EXISTING	MATCH EXISTING
90+00	MATCH EXISTING	MATCH EXISTING
90+50	MATCH EXISTING	MATCH EXISTING
90+59	2.0	2.0

SUPERELEVATION TABLE-CURVE 2

STATION	LEFT(%)	RIGHT(%)
110+21	2.0	2.0
110+50	0.7	2.0
111+00	1.5	2.0
111+33	3.0	3.0
FULL SUPERELEVATION		
114+10	3.0	3.0
114+50	1.2	2.0
115+00	1.0	2.0
115+22	2.0	2.0

SUPERELEVATION TABLE-CURVE 3

STATION	LEFT(%)	RIGHT(%)
124+68	2.0	2.0
125+00	2.0	0.8
125+50	2.0	1.1
126+00	3.0	3.0
126+50	4.9	4.9
126+78	5.9	5.9
FULL SUPERELEVATION		
132+58	5.9	5.9
133+00	4.3	4.3
133+50	2.4	2.4
134+00	0.6	0.6
134+15	0.0	0.0

SUPERELEVATION TABLE-CURVE 4

STATION	LEFT(%)	RIGHT(%)	
134+15	MATCH EXISTING	MATCH EXISTING	MATCH FLANGELINE OF EXISTING CURB & GUTTER (BOTH SIDES)
134+50	MATCH EXISTING	MATCH EXISTING	
135+00	MATCH EXISTING	MATCH EXISTING	
135+50	MATCH EXISTING	MATCH EXISTING	
136+00	MATCH EXISTING	MATCH EXISTING	
136+50	MATCH EXISTING	MATCH EXISTING	
137+00	MATCH EXISTING	MATCH EXISTING	
137+45	MATCH EXISTING	MATCH EXISTING	
137+58	5.9	5.9	
FULL SUPERELEVATION			
146+78	5.9	5.9	STATIONING REFERENCED TO "STATIONING AHEAD" STATION EQUATION
147+00	5.0	5.0	
147+50	3.1	3.1	
148+00	1.1	2.0	
148+50	0.8	2.0	
148+80	2.0	2.0	

SUPERELEVATION TABLE-CURVE 5

STATION	LEFT(%)	RIGHT(%)	
157+22	2.0	2.0	STATIONING REFERENCED TO "STATIONING AHEAD" STATION EQUATION
157+50	2.0	0.9	
158+00	2.0	1.1	
158+50	3.0	3.0	
159+00	5.0	5.0	
159+24	5.9	5.9	
FULL SUPERELEVATION			
167+78	5.9	5.9	
168+00	5.1	5.1	
168+50	3.1	3.1	
169+00	2.0	1.1	
169+50	2.0	0.8	
169+80	2.0	2.0	

SUPERELEVATION TABLE-CURVE 6

STATION	LEFT(%)	RIGHT(%)
176+84	2.0	2.0
177+00	1.4	2.0
177+50	0.4	2.0
178+00	2.3	2.3
178+37	3.7	3.7
FULL SUPERELEVATION		
183+89	3.7	3.7
184+00	3.3	3.3
184+50	1.4	2.0
185+00	0.4	2.0
185+42	2.0	2.0

SUPERELEVATION TABLE-CURVE 7

STATION	LEFT(%)	RIGHT(%)
186+54	2.0	2.0
187+00	0.3	2.0
187+50	1.6	2.0
188+00	3.5	3.5
188+50	5.4	5.4
188+67	6.0	6.0
FULL SUPERELEVATION		
192+10	6.0	6.0
192+50	4.5	4.5
193+00	2.6	2.6
193+50	0.8	2.0
194+00	1.1	2.0
194+23	2.0	2.0

SUPERELEVATION TABLE-CURVE 8

MAINTAIN NORMAL CROWN THROUGH CURVE 8

SUPERELEVATION TABLE-CURVE 9

STATION	LEFT(%)	RIGHT(%)	
233+23	2.0	2.0	STATIONING REFERENCED TO "STATIONING AHEAD" STATION EQUATION
233+50	1.0	2.0	
234+00	0.9	2.0	
234+50	2.8	2.8	
234+96	4.5	4.5	
FULL SUPERELEVATION			
238+87	4.5	4.5	
239+00	4.0	4.0	
239+50	2.1	2.1	
240+00	0.3	2.0	
240+50	1.6	2.0	
240+60	2.0	2.0	

SUPERELEVATION TABLE-CURVE 10

STATION	LEFT(%)	RIGHT(%)	
244+30	2.0	MATCH EXISTING	MATCH EXISTING PARADISE ROAD (RIGHT SIDE)
244+50	2.0	MATCH EXISTING	
244+65	2.0	MATCH EXISTING	
245+00	2.0	MATCH EXISTING	
245+50	2.7	2.7	
246+00	4.7	4.7	
246+34	6.0	6.0	
FULL SUPERELEVATION			
247+89	6.0	6.0	
248+00	5.6	5.6	
248+50	3.6	3.6	
249+00	2.0	1.6	
249+50	2.0	0.3	
249+93	2.0	2.0	

SUPERELEVATION TABLE-CURVE 11

MAINTAIN NORMAL CROWN THROUGH CURVE 11

SUPERELEVATION TABLE-CURVE 12

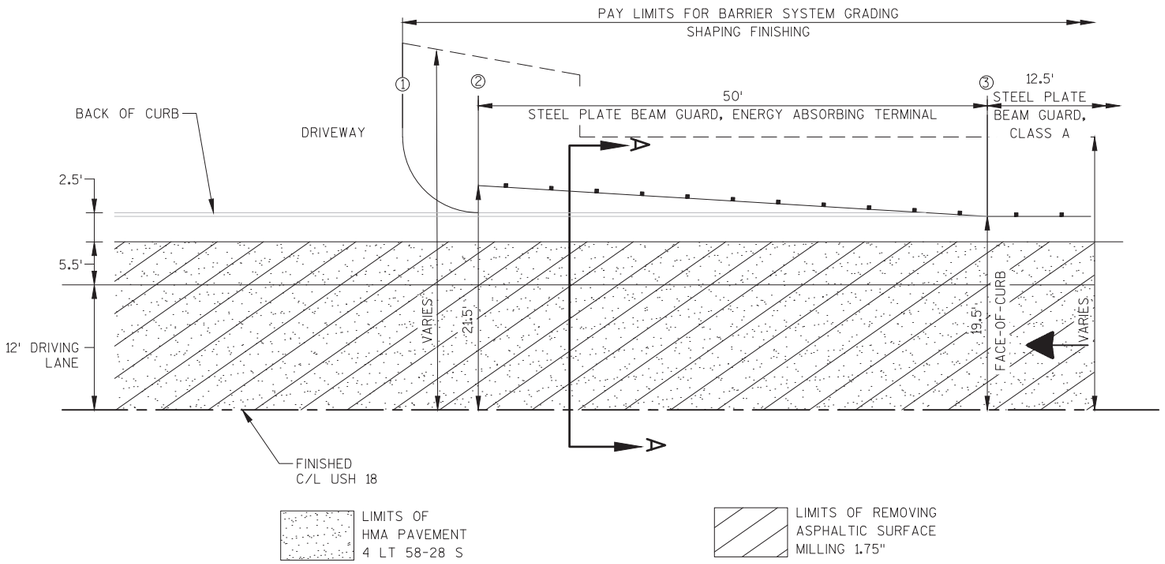
STATION	LEFT(%)	RIGHT(%)
267+53	2.0	2.0
268+00	0.2	2.0
268+50	1.8	2.0
269+00	3.8	3.8
269+50	5.7	5.7
269+57	6.0	6.0
FULL SUPERELEVATION		
280+01	6.0	6.0
280+50	4.1	4.1
281+00	2.1	2.1
281+50	0.2	2.0
282+00	1.8	2.0
282+05	2.0	2.0

SUPERELEVATION TABLE-CURVE 13

STATION	LEFT(%)	RIGHT(%)	
286+69	MATCH EXISTING	2.0	MATCH EXISTING AT BAKERTOWN ROAD (LEFT SIDE)
287+00	MATCH EXISTING	0.7	
287+50	MATCH EXISTING	1.4	
287+80	MATCH EXISTING	2.7	
288+00	3.5	3.5	
288+50	5.6	5.6	
288+51	5.6	5.6	
FULL SUPERELEVATION			
292+07	5.6	5.6	STATIONING REFERENCED TO "STATIONING AHEAD" STATION EQUATION
292+50	3.8	3.8	
293+00	2.0	1.7	
293+50	2.0	0.4	
293+89	2.0	2.0	

SUPERELEVATION TABLE-CURVE 14

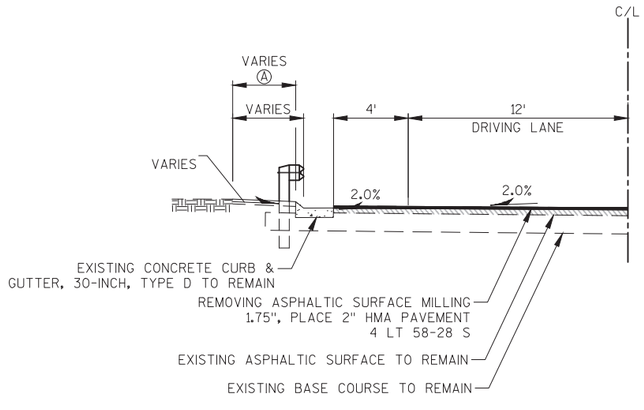
STATION	LEFT(%)	RIGHT(%)
296+64	2.0	2.0
297+00	0.2	2.0
297+50	2.8	2.8
297+91	5.0	5.0
FULL SUPERELEVATION		
301+29	5.0	5.0
301+50	3.9	3.9
302+00	1.1	2.0
302+50	1.7	2.0
302+56	2.0	2.0



BEAMGUARD LAYOUT DETAIL–URBAN

STATION-STATION	LOCATION	BEAMGUARD LAYOUT TABLE STATION ①	②	③
98+35 - 98+85	MAINLINE, LT.	98+30	98+35	98+85
98+97 - 99+47	MAINLINE, LT.	99+50	99+47	98+97

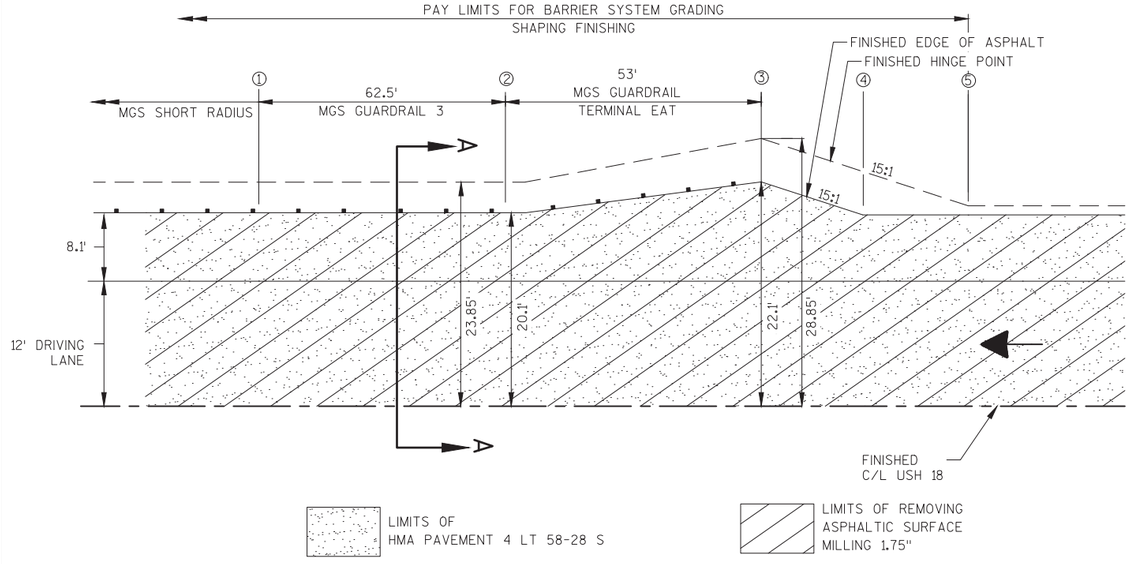
NOTE: IN AREAS WITHOUT CURB & GUTTER REFER TO BEAMGUARD LAYOUT DETAIL - RURAL FOR FURTHER INFORMATION. SEE CONSTRUCTION DETAILS (BEAM GUARD LAYOUT) FOR LIMITS OF SAWING. EXISTING CONCRETE CURB HEAD TO MEET DRIVEWAY CURB REQUIREMENT (PAID FOR UNDER SPV.0090.01 PROFILE CURB CUT).



SECTION A–A

* SEE SUPERELEVATION TABLE

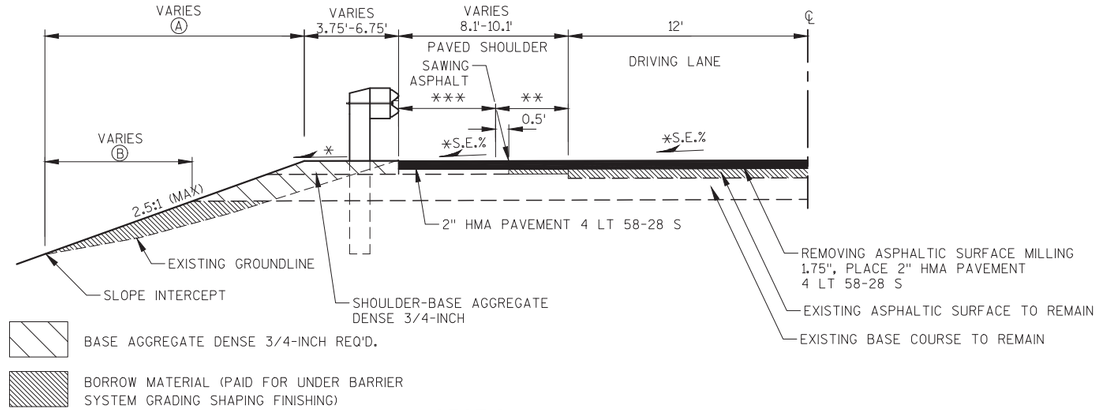
Ⓐ LIMITS OF EROSION MAT URBAN CLASS I TYPE B, FERTILIZER TYPE B, SEEDING MIXTURE NO. 30, SEEDING TEMPORARY, AND SALVAGED TOPSOIL. (AS DIRECTED BY THE ENGINEER). PAID FOR UNDER BARRIER SYSTEM GRADING SHAPING FINISHING BID ITEM.



BEAMGUARD LAYOUT DETAIL–RURAL

STATION-STATION	LOCATION	BEAMGUARD LAYOUT TABLE STATION ①	②	③	④	⑤
132+69 - 133+94	MAINLINE, LT.	132+69	133+32	133+85	133+89	133+91

NOTE: IN AREAS WITH CURB & GUTTER REFER TO BEAMGUARD LAYOUT DETAIL - URBAN FOR FURTHER INFORMATION. SEE CONSTRUCTION DETAILS (BEAM GUARD LAYOUT) FOR LIMITS OF SAWING. EXISTING CONCRETE CURB HEAD TO MEET DRIVEWAY CURB REQUIREMENT (PAID FOR UNDER SPV.0090.01 PROFILE CURB CUT).



SECTION A–A

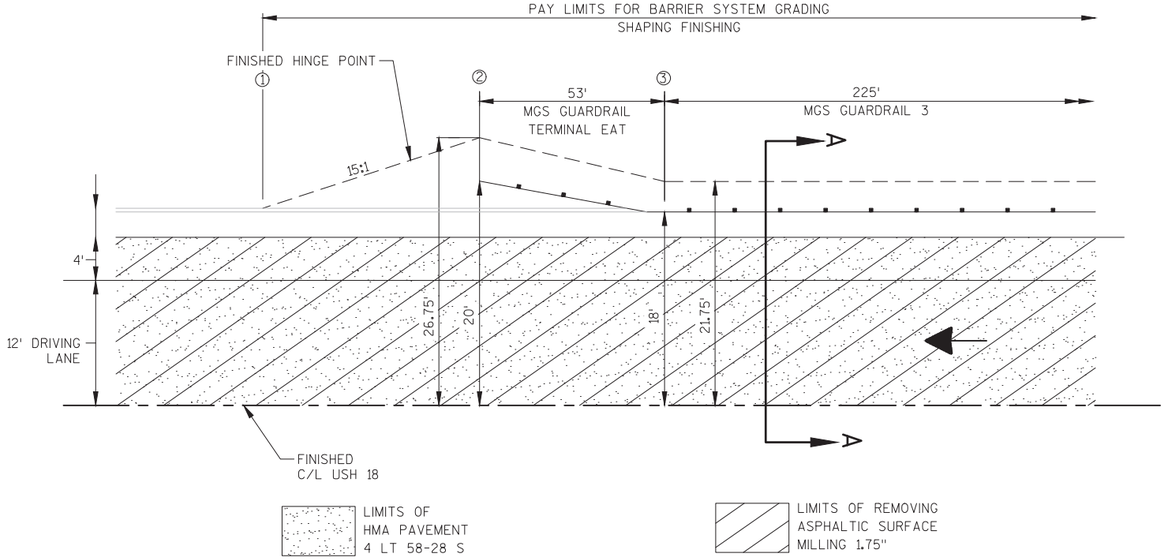
* SEE SUPERELEVATION TABLE

** EXISTING PAVED SHOULDER WIDTH VARIES

*** LIMITS OF PREPARE FOUNDATION FOR ASPHALTIC SHOULDERS

Ⓐ LIMITS OF EROSION MAT URBAN CLASS I TYPE B, FERTILIZER TYPE B, SEEDING TEMPORARY, AND SEEDING MIXTURE NO. 30, (AS DIRECTED BY THE ENGINEER). PAID FOR UNDER BARRIER SYSTEM GRADING SHAPING FINISHING BID ITEM.

Ⓑ LIMITS OF SALVAGED TOPSOIL (AS DIRECTED BY THE ENGINEER). PAID FOR UNDER BARRIER SYSTEM GRADING SHAPING FINISHING BID ITEM.

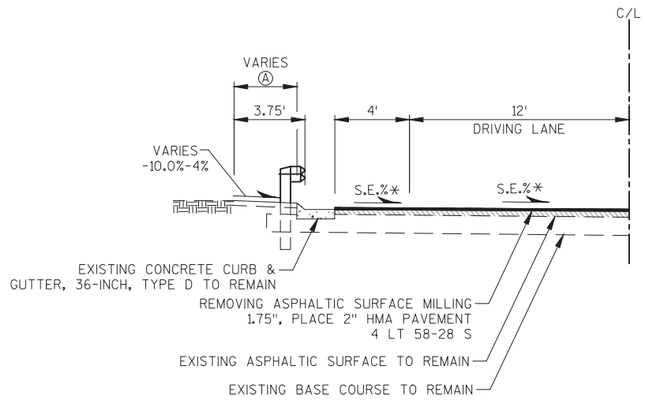


BEAMGUARD LAYOUT DETAIL–URBAN

BEAMGUARD LAYOUT TABLE

STATION-STATION	LOCATION	STATION ①	STATION ②	STATION ③
134+27 - 134+90	MAINLINE, LT.	134+27	134+37	134+90
137+16 - 138+40	MAINLINE, LT.	138+40	137+69	137+16

NOTE: IN AREAS WITHOUT CURB & GUTTER REFER TO BEAMGUARD LAYOUT DETAIL - RURAL FOR FURTHER INFORMATION. SEE CONSTRUCTION DETAILS (BEAM GUARD LAYOUT) FOR LIMITS OF SAWING. EXISTING CONCRETE CURB HEAD TO MEET DRIVEWAY CURB REQUIREMENT (PAID FOR UNDER SPV.0090.01 PROFILE CURB CUT).

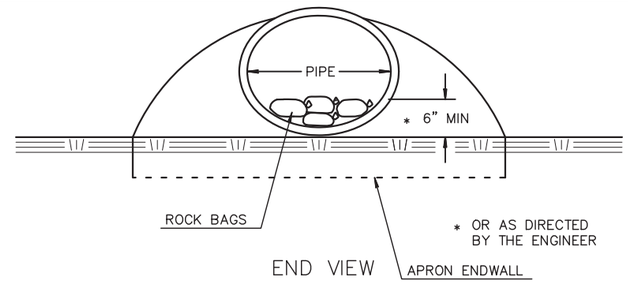


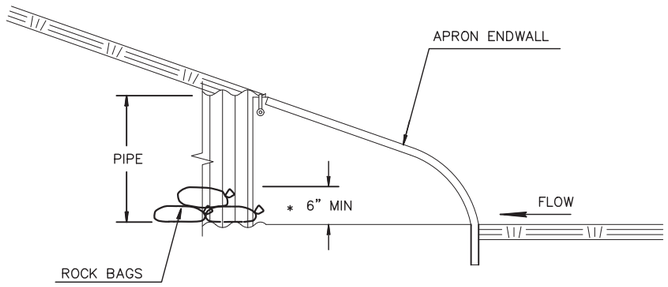
SECTION A–A

* SEE SUPERELEVATION TABLE

Ⓐ LIMITS OF EROSION MAT URBAN CLASS I TYPE B, FERTILIZER TYPE B, SEEDING TEMPORARY, SEEDING MIXTURE NO. 30, AND SALVAGED TOPSOIL. (AS DIRECTED BY THE ENGINEER). PAID FOR UNDER BARRIER SYSTEM GRADING SHAPING FINISHING BID ITEM.

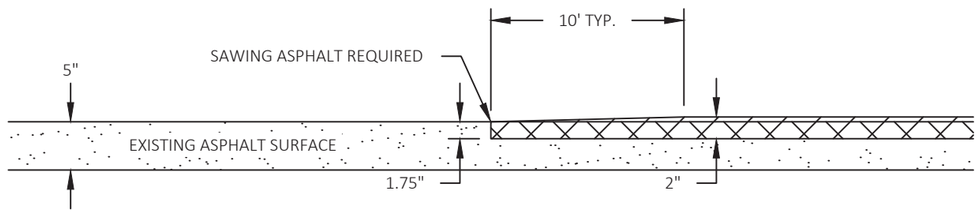
ESTIMATED BAG SIZE = 18" X 12" X 6"	
PIPE SIZE	ESTIMATED NO. OF BAGS
12"	1
15"	2
18"	2
21"	3
14" X 23"	3
24"	3
27"	4
30"	5
19" X 30"	5
36"	7
24" X 38"	8
42"	8
29" X 45"	10
48"	10
34" X 53"	10
38" X 60"	13
60"	13
66"	15
53" X 83"	19



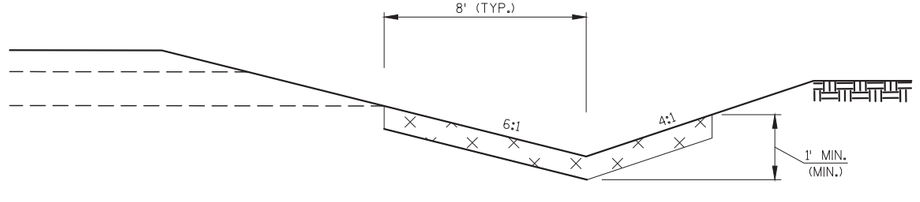


SIDE VIEW

CULVERT PIPE CHECKS



END JOINT DETAIL



EROSION MAT DETAIL FOR DITCHES

PROJECT NO: 3080-09-60	HWY: USH 18	COUNTY: JEFFERSON	CONSTRUCTION DETAILS	SHEET 14	E

2

BEGIN CONSTRUCTION
STA. 89+51.36
Y = 558,898.84
X = 863,181.41

BEGIN PROJECT
STA. 89+76.82
Y = 558,911.01
X = 863,203.77

ST. LAWRENCE CHURCH HISTORIC DISTRICT HISTORIC PROPERTY BOUNDARY

USH 18

SCHOPEN ROAD

SCHOPEN ROAD

CP #903

FINISHED ℄ USH 18

N61°28'02"E

PC: 111+10.87

PT: 114+31.87

90 95 100 105 110

R/W

P.L.

PT: 89+56.22

LEGEND

DIRECTION OF FLOW

XXXXXXXXX SAWING ASPHALT

DIRECTION OF TRAFFIC

FINISHED ℄ USH 18

BEGIN CONSTRUCTION
STA. 89+51.36

BEGIN PROJECT
STA. 89+76.82

PT: 89+56.22

ASPHALTIC FLUME REQ'D

8'

10'

4'

43'

EXISTING CURB & GUTTER TO REMAIN

6'X6' RIPRAP LIGHT OVER GEOTEXTILE TYPE R

EXISTING STONE RETAINING WALL TO REMAIN

ENVIRONMENTALLY SENSITIVE AREA BJE-0032 (ST. LAWRENCE CHURCH AND CEMETERY) APPROXIMATE BOUNDARY

EXISTING CEMETERY FENCE TO REMAIN

NOTE: EXCAVATION COMMON REQ'D. TO REMOVE THE EXISTING ASPHALTIC FLUME IS PAID FOR UNDER THE ASPHALTIC FLUME BID ITEM. PREPARATION FOR ASPHALTIC SHOULDERS STA. 89+51.36 - STA. 89+76.82, RT. IS INCLUDED IN ASPHALTIC FLUME BID ITEM.

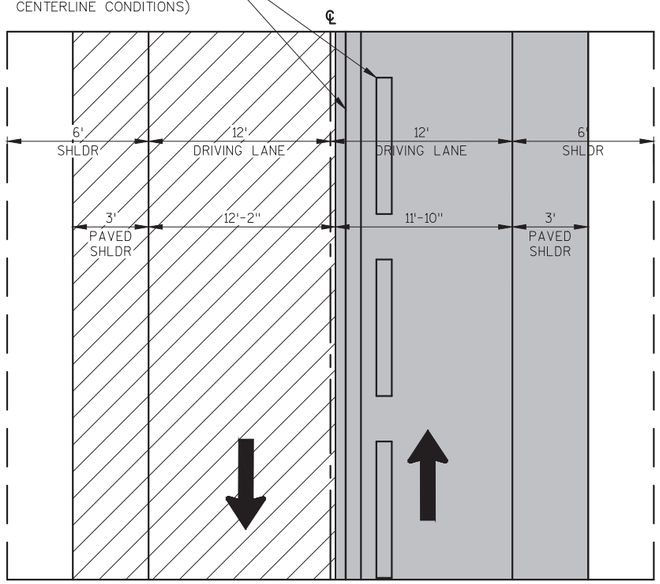
R/W

R/W

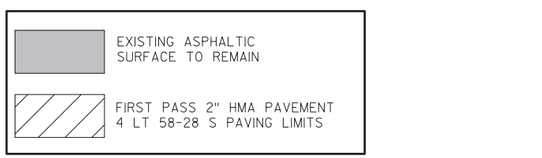
FLUME DETAIL

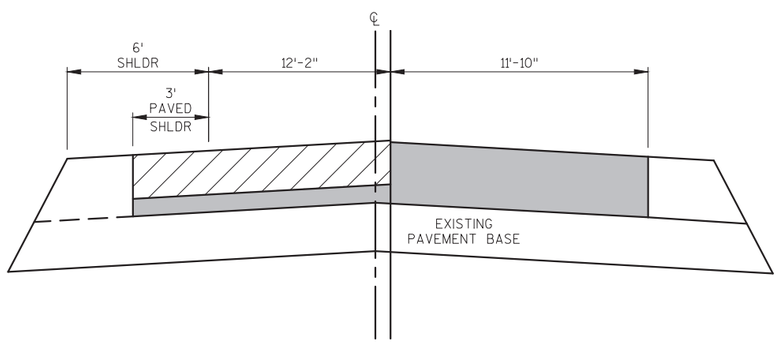
PROJECT NO: 3080-09-60	HWY: USH 18	COUNTY: JEFFERSON	CONSTRUCTION DETAIL	SHEET 15	E

TEMPORARY MARKING LINE PAINT 4–INCH TO BE PLACED ON EXISTING PAVEMENT SAME DAY AS PAVING OPERATION (ALL TEMPORARY MARKING LINE PAINT IS TO MATCH EXISTING CENTERLINE CONDITIONS)



PLAN VIEW

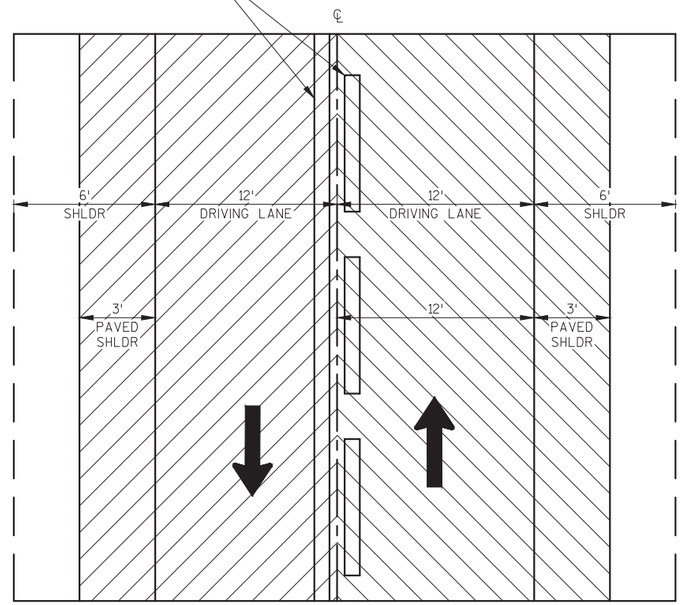




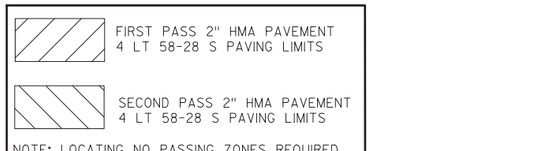
CROSS SECTION VIEW

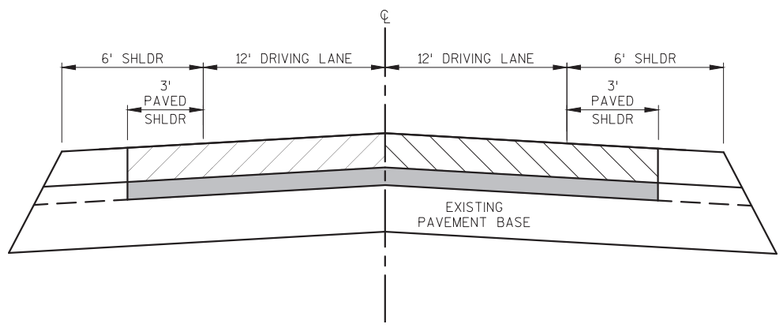
FIRST PASS DETAIL

TEMPORARY MARKING LINE EPOXY 4–INCH TO BE PLACED SAME DAY AS PAVING OPERATION.



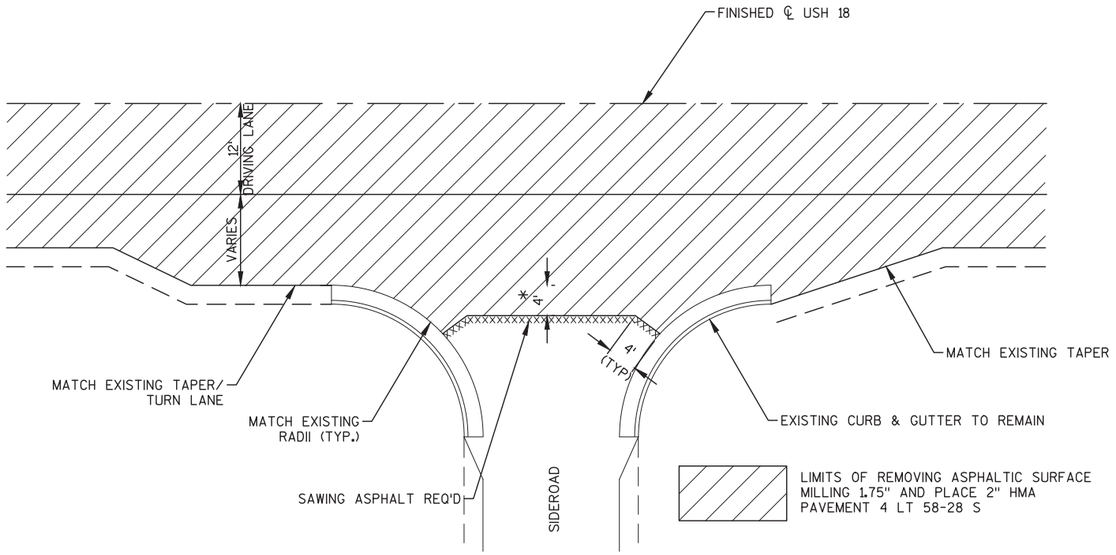
PLAN VIEW





CROSS SECTION VIEW

SECOND PASS DETAIL

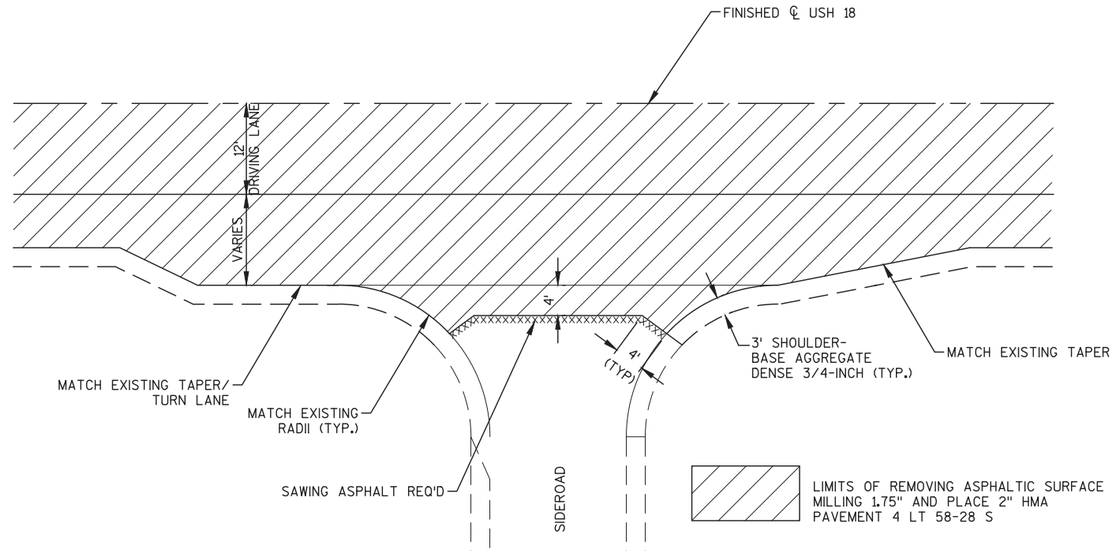


TYPICAL SIDEROAD DETAIL WITH CURB & GUTTER

*CHRISTBERG ROAD
SWITZKE ROAD
PARADISE ROAD

BAKERTOWN ROAD
COFFEE ROAD

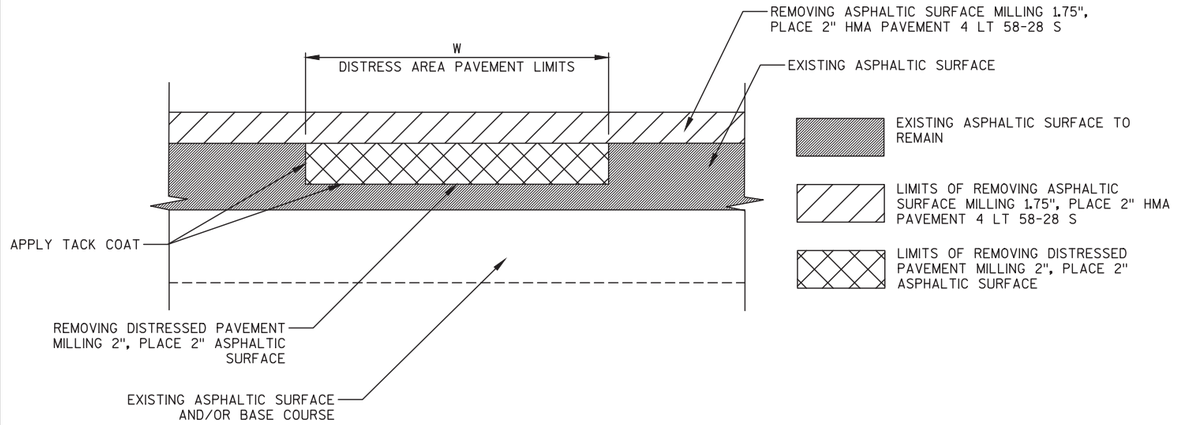
*SEE CONSTRUCTION DETAIL (BEAM GUARD LAYOUT)



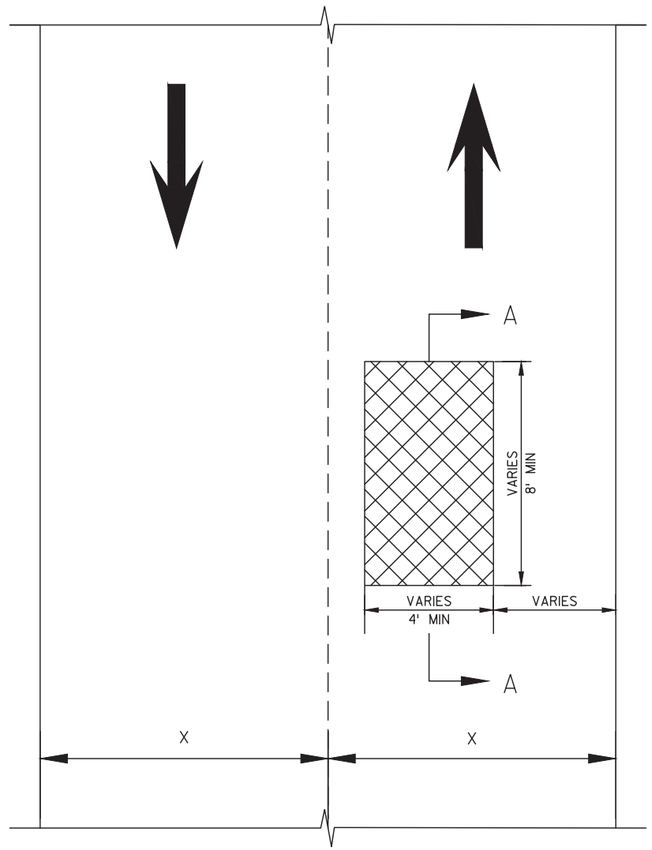
TYPICAL SIDEROAD DETAIL WITHOUT CURB & GUTTER

*SCHOPEN ROAD (NORTH)
SCHOPEN ROAD (SOUTH)
*PROBST LANE

*NORTHWEST QUADRANT INCLUDES CURB & GUTTER (SEE TYPICAL SIDEROAD DETAIL WITH CURB & GUTTER FOR FURTHER DETAILS)



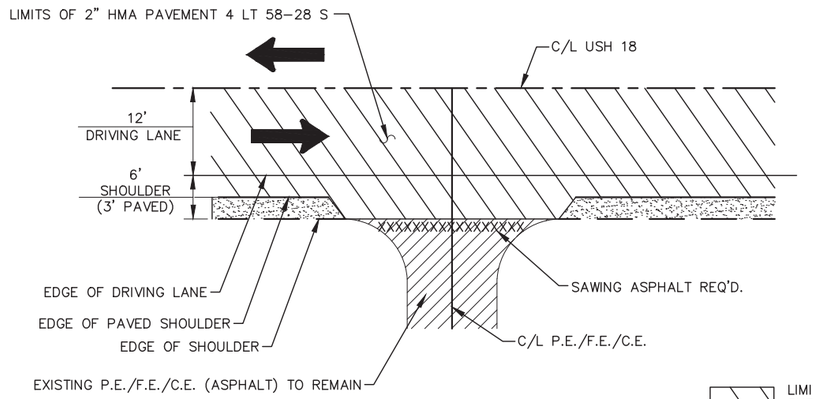
REMOVING DISTRESS PAVEMENT MILLING
SECTION A-A



STATION-STATION	W (FT)
89+76.82 - 95+00, LT.	4
100+00 - 109+00, LT.	12
112+00 - 120+00, LT.	4
122+00 - 128+00, RT.	12
126+00 - 132+00, LT.	4
140+00 - 151+00, RT.	12
149+00 - 155+00, LT.	4
151+00 - 158+00, RT.	4
155+00 - 167+00, LT.	12
170+00 - 176+00, LT.	4
176+00 - 186+00, LT.	12
181+00 - 185+00, RT.	12
189+00 - 197+00, RT.	4
191+00 - 192+00, LT.	4
192+00 - 204+00, LT.	12
197+00 - 199+00, RT.	12
209+00 - 210+00, RT.	4
210+00 - 215+00, LT.	4
220+00 - 227+00, LT.	4
230+00 - 234+00, LT.	12
232+00 - 237+00, RT.	12
236+00 - 237+00, LT.	4
241+00 - 243+00, RT.	12
243+00 - 245+00, LT.	4
255+00 - 260+00, LT.	12
270+00 - 280+00, RT.	12
300+00 - 301+00, RT.	4
303+00 - 305+00, LT.	12

PLAN VIEW

EXACT LOCATION AND LIMITS OF REMOVING DISTRESSED PAVEMENT MILLING TO BE DETERMINED BY THE ENGINEER IN THE FIELD

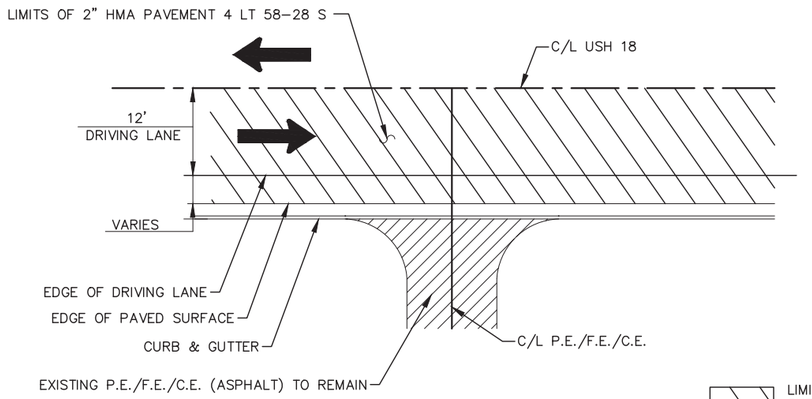


P.E./F.E./C.E. (EXISTING ASPHALT) DRIVEWAY DETAIL-RURAL

LIMITS OF REMOVING ASPHALTIC SURFACE MILLING 1.75" AND PLACE 2" HMA PAVEMENT 4 LT 58-28S

LIMITS OF BASE AGGREGATE DENSE 3/4-INCH

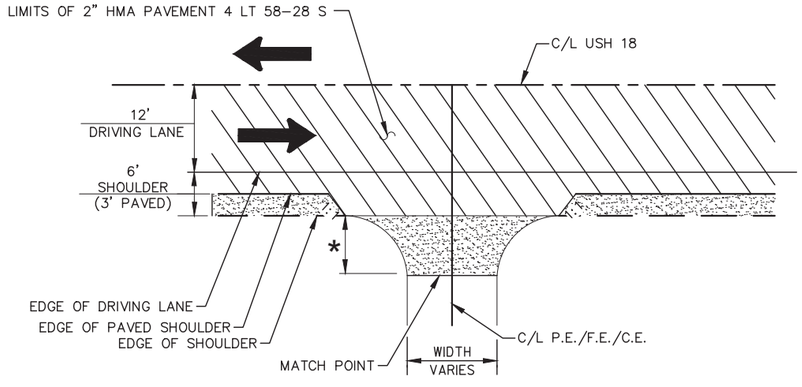
LIMITS OF EXISTING ASPHALTIC SURFACE P.E./F.E./C.E. TO REMAIN



P.E./F.E./C.E. (EXISTING ASPHALT) DRIVEWAY DETAIL-URBAN

LIMITS OF REMOVING ASPHALTIC SURFACE MILLING 1.75" AND PLACE 2" HMA PAVEMENT 4 LT 58-28 S

LIMITS OF EXISTING ASPHALTIC SURFACE P.E./F.E./C.E. TO REMAIN

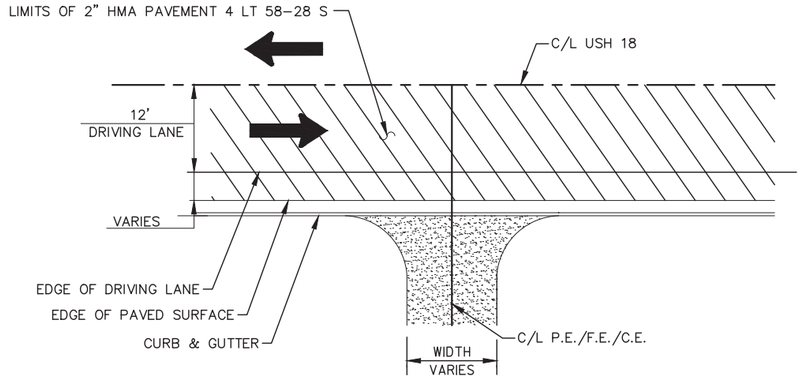


P.E./F.E./C.E. (EXISTING B.A.D.) DRIVEWAY DETAIL-RURAL

* REPLACE IN KIND TO THE RADIUS POINTS OF EACH SIDEROAD

LIMITS OF REMOVING ASPHALTIC SURFACE MILLING 1.75" AND PLACE 2" HMA PAVEMENT 4 LT 58-28 S

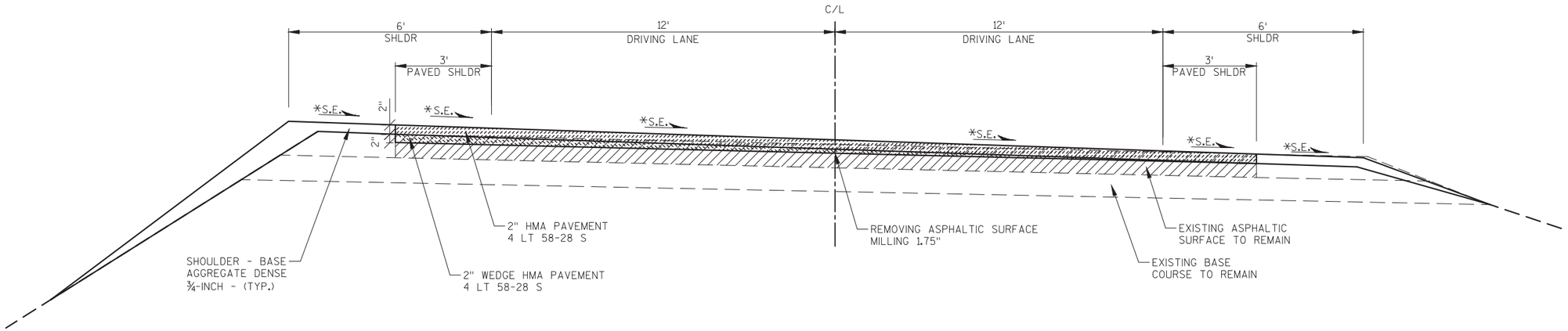
LIMITS OF BASE AGGREGATE DENSE 3/4-INCH



P.E./F.E./C.E. (EXISTING B.A.D.) DRIVEWAY DETAIL-URBAN

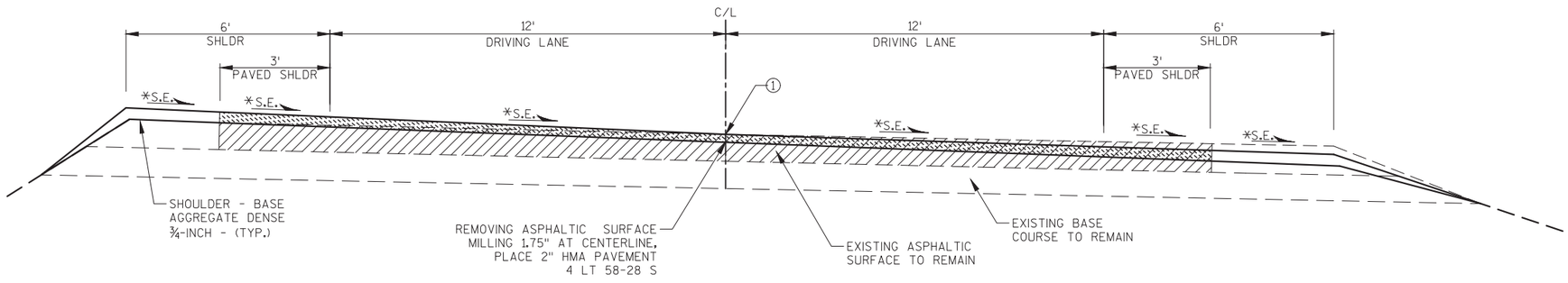
LIMITS OF REMOVING ASPHALTIC SURFACE MILLING 1.75" AND PLACE 2" HMA PAVEMENT 4 LT 58-28 S

LIMITS OF EXISTING BASE AGGREGATE DENSE 3/4-INCH P.E./F.E./C.E. TO REMAIN



SUPERELEVATION CORRECTION DETAIL

CURVE NO.	EXISTING SUPERELEVATION (%)	*PROPOSED SUPERELEVATION (%)	DIFFERENCE (%)
2	2.3	3.0	0.7



SUPERELEVATION CORRECTION DETAIL

CURVE NO.	EXISTING SUPERELEVATION (%)	*PROPOSED SUPERELEVATION (%)	DIFFERENCE (%)
*4	6.3	5.9	0.4
7	6.4	6.0	0.4
9	4.7	4.5	0.2
10	6.1	6.0	0.1
12	6.7	6.0	0.7
13	5.7	5.6	0.1

EXISTING ASPHALTIC SURFACE

REMOVING ASPHALTIC SURFACE MILLING 1.75" AT CENTERLINE, PLACE 2" HMA PAVEMENT 4 LT 58-28 S

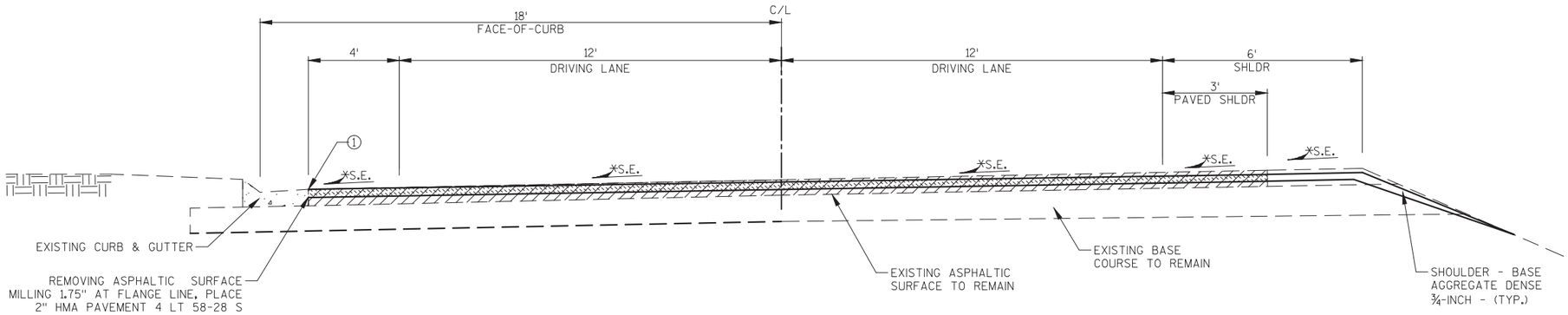
NOTE: CORRECT EXISTING SUPERELEVATION (%) TO PROPOSED SUPERELEVATION (%) BY SPLITTING DIFFERENCE (DIFFERENCE/2) BETWEEN THE HIGH AND LOW SIDES OF THE SUPERELEVATED ROADWAY.

① FINISHED USH 18 ℄ PROFILE TO MATCH EXISTING ℄ PROFILE.

* CURVE 4 - CORRECT SUPERELEVATION OUTSIDE OF EXISTING CURB & GUTTER LIMITS (SEE SUPERELEVATION TABLE)

FILE NAME : S:\PROJECTS\W11572 USH 18 JEFFERSON COUNTY\SHEETSPLAN\DETAILS\CONSTRUCTION DETAILS - LAYOUT : LAYOUT4
PLOT DATE : 1/16/2019
PLOT TIME : 1:53:58 PM
PLOT BY : JULIA ZEHNER
PLOT SCALE : 1" = 1'

2



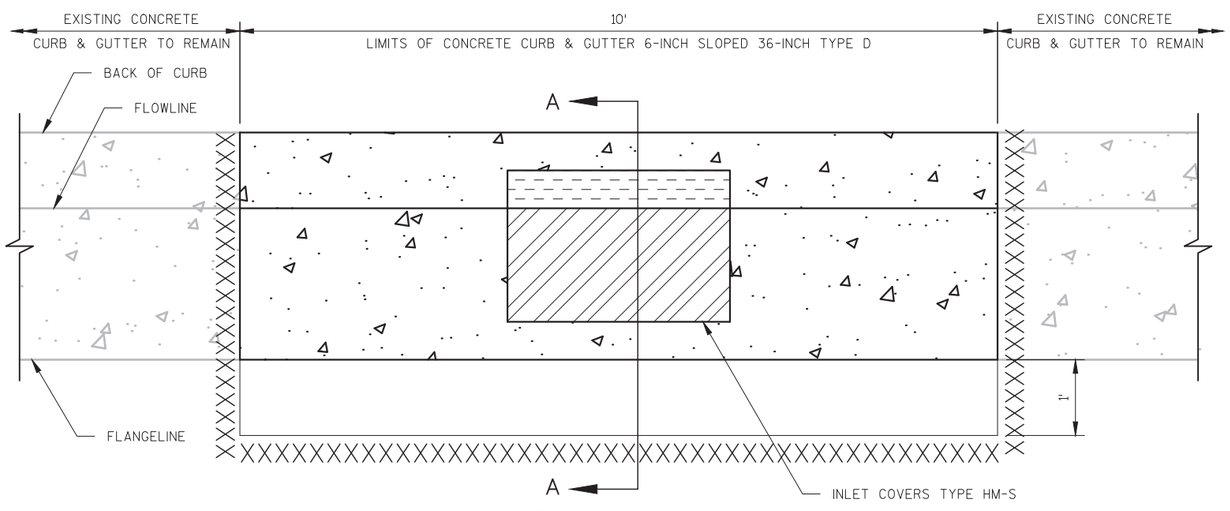
SUPERELEVATION CORRECTION DETAIL

CURVE NO.	EXISTING SUPERELEVATION (%)	*PROPOSED SUPERELEVATION (%)	DIFFERENCE (%)
3	6.2	5.9	0.3
5	6.3	5.9	0.4
6	3.8	3.7	0.1
14	5.3	5.0	0.3

① MATCH EXISTING FLANGE LINE ELEVATION

EXISTING ASPHALTIC SURFACE

REMOVING ASPHALTIC SURFACE MILLING 1.75" AT FLANGE LINE OF EXISTING CURB & GUTTER, PLACE 2" HMA PAVEMENT 4 LT 58-28 S

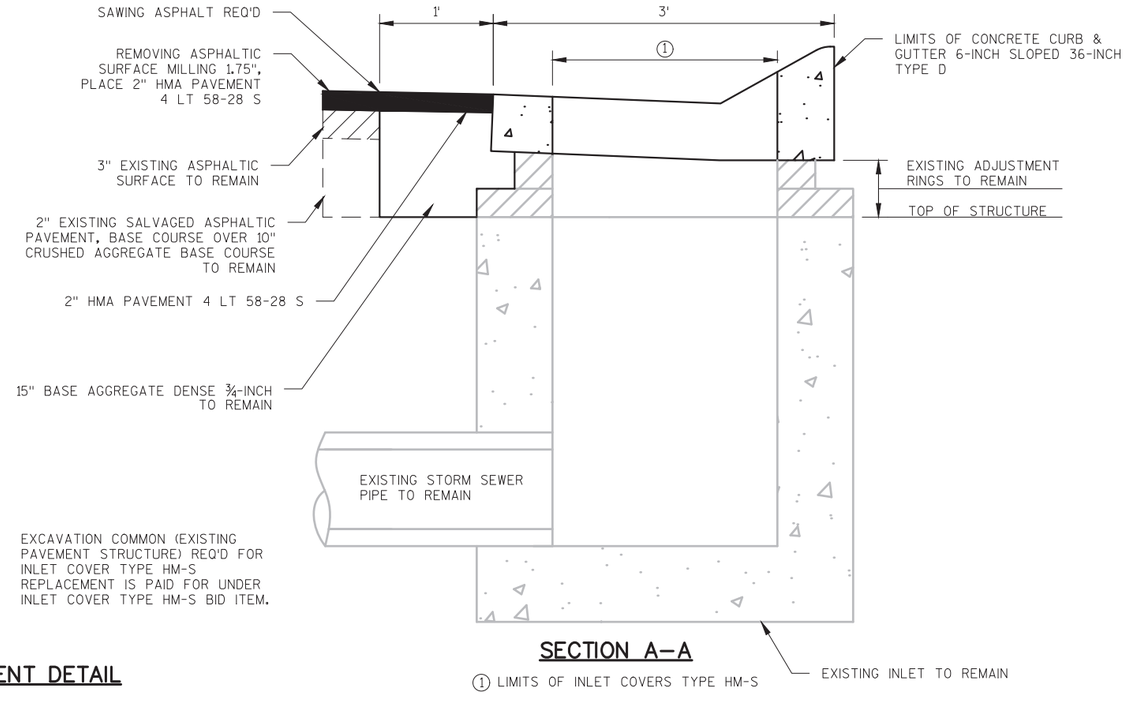


LEGEND

XXXXXX SAWING ASPHALT OR SAWING CONCRETE REQ'D

PLAN VIEW

STA. 300+95 - STA. 301+05, RT.



EXCAVATION COMMON (EXISTING PAVEMENT STRUCTURE) REQ'D FOR INLET COVER TYPE HM-S REPLACEMENT IS PAID FOR UNDER INLET COVER TYPE HM-S BID ITEM.

SECTION A–A

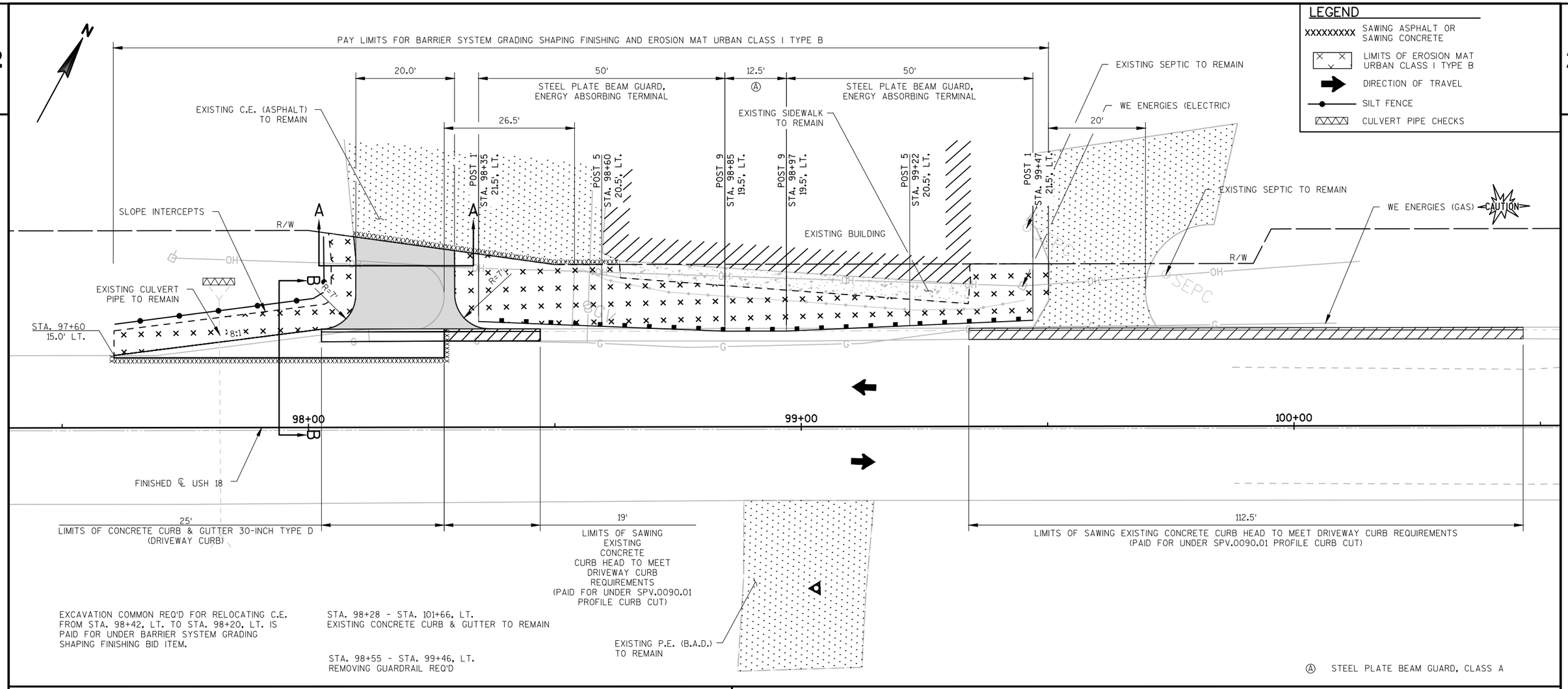
① LIMITS OF INLET COVERS TYPE HM-S

INLET COVER REPLACEMENT DETAIL

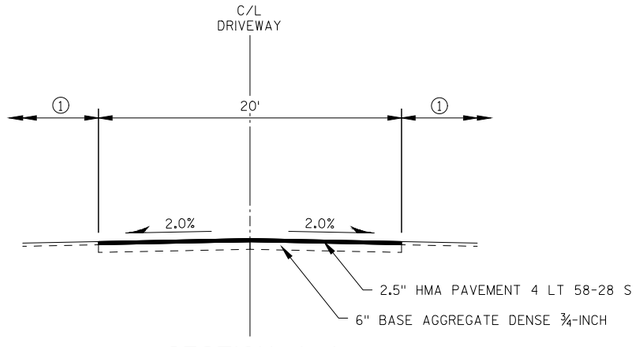
PROJECT NO: 3080-09-60	HWY: USH 18	COUNTY: JEFFERSON	CONSTRUCTION DETAILS	SHEET 20	E

FILE NAME : S:\PROJECTS\W11572 USH 18 JEFFERSON COUNTY\SHEETSPLAN\DETAILS\CONSTRUCTION DETAILS – LAYOUT : LAYOUT3
PLOT DATE : 1/16/2019
PLOT TIME : 1:54:01 PM
PLOT BY : JULIA ZEHNER
PLOT SCALE : 1" = 1'

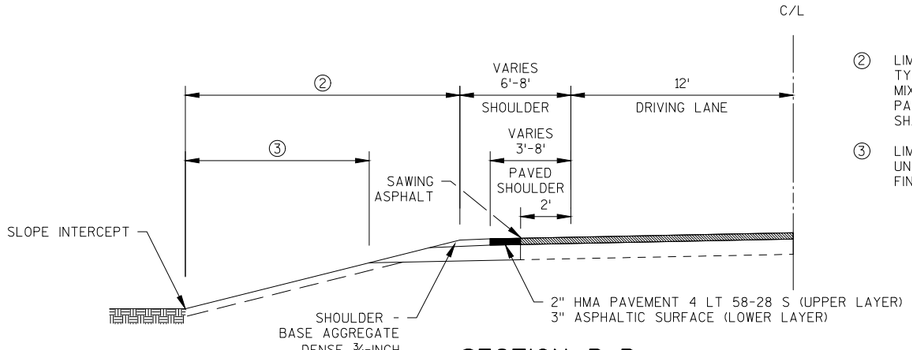
2



① LIMITS OF EROSION MAT URBAN CLASS I TYPE B, FERTILIZER TYPE B, SEEDING MIXTURE NO. 30, SEEDING TEMPORARY, AND SALVAGED TOPSOIL. PAID FOR UNDER BARRIER SYSTEM GRADING SHAPING FINISHING BID ITEM.



SECTION A-A



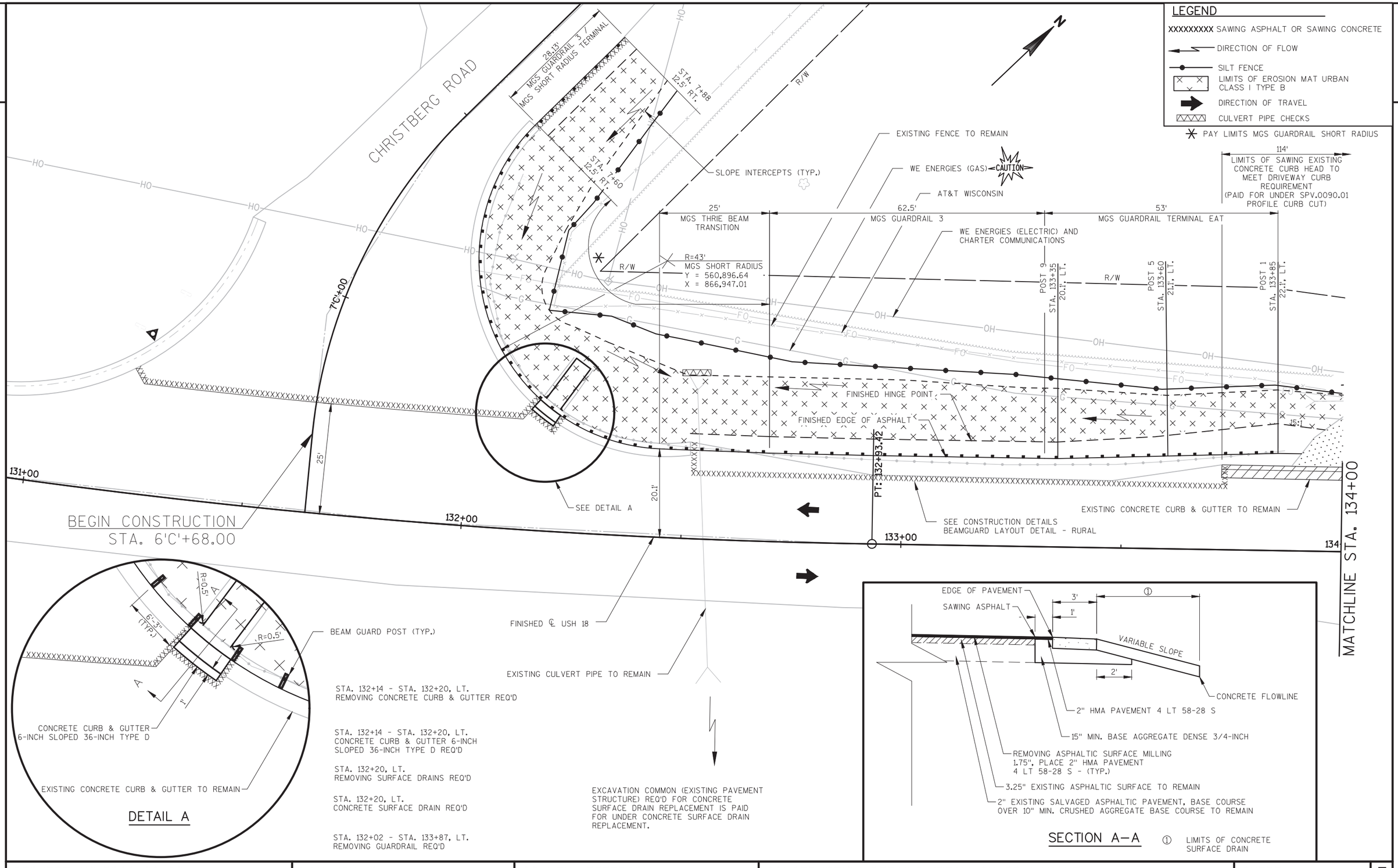
SECTION B-B

② LIMITS OF EROSION MAT URBAN CLASS I TYPE B, FERTILIZER TYPE B, SEEDING MIXTURE NO. 30, AND SEEDING TEMPORARY. PAID FOR UNDER BARRIER SYSTEM GRADING SHAPING FINISHING BID ITEM.

③ LIMITS OF SALVAGED TOPSOIL. PAID FOR UNDER BARRIER SYSTEM GRADING SHAPING FINISHED BID ITEM.

PROJECT NO: 3080-09-60	HWY: USH 18	COUNTY: JEFFERSON	CONSTRUCTION DETAILS (BEAM GUARD LAYOUT)	SHEET 21	E

2



PROJECT NO: 3080-09-60	HWY: USH 18	COUNTY: JEFFERSON	CONSTRUCTION DETAILS (BEAM GUARD LAYOUT)	SHEET 22	E

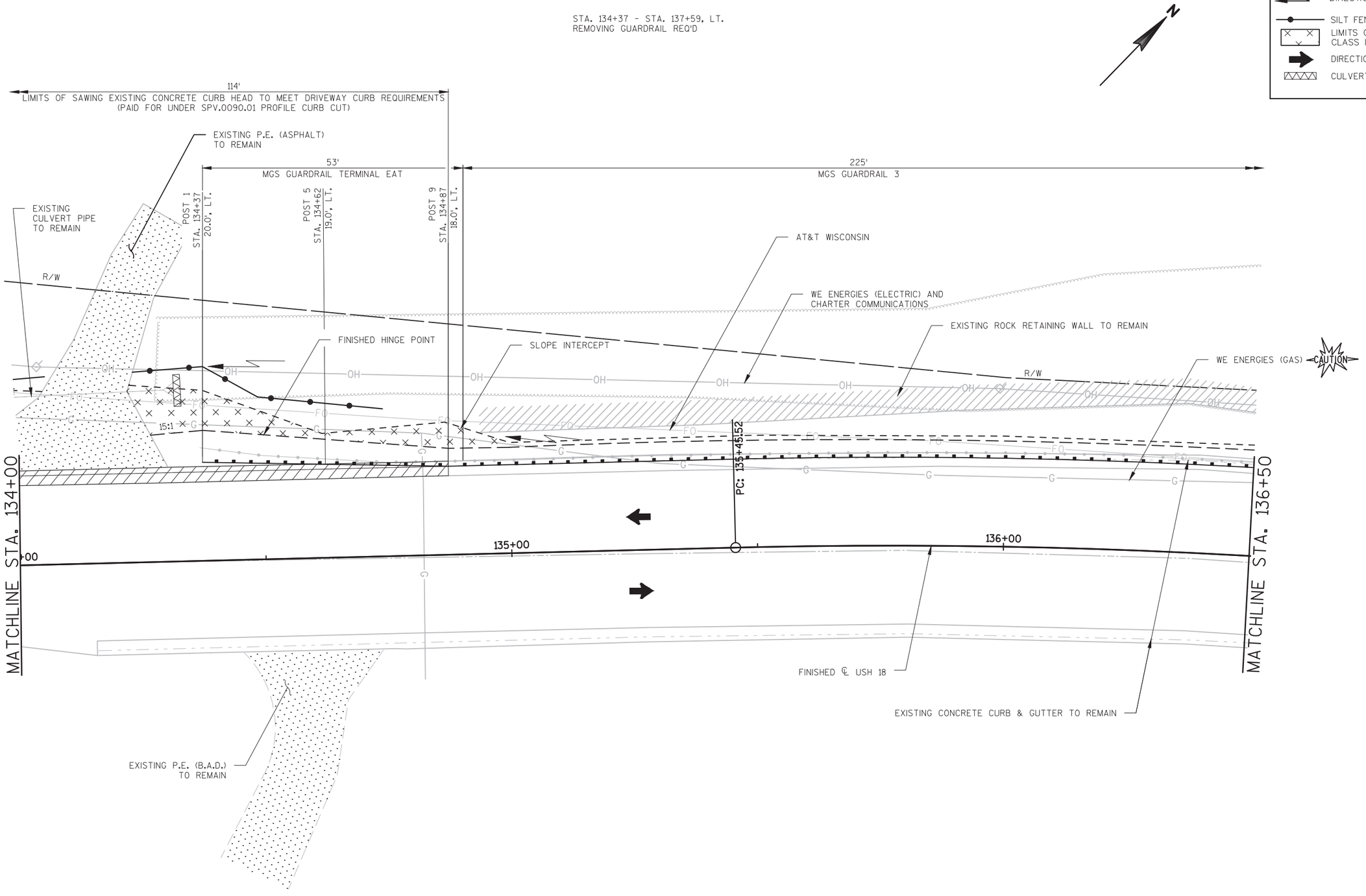
2

2

STA. 134+37 - STA. 137+59, LT.
REMOVING GUARDRAIL REQ'D

LEGEND

- DIRECTION OF FLOW
- SILT FENCE
- LIMITS OF EROSION MAT URBAN CLASS I TYPE B
- DIRECTION OF TRAVEL
- CULVERT PIPE CHECKS



PROJECT NO: 3080-09-60	HWY: USH 18	COUNTY: JEFFERSON	CONSTRUCTION DETAILS (BEAM GUARD LAYOUT)	SHEET 23	E

2

LEGEND

XXXXXXXXX SAWING ASPHALT OR SAWING CONCRETE

DIRECTION OF FLOW

SILT FENCE

LIMITS OF EROSION MAT URBAN CLASS I TYPE B

DIRECTION OF TRAVEL

STA. 134+37 - STA. 137+59, LT.
REMOVING GUARDRAIL REQ'D

225'
MGS GUARDRAIL 3

53'
MGS GUARDRAIL TERMINAL EAT

POST 9
STA. 137+19
18.0', LT.

POST 5
STA. 137+44
19.0', LT.

POST 1
STA. 137+69
20.0', LT.

WE ENERGIES (GAS)

CAUTION

AT&T WISCONSIN

WE ENERGIES (ELECTRIC)

AT&T WISCONSIN

SLOPE INTERCEPTS

WE ENERGIES (ELECTRIC) AND
CHARTER COMMUNICATIONS

R/W

FINISHED HINGE POINT

FINISHED EDGE OF ASPHALT

EXISTING ROCK RETAINING WALL TO REMAIN

15:1

15:1

SEE CONSTRUCTION DETAILS
BEAMGUARD LAYOUT DETAIL - URBAN

MATCHLINE STA. 136+50

137+00

138+00

139+00

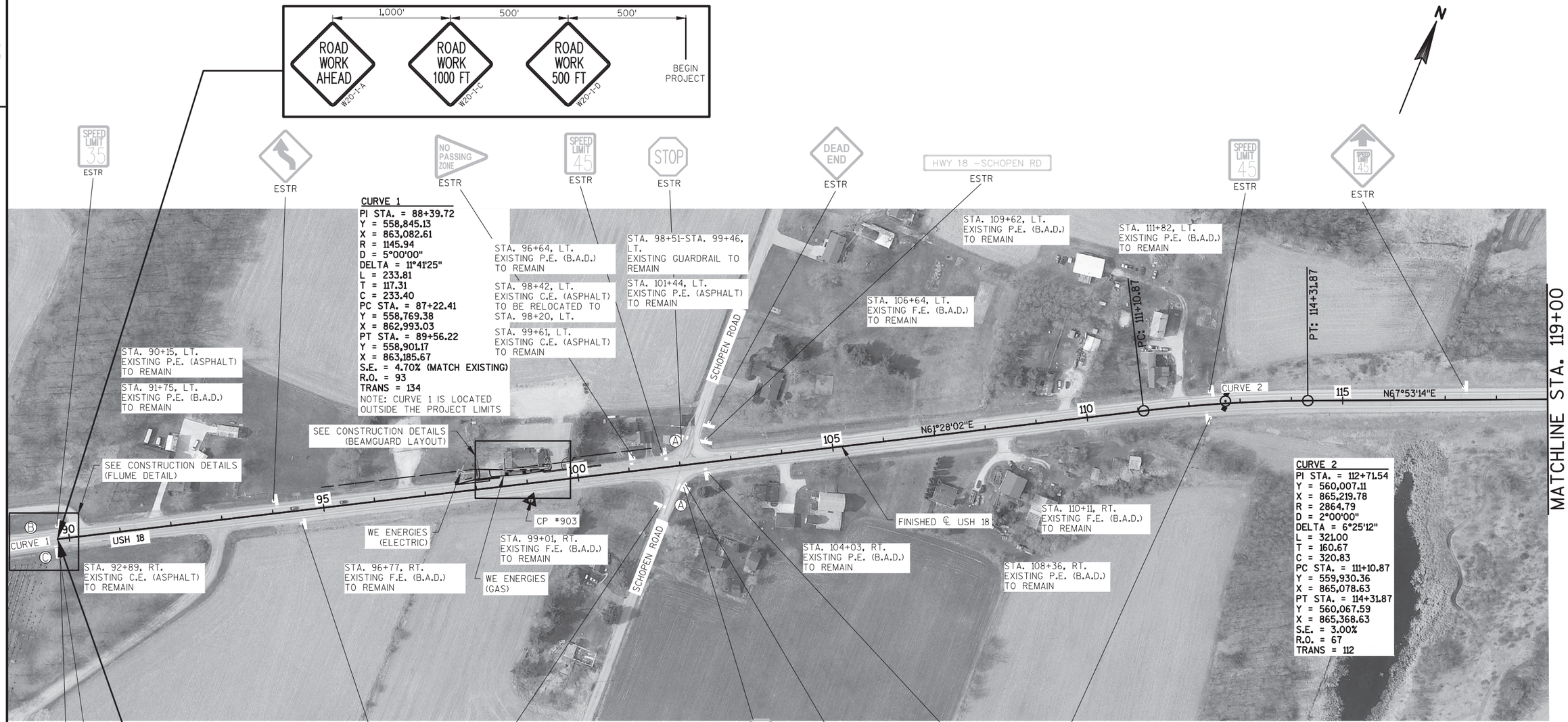
FINISHED ℄ USH 18

EXISTING CONCRETE CURB & GUTTER TO REMAIN

EXISTING P.E. (B.A.D.)
TO REMAIN

PROJECT NO: 3080-09-60	HWY: USH 18	COUNTY: JEFFERSON	CONSTRUCTION DETAILS (BEAM GUARD LAYOUT)	SHEET 24	E

2



BEGIN PROJECT
STA. 89+76.82

Y = 558,911.01
X = 863,203.77

PORTABLE CHANGEABLE MESSAGE SIGN AT THE LIMITS OF THE PROJECT FOR 7 CALENDAR DAYS PRIOR TO BEGINNING OF PROJECT.

ROADWORK STARTING XX/XX/XX

LEGEND

- EXISTING SIGNS TYPE II/ EXISTING SMALL SIGN SUPPORTS
- ESTR EXISTING SIGN TO REMAIN
- (XXXX) DESIGNATES SIGN NUMBER

Ⓐ ROAD WORK AHEAD W20-1-A

Ⓑ END ROAD WORK G20-2A 48"X24"

Ⓒ ROAD WORK NEXT 5 MILES G20-1 60"X24"

TRAFFIC NOTES

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

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

FOR MOVING OPERATION STA. 89+76.82 TO STA. 307+00 SEE STANDARD DETAIL DRAWING "TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION". COSTS FOR FLAGGING AND ASSOCIATED SIGNS FOR MOVING OPERATIONS ARE INCIDENTAL TO THE CONTRACT.

SEE STANDARD DETAIL DRAWINGS FOR PAVEMENT MARKING LAYOUT.

PROJECT NO: 3080-09-60	HWY: USH 18	COUNTY: JEFFERSON	PLAN DETAILS	SHEET 25	E

FILE NAME : S:\PROJECTS\W11572 USH 18 JEFFERSON COUNTY\SHEETSPLAN\PLAN & PROFILE SHEETS\MAINLINE P&P.DWG
LAYOUT NAME - USH 18 P&P 1
PLOT DATE : 1/16/2019 1:56 PM PLOT BY : JULIA ZEHNER PLOT NAME : PLOT SCALE : **********
WISDOT/CADDS SHEET 42

STA. 132+14 - STA. 132+20, LT.
CONCRETE CURB & GUTTER 6-INCH
SLOPED 36-INCH TYPE D REQ'D

STA. 132+20, LT.
REMOVING SURFACE DRAIN REQ'D

STA. 132+20, LT.
CONCRETE SURFACE DRAIN REQ'D

LEGEND

EXISTING SIGNS TYPE II/
EXISTING SMALL SIGN SUPPORTS

ESTR EXISTING SIGN TO REMAIN

XXXX DESIGNATES SIGN NUMBER

Ⓐ ROAD WORK AHEAD
W20-1-A

Ⓑ END ROAD WORK
G20-2A
48"X24"

Ⓒ ROAD WORK NEXT 5 MILES
G20-1
60"X24"

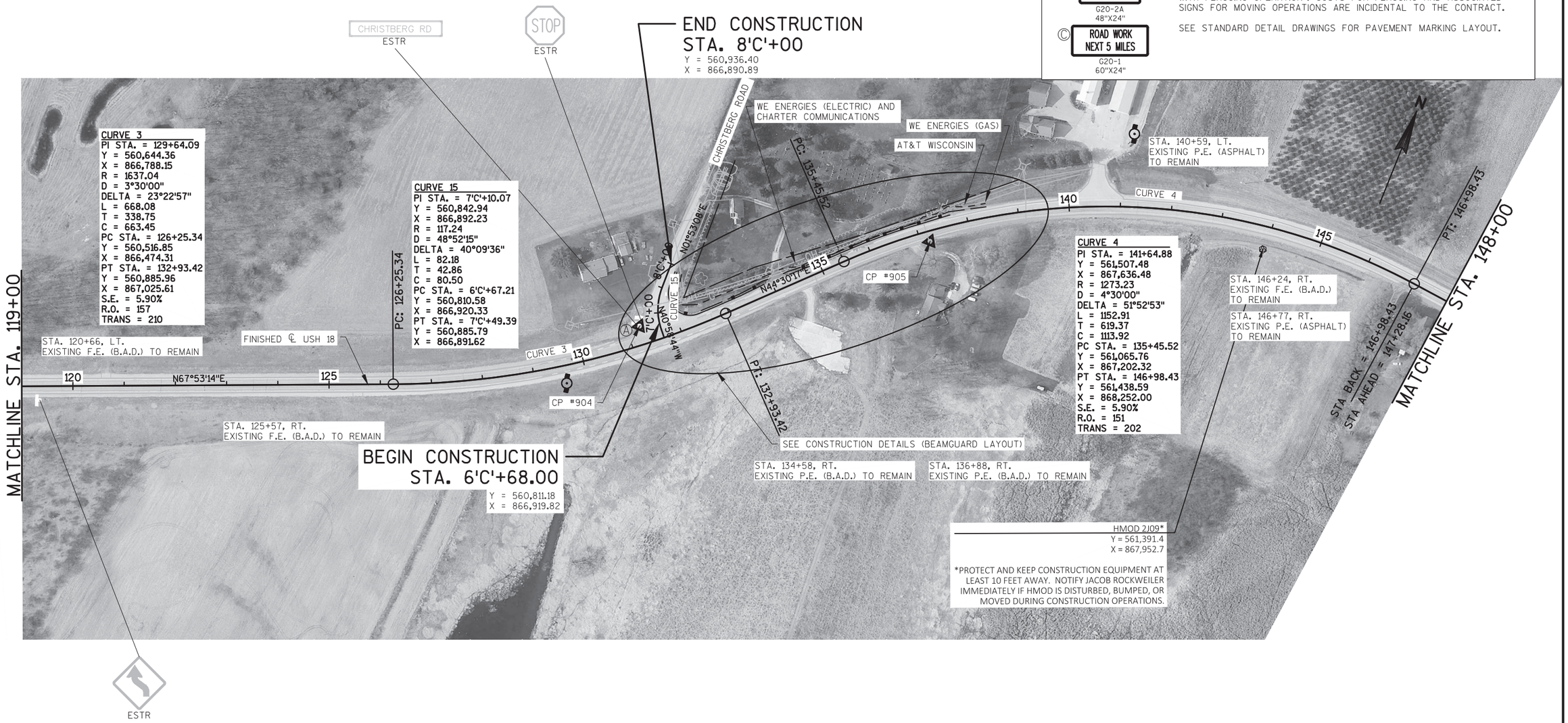
TRAFFIC NOTES

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

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

FOR MOVING OPERATION STA. 89+76.82 TO STA. 307+00 SEE STANDARD DETAIL DRAWING "TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION". COSTS FOR FLAGGING AND ASSOCIATED SIGNS FOR MOVING OPERATIONS ARE INCIDENTAL TO THE CONTRACT.

SEE STANDARD DETAIL DRAWINGS FOR PAVEMENT MARKING LAYOUT.



2

LEGEND

EXISTING SIGNS TYPE II/
EXISTING SMALL SIGN SUPPORTS

ESTR EXISTING SIGN TO REMAIN

XXXX DESIGNATES SIGN NUMBER

Ⓐ ROAD WORK AHEAD
W20-1-A

Ⓑ END ROAD WORK
G20-2A
48"X24"

Ⓒ ROAD WORK NEXT 5 MILES
G20-1
60"X24"

TRAFFIC NOTES

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

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

FOR MOVING OPERATION STA. 89+76.82 TO STA. 307+00 SEE STANDARD DETAIL DRAWING "TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION". COSTS FOR FLAGGING AND ASSOCIATED SIGNS FOR MOVING OPERATIONS ARE INCIDENTAL TO THE CONTRACT.

SEE STANDARD DETAIL DRAWINGS FOR PAVEMENT MARKING LAYOUT.

PROJECT NO: 3080-09-60	HWY: USH 18	COUNTY: JEFFERSON	PLAN DETAILS	SHEET 27	E

2

LEGEND

EXISTING SIGNS TYPE II/ EXISTING SMALL SIGN SUPPORTS

ESTR EXISTING SIGN TO REMAIN

(XXXX) DESIGNATES SIGN NUMBER

Ⓐ ROAD WORK AHEAD W20-1-A

Ⓑ END ROAD WORK G20-2A 48"X24"

Ⓒ ROAD WORK NEXT 5 MILES G20-1 60"X24"

TRAFFIC NOTES

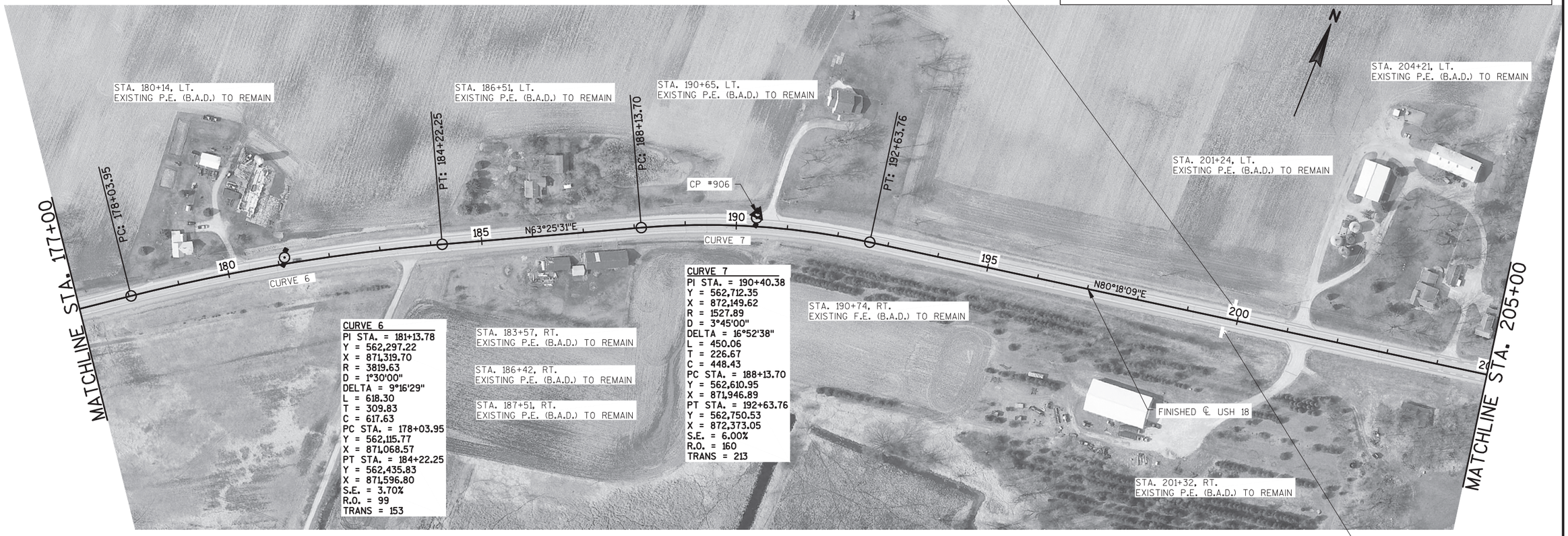
THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

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

FOR MOVING OPERATION STA. 89+76.82 TO STA. 307+00 SEE STANDARD DETAIL DRAWING "TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION". COSTS FOR FLAGGING AND ASSOCIATED SIGNS FOR MOVING OPERATIONS ARE INCIDENTAL TO THE CONTRACT.

SEE STANDARD DETAIL DRAWINGS FOR PAVEMENT MARKING LAYOUT.

ESTR



CURVE 6
PI STA. = 181+13.78
Y = 562,297.22
X = 871,319.70
R = 3819.63
D = 1°30'00"
DELTA = 9°16'29"
L = 618.30
T = 309.83
C = 617.63
PC STA. = 178+03.95
Y = 562,115.77
X = 871,068.57
PT STA. = 184+22.25
Y = 562,435.83
X = 871,596.80
S.E. = 3.70%
R.O. = 99
TRANS = 153

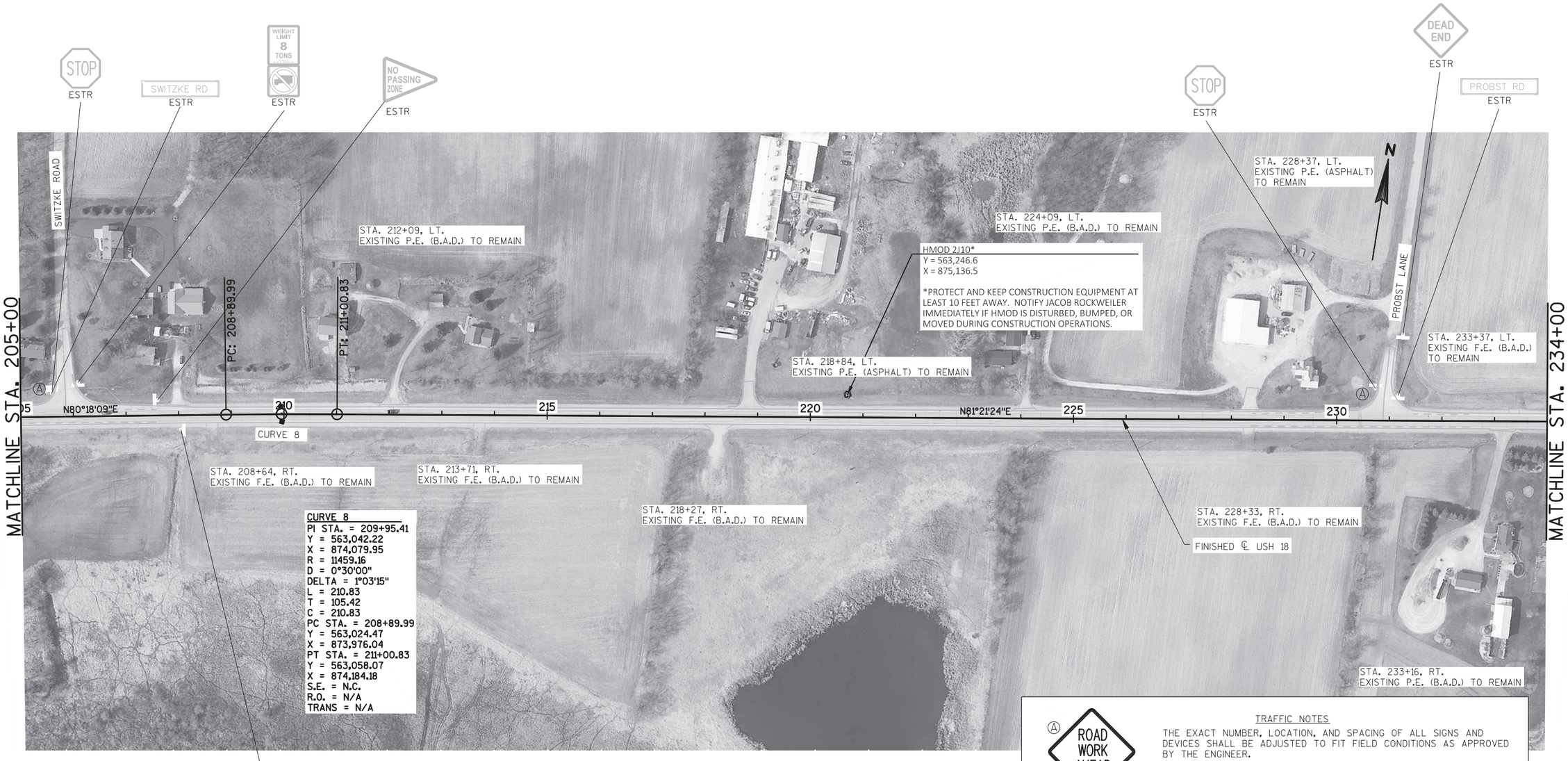
CURVE 7
PI STA. = 190+40.38
Y = 562,712.35
X = 872,149.62
R = 1527.89
D = 3°45'00"
DELTA = 16°52'38"
L = 450.06
T = 226.67
C = 448.43
PC STA. = 188+13.70
Y = 562,610.95
X = 871,946.89
PT STA. = 192+63.76
Y = 562,750.53
X = 872,373.05
S.E. = 6.00%
R.O. = 160
TRANS = 213

ESTR

PROJECT NO: 3080-09-60	HWY: USH 18	COUNTY: JEFFERSON	PLAN DETAILS	SHEET 28	E

2

STA. 207+98, LT.
EXISTING P.E. (B.A.D.) TO REMAIN



CURVE 8
PI STA. = 209+95.41
Y = 563,042.22
X = 874,079.95
R = 11459.16
D = 0°30'00"
DELTA = 1°03'15"
L = 210.83
T = 105.42
C = 210.83
PC STA. = 208+89.99
Y = 563,024.47
X = 873,976.04
PT STA. = 211+00.83
Y = 563,058.07
X = 874,184.18
S.E. = N.C.
R.O. = N/A
TRANS = N/A

LEGEND

EXISTING SIGNS TYPE II/
EXISTING SMALL SIGN SUPPORTS

ESTR EXISTING SIGN TO REMAIN

(XXXX) DESIGNATES SIGN NUMBER

Ⓐ ROAD WORK AHEAD
W20-1-A

Ⓑ END ROAD WORK
G20-2A
48"X24"

Ⓒ ROAD WORK NEXT 5 MILES
G20-1
60"X24"

TRAFFIC NOTES

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

FOR MOVING OPERATION STA. 89+76.82 TO STA. 307+00 SEE STANDARD DETAIL DRAWING "TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION". COSTS FOR FLAGGING AND ASSOCIATED SIGNS FOR MOVING OPERATIONS ARE INCIDENTAL TO THE CONTRACT.

SEE STANDARD DETAIL DRAWINGS FOR PAVEMENT MARKING LAYOUT.

2

LEGEND

EXISTING SIGNS TYPE II/
EXISTING SMALL SIGN SUPPORTS

ESTR EXISTING SIGN TO REMAIN

(XXXX) DESIGNATES SIGN NUMBER

N

STOP
ESTR

WEIGHT LIMIT 8 TONS
ESTR

COFFEE RD
ESTR

STA. 238+56, LT.
EXISTING F.E. (B.A.D.)
TO REMAIN

CURVE 9
PI STA. = 236+87.20
Y = 563,446.75
X = 876,741.17
R = 2864.79
D = 2°00'00"
DELTA = 9°14'49"
L = 462.35
T = 231.68
C = 461.85
PC STA. = 234+55.52
Y = 563,411.94
X = 876,512.13
PT STA. = 239+17.87
Y = 563,444.31
X = 876,972.84
S.E. = 4.50%
R.O. = 120
TRANS = 173

STA. 240+88, LT.
EXISTING P.E. (B.A.D.)
TO REMAIN

STA. 244+62, LT.
EXISTING F.E. (B.A.D.)
TO REMAIN

STA. 253+92, LT.
EXISTING P.E. (B.A.D.)
TO REMAIN

MATCHLINE STA. 234+00

PC: 234+55.52

PT: 239+17.87

235

CURVE 9

240

S89°23'47"E

245

PC: 245+82.90

PT: 248+39.61

250

N77°46'31"E

255

260

COFFEE ROAD

PI: 262+10.73

CURVE 11

179°25'14"

MATCHLINE STA. 263+00

STA. BACK = 239+17.87
STA. AHEAD = 239+26.96

CP #907

CURVE 10

STA. 241+03, RT.
EXISTING F.E. (B.A.D.)
TO REMAIN

PARADISE ROAD

CURVE 10
PI STA. = 247+11.79
Y = 563,436.04
X = 877,757.63
R = 1146.56
D = 4°59'50"
DELTA = 12°49'42"
L = 256.71
T = 128.89
C = 256.17
PC STA. = 245+82.90
Y = 563,437.40
X = 877,628.74
PT STA. = 248+39.61
Y = 563,463.34
X = 877,883.60
S.E. = 6.00%
R.O. = 153
TRANS = 204

STA. 253+90, RT.
EXISTING F.E. (B.A.D.)
TO REMAIN

STA. 257+18, RT.
EXISTING C.E. (B.A.D.)
TO REMAIN

STA. 262+69, RT.
EXISTING F.E. (B.A.D.)
TO REMAIN

FINISHED ℄ USH 18

CURVE 11
PI STA. = 262+10.73
Y = 563,753.66
X = 879,223.63

STOP
ESTR

ESTR

Ⓐ ROAD WORK AHEAD
W20-1-A

Ⓑ END ROAD WORK
G20-2A
48"X24"

Ⓒ ROAD WORK NEXT 5 MILES
G20-1
60"X24"

TRAFFIC NOTES

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SEE STANDARD DETAIL DRAWINGS FOR PAVEMENT MARKING LAYOUT.

PROJECT NO: 3080-09-60	HWY: USH 18	COUNTY: JEFFERSON	PLAN DETAILS	SHEET 30	E

2

LEGEND

EXISTING SIGNS TYPE II/
EXISTING SMALL SIGN SUPPORTS

ESTR EXISTING SIGN TO REMAIN

XXXX DESIGNATES SIGN NUMBER

STA. 282+63, LT.
EXISTING P.E. (B.A.D.) TO REMAIN

SPEED LIMIT 55 ESTR

BAKERTOWN RD. ESTR

STOP ESTR

STOP ESTR

ESTR

STA. 275+66, LT.
EXISTING P.E. (B.A.D.) TO REMAIN

STA. 278+56, LT.
EXISTING F.E. (B.A.D.) TO REMAIN

HMOD 2J11*
Y = 563,695.7
X = 880,931.0

*PROTECT AND KEEP CONSTRUCTION EQUIPMENT AT LEAST 10 FEET AWAY. NOTIFY JACOB ROCKWEILER IMMEDIATELY IF HMOD IS DISTURBED, BUMPED, OR MOVED DURING CONSTRUCTION OPERATIONS.

STA. 268+65, LT.
EXISTING P.E. (B.A.D.) TO REMAIN

STA. 263+84, LT.
EXISTING P.E. (B.A.D.) TO REMAIN

PC: 269+06.23

PT: 280+52.40

BAKERTOWN ROAD

STA. 289+06, LT.
EXISTING P.E. (ASPHALT)
TO REMAIN

PC: 288+06.41

PT: 292+48.02

275

270

265

280

285

290

CURVE 12

CURVE 13

N78°21'17"E

S47°12'08"E

STA. 270+32, RT.
EXISTING F.E. (B.A.D.) TO REMAIN

STA. 285+11, RT.
EXISTING F.E. (B.A.D.) TO REMAIN

CP #908

FINISHED ℄ USH 18

MATCHLINE STA. 263+00

MATCHLINE STA. 293+00

STA BACK = 292+48.03
STA AHEAD = 292+51.86

CURVE 12
PI STA. = 275+26.72
Y = 564,019.30
X = 880,512.53
R = 1206.23
D = 4°45'00"
DELTA = 54°26'35"
L = 1146.17
T = 620.49
C = 1103.54
PC STA. = 269+06.23
Y = 563,894.05
X = 879,904.82
PT STA. = 280+52.40
Y = 563,597.73
X = 880,967.82
S.E. = 6.00%
R.O. = 153
TRANS = 204

CURVE 13
PI STA. = 290+29.71
Y = 562,933.73
X = 881,684.93
R = 1206.23
D = 4°45'00"
DELTA = 20°58'36"
L = 441.62
T = 223.31
C = 439.15
PC STA. = 288+06.41
Y = 563,085.45
X = 881,521.08
PT STA. = 292+48.02
Y = 562,850.73
X = 881,892.24
S.E. = 5.60%
R.O. = 134
TRANS = 182

SPEED LIMIT 45 ESTR

30 MPH ESTR

SPEED LIMIT 45 ESTR

SPEED LIMIT 30 ESTR

Ⓐ ROAD WORK AHEAD W20-1-A

Ⓑ END ROAD WORK
G20-2A
48"X24"

Ⓒ ROAD WORK NEXT 5 MILES
G20-1
60"X24"

TRAFFIC NOTES

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SEE STANDARD DETAIL DRAWINGS FOR PAVEMENT MARKING LAYOUT.

2

STA. 293+13, LT.
EXISTING P.E. (ASPHALT) TO REMAIN

STA. 300+95 - STA. 301+05, RT.
CONCRETE CURB & GUTTER 6-INCH SLOPED
36-INCH TYPE D

STA. 301+00, RT.
(1) INLET COVER TYPE HM-S REQ'D

LEGEND

- EXISTING SIGNS TYPE II/ EXISTING SMALL SIGN SUPPORTS
- ESTR EXISTING SIGN TO REMAIN
- (XXXX) DESIGNATES SIGN NUMBER

Ⓐ ROAD WORK AHEAD W20-1-A

Ⓑ END ROAD WORK
G20-2A
48"X24"

Ⓒ ROAD WORK NEXT 5 MILES
G20-1
60"X24"

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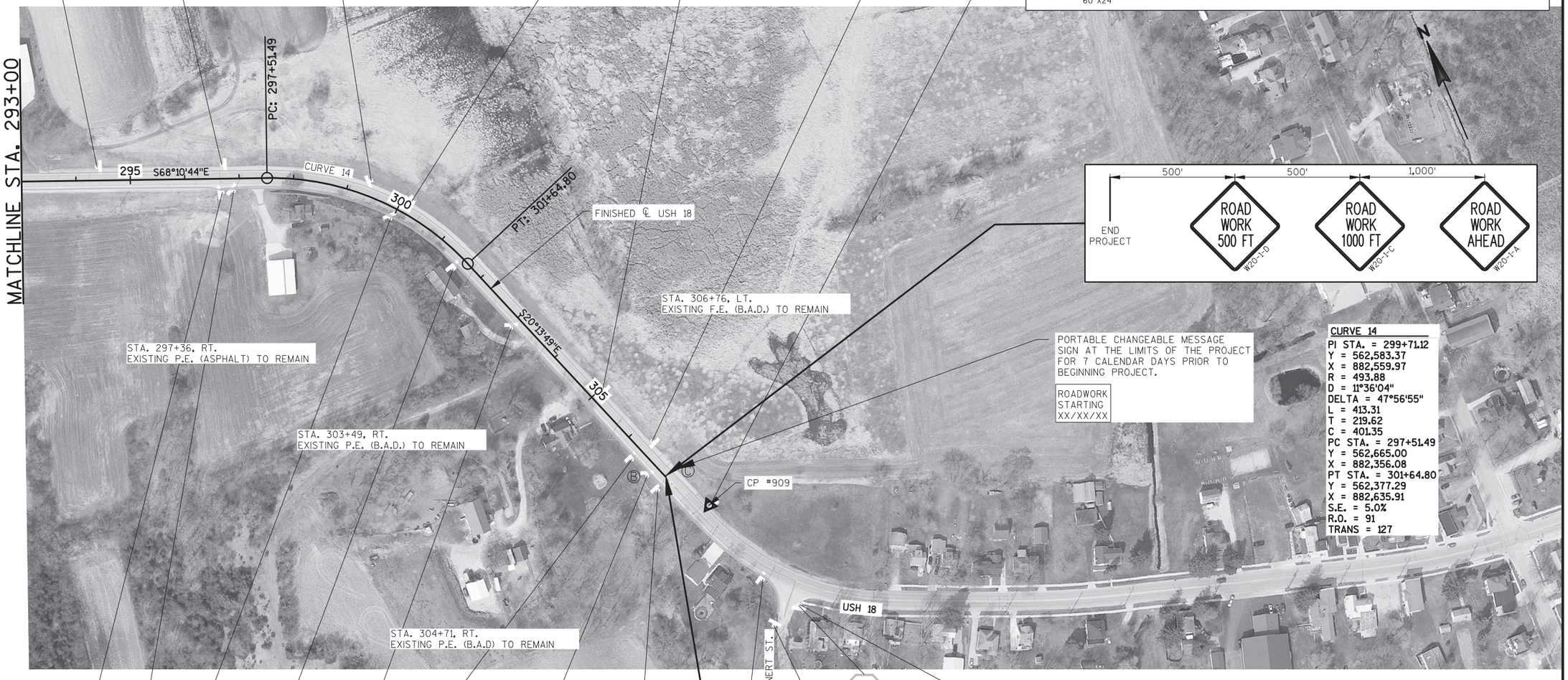


END PROJECT
STA. 307+00.00
Y = 561,875.11
X = 882,820.98

~ HELENVILLE (CENSUS-DESIGNATED PLACE) ~

PROJECT NO: 3080-09-60	HWY: USH 18	COUNTY: JEFFERSON	PLAN DETAILS	SHEET 32	E

3080-09-60

Line	Item	Item Description	Unit	Total	Qty
0002	204.0120	Removing Asphaltic Surface Milling	SY	76,700.000	76,700.000
0004	204.0150	Removing Curb & Gutter	LF	16.000	16.000
0006	204.0165	Removing Guardrail	LF	645.000	645.000
0008	204.0190	Removing Surface Drains	EACH	1.000	1.000
0010	204.9060.S	Removing (item description) 01. Inlet Covers	EACH	1.000	1.000
0012	211.0400	Prepare Foundation for Asphaltic Shoulders	STA	3.000	3.000
0014	213.0100	Finishing Roadway (project) 01. 3080-09-60	EACH	1.000	1.000
0018	305.0110	Base Aggregate Dense 3/4-Inch	TON	2,200.000	2,200.000
0020	305.0500	Shaping Shoulders	STA	435.000	435.000
0022	416.1010	Concrete Surface Drains	CY	1.000	1.000
0024	455.0605	Tack Coat	GAL	6,250.000	6,250.000
0026	460.0105.S	HMA Percent Within Limits (PWL) Test Strip Volumetrics	EACH	1.000	1.000
0028	460.0110.S	HMA Percent Within Limits (PWL) Test Strip Density	EACH	1.000	1.000
0030	460.2005	Incentive Density PWL HMA Pavement	DOL	6,490.000	6,490.000
0032	460.2010	Incentive Air Voids HMA Pavement	DOL	8,300.000	8,300.000
0034	460.5224	HMA Pavement 4 LT 58-28 S	TON	8,300.000	8,300.000
0036	465.0105	Asphaltic Surface	TON	1,750.000	1,750.000
0038	465.0315	Asphaltic Flumes	SY	4.000	4.000
0040	465.0475	Asphalt Centerline Rumble Strips 2-Lane Rural	LF	18,125.000	18,125.000
0042	601.0411	Concrete Curb & Gutter 30-Inch Type D	LF	25.000	25.000
0044	601.0557	Concrete Curb & Gutter 6-Inch Sloped 36-Inch Type D	LF	16.000	16.000
0046	606.0100	Riprap Light	CY	2.000	2.000
0048	611.0636	Inlet Covers Type HM-S	EACH	1.000	1.000
0050	614.0010	Barrier System Grading Shaping Finishing	EACH	3.000	3.000
0052	614.0305	Steel Plate Beam Guard Class A	LF	12.500	12.500
0054	614.0370	Steel Plate Beam Guard Energy Absorbing Terminal	EACH	2.000	2.000
0056	614.2300	MGS Guardrail 3	LF	316.000	316.000
0060	614.2350	MGS Guardrail Short Radius	LF	125.000	125.000
0062	614.2610	MGS Guardrail Terminal EAT	EACH	3.000	3.000
0064	614.2630	MGS Guardrail Short Radius Terminal	EACH	1.000	1.000
0066	618.0100	Maintenance And Repair of Haul Roads (project) 01. 3080-09-60	EACH	1.000	1.000
0070	619.1000	Mobilization	EACH	0.500	0.500
0072	624.0100	Water	MGAL	16.000	16.000
0076	628.1504	Silt Fence	LF	620.000	620.000
0078	628.1520	Silt Fence Maintenance	LF	620.000	620.000
0080	628.1905	Mobilizations Erosion Control	EACH	3.000	3.000
0082	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0084	628.2008	Erosion Mat Urban Class I Type B	SY	840.000	840.000
0086	628.7555	Culvert Pipe Checks	EACH	10.000	10.000

3080-09-60

Line	Item	Item Description	Unit	Total	Qty
0088	642.5001	Field Office Type B	EACH	0.500	0.500
0090	643.0300	Traffic Control Drums	DAY	250.000	250.000
0092	643.0310.S	Temporary Portable Rumble Strips 01. 3080-09-60	LS	1.000	1.000
0098	643.0900	Traffic Control Signs	DAY	954.000	954.000
0100	643.1050	Traffic Control Signs PCMS	DAY	14.000	14.000
0102	643.5000	Traffic Control	EACH	0.500	0.500
0104	645.0130	Geotextile Type R	SY	8.000	8.000
0106	646.1020	Marking Line Epoxy 4-Inch	LF	42,739.000	42,739.000
0108	646.1040	Marking Line Grooved Wet Ref Epoxy 4-Inch	LF	42,135.000	42,135.000
0114	648.0100	Locating No-Passing Zones	MI	4.110	4.110
0116	649.0105	Temporary Marking Line Paint 4-Inch	LF	39,995.000	39,995.000
0118	649.0120	Temporary Marking Line Epoxy 4-Inch	LF	39,995.000	39,995.000
0120	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	41.000	41.000
0122	650.8000	Construction Staking Resurfacing Reference	LF	21,856.000	21,856.000
0124	650.9910	Construction Staking Supplemental Control (project) 01. 3080-09-60	LS	1.000	1.000
0128	690.0150	Sawing Asphalt	LF	1,650.000	1,650.000
0130	690.0250	Sawing Concrete	LF	15.000	15.000
0132	740.0440	Incentive IRI Ride	DOL	16,460.000	16,460.000
0134	ASP.1T0A	On-the-Job Training Apprentice at $5.00/HR	HRS	175.000	175.000
0136	ASP.1T0G	On-the-Job Training Graduate at $5.00/HR	HRS	125.000	125.000
0140	SPV.0090	Special 01. Profile Curb Cut	LF	246.000	246.000
0142	SPV.0180	Special 01. Removing Distressed Pavement Milling	SY	15,600.000	15,600.000

REMOVING ASPHALTIC SURFACE MILLING

STATION - STATION	LOCATION	204.0120 (SY)
89+76.82 - 98+12	MAINLINE	2785
98+12 - 101+69	MAINLINE	1310
101+69 - 133+73	MAINLINE	10980
133+73 - 134+15	MAINLINE	145
134+15 - 137+21	MAINLINE	1090
137+21 - 137+45	MAINLINE	85
137+45 - 168+28	MAINLINE	10560
168+28 - 170+23	MAINLINE	675
170+23 - 178+53	MAINLINE	3070
178+53 - 179+52	MAINLINE	341
179+52 - 227+98	MAINLINE	16455
227+98 - 230+34	MAINLINE	815
230+34 - 252+02	MAINLINE	7528
252+02 - 254+52	MAINLINE	938
254+52 - 255+96	MAINLINE	480
255+96 - 258+55	MAINLINE	893
258+55 - 285+99	MAINLINE	9447
285+99 - 286+40	MAINLINE	170
286+40 - 296+65	MAINLINE	3717
296+65 - 302+56	MAINLINE	2336
302+56 - 307+00	MAINLINE	1530
-	SIDE ROADS	1350
	TOTAL =	76700

PREPARE FOUNDATION FOR ASPHALTIC SHOULDERS

STATION - STATION	LOCATION	211.0400 (STA)
132+00 - 134+00	MAINLINE, LT.	2
137+50 - 138+50	MAINLINE, LT.	1
	TOTAL =	3

SHAPING SHOULDERS

STATION - STATION	LOCATION	305.0500 (STA)
89+76.82 - 307+00	MAINLINE	435
	TOTAL =	435

CONCRETE SURFACE DRAINS

STATION	LOCATION	416.1010 (CY)
132+20	MAINLINE, LT.	1
	TOTAL =	1

REMOVING CURB & GUTTER

STATION - STATION	LOCATION	204.0150 (LF)
132+14 - 132+20	MAINLINE, LT.	6
300+95 - 301+05	MAINLINE, RT.	10
	TOTAL =	16

REMOVING GUARDRAIL

STATION - STATION	LOCATION	204.0165 (LF)
98+55 - 99+46	MAINLINE, LT.	91
132+02 - 133+87	MAINLINE, LT.	227
134+37 - 137+59	MAINLINE, LT.	327
	TOTAL =	645

REMOVING SURFACE DRAINS

STATION	LOCATION	204.0190 (EACH)
132+20	MAINLINE, LT.	1
	TOTAL =	1

REMOVING INLET COVERS

STATION	LOCATION	204.9060.S.01 (EACH)
301+00	MAINLINE, RT.	1
	TOTAL =	1

BASE AGGREGATE DENSE 3/4-INCH

STATION - STATION	LOCATION	305.0110 (TON)
89+76.82 - 307+00	MAINLINE	1713
-	P.E., C.E., F.E.	246
-	UNDISTRIBUTED	241
	TOTAL =	2200

ASPHALTIC FLUMES

STATION - STATION	LOCATION	465.0315 (SY)
89+51 - 89+58	MAINLINE, RT.	4
	TOTAL =	4

ASPHALTIC CENTER LINE RUMBLE STRIPS 2-LANE RURAL

STATION - STATION	LOCATION	465.0475 (LF)
89+76.82 - 307+00	MAINLINE	18125
	TOTAL =	18125

HMA PAVEMENT

STATION - STATION	LOCATION	455.0605 TACK COAT (GAL)	HMA PERCENT WITHIN LIMITS (PWL) 460.0105.S TEST STRIP VOLUMETRICS (EACH)	460.0110.S TEST STRIP DENSITY (EACH)	460.5224 HMA PAVEMENT 4 LT 58-28 S (TON)	465.0105 ASPHALTIC SURFACE (TON)	SPV.0180.01 REMOVING DISTRESSED PAVEMENT MILLING (SY)
*89+76.82 - 98+12	MAINLINE	195	-	-	312	-	-
89+76.82 - 95+00	MAINLINE, LT.	17	-	-	-	27	233
97+60 - 98+28	MAINLINE, LT.	2	-	-	4	5	-
98+12 - 101+69	MAINLINE	92	-	-	147	-	-
100+00 - 109+00	MAINLINE, LT.	84	-	-	-	135	1200
101+69 - 133+73	MAINLINE	761	-	-	1208	-	-
112+00 - 120+00	MAINLINE, LT.	25	-	-	-	40	356
122+00 - 128+00	MAINLINE, RT.	56	-	-	-	90	800
126+00 - 132+00	MAINLINE, LT.	24	-	-	-	42	267
133+73 - 134+15	MAINLINE	11	-	-	17	-	-
134+15 - 137+21	MAINLINE	74	-	-	119	-	-
137+21 - 137+45	MAINLINE	6	-	-	10	-	-
137+45 - 168+28	MAINLINE	722	-	-	1165	-	-
140+00 - 151+00	MAINLINE, RT.	99	-	-	-	172	1467
149+00 - 155+00	MAINLINE, LT.	19	-	-	-	30	267
151+00 - 158+00	MAINLINE, RT.	22	-	-	-	35	312
155+00 - 167+00	MAINLINE, LT.	112	-	-	-	180	1700
168+28 - 170+23	MAINLINE	46	-	-	73	-	-
170+00 - 176+00	MAINLINE, LT.	19	-	-	-	30	265
170+23 - 178+53	MAINLINE	201	-	-	321	-	-
176+00 - 186+00	MAINLINE, LT.	94	-	-	-	150	1334
178+53 - 179+52	MAINLINE	24	-	-	39	-	-
179+52 - 227+98	MAINLINE	1131	-	-	1830	-	-
181+00 - 185+00	MAINLINE, RT.	38	-	-	-	60	534
189+00 - 197+00	MAINLINE, RT.	25	-	-	-	40	356
191+00 - 192+00	MAINLINE, LT.	4	-	-	-	6	45
192+00 - 204+00	MAINLINE, LT.	112	-	-	-	166	1700
197+00 - 199+00	MAINLINE, RT.	19	-	-	-	30	267
209+00 - 210+00	MAINLINE, RT.	4	-	-	-	7	45
210+00 - 215+00	MAINLINE, LT.	16	-	-	-	25	223
220+00 - 227+00	MAINLINE, LT.	22	-	-	-	35	312
227+98 - 230+34	MAINLINE	57	-	-	92	-	-
230+00 - 234+00	MAINLINE, LT.	38	-	-	-	60	534
230+34 - 252+02	MAINLINE	506	-	-	820	-	-
232+00 - 237+00	MAINLINE, RT.	47	-	-	-	75	667
236+00 - 237+00	MAINLINE, LT.	4	-	-	-	7	45
241+00 - 243+00	MAINLINE, RT.	19	-	-	-	30	267
243+00 - 245+00	MAINLINE, LT.	7	-	-	-	10	90
252+02 - 254+52	MAINLINE	61	-	-	97	-	-
254+52 - 255+96	MAINLINE	34	-	-	54	-	-
255+00 - 260+00	MAINLINE, LT.	47	-	-	-	75	667
255+96 - 258+55	MAINLINE	63	-	-	100	-	-
258+55 - 285+99	MAINLINE	641	-	-	1035	-	-
270+00 - 280+00	MAINLINE, RT.	94	-	-	-	150	1334
285+99 - 286+40	MAINLINE	12	-	-	19	-	-
286+40 - 296+65	MAINLINE	240	-	-	393	-	-
296+65 - 302+56	MAINLINE	143	-	-	228	-	-
300+00 - 301+00	MAINLINE, RT.	6	-	-	-	8	45
302+56 - 307+00	MAINLINE	108	-	-	172	-	-
303+00 - 305+00	MAINLINE, LT.	19	-	-	-	30	268
-	SIDE ROADS	28	-	-	45	-	-
-	PROJECT	-	1	1	-	-	-
	TOTALS =	6250	1	1	8300	1750	15600

*INCLUDES HMA PAVEMENT 4 LT 58-28 S QUANTITY (STA. 89+51.36 - STA. 89+76.82, RT.) FOR ASPHALTIC FLUME TAPER.

PWL MIXTURE USE TABLE

The following acceptance criteria are applicable for this project:

LOCATION	STATION	MIXTURE USE	UNDERLYING SURFACE	BID ITEM	TONS	THICKNESS	QUALITY MANAGEMENT PROGRAM TO BE USED FOR: MIXTURE ACCEPTANCE	QUALITY MANAGEMENT PROGRAM TO BE USED FOR: DENSITY ACCEPTANCE
12 foot Driving Lane	89+76.82 to 307+00	Upper Layer	Milled Existing HMA Surface	4 LT 58-28 S	6490	2"	PWL Incentive Air Voids HMA Pavement 460.2010	Incentive Density PWL HMA Pavement 460.2005
Shoulders	89+76.82 to 307+00	Upper Layer	Milled Existing HMA Surface	4 LT 58-28 S	1810	2"	PWL Incentive Air Voids HMA Pavement 460.2010	Acceptance testing by the department; Not eligible for the incentive

FILE NAME : S:\PROJECTS\W11572 USH 18 JEFFERSON COUNTY\SHEETSPLAN\DETAILS\MISC QUANTITIES.DWG
LAYOUT : LAYOUT
PLOT DATE : 3/21/2019
PLOT TIME : 8:17:23 AM
PLOT BY : ANGIE CLARY
PLOT SCALE : 1" = 1'

RIPRAP LIGHT & GEOTEXTILE TYPE R

STATION	LOCATION	606.0100 RIPRAP LIGHT (CY)	645.0130 GEOTEXTILE TYPE R (SY)
89+58 - 89+66	MAINLINE, RT.	2	8
	TOTALS =	2	8

INLET COVERS TYPE HM-S

STATION	LOCATION	611.0636 (EACH)
301+00	MAINLINE, RT.	1
	TOTAL =	1

BARRIER SYSTEM GRADING SHAPING FINISHING

			FOR INFORMATIONAL PURPOSES ONLY								
STA - STA	LOCATION	614.0010 (EACH)	EXCAVATION COMMON (CY)	BORROW (CY)	SALVAGED TOPSOIL (SY)	MULCHING (SY)	FERTILIZER TYPE B (CWT)	SEEDING MIXTURE NO. 30 (LB)	SEEDING TEMPORARY (LB)	CONSTRUCTION STAKING SLOPE STAKES (LF)	628.2008 EROSION MAT URBAN CLASS I TYPE B (SY)
97+60 - 99+51	MAINLINE, LT.	1	35	5	158	0	0.2	4	2	190	168
132+00 - 134+05	MAINLINE, LT.	1	10	5	264	0	0.3	7	3	270	343
134+23 - 138+40	MAINLINE, LT.	1	5	2	115	0	0.1	3	2	420	166
-	UNDISTRIBUTED	-	-	-	-	-	-	-	-	-	163
	TOTALS =	3	50	12	537	0	0.6	14	7	880	840

CONCRETE CURB & GUTTER

STATION - STATION	LOCATION	601.0411 30-INCH TYPE D (LF)	601.0557 6-INCH SLOPED 36-INCH TYPE D (LF)	650.5500 CONSTRUCTION STAKING CURB & GUTTER (LF)
98+03 - 98+28	MAINLINE, LT.	25	-	25
132+14 - 132+20	MAINLINE, LT.	-	6	6
300+95 - 301+05	MAINLINE, RT.	-	10	10
	TOTALS =	25	16	41

STEEL PLATE BEAM GUARD

STA - STA	LOCATION	614.0305 CLASS A (LF)	614.0370 EAT (EACH)
98+35 - 98+85	MAINLINE, LT.	-	1
98+85 - 98+97	MAINLINE, LT.	12.5	-
98+97 - 99+47	MAINLINE, LT.	-	1
	TOTALS =	12.5	2

WATER

PROJECT	624.0100 (MGAL)
3080-09-60	16
TOTAL =	16

SILT FENCE

STATION - STATION	LOCATION	628.1504 SILT FENCE (LF)	628.1520 SILT FENCE MAINTENANCE (LF)
97+60 - 98+02	MAINLINE, LT.	52	52
132+20 - 134+05	MAINLINE, LT.	243	243
134+24 - 134+48	MAINLINE, LT.	52	52
137+00 - 138+40	MAINLINE, LT.	149	149
-	UNDISTRIBUTED	124	124
	TOTALS =	620	620

MGS GUARDRAIL

						✳ FOR INFORMATIONAL PURPOSES ONLY		
STATION - STATION	LOCATION	614.2300 3 (LF)	614.2350 SHORT RADIUS (LF)	614.2610 TERMINAL EAT (EACH)	614.2630 SHORT RADIUS TERMINAL (EACH)	RADIUS (FT)	LENGTH OF INSTALLATION (FT)	NO. OF CRT POSTS
132+00 - 133+85	MAINLINE, LT.	91	125	1	1	43	100	16
134+37 - 137+69	MAINLINE, LT.	225	-	2	-	-	-	-
	TOTALS =	316	125	3	1			

✳INFORMATION INCLUDED PERTAINS TO A PORTION OF MGS GUARDRAIL SHORT RADIUS LIMITS LOCATED WITHIN RADIUS OF THE MGS GUARDRAIL.

MOBILIZATIONS EROSION CONTROL

PROJECT	628.1905 MOBILIZATIONS EROSION CONTROL (EACH)	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL (EACH)
3080-09-60	3	2
TOTALS =	3	2

CULVERT PIPE CHECKS

STATION	LOCATION	628.7555 (EACH)
97+75	MAINLINE, LT.	3
132+53	MAINLINE, LT.	3
134+35	MAINLINE, LT.	2
-	UNDISTRIBUTED	2
	TOTAL =	10

TRAFFIC CONTROL

LOCATION	643.0300 DRUMS (DAYS)	643.0310.S TEMPORARY PORTABLE RUMBLE STRIPS (01. 3080-09-60) (LS)	643.0900 SIGNS (DAYS)	643.1050 SIGNS PCMS (DAYS)	643.5000 TRAFFIC CONTROL (EACH)
PROJECT	-	1	954	14	0.5
UNDISTRIBUTED	250	-	-	-	-
TOTALS =	250	1	954	14	0.5

PAVEMENT MARKING

			646.1020 MARKING LINE EPOXY 4-INCH		646.1040 MARKING LINE GROOVED WET REF EPOXY 4-INCH		649.0105 TEMPORARY MARKING LINE PAINT 4-INCH		649.0120 TEMPORARY MARKING LINE EPOXY 4-INCH	
STATION - STATION	LOCATION	DESCRIPTION	YELLOW SOLID (LF)	12.5' SKIP (LF)	WHITE SOLID (LF)	WHITE 3' SKIP (LF)	YELLOW SOLID (LF)	12.5' SKIP (LF)	YELLOW SOLID (LF)	YELLOW 12.5' SKIP (LF)
89+76.82 - 94+58	MAINLINE	E.B. PASSING ONLY	482	120	-	-	482	120	482	120
94+58 - 101+10	MAINLINE	PASSING	-	163	-	-	-	163	-	163
101+10 - 105+83	MAINLINE	WB PASSING ONLY	474	118	-	-	474	118	474	118
105+83 - 197+38	MAINLINE	DOUBLE YELLOW	18310	-	-	-	18310	-	18310	-
197+38 - 208+04	MAINLINE	EB PASSING ONLY	1066	267	-	-	1066	267	1066	267
208+04 - 218+67	MAINLINE	WB PASSING ONLY	1063	266	-	-	1063	266	1063	266
218+67 - 307+00	MAINLINE	DOUBLE YELLOW	17666	-	-	-	17666	-	17666	-
89+76.82 - 307+00	MAINLINE	WHITE EDGELINES	-	-	42023	112	-	-	-	-
-	UNDISTRIBUTED*	LOCATING NO PASSING ZONE	2744	-	-	-	-	-	-	-
		SUBTOTALS =	41805	934	42023	112	39061	934	39061	934
		TOTALS =	42739		42135		39995		39995	

*ADDITIONAL QUANTITY FOR POSSIBLE CLOSING OF EXISTING PASSING ZONES LOCATED OUTSIDE OF PROJECT LIMITS (USE ONLY IF REQUIRED)

3

LOCATING NO PASSING ZONES

PROJECT	648.0100 (MI)
3080-09-60	4.11
TOTAL =	4.11

CONSTRUCTION STAKING

STATION - STATION	LOCATION	650.8000 RESURFACING REFERENCE (LF)	650.9910 SUPPLEMENTAL CONTROL 01. 3080-09-60 (LS)
89+76.82 - 307+00	MAINLINE	21724	-
6'C'+69 - 8'C'+00	'C'-LINE, RT.	132	-
-	PROJECT	-	1
	TOTALS =	21856	1

SAWING ASPHALT

STATION	LOCATION	690.0150 (LF)	COMMENTS
89+52 - 89+76.82	MAINLINE, RT.	25	
89+76.82	MAINLINE	30	
90+15	MAINLINE, LT.	66	DRIVEWAY
92+89	MAINLINE, RT.	91	DRIVEWAY
97+60 - 98+28	MAINLINE, LT.	71	
98+09 - 98+63	MAINLINE, LT.	54	
102+00	-	62	SCHOPEN ROAD (NORTH)
102+00	-	58	SCHOPEN ROAD (SOUTH)
131+65	-	98	CHRISTBERG ROAD
132+52 - 133+73	MAINLINE, LT.	130	
132+17	MAINLINE, LT.	7	CONCRETE SURFACE DRAIN
137+44 - 138+39	MAINLINE, LT.	98	
140+59	MAINLINE, LT.	103	DRIVEWAY
146+77	MAINLINE, RT.	40	DRIVEWAY
174+93	MAINLINE, LT.	58	DRIVEWAY
206+00	-	80	SWITZKE RD.
218+84	MAINLINE, LT.	71	DRIVEWAY
231+00	-	75	PROBST LANE
244+00	-	73	PARADISE ROAD
258+45	-	75	COFFEE ROAD
287+00	-	85	BAKERTOWN ROAD
289+06	MAINLINE, LT.	61	DRIVEWAY
293+13	MAINLINE, LT.	68	DRIVEWAY
300+95 - 301+05	MAINLINE, RT.	12	
307+00	MAINLINE	31	
7'C'+60 - 7'C'+88	'C'-LINE, RT.	28	
	TOTAL =	1650	

SAWING CONCRETE

STATION	LOCATION	690.0250 (LF)
98+28	MAINLINE, LT.	3
132+18	MAINLINE, LT.	6
300+95	MAINLINE, RT.	3
301+05	MAINLINE, RT.	3
	TOTAL =	15

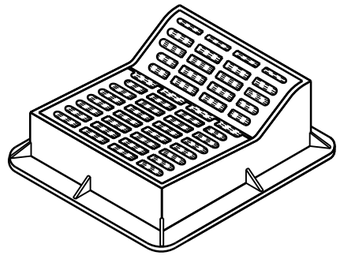
PROFILE CURB CUT

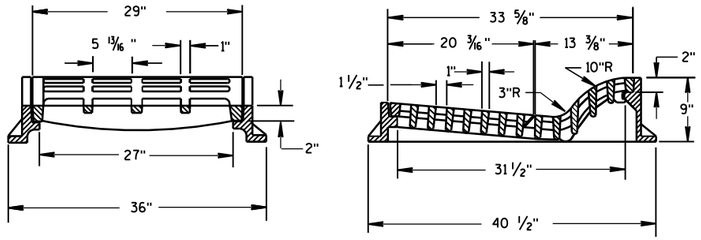
STATION - STATION	LOCATION	SPV.0090.01 (LF)
98+28 - 98+47	MAINLINE, LT.	19
99+34 - 100+47	MAINLINE, LT.	113
133+73 - 134+87	MAINLINE, RT.	114
	TOTAL =	246

Standard Detail Drawing List

08A05-19C	INLET COVERS TYPE F, HM, HM-S, S, T, V, HM-GJ, & HM-GJ-S
08D01-20A	CONCRETE CURB & GUTTER
08D04-05	CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES
08D20-01	DRIVEWAYS WITH CURB & GUTTER RETURNS
08D21-01	DRIVEWAYS WITHOUT CURB & GUTTER
08D22-01	DRIVEWAYS WITHOUT CURB & GUTTER RESURFACING PROJECTS RURAL
08E09-06	SILT FENCE
13A11-03A	2-LANE RURAL CENTER LINE RUMBLE STRIP, MILLING
13A11-03B	2-LANE RURAL CENTER LINE RUMBLE STRIP, MILLING
14B15-11A	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-11B	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-11C	STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS
14B24-09A	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B24-09B	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B24-09C	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B29-01	SAFETY EDGE
14B42-06A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-04A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B53-01A	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01B	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01C	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01D	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01E	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01F	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01G	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01H	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01I	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
15C04-05	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C08-19A	LONGITUDINAL MARKING (MAINLINE)
15C11-07A	CHANNELIZING DEVICES FLEXIBLE TUBULAR MARKER POST
15C11-07B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15C12-06	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION
15C19-05A	MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY
15C35-03A	PAVEMENT MARKING (INTERSECTIONS)
15D28-03	TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY
15D38-02A	TEMPORARY TRAFFIC CONTROL SIGN MOUNTING
15D38-02B	ATTACHMENT OF SIGNS TO POSTS
15D39-02	TRAFFIC CONTROL, DROP-OFF SIGNING

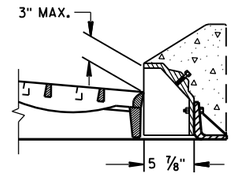
6





TYPE "F"

USE WITH TYPES A & D CONCRETE CURB & GUTTER, 36 INCH.



ALTERNATIVE CURB BOX FOR TYPE "HM" COVER

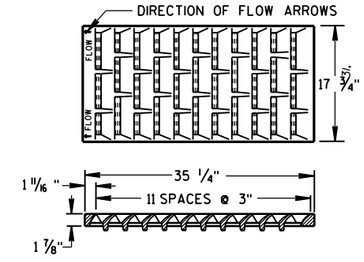
USE WITH TYPES G & J CONCRETE CURB & GUTTER, 30 INCH
NOTED AS TYPE HM-GJ ON DRAINAGE TABLE

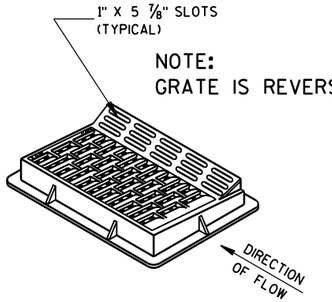
NOTE:
SPECIAL GRATE FOR THE
TYPE "H" COVER MAY ALSO BE
USED FOR THE TYPE "HM-GJ" COVER
NOTED AS TYPE HM-GJ-S ON DRAINAGE TABLE

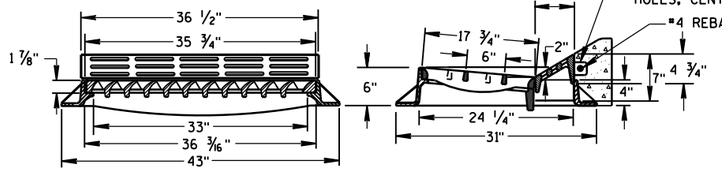
GENERAL NOTES

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 INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.



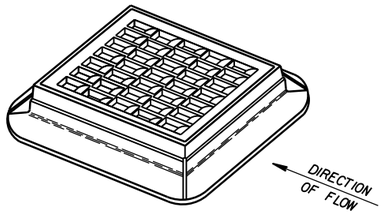


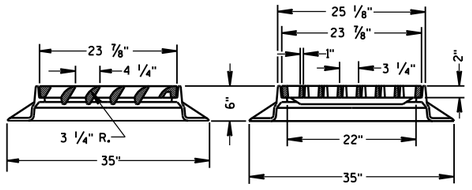


TYPE "HM"

USE WITH TYPES A & D CONCRETE CURB & GUTTER, 36 INCH.

NOTE:
SPECIAL GRATE FOR THE
TYPE "H" COVER MAY ALSO BE
USED FOR THE TYPE "HM" COVER
NOTED AS TYPE HM-S ON DRAINAGE TABLE





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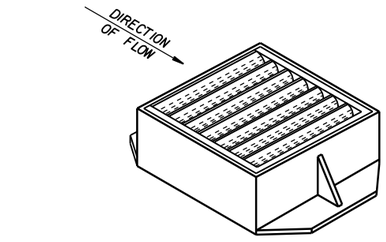
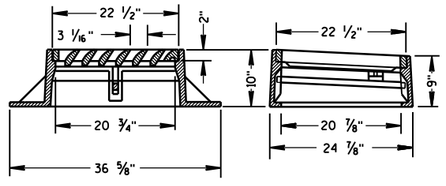
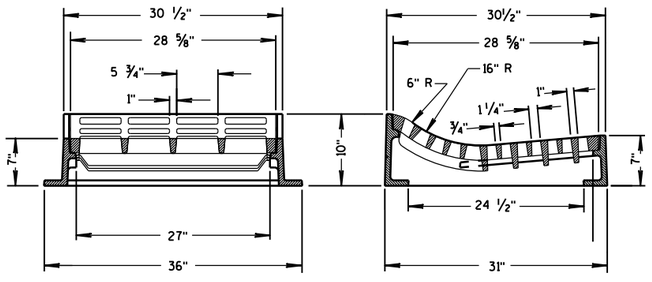


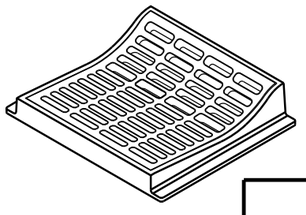


TYPE "V"



TYPE "T"

USE WITH TYPES R & T CONCRETE CURB & GUTTER, 36 INCH.



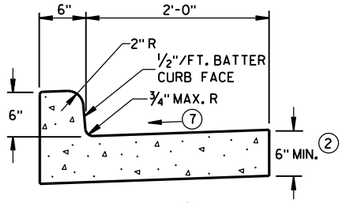
INLET COVERS
TYPE F, HM, HM-S, S, T, V, HM-GJ, & HM-GJ-S

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

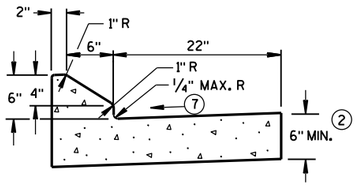
APPROVED
11/27/2013
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER

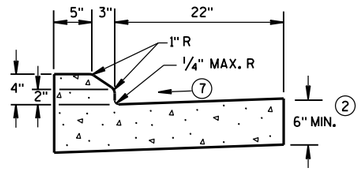
FHWA



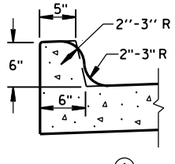
TYPES A (1) & D



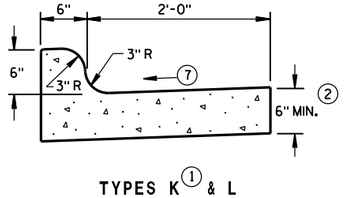
6" SLOPED CURB TYPES G (1) & J



4" SLOPED CURB TYPES G (1) & J

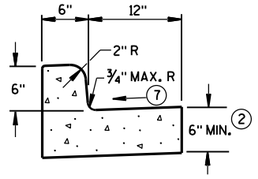


TYPES K (1) & L
(OPTIONAL CURB SHAPE)



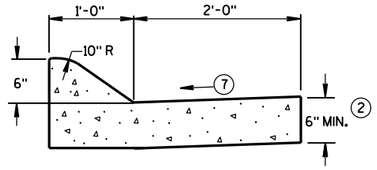
TYPES K (1) & L

CONCRETE CURB & GUTTER 30"

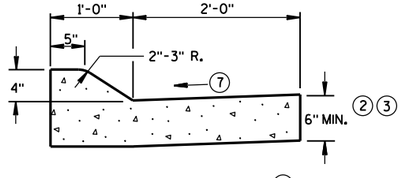


TYPES A (1) & D

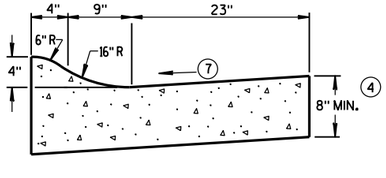
CONCRETE CURB & GUTTER 18"



6" SLOPED CURB TYPES A (1) & D

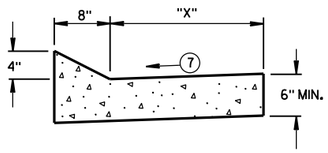


4" SLOPED CURB TYPES A (1) & D



4" SLOPED CURB TYPES R (1) & T (5)

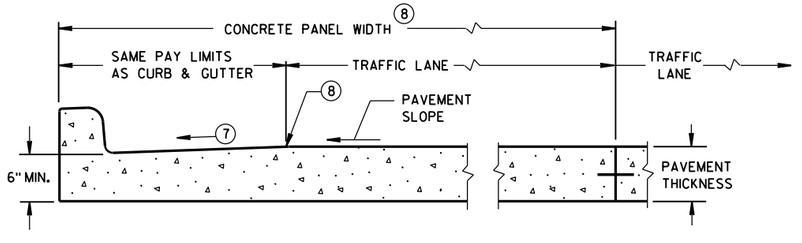
CONCRETE CURB & GUTTER 36"



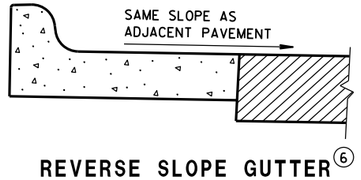
TYPES TBT & TBTT (1)

CONCRETE CURB & GUTTER

TBT & TBTT	"X"
30"	22"
36"	28"



PARTIAL SECTION OF PAVEMENT *
WITH INTEGRAL CURB & GUTTER



REVERSE SLOPE GUTTER (6)
(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.

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, R AND TBTT.

(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) USE 8" MINIMUM GUTTER THICKNESS WHEN USED WITH AN ADJACENT CONCRETE TRUCK APRON PLACED BEHIND BACK OF CURB.

(4) 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.

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

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

(7) USE 4% GUTTER CROSS SLOPE UNLESS OTHERWISE NOTED IN THE PLANS.

(8) INCLUDE LONGITUDINAL JOINT AND TIE BARS ALONG LANE EDGE WHEN CONCRETE PANEL WIDTH EXCEEDS THE MAXIMUM WIDTH PER TABLE BELOW. LONGITUDINAL JOINT(S) ARE NOT ALLOWED WITHIN TRAFFIC LANES AND BIKE LANES. LONGITUDINAL JOINT MAY BE SAWED.

PAVEMENT THICKNESS AND MAXIMUM CONCRETE PANEL WIDTH TABLE

PAVEMENT THICKNESS	MAXIMUM PANEL WIDTH
LESS THAN 10"	12'
10" & ABOVE	15'

* BIKE LANE IS NOT SHOWN.

CONCRETE CURB & GUTTER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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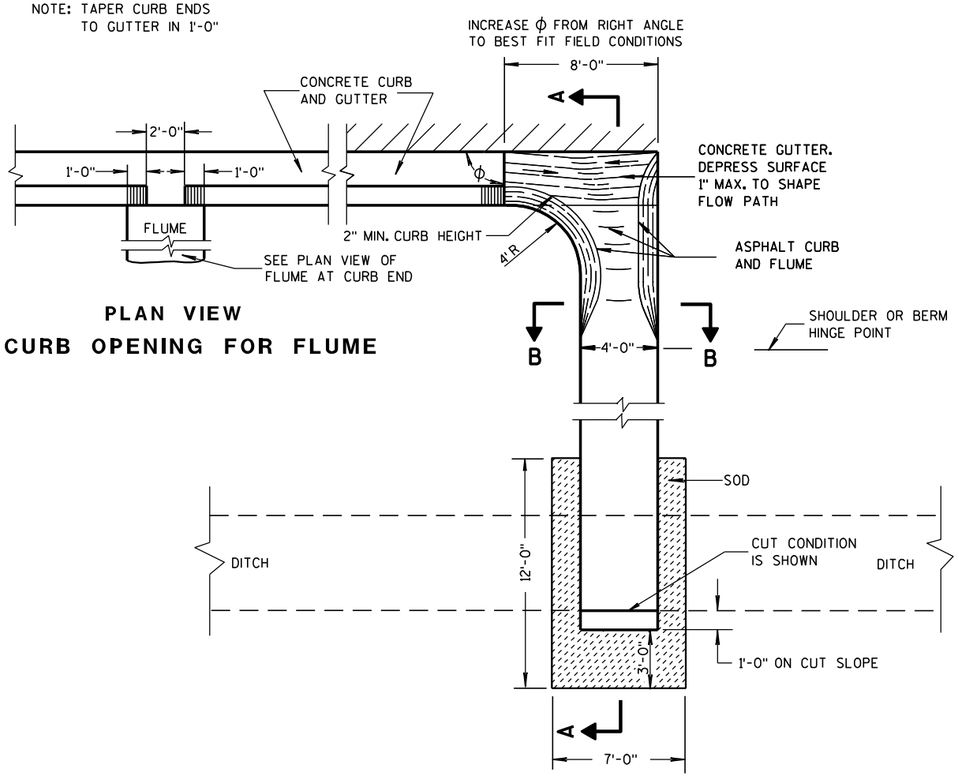
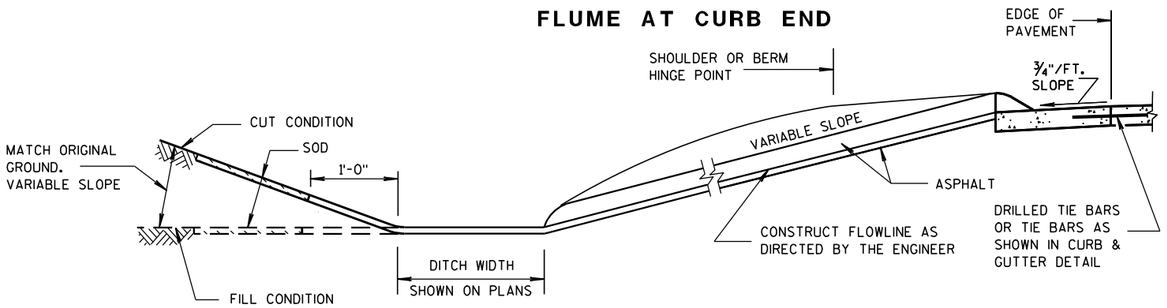
S.D.D. 8 D 1-20a

ASPHALTIC FLUME

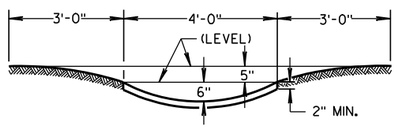


PLAN VIEW
CURB OPENING FOR FLUME

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.

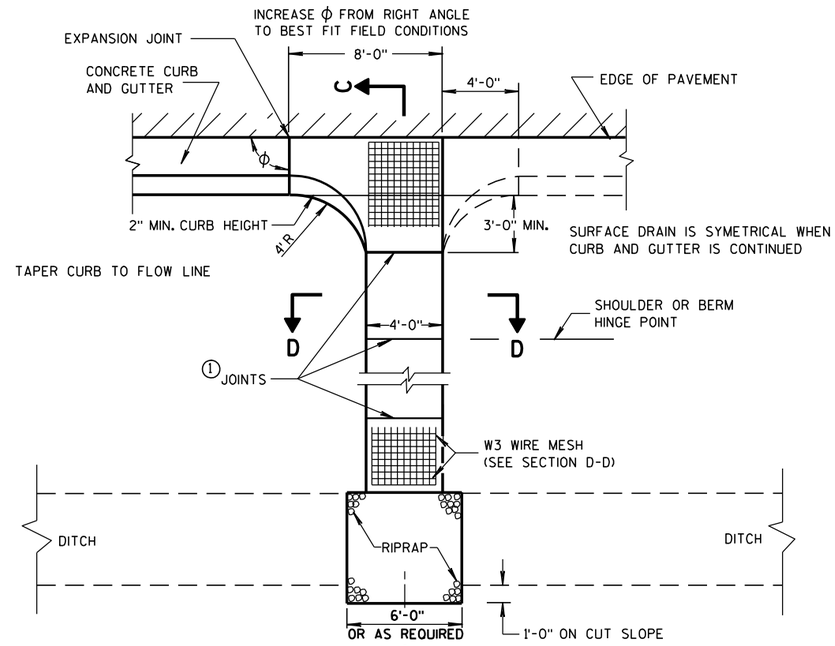
WELDED STEEL WIRE FABRIC SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATION M55.

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.

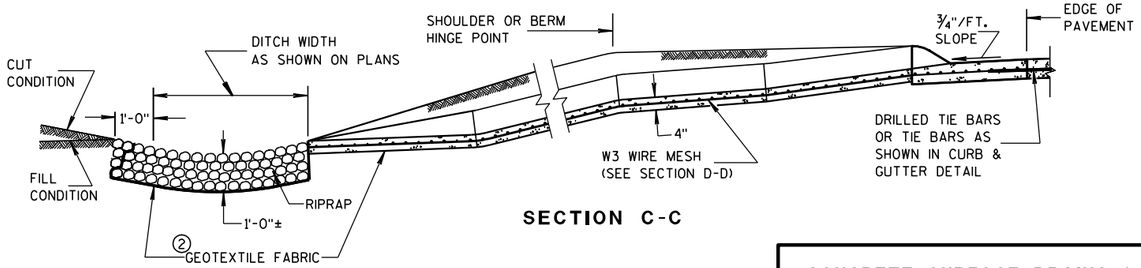
② GEOTEXTILE FABRIC TYPE "R" SHALL UNDERLAY THE FULL LENGTH AND WIDTH OF THE CONCRETE SURFACE DRAIN AND RIPRAP.

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

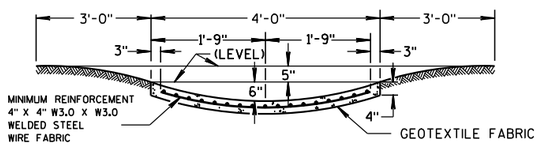
③ CONCRETE SURFACE DRAIN



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

FHWA

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S.D.D. 8 D 4-5

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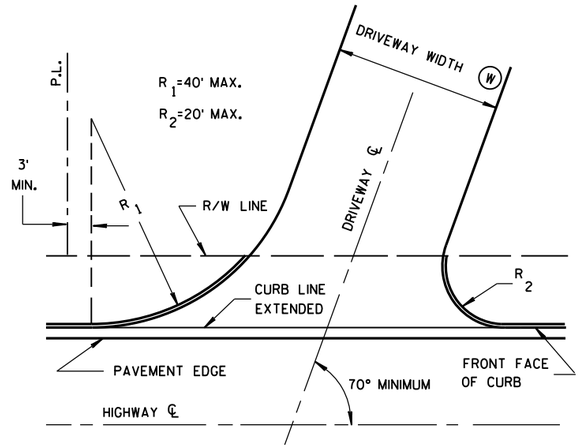
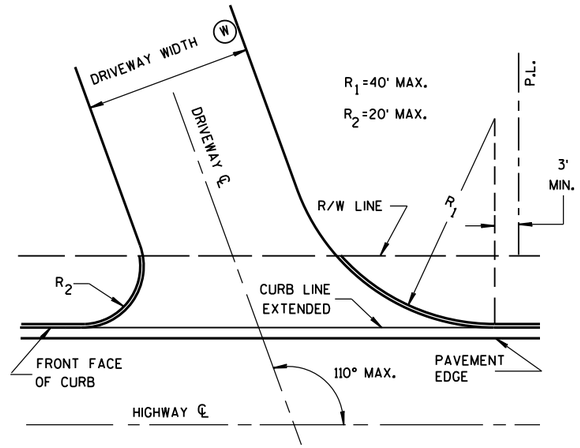
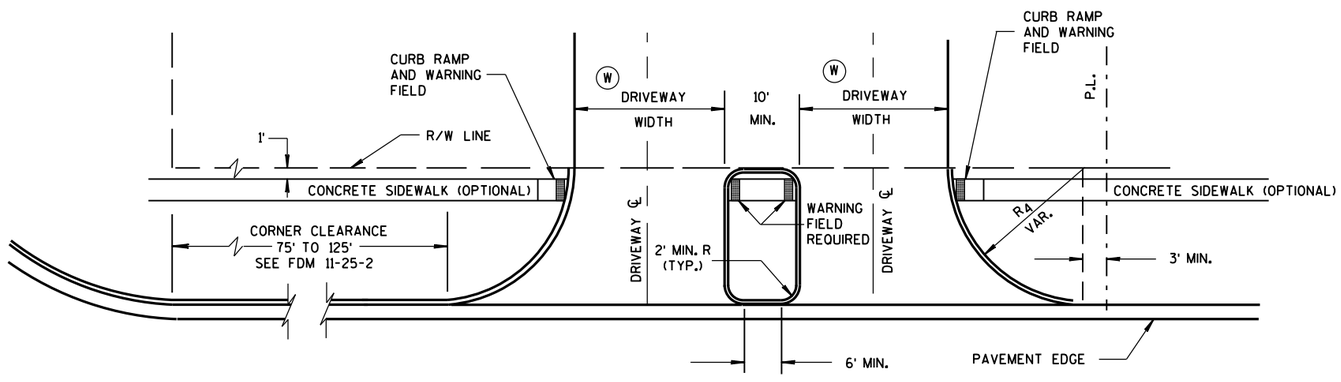
S.D.D. 8 D 4-5





SKEWED DRIVEWAY DETAILS
(COMMERCIAL AND NON-COMMERCIAL)

SIDEWALK NOT SHOWN



DRIVEWAY LOCATION AND SPACING DETAILS

SIDEWALK SHOWN

NOTES

A MAXIMUM RADIUS OF 10 FEET SHALL BE USED FOR NON-COMMERCIAL PRIVATE ENTRANCES. RADII FOR COMMERCIAL DRIVEWAYS SHALL BE DETERMINED BY THE ENGINEER BASED ON TRAFFIC AND DRIVEWAY PERMIT RESTRICTIONS.

THE MINIMUM ANGLE OF INTERSECTION BETWEEN THE DRIVEWAY AND HIGHWAY CENTERLINES SHALL BE 70°.

ALL CURVILINEAR PRIVATE ENTRANCE OUTLINES SHALL BE CONTAINED WITHIN THE HIGHWAY R/W.

NO DRIVEWAY SHALL BE BUILT WITHIN 3 FEET OF THE PROPERTY LINE EXCEPT FOR EXISTING JOINT DRIVEWAY SHARED BY TWO OWNERS.

Ⓦ DRIVEWAY WIDTHS:

COMMERCIAL - 35' MAX., 16' MIN.

RESIDENTIAL AND NON-COMMERCIAL - 24' MAX., 12' MIN.

DRIVEWAYS WITH CURB & GUTTER RETURNS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
December, 2016 /S/ Rodney Taylor
DATE ROADWAY STANDARDS UNIT SUPERV
FHWA

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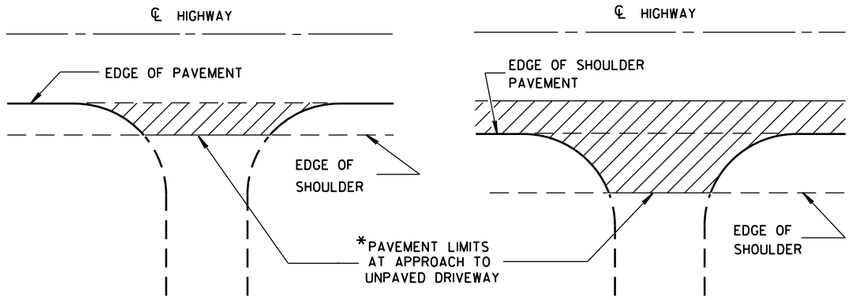
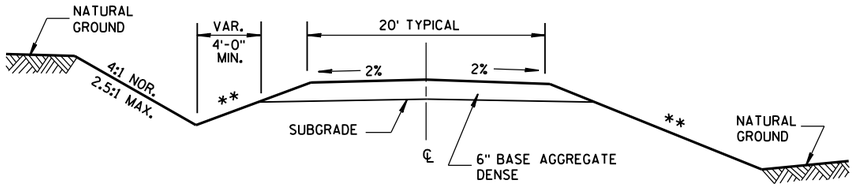


*WHERE DRIVEWAY IS PAVED, APPROACH PAVEMENT SHOULD BE EXTENDED TO MATCH DRIVEWAY PAVEMENT.

PLAN VIEW
(UNPAVED SHOULDER ON HIGHWAY)

PLAN VIEW
(PAVED SHOULDER ON HIGHWAY)

RURAL DRIVEWAY INTERSECTION DETAIL
(NO CURB & GUTTER OR SIDEWALK)

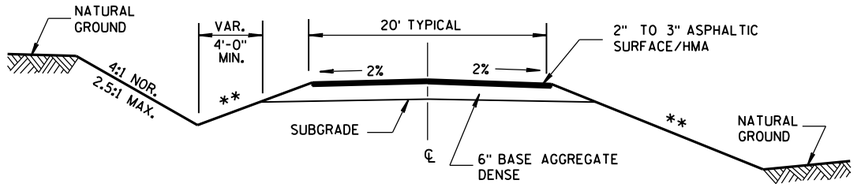


IN CUT **IN FILL**

TYPICAL CROSS SECTION FOR PRIVATE DRIVE OR FIELD ENTRANCE AGGREGATE SURFACE

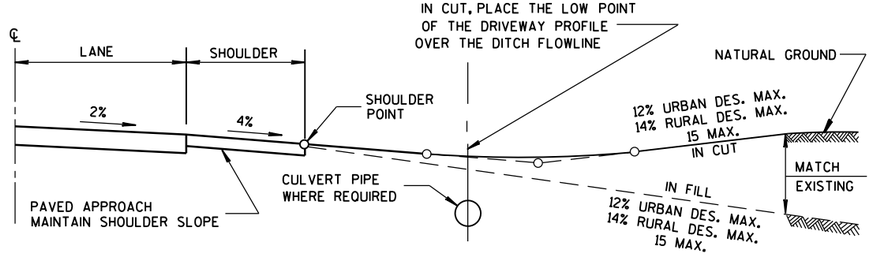
** SLOPE CAN VARY WITH SPEED. SEE 11-45-2.6.2.

POSTED SPEED MPH	MAX. SLOPE
<35	4:1
≥35 TO <60	6:1
≥60	10:1



IN CUT **IN FILL**

TYPICAL CROSS SECTION FOR PRIVATE DRIVE OR FIELD ENTRANCE ASPHALTIC SURFACE



TYPICAL DRIVEWAY PROFILES

DRIVEWAYS WITHOUT CURB & GUTTER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
December, 2016 /S/ Rodney Taylor
DATE ROADWAY STANDARDS UNIT SUPERV
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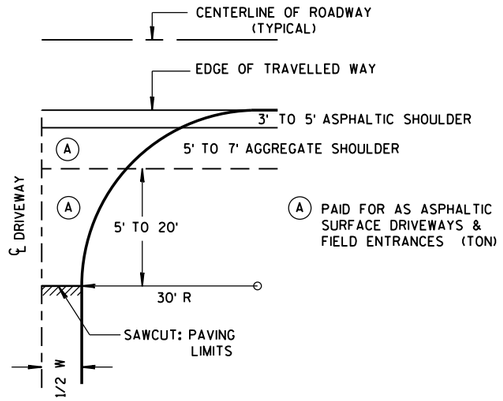
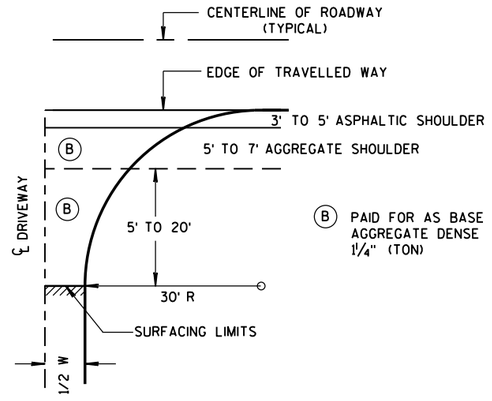


PLAN VIEW
HALF SECTION

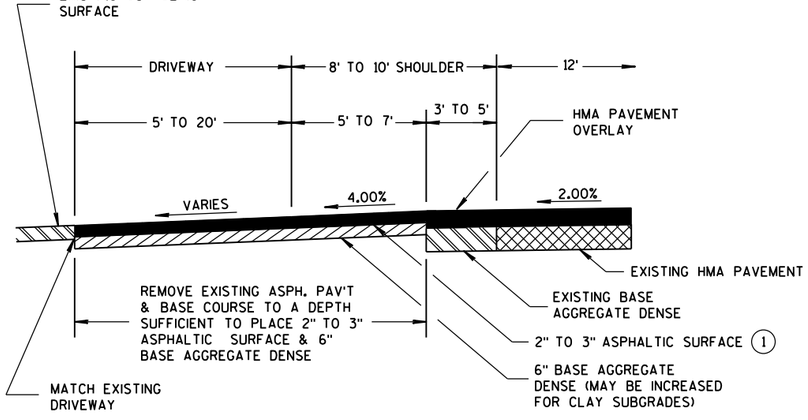
W MIN. = 16'
W MAX. = 24'



PLAN VIEW
HALF SECTION

GENERAL NOTES

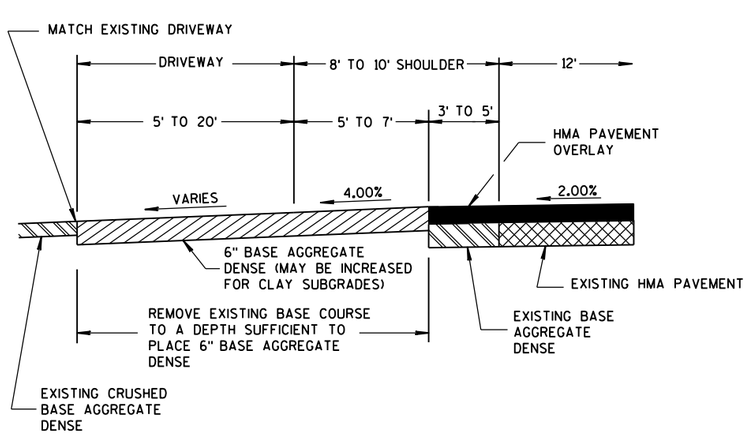
(1) DESIGN WILL DETERMINE FINAL DRIVEWAY ASPHALTIC THICKNESS BASED ON TYPE OF USAGE AND LOADINGS.



PROFILE VIEW

RURAL ENTRANCE WITH ASPHALTIC SURFACE

RESURFACING PROJECTS



PROFILE VIEW

RURAL ENTRANCE WITH AGGREGATE SURFACE

6" BASE AGGREGATE DENSE
RESURFACING PROJECTS

DRIVEWAYS WITHOUT CURB & GUTTER RESURFACING PROJECTS RURAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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December, 2016 — /S/ Rodney Taylor
DATE — ROADWAY STANDARDS UNIT SUPERV — ENT
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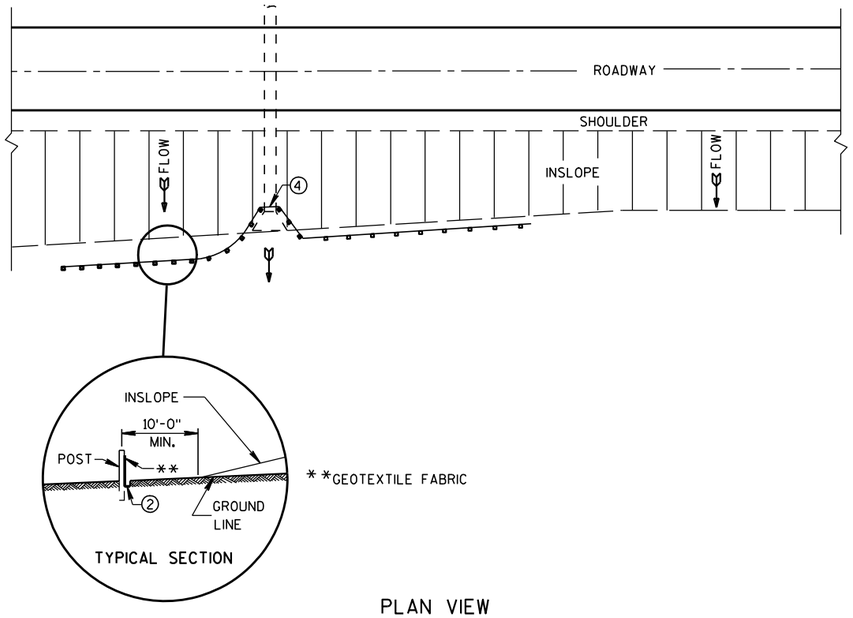
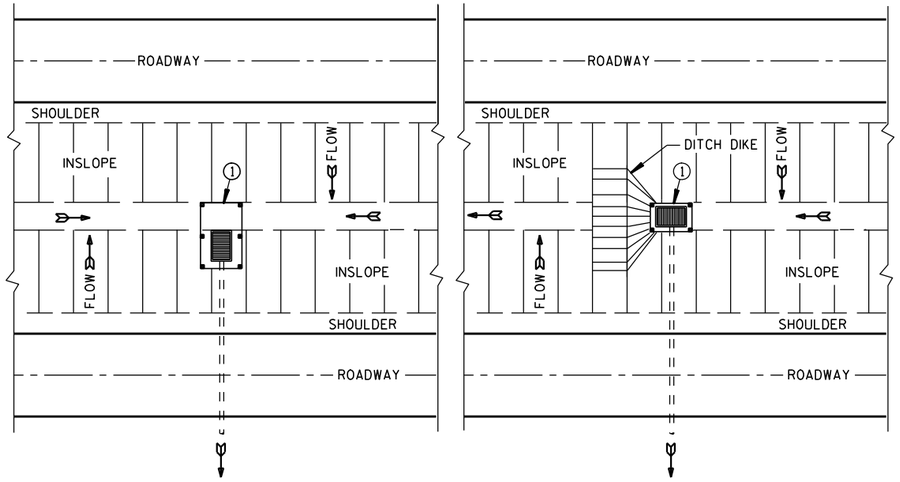


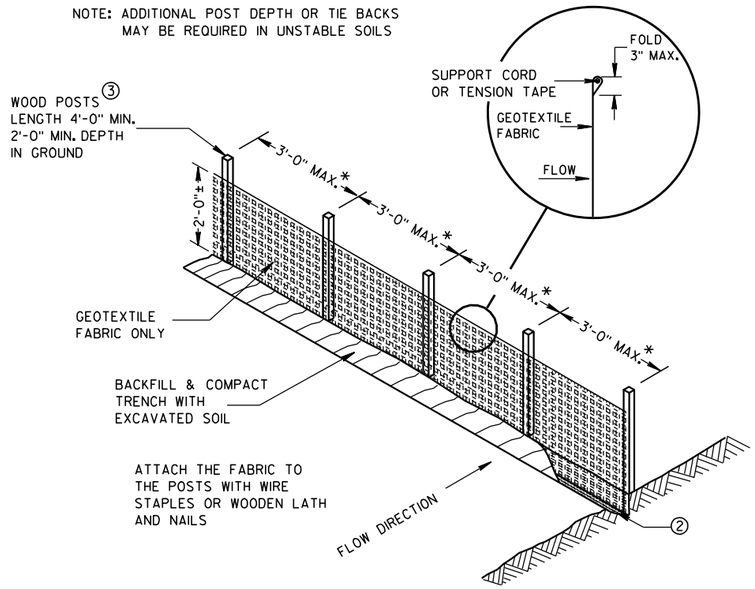
PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



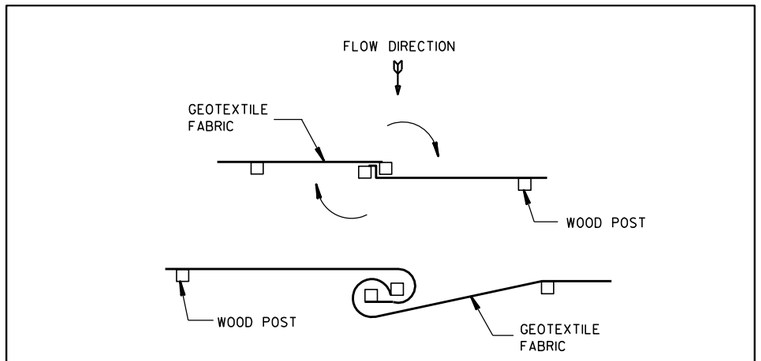
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS



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

SILT FENCE

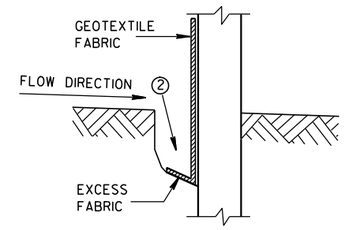


JOINING TWO LENGTHS OF SILT FENCE 5

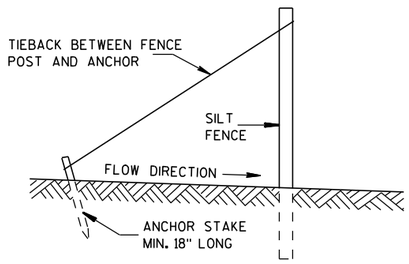
GENERAL NOTES

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

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



TRENCH DETAIL



SILT FENCE TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

S.D.D. 8 E 9-6

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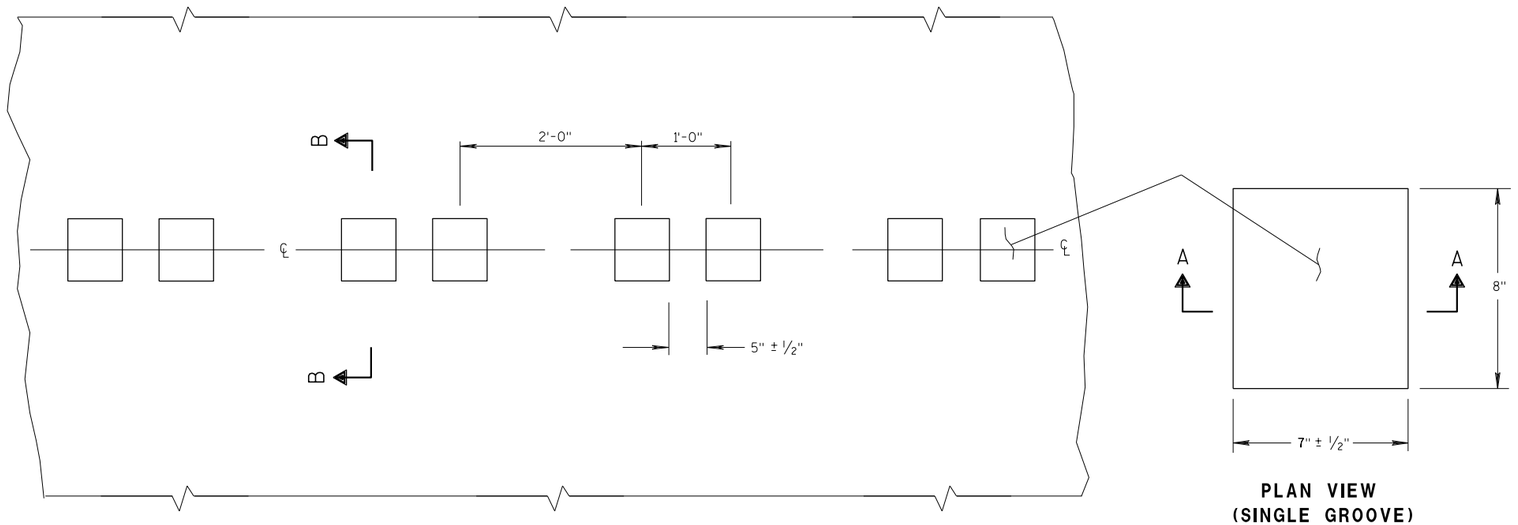
S.D.D. 8 E 9-6



PLAN VIEW
CENTER LINE WITH GROOVES

PLAN VIEW
(SINGLE GROOVE)

PLACEMENT DETAIL FOR MILLED RUMBLE STRIP

GENERAL NOTES

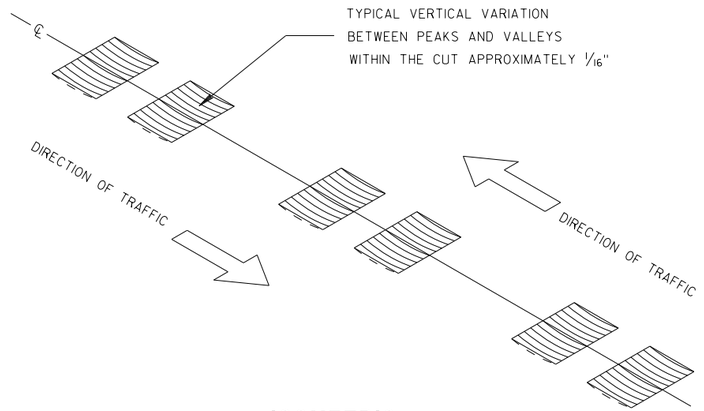
DETAILS OF CONSTRUCTION SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

DO NOT MILL CENTER LINE GROOVES THROUGH ANY INTERSECTION, MARKED CROSSWALK, NON-MOTORIZED PATH CROSSING, OR SNOWMOBILE CROSSING.

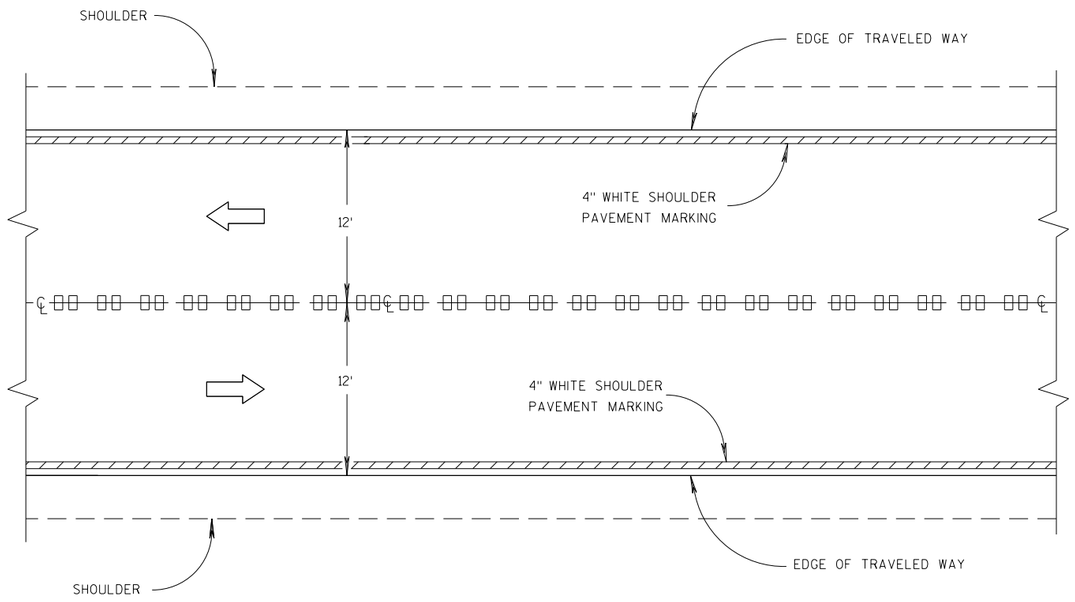
INSTALL PERMANENT MARKING EPOXY 4-INCH AFTER THE GROOVES ARE INSTALLED.

SEE SIGNING PLAN FOR SIGN REQUIREMENTS THAT MAY BE NEEDED.

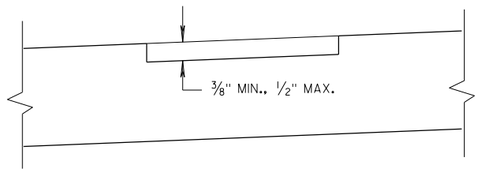
(1) CENTERLINE GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS, WHEN DIRECTED BY THE ENGINEER.



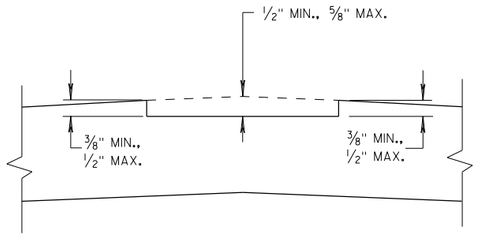
ISOMETRIC



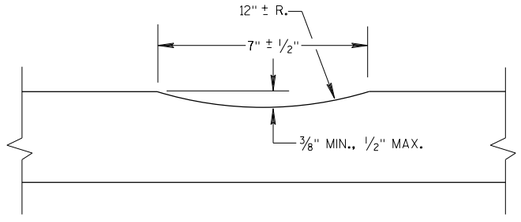
CENTER LINE GROOVES ON TWO-WAY ROADWAYS



SECTION B-B
SUPERELEVATED ROADWAY



SECTION B-B
CROWNED ROADWAY

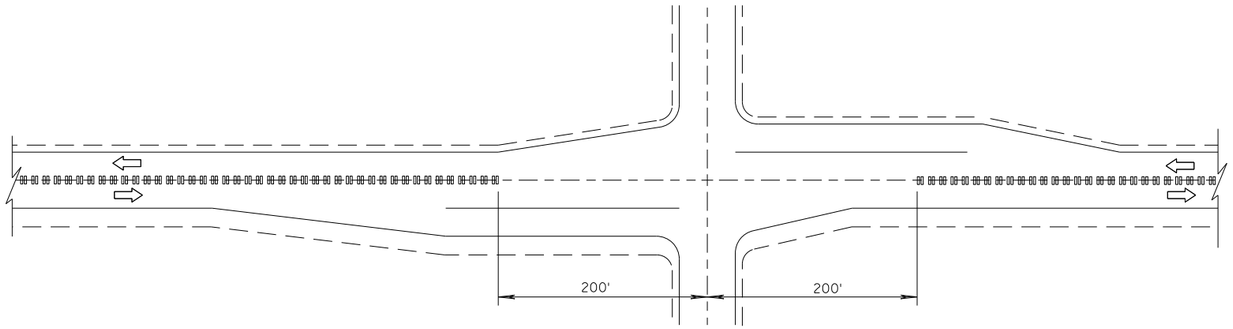


SECTION A-A

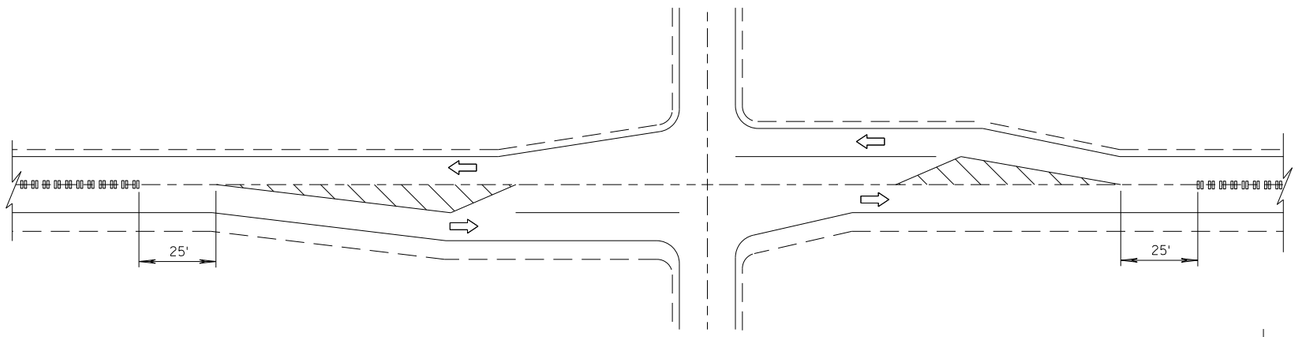
2-LANE RURAL
CENTER LINE RUMBLE STRIP, MILLING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

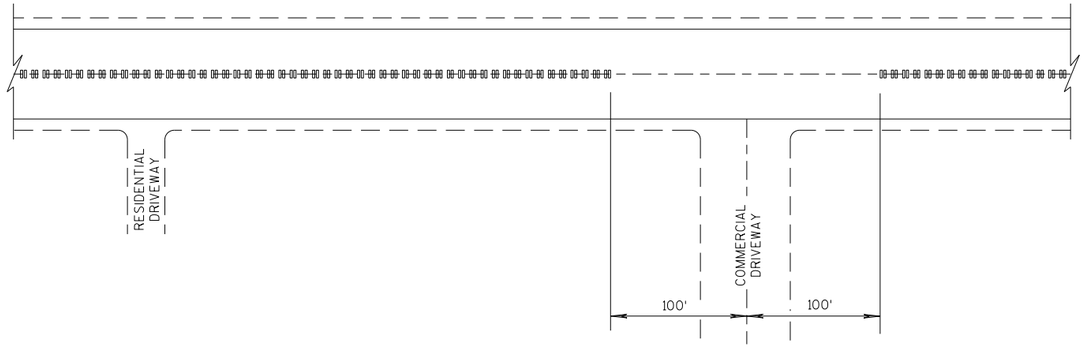
6
S.D.D. 13 A 11-3a



CENTER LINE GROOVES AT INTERSECTIONS

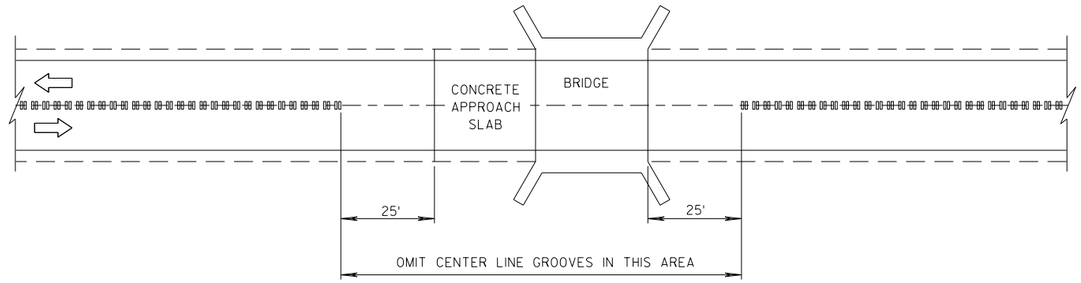


CENTER LINE GROOVES AT INTERSECTIONS
(WITH LEFT TURN LANES)

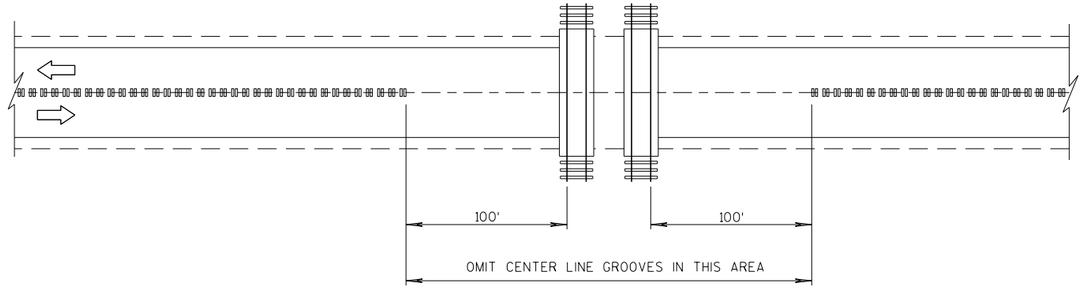


CENTER LINE GROOVES AT DRIVEWAYS (1)

(1) CENTERLINE GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS, WHEN DIRECTED BY THE ENGINEER.



CENTER LINE GROOVES AT BRIDGES



CENTER LINE GROOVES AT RAILROADS

2-LANE RURAL
CENTER LINE RUMBLE STRIP, MILLING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

7/2018 — DATE

/S/ Rodney T — ROADWAY STANDARDS DE UNIT SUPERVISOR — IT

FHWA

6

S.D.D. 13 A 11-3b

6

S.D.D. 13 A 11-3b

GENERAL NOTES

(1) W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POSTS WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS. APPROVED PLASTIC BLOCKOUT DESIGNS MAY VARY FROM THIS TYPICAL DETAIL WHEN USED IN CONJUNCTION WITH STEEL POSTS.

DO NOT MIX STEEL POSTS AND WOOD POSTS IN A SINGLE INSTALLATION.

(2) USE STRUCTURAL STEEL POSTS CONFORMING TO ASTM A 36. GALVANIZED POSTS ACCORDING TO AASHTO M 111. EITHER SET THE POSTS IN DRILLED HOLES OR DRIVE TO GRADE. REMOVE MUSHROOMING CAUSED BY DRIVING AND REPAIR DAMAGED SPELTER COATING ON GALVANIZED POSTS.

(3) INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.

(4) USE EITHER WOOD OR APPROVED PLASTIC BLOCKOUTS ON WOOD POSTS.

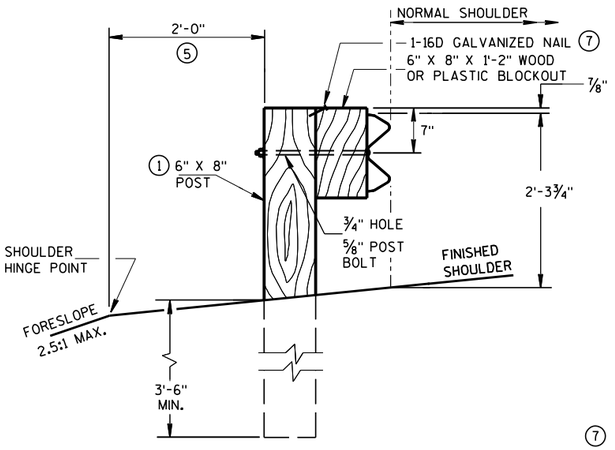
(5) IF THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING, W BEAM (LHW).

(6) IF ROCK IS ENCOUNTERED DURING EXCAVATION, THE ENGINEER MAY APPROVE USING A 12 INCH DIAMETER POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE APPROXIMATELY 2½ INCHES DEEP. CUT THE POSTS TO LENGTH AND PLACE IN YHE HOLE. BACKFILL WITH MATERIAL EXCAVATED FROM THE HOLE AND COMPACT ADEQUATEY.

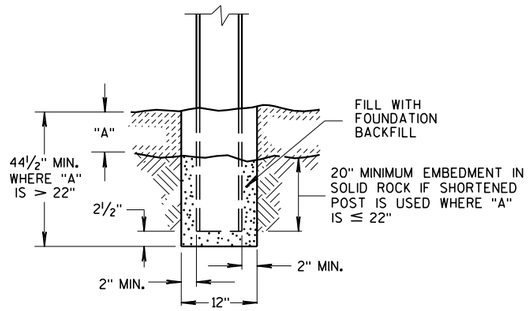
(7) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

INSTALL BEAM GUARD SECTIONS AND ALL NECESSARY HARDWARE ACCORDING TO THE APPLICABLE PLAN AND CURRENT STANDARD AND SUPPLEMENTAL SPECIFICATIONS.

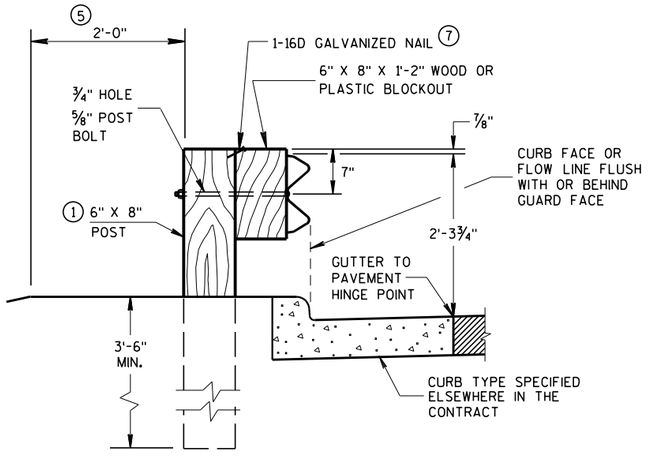
ALL DIMENSIONS ARE SUBJECT TO MANUFACTURER'S TOLERANCES EXCEPT WHERE ALLOWABLE TOLERANCES ARE SHOWN.



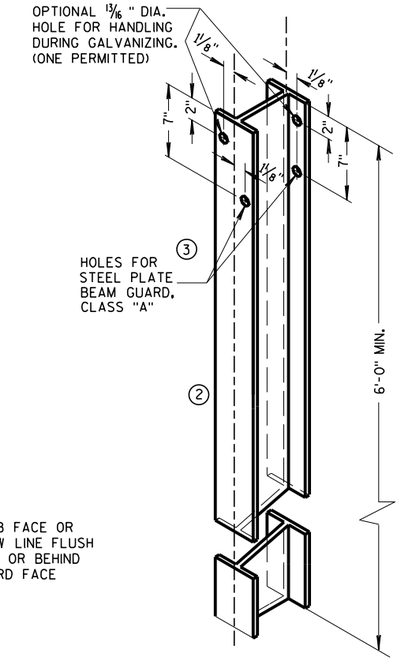
END VIEW
LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



END VIEW
SETTING STEEL OR WOOD POST IN ROCK (6)

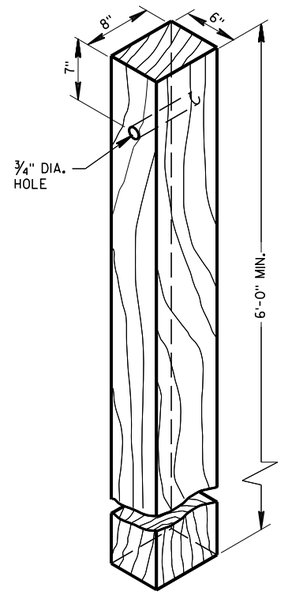


END VIEW
LOCATED ALONG A CURBED ROADWAY

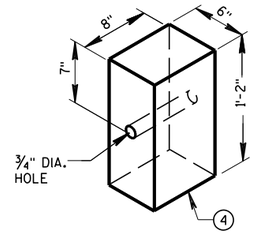


STEEL POST &
HOLE PUNCHING DETAIL
(W6 X 9) (1)

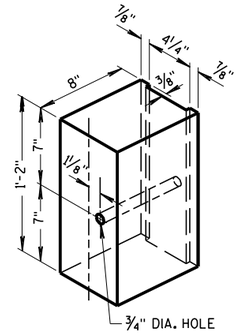
ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED



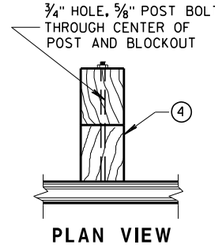
WOOD POST
(6"X8") NOMINAL



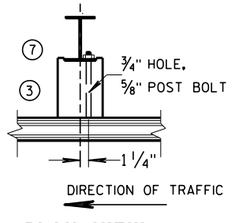
WOOD OR PLASTIC
BLOCKOUT FOR
WOOD POSTS



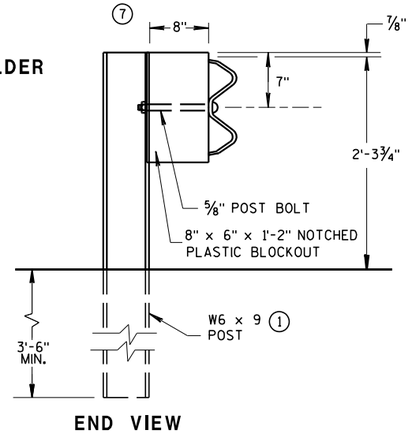
TYPICAL NOTCHED
PLASTIC BLOCKOUT
FOR STEEL POSTS (1)



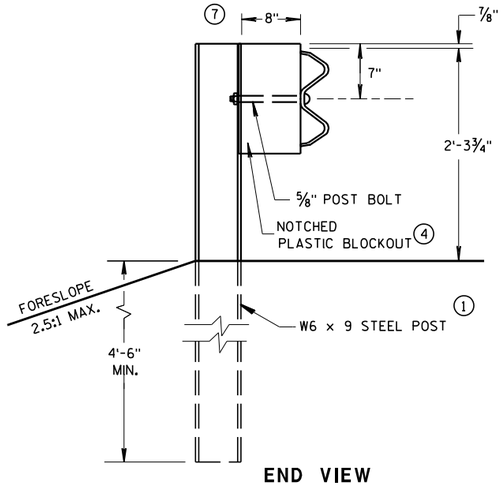
PLAN VIEW
WOOD POST, BLOCKOUT & BEAM



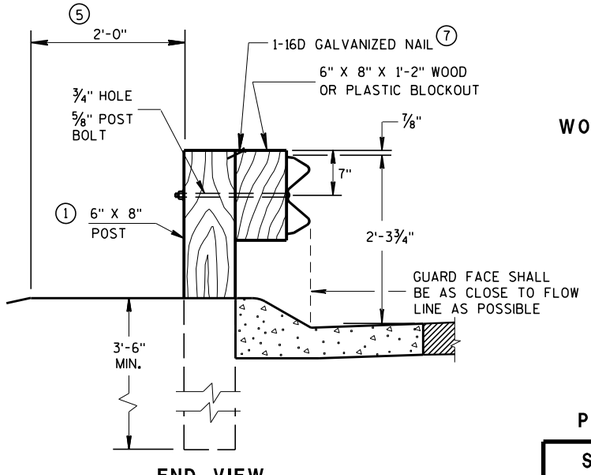
PLAN VIEW
STEEL POST, NOTCHED
PLASTIC BLOCKOUT & BEAM



END VIEW
STEEL POST & NOTCHED
PLASTIC BLOCKOUT ALTERNATIVE
STANDARD INSTALLATION



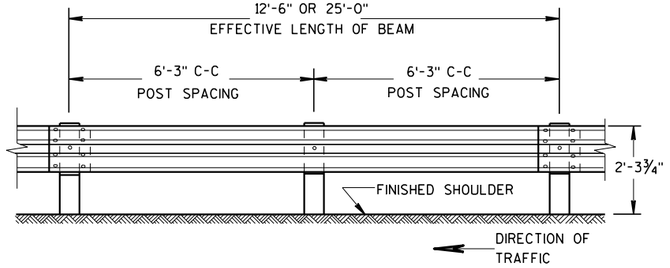
END VIEW
LONGER POST AT HALF
POST SPACING W BEAM
(LHW)



END VIEW
LOCATED ALONG A
MOUNTABLE CURBED ROADWAY

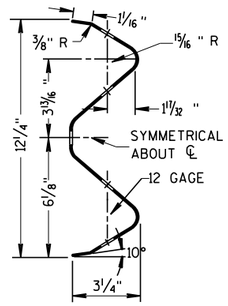
TYPICAL INSTALLATION OF STEEL PLATE BEAM GUARD

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

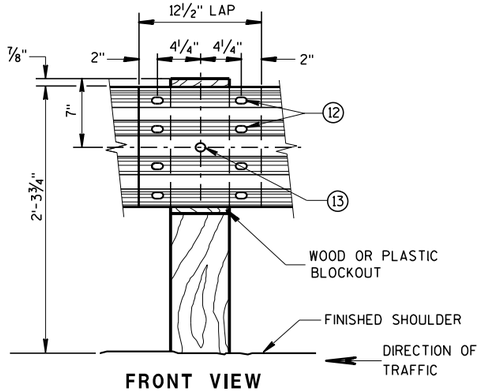


FRONT VIEW

POST SPACING STANDARD INSTALLATION



SECTION THRU W BEAM



FRONT VIEW

BEAM SPLICE AT WOOD POST AND POST MOUNTING DETAIL

GENERAL NOTES

FURNISH GUARDRAIL DEFLECTORS FROM APPROVED PRODUCTS LIST.

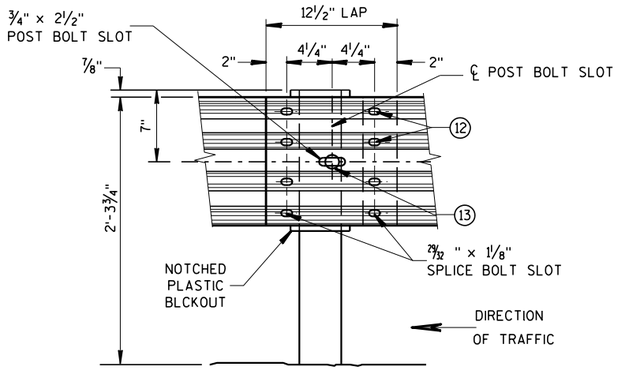
(9) DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINA. START REFLECTORS AT POST #9 AND SPACE EVENLY EVERY 100 FEET (MAX.) TO THE END OF GUARDRAIL RUN, USING A MINIMUM OF 3 REFLECTORS.

(12) 8 -5/8" ϕ X 2" BUTTON HEAD BOLTS WITH OVAL SHOULDERS & RECESS NUTS.

(13) 5/8" DIA. BUTTON HEAD BOLT AND RECESS NUT WITH 5/8" DIA. F844 FLAT WASHER UNDER NUT.

FRONT VIEW

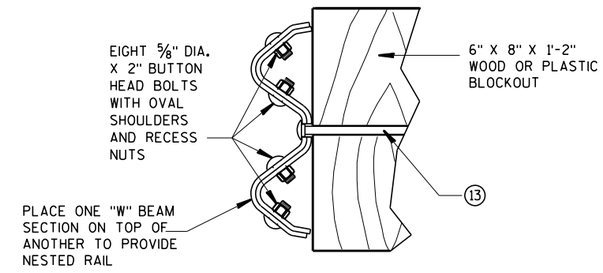
POST SPACING FOR LONGER POST AT HALF POST SPACING W BEAM (LHW)



FRONT VIEW

BEAM SPLICE AT STEEL POST

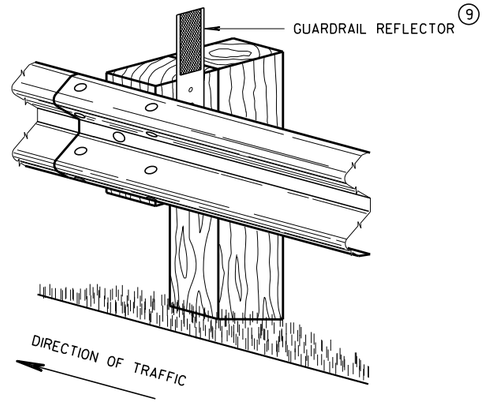
TYPICAL SPLICING DETAILS OF STEEL PLATE BEAM GUARD



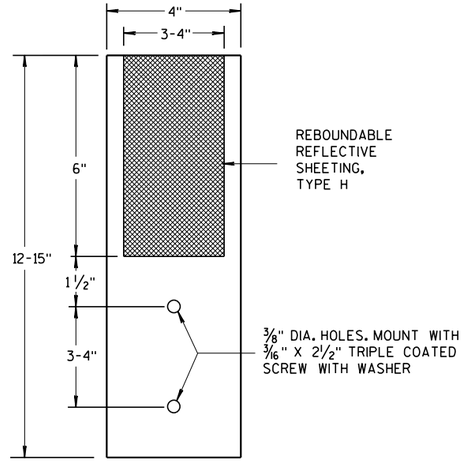
NESTED W BEAM (NW)

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

* USE DOUBLE SIDED WHITE GUADRAIL REFLECTORS ON ROADWAYS WITH BI-DIRECTIONAL TRAFFIC (NO MEDIAN). USE SINGLE SIDED WHITE (RIGHT SIDE) AND SINGLE SIDED YELLOW (LEFT SIDE) ON ROADWAYS WITH MEDIAN SEPARATION.



4" X 12" GUARDRAIL REFLECTOR DETAIL AND TYPICAL INSTALLATION *



4"x 12" GUARDRAIL REFLECTOR

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

STATE OF WISCO 49
DEPARTMENT OF TRANSPORTATION

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S.D.D. 14 B 15-11b

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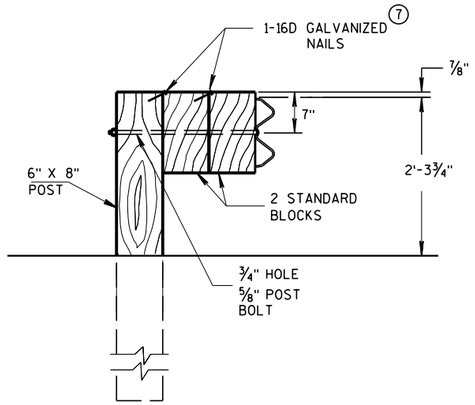
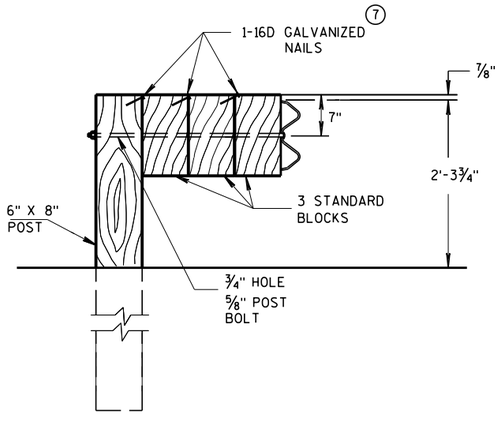
S.D.D. 14 B 15-11b



DETAIL FOR DOUBLE BLOCKS

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

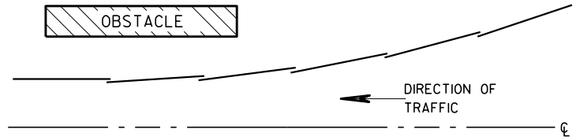


DETAIL FOR TRIPLE BLOCKS

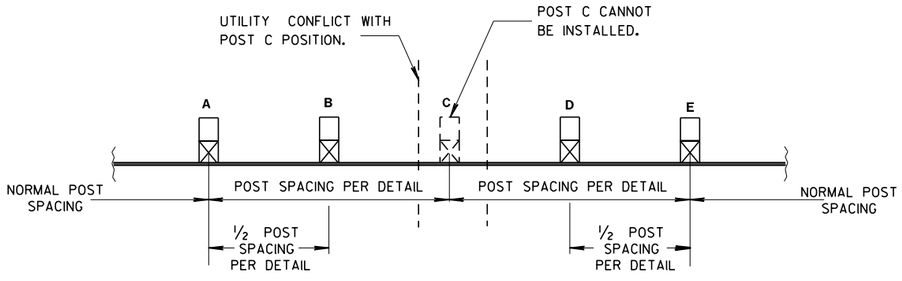
TRIPLE BLOCK DETAIL IS LIMITED TO ONE LOCATION WITHIN A BEAM GUARD RUN.

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

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



PLAN VIEW
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017 — DATE
/S/ Rodney Taylor — ROADWAY STANDARDS UNIT SUPERVISOR
FHWA

6
S.D.D. 14 B 15-11c

BILL OF MATERIALS

NOTE NO.	DESCRIPTION
①	WOOD BREAKAWAY TERMINAL POST: 5½" X 7½" X 3'-9"
②	STEEL TUBE TS 8" X 6" X 0.188", 6'-0"
④	WOOD BREAKAWAY CRT POST: 6" X 8" X 6'-0"
⑤	WOOD OFFSET BLOCKS: 6' X 8" X 1'-2"
⑥	PIPE SLEEVE: 2" X 5 ½" STANDARD PIPE
⑦	BEARING PLATE
⑧	BCT CABLE ASSEMBLY
⑨	CABLE ANCHOR BOX
⑩	STRUT & YOKE
⑪	STEEL PLATE BEAM, END PANEL 12 GA.
⑫	STEEL PLATE BEAM: 12 GA. 13'-6½"
⑬	IMPACT HEAD
⑭	0.040" ALUMINUM SHEET WITH REFLECTIVE SHEETING TYPE F PER SECTION 637 OF THE STANDARD SPECIFICATIONS

GENERAL NOTES

FOLLOW MANUFACTURE'S BOLTING RECOMMENDATIONS.

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

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

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

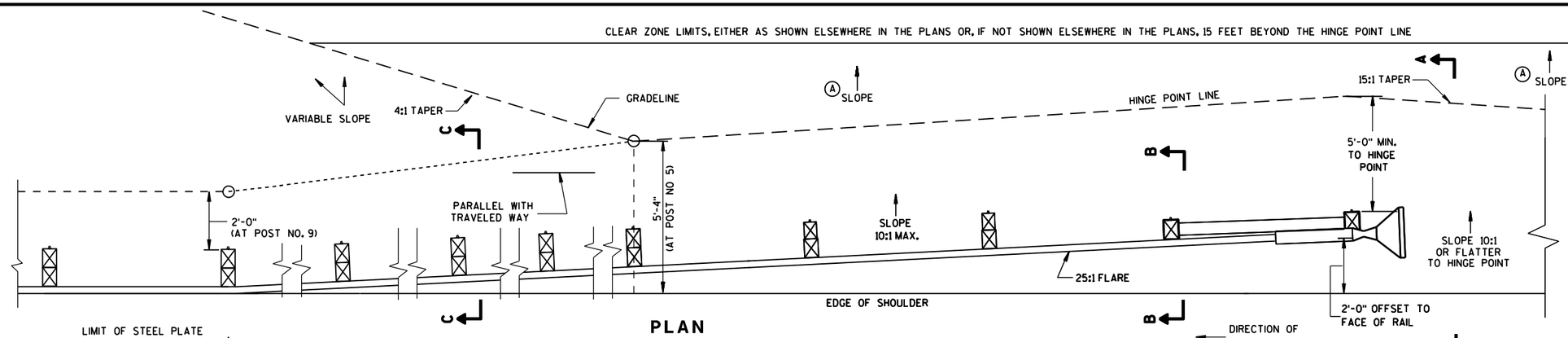
(E) THE CENTER OF THE UPPER 3½" DIAMETER HOLE ON POST 3 THROUGH 8 SHALL BE ¾" ABOVE THE FINISHED GROUND LINE.

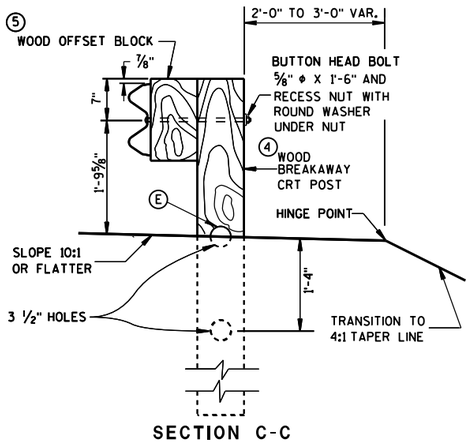
(F) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS. ONE SCREW PER CORNER.

STEEL POSTS SHALL NOT BE ALLOWED FOR USE WITH ENERGY ABSORBING TERMINALS.

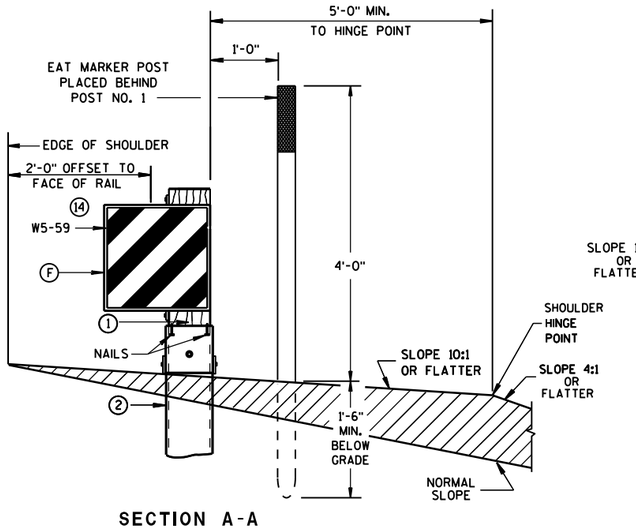
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

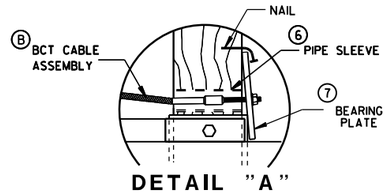




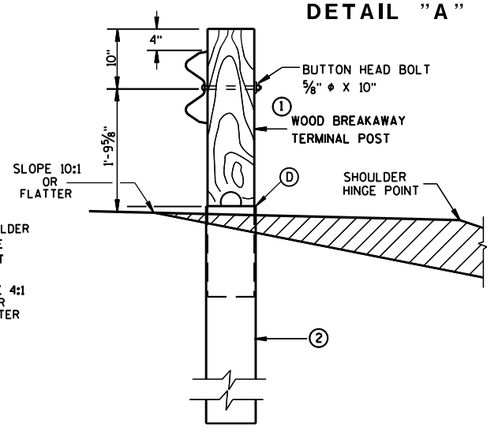
SECTION C-C
TYPICAL AT POST NOS. 6, 8



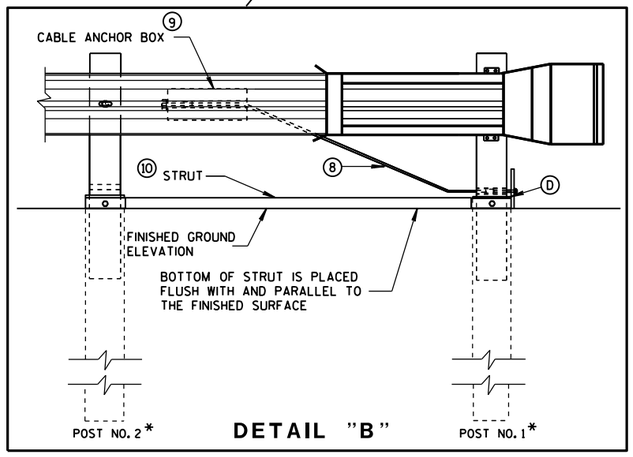
SECTION A-A
TYPICAL AT POST NO. 1*



DETAIL "A"



SECTION B-B
TYPICAL AT POST NO. 2*



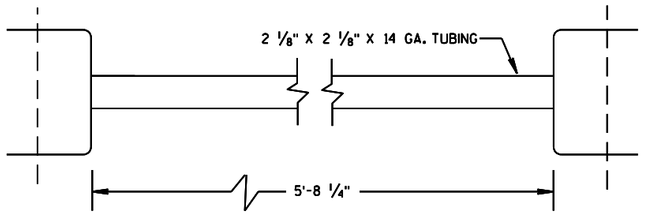
DETAIL "B"

STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL

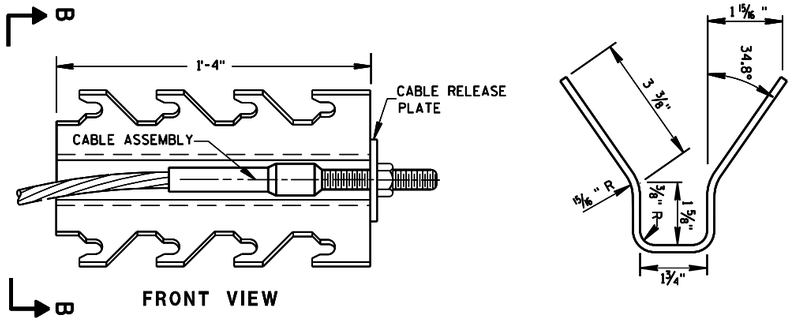
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

S.D.D. 14 B 24-9a

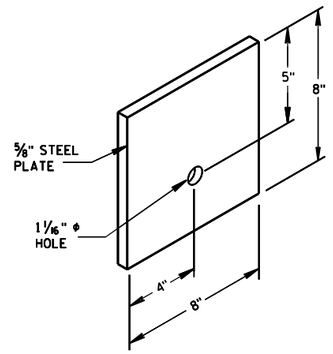
6



⑩ STRUT DETAIL



⑨ CABLE ANCHOR BOX



⑦ STEEL BEARING PLATE

6

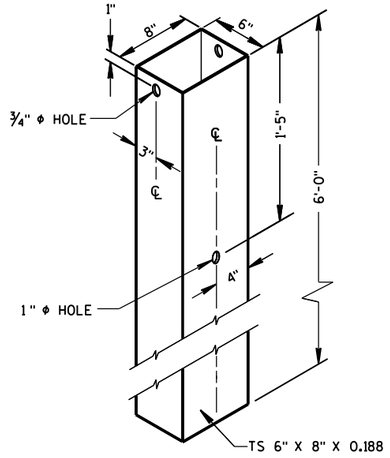
6

S.D.D. 14 B 24-9b

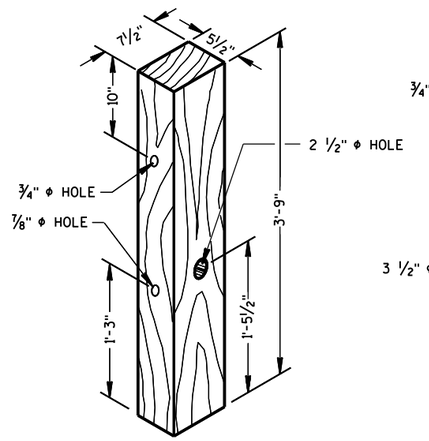
S.D.D. 14 B 24-9b

STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL

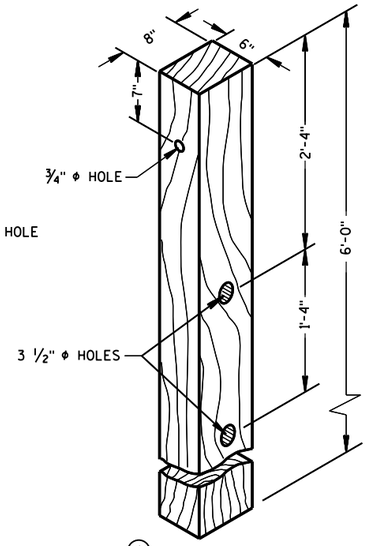
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI



② 72" STEEL TUBE
(POSTS NO. 1-4



① TERMINAL POST

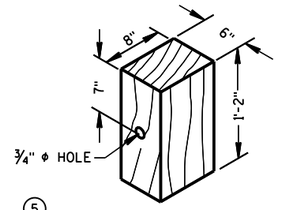


④ CRT POST
(POSTS NO'S 5-8)

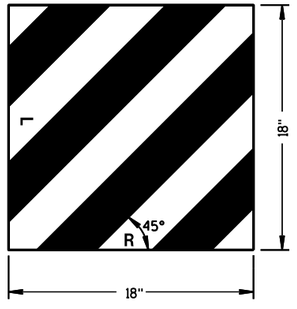
WOOD BREAKAWAY POSTS

GENERAL NOTES

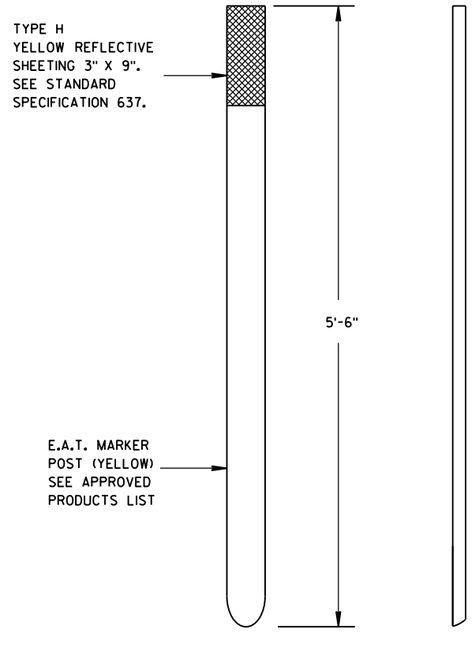
WHEN ROCK IS ENCOUNTERED DURING EXCAVATION, A 12 INCH DIA. POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK MAY BE USED IF APPROVED BY THE ENGINEER. GRANULAR MATERIAL SHALL BE PLACED IN THE BOTTOM OF THE HOLE APPROXIMATELY 2 ½" INCHES DEEP TO PROVIDE DRAINAGE. THE SOIL TUBES SHALL BE FIELD CUT TO LENGTH, PLACED IN THE HOLE AND BACKFILLED WITH ADEQUATELY COMPACTED MATERIAL EXCAVATED FROM THE HOLE.



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



⑭ REFLECTIVE SHEETING DETAILS



E.A.T. MARKER POST

STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017
DATE
FHWA

/S/ Rodney Taylor
ROADWAY STANDARDS UNIT SUPERV...

53

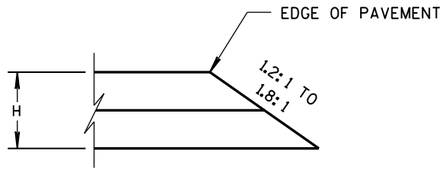
ENT

6

S.D.D. 14 B 24-9c

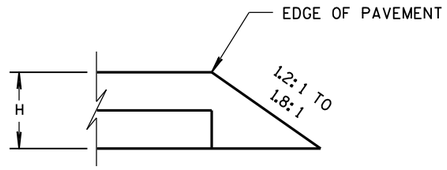
6

S.D.D. 14 B 24-9c



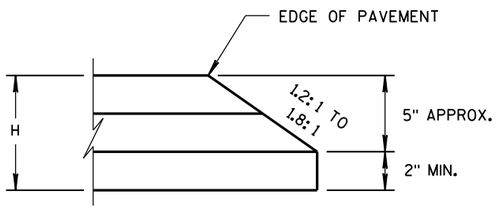
CONSTRUCTED WITH FINAL TWO LAYERS

FOR H 5" OR LESS



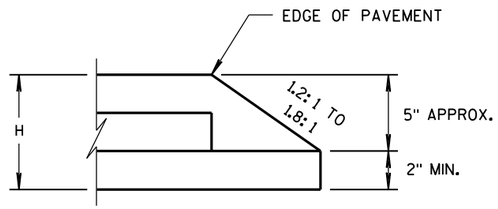
CONSTRUCTED WITH FINAL LAYER

FOR H 5" OR LESS



CONSTRUCTED WITH FINAL TWO LAYERS

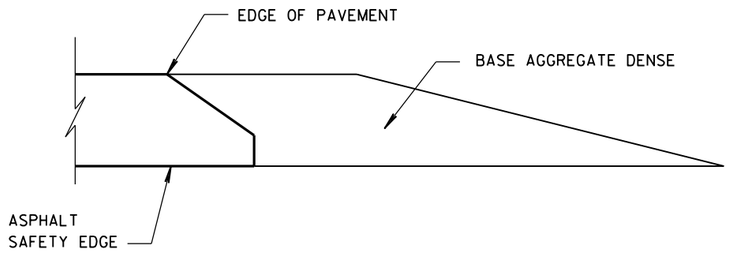
FOR H GREATER THAN 5"



CONSTRUCTED WITH FINAL LAYER

FOR H GREATER THAN 5"

HMA PAVEMENT AND HMA OVERLAYS



FINISHED SHOULDER AGGREGATE PLACEMENT

6

6

S.D.D. 14 B 29-1

S.D.D. 14 B 29-1

SAFETY EDGE SM

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

11/30/2012
DATE

/S/ Jerry H. Zoda
ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA

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

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

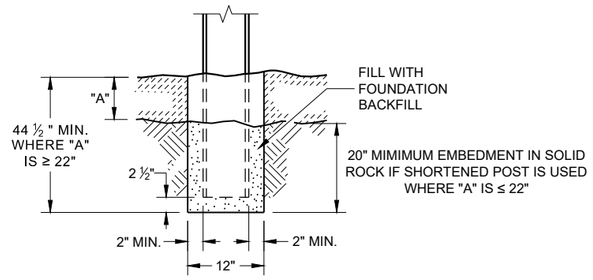
3. IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2 1/2" INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AMD INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.

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

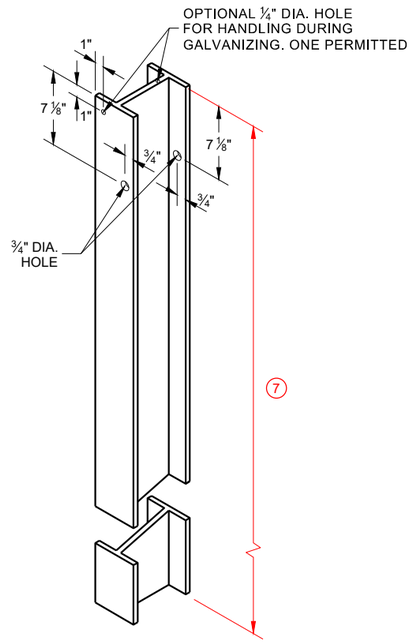
5. FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ±1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 ¾" TO 32".

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

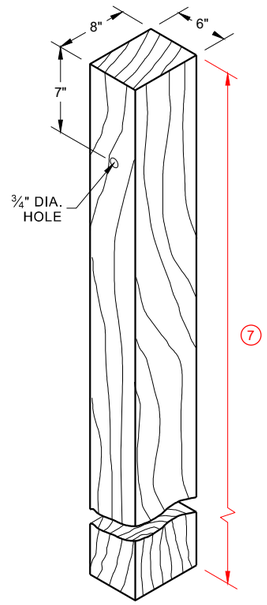
7. TOTAL POST LENGTH FOR TYPE K IS 7' - 0".
TOTAL POST LENGTH FOR OTHER MGS TYPES IS 6' - 0".



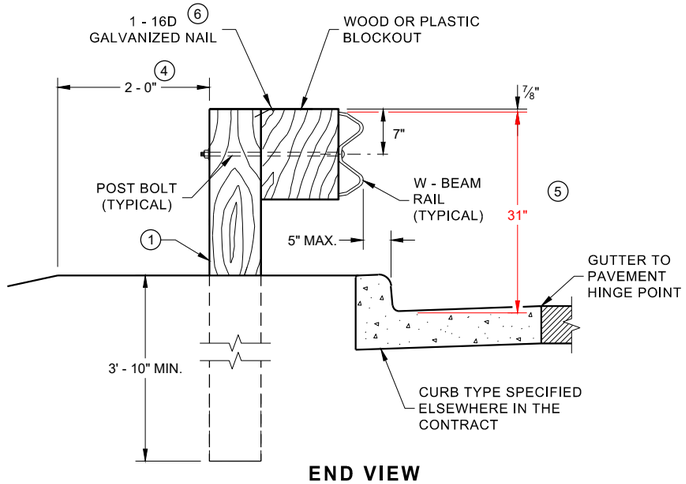
END VIEW
SETTING STEEL OR WOOD POST IN ROCK (3)



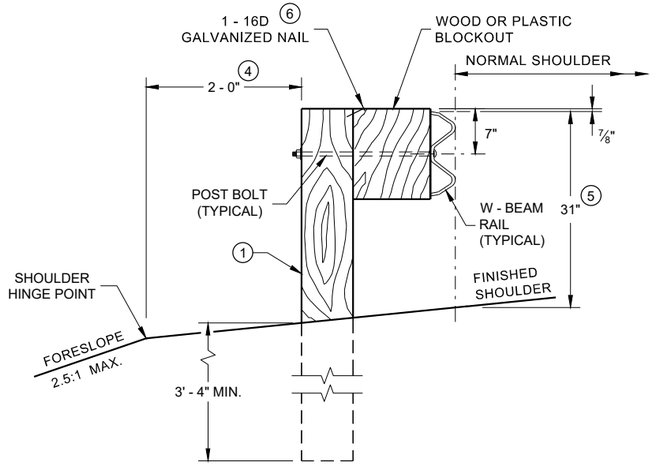
STEEL POST & HOLE PUNCHING DETAIL (W 6 X 9) (1)



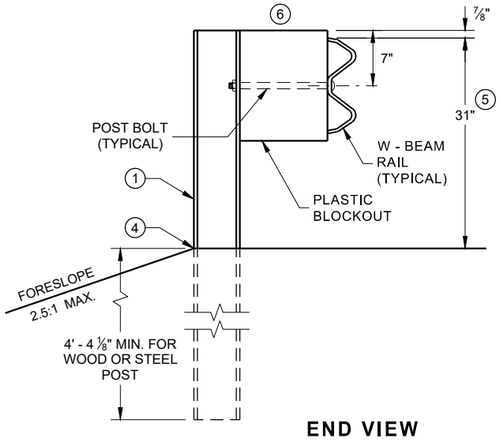
WOOD POST (6" X 8") NOMINAL (1)



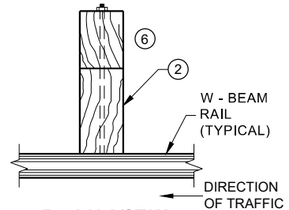
END VIEW
LOCATED ALONG A CURBED ROADWAY



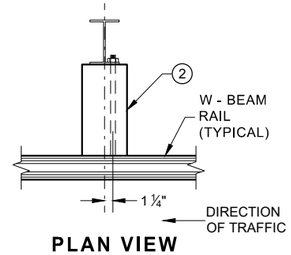
END VIEW
LOCATED ALONG A ROADWAY SHOULDER STANDARD INSTALLATION



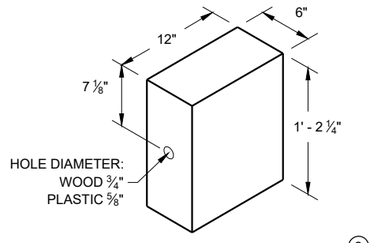
END VIEW
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



PLAN VIEW
WOOD POST, BLOCKOUT & BEAM



PLAN VIEW
STEEL POST, PLASTIC BLOCKOUT & BEAM

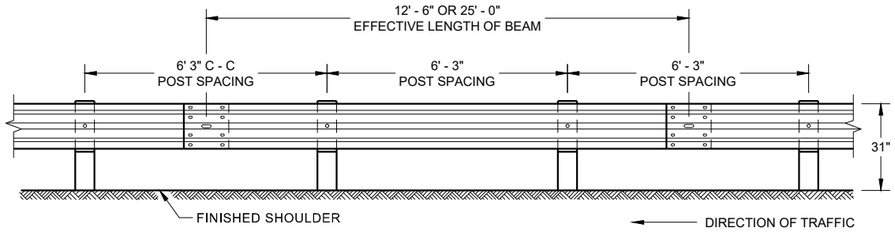


WOOD OR PLASTIC BLOCKOUT (2)

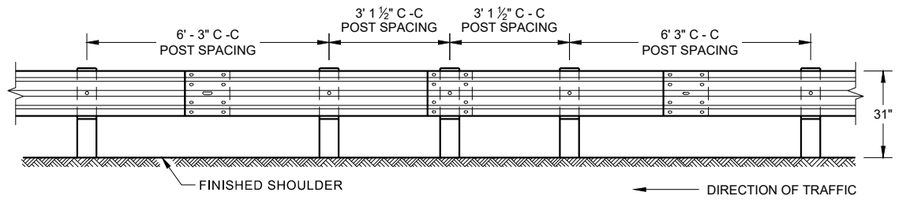
MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

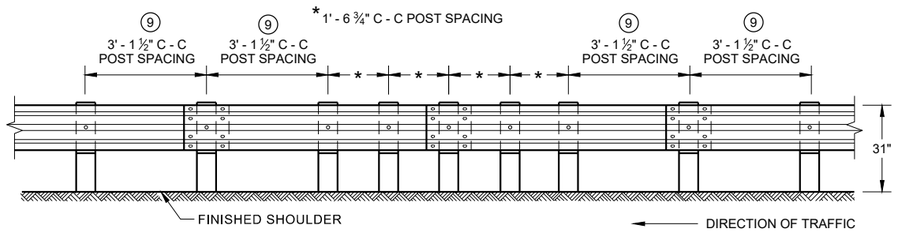
SDD 14B42 - 06a



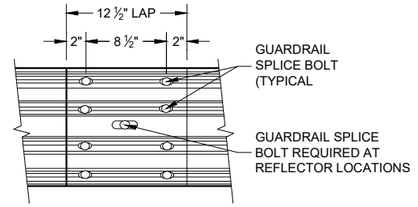
FRONT VIEW
POST SPACING STANDARD INSTALLATION



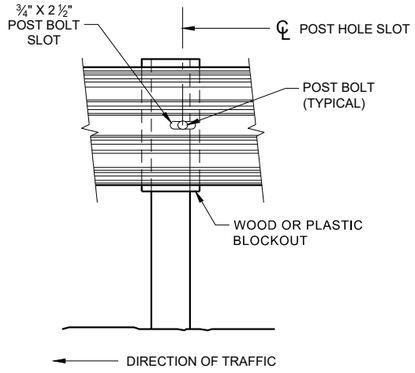
FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)



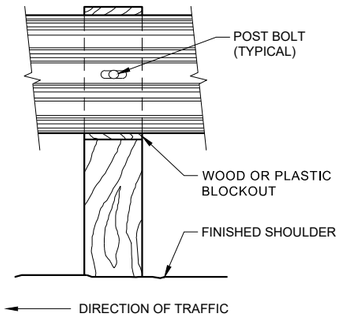
FRONT VIEW
QUARTER POST SPACING (QS)



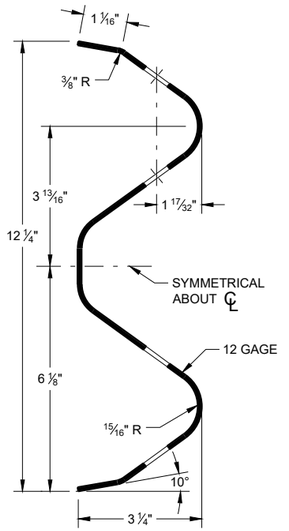
FRONT VIEW
MID-SPAN BEAM SPLICE



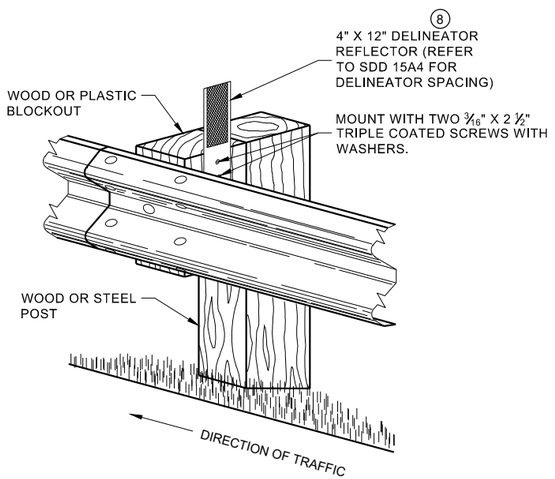
FRONT VIEW AT STEEL POST



FRONT VIEW AT WOOD POST



SECTION THRU W-BEAM RAIL



ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION

GENERAL NOTES

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

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

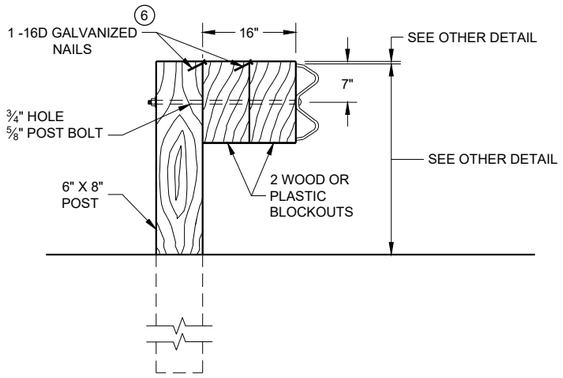
POST BOLTS ARE A ¾" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES ⅝" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND ⅝" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

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

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6
SDD 14B42 - 06b

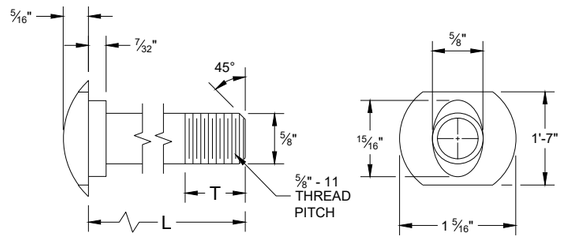


DETAIL FOR 16" BLOCKOUT DEPTH

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

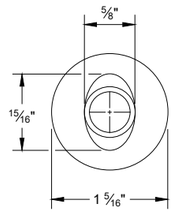
NOTE:

1. ALL FILLETS SHALL HAVE A MINIMUM RADIUS OF 3/16".
2. IF THE BOLT EXTENDS MORE THAN ¼" FROM THE NUT THE BOLT SHOULD BE TRIMMED BACK.

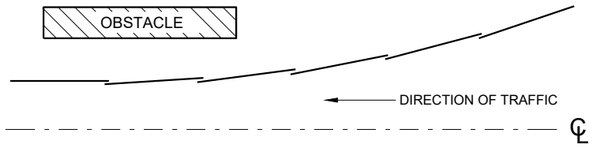


POST BOLT TABLE

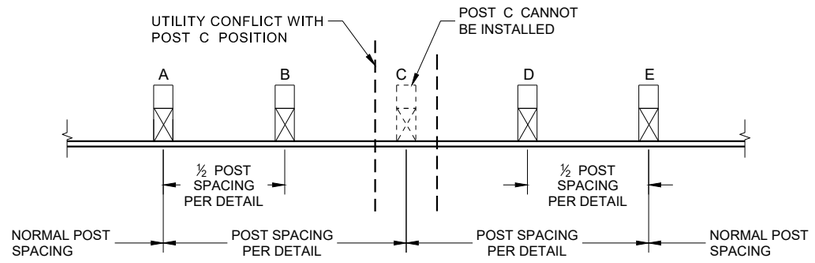
L	T (MIN.)
1 ¼"	1 ⅛"
2"	1 ¾"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



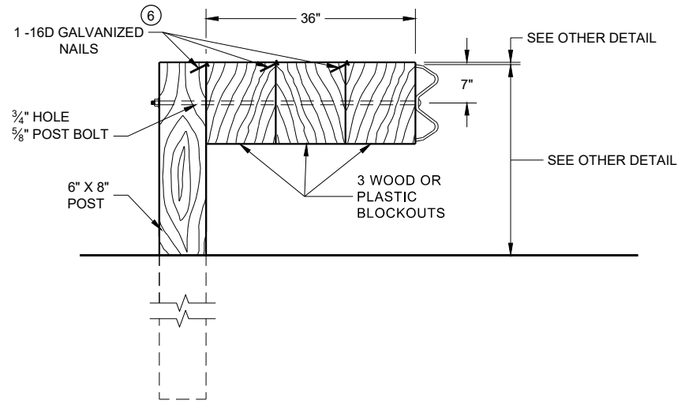
ALTERNATE BOLT HEAD



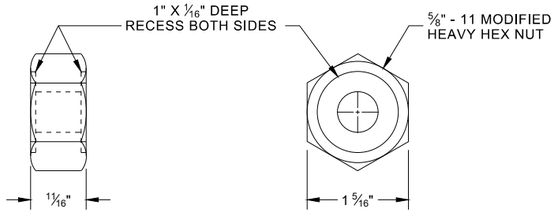
PLAN VIEW
BEAM LAPPING DETAIL



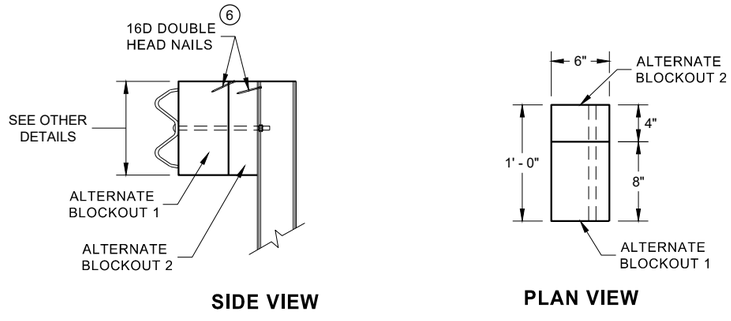
POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



DETAIL FOR 36" BLOCKOUT DEPTH



POST BOLT, SPLICE BOLT AND RECESS NUT



ALTERNATE WOOD BLOCKOUT DETAIL

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

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

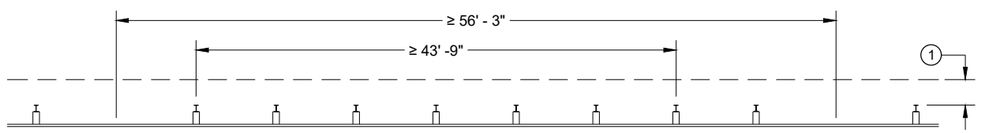
(6) WHEN USING STEEL POST AD WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

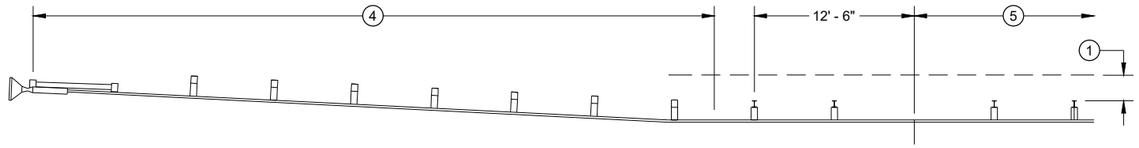
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTA

6

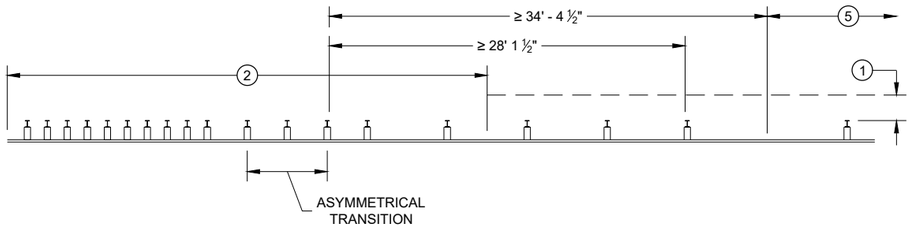
SDD 14B42 - 06c



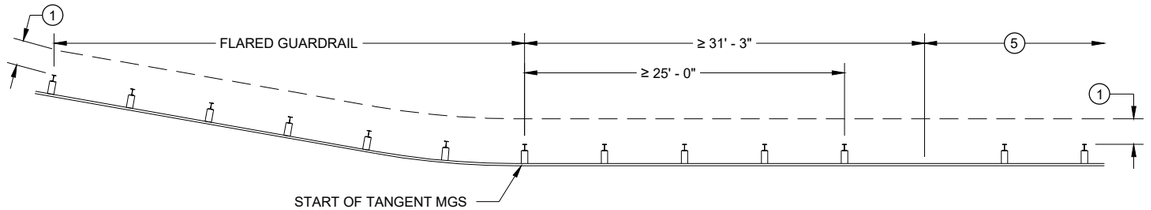
MISSING POST IN NORMAL BEAM GUARD RUN



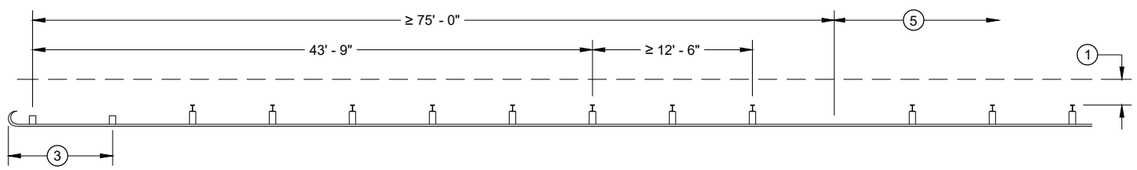
MISSING POST IN NORMAL BEAM GUARD RUN NEAR EAT



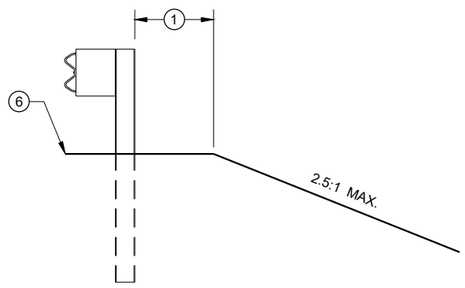
MISSING POST NEAR APPROACH THRIE BEAM TRANSITION



MISSING POST IN NORMAL BEAM GUARD RUN NEAR FLARED BEAM GUARD



MISSING POST IN NORMAL BEAM GUARD RUN NEAR TYPE 2 TERMINAL



CROSS SECTION VIEW

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

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
7/2018 — DATE
/S/ Rodney Taylor — ROADWAY STANDARDS DEVE UNIT SUPERVISOR
FHWA

6

SDD 14B42 - 06d

GENERAL NOTES

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

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

(C) DIFFERENT MANUFACTURERS REQUIRE DIFFERENT PERFORATED W - BEAM RAIL END PANELS. SEE MANUFACTURER'S INFORMATION.

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

(E) HARDWARE MAY VARY BETWEEN MANUFACTURER. SEE MANUFACTURER'S DRAWING FOR INFORMATION.

DIMENSIONS MAY VARY, MANUFACTURER'S INFORMATION.

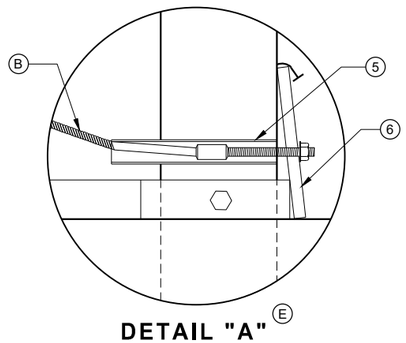
SEE SDD 14B42 FOR MORE INFORMATION.

* DO NOT ATTACH BLOCKOUTS TO POST 1 AND 2.

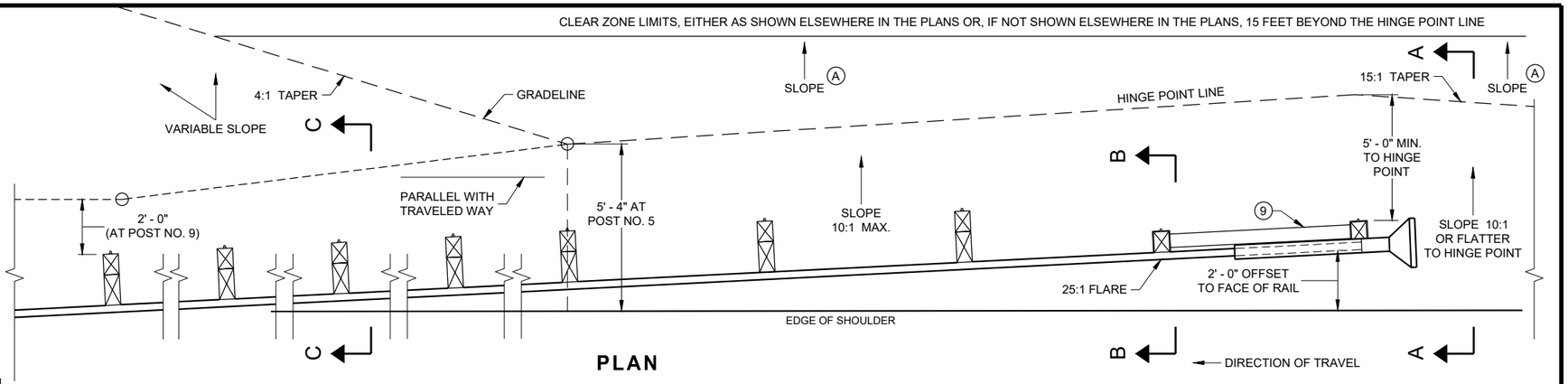
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

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

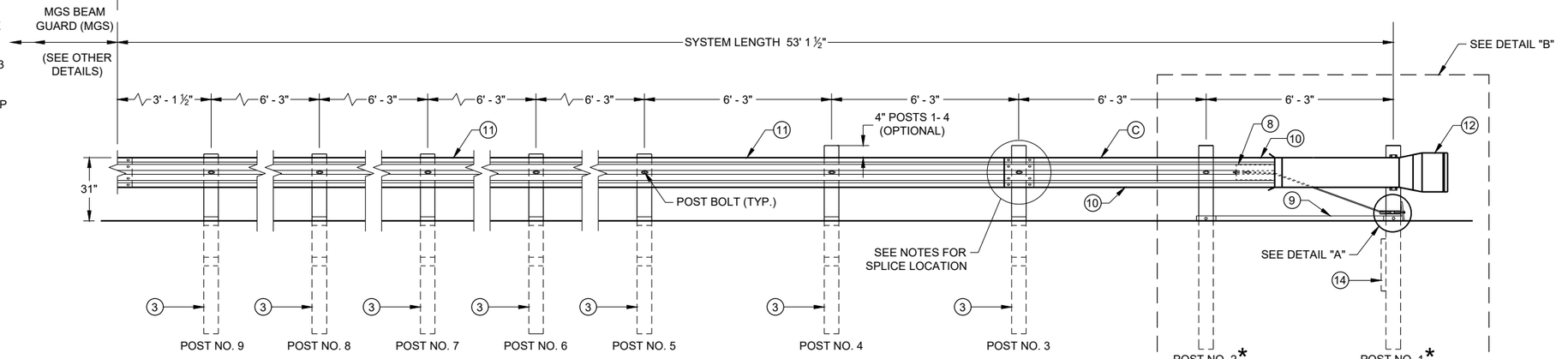
THE CENTER OF THE UPPER 3 ½" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE. WOOD BLOCKS ON POSTS NUMBERED 3 THROUGH 9 MAY BE ADJUSTED UP TO 3" ABOVE THE TOP OF POST.



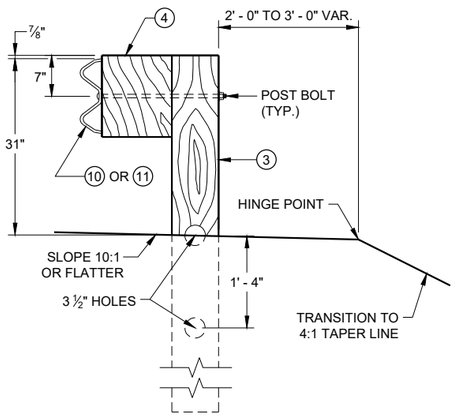
DETAIL "A" (E)



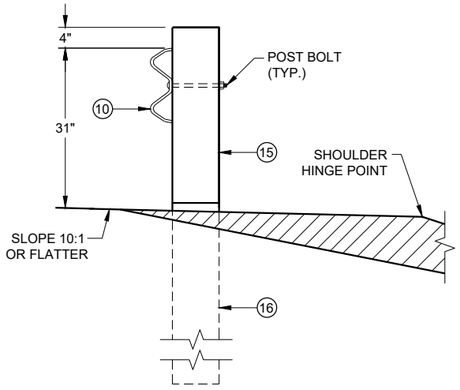
PLAN



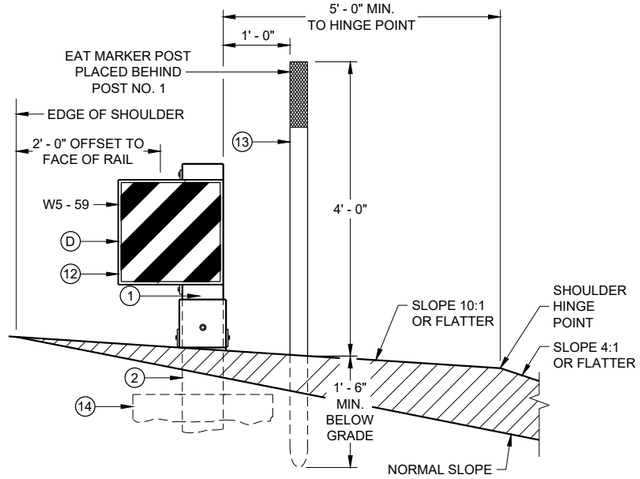
ELEVATION



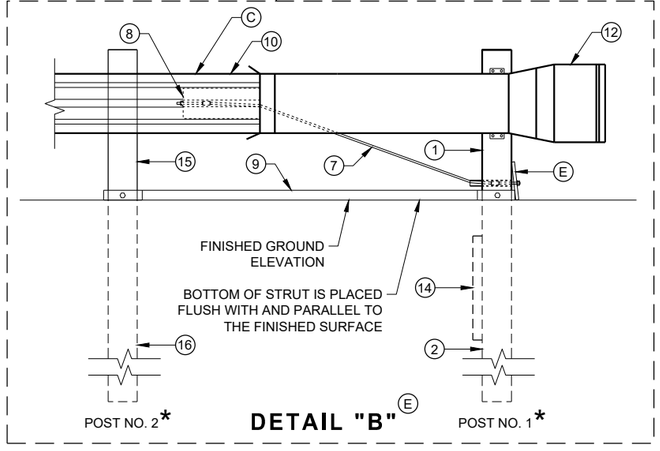
SECTION C - C
TYPICAL AT POST NOS. 3 - 9



SECTION B - B
TYPICAL AT POST NO. 2*



SECTION A - A
TYPICAL AT POST NO. 1*

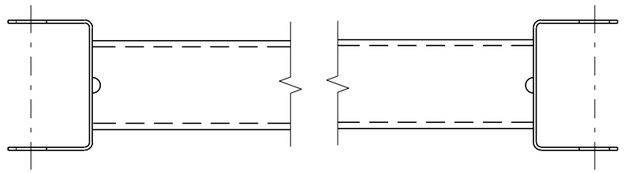


DETAIL "B" (E)

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

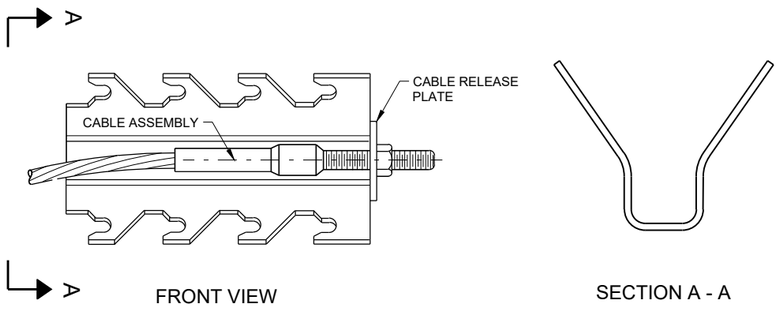
SDD 14B44 - 04a



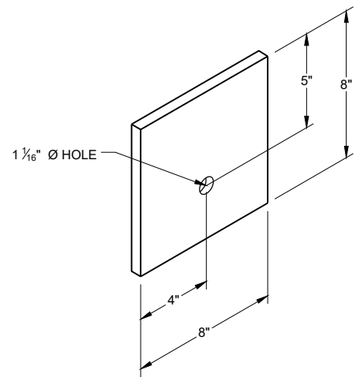
GENERIC GROUND STRUT (9) (E)

BILL OF MATERIALS

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



GENERIC ANCHOR CABLE BOX (9) (E)



BEARING PLATE (6) (E)

6

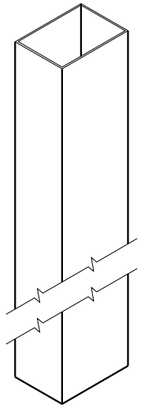
6

SDD 14B45 - 04b

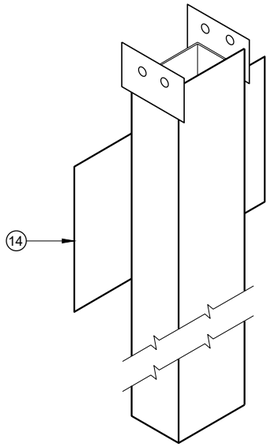
SDD 14B45 - 04b

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

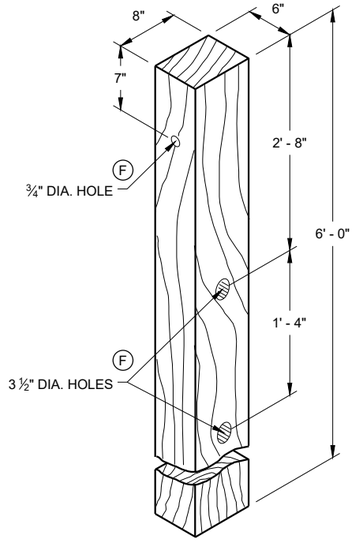
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



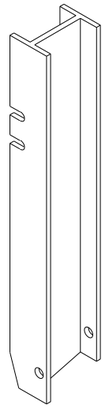
UPPER POST NO. 1 (1) (E)



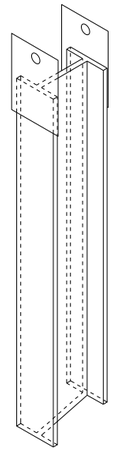
LOWER POST NO. 1 (2) (E)



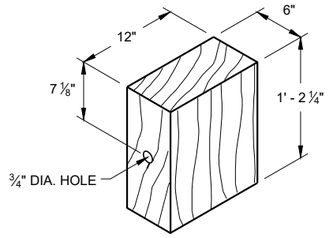
WOOD CRT POST (3) (E)
POSTS NUMBER 3-9



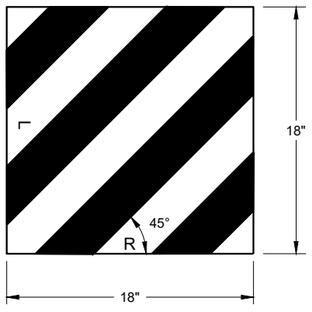
UPPER POST NO. 2 (15) (E)



LOWER POST NO. 2 (16) (E)

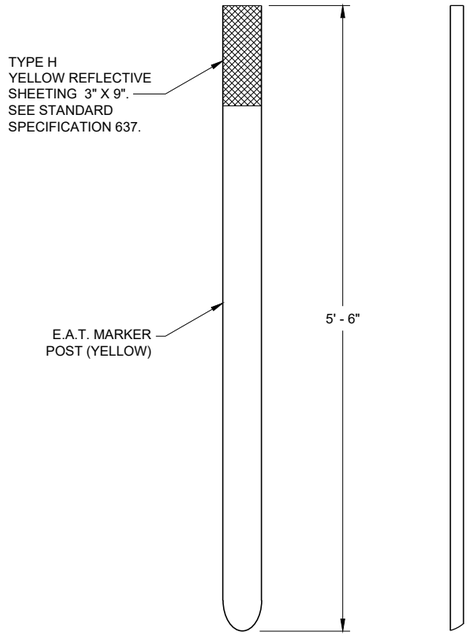


WOOD BLOCKOUT (4)
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



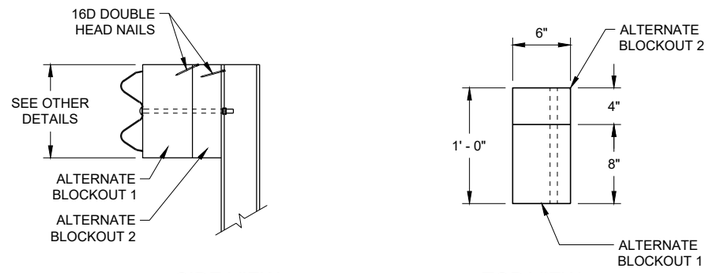
W5 - 59

REFLECTIVE SHEETING DETAIL (E)



FRONT VIEW SIDE VIEW

E.A.T. MARKER POST (13)



SIDE VIEW TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
7/2018 — DATE
/S/ Rodney Taylor — ROADWAY STANDARDS DEVE UNIT SUPERVISOR

FHWA

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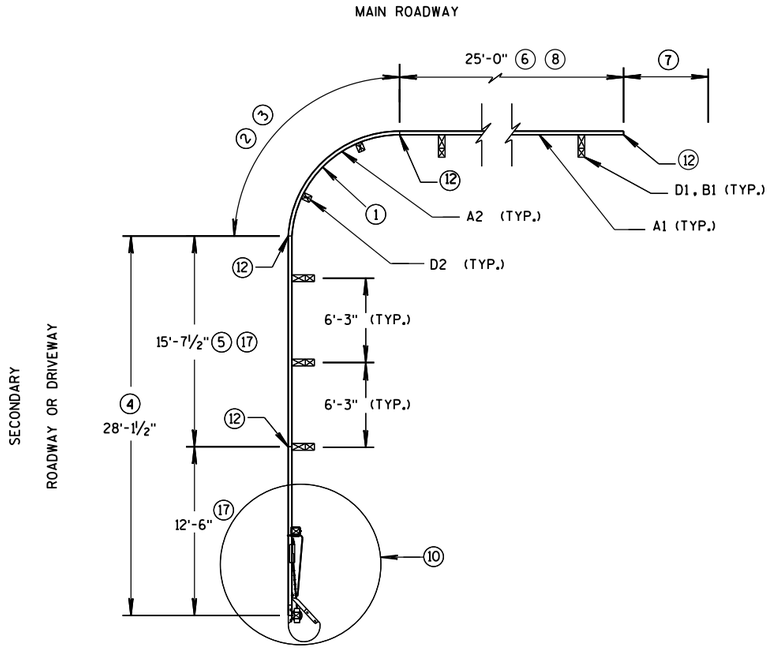
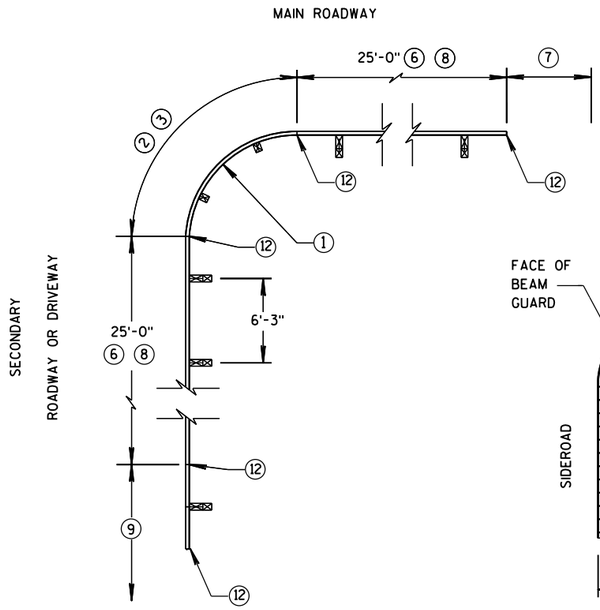
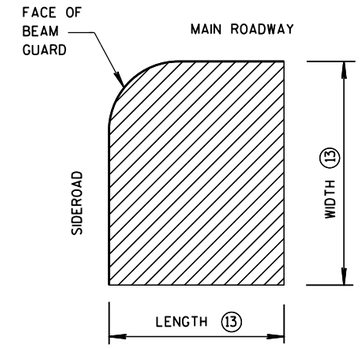
SDD 14B44 - 04c



SHORT RADIUS BEAM GUARD WITH SHORT RADIUS TERMINAL ON SECONDARY ROAD OR DRIVEWAY PLAN VIEW



SHORT RADIUS BEAM GUARD WITH EAT, ADDITIONAL BEAM GUARD OR TRANSITION TO RIGID BARRIER ON SECONDARY ROAD OR DRIVEWAY PLAN VIEW



AREA FREE OF FIXED OBJECTS FOR RADIUS 32' AND LESS 16

TABLE FOR RADIUS OF 32' AND LESS

RADIUS FT	LENGTH FT	WIDTH FT
8	25	15
16	30	15
24	40	20
32	50	30

GENERAL NOTES

SEE PLANS FOR OTHER BARRIER SYSTEM AND LOCATION SPECIFICS.

SEE 14B42 FOR MORE INFORMATION ON BEAM GUARD INSTALLATION, PARTS, MATERIALS, AND INSTALLATION INFORMATION.

GALVANIZE PARTS AFTER FABRICATION.

WELDING IS TO FOLLOW CURRENT REQUIREMENTS OF THE AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE ANSI/AWS D1.1

UNLESS NOTED OTHERWISE, ALL PLATES ARE FLAT AND FREE OF WARP.

UNLESS NOTED OTHERWISE, ALL EDGES ARE SMOOTH, STRAIGHT AND VERITCAL.

ALL CUTS AND HOLES, EXCEPT IN BEAM GUARD RAIL ARE TO BE MACHINED OR MACHINE FLAME CUTS.

UNLESS NOTED OTHERWISE CUT OR PROVIDE BOLTS THAT ARE ¼" TO ½" BEYOND THE NUT

DRAWINGS ARE NOT TO SCALE.

(1) RADIUS MEASURE FROM INSIDE OF RAIL. LENGTH OF BEAM GUARD SHORT RADIUS GUARD MEASURED ALONG TRAFFIC SIDE OF RAIL. RADIUS BETWEEN 8 FEET TO 150 FEET. SEE PLAN FOR REQUIRED RADIUS. BEAM GUARD RAIL IN RADIUS IS SHOP BENT. ODD RAIL LENGTH OR FIELD CUTS MAY BE REQUIRED.

(2) CONTROLLED RELEASE TERMINAL (CRT) POSTS ARE USED IN THE RADIUS. CONTROLLED RELEASE TERMINAL (CRT) POSTS ARE SPACED 6'-3". SEE PLAN FOR NUMBER OF CONTROLLED RELEASE TERMINAL (CRT) POSTS.

(3) WITHIN RADIUS BEAM GUARD RAILS ARE NOT BOLTED TO POSTS. BEAM GUARD RAILS RESTED ON TOP OF LAG SCREW.

(4) MINIMUM LENGTH OF BEAM GUARD ALONG SIDE ROAD OR DRIVEWAY TO INSTALL SHORT RADIUS TERMINAL. BEAM GUARD IS PAID FOR WITH BEAM GUARD ITEM.

(5) ODD LENGTH OF BEAM GUARD REQUIRED TO INSTALL SHORT RADIUS TERMINAL.

(6) MINIMUM AMOUNT OF BEAM GUARD TO BE INSTALLED PRIOR TRANSITION TO RIGID BARRIER, ADDITIONAL BEAM GUARD, OR EAT. BEAM GUARD PAID FOR WITH BEAM GUARD ITEM. SEE PLANS FOR MORE DETAIL.

(7) BEAM GUARD, EAT OR TRANSITION TO RIGID BARRIER. SEE PLAN.

(8) TOP OF BEAM GUARD BY THE RADIUS IS 27". HEIGHT OF BEAM GUARD IS 31" BY TRANSITION TO RIGID BARRIER, ADDITIONAL BEAM GUARD OR EAT.

(9) ADDITIONAL BEAM GUARD, EAT OR TRANSITION TO RIGID BARRIER. BEAM GUARD SHOWN. SEE PLAN FOR DETAILS.

(10) SHORT RADIUS TERMINAL (SEE OTHER DETAILS)

(11) HEIGHT VARIES. SEE NOTE (8) AND (17).

(12) BEAM GUARD RAIL SPLICE LOCATION. SPLICE LOCATION REQUIRE PART F1 AND F2. SEE SDD 14B42 FOR DETAILS.

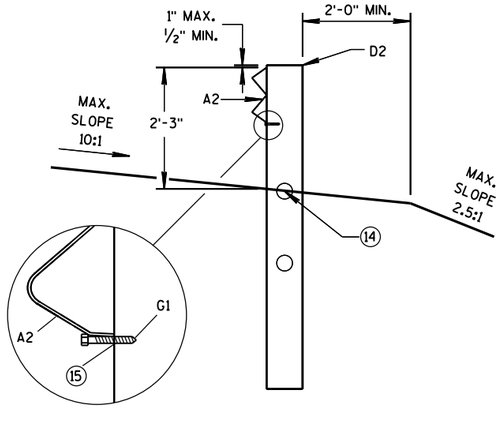
(13) SEE TABLE FOR VALUES.

(14) MAXIMUM HEIGHT FOR CENTER OF HOLE IS ¾" ABOVE FINISHED GROUND ±1".

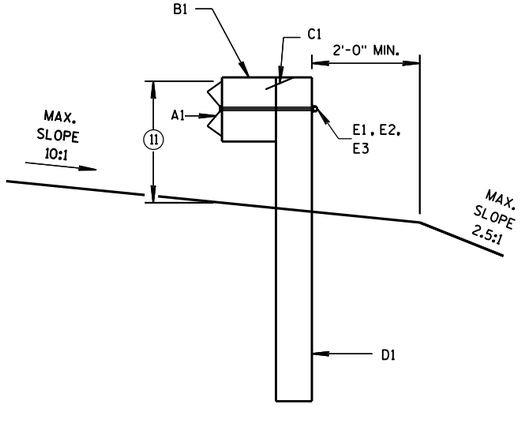
(15) DRILL 15/64" DIA. PILOT HOLE. DO NOT HAMMER LAG SCREW INTO POST.

(16) SMALL SIGNS ON BREAKAWAY HARDWARE ARE ACCEPTABLE.

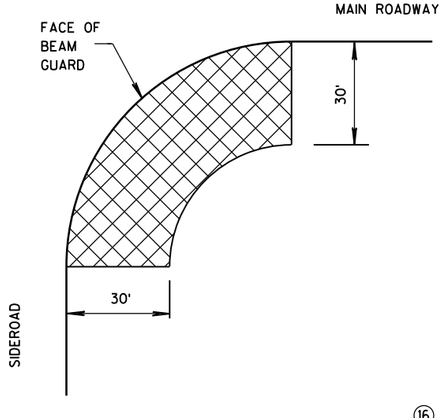
(17) TOP OF RAIL HEIGHT IS 27" WHEN USING A SHORT RADIUS TERMINAL.



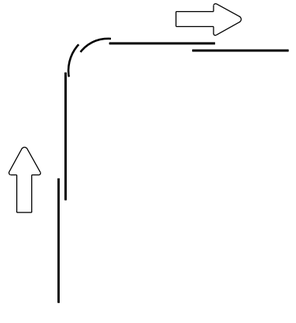
CONTROLLED RELEASE TERMINAL POST (CRT) IN RADIUS



BEAM GUARD POSTS IN HEIGHT TRANSITION



AREA FREE OF FIXED OBJECTS 16 RADIUS GREATER THAN 32'



LAP SPLICE DETAIL

SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)

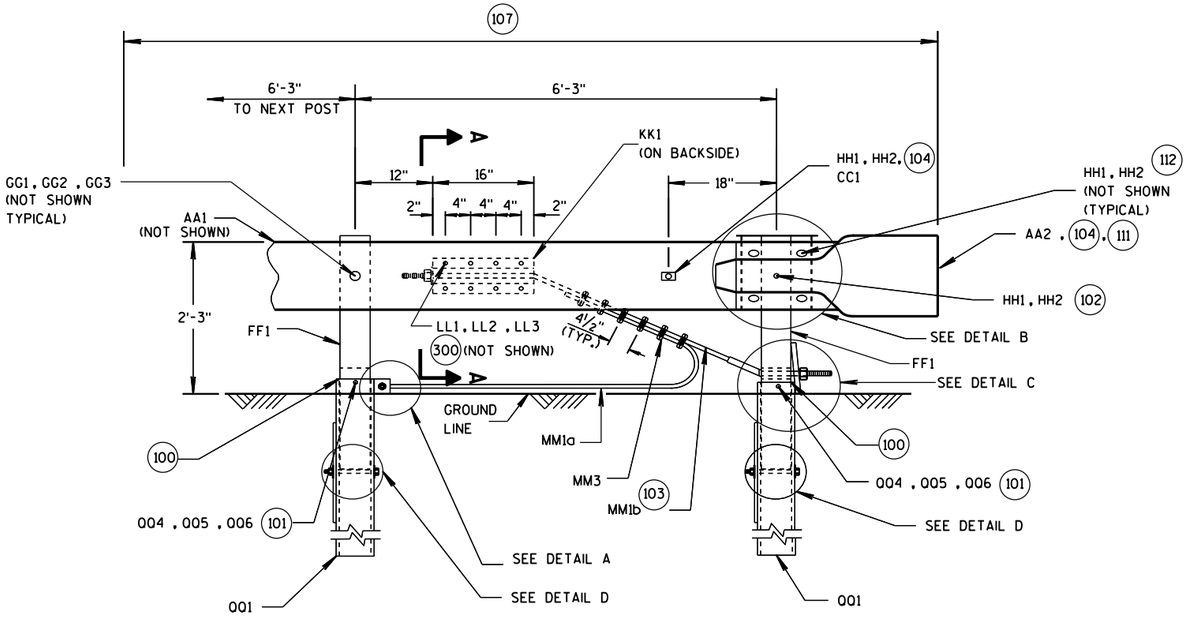
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR 62

6

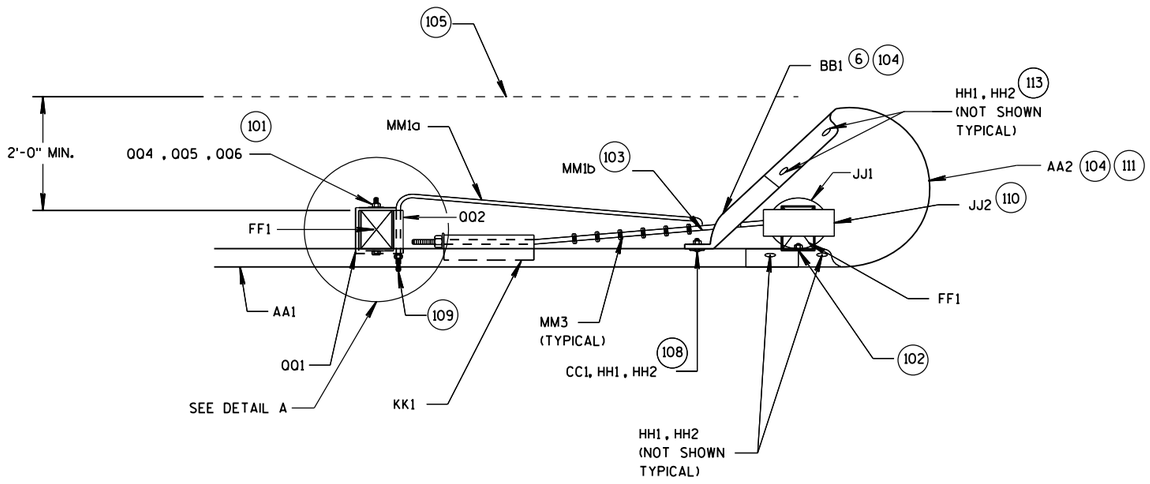
S.D.D. 14 B 53-1a

6

S.D.D. 14 B 53-1a



SHORT RADIUS TERMINAL
PROFILE VIEW



SHORT RADIUS TERMINAL
TOP VIEW

(100) TOP OF FOUNDATION TUBE 2 INCHES MAXIMUM ABOVE FINISHED GROUND.

(101) WASHERS REQUIRED BETWEEN BOLT HEAD AND FOUNDATION TUBE AND BETWEEN NUT AND FOUNDATION TUBE.

(102) SPLICE BOLT AND NUT CONNECTS BEAM GUARD RAIL, W-BEAM END SECTION BUFFER, AND STEEL PIPE ASSEMBLY. NO WASHER REQUIRED. SEE DETAIL B.

(103) CABLE IS TAUT.

(104) ADJUST AA2 AND BB1 TO FIT.

(105) BREAK POINT OF SHOULDER.

(106) TACK WELD CABLE CONNECTOR TUBE PLATE TO CABLE CONNECTION TUBE. SEE DETAIL A PROFILE VIEW.

(107) PAY LIMIT FOR BEAM GUARD.

(108) SQUARE WASHER BETWEEN HEAD OF BOLT AND TRAFFIC FACE OF BEAM GUARD. ROUND WASHER REQUIRED BETWEEN NUT AND BB1.

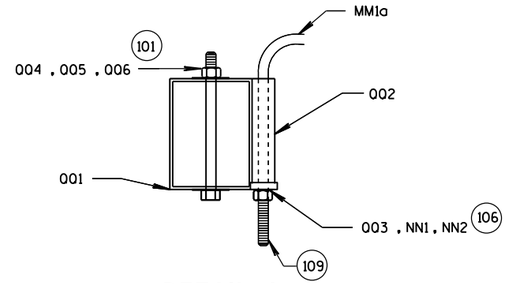
(109) CUT OR PROVIDE THREADED STUD THAT IS FLUSH WITH FACE OF BEAM GUARD RAIL KK1 (PLUS OR MINUS ½" TOLERANCE). DEBURR AFTER CUTTING.

(110) SEE STEEL PIPE ASSEMBLY DETAILS.

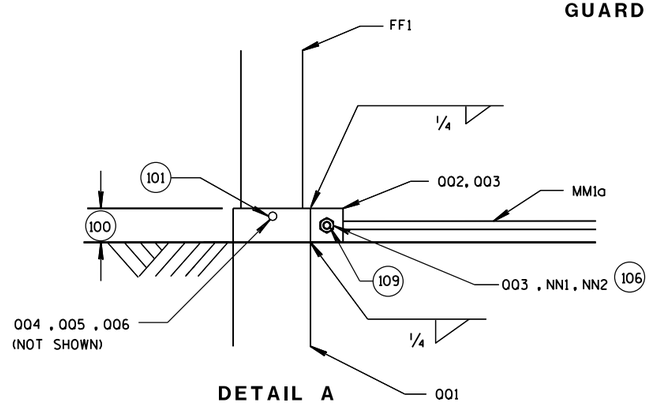
(111) ATTACH UU2 WITH UU3. SHOP APPLY UU1 TO UU2.

(112) FOUR HH1 AND HH2 REQUIRED TO ATTACH AA1 TO AA2.

(113) FOUR HH1 AND HH2 REQUIRED TO ATTACH AA2 TO BB1.



DETAIL A
TOP VIEW
(WOOD BREAKAWAY AND BEAM GUARD RAIL POSTS NOT SHOWN)



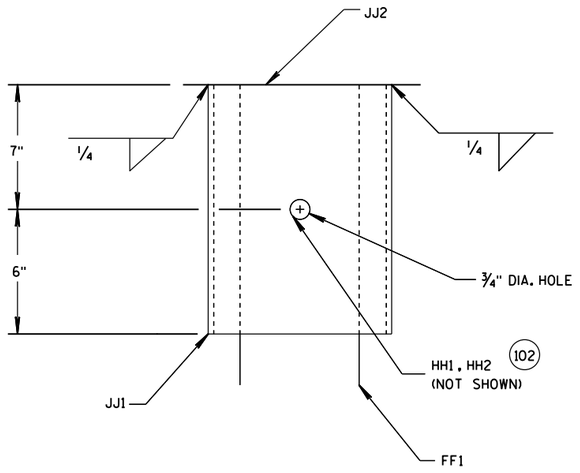
DETAIL A
PROFILE VIEW

STEEL PLATE BEAM GUARD
SHORT RADIUS TERMINAL
MGS

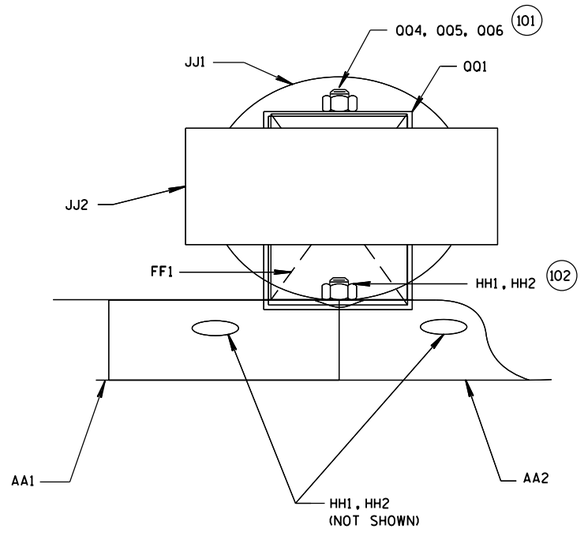
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

S.D.D. 14 B 53-1b

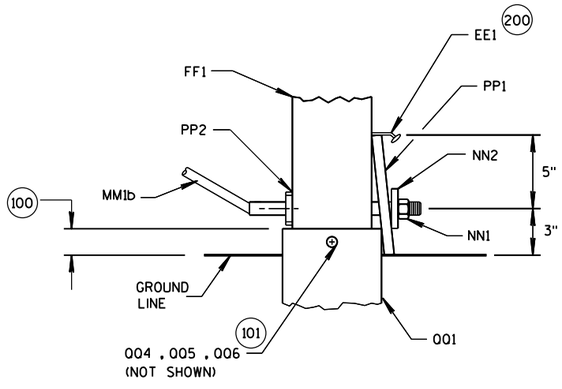


DETAIL B
PROFILE VIEW OF STEEL PIPE ASSEMBLY
(BEAM GUARD AND W-BEAM
END SECTION NOT SHOWN)

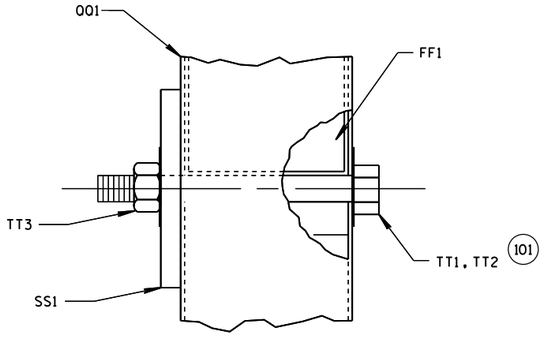


DETAIL B
PLAN VIEW OF STEEL PIPE ASSEMBLY

200 2 NAILS SPACED 4 INCHES CENTER TO CENTER.



DETAIL C
PROFILE VIEW



DETAIL D
PROFILE VIEW

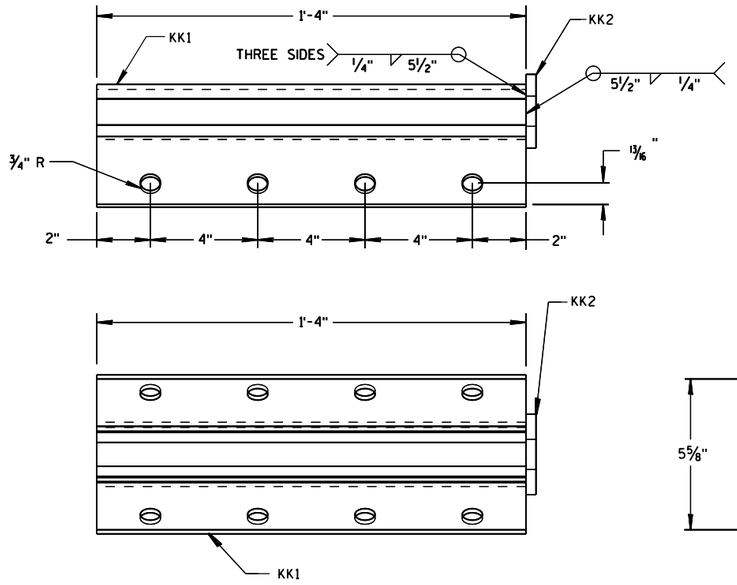
SHORT RADIUS BEAM GUARD
(MGS) SHORT RADIUS
TERMINAL (MGS)

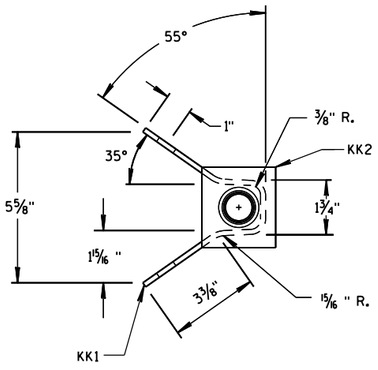
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

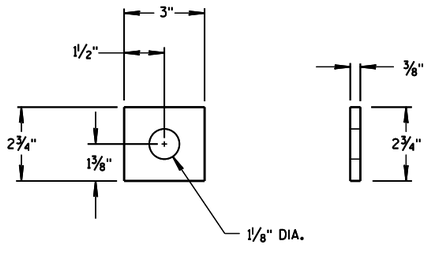
S.D.D. 14 B 53-1c

(300) WASHERS REQUIRED BETWEEN BOLT HEAD AND BEAM GUARD RAIL AND BETWEEN NUT AND ANCHOR BRACKET. EIGHT LL1 AND LL3 REQUIRED. SIXTEEN LL2 REQUIRED.

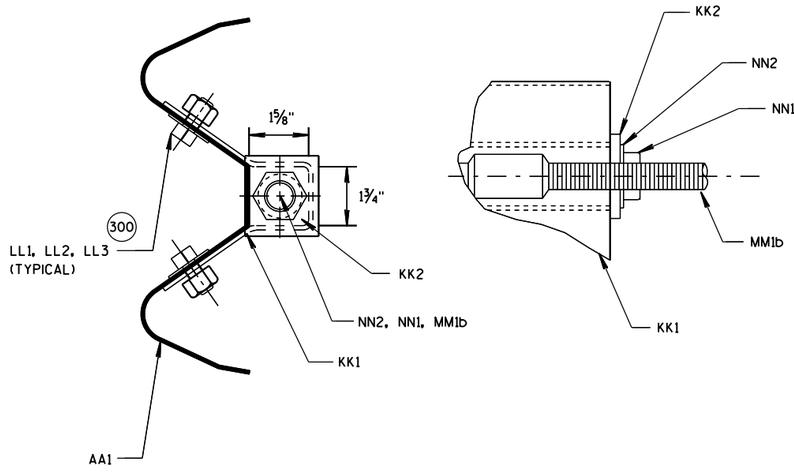




ANCHOR BRACKET (KK1, KK2)



ANCHOR BRACKET BEARING PLATE (KK2)

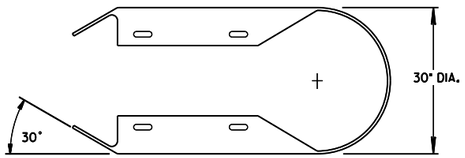


SECTION A-A

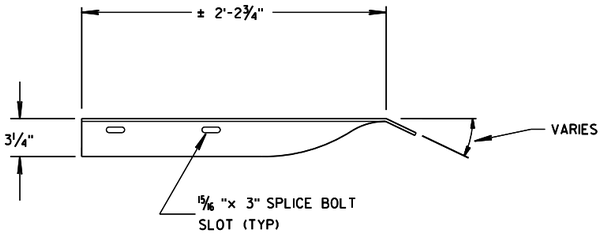
SHORT RADIUS BEAM GUARD
(MGS) SHORT RADIUS
TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6
S.D.D. 14 B 53-1d



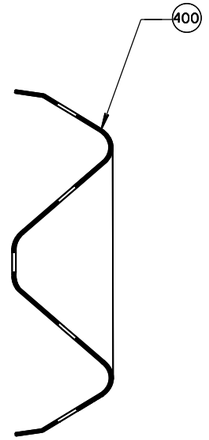
TOP VIEW



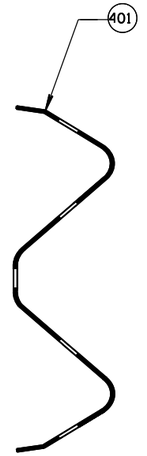
TOP VIEW

(400) CROSS SECTON OF PART IS TO FIT OVER AA1.

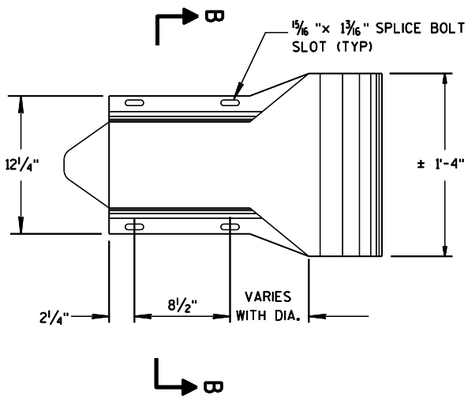
(401) CROSS SECTON OF PART IS TO FIT OVER OR UNDER AA1.



SECTION B-B

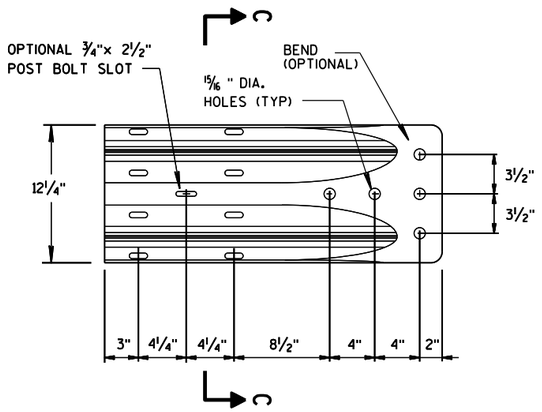


SECTION C-C



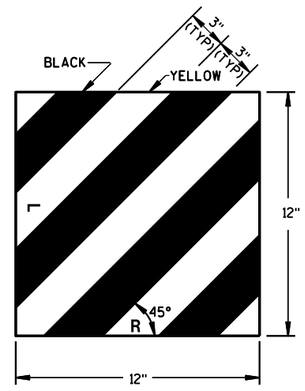
W-BEAM
END SECTION BUFFER (AA2)

PROFILE VIEW



W-BEAM
TERMINAL CONNECTOR (BB1)

PROFILE VIEW



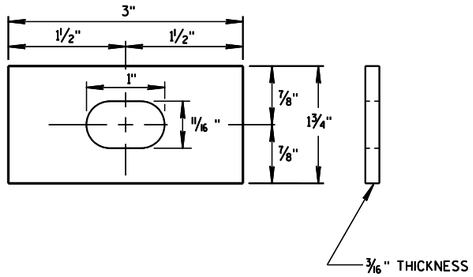
REFLECTIVE SHEETING
(UU1, UU2)

SHORT RADIUS BEAM GUARD
(MGS) SHORT RADIUS
TERMINAL (MGS)

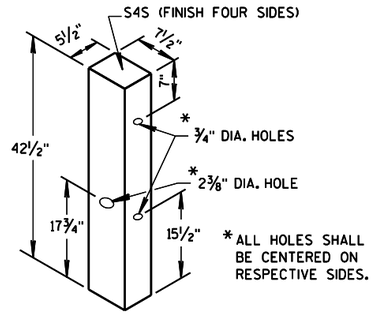
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

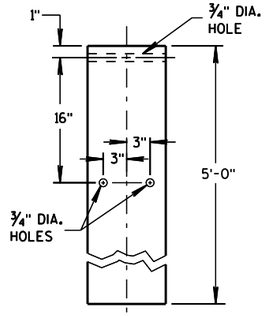
S.D.D. 14 B 53-1e



RECTANGULAR PLATE WASHER (CC1)



WOOD BREAKAWAY POST (FF1)



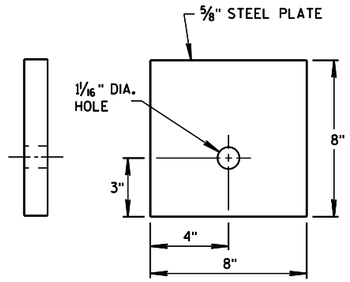
FOUNDATION TUBE (QQ1) (500)

(500) SEE DETAIL "D" FOR LOCATION AND ATTACHING SS1.

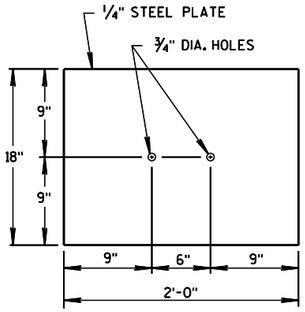
(501) FOR MM1a THREADED STUD ONLY REQUIRED ON ONE END. SWAGED FITTING REQUIRED.

(502) LOCATE HOLES ON THE CENTERLINE OF THE SIDE OF THE POST.

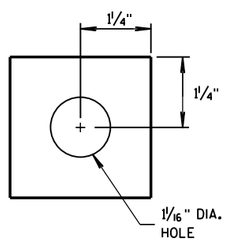
(503) MM1a MAY HAVE ONE THREADED STUD 4 INCHES LONG. SEE NOTE (109).



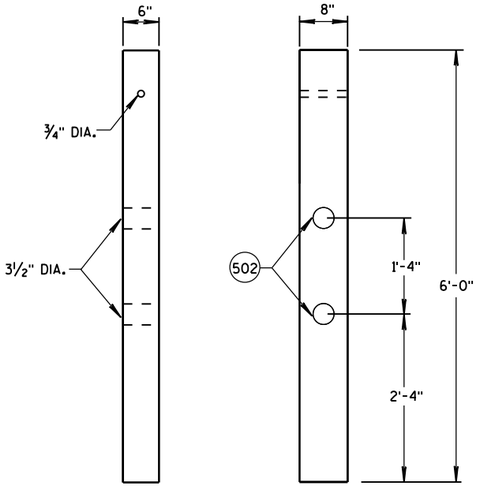
BEARING PLATE (PP1)



SOIL PLATE (SS1)

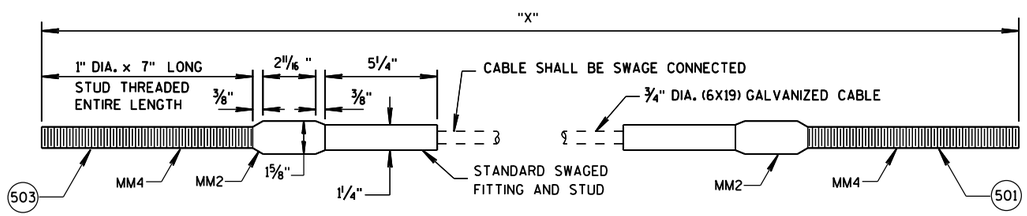


TUBE END PLATE (QQ3)



FRONT VIEW SIDE VIEW

CONTROLLED RELEASE TERMINAL POST (CRT) (D2)



"X" LENGTH	
MM1a	9'-0"
MM1b	6'-8"

CABLE ASSEMBLY (MM1a , MM1b)

SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6
S.D.D. 14 B 53-1f

BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
A1	BEAM GUARD RAIL	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
A2	BEAM GUARD RAIL - SHOP BENT	INDICATE ON BACK OF RAIL RADIUS THAT RAIL WAS BENT TO. SHOP BEND RADIUS IS TO THE NEAREST FOOT. FOLLOW AASHTO M180 ON HOW TO MARK RADIUS INFORMATION.	
		AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
B1	BLOCK - WOOD	WISDOT SPEC. 614	SEE SDD 14B42
C1	NAIL	ASTM A153 HOT DIP CLASS D	
		ASTM F1667 TYPE 1 STYLE 12 (16 DOUBLE HEAD)	
D1	POST-STRONG POST-WOOD	WISDOT SPEC. 614	SEE SDD 14B42
D2	POST-CRT-WOOD	WISDOT SPEC. 614	
E1	POST BOLT	ASTM A307 GRADE A OR SAE J429 GRADE 2	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		UNC	
E2	POST BOLT-WASHER	ASTM F436 TYPE 1 (HARDEN TYPICALLY USED WITH STEEL) OR ASTM F844 (UNHARDENED TYPICALLY WITH WOOD)	5/8" DIA.
		GALV. AASHTO M111/ASTM A 123 OR GALV. HOT DIP. TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329	
E3	POST BOLT - NUT		5/8" DIA. SEE SDD 14B42 FOR GEOMETRY
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		UNC	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		ASTM A563 GRADE A HEAVY HEX HEAD	
F1	SPLICE BOLT	GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		ASTM A307 GRADE A OR SAE J429 GRADE 2	5/8" DIA. SEE SDD 14B42 FOR GEOMETRY AND OTHER INFORMATION
		UNC	
		AASHTO M180	

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
F2	SPLICE BOLT - NUT	ASTM A563 GRADE A	5/8" DIA. SEE SDD 14B42 FOR GEOMETRY
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		UNC	
G1	LAG SCREW	ASTM A308 GRADE A ASTM A153 CLASS D	
			3/8" DIA. 3" LONG
H1	DELINEATOR - BEAM GUARD		SEE SDD 14B42 FOR MORE INFORMATION
H2	DELINEATION - SHEETING	YELLOW OR WHITE	
		WISDOT SPEC 637 TYPE SH	
		APPROVED PRODUCT LIST	
J1	FOUNDATION BACKFILL	STANDARD SPEC. 614	
AA1	BEAM GUARD RAIL - PUNCHED	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
AA2	BEAM GUARD RAIL - END SECTION BUFFER	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
BB1	BEAM GUARD RAIL - TERMINAL CONNECTOR MODIFIED	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
CC1	SHORT RADIUS - SQUARE WASHER	AASHTO M180	
		GALV. AASHTO M111 / ASTM A123	
EE1	NAIL	ASTM A153 HOT DIP CLASS D	
		ASTM F1667 TYPE 1 STYLE 12 (16 DOUBLE HEADED)	
FF1	POST - BCT - WOOD	S4S FINISH ON 4 SIDES	
		WISDOT SPEC. 614	
GG1	POST BOLT	ASTM A307 GRADE A OR SAE J429 GRADE 2	3/8" DIA. SEE SDD 14B42 FOR GEOMETRY
		AASHTO M180	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		UNC	
GG2	POST BOLT - WASHER	ASTM F436 TYPE 1 (HARDEN TYPICALLY USED WITH STEEL) OR ASTM F844 (UNHARDENED TYPICALLY WITH WOOD)	3/8" DIA.
		GALV. AASHTO M111 / ASTM A123 OR5 GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	

SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI 68

6

S.D.D. 14 B 53-1g

BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
GG3	POST BOLT - NUT	ASTM A563 GRADE A	3/8" DIA.
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	SEE 14B42 FOR GEOMETRY
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		UNC	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		ASTM A563 GRADE A HEAVY HEX HEAD	
HH1	SPLICE BOLT	GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	3/8" DIA. SEE 14B42 FOR GEOMETRY
		ASTM A307 GRADE A OR SAE J429 GRADE 2	
		UNC	
		AASHTO M180 HEAD GEOMETRY	
HH2	SPLICE BOLT - NUT	ASTM A563 GRADE A	3/8" DIA.
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	SEE 14B42 FOR GEOMETRY
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		UNC	
JJ1	PIPE - STEEL	ASTM A53 GALVANIZED GRADE B SCHEDULE 40	10" O.D.
JJ2	TOP PLATE	ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	DIMENSIONS 3/8" X 4" X 1'-0"
		GALV. AASHTO M111 / ASTM A123	
KK1	ANCHOR BRACKET	ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
KK2	ANCHOR BRACKET - BEARING PLATE	ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
LL1	ANCHOR BRACKET - BOLT	ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	5/8" DIA.
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		UNC	
LL2	ANCHOR BRACKET - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	5/8" DIA.
		GALV. AASHTO M111 / ASTM A123 OR5 GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
LL3	ANCHOR BRACKET - NUT	ASTM A563 GRADE A	5/8" DIA.
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A563	
		UNC	

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
MM1a	ANCHOR CABLE	AASHTO M30 / ASTM A741 INDEPENDENT WIRE CORE (IWRC) OR WIRE STRAND CORE (WCS), IMPROVED PLOW STEEL (IPS), 6X19, TYPE II OR IIc CLASS C ZINC COATED	
MM1b	ANCHOR CABLE	AASHTO M30 / ASTM A741 INDEPENDENT WIRE CORE (IWRC) OR WIRE STRAND CORE (WCS), IMPROVED PLOW STEEL (IPS), 6X19, TYPE II OR IIc CLASS C ZINC COATED	
MM2	ANCHOR CABLE - SWAGE FITTING	ASTM A576 GRADE 1035	
		SWAGE FITTINGS ARE TO BE FACTORY SWEDGED. WITH A BREAKING STRENGTH 40,000 LBS.	
		GALV. AASHTO M111 / ASTM A123	
		ASME B30.26 FORGED, CAST, OR DIE STAMPED WITH THE FOLLOWING INTO CONNECTION: NAME OF MANUFACTURER OR TRADEMARK OF CONNECTION'S MANUFACTURER, SIZE OR RATED LOAD, GRADE.	
MM3	WIRE ROPE CABLE CLAMPS	FF-C-450D TYPE 1 CLASS 1	3/4"
		ASTM A153 HOT DIP CLASS D	
MM4	ANCHOR CABLE - SWAGE FITTING - STUD	ASTM F3125 GRADE A325 TYPE 1 OR SAE GRADE 5 OR ASTM A449 TYPE 1 HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		UNC	
NN1	ANCHOR CABLE - NUT	ASTM A563 GRADE A	1" DIA.
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A563	
		UNC	
NN2	ANCHOR CABLE - NUT - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	1" DIA.
		GALV. AASHTO M111 / ASTM A123 OR5 GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
PP1	BEARING PLATE AT POST	ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
PP2	PIPE - STEEL	ASTM A53 GALVANIZED GRADE B SCHEDULE 40	2" DIA. x 6" LONG
QQ1	FOUNDATION TUBE	ASTM A500 GRADE B	8" X 6" X 3/16"
		GALV. AASHTO M111 / ASTM A123	
QQ2	SHORT RADIUS - FOUNDATION TUBE - ANCHOR CABLE - TUBE	ASTM A500 GRADE B	DIMENSIONS 2 1/2" X 2 1/4" X 1/4" X 8"
		GALV. AASHTO M111 / ASTM A123	

SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)

STATE OF WISCONSIN DEPARTMENT OF TRANSPOI

6

S.D.D. 14 B 53-1h

BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
003	SHORT RADIUS - SOIL TUBE - ANCHOR CABLE - TUBE - END PLATE	ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	DIMENSIONS 2½" X 2½" X ¼"
		GALV. AASHTO M111 / ASTM A123	
004	GROUND STRUT AND YOKE - BOLT	GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	⅝" DIA.
		ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	
		UNC	
005	GROUND PLATE AND YOKE - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	⅝" DIA.
		GALV. AASHTO M111 / ASTM A123 OR5 GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
006	GROUND STRUT AND YOKE - NUT	HEAVY HEX	⅝" DIA.
		UNC	
		ASTM A563 GRADE A	
		OVER TAPPED NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
SS1	SOIL PLATE	ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
TT1	SOIL PLATE - BOLT	ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	⅝" DIA.
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		UNC	
TT2	SOIL PLATE - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	⅝" DIA.
		GALV. AASHTO M111 / ASTM A123 OR5 GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
TT3	SOIL PLATE - NUT	GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	⅝" DIA.
UU1	OBJECT MARKER - SHEETING	MUTCD / WISDOT OBJECT MARKER TYPE 3	PATTERN AND COLOR FOR SHEETING SHEETING TYPE FOR MARKER
		WISDOT SPEC 637 TYPE F	
		APPROVED PRODUCT LIST	
UU2	OBJECT MARKER - ALUMINUM PLATE	WISDOT SPEC 637 ALUMINUM PLATE	MATERIAL AND THICKNESS OF MATERIALS
UU3	OBJECT MARKER - SCREWS	STAINLESS SELF-TAPPING SCREWS	
VV1	FOUNDATION BACKFILL	WISDOT SPEC 614	

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S.D.D. 14 B 53-1i

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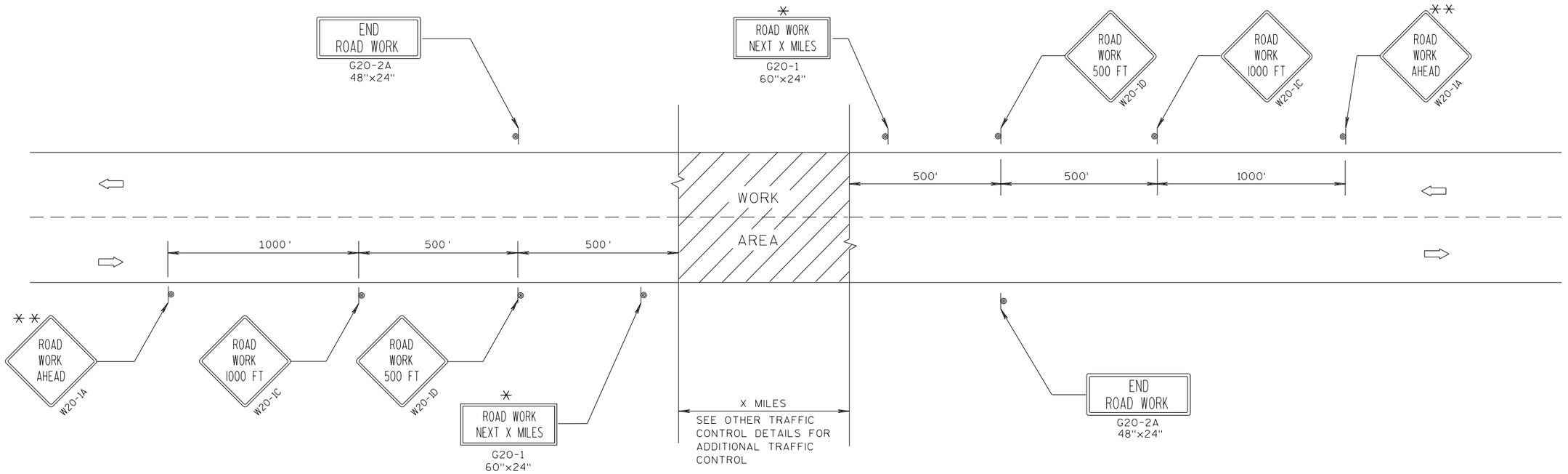
S.D.D. 14 B 53-1i

SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS D UNIT SUPERVI
NT
FHWA

TYPICAL SIDEROAD APPROACH WARNING SIGN DETAIL



GENERAL NOTES

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

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

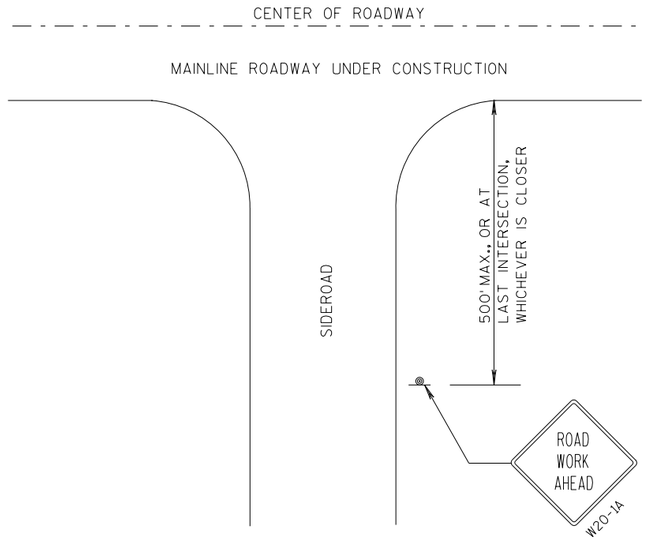
ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

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

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

* OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS.

** PLACE ADDITIONAL W20-1A "ROAD WORK AHEAD" SIGN IF WORK AREA WITHIN THE PROJECT IS SEPARATED BY MORE THAN 2 MILES FROM PREVIOUS WORK AREA.



LEGEND

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

TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

7/2018
DATE

/S/ Andrew Heldtke
WORK ZONE ENGI

FHWA

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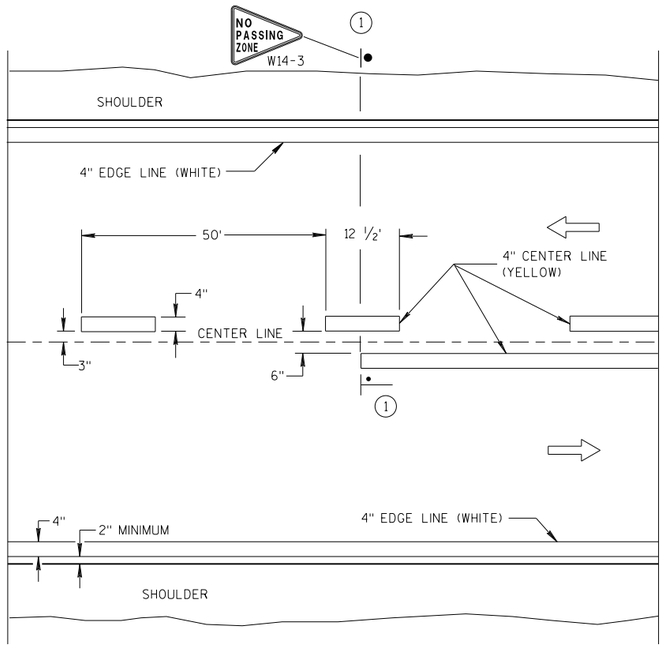
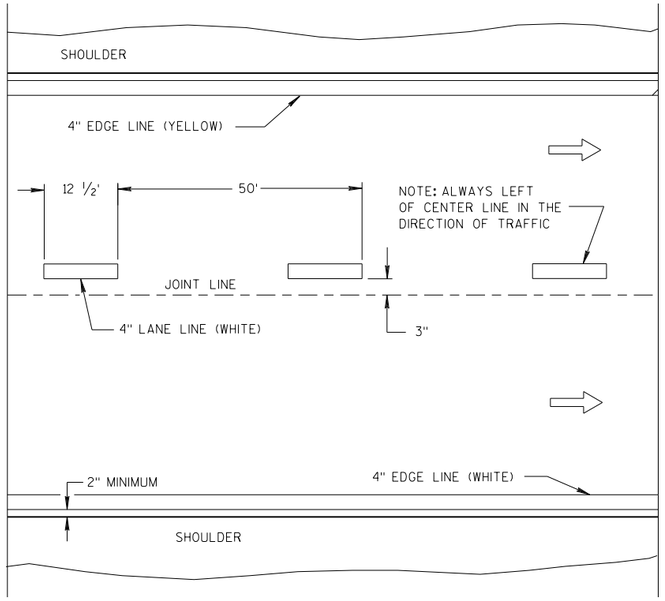
S.D.D. 15 C 4-5



TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING

GENERAL NOTES

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

(1) LOCATE THE NO PASSING ZONE W14-3 SIGN WITHIN 50 FEET OF THE "T" MARKING.

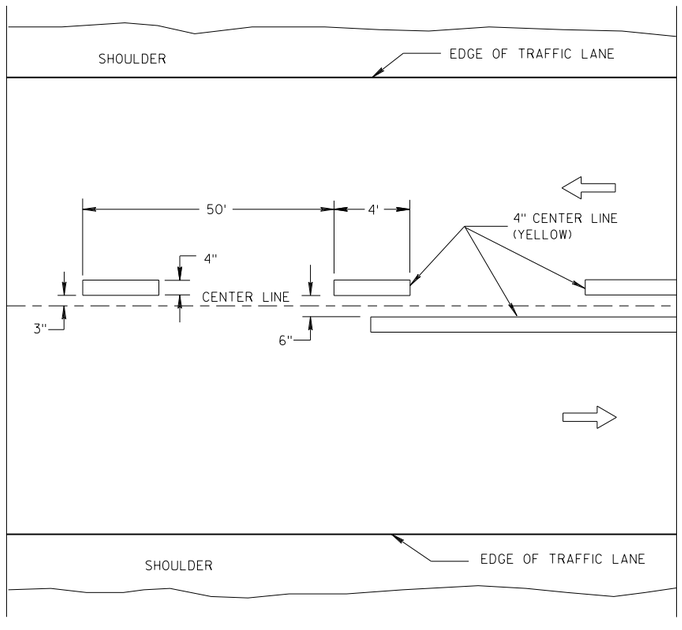
NOTE

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL

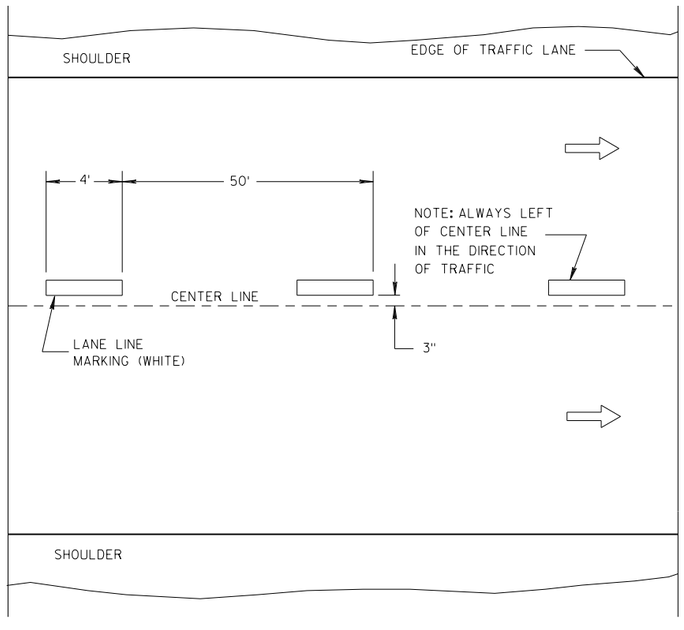
LEGEND

"T" MARKING

POST MOUNTED SIGN



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

LONGITUDINAL MARKING (MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

7/2018 — DATE

/S/ Matthew R. Rauch — STATE SIGNING AND MARKING ENGINEER

FHWA

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S.D.D. 15 C 8-19a

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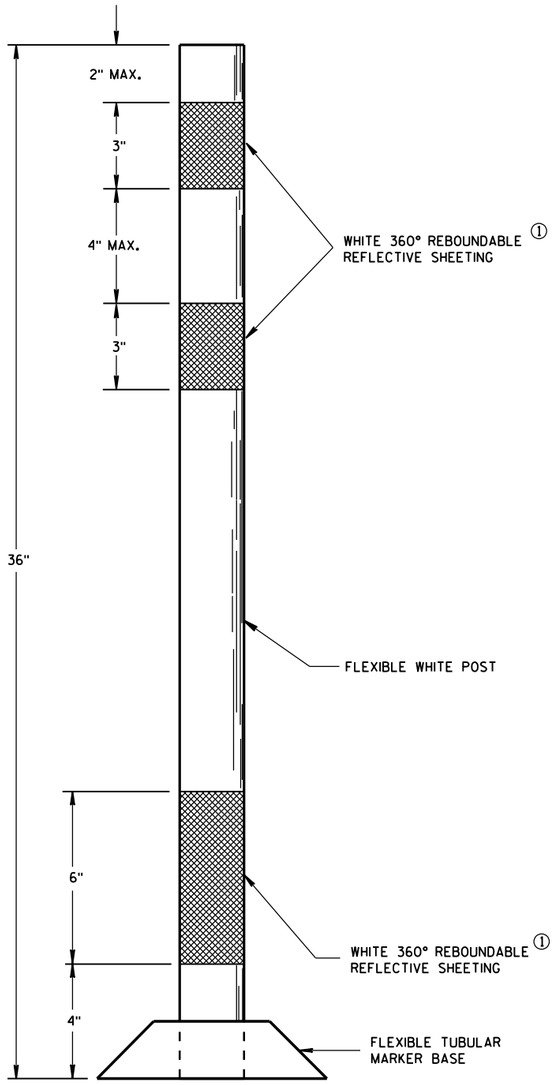
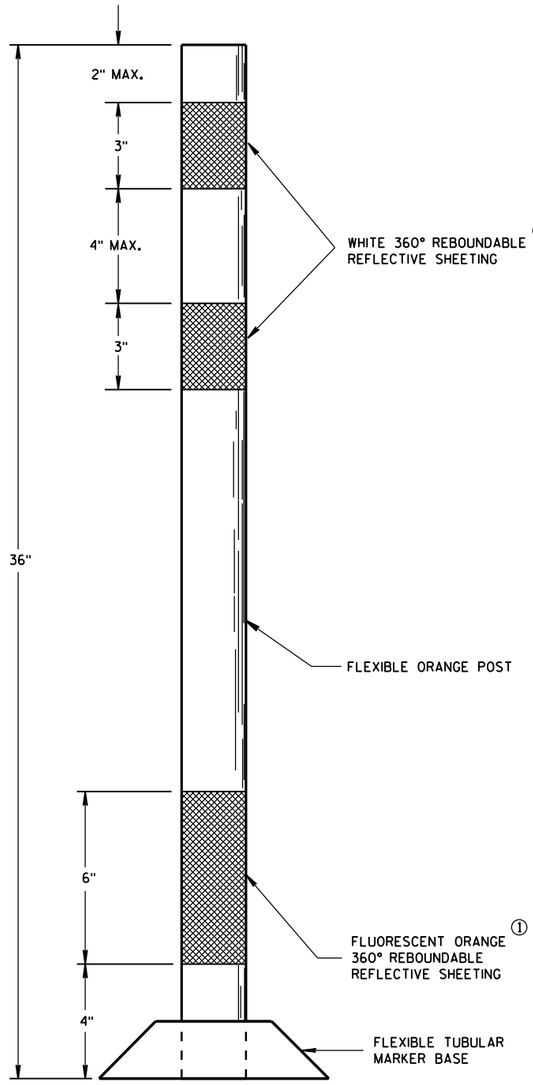
S.D.D. 15 C 8-19a



FLEXIBLE
TUBULAR MARKER POST
PERMANENT CROSSOVER



FLEXIBLE
TUBULAR MARKER POST
WORK ZONE

GENERAL NOTES

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

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

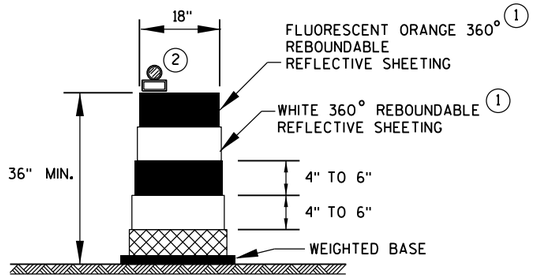
THE ASPHALTIC ADHESIVE OR BUTYL PAD FURNISHED SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS, UNLESS DIRECTED BY THE ENGINEER TO USE BOLTS.

① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.

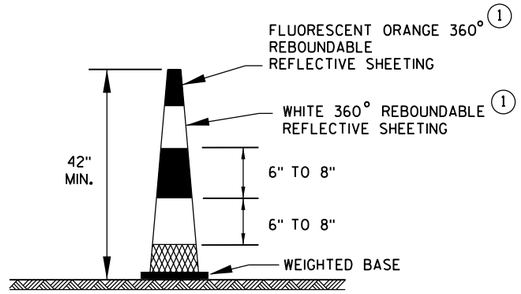
CHANNELIZING DEVICES
FLEXIBLE TUBULAR MARKER POST

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017 — DATE
/S/ Andrew Heldtke — WORK ZONE ENGR
FHWA



DRUM

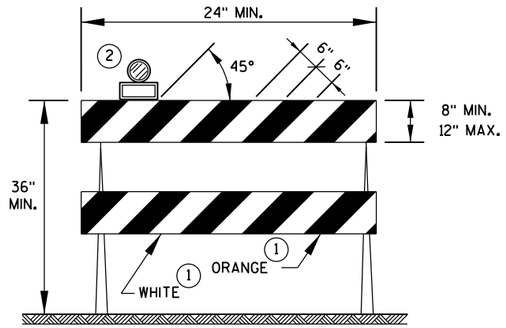


42" CONE

DO NOT USE IN TAPERS
1/2 SPACING OF DRUMS

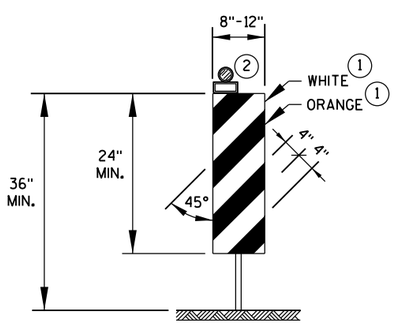
GENERAL NOTES

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



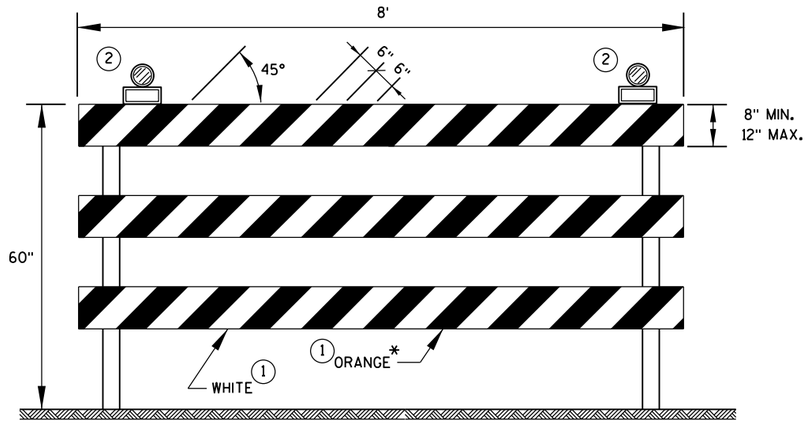
TYPE 2 BARRICADE

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



VERTICAL PANEL

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



TYPE 3 BARRICADE

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

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

CHANNELIZING DEVICES
DRUMS, CONES, BARRICADES
AND VERTICAL PANELS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

June 2017 — DATE

/S/ Andrew Heidtke — WORK ZONE ENG

FHWA

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

LEGEND

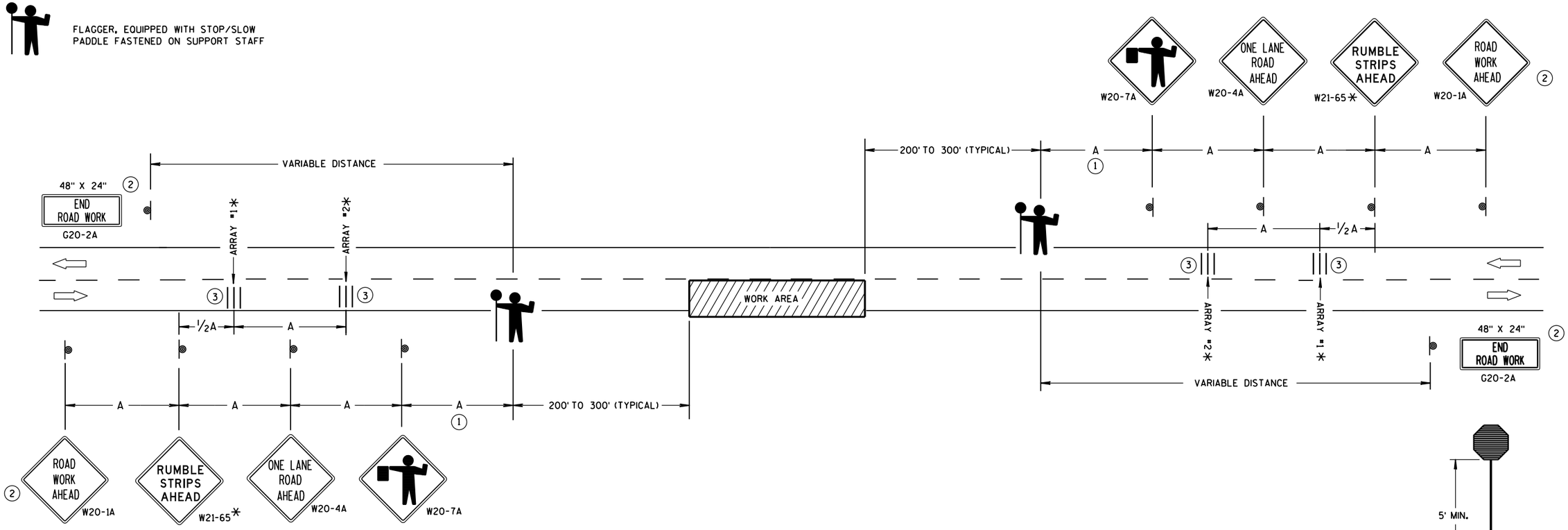
- SIGN ON PORTABLE OR PERMANENT SUPPORT
- DIRECTION OF TRAFFIC
- WORK AREA
- FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

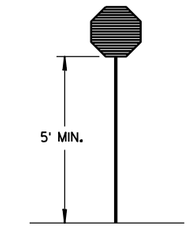
SPEED LIMIT	SPACING A
25-35 MPH	200'
35-40 MPH	350'
45-55 MPH	500'

W03-4

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



TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION



STOP/SLOW PADDLE ON SUPPORT STAFF

GENERAL NOTES

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

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

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

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

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

INSTALL TEMPORARY RUMBLE STRIPS PER MANUFACTURER'S RECOMMENDATIONS.

PLACE ADVANCE SIGNING PRIOR TO INSTALLING TEMPORARY RUMBLE STRIPS.

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

FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT, REMOVE TEMPORARY RUMBLE STRIPS PRIOR TO COVERING OR REMOVING ALL ADVANCE SIGNING.

* UTILIZE TEMPORARY RUMBLE STRIPS WHEN FLAGGING OPERATION IS ANTICIPATED TO BE STATIONARY IN EXCESS OF TWO HOURS.

(1) FOR A MOVING WORK OPERATION, SIGNING AND TEMPORARY RUMBLE STRIPS (IF USED) SHALL BE REESTABLISHED (AS SIMULTANEOUSLY AS PRACTICAL) AT APPROXIMATELY 3,500 FOOT INTERVALS IN THE MOVING WORK OPERATION OR AS APPROVED BY THE ENGINEER.

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

(3) EACH TEMPORARY RUMBLE STRIP ARRAY CONSISTS OF THREE RUMBLE STRIPS SPACED ACCORDING TO MANUFACTURER'S RECOMMENDATION, PLACED TRANSVERSE ACROSS THE LANE AT LOCATIONS SHOWN.

TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017 — DATE
/S/ Andrew Heldtke — WORK ZONE ENG
FHWA

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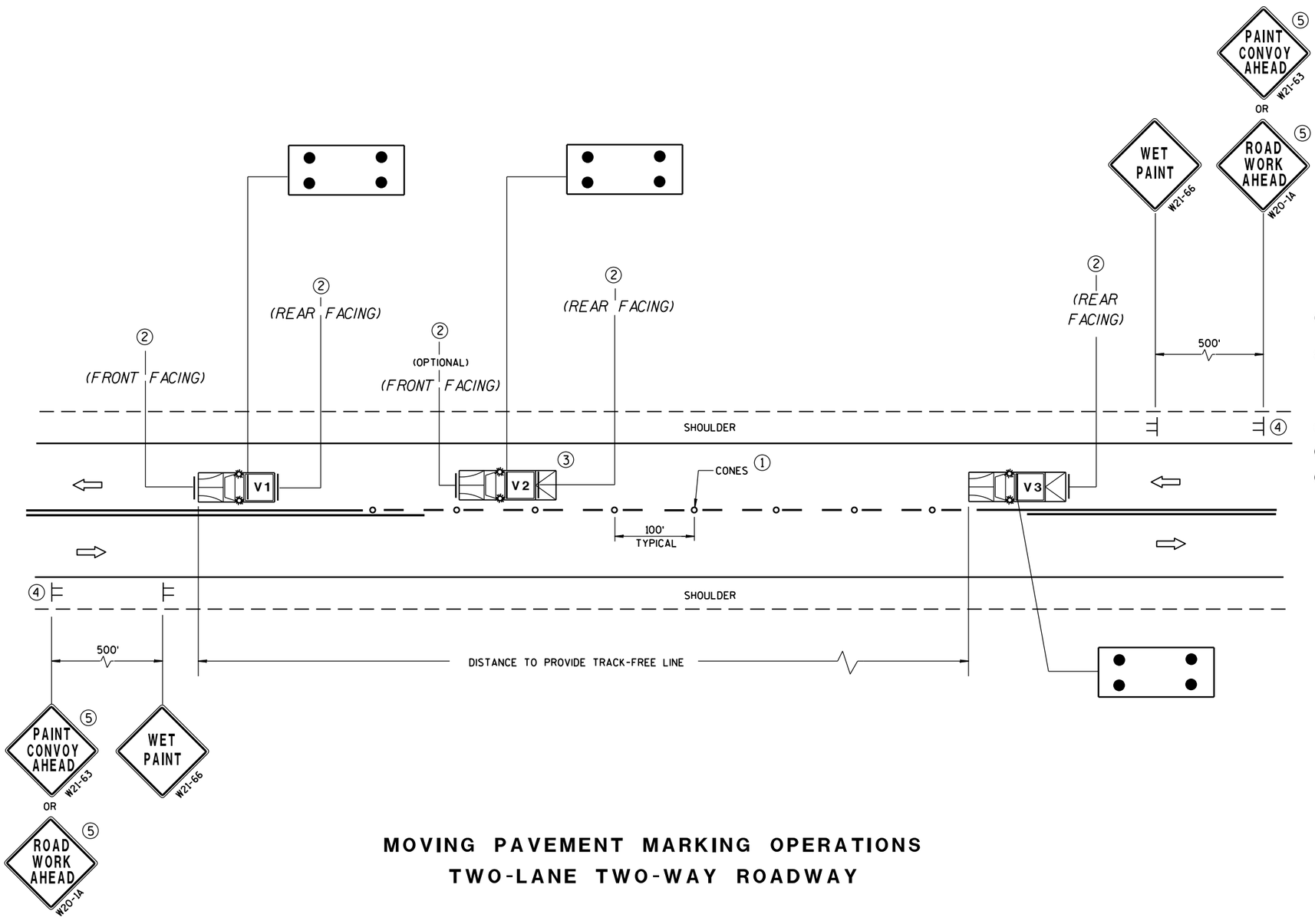
S.D.D. 15 C 12-6

S.D.D. 15 C 12-6



MOVING PAVEMENT MARKING OPERATIONS
TWO-LANE TWO-WAY ROADWAY

GENERAL NOTES

ALL VEHICLES SHALL BE EQUIPPED WITH TWO 360 DEGREE HIGH INTENSITY YELLOW FLASHING LIGHTS OR STROBE LIGHTS AND OPERATED WITH HEADLIGHTS TURNED ON.

VEHICLES SHALL BE EQUIPPED WITH REAR FACING TYPE B OR C FLASHING ARROW PANEL OPERATING IN CAUTION MODE. SIGNS PLACED ON VEHICLES MUST NOT OBSCURE THE ARROW PANEL.

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

IF SPEED LIMIT IS 40 MPH OR LESS STATIONARY SIGNS MAY BE OMITTED IF CONES ARE USED.

ALTERNATE SIGN MESSAGES, SUCH AS "PAINT CREW AHEAD" OR "ROAD PAINTING AHEAD" MAY BE USED.

DISTANCE BETWEEN VEHICLES MAY VARY ACCORDING TO TERRAIN, SIGHT DISTANCE, PAINT DRYING TIME, AND OTHER FACTORS. WHENEVER ADEQUATE STOPPING SIGHT DISTANCE EXISTS TO THE REAR, SHADOW VEHICLES SHOULD MAINTAIN THE MINIMUM DISTANCE FROM THE WORK VEHICLE AND PROCEED AT THE SAME SPEED AS THE WORK VEHICLE. SHADOW VEHICLES SHOULD SLOW DOWN IN ADVANCE OF VERTICAL OR HORIZONTAL CURVES THAT RESTRICT SIGHT DISTANCE.

THE WORK AND SHADOW VEHICLES SHOULD PULL OVER PERIODICALLY TO ALLOW TRAFFIC TO PASS.

THIS DRAWING SHALL BE USED FOR CENTERLINE OR EDGELINE MARKING.

WHEN NO WORK ACTIVITY IS TAKING PLACE, REMOVE OR TURN THE STATIONARY WARNING SIGNS AWAY FROM TRAFFIC.

(1) CONES MAY BE OMITTED ON PAINTED LINE IF APPROVED BY THE ENGINEER. CONSIDER PAVEMENT MARKING DRY OR CURE TIMES AND TRAFFIC VOLUME.

(2) USE STANDARD SIGN W21-64 WITH APPROPRIATE ARROW.

WET PAINT W21-64 OR WET PAINT W21-64

(3) OPTIONAL TRUCK-MOUNTED ATTENUATOR.

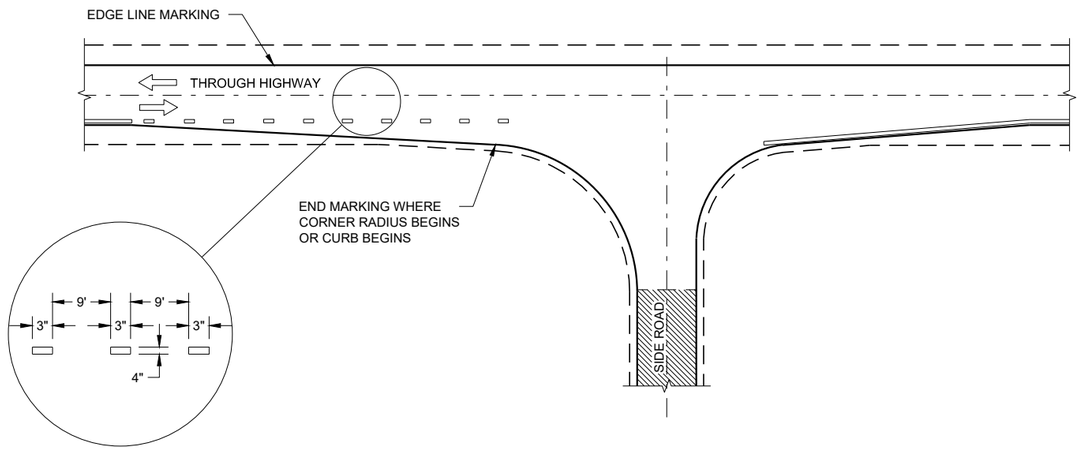
(4) SIGNS SHALL BE REPEATED APPROXIMATELY EVERY THREE MILES.

(5) IF CONSTRUCTION WORK ZONE SIGNS ARE IN PLACE, W20-1 OR W21-63 ARE NOT REQUIRED.

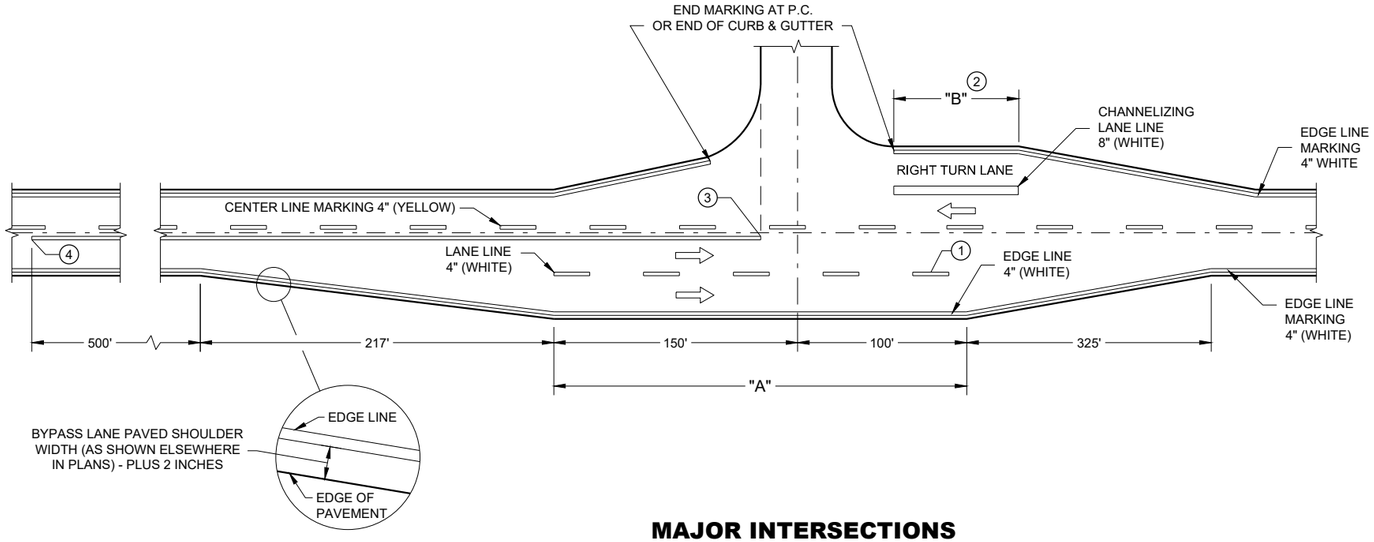
LEGEND

- **V1** LEAD VEHICLE
- **V2** SHADOW VEHICLE
- **V3** TRAIL VEHICLE WITH TMA
- **TMA** TRUCK-MOUNTED ATTENUATOR
- SIGN ON TEMPORARY SUPPORT
- DIRECTION OF TRAFFIC
- CONES
- FLASHING ARROW PANEL (CAUTION)

MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
Sept., 2017 DATE	/S/ Andrew Heldtke WORK ZONE ENGR
FHWA	



MINOR INTERSECTION



MAJOR INTERSECTIONS

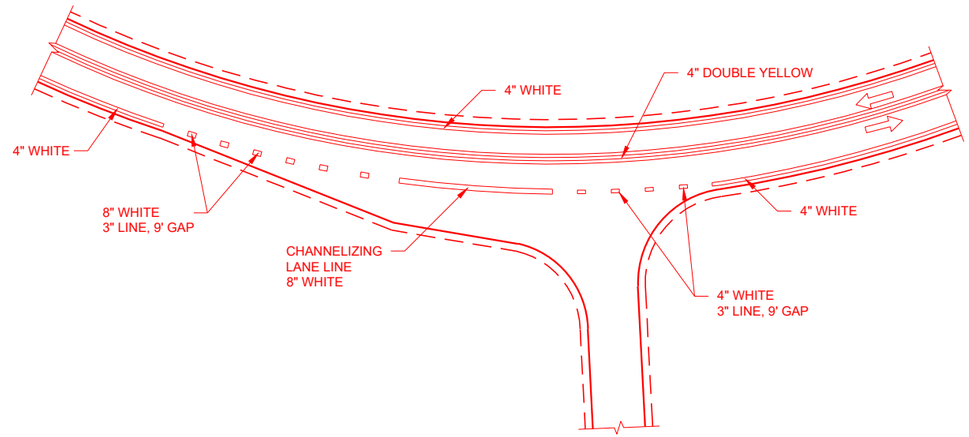
(INTERSECTION WITH FULL RIGHT TURN LANE OR BYPASS LANE)

GENERAL NOTES

OMIT EDGE LINES THROUGH INTERSECTIONS. CONTINUE EDGE LINES 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. BARRIER LINE ENDS AT SIDE ROAD PAVEMENT / SURFACE EDGE EXTENSION.
4. BARRIER LINE STARTS 500 FEET PRIOR TO THE BYPASS TAPER

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL



INTERSECTION ON OUTSIDE OF CURVE

PAVEMENT MARKING (INTERSECTIONS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

SDD 15C35 - 03a

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SDD 15C35 - 03a

GENERAL NOTES

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

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

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

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

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

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

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

TABLE A

S \ W	SHOULDER TAPER LENGTH (FEET) 4	6	8	10	BUFFER SPACE (FEET)
30	20	30	40	50	200
35	30	45	55	70	250
40	40	55	75	90	305
45	60	90	120	150	360
50	70	100	135	170	425
55	75	110	150	185	495

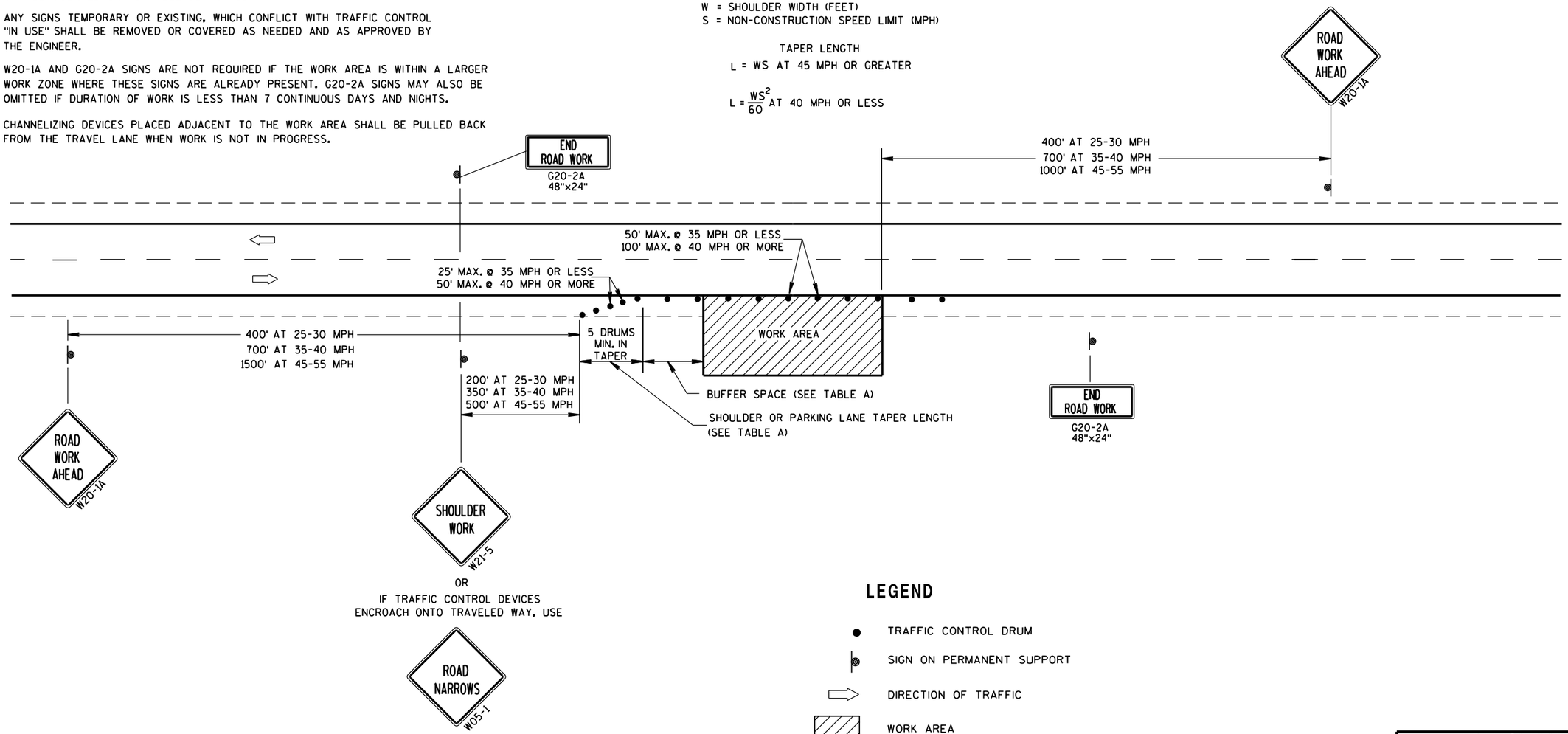
W = SHOULDER WIDTH (FEET)
S = NON-CONSTRUCTION SPEED LIMIT (MPH)

TAPER LENGTH

L = WS AT 45 MPH OR GREATER

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

SHOULDER TAPER LENGTH = $\frac{1}{3}L$



LEGEND

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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

July 14, 2015 — DATE

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

FHWA

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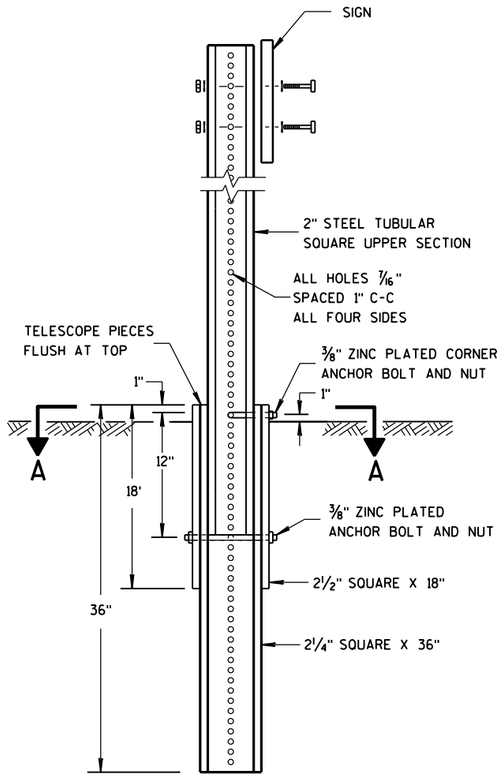
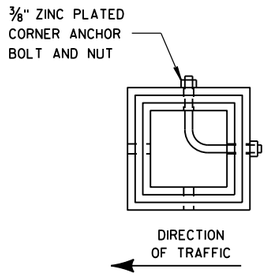
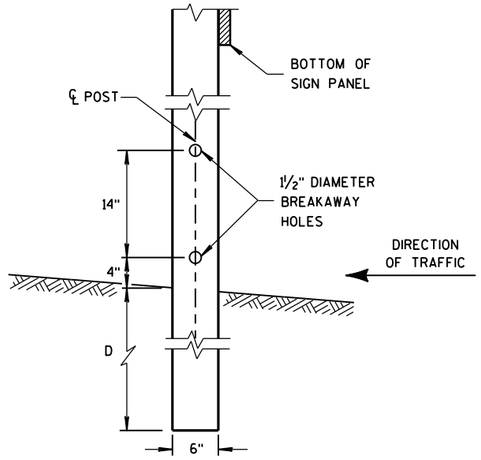
S.D.D. 15 D 28-3



DETAIL OF TUBULAR STEEL SIGN POST



SECTION A-A



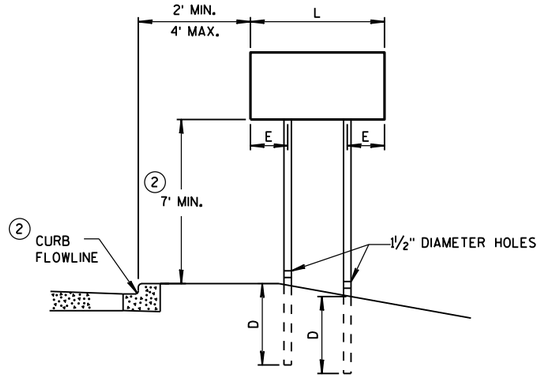
4"x6" WOOD POST MODIFICATION

GENERAL NOTES

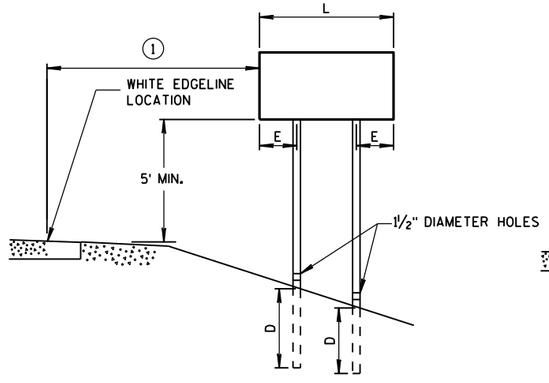
(1) 6 FEET FROM THE EDGE OF PAVEMENT (EDGE LINE LOCATION) UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER. LATERAL OFFSET SHOULD BE ADJUSTED TO AVOID THE DITCH FLOWLINE.

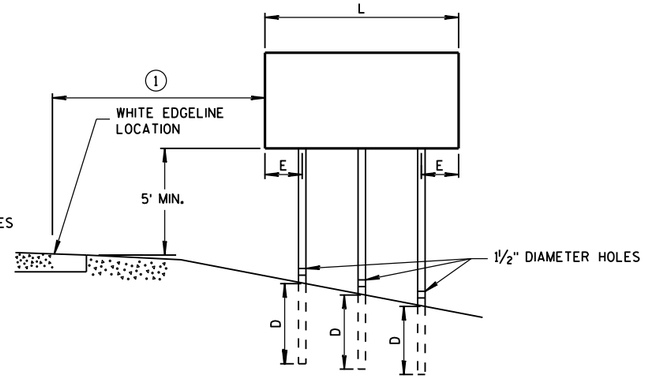
(2) THE EXISTENCE OF CURB AND GUTTER DOES NOT IN ITSELF MANDATE THE VERTICAL CLEARANCE ILLUSTRATED. THAT HEIGHT IS TYPICALLY MEASURED WHERE THERE IS SIDEWALK ADJACENT TO THE ROADWAY OR PARKING IS PERMITTED. IN THE ABSENCE OF SIDEWALK, VERTICAL CLEARANCE IS MEASURED FROM THE TOP OF THE CURB. IF NO SIDEWALK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

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



URBAN AREA





RURAL AREA

POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

TUBULAR STEEL POSTS

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

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

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

WOOD POST EMBEDMENT DEPTH

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

4" X 6" WOOD POST

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

SEE NOTE (3)

TEMPORARY TRAFFIC CONTROL SIGN MOUNTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

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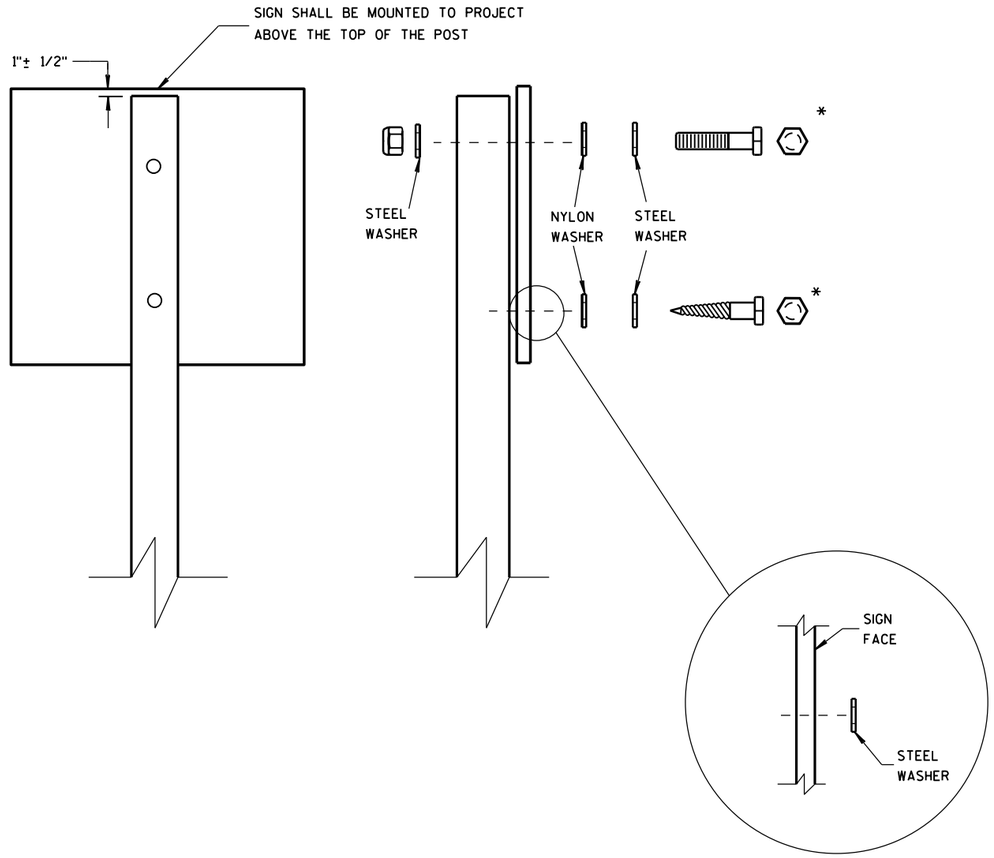
S.D.D. 15 D 38-2a



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

NUTS, BOLTS AND LAGS USED FOR MOUNTING SIGNS SHALL HAVE HEXAGONAL HEADS AND SHALL BE EITHER:

A. HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: A 153, CLASS D, OR SC 3

B. ELECTRO-GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: B 633, TYPE III, SC 3

THREADS ON BOLTS AND NUTS SHALL BE MANUFACTURED WITH SUFFICIENT ALLOWANCE FOR THE CADMIUM PLATE OR GALVANIZED COATING TO PERMIT THE NUTS TO RUN FREELY ON THE BOLTS.

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

LAG SCREWS - 3/8" X 3"

MACHINE BOLTS - 5/16" X 6-1/2" OR 7" LENGTH W/ NUTS

SQUARE STEEL POSTS (2" x 2")

MACHINE BOLTS - 3/8" X 3-1/4" LENGTH W/ NUTS

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

WASHERS (ALL POSTS) -

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

1-1/4" O.D. X 3/8" I.D. X .080 NYLON FOR ALL TYPE H SIGNS

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

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

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

ATTACHMENT OF SIGNS TO POSTS

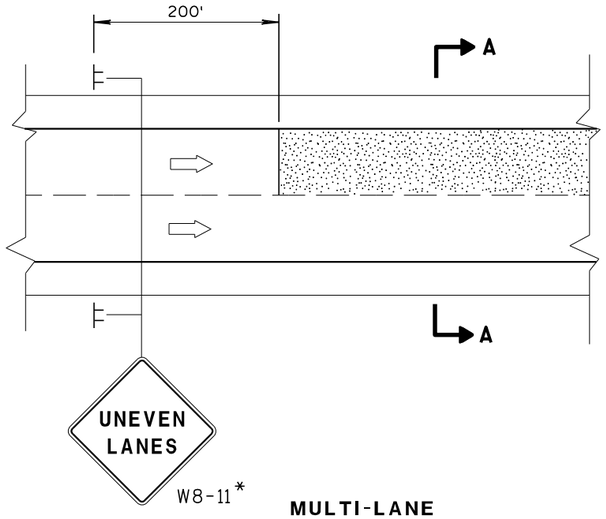
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

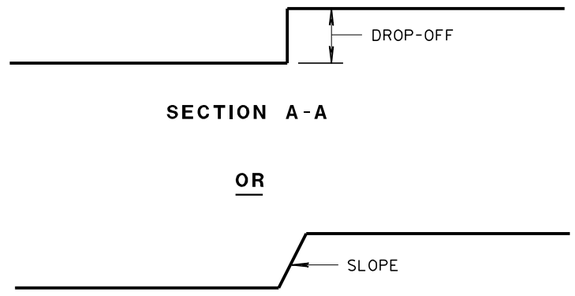
June 2017
DATE

/S/ Andrew Heldtke
WORK ZONE ENG

FHWA



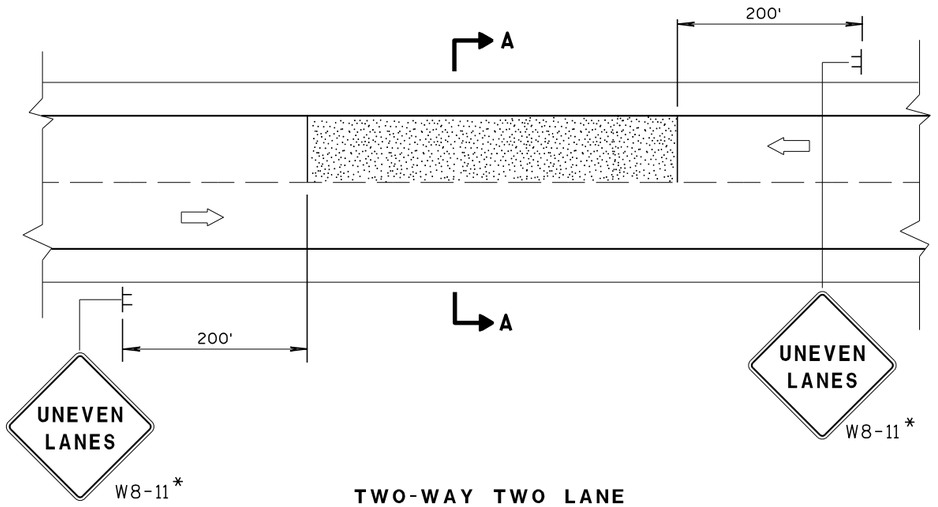
MULTI-LANE



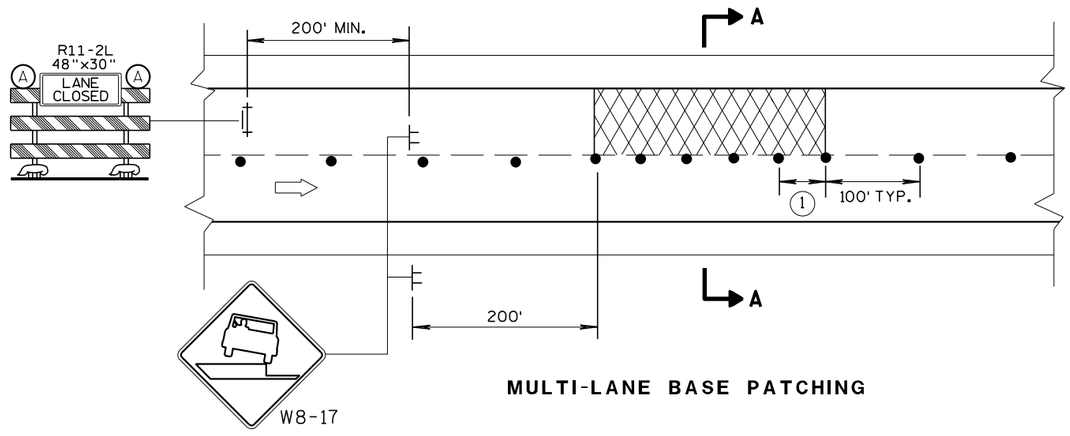
SECTION A-A

OR

SECTION A-A

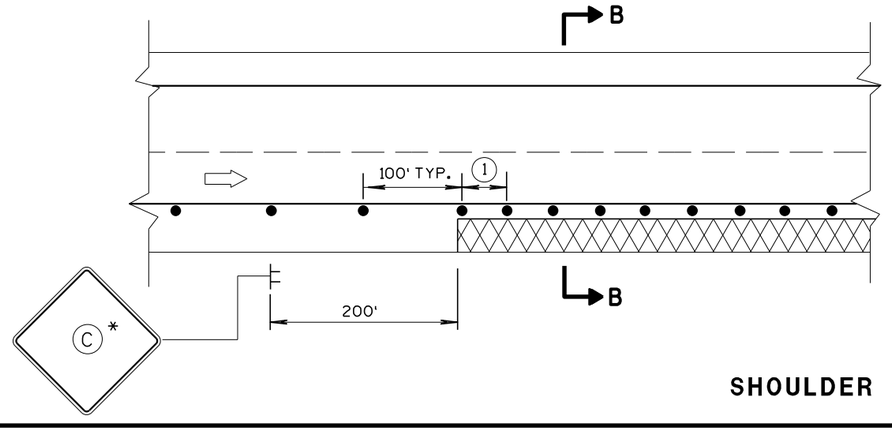


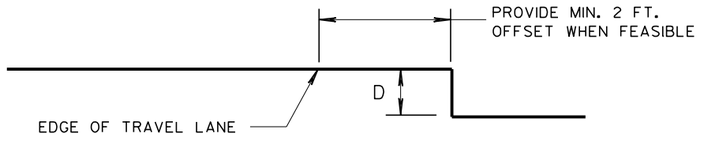
TWO-WAY TWO LANE



MULTI-LANE BASE PATCHING

ADJACENT LANE DROP-OFFS





SECTION B-B

SHOULDER DROP-OFFS

GENERAL NOTES

FOR SPOT LOCATIONS USE ENGINEERING JUDGEMENT WHEN PLACING ADDITIONAL SIGNS.

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

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

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

* IF THE DROP-OFF IS CONTINUOUS ALONG THE PROJECT, PLACE ADDITIONAL SIGNS EVERY 1 MILE AND AFTER EACH ENTRANCE RAMP.

(1) USE CLOSER SPACING WHEN DELINEATING DROP-OFF.

LEGEND

- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL DRUM
- (A) TYPE "A" WARNING LIGHT (FLASHING)
- DIRECTION OF TRAFFIC
- WORK AREA WITH DROP-OFF
- MILLED SURFACE

D	SIGN (C)
< 2" WITH A SLOPE STEEPER THAN 3:1	LOW SHOULDER WO8-9
2" < 6" WITH A SLOPE STEEPER THAN 3:1	SHOULDER DROP-OFF W8-9A PROVIDE A 3:1 OR FLATTER SLOPE OF MATERIAL ADJACENT TO THE PAVEMENT

TRAFFIC CONTROL, DROP-OFF SIGNING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
March 2018 — DATE
/S/ Andrew H — WORK ZONE EN
FHWA

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S.D.D. 15 D 39-2

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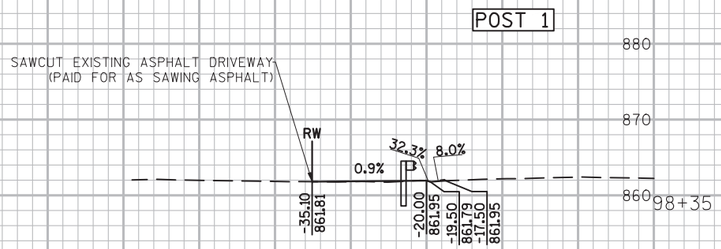
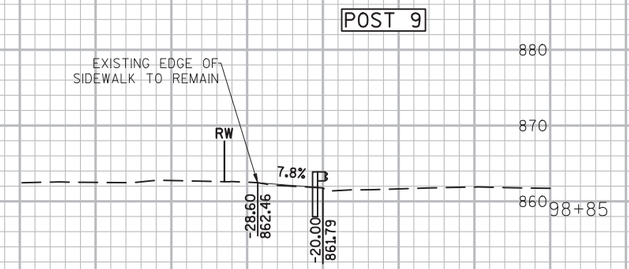
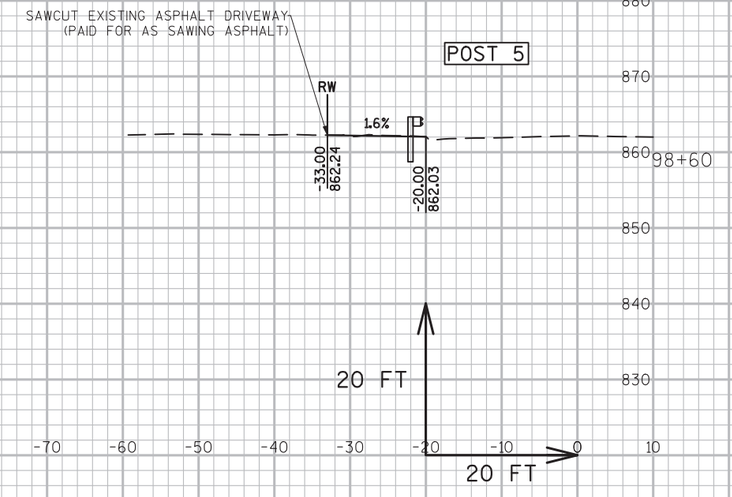
S.D.D. 15 D 39-2





NOTE: NO END OF TAPER CROSS SECTION
DUE TO DRIVEWAY LOCATED AT STA. 98+30



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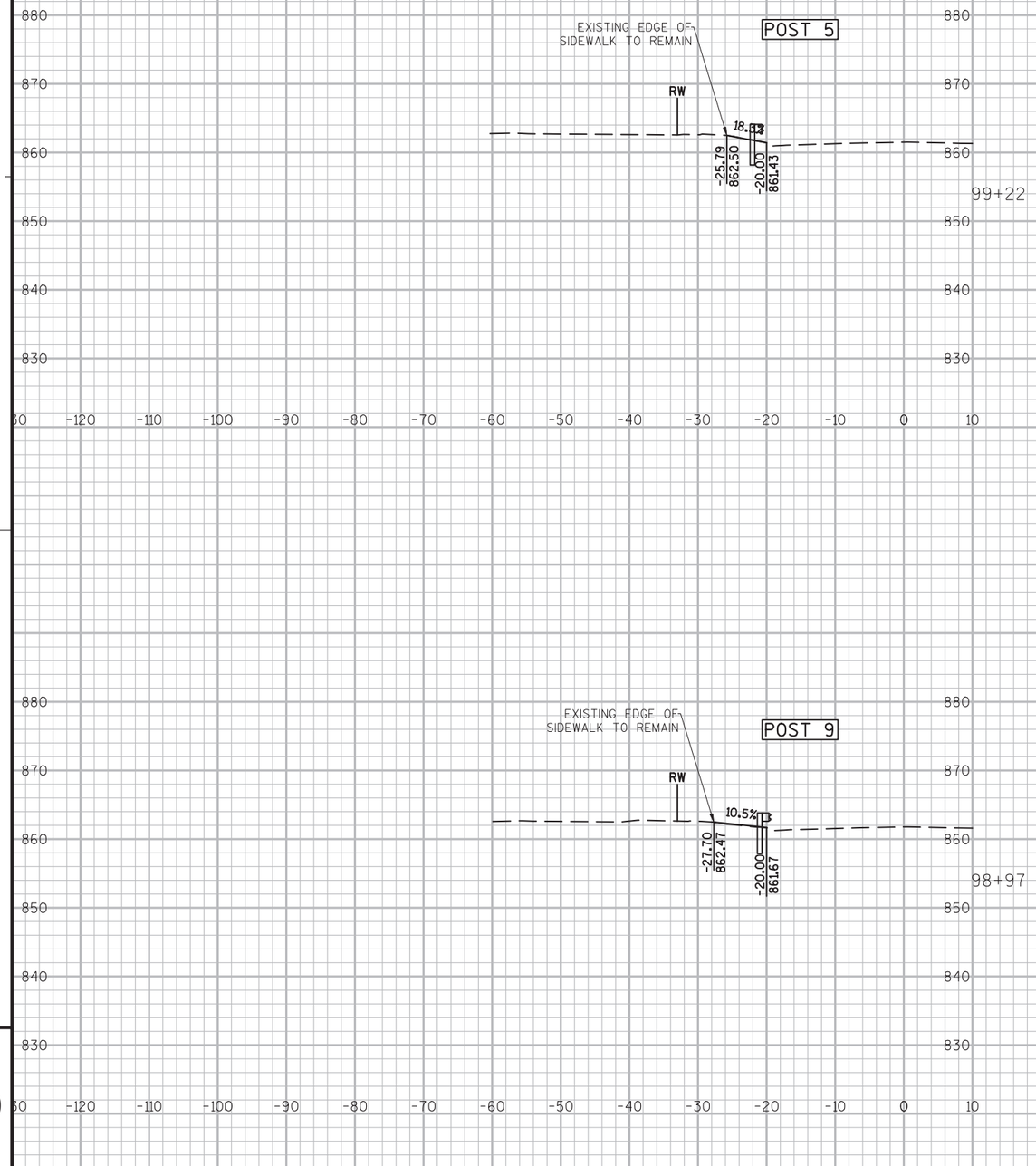
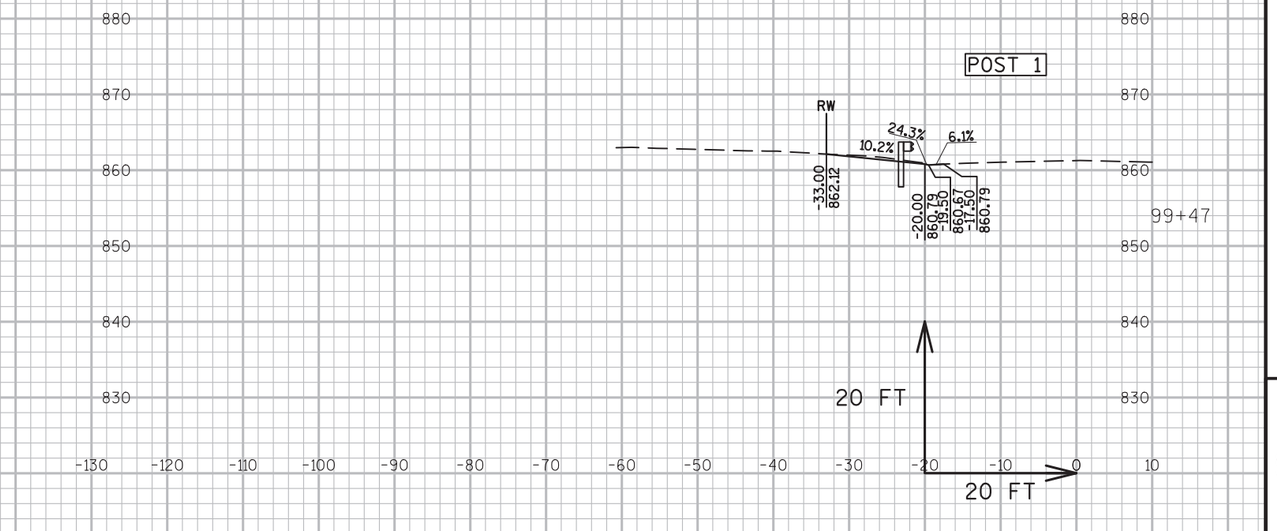
PROJECT NO: 3080-09-60	HWY: USH 18	COUNTY: JEFFERSON	CROSS SECTIONS: MAINLINE	SHEET ---- 82	E



NOTE: NO END OF TAPER CROSS SECTION DUE TO DRIVEWAY LOCATED AT STA. 99+50



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PROJECT NO: 3080-09-60	HWY: USH 18	COUNTY: JEFFERSON	CROSS SECTIONS: MAINLINE	SHEET ---- 83	E

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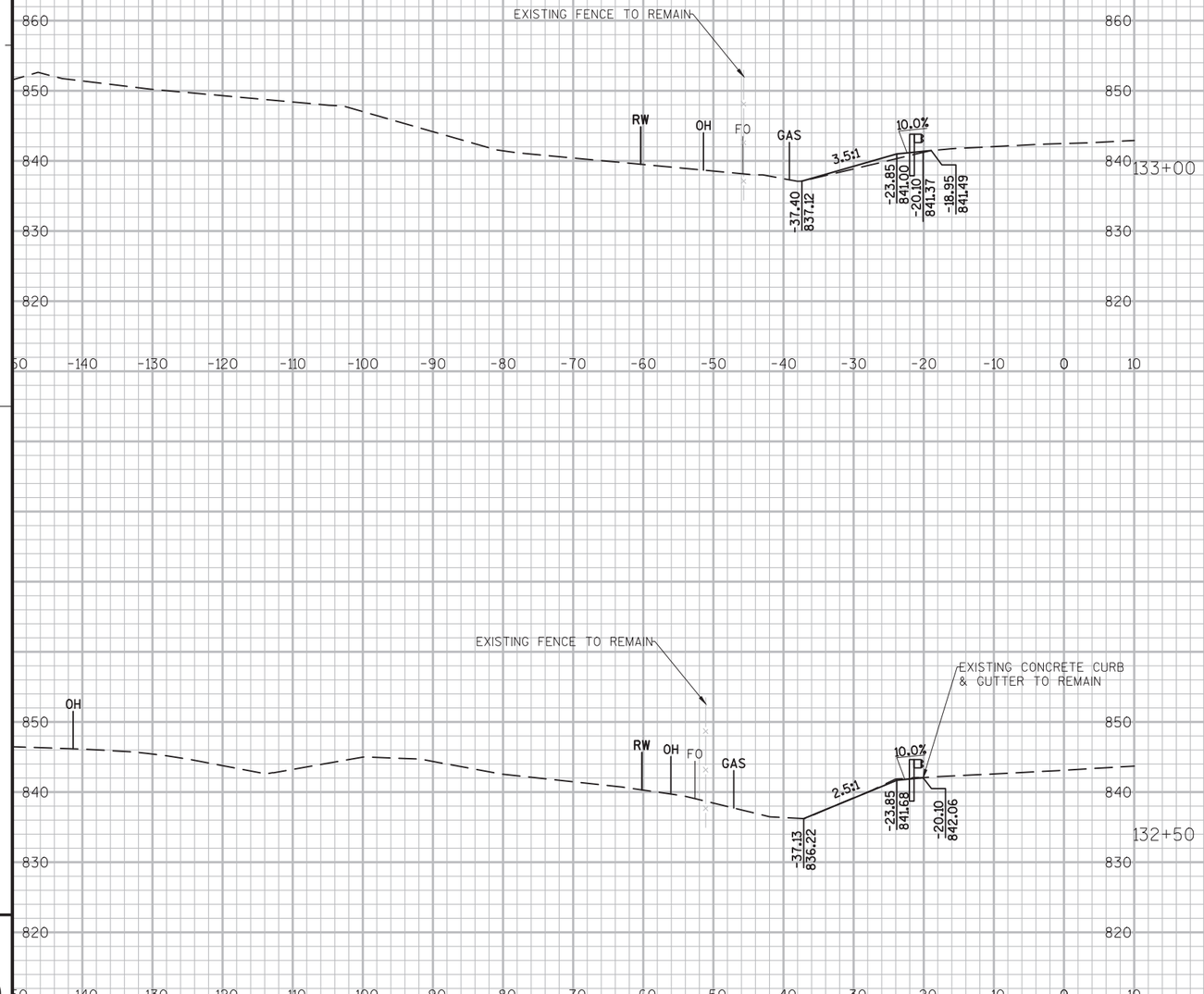

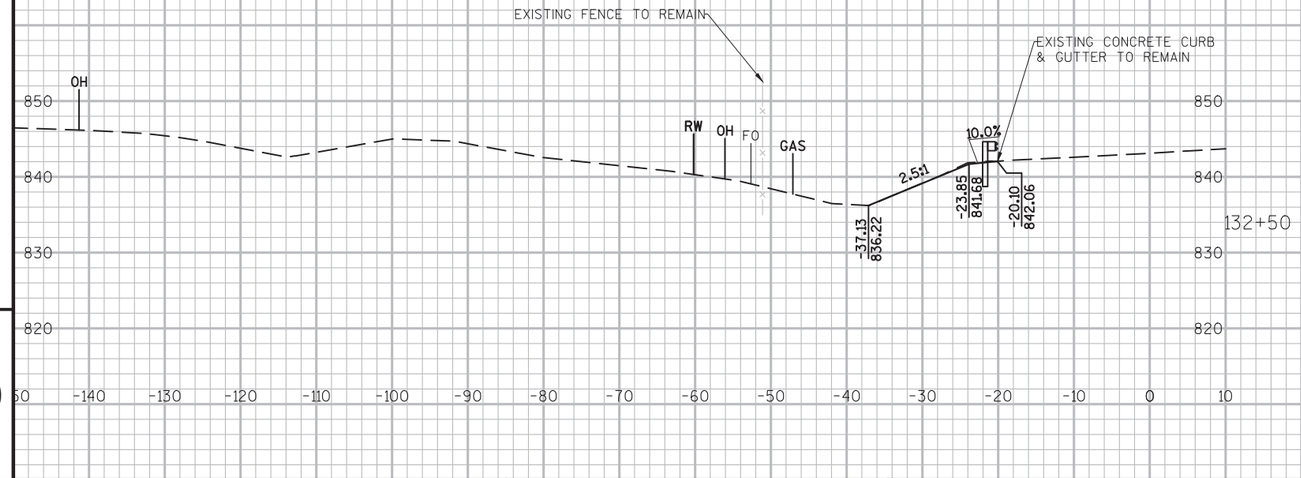

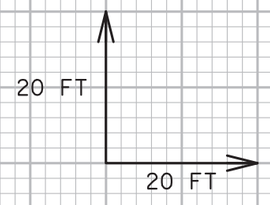

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PROJECT NO: 3080-09-60	HWY: USH 18	COUNTY: JEFFERSON	CROSS SECTIONS: MAINLINE	SHEET 1	E

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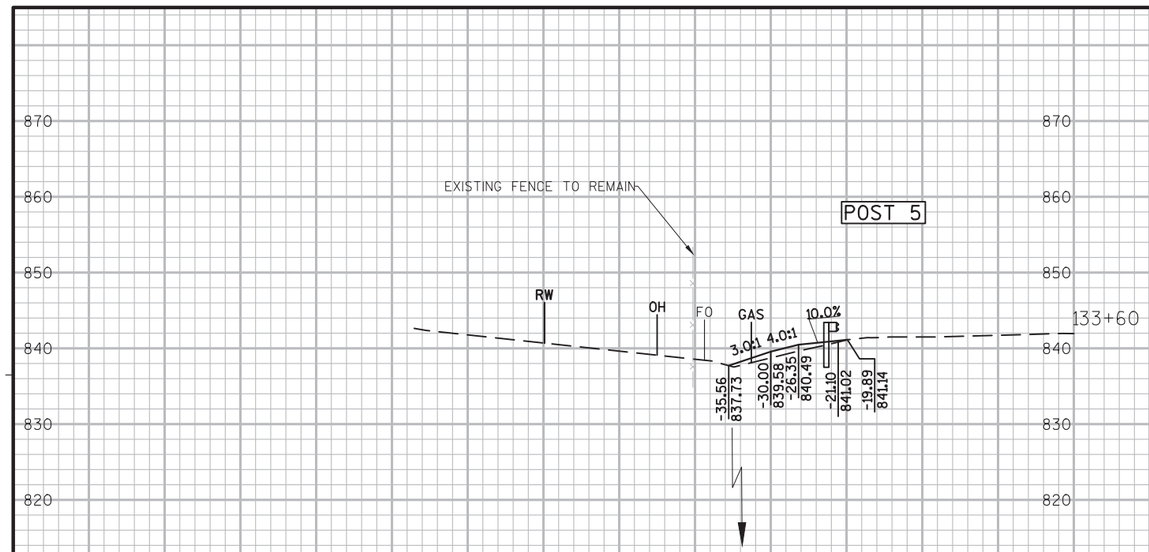

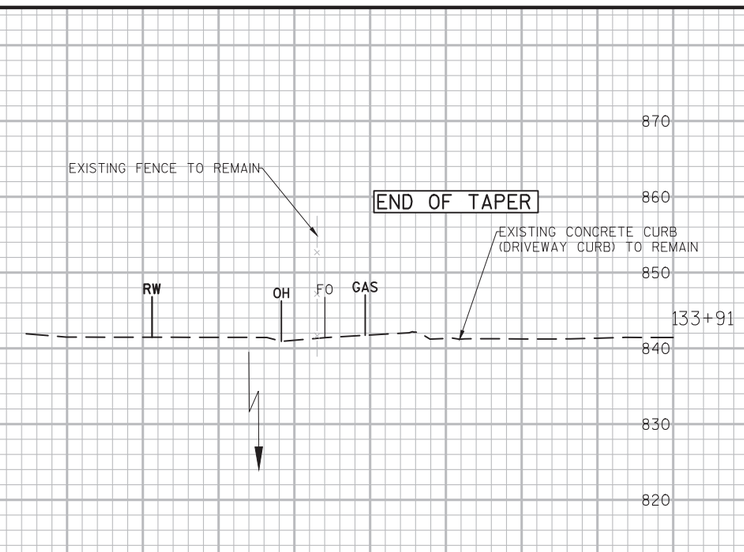

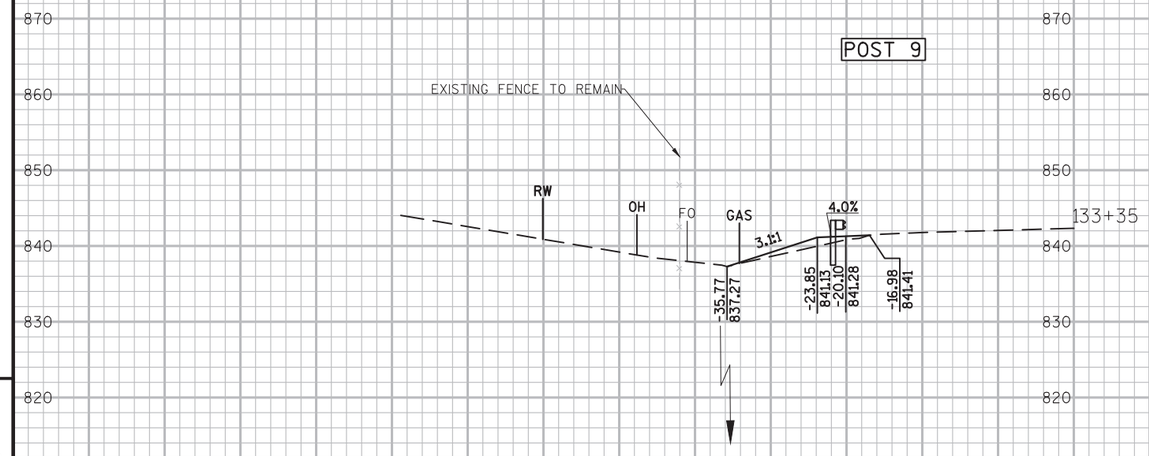

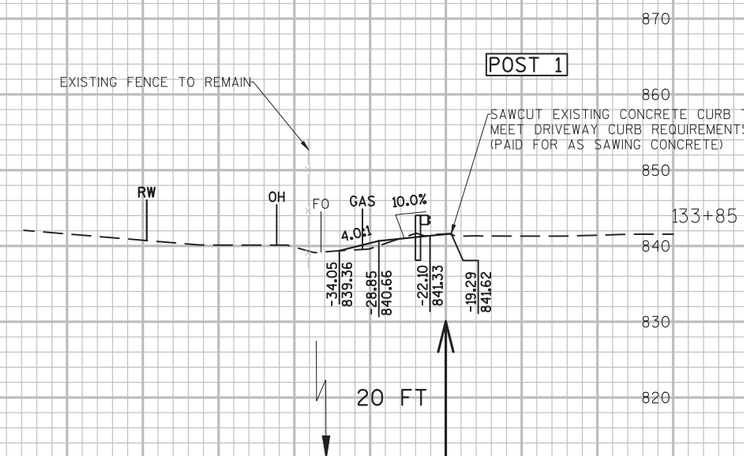

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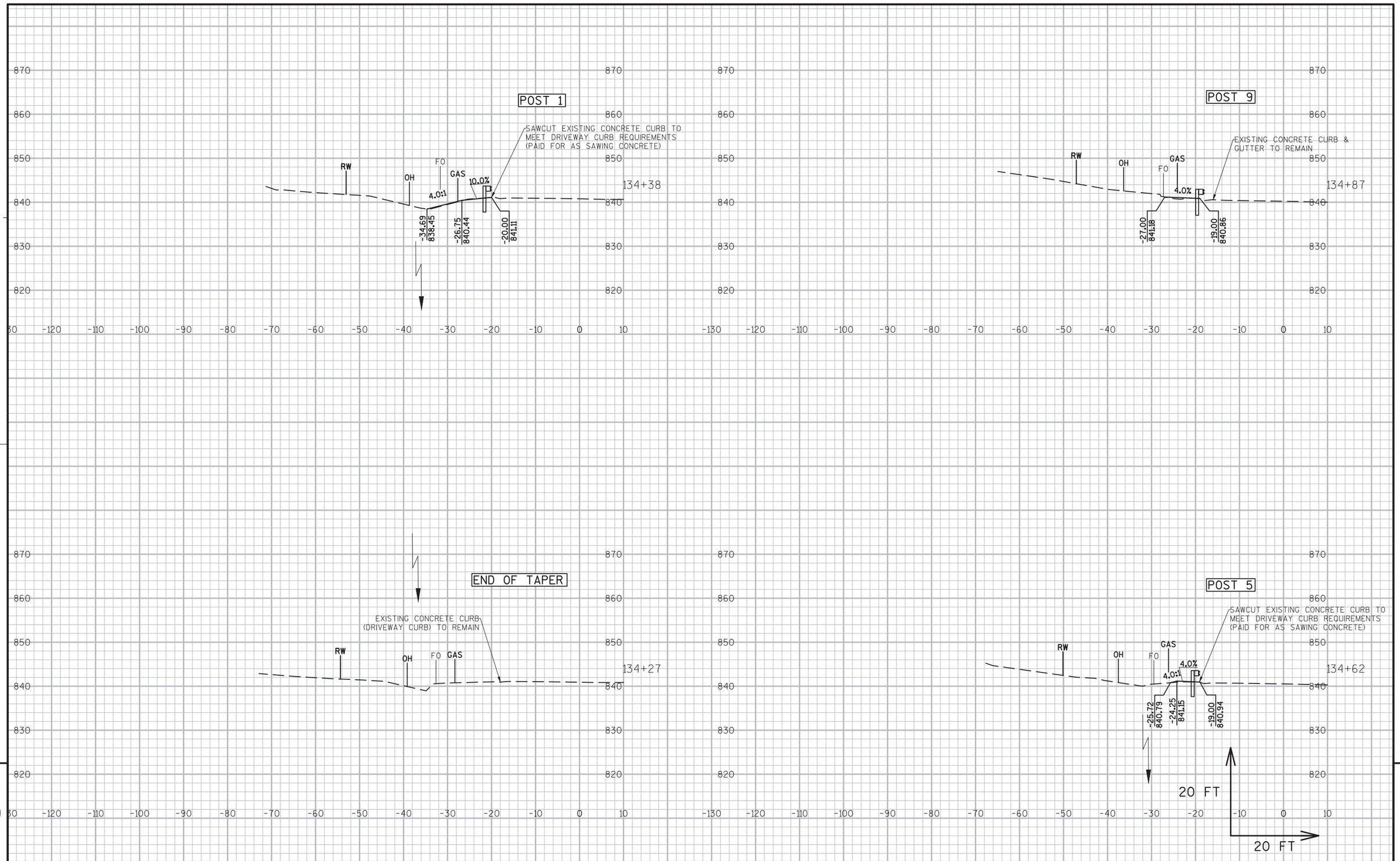
PROJECT NO: 3080-09-60	HWY: USH 18	COUNTY: JEFFERSON	CROSS SECTIONS: MAINLINE	SHEET ---- 85	E



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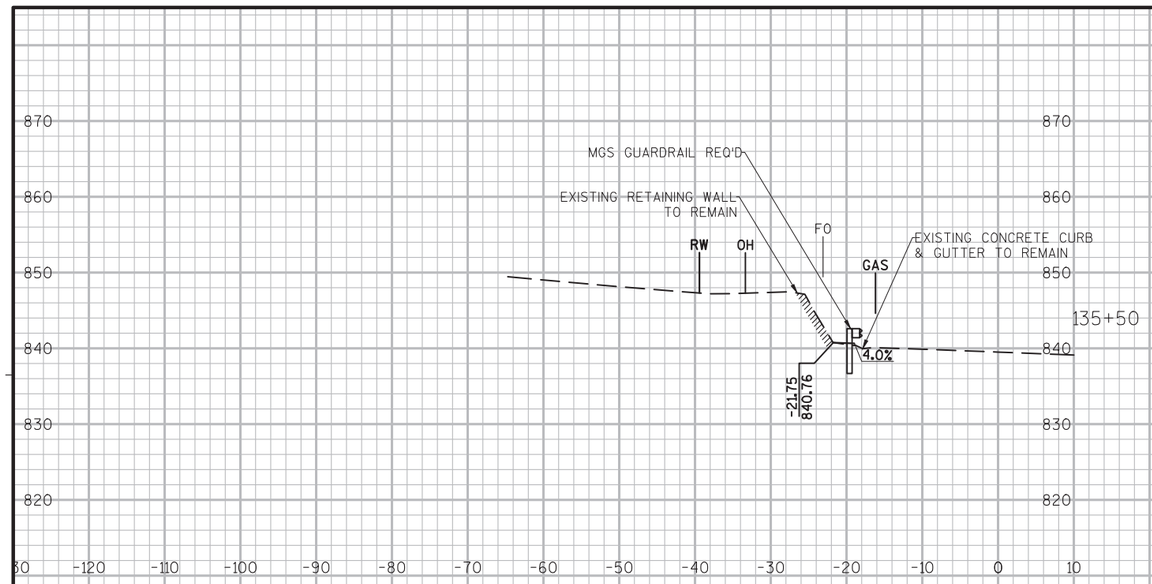

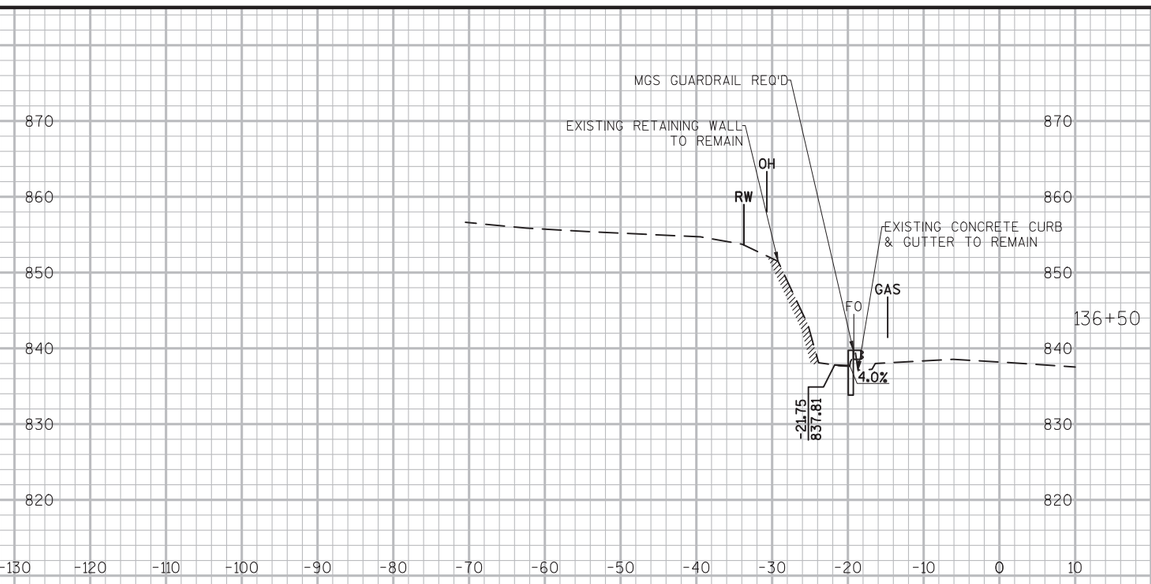

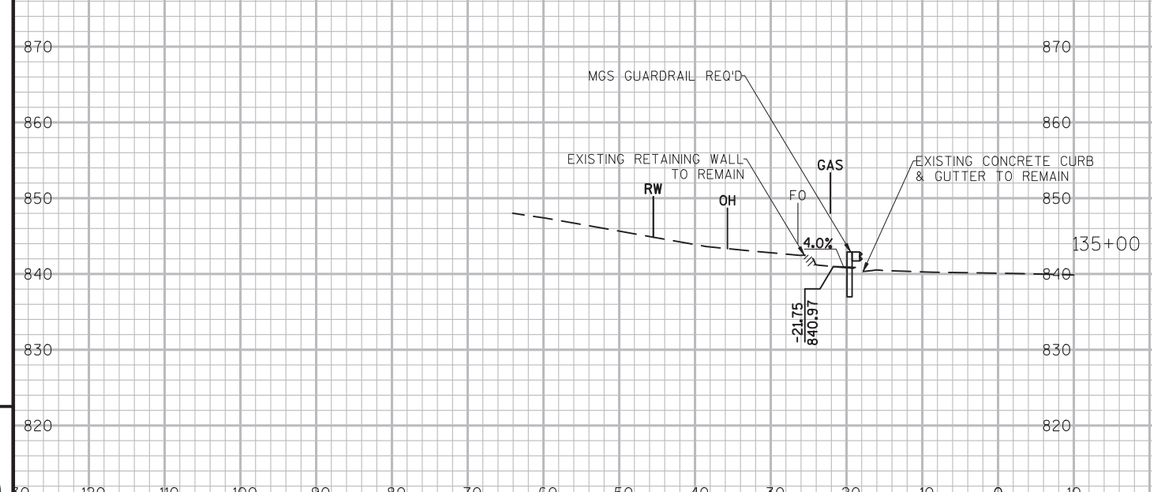

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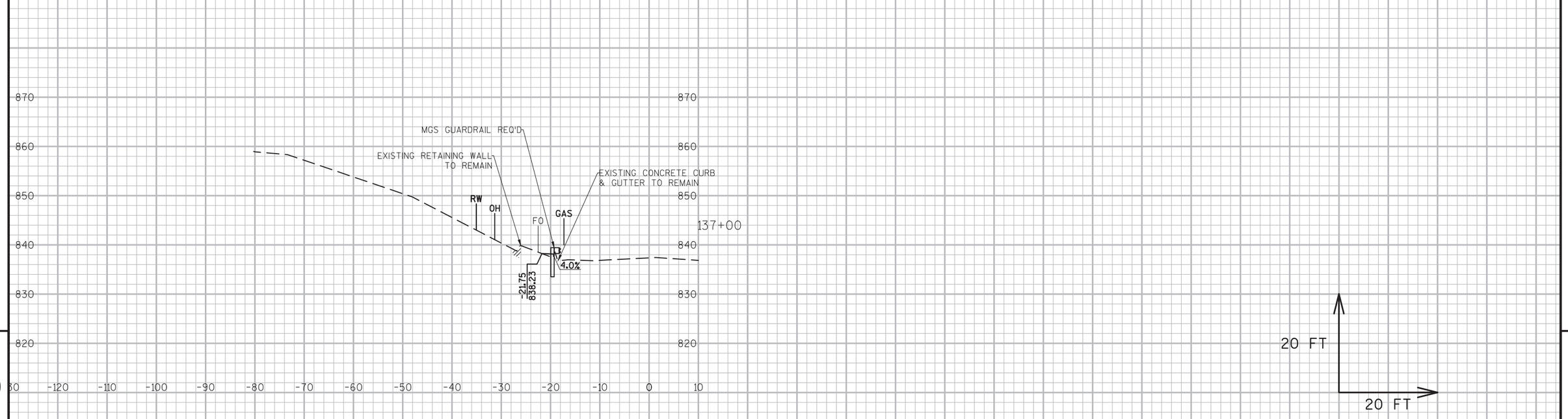


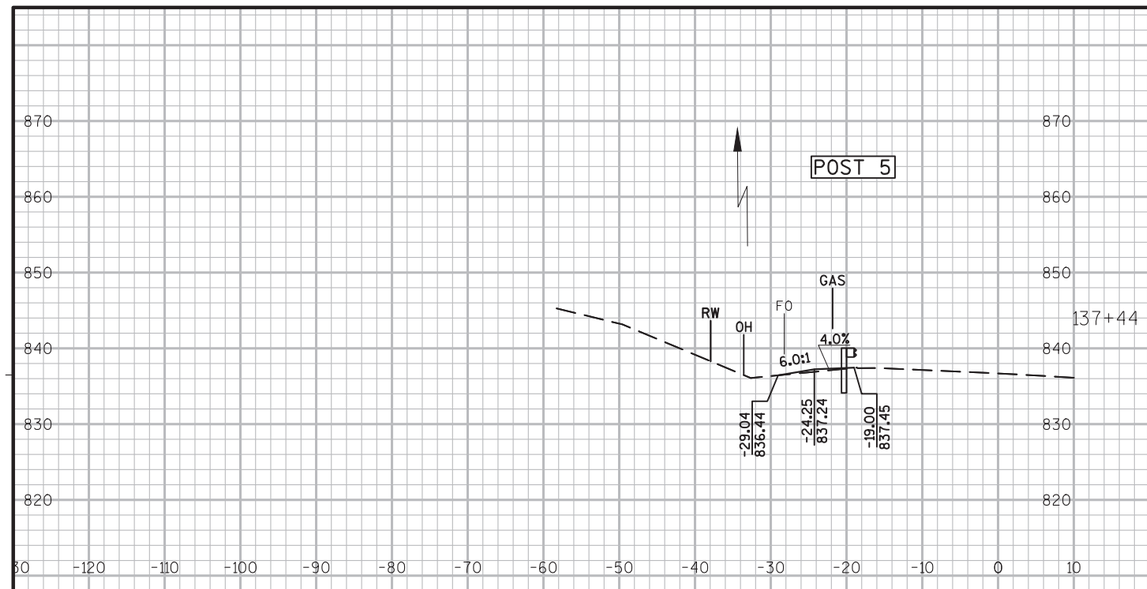
9

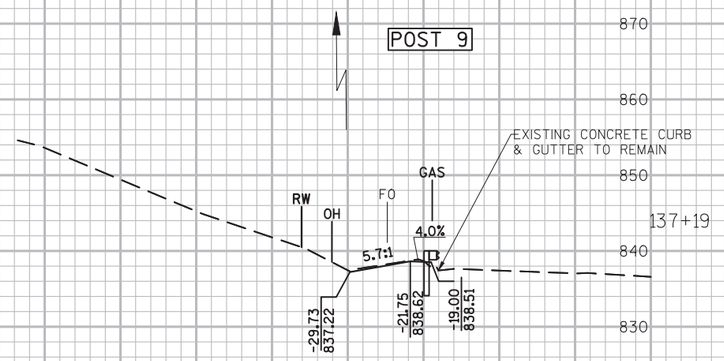
9

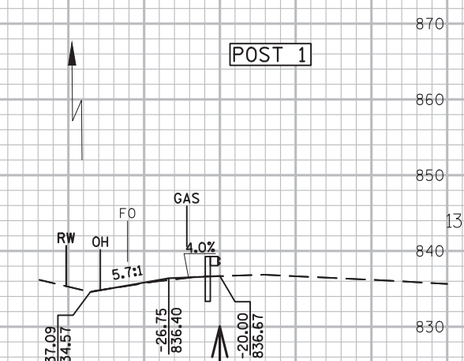
PROJECT NO: 3080-09-60	HWY: USH 18	COUNTY: JEFFERSON	CROSS SECTIONS: MAINLINE	SHEET ---- 88	E

FILE NAME : S:\PROJECTS\W11572 USH 18 JEFFERSON COUNTY\DESIGN\CORRIDORS\CORRIDOR-USH 18.DWG PLOT DATE : 1/16/2019 2:00 PM PLOT BY : JULIA ZEHNER PLOT NAME : PLOT SCALE : 1 IN:20 FT

WISDOT/CADDS SHEET 49







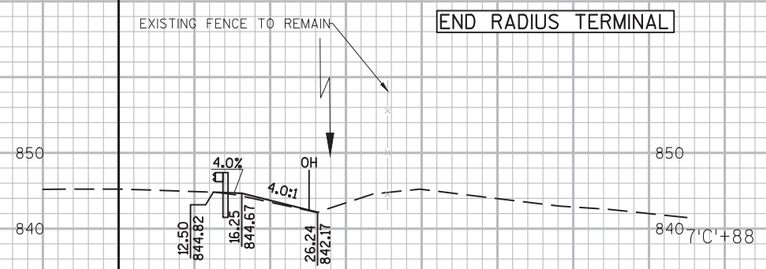
9

9

PROJECT NO: 3080-09-60	HWY: USH 18	COUNTY: JEFFERSON	CROSS SECTIONS: MAINLINE	SHEET ---- 89	E

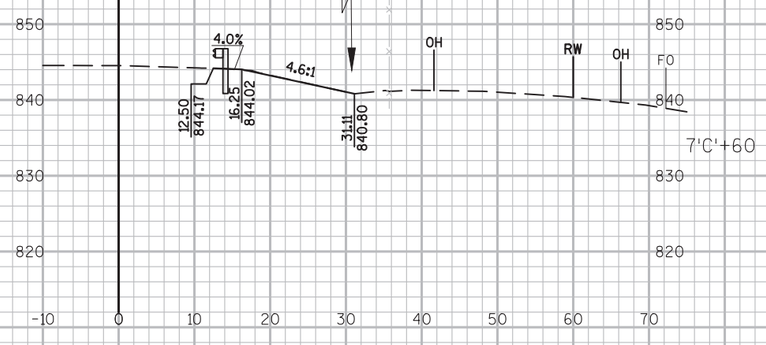
EXISTING FENCE TO REMAIN

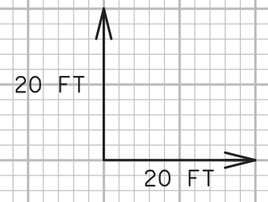
END RADIUS TERMINAL



EXISTING FENCE TO REMAIN

BEGIN RADIUS TERMINAL





9

9

PROJECT NO: 3080-09-60	HWY: USH 18	COUNTY: JEFFERSON	CROSS SECTIONS: CHRISTBERG ROAD	SHEET 1	E

FILE NAME : S:\PROJECTS\W11572 USH 18 JEFFERSON COUNTY\DESIGN\CORRIDORS\CORRIDOR-USH 18.DWG PLOT DATE : 1/16/2019 2:01 PM PLOT BY : JULIA ZEHNER PLOT NAME : PLOT SCALE : 1 IN:20 FT

Notes

Wisconsin Department of Transportation

Dedicated people creating transportation solutions
through innovation and exceptional service.

http://www.dot.wisconsin.gov

MAD

MAY 2019

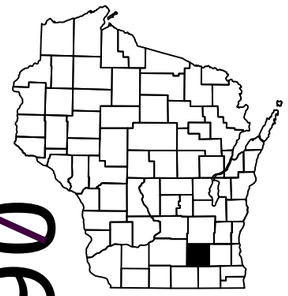
PROJECT ID: 3080-09-61

COUNTY: JEFFERSON

ORDER OF SHEETS

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

TOTAL SHEETS = 62



N

DESIGN DESIGNATION 3080-09-61

A.A.D.T.	2019	=	2,600
A.A.D.T.	2039	=	3,000
D.H.V.		=	10.5
D.D.		=	60/40
T.		=	12.5%
DESIGN SPEED		=	35 MPH (STA. 330+00 - STA. 334+00) 50 MPH (STA. 334+00 - STA. 352+50)
ESALS		=	550,000
			60 MPH (STA. 352+50 - STA. 597+05)

CONVENTIONAL SYMBOLS

PLAN

- CORPORATE LIMITS
- PROPERTY LINE
- LOT LINE
- LIMITED HIGHWAY EASEMENT
- EXISTING RIGHT OF WAY
- PROPOSED OR NEW R/W LINE
- SLOPE INTERCEPT
- REFERENCE LINE (300'E8')
- EXISTING CULVERT
- PROPOSED CULVERT (Box or Pipe)
- COMBUSTIBLE FLUIDS (CAUTION)
- MARSH AREA
- WOODED OR SHRUB AREA

PROFILE

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

UTILITIES

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

JEFFERSON - WALES

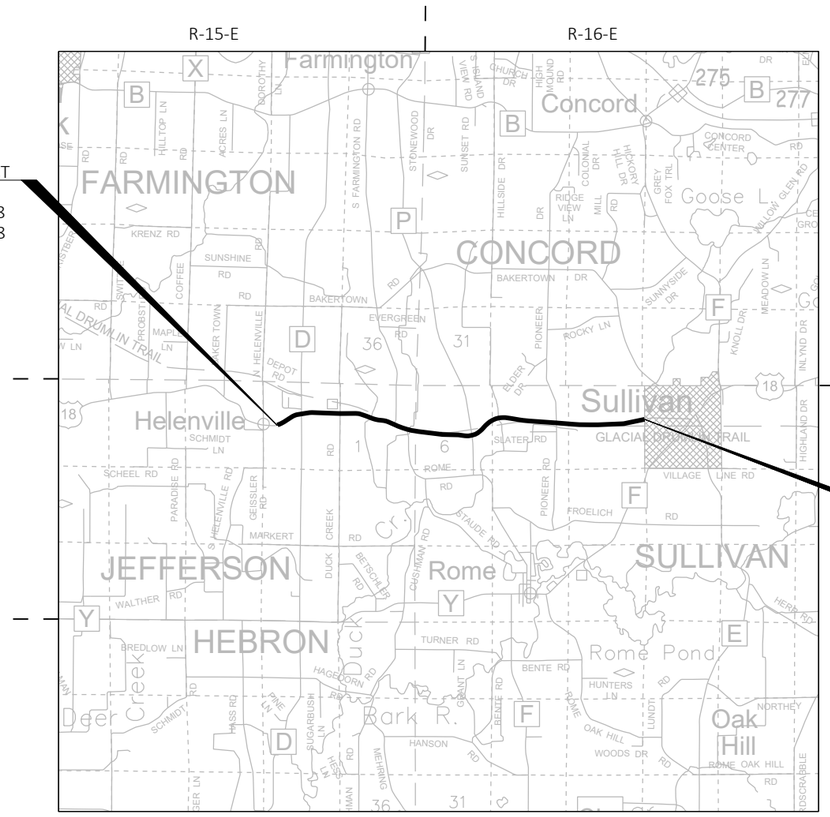
HELENVILLE RD TO W LIMIT V SULLIVAN

USH 18

JEFFERSON COUNTY

STATE PROJECT NUMBER
3080-09-61

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
3080-09-61	WISC 2019276	1



LAYOUT

SCALE 0 2 MILES

TOTAL NET LENGTH OF CENTERLINE = 5.058 MILES

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), JEFFERSON COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. POSITIONS SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES ARE THE SAME AS GROUND DISTANCES. ELEVATIONS ARE REFERENCED TO NAVD 88 (2012). GPS DERIVED ELEVATIONS ARE BASED ON GEOID 12A.

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	JEWELL ASSOCIATES ENGINEERS, INC
Designer	TIJLER DEYMARCOS
Project Manager	JEREMY HALL
Regional Examiner	SW REGION
Regional Supervisor	JAMES OETTINGER

APPROVED FOR THE DEPARTMENT

DATE: 1/3/19 (Signature)

E

FILE NAME : N:\PDS\C3D\30800931\SHEETSPLAN\010101_TI - TITLE\010101_TI.DWG

PLOT DATE : 12/4/2018 1:24 PM

PLOT BY : DEYMARCOS, TIJLER JO

PLOT NAME :

STANDARD ABBREVIATIONS

AC.	ACRE	MAX.	MAXIMUM
AGG.	AGGREGATE	MGAL	1000 GALLONS
AH	AHEAD	MIN.	MINIMUM
<	ANGLE	N.C.	NORMAL CROWN OR NO CHANGE
AE, AEW	APRON ENDWALL	N	NORTH
ASPH.	ASPHALTIC	NO.	NUMBER
A.D.T.	AVERAGE DAILY TRAFFIC	PAV'T	PAVEMENT
B.F.	BACK FACE	P.L.E.	PERMANENT LIMITED EASEMENT
BK.	BACK	P.C.	POINT OF CURVATURE
BEG.	BEGIN	P.I.	POINT OF INTERSECTION
B.M.	BENCH MARK	P.T.	POINT OF TANGENCY
C/L	CENTER LINE	V.P.C.	VERTICAL POINT OF CURVATURE
D	CENTRAL ANGLE OR DELTA	V.P.I.	VERTICAL POINT OF INTERSECTION
C.M.C.P.	CORRUGATED METAL CULVERT PIPE	V.P.T.	VERTICAL POINT OF TANGENCY
C.M.P.	CORRUGATED METAL PIPE	PCC	PORTLAND CEMENT CONCRETE
CO.	COUNTY	P.E.	PRIVATE ENTRANCE
CTH	COUNTY TRUNK HIGHWAY	P.L.	PROPERTY LINE
CR.	CREEK	R	RADIUS OR RANGE
C.A.B.C.	CRUSHED AGGREGATE BASE COURSE	R/L	REFERENCE LINE
C.Y.	CUBIC YARD	R.C.C.P.	REINFORCED CONCRETE CULVERT PIPE
C.P.	CULVERT PIPE	RT	RIGHT
C. & G.	CURB AND GUTTER	REQ'D	REQUIRED
D	DEGREE OF CURVE	R.H.F.	RIGHT HAND FORWARD
D.H.V.	DESIGN HOUR VOLUME	R/W	RIGHT OF WAY
DIA.	DIAMETER	R.	RIVER
DISCH.	DISCHARGE	RD.	ROAD
EA	EACH	SHLD.	SHOULDER(S)
E	EAST	SHR.	SHRINKAGE
ELEC.	ELECTRIC(AL), ELEC. CABLE	S	SOUTH
EL., ELEV.	ELEVATION	S.F.	SQUARE FOOT (FEET)
EXC.	EXCAVATION	SDD	STANDARD DETAIL DRAWING(S)
F.F.	FACE TO FACE	STH	STATE TRUNK HIGHWAY
FERT.	FERTILIZER	STA.	STATION
F.E.	FIELD ENTRANCE	S.E.	SUPERELEVATION
F/L, F.L.	FLOW LINE	S/L	SURVEY LINE
CWT.	HUNDRED WEIGHT	T	TANGENT
INL.	INLET	TEL.	TELEPHONE
INTER.	INTERSECTION	TEMP.	TEMPORARY
JT.	JOINT	T.L.E.	TEMPORARY LIMITED EASEMENT
LT	LEFT	T.O.C.	TOP OF CURB
L.H.F.	LEFT HAND FORWARD	T.	(TRUCKS) PERCENT OF
L.	LENGTH OF CURVE	TYP.	TYPICAL
L.F.	LINEAR FOOT(FEET)	UNCL.	UNCLASSIFIED
LC.	LONG CHORD	U.G.	UNDERGROUND (CABLE)
LS	LUMP SUM	V.C.	VERTICAL CURVE
M.P.	MARKER POST	W	WEST

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

WISDOT CONTACTS

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jeremy.hall@dot.wi.gov

WISDOT PROJECT LEADER
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2101 WRIGHT ST.
MADISON, WI 53704
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tijler.deymarcos@dot.wi.gov

DNR CONTACTS

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DNR TRAILS PROGRAM MANAGER
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melissa.vanlanduyt@wisconsin.gov

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townofsullivan@centurytel.net

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HIGHWAY OPERATIONS MANAGER
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brianu@jeffersoncountywi.gov

VILLAGE OF SULLIVAN CONTACTS

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HEATHER RUPNOW
PO BOX 6
SULLIVAN, WI 53178
(262) 593-2388
clerk@villageofsullivan.com

UTILITIES CONTACTS

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CAROL ANASON
316 W WASHINGTON AVE
MADISON, WI 53701
(608) 252-2385
ca2624@att.com

CENTURYLINK - COMMUNICATION LINE
JAMES WINTER
224 INDUSTRIAL DR
NORTH PRAIRIE, WI 53153
(262) 392-5210
James.Winter@centurylink.com

CHARTER COMMUNICATIONS - COMMUNICATION LINE
BRANDON STORM
2701 DANIELS ST
MADISON, WI 53718
(608) 274-3822
brandon.storm@charter.com

GUARDIAN PIPELINE - GAS/PETROLEUM
VICTOR DUFOUR
23823 W AMOCO RD
CHANNAHON, IL 60410
(815) 467-4633
victor.dufour@oneok.com

LEVEL 3 COMMUNICATIONS LLC - COMMUNICATION LINE
BRAHIM GADDOUR
3235 INTERTECH DR, SUITE 600
BROOKFIELD, WI 53045
(414) 908-1027
relo@level3.com

PAETEC COMMUNICATIONS, LLC - COMMUNICATION LINE
MARY FISHER
13935 BISHOPS DR
BROOKFIELD, WI 53005
(262) 792-7938
Mary.B.Fisher@windstream.com

SPRINT COMMUNICATIONS CO LP - COMMUNICATION LINE
JAMES BURTON
1901 N. ROSELLE RD., SUITE 500
SCHAUMBURG, IL 60195
(708) 955-6659
james.m.burton@sprint.com

TDS METROCOM - COMMUNICATION LINE
MATTHEW SCHULTE
16924 WEST VICTOR RD
NEW BERLIN, WI 53151
(262) 754-3063
matt.schulte@tdstelecom.com

WE ENERGIES - ELECTRICITY
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333 W EVERETT ST, RM A299
MILWAUKEE, WI 53203
(414) 221-5617
Nicole.Smullen@wecenergygroup.com

WE ENERGIES - GAS/PETROLEUM
NICOLE SMULLEN
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(414) 221-5617
Nicole.Smullen@wecenergygroup.com

WINDSTREAM KDL, LLC - COMMUNICATION LINE
MARY FISHER
13935 BISHOPS DR
BROOKFIELD, WI 53005
(262) 792-7938
Mary.B.Fisher@windstream.com

GENERAL NOTES

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

DIMENSIONS GIVEN FOR EXISTING FEATURES SHALL BE CONSIDERED APPROXIMATE AND MEASURED IN THE FIELD FOR MATCHING PURPOSES.

SEE STANDARD DETAIL DRAWINGS 15C4 "TRAFFIC CONTROL, ADVANCED WARNING SIGNS 45 M.P.H. OR GREATER, TWO WAY UNDIVIDED ROAD OPEN TO TRAFFIC" AND 15C12 "TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION" FOR TRAFFIC CONTROL DETAILS. PLACE ONE PCMS BOARD ON EACH END OF THE PROJECT ONE WEEK BEFORE CONSTRUCTION BEGINS.

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

THE EXACT LOCATIONS AND LIMITS OF COMMERCIAL, FIELD, AND PRIVATE ENTRANCES SHALL BE DETERMINED BY THE FIELD ENGINEER.

APPLY TACK COAT TO THE MILLED SURFACE AT A RATE OF 0.07 GAL/SY, PRIOR TO PLACING ASPHALTIC SURFACE AND PRIOR TO PLACING HMA PAVEMENT.

HMA PAVEMENT LIMITS AT INTERSECTIONS ARE TO BE DETERMINED BY THE FIELD ENGINEER.

HMA PAVEMENT SHALL BE CONSTRUCTED WITH A SINGLE 2-INCH LAYER OF HMA PAVEMENT 4 LT 58-28 S. PAVE 2 INCHES OF ASPHALTIC SURFACE IN AREAS WHERE REMOVING DISTRESSED PAVEMENT MILLING IS REQUIRED AS THE PLANS SHOW, OR AS DETERMINED BY THE FIELD ENGINEER.

ASPHALTIC SURFACE AND HMA PAVEMENT QUANTITIES WERE CALCULATED USING 112 LB/IN/SY.

PAVING OPERATIONS BY THE CONTRACTOR SHALL BE CONSISTENT WITH THE PLAN TYPICAL SECTIONS AND CONSTRUCTED TO PREVENT HMA LONGITUDINAL JOINTS FROM BEING LOCATED WITHIN DRIVING, TURNING, OR PASSING LANES.

EXISTING SHOULDER AGGREGATE SHALL BE INCORPORATED INTO THE NEW SHOULDERS UNLESS OTHERWISE DIRECTED BY THE FIELD ENGINEER.

SHOULDERS SHALL BE PLACED, SHAPED, AND COMPACTED PRIOR TO PLACING GUARDRAIL.

MAINTAIN EROSION CONTROL ITEMS UNTIL SUCH TIME AS THE ENGINEER DETERMINES THE MEASURE IS NO LONGER NECESSARY. WETLANDS AND OTHER WATERWAYS ARE PRESENT WITHIN THE PROJECT LIMITS.

DISTURBED AREAS SHOWN WITHIN THE RIGHT-OF-WAY, EXCEPT THE AREAS WITHIN FINISHED SHOULDER POINTS, ARE TO HAVE SEEDING MIXTURE NO. 60, TEMPORARY SEEDING, AND EROSION MAT CLASS II URBAN TYPE B AS DIRECTED BY THE FIELD ENGINEER. SEEDING, TEMPORARY SEEDING, AND EROSION MAT ARE TO BE PAID FOR UNDER THE BID ITEM BARRIER SYSTEM GRADING SHAPING FINISHING.

NOTIFY BOTH THE DNR LIASON AND THE DNR TRAILS PROGRAM MANAGER OF ANY CONSTRUCTION ACTIVITY THAT MAY DISRUPT THE GLACIAL DRUMLIN TRAIL CROSSING USH 18 JUST SOUTH OF DUCK CREEK.

THERE ARE UTILITY FACILITIES WITHIN THE PROJECT AREA THAT ARE NOT SHOWN IN THE PLANS. THE CONTRACTOR SHALL COORDINATE HIS CONSTRUCTION ACTIVITIES WITH A CALL TO DIGGERS HOTLINE AND/OR A DIRECT CALL TO THE UTILITIES THAT HAVE FACILITIES IN THE AREA. NOT ALL UTILITIES ARE MEMBERS OF DIGGERS HOTLINE.

IF THERE ARE CONFLICTS WITH SIGNS OR OTHER WORK UNDER THIS PROJECT, THE CONTRACTOR WILL WORK AROUND THE UTILITY FACILITIES.

LOCATE NO PASSING ZONES AND MOVE W14-3 "NO PASSING ZONE" SIGNS WHERE APPLICABLE. ALL OTHER EXISTING PERMANENT SIGNING IS TO REMAIN IN PLACE UNLESS OTHERWISE DIRECTED BY THE FIELD ENGINEER.

SEE STANDARD DETAIL DRAWINGS 15C8 "PAVEMENT MARKING - MAINLINE, TURN LANES", 15C33 "STOP LINE AND CROSSWALK PAVEMENT MARKING", AND 15C35 "PAVEMENT MARKING (INTERSECTIONS)" FOR PAVEMENT MARKING DETAILS.

THE CONTRACTOR IS TO PROTECT 2J12, 2J13, 2J14, SULLIVAN N GPS AS MK, SULLIVAN N GPS AND KEEP CONSTRUCTION EQUIPMENT AT LEAST 10 FEET AWAY FROM 2J12, 2J13, 2J14, SULLIVAN N GPS AS MK, SULLIVAN N GPS.

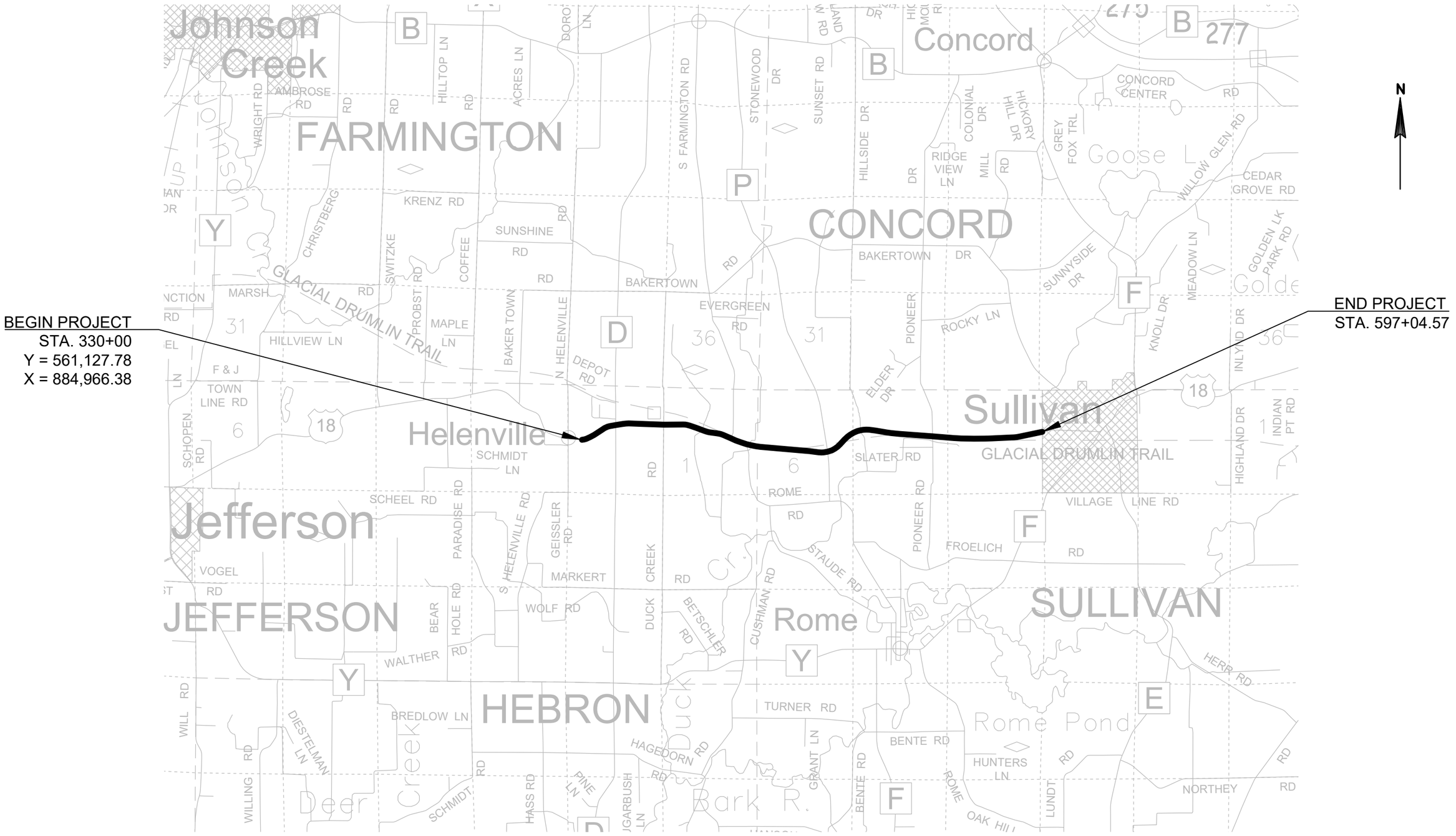
ENSURE THAT 2J12, 2J13, 2J14, SULLIVAN N GPS AS MK, SULLIVAN N GPS IS/ARE NOT DISTURBED, BUMPED OR MOVED DURING THE DURATION OF THE PROJECT. NOTIFY JACOB ROCKWEILER IMMEDIATELY IF 2J12, 2J13, 2J14, SULLIVAN N GPS AS MK, SULLIVAN N GPS IS/ARE DISTURBED, BUMPED OR MOVED DURING CONSTRUCTION OPERATIONS.

JACOB ROCKWEILER, P.E., WISCONSIN HEIGHT MODERNIZATION PROGRAM MANAGER WITH THE WISCONSIN DEPARTMENT OF TRANSPORTATION WHOSE PHONE NUMBER IS (608) 516-6362 AND EMAIL IS JACOB.ROCKWEILER@DOT.WI.GOV

SECTION 2 ORDER OF SHEETS

GENERAL NOTES
PROJECT OVERVIEW
TYPICAL SECTIONS
CONSTRUCTION DETAILS
PLAN DETAILS
EROSION CONTROL

2



PROJECT NO: 3080-09-61	HWY: USH 18	COUNTY: JEFFERSON	PROJECT OVERVIEW	SHEET E

FILE NAME : N:\PDS\C3D\30800931\SHEETSPLAN\020201_PO - PROJECT OVERVIEW\020201_PO.DWG
LAYOUT NAME - 01

PLOT DATE : 12/4/2018 1:19 PM PLOT BY : DEYMARCOS, TIJLER JO PLOT NAME : PLOT SCALE : ############

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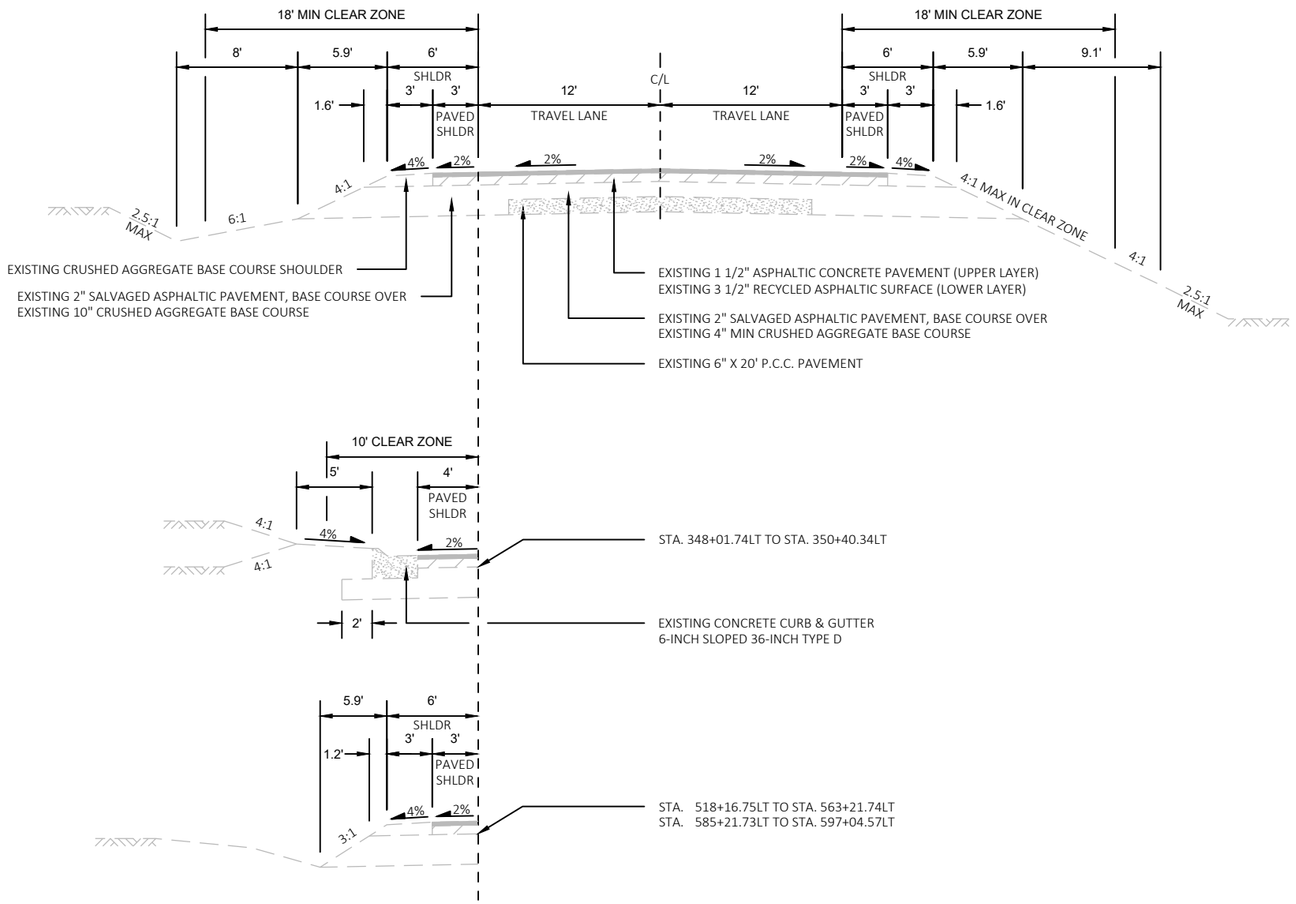
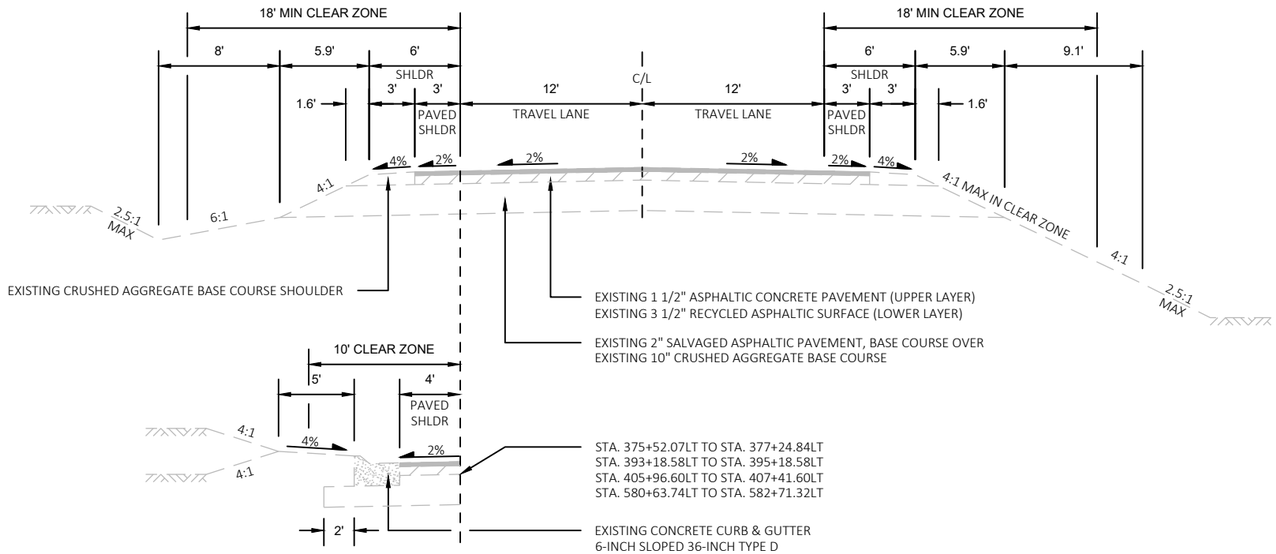


EXISTING TYPICAL SECTION

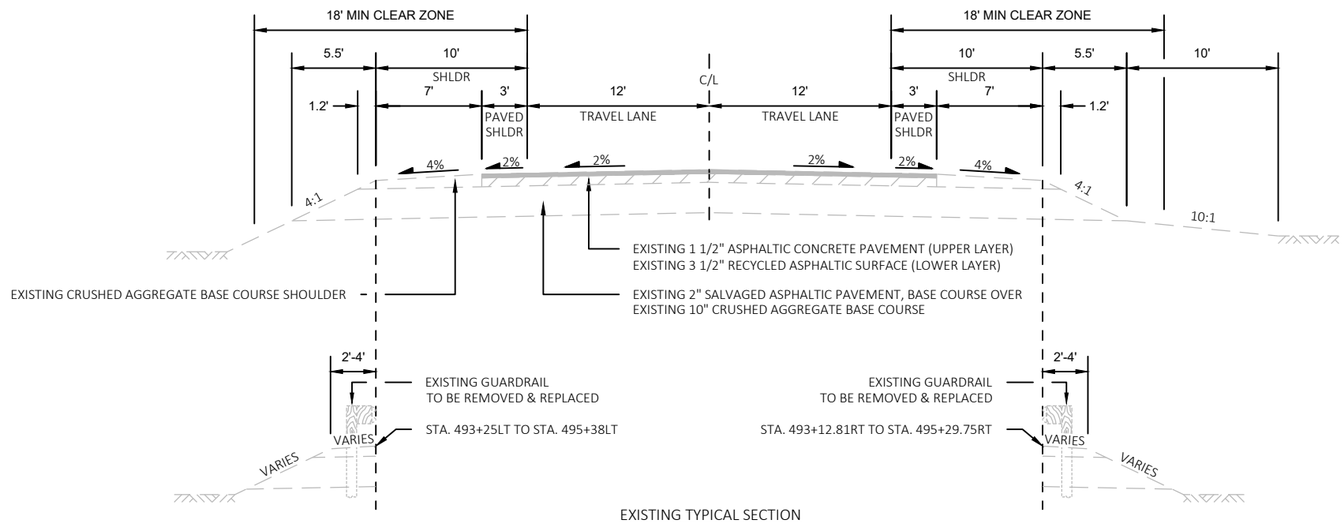
STA. 330+00 TO STA. 357+04.20
STA. 423+88.95 TO 471+55.20 (CTH P)
STA. 518+16.75 TO STA. 563+21.74
STA. 585+21.73 TO STA. 597+04.57

PROJECT NO: 3080-09-61	HWY: USH 18	COUNTY: JEFFERSON	EXISTING TYPICAL SECTIONS	SHEET 4	E



EXISTING TYPICAL SECTION

STA. 357+04.02 TO STA. 423+88.95
STA. 563+21.74 TO STA. 585+21.73



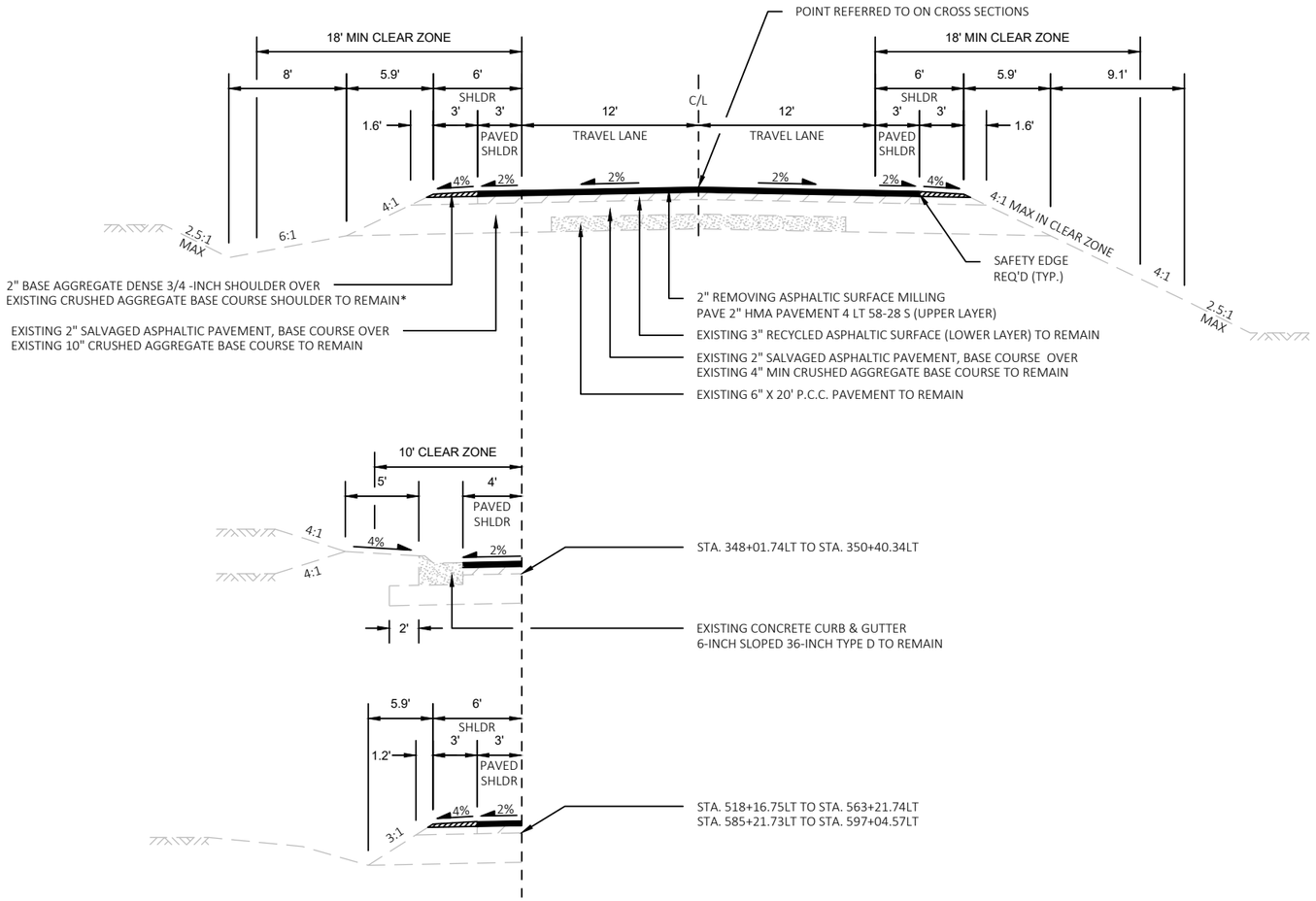
EXISTING TYPICAL SECTION

STA. 471+55.20 (CTH P) TO STA. 518+16.75

PROJECT NO: 3080-09-61	HWY: USH 18	COUNTY: JEFFERSON	EXISTING TYPICAL SECTIONS	SHEET 5	E

FILE NAME : N:\PDS\C3D\30800931\SHEETSPLAN\020301_TS - TYPICAL SECTIONS\020301_TS.DWG
LAYOUT NAME - 02
PLOT DATE : 12/10/2018 11:28 AM
PLOT BY : DEYMARCOS, TIJLER JO
PLOT NAME :
PLOT SCALE : ##########
WISDOT/CADDS SHEET 42

2

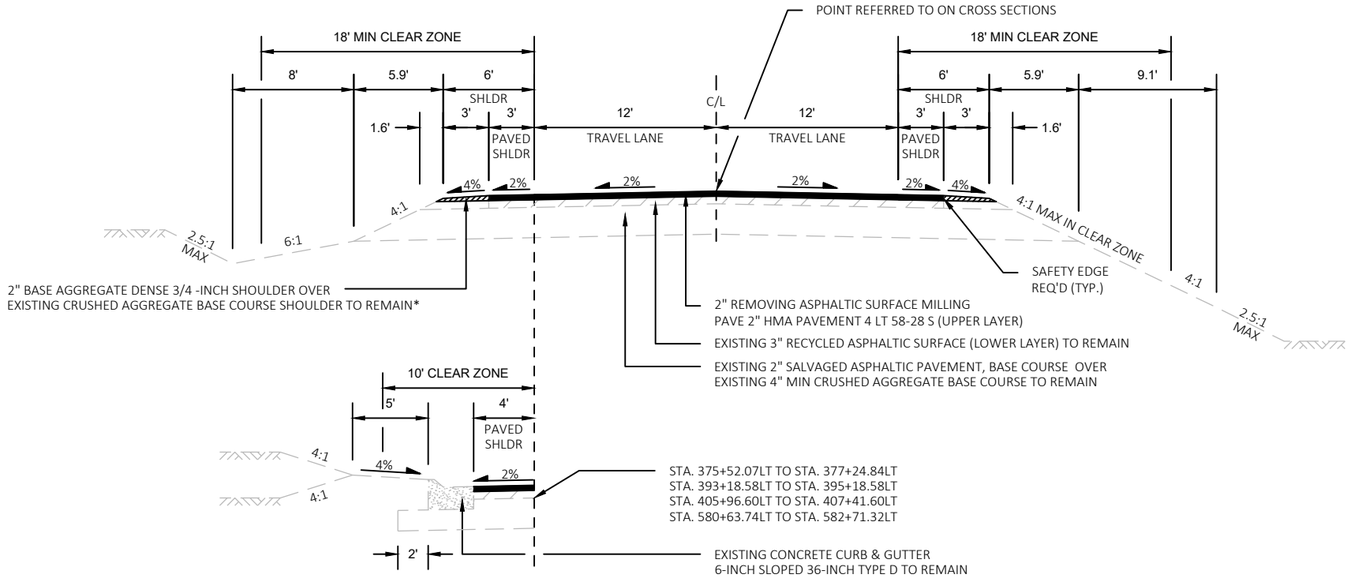


NOTE:
THE CONTRACTOR SHALL VERIFY AND MAINTAIN ALL EXISTING SUPERELEVATION RATES AND SUPERELEVATION TRANSITION RATES OF ALL EXISTING HORIZONTAL CURVES.

PROPOSED TYPICAL SECTION
STA. 330+00 TO STA. 357+04.20
STA. 423+88.95 TO 471+55.20 (CTH P)
STA. 518+16.75 TO STA. 563+21.74
STA. 585+21.73 TO STA. 597+04.57

*SHAPING SHOULDERS TO BE USED AS DIRECTED BY THE FIELD ENGINEER

PROJECT NO: 3080-09-61	HWY: USH 18	COUNTY: JEFFERSON	PROPOSED TYPICAL SECTIONS	SHEET 6	E

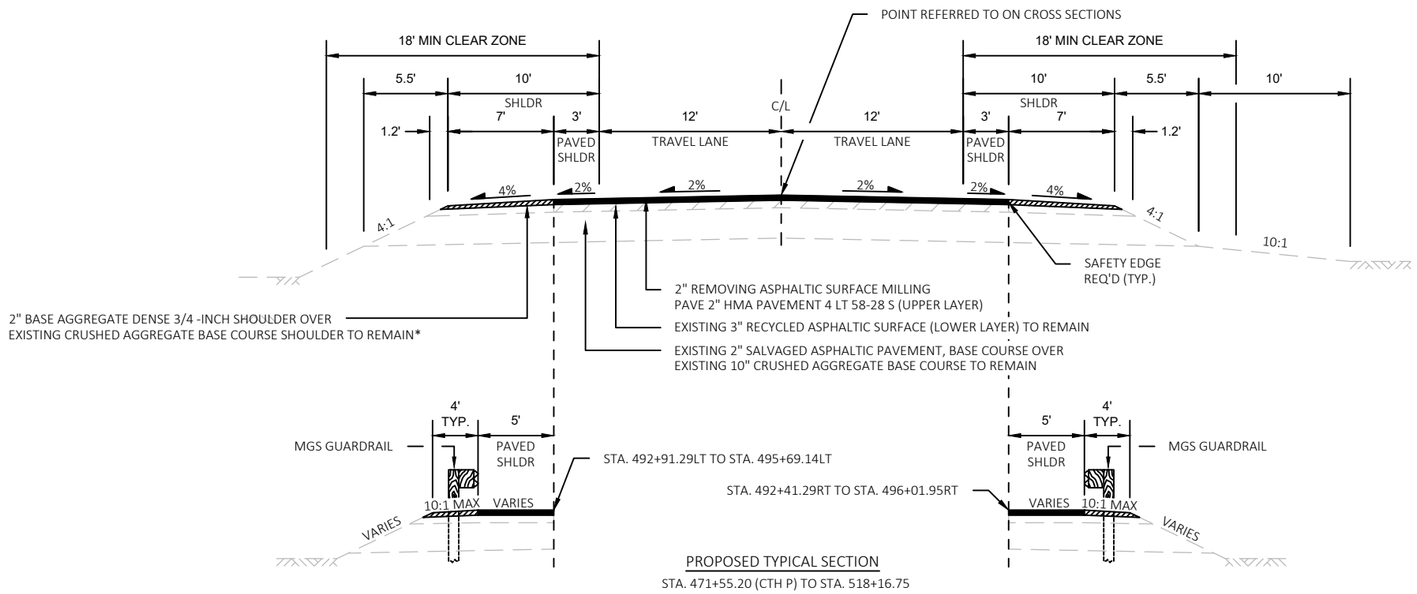


PROPOSED TYPICAL SECTION

STA. 357+04.02 TO STA. 423+88.95
STA. 563+21.74 TO STA. 585+21.73

*SHAPING SHOULDERS TO BE USED AS DIRECTED BY THE FIELD ENGINEER

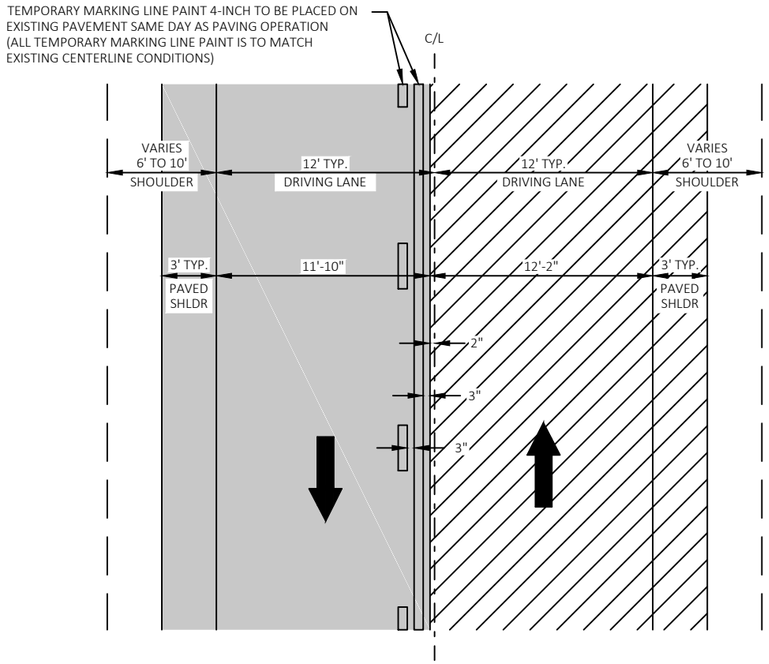
NOTE:
THE CONTRACTOR SHALL VERIFY AND MAINTAIN ALL EXISTING SUPERELEVATION RATES AND SUPERELEVATION TRANSITION RATES OF ALL EXISTING HORIZONTAL CURVES.



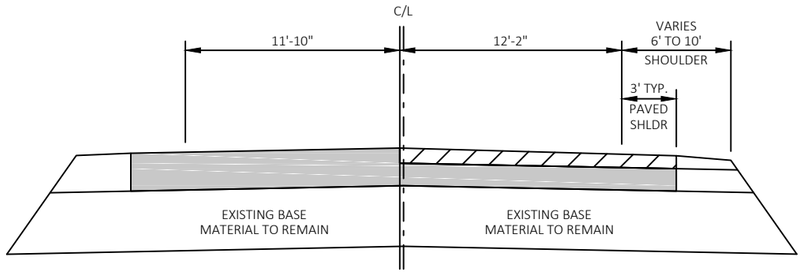
PROPOSED TYPICAL SECTION

STA. 471+55.20 (CTH P) TO STA. 518+16.75

*SHAPING SHOULDERS TO BE USED AS DIRECTED BY THE FIELD ENGINEER



PLAN VIEW



CROSS SECTION VIEW

LONGITUDINAL PAVEMENT JOINT DETAIL - FIRST PASS

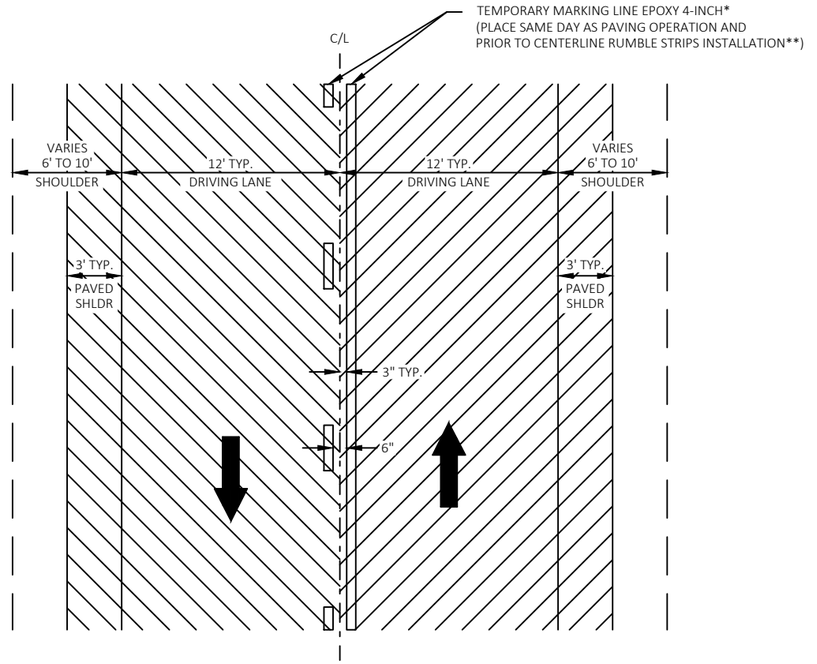
EXISTING ASPHALTIC SURFACE TO REMAIN

FIRST PASS 2" HMA PAVEMENT 4 LT 58-28 S PAVING LIMITS

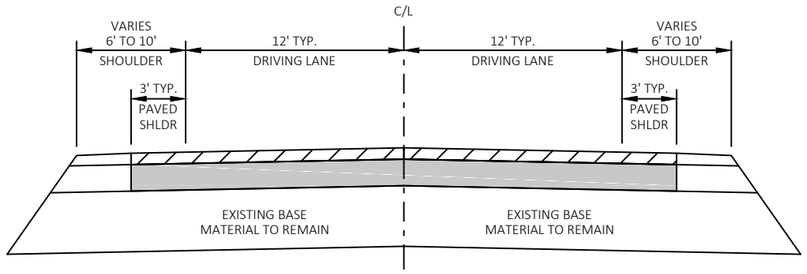
SECOND PASS 2" HMA PAVEMENT 4 LT 58-28 S PAVING LIMITS

*LOCATING NO PASSING ZONES REQUIRED PRIOR TO PLACEMENT OF TEMPORARY MARKING LINE EPOXY 4-INCH.

**MARKING LINE EPOXY 4-INCH REQUIRED AFTER INSTALLING CENTERLINE RUMBLE STRIPS.

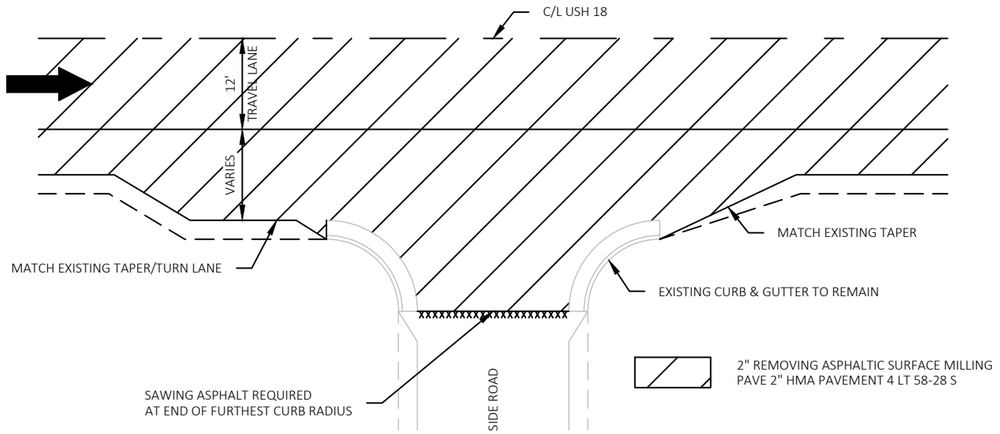


PLAN VIEW



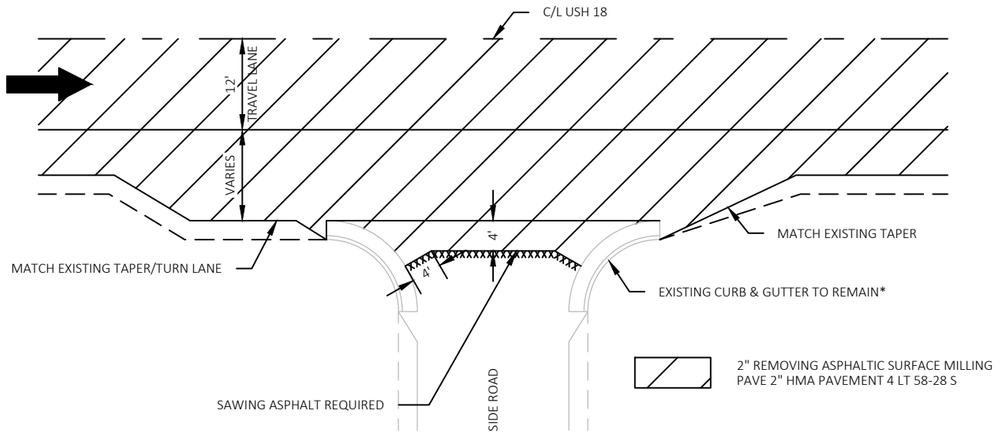
CROSS SECTION VIEW

LONGITUDINAL PAVEMENT JOINT DETAIL - SECOND PASS



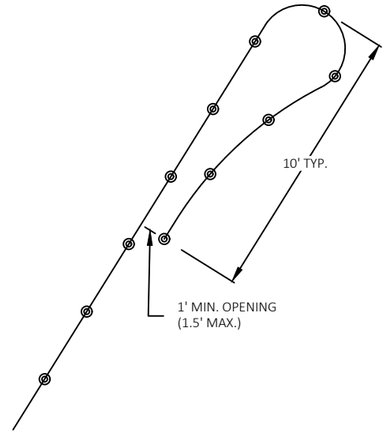
TYPICAL SIDE ROAD DETAIL - WITH EXISTING SIDE ROAD CONSTRUCTION JOINT

DUCK CREEK ROAD (SOUTH)
CTH P (NORTH & SOUTH)
PIONEER DRIVE (NORTH)

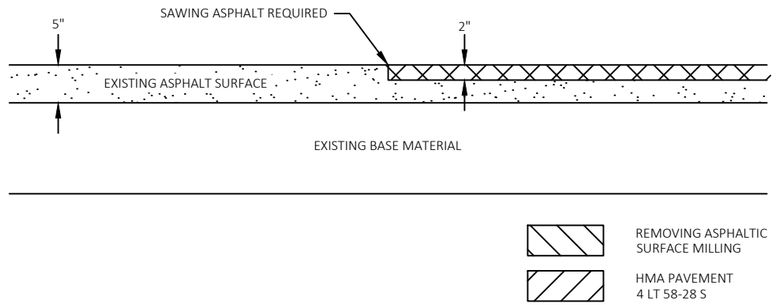


TYPICAL SIDE ROAD DETAIL - WITHOUT EXISTING SIDE ROAD CONSTRUCTION JOINT

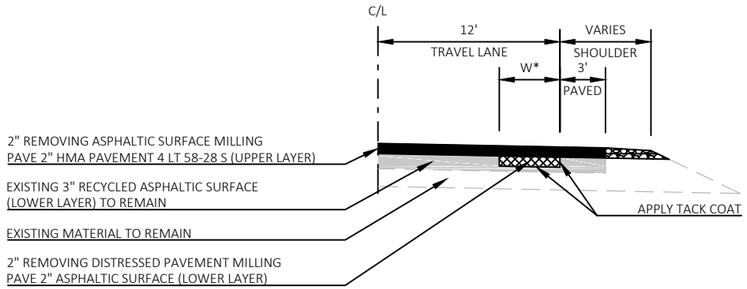
CTH D (NORTH & SOUTH)
DUCK CREEK ROAD (NORTH)
S. FARMINGTON ROAD
ROME ROAD
PIONEER DRIVE (SOUTH), *NO CURB & GUTTER PRESENT



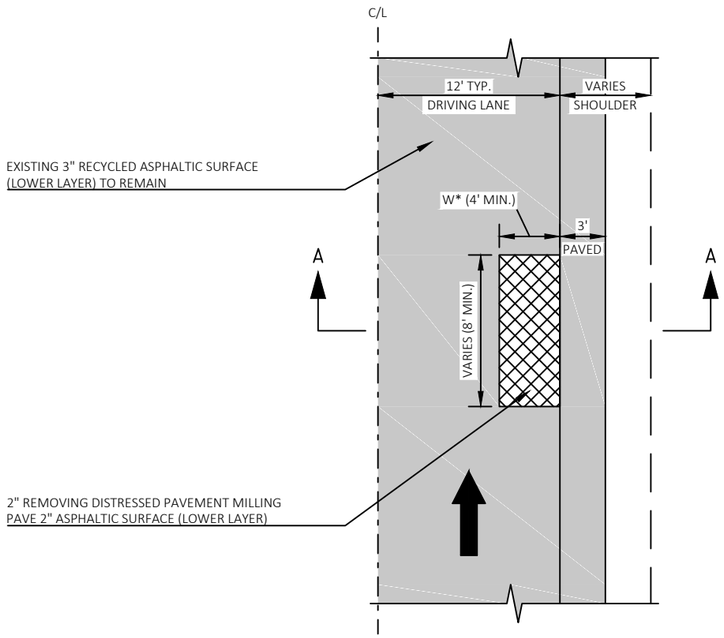
SILT FENCE TURN-AROUND ENDS
PLAN VIEW



END JOINT DETAIL



SECTION A-A

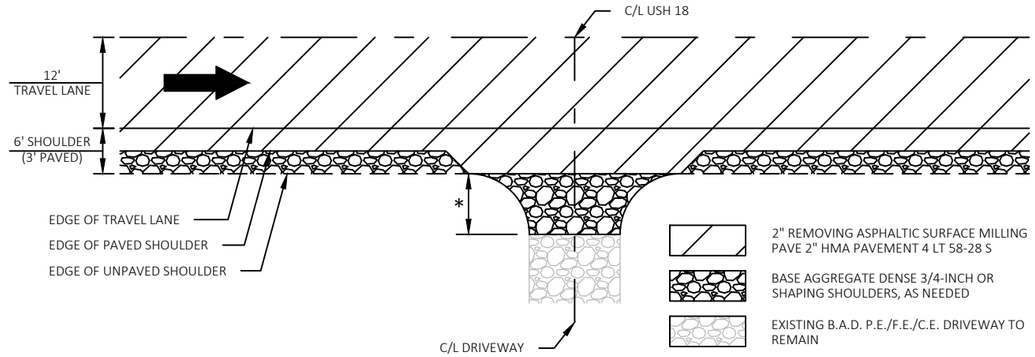


PLAN VIEW - LOWER LAYER

STATION	TO	STATION	OFFSET	W (FT)
333+96	-	336+96	LT	4
359+00	-	379+86	LT	4
381+56	-	388+56	LT	4
393+75	-	401+56	LT	4
403+76	-	407+56	LT	4
411+26	-	434+05	LT	4
435+55	-	465+85	LT	4
481+00	-	484+00	LT	4
498+67	-	533+97	LT	4
534+47	-	567+47	LT	4
577+85	-	597+04	LT	4
337+46	-	343+06	RT	4
343+06	-	361+46	RT	8
361+46	-	365+00	RT	4
365+00	-	379+60	RT	8
381+80	-	384+95	RT	4
388+40	-	389+95	RT	8
396+00	-	398+80	RT	4
398+80	-	401+60	RT	8
406+60	-	408+40	RT	4
410+00	-	413+80	RT	8
415+05	-	417+56	RT	8
424+41	-	426+99	RT	8
432+89	-	440+59	RT	4
440+59	-	443+39	RT	8
443+39	-	449+99	RT	4
452+39	-	465+69	RT	8
465+69	-	469+49	RT	4
475+95	-	486+75	RT	4
486+75	-	492+50	RT	8
494+55	-	499+35	RT	4
502+85	-	504+35	RT	4
505+35	-	516+55	RT	4
516+55	-	519+95	RT	8
519+95	-	548+22	RT	4
548+22	-	551+00	RT	8
558+47	-	561+77	RT	4
563+67	-	568+97	RT	8
578+47	-	582+47	RT	4
585+00	-	591+77	RT	4
596+47	-	597+05	RT	4

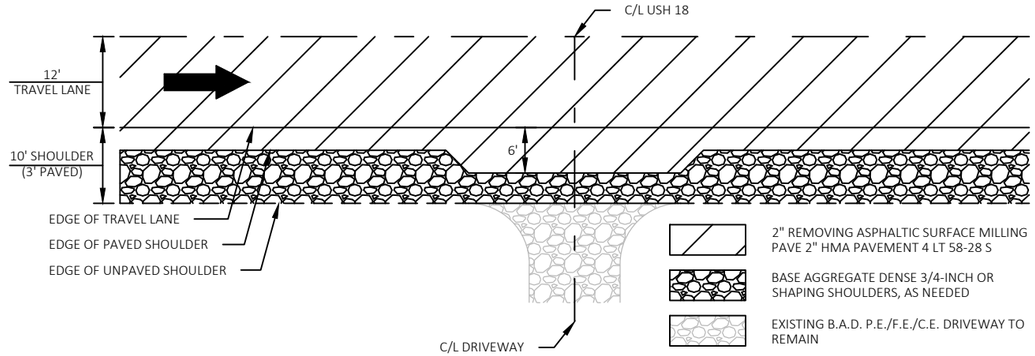
REMOVING DISTRESSED PAVEMENT MILLING DETAIL

SEE TABLE (RIGHT) FOR APPROXIMATE LOCATIONS AND WIDTHS.
EXACT LOCATIONS AND WIDTHS TO BE DETERMINED BY THE FIELD ENGINEER.
*NOTE: MEASURE W FROM OUTSIDE EDGE OF TRAVEL LANE TOWARDS C/L

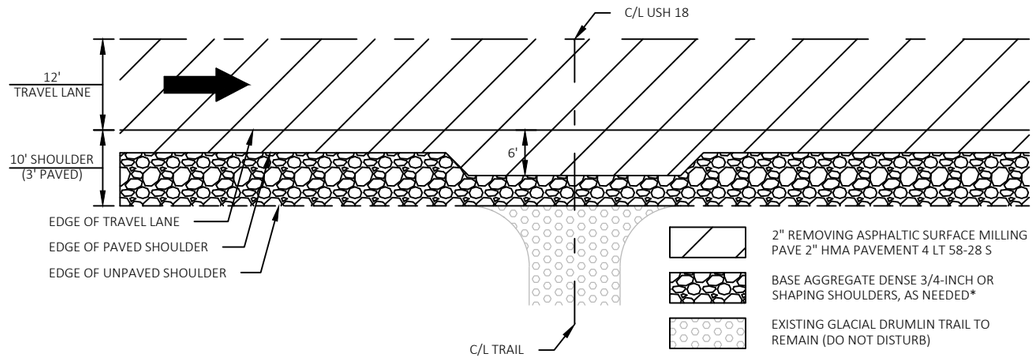


P.E./F.E./C.E. DRIVEWAY DETAIL - EXISTING B.A.D. (6' SHOULDER)

*REPLACE IN KIND TO THE DRIVEWAY RADIUS POINTS OR AS DIRECTED BY THE FIELD ENGINEER

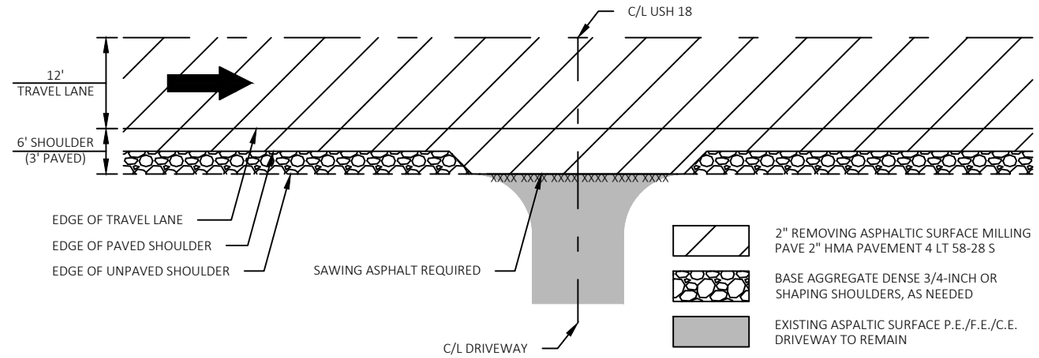


P.E./F.E./C.E. DRIVEWAY DETAIL - EXISTING B.A.D. (10' SHOULDER)

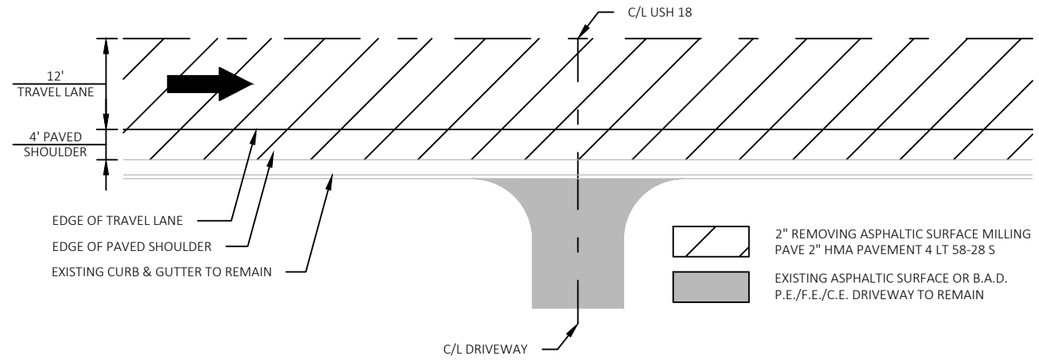


GLACIAL DRUMLIN TRAIL CROSSING DETAIL

*USE THE SHAPING SHOULDERS ITEM BETWEEN THE PAVED SHOULDER AND THE GLACIAL DRUMLIN TRAIL



P.E./F.E./C.E. DRIVEWAY DETAIL - EXISTING ASPHALT



P.E./F.E./C.E. DRIVEWAY DETAIL - EXISTING CURB & GUTTER

2

NOTES:
1. OFFSETS TO FACE OF RAIL ARE APPROXIMATE. SEE SDD 14B42 AND SDD 14B44 FOR INSTALLATION INSTRUCTIONS AND MORE DETAILS.

2. PAY LIMITS FOR BARRIER SYSTEM GRADING SHAPING FINISHING BID ITEM ARE FROM "BEGIN HPL" TO "END HPL" ON EITHER SIDE. SEE MISCELLANEOUS QUANTITIES FOR MORE DETAILS.

*SEE SDD 14B42-6 SHEETS A & B
**SEE SDD 14B44-4 SHEET A

N

CENTURYLINK

DUCK CREEK

STRUCTURE B-28-0055
EXISTING BOX CULVERT TO REMAIN

HALFPOST SPACING (K)*
STA. 494+21.04 TO STA. 494+82.69

SLOPE INTERCEPT

SLOPE INTERCEPT

BEGIN HPL**
(HINGE POINT LINE)
491+73.21, -22.00' LT

NW MGS
POST #1
492+91.29
-22.00' LT

NW MGS
POST #5
493+15.97
-20.81' LT

NW MGS
POST #9
493+40.68
-20.00' LT

NE MGS
POST #9
495+19.74
-20.00' LT

NE MGS
POST #5
495+44.45
-20.81' LT

NE MGS
POST #1
495+69.14
-22.00' LT

END HPL**
(HINGE POINT LINE)
496+87.22, -22.00' LT

BEGIN WIDENING
PAVED SHOULDER
491+52.98, -15.00' LT

NORTH MGS
RADIUS = 1657'

END WIDENED
PAVED SHOULDER
497+07.44, -15.00' LT

15:1 TYP.

10'

8'

15:1 TYP.

BM/CP 902

20:1 APPROX.

USH 18 WB

494+00

495+00

20:1 APPROX.

BM/CP 903

492+00

493+00

USH 18 EB

496+00

497+00

50' (TYP)

25' (TYP)

3'

12'

491+00

20:1 APPROX.

12'

3'

15:1 TYP.

SOUTH MGS
RADIUS = 1617'

20:1 APPROX.

15:1 TYP.

498+00

MP

FO

FO

FO

FO

FO

FO

FO

FO

BEGIN WIDENING
PAVED SHOULDER
490+99.83, 15.00' RT

SW MGS
POST #1
492+41.29
22.00' RT

SW MGS
POST #5
492+66.62
21.19' RT

SW MGS
POST #9
492+91.91
20.00' RT

SE MGS
POST #9
495+51.33
20.00' RT

SE MGS
POST #5
495+76.63
21.19' RT

SE MGS
POST #1
496+01.95
22.00' RT

END WIDENED
PAVED SHOULDER
497+43.42, 15.00' RT

BEGIN HPL**
(HINGE POINT LINE)
491+19.63, 22.00' RT

HALFPOST SPACING (K)*
STA. 493+80.58 TO STA. 494+31.20

DUCK CREEK

STRUCTURE B-28-0055
EXISTING BOX CULVERT TO REMAIN

PAETEC & WINDSTREAM

END HPL**
(HINGE POINT LINE)
497+23.69, 22.00' RT

SLOPE INTERCEPT

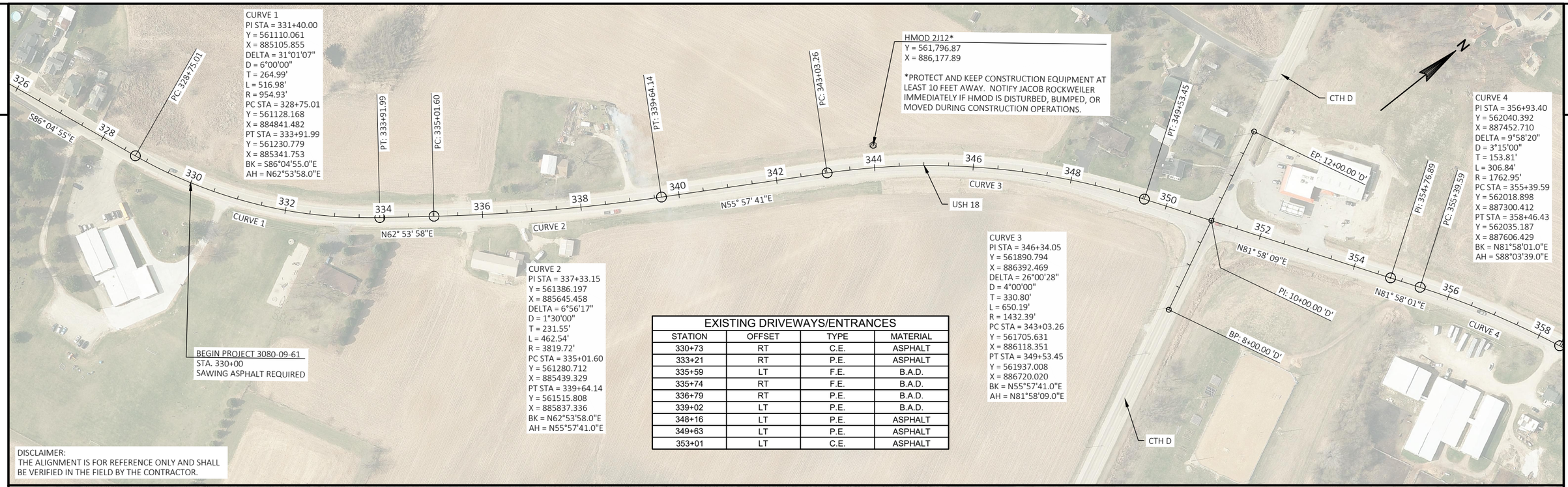
SLOPE INTERCEPT

BENCHMARKS/CONTROL POINTS						
NO.	NORTHING	EASTING	EL	STATION	OFFSET	DESCRIPTION
BM/CP 902	561,608.66	900,274.48	843.949	491+28.76	23.9' LT.	3/4" DIAMETER IRON RODS
BM/CP 903	561,725.25	900,868.30	844.297	497+28.56	23.9' LT.	3/4" DIAMETER IRON RODS

PROJECT NO: 3080-09-61	HWY: USH 18	COUNTY: JEFFERSON	CONSTRUCTION DETAILS - MGS EAT LAYOUT	SHEET 12	E

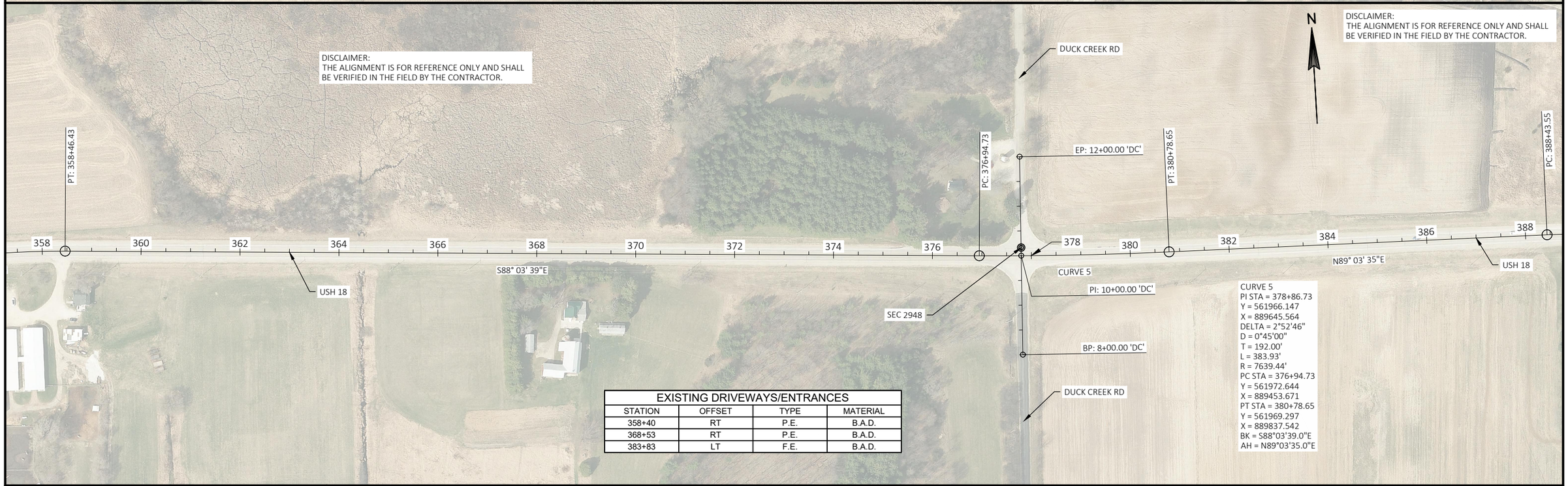
FILE NAME : N:\PDS\C3D\30800931\SHEETSPLAN\021001_CD - CONSTRUCTION DETAILS\021001_CD - MGS EAT LAYOUT.DWG
LAYOUT NAME - 01
PLOT DATE : 2/26/2019 11:57 AM
PLOT BY : DEYMARCOS, TIJLER JO
PLOT NAME :
PLOT SCALE : 1 IN:50 FT
WISDOT/CADDS SHEET 42

2



EXISTING DRIVEWAYS/ENTRANCES

STATION	OFFSET	TYPE	MATERIAL
330+73	RT	C.E.	ASPHALT
333+21	RT	P.E.	ASPHALT
335+59	LT	F.E.	B.A.D.
335+74	RT	F.E.	B.A.D.
336+79	RT	P.E.	B.A.D.
339+02	LT	P.E.	B.A.D.
348+16	LT	P.E.	ASPHALT
349+63	LT	P.E.	ASPHALT
353+01	LT	C.E.	ASPHALT

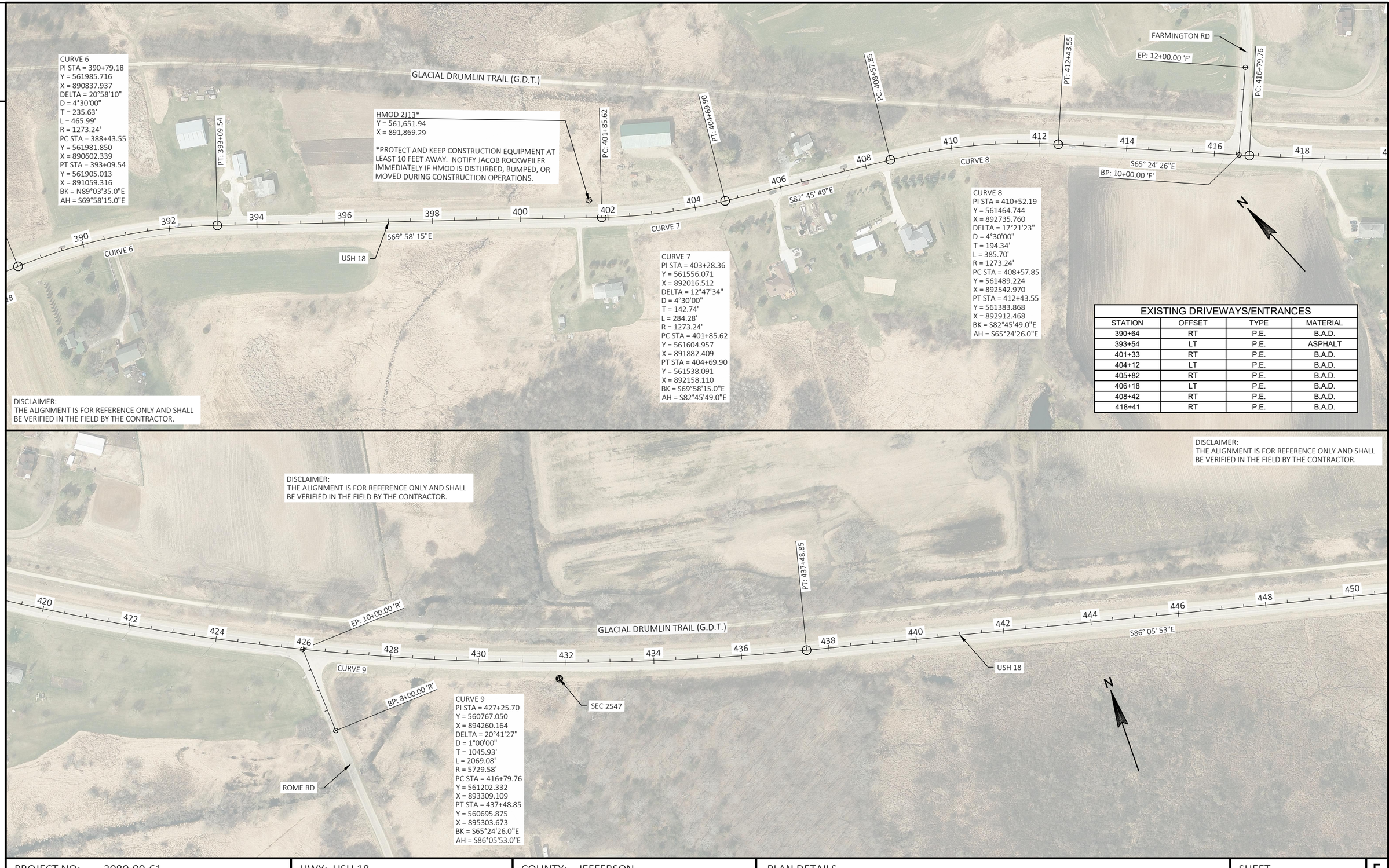


EXISTING DRIVEWAYS/ENTRANCES

STATION	OFFSET	TYPE	MATERIAL
358+40	RT	P.E.	B.A.D.
368+53	RT	P.E.	B.A.D.
383+83	LT	F.E.	B.A.D.

CURVE 5
PI STA = 378+86.73
Y = 561966.147
X = 889645.564
DELTA = 2°52'46"
D = 0°45'00"
T = 192.00'
L = 383.93'
R = 7639.44'
PC STA = 376+94.73
Y = 561972.644
X = 889453.671
PT STA = 380+78.65
Y = 561969.297
X = 889837.542
BK = S88°03'39.0"E
AH = N89°03'35.0"E

PROJECT NO: 3080-09-61	HWY: USH 18	COUNTY: JEFFERSON	PLAN DETAILS	SHEET 13	E



EXISTING DRIVEWAYS/ENTRANCES			
STATION	OFFSET	TYPE	MATERIAL
390+64	RT	P.E.	B.A.D.
393+54	LT	P.E.	ASPHALT
401+33	RT	P.E.	B.A.D.
404+12	LT	P.E.	B.A.D.
405+82	RT	P.E.	B.A.D.
406+18	LT	P.E.	B.A.D.
408+42	RT	P.E.	B.A.D.
418+41	RT	P.E.	B.A.D.

PROJECT NO: 3080-09-61	HWY: USH 18	COUNTY: JEFFERSON	PLAN DETAILS	SHEET 14	E

EXISTING DRIVEWAYS/ENTRANCES			
STATION	OFFSET	TYPE	MATERIAL
454+44	LT	P.E.	ASPHALT
454+48	RT	F.E.	B.A.D.
458+47	RT	C.E.	ASPHALT
474+31	RT	P.E.	B.A.D.
481+18	LT	G.D.T.	LIMESTONE SCREENINGS
481+74	RT	G.D.T.	LIMESTONE SCREENINGS

CURVE 10
PI STA = 455+57.75
Y = 560572.781
X = 897108.383
DELTA = 3°28'40"
D = 0°45'00"
T = 231.92'
L = 463.70'
R = 7639.44'
PC STA = 453+25.83
Y = 560588.563
X = 896876.998
PT STA = 457+89.53
Y = 560542.991
X = 897338.385
BK = S86°05'53.0"E
AH = S82°37'13.0"E

THE CONTRACTOR SHALL SALVAGE AND USE EXISTING LIMESTONE SCREENINGS, LOCATED WITHIN THE SHOULDER, FOR SHAPING THE UNPAVED SHOULDER BETWEEN THE GLACIAL DRUMLIN TRAIL AND THE PAVED SHOULDER. THE CONTRACTOR SHALL NOT GRADE BEYOND THE OFFSET OF THE UNPAVED SHOULDER.
SEE CONSTRUCTION DETAIL "GLACIAL DRUMLIN TRAIL CROSSING DETAIL" FOR MORE INFORMATION.

CURVE 11
PI STA = 473+47.92
Y = 560342.825
X = 898883.862
DELTA = 53°32'23"
D = 4°00'00"
T = 722.61'
L = 1338.49'
R = 1432.39'
PC STA = 466+25.31
Y = 560435.640
X = 898167.242
PT STA = 479+63.80
Y = 560864.023
X = 899384.373
BK = S82°37'13.0"E
AH = N43°50'24.4"E

DISCLAIMER:
THE ALIGNMENT IS FOR REFERENCE ONLY AND SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR.

HMOD 2J14*
Y = 560,385.02
X = 898,624.97

*PROTECT AND KEEP CONSTRUCTION EQUIPMENT AT LEAST 10 FEET AWAY. NOTIFY JACOB ROCKWEILER IMMEDIATELY IF HMOD IS DISTURBED, BUMPED, OR MOVED DURING CONSTRUCTION OPERATIONS.

CURVE 12
PI STA = 492+81.72
Y = 561814.610
X = 900297.232
DELTA = 55°07'16"
D = 3°30'00"
T = 854.37'
L = 1574.87'
R = 1637.00'
PC STA = 484+27.35
Y = 561198.376
X = 899705.456
PT STA = 500+02.22
Y = 561681.530
X = 901141.171
BK = N43°50'24.4"E
AH = S81°02'19.8"E

NOTE
PLACE BARRICADE WITH SIGN ALONG THE GLACIAL DRUMLIN TRAIL APPROXIMATELY 100 FEET IN ADVANCE OF CROSSING USH 18, OR AS THE FIELD ENGINEER DIRECTS.

W20-1A
ROAD WORK AHEAD
TYPE II BARRICADE

PROJECT NO: 3080-09-61	HWY: USH 18	COUNTY: JEFFERSON	PLAN DETAILS	SHEET 15 E

FILE NAME : N:\PDS\C3D\30800931\SHEETSPLAN\021201_PD - PLAN DETAILS\021201_PN.DWG
LAYOUT NAME - 03
PLOT DATE : 12/10/2018 2:23 PM
PLOT BY : DEYMARCOS, TIJLER JO
PLOT NAME :
PLOT SCALE : 1 IN:200 FT

2

2

CURVE 13
PI STA = 513+24.99
Y = 561475.489
X = 902447.794
DELTA = 4°56'14"
D = 0°45'00"
T = 329.36'
L = 658.30'
R = 7639.44'
PC STA = 509+95.63
Y = 561526.791
X = 902122.459
PT STA = 516+53.94
Y = 561452.377
X = 902776.338
BK = S81°02'19.8"E
AH = S85°58'34.0"E

EXISTING DRIVEWAYS/ENTRANCES			
STATION	OFFSET	TYPE	MATERIAL
516+23	RT	F.E.	B.A.D.

CURVE 14
PI STA = 535+26.43
Y = 561320.980
X = 904644.218
DELTA = 2°55'26"
D = 1°00'00"
T = 146.23'
L = 292.39'
R = 5729.58'
PC STA = 533+80.21
Y = 561331.241
X = 904498.352
PT STA = 536+72.60
Y = 561303.291
X = 904789.371
BK = S85°58'34.0"E
AH = S83°03'08.0"E

PIONEER DR

N

PT: 516+53.94

PC: 533+80.21

EP: 12+00.00 'PN'

PT: 536+72.60

PC: 536+97.53

PT: 540+04.61

514 516 518 520 522 524 526 528 530 532 534 536 538 540 542

CURVE 13

S85° 58' 34"E

CURVE 14

S83° 03' 08"E

CURVE 15

GLACIAL DRUMLIN TRAIL (G.D.T.)

USH 18

PI: 10+00.00 'PN'

BP: 8+00.00 'PN'

HMOD SULLIVAN N GPS AZ MK*
Y = 561,275.59
X = 904,441.27

*PROTECT AND KEEP CONSTRUCTION EQUIPMENT AT LEAST 10 FEET AWAY. NOTIFY JACOB ROCKWEILER IMMEDIATELY IF HMOD IS DISTURBED, BUMPED, OR MOVED DURING CONSTRUCTION OPERATIONS.

CURVE 15
PI STA = 538+51.10
Y = 561281.698
X = 904966.568
DELTA = 3°04'15"
D = 1°00'00"
T = 153.58'
L = 307.08'
R = 5729.58'
PC STA = 536+97.53
Y = 561300.276
X = 904814.118
PT STA = 540+04.61
Y = 561271.314
X = 905119.795
BK = S83°03'08.0"E
AH = S86°07'23.0"E

DISCLAIMER:
THE ALIGNMENT IS FOR REFERENCE ONLY AND SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR.

PIONEER DR

DISCLAIMER:
THE ALIGNMENT IS FOR REFERENCE ONLY AND SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR.

N

HMOD SULLIVAN N GPS*
Y = 561,248.82
X = 906,395.41

*PROTECT AND KEEP CONSTRUCTION EQUIPMENT AT LEAST 10 FEET AWAY. NOTIFY JACOB ROCKWEILER IMMEDIATELY IF HMOD IS DISTURBED, BUMPED, OR MOVED DURING CONSTRUCTION OPERATIONS.

CURVE 17
PI STA = 563+94.69
Y = 561197.268
X = 907507.574
DELTA = 2°44'36"
D = 1°00'00"
T = 137.19'
L = 274.33'
R = 5729.58'
PC STA = 562+57.50
Y = 561197.464
X = 907370.381
PT STA = 565+31.83
Y = 561203.638
X = 907644.619
BK = S89°55'05.0"E
AH = N87°20'19.0"E

PC: 548+81.94

PT: 552+61.44

PC: 562+57.50

PT: 565+31.83

544 546 548 550 552 554 556 558 560 562 564 566 568 570 572 574

S86° 07' 23"E

CURVE 16

S89° 55' 05"E

CURVE 17

N87° 20' 19"E

USH 18

GLACIAL DRUMLIN TRAIL (G.D.T.)

CURVE 16
PI STA = 550+71.76
Y = 561199.160
X = 906184.503
DELTA = 3°47'42"
D = 1°00'00"
T = 189.82'
L = 379.50'
R = 5729.58'
PC STA = 548+81.94
Y = 561211.995
X = 905995.118
PT STA = 552+61.44
Y = 561198.889
X = 906374.322
BK = S86°07'23.0"E
AH = S89°55'05.0"E

EXISTING DRIVEWAYS/ENTRANCES			
STATION	OFFSET	TYPE	MATERIAL
551+08	LT	F.E.	B.A.D.
560+33	LT	P.E.	B.A.D.
560+33	RT	F.E.	B.A.D.
561+35	LT	P.E.	ASPHALT
565+92	LT	P.E.	B.A.D.

PROJECT NO: 3080-09-61	HWY: USH 18	COUNTY: JEFFERSON	PLAN DETAILS	SHEET 16	E

FILE NAME : N:\PDS\C3D\30800931\SHEETSPLAN\021201_PD - PLAN DETAILS\021201_PN.DWG
LAYOUT NAME - 04

PLOT DATE : 12/10/2018 2:23 PM PLOT BY : DEYMARCOS, TIJLER JO PLOT NAME : PLOT SCALE : 1 IN:200 FT

EXISTING DRIVEWAYS/ENTRANCES			
STATION	OFFSET	TYPE	MATERIAL
582+28	LT	P.E.	B.A.D.
582+34	RT	C.E.	B.A.D.
589+17	RT	P.E.	B.A.D.
589+44	LT	P.E.	B.A.D.
591+37	RT	P.E.	B.A.D.
592+83	RT	P.E.	B.A.D.
593+36	RT	P.E.	B.A.D.
593+67	RT	P.E.	B.A.D.
594+44	LT	P.E.	B.A.D.

CURVE 18
PI STA = 581+59.13
Y = 561279.199
X = 909270.158
DELTA = 9°08'54"
D = 4°30'00"
T = 101.86'
L = 203.30'
R = 1273.24'
PC STA = 580+57.26
Y = 561274.469
X = 909168.403
PT STA = 582+60.56
Y = 561300.047
X = 909369.867
BK = N87°20'19.0"E
AH = N78°11'25.0"E

PC: 580+57.26
PT: 582+60.56
PC: 598+94.90
PT: 603+55.46
USH 18
CURVE 18
CURVE 19
N78° 11' 25"E
574 576 578 580 582 584 586 588 590 592 594 596 598 600 602 604
GLACIAL DRUMLIN TRAIL (G.D.T.)

END PROJECT 3080-09-61
STA. 597+04.57
SAWING ASPHALT REQUIRED

CURVE 19
PI STA = 601+26.30
Y = 561681.894
X = 911196.119
DELTA = 13°49'01"
D = 3°00'00"
T = 231.41'
L = 460.56'
R = 1909.86'
PC STA = 598+94.90
Y = 561634.534
X = 910969.612
PT STA = 603+55.46
Y = 561673.789
X = 911427.382
BK = N78°11'25.0"E
AH = S87°59'34.0"E

DISCLAIMER:
THE ALIGNMENT IS FOR REFERENCE ONLY AND SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR.

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N

LEGEND

- EROSION BALES
- EROSION MAT URBAN CLASS I TYPE B, SEEDING MIXTURE NO. 60, AND SEEDING TEMPORARY
- SALVAGED TOPSOIL
- SILT FENCE

DUCK CREEK

STRUCTURE B-28-0055
EXISTING BOX CULVERT TO REMAIN

SLOPE INTERCEPT

CENTURYLINK

SLOPE INTERCEPT

BM/CP 902

BM/CP 903

491+00 492+00 493+00 494+00 495+00 496+00 497+00 498+00

USH 18 WB

USH 18 EB

MP

FO

PAETEC & WINDSTREAM

SLOPE INTERCEPT

SLOPE INTERCEPT

DUCK CREEK

STRUCTURE B-28-0055
EXISTING BOX CULVERT TO REMAIN

NOTES:

1. EXTEND EROSION MAT APPROX. 5' BEYOND THE SLOPE INTERCEPT, OR AS OTHERWISE DIRECTED BY THE ENGINEER.
2. SILT FENCE OFFSET LOCATIONS:
   - APPROX. 7' BEYOND THE SLOPE INTERCEPT (TYPICAL)
   - APPROX. 5' BEYOND THE SLOPE INTERCEPT (FOR SILT FENCE LOCATED ABOVE BOX CULVERT)
   - AS OTHERWISE DIRECTED BY THE FIELD ENGINEER
3. USE EROSION BALES FOR SILT FENCE RELIEF
   - PLACE 3 BALES INSIDE, 2 BALES OUTSIDE (5 BALES TOTAL PER RELIEF POINT)
   - SEE SDD 8E8-3 FOR INSTALLATION INSTRUCTIONS
4. SILT FENCE SHOULD BE INSTALLED WITH TURN-AROUNDS AT THE ENDS TO REDIRECT ANIMALS AWAY FROM THE CONSTRUCTION SITE. SEE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.

PROJECT NO: 3080-09-61	HWY: USH 18	COUNTY: JEFFERSON	EROSION CONTROL	SHEET	E

FILE NAME : N:\PDS\C3D\30800931\SHEETSPLAN\022001_EC - EROSION CONTROL\022001_EC - MGS EAT LAYOUT.DWG
LAYOUT NAME - 01

PLOT DATE : 1/4/2019 2:59 PM PLOT BY : DEYMARCOS, TIJLER JO PLOT NAME : PLOT SCALE : 1 IN:50 FT

3080-09-61

Line	Item	Item Description	Unit	Total	Qty
0002	204.0120	Removing Asphaltic Surface Milling	SY	92,990.000	92,990.000
0006	204.0165	Removing Guardrail	LF	430.500	430.500
0014	213.0100	Finishing Roadway (project) 02. 3080-09-61	EACH	1.000	1.000
0016	305.0110	Base Aggregate Dense 3/4-Inch	TON	3,161.000	3,161.000
0018	305.0500	Shaping Shoulders	STA	534.000	534.000
0022	455.0605	Tack Coat	GAL	8,124.000	8,124.000
0028	460.2005	Incentive Density PWL HMA Pavement	DOL	8,040.000	8,040.000
0030	460.2010	Incentive Air Voids HMA Pavement	DOL	10,600.000	10,600.000
0032	460.5224	HMA Pavement 4 LT 58-28 S	TON	10,593.000	10,593.000
0034	465.0105	Asphaltic Surface	TON	2,287.000	2,287.000
0038	465.0475	Asphalt Centerline Rumble Strips 2-Lane Rural	LF	23,518.000	23,518.000
0048	614.0010	Barrier System Grading Shaping Finishing	EACH	2.000	2.000
0054	614.2300	MGS Guardrail 3	LF	312.500	312.500
0056	614.2330	MGS Guardrail 3 K	LF	112.500	112.500
0060	614.2610	MGS Guardrail Terminal EAT	EACH	4.000	4.000
0066	618.0100	Maintenance And Repair of Haul Roads (project) 02. 3080-09-61	EACH	1.000	1.000
0068	619.1000	Mobilization	EACH	0.500	0.500
0070	624.0100	Water	MGAL	31.600	31.600
0072	628.1104	Erosion Bales	EACH	50.000	50.000
0074	628.1504	Silt Fence	LF	1,370.000	1,370.000
0076	628.1520	Silt Fence Maintenance	LF	1,370.000	1,370.000
0078	628.1905	Mobilizations Erosion Control	EACH	2.000	2.000
0080	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0082	628.2008	Erosion Mat Urban Class I Type B	SY	1,527.000	1,527.000
0086	642.5001	Field Office Type B	EACH	0.500	0.500
0088	643.0300	Traffic Control Drums	DAY	245.000	245.000
0092	643.0310.S	Temporary Portable Rumble Strips 02. 3080-09-61	LS	1.000	1.000
0094	643.0410	Traffic Control Barricades Type II	DAY	90.000	90.000
0096	643.0900	Traffic Control Signs	DAY	1,004.000	1,004.000
0098	643.1050	Traffic Control Signs PCMS	DAY	14.000	14.000
0100	643.5000	Traffic Control	EACH	0.500	0.500
0104	646.1020	Marking Line Epoxy 4-Inch	LF	35,779.000	35,779.000
0106	646.1040	Marking Line Grooved Wet Ref Epoxy 4-Inch	LF	51,346.000	51,346.000
0108	646.3040	Marking Line Grooved Wet Ref Epoxy 8-Inch	LF	100.000	100.000
0110	646.6120	Marking Stop Line Epoxy 18-Inch	LF	89.000	89.000
0112	648.0100	Locating No-Passing Zones	MI	5.060	5.060
0114	649.0105	Temporary Marking Line Paint 4-Inch	LF	32,325.000	32,325.000
0116	649.0120	Temporary Marking Line Epoxy 4-Inch	LF	32,325.000	32,325.000
0120	650.8000	Construction Staking Resurfacing Reference	LF	26,705.000	26,705.000

3080-09-61

Line	Item	Item Description	Unit	Total	Qty
0124	650.9910	Construction Staking Supplemental Control (project) 02. 3080-09-61	LS	1.000	1.000
0126	690.0150	Sawing Asphalt	LF	904.000	904.000
0130	740.0440	Incentive IRI Ride	DOL	20,231.000	20,231.000
0132	ASP.1T0A	On-the-Job Training Apprentice at $5.00/HR	HRS	175.000	175.000
0134	ASP.1T0G	On-the-Job Training Graduate at $5.00/HR	HRS	125.000	125.000
0138	SPV.0060	Special 02. Verify Landmark Reference Monuments	EACH	2.000	2.000
0142	SPV.0180	Special 01. Removing Distressed Pavement Milling	SY	20,323.000	20,323.000

3

ASPHALT ITEMS

STATION	TO	STATION	OFFSET	LOCATION	204.0120 REMOVING ASPHALTIC SURFACE MILLING SY	455.0605 TACK COAT GAL	460.5224 HMA PAVEMENT 4 LT 58-28 S TON	465.0105 ASPHALTIC SURFACE TON	SPV.0180.01 REMOVING DISTRESSED PAVEMENT MILLING SY
330+00	-	350+96	LT	USH 18	3613	269	410	15	134
350+96	-	377+79	LT	USH 18	4737	396	535	94	836
377+79	-	416+56	LT	USH 18	6635	556	751	131	1159
416+56	-	425+99	LT	USH 18	1635	147	185	47	420
425+99	-	471+55	LT	USH 18	7846	681	887	192	1708
471+55	-	534+47	LT	USH 18	11007	922	1271	191	1705
534+47	-	597+05	LT	USH 18	10617	922	1204	261	2324
				SUBTOTAL 0010	46090	3893	5243	931	8286
330+00	-	350+96	RT	USH 18	3909	347	442	107	953
350+96	-	377+79	RT	USH 18	4989	514	565	251	2232
377+79	-	416+56	RT	USH 18	6694	578	760	155	1371
416+56	-	425+99	RT	USH 18	1645	135	187	26	230
425+99	-	471+55	RT	USH 18	8069	784	913	262	2330
471+55	-	534+47	RT	USH 18	10901	967	1273	331	2936
534+47	-	597+05	RT	USH 18	10693	906	1210	224	1985
				SUBTOTAL 0010	46900	4231	5350	1356	12037
				TOTAL 0010	92990	8124	10593	2287	20323

HMA QMP MIXTURE USE TABLE:

LOCATION	STATION	MIXTURE USE	UNDERLYING SURFACE	BID ITEM	TONS	THICKNESS	QUALITY MANAGEMENT PROGRAM TO BE USED: MIXTURE ACCEPTANCE	QUALITY MANAGEMENT PROGRAM TO BE USED: DENSITY ACCEPTANCE
12 FT DRIVING LANES	330+00 TO 597+05	UPPER LAYER	EXISTING RECYCLED ASPHALTIC SURFACE	HMA PAVEMENT 4 LT 58-28 S	8,031	2"	ITEM 460.2010 INCENTIVE AIR VOIDS HMA PAVEMENT	ITEM 460.2005 INCENTIVE DENSITY PWL HMA PAVEMENT
SHOULDERS, TURN LANES, INTERSECTIONS	330+00 TO 597+05	UPPER LAYER	EXISTING RECYCLED ASPHALTIC SURFACE	HMA PAVEMENT 4 LT 58-28 S	2,562	2"	ITEM 460.2010 INCENTIVE AIR VOIDS HMA PAVEMENT	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE

BARRIER SYSTEM GRADING SHAPING FINISHING

STATION	TO	STATION	LOCATION	614.0010 BARRIER SYSTEM GRADING SHAPING FINISHING EACH	FOR INFORMATIONAL PURPOSES ONLY: EXCAVATION COMMON CY	BORROW CY	SALVAGED TOPSOIL SY	SEEDING MIXTURE NO. 60 LB	SEEDING TEMPORARY LB	CONSTRUCTION STAKING SLOPE STAKES LF
49173.21	-	49687.22	USH 18 - LT	1	37	-	423	10	20	514
49119.63	-	49723.69	USH 18 - RT	1	13	58	246	8	16	604
			TOTAL 0010	2	50	58	669	18	36	1118

BASE AGGREGATE DENSE ITEMS

STATION	TO	STATION	LOCATION	305.0110 BASE AGGREGATE DENSE 3/4-INCH TON	305.0500 SHAPING SHOULDERS STA	624.0100 WATER MGAL
330+00	-	597+05	USH 18 - LT SHLDR	1399	267	14.0
330+00	-	597+05	USH 18 - RT SHLDR	1433	267	14.3
	-		P.E./F.E./C.E. - LT	14	-	0.1
	-		P.E./F.E./C.E. - RT	28	-	0.3
	-		UNDISTRIBUTED	287	-	2.9
			TOTAL 0010	3161	534	31.6

ASPHALT CENTER LINE RUMBLE STRIPS 2-LANE RURAL

STATION	TO	STATION	LOCATION	465.0475 LF
330+00	-	350+96	USH 18	1724
350+96	-	377+79	USH 18	2183
377+79	-	416+56	USH 18	3477
416+56	-	425+99	USH 18	543
425+99	-	471+55	USH 18	3957
471+55	-	534+47	USH 18	5693
534+47	-	597+05	USH 18	5941
			TOTAL 0010	23518

GUARDRAIL ITEMS

STATION	TO	STATION	LOCATION	204.0165 REMOVING GUARDRAIL LF	614.2300 MGS GUARDRAIL 3 LF	614.2330 MGS GUARDRAIL 3 K LF	614.2610 MGS GUARDRAIL TERMINAL EAT EACH
492+91	-	493+41	USH 18 - LT	-	-	-	1
493+41	-	495+20	USH 18 - LT	216.0	112.5	62.5	-
495+20	-	495+69	USH 18 - LT	-	-	-	1
492+41	-	492+92	USH 18 - RT	-	-	-	1
492+92	-	495+51	USH 18 - RT	214.5	200.0	50.0	-
495+51	-	496+02	USH 18 - RT	-	-	-	1
			TOTAL 0010	430.5	312.5	112.5	4

MOBILIZATIONS

LOCATION	619.1000 MOBILIZATION EACH	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH
PROJECT	0.50	2	2
TOTAL 0010	0.50	2	2

3

TRAFFIC CONTROL ITEMS

LOCATION	643.0300 TRAFFIC CONTROL DRUMS EACH*	643.0300 TRAFFIC CONTROL DRUMS DAY	643.0310.S TEMPORARY PORTABLE RUMBLE STRIPS 02.3080-09-61 LS	643.0410 TRAFFIC CONTROL BARRICADES TYPE II EACH*	643.0410 TRAFFIC CONTROL BARRICADES TYPE II DAY	643.0900 TRAFFIC CONTROL SIGNS EACH*	643.0900 TRAFFIC CONTROL SIGNS DAY	643.1050 TRAFFIC CONTROL SIGNS PCMS EACH*	643.1050 TRAFFIC CONTROL SIGNS PCMS DAY	643.5000 TRAFFIC CONTROL EACH	REMARKS
PROJECT LIMITS	-	-	1	-	-	20	900	2	14	0.5	SEE SDD'S 15C4 & 15C12
GLACIAL DRUMLIN TRAIL	-	-	-	2	90	2	90	-	-	-	SEE PLAN DETAILS
GUARDRAIL - LT	17	119	-	-	-	1	7	-	-	-	SEE SDD 15D28
GUARDRAIL - RT	18	126	-	-	-	1	7	-	-	-	SEE SDD 15D28
TOTAL 0010		245	1		90		1004		14	0.5	

*FOR INFORMATIONAL PURPOSES ONLY

EROSION CONTROL ITEMS

STATION	TO	STATION	LOCATION	628.1104 EROSION BALES EACH	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF	628.2008 EROSION MAT URBAN CLASS I TYPE B SY
491+73	-	496+87	USH 18 - LT	20	596	596	745
491+20	-	497+24	USH 18 - RT	20	649	649	583
	-		UNDISTRIBUTED	10	125	125	199
			TOTAL 0010	50	1370	1370	1527

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PAVEMENT MARKING ITEMS

STATION	TO	STATION	LOCATION	646.1020 MARKING LINE EPOXY 4-INCH YELLOW SOLID LF	646.1020 MARKING LINE EPOXY 4-INCH YELLOW 12.5' SKIP LF	646.1020 MARKING LINE EPOXY 4-INCH WHITE SOLID LF	646.1040 MARKING LINE GROOVED WET REF EPOXY WHITE SOLID LF	646.1040 MARKING LINE GROOVED WET REF EPOXY WHITE 3' SKIP LF	646.3040 MARKING LINE GROOVED WET REF EPOXY 8-INCH WHITE LF	646.6120 MARKING STOP LINE EPOXY 18-INCH LF	649.0105 TEMPORARY MARKING LINE PAINT 4-INCH YELLOW SOLID LF	649.0105 TEMPORARY MARKING LINE PAINT 4-INCH YELLOW 12.5' SKIP LF	649.0120 TEMPORARY MARKING LINE EPOXY 4-INCH YELLOW SOLID LF	649.0120 TEMPORARY MARKING LINE EPOXY 4-INCH YELLOW 12.5' SKIP LF
330+00	-	350+96	USH 18 - LT	2097	-	-	2041	39	-	-	4194	-	2097	-
350+96	-	377+79	USH 18 - LT	1457	312.5	-	2295	63	-	-	2934	587.5	1457	312.5
377+79	-	416+56	USH 18 - LT	3877	-	-	3666	24	-	-	7086	162.5	3877	-
416+56	-	425+99	USH 18 - LT	397	-	-	779	24	-	-	397	237.5	397	-
425+99	-	471+55	USH 18 - LT	1338	275.0	-	4501	-	-	-	3765	812.5	1338	275.0
471+55	-	534+47	USH 18 - LT	3540	687.5	-	5996	39	-	-	6030	950.0	3540	687.5
534+47	-	597+05	USH 18 - LT	1556	1175.0	-	6133	15	-	-	3619	1550.0	1556	1175.0
330+00	-	350+96	USH 18 - RT	2097	-	-	2015	-	100	-	-	-	2097	-
350+96	-	377+79	USH 18 - RT	1477	275.0	-	2466	24	-	-	-	-	1477	275.0
377+79	-	416+56	USH 18 - RT	3209	162.5	-	3822	-	-	-	-	-	3209	162.5
416+56	-	425+99	USH 18 - RT	-	237.5	-	810	24	-	-	-	-	-	237.5
425+99	-	471+55	USH 18 - RT	2427	537.5	-	4254	57	-	-	-	-	2427	537.5
471+55	-	534+47	USH 18 - RT	2490	262.5	-	5989	60	-	-	-	-	2490	262.5
534+47	-	597+05	USH 18 - RT	2063	375.0	-	6210	-	-	-	-	-	2063	375.0
9+00 D	-	10+00 D	CTH D	-	-	-	-	-	-	25	-	-	-	-
10+00 D	-	11+00 D	CTH D	-	-	-	-	-	-	25	-	-	-	-
9+00 P	-	10+00 P	CTH P	102	-	33	-	-	-	19	-	-	-	-
10+00 P	-	11+00 P	CTH P	117	-	34	-	-	-	20	-	-	-	-
	-		UNDISTRIBUTED*	3168	-	-	-	-	-	-	-	-	-	-
			SUBTOTAL 0010	31412	4300	67	50977	369	100	89	28025	4300	28025	4300
			TOTAL 0010		35779		51346		100	89	32325		32325	

*ADDITIONAL QUANTITY FOR POSSIBLE CLOSING OF EXISTING PASSING ZONES LOCATED OUTSIDE OF PROJECT LIMITS (USE ONLY IF REQUIRED)

LOCATING NO-PASSING ZONES

STATION	TO	STATION	LOCATION	648.0100 MI
330+00	-	597+05	USH 18	5.06
			TOTAL 0010	5.06

VERIFY LANDMARK REFERENCE MONUMENTS

STATION	LOCATION	SPV.0060.02 EACH	REMARKS
377+79	USH 18 - LT	1	SEC 2948
431+75	USH 18 - RT	1	SEC 2547
	TOTAL 0010	2	

SAWING ASPHALT

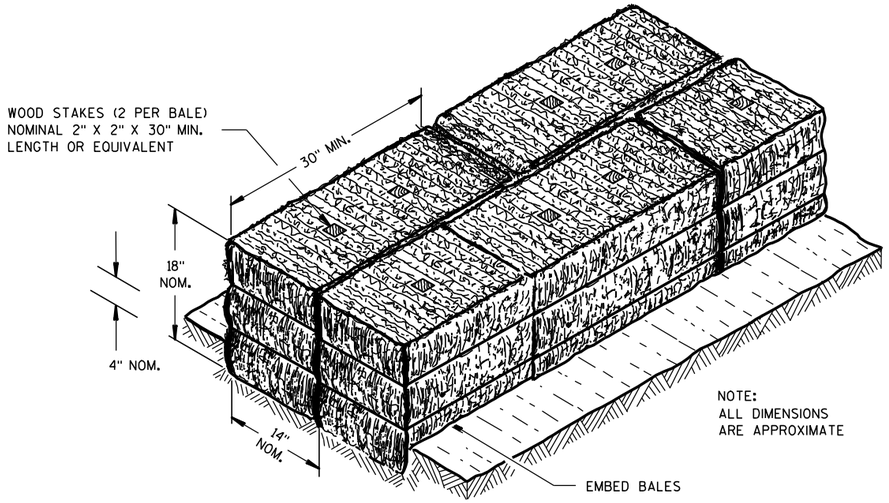
STATION	LOCATION	690.0150 LF	REMARKS
330+00	USH 18	30	
330+73	USH 18 - RT	32	C.E.
333+21	USH 18 - RT	36	P.E.
350+96	USH 18 - LT	92	CTH D
350+96	USH 18 - RT	88	CTH D
353+01	USH 18 - LT	62	C.E.
377+79	USH 18 - LT	77	DUCK CREEK RD
377+79	USH 18 - RT	23	DUCK CREEK RD
416+56	USH 18 - LT	79	FARMINGTON RD
425+99	USH 18 - RT	80	ROME RD
454+44	USH 18 - LT	40	P.E.
458+47	USH 18 - RT	54	C.E.
471+55	USH 18 - LT	28	CTH P
471+55	USH 18 - RT	27	CTH P
534+47	USH 18 - LT	26	PIONEER DR
534+47	USH 18 - RT	70	PIONEER DR
561+35	USH 18 - LT	30	P.E.
597+05	USH 18	30	
	TOTAL 0010	904	

CONSTRUCTION STAKING ITEMS

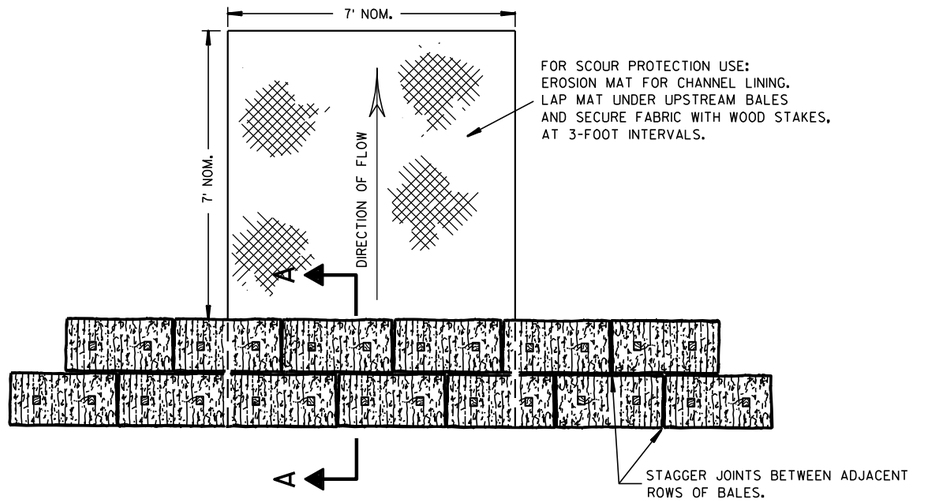
STATION	TO	STATION	LOCATION	650.8000 CONSTRUCTION STAKING RESURFACING REFERENCE LF	650.9910 CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (02. 3080-09-61) LS
330+00	-	597+05	USH 18	26705	-
	-		PROJECT	-	1
			TOTAL 0010	26705	1

Standard Detail Drawing List

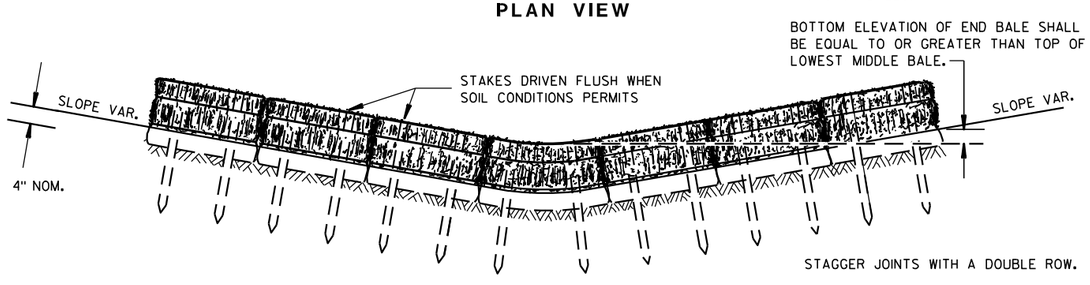
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
13A11-03A	2-LANE RURAL CENTER LINE RUMBLE STRIP, MILLING
13A11-03B	2-LANE RURAL CENTER LINE RUMBLE STRIP, MILLING
14B29-01	SAFETY EDGE
14B42-06A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-04A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
15C04-05	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C05-05	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 40 M.P.H. OR LESS
15C08-19A	LONGITUDINAL MARKING (MAINLINE)
15C11-07A	CHANNELIZING DEVICES FLEXIBLE TUBULAR MARKER POST
15C11-07B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15C12-06	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION
15C19-05A	MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY
15C33-03	STOP LINE AND CROSSWALK PAVEMENT MARKING
15C35-03A	PAVEMENT MARKING (INTERSECTIONS)
15D28-03	TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY
15D38-02A	TEMPORARY TRAFFIC CONTROL SIGN MOUNTING
15D38-02B	ATTACHMENT OF SIGNS TO POSTS
15D39-02	TRAFFIC CONTROL, DROP-OFF SIGNING



SECTION A-A



PLAN VIEW



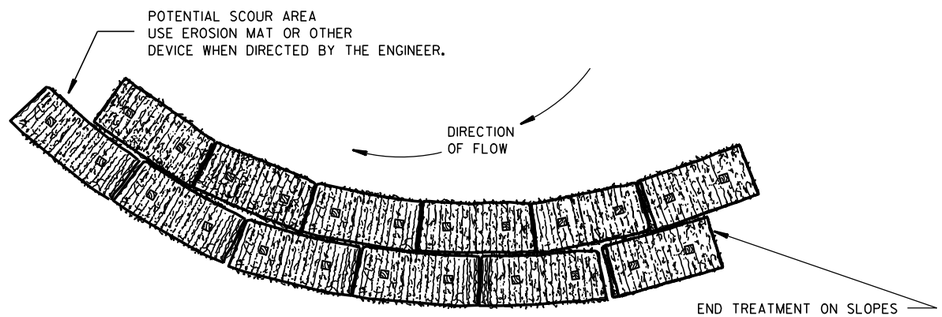
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

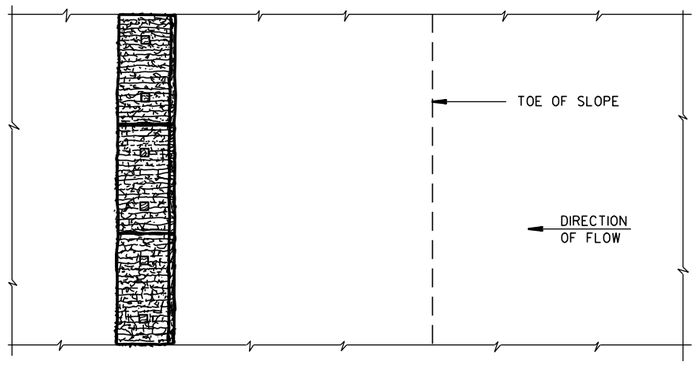
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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.

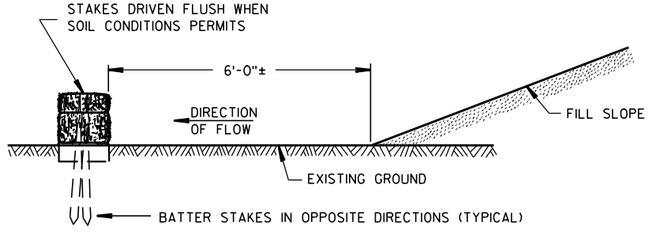


PLAN VIEW

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

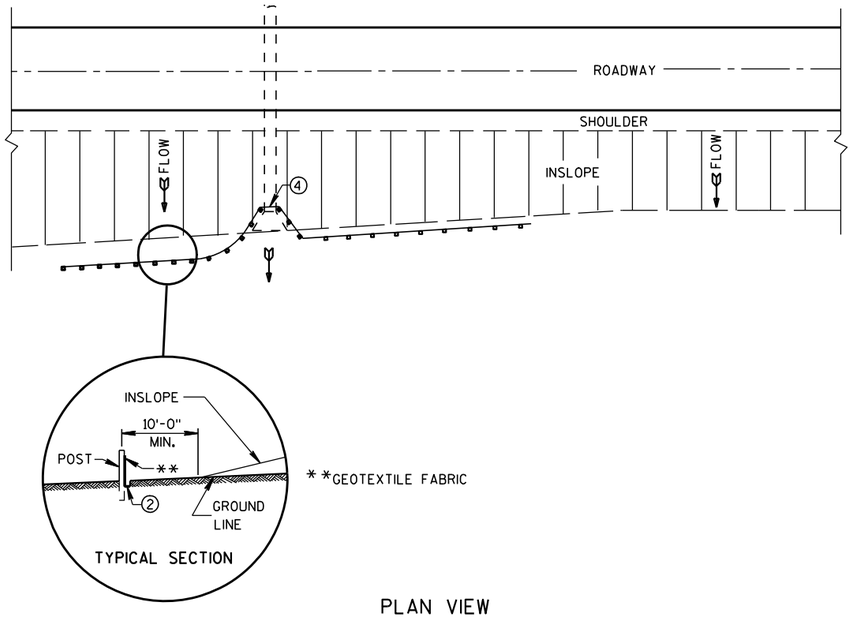
APPROVED
6/04/02 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

S.D.D. 8 E 8-3

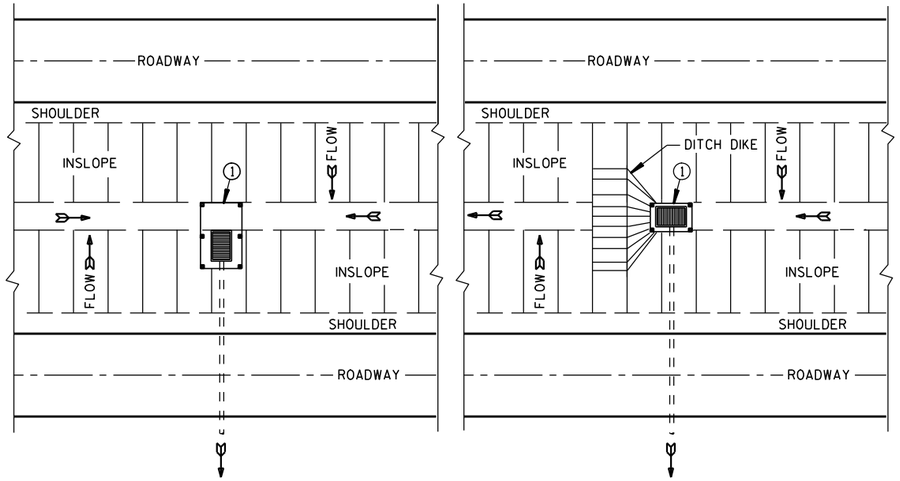
6

S.D.D. 8 E 8-3



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



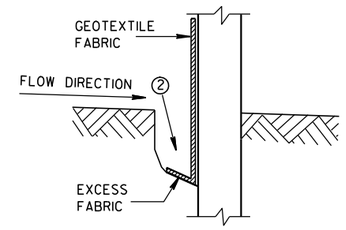
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

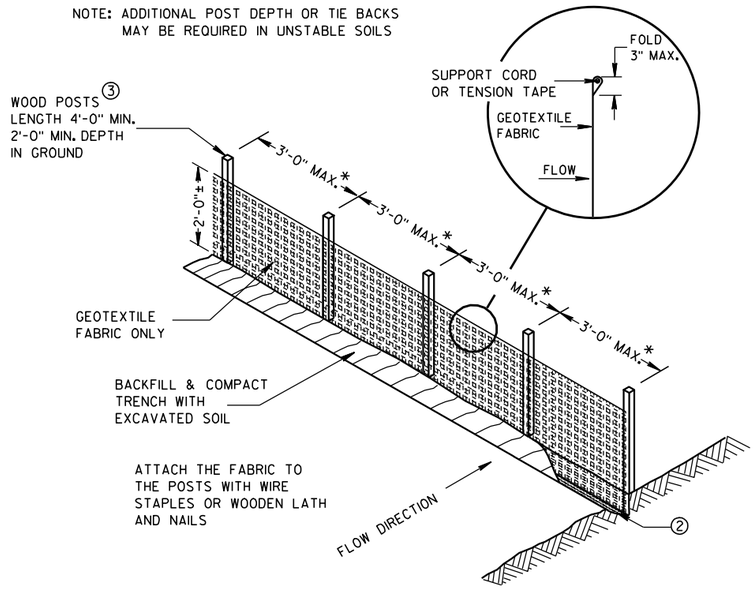
GENERAL NOTES

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

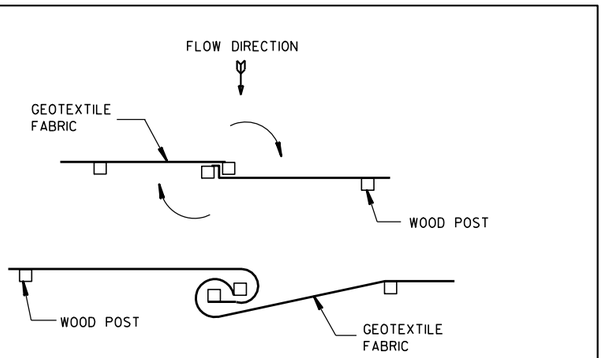
1. HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL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



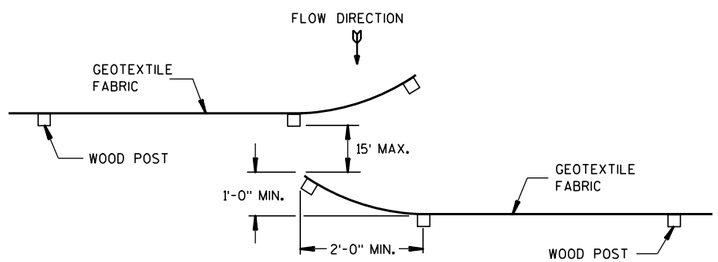
TRENCH DETAIL



SILT FENCE

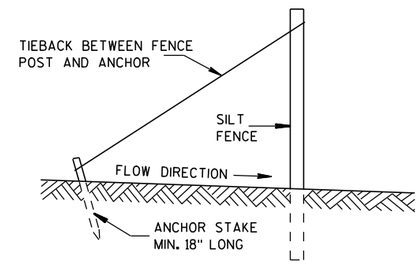


TWIST METHOD



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

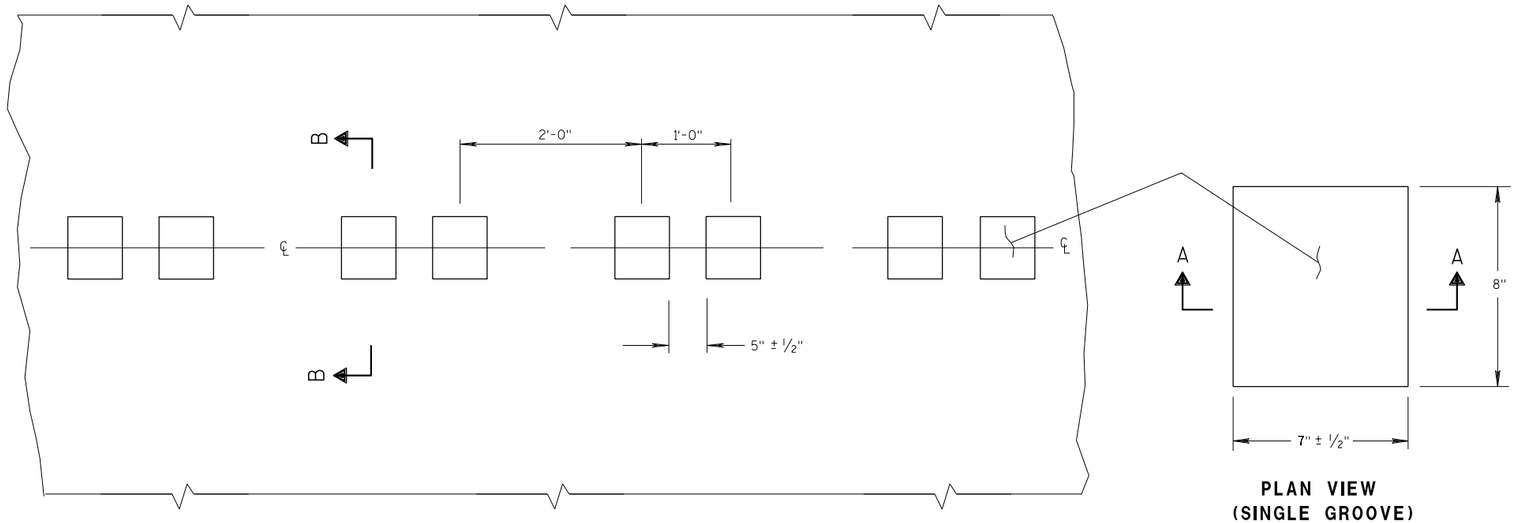
APPROVED
4-29-05 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

S.D.D. 8 E 9-6

6

S.D.D. 8 E 9-6



PLAN VIEW
CENTER LINE WITH GROOVES

PLAN VIEW
(SINGLE GROOVE)

PLACEMENT DETAIL FOR MILLED RUMBLE STRIP

GENERAL NOTES

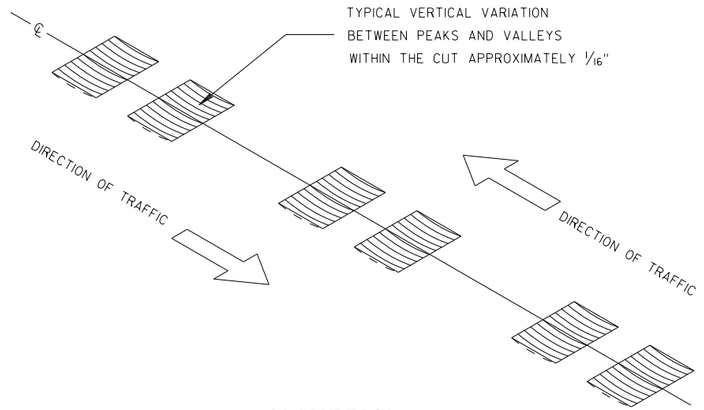
DETAILS OF CONSTRUCTION SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

DO NOT MILL CENTER LINE GROOVES THROUGH ANY INTERSECTION, MARKED CROSSWALK, NON-MOTORIZED PATH CROSSING, OR SNOWMOBILE CROSSING.

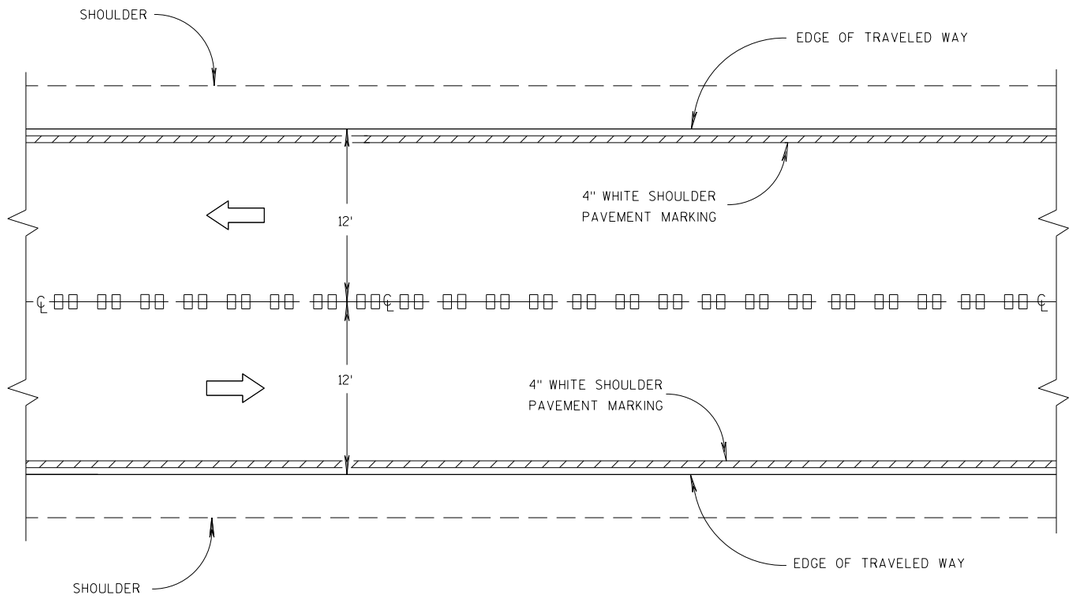
INSTALL PERMANENT MARKING EPOXY 4-INCH AFTER THE GROOVES ARE INSTALLED.

SEE SIGNING PLAN FOR SIGN REQUIREMENTS THAT MAY BE NEEDED.

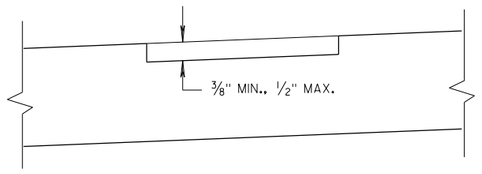
(1) CENTERLINE GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS, WHEN DIRECTED BY THE ENGINEER.



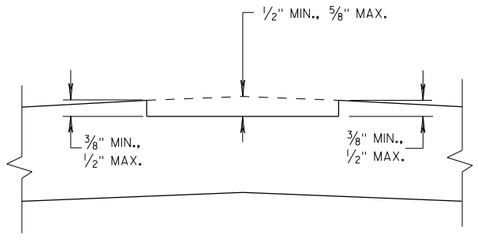
ISOMETRIC



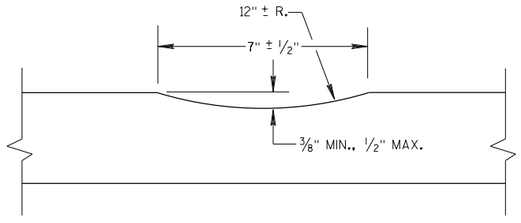
CENTER LINE GROOVES ON TWO-WAY ROADWAYS



SECTION B-B
SUPERELEVATED ROADWAY



SECTION B-B
CROWNED ROADWAY

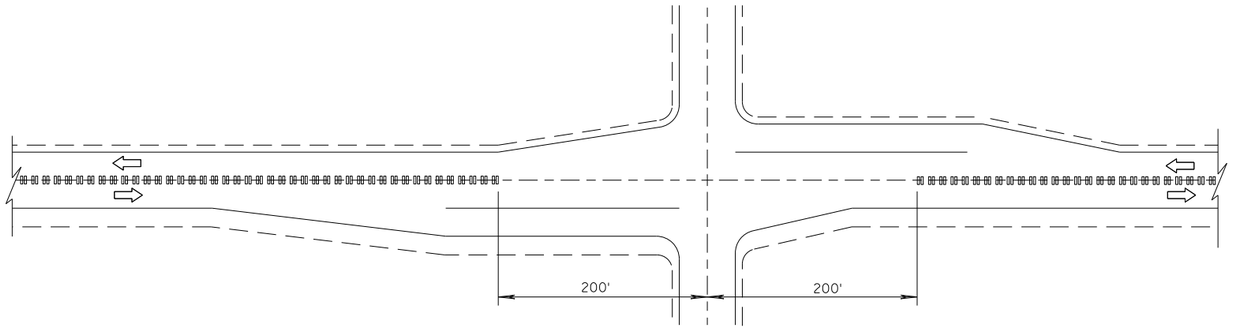


SECTION A-A

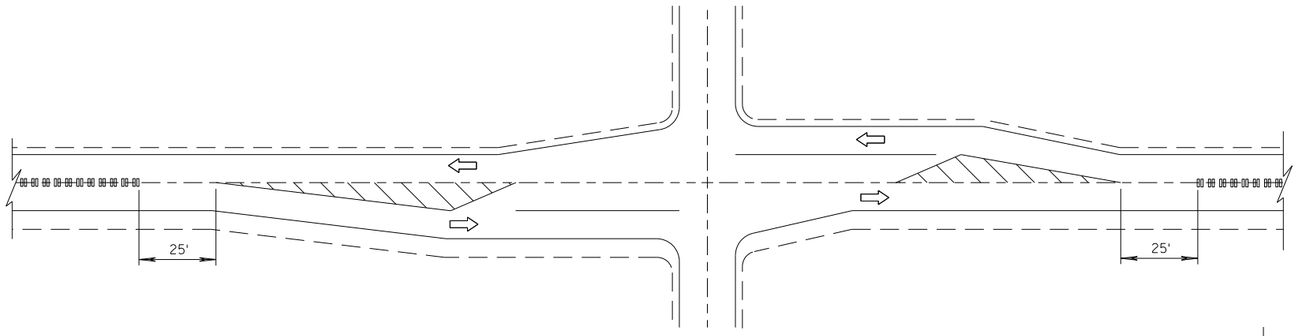
2-LANE RURAL
CENTER LINE RUMBLE STRIP, MILLING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

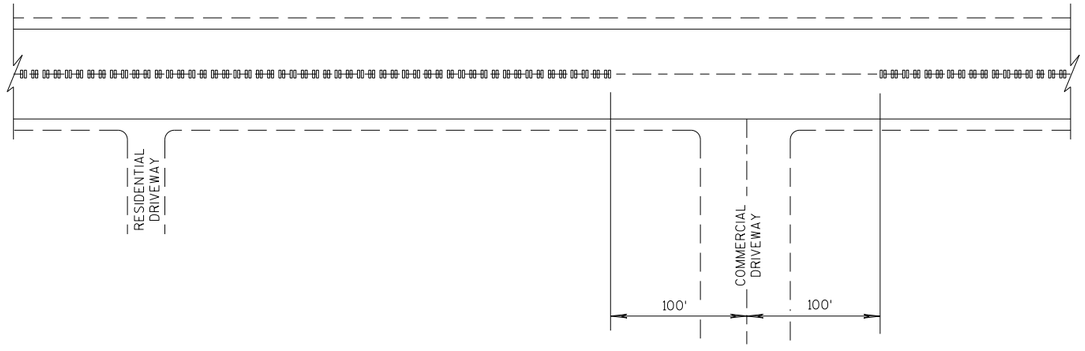
6
S.D.D. 13 A 11-3a



CENTER LINE GROOVES AT INTERSECTIONS

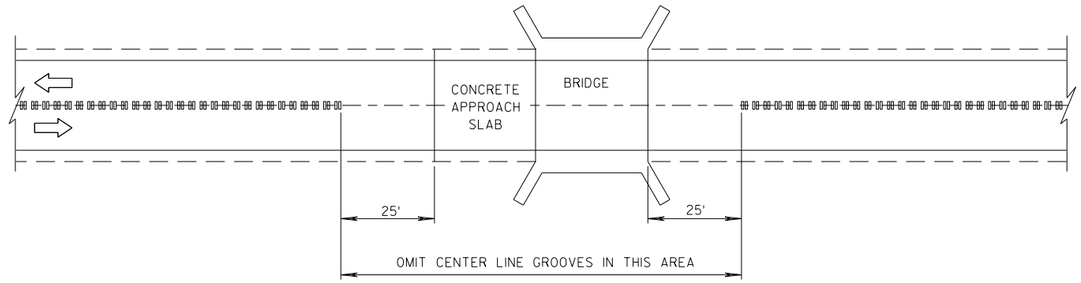


CENTER LINE GROOVES AT INTERSECTIONS
(WITH LEFT TURN LANES)

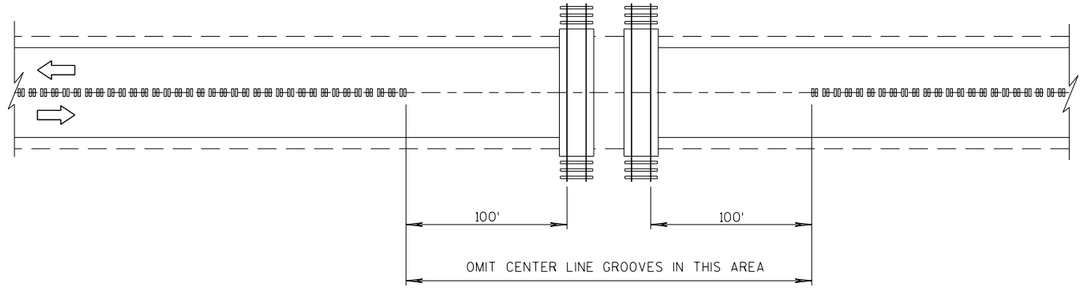


CENTER LINE GROOVES AT DRIVEWAYS (1)

(1) CENTERLINE GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS, WHEN DIRECTED BY THE ENGINEER.



CENTER LINE GROOVES AT BRIDGES



CENTER LINE GROOVES AT RAILROADS

2-LANE RURAL
CENTER LINE RUMBLE STRIP, MILLING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

7/2018 — DATE

/S/ Rodney T — ROADWAY STANDARDS DE UNIT SUPERVISOR

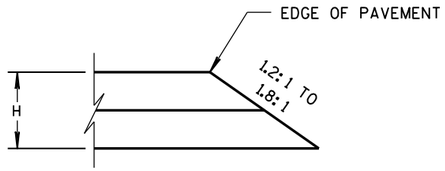
FHWA

6

S.D.D. 13 A 11-3b

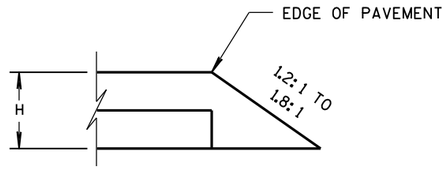
6

S.D.D. 13 A 11-3b



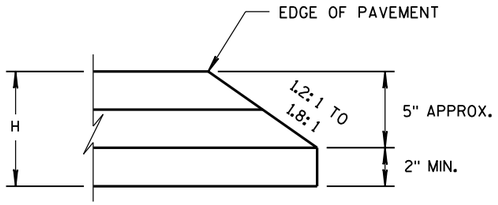
CONSTRUCTED WITH FINAL TWO LAYERS

FOR H 5" OR LESS



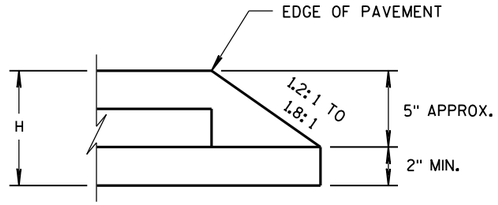
CONSTRUCTED WITH FINAL LAYER

FOR H 5" OR LESS



CONSTRUCTED WITH FINAL TWO LAYERS

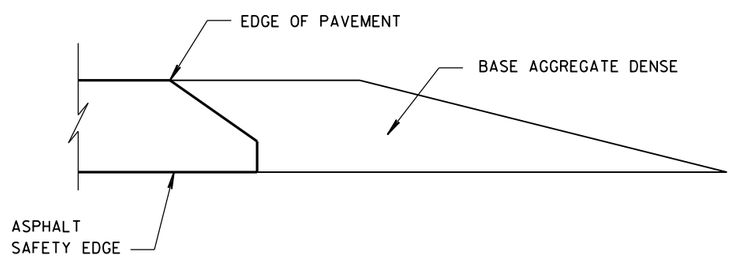
FOR H GREATER THAN 5"



CONSTRUCTED WITH FINAL LAYER

FOR H GREATER THAN 5"

HMA PAVEMENT AND HMA OVERLAYS



FINISHED SHOULDER AGGREGATE PLACEMENT

6

6

S.D.D. 14 B 29-1

S.D.D. 14 B 29-1

SAFETY EDGE SM

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

11/30/2012
DATE

/S/ Jerry H. Zoda
ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA

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

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

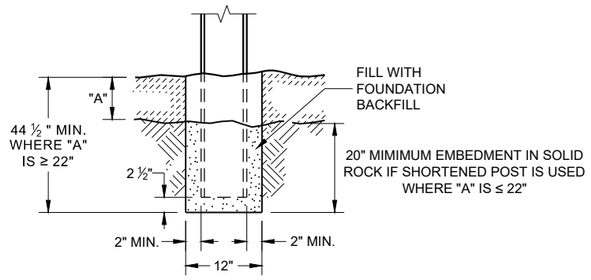
(3) IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2 1/2" INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AMD INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.

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

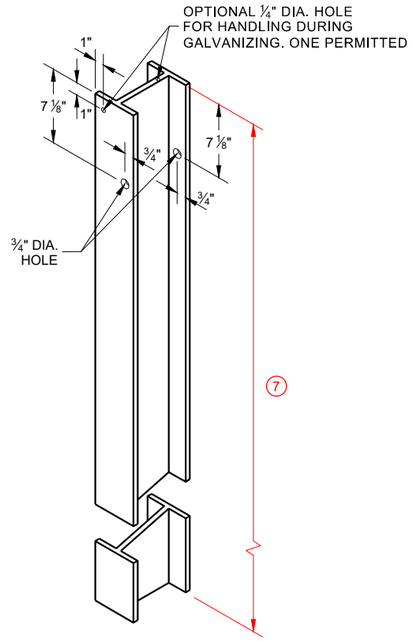
(5) FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ±1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 ¾" TO 32".

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

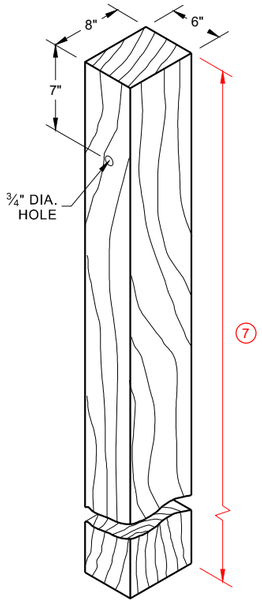
(7) TOTAL POST LENGTH FOR TYPE K IS 7' - 0".
TOTAL POST LENGTH FOR OTHER MGS TYPES IS 6' - 0".



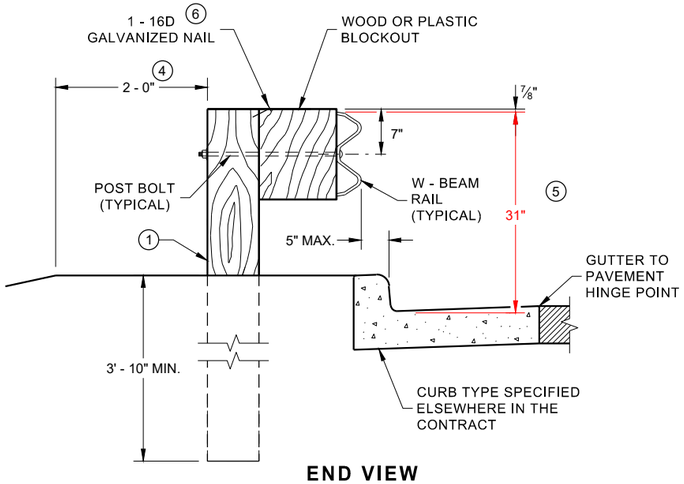
END VIEW
SETTING STEEL OR WOOD POST IN ROCK (3)



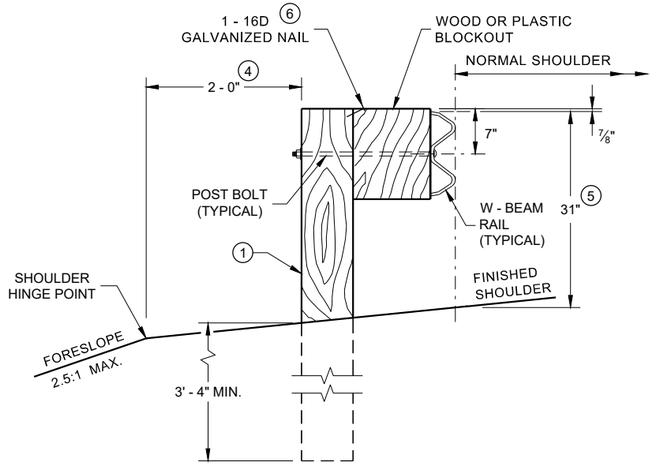
STEEL POST & HOLE PUNCHING DETAIL (W 6 X 9) (1)



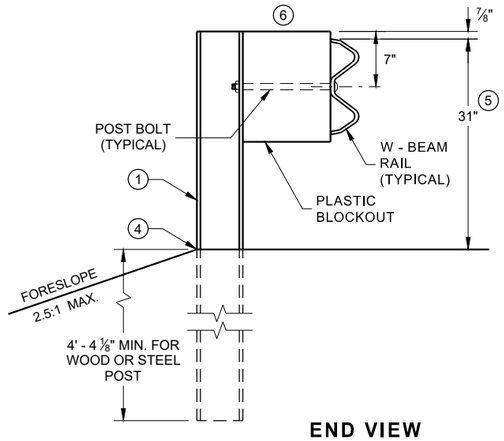
WOOD POST (6" X 8") NOMINAL (1)



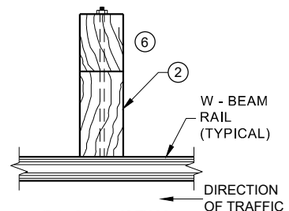
END VIEW
LOCATED ALONG A CURBED ROADWAY



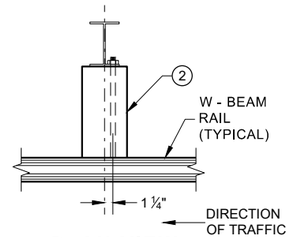
END VIEW
LOCATED ALONG A ROADWAY SHOULDER STANDARD INSTALLATION



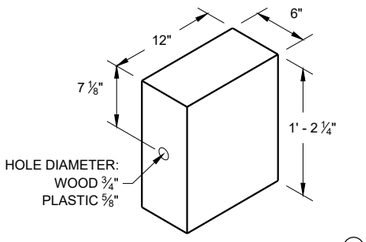
END VIEW
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



PLAN VIEW
WOOD POST, BLOCKOUT & BEAM



PLAN VIEW
STEEL POST, PLASTIC BLOCKOUT & BEAM



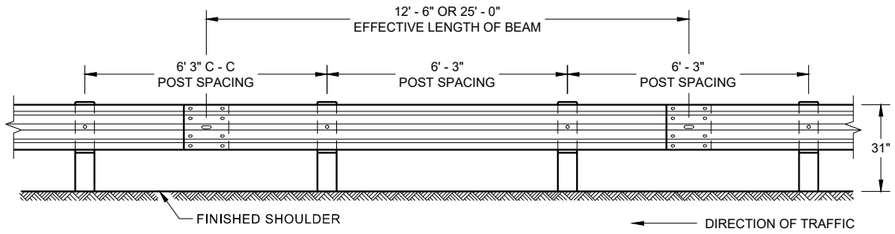
WOOD OR PLASTIC BLOCKOUT (2)

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

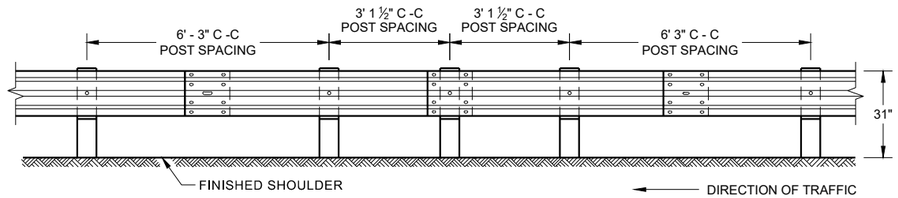
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

SDD 14B42 - 06a

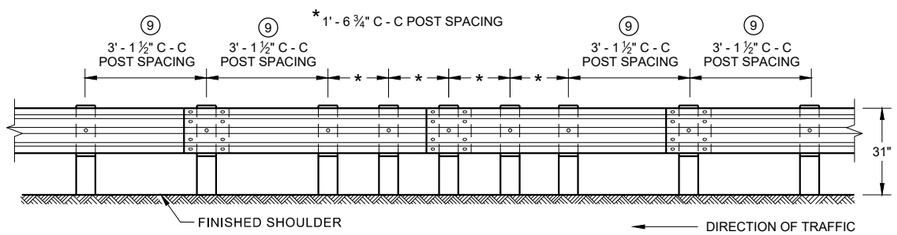
6
SDD 14B42 - 06a



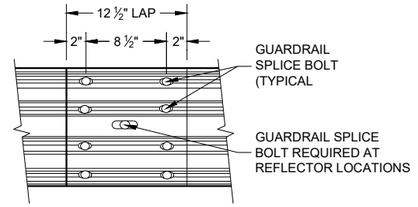
FRONT VIEW
POST SPACING STANDARD INSTALLATION



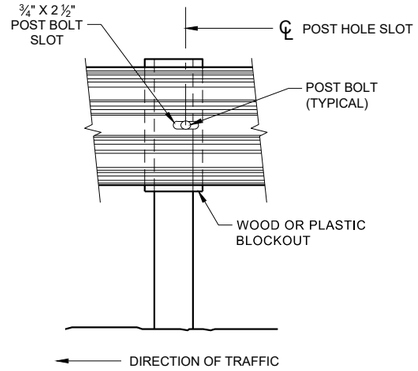
FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)



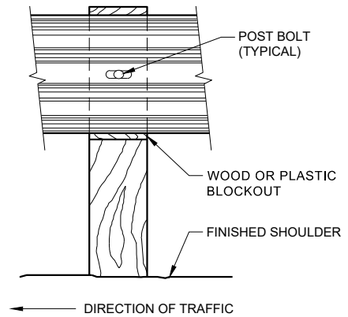
FRONT VIEW
QUARTER POST SPACING (QS)



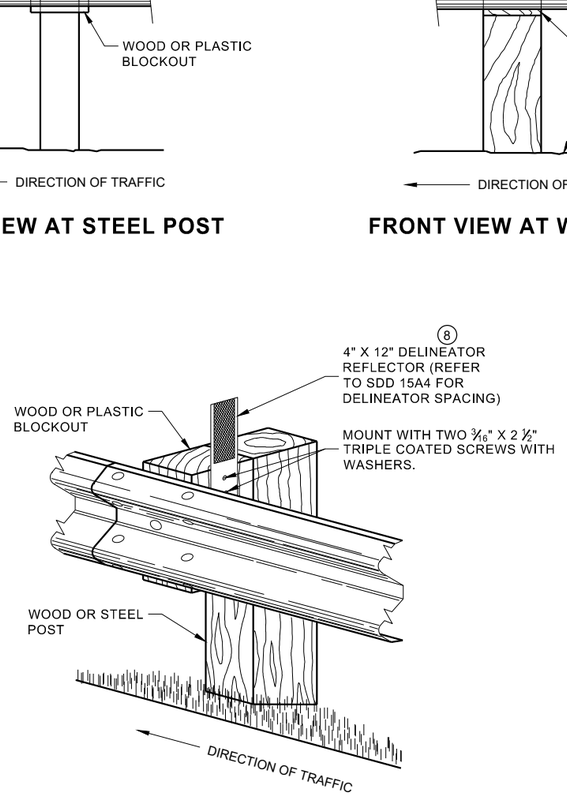
FRONT VIEW
MID-SPAN BEAM SPLICE



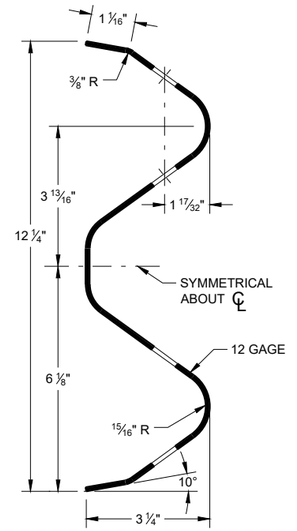
FRONT VIEW AT STEEL POST



FRONT VIEW AT WOOD POST



ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION



SECTION THRU W-BEAM RAIL

GENERAL NOTES

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

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

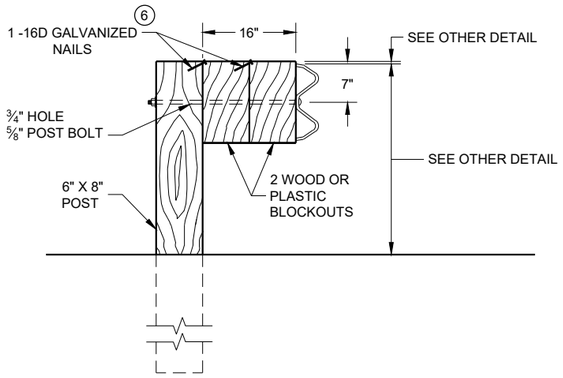
POST BOLTS ARE A ¾" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES ⅝" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND ⅝" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

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

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6
SDD 14B42 - 06b

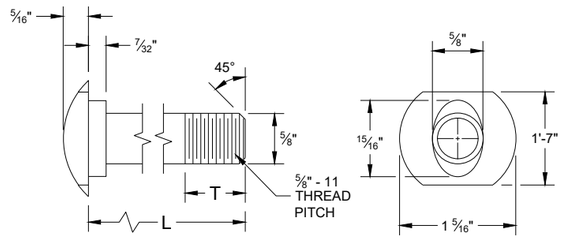


DETAIL FOR 16" BLOCKOUT DEPTH

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

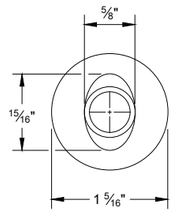
NOTE:

1. ALL FILLETS SHALL HAVE A MINIMUM RADIUS OF 3/16".
2. IF THE BOLT EXTENDS MORE THAN ¼" FROM THE NUT THE BOLT SHOULD BE TRIMMED BACK.

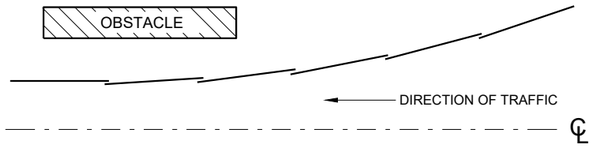


POST BOLT TABLE

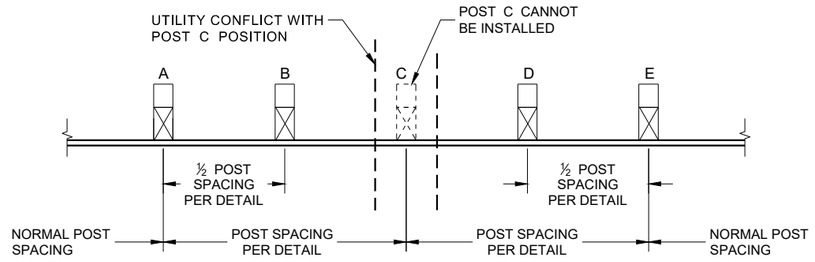
L	T (MIN.)
1 ¼"	1 ⅛"
2"	1 ¾"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



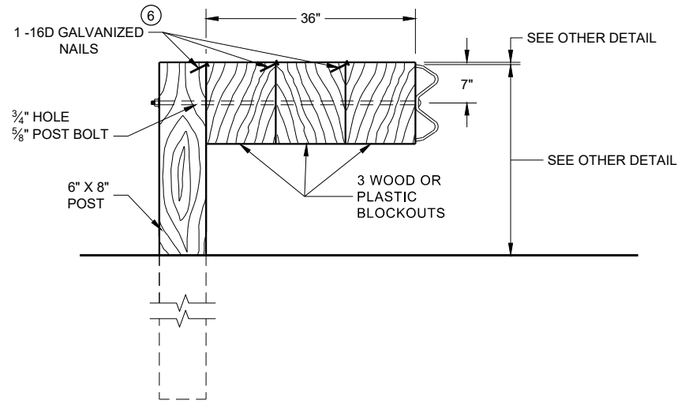
ALTERNATE BOLT HEAD



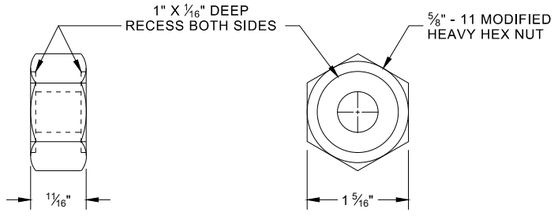
PLAN VIEW
BEAM LAPPING DETAIL



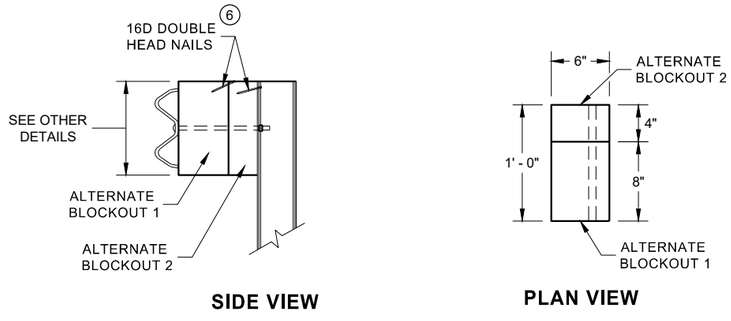
POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



DETAIL FOR 36" BLOCKOUT DEPTH



POST BOLT, SPLICE BOLT AND RECESS NUT



SIDE VIEW

PLAN VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

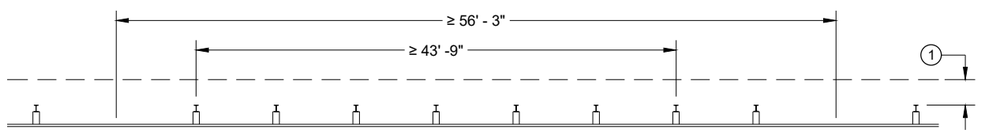
NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.

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

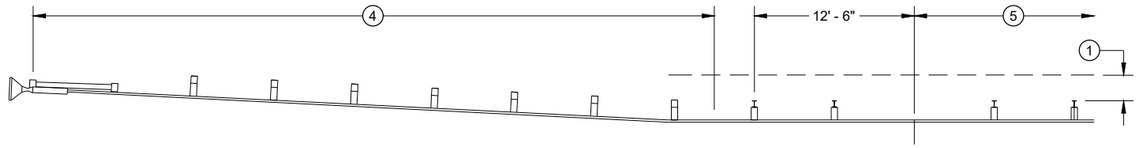
(6) WHEN USING STEEL POST AD WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

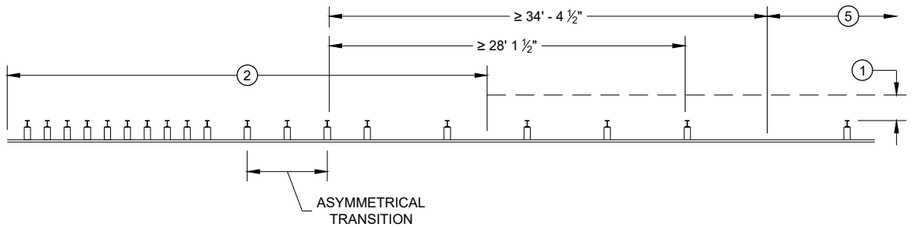
6
SDD 14B42 - 06c



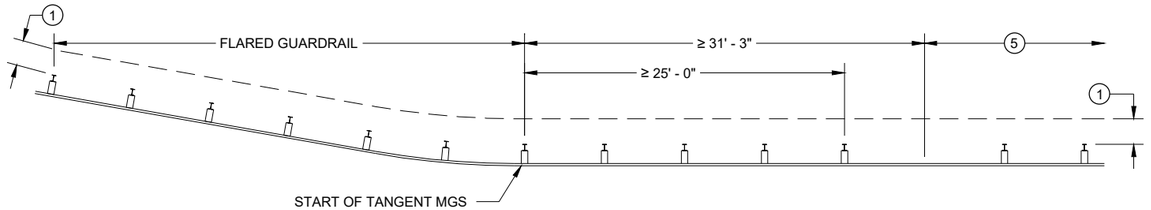
MISSING POST IN NORMAL BEAM GUARD RUN



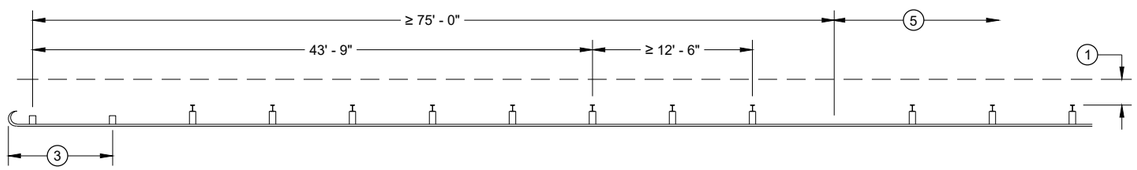
MISSING POST IN NORMAL BEAM GUARD RUN NEAR EAT



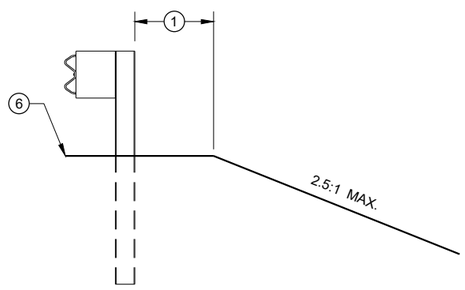
MISSING POST NEAR APPROACH THRIE BEAM TRANSITION



MISSING POST IN NORMAL BEAM GUARD RUN NEAR FLARED BEAM GUARD



MISSING POST IN NORMAL BEAM GUARD RUN NEAR TYPE 2 TERMINAL



CROSS SECTION VIEW

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

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
7/2018 — DATE
/S/ Rodney Taylor — ROADWAY STANDARDS DEVE UNIT SUPERVISOR
FHWA

SDD 14B42 - 06d

SDD 14B42 - 06d

GENERAL NOTES

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

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

(C) DIFFERENT MANUFACTURERS REQUIRE DIFFERENT PERFORATED W - BEAM RAIL END PANELS. SEE MANUFACTURER'S INFORMATION.

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

(E) HARDWARE MAY VARY BETWEEN MANUFACTURER. SEE MANUFACTURER'S DRAWING FOR INFORMATION.

DIMENSIONS MAY VARY, MANUFACTURER'S INFORMATION.

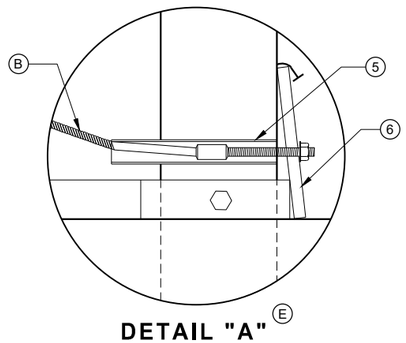
SEE SDD 14B42 FOR MORE INFORMATION.

* DO NOT ATTACH BLOCKOUTS TO POST 1 AND 2.

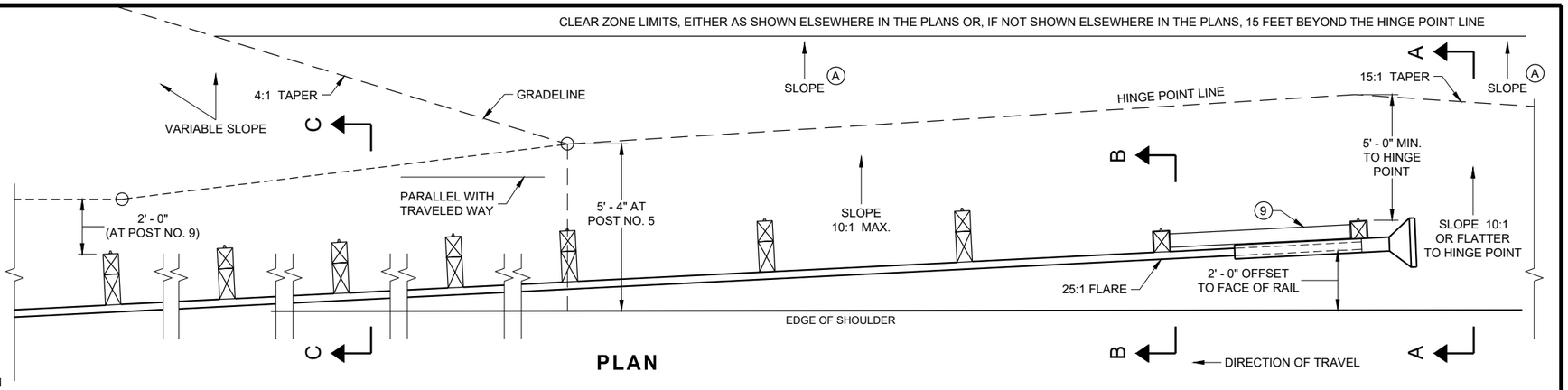
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

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

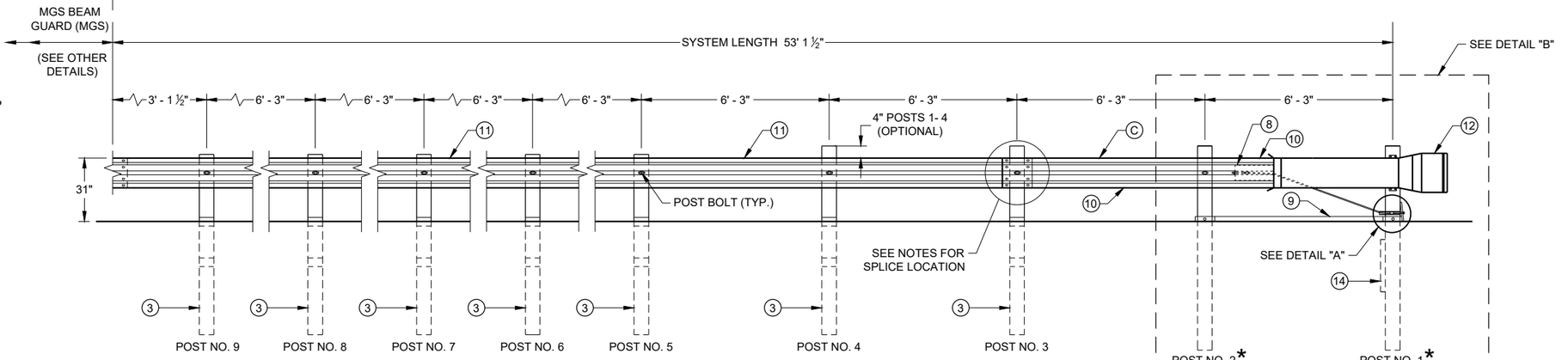
THE CENTER OF THE UPPER 3 ½" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE. WOOD BLOCKS ON POSTS NUMBERED 3 THROUGH 9 MAY BE ADJUSTED UP TO 3" ABOVE THE TOP OF POST.



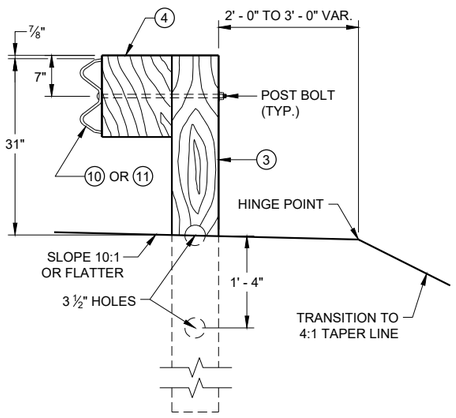
DETAIL "A" (E)



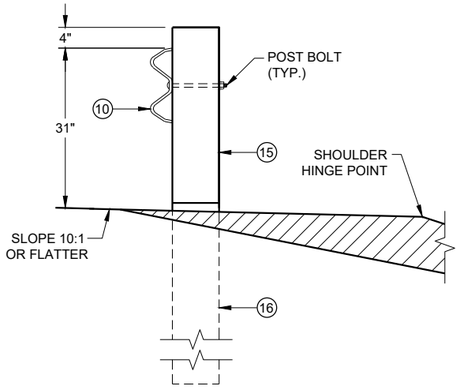
PLAN



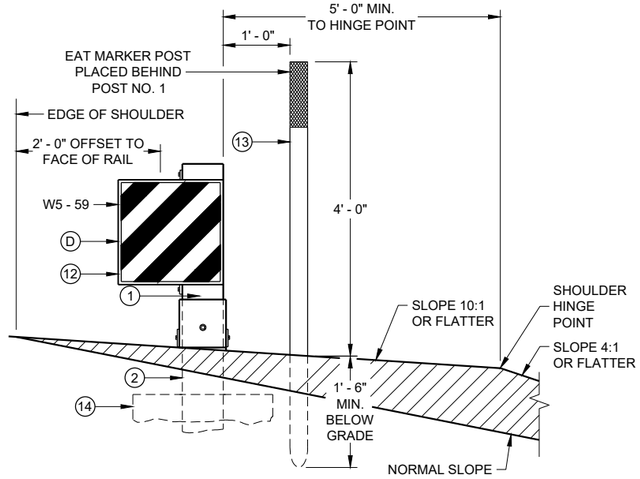
ELEVATION



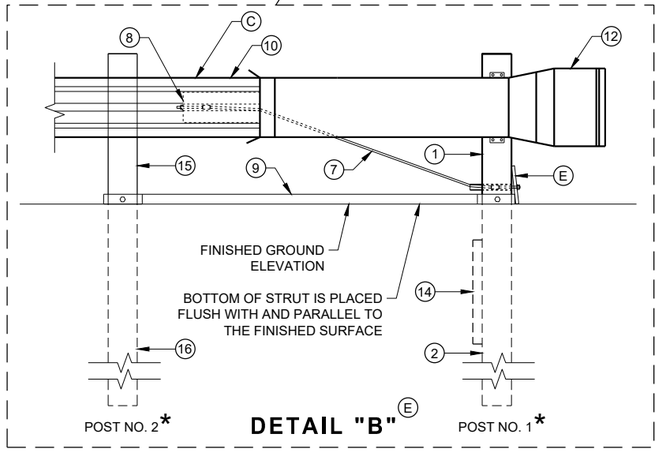
SECTION C - C
TYPICAL AT POST NOS. 3 - 9



SECTION B - B
TYPICAL AT POST NO. 2*



SECTION A - A
TYPICAL AT POST NO. 1*



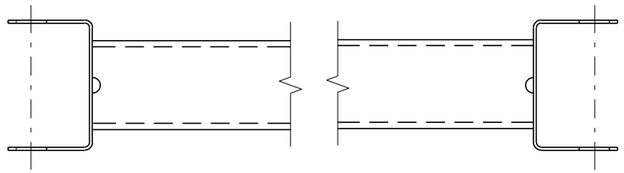
DETAIL "B" (E)

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

SDD 14B44 - 04a

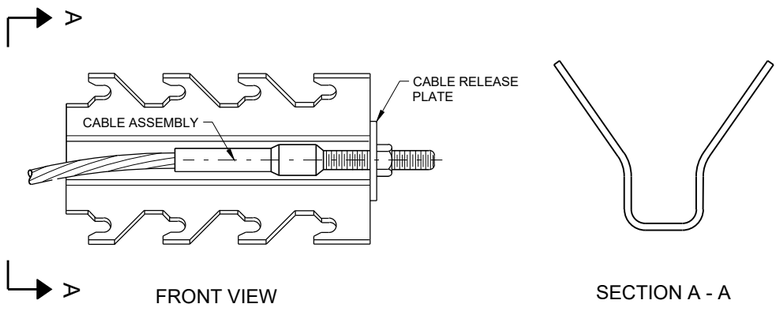
SDD 14B44 - 04a



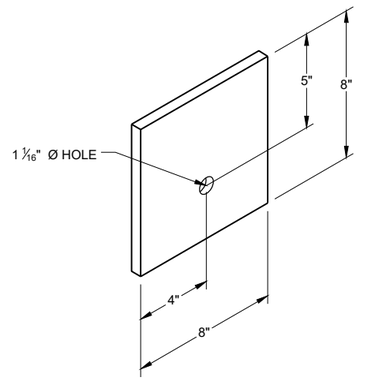
GENERIC GROUND STRUT ⑨ Ⓔ

BILL OF MATERIALS

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



GENERIC ANCHOR CABLE BOX ⑨ Ⓔ



BEARING PLATE ⑥ Ⓔ

6

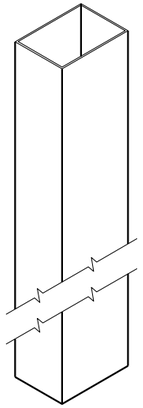
6

SDD 14B45 - 04b

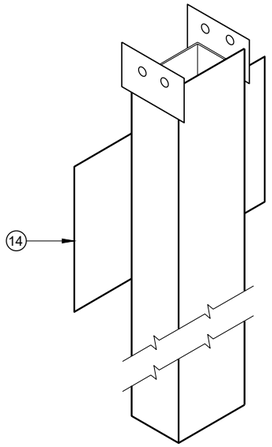
SDD 14B45 - 04b

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL (MGS)

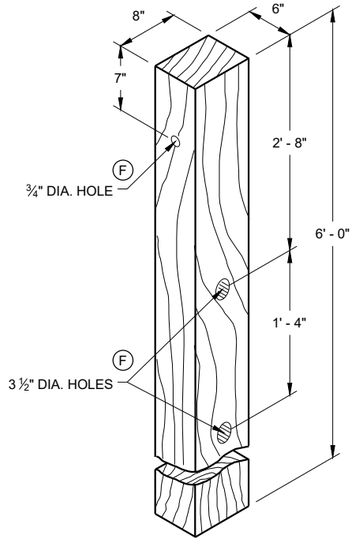
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



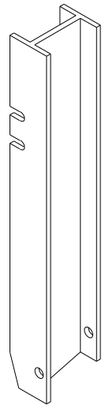
UPPER POST NO. 1 (1) (E)



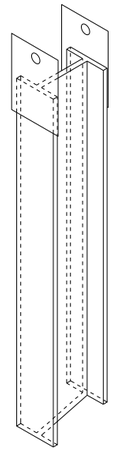
LOWER POST NO. 1 (2) (E)



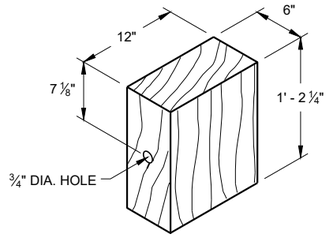
WOOD CRT POST (3) (E)
POSTS NUMBER 3-9



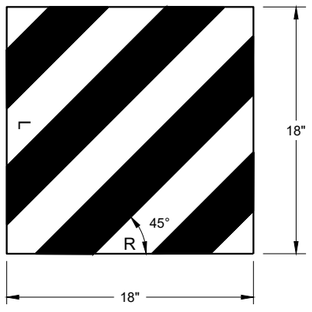
UPPER POST NO. 2 (15) (E)



LOWER POST NO. 2 (16) (E)

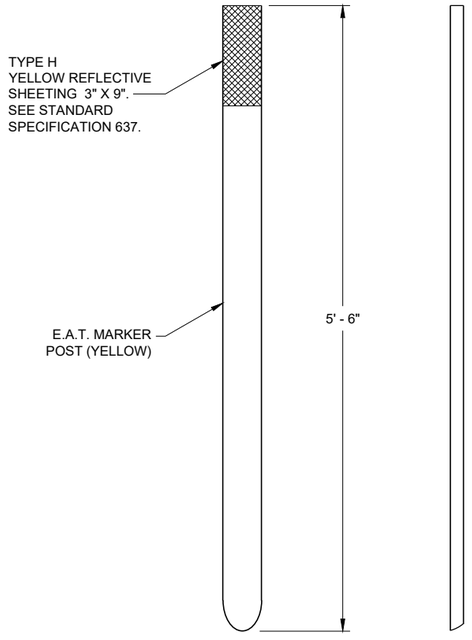


WOOD BLOCKOUT (4)
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



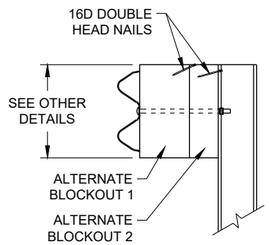
W5 - 59

REFLECTIVE SHEETING DETAIL (E)

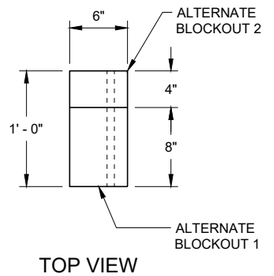


FRONT VIEW SIDE VIEW

E.A.T. MARKER POST (13)



SIDE VIEW



TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
7/2018 — DATE
/S/ Rodney Taylor — ROADWAY STANDARDS DEVE UNIT SUPERVISOR
FHWA

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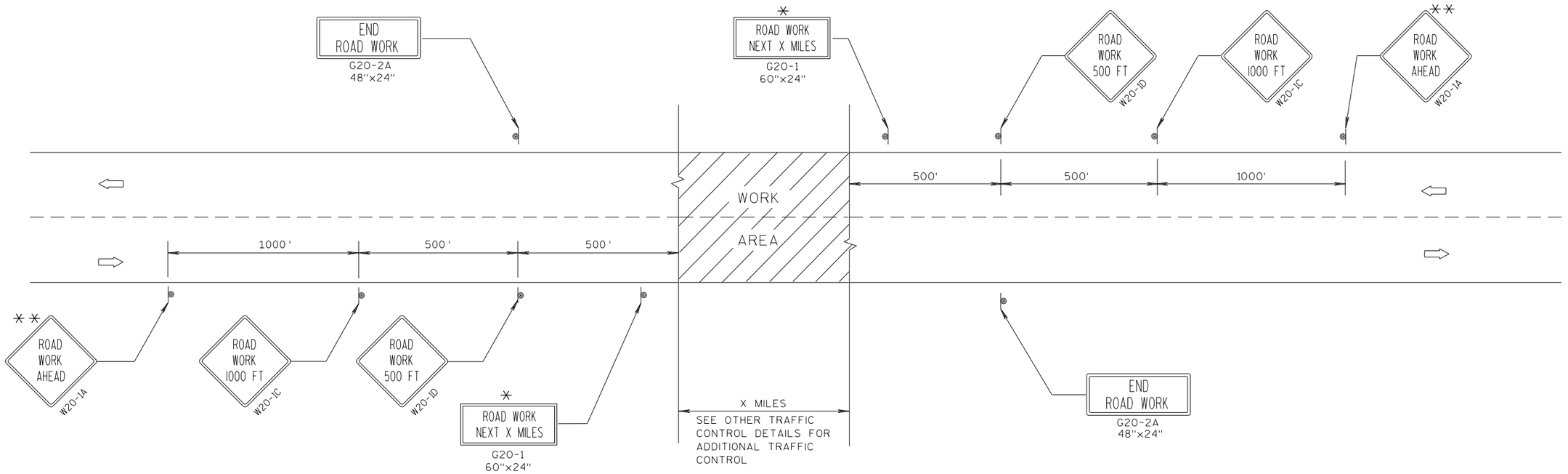
SDD 14B44 - 04c

TYPICAL SIDEROAD APPROACH WARNING SIGN DETAIL



GENERAL NOTES

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

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

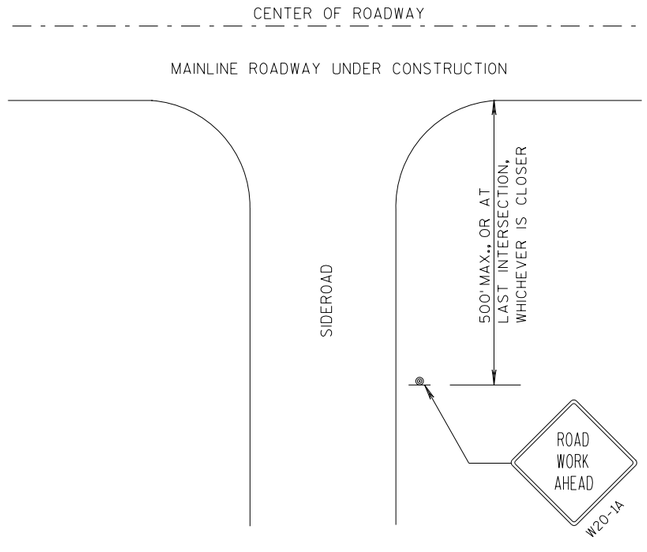
ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

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

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

* OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS.

** PLACE ADDITIONAL W20-1A "ROAD WORK AHEAD" SIGN IF WORK AREA WITHIN THE PROJECT IS SEPARATED BY MORE THAN 2 MILES FROM PREVIOUS WORK AREA.



LEGEND

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

TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

7/2018
DATE

/S/ Andrew Heldtke
WORK ZONE ENGI

FHWA

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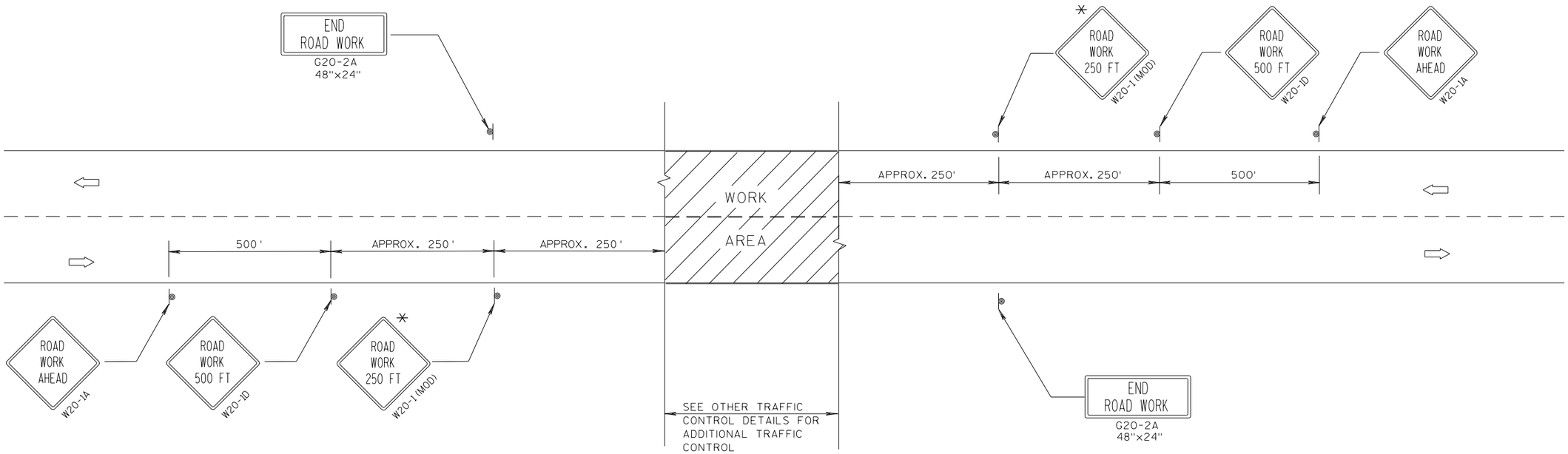
S.D.D. 15 C 4-5

TYPICAL SIDEROAD APPROACH WARNING SIGN DETAIL



GENERAL NOTES

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

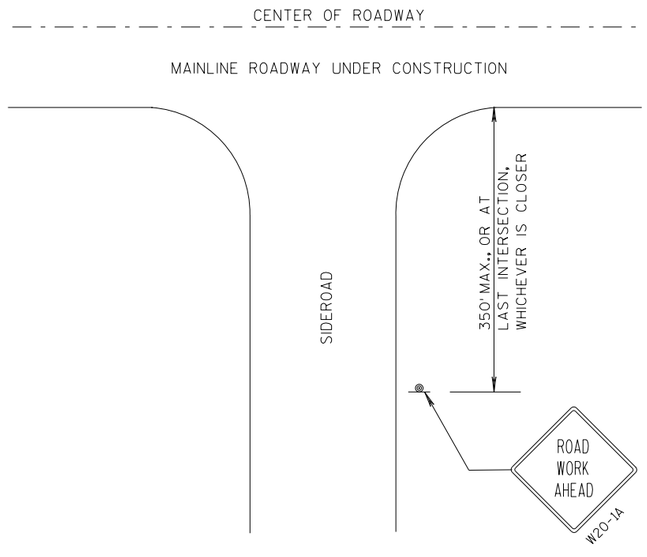
THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

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.

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

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

* THE THIRD W20-1 SIGN IS REQUIRED ONLY IF THERE IS AN INTERSECTION BETWEEN THE "ROAD WORK 500 FT" SIGN AND THE WORK ZONE. ADJUST THE PLACEMENT OF THIS SIGN BASED ON INTERSECTION LOCATION AND OTHER FIELD CONDITIONS.



LEGEND

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

TRAFFIC CONTROL, ADVANCE WARNING SIGNS 40 M.P.H. OR LESS TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

7/2018
DATE

/S/ Andrew Heldtke
WORK ZONE ENGI

FHWA

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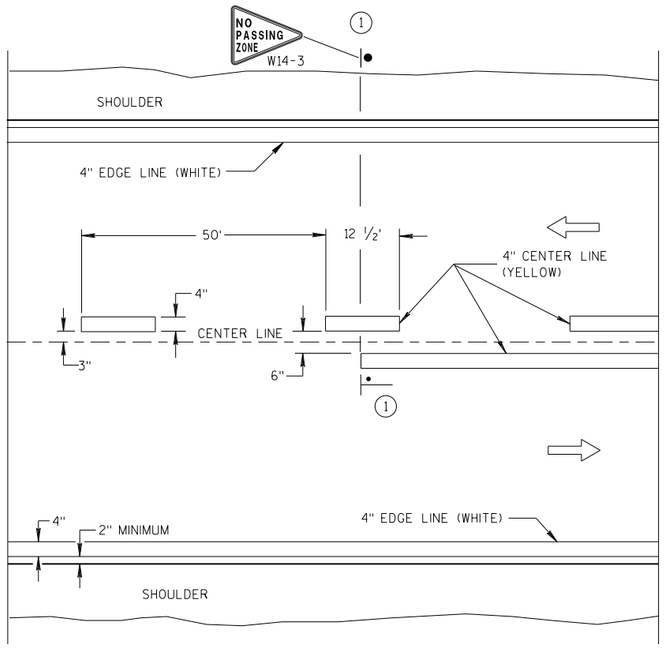
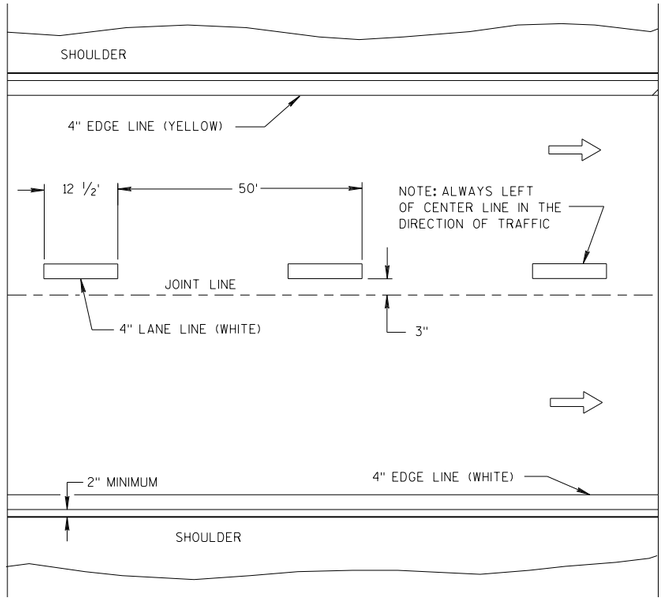
S.D.D. 15 C 5-5



TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING

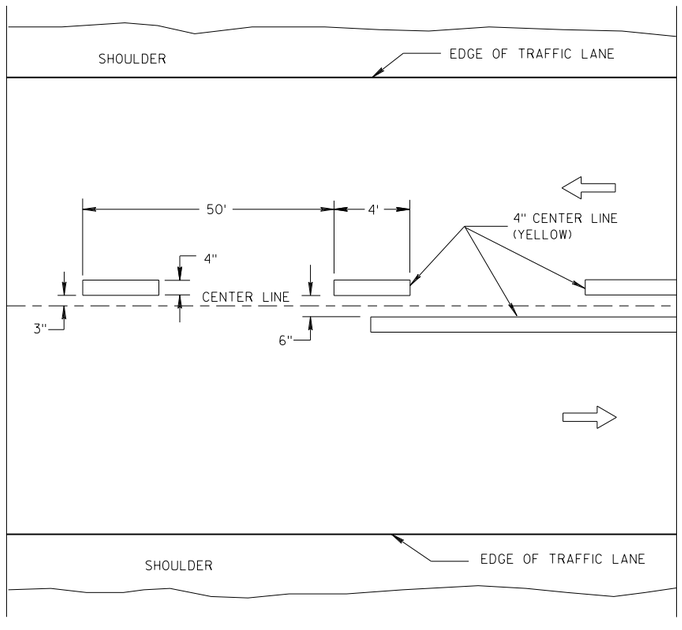
GENERAL NOTES

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

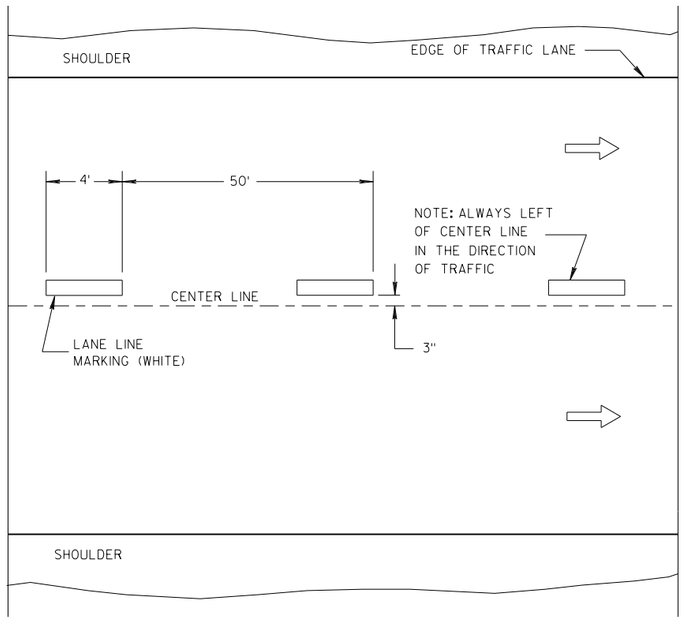
(1) LOCATE THE NO PASSING ZONE W14-3 SIGN WITHIN 50 FEET OF THE "T" MARKING.

NOTE

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

LEGEND

"T" MARKING

POST MOUNTED SIGN

LONGITUDINAL MARKING (MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

7/2018 — DATE

/S/ Matthew R. Rauch — STATE SIGNING AND MARKING ENGINEER

FHWA

6

S.D.D. 15 C 8-19a

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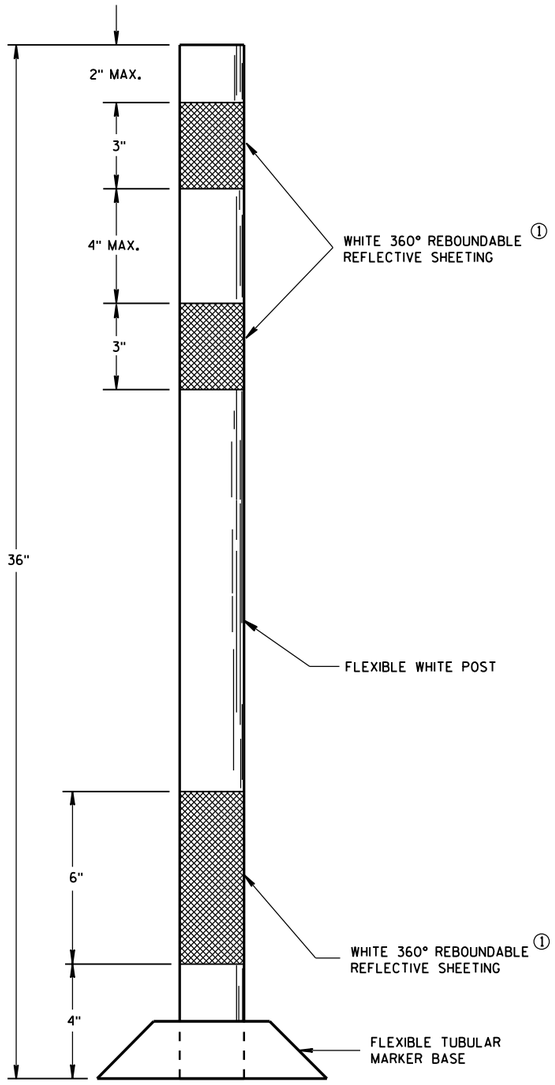
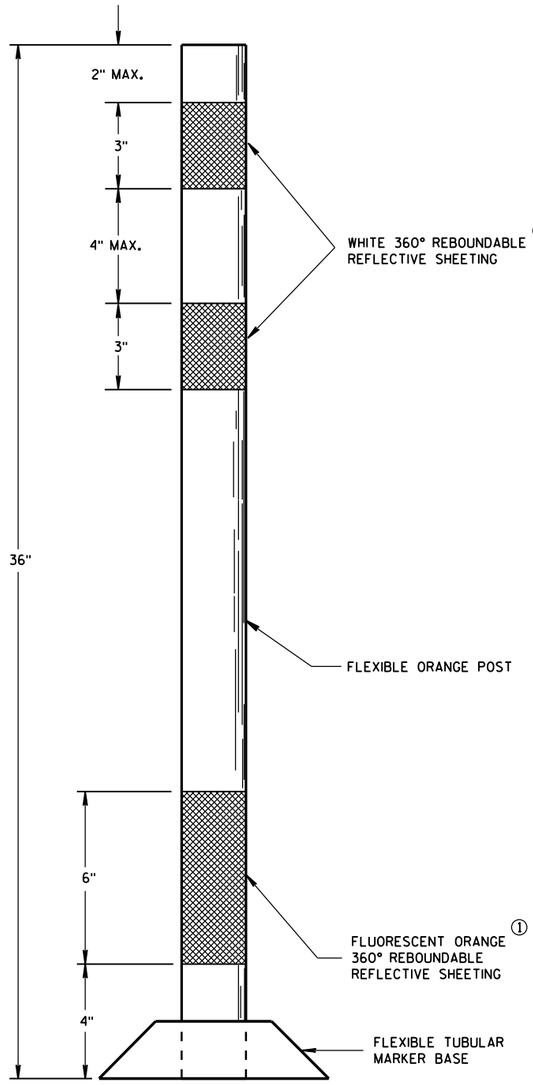
S.D.D. 15 C 8-19a



FLEXIBLE
TUBULAR MARKER POST
PERMANENT CROSSOVER



FLEXIBLE
TUBULAR MARKER POST
WORK ZONE

GENERAL NOTES

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

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

THE ASPHALTIC ADHESIVE OR BUTYL PAD FURNISHED SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS, UNLESS DIRECTED BY THE ENGINEER TO USE BOLTS.

① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.

CHANNELIZING DEVICES
FLEXIBLE TUBULAR MARKER POST

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017 — DATE
/S/ Andrew Heldtke — WORK ZONE ENGR
FHWA

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

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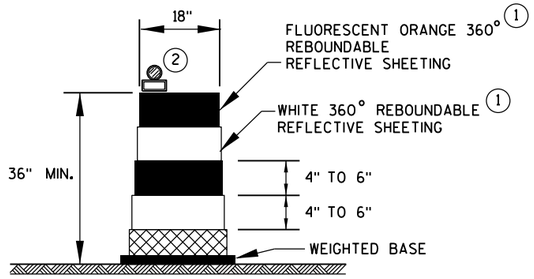
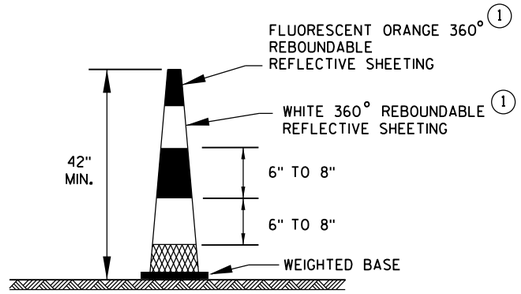
S.D.D. 15 C 11-7a



DRUM

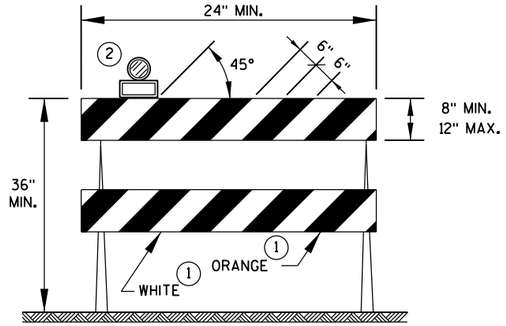


42" CONE

DO NOT USE IN TAPERS
1/2 SPACING OF DRUMS

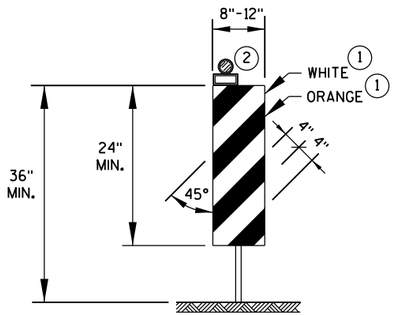
GENERAL NOTES

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



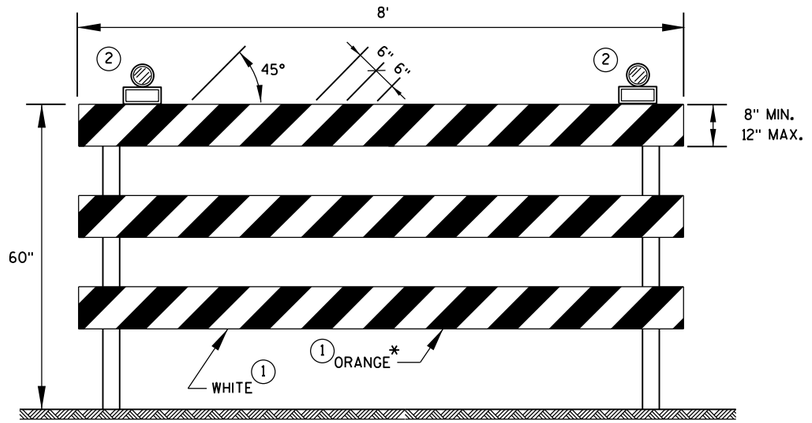
TYPE 2 BARRICADE

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



VERTICAL PANEL

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



TYPE 3 BARRICADE

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

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

CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
June 2017 DATE	/S/ Andrew Heidtke WORK ZONE ENG
FHWA	

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

LEGEND

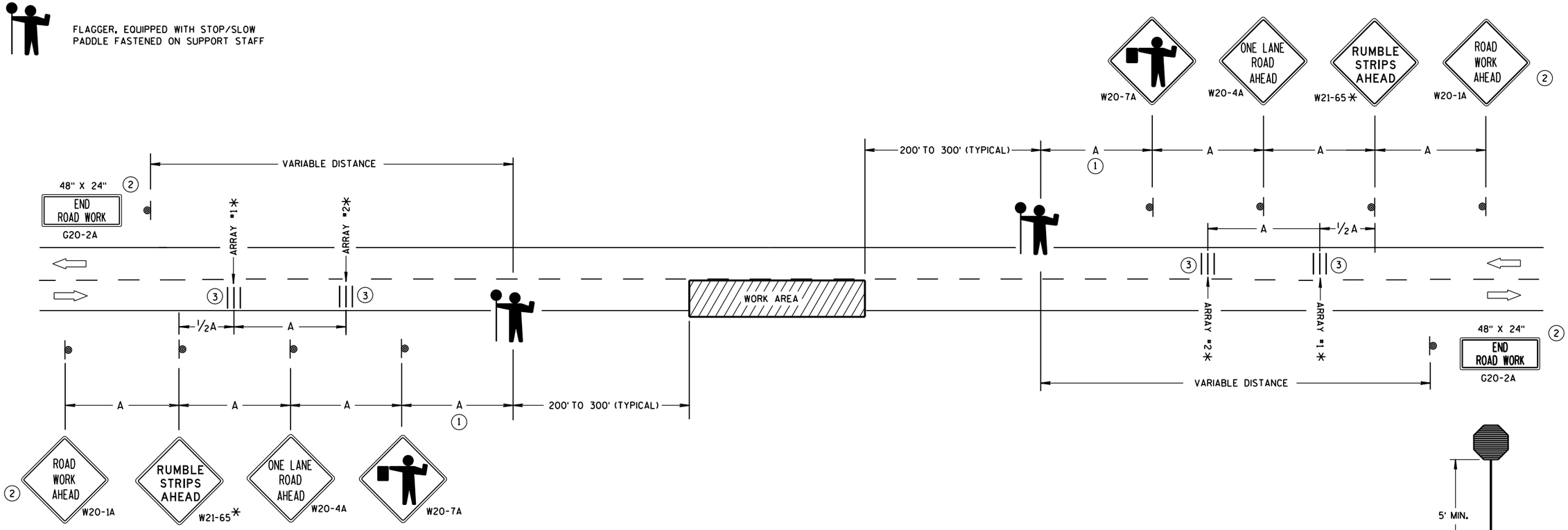
- SIGN ON PORTABLE OR PERMANENT SUPPORT
- DIRECTION OF TRAFFIC
- WORK AREA
- FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

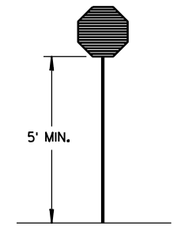
SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

SPEED LIMIT	SPACING A
25-35 MPH	200'
35-40 MPH	350'
45-55 MPH	500'

W03-4

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





STOP/SLOW PADDLE ON SUPPORT STAFF

TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

GENERAL NOTES

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

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

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

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

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

INSTALL TEMPORARY RUMBLE STRIPS PER MANUFACTURER'S RECOMMENDATIONS.

PLACE ADVANCE SIGNING PRIOR TO INSTALLING TEMPORARY RUMBLE STRIPS.

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

FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT, REMOVE TEMPORARY RUMBLE STRIPS PRIOR TO COVERING OR REMOVING ALL ADVANCE SIGNING.

* UTILIZE TEMPORARY RUMBLE STRIPS WHEN FLAGGING OPERATION IS ANTICIPATED TO BE STATIONARY IN EXCESS OF TWO HOURS.

(1) FOR A MOVING WORK OPERATION, SIGNING AND TEMPORARY RUMBLE STRIPS (IF USED) SHALL BE REESTABLISHED (AS SIMULTANEOUSLY AS PRACTICAL) AT APPROXIMATELY 3,500 FOOT INTERVALS IN THE MOVING WORK OPERATION OR AS APPROVED BY THE ENGINEER.

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

(3) EACH TEMPORARY RUMBLE STRIP ARRAY CONSISTS OF THREE RUMBLE STRIPS SPACED ACCORDING TO MANUFACTURER'S RECOMMENDATION, PLACED TRANSVERSE ACROSS THE LANE AT LOCATIONS SHOWN.

TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017 — DATE
/S/ Andrew Heldtke — WORK ZONE ENG
FHWA

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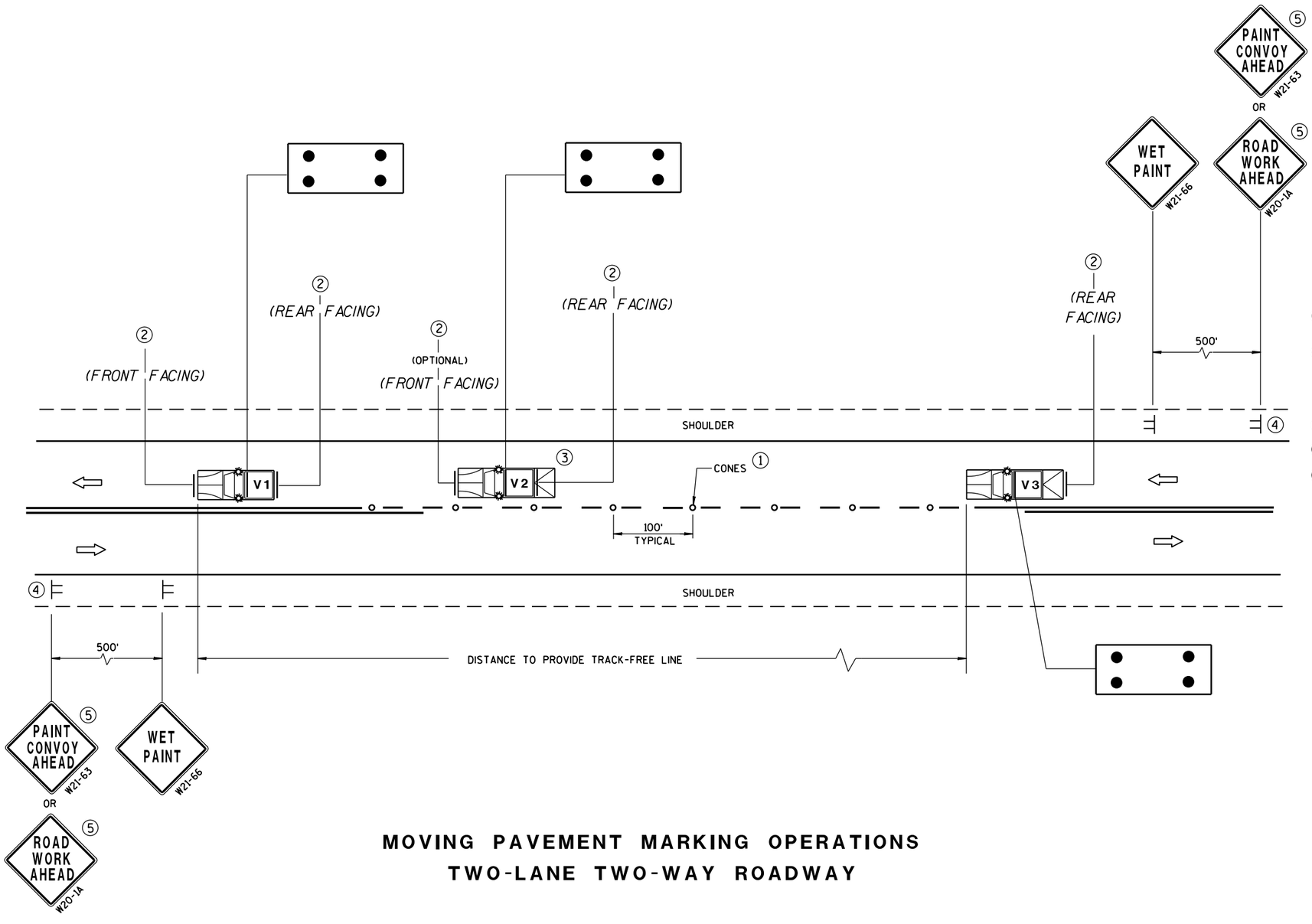
S.D.D. 15 C 12-6



MOVING PAVEMENT MARKING OPERATIONS
TWO-LANE TWO-WAY ROADWAY

GENERAL NOTES

ALL VEHICLES SHALL BE EQUIPPED WITH TWO 360 DEGREE HIGH INTENSITY YELLOW FLASHING LIGHTS OR STROBE LIGHTS AND OPERATED WITH HEADLIGHTS TURNED ON.

VEHICLES SHALL BE EQUIPPED WITH REAR FACING TYPE B OR C FLASHING ARROW PANEL OPERATING IN CAUTION MODE. SIGNS PLACED ON VEHICLES MUST NOT OBSCURE THE ARROW PANEL.

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

IF SPEED LIMIT IS 40 MPH OR LESS STATIONARY SIGNS MAY BE OMITTED IF CONES ARE USED.

ALTERNATE SIGN MESSAGES, SUCH AS "PAINT CREW AHEAD" OR "ROAD PAINTING AHEAD" MAY BE USED.

DISTANCE BETWEEN VEHICLES MAY VARY ACCORDING TO TERRAIN, SIGHT DISTANCE, PAINT DRYING TIME, AND OTHER FACTORS. WHENEVER ADEQUATE STOPPING SIGHT DISTANCE EXISTS TO THE REAR, SHADOW VEHICLES SHOULD MAINTAIN THE MINIMUM DISTANCE FROM THE WORK VEHICLE AND PROCEED AT THE SAME SPEED AS THE WORK VEHICLE. SHADOW VEHICLES SHOULD SLOW DOWN IN ADVANCE OF VERTICAL OR HORIZONTAL CURVES THAT RESTRICT SIGHT DISTANCE.

THE WORK AND SHADOW VEHICLES SHOULD PULL OVER PERIODICALLY TO ALLOW TRAFFIC TO PASS.

THIS DRAWING SHALL BE USED FOR CENTERLINE OR EDGELINE MARKING.

WHEN NO WORK ACTIVITY IS TAKING PLACE, REMOVE OR TURN THE STATIONARY WARNING SIGNS AWAY FROM TRAFFIC.

(1) CONES MAY BE OMITTED ON PAINTED LINE IF APPROVED BY THE ENGINEER. CONSIDER PAVEMENT MARKING DRY OR CURE TIMES AND TRAFFIC VOLUME.

(2) USE STANDARD SIGN W21-64 WITH APPROPRIATE ARROW.

WET PAINT W21-64 OR WET PAINT W21-64

(3) OPTIONAL TRUCK-MOUNTED ATTENUATOR.

(4) SIGNS SHALL BE REPEATED APPROXIMATELY EVERY THREE MILES.

(5) IF CONSTRUCTION WORK ZONE SIGNS ARE IN PLACE, W20-1 OR W21-63 ARE NOT REQUIRED.

LEGEND

- **V1** LEAD VEHICLE
- **V2** SHADOW VEHICLE
- **V3** TRAIL VEHICLE WITH TMA
- **TMA** TRUCK-MOUNTED ATTENUATOR
- SIGN ON TEMPORARY SUPPORT
- DIRECTION OF TRAFFIC
- CONES
- FLASHING ARROW PANEL (CAUTION)

MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
Sept., 2017 DATE	/S/ Andrew Heldtke WORK ZONE ENGR
FHWA	

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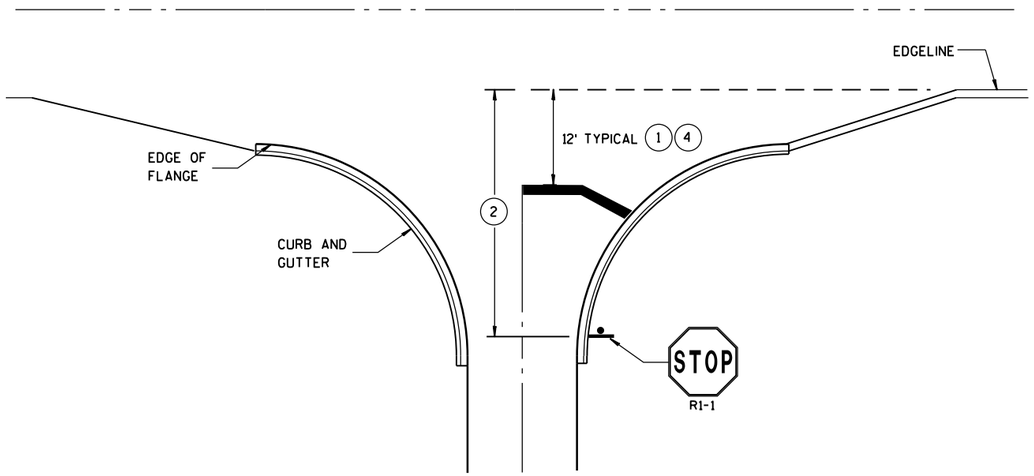
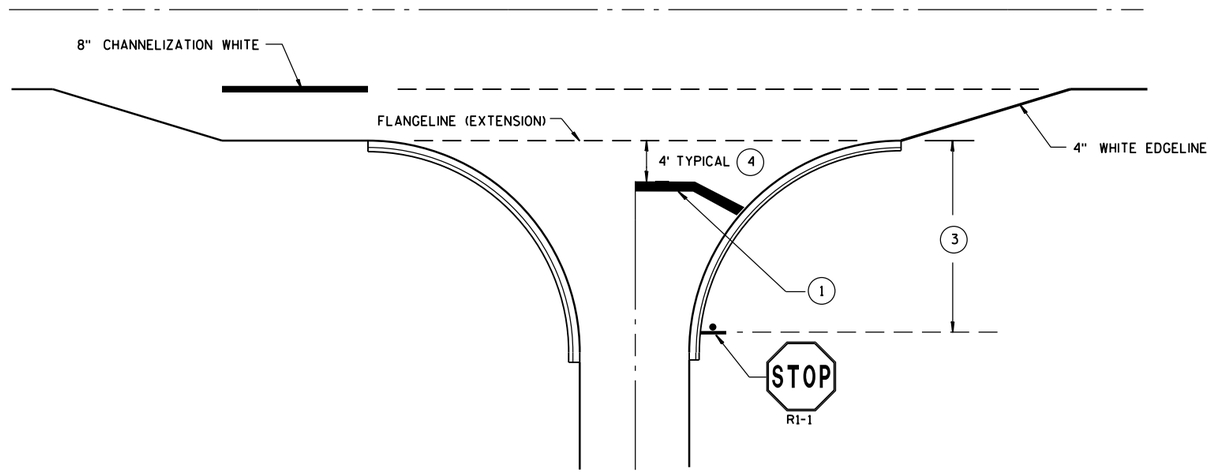
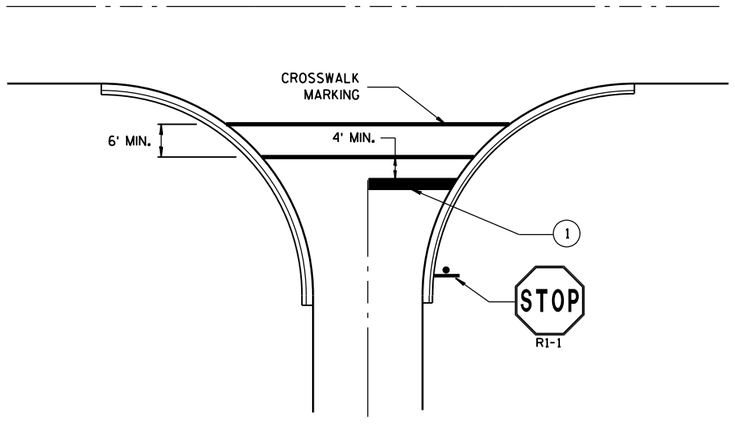
S.D.D. 15 C 19-5a



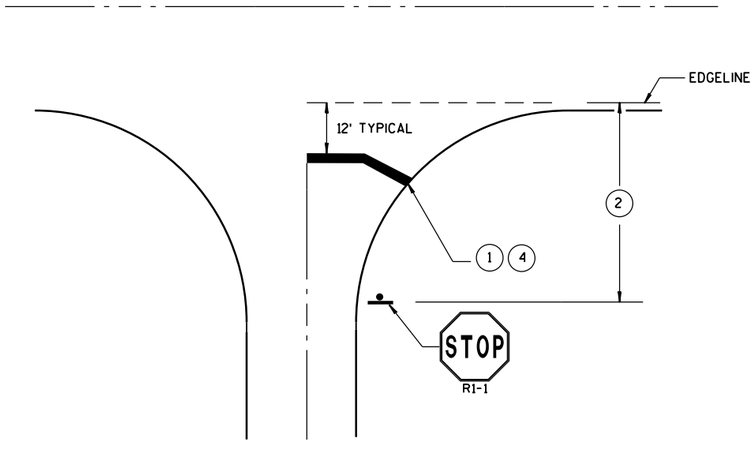
TYPICAL STOP LINE PAVEMENT MARKING WITH CURB AND GUTTER



TYPICAL STOP LINE PAVEMENT MARKING FOR SIDEROADS WITH RIGHT TURN LANE



TYPICAL STOP LINE PAVEMENT MARKING FOR SIDEROADS WITH CROSSWALK MARKING



TYPICAL STOP LINE PAVEMENT MARKING WITHOUT CURB AND GUTTER

GENERAL NOTES

STOP SIGN SHALL BE PLACED A MINIMUM OF 6 FEET TO A MAXIMUM OF 50 FEET FROM THE EDGELINE LOCATION.

1. 18-INCH STOP LINES MAY BE DELETED OR ADDED BY THE PROJECT ENGINEER BASED ON VISIBILITY AND SIGHT LINES.
2. IF STOP SIGN IS LESS THAN OR EQUAL TO 40 FEET FROM THE EDGELINE THAN NO STOP LINE IS REQUIRED.
3. IF STOP SIGN IS LESS THAN OR EQUAL TO 30 FEET FROM THE FLANGELINE EXTENSION THAN NO STOP LINE IS REQUIRED.
4. MOVE CLOSER TO EDGE OF TRAVEL LANE AS NEEDED FOR VISIBILITY AND SIGHT LINES. (NO CLOSER THAN 4 FEET).

STOP LINE AND CROSSWALK PAVEMENT MARKING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

Sept., 2017 — DATE

/S/ Matthew R. Rauch — STATE SIGNING AND MAR[illegible]NEER

FHWA

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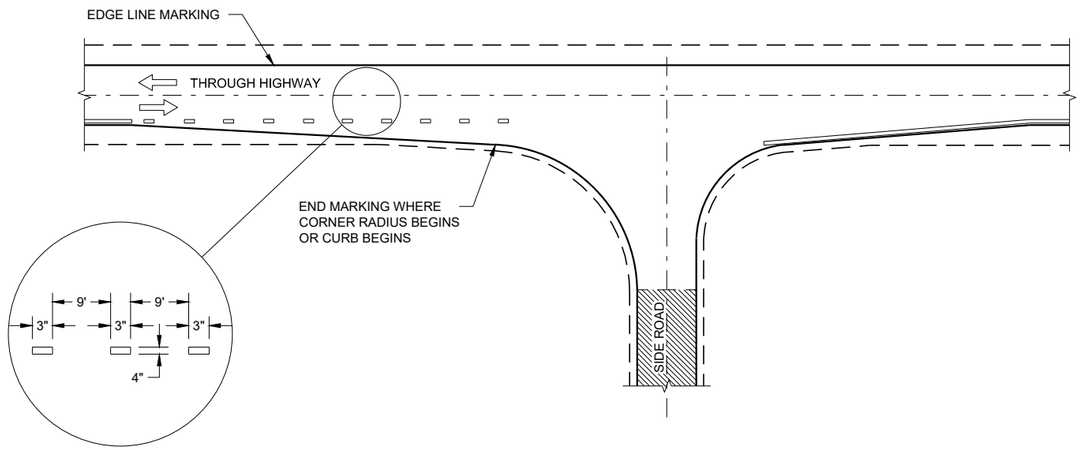
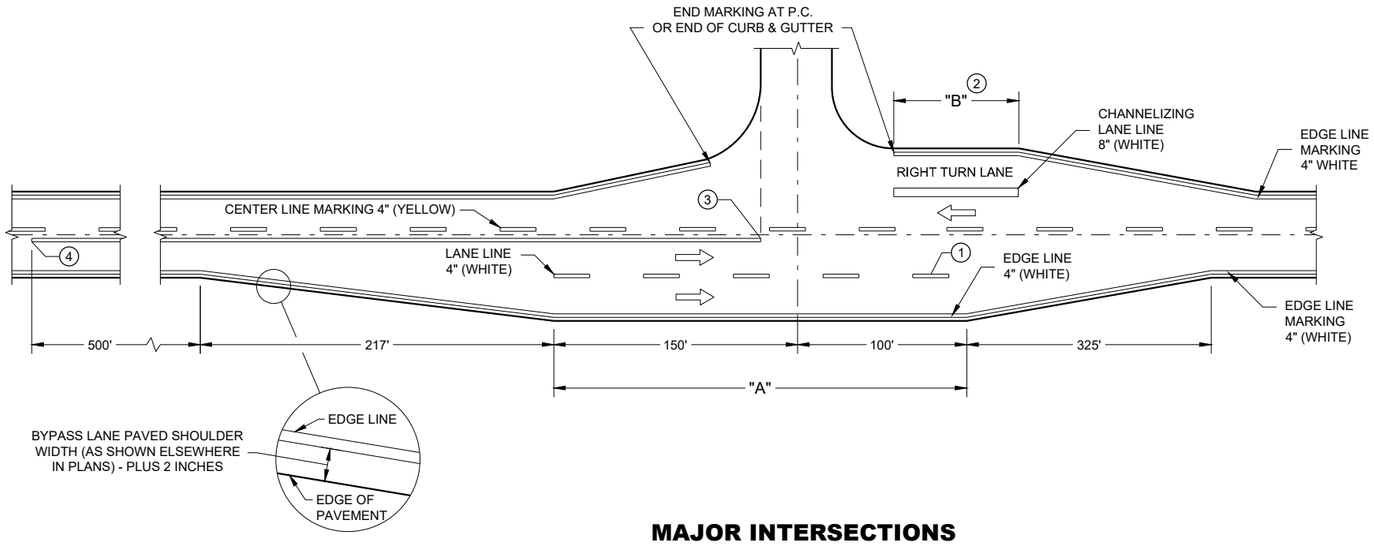
S.D.D. 15 C 33-3



MINOR INTERSECTION



MAJOR INTERSECTIONS

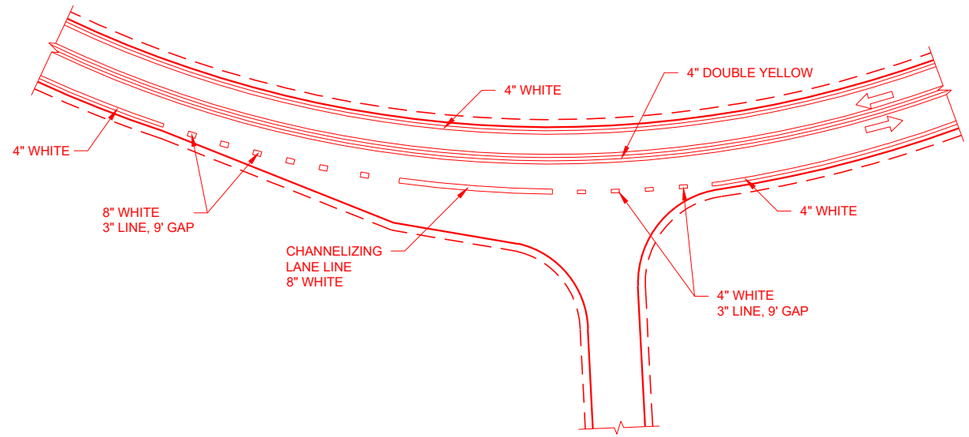
(INTERSECTION WITH FULL RIGHT TURN LANE OR BYPASS LANE)

GENERAL NOTES

OMIT EDGE LINES THROUGH INTERSECTIONS. CONTINUE EDGE LINES 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. BARRIER LINE ENDS AT SIDE ROAD PAVEMENT / SURFACE EDGE EXTENSION.
4. BARRIER LINE STARTS 500 FEET PRIOR TO THE BYPASS TAPER

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL



INTERSECTION ON OUTSIDE OF CURVE

PAVEMENT MARKING (INTERSECTIONS)

GENERAL NOTES

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

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

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

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

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

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

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

TABLE A

S \ W	SHOULDER TAPER LENGTH (FEET) 4	6	8	10	BUFFER SPACE (FEET)
30	20	30	40	50	200
35	30	45	55	70	250
40	40	55	75	90	305
45	60	90	120	150	360
50	70	100	135	170	425
55	75	110	150	185	495

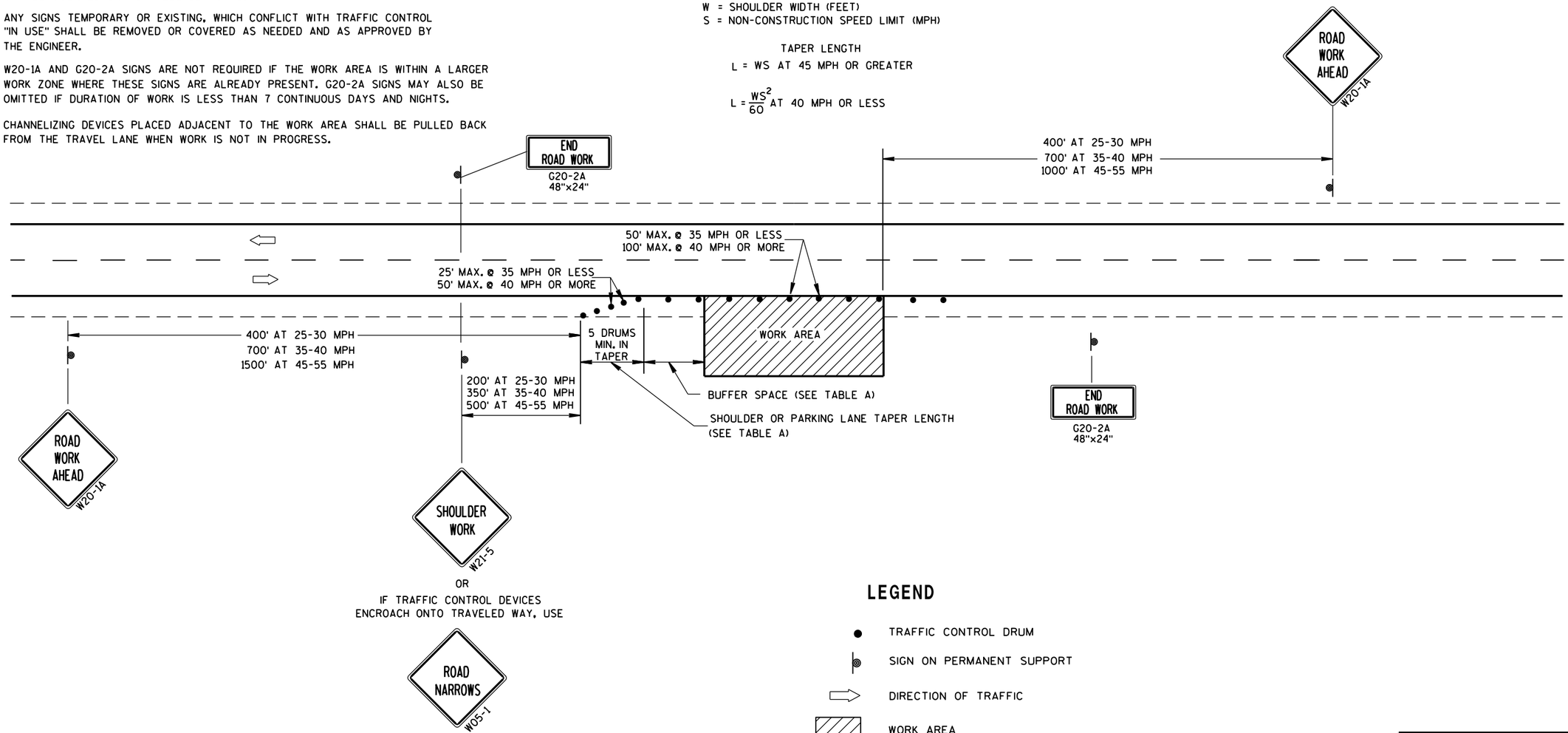
W = SHOULDER WIDTH (FEET)
S = NON-CONSTRUCTION SPEED LIMIT (MPH)

TAPER LENGTH

L = WS AT 45 MPH OR GREATER

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

SHOULDER TAPER LENGTH = $\frac{1}{3}L$



LEGEND

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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

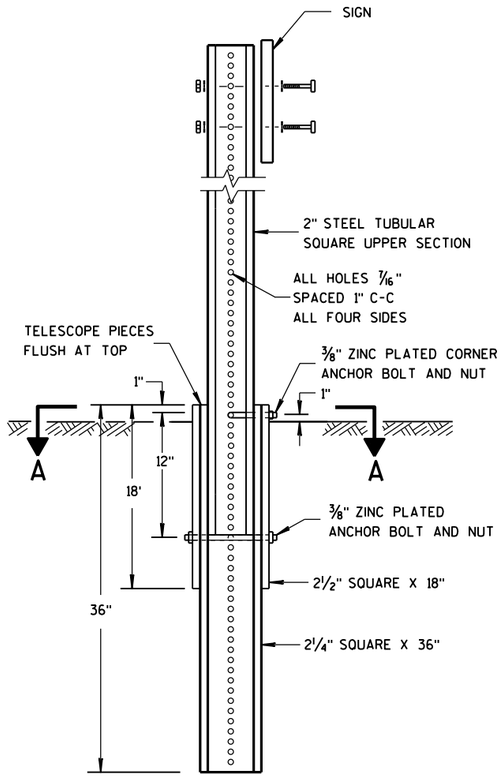
July 14, 2015 — DATE

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

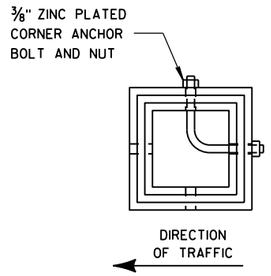
FHWA

6

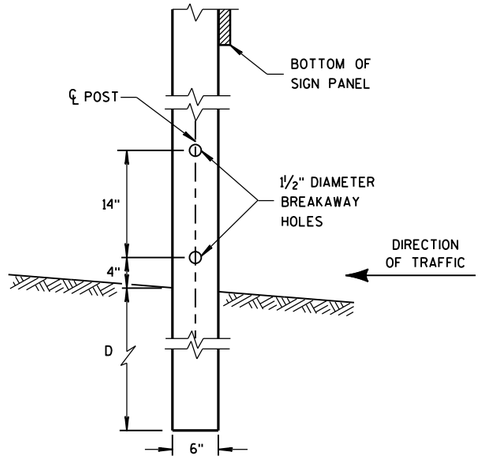
S.D.D. 15 D 28-3



DETAIL OF TUBULAR STEEL SIGN POST



SECTION A-A



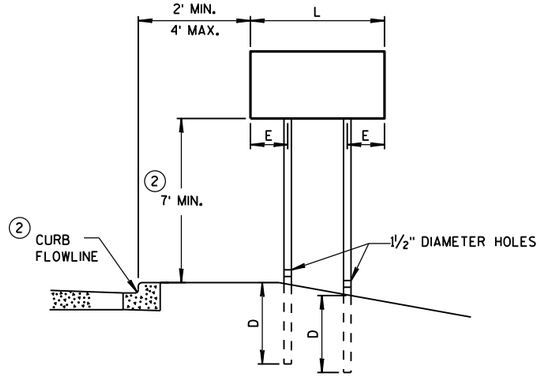
4"x6" WOOD POST MODIFICATION

GENERAL NOTES

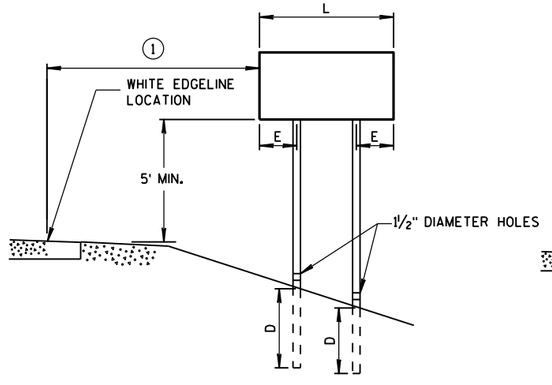
(1) 6 FEET FROM THE EDGE OF PAVEMENT (EDGE LINE LOCATION) UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER. LATERAL OFFSET SHOULD BE ADJUSTED TO AVOID THE DITCH FLOWLINE.

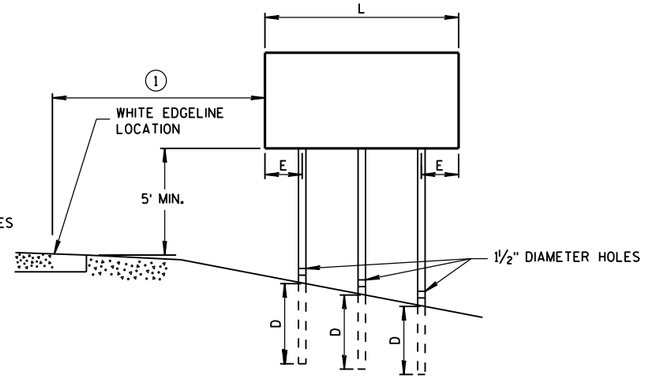
(2) THE EXISTENCE OF CURB AND GUTTER DOES NOT IN ITSELF MANDATE THE VERTICAL CLEARANCE ILLUSTRATED. THAT HEIGHT IS TYPICALLY MEASURED WHERE THERE IS SIDEWALK ADJACENT TO THE ROADWAY OR PARKING IS PERMITTED. IN THE ABSENCE OF SIDEWALK, VERTICAL CLEARANCE IS MEASURED FROM THE TOP OF THE CURB. IF NO SIDEWALK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

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



URBAN AREA





RURAL AREA

POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

TUBULAR STEEL POSTS

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

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

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

WOOD POST EMBEDMENT DEPTH

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

4" X 6" WOOD POST

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

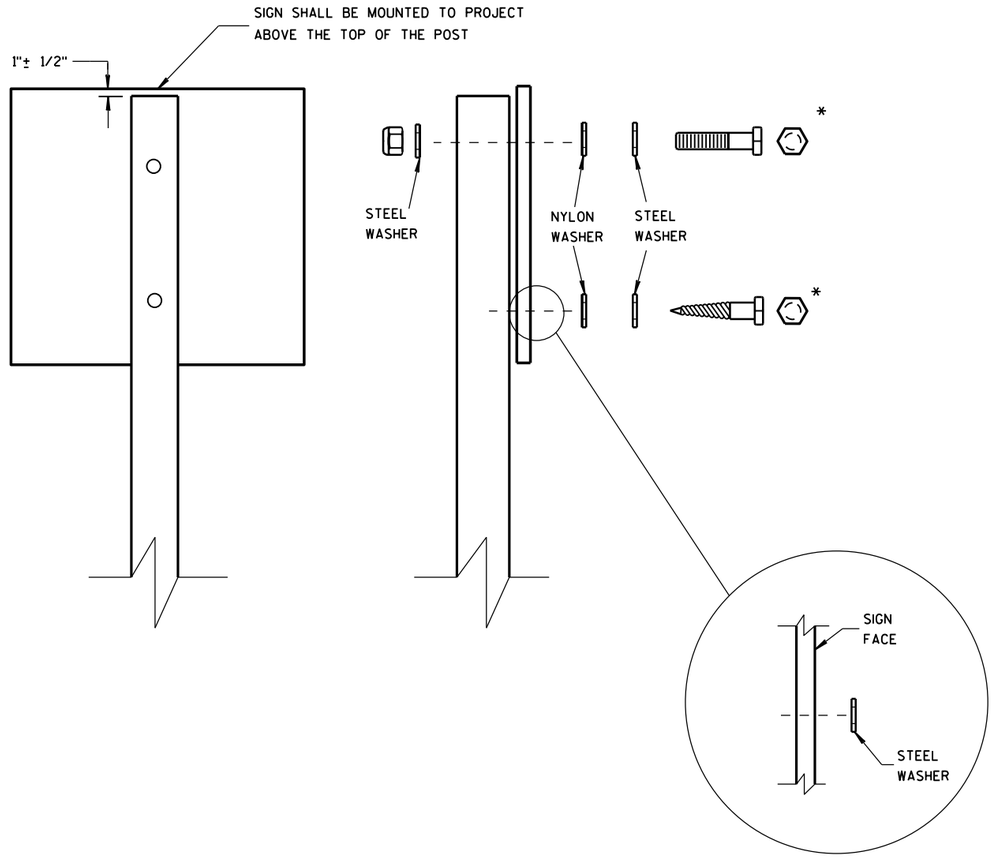
SEE NOTE (3)

TEMPORARY TRAFFIC CONTROL SIGN MOUNTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

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



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

NUTS, BOLTS AND LAGS USED FOR MOUNTING SIGNS SHALL HAVE HEXAGONAL HEADS AND SHALL BE EITHER:

A. HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: A 153, CLASS D, OR SC 3

B. ELECTRO-GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: B 633, TYPE III, SC 3

THREADS ON BOLTS AND NUTS SHALL BE MANUFACTURED WITH SUFFICIENT ALLOWANCE FOR THE CADMIUM PLATE OR GALVANIZED COATING TO PERMIT THE NUTS TO RUN FREELY ON THE BOLTS.

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

LAG SCREWS - 3/8" X 3"

MACHINE BOLTS - 5/16" X 6-1/2" OR 7" LENGTH W/ NUTS

SQUARE STEEL POSTS (2" x 2")

MACHINE BOLTS - 3/8" X 3-1/4" LENGTH W/ NUTS

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

WASHERS (ALL POSTS) -

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

1-1/4" O.D. X 3/8" I.D. X .080 NYLON FOR ALL TYPE H SIGNS

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

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

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

ATTACHMENT OF SIGNS TO POSTS

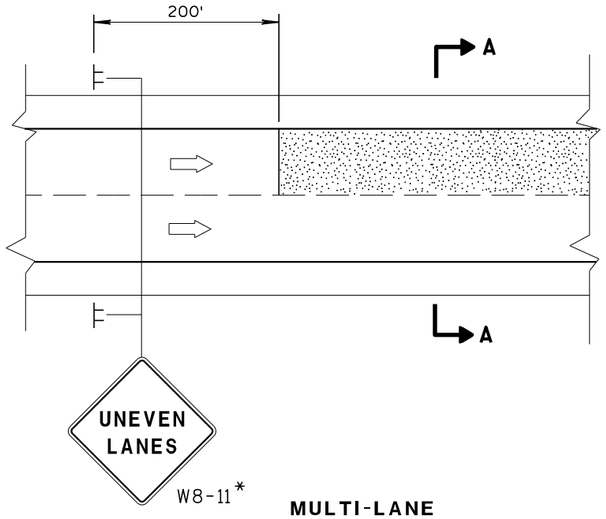
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

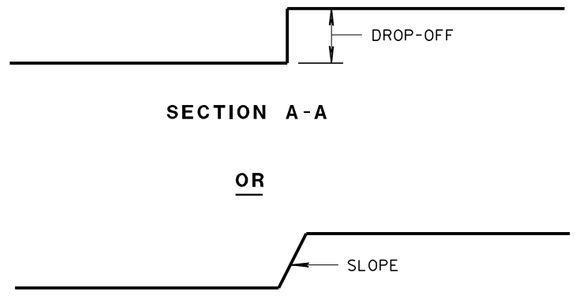
June 2017
DATE

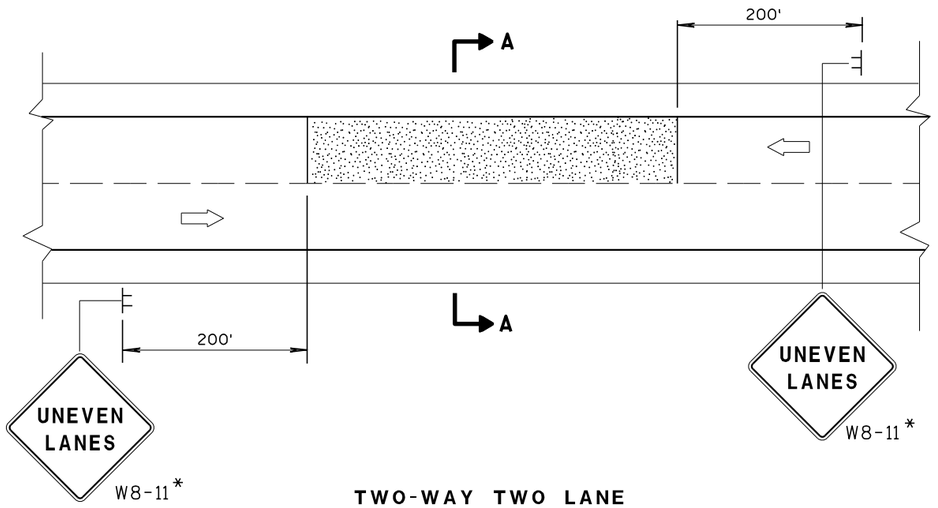
/S/ Andrew Heldtke
WORK ZONE ENG

FHWA

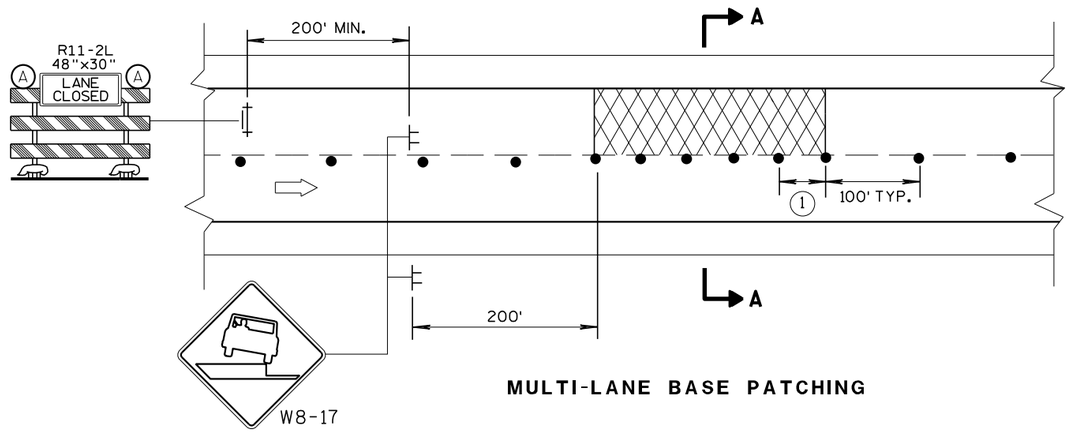


MULTI-LANE



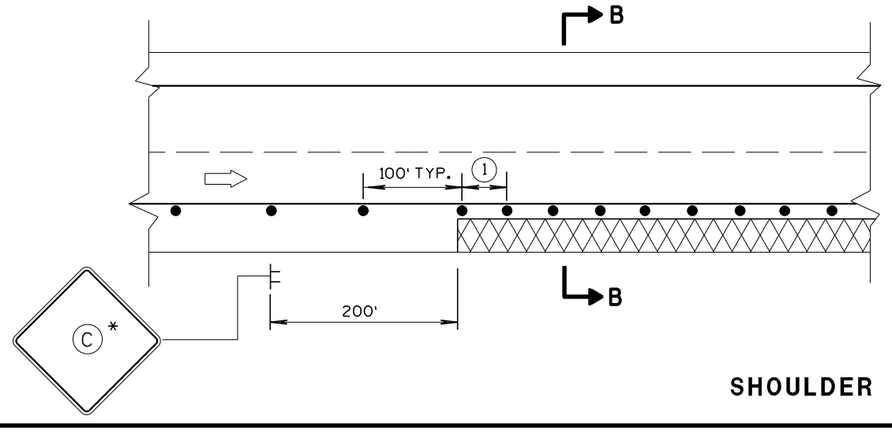


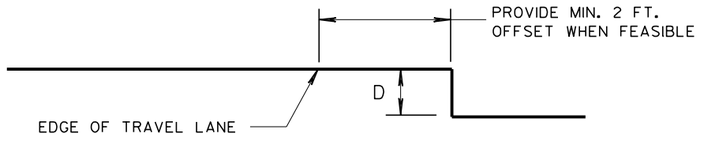
TWO-WAY TWO LANE



MULTI-LANE BASE PATCHING

ADJACENT LANE DROP-OFFS





SECTION B-B

SHOULDER DROP-OFFS

GENERAL NOTES

FOR SPOT LOCATIONS USE ENGINEERING JUDGEMENT WHEN PLACING ADDITIONAL SIGNS.

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

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

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

* IF THE DROP-OFF IS CONTINUOUS ALONG THE PROJECT, PLACE ADDITIONAL SIGNS EVERY 1 MILE AND AFTER EACH ENTRANCE RAMP.

(1) USE CLOSER SPACING WHEN DELINEATING DROP-OFF.

LEGEND

- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL DRUM
- (A) TYPE "A" WARNING LIGHT (FLASHING)
- DIRECTION OF TRAFFIC
- WORK AREA WITH DROP-OFF
- MILLED SURFACE

D	SIGN (C)
< 2" WITH A SLOPE STEEPER THAN 3:1	LOW SHOULDER WO8-9
2" < 6" WITH A SLOPE STEEPER THAN 3:1	SHOULDER DROP-OFF W8-9A PROVIDE A 3:1 OR FLATTER SLOPE OF MATERIAL ADJACENT TO THE PAVEMENT

TRAFFIC CONTROL, DROP-OFF SIGNING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
March 2018 — DATE
/S/ Andrew H — WORK ZONE EN
FHWA

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S.D.D. 15 D 39-2

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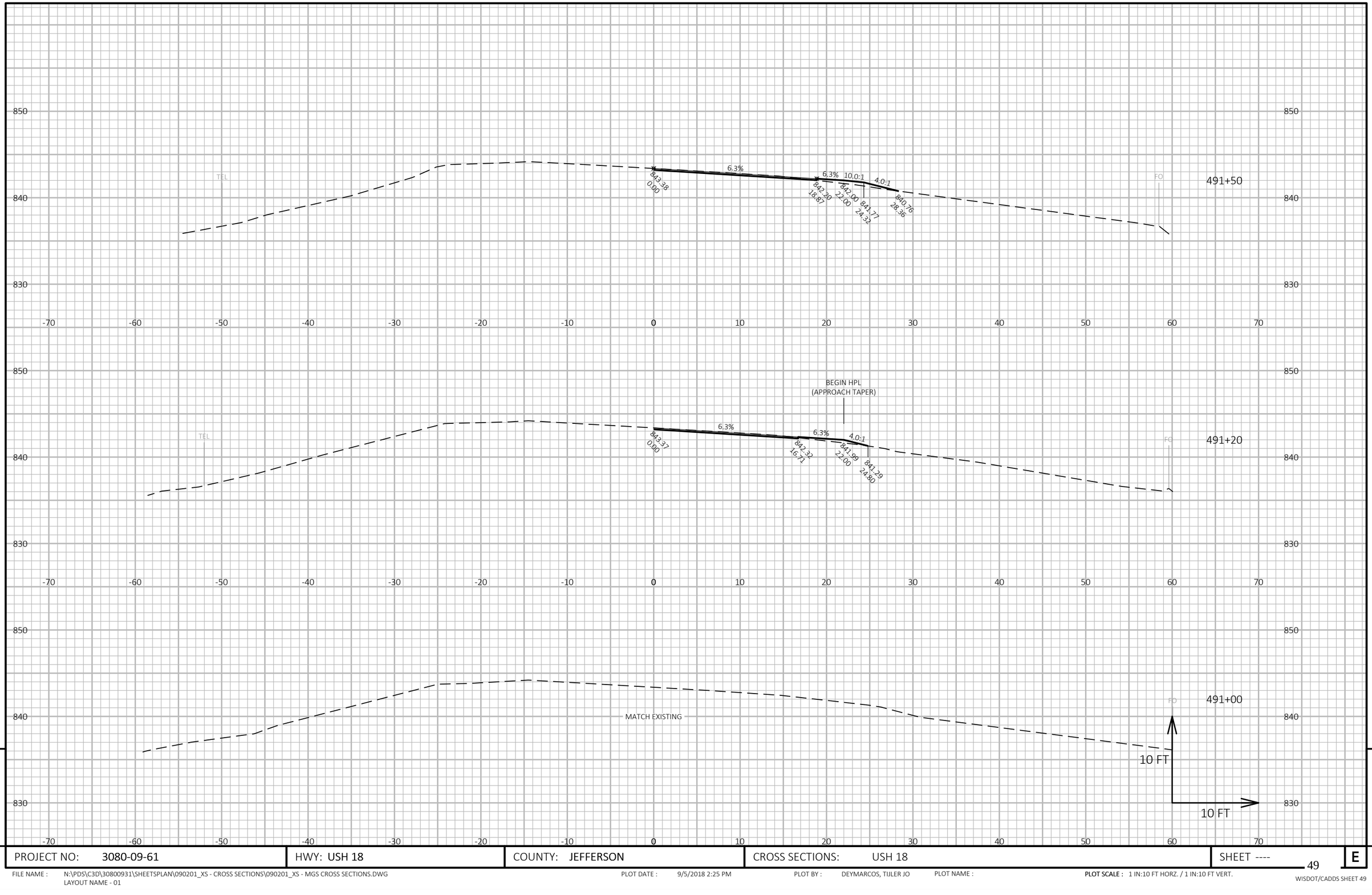
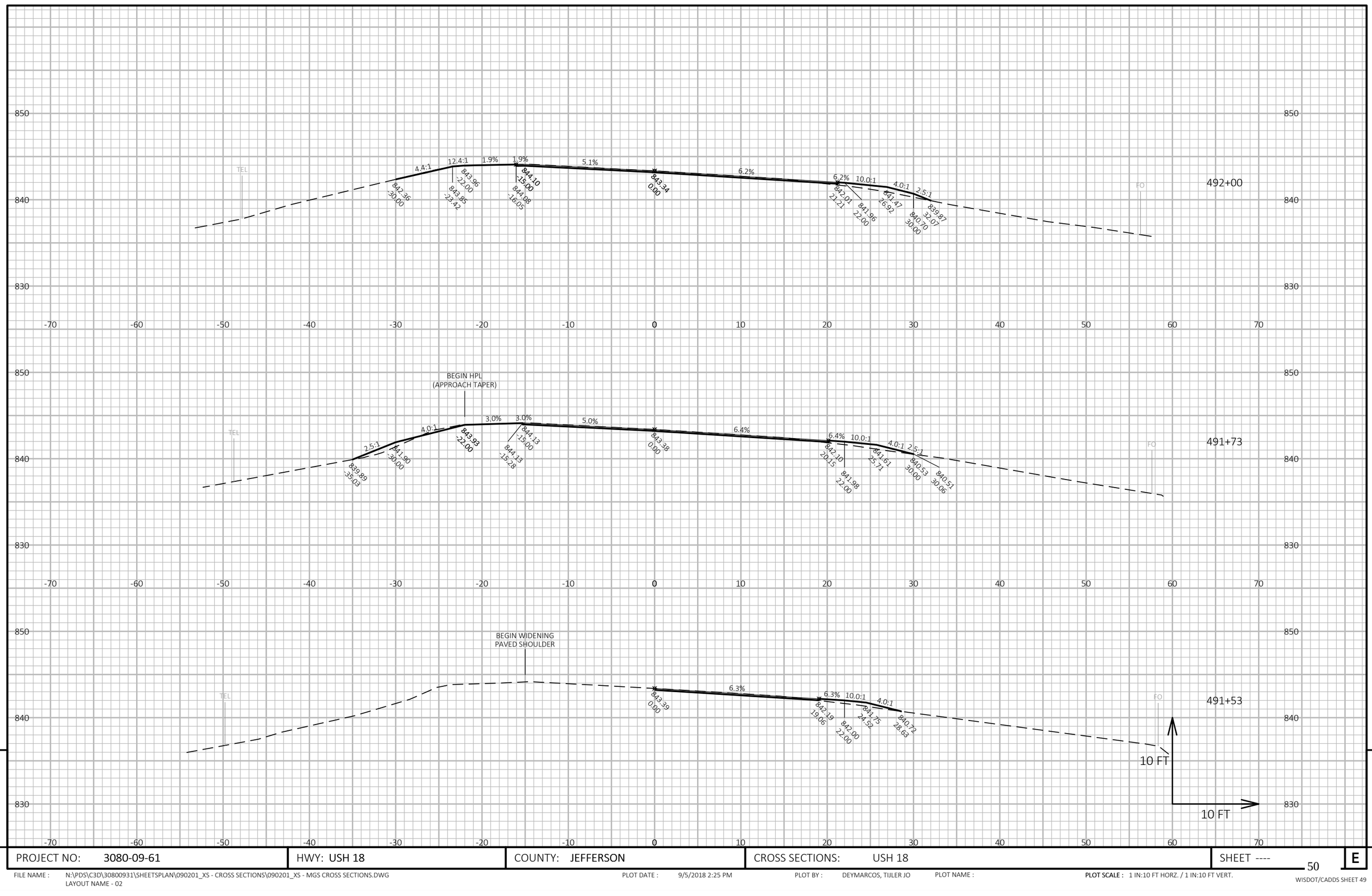
S.D.D. 15 D 39-2



PROJECT NO: 3080-09-61	HWY: USH 18	COUNTY: JEFFERSON	CROSS SECTIONS: USH 18	SHEET ----	E

FILE NAME : N:\PDS\C3D\30800931\SHEETSPLAN\090201_XS - CROSS SECTIONS\090201_XS - MGS CROSS SECTIONS.DWG
LAYOUT NAME - 01

PLOT DATE : 9/5/2018 2:25 PM PLOT BY : DEYMARCOS, TIJLER JO PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.



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LAYOUT NAME - 02

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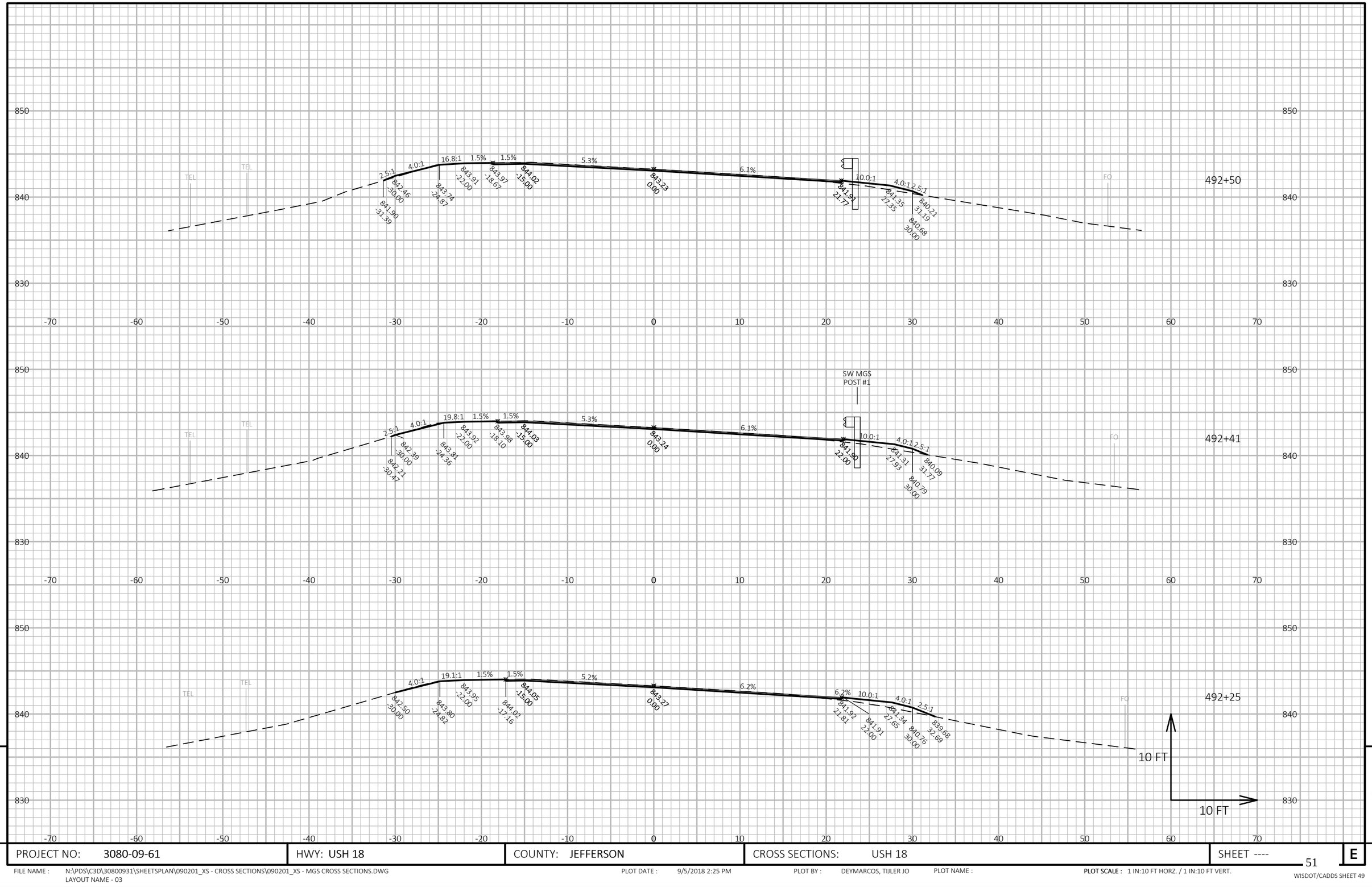

PROJECT NO: 3080-09-61	HWY: USH 18	COUNTY: JEFFERSON	CROSS SECTIONS: USH 18	SHEET ----

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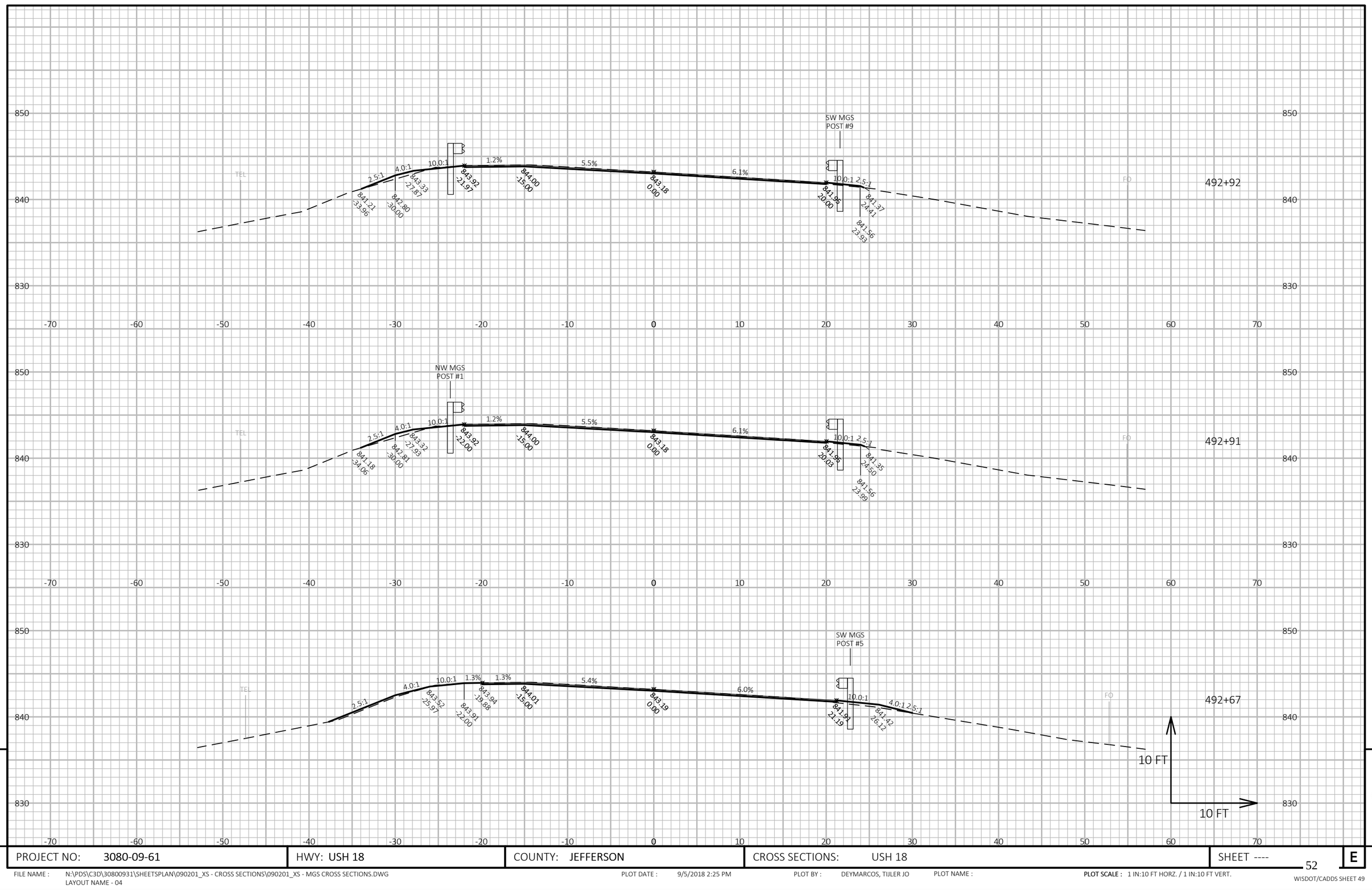


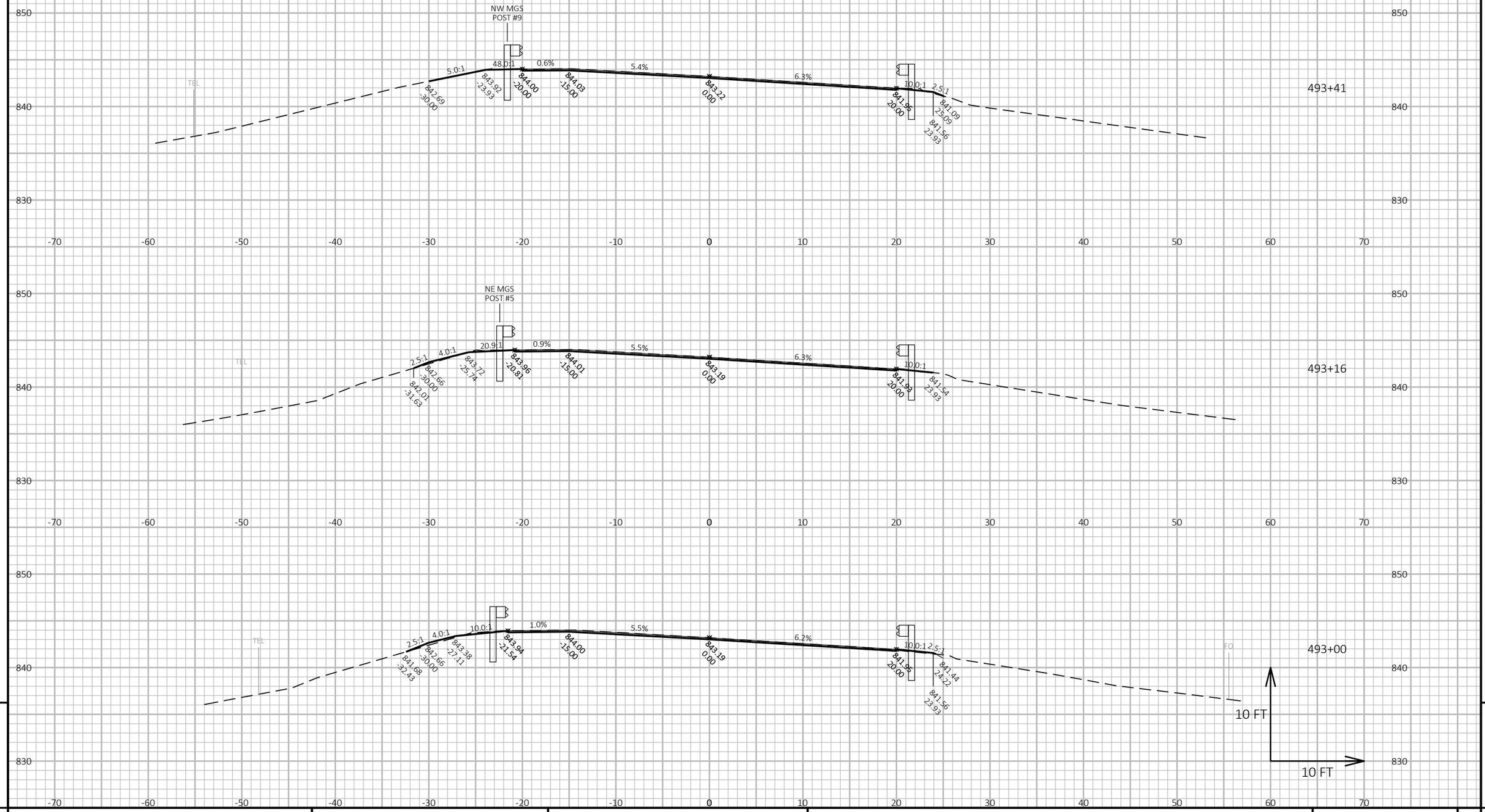
PROJECT NO: 3080-09-61	HWY: USH 18	COUNTY: JEFFERSON	CROSS SECTIONS: USH 18	SHEET ----

52

FILE NAME : N:\PDS\C3D\30800931\SHEETSPLAN\090201_XS - CROSS SECTIONS\090201_XS - MGS CROSS SECTIONS.DWG
LAYOUT NAME - 04

PLOT DATE : 9/5/2018 2:25 PM PLOT BY : DEYMARCOS, TIJLER JO PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49



PROJECT NO: 3080-09-61	HWY: USH 18	COUNTY: JEFFERSON	CROSS SECTIONS: USH 18	SHEET ----	E

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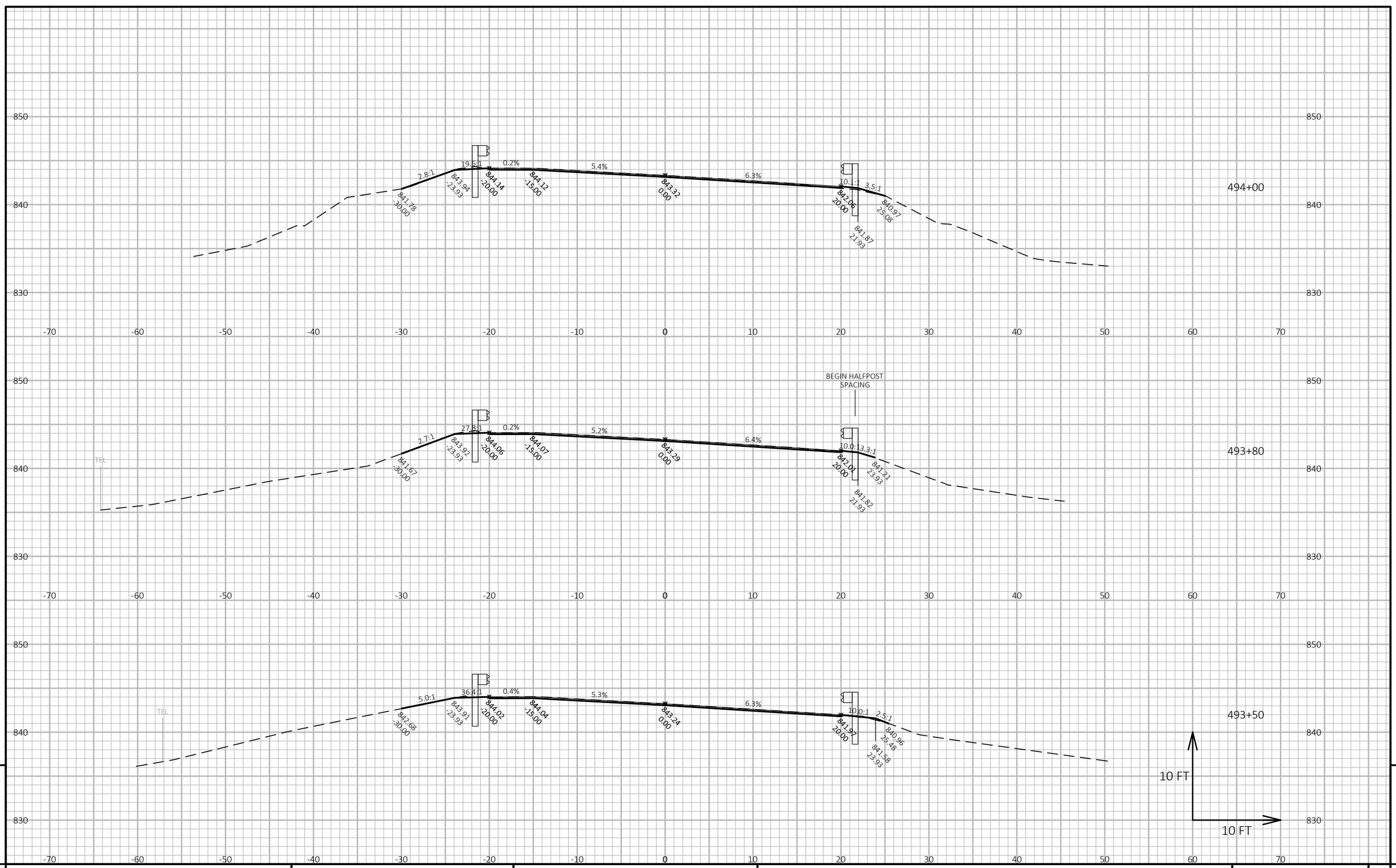

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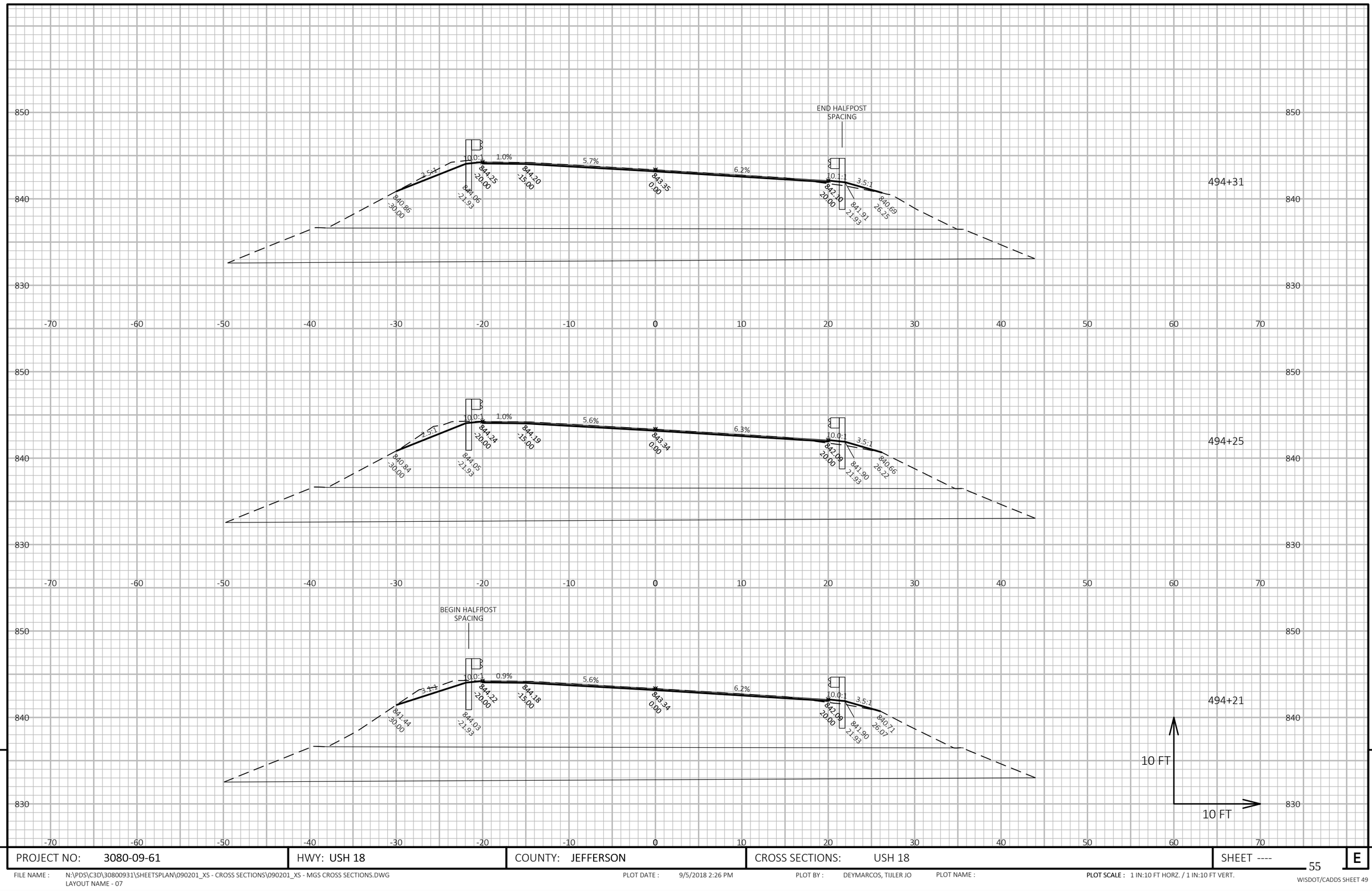

PROJECT NO: 3080-09-61	HWY: USH 18	COUNTY: JEFFERSON	CROSS SECTIONS: USH 18	SHEET ----

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LAYOUT NAME - 07

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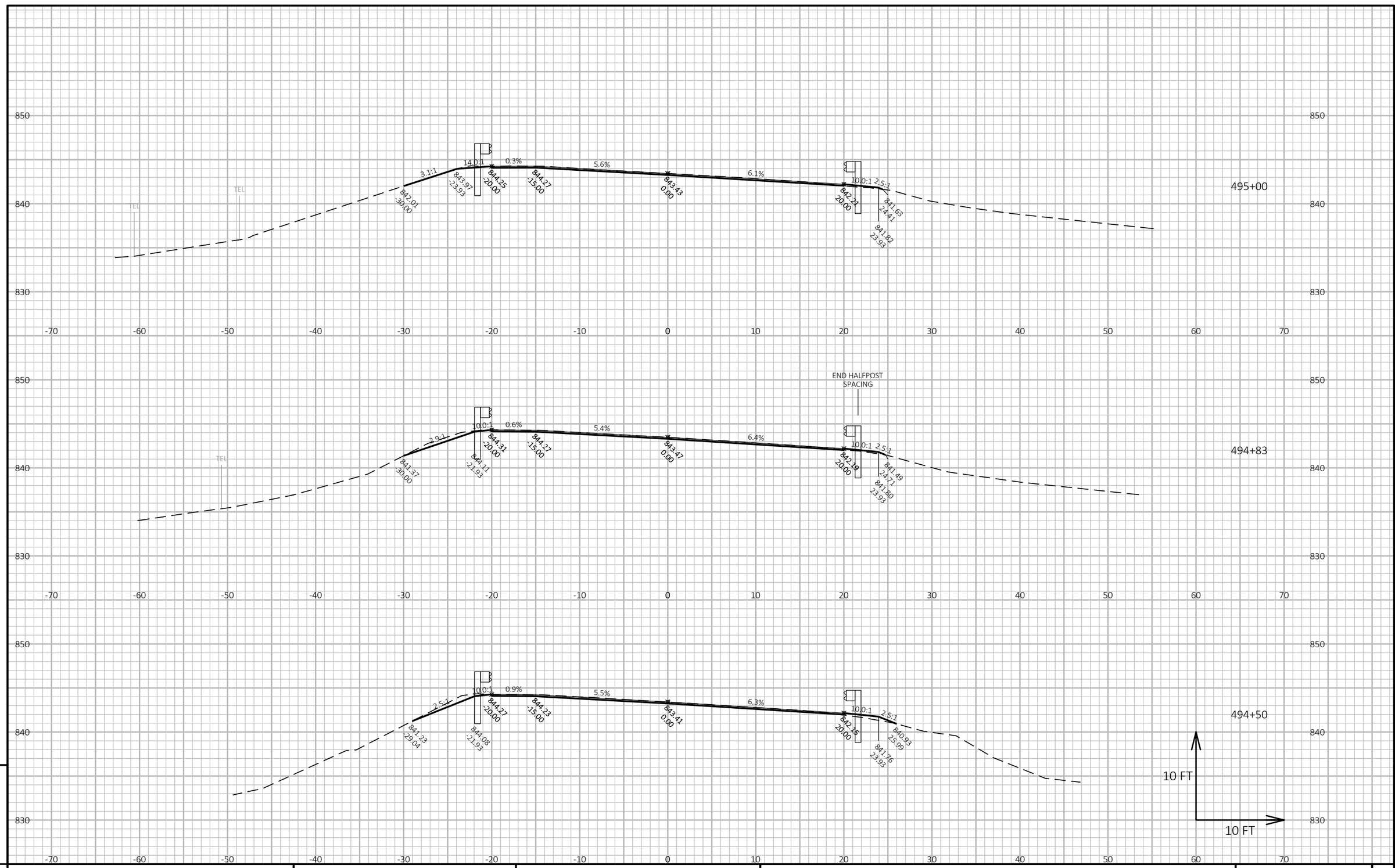

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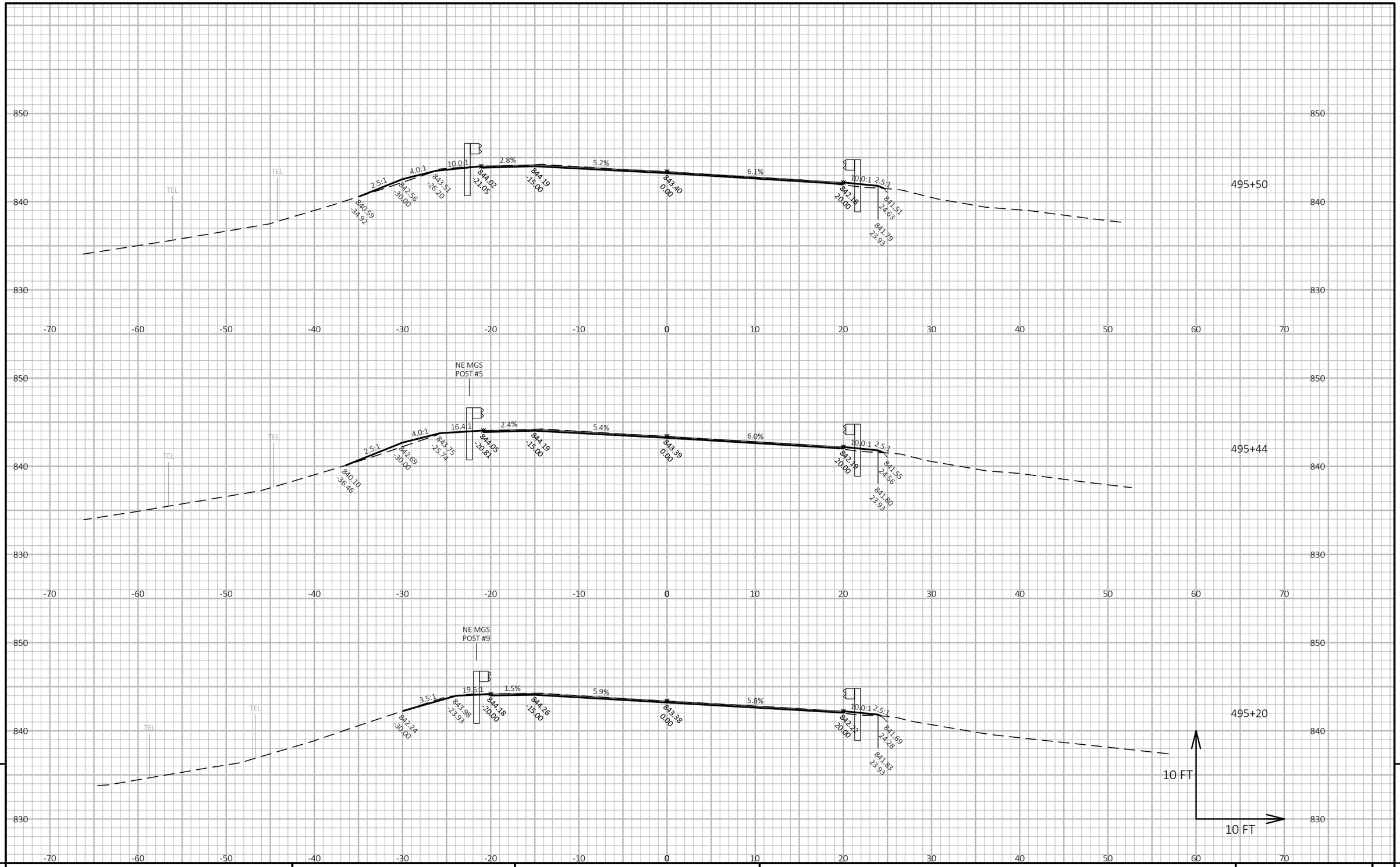
LAYOUT NAME - 08

PLOT DATE : 9/5/2018 2:26 PM PLOT BY : DEYMARCOS, TIJLER JO PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49



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PROJECT NO: 3080-09-61	HWY: USH 18	COUNTY: JEFFERSON	CROSS SECTIONS: USH 18	SHEET ----	E

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LAYOUT NAME - 09

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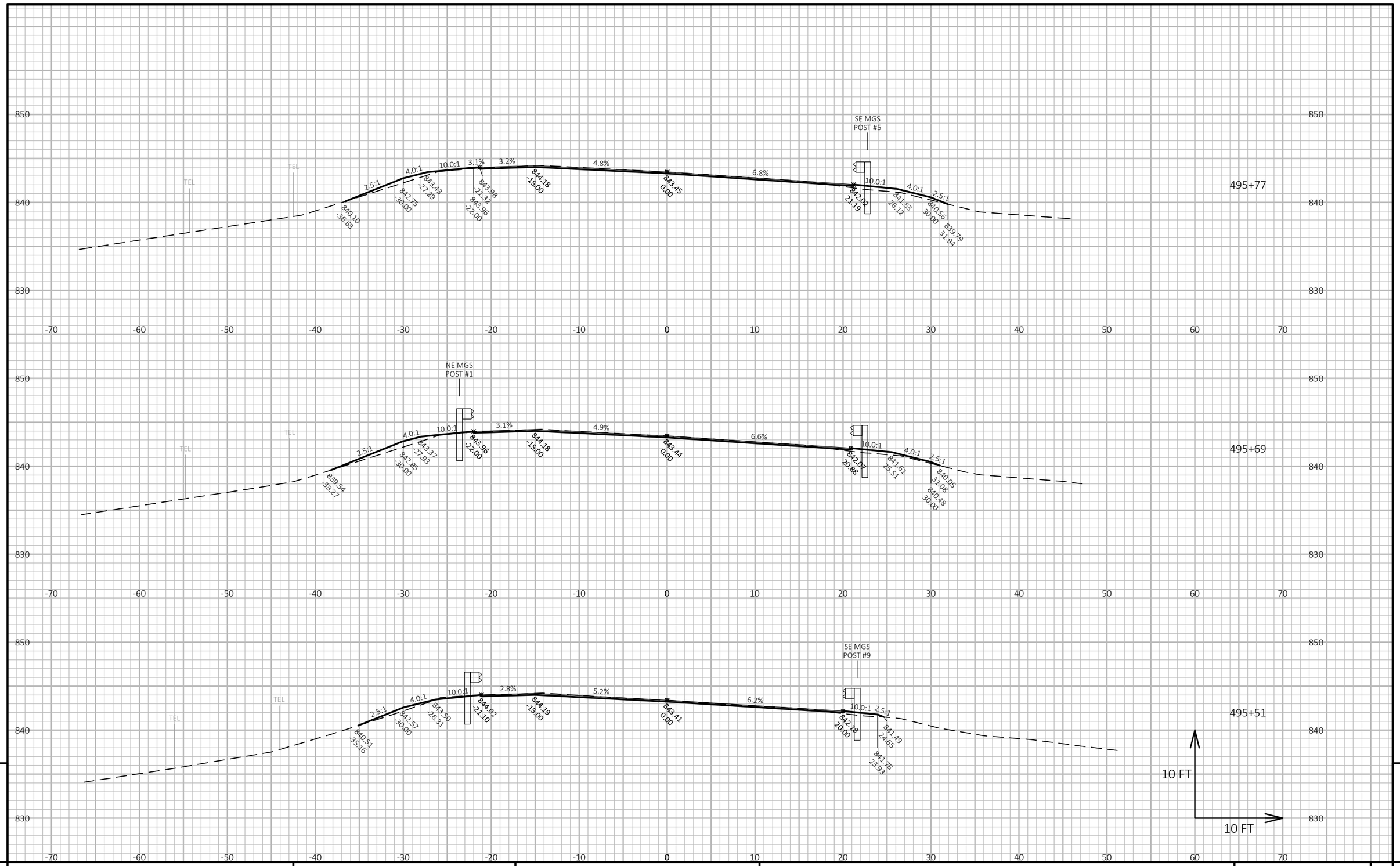

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PROJECT NO: 3080-09-61	HWY: USH 18	COUNTY: JEFFERSON	CROSS SECTIONS: USH 18	SHEET ----	E

FILE NAME : N:\PDS\C3D\30800931\SHEETSPLAN\090201_XS - CROSS SECTIONS\090201_XS - MGS CROSS SECTIONS.DWG
LAYOUT NAME - 10

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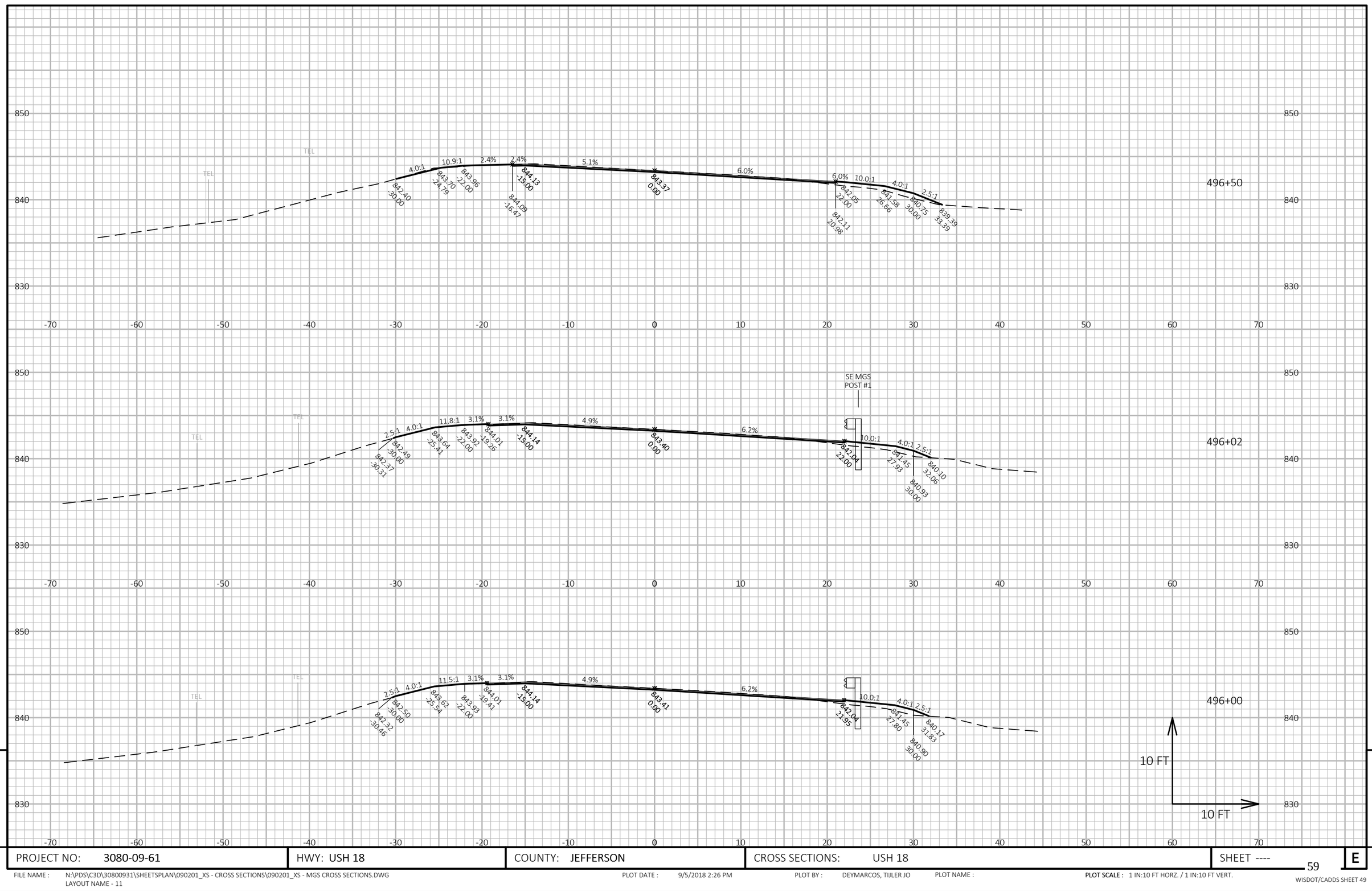

PROJECT NO: 3080-09-61	HWY: USH 18	COUNTY: JEFFERSON	CROSS SECTIONS: USH 18	SHEET ----

FILE NAME : N:\PDS\C3D\30800931\SHEETSPLAN\090201_XS - CROSS SECTIONS\090201_XS - MGS CROSS SECTIONS.DWG
LAYOUT NAME - 11

PLOT DATE : 9/5/2018 2:26 PM PLOT BY : DEYMARCOS, TIJLER JO PLOT NAME :

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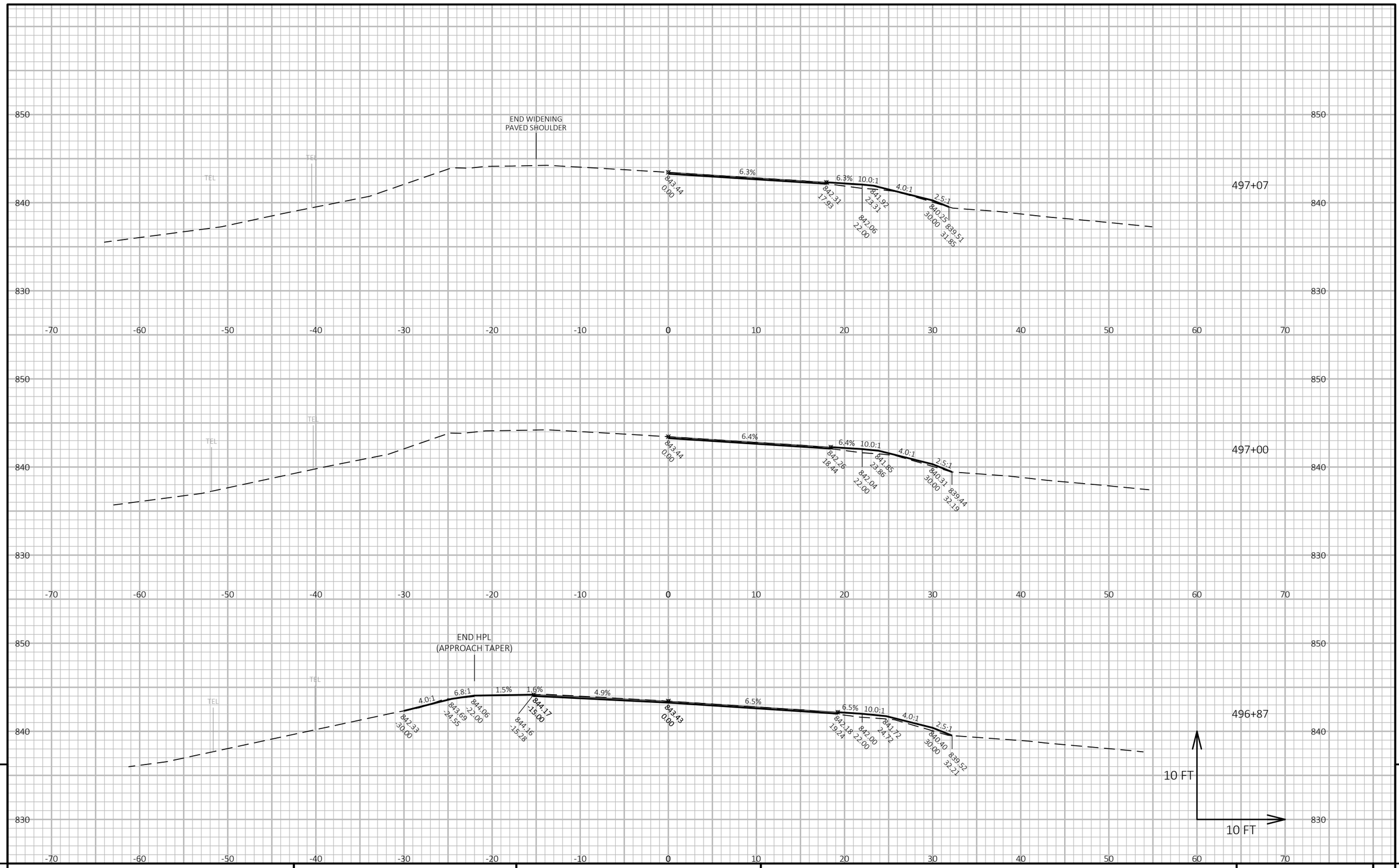

PROJECT NO: 3080-09-61	HWY: USH 18	COUNTY: JEFFERSON	CROSS SECTIONS: USH 18	SHEET ----

60

E

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LAYOUT NAME - 12

PLOT DATE : 9/5/2018 2:26 PM

PLOT BY : DEYMARCOS, TIJLER JO

PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

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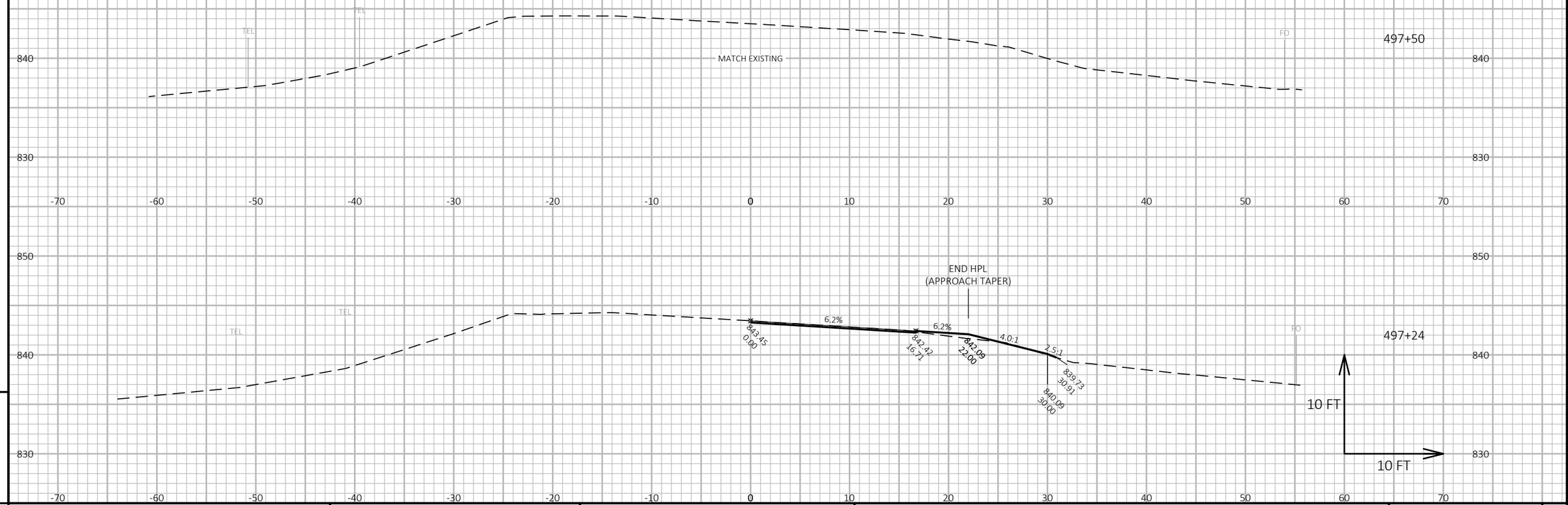

PROJECT NO: 3080-09-61	HWY: USH 18	COUNTY: JEFFERSON	CROSS SECTIONS: USH 18	SHEET ----

61

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FILE NAME : N:\PDS\C3D\30800931\SHEETSPLAN\090201_XS - CROSS SECTIONS\090201_XS - MGS CROSS SECTIONS.DWG
LAYOUT NAME - 13

PLOT DATE : 9/5/2018 2:26 PM

PLOT BY : DEYMARCOS, TIJLER JO

PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

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