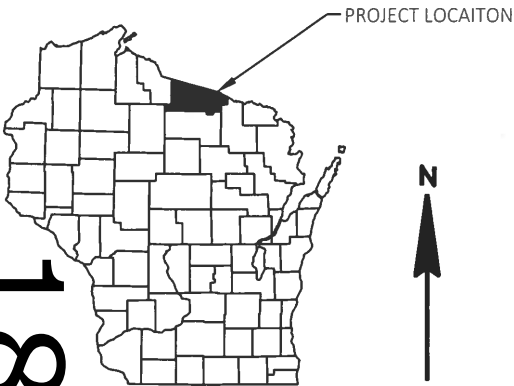


ORDER OF SHEETS

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 = 134



DESIGN DESIGNATION

A.A.D.T.	(2022)	=	3,900
A.A.D.T.	(2042)	=	3,900
D.H.V.	(2042)	=	540
D.D.		=	61/39
T.	(2042)	=	12.0%
DESIGN SPEED		=	60 MPH
ESALS		=	1,600,000

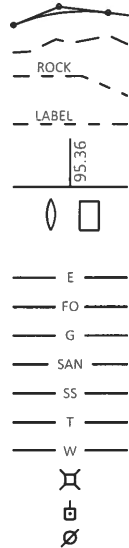
CONVENTIONAL SYMBOLS

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	
MARSH AREA	
WOODED OR SHRUB AREA	

PROFILE

GRADE LINE	
ORIGINAL GROUND	
MARSH OR ROCK PROFILE (To be noted as such)	
SPECIAL DITCH	
GRADE ELEVATION	
CULVERT (Profile View)	
UTILITIES	
ELECTRIC	
FIBER OPTIC	
GAS	
SANITARY SEWER	
STORM SEWER	
TELEPHONE	
WATER	
UTILITY PEDESTAL	
POWER POLE	
TELEPHONE POLE	



STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

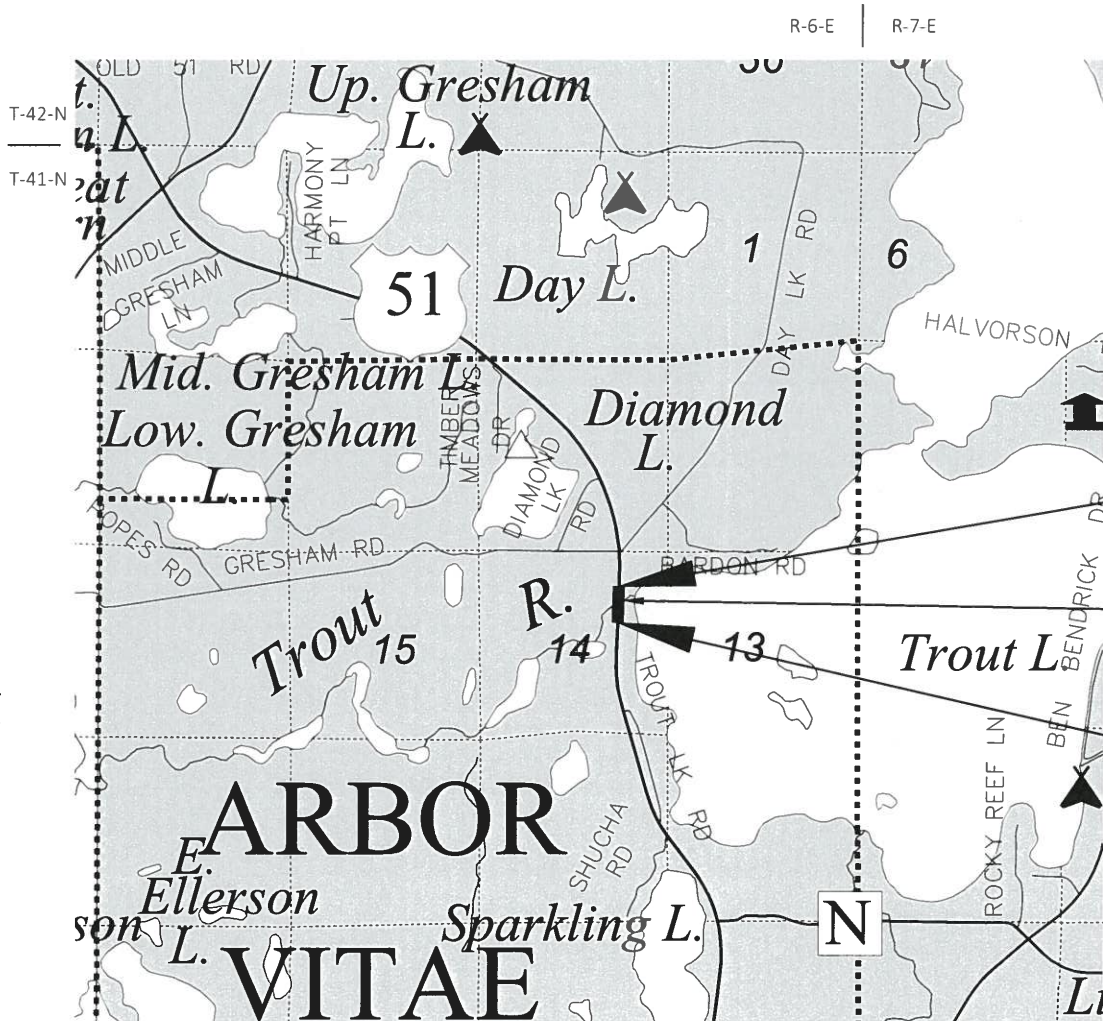
MINOCQUA - MANITOWISH

TROUT RIVER CULVERT REPLACEMENT

USH 51

VILAS

STATE PROJECT NUMBER
1170-20-61



END PROJECT
STA 363+32.00
Y:149969.888
X:385961.927

BEGIN PROJECT
STA 356+42.00
Y:149376.331
X:385938.988



TOTAL NET LENGTH OF CENTERLINE = 0.131 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), VILAS 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. (2011) GPS DERIVED ELEVATIONS ARE BASED ON GEOID 12B.

STATE PROJECT

1170-20-61

FEDERAL PROJECT

PROJECT

CONTRACT

ORIGINAL PLANS PREPARED BY

OMNI
ASSOCIATES

WISCONSIN
PROFESSIONAL ENGINEER
KRISTOFER R. OLSON
E-35236
APPLETON, WI
4/19/21

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	OMNII ASSOCIATES
Designer	OMNII ASSOCIATES
Project Manager	STACY HAGENBUCHER
Regional Examiner	
Regional Supervisor	JED PETERS

APPROVED FOR THE DEPARTMENT

DATE: 4/27/21

Stacy Hagenbucher
(Signature)

E

2

GENERAL NOTES

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 THEIR CONSTRUCTION ACTIVITIES WITH DIGGERS HOTLINE AND OR A DIRECT CONTACT WITH UTILITIES IN THE AREA PRIOR TO THE START OF WORK. NOT ALL UTILITIES ARE MEMBERS OF DIGGERS HOTLINE.

UTILITIES

COMMUNICATIONS

CENTURYLINK
425 ELLINGTON AVE.
HAWKINS, WI 54530
ATTN: BAN BAKER
TELEPHONE: 715-567-0725
EMAIL: BAN.BAKER@LUMEN.COM

ELECTRIC

WISCONSIN PUBLIC SERVICE CORPORATION
P.O. BOX 1166
WAUSAU, WI 54402
ATTN: KEVIN TERMAAT
TELEPHONE: 715+848-7353
EMAIL: KEVIN.TERMAAT@WISCONSINPUBLICSERVICE.COM

OTHER CONTACTS

DNR LIAISON

JON SIMONSEN
DEPARTMENT OF NATURAL RESOURCES
NORTHERN REGION HEADQUARTERS
107 SUTLIFF AVENUE
RHINELANDER, WI 54501
TELEPHONE: 715-365-8916
EMAIL: JONATHAN.SIMONSEN@WISCONSIN.GOV

RUNOFF COEFFICIENT TABLE

	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
LAND USE:	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS	0.08	0.16	0.22	0.12	0.20	0.27	0.15	0.24	0.33	0.19	0.28	0.38
	0.22	0.30	0.38	0.26	0.34	0.44	0.30	0.37	0.50	0.34	0.41	0.56
MEDIAN STRIP - TURF	0.19	0.20	0.24	0.19	0.22	0.26	0.20	0.23	0.30	0.20	0.25	0.30
	0.24	0.26	0.30	0.25	0.28	0.33	0.26	0.30	0.37	0.27	0.32	0.40
SIDE SLOPE - TURF			0.25			0.27			0.28			0.30
			0.32			0.34			0.36			0.38
PAVEMENT:												
ASPHALT .70 - .95												
CONCRETE .80 - .95												
BRICK .70 - .80												
DRIVES, WALKS .75 - .85												
ROOFS .75 - .95												
GRAVEL ROADS, SHOULDERS .40 - .60												

TOTAL PROJECT AREA = 3.17 ACRES

TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES 1.48 ACRES

ORDER OF "SECTION 2" SHEETS

SHEET TITLE
GENERAL NOTES
PROJECT OVERVIEW
TYPICAL SECTIONS
CONSTRUCTION DETAILS
EROSION CONTROL PLAN
SIGNING AND MARKING PLAN
TRAFFIC CONTROL PLAN

DIGGERSHOTLINE

Dial 811 or (800) 242-8511

www.DiggersHotline.com

PROJECT NO: 1170-20-61

HWY: USH 51

COUNTY: VILAS

GENERAL NOTES

SHEET:

E

2.1

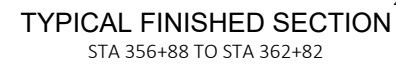
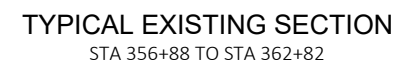
FILE NAME: \TR\JOBS\IE2065A13\Civil 3D\SheetsPlan\11702060-020101-gn.PPT

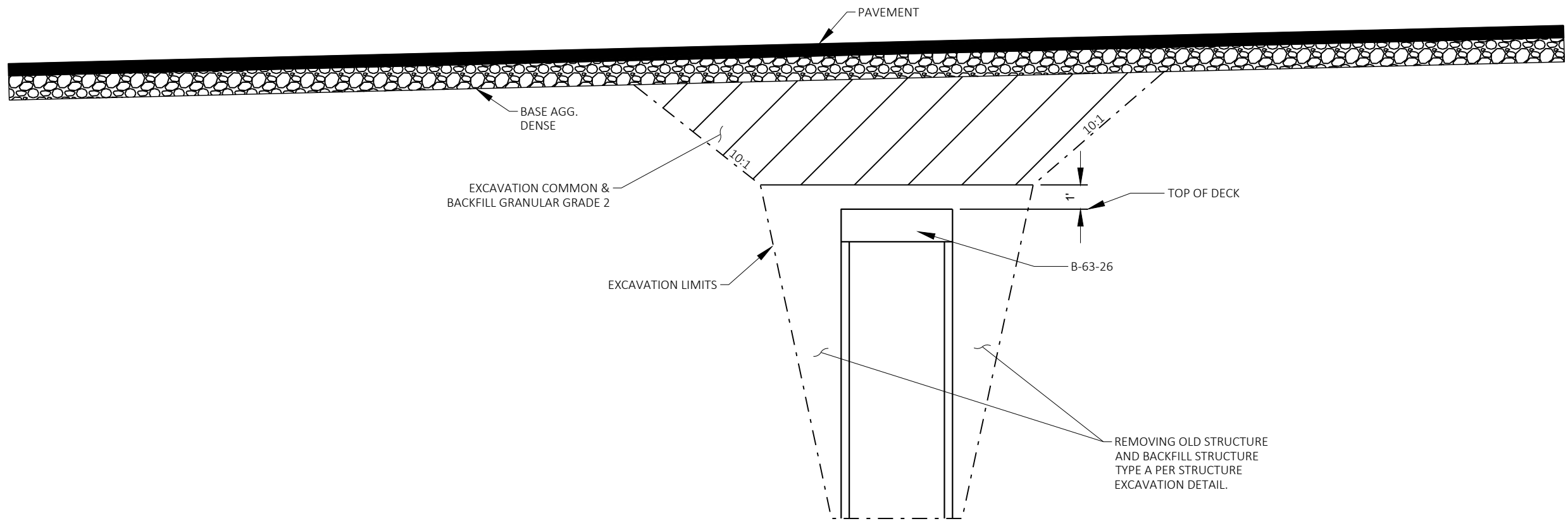
ORIGINATOR: OMNNI ASSOCIATES

ORIG. DATE:

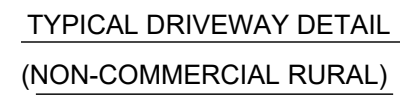
REV. DATE:

PRINT DATE: April 29, 2021

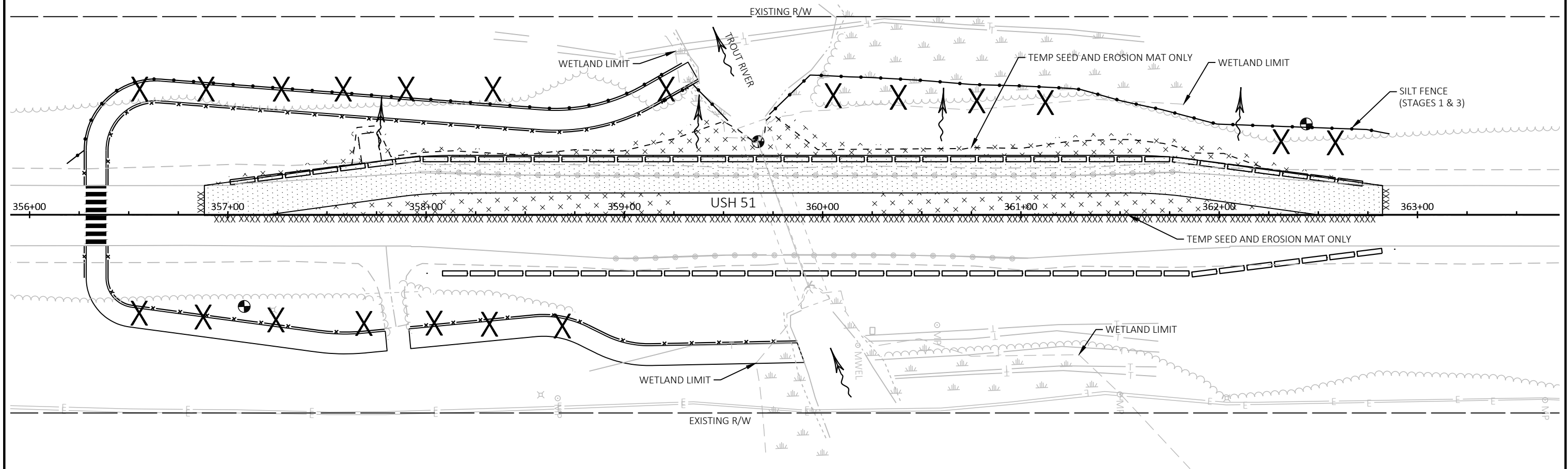




STRUCTURE EXCAVATION AND BACKFILL DETAIL

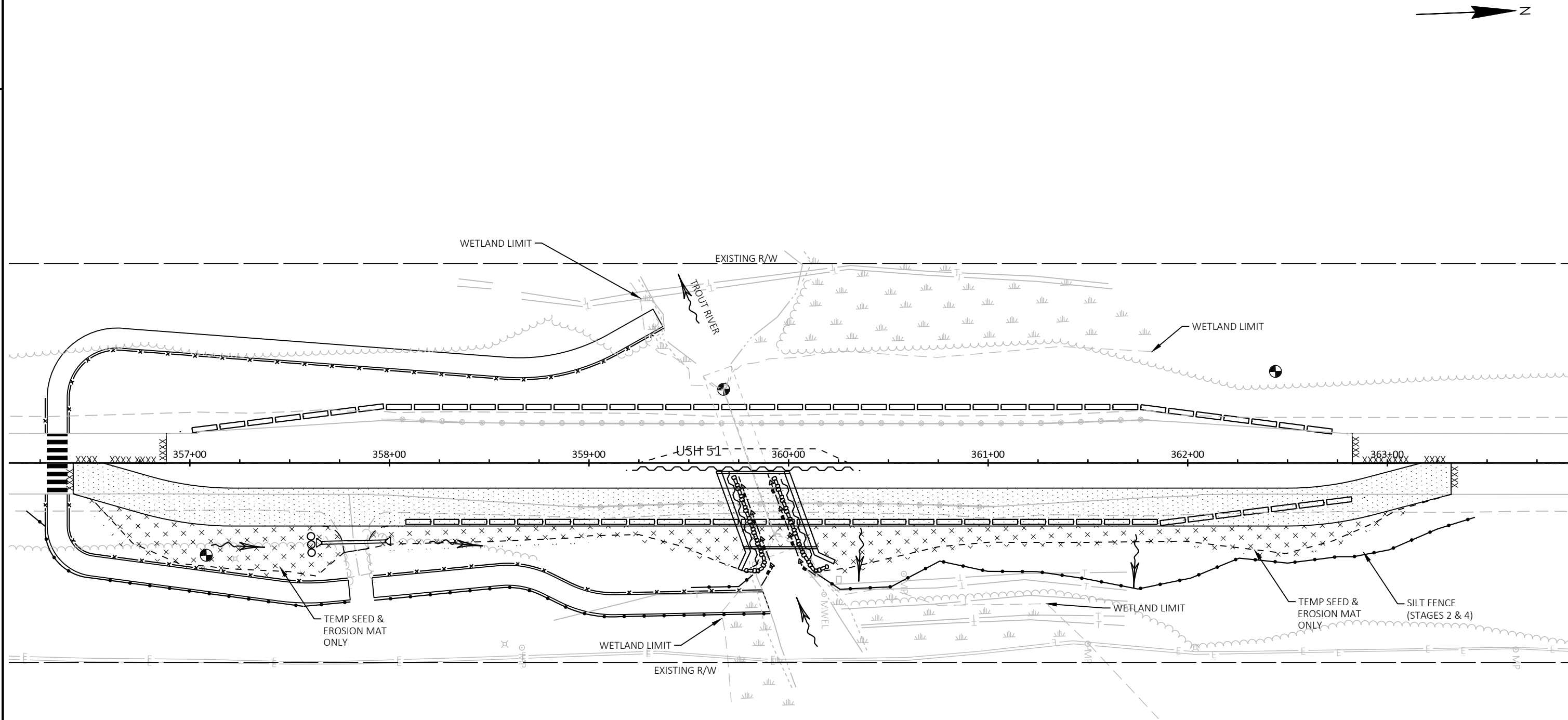


NOTE:
DRIVEWAY PROFILES NOT EXPECTED TO EXCEED
10%. PLACE LOW POINT OF DRIVEWAY PROFILE
OVER DITCH FLOW LINE.



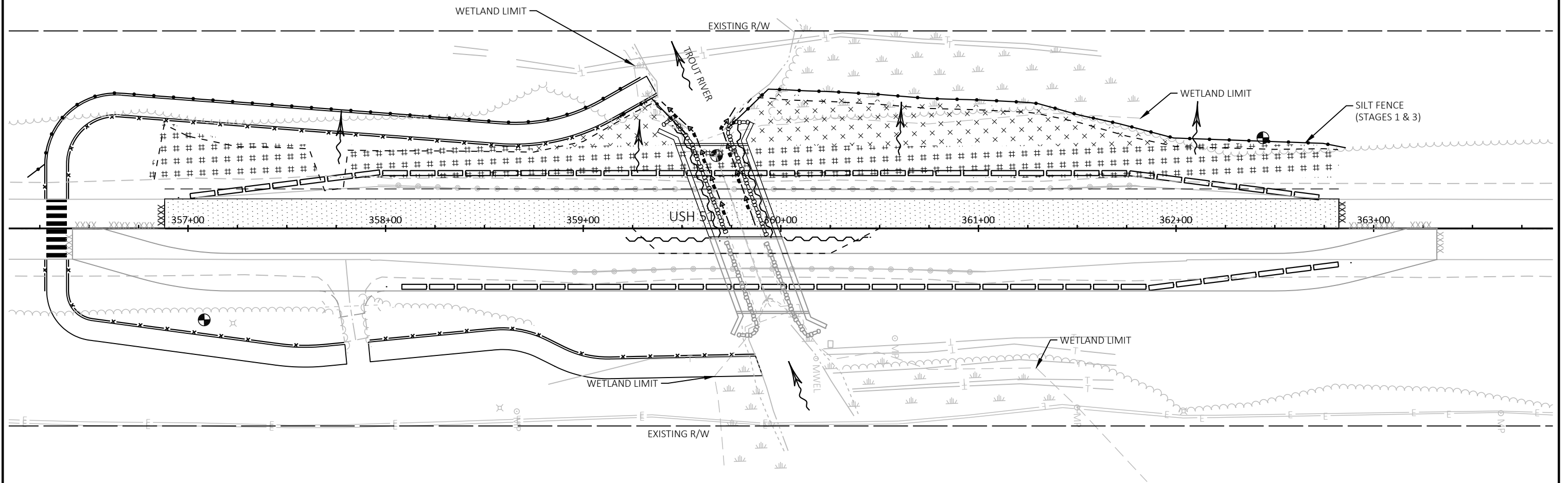
NOTE: MAINLINE REFERENCE LINE SHOWN,
NOT OFFSET STAGED CONSTRUCTION REFERENCE LINE.

LEGEND	
x x x	EROSION MAT CLASS II, TYPE C
#####	EROSION MAT URBAN CLASS I, TYPE A
—●—●—●—	SILT FENCE
—◆—◆—◆—	RIP RAP OR STONE DITCH CHECK
—▲—▲—▲—	SLOPE INTERCEPT
— — — — —	TEMPORARY SHORING
— — — — —	TURBIDITY BARRIER
—○—○—○—	TEMPORARY DITCH CHECK
—□—□—□—	CULVERT PIPE DITCH CHECK
—→—→—→—	SURFACE WATER FLOW
X X X	CLEARING & GRUBBING
—x—x—x—	TEMPORARY PEDESTRAIN BARRICADE



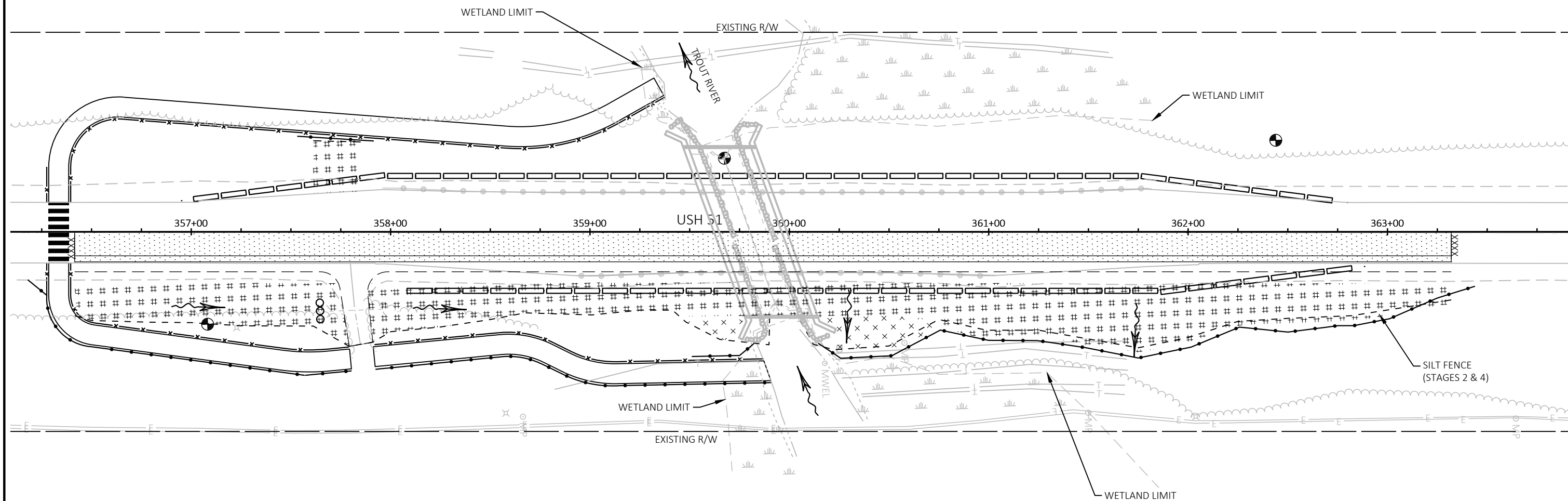
LEGEND	
x x x	EROSION MAT CLASS II, TYPE C
#####	EROSION MAT URBAN CLASS I, TYPE A
—●—●—●—	SILT FENCE
—x—x—x—x—	RIP RAP OR STONE DITCH CHECK
- - - - -	SLOPE INTERCEPT
~~~~~	TEMPORARY SHORING
←- - - - -→	TURBIDITY BARRIER
△△△	TEMPORARY DITCH CHECK
○○○	CULVERT PIPE DITCH CHECK
~~~~~	SURFACE WATER FLOW
X X X	CLEARING & GRUBBING
-x-x-	TEMPORARY PEDESTRAIN BARRICADE

NOTE: MAINLINE REFERENCE LINE SHOWN,
NOT OFFSET STAGED CONSTRUCTION REFERENCE LINE.

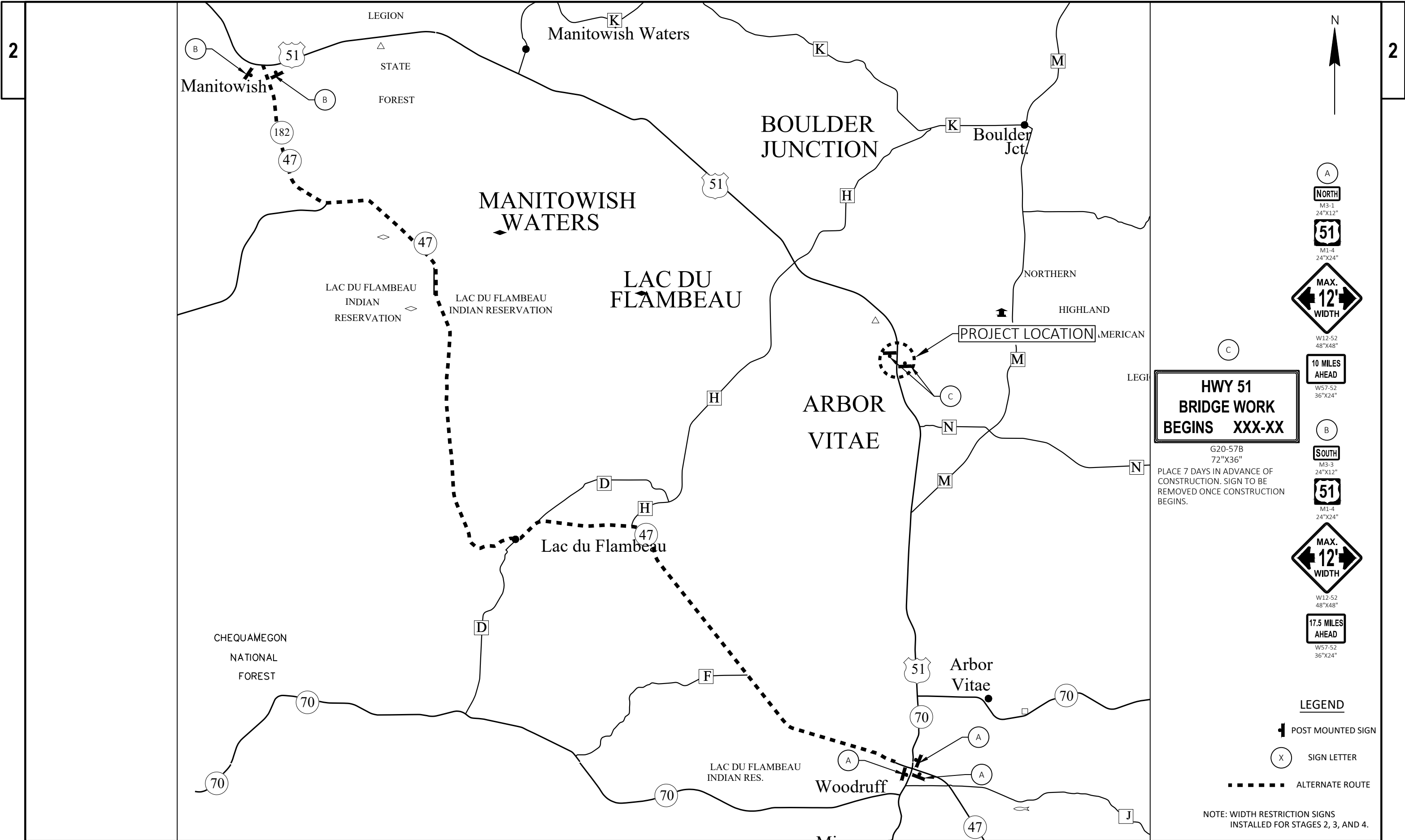


NOTE: MAINLINE REFERENCE LINE SHOWN,
NOT OFFSET STAGED CONSTRUCTION REFERENCE LINE.

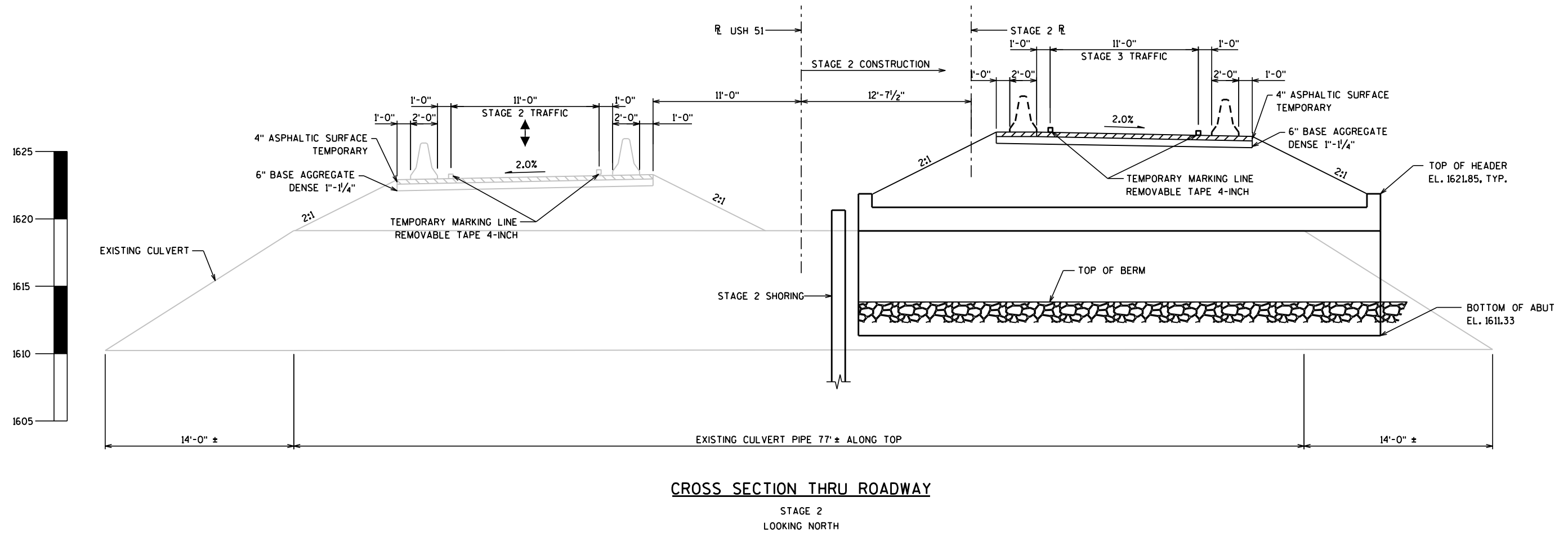
LEGEND	
x x x	EROSION MAT CLASS II, TYPE C
#####	EROSION MAT URBAN CLASS I, TYPE A
—●—●—●—	SILT FENCE
—○—○—○—○—	RIP RAP OR STONE DITCH CHECK
- - - - -	SLOPE INTERCEPT
~~~~~	TEMPORARY SHORING
△△△	TURBIDITY BARRIER
△△△	TEMPORARY DITCH CHECK
○○○	CULVERT PIPE DITCH CHECK
~~~~~	SURFACE WATER FLOW
X X X	CLEARING & GRUBBING
—x—x—x—	TEMPORARY PEDESTRAIN BARRICADE

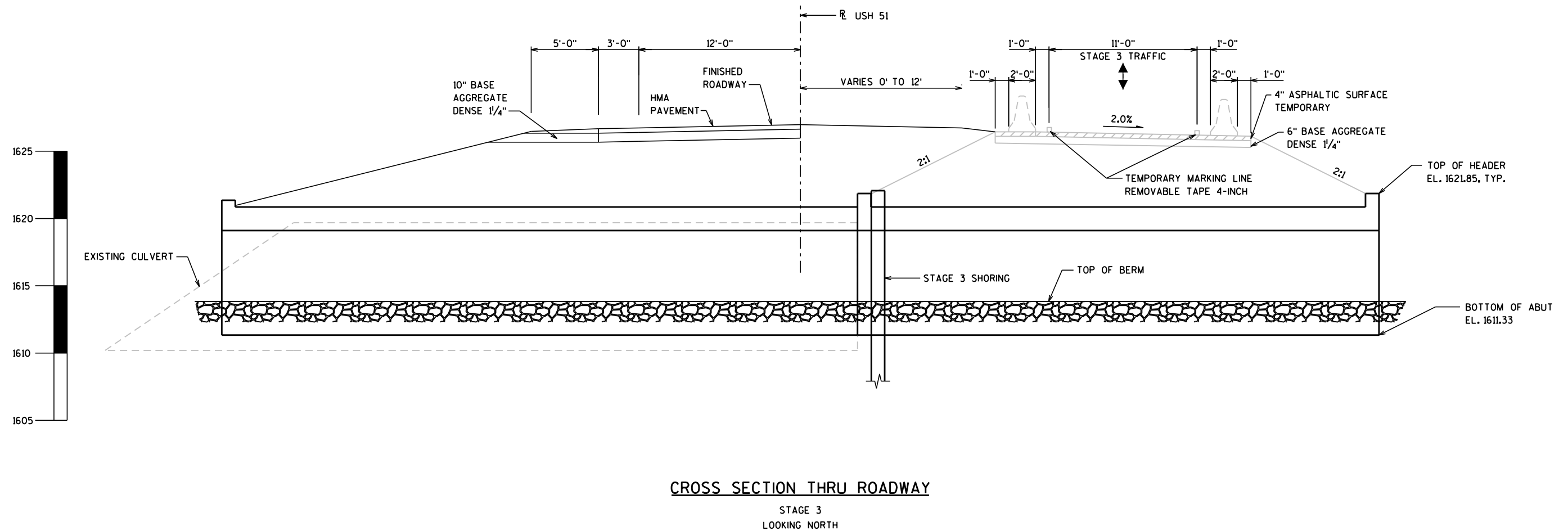


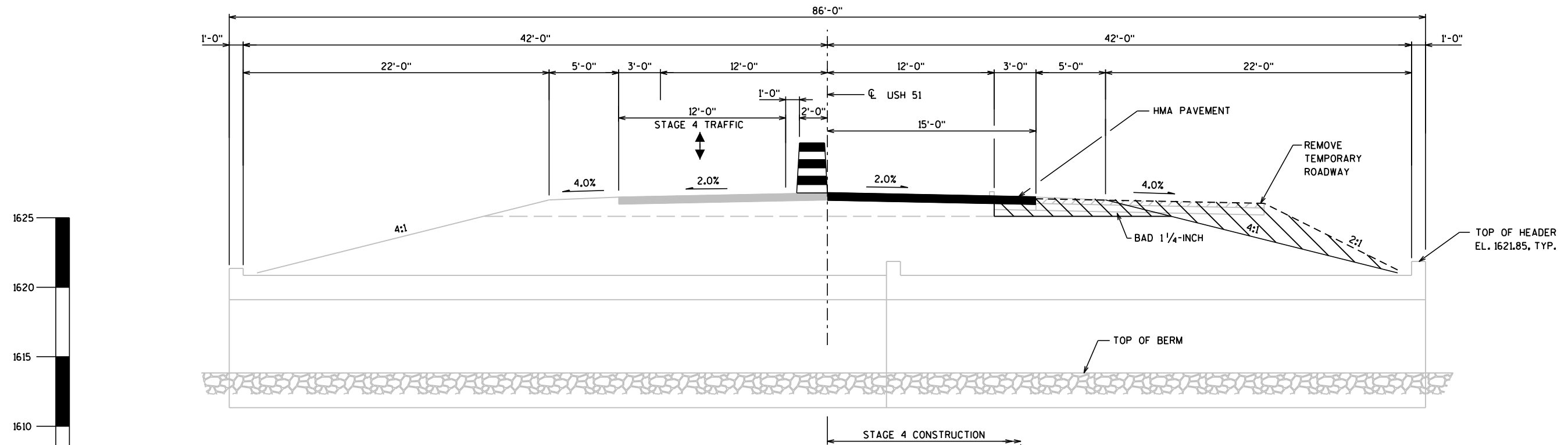
LEGEND	
x x x	EROSION MAT CLASS II, TYPE C
#####	EROSION MAT URBAN CLASS I, TYPE A
—●—	SILT FENCE
—x—x—x—	RIP RAP OR STONE DITCH CHECK
- - -	SLOPE INTERCEPT
~ ~ ~	TEMPORARY SHORING
←- - - - -	TURBIDITY BARRIER
△△△	TEMPORARY DITCH CHECK
○○○	CULVERT PIPE DITCH CHECK
~ ~ ~	SURFACE WATER FLOW
X X X	CLEARING & GRUBBING
-x-x-	TEMPORARY PEDESTRAIN BARRICADE





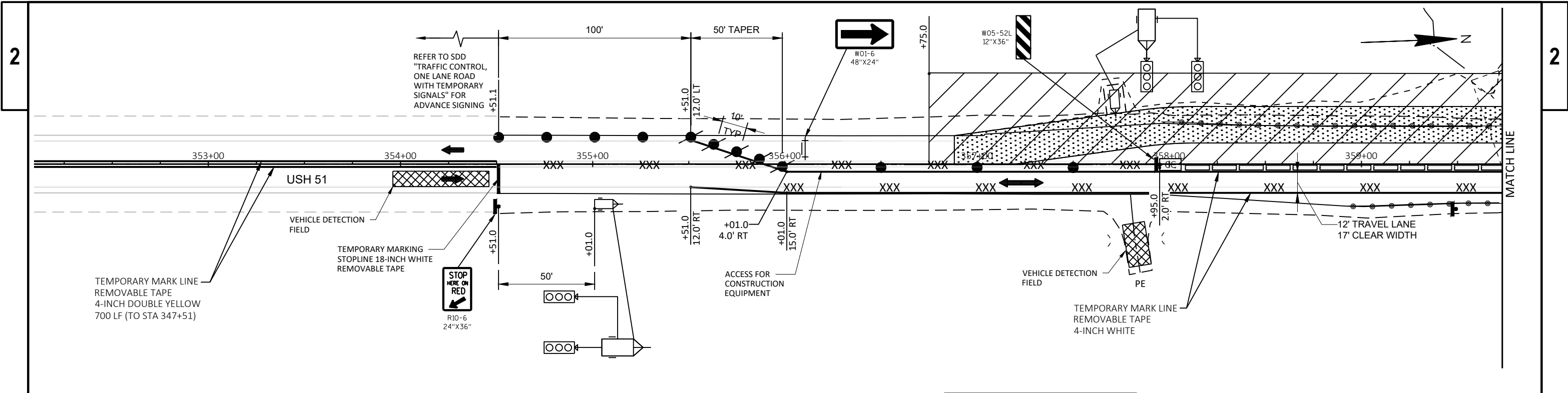






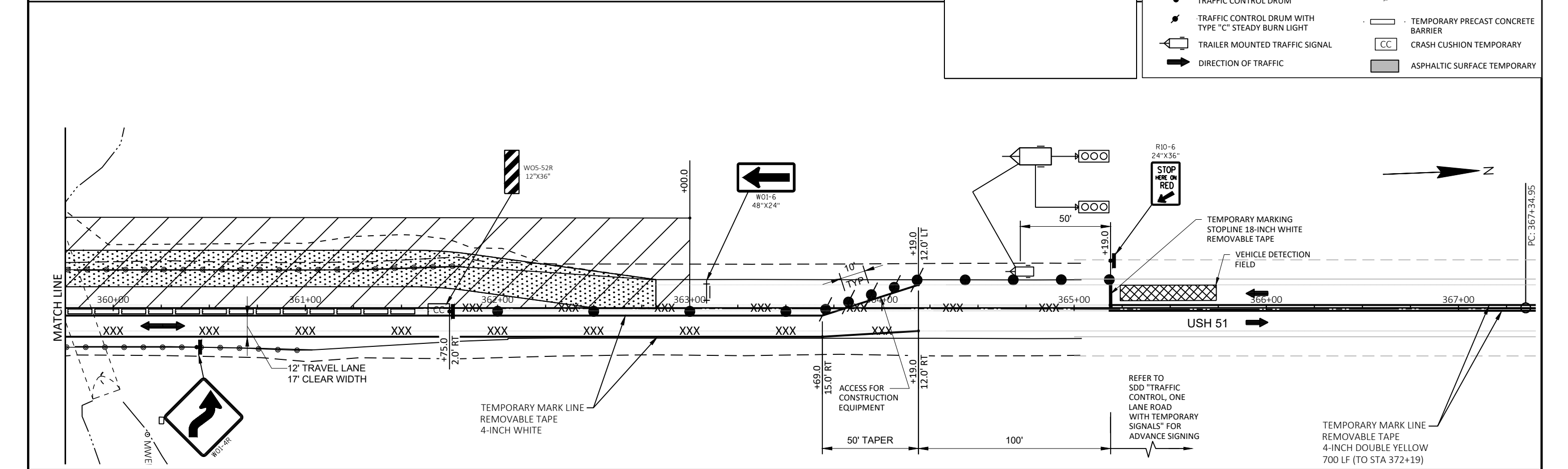
CROSS SECTION THRU ROADWAY

STAGE 4
LOOKING NORTH

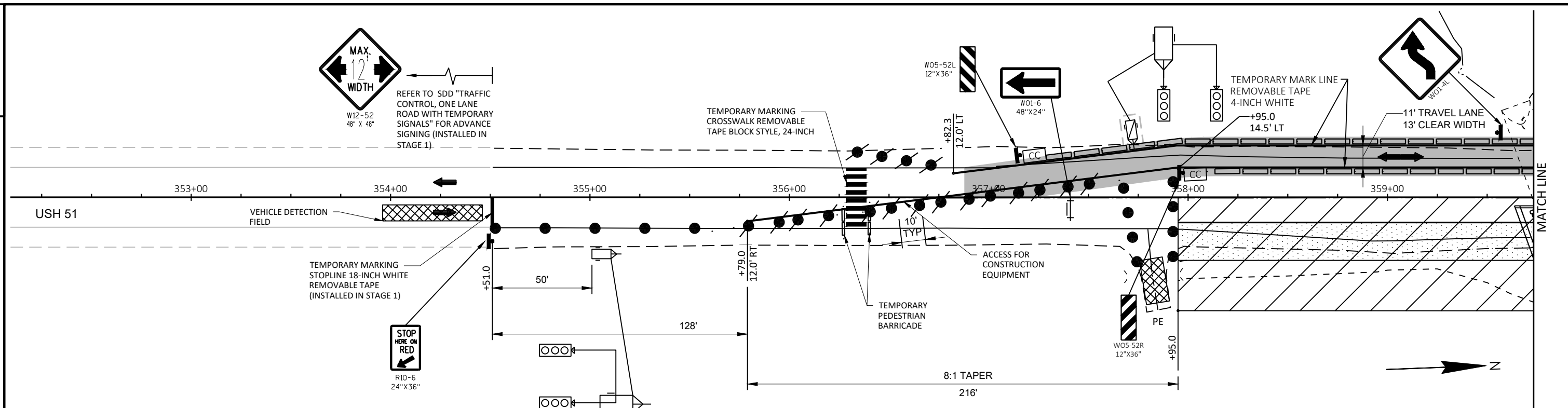


NOTES:
TRAILER MOUNTED SIGNALS REQUIRED AT THIS LOCATION.

LEGEND	
	WORK AREA
X X X	REMOVE EXISTING PAVEMENT MARKING
•	TRAFFIC CONTROL DRUM
	TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
	TRAILER MOUNTED TRAFFIC SIGNAL
	DIRECTION OF TRAFFIC
	TYPE III BARRICADE WITHOUT/ WITH SIGN
	SIGN ON PERMANENT SUPPORT
	TEMPORARY PRECAST CONCRETE BARRIER
	CRASH CUSHION TEMPORARY
	ASPHALTIC SURFACE TEMPORARY



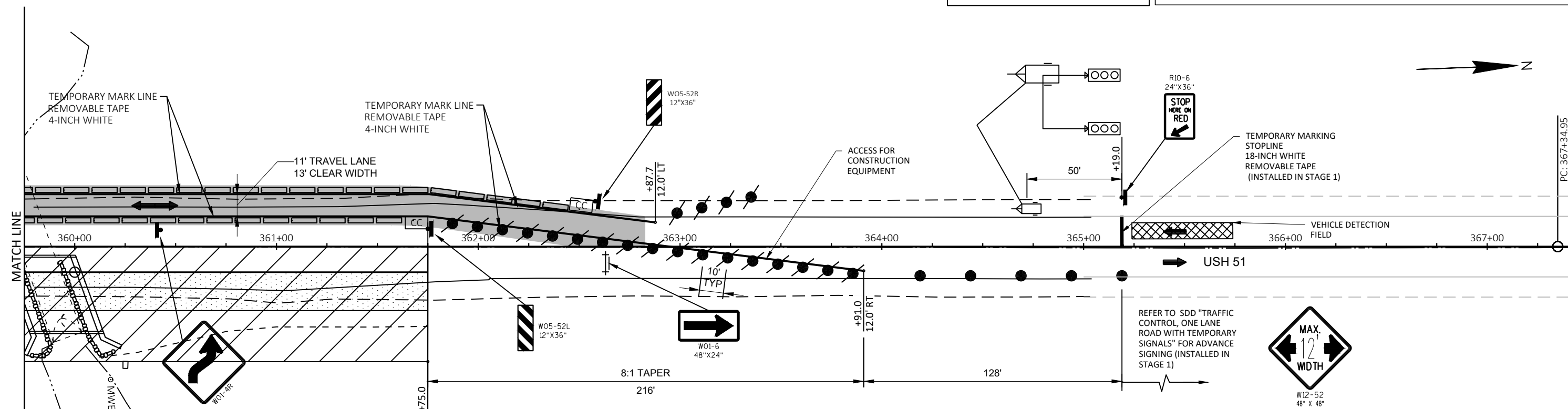
PROJECT NO: 1170-20-61	HWY: USH 51	COUNTY: VILAS	TRAFFIC CONTROL - STAGE 1	SHEET	E
------------------------	-------------	---------------	---------------------------	-------	---



- NOTES:
1. TRAILER MOUNTED SIGNALS REQUIRED AT THIS LOCATION.
 2. WIDTH RESTRICTION SIGNS TO SHOW MAX 12' WIDTH. INSTALLED PER SDD "TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS."
 3. ADDITIONAL WIDTH RESTRICTION SIGNS TO BE INSTALLED ON THREE APPROACHES AT STH 47 AND USH 51 IN WOODRUFF AND ON TWO APPROACHES AT STH 47 AND USH 51 IN MANITOWISH. SEE TRAFFIC CONTROL OVERVIEW FOR MORE DETAILS.

LEGEND

- | | | | |
|--|--|--|---------------------------------------|
| | WORK AREA | | TYPE III BARRICADE WITHOUT/ WITH SIGN |
| | REMOVE EXISTING PAVEMENT MARKING | | SIGN ON PERMANENT SUPPORT |
| | TRAFFIC CONTROL DRUM | | TEMPORARY PRECAST CONCRETE BARRIER |
| | TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT | | CRASH CUSHION TEMPORARY |
| | TRAILER MOUNTED TRAFFIC SIGNAL | | ASPHALTIC SURFACE TEMPORARY |
| | DIRECTION OF TRAFFIC | | |



PROJECT NO: 1170-20-61

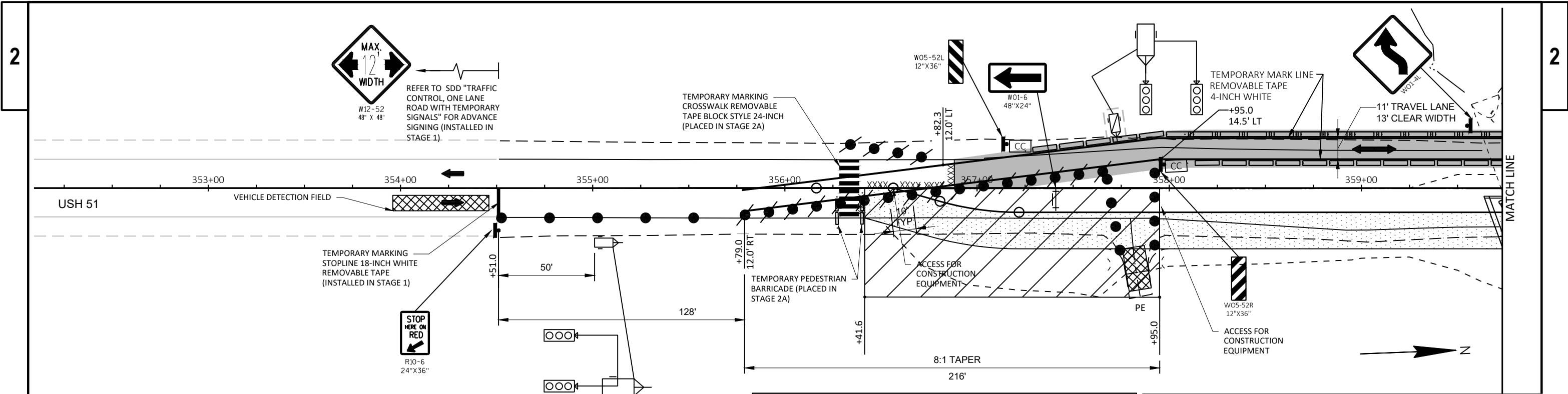
HWY: USH 51

COUNTY: VILAS

TRAFFIC CONTROL - STAGE 2A

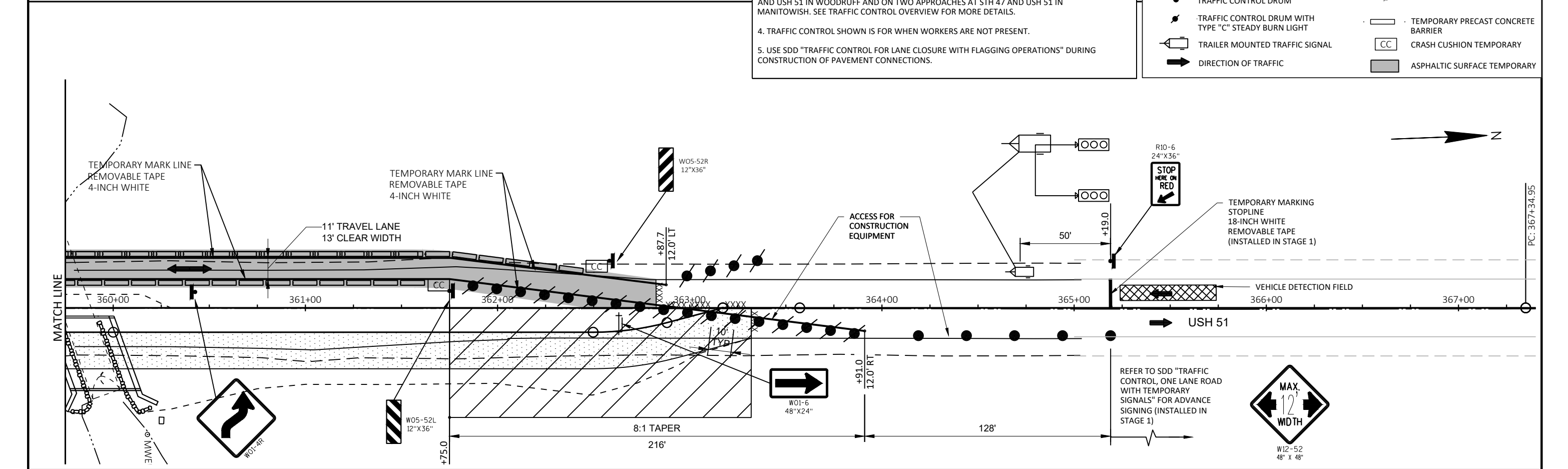
SHEET

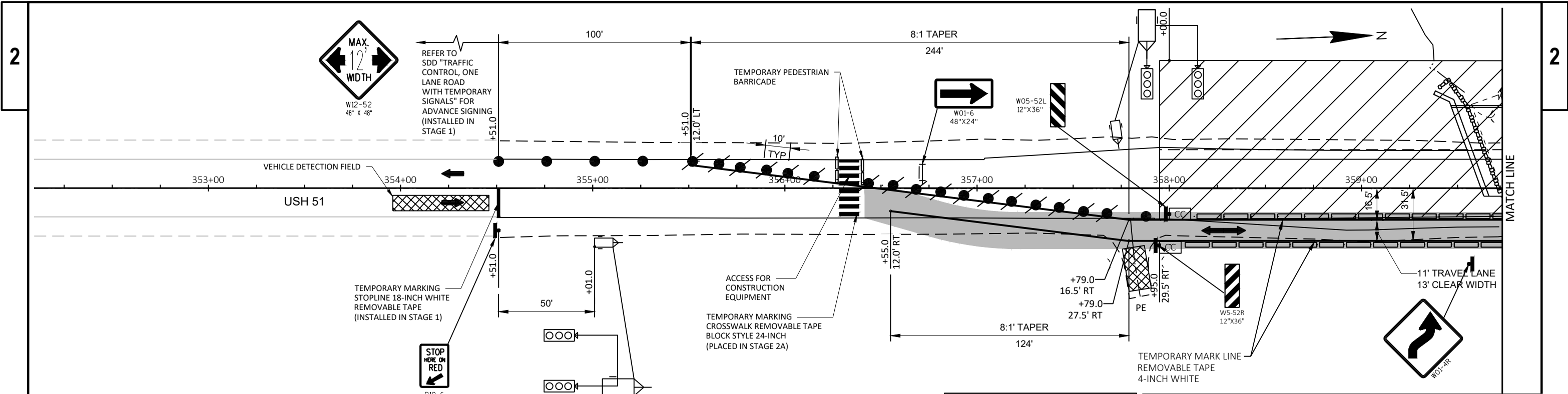
E



- NOTES:
1. TRAILER MOUNTED SIGNALS REQUIRED AT THIS LOCATION.
 2. WIDTH RESTRICTION SIGNS TO SHOW MAX 12' WIDTH. INSTALLED PER SDD "TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS."
 3. ADDITIONAL WIDTH RESTRICTION SIGNS TO BE INSTALLED ON THREE APPROACHES AT STH 47 AND USH 51 IN WOODRUFF AND ON TWO APPROACHES AT STH 47 AND USH 51 IN MANITOWISH. SEE TRAFFIC CONTROL OVERVIEW FOR MORE DETAILS.
 4. TRAFFIC CONTROL SHOWN IS FOR WHEN WORKERS ARE NOT PRESENT.
 5. USE SDD "TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATIONS" DURING CONSTRUCTION OF PAVEMENT CONNECTIONS.

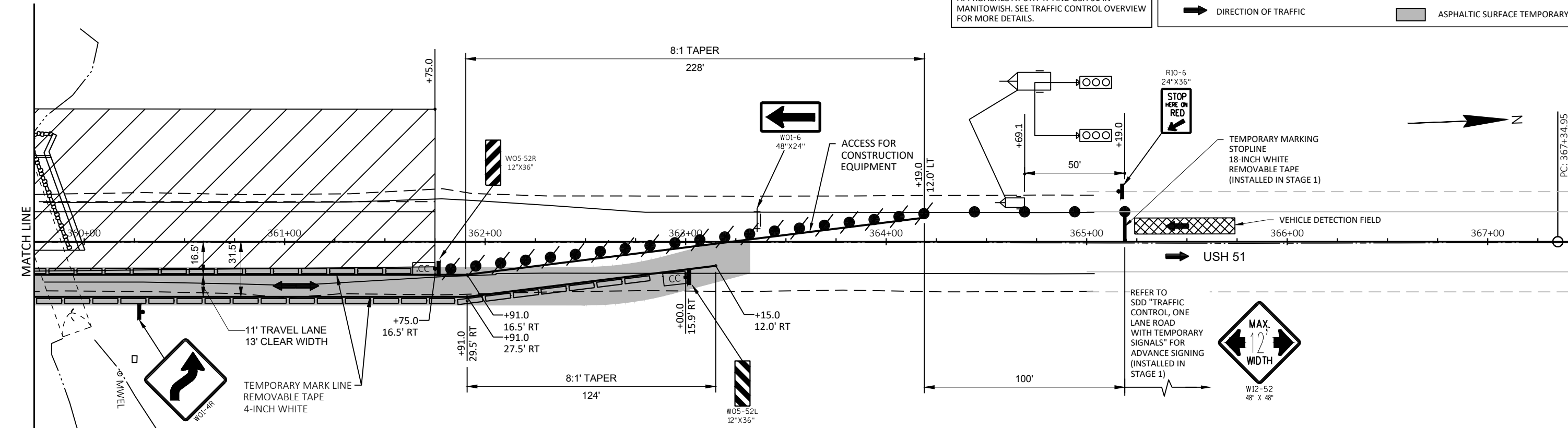
LEGEND	
	WORK AREA
X X X	REMOVE EXISTING PAVEMENT MARKING
•	TRAFFIC CONTROL DRUM
	TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
	TRAILER MOUNTED TRAFFIC SIGNAL
	DIRECTION OF TRAFFIC
	TYPE III BARRICADE WITHOUT/ WITH SIGN
	SIGN ON PERMANENT SUPPORT
	TEMPORARY PRECAST CONCRETE BARRIER
CC	CRASH CUSHION TEMPORARY
	ASPHALTIC SURFACE TEMPORARY

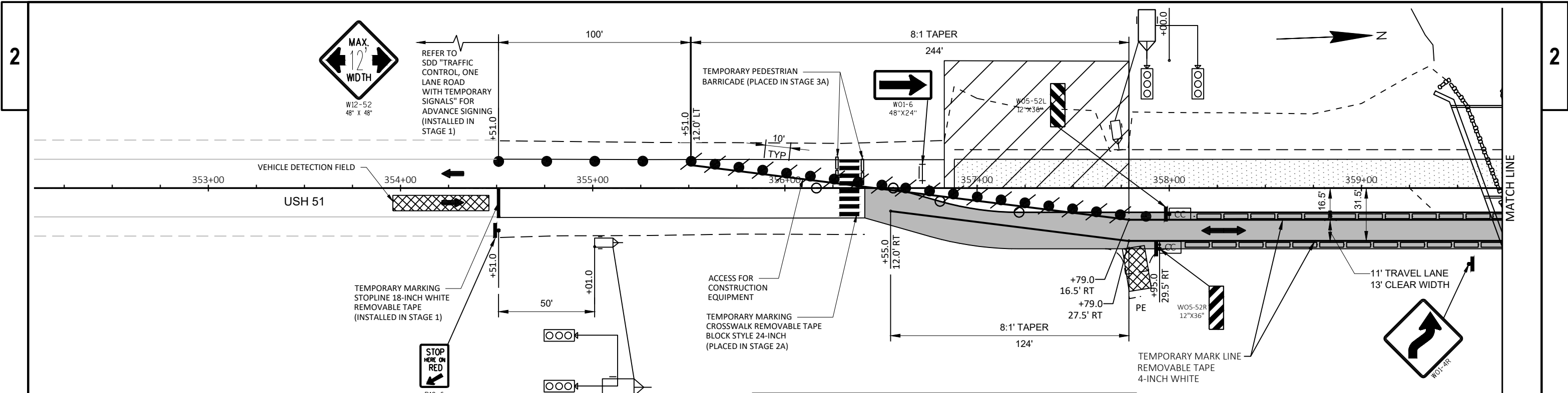




- NOTES:
1. TRAILER MOUNTED SIGNALS REQUIRED AT THIS LOCATION.
 2. WIDTH RESTRICTION SIGNS TO SHOW MAX 12' WIDTH. INSTALLED PER SDD "TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS."
 3. ADDITIONAL WIDTH RESTRICTION SIGNS TO BE INSTALLED ON THREE APPROACHES AT STH 47 AND USH 51 IN WOODRUFF AND ON TWO APPROACHES AT STH 47 AND USH 51 IN MANITOWISH. SEE TRAFFIC CONTROL OVERVIEW FOR MORE DETAILS.

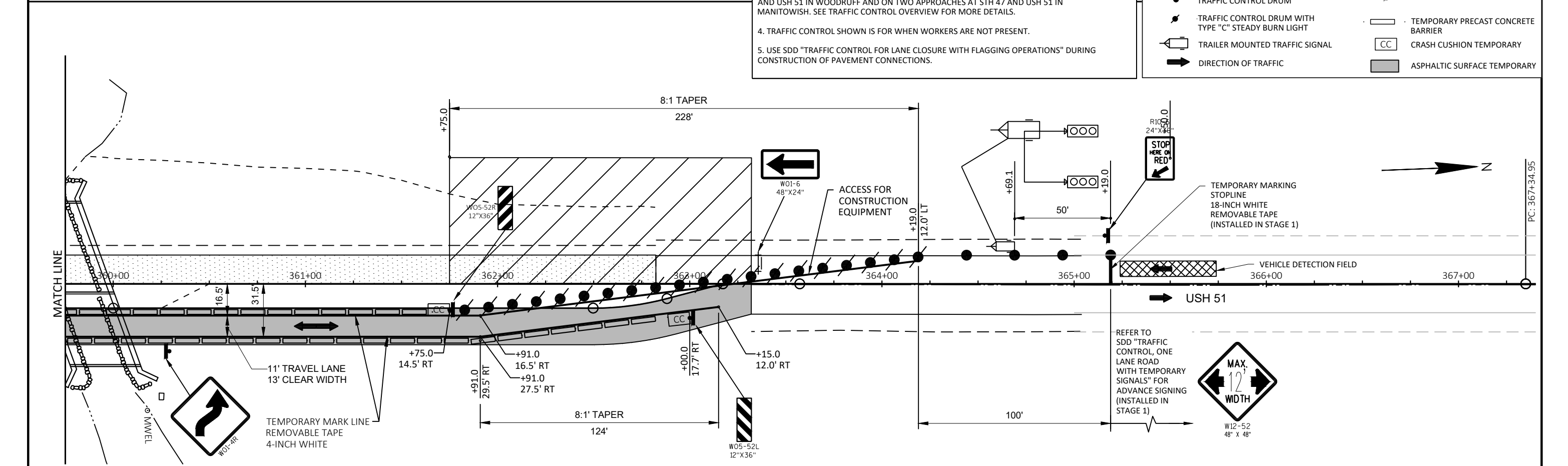
LEGEND	
	WORK AREA
	REMOVE EXISTING PAVEMENT MARKING
	TRAFFIC CONTROL DRUM
	TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
	TRAILER MOUNTED TRAFFIC SIGNAL
	DIRECTION OF TRAFFIC
	TYPE III BARRICADE WITHOUT/ WITH SIGN
	SIGN ON PERMANENT SUPPORT
	TEMPORARY PRECAST CONCRETE BARRIER
	CRASH CUSHION TEMPORARY
	ASPHALTIC SURFACE TEMPORARY

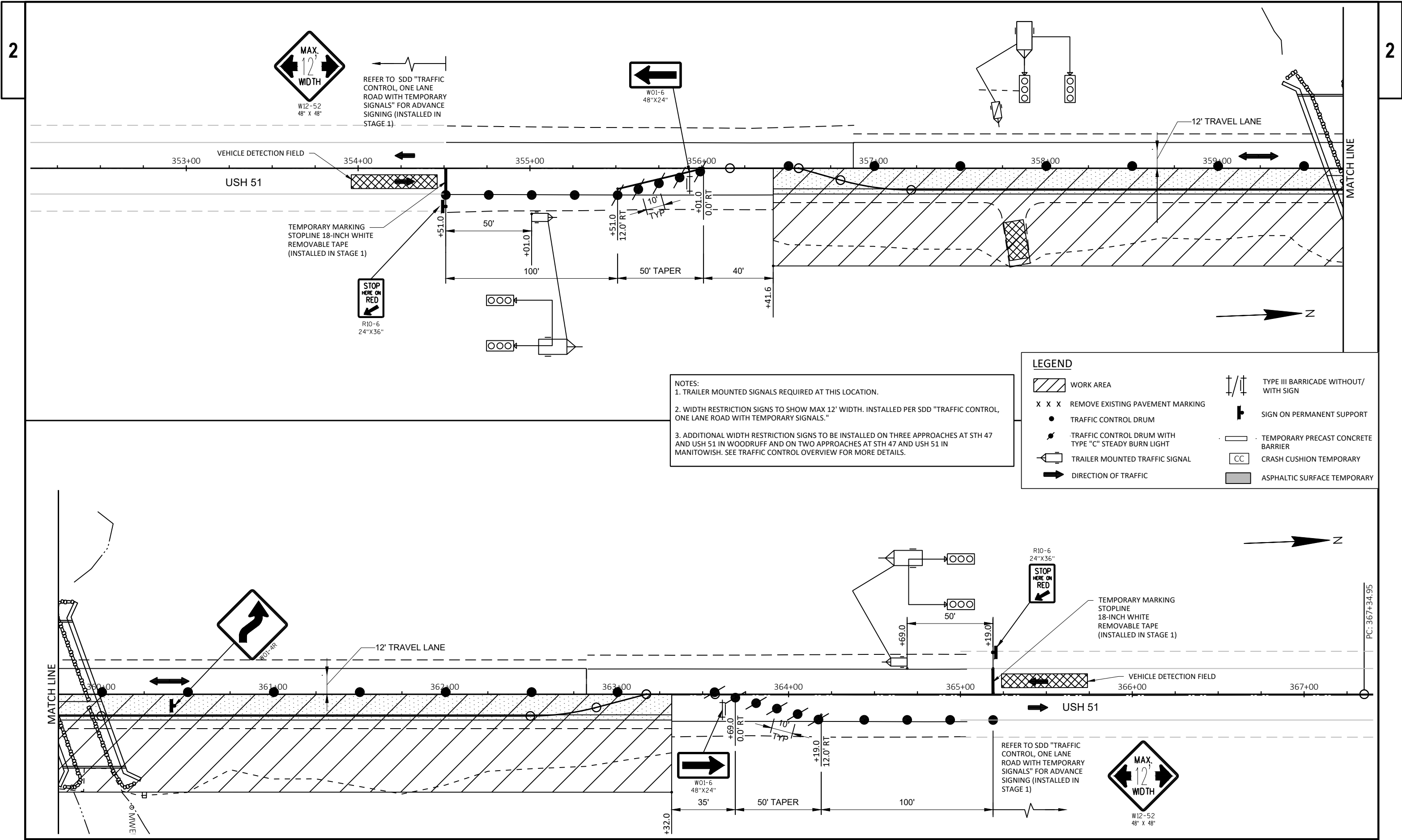




- NOTES:**
1. TRAILER MOUNTED SIGNALS REQUIRED AT THIS LOCATION.
 2. WIDTH RESTRICTION SIGNS TO SHOW MAX 12' WIDTH. INSTALLED PER SDD "TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS."
 3. ADDITIONAL WIDTH RESTRICTION SIGNS TO BE INSTALLED ON THREE APPROACHES AT STH 47 AND USH 51 IN WOODRUFF AND ON TWO APPROACHES AT STH 47 AND USH 51 IN MANITOWISH. SEE TRAFFIC CONTROL OVERVIEW FOR MORE DETAILS.
 4. TRAFFIC CONTROL SHOWN IS FOR WHEN WORKERS ARE NOT PRESENT.
 5. USE SDD "TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATIONS" DURING CONSTRUCTION OF PAVEMENT CONNECTIONS.

LEGEND	
	WORK AREA
	REMOVE EXISTING PAVEMENT MARKING
	TRAFFIC CONTROL DRUM
	TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
	TRAILER MOUNTED TRAFFIC SIGNAL
	DIRECTION OF TRAFFIC
	TYPE III BARRICADE WITHOUT/ WITH SIGN
	SIGN ON PERMANENT SUPPORT
	TEMPORARY PRECAST CONCRETE BARRIER
	CRASH CUSHION TEMPORARY
	ASPHALTIC SURFACE TEMPORARY





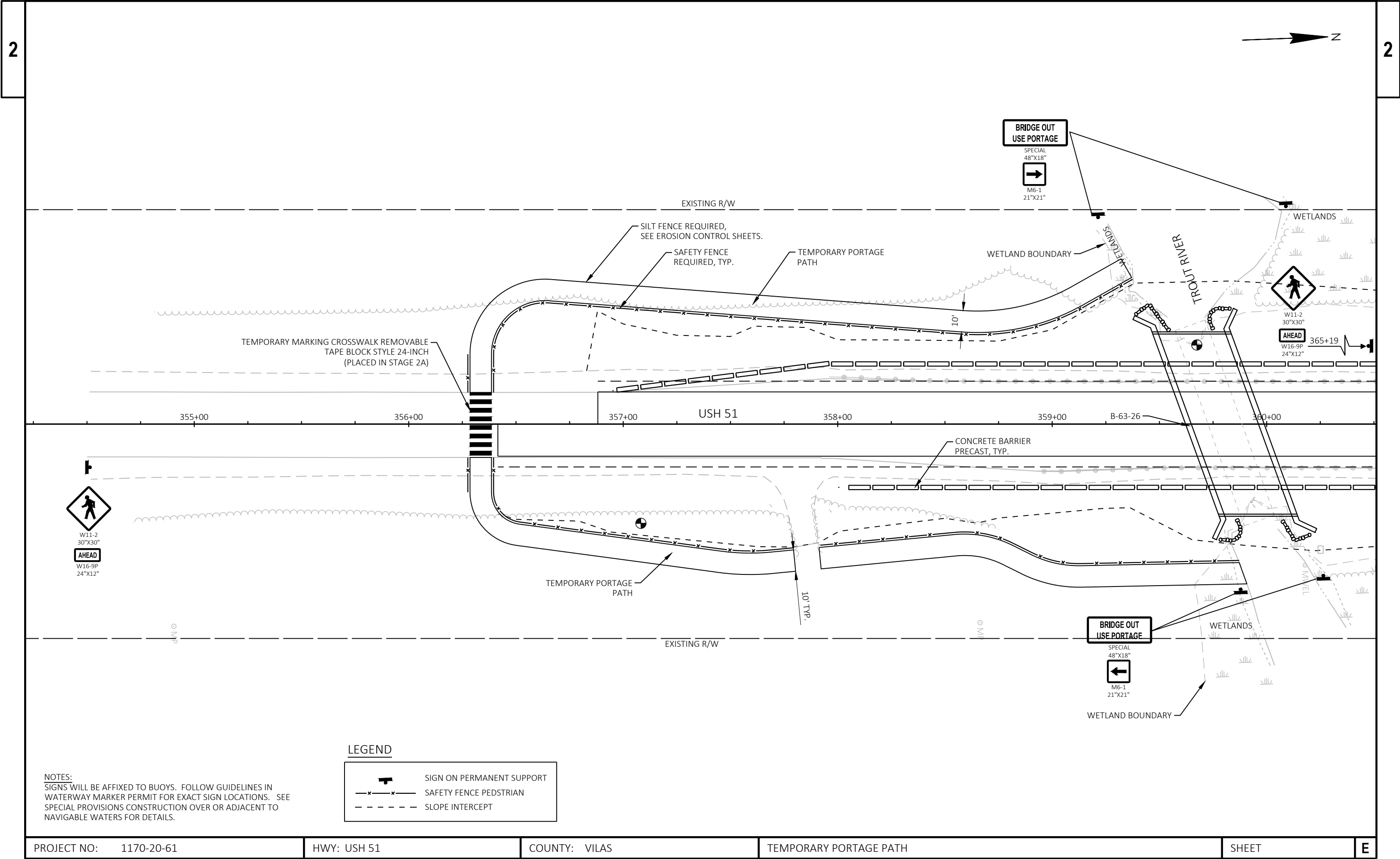
TEMPORARY SIGNAL TIMING

	Ø1 NB USH 51	Ø2 WB Private Drive	Ø3 SB USH 51
MINIMUM GREEN TIME	9 sec	5 sec	9 sec
MAXIMUM PASSAGE TIME DURING GREEN PHASE	5 sec	5 sec	5 sec
MINIMUM PASSAGE TIME DURING GREEN PHASE	3 sec	-	3 sec
START OF REDUCTION OF PASSAGE FROM MAX. TO MIN. DURING GREEN PHASE	15 sec	-	15 sec
TIME TO REDUCE PASSAGE FROM MAX. TO MIN. DURING GREEN PHASE	0 sec	-	0 sec
MAXIMUM GREEN TIME	33 sec	7 sec	33 sec
YELLOW	5 sec	3 sec	5 sec
ALL-RED	13 sec	24 sec	30 sec
RECALL MODE	MIN	MIN	MIN

PHASE 2 SHALL COME AFTER PHASE 1, PHASE 3 SHALL COME AFTER PHASE 2.

CONTRACTOR SHALL REVIEW SIGNALS AFTER PROGRAMMING TO ASSURE THERE ARE NOT CONFLICTING MOVEMENTS.

IF THERE ARE QUESTIONS REGARDING THE TIMINGS PLEASE CONTACT TRAFFIC ENGINEER



Estimate Of Quantities

1170-20-61

Line	Item	Item Description	Unit	Total	Qty
0002	201.0105	Clearing	STA	6.000	6.000
0004	201.0205	Grubbing	STA	6.000	6.000
0006	203.0200	Removing Old Structure (station) 01. 359+80	LS	1.000	1.000
0008	204.0165	Removing Guardrail	LF	597.000	597.000
0010	205.0100	Excavation Common	CY	3,722.000	3,722.000
0012	206.1000	Excavation for Structures Bridges (structure) 01. B-63-26	LS	1.000	1.000
0014	206.5000	Cofferdams (structure) 01. B-63-26	LS	1.000	1.000
0016	208.0100	Borrow	CY	702.000	702.000
0018	209.2100	Backfill Granular Grade 2	CY	925.000	925.000
0020	210.1500	Backfill Structure Type A	TON	2,370.000	2,370.000
0022	213.0100	Finishing Roadway (project) 01. 1170-20-61	EACH	1.000	1.000
0024	305.0110	Base Aggregate Dense 3/4-Inch	TON	310.000	310.000
0026	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	3,380.000	3,380.000
0028	455.0605	Tack Coat	GAL	425.000	425.000
0030	460.2000	Incentive Density HMA Pavement	DOL	500.000	500.000
0032	460.6223	HMA Pavement 3 MT 58-28 S	TON	554.000	554.000
0034	460.6224	HMA Pavement 4 MT 58-28 S	TON	216.000	216.000
0036	465.0125	Asphaltic Surface Temporary	TON	622.000	622.000
0038	465.0475	Asphalt Centerline Rumble Strips 2-Lane Rural	LF	653.000	653.000
0040	502.0100	Concrete Masonry Bridges	CY	382.000	382.000
0042	505.0400	Bar Steel Reinforcement HS Structures	LB	12,800.000	12,800.000
0044	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	56,470.000	56,470.000
0046	505.0905	Bar Couplers No. 5	EACH	18.000	18.000
0048	505.0908	Bar Couplers No. 8	EACH	18.000	18.000
0050	511.1200	Temporary Shoring (structure) 01. B-63-26	SF	1,250.000	1,250.000
0052	516.0500	Rubberized Membrane Waterproofing	SY	40.000	40.000
0054	516.0610.S	Sheet Membrane Waterproofing for Top Slab (structure) 01. B-63-26	SY	390.000	390.000
0056	520.1018	Apron Endwalls for Culvert Pipe 18-Inch	EACH	2.000	2.000
0058	520.3318	Culvert Pipe Class III-A 18-Inch	LF	32.000	32.000
0060	550.0500	Pile Points	EACH	40.000	40.000
0062	550.2106	Piling CIP Concrete 10 3/4 X 0.365-Inch	LF	2,400.000	2,400.000
0064	603.8000	Concrete Barrier Temporary Precast Delivered	LF	1,960.000	1,960.000
0066	603.8125	Concrete Barrier Temporary Precast Installed	LF	1,960.000	1,960.000
0068	603.8500	Anchoring Concrete Barrier Temporary Precast	LF	1,410.000	1,410.000
0070	606.0300	Riprap Heavy	CY	160.000	160.000
0072	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	270.000	270.000
0074	614.0905	Crash Cushions Temporary	EACH	10.000	10.000
0076	616.0700.S	Fence Safety	LF	730.000	730.000

Estimate Of Quantities

1170-20-61

Line	Item	Item Description	Unit	Total	Qty
0078	618.0100	Maintenance And Repair of Haul Roads (project) 01. 1170-20-61	EACH	1.000	1.000
0080	619.1000	Mobilization	EACH	1.000	1.000
0082	624.0100	Water	MGAL	37.000	37.000
0084	625.0100	Topsoil	SY	7,330.000	7,330.000
0086	628.1504	Silt Fence	LF	1,800.000	1,800.000
0088	628.1520	Silt Fence Maintenance	LF	1,800.000	1,800.000
0090	628.1905	Mobilizations Erosion Control	EACH	4.000	4.000
0092	628.1910	Mobilizations Emergency Erosion Control	EACH	5.000	5.000
0094	628.2006	Erosion Mat Urban Class I Type A	SY	3,550.000	3,550.000
0096	628.2027	Erosion Mat Class II Type C	SY	3,790.000	3,790.000
0098	628.6005	Turbidity Barriers	SY	290.000	290.000
0100	628.7504	Temporary Ditch Checks	LF	50.000	50.000
0102	628.7555	Culvert Pipe Checks	EACH	4.000	4.000
0104	628.7570	Rock Bags	EACH	10.000	10.000
0106	629.0210	Fertilizer Type B	CWT	5.000	5.000
0108	630.0120	Seeding Mixture No. 20	LB	147.000	147.000
0110	630.0200	Seeding Temporary	LB	78.000	78.000
0112	630.0500	Seed Water	MGAL	192.000	192.000
0114	634.0616	Posts Wood 4x6-Inch X 16-FT	EACH	1.000	1.000
0116	637.2210	Signs Type II Reflective H	SF	5.560	5.560
0118	642.5001	Field Office Type B	EACH	1.000	1.000
0120	643.0300	Traffic Control Drums	DAY	7,380.000	7,380.000
0122	643.0420	Traffic Control Barricades Type III	DAY	293.000	293.000
0124	643.0705	Traffic Control Warning Lights Type A	DAY	585.000	585.000
0126	643.0715	Traffic Control Warning Lights Type C	DAY	4,837.000	4,837.000
0128	643.0900	Traffic Control Signs	DAY	7,213.000	7,213.000
0130	643.1000	Traffic Control Signs Fixed Message	SF	60.000	60.000
0132	643.5000	Traffic Control	EACH	1.000	1.000
0134	644.1810	Temporary Pedestrian Barricade	LF	54.000	54.000
0136	645.0111	Geotextile Type DF Schedule A	SY	200.000	200.000
0138	645.0120	Geotextile Type HR	SY	240.000	240.000
0140	646.1020	Marking Line Epoxy 4-Inch	LF	2,804.000	2,804.000
0142	646.9000	Marking Removal Line 4-Inch	LF	1,556.000	1,556.000
0144	649.0150	Temporary Marking Line Removable Tape 4-Inch	LF	7,791.000	7,791.000
0146	649.0850	Temporary Marking Stop Line Removable Tape 18-Inch	LF	30.000	30.000
0148	650.4500	Construction Staking Subgrade	LF	2,571.000	2,571.000
0150	650.5000	Construction Staking Base	LF	2,571.000	2,571.000
0152	650.6500	Construction Staking Structure Layout (structure) 01. B-63-26	LS	1.000	1.000

Estimate Of Quantities

1170-20-61					
Line	Item	Item Description	Unit	Total	Qty
0154	650.9910	Construction Staking Supplemental Control (project) 01. 1170-20-61	LS	1.000	1.000
0156	650.9920	Construction Staking Slope Stakes	LF	2,571.000	2,571.000
0158	661.0100	Temporary Traffic Signals for Bridges (structure) 01. B-63-26	LS	1.000	1.000
0160	690.0150	Sawing Asphalt	LF	845.000	845.000
0162	715.0502	Incentive Strength Concrete Structures	DOL	2,628.000	2,628.000
0164	SPV.0090	Special 01. Temporary Marking Crosswalk Removable Tape Block Style 24-Inch	LF	70.000	70.000
0166	SPV.0105	Special 01. Temporary Vehicle Detection	LS	1.000	1.000
0168	SPV.0195	Special 01. Select Crushed Material for Travel Corridor	TON	140.000	140.000

CLEARING AND GRUBBING

STATION TO STATION	DIR	R/L	201.0105 CLEARING STA	201.0205 GRUBBING STA
CATEGORY 0010				
STAGE 1 (FOR STAGE 3 GRADING)				
356+00 - 362+00	LT & RT	USH 51	6	6

PROJECT TOTALS 6 6

NOTE: CLEAR AND GRUB BETWEEN LINES 5 FEET OUTSIDE THE
TEMORARY PORTAGE PATH BETWEEN 356+00 AND 360+00.

REMOVING GUARDRAIL

STATION	TO	STATION	DIR	R/L	204.0165 REMOVING GUARDRAIL LF
CATEGORY 0010					
STAGE 1					
357+96	-	361+82	LT	USH 51	385
STAGE 2					
358+92	-	361+04	RT	USH 51	212

PROJECT TOTAL 597

EARTHWORK SUMMARY

STAGE	STATIONING	R/L	205.0100 COMMON EXCAVATION	AVAILABLE MATERIAL	UNEXPANDED FILL	EXPANDED FILL (13)	MASS ORDINATE +/- (14)	WASTE	208.0100 BORROW
			CUT			FACTOR 1.25			
STAGE 1	457+25 - 462+50	STAGE 1	1,008	1,008	83	104	904	904	0
STAGE 2	556+55 - 563+19	STAGE 2	739	739	540	675	64	64	0
STAGE 3	356+88 - 362+82	USH 51	459	459	929	1,161	-702	0	702
STAGE 4	356+42 - 363+32	USH 51	1,516	1,516	27	34	1,482	1,482	0
GRAND TOTALS			3,722						702

NOTES:
(14) MASS ORDINATE = AVAILABLE MATERIAL - EXPANDED FILL

BACKFILL GRANULAR

STR	R/L	209.2100 BACKFILL GRANULAR CY
CATEGORY 0010		
B-63-26 EXCAVATION	USH 51	925

PROJECT TOTAL 925

BASE AGGREGATE DENSE				
		305.0110	305.0120	624.0100
		3/4-INCH	1 1/4-INCH	WATER
STATION TO STATION	R/L	TON	TON	MGAL
CATEGORY 0010				
STAGE 1				
456+87 - 462+83	STAGE 1	0	435	---
STAGE 2				
556+40 - 563+33	STAGE 2	0	520	---
STAGE 3				
356+88 - 362+82	USH 51	145	1,110	---
356+41 - 363+32	USH 51	165	1,315	---
UNDISTRIBUTED	USH 51	---	---	37
PROJECT TOTALS				
		310	3,380	37

ASPHALTIC ITEMS								
STATION TO STATION		R/L	AREA	455.0605 TACK COAT GAL	460.6223 HMA PAVEMENT 3 MT 58-28 S TON	460.6224 HMA PAVEMENT 4 MT 58-28 H TON	465.0125 ASPHALTIC SURFACE TEMPORARY TON	
CATEGORY 0010								
STAGE 1								
456+87	-	462+83	STAGE 1	TEMP LANE	75	---	---	286
STAGE 2								
556+42	-	563+32	STAGE 2	TEMP LANE	90	---	---	336
STAGE 3								
356+88	-	362+82	USH 51	LANE/SHOULDER	120	256	100	---
STAGE 4								
356+41	-	363+32	USH 51	LANE/SHOULDER	140	298	116	---
PROJECT TOTALS								
					425	554	216	622

ASPHALTIC CENTERLINE RUMBLE STRIPS				
				465.0475 ASPHALTIC CENTERLINR RUBMLE STRIPS 2-LANE RURAL LF
STATION	-	STATION	LOCATION	
CATEGORY 0010				
356+42	-	359+62	USH 51	320
359+99	-	363+32	USH 51	333
PROJECT TOTAL				
				653

CULVERT PIPES					
STATION	DIR	R/L	520.1018 APRON ENDWALLS FOR CULVERT PIPE 18-INCH EA	520.3318 CULVERT PIPE CLASS III-A 18-INCH LF	MIN. WALL THICKNESS (IN)
CATEGORY 0010					
STAGE 2					
557+85	RT	STAGE 2	2	32	0.064
PROJECT TOTALS					
			2	32	

SAFTEY FENCE

LOCATIONR/L		616.0700.S SAFETY FENCE LF
CATEGORY 0010		
CANOE PORTAGE	USH 51	730

PROJECT TOTALS730

LANDSCAPING ITEMS

						625.0100 TOPSOIL SY	628.2006 EROSION MAT URBAN CLASS I TYPE A SY	628.2027 EROSION MAT CLASS II TYPE C SY	629.0210 FERTILIZER TYPE B CWT	630.0120 SEEDING MIX NO. 20 LB	630.0200 TEMP SEEDING LB	630.0500 SEED WATER MGAL
STATION TO STATION				DIR	R/L	SY	SY	SY	CWT	LB	LB	MGAL
CATEGORY 0010												
STAGE 1												
456+87	-	462+83	LT	STAGE 1	1,170	0	1,170	0.7	0	32	---	
STAGE 2												
556+40	-	563+33	RT	STAGE 2	1,230	0	1,230	0.8	0	33	---	
STAGE 3												
356+88	-	362+83	LT	USH 51	1,750	1,100	650	1.3	58	---	---	
STAGE 4												
356+41	-	363+32	RT	USH 51	1,960	1,860	110	1.5	65	---	---	
UNDISTRIBUTED					1,220	590	630	0.9	24	13	192	

PROJECT TOTALS7,3303,5503,790514778192

EROSION CONTROL ITEMS

STATION TO STATION		R/L	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF	628.1905 MOBILIZATION EROSION CONTROL EA	628.1910 MOBILIZATION EROSION CONTROL EMERGENCY EA	628.6005 TURBIDITY BARRIER SY	628.7504 TEMPORARY DITCH CHECKS LF	628.7555 CULVERT PIPE CHECKS EACH	628.7570 ROCK BAGS EACH	COMMENT
CATEGORY 0010											
STAGE 1											
456+87	-	462+83	STAGE 1	675	675	1	1	---	---	---	---
STAGE 2											
556+40	-	563+33	STAGE 2	725	725	1	1	110	---	2	---
STAGE 3											
356+88	-	362+83	USH 51	---	---	1	1	120	---	---	SILT FENCE INSTALLED IN STAGE 1
STAGE 4											
356+41	-	363+32	USH 51	40	40	1	1	---	---	---	RT SIDE SILT FENCE INSTALLED IN STAGE 2
UNDISTRIBUTED				360	360	---	1	60	50	2	10
PROJECT TOTALS				1,800	1,800	4	5	290	50	4	10

TRAFFIC CONTROL

	APPROX. SERVICE PERIOD	603.8000 CONCRETE BARRIER TEMPORARY PRECAST DELIVERED	603.8125 CONCRETE BARRIER TEMPORARY PRECAST INSTALLED	603.8500 ANCHORING CONCRETE BARRIER TEMPORARY PRECAST	643.0300 DRUMS	643.0420 BARRICADES TYPE III	643.0705 WARNING LIGHTS TYPE A	643.0715 WARNING LIGHTS TYPE C	643.0900 SIGNS	643.1000 SIGNS FIXED MESSAGE *	643.5000 TRAFFIC CONTROL	644.1810 TEMPORARY PEDESTRIAN BARRICADE
LOCATION	DAYS	LF	LF	LF	NO. DAYS	NO. DAYS	NO. DAYS	NO. DAYS	NO. DAYS	SF	EACH	LF
CATEGORY 0010												
STAGE 1												
USH 51 STA 354-51 - STA 365+19	10	340	340	200	25 250	2 20	4 40	10 100	19 190	36	---	---
STAGE 2A												
USH 51 STA 354-51 - STA 365+19	55	820	820	425	59 3,245	2 110	4 220	33 1,815	24 1,320	---	---	---
STAGE 2B												
USH 51 STA 354-51 - STA 365+19	5	---	---		59 295	2 10	4 20	33 165	24 120	---	---	---
STAGE 3A												
USH 51 STA 354-51 - STA 365+19	56	800	800	550	48 2,688	2 112	4 224	40 2,240	24 1,344	---	---	---
STAGE 3B												
USH 51 STA 354-51 - STA 365+19	5	---	---		0	0	0 0	0	0	---	---	---
STAGE 4												
USH 51 STA 354-51 - STA 365+19	7	---	---		33 231	2 14	4 28	11 77	17 119	---	---	---
WIDTH RESTRICTION SIGNING												
STH 47 AND USH 51 WOODRUFF	118	---	---		---	---	---	---	12 1,416	---	---	---
STH 47 AND USH 51 MANITOWISH	118	---	---		---	---	---	---	8 944	---	---	---
TEMPORARY PORTAGE PATH	138	---	---		---	---	---	---	8 1,104	24	---	54
PROJECT SUBTOTALS	138	1,960	1,960	1,175	224 6,709	10 266	20 532	127 4,397	136 6,557	60	0	54
UNDISTRIBUTED		0	0	235	22 671	1 27	2 53	13 440	14 656	0	1	0
TOTALS		1,960	1,960	1,410	246 7,380	293	585	4,837	7,213	60	1	54

NOTES: * INSTALL G20-57B SEVEN (7) DAYS PRIOR TO CONSTRUCTION

CRASH CUSHIONS TEMPORARY

STATION	LOCATION	CONSTRUCTION STAGING	614.0905 CRASH CUSHIONS TEMPORARY ** EACH	BACK WIDTH FT	OBJECT MARKING PATTERN	CRASH TEST LEVEL	TRAFFIC DIRECTION	TRAFFIC LOCATION	CRASH CUSHION SHIELDS
CATEGORY 0010									
357+95 RT	USH 51	1	1	2	OM-3L	TL-3	UNIDIRECTIONAL	RT	TEMPORARY BARRIER END
361+75 RT	USH 51	1	1	2	OM-3R	TL-3	UNIDIRECTIONAL	RT	TEMPORARY BARRIER END
357+25 LT	USH 51	2A	1	2	OM-3L	TL-3	UNIDIRECTIONAL	RT	TEMPORARY BARRIER END
357+95 LT	USH 51	2A	1	2	OM-3R	TL-3	UNIDIRECTIONAL	LT	TEMPORARY BARRIER END
361+75 LT	USH 51	2A	1	2	OM-3L	TL-3	UNIDIRECTIONAL	LT	TEMPORARY BARRIER END
362+50 LT	USH 51	2A	1	2	OM-3R	TL-3	UNIDIRECTIONAL	RT	TEMPORARY BARRIER END
357+95 RT	USH 51	3A	1	2	OM-3R	TL-3	UNIDIRECTIONAL	LT	TEMPORARY BARRIER END
357+95 RT	USH 51	3A	1	2	OM-3L	TL-3	UNIDIRECTIONAL	RT	TEMPORARY BARRIER END
361+75 LT	USH 51	3A	1	2	OM-3R	TL-3	UNIDIRECTIONAL	RT	TEMPORARY BARRIER END
363+00 RT	USH 51	3A	1	2	OM-3L	TL-3	UNIDIRECTIONAL	LT	TEMPORARY BARRIER END

PROJECT TOTAL 10

** CRASH CUSHION DESIGN PARAMETERS : AREA REQUIREMENTS L = 26', W = 4'
ANCHORING OF CONCRETE BARRIER REQUIRED FOR INSTALL OF CRASH CUSHION IS INCIDENTAL TO ITEM OF CRASH CUSHION.

PAVEMENT MARKING REMOVAL						
STATION TO STATION		OFFSET	LOCATION		646.9000 MARKING REMOVAL LINE 4-INCH LF	COMMENTS
CATEGORY 0010						
STAGE 1						
355+51	-	364+19	RT	USH 51	868	EDGE LINE
354+51	-	357+95	RT	USH 51	344	CENTERLINE
361+75	-	365+19	LT	USH 51	344	CENTERLINE
PROJECT TOTALS					1556	

STATION - STATION				LOCATION	646.1020 MARKING LINE		649.0150		649.0850		SPV.0090.01	
					EPOXY 4-INCH (WHITE)	EPOXY 4-INCH (YELLOW)	TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH		TEMPORARY MARKING STOP LINE REMOVABLE TAPE 18-INCH		TEMPORARY MARKING CROSSWALK REMOVABLE TAPE BLOCK STYLE 24-INCH	
					LF	LF	LF	LF	LF	LF		
CATEGORY 0010												
STAGE 1												
347+51	-	354+51	CL	USH 51	---	---	---	700	15	---		
355+51	-	364+19	RT	USH 51	---	---	868	---	---	---		
356+82	-	364+19	LT	USH 51	---	---	737	---	---	---		
365+19	-	372+19	CL	USH 51	---	---	---	700	15	---		
STAGE 2A												
355+79	-	363+91	RT	USH 51	---	---	812	---	---	---		
356+82	-	362+88	LT	USH 51	---	---	606	---	---	---		
STAGE 3A												
356+55	-	364+19	RT	USH 51	---	---	764	---	---	---		
355+51	-	364+19	LT	USH 51	---	---	868	---	---	---		
STAGE 4												
355+51	-	364+19	LT	USH 51	868	---	868	---	---	---		
354+51	-	365+19	CL	USH 51	---	1,068	---	---	---	---		
355+51	-	364+19	RT	USH 51	868	---	868	---	---	---		
CANOE PORTAGE				USH 51	---	---	---	---	---	70		
PROJECT SUBTOTALS					1,736	1,068	6,391	1,400	30	70		
PROJECT TOTALS					2,804		7,791		30	70		

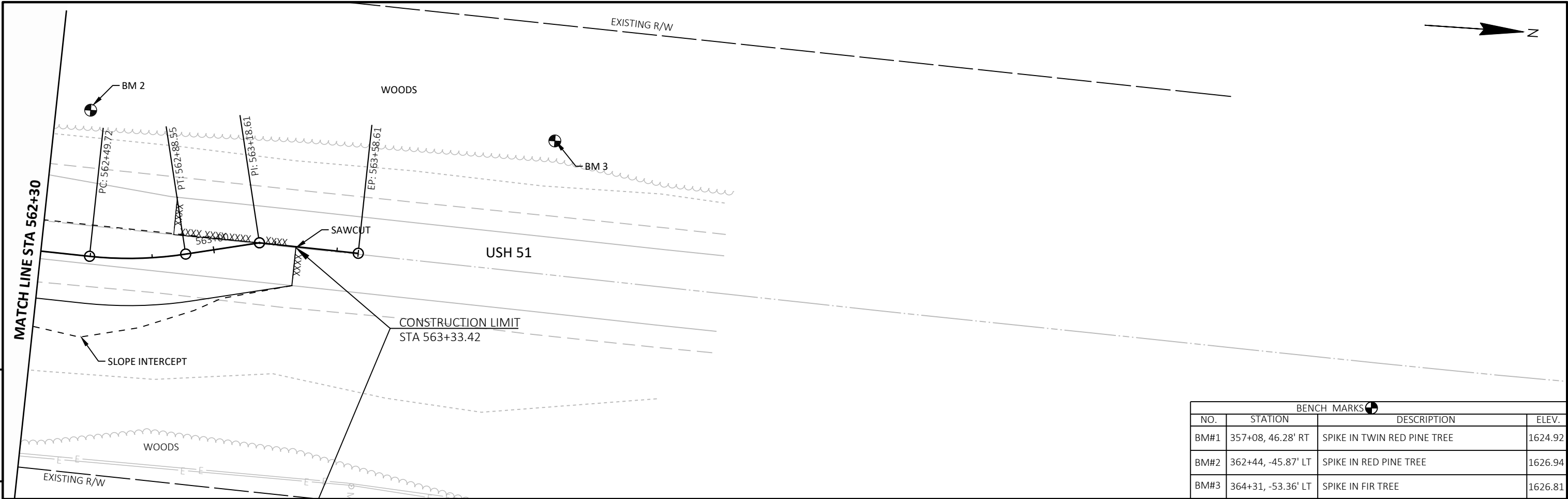
PERMANENT SIGNS TYPE II AND SIGN SUPPORTS									
SIGN DIMENSIONS								634.0616 POSTS WOOD 16 FT EACH	637.2210 SIGNS TYPE II REFLECTIVE H SF
STATION	REFERENCE	FACE	SIGN	SIGN	DESCRIPTION				
	LINE	DIR.	CODE	SIZE					
359+75	LT	USH 51	SB	W14-3	2S	NO PASSING ZONE			5.56
PROJECT TOTALS								1	5.56

TEMPORARY SIGNALS	
661.0100 TEMPORARY TRAFFIC SIGNALS FOR BRIDGES (B-63-26)	
LOCATION	LS
USH 51 AT TROUT RIVER	1
PROJECT TOTAL	
1	

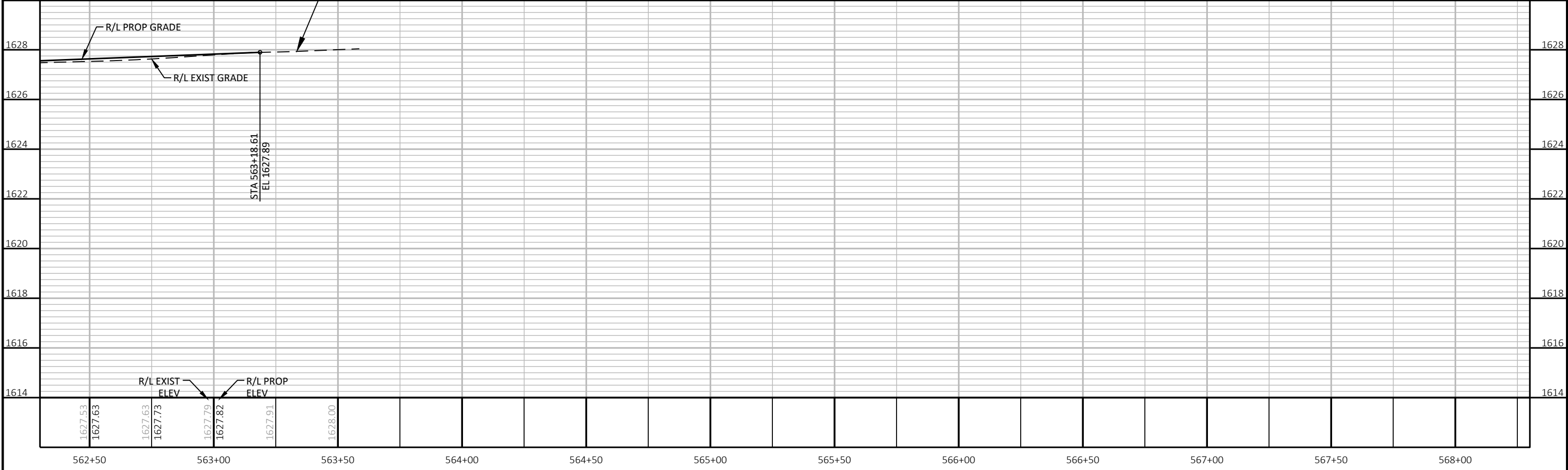
TEMPORARY VEHICLE DETECTION	
SPV.0105.01 TEMPORARY VEHICLE DETECTION	
LOCATION	LS
USH 51 AT TROUT RIVER	1
PROJECT TOTAL	
1	

CONSTRUCTION STAKING									
STATION TO STATION			LOCATION		650.4500	650.5000	650.6500	650.9910	650.9920
					SUBGRADE	BASE	CATEGORY 0020 STRUCTURE LAYOUT B-63-26	SUPPLEMENTAL CONTROL	SLOPE STAKES
					LF	LF	LS	LS	LF
CATEGORY 0010									
STAGE 1									
456+87	-	462+83	STAGE 1	596	596	---	---	596	
STAGE 2									
556+42	-	563+32	STAGE 2	690	690	---	---	690	
STAGE 3									
356+88	-	362+82	USH 51	594	594	---	---	594	
STAGE 4									
356+41	-	363+32	USH 51	691	691	---	---	691	
UNDISTRIBUTED			USH 51	---	---	1	1	---	
PROJECT TOTALS				2,571	2,571	1	1	2,571	

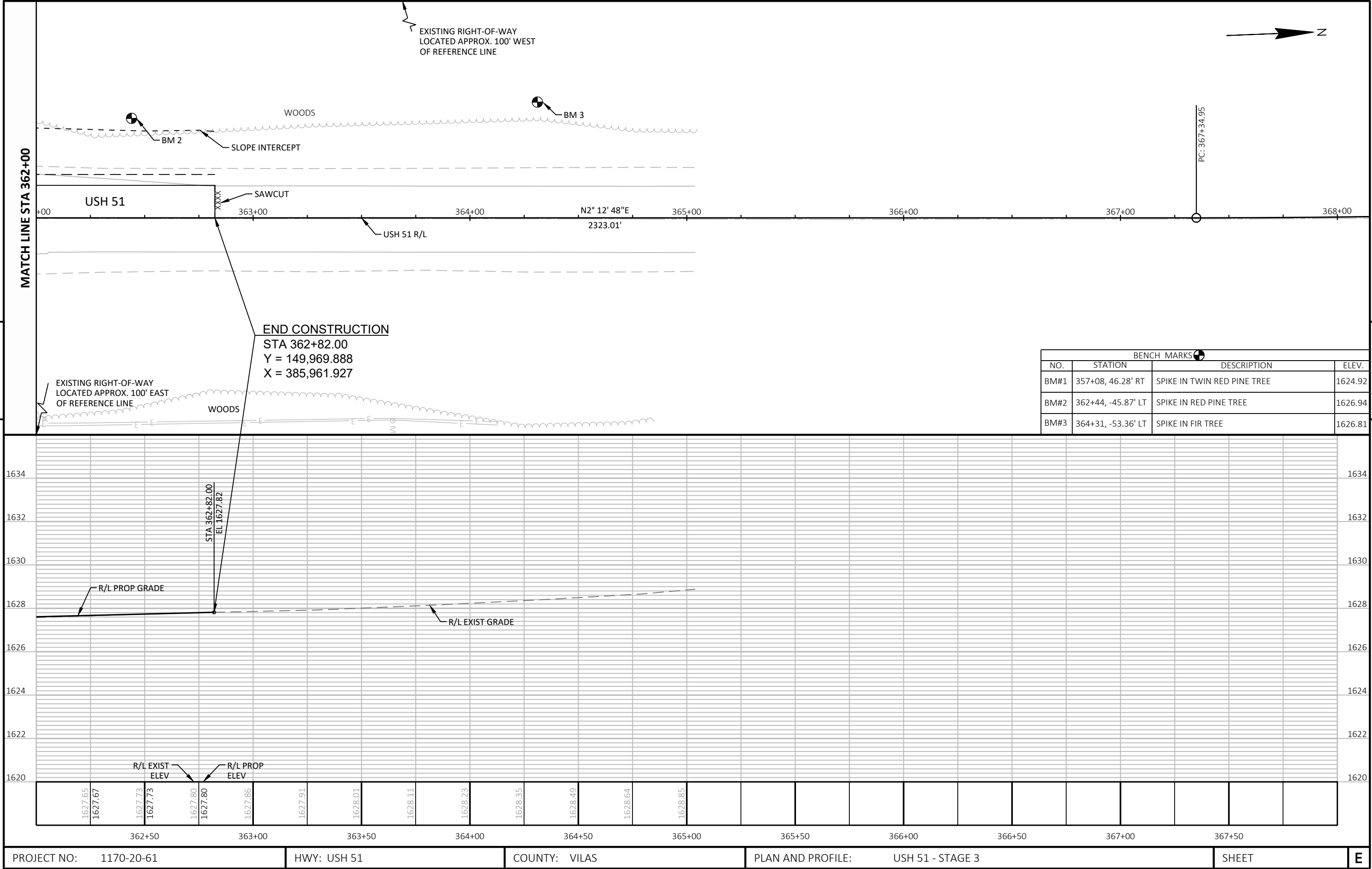
SAWING				
				690.0150 ASPHALT LF
STATION	TO	STATION	R/L	
CATEGORY 0010				
STAGE 1				
456+87	-	462+83	STAGE 1	625
STAGE 2				
556+40	-	563+33	STAGE 2	160
STAGE 3				
356+88	-	362+83	USH 51	30
STAGE 4				
356+41	-	363+32	USH 51	30
PROJECT TOTAL				845



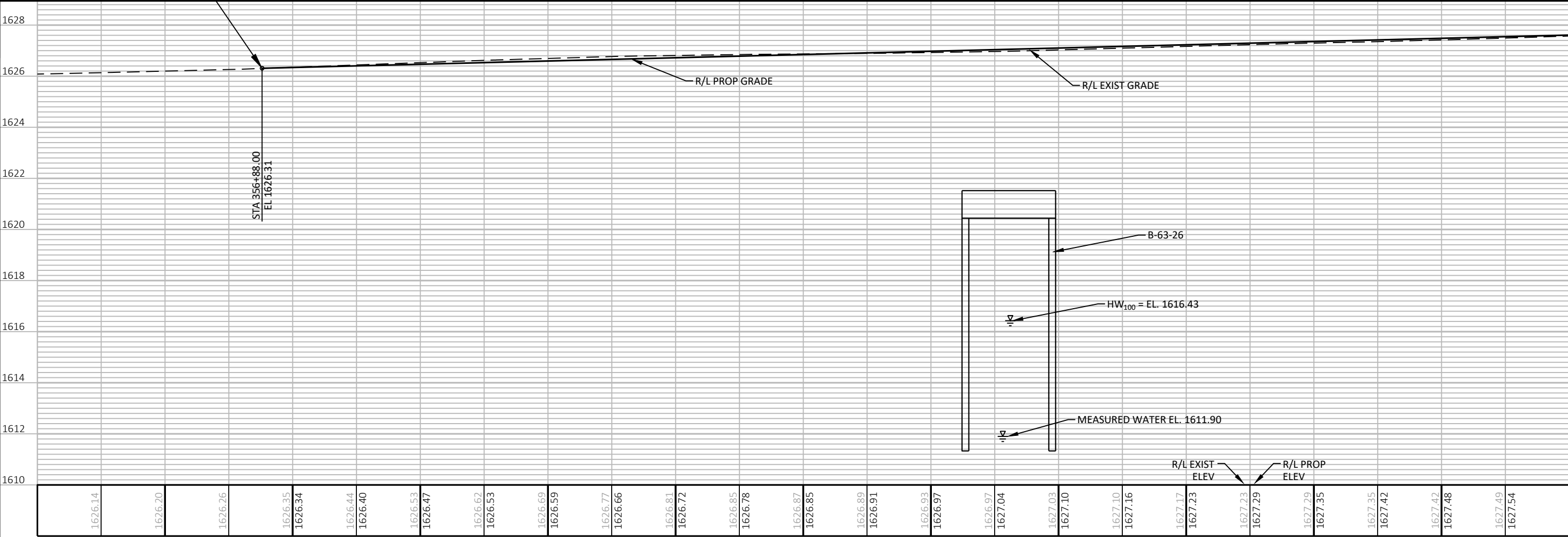
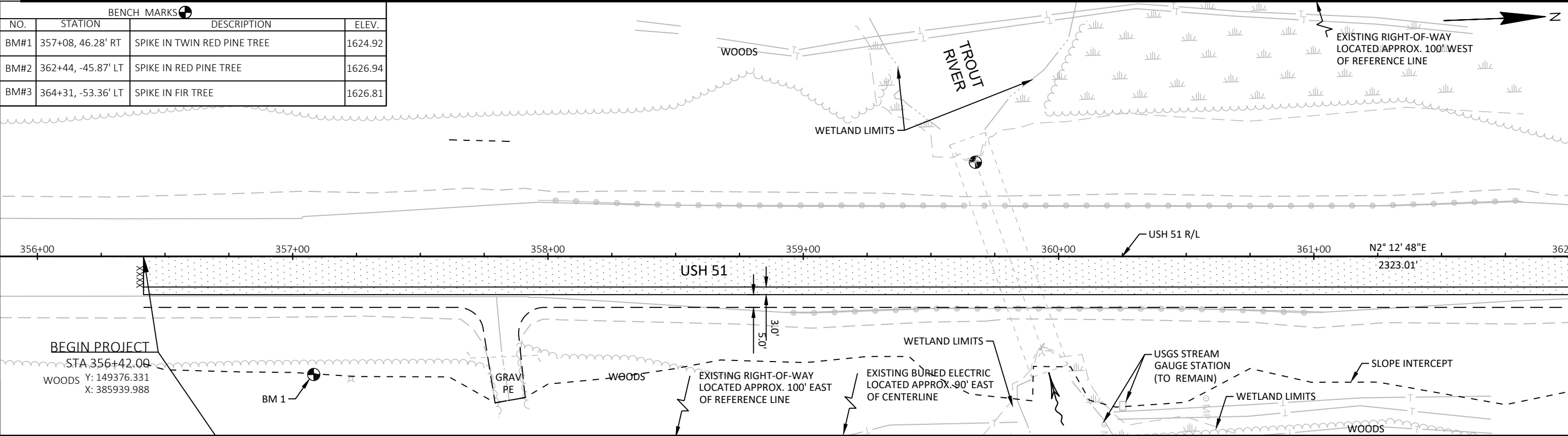
BENCH MARKS			
NO.	STATION	DESCRIPTION	ELEV.
BM#1	357+08, 46.28' RT	SPIKE IN TWIN RED PINE TREE	1624.92
BM#2	362+44, -45.87' LT	SPIKE IN RED PINE TREE	1626.94
BM#3	364+31, -53.36' LT	SPIKE IN FIR TREE	1626.81



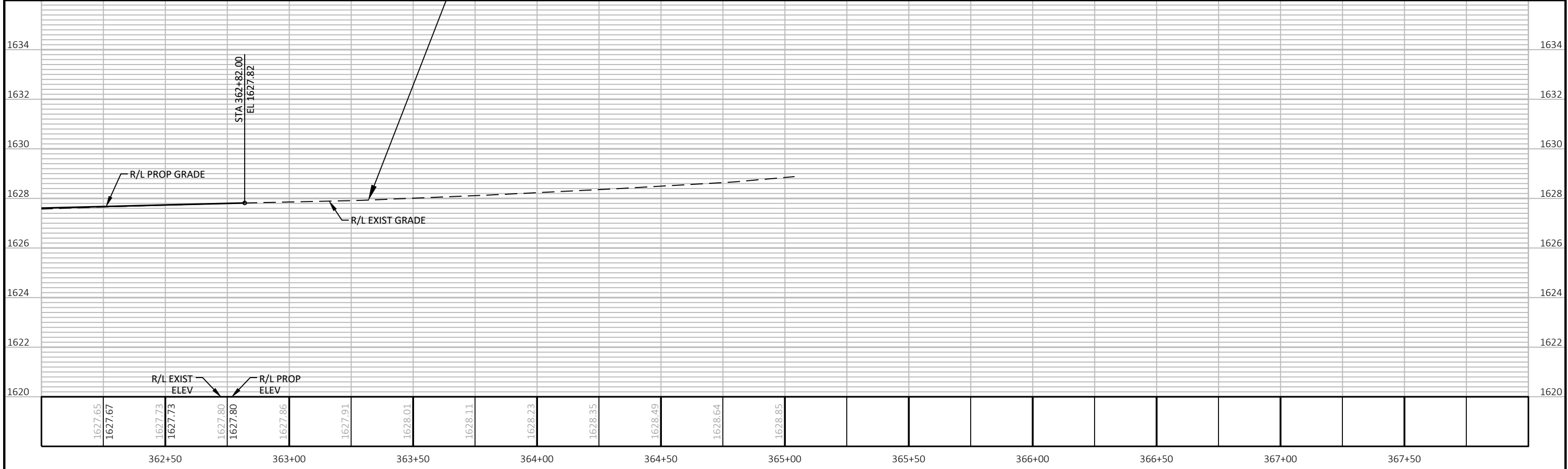
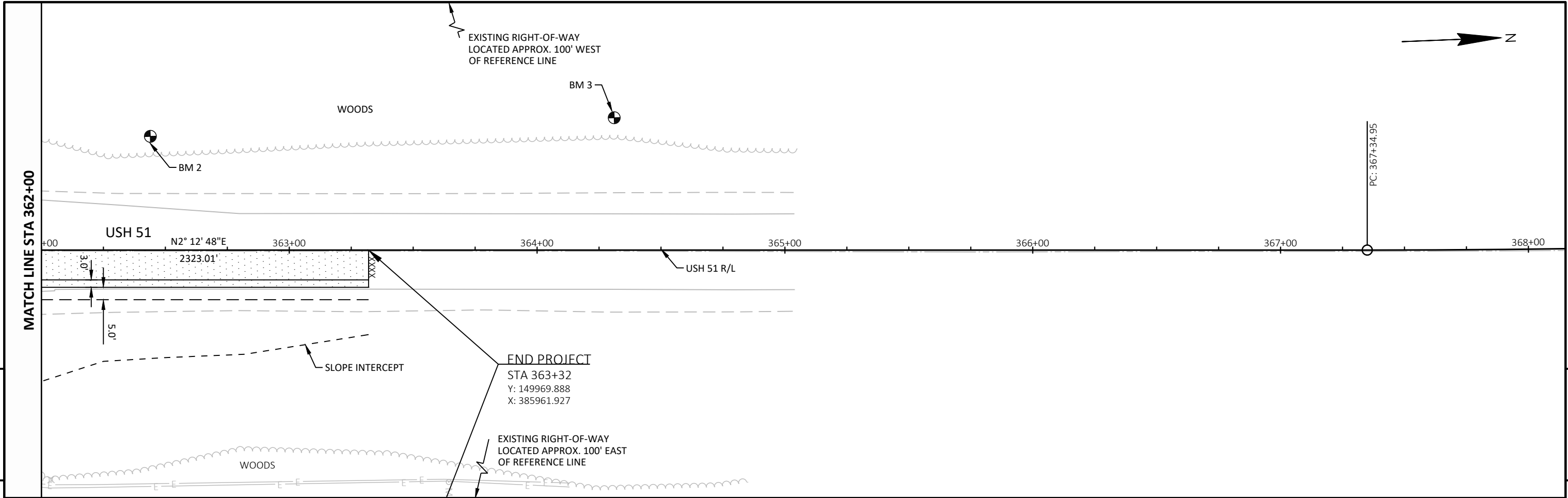
PROJECT NO: 1170-20-61	HWY: USH 51	COUNTY: VILAS	PLAN AND PROFILE: USH 51 - STAGE 2	SHEET	E
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BENCH MARKS			
NO.	STATION	DESCRIPTION	ELEV.
BM#1	357+08, 46.28' RT	SPIKE IN TWIN RED PINE TREE	1624.92
BM#2	362+44, -45.87' LT	SPIKE IN RED PINE TREE	1626.94
BM#3	364+31, -53.36' LT	SPIKE IN FIR TREE	1626.81

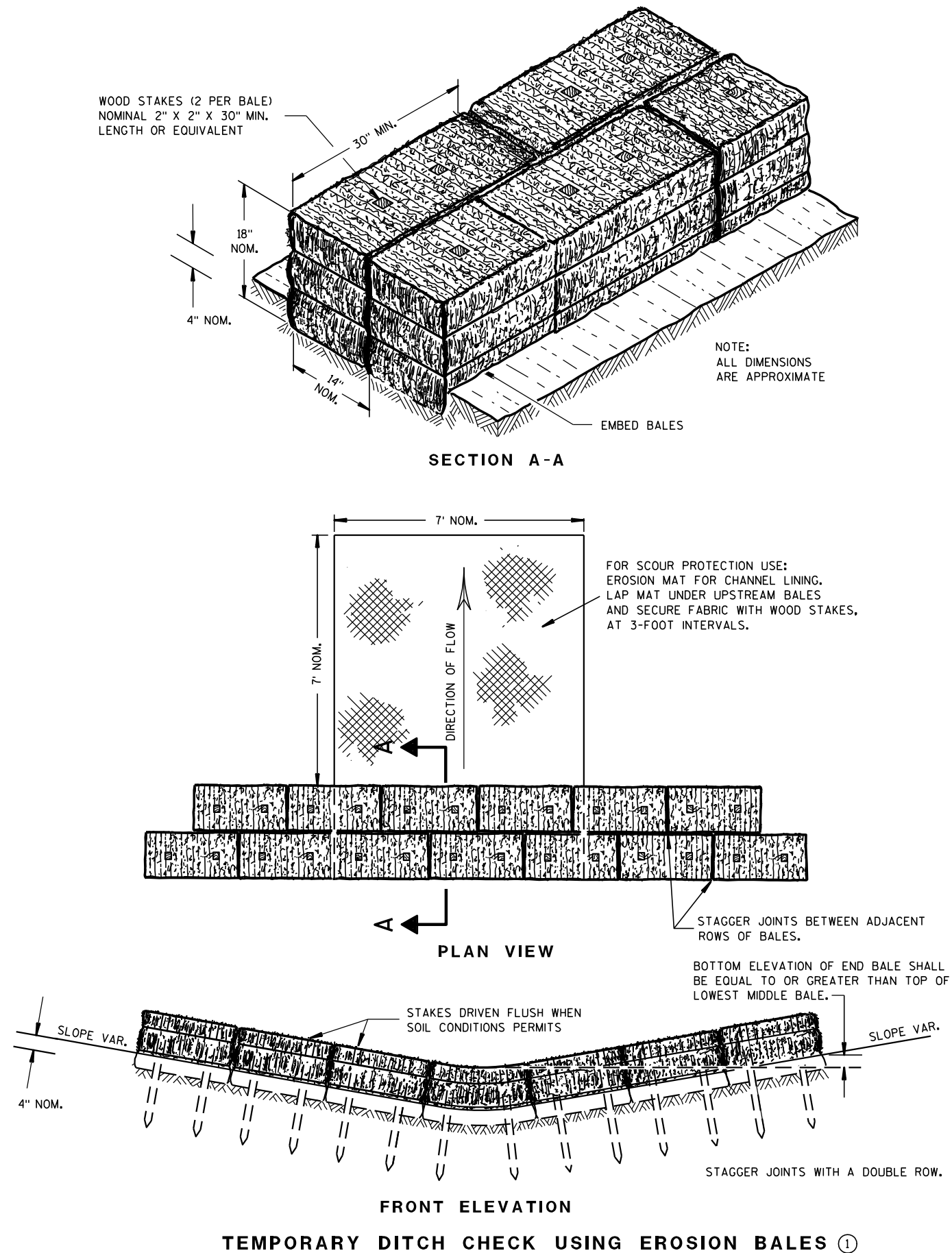


PROJECT NO:	1170-20-61	HWY:	USH 51	COUNTY:	VILAS	PLAN AND PROFILE:	USH 51 - STAGE 4	SHEET	E
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Standard Detail Drawing List

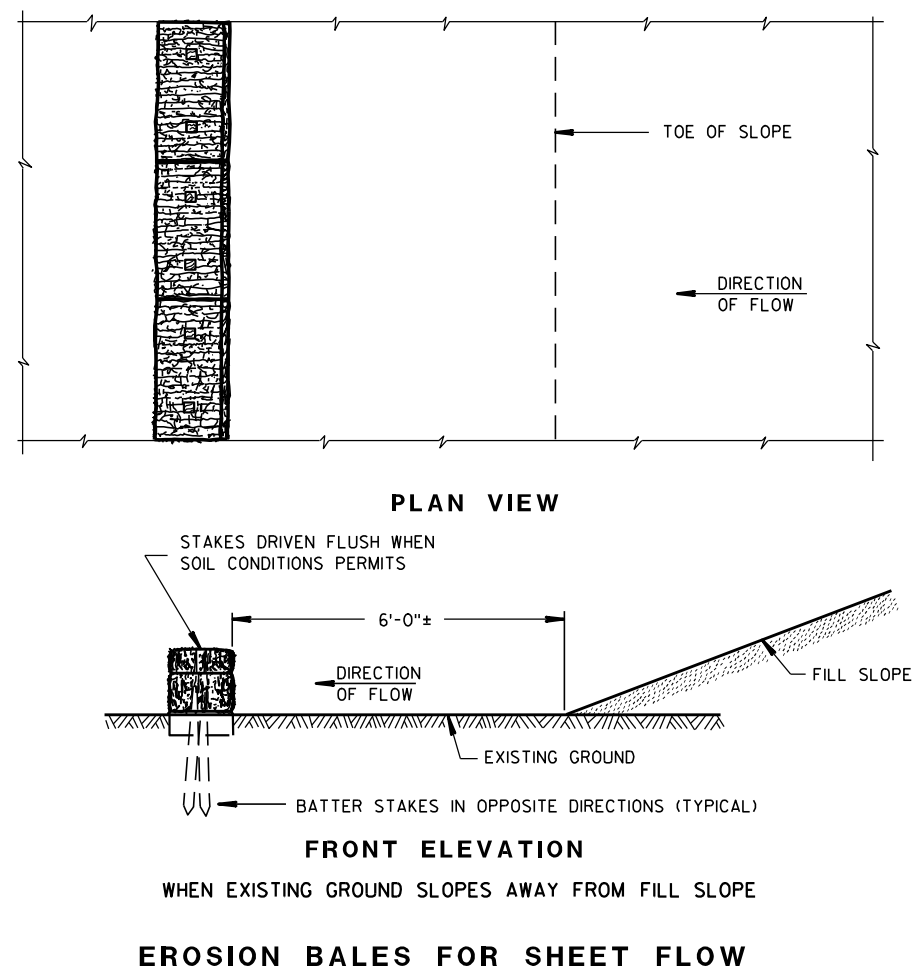
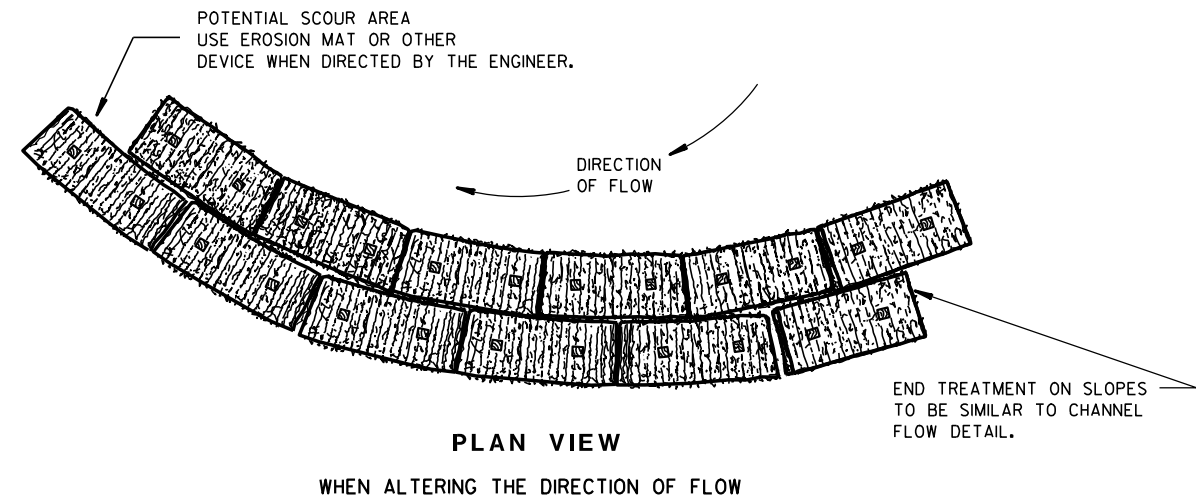
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
08E15-01	CULVERT PIPE CHECK
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
09G02-05A	BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION
09G02-05C	BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION
12A03-10	NAME PLATE (STRUCTURES)
13A11-03A	2-LANE RURAL CENTER LINE RUMBLE STRIP, MILLING
13A11-03B	2-LANE RURAL CENTER LINE RUMBLE STRIP, MILLING
14B07-15A	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15B	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15C	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15D	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15E	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15F	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15G	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15H	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15I	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B08-02A	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02B	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02C	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02D	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02E	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
15C08-20A	LONGITUDINAL MARKING (MAINLINE)
15C11-08B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15C12-07	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION
15D33-06	TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS
15D38-02A	TEMPORARY TRAFFIC CONTROL SIGN MOUNTING
15D38-02B	ATTACHMENT OF SIGNS TO POSTS



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.

TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

6/04/02
DATE

/S/ Beth Canestra
CHIEF ROADWAY DEVELOPMENT ENGINEER

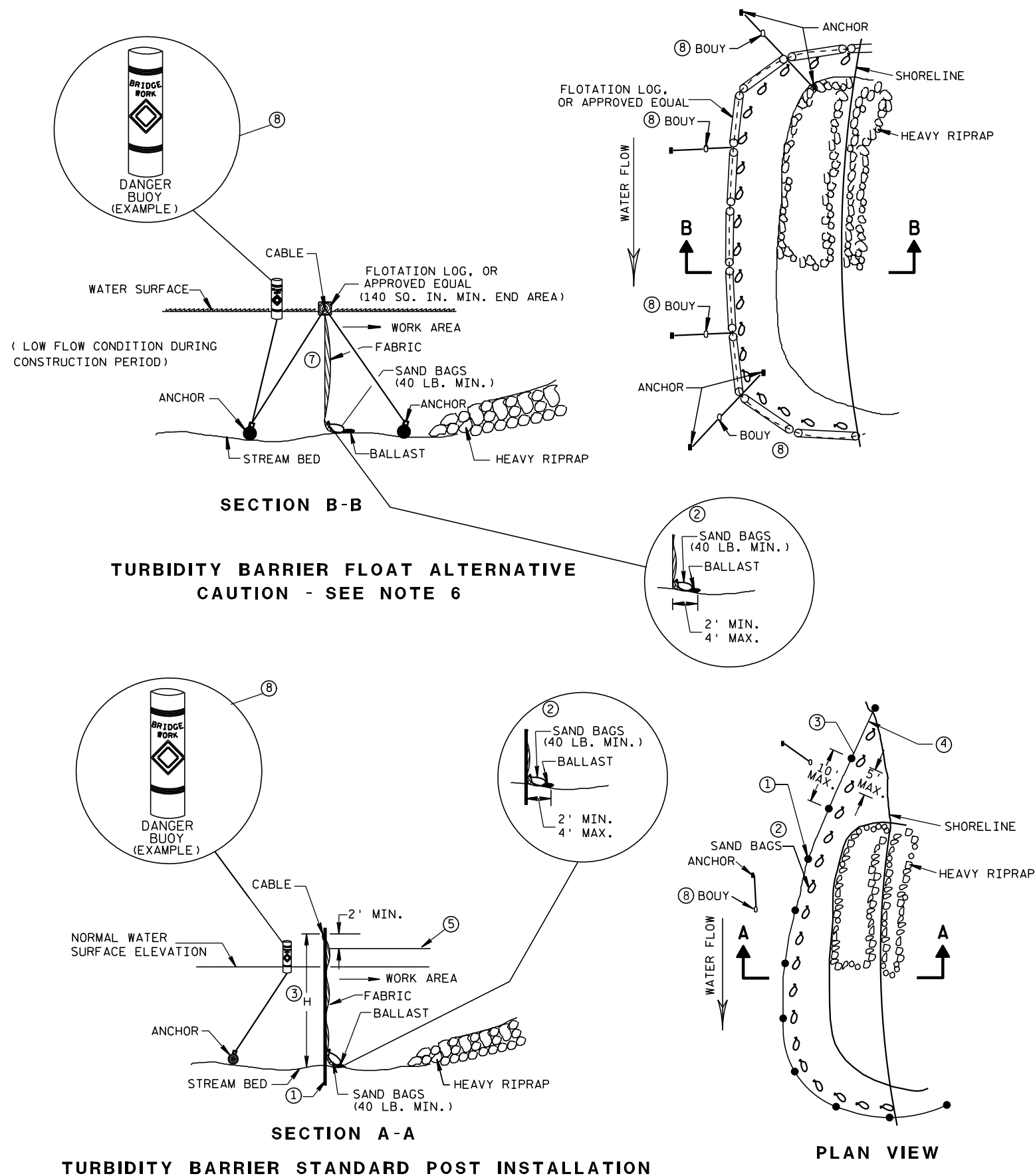
FHWA



- 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 1 1/8" X 1 1/8" OF OAK OR HICKORY.
- ④ SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
- ⑤ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



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

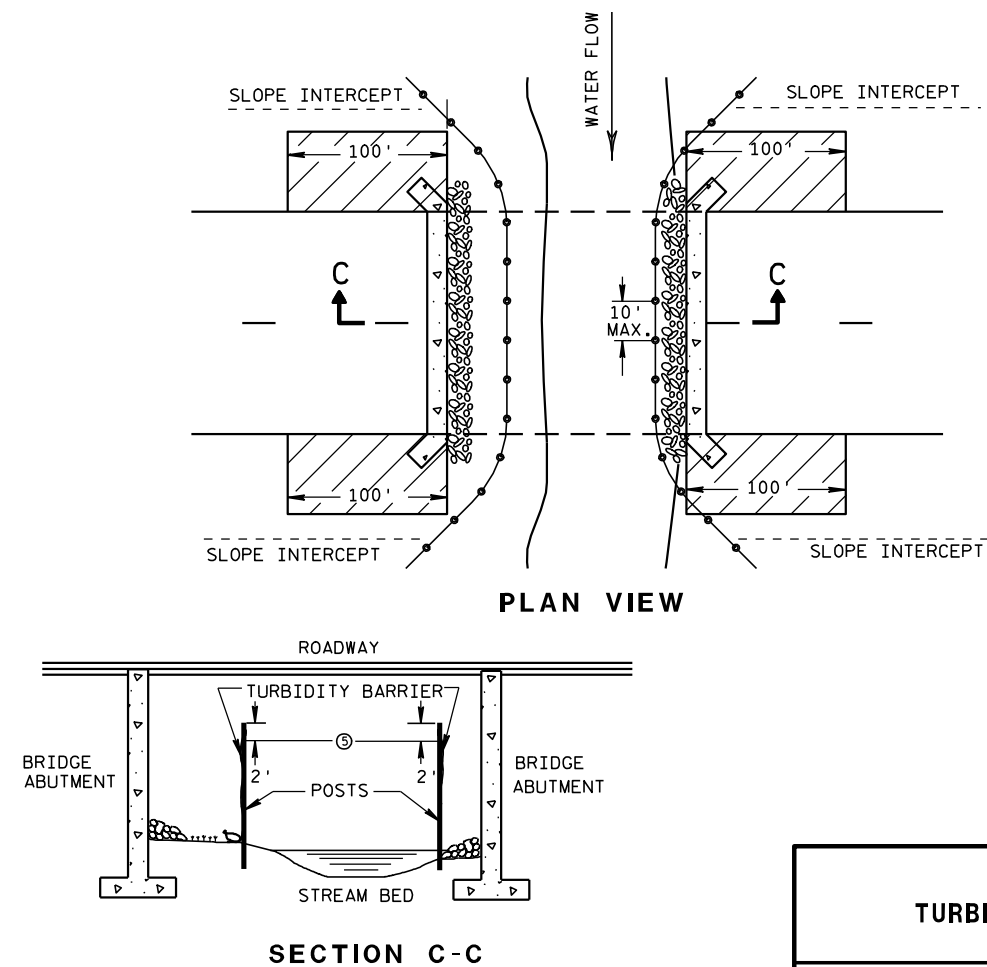


GENERAL NOTES

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

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

- ① DRIVEN STEEL POSTS, PIPES, OR CHANNELS. LENGTH SHALL BE SUFFICIENT TO SECURELY SUPPORT BARRIER AT HIGH WATER ELEVATIONS.
- ② SANDBAGS TO BE USED AS ADDITIONAL BALLAST WHEN ORDERED BY THE ENGINEER TO MEET ADVERSE FIELD CONDITIONS. SPACE AS APPROPRIATE FOR SITE CONDITIONS.
- ③ WHEN BARRIER HEIGHT, H, EXCEEDS 8 FT., POST SPACING MAY NEED TO BE DECREASED.
- ④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.
- ⑤ ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD. MINIMUM BARRIER HEIGHT SHALL BE 2' GREATER THAN EITHER THE 02 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WHICHEVER IS GREATER.
- ⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BED ROCK PREVENTS THE INSTALLATION OF POSTS.
- ⑦ ALLOW SUFFICIENT SLACK VERTICALLY AND HORIZONTALLY SO THAT SEDIMENT BUILD UP WILL NOT SEPARATE OR LOWER THE TURBIDITY BARRIER.
- ⑧ USE AS DIRECTED BY COAST GUARD OR DNR PERMIT WHEN WORKING IN NAVIGABLE WATERWAYS.



TURBIDITY BARRIER DETAIL SHOWING TYPICAL PLACEMENT AT STRUCTURES

TURBIDITY BARRIER

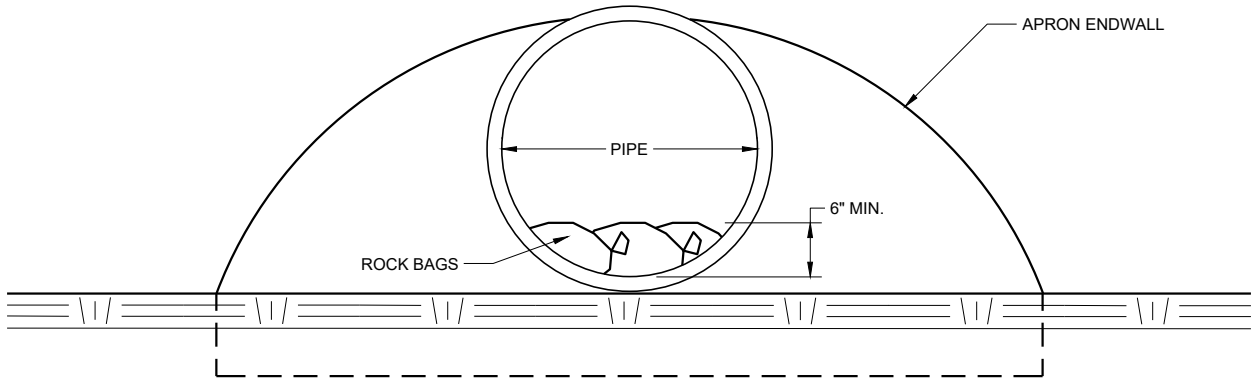
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

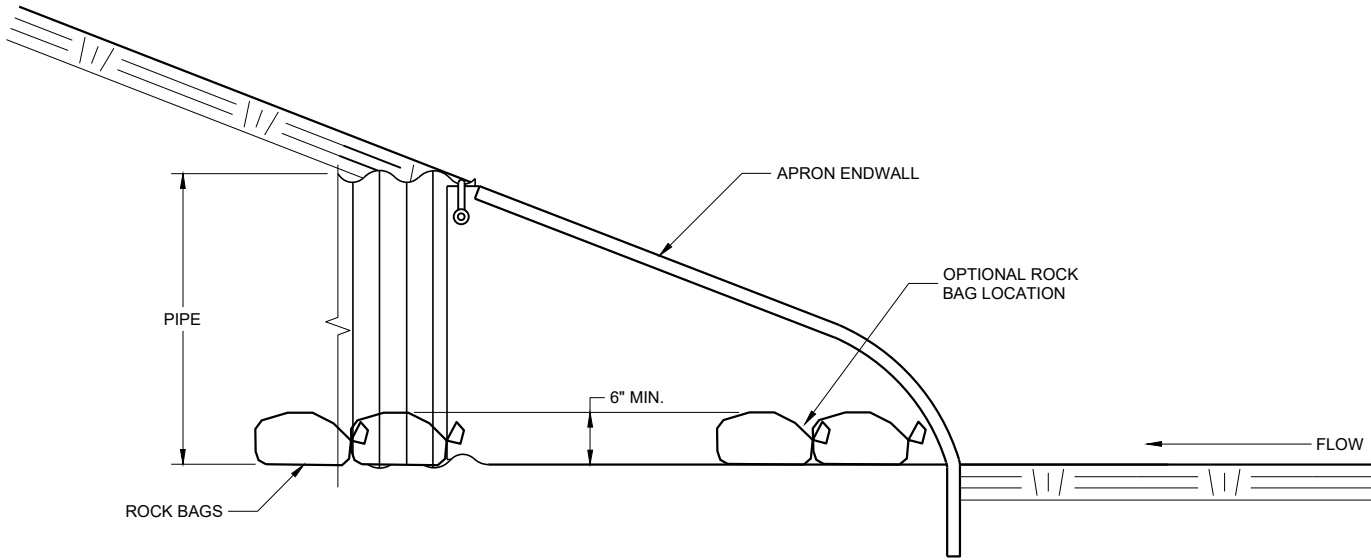
6/04/02
DATE

FHWA

/S/ Beth Canestra
CHIEF ROADWAY DEVELOPMENT ENGINEER



END VIEW



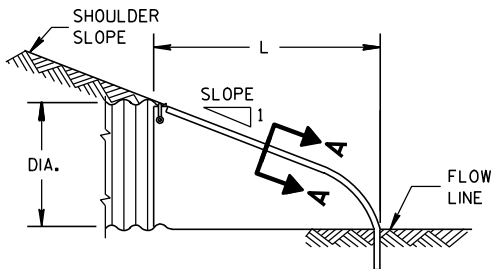
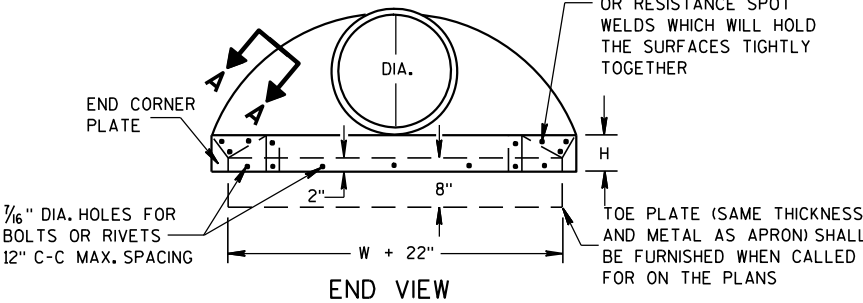
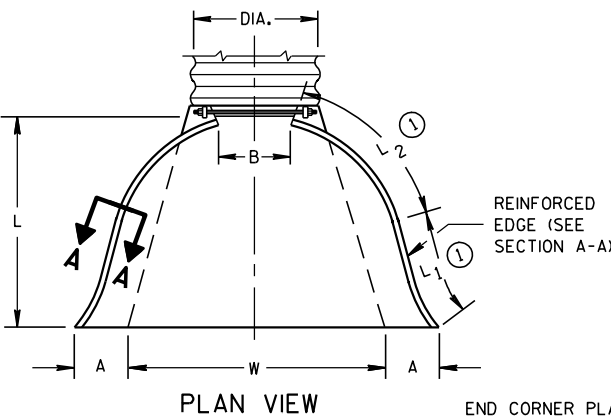
SIDE VIEW

CULVERT PIPE CHECK
(INSTALL ON INLET END ONLY)

CULVERT PIPE CHECK	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2019 DATE	/S/ Daniel Schave EROSION CONTROL ENGINEER
FHWA	

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

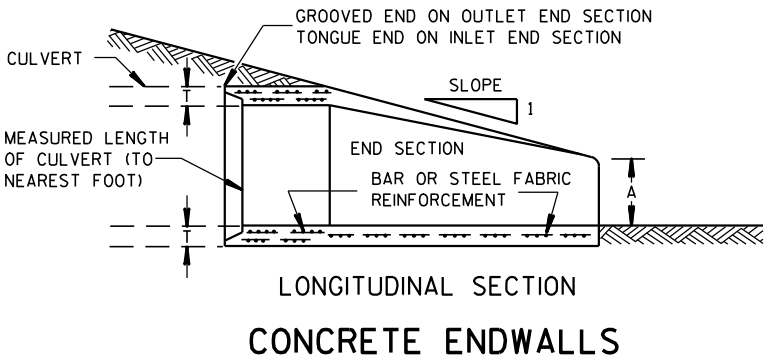
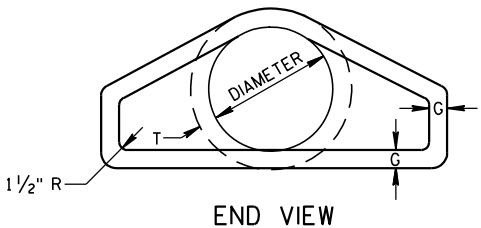
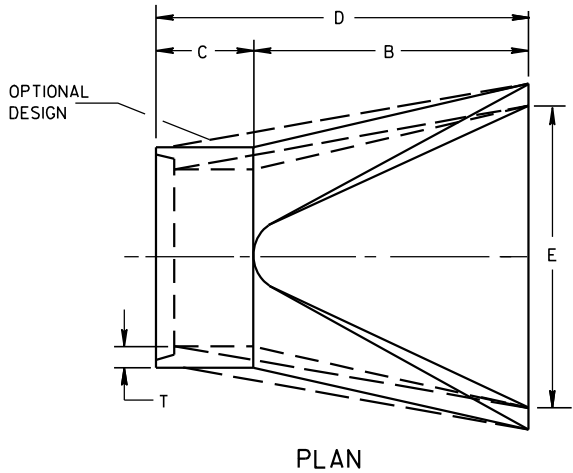
* EXCEPT CENTER PANEL
SEE GENERAL NOTES



SIDE ELEVATION
METAL ENDWALLS

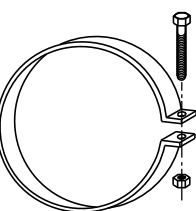
REINFORCED CONCRETE APRON ENDWALLS									
PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE	
	T	A	B	C	D	E	G		
12	2	4	24	48 ⁷ / ₈	72 ⁷ / ₈	24	2	3 to 1	
15	2 ¹ / ₄	6	27	46	73	30	2 ¹ / ₄	3 to 1	
18	2 ¹ / ₂	9	27	46	73	36	2 ¹ / ₂	3 to 1	
21	2 ³ / ₄	9	36	37 ¹ / ₂	73 ¹ / ₂	42	2 ³ / ₄	3 to 1	
24	3	9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

* MINIMUM
** MAXIMUM

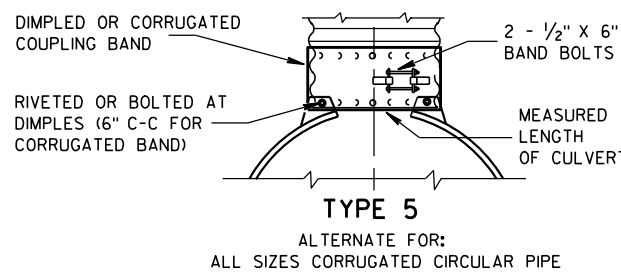
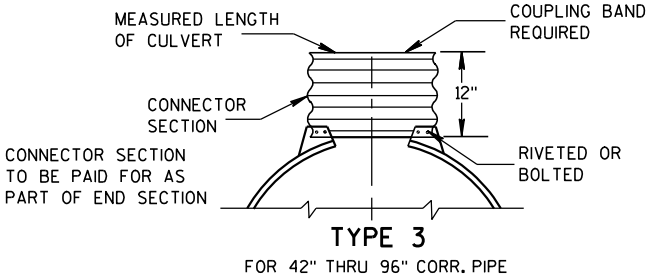
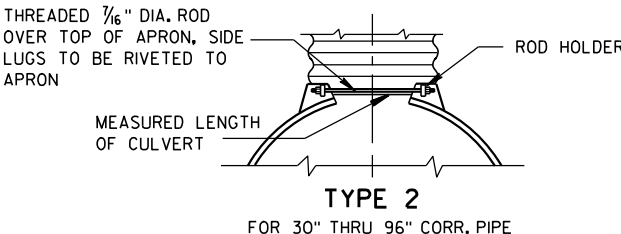
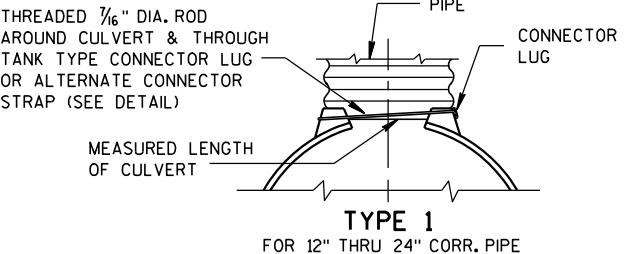


LONGITUDINAL SECTION
CONCRETE ENDWALLS

1" WIDE, 12 GA. (0.109" THICK) GALVANIZED STRAP WITH STANDARD 6" X 1/2" BAND BOLT AND NUT



ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP



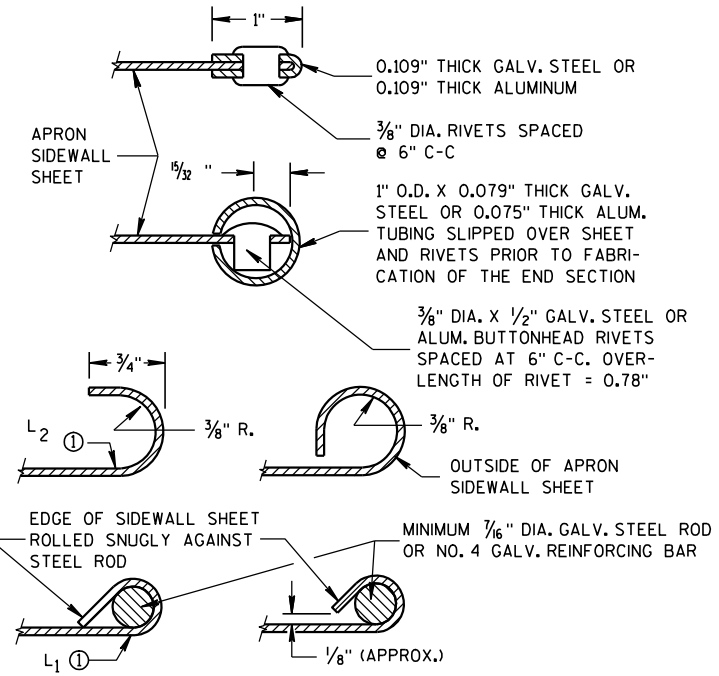
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

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

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

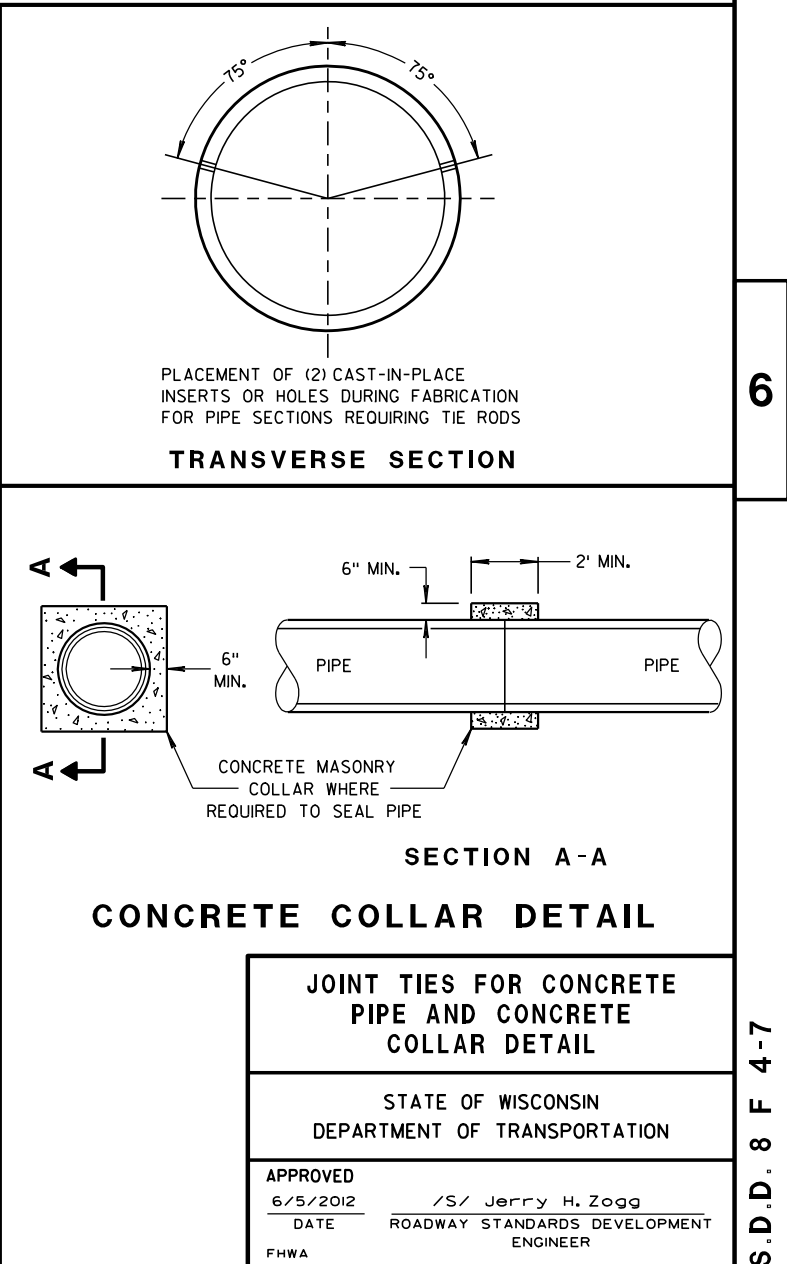
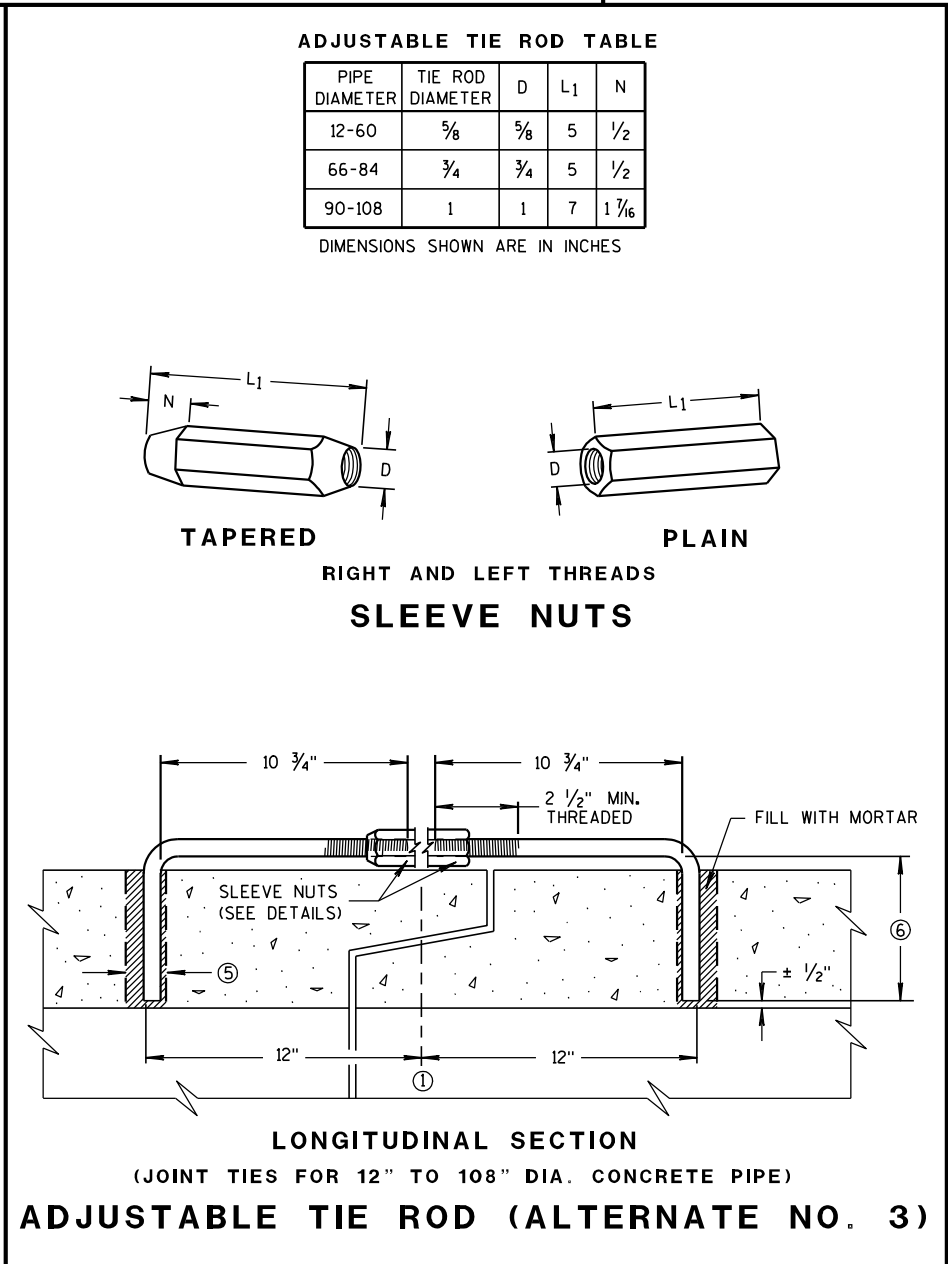
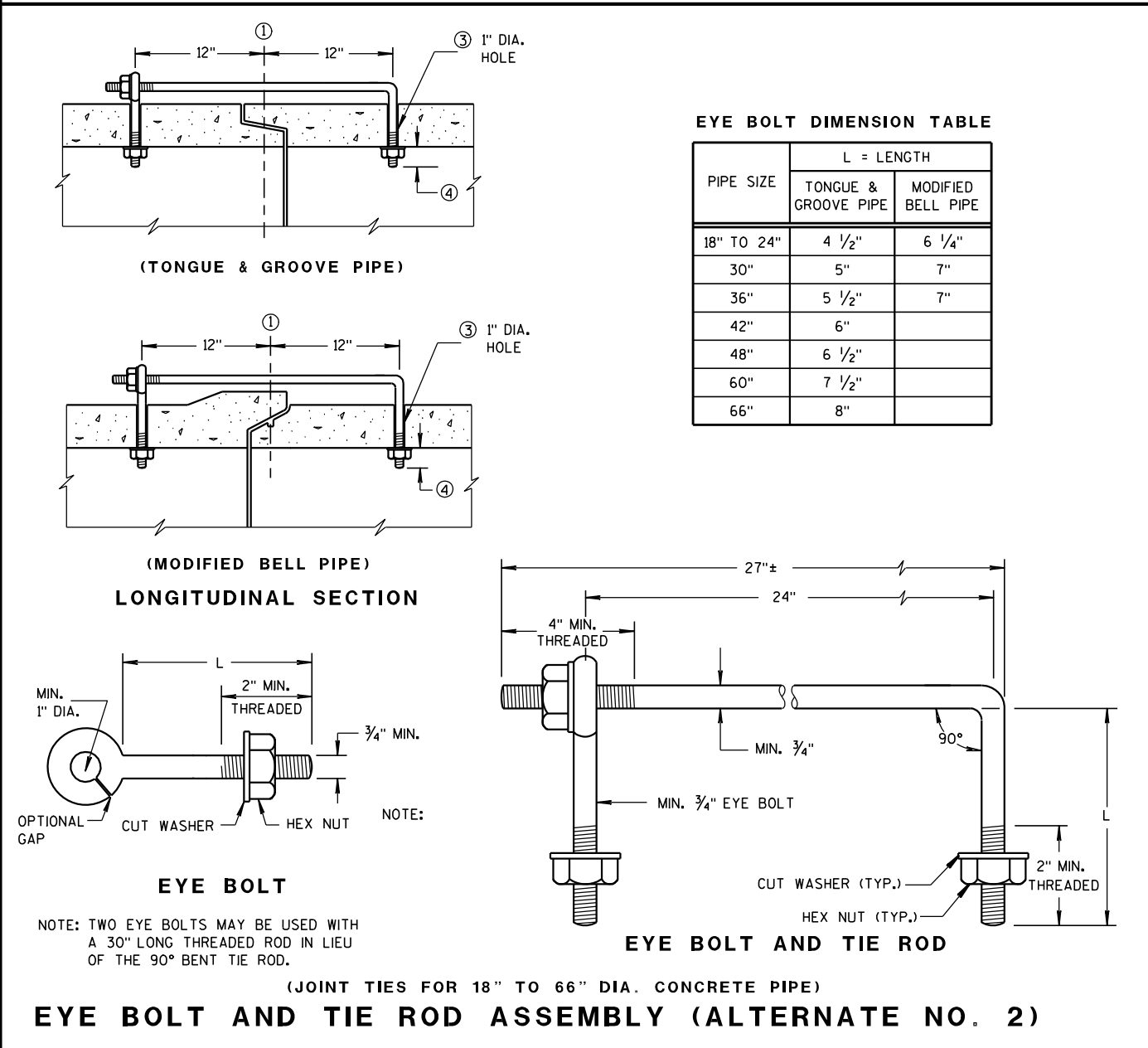
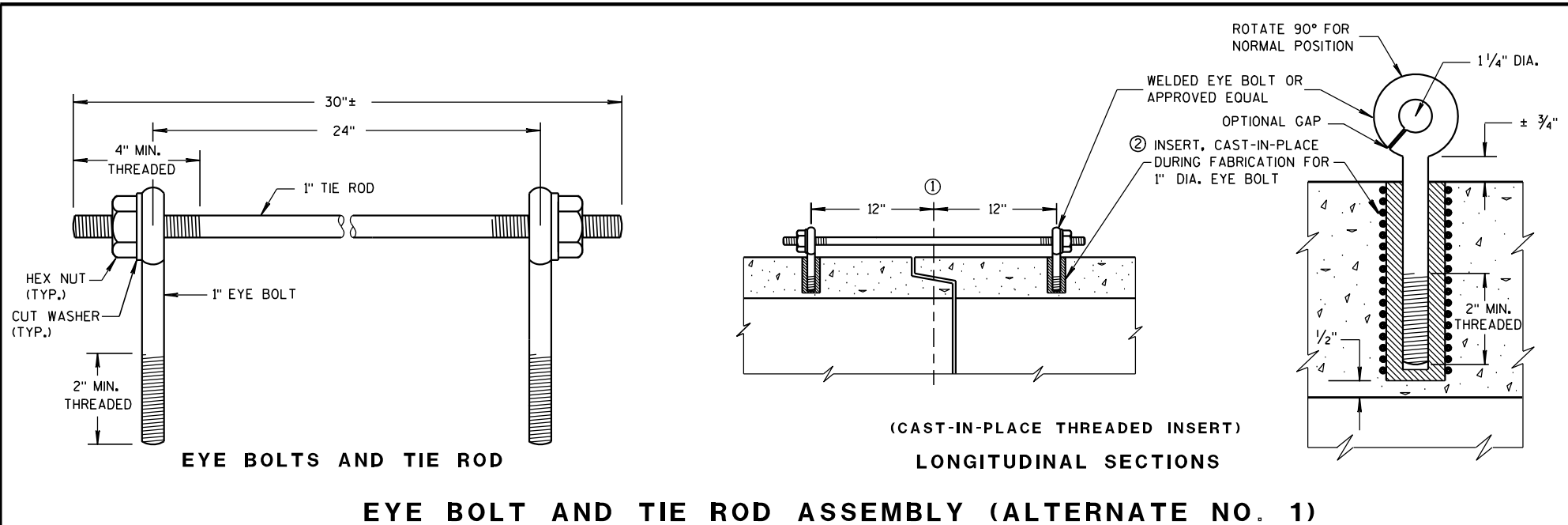
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

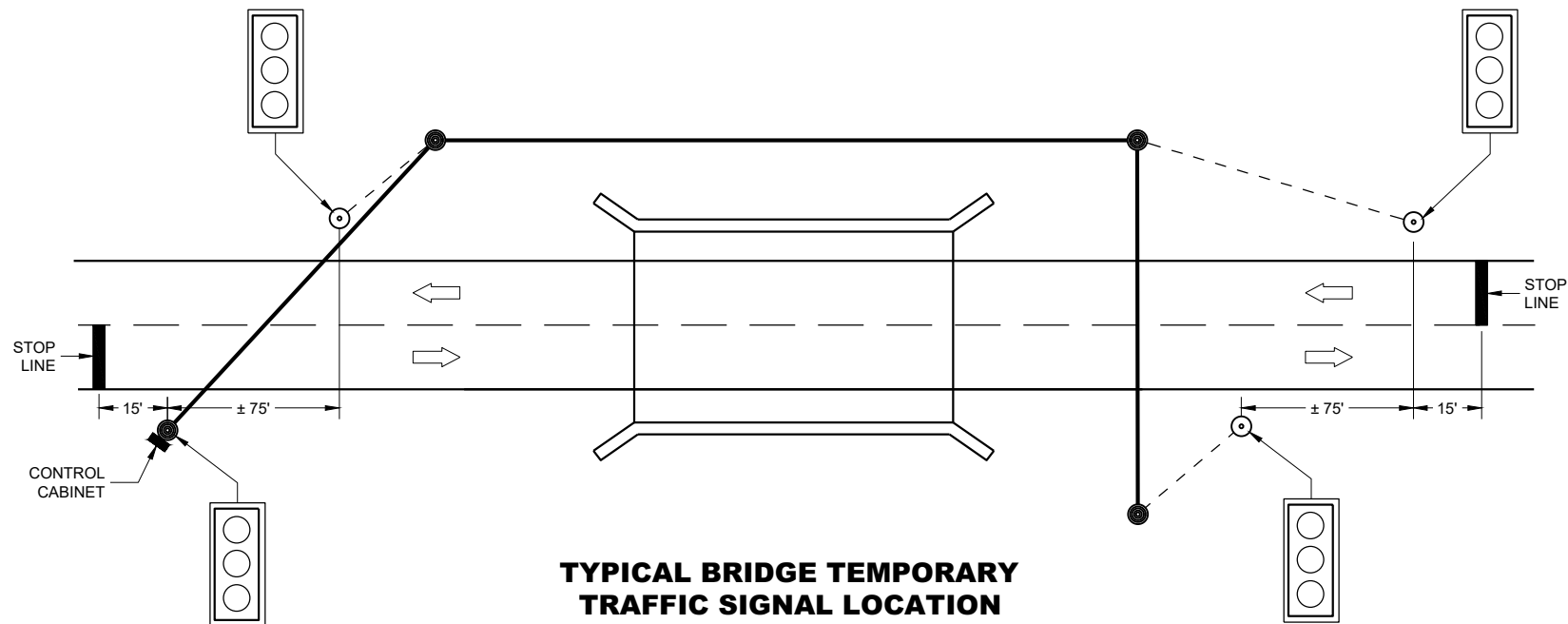
① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR
CULVERT PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
11/30/94
DATE
/S/ Rory L. Rhinesmith
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA





TYPICAL BRIDGE TEMPORARY TRAFFIC SIGNAL LOCATION

LEGEND

- WOOD POLE (NON-BREAKAWAY)
- WOOD POST (BREAKAWAY)
- SIGNAL CABLE
- SIGNAL CABLE W/MESSENGER
- DIRECTION OF TRAFFIC
- LED TRAFFIC SIGNAL WITH BACKPLATE

GENERAL NOTES

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

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

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

WOOD POLES (NON-BREAKAWAY) SHALL BE NO CLOSER TO EDGE OF PAVEMENT THAN OFFSET DISTANCE CHART ALLOWS OR 4 FEET BEHIND PROTECTIVE BARRIER (BEAM GUARD, ETC.).

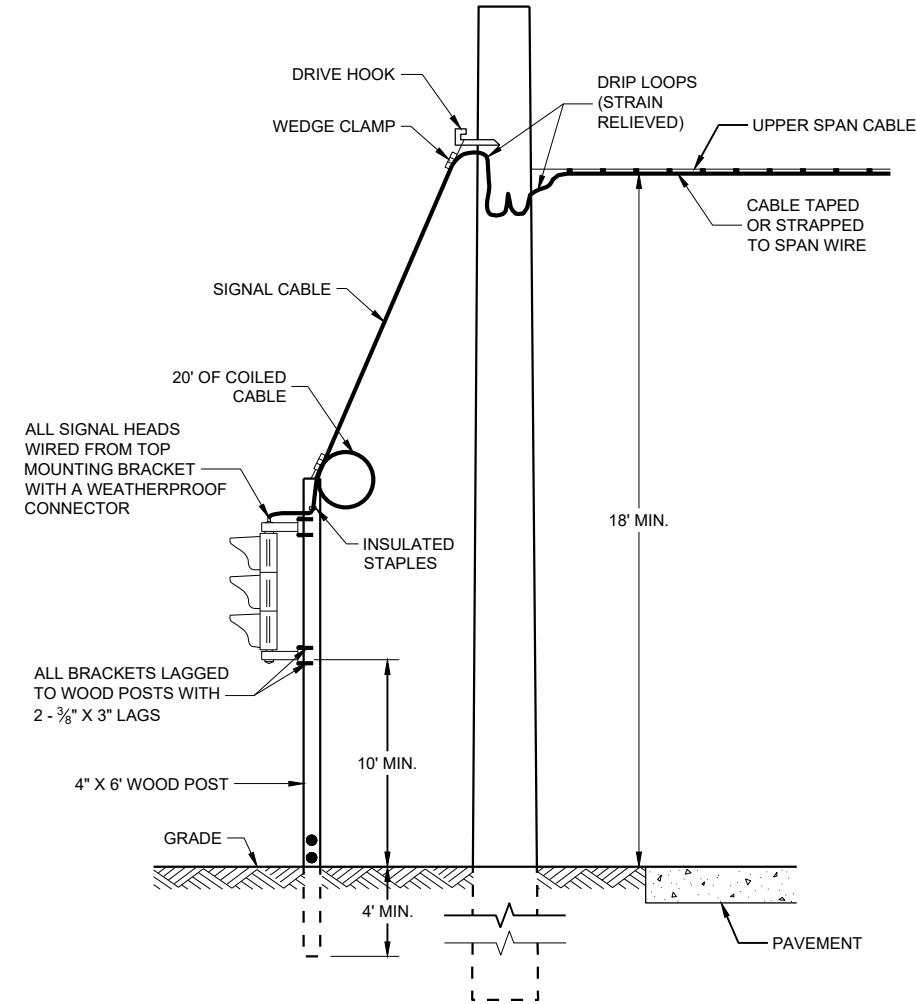
WOOD POSTS (BREAKAWAY) SHALL BE NO CLOSER THAN 2 FEET OUTSIDE OF SHOULDER.

VERTICAL CLEARANCE ETC. PER NEC.

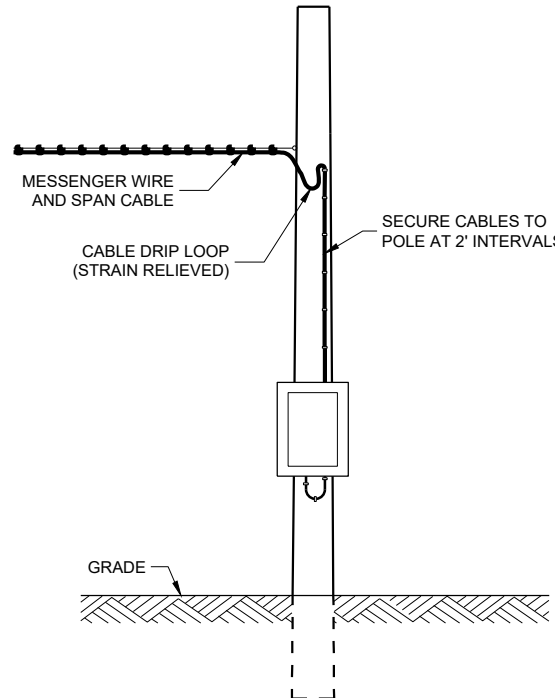
TRAFFIC SIGNAL FACES SHALL BE TYPICALLY PLACED 12 FEET FROM EDGE OF PAVEMENT.

EACH TRAFFIC SIGNAL SHALL HAVE A BACKPLATE.

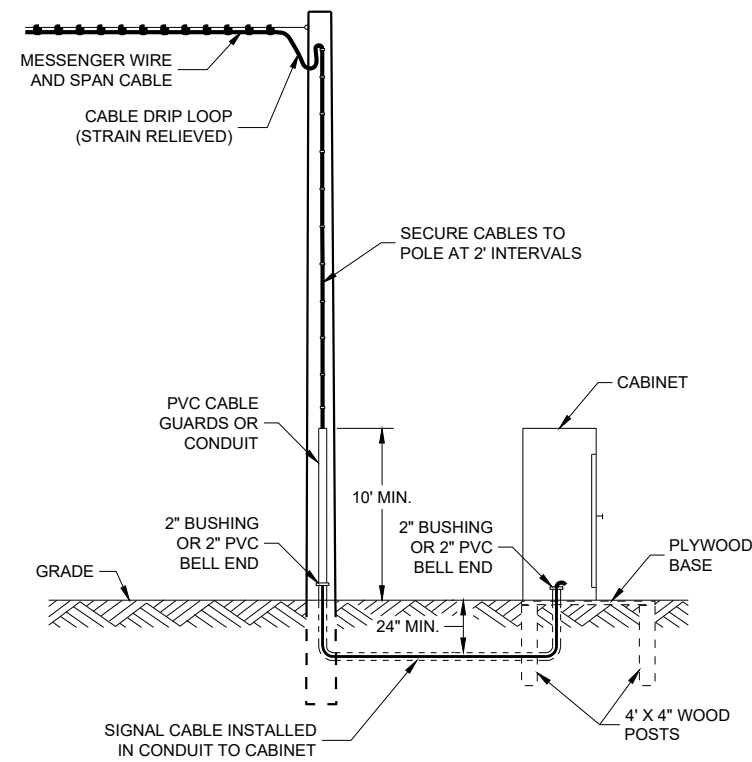
SIGNING, PAVEMENT MARKING AND LANE CONTROL REQUIREMENTS SHALL CONFORM TO STANDARD DETAIL DRAWING 15D33.



TYPICAL DROP TO TRAFFIC SIGNAL FACE



POLE MOUNT CABINET INSTALLATION



GROUND MOUNT CABINET INSTALLATION

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

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

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

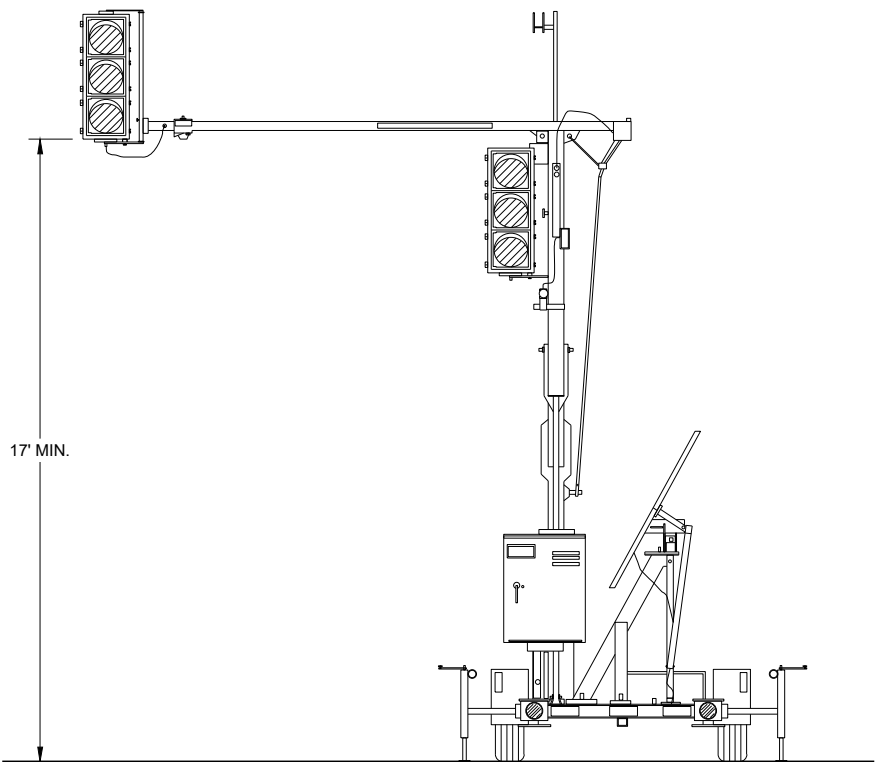
BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
March 2018
DATE

/S/ Ahmet Demirbilek
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

FHWA

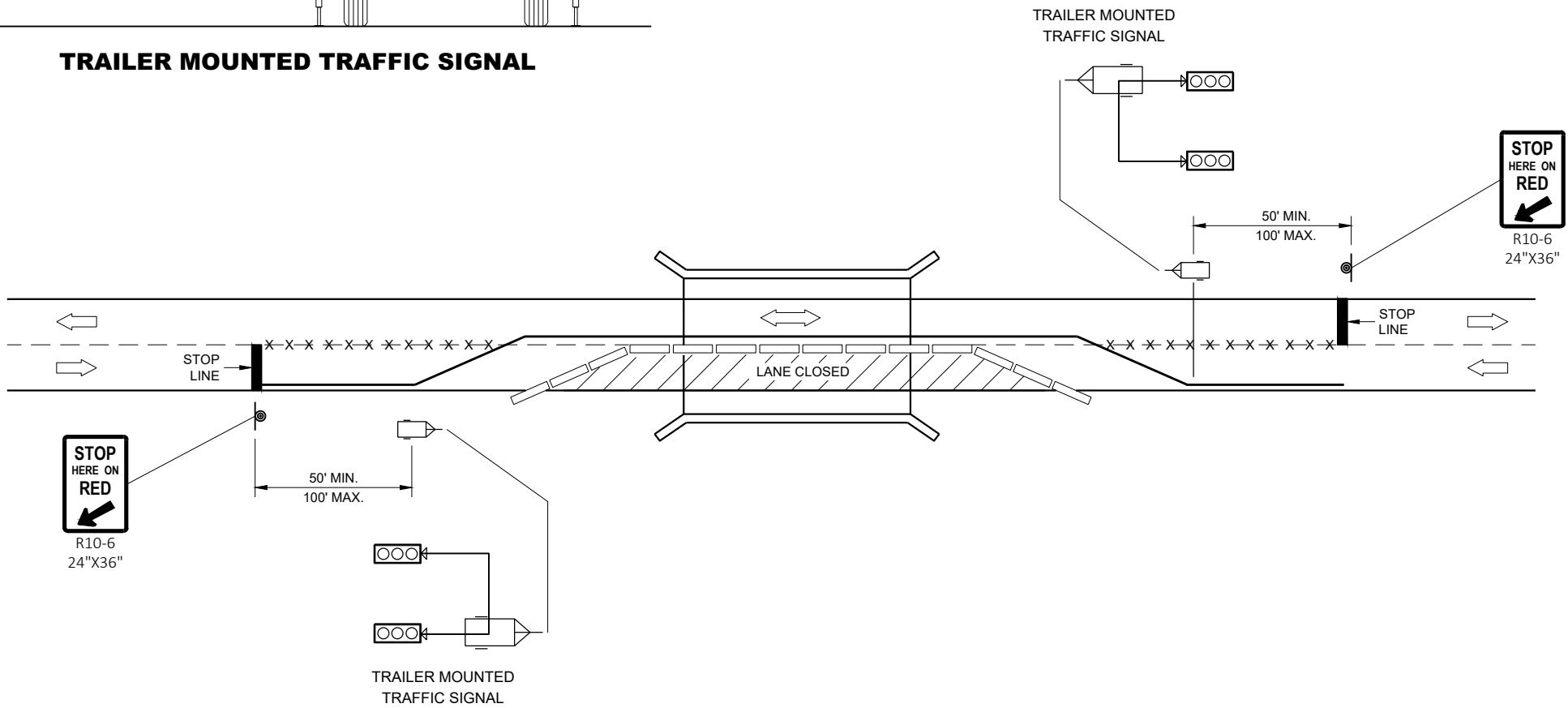


TRAILER MOUNTED TRAFFIC SIGNAL

GENERAL NOTES

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

SIGNING, PAVEMENT MARKING AND LANE CONTROL REQUIREMENTS SHALL CONFORM TO STANDARD DETAIL DRAWING 15D33.



TYPICAL TRAILER MOUNTED TRAFFIC SIGNAL LOCATION

LEGEND

- POST MOUNTED SIGN
- TEMPORARY PRECAST CONCRETE BARRIER
- TRAILER MOUNTED TRAFFIC SIGNAL
- REMOVE PAVEMENT MARKINGS
- DIRECTION OF TRAFFIC

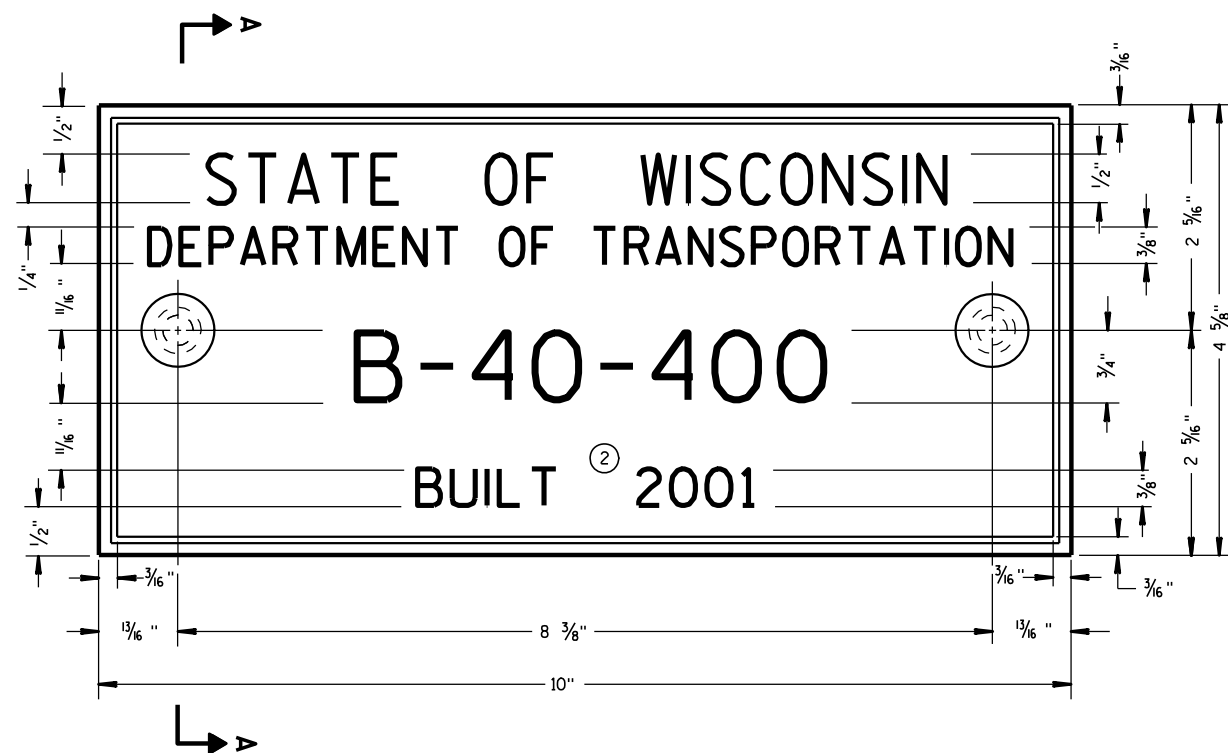
BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

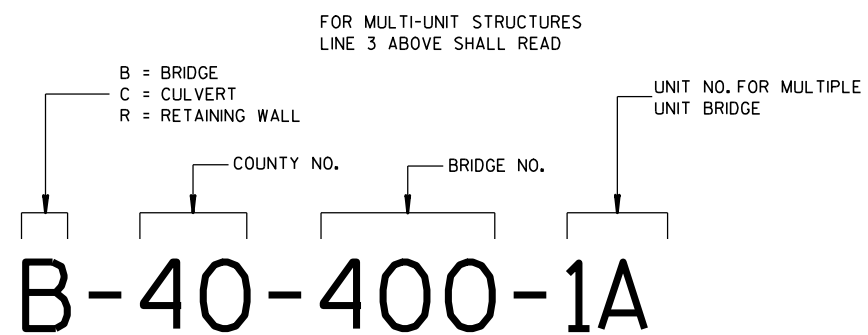
APPROVED
June 2015
DATE

/S/ Ahmet Demerbilek
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

FHWA



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



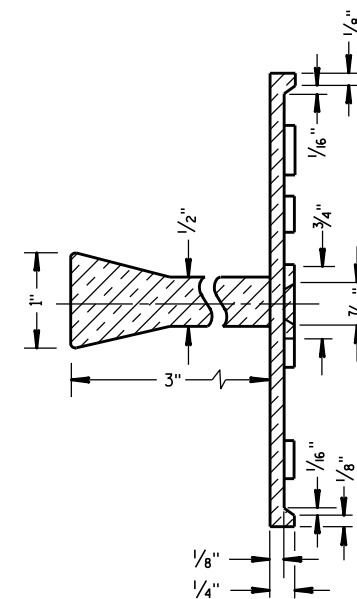
**NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES**

GENERAL NOTES

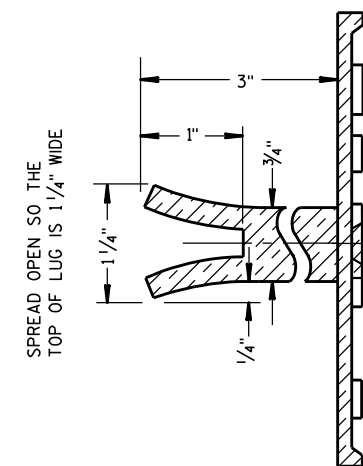
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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

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

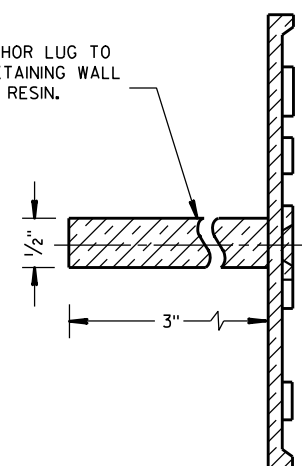


SECTION A-A



ALTERNATE LUG

- ① ADHERE ANCHOR LUG TO PRECAST RETAINING WALL WITH EPOXY RESIN.



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

**NAME PLATE
(STRUCTURES)**

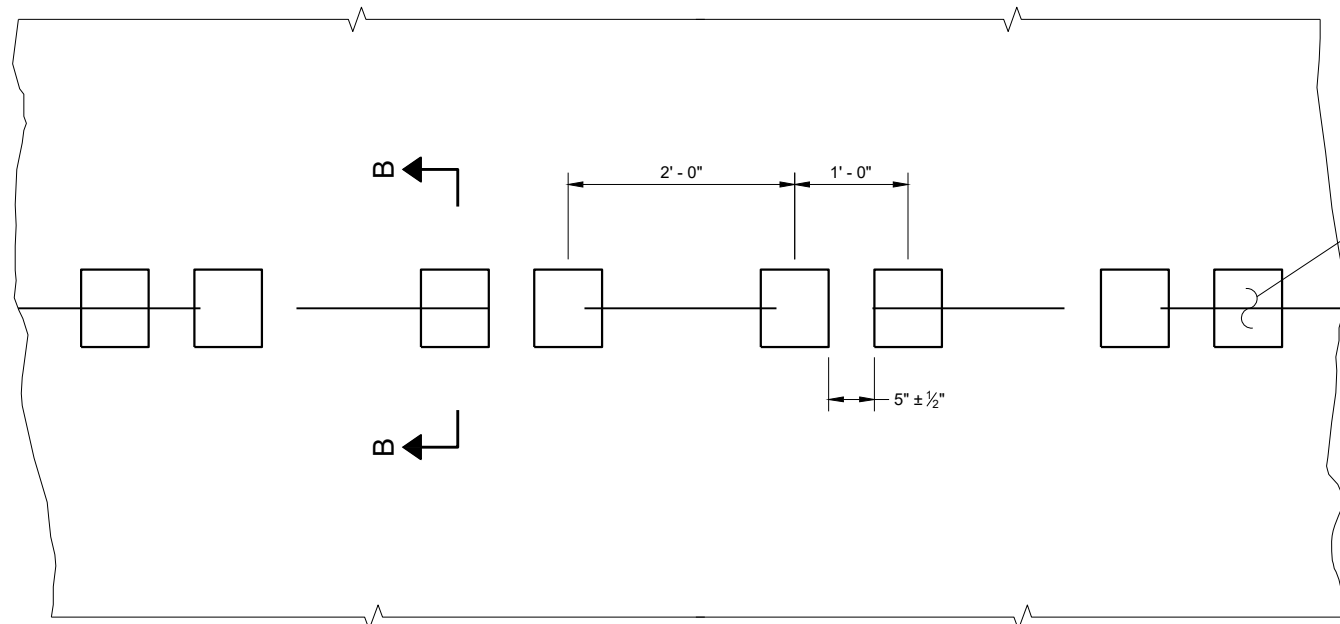
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/26/10
DATE

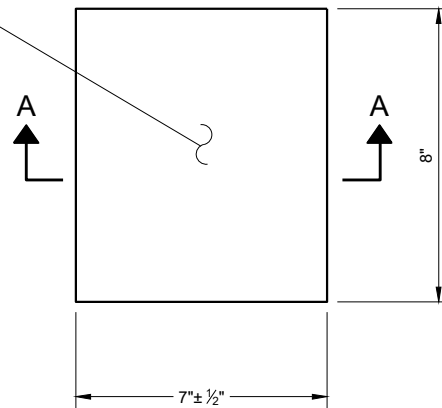
FHWA

/S/ Scot Becker
CHIEF STRUCTURAL DEVELOPMENT ENGINEER



PLAN VIEW
SHOULDER WITH GROOVES

PLACEMENT DETAIL FOR TYPE 1 MILLED RUMBLE STRIP



PLAN VIEW
(SINGLE GROOVE)

GENERAL NOTES

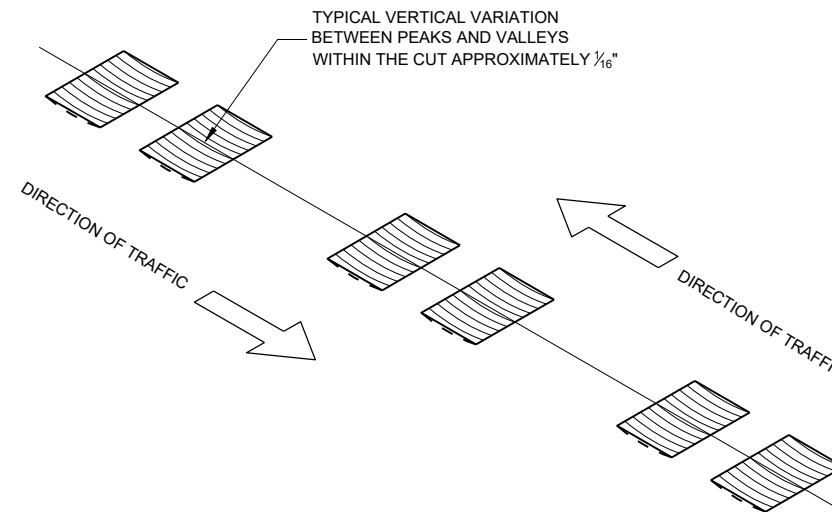
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

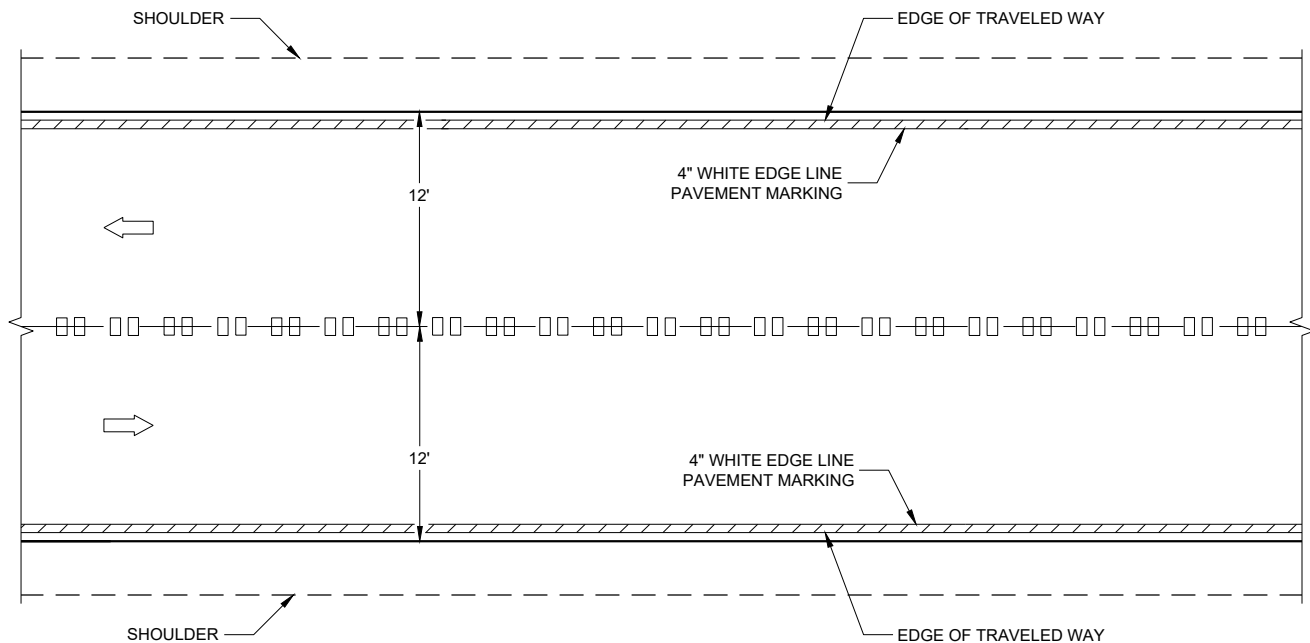
INSTALL PAVEMENT MARKING AFTER THE GROOVES ARE INSTALLED.

SEE SIGNING PLAN FOR SIGN REQUIREMENTS THAT MAY BE NEEDED.

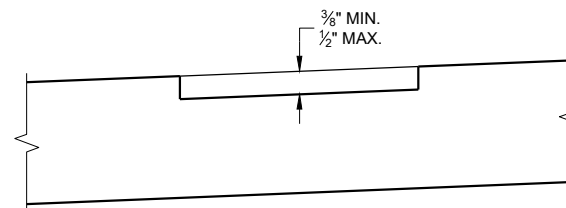
- ① CENTERLINE GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS. WHEN DIRECTED BY THE ENGINEER.



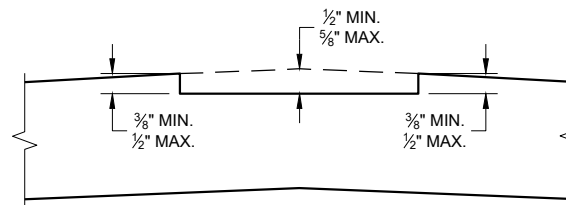
ISOMETRIC



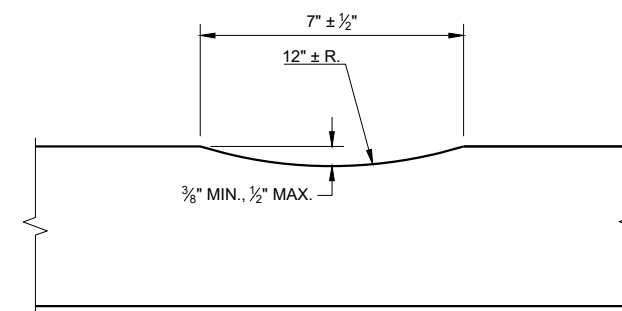
CENTERLINE GROOVES ON TWO-WAY ROADWAYS



SECTION B - B
SUPERELEVATED ROADWAY



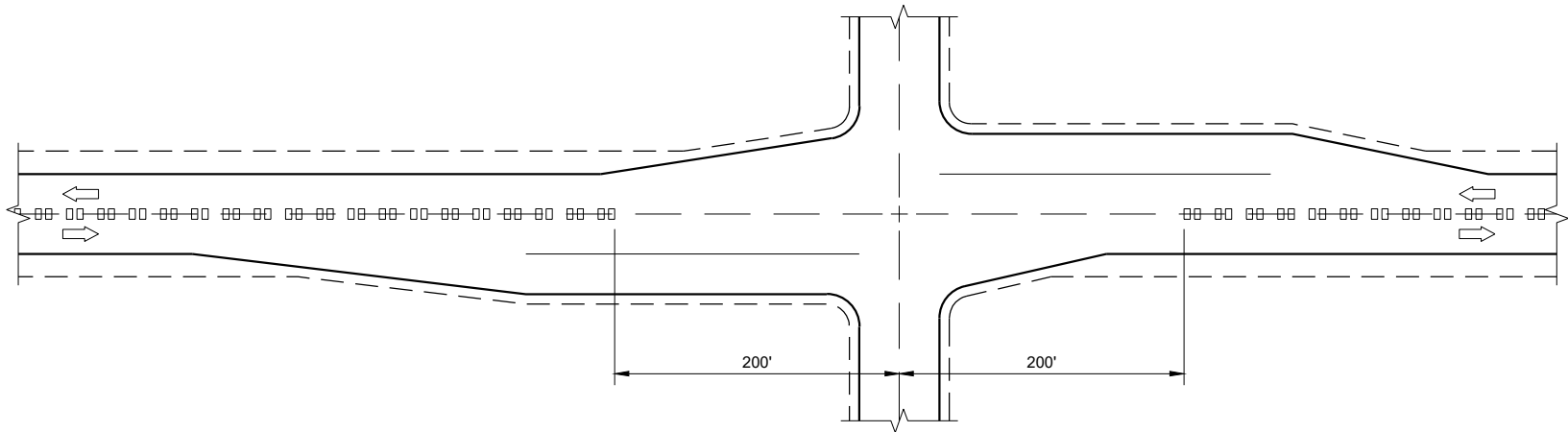
SECTION B - B
CROWNED ROADWAY



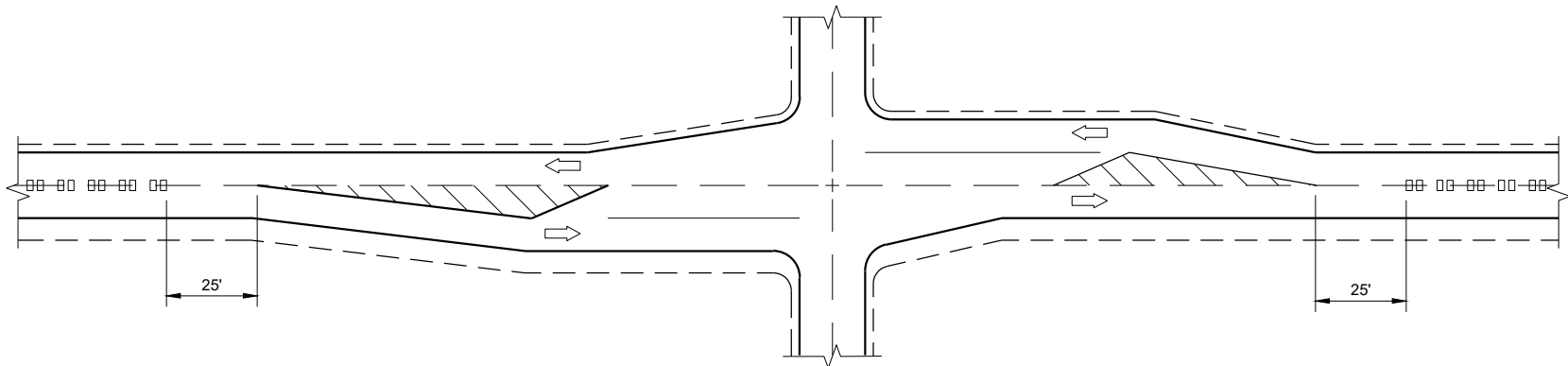
SECTION A - A

**2-LANE RURAL
CENTER LINE RUMBLE STRIP,
MILLING**

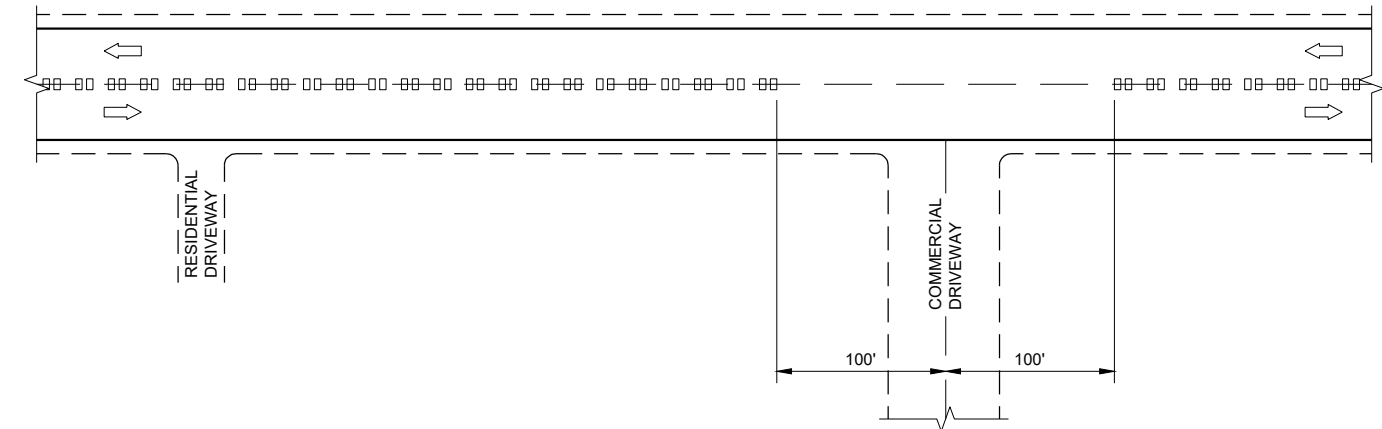
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



CENTERLINE GROOVES AT INTERSECTIONS



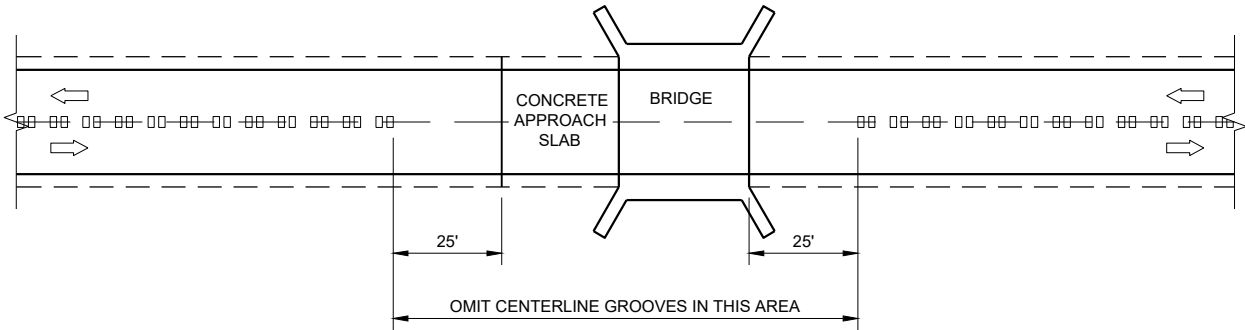
CENTERLINE GROOVES AT INTERSECTIONS
(WITH LEFT TURN LANES)



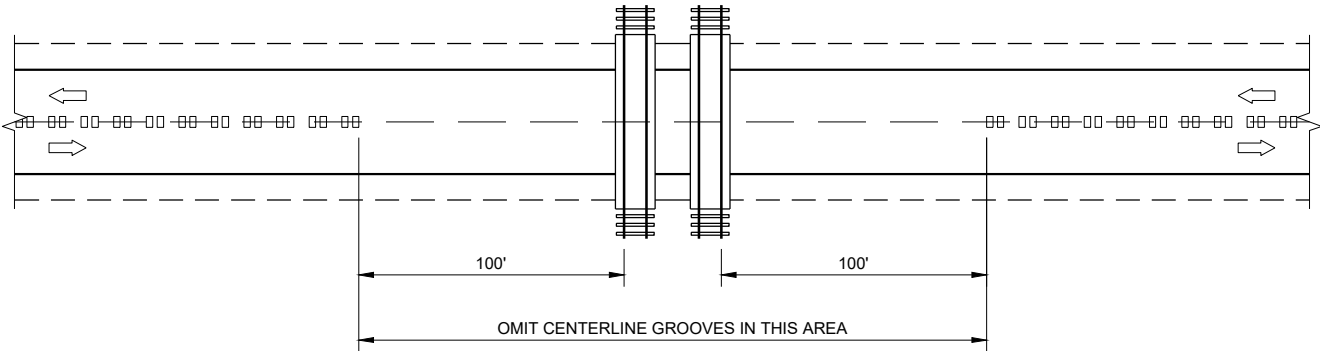
CENTERLINE GROOVES AT DRIVEWAYS^①

GENERAL NOTES

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



CENTERLINE GROOVES AT BRIDGES



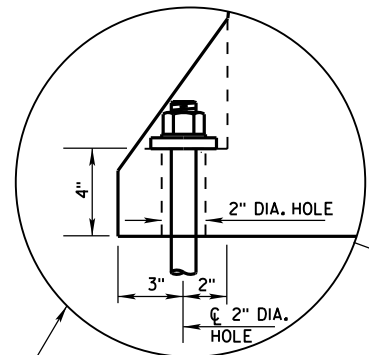
CENTERLINE GROOVES AT RAILROADS

2-LANE RURAL
CENTERLINE RUMBLE STRIP,
MILLING

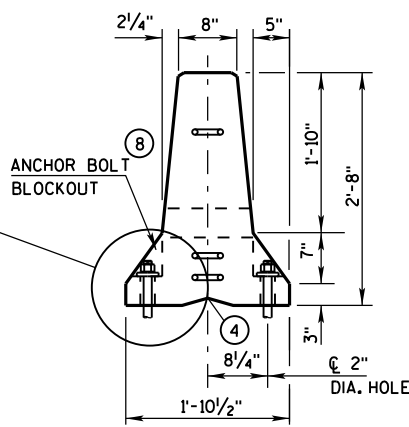
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
7/2018
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

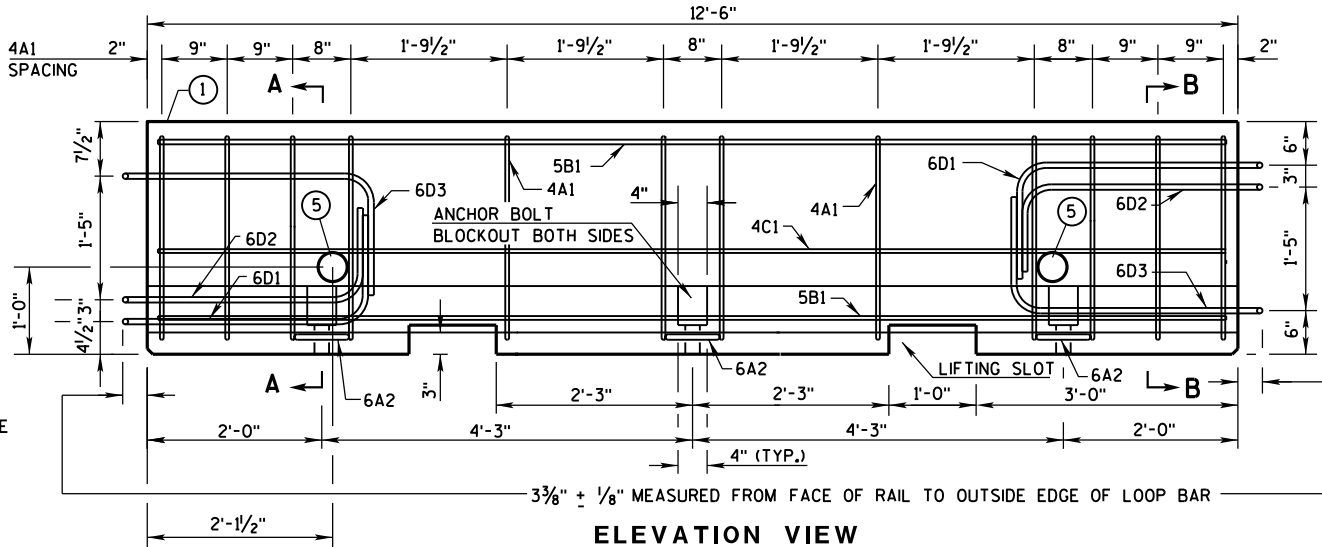
FHWA



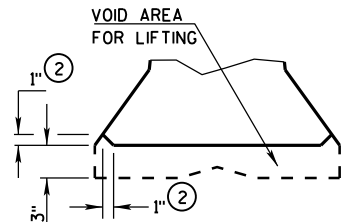
ANCHOR ON TRAFFIC SIDE
ONLY WHEN REQUIRED
(SEE SHEET D FOR ADDITIONAL
ANCHOR DETAIL)



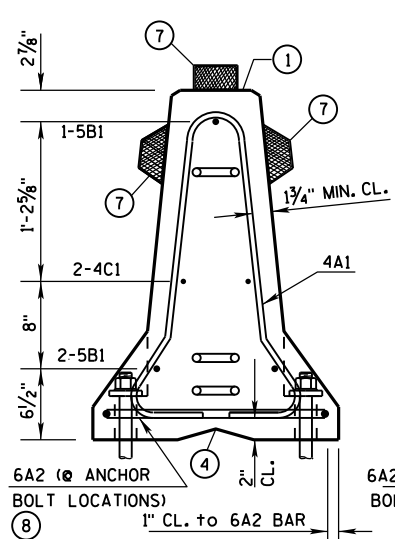
END VIEW



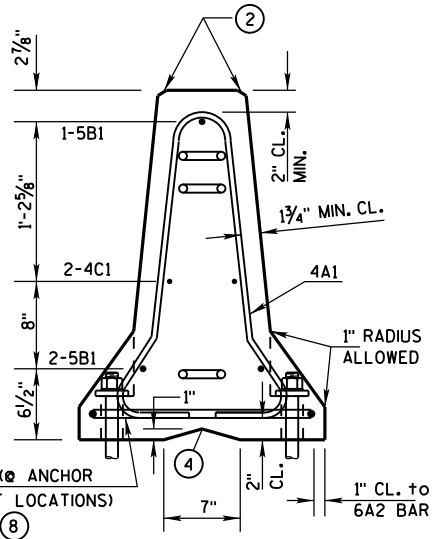
ELEVATION VIEW



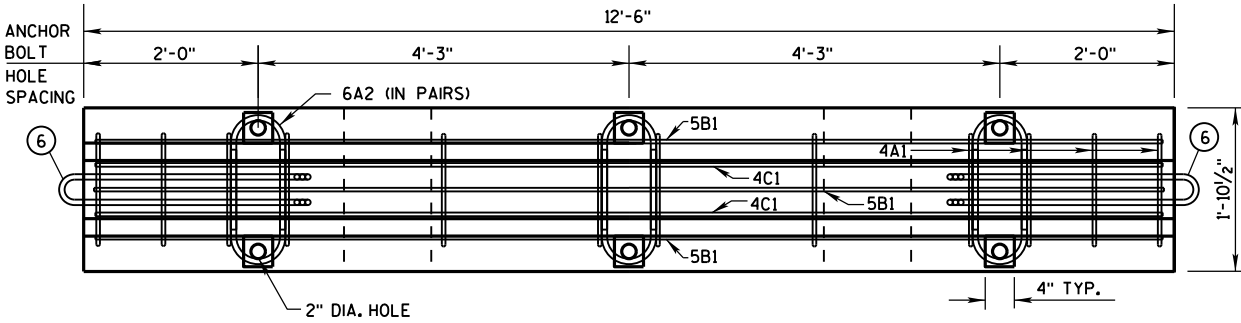
DETAIL "B"
LIFTING SLOT DETAIL



SECTION A-A
(STIRRUP PLACEMENT)

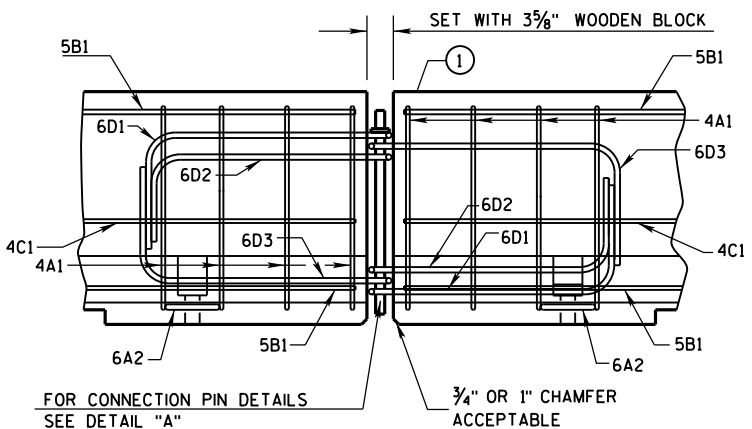


SECTION B-B
(STIRRUP PLACEMENT)

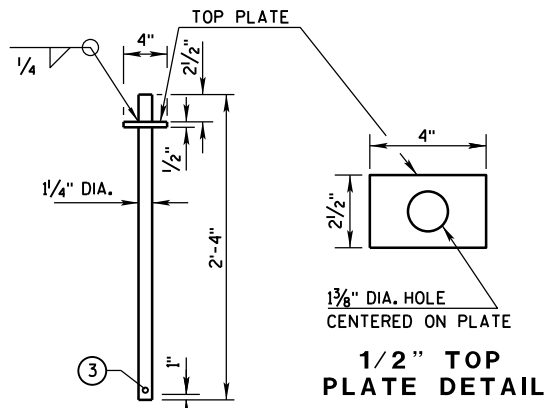


PLAN VIEW

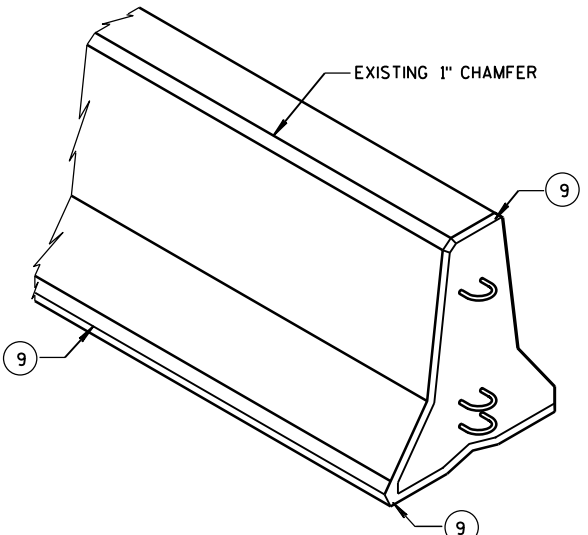
DETAILS OF BARRIER SECTION



DETAILS OF BARRIER CONNECTION



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



GENERAL NOTES

THESE GENERAL NOTES APPLY TO SHEETS 14B7-15(a) THRU 14B7-15(i).

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

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

LOOP BARS 6D1, 6D2 AND 6D3 SHALL BE 3/4" SMOOTH STEEL BARS WITH A MINIMUM YIELD STRENGTH OF 60 KSI, A TENSILE STRENGTH OF NOT LESS THAN 1.25 TIMES THE YIELD STRENGTH BUT A MINIMUM OF 80 KSI, A MINIMUM 14% ELONGATION IN 8 INCHES AND PASSING A 180 DEGREE BEND TEST USING A 3-1/2" PIN BEND DIAMETER FOR BEND TESTS. THE LOOPS SHALL BE INSTALLED WITHIN 1/8" OF THE PLAN DIMENSION.

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

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

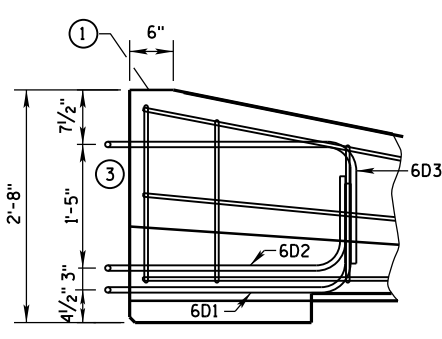
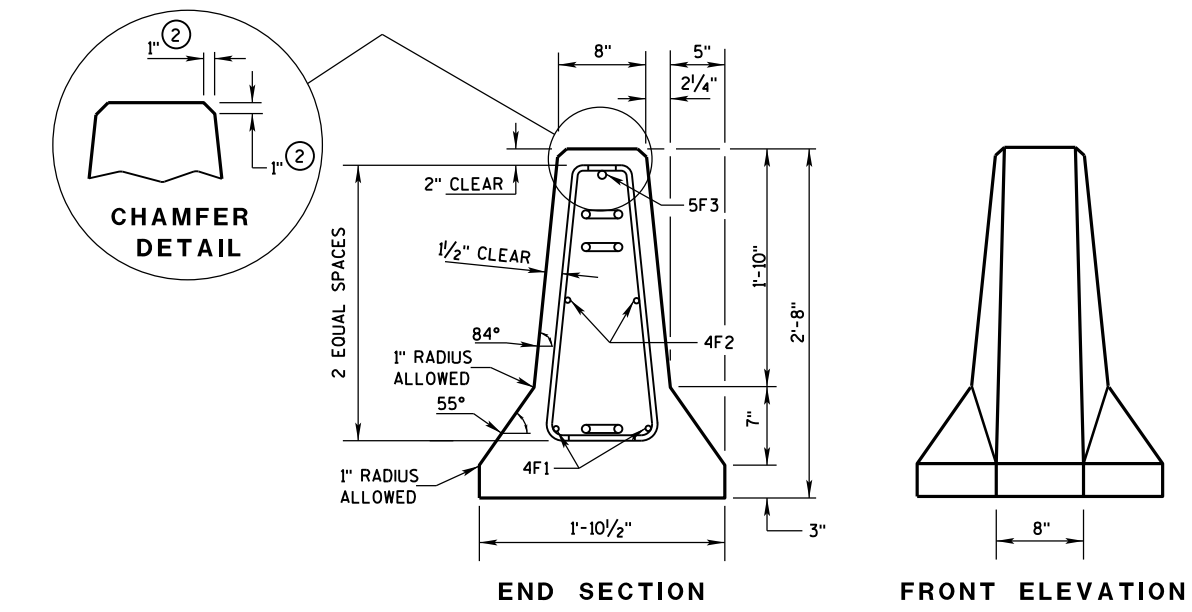
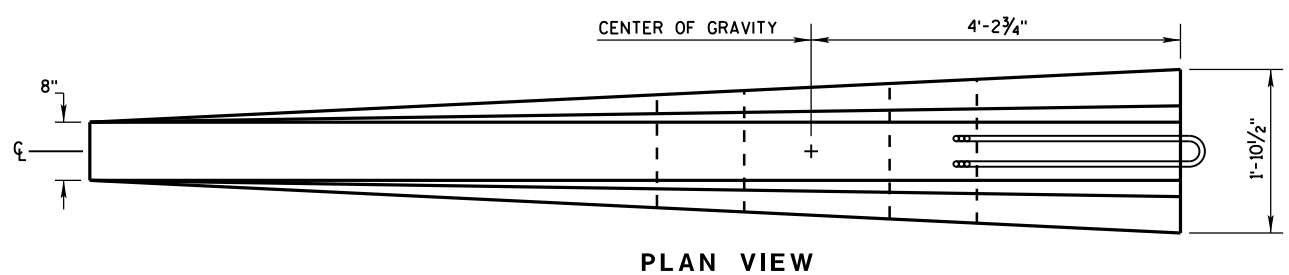
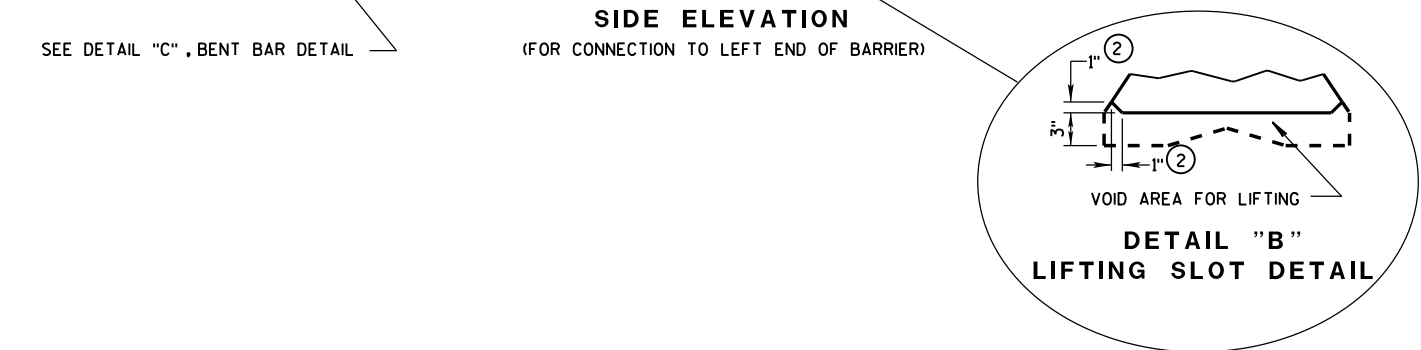
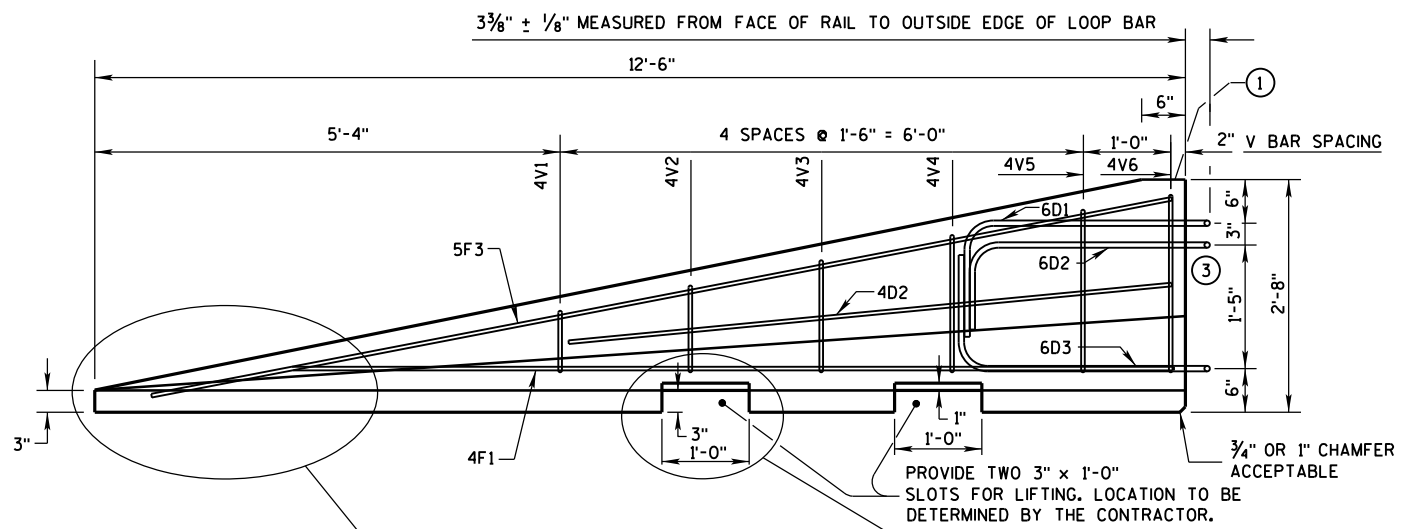
INSTALL MECHANICAL OR ADHESIVE ANCHORS PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE MANUFACTURER'S INFORMATION TO PROJECT ENGINEER.

- MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
 - TYPE: WICBTP
 - MANUFACTURER
 - DATE MANUFACTURED (MONTH AND YEAR)
- 1" CHAMFER TO PREVENT SPALLING.
- A 3/8" HOLE IN THE CONNECTION PIN, AT THE LOCATION SHOWN, IS ACCEPTABLE, BUT NOT REQUIRED..
- "V" NOTCH IS OPTIONAL.
- THE 4" DIAMETER, 11 GAUGE STEEL, ROUND MECHANICAL TUBING SLEEVE FOR LIFTING (OPTIONAL).
- NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.
- USE DELINEATORS CONFORMING TO SECTION 633 OF THE STANDARD SPECIFICATIONS. CONTRACTOR MAY USE ALTERNATE SHAPES AND HOUSING. INSTALL DELINEATORS ACCORDING TO MANUFACTURES INSTRUCTION. INSTALL YELLOW REFLECTORS WHEN BARRIER IS LOCATED TO THE LEFT OF TRAFFIC AND WHITE REFLECTORS WHEN BARRIER IS LOCATED TO THE RIGHT OF TRAFFIC. SPACE DELINEATORS A MAXIMUM OF 25 FEET APART. PROVIDE TOP MOUNTED DELINEATORS IN ADDITION TO THE SIDE MOUNTED DELINEATORS ON ALL BARRIER INSTALLATIONS LOCATED ON A CURVED ALIGNMENT LONGER THAN 200 FEET AND ON BARRIERS USED TO SEPARATE OPPOSING TRAFFIC.
- SEE SHEET D FOR HOW TO ANCHOR BARRIER. SEE SHEET E FOR WHEN TO ANCHOR BARRIER.
- 1" CHAMFER OPTIONAL.

f'c = 4,000 psi

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

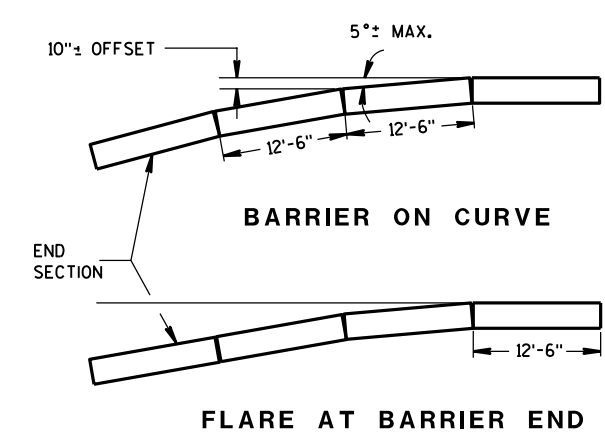
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



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

GENERAL NOTES

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



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

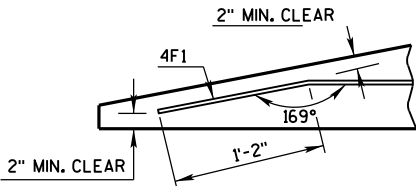
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

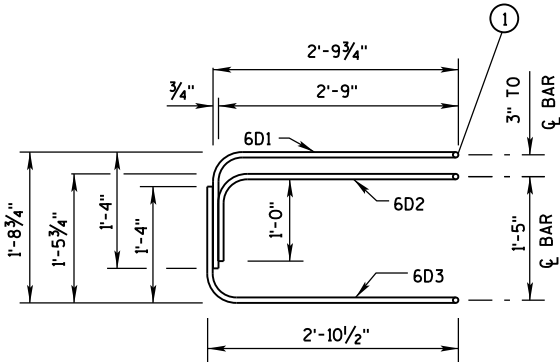
BARRIER TAPER SECTION
BILL OF MATERIALS

(PER 12'-6" BARRIER TAPER SECTION)

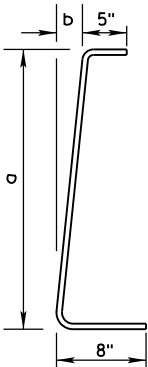
BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4V1	4	2	1'-11"
4V2	4	2	2'-2"
4V3	4	2	2'-6"
4V4	4	2	2'-9"
4V5	4	2	3'-2"
4V6	4	2	3'-4"
4F1	4	2	12'-0"
4F2	4	2	7'-6"
5F3	5	1	11'-9"
LOOP ASSEMBLY			
6D1	6	1	8'-5"
6D2	6	1	7'-7"
6D3	6	1	8'-6"



DETAIL "C"
BENT BAR DETAIL



ELEVATION
LOOP BAR ASSEMBLY



BAR	a	b
V1	10"	1"
V2	1'-1"	1 1/4"
V3	1'-5"	1 5/8"
V4	1'-8"	1 7/8"
V5	2'-0 1/2"	2 3/8"
V6	2'-3"	2 3/4"

4V BARS
2 AT EACH SIZE REQUIRED
FOR STIRRUP ASSEMBLY

TAPER BARRIER SECTION

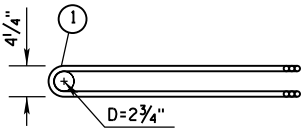
GENERAL NOTES

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

BARRIER SECTION
BILL OF MATERIALS

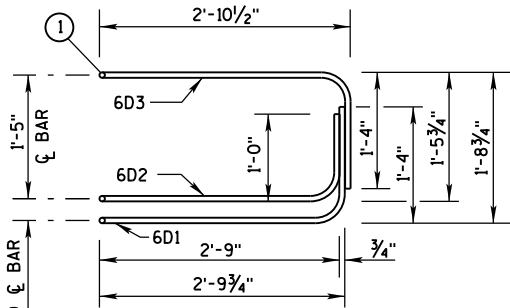
(PER 12'-6" BARRIER SECTION)

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

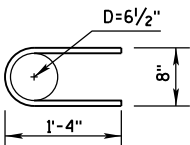


PLAN VIEW
LOOP BAR ASSEMBLY

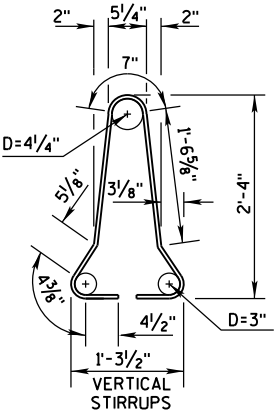
(MARKED END SHOWN, INVERT FOR OTHER END)



ELEVATION VIEW



6A2

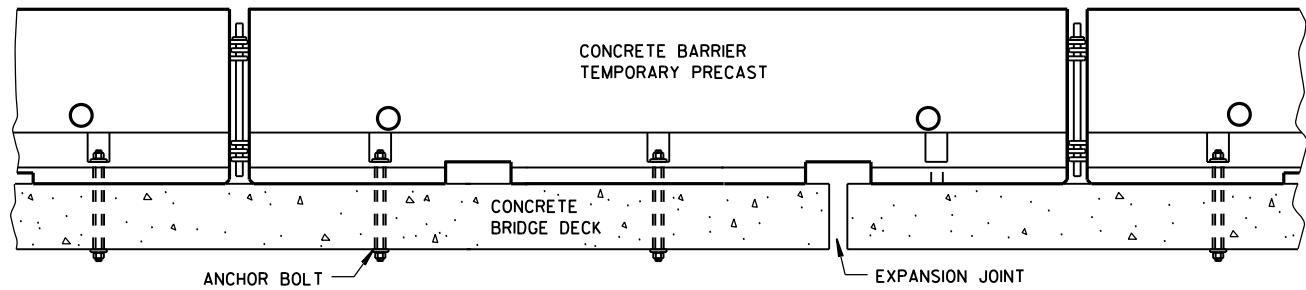
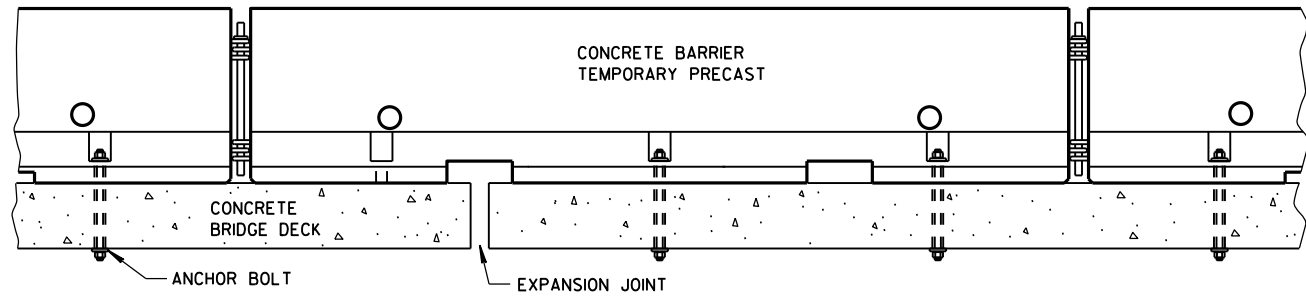


4A1

BARRIER SECTION

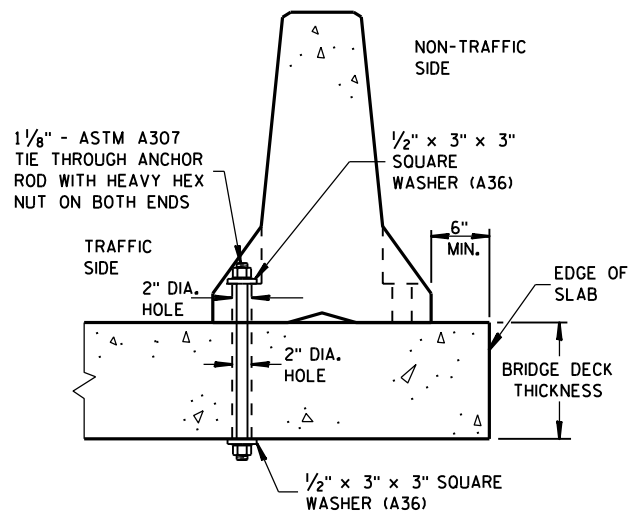
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



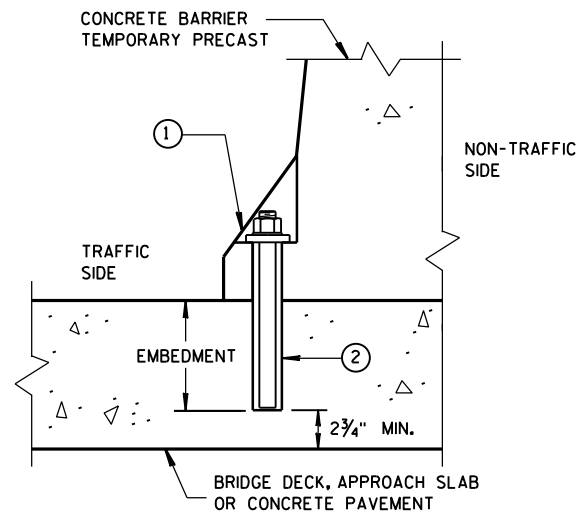
TREATMENT AT BRIDGE DECK EXPANSION JOINTS

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



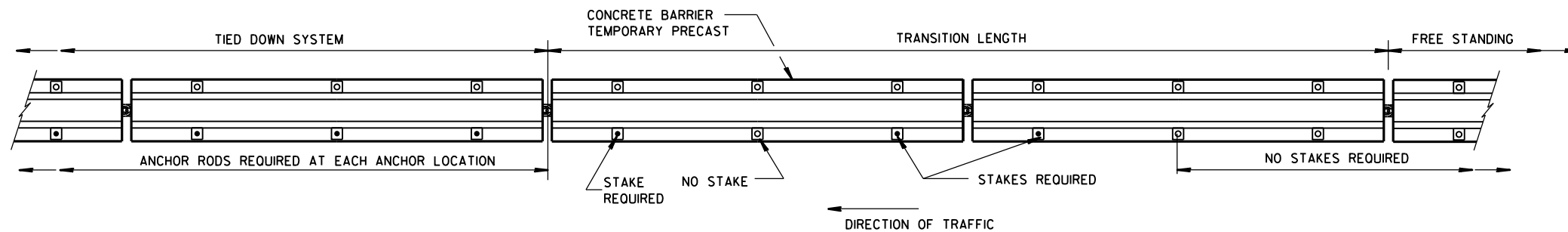
THROUGH BOLTED ANCHOR INSTALLATION ON BRIDGE DECK

(DO NOT USE ON CONCRETE BRIDGE DECK WITH ASPHALT OVERLAY)



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

(DO NOT USE ON CONCRETE WITH AN ASPHALTIC OVERLAY)



PLAN VIEW FREE STANDING TRANSITION TO TIED-DOWN SYSTEM

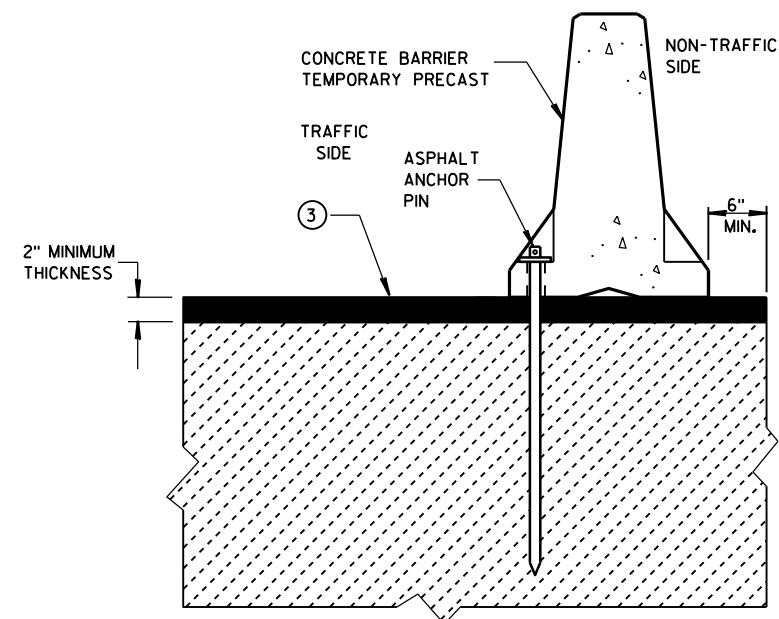
(PLACE TRANSITION IN A TANGENT SECTION OF BARRIER PARALLEL TO THE ROADWAY. IF TRANSITION OCCURS ON STRUCTURAL SLAB, ANCHOR AS SHOWN.)

GENERAL NOTES

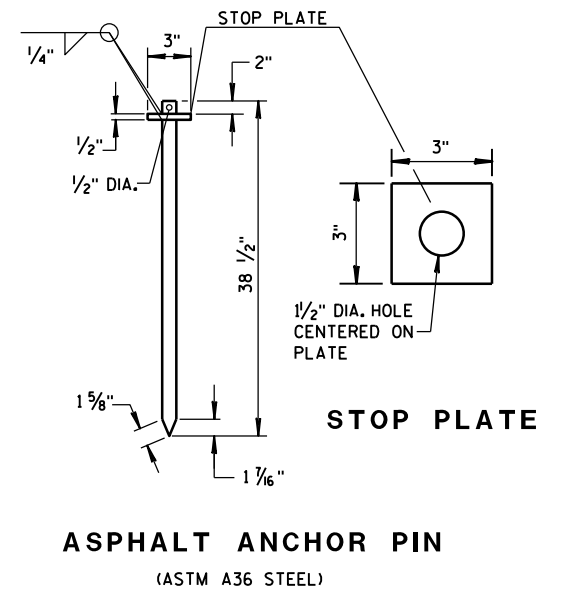
SEE SHEET E FOR WHEN TO ANCHOR. OTHER PARTS OF THE PLAN MAY SHOW ADDITIONAL LOCATIONS REQUIRING ANCHORING.

REMOVE ALL ANCHORS WHEN NO LONGER NEEDED. FILL CONCRETE PAVEMENTS, DECKS AND APPROACH SLABS WITH NON-SHRINK COMMERCIAL GROUT FROM THE APPROVED PRODUCT LIST. FILL ASPHALT PAVEMENTS WITH ASTM D6690 TYPE II RUBBERIZED CRACK FILLER.

- ① 1/8" DIAMETER A307 THREADED ROD, 1/2" X 3" X 3" SQUARE PLATE WASHER WITH ASTM A36 STEEL, ASTM A563A HEAVY HEX NUT.
- ② ADHESIVE ANCHORS WITH A MINIMUM BOND STRENGTH OF 1,800 PSI AND 5/4" EMBEDMENT. SEE 603.2 AND 603.3.12 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.
- ③ ASPHALT SURFACE SHOWN. CONTRACTOR MAY DRILL THROUGH CONCRETE PAVEMENT AND THEN DRIVE ASPHALT ANCHOR PIN.

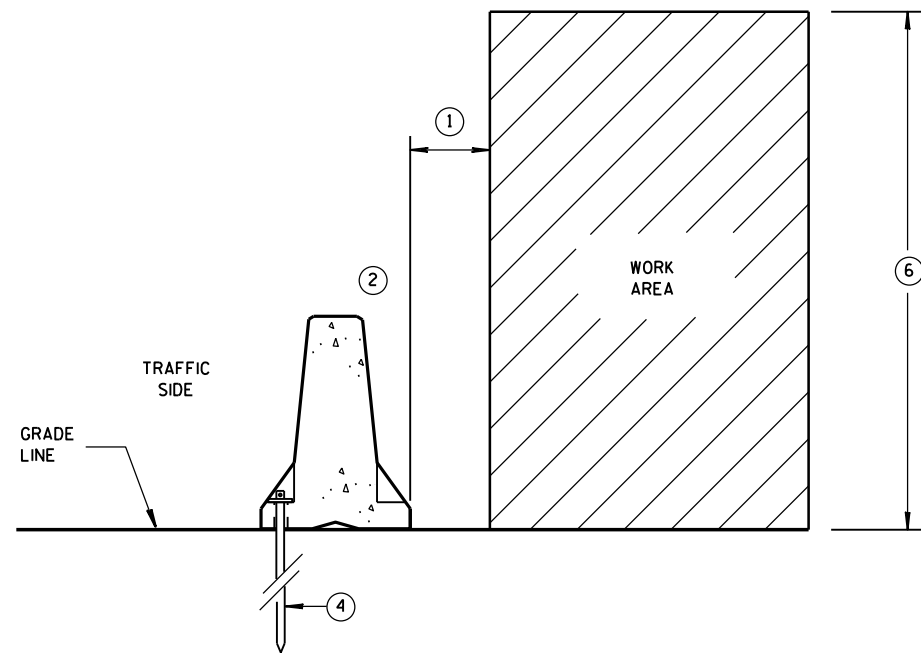


STAKE DOWN INSTALLATION FOR ASPHALTIC SURFACE

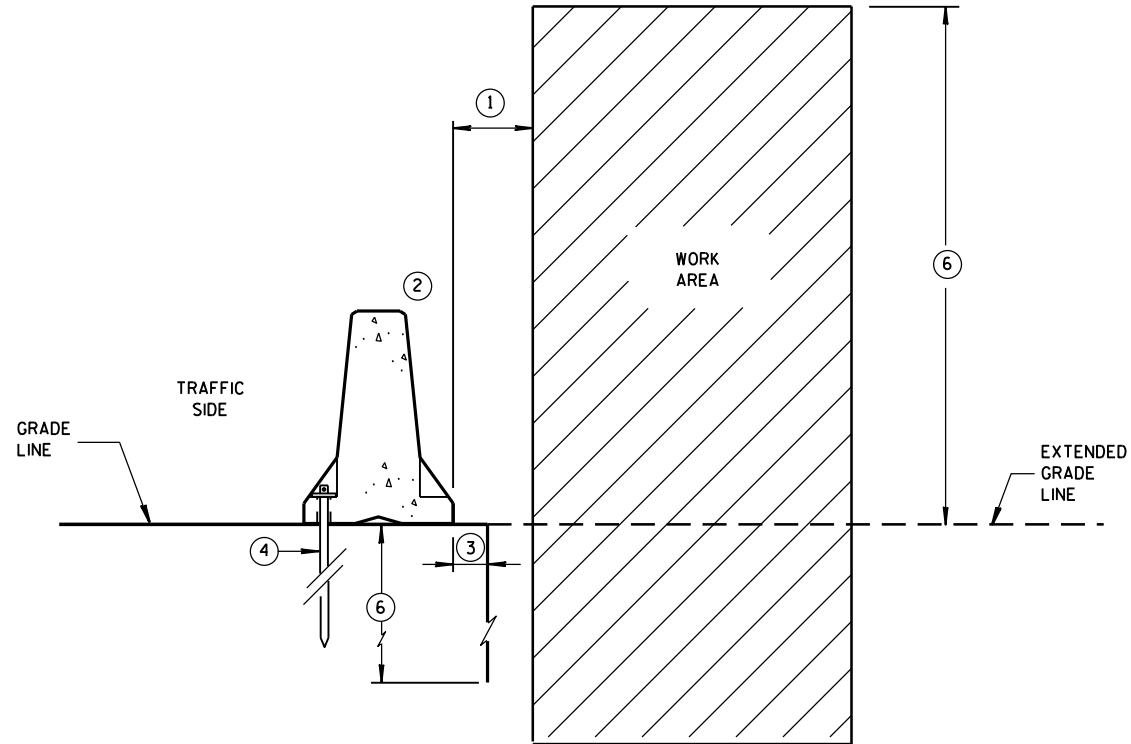


CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



**ANCHORED BARRIER SPACE REQUIREMENTS
FOR HAZARDS EXTENDED
ABOVE THE GRADE LINE**

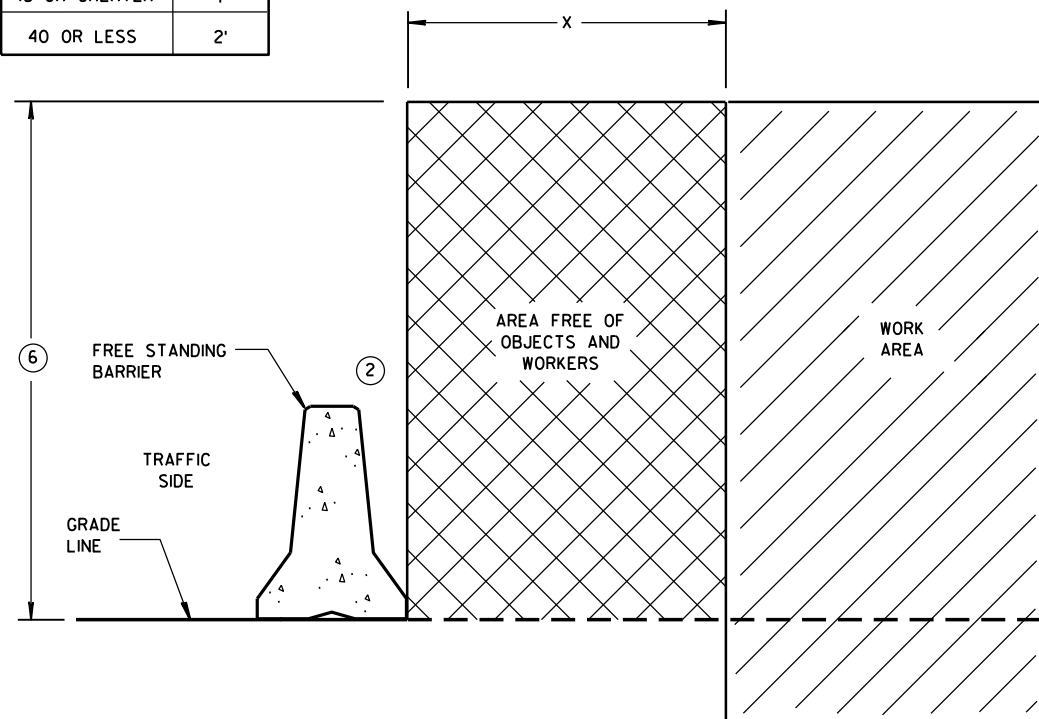


**ANCHORED BARRIER SPACE REQUIREMENTS
ON VERTICAL DROP OFFS**

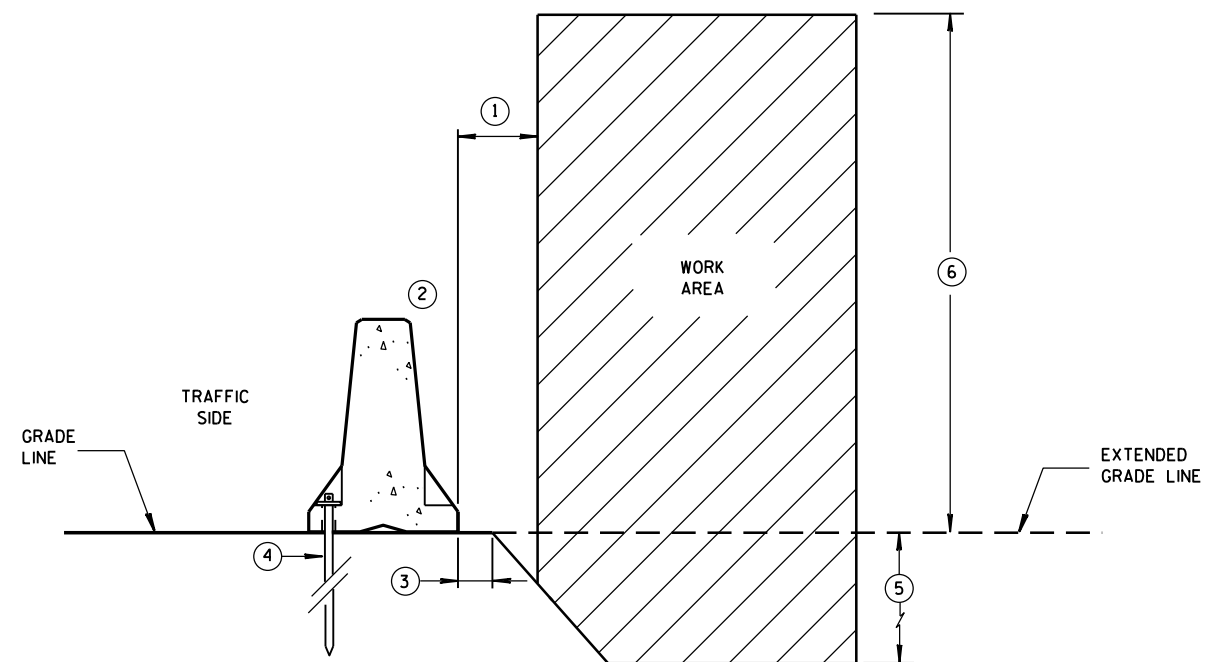
GENERAL NOTES

- ① WHEN OBJECTS EXTEND ABOVE THE GRADE, A MINIMUM OF 1 FOOT IS REQUIRED FROM BACK OF BARRIER TO OBJECT. SEE OTHER DETAILS FOR FOR THE MINIMUM OFFSET FROM BACK OF BARRIER TO SLOPES OR VERTICAL DROPS.
- ② OBJECTS ARE NOT TO BE PLACED ON, MOUNTED TO, OR LEANED AGAINST THE BARRIER WITHOUT PERMISSION OF THE PROJECT ENGINEER.
- ③ SEE OTHER DETAIL ON SHEET "D" FOR SPACE REQUIREMENTS.
- ④ SEE BOLT THROUGH DECK, REMOVABLE ADHESIVE ANCHOR, OR A STAKE DOWN FOR ASPHALTIC SURFACE TREATMENT DETAILS. ASPHALTIC ANCHOR SHOWN.
- ⑤ DEPTH OF 3 FEET OR MORE.
- ⑥ Y = 6'-6".

POSTED SPEED MPH	X
45 OR GREATER	4'
40 OR LESS	2'



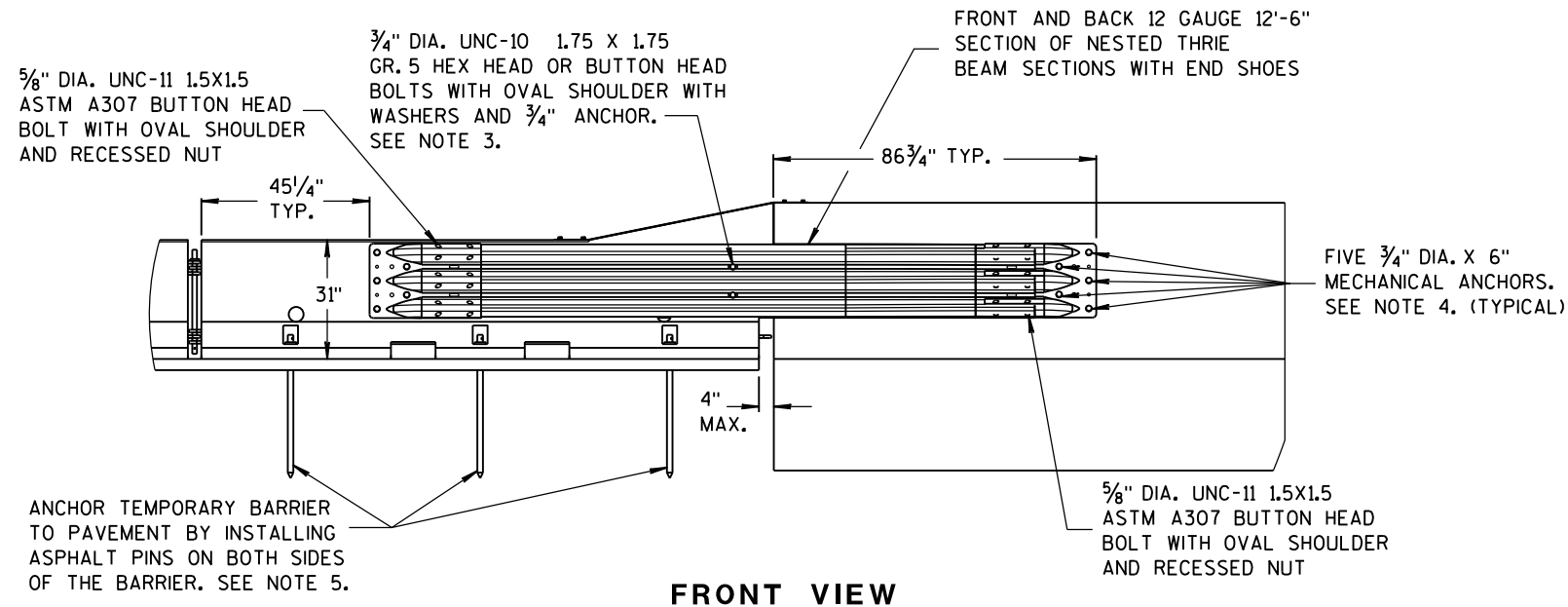
FREE STANDING BARRIER SPACE REQUIREMENTS



**ANCHORED BARRIER SPACE REQUIREMENTS
ON SLOPES**

**CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



FRONT VIEW

NOTES

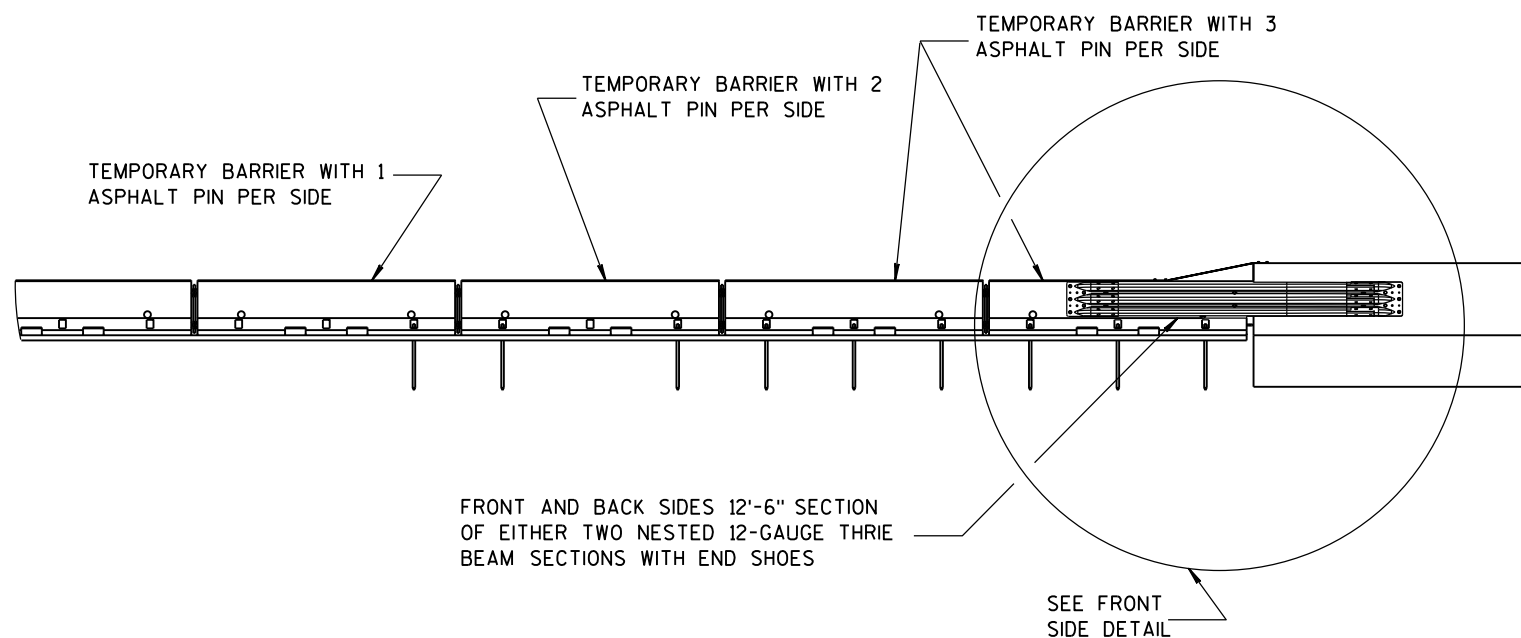
NESTED THRIE BEAM IS REQUIRED ON BOTH SIDES OF THE TEMPORARY BARRIER FOR ALL INSTALLATIONS REGARDLESS OF TRAFFIC.

1. CAP END PLATE PLACED FLUSH WITH UPSTREAM END OF PERMANENT BARRIER OR PARAPET.
2. THRIE BEAM PIECES ARE OFFSET 15 1/4" TO PREVENT INTERFERENCE FROM THE ANCHORS ON OPPOSING SIDES.
3. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 9.48 KIPS AND ULTIMATE SHEAR LOAD 10.48 KIPS.

4. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 17.9 KIPS AND ULTIMATE SHEAR LOAD 21.96 KIPS.

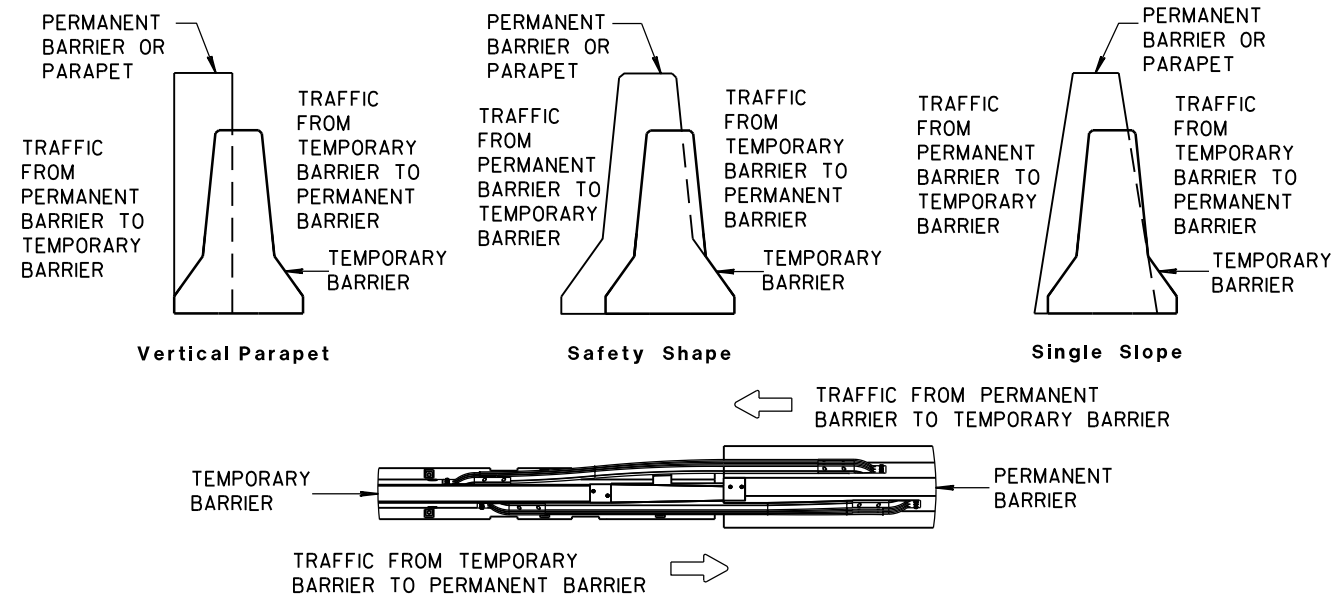
5. MAY BE USED ON CONCRETE OR ASPHALT PAVEMENTS. ASPHALT OPTION SHOWN. FOR CONCRETE OPTION SEE OTHER DETAILS.

6. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 12.14 KIPS AND ULTIMATE SHEAR LOAD 17.5 KIPS.

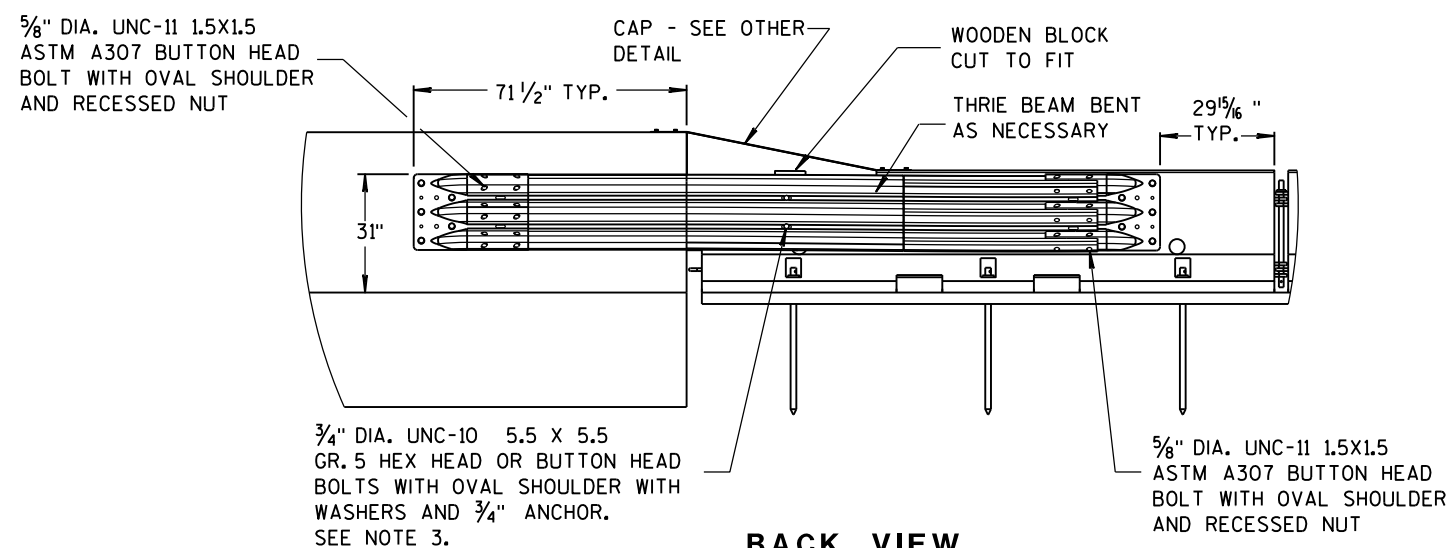


FRONT VIEW

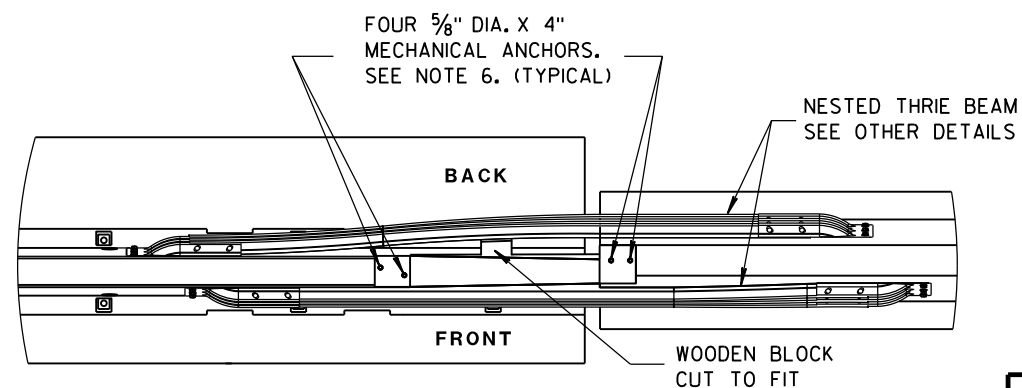
BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM



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



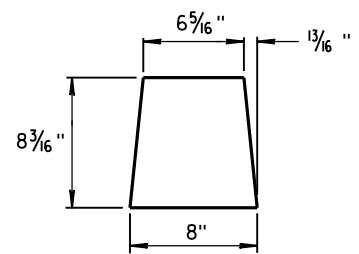
BACK VIEW



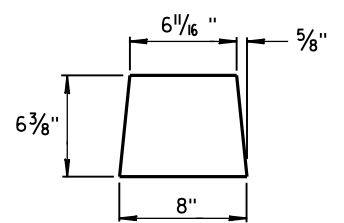
PLAN VIEW

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

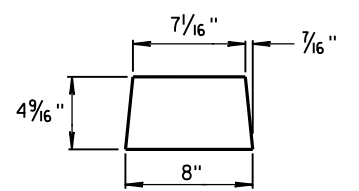
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



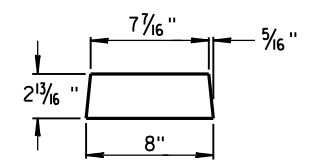
GUSSET 1



GUSSET 2

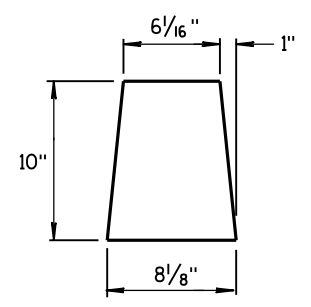


GUSSET 3

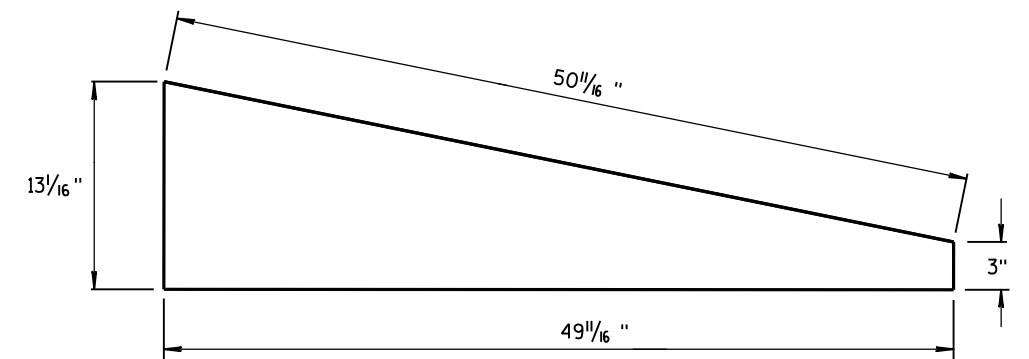


GUSSET 4

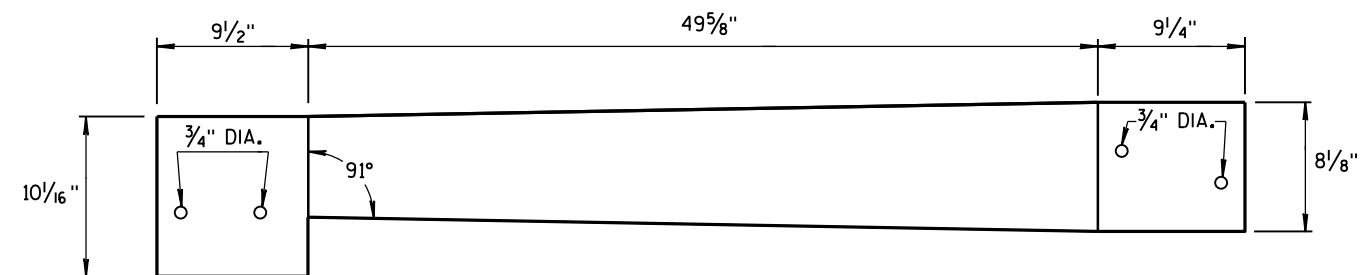
GUSSETS



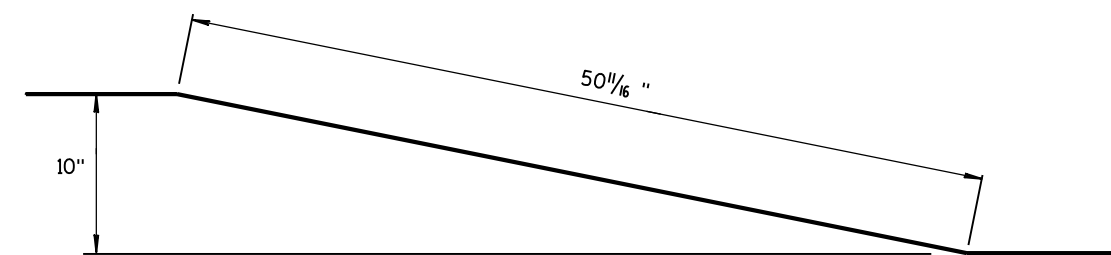
END PLATE



SIDE PLATE

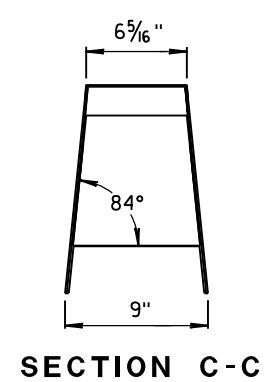


TOP PLATE

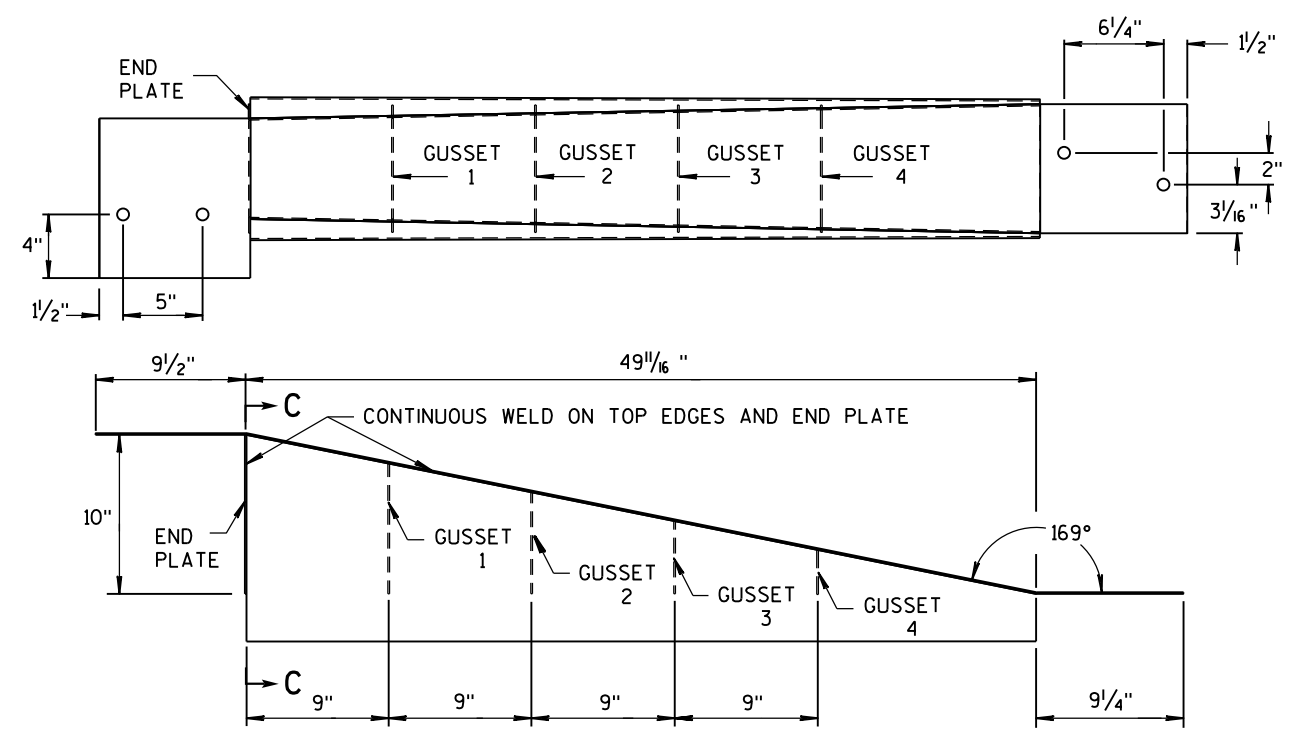


**SIDE, TOP AND END PLATES FOR CAP
FROM TEMPORARY CONCRETE BARRIER
TO 42" PERMANENT CONCRETE BARRIER**

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



SECTION C-C



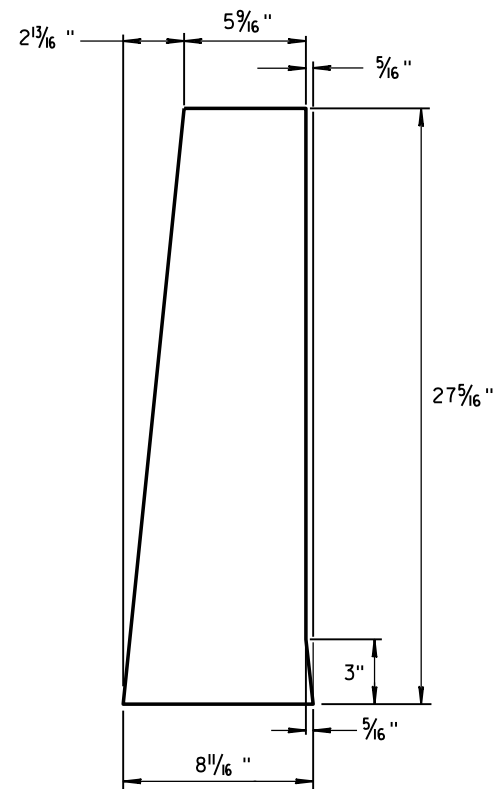
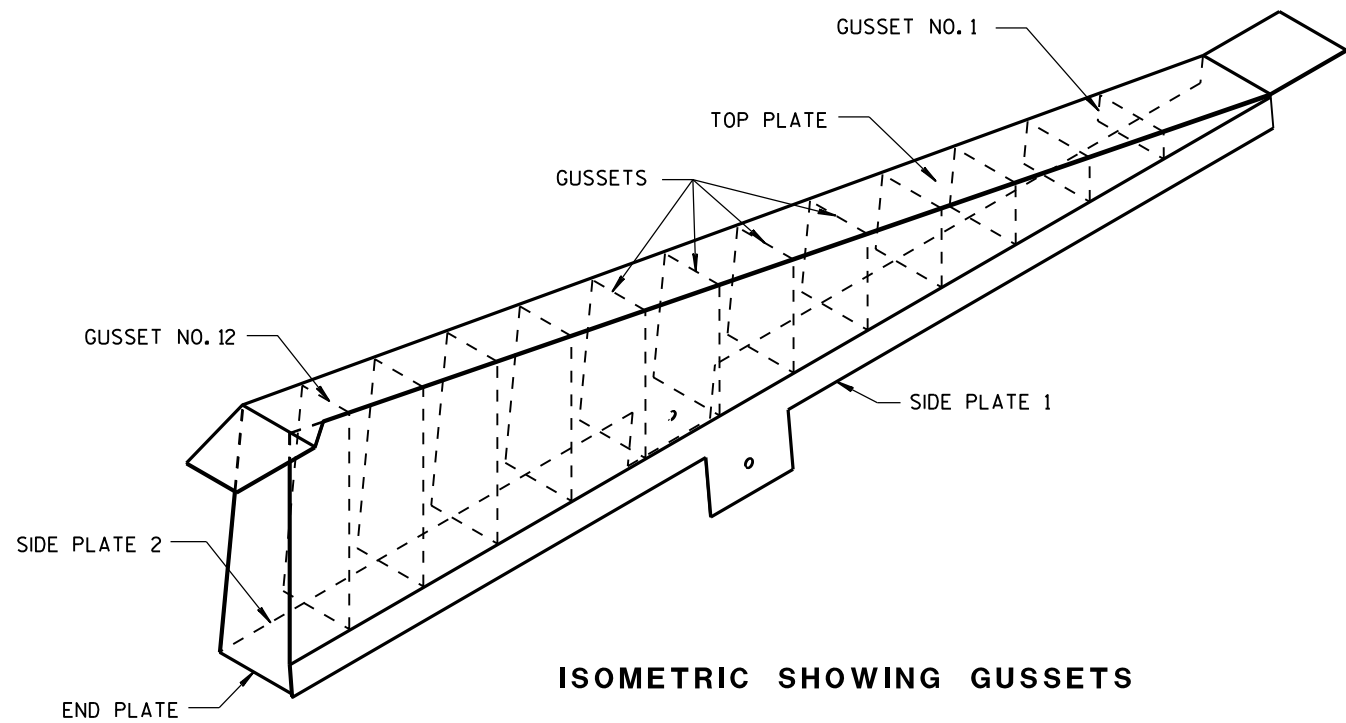
NOTES

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

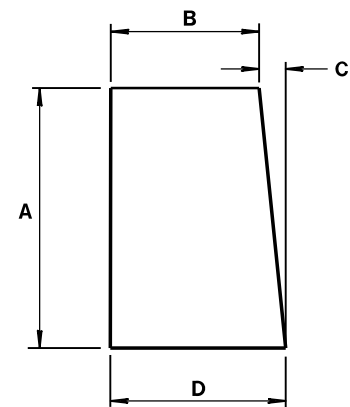
**CAP DETAILS FOR TEMPORARY CONCRETE
BARRIER TO 42" PERMANENT CONCRETE BARRIER**

**CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



1/8" STEEL PLATE

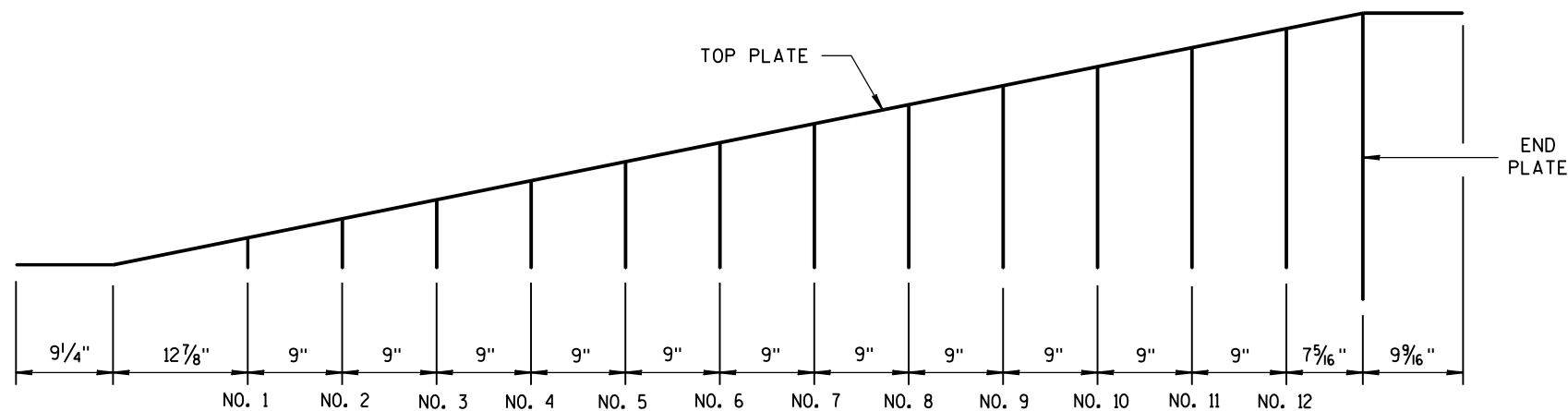


ALL GUSSETS 1/8" STEEL PLATE

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

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

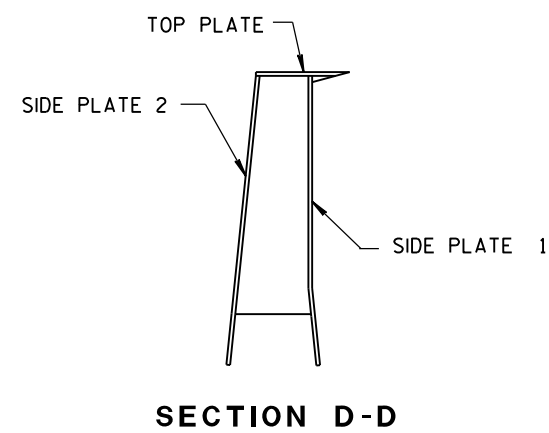
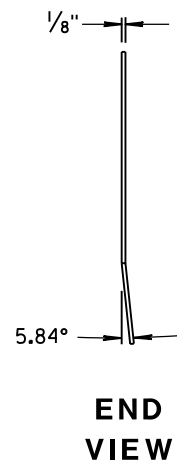
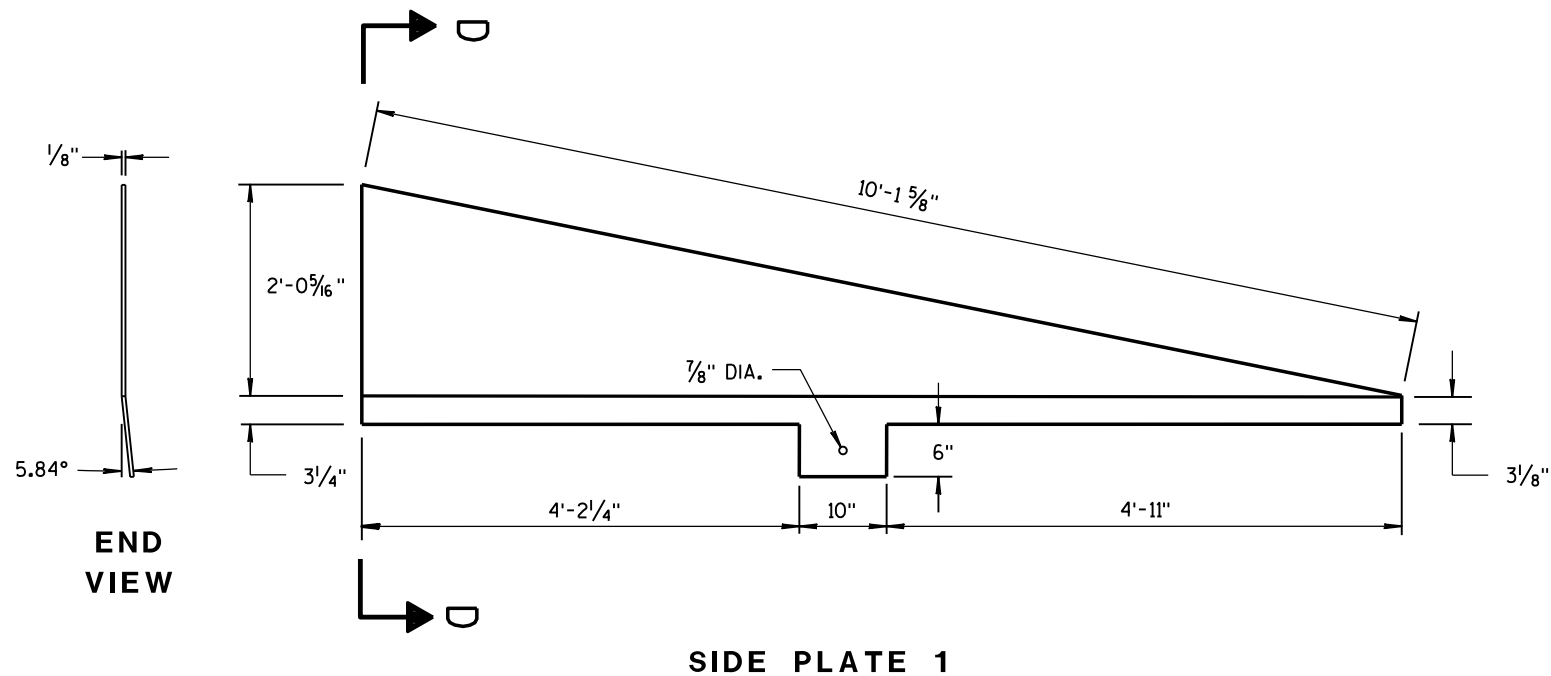
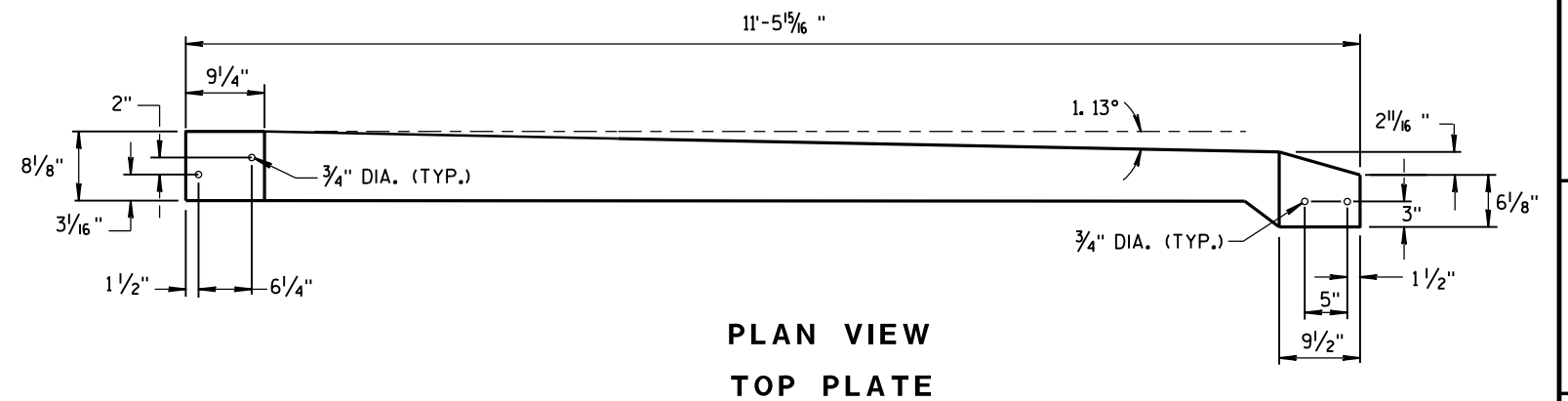
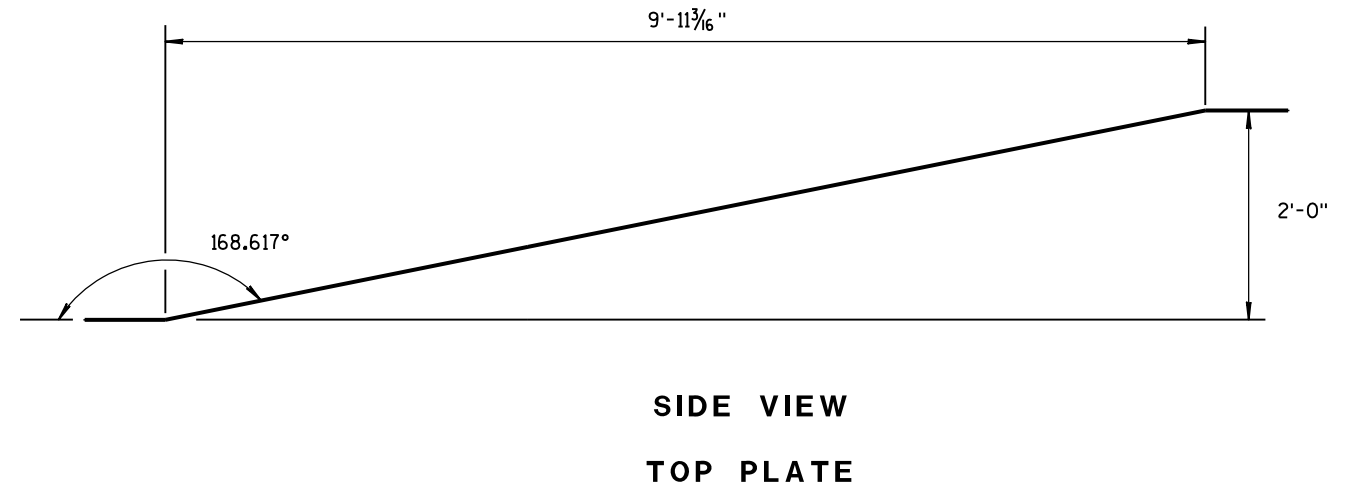
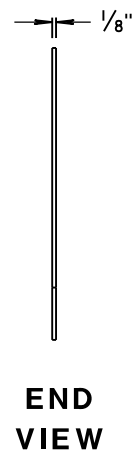
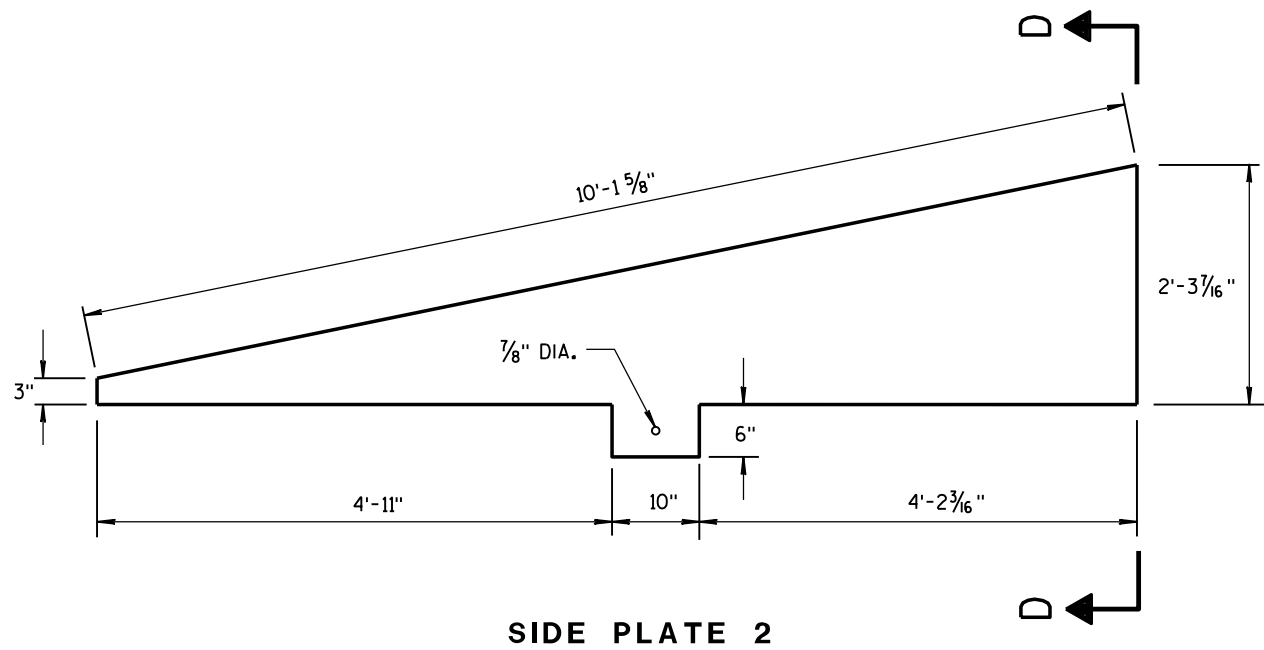
GUSSETS AND END PLATE ARE STITCH WELDED ON 3 SIDES. TWO TRIANGULAR SIDE PLATES ARE STITCH WELDED TO TOP PLATE, END PLATE AND GUSSETS.



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

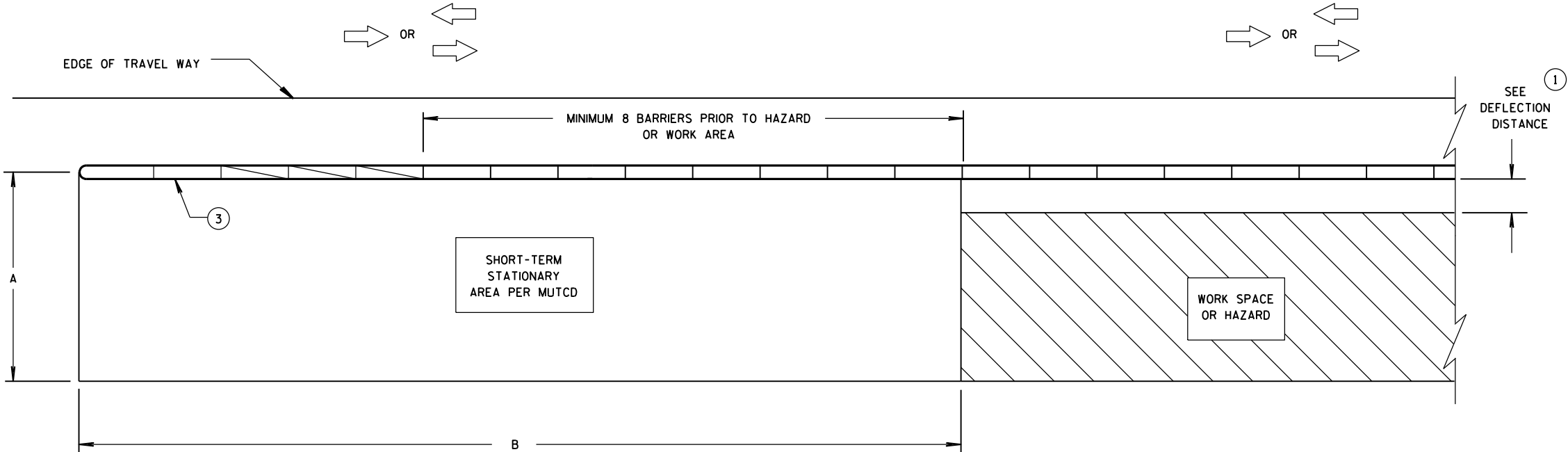
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

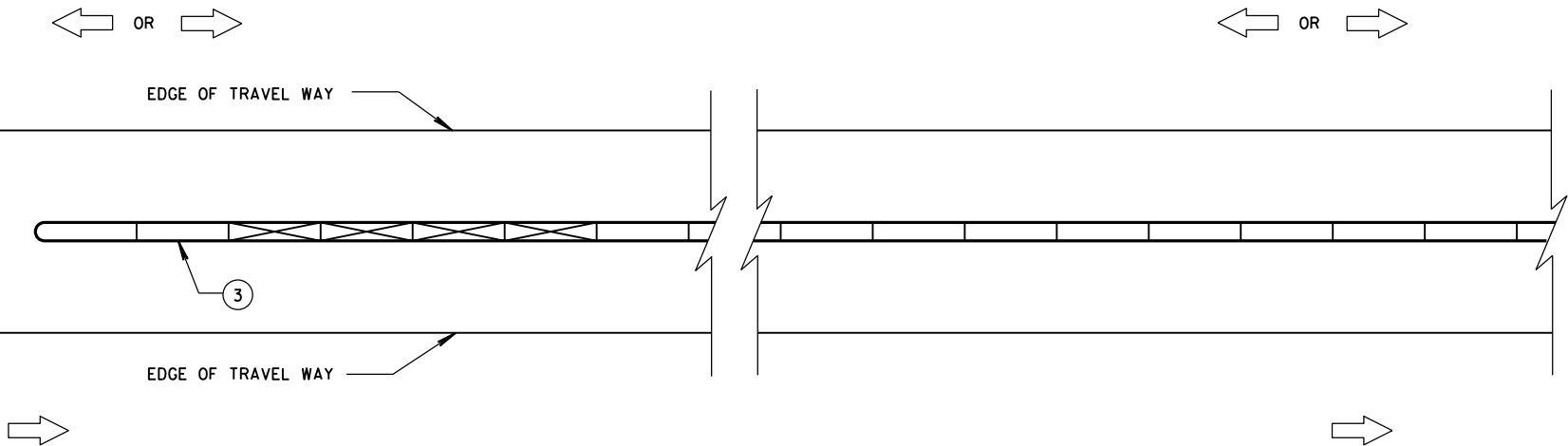


**CAP DETAILS FOR TEMPORARY CONCRETE
BARRIER TO 56" PERMANENT CONCRETE BARRIER**

CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2017 DATE	/S/ Rodney Taylor ROADWAY STANDARD DEVELOPMENT UNIT SUPERVISOR
FHWA	



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



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

GENERAL NOTES

SEE STANDARD DETAIL DRAWING 14B7 FOR MORE INFORMATION.

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

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

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

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

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

- ① FOR DEFLECTION INFORMATION SEE STANDARD DETAIL DRAWING 14B7.
- ② VALUES PROVIDED MAY NOT FIT ALL POSSIBLE SITUATIONS OR SITE CONDITIONS. SEE OTHER SECTIONS OF THE CONTRACT OR PROJECT ENGINEER FOR MORE DETAILS.
- ③ ANCHOR TEMPORARY BARRIER ACCORDING TO CRASH CUSHION OR SAND BARREL MANUFACTURER'S RECOMMENDATIONS. IF MANUFACTURER'S RECOMMENDATIONS ARE NOT PROVIDED, ANCHOR 3 PINS ON TRAFFIC SIDE.

DIMENSION A TABLE ②

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

DIMENSION B TABLE ②

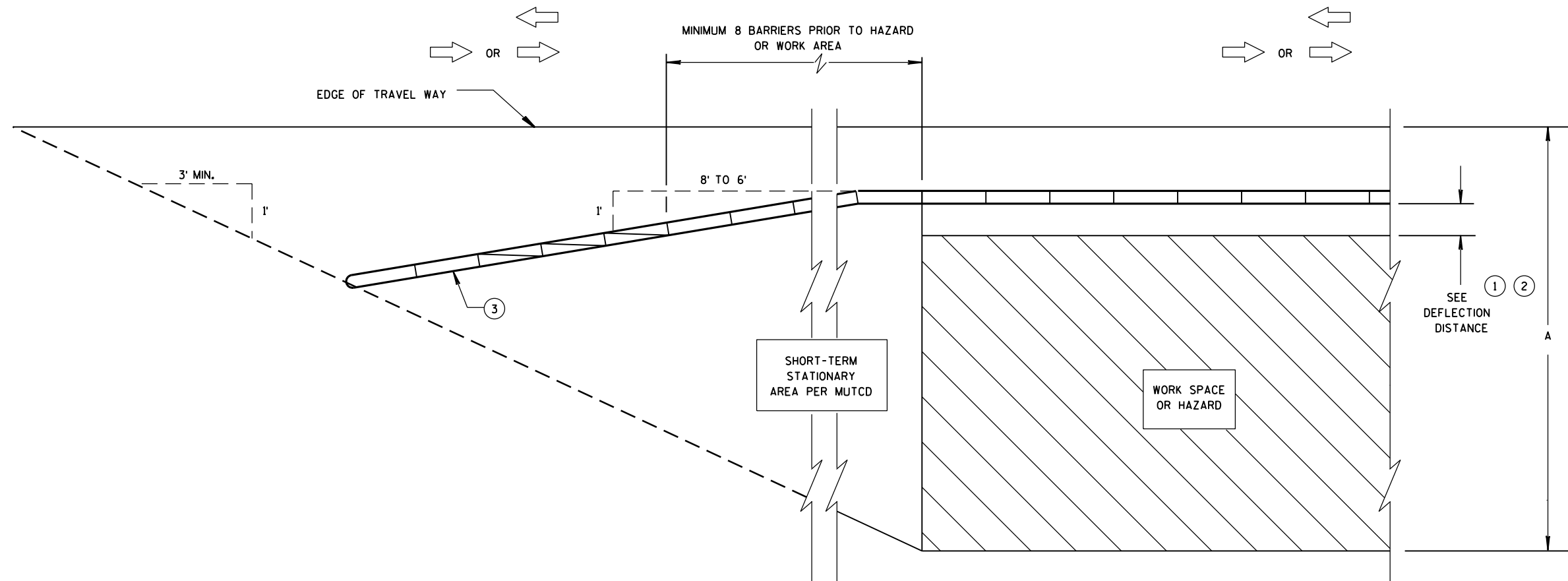
POSTED SPEEDS MPH	DIMENSION B FT
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645

LEGEND

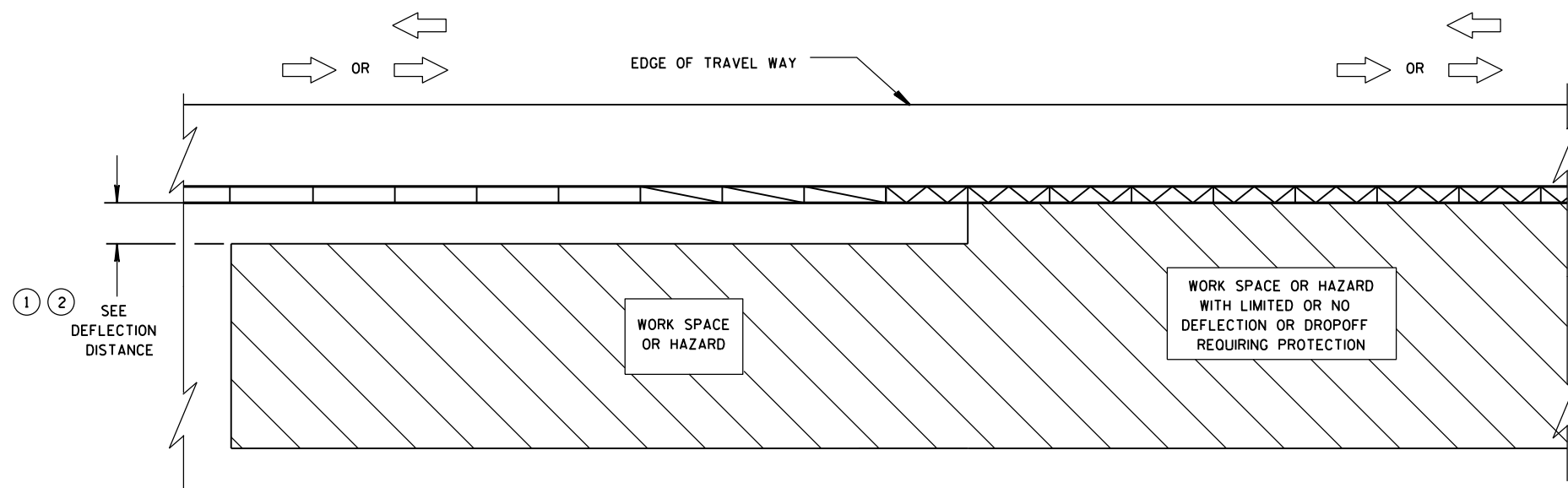
- DIRECTION OF TRAVEL →
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



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



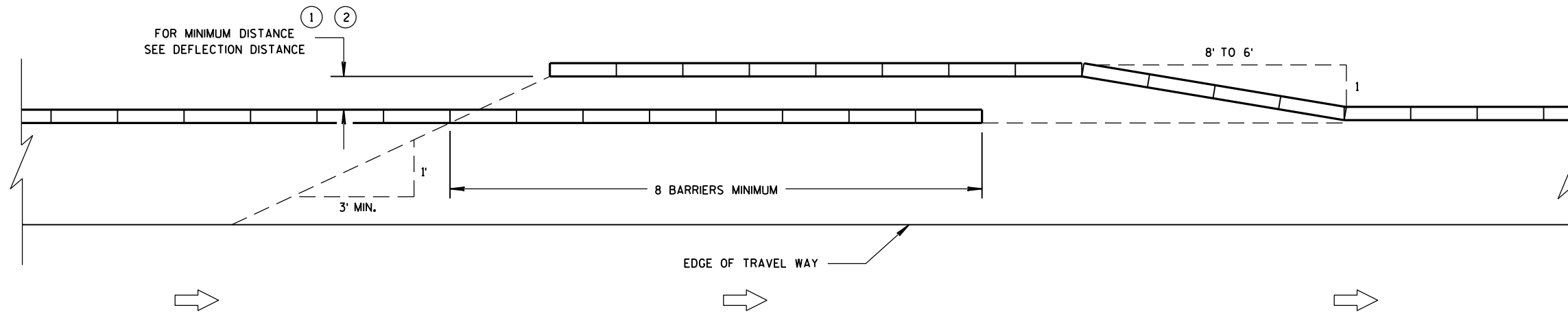
**TRANSITION FROM FREE STANDING TEMPORARY BARRIER
TO ANCHORED BARRIER**

LEGEND

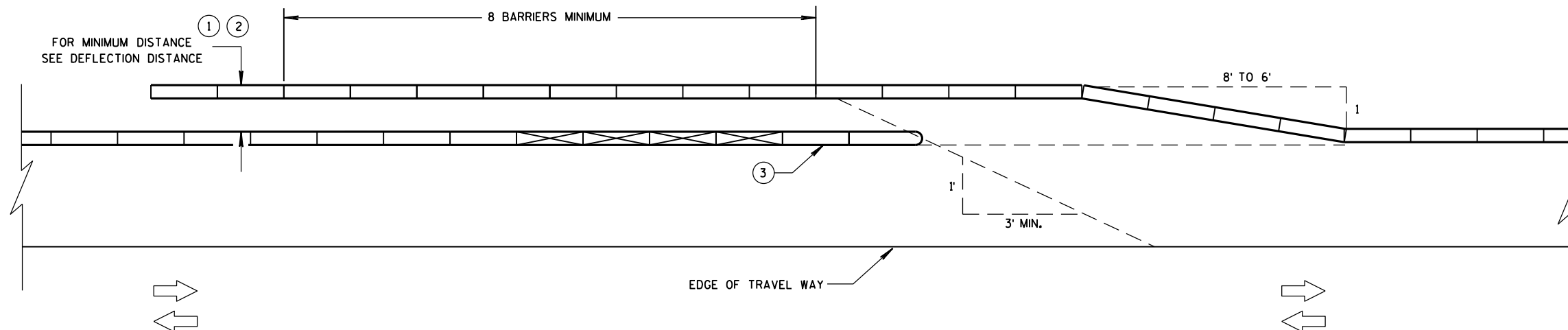
DIRECTION OF TRAVEL	
CRASH CUSHION OR SAND BARREL ARRAY	
SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS	
SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS	
3 PINS PLACED ON TRAFFIC SIDE OF BARRIER	
PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET	
FREE STANDING TEMPORARY BARRIER	

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

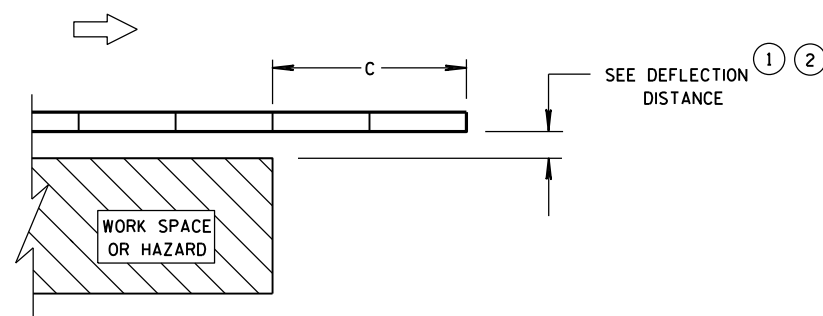
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



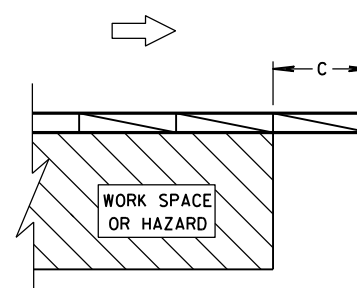
TEMPORARY BARRIER OVERLAP - ONE-WAY TRAFFIC



TEMPORARY BARRIER OVERLAP - TWO-WAY TRAFFIC



**ENDING TEMPORARY BARRIER
DOWNSTREAM - UNANCHORED**



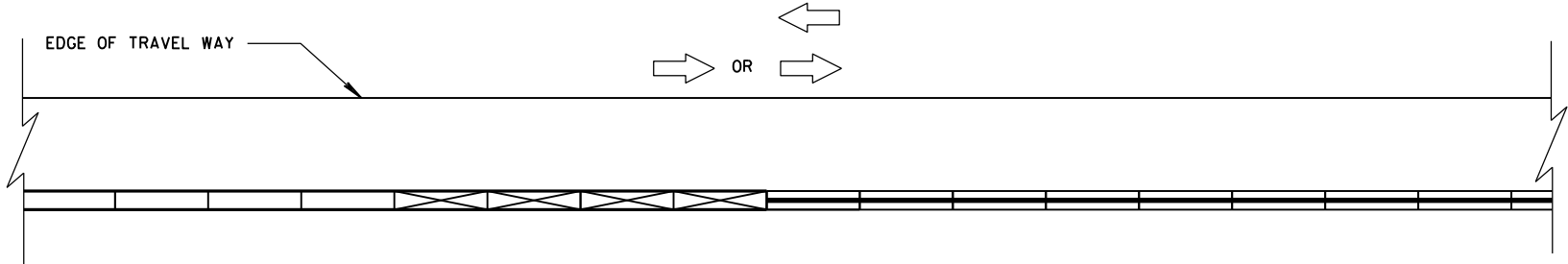
**ENDING TEMPORARY BARRIER
DOWNSTREAM - ANCHORED**

LEGEND

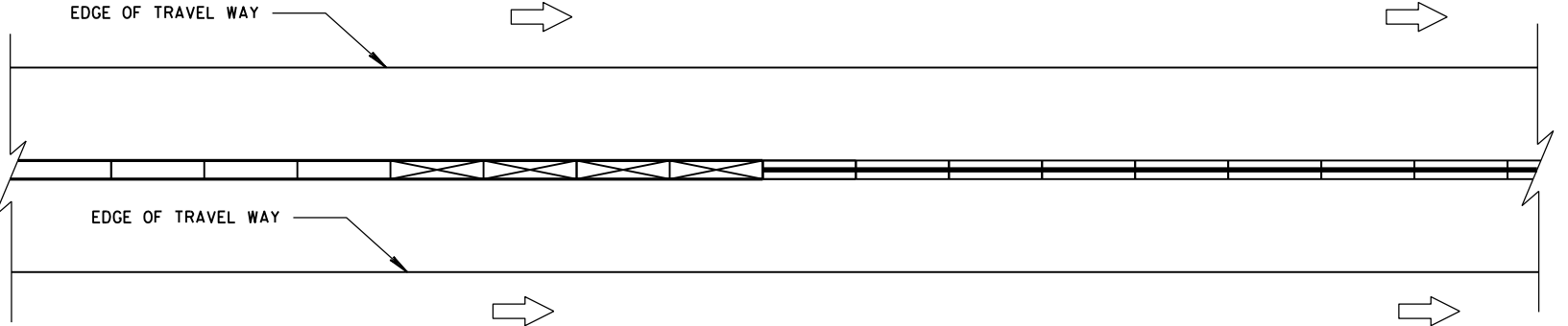
DIRECTION OF TRAVEL	
CRASH CUSHION OR SAND BARREL ARRAY	
SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS	
SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS	
3 PINS PLACED ON TRAFFIC SIDE OF BARRIER	
PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET	
FREE STANDING TEMPORARY BARRIER	

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

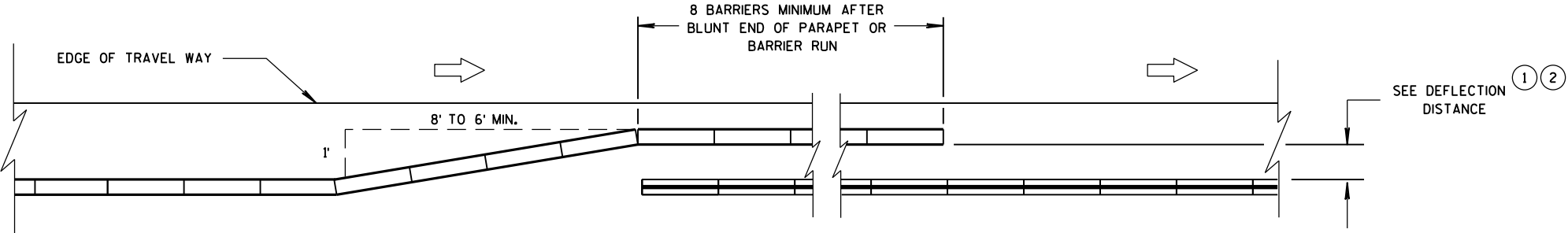


CONNECTING TEMPORARY BARRIER TO PERMANENT
CONCRETE BARRIER-TRAFFIC ON ONE SIDE

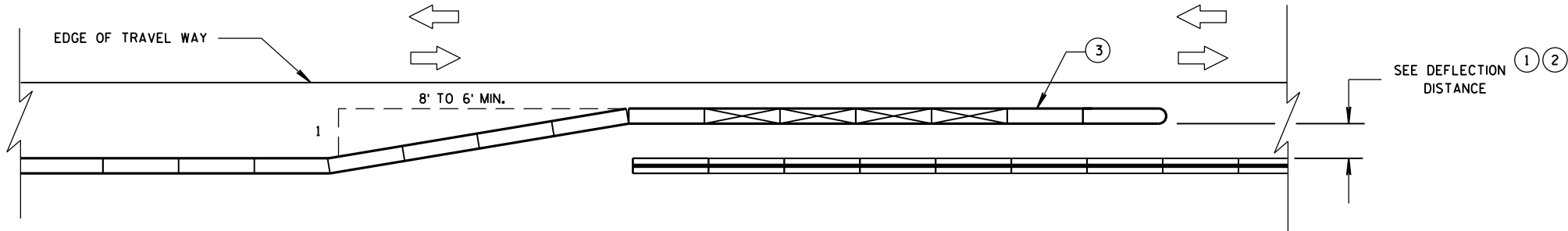


CONNECTING TEMPORARY BARRIER TO PERMANENT
CONCRETE BARRIER-TRAFFIC ON BOTH SIDES

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



OVERLAPPING TEMPORARY BARRIER AND PERMANENT BARRIER -
ONE WAY TRAFFIC



OVERLAPPING TEMPORARY BARRIER AND PERMANENT BARRIER -
TWO WAY TRAFFIC

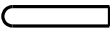
CRASH CUSHION/SAND BARREL
ARRAY AND OTHER TEMPORARY
BARRIER LAYOUT DETAILS

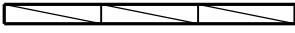
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

LEGEND

- DIRECTION OF TRAVEL

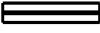

- CRASH CUSHION OR SAND BARREL ARRAY

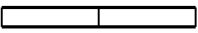

- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS


- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS


- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER


- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET


- FREE STANDING TEMPORARY BARRIER



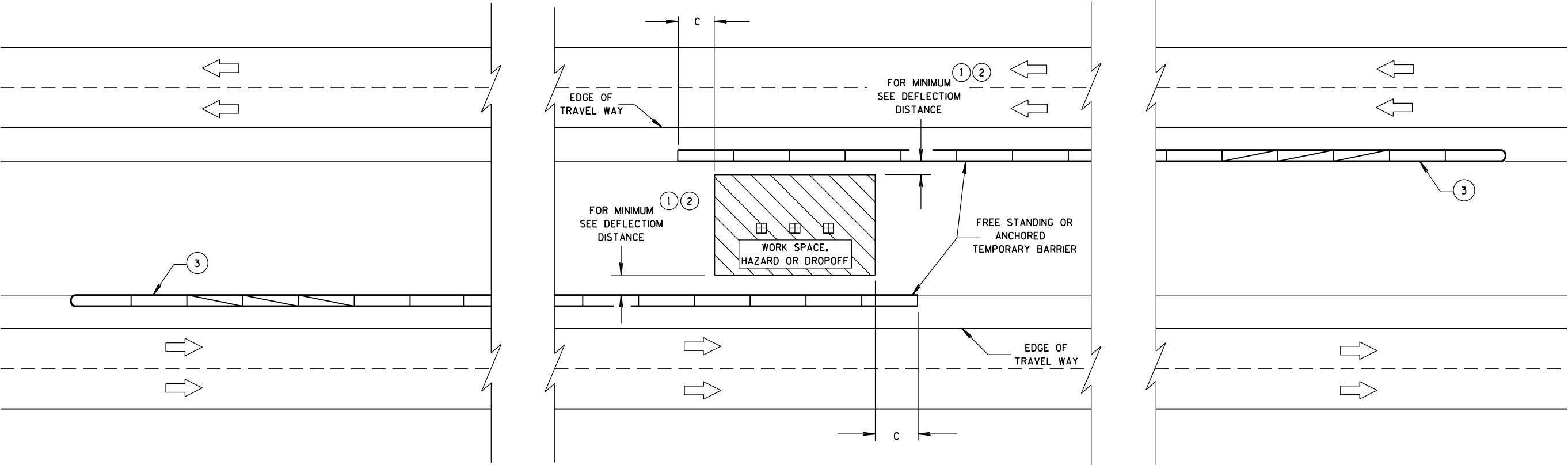
DIMENSION C TABLE

2

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

6

6



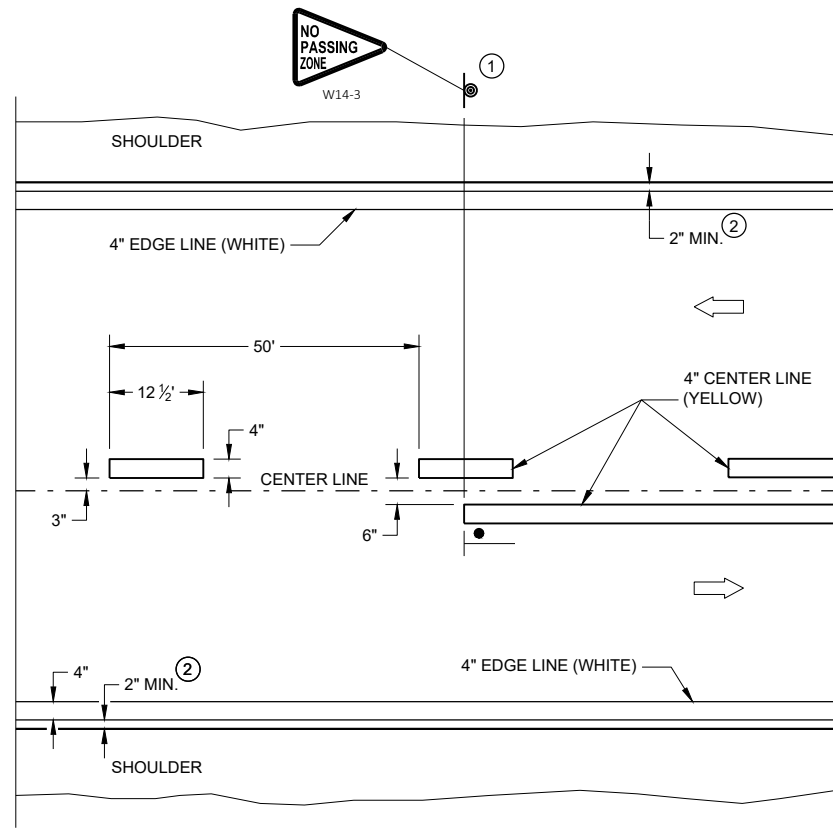
CRASH CUSHION/SAND BARREL
ARRAY AND OTHER TEMPORARY
BARRIER LAYOUT DETAILS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

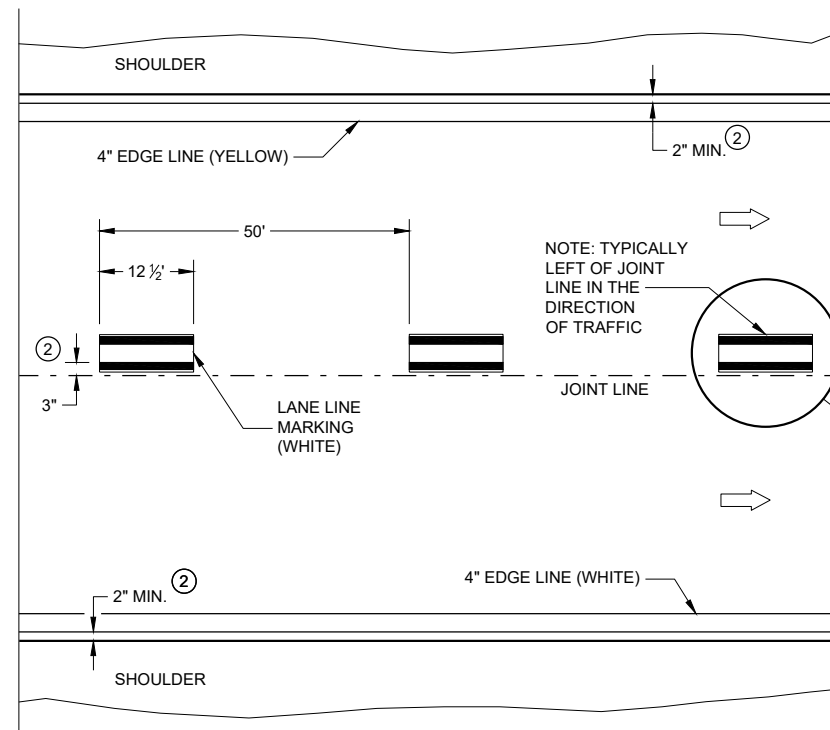
APPROVED
June, 2015 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA ENGINEER

S.D.D. 14 B 8-2e

S.D.D. 14 B 8-2e

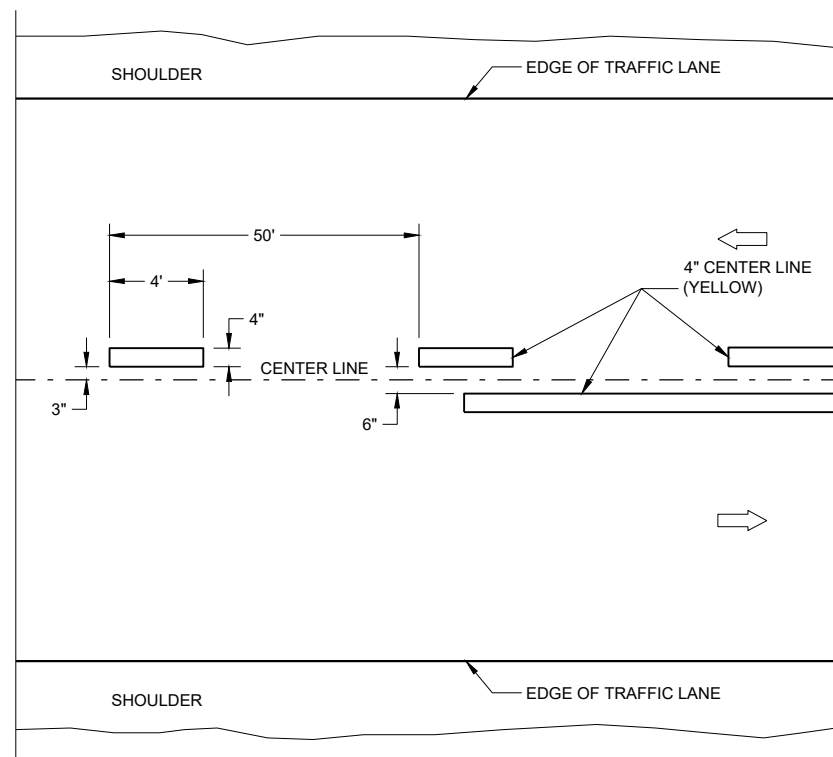


TWO WAY TRAFFIC

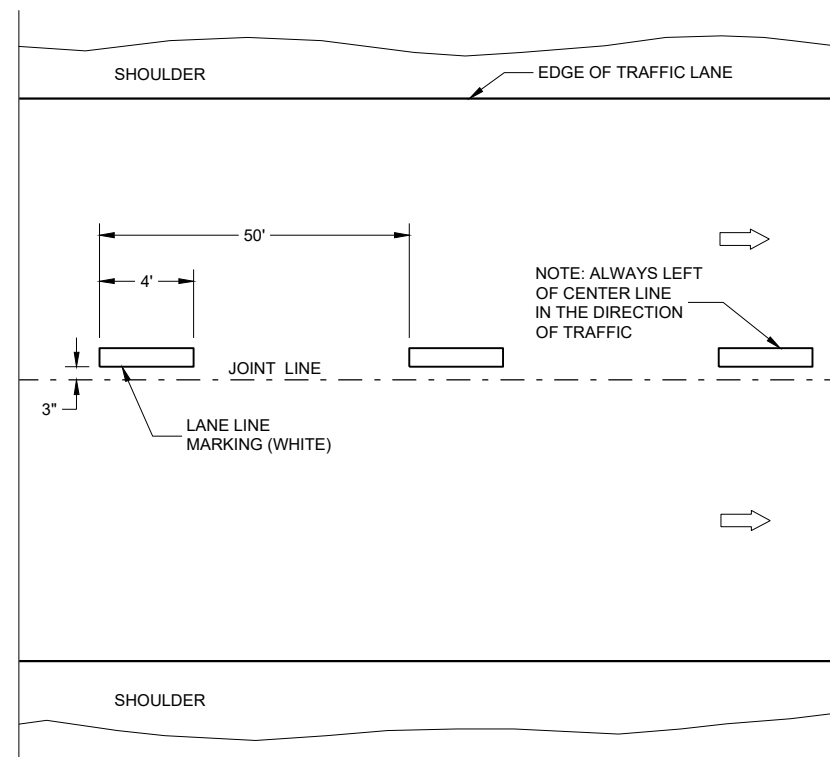


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

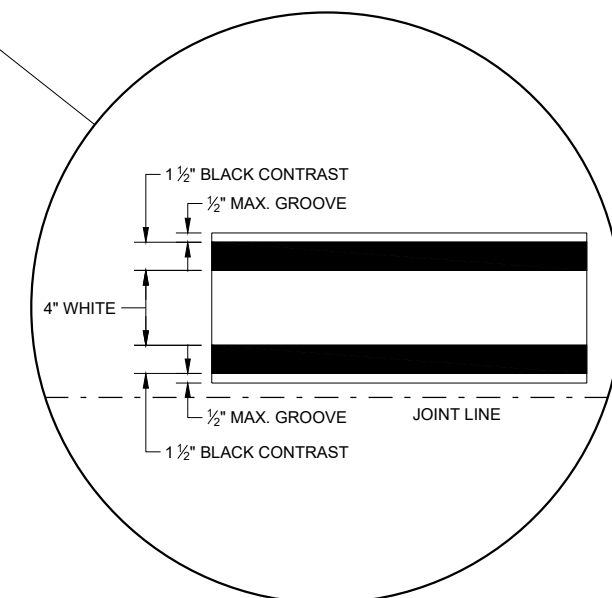
GENERAL NOTES

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 WITH 50 FEET OF THE "T" MARKING
- ② MEASURE FROM EDGE OF MARKING TO JOINT LINE. THIS DOES NOT INCLUDE SPACE NEEDED FOR GROOVING OPERATIONS.

LEGEND

-  "T" MARKING
 SIGN ON PERMANENT SUPPORT
 DIRECTION OF TRAFFIC

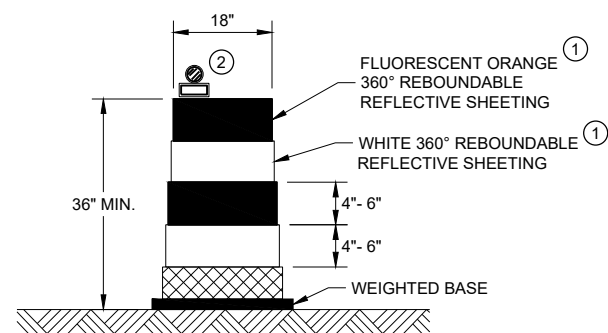
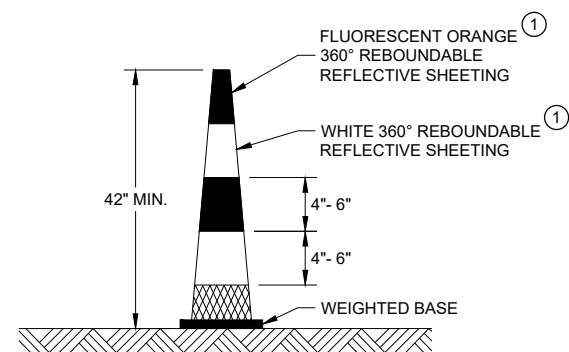


LONGITUDINAL MARKING (MAINLINE)

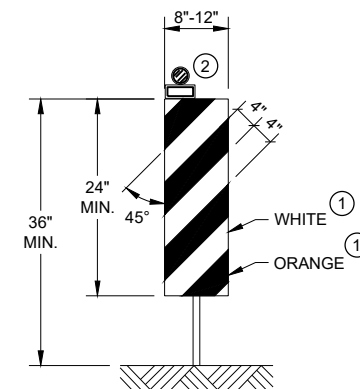
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020
DATE

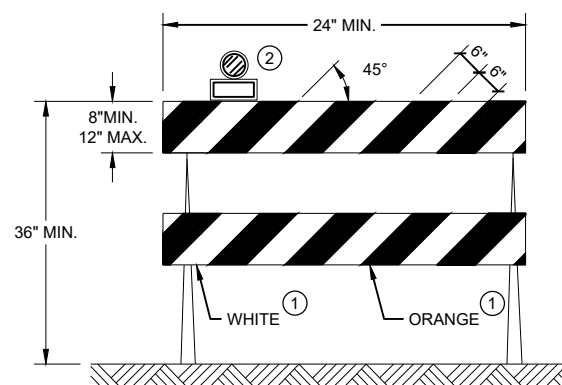
/S/ Matthew Rauch
STATEWIDE SIGNING AND MARKING
ENGINEER

**DRUM****42" CONE**

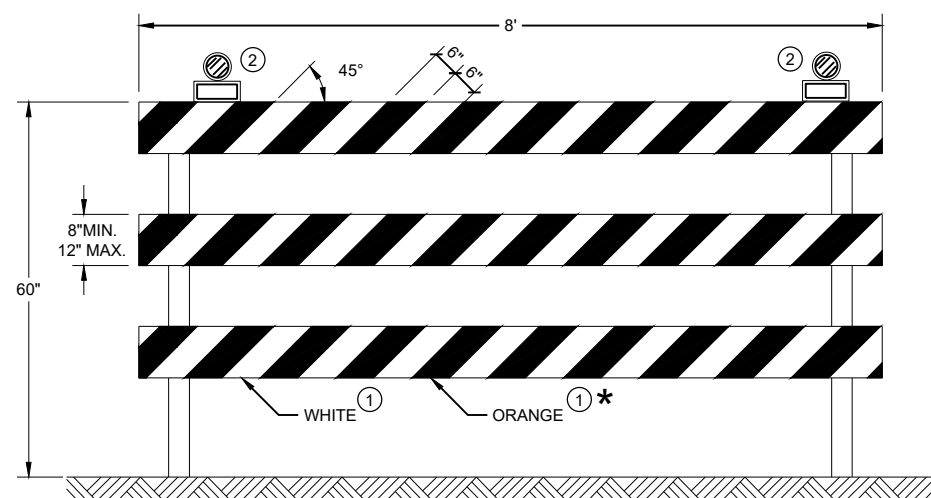
DO NOT USE IN TAPERS
 $\frac{1}{2}$ SPACING OF DRUMS

**VERTICAL PANEL**

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

**TYPE II BARRICADE**

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

**TYPE III 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.

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.

**CHANNELIZING DEVICES
 DRUMS, CONES, BARRICADES
 AND VERTICAL PANELS**

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

APPROVED
 November 2020 /S/ Andrew Heidtke
 DATE WORK ZONE ENGINEER
 FHWA

LEGEND

-  SIGN ON PORTABLE OR PERMANENT SUPPORT
-  TEMPORARY PORTABLE RUMBLE STRIP ARRAY
-  DIRECTION OF TRAFFIC
-  WORK AREA
-  FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED 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.

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

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

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

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

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

FLAGGING

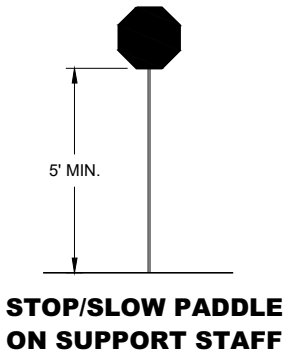
FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT REMOVE TEMPORARY PORTABLE RUMBLE STRIPS PRIOR TO COVERING OR REMOVING ALL ADVANCE SIGNING.

- ① FOR MOVING WORK OPERATIONS, POST ADDITIONAL W20-7A FLAGGER SIGNS AT APPROXIMATELY 3,500' 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.

WHEN THE DISTANCE BETWEEN FLAGGERS EXCEEDS 2 MILES, A PILOT CAR IS REQUIRED. WHEN CURVES REDUCE SIGHT DISTANCE BELOW 400', A PILOT CAR IS REQUIRED.

TEMPORARY PORTABLE RUMBLE STRIPS

- UTILIZE TEMPORARY PORTABLE RUMBLE STRIPS ON ALL FLAGGING OPERATIONS.
- ③ EACH TEMPORARY PORTABLE RUMBLE STRIP ARRAY CONSISTS OF THREE RUMBLE STRIPS SPACED ACCORDING TO MANUFACTURER'S RECOMMENDATION, PLACED TRANSVERSE ACROSS THE LANE AT LOCATIONS SHOWN.
- ONLY USE TEMPORARY PORTABLE RUMBLE STRIPS FOR THE APPROVED PRODUCTS LIST.
- INSTALL TEMPORARY RUMBLE STRIPS PER MANUFACTURER'S RECOMMENDATIONS.
- PLACE ADVANCE SIGNING PRIOR TO INSTALLING TEMPORARY RUMBLE STRIPS.
- DO NOT INSTALL TEMPORARY PORTABLE RUMBLE STRIPS ON GRAVEL, MILLED SURFACES, OR ASPHALT THAT HAS BEEN PAVED LESS THAN 12 HOURS.

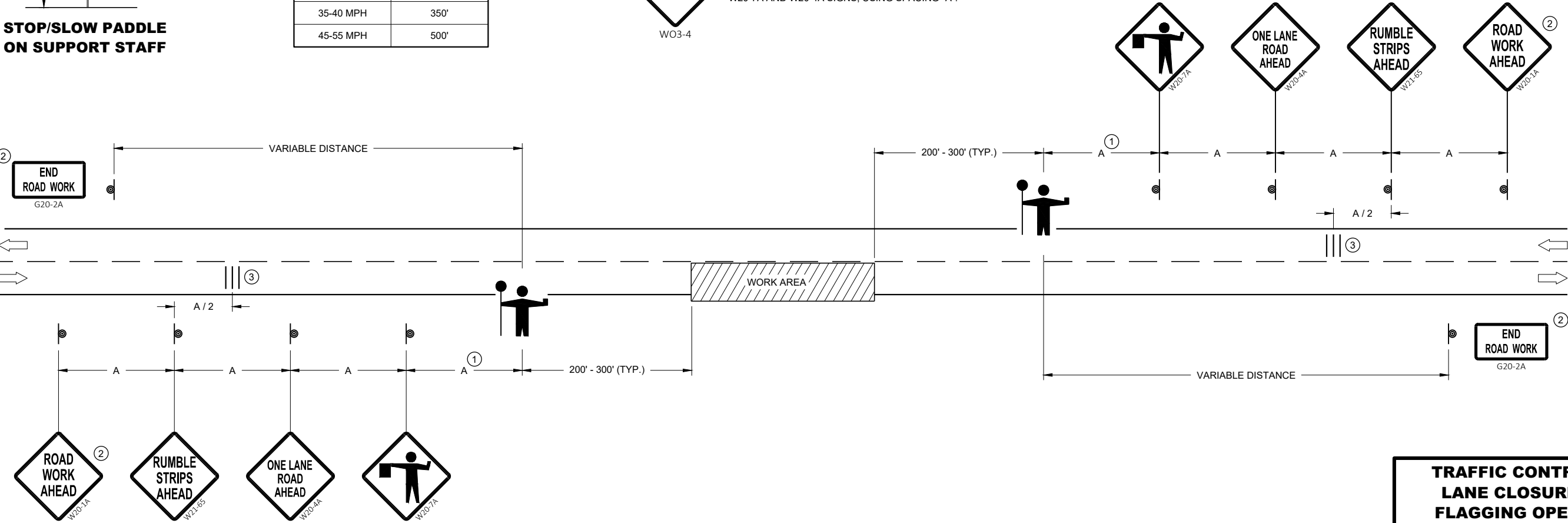


SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

SPEED LIMIT	SPACING "A"
25-30 MPH	200'
35-40 MPH	350'
45-55 MPH	500'



USE OF W03-4 SIGN IS OPTIONAL. WHEN USED, THIS SIGN SHALL BE LOCATED BETWEEN THE W20-7A AND W20-4A SIGNS, USING SPACING "A".



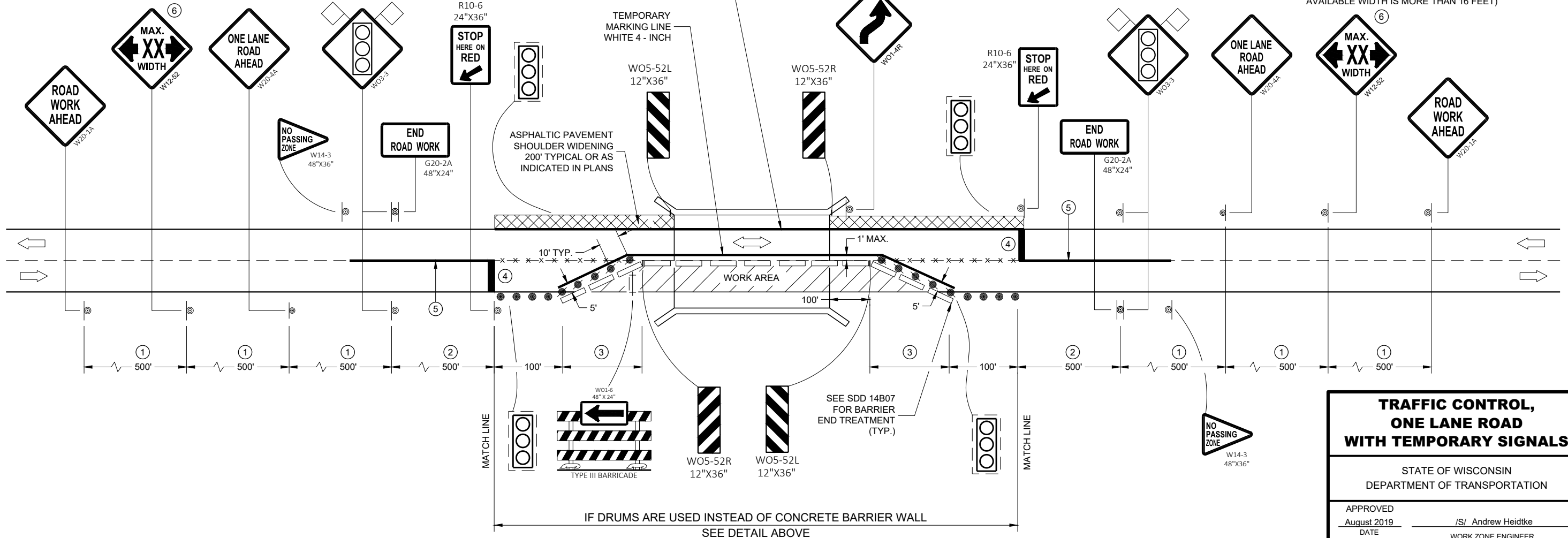
TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2019 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	

LEGEND

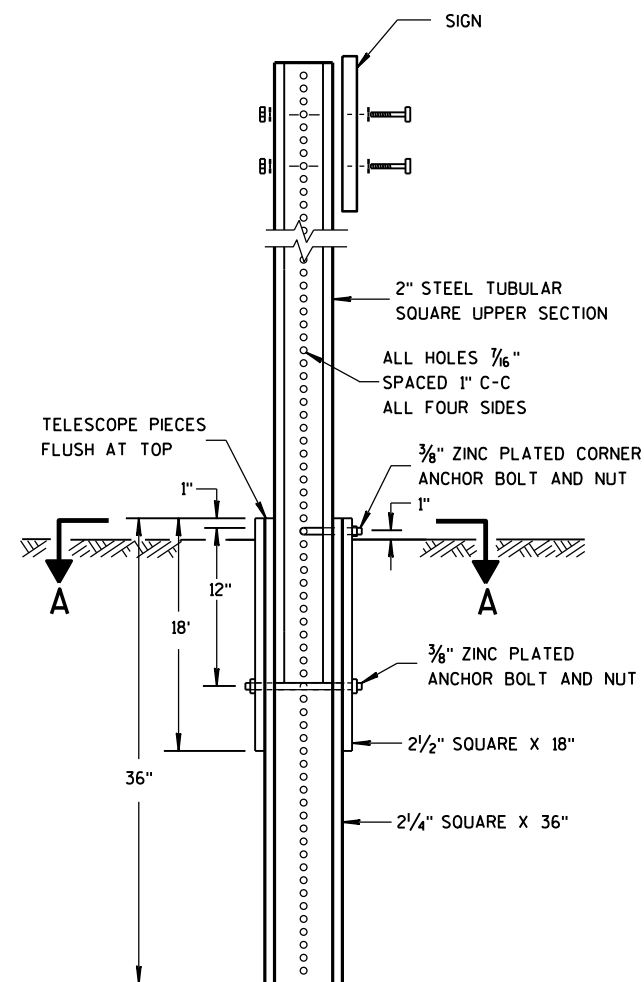
- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TRAFFIC CONTROL DRUM
- FLAGS, 16" X 16" MIN. (ORANGE)
- REMOVING PAVEMENT MARKING
- DIRECTION OF TRAFFIC
- ASPHALTIC PAVEMENT WIDENING
- CONCRETE BARRIER TEMPORARY PRECAST
- TEMPORARY SIGNAL. SEE SDD 09G02 FOR EXACT PLACEMENT

WIDTH ON SIGN TO BE APPROX. 1-FOOT LESS THAN AVAILABLE WIDTH. (OMIT IF AVAILABLE WIDTH IS MORE THAN 16 FEET)



GENERAL NOTES

- THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.
- THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE..
- THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE - REVERSE FOR CLOSING LEFT LANE.
- ALL SIGNS ARE 48" x 48" UNLESS OTHERWISE NOTED.
- "WO" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.
- ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED OR AS APPROVED BY THE ENGINEER.
- PLACE TEMPORARY PAVEMENT MARKING EDGELINE AND CENTERLINE AND REMOVE EXISTING PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE 4 OR MORE CONTINUOUS DAYS AND NIGHTS OR AS NOTED ON DETAIL.
- 500 FOOT SPACING SHOWN IS FOR ROADWAYS WITH A PRE-CONSTRUCTION REGULATORY SPEED LIMIT OF 45 MPH OR MORE. FOR 35 - 40 MPH, USE 350 FOOT TYPICAL SPACING. FOR 25 - 30 MPH, USE 200 FOOT TYPICAL SPACING.
 - USE 300 FOOT SPACING IF THE PRE - CONSTRUCTION REGULATORY SPEED IS 35 MPH OR LESS.
 - DIMENSION DETERMINED BY CBTP TAPER FROM EDGE LINE TO TANGENT SECTION OF THE ROAD.
 - TEMPORARY MARKING STOP LINE REMOVABLE TAPE 18 - INCH.
 - 700 FOOT TEMPORARY MARKING LINE, DOUBLE YELLOW 4 - INCH . WHEN THE DISTANCE FOR THE PRECEDING NO - PASSING ZONE IS LESS THAN THE MINIMUM DISTANCE BETWEEN ZONES AS INDICATED IN THE SPECIFICATIONS, THE TWO ZONES SHALL BE CONNECTED.
 - SEE SDD 15C02 - SHEET "F" FOR ADVANCED WIDTH RESTRICTION SIGNING.

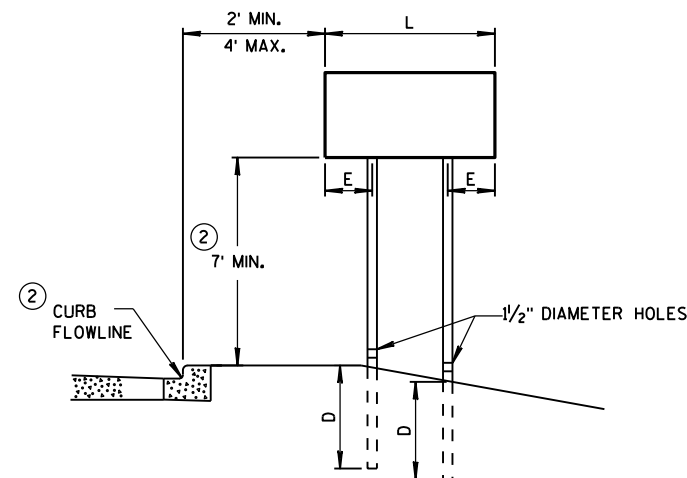
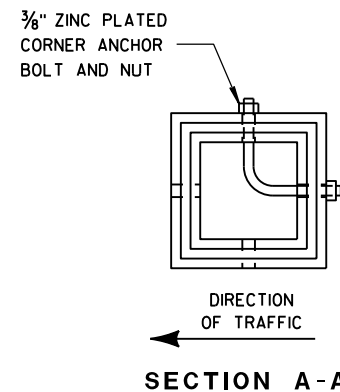


DETAIL OF TUBULAR
STEEL SIGN POST

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

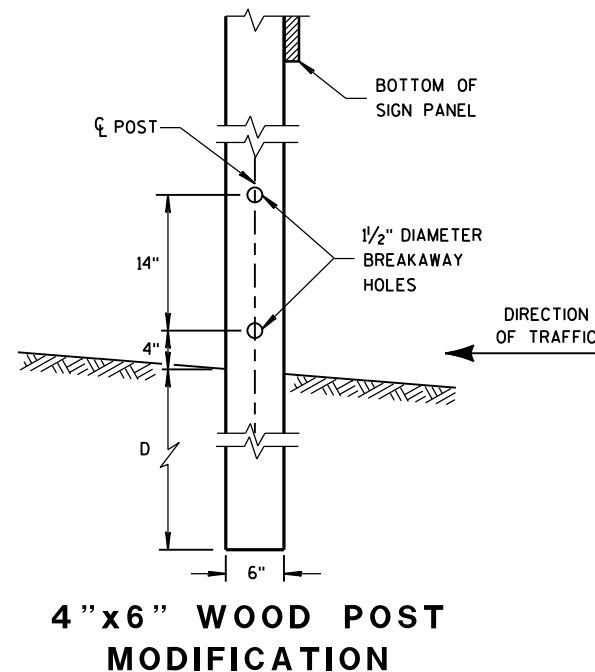
SIGNS WIDER THAN 3 FEET OR LARGER THAN 9 SQ. FT. SHALL
BE MOUNTED ON MULTIPLE POSTS (SEE ABOVE TABLE).
SIGNS LARGER THAN 27 SQ. FT. SHALL NOT BE MOUNTED
ON TUBULAR STEEL POSTS.



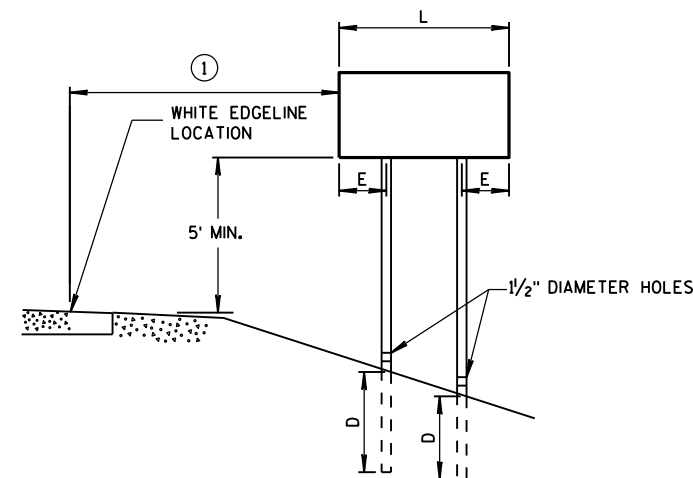
URBAN AREA

POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

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



4 "x6 " WOOD POST
MODIFICATION



RURAL AREA

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

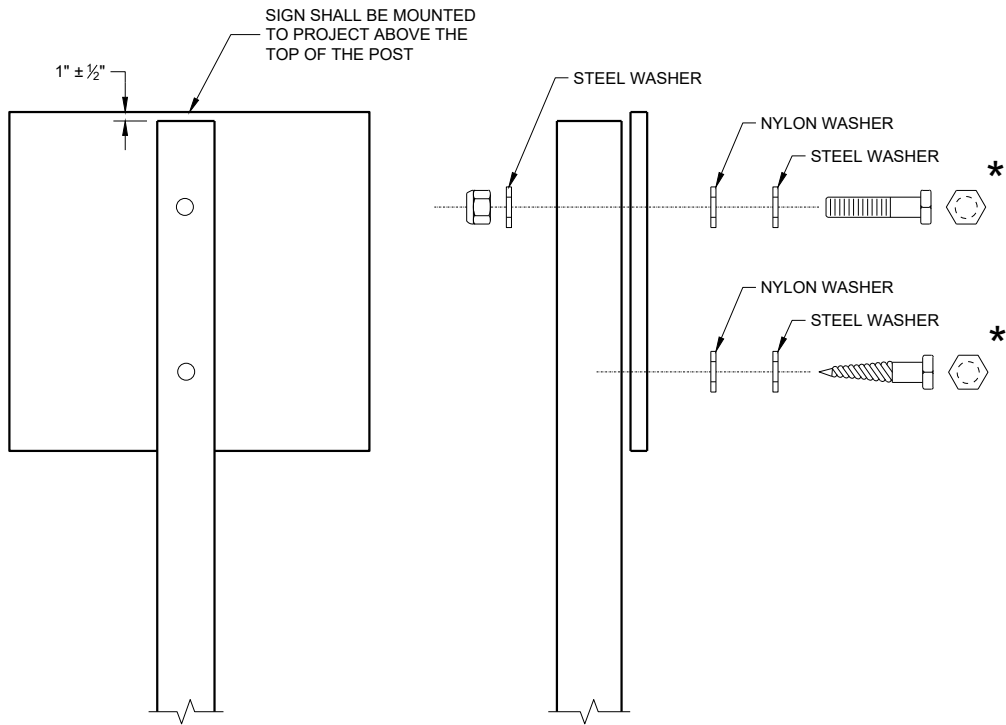
SEE NOTE ③

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.

TEMPORARY TRAFFIC CONTROL
SIGN MOUNTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



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 POST (4" x 6")
LAG SCREWS - ¾" x 3"
MACHINE BOLTS - ⅝" x 6 ½" OR 7" LENGTH W/NUTS

SQUARE STEEL POST (2" x 2")
MACHINE BOLTS - ¾" x 3 ¼" LENGTH W/NUTS
RIVETS - ⅝" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM
BODY/MANDREL O.D. FLANGE 0.720 - 0.765 INCH,
GRIP RANGE 0.042 - 0.375 INCH

WASHERS (ALL POSTS) -
1 ¼" O.D. x ⅜" I.D. x ⅛" STEEL
1 ¼" O.D. x ⅜" I.D. x 0.080 NYLON

* 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.

ATTACHMENT OF SIGNS
TO POSTS

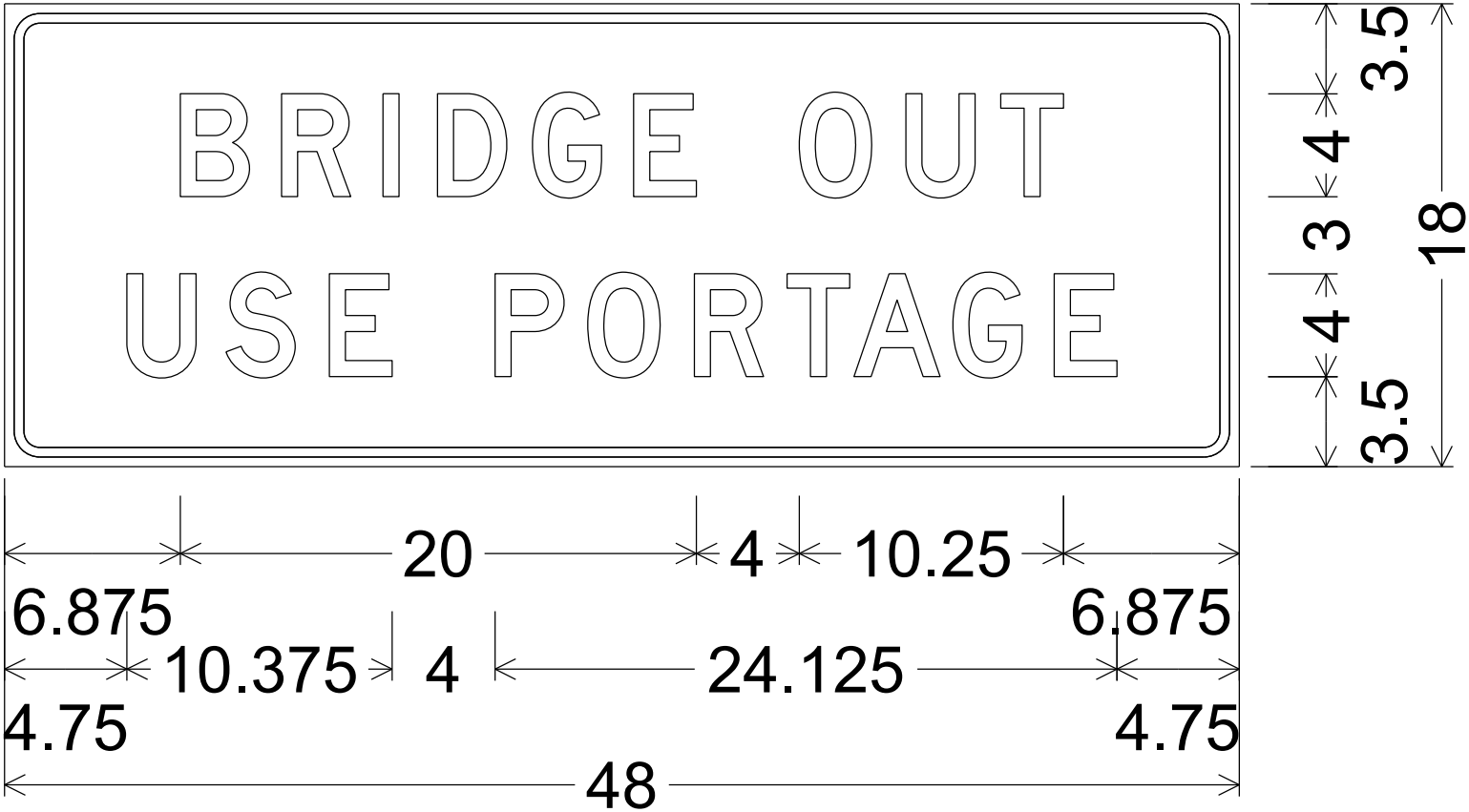
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA

NOTES

- 1. Fixed Message Type II Sign - Type F Reflective
- 2. Color:
 - Background - Orange
 - Message - Black
- 3. Message Series - D

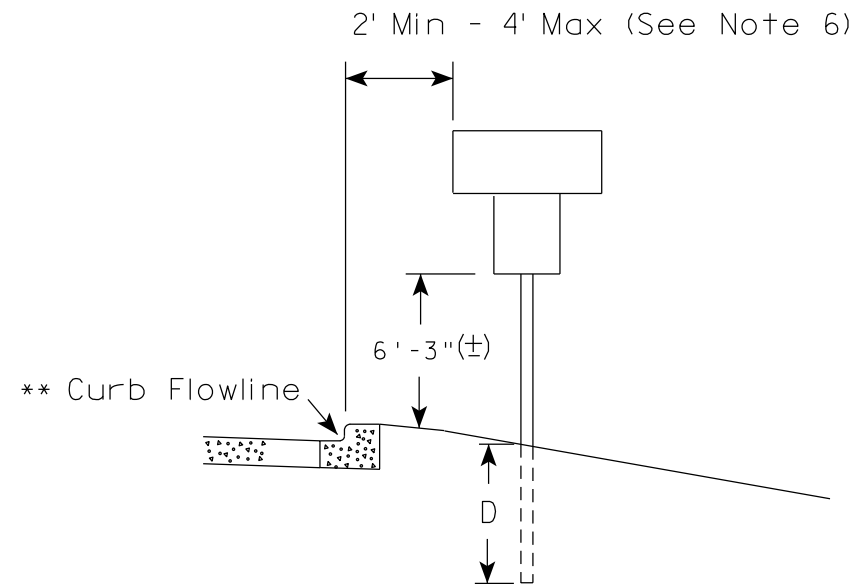
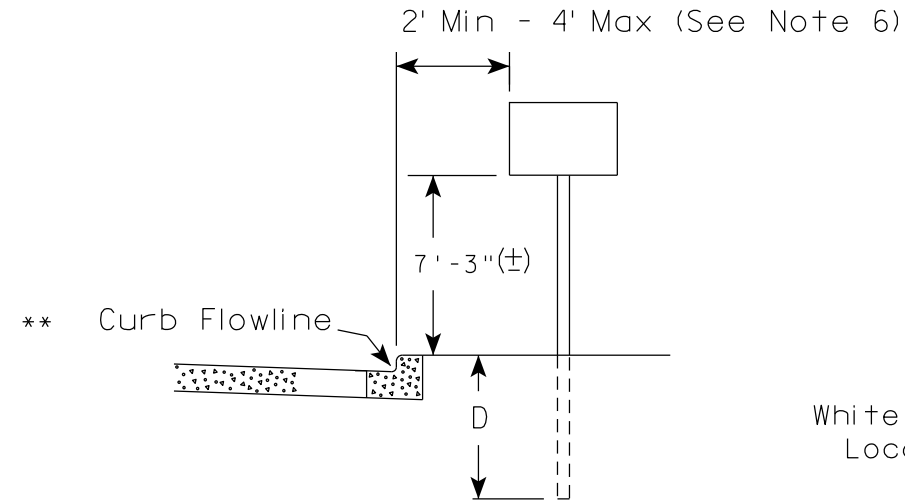


1.375" Radius, 0.375" Border, 0.375" Indent

7

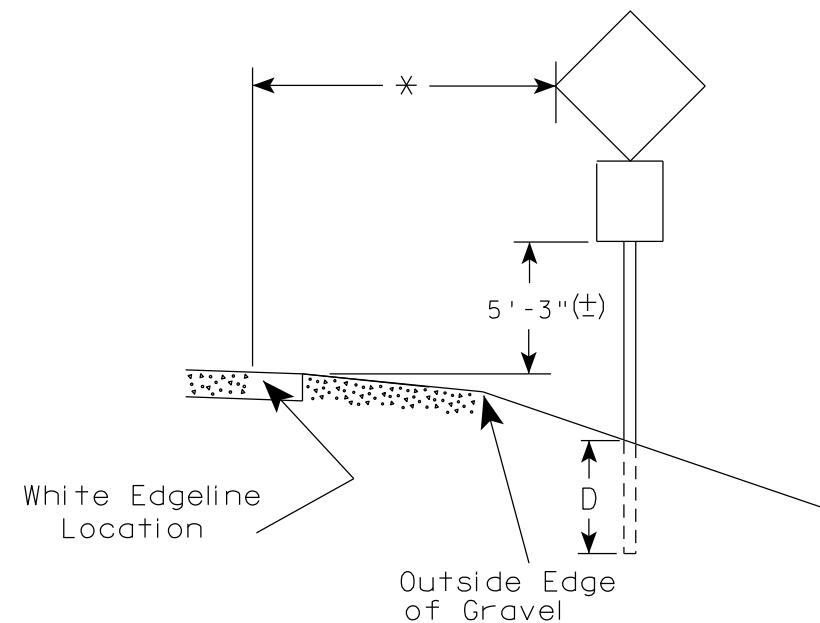
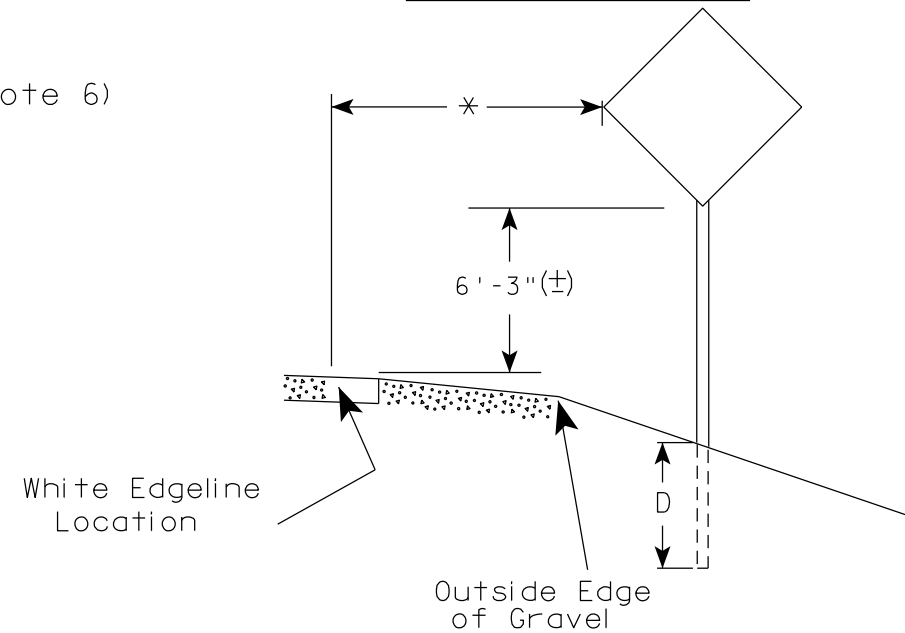
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URBAN AREA



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

RURAL AREA (See Note 2)



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

POST EMBEDMENT DEPTH

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

GENERAL NOTES

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

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 5/13/2020 PLATE NO. A4-3.22

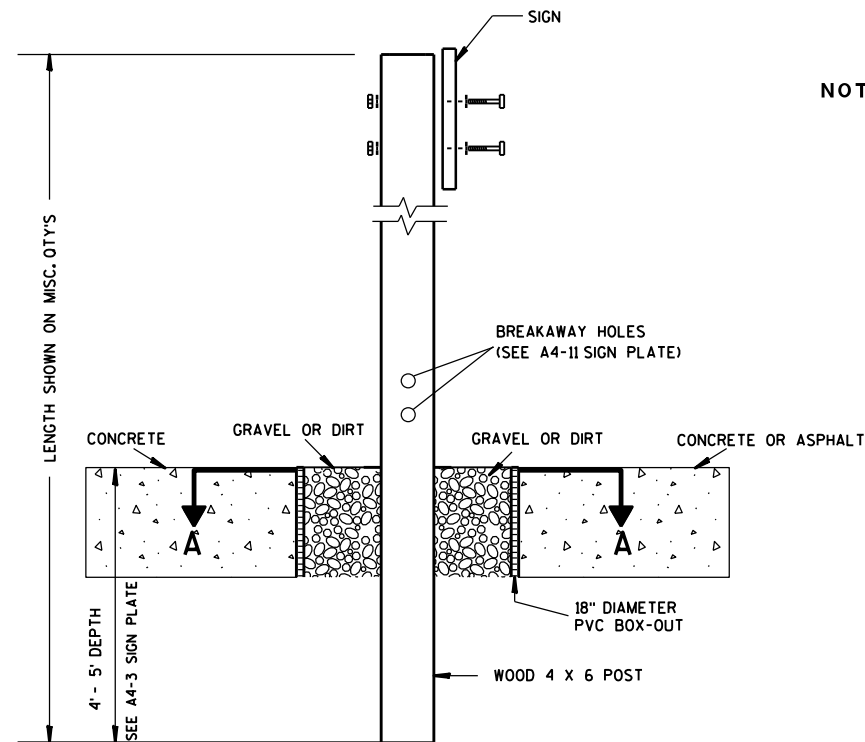
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

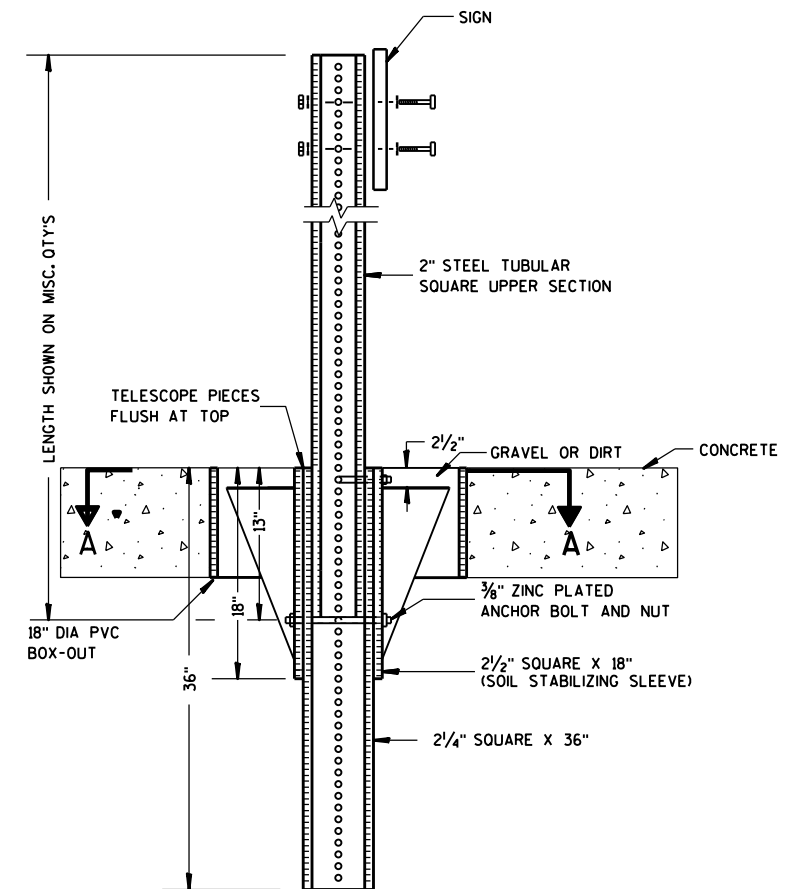
E



ELEVATION VIEW

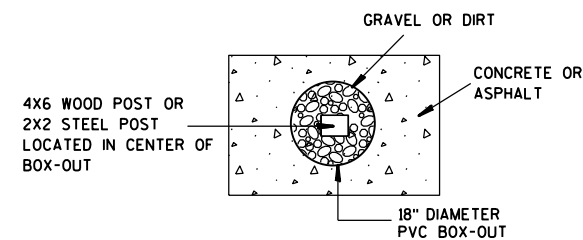
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

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



ELEVATION VIEW

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



PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST
BOX-OUTS
A4-3B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

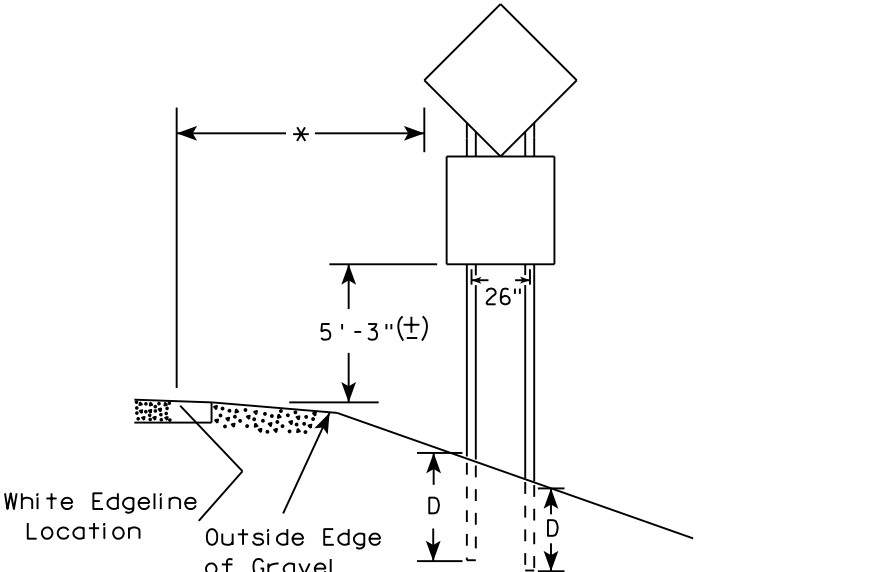
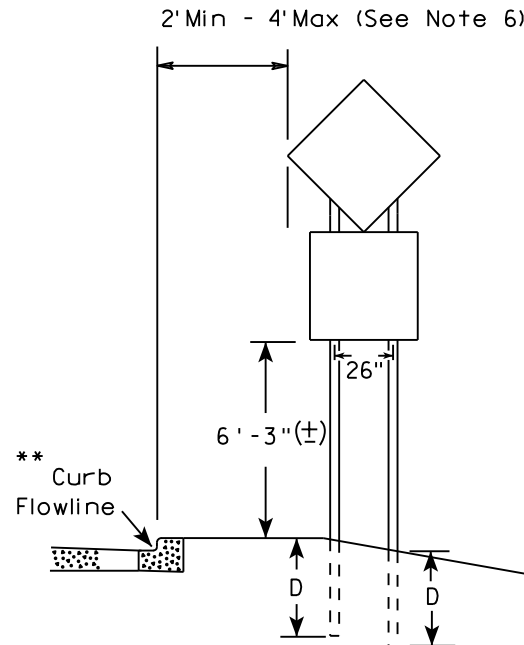
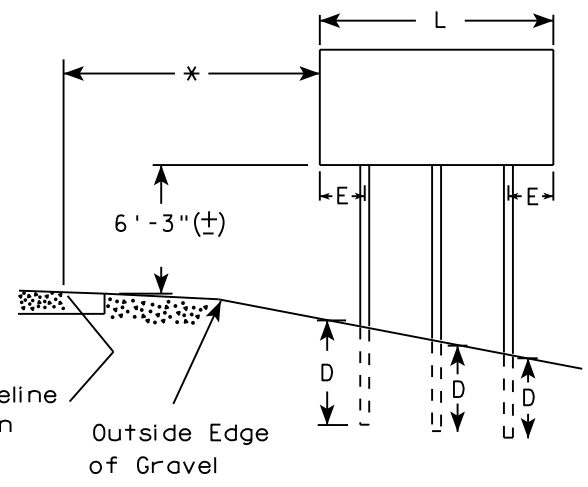
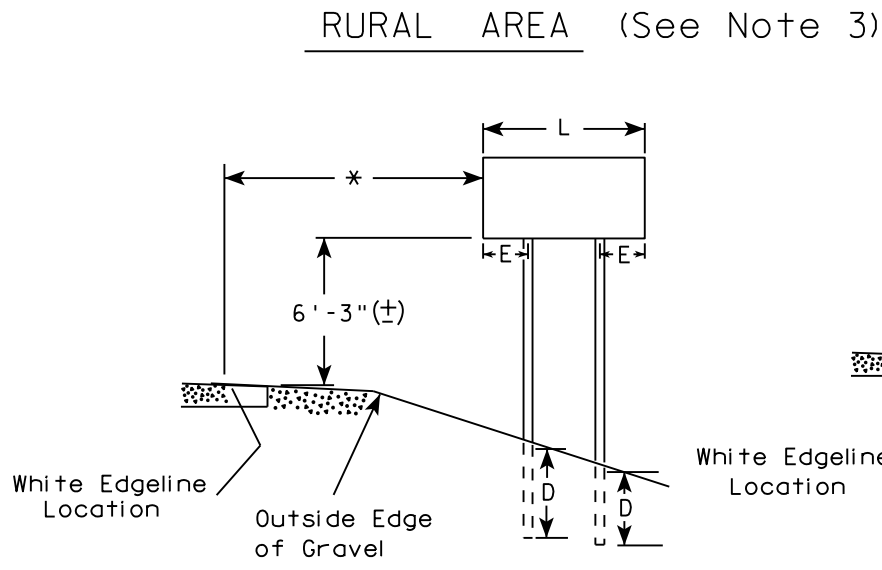
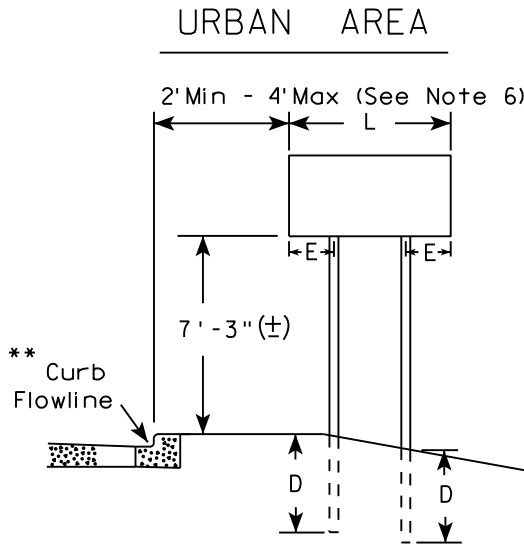
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



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

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

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

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

SIGN SHAPE OTHER THAN DIAMOND (TWO POSTS REQUIRED)	
L	E
Greater than 48" Less than 60"	12"
60" to 108"	L/5

SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 108" to 144"	12"

POST EMBEDMENT DEPTH

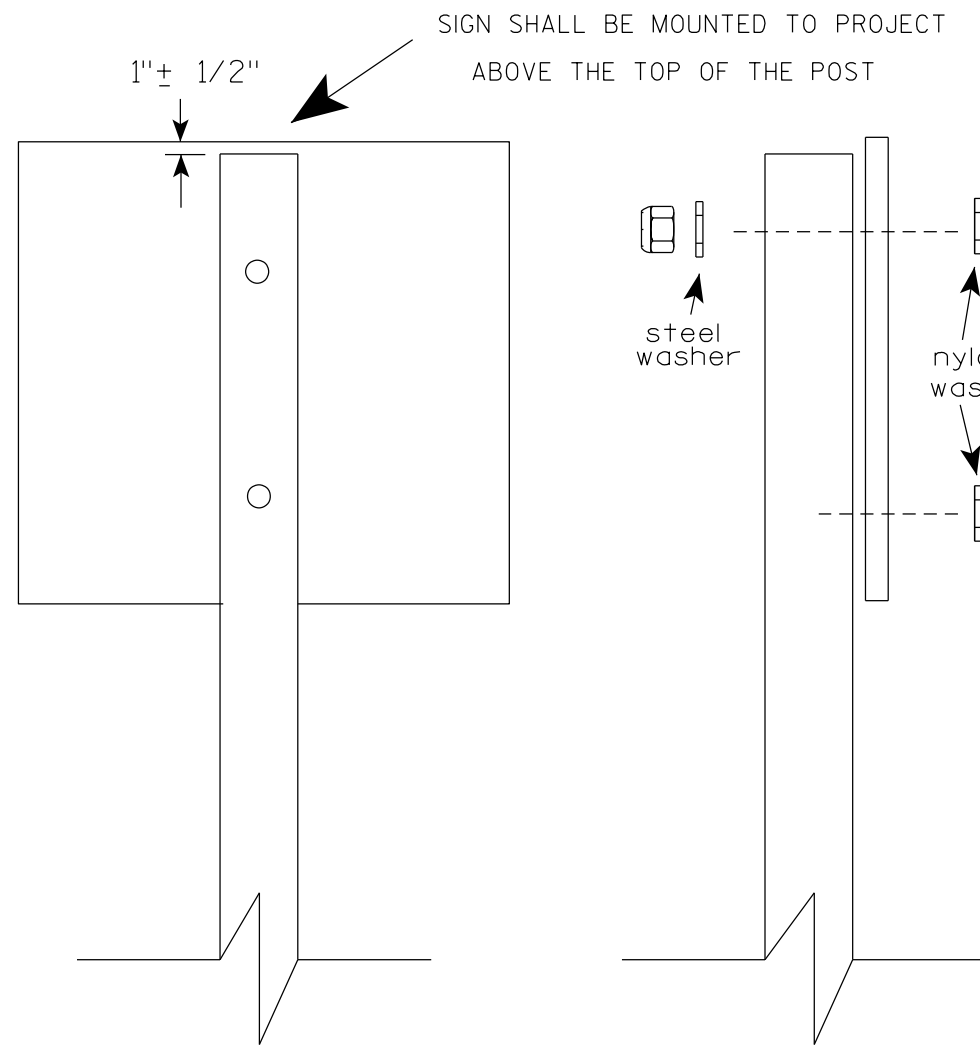
Area of Sign Installation (Sq. Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

TYPICAL INSTALLATION
OF TYPE II SIGNS
ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 8/21/17 PLATE NO. A4-4.15



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.

- STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)
- MACHINE BOLTS - $\frac{5}{16}$ " X 1-3/4" Length w/ lock nuts
- WOOD POSTS (4" x 6")
- LAG SCREWS - $\frac{3}{8}$ " X 3" (NO STRINGERS ON BACK OF SIGN)
 $\frac{3}{8}$ " X 4" (STRINGERS ON BACK OF SIGN)
- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS - $\frac{3}{8}$ " X 3-1/4" Length w/ nuts (NO STRINGER ON BACK OF SIGN)
 $\frac{3}{8}$ " X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)
- RIVETS - $\frac{9}{32}$ " (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 $\frac{3}{8}$ " I.D. X $\frac{1}{16}$ " STEEL
 - 1-1/4" O.D. X $\frac{3}{8}$ " I.D. X .080 NYLON

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

ATTACHMENT OF SIGNS TO POSTS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 4/1/2020	PLATE NO. A4-8.9

**2 1/4 " SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH**

4" x 10" x 10 GA. —→
STEEL PLATE (CUT
AS SHOWN) WELDED
TO ALL FOUR CORNERS
OF TELESPAR TUBE

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

2 1/2" TELES PAR TUBE

4" x 10" x 10 GA. STEEL PLATE (CUT AS SHOWN) WELDED TO ALL FOUR CORNERS OF TELES PAR TUBE

4"

2 1/2"

10"

3 1/2"

16"

TELESCOPE PIECES
FLUSH AT TOP

18" DIA SCHEDULE
40 PVC
BOX-OUT

36"

13"

18"

2 1/2" GRAVEL OR DIRT

3/8" ZINC PLATED CORNER
ANCHOR BOLT AND NUT

2 1/2" SQUARE X 18"
(SOIL STABILIZING SLEEVE)

2 1/4" SQUARE X 36"

2" STEEL TUBULAR
SQUARE UPPER SECTION

ALL HOLES 7/16"
SPACED 1" C-C
ALL FOUR SIDES

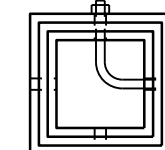
SEE SIGN PLATE
A4-8 FOR BOLT
WASHER, & NUT
MATERIAL

SIGN

TECHNICAL DRAWING OF A SIGNPOST ASSEMBLY:

- Dimensions:**
 - Overall height: LENGTH SHOWN ON MISC. Q'TYS
 - Section A-A: 36" (total), 18" (upper), 12" (lower)
 - Section B-B: 1"
- Components:**
 - SIGN
 - SEE SIGN PLATE A4-8 FOR BOLT WASHER, & NUT MATERIAL
 - 2" STEEL TUBULAR SQUARE UPPER SECTION
 - ALL HOLES $\frac{7}{16}$ " SPACED 1" C-C
 - ALL FOUR SIDES
 - $\frac{3}{8}$ " ZINC PLATED CORNER ANCHOR BOLT AND NUT
 - $\frac{3}{8}$ " ZINC PLATED ANCHOR BOLT AND NUT
 - 2 1/2" SQUARE X 18" (SOIL STABILIZING SLEEVE)
 - 2 1/4" SQUARE X 36"
 - TELESCOPE PIECES FLUSH AT TOP

3/8" ZINC PLATED CORNER
ANCHOR BOLT AND NUT



DIRECTION
OF TRAFFIC

SECTION A-A

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

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

TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R. Rauch

for State Traffic Engineer

DATE 2/05/15 PLATE NO. A4-9.9

PROJECT NO:

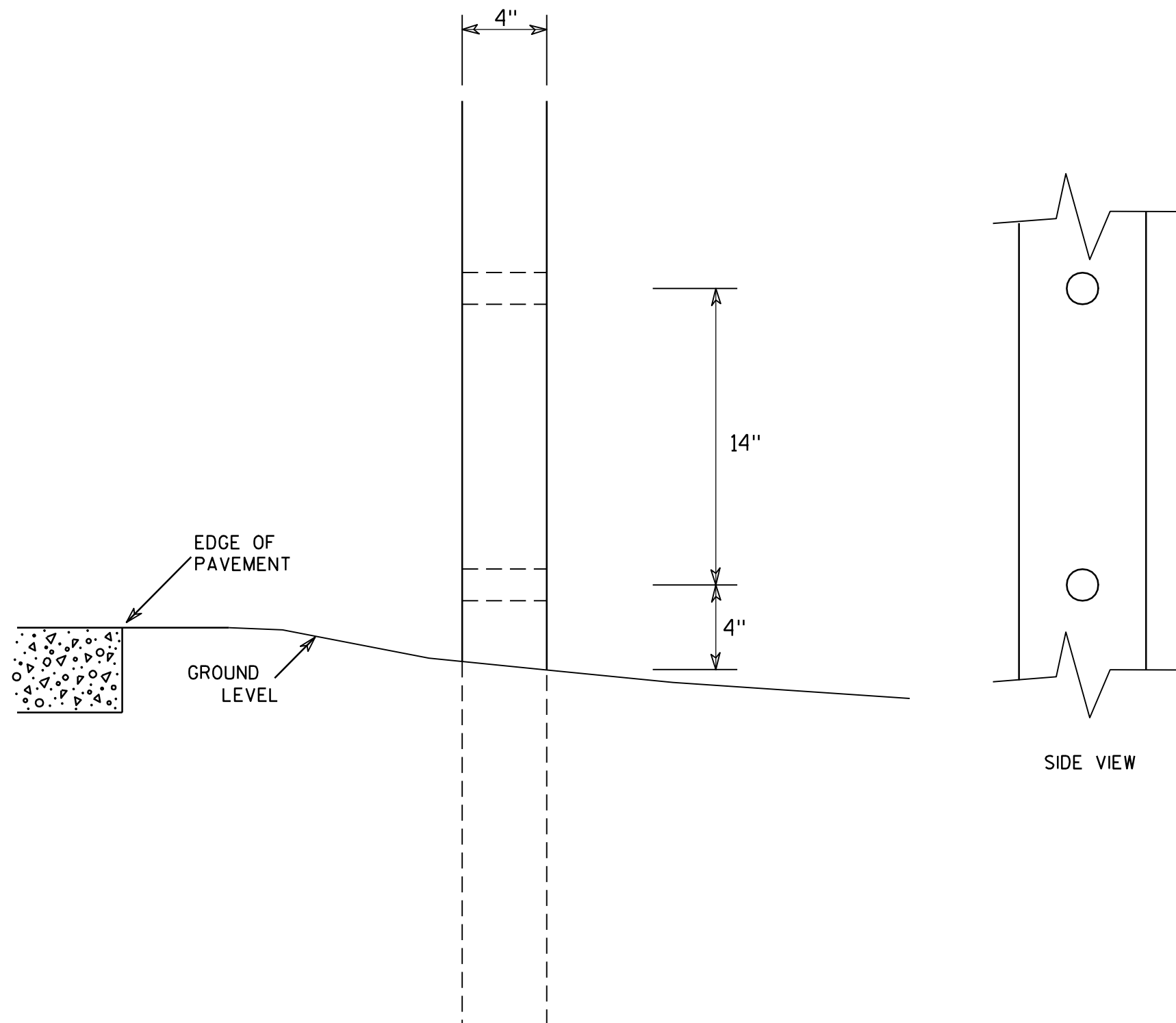
HWY:

COUNTY:

SHEET NO:

1

7



GENERAL NOTES

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

7

4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Chester J. Spang
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

PROJECT NO:

HWY:

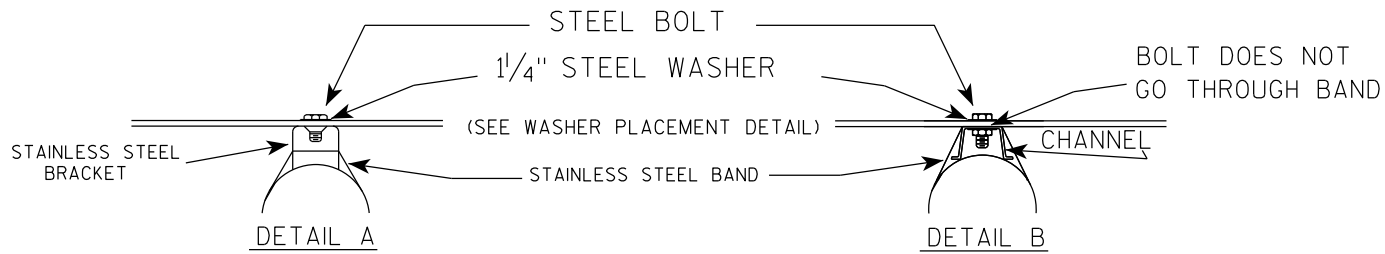
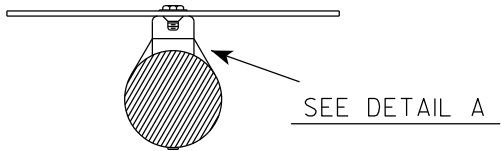
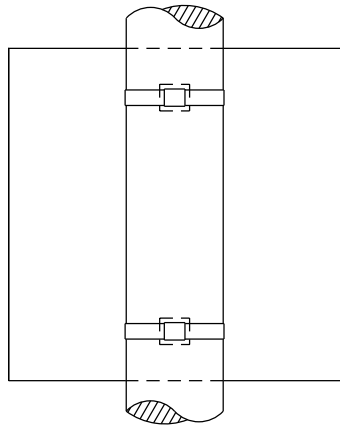
COUNTY:

SHEET NO:

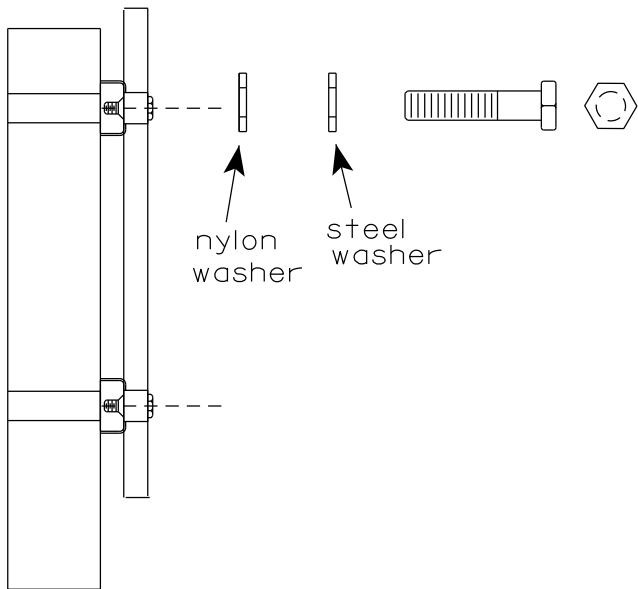
E

BANDING

SINGLE SIGN



WASHER PLACEMENT

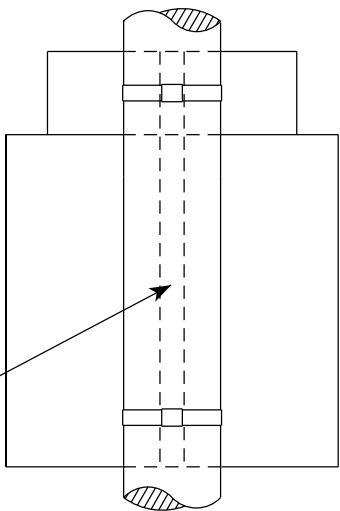


WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON
FOR ALL TYPE H SIGNS

GENERAL NOTES

1. Any sign over 3 feet in width shall use the V-Block banding method. See A5-10 standard plate.
2. Signs 3 feet or greater in height shall have three bracket bands installed. Signs less than 3 feet in height shall have two bracket bands installed.
3. Banding and assembly bracket shall be stainless steel. All bands shall be 3/4" in width and 0.025" thickness.
4. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
 - a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D
 - b. Electro-galvanized in accordance with ASTM designation: B 633, Type III, SC 3

"J" ASSEMBLY



SEE DETAIL B

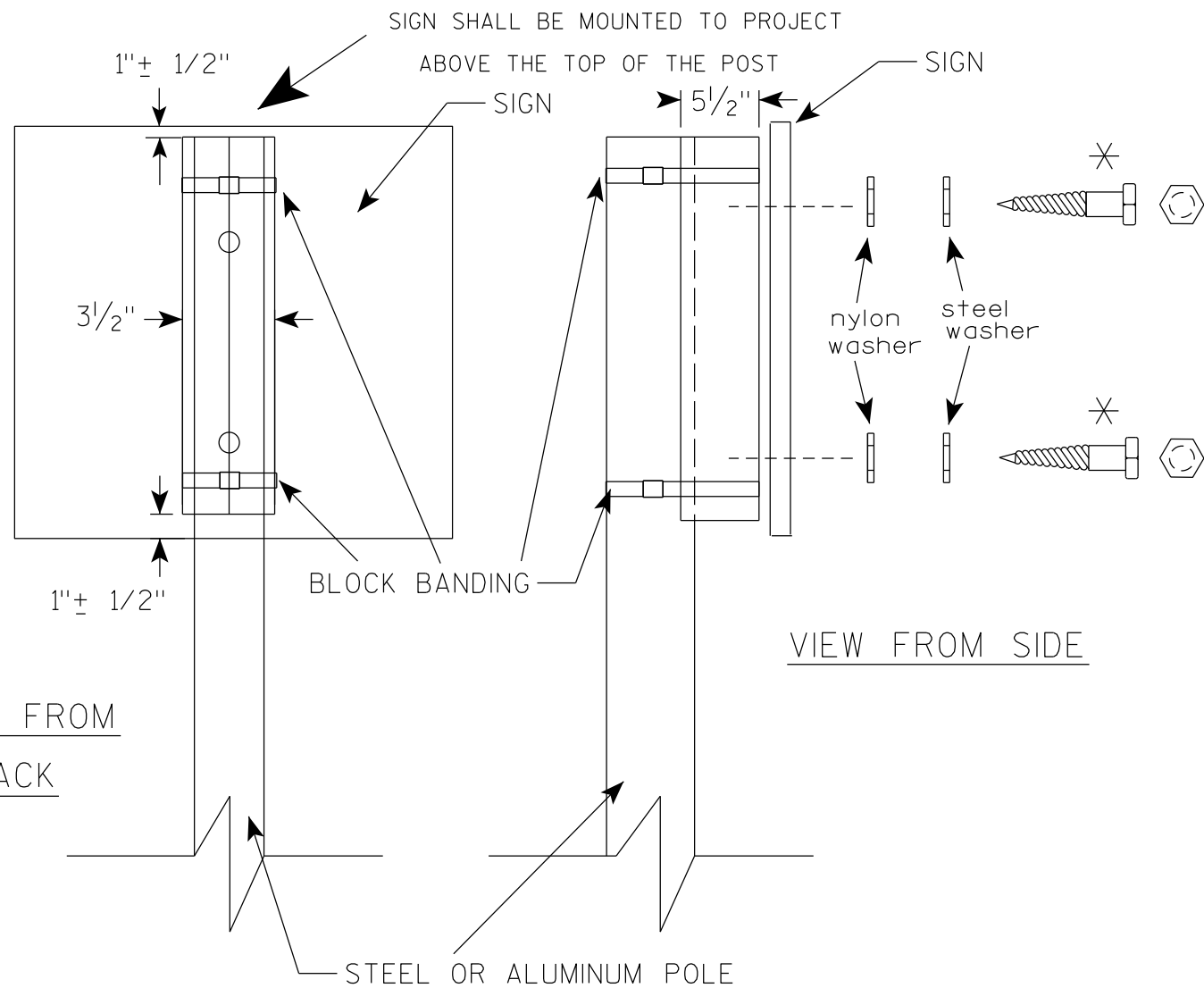
STANDARD SIGN
SIGN BANDING DETAILS

WISCONSIN DEPT OF TRANSPORTATION

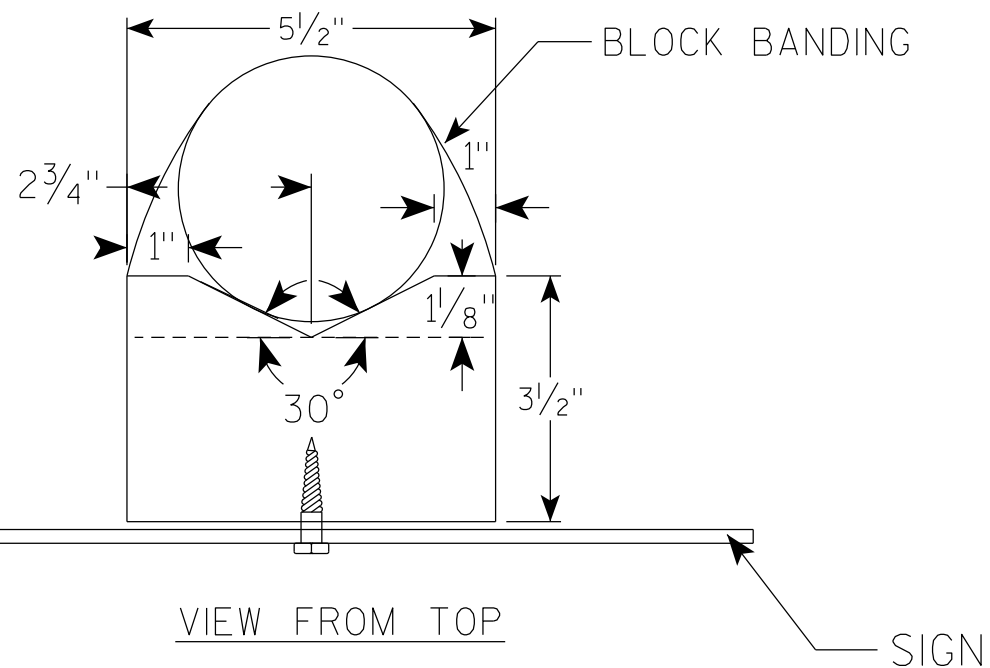
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 6/10/19 PLATE NO. A5-9.4

VIEW FROM
BACK



VIEW FROM SIDE



GENERAL NOTES

1. WOOD 4"X6" POST MATERIAL SHALL CONFORM TO 507.2.2 OF THE WisDOT STANDARD SPECIFICATIONS
2. BLOCK BANDING AND CLIPS SHALL BE STAINLESS STEEL, $\frac{3}{4}$ " WIDTH AND 0.025" THICKNESS
3. SIGNS 3' OR GREATER IN HEIGHT SHALL UTILIZE 3 BLOCK BANDS. SIGNS UNDER 3' IN HEIGHT SHALL UTILIZE 2 BLOCK BANDS
4. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA, BUT NORMALLY THERE ARE TWO. FOR SIGNS GREATER THAN 9 S.F. 3 FASTENERS SHALL BE USED.
5. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
 - a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D
 - b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3
6. ALL BOLTS SHALL HAVE HEXAGONAL HEADS.
7. STEEL WASHERS SHALL BE $1\frac{1}{4}$ " O.D. X $\frac{3}{8}$ " I.D. X $\frac{1}{16}$ "
8. NYLON WASHERS SHALL BE $1\frac{1}{4}$ " O.D. X $\frac{3}{8}$ " I.D. X .080 FOR TYPE H OR TYPE F FACE SIGN

✱ LAG BOLTS SHALL BE $\frac{3}{8}$ " X $2\frac{1}{2}$ "

BLOCK BANDING DETAIL
(V-BLOCK OPTION)

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

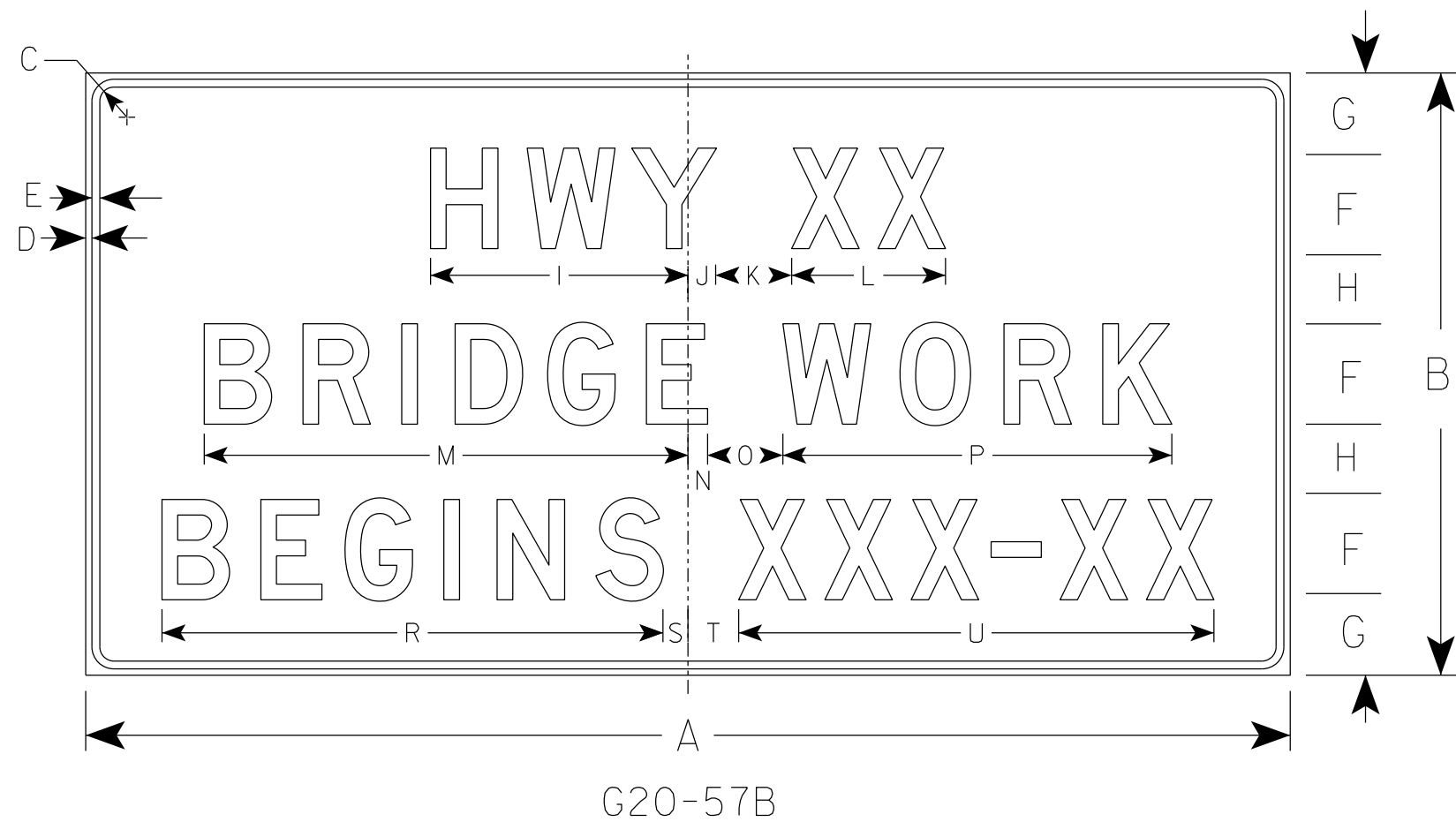
DATE 6/10/19 PLATE NO. A5-10.2

PROJECT NO:

SHEET NO:

E

7



NOTES

1. Sign is Type II - Type F Reflective
2. Color:
Background - Orange
Message - Black
3. Message Series - D
4. Substitute appropriate numeral and adjust spacing to achieve proper balance.

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2																											
3	72	36	1 1/8	1/2	5/8	6	5	4	15 5/8	1 5/8	5	9 1/4	29 1/8	7/8	5	23 1/4		29 7/8	1 3/4	3 1/4	28 1/2					18.0	
4	96	48	2 1/4	3/4	1	8	6 1/2	5 1/2	20 5/8	2 1/4	6	12 1/4	38 1/2	1 1/2	6	31		39 1/4	2	4	37 7/8					32.0	
5																											

PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E

STANDARD SIGN
G20-57B

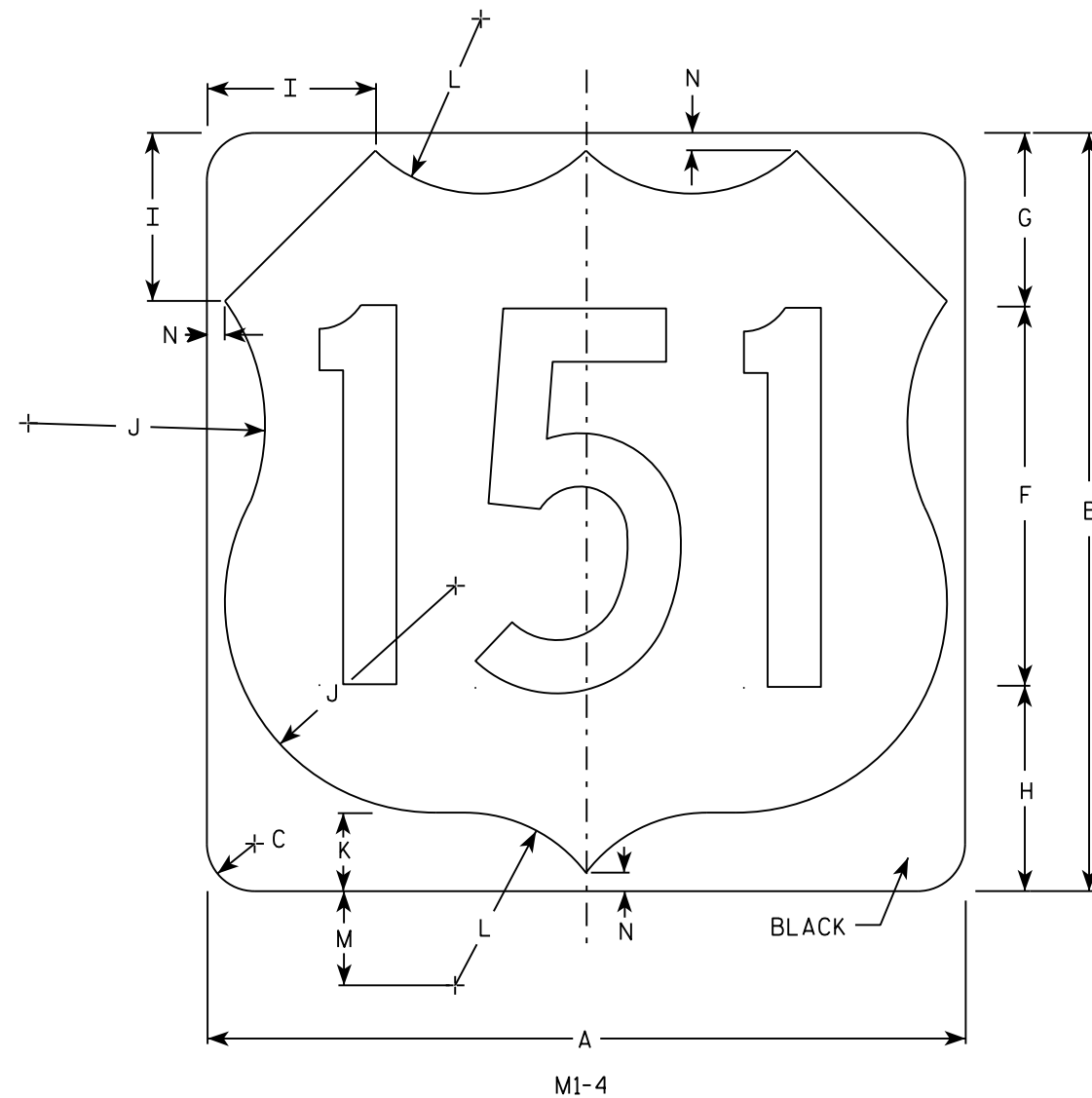
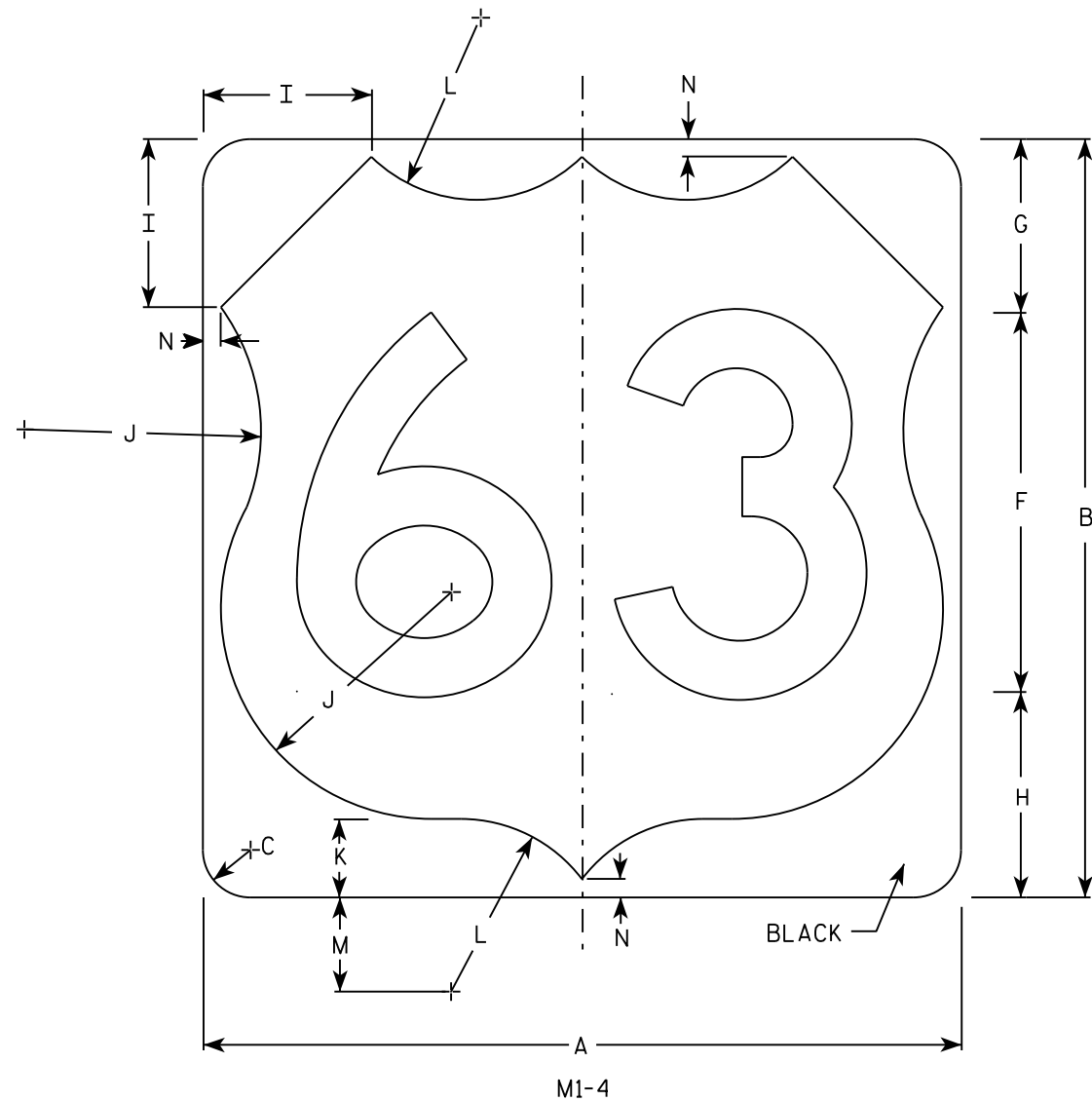
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/22/19 PLATE NO. G20-57B.1

NOTES

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



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

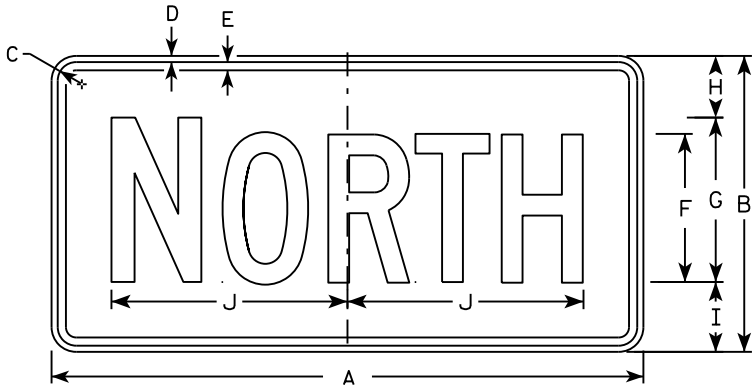
PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E
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USH MARKER
M1-4 FOR ASSEMBLIES

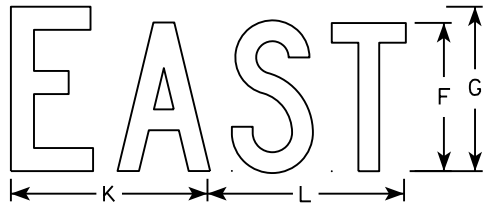
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

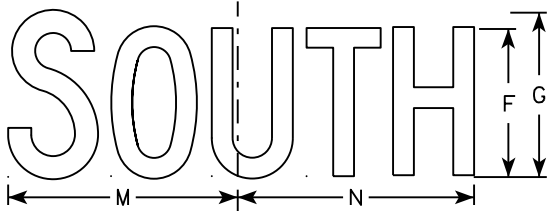
DATE 3/16/18 PLATE NO. M1-4.10



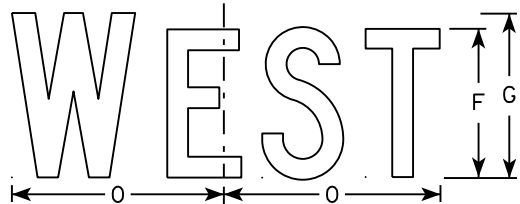
M3-1
MM3-1
MP3-1



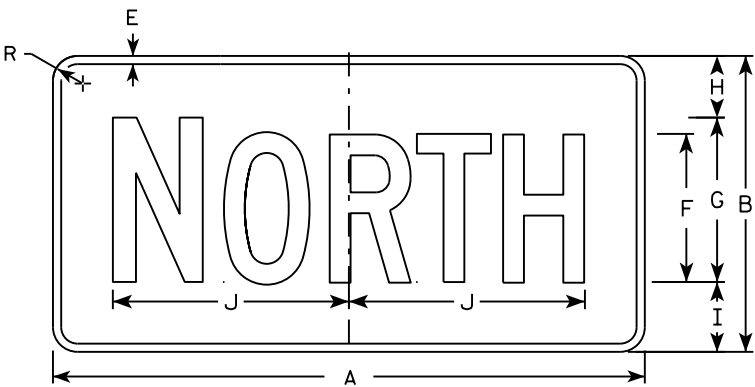
M3-2
MM3-2
MP3-2



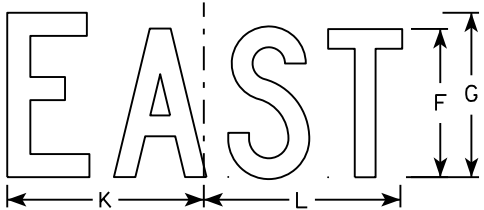
M3-3
MM3-3
MP3-3



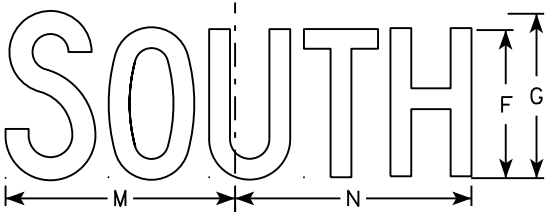
M3-4
MM3-4
MP3-4



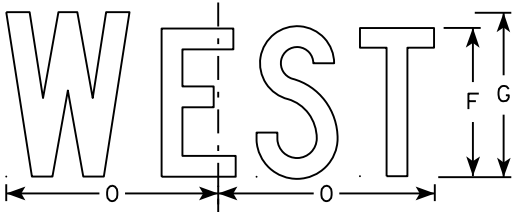
MB3-1
MK3-1
MN3-1



MB3-2
MK3-2
MN3-2



MB3-3
MK3-3
MN3-3



MB3-4
MK3-4
MN3-4

NOTES

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

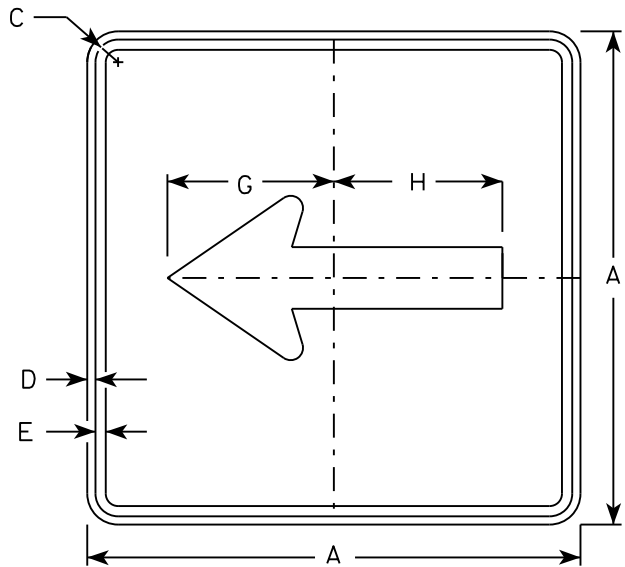
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	12	1 1/8	3/8	3/8	6	7	2 1/4	2 3/4	10 1/4	7 7/8	8 3/8	10 1/4	9 3/4	8 3/4			1 1/2									2.00
3	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5
4	36	18	1 1/8	3/8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

STANDARD SIGNS
M3-1 thru M3-4
SERIES

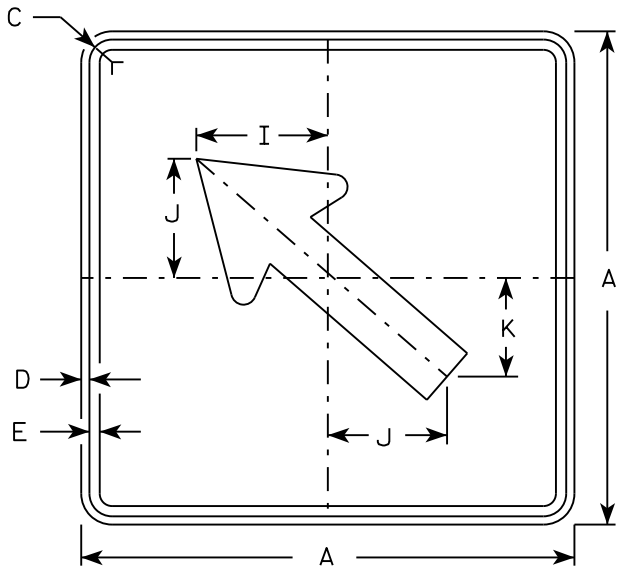
WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

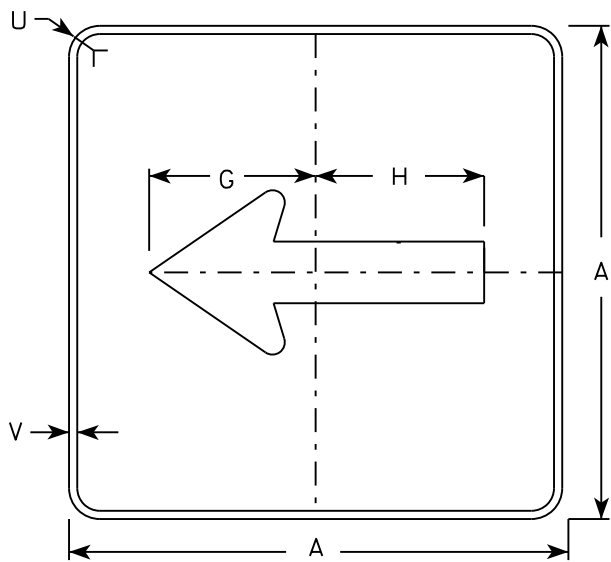
DATE 10/15/15 PLATE NO. M3-1.14



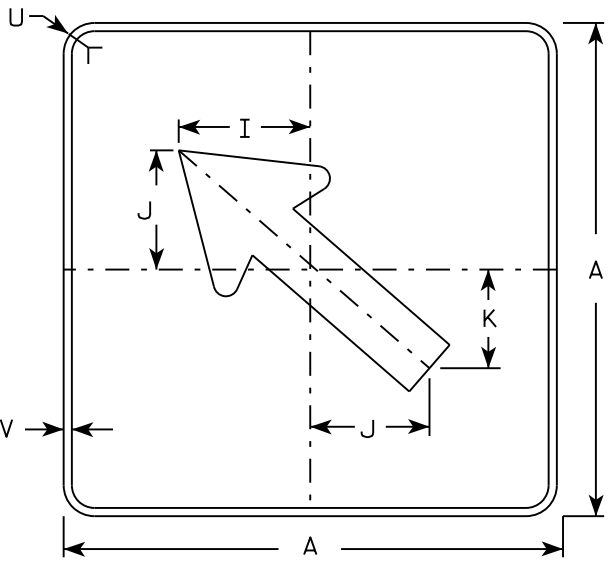
M6 - 1
MM6 - 1
M06 - 1
MP6 - 1



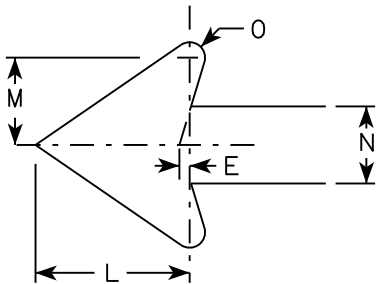
M6 - 2
MM6 - 2
M06 - 2
MP6 - 2



MB6 - 1
MK6 - 1
MN6 - 1
MR6 - 1



MB6 - 2
MK6 - 2
MN6 - 2
MR6 - 2



NOTES

- Signs are Type II - Type H except as Shown
- Color:
Background - See note 4
Message - See note 4
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- M6-1 and M6-2 Background - White
Message - Black
MB6-1 and MB6-2 Background - Blue
Message - White
MK6-1 and MK6-2 Background - Green
Message - White
MM6-1 and MM6-2 Background - White
Message - Green
MN6-1 and MN6-2 Background - Brown
Message - White
M06-1 and M06-2 Background - Orange - Type F Reflective
Message - Black
MP6-1 and MP6-2 Background - White
Message - Blue
MR6-1 and MR6-2 Background - Brown
Message - Yellow

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

PROJECT NO:

HWY:

COUNTY:

SHEET NO:

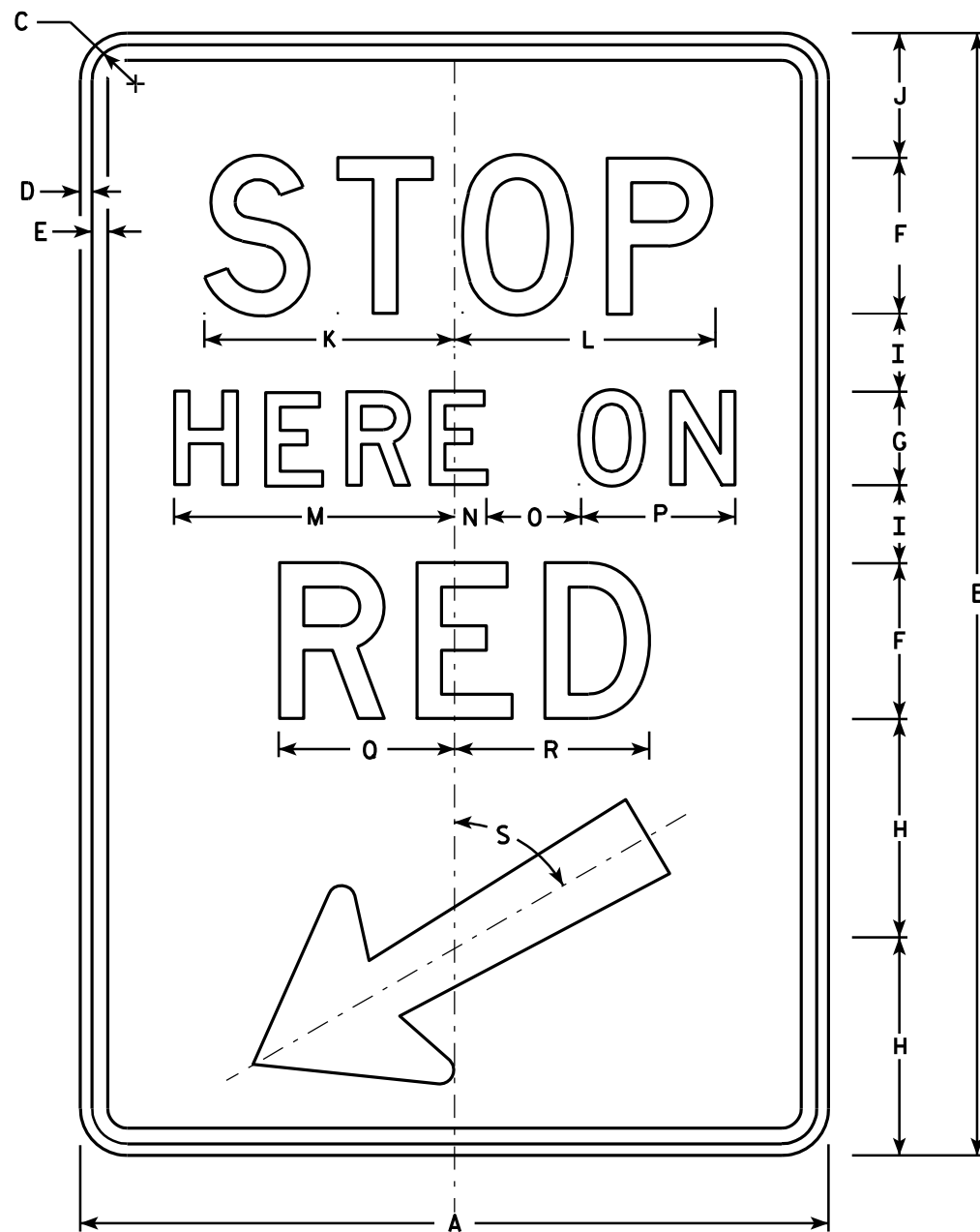
E

STANDARD SIGN
M6 - 1 & M6 - 2
SERIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

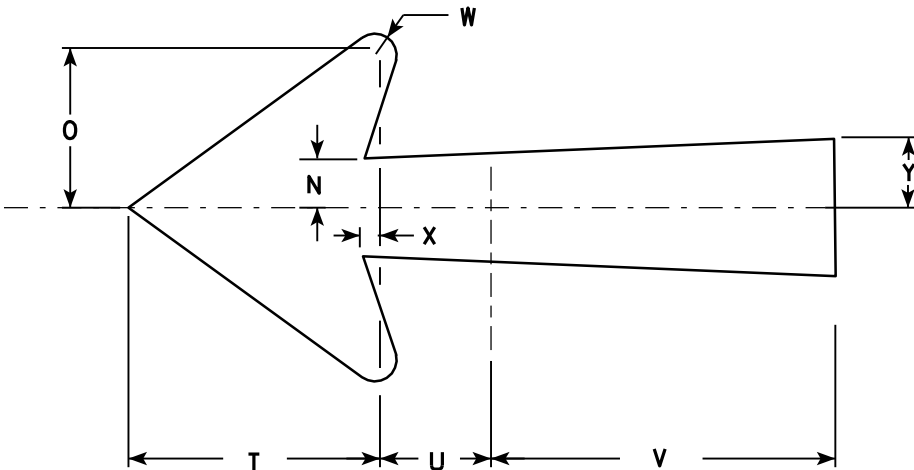
DATE 10/15/15 PLATE NO. M6-1.15



R10-6

NOTES

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



Arrow Detail

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

STANDARD SIGN
R10-6

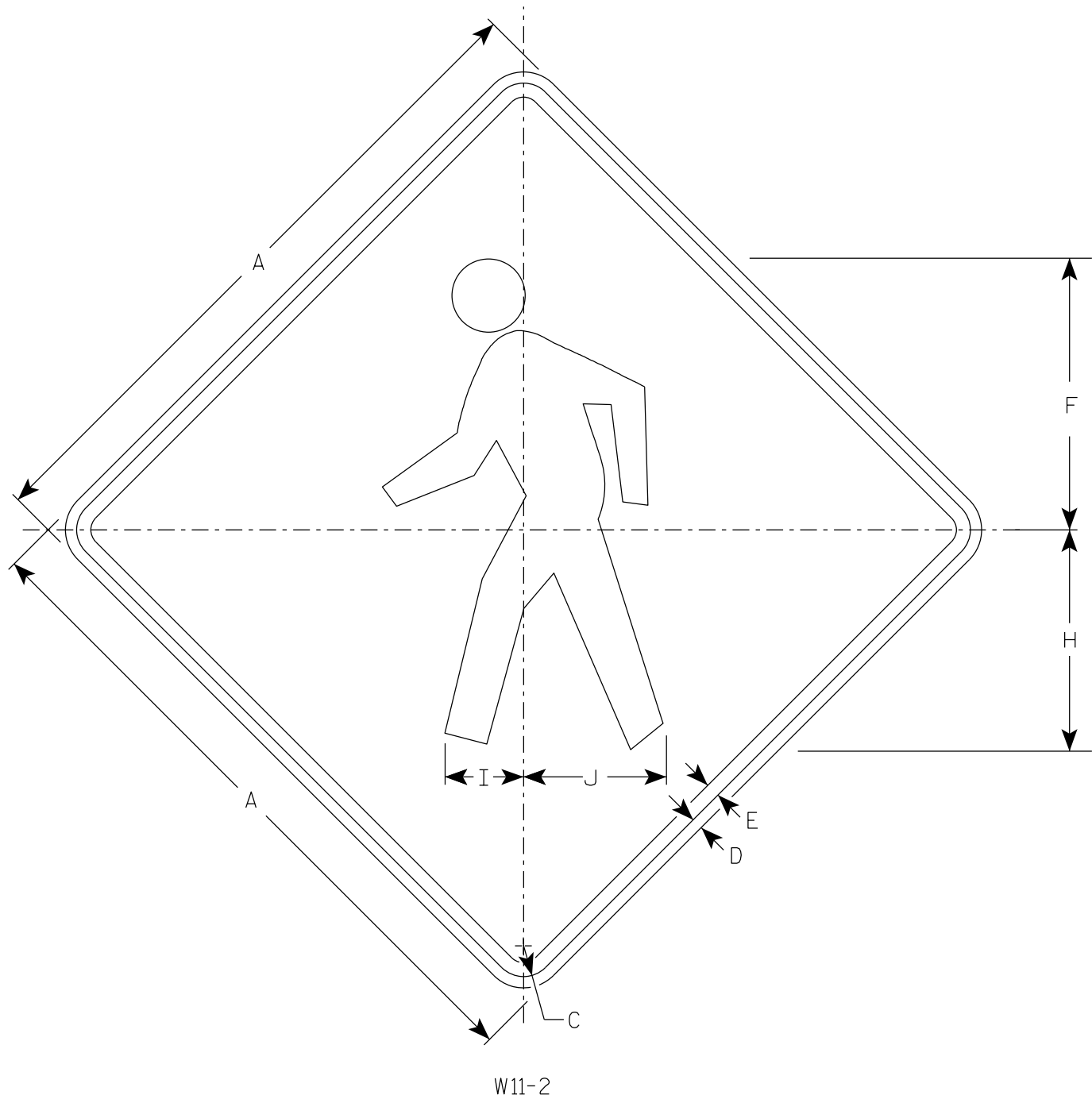
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

NOTES

1. Sign is Type II - Type F Reflective
2. Color:
Background - Yellow
Message - Black



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24		1 1/8	3/8	1/2	9 3/4		7 7/8	2 7/8	5 1/8																	4.0
2S	30		1 3/8	1/2	5/8	12 1/8		9 7/8	3 1/2	6 3/8																	6.25
2M	36		1 5/8	5/8	3/4	14 1/2		11 7/8	4 1/4	7 5/8																	9.0
3	36		1 5/8	5/8	3/4	14 1/2		11 7/8	4 1/4	7 5/8																	9.0
4	48		2 1/4	3/4	1	19 3/8		15 3/4	5 5/8	10 1/4																	16.0
5																											

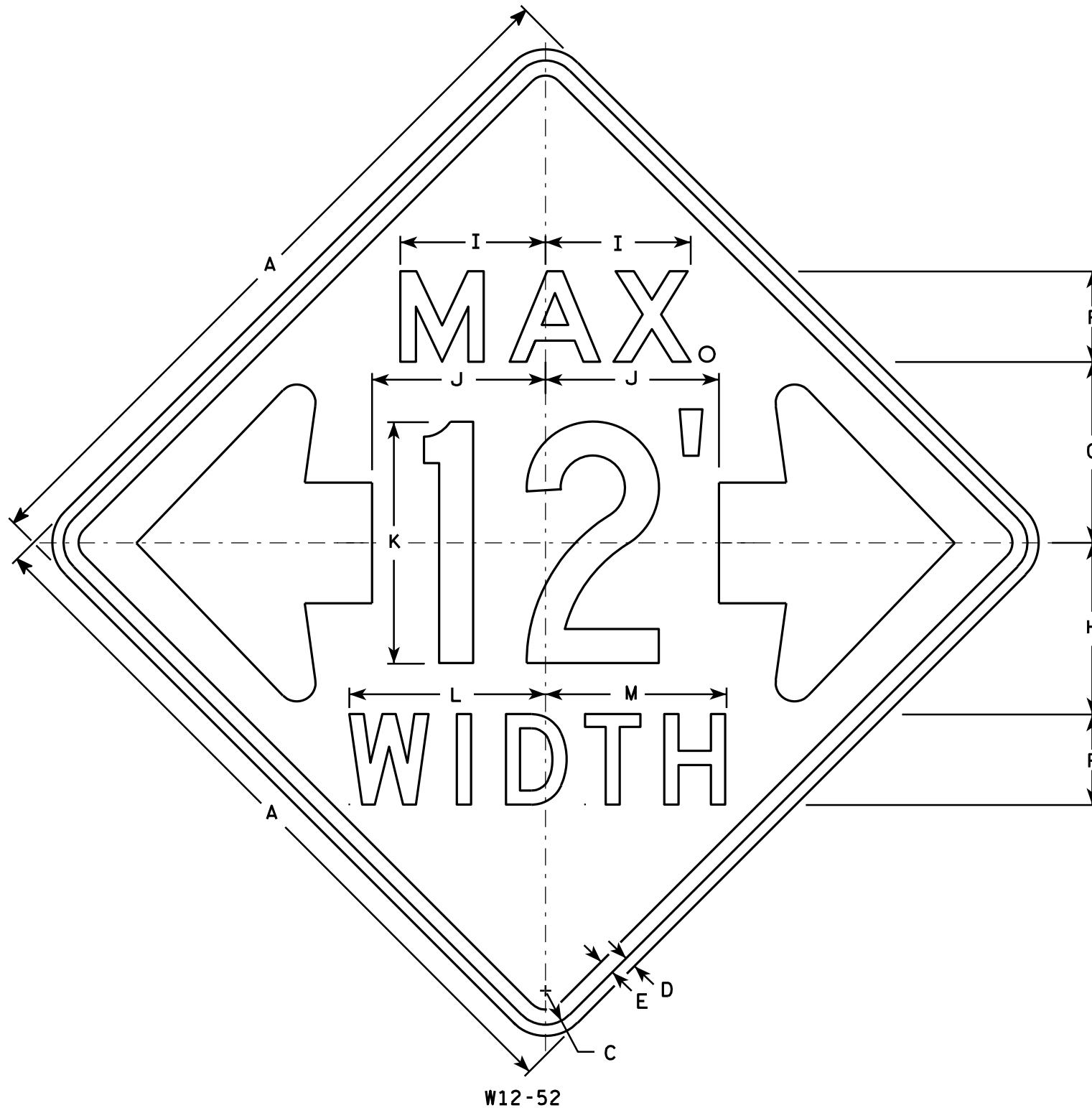
PROJECT NO:		HWY:		COUNTY:		PLOT BY : dotc4c		PLOT NAME :		PLOT SCALE :		SHEET NO:		E
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STANDARD SIGN
W11-2

WISCONSIN DEPT OF TRANSPORTATION

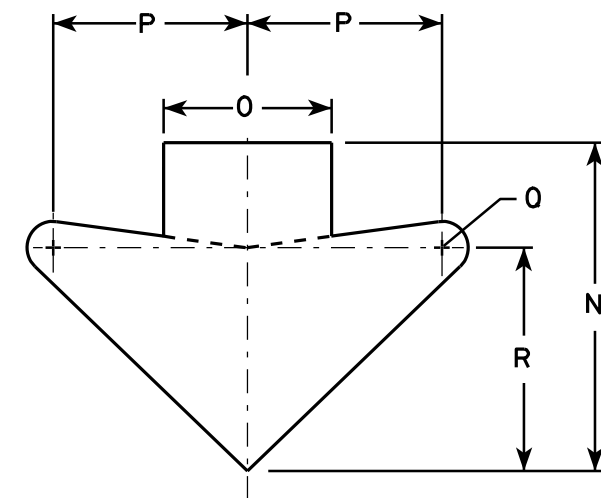
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 4/8/2020 PLATE NO. W11-2.8



NOTES

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



ARROW DETAIL

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

STANDARD SIGN W12-52

WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
For State Traffic Engineer

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

PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E

NOTES

1. Sign is Type II - Type F Reflective
2. Color:
Background - Yellow
Message - Black
3. Message Series - C



W16-9P

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	24	12	1 1/8	3/8	3/8	5	3 1/2	3 1/8	17 3/4																		2.0
2M	30	18	1 1/8	3/8	1/2	7	5 1/2	2 3/4	24 1/2																		3.75
3	30	18	1 1/8	3/8	1/2	7	3 1/2	2 3/4	24 1/2																		3.75
4	48	24	1 3/8	1/2	5/8	10	7	6 1/8	35 3/4																		8.0
5																											

STANDARD SIGN

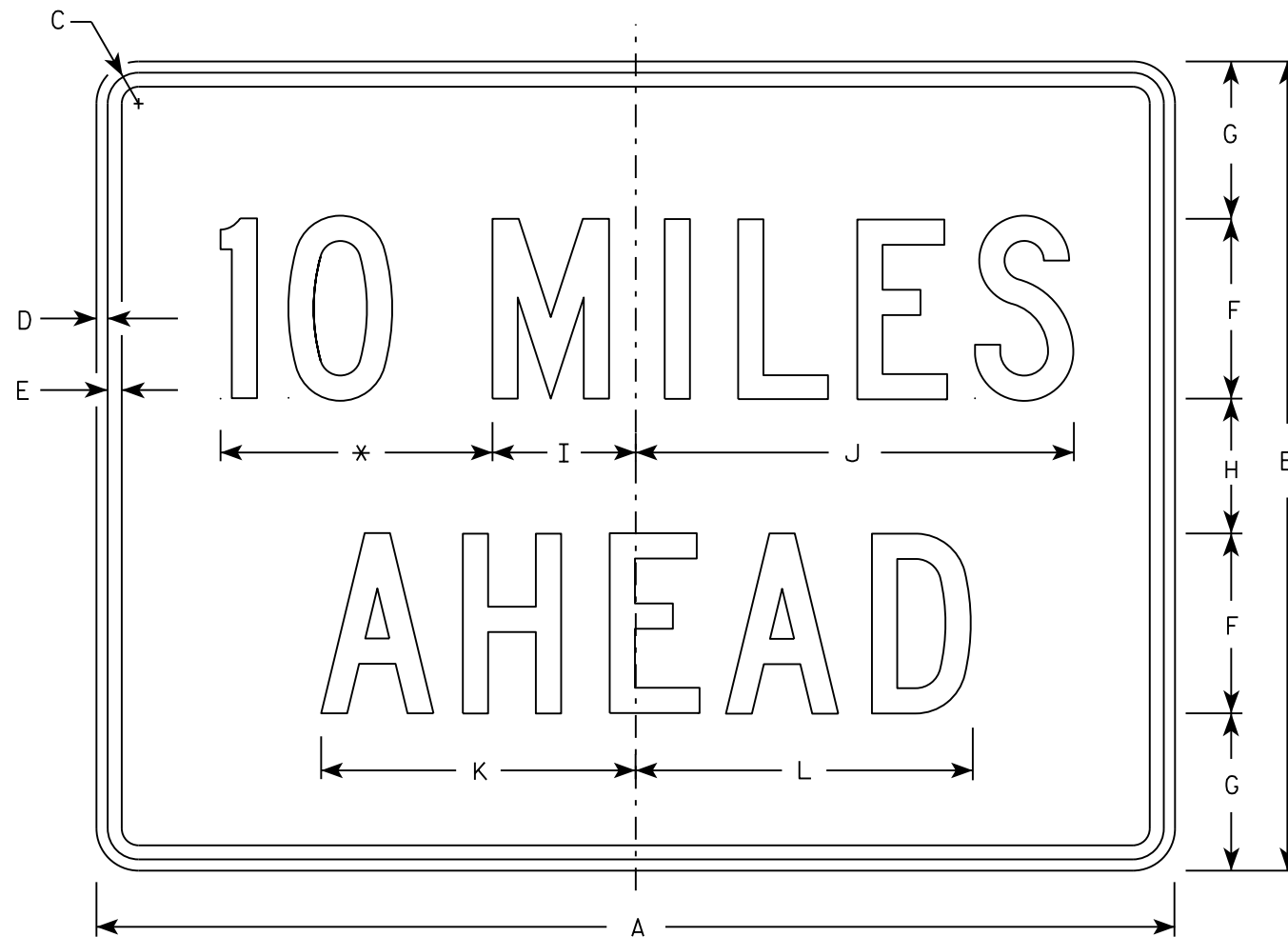
W16-9P

WISCONSIN DEPT OF TRANSPORTATION

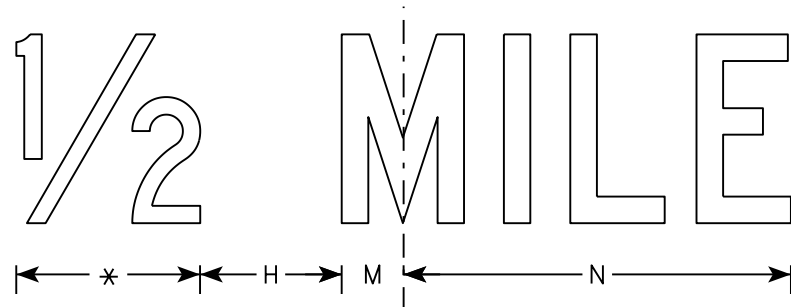
APPROVED Matthew R. Rauch
for State Traffic Engineer

DATE 3/7/19 PLATE NO. W16-9P.7

PROJECT NO: HWY: COUNTY: SHEET NO: **E**



W57-52



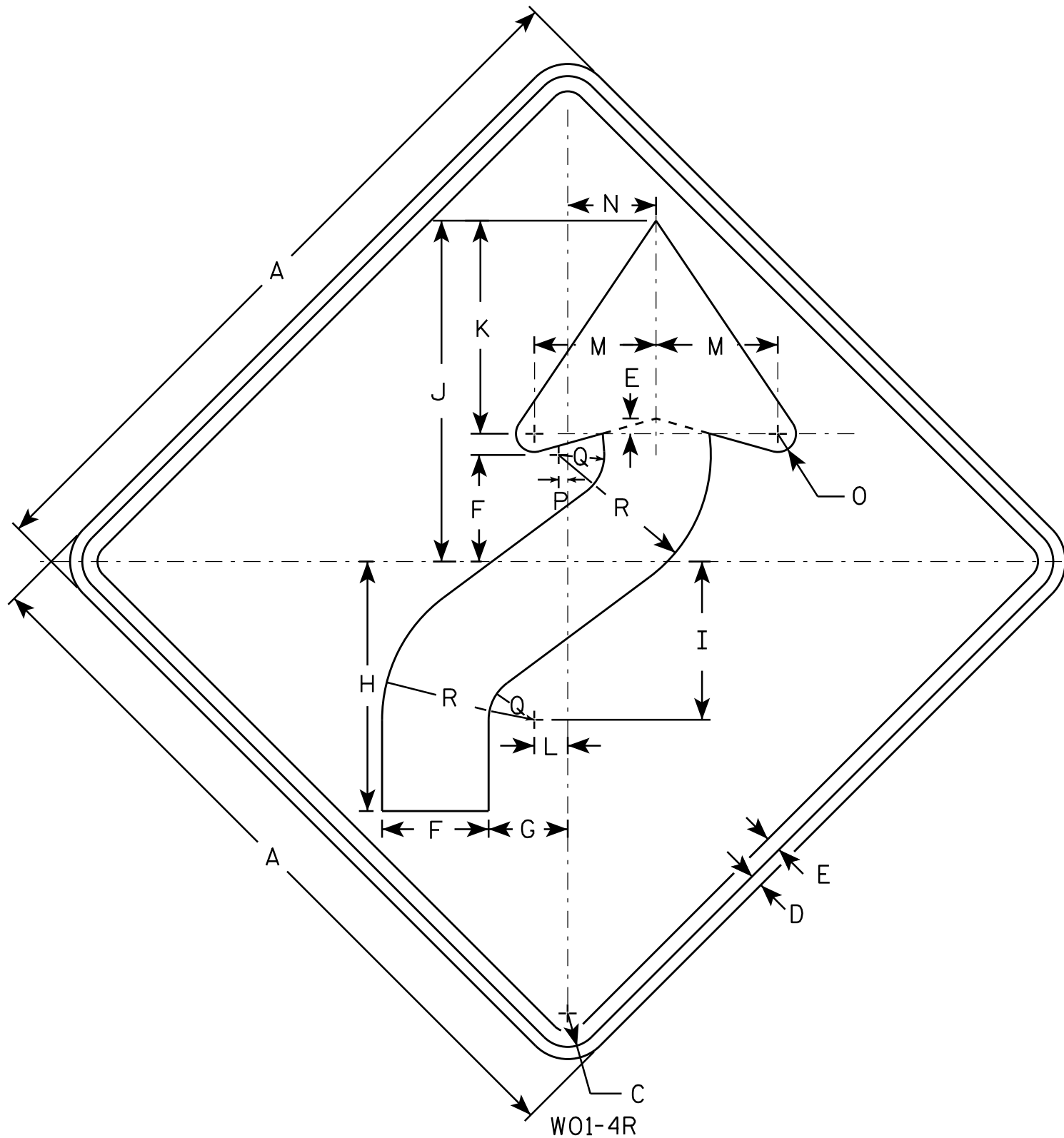
* See note 5

NOTES

1. Sign is Type II - Type F Reflective
2. Color:
Background - Yellow
Message - Black
3. Message Series - C
4. Corners and borders shall be rounded.
5. Substitute appropriate numerals to the nearest quarter mile and optically adjust spacing to achieve proper balance.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24	18	1 1/8	3/8	1/2	4	3 1/2	3	3 1/8	9 3/4	7	7 1/2	1 3/8	8 1/4													3.0
2S	36	24	1 1/8	3/8	1/2	6	4 1/2	3	4 3/4	14 5/8	10 5/8	11 3/8	2	12													6.0
2M	36	24	1 1/8	3/8	1/2	6	4 1/2	3	4 3/4	14 5/8	10 5/8	11 3/8	2	12													6.0
3	36	24	1 1/8	3/8	1/2	6	4 1/2	3	4 3/4	14 5/8	10 5/8	11 3/8	2	12													6.0
4	48	36	1 3/8	1/2	5/8	8	7	6	6 3/8	19 1/2	14	15	2 3/4	16 3/8													12.0
5	48	36	1 3/8	1/2	5/8	8	7	6	6 3/8	19 1/2	14	15	2 3/4	16 3/8													12.0

STANDARD SIGN	
W57-52	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> State Traffic Engineer
DATE 3/21/17	PLATE NO. W57-52.8



NOTES

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

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

STANDARD SIGN W01-4

WISCONSIN DEPT OF TRANSPORTATION

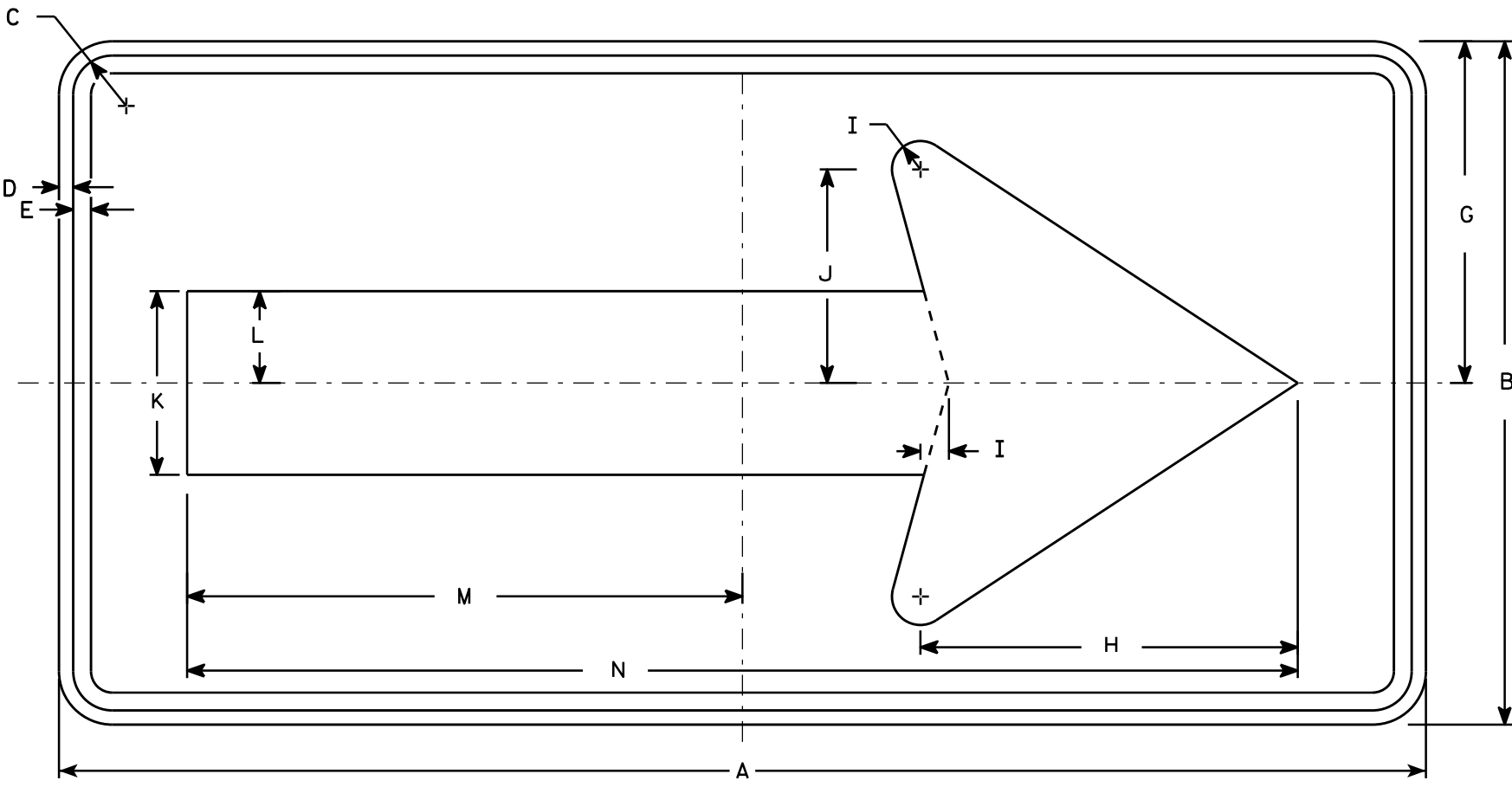
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 11/18/13 PLATE NO. W01-4.1

PROJECT NO: HWY: COUNTY: SHEET NO: E

NOTES

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



W01-6

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	24	1 3/8	1/2	5/8		12	13 1/4	1	7 1/2	6 1/2	3 1/4	19 1/2	39													8.0
2M	48	24	1 3/8	1/2	5/8		12	13 1/4	1	7 1/2	6 1/2	3 1/4	19 1/2	39													8.0
3	60	30	1 3/8	1/2	5/8		15	16 1/4	1 1/4	9 1/4	8	4	24 3/8	48 3/4													12.5
4	60	30	1 3/8	1/2	5/8		15	16 1/4	1 1/4	9 1/4	8	4	24 3/8	48 3/4													12.5
5	60	30	1 3/8	1/2	5/8		15	16 1/4	1 1/4	9 1/4	8	4	24 3/8	48 3/4													12.5

STANDARD SIGN
W01-6

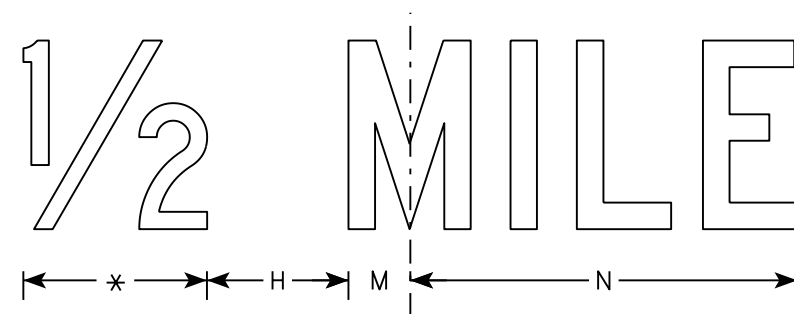
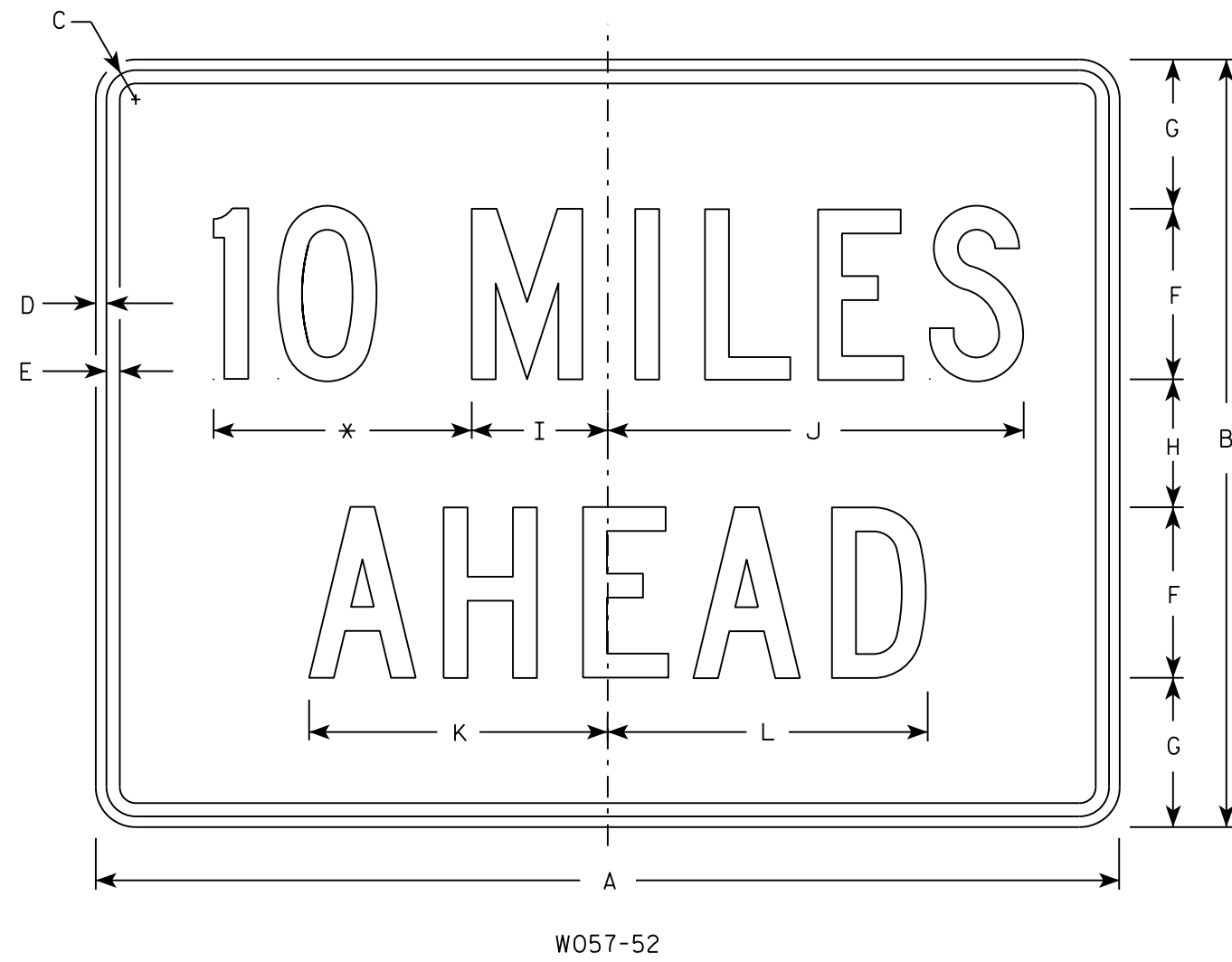
WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

DATE 11/18/13 PLATE NO. W01-6.1

NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
Background - Orange
Message - Black
- 3. Message Series - C
- 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- 5. Substitute appropriate numerals to the nearest quarter mile and optically adjust spacing to achieve proper balance.



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	24	1 1/8	3/8	1/2	6	4 1/2	3	4 3/4	14 5/8	10 5/8	11 3/8	2	12													6.0
2S	48	36	1 3/8	1/2	5/8	8	7	6	6 3/8	19 1/2	14	15	2 3/4	16 3/8													12.0
2M	48	36	1 3/8	1/2	5/8	8	7	6	6 3/8	19 1/2	14	15	2 3/4	16 3/8													12.0
3	48	36	1 3/8	1/2	5/8	8	7	6	6 3/8	19 1/2	14	15	2 3/4	16 3/8													12.0
4	48	36	1 3/8	1/2	5/8	8	7	6	6 3/8	19 1/2	14	15	2 3/4	16 3/8													12.0
5	48	36	1 3/8	1/2	5/8	8	7	6	6 3/8	19 1/2	14	15	2 3/4	16 3/8													12.0

STANDARD SIGN W057-52	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> for State Traffic Engineer
DATE 3/21/17	PLATE NO. W057-52.2

HYDRAULIC DATA

Q₁₀₀ _____ 710 C.F.S.
VELOCITY _____ 9.06 F.P.S.
HIGH WATER _____ EL. 1616.40 (100 YEAR)
HIGH WATER _____ EL. 1613.53 (2 YEAR)
WATERWAY AREA _____ 78.33 S.F.
DRAINAGE AREA _____ 44.3 SQ. MILES
OVERTOPPING FREQUENCY = N/A
SCOUR CRITICAL CODE = 8

TRAFFIC DATA

ADT = 3900 (2022)
3900 (2042)
RDS = 60 M.P.H.

DESIGN DATA

LIVE LOAD:
DESIGN LOADING _____ HL-93
INVENTORY RATING FACTOR _____ RF = 1.04
OPERATING RATING FACTOR _____ RF = 1.35
WISCONSIN STANDARD PERMIT
VEHICLE (WIS-SPV) _____ 250 KIPS

EARTH LOAD:

DESIGNED FOR 5.5 FT TO 6 FT OF FILL

ULTIMATE DESIGN STRESSES:

CONCRETE MASONRY _____
SUPERSTRUCTURE _____ f'c = 4,000 PSI
ALL OTHER _____ f'c = 3,500 PSI
HIGH STRENGTH BAR STEEL
REINFORCEMENT, GRADE 60 _____ fy = 60,000 PSI

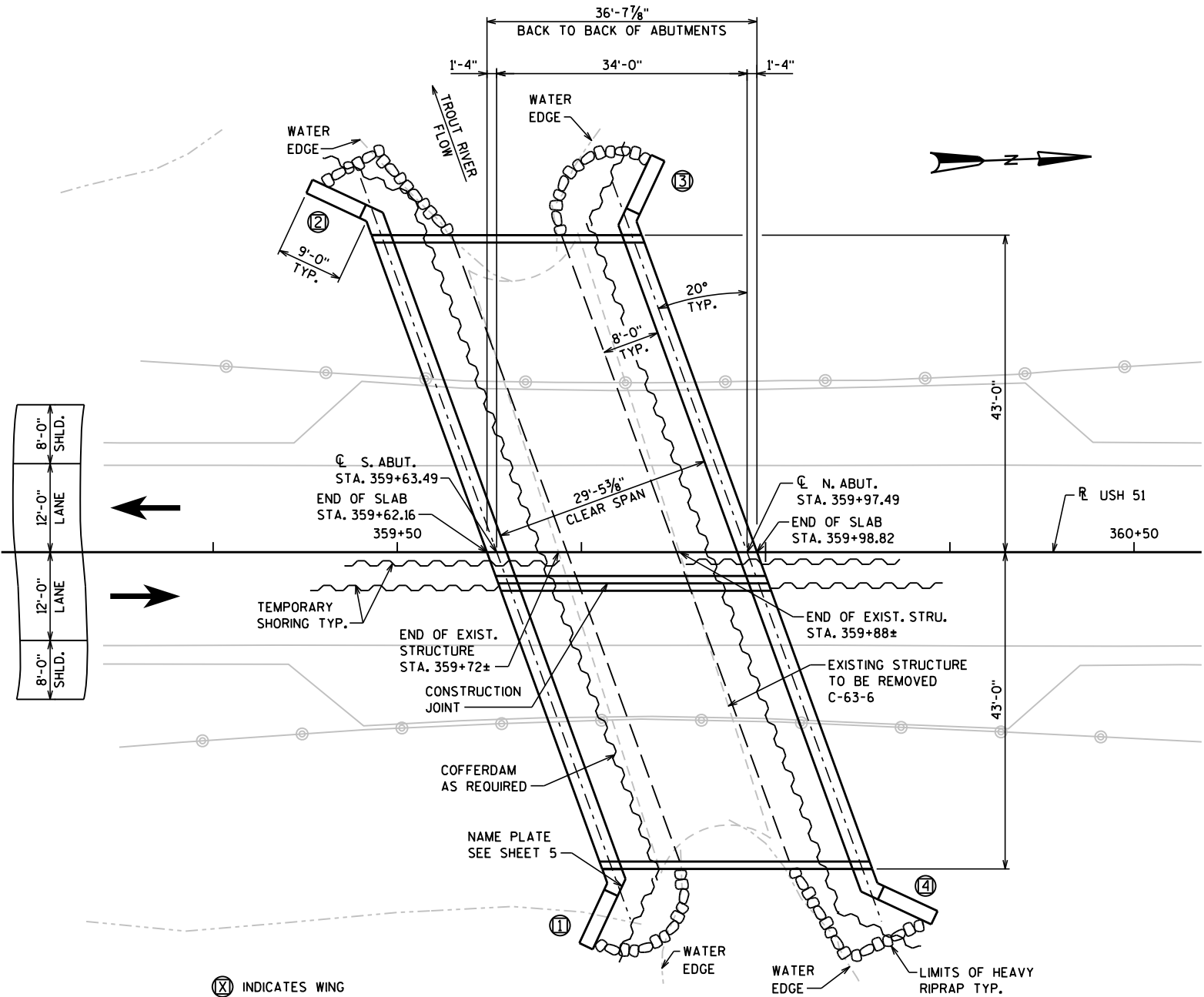
FOUNDATION DATA

ABUTMENTS TO BE SUPPORTED ON 10 3/4-INCH CAST-IN-PLACE (CIP) PILE WITH A WALL THICKNESS OF 0.365-INCHES. PILES SHALL BE FITTED WITH PILE POINTS AND DRIVEN TO A MAXIMUM REQUIRED DRIVING RESISTANCE OF 150 TONS ** PER PILE.
ESTIMATED LENGTH = 60' AT SOUTH ABUTMENT.
ESTIMATED LENGTH = 60' AT NORTH ABUTMENT.

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

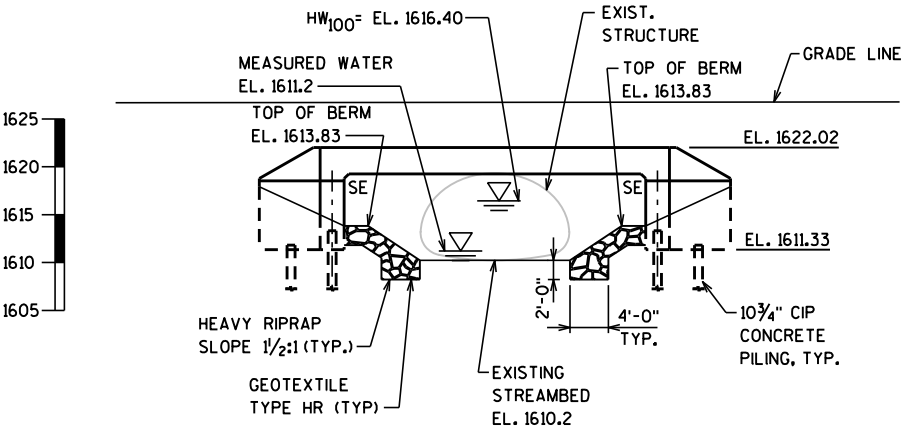
LIST OF DRAWINGS

1. GENERAL PLAN
2. CROSS SECTION & QUANTITIES
3. SUBSURFACE EXPLORATION
4. CONSTRUCTION STAGING
5. SOUTH ABUTMENT
6. SOUTH ABUTMENT DETAILS
7. NORTH ABUTMENT
8. NORTH ABUTMENT DETAILS
9. SUPERSTRUCTURE
10. SUPERSTRUCTURE DETAILS



PLAN

SINGLE SPAN BURIED CONCRETE FLAT SLAB BRIDGE



ELEVATION



4/9/2021

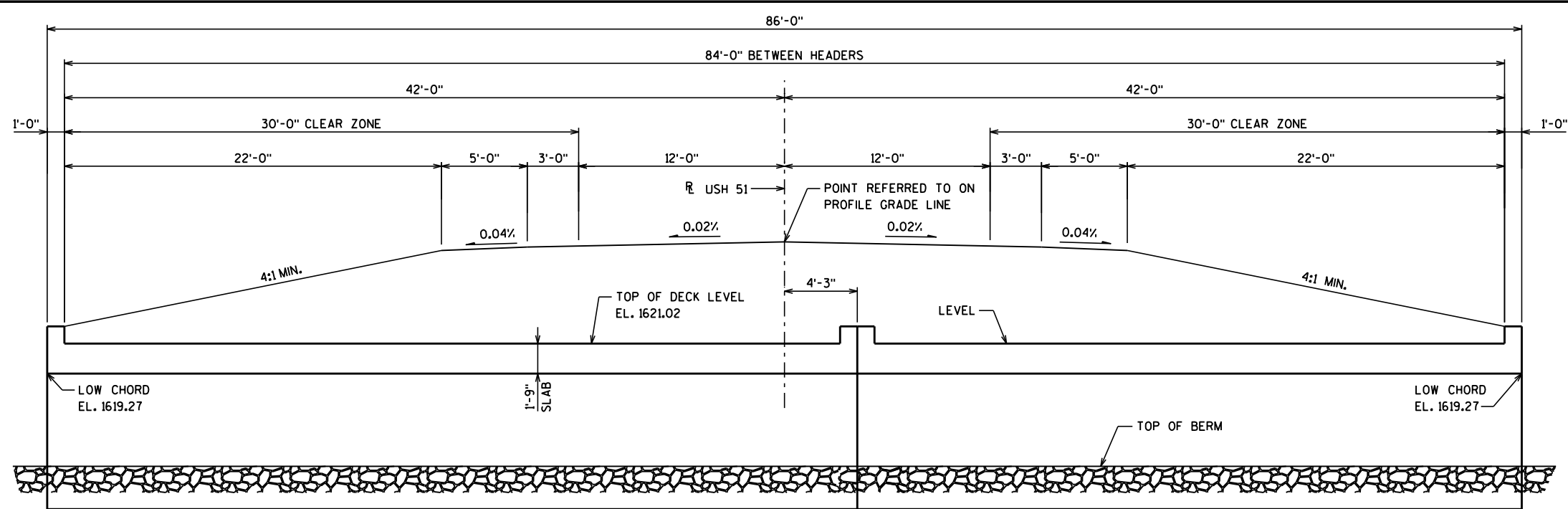
CONSULTANT CONTACT

BRIAN EPLEY
OMNI ASSOCIATES, INC.
(920) 735-6900

BRIDGE OFFICE CONTACT

AARON BONK
(608) 261-0261

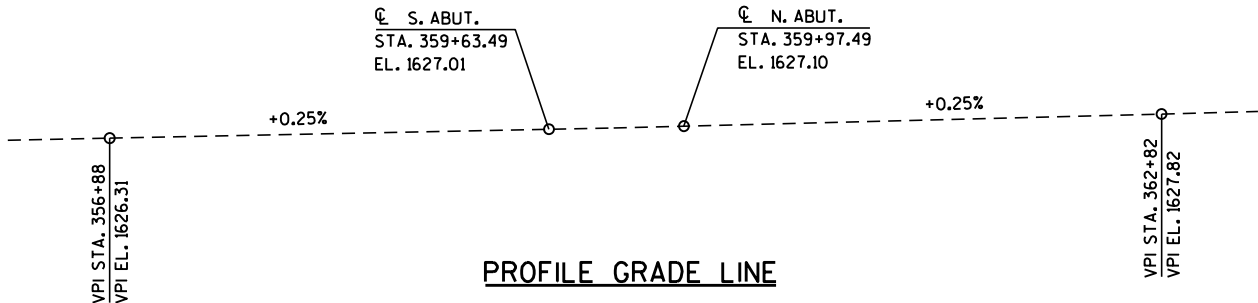
NO.	DATE	REVISION	BY
ORIGINAL PLANS PREPARED BY			
OMNI ASSOCIATES			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED	06/10/21	SDR	DATE
STRUCTURE B-63-26			
USH 51 OVER TROUT RIVER			
COUNTY	VILAS	TOWN	ARBOR VITAE
DESIGN SPEC.	AASHTO LRFD	BRIDGE DESIGN SPECIFICATION	LOAD HL-93
DESIGNED BY	BRE	CK'D.	KRO
DRAWN BY	BRE	CK'D.	KRO
GENERAL PLAN			SHEET 1 OF 10



CROSS SECTION THRU ROADWAY
LOOKING NORTH

BENCH MARKS (NAVD 88)

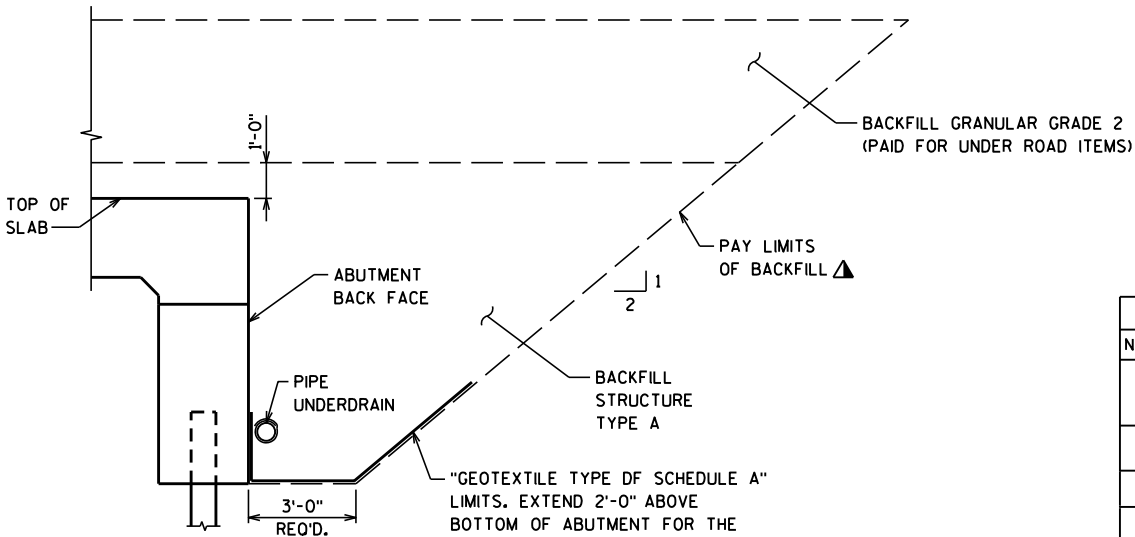
NO.	STATION	DESCRIPTION	ELEV.
1	357+08, 46'RT.	SPIKE IN TWIN RED PINE TREE	1624.92
2	362+44, 46'LT.	SPIKE IN RED PINE TREE	1626.94
3	364+31, 53'LT.	SPIKE IN FIR TREE	1626.81



PROFILE GRADE LINE

TOTAL ESTIMATED QUANTITIES

ITEM NO.	BID ITEMS	UNIT	SUPER.	SOUTH ABUT.	NORTH ABUT.	TOTALS
203.0200	REMOVING OLD STRUCTURE (STA 359+80)	LS	----	----	----	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES (B-63-26)	LS	----	----	----	1
206.5000	COFFERDAMS (B-63-26)	LS	----	----	----	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	510	930	930	2,370
502.0100	CONCRETE MASONRY BRIDGES	CY	224	79	79	382
505.0400	BAR STEEL REINFORCEMENT HS BRIDGES	LB	----	6,400	6,400	12,800
505.0600	BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	53,310	1,580	1,580	56,470
505.0905	BAR COUPLERS NO. 5	EA	----	9	9	18
505.0908	BAR COUPLERS NO. 8	EA	----	9	9	18
511.1200	TEMPORARY SHORING (B-63-26)	SF	1,250	----	----	1,250
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	----	20	20	40
516.0610.S	SHEET MEMBRANE WATERPROOFING FOR TOP SLAB (B-63-26)	SY	390	----	----	390
550.0500	PILE POINTS	EA	----	20	20	40
550.2106	PIILING CIP CONCRETE 10 3/4 X 0.365-INCH	LF	----	1,200	1,200	2,400
606.0300	RIPRAP HEAVY	CY	----	80	80	160
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	----	135	135	270
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	----	100	100	200
645.0120	GEOTEXTILE TYPE HR	SY	----	120	120	240
SPV.0195.01	SELECT CRUSHED MATERIAL FOR TRAVEL CORRIDOR	TON	----	70	70	140
NON-BID ITEMS						
	FILLER	SIZE	----	----	----	1/2" & 3/4"



TYPICAL SECTION THRU ABUTMENT

STATE PROJECT NUMBER

1170-20-61

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED. BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

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

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

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

THIS BRIDGE WILL REPLACE THE EXISTING METAL PIPE CULVERT THAT IS APPROXIMATELY 15.7' WIDE X 9.1' HIGH X 105' LONG. THE CULVERT WAS PLACED IN 1958.

BENDING DIMENSIONS FOR REINFORCING BARS ARE OUT TO OUT.

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

THE UPPER LIMITS OF EXCAVATION SHALL BE 1' ABOVE THE TOP OF SLAB. EXCAVATION ABOVE SHALL BE PAID FOR AS COMMON EXCAVATION.

THE CONTRACTOR MAY FURNISH A PRECAST 3-SIDED BOX CULVERT, WINGS, AND HEADERS IN LIEU OF THE CAST-IN-PLACE BOX CULVERT WITH THE ACCEPTANCE OF THE SHOP DRAWINGS BY THE STRUCTURES MAINTENANCE SECTION. THE PRECAST CONCRETE BOX CULVERT SHALL CONFORM TO PRECAST DETAILS IN CHAPTER 36 STANDARDS OF THE CURRENT WISCONSIN DOT BRIDGE MANUAL, AND PROVIDE A 28-FT SPAN LENGTH WITH 10-FT RISE. PILE FOUNDATIONS REQUIRED UNDER THIS OPTION. PAYMENT FOR THE PRECAST CULVERT SHALL BE BASED ON THE QUANTITIES AND PRICES BID FOR THE ITEMS LISTED IN THE "TOTAL ESTIMATED QUANTITIES".

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

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

BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.

ALL VOIDS BETWEEN HEAVY RIPRAP SHALL BE FILLED USING SELECT CRUSHED MATERIAL. PAID UNDER ITEM "SELECT CRUSHED MATERIAL FOR TRAVEL CORRIDOR".

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-63-26			
DRAWN BY		BRE	PLANS CK'D. KRO
CROSS SECTION & QUANTITIES		SHEET 2 OF 10	

ABBREVIATIONS
F—Fine M—Medium C—Coarse
Ws—Weathered So—Sound

MATERIAL SYMBOLS
Topsoil Silt Sandstone
Sand Peat Limestone
Gravel Clay Igneous Rock

LEGEND OF PROBING
Probing No.
Sta.
Elevation
95/6=95 Blows for 6"
Penetration
Probing taken with a
350#wt.
Falling 18" on a 2"
O.D. Point.
7 Average Blows Per Foot
Refusal 95/6

LEGEND OF BORING
Boring No.
Sta.
Elev.
Unconfined
Strength—7.7
Blows Per Ft.
Using 140# Wt.
Falling 30"
Wash Sample
Sandy Gravel
F.
Boulders or
Cobbles
Sand
Shelby Tube — S.T.
Ground Water
Elevation
No Ground Water
Observed Above
This Elevation
Silty Clay
So
Limestone

Unless otherwise specified, the blows per foot at the locations indicated are based on driving a 0.0x1.4" I.D. split spoon sampler with a 140# hammer having a free fall of 30". The blow count is taken in undisturbed soil immediately below a cased or open hole eliminating side friction on the drive pipe.

SUBSURFACE EXPLORATION FOR FOUNDATION
DESIGN AND BIDDERS INFORMATION

To obtain relative data concerning the character of material in and upon which the foundation might be built, borings and/or soundings were made at points approximately as indicated on this drawing. The data presented herein represents the findings of the subsurface explorations made. However, because the depths investigated are limited and the area of the borings and/or soundings is very small in relation to the entire area, the Division of Highways does not warrant conditions below the depths investigated or that the classification of material encountered in these investigations is necessarily typical of the entire site.

NO.	DATE	REVISION	BY
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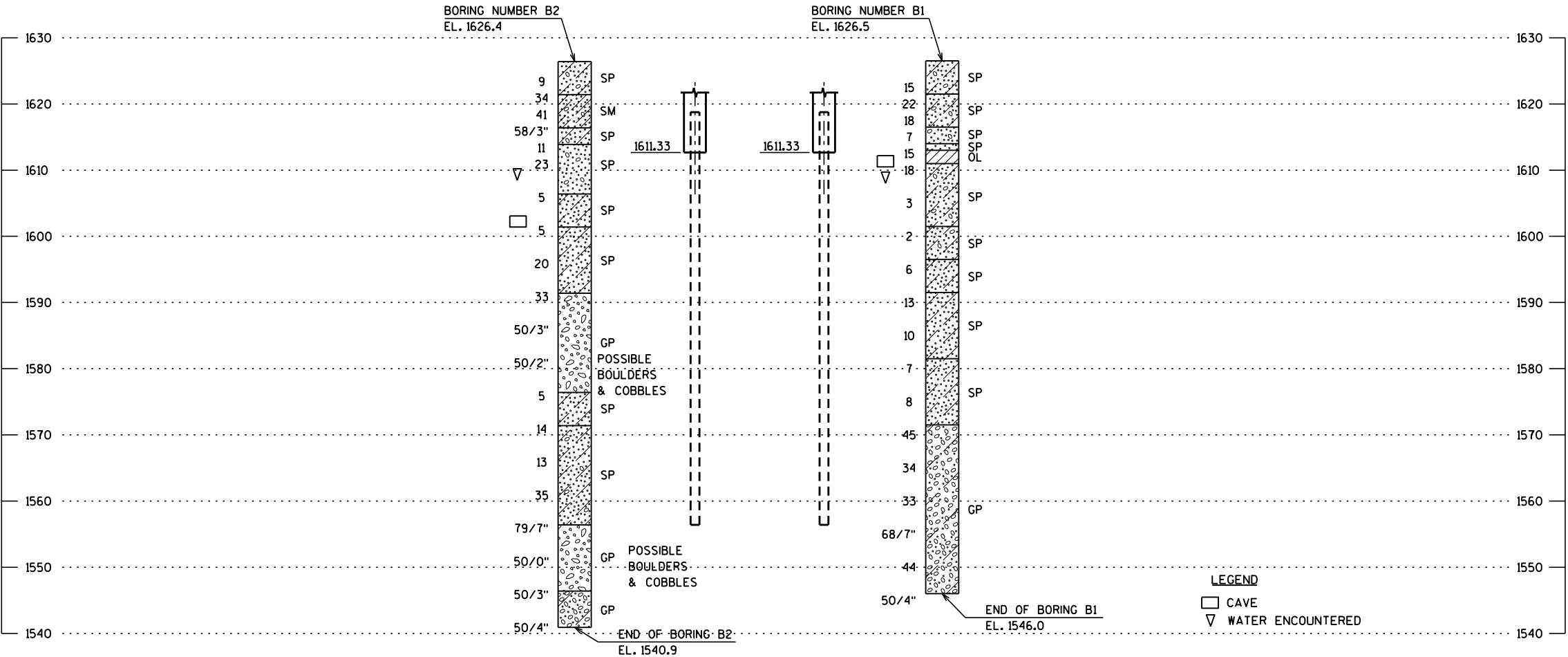
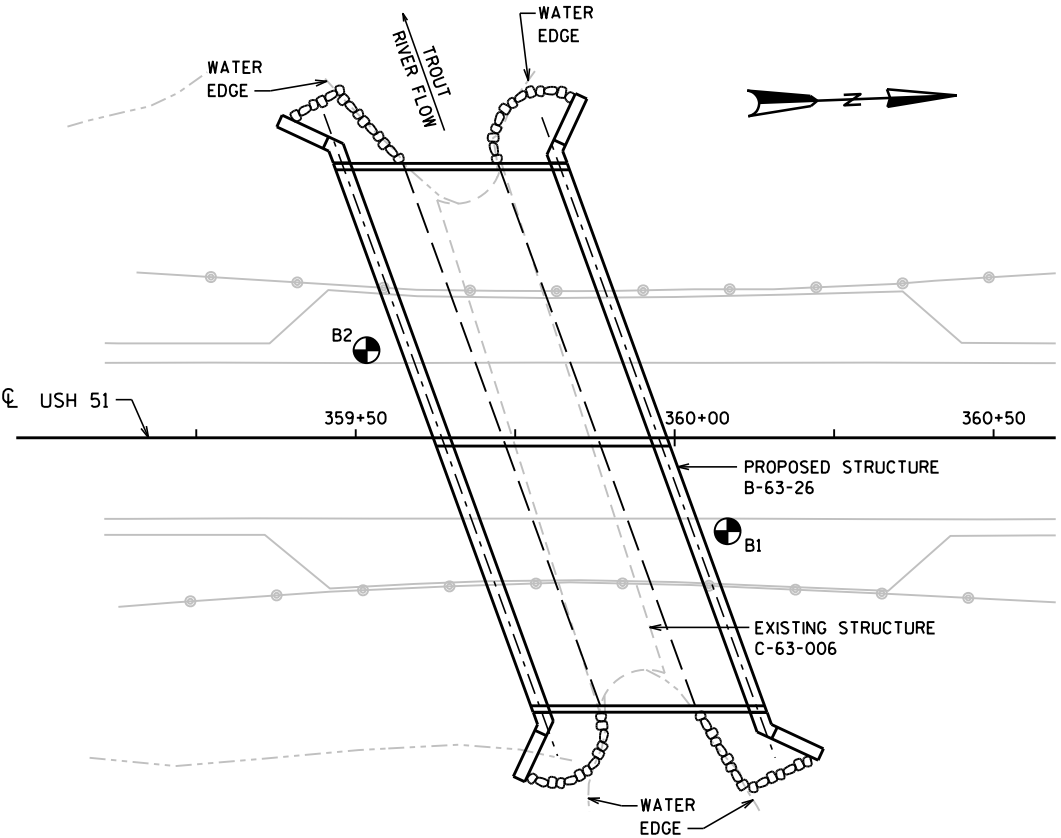
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

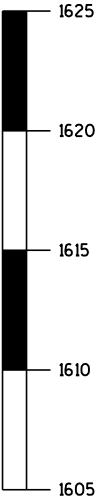
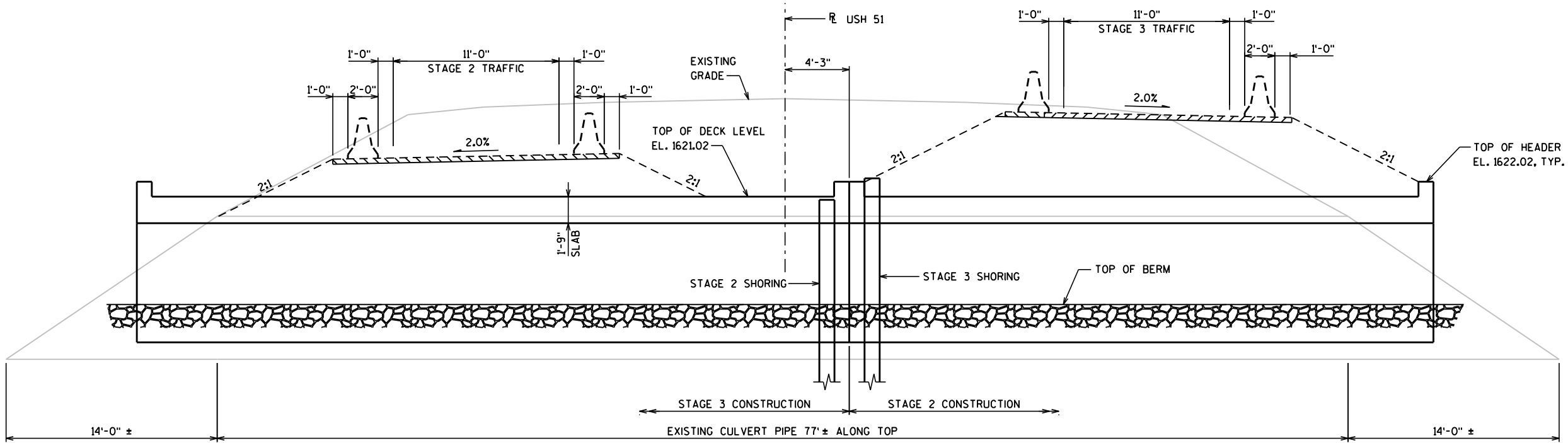
STRUCTURE B-63-26

DRAWN BY BRE PLANS CK'D. KRO

SUBSURFACE
EXPLORATION

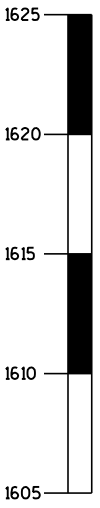
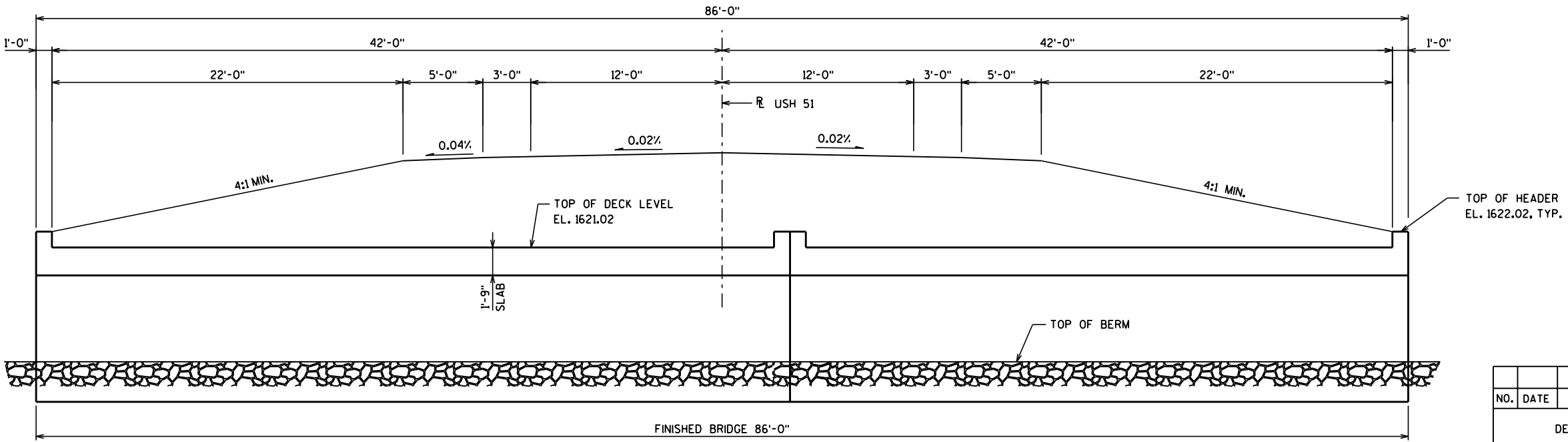
SHEET 3 OF 4





CROSS SECTION THRU ROADWAY

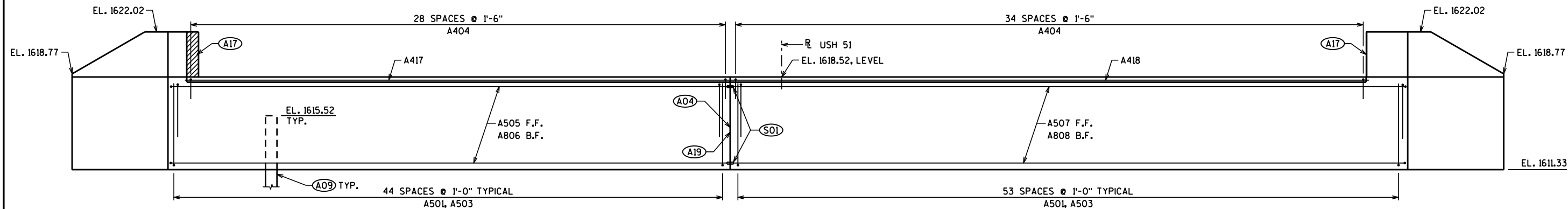
STAGE 2 & STAGE 3 CONSTRUCTION
LOOKING NORTH



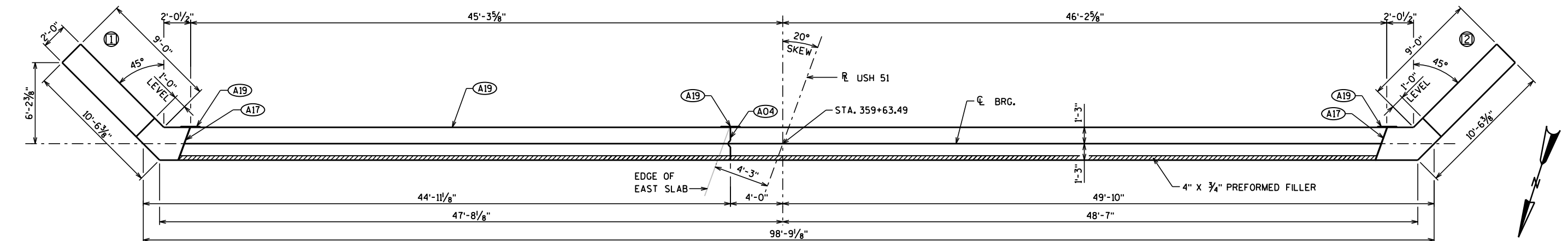
CROSS SECTION THRU ROADWAY

FINISHED CROSS SECTION
LOOKING NORTH

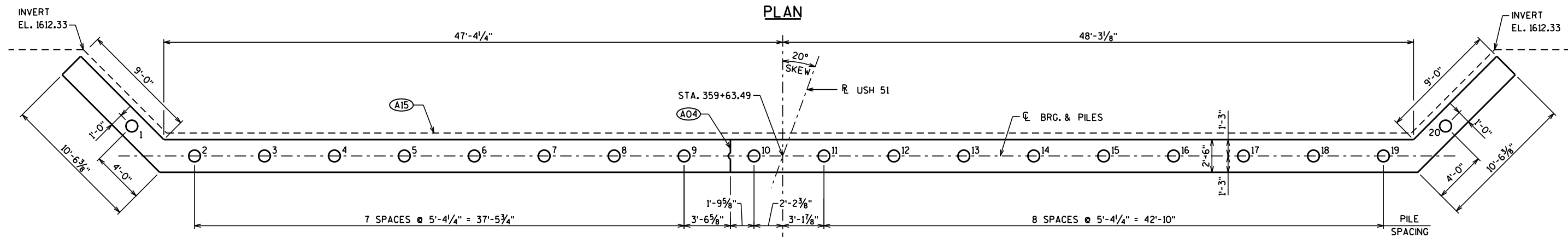
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-63-26			
		DRAWN BY	BRE
		PLANS CK'D.	KRO
CONSTRUCTION STAGING		SHEET 4 OF 10	



ELEVATION



PLAN



PILE PLAN

NOTES:

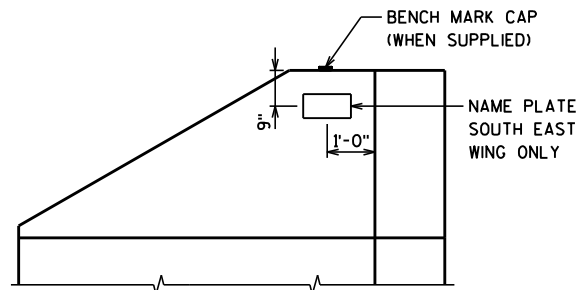
- (A04) VERTICAL CONSTRUCTION JOINT: KEYWAY FORMED BY A BEVELED 2" X 8" (3/4" "V" GROOVE @ THE FRONT FACE, R.M.W. @ BACKFACE)
- (A09) ABUTMENTS TO BE SUPPORTED ON 10 3/4" X 0.365" CIP PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 150 TONS PER PILE. ESTIMATED LENGTH = 60 FEET.
- (A15) PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN, SEE SHEET 6 FOR DETAILS.

- (A17) 1/2" FILLER INCLUDED IN WING LENGTH, SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE.)

- (A19) 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.

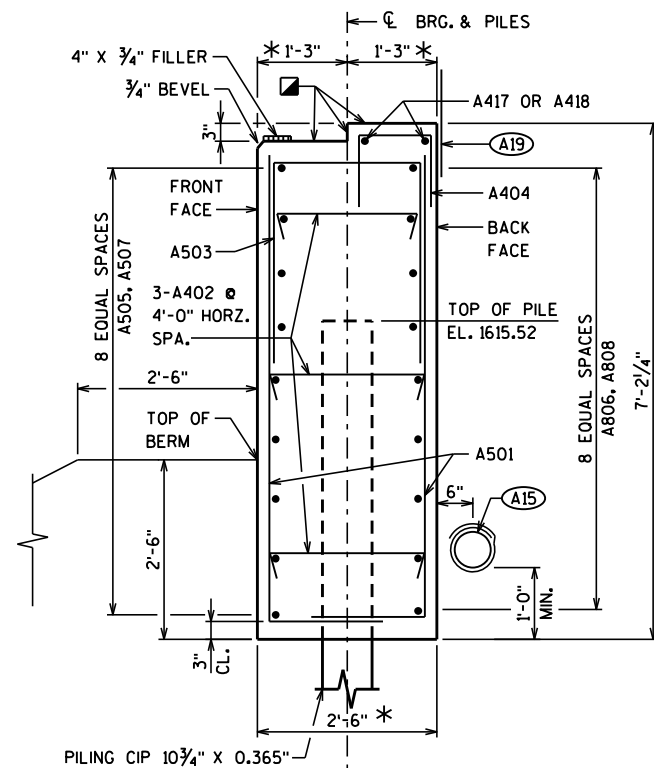
- (S01) BAR COUPLERS USED. BAR LENGTH COMPUTED TO CL OF VERT. JOINT & SHALL BE MODIFIED TO THE BAR COUPLER MANUFACTURERS RECOMMENDATIONS.

SEE SHEET 6 FOR WINGWALL DETAILS, BILL OF BARS AND BAR BENDING DIAGRAMS. SEE SHEET 8 FOR PILE SPLICE DETAILS.



NAME PLATE LOCATION

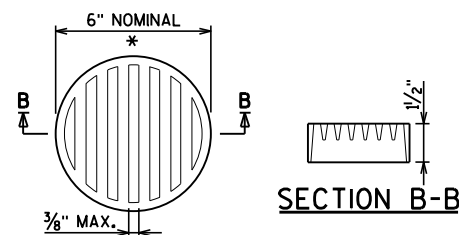
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-63-26			
DRAWN BY		BRE	PLANS CK'D. KRO
SOUTH ABUTMENT		SHEET 5 OF 10	

**SECTION THRU BODY**

* DIMENSIONS MEASURED NORMAL TO CL OF SUBSTRUCTURE UNITS

NOTES:

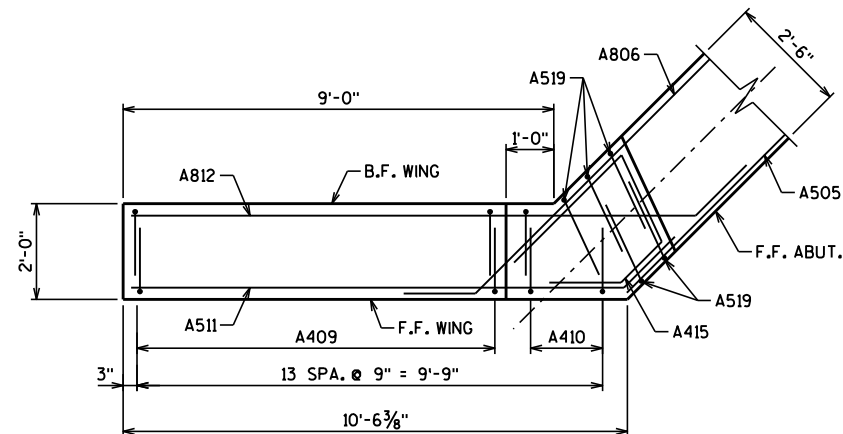
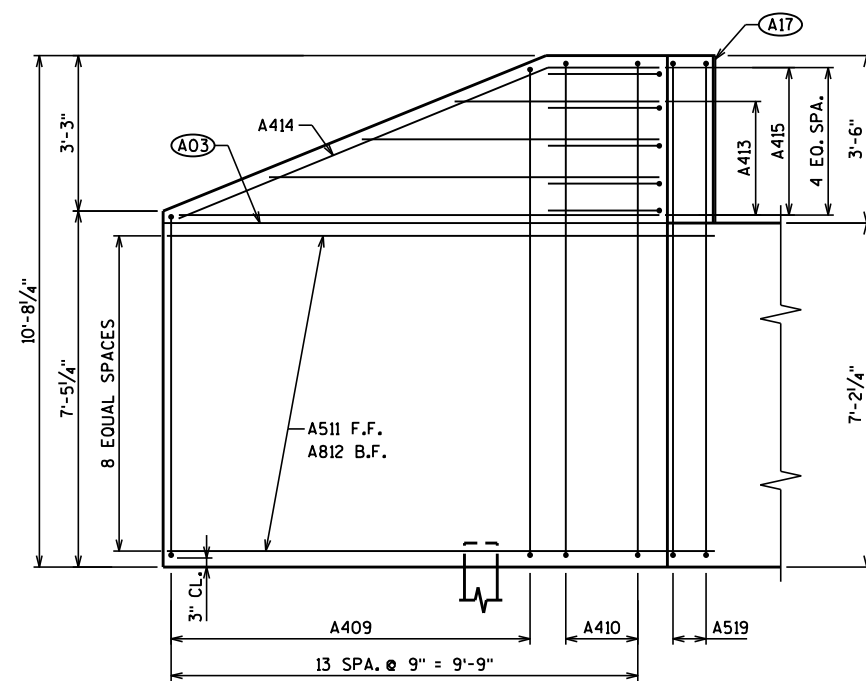
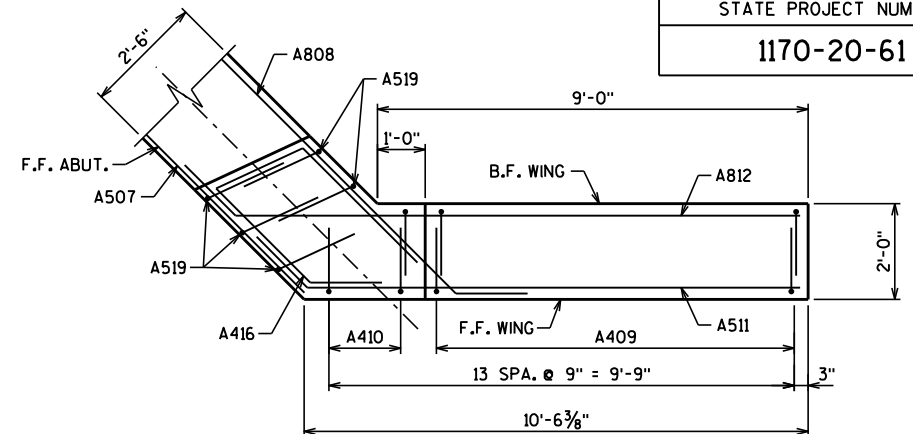
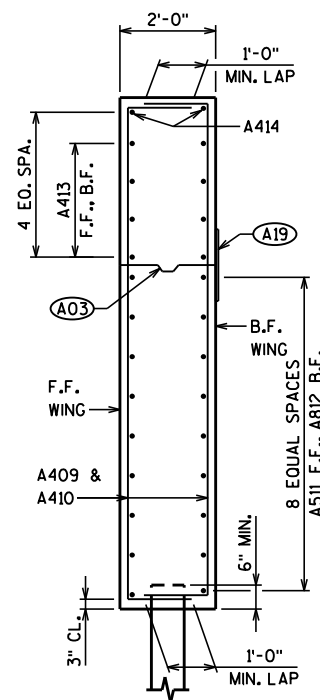
- (A03) OPTIONAL CONST. JOINT: KEYWAY FORMED BY BEVELED 2 x 6. (18\" R.M.W. @ B.F. & 3/4\" \"V\" GROOVE @ F.F. IF JOINT IS USED).
- (A15) PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO EACH SLOPE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN.
- (A17) 1/2\" FILLER INCLUDED IN WING LENGTH, SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF 1/2\" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1\" DEEP AND HOLD 1/8\" BELOW SURFACE OF CONCRETE.)
- (A19) 18\" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.
- STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING SUPERSTRUCTURE. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03\"

**RODENT SCREEN DETAIL**

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

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

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

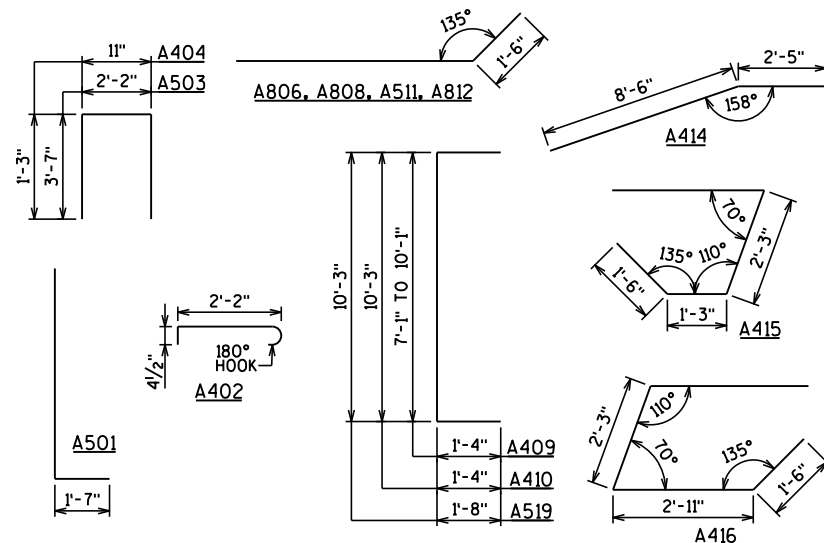
**WING 1 PLAN****WING 1 ELEVATION****WING 2 PLAN****WING 2 ELEVATION****BILL OF BARS**

BAR MARK	COAT	NO. REQ'D.	LENGTH	SERIES	BENT	LOCATION
A501		198	8'-0"		X	BODY - VERTICAL, F.F., B.F.
A402		78	3'-0"		X	BODY - HORIZONTAL TIES
A503		99	9'-1"		X	BODY - VERTICAL, TOP
A404		64	3'-3"		X	BODY - VERTICAL, TOP
A505		9	43'-7"			BODY - HORIZONTAL F.F., EAST
A806		9	47'-3"		X	BODY - HORIZONTAL B.F., EAST
A507		9	52'-6"			BODY - HORIZONTAL F.F., WEST
A808		9	56'-2"		X	BODY - HORIZONTAL B.F., WEST
A409	X	44	11'-1"	△	X	WINGS - VERTICAL
A410	X	10	12'-9"		X	WINGS - VERTICAL
A511	X	18	11'-9"		X	WINGS - HORIZONTAL, F.F.
A812	X	18	13'-5"		X	WINGS - HORIZONTAL, B.F.
A413	X	16	7'-3"	△		WINGS - HORIZONTAL
A414	X	4	10'-11"		X	WINGS - HORIZONTAL TOP
A415	X	5	7'-10"		X	WINGS - HORIZONTAL, W1
A416	X	5	9'-9"		X	WINGS - HORIZONTAL, W2
A417		2	42'-0"			BODY - HORIZONTAL, TOP
A418		2	50'-6"			BODY - HORIZONTAL, TOP
A519	X	10	13'-4"		X	WINGS - VERTICAL

BAR SERIES

BAR NO.	NO. REQ'D.	LENGTH
A409	4 SERIES OF 11	9'-7" TO 12'-7"
A413	4 SERIES OF 4	4'-4" TO 10'-2"

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

**BAR BENDING DIAGRAMS**

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-63-26			
DRAWN BY		BRE	PLANS CK'D. KRO
SOUTH ABUTMENT DETAILS		SHEET 6 OF 10	

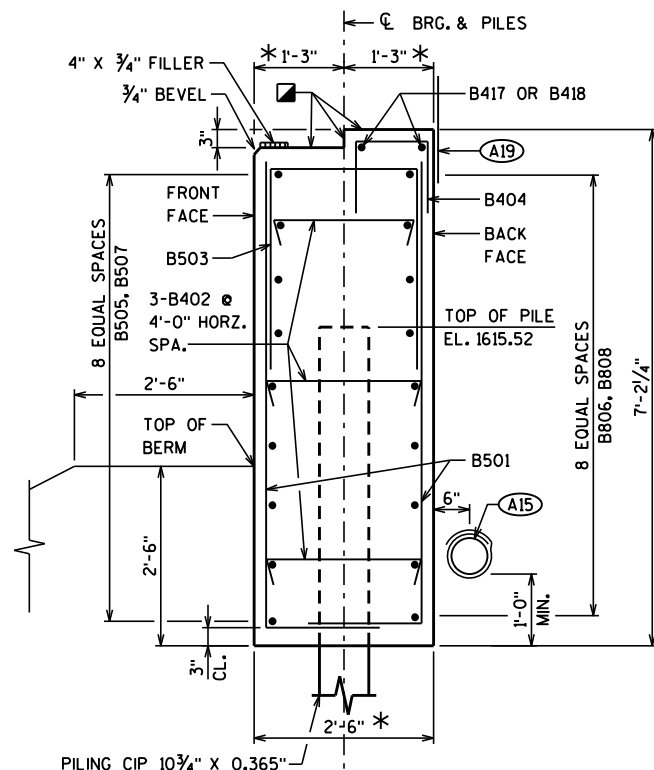


(A04) VERTICAL CONSTRUCTION JOINT: KEYWAY FORMED BY A BEVELED 2" X 8" (3/4" "V" GROOVE @ THE FRONT FACE, R.M.W. @ BACKFACE)

(A09) ABUTMENTS TO BE SUPPORTED ON 10 3/4" X 0.365" CIP PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 150 TONS PER PILE. ESTIMATED LENGTH = 60 FEET.

(A15) PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN, SEE SHEET 6 FOR DETAILS.

- SEE SHEET 8 FOR WINGWALL DETAILS, BILL OF BARS AND BAR BENDING DIAGRAM. SEE SHEET 8 FOR PILE SPLICE DETAILS.

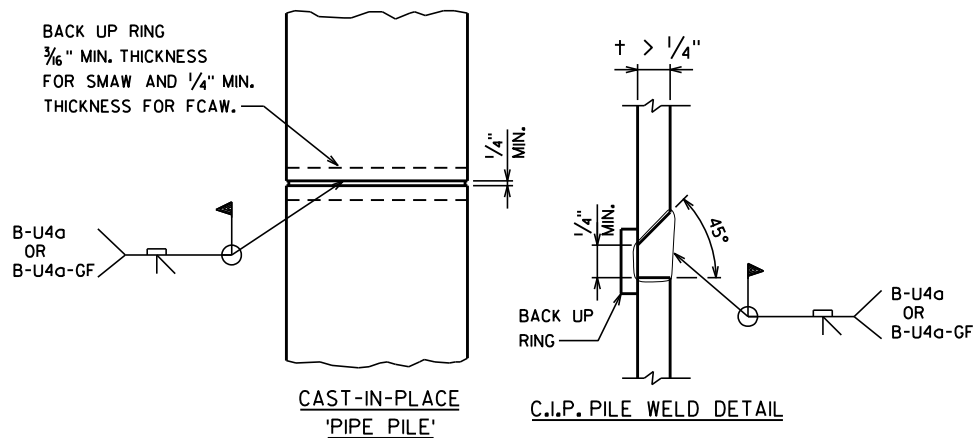


SECTION THRU BODY

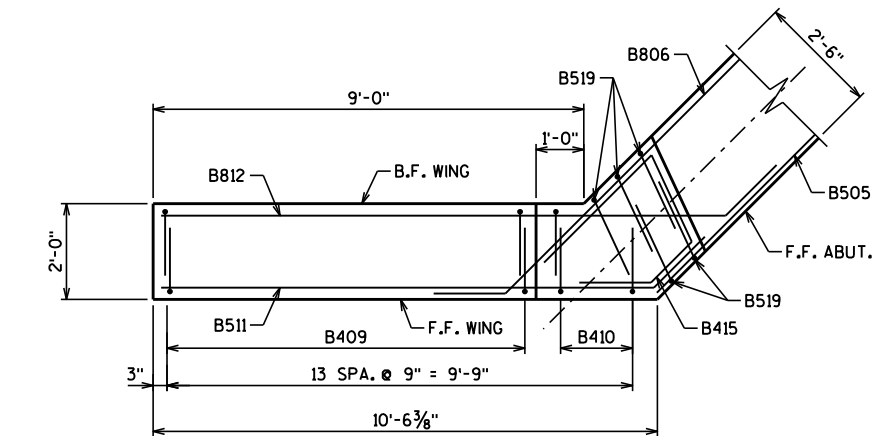
* DIMENSIONS MEASURED NORMAL
TO ϕ OF SUBSTRUCTURE UNITS

NOTES:

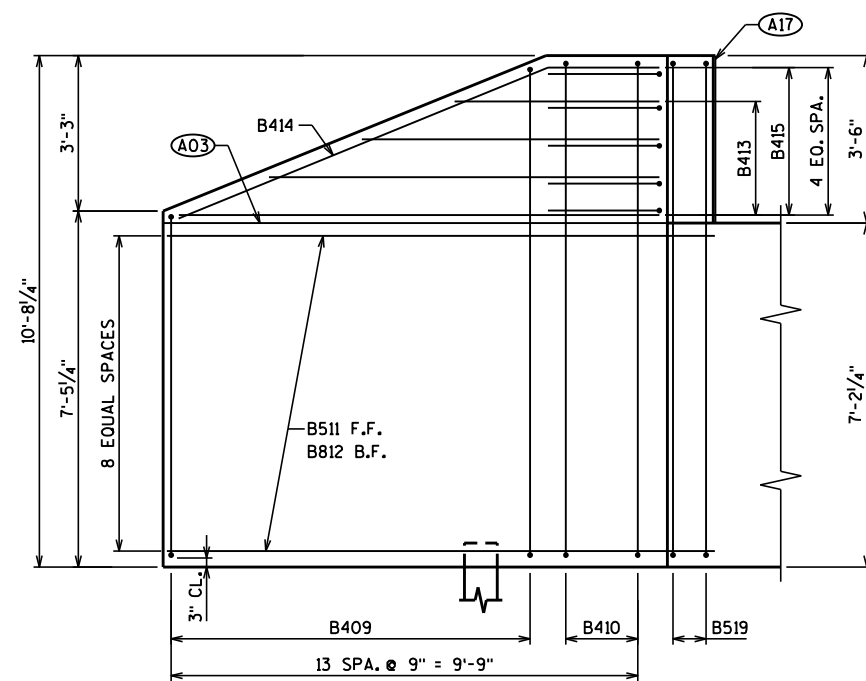
- (A03) OPTIONAL CONST. JOINT: KEYWAY FORMED BY BEVELED 2×6 . (18" R.M.W. ϕ B.F. & $\frac{3}{4}$ " "V" GROOVE ϕ F.F. IF JOINT IS USED).
- (A15) PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO EACH SLOPE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN.
- (A17) $\frac{1}{2}$ " FILLER INCLUDED IN WING LENGTH, SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF $\frac{1}{2}$ " FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD $\frac{1}{8}$ " BELOW SURFACE OF CONCRETE.)
- (A19) 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.
- STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING SUPERSTRUCTURE. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03"



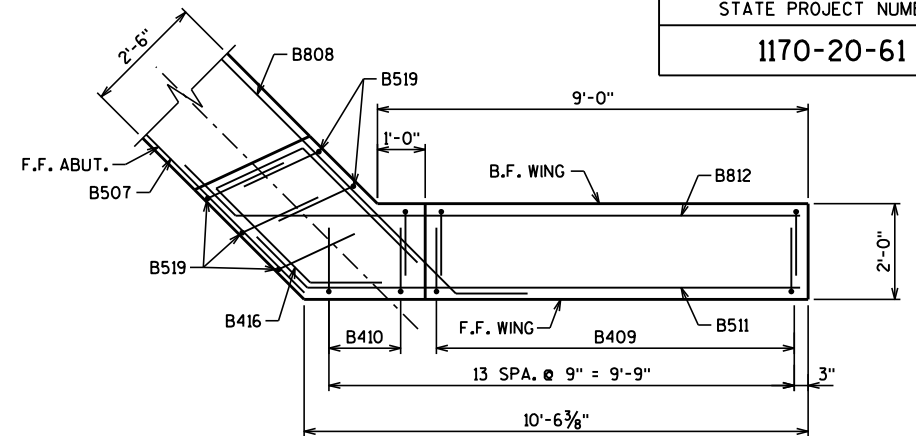
PILE SPLICE DETAILS



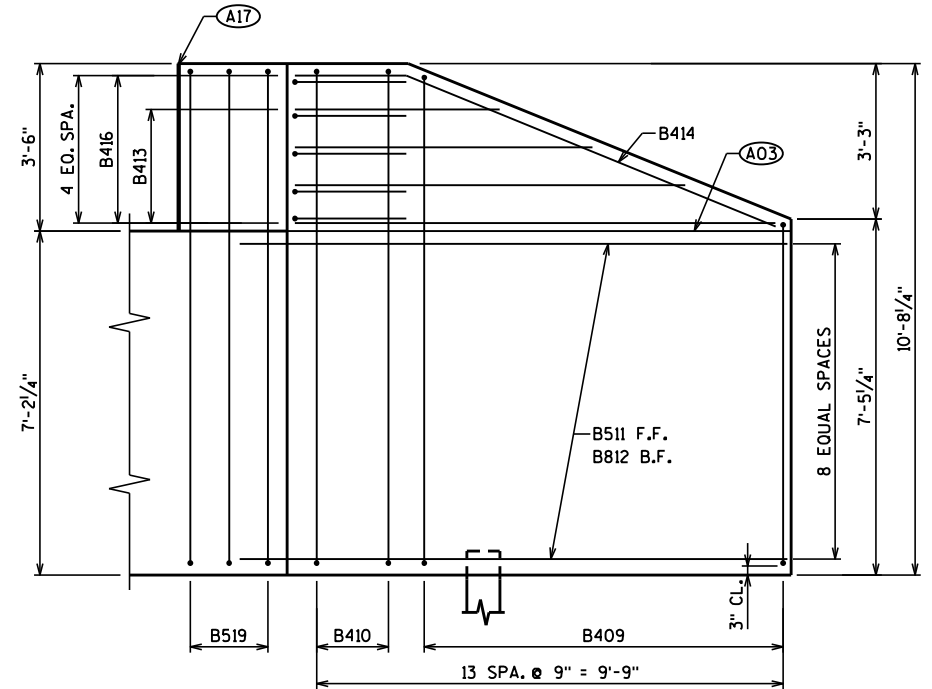
WING 3 PLAN



WING 3 ELEVATION



WING 4 PLAN



WING 4 ELEVATION

BILL OF BARS

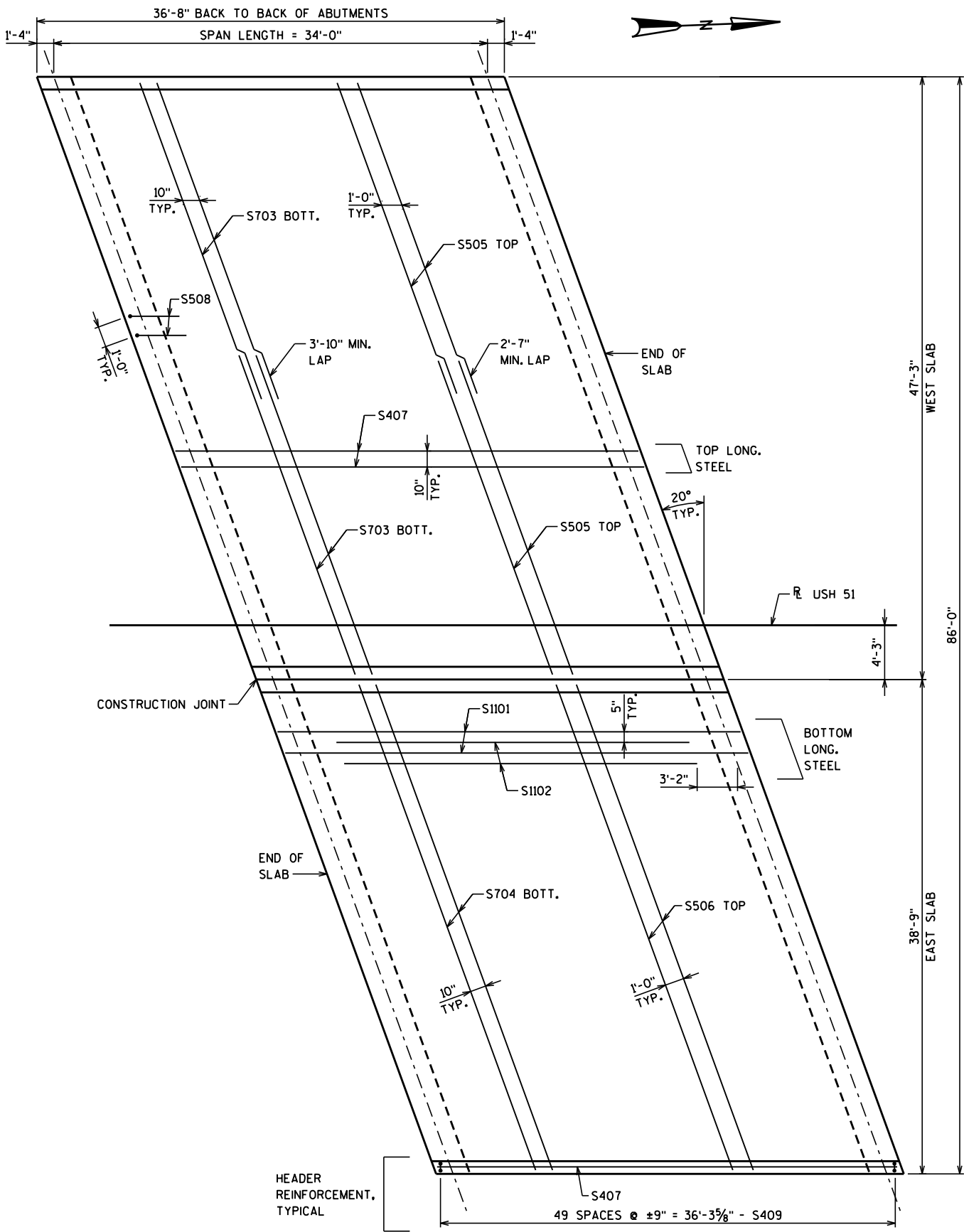
BAR MARK	COAT	NO. REQ'D.	LENGTH	SERIES	BENT	LOCATION
B501		198	8'-0"		X	BODY - VERTICAL, F.F., B.F.
B402		78	3'-0"		X	BODY - HORIZONTAL TIES
B503		99	9'-1"		X	BODY - VERTICAL, TOP
B404		64	3'-3"		X	BODY - VERTICAL, TOP
B505		9	43'-7"			BODY - HORIZONTAL F.F., EAST
B806		9	47'-3"		X	BODY - HORIZONTAL B.F., EAST
B507		9	52'-6"			BODY - HORIZONTAL F.F., WEST
B808		9	56'-2"		X	BODY - HORIZONTAL B.F., WEST
B409	X	44	11'-1"	Δ	X	WINGS - VERTICAL
B410	X	10	12'-9"		X	WINGS - VERTICAL
B511	X	18	11'-9"		X	WINGS - HORIZONTAL, F.F.
B812	X	18	13'-5"		X	WINGS - HORIZONTAL, B.F.
B413	X	16	7'-3"	Δ		WINGS - HORIZONTAL
B414	X	4	10'-11"		X	WINGS - HORIZONTAL TOP
B415	X	5	7'-10"		X	WINGS - HORIZONTAL, W1
B416	X	5	9'-9"		X	WINGS - HORIZONTAL, W2
B417		2	42'-0"			BODY - HORIZONTAL, TOP
B418		2	50'-6"			BODY - HORIZONTAL, TOP
B519	X	10	13'-4"		X	WINGS - VERTICAL

BAR SERIES

BAR NO.	NO. REQ'D.	LENGTH
B409	4 SERIES OF 11	9'-7" TO 12'-7"
B413	4 SERIES OF 4	4'-4" TO 10'-2"

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

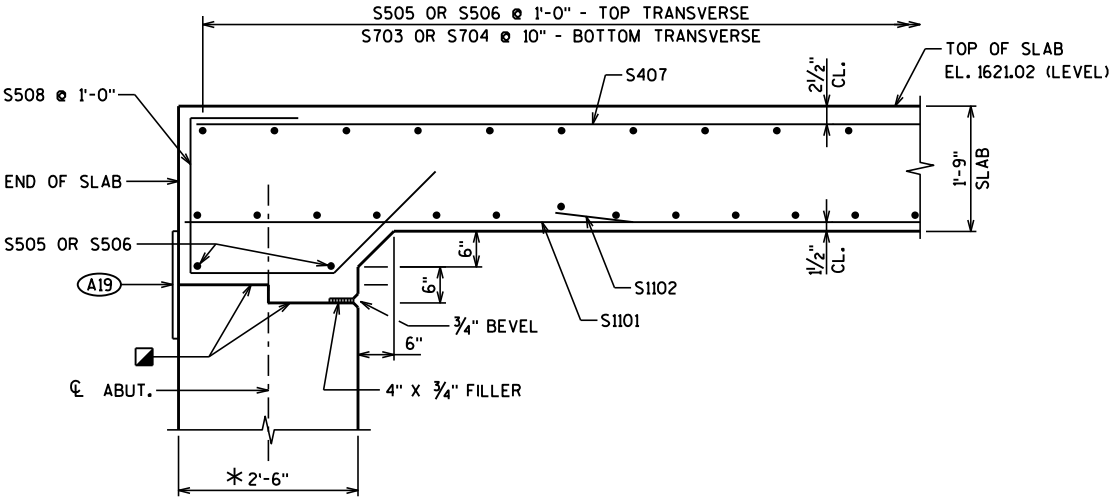
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-63-26			
DRAWN BY		BRE	PLANS CK'D. KRO
NORTH ABUTMENT DETAILS		SHEET 8 OF 10	



PLAN

NOTES

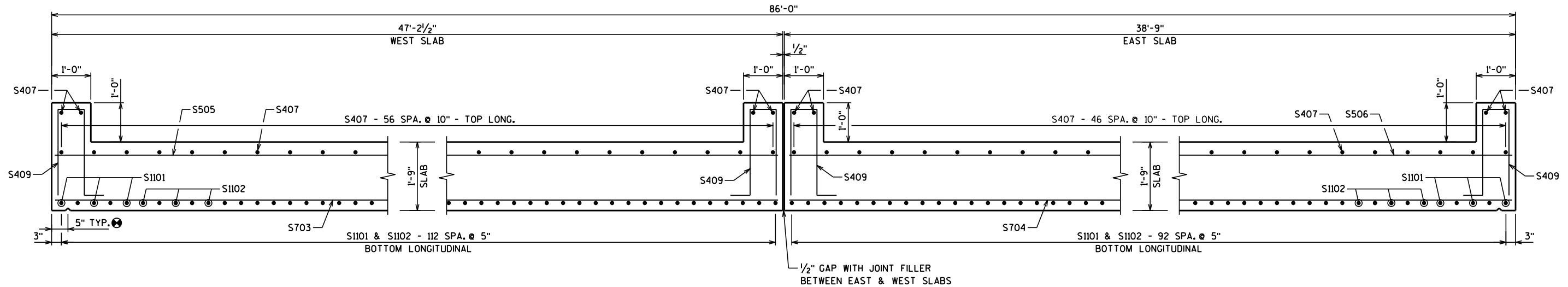
- STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING SUPERSTRUCTURE. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03"
- TOP TRANSVERSE BARS IN SLAB SHALL BE SUPPORTED BY INDIVIDUAL BAR CHAIRS AT APPROXIMATELY 3'-0" CENTERS EACH WAY. BOTTOM LONGITUDINAL BARS SHALL BE SUPPORTED BY CONTINUOUS BAR CHAIRS AT APPROXIMATELY 4'-0" CENTERS.
- TRANSVERSE BARS SHALL BE PLACED PARALLEL TO THE CL OF SUBSTRUCTURE UNITS.
- ALL SLAB THICKNESS DIMENSIONS ARE MINIMUM. ANY TOLERANCES NECESSARY TO CORRECT CONSTRUCTION DISCREPANCIES ARE TO BE PLUS (+).
- 3/4" V-GROOVE, EXTEND V-GROOVE TO 6" FROM FRONT FACE OF ABUTMENT DIAPHRAGM.
- A19 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.
- PRIOR TO RELEASING SLAB FALSEWORK, TAKE TOP OF SLAB ELEVATIONS AT THE CL OF ABUTMENTS, AND AT 5/10 POINTS TO VERIFY CAMBER. TAKE ELEVATIONS ALONG GUTTER LINES AND CROWN OR CL.



LONG. SECTION THRU RDWY.

* DIMENSION IS TAKEN NORMAL TO CL SUBSTRUCTURE UNITS.

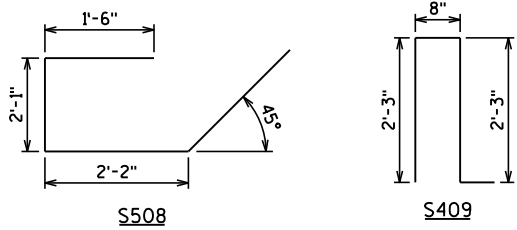
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-63-26			
		DRAWN BY	BRE PLANS CK'D. KRO
SUPERSTRUCTURE		SHEET 9 OF 10	



CROSS SECTION THRU ROADWAY
(LOOKING NORTH)

BILL OF BARS

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	LOCATION
S1101	X	104	36'-3"		LONGITUDINAL BOTTOM
S1102	X	102	27'-8"		LONGITUDINAL BOTTOM
S703	X	96	26'-11"		TRANSVERSE BOT. WEST SLAB
S704	X	48	40'-10"		TRANSVERSE BOT. EAST SLAB
S505	X	84	26'-5"		TRANSVERSE TOP WEST SLAB
S506	X	42	40'-10"		TRANSVERSE TOP EAST SLAB
S407	X	112	36'-3"		LONGITUDINAL TOP
S508	X	186	7'-5"	X	AT END OF SLAB
S409	X	200	5'-7"	X	VERT. IN HEADERS

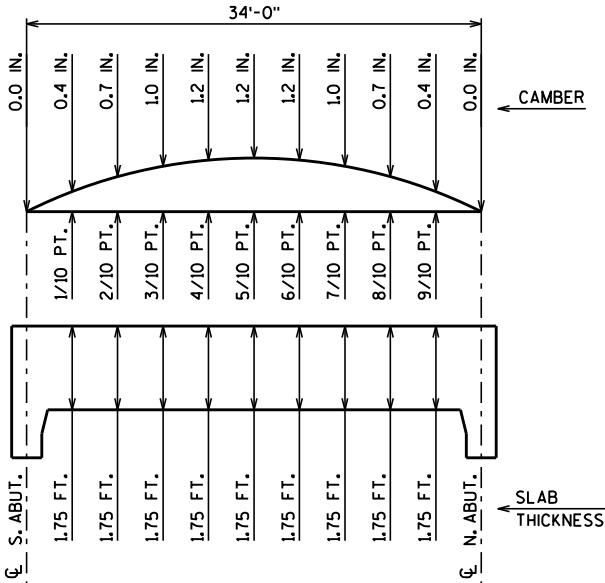


BAR BEND DIAGRAMS

SURVEY TOP OF SLAB ELEVATIONS

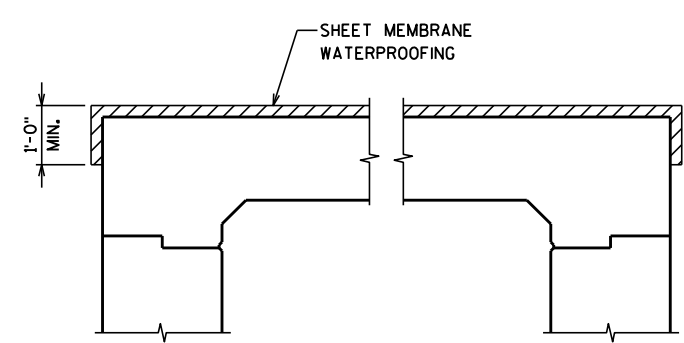
	WEST SLAB		
	ABUTMENT	5/10 PT.	ABUTMENT
. GUTTER			
CL OF SLAB			
. GUTTER			

	EAST SLAB		
	ABUTMENT	5/10 PT.	ABUTMENT
. GUTTER			
CL OF SLAB			
. GUTTER			

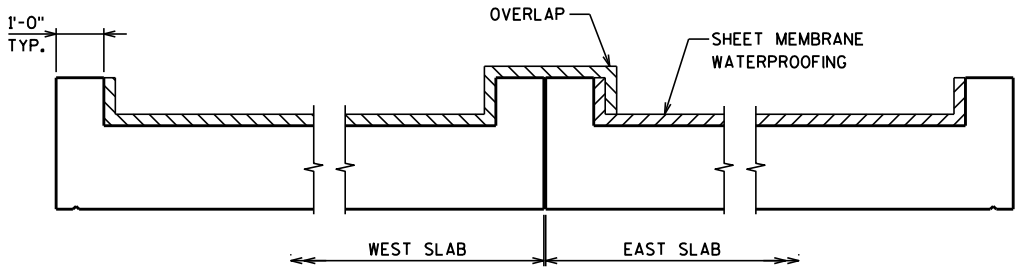


CAMBER DIAGRAM

CAMBER IS BASED ON 3 TIMES STRUCTURE DEAD LOAD DEFLECTIONS PLUS OVERBURDEN DEFLECTION. CAMBER SPANS AS SHOWN TO PROVIDE FOR DEADLOAD DEFLECTION AND FUTURE CREEP. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT.



ELEVATION THRU STRUCTURE
SHOWING SHEET MEMBRANE WATERPROOFING LIMITS



CROSS SECTION THRU STRUCTURE
SHOWING SHEET MEMBRANE WATERPROOFING LIMITS

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-63-26			
DRAWN BY		BRE	PLANS CK'D. KRO
SUPERSTRUCTURE DETAILS		SHEET 10 OF 10	

STAGE 1

STATION	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
	CUT	SALVAGED/ UNUSABLE PAVEMENT MATERIAL	FILL	CUT	SALVAGED/ UNUSABLE PAVEMENT MATERIAL	FILL	CUT 1.00	EXPANDED FILL 1.25	MASS ORDINATE
457+25	16.90	0.00	0.00	0	0	0	0	0	0
457+50	18.85	0.00	0.04	17	0	0	17	0	17
457+65	20.69	0.00	0.06	11	0	0	28	0	28
457+75	22.17	0.00	19.83	8	0	4	36	5	31
457+86	24.55	0.00	0.38	10	0	4	46	10	36
458+00	29.44	0.00	0.48	14	0	0	60	10	50
458+50	55.65	0.00	0.00	79	0	0	139	10	129
459+00	84.16	0.00	0.00	129	0	0	268	10	258
459+50	85.85	0.00	43.39	157	0	40	425	60	365
459+68	90.10	0.00	0.73	57	0	14	482	78	405
459+75	90.42	0.00	8.33	25	0	1	507	79	428
460+00	91.72	0.00	0.01	84	0	4	591	84	507
460+50	76.30	0.00	0.02	156	0	0	747	84	663
461+00	50.90	0.00	1.11	118	0	1	865	85	780
461+50	25.99	0.00	5.79	71	0	6	936	93	844
462+00	17.57	0.00	2.09	40	0	7	976	101	875
462+50	16.48	0.00	0.00	32	0	2	1,008	104	904

STAGE 2

STATION	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
	CUT	SALVAGED/ UNUSABLE PAVEMENT MATERIAL	FILL	CUT	SALVAGED/ UNUSABLE PAVEMENT MATERIAL	FILL	CUT 1.00	EXPANDED FILL 1.25	MASS ORDINATE
556+55	16.71	0.00	0.01	0	0	0	0	0	0
557+00	12.82	0.00	31.46	25	0	26	25	33	-8
557+50	12.68	0.00	34.31	24	0	61	49	109	-60
558+00	9.77	0.00	17.49	21	0	48	70	169	-99
558+50	11.15	0.00	7.18	19	0	23	89	198	-109
559+00	13.88	0.00	3.28	23	0	10	112	210	-98
559+50	100.42	0.00	10.85	106	0	13	218	226	-8
559+77	105.25	0.00	31.52	103	0	21	321	253	69
560+00	104.89	0.00	92.30	195	0	115	516	396	120
560+50	20.42	0.00	25.20	116	0	109	632	533	100
561+00	11.90	0.00	6.79	30	0	30	662	570	92
561+50	8.94	0.00	7.96	19	0	14	681	588	94
562+00	7.08	0.00	9.23	15	0	16	696	608	89
562+50	6.44	0.00	24.39	13	0	31	709	646	63
563+00	14.62	0.00	0.19	19	0	23	728	675	53
563+19	16.85	0.00	0.00	11	0	0	739	675	64

NOTE: EARTHWORK BETWEEN STA 559+00 AND STA 560+75 PAID AS EXCAVATION FOR STRUCTURES

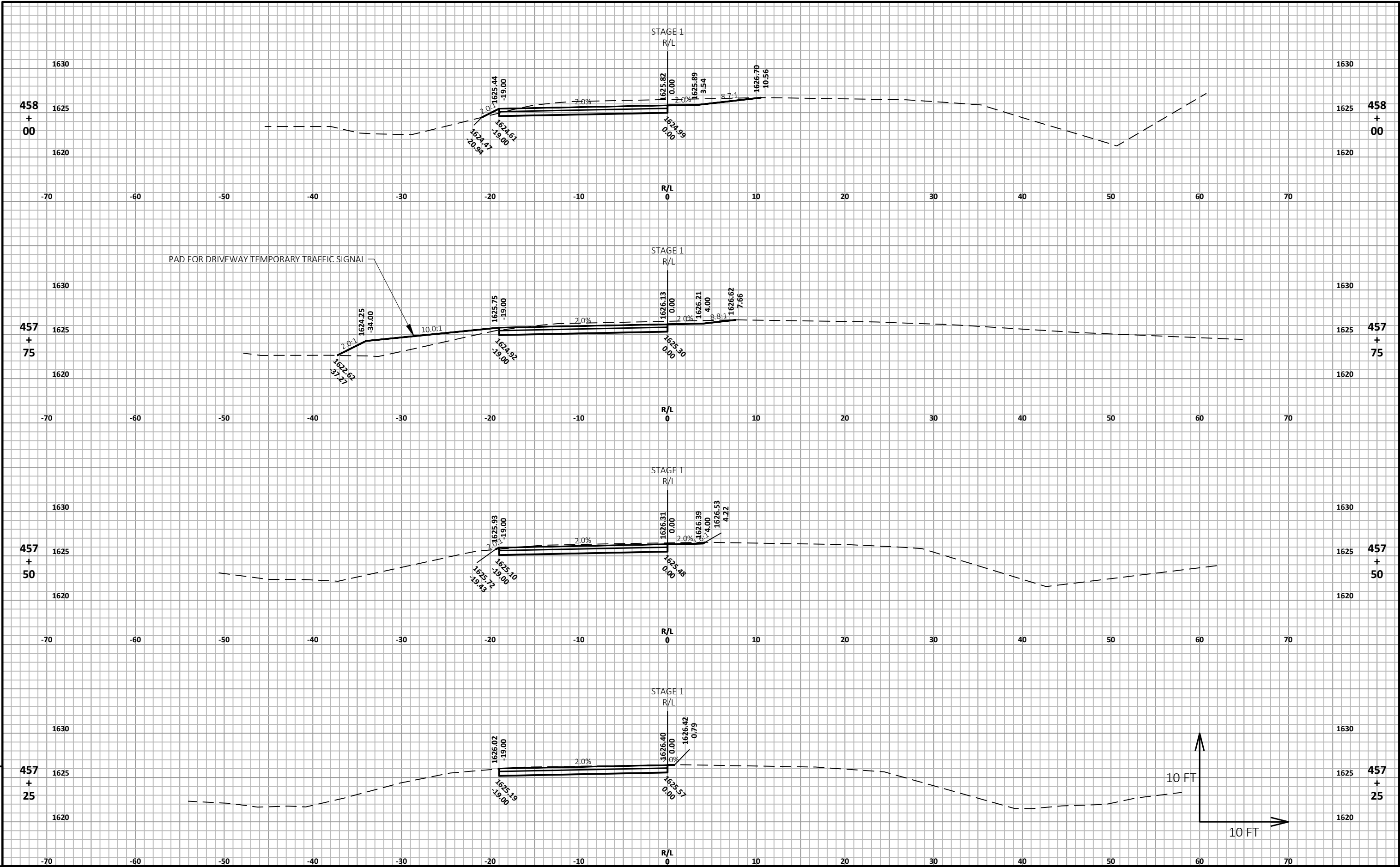
STAGE 3

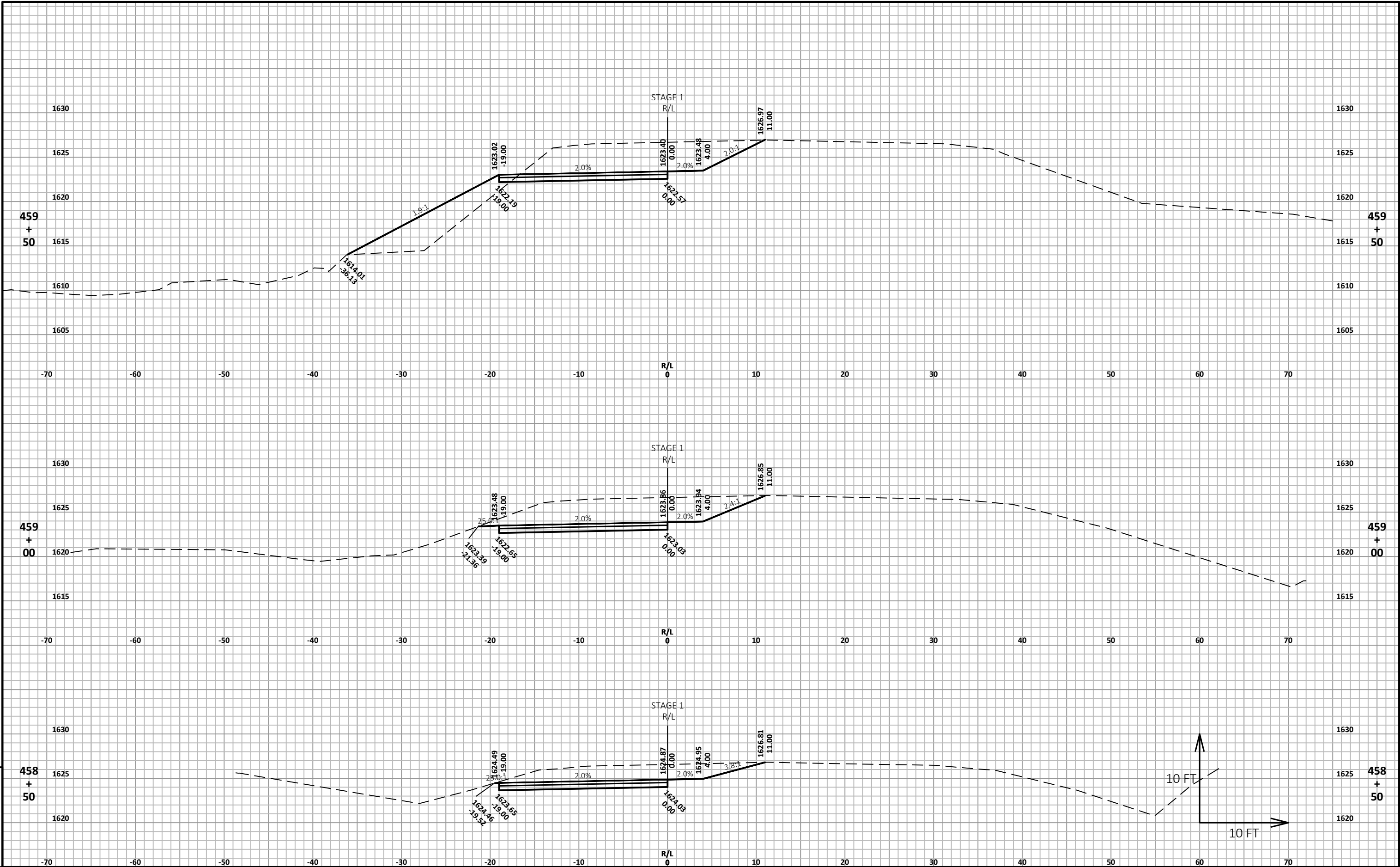
STATION	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
	CUT	SALVAGED/ UNUSABLE PAVEMENT MATERIAL	FILL	CUT	SALVAGED/ UNUSABLE PAVEMENT MATERIAL	FILL	CUT 1.00	EXPANDED FILL 1.25	MASS ORDINATE
356+88	41.45	0.00	1.67	0	0	0	0	0	0
357+00	43.58	0.00	0.62	19	0	1	19	1	18
357+50	44.74	0.00	0.00	82	0	1	101	3	99
357+75	25.96	0.00	0.00	33	0	0	134	3	132
357+85	39.35	0.00	0.00	12	0	0	146	3	144
358+00	36.10	0.00	0.00	21	0	0	167	3	165
358+50	8.94	0.00	2.27	42	0	2	209	5	204
359+00	3.06	0.00	32.86	11	0	33	220	46	174
359+50	0.00	0.00	156.27	3	0	175	223	265	-42
359+80	0.00	0.00	154.18	0	0	0	223	265	-42
360+00	0.00	0.00	185.71	0	0	315	223	659	-436
360+50	2.93	0.00	77.66	3	0	244	226	964	-738
361+00	6.89	0.00	29.15	9	0	99	235	1,088	-853
361+50	35.94	0.00	5.44	40	0	32	275	1,128	-853
362+00	40.70	0.00	1.55	71	0	6	346	1,135	-789
362+50	36.22	0.00	9.24	71	0	10	417	1,148	-731
362+82	35.38	0.00	9.60	42	0	11	459	1,161	-702

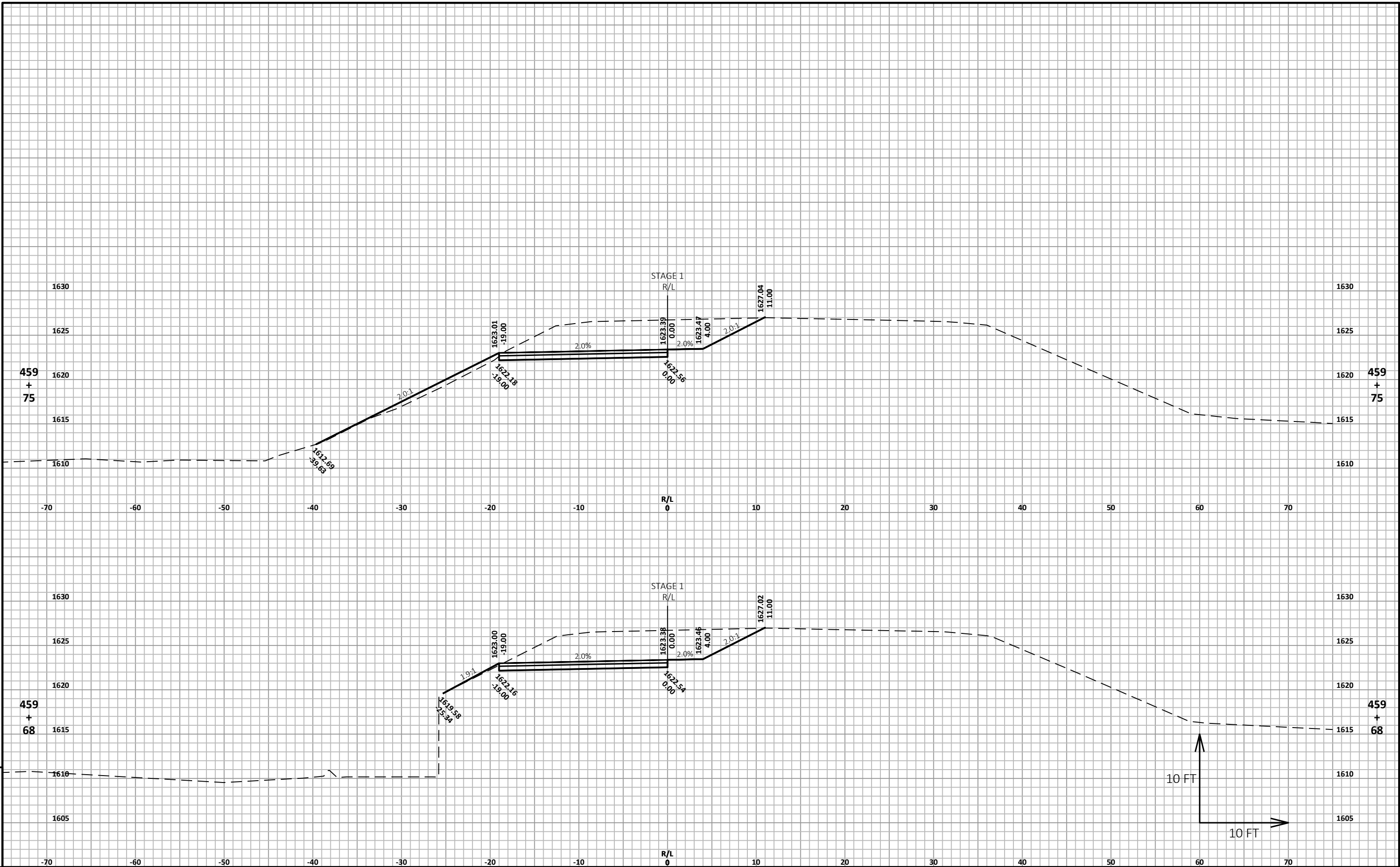
NOTE: EARTHWORK BETWEEN STA 359+00 AND STA 360+75 PAID AS EXCAVATION FOR STRUCTURES

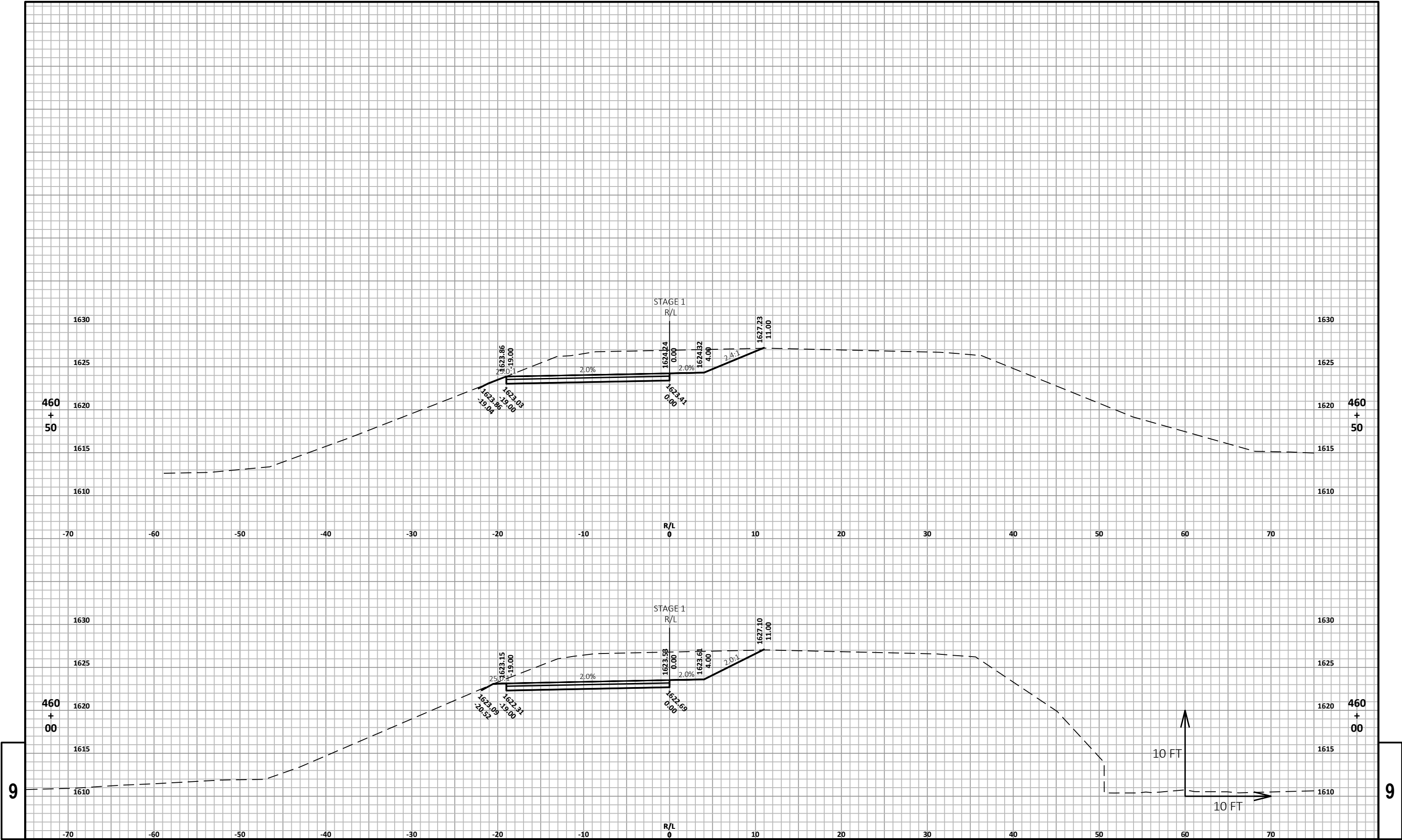
STAGE 4

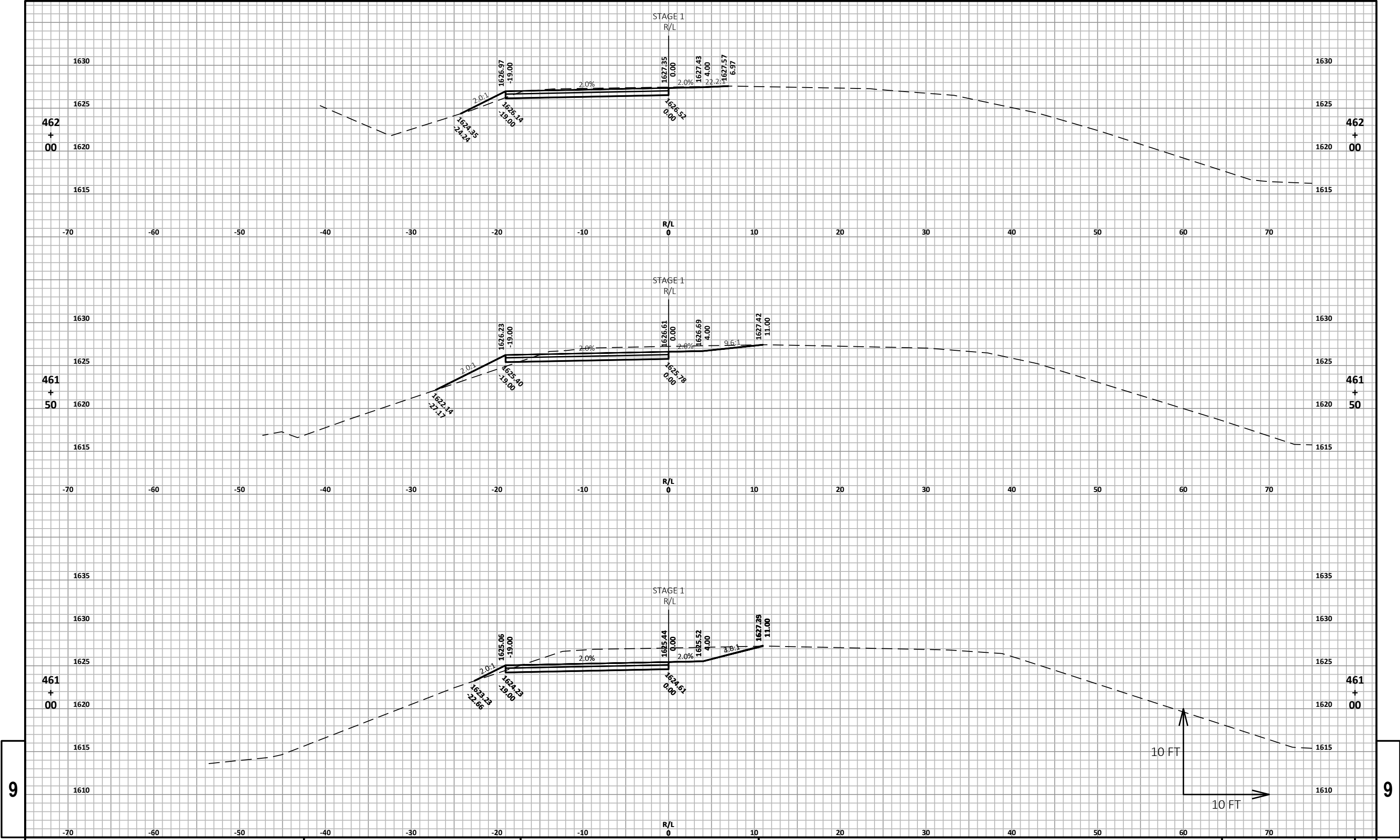
STATION	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
	CUT	SALVAGED/ UNUSABLE PAVEMENT MATERIAL	FILL	CUT	SALVAGED/ UNUSABLE PAVEMENT MATERIAL	FILL	CUT 1.00	EXPANDED FILL 1.25	MASS ORDINATE
356+42	37.36	0.00	4.72	0	0	0	0	0	0
356+50	36.51	0.00	2.47	12	0	1	12	1	11
357+00	75.84	0.00	0.00	104	0	2	116	4	112
357+50	85.42	0.00	0.00	149	0	0	265	4	261
357+61	91.65	0.00	0.44	37	0	0	302	4	298
357+75	74.39	0.00	0.14	42	0	0	344	4	340
357+85	47.24	0.00	0.56	23	0	0	367	4	363
358+00	73.62	0.00	0.00	34	0	0	401	4	397
358+50	70.10	0.00	0.00	133	0	0	534	4	530
359+00	57.58	0.00	0.00	118	0	0	652	4	648
359+50	32.87	0.00	3.36	84	0	3	736	8	729
360+00	23.97	0.00	0.00	53	0	3	789	11	778
360+50	45.62	0.00	9.73	64	0	9	853	23	831
361+00	67.69	0.00	0.00	105	0	9	958	34	924
361+50	71.77	0.00	0.00	129	0	0	1,087	34	1,053
362+00	75.17	0.00	0.00	136	0	0	1,223	34	1,189
362+50	72.45	0.00	0.00	137	0	0	1,360	34	1,326
363+00	42.27	0.00	0.00	106	0	0	1,466	34	1,432
363+32	42.56	0.00	0.00	50	0	0	1,516	34	1,482







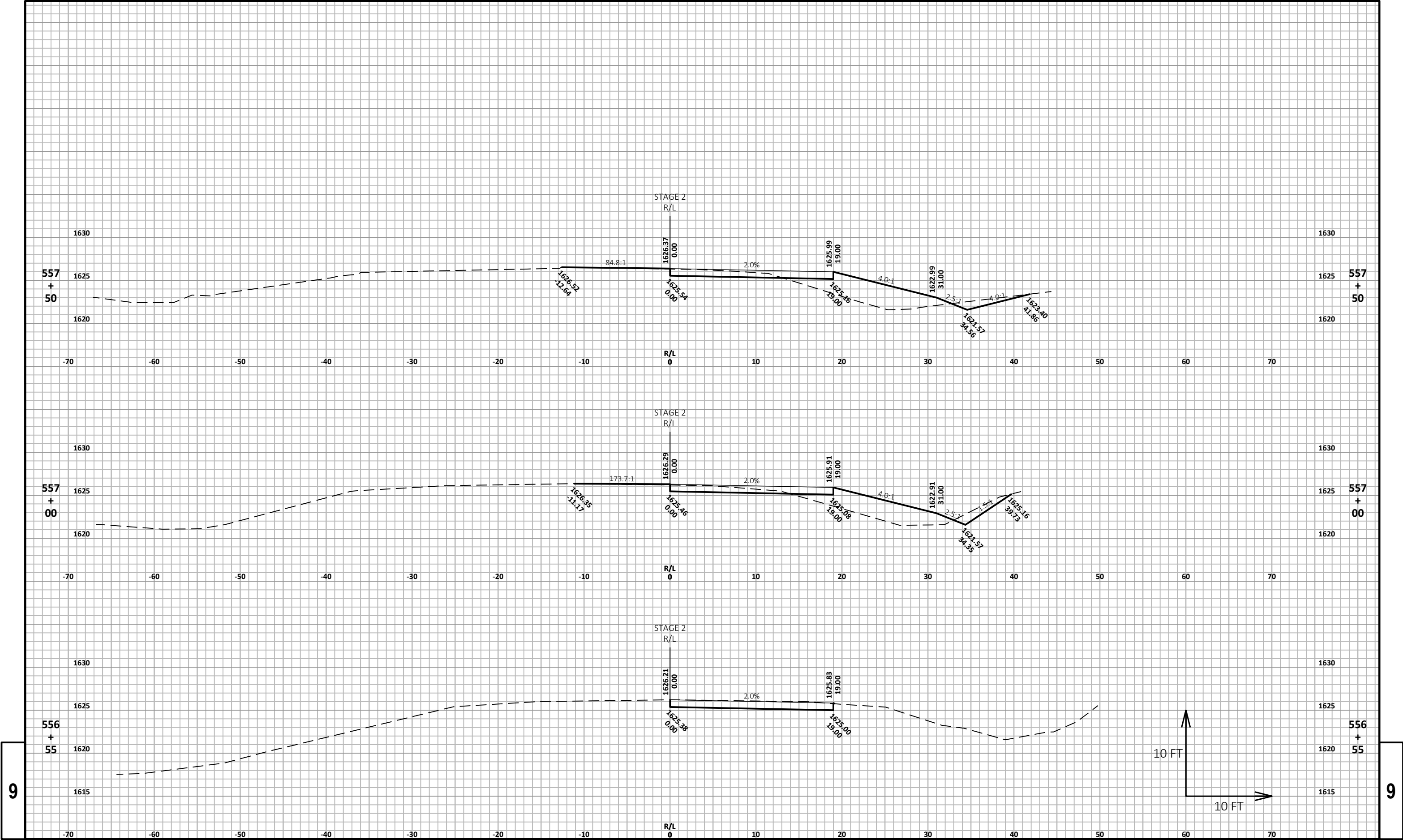




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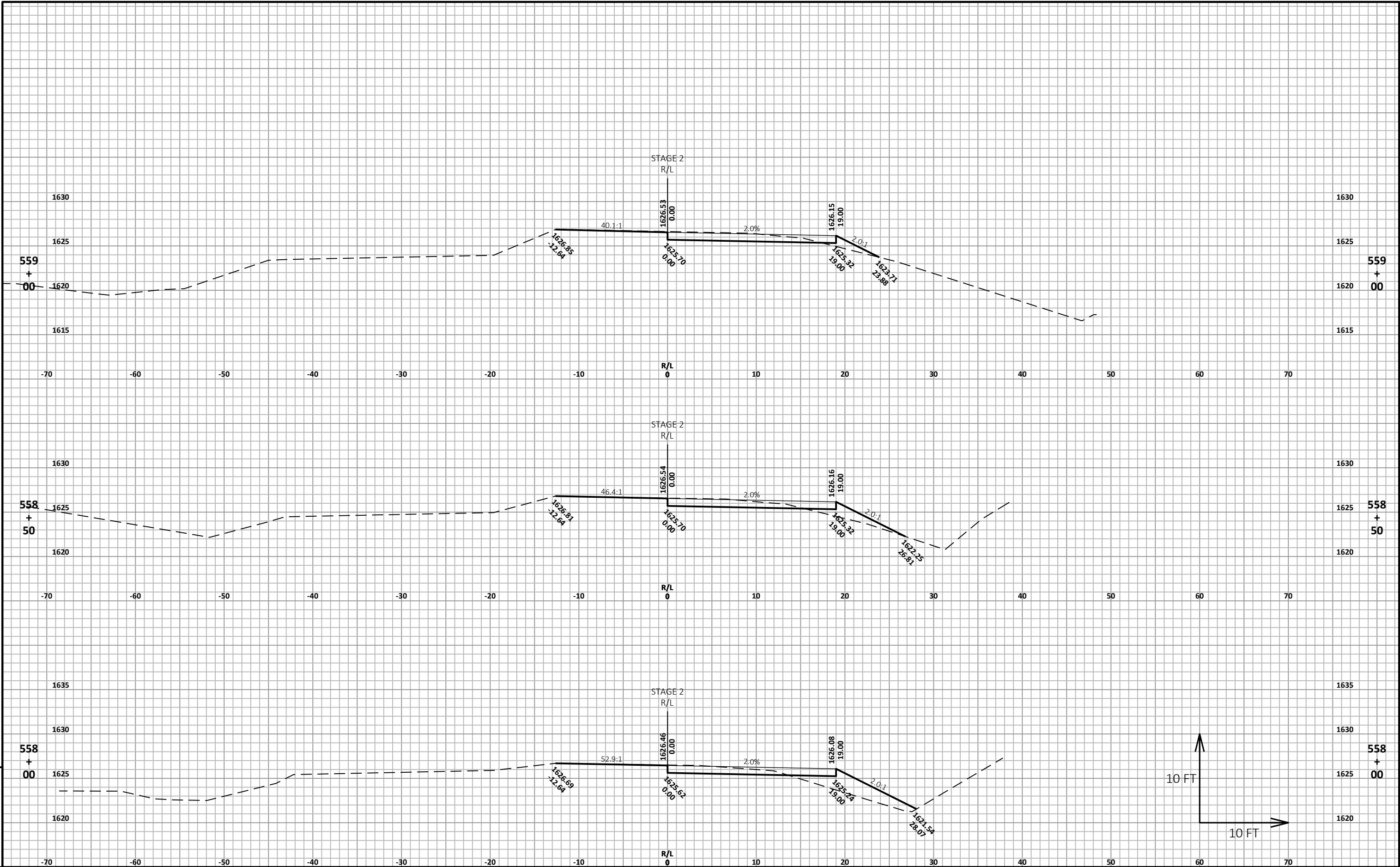
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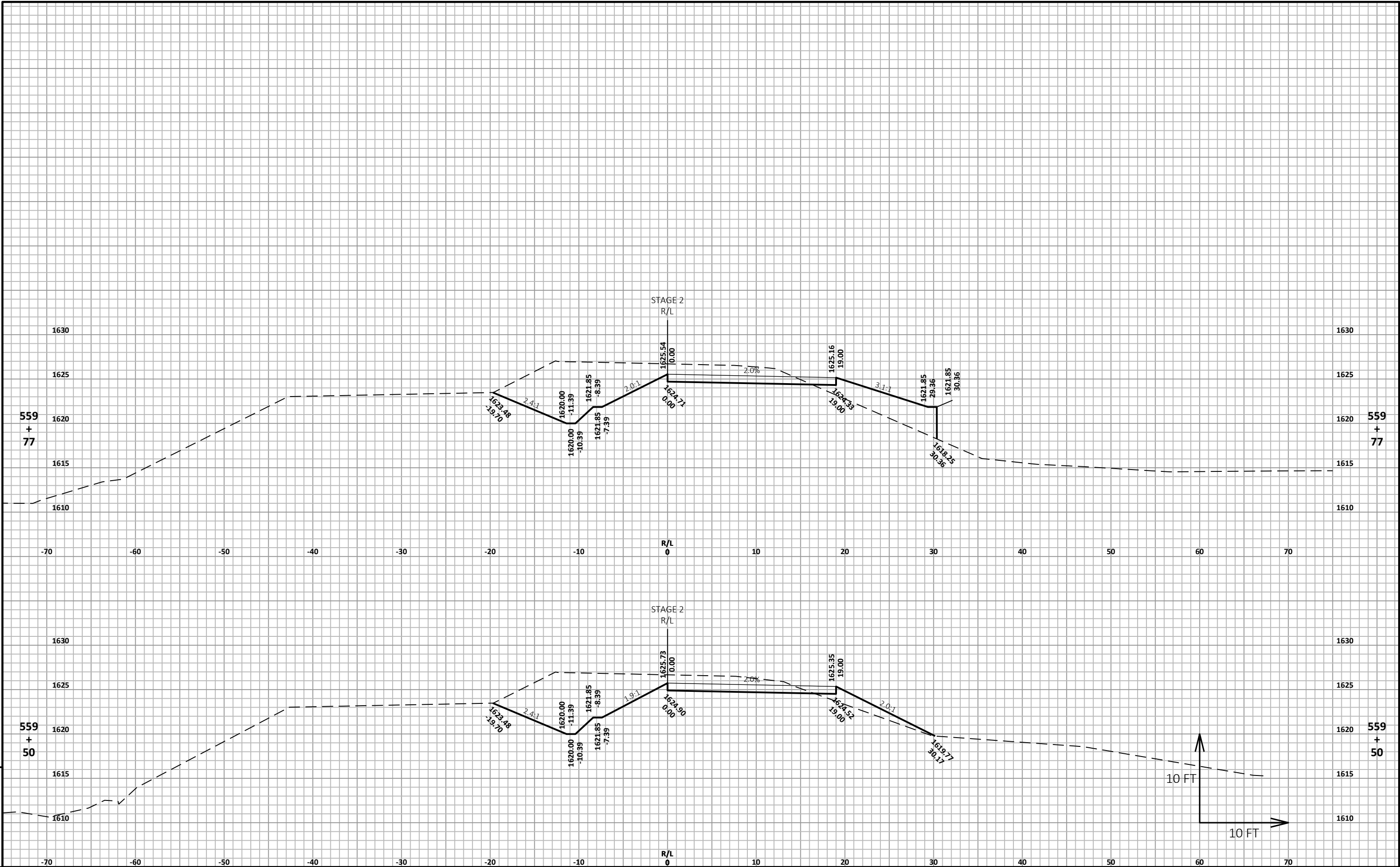
PROJECT NO: 1170-20-61	HWY: USH 51	COUNTY: VILAS	CROSS SECTIONS: USH 51 - STAGE 1	SHEET	E
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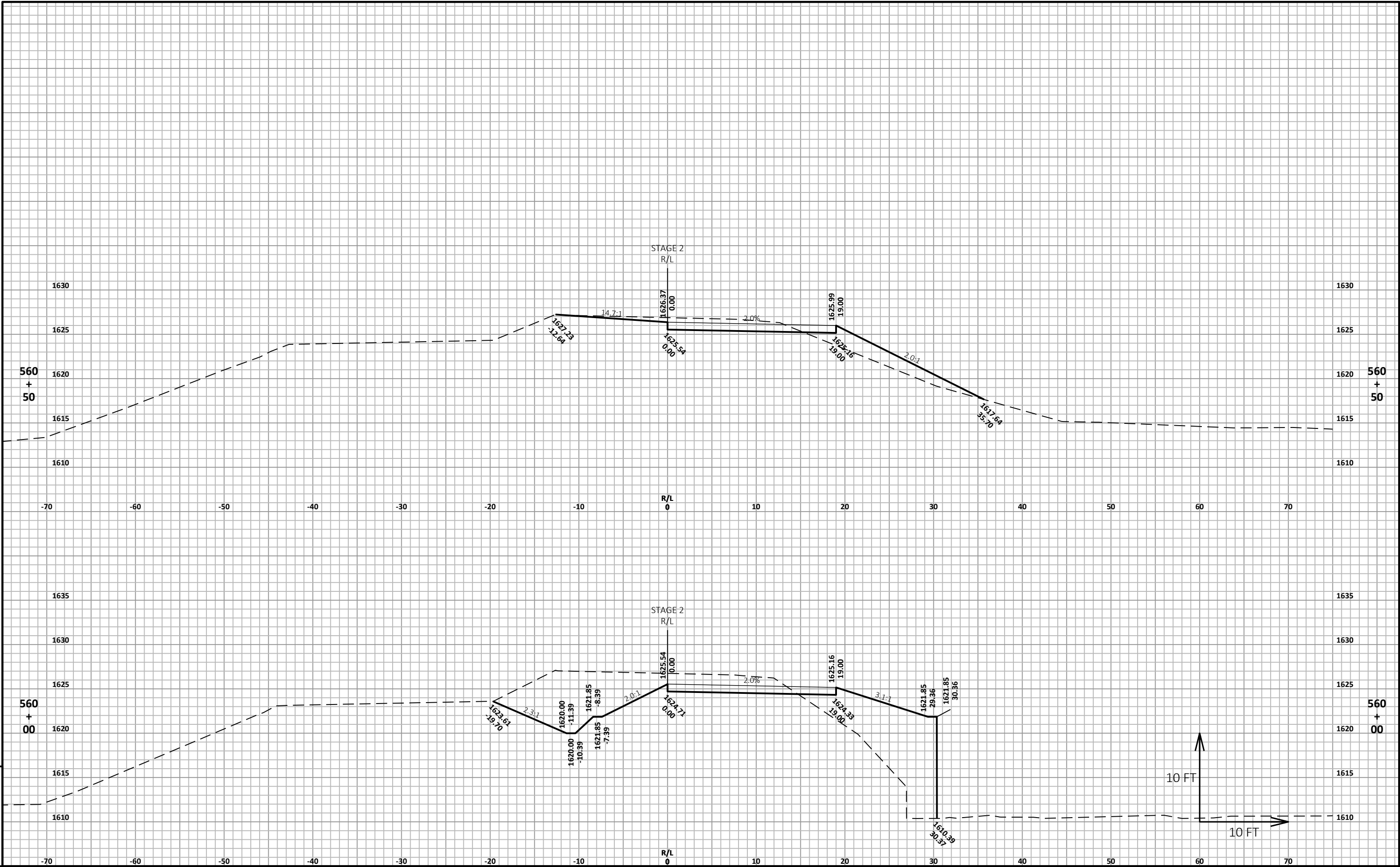


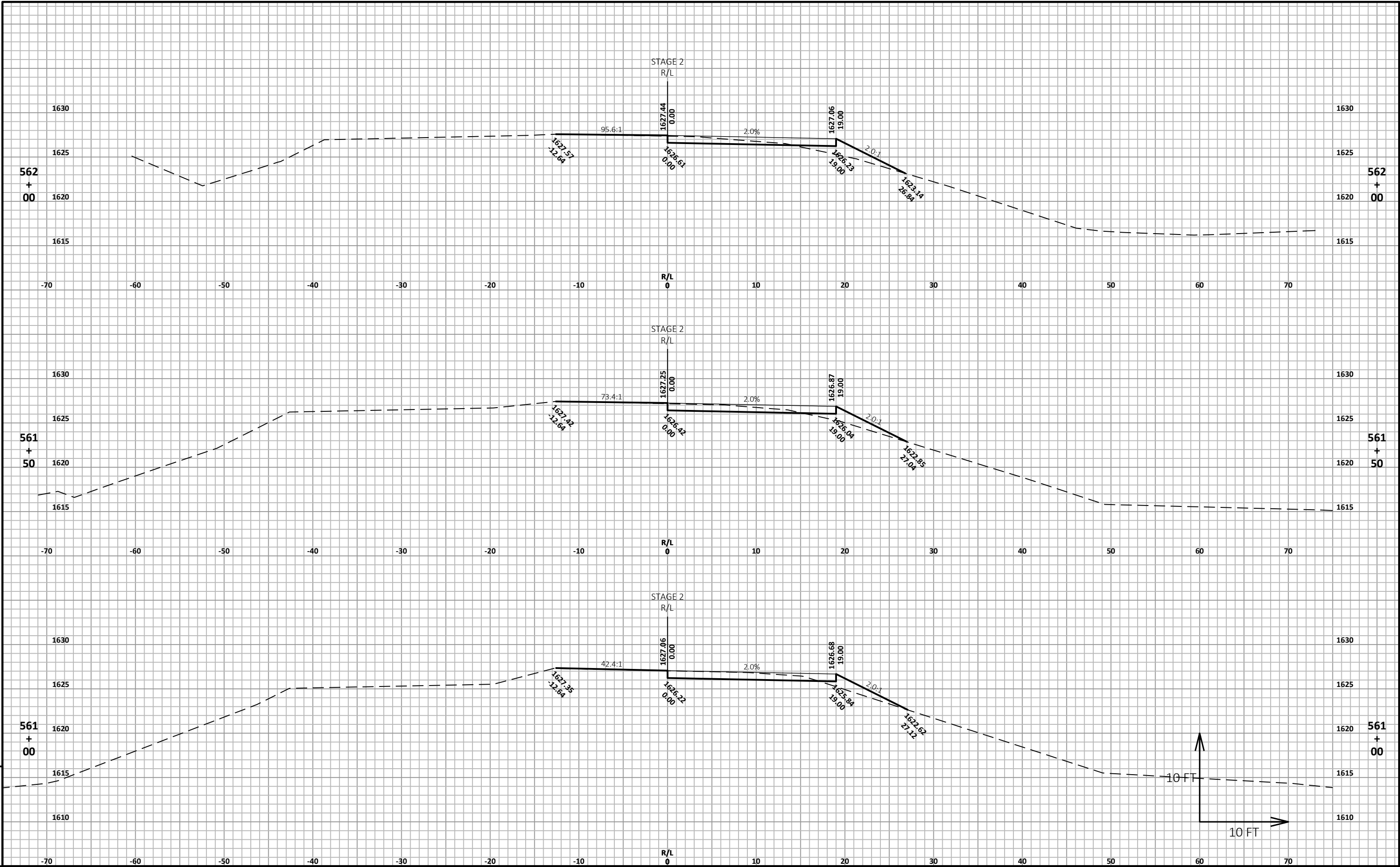
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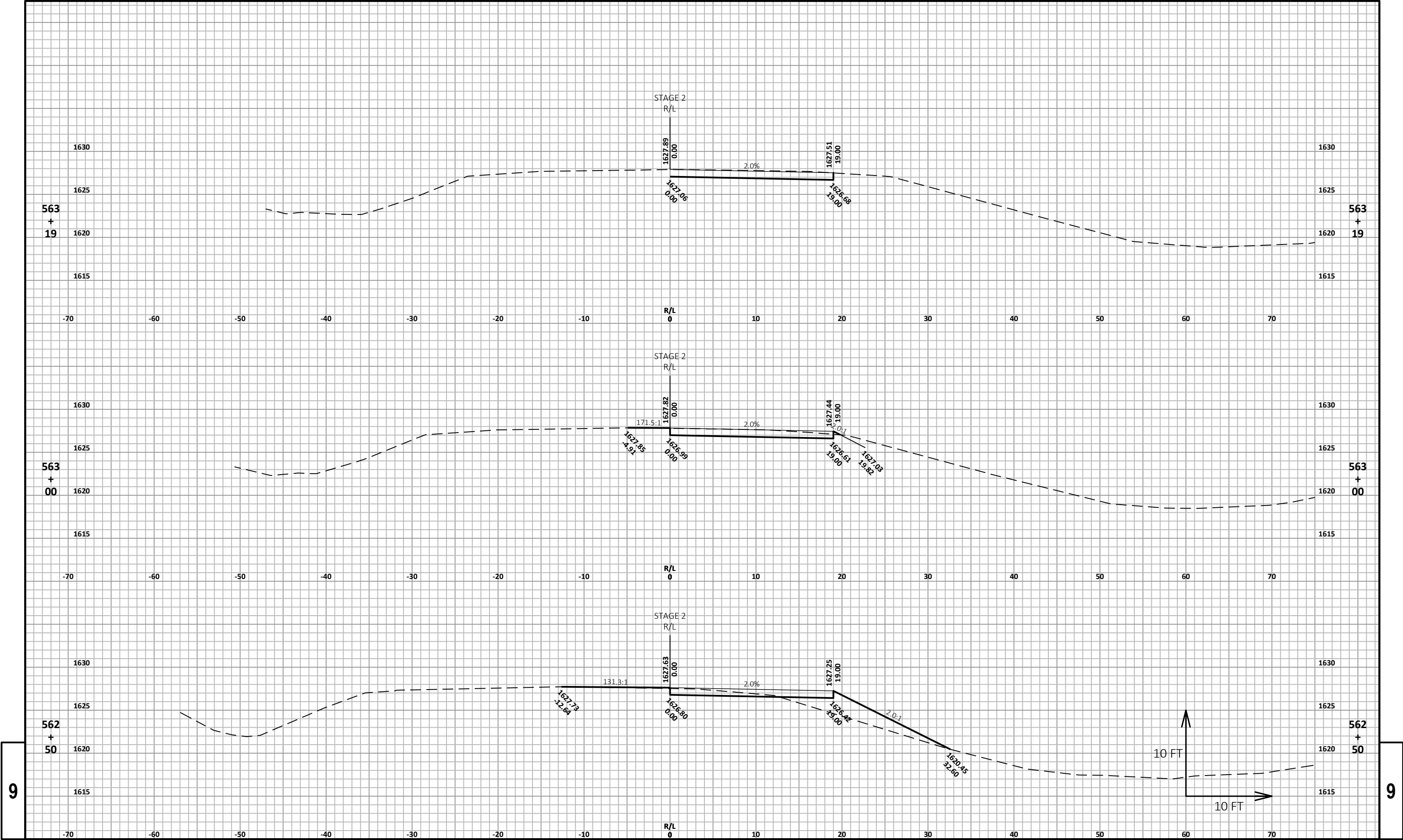
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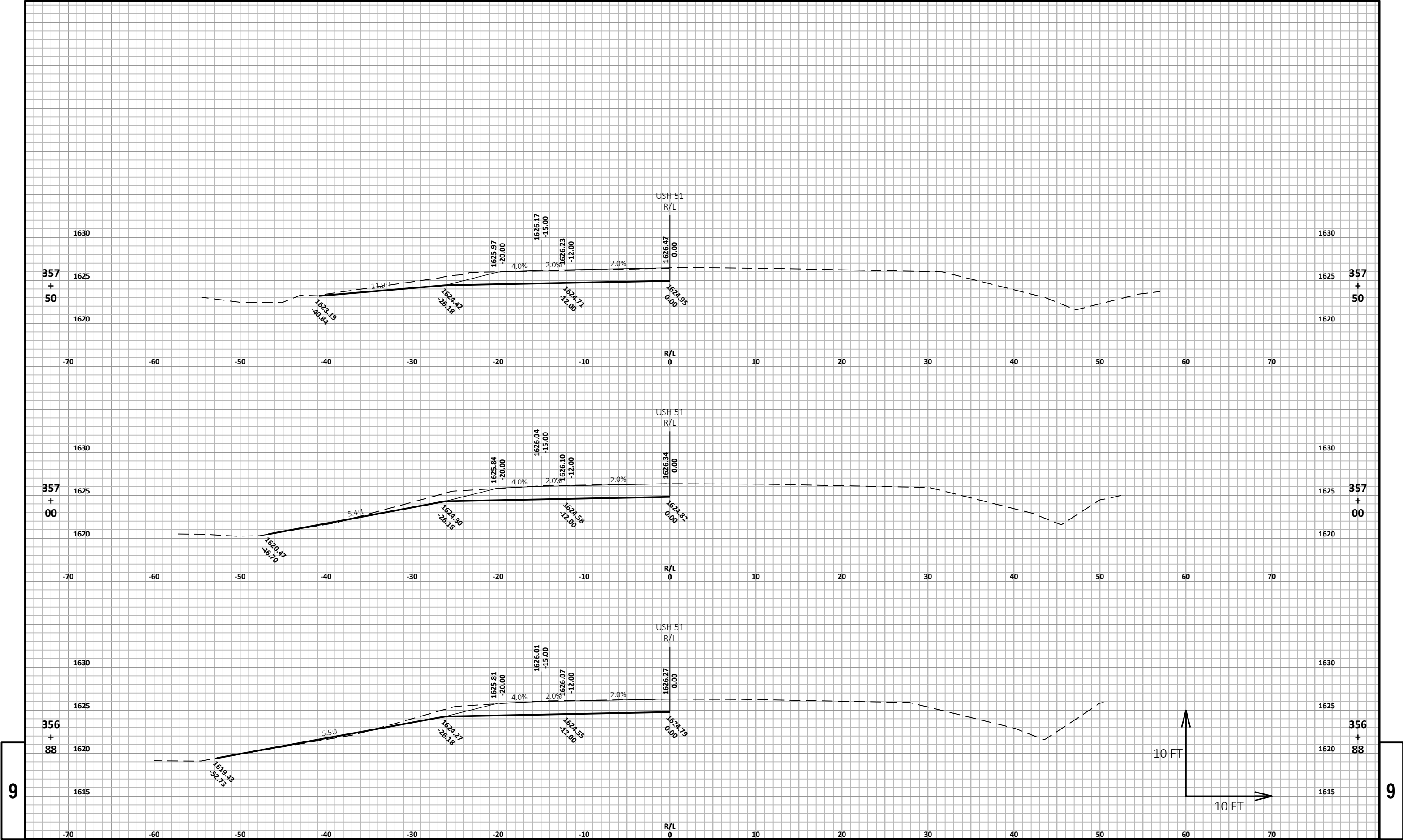


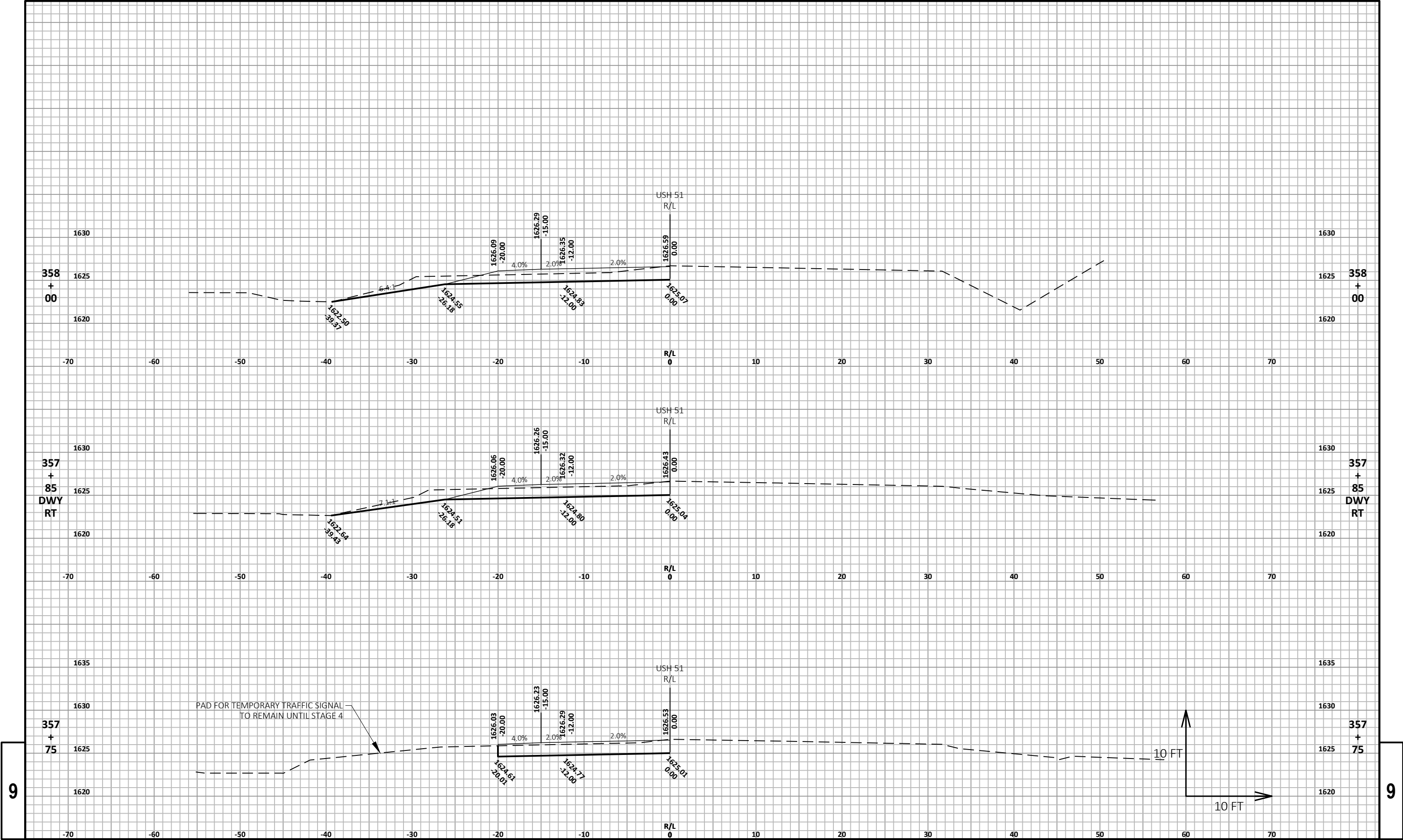




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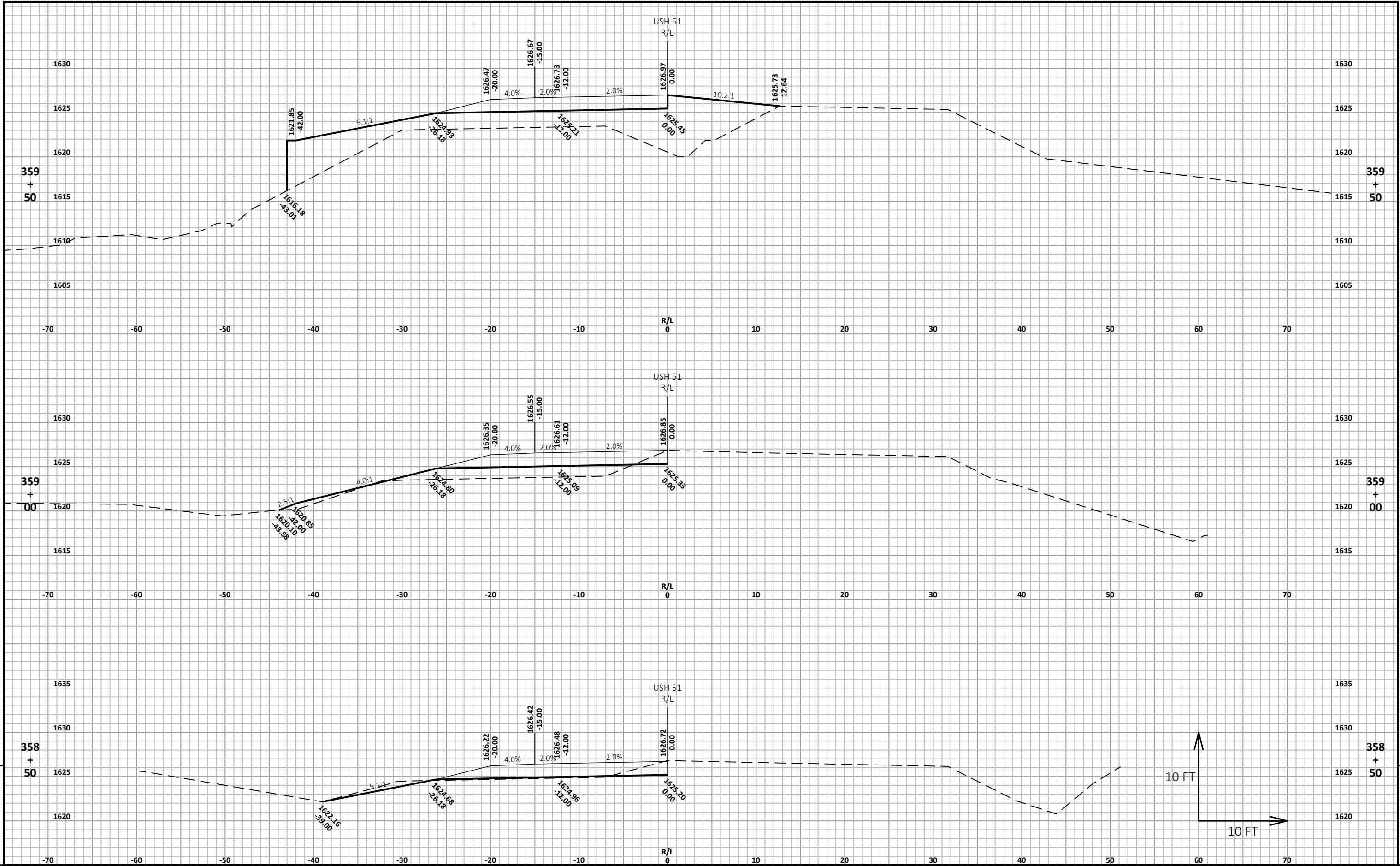
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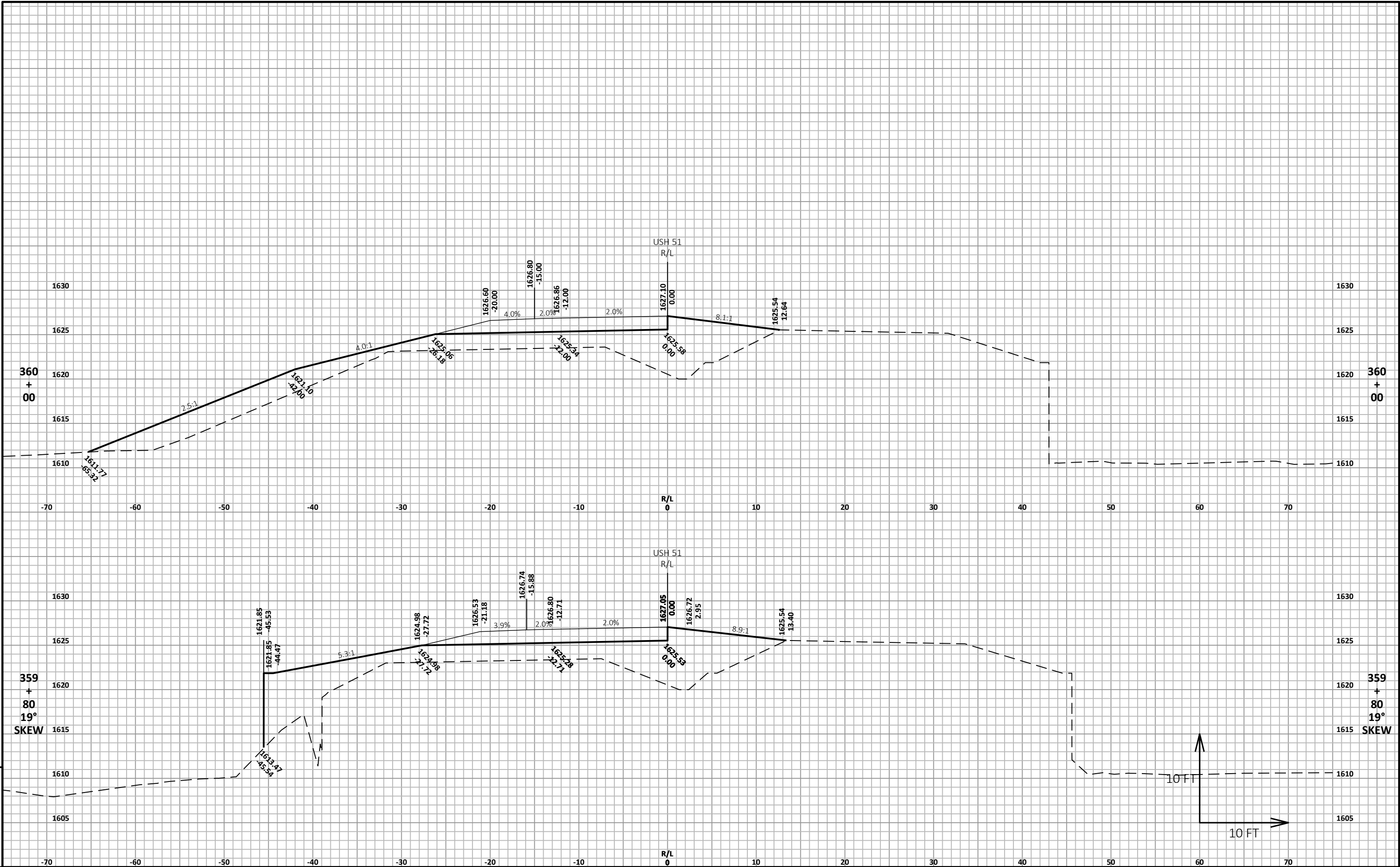


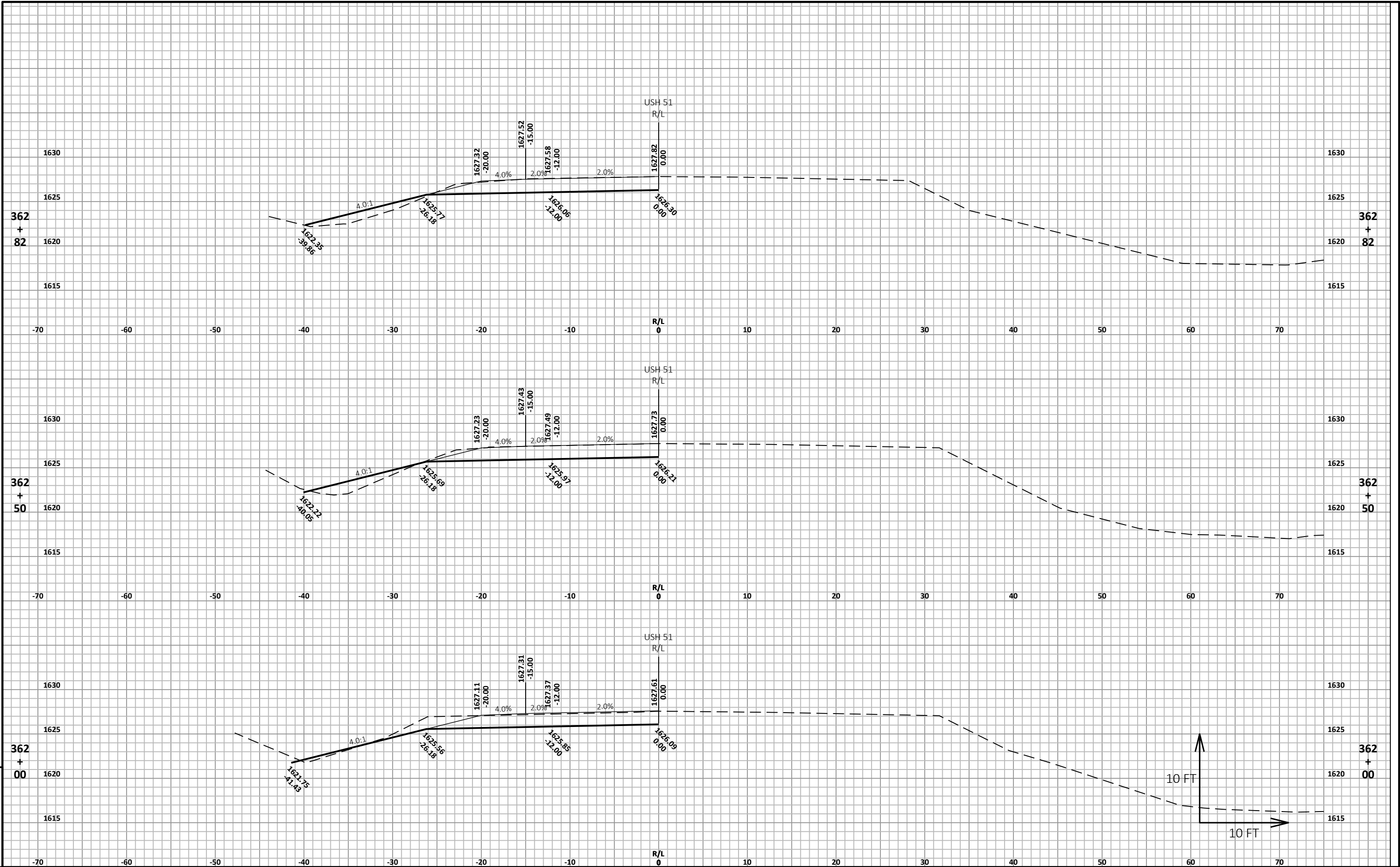


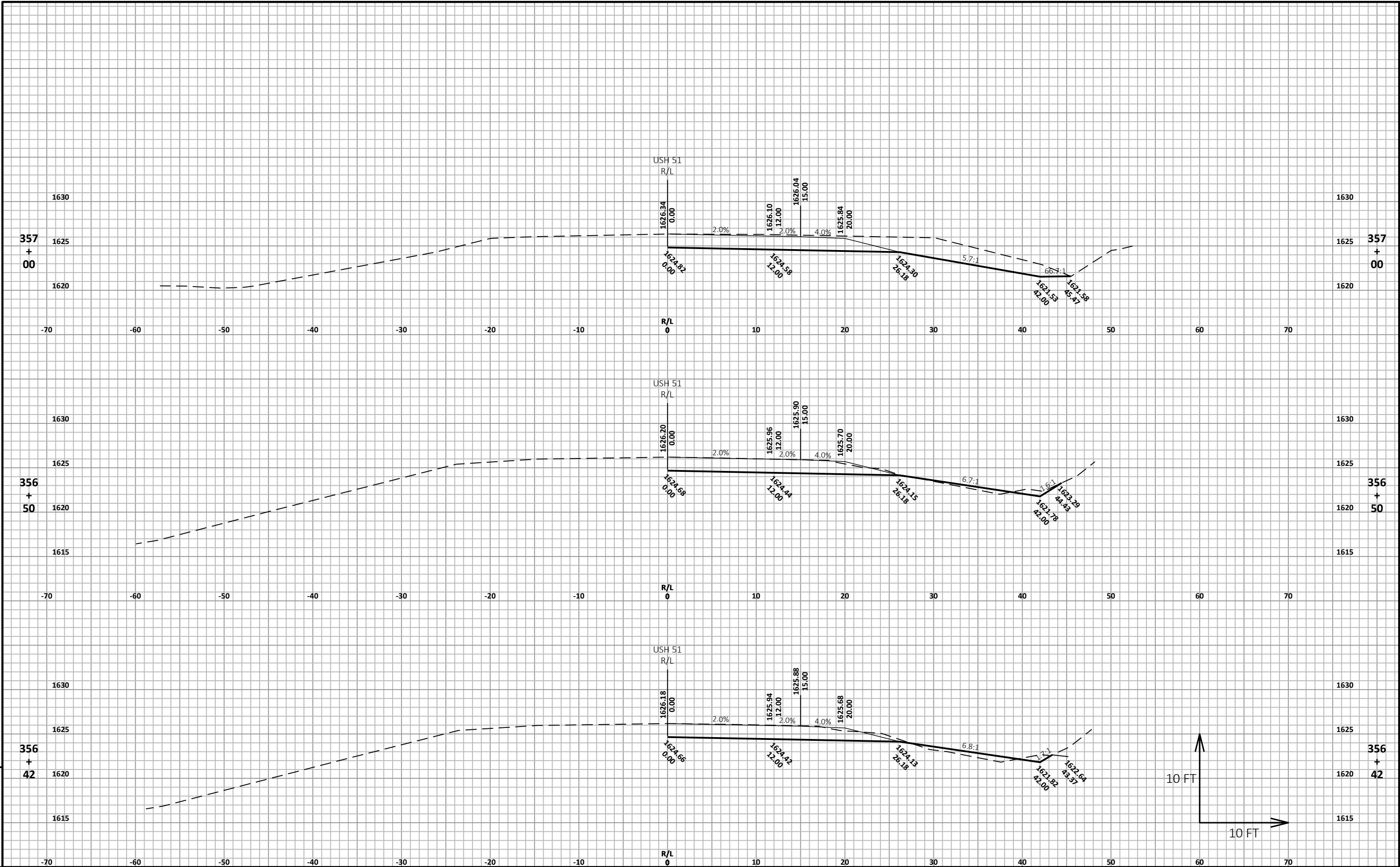
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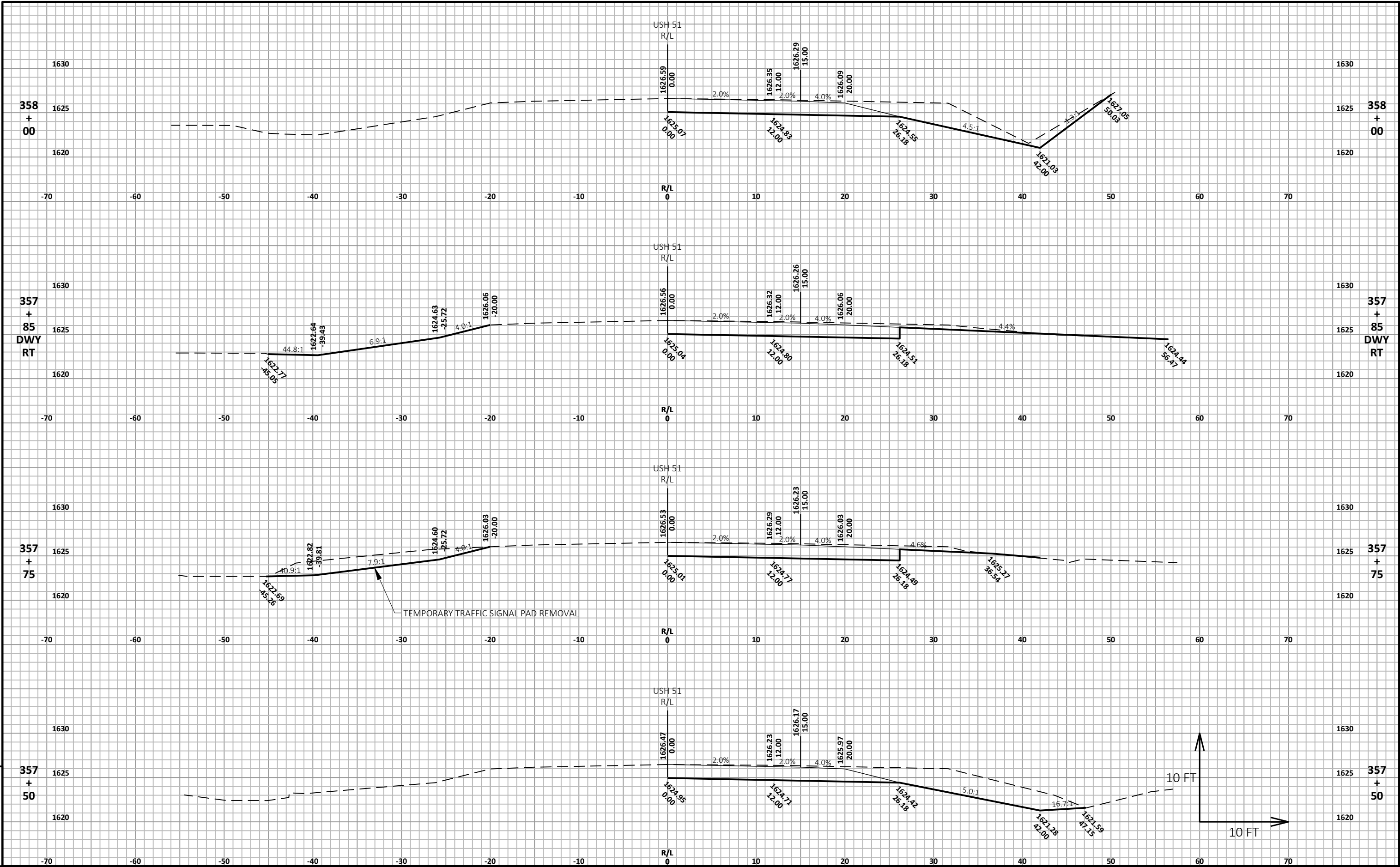
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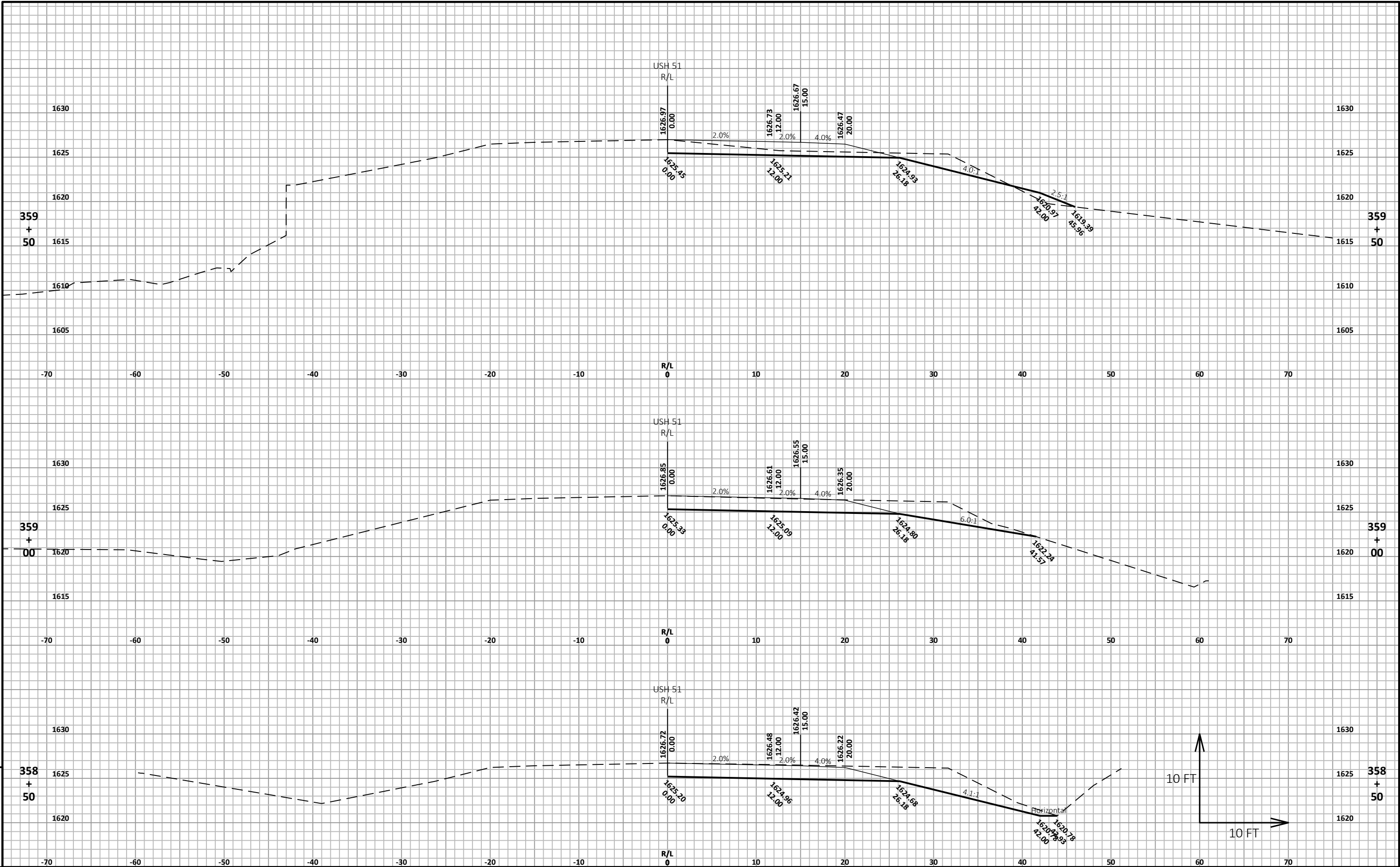


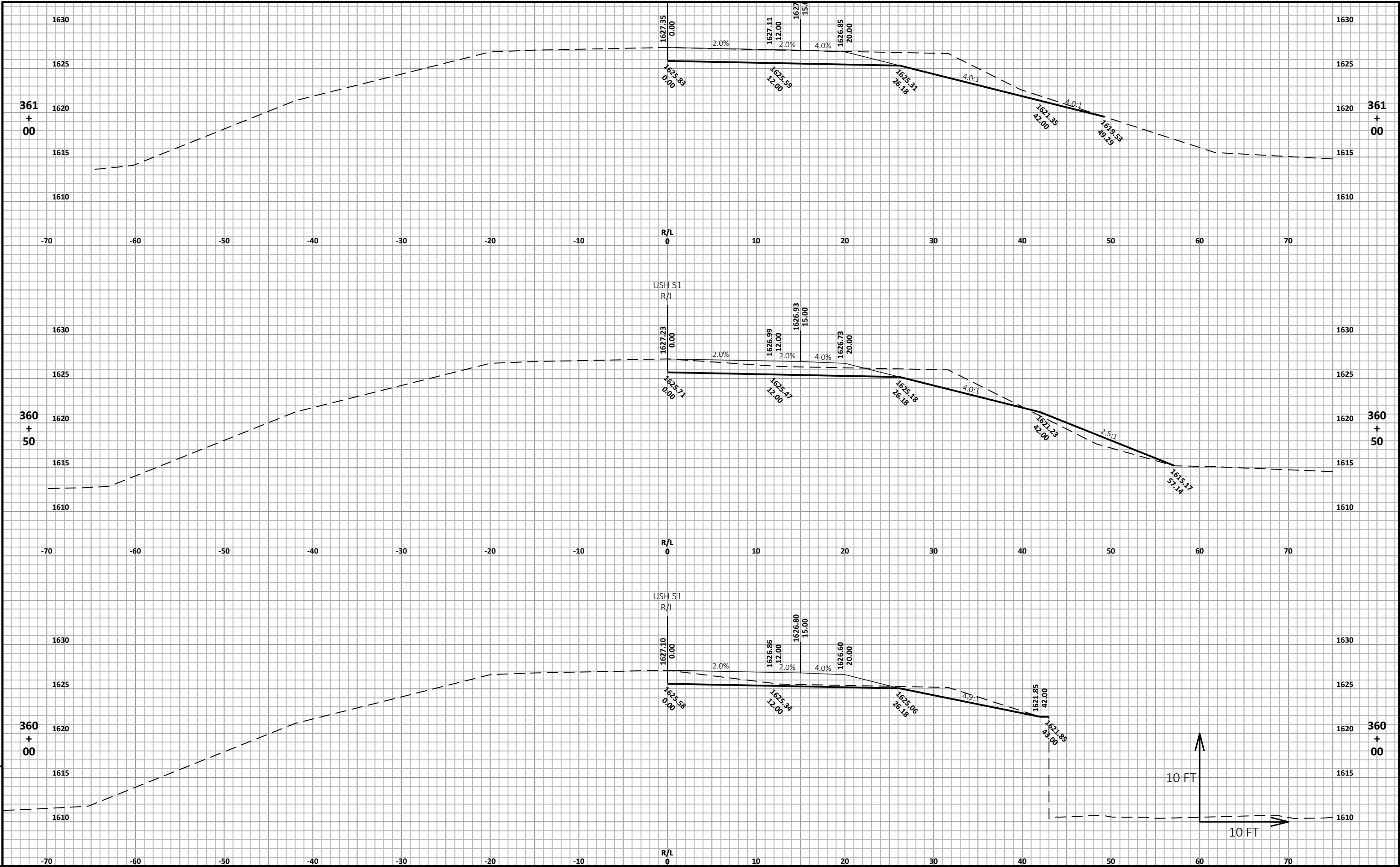


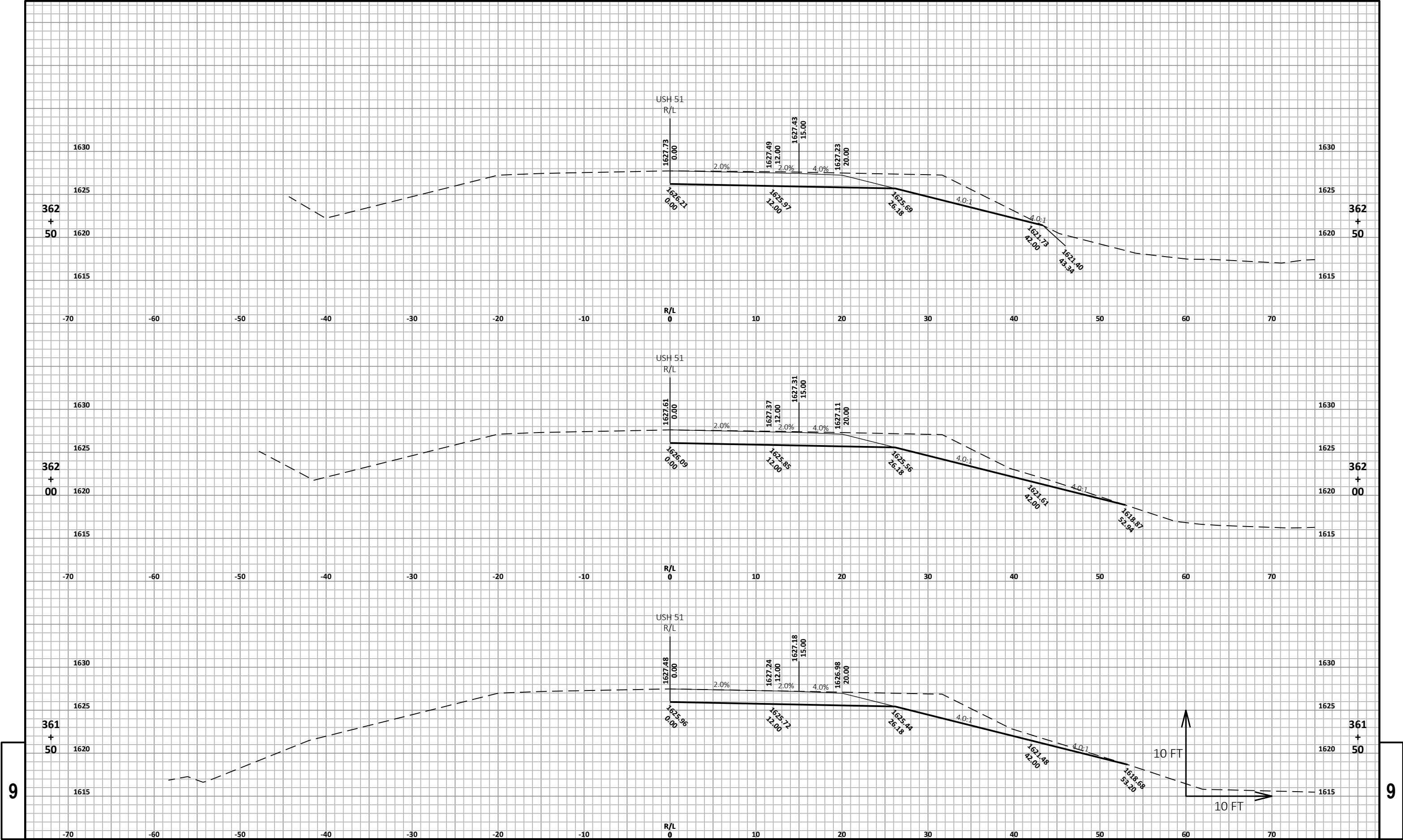






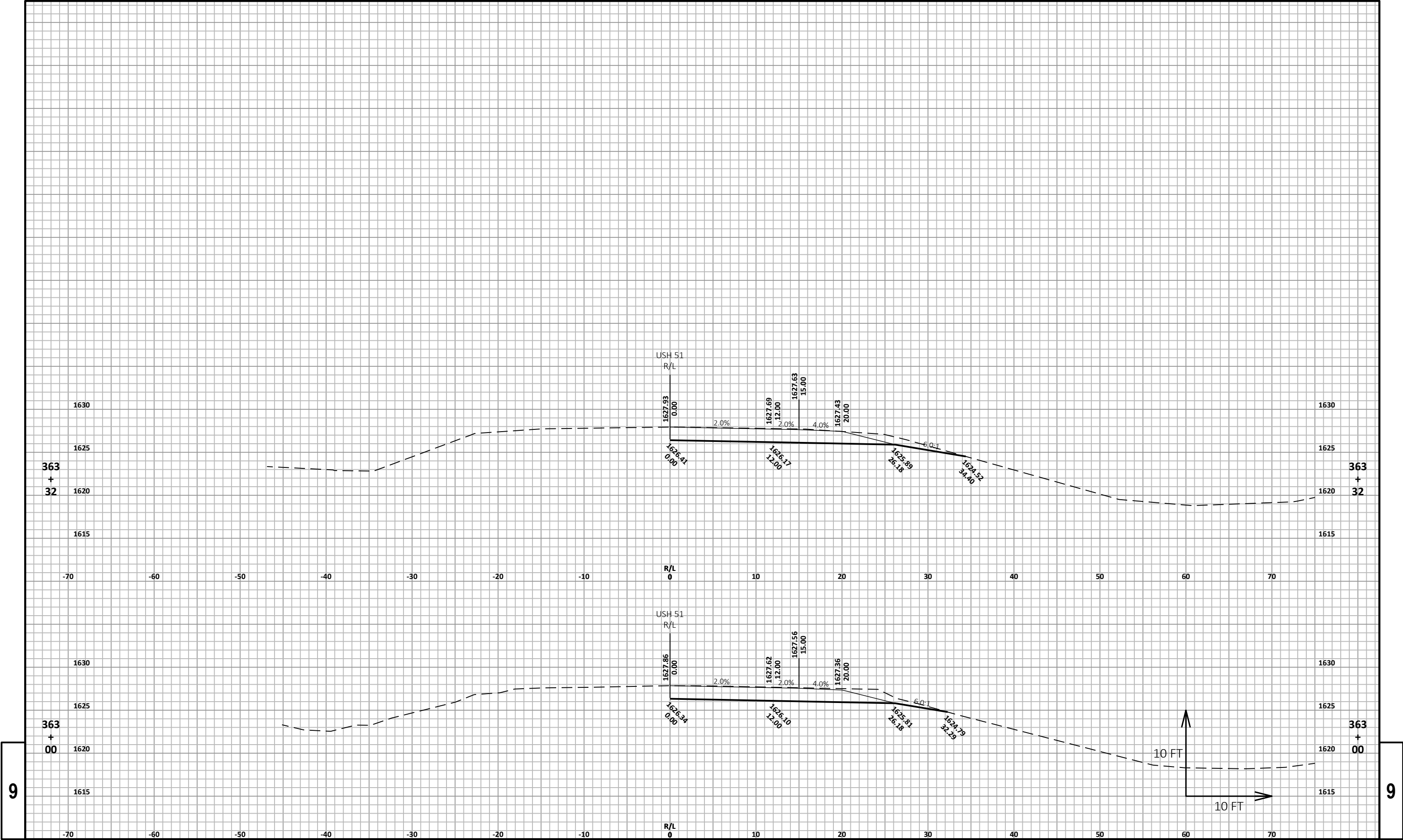






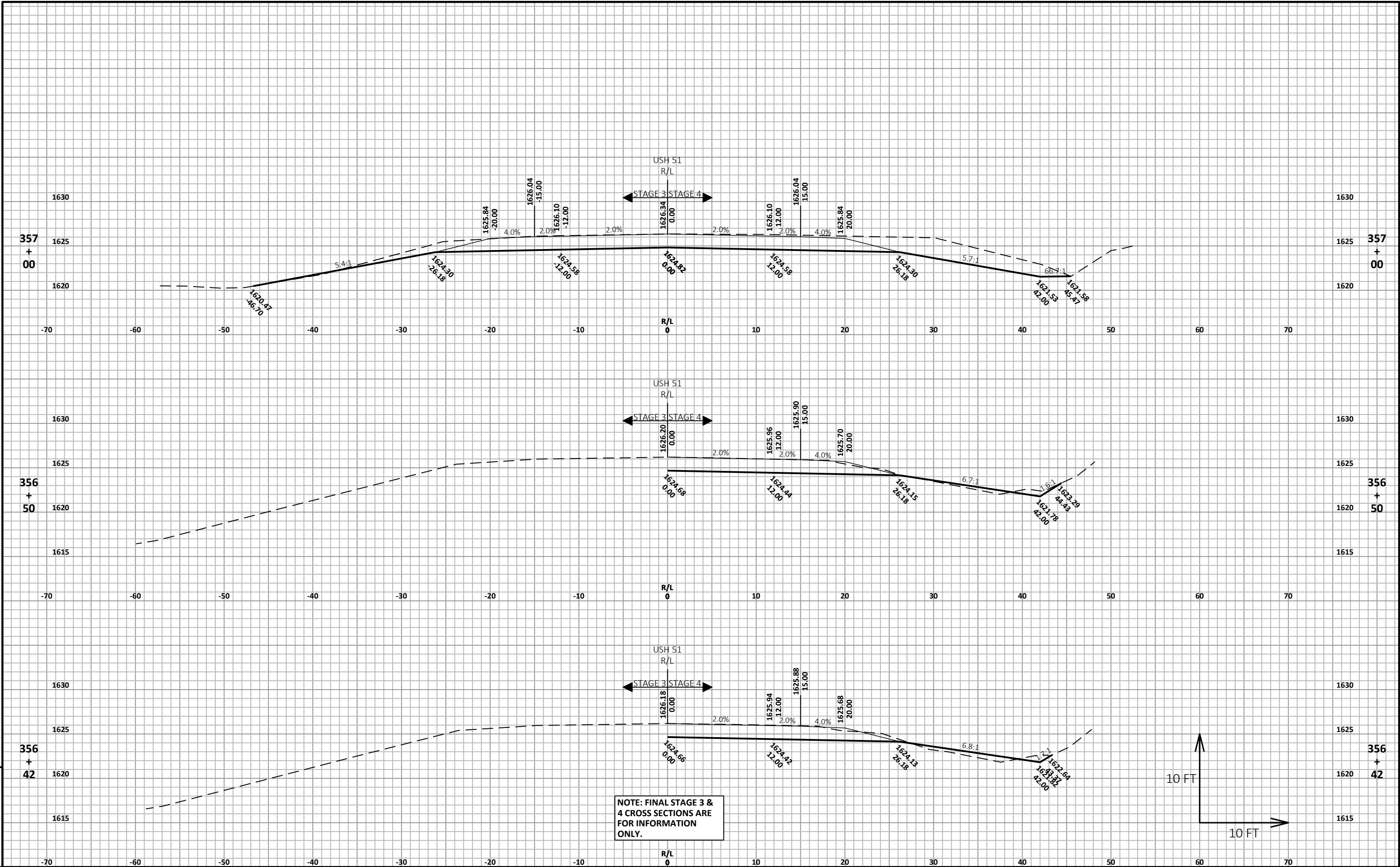
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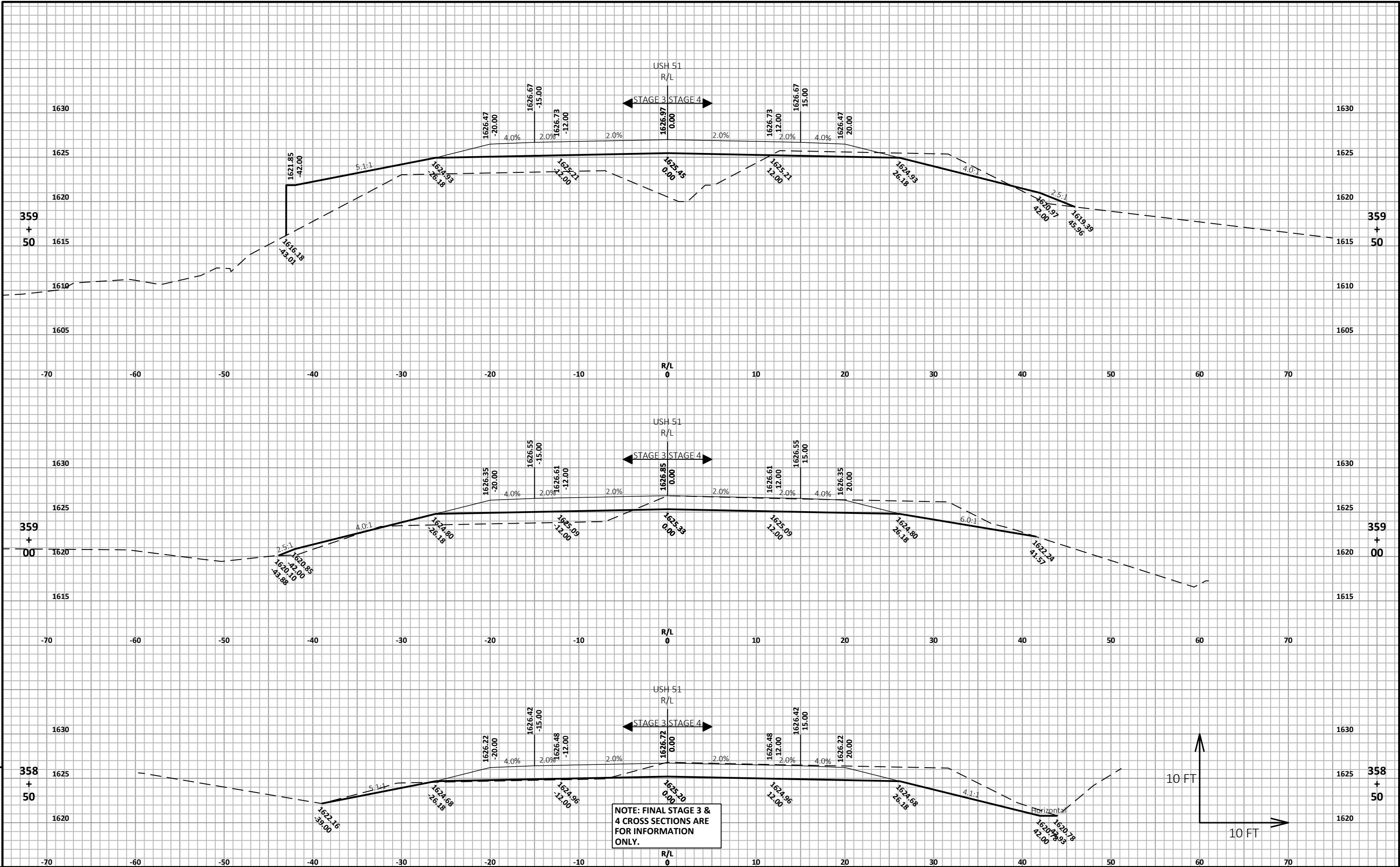
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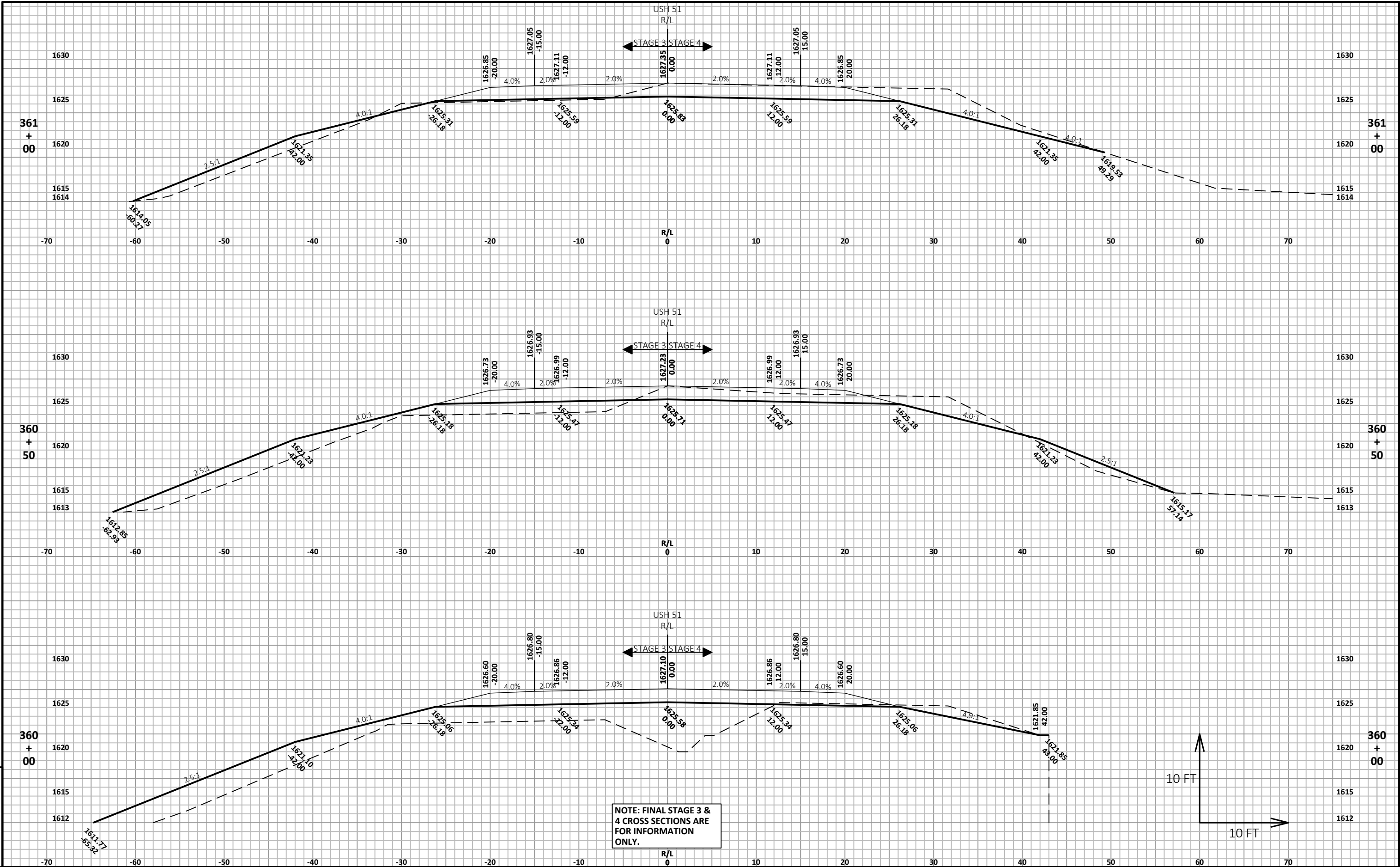


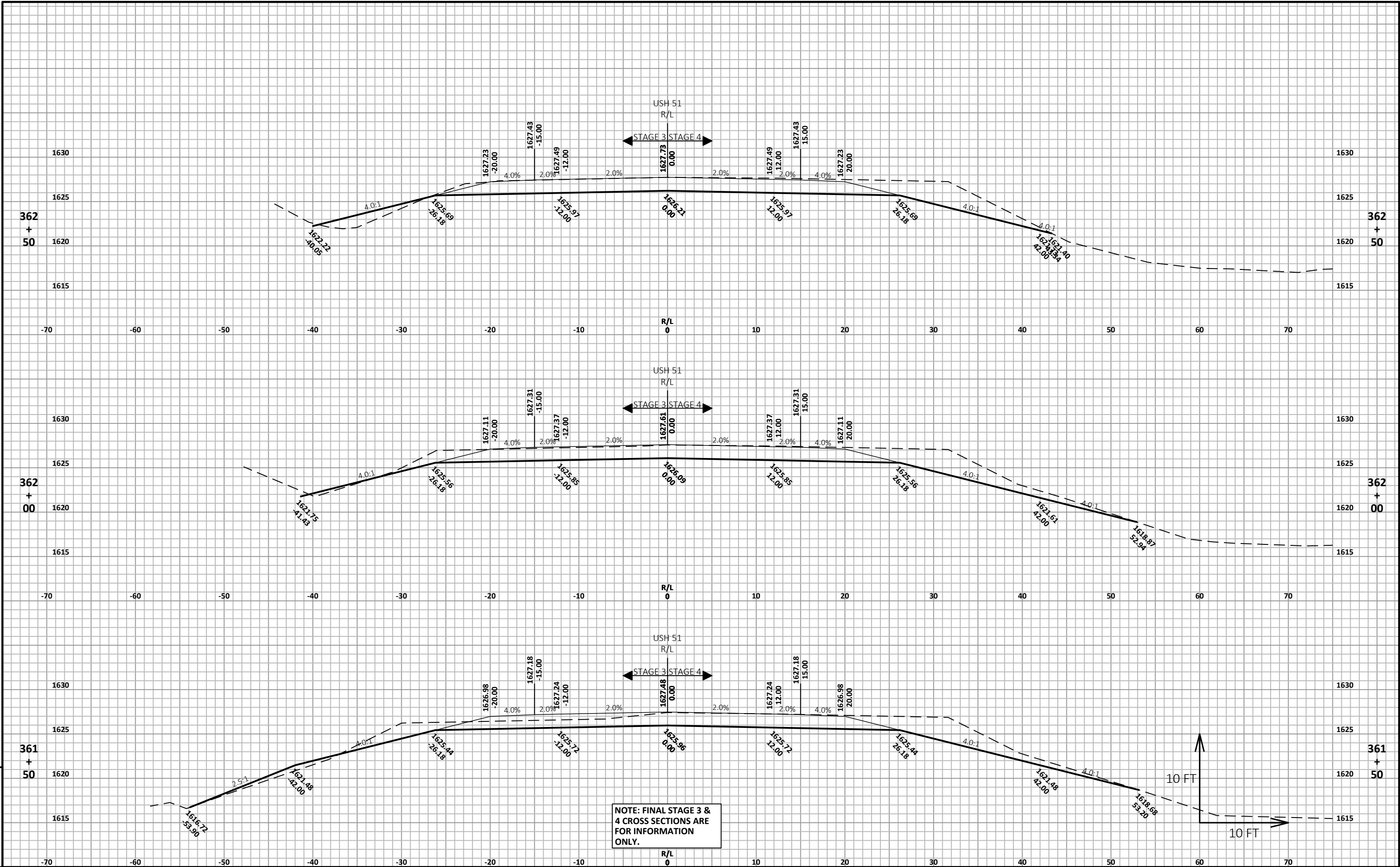
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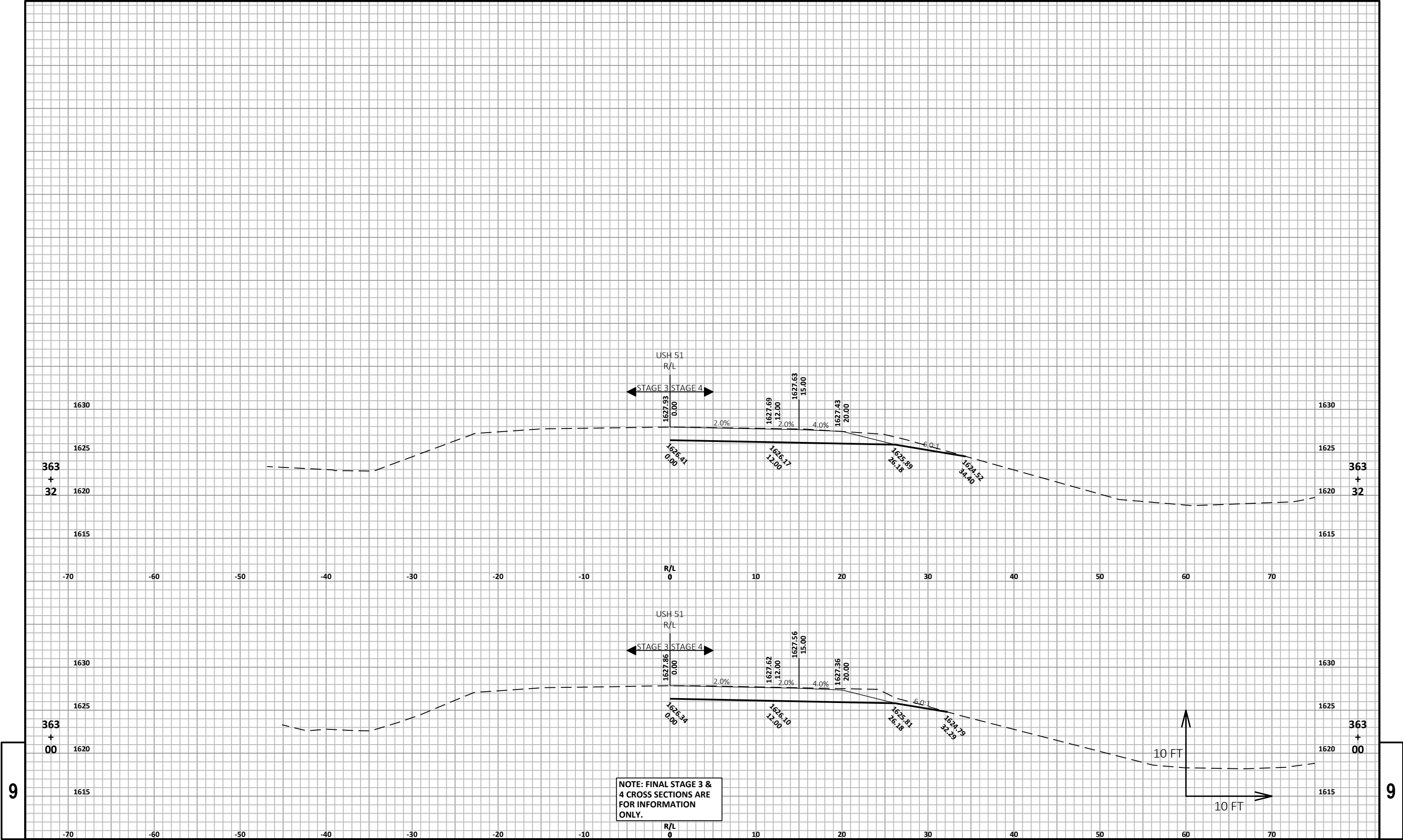
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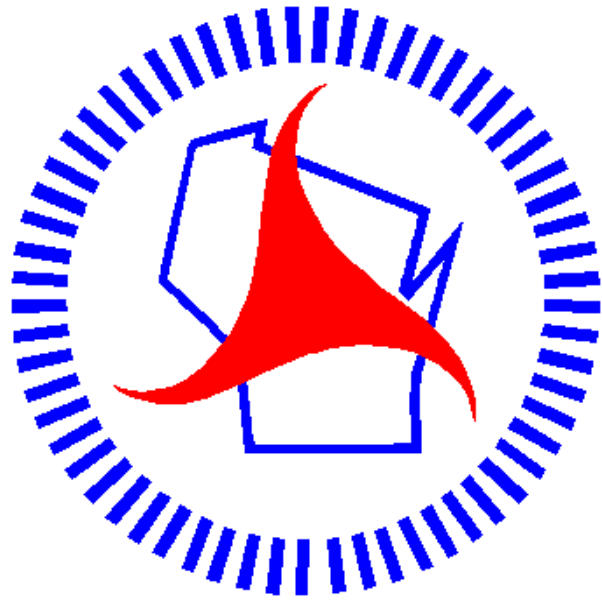








Notes



Wisconsin Department of Transportation

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