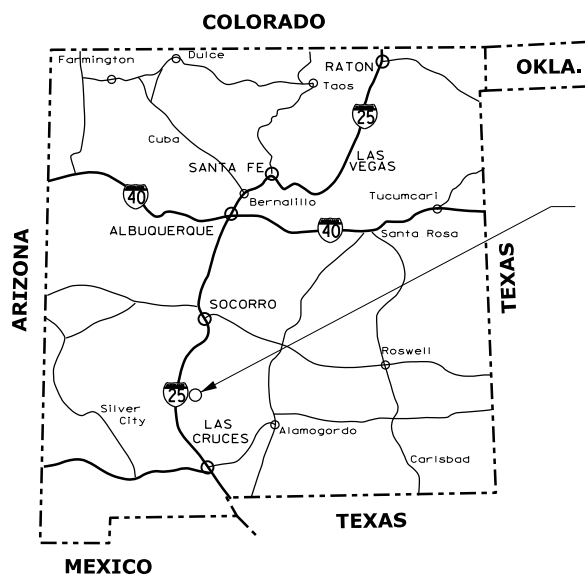


C:\Adrian\CFL-HHWA\del01\Roadway\CADD_Sheets\A-Gen_sht\A1_TTL_NM_SIE10(1)_Lakeshore.dgn [USFS [Sheet]] 13 December 2022 9:43 AM

STATE	PROJECT	SHEET NUMBER
NM	NM FLAP SIE 10(1) LAKESHORE ROAD	A1

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION



NM FLAP SIE 10(1)
Lakeshore Road
Project Location

KEY MAP OF NEW MEXICO

TYPE OF CONSTRUCTION:
Road reconstruction, Road rehabilitation,
Drainage Improvements, Bridge Construction

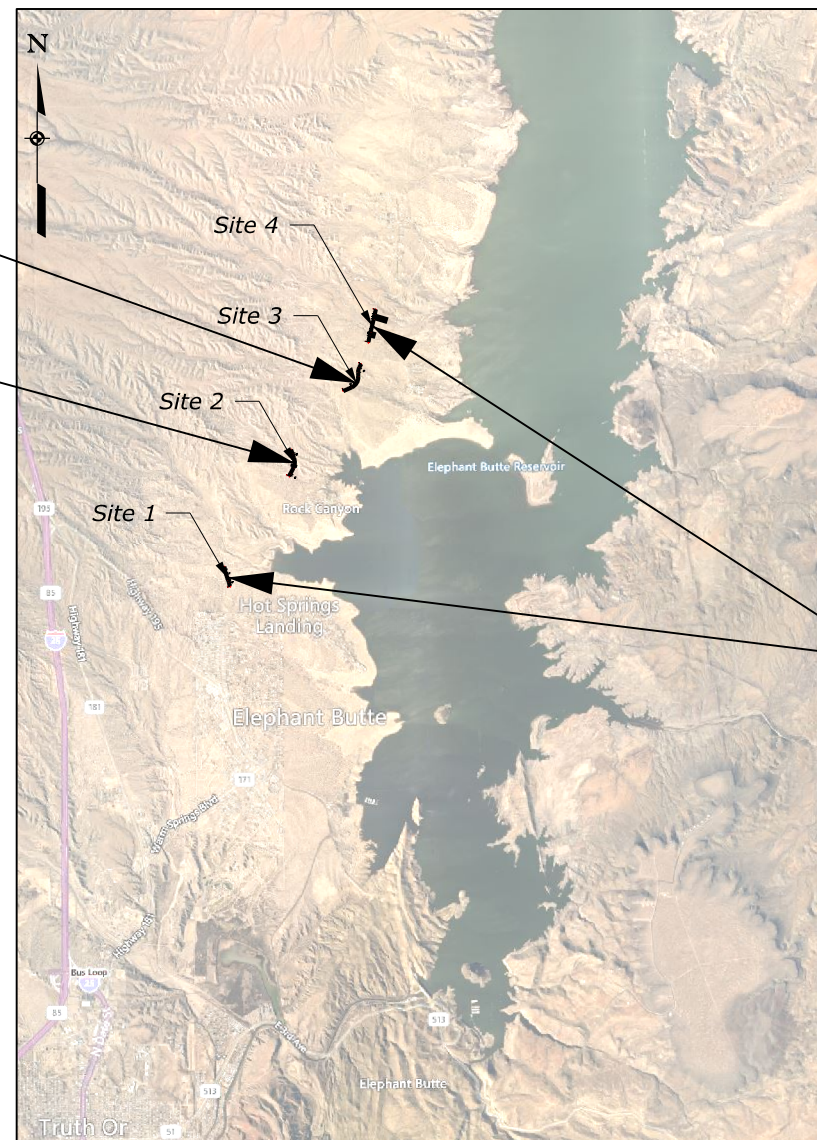
DESIGN DESIGNATIONS:
ADT (2023) ----- 1464
ADT (2043) ----- 1971
DHV ----- 296
D ----- 60%
T ----- 15%
V ----- 40 MPH
e(max) ----- 8 %

U.S. CUSTOMARY DIMENSIONS:
Slopes are expressed as RISE:RUN

SPECIFICATIONS:
"STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS
AND BRIDGES ON FEDERAL HIGHWAY PROJECTS, FP-14"



PLANS FOR PROPOSED NM FLAP SIE 10(1) **LAKESHORE ROAD** BUREAU OF RECLAMATION SIERRA COUNTY SCHEDULE A LENGTH 0.42 miles OPTION X LENGTH 0.27 miles OPTION Y LENGTH 0.21 miles



NM FLAP SIE 10(1)
Site 1 - Hot Springs Landing - Double CBC
Site 4 - Cedar Canyon - 110' Span Bridge
SCHEDULE A

INDEX TO SHEETS	
SHEET	DESCRIPTION
A1	TITLE SHEET
A2-A3	CONVENTIONAL PLAN SYMBOLS AND ABBREVIATIONS
A4	CONTROL SHEET
A5	SITE MAP
A6	TYPICAL SECTIONS - SCHEDULE A
A7	TYPICAL SECTIONS - OPTION X
A8	TYPICAL SECTIONS - OPTION Y
B1-B7	SUMMARY OF QUANTITIES
B8-B9	DRAINAGE SUMMARY
B10-B12	GRADING SUMMARY
B13-B15	SURFACING SUMMARY
B16-B24	MISCELLANEOUS SUMMARY
C1-C2	SITE 1, SITE 4 PLAN AND PROFILE SHEETS - SCHEDULE A
C3-C4	SITE 3 PLAN AND PROFILE SHEETS - OPTION X
C5	SITE 2 PLAN AND PROFILE SHEETS - OPTION Y
D1-D2	SITE 1, SITE 4 DIVERSION PLAN AND PROFILE SHEETS - SCHEDULE A
D3	SITE 2 DIVERSION PLAN AND PROFILE SHEETS - OPTION Y
F1	C204-50 EMBANKMENT BENCHING
F2	C204-51 SUBEXCAVATION
G1	C251-51 PLACED RIPRAP AT CULVERT OUTLETS
G2	SITE 1 RIPRAP APRON LAYOUT - SCHEDULE A
G3	SITE 2 RIPRAP APRON LAYOUT - OPTION Y
S1-S18	STRUCTURES - HOT SPRINGS LANDING CULVERT SHEETS - SCHEDULE A
S19-S38	STRUCTURES - ROCK CANYON CULVERT SHEETS - OPTION Y
S39-S61	STRUCTURES - LONG POINT BRIDGE SHEETS - OPTION X
S62-S83	STRUCTURES - CEDAR CANYON BRIDGE SHEETS - SCHEDULE A

PLANS PREPARED BY



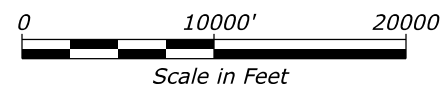
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION
DENVER, COLORADO

APPROVED:

CHIEF OF ENGINEERING
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

Agency approved by letter DATE: September 12, 2022

BUREAU OF RECLAMATION



ABBREVIATIONS

℄	centerline
Δ	curve delta
∅	diameter
A	
abut.	abutment
ADT	average daily traffic
aggr.	aggregate
AH	ahead
alt.	alternate
appr.	approach
asph.	asphalt
B	
b.f.	both faces
beg.	beginning, begin
BK	back
BM	bench mark
BP	balance point
br.	bridge
brg.	bearing
C	
CBC	concrete box culvert
c-c	center to center
clr.	clear
CMP	corrugated metal pipe
Co.	county
col.	column
conc.	concrete
constr.	construction
constr. jt.	construction joint
cont.	continuous
corr.	corrugated
cr.	creek
CS	point of curve to spiral
ctrs.	centers
CTSM	contingent sum
culv.	culvert
D	
decr.	decrement
DHV	design hour volume
DI	drop inlet
dia. or D	diameter
diag.	diagonal
diaph.	diaphragm
dist.	distance
Dist.	district
DLC	donation land claim
dwg(s).	drawing(s)
E	
E	east
e	superelevation rate
El. 94.066	elevation with number
elev.	elevation
emb.	embankment
engr(s).	Engineer(s)
EOP	edge of pavement
EQ or eq.	equation
ER	edge of road
et al	and others
et ux	and wife
EW	edge of water
exc.	excavation
exp. jt.	expansion joint
ext.	exterior
F	
f.f.	fill face
Fed.	federal
FES	flared end section
fin.	finish
ftg.	footing
G	
ga.	gage (gauge)
galv.	galvanized
gdr.	girder
H	
hdwl.	headwall
HES	homestead entry survey
hex.	hexagon
horiz.	horizontal
HW	high water
hwy.	highway
I	
ID	inside diameter
incl.	inclusive, including
incr.	increment
int.	interior
J	
jt.	joint

L	L	length of curve
	lam.	lamination
	lat.	latitude
	long.	longitudinal
	LPSM	lump sum
	Lt. or LT	left
	LW	low water
M	mag.	magnetic
	maint.	maintenance
	matl.	material
	max.	maximum
	min.	minimum
	mon.	monument
	mtn(s).	mountain(s)
N	N	north
	NC	normal crown
	neg.	negative
	no. or #	number
O	o.c.	on centers
	o.f.	other face
	OD	outside diameter
P	PC	point of curve
	PCC	point of compound curve
	perf.	perforate
	PI	point of intersection
	pl.	plate
	POC	point on curve
	POS	point on spiral
	POT	point on tangent
	proj.	project
	psi	pounds per square inch
	PT	point of tangent
	pvmt.	pavement
Q	quant., Qty	quantities
R	R	radius
	R.	range
	R/W	right-of-way
	rd.	road
	rdwy.	roadway
	reconst.	reconstruction
	reinf.	reinforcement
	reqd.	required
	res.	reservoir
	Res.	Reservation
	ret. wall	retaining wall
	RH	reference hub
	Rt. or RT	right
	rte.	route
S	S	south
	SADT	seasonal average daily traffic
	SC	point of spiral to curve
	sec.	section
	shldr.	shoulder
	spa.	spacing, Spaces or Spaced
	spec.	specification
	st.	street
	ST	point of spiral to tangent
	sta.	station
	std.	standard
	stiff.	stiffener
	str.	straight
	struc.	structural
	sym.	symmetrical
T	T	tangent length
	T.	township
	tan.	tangent
	TBM	temporary bench mark
	TCE	temporary construction easement
	transv.	transverse
	TS	point of tangent to spiral
	typ.	typical
V	V	design speed
	vert.	vertical
	vph	vehicles per hour
	VPI	vertical point of intersection
W	W	west

DRAINAGE SYMBOLS

Ditch (Existing, Proposed)	
Flow Arrow	
Drainage or Small Creek	
Lake, Pond or Reservoir	
Large Creek	
Wetland	
River	
Spring	
Bridge (Existing, Proposed)	
Box Culvert (Existing, Proposed)	
Pipe Culvert (Existing, Proposed)	
With End Sections (Existing, Proposed)	
With Headwalls (Existing, Proposed)	
With Drop Inlet (Existing, Proposed)	
Underdrain (Existing, Proposed)	
Riprap Apron (Proposed)	

EROSION & SEDIMENT CONTROL SYMBOLS

Bonded Fiber Matrix Mulching	
Check Dam	
Diversion Berm	
Rolled Erosion Control Product	
Riprap	
Fiber Roll (Ditch and/or Cut Slope)	
Silt Fence	
Temporary Inlet Protection	
Fiber Roll (Slope Protection)	

FENCE & CATTLEGUARD SYMBOLS

Fence (Existing, Proposed)	
Fence w/ Gate (Existing, Proposed)	
Cattleguard (Existing, Proposed)	

GEOLOGIC SYMBOLS

Boring Location (Existing, Proposed)	
Material Source	

STATE	PROJECT	SHEET NUMBER
NM	NM FLAP SIE 10(1) LAKESHORE ROAD	A2

INDEX TO SHEETS	
SHEET	DESCRIPTION
T1	STD 602-1 METAL PIPE CULVERT
T2	STD 602-2 METAL PIPE CULVERT COUPLING BAND
T3	STD 602-3 METAL AND PLASTIC PIPE CULVERT BEDDING
T4	STD 602-4 METAL END SECTIONS
T5	SPECIAL 617-C GUARDRAIL TRANSITION - NMDOT Std. Dwg. 606-GR31-17/20
T6	C617-13 MGS AND G4 W-BEAM GUARDRAIL INSTALLATION IN ROCK
T7	C617-20 MGS AND G4 W-BEAM GUARDRAIL TYPE TANGENT TERMINAL AND GRADING
T8	C617-32 MGS W-BEAM GUARDRAIL STEEL POSTS
T9	E633-01 SIGN STRUCTURES
T10	E633-02 BREAKAWAY SIGN SUPPORT CORROSION RESISTANT STEEL
T11	E633-03 BREAKAWAY SIGN SUPPORT WOOD AND STEEL POSTS
T12	C634-50 CENTERLINE STRIPING AND TOP LIFT PAVEMENT JOINT
T13-T14	SITE 1, SITE 4 SIGNING AND STRIPING - SCHEDULE A
T15-T16	SITE 3 SIGNING AND STRIPING - OPTION X
T17	SITE 2 SIGNING AND STRIPING - OPTION Y
T18	STD 635-1 TEMPORARY TRAFFIC CONTROL ADVANCE SIGNING
T19	STD 635-2 TEMPORARY PAVEMENT MARKINGS
T20	STD 635-4 TEMPORARY TRAFFIC CONTROL FOR DIVERSION
T21	STD 635-6 TEMPORARY TRAFFIC CONTROL SINGLE LANE CLOSURE LAYOUT (WITH FLAGGERS)
T22	STD 635-10 TEMPORARY TRAFFIC CONTROL SHOULDER CLOSURE LAYOUT
T23	STD 635-11 TEMPORARY TRAFFIC CONTROL PART LANE WIDTH AND SHOULDER CLOSURE LAYOUT
T24	STD 635-14 TEMPORARY TRAFFIC CONTROL SIGN INSTALLATION WOOD POSTS
X-S1	CROSS SECTIONS - SITE 1 - SCHEDULE A
X-D1	CROSS SECTIONS - SITE 1 DIVERSION - SCHEDULE A
X-S4	CROSS SECTIONS - SITE 4 - SCHEDULE A
X-D4	CROSS SECTIONS - SITE 4 DIVERSION - SCHEDULE A
X-S3	CROSS SECTIONS - SITE 3 - OPTION X
X-S2	CROSS SECTIONS - SITE 2 - OPTION Y
X-D2	CROSS SECTIONS - SITE 2 DIVERSION - OPTION Y

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CONVENTIONAL PLAN
SYMBOLS AND ABBREVIATIONS
Sheet 1 of 2

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LANDSCAPING & VEGETATION SYMBOLS

Tree

Treeline

MAPPING SYMBOLS

Building (Existing, Proposed)

Coordinate Grid Tick

North Arrow

Railroad

Single Track

Double Track

Spot Elevation

Trail

Survey Control Point

RIGHT-OF-WAY SYMBOLS

Boundaries

National

State

County

City

Township or Range Line

Section

1/4 Section

1/16 Section

Bureau of Indian Affairs

Bureau of Land Management

National Forest

National Park

National Wildlife Refuge

Easements

Permanent (Existing)

Permanent (Proposed)

Temporary (Proposed)

Monument (As described)

Parcel Number

Property Line

Right-of-Way Line (Existing)

Right-of-Way Line (Proposed)

Section Corner (Found, Projected)

1/4 Section Corner (Found, Projected)

1/16 Section Corner (Found)

GUARDRAIL, BARRIER & WALL SYMBOLS

Guardrail (Existing, Proposed)

Guardwall (Existing, Proposed)

Median & Side Barrier (Existing, Proposed)

Retaining Wall (Existing, Proposed)

ROADWAY SYMBOLS

Clearing/Construction Limits

Slope Stake Limits

Top of Cut

Transition

Toe of Fill

Edge of Roadway

Existing

Proposed

Roadway Centerline (With Station ticks)

Roadway Obliteration

SIGN SYMBOLS

Signs

Commercial (Existing, Proposed)

Delineator (Existing, Proposed)

Portable (Proposed)

Post Mounted (Existing, Proposed)

UTILITY SYMBOLS

Irrigation Ditch

Underground (Existing, Proposed)

Surface (Existing, Proposed)

Support Pole (Existing, Proposed)

Support Pole Anchor (Existing, Proposed)

Street Light (Existing, Proposed)

Telephone Booth (Existing, Proposed)

Telephone Pedestal (Existing, Proposed)

Underground Utility (Existing, Proposed)

CATV

Fiber Optic

Gas

Oil

Power

Sanitary Sewer

Telephone

Water

Overhead Utility Line (Existing, Proposed)

CATV

Fiber Optic

Power

Telephone

PROJECT SPECIFIC SYMBOLS

STATE	PROJECT	SHEET NUMBER
NM	NM FLAP SIE 10(1) LAKESHORE ROAD	A3

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CONVENTIONAL PLAN
SYMBOLS AND ABBREVIATIONS
Sheet 2 of 2

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Date Of Field Work : February 2020
Date Of Final Adjustment : February 2020

Project Units : Us Survey Foot
Datum: Nad 1983 (Conus)
Zone: New Mexico West Zone 3003
Geoid: Geoid12B (Conus)
Opus Epoc Date : 2010.0000
Vertical Datum : Navd88 All Elevations Are Modeled using Geoid12B and holding 2006 from OPUS

Gpk File Dated : N/A
Gpk File Name : N/A Alignment : Various

POINT NUMBER	STATE PLANE COORDINATES			GEO COORDINATES			MAPPING ANGLE	COMBINED FACTOR	STATION	OFFSET	DESCRIPTION
	NORTH	EAST	ELEVATION	LATITUDE	LONGITUDE	ELLIPSOID HEIGHT					
2001	805345.64	2909141.58	4464.59	33°12'44.49600"N	107°13'30.07200"W	4388.32	0°19'59"	0.99974636	100+85.85	-40.3	FHWA-AC
2002	806210.48	2908984.79	4461.74	33°12'53.06400"N	107°13'31.83600"W	4385.47	0°19'59"	0.99974643	109+63.98	56.8	FHWA-AC
2003	811295.76	2912352.17	4474.67	33°13'43.17600"N	107°12'51.87600"W	4398.41	0°20'20"	0.99974726	202+81.63	-72.8	FHWA-AC
2004	811983.82	2912601.87	4485.71	33°13'49.94400"N	107°12'48.88800"W	4409.45	0°20'24"	0.99974684	210+17.47	73.7	BR CAP
2005	815642.06	2915757.88	4499.45	33°14'25.98000"N	107°12'11.44800"W	4423.19	0°20'42"	0.99974756	306+50.30	105.3	BR CAP
2006	816647.80	2915869.38	4528.01	33°14'35.91600"N	107°12'10.08000"W	4451.75	0°20'46"	0.99974625	316+18.96	-54.5	FHWA-AC
2007	817880.24	2916296.15	4486.92	33°14'48.08400"N	107°12'04.96800"W	4410.66	0°20'46"	0.99974840	Off Chain	Off Chain	BR CAP
2008	819488.12	2916675.51	4488.73	33°15'03.96000"N	107°12'00.39600"W	4412.47	0°20'49"	0.99974848	415+18.74	-73.9	BR CAP
2009	830131.21	2919316.89	4469.63	33°16'49.11600"N	107°11'28.50000"W	4393.38	0°21'07"	0.99975058	501+25.20	41.2	FHWA-AC
2010	830430.51	2919437.21	4479.03	33°16'52.06800"N	107°11'27.06000"W	4402.78	0°21'11"	0.99975018	504+15.74	-60.7	FHWA-AC

PROJECT AVERAGES = 0.99974783

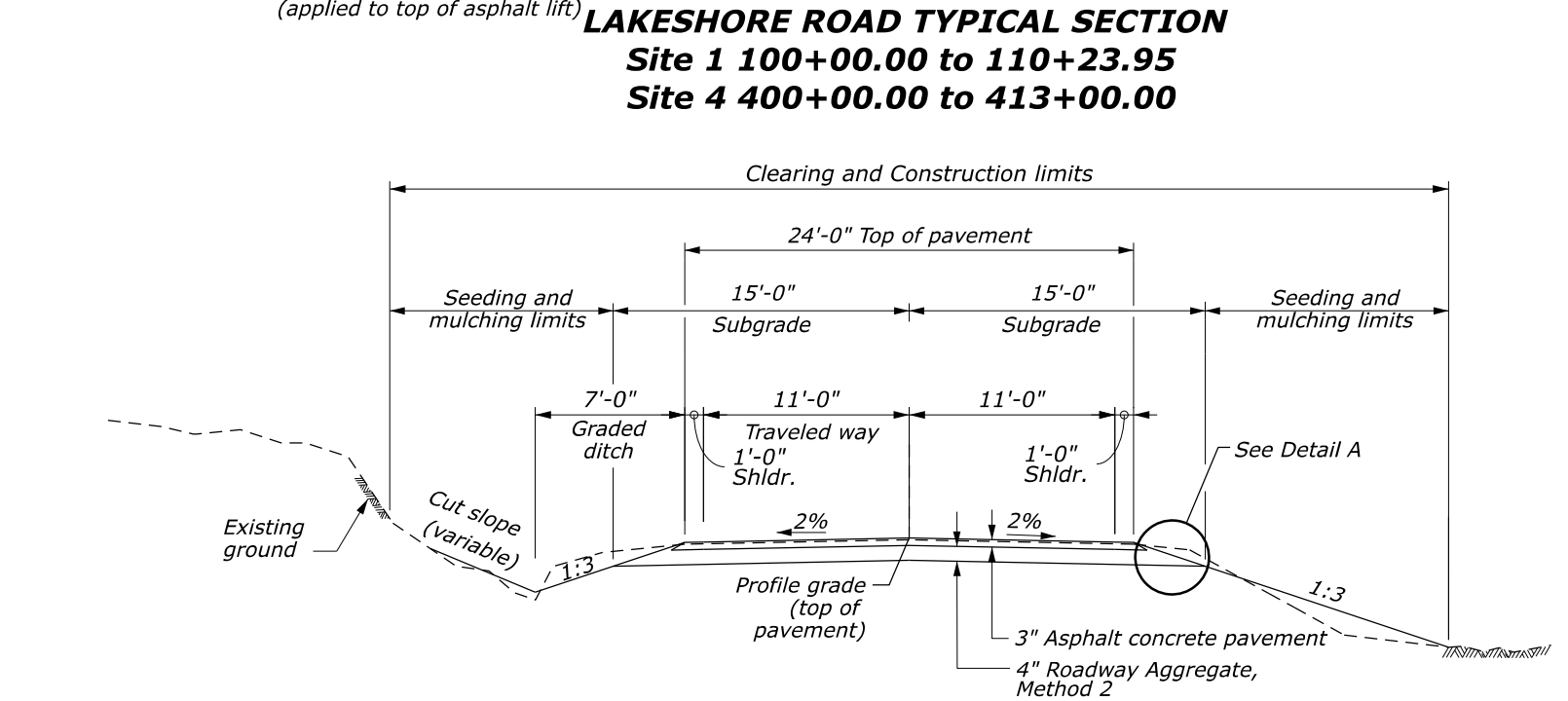
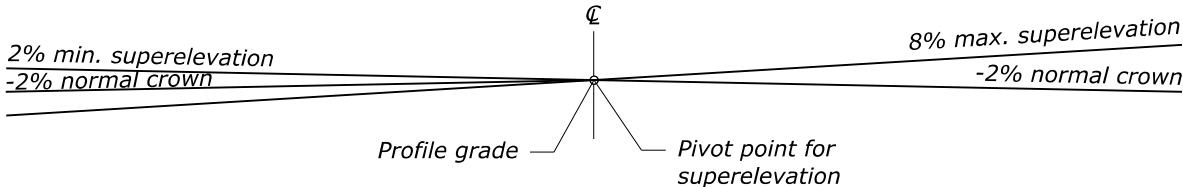
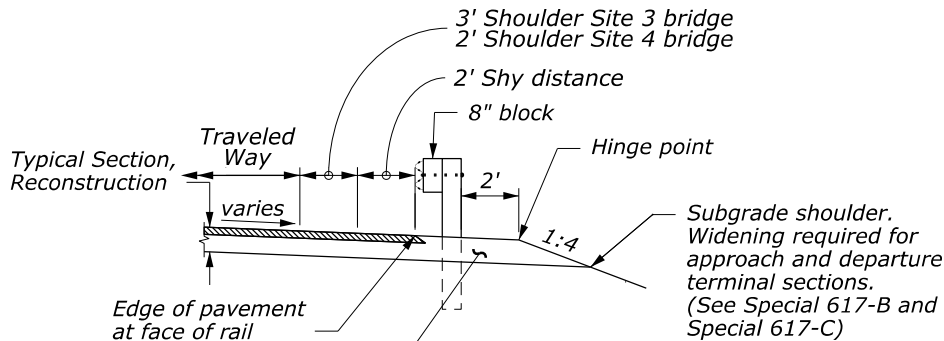
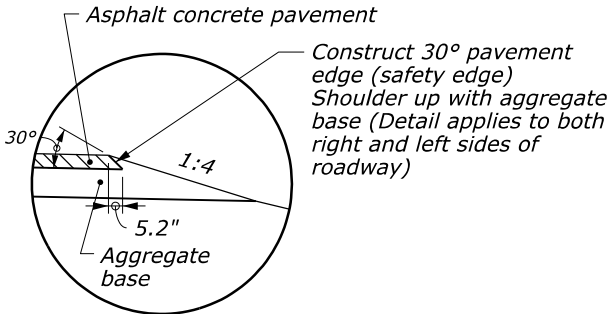
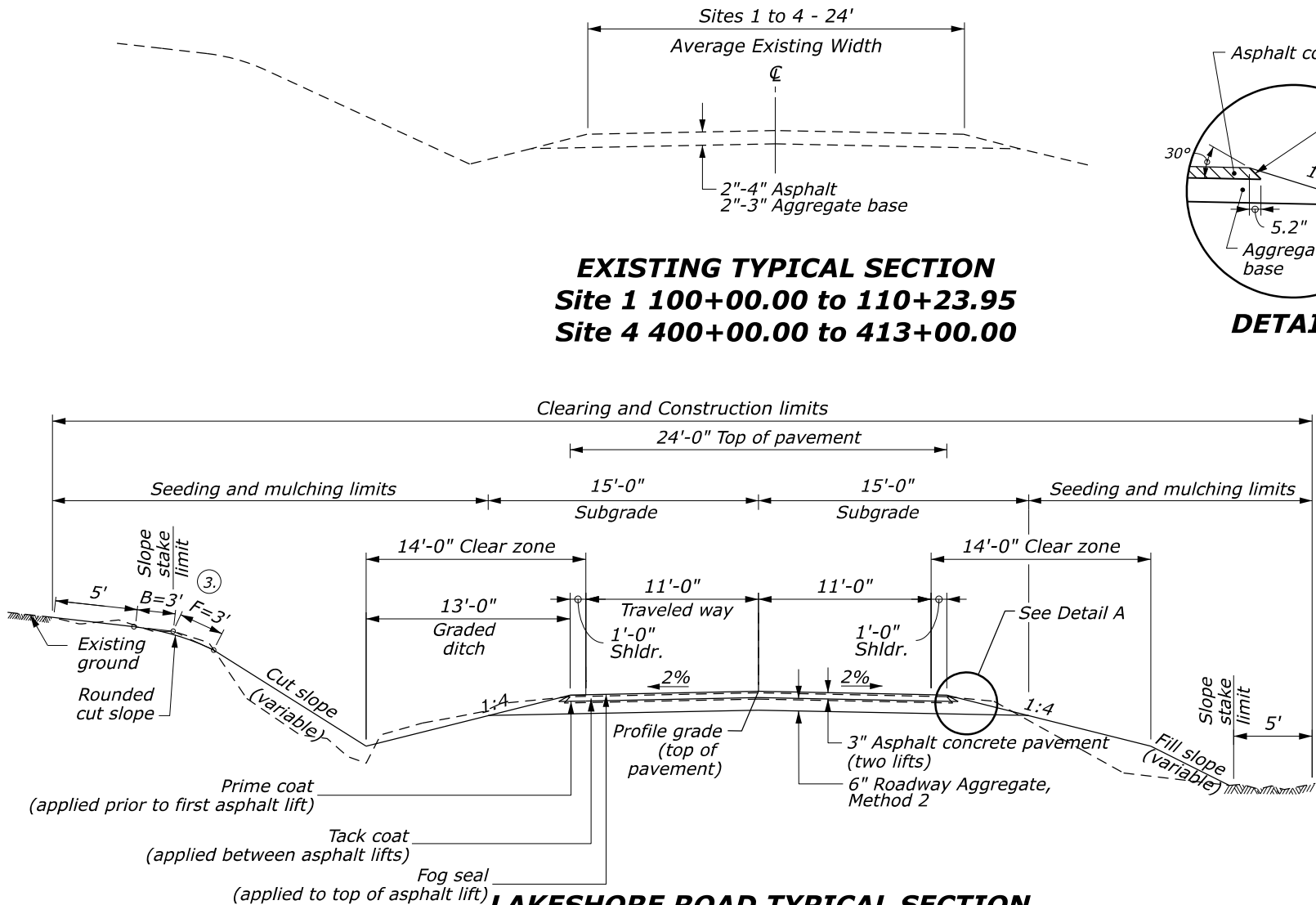
				U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION OFFICE OF FEDERAL LANDS HIGHWAY
6				CONTROL SHEET
5				
4				
3				
2				
1	<i>Created</i>	<i>11/10/20</i>	<i>SJS</i>	
NO.	DESCRIPTION REVISIONS (OR CHANGE NOTICES)	DATE	INIT.	

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STATE	PROJECT	SHEET NUMBER
NM	NM FLAP SIE 10(1) LAKESHORE ROAD	A6

NOTE:

1. The gradient and width of roadway ditches and the excavation and embankment slope ratios may be adjusted by the CO to assure adequate drainage and stability.
2. See the cross sections for cut and fill slope ratios.
- ③ Round all earth slopes and all rippable rock slopes. For cut heights less than B, reduce the B and F dimensions to the actual cut height.



LENGTH OF THE PROJECT			
Site	Station to Station	Roadway (ft)	Bridge/Culvert/LWC (ft)
Site 1	100+00.00 to 110+23.95	1024	123' CBC
Site 4	400+00.00 to 413+00.00	1190	110' Bridge
	TOTALS (ft)	2214	233'
	TOTALS (mi)	0.419	0.04

**LAKESHORE ROAD DIVERSIONS
TYPICAL SECTION**
Site 1 1000+80 to 1009+60
Site 4 4001+00 to 4011+00

No Scale

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FEDERAL HIGHWAY ADMINISTRATION
OFFICE OF FEDERAL LANDS HIGHWAY

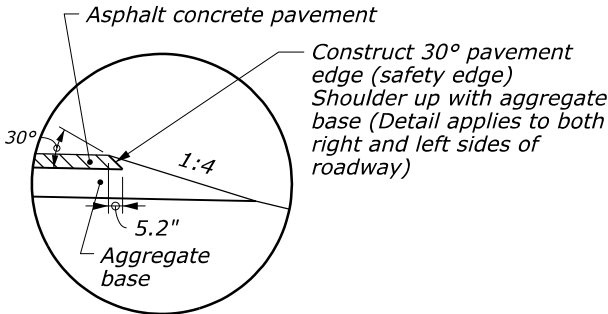
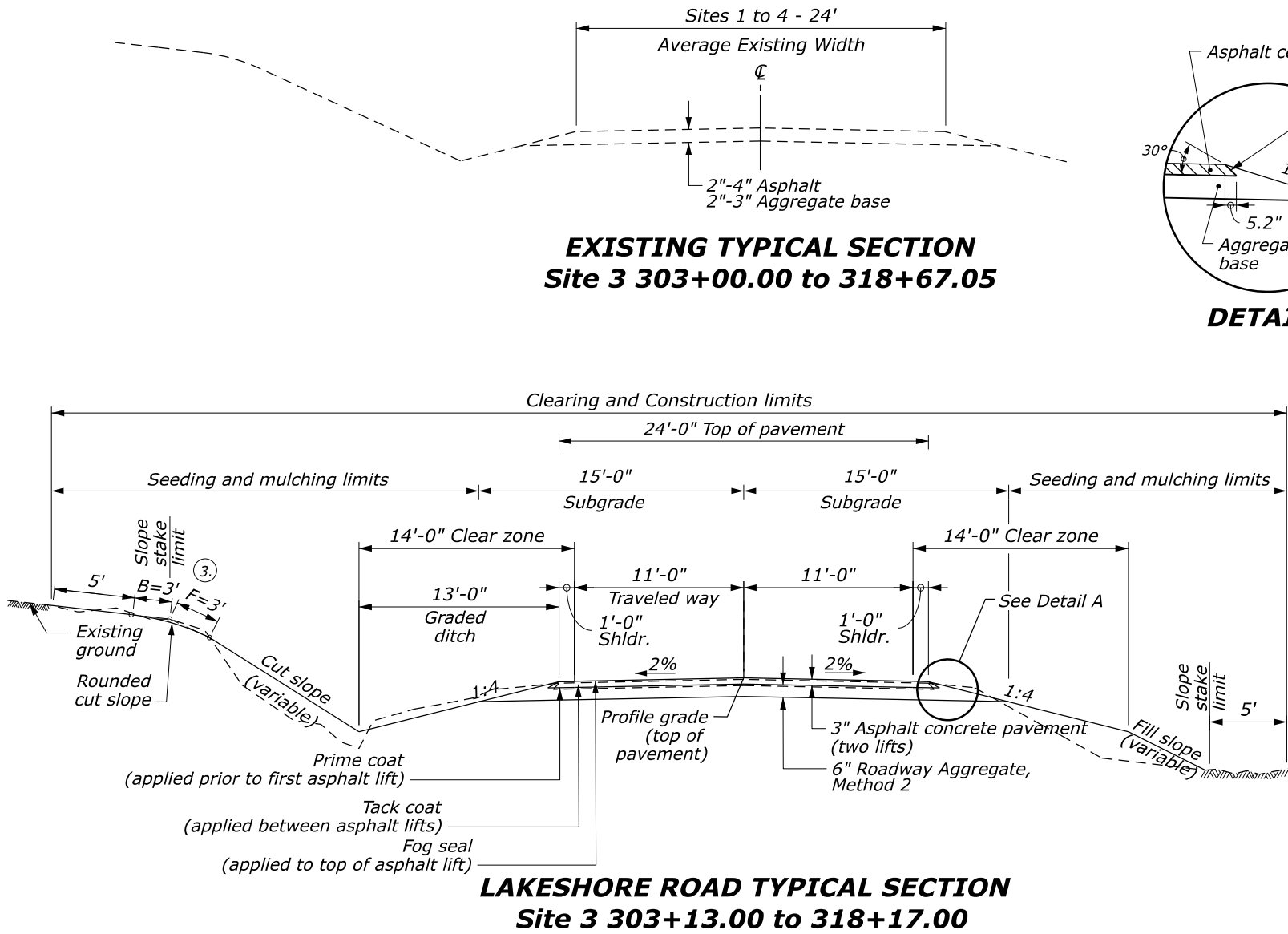
**TYPICAL SECTIONS
LAKESHORE ROAD
SCHEDULE A**

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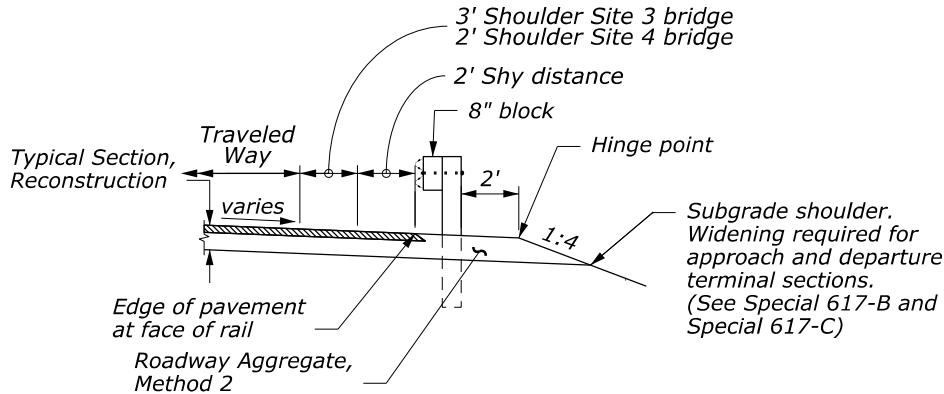
STATE	PROJECT	SHEET NUMBER
NM	NM FLAP SIE 10(1) LAKESHORE ROAD	A7

NOTE:

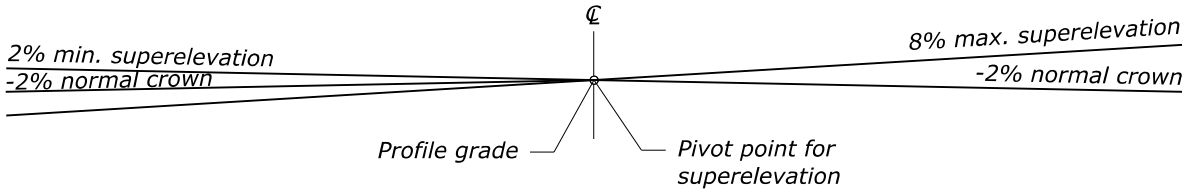
1. The gradient and width of roadway ditches and the excavation and embankment slope ratios may be adjusted by the CO to assure adequate drainage and stability.
2. See the cross sections for cut and fill slope ratios.
- ③. Round all earth slopes and all rippable rock slopes. For cut heights less than B, reduce the B and F dimensions to the actual cut height.



DETAIL A



TYPICAL GUARDRAIL CROSS SECTION



METHOD OF SUPERELEVATION ON CURVES

See plans for locations of curves and superelevations

LENGTH OF THE PROJECT			
Site	Station to Station	Roadway (ft)	Bridge/Culvert/LWC (ft)
Site 3	303+13.00 to 318+17.00	1434	70' Bridge
	TOTALS (ft)	1434	70'
	TOTALS (mi)	0.272	0.01

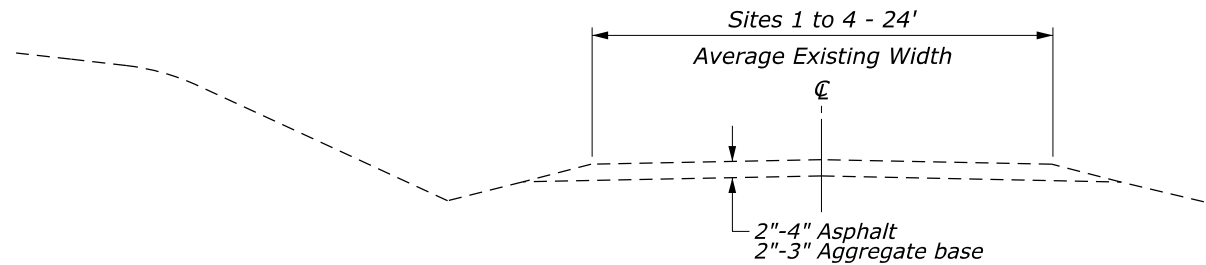
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U.S. DEPARTMENT OF TRANSPORTATION
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OFFICE OF FEDERAL LANDS HIGHWAY

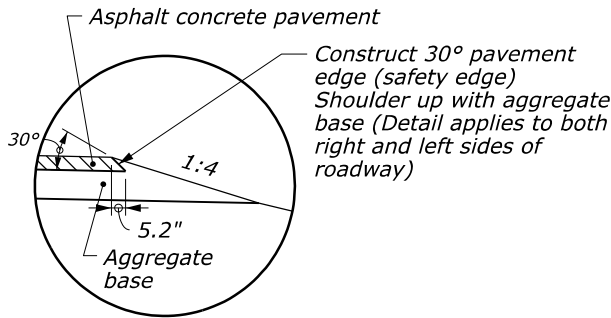
TYPICAL SECTIONS
LAKESHORE ROAD
OPTION X

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STATE	PROJECT	SHEET NUMBER
NM	NM FLAP SIE 10(1) LAKESHORE ROAD	A8

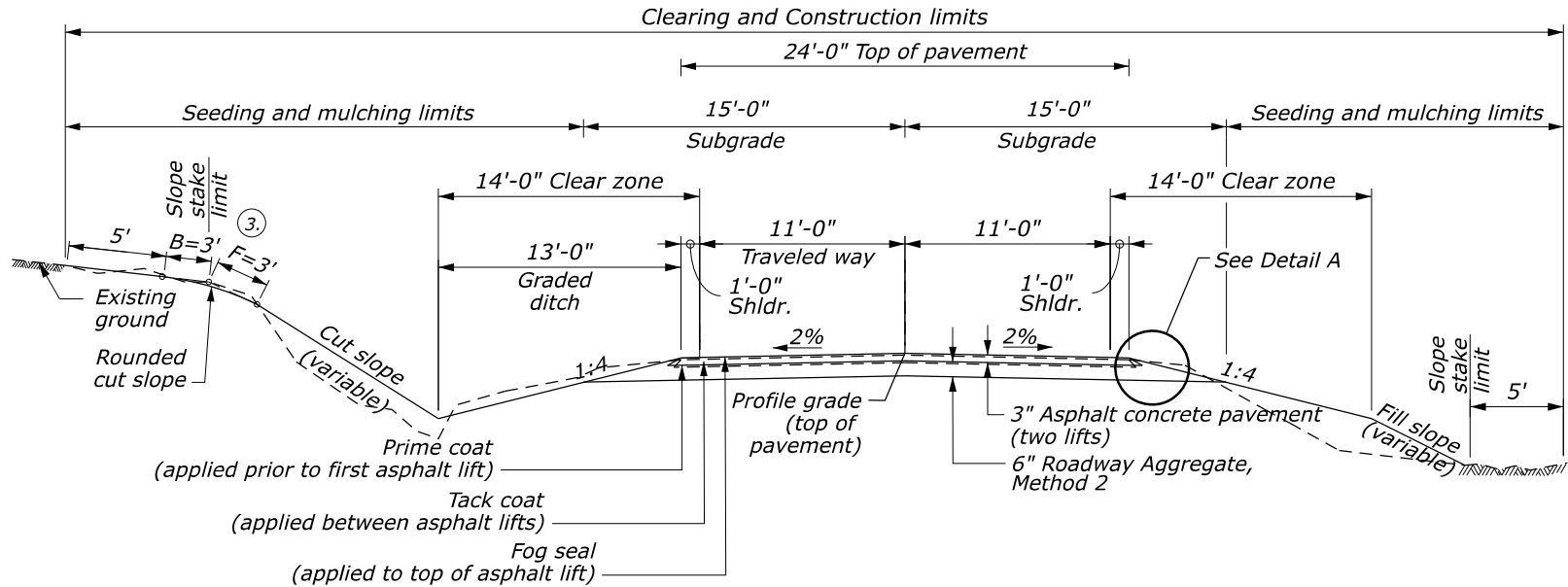


EXISTING TYPICAL SECTION
Site 2 200+00.00 to 211+31.46

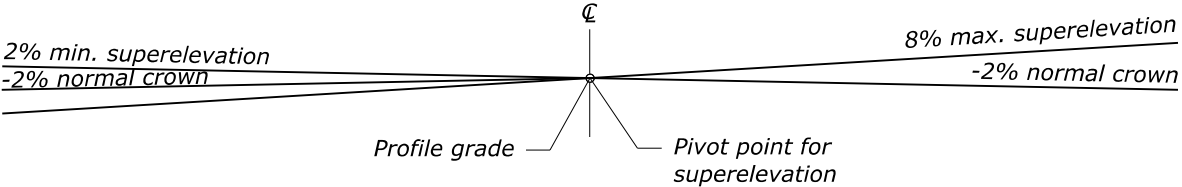


DETAIL A

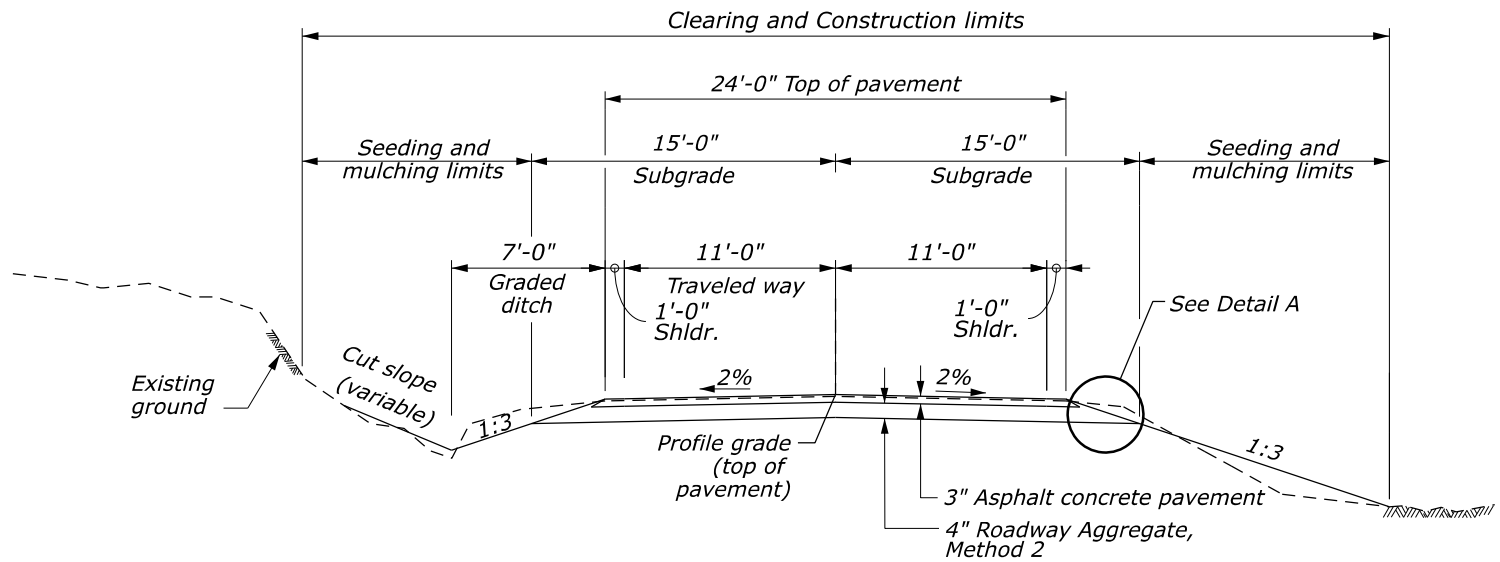
- NOTE:
- The gradient and width of roadway ditches and the excavation and embankment slope ratios may be adjusted by the CO to assure adequate drainage and stability.
 - See the cross sections for cut and fill slope ratios.
 - Round all earth slopes and all rippable rock slopes. For cut heights less than B, reduce the B and F dimensions to the actual cut height.



LAKESHORE ROAD TYPICAL SECTION
Site 2 200+00.00 to 211+31.46



METHOD OF SUPERELEVATION ON CURVES
See plans for locations of curves and superelevations



LAKESHORE ROAD DIVERSIONS
TYPICAL SECTION
Site 2 2000+20 to 2009+77

LENGTH OF THE PROJECT			
Site	Station to Station	Roadway (ft)	Bridge/Culvert/LWC (ft)
Site 2	200+00.00 to 211+31.46	1131	123' CBC
	TOTALS (ft)	1131	123'
	TOTALS (mi)	0.214	0.02

No Scale

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
OFFICE OF FEDERAL LANDS HIGHWAY

TYPICAL SECTIONS
LAKESHORE ROAD
OPTION Y

STATE	PROJECT	SHEET NUMBER
NM	NM FLAP SIE 10(1) LAKESHORE ROAD	B1

MileStone: Final Estimate - Schedule A + Option X + Option Y
Date Completed: 12/12/22
Report Date: 12/13/22

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SUMMARY OF QUANTITIES - Schedule A														STATE	PROJECT	SHEET NUMBER
														NM	NM FLAP SIE 10(1) LAKESHORE ROAD	B2
A M E N D	Line Item No.	Pay Item Number	Pay Item Description	Unit	Sheet and Description									Estimated Quantities	Remarks and/or Determination of Estimated Quantity	
					B8-B9	B10-B12	B13-B15	B16-B24	S1-S18	S19-S38	S39-S61	S62-S83				
					Drainage Summary	Grading Summary	Surfacing Summary	Miscellaneous Summary	Hot Springs Landing Culvert - Site 1	Rock Canyon Culvert - Site 2	Long Point Bridge - Site 3	Cedar Canyon Bridge- Site 4	Allowance	Bid Schedule		
	A0620	41201-0000	TACK COAT	TON			3.0						1.0	4.0		
	A0640	55201-0200	STRUCTURAL CONCRETE, CLASS A (AE)	CUYD					300			246		546	Contract Quantity	
	A0660	55302-3200	PRECAST, PRESTRESSED CONCRETE GIRDER (CEDAR CANYON BRIDGE)	LNFT								436		436	Contract Quantity	
	A0680	55401-1000	REINFORCING STEEL	LB					74,000			10,700		84,700	Contract Quantity	
	A0700	55401-2000	REINFORCING STEEL, EPOXY COATED	LB								46,500		46,500	Contract Quantity	
	A0720	55601-0900	BRIDGE RAILING, STEEL	LNFT					155					155	Contract Quantity	
	A0740	55601-0900	BRIDGE RAILING, STEEL (NM Type A32)	LNFT								280		280	Contract Quantity	
	A0760	55901-2000	MEMBRANE WATERPROOFING, TYPE 2	SQYD					325					325	Contract Quantity	
	A0780	56401-1000	BEARING DEVICE, ELASTOMERIC	EACH								8		8	Contract Quantity	
	A0800	56501-0300	DRILLED SHAFT, 30-INCH DIAMETER	LNFT								360		360		
	A0820	61701-4550	GUARDRAIL SYSTEM MGS, TYPE 2, CLASS A WOOD POSTS	LNFT				100						100		
	A0840	61702-1500	TERMINAL SECTION, TYPE MGS TANGENT	EACH				4						4		
	A0860	61707-0000	STRUCTURE TRANSITION RAILING	LNFT								200		200	Contract Quantity	
	A0880	62201-0250	DUMP TRUCK, 10 CUBIC YARD MINIMUM CAPACITY	HOURL										10		
	A0900	62201-2750	MOTOR GRADER	HOURL										10		
	A0920	62201-3000	HYDRAULIC EXCAVATOR	HOURL										10		
	A0940	62301-0000	GENERAL LABOR	HOURL										20		
	A0960	62302-1000	SPECIAL LABOR, HIRED TECHNICAL SERVICES	HOURL										10		
	A0980	62302-1100	SPECIAL LABOR, HIRED SURVEY SERVICES	HOURL										10		
	A1000	62407-0000	PLACING CONSERVED TOPSOIL	CUYD				1,279					71	1,350		
	A1020	62510-2000	SEEDING, HYDRAULIC METHOD	ACRE				2.3					0.2	2.5		
	A1040	62515-2000	MULCHING, HYDRAULIC METHOD	ACRE				2.3					0.2	2.5		
	A1060	63301-0000	SIGN SYSTEM	EACH				8						8		
	A1080	63401-0300	PAVEMENT MARKINGS, TYPE B, SOLID	LNFT				17,732					868	18,600		
	A1100	63502-0600	TEMPORARY TRAFFIC CONTROL, BARRICADE TYPE 3	EACH				4						4		
	A1120	63502-1300	TEMPORARY TRAFFIC CONTROL, DRUM	EACH				84					6	90		
MileStone: Final Estimate - Schedule A + Option X + Option Y Date Completed: 12/12/22 Report Date: 12/13/22																

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SUMMARY OF QUANTITIES - Schedule A

STATE	PROJECT	SHEET NUMBER
NM	NM FLAP SIE 10(1) LAKESHORE ROAD	B3

A M E N D	Line Item No.	Pay Item Number	Pay Item Description	Unit	Sheet and Description									Estimated Quantities	Remarks and/or Determination of Estimated Quantity
					B8-B9	B10-B12	B13-B15	B16-B24	S1-S18	S19-S38	S39-S61	S62-S83			
					Drainage Summary	Grading Summary	Surfacing Summary	Miscellaneous Summary	Hot Springs Landing Culvert - Site 1	Rock Canyon Culvert - Site 2	Long Point Bridge - Site 3	Cedar Canyon Bridge- Site 4	Allowance	Bid Schedule	
	A1140	63502-2000	TEMPORARY TRAFFIC CONTROL, PORTABLE CHANGEABLE MESSAGE SIGN	EACH										4	
	A1160	63502-3900	TEMPORARY TRAFFIC CONTROL, CONSTRUCTION SIGN	EACH				20						20	
	A1180	63505-1000	TEMPORARY TRAFFIC CONTROL, PAVEMENT MARKINGS	MILE				0.36					0.04	0.40	
	A1200	63506-0500	TEMPORARY TRAFFIC CONTROL, FLAGGER	HOUR				160						160	
	A1220	63510-0100	TEMPORARY TRAFFIC CONTROL, TRAFFIC CONTROL SUPERVISOR	WEEK				62						62	
	A1240	63701-0000	FIELD OFFICE	EACH										1	
	A1260	65001-1000	CONSTRUCT AND MAINTAIN DIVERSION (Including Remove and Restore for Site 1 - Hot Springs Landing)	LPSM										ALL	
	A1280	65001-1000	CONSTRUCT AND MAINTAIN DIVERSION (Including Remove and Restore for Site 4 - Cedar Canyon)	LPSM										ALL	

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SUMMARY OF QUANTITIES - Option X														STATE	PROJECT	SHEET NUMBER
														NM	NM FLAP SIE 10(1) LAKESHORE ROAD	B4
A M E N D	Line Item No.	Pay Item Number	Pay Item Description	Unit	Sheet and Description									Estimated Quantities	Remarks and/or Determination of Estimated Quantity	
					B8-B9	B10-B12	B13-B15	B16-B24	S1-S18	S19-S38	S39-S61	S62-S83				
					Drainage Summary	Grading Summary	Surfacing Summary	Miscellaneous Summary	Hot Springs Landing Culvert - Site 1	Rock Canyon Culvert - Site 2	Long Point Bridge - Site 3	Cedar Canyon Bridge- Site 4	Allowance	Bid Schedule		
	X0020	15101-0000	MOBILIZATION	LPSM										ALL		
	X0040	15215-2000	SURVEY AND STAKING, BRIDGE	EACH							1			1		
	X0060	15225-0000	SLOPE, REFERENCE, AND CLEARING AND GRUBBING CONTROL	MILE				0.272						0.272		
	X0080	15236-2000	SURVEY CONTROL, GRADE FINISHING	MILE				0.544						0.544		
	X0100	15301-0000	CONTRACTOR QUALITY CONTROL	LPSM										ALL		
	X0120	15401-0000	CONTRACTOR TESTING	LPSM										ALL		
	X0140	15501-0000	CONSTRUCTION SCHEDULE	LPSM										ALL		
	X0160	15701-0000	SOIL EROSION CONTROL	LPSM										ALL		
	X0180	15720-0000	STORM WATER POLLUTION PREVENTION PLAN	LPSM										ALL		
	X0200	15802-0000	WATERING FOR DUST CONTROL	LPSM										ALL		
	X0220	20101-0000	CLEARING AND GRUBBING	ACRE				3.79					0.11	3.90		
	X0240	20301-2400	REMOVAL OF SIGN	EACH				13						13		
	X0260	20304-1000	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	LPSM										ALL	Site 3	
	X0280	20401-0000	ROADWAY EXCAVATION	CUYD		12,308							1,192	13,500		
	X0300	20402-0000	SUBEXCAVATION	CUYD										100		
	X0320	20801-0000	STRUCTURE EXCAVATION	CUYD							130			130	Contract Quantity Site 3	
	X0340	20803-0000	STRUCTURAL BACKFILL	CUYD							86			86	Contract Quantity Site 3	
	X0360	21101-1000	ROADWAY OBLITERATION, METHOD 1	SQYD				1,562					38	1,600	Site 3	
	X0380	25101-2300	PLACED RIPRAP, METHOD B, CLASS 3	CUYD							100			100	Site 3	
	X0400	30202-2000	ROADWAY AGGREGATE, METHOD 2	TON			1,699						101	1,800		
	X0440	40301-0000	ASPHALT CONCRETE PAVEMENT	TON			741						9	750		
	X0460	40601-0000	FOG SEAL	TON			1.9						0.1	2.0		
	X0480	41102-1000	PRIME COAT, METHOD 1	SQYD			4,545						255	4,800		
	X0500	41105-0000	BLOTTER	TON			6.7						0.3	7.0		
	X0520	41201-0000	TACK COAT	TON			2.0						0.5	2.5		
	X0540	55201-0200	STRUCTURAL CONCRETE, CLASS A (AE)	CUYD							260			260	Contract Quantity	
	X0560	55302-3400	PRECAST, PRESTRESSED CONCRETE BOX BEAM (LONG POINT BRIDGE)	LNFT							345			345	Contract Quantity	
	X0580	55401-1000	REINFORCING STEEL	LB							19,300			19,300	Contract Quantity	
	X0600	55401-2000	REINFORCING STEEL, EPOXY COATED	LB							28,400			28,400	Contract Quantity	
MileStone: Final Estimate - Schedule A + Option X + Option Y Date Completed: 12/12/22 Report Date: 12/13/22																

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SUMMARY OF QUANTITIES - Option X														STATE	PROJECT	SHEET NUMBER
														NM	NM FLAP SIE 10(1) LAKESHORE ROAD	B5
A M E N D	Line Item No.	Pay Item Number	Pay Item Description	Unit	Sheet and Description									Estimated Quantities	Remarks and/or Determination of Estimated Quantity	
					B8-B9	B10-B12	B13-B15	B16-B24	S1-S18	S19-S38	S39-S61	S62-S83				
					Drainage Summary	Grading Summary	Surfacing Summary	Miscellaneous Summary	Hot Springs Landing Culvert - Site 1	Rock Canyon Culvert - Site 2	Long Point Bridge - Site 3	Cedar Canyon Bridge- Site 4	Allowance	Bid Schedule		
	X0620	55601-0900	BRIDGE RAILING, STEEL (NM Type A32)	LNFT							188		188	Contract Quantity		
	X0640	56401-1000	BEARING DEVICE, ELASTOMERIC	EACH							20		20	Contract Quantity		
	X0660	56501-0300	DRILLED SHAFT, 30-INCH DIAMETER	LNFT							240		240			
	X0680	61701-4550	GUARDRAIL SYSTEM MGS, TYPE 2, CLASS A WOOD POSTS	LNFT				100					100			
	X0700	61702-1500	TERMINAL SECTION, TYPE MGS TANGENT	EACH				4					4			
	X0720	61707-0000	STRUCTURE TRANSITION RAILING	LNFT							200		200	Contract Quantity		
	X0740	62201-0250	DUMP TRUCK, 10 CUBIC YARD MINIMUM CAPACITY	HOURL									5			
	X0760	62201-2750	MOTOR GRADER	HOURL									5			
	X0780	62201-3000	HYDRAULIC EXCAVATOR	HOURL									5			
	X0800	62301-0000	GENERAL LABOR	HOURL									10			
	X0820	62302-1000	SPECIAL LABOR, HIRED TECHNICAL SERVICES	HOURL									5			
	X0840	62302-1100	SPECIAL LABOR, HIRED SURVEY SERVICES	HOURL									5			
	X0860	62407-0000	PLACING CONSERVED TOPSOIL	CUYD				1,230				70	1,300			
	X0880	62510-2000	SEEDING, HYDRAULIC METHOD	ACRE				2.6				0.1	2.7			
	X0900	62515-2000	MULCHING, HYDRAULIC METHOD	ACRE				2.6				0.1	2.7			
	X0920	63301-0000	SIGN SYSTEM	EACH				1					1			
	X0940	63316-1000	REMOVE AND RESET SIGN	EACH				2					2			
	X0960	63401-0300	PAVEMENT MARKINGS, TYPE B, SOLID	LNFT				12,032				568	12,600			
	X0980	63502-0600	TEMPORARY TRAFFIC CONTROL, BARRICADE TYPE 3	EACH				2					2			
	X1000	63502-1300	TEMPORARY TRAFFIC CONTROL, DRUM	EACH				56				4	60			
	X1020	63502-2000	TEMPORARY TRAFFIC CONTROL, PORTABLE CHANGEABLE MESSAGE SIGN	EACH									2			
	X1040	63502-3900	TEMPORARY TRAFFIC CONTROL, CONSTRUCTION SIGN	EACH				10					10			
	X1060	63505-1000	TEMPORARY TRAFFIC CONTROL, PAVEMENT MARKINGS	MILE				0.22				0.08	0.30			
	X1080	63506-0500	TEMPORARY TRAFFIC CONTROL, FLAGGER	HOURL				80					80			
MileStone: Final Estimate - Schedule A + Option X + Option Y Date Completed: 12/12/22 Report Date: 12/13/22																

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SUMMARY OF QUANTITIES - Option Y														STATE	PROJECT	SHEET NUMBER
														NM	NM FLAP SIE 10(1) LAKESHORE ROAD	B6
A M E N D	Line Item No.	Pay Item Number	Pay Item Description	Unit	Sheet and Description									Estimated Quantities	Remarks and/or Determination of Estimated Quantity	
					B8-B9	B10-B12	B13-B15	B16-B24	S1-S18	S19-S38	S39-S61	S62-S83		Bid Schedule		
					Drainage Summary	Grading Summary	Surfacing Summary	Miscellaneous Summary	Hot Springs Landing Culvert - Site 1	Rock Canyon Culvert - Site 2	Long Point Bridge - Site 3	Cedar Canyon Bridge- Site 4	Allowance			
	Y0020	15101-0000	MOBILIZATION	LPSM										ALL		
	Y0040	15215-5000	SURVEY AND STAKING, BOX CULVERT	EACH						1				1		
	Y0060	15225-0000	SLOPE, REFERENCE, AND CLEARING AND GRUBBING CONTROL	MILE				0.214						0.214		
	Y0080	15236-2000	SURVEY CONTROL, GRADE FINISHING	MILE				0.428						0.428		
	Y0100	15301-0000	CONTRACTOR QUALITY CONTROL	LPSM										ALL		
	Y0120	15401-0000	CONTRACTOR TESTING	LPSM										ALL		
	Y0140	15501-0000	CONSTRUCTION SCHEDULE	LPSM										ALL		
	Y0160	15701-0000	SOIL EROSION CONTROL	LPSM										ALL		
	Y0180	15720-0000	STORM WATER POLLUTION PREVENTION PLAN	LPSM										ALL		
	Y0200	15802-0000	WATERING FOR DUST CONTROL	LPSM										ALL		
	Y0220	20101-0000	CLEARING AND GRUBBING	ACRE				1.56					0.04	1.60		
	Y0240	20301-1200	REMOVAL OF HEADWALL	EACH	2									2	Site 2	
	Y0260	20301-1900	REMOVAL OF PIPE CULVERT	EACH	3									3	Site 2 - Existing 36" CMP (3)	
	Y0280	20301-2400	REMOVAL OF SIGN	EACH				7						7		
	Y0300	20402-0000	SUBEXCAVATION	CUYD										50		
	Y0320	20420-0000	EMBANKMENT CONSTRUCTION	CUYD		3,309							191	3,500		
	Y0340	20801-0000	STRUCTURE EXCAVATION	CUYD						1,150				1,150	Contract Quantity Site 2	
	Y0360	20803-0000	STRUCTURAL BACKFILL (native soil)	CUYD						240				240	Contract Quantity Site 2	
	Y0380	25101-2200	PLACED RIPRAP, METHOD B, CLASS 2	CUYD	28								22	50	Site 2	
	Y0400	30202-2000	ROADWAY AGGREGATE, METHOD 2	TON			1,198						102	1,300		
	Y0440	40301-0000	ASPHALT CONCRETE PAVEMENT	TON			511						9	520		
	Y0460	40601-0000	FOG SEAL	TON			1.3						0.2	1.5		
	Y0480	41102-1000	PRIME COAT, METHOD 1	SQYD			3,131						169	3,300		
	Y0500	41105-0000	BLOTTER	TON			4.6						0.4	5.0		
	Y0520	41201-0000	TACK COAT	TON			1.3						0.2	1.5		
	Y0540	55201-0200	STRUCTURAL CONCRETE, CLASS A (AE)	CUYD						287				287	Contract Quantity	
	Y0560	55401-1000	REINFORCING STEEL	LB						73,900				73,900	Contract Quantity	
	Y0580	55601-0900	BRIDGE RAILING, STEEL	LNFT						157				157	Contract Quantity	
	Y0600	55901-2000	MEMBRANE WATERPROOFING, TYPE 2	SQYD						325				325	Contract Quantity	
	Y0620	62201-0250	DUMP TRUCK, 10 CUBIC YARD MINIMUM CAPACITY	HOUR										5		
MileStone: Final Estimate - Schedule A + Option X + Option Y Date Completed: 12/12/22 Report Date: 12/13/22																

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SUMMARY OF QUANTITIES - Option Y														STATE	PROJECT	SHEET NUMBER
														NM	NM FLAP SIE 10(1) LAKESHORE ROAD	B7
A M E N D	Line Item No.	Pay Item Number	Pay Item Description	Unit	Sheet and Description									Estimated Quantities	Remarks and/or Determination of Estimated Quantity	
					B8-B9	B10-B12	B13-B15	B16-B24	S1-S18	S19-S38	S39-S61	S62-S83				
					Drainage Summary	Grading Summary	Surfacing Summary	Miscellaneous Summary	Hot Springs Landing Culvert - Site 1	Rock Canyon Culvert - Site 2	Long Point Bridge - Site 3	Cedar Canyon Bridge- Site 4	Allowance	Bid Schedule		
	Y0640	62201-2750	MOTOR GRADER	HOURL										5		
	Y0660	62201-3000	HYDRAULIC EXCAVATOR	HOURL										5		
	Y0680	62301-0000	GENERAL LABOR	HOURL										10		
	Y0700	62302-1000	SPECIAL LABOR, HIRED TECHNICAL SERVICES	HOURL										5		
	Y0720	62302-1100	SPECIAL LABOR, HIRED SURVEY SERVICES	HOURL										5		
	Y0740	62407-0000	PLACING CONSERVED TOPSOIL	CUYD				684					16	700		
	Y0760	62510-2000	SEEDING, HYDRAULIC METHOD	ACRE				1.3					0.1	1.4		
	Y0780	62515-2000	MULCHING, HYDRAULIC METHOD	ACRE				1.3					0.1	1.4		
	Y0800	63301-0000	SIGN SYSTEM	EACH				8						8		
	Y0820	63401-0300	PAVEMENT MARKINGS, TYPE B, SOLID	LNFT				9,048					452	9,500		
	Y0840	63502-0600	TEMPORARY TRAFFIC CONTROL, BARRICADE TYPE 3	EACH				2						2		
	Y0860	63502-1300	TEMPORARY TRAFFIC CONTROL, DRUM	EACH				42					8	50		
	Y0880	63502-2000	TEMPORARY TRAFFIC CONTROL, PORTABLE CHANGEABLE MESSAGE SIGN	EACH										2		
	Y0900	63502-3900	TEMPORARY TRAFFIC CONTROL, CONSTRUCTION SIGN	EACH				10						10		
	Y0920	63505-1000	TEMPORARY TRAFFIC CONTROL, PAVEMENT MARKINGS	MILE				0.18					0.02	0.20		
	Y0940	63506-0500	TEMPORARY TRAFFIC CONTROL, FLAGGER	HOURL				80						80		
	Y0960	65001-1000	CONSTRUCT AND MAINTAIN DIVERSION (Including Remove and Restore for Site 2 - Rock Canyon)	LPSM										ALL		
MileStone: Final Estimate - Schedule A + Option X + Option Y Date Completed: 12/12/22 Report Date: 12/13/22																

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STATE	PROJECT	SHEET NUMBER
NM	NM FLAP SIE 10(1) LAKESHORE ROAD	B8

DRAINAGE SUMMARY									
SCHEDULE A									
Item Number			20301-1200	20301-1900	20310-1000	For Info Only	25101-2200	25101-2300	
Station	Side	Skew (deg)	REMOVAL OF HEADWALL	REMOVAL OF PIPE CULVERT	PLUG, EXISTING PIPE	GEOTEXTILE FILTER, CLASS 1, TYPE C	PLACED RIPRAP, METHOD B, CLASS 2	PLACED RIPRAP, METHOD B, CLASS 3	Remarks
			EACH	EACH	EACH	SQYD	CUYD	CUYD	
Site 1 - Hot Springs Landing									
104+58			2	2		71		30	2 - 84" CMP Removal
Site 4 - Cedar Canyon									
409+73 and 409+79					2				2 - 24" CMP
TOTALS			2	2	2	71	0	30	

Note: Use geotextile filter, **Class 1, Type C, Non-woven**. See subsection 714.01(a).

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
OFFICE OF FEDERAL LANDS HIGHWAY

DRAINAGE SUMMARY
SCHEDULE A

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STATE	PROJECT	SHEET NUMBER
NM	NM FLAP SIE 10(1) LAKESHORE ROAD	B9

DRAINAGE SUMMARY									
OPTION Y									
Item Number			20301-1200	20301-1900	20310-1000	For Info Only	25101-2200	25101-2300	
Station	Side	Skew (deg)	REMOVAL OF HEADWALL	REMOVAL OF PIPE CULVERT	PLUG, EXISTING PIPE	GEOTEXTILE FILTER, CLASS 1, TYPE C	PLACED RIPRAP, METHOD B, CLASS 2	PLACED RIPRAP, METHOD B, CLASS 3	Remarks
			EACH	EACH	EACH	SQYD	CUYD	CUYD	
Site 2 - Rock Canyon									
205+79			2	3		57	28		3 - 36" CMP Removal
TOTALS			2	3	0	57	28	0	

Note: Use geotextile filter, **Class 1, Type C, Non-woven**. See subsection 714.01(a).

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
OFFICE OF FEDERAL LANDS HIGHWAY

DRAINAGE SUMMARY
OPTION Y

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STATE	PROJECT	SHEET NUMBER
NM	NM FLAP SIE 10(1) LAKESHORE ROAD	B10

GRADING SUMMARY													
SCHEDULE A													
	Roadway Excavation			Additional Excavation	For info only		Embankment		Pay Item 20420-0000	For info only			For info only
Station to Station	Roadway Prism	Approach Roads	Roadway Excavation	(-) Unavailable Material (see note 2)	Shrink/Swell Factor	Total Excavation Available For Fills	Roadway Prism	Approach Roads	Embankment Construction	(+) Various Backfill Material Generated Onsite (see note 4)	Total Embankment	Excavation - Embankment	Estimated Unclassified Borrow Volume (see note 6)
	BCY	BCY	BCY	BCY		CCY	CCY	CCY	CUYD	CCY	CCY	CCY	BCY
Site 1													
100+00 - 110+24	454	0	454	131	0.90	291	6,494	0	6,494	485	6,979	-6,688	7,431
Site 4													
400+00 - 413+00	5,983	0	5,983	384	0.90	5,040	3,684	0	3,684	279	3,963	1,077	-1,196
TOTALS	6,437	0	6,437	515		5,331	10,178	0	10,178	764	10,942	-5,611	6,235

- NOTE:
- 1. Quantities based on prismatic (surface to surface) volumes.
 - 2. Conserve 4 inches of topsoil in cut and fill slope areas. Quantities shown are finished slope quantities.
 - 3. Unavailable material includes topsoil and existing pavement removed in cut areas.
 - 4. Various backfill material generated onsite includes topsoil replacement under fills.
 - 5. The average shrink/swell factor shown is computed by taking an average of recommended values over the specified range. Refer to the Geotech Report for recommended shrink/swell factors.
 - 6. Estimated unclassified borrow quantity calculated using volumes adjusted for estimated material source shrink/swell of 0.9.
 - 7. The quantities shown herein are approximations. Payment will be made for the actual quantities of work performed.
 - 8. BCY = Bank cubic yard - one cubic yard of material as it lies in the natural state.
CCY = Compacted cubic yard - one cubic yard of material after it has been compacted to specification density.

U.S. DEPARTMENT OF TRANSPORTATION
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GRADING SUMMARY
SCHEDULE A

C:\Adrian\CFI-FHWA\Site10(1)\Roadway\CADD_Sheets\B-Summ\B_Sheets - Option X.dgn [Grading Summary - Option X] 5 October 2022 10:53 AM

STATE	PROJECT	SHEET NUMBER
NM	NM FLAP SIE 10(1) LAKESHORE ROAD	B11

GRADING SUMMARY												
OPTION X												
	Roadway Excavation		Pay Item 20401-0000	Additional Excavation	For info only		Embankment For info only		For info only			For Info Only
Station to Station	Roadway Prism	Approach Roads	ROADWAY EXCAVATION	(-) Unavailable Material (see note 3)	Shrink/Swell Factor	Total Excavation Avaliable For Fills	Roadway Prism	Approach Roads	(+) Various Backfill Material Generated Onsite (see note 4)	Total Embankment	Excavation- Embankment	WASTE (see note 5)
	BCY	BCY	CUYD	BCY		CCY	CCY	CCY	CCY	CCY	CCY	CUYD
Site 3												
303+13 - 318+17	12,308	0	12,308	727	0.90	10,423	3,276	0	503	3,779	6,644	
TOTALS	12,308	0	12,308	727		10,423	3,276	0	503	3,779	6,644	6,644

- NOTE:
- 1. Quantities based on prismodial (surface to surface) volumes.
 - 2. Conserve 4 inches of topsoil in cut and fill slope areas. Quantities shown are finished slope quantities.
 - 3. Unavailable material includes topsoil and existing pavement removed in cut areas.
 - 4. Various backfill material generated onsite includes topsoil replacement under fills.
 - 5. Waste quantity calculated using volumes adjusted for shrink/swell. The average shrink/swell factor shown is computed by taking an average of recommended values over the specified range. Refer to the Geotech Report for recommended shrink/swell factors.
 - 6. The quantities shown herein are approximations. Payment will be made for the actual quantities of work performed.
 - 7. BCY = Bank cubic yard - one cubic yard of material as it lies in the natural state.
CCY = Compacted cubic yard - one cubic yard of material after it has been compacted to specification density.

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GRADING SUMMARY
OPTION X

C:\Adrian\CFL-FHWA\site\0(1)\Roadway\CADD_Sheets\B-Summ\B_Sheets - Option Y.dgn [Grading Summary - Option Y] 5 October 2022 8:40 AM

STATE	PROJECT	SHEET NUMBER
NM	NM FLAP SIE 10(1) LAKESHORE ROAD	B12

GRADING SUMMARY													
OPTION Y													
	Roadway Excavation			Additional Excavation	For info only		Embankment		Pay Item 20420-0000	For info only			For info only
Station to Station	Roadway Prism	Approach Roads	Roadway Excavation	(-) Unavailable Material (see note 2)	Shrink/Swell Factor	Total Excavation Available For Fills	Roadway Prism	Approach Roads	Embankment Construction	(+) Various Backfill Material Generated Onsite (see note 4)	Total Embankment	Excavation - Embankment	Estimated Unclassified Borrow Volume (see note 6)
	BCY	BCY	BCY	BCY		CCY	CCY	CCY	CUYD	CCY	CCY	CCY	BCY
Site 2													
200+00 - 211+31	1,987	0	1,987	414	0.90	1,416	3,309	0	3,309	269	3,578	-2,163	2,403
TOTALS	1,987	0	1,987	414		1,416	3,309	0	3,309	269	3,578	-2,163	2,403

- NOTE:
- Quantities based on prismatic (surface to surface) volumes.
 - Conserve 4 inches of topsoil in cut and fill slope areas. Quantities shown are finished slope quantities.
 - Unavailable material includes topsoil and existing pavement removed in cut areas.
 - Various backfill material generated onsite includes topsoil replacement under fills.
 - The average shrink/swell factor shown is computed by taking an average of recommended values over the specified range. Refer to the Geotech Report for recommended shrink/swell factors.
 - Estimated unclassified borrow quantity calculated using volumes adjusted for estimated material source shrink/swell of 0.9.
 - The quantities shown herein are approximations. Payment will be made for the actual quantities of work performed.
 - BCY = Bank cubic yard - one cubic yard of material as it lies in the natural state.
CCY = Compacted cubic yard - one cubic yard of material after it has been compacted to specification density.

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GRADING SUMMARY
OPTION Y

C:\Adrian\CFL-FHWA\de10(1)\Roadway\CADD_Sheets\B-Summ\B_Sheets - Schedule A.dgn [Surfacing Summary - Schedule A]
6 October 2022 7:50 AM

STATE	PROJECT	SHEET NUMBER
NM	NM FLAP SIE 10(1) LAKESHORE ROAD	B13

SURFACING SUMMARY						
SCHEDULE A						
Item Number	30202-2000	40301-0000	40601-0000	41102-1000	41105-0000	41201-0000
Station to Station	ROADWAY AGGREGATE, METHOD 2	ASPHALT CONCRETE PAVEMENT	FOG SEAL	PRIME COAT, METHOD 1	BLOTTER	TACK COAT
	TON	TON	TON	SQYD	TON	TON
Site 1						
100+00 - 110+24	1237	550	1.4	3370	5.0	1.4
Site 4						
400+00 - 413+00	1429	623	1.6	3822	5.6	1.6
TOTALS	2666	1173	3.0	7192	10.6	3.0

Values used for estimating purposes:
Aggregate base 139 lb/ft3
Asphalt concrete pavement 145.2 lb/ft3
Fog seal 0.1 gal/yd2 (240.7 gal/ton)
Prime coat 0.33 gal/yd2 (251 gal/ton)
Tack coat 0.1 gal/yd2 (233 gal/ton)
Blotter 14.75 lb/yd2, assume 20% of area

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SURFACING SUMMARY
SCHEDULE A

C:\Adrian\ CFL-FHWA\stc10(1)\Roadway\CADD_Sheets\B-Summ\B_Sheets - Option X.dgn [Surfacing Summary - Option X] 5 October 2022 8:40 AM

STATE	PROJECT	SHEET NUMBER
NM	NM FLAP SIE 10(1) LAKESHORE ROAD	B14

SURFACING SUMMARY						
OPTION X						
Item Number	30202-2000	40301-0000	40601-0000	41102-1000	41105-0000	41201-0000
Station to Station	ROADWAY AGGREGATE, METHOD 2	ASPHALT CONCRETE PAVEMENT	FOG SEAL	PRIME COAT, METHOD 1	BLOTTER	TACK COAT
	TON	TON	TON	SQYD	TON	TON
Site 3						
303+13 - 318+17	1699	741	1.9	4545	6.7	2.0
TOTALS	1699	741	1.9	4545	6.7	2.0

Values used for estimating purposes:

Aggregate base 139 lb/ft3

Asphalt concrete pavement 145.2 lb/ft3

Fog seal 0.1 gal/yd2 (240.7 gal/ton)

Prime coat 0.33 gal/yd2 (251 gal/ton)

Tack coat 0.1 gal/yd2 (233 gal/ton)

Blotter 14.75 lb/yd2, assume 20% of area

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SURFACING SUMMARY
OPTION X

C:\Adrian\ CFL-FHWA\de10(1)\Roadway\CADD_Sheets\B-Summ\B_Sheets - Option Y.dgn [Surfacing Summary - Option Y] 5 October 2022 8:40 AM

STATE	PROJECT	SHEET NUMBER
NM	NM FLAP SIE 10(1) LAKESHORE ROAD	B15

SURFACING SUMMARY						
OPTION Y						
Item Number	30202-2000	40301-0000	40601-0000	41102-1000	41105-0000	41201-0000
Station to Station	ROADWAY AGGREGATE, METHOD 2	ASPHALT CONCRETE PAVEMENT	FOG SEAL	PRIME COAT, METHOD 1	BLOTTER	TACK COAT
	TON	TON	TON	SQYD	TON	TON
Site 2						
200+00 - 211+31	1198	511	1.3	3131	4.6	1.3
TOTALS	1198	511	1.3	3131	4.6	1.3

Values used for estimating purposes:

Aggregate base 139 lb/ft3

Asphalt concrete pavement 145.2 lb/ft3

Fog seal 0.1 gal/yd2 (240.7 gal/ton)

Prime coat 0.33 gal/yd2 (251 gal/ton)

Tack coat 0.1 gal/yd2 (233 gal/ton)

Blotter 14.75 lb/yd2, assume 20% of area

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SURFACING SUMMARY
OPTION Y

C:\Adrian\CFI-FHWA\del0(1)\Roadway\CADD_Sheets\B-Summ\B_Sheets - Schedule A.dgn [Miscellaneous Summaries - Schedule A - 1 of 3] 5 October 2022 8:39 AM

STATE	PROJECT	SHEET NUMBER
NM	NM FLAP SIE 10(1) LAKESHORE ROAD	B16

SURVEY AND STAKING SUMMARY				
SCHEDULE A				
Item Number		15225-0000	15236-2000	
Station to Station	Side	SLOPE, REFERENCE, AND CLEARING AND GRUBBING CONTROL	SURVEY CONTROL, GRADE FINISHING	Remarks
		MILE	MILE	
Site 1				
100+00 - 110+24		0.194	0.388	
Site 4				
400+00 - 406+30		0.119	0.238	
406+30 - 407+40				Cedar Canyon Bridge
407+40 - 413+00		0.106	0.212	
TOTAL		0.419	0.838	

SEEDING AND MULCHING SUMMARY					
SCHEDULE A					
Item Number		62407-0000	62510-2000	62515-2000	
Station to Station	Side	PLACING CONSERVED TOPSOIL	SEEDING, HYDRAULIC METHOD	MULCHING, HYDRAULIC METHOD	Remarks
		CUYD	ACRE	ACRE	
Site 1					
100+00 110+24		616	1.1	1.1	
Site 4					
400+00 413+00		663	1.2	1.2	
TOTAL		1279	2.3	2.3	

CLEARING AND GRUBBING SUMMARY		
SCHEDULE A		
Item Number	20101-0000	
Station to Station	CLEARING AND GRUBBING	Remarks
	ACRE	
Site 1		
100+00 - 110+24	1.40	
Site 4		
400+00 - 413+00	1.54	
TOTAL		2.94

GUARDRAIL SUMMARY					
SCHEDULE A					
Item Number		61701-4550	61702-1500	For info only	
Station to Station	Side	GUARDRAIL SYSTEM MGS TYPE 2 CLASS A WOOD POSTS	TERMINAL SECTION, TYPE MGS TANGENT	STRUCTURE TRANSITION RAILING	Remarks
		LNFT	EACH	LNFT	
Site 4					
405+15 to 405+40	RT/LT		2		
405+40 to 405+65	RT/LT	50			
405+65 to 406+15	RT/LT			100	
407+55 to 408+05	RT/LT			100	
408+05 to 408+30	RT/LT	50			
408+30 to 408+55	RT/LT		2		
TOTAL		100	4	200	

REMOVALS SUMMARY				
SCHEDULE A				
Item Number		20302-1200		
Station to Station	Side	REMOVAL OF GUARDRAIL	Remarks	
		LNFT		
Site 1				
103+97 - 107+47	LT	350		
103+97 - 107+49	RT	351		
107+74 - 110+71	RT	296	Cable Barrier	
TOTAL		997		

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5 October 2022 8:40 AM

STATE	PROJECT	SHEET NUMBER
NM	NM FLAP SIE 10(1) LAKESHORE ROAD	B17

SURVEY AND STAKING SUMMARY				
OPTION X				
Item Number		15225-0000	15236-2000	
Station to Station	Side	SLOPE, REFERENCE, AND CLEARING AND GRUBBING CONTROL	SURVEY CONTROL, GRADE FINISHING	Remarks
		MILE	MILE	
Site 3				
303+13 - 309+20		0.115	0.230	
309+20 - 309+90				Long Point Bridge
309+90 - 318+17		0.157	0.314	
TOTAL		0.272	0.544	

SEEDING AND MULCHING SUMMARY					
OPTION X					
Item Number		62407-0000	62510-2000	62515-2000	
Station to Station	Side	PLACING CONSERVED TOPSOIL	SEEDING, HYDRAULIC METHOD	MULCHING, HYDRAULIC METHOD	Remarks
		CUYD	ACRE	ACRE	
Site 3					
303+13	318+17	1230	2.6	2.6	
TOTAL		1230	2.6	2.6	

CLEARING AND GRUBBING SUMMARY		
OPTION X		
Item Number	20101-0000	
Station to Station	CLEARING AND GRUBBING	Remarks
	ACRE	
Site 3		
303+13 - 318+17	3.79	Includes new pavement area.
TOTAL		3.79

NOTE: Clearing and grubbing limits includes pavement area for Site 3 only.

GUARDRAIL SUMMARY					
OPTION X					
Item Number		61701-4550	61702-1500	For info only	
Station to Station	Side	GUARDRAIL SYSTEM MGS TYPE 2 CLASS A WOOD POSTS	TERMINAL SECTION, TYPE MGS TANGENT	STRUCTURE TRANSITION RAILING	Remarks
		LNFT	EACH	LNFT	
Site 3					
308+08 to 308+33	RT/LT		2		
308+33 to 308+58	RT/LT	50			
308+58 to 309+08	RT/LT			100	
310+02 to 310+52	RT/LT			100	
310+52 to 310+77	RT/LT	50			
310+77 to 311+02	RT/LT		2		
TOTAL		100	4	200	

ROADWAY OBLITERATION SUMMARY			
OPTION X			
Item Number		21101-1000	
Station to Station	Side	ROADWAY OBLITERATION, METHOD 1	Remarks
		SQYD	
Site 3			
310+59 to 313+74	RT	1562	
TOTAL		1562	

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MISCELLANEOUS SUMMARIES
OPTION X
Sheet 1 of 3

C:\Adrian\CFI-FHWA\del01\Roadway\CADD_Sheets\B-Summ\B_Sheets - Option Y.dgn [Miscellaneous Summaries - Option Y - 1 of 3] 24 October 2022 11:24 AM

STATE	PROJECT	SHEET NUMBER
NM	NM FLAP SIE 10(1) LAKESHORE ROAD	B18

SURVEY AND STAKING SUMMARY				
OPTION Y				
Item Number		15225-0000	15236-2000	
Station to Station	Side	SLOPE, REFERENCE, AND CLEARING AND GRUBBING CONTROL	SURVEY CONTROL, GRADE FINISHING	Remarks
		MILE	MILE	
Site 2				
200+00	- 211+31	0.214	0.428	
TOTAL		0.214	0.428	

SEEDING AND MULCHING SUMMARY					
OPTION Y					
Item Number		62407-0000	62510-2000	62515-2000	
Station to Station	Side	PLACING CONSERVED TOPSOIL	SEEDING, HYDRAULIC METHOD	MULCHING, HYDRAULIC METHOD	Remarks
		CUYD	ACRE	ACRE	
Site 2					
200+00	211+31	684	1.3	1.3	
TOTAL		684	1.3	1.3	

CLEARING AND GRUBBING SUMMARY		
OPTION Y		
Item Number	20101-0000	
Station to Station	CLEARING AND GRUBBING	Remarks
	ACRE	
Site 2		
200+00	- 211+31	1.56
TOTAL		1.56

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MISCELLANEOUS SUMMARIES
OPTION Y
Sheet 1 of 3

C:\Adrian\CFI-FHWA\del01\Roadway\CADD_Sheets\B-Summ\B_Sheets - Schedule A.dgn [Miscellaneous Summaries - Schedule A - 2 of 3] 25 October 2022 7:29 AM

STATE	PROJECT	SHEET NUMBER
NM	NM FLAP SIE 10(1) LAKESHORE ROAD	B19

PERMANENT SIGN SUMMARY								
SCHEDULE A								
Item Number				20301-2400	63301-0000	Remarks		
Station	Side	MUTCD Reference	Description	Sign Panel	REMOVAL OF SIGN			SIGN SYSTEM
				in x in	EACH			EACH
Site 1								
102+07	LT	Special 1	No Vehicles	12x18	3	3		
102+74	RT	R1-1	Stop	30x30	1	1		
103+00	LT	R4-1	Do Not Pass	24x30	1	1		
103+01	RT	W14-3	No Passing Zone (pennant)	48x48x36	1	1		
104+00	LT	OM3-L	Object Marker	12x36	1			
104+01	RT	OM3-R	Object Marker	12x36	1			
107+43	LT	OM3-R	Object Marker	12x36	1			
107+45	RT	OM3-L	Object Marker	12x36	1			
108+60	LT	R5-3	No Motor Vehicles	24x24	2	2		
Site 4								
409+63	RT	Special 4	Delineator		1			
TOTAL					13	8		

PERMANENT PAVEMENT MARKINGS SUMMARY													
SCHEDULE A													
Item Number												63401-0300	Remarks
Station to Station	LEFT				RIGHT							PAVEMENT MARKINGS, TYPE B, SOLID	
	Edge Solid White 6 inches	Centerline Solid Yellow 4 inches	Centerline Broken Yellow 4 inches	Centerline Broken Yellow 4 inches	Centerline Broken Yellow 4 inches	Centerline Solid Yellow 4 inches	Edge Solid White 6 inches	Stop Bar Solid White 12 inches	Parking Stripe Solid White 4 inches	Crosswalk Solid White 12 inches	White Word Marking "STOP"		
	LNFT	LNFT	LNFT	LNFT	LNFT	LNFT	LNFT	LNFT	LNFT	LNFT	LNFT		
Site 1													
100+00 - 100+65	65	65				65	65					520	
100+65 - 102+80	215						215					860	
102+80 - 110+24	744	744				744	744					5952	
Site 4													
400+00 - 413+00	1300	1300				1300	1300					10400	
TOTAL												17732	

NOTE: Pavement markings quantity includes two coats.

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OFFICE OF FEDERAL LANDS HIGHWAY

MISCELLANEOUS SUMMARIES
SCHEDULE A
Sheet 2 of 3

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25 October 2022 9:58 AM

PERMANENT SIGN SUMMARY								
OPTION X								
Item Number					20301-2400	63301-0000	63316-1000	Remarks
Station	Side	MUTCD Reference	Description	Sign Panel	REMOVAL OF SIGN	SIGN SYSTEM	REMOVE AND RESET SIGN	
				in x in	EACH	EACH	EACH	
Site 3								
303+09	RT	W1-2L	Curve Left	30x30	1	1		
305+06	RT	W1-8L	Left Chevron	18x24	1			
		W1-8R	Right Chevron	18x24				
306+25	RT	W1-8L	Left Chevron	18x24	1			
		W1-8R	Right Chevron	18x24				
306+54	LT	Special 2	Long Point Next Left				1	
307+35	RT	W1-8L	Left Chevron	18x24	1			
		W1-8R	Right Chevron	18x24				
308+35	RT	W1-8L	Left Chevron	18x24	1			
		W1-8R	Right Chevron	18x24				
309+15	RT	W1-8L	Left Chevron	18x24	1			
		W1-8R	Right Chevron	18x24				
310+27	RT	W1-8L	Left Chevron	18x24	1			
		W1-8R	Right Chevron	18x24				
311+57	RT	W1-8L	Left Chevron	18x24	1			
		W1-8R	Right Chevron	18x24				
312+10	LT	W1-2R	Curve Right	30x30	1			
312+11	RT	W1-8L	Left Chevron	18x24	1			
		W1-8R	Right Chevron	18x24				
314+23	LT	W1-8L	Left Chevron	18x24	1			
		W1-8R	Right Chevron	18x24				
315+40	LT	W1-8L	Left Chevron	18x24	1			
		W1-8R	Right Chevron	18x24				
316+63	LT	W1-8L	Left Chevron	18x24	1			
		W1-8R	Right Chevron	18x24				
316+90	RT	Special 3	Lost & Cedar Canyon Next Right				1	
TOTAL					13	1	2	

PERMANENT PAVEMENT MARKINGS SUMMARY													
OPTION X													
												Item Number	63401-0300
Station to Station	LEFT			RIGHT								PAVEMENT MARKINGS, TYPE B, SOLID	Remarks
	Edge Solid White 6 inches	Centerline Solid Yellow 4 inches	Centerline Broken Yellow 4 inches	Centerline Broken Yellow 4 inches	Centerline Broken Yellow 4 inches	Centerline Solid Yellow 4 inches	Edge Solid White 6 inches	Stop Bar Solid White 12 inches	Parking Stripe Solid White 4 inches	Crosswalk Solid White 12 inches	White Word Marking "STOP"		
	LNFT	LNFT	LNFT	LNFT	LNFT	LNFT	LNFT	LNFT	LNFT	LNFT	LNFT	LNFT	
Site 3													
303+13 - 318+17	1504	1504				1504	1504					12032	
TOTAL												12032	

NOTE: Pavement markings quantity includes two coats.

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MISCELLANEOUS SUMMARIES
OPTION X
Sheet 2 of 3

C:\Adrian\CFI-FHWA\site\0(1)\Roadway\CADD_Sheets\B-Summ\B_Sheets - Option Y.dgn [Miscellaneous Summaries - Option Y - 2 of 3] 20 October 2022 1:42 PM

STATE	PROJECT	SHEET NUMBER
NM	NM FLAP SIE 10(1) LAKESHORE ROAD	B21

PERMANENT SIGN SUMMARY								
OPTION Y								
Item Number				20301-2400	63301-0000	Remarks		
Station	Side	MUTCD Reference	Description	Sign Panel	REMOVAL OF SIGN			SIGN SYSTEM
				in x in	EACH			EACH
Site 2								
200+19	RT	W1-2L	Curve Left	30x30	1	1		
	RT	W13-1P	Advisory Speed Plaque	18x18			35 mph	
203+29	LT	R2-1	Speed Limit	24x30	1	1	35 mph	
204+65	RT	W1-8L	Left Chevron	18x24	1	1		
207+15	RT	W1-8L	Left Chevron	18x24	1	1		
208+41	RT	W1-8L	Left Chevron	18x24	1	1		
209+55	RT	W1-8L	Left Chevron	18x24	1	1		
210+95	RT	W1-8L	Left Chevron	18x24	1	1		
211+60	RT	W1-5L	Winding Road Left	30x30		1		
TOTAL					7	8		

PERMANENT PAVEMENT MARKINGS SUMMARY													
OPTION Y													
Item Number												63401-0300	Remarks
Station to Station	LEFT				RIGHT							PAVEMENT MARKINGS, TYPE B, SOLID	
	Edge Solid White 6 inches	Centerline Solid Yellow 4 inches	Centerline Broken Yellow 4 inches	Centerline Broken Yellow 4 inches	Centerline Solid Yellow 4 inches	Centerline Broken Yellow 4 inches	Edge Solid White 6 inches	Stop Bar Solid White 12 inches	Parking Stripe Solid White 4 inches	Crosswalk Solid White 12 inches	White Word Marking "STOP"		
	LNFT	LNFT	LNFT	LNFT	LNFT	LNFT	LNFT	LNFT	LNFT	LNFT	LNFT	LNFT	
Site 2													
200+00 - 211+31	1131	1131				1131	1131					9048	
TOTAL												9048	

NOTE: Pavement markings quantity includes two coats.

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MISCELLANEOUS SUMMARIES
OPTION Y
Sheet 2 of 3

C:\Adrian\CFL-FHWA\del0(1)\Roadway\CADD_Sheets\B-Summ\B_Sheets - Schedule A.dgn [Miscellaneous Summaries - Schedule A - 3 of 3] 25 October 2022 9:58 AM

STATE	PROJECT	SHEET NUMBER
NM	NM FLAP SIE 10(1) LAKESHORE ROAD	B22

TEMPORARY TRAFFIC CONTROL SUMMARY								
SCHEDULE A								
Item Number		63502-0600	63502-1300	63502-2000	63505-1000	63506-0500	63510-0100	
Station to Station	Side	TEMPORARY TRAFFIC CONTROL, BARRICADE TYPE 3	TEMPORARY TRAFFIC CONTROL, DRUM	TEMPORARY TRAFFIC CONTROL, PORTABLE CHANGEABLE MESSAGE SIGN	TEMPORARY TRAFFIC CONTROL, PAVEMENT MARKINGS	TEMPORARY TRAFFIC CONTROL, FLAGGER	TEMPORARY TRAFFIC CONTROL, TRAFFIC CONTROL SUPERVISOR	Remarks
		EACH	EACH	EACH	MILE	HOUR	WEEK	
Site 1 - Diversion								
1000+80 - 1009+60		2	50	2	0.17	80		
Site 4 - Diversion								
4001+00 - 4011+00		2	40	2	0.19	80	33	TCS responsible for all Sites.
TOTAL		4	90	4	0.36	160	33	

CONSTRUCTION SIGN SUMMARY					
SCHEDULE A					
Item Number					63502-3900 TEMPORARY TRAFFIC CONTROL, CONSTRUCTION SIGN
MUTCD Reference	Description	Sign Panel	Area	Quantity	
		in x in			
Site 1					EACH
W20-1	Road Work XXXXX	36 x 36	9	4	4
W24-1	Double Reverse Curve (1 lane)	36 x 36	9	2	2
W13-1P	Advisory Speed (plaque)	24 x 24	4		
W1-6L	One Direction Large Arrow Left	48 x 24	8	1	1
W1-6R	One Direction Large Arrow Right	48 x 24	8	1	1
G20-2	End Road Work	36 x 18	4.5	2	2
Site 4					
W20-1	Road Work XXXXX	36 x 36	9	4	4
W24-1	Double Reverse Curve (1 lane)	36 x 36	9	2	2
W13-1P	Advisory Speed (plaque)	24 x 24	4		
W1-6L	One Direction Large Arrow Left	48 x 24	8	1	1
W1-6R	One Direction Large Arrow Right	48 x 24	8	1	1
G20-2	End Road Work	36 x 18	4.5	2	2
TOTAL					20

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
OFFICE OF FEDERAL LANDS HIGHWAY

MISCELLANEOUS SUMMARIES
SCHEDULE A
Sheet 3 of 3

C:\Adrian\CFI-FHWA\del01\Roadway\CADD_Sheets\B-Summ\B_Sheets - Option X.dgn [Miscellaneous Summaries - Option X - 3of3] 24 October 2022 4:29 PM

STATE	PROJECT	SHEET NUMBER
NM	NM FLAP SIE 10(1) LAKESHORE ROAD	B23

TEMPORARY TRAFFIC CONTROL SUMMARY							
OPTION X							
Item Number		63502-0600	63502-1300	63502-2000	63505-1000	63506-0500	
Station to Station	Side	TEMPORARY TRAFFIC CONTROL, BARRICADE TYPE 3	TEMPORARY TRAFFIC CONTROL, DRUM	TEMPORARY TRAFFIC CONTROL, PORTABLE CHANGEABLE MESSAGE SIGN	TEMPORARY TRAFFIC CONTROL, PAVEMENT MARKINGS	TEMPORARY TRAFFIC CONTROL, FLAGGER	Remarks
		EACH	EACH	EACH	MILE	HOUR	
Site 3 - Diversion							
Using existing roadway		2	60	2	0.22	80	
TOTAL		2	60	2	0.22	80	

CONSTRUCTION SIGN SUMMARY					
OPTION X					
Item Number					63502-3900
MUTCD Reference	Description	Sign Panel	Area	Quantity	TEMPORARY TRAFFIC CONTROL, CONSTRUCTION SIGN
		in x in			EACH
Site 3					
W20-1	Road Work XXXXX	36 x 36	9	4	4
W24-1	Double Reverse Curve (1 lane)	36 x 36	9	2	2
W13-1P	Advisory Speed (plaque)	24 x 24	4		
W1-6L	One Direction Large Arrow Left	48 x 24	8	1	1
W1-6R	One Direction Large Arrow Right	48 x 24	8	1	1
G20-2	End Road Work	36 x 18	4.5	2	2
TOTAL					10

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
OFFICE OF FEDERAL LANDS HIGHWAY

MISCELLANEOUS SUMMARIES
OPTION X
Sheet 3 of 3

C:\Adrian\CFL-FHWA\del0(1)\Roadway\CADD_Sheets\B-Summ\B_Sheets - Option Y.dgn [Miscellaneous Summaries - Option Y - 3 of 3] 24 October 2022 1:15 PM

STATE	PROJECT	SHEET NUMBER
NM	NM FLAP SIE 10(1) LAKESHORE ROAD	B24

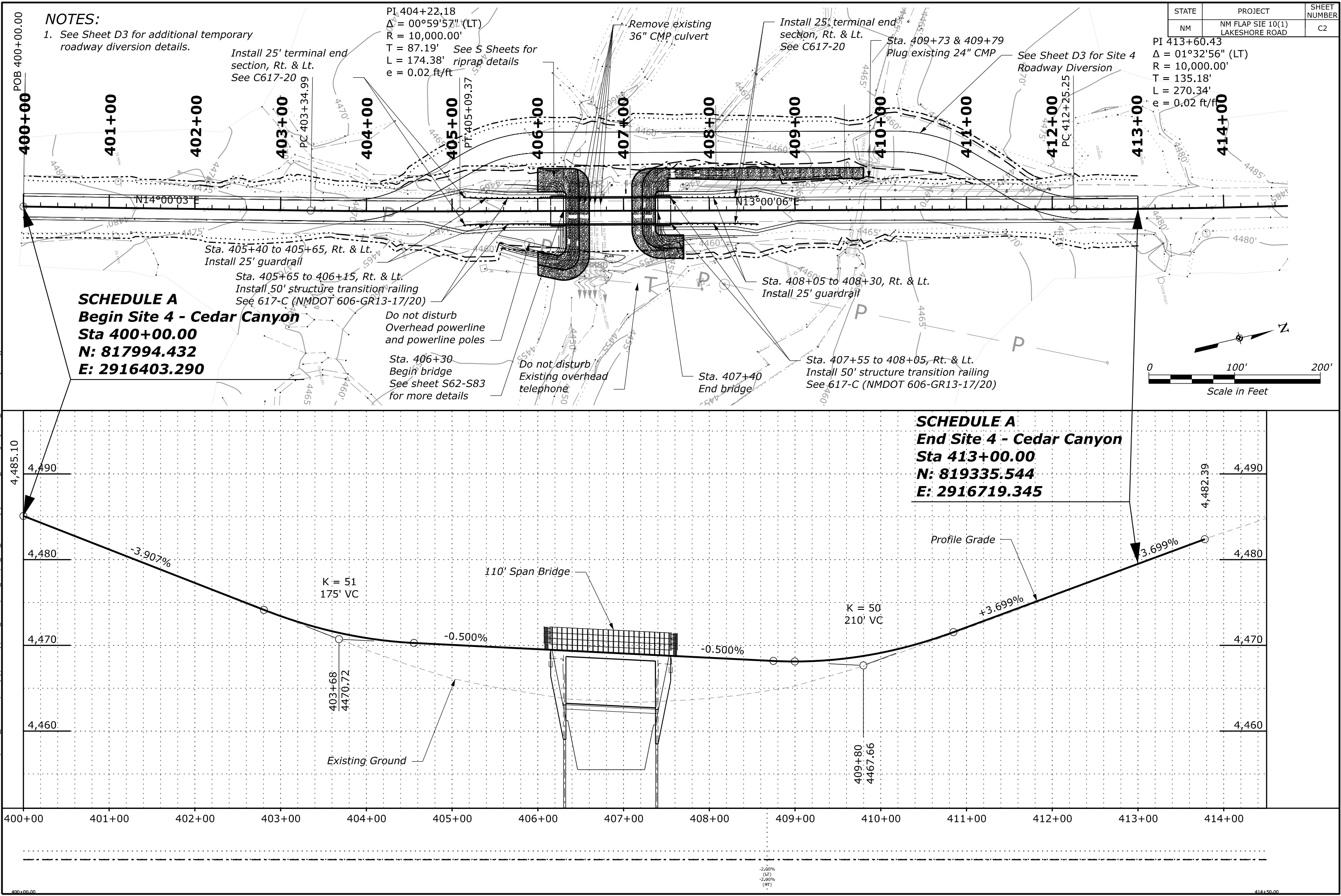
TEMPORARY TRAFFIC CONTROL SUMMARY							
OPTION Y							
Item Number		63502-0600	63502-1300	63502-2000	63505-1000	63506-0500	Remarks
Station to Station	Side	TEMPORARY TRAFFIC CONTROL, BARRICADE TYPE 3	TEMPORARY TRAFFIC CONTROL, DRUM	TEMPORARY TRAFFIC CONTROL, PORTABLE CHANGEABLE MESSAGE SIGN	TEMPORARY TRAFFIC CONTROL, PAVEMENT MARKINGS	TEMPORARY TRAFFIC CONTROL, FLAGGER	
		EACH	EACH	EACH	MILE	HOURL	
Site 2 - Diversion							
2000+20 - 2009+80		2	50	2	0.18	80	
TOTAL		2	50	2	0.18	80	

CONSTRUCTION SIGN SUMMARY					
OPTION Y					
Item Number					63502-3900 TEMPORARY TRAFFIC CONTROL, CONSTRUCTION SIGN
MUTCD Reference	Description	Sign Panel	Area	Quantity	
		in x in			
Site 2					EACH
W20-1	Road Work XXXXX	36 x 36	9	4	4
W24-1	Double Reverse Curve (1 lane)	36 x 36	9	2	2
W13-1P	Advisory Speed (plaque)	24 x 24	4		
W1-6L	One Direction Large Arrow Left	48 x 24	8	1	1
W1-6R	One Direction Large Arrow Right	48 x 24	8	1	1
G20-2	End Road Work	36 x 18	4.5	2	2
TOTAL					10

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
OFFICE OF FEDERAL LANDS HIGHWAY

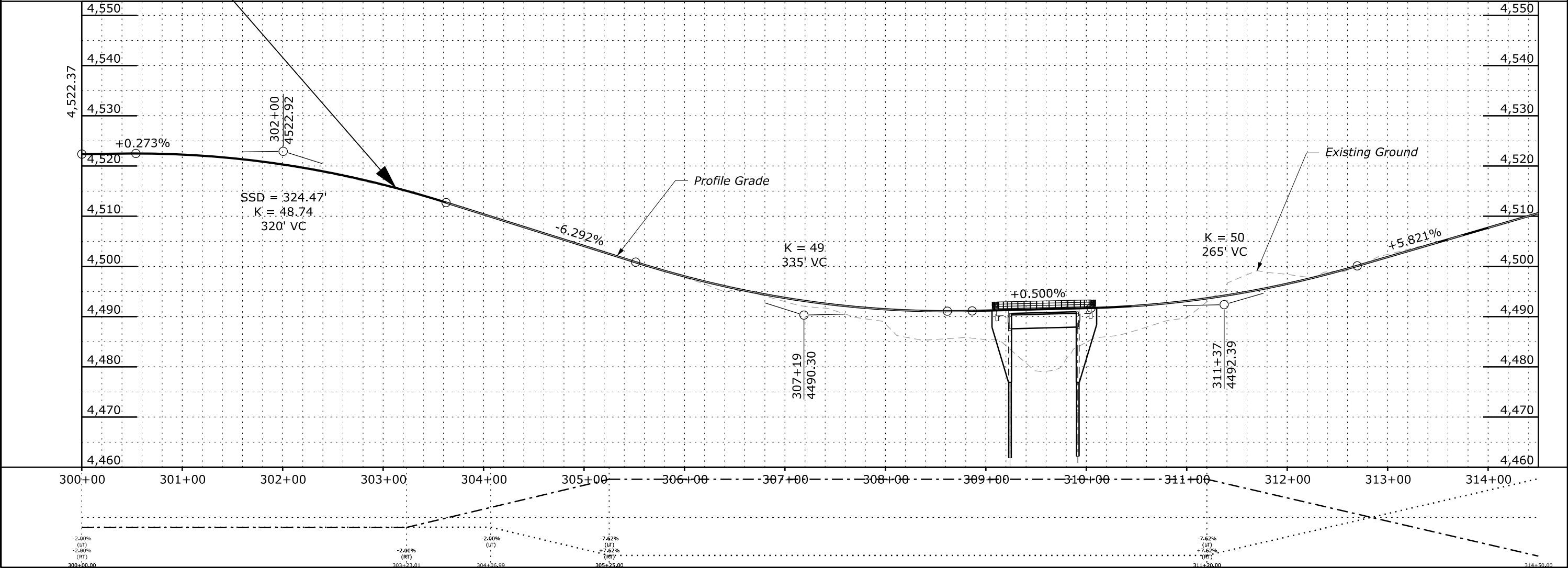
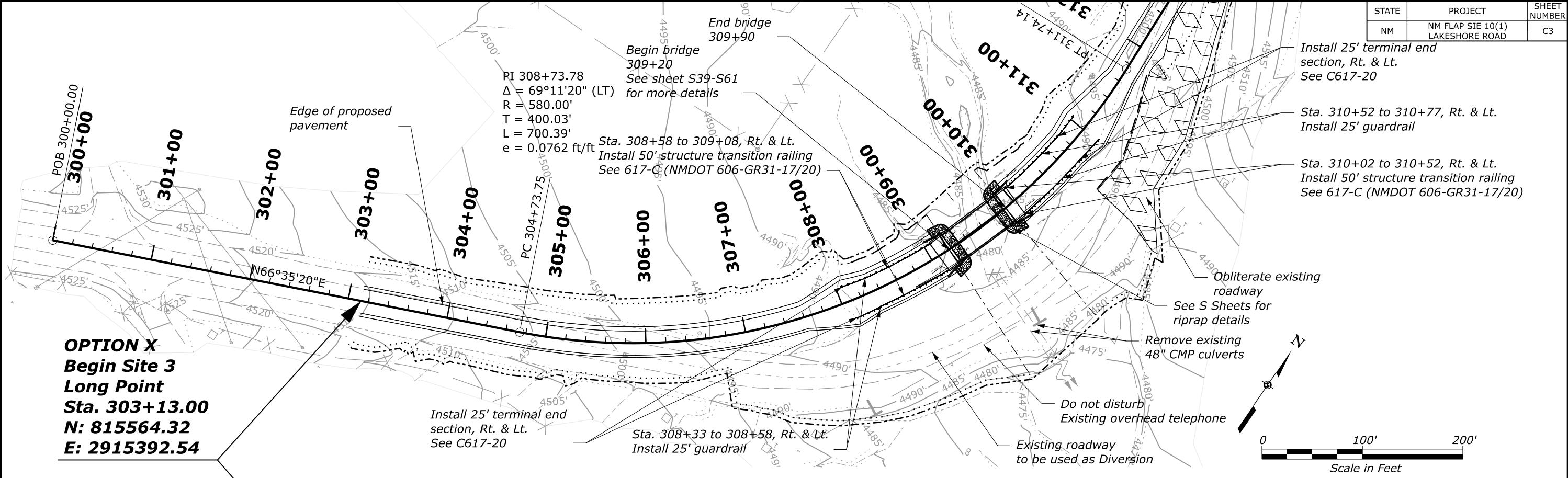
MISCELLANEOUS SUMMARIES
OPTION Y
Sheet 3 of 3

C:\Adrian\CFI-FHWA\del01\Roadway\CADD_Sheets\C-ML_P&P\C2_PNP_NM_SIE10(1)\Lakeshore_SITE4.dgn [Site 4 - BL - Plan 1-1 (Sheet)] 6 October 2022 1:43 PM

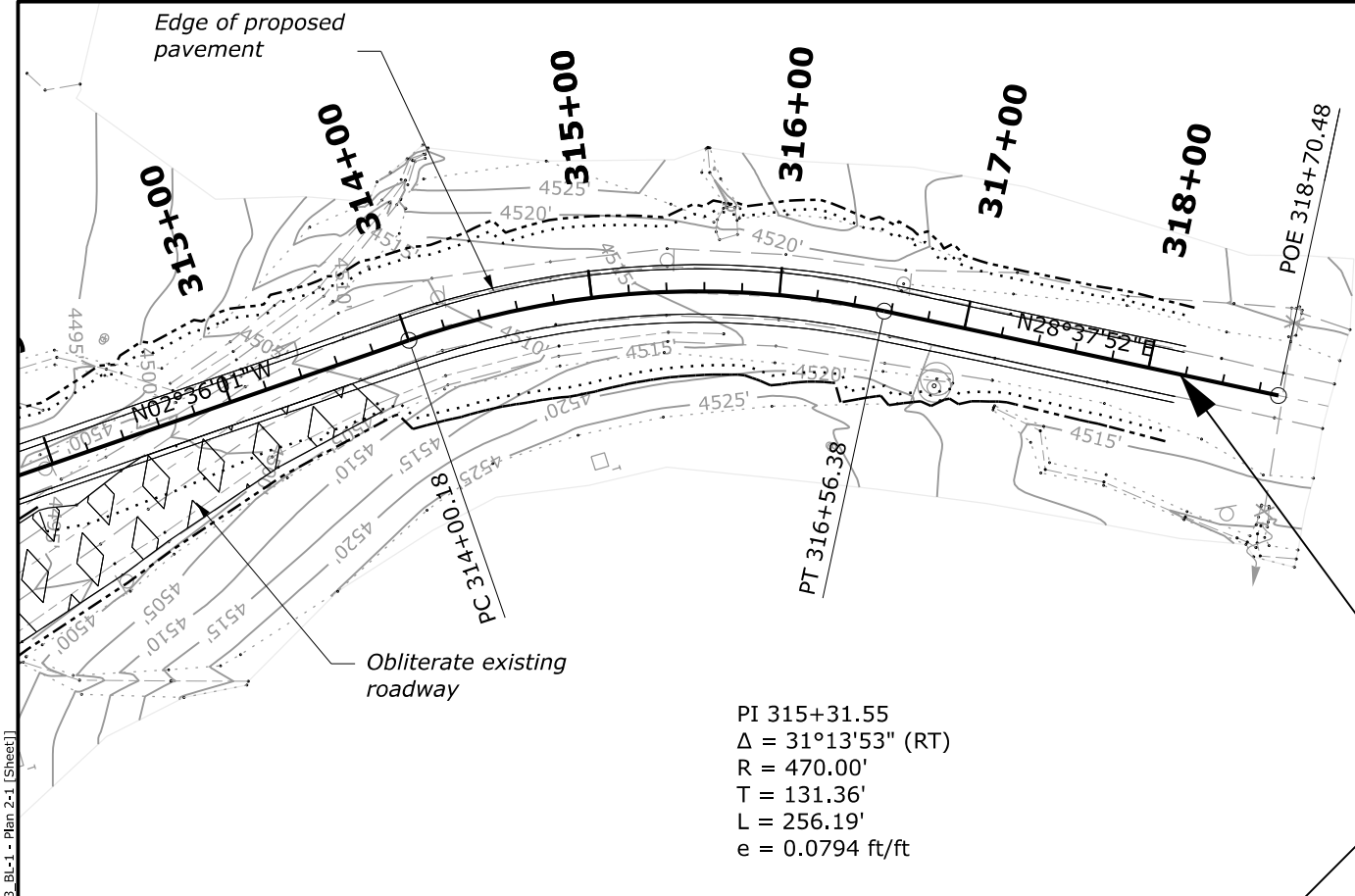


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STATE	PROJECT	SHEET NUMBER
NM	NM FLAP SIE 10(1) LAKESHORE ROAD	C3

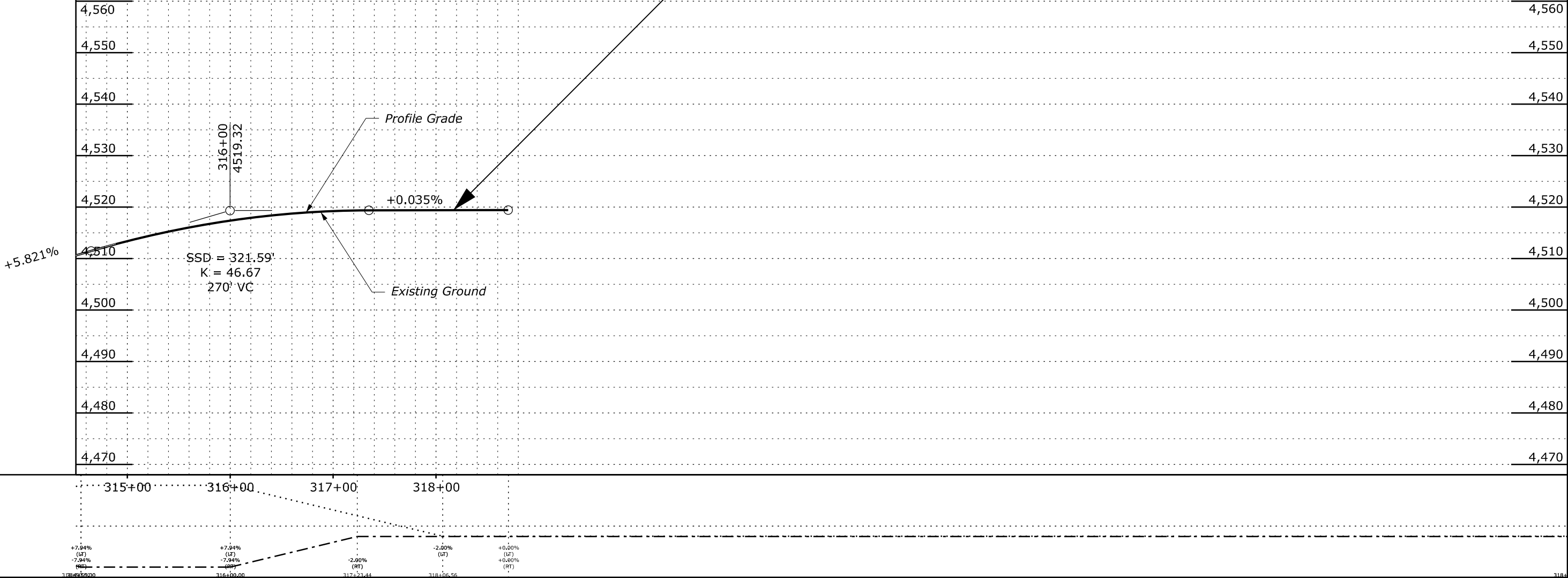
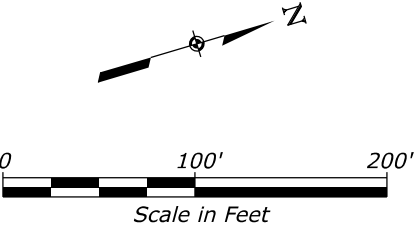


STATE	PROJECT	SHEET NUMBER
NM	NM FLAP SIE 10(1) LAKESHORE ROAD	C4

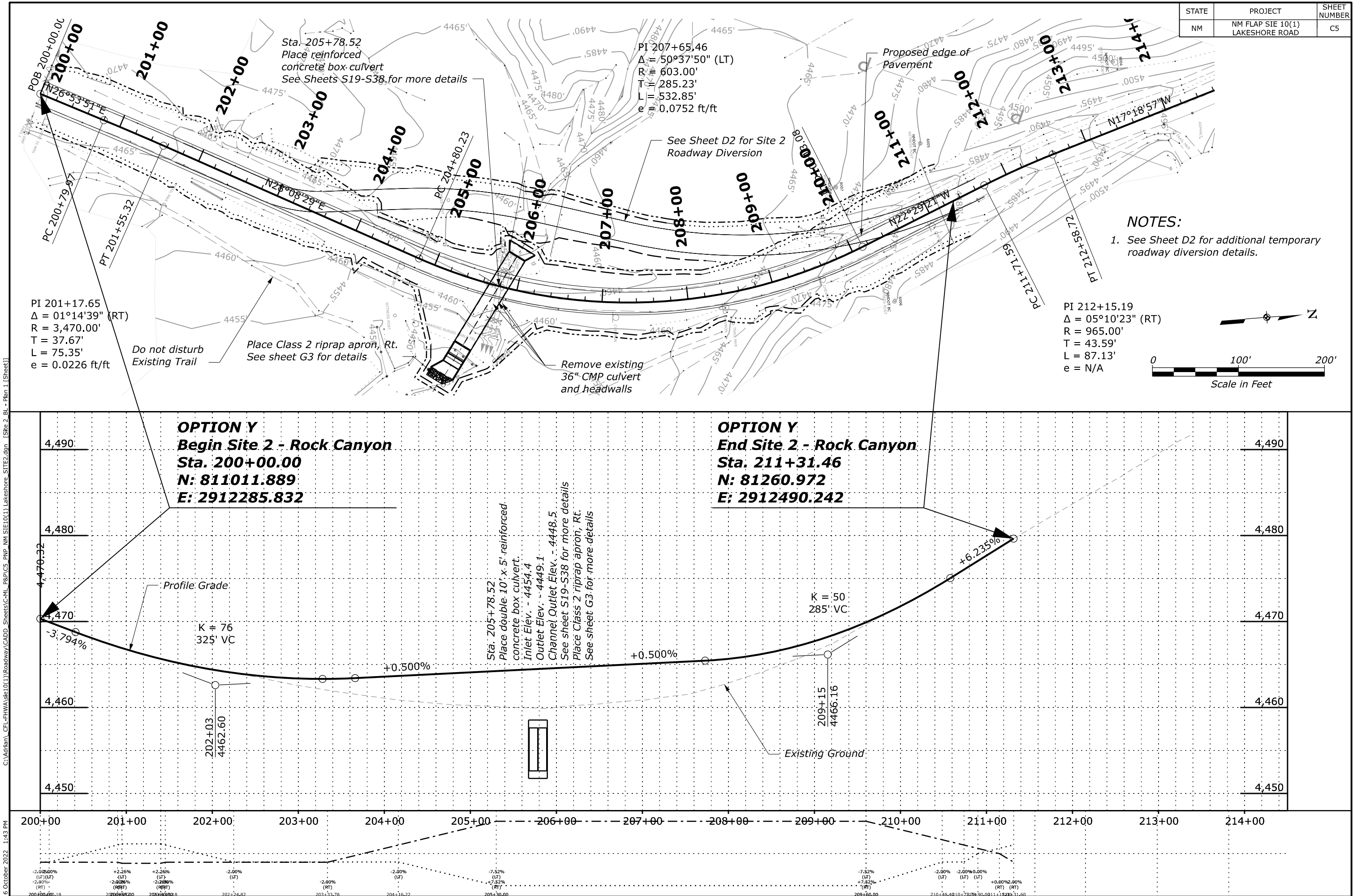


PI 315+31.55
 $\Delta = 31^\circ 13' 53''$ (RT)
R = 470.00'
T = 131.36'
L = 256.19'
e = 0.0794 ft/ft

OPTION X
End Site 3
Long Point
Sta. 318+17.00
N: 816800.07
E: 2916012.71



C:\Adrian_CFL\FHWA\del01\Roadway\CADD_Sheets\C-ML_P&P\C5_PNP_NM_SIE10(1)\Lakeshore_SITE2.dgn [Site 2_BL - Plan 1 [Sheet]]



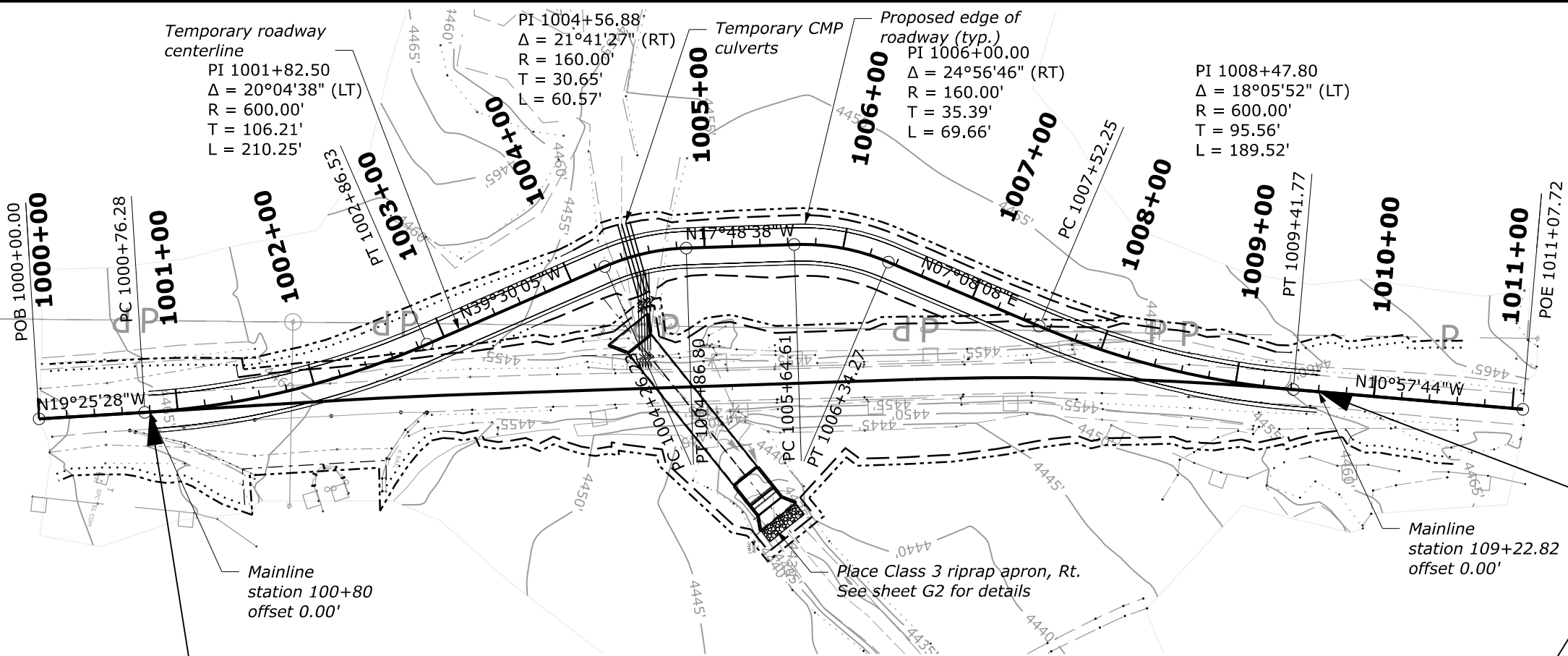
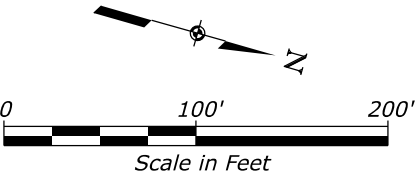
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STATE	PROJECT	SHEET NUMBER
NM	NM FLAP SIE 10(1) LAKESHORE ROAD	D1

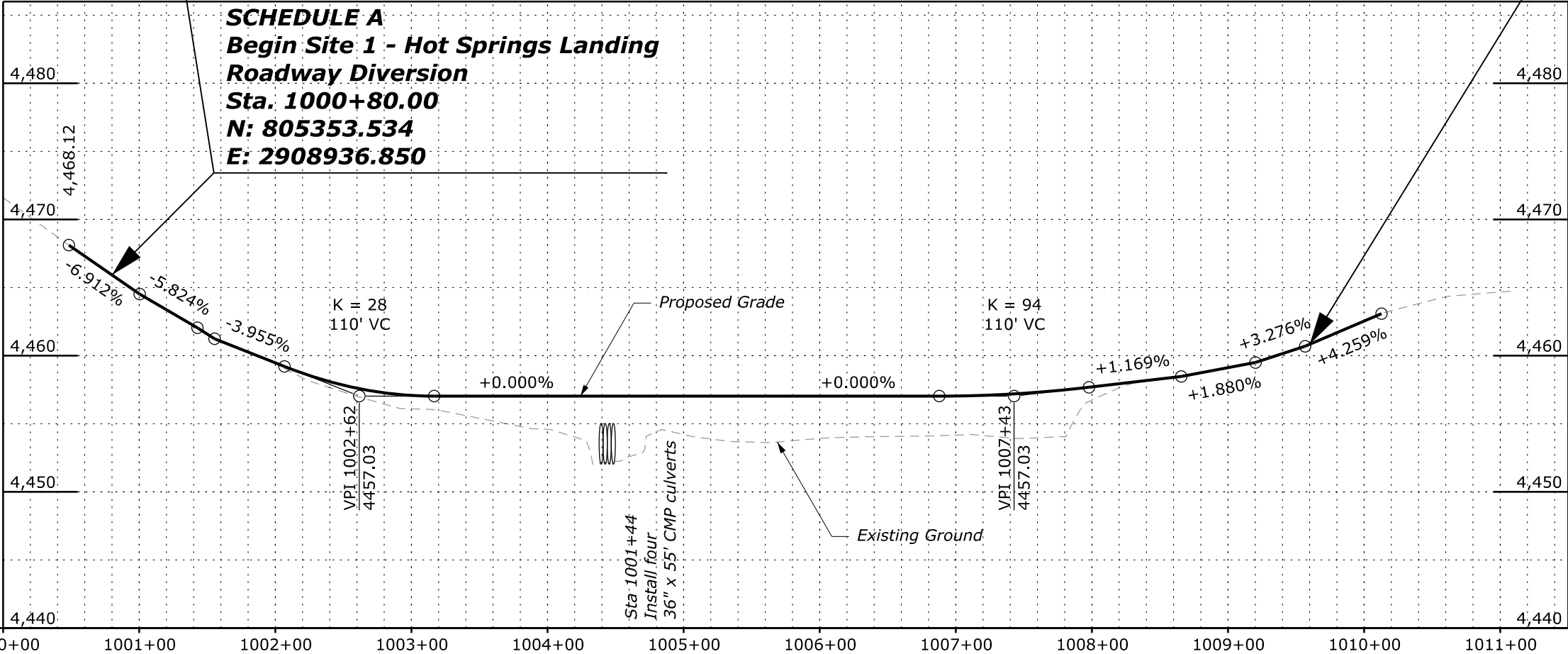
NOTES:

1. Construct diversion for public traffic within clearing limits. See Section 650 of Special Contract Requirements for additional information.

SCHEDULE A
End Site 1 - Hot Springs Landing
Roadway Diversion
Sta. 1009+60
N: 806159.266
E: 2908936.850

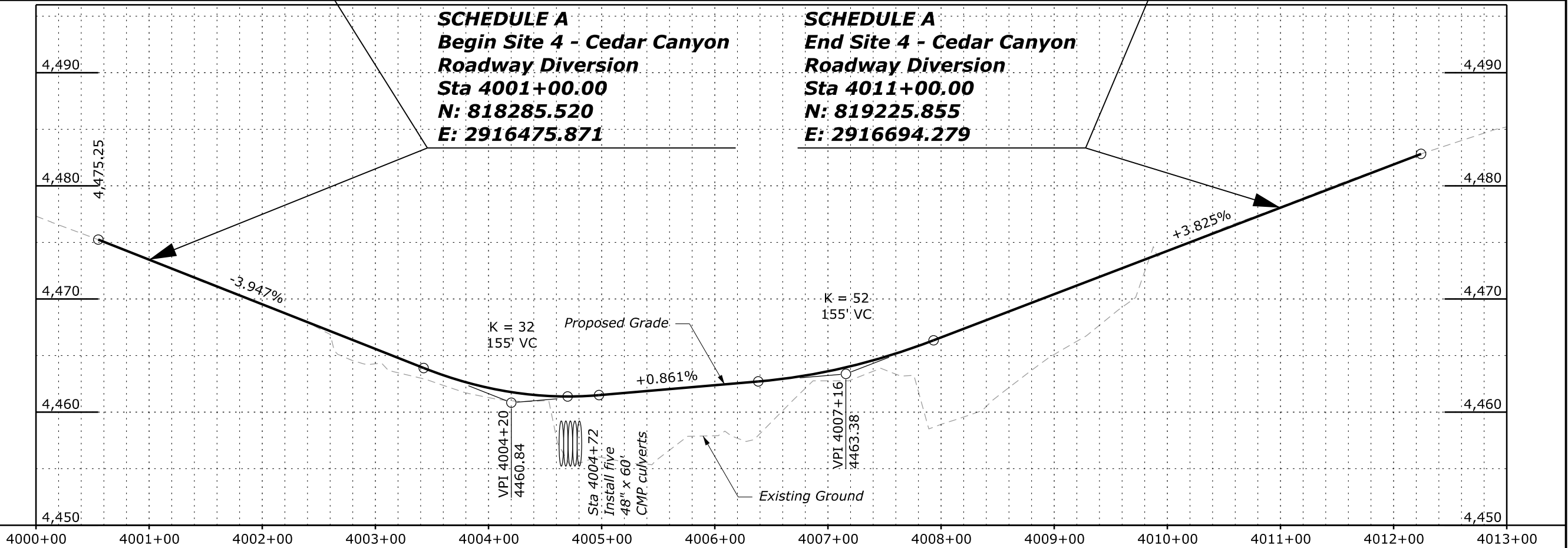
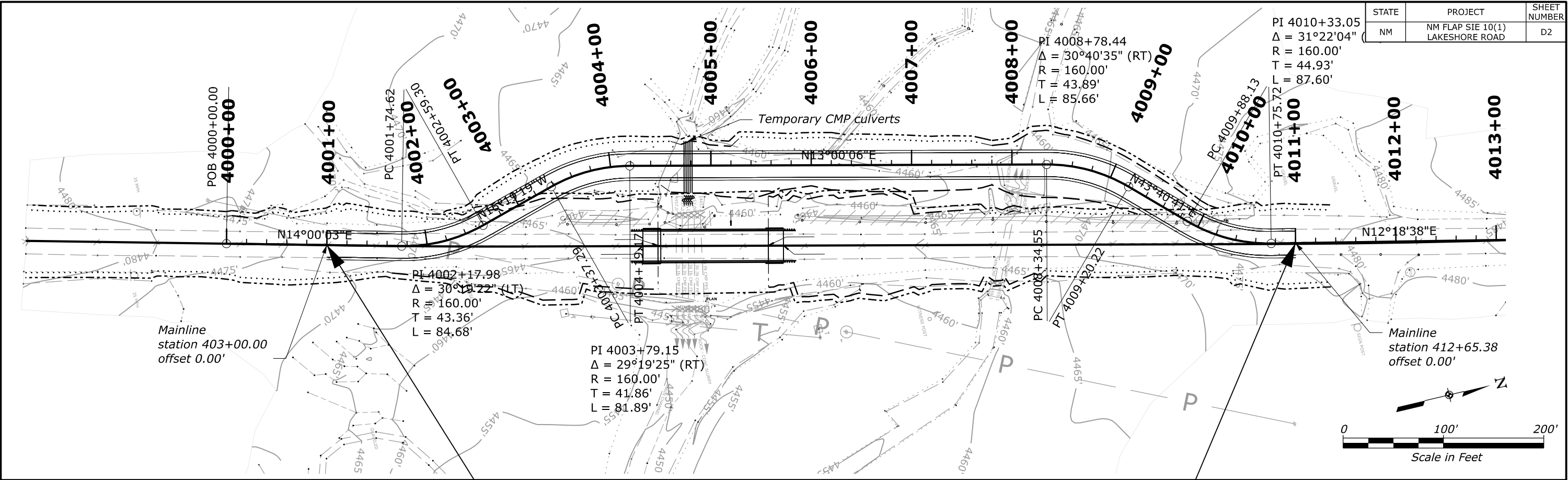


SCHEDULE A
Begin Site 1 - Hot Springs Landing
Roadway Diversion
Sta. 1000+80.00
N: 805353.534
E: 2908936.850



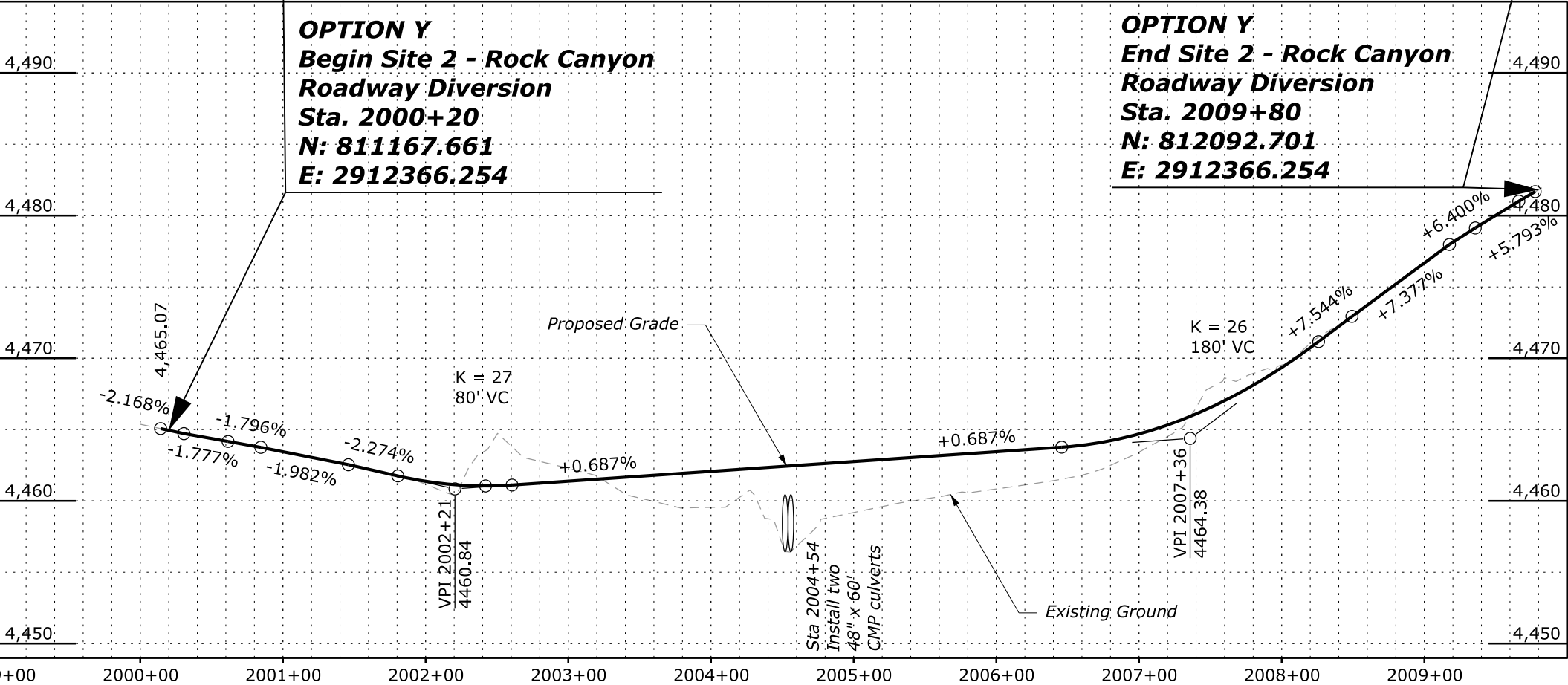
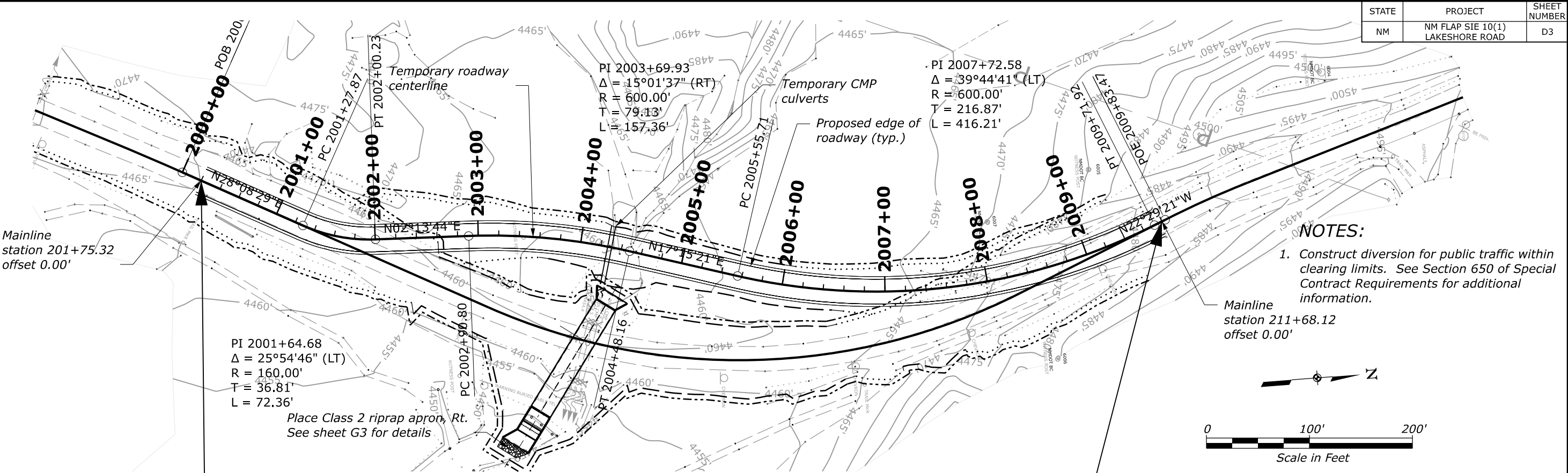
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6 October 2022 2:07 PM



C:\Adrian\CFI-FHWA\del01\Roadway\CADD_Sheets\0-Minor_P&P\03_PNP_NM_SIE10(1)\Lakeshore_SITE2_Diversion.dgn [Site 2_BL - Plan 1 [Sheet]] 6 October 2022 2:07 PM

STATE	PROJECT	SHEET NUMBER
NM	NM FLAP SIE 10(1) LAKESHORE ROAD	D3

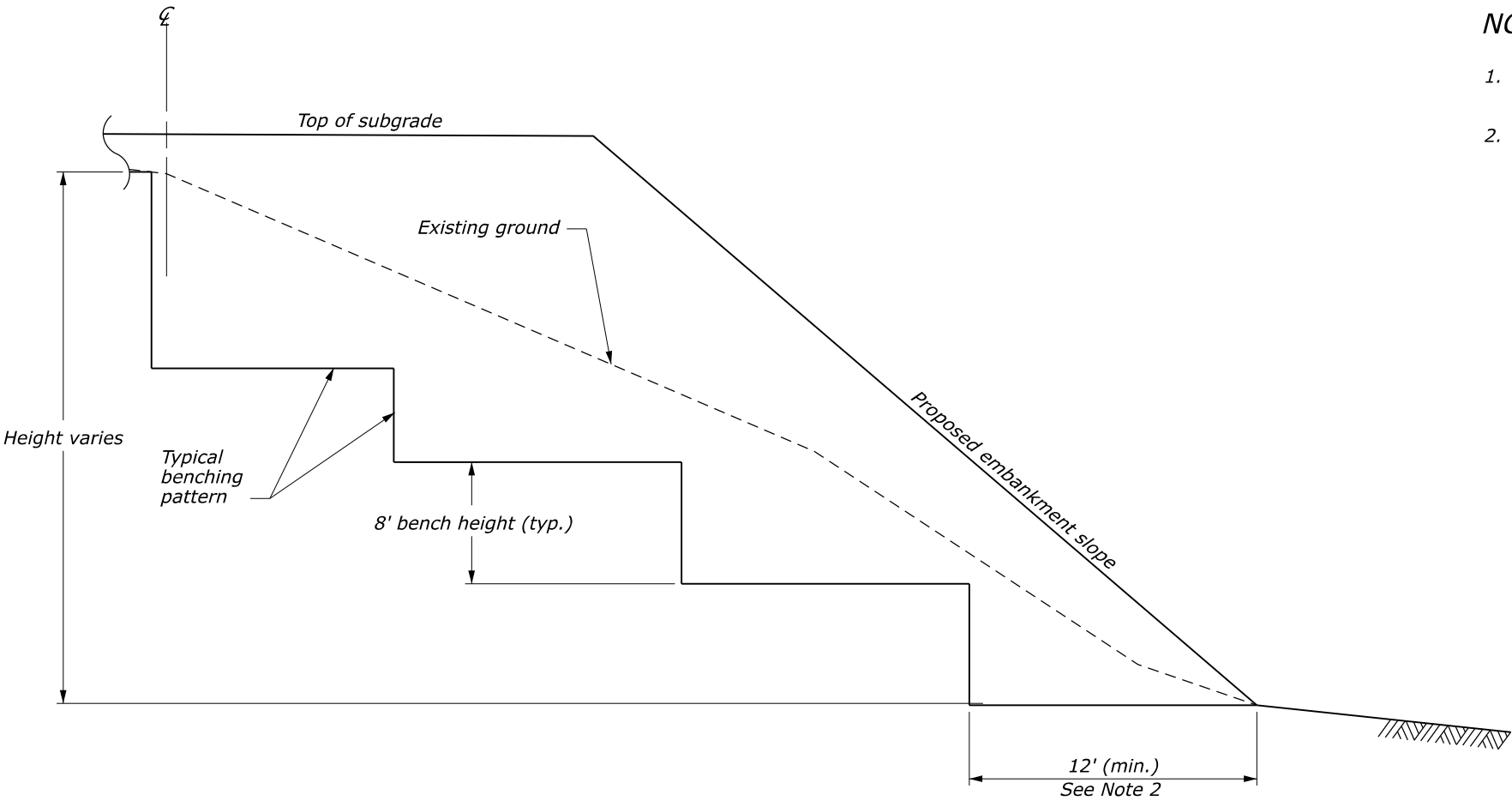


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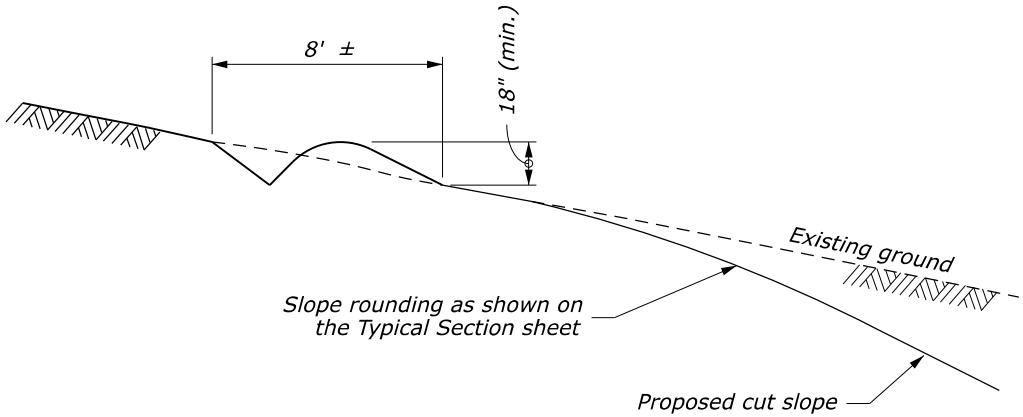
STATE	PROJECT	SHEET NUMBER
NM	NM FLAP SIE 10(1) LAKESHORE ROAD	F1

NOTE:

- Benching is not required for ground sloped at 1V:3H or flatter.
- Bench into existing slope as necessary to meet 12' minimum bench width and 8' typical bench height.



EMBANKMENT BENCHING

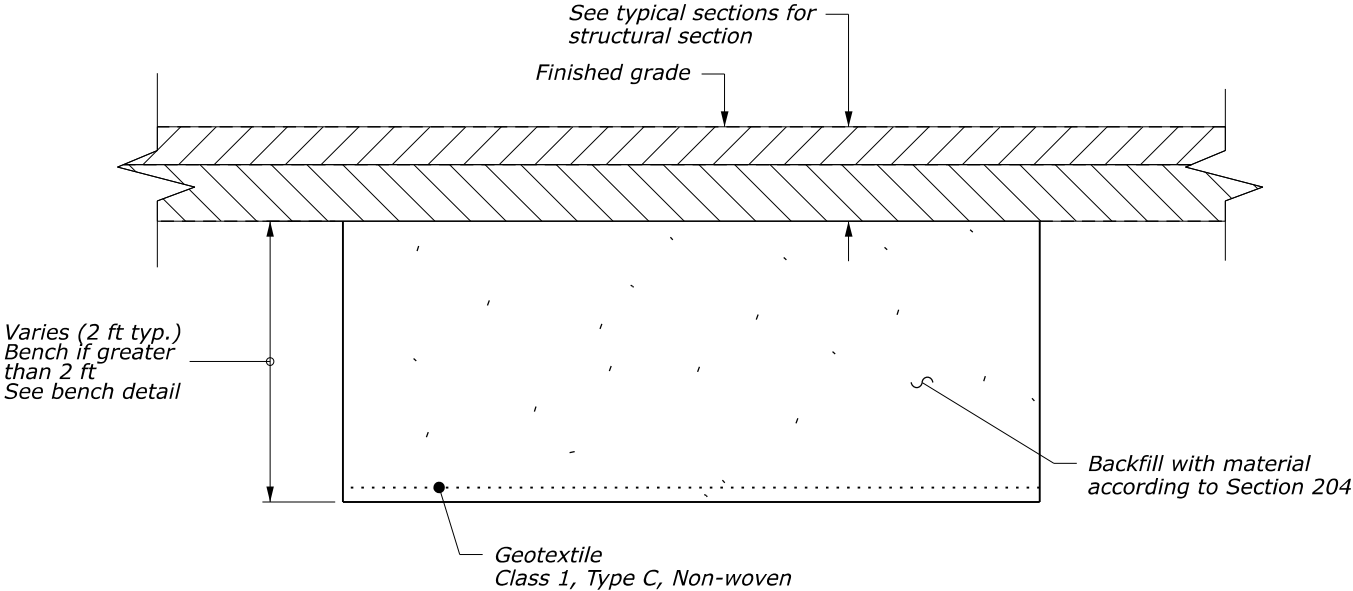


FURROW DITCH

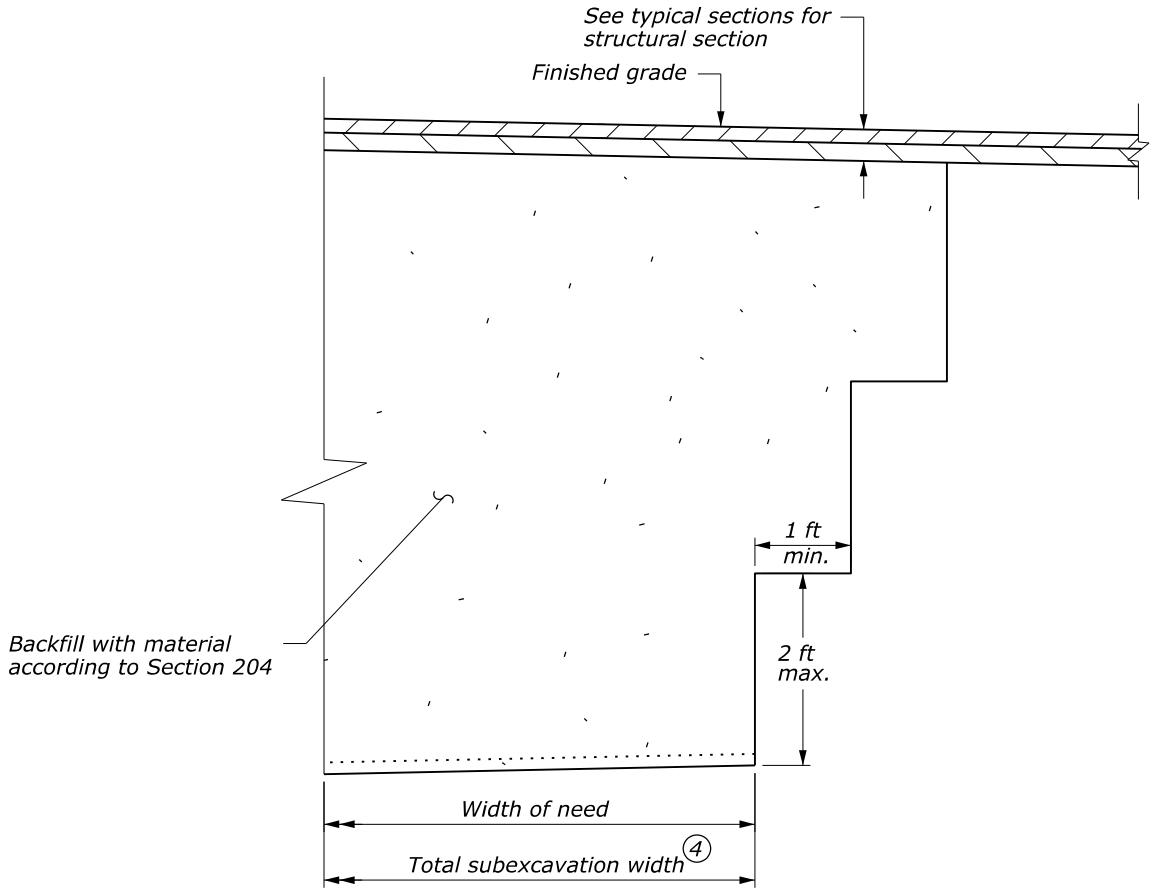
U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION CENTRAL FEDERAL LANDS HIGHWAY DIVISION	
U.S. CUSTOMARY DETAIL	
EMBANKMENT BENCHING AND FURROW DITCH	
DETAIL APPROVED FOR USE 08/2006	DETAIL
REVISED: 08/2014	C204-50

C:\Adrian\CFHWA\del01\Roadway\CADD_Sheets\F-200\F2_C204-51_NM_SIE10(1)_Lakeshore.dgn [F2 [Sheet]] 12 July 2022 11:19 AM

STATE	PROJECT	SHEET NUMBER
NM	NM FLAP SIE 10(1) LAKESHORE ROAD	F2



**SUBEXCAVATION
TYPICAL SECTION**



BENCH DETAIL

NOTE:

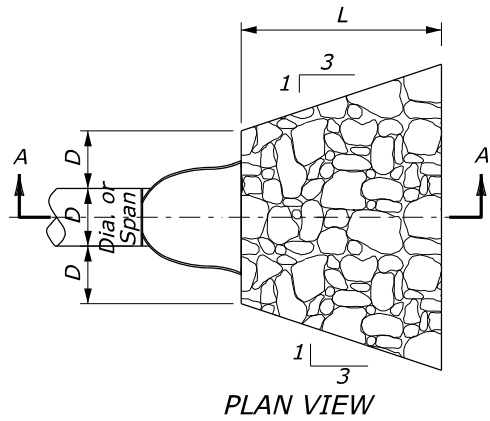
1. Replace unsuitable material according to Subsection 204.07 unless otherwise specified.
2. Minimum subexcavation dimensions are 6 ft wide x 6 ft long.
3. Do not place backfill material within the structural section.
- ④ 4. Widen top of subexcavation area to allow for bench width in bottom layers. Provide a 1 ft min. bench width for every 2 ft of subexcavation depth.
5. Daylight to drain when the excavation is within 4 ft of the subgrade hinge point. Slope the excavation bottom 2% toward the daylight for drainage, or match the existing roadway cross slope when steeper than 2%.
6. At daylight locations, match the existing fill slope or make slope adjustments to match the subgrade hinge point. Do not construct slopes steeper than 1:2 unless approved by the CO.

NO SCALE

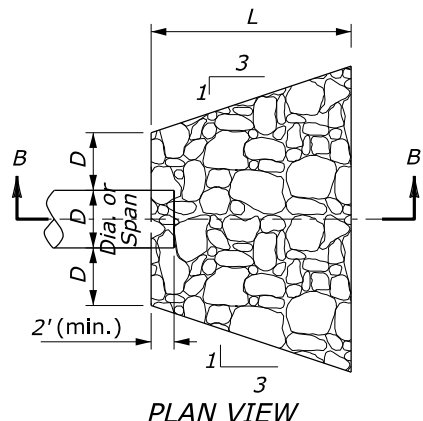
U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION CENTRAL FEDERAL LANDS HIGHWAY DIVISION	
U.S. CUSTOMARY DETAIL	
SUBEXCAVATION	
DETAIL APPROVED FOR USE 12/2012 REVISED: 08/2014	DETAIL C204-51

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6 October 2022 2:16 PM

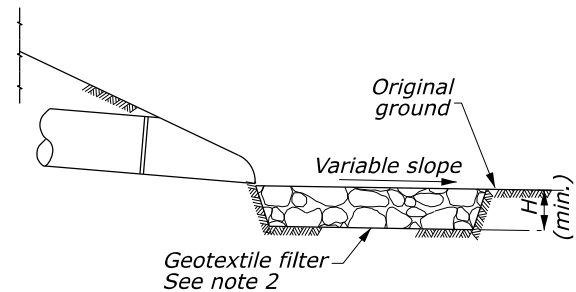
STATE	PROJECT	SHEET NUMBER
NM	NM FLAP SIE 10(1) LAKESHORE ROAD	G1



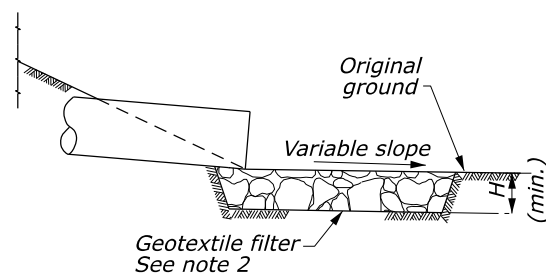
PLAN VIEW
CULVERT WITH STANDARD
END SECTION



PLAN VIEW
CULVERT WITHOUT STANDARD
END SECTION

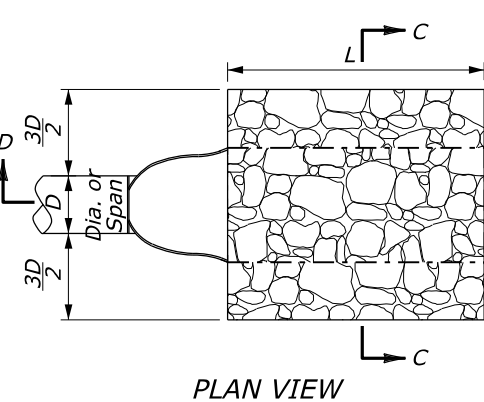


SECTION A-A

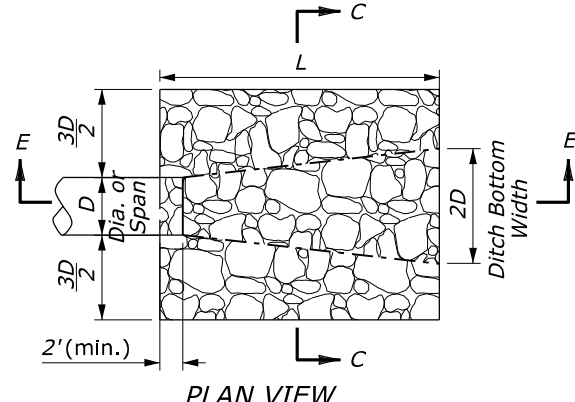


SECTION B-B

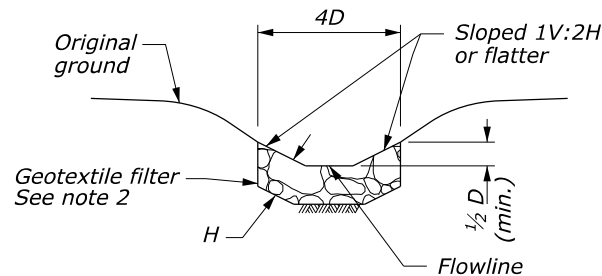
**PROTECTIVE APRON AT CULVERT OUTLET
WITHOUT DITCH**



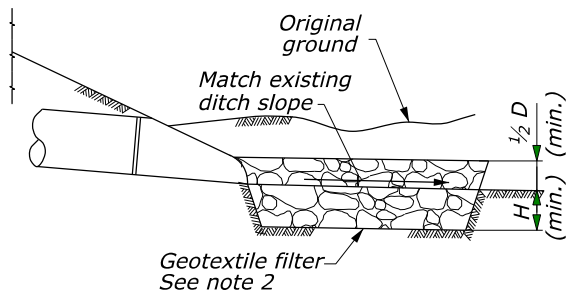
PLAN VIEW
CULVERT WITH STANDARD
END SECTION



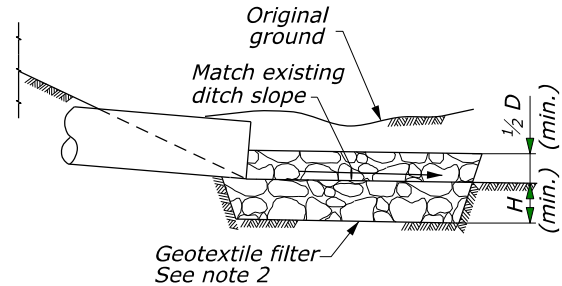
PLAN VIEW
CULVERT WITHOUT STANDARD
END SECTION



SECTION C-C



SECTION D-D



SECTION E-E

**PROTECTIVE APRON AT CULVERT OUTLET
WITH DITCH**

OUTLET WITHOUT DITCH PROTECTIVE APRON DIMENSIONS AND ESTIMATED QUANTITIES						
	CULVERT SIZE D (inches)	RIPRAP CLASS	LENGTH OF APRON L (feet)	DEPTH OF APRON H (feet)	ESTIMATED RIPRAP QUANTITY (CY)	ESTIMATED GEOTEXTILE QUANTITY (SY)
WITH END SECTION	12	2	4	1.5	1	5
	18	2	6	1.5	2.2	9
	24	2	8	1.5	3.9	14
	30	3	12.5	2	10.9	28
	36	3	16	2	15.6	37
	42	4	21	2.5	34.1	63
WITHOUT END SECTION	48	4	24	2.5	44.5	79
	12	2	6	1.5	1.7	8
	18	2	8	1.5	3.2	12
	24	2	10	1.5	5.2	17
	30	3	14.5	2	13.3	33
	36	3	17	2	18.5	43
	42	4	23	2.5	38.7	70
	48	4	26	2.5	49.8	87

OUTLET WITH DITCH PROTECTIVE APRON DIMENSIONS AND ESTIMATED QUANTITIES						
	CULVERT SIZE D (inches)	RIPRAP CLASS	LENGTH OF APRON L (feet)	DEPTH OF APRON H (feet)	ESTIMATED RIPRAP QUANTITY (CY)	ESTIMATED GEOTEXTILE QUANTITY (SY)
WITH END SECTION	12	2	4	1.5	0.9	5
	18	2	6	1.5	2	8
	24	2	8	1.5	3.6	13
	30	3	12.5	2	9.3	24
	36	3	15	2	13.4	32
	42	4	21	2.5	27.3	53
WITHOUT END SECTION	48	4	24	2.5	35.6	65
	12	2	6	1.5	1.4	6
	18	2	8	1.5	2.7	10
	24	2	10	1.5	4.5	15
	30	3	14.5	2	10.8	27
	36	3	17	2	15.2	36
	42	4	23	2.5	29.9	57
	48	4	26	2.5	38.6	70

NOTE:

1. Use for aprons serving culverts with slopes of less than 10%.
2. Furnish geotextile filter conforming to subsection 714.01(a). See summary tables for class and type.
3. Excavation for placement of riprap will not be measured for payment.

NO SCALE

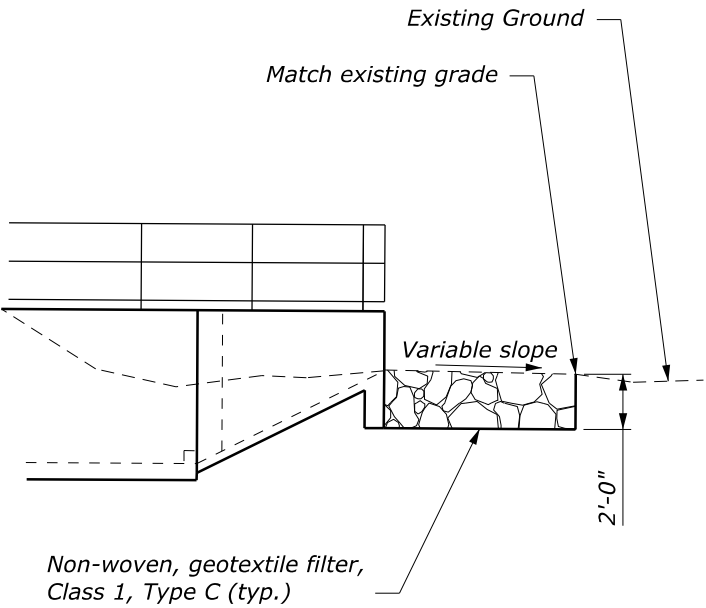
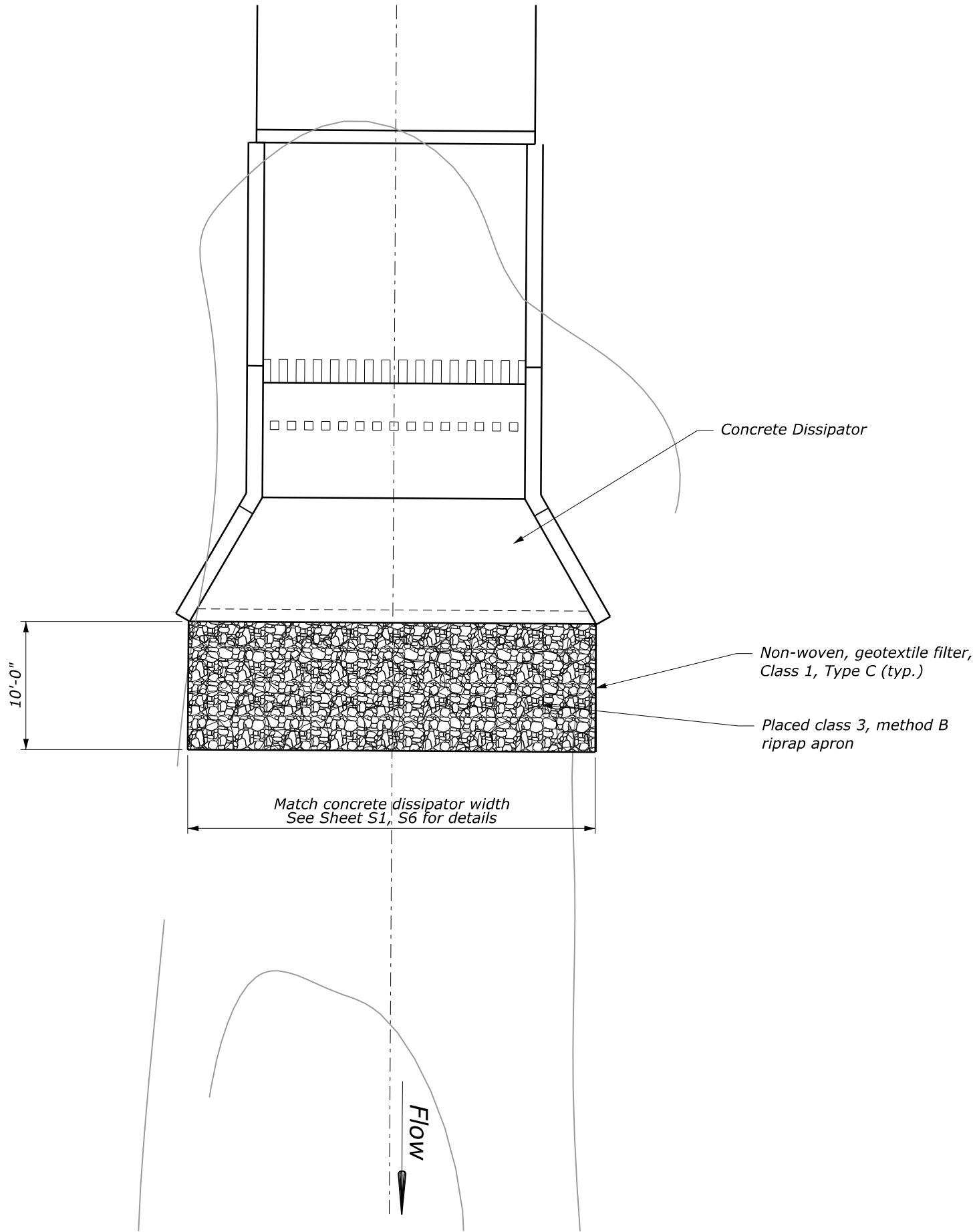
U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION OFFICE OF FEDERAL LANDS HIGHWAY	
CFLHD DETAIL	
PLACED RIPRAP AT CULVERT OUTLETS	
DETAIL APPROVED FOR USE	DETAIL
REVISED:	C251-50

C:\Adrian\CFI-FHWA\del01\Roadway\CADD_Sheets\G-250\G2-G3_Site 1 and 2 Riprap Layout.dgn [Site 1 Riprap [Sheet]] 1 November 2022 2:08 PM

STATE	PROJECT	SHEET NUMBER
NM	NM FLAP SIE 10(1) LAKESHORE ROAD	G2

NOTES:

- Geotextile filter is subsidiary to the placed riprap apron.
- Excavation for placement of riprap will not be measured for payment.



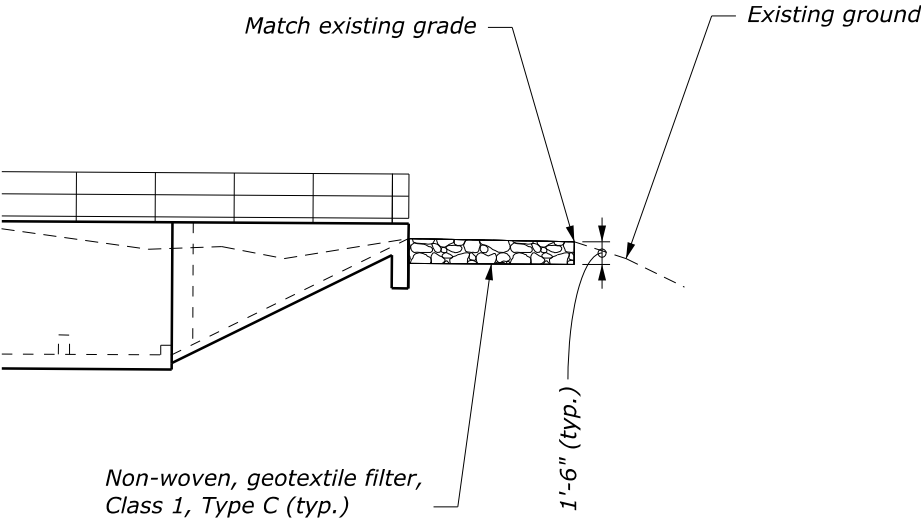
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
OFFICE OF FEDERAL LANDS HIGHWAY

**SITE 1 RIPRAP
APRON LAYOUT
SCHEDULE A**

STATE	PROJECT	SHEET NUMBER
NM	NM FLAP SIE 10(1) LAKESHORE ROAD	G3

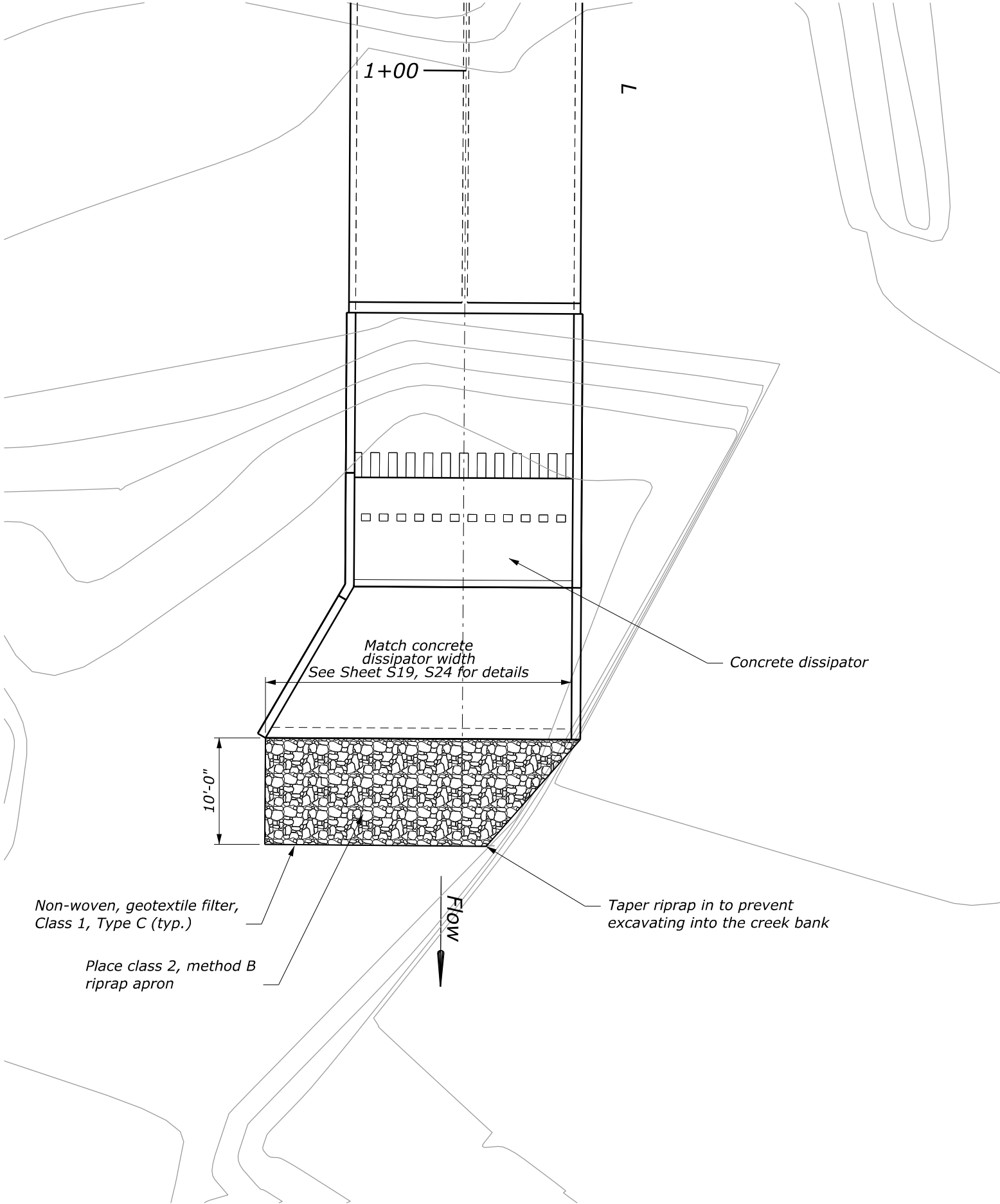
NOTES:

- 1. Geotextile filter is subsidiary to the placed riprap apron.
- 2. Excavation for placement of riprap will not be measured for payment.



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
OFFICE OF FEDERAL LANDS HIGHWAY

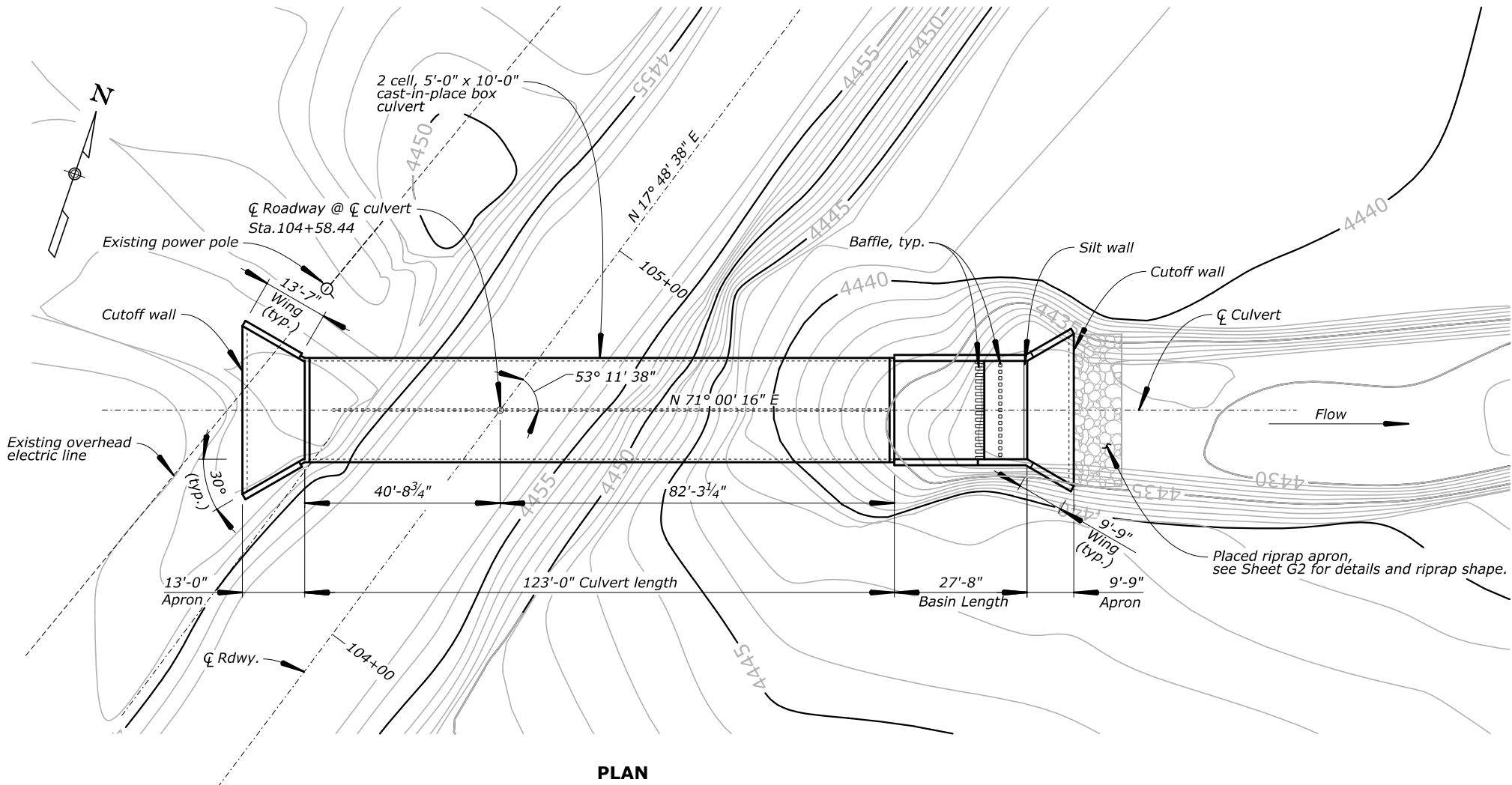
**SITE 2 RIPRAP
APRON LAYOUT
OPTION Y**



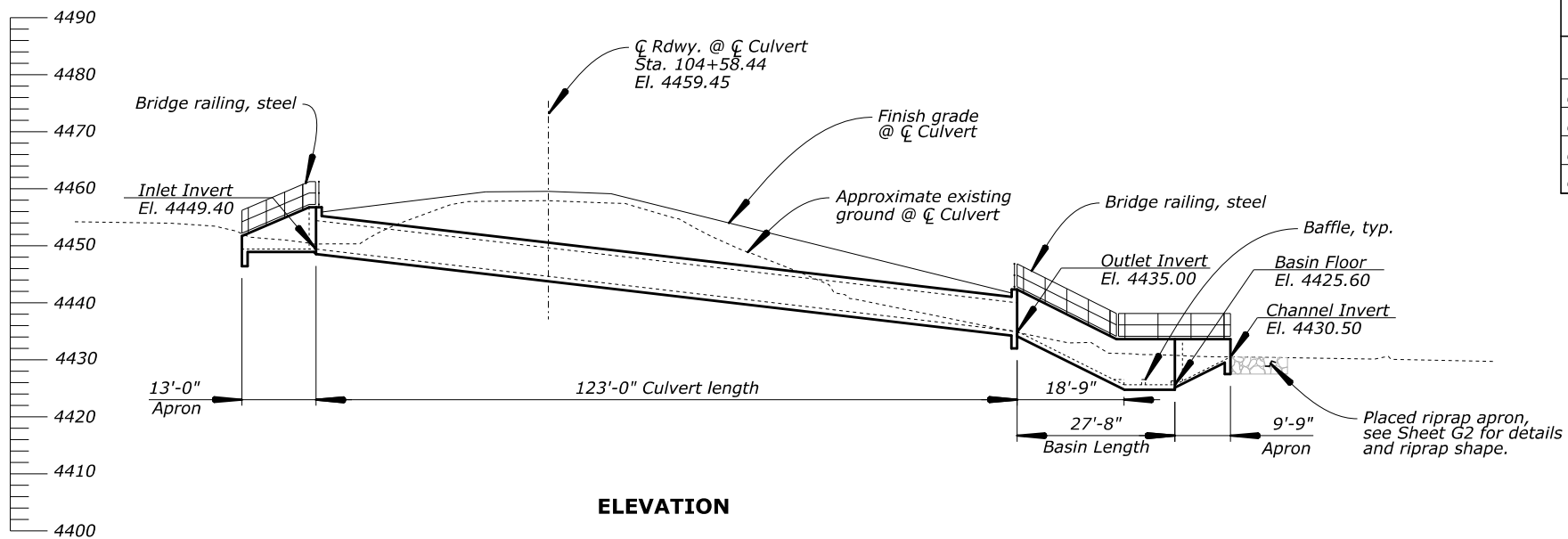
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10/7/2022

STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S1

CULVERT DRAWING INDEX	
Drawing No.	Description
RG3200-A	PLAN AND ELEVATION
RG3200-B	GENERAL NOTES & ESTIMATE
RG3200-C	EXCAVATION & BACKFILL DETAILS
RG3200-D	TYPICAL SECTION
RG3200-E	HEADWALL DETAILS (UPSTREAM)
RG3200-F	HEADWALL DETAILS (DOWNSTREAM)
RG3200-G	STILLING BASIN DETAILS (1 OF 3)
RG3200-H	STILLING BASIN DETAILS (2 OF 3)
RG3200-I	STILLING BASIN DETAILS (3 OF 3)
RG3200-J	WINGWALLS DETAILS (UPSTREAM)
RG3200-K	WINGWALLS DETAILS (DOWNSTREAM)
RG3200-L	APRON DETAILS (UPSTREAM)
RG3200-M	APRON DETAILS (DOWNSTREAM)
RG3200-N	RAILING DETAILS
RG3200-O	BRIDGE NUMBER PLATE
RG3200-P	REBAR LIST (1 OF 3)
RG3200-Q	REBAR LIST (2 OF 3)
RG3200-R	REBAR LIST (3 OF 3)

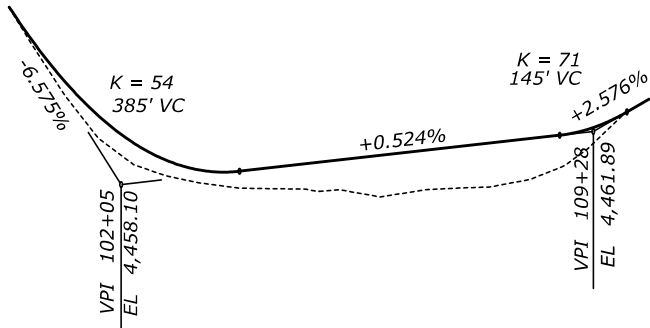


PLAN



ELEVATION

HYDRAULIC DATA			
	Q ft ³ /sec	V ft/sec	WS Elev.
Q ₂	154	22.3	4451.3
Q ₅₀	733	30.9	4454.6
Q ₁₀₀	898	31.9	4455.6
Q ₂₀₀	1,135	33.0	4457.4



PROFILE GRADE DIAGRAM

No Scale
Elevations are at profile grade @ C.Rdwy.

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

HOT SPRINGS LANDING CULVERT
LAKESHORE ROAD
ELEPHANT BUTTE STATE PARK
SIERRA COUNTY, NEW MEXICO

PLAN AND ELEVATION

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								S. FEUZE	B. ROBINSON	N. MARSHALL	1"=30'-0" UNLESS NOTED	SAMIR SIDHOM	1 of 18	OCTOBER 2022	RG3200- A

N:\NM\sl\01\NBridge\RG3200- Hot Springs Landing -Site *NCADD Files\DGN Files\RG3200_gndgn 10/7/2022

GENERAL NOTES:

SPECIFICATIONS:

Design:
AASHTO LRFD Bridge Design Specifications, 9th Edition, 2020.

Construction:
Federal Highway Administration Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects, FP-14 and Special Contract Requirements (SCR's).

DESIGN LOADS:

Dead Loads:
Concrete: 150 pcf.
Soil: 125 pcf.

Culvert Design Loads:
Lateral Earth Pressure: equivalent fluid unit weight of soil: 63 pcf (At rest)
Live load: HL-93. Maximum Dynamic Load Allowance, IM=0%.
For a buried structure, IM=33·(1-0.125D_e), Where D_e = min. depth of earth cover.

Wingwall Design Loads:
Lateral Earth Pressure: equivalent fluid unit weight of soil, 42 pcf (Active).
The resultant of all loads is at or within the middle 2/3 of footing width.
Factored bearing resistance Q_r=2.7 kips per square foot. Resistance factor = 0.45 (Strength Limit State)

Seismic Design:
In accordance with AASHTO LRFD Bridge Design Specifications, 2012 Seismic Performance Zone 1 based on peak ground acceleration coefficient (PGA) = 0.137 g.

MATERIALS:

Concrete:
For all cast in place concrete furnish Class A(AE) concrete with a minimum compressive strength f'c = 4.5 ksi at 28 days.
Furnish concrete made with Type II cement. Chamfer exposed edges of all concrete ¾", unless noted otherwise on the plans. Furnish expansion joint filler meeting the requirements of AASHTO M213.
Precast concrete box culverts may be substituted. Submit design drawings and details with supporting calculations according to FP-14 Subsection 104.03.

Reinforcing Steel:
Furnish reinforcing steel conforming to AASHTO M31 or M322, Grade 60 deformed.
Provide 2-inch cover for reinforcing steel unless otherwise noted. Provide minimum splice lengths for all bar sizes as shown on the plans. Bar splices other than those shown on the plans will not be paid for.

Bridge Railing:
Provide steel railing atop headwalls and wingwalls as shown on the plans. Furnish steel conforming to AASHTO M270, Grade 50 (ASTM A709, Grade 50), or ASTM F1083 for circular pipe members. Weld in conformance to the ANSI/AASHTO/AWS D1.5 or D1.1, as applicable, and by a certified welder.

Structure Excavation:
Perform all necessary excavation work to build the foundation to the required depths. Refer to Geotechnical Report # NM FLAP SIE 10(1) for description of the anticipated materials, including rock, cobbles, and boulders to be encountered during excavation of the culvert site.

GEOTECHNICAL REPORT:
For geotechnical information, see Geotechnical Report: Lakeshore Road, Elephant Butte State Park, Sierra County, NM, Report # NM FLAP SIE 10(1), dated June 2022, prepared by U.S. Department of Transportation, Federal Highway Administration, Central Federal Lands Highway Division.

STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S2

ESTIMATE				
Item No.	Item	Quantity	Unit	Notes
15215-5000	Survey and staking, box culvert	1	EACH	
20801-0000	Structure excavation	1140	CUYD	(1)
20803-0000	Structural backfill (native soil)	240	CUYD	(1)
55201-0200	Structural concrete, class A (AE)	300	CUYD	(1)(2)
55401-1000	Reinforcing steel	74,000	LB	(1)
55601-0900	Bridge railing, steel	155	LNFT	(1)
55901-2000	Membrane waterproofing, type 2	325	SQYD	(1)

ESTIMATE NOTES:

- (1) Contract Quantity
- (2) Includes cost of furnishing and installing all bridge number plates, joint fillers, sealants, backer rods and geocomposite sheet drain (estimated quantity = 66 square yd.).

LRFR RATING FACTORS	
INVENTORY-LEVEL	1.11
OPERATING-LEVEL	1.44

Rating generated by NMDOT using the AASHTOWare bridge rating program based on plan details.

U.S. DEPARTMENT OF TRANSPORTATION
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CENTRAL FEDERAL LANDS HIGHWAY DIVISION

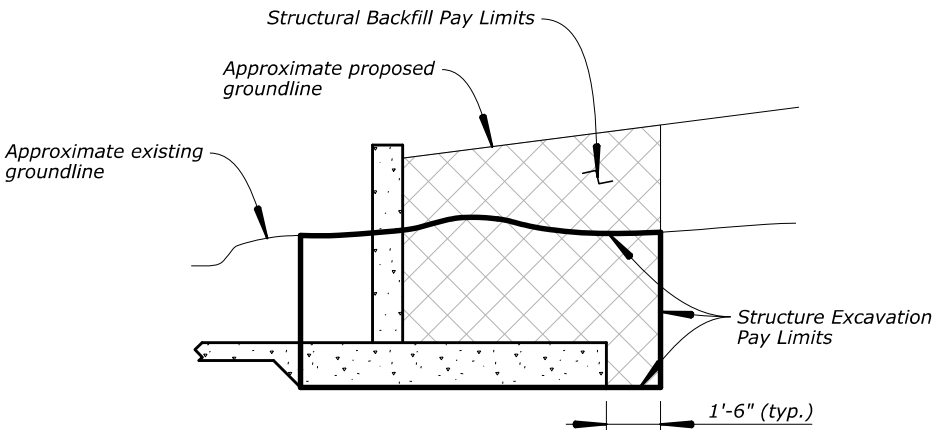
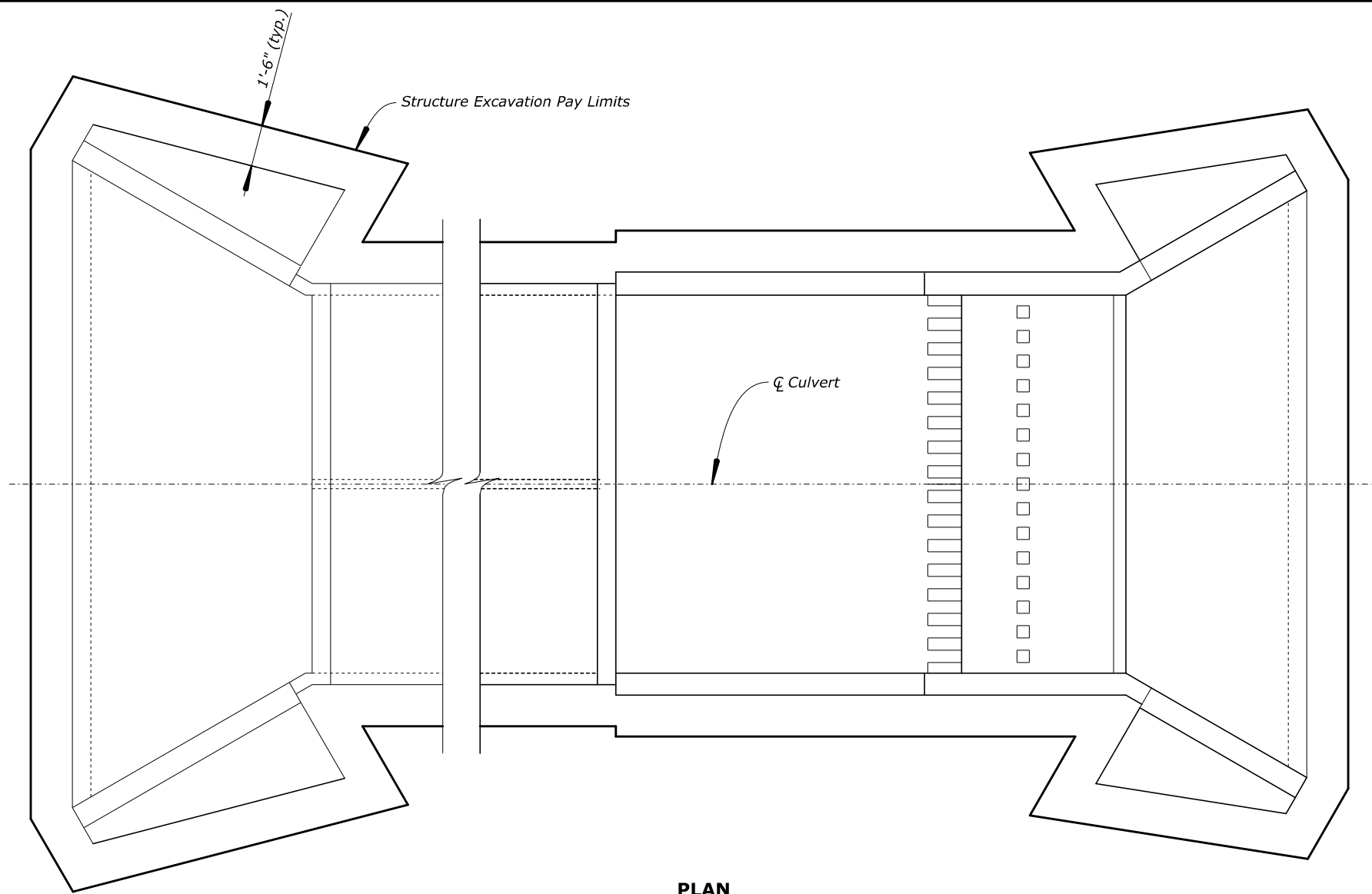
HOT SPRINGS LANDING CULVERT
LAKESHORE ROAD
ELEPHANT BUTTE STATE PARK
SIERRA COUNTY, NEW MEXICO

GENERAL NOTES & ESTIMATE

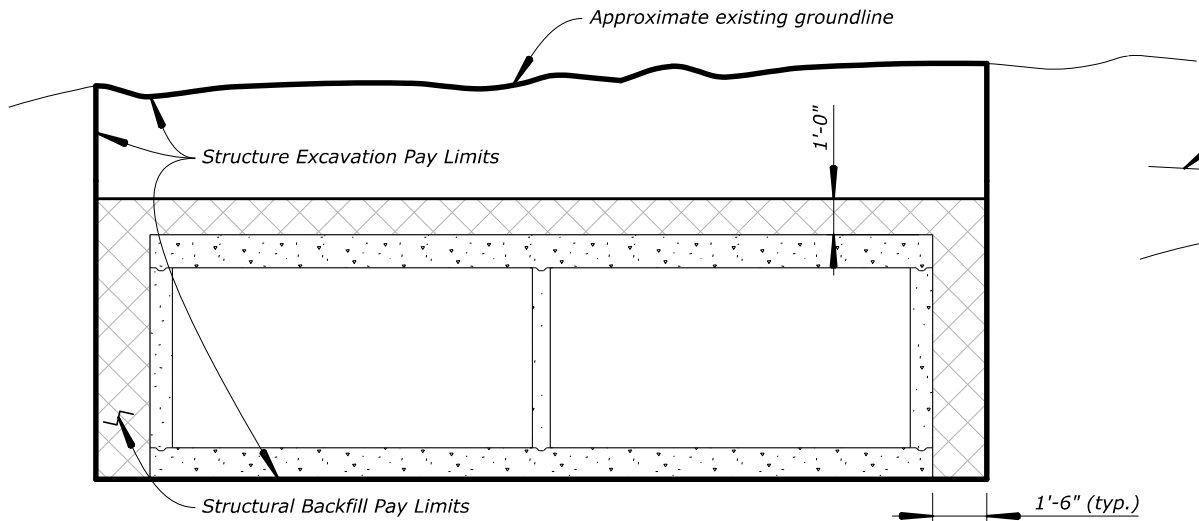
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								S. FEUZE	B. ROBINSON	N. MARSHALL	NONE	SAMIR SIDHOM	2 of 18	OCTOBER 2022	RG3200- B

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10/7/2022

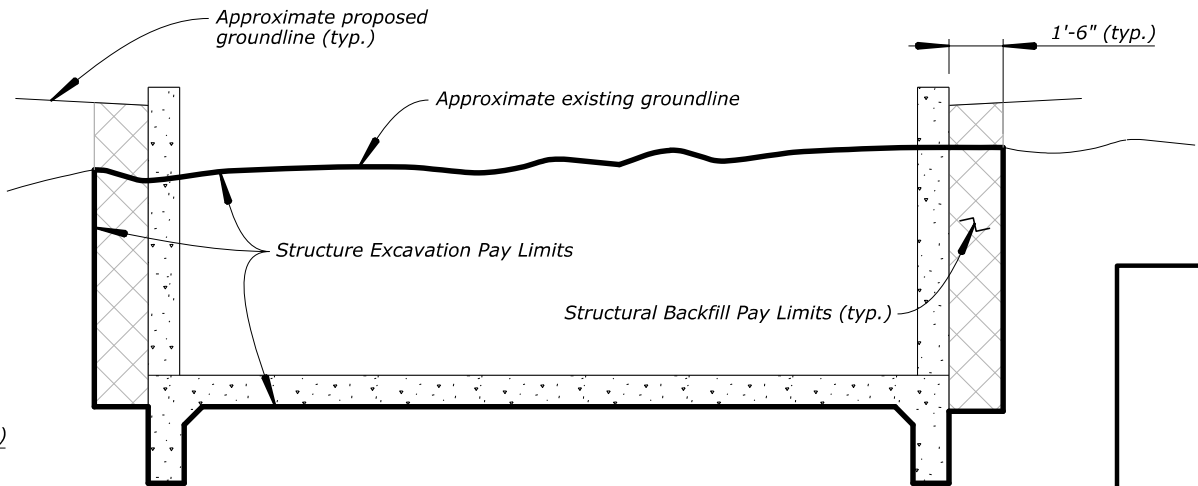
STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S3



STRUCTURE EXCAVATION & BACKFILL PAY LIMITS (WINGWALL)
No Scale



STRUCTURE EXCAVATION & BACKFILL PAY LIMITS (BOX CULVERT)
No Scale



STRUCTURE EXCAVATION & BACKFILL PAY LIMITS (STILLING BASIN)
No Scale

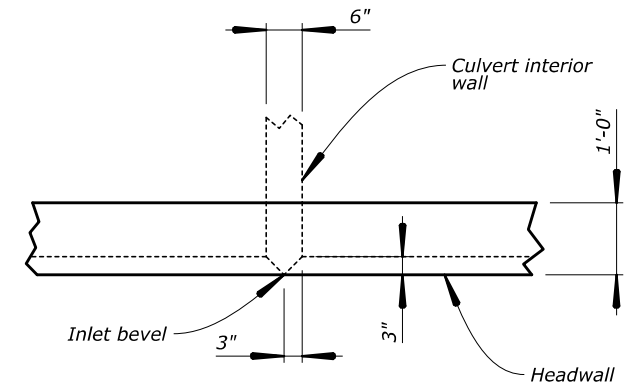
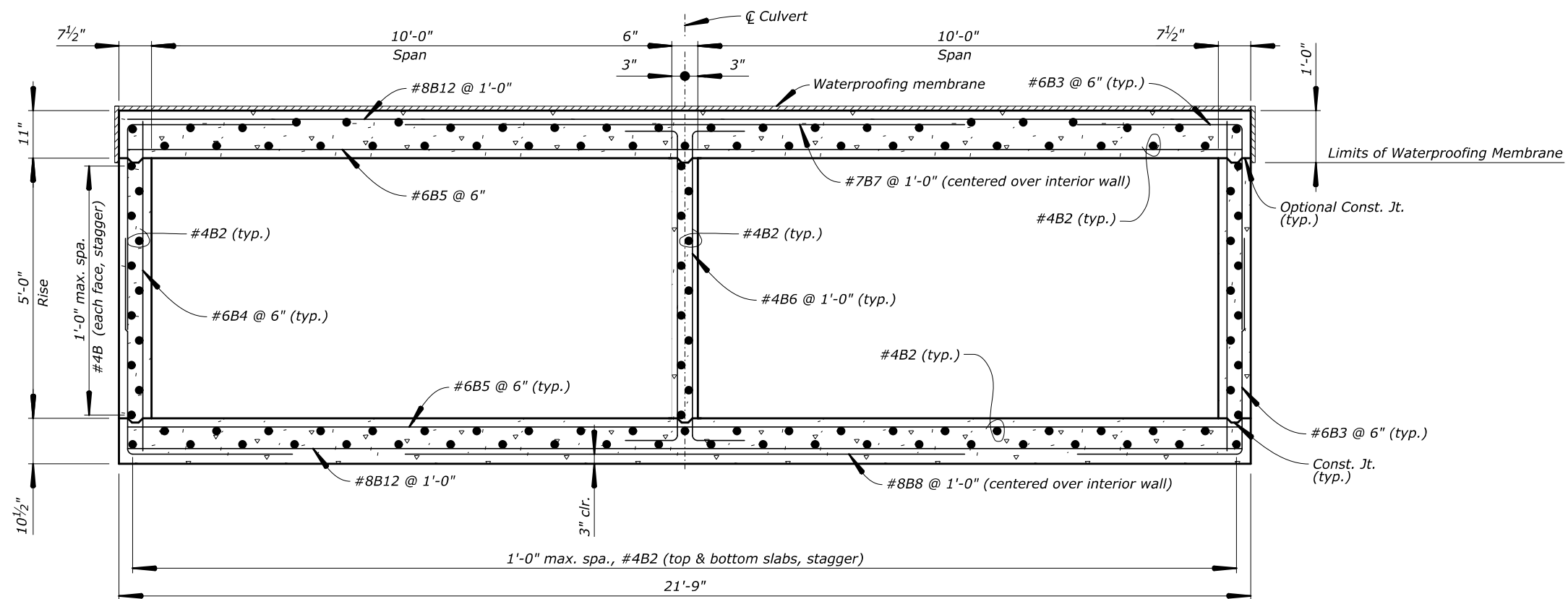
U.S. DEPARTMENT OF TRANSPORTATION
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CENTRAL FEDERAL LANDS HIGHWAY DIVISION

HOT SPRINGS LANDING CULVERT
LAKESHORE ROAD
ELEPHANT BUTTE STATE PARK
SIERRA COUNTY, NEW MEXICO

**EXCAVATION & BACKFILL
DETAILS**

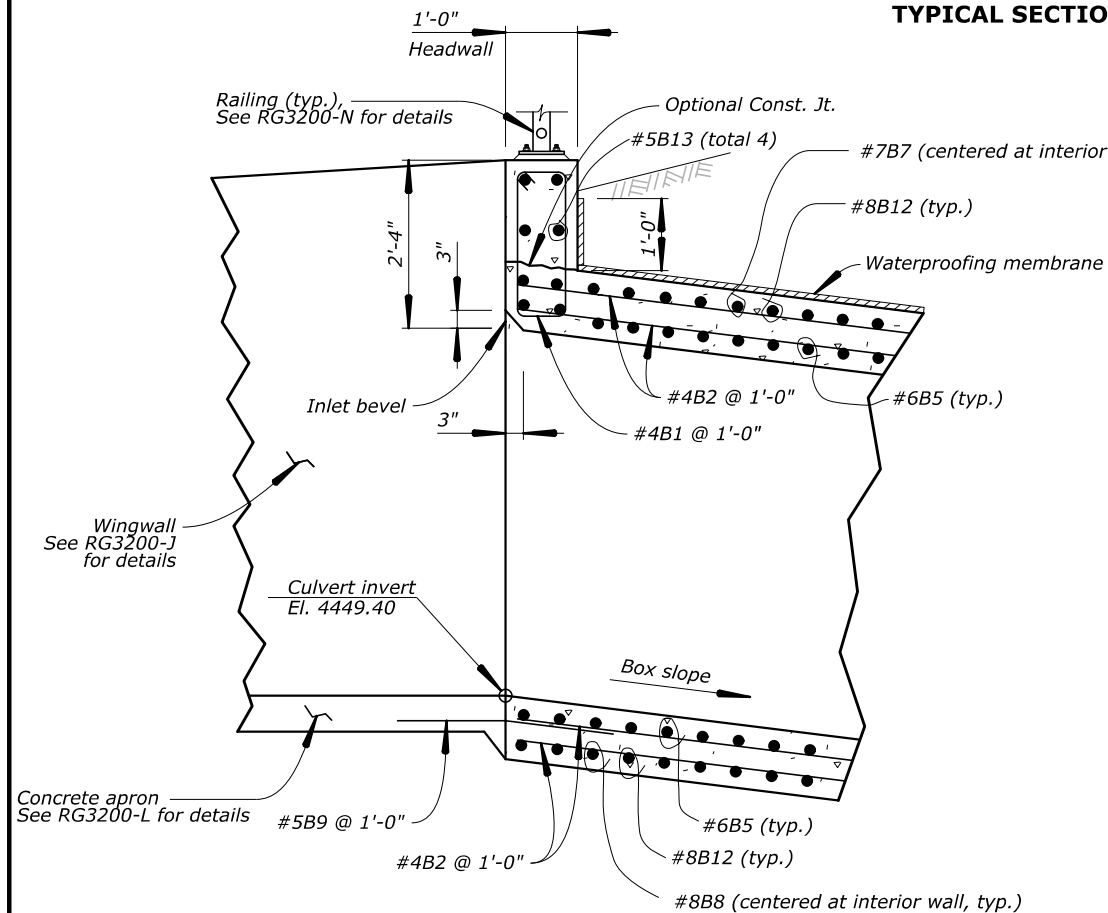
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STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S4



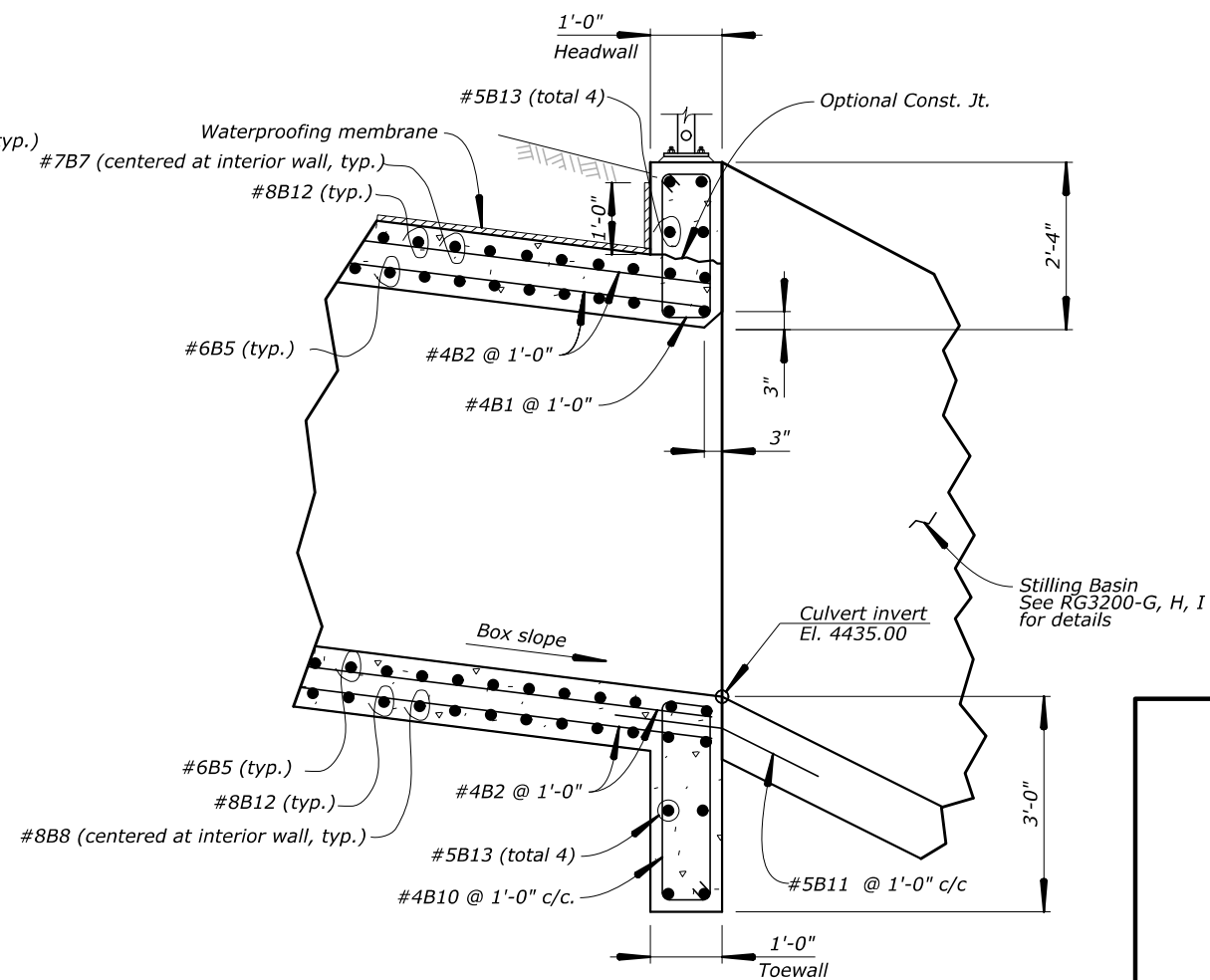
INLET BEVEL - PLAN

TYPICAL SECTION



SECTION A-A

Note: See RG3200-E for location of Section A-A.



SECTION B-B

Note: See RG3200-F for location of Section B-B.

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HOT SPRINGS LANDING CULVERT
LAKESHORE ROAD
ELEPHANT BUTTE STATE PARK
SIERRA COUNTY, NEW MEXICO

TYPICAL SECTION

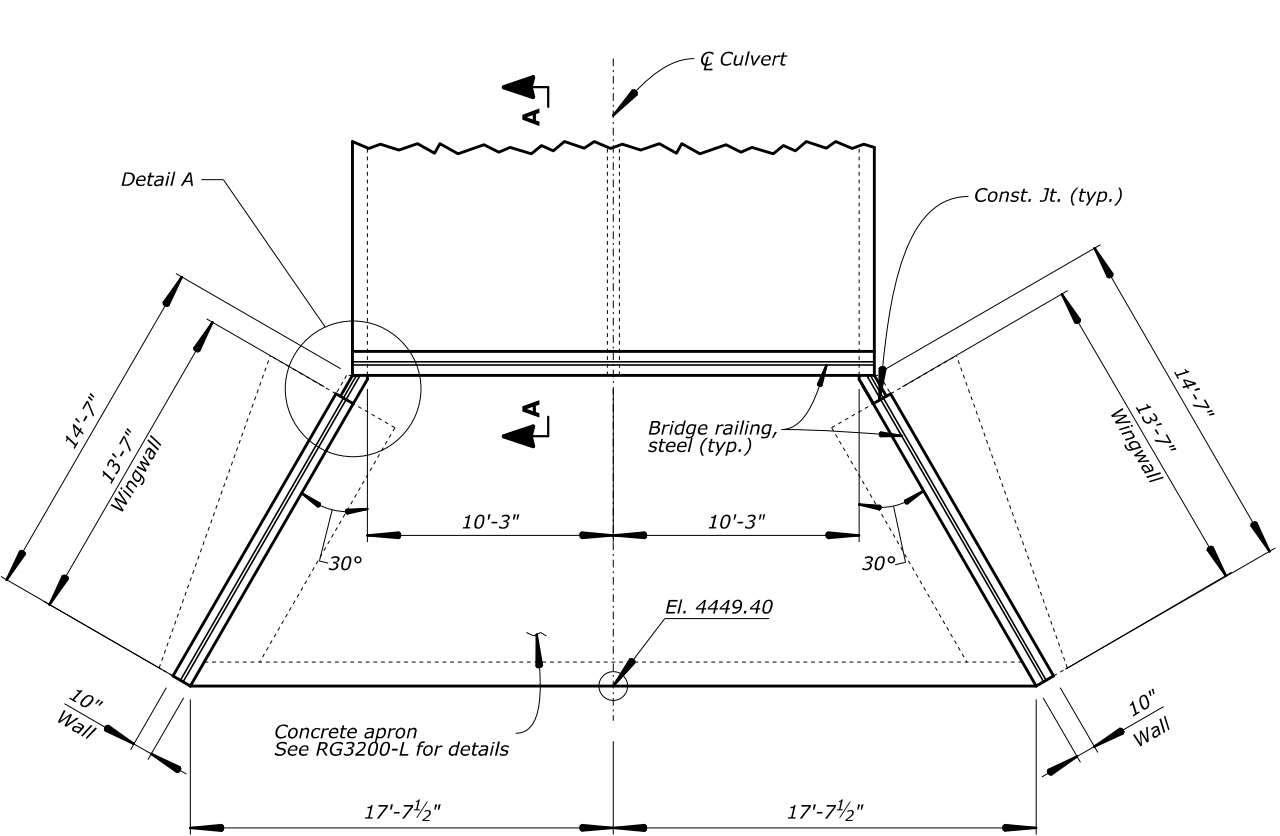
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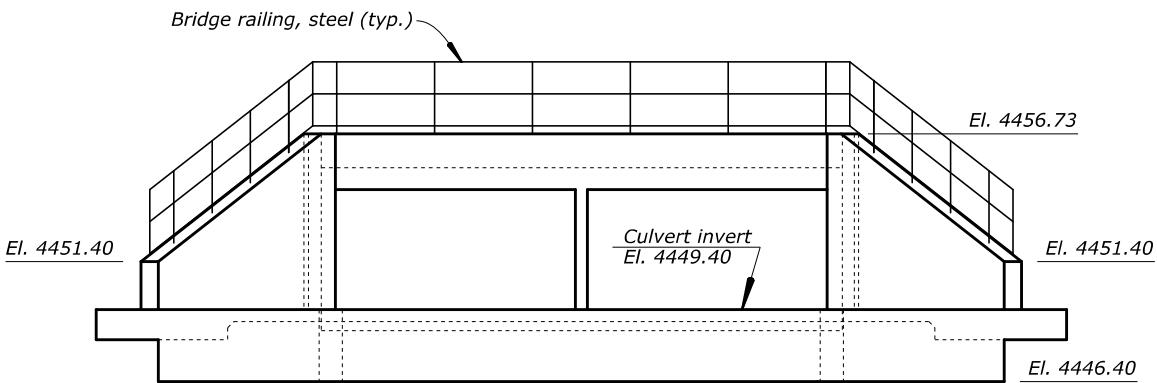
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STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S5

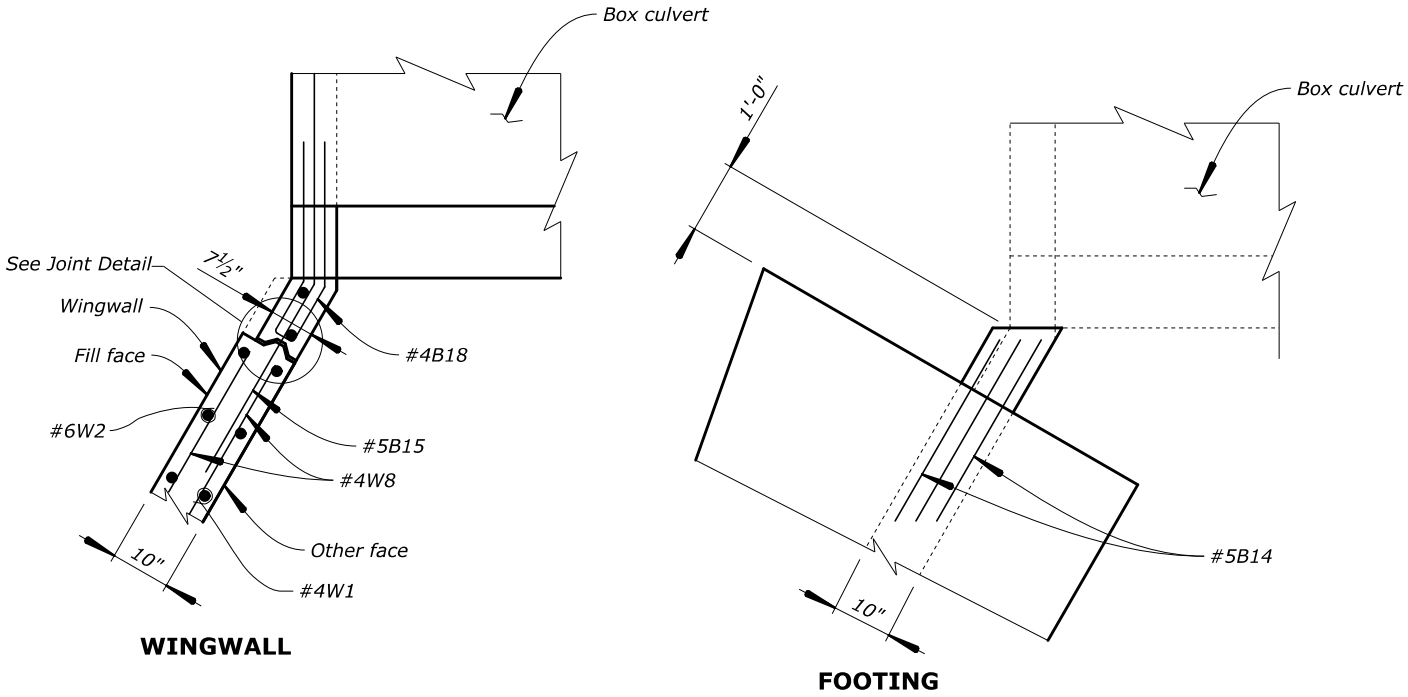
Note: See RG3200-D for Section A-A.



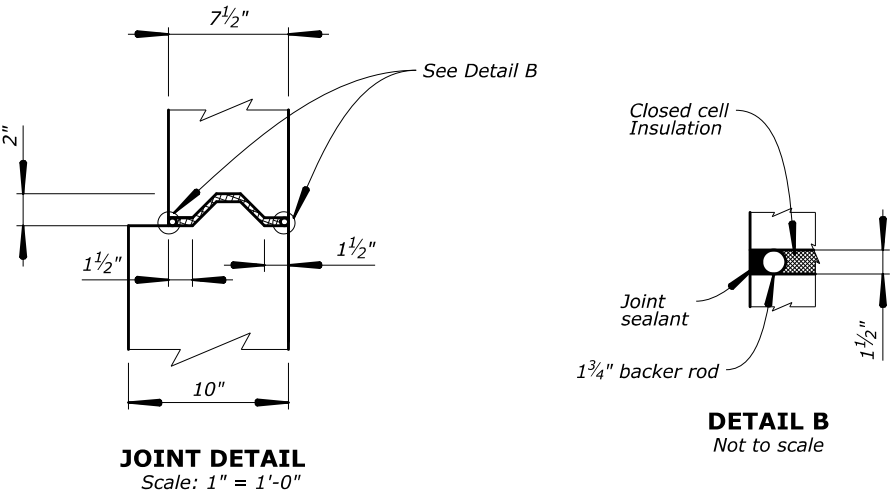
PLAN UPSTREAM



ELEVATION UPSTREAM



DETAIL A
Scale: $\frac{3}{8}$ " = 1'-0"



DETAIL B
Not to scale

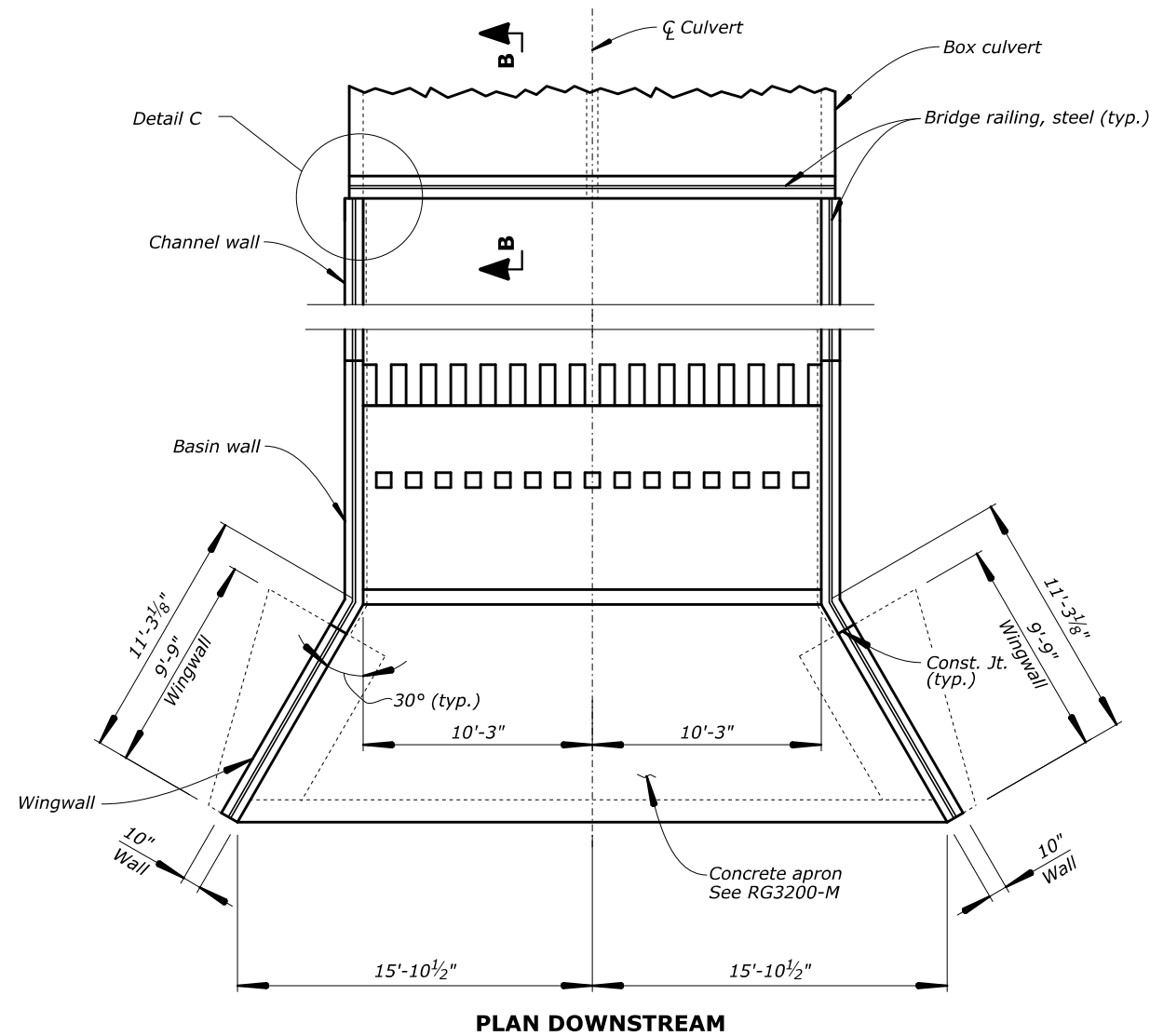
U.S. DEPARTMENT OF TRANSPORTATION
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CENTRAL FEDERAL LANDS HIGHWAY DIVISION

HOT SPRINGS LANDING CULVERT
LAKESHORE ROAD
ELEPHANT BUTTE STATE PARK
SIERRA COUNTY, NEW MEXICO

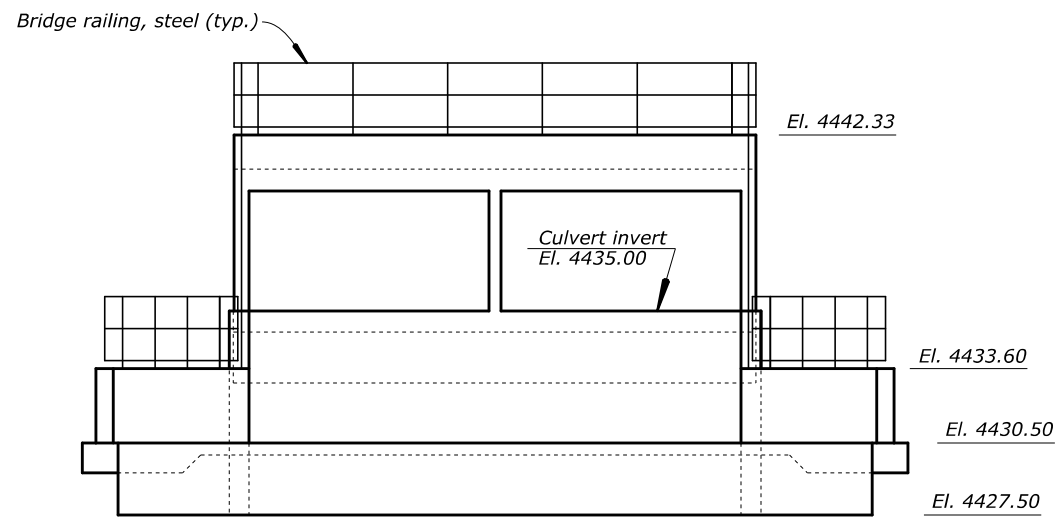
HEADWALL DETAILS UPSTREAM

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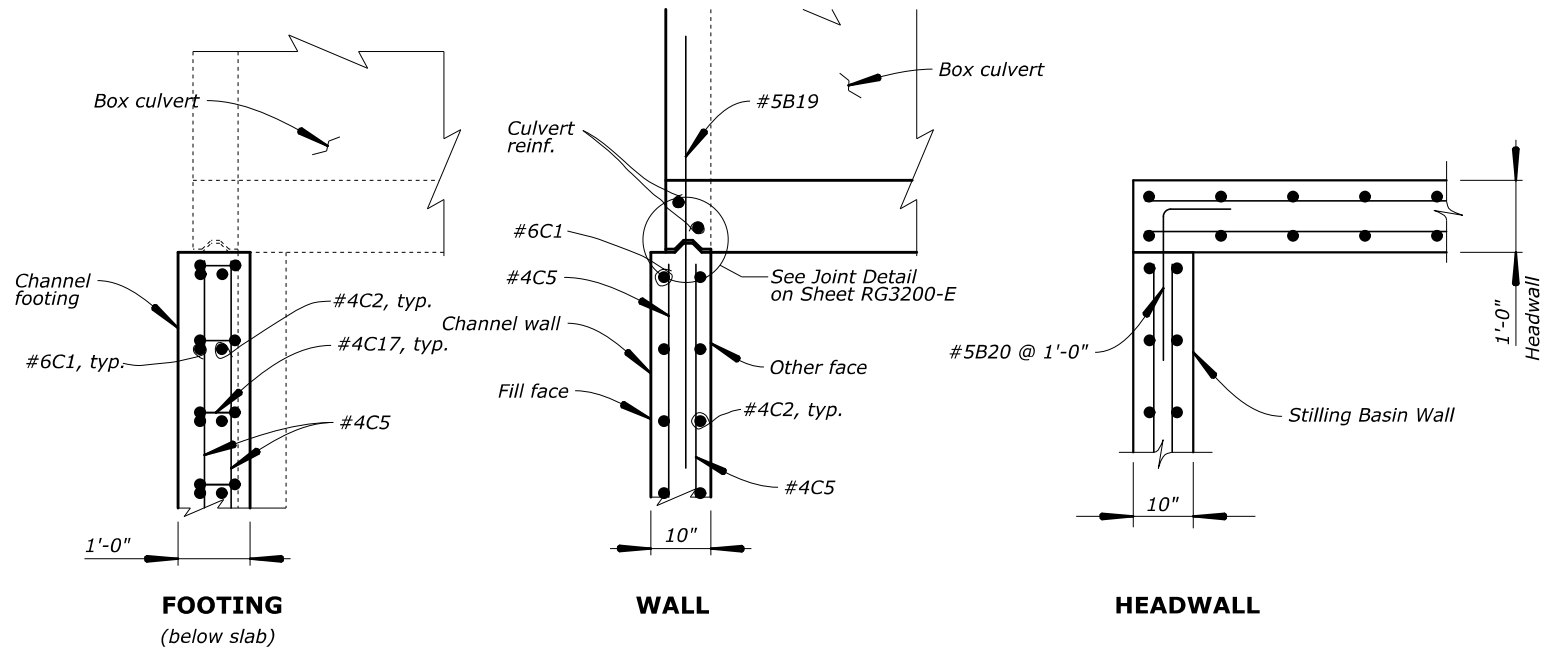
STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S6



PLAN DOWNSTREAM

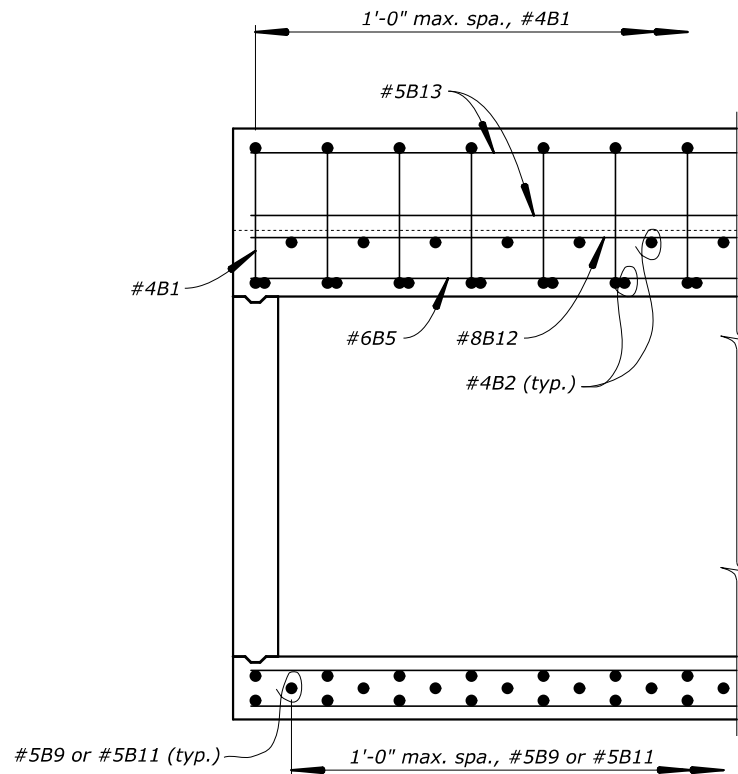


ELEVATION DOWNSTREAM



WALL

DETAIL C
Scale: 3/8" = 1'-0"



HEADWALL ELEVATION

Scale: 3/8" = 1'-0"

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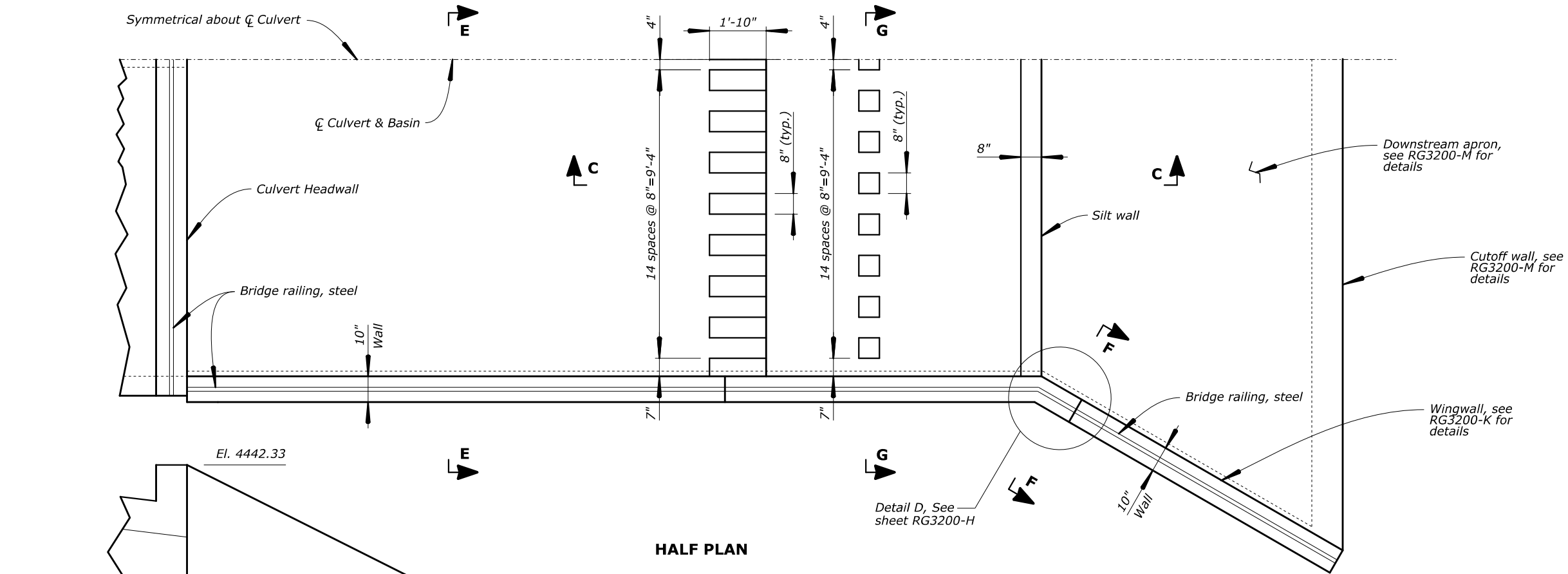
HOT SPRINGS LANDING CULVERT
LAKESHORE ROAD
ELEPHANT BUTTE STATE PARK
SIERRA COUNTY, NEW MEXICO

HEADWALL DETAILS (DOWNSTREAM)

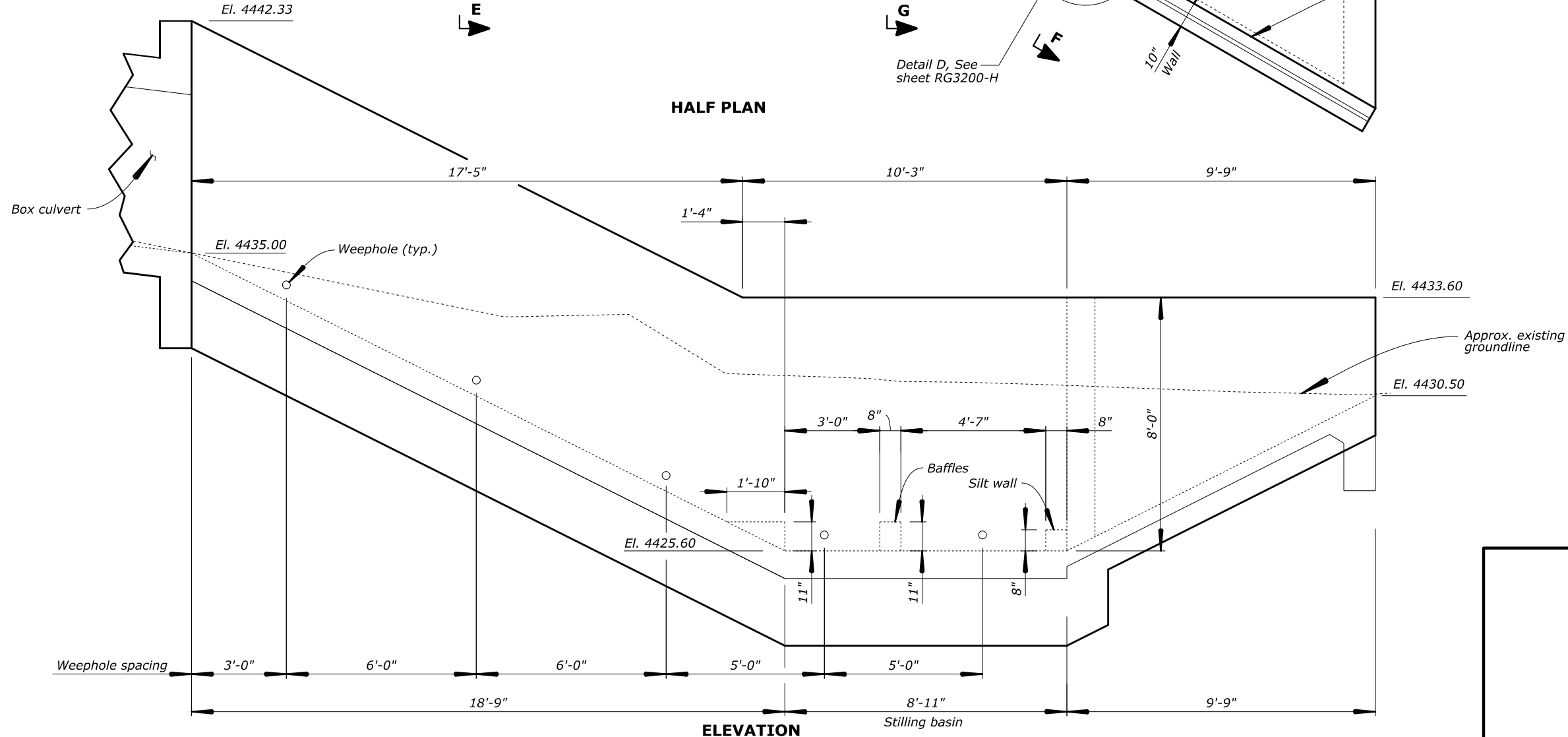
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STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S7



Note: See RG3200-H for Sections C-C, E-E, G-G, and F-F.



Bridge railing not shown for clarity.

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CENTRAL FEDERAL LANDS HIGHWAY DIVISION

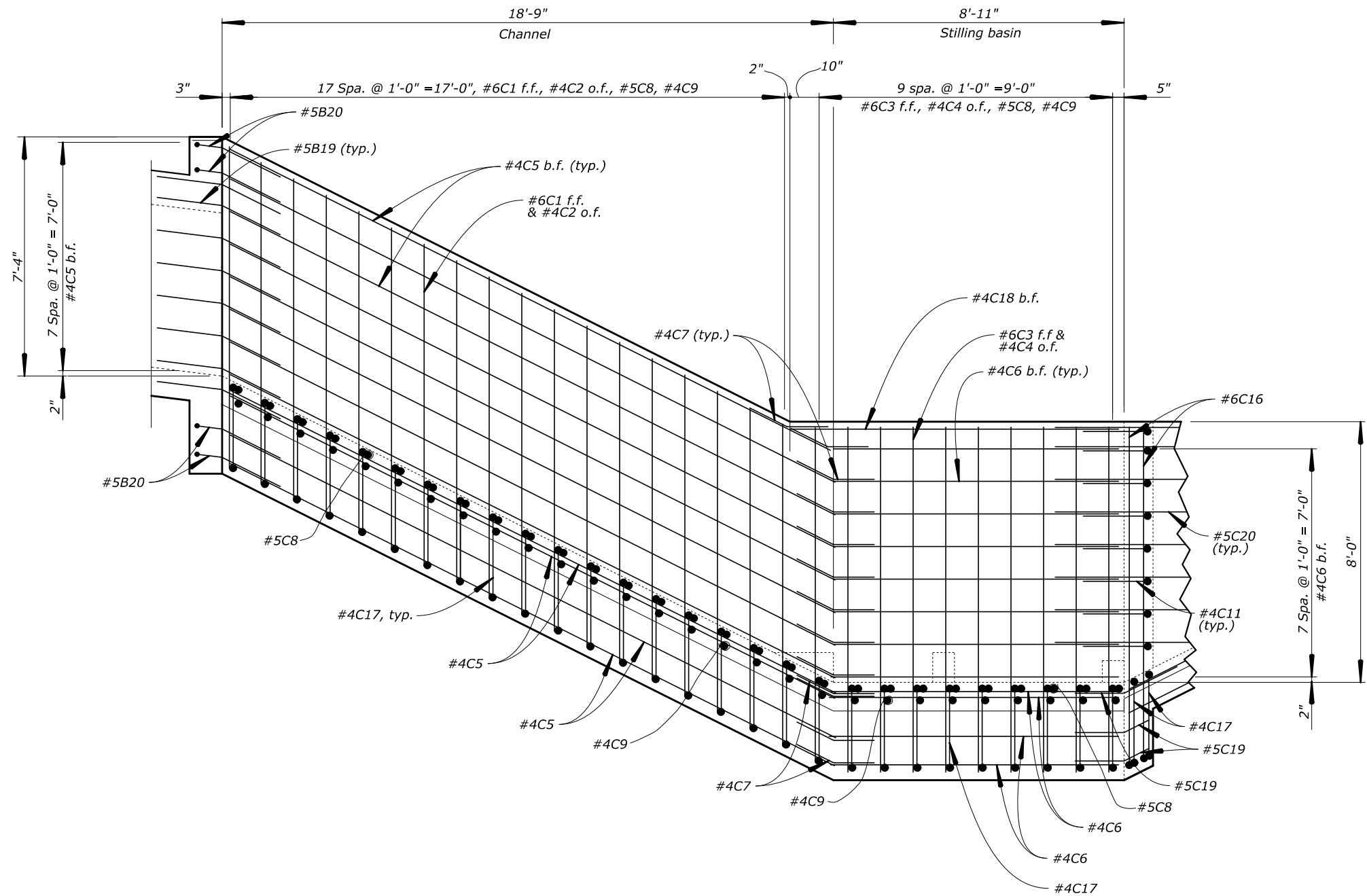
HOT SPRINGS LANDING CULVERT
LAKESHORE ROAD
ELEPHANT BUTTE STATE PARK
SIERRA COUNTY, NEW MEXICO

STILLING BASIN DETAILS (1 OF 3)

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STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S9



ELEVATION

Bridge railing not shown for clarity.

ABBREVIATIONS

f.f. = Fill face
o.f. = Other face
b.f. = Both faces

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

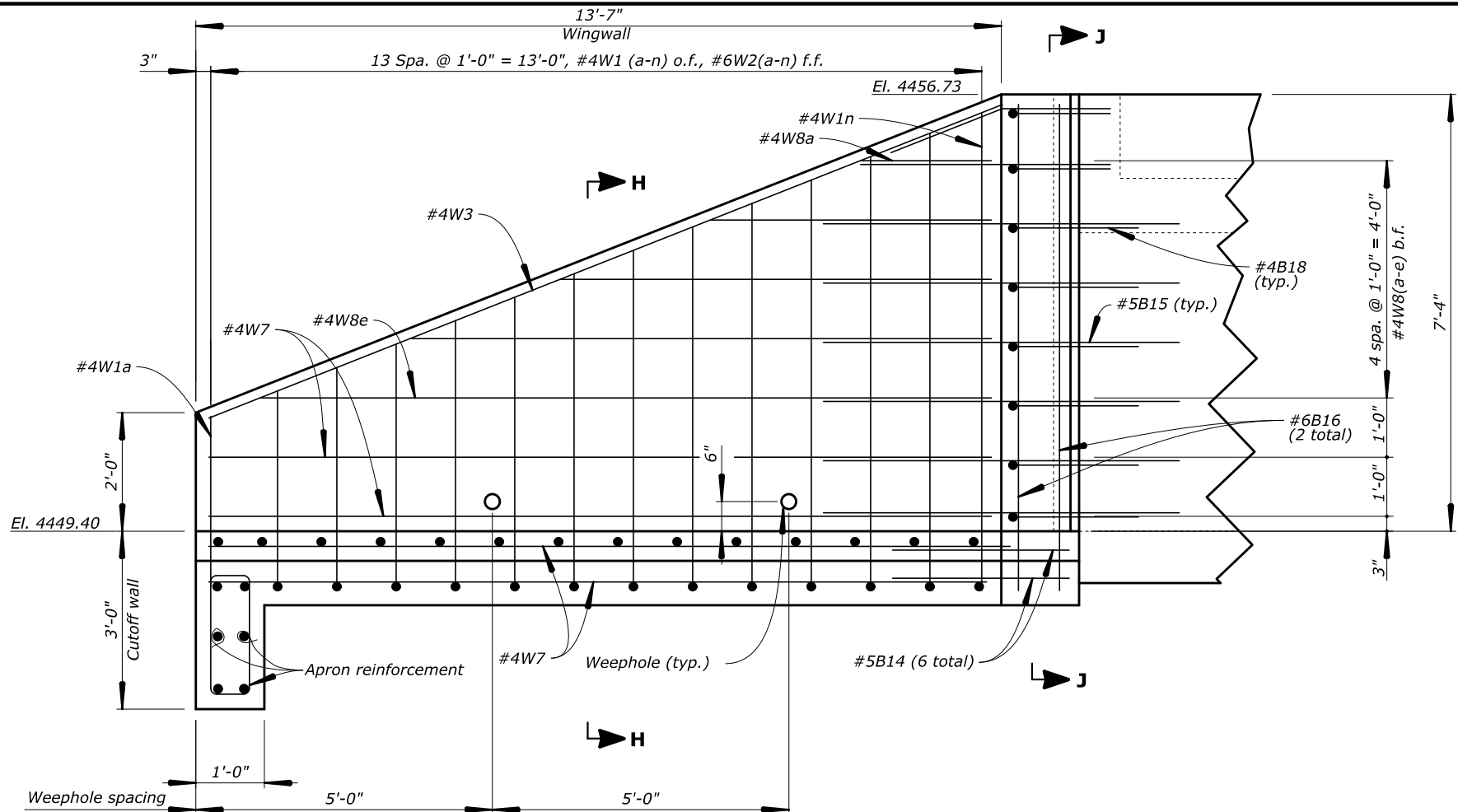
HOT SPRINGS LANDING CULVERT
LAKESHORE ROAD
ELEPHANT BUTTE STATE PARK
SIERRA COUNTY, NEW MEXICO

STILLING BASIN
DETAILS (3 OF 3)

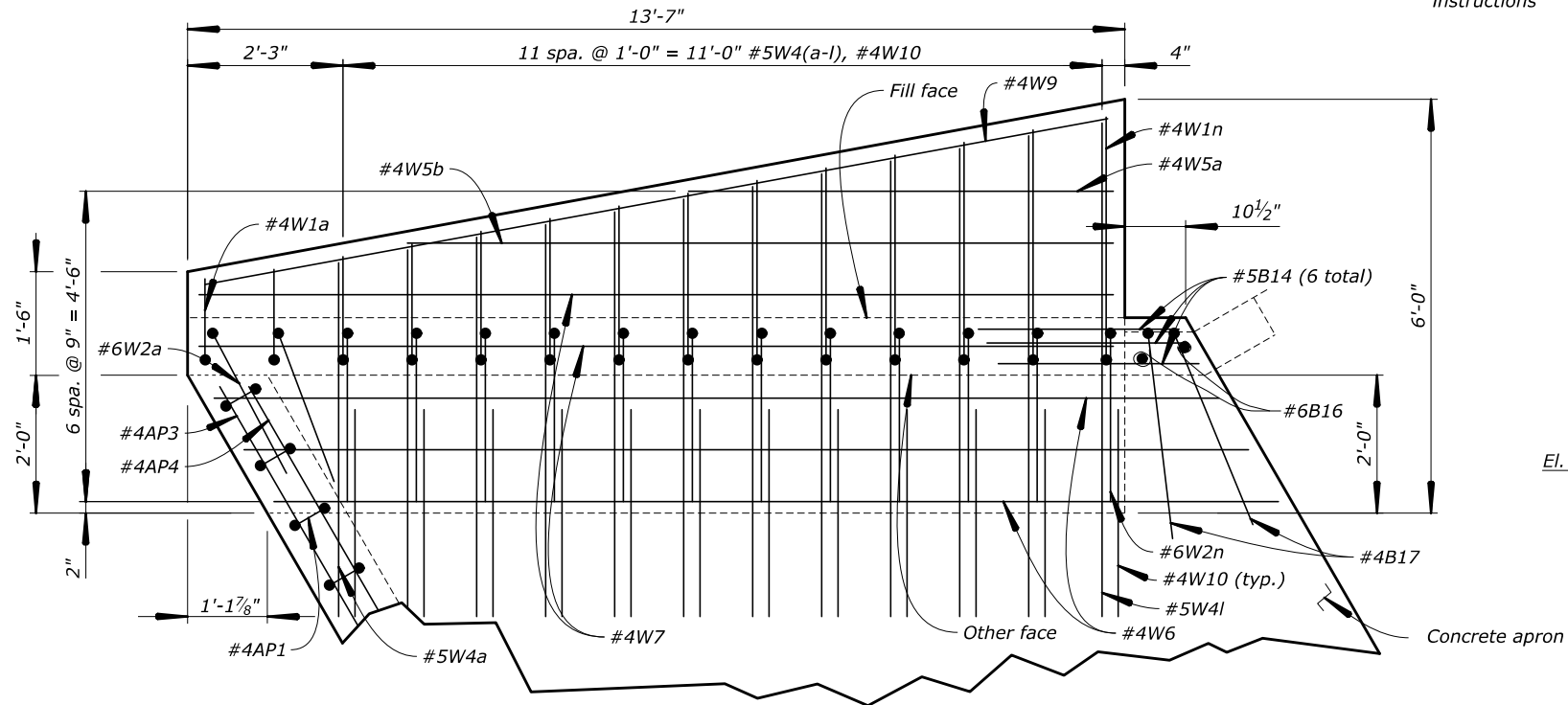
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10/7/2022

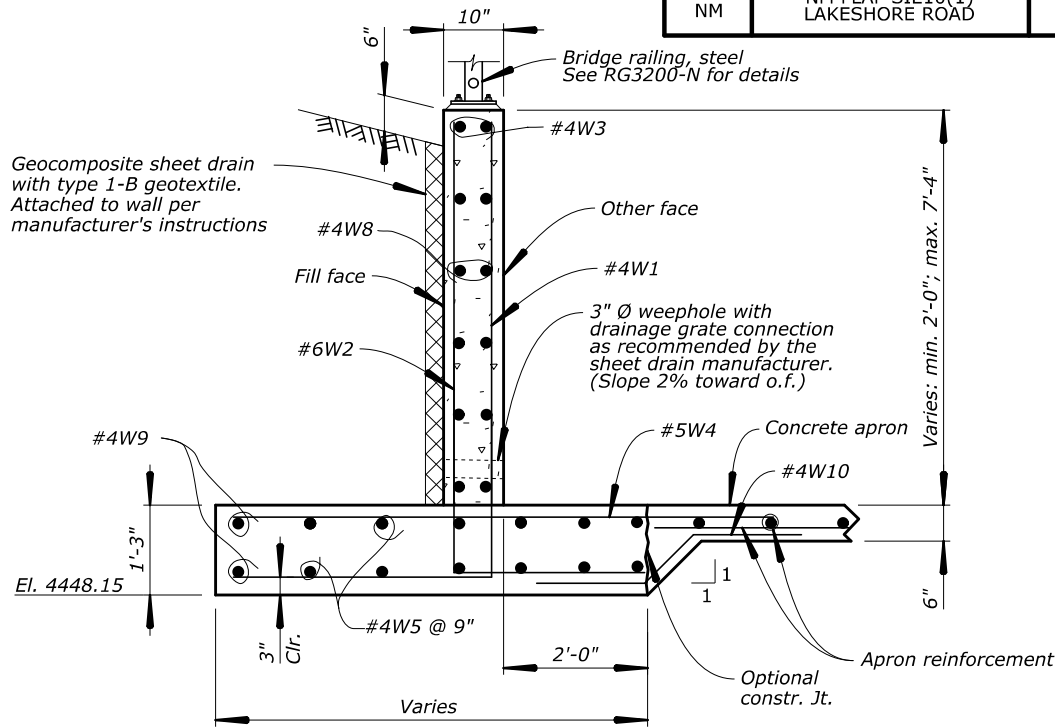
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NM	NM FLAP SIE10(1) LAKESHORE ROAD	S10



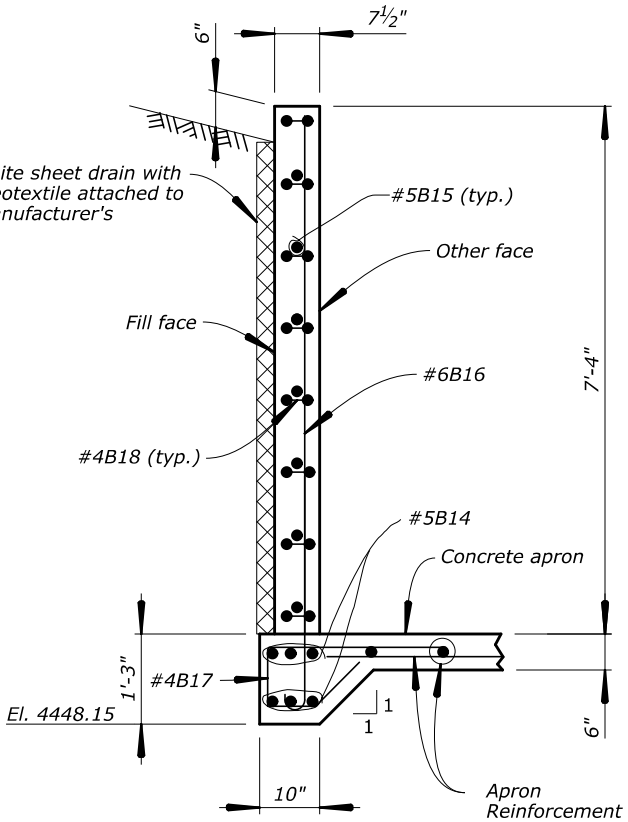
WINGWALL ELEVATION
Bridge railing not shown for clarity.



WINGWALL FOOTING



SECTION H-H



SECTION J-J

ABBREVIATIONS

f.f. = Fill face
o.f. = Other face
b.f. = Both faces

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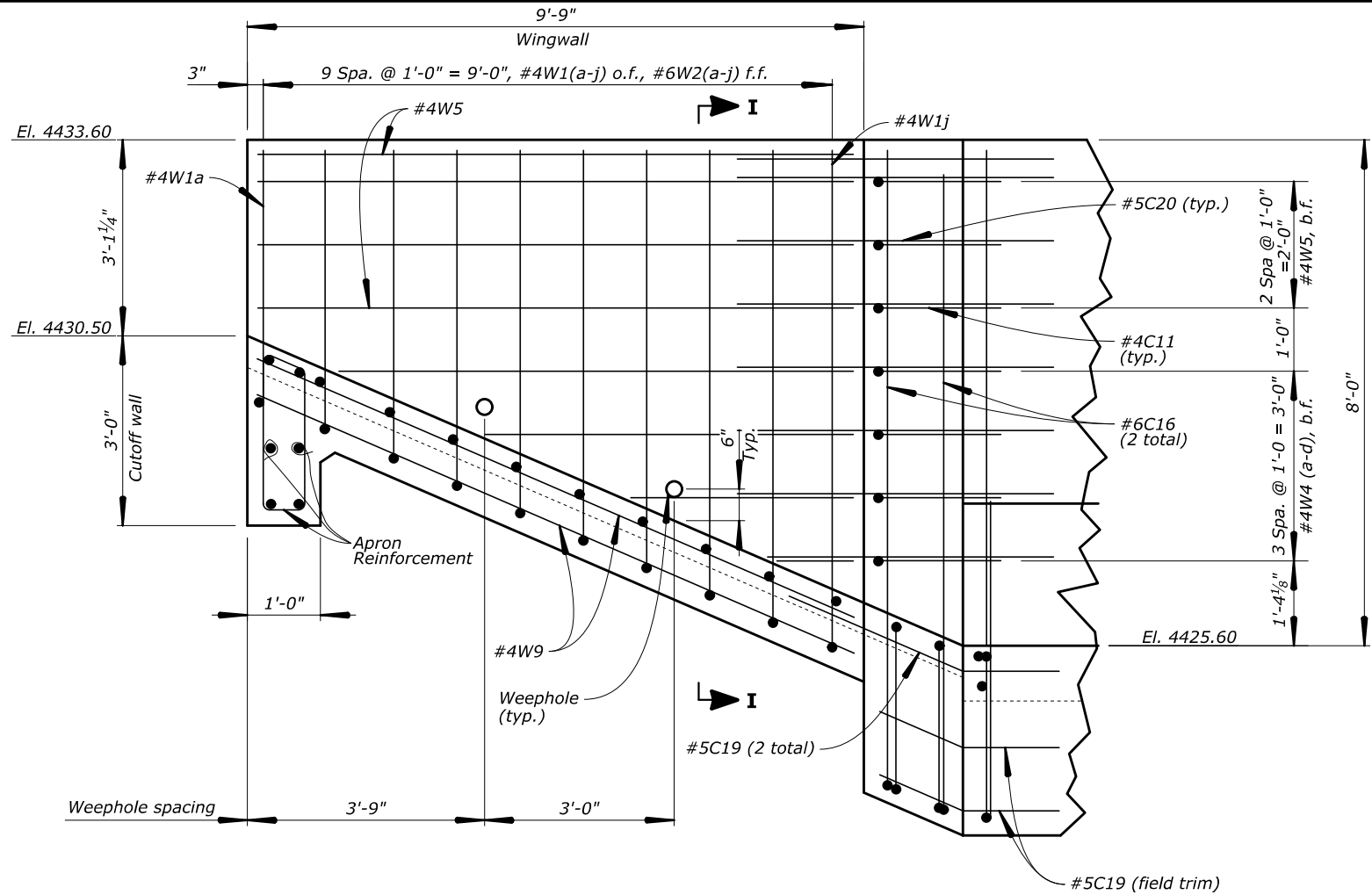
HOT SPRINGS LANDING CULVERT
LAKESHORE ROAD
ELEPHANT BUTTE STATE PARK
SIERRA COUNTY, NEW MEXICO

**WINGWALL DETAILS
(UPSTREAM)**

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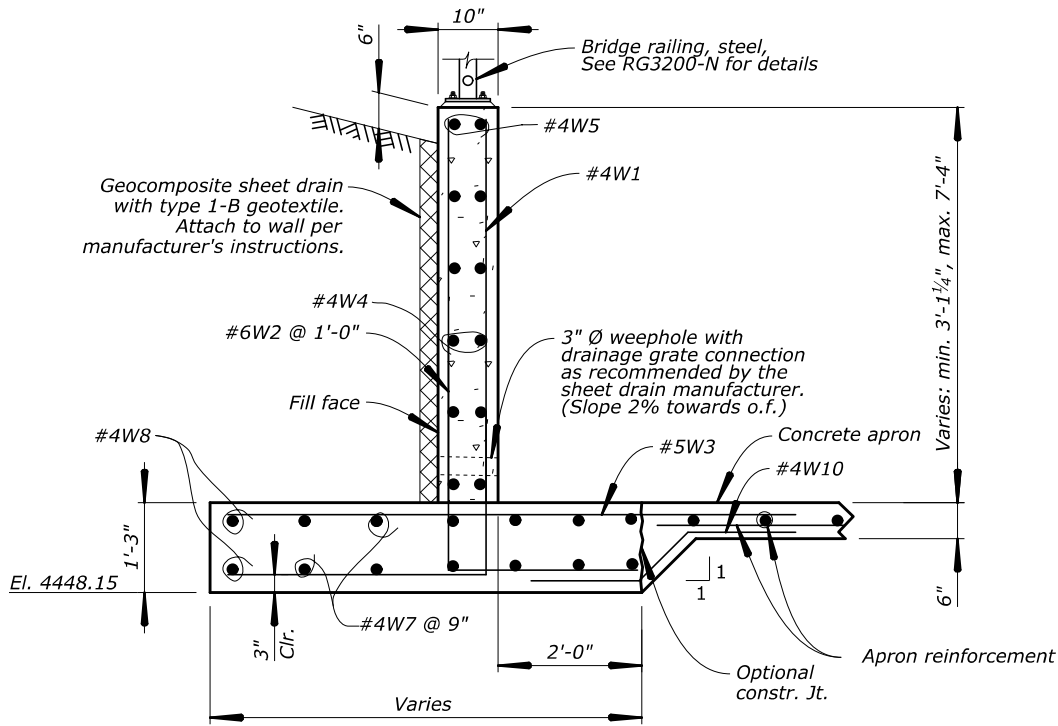
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10/7/2022

STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S11



WINGWALL ELEVATION

Bridge railing not shown for clarity.



SECTION I-I

ABBREVIATIONS

f.f. = Fill face
o.f. = Other face
b.f. = Both faces

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FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

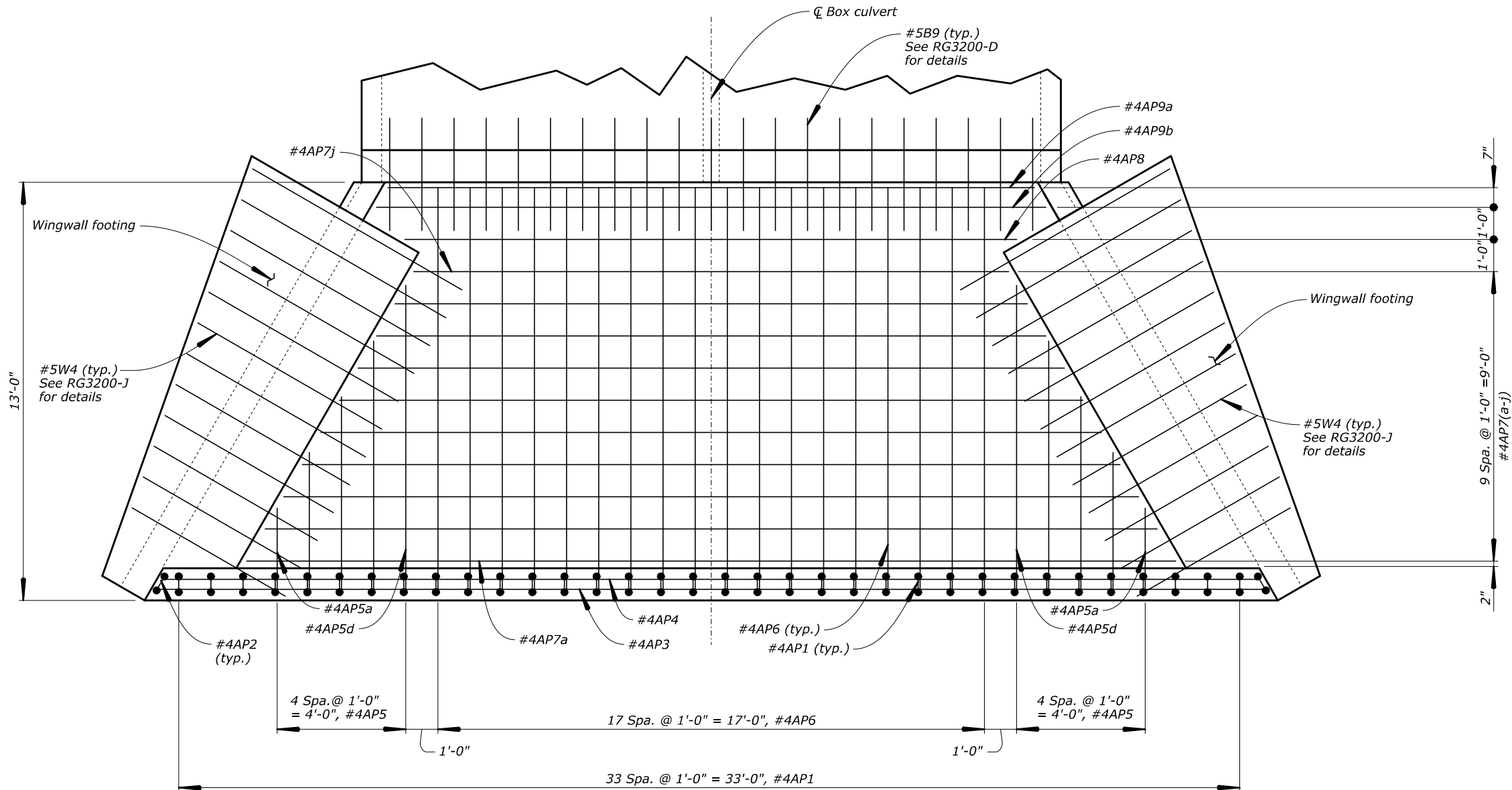
HOT SPRINGS LANDING CULVERT
LAKESHORE ROAD
ELEPHANT BUTTE STATE PARK
SIERRA COUNTY, NEW MEXICO

**WINGWALL DETAILS
(DOWNSTREAM)**

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								S. FEUZE	B. ROBINSON	N. MARSHALL	$\frac{3}{8}" = 1'-0"$ UNLESS NOTED	SAMIR SIDHOM	11 of 18	OCTOBER 2022	RG3200- K

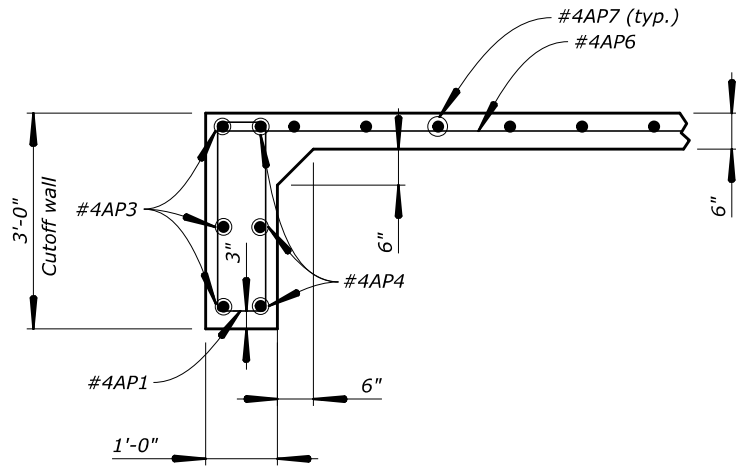
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10/7/2022

STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S12



PLAN UPSTREAM

Note: Other reinforcement within wingwall footings and culvert not shown for clarity.



SECTION AT CUTOFF WALL

Scale: 3/8" = 1'-0"

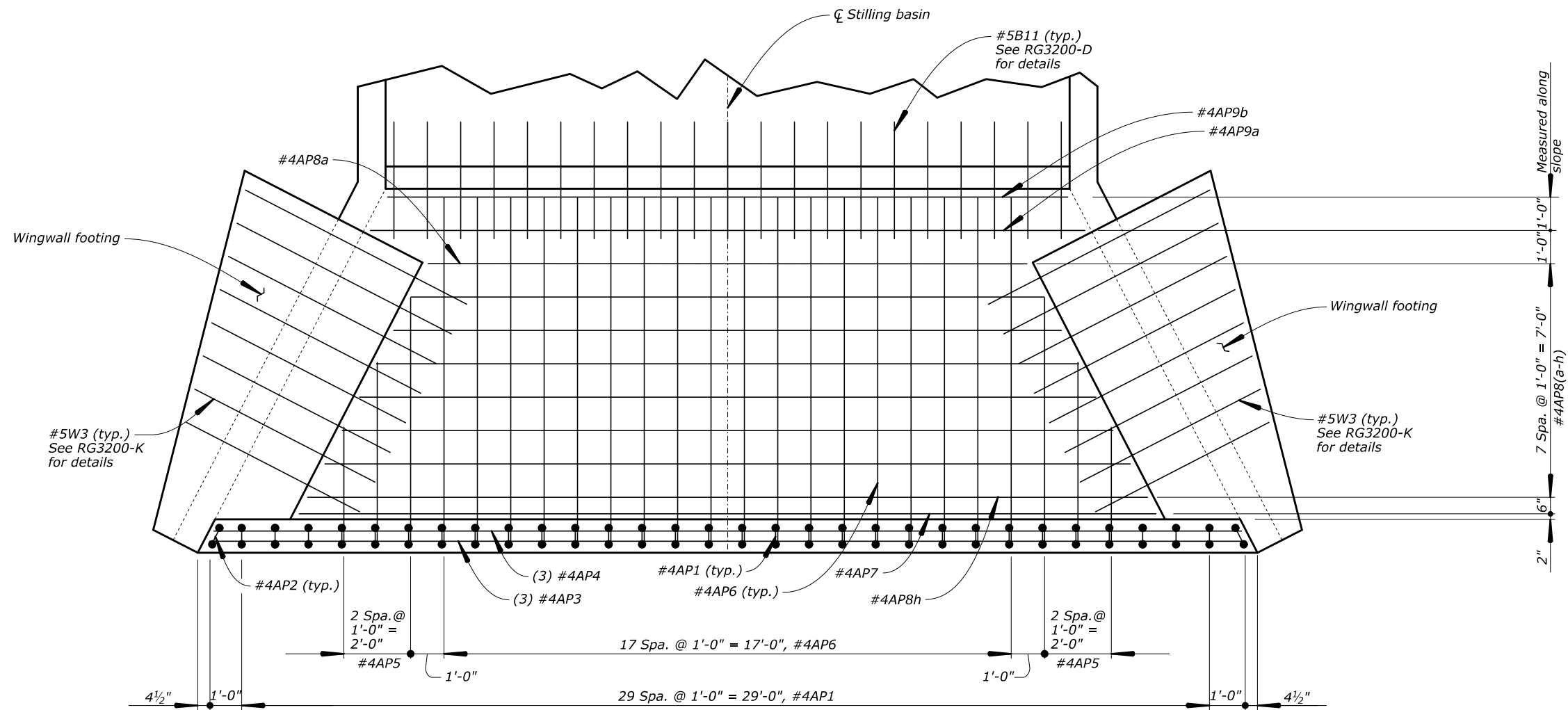
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

HOT SPRINGS LANDING CULVERT
LAKESHORE ROAD
ELEPHANT BUTTE STATE PARK
SIERRA COUNTY, NEW MEXICO

**APRON DETAILS
UPSTREAM**

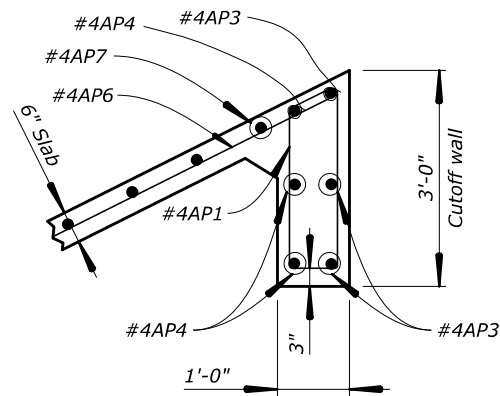
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STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S13



PLAN DOWNSTREAM

Note: Other reinforcement within wingwall footings and culvert not shown for clarity.



SECTION AT CUTOFF WALL

Scale: $\frac{3}{8}$ " = 1'-0"

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

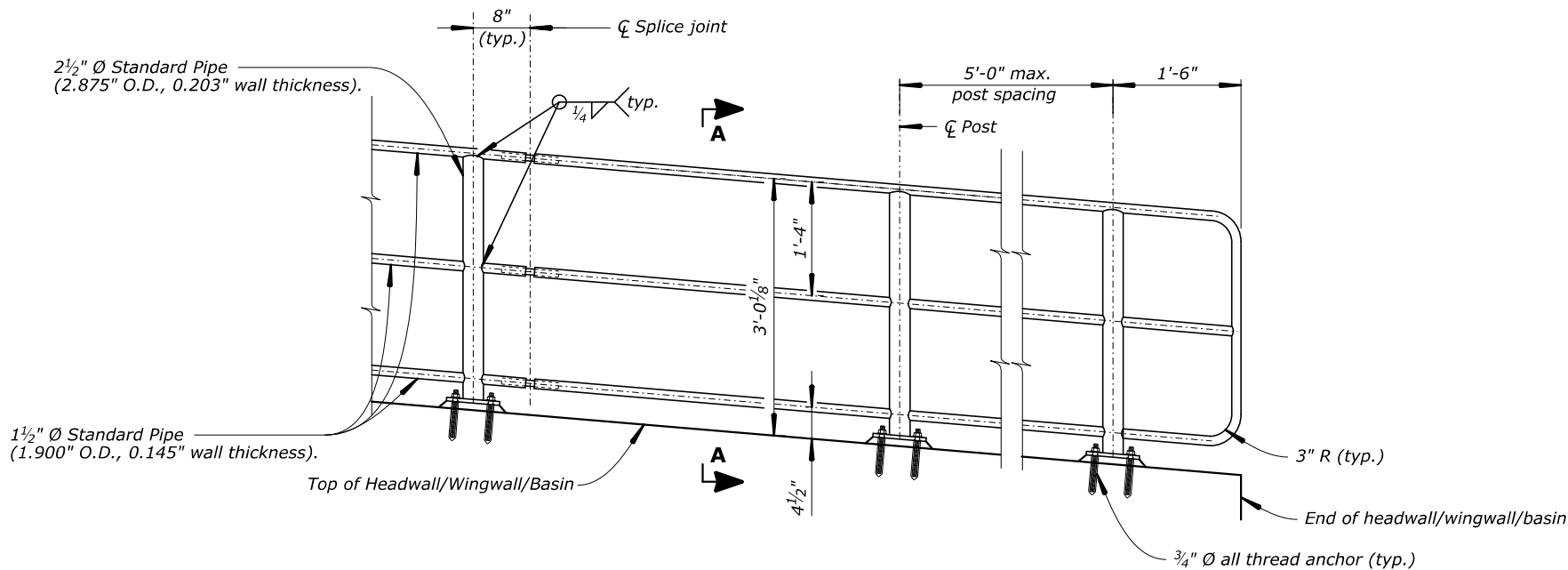
HOT SPRINGS LANDING CULVERT
LAKESHORE ROAD
ELEPHANT BUTTE STATE PARK
SIERRA COUNTY, NEW MEXICO

**APRON DETAILS
DOWNSTREAM**

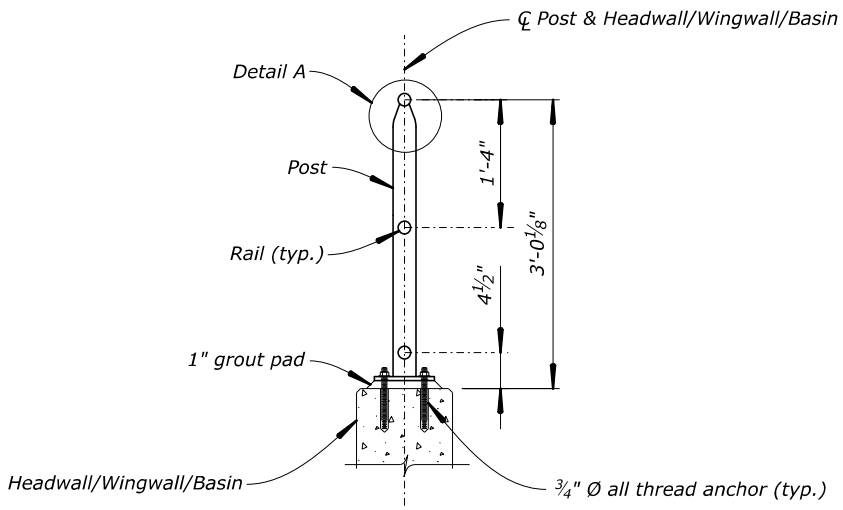
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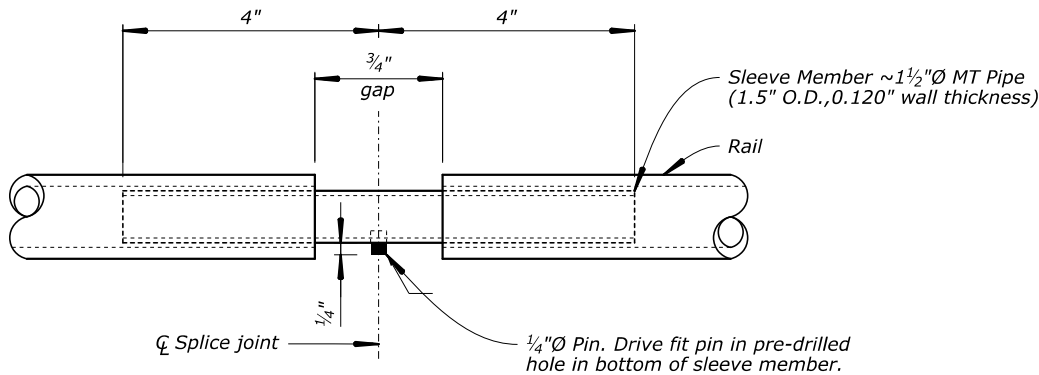
STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S14



ELEVATION

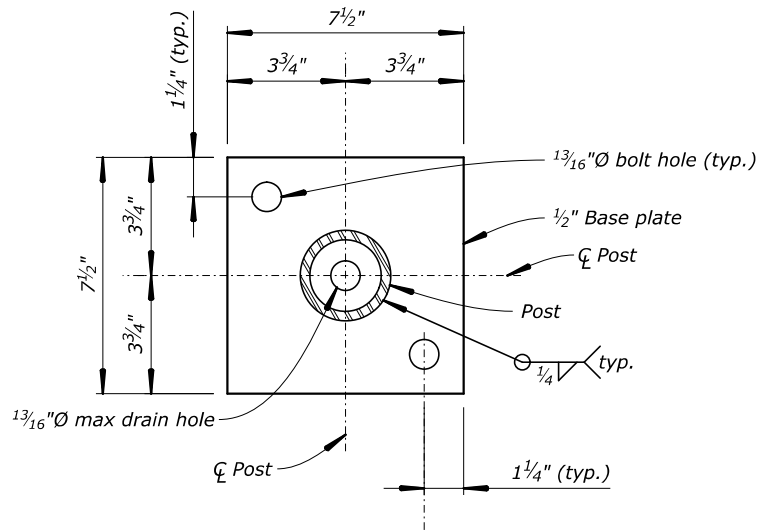


SECTION A-A



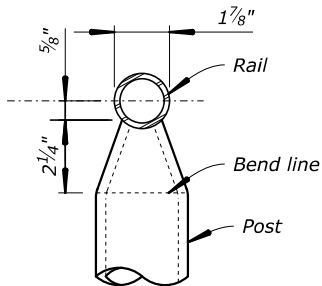
SPLICE JOINTS

No Scale



BASE PLATE DETAIL

No Scale



DETAIL A

No Scale

NOTES

1. Shop fabricate all railing panels.
2. Submit and receive approval of shop drawings by the CO prior to fabrication.
3. Install posts plumb and rails parallel to top of headwalls, wingwalls, and stilling basin.
4. Provide $\frac{3}{4}$ " drain holes on underside of each rail end and at base of posts on other face.
5. Hot dip galvanize all steel members, including fasteners, after fabrication and welding.
6. Provide holes in pipes as needed for galvanizing drainage and venting.
7. Provide a minimum of two posts in sections being spliced.
8. Furnish adhesive anchors providing a minimum factored resistance = 3,000 lbs (tension). Install adhesive anchors per manufacturer's instructions. Submit proposed anchor system to CO for approval.
9. Furnish all thread anchors adhering to ASTM A307, Grade A. Galvanize all hardware.
10. Furnish grout conforming to ASTM C1107.

U.S. DEPARTMENT OF TRANSPORTATION
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CENTRAL FEDERAL LANDS HIGHWAY DIVISION

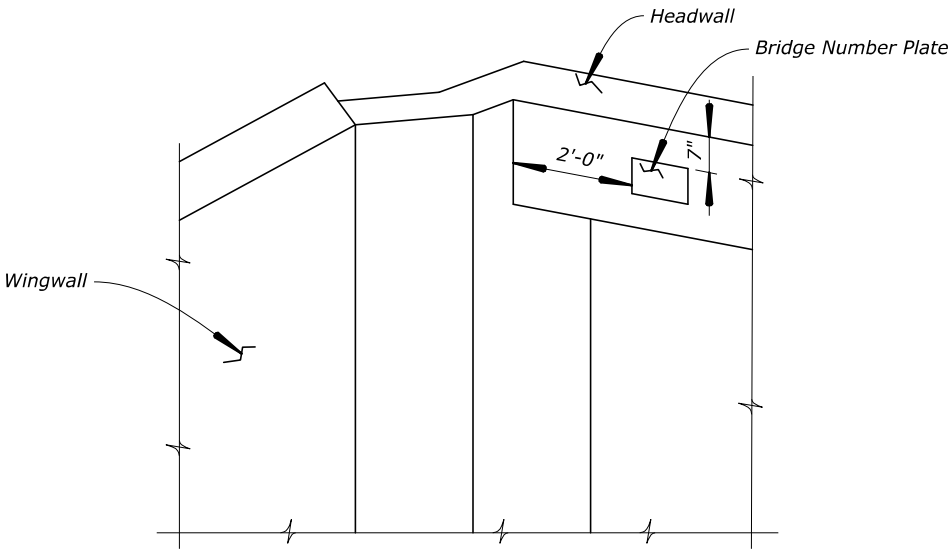
HOT SPRINGS LANDING CULVERT
LAKESHORE ROAD
ELEPHANT BUTTE STATE PARK
SIERRA COUNTY, NEW MEXICO

RAILING DETAILS

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								S. FEUZE	B. ROBINSON	N. MARSHALL	$\frac{1}{2}$ " = 1'-0" UNLESS NOTED	SAMIR SIDHOM	14 of 18	OCTOBER 2022	RG3200- N

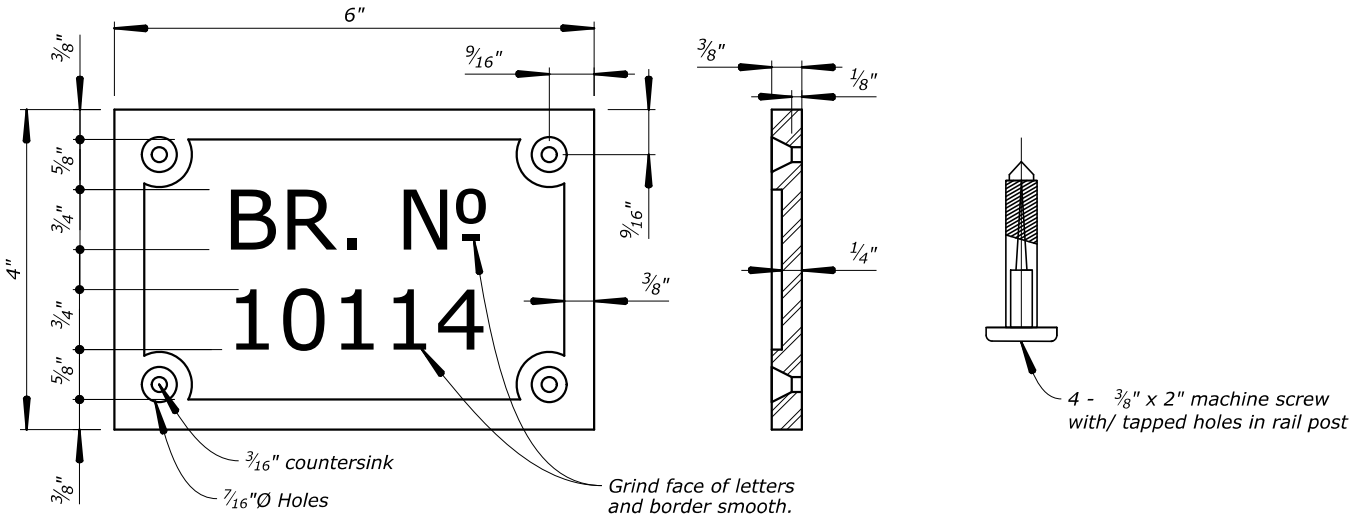
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STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S15



NUMBER PLATE PLACEMENT ON
CONCRETE BOX CULVERT

- NOTES:**
- 1. Furnish galvanized, cast iron plates with raised block letters of neat square cut design. Grind face of letters and borders smooth.
 - 2. Furnish galvanized, flat head bolts placed in expansion shields.
 - 3. Place number plate on the vertical face of headwalls at each end of CBC.



BRIDGE NUMBER PLATE DETAILS

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

HOT SPRINGS LANDING CULVERT
LAKESHORE ROAD
ELEPHANT BUTTE STATE PARK
SIERRA COUNTY, NEW MEXICO

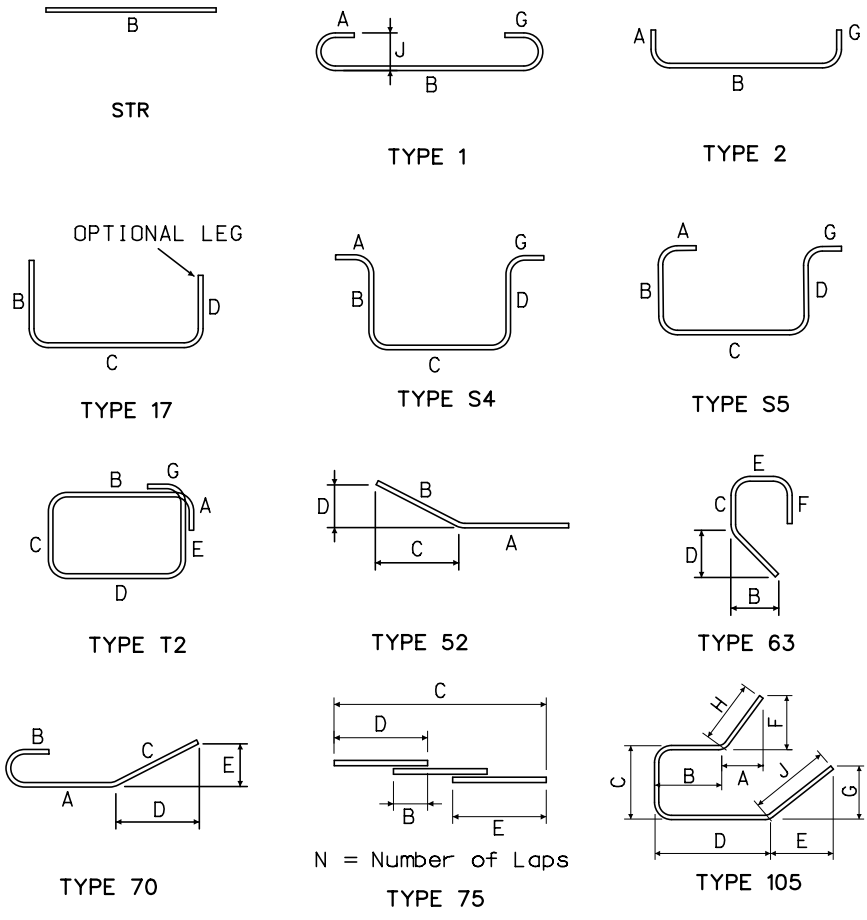
BRIDGE NUMBER PLATE

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								S. FEUZE	B. ROBINSON	N. MARSHALL	NONE	SAMIR SIDHOM	15 of 18	OCTOBER 2022	RG3200-O

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REINFORCING STEEL SCHEDULE								DIMENSION TABLE												
CULVERT																				
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N
*4B1	4	T2	0'-2"	Stirrups @ headwall	46	5'-7"	172	0'-4½"	1'-9"	0'-8"	1'-9"	0'-8"		0'-4½"						
*4B2	4	75		Horiz.	119	126'-6"	10056		1'-11"	122'-8"	60'-0"	6'-6"								2
*6B3	6	17	0'-4½"	Vert.	980	8'-2"	12021		4'-1"	4'-1"										
*6B4	6	STR		Vert.	492	6'-4½"	4711		6'-4½"											
*6B5	6	STR		Horiz.top & bot.	492	21'-5"	15827		21'-5"											
*4B6	4	2	0'-3"	Vert.	248	7'-8½"	1277	0'-8"	6'-4½"					0'-8"						
*7B7	7	STR		Horiz.top	124	10'-9"	2725		10'-9"											
*8B8	8	STR		Horiz.bot.	124	10'-9"	3559		10'-9"											
*5B9	5	52	0'-3¾"	Dowels upstream	23	4'-0"	96	2'-0"	2'-0"	1'-11¾"	0'-3½"									
*4B10	4	T2	0'-2"	Stirrups @ toewall	23	7'-3"	111	0'-4½"	2'-7"	0'-8"	2'-7"	0'-8"		0'-4½"						
*5B11	5	52	0'-3¾"	Dowels downstream	23	4'-0"	96	2'-0"	2'-0"	1'-10¾"	0'-8½"									
*8B12	8	STR		Horiz.top & bot.	248	21'-5"	14181		21'-5"											
*5B13	5	STR		Horiz.@ headwall	12	21'-5"	268		21'-5"											
*5B14	5	STR		Long.bott.@ wingwall	12	3'-0"	38		3'-0"											
*5B15	5	52	0'-3¾"	Horiz.@ wingwall	16	4'-0½"	67	2'-6¾"	1'-6"	1'-3½"	0'-9½"									
*6B16	6	1	0'-4½"	Vert.@ wingwall	4	8'-10"	53	0'-8"	8'-2"							0'-6"				
*4B17	4	63	0'-3"	Trans.bott.@ wingwall	4	5'-3½"	14		0'-8"	0'-6½"	0'-7½"	0'-10"	3'-0¼"							
*4B18	4	105	0'-3"	Stirrups @ wingwall	16	5'-10½"	63	1'-6¼"	0'-11½"	0'-4"	0'-11½"	1'-7¾"	0'-11"	0'-11¾"	1'-9"	1'-10¾"				
*5B19	5	52	0'-3¾"	Horiz.@ basin	16	4'-0"	67	2'-0"	2'-0"	1'-10½"	0'-8½"									
*5B20	5	70	0'-3¾"	Horiz.@ basin	8	3'-11"	33	0'-9½"	0'-5"	2'-3½"	2'-0½"	1'-1"								
SUBTOTAL					65434 LBS															
BASIN																				
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N
*6C1	6	STR		Vert.f.f.	36	9'-10"	532		9'-10"											
*4C2	4	STR		Vert.of.	36	9'-10"	236		9'-10"											
*6C3	6	STR		Vert.f.f.	20	10'-7"	318		10'-7"											
*4C4	4	STR		Vert.of.	20	10'-7"	141		10'-7"											
*4C5	4	STR		Horiz.b.f.	86	20'-9"	1192		20'-9"											
*4C6	4	STR		Horiz.b.f.	86	9'-2"	527		9'-2"											
*4C7	4	52	0'-3"	Horiz.	90	4'-0"	240	2'-0"	2'-0"	1'-9½"	0'-11¼"									
*5C8	5	STR		Trans.top	28	21'-10"	638		21'-10"											
*4C9	4	STR		Trans.bot.	28	21'-10"	408		21'-10"											
*4C10	4	52	0'-3"	Long.top	33	3'-0"	66	1'-6"	1'-6"	1'-4"	0'-8½"									
*4C11	4	105	0'-3"	Stirrups @ wingwalls	16	7'-1"	76	1'-3½"	1'-9½"	0'-5"	1'-10¾"	1'-3½"	0'-9½"	0'-9½"	1'-6"	1'-6"				
*4C12	4	17	0'-3"	Stirrups	32	3'-8"	78		2'-5¼"	1'-3"										
*4C13	4	S4	0'-2"	Stirrups	46	3'-10"	118	0'-4½"	1'-4½"	0'-4"	1'-4½"			0'-4½"						
*4C14	4	S5	0'-2"	Stirrups	21	3'-2"	44	0'-4½"	1'-0½"	0'-4"	1'-0½"			0'-4½"						
*4C15	4	STR		Trans.top	2	20'-2"	27		20'-2"											
*6C16	6	1	0'-4½"	Vert.	4	10'-4"	62	0'-8"	9'-8"							0'-6"				
*4C17	4	T2	0'-2"	Stirrups	60	7'-3"	291	0'-4½"	2'-7"	0'-8"	2'-7"	0'-8"		0'-4½"						
*4C18	4	STR		Horiz.b.f.	4	10'-2"	27		10'-2"											
*5C19	5	52	0'-3¾"	Dowels	33	2'-5"	83	1'-6"	0'-10¾"	0'-9½"	0'-5¼"									
*5C20	5	52	0'-3¾"	Horiz.@ wingwall	16	3'-9½"	63	2'-3½"	1'-6"	1'-3½"	0'-9½"									
SUBTOTAL					5168 LBS															
UPSTREAM WINGWALL																				
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N
*4W1	4	17	0'-3"	Vert.of.	2 sets of 14	11'-8" to 4'-1½" at 0'-7" Incr.	145		8'-0½" to 2'-11" at 0'-4¾" Incr.	3'-7¼" to 1'-2½" at 0'-2¼" Incr.										
*6W2	6	17	0'-4½"	Vert.f.f.	2 sets of 14	10'-6½" to 5'-5" at 0'-4¾" Incr.	329		8'-0½" to 2'-11" at 0'-4¾" Incr.	2'-6"										
*4W3	4	STR		Horiz.b.f.	4	14'-3"	38		14'-3"											
NO.	DATE	BY	REVISIONS				NO.	DATE	BY	REVISIONS				DESIGNED BY		DRAWN BY		CHECKED BY		
														S. FEUZE		B. ROBINSON		N. MARSHALL		

STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S16



- NOTES**
- Dimensions in bending diagrams are out-to-out of bars
 - All "E" bars are epoxy coated.

ABBREVIATIONS:

f.f. = Fill face
o.f. = Other face
b.f. = Both faces

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

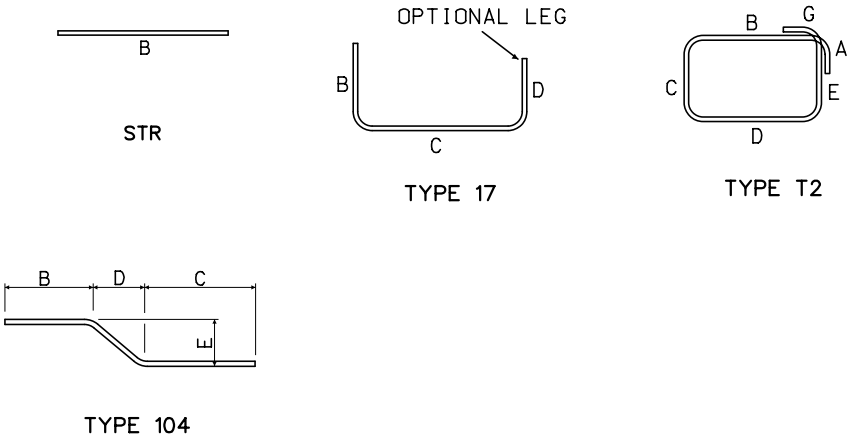
HOT SPRINGS LANDING CULVERT
LAKESHORE ROAD
ELEPHANT BUTTE STATE PARK
SIERRA COUNTY, NEW MEXICO

REBAR LIST 1 OF 3

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10/7/2022

REINFORCING STEEL SCHEDULE						DIMENSION TABLE															
UPSTREAM WINGWALL						(CONTINUED)															
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N	
*5W4	5	STR		Trans.top	2 sets of 12	7'-3" to 5'-3" at 0'-2/4" Incr.	156		7'-3" to 5'-23/4" at 0'-2/4" Incr.												
*4W5	4	STR		Long.top & bot.	4 sets of 2	6'-0/2" to 10'-1/2" at 4'-1" Incr.	43		6'-0/2" to 10'-1/2" at 4'-1" Incr.												
*4W6	4	STR		Long.top & bot.	12	14'-6/2"	117		14'-6/2"												
*4W7	4	STR		Horiz.bf.	16	13'-3"	142		13'-3"												
*4W8	4	STR		Horiz.bf.	4 sets of 5	2'-2" to 12'-3/2" at 2'-6/2" Incr.	97		2'-2" to 12'-3/2" at 2'-6/2" Incr.												
*4W9	4	STR		Long.sides	4	13'-4"	36		13'-4"												
*4W10	4	104	0'-3"	Trans.bot.	24	4'-0"	64		1'-7"	1'-5/4"	0'-8"	0'-8/2"									
SUBTOTAL						1175 LBS															
DOWNSTREAM WINGWALL																					
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N	
*4W1	4	17	0'-3"	Vert.of.	2 sets of 10	11'-6" to 5'-3" at 0'-8/4" Incr.	110		7'-11/2" to 4'-0" at 0'-5/4" Incr.	3'-6/4" to 1'-23/4" at 0'-3" Incr.											
*6W2	6	17	0'-4/2"	Vert.f.f.	2 sets of 10	10'-5/2" to 6'-6" at 0'-5/4" Incr.	250		7'-11/2" to 4'-0" at 0'-5/4" Incr.	2'-6"											
*5W3	5	STR		Trans.top	2 sets of 8	7'-3/2" to 5'-5/2" at 0'-3/4" Incr.	106		7'-3/4" to 5'-53/4" at 0'-3" Incr.												
*4W4	4	STR		Horiz.bf.	4 sets of 4	1'-3" to 8'-2" at 2'-33/4" Incr.	50		1'-3" to 8'-2" at 2'-33/4" Incr.												
*4W5	4	STR		Horiz.bf.	16	9'-5"	101		9'-5"												
*4W6	4	STR		Long.top & bot.	12	11'-10"	95		11'-10"												
*4W7	4	STR		Long.top & bot.	4 sets of 2	4'-4" to 7'-6" at 3'-2" Incr.	32		4'-4" to 7'-6" at 3'-2" Incr.												
*4W8	4	STR		Long.side	4	10'-8"	29		10'-8"												
*4W9	4	STR		Long.top	8	10'-3"	55		10'-3"												
*4W10	4	104	0'-3"	Trans.bot.	16	4'-0"	43		1'-7"	1'-5/4"	0'-8"	0'-8/2"									
SUBTOTAL						876 LBS															
UPSTREAM APRON																					
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N	
*4AP1	4	T2	0'-2"	Stirrups	34	7'-3"	165	0'-4/2"	2'-7"	0'-8"	2'-7"	0'-8"		0'-4/2"							
*4AP2	4	T2	0'-2"	Stirrups @ ends	2	7'-7"	10	0'-4/2"	2'-7"	0'-10"	2'-7"	0'-10"		0'-4/2"							
*4AP3	4	STR		Horiz.of.	3	34'-3"	69		34'-3"												
*4AP4	4	STR		Horiz.f.f.	3	33'-11"	68		33'-11"												
NO.	DATE	BY	REVISIONS				NO.	DATE	BY	REVISIONS				DESIGNED BY		DRAWN BY		CHECKED BY			
														S. FEUZE		B. ROBINSON		N. MARSHALL			

STATE	PROJECT	SHEET NO.
NM	NM FLAP S1E10(1) LAKESHORE ROAD	S17



NOTES

- 1. Dimensions in bending diagrams are out-to-out of bars
- 2. All "E" bars are epoxy coated.

ABBREVIATIONS:

f.f. = Fill face
o.f. = Other face
b.f. = Both faces

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

HOT SPRINGS LANDING CULVERT
LAKESHORE ROAD
ELEPHANT BUTTE STATE PARK
SIERRA COUNTY, NEW MEXICO

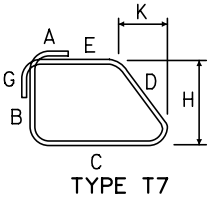
REBAR LIST 2 OF 3

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10/7/2022

REINFORCING STEEL SCHEDULE						DIMENSION TABLE														
UPSTREAM APRON						(CONTINUED)														
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N
*4AP5	4	STR		Long.top	2 sets of 5	2'-7½" to 9'-6½" at 1'-8¾" Incr.	41		2'-7½" to 9'-6½" at 1'-8¾" Incr.											
*4AP6	4	STR		Long.top	18	12'-7½"	152		12'-7½"											
*4AP7	4	STR		Trans.top	1 sets of 10	18'-6" to 28'-10½" at 1'-1¾" Incr.	158		18'-6" to 28'-10½" at 1'-1¾" Incr.											
*4AP8	4	STR		Trans.top	1	18'-10½"	13		18'-10½"											
*4AP9	4	STR		Trans.top	1 sets of 2	20'-9½" to 20'-1" at 0'-8½" Incr.	27		20'-9½" to 20'-1" at 0'-8½" Incr.											
SUBTOTAL						702 LBS														
DOWNSTREAM APRON																				
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N
*4AP1	4	T7	0'-2"	Stirrups	30	6'-7½"	133	0'-4½"	0'-8"	2'-4¾"	0'-8"	2'-1¾"		0'-4½"			0'-3"			
*4AP2	4	T7	0'-2"	Stirrups @ ends	2	7'-5"	10	0'-4½"	0'-10"	2'-7"	0'-9¾"	2'-5¼"		0'-4½"			0'-2"			
*4AP3	4	STR		Horiz.of.	3	31'-1½"	62		31'-1½"											
*4AP4	4	STR		Horiz.f.f.	3	30'-5"	61		30'-5"											
*4AP5	4	STR		Long.top	2 sets of 3	3'-6½" to 7'-5" at 1'-11¼" Incr.	22		3'-6½" to 7'-5" at 1'-11¼" Incr.											
*4AP6	4	STR		Long.top	18	10'-7"	127		10'-7"											
*4AP7	4	STR		Trans.top	1	25'-8"	17		25'-8"											
*4AP8	4	STR		Trans.top	1 sets of 8	17'-11" to 25'-2" at 1'-0½" Incr.	115		17'-11" to 25'-2" at 1'-0½" Incr.											
*4AP9	4	STR		Trans.top	1 sets of 2	20'-2" to 21'-4" at 1'-2" Incr.	28		20'-2" to 21'-4" at 1'-2" Incr.											
SUBTOTAL						575 LBS														

B

STR



TYPE T7

NOTES

1. Dimensions in bending diagrams are out-to-out of bars
2. All "E" bars are epoxy coated.

ABBREVIATIONS:

- f.f. = Fill face
- o.f. = Other face
- b.f. = Both faces

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

HOT SPRINGS LANDING CULVERT
LAKESHORE ROAD
ELEPHANT BUTTE STATE PARK
SIERRA COUNTY, NEW MEXICO

REBAR LIST 3 OF 3

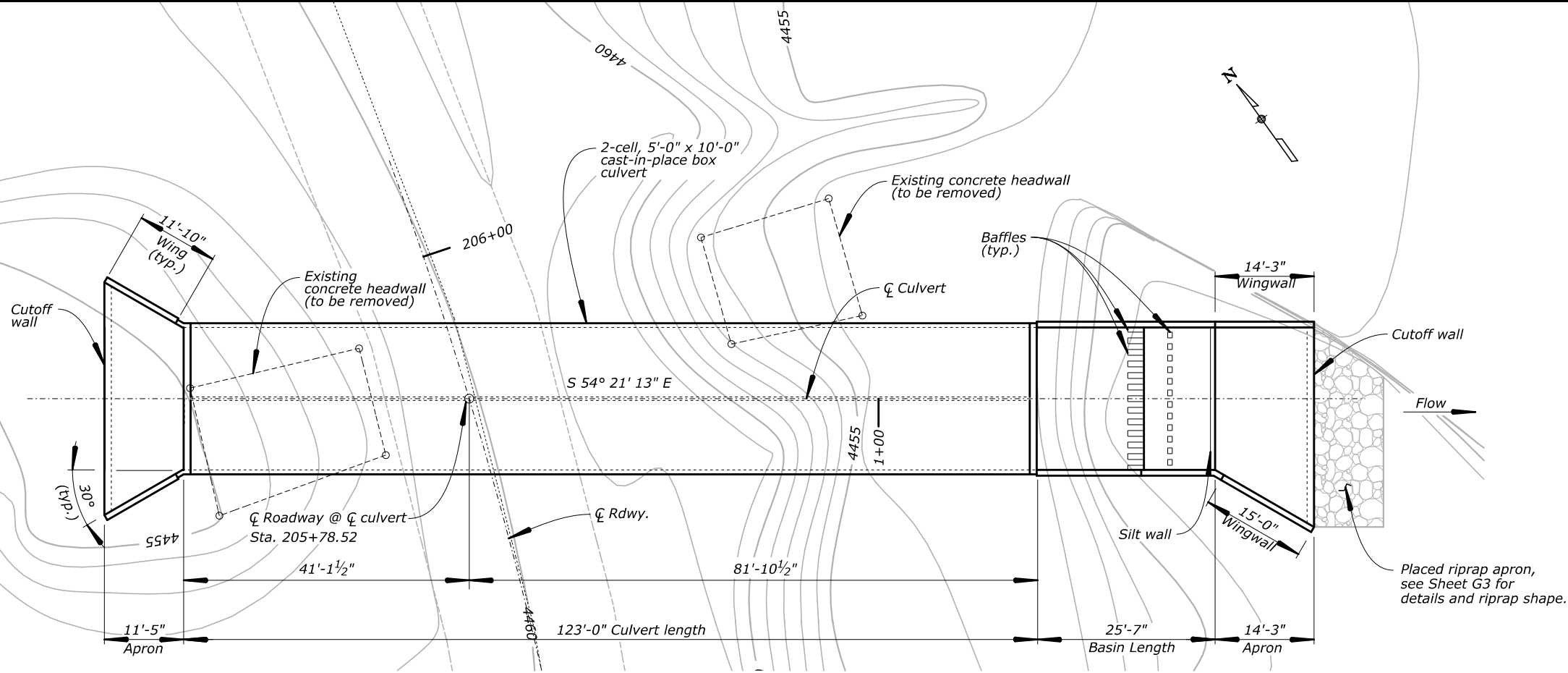
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								S. FEUZE	B. ROBINSON	N. MARSHALL	NONE	SAMIR SIDHOM	18 of 18	OCTOBER 2022	RG3200- R

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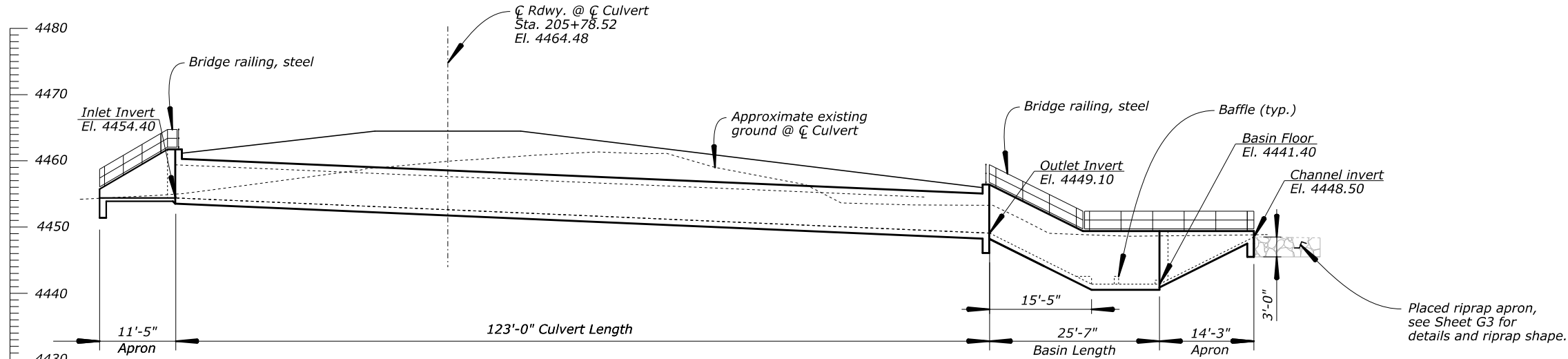
STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S19

Drawing No.	Description
RG3201-A	PLAN AND ELEVATION
RG3201-B	GENERAL NOTES & ESTIMATE
RG3201-C	EXCAVATION & BACKFILL DETAILS
RG3201-D	TYPICAL SECTION
RG3201-E	HEADWALL DETAILS (UPSTREAM)
RG3201-F	HEADWALL DETAILS (DOWNSTREAM)
RG3201-G	STILLING BASIN DETAILS (1 OF 3)
RG3201-H	STILLING BASIN DETAILS (2 OF 3)
RG3201-I	STILLING BASIN DETAILS (3 OF 3)
RG3201-J	WINGWALL DETAILS (UPSTREAM)
RG3201-K	NORTH WINGWALL DETAILS (DOWNSTREAM)
RG3201-L	SOUTH WINGWALL DETAILS (DOWNSTREAM)
RG3201-M	APRON DETAILS (UPSTREAM)
RG3201-N	APRON DETAILS (DOWNSTREAM)
RG3201-O	RAILING DETAILS
RG3201-P	BRIDGE NUMBER PLATE
RG3201-Q	REBAR LIST (1 OF 4)
RG3201-R	REBAR LIST (2 OF 4)
RG3201-S	REBAR LIST (3 OF 4)
RG3201-T	REBAR LIST (4 OF 4)

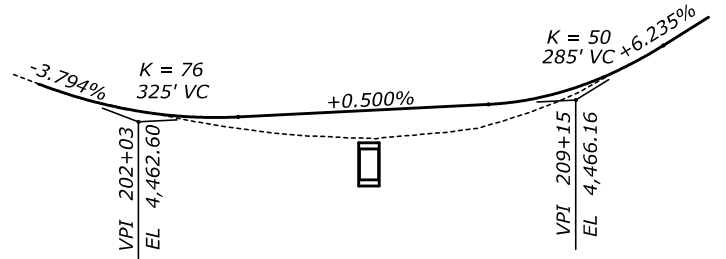
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	ft ³ /sec	ft/sec.	Elev.
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Q ₁₀	724	21.4	4459.7
Q ₁₀₀	877	22.1	4460.7
Q ₂₀₀	1,093	23.1	4462.2



PLAN



ELEVATION



PROFILE GRADE DIAGRAM

No Scale
Elevations are at profile grade @ ϕ Rdwy.

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

ROCK CANYON CULVERT
LAKESHORE ROAD
ELEPHANT BUTTE STATE PARK
SIERRA COUNTY, NEW MEXICO

PLAN AND ELEVATION

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								S. FEUZE	B. ROBINSON	N. MARSHALL	1"= 20'-0" UNLESS NOTED	SAMIR SIDHOM	1 of 20	OCTOBER 2022	RG3201-A

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STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S20

GENERAL NOTES:

SPECIFICATIONS:

Design:
AASHTO LRFD Bridge Design Specifications, 9th Edition, 2020.

Construction:
Federal Highway Administration Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects, FP-14 and Special Contract Requirements (SCR's).

DESIGN LOADS:

Dead Loads:
Concrete: 150 pcf.
Soil: 125 pcf.

Culvert Design Loads:
Lateral Earth Pressure: equivalent fluid unit weight of soil: 63 pcf (At rest)
Live load: HL-93. Maximum Dynamic Load Allowance, IM=0%.
For a buried structure, IM=33·(1-0.125D_e), Where D_e = min. depth of earth cover.

Wingwall Design Loads:
Lateral Earth Pressure: equivalent fluid unit weight of soil, 42 pcf (Active).
The resultant of all loads is at or within the middle 2/3 of footing width.
Factored bearing resistance Q_r=2.7 kips per square foot. Resistance factor = 0.45 (Strength Limit State)

Seismic Design:
In accordance with AASHTO LRFD Bridge Design Specifications, 2012 Seismic Performance Zone 1 based on peak ground acceleration coefficient (PGA) = 0.074 g.

MATERIALS:

Concrete:
For all cast in place concrete furnish Class A(AE) concrete with a minimum compressive strength f'c = 4.5 ksi at 28 days.
Furnish concrete made with Type II cement. Chamfer exposed edges of all concrete ¾", unless noted otherwise on the plans. Furnish expansion joint filler meeting the requirements of AASHTO M213.
Precast concrete box culverts may be substituted. Submit design drawings and details with supporting calculations according to FP-14 Subsection 104.03.

Reinforcing Steel:
Furnish reinforcing steel conforming to AASHTO M31 or M322, Grade 60 deformed.
Provide 2-inch cover for reinforcing steel unless otherwise noted. Provide minimum splice lengths for all bar sizes as shown on the plans. Bar splices other than those shown on the plans will not be paid for.

Bridge Railing:
Provide steel railing atop headwalls and wingwalls as shown on the plans. Furnish steel conforming to AASHTO M270, Grade 50 (ASTM A709, Grade 50), or ASTM F1083 for circular pipe members.
Weld in conformance to the ANSI/AASHTO/AWS D1.5 or D1.1, as applicable, and by a certified welder.

Structure Excavation:
Perform all necessary excavation work to build the foundation to the required depths. Refer to Geotechnical Report # NM FLAP SIE 10(1) for description of the anticipated materials, including rock, cobbles, and boulders to be encountered during excavation of the culvert site.

GEOTECHNICAL REPORT:
For geotechnical information, see Geotechnical Report: Lakeshore Road, Elephant Butte State Park, Sierra County, NM, Report # NM FLAP SIE 10(1), dated June 2022, prepared by U.S. Department of Transportation, Federal Highway Administration, Central Federal Lands Highway Division.

ESTIMATE				
Item No.	Item	Quantity	Unit	Notes
15215-5000	Survey and staking, box culvert	1	EACH	
20801-0000	Structure excavation	1,150	CUYD	(1)
20803-0000	Structural backfill (native soil)	240	CUYD	(1)
55201-0200	Structural concrete, class A (AE)	287	CUYD	(1)(2)
55401-1000	Reinforcing steel	73,900	LB	(1)
55601-0900	Bridge railing, steel	157	LNFT	(1)
55901-2000	Membrane waterproofing, type 2	325	SQYD	(1)

ESTIMATE NOTES:

- (1) Contract Quantity
- (2) Includes cost of furnishing and installing all bridge number plates, joint fillers, sealants, backer rods and geocomposite sheet drain (estimated quantity = 64 square yd.).

LRFR RATING FACTORS	
INVENTORY-LEVEL	1.11
OPERATING-LEVEL	1.44

Rating generated by NMDOT using the AASHTOWare bridge rating program based on plan details.

U.S. DEPARTMENT OF TRANSPORTATION
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CENTRAL FEDERAL LANDS HIGHWAY DIVISION

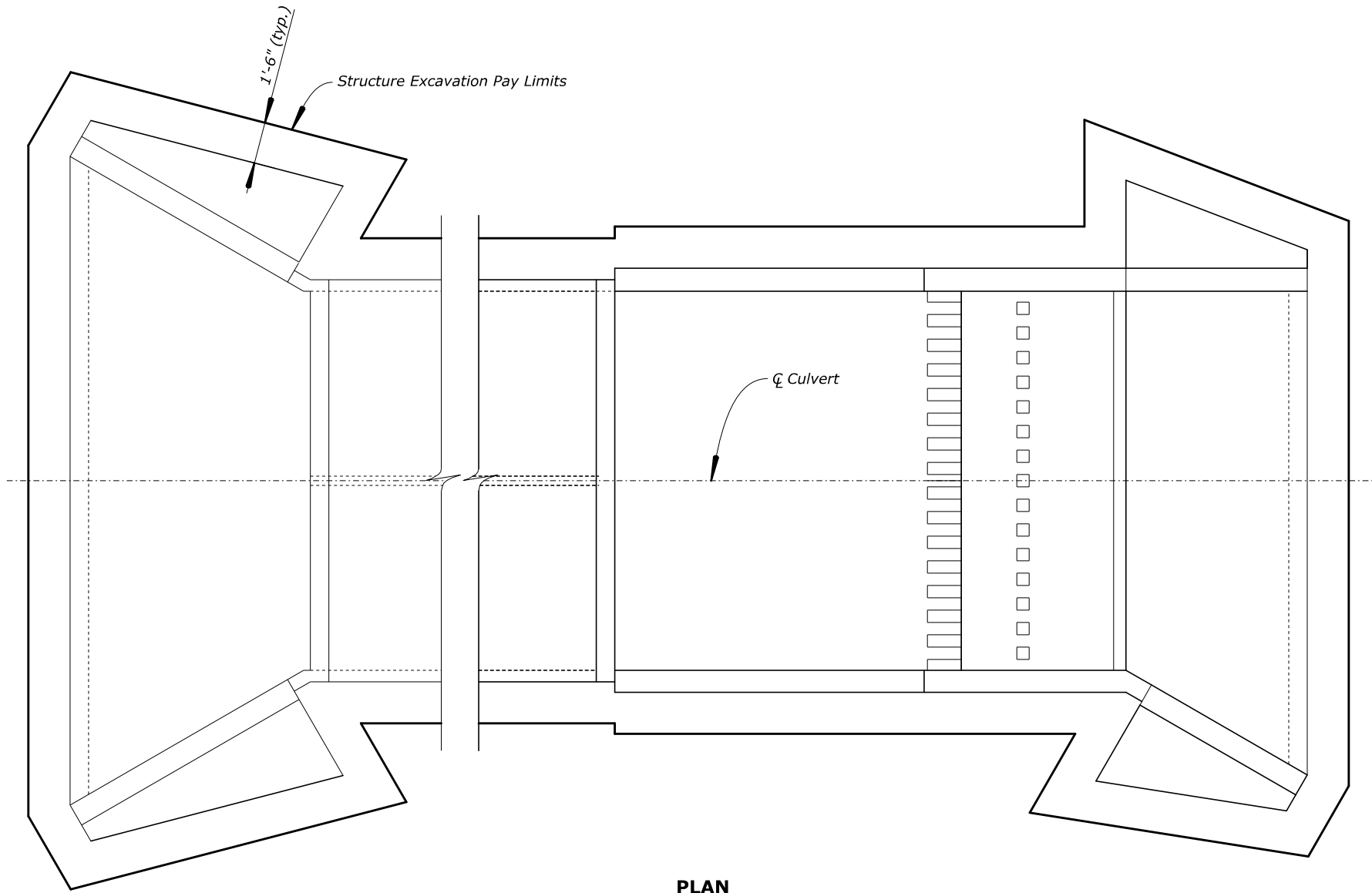
ROCK CANYON CULVERT
LAKESHORE ROAD
ELEPHANT BUTTE STATE PARK
SIERRA COUNTY, NEW MEXICO

GENERAL NOTES & ESTIMATE

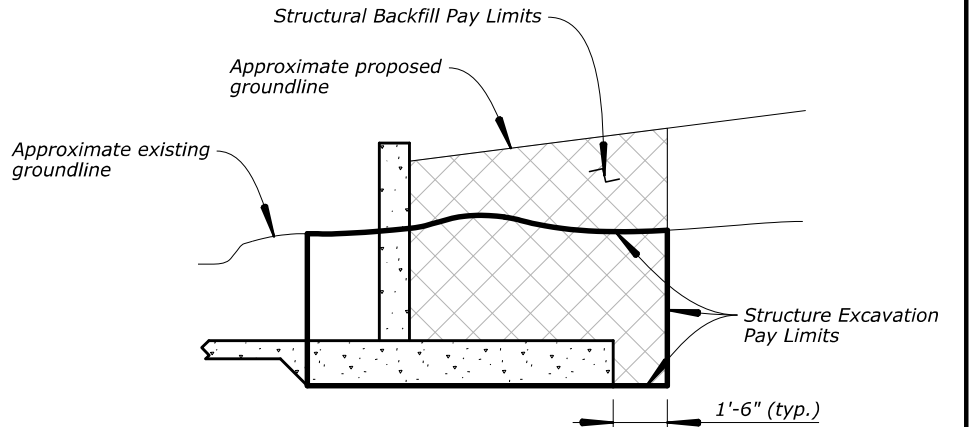
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								S. FEUZE	B. ROBINSON	N. MARSHALL	NONE	SAMIR SIDHOM	2 of 20	OCTOBER 2022	RG3201-B

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STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S21

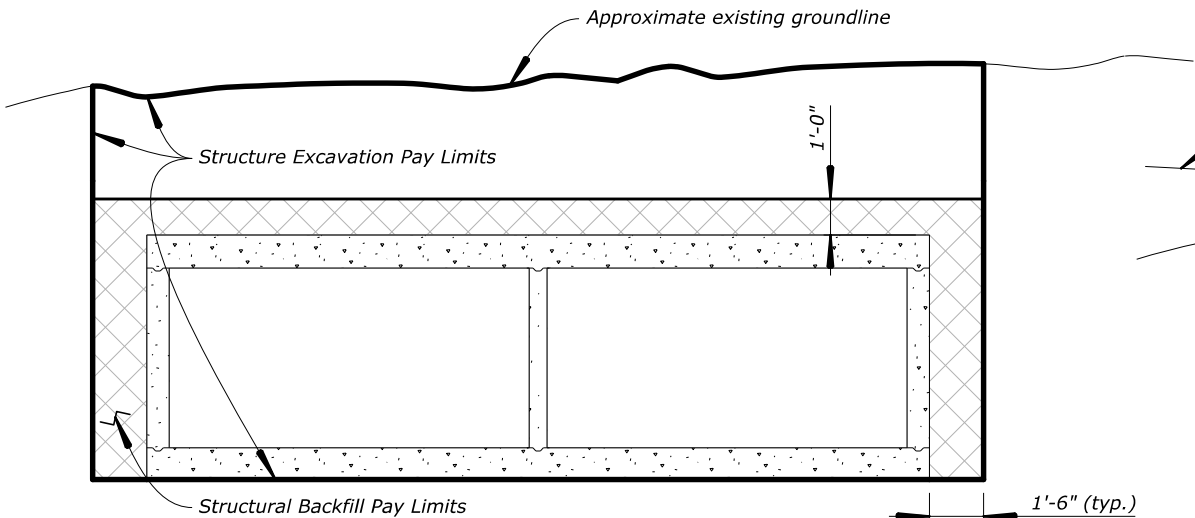


PLAN



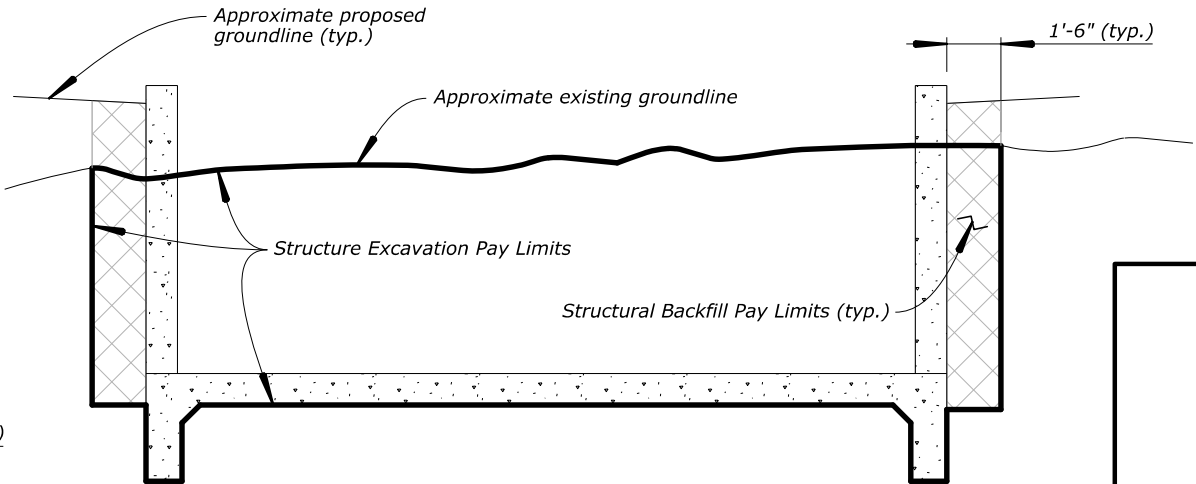
STRUCTURE EXCAVATION & BACKFILL PAY LIMITS (WINGWALL)

No Scale



STRUCTURE EXCAVATION & BACKFILL PAY LIMITS (BOX CULVERT)

No Scale



STRUCTURE EXCAVATION & BACKFILL PAY LIMITS (STILLING BASIN)

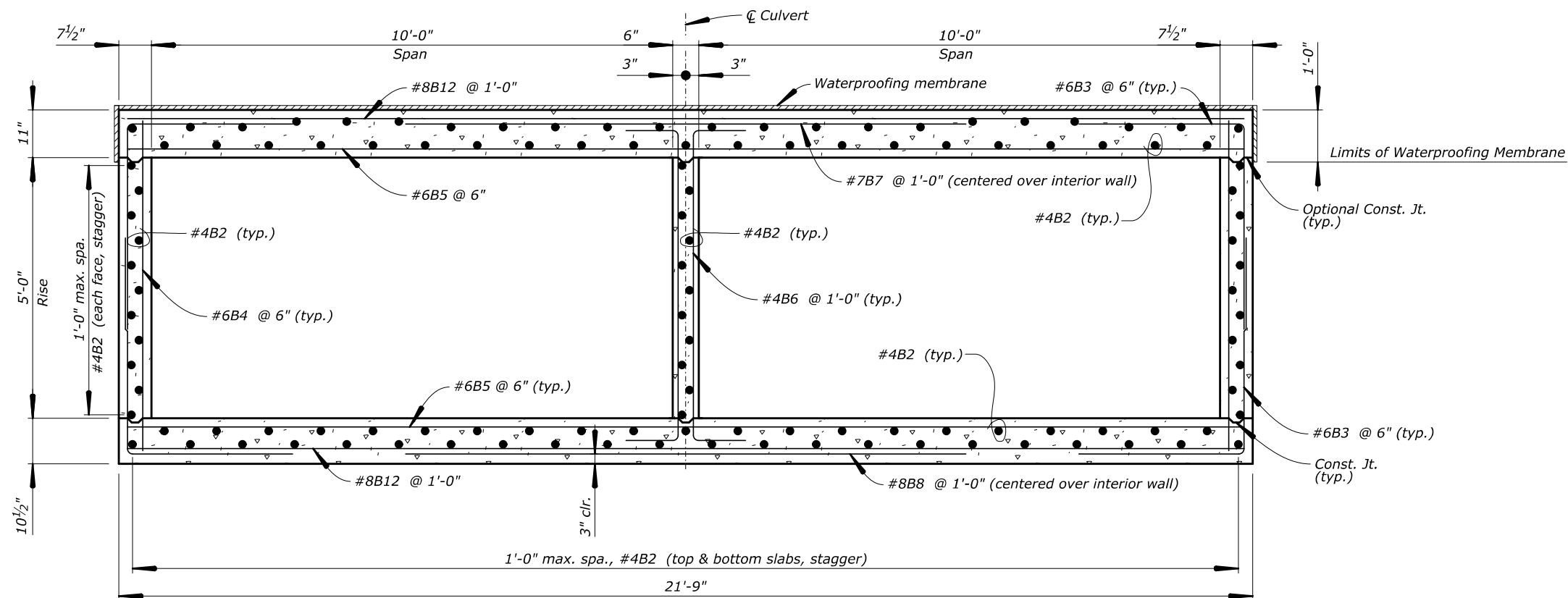
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U.S. DEPARTMENT OF TRANSPORTATION
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CENTRAL FEDERAL LANDS HIGHWAY DIVISION

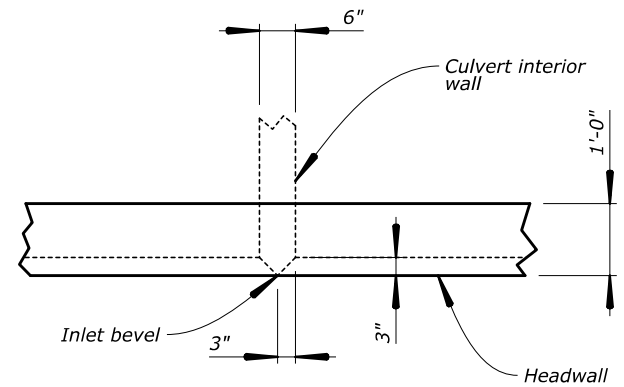
ROCK CANYON CULVERT
LAKESHORE ROAD
ELEPHANT BUTTE STATE PARK
SIERRA COUNTY, NEW MEXICO
**EXCAVATION & BACKFILL
DETAILS**

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								S. FEUZE	B. ROBINSON	N. MARSHALL	$\frac{3}{16}'' = 1'-0''$ UNLESS NOTED	SAMIR SIDHOM	3 of 20	OCTOBER 2022	RG3201- C

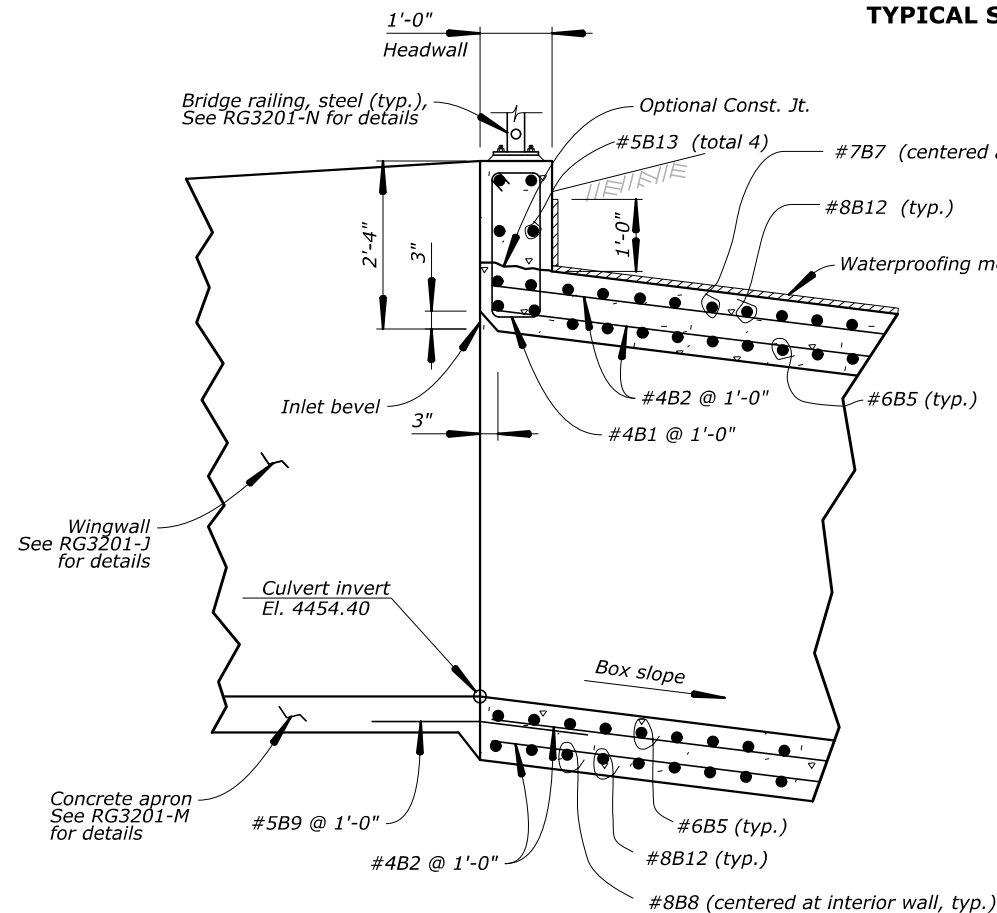
STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S22



TYPICAL SECTION

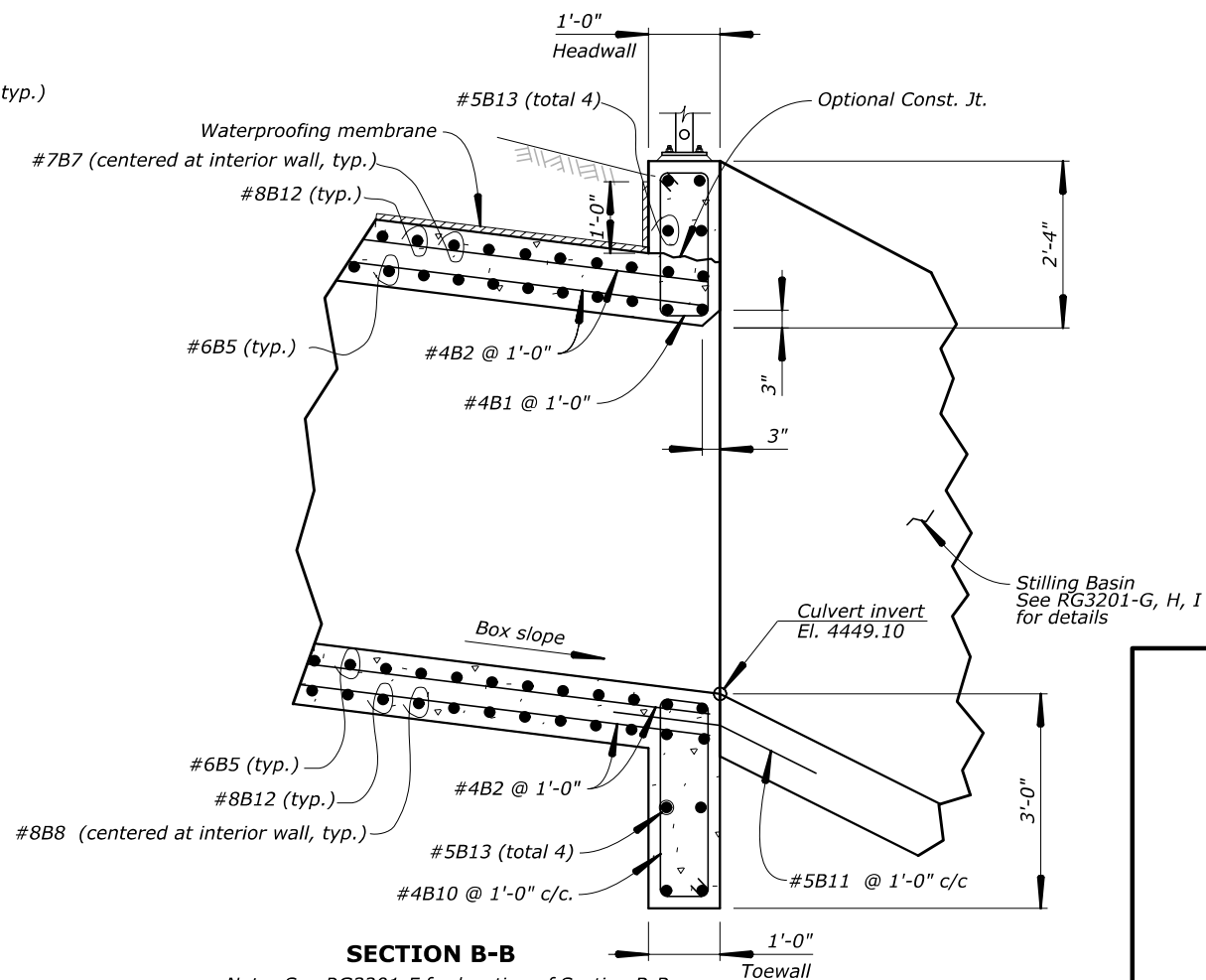


INLET BEVEL - PLAN



SECTION A-A

Note: See RG3201-E for location of Section A-A.

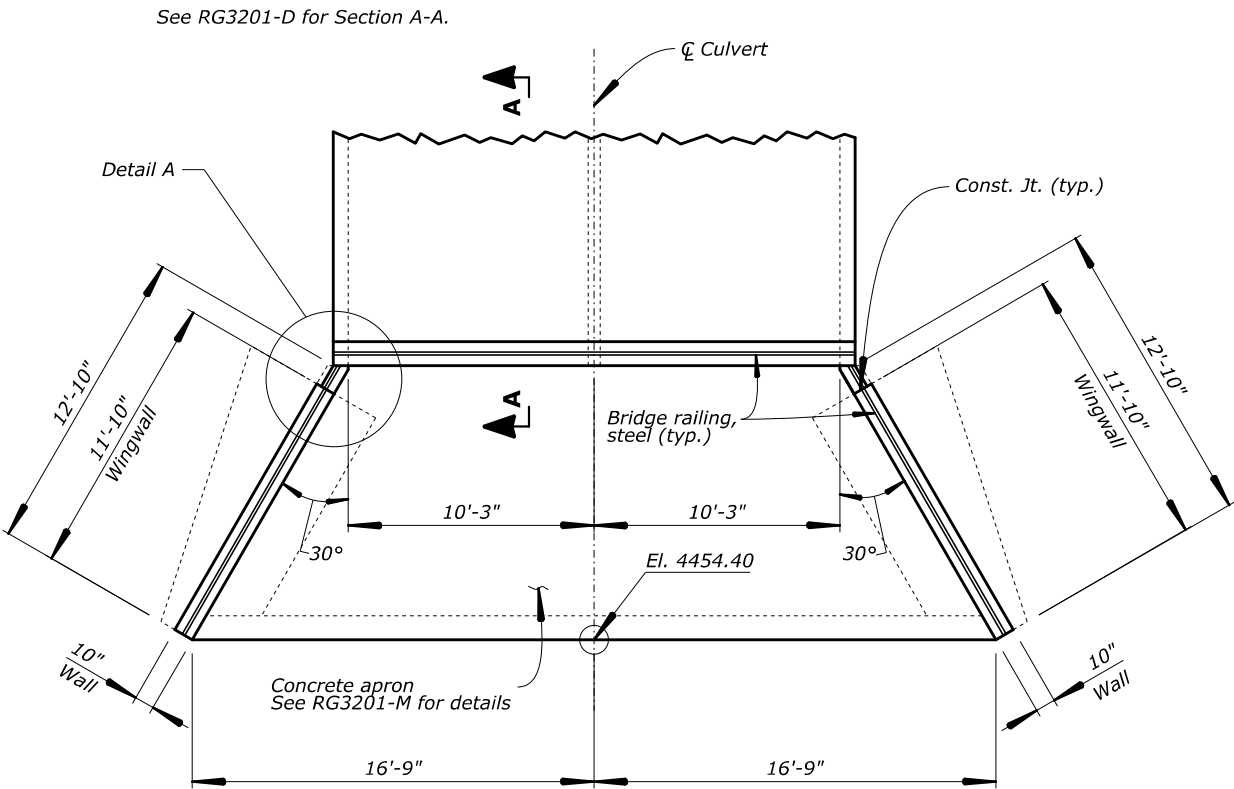


SECTION B-B

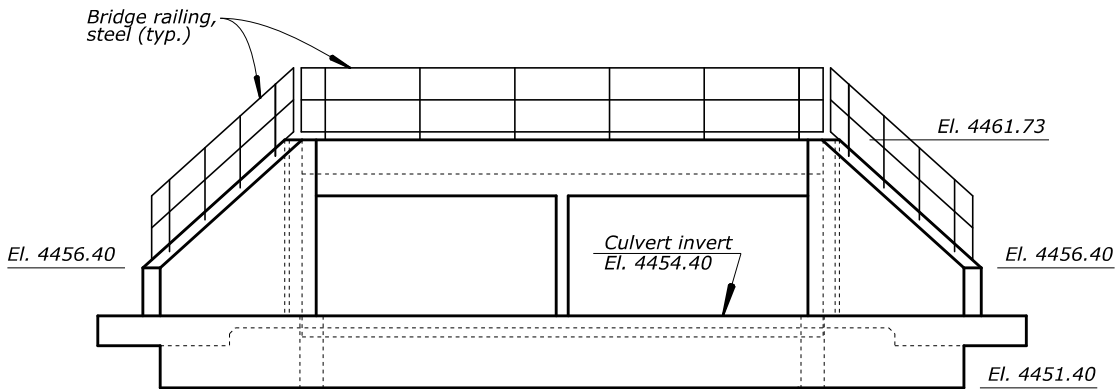
Note: See RG3201-F for location of Section B-B.

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								S. FEUZE	S. FEUZE	N. MARSHALL	$\frac{3}{8}" = 1'-0"$ UNLESS NOTED	SAMIR SIDHOM	4 of 20	OCTOBER 2022	RG3201-D

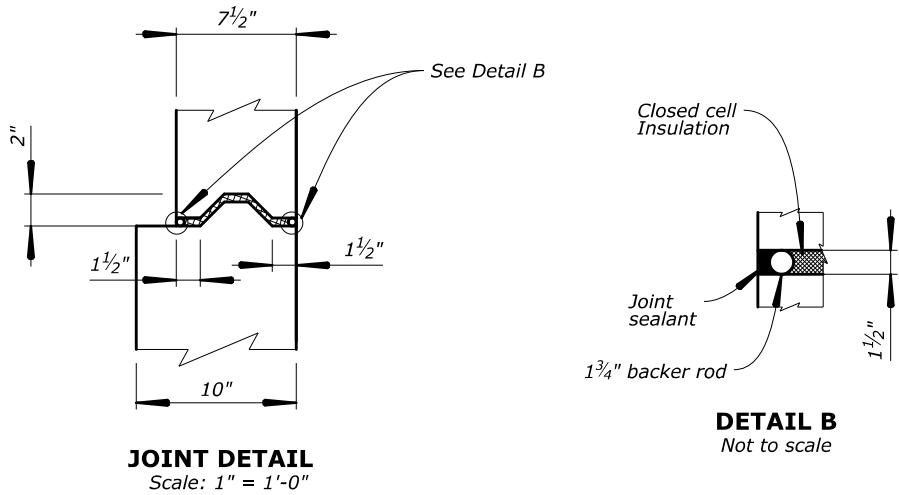
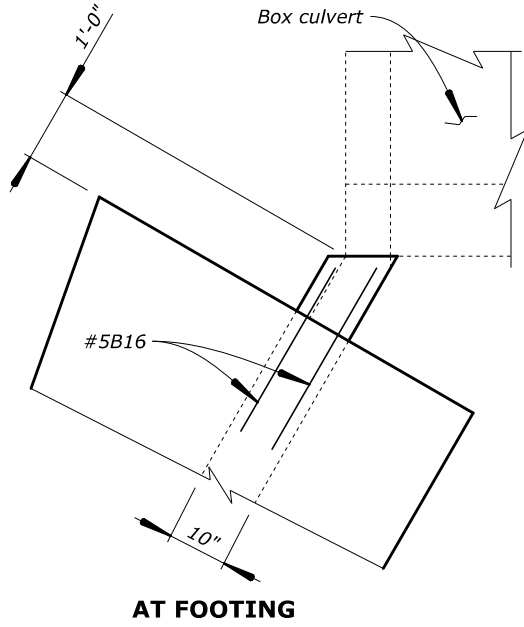
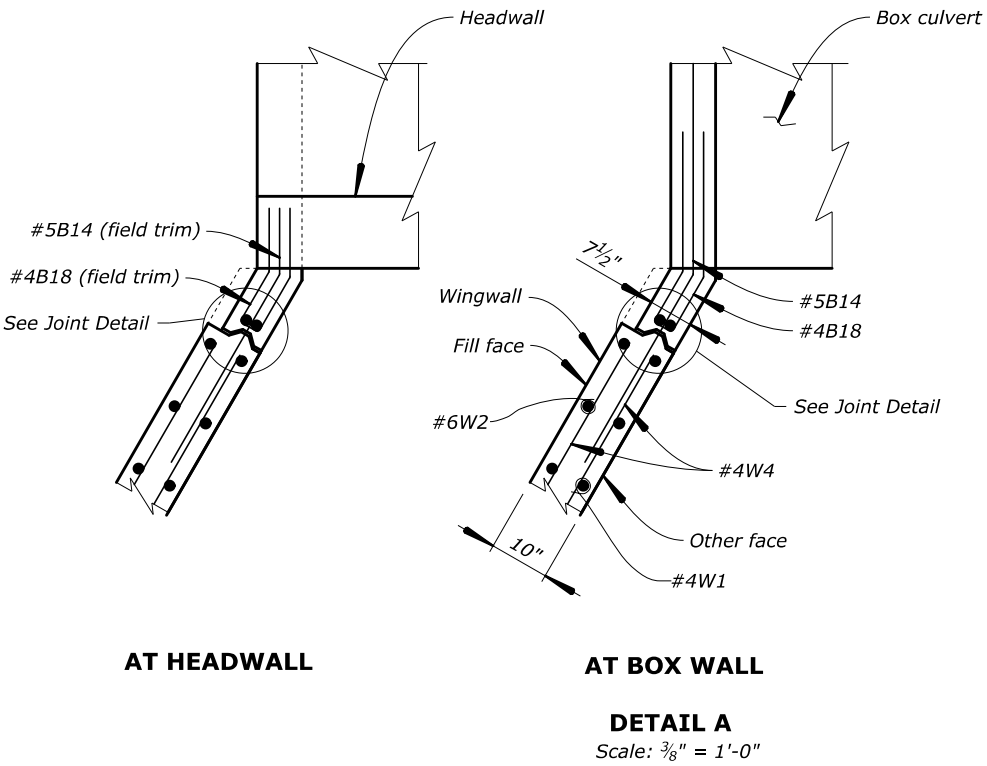
STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S23



PLAN UPSTREAM



ELEVATION UPSTREAM



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

ROCK CANYON CULVERT
LAKESHORE ROAD
ELEPHANT BUTTE STATE PARK
SIERRA COUNTY, NEW MEXICO

HEADWALL DETAILS (UPSTREAM)

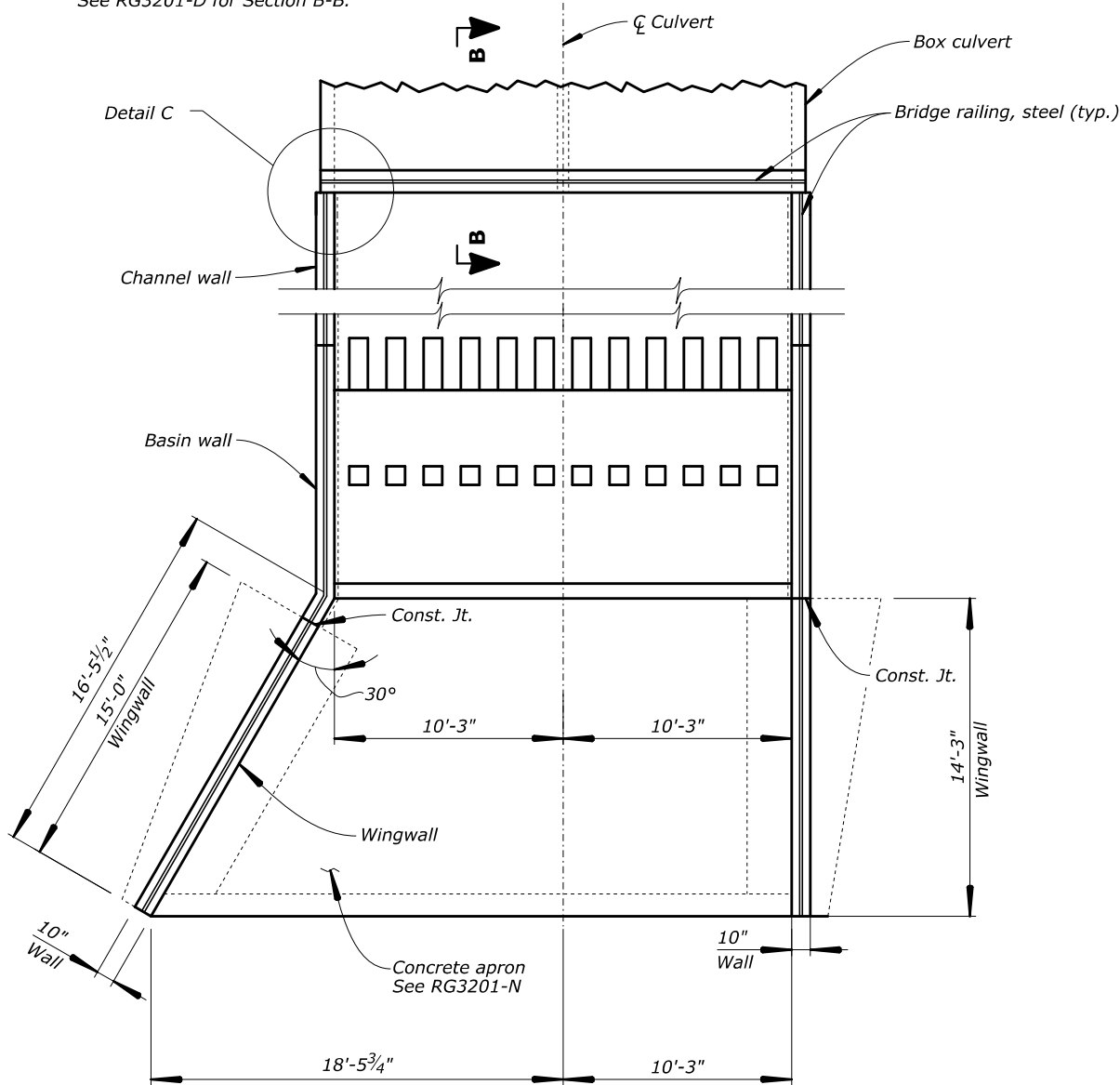
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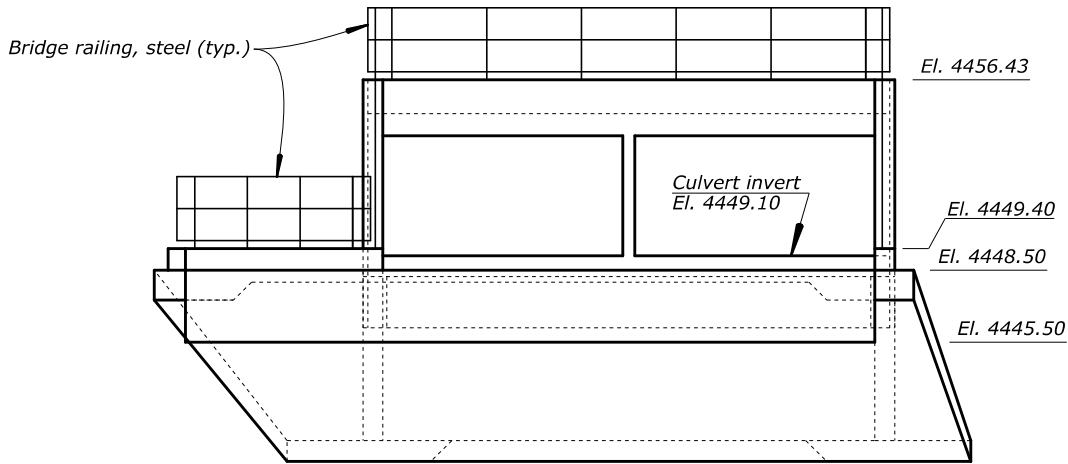
10/7/2022

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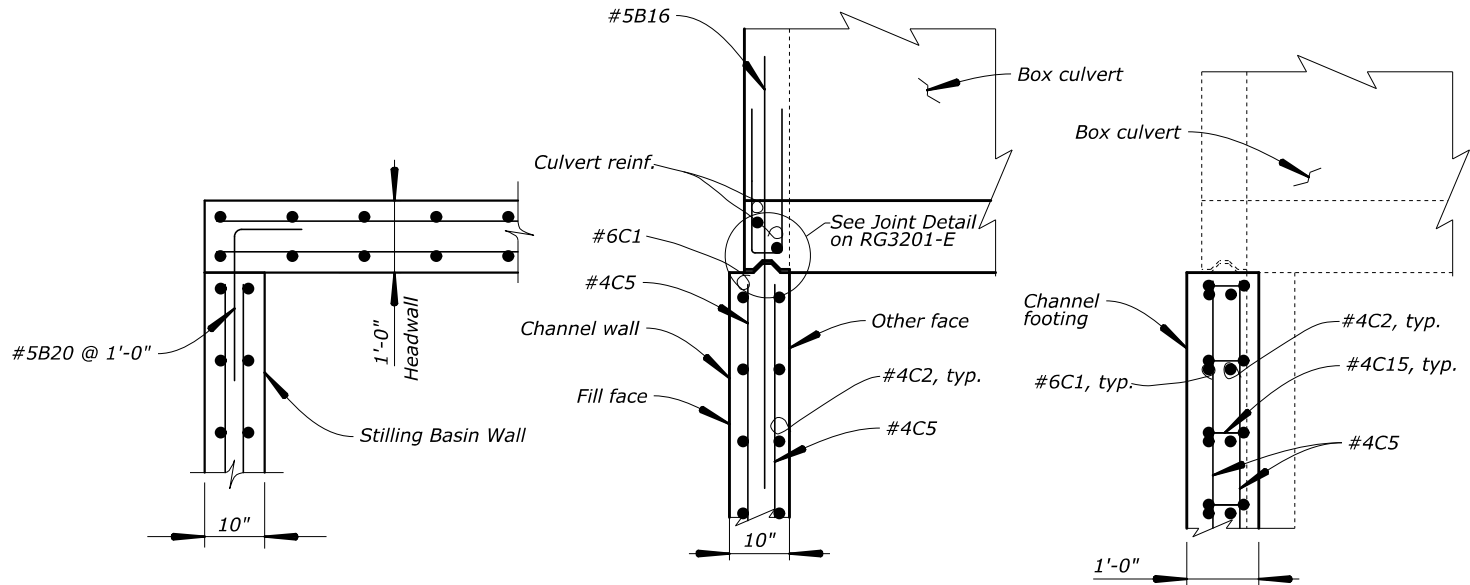
See RG3201-D for Section B-B.



PLAN DOWNSTREAM



ELEVATION DOWNSTREAM

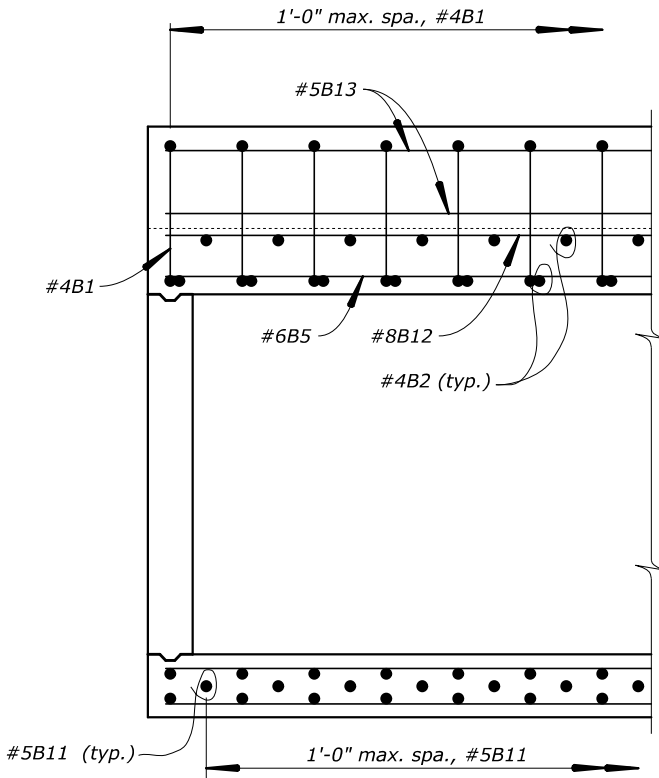


HEADWALL

WALL

FOOTING

DETAIL C
Scale: 3/8" = 1'-0"



HEADWALL ELEVATION

Scale: 3/8" = 1'-0"

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FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

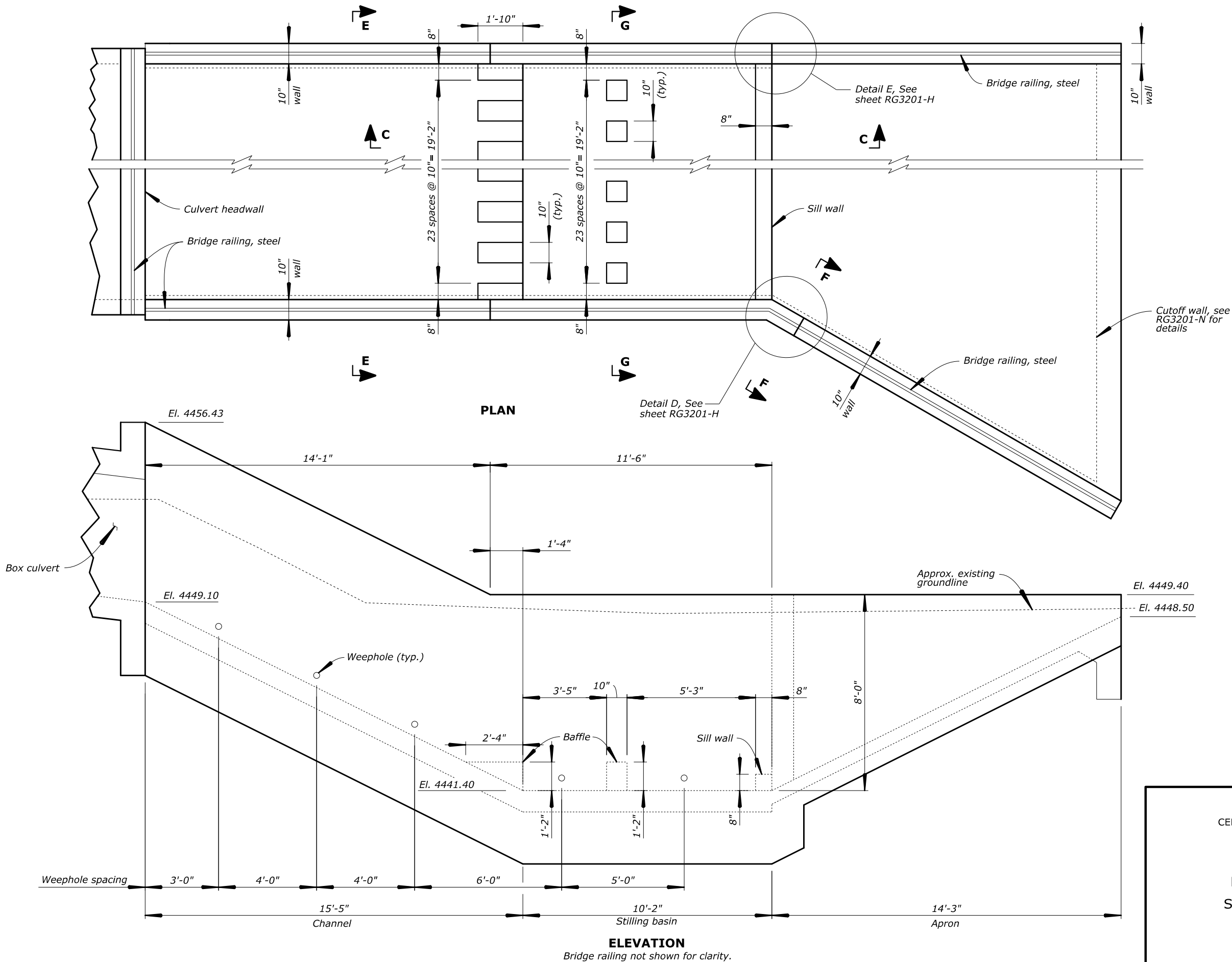
ROCK CANYON CULVERT
LAKESHORE ROAD
ELEPHANT BUTTE STATE PARK
SIERRA COUNTY, NEW MEXICO

HEADWALL DETAILS
(DOWNSTREAM)

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								S. FEUZE	S. FEUZE	N. MARSHALL	1/8" = 1'-0" UNLESS NOTED	SAMIR SIDHOM	6 of 20	OCTOBER 2022	RG3201- F

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STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S25



U.S. DEPARTMENT OF TRANSPORTATION
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CENTRAL FEDERAL LANDS HIGHWAY DIVISION

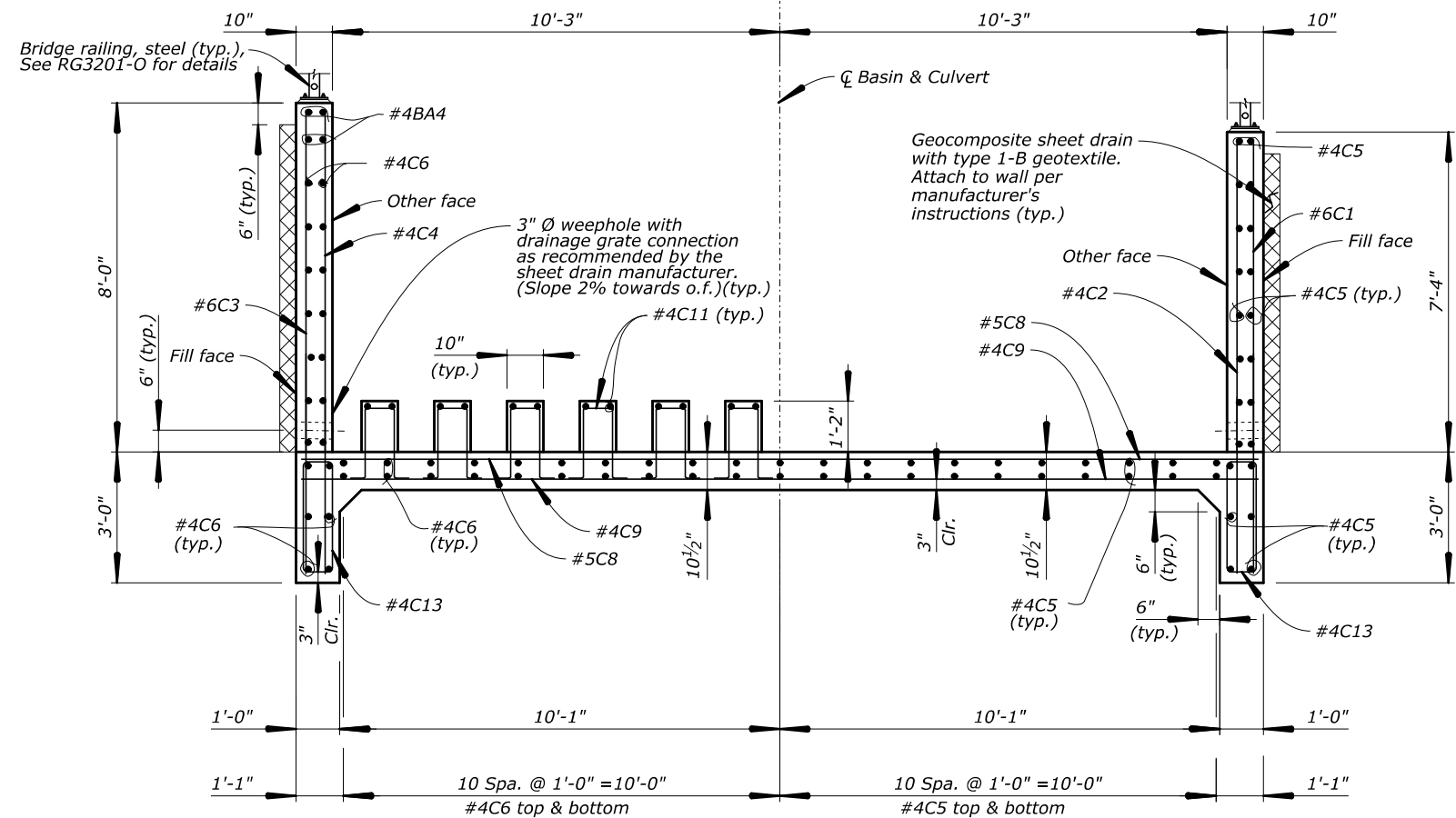
ROCK CANYON CULVERT
LAKESHORE ROAD
ELEPHANT BUTTE STATE PARK
SIERRA COUNTY, NEW MEXICO

**STILLING BASIN
DETAILS (1 OF 3)**

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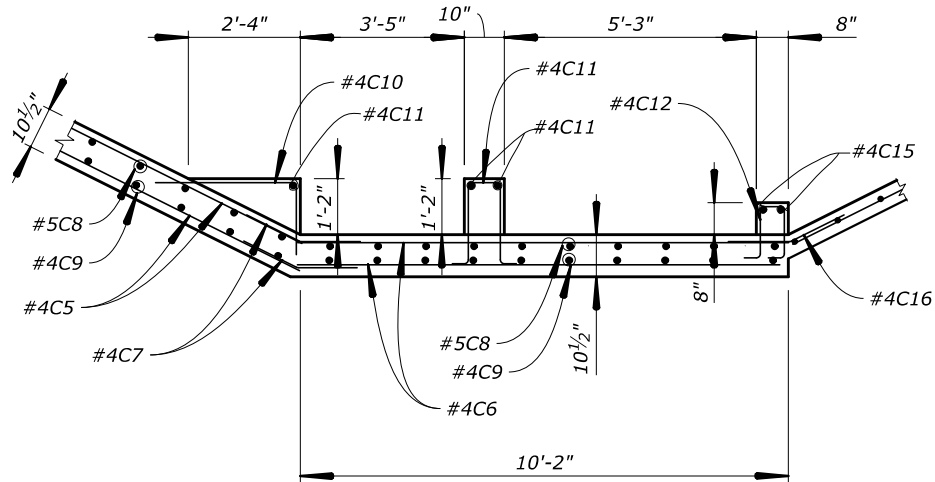
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STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S26

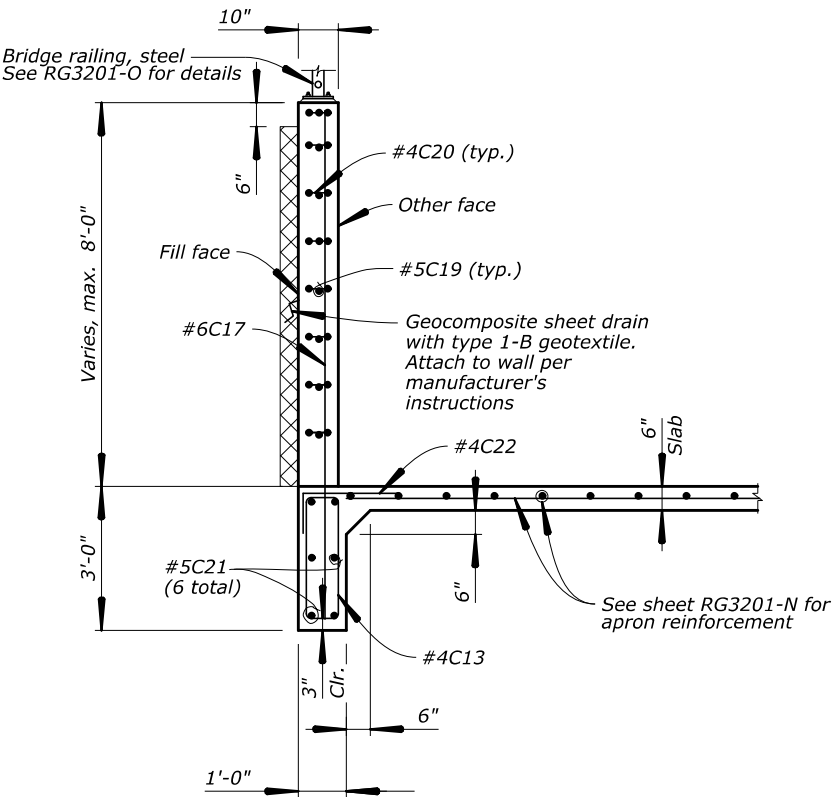


HALF SECTION STILLING BASIN
SECTION G-G

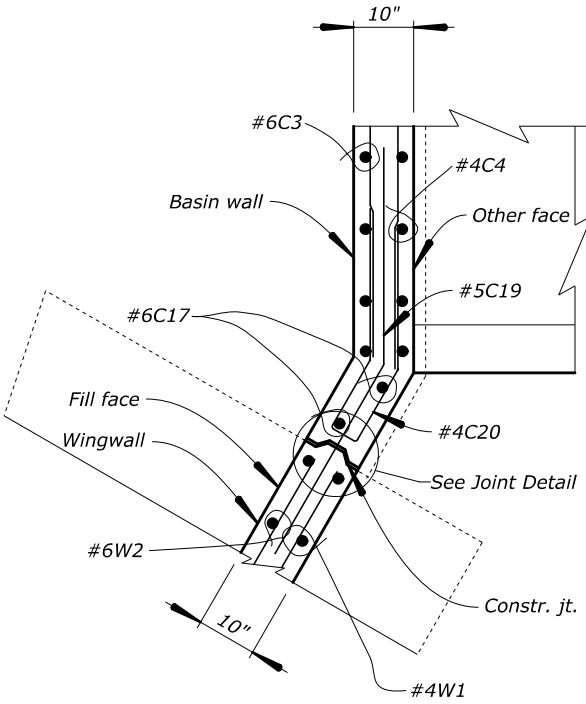
HALF SECTION CHANNEL
SECTION E-E



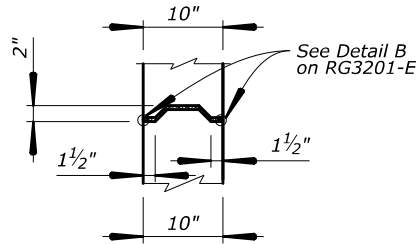
SECTION C-C



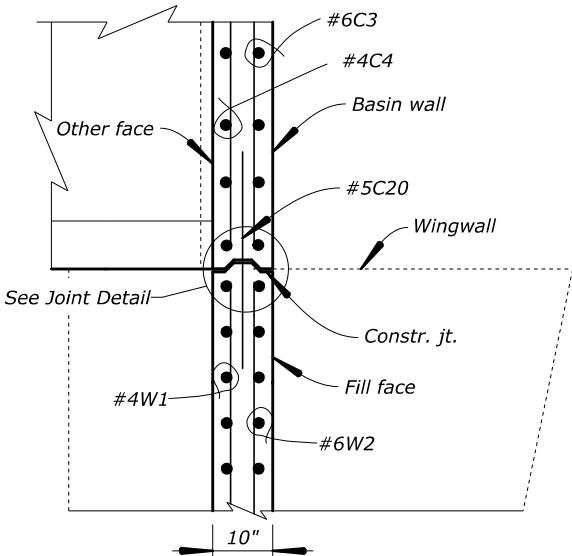
SECTION F-F



DETAIL D
Scale: 3/8" = 1'-0"



JOINT DETAIL
Scale: 1" = 1'-0"



DETAIL E
Scale: 3/8" = 1'-0"

ABBREVIATIONS

f.f. = Fill face
o.f. = Other face
b.f. = Both faces

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

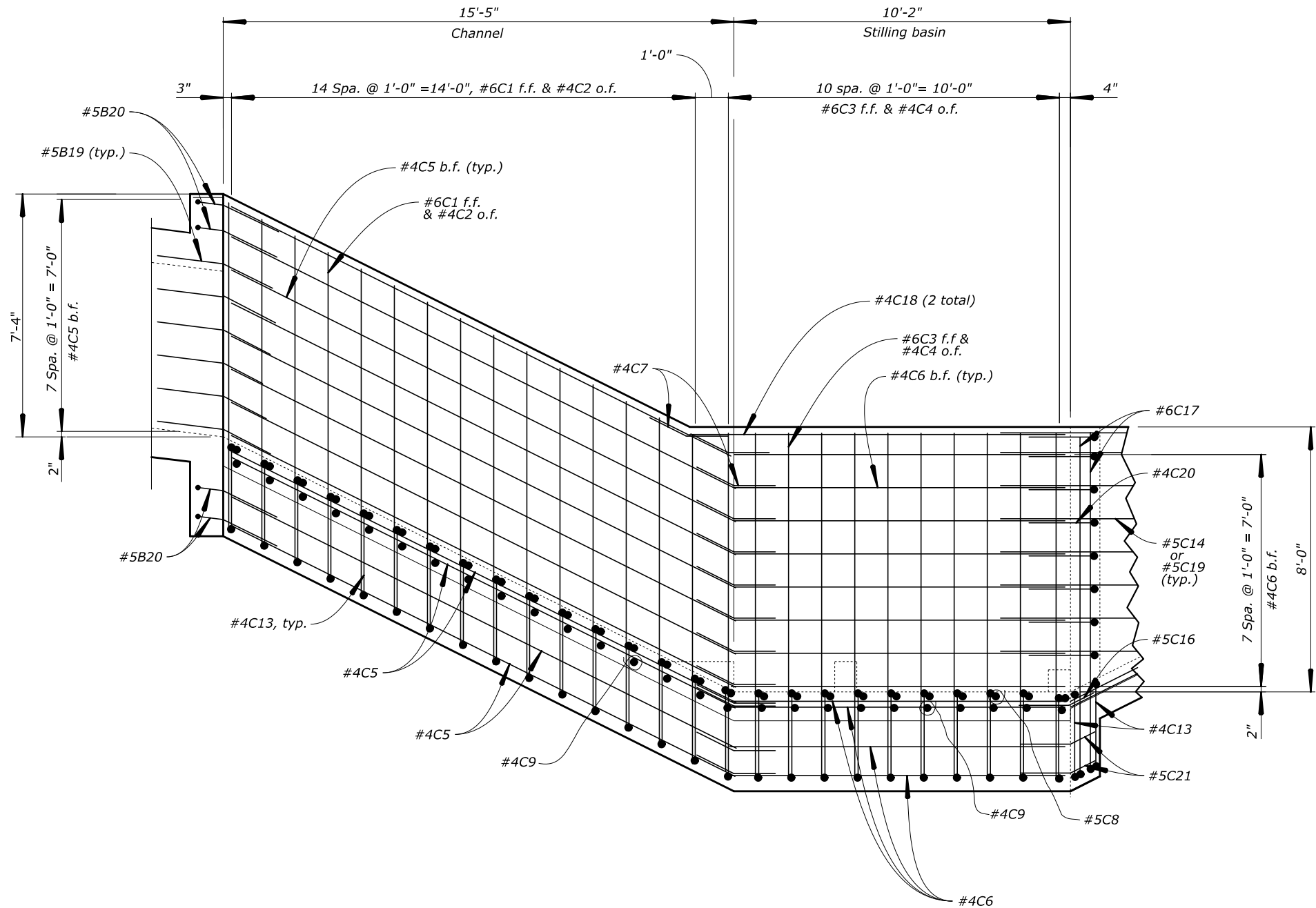
ROCK CANYON CULVERT
LAKESHORE ROAD
ELEPHANT BUTTE STATE PARK
SIERRA COUNTY, NEW MEXICO

STILLING BASIN
DETAILS (2 OF 3)

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
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STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S27



ELEVATION

South basin wall shown.
Bridge railing not shown for clarity.

ABBREVIATIONS

f.f. = Fill face
o.f. = Other face
b.f. = Both faces

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

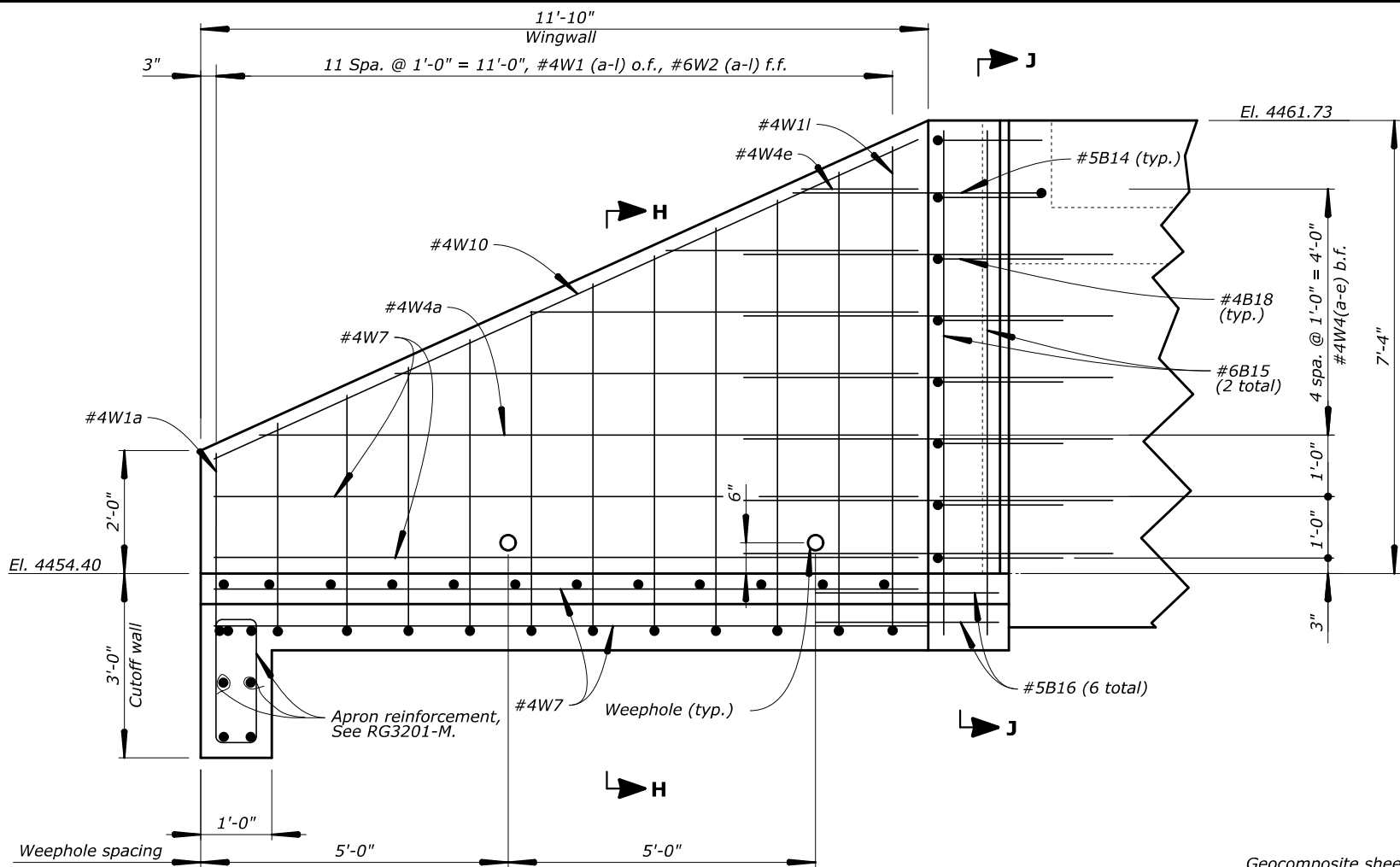
ROCK CANYON CULVERT
LAKESHORE ROAD
ELEPHANT BUTTE STATE PARK
SIERRA COUNTY, NEW MEXICO

STILLING BASIN
DETAILS (3 OF 3)

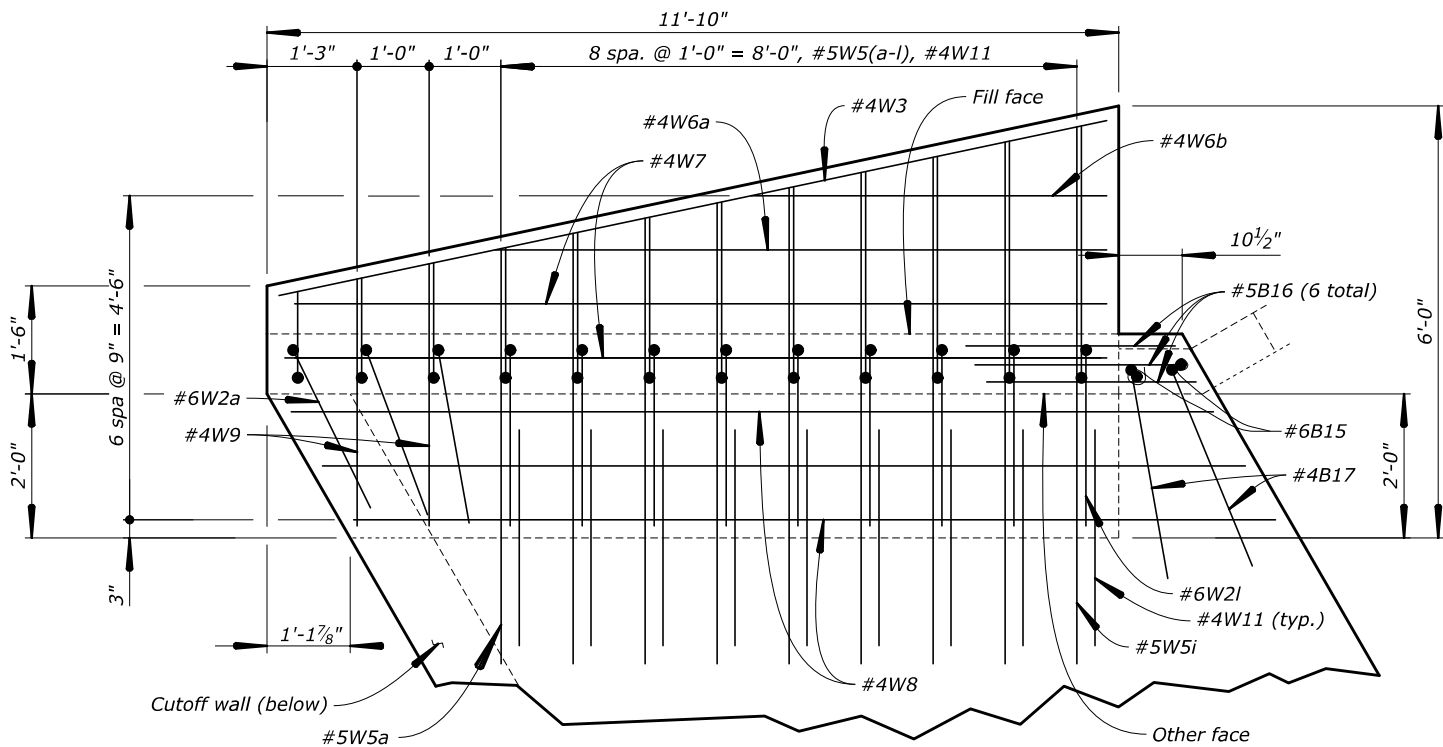
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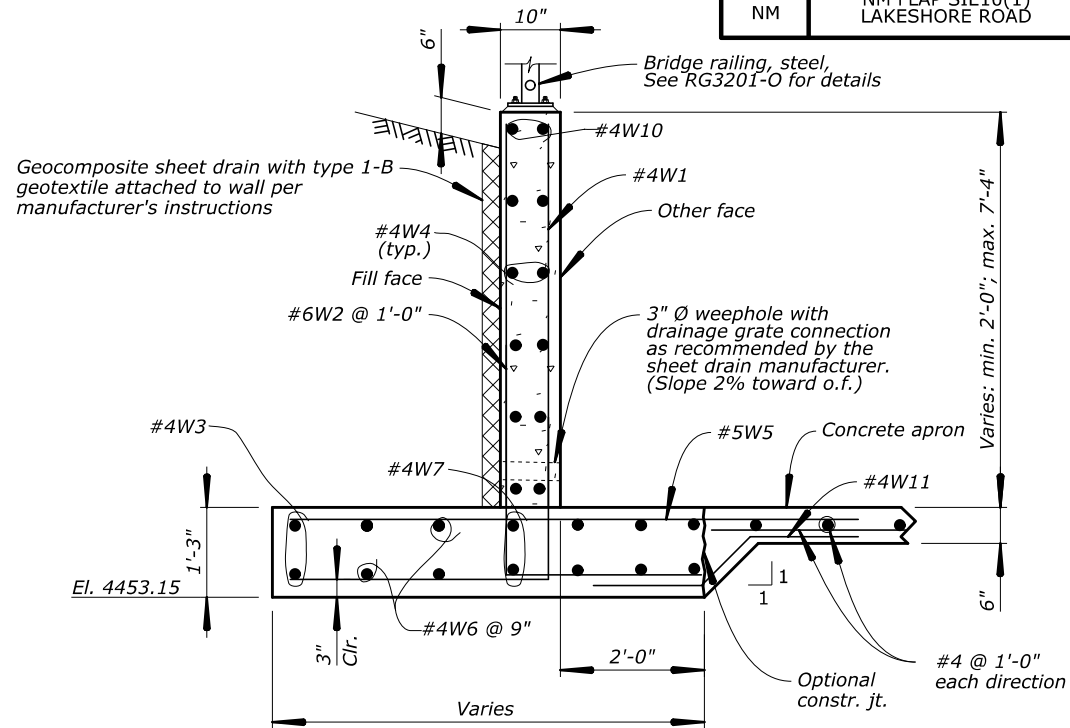
10/7/2022



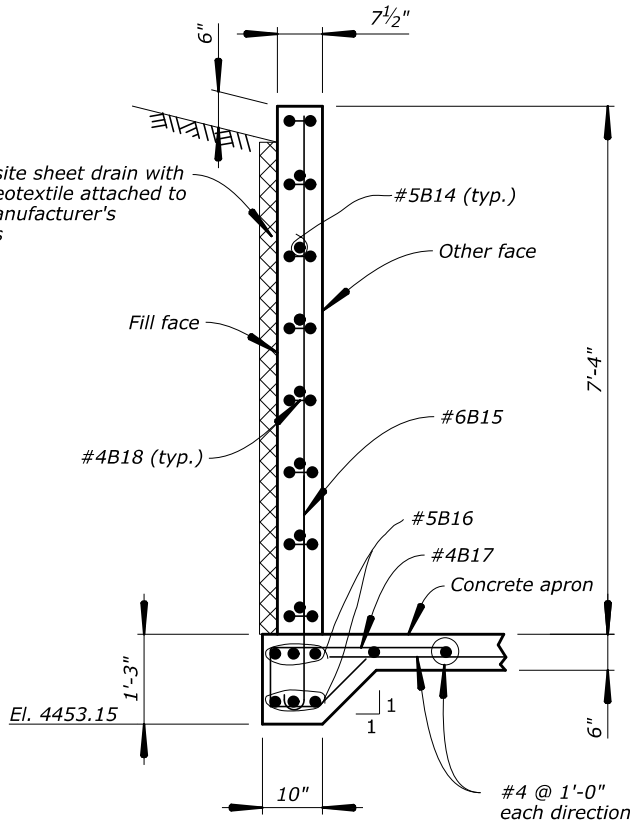
WINGWALL ELEVATION
Bridge railing not shown for clarity.



WINGWALL FOOTING



SECTION H-H



SECTION J-J

ABBREVIATIONS

f.f. = Fill face
o.f. = Other face
b.f. = Both faces

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

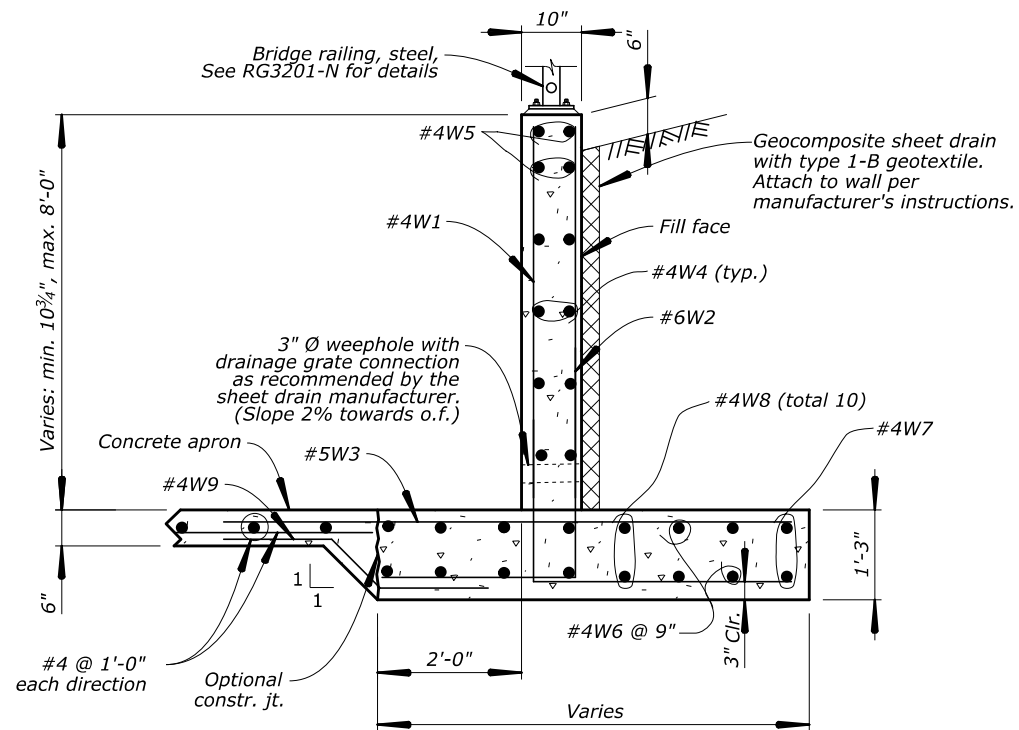
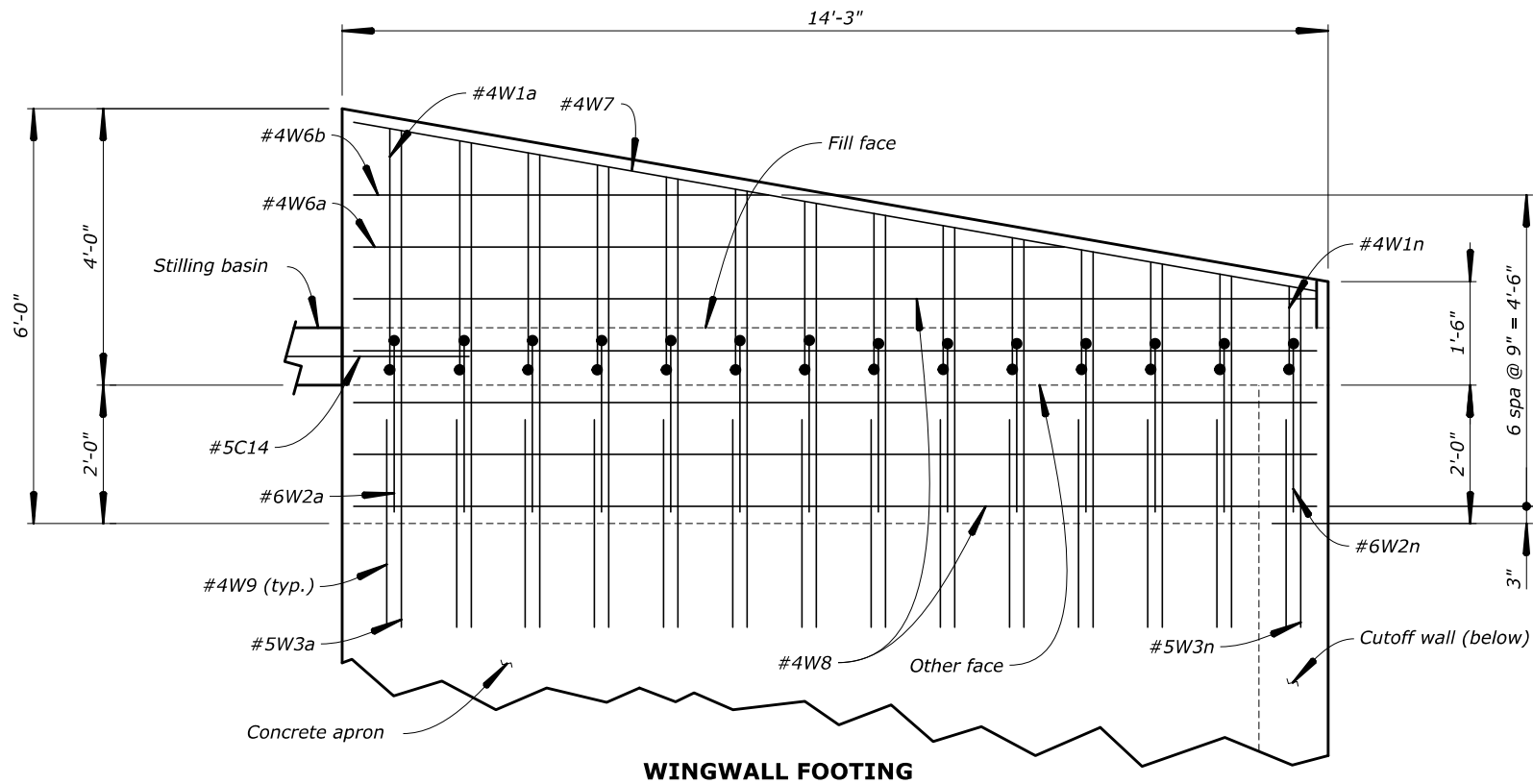
ROCK CANYON CULVERT
LAKESHORE ROAD
ELEPHANT BUTTE STATE PARK
SIERRA COUNTY, NEW MEXICO

**WINGWALL DETAILS
(UPSTREAM)**

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								S. FEUZE	S. FEUZE	N. MARSHALL	3/8" = 1'-0" UNLESS NOTED	SAMIR SIDHOM	10 of 20	OCTOBER 2022	RG3201- J

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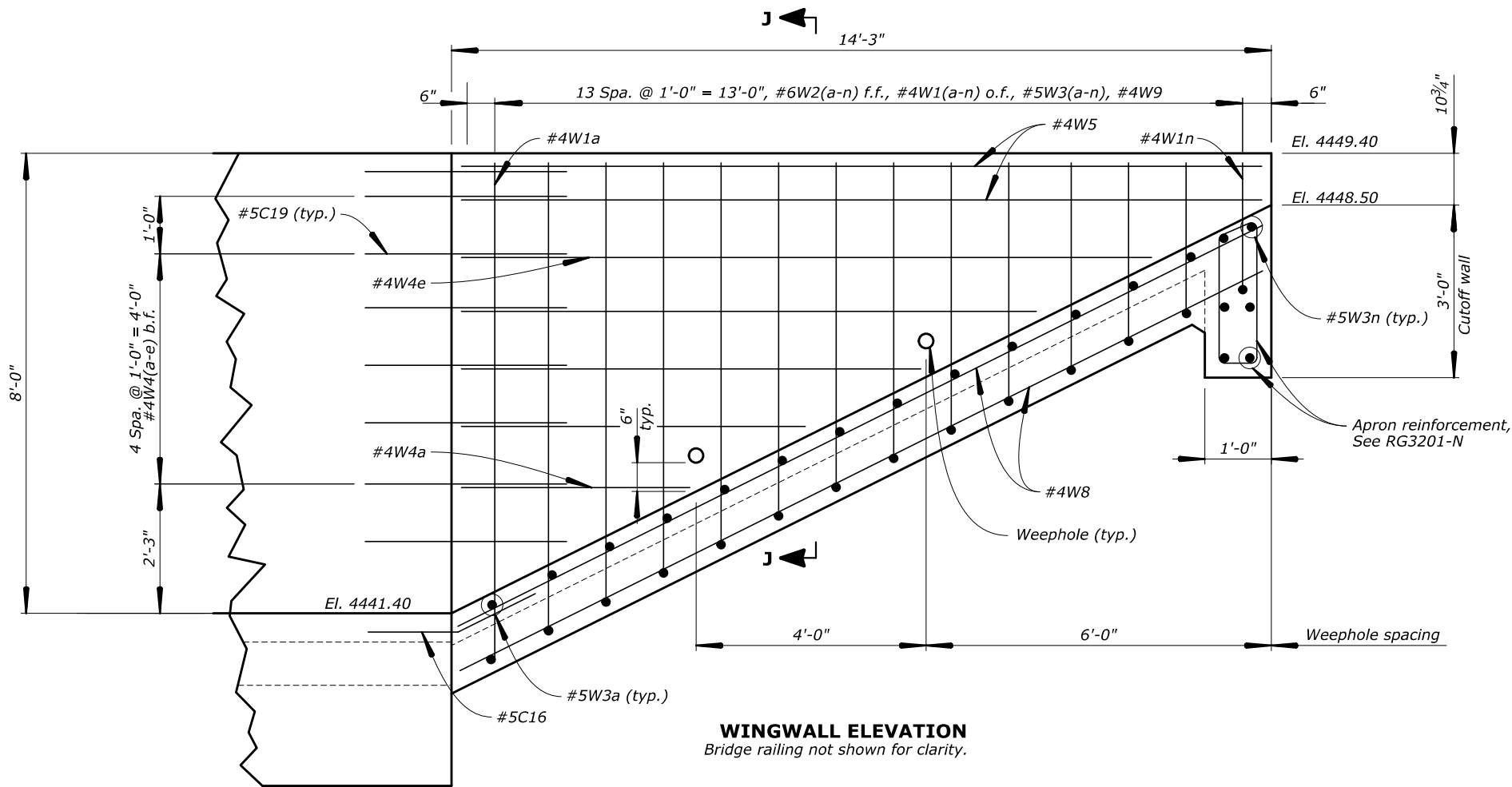
STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S29



SECTION J-J

ABBREVIATIONS

f.f. = Fill face
o.f. = Other face
b.f. = Both faces



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

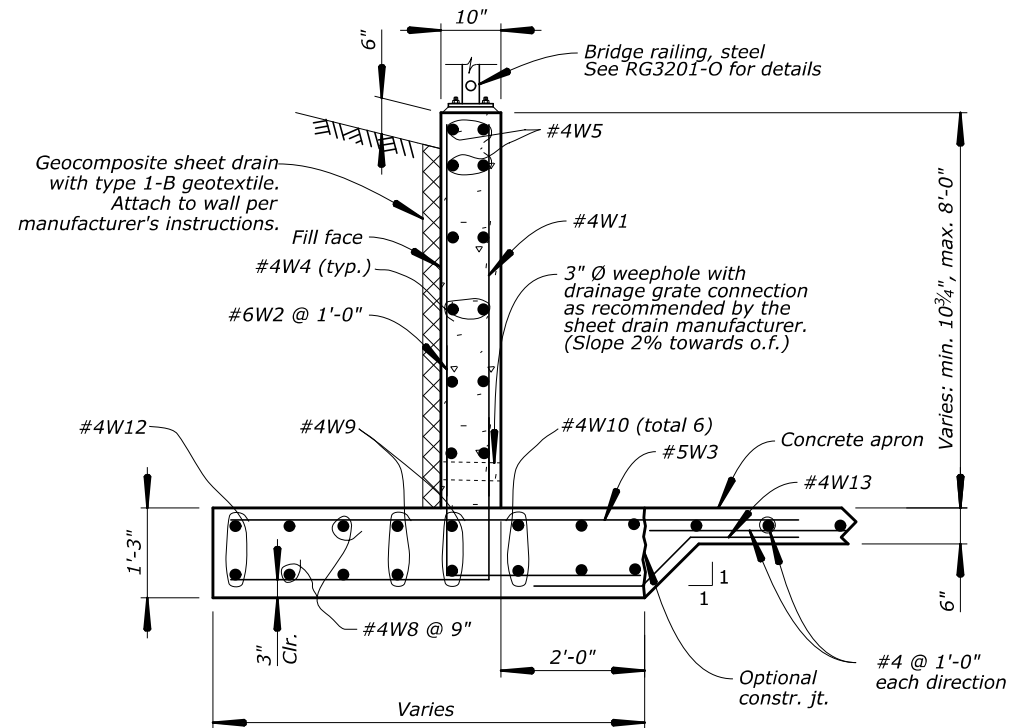
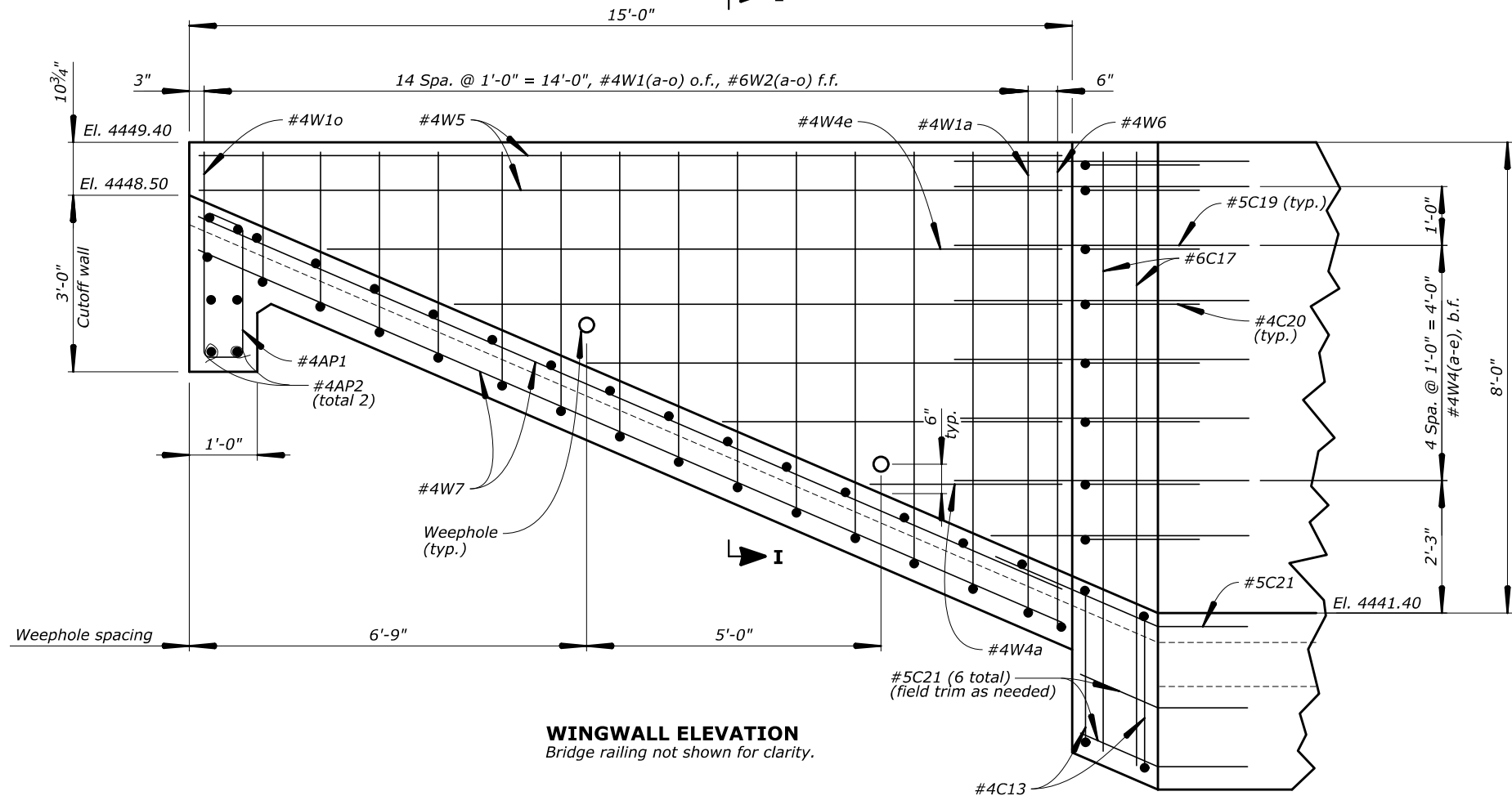
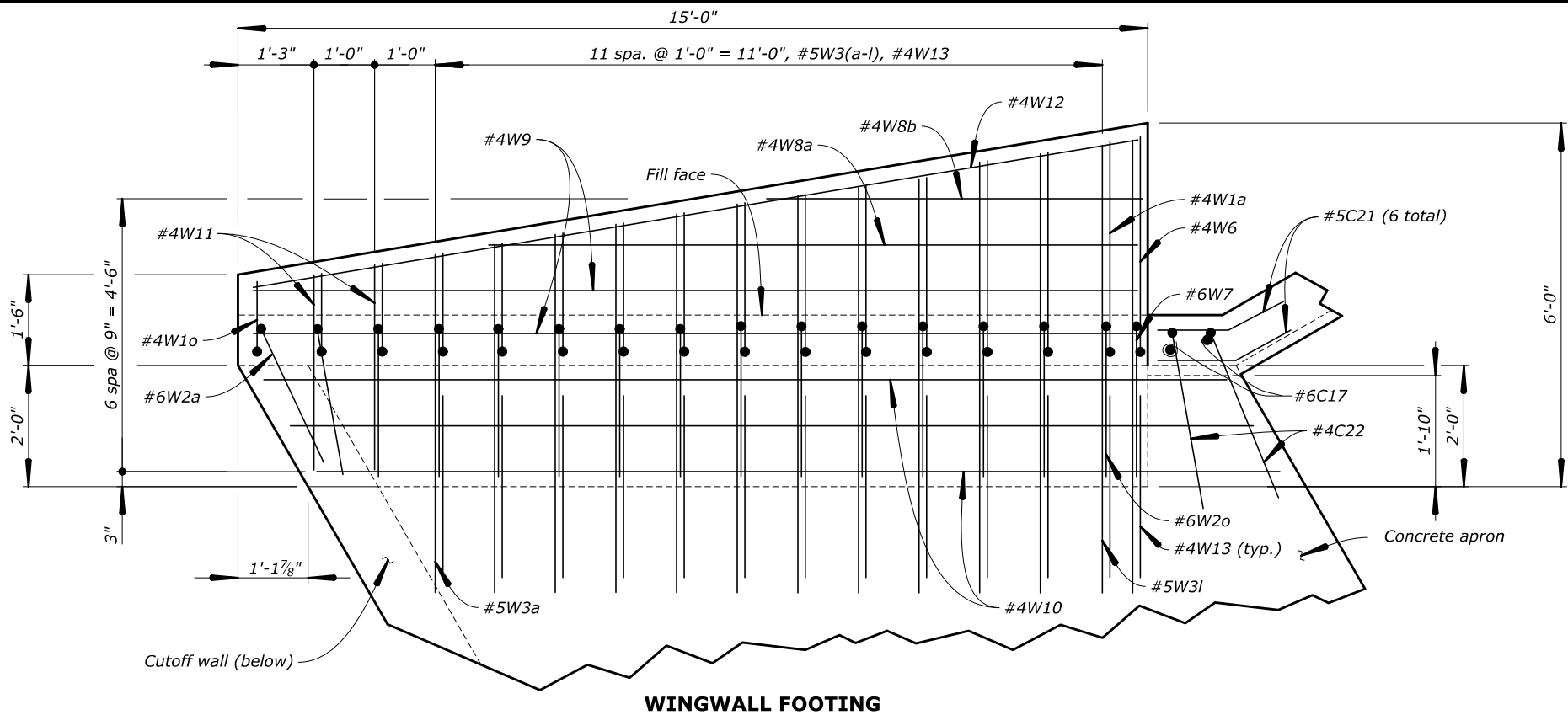
ROCK CANYON CULVERT
LAKESHORE ROAD
ELEPHANT BUTTE STATE PARK
SIERRA COUNTY, NEW MEXICO

**NORTH WINGWALL DETAILS
(DOWNSTREAM)**

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								S. FEUZE	N. MARSHALL	N. MARSHALL	3/8" = 1'-0" UNLESS NOTED	SAMIR SIDHOM	11 of 20	OCTOBER 2022	RG3201- K

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STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S30



ABBREVIATIONS

f.f. = Fill face
o.f. = Other face
b.f. = Both faces

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

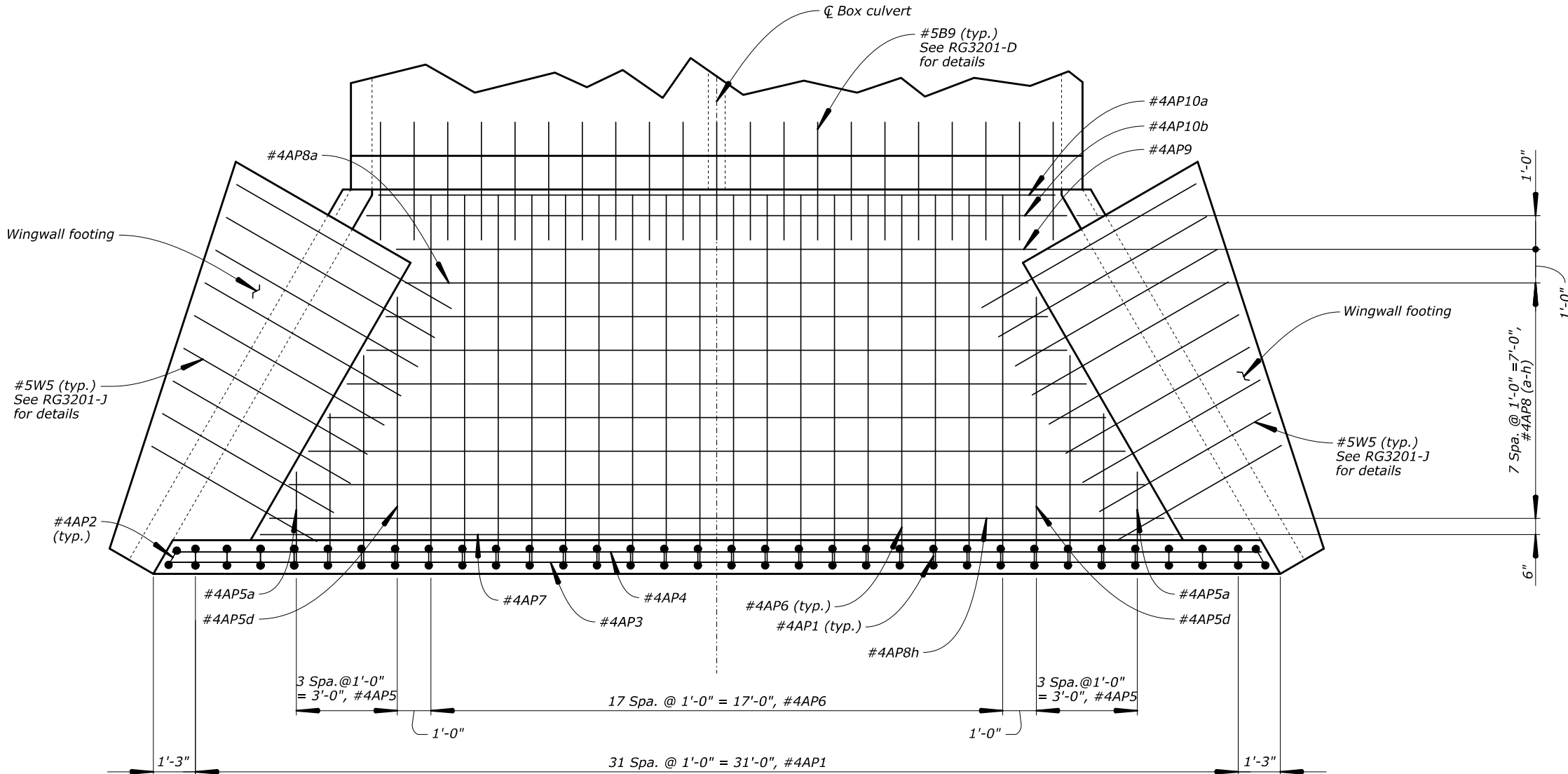
ROCK CANYON CULVERT
LAKESHORE ROAD
ELEPHANT BUTTE STATE PARK
SIERRA COUNTY, NEW MEXICO

SOUTH WINGWALL DETAILS
(DOWNSTREAM)

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
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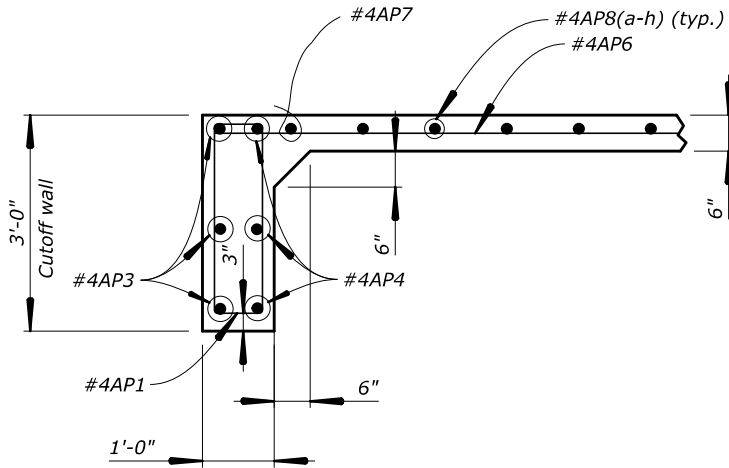
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STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S31



PLAN

Note: Other reinforcement within wingwall footings and culvert not shown for clarity.



SECTION AT CUTOFF WALL
Scale: 3/8" = 1'-0"

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

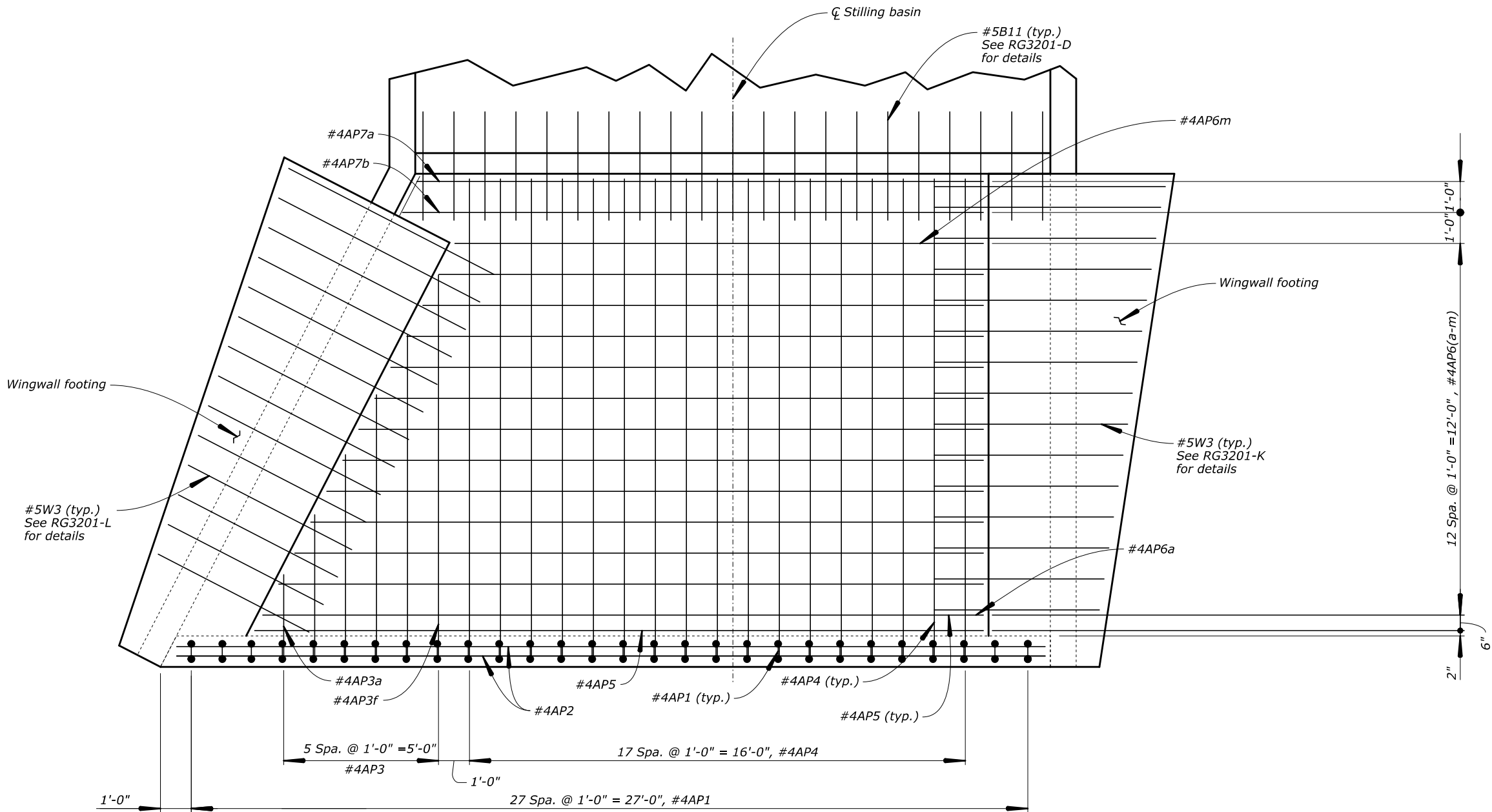
ROCK CANYON CULVERT
LAKESHORE ROAD
ELEPHANT BUTTE STATE PARK
SIERRA COUNTY, NEW MEXICO

**APRON DETAILS
(UPSTREAM)**

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
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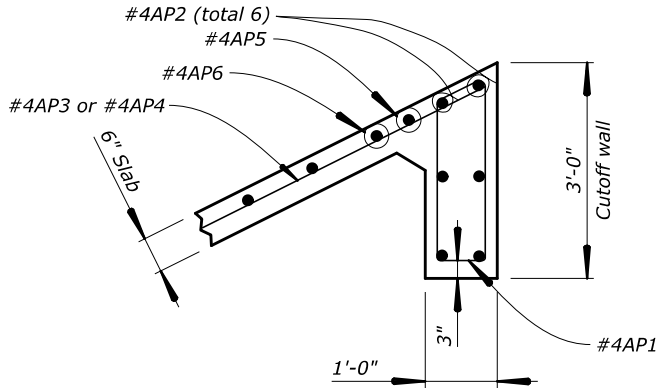
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STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S32



PLAN

Note: Other reinforcement within wingwall footings and culvert not shown for clarity.



SECTION AT CUTOFF WALL

Scale: 3/8" = 1'-0"

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

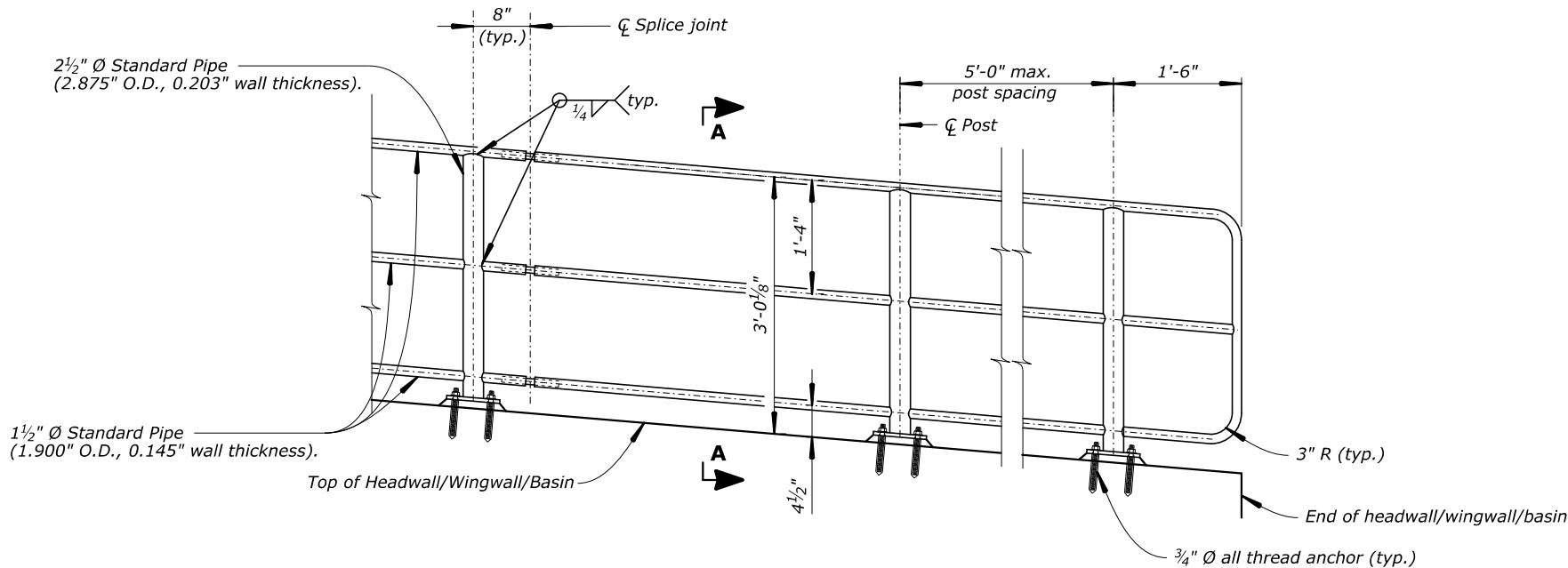
ROCK CANYON CULVERT
LAKESHORE ROAD
ELEPHANT BUTTE STATE PARK
SIERRA COUNTY, NEW MEXICO

**APRON DETAILS
(DOWNSTREAM)**

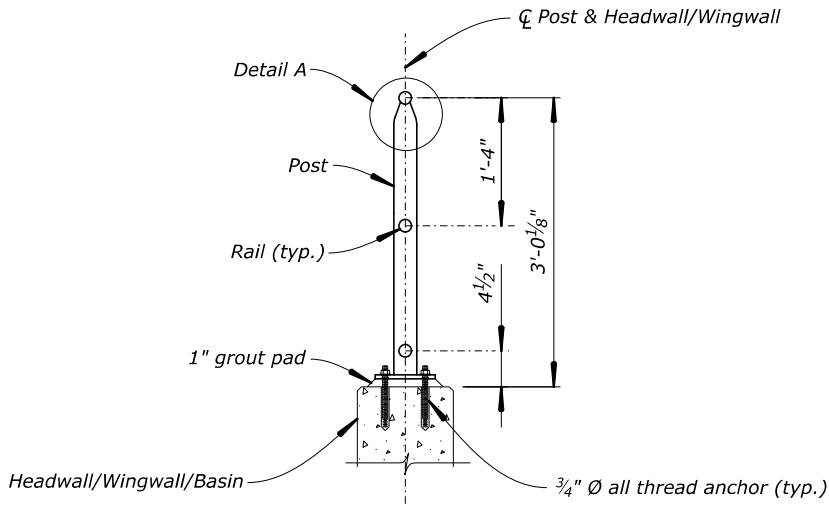
NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								S. FEUZE	S. FEUZE	N. MARSHALL	1/4" = 1'-0" UNLESS NOTED	SAMIR SIDHOM	14 of 20	OCTOBER 2022	RG3201- N

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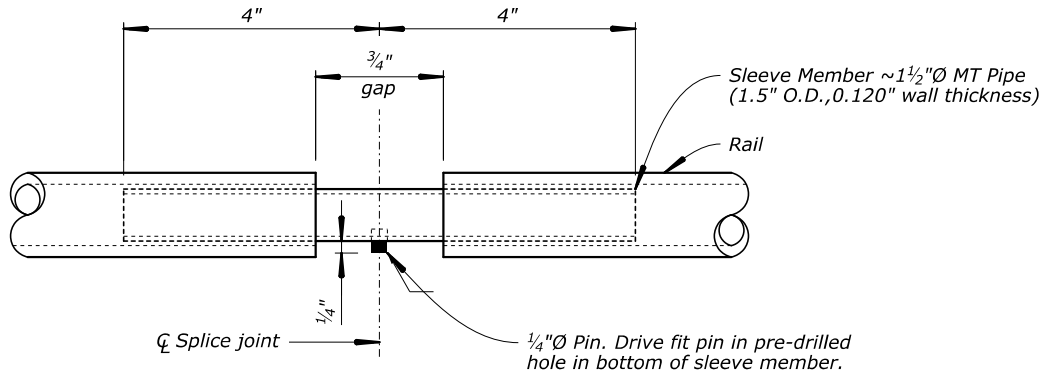
STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S33



ELEVATION

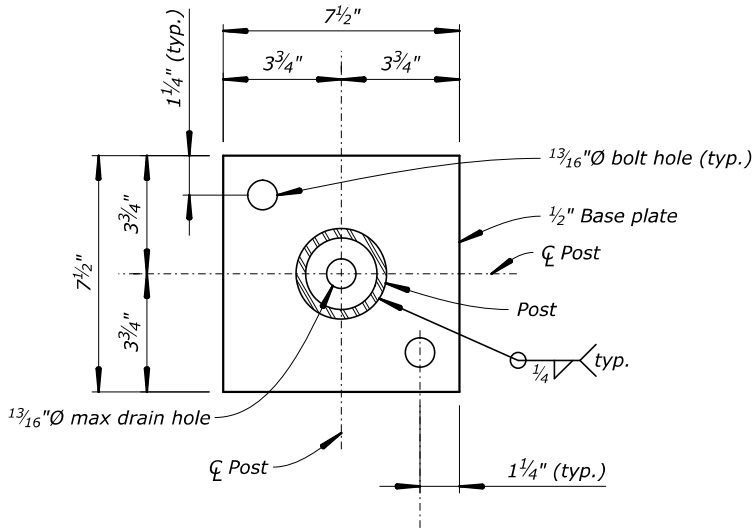


SECTION A-A



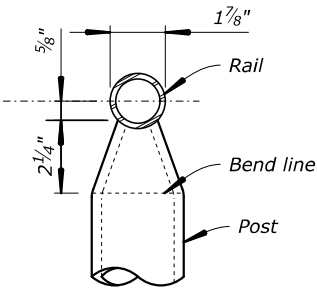
SPLICE JOINTS

No Scale



BASE PLATE DETAIL

No Scale



DETAIL A

No Scale

NOTES

1. Shop fabricate all railing panels.
2. Submit and receive approval of shop drawings by the CO prior to fabrication.
3. Install posts plumb and rails parallel to top of headwalls and wingwalls.
4. Provide $\frac{3}{4}$ " drain holes on underside of each rail end and at base of posts on other face.
5. Hot dip galvanize all steel members, including fasteners, after fabrication and welding.
6. Provide holes in pipes as needed for galvanizing drainage and venting.
7. Provide a minimum of two posts in sections being spliced.
8. Furnish adhesive anchors providing a minimum factored resistance = 3,000 lbs (tension). Install adhesive anchors per manufacturer's instructions. Submit proposed anchor system to CO for approval.
9. Furnish all thread anchors adhering to ASTM A307, Grade A. Galvanize all hardware.
10. Furnish grout conforming to ASTM C1107.

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FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

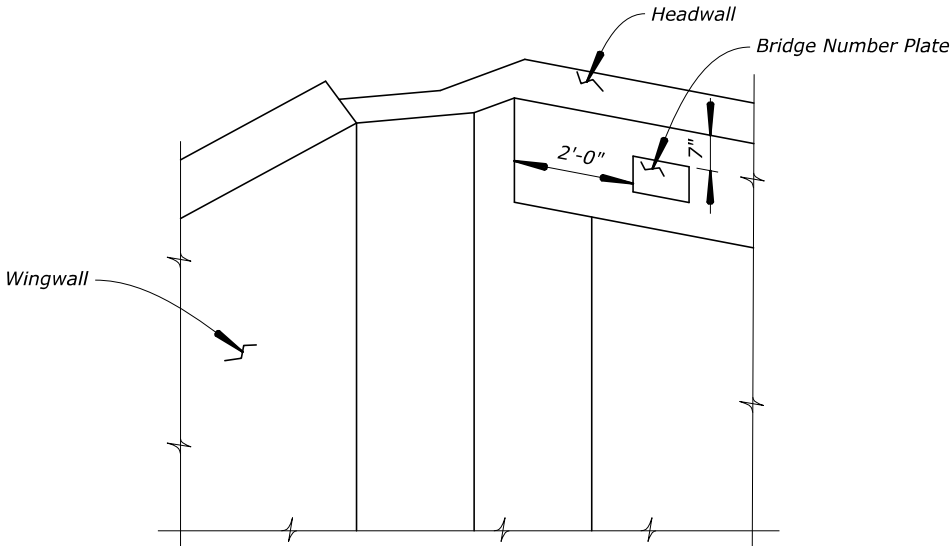
ROCK CANYON CULVERT
LAKESHORE ROAD
ELEPHANT BUTTE STATE PARK
SIERRA COUNTY, NEW MEXICO

RAILING DETAILS

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								S. FEUZE	N. MARSHALL	N.MARSHALL	$\frac{1}{2}$ " = 1'-0" UNLESS NOTED	SAMIR SIDHOM	15 of 20	OCTOBER 2022	RG3201-O

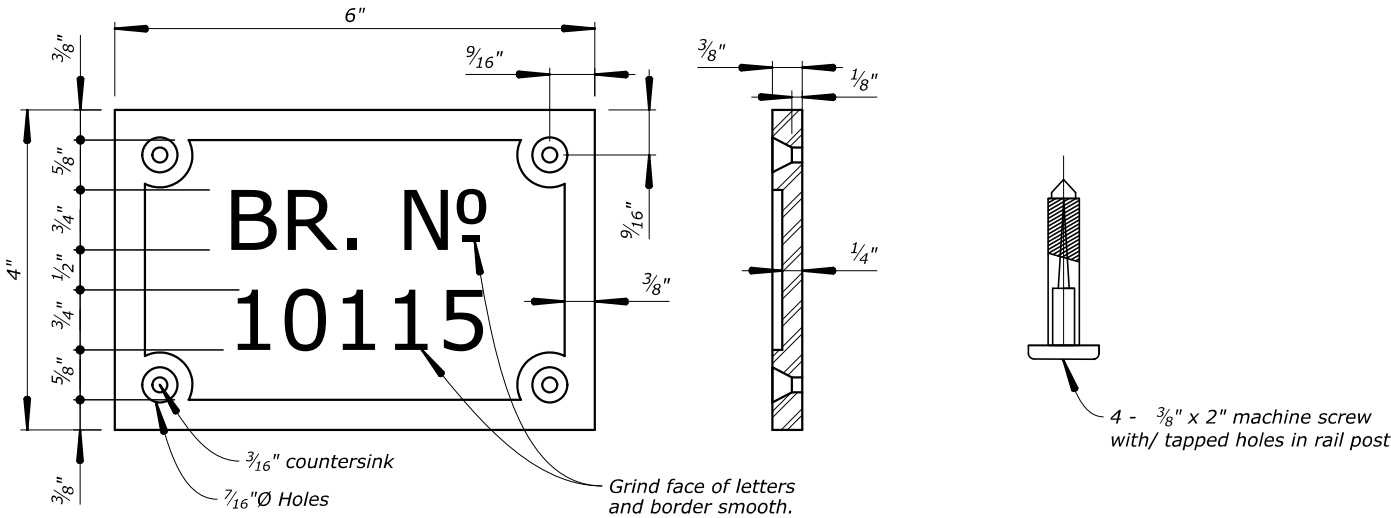
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STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S34



BRIDGE NUMBER PLATE LOCATION ON
CONCRETE BOX CULVERT

- NOTES:**
1. Furnish galvanized, cast iron plates with raised block letters of neat square cut design. Grind face of letters and borders smooth.
 2. Furnish galvanized flat head bolts in expansion shields.
 3. Place number plate on the vertical face of headwalls at each end of CBC.



BRIDGE NUMBER PLATE DETAILS

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

ROCK CANYON CULVERT
LAKESHORE ROAD
ELEPHANT BUTTE STATE PARK
SIERRA COUNTY, NEW MEXICO

BRIDGE NUMBER PLATE

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								S. FEUZE	B. ROBINSON	N. MARSHALL	NONE	SAMIR SIDHOM	16 of 20	OCTOBER 2022	RG3201- P

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REINFORCING STEEL SCHEDULE								DIMENSION TABLE												
CULVERT																				
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N
*4B1	4	T2	0'-2"	Stirrups @ headwall	46	5'-7"	172	0'-4½"	1'-9"	0'-8"	1'-9"	0'-8"		0'-4½"						
*4B2	4	75		Long.top & bot.	120	126'-6"	10140		1'-11"	122'-8"	60'-0"	6'-6"								2
*6B3	6	17	0'-4½"	Vert.	988	8'-2"	12119		4'-1"	4'-1"										
*6B4	6	STR		Vert.	494	6'-4½"	4730		6'-4½"											
*6B5	6	STR		Horiz.top & bot.	494	21'-5"	15891		21'-5"											
*4B6	4	2	0'-3"	Vert.	248	7'-8½"	1277	0'-8"	6'-4½"					0'-8"						
*7B7	7	STR		Horiz.top	124	10'-9"	2725		10'-9"											
*8B8	8	STR		Horiz.bot.	124	10'-9"	3559		10'-9"											
*5B9	5	52	0'-3¾"	Dowels	23	4'-0"	96	2'-0"	2'-0"	1'-11¾"	0'-3½"									
*4B10	4	T2	0'-2"	Stirrups @ toewall	23	7'-3"	111	0'-4½"	2'-7"	0'-8"	2'-7"	0'-8"		0'-4½"						
*5B11	5	52	0'-3¾"	Dowels	23	4'-0"	96	2'-0"	2'-0"	1'-10½"	0'-8½"									
*8B12	8	STR		Horiz.top & bot.	248	21'-5"	14181		21'-5"											
*5B13	5	STR		Horiz.@ headwall	12	21'-5"	268		21'-5"											
*5B14	5	52	0'-3¾"	Horiz.@ wingwall	14	2'-5½"	36	1'-6¾"	0'-10¾"	0'-9¼"	0'-6"									
*6B15	6	1	0'-4½"	Vert.@ wingwall	4	8'-10"	53	0'-8"	8'-2"							0'-6"				
*5B16	5	STR		Long.bot.@ wingwall	12	3'-0"	38		3'-0"											
*4B17	4	63	0'-3"	Long.top	4	5'-3½"	14		0'-8"	0'-6½"	0'-7½"	0'-10"	3'-0¼"							
*4B18	4	105	0'-3"	Stirrups @ wingwalls	16	5'-4½"	57	1'-3¼"	0'-11½"	0'-4"	0'-11½"	1'-5"	0'-9¼"	0'-10¼"	1'-5¾"	1'-7½"				
*5B19	5	52	0'-3¾"	Horiz.@ basin	12	4'-0"	50	2'-0"	2'-0"	1'-10¾"	0'-8½"									
*5B20	5	70	0'-3¾"	Horiz.@ basin	8	3'-7½"	30	0'-9½"	0'-5"	2'-0"	1'-9½"	0'-11¼"								
SUBTOTAL							65644 LBS													
BASIN																				
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N
*6C1	6	STR		Vert.f.f.	30	9'-10"	443		9'-10"											
*4C2	4	STR		Vert.of.	30	9'-10"	197		9'-10"											
*6C3	6	STR		Vert.f.f.	22	10'-7"	350		10'-7"											
*4C4	4	STR		Vert.of.	22	10'-7"	156		10'-7"											
*4C5	4	STR		Horiz.b.f.	86	17'-0"	977		17'-0"											
*4C6	4	STR		Long.top & bot.	86	10'-0"	574		10'-0"											
*4C7	4	52	0'-3"	Horiz.	90	4'-0"	240	2'-0"	2'-0"	1'-9½"	0'-11¼"									
*5C8	5	STR		Trans.top	26	21'-10"	592		21'-10"											
*4C9	4	STR		Trans.bot.	26	21'-10"	379		21'-10"											
*4C10	4	17	0'-3"	Stirrups	26	4'-5"	77		2'-11¼"	1'-6"										
*4C11	4	S4	0'-2"	Stirrups	61	4'-6"	183	0'-4½"	1'-7½"	0'-6"	1'-7½"			0'-4½"						
*4C12	4	S5	0'-2"	Stirrups sill	21	3'-2"	44	0'-4½"	1'-0½"	0'-4"	1'-0½"			0'-4½"						
*4C13	4	T2	0'-2"	Stirrups	54	7'-3"	262	0'-4½"	2'-7"	0'-8"	2'-7"	0'-8"		0'-4½"						
*5C14	5	STR		Horiz.@ wingwall	8	3'-6"	29		3'-6"											
*4C15	4	STR		Trans.top sill	2	20'-2"	27		20'-2"											
*5C16	5	52	0'-3¾"	Long.top @ apron	21	3'-0"	66	1'-6"	1'-6"	1'-4"	0'-8½"									
*6C17	6	1	0'-4½"	Vert.	2	10'-4"	31	0'-8"	9'-8"							0'-6"				
*4C18	4	STR		Horiz.	4	11'-4"	30		11'-4"											
*5C19	5	52	0'-3¾"	Dowels	8	2'-5"	20	1'-6"	0'-10¾"	0'-9½"	0'-5¼"									
*4C20	4	105	0'-3"	Horiz.@ basin	8	6'-11½"	37	1'-3½"	1'-8¾"	0'-5"	1'-9¾"	1'-3½"	0'-9½"	0'-9½"	1'-6"	1'-6"				
*5C21	5	52	0'-3¾"	Dowels	6	3'-0½"	19	1'-7"	1'-5¼"	1'-3¾"	0'-7½"									
*4C22	4	2	0'-3"	Horiz.@ wingwall	2	2'-8"	4	0'-8"	2'-0"											
SUBTOTAL							4737 LBS													
UPSTREAM WINGWALLS																				
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N
*4W1	4	17	0'-3"	Vert.of.	2 sets of 12 at 0'-8" Incr.	4'-2" to 11'-6" at 0'-8" Incr.	124		2'-11¼" to 7'-11¼" at 0'-5½" Incr.	1'-2¾" to 3'-6½" at 0'-2½" Incr.										
*6W2	6	17	0'-4½"	Vert.f.f.	2 sets of 12 at 0'-5½" Incr.	10'-5" to 5'-5" at 0'-5½" Incr.	280		7'-11" to 2'-11¼" at 0'-5½" Incr.	2'-6"										
*4W3	4	STR		Long.top & bot.	4	11'-9"	31		11'-9"											

STATE

NM

PROJECT

NM FLAP SIE10(1)
LAKESHORE ROAD

SHEET NO.

S35

B

STR

A

J

G

B

TYPE 1

A

G

B

TYPE 2

OPTIONAL LEG

B

C

D

TYPE 17

A

G

B

C

D

TYPE S4

A

G

B

C

D

TYPE S5

C

B

G

A

E

D

TYPE T2

D

B

A

C

E

TYPE 52

E

C

F

D

B

TYPE 63

B

C

E

A

D

TYPE 70

C

D

E

B

A

J

G

N = Number of Laps

TYPE 75

C

B

A

J

G

D

E

TYPE 105

NOTES

1. Dimensions in bending diagrams are out-to-out of bars

2. All "E" bars are epoxy coated.

ABBREVIATIONS:

f.f. = Fill face

o.f. = Other face

b.f. = Both faces

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

ROCK CANYON CULVERT
LAKESHORE ROAD
ELEPHANT BUTTE STATE PARK
SIERRA COUNTY, NEW MEXICO

REBAR LIST 1 OF 4

NO.

DATE

BY

REVISIONS

NO.

DATE

BY

REVISIONS

DESIGNED BY

B. ROBINSON

DRAWN BY

B. ROBINSON

CHECKED BY

N. MARSHALL

SCALE

NONE

PROJECT TEAM LEADER

SAMIR SIDHOM

BRIDGE DRAWING

17 of 20

DATE

OCTOBER 2022

DRAWING NO.

RG3201-Q

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REINFORCING STEEL SCHEDULE						DIMENSION TABLE															
UPSTREAM WINGWALLS						(CONTINUED)															
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N	
*4W4	4	STR		Horiz.bf.	4 sets of 5	1'-10" to 10'-8" at 2'-2 1/2" Incr.	83		1'-10" to 10'-8" at 2'-2 1/2" Incr.												
*5W5	5	STR		Trans.top	2 sets of 9	7'-8 1/2" to 6'-0" at 0'-2 1/2" Incr.	129		7'-8 1/4" to 6'-0" at 0'-2 1/2" Incr.												
*4W6	4	STR		Long.top & bot.	4 sets of 2	4'-10" to 8'-4 1/2" at 3'-6 1/2" Incr.	35		4'-10" to 8'-4 1/2" at 3'-6 1/2" Incr.												
*4W7	4	STR		Long.top & bot.	8	11'-6"	61		11'-6"												
*4W8	4	STR		Long.top & bot.	12	12'-9 1/2"	103		12'-9 1/2"												
*4W9	4	STR		Trans.top	4	3'-1 1/2"	8		3'-1 1/2"												
*4W10	4	STR		Horiz.bf.	4	12'-7 1/2"	34		12'-7 1/2"												
*4W11	4	104	0'-3"	Trans.bot.	18	4'-0"	48		1'-7"	1'-5 1/4"	0'-8"	0'-8 1/2"									
SUBTOTAL							945 LBS														
NORTH DOWNSTREAM WINGWALL																					
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N	
*4W1	4	17	0'-3"	Vert.of.	1 sets of 14	3'-4" to 12'-1" at 0'-8" Incr.	71		2'-1" to 8'-6 3/4" at 0'-6" Incr.	1'-3" to 3'-6 1/4" at 0'-2" Incr.											
*6W2	6	17	0'-4 1/2"	Vert.f.f.	1 sets of 14	4'-7" to 11'-1" at 0'-6" Incr.	161		2'-1" to 8'-6 3/4" at 0'-6" Incr.	2'-6"											
*5W3	5	STR		Trans.top	1 sets of 14	4'-5" to 6'-8 1/2" at 0'-2" Incr.	81		4'-5" to 6'-8 1/4" at 0'-2" Incr.												
*4W4	4	STR		Horiz.bf.	2 sets of 5	3'-9 1/2" to 11'-10" at 2'-0 1/4" Incr.	52		3'-9 1/2" to 11'-10" at 2'-0 1/4" Incr.												
*4W5	4	STR		Long.top	4	13'-11"	37		13'-11"												
*4W6	4	STR		Long.top & bot.	1 sets of 2	6'-8" to 11'-5" at 4'-9" Incr.	12		6'-8" to 11'-5" at 4'-9" Incr.												
*4W7	4	STR		Long.top & bot.	2	15'-9"	21		15'-9"												
*4W8	4	STR		Long.top & bot.	10	15'-6 1/2"	104		15'-6 1/2"												
*4W9	4	104	0'-3"	Trans.bot.	14	4'-0"	37		1'-7"	1'-5 1/4"	0'-8"	0'-8 1/2"									

STATE

NM

PROJECT

NM FLAP SIE10(1)
LAKE SHORE ROAD

SHEET NO.

S36

B

STR

OPTIONAL LEG

TYPE 17

TYPE 104

NOTES

1. Dimensions in bending diagrams are out-to-out of bars

2. All "E" bars are epoxy coated.

ABBREVIATIONS:

f.f. = Fill face

o.f. = Other face

b.f. = Both faces

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

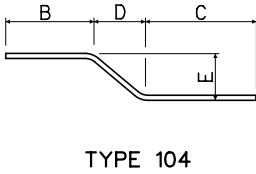
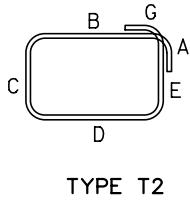
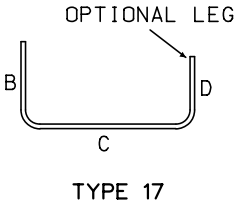
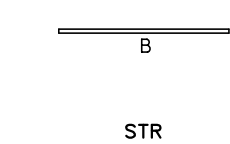
ROCK CANYON CULVERT
LAKE SHORE ROAD
ELEPHANT BUTTE STATE PARK
SIERRA COUNTY, NEW MEXICO

REBAR LIST 2 OF 4

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								B. ROBINSON	B. ROBINSON	N. MARSHALL	NONE	SAMIR SIDHOM	18 of 20	OCTOBER 2022	RG3201-R

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REINFORCING STEEL SCHEDULE					DIMENSION TABLE															
SOUTH DOWNSTREAM WINGWALL					(CONTINUED)															
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N
SUBTOTAL					582 LBS															
SOUTH DOWNSTREAM WINGWALL																				
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N
*4W1	4	17	0'-3"	Vert.o.f.	1 sets of 15	3'-0" to 11'-4½" at 0'-7¼" Incr.	71		1'-9½" to 7'-10" at 0'-5¼" Incr.	1'-2¼" to 3'-6¼" at 0'-2" Incr.										
*6W2	6	17	0'-4½"	Vert.f.f.	1 sets of 15	4'-3½" to 10'-4" at 0'-5¼" Incr.	161		1'-9½" to 7'-10" at 0'-5¼" Incr.	2'-6"										
*5W3	5	STR		Trans.top	1 sets of 12	7'-4½" to 5'-6½" at 0'-2" Incr.	81		7'-4½" to 5'-6½" at 0'-2" Incr.											
*4W4	4	STR		Hor1z.b.f.	2 sets of 5	3'-3" to 12'-6" at 2'-3¾" Incr.	53		3'-3" to 12'-6" at 2'-3¾" Incr.											
*4W5	4	STR		Hor1z.b.f.	4	14'-8½"	39		14'-8½"											
*4W6	4	17	0'-3"	Vert.o.f.	1	11'-7"	8		8'-0"	3'-7"										
*6W7	6	17	0'-4½"	Vert.f.f.	1	10'-6"	16		8'-0"	2'-6"										
*4W8	4	STR		Long.top & bot.	2 sets of 2	6'-11" to 11'-10" at 4'-11" Incr.	25		6'-11" to 11'-10" at 4'-11" Incr.											
*4W9	4	STR		Long.top & bot.	4	16'-1"	43		16'-1"											
*4W10	4	STR		Long.top & bot.	6	17'-6"	70		17'-6"											
*4W11	4	STR		Trans.top	2	3'-2"	4		3'-2"											
*4W12	4	STR		Long.top & bot.	2	16'-4"	22		16'-4"											
*4W13	4	104	0'-3"	Trans.bot.	12	4'-0"	32		1'-7"	1'-5¼"	0'-8"	0'-8½"								
SUBTOTAL					629 LBS															
UPSTREAM APRON																				
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N
*4AP1	4	T2	0'-2"	Stirrups	32	7'-3"	155	0'-4½"	2'-7"	0'-8"	2'-7"	0'-8"		0'-4½"						
*4AP2	4	T2	0'-2"	Stirrups @ ends	2	7'-7"	10	0'-4½"	2'-7"	0'-10"	2'-7"	0'-10"		0'-4½"						
*4AP3	4	STR		Hor1z.o.f.	3	32'-9"	66		32'-9"											
*4AP4	4	STR		Hor1z.f.f.	3	32'-2"	64		32'-2"											
*4AP5	4	STR		Long.top	2 sets of 4	2'-10" to 8'-0½" at 1'-8¾" Incr.	29		2'-10" to 8'-0½" at 1'-8¾" Incr.											
*4AP6	4	STR		Long.top	18	11'-1"	133		11'-1"											
*4AP7	4	STR		Trans.top	1	27'-11½"	18		27'-11½"											
*4AP8	4	STR		Trans.top	1 sets of 8	26'-7" to 18'-6" at 1'-1¾" Incr.	120		26'-7" to 18'-6" at 1'-1¾" Incr.											
*4AP9	4	STR		Trans.top	1	18'-10½"	13		18'-10½"											



NOTES

- Dimensions in bending diagrams are out-to-out of bars
- All "E" bars are epoxy coated.

ABBREVIATIONS:

f.f. = Fill face
o.f. = Other face
b.f. = Both faces

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

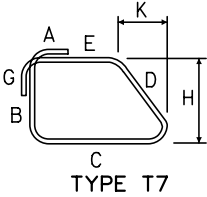
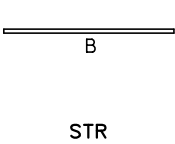
ROCK CANYON CULVERT
LAKESHORE ROAD
ELEPHANT BUTTE STATE PARK
SIERRA COUNTY, NEW MEXICO

REBAR LIST 3 OF 4

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								B. ROBINSON	B. ROBINSON	N. MARSHALL	NONE	SAMIR SIDHOM	19 of 20	OCTOBER 2022	RG3201-S

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10/7/2022

REINFORCING STEEL SCHEDULE								DIMENSION TABLE												
UPSTREAM APRON								(CONTINUED)												
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N
*4AP10	4	STR		Trans.top	1 sets of 2	20'-9 1/2" to 20'-1" at 0'-8 1/2" Incr.	27		20'-9 1/2" to 20'-1" at 0'-8 1/2" Incr.											
SUBTOTAL								636 LBS												
DOWNSTREAM APRON																				
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N
*4AP1	4	T7	0'-2"	Stirrups	28	6'-8"	125	0'-4 1/2"	0'-8"	2'-4 3/4"	0'-8"	2'-1 3/4"		0'-4 1/2"			0'-3"			
*4AP2	4	STR		Horiz.	6	29'-10 1/2"	120		29'-10 1/2"											
*4AP3	4	STR		Long.top	1 sets of 6	12'-5 1/2" to 2'-9 1/2" at 1'-11 1/4" Incr.	31		12'-5 1/2" to 2'-9 1/2" at 1'-11 1/4" Incr.											
*4AP4	4	STR		Long.top	18	15'-7"	187		15'-7"											
*4AP5	4	STR		Trans.top	1	23'-6"	16		23'-6"											
*4AP6	4	STR		Trans.top	1 sets of 13	17'-0 1/2" to 23'-3" at 0'-6 1/4" Incr.	175		17'-0 1/2" to 23'-3" at 0'-6 1/4" Incr.											
*4AP7	4	STR		Trans.top	1 sets of 2	18'-9 1/2" to 18'-3" at 0'-6 1/2" Incr.	25		18'-9 1/2" to 18'-3" at 0'-6 1/2" Incr.											
SUBTOTAL								678 LBS												



NOTES

1. Dimensions in bending diagrams are out-to-out of bars
2. All "E" bars are epoxy coated.

ABBREVIATIONS:

f.f. = Fill face
o.f. = Other face
b.f. = Both faces

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ROCK CANYON CULVERT
LAKESHORE ROAD
ELEPHANT BUTTE STATE PARK
SIERRA COUNTY, NEW MEXICO

REBAR LIST 4 OF 4

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								B. ROBINSON	B. ROBINSON	N. MARSHALL	NONE	SAMIR SIDHOM	20 of 20	OCTOBER 2022	RG3201-T

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GENERAL NOTES:

SPECIFICATIONS:

Design:
AASHTO LRFD Bridge Design Specifications, 9th Edition, 2020.

Construction:
Federal Highway Administration Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects, FP-14 and Special Contract Requirements (SCR's).

DESIGN LOADS:

Dead Loads:
Concrete: 150 pcf.
Precast Prestressed Concrete: 155 pcf.
Future Wearing Surface: 25 psf.
Lateral Earth Pressure: equivalent fluid unit weight of soil, 36 pcf.

Live Load:
HL-93. Maximum Dynamic Load Allowance, IM=33%.
NMDOT Permit Truck P327-13 (Strength II).

Wind loads:
Design Wind Speed (Strength III Limit State), V = 115 mph. Wind exposure Category = C.

Seismic Design:
Seismic design in accordance with AASHTO LRFD Bridge Design Specifications. 7% probability of exceedance in 75 yr design event.
PGA = 0.075 g, S_s = 0.174 g, S₁ = 0.056 g, A_s =0.090 g, S_{DS} = 0.209 g, S_{D1} = 0.095 g, Site Class C, Seismic Zone 1.

MATERIALS:

Concrete:
For all cast-in-place concrete except drilled shaft concrete, furnish structural concrete Class A(AE) with a minimum 28-day compressive strength f'c = 4.5 ksi. For cast-in-place drilled shafts, furnish structural concrete Class A with a minimum 28-day compressive strength f'c = 4.5 ksi. Chamfer exposed edges of all concrete ¾", unless noted otherwise on the plans. Furnish preformed flexible cellular joint filler meeting the requirements of ASTM D1056, Type 2, Grade 3, 4 or 5. Furnish expansion joint filler meeting the requirements of AASHTO M213 and backer rod meeting the requirements of ASTM D 5249.

Reinforcing Steel:
Furnish reinforcing steel conforming to AASHTO M31 or M322, Grade 60 deformed.
Provide a minimum concrete cover to the face of any bar of 2", unless shown otherwise on the plans. Provide minimum splice lengths for reinforcement as shown on the plans. Bar splices other than those shown on the plans will not be paid for. Furnish epoxy coated reinforcing steel (slab, girders, endwalls, approach slabs, and sleeper beams), as noted on the bar list.

Prestressed Concrete Girders:
Furnish prestressed concrete girders manufactured as detailed on the plans. Furnish Class P concrete for prestressed girders with a minimum 28-day design compressive strength f'c = 9,500 PSI, and release strength f'ci = 7,000 PSI. Furnish structural steel for bearing plates conforming to AASHTO M270, Grade 36.
Maintain stability of the girders during all phases of construction.

Prestressing Steel:
Furnish Grade 270, 0.6 inch Ø, seven-wire, bright, low-relaxation strands, conforming to AASHTO M203 (ASTM A416). Pretension each strand to a total load of 43,900 lbs. at which the initial pretensioning stress f'si = 0.75 (f's) = 202,500 PSI. The final estimated effective prestress force per strand = 38,800 lb.

Bearings:
Furnish elastomeric bearing pads conforming to the requirements of Section 18.2 of the AASHTO LRFD Bridge Construction Specifications, and 60 durometer hardness.

Structure Excavation:
Perform all necessary excavation work to build the foundation to the required depths. Refer to Geotechnical Report # NM FLAP SIE 10(1) for description of the anticipated materials, including rock, cobbles, and boulders to be encountered during excavation of the bridge site.

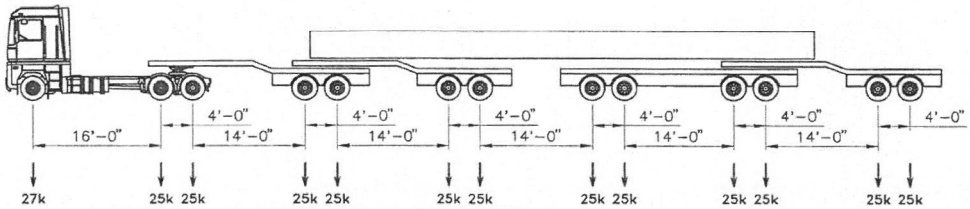
GEOTECHNICAL REPORT:
For boring logs and other geotechnical information, see Geotechnical Report: Lakeshore Road, Elephant Butte State Park, Sierra County, NM, Report # NM FLAP SIE 10(1), dated June 2022, prepared by U.S. Department of Transportation, Federal Highway Administration, Central Federal Lands Highway Division.

STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S40

ESTIMATE				
Item No.	Item	Quantity:	Unit:	Notes:
15215-2000	Survey and staking, bridge	1	EACH	
20304-1000	Removal of structures and obstructions	All req'd	LPSM	(2)
20801-0000	Structure excavation	130	CUYD	(1)
20803-0000	Structural backfill	86	CUYD	(1)
25101-2300	Placed riprap, method B, class 3	100	CUYD	(3)
55201-0200	Structural concrete, class A(AE)	260	CUYD	(1)(4)
55302-3400	Precast, prestressed concrete box beam	345	LNFT	(1)(5)
55401-1000	Reinforcing steel	19,300	LB	(1)
55401-2000	Reinforcing steel, epoxy coated	28,400	LB	(1)
55601-0900	Bridge railing, steel (NM Type A32)	188	LNFT	(1)(6)
56401-1000	Bearing device, elastomeric	20	EACH	(1)(7)
56501-0300	Drilled shaft, 30-inch diameter	240	LNFT	(8)
61707-0000	Structure transition railing	200	LNFT	(1)

ESTIMATE NOTES:

- (1) Contract Quantity.
- (2) Includes removal of (2) 48" corrugated metal pipe culverts and associated headwalls, end sections, and concrete sills.
- (3) Includes cost of furnishing and installing non-woven geotextile fabric Class 1, Type C (estimated quantity = 210 square yds.).
- (4) Includes cost of furnishing and installing all joint fillers, sealants, backer rods, geocomposite sheet drain (estimated quantity = 70 square yds.), weepholes and drain grates (12 tot.), aggregate base and polyethylene sheeting for approach slabs.
- (5) Includes cost of concrete, epoxy coated reinforcing steel, prestressing steel, inserts, lifting devices and any other materials required for the manufacture or erection of the girders.
- (6) Includes cost of furnishing and installing all steel components, inserts, and bridge number plates.
- (7) Includes cost of furnishing and installing elastomeric bearing pads and any other materials required for the installation of the expansion bearings.
- (8) Includes cost of excavation, concrete, reinforcing steel, permanent or temporary casing, access tubes, drilled shaft testing, and all materials and work necessary to construct the drilled shafts.



NMDOT PERMIT TRUCK P327-13
No Scale

LFR RATING	
INVENTORY RATINGS	HS 26.2
OPERATING RATINGS	HS 54.4

LRFR RATING FACTORS	
INVENTORY-LEVEL	1.24
OPERATING-LEVEL	1.84

Rating generated by NMDOT using the AASHTOWare bridge rating program based on plan details.

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CENTRAL FEDERAL LANDS HIGHWAY DIVISION

LONG POINT BRIDGE
LAKESHORE ROAD
ELEPHANT BUTTE LAKE STATE PARK

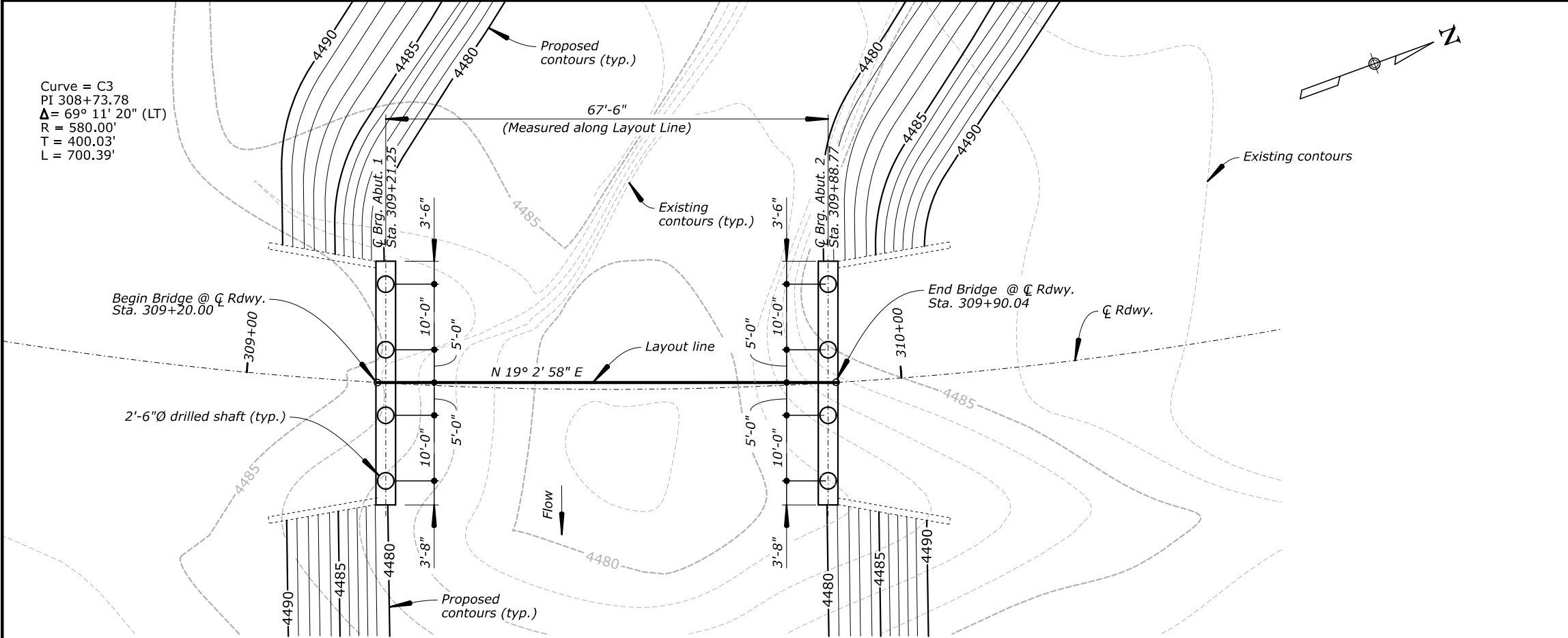
SIERRA COUNTY, NEW MEXICO

GENERAL NOTES & ESTIMATE

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								D. MICNHIMER	B. ROBINSON	N. MARSHALL	NONE	SAMIR SIDHOM	2 of 23	OCTOBER 2022	RG3198-B

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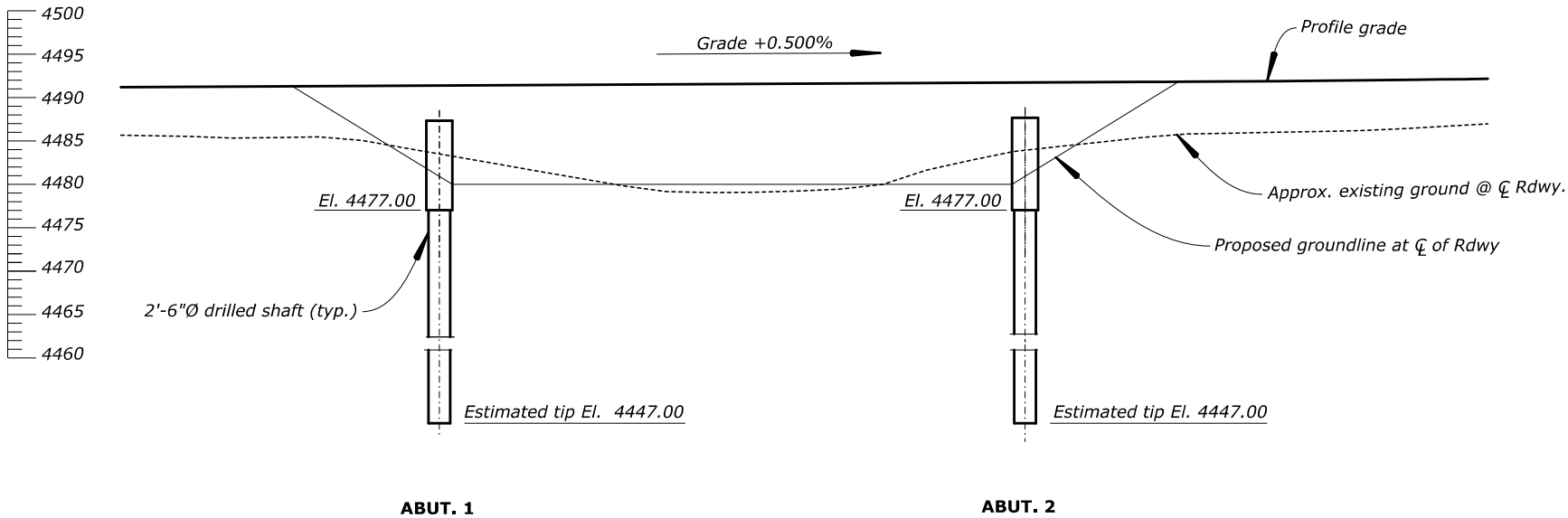
STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S42



NOTES:

1. Abut. 1 & 2 C Brg. are perpendicular to Layout Line.
2. See RG3198-C for Boring Logs.

FOUNDATION PLAN



ABUT. 1

ABUT. 2

ELEVATION

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

LONG POINT BRIDGE
LAKESHORE ROAD
ELEPHANT BUTTE LAKE STATE PARK

SIERRA COUNTY, NEW MEXICO

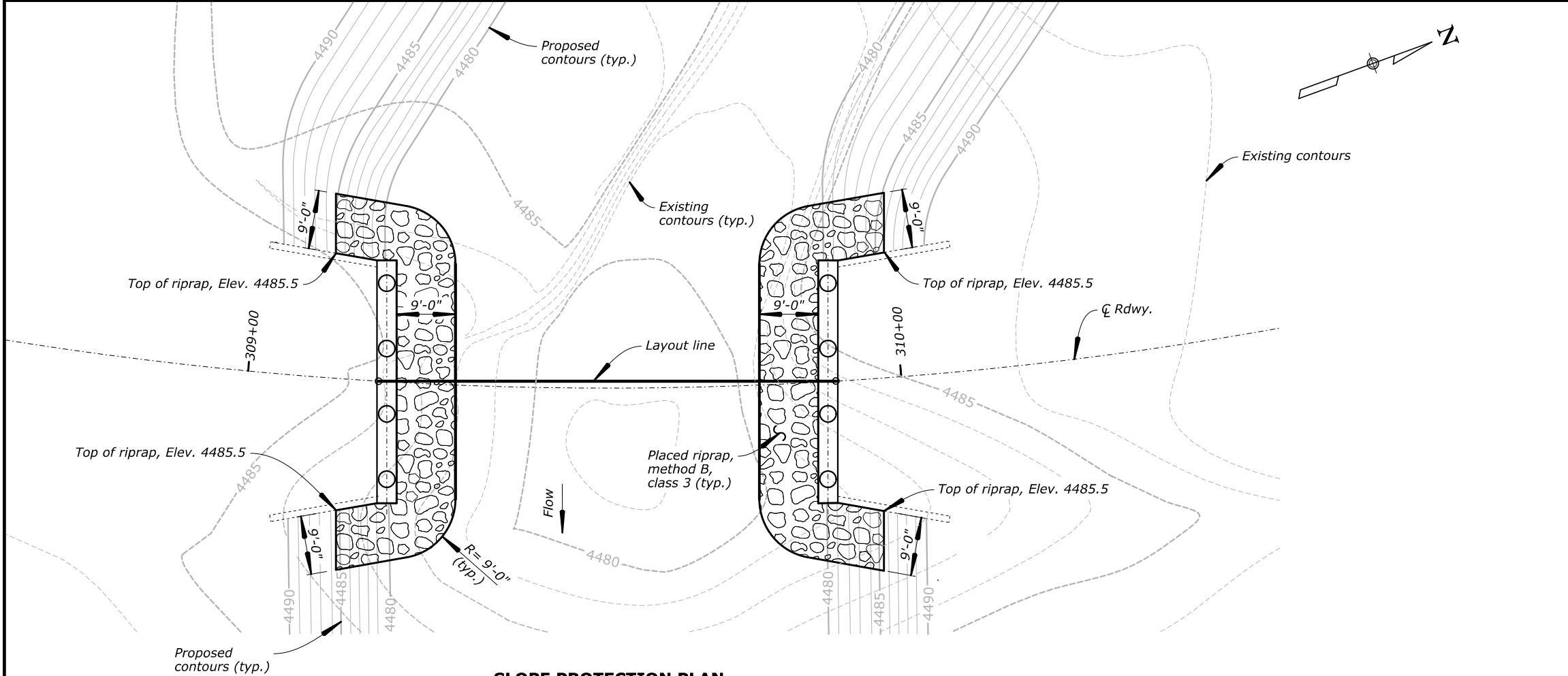
FOUNDATION PLAN

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								D. MICNHIMER	N. MARSHALL	N. MARSHALL	1"= 20'-0"	SAMIR SIDHOM	4 of 23	OCTOBER 2022	RG3198-D

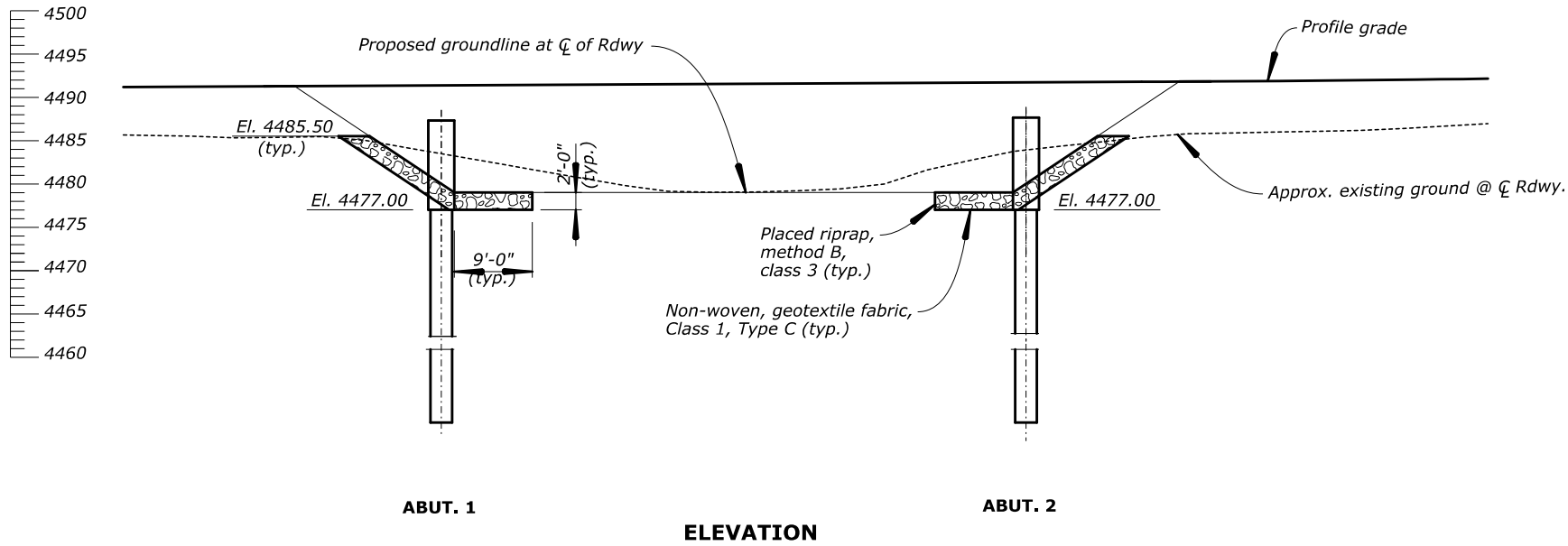
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10/7/2022

STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S43



SLOPE PROTECTION PLAN



ELEVATION

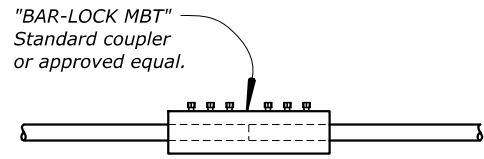
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

LONG POINT BRIDGE
LAKESHORE ROAD
ELEPHANT BUTTE LAKE STATE PARK
SIERRA COUNTY, NEW MEXICO

SLOPE PROTECTION

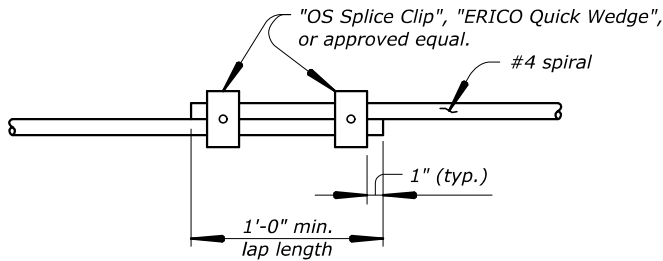
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								L. CALDERON	B. ROBINSON	N. MARSHALL	1"= 20'-0"	SAMIR SIDHOM	5 of 23	OCTOBER 2022	RG3198-E

STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S44



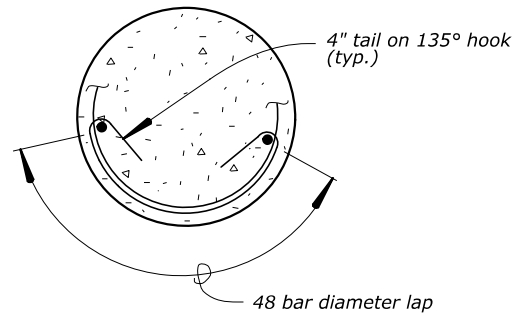
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MECHANICAL LAP SPLICE FOR SPIRALS

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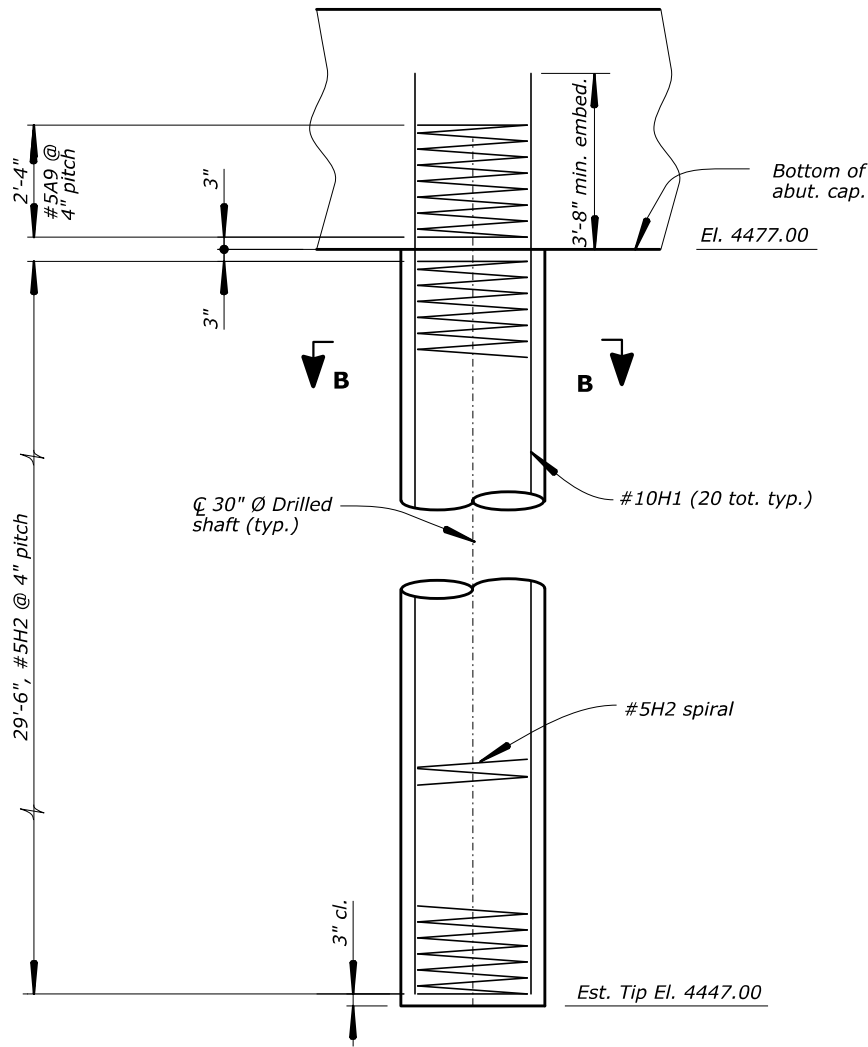
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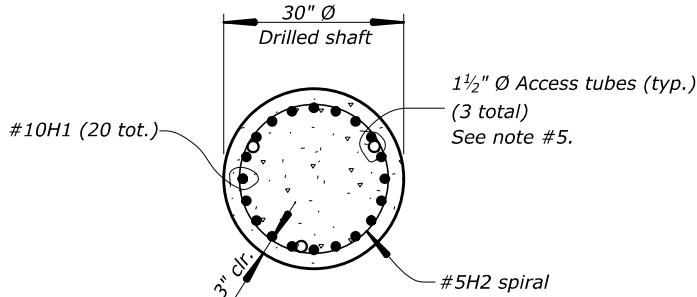
SPLICE DETAILS (OPTIONAL)

NOTES:

- Minimum #5 spiral lap splice = 2'-11".
- Mechanical splices may be used in spiral and longitudinal reinforcing. For mechanical splice requirements, see FP-14. Provide clear cover not less than 1½ inches measured from the surface of concrete to the outside face of the splice components. Stagger mechanical splices of longitudinal reinforcing a minimum of 2'-0" as measured along the longitudinal axis of the shaft/column.
- Utilize centralizers to maintain rebar clearance. Submit cage alignment details to the CO for approval.
- Add 1½ turns of spiral and 135 degree hook with 1'-0" tail at top and bottom of spiral length.
- Equally space access tubes for integrity test and tie to reinforcing cage at nearest drilled shaft/ rock socket longitudinal bar. Perform integrity test before pouring abutment cap concrete. Space concrete spacers vertically less than 5 ft.



DRILLED SHAFT ELEVATION



SECTION B-B

Scale: 3/8" = 1'-0"

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LONG POINT BRIDGE
LAKESHORE ROAD
ELEPHANT BUTTE LAKE STATE PARK

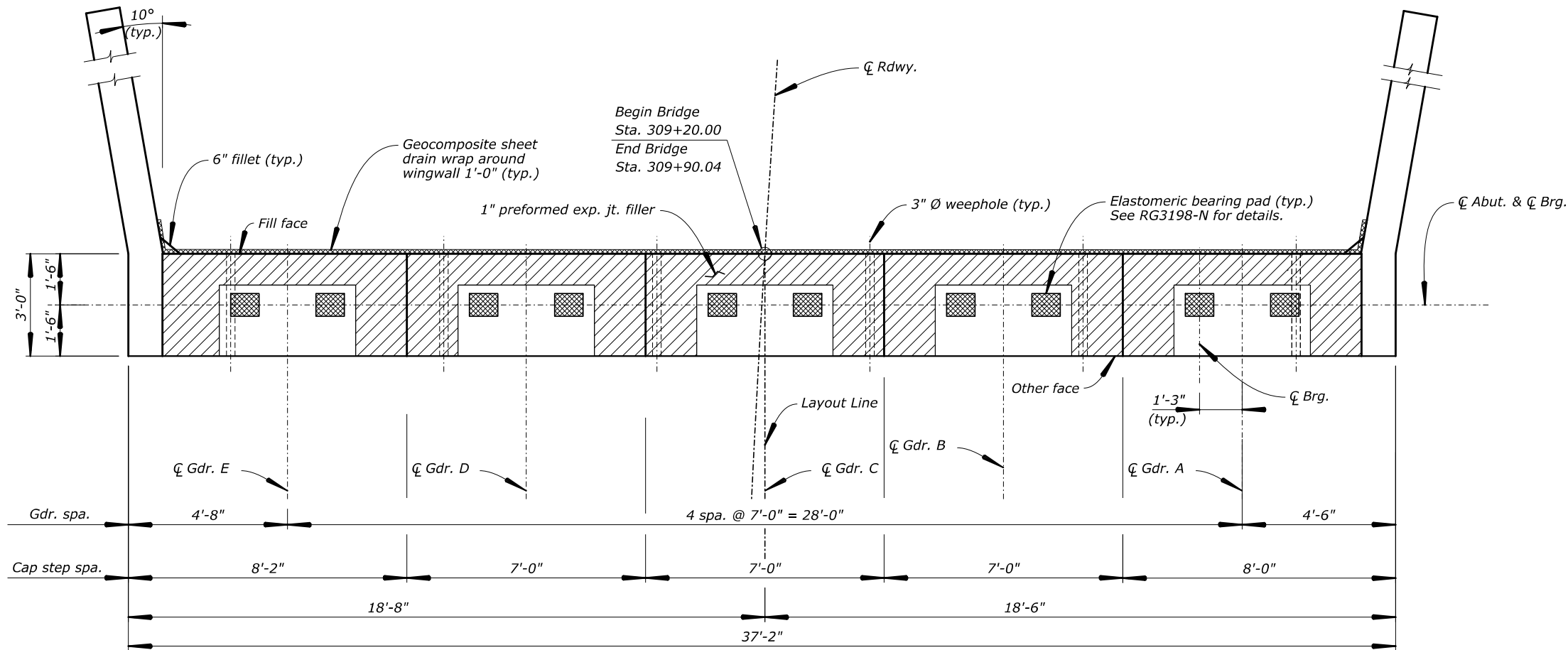
SIERRA COUNTY, NEW MEXICO

DRILLED SHAFTS

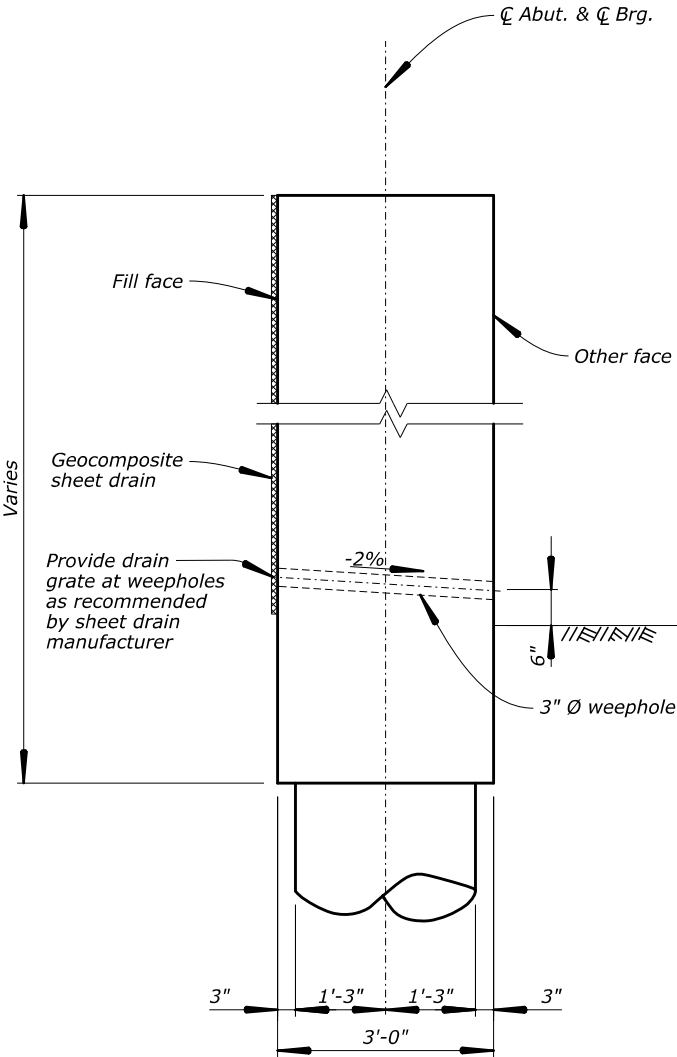
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								D. MICNHIMER	B. ROBINSON	N. MARSHALL	¼" = 1'-0" UNLESS NOTED	SAMIR SIDHOM	6 of 23	OCTOBER 2022	RG3198-F

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STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S45

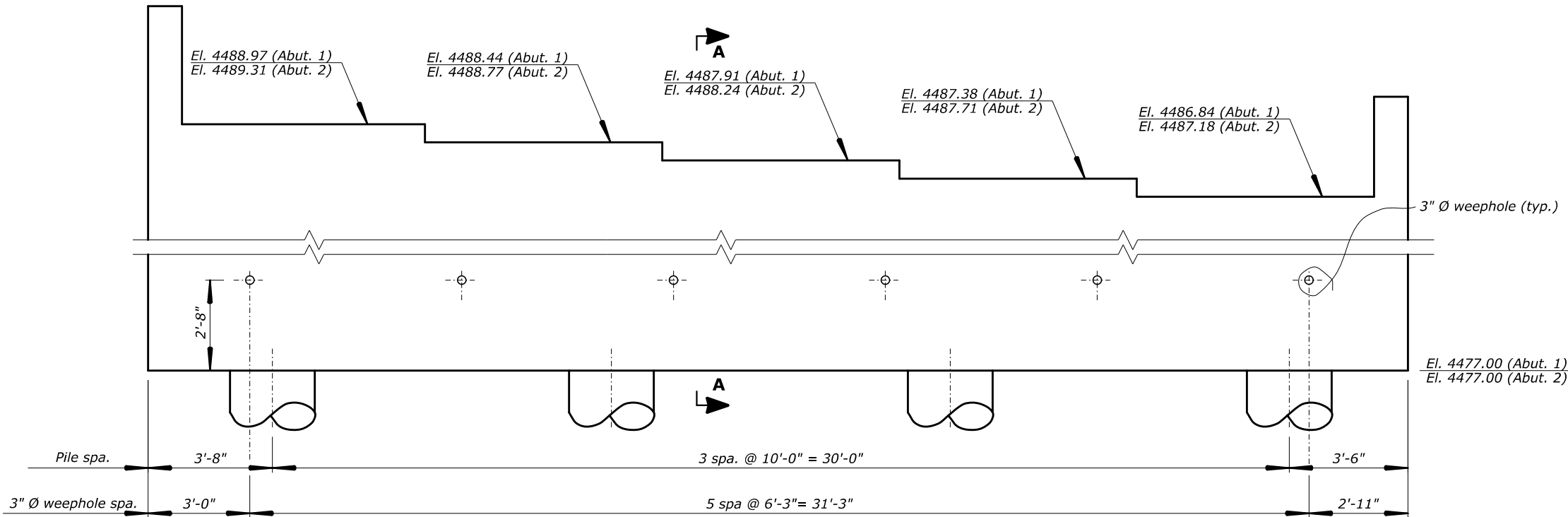


ABUTMENT 1 PLAN
(ABUTMENT 1 SHOWN, ABUTMENT 2 OPPOSITE HAND)



SECTION A-A
Scale: 3/8" = 1'-0"

ABBREVIATIONS:
f.f. = Fill face
o.f. = Other face
b.f. = Both faces



ABUTMENT ELEVATION
(ABUTMENT 1 SHOWN, ABUTMENT 2 OPPOSITE HAND)

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

LONG POINT BRIDGE
LAKESHORE ROAD
ELEPHANT BUTTE LAKE STATE PARK

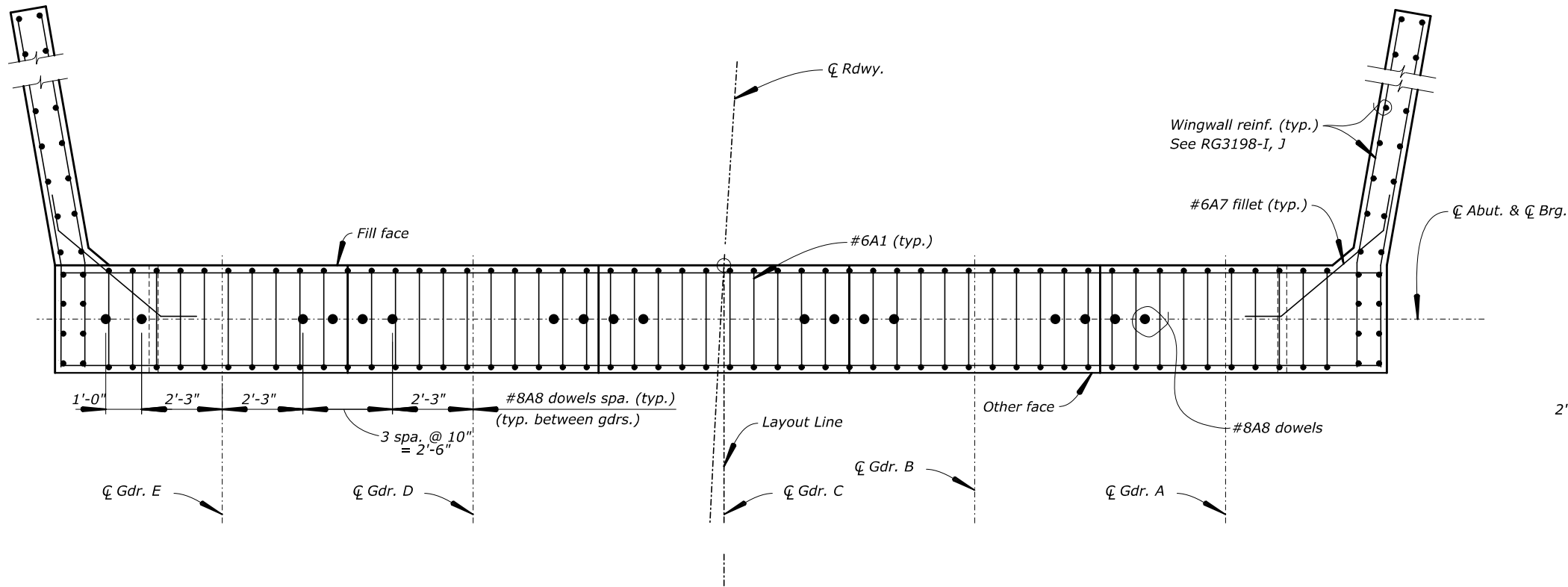
SIERRA COUNTY, NEW MEXICO

ABUTMENT PLAN & ELEVATION

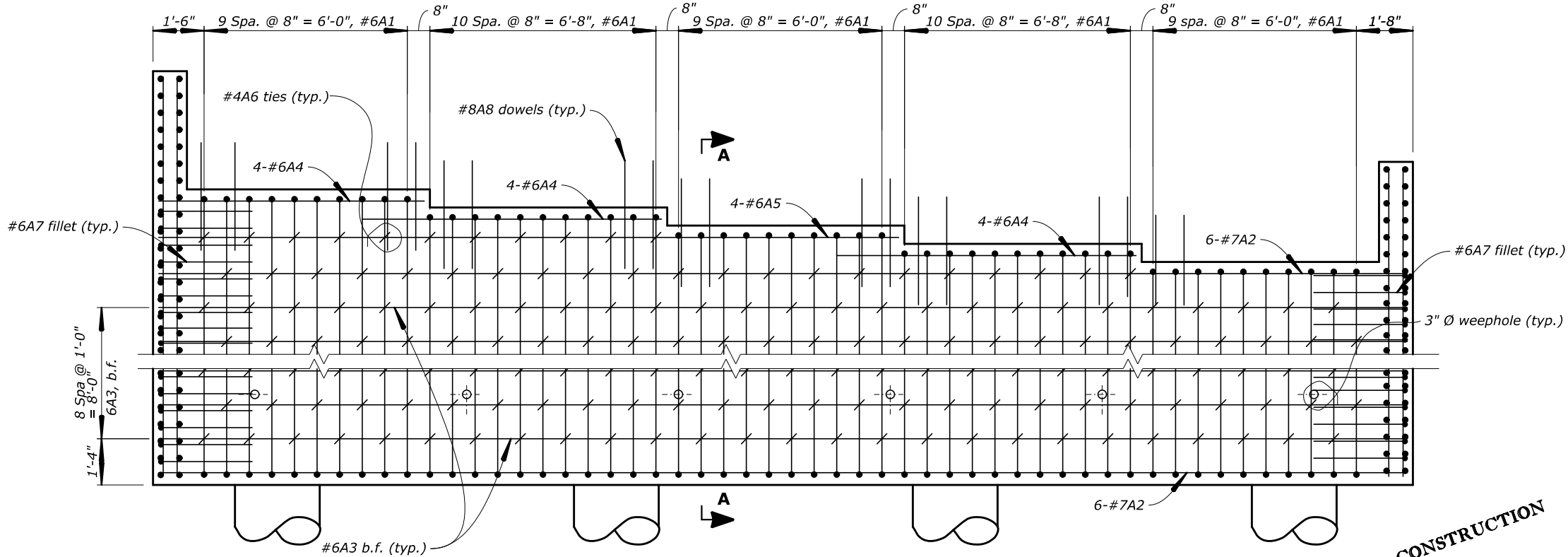
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								D. MICNHIMER	B. ROBINSON	N. MARSHALL	1/4" = 1'-0" UNLESS NOTED	SAMIR SIDHOM	7 of 23	OCTOBER 2022	RG3198-G

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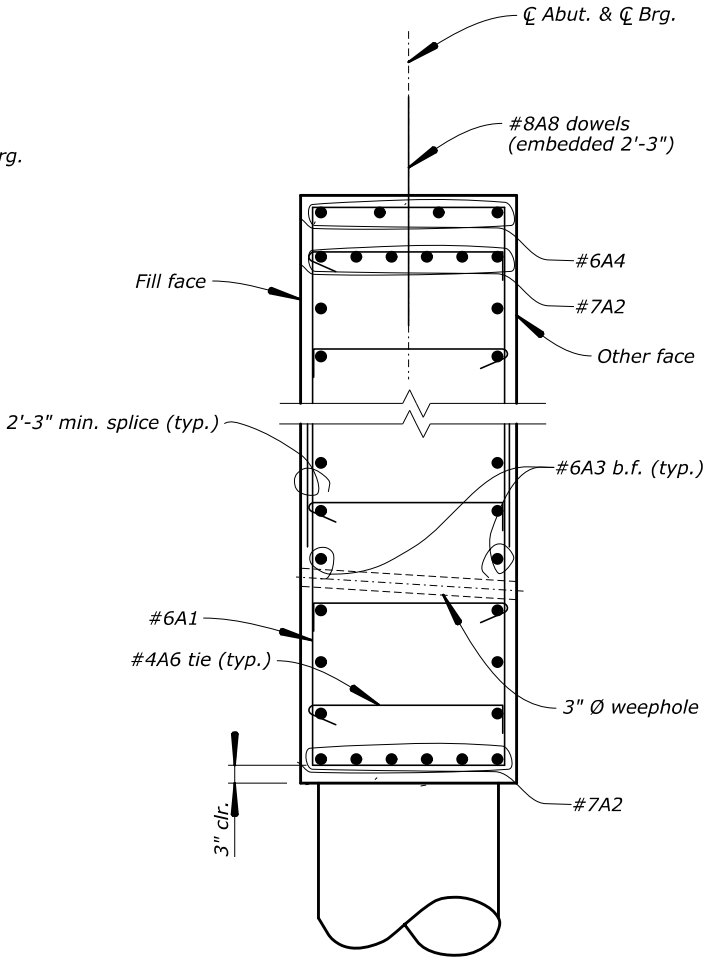
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NM	NM FLAP SIE10(1) LAKESHORE ROAD	S46



ABUTMENT 1 PLAN
(ABUTMENT 1 SHOWN, ABUTMENT 2 SIMILAR)



ABUTMENT ELEVATION
(ABUTMENT 1 SHOWN, ABUTMENT 2 SIMILAR)



SECTION A-A
Scale: 3/8" = 1'-0"

ABBREVIATIONS:
f.f. = Fill face
o.f. = Other face
b.f. = Both faces

NOT FOR CONSTRUCTION

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

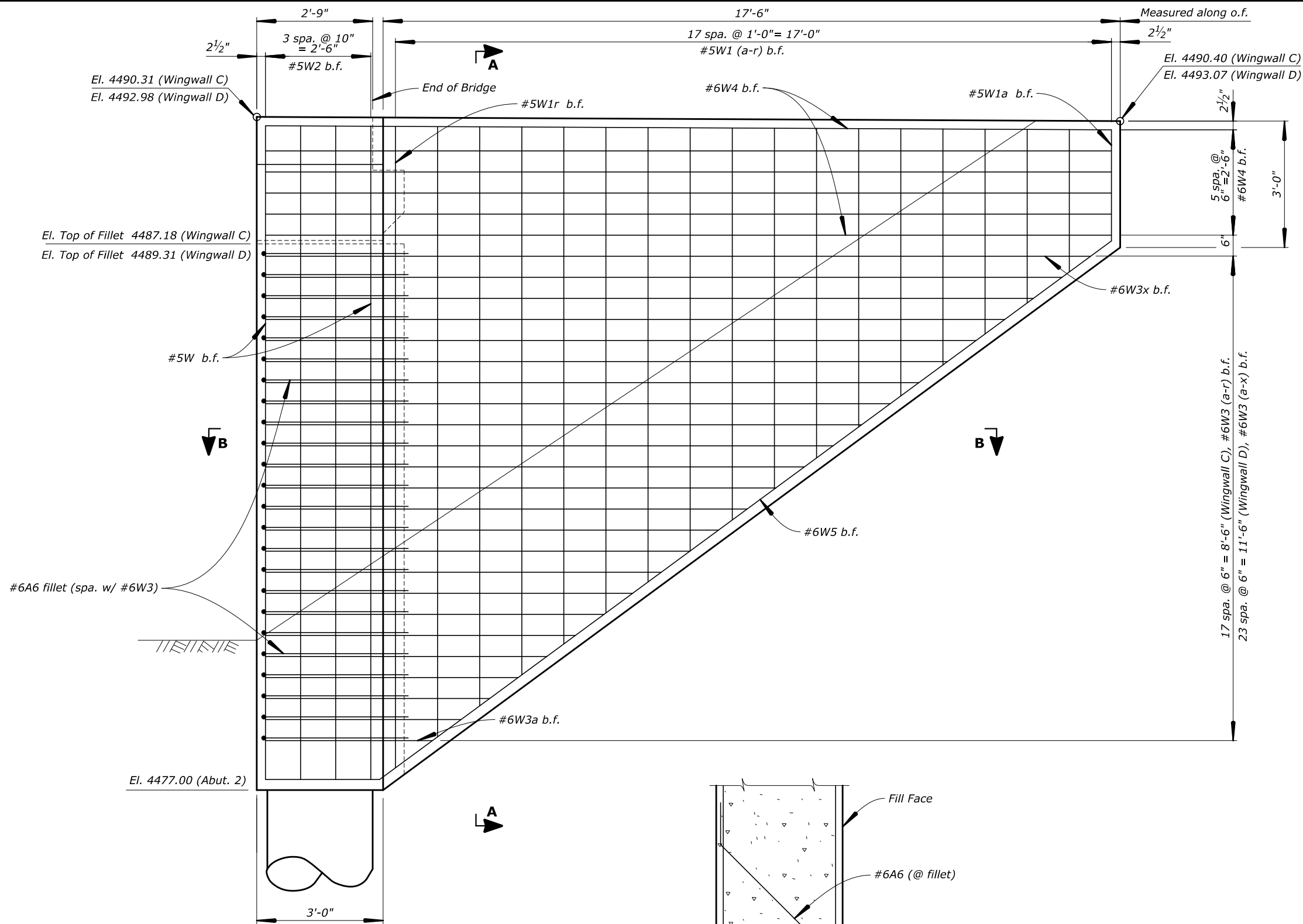
LONG POINT BRIDGE
LAKESHORE ROAD
ELEPHANT BUTTE LAKE STATE PARK
SIERRA COUNTY, NEW MEXICO

ABUTMENT REINFORCEMENT

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								D. MICNHIMER	B. ROBINSON	N. MARSHALL	1/4" = 1'-0" UNLESS NOTED	SAMIR SIDHOM	8 of 23	OCTOBER 2022	RG3198-H

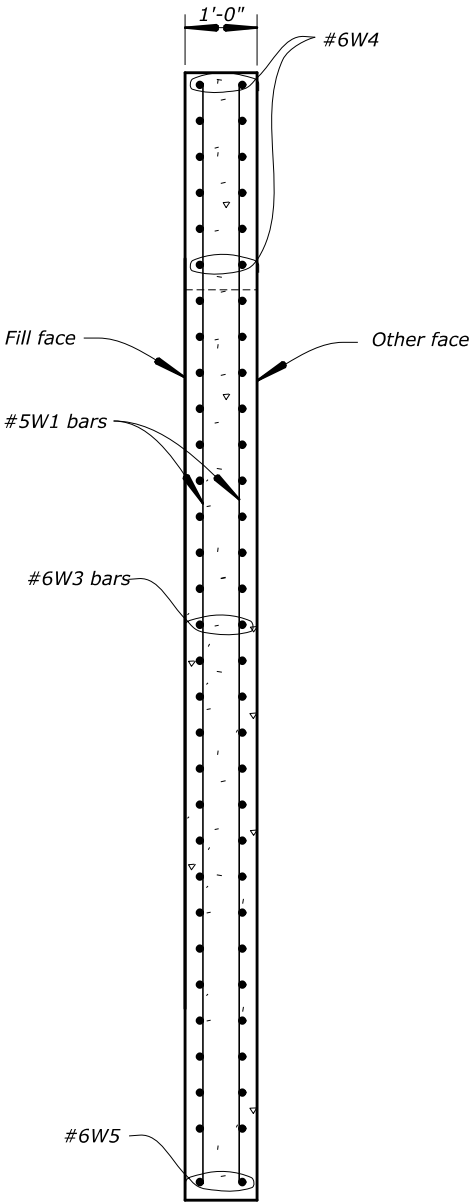
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STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S48



WINGWALL ELEVATION

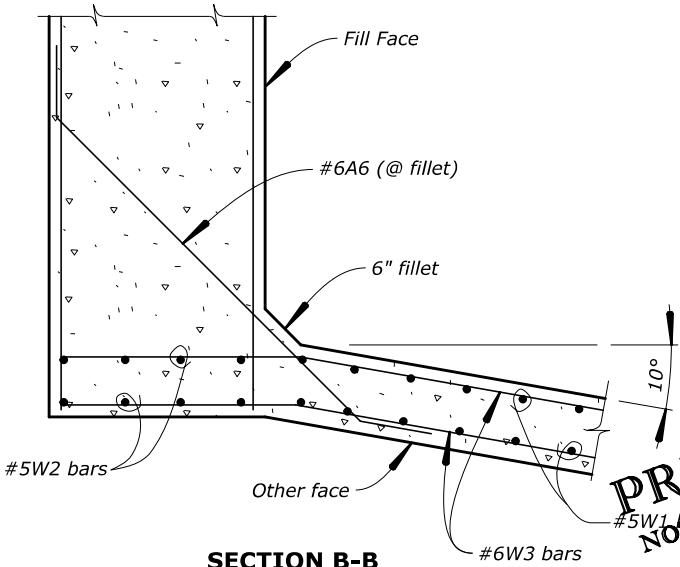
(Wingwall D shown, Wingwall C similar)



SECTION A-A

ABBREVIATIONS:

f.f. = Fill face
o.f. = Other face
b.f. = Both faces



SECTION B-B

PRELIMINARY
NOT FOR CONSTRUCTION

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

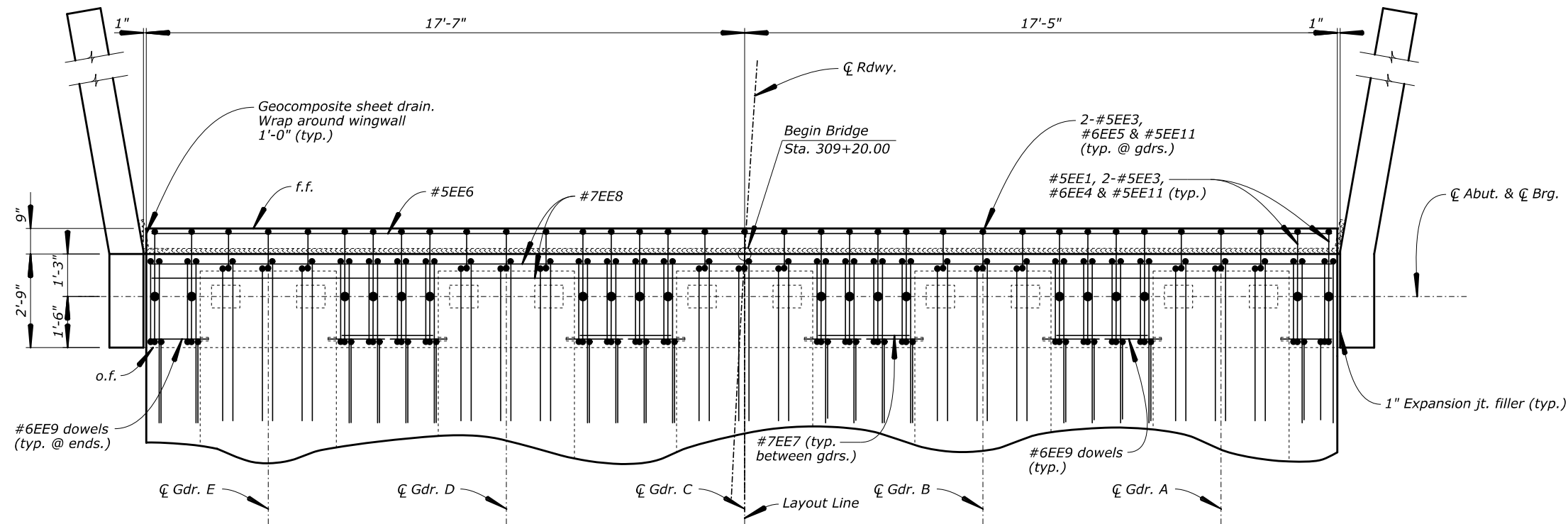
LONG POINT BRIDGE
LAKESHORE ROAD
ELEPHANT BUTTE LAKE STATE PARK
SIERRA COUNTY, NEW MEXICO

ABUTMENT 2 WINGWALLS

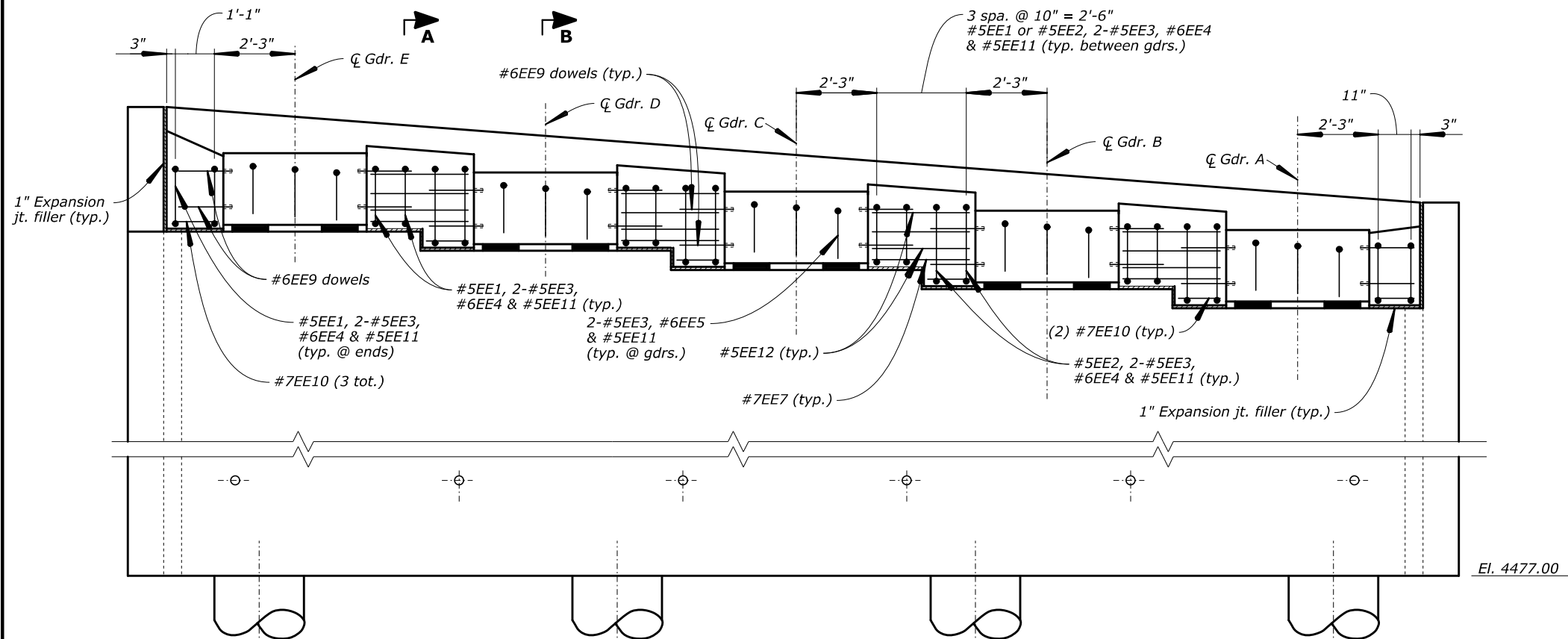
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								D. MICNHIMER	N. MARSHALL	N. MARSHALL	3/8" = 1'-0" UNLESS NOTED	SAMIR SIDHOM	10 of 23	OCTOBER 2022	RG3198-J

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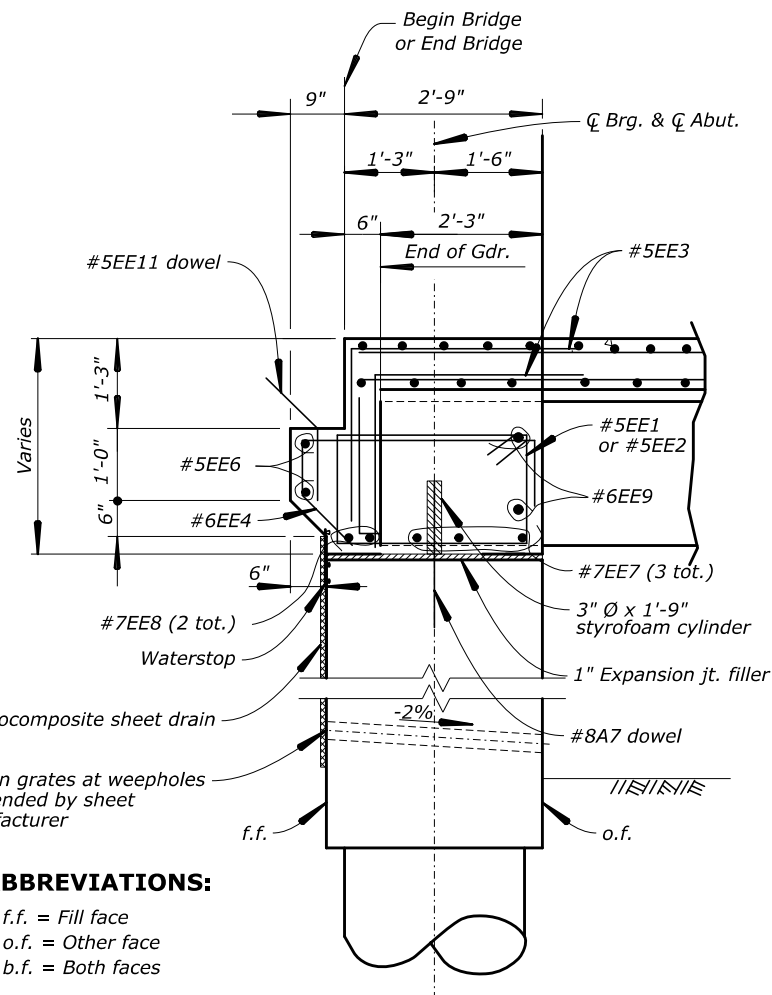
STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S49



ABUTMENT 1 ENDWALL



ABUTMENT 1 ENDWALL ELEVATION



SECTION A-A

Scale: 3/8" = 1'-0"

ABBREVIATIONS:

f.f. = Fill face
o.f. = Other face
b.f. = Both faces

Note: See RG3198-L for Section B-B.

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
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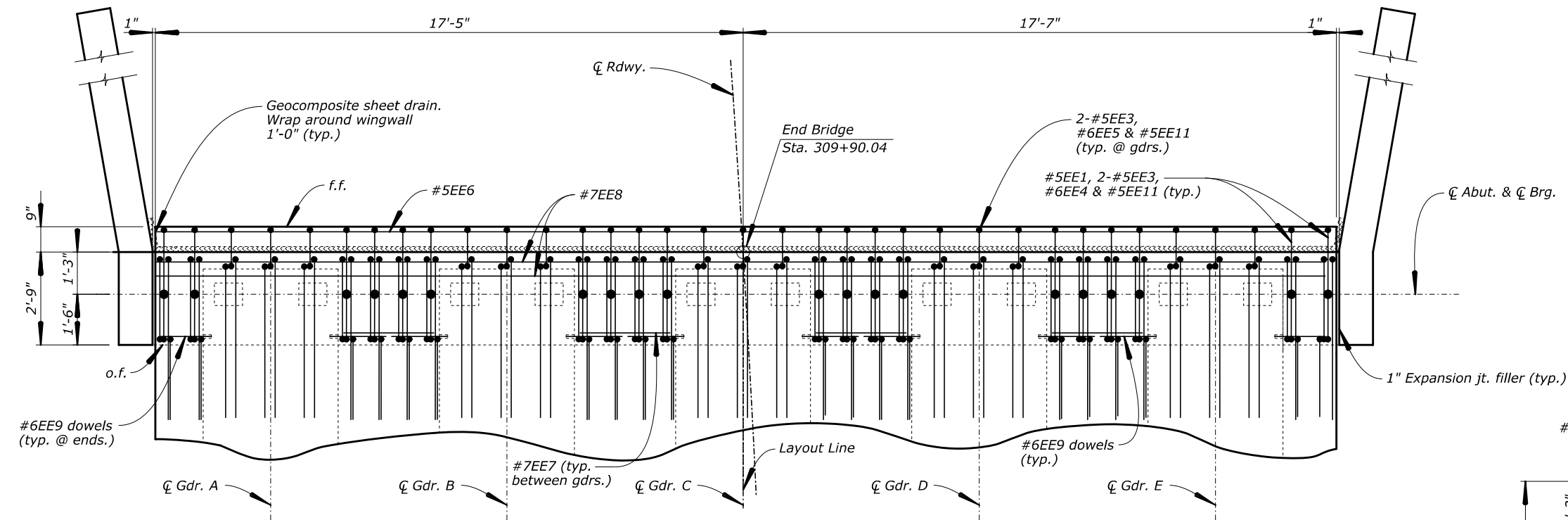
LONG POINT BRIDGE
LAKESHORE ROAD
ELEPHANT BUTTE LAKE STATE PARK

SIERRA COUNTY, NEW MEXICO

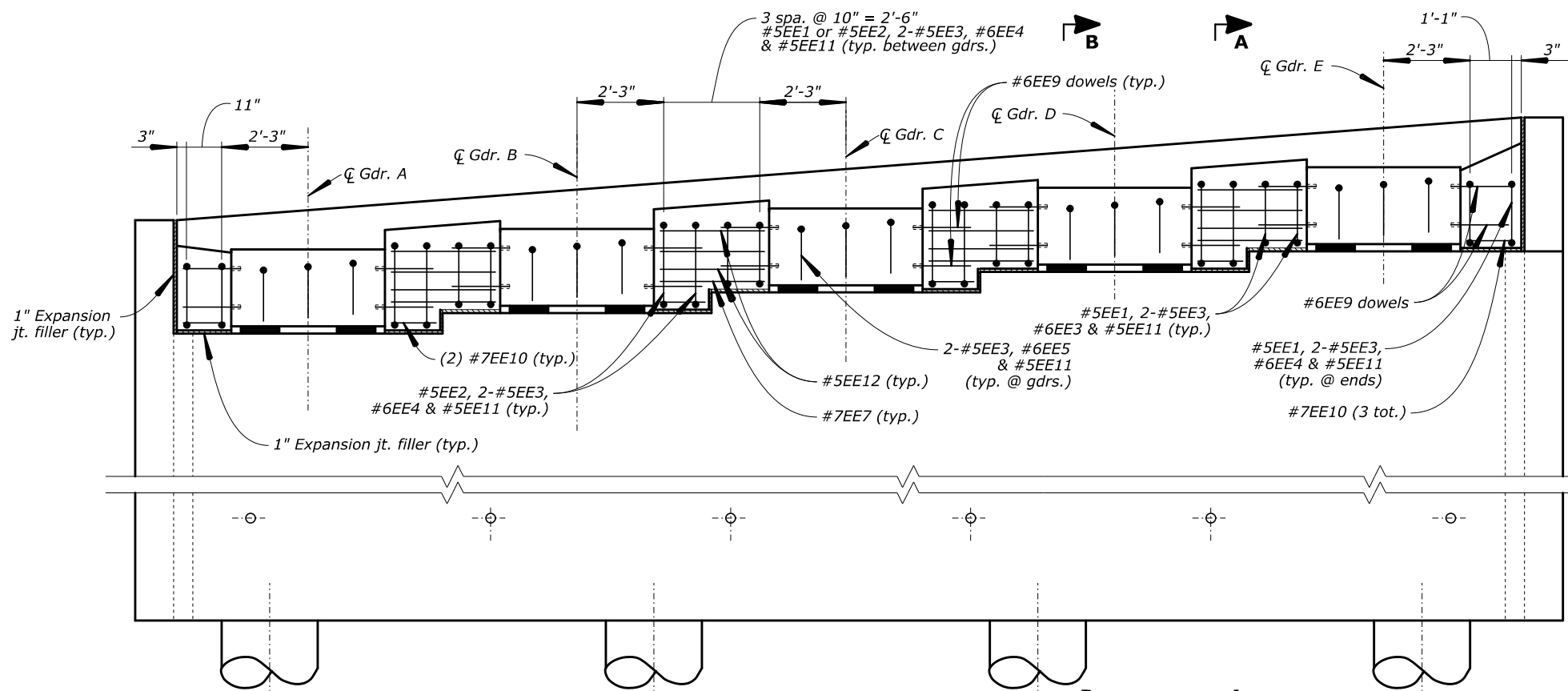
ABUTMENT 1 ENDWALL

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								D. MICNHIMER	B. ROBINSON	N. MARSHALL	1/4" = 1'-0" UNLESS NOTED	SAMIR SIDHOM	11 of 23	OCTOBER 2022	RG3198-K

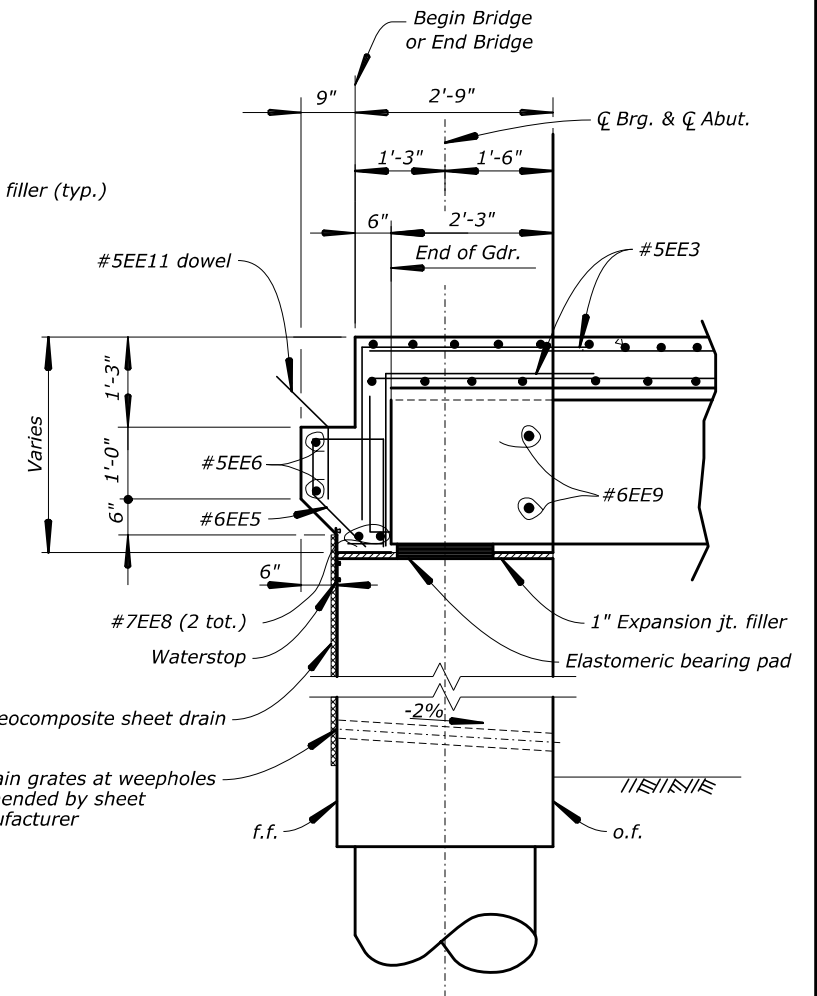
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NM	NM FLAP S1E10(1) LAKESHORE ROAD	S50



ABUTMENT 2 ENDWALL



ABUTMENT 2 ENDWALL ELEVATION



Note: See RG3198-K for Section A-A.

SECTION B-B
Scale: 3/8" = 1'-0"

El. 4477.00

ABBREVIATIONS:

f.f. = Fill face
o.f. = Other face
b.f. = Both faces

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

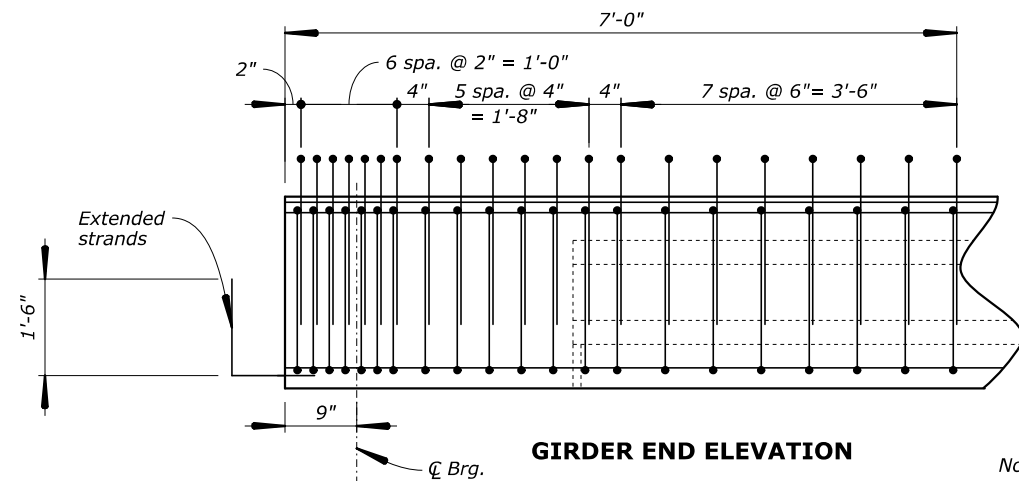
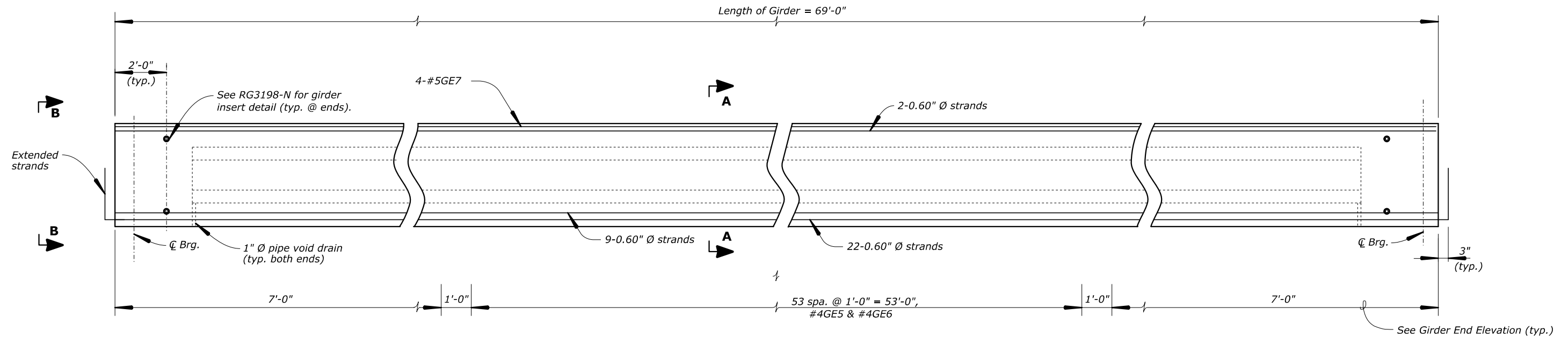
LONG POINT BRIDGE
LAKESHORE ROAD
ELEPHANT BUTTE LAKE STATE PARK
SIERRA COUNTY, NEW MEXICO

ABUTMENT 2 ENDWALL

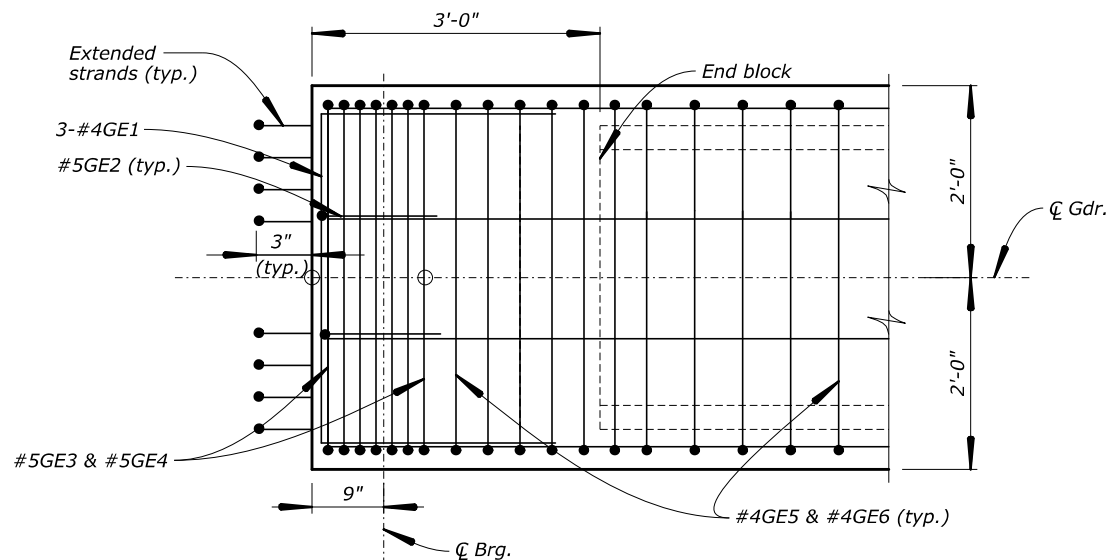
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								D. MICNHIMER	B. ROBINSON	N. MARSHALL	1/4" = 1'-0" UNLESS NOTED	SAMIR SIDHOM	12 of 23	OCTOBER 2022	RG3198-L

1. Cast girders $\frac{3}{8}$ " longer than shown to allow for shortening due to prestressing.

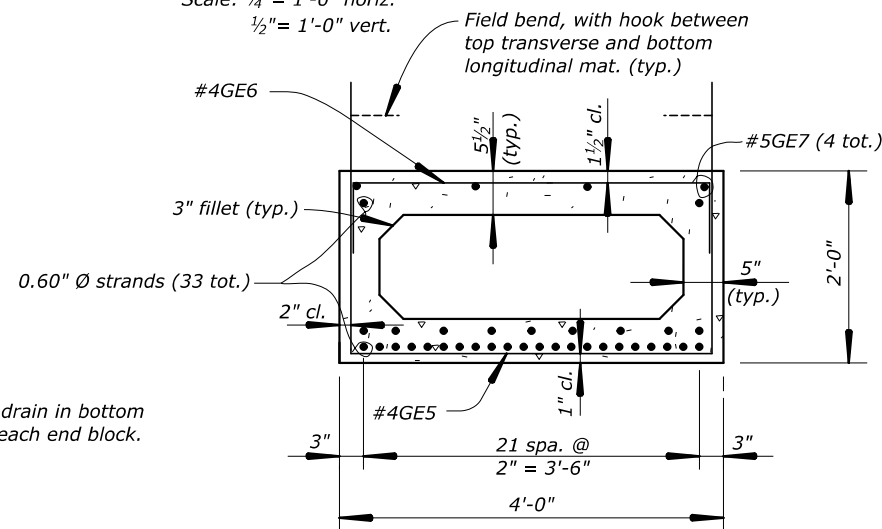
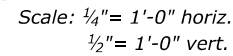
STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S51



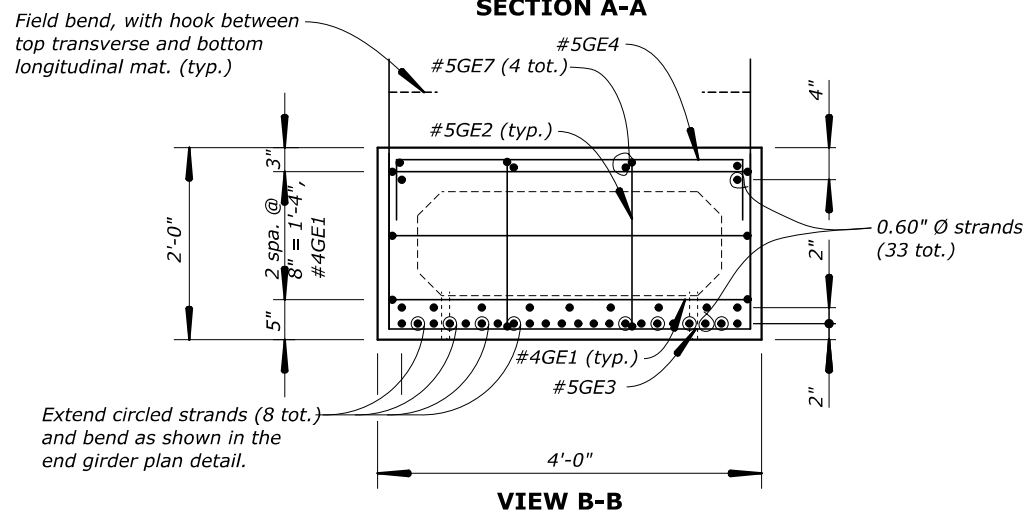
GIRDER END ELEVATION



END GIRDER PLAN DETAIL



SECTION A-A



VIEW B-B

ITEM	UNIT	QUANTITY
Concrete	Cu. Yd.	12.4
Reinforcing Steel	Lbs.	1449
0.60" Ø Strands	Ft.	2305

*Note: Quantities shown are for one box girder only.
See RG3198-V for Precast Concrete Box Beam bar list.*

LONG POINT BRIDGE
LAKESHORE ROAD
ELEPHANT BUTTE LAKE STATE PARK
SIERRA COUNTY, NEW MEXICO

PRECAST CONCRETE BOX BEAM

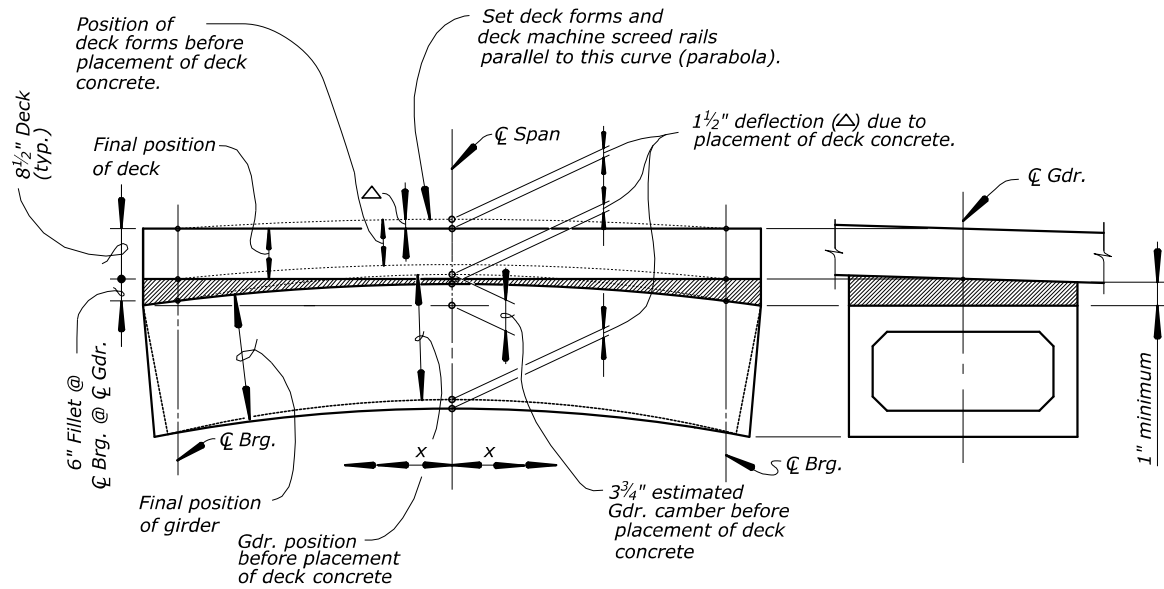
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10/7/2022

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STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S52



Dead load deflection equation:

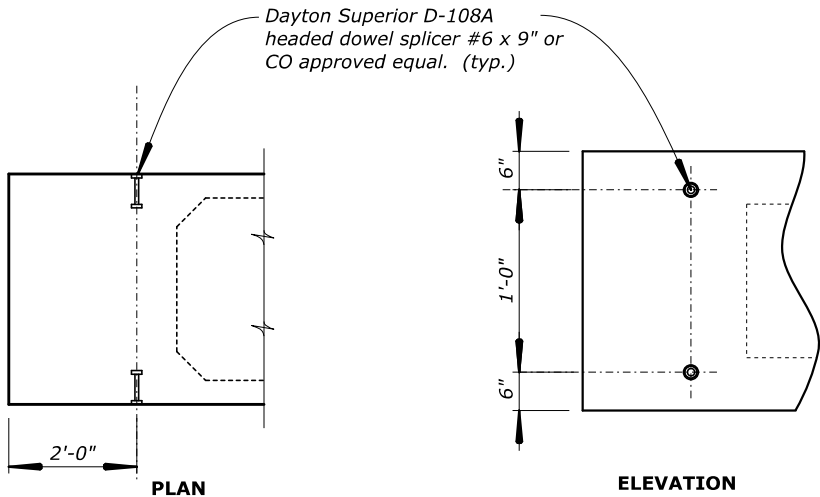
Span: $DL\ defl. = 1.50 - \frac{x^2}{760}$

Where DL defl. = deflection, in inches, of girder at any point, caused by the weight of deck and diaphragm, and x = distance, in inches, measured from Δ Span.

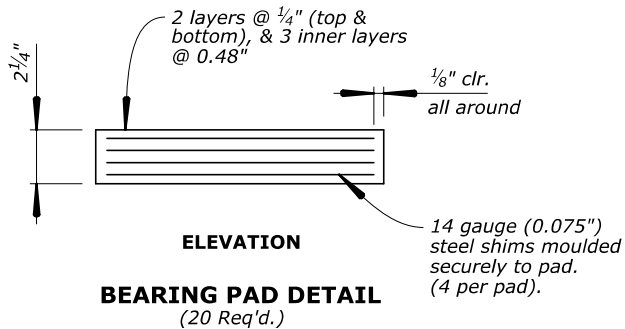
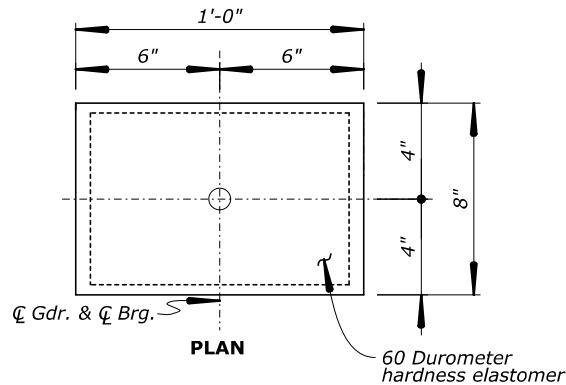
Required Actions:

1. Measure girder camber prior to setting deck forms. If actual girder camber exceeds estimated girder camber by more than the allowable tolerance, increase fillets by raising the profile grade as directed by the CO. Allowable tolerance for the Span = 1".
2. Set the deck forms and camber the deck machine screed rails to offset the girder deflections due to the deck and diaphragms as shown in the diagram.
3. Bridge girder seat elevations were calculated using design cambers of the girders plus dead load deflections of the deck such that the top of the precast girders will be a minimum of 1 inch below the bottom of the deck at any one point in the span.

DECK FORM SETTING DIAGRAM



GIRDER INSERT DETAIL



BEARING PAD DETAIL
(20 Req'd.)

BEARING NOTES:

1. Furnish steel reinforced elastomeric bearing pads conforming to AASHTO M251 with 60 Durometer hardness, elastomer Grade 3 or higher. Design shear modulus, G = 130 psi.
2. AASHTO LRFD Design method "A" used for elastomeric pad design.
3. For information only:
Abut. design service loads per bearing:
Dead load = 42 Kips
Live load = 36 Kips (no impact)

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

LONG POINT BRIDGE
LAKESHORE ROAD
ELEPHANT BUTTE LAKE STATE PARK

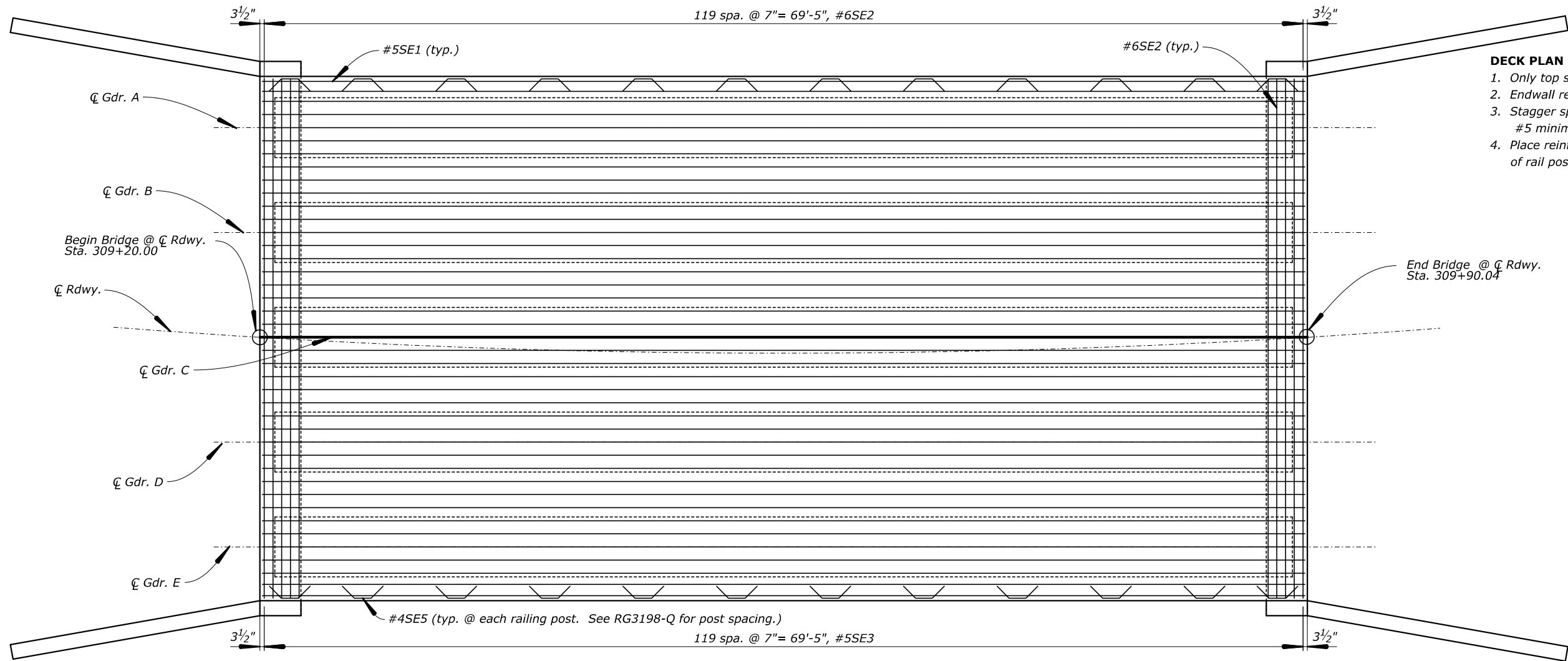
SIERRA COUNTY, NEW MEXICO

PRECAST CONCRETE
BOX BEAM DETAILS

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								D. MICNHIMER	B. ROBINSON	N. MARSHALL	NONE	SAMIR SIDHOM	14 of 23	OCTOBER 2022	RG3198-N

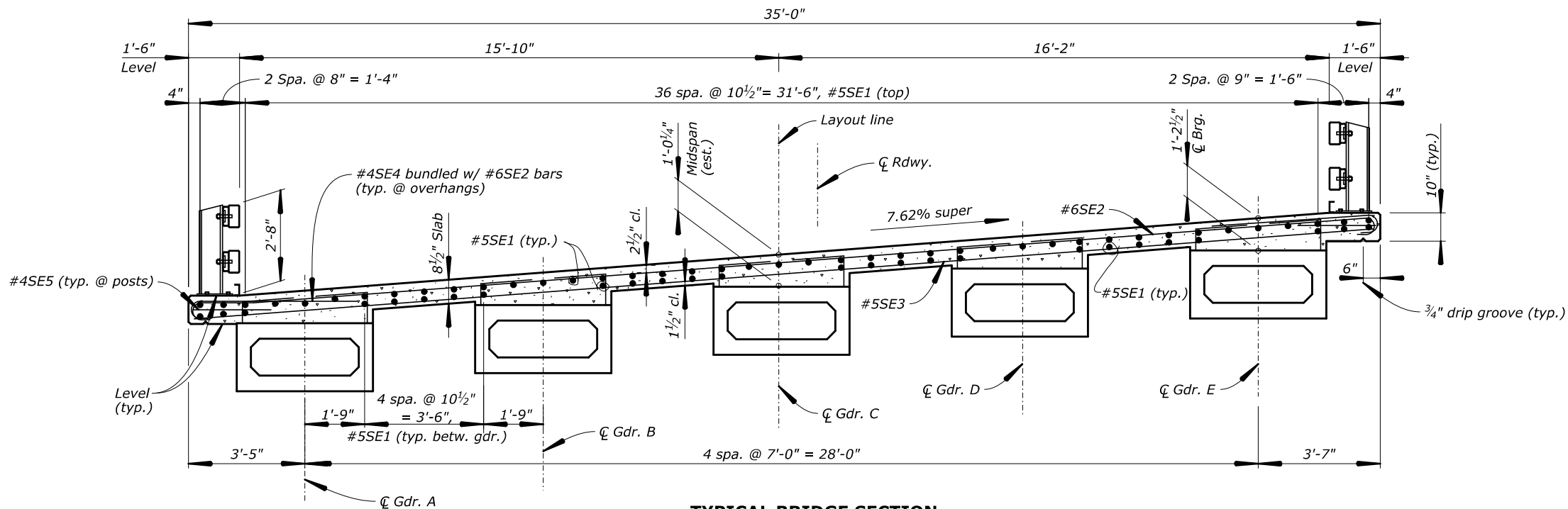
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10/7/2022

STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S53



- DECK PLAN NOTES:**
1. Only top slab reinforcement is shown.
 2. Endwall reinforcement not shown for clarity.
 3. Stagger splice locations for longitudinal reinforcement.
#5 minimum splice length = 2'-10"
 4. Place reinforcement to avoid coring operations of rail post anchorage.

DECK PLAN
Scale: 1/8" = 1'-0"



TYPICAL BRIDGE SECTION

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

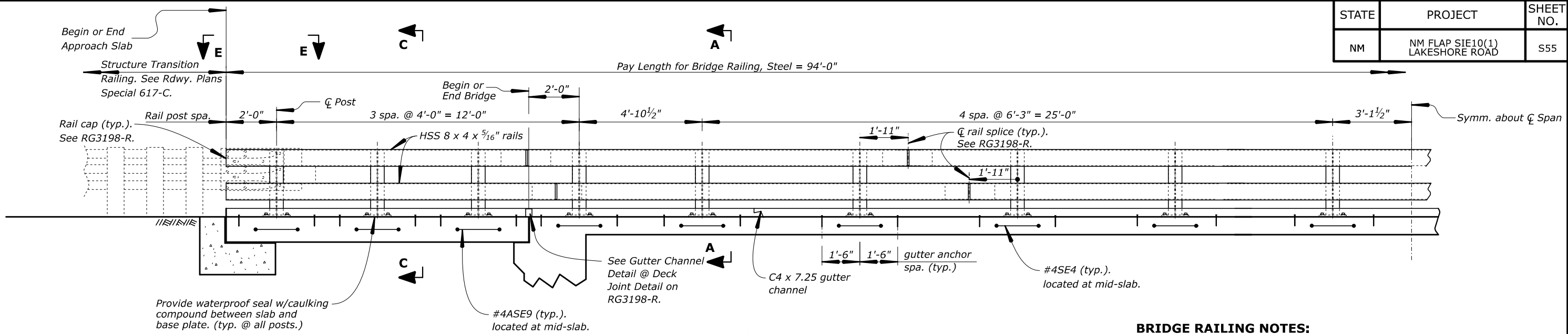
LONG POINT BRIDGE
LAKESHORE ROAD
ELEPHANT BUTTE LAKE STATE PARK
SIERRA COUNTY, NEW MEXICO

TYPICAL SECTION

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								D. MICNHIMER	B. ROBINSON	N. MARSHALL	1/4" = 1'-0" UNLESS NOTED	SAMIR SIDHOM	15 of 23	OCTOBER 2022	RG3198-O

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STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S55

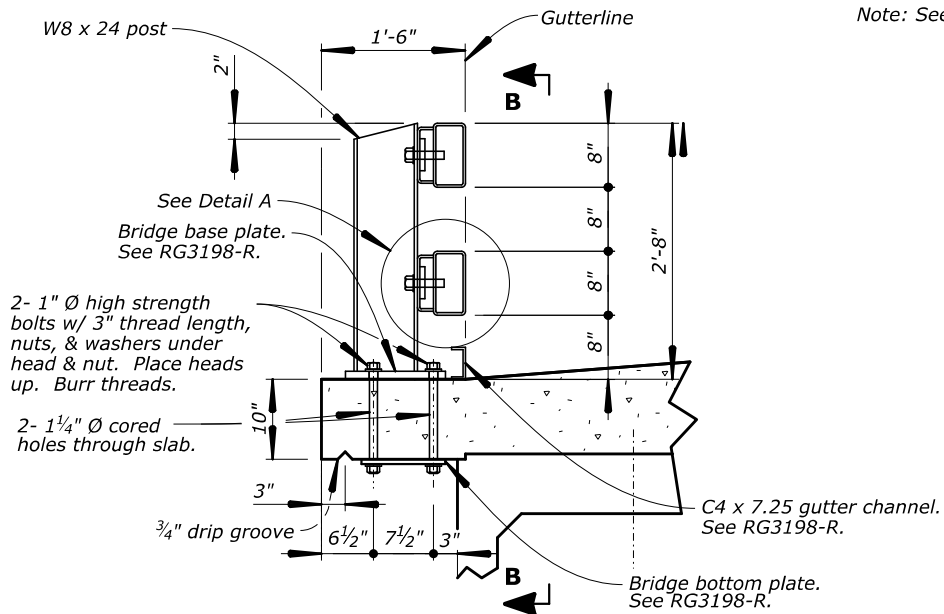


RAIL ELEVATION

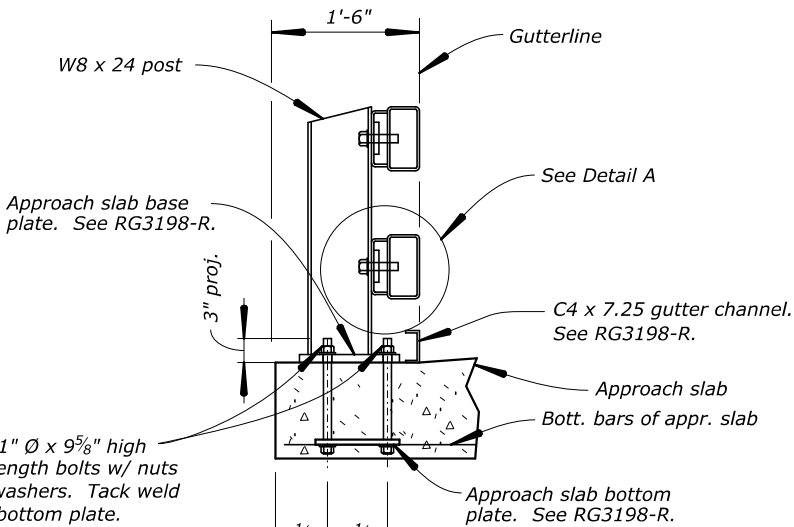
BRIDGE RAILING NOTES:

1. New Mexico DOT Type A32 metal railing has been approved by FHWA to satisfy test Level-4 system requirement of 2004 AASHTO LRFD Bridge Specifications.
2. Erect all rails parallel to grade and posts plumb.
3. Provide continuous rails over 4 posts minimum on bridge.
4. Furnish steel rail tubes conforming to ASTM A500, Grade B.
5. Furnish terminal connectors conforming to AASHTO - ARBA standard HM-TF-13/RE-67 with Class B thickness. Galvanize in accordance with AASHTO specifications M180.
6. Furnish structural steel posts, plates, and bars conforming to ASTM A36. Furnish bolts conforming to ASTM A307, nuts to ASTM A563, Grade A, unless noted otherwise.
7. Furnish caulking compound, used under gutter channels and rail post base plates, that is a single compound cold applied, non-sagging compound having either a silicone rubber base or a synthetic rubber base of the chemically curing type and conforming to the requirements of Federal Specifications TT-S-001543A or TT-S-230C.
8. Lap metal barrier and terminal connector so that the projecting edge faces away from approaching traffic.
9. Cost of furnishing and installing the bridge railing, including w-beam elements, structural steel tubing, posts, plates, shims, gutter channels, bolts, nuts, and washers is included in the contract item "Bridge Railing, Steel (NM A32)".
10. Galvanize all steel components of the bridge railing and gutter channel unless otherwise shown in plans.
11. Bridge railing is adopted from New Mexico Department of Transportation drawings 543-06-1 thru 543-06-4.

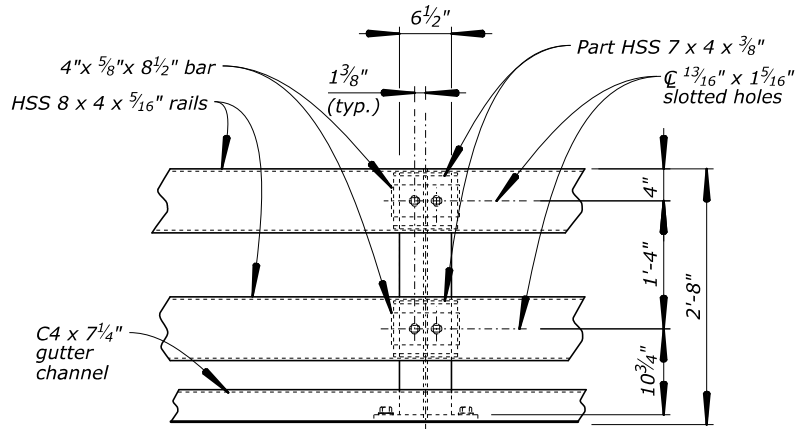
Note: See RG3198-R for View E-E.



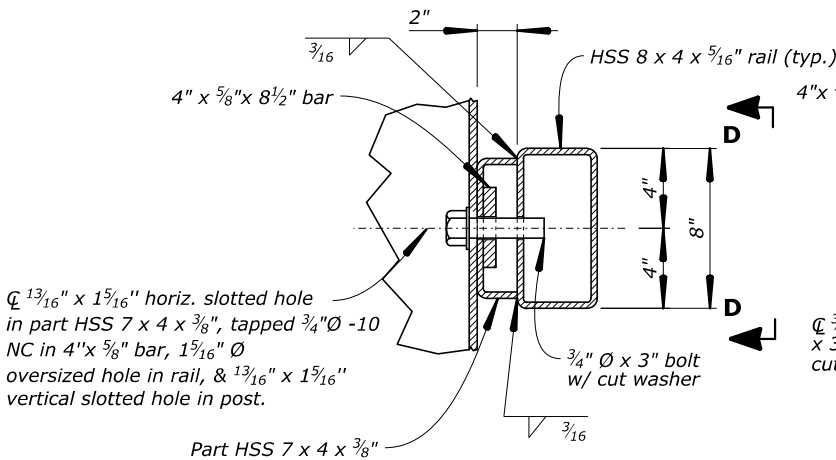
SECTION A-A



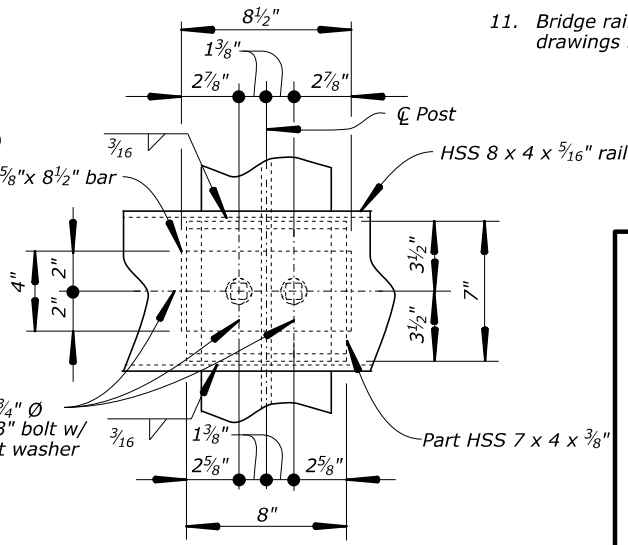
SECTION C-C



VIEW B-B



DETAIL A



VIEW D-D

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

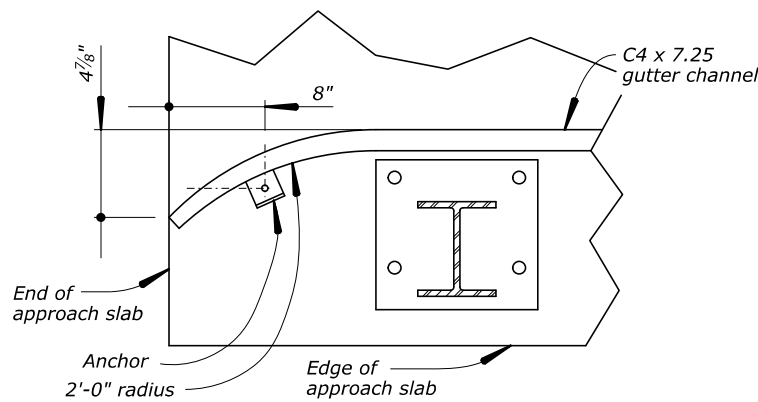
LONG POINT BRIDGE
LAKESHORE ROAD
ELEPHANT BUTTE LAKE STATE PARK
SIERRA COUNTY, NEW MEXICO

BRIDGE RAILING (1 OF 3)

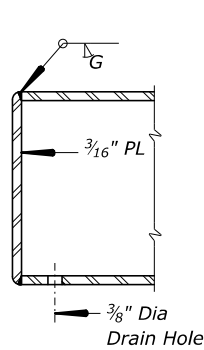
NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								D. MICNHIMER	B. ROBINSON	N. MARSHALL	NONE	SAMIR SIDHOM	17 of 23	OCTOBER 2022	RG3198-Q

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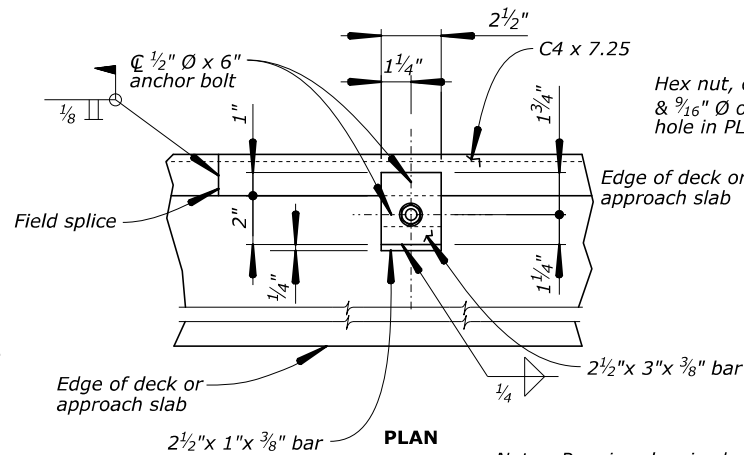
STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S56



VIEW E-E

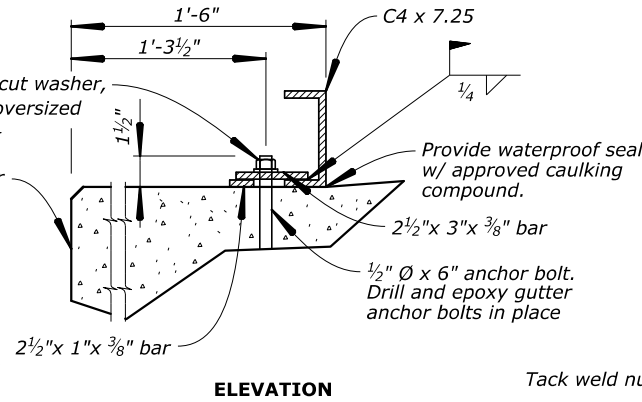


RAIL CAP

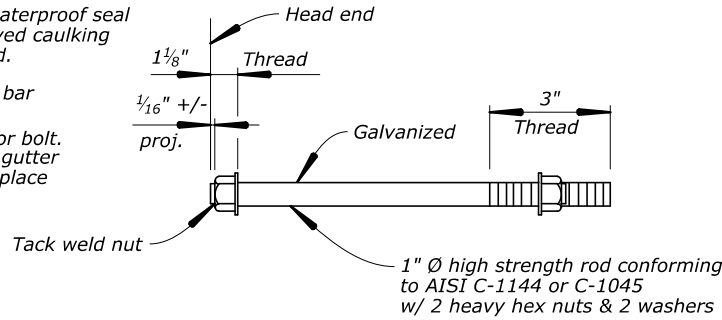


PLAN

Note: Repair galvanized areas damaged by welding conforming to ASTM A780.



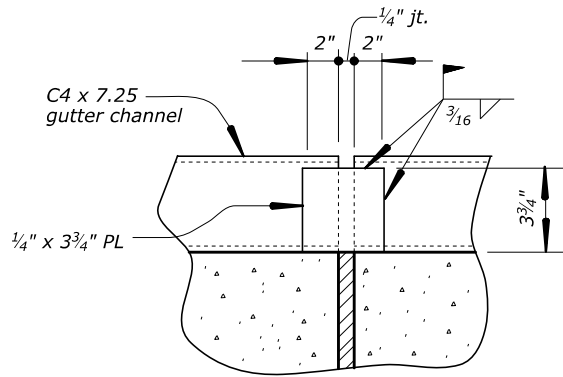
ELEVATION



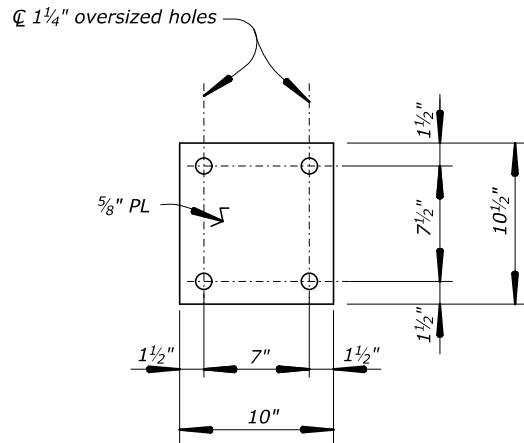
ALTERNATE POST ANCHOR BOLT DETAIL

NOTES

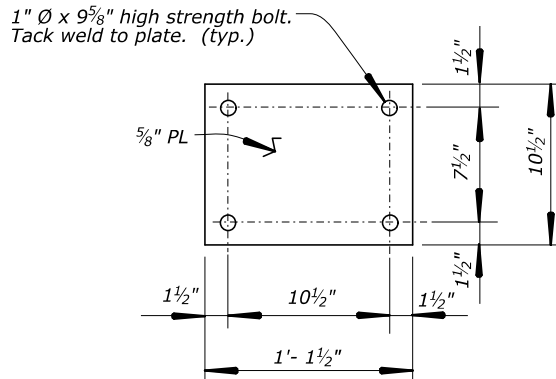
1. Provide adhesive anchors providing a minimum factored tensile resistance = 4500 lbs.
2. Install adhesive anchors per manufacturer's instructions. Submit proposed anchor system to CO for approval.



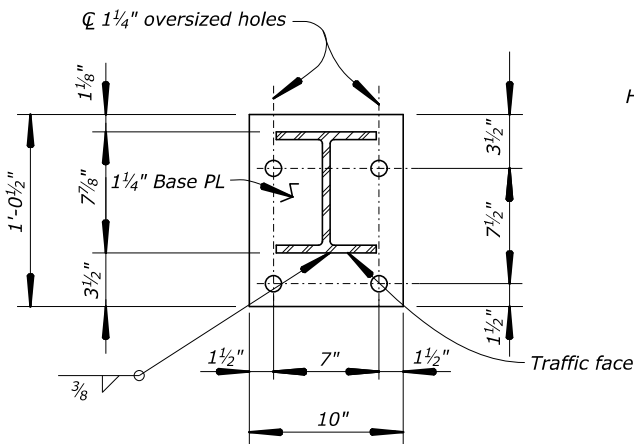
GUTTER CHANNEL DETAIL @ DECK JOINT



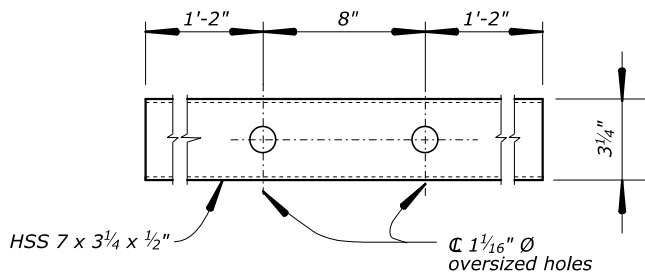
BRIDGE BOTTOM PLATE



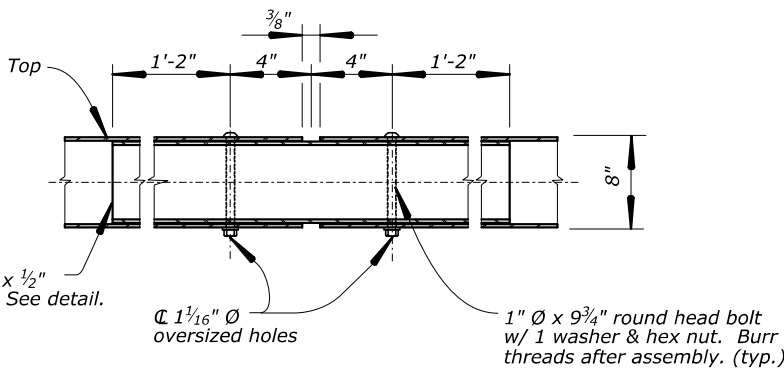
APPROACH SLAB BOTTOM PLATE



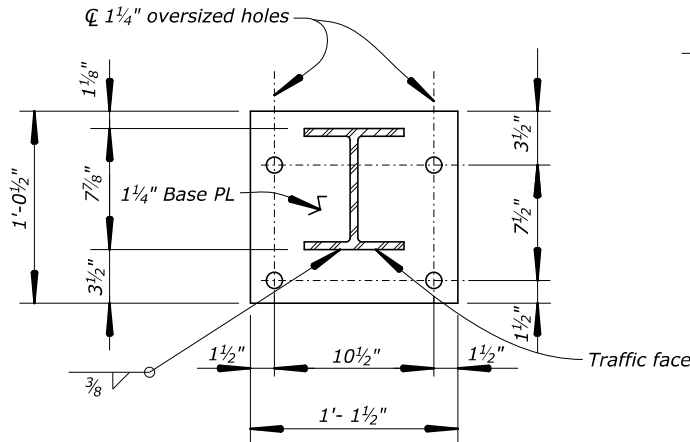
BRIDGE BASE PLATE



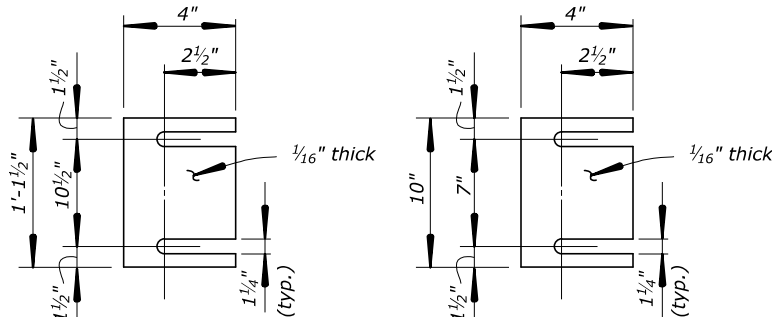
RAIL SPLICE TUBE



RAIL SPLICE DETAIL



APPROACH SLAB BASE PLATE



@ APPROACH SLAB

@ BRIDGE

RAIL POST SHIM

Note: Use as necessary to align posts.

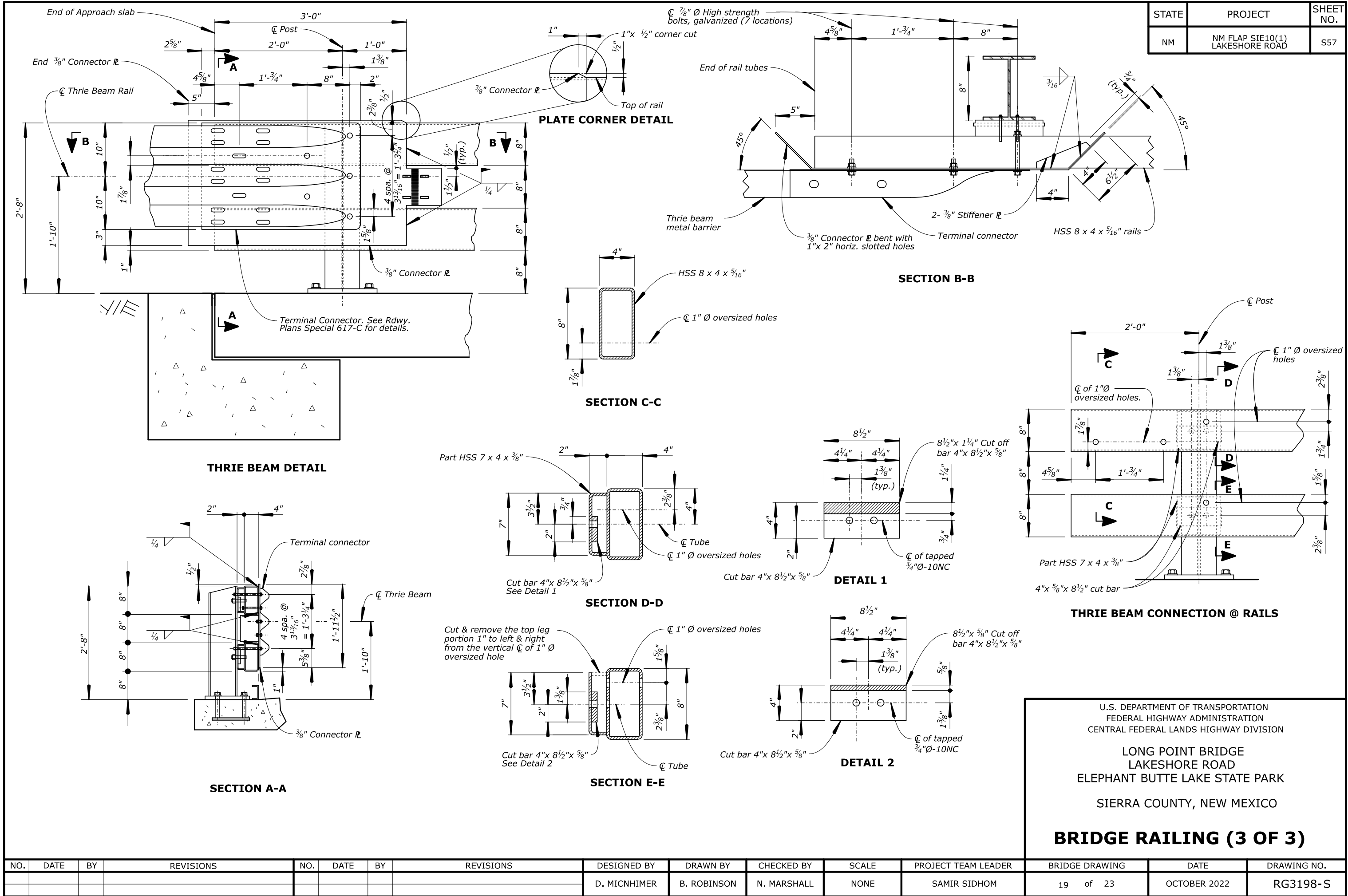
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

LONG POINT BRIDGE
LAKESHORE ROAD
ELEPHANT BUTTE LAKE STATE PARK
SIERRA COUNTY, NEW MEXICO

BRIDGE RAILING (2 OF 3)

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								D. MICNHIMER	B. ROBINSON	N. MARSHALL	NONE	SAMIR SIDHOM	18 of 23	OCTOBER 2022	RG3198-R

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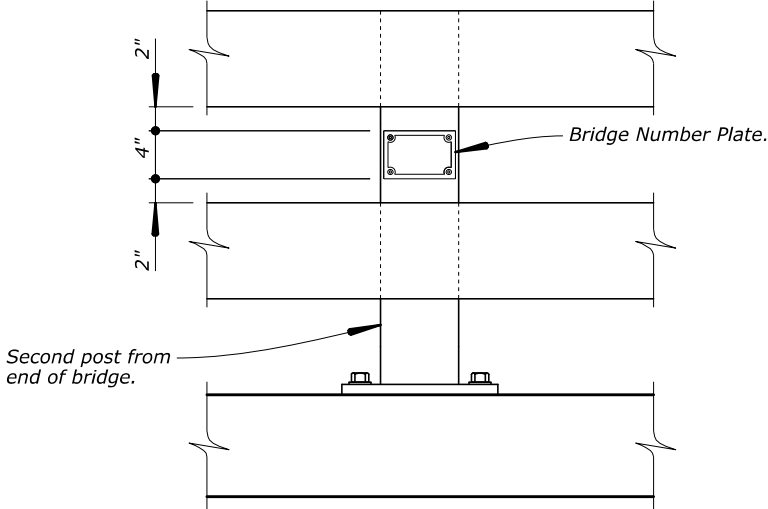
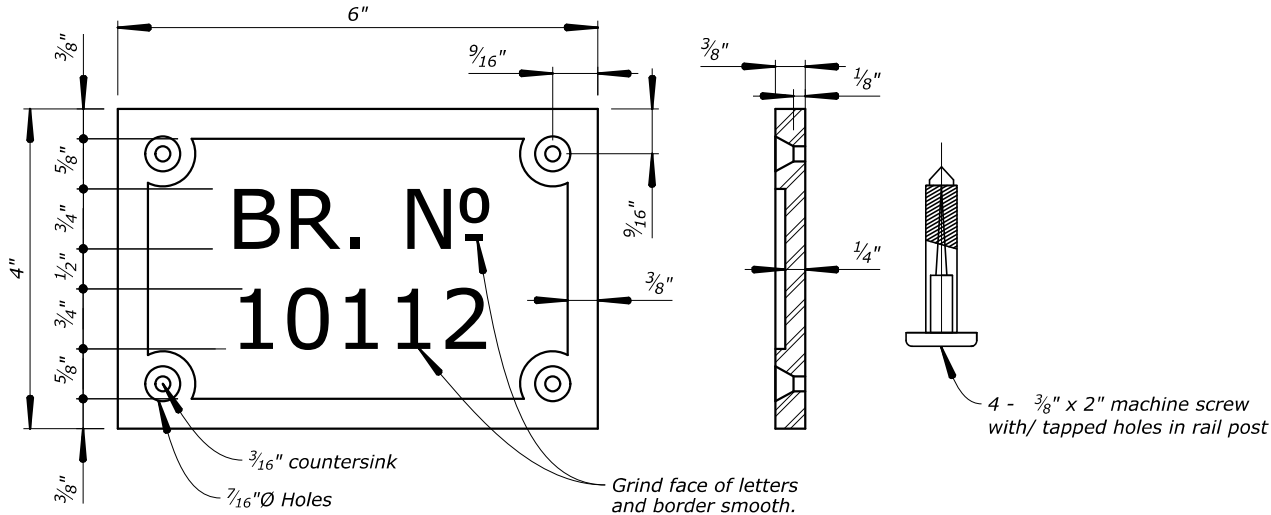


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STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S58

NOTES:

1. Furnish two plates with galvanized flat head bolts in expansion shields.
Furnish plates galvanized cast iron with raised block letters of neat square cut design. Grind face of letters and borders smooth.
Furnish galvanized cast iron plates and bolts.
2. Place one number plate at each end of the bridge on the roadway face of the second rail post and located on the right-hand side as one approaches the bridge.



BRIDGE NUMBER PLATE DETAILS

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

LONG POINT BRIDGE
LAKESHORE ROAD
ELEPHANT BUTTE LAKE STATE PARK

SIERRA COUNTY, NEW MEXICO

BRIDGE NUMBER PLATE

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								D. MICNHIMER	B. ROBINSON	N. MARSHALL	NONE	SAMIR SIDHOM	20 of 23	OCTOBER 2022	RG3198-T

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REINFORCING STEEL SCHEDULE								DIMENSION TABLE													
ABUTMENT 1																					
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N	
*6A1	6	17	0'-4½"	Stirrups	104	16'-7"	2590		6'-11½"	2'-8"	6'-11½"										
*7A2	7	STR		Horiz.top & bot.	12	36'-10"	903		36'-10"												
*6A3	6	STR		Horiz.b.f.	18	36'-10"	996		36'-10"												
*6A4	6	STR		Horiz.top	12	7'-10"	141		7'-10"												
*6A5	6	STR		Horiz.top	4	21'-10"	131		21'-10"												
*4A6	4	T9	0'-2"	Ties	270	3'-5"	616	0'-4½"	2'-8"					0'-4½"							
*6A7	6	67	0'-4½"	Filllet	41	7'-11½"	490	0'-8¼"	0'-9¼"	5'-11"	0'-9¼"	0'-8¼"									
*8A8	8	STR		Dowels	18	4'-0"	192		4'-0"												
*5A9	5	77		Spral	5	60'-9½"	317	2'-0"	0'-4"	2'-4¼"	3	11									
SUBTOTAL							6378 LBS														
DRILLED SHAFT 1																					
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N	
*10H1✱	10	STR		Vert.Drilled shaft	100	33'-5"	14379		33'-5"												
*5H2✱	5	77		Spral Drilled shaft	5	559'-9"	2919	2'-0"	0'-4"	29'-6"	3	92									
SUBTOTAL							17298 LBS														
ABUTMENT 2																					
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N	
*6A1	6	17	0'-4½"	Stirrups	104	16'-11"	2643		7'-1½"	2'-8"	7'-1½"										
*7A2	7	STR		Horiz.top & bot.	12	36'-10"	903		36'-10"												
*6A3	6	STR		Horiz.b.f.	18	36'-10"	996		36'-10"												
*6A4	6	STR		Horiz.top	12	7'-10"	141		7'-10"												
*6A5	6	STR		Horiz.top	4	21'-10"	131		21'-10"												
*4A6	4	T9	0'-2"	Ties	275	3'-5"	628	0'-4½"	2'-8"					0'-4½"							
*6A7	6	67	0'-4½"	Filllet	42	7'-11½"	502	0'-8¼"	0'-9¼"	5'-11"	0'-9¼"	0'-8¼"									
*8A8	8	STR		Dowels	18	4'-0"	192		4'-0"												
*5A9	5	77		Spral	5	60'-9½"	317	2'-0"	0'-4"	2'-4¼"	3	11									
SUBTOTAL							6453 LBS														
DRILLED SHAFT 2																					
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N	
*10H1✱	10	STR		Vert.Drilled shaft	100	33'-5"	14379		33'-5"												
*5H2✱	5	77		Spral Drilled shaft	5	559'-9"	2919	2'-0"	0'-4"	29'-6"	3	92									
SUBTOTAL							17298 LBS														
ENDWALL																					
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N	
*5EE1	5	T1	0'-2½"	Stirrups	24	9'-1"	227	0'-5½"	2'-8"	1'-5"	2'-8"	1'-5"		0'-5½"							
*5EE2	5	T1	0'-2½"	Stirrups	16	10'-1"	168	0'-5½"	2'-8"	1'-11"	2'-8"	1'-11"		0'-5½"							
*5EE3	5	17	0'-3¾"	Vert.	140	4'-7½"	675		2'-4"	2'-3¾"											
*6EE4	6	16	0'-4½"	Corbel	40	5'-10½"	353	1'-0"	3'-2"	0'-9½"	0'-11¼"				0'-8¼"		0'-8"	1'-5½"			
*6EE5	6	16	0'-4½"	Corbel @ gdr	30	3'-8"	165	1'-0"	0'-11"	0'-9½"	1'-0½"				0'-9"		0'-8¾"	1'-6¼"			
*5EE6	5	STR		Horiz.	4	34'-8"	145		34'-8"												
*7EE7	7	STR		Horiz.	24	2'-8"	131		2'-8"												
*7EE8	7	STR		Horiz.	4	34'-8"	283		34'-8"												
*6EE9	6	STR		Dowels	40	1'-3"	75		1'-3"												
*7EE10	7	STR		Horiz.bot.	36	1'-1"	80		1'-1"												
*5EE11	5	52	0'-3¾"	Approach slab dowel	70	2'-6"	183	1'-4¾"	1'-1"	0'-9¼"	0'-9¾"										
*5EE12	5	STR		Horiz.	24	2'-8"	67		2'-8"												
SUBTOTAL							2552 LBS														
WINGWALL A																					
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N	
*5W1	5	STR		Vert.b.f.	2 sets of 17	2'-8" to 12'-2½" at 0'-7¼" Incr.	264		2'-8" to 12'-2½" at 0'-7¼" Incr.												
*5W2	5	STR		Vert.b.f.	8	12'-7"	105		12'-7"												
*6W3	6	52	0'-4½"	Horiz.b.f.	2 sets of 18	4'-9" to 19'-1½" at 0'-10¼" Incr.	645	1'-5¾" to 15'-10¼" at 0'-10¼" Incr.	3'-3¼"	3'-2½"	0'-7½"										
NO.	DATE	BY	REVISIONS				NO.	DATE	BY	REVISIONS				DESIGNED BY		DRAWN BY		CHECKED BY			
														B. ROBINSON		B. ROBINSON		N. MARSHALL			

STATE

NM

PROJECT

NM FLAP S1E10(1)
LAKESHORE ROAD

SHEET NO.

S59

STR

TYPE 16

TYPE 17

TYPE T1

TYPE T9

TYPE 52

TYPE 67

TYPE 77

NOTES

1. Dimensions in bending diagrams are out-to-out of bars

2. All "E" bars are epoxy coated.

✱ 3. Reinforcing steel quantities for drilled shafts are not included in the contract item "Reinforcing steel". Reinforcing steel will be paid for as part of "Drilled Shaft". Reinforcing steel lengths for drilled shafts are estimates only and are provided for information only.

ABBREVIATIONS:

f.f. = Fill face

o.f. = Other face

b.f. = Both faces

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
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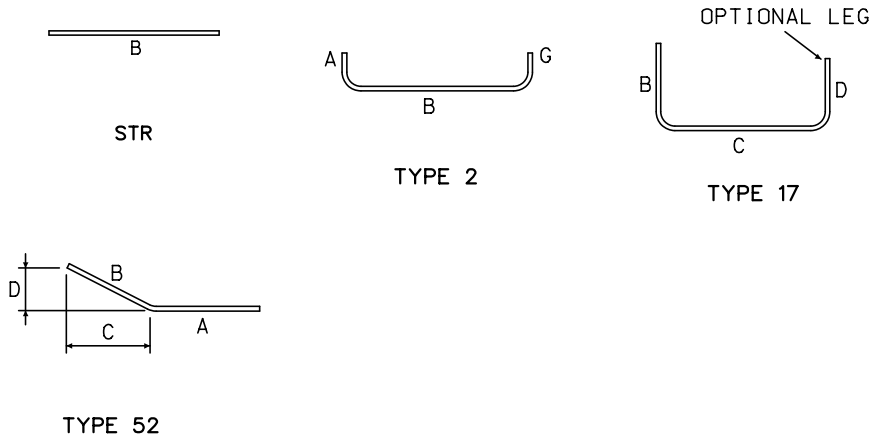
LONG POINT BRIDGE
LAKESHORE ROAD
ELEPHANT BUTTE LAKE STATE PARK

SIERRA COUNTY, NEW MEXICO

REBAR LIST 1 OF 3

REINFORCING STEEL SCHEDULE						DIMENSION TABLE															
WINGWALL A						(CONTINUED)															
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N	
*6W4	6	52	0'-4 1/2"	Horiz.b.f.	12	19'-6"	351	16'-5"	3'-1 1/4"	3'-0 1/2"	0'-7 1/4"										
*6W5	6	52	0'-4 1/2"	Diagonal b.f.	2	22'-1"	66	19'-1 3/4"	2'-11 1/4"	2'-6 1/4"	1'-6 1/2"										
SUBTOTAL							1433 LBS														
WINGWALL B																					
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N	
*5W1	5	STR		Vert.b.f.	2 sets of 17	2'-9" to 14'-10" at 0'-9" Incr.	312		2'-9" to 14'-10" at 0'-9" Incr.												
*5W2	5	STR		Vert.b.f.	8	15'-3"	127		15'-3"												
*6W3	6	52	0'-4 1/2"	Horiz.b.f.	2 sets of 23	4'-7" to 19'-3" at 0'-8" Incr.	823	1'-3 3/4" to 15'-11 3/4" at 0'-8" Incr.	3'-3 1/4"	3'-2 1/2"	0'-7 1/2"										
*6W4	6	52	0'-4 1/2"	Horiz.b.f.	12	19'-6"	351	16'-5"	3'-1 1/4"	3'-0 1/2"	0'-7 1/4"										
*6W5	6	52	0'-4 1/2"	Diagonal b.f.	2	23'-4 1/2"	70	20'-8"	2'-8 1/4"	2'-1 3/4"	1'-8"										
SUBTOTAL							1684 LBS														
WINGWALL C																					
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N	
*5W1	5	STR		Vert.b.f.	2 sets of 18	2'-9" to 12'-9 1/2" at 0'-7" Incr.	291		2'-9" to 12'-9 1/2" at 0'-7" Incr.												
*5W2	5	STR		Vert.b.f.	8	12'-11"	108		12'-11"												
*6W3	6	52	0'-4 1/2"	Horiz.b.f.	2 sets of 18	5'-3" to 19'-7" at 0'-10" Incr.	670	1'-11 3/4" to 16'-3 1/2" at 0'-10" Incr.	3'-3 1/4"	3'-2 1/2"	0'-7 1/2"										
*6W4	6	52	0'-4 1/2"	Horiz.b.f.	12	20'-3"	365	17'-2"	3'-1 1/4"	3'-0 1/2"	0'-7 1/4"										
*6W5	6	52	0'-4 1/2"	Diagonal b.f.	2	23'-0"	69	20'-0 3/4"	2'-11 1/4"	2'-6 1/4"	1'-6 1/2"										
SUBTOTAL							1505 LBS														
WINGWALL D																					
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N	
*5W1	5	STR		Vert.b.f.	2 sets of 18	2'-9" to 15'-4 1/2" at 0'-9" Incr.	341		2'-9" to 15'-4 1/2" at 0'-9" Incr.												
*5W2	5	STR		Vert.b.f.	8	15'-7"	130		15'-7"												
*6W3	6	52	0'-4 1/2"	Horiz.b.f.	2 sets of 24	4'-4 1/2" to 19'-9" at 0'-8" Incr.	869	1'-1" to 16'-5 3/4" at 0'-8" Incr.	3'-3 1/4"	3'-2 1/2"	0'-7 1/2"										
*6W4	6	52	0'-4 1/2"	Horiz.b.f.	12	20'-3"	365	17'-2"	3'-1 1/4"	3'-0 1/2"	0'-7 1/4"										
*6W5	6	52	0'-4 1/2"	Diagonal b.f.	2	24'-6"	74	21'-8 1/2"	2'-9 1/4"	2'-2 3/4"	1'-8 1/2"										
SUBTOTAL							1779 LBS														
GIRDER																					
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N	
*4GE1	4	17	0'-3"	Stirrups @ ends	6	5'-11"	24		1'-11 1/2"	3'-8"	1'-1 1/2"										
*5GE2	5	17	0'-3 3/4"	Stirrups @ ends	4	6'-5"	27		2'-4 1/2"	1'-8"	2'-4 1/2"										
*5GE3	5	17	0'-3 3/4"	Stirrups	14	10'-10"	158		3'-7"	3'-8"	3'-7"										
*5GE4	5	2	0'-3 3/4"	Stirrups	14	5'-4"	78	0'-10"	3'-8"					0'-10"							
*4GE5	4	17	0'-3"	Stirrups	82	10'-10"	593		3'-7"	3'-8"	3'-7"										
*4GE6	4	2	0'-3"	Stirrups	82	5'-0"	274	0'-8"	3'-8"					0'-8"							

STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S60



NOTES

1. Dimensions in bending diagrams are out-to-out of bars
2. All "E" bars are epoxy coated.
3. Reinforcement quantities shown for box beam are for one box beam and for information only. Cost of box beam reinforcing is included in the prestressed box beam pay item and is not included in the reinforcing estimate.

ABBREVIATIONS:

f.f. = Fill face
o.f. = Other face
b.f. = Both faces

U.S. DEPARTMENT OF TRANSPORTATION
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LONG POINT BRIDGE
LAKESHORE ROAD
ELEPHANT BUTTE LAKE STATE PARK

SIERRA COUNTY, NEW MEXICO

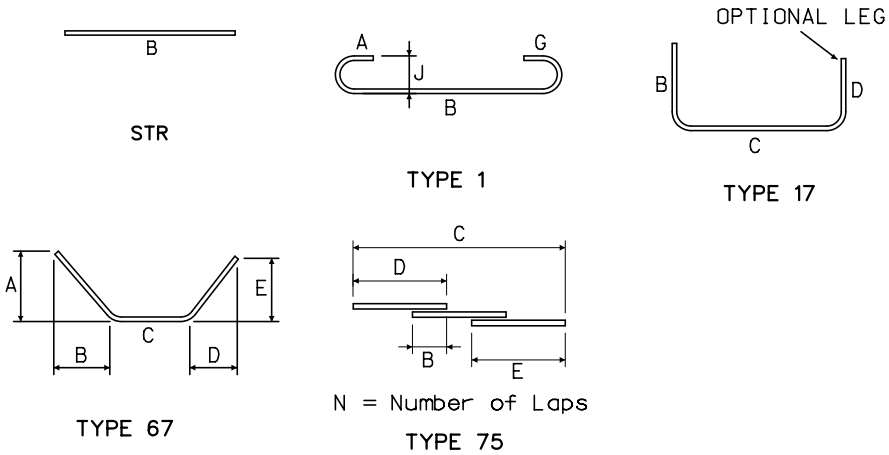
REBAR LIST 2 OF 3

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								B. ROBINSON	B. ROBINSON	N. MARSHALL	NONE	SAMIR SIDHOM	22 of 23	OCTOBER 2022	RG3198-V

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REINFORCING STEEL SCHEDULE								DIMENSION TABLE												
GIRDER (CONTINUED)																				
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N
*5GE7	5	75		Hor1z.top	4	70'-8"	295		2'-0"	68'-8"	60'-0"	10'-8"								/
SUBTOTAL							1449 LBS													
SLAB																				
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N
*5SE1	5	75		Long.top & bot.	67	72'-6"	5066		2'-10"	69'-8"	60'-0"	12'-6"								/
*6SE2	6	1	0'-4½"	Trans.top	120	36'-1½"	6511	0'-8"	34'-9¼"					0'-8"		0'-6"				
*5SE3	5	STR		Trans.bot.	120	34'-9"	4349		34'-9"											
*4SE4	4	1	0'-3"	Trans.@ overhangs	240	5'-3½"	848	0'-6"	4'-9½"							0'-4"				
*4SE5	4	67	0'-3"	@ post	24	4'-6½"	73	1'-1¼"	1'-0¾"	1'-6¼"	1'-0¾"	1'-1¼"								
SUBTOTAL							16848 LBS													
APPROACH SLABS																				
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N
*5ASE1	5	STR		Long.top	26	34'-8"	940		34'-8"											
*6ASE2	6	STR		Long.bot.	26	34'-8"	1354		34'-8"											
*6ASE3	6	STR		Trans.top	72	11'-8"	1262		11'-8"											
*7ASE4	7	STR		Trans.bot.	142	11'-8"	3386		11'-8"											
*5ASE5	5	STR		Hor1z.@sleeper beam	144	2'-8"	401		2'-8"											
*5ASE6	5	17	0'-3¾"	Vert.@sleeper beam	72	3'-11"	294		1'-7½"	0'-8"	1'-7½"									
*6ASE7	6	STR		Long.@sleeper beam	20	34'-8"	1041		34'-8"											
*5ASE8	5	1	0'-3¾"	Long.@ overhangs	48	5'-4½"	269	0'-7"	4'-9½"							0'-5"				
*4ASE9	4	67	0'-3"	Hor1z.@ post	12	4'-6½"	36	1'-1¼"	1'-0¾"	1'-6¼"	1'-0¾"	1'-1¼"								
SUBTOTAL							8983 LBS													

STATE	PROJECT	SHEET NO.
NM	NM FLAP S1E10(1) LAKESHORE ROAD	S61



NOTES

- 1. Dimensions in bending diagrams are out-to-out of bars
- 2. All "E" bars are epoxy coated.

ABBREVIATIONS:

f.f. = Fill face
o.f. = Other face
b.f. = Both faces

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

LONG POINT BRIDGE
LAKESHORE ROAD
ELEPHANT BUTTE LAKE STATE PARK

SIERRA COUNTY, NEW MEXICO

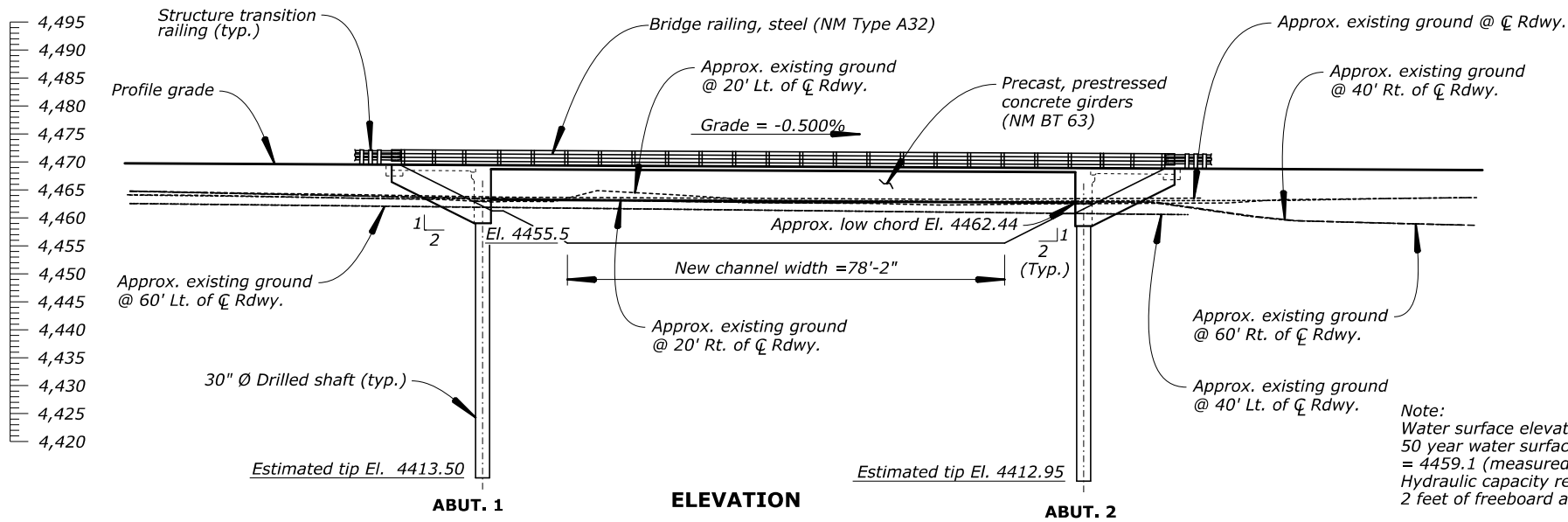
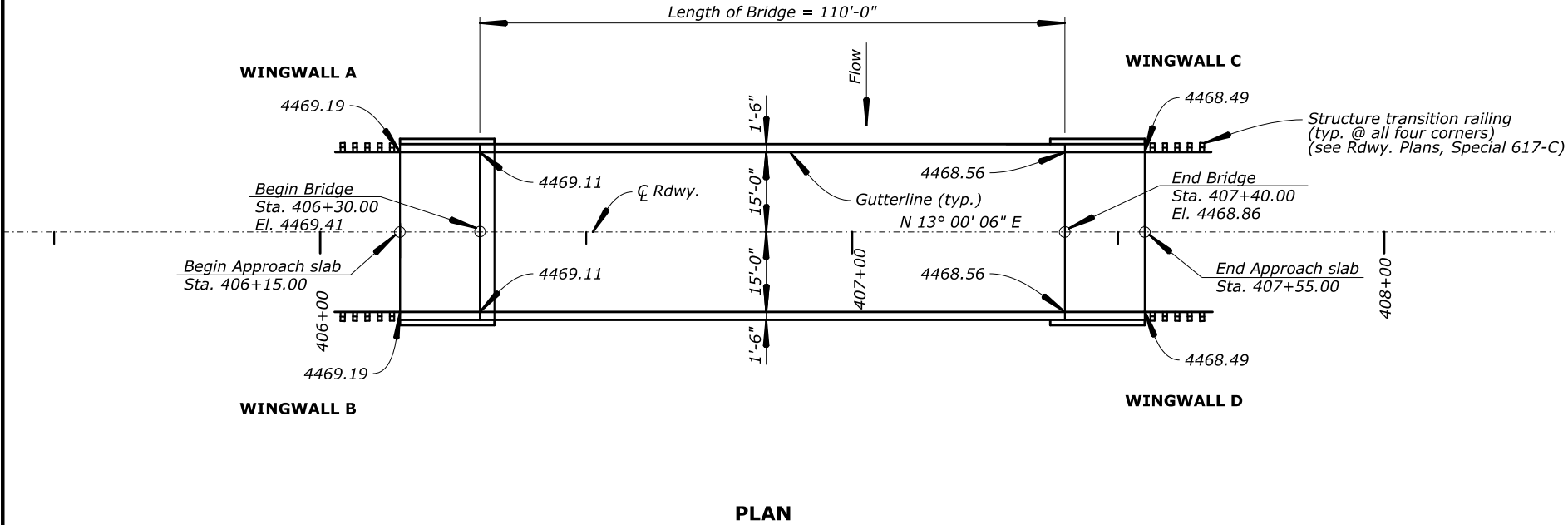
REBAR LIST 3 OF 3

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								B. ROBINSON	B. ROBINSON	N. MARSHALL	NONE	SAMIR SIDHOM	23 of 23	OCTOBER 2022	RG3198-W

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STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S62

BRIDGE DRAWING INDEX	
Drawing No.	Description
RG3199-A	PLAN AND ELEVATION
RG3199-B	GENERAL NOTES & ESTIMATE
RG3199-C	BORING LOGS
RG3199-D	FOUNDATION PLAN
RG3199-E	SLOPE PROTECTION
RG3199-F	DRILLED SHAFTS
RG3199-G	ABUTMENT PLAN & ELEVATION
RG3199-H	ABUTMENT REINFORCEMENT
RG3199-I	WINGWALLS
RG3199-J	ABUTMENT 1 ENDWALL
RG3199-K	ABUTMENT 2 ENDWALL
RG3199-L	GIRDER DETAILS (1 OF 2)
RG3199-M	GIRDER DETAILS (2 OF 2)
RG3199-N	STEEL DIAPHRAGM DETAILS
RG3199-O	TYPICAL SECTION
RG3199-P	APPROACH SLAB
RG3199-Q	BRIDGE RAILING (1 OF 3)
RG3199-R	BRIDGE RAILING (2 OF 3)
RG3199-S	BRIDGE RAILING (3 OF 3)
RG3199-T	BRIDGE NUMBER PLATE
RG3199-U	REBAR LIST (1 OF 2)
RG3199-V	REBAR LIST (2 OF 2)

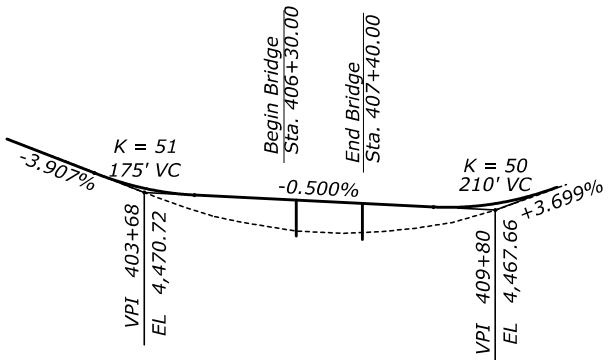


HYDRAULIC DATA			
	Q ft ³ /sec	V ft/sec.	WS Elev.
Q ₂	463	6.8	4456.2
Q ₅₀	2,450	9.8	4459.1
Q ₁₀₀	3,070	10.2	4459.8
Q ₂₀₀	3,973	11.4	4460.6

Note:
Water surface elevations are at upstream face of bridge.
50 year water surface elevation used to determine freeboard = 4459.1 (measured at upstream face of bridge).
Hydraulic capacity requirements: Bridge low chord provides minimum 2 feet of freeboard above 50 year water surface elevation.

Q₁₀₀ scour = 4444.3

Q₂₀₀ scour = 4443.5



PROFILE GRADE DIAGRAM

No Scale
Elevations are at profile grade @ C Rdwy.

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CEDAR CANYON BRIDGE
LAKESHORE ROAD
ELEPHANT BUTTE LAKE STATE PARK
SIERRA COUNTY, NEW MEXICO

PLAN AND ELEVATION

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								P. CLARK	B. ROBINSON	N. MARSHALL	1" = 30'-0"	SAMIR SIDHOM	1 of 22	OCTOBER 2022	RG3199-A

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GENERAL NOTES:

SPECIFICATIONS:

Design:
AASHTO LRFD Bridge Design Specifications, 9th Edition, 2020.

Construction:
Federal Highway Administration Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects, FP-14 and Special Contract Requirements (SCR's).

DESIGN LOADS:

Dead Loads:
Concrete: 150 pcf.
Precast Prestressed Concrete: 155 pcf.
Future Wearing Surface: 25 psf.
Lateral Earth Pressure: equivalent fluid unit weight of soil, 36 pcf.

Live Load:
HL-93. Maximum Dynamic Load Allowance, IM=33%.
NMDOT Permit Truck P327-13 (Strength II).

Wind Load:
Design Wind Speed (Strength III Limit State), V = 115 mph. Wind exposure Category = C.

Seismic Design:
Seismic design in accordance with AASHTO LRFD Bridge Design, Specifications, 9th Edition, 2020. 7% probability of exceedance in 75 yr design event. PGA = 0.075g, S_s =0.175g, S₁ = 0.056g, A_s =0.090g, S_{D5} = 0.210g, S_{D1} = 0.095g, Site Class C, Seismic Zone 1.

MATERIALS:

Concrete:
For all cast-in-place concrete except drilled shaft concrete, furnish structural concrete Class A(AE) with a minimum 28-day compressive strength f'c = 4.5 Ksi. For all cast-in-place in drilled shafts, furnish structural concrete Class A with a minimum 28-day compressive strength f'c = 4.5 Ksi. Chamfer exposed edges of all concrete ¾", unless noted otherwise on the plans. Furnish preformed flexible cellular joint filler meeting the requirements of ASTM D1056, Type 2, Grade 3, 4 or 5. Furnish expansion joint filler meeting the requirements of AASHTO M213 and backer rod meeting the requirements of ASTM D 5249.

Reinforcing Steel:
Furnish reinforcing steel conforming to AASHTO M31 or M322, Grade 60 deformed.
Provide a minimum concrete cover to the face of any bar of 2", unless shown otherwise on the plans. Provide minimum splice lengths for reinforcement as shown on the plans. Bar splices other than those shown on the plans will not be paid for. Furnish epoxy coated superstructure reinforcing steel (slab, girders, endwalls, approach slabs, and sleeper beams), as noted on the bar list.

Prestressed Concrete Girders:
Furnish prestressed concrete girders manufactured as detailed on the plans. Furnish Class P concrete for prestressed girders with a minimum 28-day design compressive strength f'c = 9,500 PSI, and release strength f'ci = 6,000 PSI. Furnish structural steel for bearing plates conforming to AASHTO M270, Grade 36. Connect steel intermediate diaphragms to the fascia beams using cast-in-place anchorages. Furnish anchorages providing an ultimate pull-out strength of at least 15 kips per anchorage. Maintain stability of the girders during all phases of construction.

Prestressing Steel:
Furnish Grade 270, 0.6 inch Ø, seven-wire, bright, low-relaxation prestressing strands, conforming to AASHTO M203 (ASTM A416). Pretension each strand to a total load of 43,900 lbs. at which the initial pretensioning stress f'si = 0.75 (f's) = 202,500 PSI. The final estimated effective prestress force per strand = 39,300 lb.

Bearings:
Furnish elastomeric bearing pads conforming to Section 18.2 of the AASHTO LRFD Bridge Construction Specifications, and 60 durometer hardness.

Structural Excavation:
Perform all necessary excavation work to build the foundation to the required depths. Refer to Geotechnical Report # NM FLAP SIE 10(1) for description of the anticipated materials, including rock, cobbles and boulders to be encountered during excavation of the bridge site.

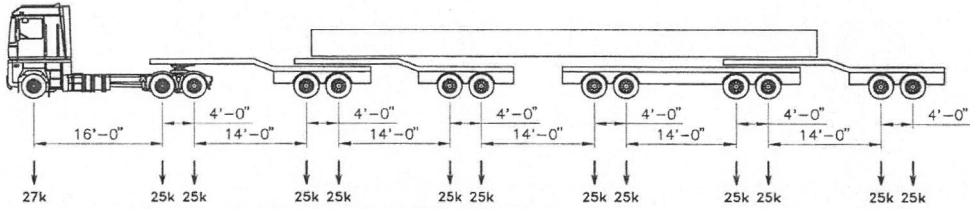
GEOTECHNICAL REPORT:
For boring logs and other geotechnical information, see Geotechnical Report: Lakeshore Road, Elephant Butte State Park, Sierra County, NM, Report # NM FLAP SIE 10(1), dated June 2022, prepared by U.S. Department of Transportation, Federal Highway Administration, Central Federal Lands Highway Division.

STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S63

ESTIMATE				
Item No.	Item	Quantity:	Unit:	Notes:
15215-2000	Survey and staking, bridge	1	EACH	
20304-1000	Removal of structures and obstructions	All req'd	LPSM	(2)
20801-0000	Structure excavation	75	CUYD	(1)
20803-0000	Structural backfill	55	CUYD	(1)
25101-2300	Placed riprap, method B, class 3	945	CUYD	(3)
55201-0200	Structural concrete, class A(AE)	246	CUYD	(1)(4)
55302-3200	Precast, prestressed concrete girders (NM BT 63)	436	LNFT	(1)(5)
55401-1000	Reinforcing steel	10,700	LB	(1)
55401-2000	Reinforcing steel, epoxy coated	46,500	LB	(1)
55601-0900	Bridge railing, steel (NM Type A32)	280	LNFT	(1)(6)
56401-1000	Bearing device, elastomeric	8	EACH	(1)(7)
56501-0300	Drilled shaft, 30-inch diameter	360	LNFT	(8)
61707-0000	Structure transition railing	200	LNFT	(1)

ESTIMATE NOTES:

- (1) Contract Quantity.
- (2) Includes removal of (5) 36" corrugated metal pipe culverts and associated headwalls, end sections, aprons, and concrete sills.
- (3) Includes cost of furnishing and installing non-woven geotextile fabric Class 1, Type C (estimated quantity = 1700 square yds.).
- (4) Includes cost of furnishing and installing all joint fillers, sealants, backer rods, geocomposite sheet drain (estimated quantity = 65 square yds.), weepholes and drain grates (10 tot.), aggregate base and polyethylene sheeting for approach slabs.
- (5) Includes cost of concrete, epoxy coated reinforcing steel, prestressing steel, inserts, bearing plates, lifting devices and any other materials required for the manufacture or erection of the girders. Includes cost of furnishing and constructing concrete or steel intermediate diaphragms.
- (6) Includes cost of furnishing and installing all steel components, inserts, and bridge number plates.
- (7) Includes cost of furnishing and installing elastomeric bearing pads, sole plates and any other materials required for the installation of the expansion bearings.
- (8) Includes cost of excavation, concrete, reinforcing steel, permanent or temporary casing, access tubes, drilled shaft testing, and all materials and work necessary to construct the drilled shafts.



NMDOT PERMIT TRUCK P327-13
No Scale

LFR RATING	
INVENTORY RATINGS	HS 23.6
OPERATING RATINGS	HS 57.7

LRFR RATING FACTORS	
INVENTORY-LEVEL	1.36
OPERATING-LEVEL	1.98

Rating generated by NMDOT using the AASHTOWare bridge rating program based on plan details.

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FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

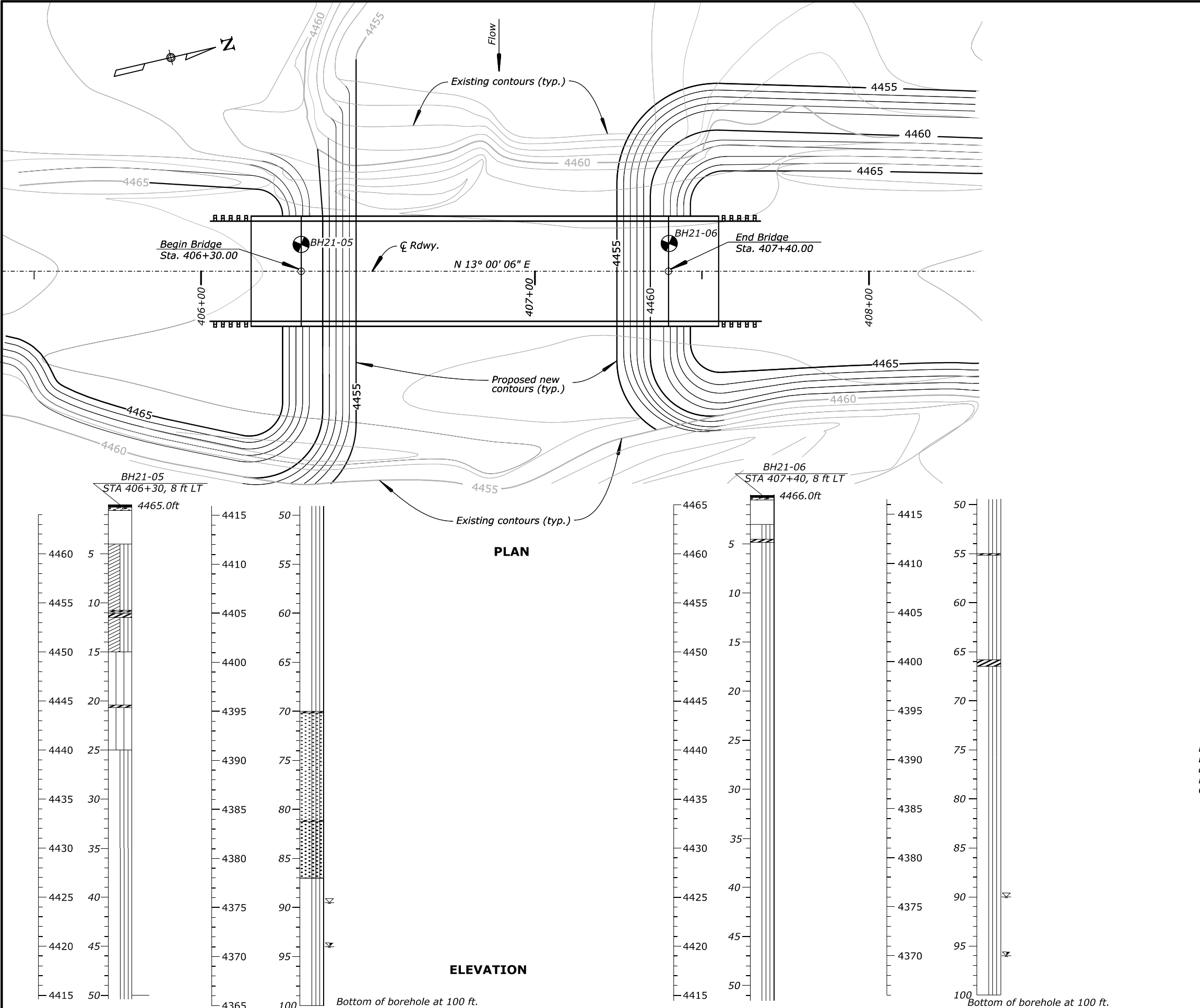
CEDAR CANYON BRIDGE
LAKESHORE ROAD
ELEPHANT BUTTE LAKE STATE PARK

SIERRA COUNTY, NEW MEXICO

GENERAL NOTES & ESTIMATE

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								P. CLARK	B. ROBINSON	N. MARSHALL	NONE	SAMIR SIDHOM	2 of 22	OCTOBER 2022	RG3199-B

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STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S64

TYPICAL TEST HOLE LOG

Boring No.
Location

Elev.

Ground Water Depth at time of drilling (ATD)

Graphic material description

Blow count per foot with standard penetration test (SPT) in accordance with AASHTO T206

Unified Soil Classification

Practical refusal SPT

Core Run

% Core Recovery Shaded

Depth Terminated

LEGEND

Asphalt

Clayey gravel with sand (GC)

Clay

Clayey sand with gravel (SC-SM)

Sand with silt (SP-SM)

Silty Sand (SM)

Sand with silt (SW-SM)

TYPICAL TEST HOLE SYMBOL

Plan View

Approximate location of any sampled hole

For additional information, see Final Geotechnical Report, Lakeshore Road, Elephant Butte State Park, Sierra County, NM, Report # NM FLAP SIE 10(1), dated June 2022, published by U.S. Dept. of Transportation, Federal Highway Administration, Central Federal Lands Highway Division, Geotechnical Services Branch, Lakewood, Colorado.

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CENTRAL FEDERAL LANDS HIGHWAY DIVISION

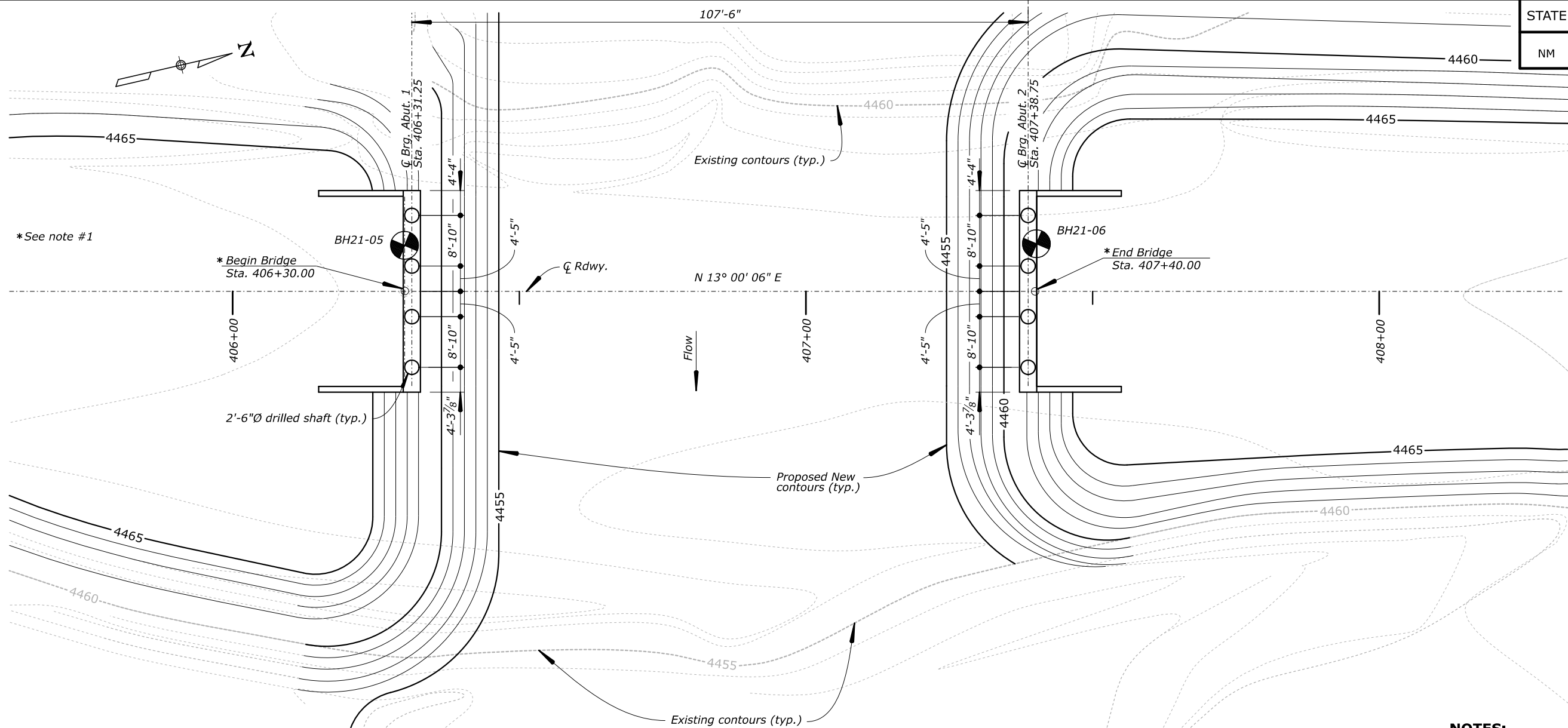
CEDAR CANYON BRIDGE
LAKESHORE ROAD
ELEPHANT BUTTE LAKE STATE PARK

SIERRA COUNTY, NEW MEXICO

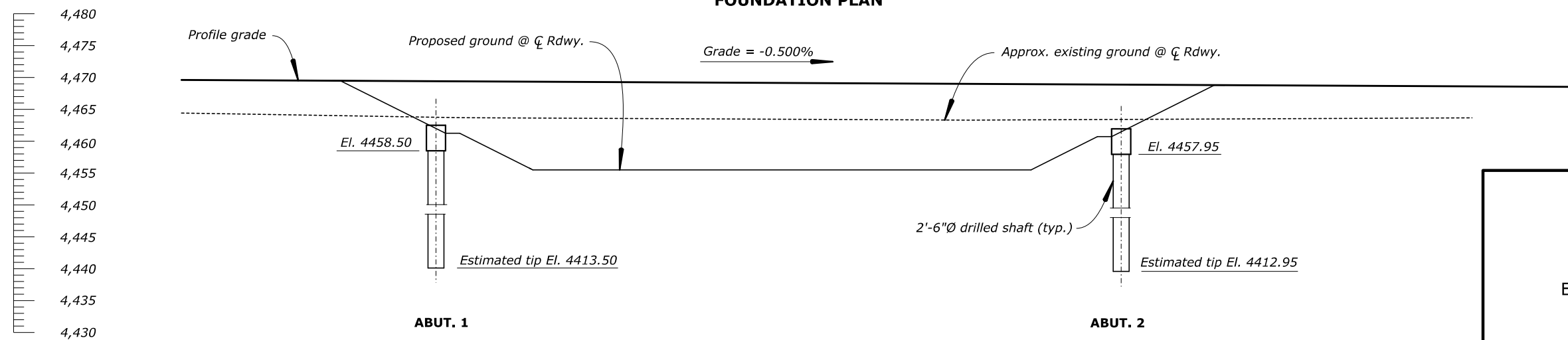
BORING LOGS

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								B. MCGARITY	B. MCGARITY	M. DODSON	1"= 30'-0"	SAMIR SIDHOM	3 of 22	OCTOBER 2022	RG3199-C

STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S65



FOUNDATION PLAN



ELEVATION

NOTES:

1. For Begin/End bridge and Begin/End abutment cap detail, see RG3199-J Section A-A.
2. Abut. 1 & 2 \perp Brg. are perpendicular to \perp Roadway.
2. See RG3199-C for Boring Logs.

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CEDAR CANYON BRIDGE
LAKESHORE ROAD
ELEPHANT BUTTE LAKE STATE PARK

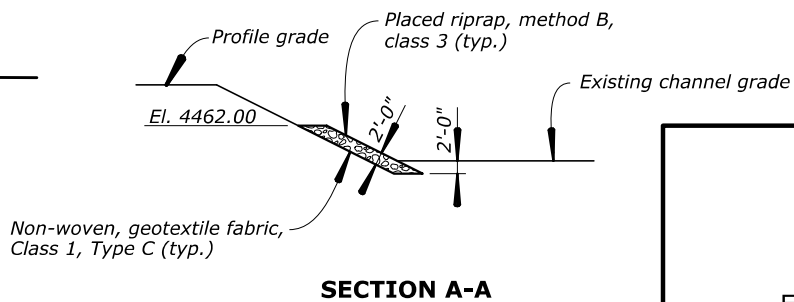
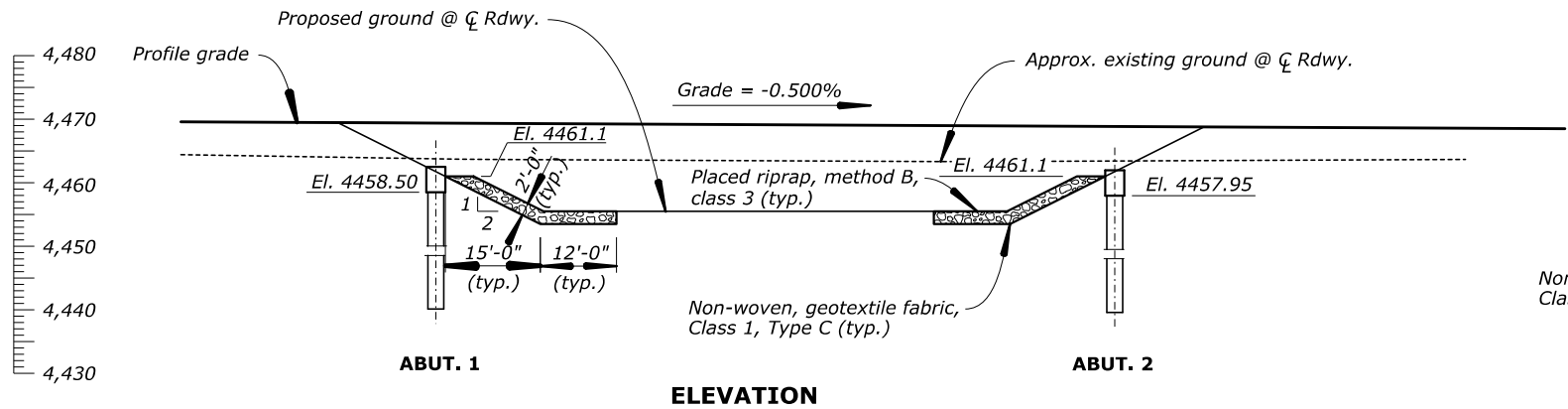
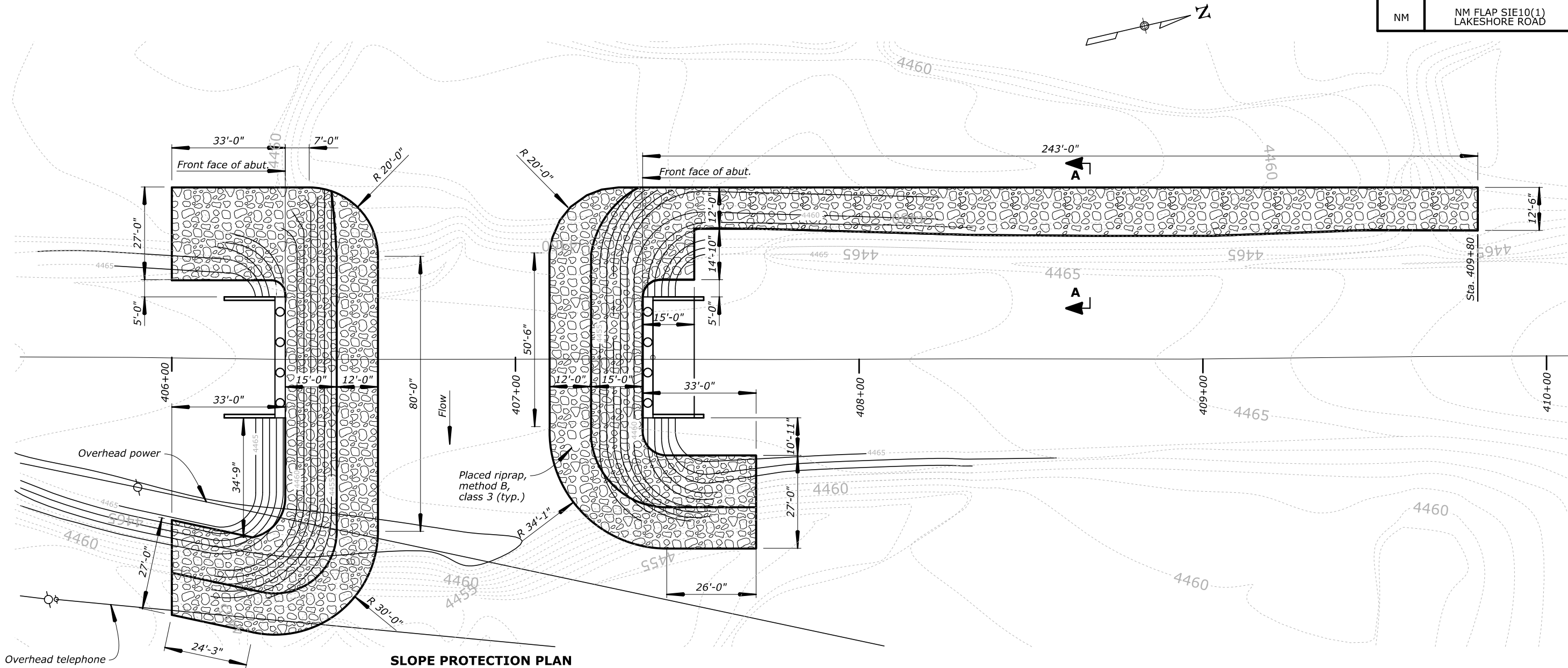
SIERRA COUNTY, NEW MEXICO

FOUNDATION PLAN

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								P. CLARK	N. MARSHALL	N. MARSHALL	1"= 20'-0"	SAMIR SIDHOM	4 of 22	OCTOBER 2022	RG3199-D

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STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S66



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CEDAR CANYON BRIDGE
LAKESHORE ROAD
ELEPHANT BUTTE LAKE STATE PARK

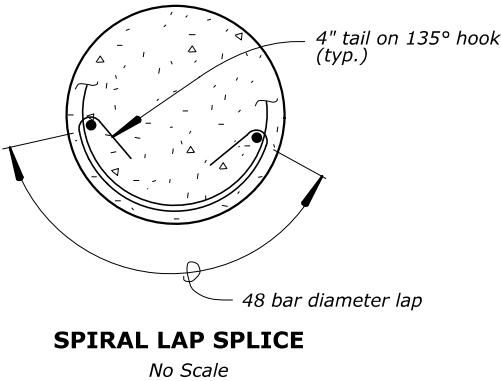
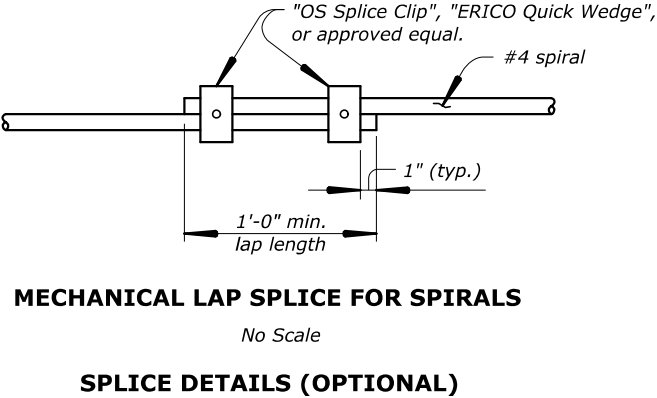
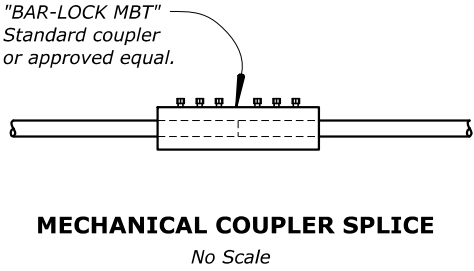
SIERRA COUNTY, NEW MEXICO

SLOPE PROTECTION

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								L. CALDERON	B. ROBINSON	N. MARSHALL	1"= 30'-0"	SAMIR SIDHOM	5 of 22	OCTOBER 2022	RG3199-E

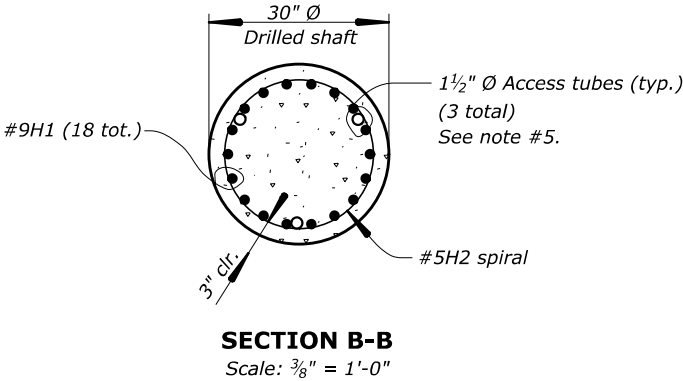
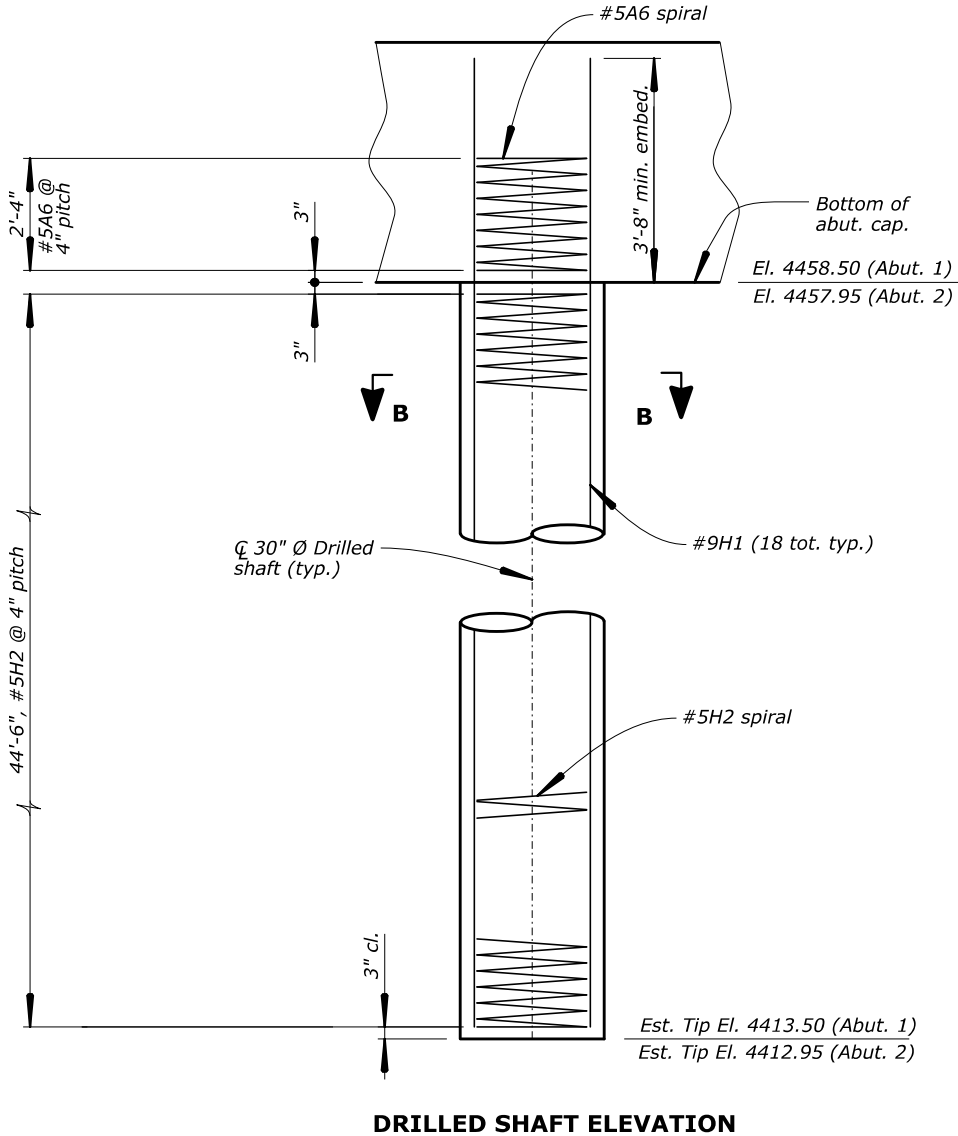
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STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S67



NOTES:

- Minimum #5 spiral lap splice = 2'-11".
- Mechanical splices may be used in spiral and longitudinal reinforcing. For mechanical splice requirements, see FP-14. Provide clear cover not less than 1½ inches measured from the surface of concrete to the outside face of the splice components. Stagger mechanical splices of longitudinal reinforcing a minimum of 2'-0" as measured along the longitudinal axis of the shaft/column.
- Utilize centralizers to maintain rebar clearance. Submit cage alignment details to the CO for approval.
- Add 1½ turns of spiral and 135 degree hook with 1'-0" tail at top and bottom of spiral length.
- Equally space access tubes for integrity test and tie to reinforcing cage at nearest drilled shaft/ rock socket longitudinal bar. Perform integrity test before pouring abutment cap concrete. Space concrete spacers vertically less than 5 ft.



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CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CEDAR CANYON BRIDGE
LAKESHORE ROAD
ELEPHANT BUTTE LAKE STATE PARK

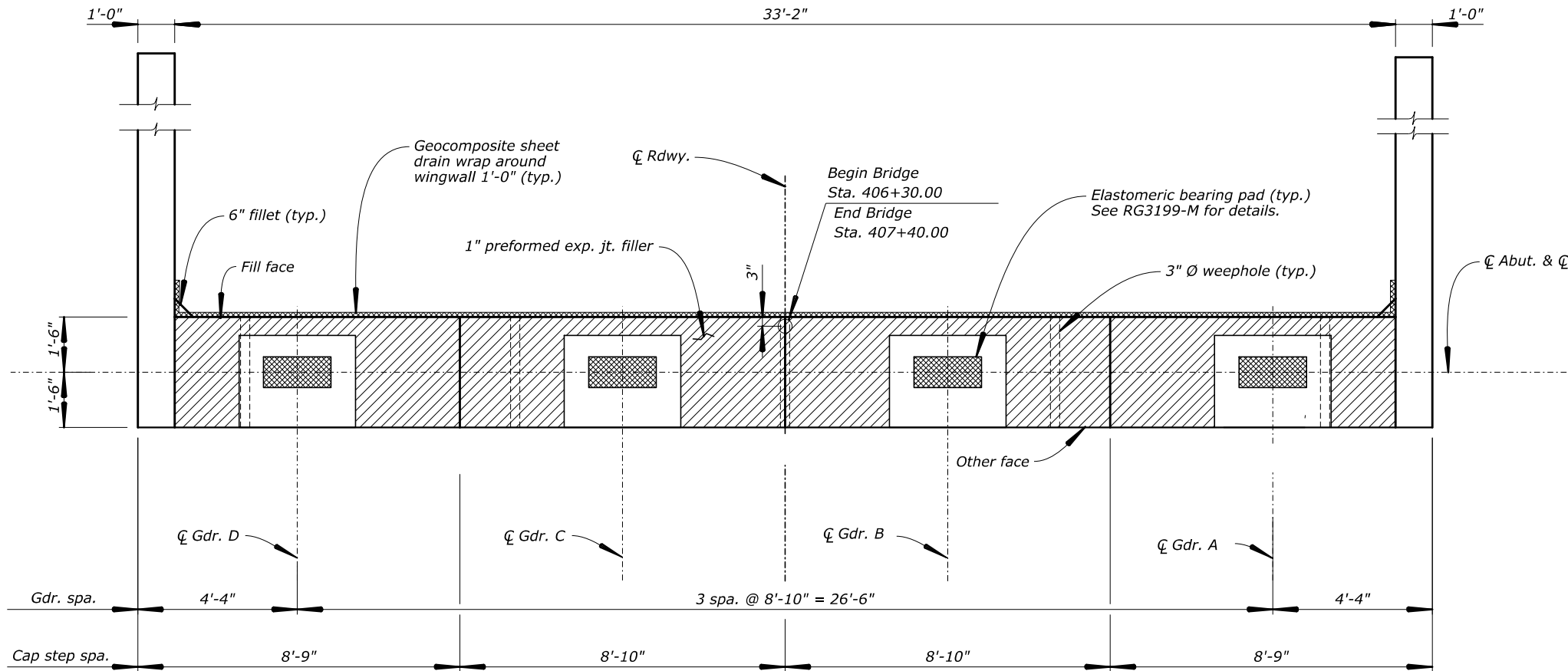
SIERRA COUNTY, NEW MEXICO

DRILLED SHAFTS

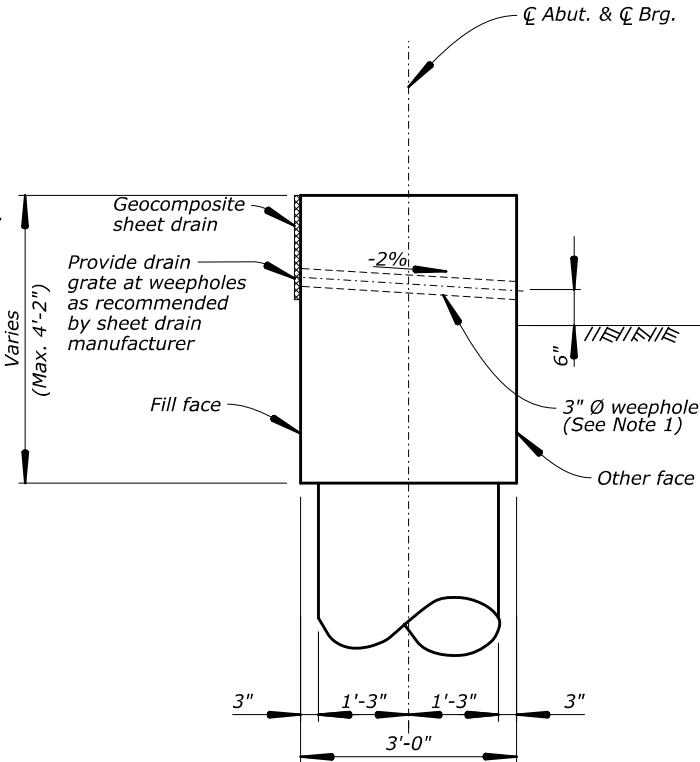
NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								P. CLARK	B. ROBINSON	N. MARSHALL	¼" = 1'-0" UNLESS NOTED	SAMIR SIDHOM	6 of 22	OCTOBER 2022	RG3199-F

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STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S68



ABUTMENT 1 PLAN
(ABUTMENT 1 SHOWN, ABUTMENT 2 SIMILAR)



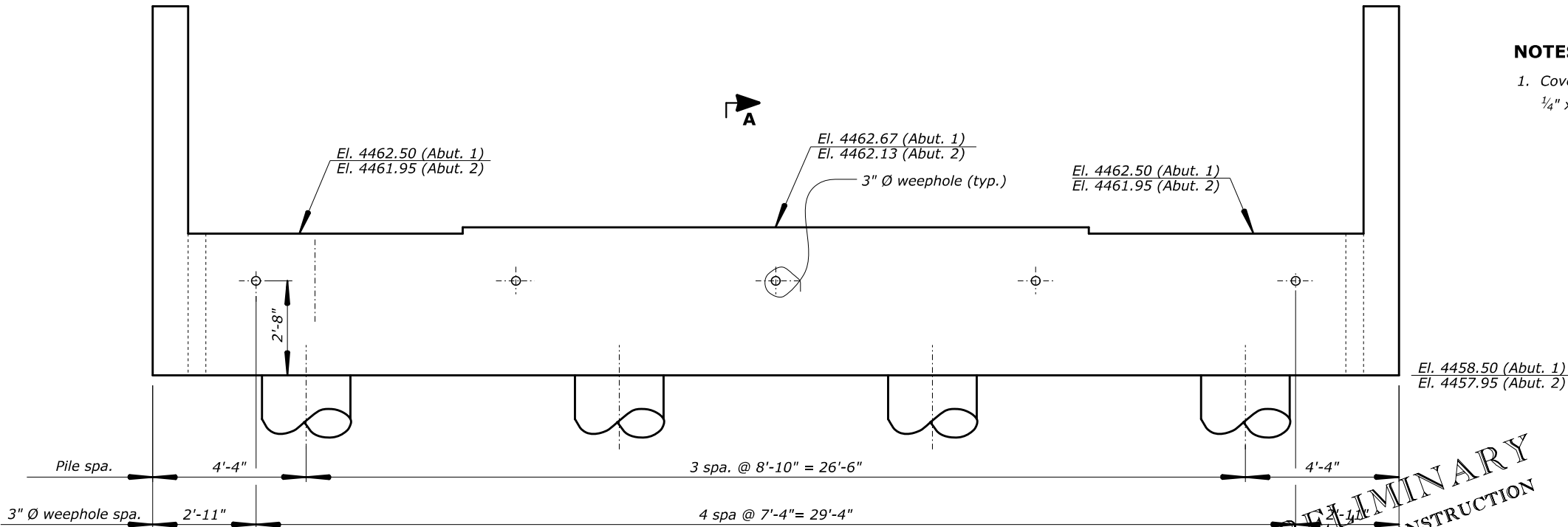
SECTION A-A
Scale: $\frac{3}{8}$ " = 1'-0"

NOTES:

1. Cover weephole outlet opening with 17 ga galvanized wire screen with $\frac{1}{4}$ " x $\frac{1}{4}$ " mesh opening.

ABBREVIATIONS:

f.f. = Fill face
o.f. = Other face
b.f. = Both faces



ABUTMENT ELEVATION
(ABUTMENT 1 SHOWN, ABUTMENT 2 SIMILAR)

PRELIMINARY
NOT FOR CONSTRUCTION

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CEDAR CANYON BRIDGE
LAKESHORE ROAD
ELEPHANT BUTTE LAKE STATE PARK
SIERRA COUNTY, NEW MEXICO

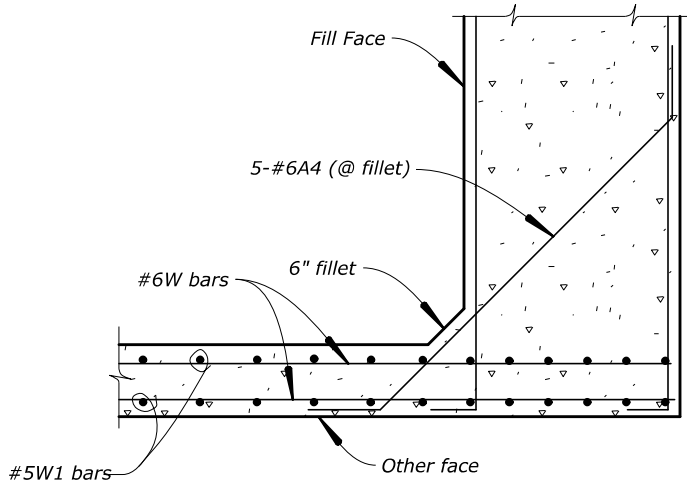
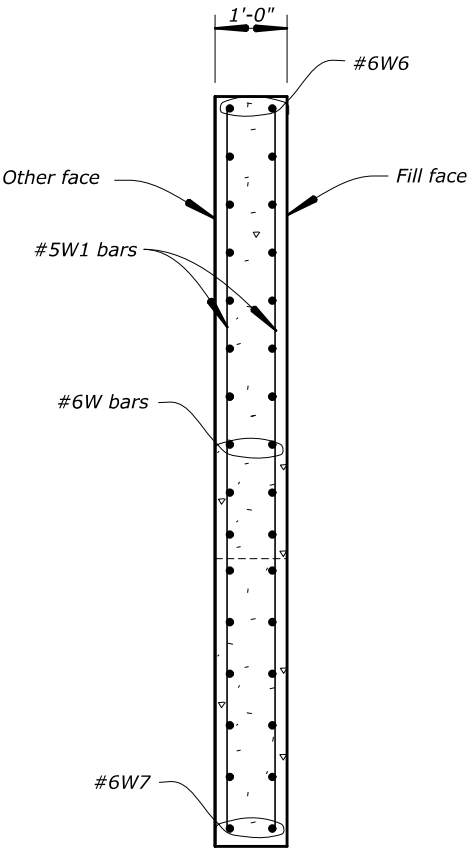
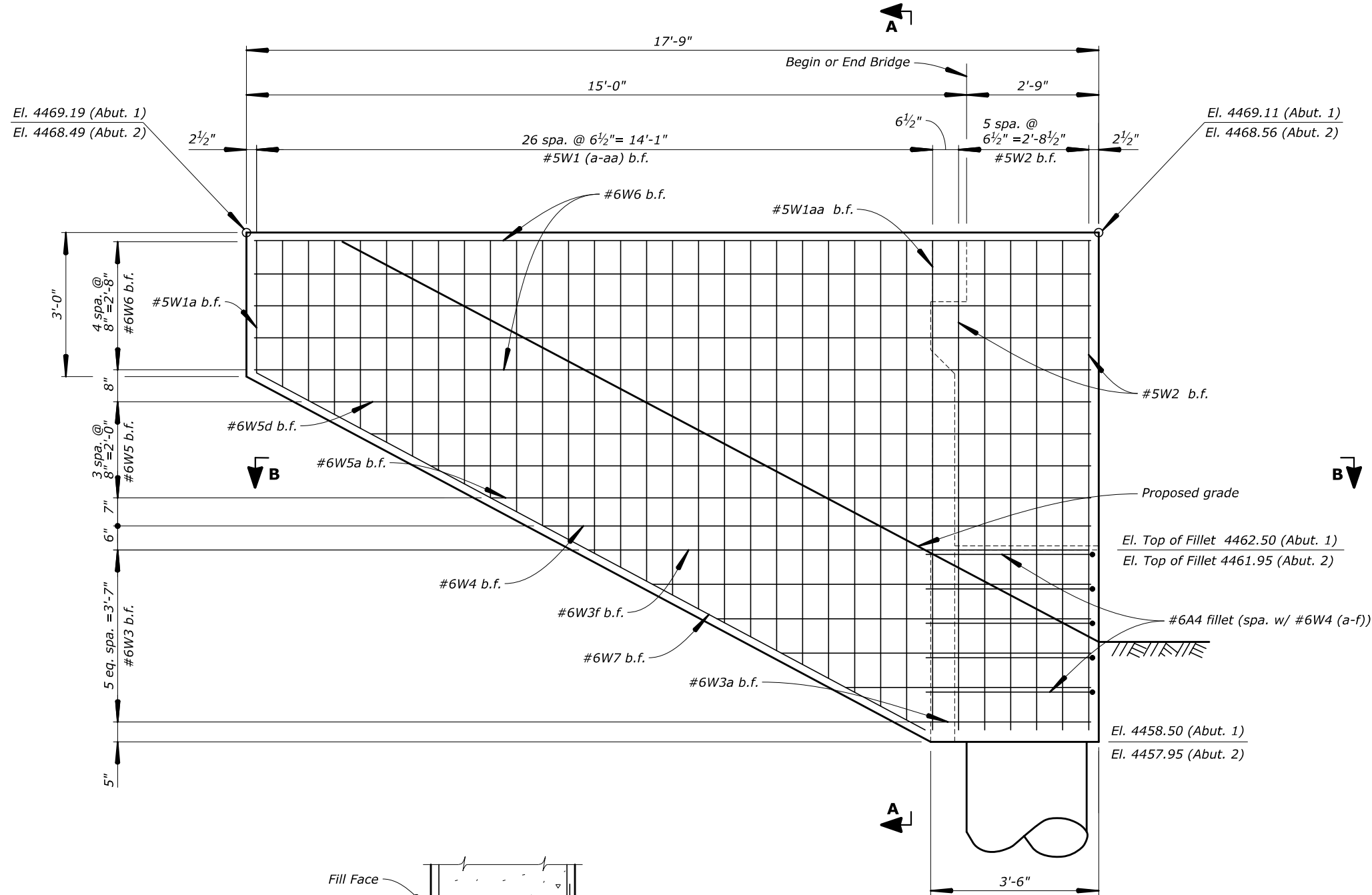
ABUTMENT PLAN & ELEVATION

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								P. CLARK	B. ROBINSON	N. MARSHALL	$\frac{1}{4}$ " = 1'-0" UNLESS NOTED	SAMIR SIDHOM	7 of 22	OCTOBER 2022	RG3199-G

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STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S70

ABBREVIATIONS:
f.f. = Fill face
o.f. = Other face
b.f. = Both faces



U.S. DEPARTMENT OF TRANSPORTATION
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CENTRAL FEDERAL LANDS HIGHWAY DIVISION

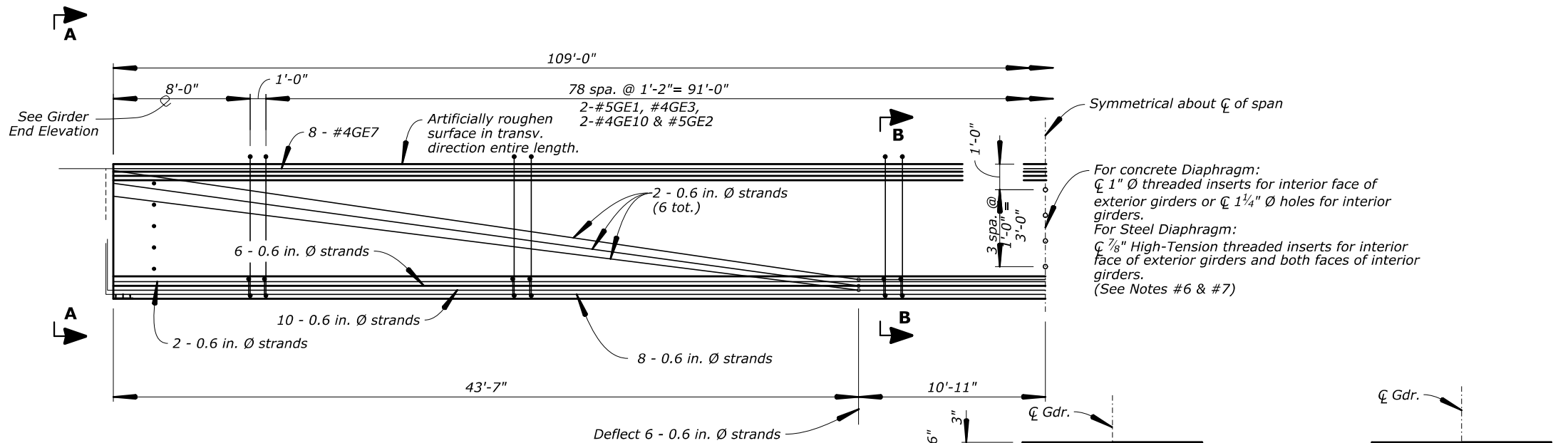
CEDAR CANYON BRIDGE
LAKESHORE ROAD
ELEPHANT BUTTE LAKE STATE PARK
SIERRA COUNTY, NEW MEXICO

WINGWALLS

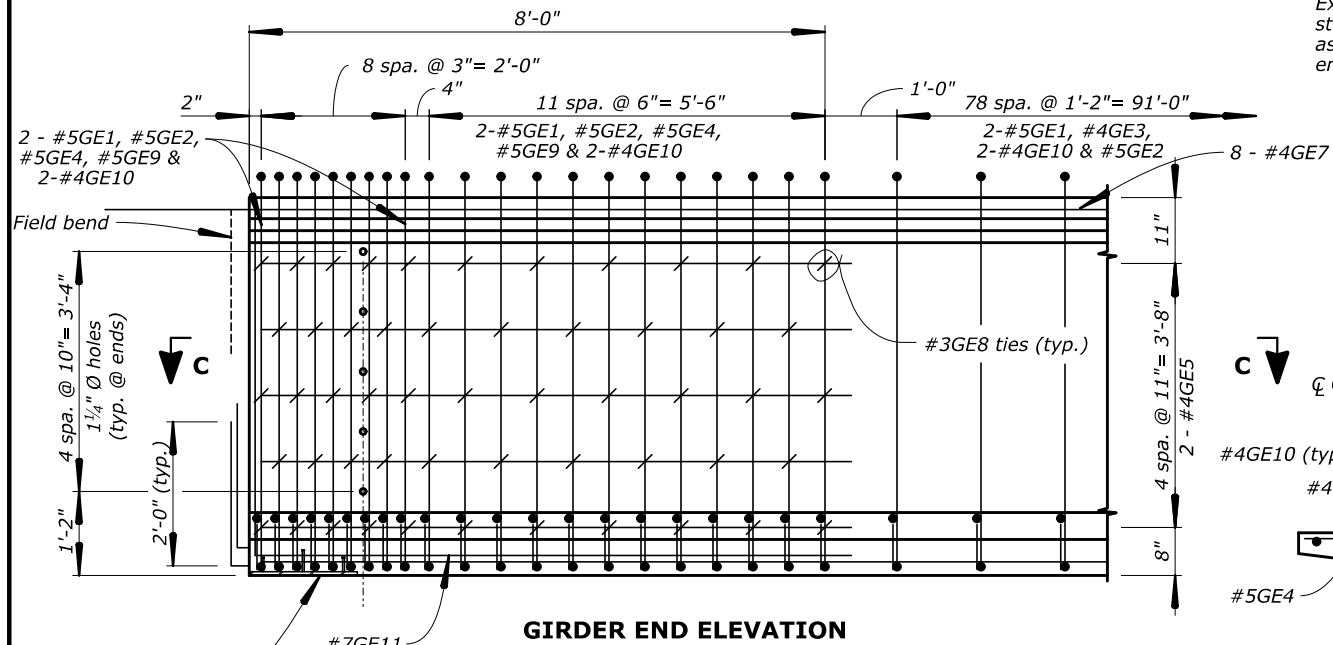
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								P. CLARK	B. ROBINSON	N. MARSHALL	3/8" = 1'-0" UNLESS NOTED	SAMIR SIDHOM	9 of 22	OCTOBER 2022	RG3199-I

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10/7/2022

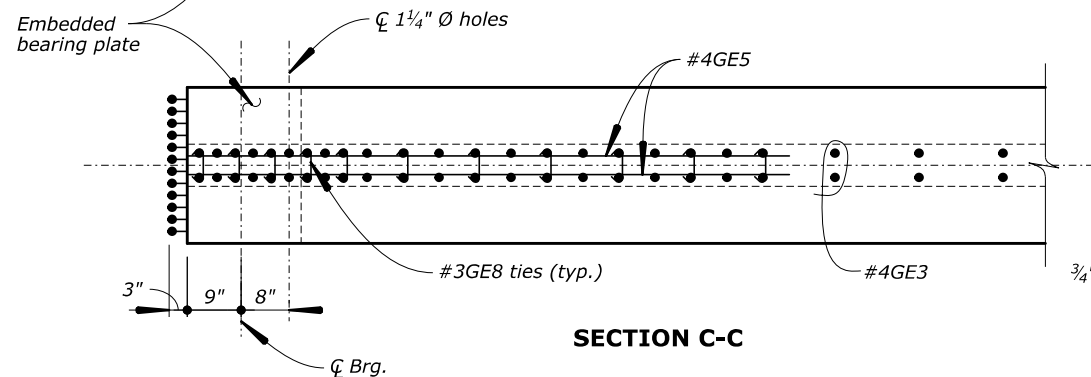
STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S73



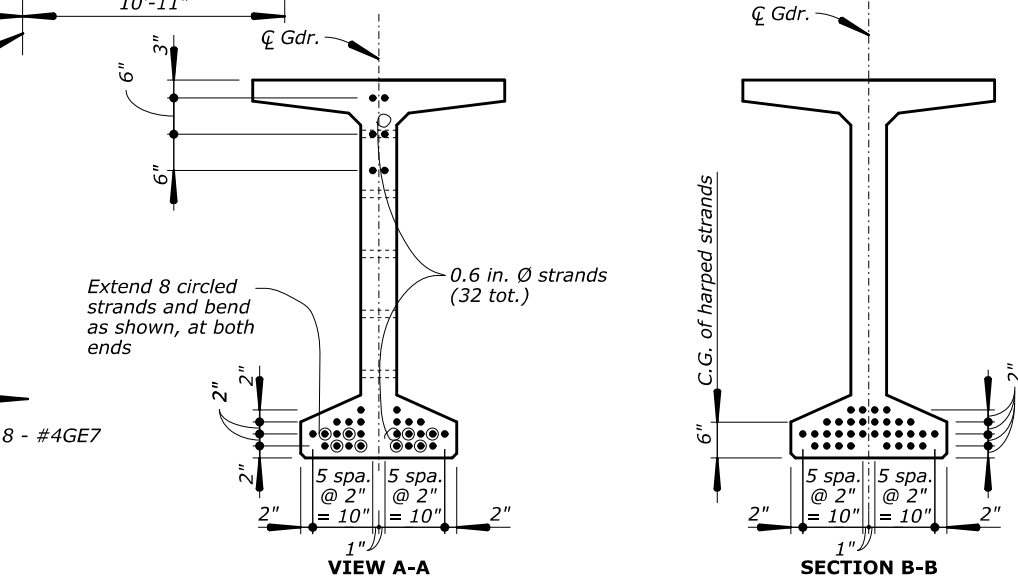
GIRDER ELEVATION
Scales: $\frac{1}{8}'' = 1'-0''$ horizontal
 $\frac{3}{16}'' = 1'-0''$ vertical



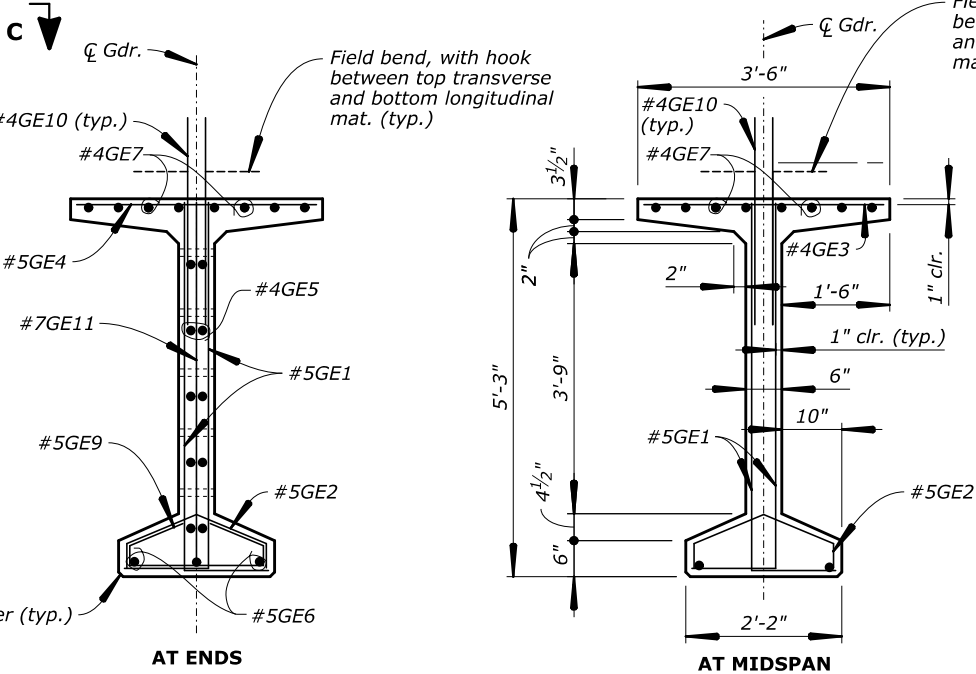
GIRDER END ELEVATION



SECTION C-C



TYPICAL GIRDER SECTIONS



TYPICAL GIRDER SECTIONS

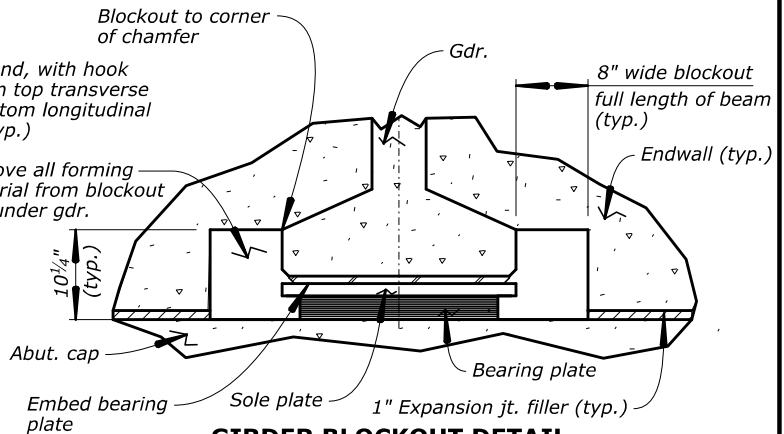
NOTES

1. Cast girders $\frac{1}{2}''$ longer than shown to allow for shortening due to prestressing and shrinkage.
2. Estimated camber at release of strands = $2\frac{1}{4}''$
3. Estimated camber at after placing the deck = 2"
4. All longitudinal dimensions shown in elevation view are along C.L. Gdr.
5. Girder shown is a New Mexico BT - 63" Prestressed Girder.
6. Use of steel diaphragms rather than concrete diaphragms is optional, submit type of diaphragm inserts with girder details for approval.
7. For steel diaphragm details, see RG3199-M
8. After erection cut off lifting loops 1 inch below top of the girder and fill with an approved non-shrink grout prior to placing deck.

PRESTRESSED GIRDER ESTIMATE

ITEM	UNIT	QUANTITY
Concrete	Cu. Yds.	20.0
Reinf. Steel	Lbs.	4350
0.6" Ø Strands	Lin. Ft.	3532

Note: Quantities shown are for one girder only, and for information only.



GIRDER BLOCKOUT DETAIL
No Scale

U.S. DEPARTMENT OF TRANSPORTATION
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CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CEDAR CANYON BRIDGE
LAKESHORE ROAD
ELEPHANT BUTTE LAKE STATE PARK
SIERRA COUNTY, NEW MEXICO

GIRDER DETAILS (1 OF 2)

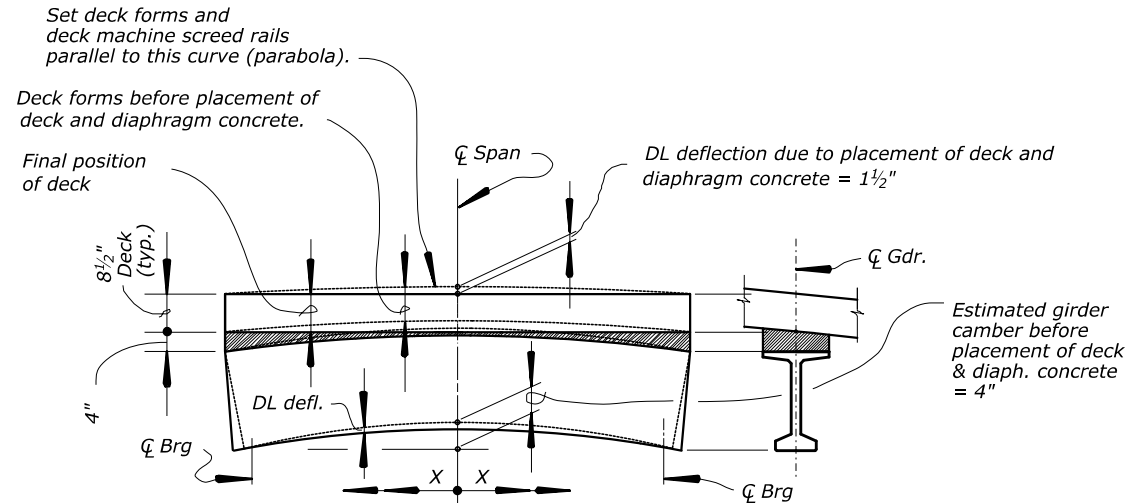
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								P. CLARK	B. ROBINSON	N. MARSHALL	$\frac{3}{8}'' = 1'-0''$ UNLESS NOTED	SAMIR SIDHOM	12 of 22	OCTOBER 2022	RG3199-L

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10/7/2022

STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S74

NOTES:

1. Provide structural steel plates meeting AASHTO M270, Grade 36. Galvanize sole plates after fabrication.
2. Provide steel reinforced elastomeric bearing pads conforming to AASHTO M251 with 60 Durometer hardness, elastomer Grade 3 or higher. Design shear modulus, $G = 130$ psi.
3. Vulcanize the elastomeric bearing pad to bottom surface of sole plate.
4. Submit to the CO for approval the procedures to prevent heat damage to elastomeric pads during field welding. Keep temperature of the steel adjacent to the elastomer below 250° F.
5. Repair areas damaged by field welding by cleaning and re-coating with 2 brush coats of zinc dust-zinc oxide paint meeting Federal Specifications TT-P641 or Military Specs MIL-P-21035.
6. Mark all bearings prior to shipping. Include the bearing location on the bridge, and a direction arrow that points ahead station. Provide permanent marks visible after the bearing is installed.
7. AASHTO LRFD design method "A" used for elastomeric pad design.
8. Abutment design service loads per bearing:
Dead load = 151 kips
Live load = 131 kips.



Dead load deflection equation:

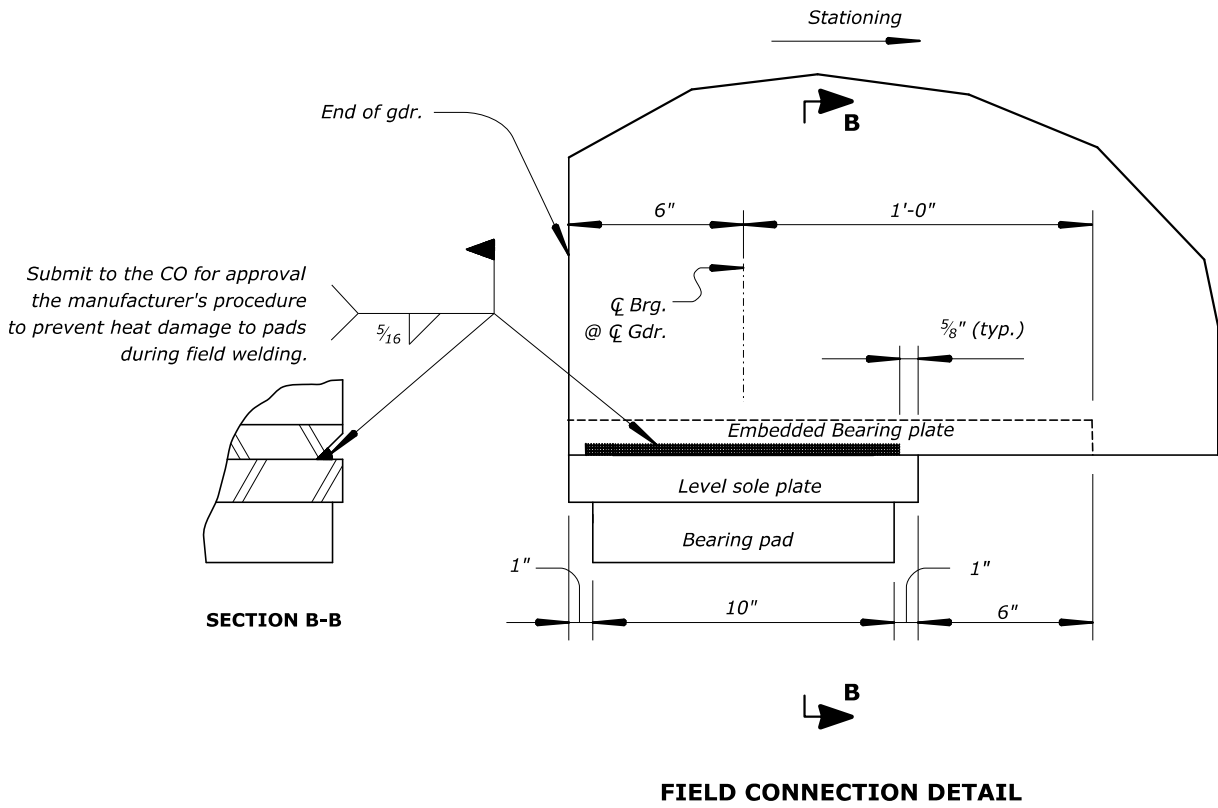
$$\text{Span: DL defl.} = 1.50 - \frac{x^2}{279936}$$

Where DL defl. = deflection, in inches, of girder at any point, caused by the weight of deck and diaphragm, and x = distance, in inches, measured from \bar{C} Span.

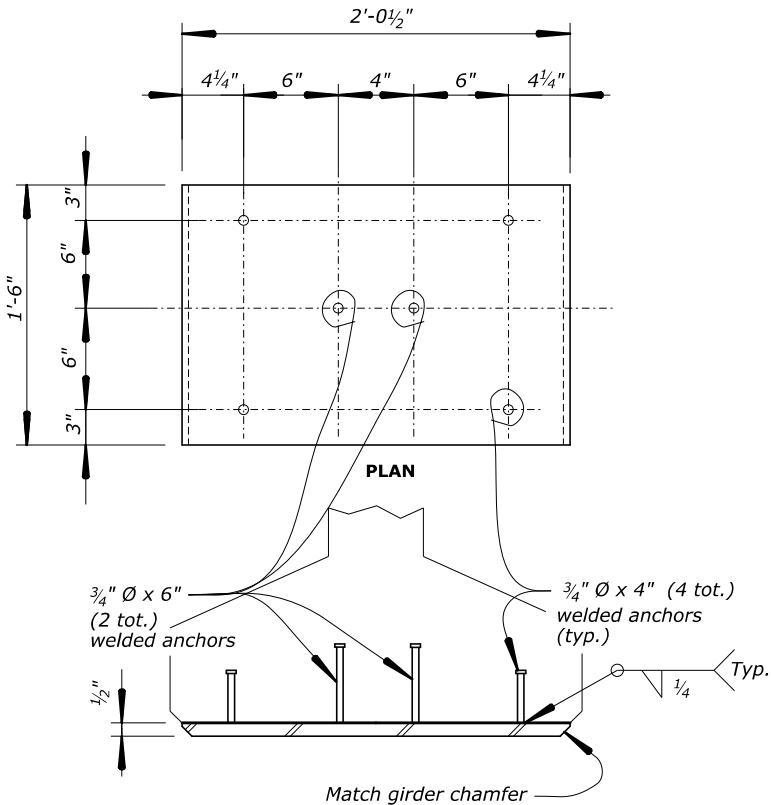
Required Actions:

1. Measure girder camber prior to setting deck forms. If actual girder camber exceeds estimated girder camber by more than the allowable tolerance, increase fillets by raising the profile grade as directed by the CO. Allowable tolerance for the Span = 1".
2. Set the deck forms and camber the deck machine screed rails to offset the girder deflections due to the deck and diaphragms as shown in the diagram.
3. Bridge girder seat elevations were calculated using design cambers of the girders plus dead load deflections of the deck such that the top of the precast girders will be a minimum of 1 inch below the bottom of the deck at any one point in the span.

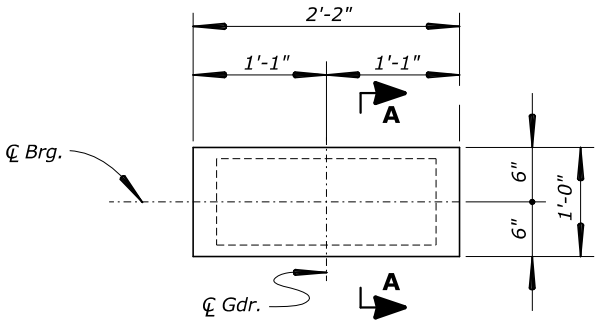
DECK FORM SETTING DIAGRAM



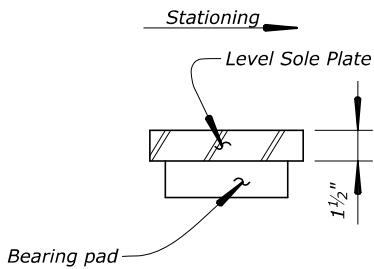
FIELD CONNECTION DETAIL



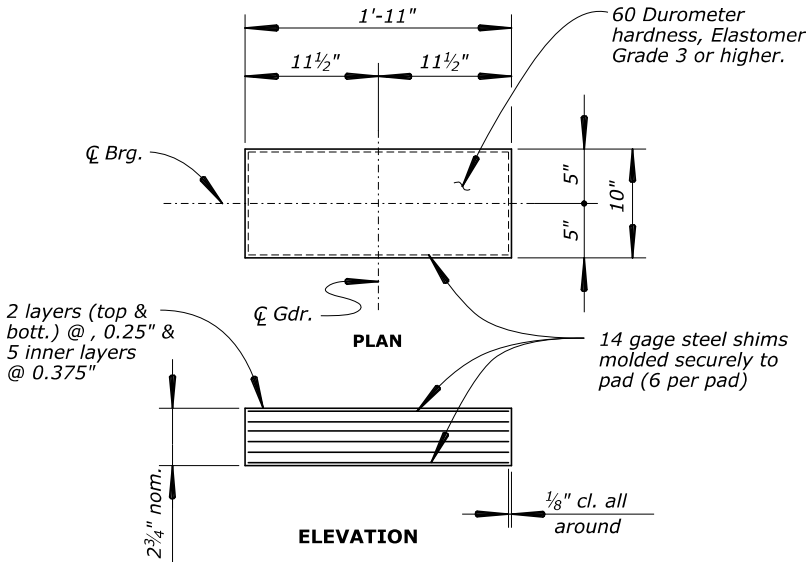
BEARING PLATE DETAIL
(8 Req'd)



LEVEL SOLE PLATE DETAIL
(8 Req'd.)



SECTION A-A
(Abut. 1 & 2)
(8 Req'd.)



REINFORCED ELASTOMERIC BEARING PAD DETAIL
(8 Req'd.)

U.S. DEPARTMENT OF TRANSPORTATION
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CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CEDAR CANYON BRIDGE
LAKESHORE ROAD
ELEPHANT BUTTE LAKE STATE PARK
SIERRA COUNTY, NEW MEXICO

GIRDER DETAILS (2 OF 2)

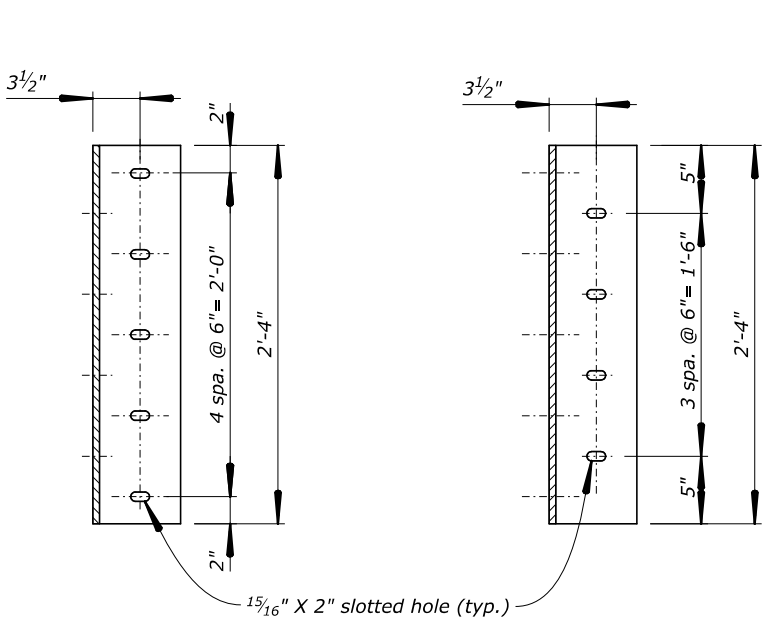
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								P. CLARK	B. ROBINSON	N. MARSHALL	NONE	SAMIR SIDHOM	13 of 22	OCTOBER 2022	RG3199-M

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10/7/2022

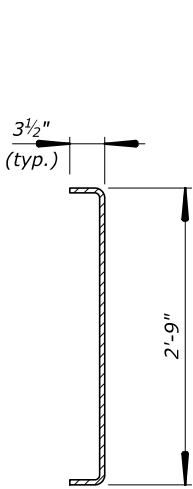
STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S75

GENERAL NOTES:

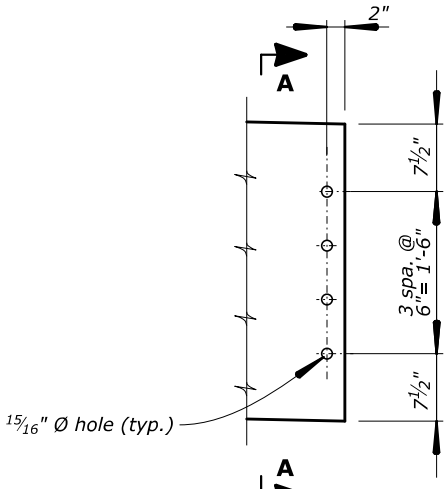
- Hot-dip galvanize all structural steel elements in this detail conforming to AASHTO M 270, Grade 36.
- Furnish bolts conforming to ASTM A 307. Galvanize bolts per AASHTO M 298.
- Do not vary vertical distance between any two holes or inserts from specified distance by more than $\frac{1}{16}$ ". Do not vary the total length of the group of holes or inserts from the design length more than $\frac{1}{16}$ ". Ensure the proper placement of inserts during the girder fabrication process.
- Attach clip angles and back plates to prestressed girder at the fabrication site prior to transport. Complete diaphragm installation prior to deck placement.
- Bent plate diaphragms, clips angles, back plates, bolts, nuts and washers, threaded inserts, and pipe inserts are subsidiary to the pay item "55302-3200 Precast, Prestressed Concrete Girders (BT63)".
- At locations where steel is being fastened to concrete, limit the maximum installation tension for the bolts to 5 kips. Perform test determine the torque necessary to achieve the specified installation tension.
- Use of steel diaphragm is optional. Use either steel diaphragm or concrete diaphragm.
- See RG3199-N for Concrete Diaphragm Details.
- Coordinate with precaster the installation of inserts for steel diaphragms.



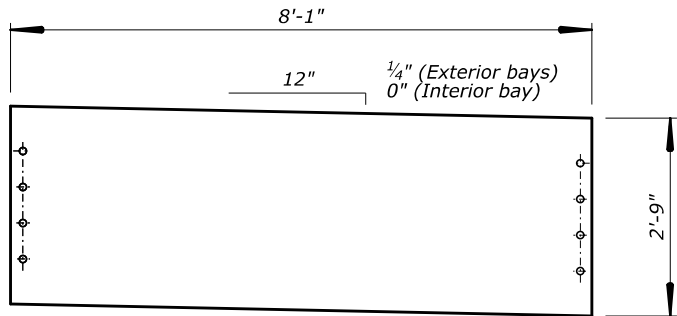
CLIP ANGLE DETAILS
L6 X 6 X $\frac{3}{8}$ "
No Scale



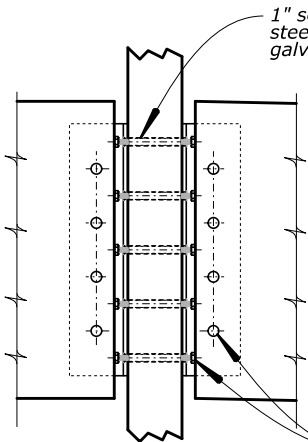
SECTION A-A
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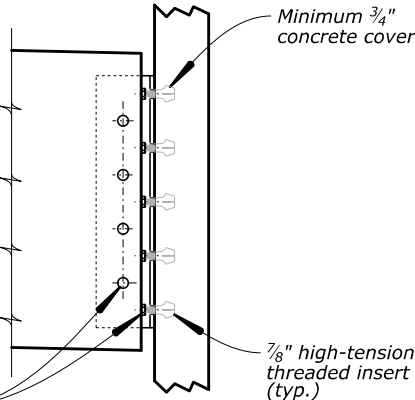
DIAPHRAGM END DETAIL
($\frac{3}{8}$ " BENT PLATE DIAPHRAGM)
No Scale



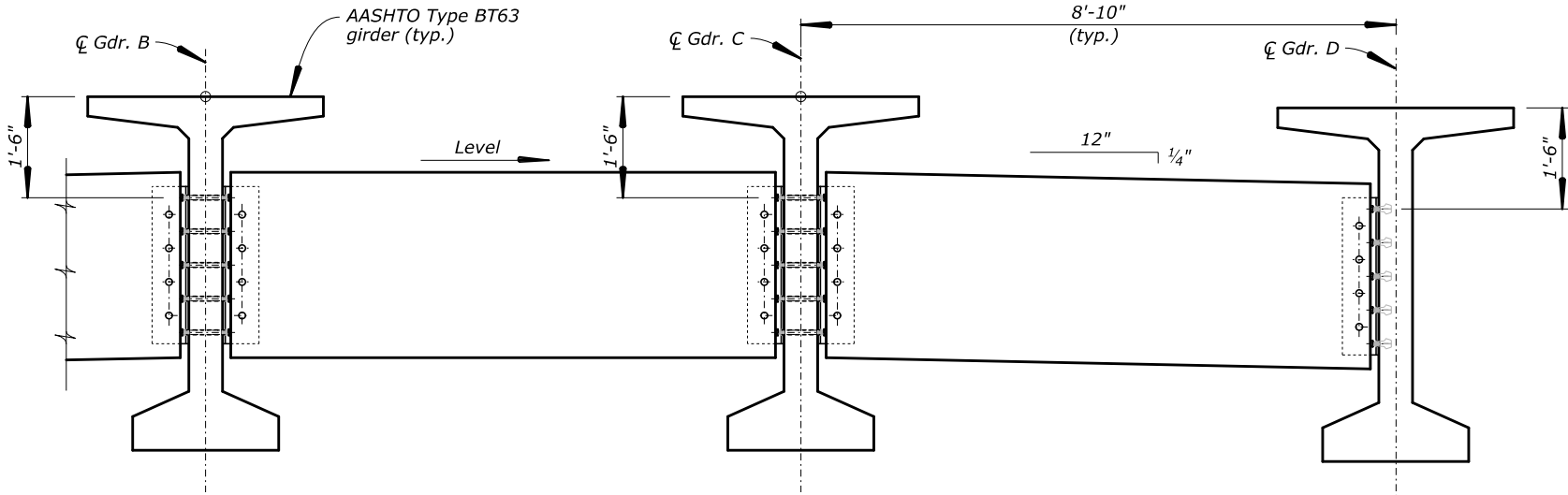
DIAPHRAGM ELEVATION



INTERIOR GIRDER
CONNECTION DETAIL
No Scale



EXTERIOR GIRDER
CONNECTION DETAIL
No Scale



TYPICAL GIRDER SECTIONS

OPTIONAL STEEL DIAPHRAGM

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CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CEDAR CANYON BRIDGE
LAKESHORE ROAD
ELEPHANT BUTTE LAKE STATE PARK

SIERRA COUNTY, NEW MEXICO

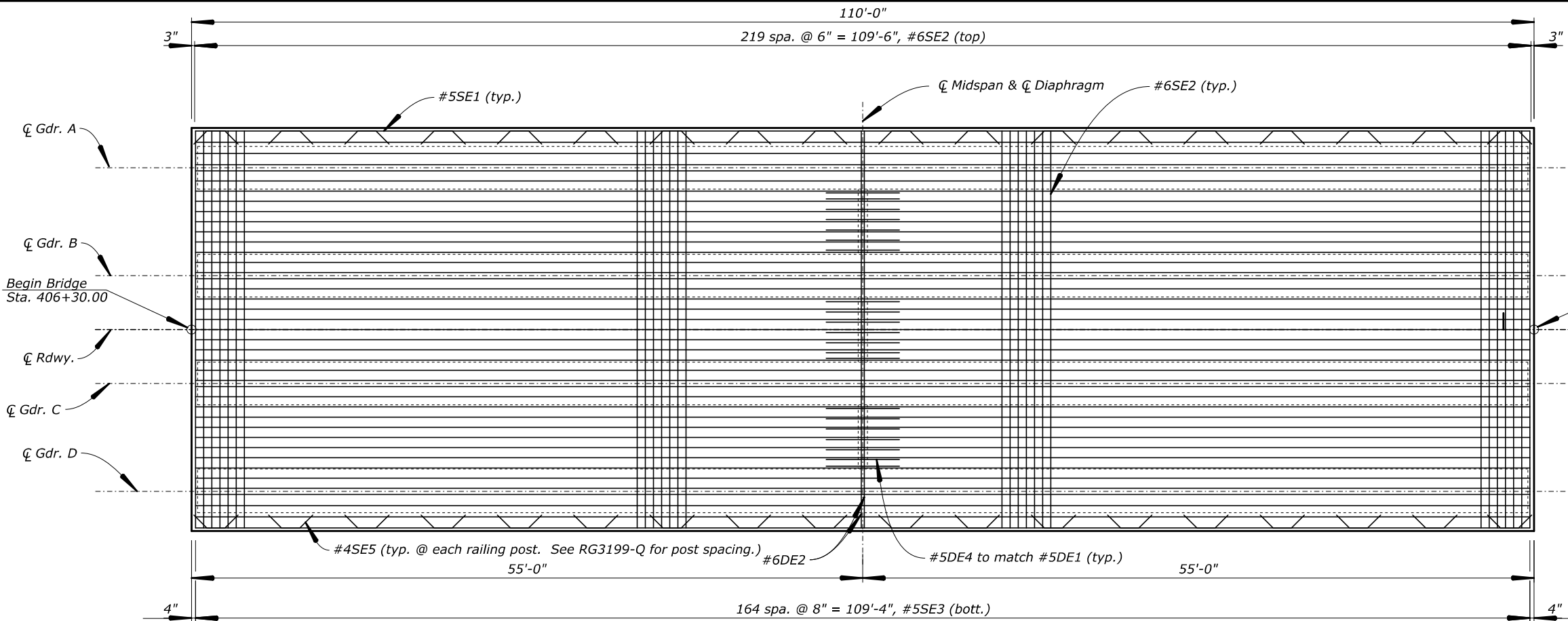
STEEL DIAPHRAGM DETAILS

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								P. CLARK	B. ROBINSON	N. MARSHALL	$\frac{3}{8}$ " = 1'-0" UNLESS NOTED	SAMIR SIDHOM	14 of 22	OCTOBER 2022	RG3199-N

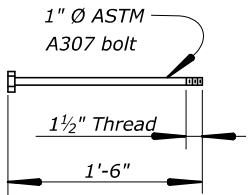
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10/7/2022

STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S76

- DECK PLAN NOTES:**
1. Only top slab reinforcement is shown.
 2. Stagger splice locations for longitudinal reinforcement.
 3. Endwall reinforcement not shown for clarity.
 4. Use of concrete diaphragm is optional.
 5. See RG3199-M for steel diaphragm details.
 6. If steel diaphragm is used, eliminate concrete diaphragm bars (DE) and anchor bolts.
 7. Place reinforcement to avoid coring for rail post anchorage.

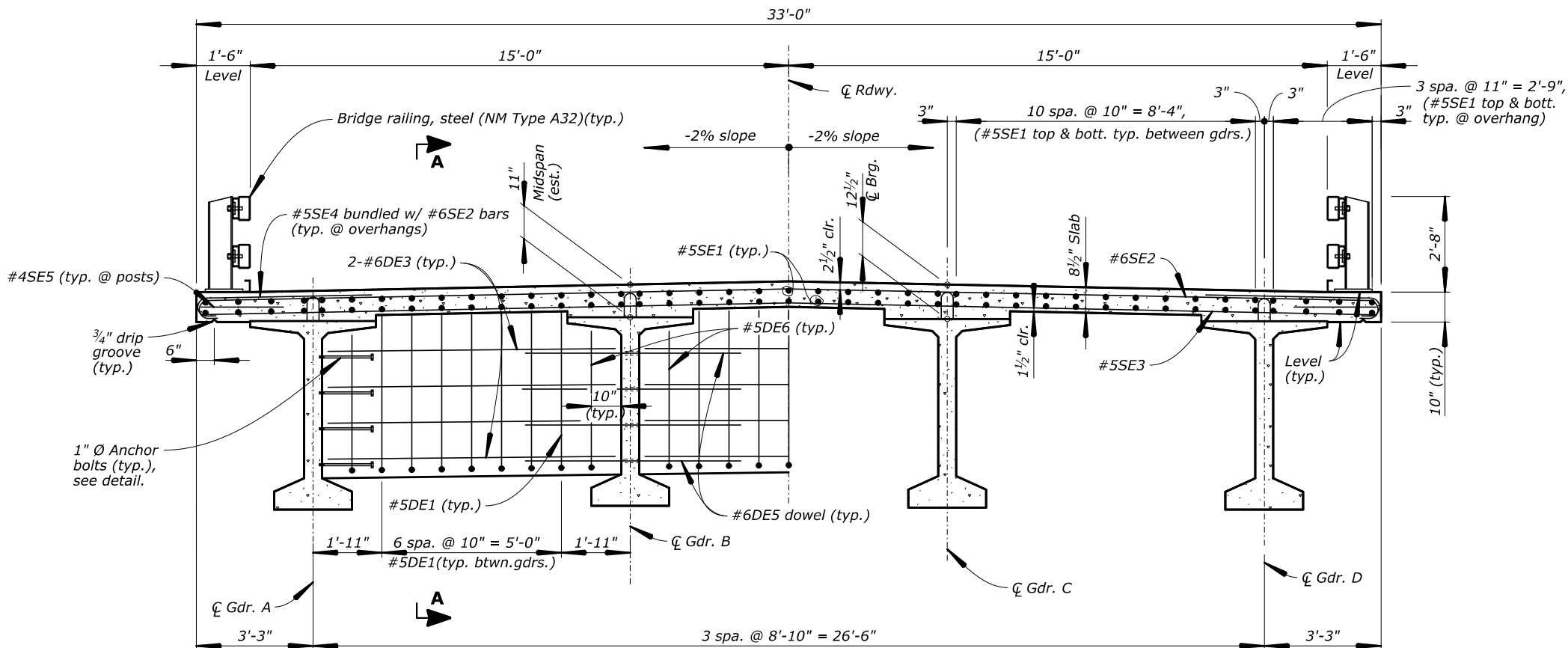


DECK
Scale: $\frac{3}{32}" = 1'-0"$

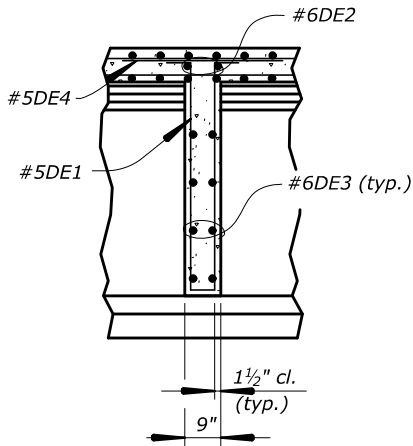


DIAPHRAGM ANCHOR BOLT

No Scale
(8 req'd.)



TYPICAL SECTION



SECTION A-A

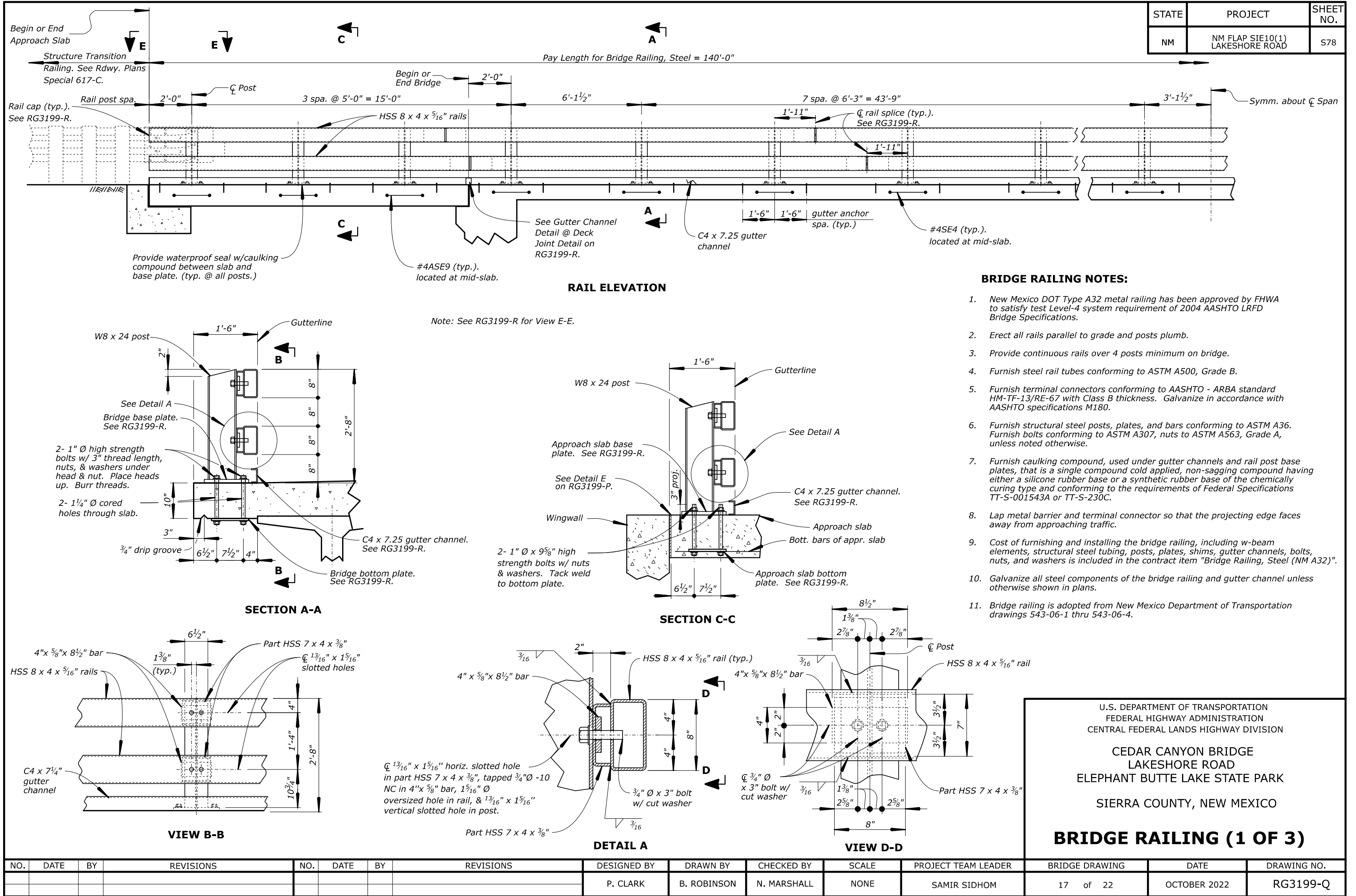
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CEDAR CANYON BRIDGE
LAKESHORE ROAD
ELEPHANT BUTTE LAKE STATE PARK
SIERRA COUNTY, NEW MEXICO

TYPICAL SECTION

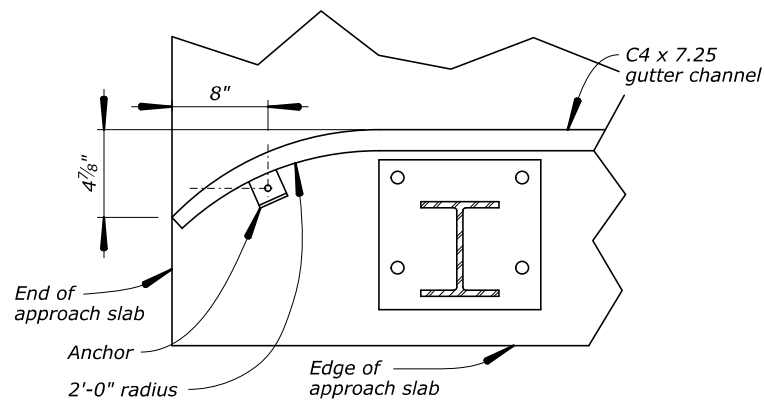
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								P. CLARK	B. ROBINSON	N. MARSHALL	$\frac{1}{4}" = 1'-0"$ UNLESS NOTED	SAMIR SIDHOM	15 of 22	OCTOBER 2022	RG3199-O

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10/7/2022

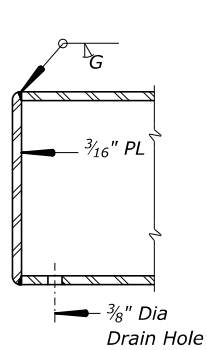


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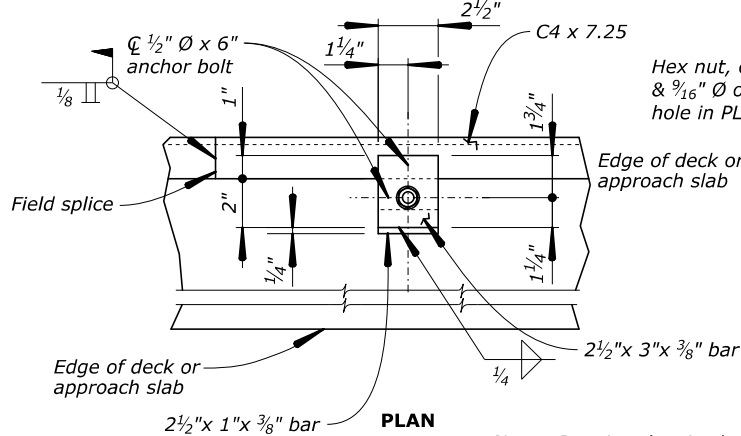
STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S79



VIEW E-E

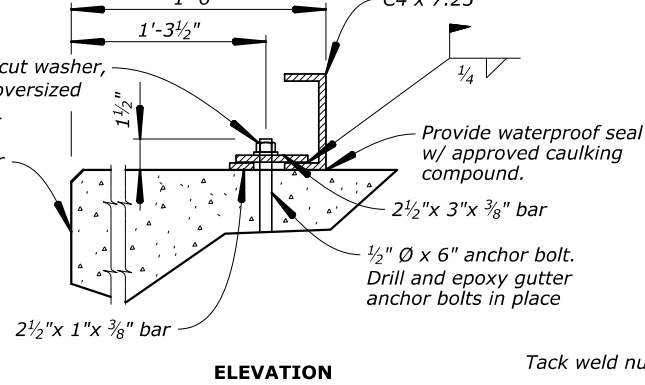


RAIL CAP

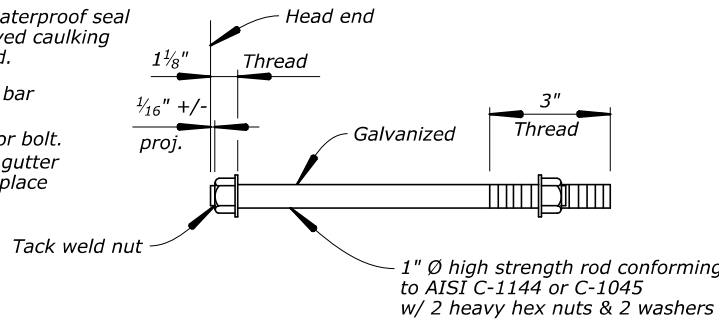


PLAN

Note: Repair galvanized areas damaged by welding conforming to ASTM A780.



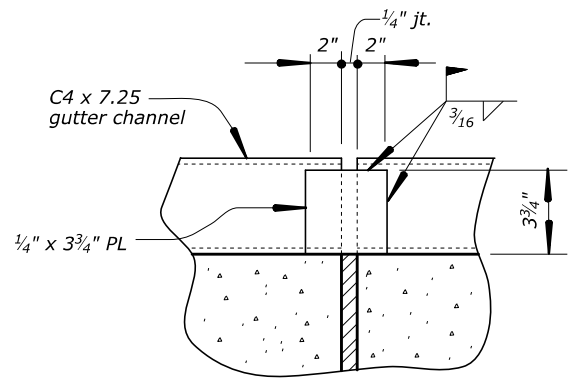
ELEVATION



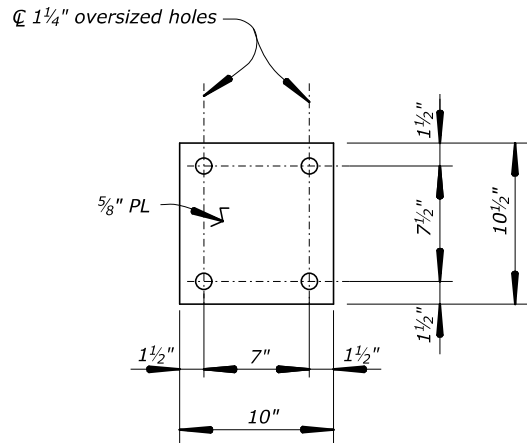
ALTERNATE POST ANCHOR BOLT DETAIL

NOTES

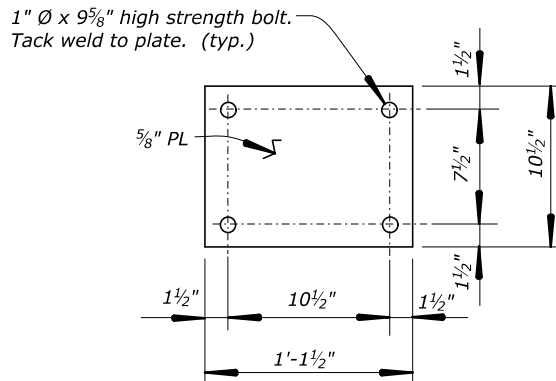
1. Provide adhesive anchors providing a minimum factored tensile resistance = 4500 lbs.
2. Install adhesive anchors per manufacturer's instructions. Submit proposed anchor system to CO for approval.



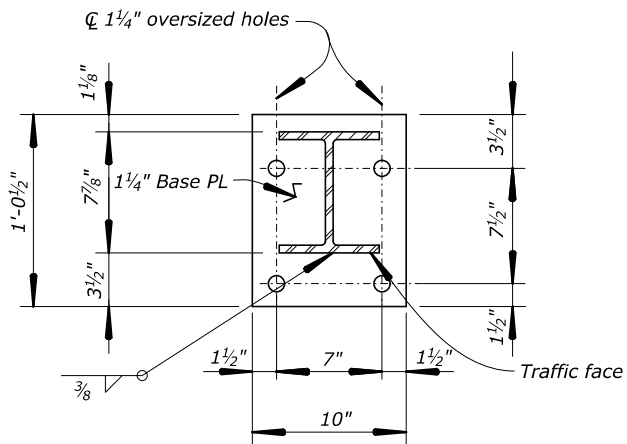
GUTTER CHANNEL DETAIL @ DECK JOINT



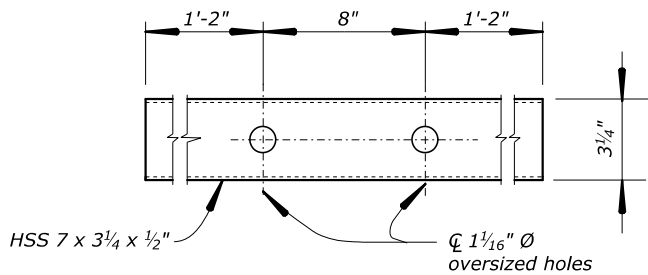
BRIDGE BOTTOM PLATE



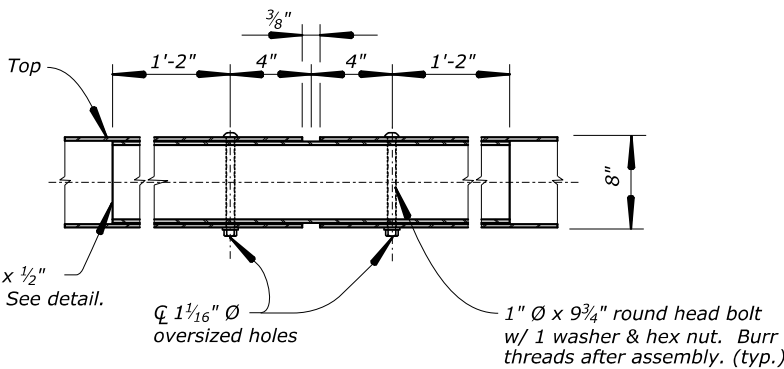
APPROACH SLAB BOTTOM PLATE



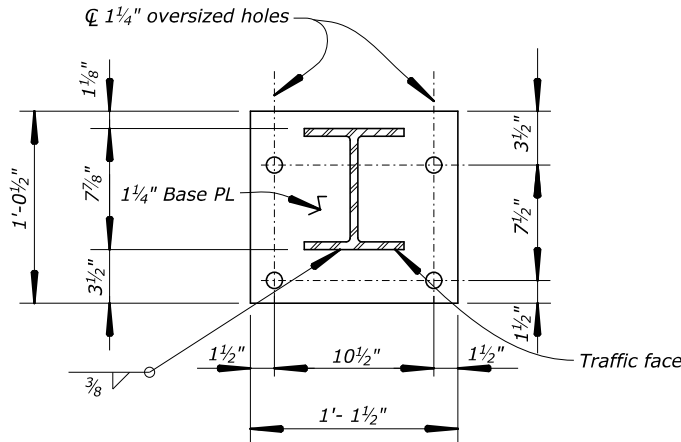
BRIDGE BASE PLATE



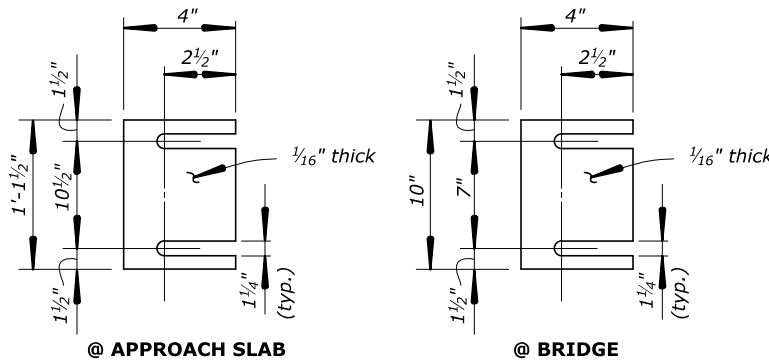
RAIL SPLICE TUBE



RAIL SPLICE DETAIL



APPROACH SLAB BASE PLATE



@ APPROACH SLAB

@ BRIDGE

RAIL POST SHIM

Note: Use as necessary to align posts.

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CEDAR CANYON BRIDGE
LAKESHORE ROAD
ELEPHANT BUTTE LAKE STATE PARK

SIERRA COUNTY, NEW MEXICO

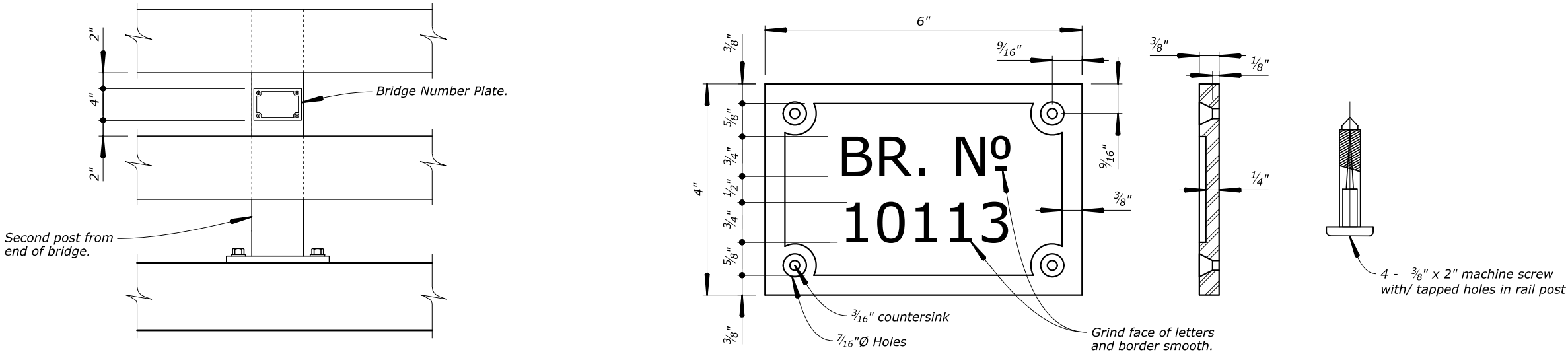
BRIDGE RAILING (2 OF 3)

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								P. CLARK	B. ROBINSON	N. MARSHALL	NONE	SAMIR SIDHOM	18 of 22	OCTOBER 2022	RG3199-R

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STATE	PROJECT	SHEET NO.
NM	NM FLAP SIE10(1) LAKESHORE ROAD	S81

- NOTES:**
1. Furnish two plates with galvanized flat head bolts in expansion shields. Furnish plates galvanized cast iron with raised block letters of neat square cut design. Grind face of letters and borders smooth. Furnish galvanized cast iron plates and bolts.
 2. Place one number plate at each end of the bridge on the roadway face of the second rail post and located on the right-hand side as one approaches the bridge.



BRIDGE NUMBER PLATE DETAILS

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CEDAR CANYON BRIDGE
LAKESHORE ROAD
ELEPHANT BUTTE LAKE STATE PARK

SIERRA COUNTY, NEW MEXICO

BRIDGE NUMBER PLATE

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								P. CLARK	B. ROBINSON	N. MARSHALL	NONE	SAMIR SIDHOM	20 of 22	OCTOBER 2022	RG3199-T

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10/7/2022

REINFORCING STEEL SCHEDULE										DIMENSION TABLE											
ABUTMENTS																					
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N	
*6A1	6	17	0'-4/2"	Stirrups	200	9'-0"	2704		3'-2"	2'-8"	3'-2"										
*6A2	6	STR		Horiz.top & bot.	32	34'-10"	1674		34'-10"												
*4A3	4	T9	0'-2"	Ties	200	3'-5"	456	0'-4/2"	2'-8"					0'-4/2"							
*6A4	6	67	0'-4/2"	Fillet	20	7'-5/2"	224	0'-9"	0'-8/2"	5'-5/4"	0'-8/2"	0'-9"									
*8A5	8	STR		Dowels	44	4'-8"	548		4'-8"												
*5A6 *	5	77		Spiral	8	56'-2"	469	2'-0"	0'-4"	2'-1/4"	3	10									
SUBTOTAL					6075 LBS																
DRILLED SHAFTS																					
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N	
*9H1 *	9	STR		Vert.@ drilled shaft	144	48'-5"	23705		48'-5"												
*5H2 *	5	77		Spiral @ drilled shaft	8	835'-6/2"	6972	2'-0"	0'-4"	44'-6"	3	137									
SUBTOTAL					30677 LBS																
ENDWALLS																					
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N	
*5EE1	5	17	0'-3 3/4"	Stirrups	120	9'-8"	1210		3'-6"	2'-8"	3'-6"										
*5EE2	5	17	0'-3 3/4"	Vert.	136	7'-0"	993		3'-6"	3'-6"											
*6EE3	6	16	0'-4/2"	Corbel	60	6'-8/2"	605	1'-0"	3'-2"	0'-8 3/4"	1'-10/4"				1'-4"		1'-3 3/4"	2'-0/2"			
*5EE4	5	17	0'-3 3/4"	Stirrups @ gdrs.	16	7'-6/2"	126		3'-6 3/4"	0'-5"	3'-6 3/4"										
*6EE5	6	16	0'-4/2"	Corbel @ gdrs.	8	3'-11"	47	1'-0"	0'-11"	0'-9/2"	1'-3/4"				0'-11"		0'-10 3/4"	1'-8/4"			
*5EE6	5	STR		Horiz.	14	32'-8"	477		32'-8"												
*6EE7	6	STR		Dowels	20	6'-0"	180		6'-0"												
*5EE8	5	STR		Horiz.	30	8'-0"	250		8'-0"												
*7EE9	7	STR		Horiz.	18	5'-0"	184		5'-0"												
*7EE10	7	STR		Horiz.	4	32'-8"	267		32'-8"												
*7EE11	7	STR		Horiz.	12	1'-2"	29		1'-2"												
*6EE12	6	STR		Dowels	20	5'-4"	160		5'-4"												
*6EE13	6	52	0'-4/2"	Approach slab Dowel	68	2'-6"	255	1'-4 3/4"	1'-1/4"	0'-9/4"	0'-10"										
SUBTOTAL					4783 LBS																
WINGWALLS																					
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N	
*5W1	5	STR		Vert.b.f.	8 sets of 27	2'-7/2" to 10'-2" at 0'-3/2" Incr.	1439		2'-7/2" to 10'-2" at 0'-3/2" Incr.												
*5W2	5	STR			48	10'-2/2"	511		10'-2/2"												
*6W3	6	STR		Horiz.b.f.	8 sets of 6	3'-9" to 10'-5/2" at 1'-4" Incr.	512		3'-9" to 10'-5/2" at 1'-4" Incr.												
*6W4	6	STR		Horiz.b.f.	8	11'-4/2"	137		11'-4/2"												
*6W5	6	STR		Horiz.b.f.	8 sets of 4	12'-6" to 16'-2/2" at 1'-2 3/4" Incr.	690		12'-6" to 16'-2/2" at 1'-2 3/4" Incr.												
*6W6	6	STR		Horiz.b.f.	40	17'-5"	1046		17'-5"												
*6W7	6	52	0'-4/2"	Diagonal	8	17'-0"	204	16'-0/4"	1'-0"	0'-10/2"	0'-6/4"										
SUBTOTAL					4540 LBS																
GIRDER																					
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N	
*5GE1	5	17	3 3/4"	Vert.	242	6'-2"	1557		5'-1"	1'-1"											
*5GE2	5	54	3 3/4"	Stirrups	121	2'-11"	368		5/4"	1'-0"	1'-0"	5/4"	4/4"		4/4"						
*4GE3	4	STR		Trans.top	79	3'-4"	176		3'-4"												
*5GE4	5	STR		Trans.top	42	3'-4"	146		3'-4"												
*4GE5	4	STR		Long.web	20	8'-2"	109		8'-2"												
*5GE6	5	75		Long.bot.flange	2	112'-3"	234		3'-5"	108'-10"	60'-0"	52'-3"								/	
*4GE7	4	75		Long.top flange	8	114'-5"	611		2'-9"	111'-8"	60'-0"	54'-5"								/	
NO.	DATE	BY	REVISIONS				NO.	DATE	BY	REVISIONS				DESIGNED BY		DRAWN BY		CHECKED BY		SCALE	PROJECT TEAM LEADER
														B. ROBINSON		B. ROBINSON		N. MARSHALL		NONE	SAMIR SIDHOM

STATE

PROJECT

SHEET NO.

NM

NM FLAP S1E10(1) LAKESHORE ROAD

S82

STR

TYPE T9

TYPE 16

TYPE 52

TYPE 17

TYPE 54

TYPE 67

TYPE 75

TYPE 77

D = Extra Turns (half t&b)

N = Number of Laps

E = Total Turns

NOTES

1. Dimensions in bending diagrams are out-to-out of bars

2. All "E" bars are epoxy coated.

* 3. Reinforcing steel quantities for drilled shafts are not included in the contract item "Reinforcing steel". Reinforcing steel will be paid for as part of "Drilled Shaft". Reinforcing steel lengths for drilled shafts are estimates only and are provided for information only.

4. Girder reinforcement quantities shown are for one girder and for information only. Cost of girder reinforcing steel is subsidiary to the prestressed girder pay item and is not included in the reinforcing estimate.

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FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CEDAR CANYON BRIDGE
LAKESHORE ROAD
ELEPHANT BUTTE LAKE STATE PARK

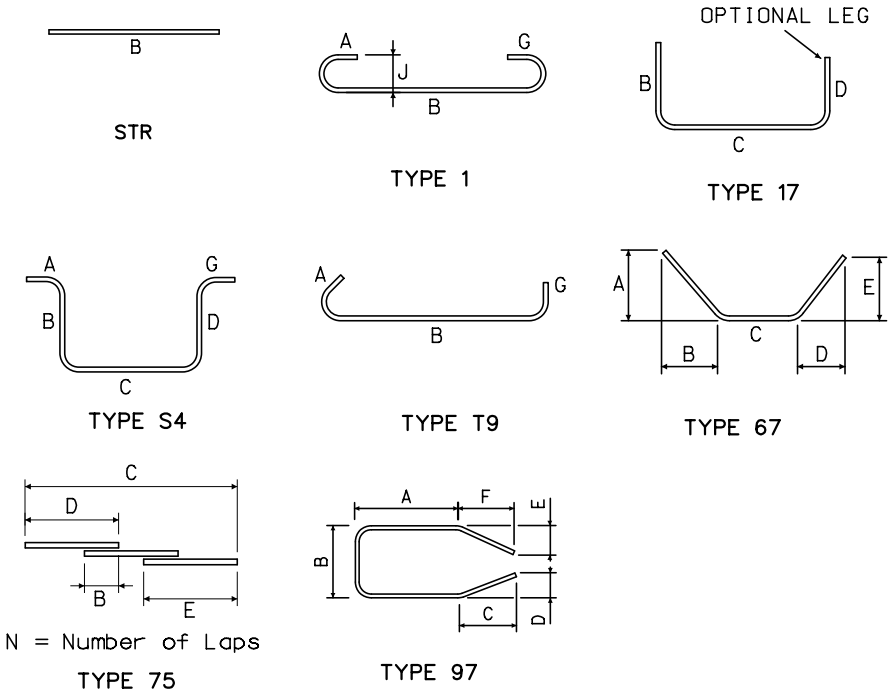
SIERRA COUNTY, NEW MEXICO

REBAR LIST 1 OF 2

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REINFORCING STEEL SCHEDULE								DIMENSION TABLE												
GIRDER								(CONTINUED)												
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N
*3GE8	3	T9	15⁄8"	Ties	106	1'-0"	40	4"	4"					4"						
*5GE9	5	97	33⁄4"	Stirrups	42	4'-5"	193	41⁄4"	2'-0"	41⁄4"	91⁄2"	41⁄4"	91⁄2"							
*4GE10	4	17	3"	Vert.	242	3'-6"	566		2'-9"	9"										
*7GE11	7	17	51⁄4"	Stirrups	2	13'-1"	53		8'-2"	4'-11"										
SUBTOTAL							4054 LBS													
MIDSPAN DIAPHRAGM																				
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N
*5DE1	5	S4	0'-21⁄2"	Stirrups	21	11'-3"	246	0'-6"	4'-101⁄2"	0'-6"	4'-101⁄2"			0'-6"						
*6DE2	6	STR		Trans.top	2	32'-8"	98		32'-8"											
*6DE3	6	STR		Horiz.bf.	24	8'-0"	288		8'-0"											
*5DE4	5	STR		Long.top @ dlaph.	21	4'-0"	88		4'-0"											
*6DE5	6	STR		Dowels	8	6'-0"	72		6'-0"											
*5DE6	5	17	0'-33⁄4"	Stirrups	6	7'-10"	49		3'-8"	0'-6"	3'-8"									
SUBTOTAL							842 LBS													
SLAB																				
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N
*5SE1	5	75		Long.top & bot.	82	112'-6"	9622		2'-10"	109'-8"	60'-0"	52'-6"								/
*6SE2	6	1	0'-41⁄2"	Trans.top	220	34'-0"	11235	0'-8"	32'-8"					0'-8"		0'-6"				
*5SE3	5	STR		Trans.bot.	165	32'-8"	5622		32'-8"											
*5SE4	5	1	0'-33⁄4"	Trans.top @ overhangs	440	5'-31⁄2"	2428	0'-7"	4'-81⁄2"							0'-5"				
*4SE5	4	67	0'-3"	Trans.top @ post	36	4'-61⁄2"	109	1'-11⁄4"	1'-03⁄4"	1'-61⁄4"	1'-03⁄4"	1'-11⁄4"								
SUBTOTAL							29016 LBS													
APPROACH SLABS																				
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N
*5ASE1	5	STR		Long.top	32	32'-9"	1093		32'-9"											
*6ASE2	6	STR		Long.bot.	58	32'-9"	2853		32'-9"											
*5ASE3	5	STR		Trans.top	66	14'-8"	1010		14'-8"											
*8ASE4	8	STR		Trans.bot.	130	14'-8"	5091		14'-8"											
*5ASE5	5	STR		Horiz.@sleeper beam	132	2'-8"	367		2'-8"											
*5ASE6	5	17	0'-33⁄4"	Vert.@sleeper beam	66	3'-11"	270		1'-71⁄2"	0'-8"	1'-71⁄2"									
*6ASE7	6	STR		Long.@sleeper beam	20	32'-9"	984		32'-9"											
*6ASE8	6	1	0'-41⁄2"	Long.@ overhangs	116	5'-41⁄2"	936	0'-8"	4'-81⁄2"							0'-6"				
*4ASE9	4	67	0'-3"	Horiz.@ post	12	4'-61⁄2"	36	1'-11⁄4"	1'-03⁄4"	1'-61⁄4"	1'-03⁄4"	1'-11⁄4"								
SUBTOTAL							12640 LBS													

STATE	PROJECT	SHEET NO.
NM	NM FLAP S1E10(1) LAKESHORE ROAD	S83



- NOTES**
- Dimensions in bending diagrams are out-to-out of bars.
 - All "E" bars are epoxy coated.
 - Reinforcing steel quantity for intermediate diaphragms is not included in the contract item "Reinforcing steel, epoxy coated" and will be paid for as part of "Precast, Prestressed Concrete Girders".

ABBREVIATIONS:

f.f. = Fill face
o.f. = Other face
b.f. = Both faces

U.S. DEPARTMENT OF TRANSPORTATION
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CENTRAL FEDERAL LANDS HIGHWAY DIVISION

CEDAR CANYON BRIDGE
LAKESHORE ROAD
ELEPHANT BUTTE LAKE STATE PARK

SIERRA COUNTY, NEW MEXICO

REBAR LIST 2 OF 2

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								B. ROBINSON	B. ROBINSON	N. MARSHALL	NONE	SAMIR SIDHOM	22 of 22	OCTOBER 2022	RG3199-V

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28 September 2022 8:52 AM

STATE	PROJECT	SHEET NUMBER
NM	NM FLAP SIE 10(1) LAKESHORE ROAD	T1

METAL ROUND PIPE CULVERT																										
FILL HEIGHT AND METAL THICKNESS TABLE FOR HELICAL LOCKSEAM AND WELDED SEAM PIPE CULVERT																										
STEEL																ALUMINUM										
PIPE SIZE DIAMETER INCHES	MINIMUM COVER INCHES	2½" x ½" CORRUGATIONS					3" x 1" CORRUGATIONS					5" x 1" CORRUGATIONS					2½" x ½" CORRUGATIONS					3" x 1" CORRUGATIONS				
		METAL THICKNESS (INCH/GAGE)															METAL THICKNESS (INCH/GAGE)									
		0.064/16	0.079/14	0.109/12	0.138/10	0.168/8	0.064/16	0.079/14	0.109/12	0.138/10	0.168/8	0.064/16	0.079/14	0.109/12	0.138/10	0.168/8	0.060/16	0.075/14	0.105/12	0.135/10	0.164/8					
		MAXIMUM FILL HEIGHT ABOVE TOP OF PIPE (FEET)															MAXIMUM FILL HEIGHT ABOVE TOP OF PIPE (FEET)									
12	12	100	100	100	100	100										12	12	100	100	100	100	100				
15	12	100	100	100	100	100										15	12	100	100	100	100	100				
18	12	100	100	100	100	100										18	12	100	100	100	100	100				
21	12	100	100	100	100	100										21	12	88	100	100	100	100				
24	12	100	100	100	100	100										24	12	77	97	100	100	100				
30	12	85	100	100	100	100										30	12	62	77	100	100	100				
36	12	71	89	100	100	100	81	100	100	100	100					36	12	52	64	90	100	100				
42	12	61	76	100	100	100	70	87	100	100	100					42	12	44	55	77	99	100				
48	12	53	66	93	100	100	61	76	100	100	100	54	68	95	100	48	12			67	87	100				
54	12		59	83	100	100	54	68	95	100	100	48	60	85	100	54	18			54	71	88				
60	12			74	97	100	49	61	86	100	100	43	54	76	98	60	18			57	72	35				
66	12				87	100	44	55	78	100	100	39	49	69	89	66	18				58	32				
72	12				80	97	40	51	71	92	100	36	45	63	82	72	18				45	30				
78	12					87	37	47	66	85	100	33	42	58	75	78	24					37				
84	12					75	35	43	61	78	96	31	39	54	70	84	24					34				
90	12						32	40	57	73	90	29	36	51	65	90	24					48				
96	12							38	53	69	84		34	48	61	96	24					44				
102	18							36	50	65	79		32	45	57	102	24					59				
108	18								47	61	75			42	54	108	24					64				
114	18								45	58	71			40	52	114	24					69				
120	18								43	55	67			38	49	120	24					74				
126	18									52	64				47	126	24					79				
132	18									50	61				44	132	24					84				
138	18									48	58				42	138	24					89				
144	18										56					144	24					94				

- NOTE:**
- When directed, camber pipe culverts upward from a chord through the inlet and outlet inverts an ordinate amount equal to 1% of the pipe length. Develop camber on a parabolic curve. If the midpoint elevation on the parabolic curve as designed exceeds the elevation of the inlet invert, reduce the amount of camber or increase the pipe culvert gradient.
 - Fill heights exceeding 100 feet require special analysis by the CO.
 - The fill heights in the table are for helical lockseam and welded seam pipe only. Fill heights for culvert pipe with annular corrugations are more restrictive than those of helical lockseam and welded seam pipe. Obtain approval before furnishing annular corrugation pipe.
 - Measure minimum cover from the top of the pipe culvert to the subgrade for flexible pavements, and to the top of the pavement for rigid pavements. Measure maximum fill height from the top of the pipe to the top of the pavement for both flexible and rigid pavement.

METAL PIPE ARCH CULVERT																												
FILL HEIGHT AND METAL THICKNESS TABLE FOR HELICAL LOCKSEAM AND WELDED SEAM PIPE CULVERT																												
STEEL																	ALUMINUM											
PIPE ARCH SIZE SPAN x RISE INCHES	EQUI- VALENT DIAMETER INCHES	MINIMUM CORNER RADIUS INCHES	MINIMUM COVER INCHES	2 ² / ₃ " x 1 ¹ / ₂ " CORRUGATIONS				3" x 1" CORRUGATIONS				5" x 1" CORRUGATIONS				PIPE ARCH SIZE SPAN x RISE INCHES	EQUI- VALENT DIAMETER INCHES	MINIMUM CORNER RADIUS INCHES	MINIMUM COVER INCHES	2 ² / ₃ " x 1 ¹ / ₂ " CORRUGATIONS				3" x 1" CORRUGATIONS				
				METAL THICKNESS (INCH/GAGE)																METAL THICKNESS (INCH/GAGE)								
				0.064/16	0.079/14	0.109/12	0.138/10	0.168/8	0.079/14	0.109/12	0.138/10	0.168/8	0.079/14	0.109/12	0.138/10					0.168/8	0.060/16	0.075/14	0.105/12	0.135/10	0.060/16	0.075/14	0.105/12	0.135/10
				MAXIMUM FILL HEIGHT ABOVE TOP OF PIPE (FEET)																MAXIMUM FILL HEIGHT ABOVE TOP OF PIPE (FEET)								
17 x 13	15	3	12	13													17 x 13	15	3	12	13							
21 x 15	18	3	12	12													21 x 15	18	3	12	12							
24 x 18	21	3	12	13													24 x 18	21	3	12	13							
28 x 20	24	3	12	13													28 x 20	24	3	12		13						
35 x 24	30	3	12	12													35 x 24	30	3	12		12						
42 x 29	36	3.5	12	12													42 x 29	36	3.5	15			12					
49 x 33	42	4	12		12												49 x 33	42	4	15			12					
57 x 38	48	5	12			12											57 x 38	48	5	15				12				
60 x 46	54	8	15							21					21		60 x 46	54	8	15					21			
64 x 43	54	6	12				12										64 x 43	54	6	18			12					
66 x 51	60	9	15							21					21		66 x 51	60	9	18					21			
71 x 47	60	7	12				12										71 x 47	60	7	18								
73 x 55	66	12	18							20					20		73 x 55	66	12	18					20			
77 x 52	66	8	12					12									77 x 52	66	8	21								
81 x 59	72	14	18						17					17			81 x 59	72	14	21							17	
83 x 57	72	9	12					12									83 x 57	72	9	24							17	
87 x 63	78	14	18						17					17			87 x 63	78	14	21							17	
95 x 67	84	16	18						17					17			95 x 67	84	16	24							17	
103 x 71	90	16	18							17				17			103 x 71	90	16	24							17	
112 x 75	96	18	21							16					16													
117 x 79	102	18	21							16					16													
128 x 83	108	18	24								16					16												
137 x 87	114	18	24								16																	
142 x 91	120	18	24								16					16												

U.S.
FED
OFF

MET

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION OFFICE OF FEDERAL LANDS HIGHWAY	
FLH STANDARD	
METAL PIPE CULVERT	
STANDARD APPROVED FOR USE 12/1993 REVISED: 4/1994 6/2005	STANDARD 602-1

COUPLING BANDS FOR METAL PIPE CULVERT ^[1]					
CORRUGATION SIZE ^[2] INCHES	ROUND PIPE DIAMETER INCHES	PIPE ARCH SPAN × RISE INCHES	MINIMUM BAND WIDTH (INCHES)		
			ANNULAR CORRUGATED BANDS ^[3]	HELICALLY CORRUGATED BANDS ^[4]	SEMI-CORRUGATED BANDS ^[5]
1½ × ¼	underdrain ^[6]	-	10.5	7	10.5
2⅔ × ½	12 to 36	17 × 13 to 42 × 29	7	12	
	42 to 72	49 × 33 to 83 × 57	10.5	12	
	78 to 84	-	10.5	12	10.5
3 × 1	36 to 72	60 × 46 to 81 × 59	12	14	10.5
	78 to 144	87 × 64 to 142 × 91	12	14	10.5
5 × 1	36 to 72	60 × 46 to 81 × 59	20	22	
	78 to 144	87 × 64 to 142 × 91	20	22	

^[1] Fabricate annular, helical and semi-corrugated type coupling bands from the same metal as the connecting pipe. Provide coupling bands not more than 3 nominal sheet thicknesses thinner than the thickness of the pipe to be connected, and no thinner than 0.052 inch for steel or 0.048 inch for aluminum. Fasten coupling bands with the following diameter of bolt: ⅜" for 18" round culvert (21" × 15" pipe arch) or less ½" for 21" round culvert (24" × 18" pipe arch) or more

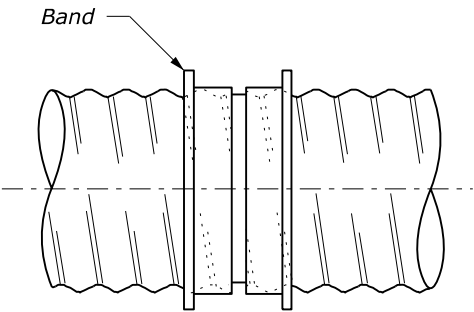
^[2] For helically corrugated pipe with rerolled ends, the nominal corrugations size refers to the dimension of the end corrugation in the pipe.

^[3] Use annular corrugated bands with pipes having annular corrugations or with helical pipe having rerolled end to form annular corrugations. A 10.5 inch band is acceptable on pipe ends rerolled with 2⅔" × ½" corrugations. A 12 inch band is acceptable on pipe ends rerolled with 3" × 1" pipe corrugations.

^[4] Use helical corrugated bands with pipes having helically corrugated ends.

^[5] The minimum band widths shown for 3" × 1" and 5" × 1" corrugated sizes apply to 2⅔" × ½" corrugations on rerolled pipe ends.

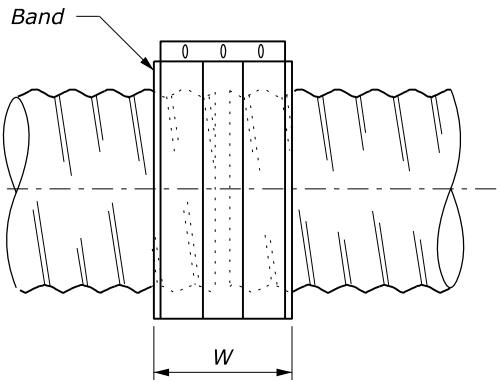
^[6] Smooth sleeve-type couplers and flat bands may be used for pipe diameters of 12" or less. Use a matching metal having a nominal thickness of not less than 0.040 inch for steel, or 0.036 inch for aluminum, or a plastic with an equivalent strength to metal.



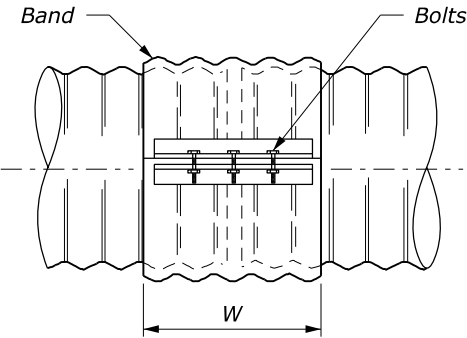
SLEEVE JOINT

Smoother sleeve with center stop.
Stab type joint

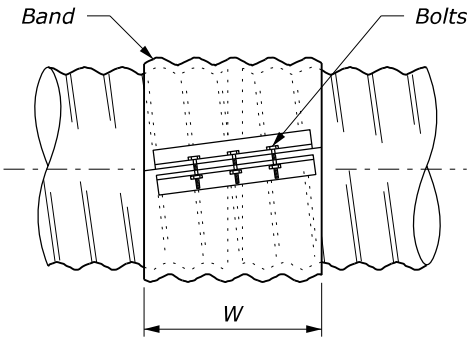
SMOOTH SLEEVE BAND



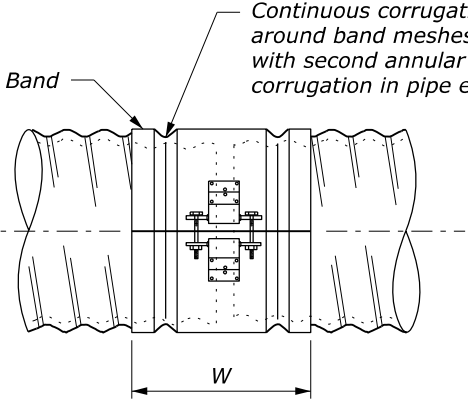
FLAT BAND



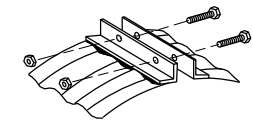
SIDE VIEW



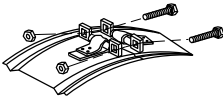
SIDE VIEW



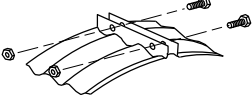
SIDE VIEW



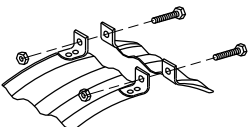
Band Angle



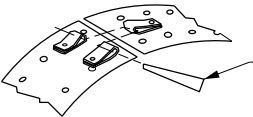
Bar & Strap



Integral Flange

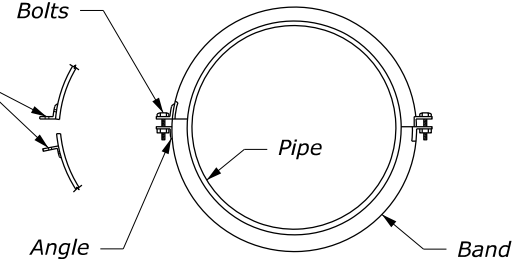


Oval Lug



Wedge and Strap

Rivet, spot weld, or fillet weld at crest of corrugation at heel and toe of angle

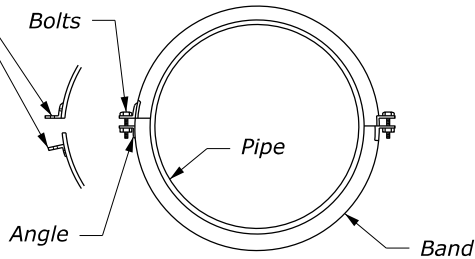


END VIEW

Second angle connection optional to 42" diameter, required above 42" diameter

ANNULAR BAND

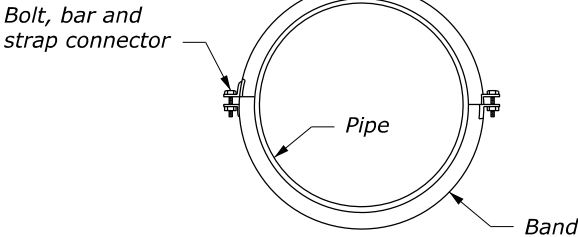
Rivet, spot weld, or fillet weld at crest of corrugation at heel and toe of angle



END VIEW

Second angle connection optional to 42" diameter, required above 42" diameter

HELICAL BAND



END VIEW

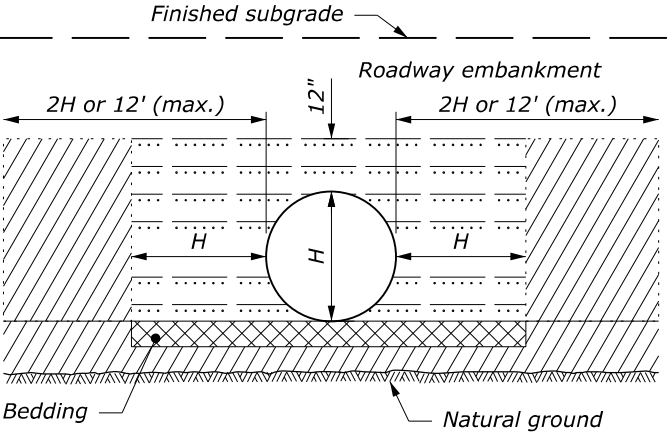
SEMI-CORRUGATED BAND

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION OFFICE OF FEDERAL LANDS HIGHWAY	
FLH STANDARD	
METAL PIPE CULVERT COUPLING BAND	
STANDARD APPROVED FOR USE 12/1993 REVISED: 4/1994 6/2005	STANDARD 602-2

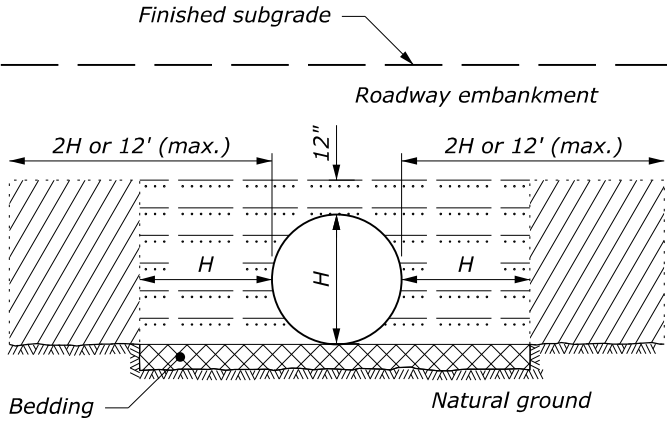
NOTE:

- Watertight pipe joints are not required unless specified in the Special Contract Requirements.
- Other types of coupling bands or fastening devices that comply with the joint performance criteria of AASHTO Standard specifications for Highway Bridges, Division II Section 26 may be used.

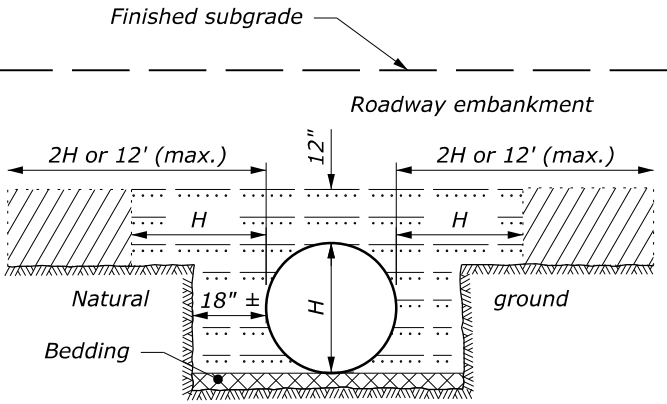
NO SCALE



ABOVE NATURAL GROUND



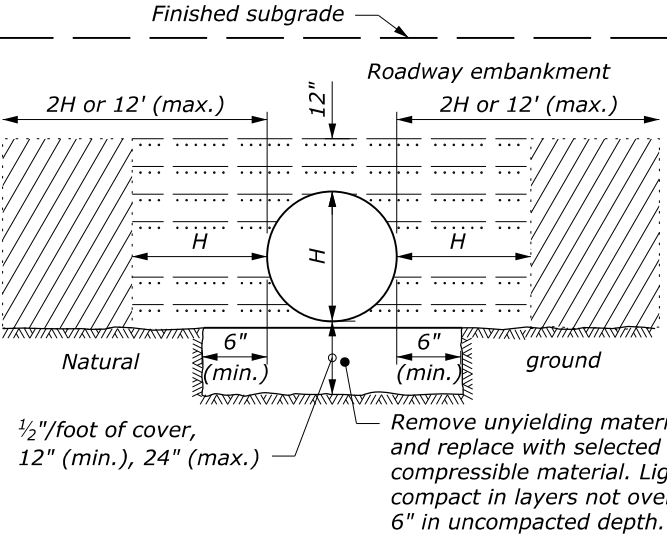
ON NATURAL GROUND



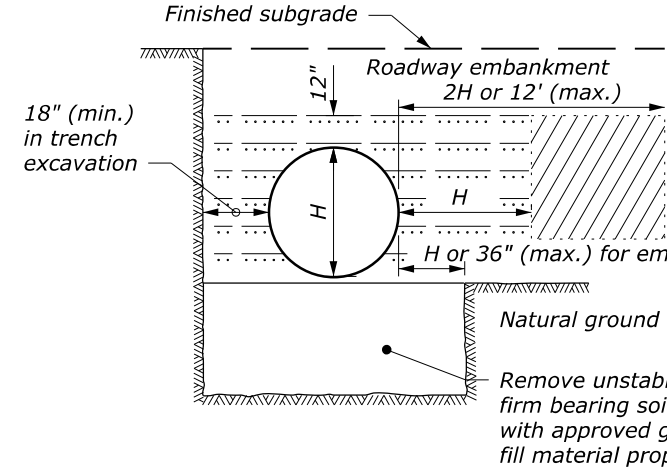
ABOVE AND BELOW NATURAL GROUND

LEGEND:

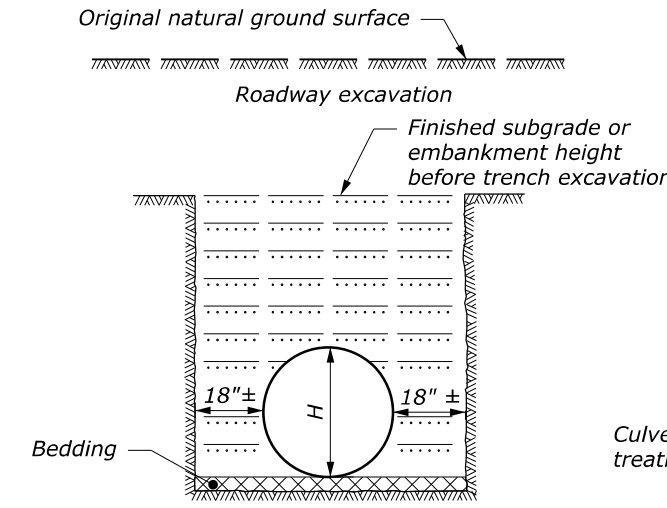
- Bedding material (uncompacted)
- Embankment material placed in layers not exceeding 6" compacted depth.
- Compacted backfill material placed in layers not exceeding 6" compacted depth; or lean concrete backfill in accordance with Section 614.
- Impermeable backfill material.



ON UNYIELDING MATERIAL

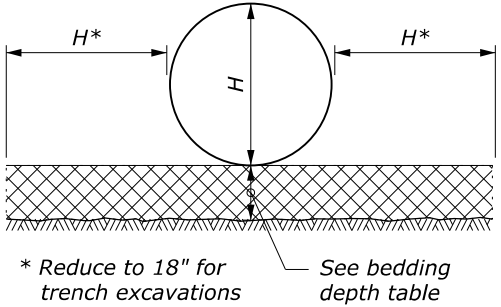


ON UNSTABLE MATERIAL



BELOW NATURAL GROUND OR TRENCH EXCAVATION IN EMBANKMENT

BEDDING DEPTH	
PIPE SIZE (H)	DEPTH
12" to 54"	4"
> 54"	6"

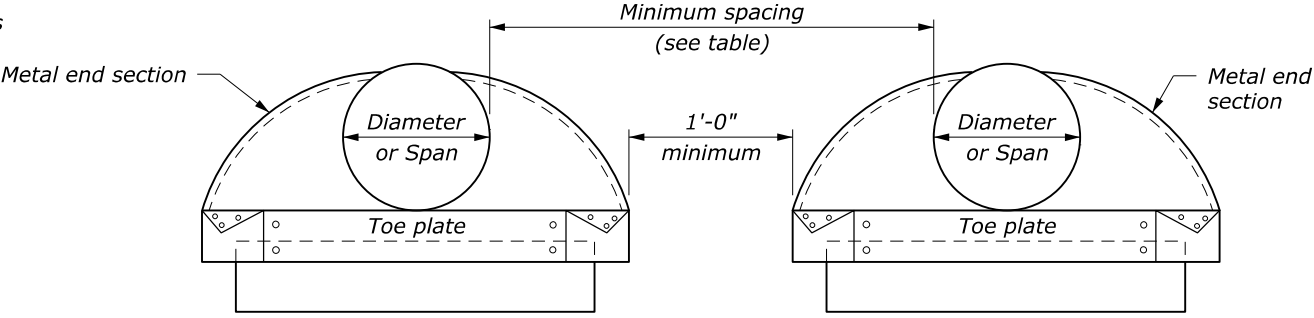


PIPE BEDDING

NOTE:

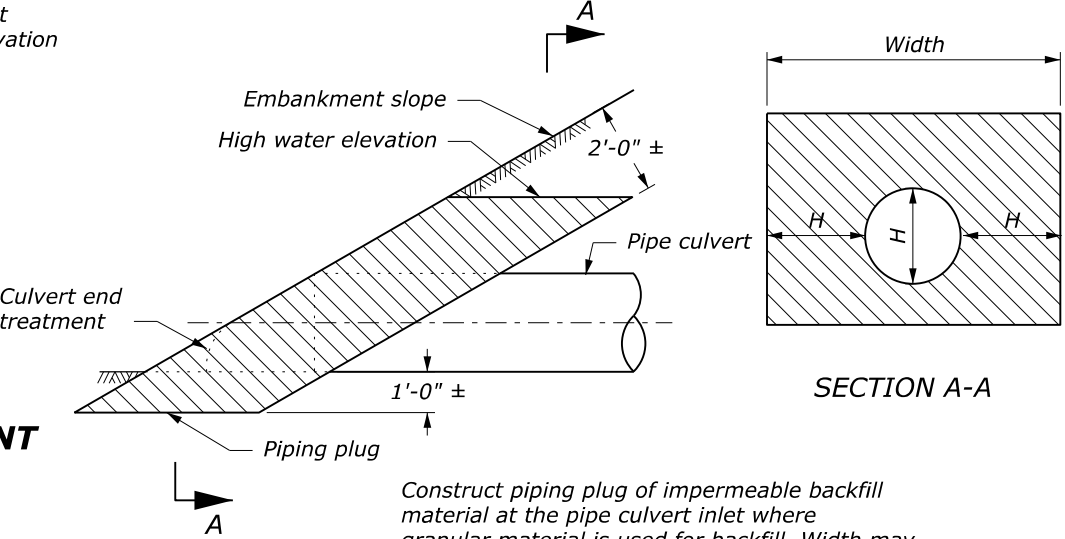
- When directed, camber pipe culverts upward from a chord through the inlet and outlet inverts an ordinate amount equal to 1% of the pipe length. Develop camber on a parabolic curve. If the midpoint elevation on the parabolic curve as designed exceeds the elevation of the inlet invert, reduce the amount of camber or increase the pipe culvert gradient.
- H equals the diameter of all round pipe culverts or the rise dimension of all pipe arch culverts.
- See Section 704 for bedding and backfill requirements.

MINIMUM SPACING	
DIAMETER or SPAN	SPACING
UP to 48"	24"
48" and UP	Half diameter or span or 36", whichever is less



ELEVATION

MULTIPLE PIPE INSTALLATION



PIPING PLUG

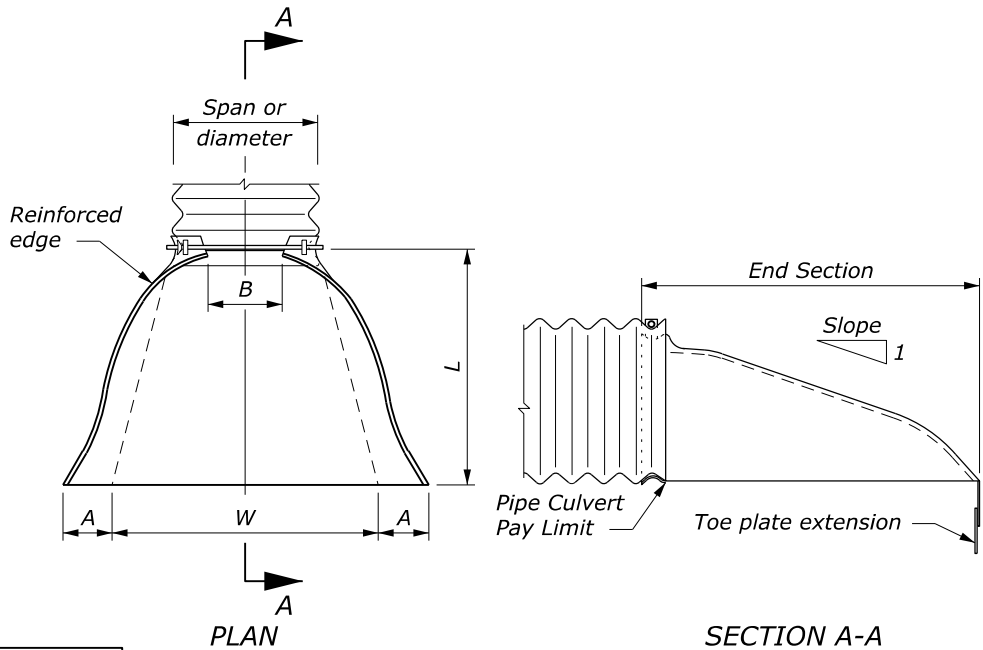
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STATE	PROJECT	SHEET NUMBER
NM	NM FLAP SIE 10(1) LAKESHORE ROAD	T4

END SECTIONS FOR ROUND PIPE CULVERT

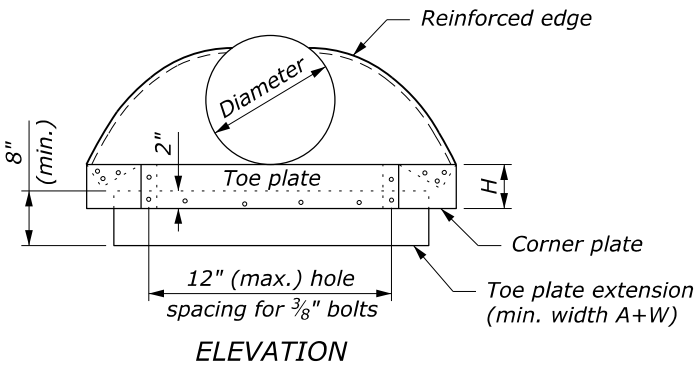
PIPE SIZE DIAMETER INCHES	METAL THICKNESS				DIMENSIONS INCHES					SLOPE Approx.
	STEEL		ALUMINUM							
	INCHES	GAGE	INCHES	GAGE	A (min)	B (max)	H (min)	L (±2")	W (max)	
12	0.064	16	0.060	16	5	7	6	21	44	2¼
15	0.064	16	0.060	16	6	8	6	26	52	2¼
18	0.064	16	0.060	16	7	10	6	31	58	2⅛
21	0.064	16	0.060	16	8	12	6	36	66	2⅛
24	0.064	16	0.060	16	9	13	6	41	72	2⅛
30	0.079	14	0.075	14	11	16	8	51	88	2⅛
36	0.079	14	0.075	14	13	19	9	60	105	2
42	0.109	12	0.105	12	15	25	10	69	122	2⅛
48	0.109	12	0.105	12	17	29	12	78	131	2
54	0.109	12	0.105	12	17	33	12	84	143	2
60	0.109	12	0.105	12	17	36	12	87	157	1⅞
66	0.109	12	0.105	12	17	39	12	87	162	1⅝
72	0.109	12	0.105	12	17	44	12	87	169	1½
78	0.109	12	0.105	12	17	48	12	87	178	1⅜
84	0.109	12	0.105	12	17	52	12	87	184	1⅓
90	0.109	12	0.105	12	17	58	12	87	188	1¼
96	0.109	12	0.105	12	17	58	12	87	197	1⅛



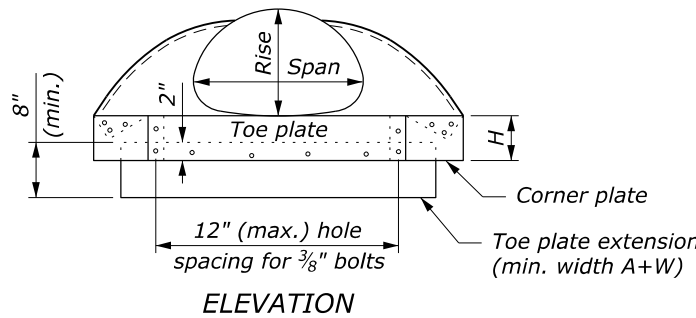
ROUND OR PIPE ARCH CULVERT

END SECTIONS FOR PIPE ARCH CULVERT

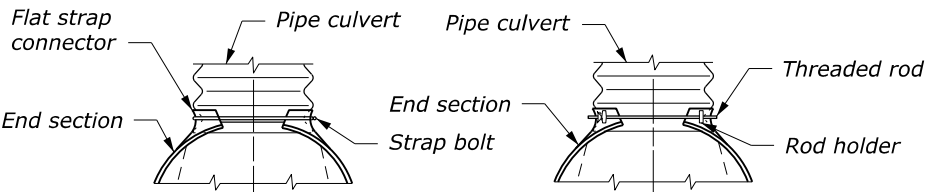
PIPE SIZE SPAN × RISE INCHES	EQUI- VALENT DIAM. (INCHES)	METAL THICKNESS				DIMENSIONS INCHES					SLOPE Approx.
		STEEL		ALUMINUM		A (min)	B (max)	H (min)	L (±2")	W (max)	
		INCHES	GAGE	INCHES	GAGE						
17 × 13	15	0.064	16	0.060	16	7	9	6	19	30	2½
21 × 15	18	0.064	16	0.060	16	7	10	6	23	36	2½
24 × 18	21	0.064	16	0.060	16	8	12	6	28	42	2½
28 × 20	24	0.064	16	0.060	16	9	14	6	32	48	2½
35 × 24	30	0.079	14	0.075	14	10	16	8	39	60	2½
42 × 29	36	0.079	14	0.075	14	12	18	9	46	75	2½
49 × 33	42	0.109	12	0.105	12	13	21	12	53	85	2½
57 × 38	48	0.109	12	0.105	12	18	26	12	63	90	2½
60 × 46	54	0.109	12	0.105	12	18	34	12	70	102	2
64 × 43	54	0.109	12	0.105	12	18	30	12	70	102	2
66 × 51	60	0.109	12	0.105	12	18	33	12	77	116	1½
71 × 47	60	0.109	12	0.105	12	18	33	12	77	114	1½
73 × 55	66	0.109	12	0.105	12	18	36	12	77	126	1½
77 × 52	66	0.109	12	0.105	12	18	36	12	77	126	1½
81 × 59	72	0.109	12	0.105	12	18	39	12	77	138	1½
83 × 57	72	0.109	12	0.105	12	18	39	12	77	138	1½
87 × 63	78	0.109	12	0.105	12	20	38	12	77	148	1½
95 × 67	84	0.109	12	0.105	12	20	34	12	87	162	1½
103 × 71	90	0.109	12	0.105	12	20	38	12	87	174	1½
112 × 75	96	0.109	12	0.105	12	20	40	12	87	174	1½



ROUND PIPE CULVERT

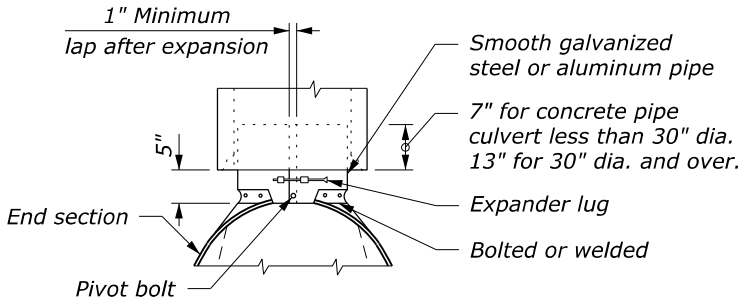


PIPE ARCH CULVERT

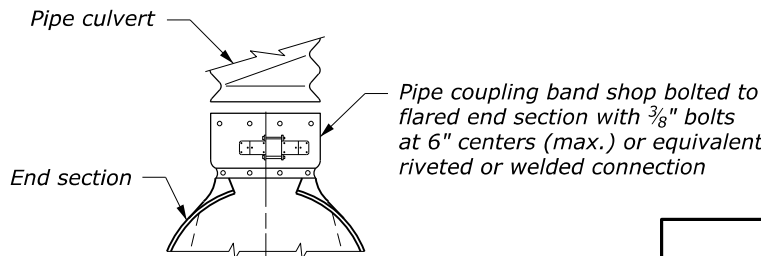


For 12" thru 24" round pipe and 17" × 13" thru 28" × 20" pipe arch

DESIGN A
CONNECTION TO ANNULAR
CORRUGATED METAL PIPE



DESIGN B
CONNECTION TO CONCRETE
PIPE INLET END



For all sizes of round pipe and pipe arch
DESIGN C
CONNECTION TO METAL PIPE
OR OUTLET END OF CONCRETE PIPE

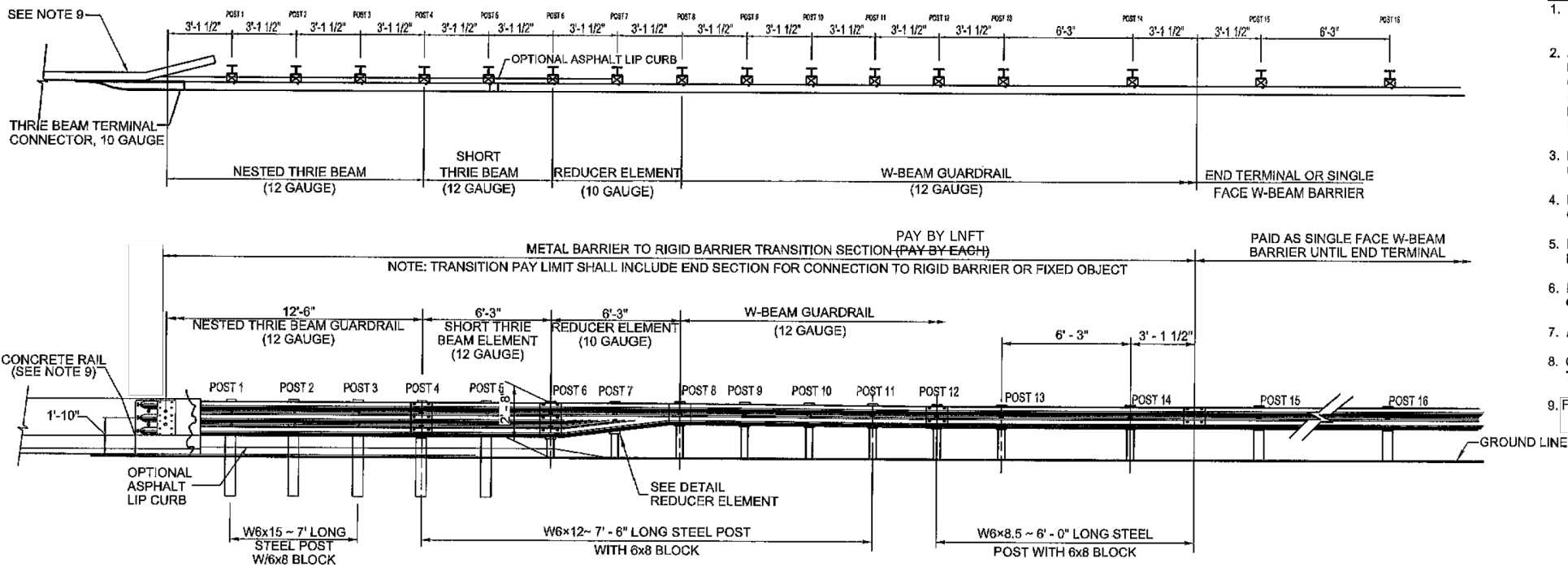
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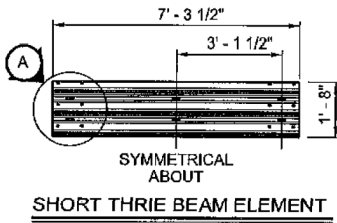
- Variations in design and dimensions are permitted to allow for manufacturer's standards.
- Fabricate the diameter of the end section of Design B to match the inside diameter of the concrete pipe culvert.
- Design C may be used in lieu of design A for all metal pipe culvert sizes. Coupling bands may be any acceptable type for the pipe culvert specified.
- Fabricate multiple piece bodies with lap seams tightly joined by 3/8" rivets or bolts. Fabricate end section center panels for 60" and larger diameter pipe and equivalent pipe arch from 0.138 inch steel or 0.135 inch aluminum.
- On end section center panels for 66" and larger equivalent pipe arch provide 2½" × 2½" × ¼" angle reinforcement bolted or riveted under the center panel seam.
- Supplement the reinforced edges of end sections for 60" and larger diameter pipe and 66" and larger equivalent pipe arch with 2½" × 2½" × ¼" stiffener angles attached with bolts or rivets.
- Fabricate connector section, corner plate and toe plate extensions from the same metal thickness as the panel body. Use toe plate extension where shown on the plans.
- Warp embankment slopes to match the slope of the flared end sections.

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION OFFICE OF FEDERAL LANDS HIGHWAY	
FLH STANDARD	
METAL END SECTIONS	
STANDARD APPROVED FOR USE 12/1993 REVISED: 4/1994 6/2005 DRAFT: 10/2007	STANDARD 602-4

STATE	PROJECT	SHEET NUMBER
NM	NM FLAP SIE 10(1) LAKESHORE ROAD	T5



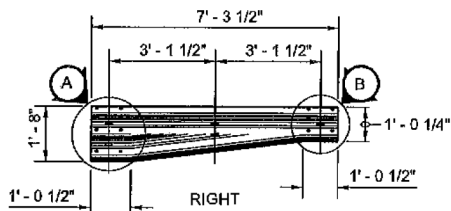
ELEVATION VIEW



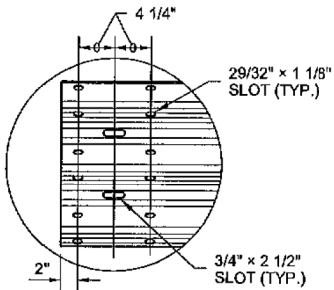
SHORT THRIE BEAM ELEMENT



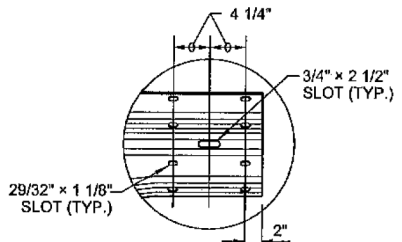
LEFT
(MIRROR OF RIGHT)



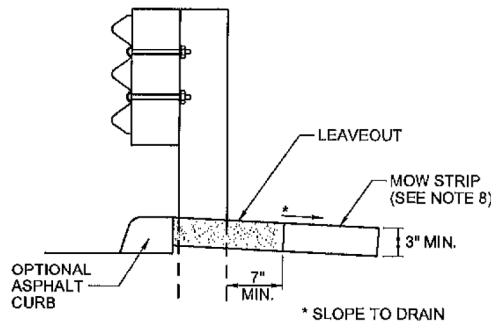
REDUCER ELEMENT
(REDUCER ELEMENT TO BE
PAID AS LIN. FT. OF THRIE BEAM)



DETAIL A

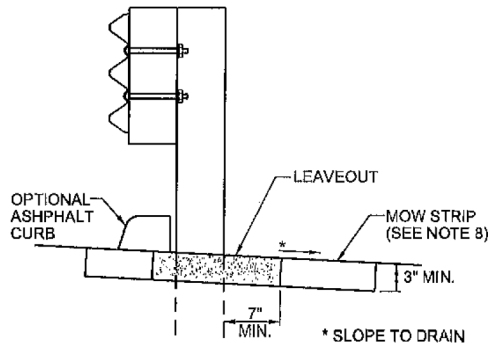


DETAIL B



CURB OPTION (A)

THIS OPTION WILL INCREASE THE
POST EMBEDMENT THROUGHOUT
THE SYSTEM

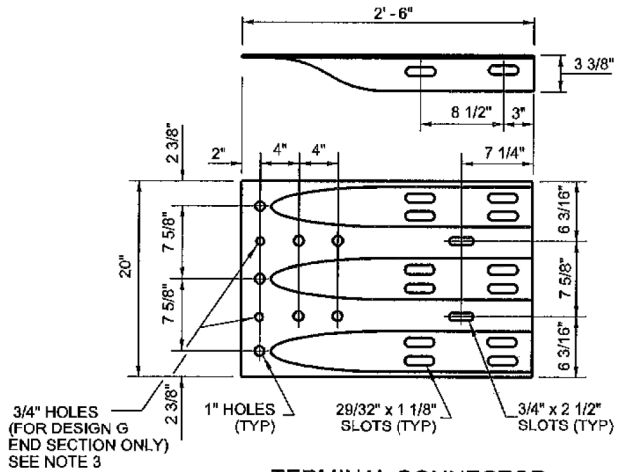


CURB OPTION (B)

CURB SHOWN ON TOP
OF MOW STRIP

NOTES:

1. ALL HARDWARE SHALL MEET FHWA CRASHWORTHINESS REQUIREMENTS AS PER NCHRP 350 AND MASH GUIDELINES AND SHALL BE ON THE NMDOT'S APPROVED PRODUCT LIST.
2. A MINIMUM OF FIVE 7/8" H.T.S. BOLTS ARE REQUIRED FOR THE ATTACHMENT OF THE THRIE BEAM TERMINAL CONNECTOR TO THE CONCRETE BARRIER WITH THIN SLAB FERRULE INSERTS OR RESIN BONDED ANCHORS. LENGTH TO BE AS NEEDED FOR PROPER ATTACHMENT AS DETERMINED IN THE FIELD BY THE CO. HOLES FOR BOLTS SHALL BE 1" DIA. AND SHALL BE EITHER FORMED OR CORE DRILLED IN A MANNER THAT DOES NOT DISTURB CONCRETE BARRIER STEEL REINFORCEMENT.
3. FURNISHING AND PLACING OF BOLTS, WASHERS, AND BEARING PLATE SHALL BE CONSIDERED INCIDENTAL TO THE COST OF METAL BARRIER.
4. INSTALL THRIE BEAM TERMINAL CONNECTOR BETWEEN NESTED GUARDRAIL ELEMENTS ON THE DEPARTURE SECTION.
5. INSTALL THRIE BEAM TERMINAL CONNECTOR OUTSIDE OF THE NESTED GUARDRAIL ELEMENTS ON THE APPROACH SECTION.
6. IN CASES WHERE END SECTION IS PLACED ON THE OUTSIDE OF THE GUARDRAIL, INSTALL A GALVANIZED 1" ID, 2" OD, 0.134" THICK FLAT WASHER UNDER SPLICE BOLT HEADS.
7. ASPHALT LIP CURB, IF SPECIFIED, SHALL BE CONSIDERED INCIDENTAL TO THE TRANSITION.
8. CONSTRUCTION OF LEAVEOUTS AND MOW STRIP SHALL BE CONSIDERED INCIDENTAL TO THE TRANSITION.
9. FOR BRIDGE RAIL ATTACHMENT DETAILS SEE DRAWING IN S SHEETS.



TERMINAL CONNECTOR
THRIE BEAM

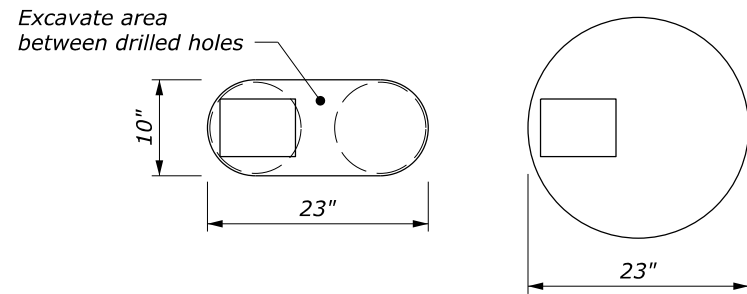
NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
OFFICE OF FEDERAL LANDS HIGHWAY

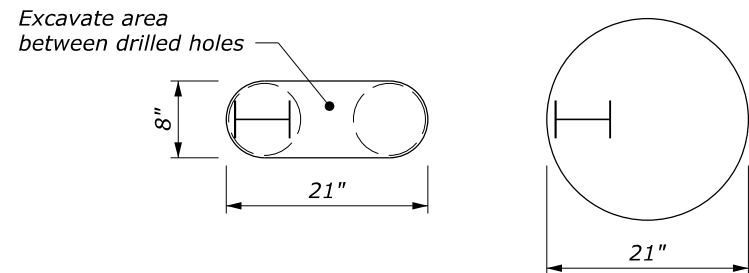
**GUARDRAIL
TRANSITION METAL BARRIER
TO RIGID BARRIER**

SPECIAL
617-C

Adapted from NMDOT Standard Drawing 606-GR31-17/20

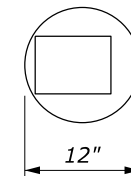


Wood Post



Steel Post

PLAN VIEW



Wood Post

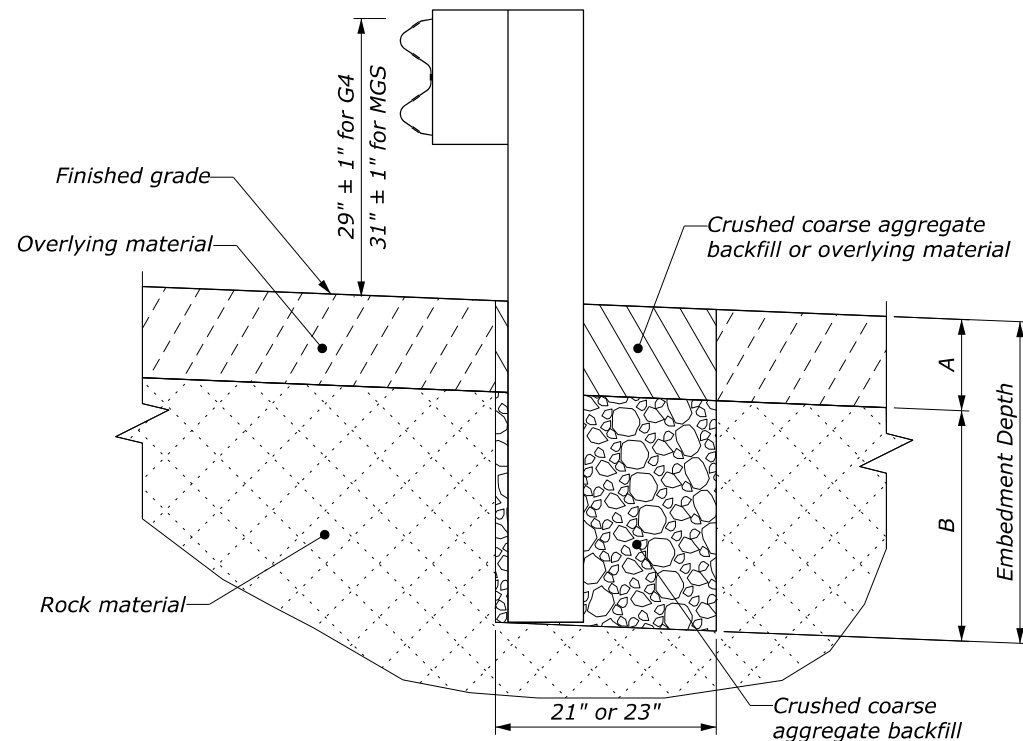


Steel Post

PLAN VIEW

NOTE:

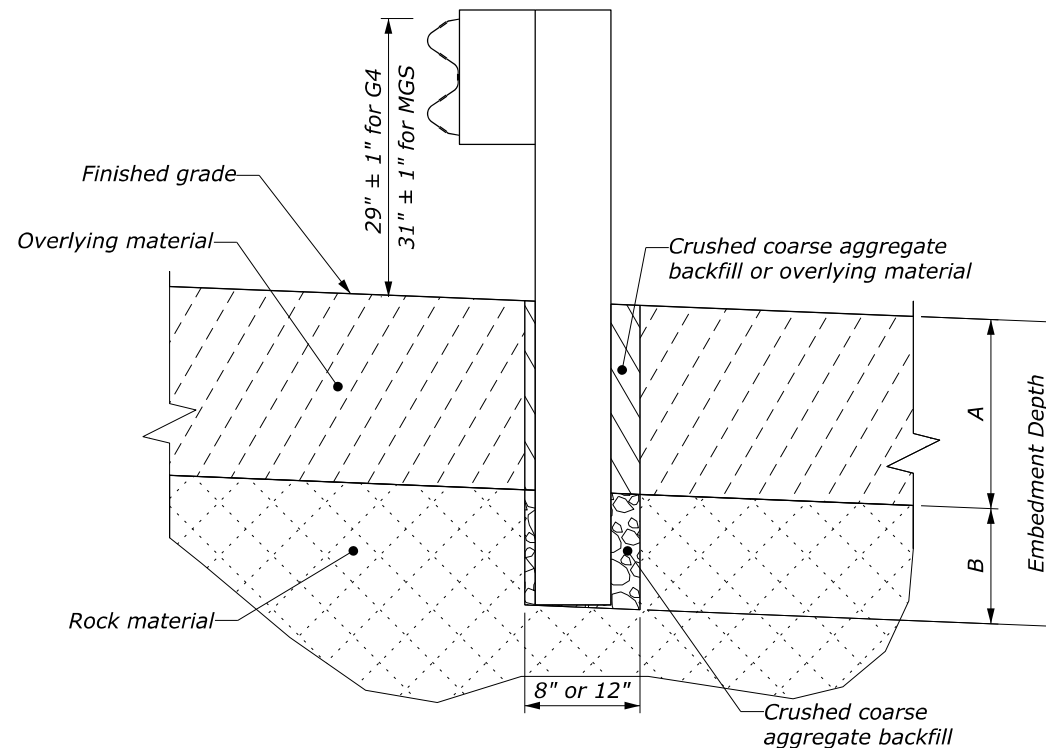
1. Use this standard when posts cannot be embedded to the minimum depth shown on Details C617-10, C617-11, C617-31, or C617-32.
2. Unless otherwise specified, use either the circular or the oblong hole configuration for Case 1 conditions.
3. Use crushed coarse aggregate backfill that conforms to "coarse aggregate for concrete" or "granular backfill for underdrain pipe with geotextile" in Section 703.
4. Place crushed coarse aggregate according to the post requirements in Section 617.
5. Treat field cut galvanized steel post surfaces that expose the base metal with two coats of zinc-oxide paint.



ELEVATION

Case 1: Overlying material depth (A) is 18" or less.

POST EMBEDMENT DIMENSIONS			
HOLE TYPE	EMBEDMENT DEPTH	OVERLYING MATERIAL (A)	DRILLING DEPTH (B)
Case 1	24" to 42"	0 to 18"	24"
Case 2	30" to 42"	> 18" to 30"	12"
	42"	> 30"	42" - A

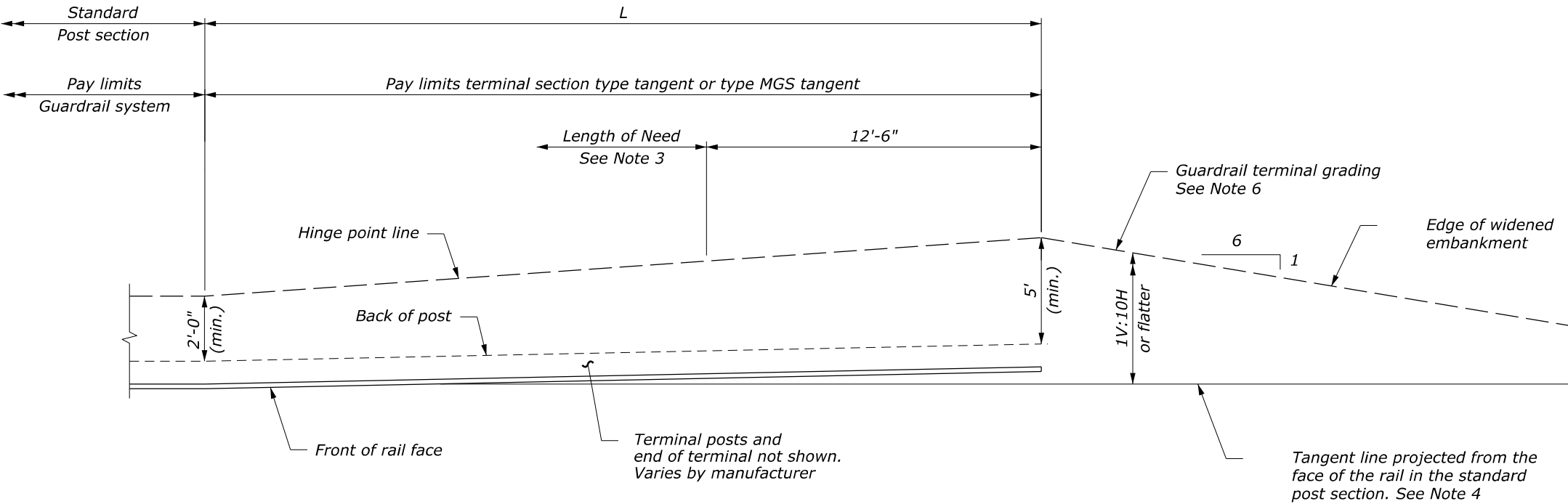


ELEVATION

Case 2: Overlying material depth (A) is greater than 18".

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION CENTRAL FEDERAL LANDS HIGHWAY DIVISION	
CFLHD DETAIL MGS AND G4 W-BEAM GUARDRAIL INSTALLATION IN ROCK	
DETAIL APPROVED FOR USE 4/2020 REVISED: 08/2021	DETAIL C617-13

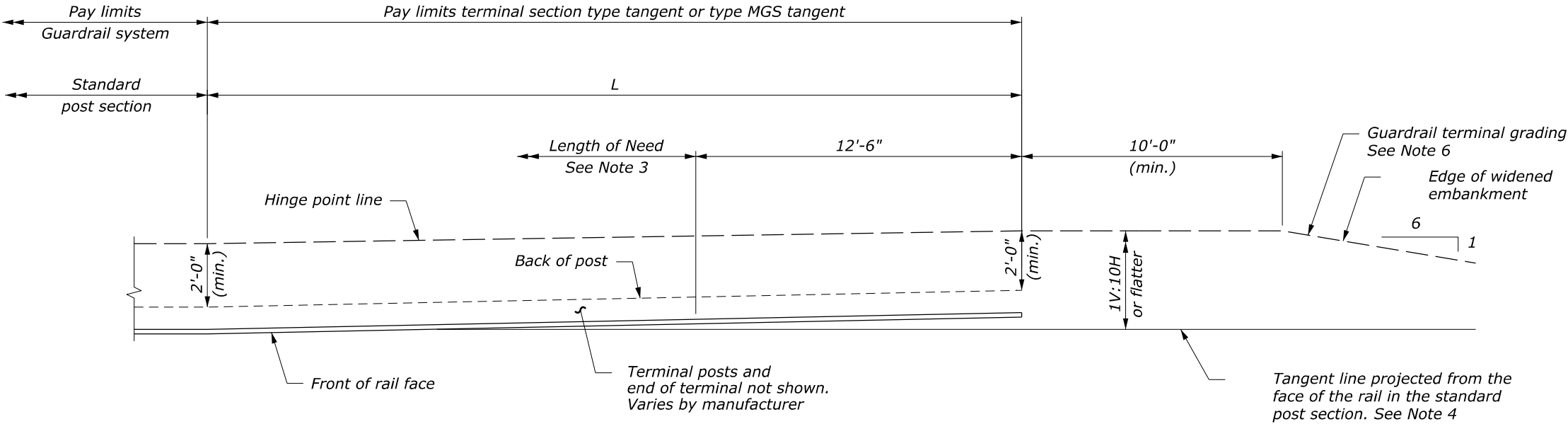


PLAN
PREFERRED GRADING

NOTE:

1. Install tangent terminal according to the manufacturer's recommendations. See manufacturer's drawings for other details.
2. Construct the terminal grading layout as shown in the staking notes or model. If no staking notes or model are provided, use the preferred grading layout as much as practical within site constraints. If necessary because of site limitations, use the alternative grading layout.
3. For design purposes, the length of need is assumed to begin at post 3. Verify the length of need with the manufacturer for a specific product. Adjust grading as necessary to install the tangent terminal according to the manufacturer's recommendations.
4. Install terminal at a 1:25 taper or flatter, to position the end farther away from the edge of the shoulder, or use a taper according to manufacturer's recommendations.
5. Install a reflectorized object marker on the end of the terminal.
6. Construct a 1V:4H slope outside of the guardrail terminal grading extents where practical.

TEST LEVEL	L (FT)
2 (≤ 45 mph)	25
3 (> 45 mph)	37.5 or 50 (for G4)
	50 (for MGS)

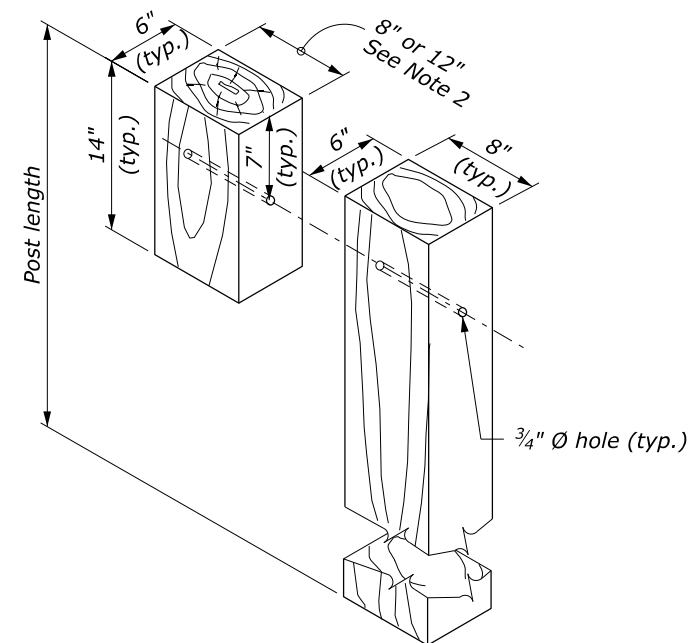


PLAN
ALTERNATIVE GRADING

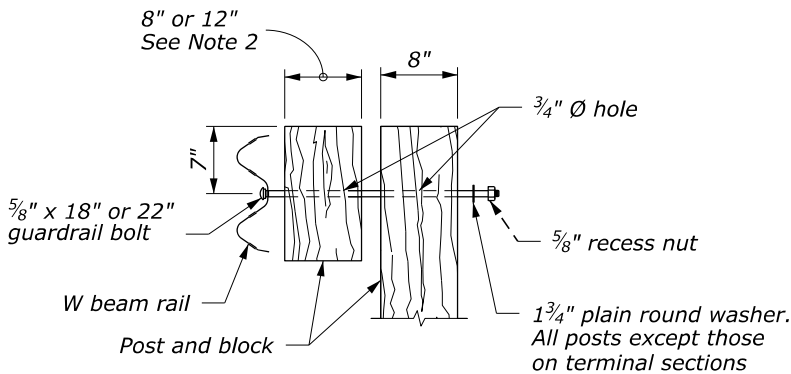
NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION CENTRAL FEDERAL LANDS HIGHWAY DIVISION	
CFLHD DETAIL MGS AND G4 W-BEAM GUARDRAIL TYPE TANGENT TERMINAL AND GRADING	
DETAIL APPROVED FOR USE 04/2020	DETAIL
REVISED:	C617-20

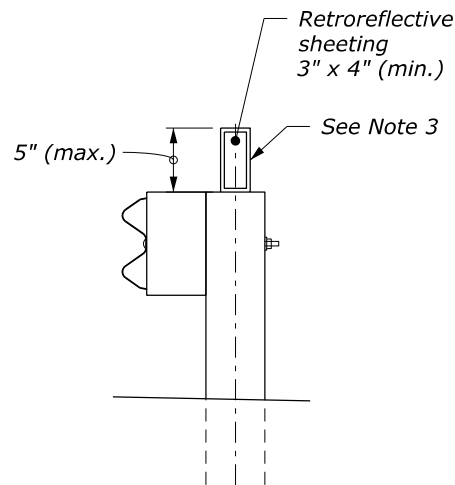
STATE	PROJECT	SHEET NUMBER
NM	NM FLAP SIE 10(1) LAKESHORE ROAD	T8



POST AND BLOCK



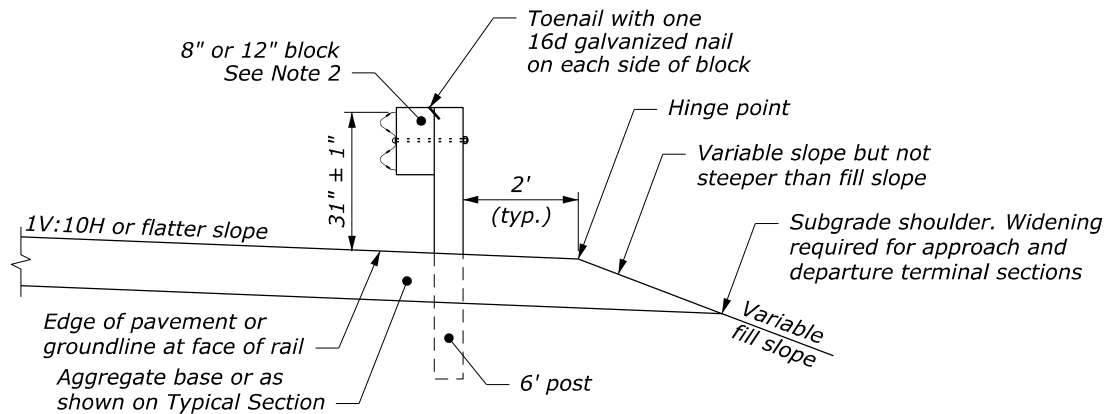
POST BOLT ASSEMBLY



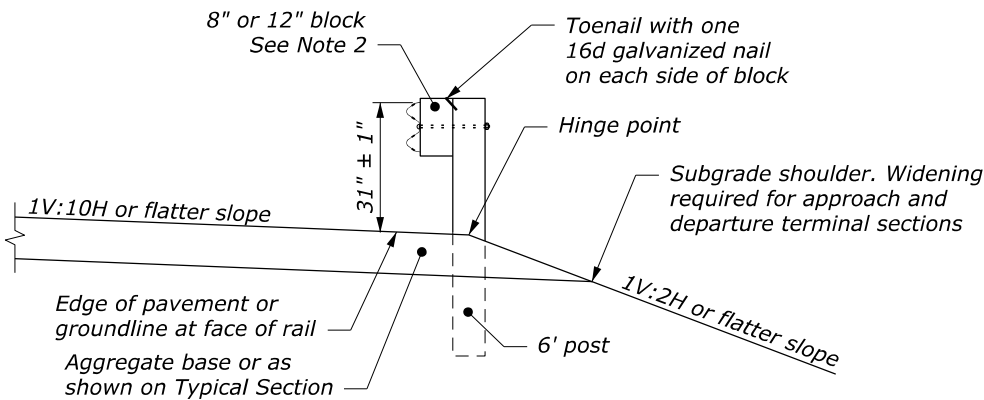
**FLEXIBLE DELINEATOR
GUARDRAIL MOUNT**

NOTE:

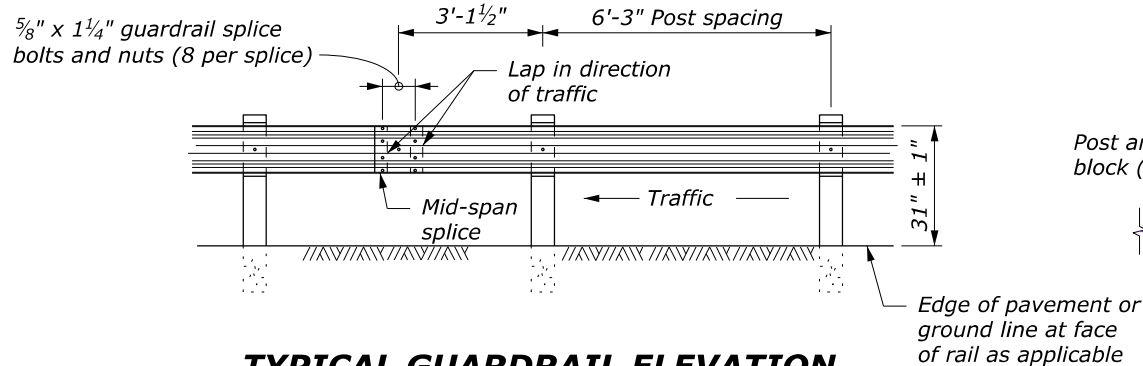
1. When encountering impenetrable material, one post may be omitted in locations where the typical guardrail cross section includes 2-feet (min.) between the back of the guardrail post and the hinge point. For all other locations, see Section 617 and Details C617-13 or C617-37.
2. Size of block shown elsewhere on the plans. Use a single block or combination of blocks (no more than two) to achieve the actual 8-inch or 12-inch offset. Secure wood blocks to the posts with anti-rotation nails. If combination blocks are used, toenail the adjacent blocks with two 16d galvanized nails to prevent block rotation.
3. Install a flexible hinged delineator every fourth post. Fasten delineator to the top of the wood post using either an adhesive or mechanical means according to the manufacturer's recommendations. Match the color of the reflective element with the edge line. Other types of delineators may be used as approved by the CO.
4. In erodible or uncompacted soils, increase post length to 7'-6".
5. Dimensional tolerances not shown or implied are intended to be those consistent with the proper functioning of the part, including its appearance, and accepted manufacturing practices.



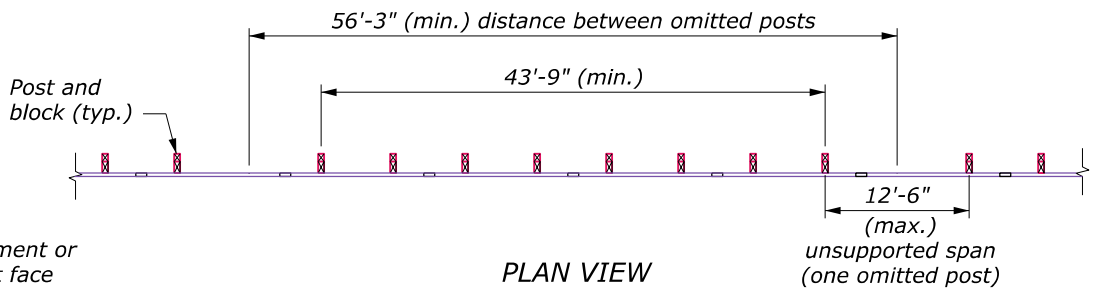
**TYPICAL GUARDRAIL CROSS SECTION
6' POST, 8" OR 12" BLOCK**



**TYPICAL GUARDRAIL CROSS SECTION
6' POST CENTERED ON HINGE, 8" OR 12" BLOCK**
See Note 4



TYPICAL GUARDRAIL ELEVATION



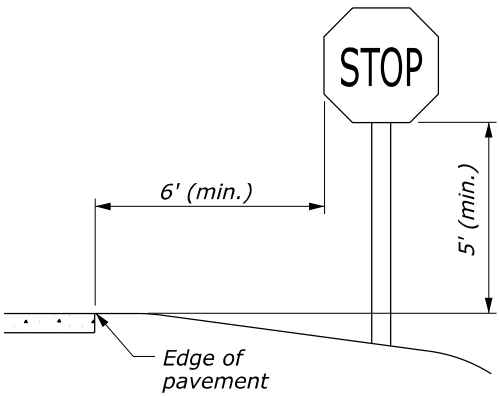
**PLAN VIEW
OMITTED POST DETAIL**
See Note 1

NO SCALE

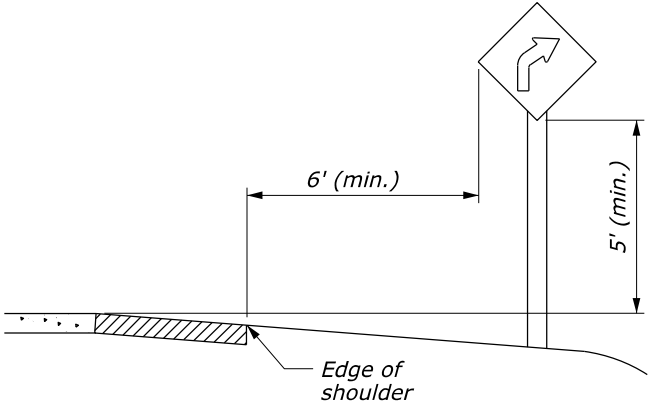
U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION CENTRAL FEDERAL LANDS HIGHWAY DIVISION	
CFLHD DETAIL	
MGS W-BEAM GUARDRAIL WOOD POSTS	
DETAIL APPROVED FOR USE 04/2020	DETAIL
REVISED:	C617-31

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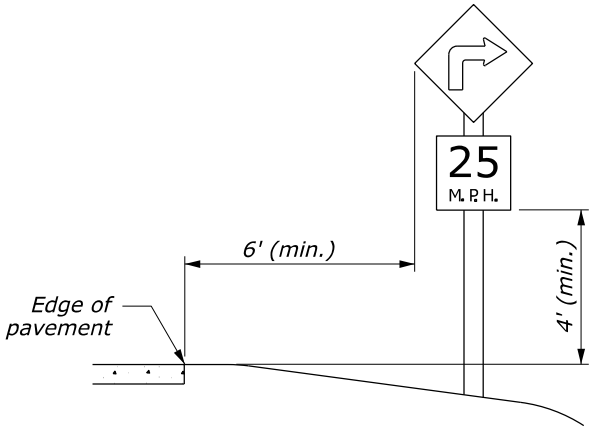
STATE	PROJECT	SHEET NUMBER
NM	NM FLAP SIE 10(1) LAKESHORE ROAD	T9



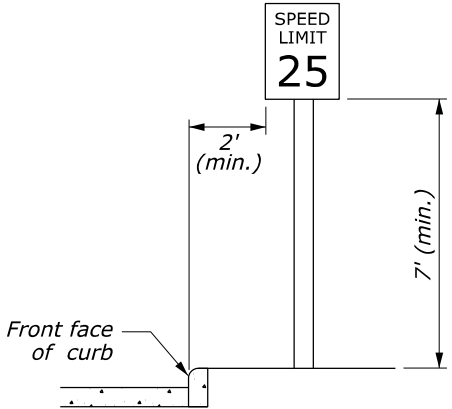
WITHOUT SHOULDER



WITH SHOULDER

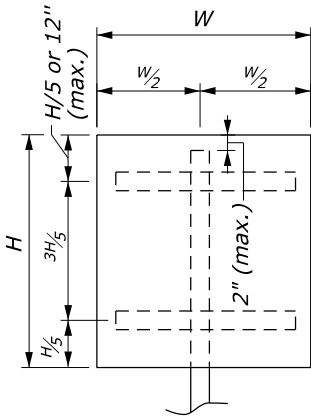


WITH ADVISORY SPEED PLAQUE

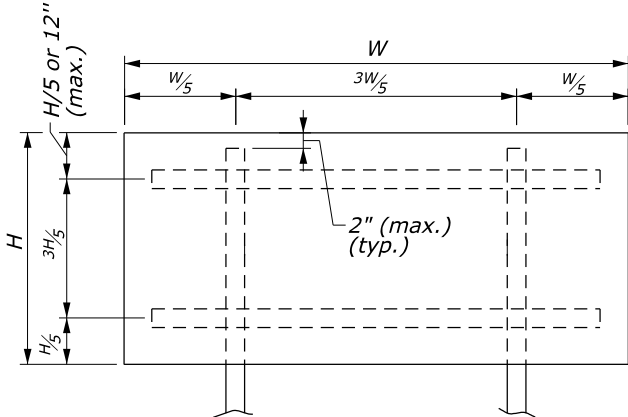


ROADSIDE SIGN IN BUSINESS
OR RESIDENTIAL DISTRICT

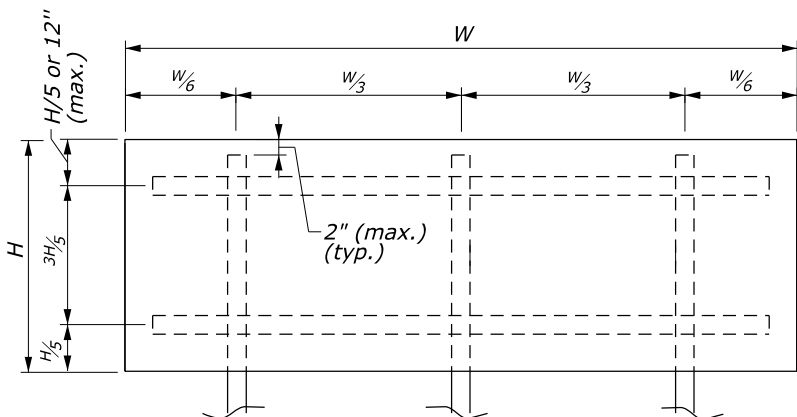
ROADSIDE SIGN IN RURAL DISTRICT



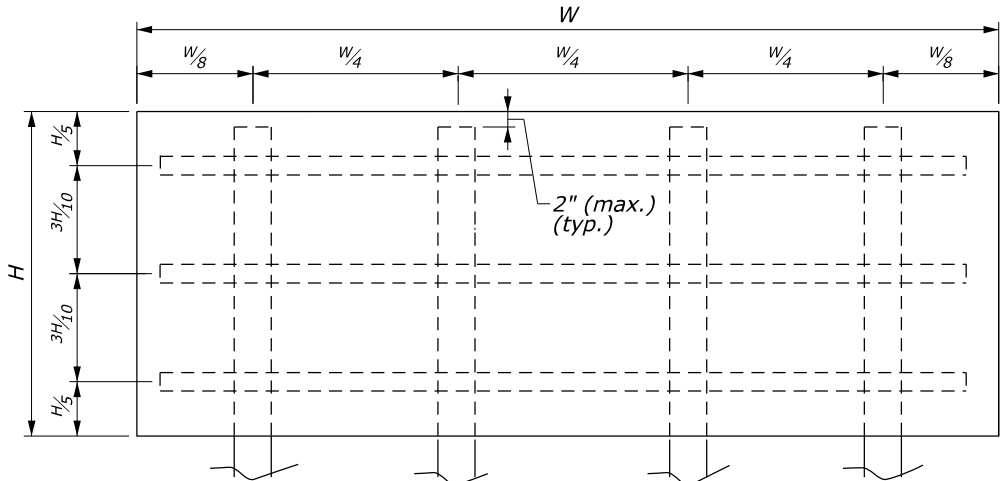
SINGLE POST



DOUBLE POST



TRIPLE POST



QUADRUPLE POST

NOTES:

1. Locate and set sign height according to the "Manual on Uniform Traffic Control Devices" (MUTCD), latest edition.
2. For U-channel, square tubular, and corrosion resistant steel posts for which the sign panel area is 10 square feet or less but W is over 4 feet, use double posts.
3. For square tabular steel double posts for which the sign panel area is equal to 24 square feet, use slip base according to manufacturer's recommendations.
4. Refer to Detail E633-02 for breakaway support details for corrosion resistant steel posts.
5. Refer to Detail E633-03 for breakaway support details for wood, U-channel steel and square tubular steel posts.
6. Refer to Detail E633-04 for bracing details for wood, U-channel steel and square tubular steel posts.
7. Refer to Section 2A.21 of the MUTCD, latest edition, for additional information.

POST SIZE TABLE					
POST TYPE	POST SIZE	MAXIMUM SIGN AREA (SQFT)			
		SINGLE POST	DOUBLE POST	TRIPLE POST	QUADRUPLE POST
Wood	4" x 4"	10	20		
	4" x 6"	15	35	45	60
	6" x 6"	20	50	75	100
U-Channel Steel		10*	24	30	
Square Tubular Steel	2" 12 ga.	10*	16		
	2" 12 ga.	10*	24**		
Corrosion Resistant Steel	2" x 2" 10 ga. Class B	10*	24		

* See Note 2
** See Note 3

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION OFFICE OF FEDERAL LANDS HIGHWAY	
EFLHD DETAIL	
SIGN STRUCTURES	
DETAIL APPROVED FOR USE APPROVED: MAY 2011 REVISED: SEPTEMBER 2020	DETAIL E633-01

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16 September 2022 10:06 AM

FOOTING DATA TABLE		
POST SIZE	CONCRETE FOOTING	
	DIA.	MINIMUM DEPTH
2" X 2"	12"	3'

BASE CONNECTION DATA TABLE														
POST SIZE	BOLT SPECIFICATIONS			BOND BREAKING PLATE DATA										
	Dia.	Length	Torque in-lbs	(A)	(B)	(C)	(D)	(E)	(F)	(R)	t ₁	t ₂	w	
2" X 2"	5/8"	2 1/2"	450	6 1/2"	4"	5"	1 3/4"	3/4"	1 1/8"	1 1/16"	5/8"	3/16"	3/16"	

LEGEND:

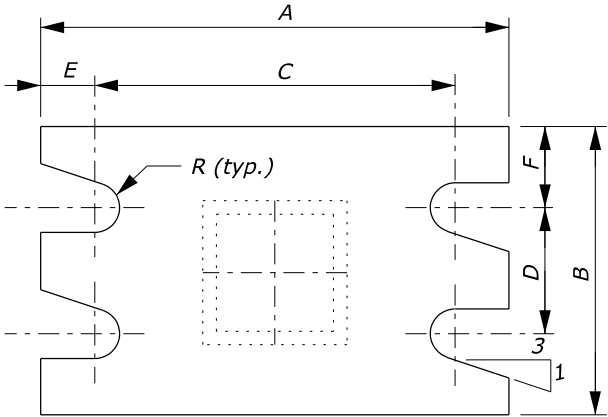
High Strength

HS

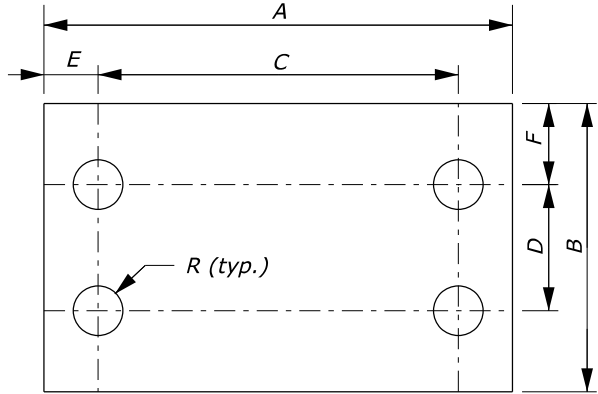
Weld triangle



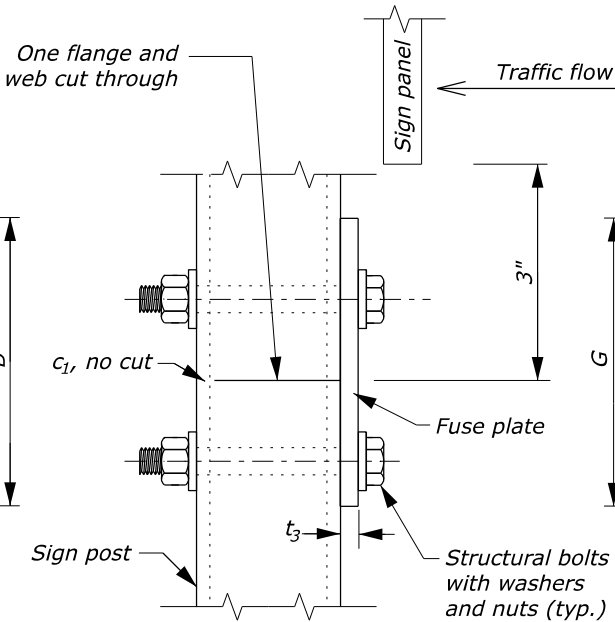
FUSE PLATE DATA TABLE												
POST SIZE	(G)	(H)	(J)	(K)	(L)	(M)	(N)	d ₁	t ₃	c ₁	Bolt dia.	Torque ft-lbs
2" X 2"	4"	2 1/4"	1 1/8"	2"	7/8"	9/16"	5/8"	7/16"	1/4"	1/4"	3/8"	200



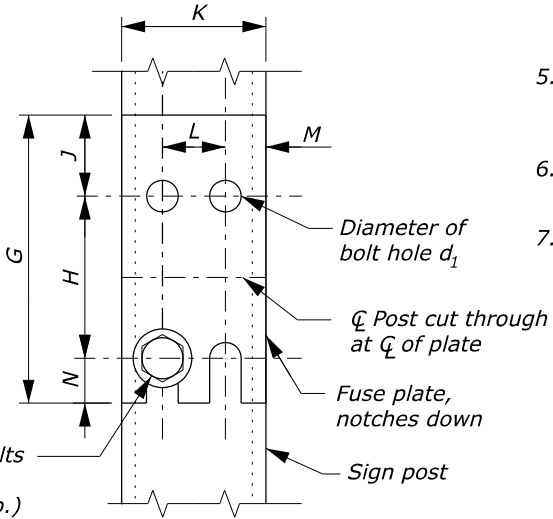
SECTION A-A
BREAKAWAY PLATE



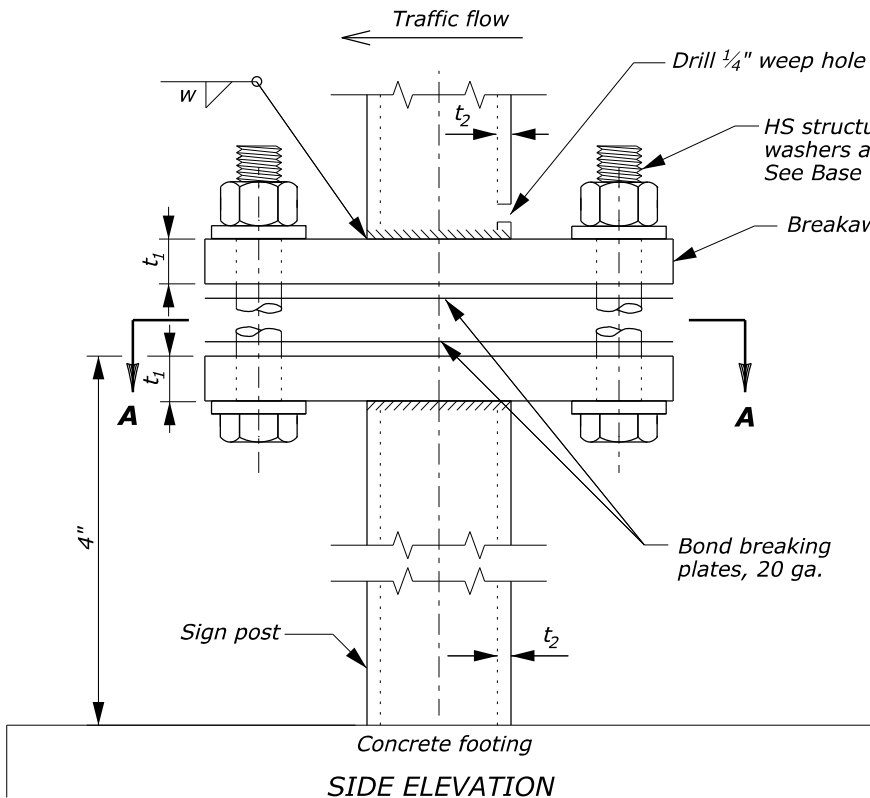
BOND BREAKING PLATE



SIDE ELEVATION

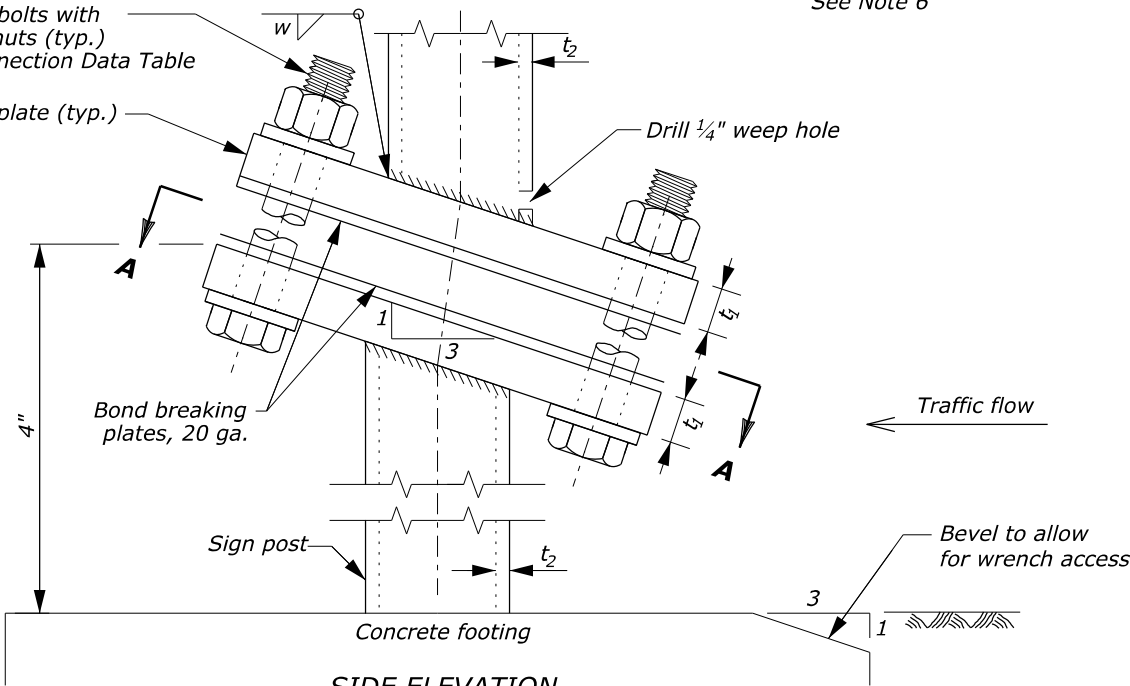


FRONT ELEVATION



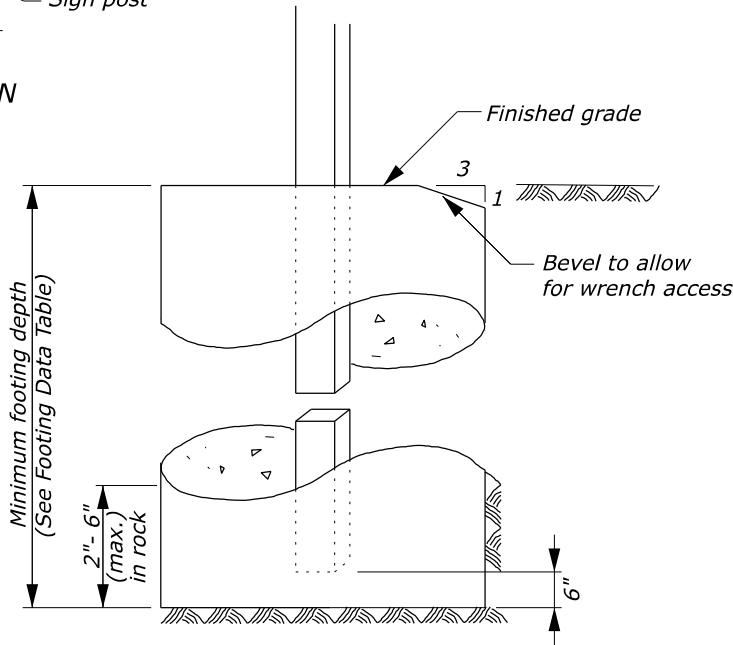
MULTIPLE POST BREAKAWAY

See Notes 4 and 5



SINGLE POST BREAKAWAY

See Notes 4 and 5



CONCRETE FOOTING

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION OFFICE OF FEDERAL LANDS HIGHWAY	
EFLHD DETAIL	
BREAKAWAY SIGN SUPPORT CORROSION RESISTANT STEEL	
DETAIL APPROVED FOR USE APPROVED: MAY 2011 REVISED: SEPTEMBER 2020	DETAIL E633-02

NOTES:

- Breakaway sign support is not required for signs placed behind protective barriers.
- Install breakaway assembly in the direction of major traffic.
- Use 10 gage Class B corrosion resistant square steel posts. Paint brown any corrosion resistant steel posts that do not naturally change color to brown.
- Use galvanized steel in breakaway plates, bond breaking plates, and fastening structural bolts with nuts and washers. Paint brown to match the appearance of the corrosion resistant steel posts.
- Use the Multiple Post Breakaway detail on single posts where exposed to opposing lanes of traffic.
- Use fuse plates on multiple post installations only.
- Refer to Detail E633-01 for sign mounting details.

NO SCALE

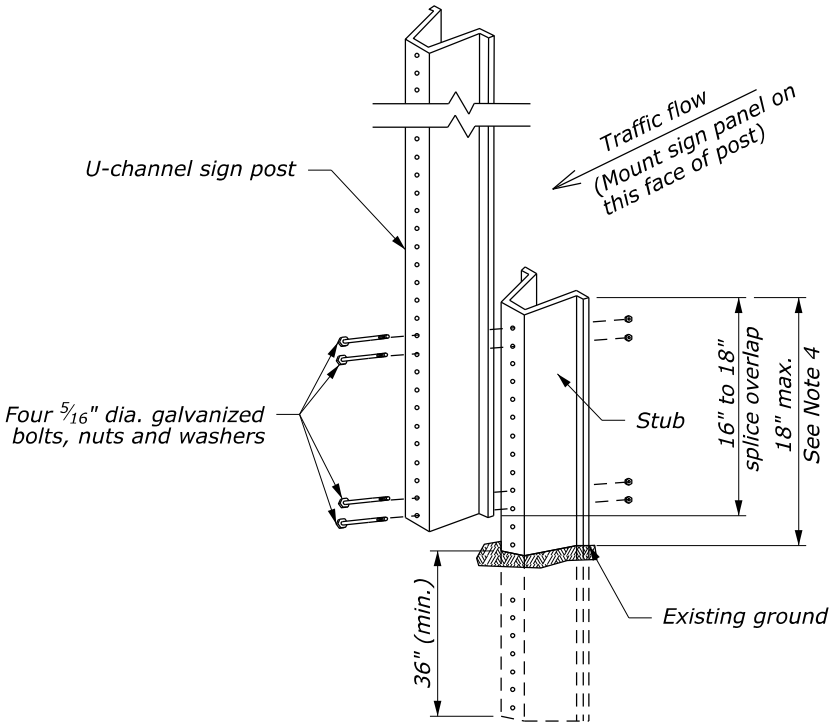
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STATE	PROJECT	SHEET NUMBER
NM	NM FLAP SIE 10(1) LAKESHORE ROAD	T11

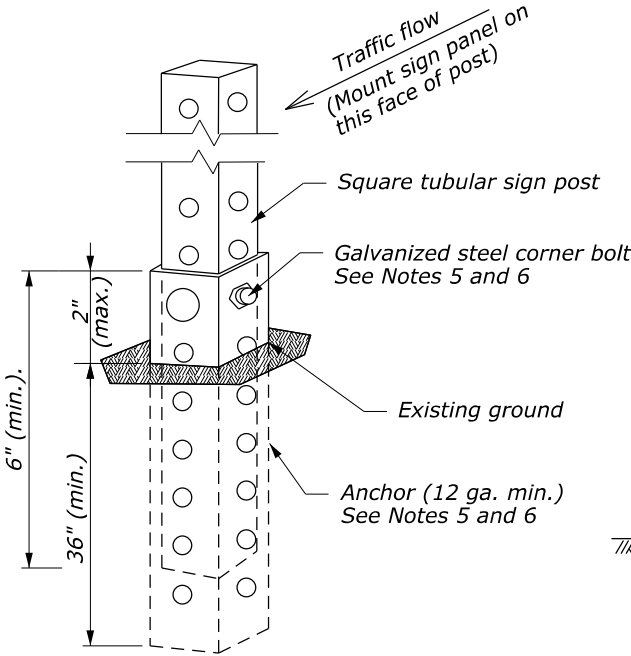
WOOD POST DATA TABLE		
POST SIZE	HOLE DIAMETER	(D) (MIN.)
4" x 4"	Not Required	3'
4" x 6"	1.5"	4'
6" x 6"	2"	4'

NOTES:

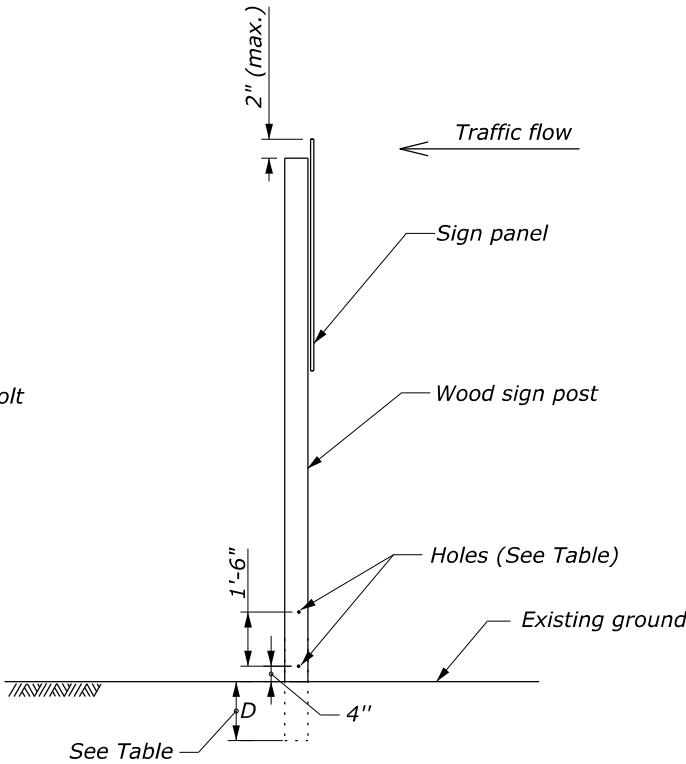
- Breakaway sign support is not required for signs placed behind protective barriers.
- Signs requiring 6-inch by 6-inch wood posts are considered to be non-breakaway if multiple posts are required and posts cannot be spaced a minimum of 7 feet apart.
- Place non-breakaway signs outside the clear zone or shield with approved barrier. Do not place holes in posts of non-breakaway signs.
- Position splice overlap on U-channel steel posts entirely between the ground line and 18 inches above the ground line. Do not place more than one splice per post.
- Attach the square tubular steel post to the anchor with a corner bolt according to the manufacturer's recommendations. Size the anchor according to the manufacturer's recommendations to accept the post size specified.
- Maintain the post assembly in a plumb position.
- For sign punching details, see the blank standards in the "Standard Highway Signs and Markings" as specified in the latest edition of the MUTCD.
- Refer to Detail E633-01 for sign mounting details.
- Refer to Detail E633-04 for sign bracing details.
- Refer to Section 2A.21 of the MUTCD, latest edition, for additional information.



U-CHANNEL STEEL POST



SQUARE TUBULAR STEEL POST



WOOD POST

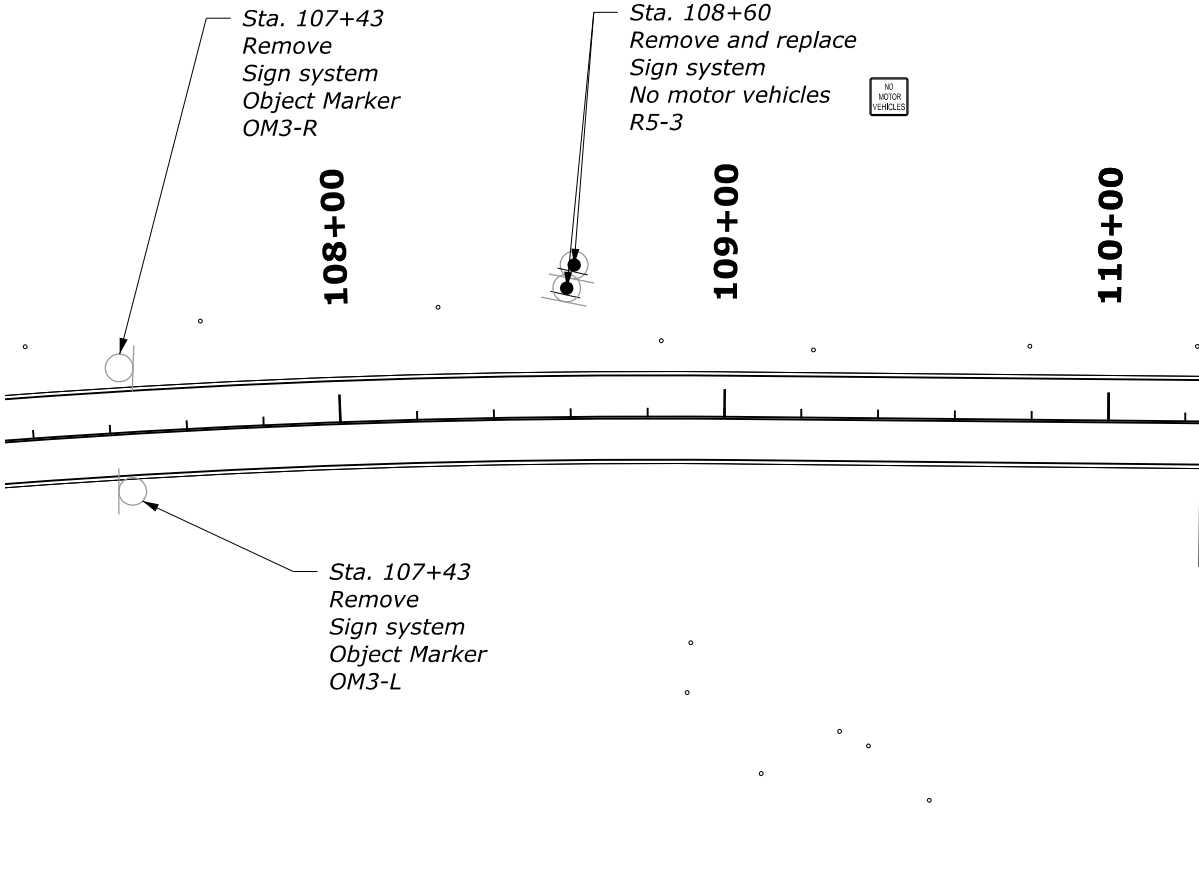
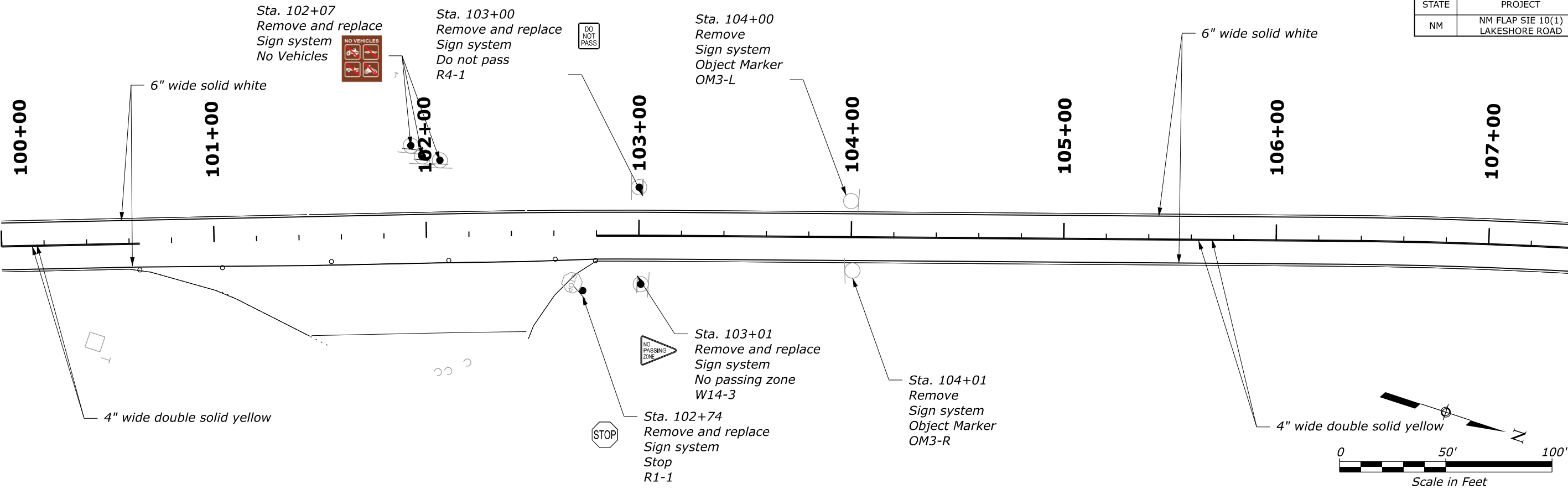
BREAKAWAY SIGN SUPPORT

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION OFFICE OF FEDERAL LANDS HIGHWAY		
EFLHD DETAIL		
BREAKAWAY SIGN SUPPORT WOOD AND STEEL POSTS		
DETAIL APPROVED FOR USE		DETAIL
APPROVED: MAY 2011 REVISED: SEPTEMBER 2020		E633-03

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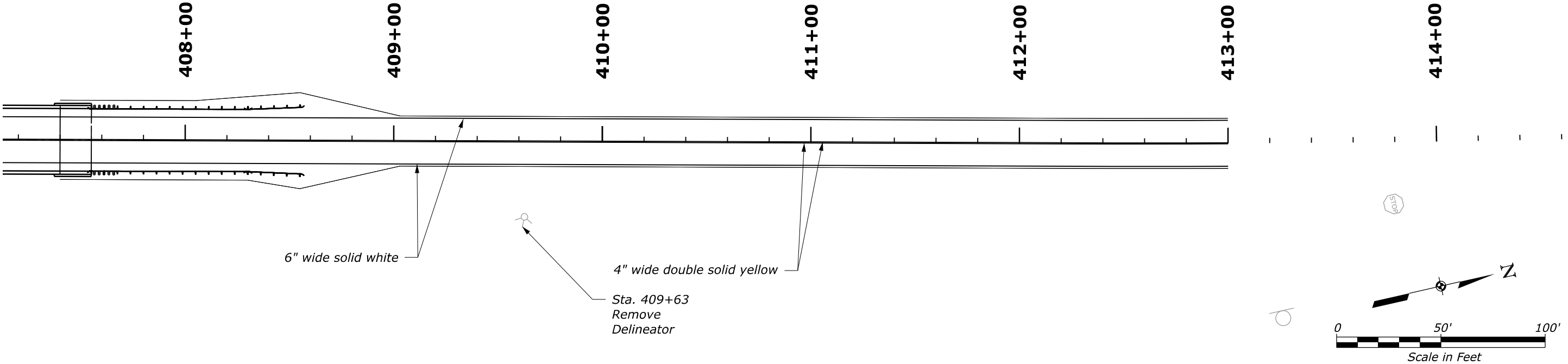
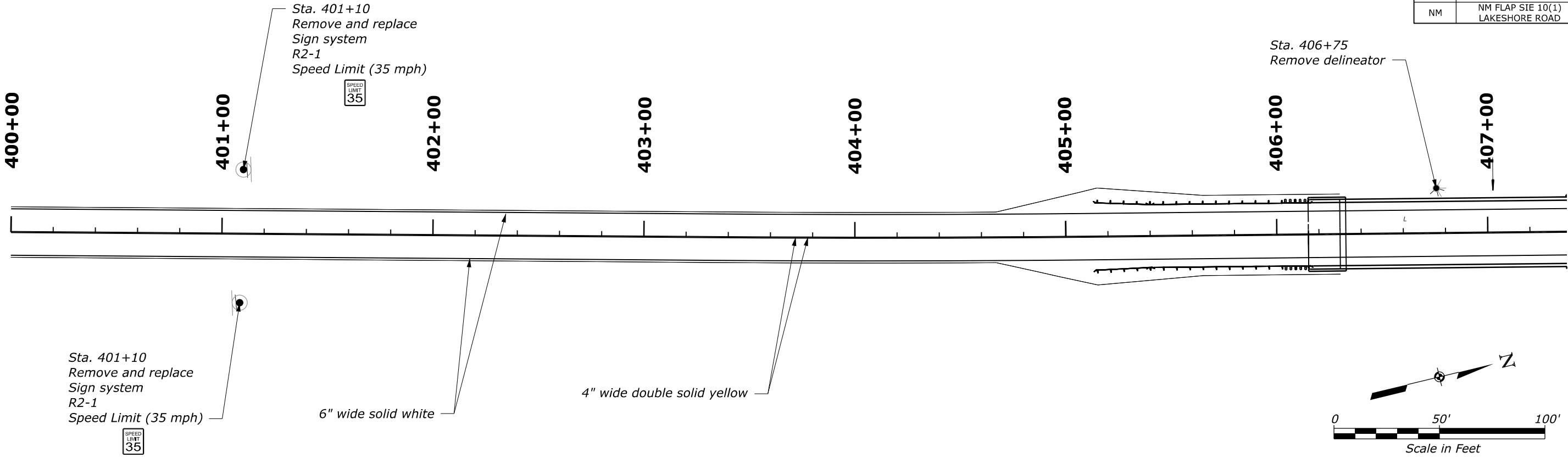
STATE	PROJECT	SHEET NUMBER
NM	NM FLAP SIE 10(1) LAKESHORE ROAD	T13



**LAKESHORE ROAD
SITE 1 SIGNING AND STRIPING
SCHEDULE A**

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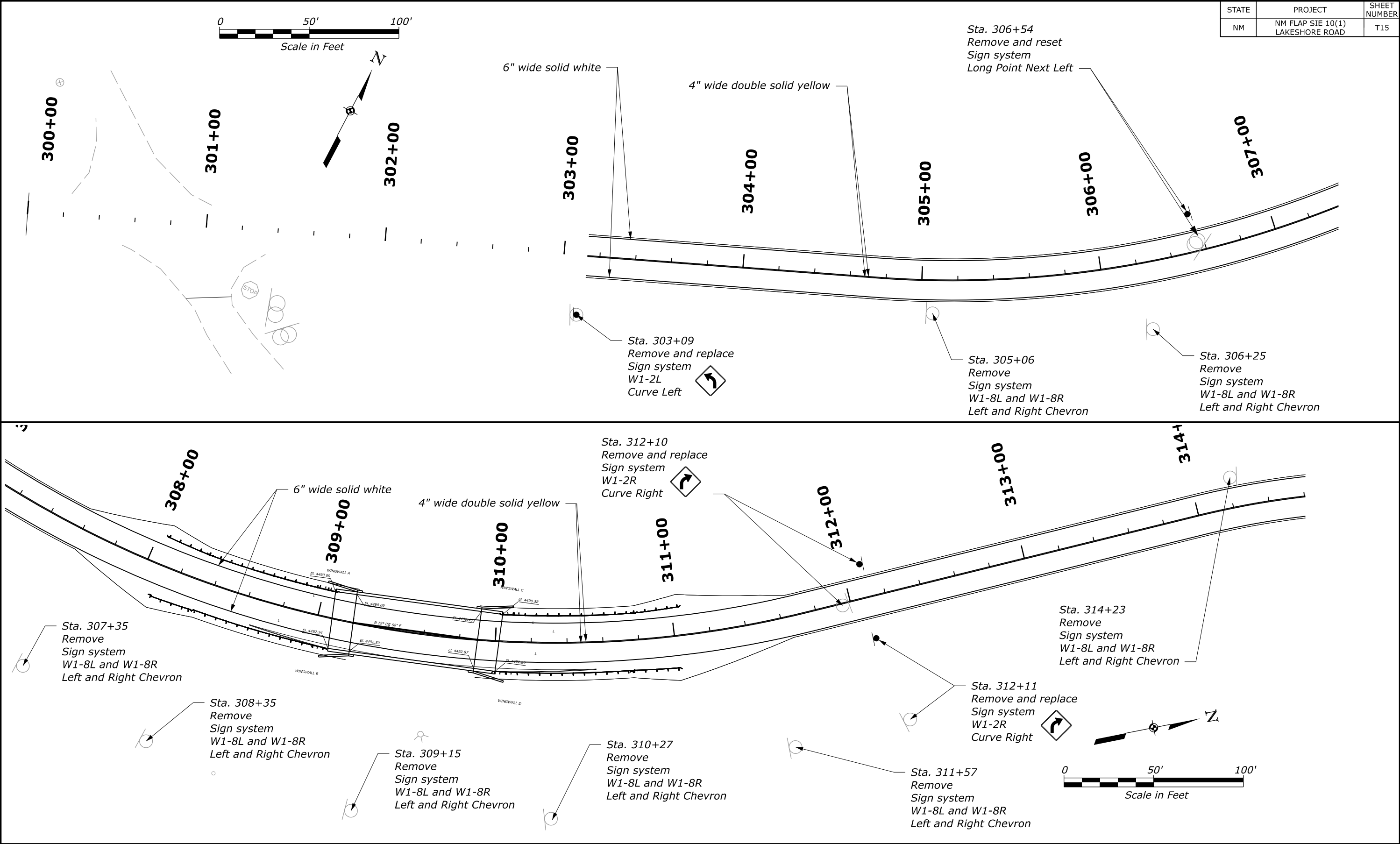
STATE	PROJECT	SHEET NUMBER
NM	NM FLAP SIE 10(1) LAKESHORE ROAD	T14



**LAKESHORE ROAD
SITE 4 SIGNING AND STRIPING
SCHEDULE A**

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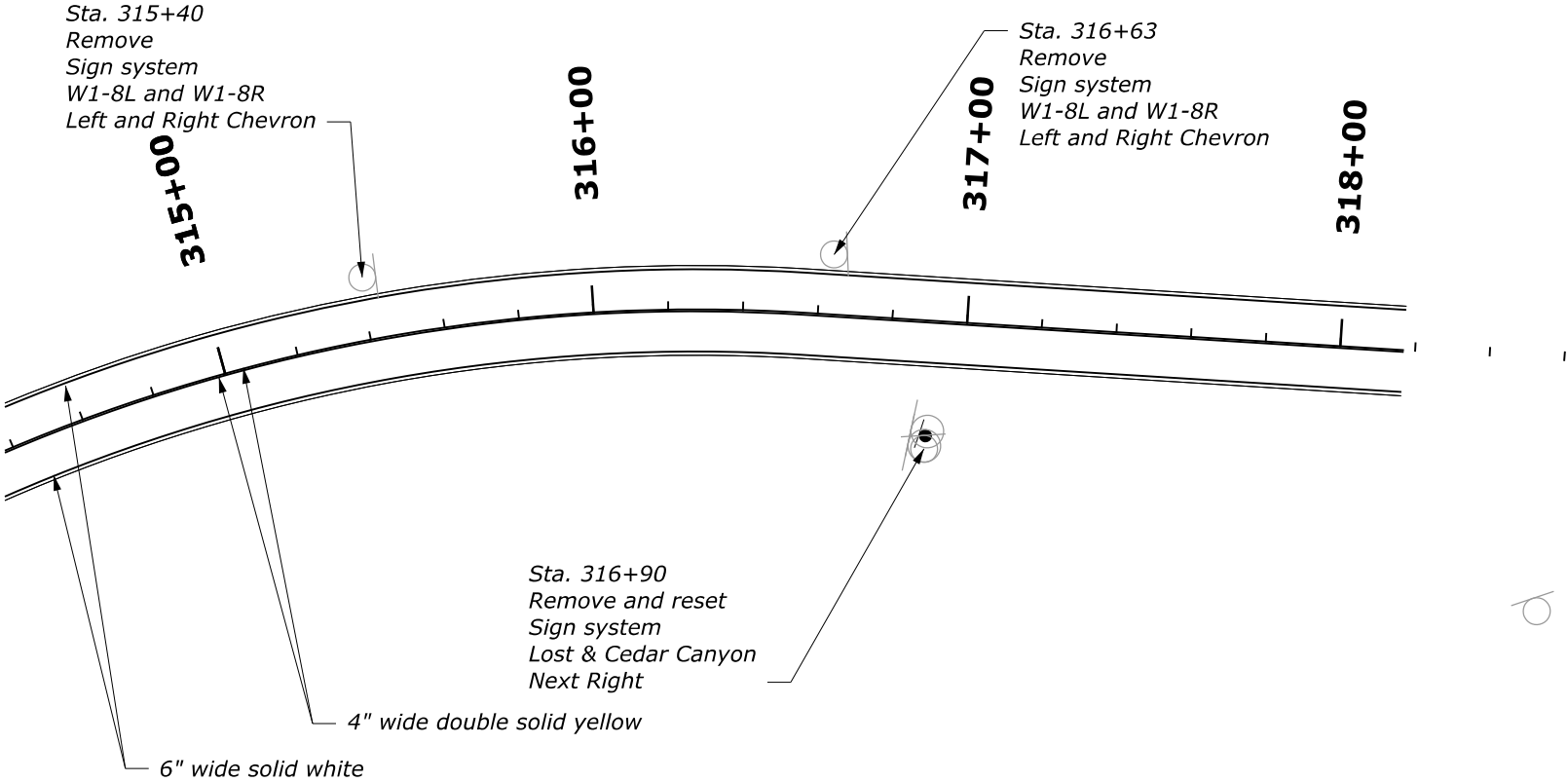
STATE	PROJECT	SHEET NUMBER
NM	NM FLAP SIE 10(1) LAKESHORE ROAD	T15



LAKESHORE ROAD
SITE 3 SIGNING AND STRIPING
Sheet 1 of 2
OPTION X

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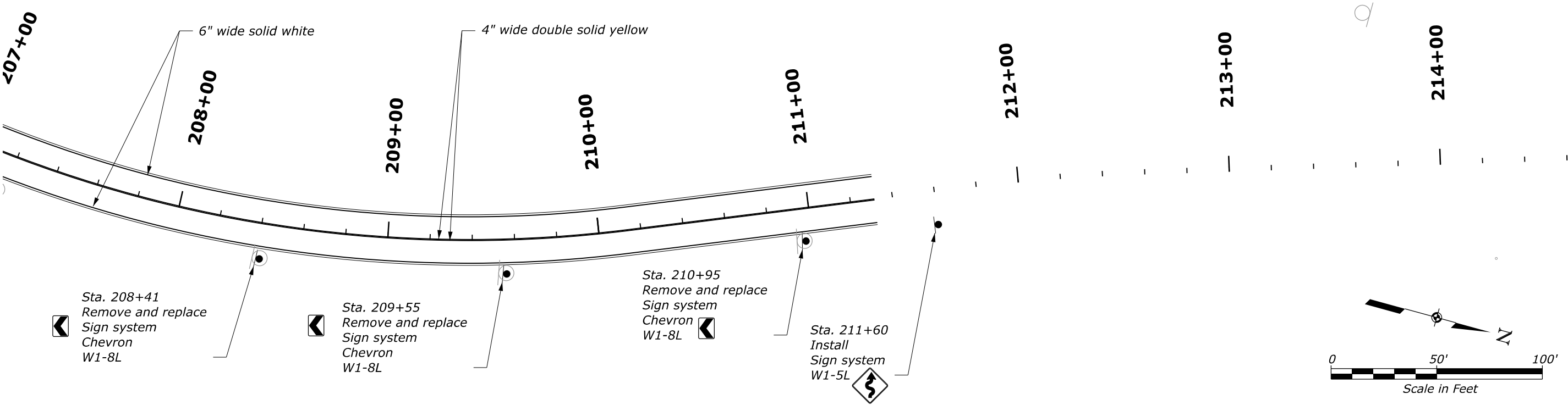
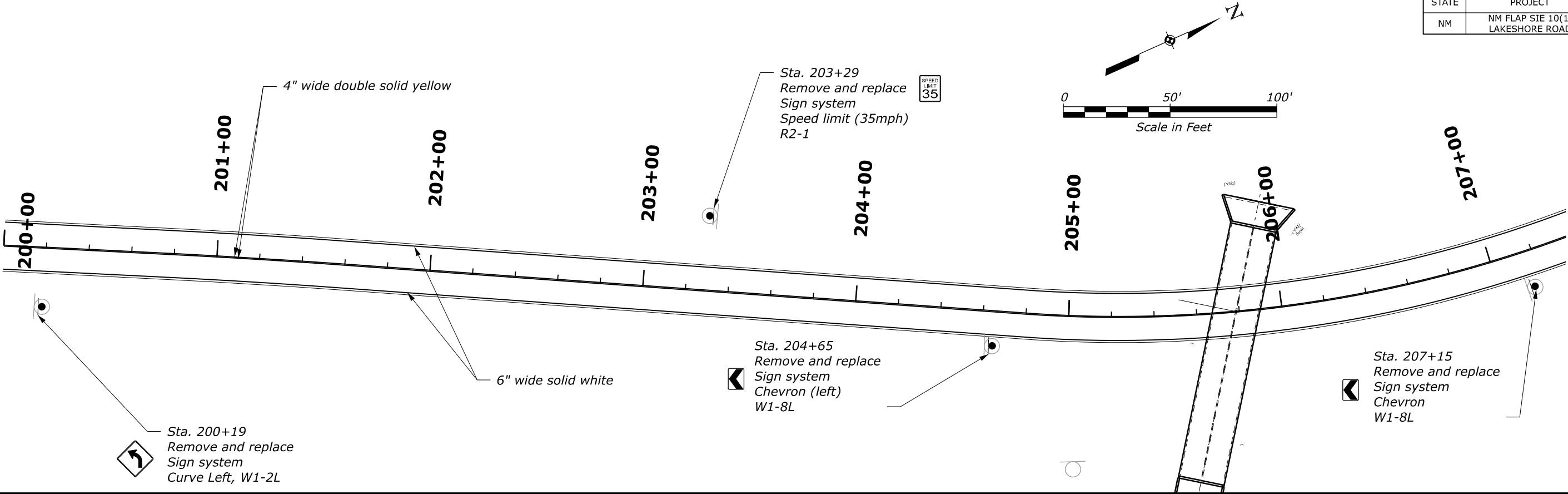
STATE	PROJECT	SHEET NUMBER
NM	NM FLAP SIE 10(1) LAKESHORE ROAD	T16



LAKESHORE ROAD
SITE 3 SIGNING AND STRIPING
Sheet 2 of 2
OPTION X

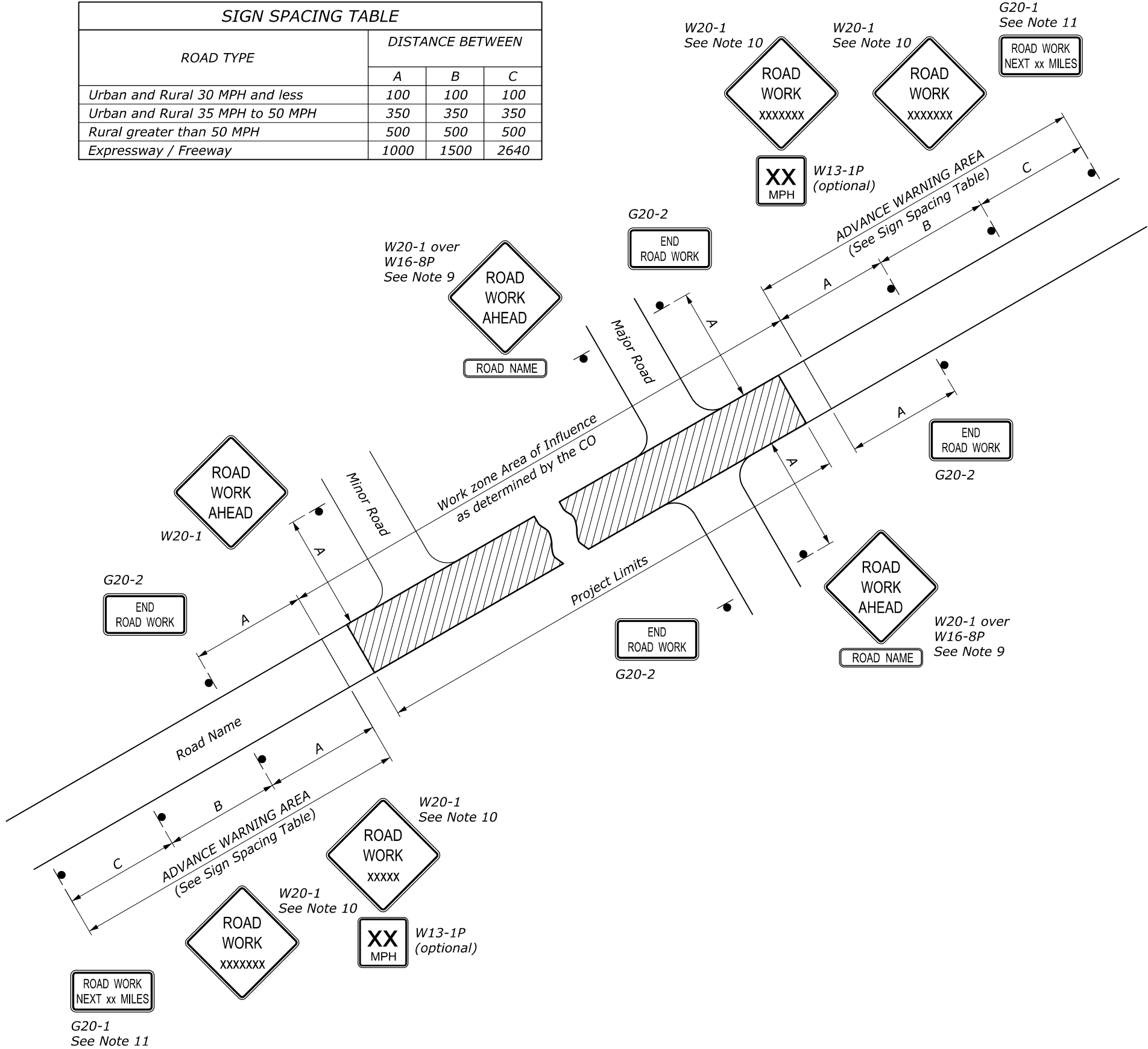
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STATE	PROJECT	SHEET NUMBER
NM	NM FLAP SIE 10(1) LAKESHORE ROAD	T17



**LAKESHORE ROAD
SITE 2 SIGNING AND STRIPING
OPTION Y**

SIGN SPACING TABLE			
ROAD TYPE	DISTANCE BETWEEN		
	A	B	C
Urban and Rural 30 MPH and less	100	100	100
Urban and Rural 35 MPH to 50 MPH	350	350	350
Rural greater than 50 MPH	500	500	500
Expressway / Freeway	1000	1500	2640



NOTE:

- Erect all project advance warning signs before starting construction work.
- Not all details shown on the temporary traffic control sheets may be applicable to this project. The Contractor may add or delete information and details in this traffic control plan as necessary to accommodate actual operations.
- Where advance warning signs, placed as shown, interfere with permanent signs, locate the warning signs as determined by the CO for best results. Vary messages as required.
- Additional or different message signs may be required to fit the actual construction conditions.
- Install advisory speed plates under the W20 series warning signs as needed to indicate a maximum recommended speed through the construction area.
- Ensure all sign supports exposed to impact by traffic meet the requirements of NCHRP-350 or MASH for crashworthiness.
- Maintain two-way traffic during all non-work hours except as approved by the CO.
- Do not store traffic control devices along the roadway when not in use. Cover post-mounted signs when not applicable.
- If W20-1 is placed on a roadway other than that on which the actual construction work occurs, include a supplementary plaque indicating the name of the road on which the construction does occur (applies to major roads only).
- The message on the W20-1 signs may be "ROAD WORK AHEAD" or may specify the distance to the work area in feet or in miles. Install an additional W20-1 sign when approach speeds exceed 50 MPH. When used place the two W20-1 signs "B" feet apart according to the Sign Spacing Table.
- For work zones that are 2 miles or more in length, install G20-1 signs at each end of the project. Show the distance on the G20-1 sign to the nearest whole mile.
- If signing on a roadway under a jurisdiction other than the client agency, verify that an encroachment permit has been obtained.
- State standards may be used as an alternative if approved by the CO.
- Refer to the Section 635 of the Special Contract Requirements for allowable retroreflective sheeting types.

NOTE:

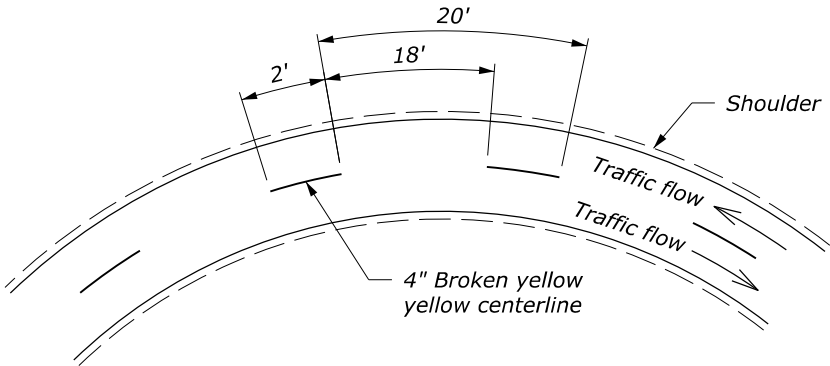
1. To substitute raised pavement markers for lines, use the following patterns:

2' broken line: two pavement markers spaced 2' apart allowed by the gap shown based on curvature.

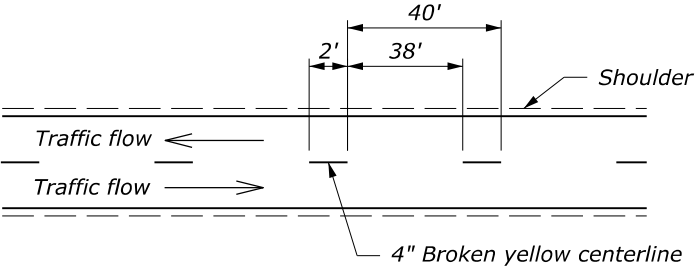
Single solid line: pavement markers spaced on 10' centers.

Double solid line: two pavement markers, side by side, spaced on 10' centers.

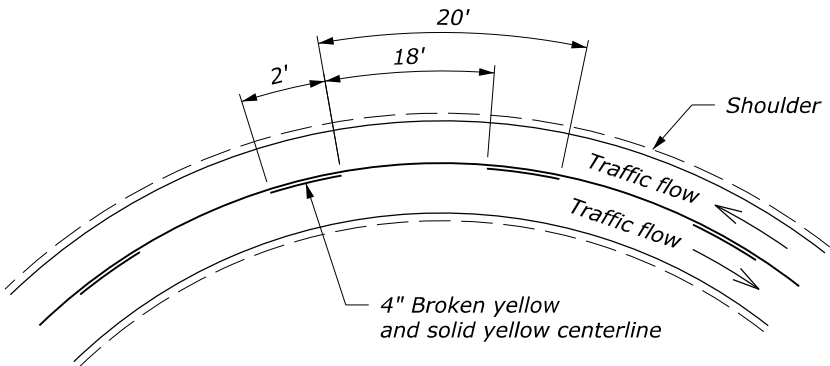
2. On two- or three-lane roads, signs may be used instead of temporary pavement markings as shown on Standard 635-3.



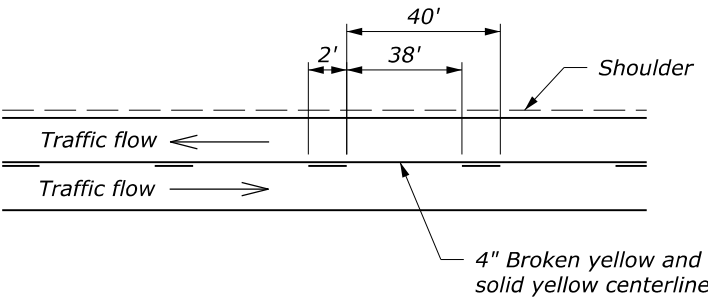
DETAIL A1
Passing zone both directions
Two-way traffic



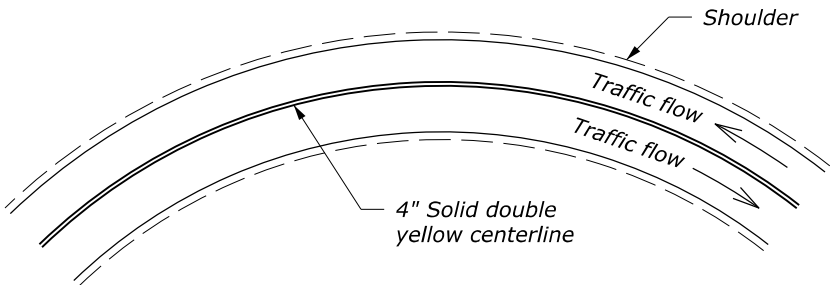
DETAIL B1
Passing zone both directions
Two-way traffic



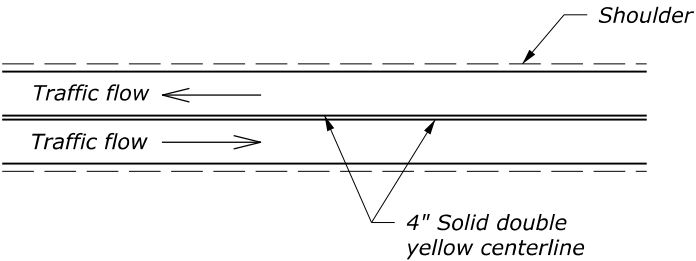
DETAIL A2
No passing zone one direction
Two-way traffic



DETAIL B2
No Passing zone one direction
Two-way traffic



DETAIL A3
No passing zone both directions
Two-way traffic



DETAIL B3
No Passing zone both directions
Two-way traffic

DETAIL A
Curves < 500' Radius

DETAIL B
Tangents or Curves ≥ 500' Radius

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
OFFICE OF FEDERAL LANDS HIGHWAY

FLH STANDARD

TEMPORARY
PAVEMENT MARKINGS

STANDARD APPROVED FOR USE 6/2005

REVISED:
DRAFT: 9/2016

STANDARD
635-2

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27 September 2022 4:31 PM

STATE	PROJECT	SHEET NUMBER
NM	NM FLAP SIE 10(1) LAKESHORE ROAD	T20

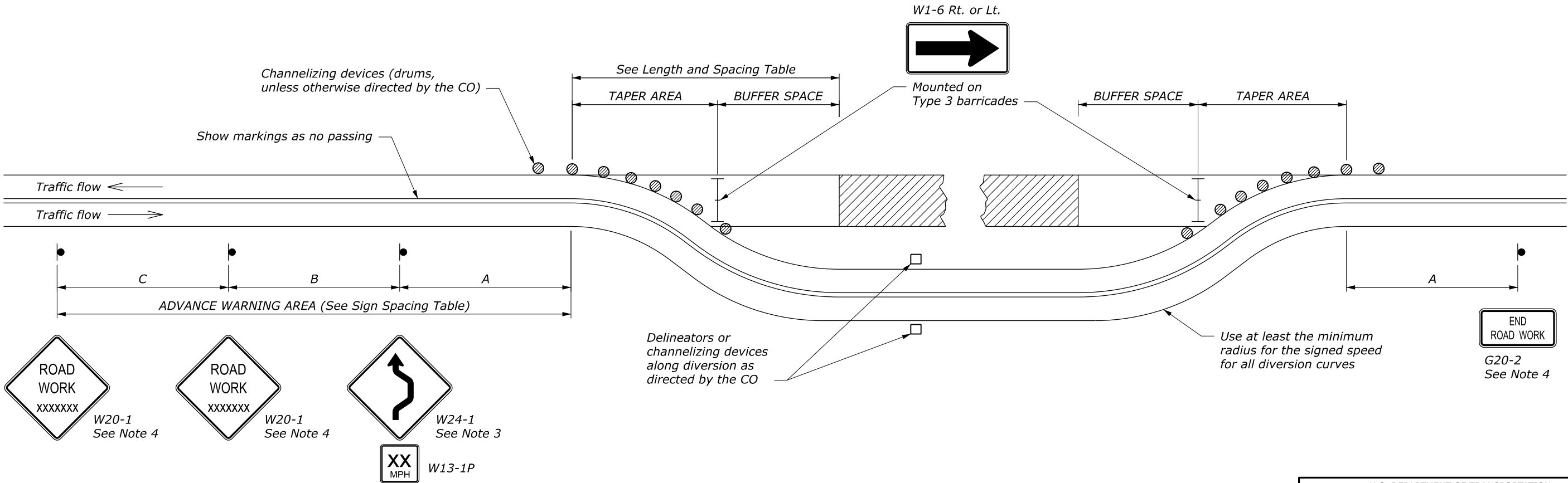
LENGTH AND SPACING TABLE				
APPROACH SPEED*	BUFFER SPACE LENGTH	CHANNELIZING DEVICE		
		TAPER AREA	BUFFER SPACE	WORK SPACE
MPH	FEET	SPACING IN FEET		
20	115	20	40	40
25	155	20-25	50	50
30	200	20-30	60	60
35	250	20-35	70	70
40	305	20-40	80	80
45	360	20-45	90	90
50	425	20-50	100	100
55	495	20-55	110	110
60	570	20-60	120	120
65	645	20-65	130	130
70	730	20-70	140	140

* Approach speed based on the regulatory posted speed, not the advisory speed.

SIGN SPACING TABLE			
ROAD TYPE	DISTANCE BETWEEN SIGNS IN FEET		
	A	B	C
Urban and Rural 30 MPH and less	100	100	100
Urban and Rural 35 MPH to 50 MPH	350	350	350
Rural greater than 50 MPH	500	500	500
Expressway / Freeway	1000	1500	2640

NOTE:

- Signs are shown for one direction of travel only. Place devices similar to those depicted for the opposite direction of travel.
- If the area approaching diversion is not already signed and marked as a no passing zone, add signing and/or marking as appropriate. Remove conflicting pavement markings.
- If the tangent distance along the temporary diversion is more than 600', use an appropriate "Reverse Curve" sign (W1-4) instead of the "Double Reverse Curve" sign (W24-1). Install a second, appropriate "Reverse Curve" sign (W1-4) in advance of the second reverse curve back to the original alignment. Use "Reverse Turn" signs (W1-3) instead when the diversion has sharp curves with recommended speeds of 30 mph or less.
- If the diversion is completely within the project limits, eliminate the "ROAD WORK AHEAD" (W20-1) and "END ROAD WORK" (G20-2) signs.
- Place channelizing devices outside temporary roadway.
- Do not allow equipment, materials, or vehicles to be parked or stored in the buffer space.



NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION OFFICE OF FEDERAL LANDS HIGHWAY	
FLH STANDARD	
TEMPORARY TRAFFIC CONTROL FOR DIVERSION	
STANDARD APPROVED FOR USE 6/2005	STANDARD
REVISED: DRAFT: 6/2015	635-4

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27 September 2022 4:32 PM

STATE	PROJECT	SHEET NUMBER
NM	NM FLAP SIE 10(1) LAKESHORE ROAD	T21

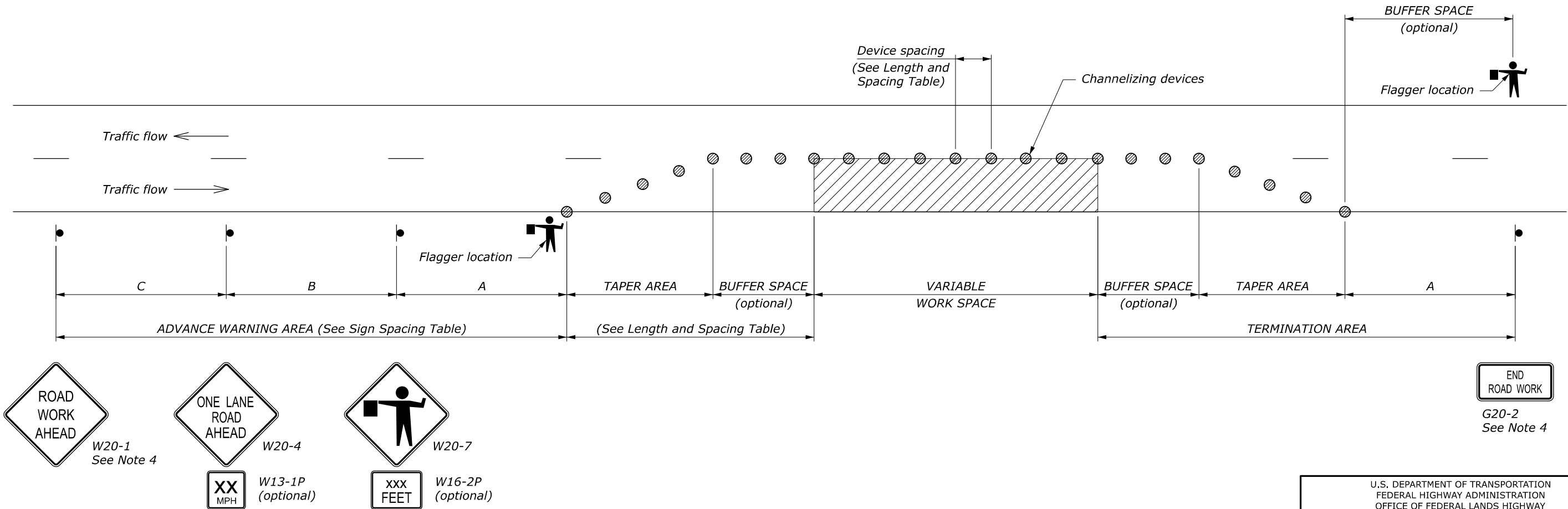
LENGTH AND SPACING TABLE				
APPROACH SPEED*	BUFFER SPACE LENGTH	CHANNELIZING DEVICE		
		TAPER AREA	BUFFER SPACE	WORK SPACE
MPH	FEET	SPACING IN FEET		
20	115	20	40	40
25	155	20	50	50
30	200	20	60	60
35	250	20	70	70
40	305	20	80	80
45	360	20	90	90
50	425	20	100	100
55	495	20	110	110
60	570	20	120	120
65	645	20	130	130
70	730	20	140	140

* Approach speed based on the regulatory posted speed, not the advisory speed.

SIGN SPACING TABLE			
ROAD TYPE	DISTANCE BETWEEN SIGNS IN FEET		
	A	B	C
Urban and Rural 30 MPH and less	100	100	100
Urban and Rural 35 MPH to 50 MPH	350	350	350
Rural greater than 50 MPH	500	500	500
Expressway / Freeway	1000	1500	2640

NOTE:

- Signs are shown for one direction of travel only. Place devices similar to those depicted for the opposite direction of travel.
- Final location and spacing of signs and devices may be changed to fit field conditions as approved by the CO.
- For pilot car operation, mount the PILOT CAR FOLLOW ME (G20-4) sign at a conspicuous location on the rear of vehicle. Prominently display the name of the contractor on the pilot car.
- If closure is completely within the project limits, eliminate the "ROAD WORK AHEAD" (W20-1) and "END ROAD WORK" (G20-2) signs.
- For night time flagging operation, provide floodlighting at flagger stations.
- For project specific minimum width, refer to the Special Contract Requirements, Section 156.
- Do not allow equipment, materials, or vehicles to be parked or stored in the buffer space.



U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION OFFICE OF FEDERAL LANDS HIGHWAY	
FLH STANDARD TEMPORARY TRAFFIC CONTROL SINGLE LANE CLOSURE LAYOUT (WITH FLAGGERS)	
STANDARD APPROVED FOR USE 6/2005 REVISED: DRAFT: 8/2013	STANDARD 635-6

NO SCALE

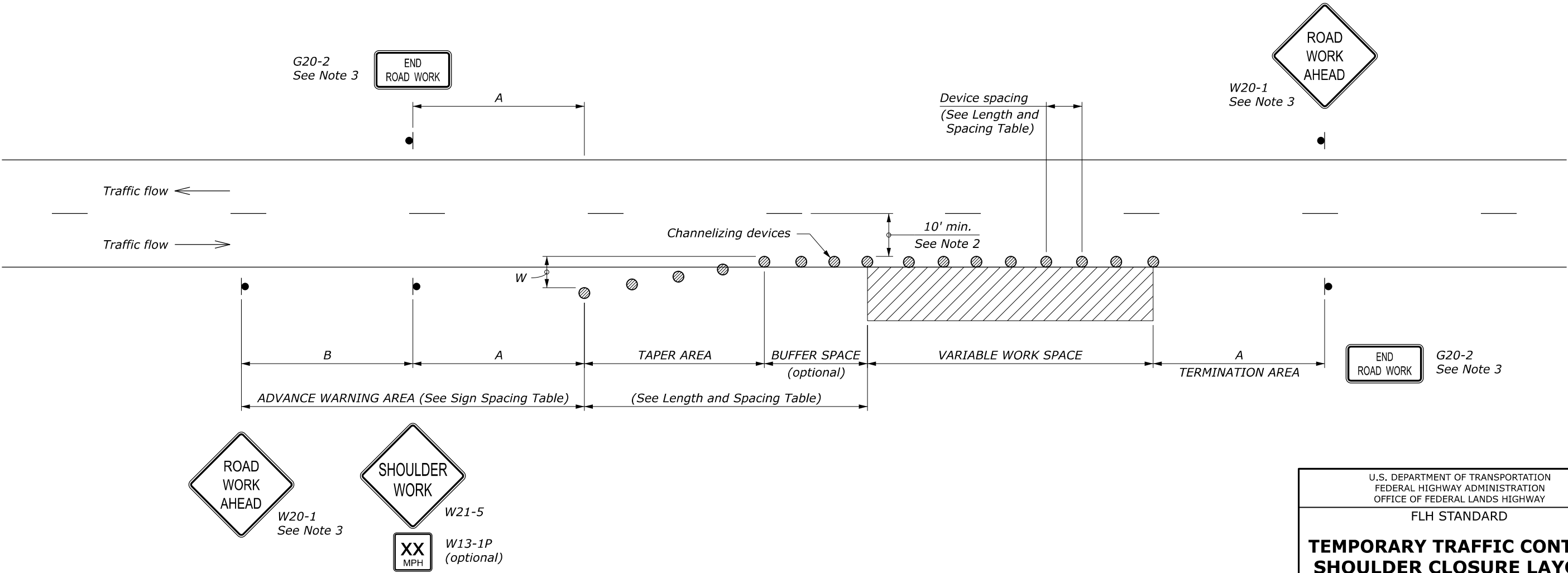
LENGTH AND SPACING TABLE					
APPROACH SPEED*	MINIMUM TAPER LENGTH**	BUFFER SPACE LENGTH	CHANNELIZING DEVICE		
			TAPER AREA	BUFFER SPACE	WORK SPACE
MPH	FEET	FEET	SPACING IN FEET		
20	Shoulder taper formula: $L = \frac{WS^2}{180}$ for $S \leq 40$ MPH	115	20	40	40
25		155	25	50	50
30		200	30	60	60
35	$L = \frac{WS}{3}$ for $S \geq 45$ MPH	250	35	70	70
40		305	40	80	80
45		360	45	90	90
50	Where: L = Minimum length of taper W = Width of offset in feet S = Numerical value of posted speed limit or 85 percentile speed prior to work in miles per hour	425	50	100	100
55		495	55	110	110
60		570	60	120	120
65		645	65	130	130
70		730	70	140	140

* Approach speed based on the regulatory posted speed, not the advisory speed.
** Lengthen taper as needed to provide minimum of three channelizing devices in taper at required spacing.

SIGN SPACING TABLE			
ROAD TYPE	DISTANCE BETWEEN SIGNS IN FEET		
	A	B	C
Urban and Rural 30 MPH and less	100	100	100
Urban and Rural 35 MPH to 50 MPH	350	350	350
Rural greater than 50 MPH	500	500	500
Expressway / Freeway	1000	1500	2640

NOTE:

- Final location and spacing of signs and devices may be changed to fit field conditions as approved by the CO.
- For project specific minimum width, refer to Special Contract Requirements, Section 156.
- If shoulder closure is completely within the project limits, eliminate the "ROAD WORK AHEAD" (W20-1) and "END ROAD WORK" (G20-2) signs.
- Do not allow equipment, materials, or vehicles to be parked or stored in the buffer space.



NO SCALE

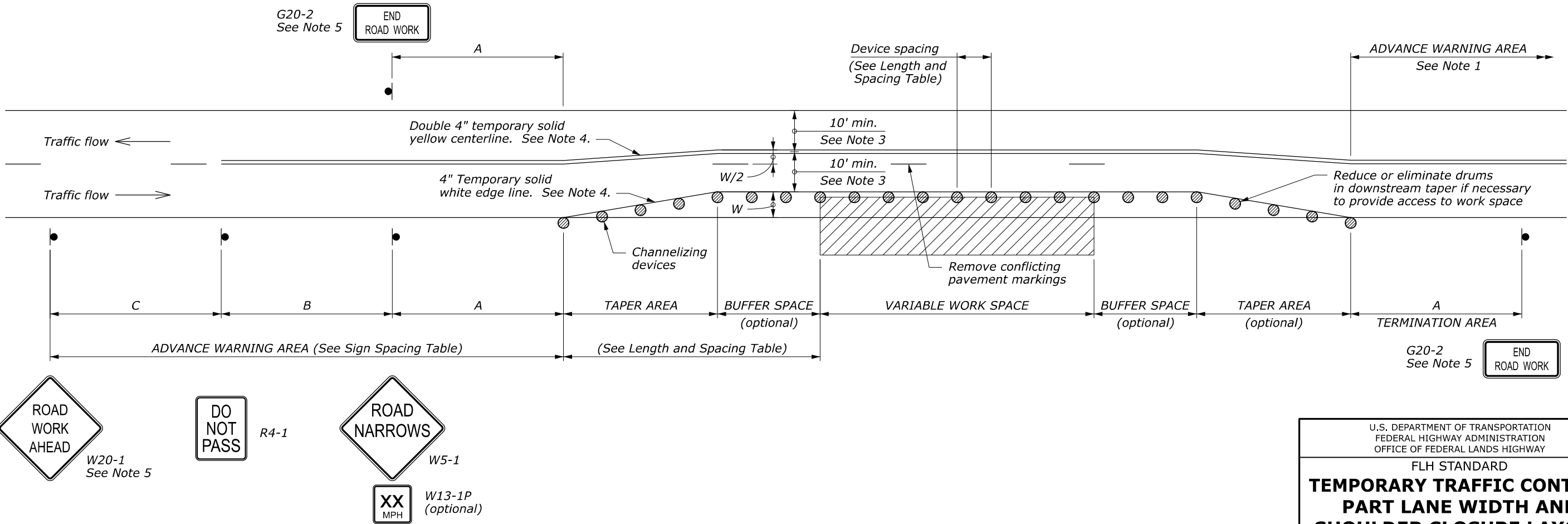
LENGTH AND SPACING TABLE					
APPROACH SPEED*	MINIMUM TAPER LENGTH	BUFFER SPACE LENGTH	CHANNELIZING DEVICE		
			TAPER AREA	BUFFER SPACE	WORK SPACE
MPH	FEET	FEET	SPACING IN FEET		
20	Shifting taper formula: $L = \frac{WS^2}{120}$ for $S \leq 40$ MPH	115	20	40	40
25		155	25	50	50
30		200	30	60	60
35	$L = \frac{WS}{2}$ for $S \geq 45$ MPH	250	35	70	70
40		305	40	80	80
45		360	45	90	90
50	Where: L = Minimum length of taper W = Width of offset in feet S = Numerical value of posted speed limit or 85 percentile speed prior to work in miles per hour	425	50	100	100
55		495	55	110	110
60		570	60	120	120
65		645	65	130	130
70		730	70	140	140

* Approach speed based on the regulatory posted speed, not the advisory speed.

SIGN SPACING TABLE			
ROAD TYPE	DISTANCE BETWEEN SIGNS IN FEET		
	A	B	C
Urban and Rural 30 MPH and less	100	100	100
Urban and Rural 35 MPH to 50 MPH	350	350	350
Rural greater than 50 MPH	500	500	500
Expressway / Freeway	1000	1500	2640

NOTE:

- Signs are shown for one direction of travel only. Place devices similar to those depicted for the opposite direction of travel.
- Final location and spacing of signs and devices may be changed to fit field conditions as approved by the CO.
- For project specific minimum width, refer to Special Contract Requirements, Section 156.
- If the roadway surface is paved, install temporary pavement markings. If nearest no-passing zone is within 400', extend markings to connect zones.
- If closure is completely within the project limits, eliminate the "ROAD WORK AHEAD" (W20-1) and "END ROAD WORK" (G20-2) signs.
- Install "PASS WITH CARE" sign (R4-2) at ends of no-passing zone if directed by the CO.
- Do not allow equipment, materials, or vehicles to be parked or stored in the buffer space.



NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
OFFICE OF FEDERAL LANDS HIGHWAY

FLH STANDARD
**TEMPORARY TRAFFIC CONTROL
PART LANE WIDTH AND
SHOULDER CLOSURE LAYOUT**

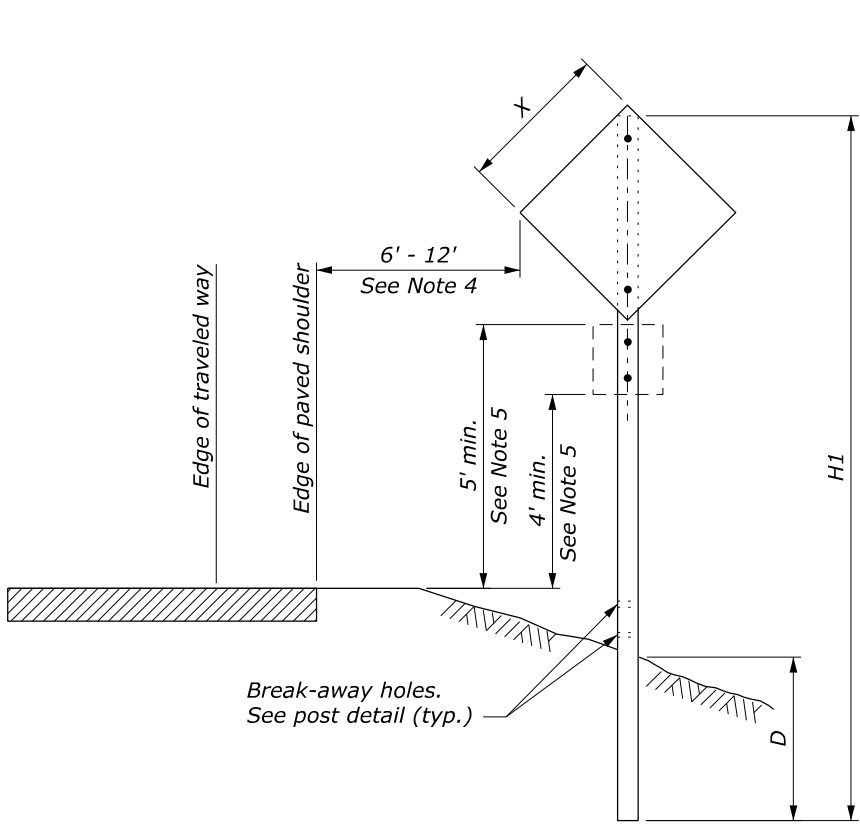
STANDARD APPROVED FOR USE 6/2005

REVISED:
DRAFT: 8/2013

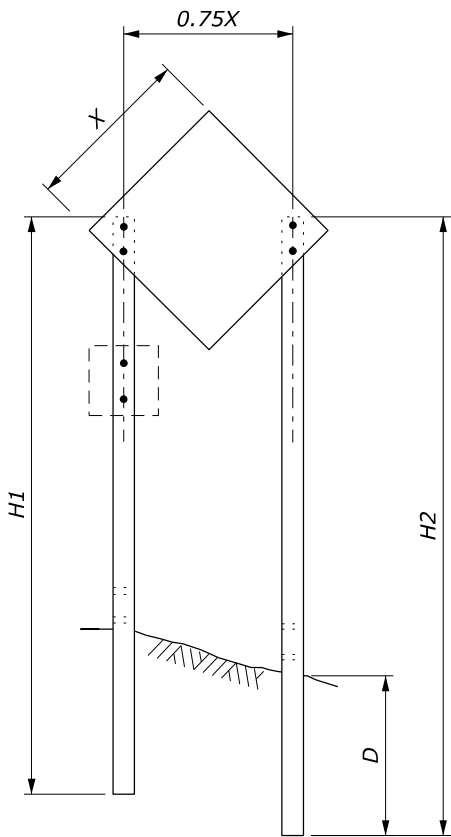
STANDARD
635-11

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27 September 2022 4:37 PM

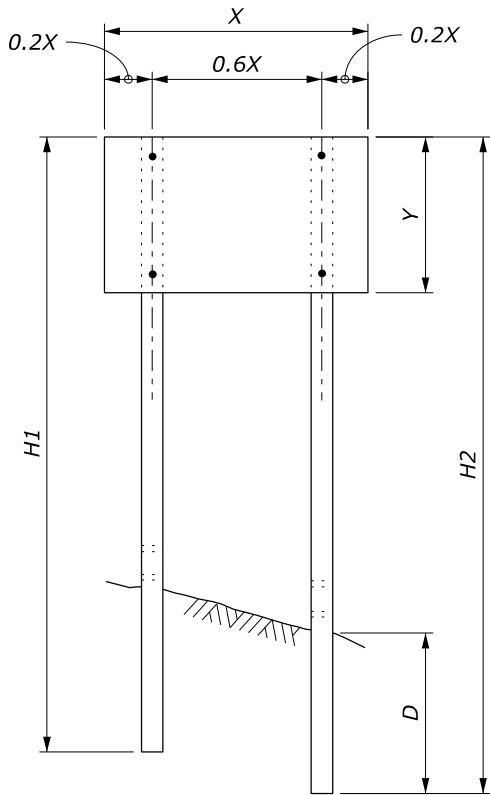
STATE	PROJECT	SHEET NUMBER
NM	NM FLAP SIE 10(1) LAKESHORE ROAD	T24



SINGLE POST SIGN



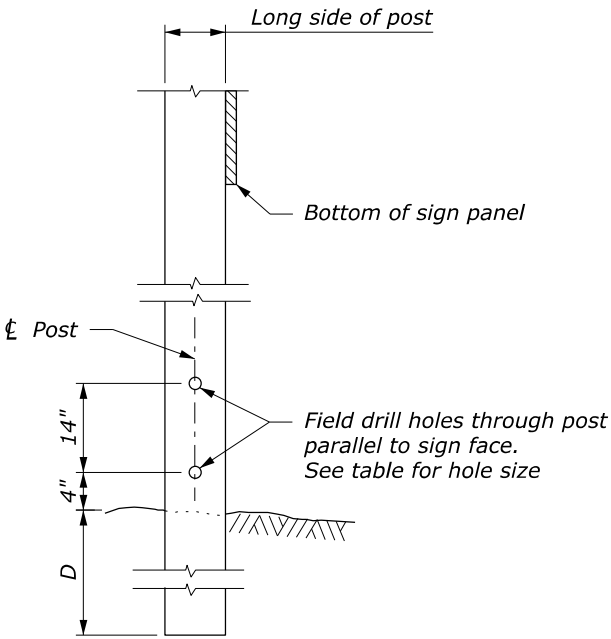
TWO POST SIGN



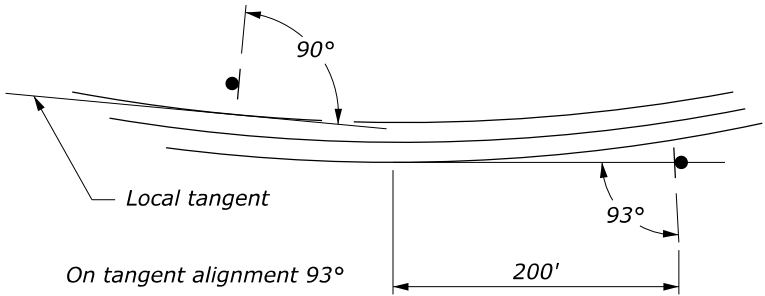
NOTE:

1. Attach sign panels with a minimum of 2 - 1/4" dia. bolts per post.
2. H1 and H2 = Overall post length.
Select post lengths to fit field conditions.
3. D = Post embedment depth for average soil conditions.
4. In areas where lateral distance is limited, a minimum lateral offset of 2' may be used. In areas with curbs, a minimum lateral distance of 1' behind the face of the curb may be used.
5. In pedestrian locations, or in areas with obstructed views, use 7' minimum mounting height for main sign and 6' minimum mounting height for secondary sign.
6. Use 7' minimum spacing between posts for sign posts 6" x 6" or larger.
7. State standards may be used as an alternative if approved by the CO.

WOOD POST SELECTION TABLE					
WIDTH "X"	AREA (SQFT)	NUMBER OF POSTS	POST SIZE (INCH)	D (INCH)	HOLE SIZE (INCH)
Diamond ≤ 36" Other Shapes ≤ 48"	< 10	1	4 x 4	36	0
		1	4 x 6	48	1.5
Diamond ≤ 48"	10 - 20	1	6 x 6	48	2
Diamond ≤ 48" Other Shapes ≤ 12'	10 - 20	2	4 x 4	36	0
	20 - 50	2	4 x 6	48	1.5
> 13'	50 - 65	2	6 x 6	48	2
12' - 16'	50 - 65	3	4 x 6	48	1.5
> 17'	65 - 95	4	4 x 6	48	1.5
> 30'	65 - 95	3	6 x 6	48	2



POST DETAIL



SIGN INSTALLATION ANGLE

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION OFFICE OF FEDERAL LANDS HIGHWAY	
FLH STANDARD TEMPORARY TRAFFIC CONTROL SIGN INSTALLATION WOOD POSTS	
STANDARD APPROVED FOR USE 6/2005 REVISED: DRAFT: 10/2017	STANDARD 635-14