STATE	PROJECT	SHEET NUMBER
CA	FTBL DUMONT DUNES (1)	A1

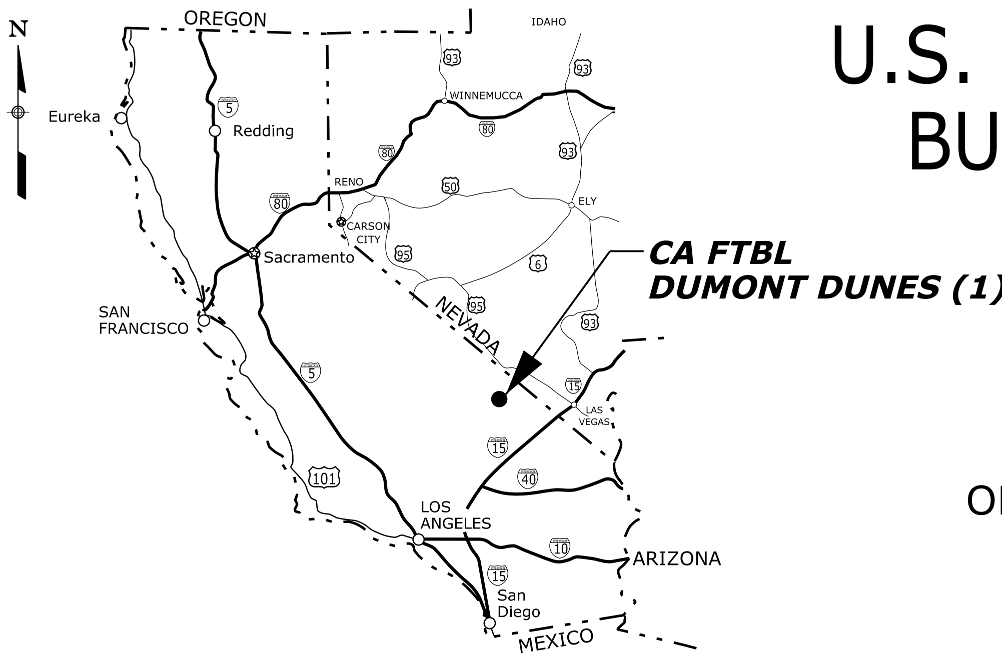
U.S. DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT

PLANS FOR PROPOSED

CA FTBL DUMONT DUNES (1)

DUMONT DUNES ROAD

OFF-HIGHWAY VEHICLE (OHV) RECREATION AREA
SAN BERNARDINO COUNTY
SCHEDULE A - LENGTH 3.24 MILES
OPTION X - INCIDENT COMMAND CENTER
OPTION Y - LENGTH 0.75 MILES



KEY MAP OF CALIFORNIA

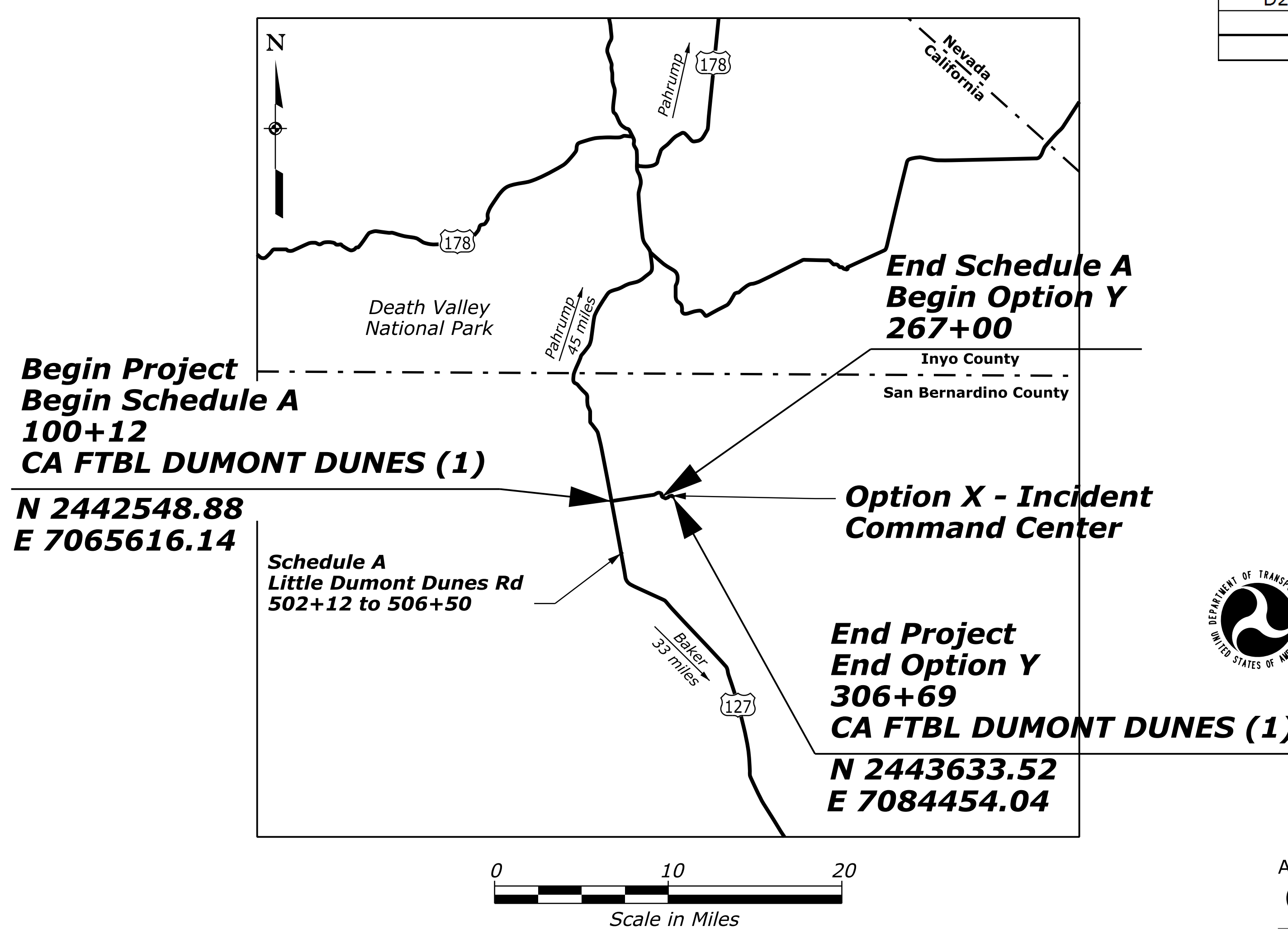
TYPE OF CONSTRUCTION:
Road Restoration, Resurfacing, Rehabilitation, Asphalt surfacing and Low water crossing

DESIGN DESIGNATIONS:
ADT (2021) ----------- 390
ADT (2041) ----------- 580
DHV ------------------- xx
D ---------------------- 50%
T ---------------------- 5%
V (100+12 TO 225+00) ---- 50mph
V (225+00 TO 247+25) ---- 30mph
V (247+25 TO 306+69) ---- 15mph
e(max) --------------- 6%

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"

FEDERAL LANDS HIGHWAY — COMMITMENT TO EXCELLENCE
U.S. DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT

811 Know what's below. Call before you dig. www.call811.com



INDEX TO SHEETS

INDEX CONTINUES ON A2

REGISTERED PROFESSIONAL ENGINEER — JAMES MILLS — C 68832 — STATE OF ...
James Mills
Digitally signed by James Mills

PLANS PREPARED BY
Jacobs
FOR
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION
DENVER, COLORADO

APPROVED:
CURTIS R SCOTT
Digitally signed by CURTIS R SCOTT
Date: 2022.04.01 06:57:01 -06'00'
DATE:
CHIEF OF ENGINEERING
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

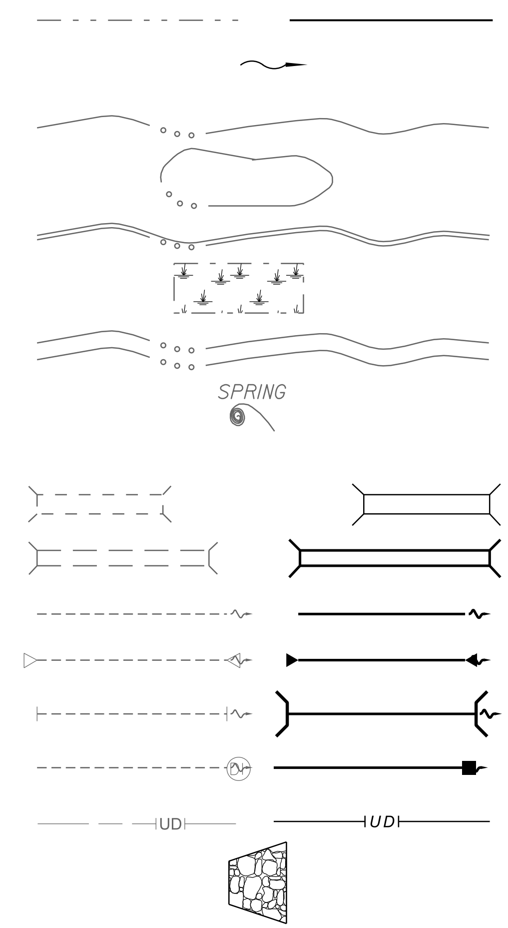
PROJECT MANAGER	LEAD DESIGNER
Michael Daigler	JACOBS

ABBREVIATIONS

	Abbreviation	Meaning
	℄	centerline
	Δ	curve delta
	Ø	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

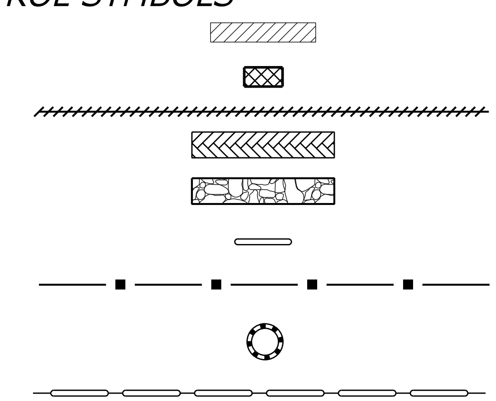
DRAINAGE SYMBOLS

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)



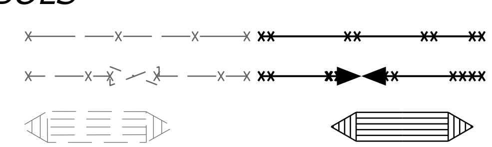
EROSION & SEDIMENT CONTROL SYMBOLS

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)



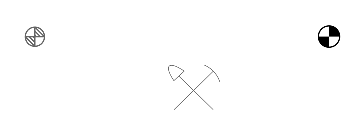
FENCE & CATTLEGUARD SYMBOLS

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



GEOLOGIC SYMBOLS

Boring Location (Existing, Proposed)
Material Source



INDEX TO SHEETS

James Mills

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

U.S. CUSTOMARY

CONVENTIONAL PLAN SYMBOLS AND ABBREVIATIONS

Sheet 1 of 2

STATE	PROJECT	SHEET NUMBER
CA	FTBL DUMONT DUNES (1)	A3

LANDSCAPING & VEGETATION SYMBOLS

- Tree
- Treeline

MAPPING SYMBOLS

- Building (Existing, Proposed)
- Coordinate Grid Tick
- North Arrow — N
- Railroad
  - Single Track
  - Double Track
- Spot Elevation — X 999.9
- Trail
- Survey Control Point

RIGHT-OF-WAY SYMBOLS

- Boundaries
  - National
  - State
  - County
  - City
  - Township or Range Line
  - Section
  - ¼ Section
  - 1/16 Section
  - Bureau of Indian Affairs
  - Bureau of Land Management
  - National Forest
  - National Park — NP
  - National Wildlife Refuge — NWR
- Easements
  - Permanent (Existing) — P/E
  - Permanent (Proposed) — P/E
  - Temporary (Proposed) — TCE
- Monument (As described)
- Parcel Number — 400
- Property Line — P/L
- Right-of-Way Line (Existing) — r/w
- Right-of-Way Line (Proposed) — R/W
- Section Corner (Found, Projected) — 36 31 / 1 6
- ¼ Section Corner (Found, Projected) — 15 / 22
- 1/16 Section Corner (Found) — 1/16

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) — IRR
  - Surface (Existing, Proposed) — IRR
- Support Pole (Existing, Proposed)
- Support Pole Anchor (Existing, Proposed)
- Street Light (Existing, Proposed)
- Telephone Booth (Existing, Proposed) — TB
- Telephone Pedestal (Existing, Proposed) — TP
- Underground Utility (Existing, Proposed)
  - CATV — TV
  - Fiber Optic — FO
  - Gas — G
  - Oil — O
  - Power — P
  - Sanitary Sewer — SS
  - Telephone — T
  - Water — W
- Overhead Utility Line (Existing, Proposed)
  - CATV — TV
  - Fiber Optic — FO
  - Power — P
  - Telephone — T

PROJECT SPECIFIC SYMBOLS

- FIO — For Information Only
- LWC — Low Water Crossing
- Signs (Existing, Proposed)
- Signs (Proposed to replace existing)

REGISTERED PROFESSIONAL ENGINEER
JAMES MILLS
C 68832
CIVIL
STATE OF CALIFORNIA

James Mills

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

CONVENTIONAL PLAN SYMBOLS AND ABBREVIATIONS

Sheet 2 of 2

Project : Dumont Dunes

Review FP-14, Section 152.05

Date Of Field Work : 10/2020
Date Of Final Adjustment : 11/5/2020

Project Units : US Survey Foot
Datum: US State Plane NAD83
Zone: California Zone 5 (0405)
Geoid: 18B
OPUS Epoch Date : 2010
Vertical Datum : NAVD88

Gpk File Dated :
Gpk File Name : Alignment :

POINT NUMBER	STATE PLANE COORDINATES			GEO COORDINATES			MAPPING ANGLE	COMBINED FACTOR	STATION	OFFSET	DESCRIPTION
	NORTH	EAST	ELEVATION	LATITUDE	LONGITUDE	ELLIPSOID HEIGHT					
3001	2442659.56	7065705.84	486.90	N35°41'33.29633"	W116°18'09.58388"	387.71	0°58'03.0"	1.00003851	101+20.58	-92.2	2.5" ALUMINUM CAP SET ATOP 4' NUMBER 5 REBAR. "FEDERAL HIGHWAY ADMINISTRATION LAKEWOOD, CO CFLHD"
3002	2444127.48	7080831.06	628.74	N35°41'45.24693"	W116°15'05.94932"	529.78	0°59'47.7"	1.00003267	262+99.41	98.5	2.5" ALUMINUM CAP SET ATOP 4' NUMBER 5 REBAR. "FEDERAL HIGHWAY ADMINISTRATION LAKEWOOD, CO CFLHD"
3003	2443640.40	7081472.05	643.06	N35°41'40.32066"	W116°14'58.28280"	544.10	0°59'52.1"	1.00003159	270+86.64	21.3	2.5" ALUMINUM CAP SET ATOP 4' NUMBER 5 REBAR. "FEDERAL HIGHWAY ADMINISTRATION LAKEWOOD, CO CFLHD"
3004	2445222.64	7080149.29	653.97	N35°41'56.19259"	W116°15'13.98245"	555.04	0°59'43.1"	1.00003234	248+47.12	-82.2	2.5" ALUMINUM CAP SET ATOP 4' NUMBER 5 REBAR. "FEDERAL HIGHWAY ADMINISTRATION LAKEWOOD, CO CFLHD"
AMARGOSA	2444787.81	7065250.36	536.56	N35°41'54.41565"	W116°18'14.66932"	437.44	0°58'00.1"	1.00003782	100+65.47	-2268.0	NGS BRASS DISK SET IN CONCRETE COLLAR "AMARGOSA 1952"
JRH 13	2444749.87	7065256.15	535.97	N35°41'54.03960"	W116°18'14.60696"	436.84	0°58'00.1"	1.00003782	100+64.16	-2229.6	NGS BRASS DISK SET IN CONCRETE COLLAR "U.S. GEOLOGICAL SURVEY, BENCH MARK, JRH13, 1947

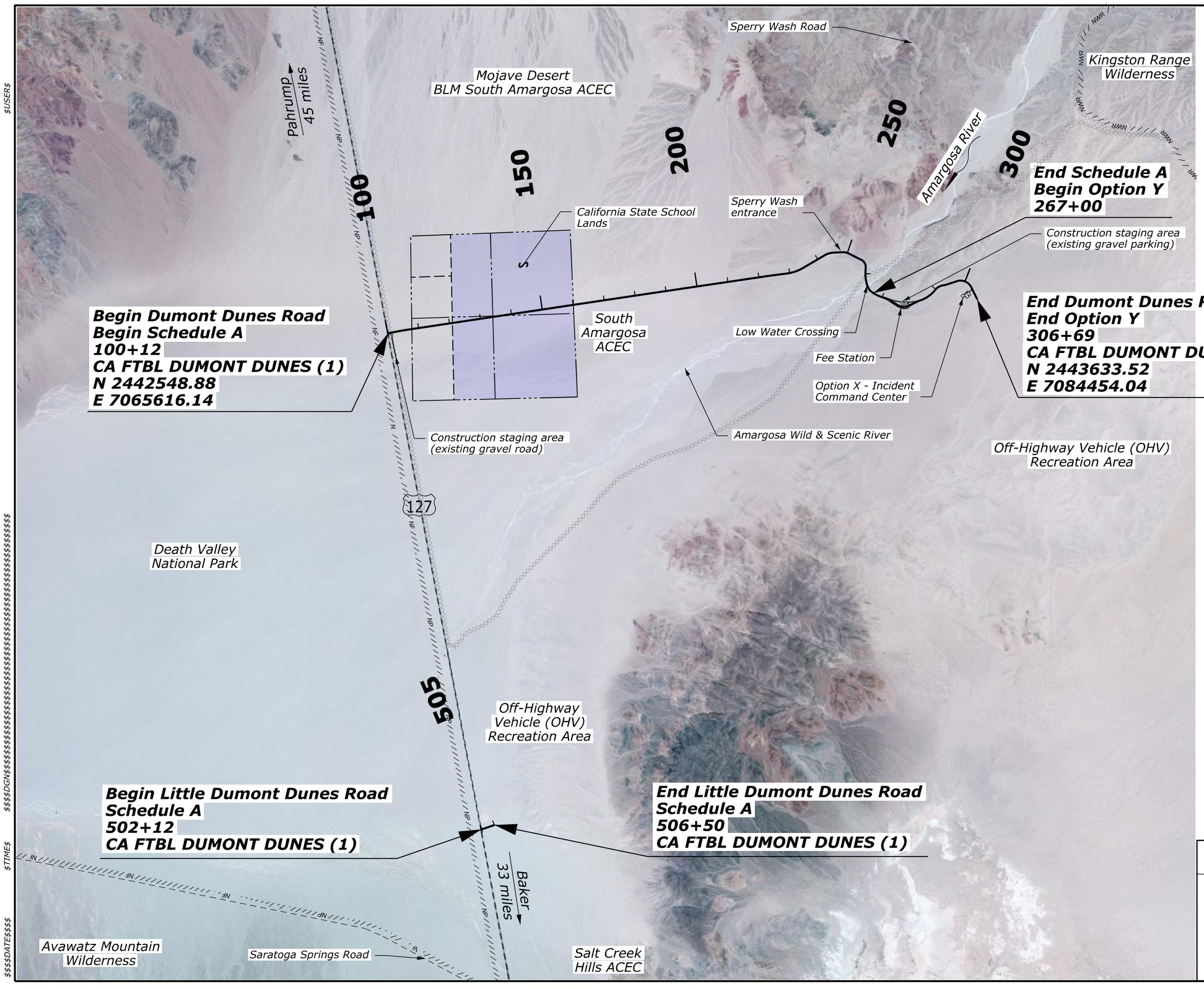
PROJECT AVERAGES = 1.00003513

LICENSED LAND SURVEYOR
AARON D. WILLIS
8881
STATE OF CALIFORNIA

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

SURVEY CONTROL

STATE	PROJECT	SHEET NUMBER
CA	FTBL DUMONT DUNES (1)	A5



N

0 3000' 6000'
Scale in Feet

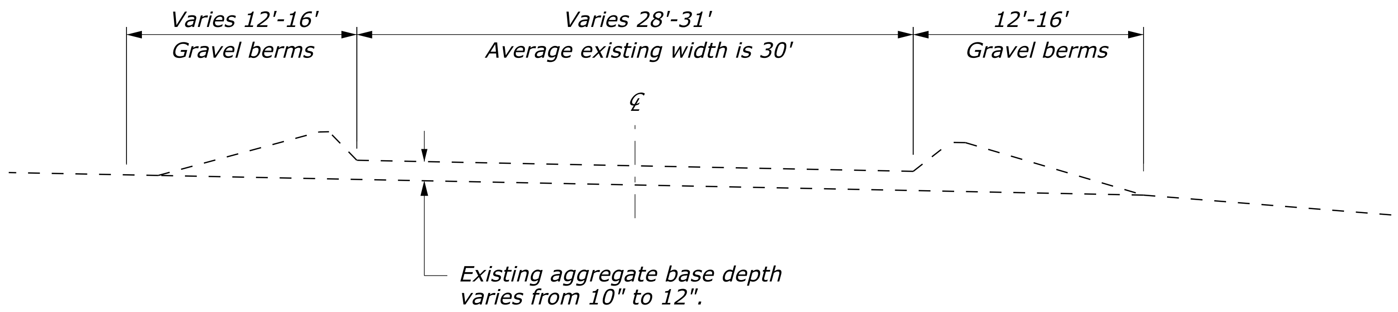
C 68832
James Mills

Digitally signed by James Mills
DN: CN=James Mills,
dnQualifier=A01410D00000179E72B1FE500001FB8,
O=Colorado, C=US
Date: 2021.09.20 17:51:46-06'00'

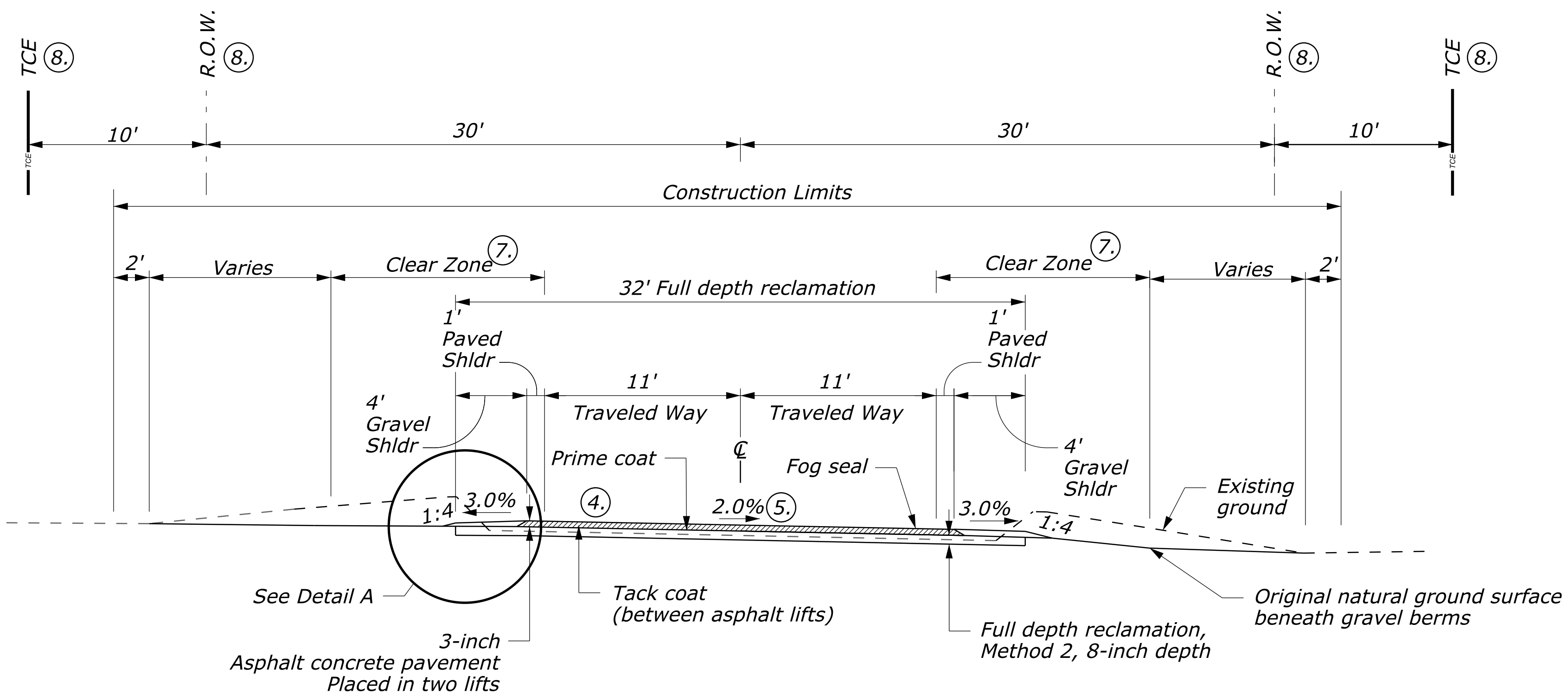
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
OFFICE OF FEDERAL LANDS HIGHWAY

SITE MAP

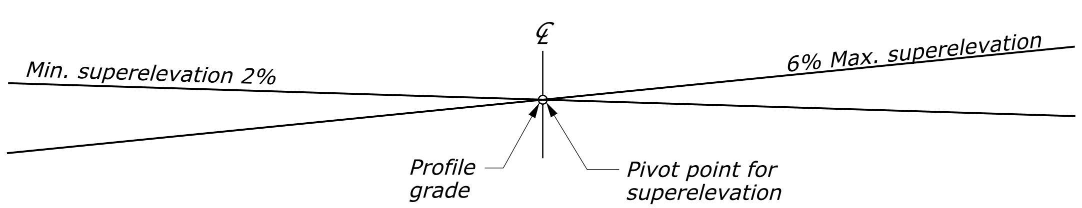
STATE	PROJECT	SHEET NUMBER
CA	FTBL DUMONT DUNES (1)	A6



DUMONT DUNES ROAD EXISTING TYPICAL SECTION 100+12 to 267+00



DUMONT DUNES ROAD FULL DEPTH RECLAMATION AND OVERLAY SCHEDULE A 100+70 to 262+75 265+07 to 267+00



METHOD OF SUPERELEVATION ON CURVES

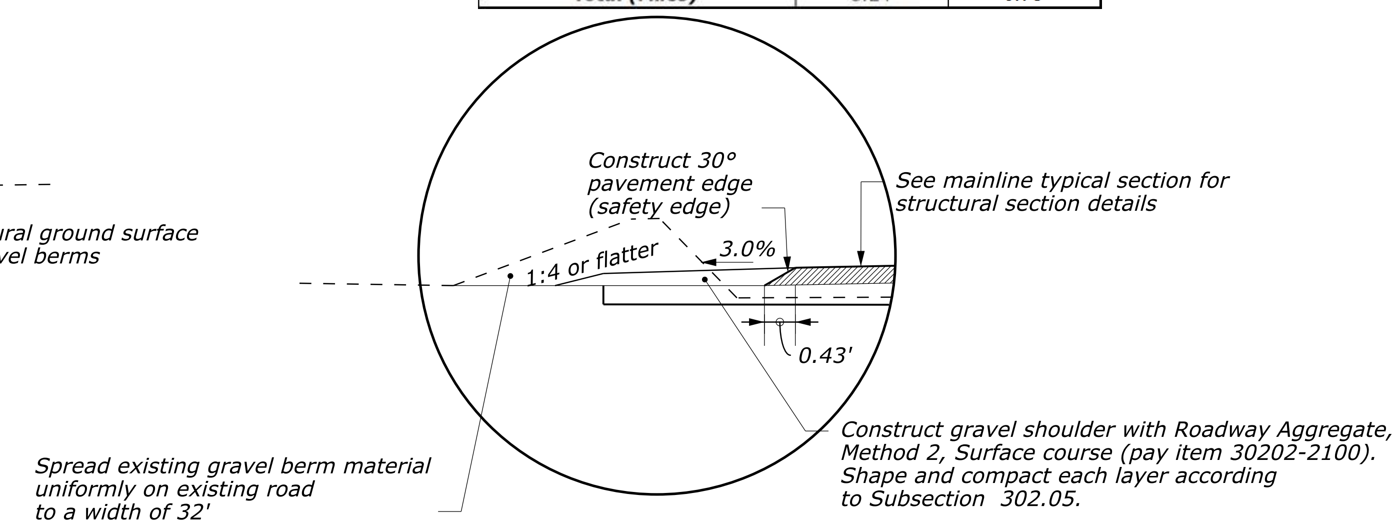
See plans for locations of curves and superelevations

NOTE:

1. Dimensions shown are approximate and may be varied by the CO.
2. Before performing full depth reclamation, remove existing gravel berms down to the original natural terrain surface, and spread existing gravel uniformly on existing roadway to a width of 32'.
3. Perform full depth reclamation on all layers of existing asphalt, gravel berm material and base to a depth of 2 inches minimum below the existing road surface across a width of 32'. Blend, shape and compact the reclaimed material in accordance with Section 304 and as directed by the CO.
4. Place asphalt concrete pavement in two lifts. Apply tack coat to the first lift prior to placing the second lift.
5. Slope pavement one direction (no crown sections).
6. See sheets T1 and T2 for low water crossing plan and profile\typical section\details.
7. Provide 12' clear zone from 100+12 to 225+00 and 10' clear zone from 225+00 to 306+69 at 1V:4H or flatter.
8. ROW and TCE limits are between 120+93 and 160+08
9. See sheet D2 for Typical section and Minor Road Access detail between 100+12 and 100+70

LENGTH OF PROJECT

Station to Station	Roadway Schedule A (Feet)	Roadway Option Y (Feet)
Dumont Dunes Road		
100+12 to 267+00	16,688	
267+00 to 306+69		3,969
Little Dumont Dunes Road		
502+12 to 506+50	438	
Total (Feet)	17,126	3,969
Total (Miles)	3.24	0.75



DETAIL A

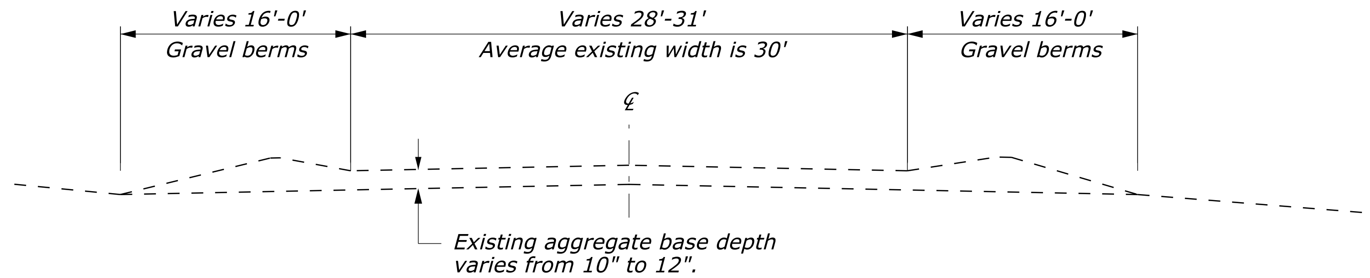
NO SCALE

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

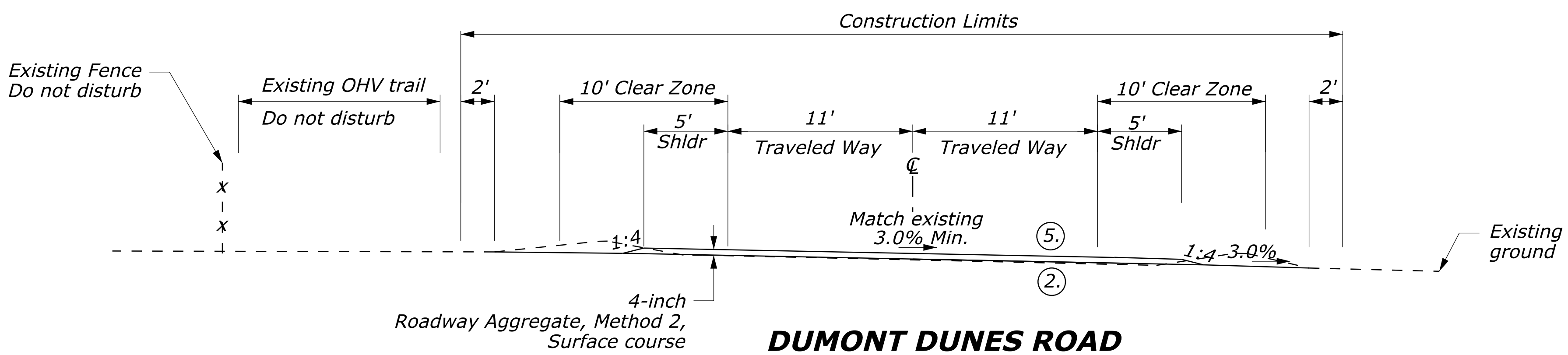
TYPICAL SECTIONS

Sheet 1 of 2

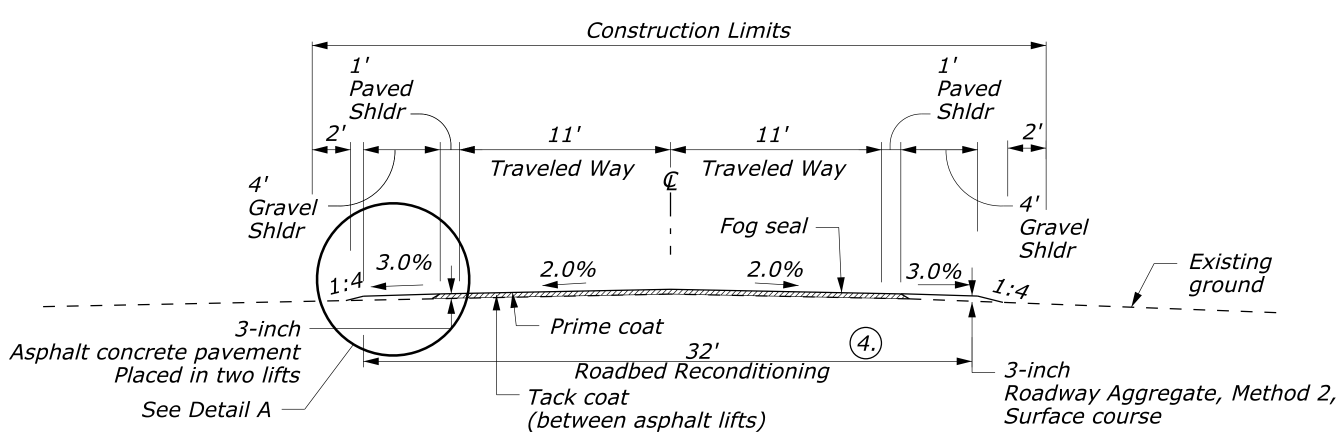
STATE	PROJECT	SHEET NUMBER
CA	FTBL DUMONT DUNES (1)	A7



DUMONT DUNES ROAD
EXISTING TYPICAL SECTION
267+00 to 306+69



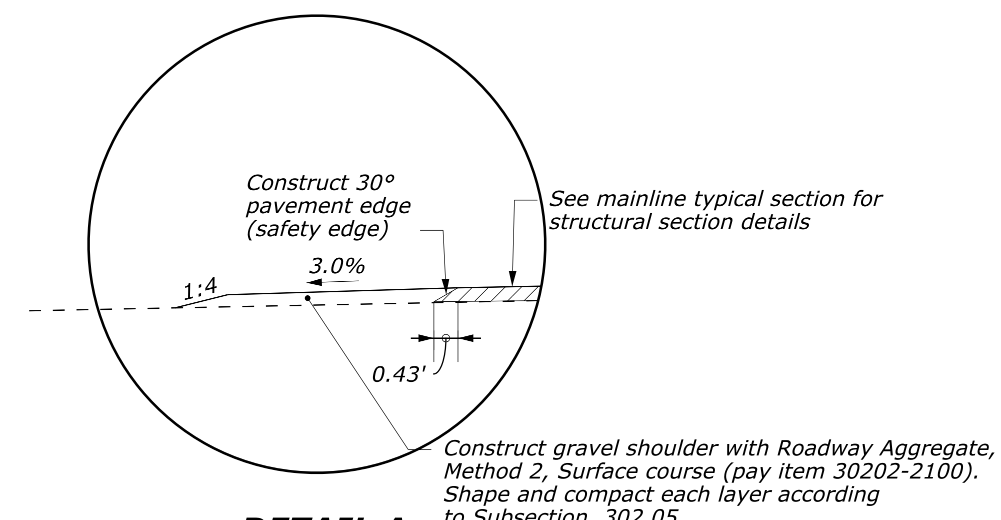
DUMONT DUNES ROAD
OPTION Y
267+00 to 269+55
283+24 to 306+69
ICC ACCESS ROAD



LITTLE DUMONT DUNES ROAD
SCHEDULE A
502+78 to 506+50

NOTE:

1. Dimensions shown are approximate and may be varied by the CO.
2. Before placing Roadway Aggregate, Method 2, Surface course, spread existing gravel berms on existing roadway.
3. Shape and compact the Roadway Aggregate, Method 2, Surface course material in accordance with the Typical Sections, Section 302, and as directed by the CO.
4. Scarify, moisture condition and compact in place to a depth of 6-inch.
5. Total gravel width for ICC Access Road is 24 feet. See sheet C4.
6. See sheet D1 for Fee station area (269+55 to 283+24) typical sections and layout.
7. See sheet D2 for Typical section and Minor Road Access detail between 502+12 and 502+78



DETAIL A

REGISTERED PROFESSIONAL ENGINEER
JAMES MILLS
C 68832
CIVIL
STATE OF CALIFORNIA
James Mills

NO SCALE

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

TYPICAL SECTIONS
Sheet 2 of 2

SUMMARY OF QUANTITIES - Schedule A

STATE	PROJECT	SHEET NUMBER
CA	FTBL DUMONT DUNES (1)	B1

AMEND	Line Item No.	Pay Item Number	Pay Item Description	Unit	Sheet and Description					Estimated Quantities	Remarks and/or Determination of Estimated Quantity
					B5	B6-B7	B8	B9	0		
					Surfacing Summary	Permanent Traffic Control Summaries	TTC Summaries	Miscellaneous Summaries	Allowance	Bid Schedule	
	A2000	15101-0000	MOBILIZATION	LPSM						ALL	
	A2020	15215-3000	SURVEY AND STAKING, DRAINAGE STRUCTURE	EACH				1		1	
	A2040	15216-3000	SURVEY AND STAKING, TEMPLATE CONTROL	MILE				3.244		3.244	Paved section and Low water crossing section
	A2060	15301-0000	CONTRACTOR QUALITY CONTROL	LPSM						ALL	
	A2080	15401-0000	CONTRACTOR TESTING	LPSM						ALL	
	A2100	15501-0000	CONSTRUCTION SCHEDULE	LPSM						ALL	
	A2120	15701-0000	SOIL EROSION CONTROL	LPSM						ALL	
	A2140	15720-0000	STORM WATER POLLUTION PREVENTION PLAN	LPSM						ALL	
	A2160	15802-0000	WATERING FOR DUST CONTROL	LPSM						ALL	
	A2180	20301-2400	REMOVAL OF SIGN	EACH		8			1	9	
	A2200	20303-2300	REMOVAL OF PAVEMENT, CONCRETE	SQYD						575	
	A2220	25101-2300	PLACED RIPRAP, METHOD B, CLASS 3	CUYD				400	20	420	
	A2240	30202-2100	ROADWAY AGGREGATE, METHOD 2, SURFACE COURSE	TON	3,126				154	3,280	
	A2260	30302-4000	ROADBED RECONDITIONING	LNFT	372				13	385	
	A2280	30401-5500	FULL DEPTH RECLAMATION, METHOD 2, 8-INCH DEPTH	MILE	3.106					3.106	
	A2300	40301-0100	ASPHALT CONCRETE PAVEMENT, TYPE 1	TON	7,824				276	8,100	
	A2320	40601-0000	FOG SEAL	TON	19				1	20	
	A2340	41102-1000	PRIME COAT, METHOD 1	SQYD	45,707				2,243	47,950	
	A2360	41105-0000	BLOTTER	TON	337				13	350	
	A2380	41201-0000	TACK COAT	TON	19				1	20	
	A2400	55201-0200	STRUCTURAL CONCRETE, CLASS A (AE)	CUYD				257	8	265	
	A2420	55401-2000	REINFORCING STEEL, EPOXY COATED	LB				15,562	438	16,000	
	A2440	62201-0200	DUMP TRUCK, 8 CUBIC YARD MINIMUM CAPACITY	HOUR						40	
	A2460	62201-0850	WHEEL LOADER, 1 CUBIC YARD MINIMUM RATED CAPACITY	HOUR						40	
	A2480	62201-2050	ROLLER	HOUR						40	
	A2500	62201-2750	MOTOR GRADER	HOUR						40	
	A2520	62301-0000	GENERAL LABOR	HOUR						40	
	A2540	62302-1000	SPECIAL LABOR, HIRED TECHNICAL SERVICES	HOUR						40	

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Date Completed: 08/17/21
Report Date: 08/17/21

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JAMES MILLS
C 68832
CIVIL
STATE OF CALIFORNIA

James Mills

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STATE	PROJECT	SHEET NUMBER
CA	FTBL DUMONT DUNES (1)	B2

SUMMARY OF QUANTITIES - Schedule A

AMEND	Line Item No.	Pay Item Number	Pay Item Description	Unit	Sheet and Description: B5 Surfacing Summary	B6-B7 Permanent Traffic Control Summaries	B8 TTC Summaries	B9 Miscellaneous Summaries	0 Allowance	Estimated Quantities: Bid Schedule	Remarks and/or Determination of Estimated Quantity
	A2560	62302-1100	SPECIAL LABOR, HIRED SURVEY SERVICES	HOUR				8		8	
	A2580	62303-1000	SPECIAL LABOR, HIRED TECHNICAL SERVICES (Biologist)	LPSM						ALL	Authorized tortoise biologist
	A2600	63301-0000	SIGN SYSTEM	EACH		12			1	13	
	A2620	63309-0000	DELINEATOR	EACH				21		21	
	A2640	63401-1500	PAVEMENT MARKINGS, TYPE H, SOLID (White)	LNFT		34,420			80	34,500	
	A2660	63401-1500	PAVEMENT MARKINGS, TYPE H, SOLID (Yellow)	LNFT		8,600			150	8,750	
	A2680	63401-1600	PAVEMENT MARKINGS, TYPE H, BROKEN (Yellow)	LNFT		12,786			384	13,170	
	A2700	63406-0000	RAISED PAVEMENT MARKER	EACH		1,880			120	2,000	Centerline and speed strip clusters
	A2720	63501-0000	TEMPORARY TRAFFIC CONTROL	LPSM			All			ALL	

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SUMMARY OF QUANTITIES - Option X

STATE	PROJECT	SHEET NUMBER
CA	FTBL DUMONT DUNES (1)	B3

AMEND	Line Item No.	Pay Item Number	Pay Item Description	Unit	Sheet and Description					Estimated Quantities	Remarks and/or Determination of Estimated Quantity
					B5	B6-B7	B8	B9	0		
					Surfacing Summary	Permanent Traffic Control Summaries	TTC Summaries	Miscellaneous Summaries	Allowance	Bid Schedule	
	X2000	15101-0000	MOBILIZATION	LPSM						ALL	
	X2020	15301-0000	CONTRACTOR QUALITY CONTROL	LPSM						ALL	
	X2040	15401-0000	CONTRACTOR TESTING	LPSM						ALL	
	X2060	15802-0000	WATERING FOR DUST CONTROL	LPSM						ALL	
	X2080	30202-2100	ROADWAY AGGREGATE, METHOD 2, SURFACE COURSE	TON	421				19	440	
	X2100	62201-0200	DUMP TRUCK, 8 CUBIC YARD MINIMUM CAPACITY	HOUR						4	
	X2120	62201-0850	WHEEL LOADER, 1 CUBIC YARD MINIMUM RATED CAPACITY	HOUR						4	
	X2140	62201-2050	ROLLER	HOUR						4	
	X2160	62201-2750	MOTOR GRADER	HOUR						4	
	X2180	62301-0000	GENERAL LABOR	HOUR						4	

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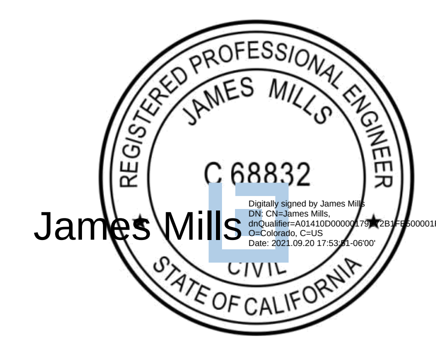

SUMMARY OF QUANTITIES - Option Y

STATE	PROJECT	SHEET NUMBER
CA	FTBL DUMONT DUNES (1)	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
					B5	B6-B7	B8	B9	0		
					Surfacing Summary	Permanent Traffic Control Summaries	TTC Summaries	Miscellaneous Summaries	Allowance	Bid Schedule	
	Y2000	15101-0000	MOBILIZATION	LPSM						ALL	
	Y2020	15210-3000	CENTERLINE, VERIFICATION AND STAKING	MILE				0.752		0.752	
	Y2040	15301-0000	CONTRACTOR QUALITY CONTROL	LPSM						ALL	
	Y2060	15401-0000	CONTRACTOR TESTING	LPSM						ALL	
	Y2080	15501-0000	CONSTRUCTION SCHEDULE	LPSM						ALL	
	Y2100	15701-0000	SOIL EROSION CONTROL	LPSM						ALL	
	Y2120	15802-0000	WATERING FOR DUST CONTROL	LPSM						ALL	
	Y2140	20301-2400	REMOVAL OF SIGN	EACH		11			1	12	
	Y2160	30202-2100	ROADWAY AGGREGATE, METHOD 2, SURFACE COURSE	TON	4,598				202	4,800	
	Y2180	62201-0200	DUMP TRUCK, 8 CUBIC YARD MINIMUM CAPACITY	HOUR						10	
	Y2200	62201-0850	WHEEL LOADER, 1 CUBIC YARD MINIMUM RATED CAPACITY	HOUR						10	
	Y2220	62201-2050	ROLLER	HOUR						10	
	Y2240	62201-2750	MOTOR GRADER	HOUR						10	
	Y2260	62301-0000	GENERAL LABOR	HOUR						10	
	Y2280	62302-1100	SPECIAL LABOR, HIRED SURVEY SERVICES	HOUR				8		8	
	Y2300	63301-0000	SIGN SYSTEM	EACH		10			1	11	
	Y2320	63309-0000	DELINEATOR	EACH				27		27	
	Y2340	63316-1000	REMOVE AND RESET SIGN	EACH		2				2	
	Y2360	63501-0000	TEMPORARY TRAFFIC CONTROL	LPSM			All			ALL	

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Date Completed: 08/17/21
Report Date: 08/17/21

SURFACING SUMMARY

Location			Item Number	30202-2100	30302-4000	30401-5500	40301-0100	40601-0000	41105-0000	41102-1000	41201-0000	Remarks
				ROADWAY AGGREGATE, METHOD 2, SURFACE COURSE	ROADBED RECONDITIONING	FULL DEPTH RECLAMATION, METHOD 2, 8-INCH DEPTH	ASPHALT CONCRETE PAVEMENT, TYPE 1	FOG SEAL	BLOTTER	PRIME COAT, METHOD 1	TACK COAT	
Station	to	Station		TON	LNFT	MILE	TON	TON	TON	SQYD	TON	
Schedule A												
Dumont Dunes Road												
100+12	-	100+70		223			112	0.2	3	441	0.2	
100+70	-	158+00		852		1.085	2,590	6.4	113	15,280	6.4	
158+00	-	216+00		863		1.098	2,622	6.4	114	15,467	6.4	
216+00	-	262+75		695		0.885	2,113	5.2	92	12,467	5.2	
262+75	-	265+07		172								Low water crossing
265+07	-	267+00		29		0.036	87	0.2	4	514	0.2	
Little Dumont Dunes Road												
502+12	-	502+78		236			119	0.2	3	467	0.2	
502+78	-	506+50		55	372		181	0.4	8	1,071	0.4	Includes pullout at kiosk
Schedule A **TOTALS**				**3,126**	**372**	**3.106**	**7,824**	**19.0**	**337**	**45,707**	**19.0**	
Option Y												
Dumont Dunes Road												
267+00	-	306+69		4,190								Fee station area
Parking at Fee station				305								
ICC Access				103								As needed to provide a uniform level surface and match finish grade at existing concrete pads
Option Y **TOTALS**				**4,598**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	
Option X												
Incident Command Center (ICC)				421								
Option X **TOTALS**				**421**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	

SURFACING APPLICATIONS RATES AND WEIGHTS

Aggregate Base =	139 lb/ft3	2000 lb/ton
Asphalt Concrete Pavement =	145.2 lb/ft3	2000 lb/ton
Fog seal =	0.10 gal/yd2	240 gal/ton
Blotter =	14.75 lb/yd2	2000 lb/ton
Prime Coat =	0.27 gal/yd2	240 gal/ton
Tack Coat =	0.10 gal/yd2	240 gal/ton

REGISTERED PROFESSIONAL ENGINEER
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FHWA, OFFICE OF FEDERAL LANDS HIGHWAY

SURFACING SUMMARY

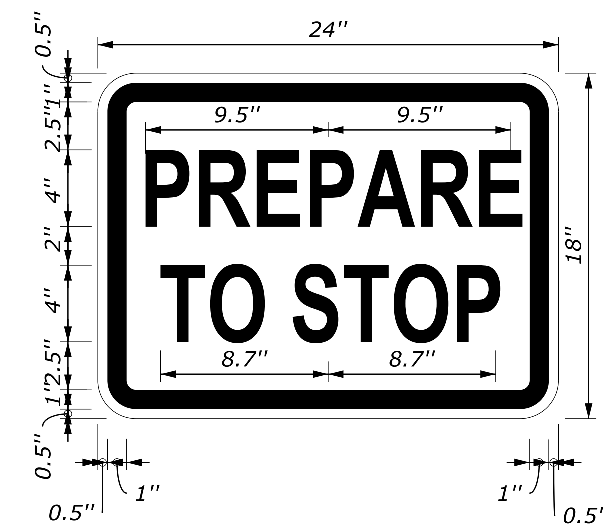
STATE	PROJECT	SHEET NUMBER
CA	FTBL DUMONT DUNES (1)	B6

PERMANENT SIGN SUMMARY

SIGN Number	MUTCD Number	Description	Panel size	Background Color	20301-2400 REMOVAL OF SIGN EACH	63301-0000 SIGN SYSTEM EACH	63316-1000 REMOVE AND RESET SIGN EACH	Remarks
Schedule A								
Dumont Dunes Road								
1	R1-1	STOP	30"x30"	Red	1	1		
2	R2-1	SPEED LIMIT	24"x30"	White	1	1		25 mph
3	R7-1	NO PARKING ANY TIME	12"x18"	White	1	1		Bi-directional
4	R2-1	SPEED LIMIT	24"x30"	White	1	1		25 mph
5	R2-1	SPEED LIMIT	24"x30"	White	1	1		25 mph
6	R2-1	SPEED LIMIT	24"x30"	White	1	1		25 mph
7	R2-1	SPEED LIMIT	24"x30"	White	1			25 mph
7a	R2-1	SPEED LIMIT	24"x30"	White		1		25 mph
8	R2-1	SPEED LIMIT	24"x30"	White	1	1		25 mph
9	R2-1	SPEED LIMIT	24"x30"	White		1		15 mph
10	W8-18	ROAD MAY FLOOD	36"x36"	Yellow		1		
10a	W8-18	ROAD MAY FLOOD	36"x36"	Yellow		1		
Little Dumont Dunes Road								
23	R1-1	STOP	30"x30"	Red		1		
				Schedule A **TOTALS**	8	12		
Option Y								
Dumont Dunes Road								
11	W11-2	PEDESTRIAN	24"x24"	Yellow	1	1		
11a	W16-9P	AHEAD	18"x12"	Yellow				Mounted on the same post as W11-2
12		5 MPH/PREPARE TO STOP		White	1			
12a	R2-1	SPEED LIMIT	24"x30"	White			1	5 mph
12b	SPECIAL	PREPARE TO STOP	24"x18"	White				Mounted on the same post as R2-1
12c	EXISTING	PURCHASE PASS LANES		Brown				Mounted on the same post as R2-1
13	R5-1	DO NOT ENTER	30"x30"	Red	1	1		
13a		PARK TO BUY PASS		Brown			1	
13b		PAY HERE		Brown				Mounted on the same post as PARK TO BUY PASS
14	W11-2	PEDESTRIAN	24"x24"	Yellow	1	1		
14a	W16-9P	AHEAD	18"x12"	Yellow				Mounted on the same post as W11-2
15	R2-1	SPEED LIMIT	24"x30"	White	1	1		15 mph
16		CAUTION/ SPEED BUMPS AHEAD		Yellow	1			
17	W8-1	BUMP	30"x30"	Yellow		1		
17a	W16-9P	AHEAD	18"x12"					Mounted on the same post as W11-2
18	W11-2	PEDESTRIAN	30"x30"	Yellow	1	1		
19	W11-2	PEDESTRIAN	30"x30"	Yellow	1	1		
20	W11-2	PEDESTRIAN	30"x30"	Yellow	1	1		
21	W11-2	PEDESTRIAN	30"x30"	Yellow	1	1		
22	R5-1	DO NOT ENTER	30"x30"	Red	1	1		
				Option Y **TOTALS**	11	10	2	

NOTE:

1. Use U-channel posts.



SPECIAL SIGN DETAIL

REGISTERED PROFESSIONAL ENGINEER
JAMES MILLS
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CIVIL
STATE OF CALIFORNIA

James Mills

FHWA, OFFICE OF FEDERAL LANDS HIGHWAY

PERMANENT TRAFFIC CONTROL SUMMARIES

Sheet 1 of 2

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STATE	PROJECT	SHEET NUMBER
CA	FTBL DUMONT DUNES (1)	B7

PAVEMENT MARKINGS SUMMARY

Item Numbers			63401-1500	FIO(1)		63401-1500	FIO(1)	63401-1600		63406-0000	Remarks
Station to Station			PAVEMENT MARKINGS, TYPE H, SOLID (White)	Stop Bar Striping White	White lines White	PAVEMENT MARKINGS, TYPE H, SOLID (Yellow)	Double Center Line Yellow	PAVEMENT MARKINGS, TYPE H, BROKEN (Yellow)	Center Line Yellow	RAISED PAVEMENT MARKER	
			LNFT	LNFT	LNFT	LNFT	LNFT	LNFT	LNFT	EACH	
Schedule A											
Dumont Dunes Road											
100+12	to	267+00	33376		33376						
100+32			77	77							Stop Bar 12" wide
100+32	to	100+82				100	100				
100+82	to	225+00						12,418	12,418	320	RPMs centerline
225+00	to	267+00				8,400	8,400			420	RPMs centerline
Little Dumont Dunes Road											
502+12	to	506+50	876		876						
502+32			92	92							Stop Bar 12" wide
502+32	to	502+82				100	100				
502+32	to	506+50						368	368		
Schedule A **TOTALS**			**34,420**			**8,600**		**12,786**		**740**	

NOTE:
(1) FIO = For information only
2. For line widths other than 4 inches, the measured length of line is adjusted in the ratio of the required width to 4 inches.
3. Use Raised Pavement Markers in center line. See Special 634-A for details.

REGISTERED PROFESSIONAL ENGINEER JAMES MILLS C 68832 CIVIL STATE OF CALIFORNIA

James Mills
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FHWA, OFFICE OF FEDERAL LANDS HIGHWAY

PERMANENT TRAFFIC CONTROL SUMMARIES
Sheet 2 of 2

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SURVEY AND STAKING SUMMARIES

Location			Item Number 15210-3000 CENTERLINE, VERIFICATION AND STAKING	15215-3000 SURVEY AND STAKING, DRAINAGE STRUCTURE	15216-3000 SURVEY AND STAKING, TEMPLATE CONTROL	62302-1100 SPECIAL LABOR, HIRED SURVEY SERVICES	Remarks
Station	to	Station	MILE	EACH	MILE	HOUR	
Schedule A							
Dumont Dunes Road							
100+12	-	267+00		1	3.161		
Little Dumont Dunes Road							
502+12	-	506+50			0.083		
As directed by CO						8	
Schedule A **TOTALS**				1	3.244	8	
Option Y							
Dumont Dunes Road							
267+00	-	306+69	0.752	-	-		
As directed by CO						8	
Option Y **TOTALS**			0.752	-	-	8	

LOW WATER CROSSING SUMMARY

Location			Item Number 25101-2300 PLACED RIPRAP, METHOD B, CLASS 3	55201-0200 STRUCTURAL CONCRETE, CLASS A (AE)	55401-2000 REINFORCING STEEL, EPOXY COATED	Remarks
Station	to	Station	CUYD	CUYD	LBS	
Schedule A						
Dumont Dunes Road						
262+75	-	265+07	400	257	15,562	Low water crossing
Schedule A **TOTALS**			400	257	15,562	

Note:
1. Use geotextile filter, class 2, Type C non-woven. See subsection 714.01 (a).

DELINEATORS SUMMARY

Location			Item Number 63309-0000 DELINEATOR	Remarks
Station	to	Station	EACH	
Schedule A				
Dumont Dunes Road				
221+50	-	242+50	13	
Little Dumont Dunes Road				
503+00	-	506+00	8	
Schedule A **TOTALS**			21	
Option Y				
Dumont Dunes Road				
273+00	-	278+00	27	
Option Y **TOTALS**			27	

NOTE:
1. Flexible delineator with Type 2 retroflective sheeting.

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STATE OF CALIFORNIA

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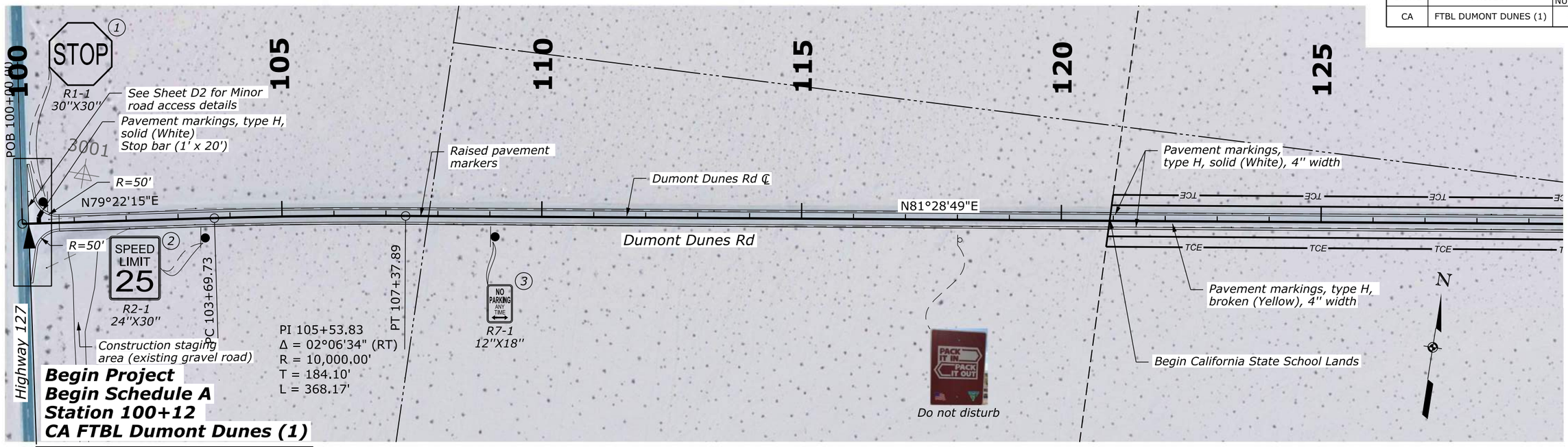
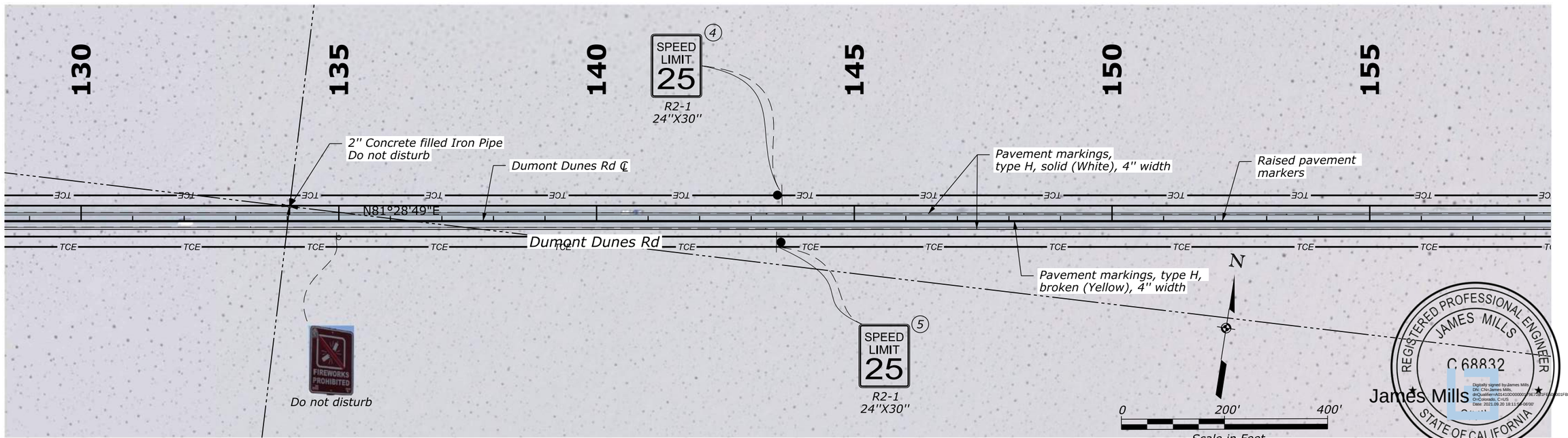
FHWA, OFFICE OF FEDERAL LANDS HIGHWAY

MISCELLANEOUS SUMMARIES

STATE	PROJECT	SHEET NUMBER
CA	FTBL DUMONT DUNES (1)	C1



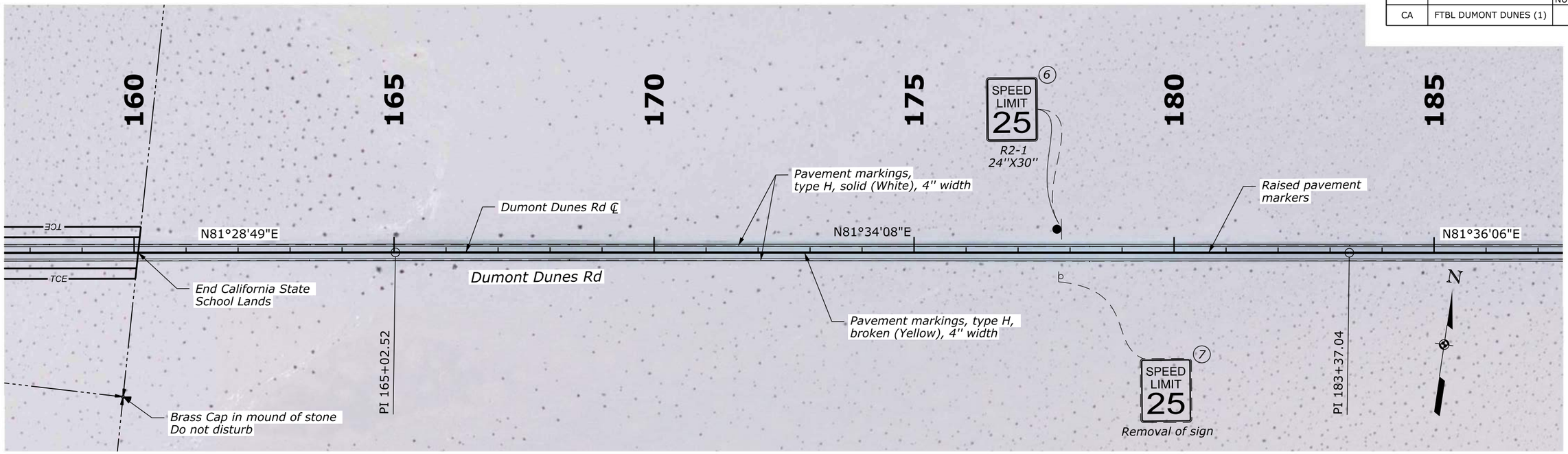


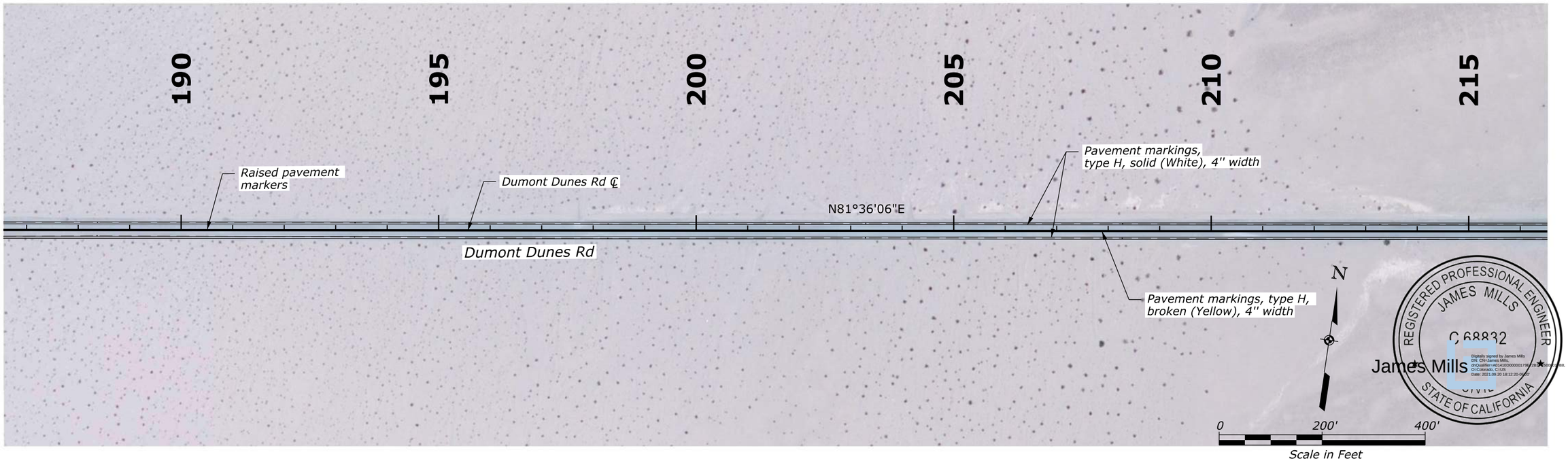
NOTE:

1. *See sheet B7 for pavement markings station limits.*

DUMONT DUNES ROAD
100+00 TO 158+00

STATE	PROJECT	SHEET NUMBER
CA	FTBL DUMONT DUNES (1)	C2





NOTE:

1. *See sheet B7 for pavement markings station limits.*

DUMONT DUNES ROAD
158+00 TO 216+00

STATE	PROJECT	SHEET NUMBER
CA	FTBL DUMONT DUNES (1)	C3

SUPERELEVATION TABULATION

Curve #	Station	e% value	LT/RT	Description
1	229+15.92	-2.00	RT	
	234+50.59	-2.00	RT	
2	242+39.16	-2.00	RT	
	242+86.64	-4.60	RT	Full superelevation
	245+14.77	-4.60	RT	Full superelevation
	245+62.25	-2.00	RT	

SUPERELEVATION TABULATION

Curve #	Station	e% value	LT/RT	Description
3	248+28.91	-2.00	RT	
	248+38.14	-2.60	RT	Full superelevation
	250+47.26	-2.60	RT	Full superelevation
	250+56.49	-2.00	RT	
4	254+97.32	-2.00	RT	
	255+21.76	-3.60	RT	Full superelevation
	257+74.08	-3.60	RT	Full superelevation
	257+98.52	-2.00	RT	
5	262+50.24	-2.00	RT	
	262+75.24	-1.00	RT	
6	265+07.31	-1.00	RT	
	265+57.31	-1.00	RT	
7	265+57.31	-1.00	RT	Transition
	267+00.00	2.00	LT	Superelevation

REGISTERED PROFESSIONAL ENGINEER
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NOTE:

1. See sheet B7 for pavement markings station limits.
2. ② Remove first fence post and reconnect cable to remaining fence post.

FHWA, OFFICE OF FEDERAL LANDS HIGHWAY

DUMONT DUNES ROAD
216+00 TO 268+00

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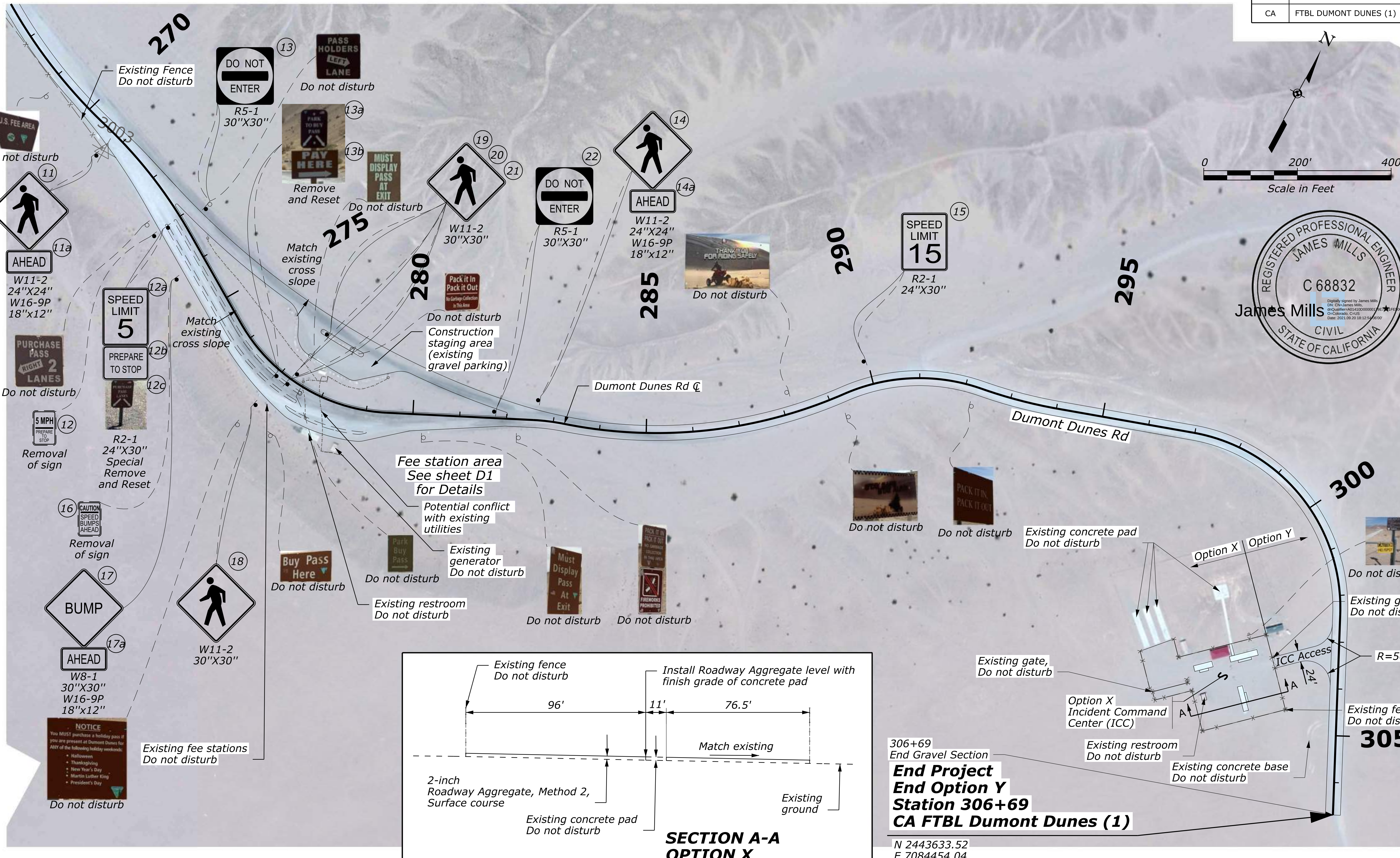
STATE	PROJECT	SHEET NUMBER
CA	FTBL DUMONT DUNES (1)	C4



N
0
200'
400'
Scale in Feet
REGISTERED PROFESSIONAL ENGINEER
JAMES MILLS
C 68832
James Mills
CIVIL
STATE OF CALIFORNIA
270
275
280
285
290
295
300
305
3003
Existing Fence
Do not disturb
U.S. FEE AREA
Do not disturb
11
11a
AHEAD
W11-2
24''X24''
W16-9P
18''x12''
DO NOT ENTER
13
R5-1
30''X30''
PASS HOLDERS LEFT LANE
Do not disturb
13a
PARK TO BUY PASS
PAY HERE
13b
Remove and Reset
MUST DISPLAY PASS AT EXIT
Do not disturb
19
20
21
W11-2
30''X30''
22
DO NOT ENTER
R5-1
30''X30''
14
14a
AHEAD
W11-2
24''X24''
W16-9P
18''x12''
Do not disturb
15
SPEED LIMIT 15
R2-1
24''X30''
Match existing cross slope
Match existing cross slope
SPEED LIMIT 5
12a
PREPARE TO STOP
12b
12c
PURCHASE PASS RIGHT 2 LANES
Do not disturb
5 MPH
12
Removal of sign
R2-1
24''X30''
Special
Remove and Reset
Pack it In Pack it Out
Do not disturb
Construction staging area (existing gravel parking)
Dumont Dunes Rd ℄
Dumont Dunes Rd
Fee station area
See sheet D1
for Details
Potential conflict with existing utilities
Existing generator
Do not disturb
Existing restroom
Do not disturb
16
CAUTION SPEED BUMPS AHEAD
Removal of sign
17
BUMP
17a
AHEAD
W8-1
30''X30''
W16-9P
18''x12''
NOTICE
Do not disturb
18
W11-2
30''X30''
Buy Pass Here
Do not disturb
Park Buy Pass
Do not disturb
Must Display Pass At Exit
Do not disturb
FIREWORKS PROHIBITED
Do not disturb
Existing fee stations
Do not disturb
Do not disturb
PACK IT IN, PACK IT OUT
Do not disturb
Existing concrete pad
Do not disturb
Option X
Option Y
Do not disturb
Existing gate,
Do not disturb
R=50'
ICC Access
24'
A
A
Existing gate,
Do not disturb
Option X
Incident Command
Center (ICC)
Existing fence,
Do not disturb
Existing restroom
Do not disturb
Existing concrete base
Do not disturb
306+69
End Gravel Section
End Project
End Option Y
Station 306+69
CA FTBL Dumont Dunes (1)
N 2443633.52
E 7084454.04
Existing fence
Do not disturb
Install Roadway Aggregate level with finish grade of concrete pad
96'
11'
76.5'
Match existing
2-inch
Roadway Aggregate, Method 2,
Surface course
Existing concrete pad
Do not disturb
Existing ground
SECTION A-A
OPTION X

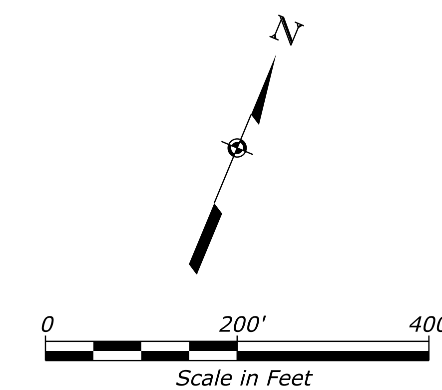
NOTE:

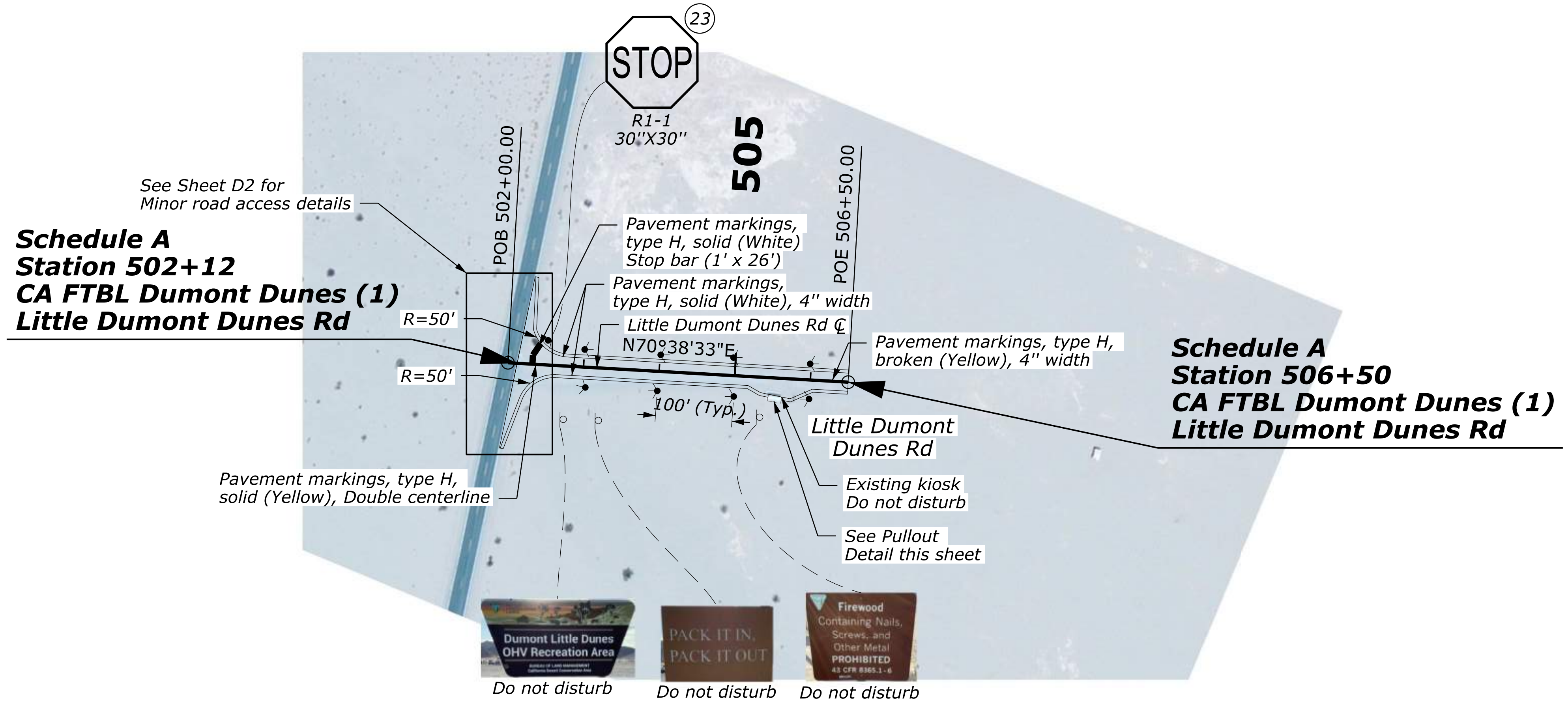
1. *Verify horizontal location and depth electrical lines to pads and light poles in Option X (ICC) location. Do not disturb.*
2. *See sheet D1 for delineator locations at fee station area.*

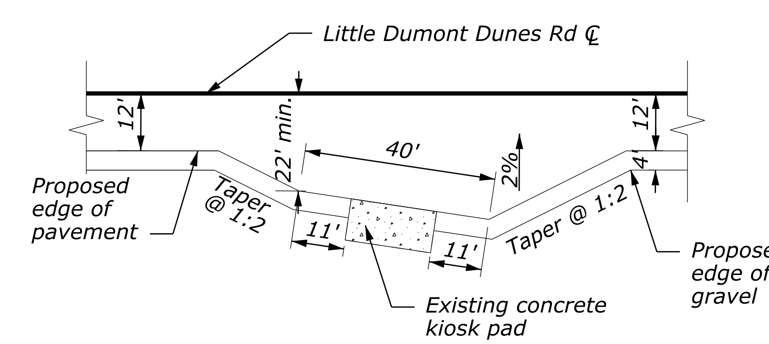
FHWA, OFFICE OF FEDERAL LANDS HIGHWAY

DUMONT DUNES ROAD
268+00 TO 306+69

STATE	PROJECT	SHEET NUMBER
CA	FTBL DUMONT DUNES (1)	C5







PULLOUT DETAIL

NO SCALE

REGISTERED PROFESSIONAL ENGINEER
JAMES MILLS
C 68832
CIVIL
STATE OF CALIFORNIA
James Mills

NOTE:

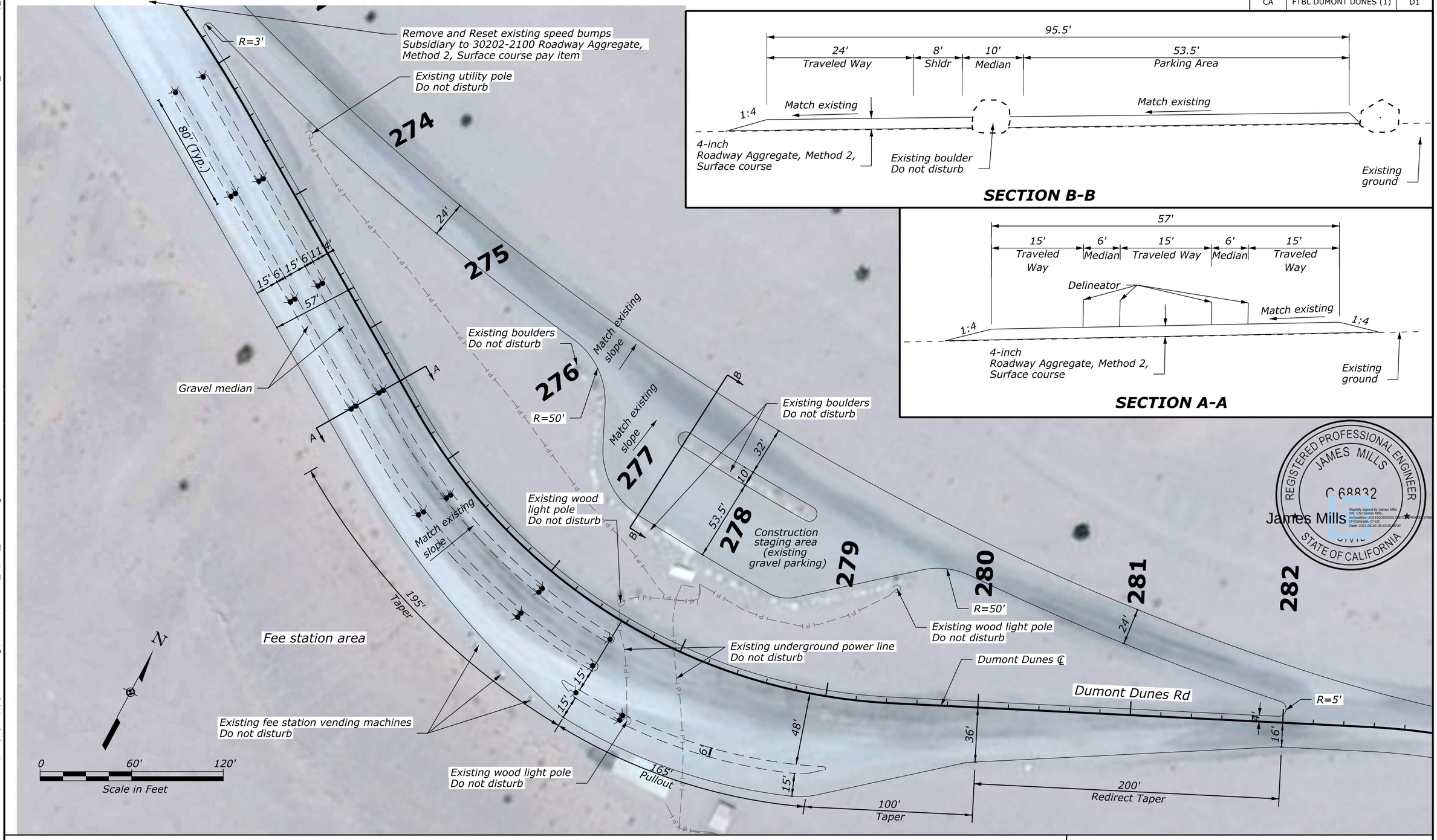
1. See sheet B7 for pavement markings station limits.

FHWA, OFFICE OF FEDERAL LANDS HIGHWAY

LITTLE DUMONT DUNES ROAD
502+12 TO 506+50

User: DENPWP03$
9:33:46 AM \\denpwp01\d$\pwicsworking\914302\1020267_11\C01_plnDD-05.dgn
8/17/2021

STATE	PROJECT	SHEET NUMBER
CA	FTBL DUMONT DUNES (1)	D1



SECTION B-B

SECTION A-A

NOTE:

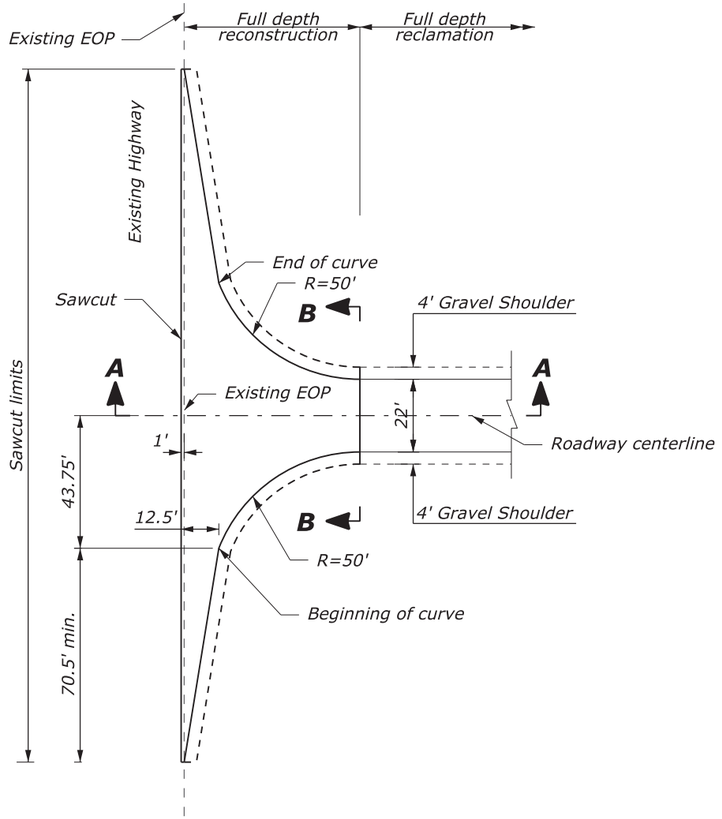
1. *Verify depth of power line before the construction begins.*

FEE STATION AREA DETAIL

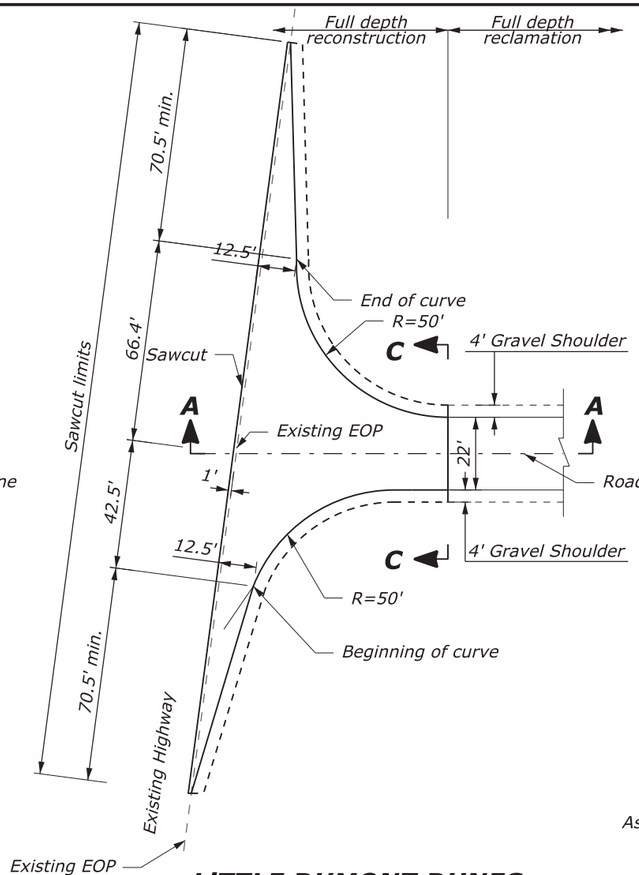
STATE	PROJECT	SHEET NUMBER
CA	FTBL DUMONT DUNES (1)	D2

NOTE:

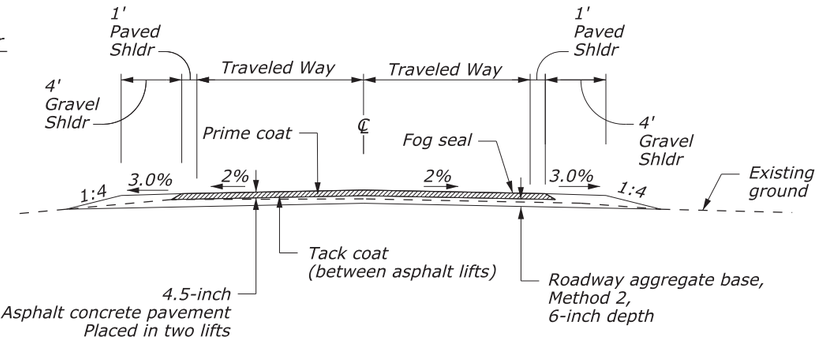
1. Prior to full depth reconstruction, excavate and remove excess material.



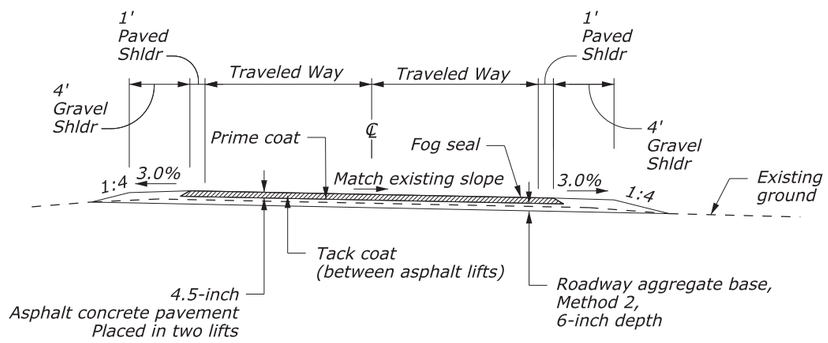
DUMONT DUNES
PLAN



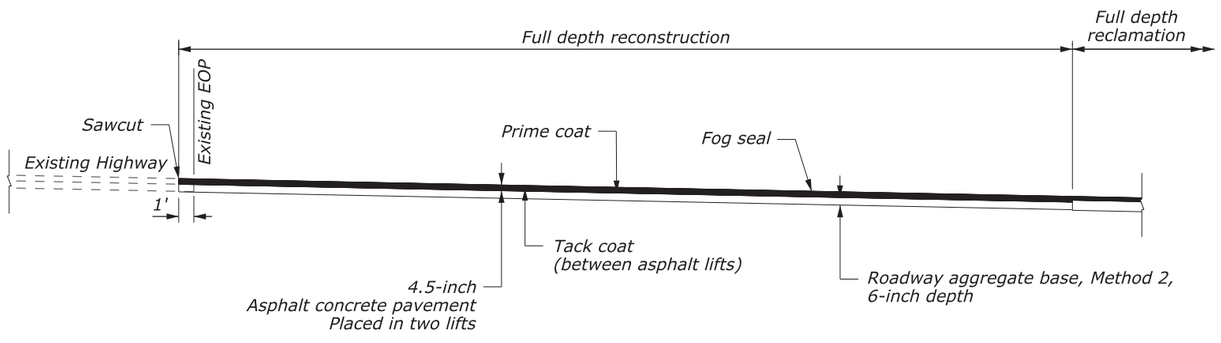
LiTTLE DUMONT DUNES
PLAN



SECTION C-C



SECTION B-B



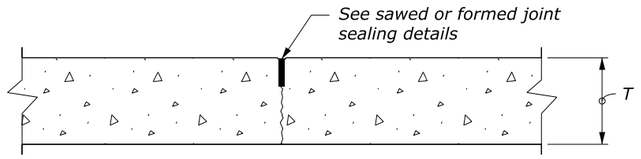
SECTION A-A

NO SCALE

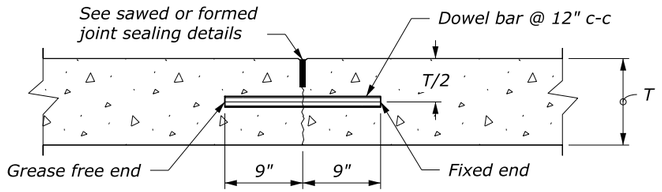
FHWA, OFFICE OF FEDERAL LANDS HIGHWAY

MINOR ROAD ACCESS DETAIL

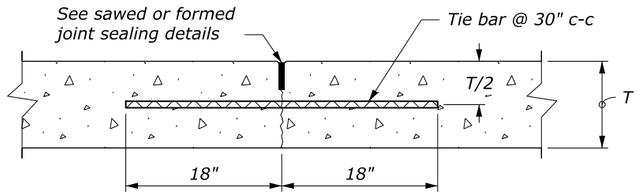
STATE	PROJECT	SHEET NUMBER
CA	FTBL DUMONT DUNES (1)	R1



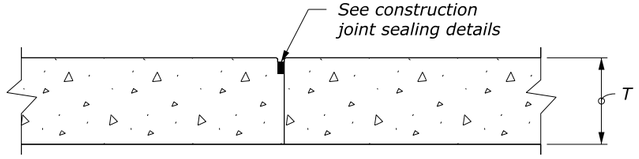
CONTRACTION JOINT
UNDOWELED - TRANSVERSE and UNTIED - LONGITUDINAL



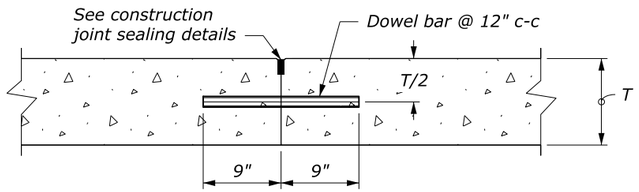
CONTRACTION JOINT
DOWELED - TRANSVERSE



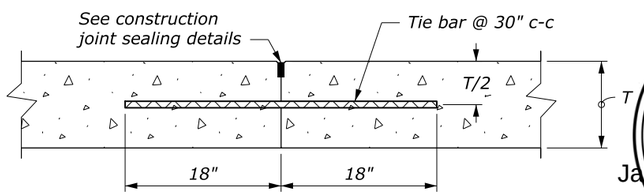
CONTRACTION JOINT
TIED - LONGITUDINAL



CONSTRUCTION JOINT
PLAIN - TRANSVERSE or LONGITUDINAL



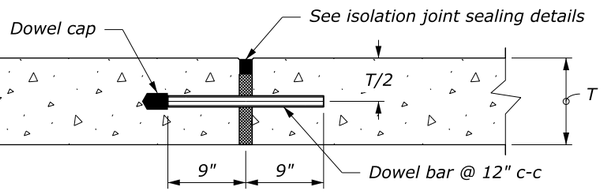
CONSTRUCTION JOINT
DOWEL BUTT - TRANSVERSE



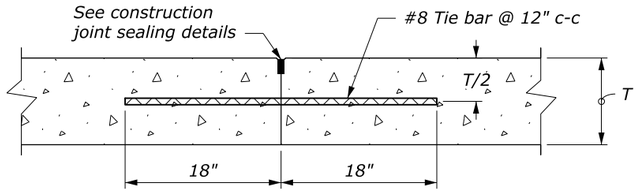
CONSTRUCTION JOINT
TIED BUTT - LONGITUDINAL

NOTE:

1. *Use epoxy-coated material for all tie bars, dowels, and other steel used in the construction of concrete pavement.*
2. *Deformed reinforcing bars or hook bolts may be used for tie bars.*
3. *Do not place tie bars within 15 inches of transverse joints.*
4. *Install isolation joints when abutting a fixed structure. Use expansion joint material extending the full depth and length of the concrete surface.*
5. *Transverse and longitudinal construction joints are not included in the joint layout plan. Use transverse and longitudinal construction joints sparingly. Submit planned construction joint locations for approval.*
6. *For construction joints, if tie bars and dowels are not set into concrete during placement, drill and anchor the tie bars and dowels into the existing concrete construction with epoxy resin.*
7. *Maintain joint sealant shape factor of 1:1; except when silicone sealant is used maintain the width to depth shape factor of 2:1 or as recommended by sealant manufacturer.*
8. *See Section 712 for joint material requirements.*
9. *See Standards 501-1 or 502-1 for reinforcement details.*

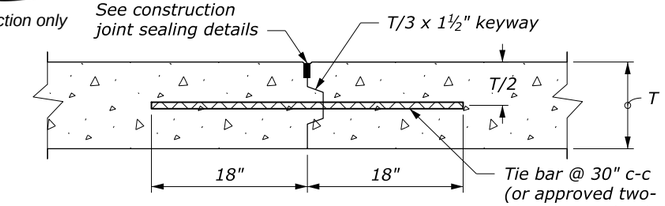


ISOLATION/EXPANSION JOINT
DOWELED - TRANSVERSE

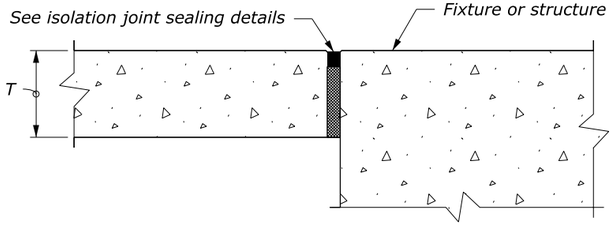


CONSTRUCTION JOINT
TIED BUTT - TRANSVERSE

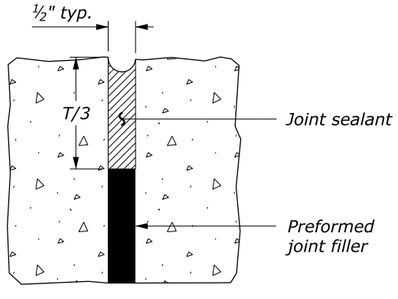
For selection only



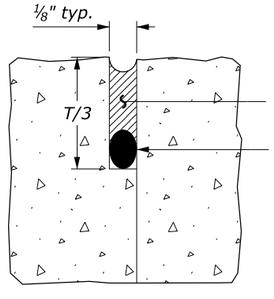
CONSTRUCTION JOINT
KEYWAY - LONGITUDINAL



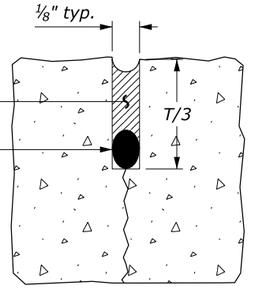
ISOLATION JOINT
UNDOWELED - LONGITUDINAL



ISOLATION JOINT



CONSTRUCTION JOINT



SAWED OR FORMED JOINT

BAR SIZES		
PAVEMENT THICKNESS (T) (in)	*TIE BAR*	*DOWEL BAR DIAMETER (in)*
T ≤ 8	*#5*	*1*
8 < T ≤ 10	*#5*	*1¼*
10 < T ≤ 12	*#6*	*1½*

MINOR CONCRETE PAVEMENT JOINT SEALING DETAILS

NO SCALE

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

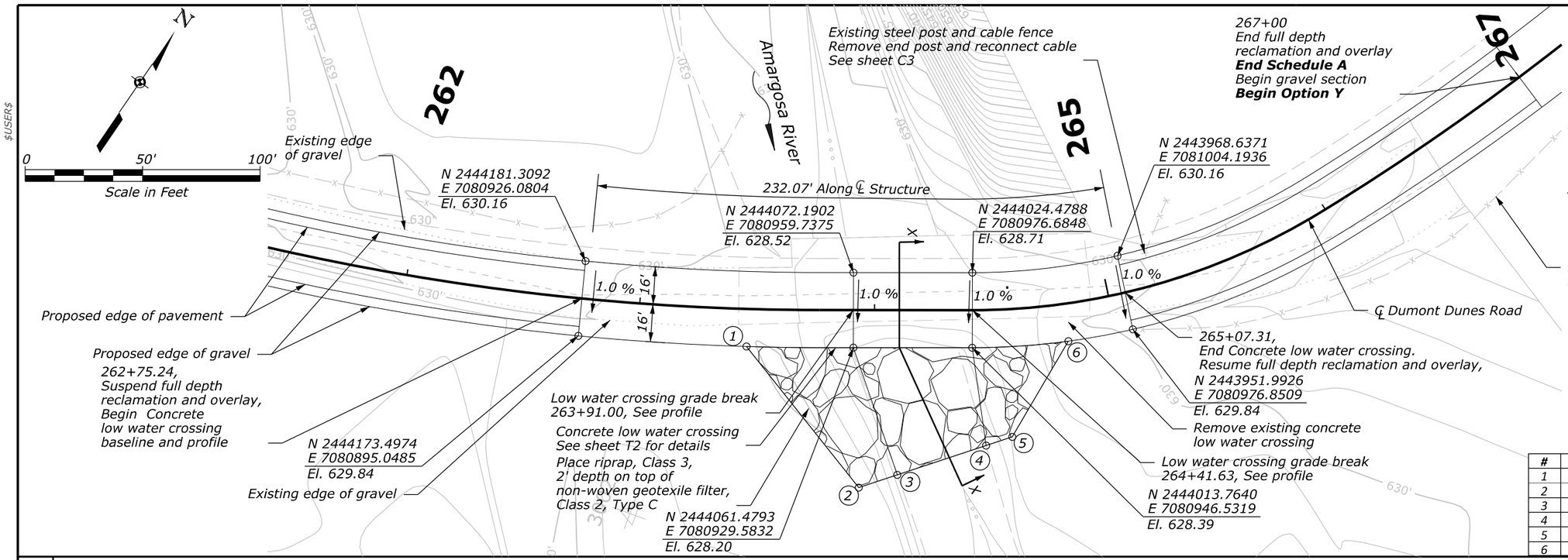
U.S. CUSTOMARY STANDARD

MINOR CONCRETE PAVEMENT JOINTS

STANDARD APPROVED FOR USE --/----
REVISED: 9/2016

STANDARD 501-2

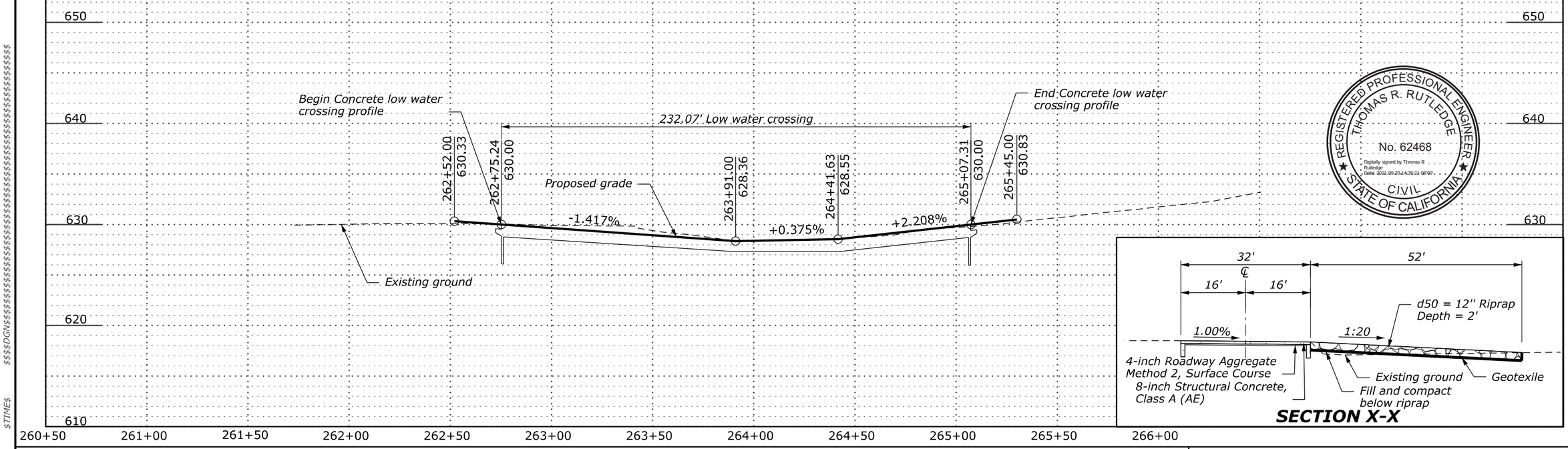
STATE	PROJECT	SHEET NUMBER
CA	FTBL DUMONT DUNES (1)	T1



NOTE:

1. Right and left edge of low water crossing surface to match proposed roadway elevation.
2. See sheet C3 for baseline geometry and curve information.

#	Station	Northing	Easting	Elevation
1	263+45.94	2444104.53	7080914.77	628.97
2	263+93.34	2444039.32	7080874.17	629.85
3	264+09.74	2444025.68	7080884.78	626.55
4	264+46.55	2443994.24	7080909.23	626.47
5	264+55.95	2443984.98	7080916.43	628.15
6	264+80.49	2443976.15	7080962.87	629.25

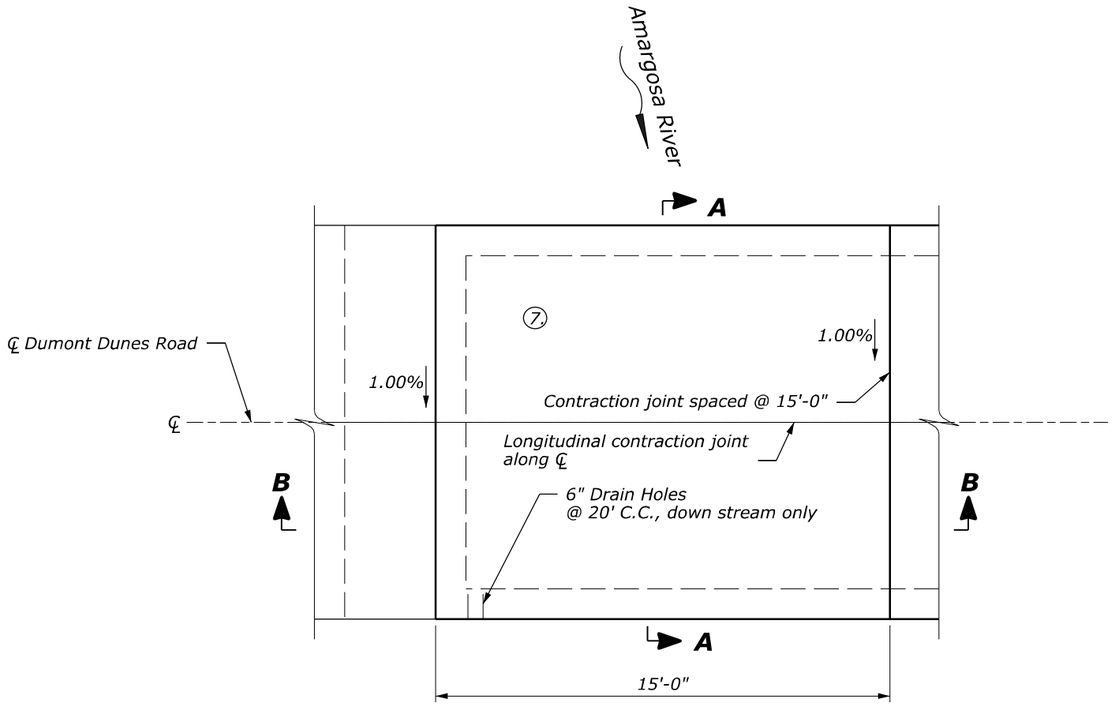


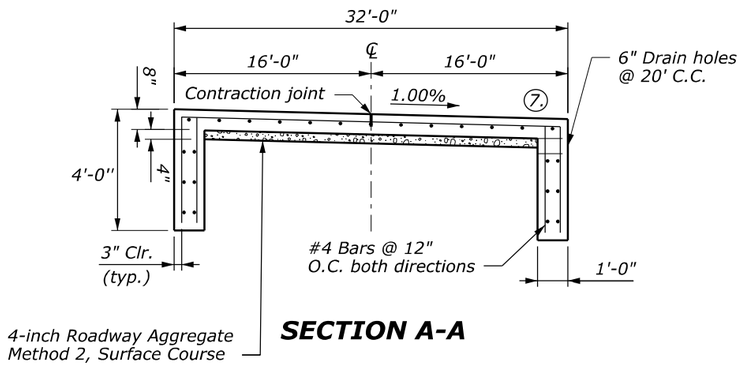
SECTION X-X

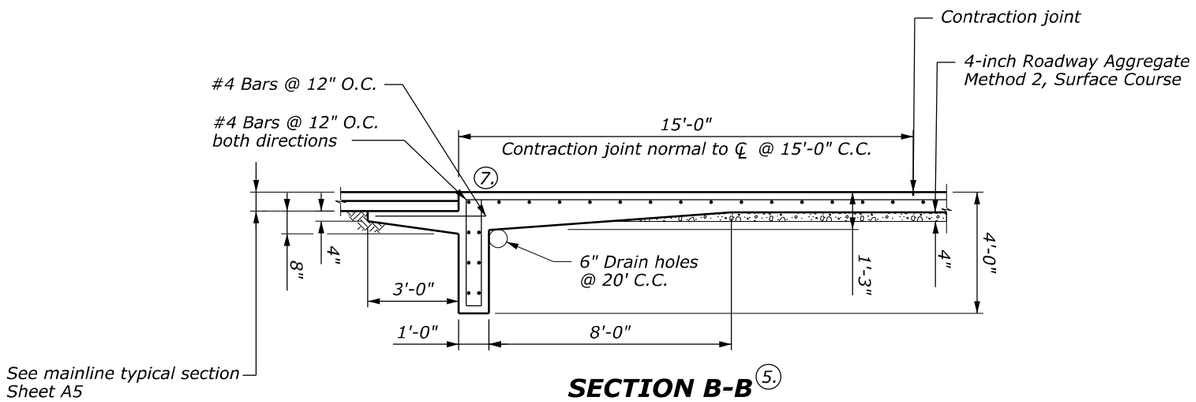
THOMAS R. RUTLEDGE
No. 62468
Digitally signed by Thomas R Rutledge
Date: 2021.09.20 14:35:21-06'00'
CIVIL

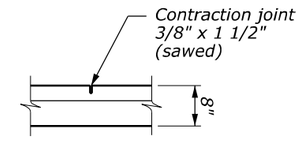
LOW WATER CROSSING PLAN AND PROFILE

$USER$
$$DGN$$$$
$TIME$
$$$$DATE$$$$









STATE	PROJECT	SHEET NUMBER
CA	FTBL DUMONT DUNES (1)	T2

$USER$

$$$$DGN$$$

$TIME$

$$$$DATE$$$$

NOTE:

1. Use Class A (AE) structural concrete.
2. Use Type II low alkali cement and submit mix design for approval.
3. Use epoxy-coated reinforcing steel.
4. Screen 6" drain holes to prevent material loss under low water crossing.
⑤ Section B-B detail applies to both ends of concrete low water crossing.
6. For contraction joints, see Standard Detail 501-2.
7. Provide a grooved finish according to 552.14(c)(1).

PARTIAL PLAN VIEW

SECTION A-A

SECTION B-B ⑤

TYPICAL CONTRACTION JOINT DETAIL

JOHN GERARD ROHNER
C 63296
EXP. 06/30/22
09/22/21
CIVIL

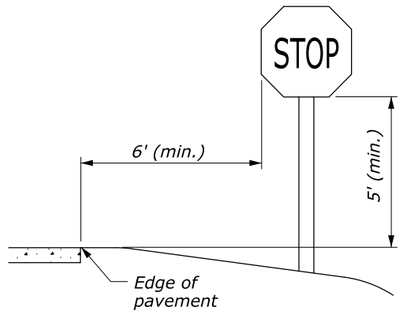
THOMAS R. RUTLEDGE
No. 62468
Digitally signed by Thomas R Rutledge
Date: 2021.09.20 14:33:03-06'00'
CIVIL

FOR DRAINAGE ONLY

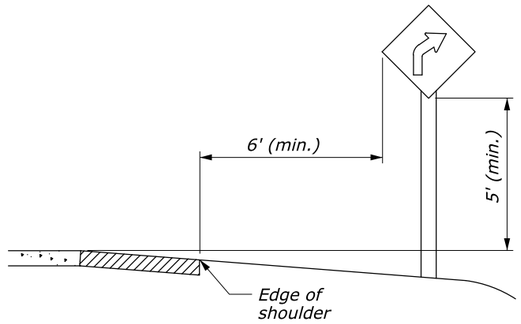
FHWA, OFFICE OF FEDERAL LANDS HIGHWAY

LOW WATER CROSSING
SECTIONS AND DETAIL

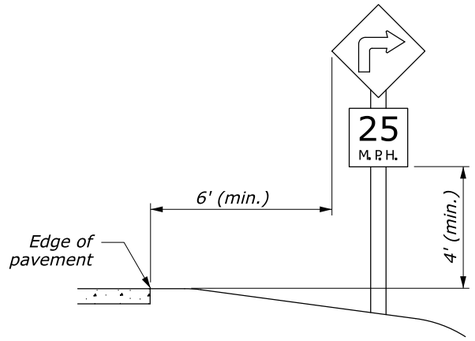
STATE	PROJECT	SHEET NUMBER
CA	FTBL DUMONT DUNES (1)	V1



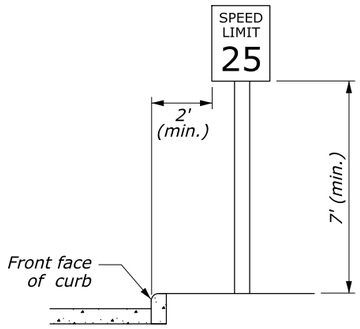
WITHOUT SHOULDER



WITH SHOULDER

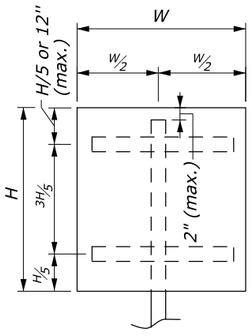


WITH ADVISORY SPEED PLAQUE

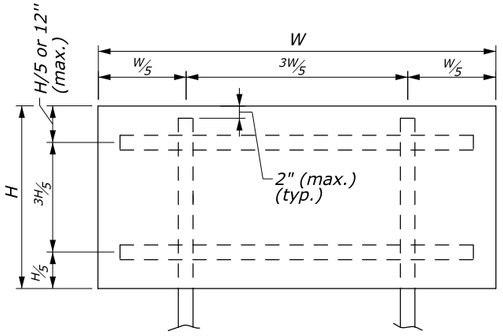


ROADSIDE SIGN IN BUSINESS OR RESIDENTIAL DISTRICT

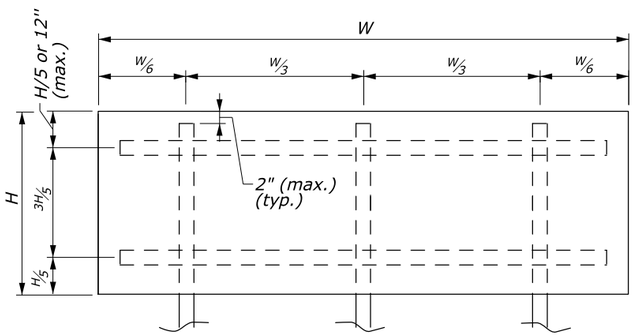
ROADSIDE SIGN IN RURAL DISTRICT



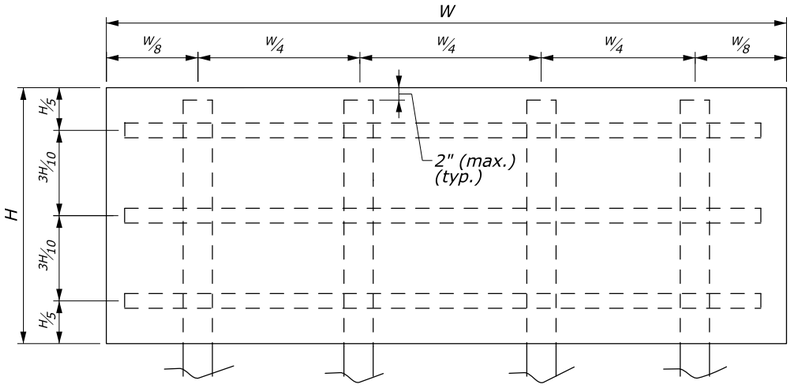
SINGLE POST



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

REGISTERED PROFESSIONAL ENGINEER
JAMES MILLS
C 68832
CIVIL
STATE OF CALIFORNIA

James Mills

Digitally signed by James Mills
DN: CN=James Mills, ...
Date: 2021.09.20 18:14:13 -06'07'

For selection only

NO SCALE

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

EFLHD DETAIL

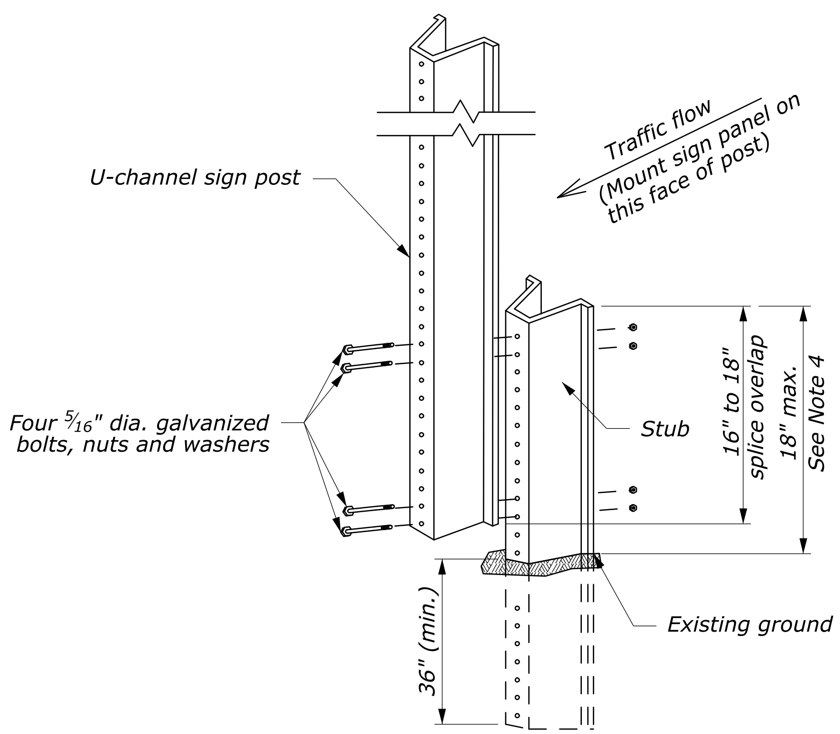
SIGN STRUCTURES

DETAIL APPROVED FOR USE
APPROVED: MAY 2011
REVISED: SEPTEMBER 2020

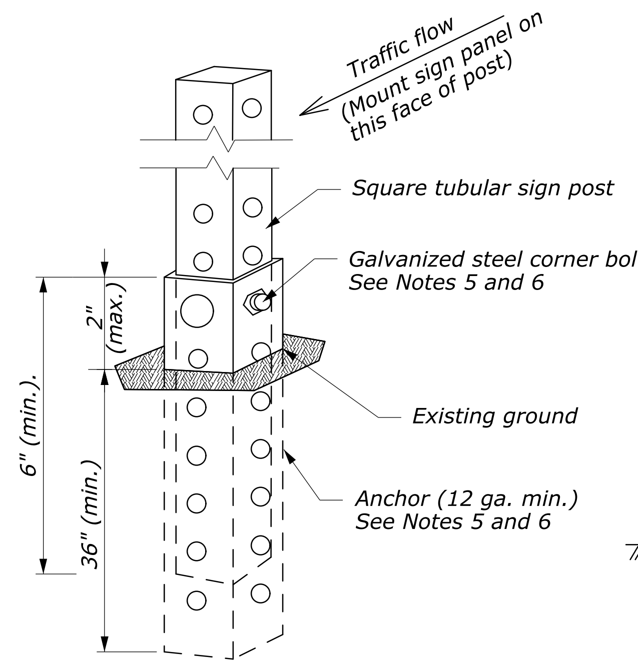
DETAIL
E633-01

STATE	PROJECT	SHEET NUMBER
CA	FTBL DUMONT DUNES (1)	V2

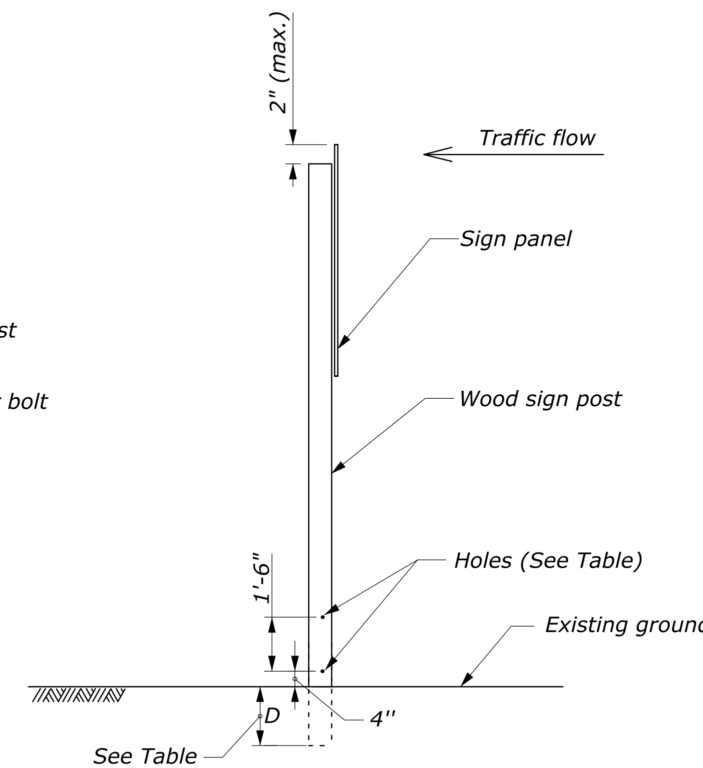
WOOD POST DATA TABLE		
POST SIZE	HOLE DIAMETER	(D) (MIN.)
4'' x 4''	Not Required	3'
4'' x 6''	1.5''	4'
6'' x 6''	2''	4'



U-CHANNEL STEEL POST



SQUARE TUBULAR STEEL POST



WOOD POST

BREAKAWAY SIGN SUPPORT

NOTES:

1. Breakaway sign support is not required for signs placed behind protective barriers.
2. 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.
3. Place non-breakaway signs outside the clear zone or shield with approved barrier. Do not place holes in posts of non-breakaway signs.
4. 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.
5. 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.
6. Maintain the post assembly in a plumb position.
7. For sign punching details, see the blank standards in the "Standard Highway Signs and Markings" as specified in the latest edition of the MUTCD.
8. Refer to Detail E633-01 for sign mounting details.
9. Refer to Detail E633-04 for sign bracing details.
10. Refer to Section 2A.21 of the MUTCD, latest edition, for additional information.

For selection only

NO SCALE

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

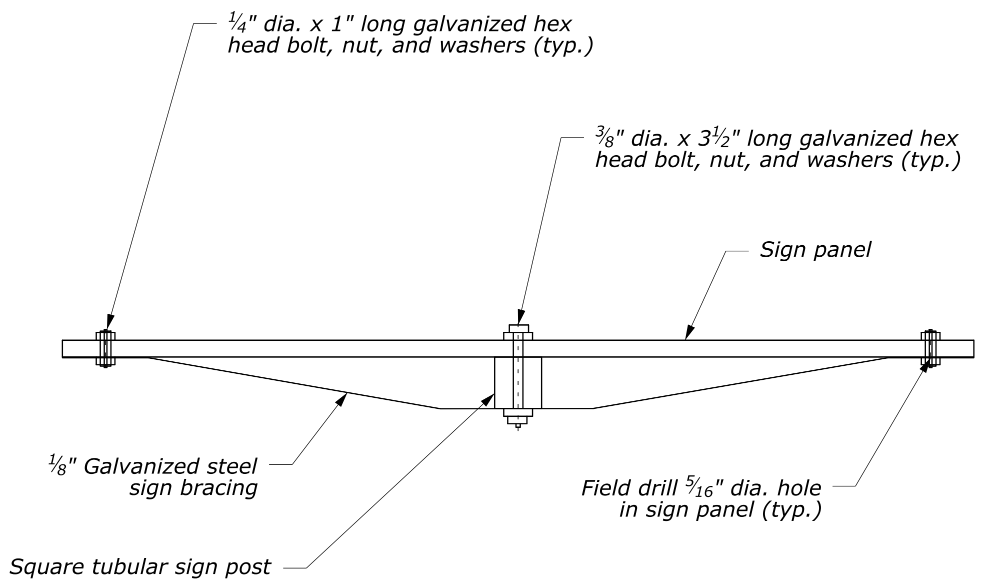
EFLHD DETAIL

BREAKAWAY SIGN SUPPORT
WOOD AND STEEL POSTS

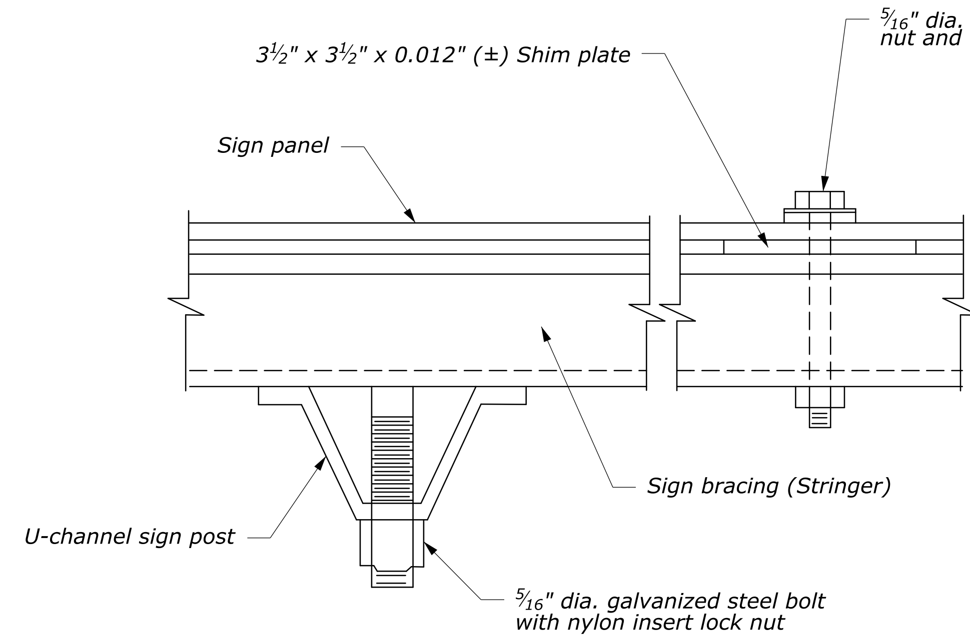
DETAIL APPROVED FOR USE
APPROVED: MAY 2011
REVISED: SEPTEMBER 2020

DETAIL
E633-03

STATE	PROJECT	SHEET NUMBER
CA	FTBL DUMONT DUNES (1)	V3



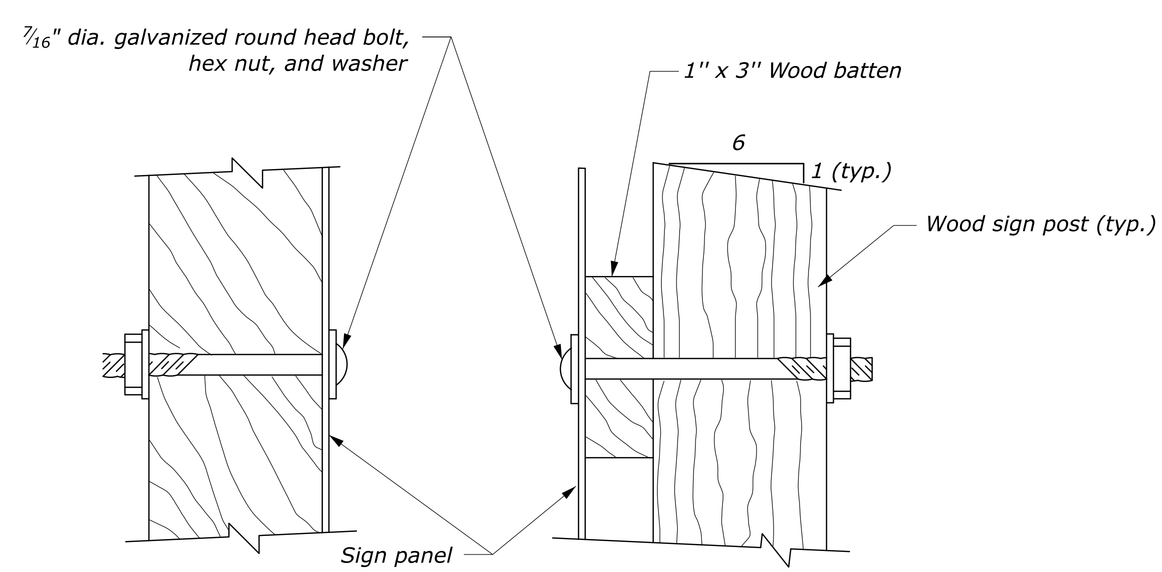
SQUARE TUBULAR STEEL POST



U-CHANNEL STEEL POST

NOTES:

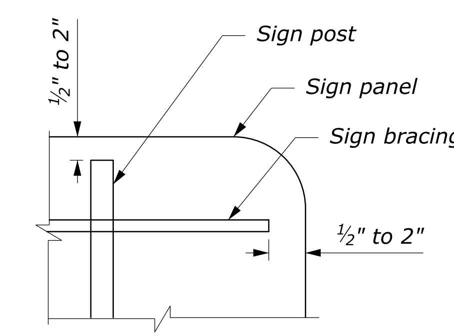
1. Install sign braces on signs with widths of 48 inches or greater. Install sign braces on signs with widths of 36 inches when specified or as directed by the CO.
2. For sign punching details, see the blank standards in the "Standard Highway Signs and Markings" as specified in the latest edition of the MUTCD.
3. Use wood battens bolted to post at vertical spacings not to exceed 30 inches.
4. Use neoprene or nylon washers between the sign panel's retroreflective sheeting and the steel washer.
5. Refer to Detail E633-01 for sign mounting details.
6. Refer to Section 2A.21 of the MUTCD, latest edition, for additional information.



WITHOUT BATTEN

WITH BATTEN

WOOD POST



BRACING INSTALLATION TOLERANCES

REGISTERED PROFESSIONAL ENGINEER
JAMES MILLS
C 68832
STATE OF CALIFORNIA
James Mills

For selection only

NO SCALE

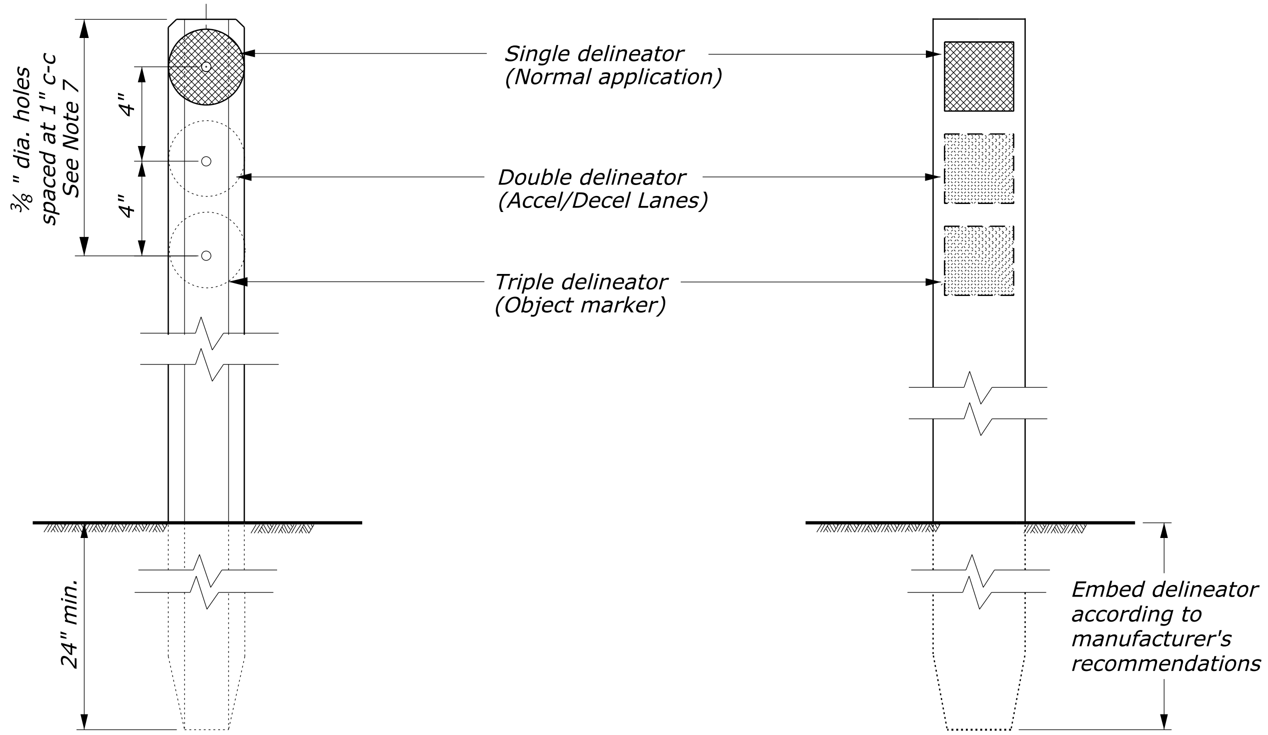
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
OFFICE OF FEDERAL LANDS HIGHWAY

EFLHD DETAIL

SIGN BRACING

DETAIL APPROVED FOR USE	DETAIL
APPROVED: MAY 2011 REVISED: SEPTEMBER 2020	E633-04

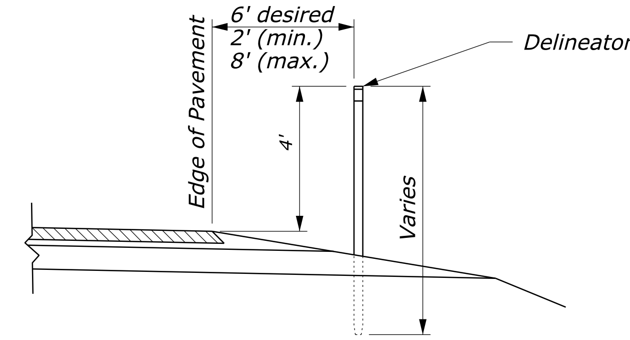
STATE	PROJECT	SHEET NUMBER
CA	FTBL DUMONT DUNES (1)	V4



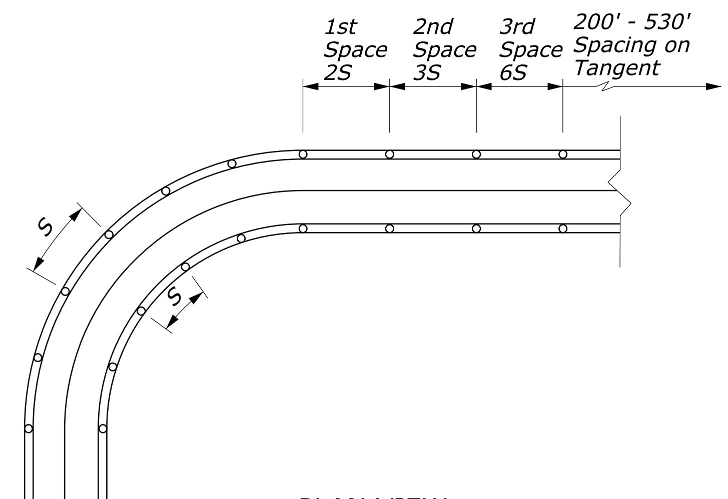
DELINEATOR (RIGID)
(TYPE 1 - acrylic plastic lens)

DELINEATOR (FLEXIBLE)
(TYPE 2 - retroreflective sheeting)

POST DETAILS



LOCATION OF DELINEATOR

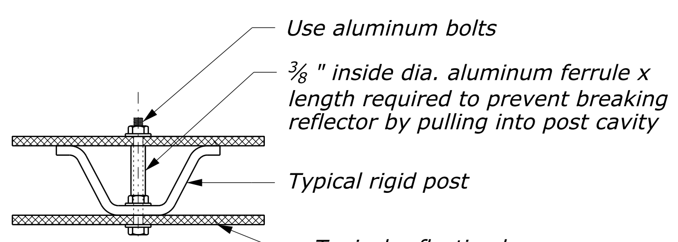


PLAN VIEW

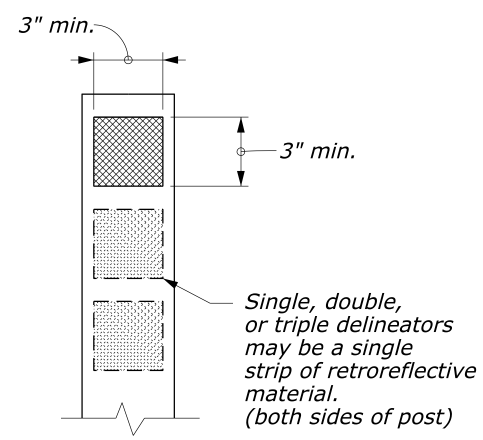
DELINEATOR SPACING

NOTE:

1. Match the color of the reflective element with the edge line.
2. Use yellow reflective elements for triple delineators installed to mark obstructions.
3. Install double delineators on 100-foot spacing for acceleration and deceleration lanes or to mark changes in width.
4. Install reflective elements according to the manufacturer's recommendations.
5. Alternate delineator types may be used with approval of the CO. Provide delineators conforming to the MUTCD and install according to the manufacturer's recommendations.
6. Place delineators at a constant distance from the edge of the pavement. Where guardrail intrudes into the space between the edge of pavement and the delineator offset, locate the delineator immediately behind the guardrail.
7. A minimum of 12 holes spaced on 1" centers are required for all rigid posts. See Subsection 718.04.
8. Furnish anti-theft hardware for mounting retroreflectors as required.
9. See Subsection 718.05 for rigid post requirements.



ATTACHMENT DETAIL
(for rigid metal posts)



RETROREFLECTIVE SHEETING DETAIL

DELINEATOR SPACING ON CURVES

RADIUS OF CURVE (R)	SPACING ON CURVE (S)	SPACING ON TANGENTS AT CURVE ENDS		
		1st Space (2 S)	2nd Space (3 S)	3rd Space (6 S)
(feet)	(feet)	(feet)	(feet)	(feet)
50	20	40	60	120
115	25	50	75	150
180	35	70	105	210
250	40	80	120	240
300	50	100	150	300
400	55	110	165	300
500	65	130	195	300
600	70	140	210	300
700	75	150	225	300
800	80	160	240	300
900	85	170	255	300
1,000	90	180	270	300

DELINEATOR SPACING NOTES

1. Spacing for specific radii may be interpolated from the table.
2. Values shown for S in the table are computed from the formula $S = 3\sqrt{R-50}$, where S = delineator spacing and R = horizontal curve radius. Values are rounded to the nearest 5 feet.

For selection only

NO SCALE

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

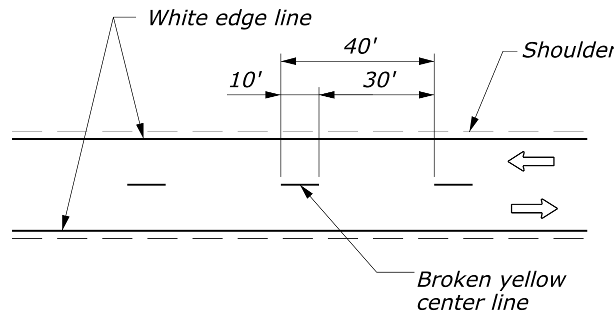
U.S. CUSTOMARY DETAIL

DELINEATORS

DETAIL APPROVED FOR USE 03/2011
REVISED: 08/2014

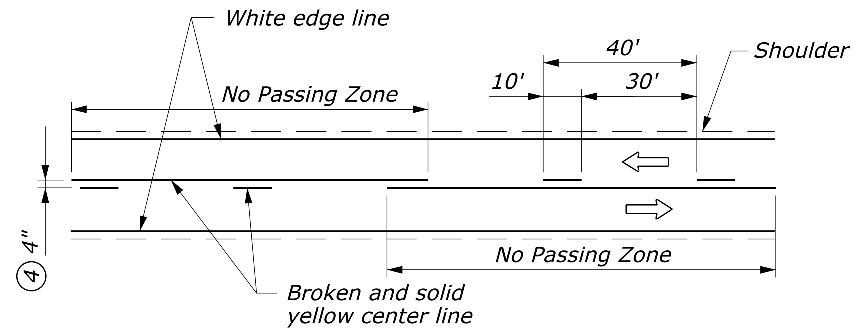
DETAIL C633-51

STATE	PROJECT	SHEET NUMBER
CA	FTBL DUMONT DUNES (1)	V5



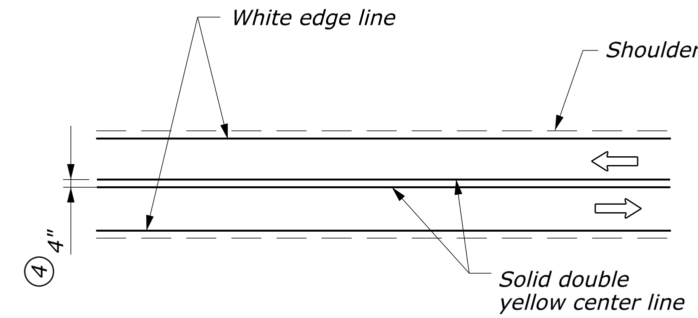
DETAIL A

Passing zone both directions
Two-way traffic



DETAIL B

No passing zone single lane direction
Two-way traffic

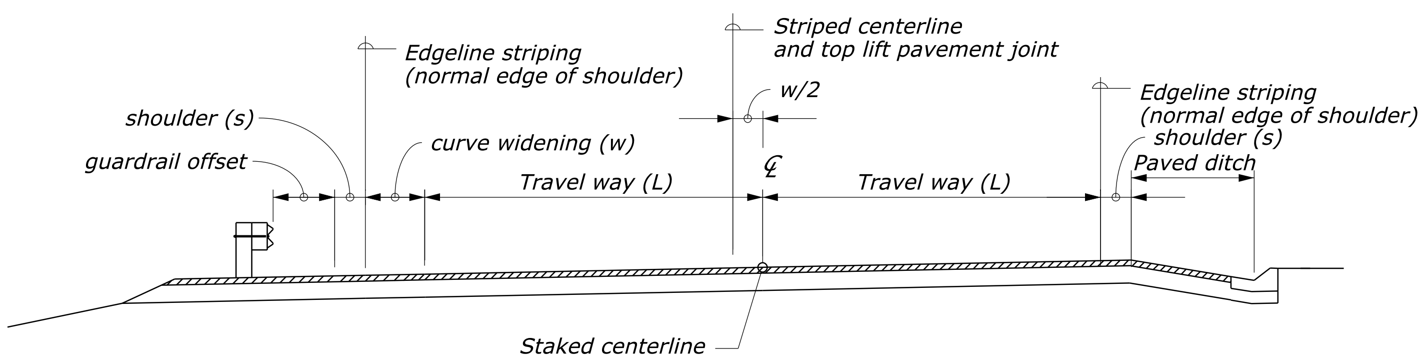


DETAIL C

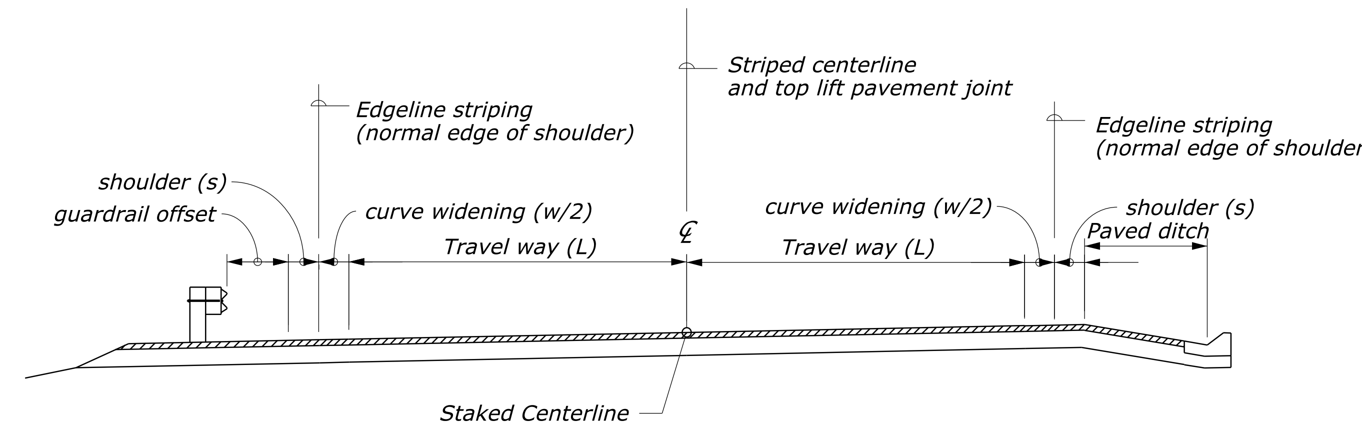
No passing zone both directions
Two-way traffic

NOTE:

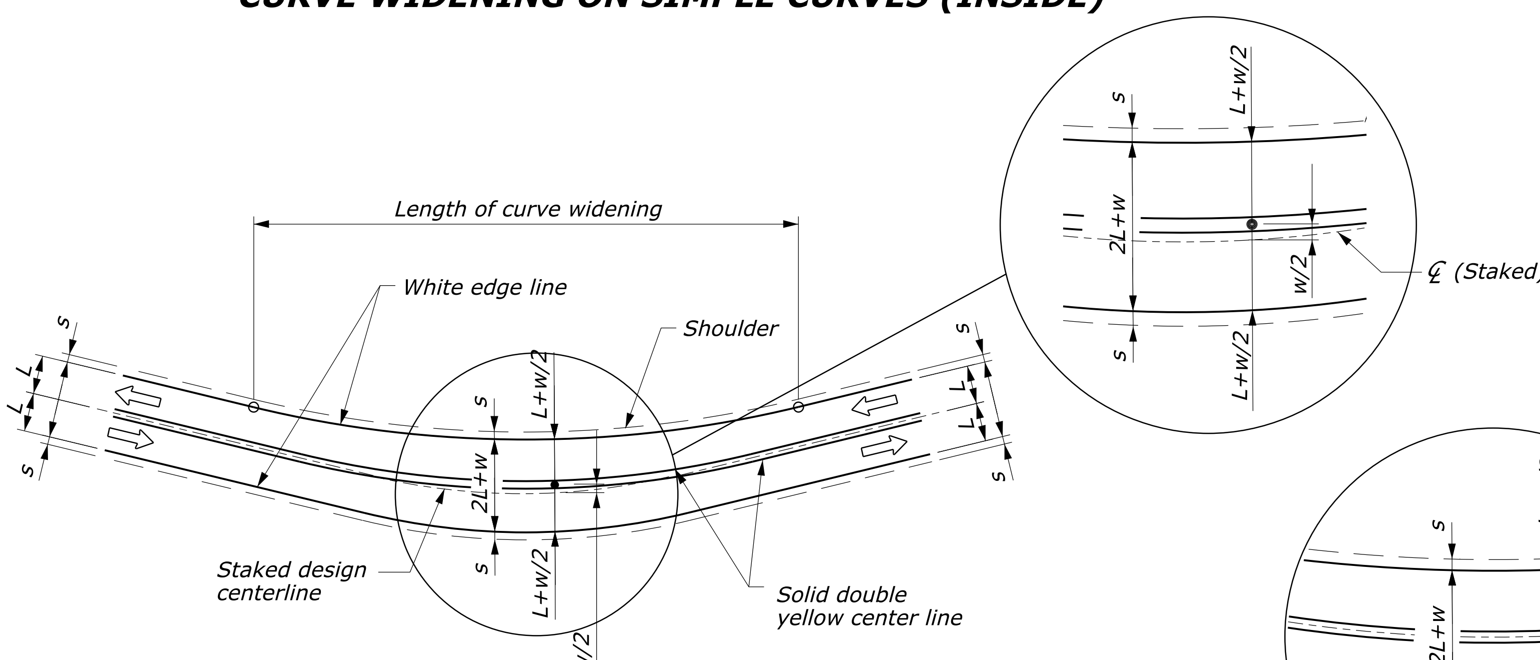
1. See Summary for tables showing station ranges and quantities for pavement markings.
2. Paint centerline striping on curves with curve widening to achieve equal lane widths within the traveled way. Shoulder widths remain constant throughout the curve widening.
3. Centerline offset striping is only applicable to curve widening on simple curves.
4. 4" or as required by the state.
5. Paint the edgeline striping outside the travel way and curve widening, 2" (max.) from the normal edge of shoulder.



CURVE WIDENING ON SIMPLE CURVES (INSIDE)

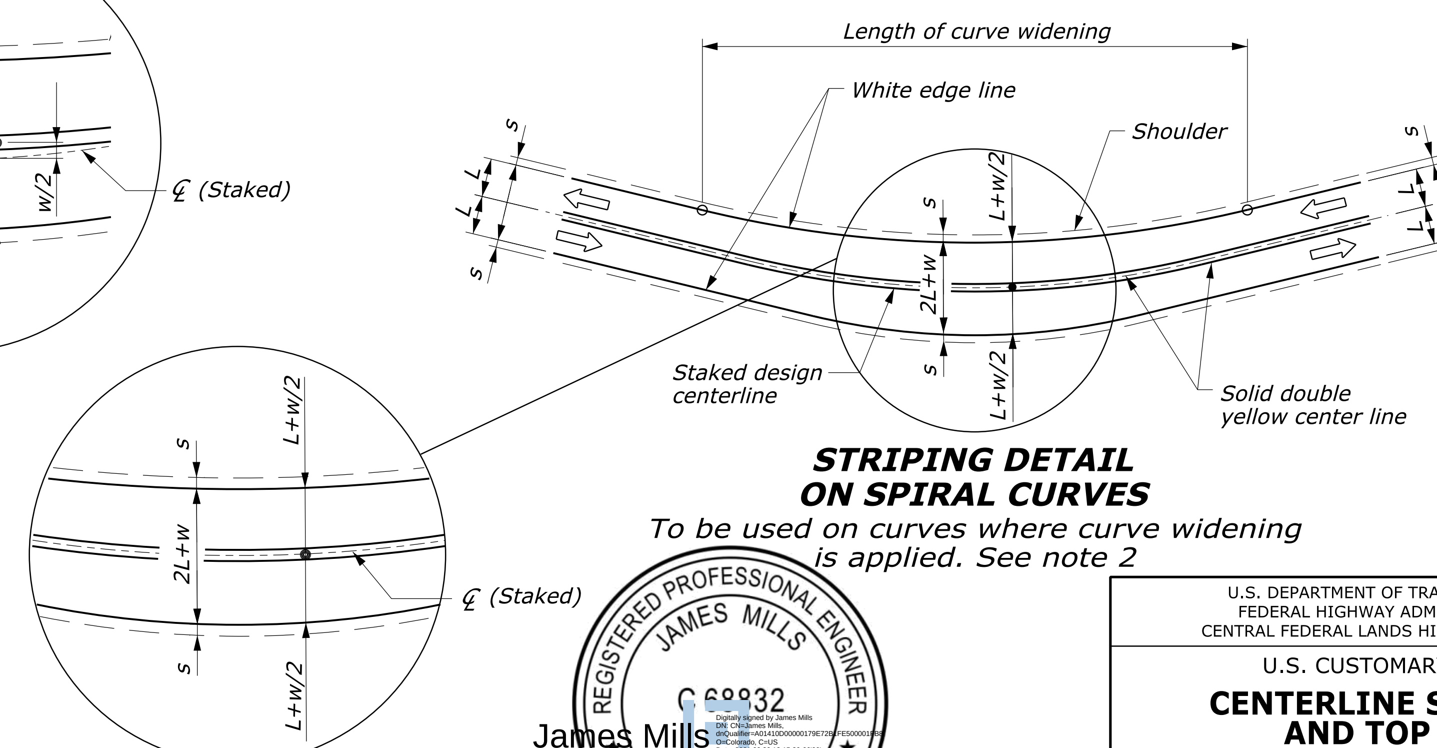


CURVE WIDENING ON SPIRAL CURVES



CURVE STRIPING DETAIL ON SIMPLE CURVES

To be used on curves where curve widening is applied. See note 2



STRIPING DETAIL ON SPIRAL CURVES

To be used on curves where curve widening is applied. See note 2

REGISTERED PROFESSIONAL ENGINEER
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STATE OF CALIFORNIA
James Mills

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NO SCALE

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

U.S. CUSTOMARY DETAIL

CENTERLINE STRIPING AND TOP LIFT PAVEMENT JOINT

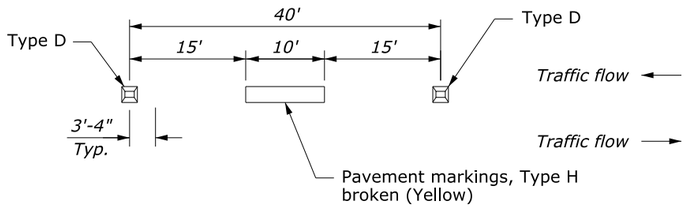
DETAIL APPROVED FOR USE 07/2004

REVISED: 08/2006 08/2014 01/2018

DETAIL C634-50

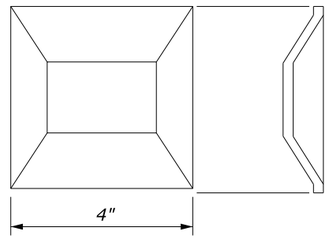
4/26/2018 7:40:38 AM N:\CFL-DPIT\Drawings\FP-14\FP14_Details\C634-50.dgn _User: Angela.Johnson_

STATE	PROJECT	SHEET NUMBER
CA	FTBL DUMONT DUNES (1)	V6



BROKEN YELLOW LINE

Passing zone both directions two-way traffic

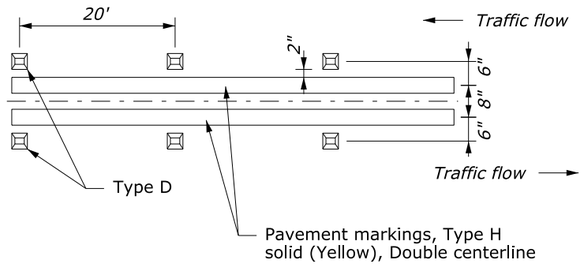


REFLECTIVE MARKER

Type D - two way yellow reflective marker

NOTE:

1. *Dimensions not labeled are in inches.*
2. *Marker patterns based on NDOT Standard Plan. T-37.1.1(633), adopted 2/79 revised 5/09.*



DOUBLE SOLID YELLOW LINE

No passing zone both directions two-way traffic

NO SCALE

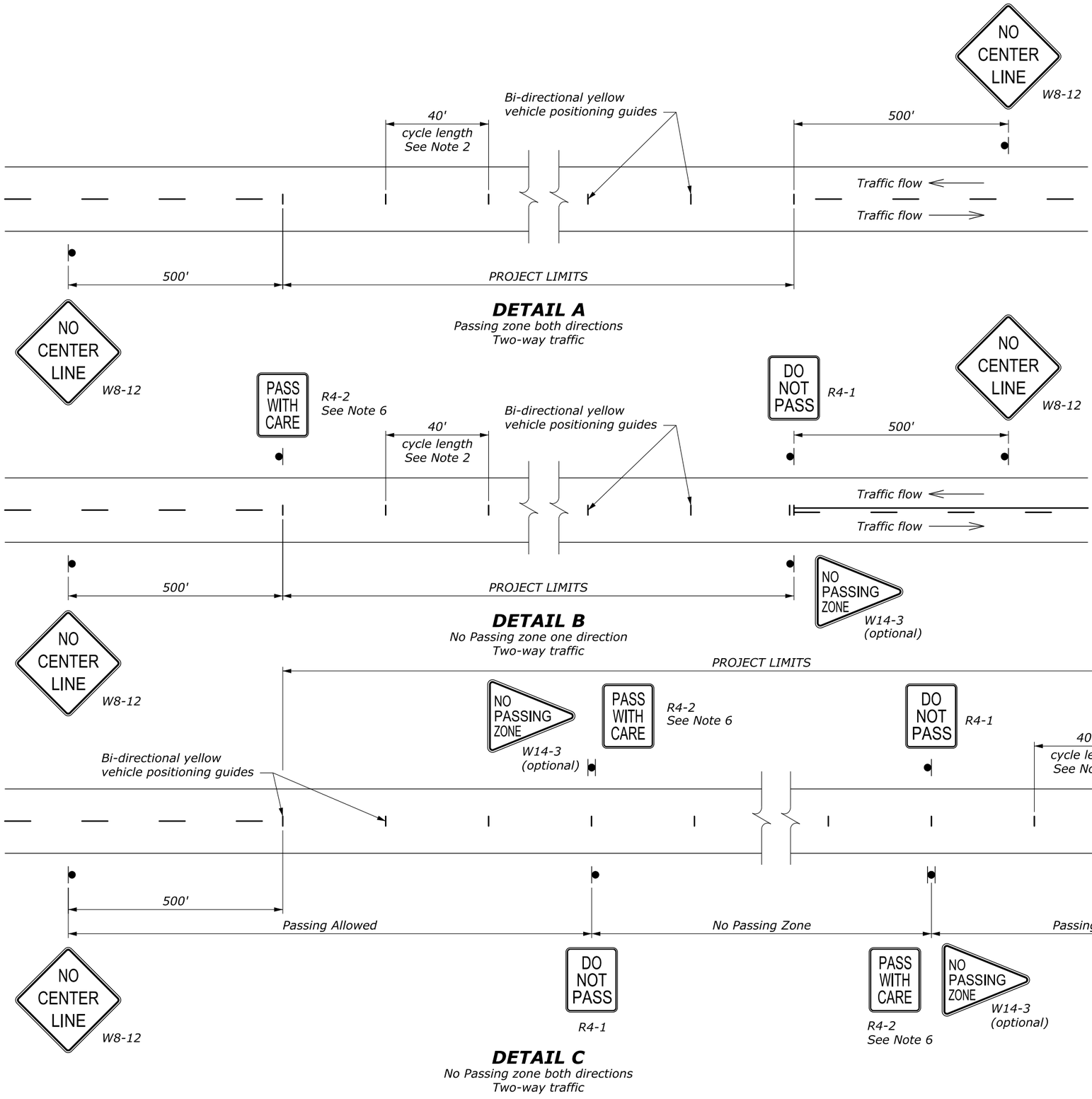
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

U.S. CUSTOMARY SPECIAL

PERMANENT RAISED PAVEMENT MARKERS

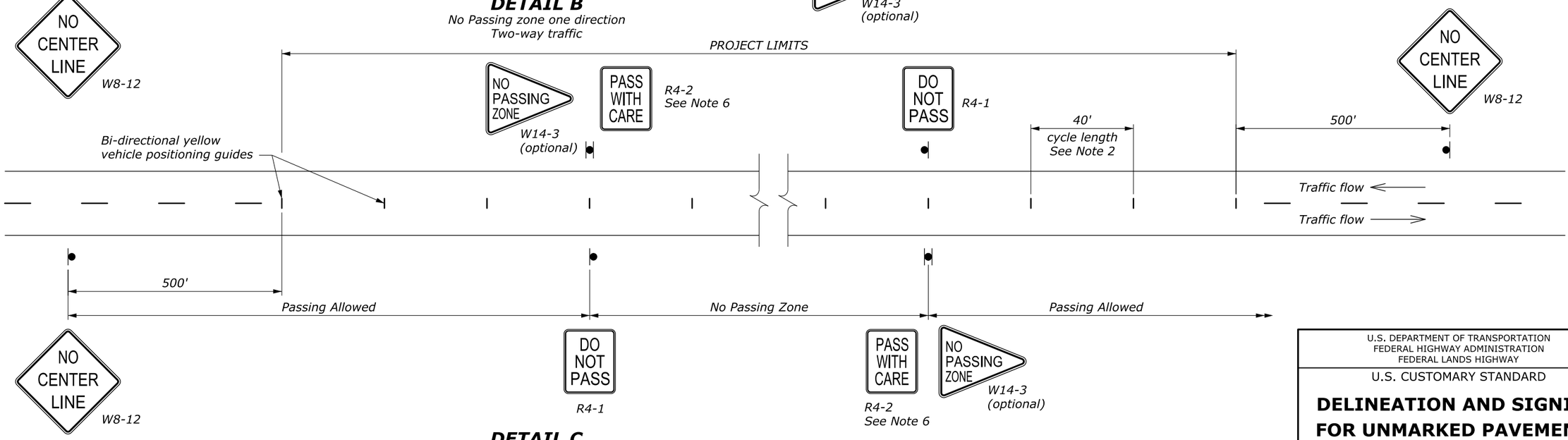
SPECIAL
634-A

STATE	PROJECT	SHEET NUMBER
CA	FTBL DUMONT DUNES (1)	V7



DETAIL A
Passing zone both directions
Two-way traffic

DETAIL B
No Passing zone one direction
Two-way traffic



DETAIL C
No Passing zone both directions
Two-way traffic

NO SCALE

NOTE:

1. *The pavement on two- or three-lane roads may remain unmarked up to 14 days when providing signs according to this standard. Optionally use the vehicle positioning guides to provide additional delineation.*
2. *On curves with radius less than 500', reduce cycle length to 20'.*
3. *Use permanent markings plan to determine no passing zones for each direction of travel.*
4. *Repeat R4-1 at 1 mile intervals.*
5. *Repeat W8-12 after each major intersection and every 2 miles for temporary traffic control zones greater than 3 miles long.*
6. *Use the "PASS WITH CARE" (R4-2) sign at the downstream end of a no-passing zone only if a "DO NOT PASS" (R4-1) sign has been installed at the upstream end of the zone.*

REGISTERED PROFESSIONAL ENGINEER
JAMES MILLS
C 68832
STATE OF CALIFORNIA

James Mills

Digitally signed by James Mills
DN: CN=James Mills, dnQualifier=A01410D000001FB728EB500001FB8, OU=Colorado, C=US
Date: 2021.09.20 18:14:50-06'00'

For selection only

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

U.S. CUSTOMARY STANDARD

DELINEATION AND SIGNING FOR UNMARKED PAVEMENTS

STANDARD APPROVED FOR USE 6/2005
REVISED:
DRAFT: 8/2013

STANDARD 635-3

26 September 2016 9:23 AM c:\mvfiles\pw_production\dms67497\Std635-3.dgn [USC]

STATE	PROJECT	SHEET NUMBER
CA	FTBL DUMONT DUNES (1)	V8

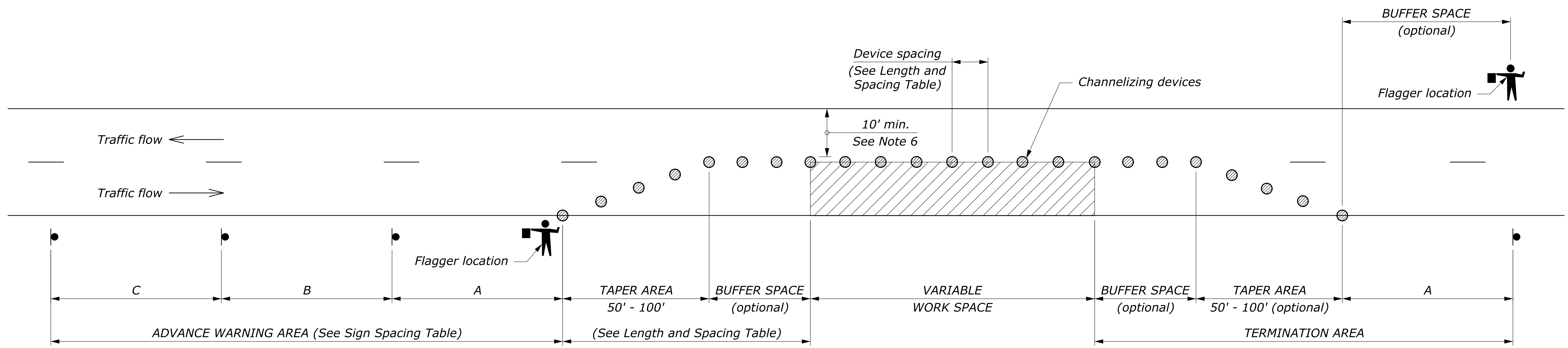
LENGTH AND SPACING TABLE				
APPROACH SPEED*	BUFFER SPACE LENGTH	CHANNELIZING DEVICE		
		TAPER AREA	BUFFER SPACE	WORK SPACE
MPH	FEET	SPACING IN FEET		
20	115	20	40	40
25	155	20	50	50
30	200	20	60	60
35	250	20	70	70
40	305	20	80	80
45	360	20	90	90
50	425	20	100	100
55	495	20	110	110
60	570	20	120	120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

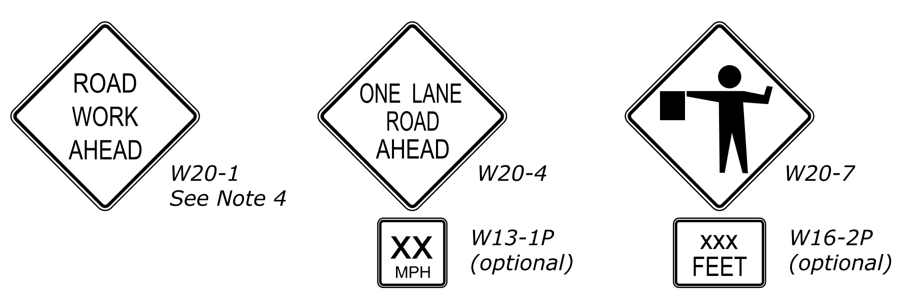
* Approach speed based on the regulatory posted speed, not the advisory speed.

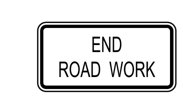
SIGN SPACING TABLE			
ROAD TYPE	DISTANCE BETWEEN SIGNS IN FEET		
	A	B	C
Urban and Rural 30 MPH and less	100	100	100
Urban and Rural 35 MPH to 50 MPH	350	350	350
Rural greater than 50 MPH	500	500	500
Expressway / Freeway	1000	1500	2640

NOTE:

1. Signs are shown for one direction of travel only. Place devices similar to those depicted for the opposite direction of travel.
2. Final location and spacing of signs and devices may be changed to fit field conditions as approved by the CO.
3. 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.
4. If closure is completely within the project limits, eliminate the "ROAD WORK AHEAD" (W20-1) and "END ROAD WORK" (G20-2) signs.
5. For night time flagging operation, provide floodlighting at flagger stations.
6. For project specific minimum width, refer to the Special Contract Requirements, Section 156.
7. Do not allow equipment, materials, or vehicles to be parked or stored in the buffer space.







G20-2
See Note 4

REGISTERED PROFESSIONAL ENGINEER
JAMES MILLS
C 68832
CIVIL
STATE OF CALIFORNIA

James Mills

Digitally signed by James Mills

For selection only

NO SCALE

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

U.S. CUSTOMARY STANDARD

TEMPORARY TRAFFIC CONTROL SINGLE LANE CLOSURE LAYOUT (WITH FLAGGERS)

STANDARD APPROVED FOR USE 6/2005

REVISED:
DRAFT: 8/2013

STANDARD
635-6

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5 August 2015 2:40 PM

STATE	PROJECT	SHEET NUMBER
CA	FTBL DUMONT DUNES (1)	V9

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

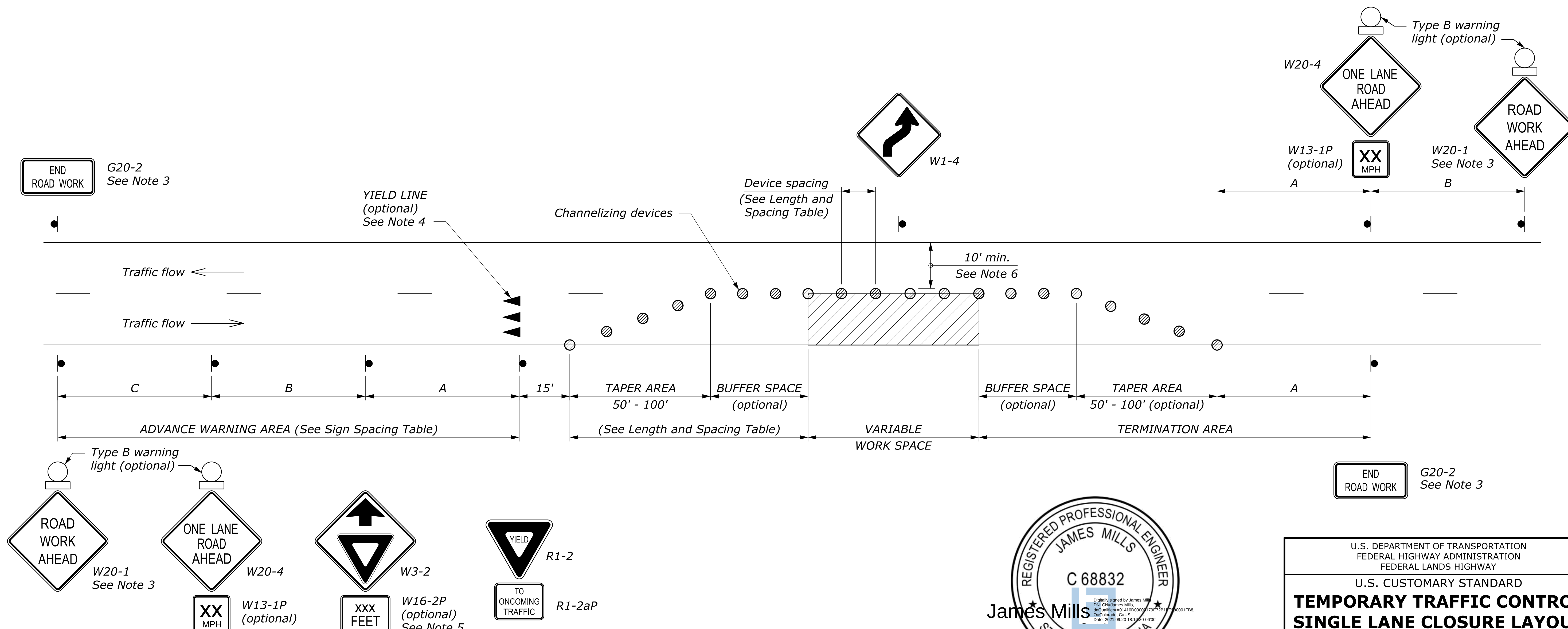
* Approach speed based on the regulatory posted speed, not the advisory speed.

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:

1. Use this layout only if sufficient gaps in oncoming traffic exist for traffic that must yield, and if drivers from both directions are able to see approaching traffic through and beyond the work site.
2. Final location and spacing of signs and devices may be changed to fit field conditions as approved by the CO.
3. If closure is completely within the project limits, eliminate the "ROAD WORK AHEAD" (W20-1) and "END ROAD WORK" (G20-2) signs.
4. If the surface is paved, install yield lines that comply with Section 3B.16 of the MUTCD.
5. Use the "YIELD AHEAD" (W3-2) sign when approach speeds exceed 50 MPH.
6. For project specific minimum width, refer to Special Contract Requirements, Section 156.
7. Do not allow equipment, materials, or vehicles to be parked or stored in the buffer space.



REGISTERED PROFESSIONAL ENGINEER JAMES MILLS C 68832 CIVIL STATE OF CALIFORNIA

James Mills

For selection only

NO SCALE

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

U.S. CUSTOMARY STANDARD

TEMPORARY TRAFFIC CONTROL SINGLE LANE CLOSURE LAYOUT (WITH YIELD SIGN)

STANDARD APPROVED FOR USE 6/2005

REVISED: DRAFT 6/2014

STANDARD 635-7

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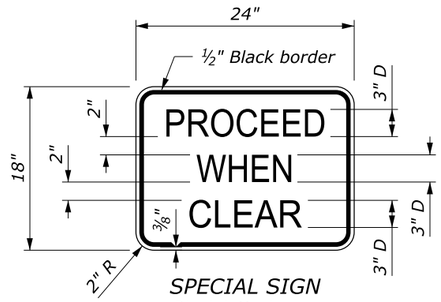
5 August 2015 12:49 PM

STATE	PROJECT	SHEET NUMBER
CA	FTBL DUMONT DUNES (1)	V10

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.

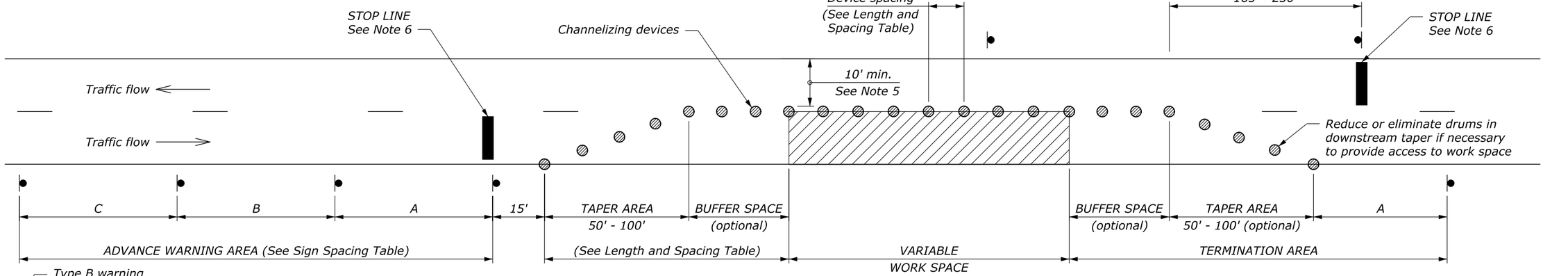
SIGN SPACING TABLE			
ROAD TYPE	DISTANCE BETWEEN SIGNS IN FEET		
	A	B	C
Urban and Rural 30 MPH and less	100	100	100
Urban and Rural 35 MPH to 50 MPH	350	350	350
Rural greater than 50 MPH	500	500	500
Expressway / Freeway	1000	1500	2640

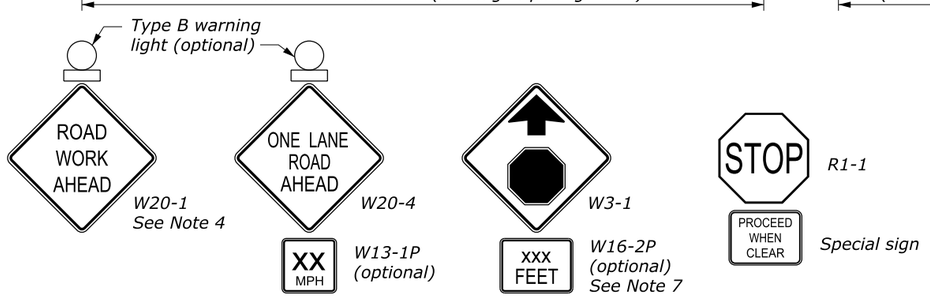


SPECIAL SIGN
Black lettering on reflective white background

NOTE:

1. Use this layout only if road users from both directions are able to see approaching vehicular traffic through and beyond the work site and have sufficient visibility of approaching vehicles.
2. Advance warning area signs are shown for one direction of travel only. Place devices similar to those depicted for the opposite direction of travel.
3. Final location and spacing of signs and devices may be changed to fit field conditions as approved by the CO.
4. If closure is completely within the project limits, eliminate the "ROAD WORK AHEAD" (W20-1) and "END ROAD WORK" (G20-2) signs.
5. For project specific minimum width, refer to Special Contract Requirements, Section 156.
6. If the roadway surface is paved, install stop lines that comply with Section 3B.16 of the MUTCD.
7. Use the "STOP AHEAD" (W3-1) sign when approach speeds exceed 50 MPH.
8. Do not allow equipment, materials, or vehicles to be parked or stored in the buffer space.





For selection only NO SCALE

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

U.S. CUSTOMARY STANDARD

TEMPORARY TRAFFIC CONTROL SINGLE LANE CLOSURE LAYOUT (WITH STOP SIGN)

STANDARD APPROVED FOR USE 6/2005

REVISED:
DRAFT: 8/2013

STANDARD 635-8

5 August 2015 9:40 AM c:\myfiles\pw_production\dms67497\Std635-8.dgn [USC]

STATE	PROJECT	SHEET NUMBER
CA	FTBL DUMONT DUNES (1)	V11

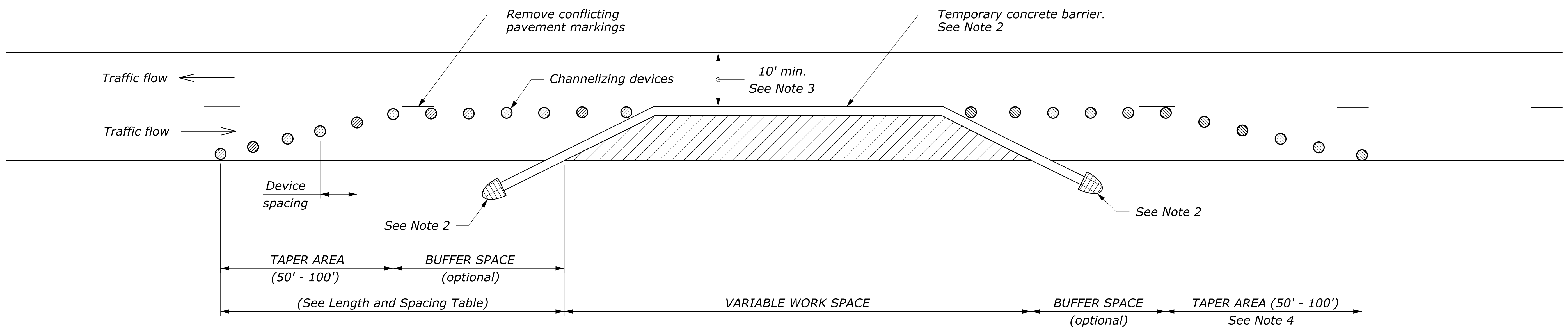
LENGTH AND SPACING TABLE

APPROACH SPEED* MPH	BUFFER SPACE LENGTH FEET	CHANNELIZING DEVICE SPACING IN FEET			CONCRETE BARRIER FLARE RATE	WORK ZONE CLEAR ZONE WIDTH FEET
		TAPER AREA	BUFFER SPACE	WORK SPACE		
20	115	20	40	40	1:8	10
25	155	20	50	50	1:8	10
30	200	20	60	60	1:8	10
35	250	20	70	70	1:9	10
40	305	20	80	80	1:10	15
45	360	20	90	90	1:12	20
50	425	20	100	100	1:14	20
55	495	20	110	110	1:16	20
60	570	20	120	120	1:16	30
65	645	20	130	130	1:16	30
70	730	20	140	140	1:16	30

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

NOTE:

1. Install signs and other devices for single lane closure according to Standard 635-6, 7, 8, or 9. Final location and spacing of signs and devices may be changed to fit field conditions as approved by the CO.
2. Place barrier according to the AASHTO Roadside Design Guide. Terminate barrier ends outside the work zone clear zone or protect the barrier ends with a crash cushion. Include reflectors on barrier at 25' intervals.
3. For project specific minimum width, refer to Special Contract Requirements, Section 156.
4. Place channelizing devices at downstream taper during non-work hours or when access is not needed.
5. Do not allow equipment, materials, or vehicles to be parked or stored in the buffer space.
6. Reduce or eliminate drums and barrier in downstream taper if necessary to provide access to work space.



REGISTERED PROFESSIONAL ENGINEER
JAMES MILLS
C 68832
CIVIL
STATE OF CALIFORNIA

James Mills
Digitally signed by James Mills
DN: CN=James Mills, dnQualifier=A01410D00000179E72B1FE500001FB8, O=Colorado, C=US
Date: 2021.09.20 18:16:49-06'00'

For selection only

NO SCALE

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

U.S. CUSTOMARY STANDARD

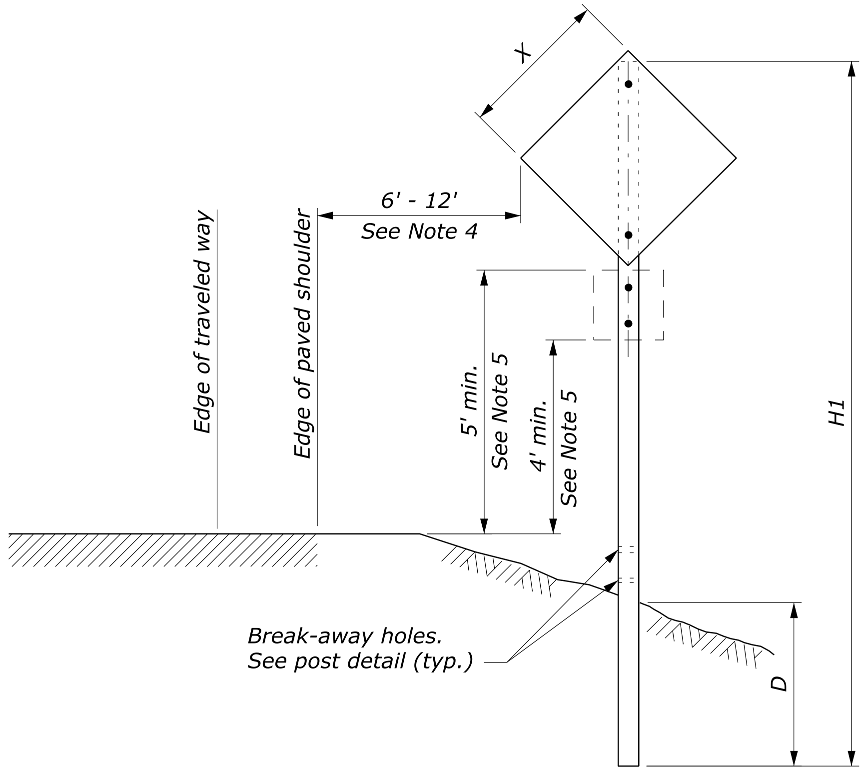
TEMPORARY TRAFFIC CONTROL SINGLE LANE CLOSURE LAYOUT (WITH TEMPORARY BARRIER)

STANDARD APPROVED FOR USE 6/2005

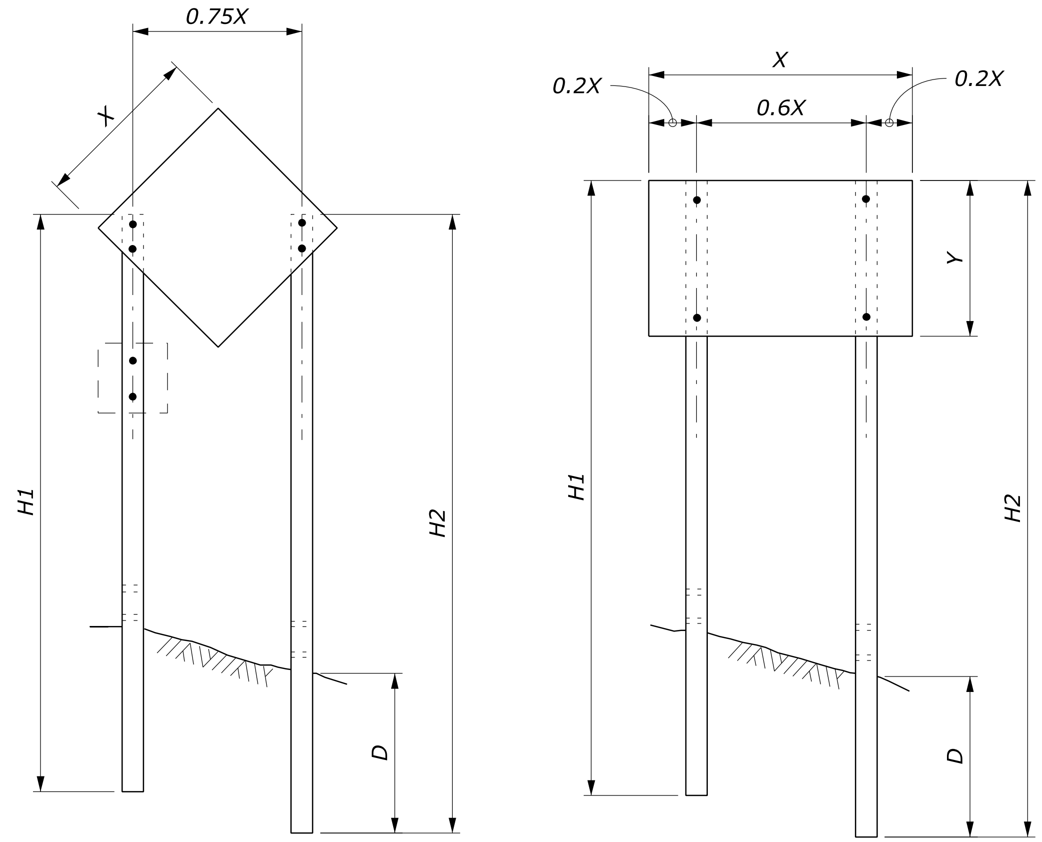
REVISED:
DRAFT: 6/2015

STANDARD 635-13

STATE	PROJECT	SHEET NUMBER
CA	FTBL DUMONT DUNES (1)	V12



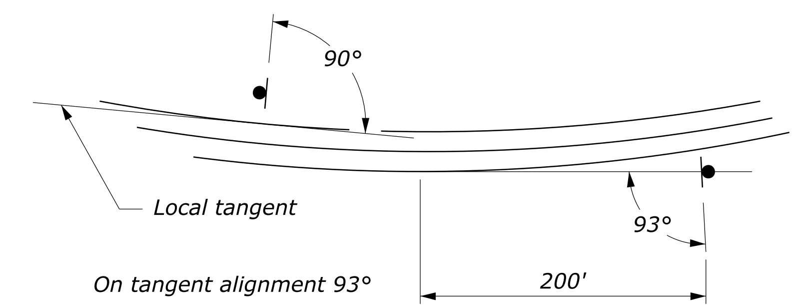
SINGLE POST SIGN



TWO POST SIGN

NOTE:

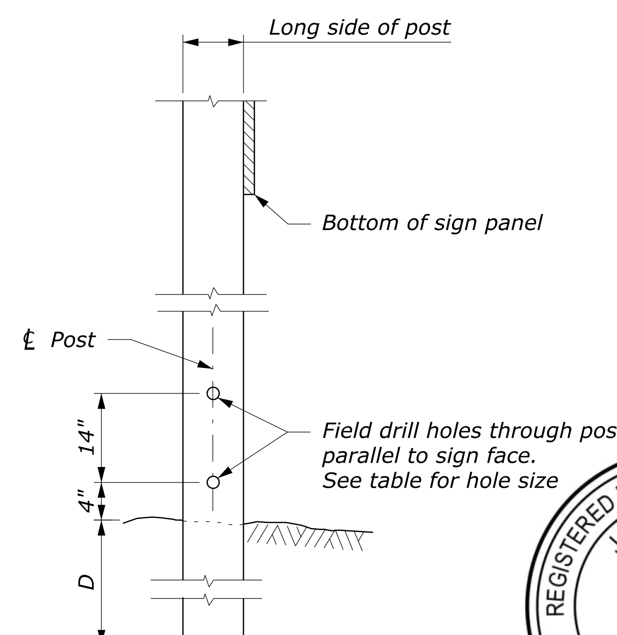
1. Attach sign panels with a minimum of 2 - ¼" dia. bolts per post.
2. H1 and H2 = Overall post length. Select post lengths to fit field conditions.
3. D = Post embedment depth for average soil conditions.
4. In areas where lateral distance is limited, a minimum lateral offset of 2' may be used. In areas 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.



SIGN INSTALLATION ANGLE

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

REGISTERED PROFESSIONAL ENGINEER
JAMES MILLS
C 68832
STATE OF CALIFORNIA

James Mills

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NO SCALE

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

U.S. CUSTOMARY STANDARD

TEMPORARY TRAFFIC CONTROL SIGN INSTALLATION WOOD POSTS

STANDARD APPROVED FOR USE 6/2005

REVISED:
DRAFT: 10/2017

STANDARD
635-14

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