

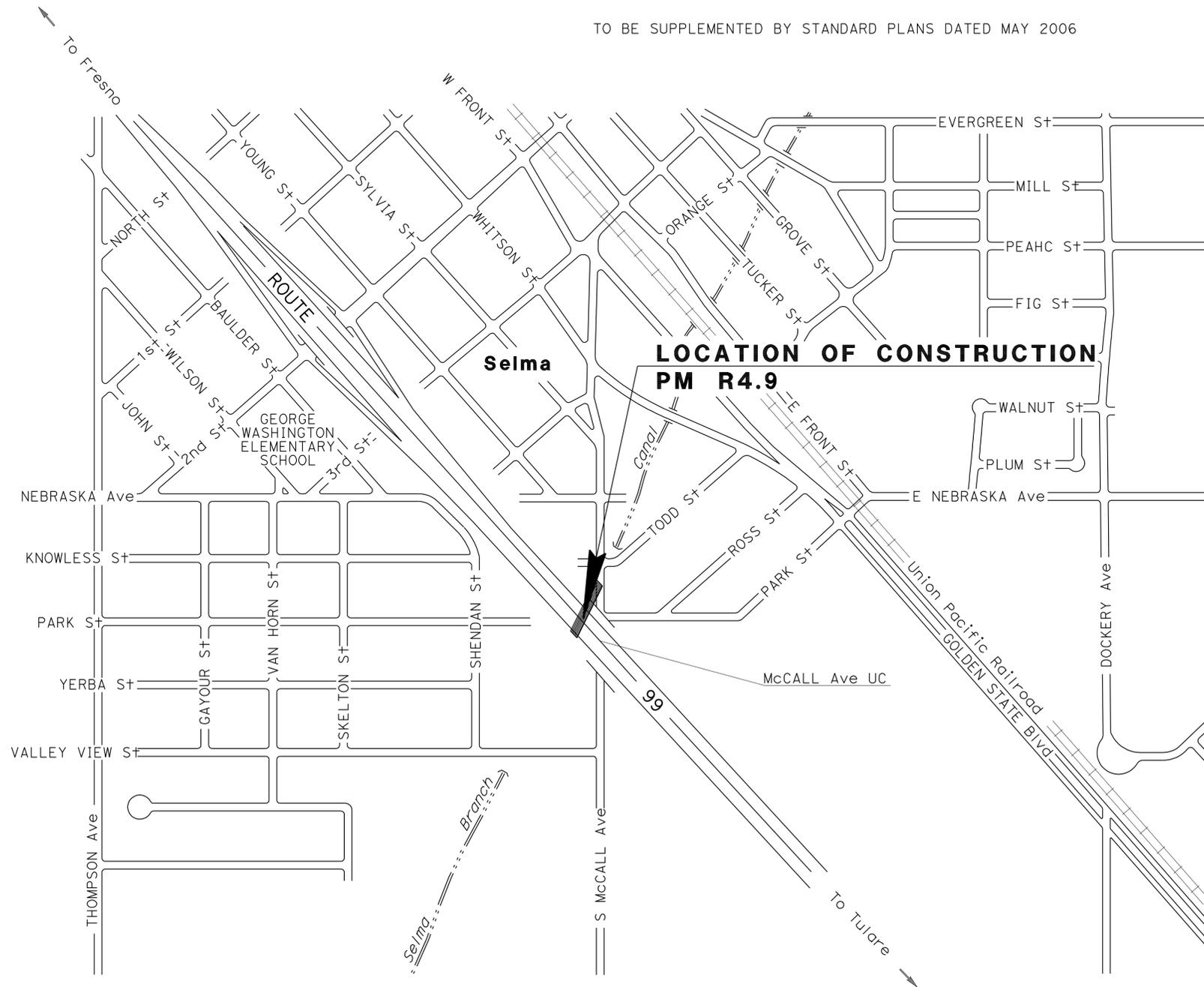
INDEX OF PLANS

Sheet No.	DESCRIPTION
1	TITLE AND LOCATION MAP
2	LAYOUT
3	CONSTRUCTION DETAILS
4	DRAINAGE DETAILS AND QUANTITIES
5	CONSTRUCTION AREA SIGNS
6-11	REVISED STANDARD PLANS

THE STANDARD PLANS LIST APPLICABLE TO THIS CONTRACT IS INCLUDED IN THE NOTICE TO BIDDERS AND SPECIAL PROVISIONS BOOK.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
PROJECT PLANS FOR CONSTRUCTION ON
STATE HIGHWAY
IN FRESNO COUNTY
IN SELMA AT
McCALL AVENUE UNDERCROSSING

TO BE SUPPLEMENTED BY STANDARD PLANS DATED MAY 2006



NO SCALE



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
06	Fre	99	R4.9	1	11

LOCATION MAP

PROJECT MANAGER
BILL MOSES
 DESIGN ENGINEER
FRANK GONZALEZ

7-16-10
 PROJECT ENGINEER DATE
 REGISTERED CIVIL ENGINEER



February 14, 2011
 PLANS APPROVAL DATE

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CONTRACT No.	06-0L6204
PROJECT ID	060020374

DATE PLOTTED => 17-FEB-2011
 TIME PLOTTED => 16:06
 LAST REVISION
 02-14-11

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans MAINTENANCE DESIGN

FUNCTIONAL SUPERVISOR
 FRANK GONZALEZ

CALCULATED/DESIGNED BY
 CHECKED BY

LEE XIONG
 JOSE VICTOR ECHEVESTE

REVISED BY
 DATE REVISED

REVISIONS

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
06	Fre	99	R4.9	2	11

7-23-10
 REGISTERED CIVIL ENGINEER DATE
 2-14-11
 PLANS APPROVAL DATE

Jose Victor Echeveste
 No. 50825
 Exp. 09-30-11
 CIVIL
 STATE OF CALIFORNIA

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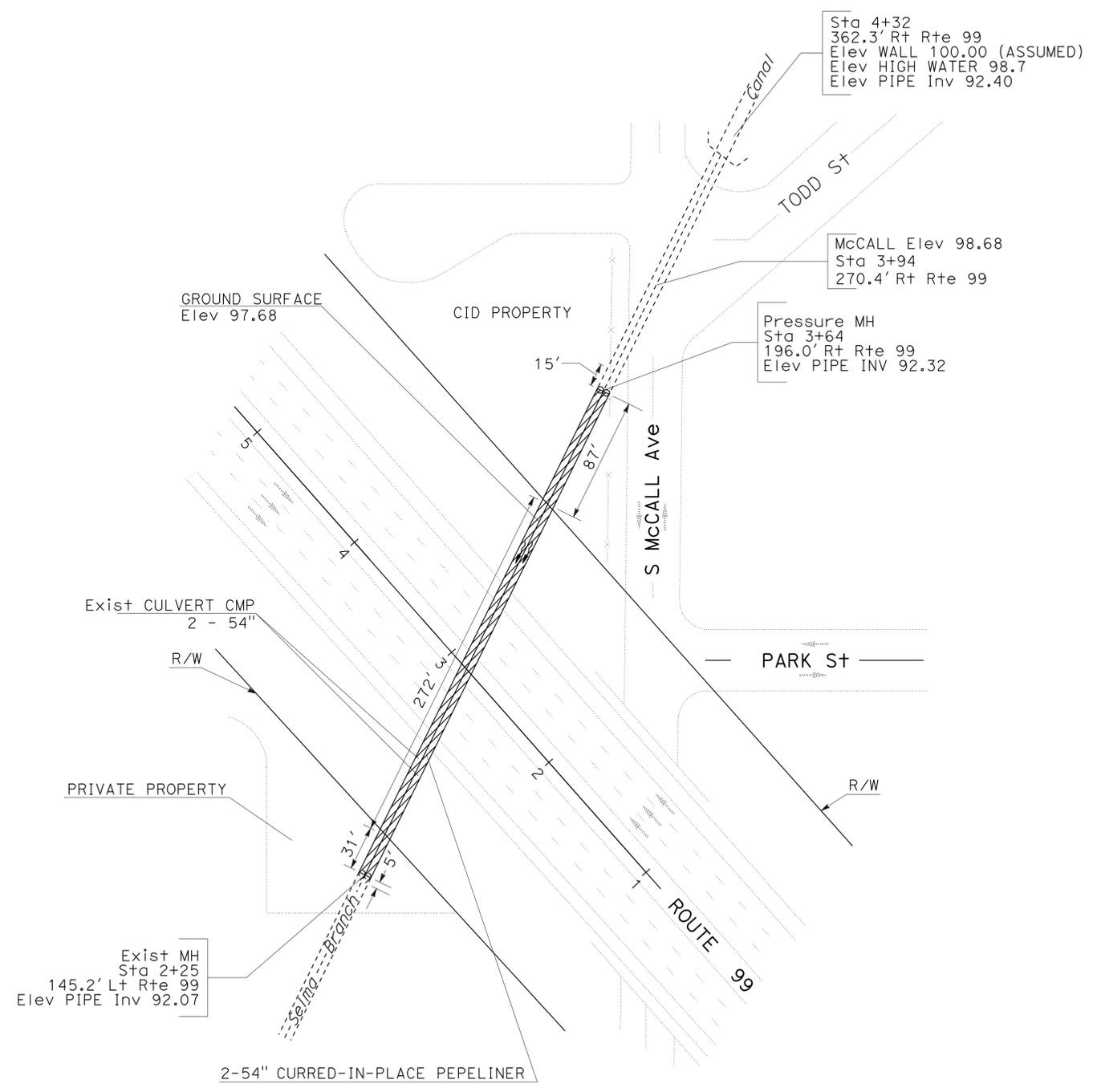
NOTE: FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

LEGEND:

 RELINE CULVERT (2-54" Dia)

ABBREVIATION:

CID - CONSOLIDATED IRRIGATION DISTRICT



LAYOUT

SCALE: 1"=50' **L-1**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
06	Fre	99	R4.9	3	11

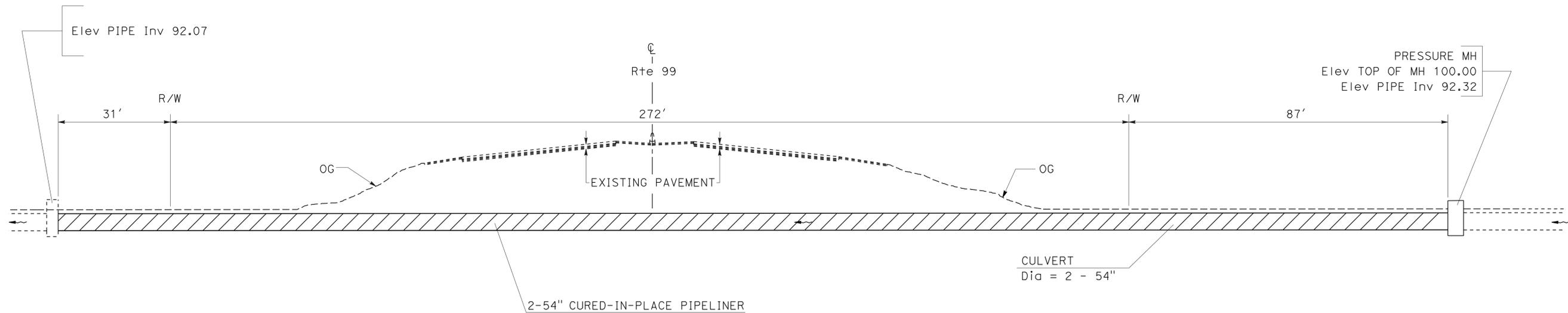
<i>Jose Victor Echeviste</i>	7-23-10
REGISTERED CIVIL ENGINEER	DATE
2-14-11	
PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER
 Jose Victor Echeviste
 No. 50825
 Exp. 9-30-11
 CIVIL
 STATE OF CALIFORNIA

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NOTE: FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

LEGEND:
 RELINE CULVERT
 (2-54" Dia)



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans MAINTENANCE DESIGN
 FUNCTIONAL SUPERVISOR: FRANK GONZALEZ
 CALCULATED/DESIGNED BY: [blank] CHECKED BY: [blank]
 LEE XIONG JOSE VICTOR ECHEVESTE
 REVISED BY: [blank] DATE REVISED: [blank]

CONSTRUCTION DETAILS

NO SCALE **C-1**

LAST REVISION: 02-14-11 DATE PLOTTED => 18-FEB-2011 TIME PLOTTED => 13:34

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
06	Fre	99	R4.9	4	11

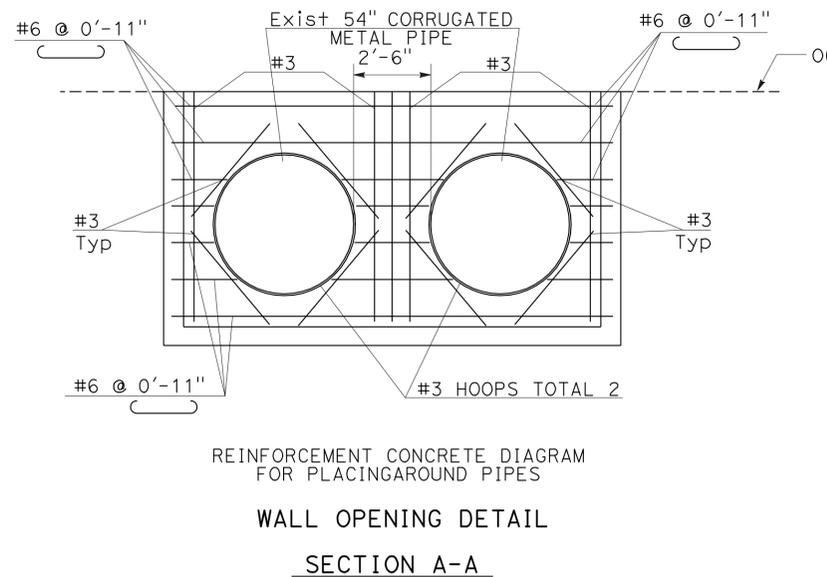
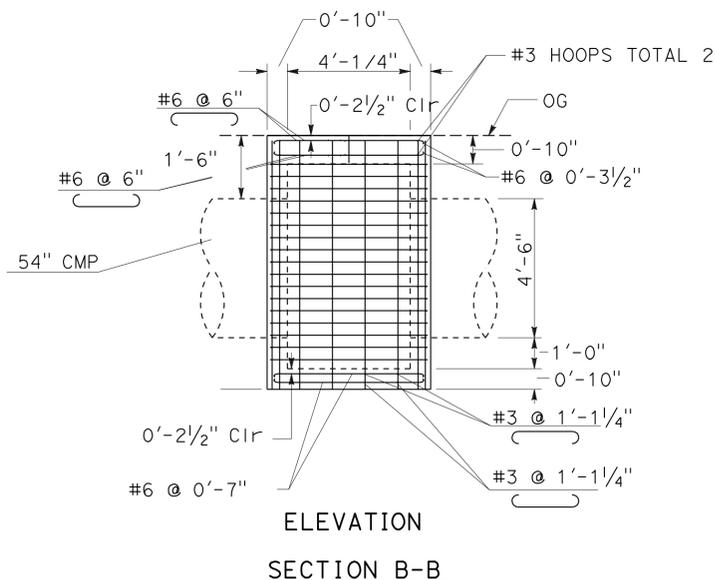
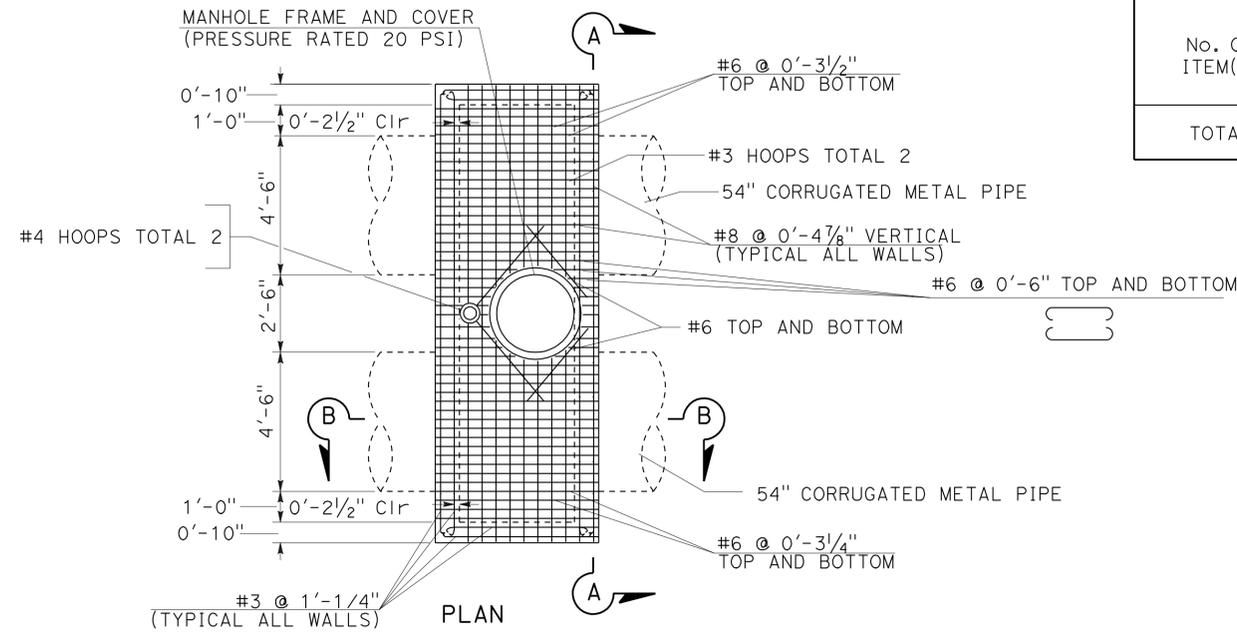
10-11-10
 REGISTERED CIVIL ENGINEER DATE
 2-14-11
 PLANS APPROVAL DATE

Jose Victor Echeveste
 No. 50825
 Exp. 9-30-11
 CIVIL
 STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

DRAINAGE QUANTITIES

No. OF ITEM(S)	PRESSURE MANHOLE	MANHOLE FRAME AND COVER (PRESSURE) (N)	54" CURE-IN-PLACE PIPELINER	MINOR CONCRETE (MINOR STRUCTURE) (N)
	EA	EA	LF	CY
TOTAL	1	1	780	30



PRESSURE MANHOLE

DRAINAGE DETAILS AND SUMMARY OF QUANTITIES

NO SCALE

D-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - **Caltrans** MAINTENANCE DESIGN

FUNCTIONAL SUPERVISOR: FRANK GONZALEZ

DESIGNED BY: JOSE VICTOR ECHEVESTE

CHECKED BY: LEE XIONG

REVISOR: DATE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
06	Fre	99	R4.9	5	11

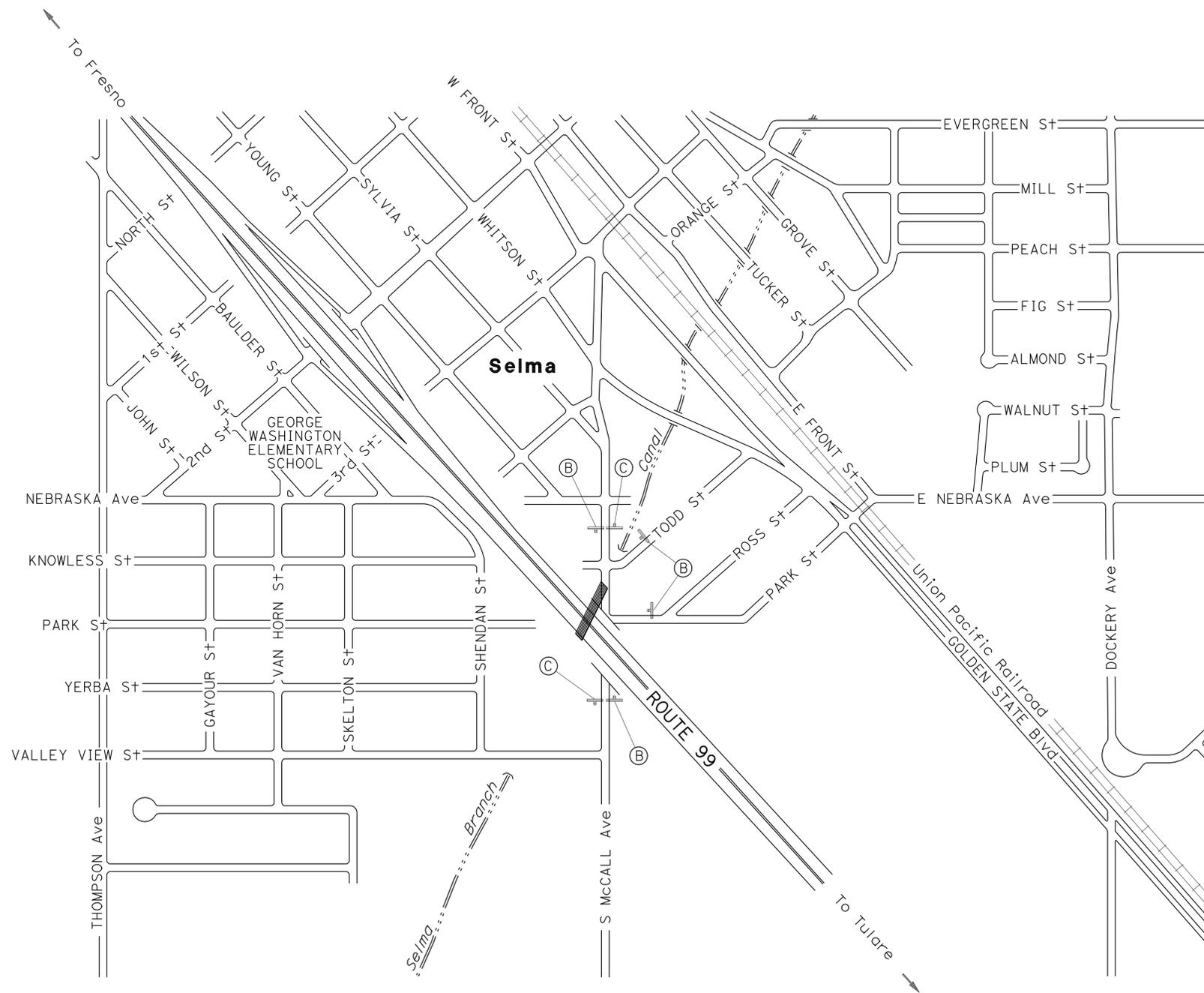
REGISTERED CIVIL ENGINEER DATE 7-23-10
 REGISTERED CIVIL ENGINEER No. 50825
 PLANS APPROVAL DATE 2-14-11
 Exp. 9-30-11
 CIVIL

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

STATIONARY MOUNTED CONSTRUCTION AREA SIGNS

SIGN No.	SIGN CODE	PANEL SIZE	SIGN MESSAGE	No. OF POST AND SIZE	No. OF SIGNS
(B)	W20-1	36" x 36"	ROAD WORK AHEAD	1 - 4" x 4"	4
(C)	G20-2	42" x 18"	END ROAD WORK	1 - 4" x 4"	2

NOTE: EXACT LOCATIONS TO BE DETERMINED BY THE ENGINEER.



CONSTRUCTION AREA SIGNS

NO SCALE

CS-1

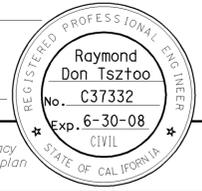
THIS PLAN ACCURATE FOR CONSTRUCTION AREA SIGN WORK ONLY.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans MAINTENANCE DESIGN
 FUNCTIONAL SUPERVISOR: FRANK GONZALEZ
 CHECKED BY: JOSE VICTOR ECHEVESTE
 DESIGNED BY: LEE XIONG
 REVISIONS: REVISED BY: DATE

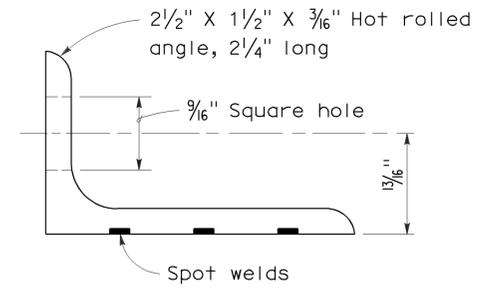


DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
06	Fre	99	R4.9	6	11

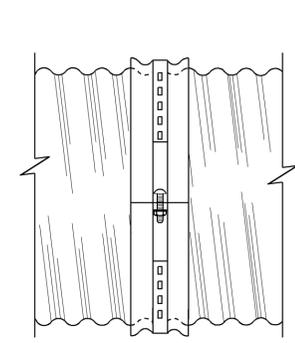
Raymond Don Tsztoo
 REGISTERED CIVIL ENGINEER
 June 6, 2008
 PLANS APPROVAL DATE
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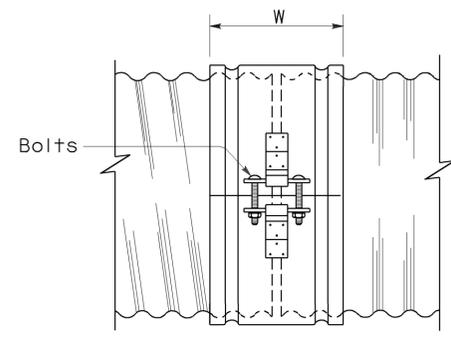
To accompany plans dated 2-14-11



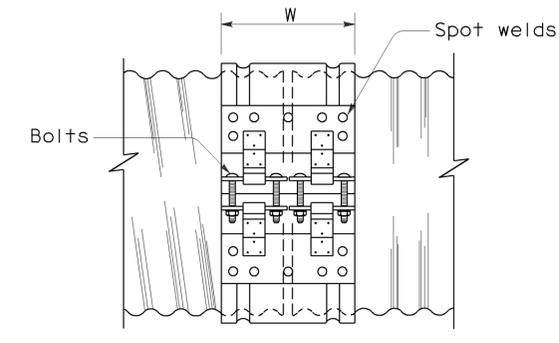
ANGLE



SIDE VIEW ANGLE



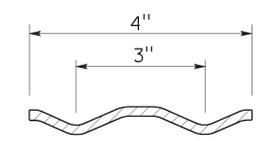
SIDE VIEW SINGLE BAR AND STRAP



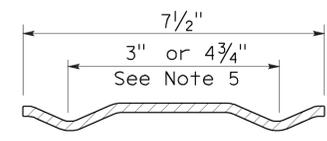
SIDE VIEW DOUBLE BAR AND STRAP

NOTES:

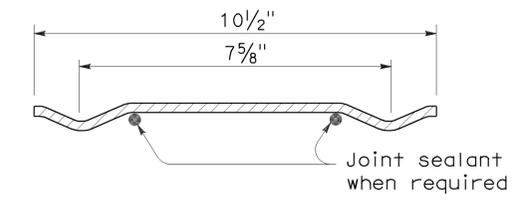
1. All ferrous metal coupling band connection hardware shall be galvanized or electroplated in accordance with the Standard Specifications.
2. Dimensions and thicknesses shown are minimum.
3. Spot welds shall develop minimum required strength of strap.
4. Fillet welds of equivalent strength may be substituted for spot welds or rivets.
5. Dimension depends upon whether end condition is lips up or lips down.



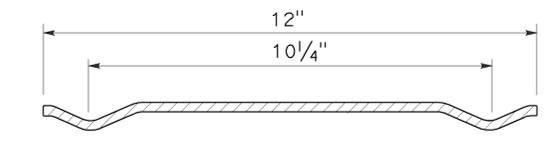
SECTION H-4 HUGGER BAND



SECTION H-7 HUGGER BAND



SECTION H-10 HUGGER BAND



SECTION H-12 HUGGER BAND

HUGGER COUPLING BANDS

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
**CORRUGATED METAL PIPE
 COUPLING DETAILS No. 4
 HUGGER COUPLING BANDS**

NO SCALE

RSP D97D DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN D97D
 DATED MAY 1, 2006 - PAGE 186 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP D97D

2006 REVISED STANDARD PLAN RSP D97D

ANNULAR AND HELICAL PROFILE

COUPLING TYPE	PIPE CORRUGATION	PIPE SIZE	W OR A	PIPE WALL THICKNESS				BAR AND STRAP (CSP ONLY)				ANGLE							
				CSP		CAP		STRAP THICKNESS	BOLTS Dia	BAR Dia	BAR YIELD STRENGTH	DIMENSIONS		BOLTS (No.- Dia)		RIVETS ANGLE TO BAND		SPOT WELDS ANGLE TO BAND	
				CSP	CAP	CSP	CAP					CSP	CAP	CSP	CAP	CSP	CAP	CSP	
TWO PIECE INTEGRAL FLANGE	1 1/2' x 1/4"	6"-10"	7"	0.052"-0.079"	0.048"-0.060"	0.052"	0.060"								2-3/8"	2-3/8"			
				12"-18"	7"	0.052"-0.079"										2-1/2"			
				2 2/3" x 1/2"	12"-24"	7"	0.052"-0.079"	0.060"-0.105"	0.064"	0.060"							2-1/2"	2-1/2"	
UNIVERSAL	2 2/3" x 1/2"	THROUGH 36"	12"	0.052"-0.138"	0.060"-0.135"	0.052"	0.060"					2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	3-1/2"	
		42"-60"	12"	0.052"-0.168"	0.075"-0.164"	0.052"	0.060"					2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	5-1/2"	
		THROUGH 72"	12"	0.052"-0.168"	0.164"	0.052"	0.105"	0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	5-1/2"	
		78"-84"	16 1/4"	0.168"		0.079"		DOUBLE 0.079"	1/2"	7/8"	32 ksi								
ANNULAR	2 2/3" x 1/2"	THROUGH 36"	7"	0.064"-0.138"	0.060"-0.135"	0.052"	0.060"	0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"	2" x 2" x 3/16"	2-1/2"	2-1/2"	3-3/8"	3-3/8"	3-1/2"	
		42"-72"	12"	0.064"-0.168"	0.075"-0.164"	0.052"	0.105"	0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	5-1/2"	
		78"-84"	12"	0.168"		0.079"		0.109"	1/2"	7/8"	45 ksi	2" x 2" x 3/16"		3-1/2"		3-3/8"		5-1/2"	
	3" x 1"	48"-90"	14"	0.064"-0.109"		0.052"		0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"		3-1/2"		3-3/8"		5-1/2"	
		96"-120"	14"	0.079"-0.109"		0.052"		0.109"	1/2"	7/8"	45 ksi	2" x 2" x 3/16"		3-1/2"		4-3/8"			
		42"-108"	14"		0.060"-0.135"		0.060"					2" x 2" x 3/16"		3-1/2"		3-3/8"			
HELICAL	2 2/3" x 1/2"	THROUGH 36"	12"	0.052"-0.138"	0.060"-0.135"	0.052"	0.060"	0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	3-1/2"	
		42"-72"	12"	0.052"-0.168"	0.075"-0.164"	0.052"	0.060"	0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	5-1/2"	
		78"-84"	12"	0.168"		0.079"		0.109"	1/2"	7/8"	45 ksi	2" x 2" x 3/16"		3-1/2"		3-3/8"		5-1/2"	
	3" x 1"	48"-90"	14"	0.064"-0.109"		0.052"		0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"		3-1/2"		3-3/8"		5-1/2"	
		96"-120"	14"	0.079"-0.109"		0.052"		0.109"	1/2"	7/8"	45 ksi	2" x 2" x 3/16"		3-1/2"		4-3/8"			
		42"-108"	14"		0.060"-0.135"		0.060"					2" x 2" x 3/16"		3-1/2"		3-3/8"			
HUGGER	2 2/3" x 1/2"	REROLLED END	12"-54"	4"	0.052"-0.109"		0.052"					2 1/2" x 1 1/2" x 3/16"	2 1/2" x 1 1/2" x 3/16"	1-1/2"				3-1/2"	
			60"-66"	4"	0.109"		0.064"						2 1/2" x 1 1/2" x 3/16"	2 1/2" x 1 1/2" x 3/16"	1-1/2"			3-1/2"	
			36"-48"	4"	0.138"		0.064"						2 1/2" x 1 1/2" x 3/16"	2 1/2" x 1 1/2" x 3/16"	1-1/2"			3-1/2"	
			THROUGH 72"	10 1/2"	0.052"-0.168"		0.052"		0.079"	1/2"	7/8"	32 ksi							
			78"-84"	10 1/2"	0.168"		0.079"		0.109"	1/2"	7/8"	45 ksi							
	3" x 1"	REROLLED END	48"-90"	10 1/2"	0.064"-0.109"		0.052"		0.079"	1/2"	7/8"	32 ksi							
			96"-120"	10 1/2"	0.079"-0.109"		0.052"		0.109"	1/2"	7/8"	45 ksi							
			48"-66"	7 1/2"	0.064"-0.109"		0.064"		0.079"	1/2"	7/8"	32 ksi	2 1/2" x 1 1/2" x 3/16"	2 1/2" x 1 1/2" x 3/16"	1-1/2"				3-1/2"
			72"-90"	7 1/2"	0.064"-0.079"		0.064"		0.079"	1/2"	7/8"	32 ksi	2 1/2" x 1 1/2" x 3/16"	2 1/2" x 1 1/2" x 3/16"	1-1/2"				3-1/2"
			48"-90"	7 1/2"	0.064"-0.138"		0.064"		0.079"	1/2"	7/8"	32 ksi							
5" x 1"	REROLLED END	48"-120"	12" SEE	0.064"-0.109"		0.064"		0.079"	1/2"	7/8"	32 ksi								
		48"-84"	12" NOTE	0.138"		0.064"		0.079"	1/2"	7/8"	32 ksi								
		90"-120"	12" 11	0.138"		0.064"		DOUBLE 0.079"	1/2"	7/8"	32 ksi								

SPIRAL RIB PROFILE

COUPLING TYPE	PIPE CORRUGATION	PIPE SIZE	W	PIPE WALL THICKNESS				BAR AND STRAP (SSRP ONLY)				ANGLE						
				SSRP		ASRP		STRAP THICKNESS	BOLTS Dia	BAR Dia	BAR YIELD STRENGTH	DIMENSIONS		BOLTS (No.- Dia)		RIVETS ANGLE TO BAND		SPOT WELDS ANGLE TO BAND
				SSRP	ASRP	SSRP	ASRP					SSRP	ASRP	SSRP	ASRP	SSRP	ASRP	SSRP
ANNULAR	2 2/3" x 1/2" * REROLLED END	24"-36"	12"	0.064"-0.109"	0.060"-0.105"	0.052"	0.060"	0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	5-1/2"
		42"-60"	12"	0.064"-0.109"	0.075"-0.105"	0.052"	0.105"	0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	5-1/2"
		66"-72"	12"	0.064"-0.109"		0.052"		0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	5-1/2"
		78"-114"	12"	0.079"-0.109"		0.079"		0.109"	1/2"	7/8"	45 ksi	2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	5-1/2"
HUGGER	2 2/3" x 1/2" * REROLLED END	24"-72"	10 1/2"	0.064"-0.109"		0.052"		0.079"	1/2"	7/8"	32 ksi							
		78"-84"	10 1/2"	0.109"		0.079"		0.109"	1/2"	7/8"	45 ksi							

* See Note 14.

14. All profiles of Spiral Rib Pipe (3/4" x 3/4" ribs at 7 1/2" pitch and 3/4" x 1" ribs at 11 1/2" pitch in both steel and aluminum and 3/4" x 1" ribs at 8 1/2" pitch in steel only) shall be manufactured with rerolled ends. Corrugation profile of the rerolled ends shall be 2 2/3" x 1/2" annual corrugations with a minimum of two full corrugations at each end.

- NOTES:** To accompany plans dated 2-14-11
- All ferrous metal coupling band connection hardware shall be galvanized or electroplated in accordance with the Standard Specifications.
 - For helically corrugated coupling bands, the connection angles may be oriented parallel to the pipe axis, provided connecting holes are slotted lengthwise sufficiently to allow adjustment for the helix angle.
 - Tension strap may be connected to band with either spot welds or fillet welds that develop minimum required strength of strap.
 - Use 1 1/4" gage line dimension on attached angle leg for rivets and spot welds.
 - Band thickness shall not be less than:
 - 3 standard thicknesses lighter than the thickness of the pipe for Corrugated Steel Pipe.
 - 2 standard thicknesses lighter than the thickness of the pipe and in no case lighter than 0.060" for Corrugated Aluminum Pipe.
 - Dimensions, thicknesses and strengths shown are minimum.
 - For pipe arches use same width band as for round pipe of equal periphery.
 - Fillet welds of equivalent strength may be substituted for spot welds or rivets.
 - Spot welds shall develop minimum required strength of strap.
 - Pipe with rerolled ends having at least two 2 2/3" x 1/2" annular corrugations at each end with or without an upturned flange may be connected with any of the annular coupling bands shown for pipe of the same diameter and wall thickness and having 2 2/3" x 1/2" corrugations.
 - In the case of H-12 huggerbands, two piece bands are required for diameters through 96" and three piece bands are required for diameters 102" through 120".
 - Two piece bands are required for pipes greater than 42" diameter.
 - The 2 1/4" x 2" x 0.109" thick galvanized die-formed angle connector may be used in lieu of the 2" x 2" x 3/16" angle connector for standard joints only on pipes through 72" diameter.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**CORRUGATED METAL PIPE
COUPLING DETAILS No. 5
STANDARD JOINT**
NO SCALE

RSP D97E DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN D97E
DATED MAY 1, 2006 - PAGE 187 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP D97E

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
06	Fre	99	R4.9	7	11

Raymond Don Tsztoo
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER
Raymond Don Tsztoo
No. C37332
Exp. 6-30-08
CIVIL
STATE OF CALIFORNIA

2006 REVISED STANDARD PLAN RSP D97E

ANNULAR AND HELICAL PROFILE

COUPLING TYPE	PIPE CORRUGATION	PIPE SIZE	W OR A	PIPE WALL THICKNESS				BAND THICKNESS				BAR AND STRAP (CSP ONLY)				ANGLE						
				CSP		CAP		CSP		CAP		STRAP THICKNESS	BOLTS Dia	BAR Dia	BAR YIELD STRENGTH	DIMENSIONS		BOLTS (No. - Dia)		RIVETS ANGLE TO BAND		SPOT WELDS ANGLE TO BAND
				CSP	CAP	CSP	CAP	CSP	CAP	CSP	CAP					CSP	CAP	CSP	CAP	CSP	CAP	CSP
TWO PIECE INTEGRAL FLANGE	1 1/2" x 1/4"	6"-10"	7"	0.064"-0.079"	0.060"	0.064"	0.060"									2-3/8"	2-3/8"					
	2 2/3" x 1/2"	12"-24"	12"		0.060"-0.105"		0.060"										3-1/2"					
UNIVERSAL	2 2/3" x 1/2"	THROUGH 36"	12"	0.064"-0.138"	0.060"-0.135"	0.064"	0.060"	0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"			5-1/2"		
		42"-60"	16 1/4"	0.064"-0.168"	0.060"-0.164"	0.064"	0.060"	DOUBLE 0.079"	1/2"	7/8"	32 ksi	2" x 2" x 1/4"	2" x 2" x 1/4"	4-1/2"	4-1/2"	5-3/8"	5-3/8"					
ANNULAR	2 2/3" x 1/2"	THROUGH 36"	12"	0.064"-0.138"	0.060"-0.135"	0.064"	0.060"					2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"			5-1/2"		
		42"-60"	12"	0.064"-0.079"		0.064"							2" x 2" x 3/16"		3-1/2"		3-3/8"			5-1/2"		
		42"-60"	12"	0.109"-0.168"	0.135"-0.164"	0.064"	0.075"						2" x 2" x 1/4"	2" x 2" x 1/4"	3-1/2"	3-1/2"	5-3/8"	5-3/8"				
		66"-72"	24"		0.164"		0.105"						2" x 2" x 1/4"	2" x 2" x 1/4"	5-1/2"	5-1/2"	7-3/8"	7-3/8"				
		66"-84"	24"	0.109"-0.168"		0.064"							2" x 2" x 1/4"		5-1/2"		7-3/8"					
		42"-54"	12"		0.060"-0.105"		0.060"							2" x 2" x 3/16"		3-1/2"		3-3/8"				
	3" x 1"	48"-60"	14"	0.064"-0.079"		0.064"							2" x 2" x 3/16"		3-1/2"		3-3/8"				5-1/2"	
		48"-60"	14"	0.109"		0.064"							2" x 2" x 3/16"		3-1/2"		5-3/8"					
		66"-120"	25"	0.064"-0.109"		0.064"							2" x 2" x 3/16"		5-1/2"		9-3/8"					
		42"-60"	14"		0.060"-0.105"		0.060"						2" x 2" x 3/16"		3-1/2"			5-3/8"				
		42"-60"	14"		0.135"		0.075"						2" x 2" x 1/4"		3-1/2"			5-3/8"				
		66"-96"	25"		0.060"-0.135"		0.060"						2" x 2" x 1/4"		5-1/2"			7-3/8"				
		96"-108"	25"		0.135"		0.075"						2" x 2" x 1/4"		5-1/2"			7-3/8"				
														2" x 2" x 1/4"		5-1/2"			7-3/8"			
HELICAL	2 2/3" x 1/2"	THROUGH 36"	12"	0.064"-0.138"	0.060"-0.135"	0.064"	0.060"					2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"			5-1/2"		
		42"-54"	12"		0.060"-0.105"		0.060"						2" x 2" x 3/16"		3-1/2"		3-3/8"					
		42"-60"	12"	0.064"-0.079"		0.064"							2" x 2" x 3/16"		3-1/2"		3-3/8"				5-1/2"	
		42"-60"	12"	0.109"-0.168"	0.135"-0.164"	0.064"	0.075"						2" x 2" x 1/4"	2" x 2" x 1/4"	3-1/2"	3-1/2"	5-3/8"	5-3/8"				
		66"-84"	24"	0.109"-0.168"		0.064"							2" x 2" x 1/4"	2" x 2" x 1/4"	5-1/2"	5-1/2"	7-3/8"	7-3/8"				
		66"-72"	24"		0.164"		0.105"						2" x 2" x 1/4"		5-1/2"			5-3/8"				
	3" x 1"	48"-60"	14"	0.064"-0.079"		0.064"							2" x 2" x 3/16"		3-1/2"		3-3/8"				5-1/2"	
		48"-60"	14"	0.109"		0.064"							2" x 2" x 3/16"		3-1/2"		5-3/8"					
		66"-120"	25"	0.064"-0.109"		0.064"							2" x 2" x 3/16"		5-1/2"		9-3/8"					
		42"-60"	14"		0.060"-0.105"		0.060"						2" x 2" x 3/16"		3-1/2"			5-3/8"				
		42"-60"	14"		0.135"		0.075"						2" x 2" x 1/4"		3-1/2"			5-3/8"				
		66"-96"	25"		0.060"-0.135"		0.060"						2" x 2" x 1/4"		5-1/2"			7-3/8"				
		96"-108"	25"		0.135"		0.075"						2" x 2" x 1/4"		5-1/2"			7-3/8"				
														2" x 2" x 1/4"		5-1/2"			7-3/8"			
HUGGER	2 2/3" x 1/2" REROLLED END	THROUGH 48"	10 1/2"	0.109"		0.064"		0.079"	1/2"	7/8"	32 ksi											
		54"-66"	10 1/2"	0.109"		0.064"		DOUBLE 0.079"	1/2"	7/8"	32 ksi											
		THROUGH 54"	10 1/2"	0.064"-0.079"		0.064"		0.079"	1/2"	7/8"	32 ksi											
		THROUGH 60"	10 1/2"	0.138"		0.079"		DOUBLE 0.079"	1/2"	7/8"	32 ksi											
		66"-72"	10 1/2"	0.138"		0.109"		DOUBLE 0.079"	1/2"	7/8"	32 ksi											
	3" x 1" REROLLED END	THROUGH 72"	10 1/2"	0.168"		0.109"		DOUBLE 0.109"	1/2"	7/8"	45 ksi											
		48"-84"	10 1/2"	0.109"		0.079"		DOUBLE 0.079"	1/2"	7/8"	32 ksi											
		48"-90"	10 1/2"	0.064"-0.079"		0.064"		DOUBLE 0.079"	1/2"	7/8"	32 ksi											
		96"-102"	10 1/2"	0.079"		0.079"		DOUBLE 0.079"	1/2"	7/8"	32 ksi											
		90"-120"	10 1/2"	0.109"		0.109"		DOUBLE 0.109"	1/2"	7/8"	45 ksi											

SPIRAL RIB PROFILE

COUPLING TYPE	PIPE CORRUGATION	PIPE SIZE	W	PIPE WALL THICKNESS				BAND THICKNESS				BAR AND STRAP (SSRP ONLY)				ANGLE						
				SSRP		ASRP		SSRP		ASRP		STRAP THICKNESS	BOLTS Dia	BAR Dia	BAR YIELD STRENGTH	DIMENSIONS		BOLTS (No.- Dia)		RIVETS ANGLE TO BAND		SPOT WELDS ANGLE TO BAND
				SSRP	ASRP	SSRP	ASRP	SSRP	ASRP	SSRP	ASRP					SSRP	ASRP	SSRP	ASRP	SSRP		
ANNULAR	2 2/3" x 1/2" * REROLLED END	24"-36"	12"	0.064"-0.109"	0.060"-0.105"	0.064"	0.060"	0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"			5-1/2"		
		42"-60"	12"	0.064"-0.079"	0.075"-0.105"	0.064"	0.075"	0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"			5-1/2"		
		42"-60"	12"	0.109"		0.064"		0.079"	1/2"	7/8"	32 ksi	2" x 2" x 1/4"		3-1/2"		5-3/8"						
		66"-84"	24"	0.109"		0.064"		0.079"	1/2"	7/8"	32 ksi	2" x 2" x 1/4"		5-1/2"		7-3/8"						
HUGGER	2 2/3" x 1/2" * REROLLED END	24"-54"	10 1/2"	0.064"-0.079"		0.064"		0.079"	1/2"	7/8"	32 ksi											
		24"-48"	10 1/2"	0.109"		0.064"		0.079"	1/2"	7/8"	32 ksi											
		54"-66"	10 1/2"	0.109"		0.064"		Double 0.079"	1/2"	7/8"	32 ksi											

* See Note 13.

13. All profiles of Spiral Rib Pipe (3/4" x 3/4" ribs at 7 1/2" pitch and 3/4" x 1" ribs at 11 1/2" pitch in both steel and aluminum and 3/4" x 1" ribs at 8 1/2" pitch in steel only) shall be manufactured with rerolled ends. Corrugation profile of the rerolled ends shall be 2 2/3" x 1/2" annual corrugations with a minimum of two full corrugations at each end.

CORRUGATED METAL PIPE COUPLING DETAILS No. 6 POSITIVE JOINT

NO SCALE

RSP D97F DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN D97F DATED MAY 1, 2006 - PAGE 188 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP D97F

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
06	Fre	99	R4.9	8	11

Raymond Don Tsztso
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

REGISTERED PROFESSIONAL ENGINEER
Raymond Don Tsztso
No. C37332
Exp. 6-30-08
STATE OF CALIFORNIA CIVIL

To accompany plans dated 2-14-11

NOTES:

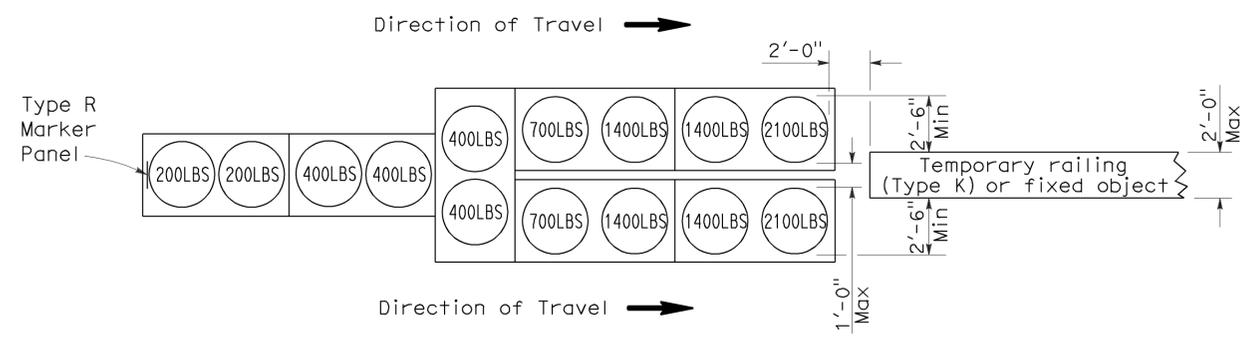
- All ferrous metal coupling band connection hardware shall be galvanized or electroplated in accordance with the Standard Specifications.
- For helically corrugated coupling bands, the connection angles may be oriented parallel to the pipe axis, provided connecting holes are slotted lengthwise sufficiently to allow adjustment for the helix angle.
- Tension strap may be connected to band with either spot welds or fillet welds that develop minimum required strength of strap.
- Use 1/4" gage line dimension on attached angle leg for rivets and spot welds.
- Band thickness shall not be less than:
 - 3 standard thicknesses lighter than the thickness of the pipe for Corrugated Steel Pipe.
 - 2 standard thicknesses lighter than the thickness of the pipe and in no case lighter than 0.060" for Corrugated Aluminum Pipe.
- Dimensions, thicknesses and strengths shown are minimum.
- For pipe arches use same width band as for round pipe of equal periphery.
- Fillet welds of equivalent strength may be substituted for spot welds or rivets.
- Spot welds shall develop minimum required strength of strap.
- Pipe with rerolled ends having at least two 2 2/3" x 1/2" annular corrugations at each end with or without an upturned flange may be connected with any of the annular coupling bands shown for pipe of the same diameter and wall thickness and having 2 2/3" x 1/2" corrugations.
- In the case of H-12 huggerbands, two piece bands are required for diameters through 96" and three piece bands are required for diameters 102" through 120".
- Two piece bands are required for pipes greater than 42" diameter.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

2006 REVISED STANDARD PLAN RSP D97F

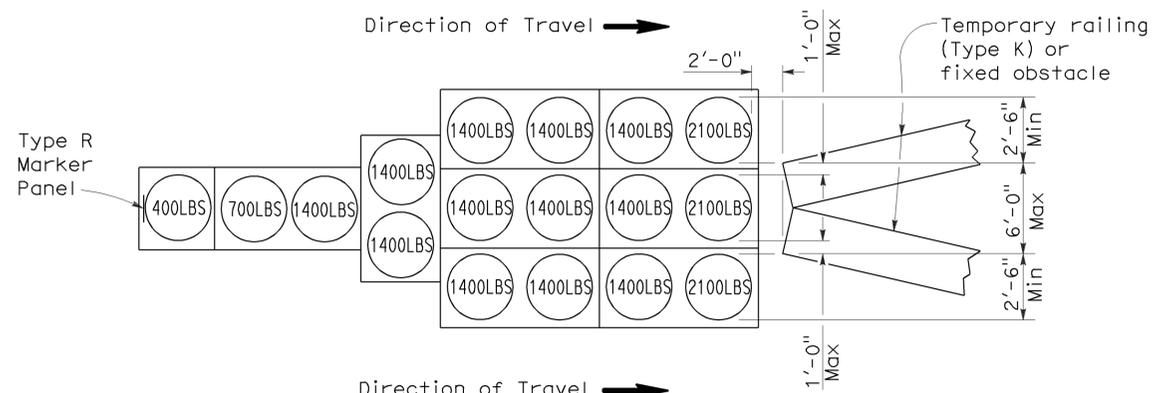
To accompany plans dated 2-14-11

2006 REVISED STANDARD PLAN RSP T1A



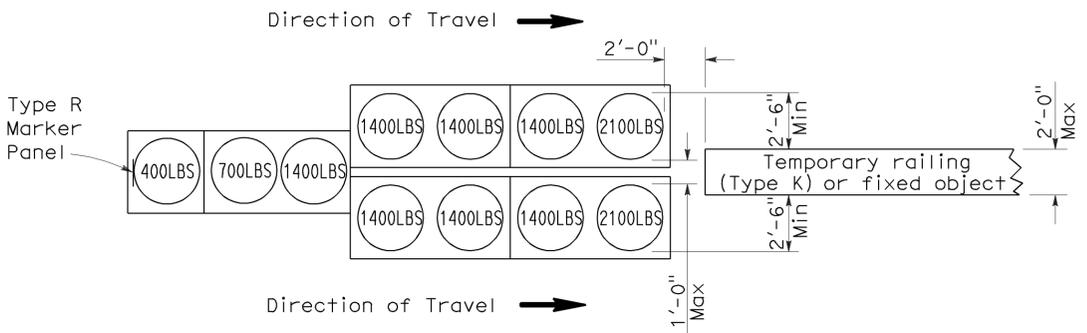
ARRAY 'TU14'

Approach speed 45 mph or more



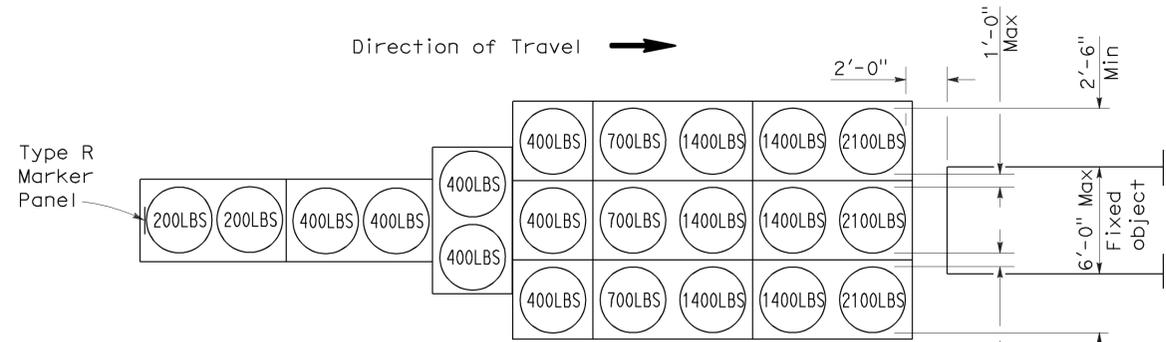
ARRAY 'TU17'

Approach speed less than 45 mph



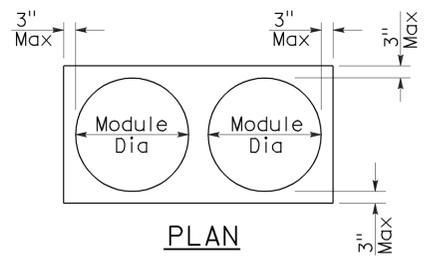
ARRAY 'TU11'

Approach speed less than 45 mph

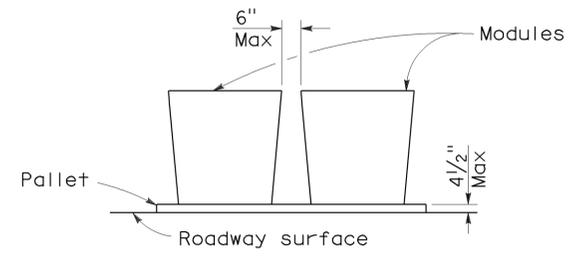


ARRAY 'TU21'

Approach speed 45 mph or more



PLAN



ELEVATION

CRASH CUSHION PALLET DETAIL

See Note 7

NOTES:

1. (XXX) Indicates sand filled module location and weight of sand in pounds for each module. Module spacing is based on the greater diameter of the module.
2. All sand weights are nominal.
3. Temporary crash cushion arrays shall not encroach on the traveled way.
4. Place the top of Type R marker panel 1" below the module lid.
5. Refer to Standard Plan A73B for marker details.
6. Approach speeds indicated conform to NCHRP 350 Report criteria.
7. Use of pallets is optional.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**TEMPORARY CRASH CUSHION,
SAND FILLED
(UNIDIRECTIONAL)**

NO SCALE

RSP T1A DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN T1A
DATED MAY 1, 2006 - PAGE 211 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP T1A

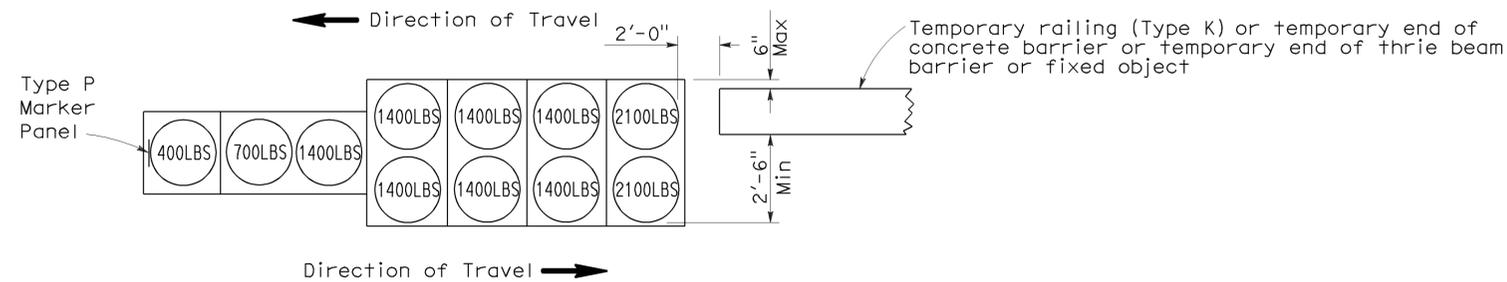
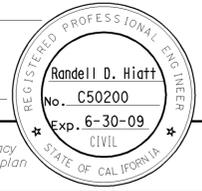
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
06	Fre	99	R4.9	10	11

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

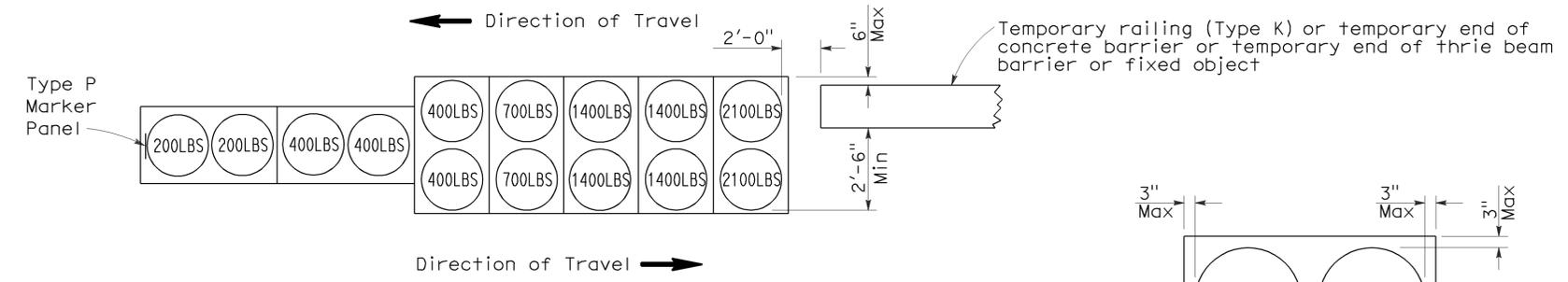
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To accompany plans dated 2-14-11



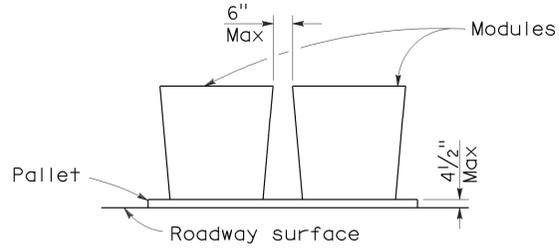
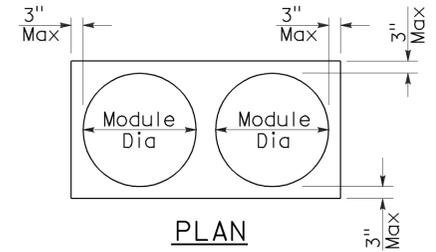
ARRAY 'TB11'

Approach speed less than 45 mph



ARRAY 'TB14'

Approach speed 45 mph or more



CRASH CUSHION PALLET DETAIL
See Note 7

NOTES:

1. (XXX) Indicates sand filled module location and weight of sand in pounds for each module. Module spacing is based on the greater diameter of the module.
2. All sand weights are nominal.
3. Temporary crash cushion arrays shall not encroach on the traveled way.
4. Place the Type P marker panel so that the bottom of the panel rests upon the pallet.
5. Refer to Standard Plan A73B for marker details.
6. Approach speeds indicated conform to NCHRP 350 Report criteria.
7. Use of pallets is optional.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**TEMPORARY CRASH CUSHION,
SAND FILLED
(BIDIRECTIONAL)**
NO SCALE

RSP T1B DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN T1B
DATED MAY 1, 2006 - PAGE 212 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP T1B

2006 REVISED STANDARD PLAN RSP T1B

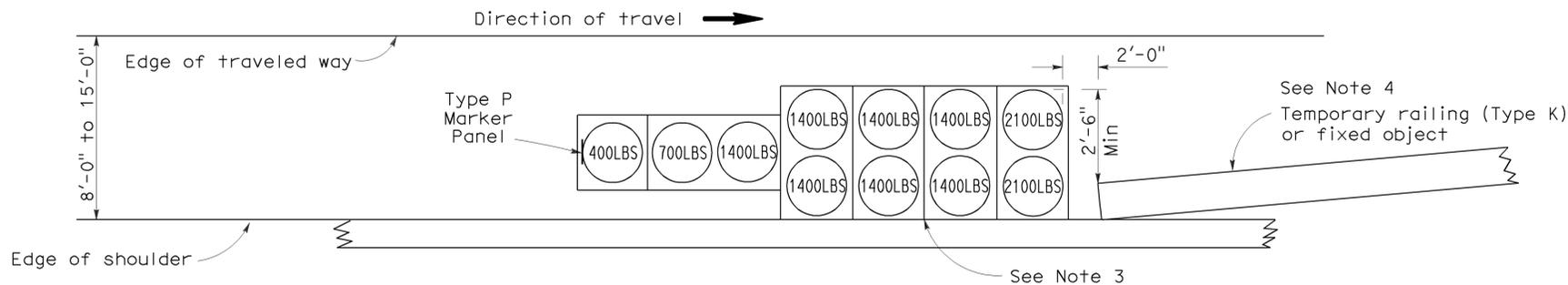
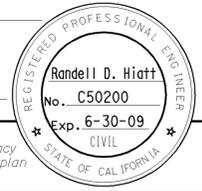
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
06	Fre	99	R4.9	11	11

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

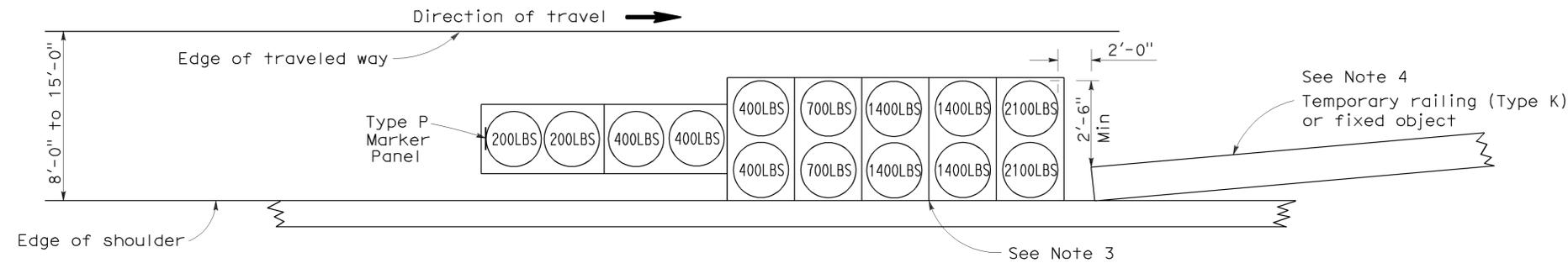
June 6, 2008
PLANS APPROVAL DATE

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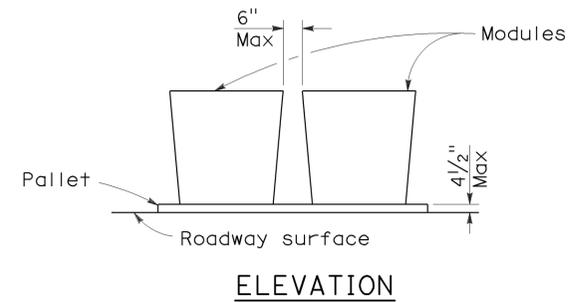
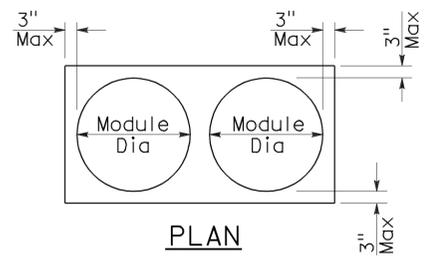
To accompany plans dated 2-14-11



ARRAY 'TS11'
Approach speed less than 45 mph
See Note 9



ARRAY 'TS14'
Approach speed 45 mph or more
See Note 9



CRASH CUSHION PALLET DETAIL
See Note 11

NOTES:

- (XXX) Indicates sand filled module location and weight of sand in pounds for each module. Module spacing is based on the greater diameter of the module.
- All sand weights are nominal.
- The temporary crash cushion arrays shown on this plan shall be used only in locations where there will be traffic on one side of the temporary crash cushion array.
- If the fixed object or approach end of the temporary railing is less than 15'-0" from the edge of traveled way, a temporary crash cushion is required in a construction or work zone.
- Temporary crash cushion arrays shall not encroach on the traveled way.
- Arrays for median shoulders shall conform to details shown on this plan for outside shoulders.
- Place the Type P marker panel so that the bottom of the panel rests upon the pallet and faces traffic.
- Refer to Standard Plan A73B for marker details.
- For shoulder widths less than 8'-0", appropriate approved crash cushion protection, other than sand filled modules, shall be provided at fixed objects and at approach ends of temporary railing. The specific type of crash cushion shall be as shown on the project plans or as specified in the Special Provisions, or if not shown on the project plans or specified in the Special Provisions, shall be as approved by the Engineer.
- Approach speeds indicated conform to NCHRP 350 Report criteria.
- Use of pallets is optional.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**TEMPORARY CRASH CUSHION,
SAND FILLED
(SHOULDER INSTALLATIONS)**
NO SCALE

RSP T2 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN T2
DATED MAY 1, 2006 - PAGE 213 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP T2

2006 REVISED STANDARD PLAN RSP T2