DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER _____ DATE _____

PLANS APPROVAL DATE _____

REGISTERED PROFESSIONAL ENGINEER No. _____ Exp. _____ 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.

The Registered Civil Engineer for the project is responsible for the selection and proper application of the component design and any modifications shown.

DESIGN NOTES:

1. Specifications:

AASHTO LRFD Bridge Design Specifications, 6th Edition with California Amendments.

Loading:

Impact Factor (Apply to roof slab only):
IM = 33(1.0-0.125 D_E) ≥ 0%
D_E - the minimum depth of earth cover

Earth Load:
Earth pressures for two conditions:
For culverts with pile foundation or footing on rock
140 LB/CF vertical, 42 LB/CF horizontal.
140 LB/CF vertical, 140 LB/CF horizontal.
For culverts with footing on soil
140 LB/CF vertical, 42 LB/CF horizontal.
140 LB/CF vertical, 70 LB/CF horizontal.

Unit stresses:
f'c = 3600 psi (Culverts & Footings)
f'c = 4000 psi (Piles)
fy = 60,000 psi

2. Piles:

Class 200 kip pile in Standard Plans B2-8 for deep foundation.

CONSTRUCTION NOTES:

Construction loads:

Strutting required as shown on Standard Plan D88. Strutting may be required on culvert extensions when existing parapet is removed.

Roof and Walls:

When cover is less than span length-
Place ½" premolded expansion joint filler at 30'-0"± centers outside the paved roadway lanes and place Bridge Detail 3-2, Standard Plan B0-3, at 30'-0"± centers under paved roadway lanes.

When cover is more than span length-
Place ½" premolded expansion joint filler at 30'-0"± centers and additional ½" premolded expansion joints at locations of change in foundation character as directed by the engineer.

Construction joints:

Temporary joints permitted if normal (or radial) to ℄ of frame.

GENERAL NOTES:

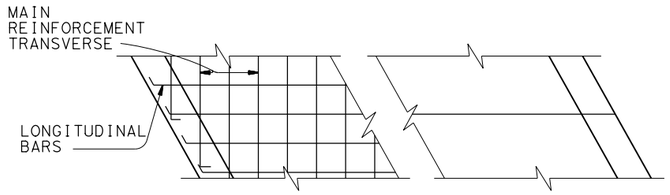
Reinforcement placement:

Main reinforcement is to be placed transversely or, for curved culverts, radially. When radial, reinforcing spacing of the transverse bars in the top slab is measured along the centerline.

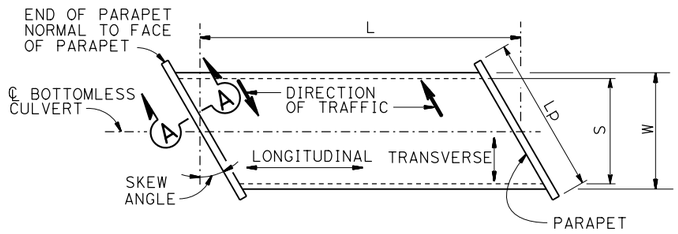
Provide paving notch when top is exposed and when pavement is portland cement concrete, see "WALL, SLAB, AND PILE DETAILS" sheet for details.

For design and details not shown, see Standard Plans D82 and D84.

NOTE:
THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

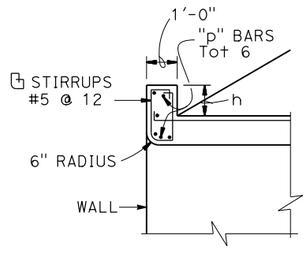


PART PLAN-SKEWED



BOTTOMLESS CULVERT TERMINOLOGY

W = Width, L = Length, Lp = Parapet Length, S = Span



SECTION A-A
PARAPET DETAIL WITH SKEW ANGLE

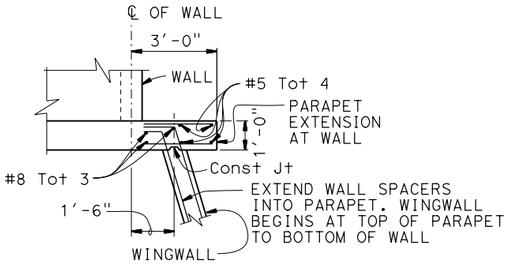
h = Parapet Height

PARAPET "p" BARS & HEIGHT "h"						
SKEW ANGLE / SPAN, S	0° TO 15°		16° TO 30°		31° TO 45°	
	p	h	p	h	p	h
12'	#6	1'-0"	#7	1'-2"	#8	1'-6"
14'	#7	1'-0"	#8	1'-4"	#9	1'-8"
16'	#8	1'-2"	#9	1'-6"	#10	2'-0"
18'	#9	1'-3"	#10	1'-9"	#10	2'-3"
20'	#10	1'-5"	#10	2'-0"	#10	2'-6"

PARAPET REINFORCEMENT

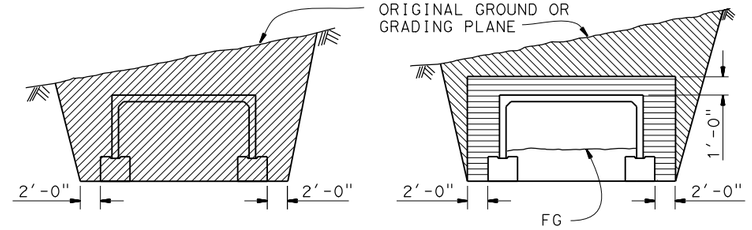
LEGEND:

- STRUCTURE EXCAVATION (CULVERT)
- STRUCTURE BACKFILL (CULVERT) 95% RELATIVE COMPACTION
- ROADWAY EMBANKMENT
- ORIGINAL GROUND
- FINISH GRADE

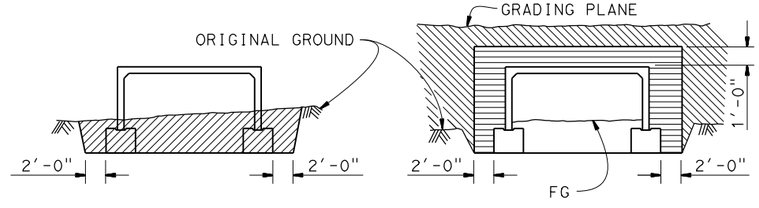


WINGWALL DETAIL, TYPE A, B, C

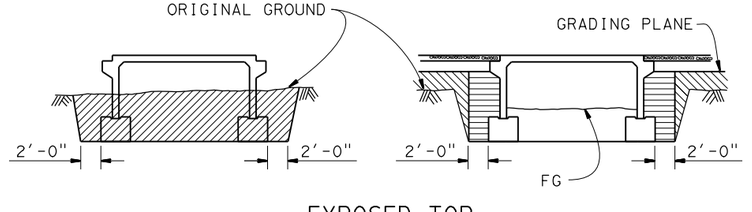
(See STANDARD PLAN D84)



IN TRENCH



IN EMBANKMENT



EXPOSED TOP

EXCAVATION

BACKFILL

BRIDGE STANDARD DETAILS		
xs17-050-1 FILE NO.	May 2016 APPROVAL DATE	*The components of the Bridge Standard Details have been prepared under the responsible charge of the Technical Owner, a registered civil engineer in the State of California*

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

BRIDGE NO. _____ POST MILE _____

CIP BOTTOMLESS CULVERT GENERAL CONFIGURATIONS

Refer to: http://www.dot.ca.gov/hq/esc/techpubs/manual/bridgemanuals/bridge-standard-detail-sheets/index.html

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ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: PROJECT NUMBER & PHASE: CONTRACT NO.:

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES				SHEET	OF
6-19-14	7-12-16	5-13-16	5-31-16		