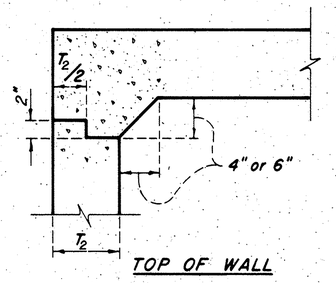
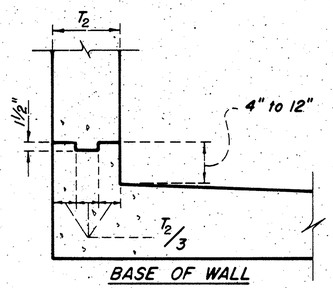
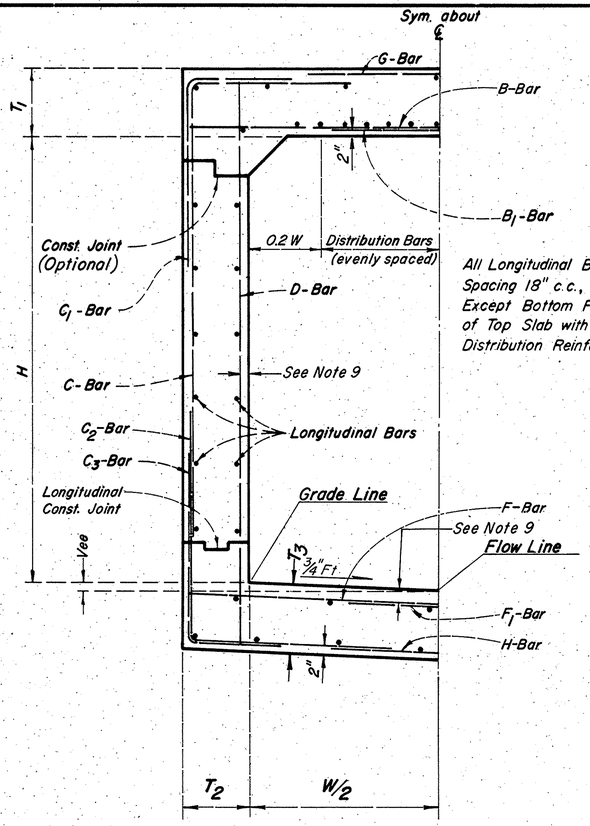


TOP OF WALL



BASE OF WALL



All Longitudinal Bar Spacing 18" c.c., Except Bottom Face of Top Slab with Distribution Reinforcement

BOX SECTION		1	2	3
Design Cover		3'-0"	3'-0"	12'-0"
Width	W	9'-6"	9'-6"	9'-6"
Height	H	8'-0"	8'-0"	8'-0"
Top Slab Thickness	T_1	12¾"	12¾"	13"
Side Wall Thickness	T_2	12"	13"	13"
Bottom Slab Thickness	T_3	12"	13"	15"
B Bars	Bar No. & Spacing	7@12	7@12	8@12
	Length	11'-3"	11'-5"	11'-5"
B_1 Bars	Bar No. & Spacing	NONE	NONE	NONE
	Length	N/A	N/A	N/A
C Bars	Bar No. & Spacing	7@12	7@12	8@12
	Horiz. Length	4'-1'	4'-1"	4'-11"
	Vert. Length	8'-6"	8'-7"	8'-7"
C_1 Bars	Bar No. & Spacing	NONE	NONE	NONE
	Horiz. Length	N/A	N/A	N/A
	Vert. Length	N/A	N/A	N/A
C_2 Bars	Bar No. & Spacing	NONE	NONE	NONE
	Horiz. Length	N/A	N/A	N/A
	Vert. Length	N/A	N/A	N/A
C_3 Bars	Bar No. & Spacing	6@12	6@12	8@12
	Horiz. Length	3'-11"	4'-0'	4'-11"
	Vert. Length	4'-2"	4'-3"	3'-10"
D Bars	Bar No. & Spacing	5@12	5@12	5@12
	Length	9'-0"	9'-10"	9'-10"
F Bars	Bar No. & Spacing	7@12	6@12	8@12
	Length	11'-3"	11'-5"	11'-5"
F_1 Bars	Bar No. & Spacing	NONE	NONE	NONE
	Length	N/A	N/A	N/A
G Bars	Bar No. & Spacing	4@12	4@12	4@12
	Length	11'-3"	11'-5"	11'-5"
H Bars	Bar No. & Spacing	4@12	4@12	4@12
	Length	11'-3"	11'-5"	11'-5"
NUMBER OF LONGITUDINAL REINFORCEMENT #4 BARS				
Top Slab (Excludes Distrib.)		26	28	28
Top Slab (Distribution)		9	9	11
Bottom Slab		28	28	28
Side Walls		24	24	24
TOTAL		89	89	91
QUANTITIES				
Concrete Cu.Yds./Lin Ft.		1.48	1.56	1.64
Steel Lbs./Lin. Ft.		216.6	211.5	275.9

TYPICAL R.C. BOX SECTION

NOT TO SCALE

R.C. BOX LOCATION SCHEDULE					
Box Sect.	Station From	Station To	Box Sect.	Station From	Station To
1	4+21.49	13+50			
2	13+50	20+25			
3	20+25	23+27.93			

DESIGN DATA

LIVE LOAD

HS20-44 unless otherwise noted

DEAD LOAD

Earth load per Marston's formula: $w = 110$ p.c.f.
$K_u = K_u' = 0.130$
B_d = Outside width of box plus 3 feet
Side earth 70 p.s.f. per foot of depth

Weight of concrete: 150 p.c.f.

ALLOWABLE STRESSES

$f_c' = 3250$ p.s.i. at 28 days
$f_c = 1460$ p.s.i.
$f_s = 24{,}000$ p.s.i.
$n = 8.8$
shear and bond stresses per A.C.I. 318-63

ADDITIONAL NOTES FOR BOX SECTIONS

1. LONGITUDINAL STEEL SHALL BE CONTINUOUS AND EXTEND THROUGH ALL CONSTRUCTION JOINTS.
2. UNLESS OTHERWISE SHOWN ON THE DRAWINGS, TRANSVERSE JOINT KEYWAYS (IN BOTH SLABS AND WALLS), AS DETAILED, SHALL BE PLACED AT THE END OF EACH POUR, BUT THE SPACING THEREOF SHALL NOT EXCEED 50 FEET OR BE LESS THAN 10 FEET. ALL CONSTRUCTION JOINTS IN BOTTOM SLAB, TOP SLAB, AND SIDE WALLS SHALL BE IN THE SAME PLANE. NO STAGGERING OF JOINTS WILL BE PERMITTED.
3. UNLESS OTHERWISE SHOWN ON THE DETAILS, IN CURVED SECTIONS TRANSVERSE BARS SHALL BE PLACED RADIALLY. STRAIGHT TRANSVERSE BARS IN TOP AND BOTTOM SLABS SHALL BE SPACED AS SHOWN ON THE TYPICAL SECTIONS; SPACING SHALL BE AT THE CENTERLINE OF CONSTRUCTION FOR SINGLE-BARREL BOXES. STRAIGHT BARS AND L-BARS IN WALLS SHALL BE SPACED AS SHOWN ON THE TYPICAL SECTIONS, WITH THE SPACING MEASURED BETWEEN THE VERTICAL LEGS OF BARS.
4. AT THE BEGINNING AND ENDING OF ALL POURS, A CURTAIN OF REINFORCEMENT COMPOSED OF B, C, C_3, D, F, G, AND H BARS SHALL BE PLACED THREE INCHES FROM THE TRANSVERSE CONSTRUCTION JOINT.
5. THE VERTICAL WALL STEEL IN THE INTERIOR FACE OF WALLS MAY BE SPLICED AT THE CONSTRUCTION JOINT AT THE BASE OF THE WALL. THE SPLICE SHALL BE 20 BAR DIAMETERS IN LENGTH.
6. IN ALL SECTIONS LAP C AND C_3 BARS. THE VERTICAL LENGTH OF C AND C_3 BARS HAS BEEN CALCULATED FOR A FOUR INCH STARTER WALL. IF THE HEIGHT OF THE STARTER WALL IS VARIED, THE VERTICAL LENGTH OF THE C AND C_3 BARS SHALL BE VARIED CORRESPONDINGLY SO AS TO MAINTAIN A 45 DIAMETER LAP BETWEEN THE TWO BARS. THE LAPS SHALL BE BASED ON THE SMALLER BAR.
7. CONCRETE QUANTITIES ARE BASED ON A SIX-BY-SIX-INCH FILLET AND THE STEEL QUANTITIES DO NOT INCLUDE ANY OPTIONAL SPLICES.
8. IF WALL THICKNESS IS SIX INCHES, PLACE REINFORCEMENT AT THE CENTERLINE OF THE WALL.
9. MINIMUM COVER SHALL BE 2 INCHES BETWEEN STAS. 4+21.49 AND 13+50 AND 3" INCHES BETWEEN STAS. 13+50 AND 23+39.93.

STRUCTURAL NOTES

GENERAL

1. DIMENSIONS FROM FACE OF CONCRETE TO STEEL SHALL BE 1½" CLEAR UNLESS OTHERWISE SHOWN.
2. CONCRETE DIMENSIONS SHALL BE MEASURED HORIZONTALLY OR VERTICALLY ON THE PROFILE, AND PARALLEL TO OR AT RIGHT ANGLES (OR RADIALLY) TO CENTERLINE OF CONDUIT ON THE PLAN EXCEPT AS OTHERWISE SHOWN.
3. DELETED
4. LONGITUDINAL STEEL SHALL BE LAPPED 24 BAR DIAMETERS AT SPLICES. TRANSVERSE STEEL SHALL BE LAPPED 45 BAR DIAMETERS AT SPLICES.
5. TRANSVERSE CONSTRUCTION JOINTS SHALL NOT BE PLACED WITHIN 30 INCHES OF MANHOLE OR JUNCTION STRUCTURE OPENINGS.
6. TRANSVERSE CONSTRUCTION JOINTS IN WALLS AND SLABS SHALL BE IN THE SAME PLANE. NO STAGGERING OF JOINTS WILL BE PERMITTED. TRANSVERSE CONSTRUCTION JOINTS SHALL BE NORMAL OR RADIAL TO THE CENTERLINE OF CONSTRUCTION.
7. THE TRANSVERSE REINFORCING STEEL SHALL TERMINATE ONE AND ONE-HALF INCHES FROM THE CONCRETE SURFACES UNLESS OTHERWISE SHOWN ON THE STRUCTURAL DETAILS.
8. EXPOSED EDGES OF CONCRETE MEMBERS SHALL BE ROUNDED OR BEVELED.
9. NO SPLICES IN TRANSVERSE STEEL REINFORCEMENT WILL BE PERMITTED OTHER THAN SHOWN ON THE DRAWING WITHOUT APPROVAL OF THE ENGINEER. NO MORE THAN TWO SPLICES WILL BE PERMITTED IN ANY LONGITUDINAL BAR BETWEEN TRANSVERSE JOINTS. SPLICES SHALL BE STAGGERED.

INVERT FINISH

CHANNEL INVERT SURFACE SHALL BE GIVEN A STEEL TROWEL FINISH

1/2 0 1 2

3 inches on original drawing

ORANGE COUNTY
ENVIRONMENTAL MANAGEMENT AGENCY

EOIP54-701-1

WEIR CANYON ROAD

EAST DRAIN
9.5' X 8.0' R.C.B.
STRUCTURAL DETAILS

MARK	DATE	DESCRIPTION

REVISIONS

DESIGNED B.A.B.
DRAWN B.Y.L. CHECKED J.W.P.

PREPARED UNDER SUPERVISION OF John W. Palmer DATE

SCALE AS SHOWN | DATE AUG. '82 | DWG. NO. EOIP54-701-1

SHEET 5 E-4 OF 11