STANDARD DETAILS/ DESIGN GUIDELINES (SD)

Public Works Agency

Alameda County

2024

399 ELMHURST STREET
HAYWARD, CA 94544-1395

PUBLIC WORKS STANDARD DETAILS / DESIGN GUIDELINES (SD)
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* Items "For Internal Use Only" are located on the network drive (N:\Standards\Design Guidelines-pdf\SD-REMOVED).

PUBLIC WORKS STANDARD DETAILS / DESIGN GUIDELINES (SD)
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SD-200 SERIES ROADWAY GEOMETRICS

		GRADES ON COUNTY ROADS		
		MINOR (1) (2) (3)	COLLECTOR	ARTERIAL (3)
MINIMUM		0.30%	0.30%	0.30%
MAX.	DESIRABLE	12%	10%	6%
	ACCEPTABLE	15%	12%	8%

NOTES:

1. GREATER THAN FIFTEEN PERCENT (15.0%) MAY BE USED ON MINOR STREETS IF THE USE OF THIS GRADE IS CONSISTENT WITH GOOD ENGINEERING PRACTICES. HOWEVER, IN NO EVENT SHALL THE GRADE EXCEED TWENTY PERCENT (20.0%).
2. STREETS WITH GRADES GREATER THAN FIFTEEN PERCENT (15.0%) SHALL NOT BE MORE THAN THREE HUNDRED FEET (300') IN TOTAL LENGTH.
3. IN NO CASE SHALL THE MAXIMUM GRADE, AS SHOWN ABOVE, ON COLLECTORS OR MINOR STREETS, BE SUSTAINED OVER 1,200 FEET.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

REVISIONS

GRADE CRITERIA

APPROVAL REC.

APPROVED

APPROVED

COUNTY ENGINEER

DRAWN	CHECKED	DATE	SCALE	FILE. NO.	
CEG		SEPT. 1994	NONE	SD-200	1 of 1

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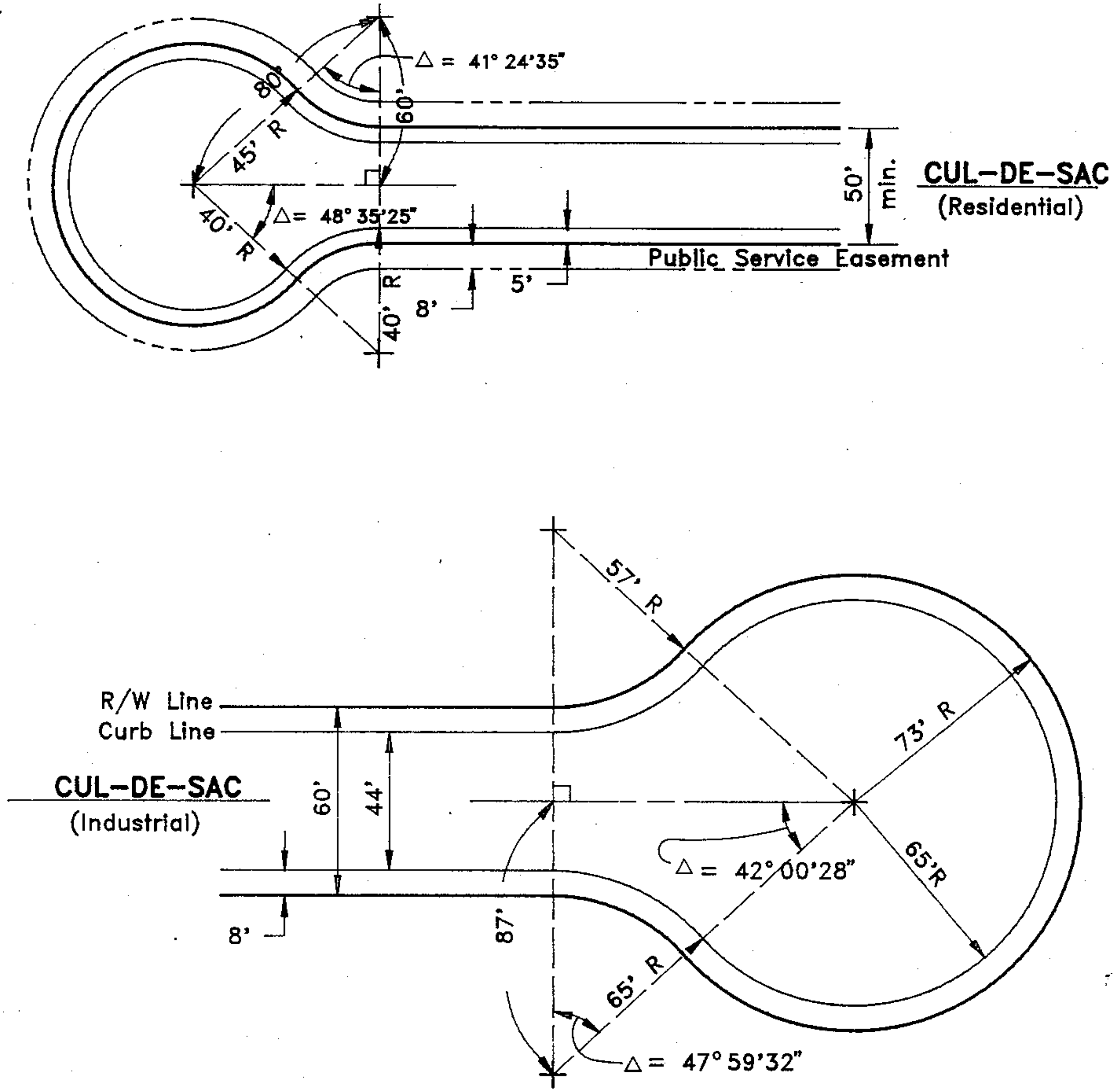

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

REVISIONS	CUL-DE-SAC BULBS	APPROVAL REC. APPROVED APPROVED COUNTY ENGINEER AND ROAD COMMISSIONER

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
CEG		June 1991	None	SD-201	1 of 1

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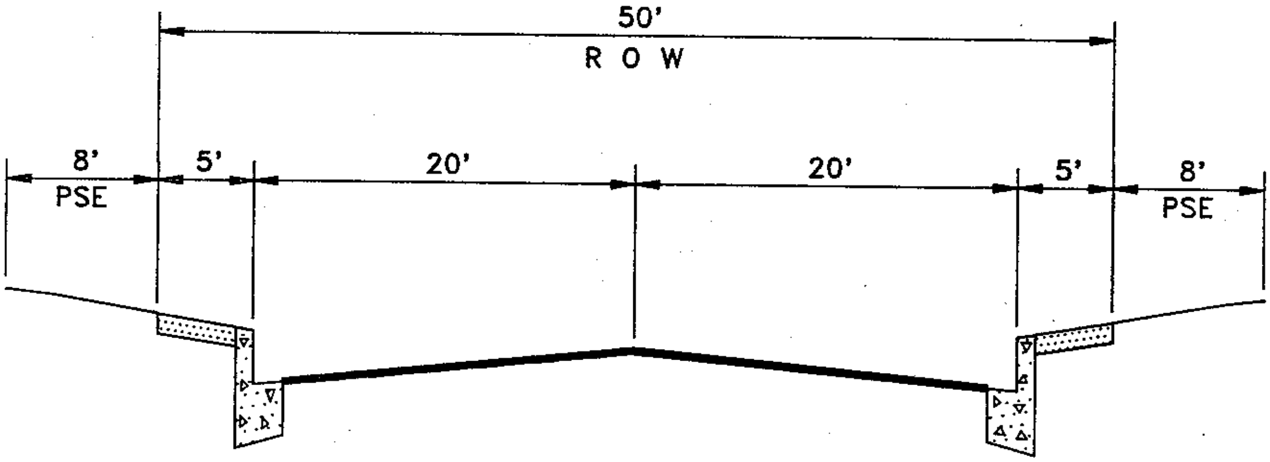

1) Place Street Light Standards, Fire Hydrants, Mailboxes, Roadway Signs, Street Trees, and other above ground facilities in the public service easement (PSE). Longitudinal utility lines will not be allowed within the PSE. Utilities within the PSE shall be connected through lateral lines crossing into the PSE.

2) For improvements along an existing Roadway, maintain the existing curb to curb width unless a future width line has been previously established and implement the PSE only where feasible. Where the PSE is not applied and above ground facilities must be placed in the sidewalk area, increase sidewalk widths to provide sufficient wheelchair accessibility.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

REVISIONS

TYPICAL SECTION
MINOR RESIDENTIAL STREET AND CUL-DE-SAC

APPROVAL REC.

APPROVED

APPROVED

COUNTY ENGINEER AND ROAD COMMISSIONER

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
KS		August 1991	None	SD-202	1 of 1

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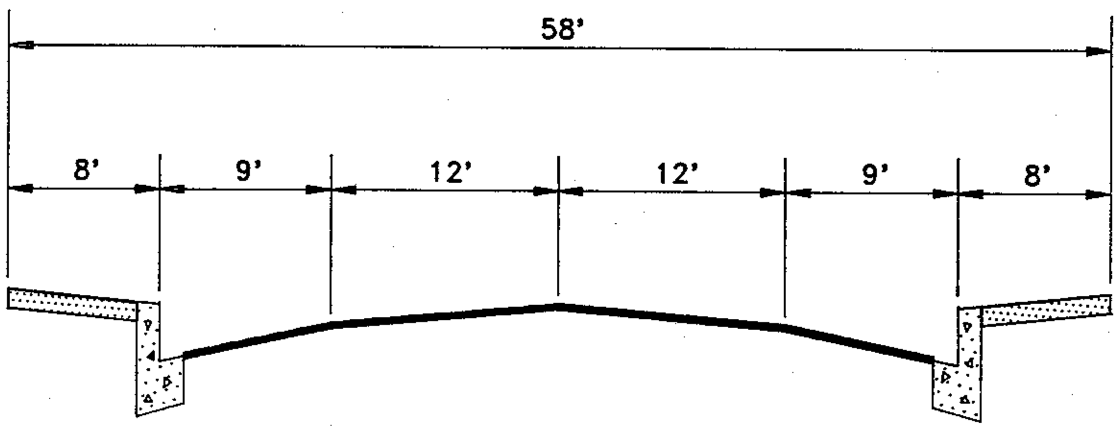

NOTE: Sidewalk location and width may vary.

Separated bicycle lane shall be included where feasible.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

REVISIONS	TYPICAL SECTION 2-LANE COLLECTOR	APPROVAL REC. APPROVED APPROVED COUNTY ENGINEER AND ROAD COMMISSIONER

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
KS		August 1991	None	SD-203	1 of 1

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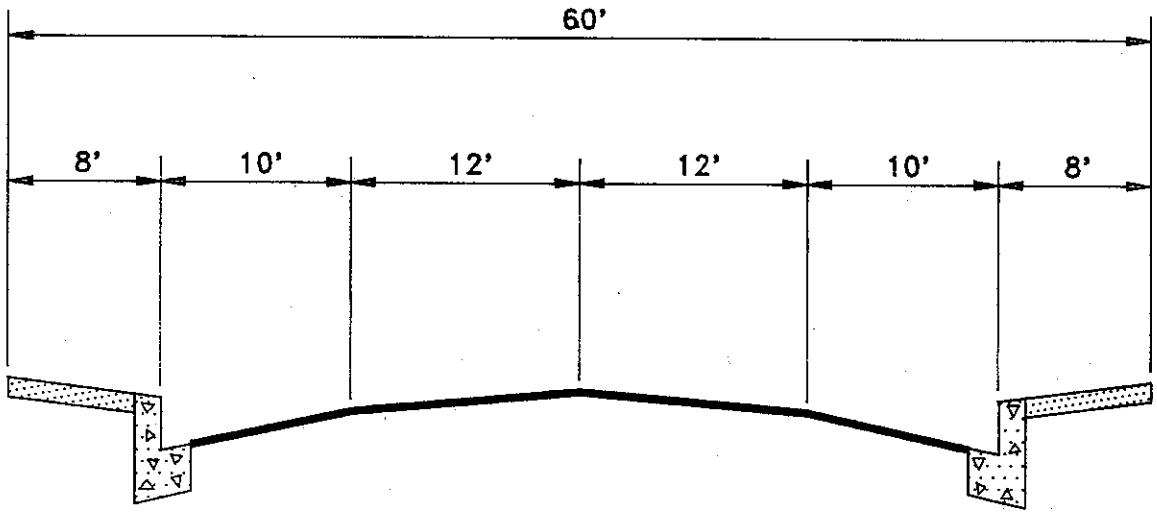

NOTE: Sidewalk location and width may vary.

Separated bicycle lane shall be included where feasible.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

REVISIONS

TYPICAL SECTION
2-LANE ARTERIAL

APPROVAL REC.

APPROVED

APPROVED

COUNTY ENGINEER AND ROAD COMMISSIONER

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
KS		August 1991	None	SD-204	1 of 1

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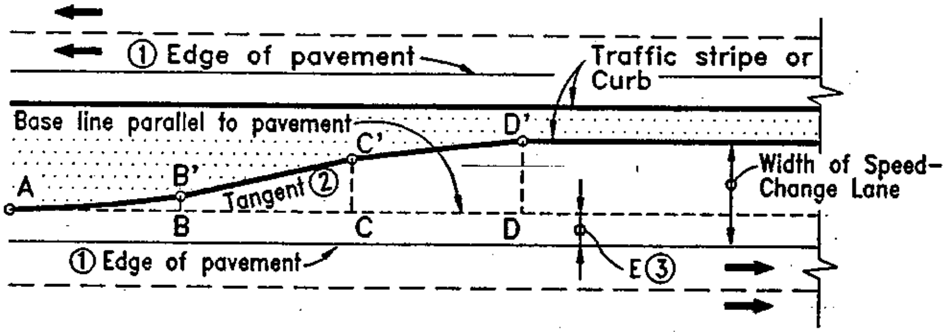
TAPER FOR MEDIAN SPEED-CHANGE LANES



AD = Length of Taper.
AB = BC = CD = 1/3 AD
AB' & C' D' are Parabolic Curves

(hatched) Data for Point B'
(dotted) Data for Point C'

	LENGTH OF TAPER–FEET			OFFSET DISTANCE			
	60	90	120	DD'=10'	DD'=11'	DD'=12'	
	Distance from Point A						
	–	–	– –	0	0	0	
	5	7.5	10	0.16	0.17	0.19	
	10	15	20	0.62	0.69	0.75	
	15	22.5	30	1.41	1.55	1.69	
B	20	30	40	2.50	2.75	3.00	B'
	30	45	60	5.00	5.50	6.00	
C	40	60	80	7.50	8.25	9.00	C'
	45	67.5	90	8.59	9.45	10.31	
	50	75	100	9.38	10.31	11.25	
	55	82.5	110	9.84	10.83	11.81	
	60	90	120	10.00	11.00	12.00	

NOTES:

① The table gives offsets from a base line parallel to the edge of pavement at intervals measured from point A. Add E for measurements from edge of pavement.

② Where edge of pavement is a curve, neither base line nor taper between B & C will be a tangent. Use proportional offsets from B to C.

③ The adopted offset E is usually 2' along outside edge of pavement but may vary in some cases.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

LEFT TURN LANE TRANSITION

REVISIONS

APPROVAL REC.
APPROVED [signature]
APPROVED [signature]
COUNTY ENGINEER AND COUNTY SURVEYOR

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
KS		October 1991	None	SD–205	1 of 1

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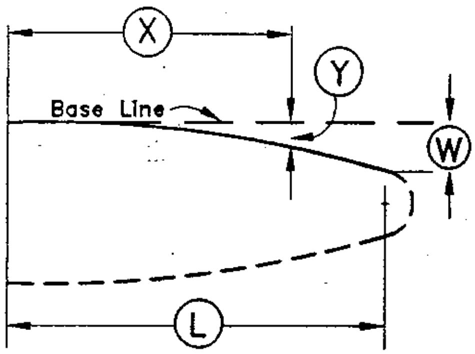
PARABOLIC CURB FLARES COMMONLY USED



$$Y = \frac{WX^2}{L^2}$$

L = Length of flare in feet

W = Maximum offset in feet

X = Distance along base in feet

Y = Offset from base line in feet

W is shown in table thus $\boxed{5.00}$

OFFSET IN FEET FOR GIVEN "X" DISTANCE

Length of flare (L) \ Distance (X)	10	15	20	25	30	40	45	50	60	70	75	80	90	100	110	120
1:5 FLARES																
25	0.80	1.80	3.20	5.00												
50	0.40		1.60		3.60	6.40		10.00								
1:10 FLARES																
50	0.20		0.80		1.80	3.20		5.00								
100	0.10		0.40		0.90	1.60		2.50	3.60	4.90		6.40	8.10	10.00		
1:15 FLARES																
45	0.15		0.59		1.33	2.37	3.00									
75	0.09		0.36		0.80	1.42		2.22	3.20	4.36	5.00					
90	0.07		0.30		0.67	1.19		1.85	2.67	3.63		4.74	6.00			
120	0.06		0.22		0.50	0.89		1.39	2.00	2.72		3.56	4.50	5.56	6.72	8.00

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

REVISIONS

MEDIAN FLARES

APPROVAL REC.

APPROVED

APPROVED

COUNTY ENGINEER AND COUNTY SURVEYOR

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
EA		October 1991	None	SD-206	1 of 1

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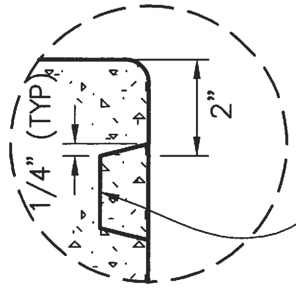
SD-300 SERIES
CURB, GUTTER, & CONCRETE FLAT WORK



DETAIL-A

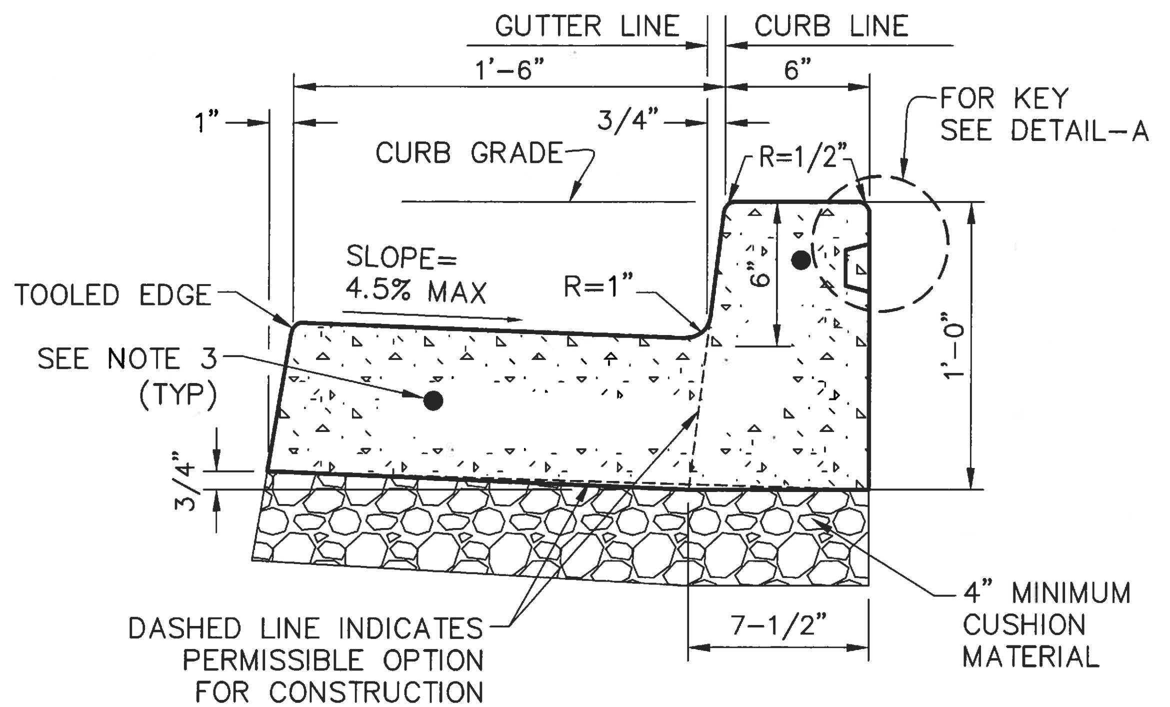
FORM KEY JOINT WITH 1" X 2" KEY STRIP NAILED TO REAR FORM BOARD AT CURB POUR.

FOR DRIVEWAYS:
KEY JOINT MAY BE REPLACED WITH NO. 4 DOWELS @ 24" O.C.

1'-3"
3"

FOR NON-DRIVEWAY AREAS:
KEY JOINT MAY BE REPLACED WITH NO. 4 DOWELS @ 36" O.C.

1'-3"
3"



PCC CURB AND GUTTER AREA = 1.284 SQ FT

NOTES:

1. CONSTRUCT 1/2 INCH THICK EXPANSION JOINTS AT EACH SIDE OF DRIVEWAYS, CURB RETURNS, AND AT INTERVALS NOT TO EXCEED 60 FEET.
2. CONSTRUCT WEAKENED PLANE JOINTS AT INTERVALS NOT TO EXCEED 20 FEET. JOINT SHALL NOT BE LESS THAN 1 INCH OR 1/4 CONCRETE THICKNESS.
3. DRILL AND EMBED TWO 2 FOOT LONG NO. 4 BARS 1 FOOT INTO EXISTING PCC CURB AND GUTTER. DO NOT INSTALL ACROSS EXPANSION JOINT.
4. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

1	ADD KEY/REV SLOPE	JUN 2018	**PCC CURB AND GUTTER**	APPROVAL REC. / APPROVED / APPROVED 6/6/18 COUNTY ENGINEER
REVISIONS				
DRAWN J RINGOT	CHECKED J CHU	DATE JUNE 2018	SCALE NTS	FILE NO. SD-300 — 1 OF 1

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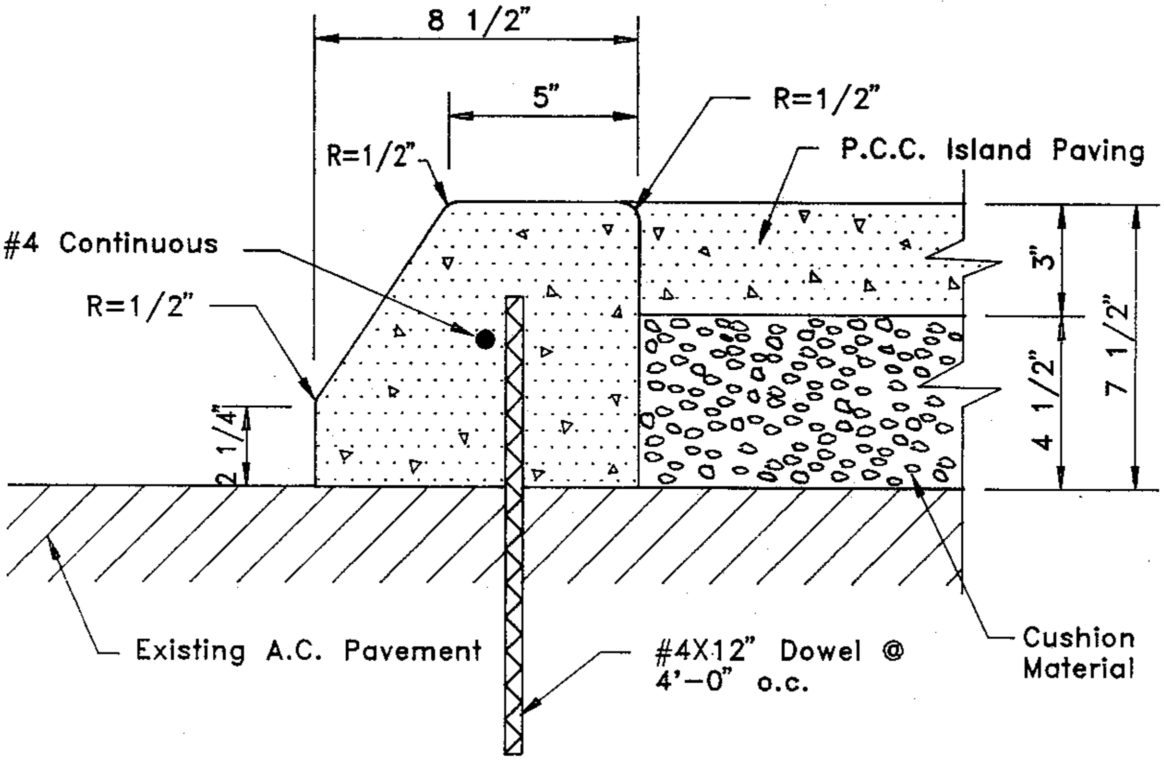

Note: Batter backface 1/2" if extruded curb is used. Delete #4 bar and dowel if curb is extruded. For extruded curb construction, epoxy resin adhesive shall be applied in lieu of bar and dowel reinforcing.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

P.C.C. MEDIAN CURB WITH ISLAND PAVING

REVISIONS

APPROVAL REC.

APPROVED

APPROVED

COUNTY ENGINEER AND ROAD COMMISSIONER

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
KS		August 1991	None	SD–302	1 of 1

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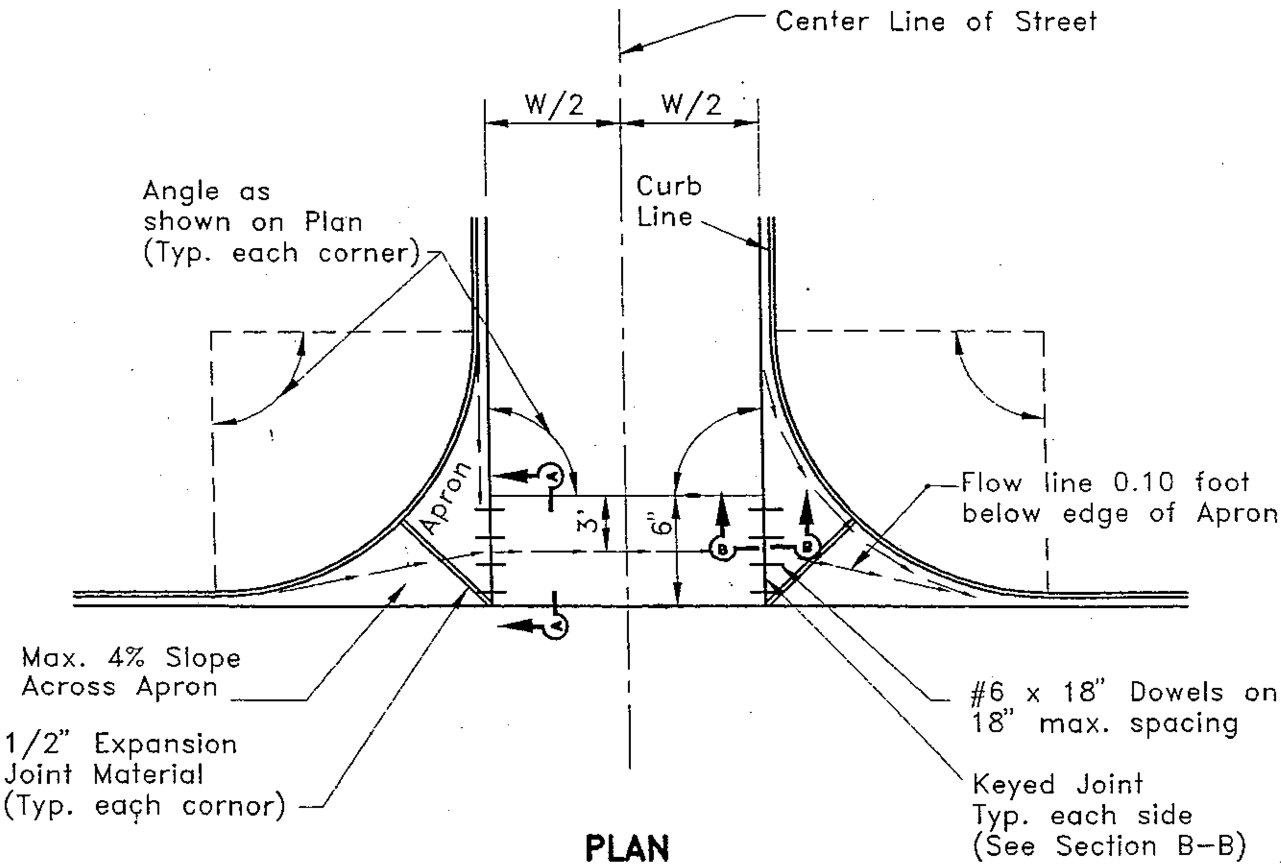
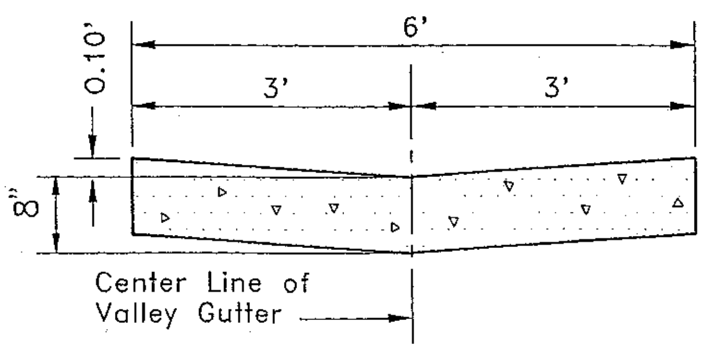
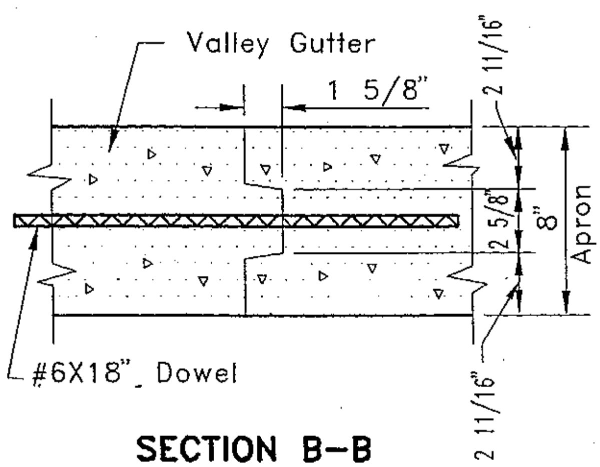


PLAN



SECTION A-A



SECTION B-B

NOTES:
1. All notes and dimensions Symetrical about Center Line.
2. Provide a smooth transition from valley to end of return.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

REVISIONS

P.C.C.
VALLEY GUTTER AND APRON

APPROVAL REC.
APPROVED
APPROVED
COUNTY ENGINEER AND ROAD COMMISSIONER

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
KS		August 1991	None	SD-303	1 of 1

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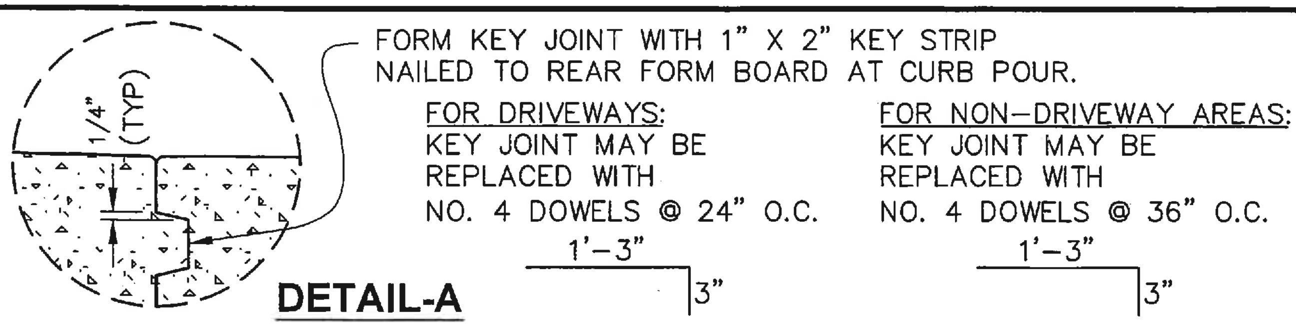
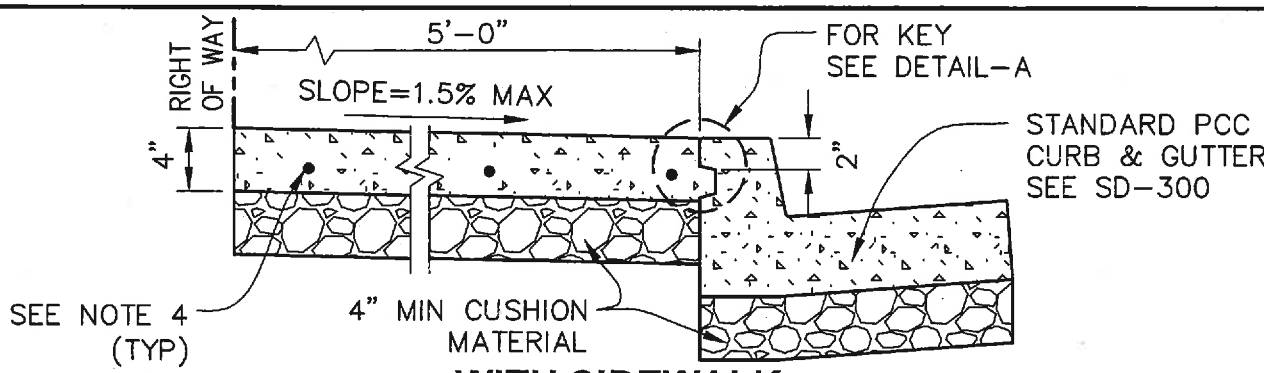
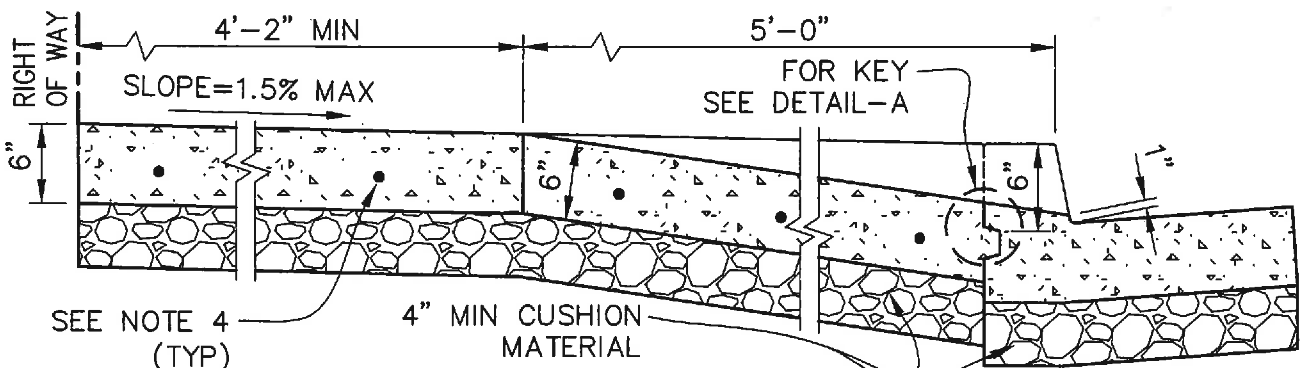


DETAIL-A



WITH SIDEWALK



WITH DRIVEWAY

NOTES:

1. CONSTRUCT 1/2 INCH THICK EXPANSION JOINTS IN SIDEWALK OPPOSITE EXPANSION JOINTS IN CURBS, AND AT EACH SIDE OF DRIVEWAYS, CURB RETURNS, AND AT INTERVALS NOT TO EXCEED 60 FEET.
2. CONSTRUCT WEAKENED PLANE JOINTS AT INTERVALS NOT TO EXCEED 10 FEET. JOINTS SHALL NOT BE LESS THAN 1 INCH OR 1/4 CONCRETE THICKNESS.
3. MARK SIDEWALK SURFACE INTO RECTANGLES BETWEEN 12 SQ FT AND 25 SQ FT. THE LENGTH TO WIDTH RATIO SHALL NOT EXCEED 1.33.
4. DRILL AND EMBED 2 FOOT LONG NO. 4 BARS AT 18 INCHES O.C. 1 FOOT INTO EXISTING PCC SIDEWALK. DO NOT INSTALL ACROSS EXPANSION JOINT.
5. SEE SD-300 FOR DETAILS NOT SHOWN.
6. CONCRETE SHALL HAVE A MINIMUM OF COMPRESSIVE STRENGTH OF 4000 PSI.
7. (2) CURB & GUTTER LESS THAN 24" WIDE MAY BE CONSTRUCTED MONOLITHICALLY WITH SIDEWALK OR DRIVEWAY. CURBS & GUTTERS GREATER THAN 24" WIDE MUST BE CONSTRUCTED WITH KEY JOINT.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

(2)	ADD NOTE 7	SEP 2018
(1)	REV DWY/SLOPE/NOTES	JUN 2018
REVISIONS		

CURB AND GUTTER WITH ADJACENT SIDEWALK OR DRIVEWAY OF SEPARATE POUR

APPROVAL REC.

APPROVED

APPROVED

COUNTY ENGINEER

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
J RINGOT	J CHU	JUNE 2018	NTS	SD-304	1 OF 1

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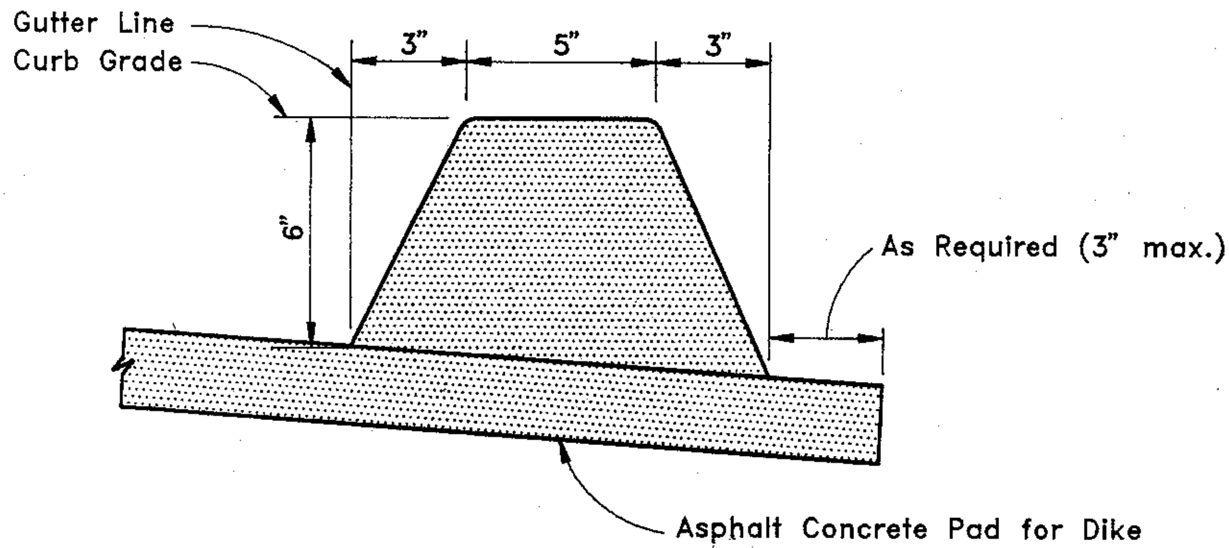

TYPICAL X-SECTION

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

REVISIONS

ASPHALT CONCRETE DIKE

APPROVAL REC.

APPROVED

APPROVED

COUNTY ENGINEER AND ROAD COMMISSIONER

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
JPB, CEG		June 1991	None	SD-305	1 of 1

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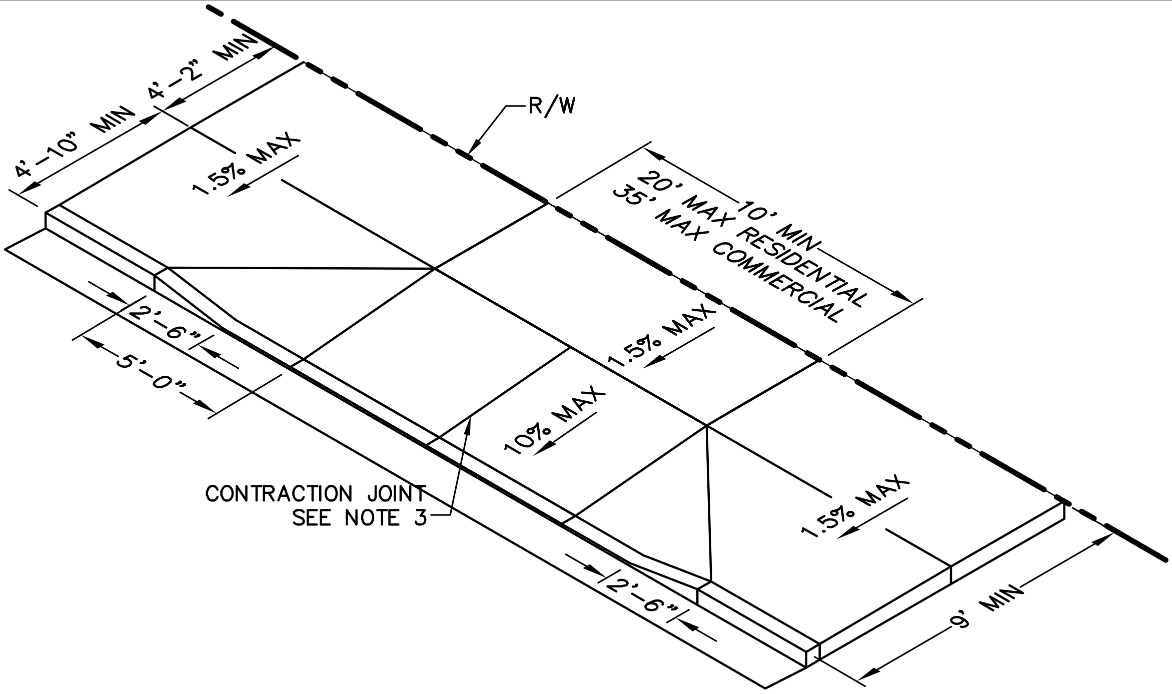

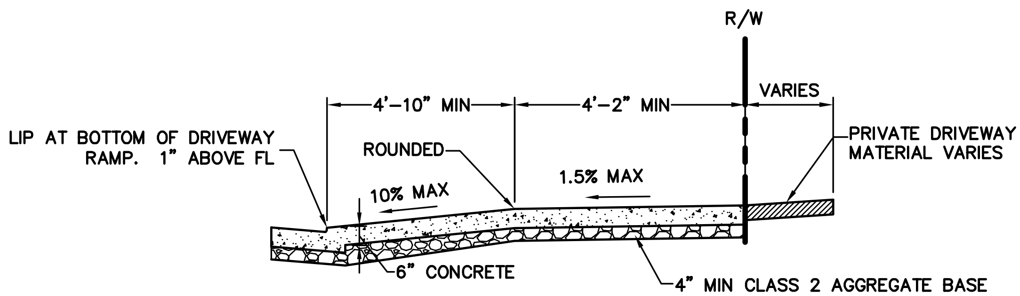

NOTES:

1. DRIVEWAY TYPE 308A MUST BE USED UNLESS OTHERWISE DIRECTED BY THE ENGINEER. USE OF DRIVEWAY TYPE 308B IS SUBJECT TO ENGINEER'S APPROVAL.
2. WING WIDTH ON STREETS WHERE TRAVEL LANE IS NEXT TO THE CURB MUST BE 5'–0" FOR TYPE 308A. OTHERWISE, WING WIDTH MUST BE 2'–6".
3. CONCRETE DRIVEWAYS WITH A WIDTH GREATER THAN 15'–0" MUST HAVE A $\frac{3}{8}$" TRANSVERSE CONTRACTION JOINT NEAR THE CENTERLINE OF THE DRIVEWAY.
4. SCORING GROOVES (NOT SHOWN IN DETAIL) ARE REQUIRED AND MUST MATCH PATTERN IN ADJACENT SIDEWALK.
5. FOR TYPE 308A CROSS–SLOPE IN THE 4'–2" MINIMUM WIDE AREA CONNECTING TO THE WALKWAY TO EACH SIDE OF THE DRIVEWAY MUST BE MAXIMUM 1.5% AND MINIMUM 1%. FOR TYPE 308B, CROSS–SLOPE OF THE DRIVEWAY BETWEEN THE TWO RAMP SECTIONS MUST BE MAXIMUM 1.5% AND MINIMUM 1%. THE DRIVEWAY ON THE PRIVATE SIDE OF THE WALKWAY MAY BE SLOPED AS NEEDED TO MATCH EXISTING SITE CONDITIONS.
6. THE RAMP FOR TYPE 308B MUST HAVE A MAXIMUM SLOPE OF 7.5%. THE CROSS–SLOPE OF THE RAMP MUST NOT EXCEED 1.5%.
7. ALL CHANGES IN LEVEL ACROSS JOINTS MUST BE FLUSH WITH A MAXIMUM DIFFERENCE IN ELEVATION OF $\frac{1}{8}$".
8. PROTECT ADJACENT PANELS FROM DAMAGE DUE TO UNDERMINING DURING EXCAVATION AND PLACEMENT OF SUBGRADE.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

CONCRETE DRIVEWAY

TYPE 308A

REVISIONS

APPROVAL REC. DocuSigned by: D4349C62408A4D8...

APPROVED

APPROVED

DocuSigned by: FD817EF5B3ED407...

COUNTY ENGINEER

DRAWN	CHECKED	DATE	SCALE	FILE NO.		
EKL	AKL	JULY 2022	NONE	SD–308A		1 OF 1

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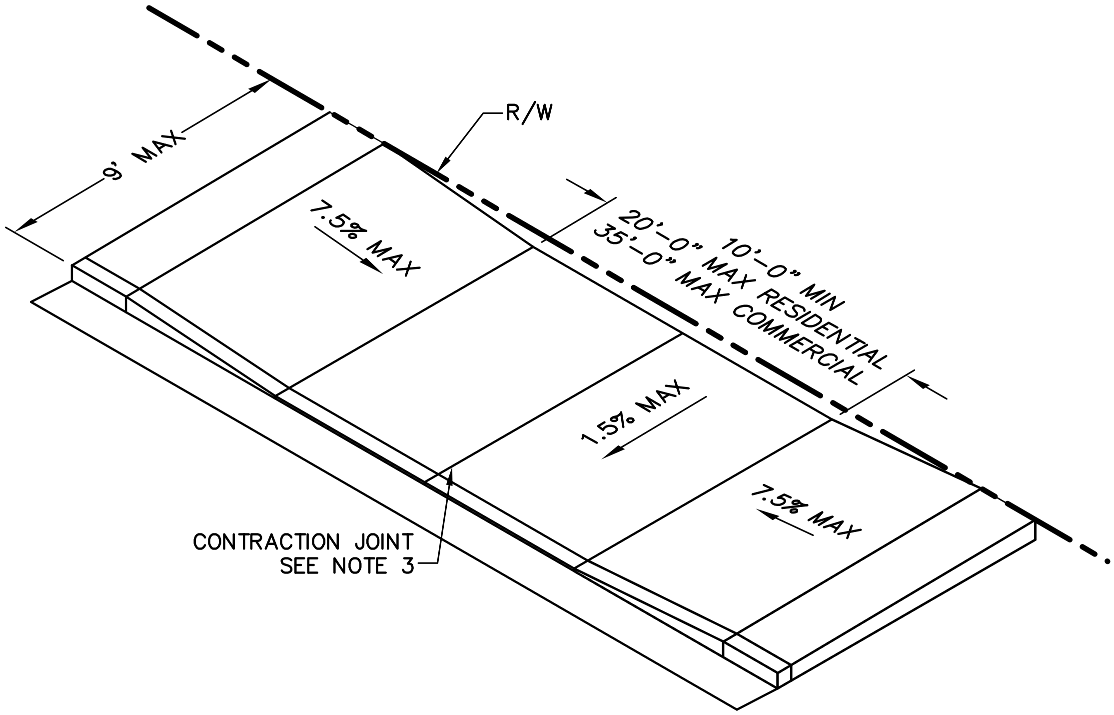

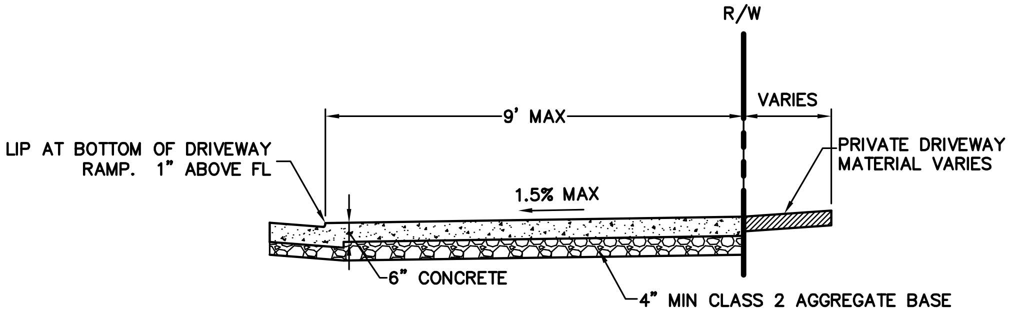

NOTES:

1. DRIVEWAY TYPE 308A MUST BE USED UNLESS OTHERWISE DIRECTED BY THE ENGINEER. USE OF DRIVEWAY TYPE 308B IS SUBJECT TO ENGINEER'S APPROVAL.
2. WING WIDTH ON STREETS WHERE TRAVEL LANE IS NEXT TO THE CURB MUST BE 5'-0" FOR TYPE 308A. OTHERWISE, WING WIDTH MUST BE 2'-6".
3. CONCRETE DRIVEWAYS WITH A WIDTH GREATER THAN 15'-0" MUST HAVE A $\frac{3}{8}$" TRANSVERSE CONTRACTION JOINT NEAR THE CENTERLINE OF THE DRIVEWAY.
4. SCORING GROOVES (NOT SHOWN IN DETAIL) ARE REQUIRED AND MUST MATCH PATTERN IN ADJACENT SIDEWALK.
5. FOR TYPE 308A CROSS-SLOPE IN THE 4'-2" MINIMUM WIDE AREA CONNECTING TO THE WALKWAY TO EACH SIDE OF THE DRIVEWAY MUST BE MAXIMUM 1.5% AND MINIMUM 1%. FOR TYPE 308B, CROSS-SLOPE OF THE DRIVEWAY BETWEEN THE TWO RAMP SECTIONS MUST BE MAXIMUM 1.5% AND MINIMUM 1%. THE DRIVEWAY ON THE PRIVATE SIDE OF THE WALKWAY MAY BE SLOPED AS NEEDED TO MATCH EXISTING SITE CONDITIONS.
6. THE RAMP FOR TYPE 308B MUST HAVE A MAXIMUM SLOPE OF 7.5%. THE CROSS-SLOPE OF THE RAMP MUST NOT EXCEED 1.5%.
7. ALL CHANGES IN LEVEL ACROSS JOINTS MUST BE FLUSH WITH A MAXIMUM DIFFERENCE IN ELEVATION OF $\frac{1}{8}$".
8. PROTECT ADJACENT PANELS FROM DAMAGE DUE TO UNDERMINING DURING EXCAVATION AND PLACEMENT OF SUBGRADE.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

CONCRETE DRIVEWAY

TYPE 308B

REVISIONS

APPROVAL REC. DocuSigned by: D4349C62408A4D8...

APPROVED

APPROVED DocuSigned by: FD817EF5B3ED467...

COUNTY ENGINEER

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
EKL	AKL	JULY 2022	NONE	SD-308B	1 OF 1

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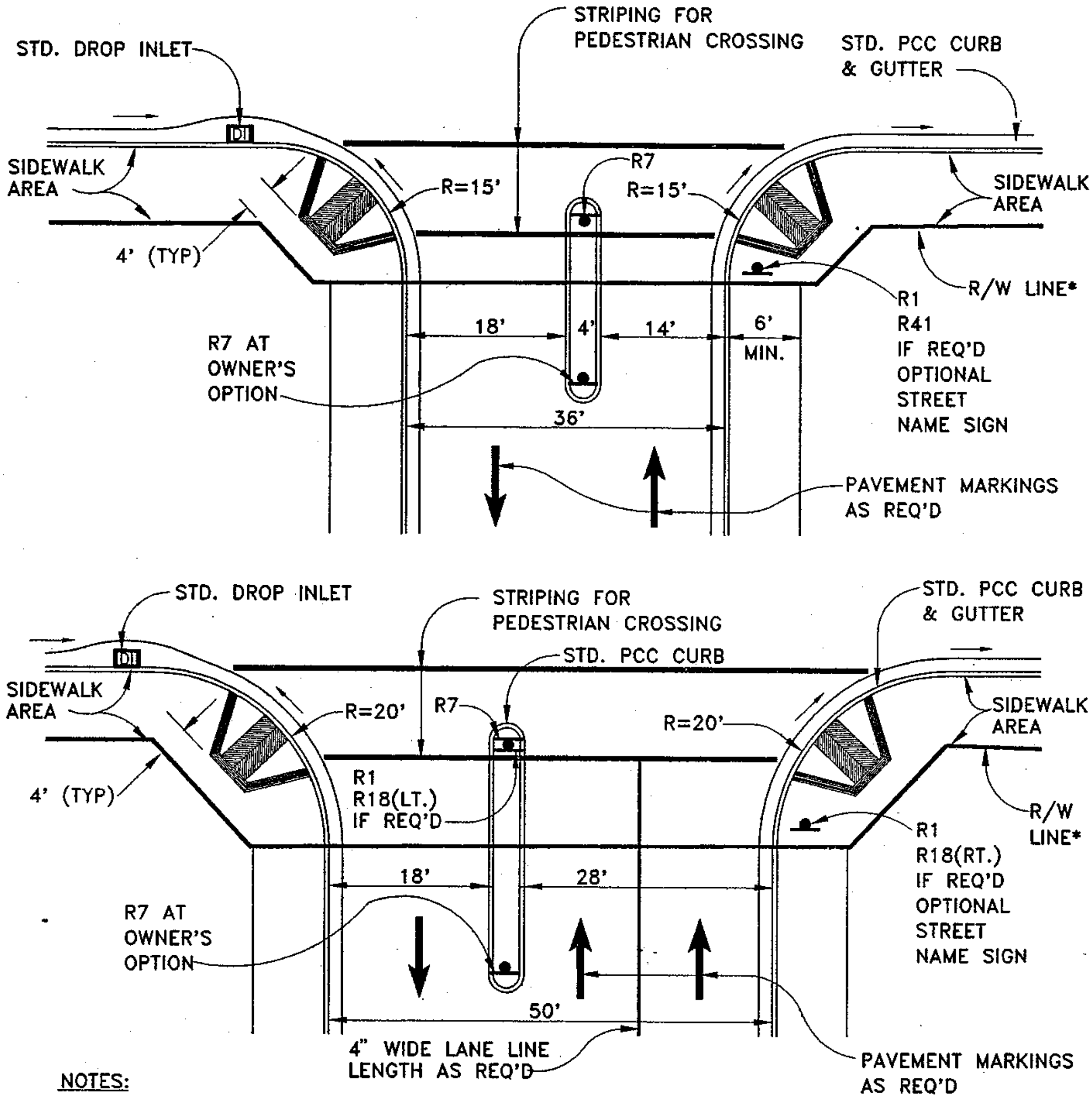

NOTES:

1. TIE-IN DROP INLET TO UNDERGROUND DRAINAGE SYSTEM.
2. WHEN SEMITRAILER TRUCK TRAFFIC IS EXPECTED, DIMENSIONS MAY REQUIRE MODIFICATION.
3. *RIGHT OF WAY AT CORNER SHALL ACCOMMODATE THE "PEDESTRIAN RAMP FOR THE HANDICAPPED" WITH 4-FOOT (MINIMUM) PLATFORM TAKING INTO CONSIDERATION SIDEWALK WIDTHS AND ROADWAY/SIDEWALK GRADES AND CROSS-SLOPES.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

PRIMARY ACCESS TO MAJOR OFF-STREET PARKING FACILITIES

REVISIONS	APPROVAL REC.
	APPROVED
	APPROVED
	COUNTY ENGINEER

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
MTF		JULY 1992	NTS	SD-312	1 of 1

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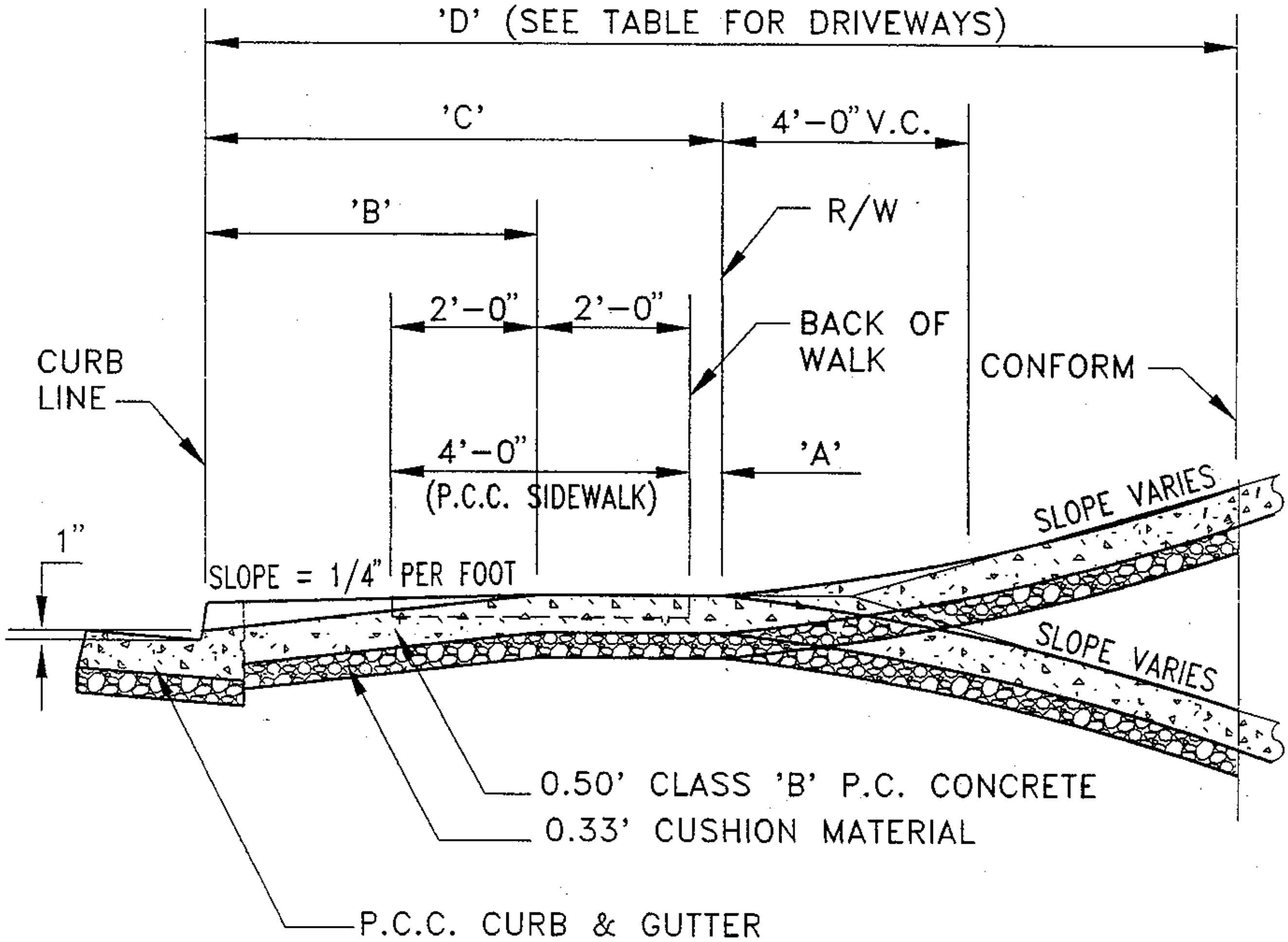

'C' (FT.)	'B' (FT.)	'A' (FT.)
7	4.5	0.5
8	5.0	1.0
9	5.0	2.0
10	5.0	3.0

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

REVISIONS

DRIVEWAY DETAILS

APPROVAL REC. C. Hendrix

APPROVED

APPROVED Fawan Aw

COUNTY ENGINEER

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
EA		JAN. 1993	NONE	SD-313	1 of 3

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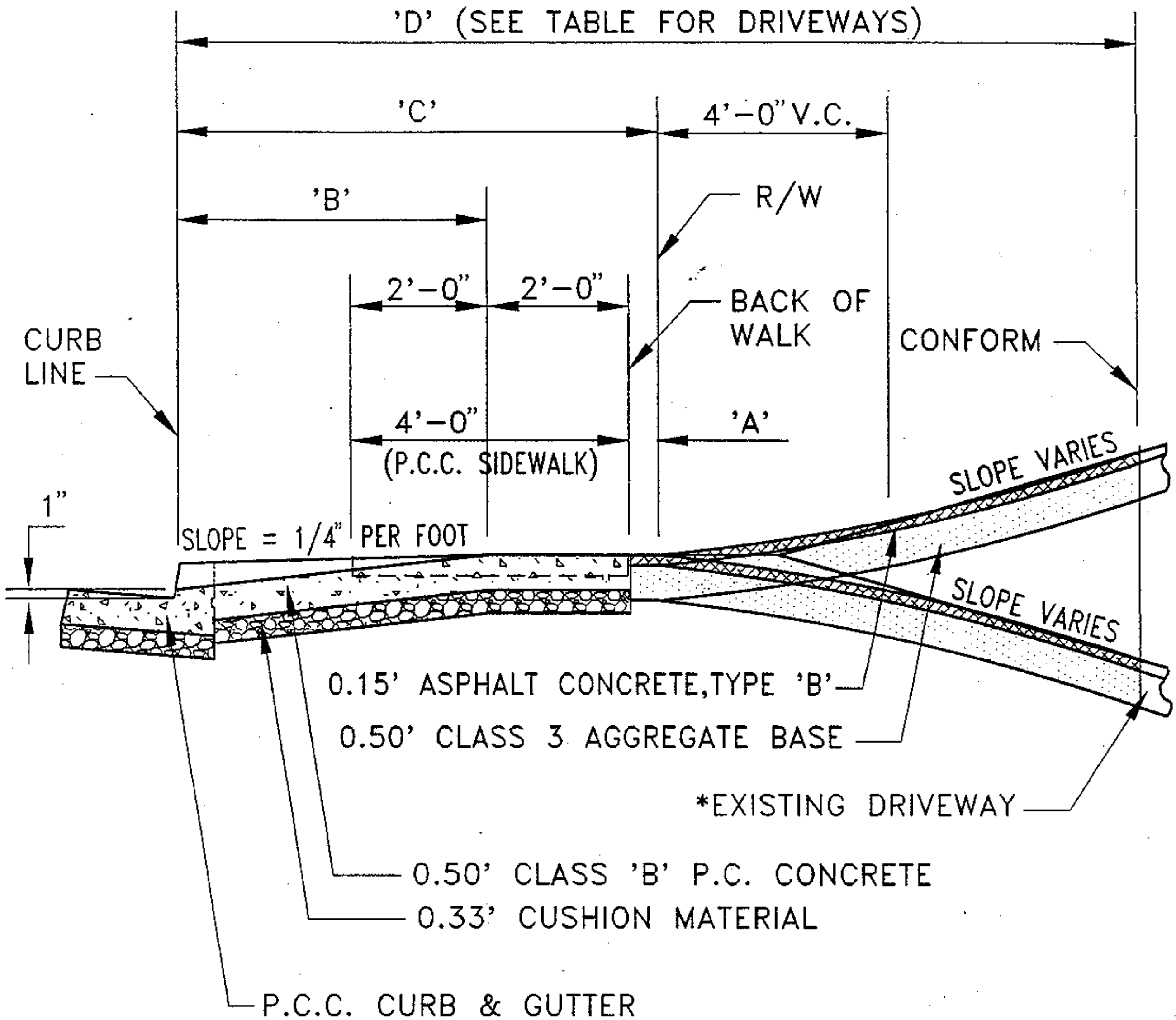

'C' (FT.)	'B' (FT.)	'A' (FT.)
7	4.5	0.5
8	5.0	1.0
9	5.0	2.0
10	5.0	3.0

*NOTE: IF EXISTING MATERIAL OUTSIDE R/W IS GRAVEL OR DIRT, PROVIDE 0.50' CLASS 3 AGGREGATE BASE FROM BACK OF WALK TO CONFORM.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

REVISIONS

DRIVEWAY DETAILS

APPROVAL REC.

APPROVED

APPROVED

COUNTY ENGINEER

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EA		JAN. 1993	NONE	SD-313	2 of 3

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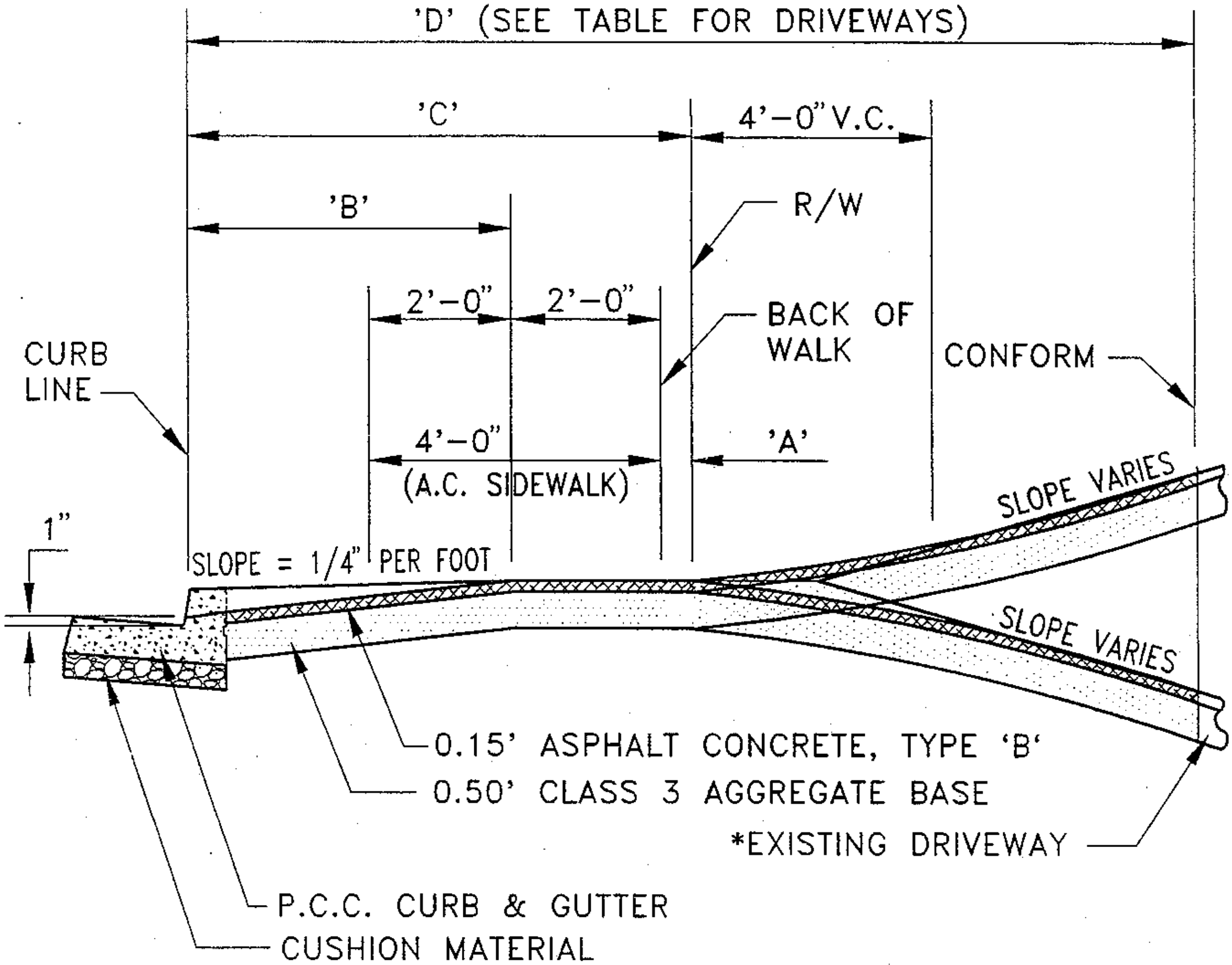


'C' (FT.)	'B' (FT.)	'A' (FT.)
7	4.5	0.5
8	5.0	1.0
9	5.0	2.0
10	5.0	3.0

*NOTE: IF EXISTING MATERIAL OUTSIDE R/W IS GRAVEL OR DIRT, PROVIDE 0.50' CLASS 3 AGGREGATE BASE FROM BACK OF WALK TO CONFORM.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

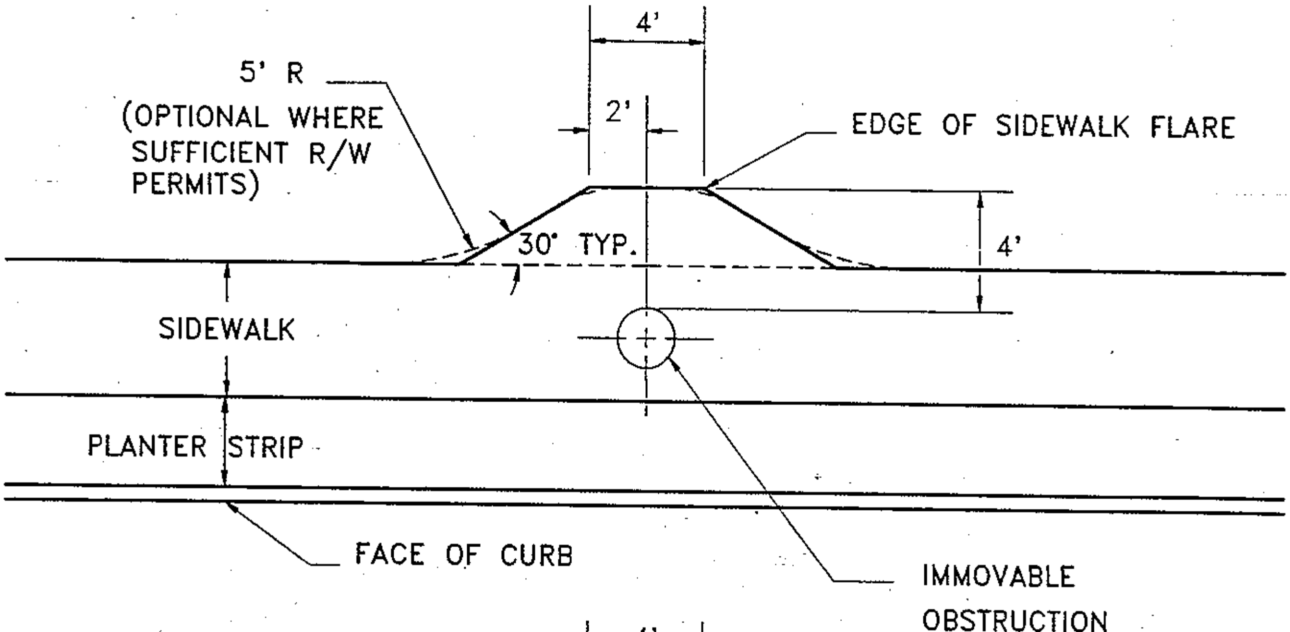
REVISIONS

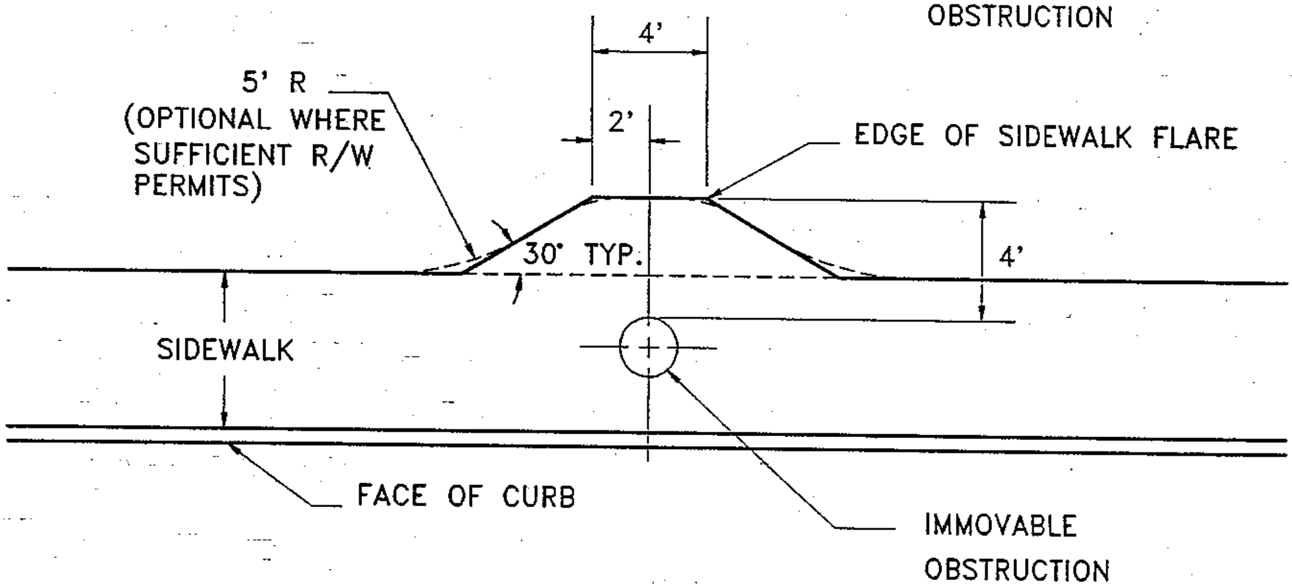
DRIVEWAY DETAILS

APPROVAL REC.
APPROVED
APPROVED
COUNTY ENGINEER

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
EA		JAN. 1993	NONE	SD-313	3 of 3

Return To Table of Content





NOTES:

1. RELOCATE SIDEWALK OBSTRUCTIONS BEHIND THE SIDEWALK AREA WITHIN A PUBLIC SERVICE EASEMENT (PSE).
2. WHEN OBSTRUCTIONS CANNOT BE MOVED AND A 3-FOOT CLEAR AREA BETWEEN AN OBSTRUCTION AND THE EDGE OF SIDEWALK IS NOT AVAILABLE, A RETROFIT SIDEWALK FLARE MAY BE USED. FLARE CONSTRUCTION SHALL CONFORM TO STANDARD COUNTY SIDEWALK REQUIREMENTS.
3. USE OF THE SIDEWALK FLARE DETAIL SHALL BE APPROVED BY THE COUNTY ENGINEER FOR SPECIAL RETROFIT SITUATIONS ONLY. THIS DETAIL WILL NOT BE ALLOWED AS A CORRECTION FOR IMPROPERLY PLACED FACILITIES.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

REVISIONS

RETROFIT SIDEWALK FLARE FOR OBSTRUCTIONS

APPROVAL REC.

APPROVED

APPROVED

COUNTY ENGINEER AND COUNTY SURVEYOR

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
TK		JUNE 1992	NTS	SD-314	1 of 1

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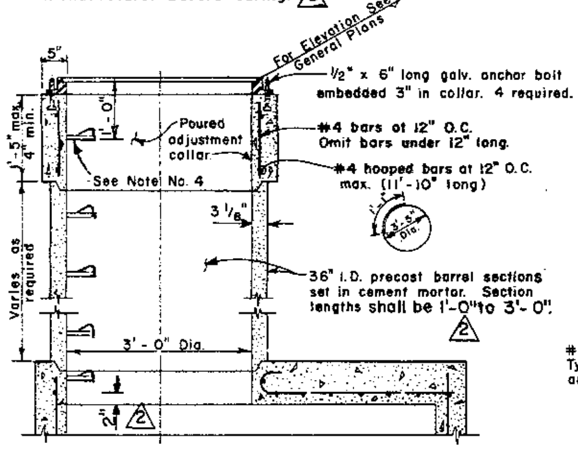
SD-400 SERIES DRAINAGE STRUCTURES

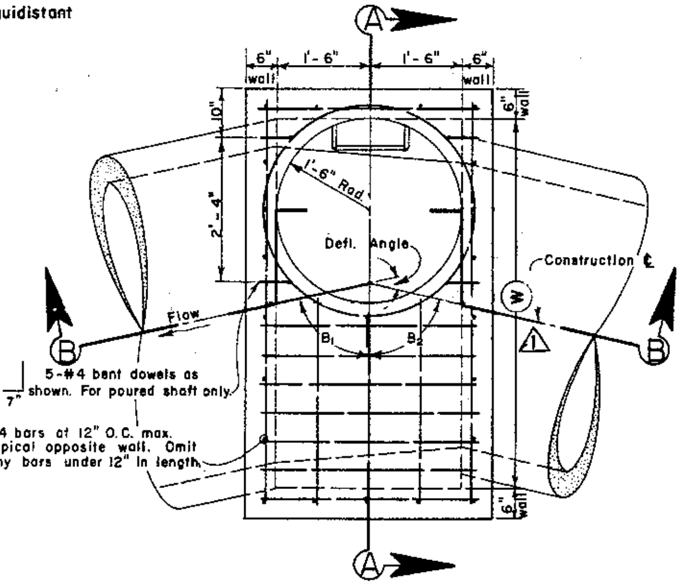
GENERAL NOTES:

1. Location and direction of conduits entering and leaving manhole are shown on the General Plans.
2. Reinforcing steel may be bent, cut, or spread as directed by the Engineer to permit connection of lateral pipe.
3. See General Plans for information on shaft location, B_1, B_2, W and H.
4. For step details, see Design Guidelines File No. SD-517 4
5. On adjustment collars less than 1'-0" in length, install step equidistant between frame rim and next step. 2
6. Steps shall be fixed into each precast barrel section by the manufacturer before curing. 2



SECTION A-A

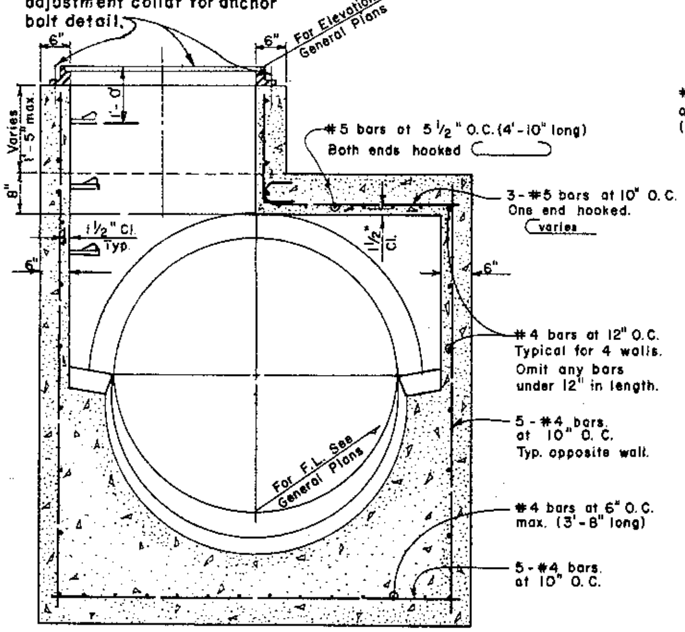
(M.H. WITH PRECAST BARREL SECTIONS AND POURED ADJUSTMENT COLLAR)



PLAN OF MANHOLE BASE WITH TOP SLAB REINFORCEMENT

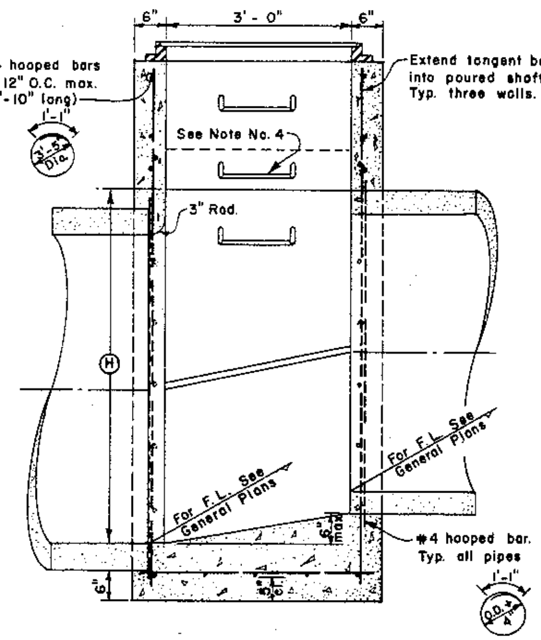
(SHAFT REMOVED)

3 Unless specified otherwise on the general plans, install Standard Frame and Cover, Type I, SD-407 See poured adjustment collar for anchor bolt detail.



SECTION A-A

(M.H. WITH POURED SHAFT)



SECTION B-B

(M.H. WITH POURED SHAFT)

COUNTY OF ALAMEDA ✱ PUBLIC WORKS AGENCY

4	Step Detail	7/91		
3	Frame & Cover	12/82	**MANHOLE TYPE II**	
2	Steps & Barrel Sect.	11/73		
1	Dimension Rev.	10/71		
REVISIONS				

APPROVAL REC. [signature]

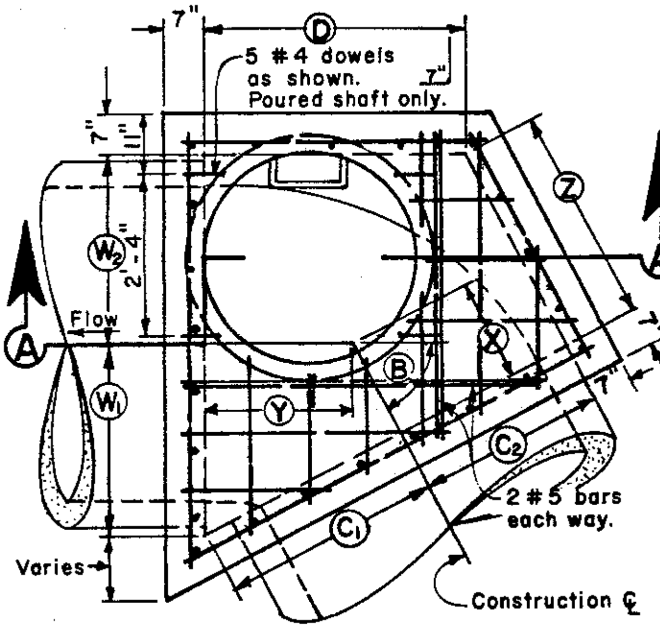
APPROVED [signature]

APPROVED [signature]

Director of Public Works and Road Commissioner

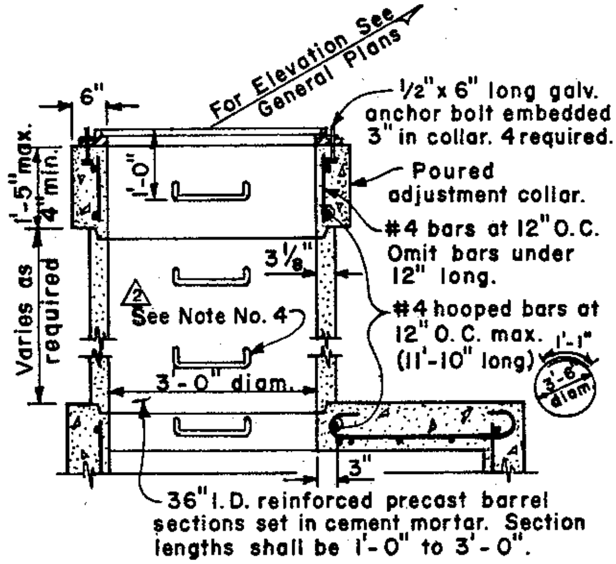
DRAWN	CHECKED	DATE	SCALE	FILE NO.	
FC	[signature]	Nov. 1970	None	SD-401	1 of 1

Return To Table of Content



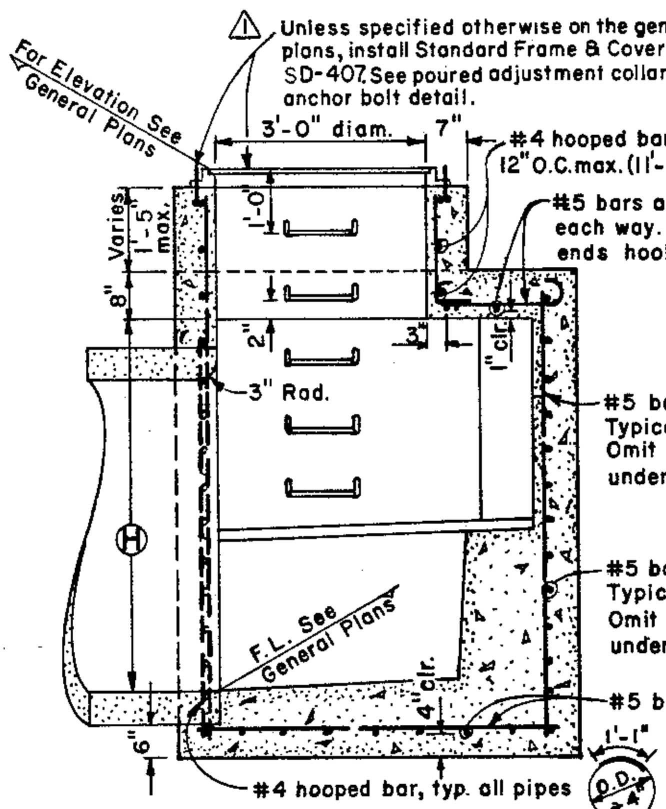
PLAN OF MANHOLE BASE WITH TOP SLAB REINFORCEMENT

(SHAFT REMOVED)



SECTION A-A

(M.H. WITH PRECAST BARREL SECTIONS AND POURED ADJUSTMENT COLLAR)



SECTION A-A

(M.H. WITH POURED SHAFT)

GENERAL NOTES:

1. Location and direction of conduits entering and leaving manhole are shown on the General Plans.

2. Reinforcing steel may be bent, cut or spread as directed by the Engineer to permit connection of lateral pipe.

3. See General Plans for information on B, C, D, W, X, Y, Z and H.

4. For step details, see Design Guidelines File No. SD-517. ⚠2

5. On shafts less than 1'-2" and adjustment collars less than 1'-0" in length, install step equidistant between frame rim and the next step.

6. Steps shall be fixed into each reinforced precast barrel section by the manufacturer before curing.

COUNTY OF ALAMEDA ✱ PUBLIC WORKS AGENCY

⚠2	Step Detail	7/91
⚠1	Frame & Cover	12/82
REVISIONS		

MANHOLE TYPE III

APPROVAL REC. [signature]

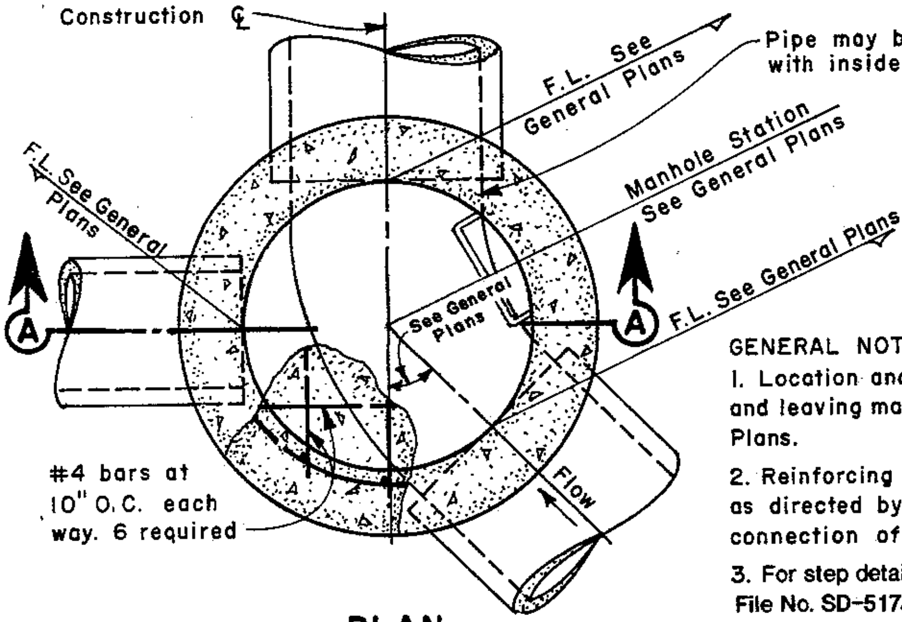
APPROVED [signature]

APPROVED [signature]

Director of Public Works and Road Commissioner

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
FC	[signature] TMC	June 1976	None	SD-402	1 of 1

Return To Table of Content

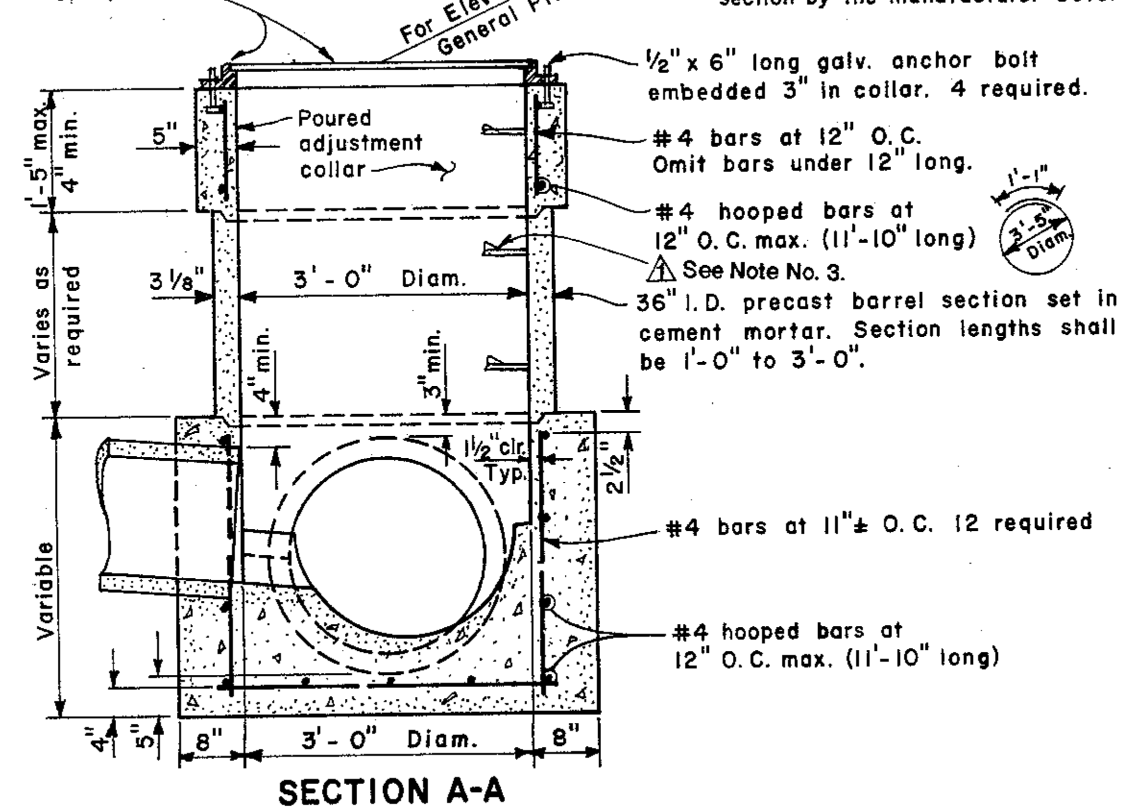


PLAN
(SHAFT REMOVED)

GENERAL NOTES:

1. Location and direction of conduits entering and leaving manhole are shown on the General Plans.
2. Reinforcing steel may be cut, bent or spread as directed by the Engineer to permit connection of lateral pipe.
3. For step details, see Design Guidelines File No. SD-517. ⚠
4. On shafts less than 1'-2" and adjustment collars less than 1'-0" in length, install step equidistant between frame-rim and next step.
5. Steps shall be fixed into each precast barrel section by the manufacturer before curing.

⚠ Unless specified otherwise on the general plans, install Standard Frame and Cover, Type I, SD-407

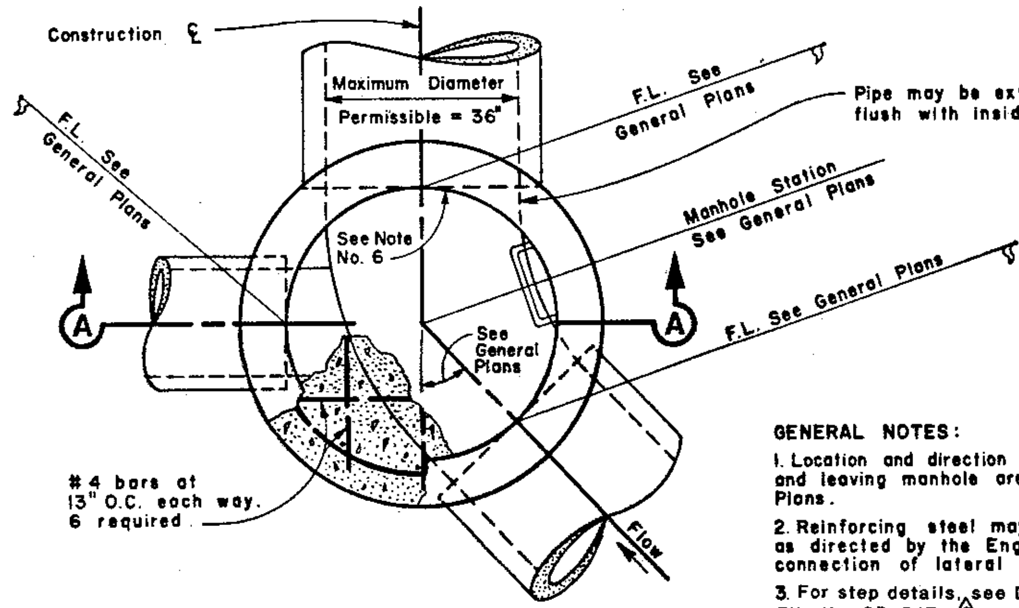


SECTION A-A

COUNTY OF ALAMEDA ✱ PUBLIC WORKS AGENCY

REVISIONS			MANHOLE TYPE IV	APPROVAL REC.
⚠	Step Detail	7/91		APPROVED
				APPROVED Director of Public Works and Road Commissioner
DRAWN FC	CHECKED	DATE Nov. 1974	SCALE None	FILE NO. SD-403 — 1 of 1

Return To Table of Content

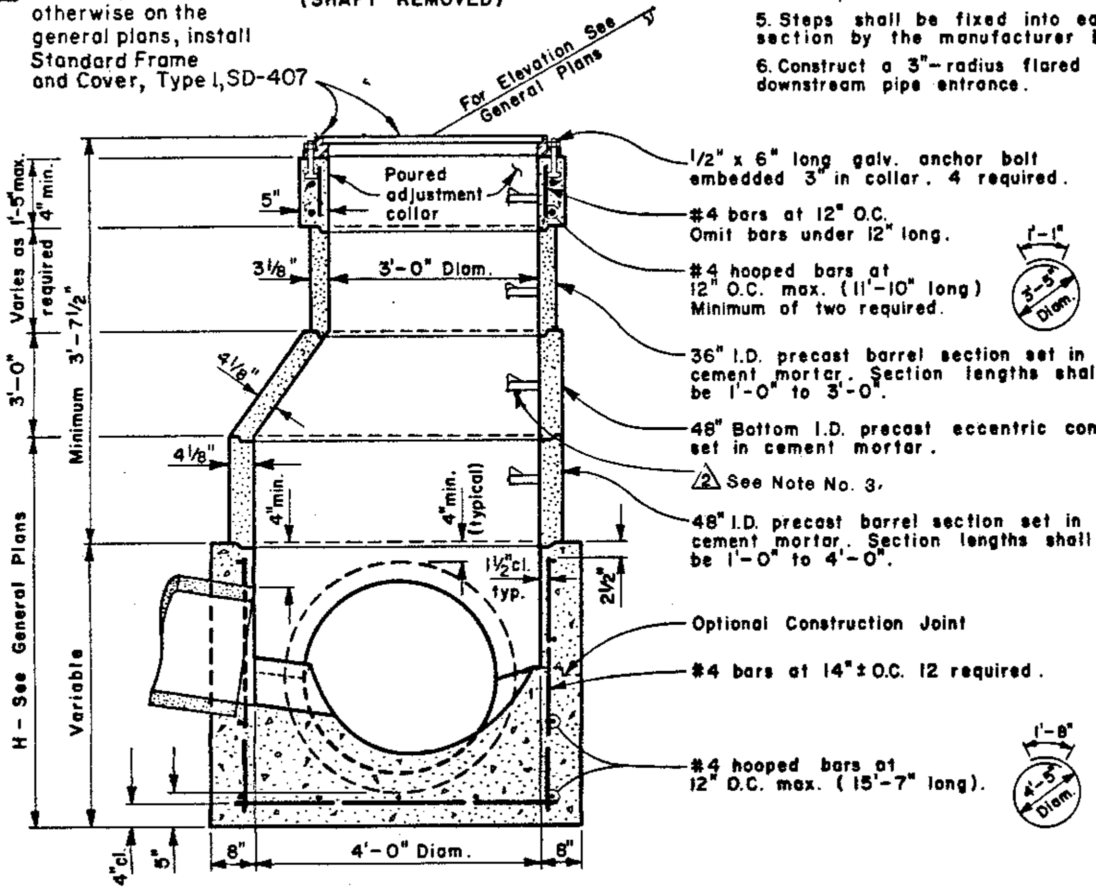


PLAN
(SHAFT REMOVED)

⚠1 Unless specified otherwise on the general plans, install Standard Frame and Cover, Type I, SD-407

GENERAL NOTES:

1. Location and direction of conduits entering and leaving manhole are shown on the General Plans.
2. Reinforcing steel may be cut, bent or spread as directed by the Engineer to permit connection of lateral pipe.
3. For step details, see Design Guidelines File No. SD-517. ⚠2
4. On adjustment collars less than 1'-0" in length, install step equidistant between frame-rim and next step.
5. Steps shall be fixed into each precast barrel section by the manufacturer before curing.
6. Construct a 3"-radius flared intake at the downstream pipe entrance.



SECTION A-A

COUNTY OF ALAMEDA ✱ PUBLIC WORKS AGENCY

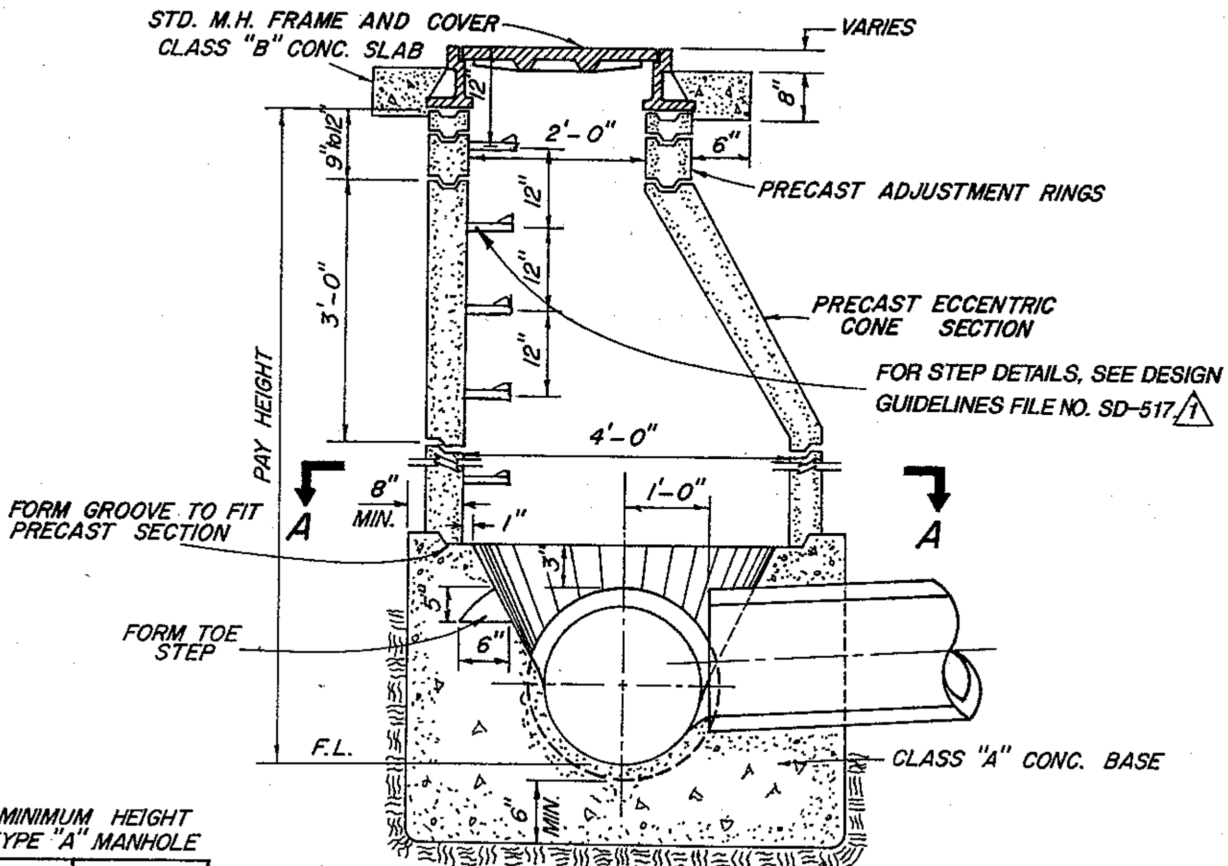
MANHOLE TYPE V

	REVISIONS	
⚠2	Step Detail	7/91
⚠1	Frame & Cover	12/82

APPROVAL REC. [signature]
APPROVED [signature]
APPROVED [signature]
Director of Public Works and Road Commissioner

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
PLC	[signature] TMC	Sept. 1976	None	SD-404	1 of 1

Return To Table of Content

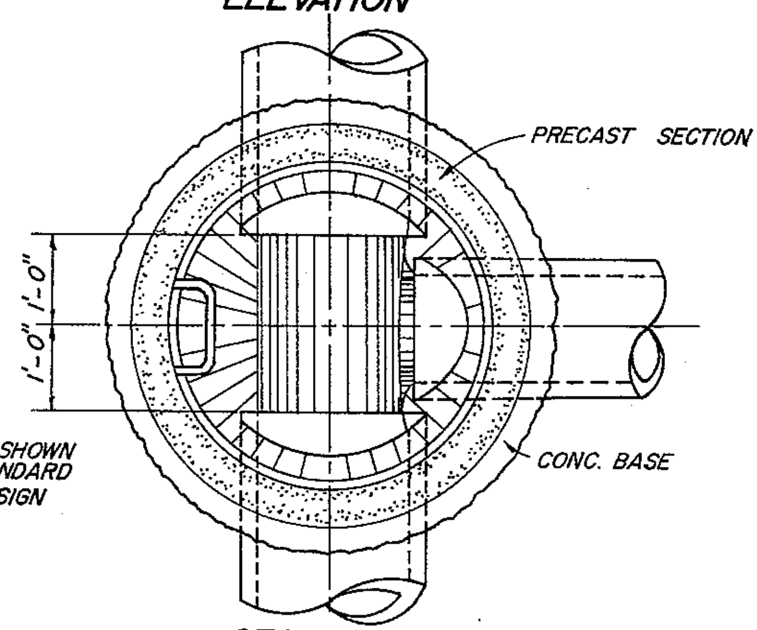


ELEVATION

MINIMUM HEIGHT TYPE "A" MANHOLE

DIA. (rcp)	PAY HEIGHT (ft)
12"	5.17'
15"	5.44'
18"	5.71'
21"	6.00'
24"	6.25'
27"	6.52'
30"	6.79'
33"	7.06'
36"	7.33'

FOR HEIGHTS LESS THAN SHOWN ABOVE, USE TYPE "B" STANDARD MANHOLE OR SPECIAL DESIGN



SECTION A-A

COUNTY OF ALAMEDA ✶ PUBLIC WORKS AGENCY

1	Step Detail	7/91
REVISIONS		

MANHOLE TYPE "A"

APPROVAL REC.
APPROVED
APPROVED
Director of Public Works and Road Commissioner

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
JJJ		April 1976	None	SD-405	1 of 1

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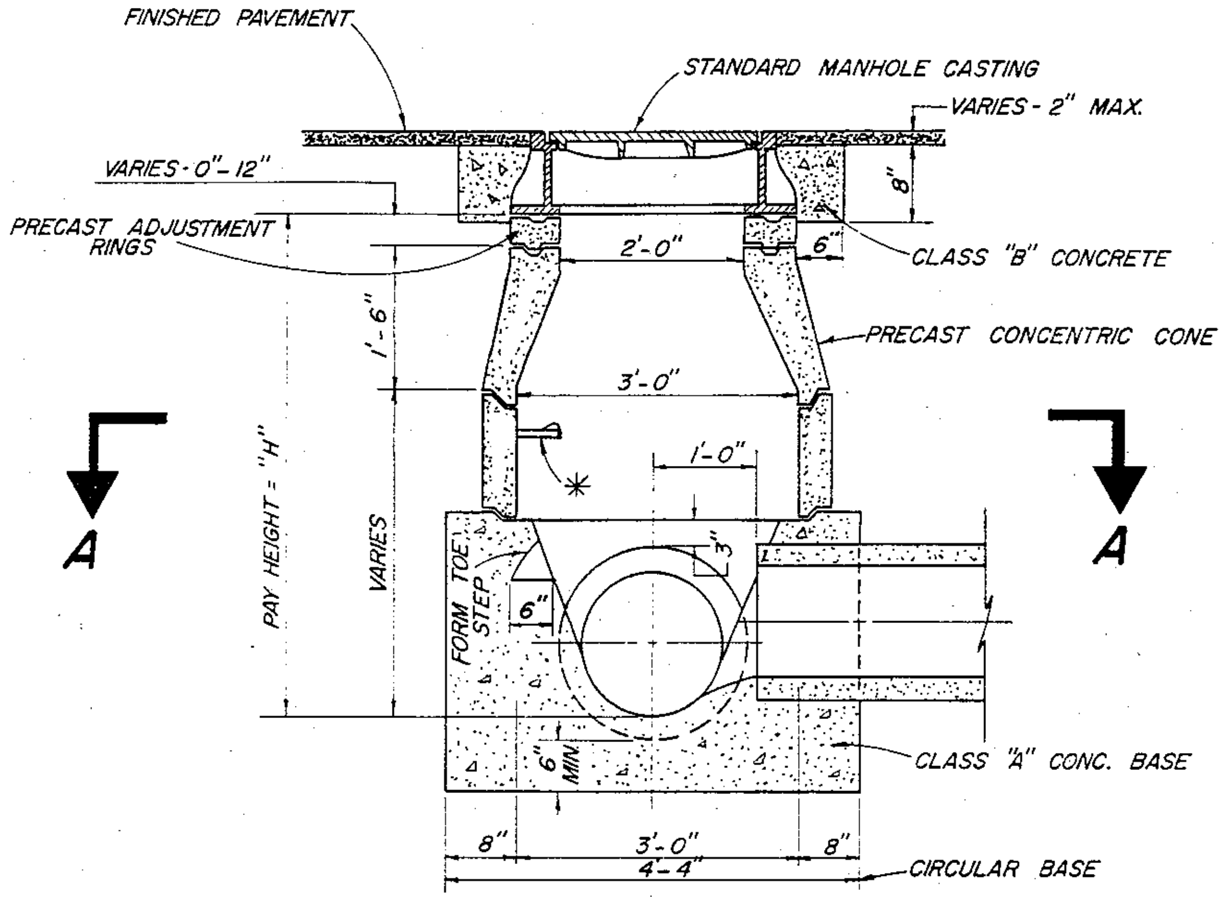
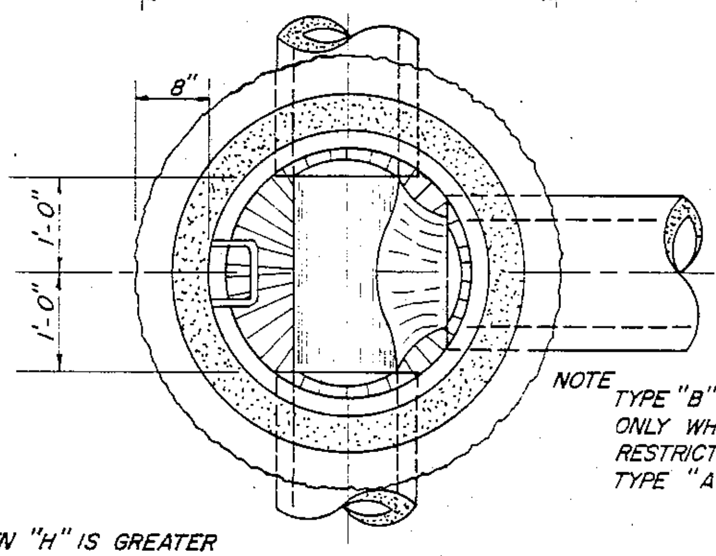


MINIMUM HEIGHT FOR TYPE "B" MANHOLE

DIA. (RCP)	HT. (FT.)
12"	2.92
15"	3.17
18"	3.44
21"	3.70
24"	3.96
27"	4.22
30"	4.48



NOTE
TYPE "B" MANHOLE TO BE USED ONLY WHERE AVAILABLE HEIGHT RESTRICTS THE USE OF A TYPE "A" MANHOLE.

✳ STEPS REQUIRED WHEN "H" IS GREATER THAN 3'-6". FOR STEP DETAILS, SEE DESIGN GUIDELINES FILE NO. SD-517. △1

SECTION A-A

COUNTY OF ALAMEDA ✶ PUBLIC WORKS AGENCY

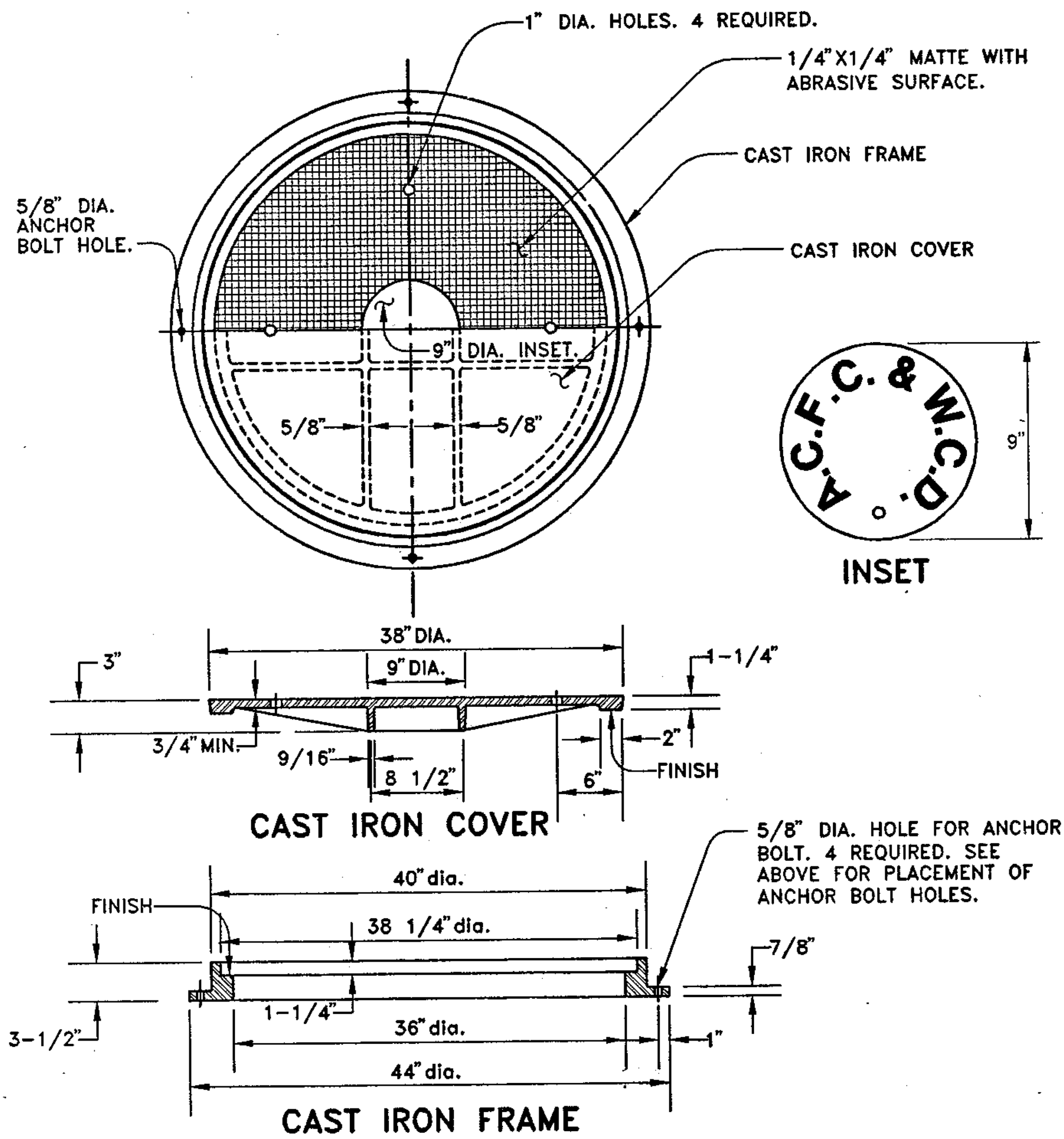
△1	Step Detail	7/91
REVISIONS		

MANHOLE TYPE "B"

APPROVAL REC. [signature]
APPROVED [signature]
APPROVED [signature]
Director of Public Works and Road Commissioner

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
JJJ	TMC	April 1976	None	SD-406	1 of 1

Return To Table of Content



NOTE:
ALL CONTACT END BEARING SURFACES OF BOTH FRAME AND COVER SHALL BE MACHINED TO FIT ACCURATELY SO THAT COVERS WILL NOT ROCK AND SHALL BE MATCH-MARKED IN PAIRS BEFORE DELIVERY.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

REVISIONS

MANHOLE FRAME AND COVER
TYPE I

APPROVAL REC.
APPROVED
APPROVED
COUNTY ENGINEER

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
KT		JAN. 1994	NONE	SD-407	1 of 1

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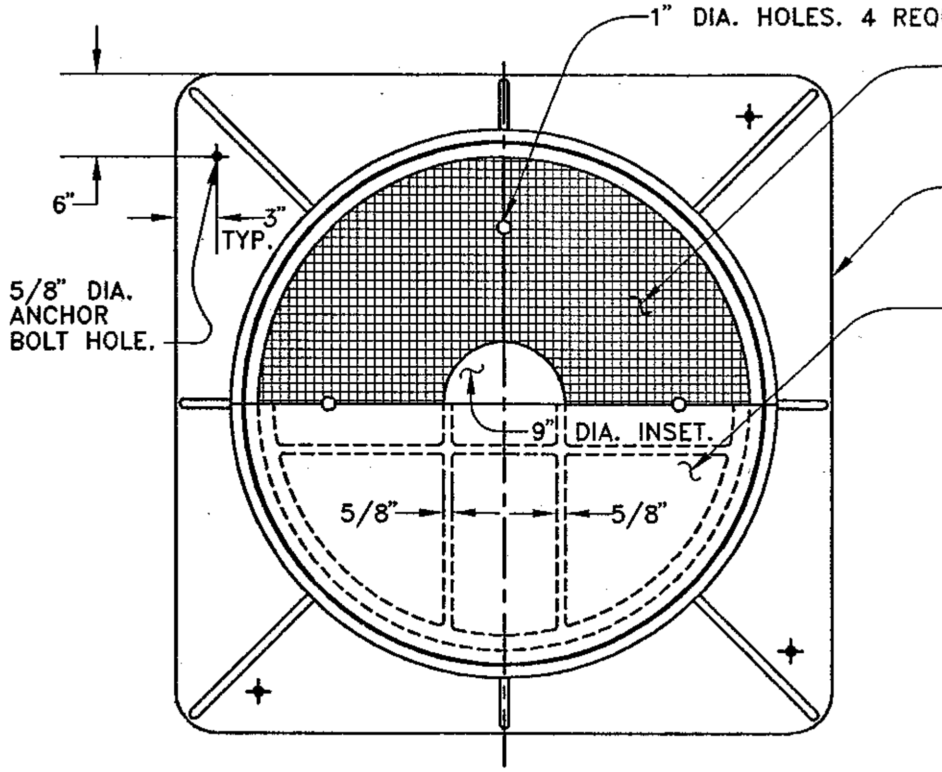
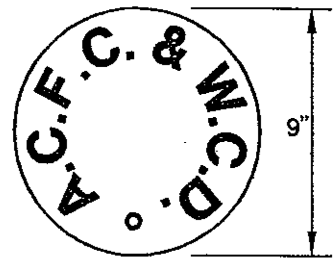
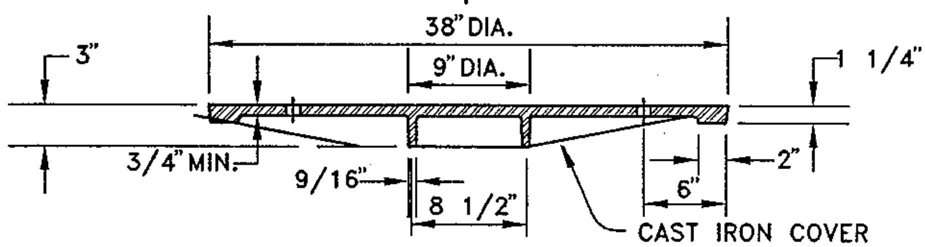
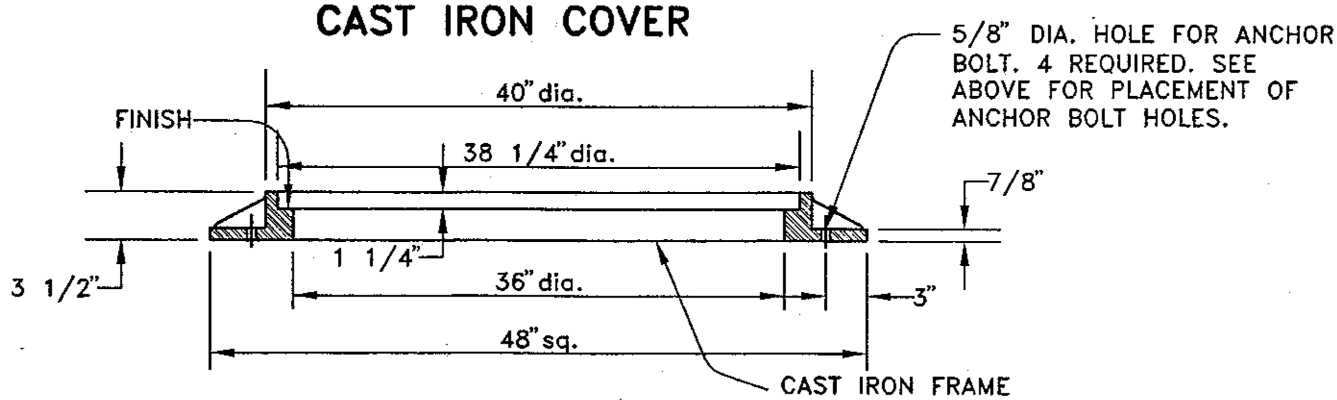




INSET



CAST IRON COVER



CAST IRON FRAME

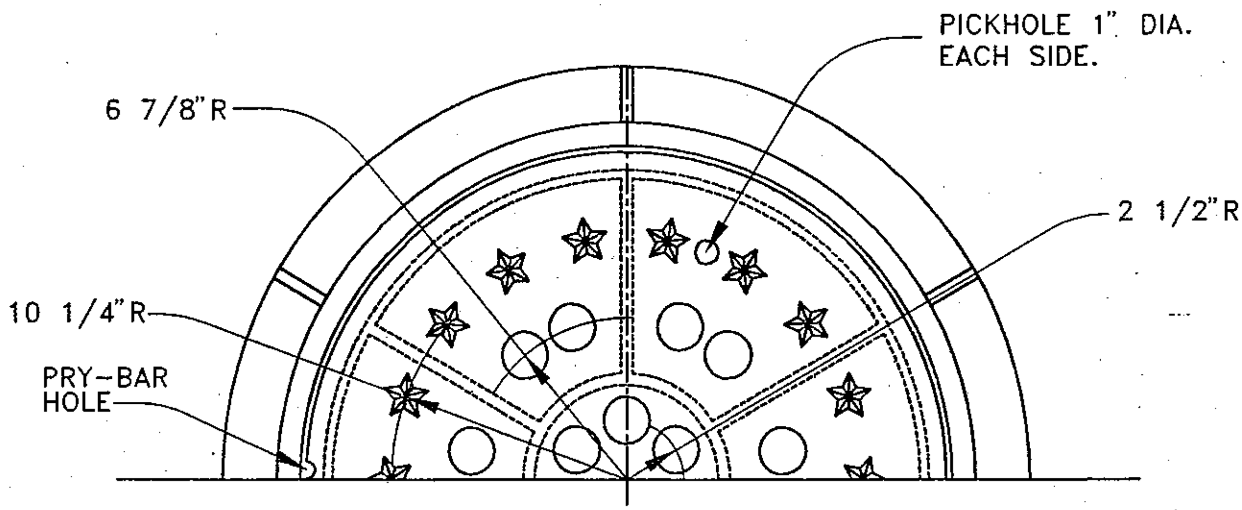
NOTE:
ALL CONTACT END BEARING SURFACES OF BOTH FRAME AND COVER SHALL BE MACHINED TO FIT ACCURATELY SO THAT COVERS WILL NOT ROCK AND SHALL BE MATCH-MARKED IN PAIRS BEFORE DELIVERY.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

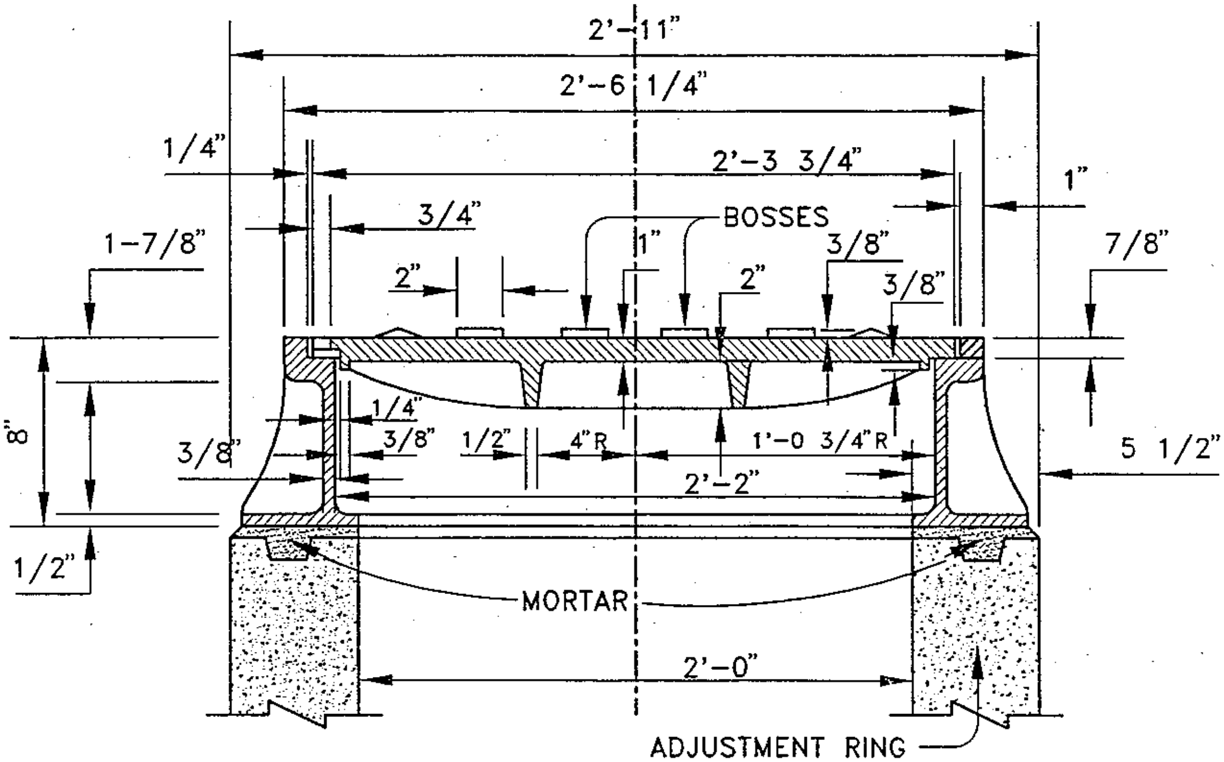
REVISIONS	MANHOLE FRAME AND COVER TYPE II	APPROVAL REC. Hank Ackerman APPROVED J.A. Swanson APPROVED [signature] COUNTY ENGINEER

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
KT		JAN. 1994	NONE	SD-408	1 of 1

Return To Table of Content



HALF PLAN OF TOP



SECTION

NOTE:

MANHOLE FRAMES AND COVERS SHALL BE MATCH-MARKED IN PAIRS. EACH COVER SHALL BE GROUND OR OTHERWISE FINISHED SO THAT IT WILL FIT IN ITS FRAME WITHOUT ROCKING.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

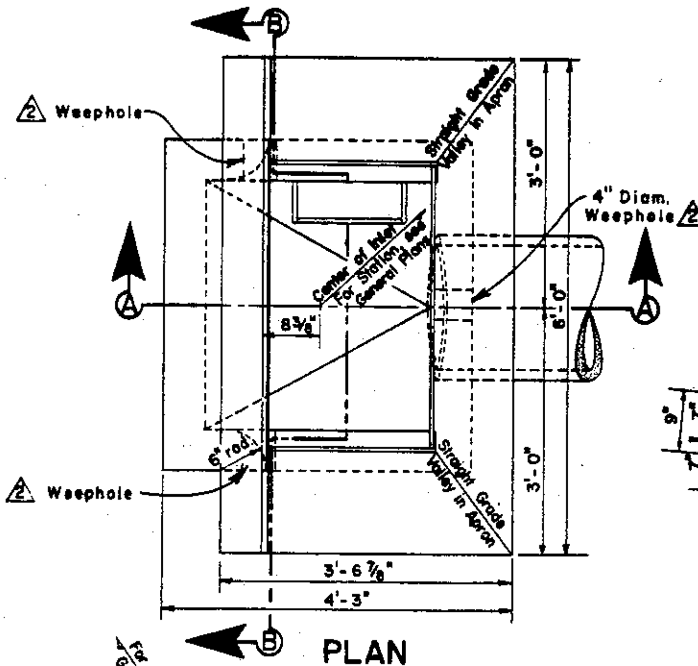
REVISIONS	MANHOLE CASTING	APPROVAL REC. Hank Ackerman APPROVED J. Swanson APPROVED Swanson COUNTY ENGINEER

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
KT		JAN. 1994	NONE	SD-409	1 of 1

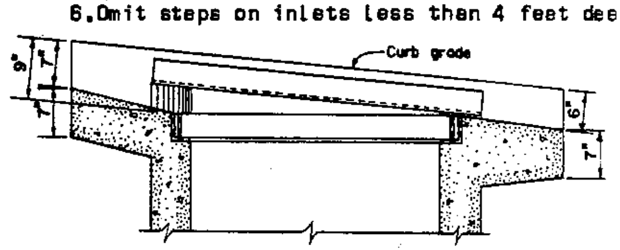
Return To Table of Content

GENERAL NOTES:

1. Location and direction of conduits entering and leaving inlet are shown on the General Plans.
2. Reinforcing steel may be bent, cut or spread as directed by the Engineer, to permit connection of lateral pipe.
3. Inlets with conduits entering and leaving the inlet shall be channelized to the springline as directed by the Engineer.
4. Where rolled curbs are encountered, transition curbface from vertical at curb opening angle to conform to rolled curb in 3 feet.
5. For step details, see Design Guidelines File No. SD-517. 4
6. Omit steps on inlets less than 4 feet deep.

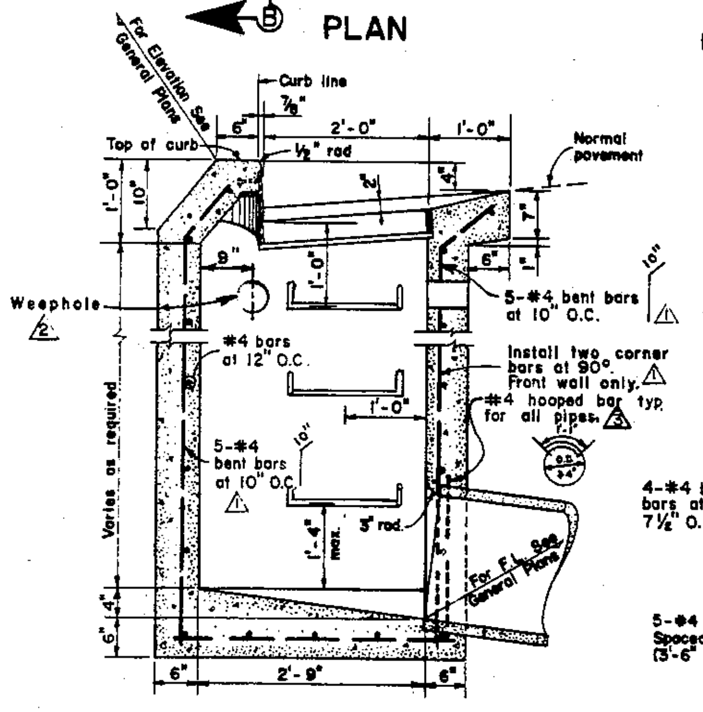


PLAN

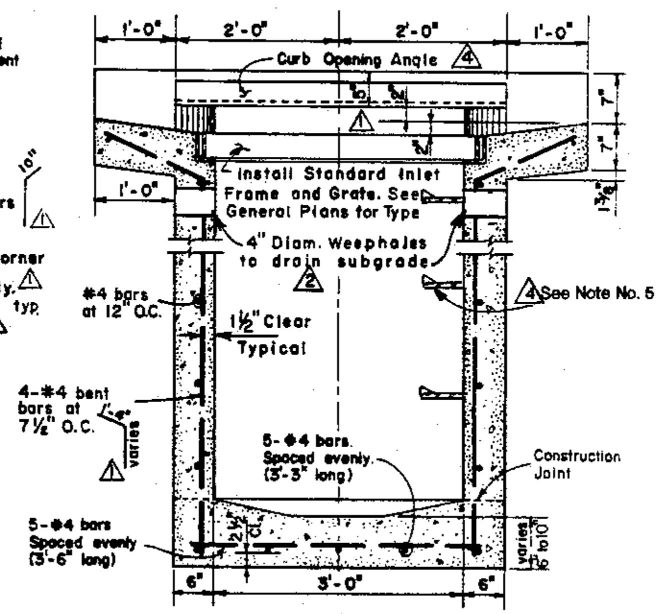


POSITION OF FRAME & GRATE

FOR CURB GRADES OF 5% OR STEEPER 1



SECTION A-A



SECTION B-B

COUNTY OF ALAMEDA ✱ PUBLIC WORKS AGENCY

4	Step Detail	7/91
3	Mod. Hooped Bar	7/72
2	Added Weepholes	6/72
1	Note Additions	8/69
	REVISIONS	

INLET TYPE I

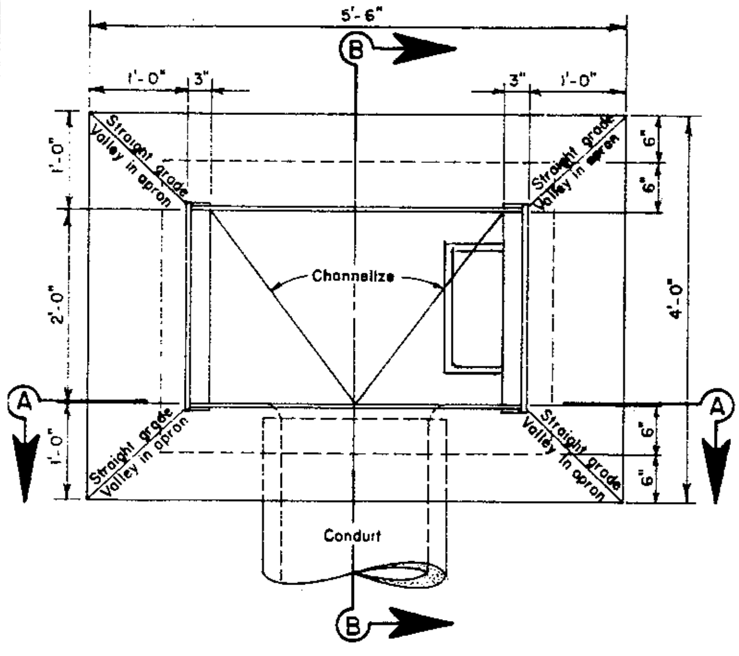
APPROVAL REC. [signature]
APPROVED [signature]
APPROVED [signature]
Director of Public Works and Road Commissioner

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
RLJ	[initials] TMC	July 1969	None	SD-411	1 of 1

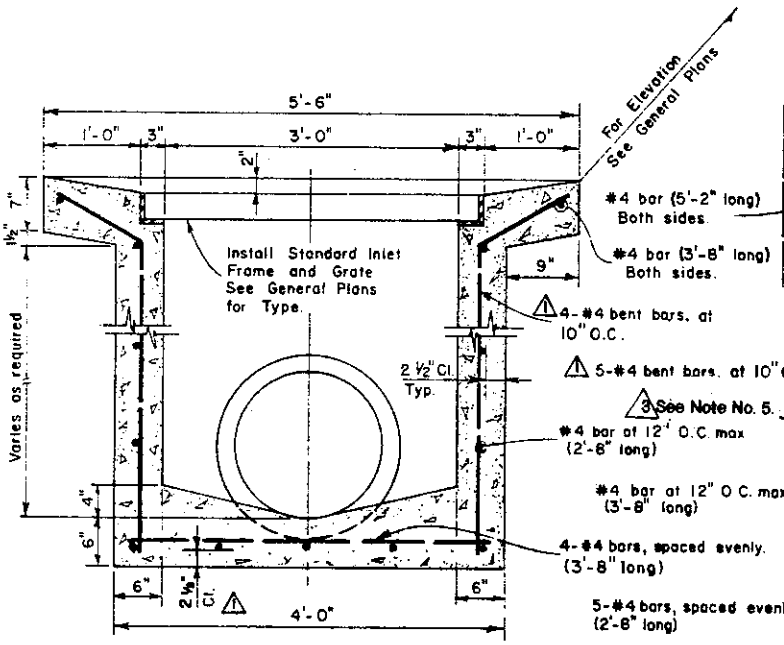
Return To Table of Content

GENERAL NOTES:

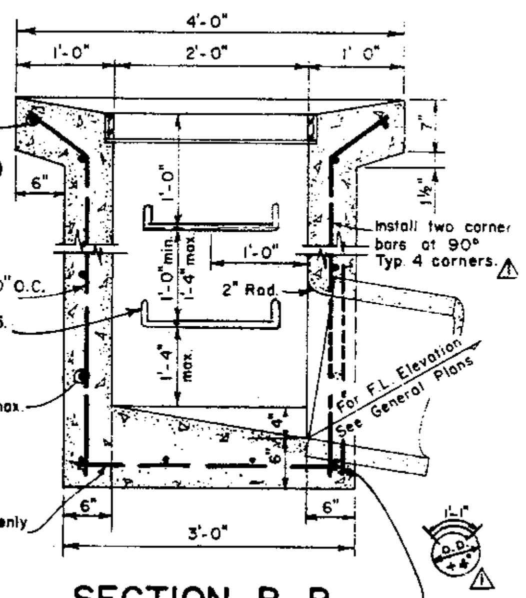
1. Location and direction of conduits entering and leaving inlet are shown on the General Plans.
2. Reinforcing steel may be bent, cut, or spread as directed by the Engineer, to permit connection of lateral pipe.
3. Inlets with conduits entering and leaving the inlet shall be channelized to the springline as directed by the Engineer.
4. Omit steps on inlets less than 4 feet deep.
5. For step details, see Design Guidelines File No. SD-517. ③



PLAN



SECTION A-A



SECTION B-B

⚠ #4 hooped bar typ. for all pipes

COUNTY OF ALAMEDA ✱ PUBLIC WORKS AGENCY

③	Step Detail	7/91
②	Note Changes	7/72
①	Note Changes	8/69
REVISIONS		

INLET TYPE II

APPROVAL REC. [signature]
APPROVED [signature]
APPROVED [signature]
Director of Public Works and Road Commissioner

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
FC	[signature] TMC	March 1969	None	SD-412	1 of 1

Return To Table of Content

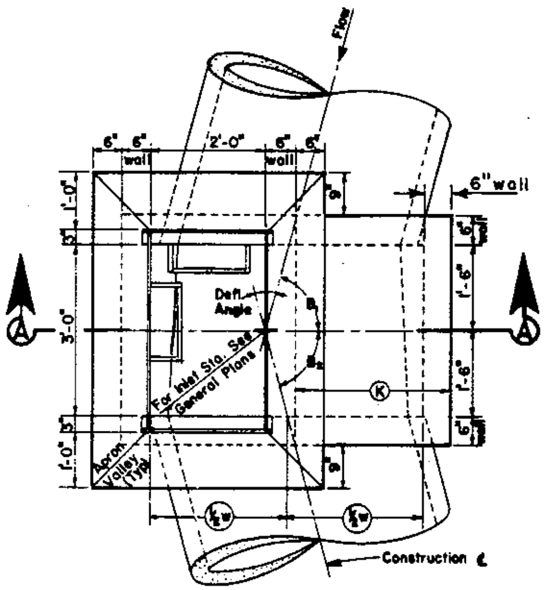
GENERAL NOTES:

1. Location and direction of conduits entering and leaving inlet are shown on the General Plans.

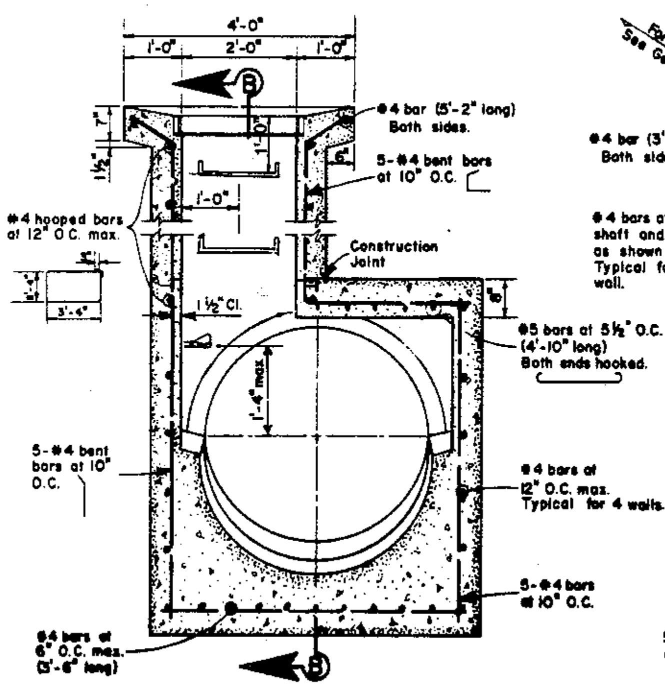
2. Reinforcing steel may be bent, cut, or spread as directed by the Engineer to permit connection of lateral pipe.

3. See General Plans for information of B_1, B_2, W, H, and K (K determines the location of the shaft.)

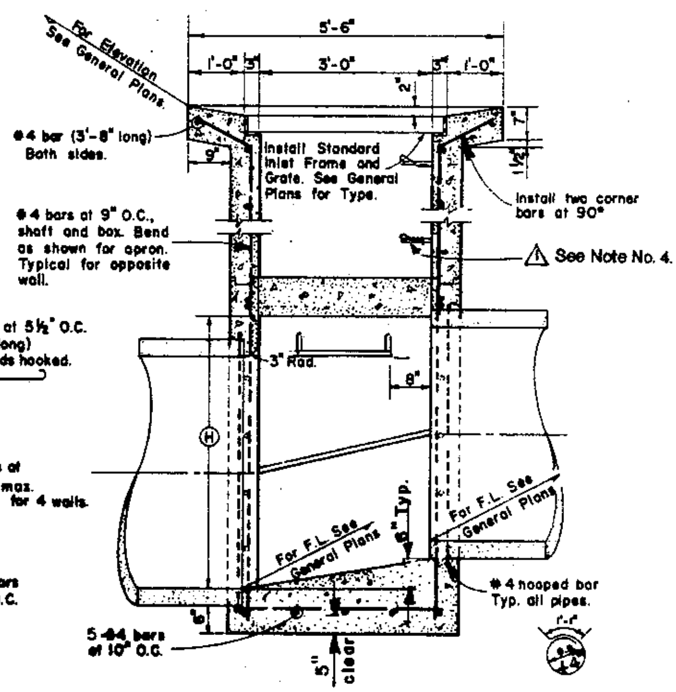
4. For step details, see Design Guidelines File No. SD-517. ⚠1



PLAN



SECTION A-A



SECTION B-B

COUNTY OF ALAMEDA ✶ PUBLIC WORKS AGENCY

⚠1	Step Detail	7/91

REVISIONS

INLET TYPE III

APPROVAL REC. [signature]

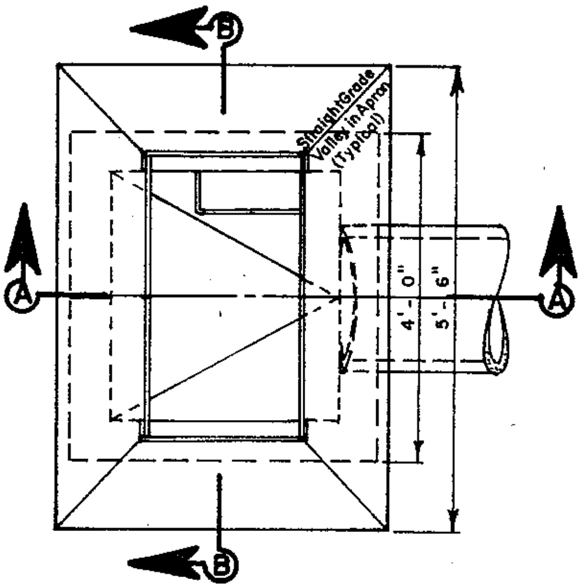
APPROVED [signature]

APPROVED [signature]

Director of Public Works and Road Commissioner

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
RLJ	[signature] TMC	July 1969	None	SD-413	1 of 1

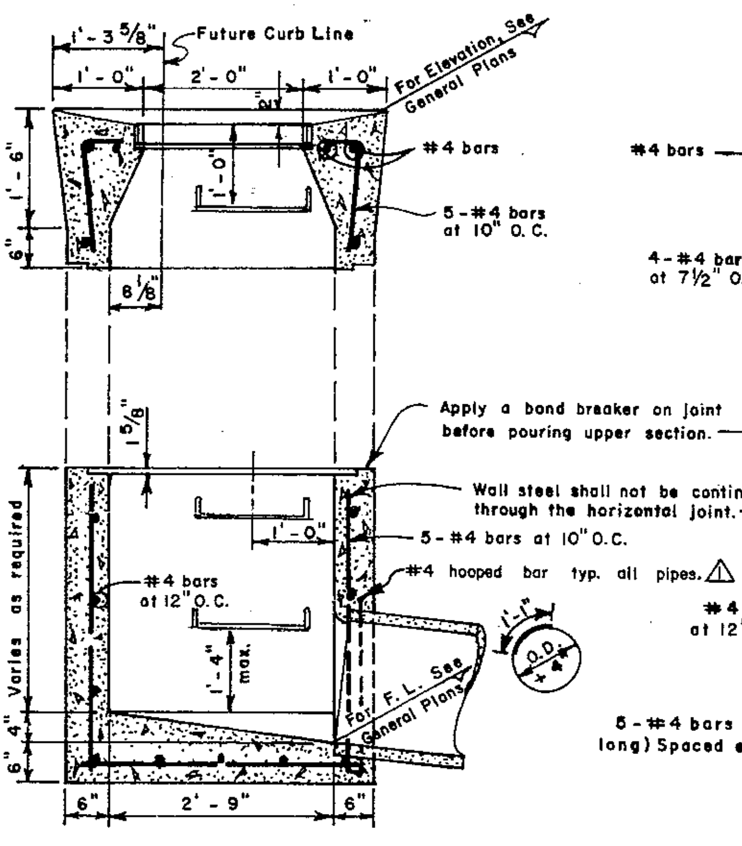
Return To Table of Content



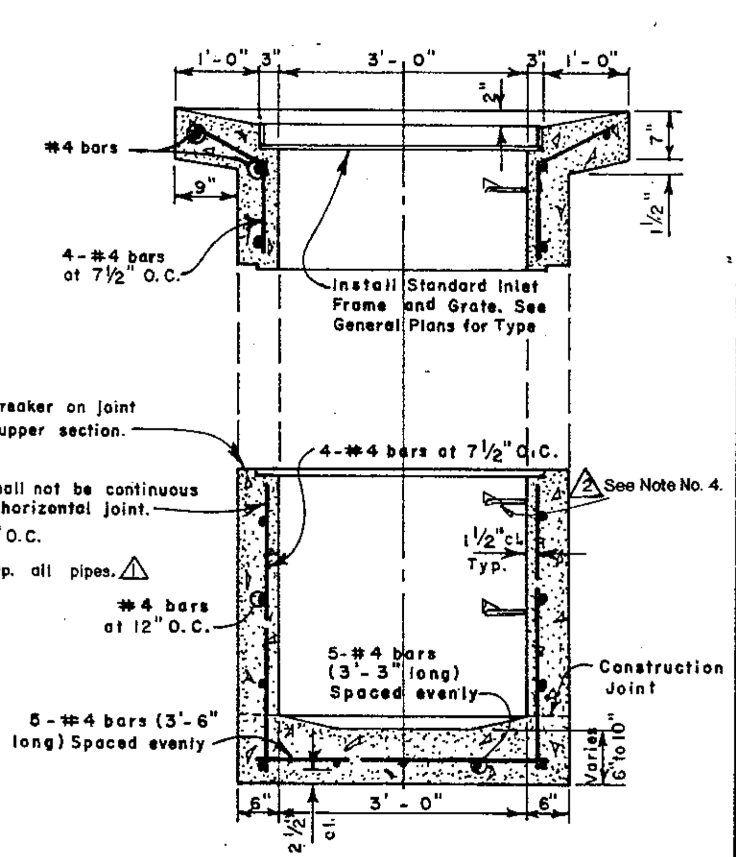
PLAN

GENERAL NOTES:

1. Location and direction of conduits entering and leaving inlet are shown on the General Plans.
2. Reinforcing steel may be cut, bent or spread as directed by the Engineer, to permit connection of lateral pipe.
3. Inlets with conduits entering and leaving the inlet shall be channelized to the springline as directed by the Engineer.
4. For step details, see Design Guidelines File No. SD-517 (2)
5. Omit steps on inlets less than 4 feet deep.



SECTION A-A



SECTION B-B

COUNTY OF ALAMEDA * PUBLIC WORKS AGENCY

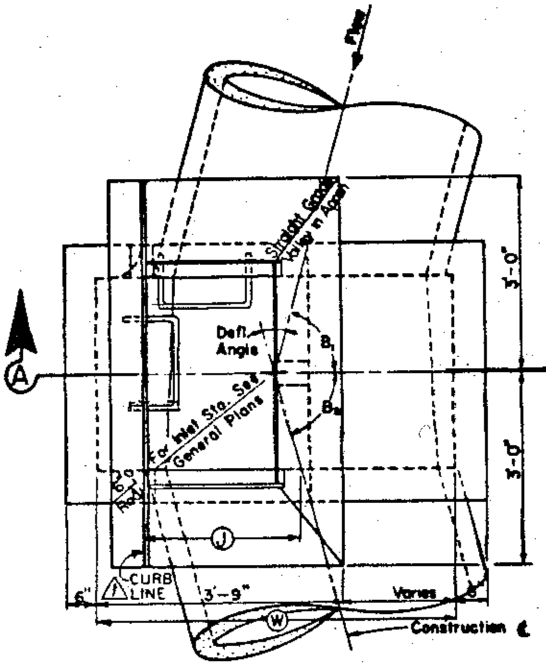
				APPROVAL REC.
			INLET TYPE IV	APPROVED
(2)	Step Detail	7/91		APPROVED
(1)	Modified hooped bar note.	7/72		Director of Public Works and Road Commissioner
REVISIONS				

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
FC		July 1969	None	SD-414	1 of 1

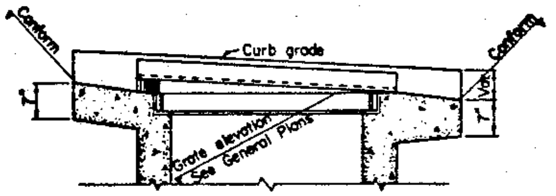
Return To Table of Content

GENERAL NOTES:

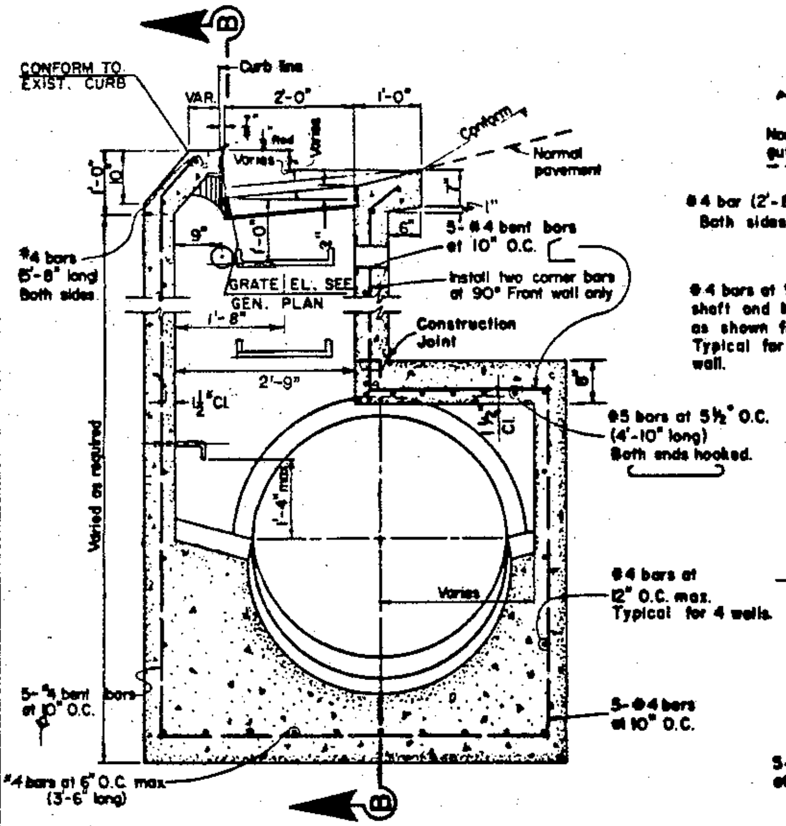
1. Location and direction of conduits entering and leaving inlet are shown on the General Plans.
2. Reinforcing steel may be bent, cut, or spread as directed by the Engineer to permit connection of lateral pipe.
3. See General Plans for information on B_1, B_2, W, H, and J (J determines the location of the conduit centerline.)
4. For step details, see Design Guidelines File No. SD-517. 4
5. Inlets with conduits entering and leaving the inlet shall be channelized to the springline as directed by the Engineer.
6. Omit steps on inlets less than 4 feet deep.



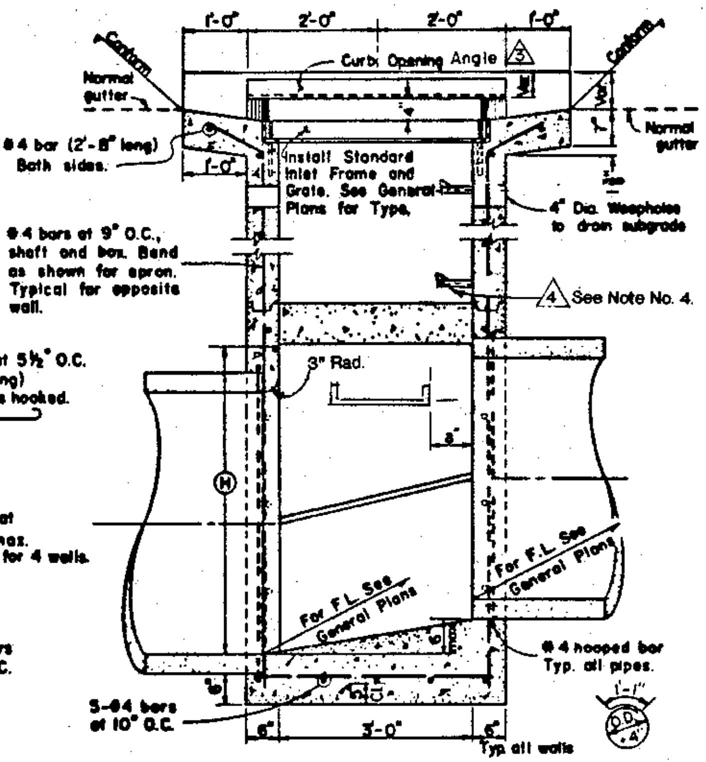
PLAN



POSITION OF FRAME & GRATE
FOR CURB GRADES OF 5% OR STEEPER



SECTION A-A



SECTION B-B

COUNTY OF ALAMEDA ✱ PUBLIC WORKS AGENCY

4	Step Detail	7/91
3	Notes revised	4/77
2	Mod. steps	7/75
1	Clarify J dimensions	6/75
	REVISIONS	

INLET TYPE VI

APPROVAL REC. [signature]

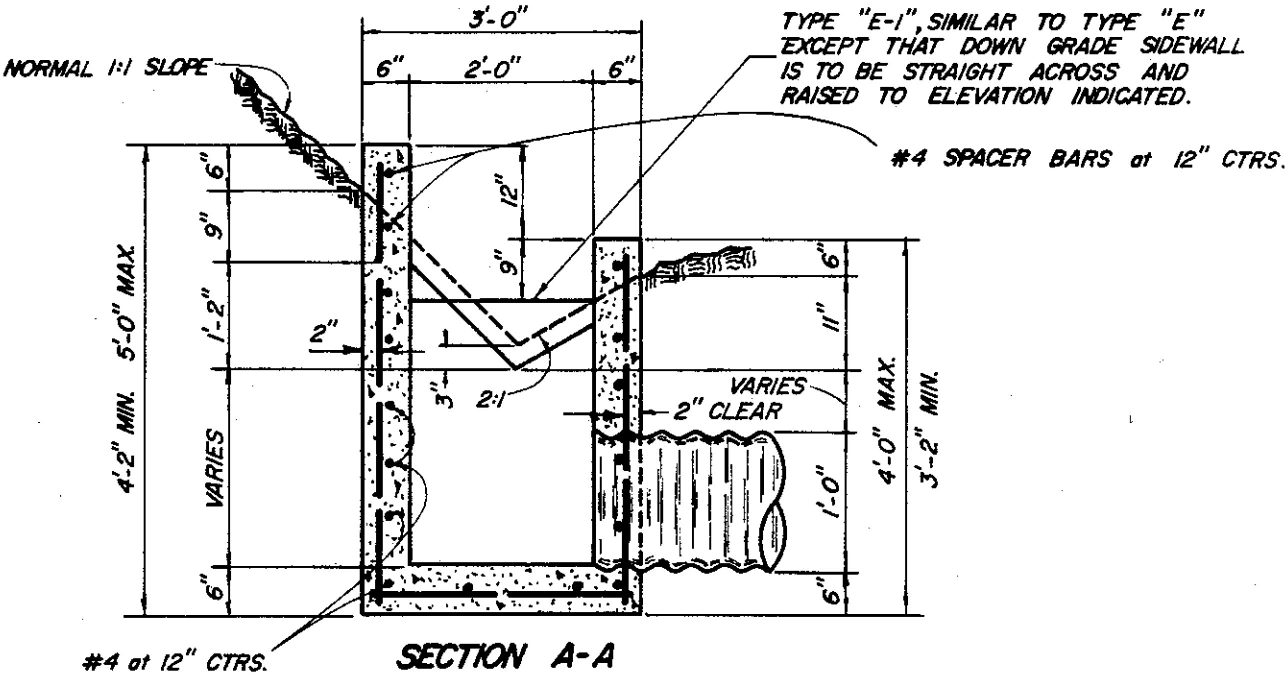
APPROVED [signature]

APPROVED [signature]

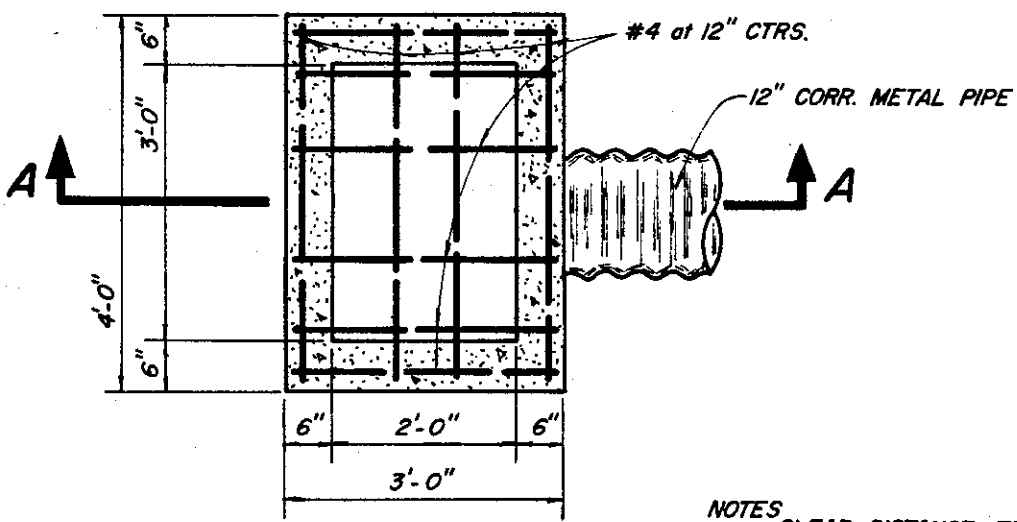
Director of Public Works and Road Commissioner

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
TAT	[signature] TMC	Feb. 1975	None	SD-416	1 of 1

Return To Table of Content



SECTION A-A



PLAN

SHOWING WALL AND BOTTOM SLAB REINFORCING

NOT TO BE USED WITHIN 30' OF BIKE PATH OR TRAVELED WAY.

NOTES

CLEAR DISTANCE TO STEEL SHALL BE 2 INCHES.

ALL REINFORCING TO BE #4 BARS.

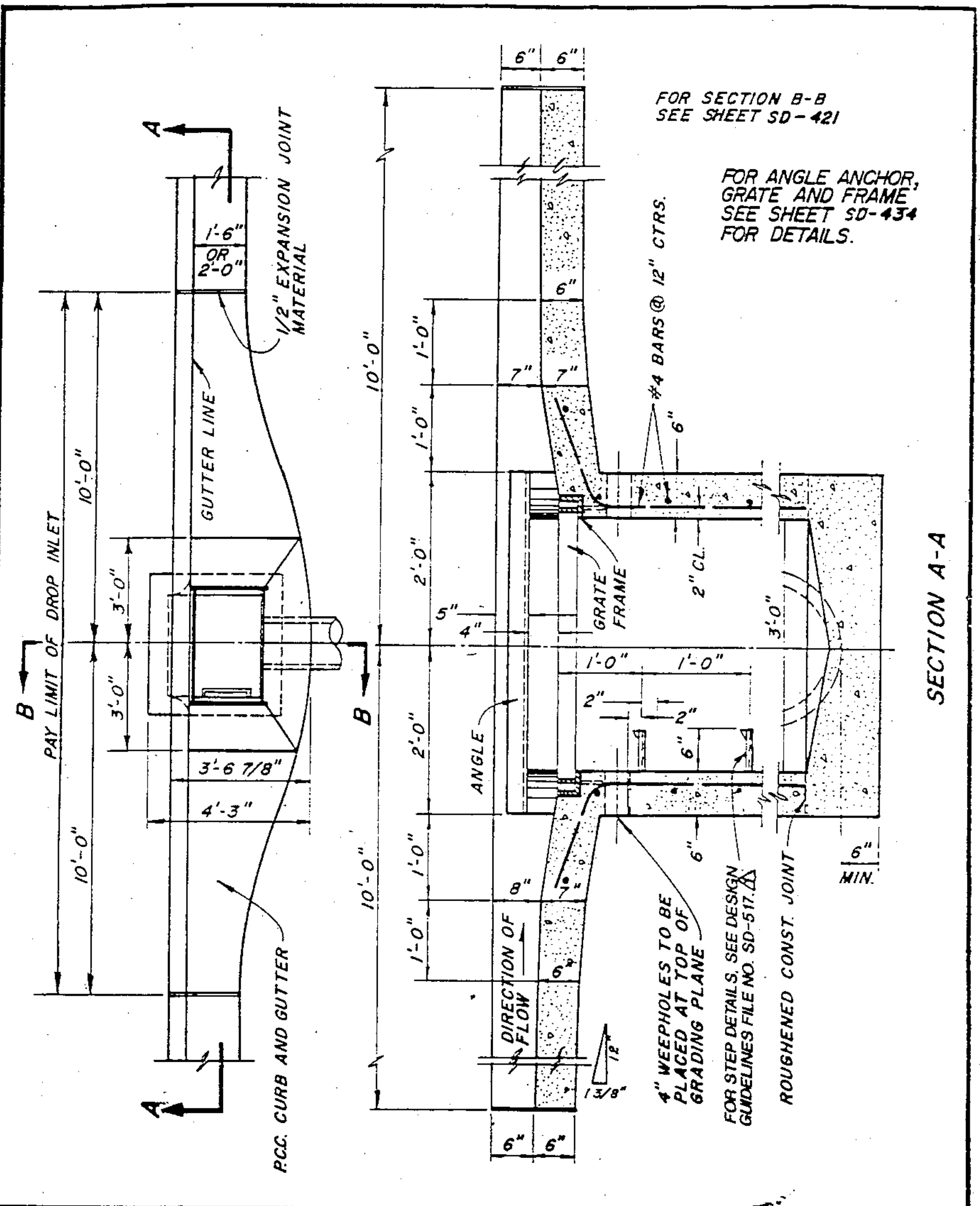
STEEL SPACING SHOWN IS MAX. ALLOWABLE.

COUNTY OF ALAMEDA * PUBLIC WORKS AGENCY

REVISIONS	DROP INLET TYPE "E" AND "E-1"	APPROVAL REC. [signature] APPROVED [signature] APPROVED [signature] Director of Public Works and Road Commissioner

DRAWN JJJ	CHECKED [signature]	DATE April 1976	SCALE None	FILE NO. SD-417	1 of 1

Return To Table of Content



COUNTY OF ALAMEDA * PUBLIC WORKS AGENCY

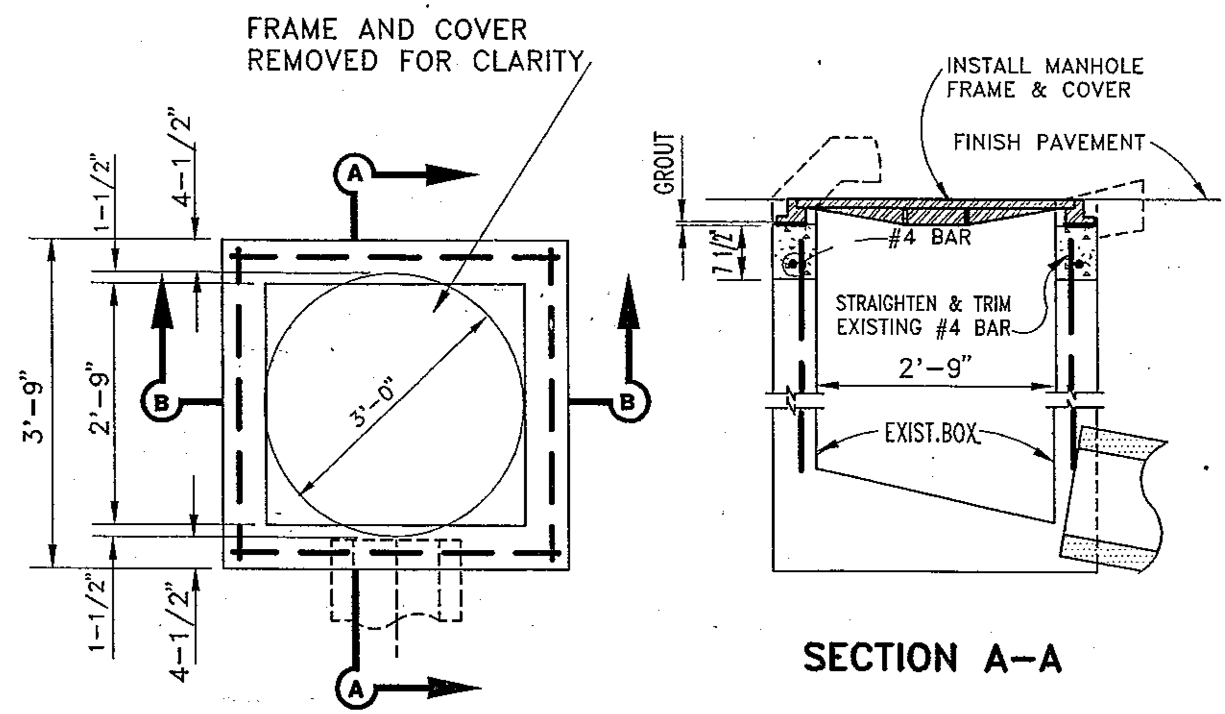
DROP INLET WITH TAPER

1	Step Detail	7/91
REVISIONS		

APPROVAL REC. [signature]
APPROVED [signature]
APPROVED [signature]
Director of Public Works and Road Commissioner

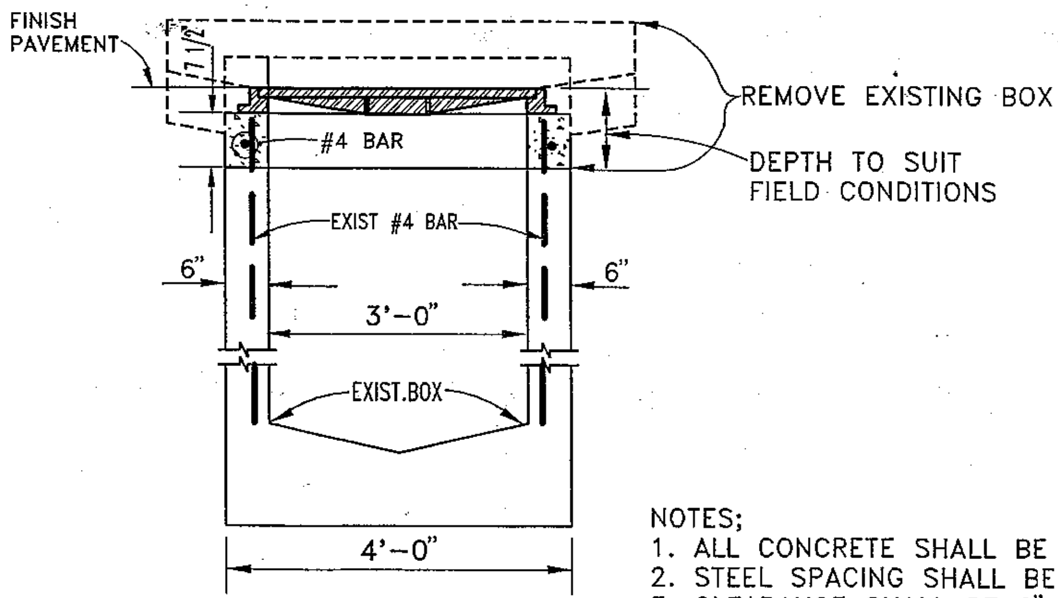
DRAWN	CHECKED	DATE	SCALE	FILE NO.	
PCL	[signature]	April 1976	None	SD-419	1 of 1

Return To Table of Content



PLAN

SECTION A–A



SECTION B–B

NOTES;
1. ALL CONCRETE SHALL BE CLASS "A"
2. STEEL SPACING SHALL BE 1-1/2" MIN.
3. CLEARANCE SHALL BE 2" MIN.

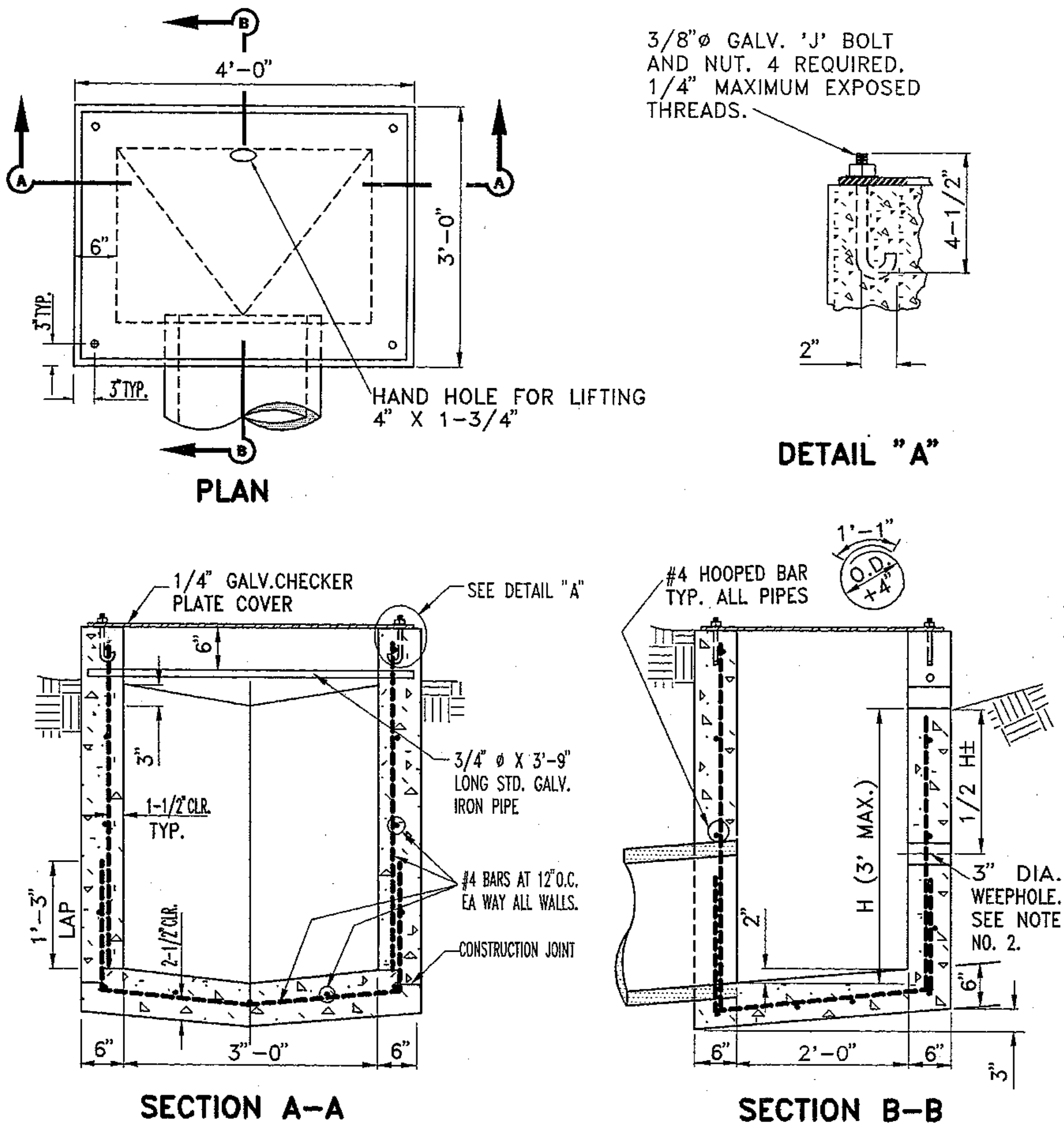
COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

CONVERT EXISTING DROP INLET TO MANHOLE

REVISIONS	APPROVAL REC.	APPROVED	APPROVED	COUNTY ENGINEER

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
EA		JUNE 1993	NONE	SD-422	1 of 1

Return To Table of Content



NOTES:

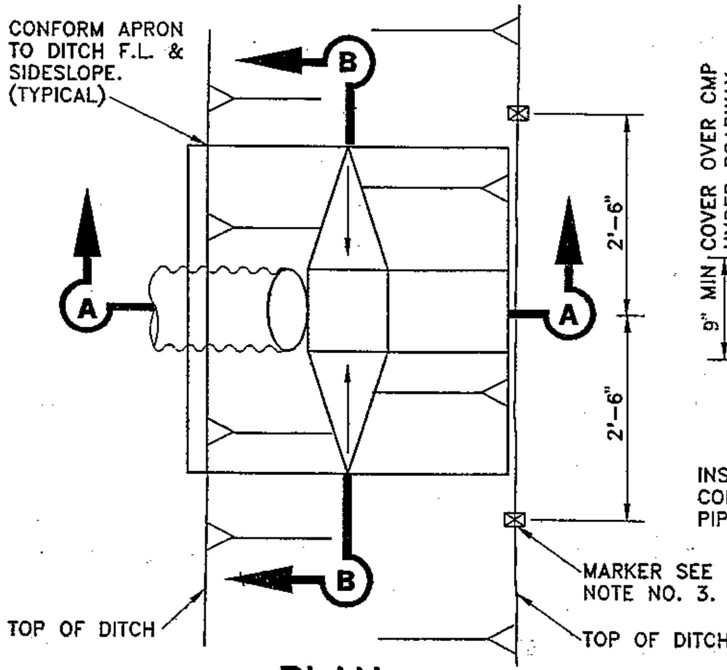
1. REINFORCING STEEL MAY BE BENT, CUT OR SPREAD AS DIRECTED BY THE ENGINEER TO PERMIT PIPE CONNECTION.
2. PLACE ONE CUBIC FOOT OF CRUSHED ROCK OR GRAVEL IN A BURLAP SACK BEHIND WEEPHOLE.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

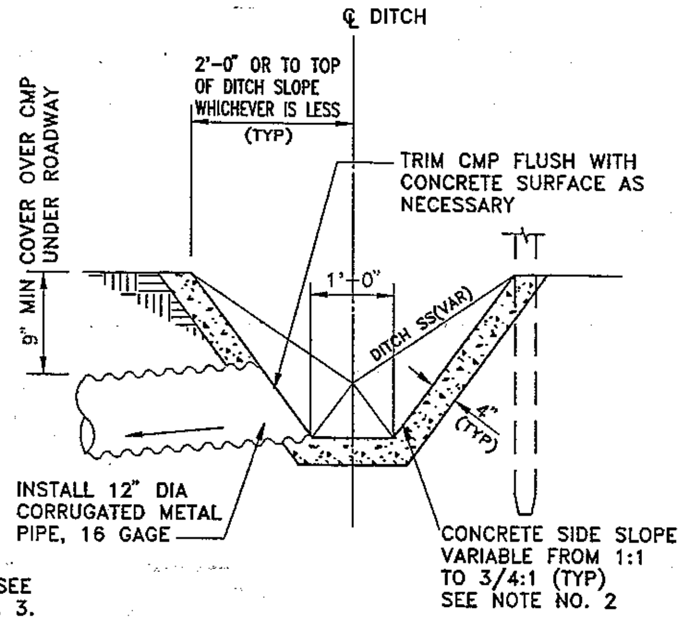
REVISIONS	FIELD INLET TYPE IV	APPROVAL REC. APPROVED APPROVED COUNTY ENGINEER

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
EA		JULY 1993	NONE	SD-426	1 of 1

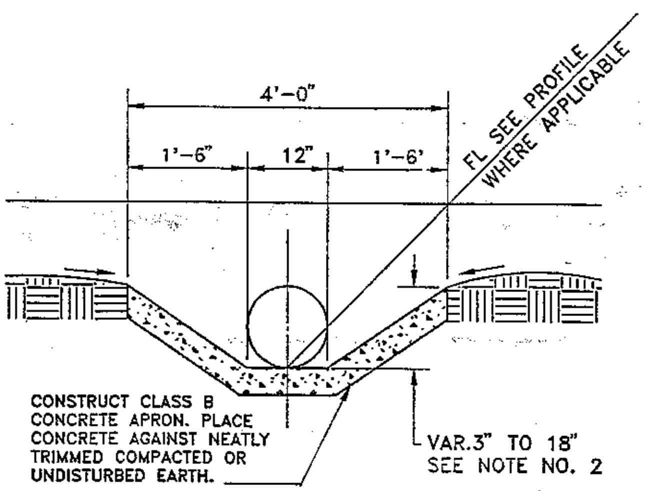
Return To Table of Content



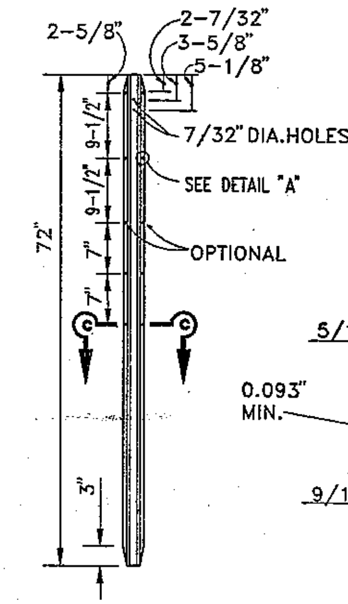
PLAN



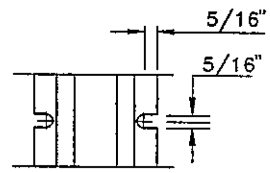
SECTION A–A



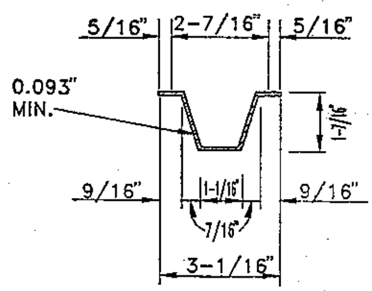
SECTION B–B



METAL POST PLAN



DETAIL 'A'



SECTION C–C

NOTES:

1. WHERE APPLICABLE, SEE GENERAL PLANS FOR INLET LOCATIONS.
2. THE CONCRETE APRON DEPTH AND SIDE SLOPES MAY BE VARIED WITHIN THE LIMITS SHOWN IN ORDER TO MEET THE REQUIREMENTS OF PROVIDING 1-FOOT APRON BOTTOM WIDTH AND A 9-INCH MIN. COVER OVER THE CMP UNDER THE ROADWAY. IF NECESSARY THE CONCRETE APRON TOP WIDTH MAY ALSO BE VARIED.
3. TWO 6-FOOT LONG MARKERS EMBEDDED 3'-0" INTO GROUND SHALL BE INSTALLED AT THE OUTSIDE TOP OF DITCH SLOPES FOR EACH INLET LOCATION. THE MARKERS SHALL BE EITHER METAL CONFORMING TO THE METAL POST DETAIL ABOVE AND SECTION 82-1.02B OF CALTRANS STANDARD SPECIFICATIONS OR 4" X 4" WOOD S4S CONFORMING TO SECTION 56-2.02B OF CALTRANS STANDARD SPECIFICATIONS. IN EITHER CASE, THE MARKER SHALL BE PAINTED WHITE.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

REVISIONS	FIELD INLET TYPE V	APPROVAL REC. / APPROVED / APPROVED / COUNTY ENGINEER

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
EA		SEPT. 1993	NONE	SD-427	1 of 1

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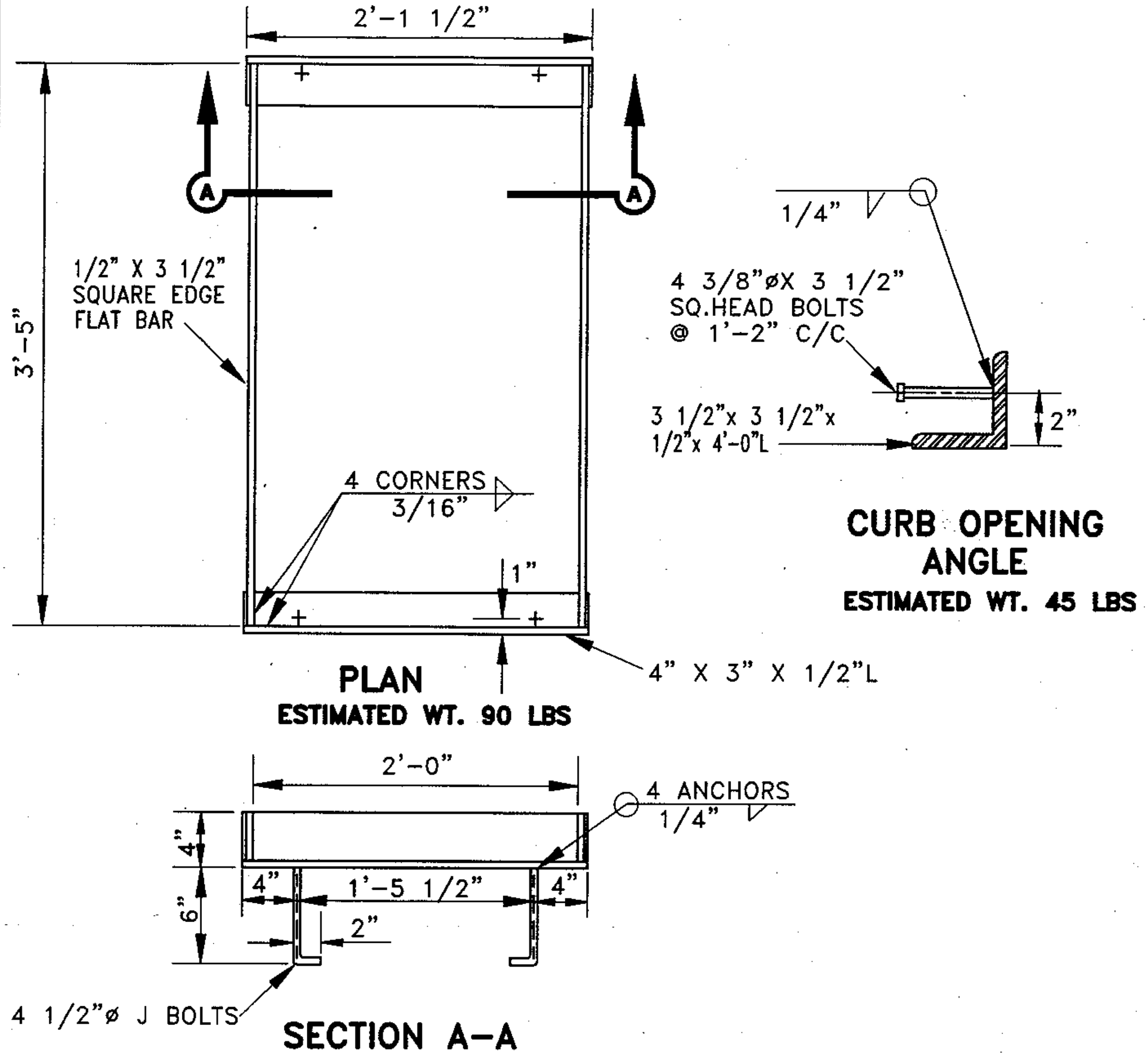


NOTES:

1. ALL METAL SHALL BE STRUCTURAL GRADE STEEL OR BETTER.
2. GRATINGS AND FRAMES ARE TO BE ASSEMBLED AND MADE TO FIT BEFORE DELIVERY TO THE JOB SITE.
3. ALL STEEL COMPONENTS SHALL BE GALVANIZED AFTER FABRICATION. GALVANIZED SURFACES THAT ARE ABRADED SHALL BE REPAIRED AS SPECIFIED IN SECTION 75-1.05 "GALVANIZING" OF THE STANDARD SPECIFICATIONS
4. CURB OPENING ANGLE IS PART OF THE FRAME FOR INLET TYPE I, V, AND VI.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

REVISIONS

BICYCLE TYPE FRAME AND GRATE

APPROVAL REC.

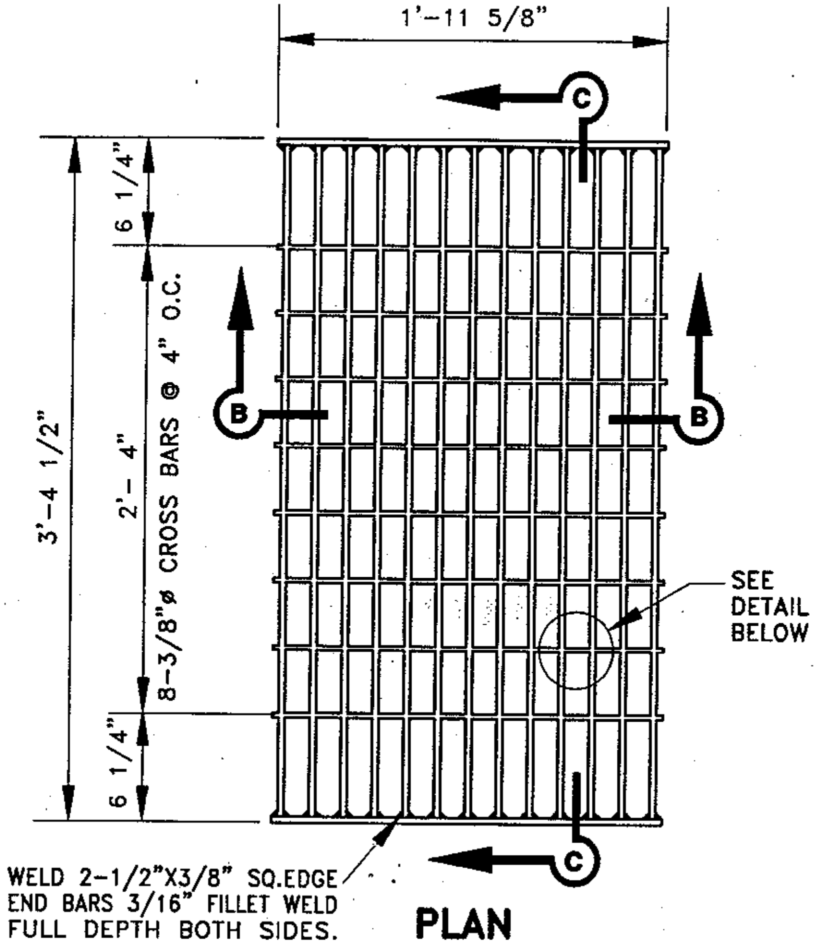
APPROVED

APPROVED

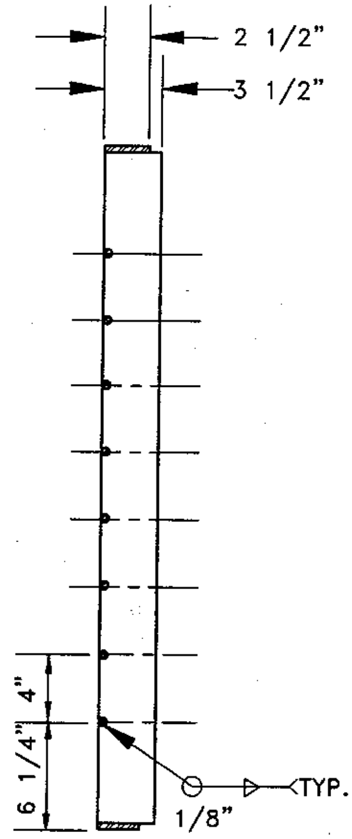
COUNTY ENGINEER

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
KT	JC, AC	DEC 1999	NONE	SD-434A	1 of 2

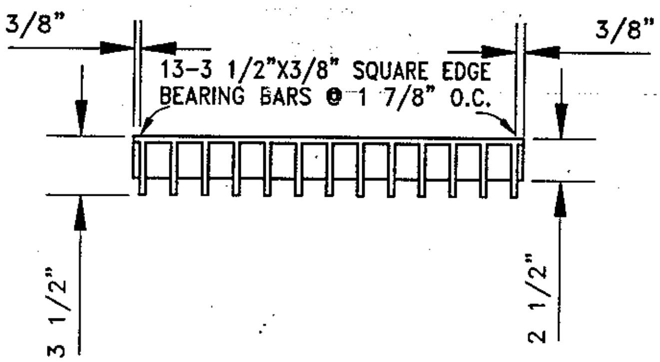
Return To Table of Content



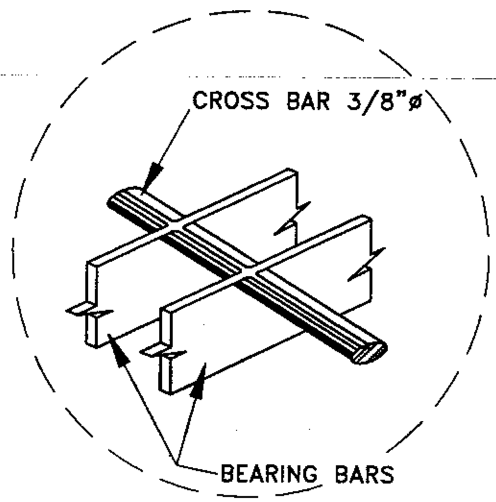
PLAN



SECTION C–C



SECTION B–B



DETAIL

NOTES:

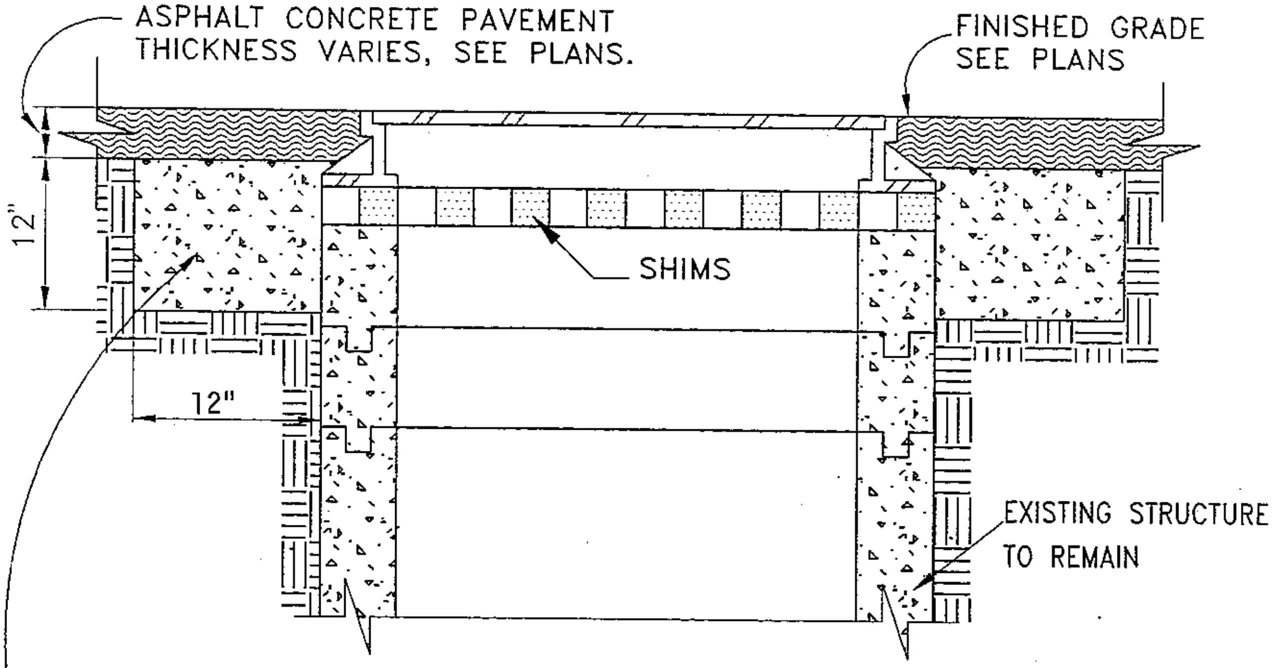
1. 3/8" CROSS BARS MAY BE FILLET WELDED, RESISTANCE WELDED, OR ELECTROFORGED TO BEARING BARS.
2. ESTIMATED WEIGHT 210 LBS.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

REVISIONS	BICYCLE TYPE FRAME AND GRATE	APPROVAL REC. / APPROVED / APPROVED / COUNTY ENGINEER

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
KT	JC, AC	DEC 1999	NONE	SD–434A	2 of 2

Return To Table of Content



REMOVE EXISTING CONCRETE COLLAR AND ADJUST FRAME AND COVER TO NEW GRADE USING BRICK AND MORTAR SHIMS. CONSTRUCT CONCRETE COLLAR USING CLASS B CONCRETE. PLASTER INSIDE WALL OF MANHOLE AS NECESSARY.

TYPICAL SECTION THROUGH STRUCTURE

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

REVISIONS	FRAME AND COVER ADJUSTMENT DETAIL	APPROVAL REC. / APPROVED / APPROVED — COUNTY ENGINEER

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
JR		JAN. 1995	NONE	SD-436	1 of 1

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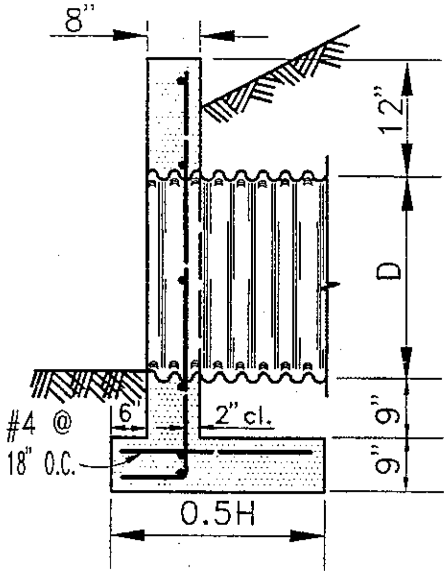
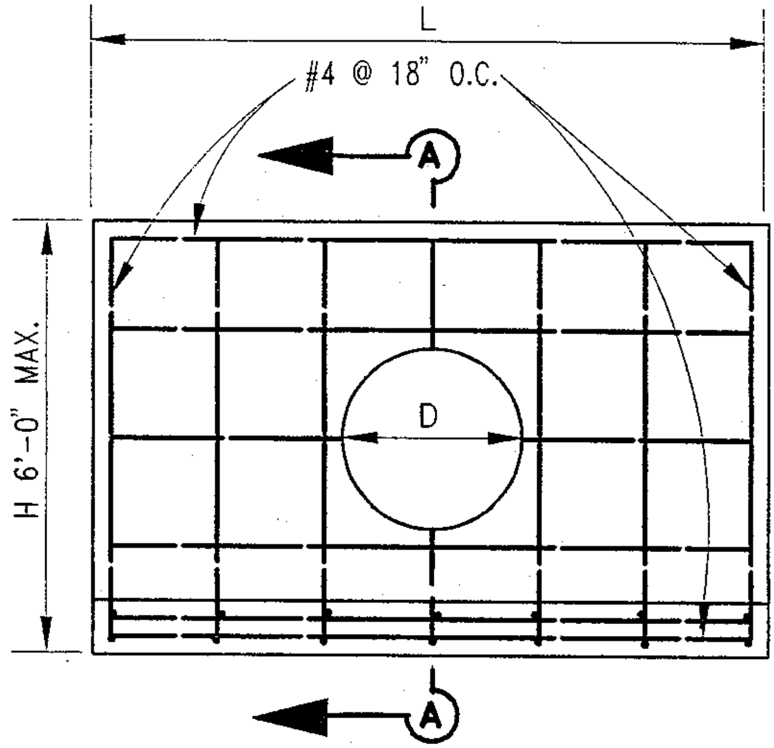
SD-500 SERIES MISCELLANEOUS STRUCTURES

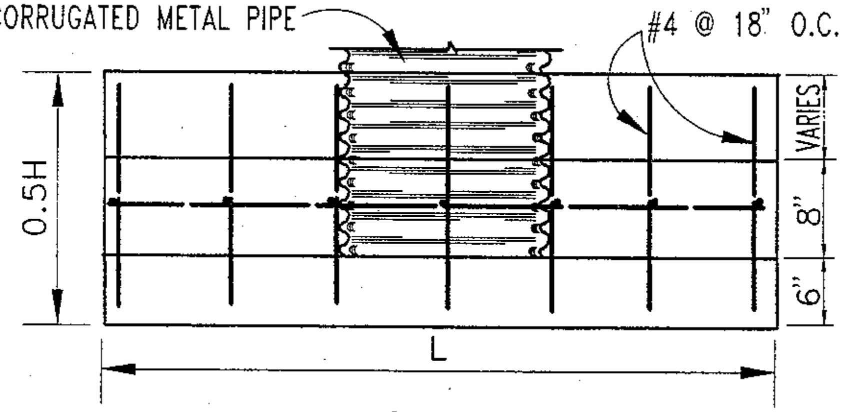


SECTION A–A



FRONT ELEVATION

D	L
12"	5'–0"
15"	6'–0"
18"	7'–0"
21"	7'–6"
24"	8'–6"
30"	10'–0"



PLAN

NOTES:
1. CLEAR DISTANCE TO STEEL SHALL BE 2 INCHES.
2. THE MAXIMUM SIZE PIPE CULVERT TO BE USED SHALL BE 30" DIAMETER. SPECIAL DETAILS REQUIRED FOR LARGER SIZES OF PIPE.
3. STEEL SPACING, AS SHOWN, IS MAXIMUM ALLOWABLE.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

REVISIONS

STRAIGHT HEADWALL

TYPE 'A'

APPROVAL REC. Hendry

APPROVED

APPROVED awan

COUNTY ENGINEER

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
EA		JAN. 1993	NONE	SD–500	1 of 1

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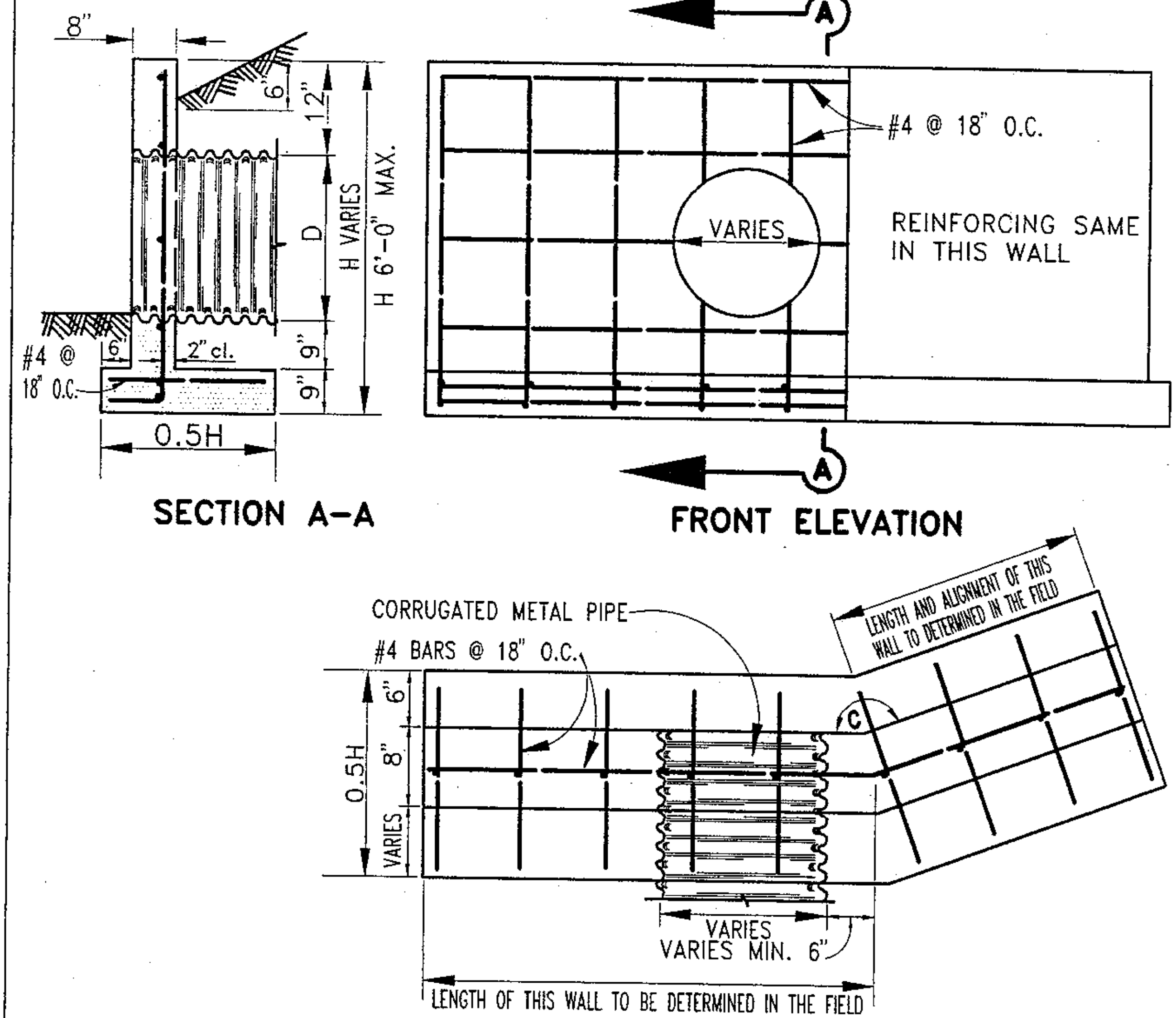

SECTION A–A

FRONT ELEVATION

PLAN

NOTES:

1. CLEAR DISTANCE TO STEEL SHALL BE 2 INCHES.
2. THE MAXIMUM SIZE PIPE CULVERT TO BE USED SHALL BE 30" DIAMETER. SPECIAL DETAILS REQUIRED FOR LARGER SIZES OF PIPE.
3. STEEL SPACING, AS SHOWN, IS MAXIMUM ALLOWABLE.
4. WHERE THE ANGLE "C" IS LESS THAN 135°, THE WALLS AND FOOTINGS SHALL CONFORM TO THE TYPE "D" L HEADWALL.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

STRAIGHT HEADWALL

TYPE "B"

REVISIONS

APPROVAL REC.

APPROVED

APPROVED

COUNTY ENGINEER

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
EA		MARCH 1993	NONE	SD–501	1 of 1

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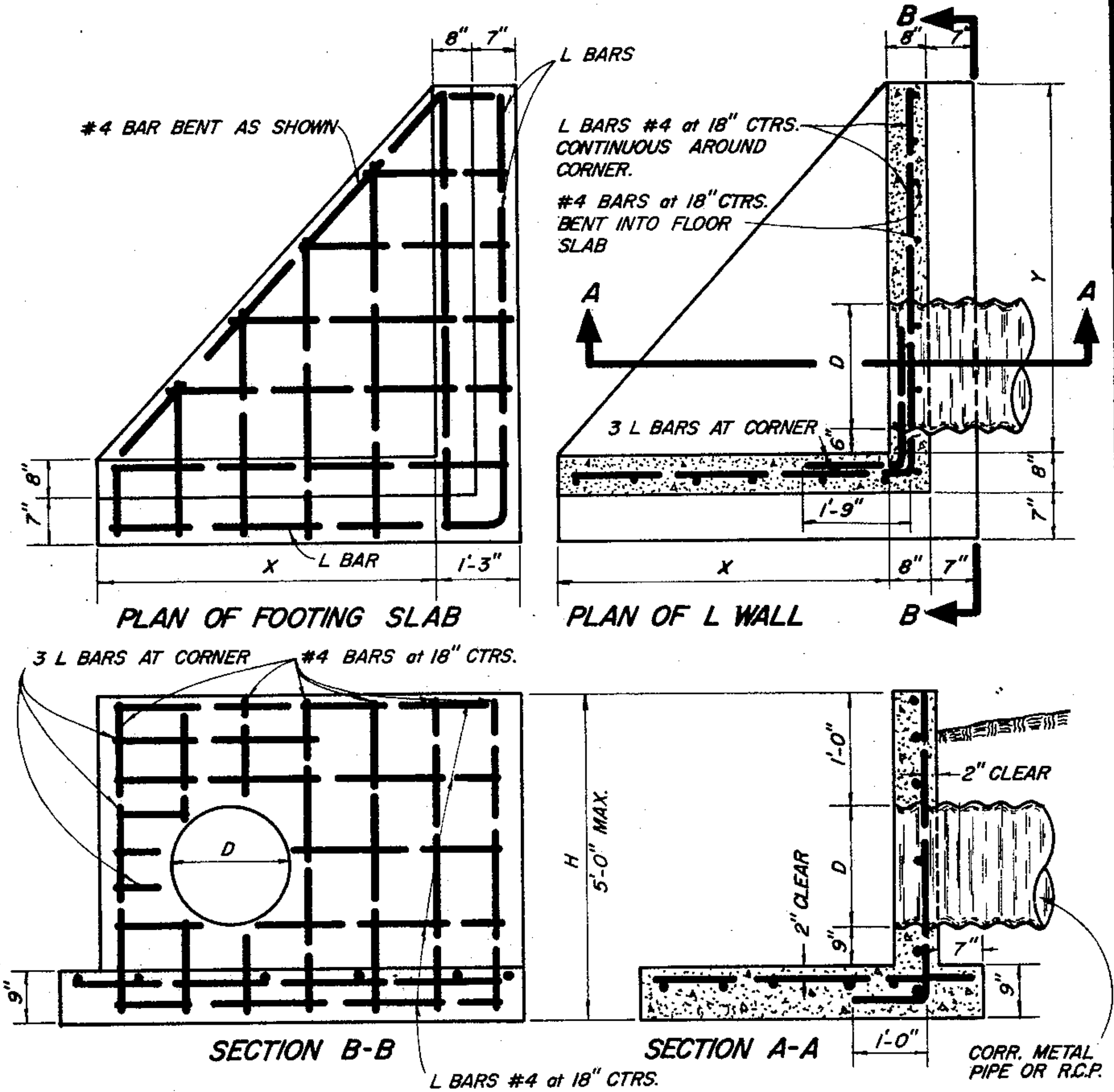

NOTES

CLEAR DISTANCES TO STEEL SHALL BE TWO INCHES

THE MAXIMUM SIZE PIPE CULVERTS TO BE USED SHALL BE 30 INCH DIAMETER. SPECIAL DETAILS REQUIRED FOR LARGER SIZES OF PIPE.

STEEL SPACING SHOWN IS MAXIMUM ALLOWABLE.

D	X	Y
12"	3'-6"	3'-6"
15"	3'-10"	3'-10"
18"	4'-3"	4'-3"
21"	4'-8"	4'-8"
24"	5'-0"	5'-0"
30'	5'-9"	5'-9"

COUNTY OF ALAMEDA * PUBLIC WORKS AGENCY

REVISIONS

L HEADWALL

TYPE "D"

APPROVAL REC. [signature]

APPROVED [signature]

APPROVED [signature]

Director of Public Works and Road Commissioner

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
JJJ	TMC	April 1976	None	SD-502	1 of 1

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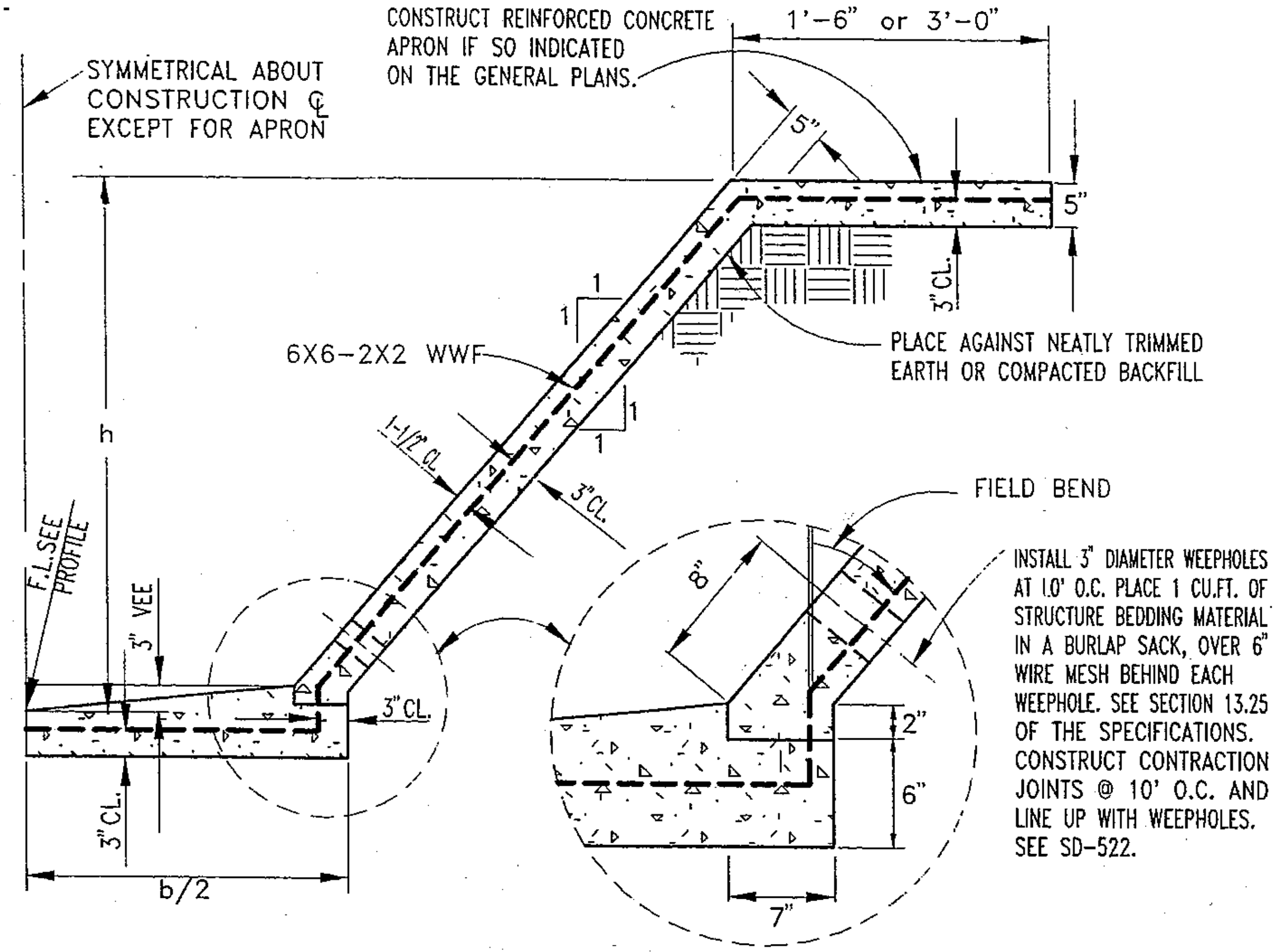

TYPICAL HALF SECTION

NOTES:

1. LAP DISTANCE SHALL BE ONE MESH PLUS 2-INCHES FOR WELDED WIRE FABRIC.
2. ALL CONCRETE SHALL BE CLASS "A".
3. POSITION FENCE POSTS IN APRON TO COINCIDE WITH CONTRACTION JOINTS.
4. HEADER BOARDS SHALL BE USED TO FORM EXPOSED EDGES OF APRON OR CHANNEL.

HEIGHT	5'	6'	7'	8'	9'	10'
VOLUME OF BOTH WALLS (CU.FT.PER LINEAR FT.)	5.79	6.97	8.15	9.33	10.51	11.69
VOLUME OF BASE SLAB (CU.FT.PER LINEAR FT.)	1/12(6.5b+7)	←			→	1/12(6.5b+7)
VOLUME OF 3'-0" APRON	1.09 CU. FT. PER LINEAR FOOT					
VOLUME OF 1'-6" APRON	0.47 CU. FT. PER LINEAR FOOT					

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

REINFORCED CONCRETE CHANNEL 1:1 SIDE SLOPE

REVISIONS

APPROVAL REC.

APPROVED

APPROVED

COUNTY ENGINEER AND COUNTY SURVEYOR

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
EA		JAN. 1995	NONE	SD-503	1 of 1

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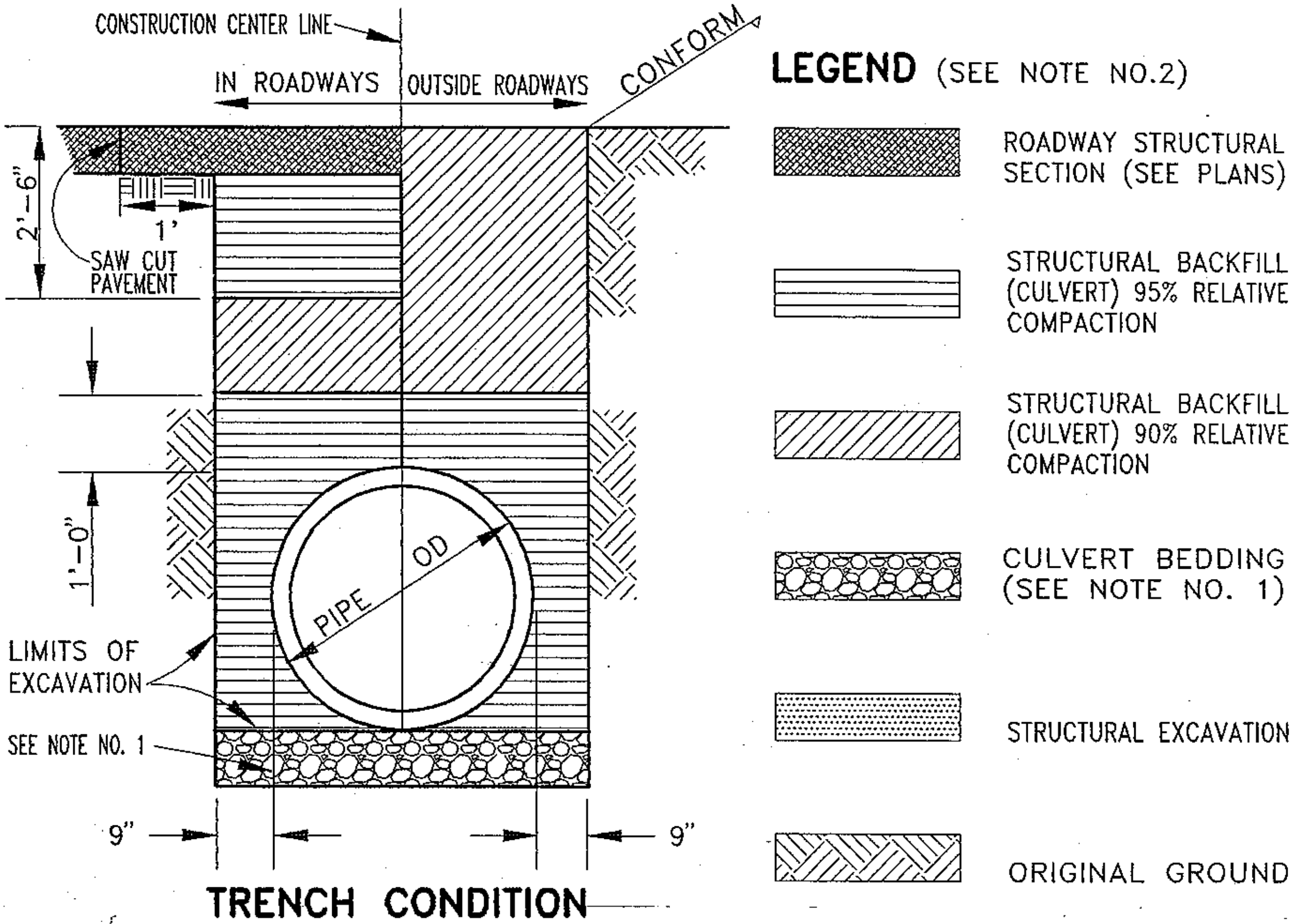

NOTES:

1. EXCAVATE UNSUITABLE SUBGRADE BELOW THE LIMIT OF EXCAVATION AND REPLACE WITH CULVERT BEDDING MATERIAL, ONLY IF SO DIRECTED BY THE ENGINEER. OVER EXCAVATION DUE TO FAILURE OF THE CONTRACTOR TO MAINTAIN SUBGRADE SHALL BE REPLACED WITH CULVERT BEDDING AT THE CONTRACTOR'S EXPENSE.

2. MATERIALS SHALL CONFORM TO THE ALAMEDA COUNTY PUBLIC WORKS AGENCY SPECIFICATIONS AND THE CALTRANS STANDARD SPECIFICATIONS AS MODIFIED BY COUNTY SPECIAL PROVISIONS. REINFORCED CONCRETE PIPE SHALL BE CLASS III, MINIMUM.

3. FOR PIPES INSTALLED IN AN EMBANKMENT CONDITION, THE CONTRACTOR SHALL ENSURE THAT MINIMUM EMBANKMENT HEIGHT CRITERIA IS SATISFIED PRIOR TO EXCAVATING THE TRENCH. EMBANKMENT HEIGHT PRIOR TO EXCAVATION FOR PIPE INSTALLATION SHALL BE 2/3 O.D. (MIN. OF 30") FOR PIPES UP TO 84" I.D. FOR PIPES GREATER THAN 84" I.D., 60" MINIMUM EMBANKMENT IS REQUIRED. SEE SHEET NO. 2.

4. WHERE PIPE COVER IS LESS THAN 36 INCHES, THE PIPE LOAD CARRYING CAPACITY SHALL BE INCREASED AND OTHER MODIFICATIONS MADE AS APPROVED BY THE ENGINEER.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

REVISIONS	TYPICAL PIPE SECTION	APPROVAL REC. H. E. Ackerman APPROVED S. Swanson APPROVED C. Fawan [illegible] COUNTY ENGINEER

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
EA	HEA	MARCH 1994	NONE	SD-504	1 of 2

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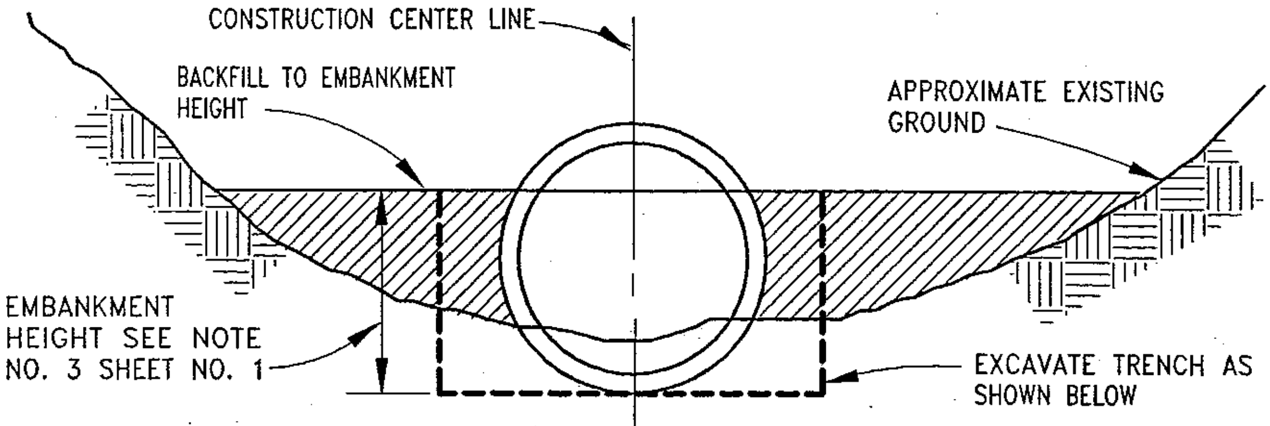
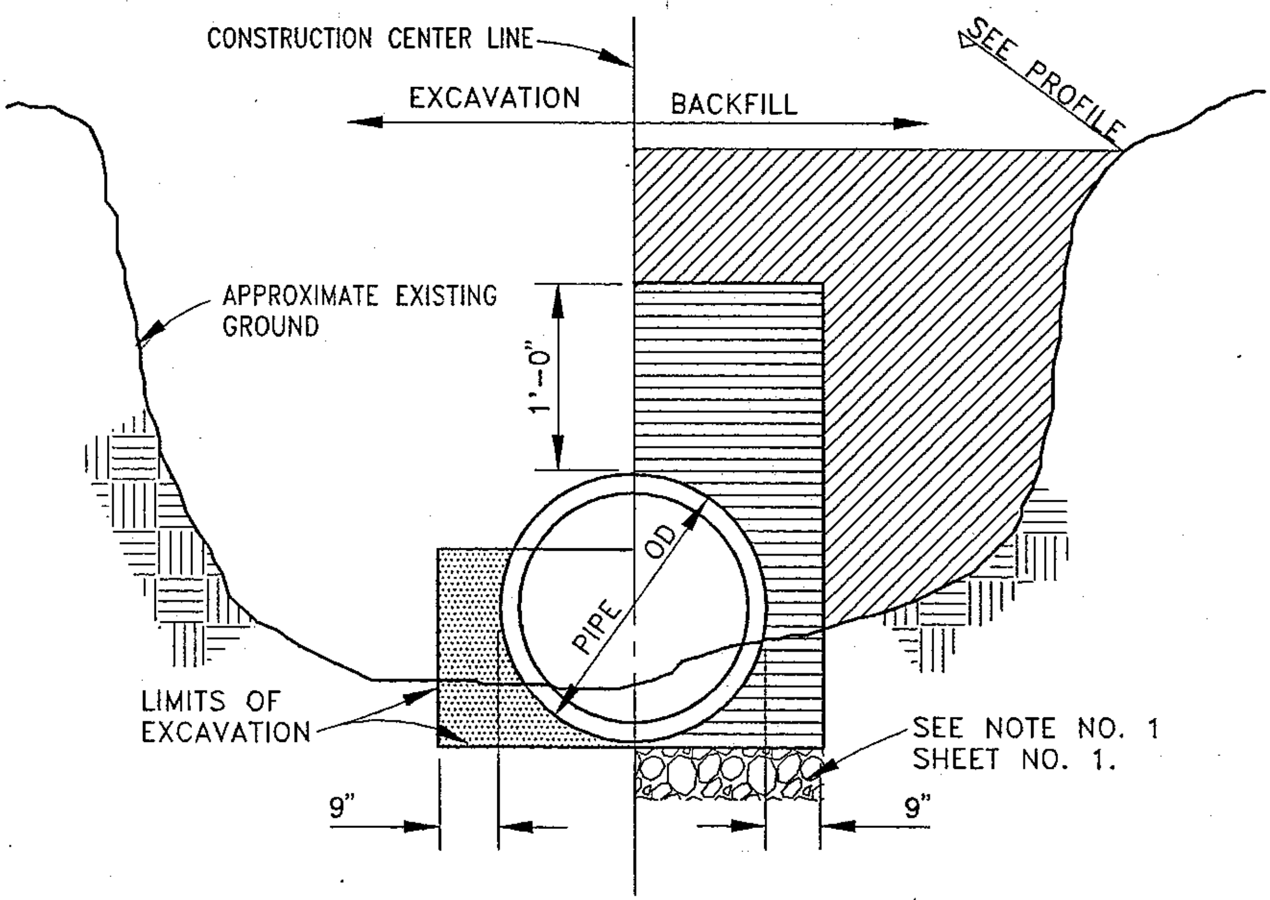


EMBANKMENT REQUIREMENT PRIOR TO EXCAVATION



EXCAVATION AND BACKFILL REQUIREMENTS

EMBANKMENT CONDITION

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

REVISIONS	TYPICAL PIPE SECTION	APPROVAL REC. H.E. Acker / APPROVED / APPROVED / COUNTY ENGINEER

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
EA	HEA	MARCH 1994	NONE	SD–504	2 of 2

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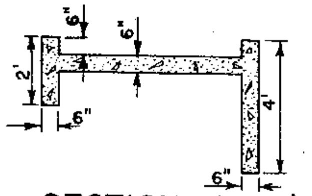
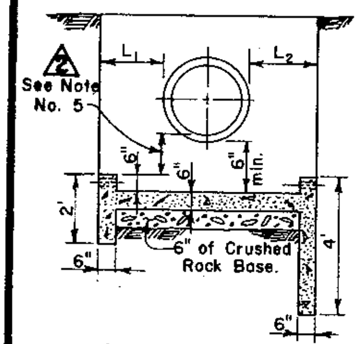
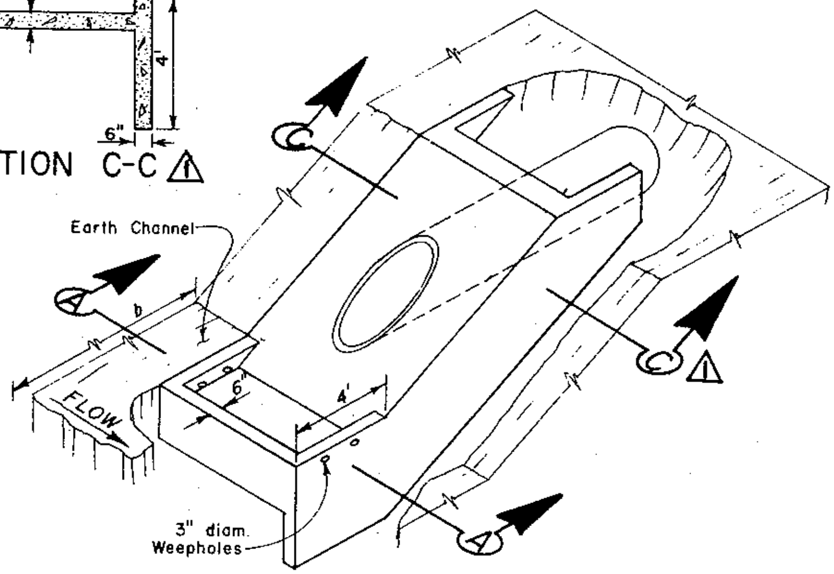
PIPE SIZE	L_1	L_2
12" to 24"	2'	2'
27" to 48"	2'	3'



SECTION C-C ⚠1



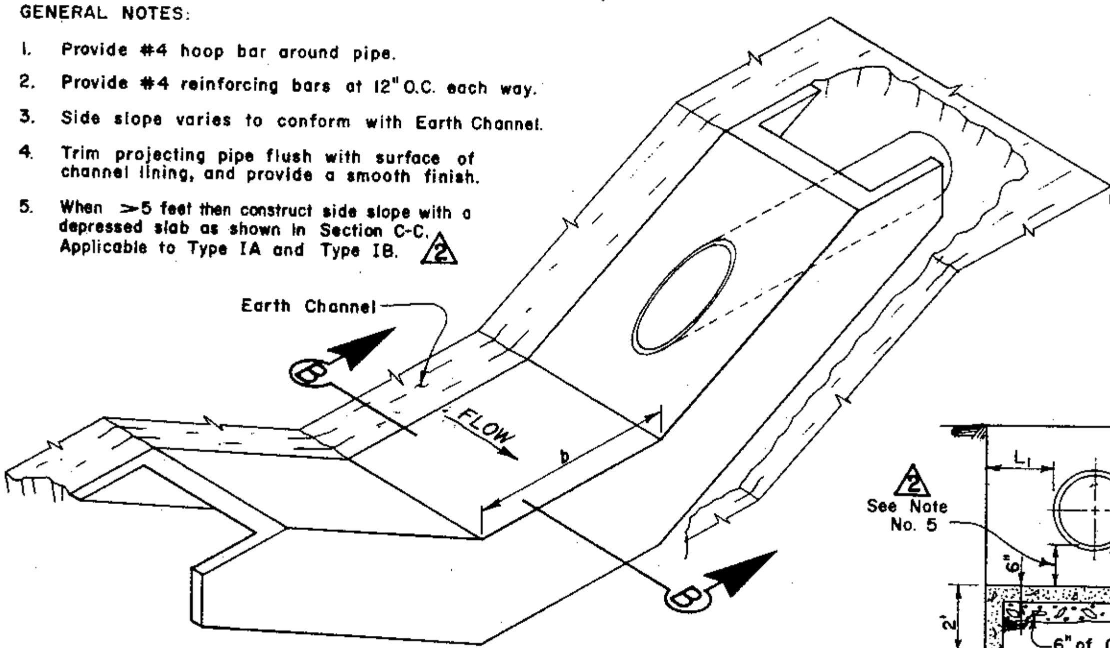
SECTION A-A



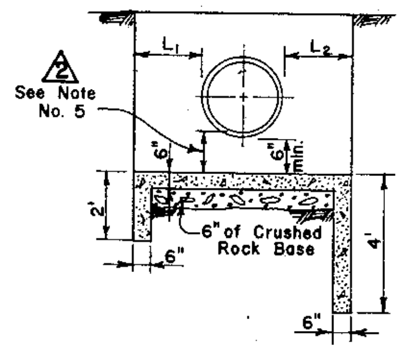
TYPE IA
(CHANNEL BOTTOM WIDTH b > 8 FEET)

GENERAL NOTES:

1. Provide #4 hoop bar around pipe.
2. Provide #4 reinforcing bars at 12" O.C. each way.
3. Side slope varies to conform with Earth Channel.
4. Trim projecting pipe flush with surface of channel lining, and provide a smooth finish.
5. When >5 feet then construct side slope with a depressed slab as shown in Section C-C. Applicable to Type IA and Type IB. ⚠2



TYPE IB
(CHANNEL BOTTOM WIDTH b ≤ 8 FEET)



SECTION B-B

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

LATERAL PIPE ENTRY TO EARTH CHANNEL TYPE I

REVISIONS		
⚠2	Added section	11/70
⚠1	Note addition	11/70

APPROVAL REC. [signature]
APPROVED [signature]
APPROVED [signature]
Director of Public Works and Road Commissioner

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
FC	[signature]	Nov. 1969	None	SD-505	1 of 1

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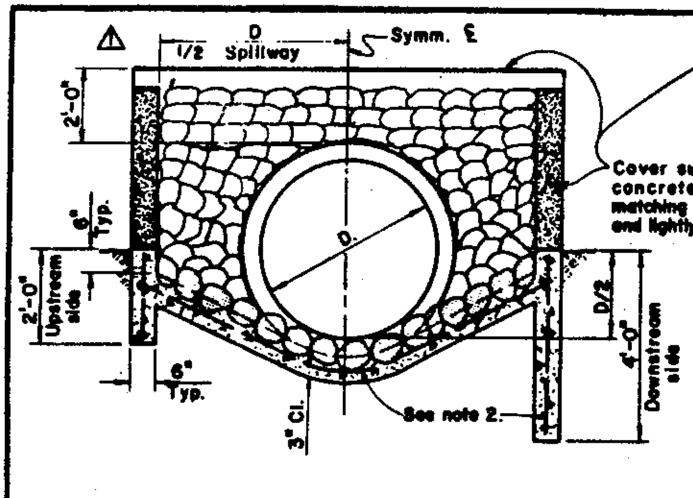
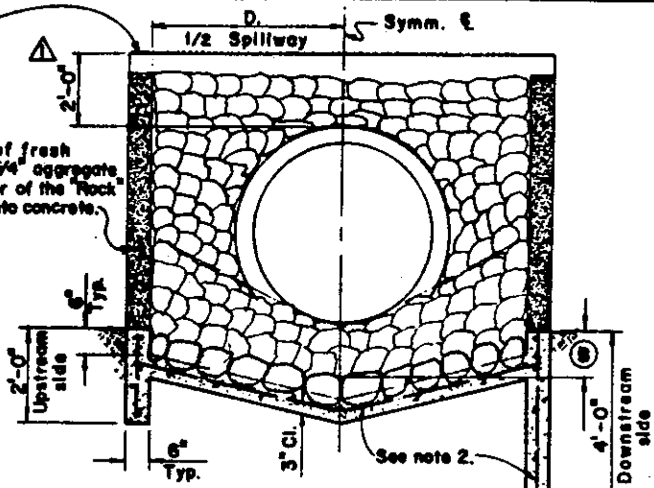
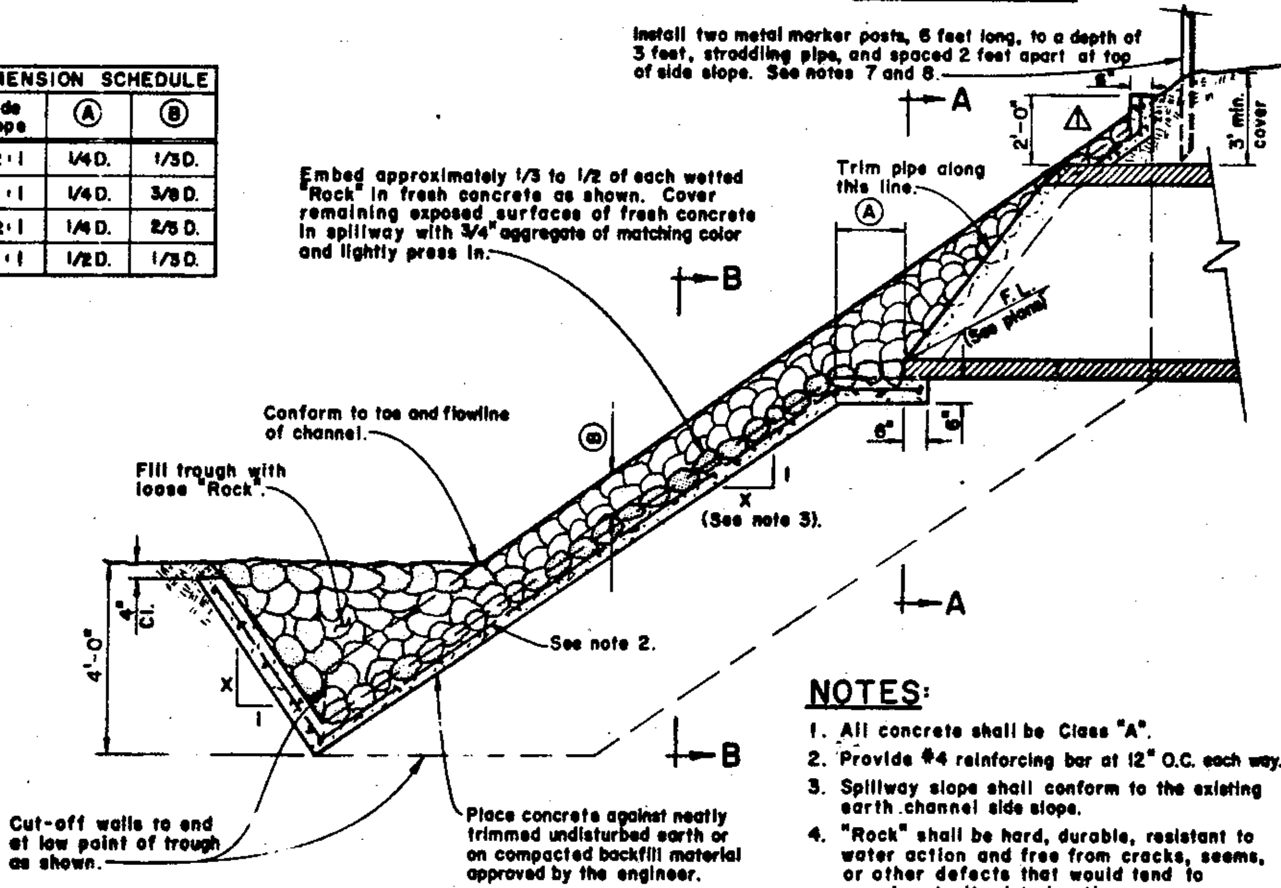


SECTION A-A



SECTION B-B

DIMENSION SCHEDULE		
Side Slope	Ⓐ	Ⓑ
1½ : 1	1/4 D.	1/3 D.
2 : 1	1/4 D.	3/8 D.
2½ : 1	1/4 D.	2/5 D.
3 : 1	1/2 D.	1/3 D.



SECTION THROUGH SPILLWAY AND PIPE

NOTES:

1. All concrete shall be Class "A".
2. Provide #4 reinforcing bar at 12" O.C. each way.
3. Spillway slope shall conform to the existing earth channel side slope.
4. "Rock" shall be hard, durable, resistant to water action and free from cracks, seems, or other defects that would tend to accelerate its deterioration.
5. "Rock" shall measure 6" to 16" nominal size and have a minimum specific gravity of 2.5.
6. Exposed surface of "Rock" shall be clean of any evidence of cement or concrete.
7. Metal markers shal. conform to Section 82 of the Standard Specifications of the Department of Transportation, State of California.
8. Metal markers may be substituted with 6"x6" redwood marker posts, 6 feet long, and painted white.

COUNTY OF ALAMEDA * PUBLIC WORKS AGENCY

REVISIONS		
⚠	Ext. Rock Lining	2/77

LATERAL PIPE ENTRY TO EARTH CHANNEL TYPE II

APPROVAL REC. [signature]
APPROVED [signature]
APPROVED [signature]
Director of Public Works and Road Commissioner

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
JD	[signature] TME	Dec. 1975	None	SD-506	1 of 1

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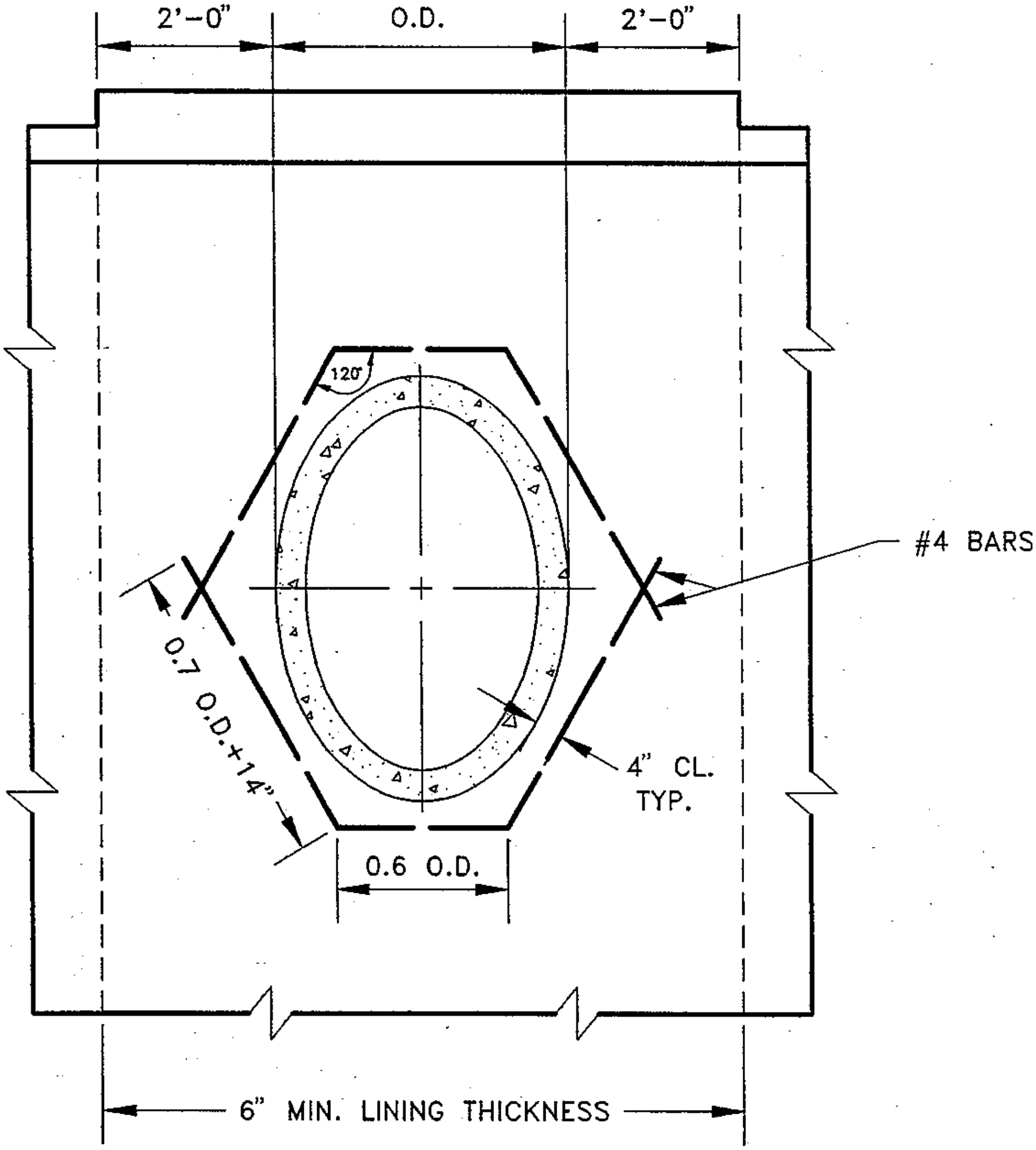


GENERAL NOTES:

1. FOR USE ON CONCRETE LINED CHANNEL SECTIONS OF 1:1 SIDE SLOPE ONLY. VIEW SHOWN IS PERPENDICULAR TO SIDE SLOPE.
2. CONSTRUCT THICKENED PIPE ENTRY SECTION AS SHOWN AT ALL SIDE-DRAIN CONNECTIONS FOR PIPES OF 12" I.D. AND LARGER.
3. TRIM PROJECTING PIPE FLUSH WITH SURFACE OF CHANNEL LINING, AND PROVIDE A SMOOTH FINISH.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

PIPE ENTRY

REVISIONS

APPROVAL REC.

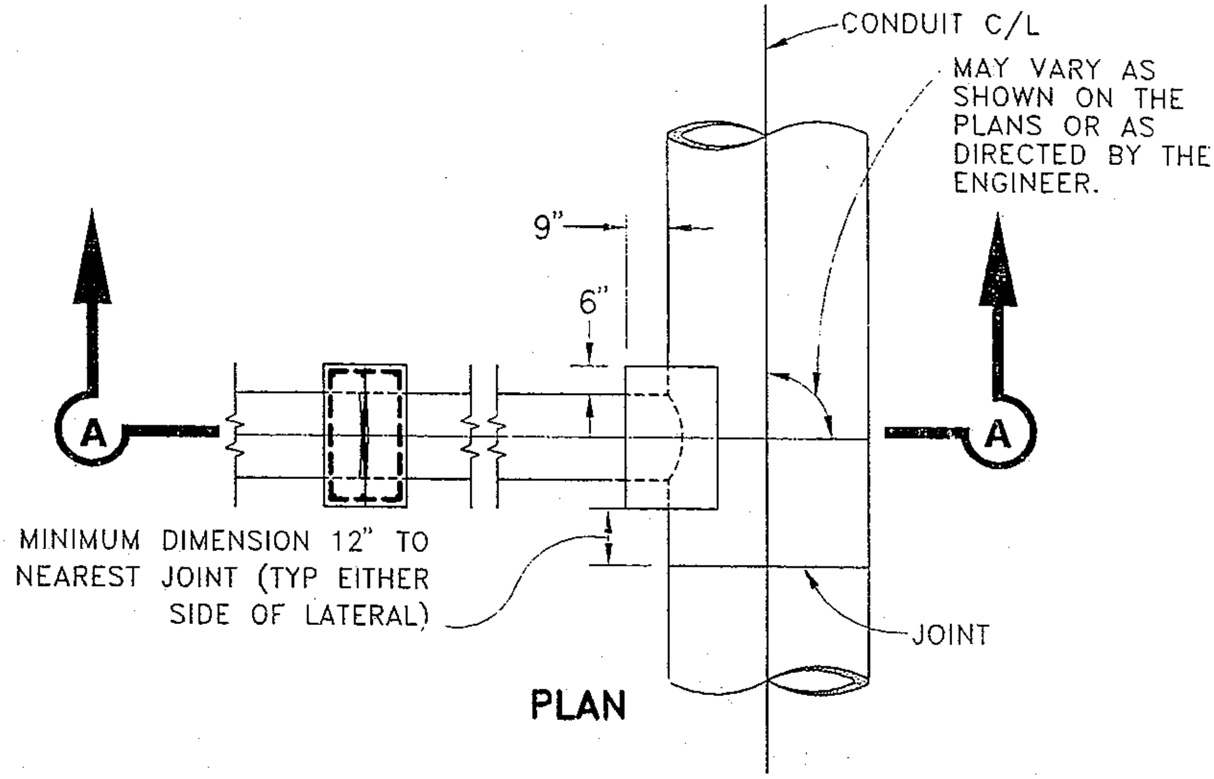
APPROVED

APPROVED

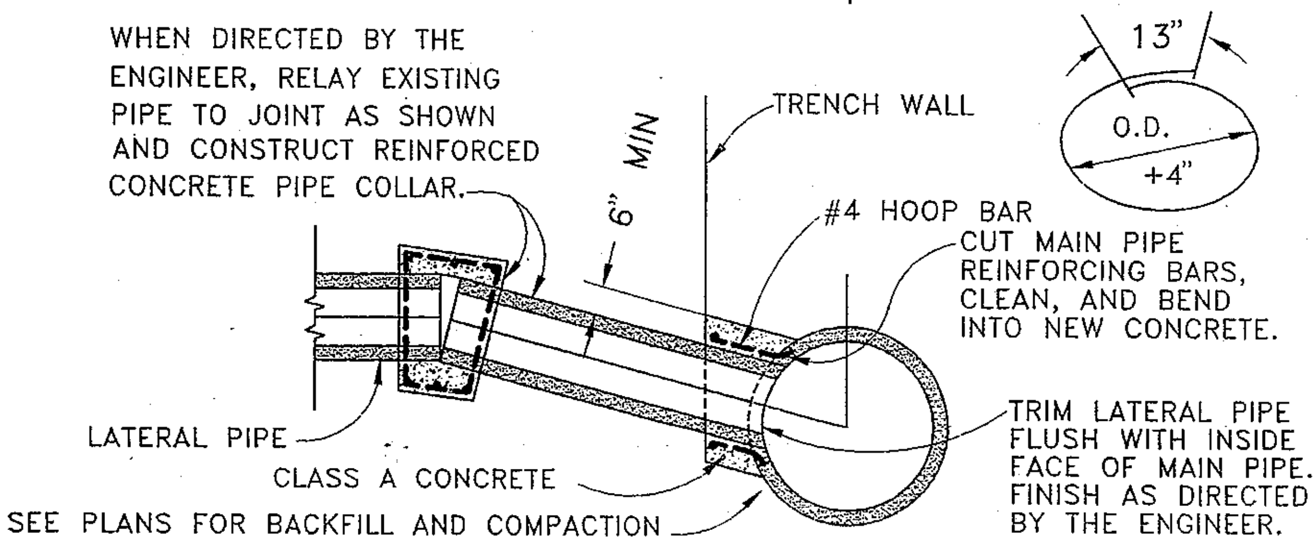
COUNTY ENGINEER AND COUNTY SURVEYOR

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
TK	EA	JULY 1992	NTS	SD-508	1 of 1

Return To Table of Content



PLAN



SECTION A–A

NOTES:

1. LATERAL PIPE SIZE NOT TO EXCEED 18".
2. MAIN PIPE SIZE TO LATERAL PIPE SIZE SHALL BE AT LEAST 3:1 RATIO.
3. MINIMUM LATERAL PIPE SIZE NOT TO BE LESS THAN 12".

LATERAL SIZE	MIN MAIN SIZE
12"	36"
15"	45"
18"	54"

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

LATERAL PIPE CONNECTION TYPE I

REVISIONS

APPROVAL REC.
APPROVED

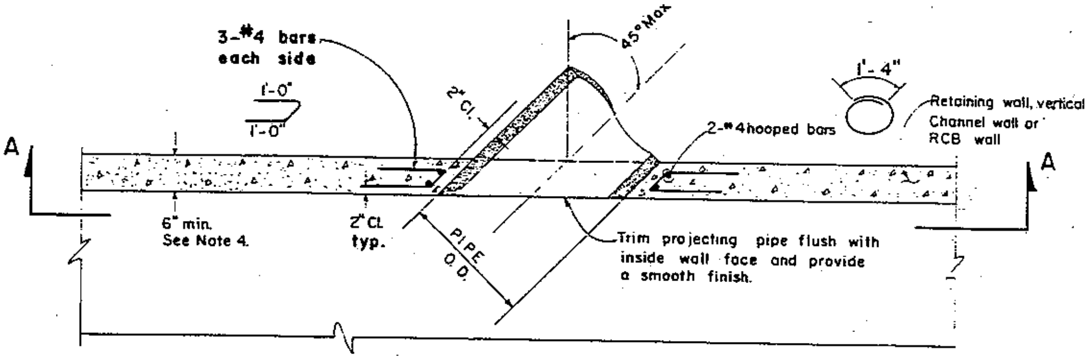
APPROVED

COUNTY ENGINEER

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
JC		DEC 1994	NONE	SD–509	1 of 1

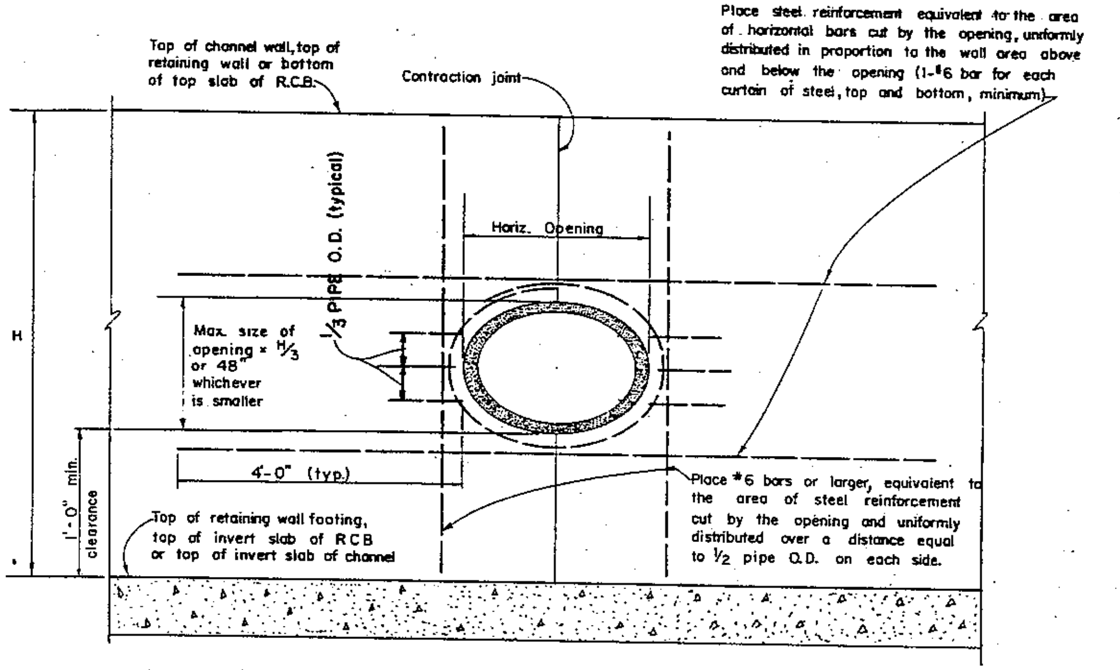
PLOT SCALE: 1 = 5

Return To Table of Content



PART PLAN-SECTION

(STANDARD REINFORCEMENT NOT SHOWN)



SECTION A-A

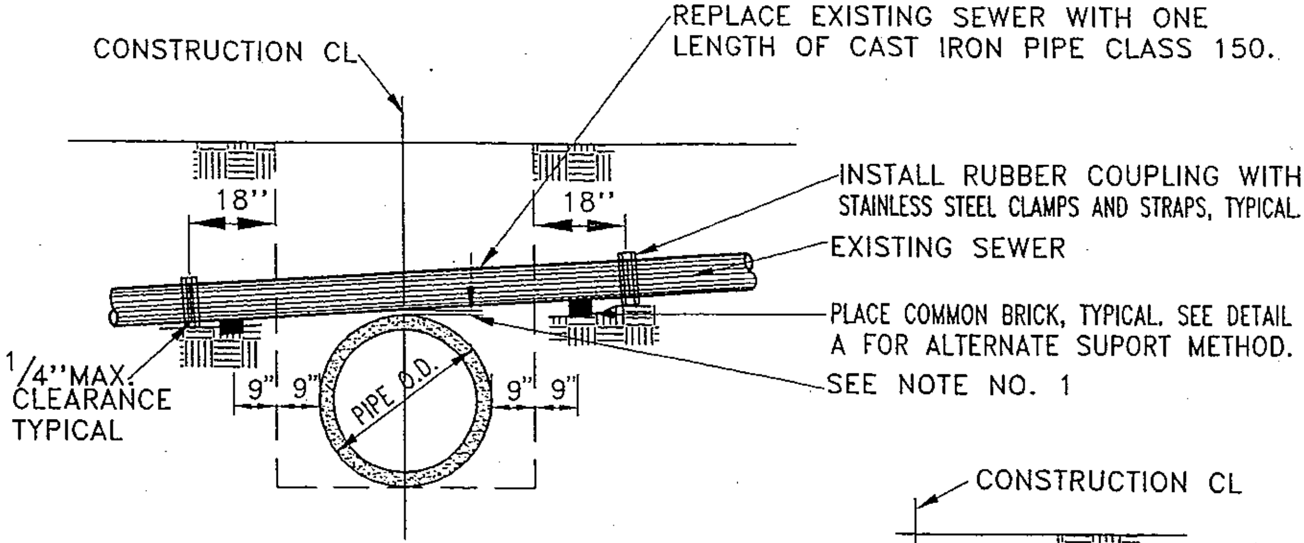
(STANDARD REINFORCEMENT NOT SHOWN)

GENERAL NOTES

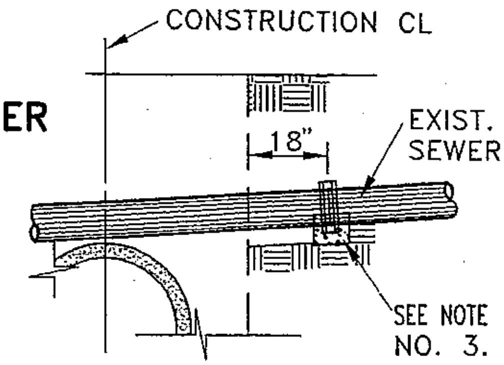
1. See General Plans for locations of laterals and for standard reinforcement.
2. Standard wall reinforcing steel may be bent, cut or spread as necessary to allow connection of lateral pipe.
3. No expansion joint shall be placed within 4' of outside of opening.
4. If wall thickness is less than 6", it shall be made at least 6" by adding concrete to the entire vertical outside face and extending 1/2 Horizontal Opening + 4'. on either side of the lateral pipe ℄.
5. This Standard shall not be used for lateral connection to existing wall.

COUNTY OF ALAMEDA ✶ PUBLIC WORKS AGENCY			
REVISIONS	LATERAL PIPE CONNECTION TYPE II		APPROVAL REC. [signature] APPROVED [signature] APPROVED [signature] Director of Public Works and Road Commissioner
DRAWN WG	CHECKED [signature]	DATE Jan. 1984	SCALE None	FILE NO. SD-510 1 of 1

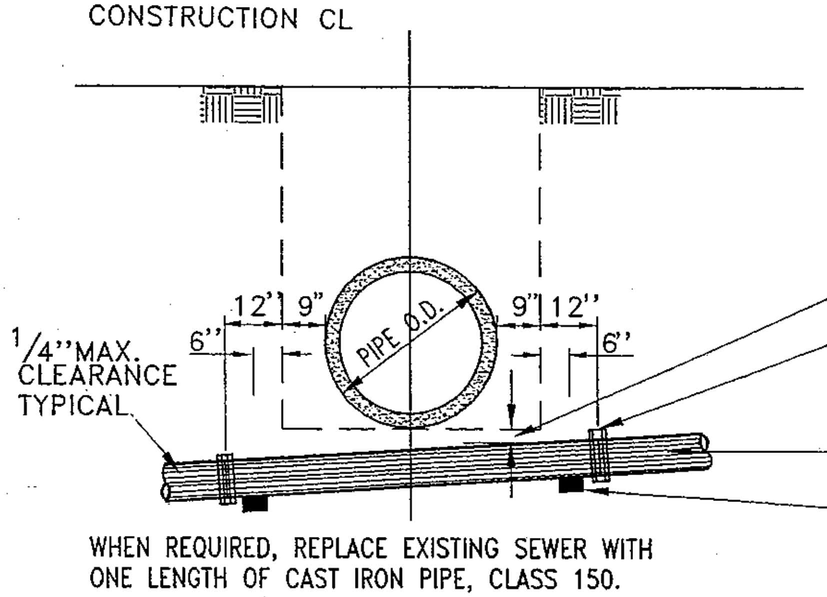
Return To Table of Content



CROSSING UNDER SANITARY SEWER



DETAIL A



CROSSING OVER SANITARY SEWER

NOTES:
1. PROVIDE MINIMUM CLEARANCE WHEN REQUIRED BY THE APPROPRIATE SANITARY DISTRICT.
2. THE WORK SHALL BE DONE TO THE SATISFACTION AND SPECIFICATIONS OF THE APPROPRIATE SANITARY DISTRICT.
3. PLACE CLASS "B" CONCRETE SUPPORT UNDER COUPLINGS.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

SANITARY SEWER CROSSING

REVISIONS

APPROVAL REC. [signature]
APPROVED [signature]
APPROVED [signature]
COUNTY ENGINEER

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
JR		JAN. 1995	NONE	SD-511	1 of 1

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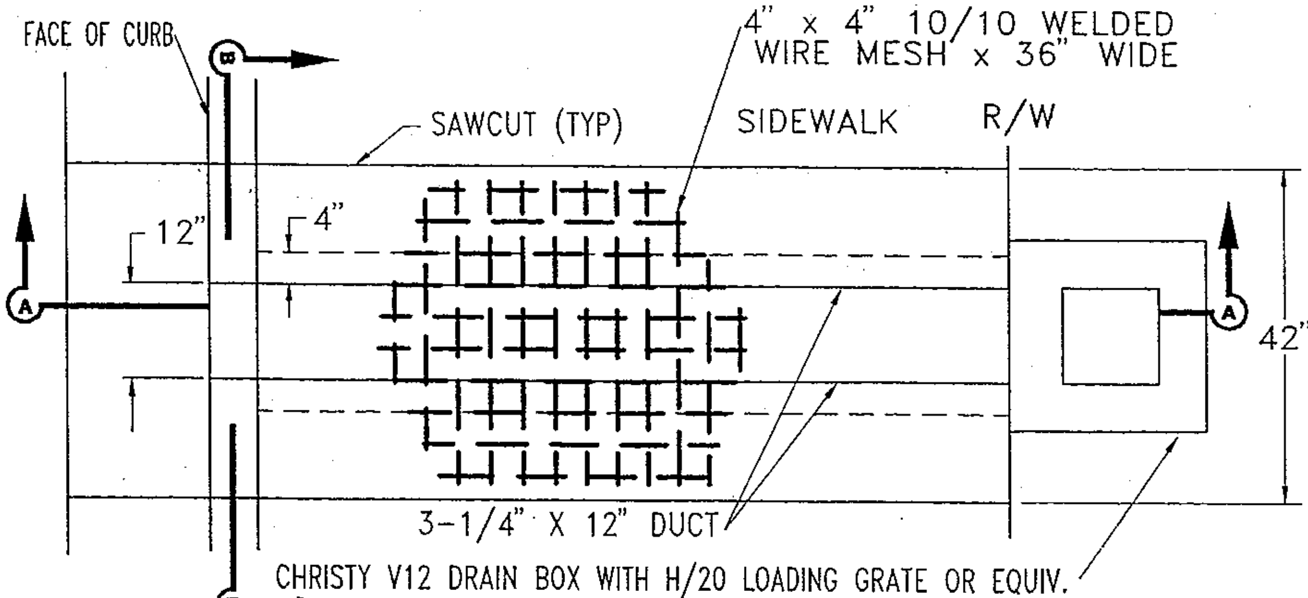
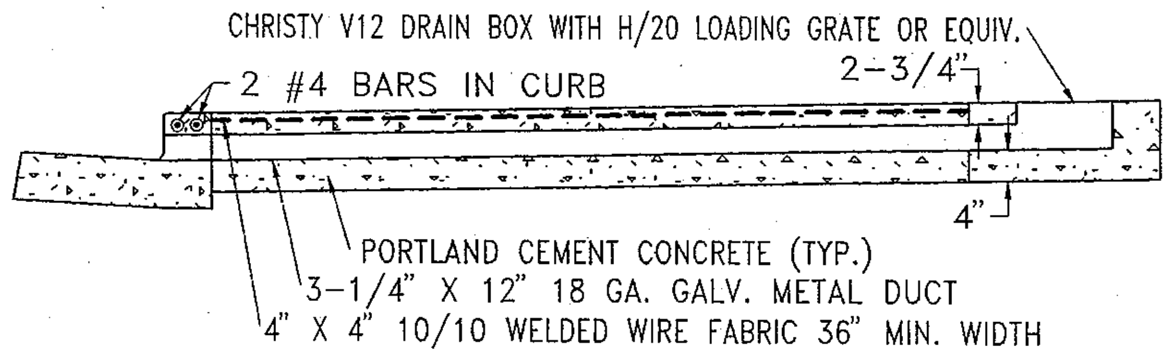
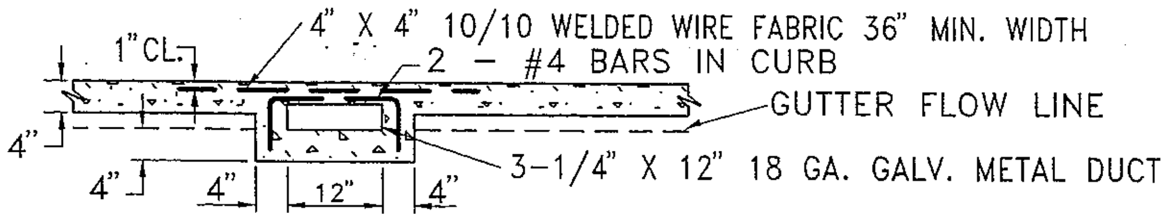


PLAN



SECTION A-A



SECTION B-B

NOTES:

1. EXISTING CURB, GUTTER AND SIDEWALK TO BE SAWCUT.
2. DRAIN MAY BE SKEWED AS DIRECTED BY ENGINEER.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

REVISIONS	SIDEWALK DRAIN	APPROVAL REC. / APPROVED / APPROVED / COUNTY ENGINEER

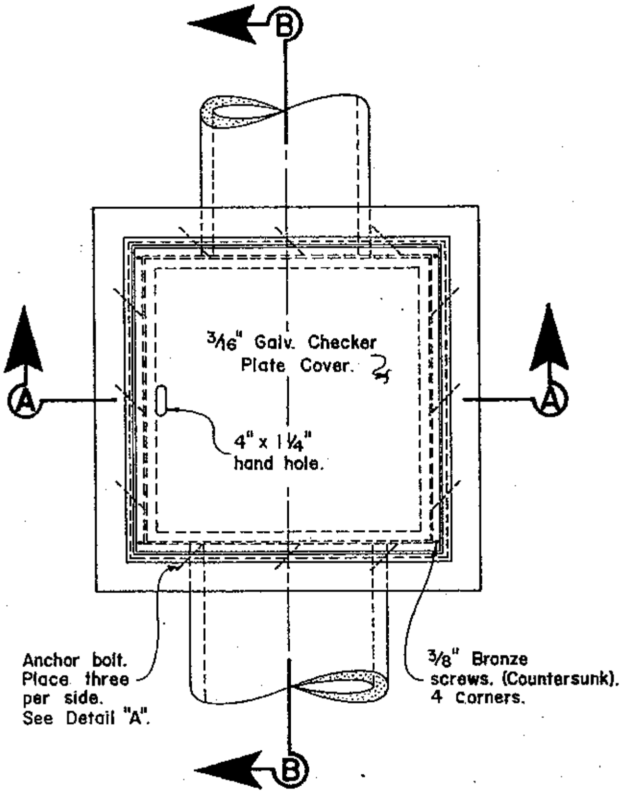
DRAWN	CHECKED	DATE	SCALE	FILE NO.	
JC	-	OCT. 1994	NONE	SD-513	1 of 1

PLOT SCALE: 1 = 2

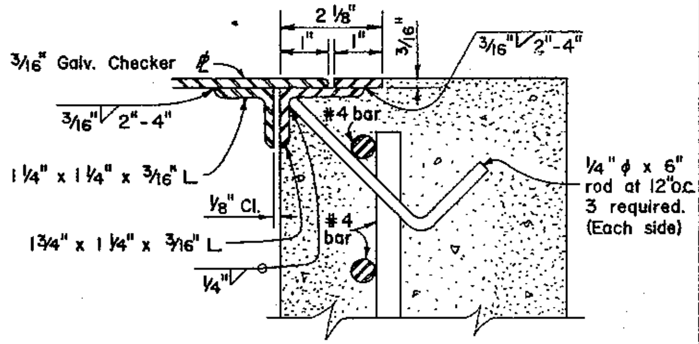
Return To Table of Content

GENERAL NOTES:

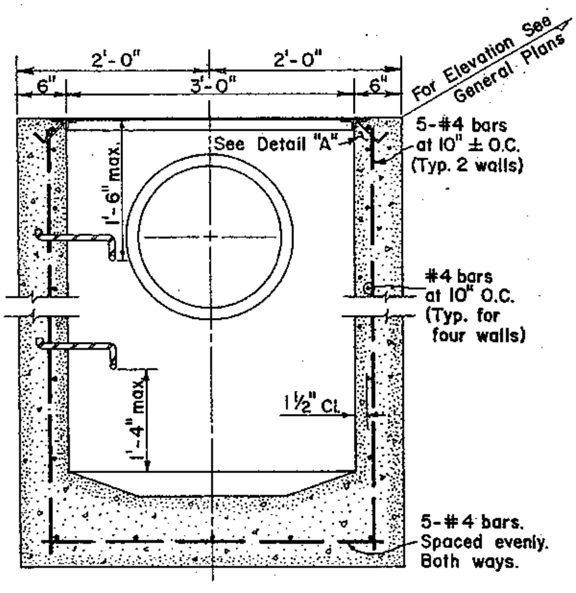
1. Location and direction of conduits entering and leaving the junction box are shown on the General Plans.
2. Omit steps on junction boxes less than 4' deep.
3. For step details, see Standard Drawing File No: SD-516. ⚠1
4. All miscellaneous iron and steel to be galvanized after fabrication.



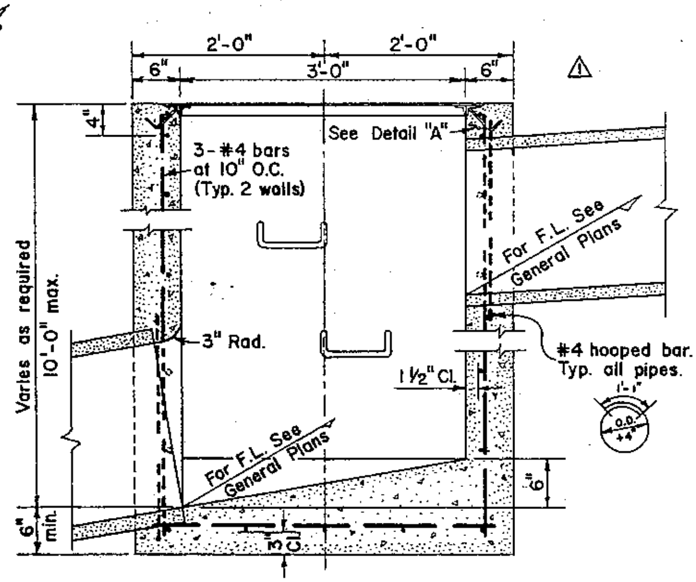
PLAN



DETAIL "A"



SECTION A-A



SECTION B-B

COUNTY OF ALAMEDA ✶ PUBLIC WORKS AGENCY

JUNCTION BOX

⚠1	NOTE CHANGES	8/69
REVISIONS		

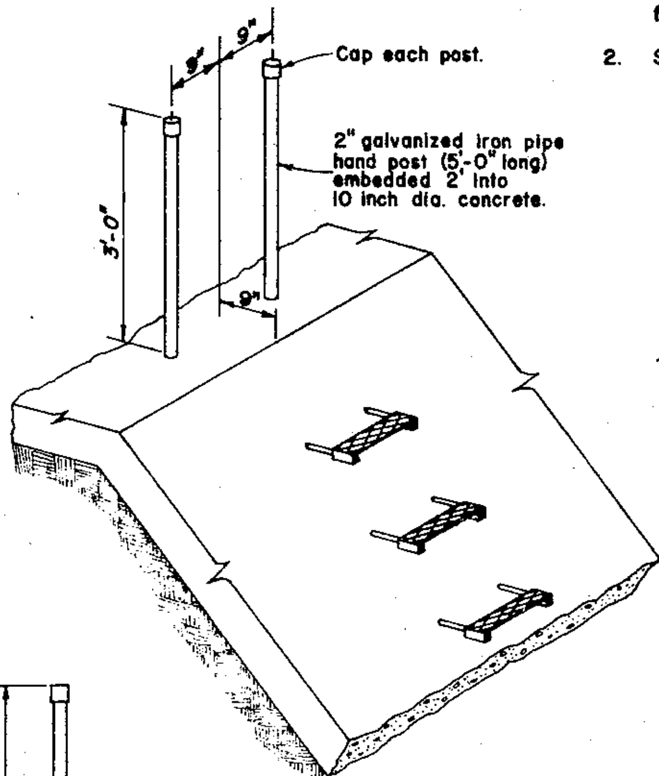
APPROVAL REC.: [signature]
APPROVED: [signature]
APPROVED: [signature]
Director of Public Works and Road Commissioner

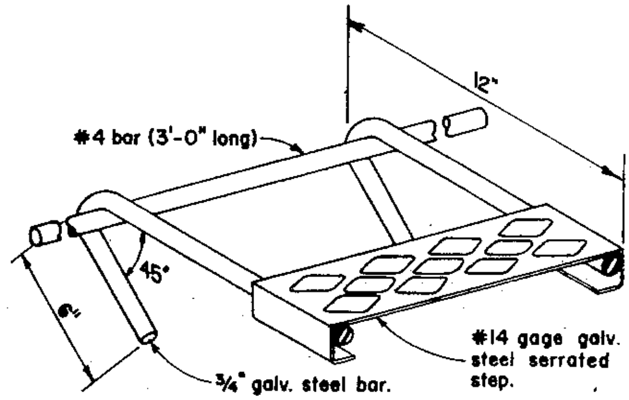
DRAWN	CHECKED	DATE	SCALE	FILE NO.	
RLJ	[signature]	March 1969	None	SD-514	1 of 1

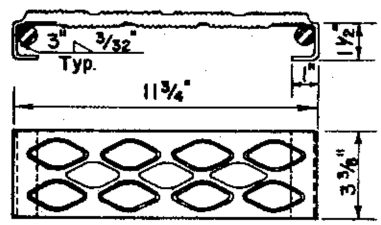
Return To Table of Content

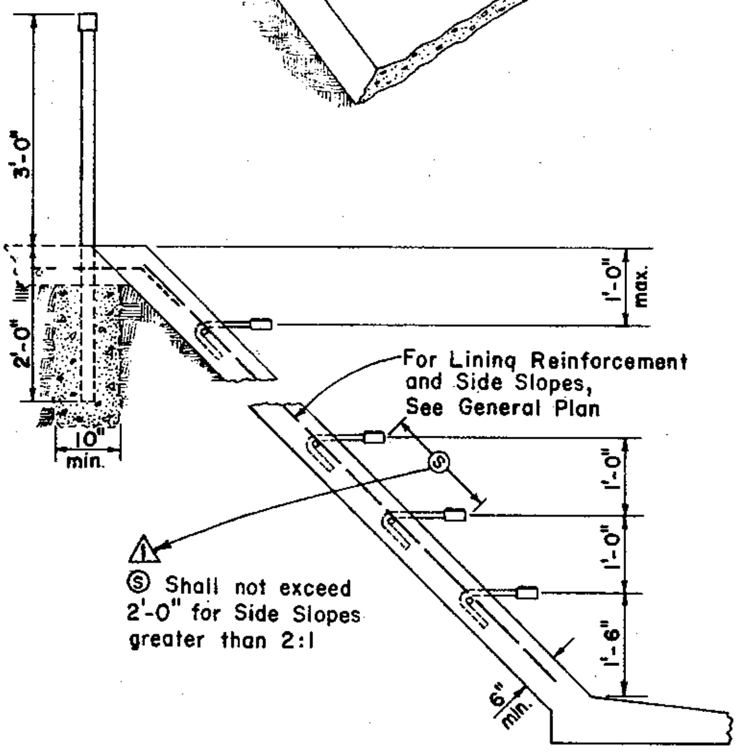
GENERAL NOTES:

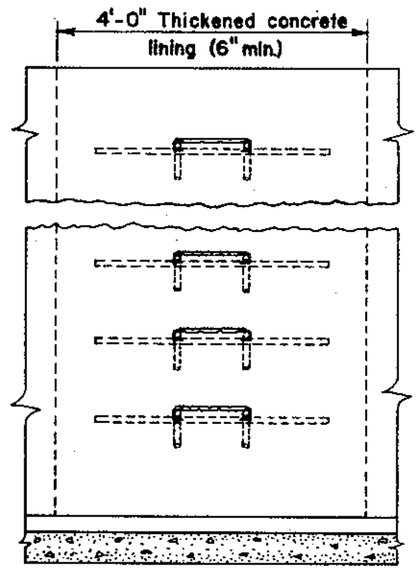
1. All miscellaneous iron and steel shall be galvanized after fabrication.
2. See General Plans for location of steps.











COUNTY OF ALAMEDA ✱ PUBLIC WORKS AGENCY

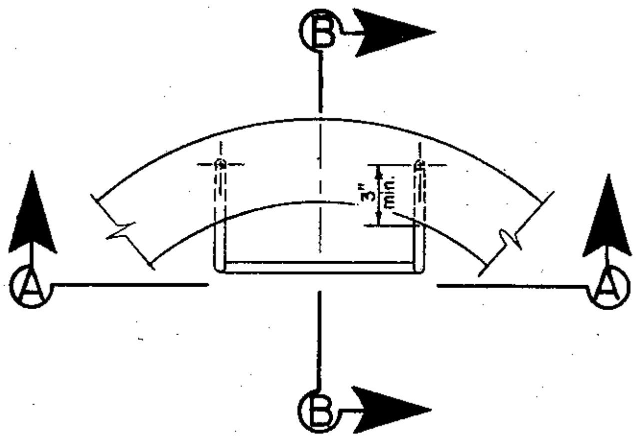
METAL STEP DETAIL
TYPE I

1	Added S dimension	9/81
REVISIONS		

APPROVAL REC. [signature]
APPROVED [signature]
APPROVED [signature]
Director of Public Works and Road Commissioner

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
RLJ	[signature]	March 1969	None	SD-515	1 of 1

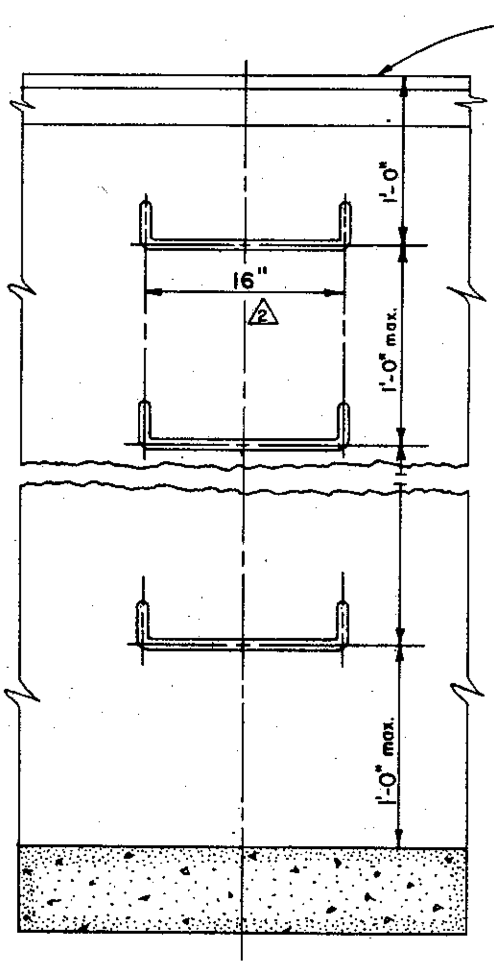
Return To Table of Content



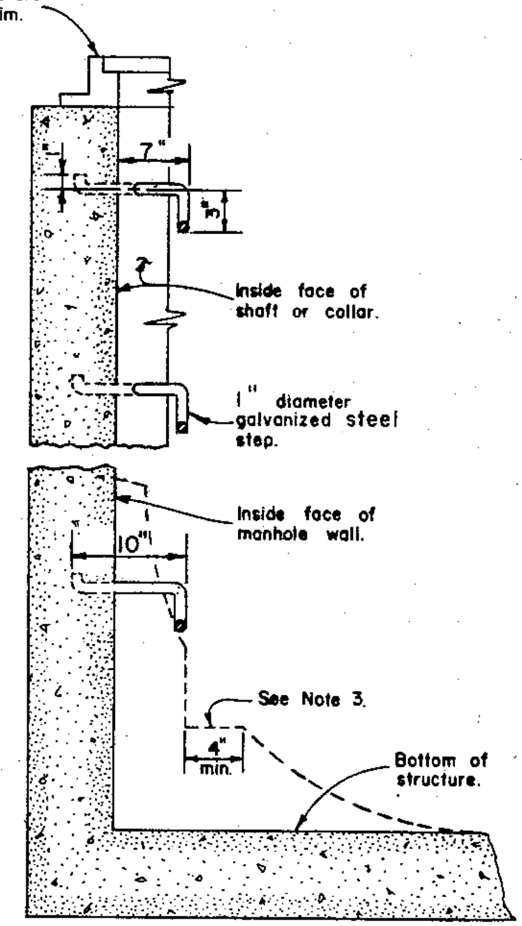
PLAN

GENERAL NOTES:

1. All miscellaneous iron and steel shall be galvanized after fabrication.
2. See General Plans for location of steps.
3. Omit metal step in channelization of any channelized manhole and provide a notched step as directed by the Engineer.
4. When steps are used, steps must meet CAL/OSHA requirements. Refer to CAL/OSHA website.



SECTION A-A



SECTION B-B

COUNTY OF ALAMEDA ✱ PUBLIC WORKS AGENCY

1	ADD NOTE 4	8/2021
REVISIONS		

METAL STEP DETAIL
TYPE III

APPROVAL REC. Tom Cawar
APPROVED Robert C. Bitter
APPROVED
Director of Public Works and Road Commissioner

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
RLJ		Nov. 1970	None	SD-516	1 of 1

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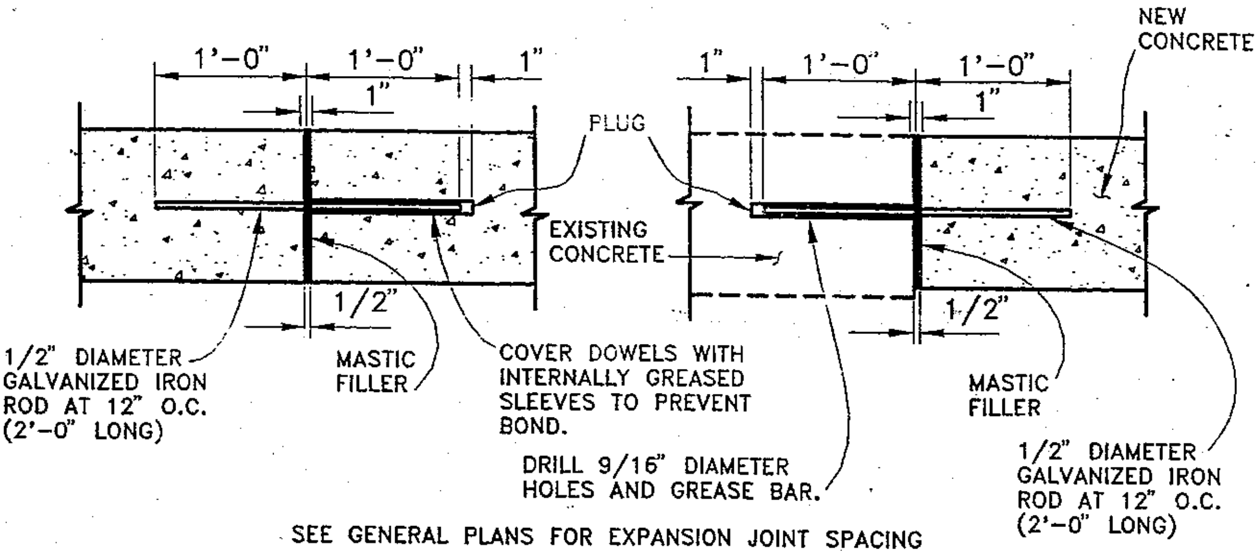
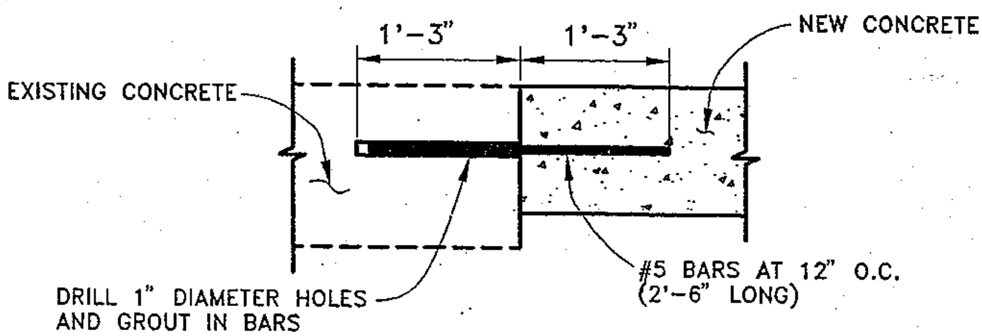


TYPE I

TYPE II

EXPANSION JOINT DETAIL



TYPICAL DOWEL DETAIL

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

JOINT AND DOWEL DETAILS

REVISIONS

APPROVAL REC. Hank Acker

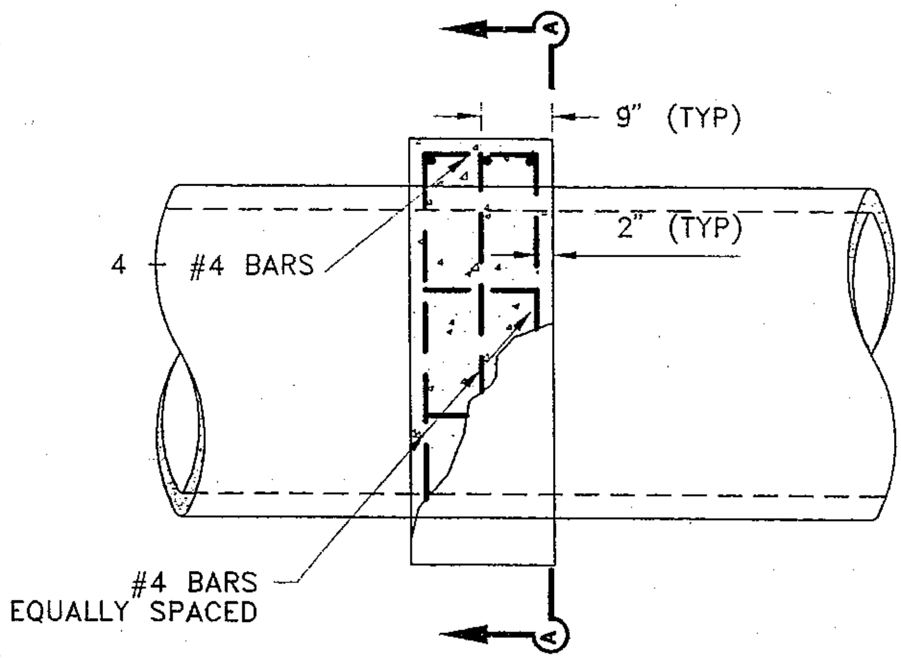
APPROVED Scott Swanson

APPROVED Tawan

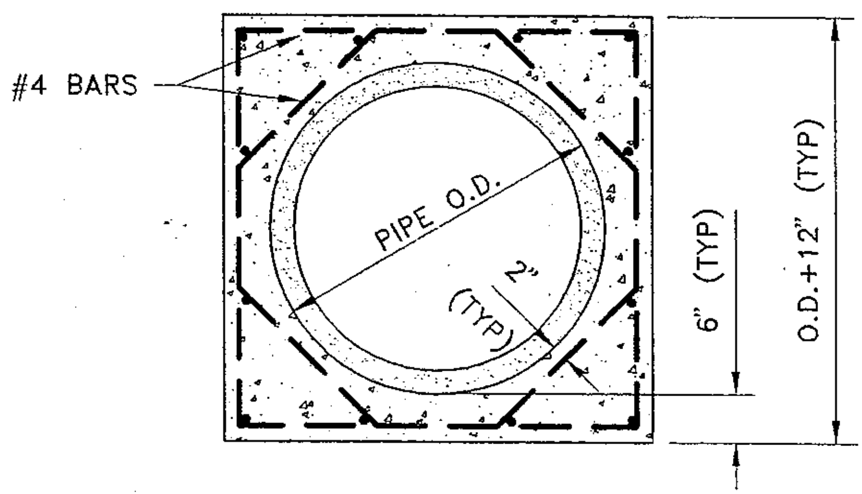
COUNTY ENGINEER

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
JJ	HEA	JUNE 1994	NONE	SD–518	1 of 1

Return To Table of Content



PLAN



SECTION A-A

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

REVISIONS

REINFORCED CONCRETE PIPE COLLAR

APPROVAL REC.

APPROVED

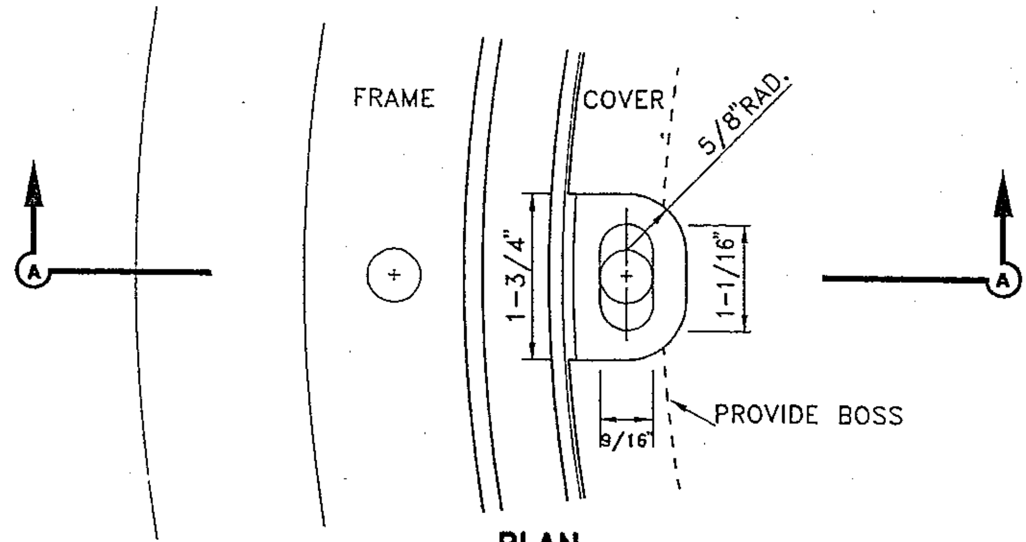
APPROVED

COUNTY ENGINEER

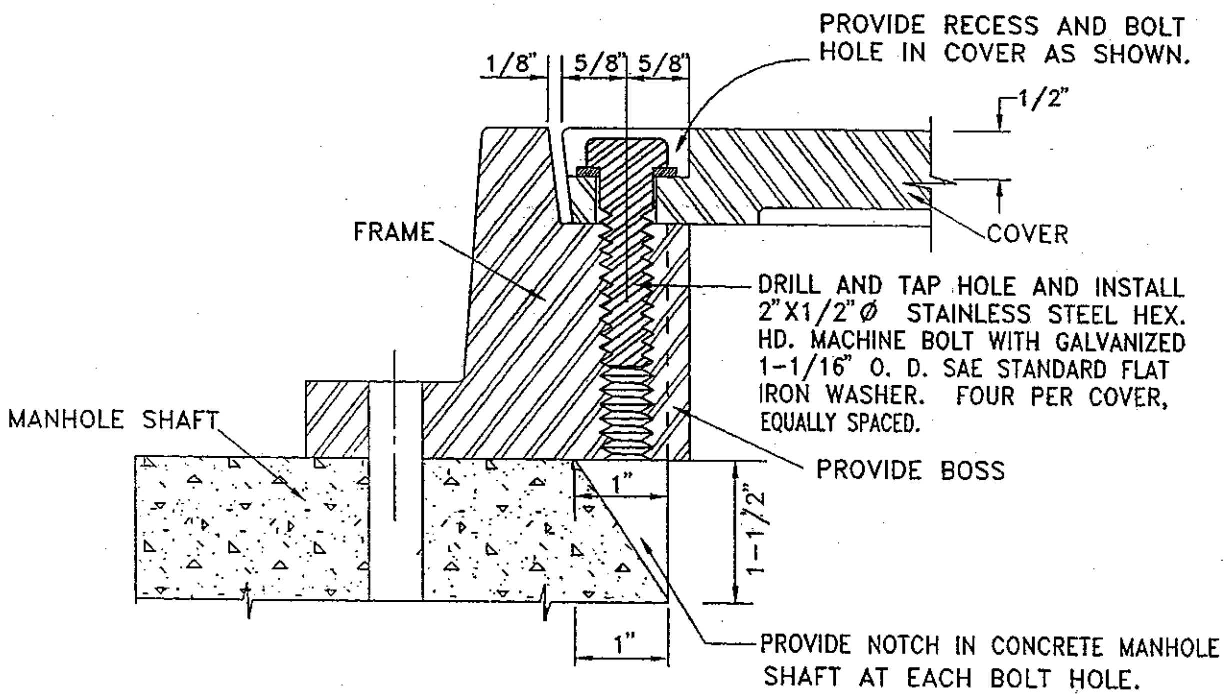
DRAWN	CHECKED	DATE	SCALE	FILE NO.	
JC		JAN. 1995	NONE	SD-520	1 of 1

PLOT 1=2

Return To Table of Content



PLAN
(WITHOUT BOLT AND WASHER)



SECTION A-A

NOTE:
FOR FRAME AND COVER DETAILS, SEE APPROPRIATE MANHOLE FRAME AND COVER STANDARD DRAWING.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

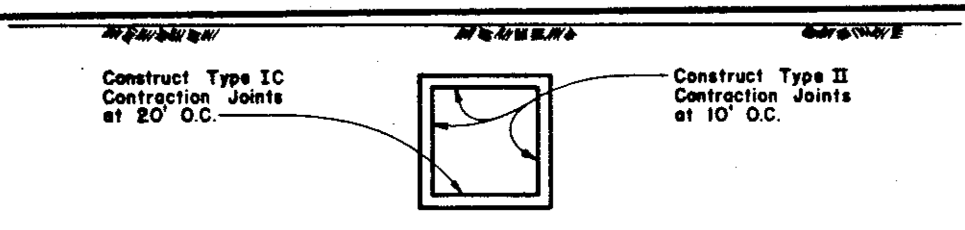
BOLT DOWN DETAIL FOR MANHOLE FRAME AND COVER

REVISIONS

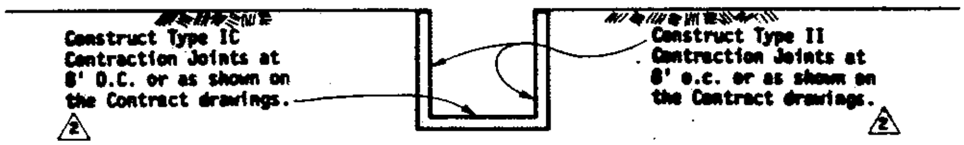
APPROVAL REC.
APPROVED
APPROVED
COUNTY ENGINEER

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
JR		JAN. 1995	NONE	SD-521	1 of 1

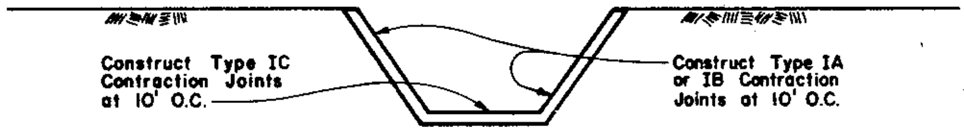
Return To Table of Content



BOX CULVERT

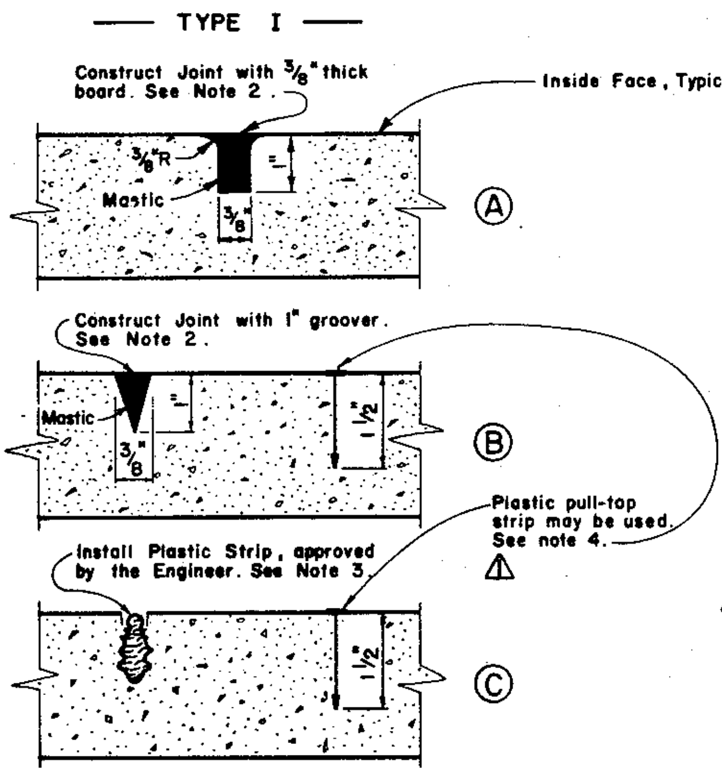


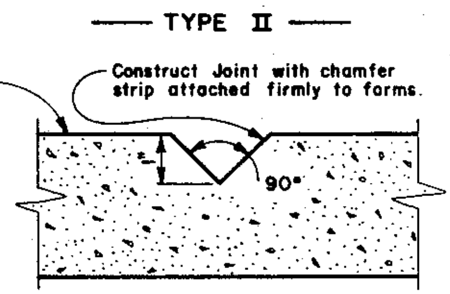
RECTANGULAR CHANNEL



TRAPEZOIDAL CHANNEL

LOCATION AND SPACING OF JOINTS





NOTES:

1. Align top and bottom joints with wall joints.
2. Clean joints and fill with mastic, concrete – joint sealer conforming to ASTM Designation: D1850.
3. Plastic strip shall be type KSRC – 150 – 38 – 58 as manufactured by KOLD-SEAL or type KSF – 150 – 38 – 58 as manufactured by Western Textile Co. or approved equal.
4. ⚠ Plastic pull-top strip shall be "Zip Strip" No.237 as furnished by Burke Co., or approved equal.

TYPE OF JOINTS

COUNTY OF ALAMEDA ✱ PUBLIC WORKS AGENCY

CONTRACTION JOINTS

REVISIONS		
2	Changed dimension	
1	Add "Zip Strip"	6/81

APPROVAL REC.: [signature]
APPROVED: [signature]
APPROVED: [signature]
Director of Public Works and Road Commissioner

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
PLC	[signature]	May 1977	None	SD-522	1 of 1

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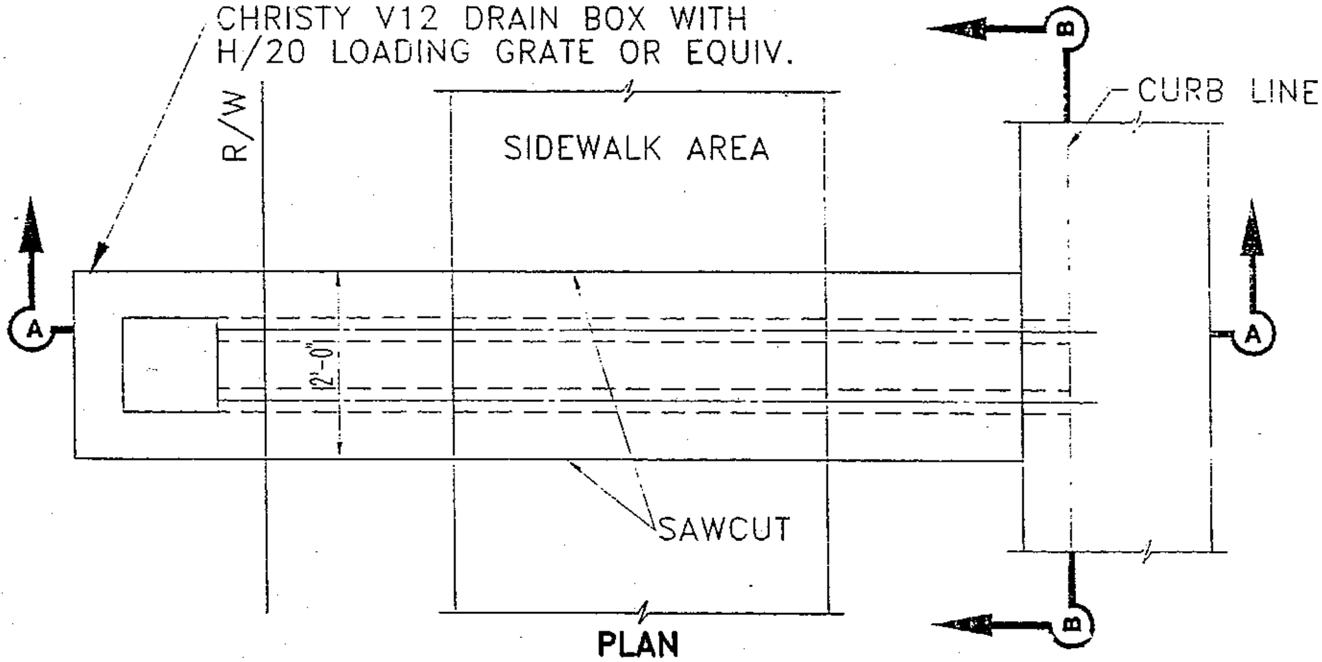
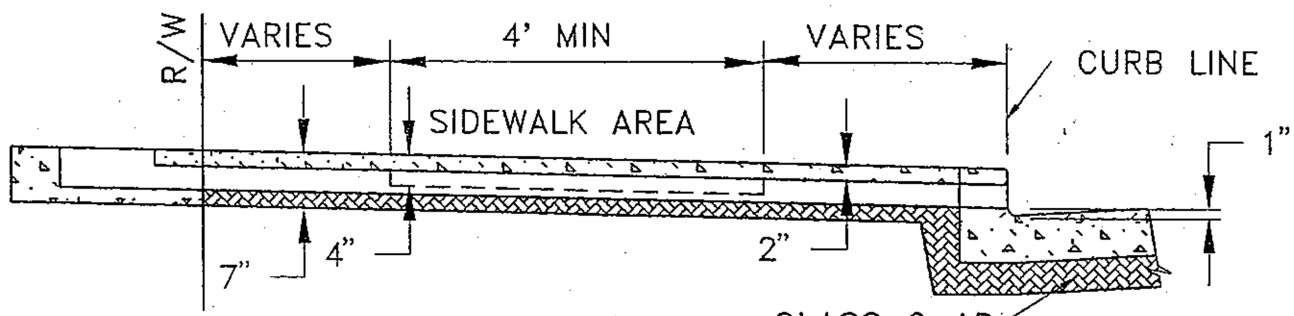
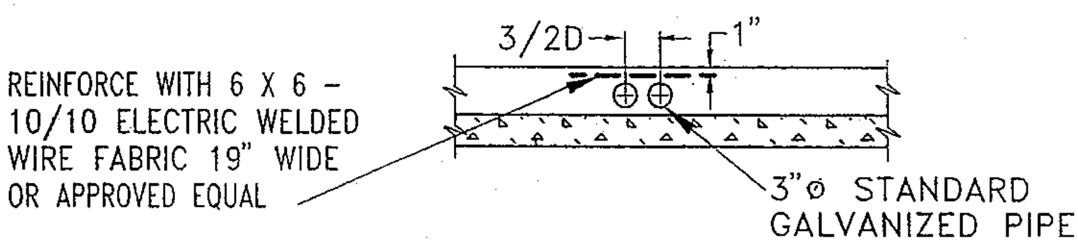


PLAN



SECTION A–A



SECTION B–B

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

REVISIONS

SIDEWALK DRAIN
TYPE II
SINGLE FAMILY
RESIDENTIAL LOTS

APPROVAL REC.
APPROVED
APPROVED
COUNTY ENGINEER

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
JC		OCT. 1994	NONE	SD–527	1 of 1

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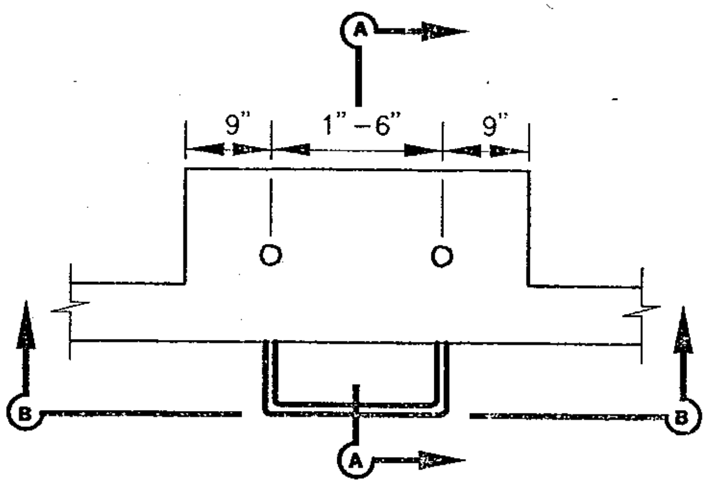
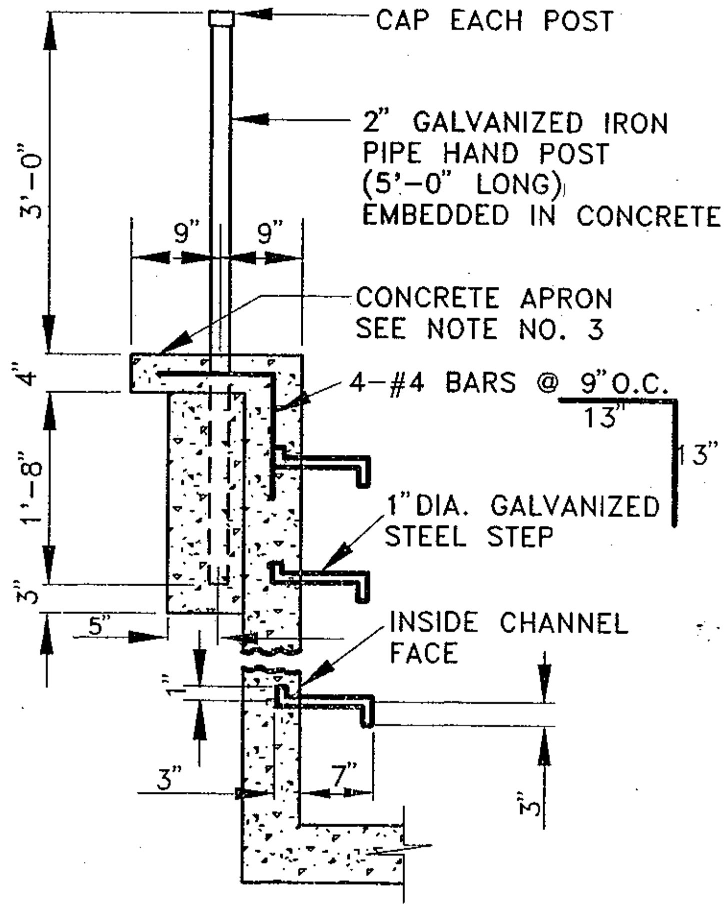


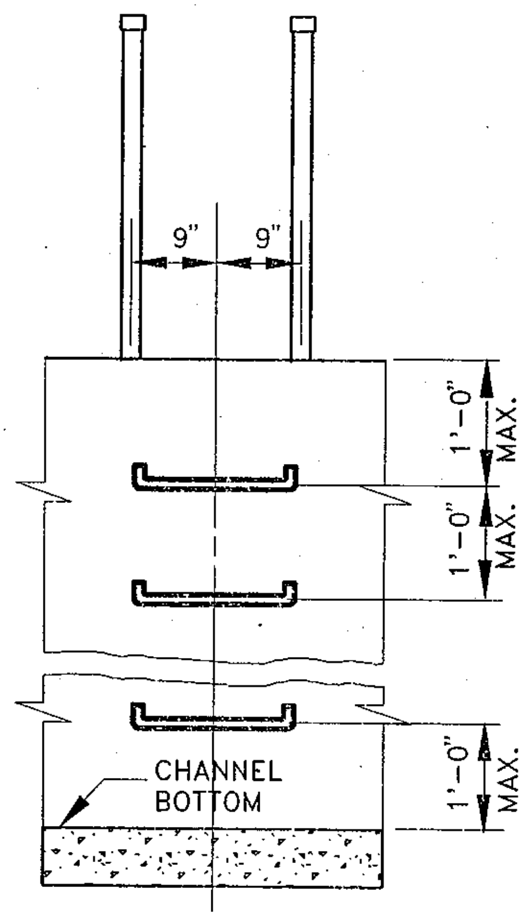
PLAN

GENERAL NOTES

1. ALL MISCELLANEOUS IRON AND STEEL SHALL BE GALVANIZED AFTER FABRICATION.
2. SEE GENERAL PLANS FOR LOCATION OF STEPS.
3. THE CONCRETE APRON SHOWN IS ONLY FOR CHANNELS WITHOUT APRONS. FOR CHANNELS WITH APRONS, USE THE APRON PROVIDED.



SECTION A-A



SECTION B-B

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

METAL STEP AND HAND POST DETAIL FOR VERTICAL CHANNEL WALLS

REVISIONS

APPROVAL/REC.
APPROVED
APPROVED
COUNTY ENGINEER

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
EA		JAN. 1994	NONE	SD-528	1 of 1

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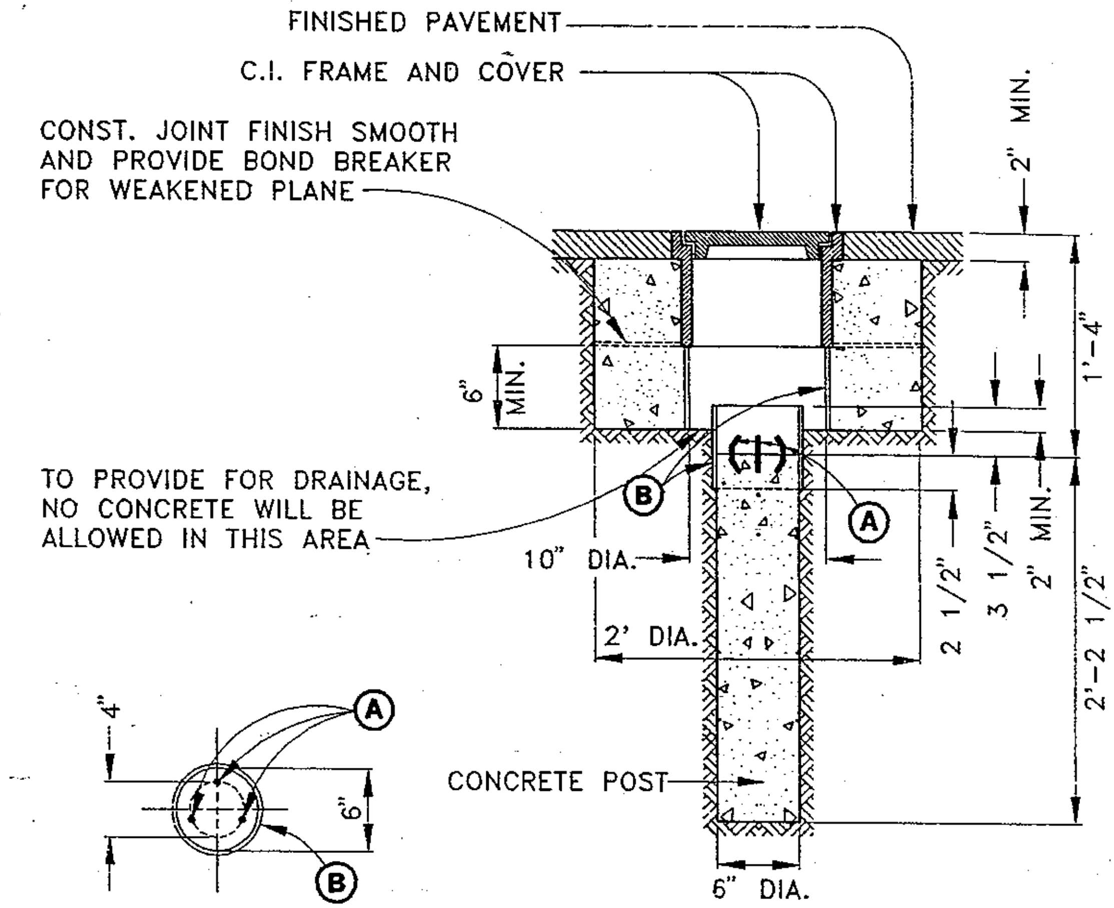
SD-600 SERIES MONUMENTS



PLAN SECTION OF POST

ELEVATION

NOTES:

MONUMENT FRAMES AND COVERS SHALL BE:

1. NEENAH FOUNDRY COMPANY, CATALOG NO. R-1975-B, LID TYPE C WITH "MONUMENT" ON THE LID.
2. CHRISP CASTING PART NO. 9279, 9277M.
3. OTHER MANUFACTUREres MODELS APPROVED BY THE ALAMEDA COUNTY ROAD DEPARTMENT SHALL BE EQUAL IN SERVICE AND FUNCTION. EACH COVER SHALL BE GROUND OR OTHERWISE FINISHED SO THAT IT WILL FIT IN ITS FRAME WITHOUT ROCKING. CONCRETE SHALL BE EITHER CLASS A OR CLASS B, POURED IN PLACE AGAINST THE EXISTING GROUND.

   A INSTALL 3 OR MORE 1/4" X 3" METAL DOWELS EXTENDING 1" ABOVE SURFACE OF CONCRETE. BEND AS SHOWN.

   B PROVIDE A FORM OF SHEET METAL OR 3/32" THICK WAX-IMPREGNATED PAPER.

4. SEE SD-604 FOR CONCRETE MONUMENT SECTION WITH DISC.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

REVISIONS

CONCRETE MONUMENT SECTION WITHOUT DISC

APPROVAL REC. 9/2/92

APPROVED

APPROVED

COUNTY ENGINEER AND COUNTY SURVEYOR

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
TK, MTF		JULY 1992	NTS	SD-600	1 of1

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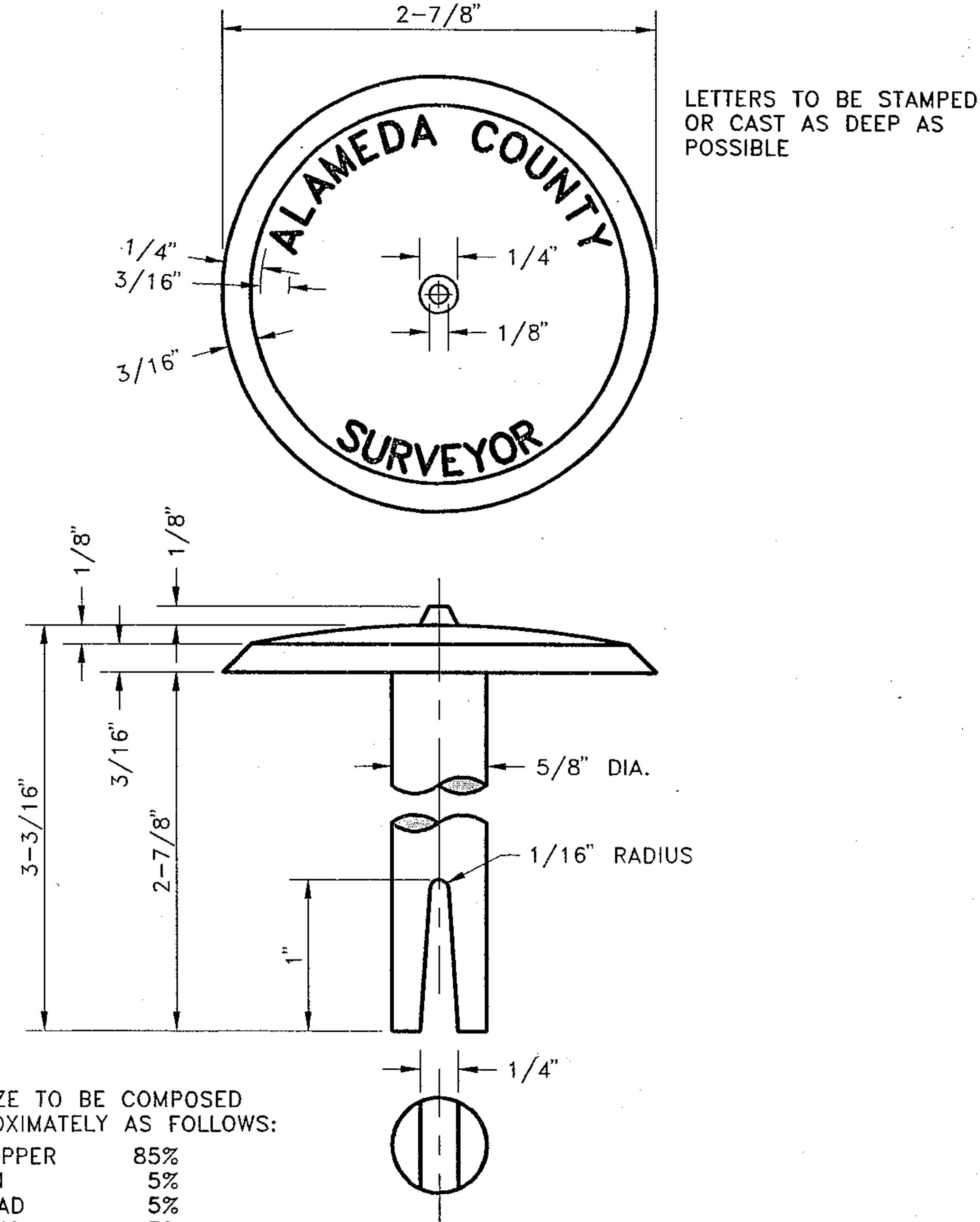

NOTE:

BRONZE TO BE COMPOSED APPROXIMATELY AS FOLLOWS:

COPPER	85%
TIN	5%
LEAD	5%
ZINC	5%

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

MONUMENT DISC

REVISIONS

APPROVAL REC.

APPROVED

APPROVED

COUNTY ENGINEER AND COUNTY SURVEYOR

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
JPB		FEB. 1994	None	SD-601	1 of 1

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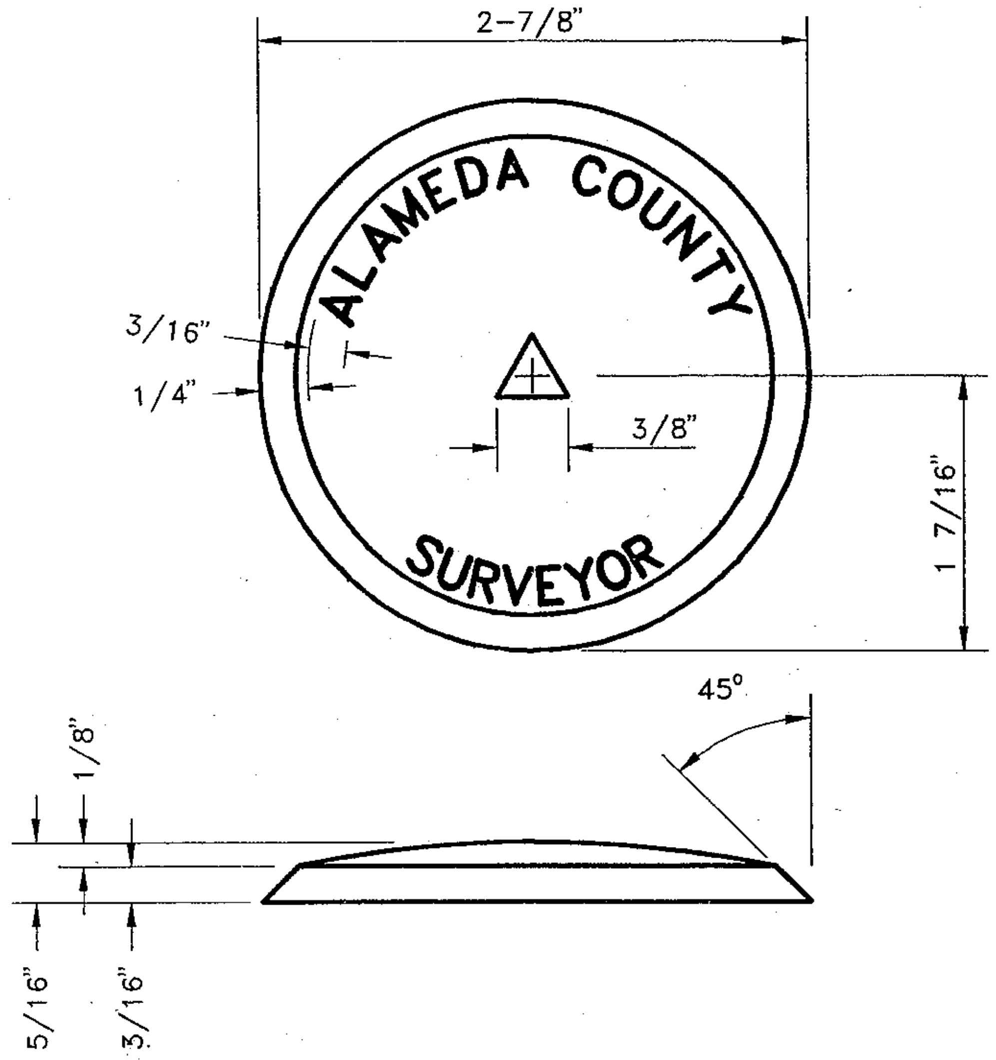
LETTERS AND TRIANGLE SYMBOL TO BE STAMPED OR CAST AS DEEP AS POSSIBLE. POLISH TOP SURFACE.



BRONZE TO BE COMPOSED APPROXIMATELY AS FOLLOWS:

COPPER	85%
TIN	5%
LEAD	5%
ZINC	5%

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

CONTROL MONUMENT DISC

REVISIONS

APPROVAL REC.

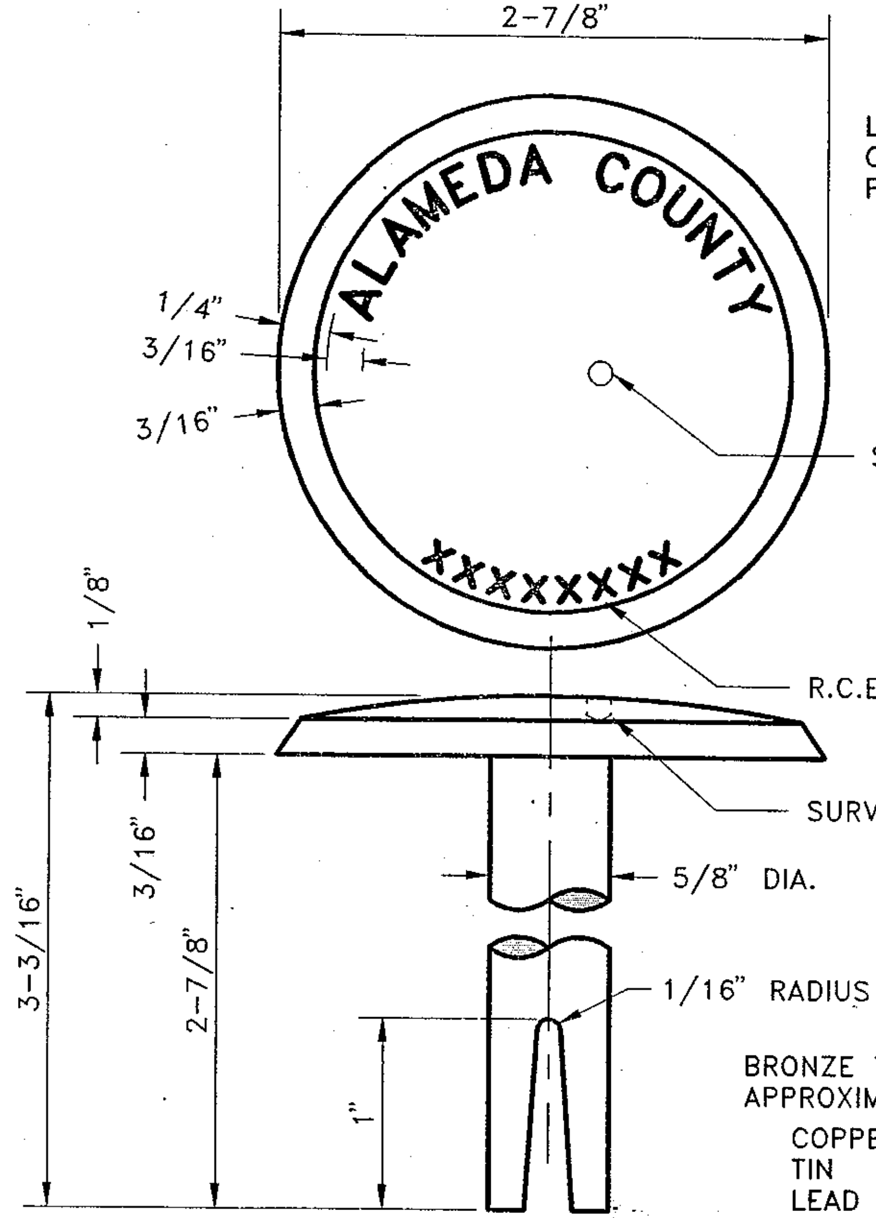
APPROVED

APPROVED

COUNTY ENGINEER AND COUNTY SURVEYOR

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
JPB		FEB. 1994	None	SD-602	1 of 1

Return To Table of Content



LETTERS TO BE STAMPED OR CAST AS DEEP AS POSSIBLE

BRONZE TO BE COMPOSED APPROXIMATELY AS FOLLOWS:

COPPER	85%
TIN	5%
LEAD	5%
ZINC	5%

NOTES:

1. SURVEY POINT: A 1/8" DIA. HOLE DRILLED 1/8" DEEP (MIN.). THE POINT MUST FALL WITHIN A CIRCLE OF 3/4" RADIUS AROUND THE CENTER OF THE DISC.

2. DISCS WILL BE FURNISHED BY ALAMEDA COUNTY AT COST.

3. R.C.E. OR L.S. NUMBER OF ENGINEER OR LAND SURVEYOR FILING THE FINAL MAP MUST BE PLACED ON EACH DISC AS SHOWN ABOVE.

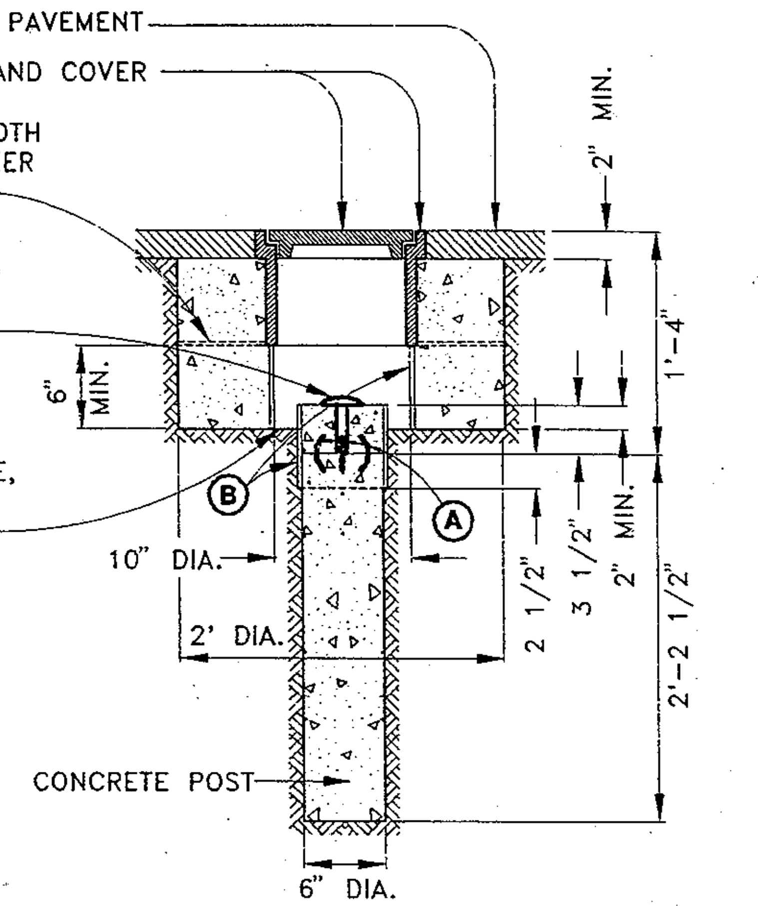
COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

TRACT MONUMENT DISC

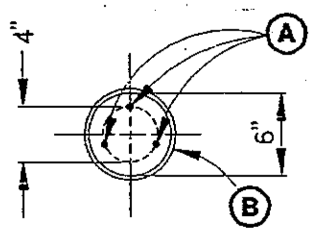
REVISIONS	
APPROVAL REC.	
APPROVED	[signature]
APPROVED	[signature]
COUNTY ENGINEER AND COUNTY SURVEYOR	

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
JPB		FEB. 1994	None	SD-603	1 of 1

Return To Table of Content



ELEVATION



PLAN SECTION OF POST

NOTES:

MONUMENT FRAMES AND COVERS SHALL BE:

1. NEENAH FOUNDRY COMPANY, CATALOG NO. R-1975-B, LID TYPE C WITH "MONUMENT" ON THE LID.
2. CHRISP CASTING PART NO. 9279, 9277M.
3. OTHER MANUFACTURERES MODELS APPROVED BY THE ALAMEDA COUNTY ROAD DEPARTMENT SHALL BE EQUAL IN SERVICE AND FUNCTION. EACH COVER SHALL BE GROUND OR OTHERWISE FINISHED SO THAT IT WILL FIT IN ITS FRAME WITHOUT ROCKING. CONCRETE SHALL BE EITHER CLASS A OR CLASS B, POURED IN PLACE AGAINST THE EXISTING GROUND.
   - (A) INSTALL 3 OR MORE 1/4" X 3" METAL DOWELS EXTENDING 1" ABOVE SURFACE OF CONCRETE. BEND AS SHOWN.
   - (B) PROVIDE A FORM OF SHEET METAL OR 3/32" THICK WAX-IMPREGNATED PAPER.
4. SEE SD-600 FOR CONCRETE MONUMENT SECTION WITHOUT DISC.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

REVISIONS

CONCRETE MONUMENT
SECTION
WITH DISC

APPROVAL REC. 9/2/92
APPROVED
APPROVED
COUNTY ENGINEER AND COUNTY SURVEYOR

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
TK, MTF		JULY 1992	NTS	SD-604	1 of1

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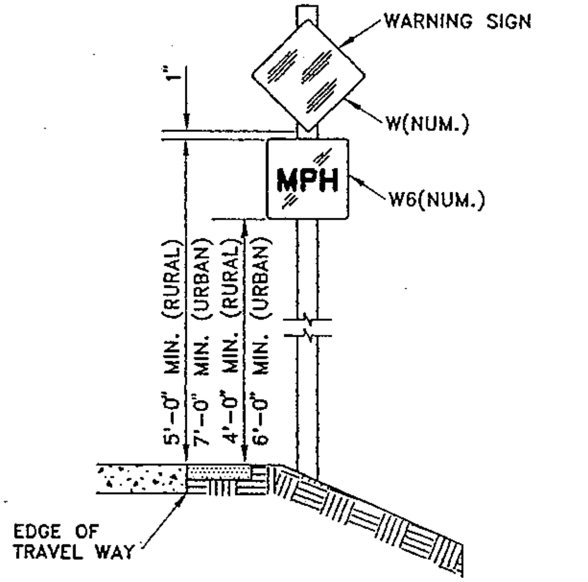
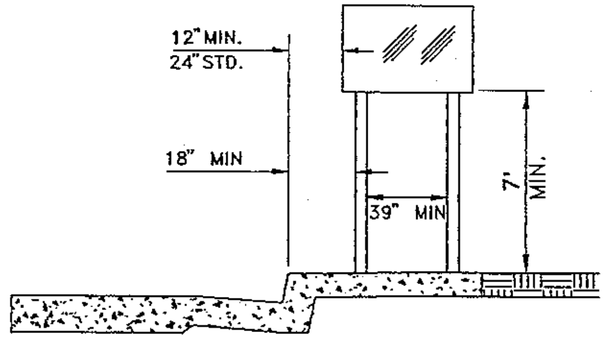
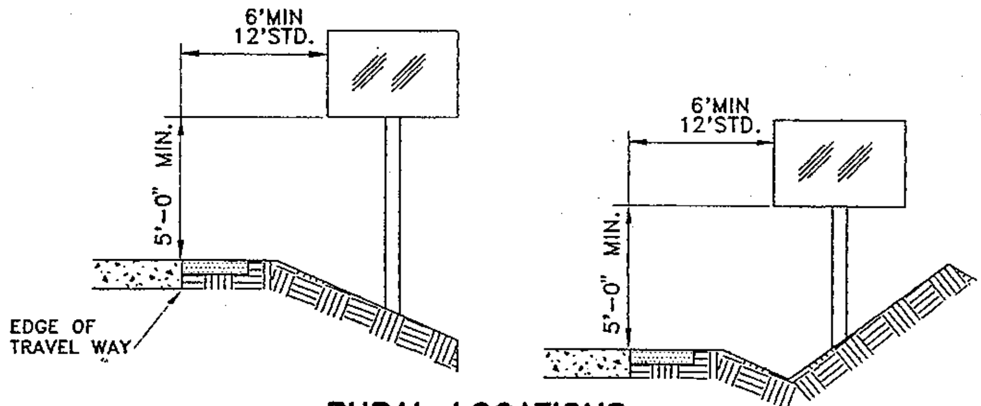
SD-700 SERIES SIGNING DETAILS



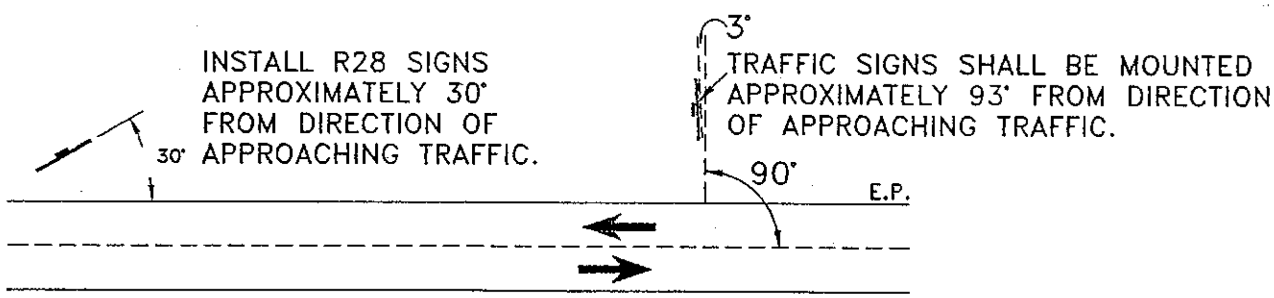
ADVISORY SPEED SIGN INSTALLATION



URBAN LOCATIONS



RURAL LOCATIONS



NOTES:

1. ALL SIGN POSTS SHALL BE UNISTRUT TELESPAR 2" X 2" POST WITH YIELDING BREAKAWAY BASE OR EQUIVALENT.
2. ALL OBJECT MARKER AND DELINEATOR POSTS SHALL BE FLEXIBLE.
3. FOR DETAILS SEE CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD PLANS, JULY 1992, A73A, A73B, A73C.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

REVISIONS

SIGN MOUNTING DETAILS

APPROVAL REC.

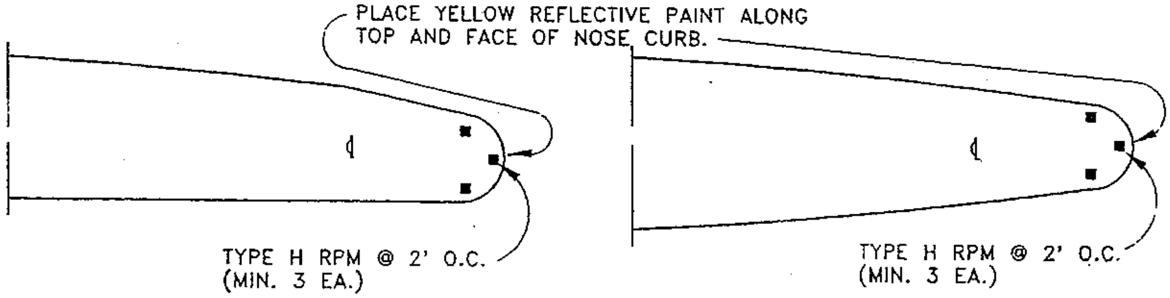
APPROVED

APPROVED

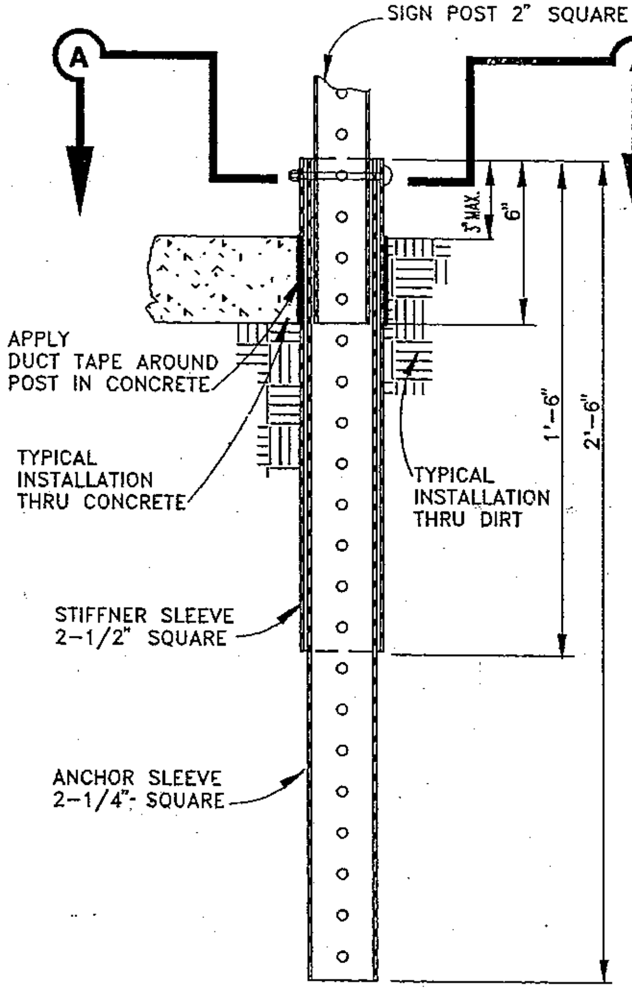
COUNTY ENGINEER

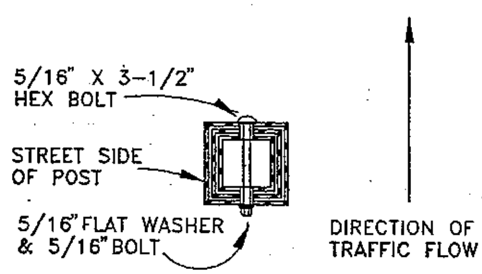
DRAWN EA | CHECKED | DATE DEC 1994 | SCALE NONE | FILE NO. SD-700 | 1 of 2

Return To Table of Content



CONCRETE MEDIAN





SECTION A–A

TYPICAL SECTION

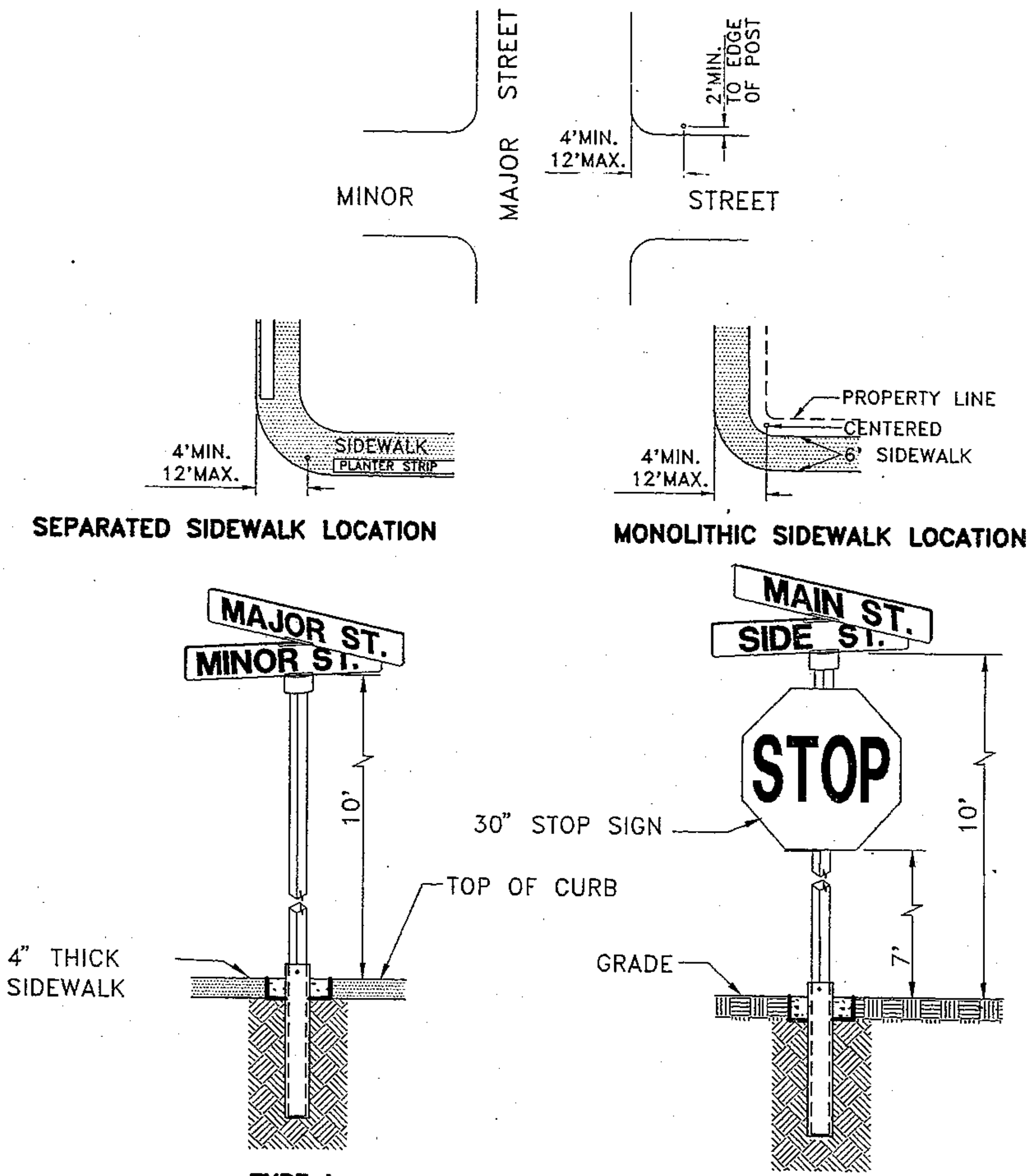
NOTE: ANCHOR SLEEVE + STIFFNER SLEEVE = ANCHOR ASSEMBLY

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

REVISIONS	SIGN MOUNTING DETAILS	APPROVAL REC. / APPROVED / APPROVED / COUNTY ENGINEER

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
EA	SF | RB	AUG. 1994	NONE	SD-700	2 of 2

Return To Table of Content



TYPE I

TYPE II

NOTES:

1. SIGN POST SHALL BE "UNISTRUT TELESPAR 2" X 2" POST WITH YIELDING BREAKAWAY BASE" OR EQUIVALENT.
2. SEE SD-700 FOR DETAILS NOT SHOWN.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

REVISIONS

STREET NAME SIGN INSTALLATION DETAIL

APPROVAL REC. Hank Ackerman

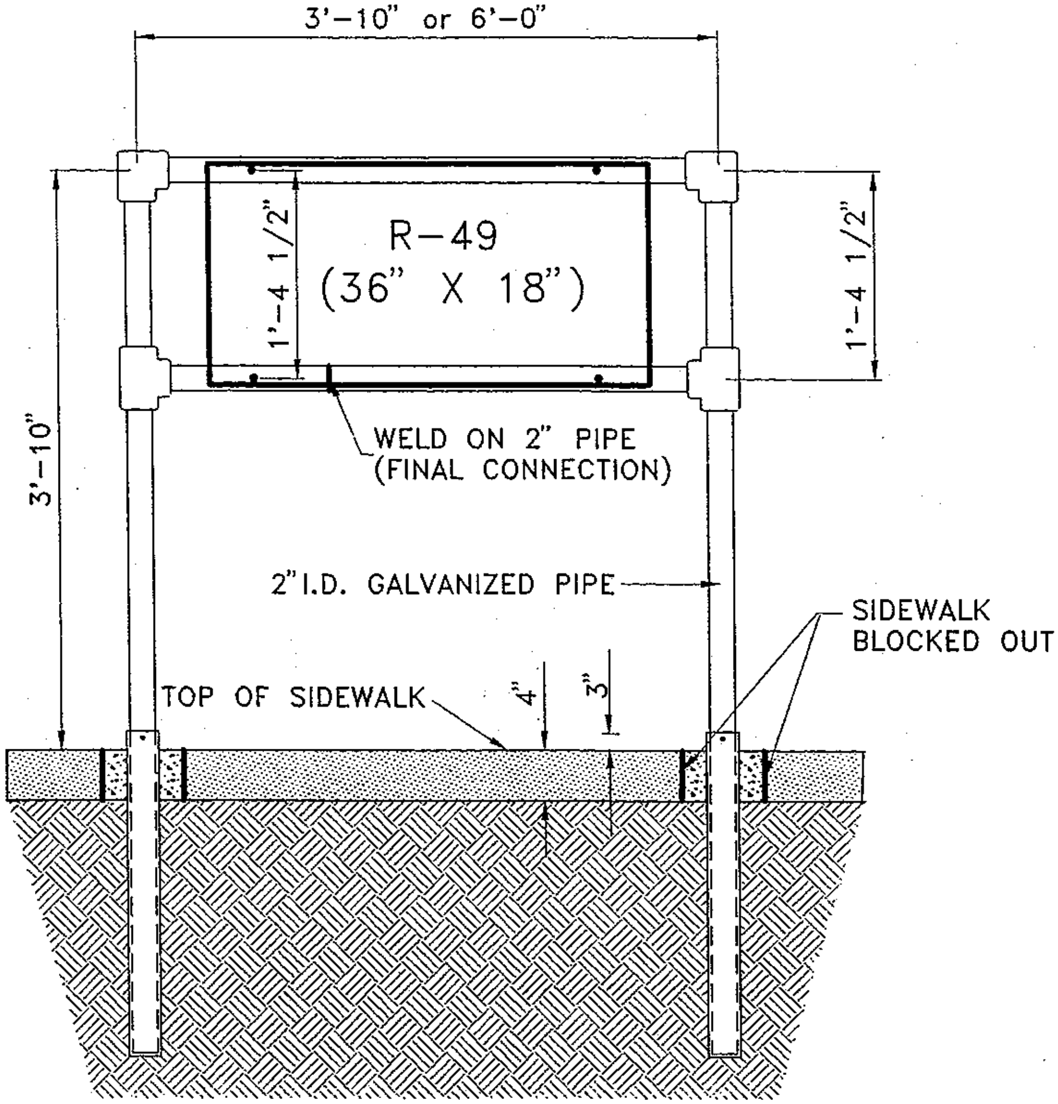
APPROVED Scott A. Swanson

APPROVED [signature]

COUNTY ENGINEER

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
EA	SF RB	AUG. 1994	NONE	SD-702	1 of 1

Return To Table of Content



NOTES:
1. SIGN MOUNT SHALL BE PAINTED AS DIRECTED BY THE ENGINEER.
2. SEE CALTRANS STANDARD PLANS, JULY 1992, ES-5F FOR SLEEVE POST DETAILS NOT SHOWN.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

9/94	CHANGED HATCHING	EA
REVISIONS		

R-49 SIGN MOUNT

APPROVAL REC.

APPROVED

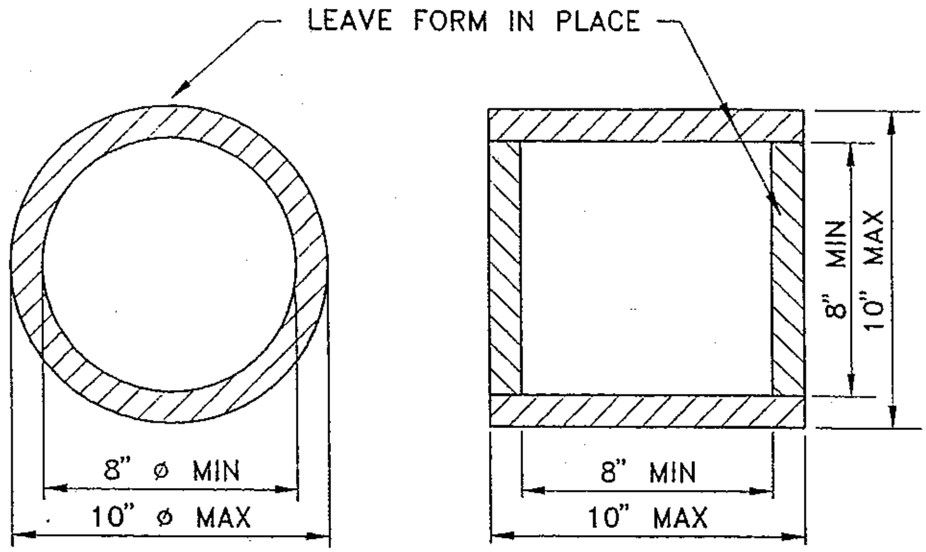
APPROVED

CAM

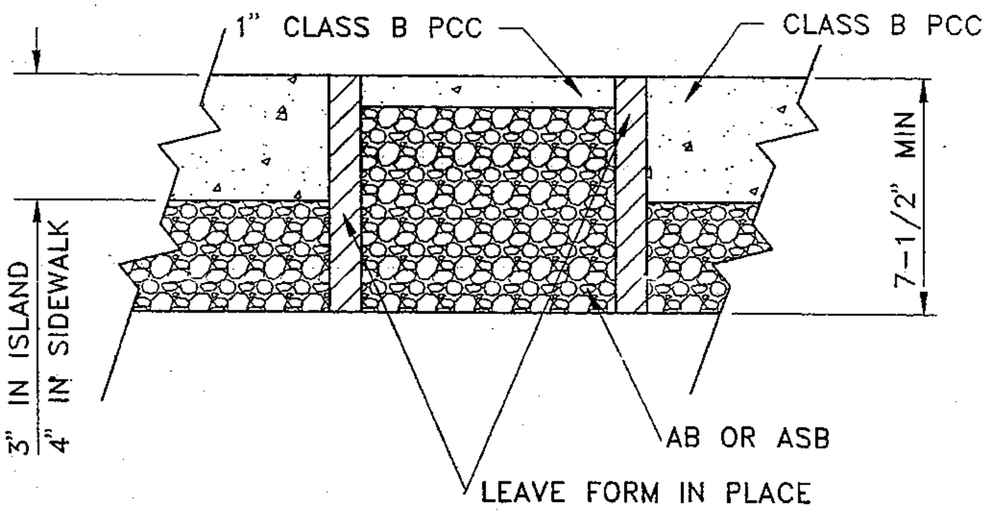
COUNTY ENGINEER

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
EA	-	DEC. 1993	NONE	SD-703	1 of 1

Return To Table of Content



PLAN



SECTION

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

REVISIONS

SIGN POST

BLOCKOUT HOLE DETAIL

APPROVAL REC.

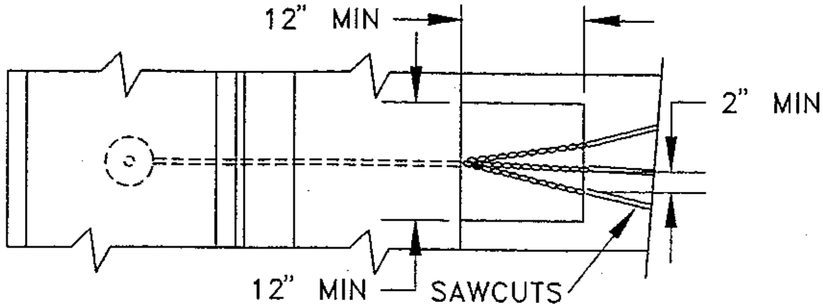
APPROVED

APPROVED

COUNTY ENGINEER

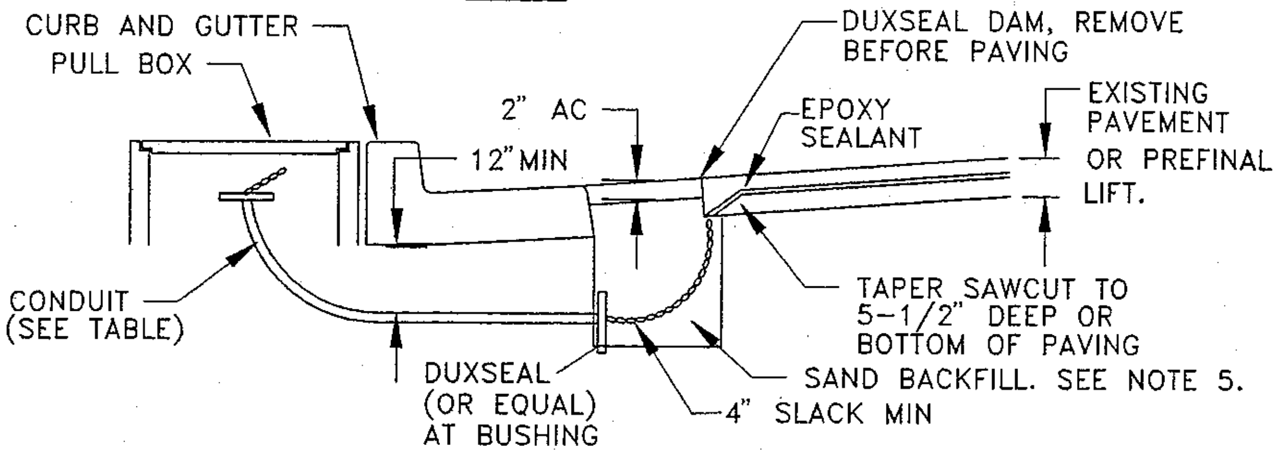
DRAWN	CHECKED	DATE	SCALE	FILE NO.	
JC		JAN. 1995	NONE	SD-704	1 of 1

Return To Table of Content

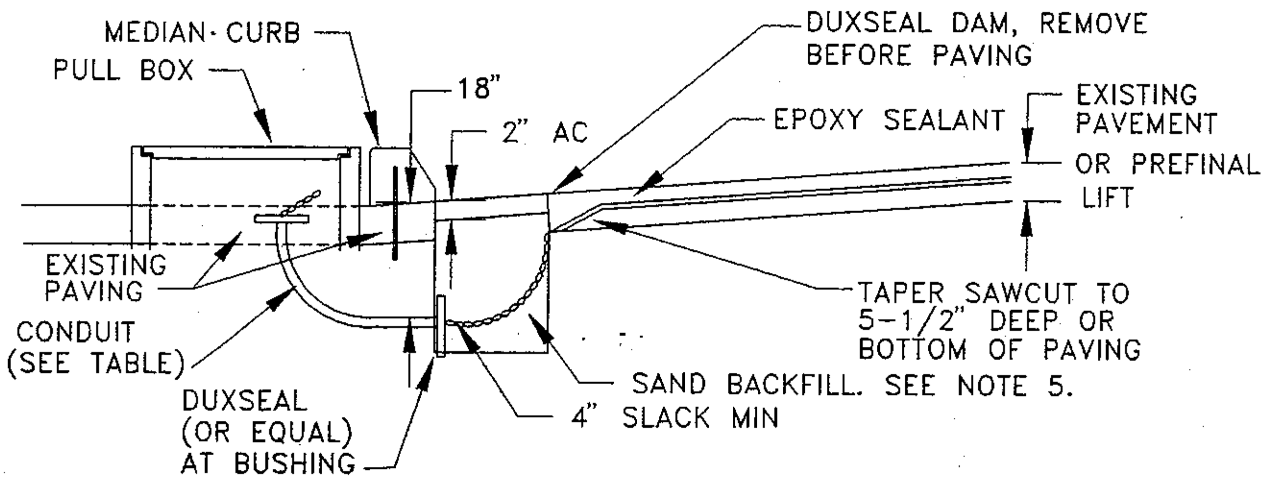


MIN SIZE CONDUIT	# OF WIRES
1"	1-6
1-1/2"	7-16
2"	17-24

PLAN



SECTION AT CONCRETE CURB AND GUTTER



SECTION AT MEDIAN CURB

NOTES:
1. NON-METALLIC BUSHING SHALL BE USED AT ROADWAY END OF CONDUIT.
2. TAPE WIRE 3 INCHES EACH SIDE OF ROADWAY BUSHING.
3. ROUND ALL SHARP EDGES WHERE WIRE HAS TO PASS.
4. DO NOT USE ELECTRICAL 'L' AT FINISH POINT.
5. REMOVE ALL DEBRIS AND LOOSE MATERIAL PRIOR TO PLACING SAND BACKFILL.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

REVISIONS

RIGID CONDUIT STUB DETECTOR LEAD IN

APPROVAL REC. BHindrup

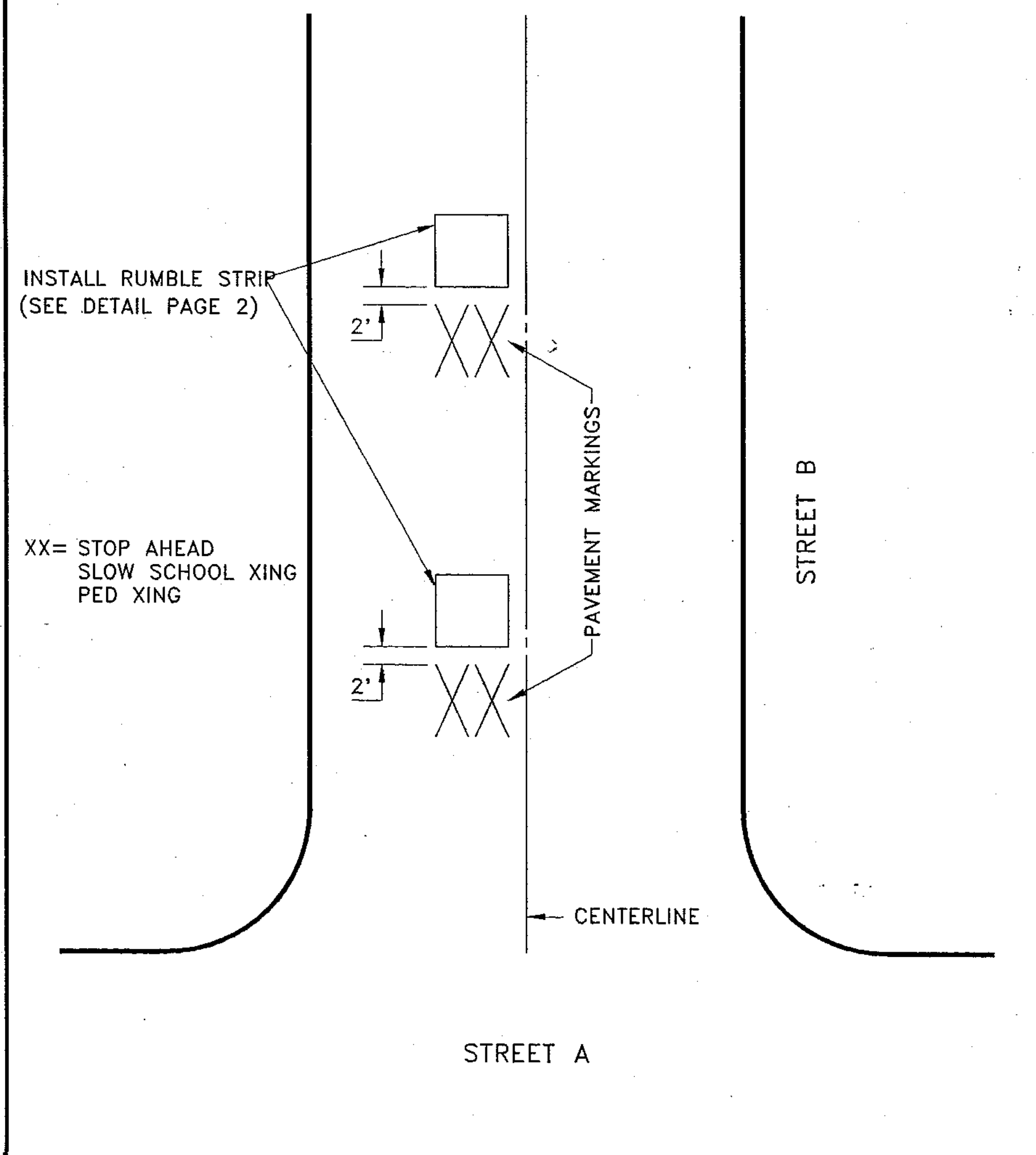
APPROVED

APPROVED Dewan

COUNTY ENGINEER

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
JC		MAR 1995	NONE	SD-705	1 of 1

Return To Table of Content



COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

TYPICAL RUMBLE STRIP INSTALLATION

REVISIONS

APPROVAL REC.

APPROVED

APPROVED

COUNTY ENGINEER AND COUNTY SURVEYOR

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
JPB		October 1992	None	SD-706	1 of 2

PLOT 1=1

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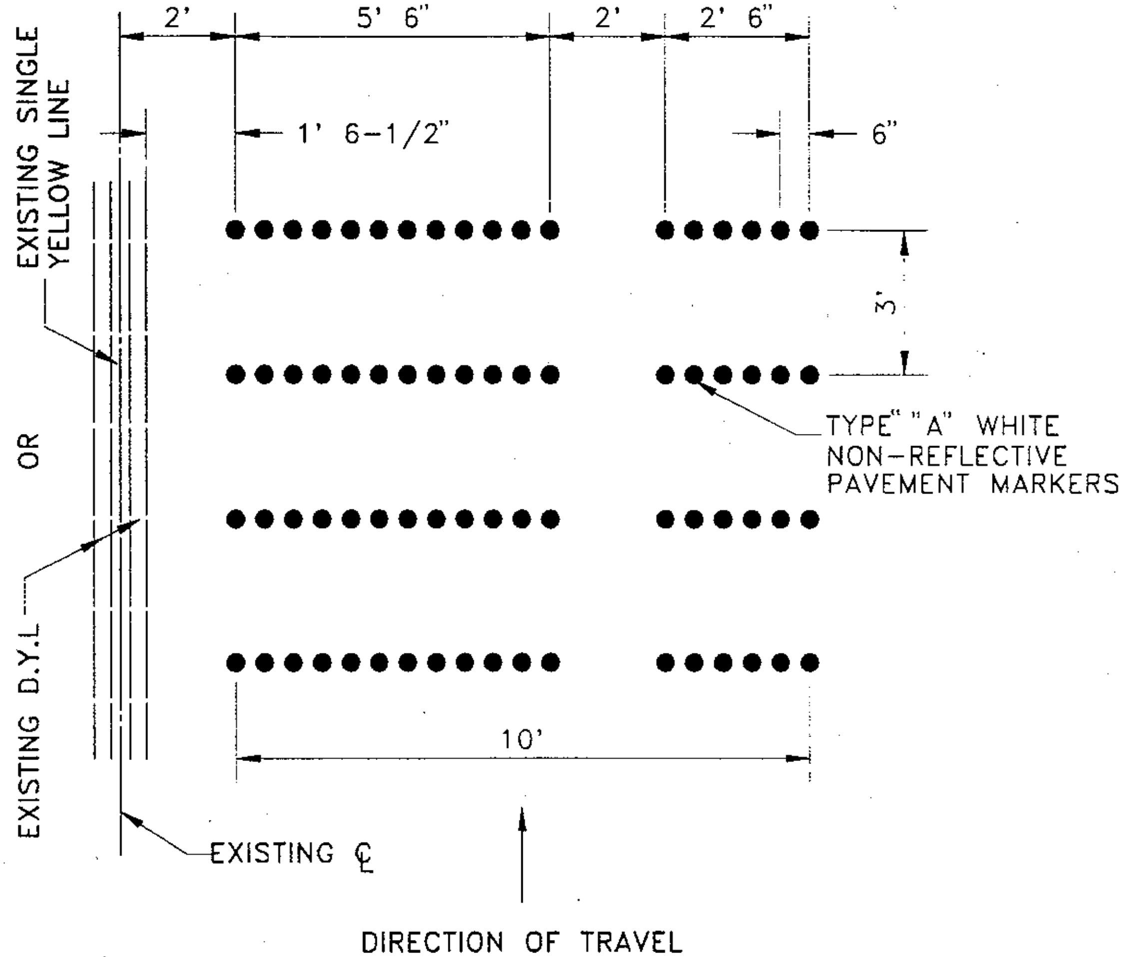

NOTE: DIMENSIONS ARE CENTER TO CENTER

RUMBLE STRIP DETAIL

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

REVISIONS

TYPICAL RUMBLE STRIP INSTALLATION

APPROVAL REC.

APPROVED

APPROVED

COUNTY ENGINEER AND COUNTY SURVEYOR

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
JPB		MAY 1995	None	SD-706	2 of 2

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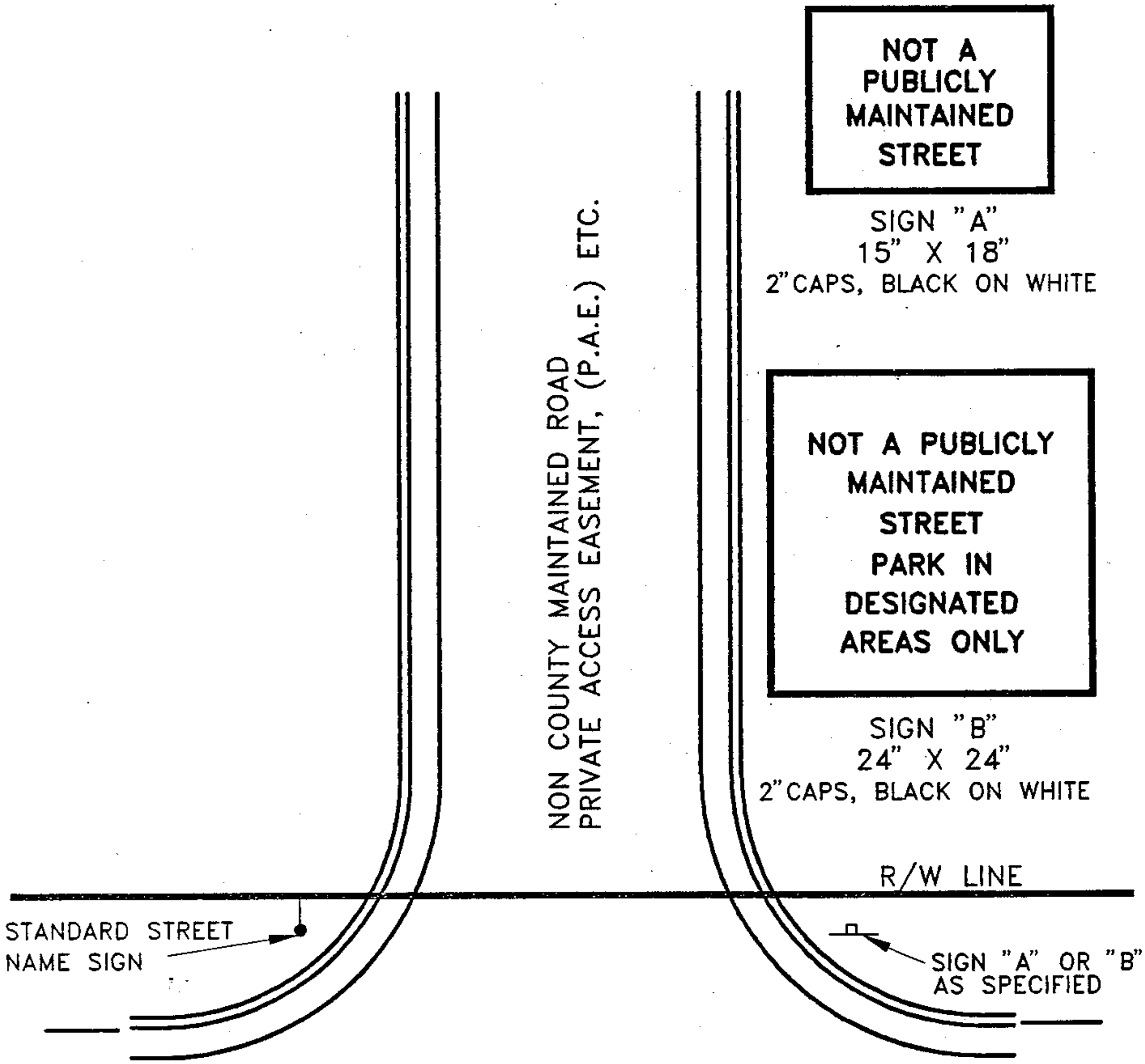

NOTES:
1. REFER TO SD-702 FOR SIGN MOUNTING DETAILS.
2. IF STOP SIGN IS REQUIRED, MOUNT ON STREET SIGN POST.
3. IF "NOT A THROUGH STREET" SIGN IS REQUIRED, MOUNT ON POST WITH "A" OR "B".

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

SIGNING

NON-COUNTY MAINTAINED ROAD

STREET TYPE ENTRANCE

REVISIONS

APPROVAL REC.

APPROVED

APPROVED

COUNTY ENGINEER

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
EA		FEB. 1994	NONE	SD-707	1 of 2

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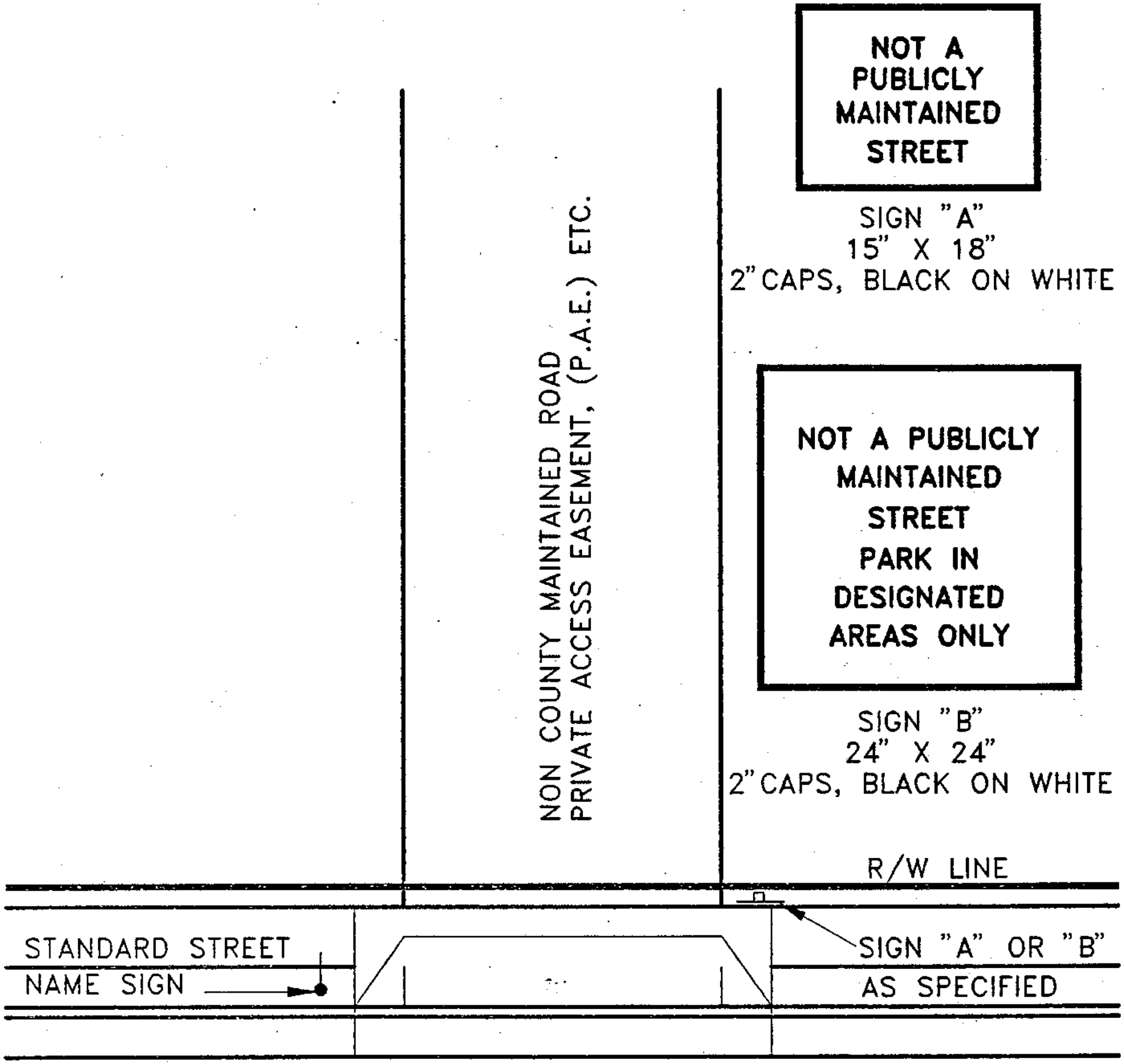

COUNTY MAINTAINED ROAD OR STATE HIGHWAY

NOTE: REFER TO SD-702 FOR SIGN MOUNTING DETAILS

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

SIGNING

NON-COUNTY MAINTAINED ROAD

DRIVEWAY TYPE ENTRANCE

REVISIONS

APPROVAL REC. Hank Acker
APPROVED Swanson
APPROVED Swanson
COUNTY ENGINEER

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
EA		FEB. 1994	NONE	SD-707	2 of 2

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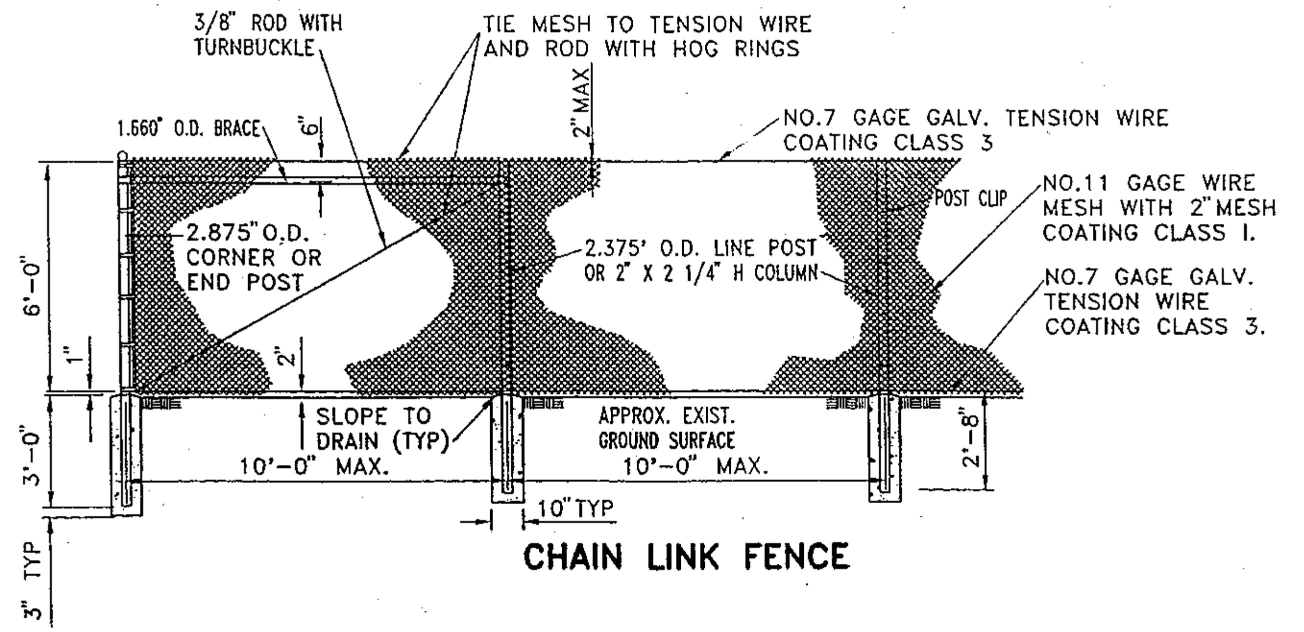
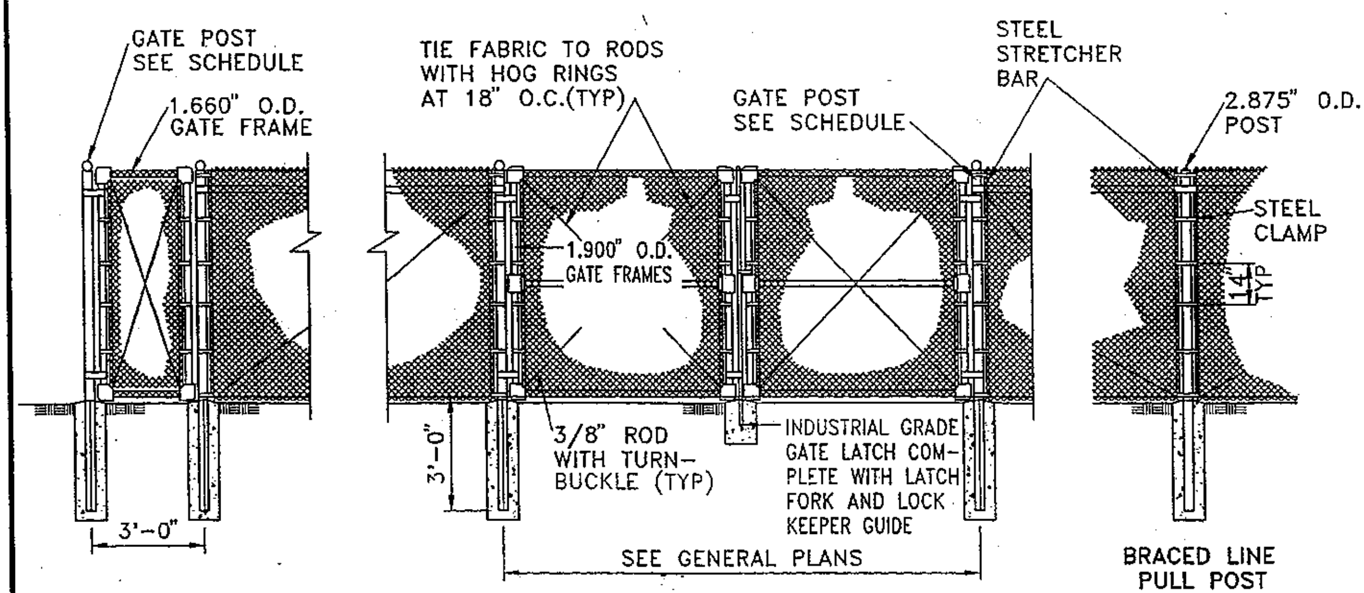
SD-800 SERIES BARRICADES



CHAIN LINK FENCE



CHAIN LINK GATES

GATE POST	
GATE WIDTH	O.D.
≤6'	2.875"
>6' & ≤13'	4.000"
>13' & ≤18'	6.625"

NOTES:
1. CENTER LINE OF CHAIN LINK FENCE SHALL BE 6" INSIDE RIGHT OF WAY UNLESS OTHERWISE INDICATED.
2. ALL HARDWARE SHALL BE INDUSTRIAL HARDWARE GRADE.
3. BRACING IS THE SAME ON BOTH SIDES OF CORNER POSTS.
4. INSTALL INDUSTRIAL GRADE GATE STOPS AS DIRECTED BY THE ENGINEER.
5. TIE WIRE AND HOG RINGS SHALL BE NO. 9 GAGE GALVANIZED STEEL, CLASS A.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

REVISIONS

6' HIGH CHAIN-LINK FENCE AND CHAIN-LINK GATES

APPROVAL REC.
APPROVED
APPROVED
COUNTY ENGINEER

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
JC		JAN. 1995	NONE	SD-800	1 of 1

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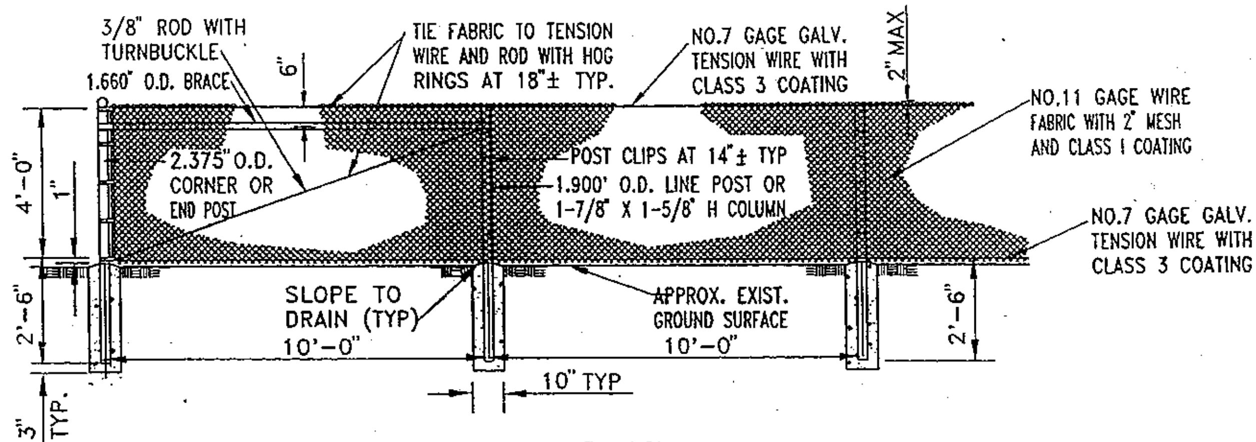
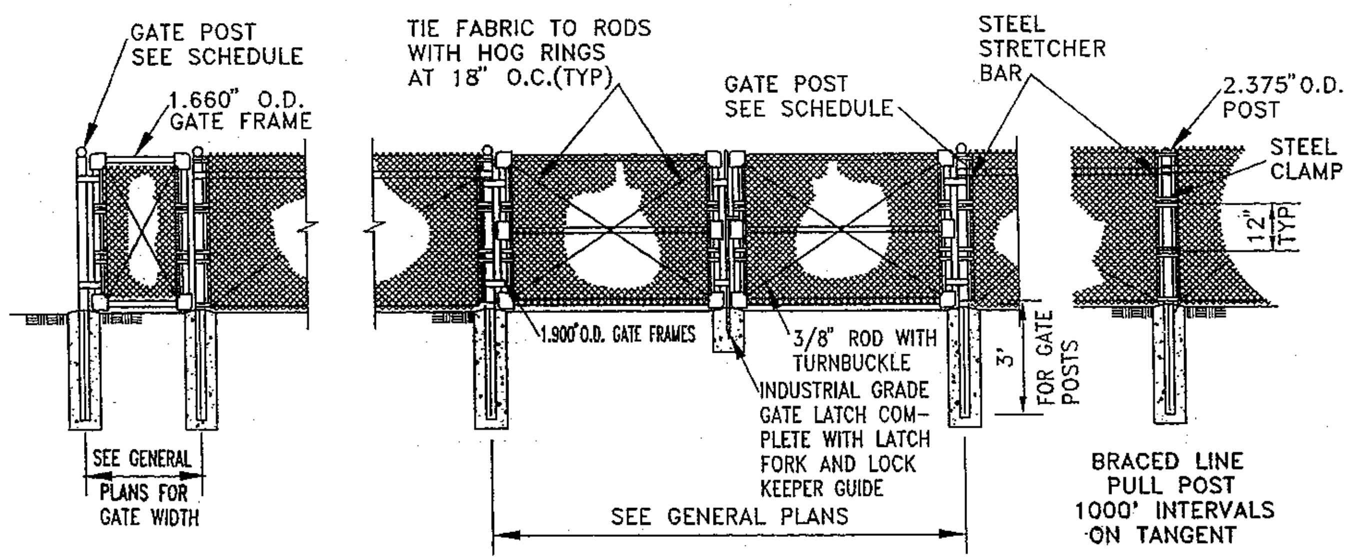


CHAIN LINK FENCE



CHAIN LINK GATES

GATE POST	
GATE WIDTH	O.D.
≤6'	2.875"
>6' & ≤13'	4.0"
>13' & ≤18'	6.625"

NOTES:
1. CENTER LINE OF CHAIN LINK FENCE SHALL BE 6" INSIDE RIGHT OF WAY UNLESS OTHERWISE INDICATED.
2. ALL HARDWARE SHALL BE INDUSTRIAL HARDWARE GRADE.
3. BRACING IS THE SAME ON BOTH SIDES OF CORNER POSTS.
4. INSTALL INDUSTRIAL GRADE GATE STOPS AS DIRECTED BY THE ENGINEER.
5. TIE WIRE AND HOG RINGS SHALL BE NO. 9 GAGE GALVANIZED STEEL, CLASS A.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

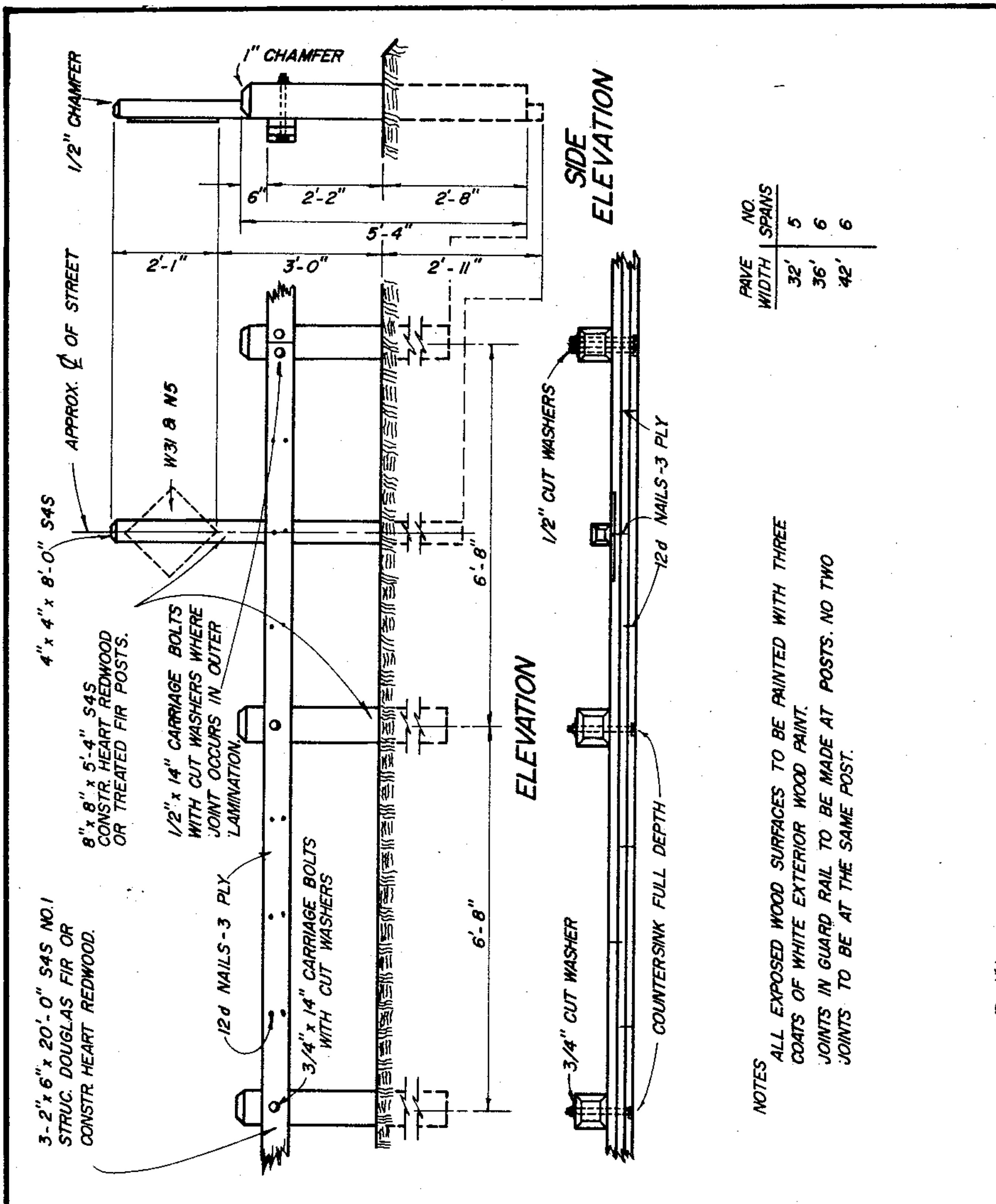
REVISIONS

4' HIGH CHAIN-LINK FENCE AND CHAIN-LINK GATES

APPROVAL REC.
APPROVED
APPROVED
COUNTY ENGINEER

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
JC		JAN. 1995	NONE	SD-801	1 of 1

Return To Table of Content



COUNTY OF ALAMEDA * PUBLIC WORKS AGENCY

REVISIONS	
TIMBER BARRICADE	APPROVAL REC. [signature] APPROVED [signature] APPROVED [signature] Director of Public Works and Road Commissioner

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
JJJ	[signature]	Apr.1976	None	SD-807	1 of 1

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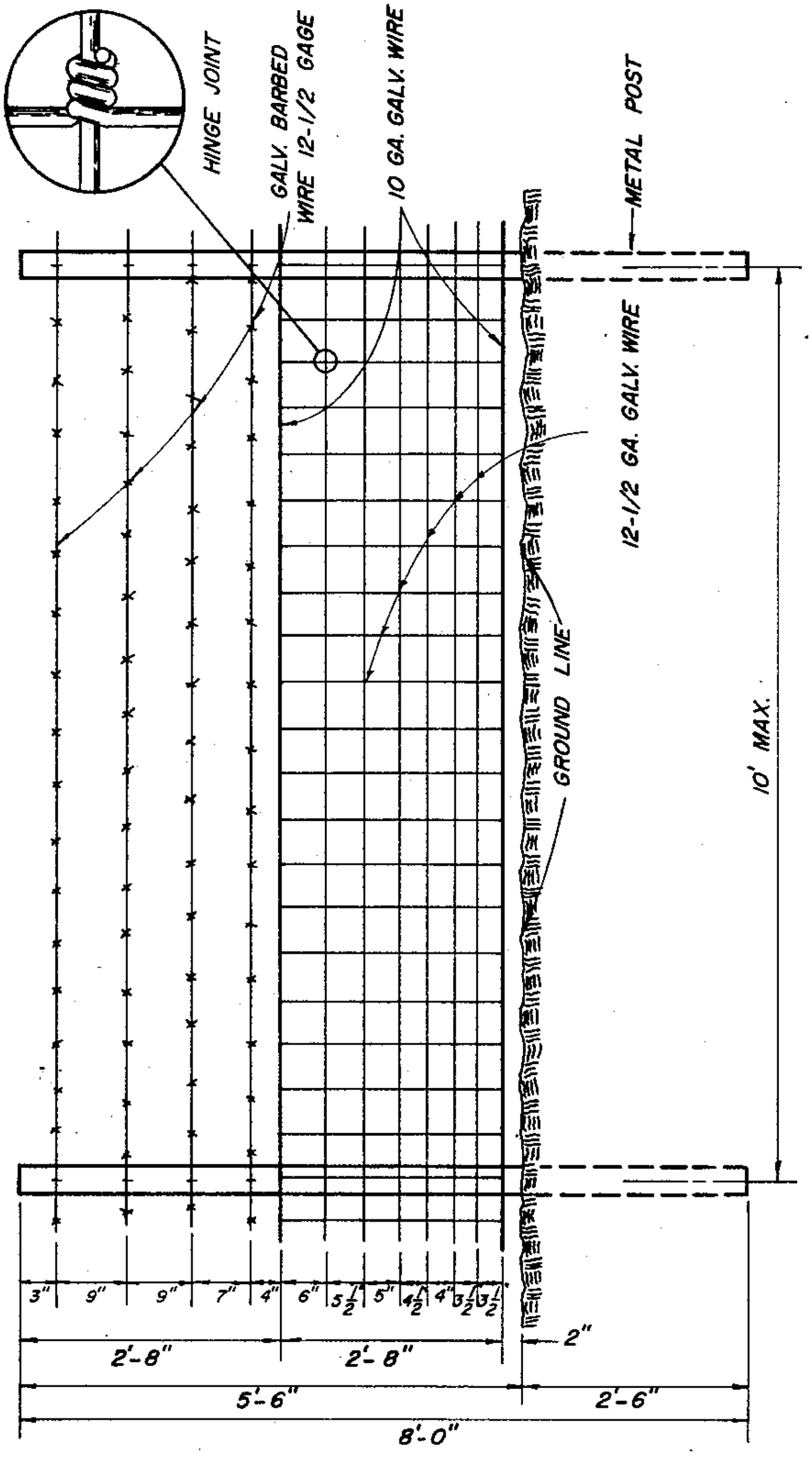

NOTES

THE WOVEN WIRE MESH SHALL BE OF THE HINGE JOINT HEAVY GALVANIZED TYPE FENCING CONFORMING TO A.S.T.M. DESIGNATION A116-57, CL. I NO. 12-1/2 FARM, DESIGN 832-6-12-1/2.

ALL OTHER DETAILS OF FENCE MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE APPLICABLE PROVISIONS OF SECTION 80-3 - "TYPE BW & WM FENCE" - OF THE CALIFORNIA DEPARTMENT OF TRANSPORTATION - STANDARD SPECIFICATIONS, JANUARY 1975.

COUNTY OF ALAMEDA * PUBLIC WORKS AGENCY

QUARRY FENCE

REVISIONS	QUARRY FENCE	APPROVAL REC. / APPROVED / APPROVED Director of Public Works and Road Commissioner
DRAWN JJJ	CHECKED	DATE Apr. 1976
SCALE None	FILE NO. SD-809	1 of 1

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