

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).

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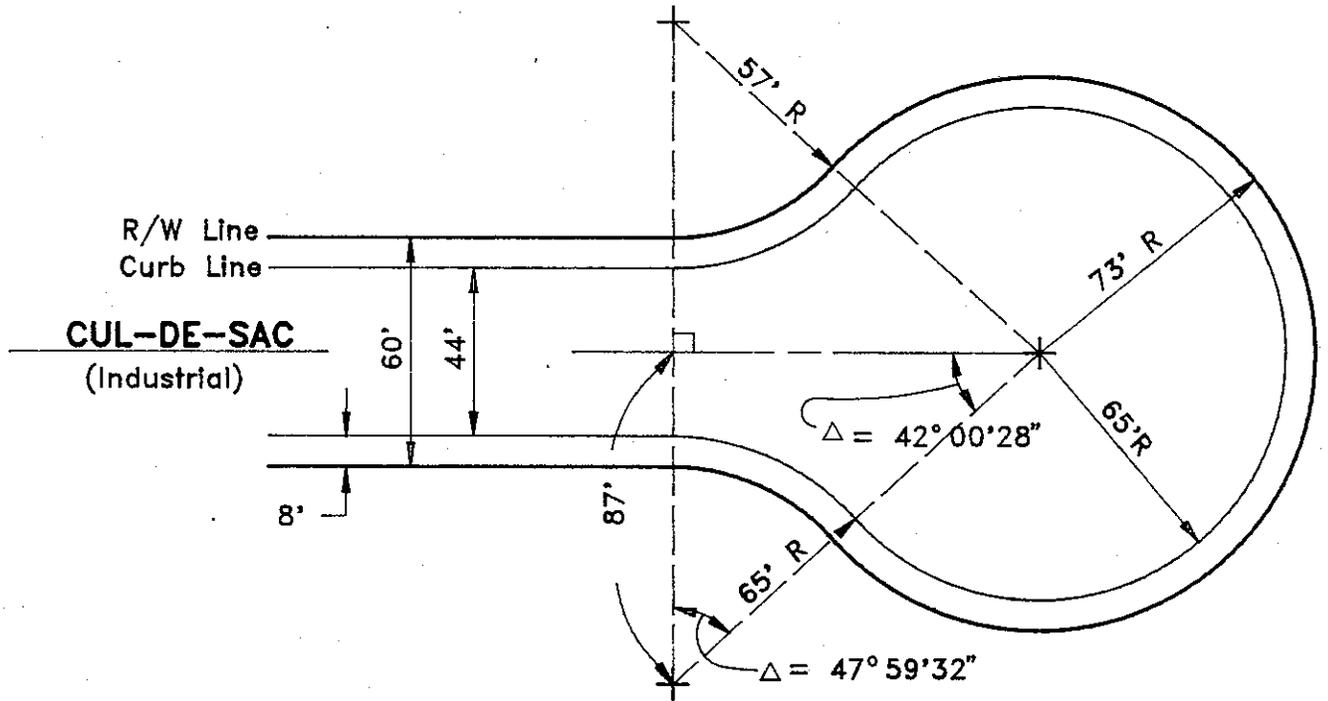
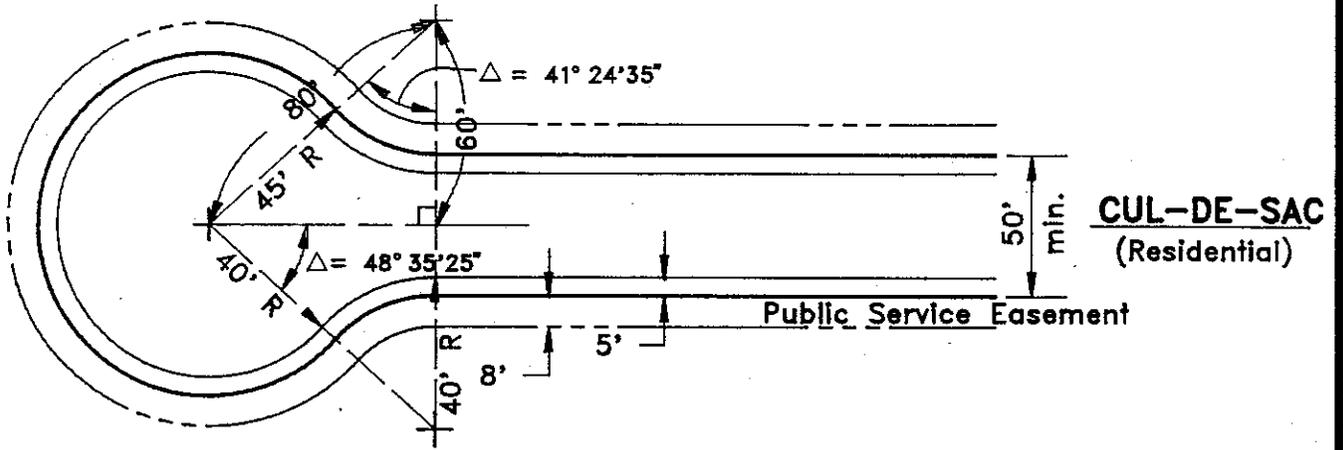
SD-200 SERIES ROADWAY GEOMETRICS

		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					
					APPROVAL REC. <i>[Signature]</i> APPROVED
					APPROVED <i>[Signature]</i> AM
					COUNTY ENGINEER
REVISIONS			GRADE CRITERIA		
DRAWN CEG	CHECKED	DATE SEPT. 1994			



COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

REVISIONS

CUL-DE-SAC
BULBS

APPROVAL REC.

APPROVED *Christina*
APPROVED *Pawan*
AM

COUNTY ENGINEER AND ROAD COMMISSIONER

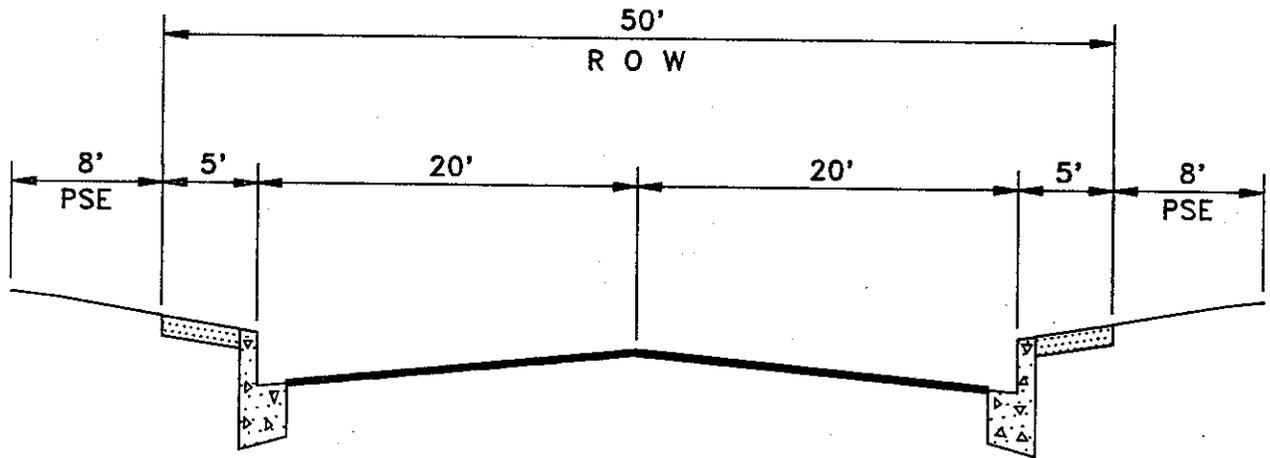
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DATE
June 1991

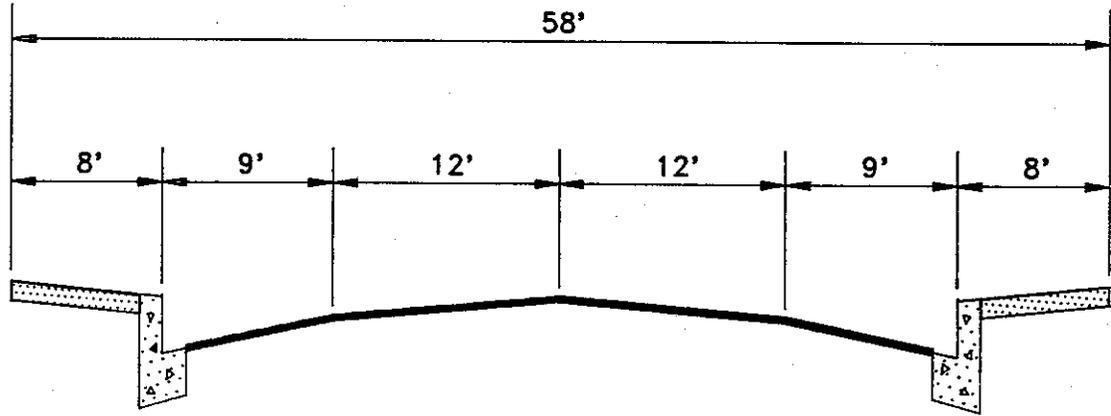
SCALE
None

FILE NO.
SD-201 1 of 1



- 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					
TYPICAL SECTION MINOR RESIDENTIAL STREET AND CUL-DE-SAC			APPROVAL REC.		
			APPROVED <i>Stendris</i>		
			APPROVED <i>Kawan</i> aw		
REVISIONS			COUNTY ENGINEER AND ROAD COMMISSIONER		
DRAWN	CHECKED	DATE	SCALE	FILE NO.	
KS		August 1991	None	SD-202	1 of 1



NOTE: Sidewalk location and width may vary.

Separated bicycle lane shall be included where feasible.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

TYPICAL SECTION
2-LANE COLLECTOR

APPROVAL REC.

APPROVED

APPROVED

COUNTY ENGINEER AND ROAD COMMISSIONER

REVISIONS

DRAWN

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CHECKED

DATE

August 1991

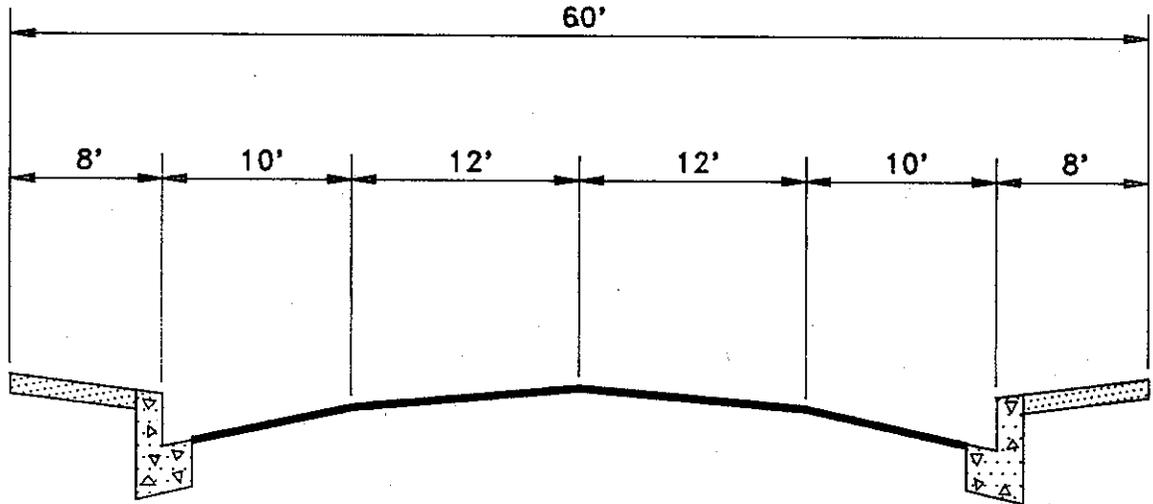
SCALE

None

FILE NO.

SD-203

1 of 1



NOTE: Sidewalk location and width may vary.
 Separated bicycle lane shall be included where feasible.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

REVISIONS

DRAWN

KS

CHECKED

DATE

August 1991

SCALE

None

APPROVAL REC.

APPROVED
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COUNTY ENGINEER AND ROAD COMMISSIONER

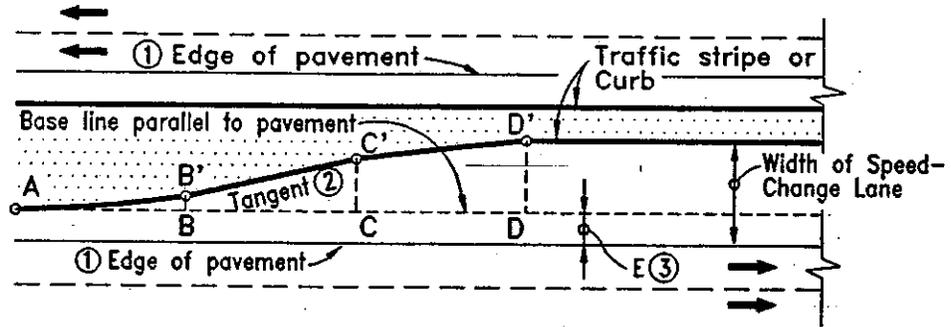
FILE NO.

SD-204

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TYPICAL SECTION
 2-LANE ARTERIAL

TAPER FOR MEDIAN SPEED-CHANGE LANES



$AD =$ Length of Taper.
 $AB = BC = CD = 1/3 AD$
 $AB' \text{ \& } C'D'$ are Parabolic Curves

Data for Point B'
 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
	30	45	60	5.00	5.50	6.00
C	40	60	80	7.50	8.25	9.00
	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

APPROVAL REC.

APPROVED *R. Hendrix*

APPROVED *J. Awar*

COUNTY ENGINEER AND COUNTY SURVEYOR

FILE NO.

SD-205

1 of 1

REVISIONS

DRAWN

KS

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DATE

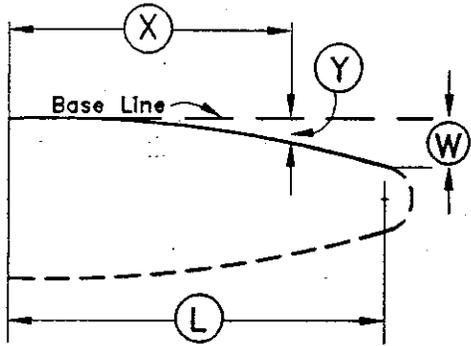
October 1991

SCALE

None

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY	
	LEFT TURN LANE TRANSITION
	APPROVAL REC. APPROVED <i>R. Hendrix</i> APPROVED <i>J. Awar</i>
REVISIONS	COUNTY ENGINEER AND COUNTY SURVEYOR
DRAWN KS	FILE NO. SD-205 1 of 1
CHECKED	SCALE None
DATE October 1991	

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 5.00

OFFSET IN FEET FOR GIVEN "X" DISTANCE																	
Distance (L) Length of flare	(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

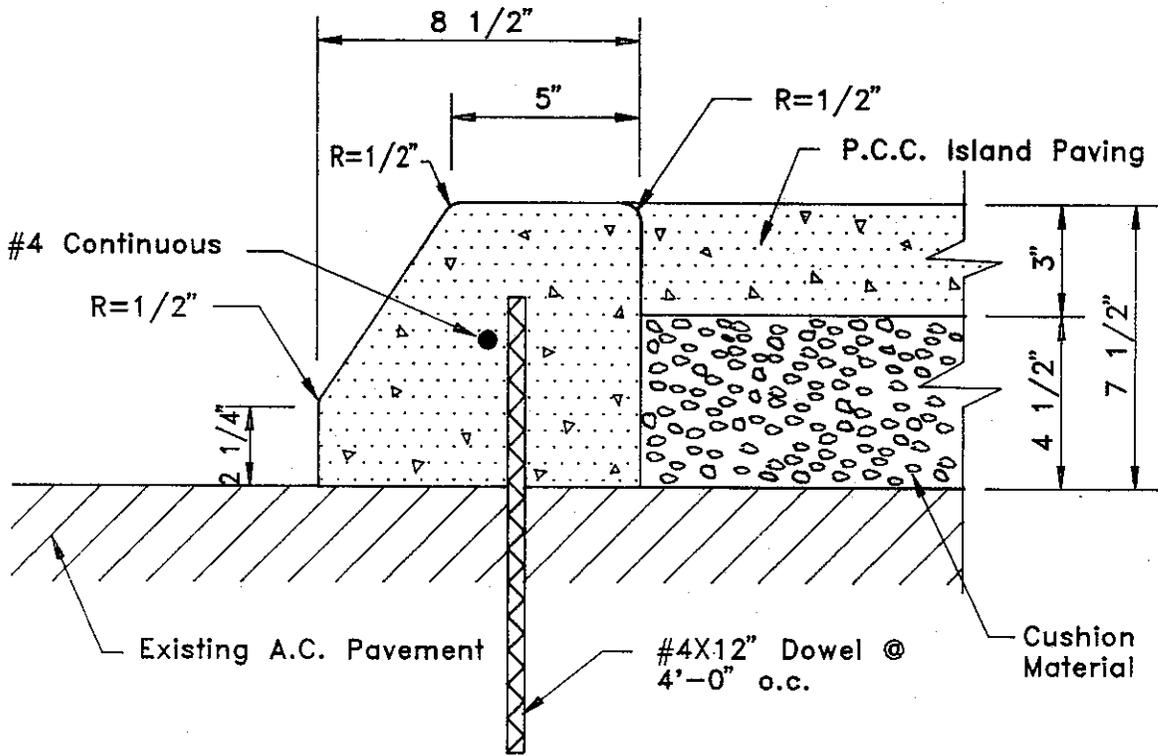
MEDIAN FLARES

APPROVAL REC.
 APPROVED *[Signature]*
 APPROVED *[Signature]*
 COUNTY ENGINEER AND COUNTY SURVEYOR

REVISIONS

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

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



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

REVISIONS

P.C.C. MEDIAN CURB
 WITH ISLAND PAVING

APPROVAL REC.

APPROVED *[Signature]*
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COUNTY ENGINEER AND ROAD COMMISSIONER

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DATE

August 1991

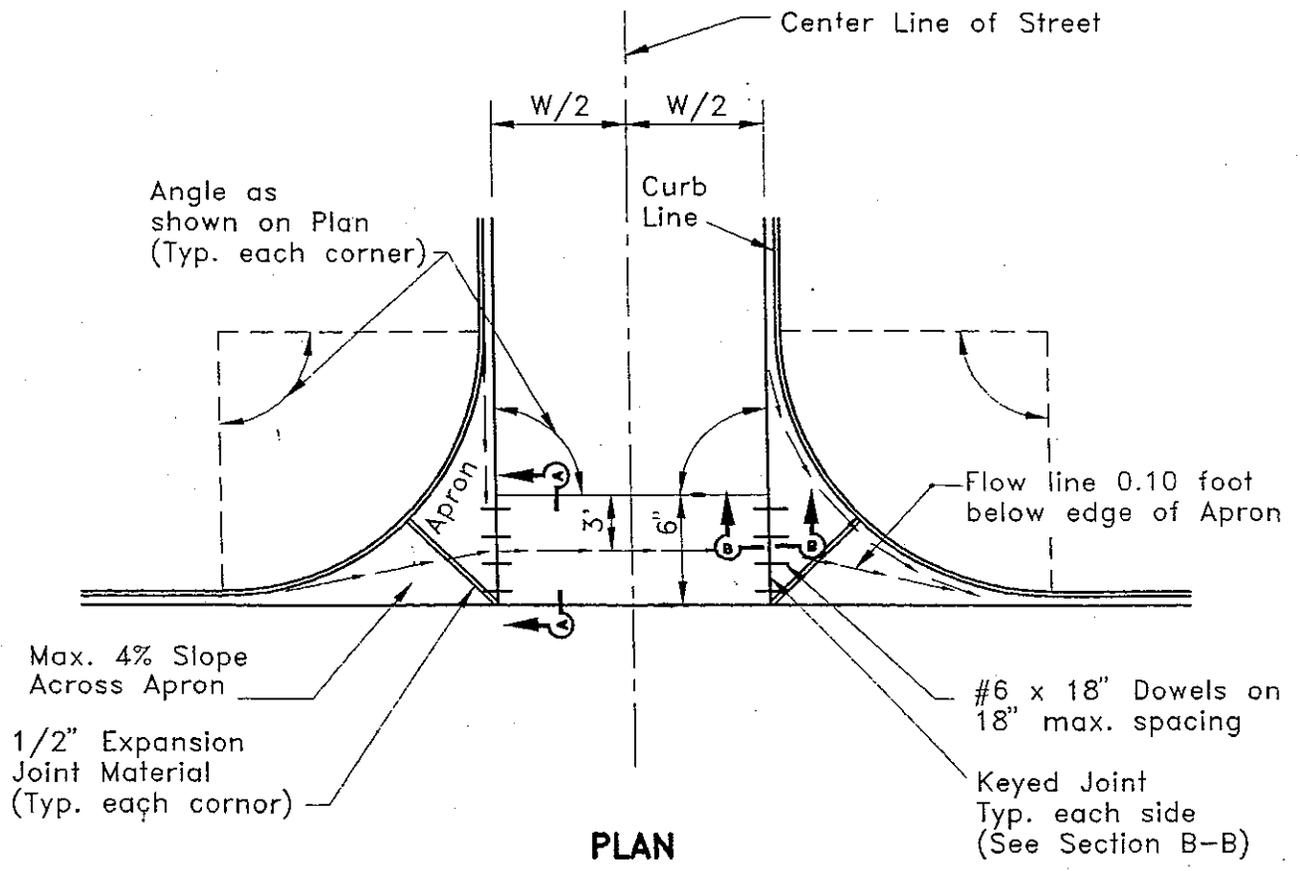
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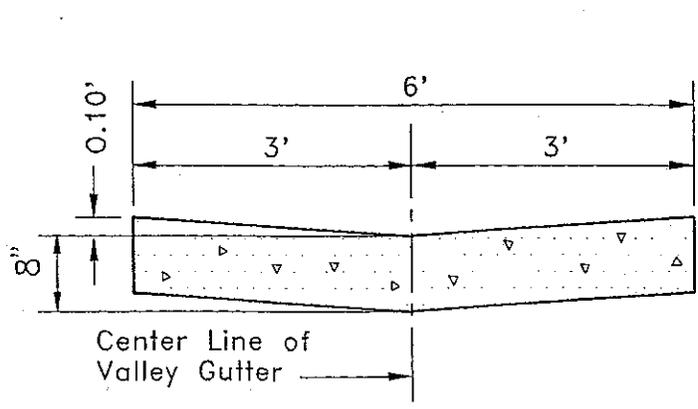
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SD-302

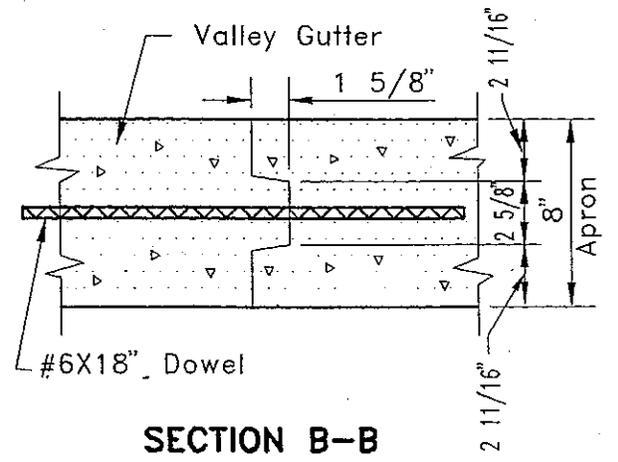
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PLAN



SECTION A-A



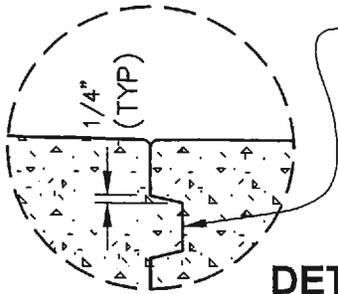
SECTION B-B

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

		<p>P.C.C.</p> <p>VALLEY GUTTER AND APRON</p>			<p>APPROVAL REC.</p> <p>APPROVED <i>[Signature]</i></p> <p>APPROVED <i>[Signature]</i></p> <p>COUNTY ENGINEER AND ROAD COMMISSIONER</p>	
		<p>REVISIONS</p>				
DRAWN	CHECKED	DATE	SCALE	FILE NO.		
KS		August 1991	None	SD-303	1 of 1	

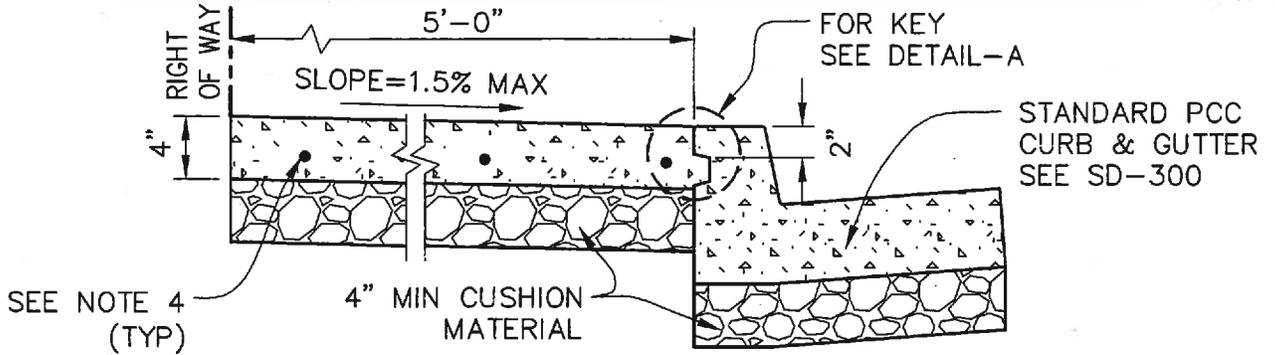
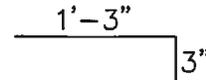
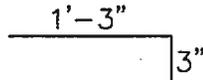


FORM KEY JOINT WITH 1" X 2" KEY STRIP
 NAILED TO REAR FORM BOARD AT CURB POUR.

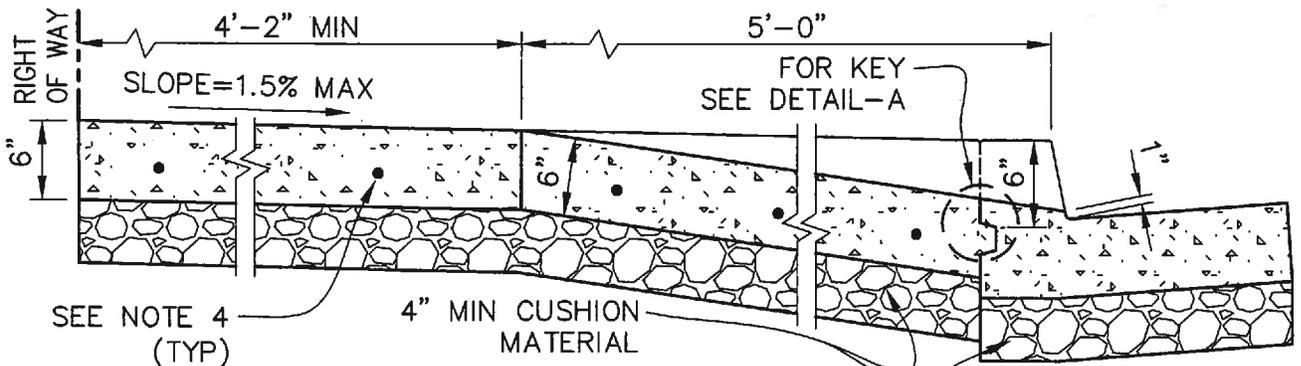
FOR DRIVEWAYS:
 KEY JOINT MAY BE
 REPLACED WITH
 NO. 4 DOWELS @ 24" O.C.

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

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. 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**

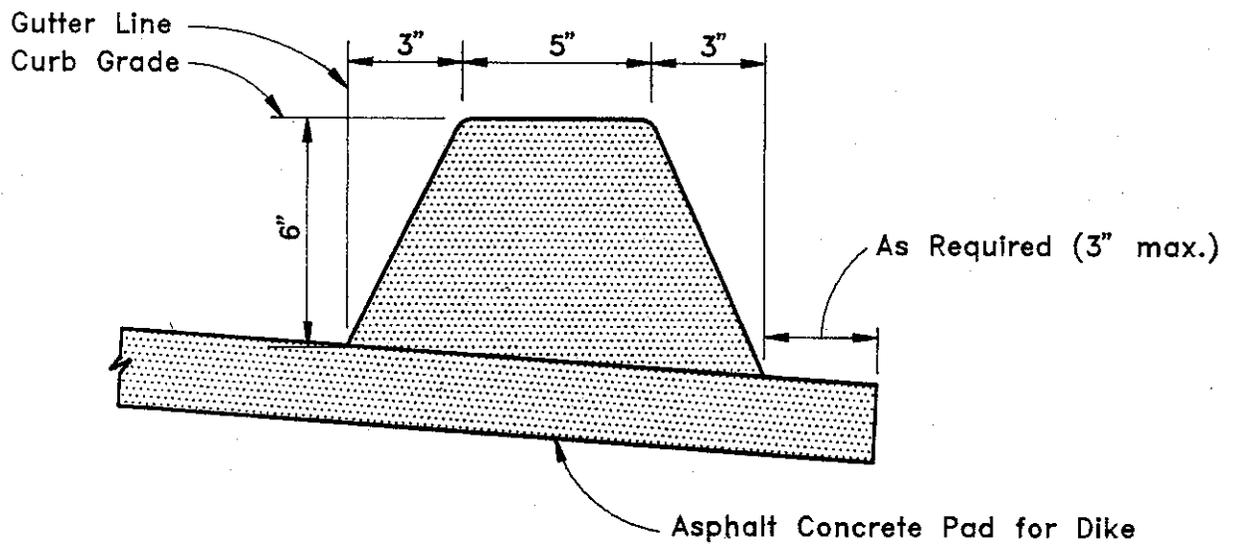
APPROVAL REC.	
APPROVED	
APPROVED	
COUNTY ENGINEER	

DRAWN	CHECKED	DATE
J RINGOT	J CHU	JUNE 2018

SCALE	FILE NO.
NTS	SD-304

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TYPICAL X-SECTION

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

ASPHALT CONCRETE DIKE

APPROVAL REC.
 APPROVED *[Signature]*
 APPROVED *[Signature]*
 CEA

REVISIONS

COUNTY ENGINEER AND ROAD COMMISSIONER

DRAWN JPB, CEG

CHECKED

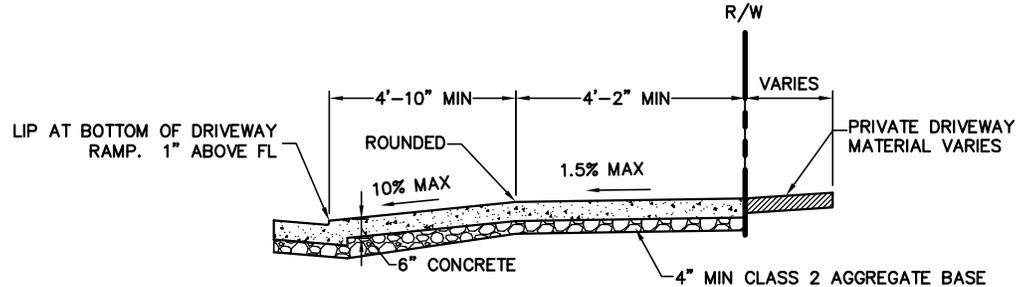
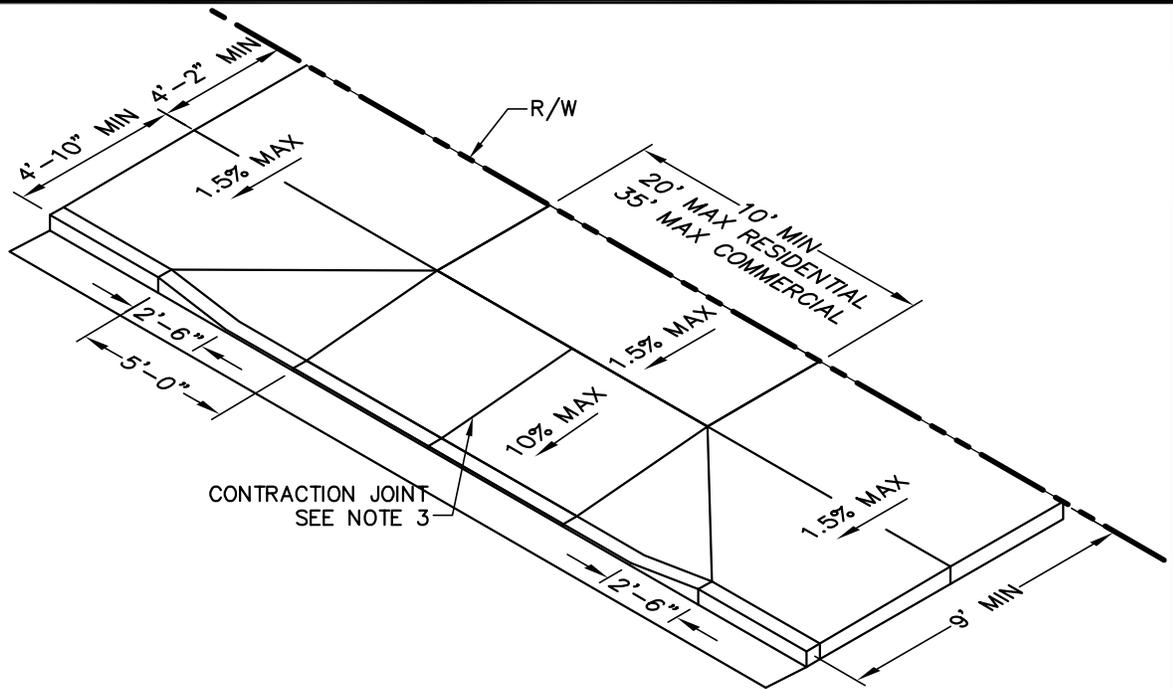
DATE June 1991

SCALE None

FILE NO. SD-305

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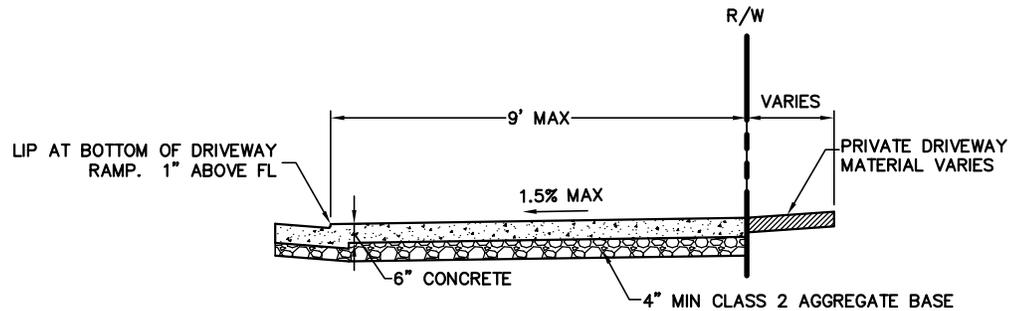
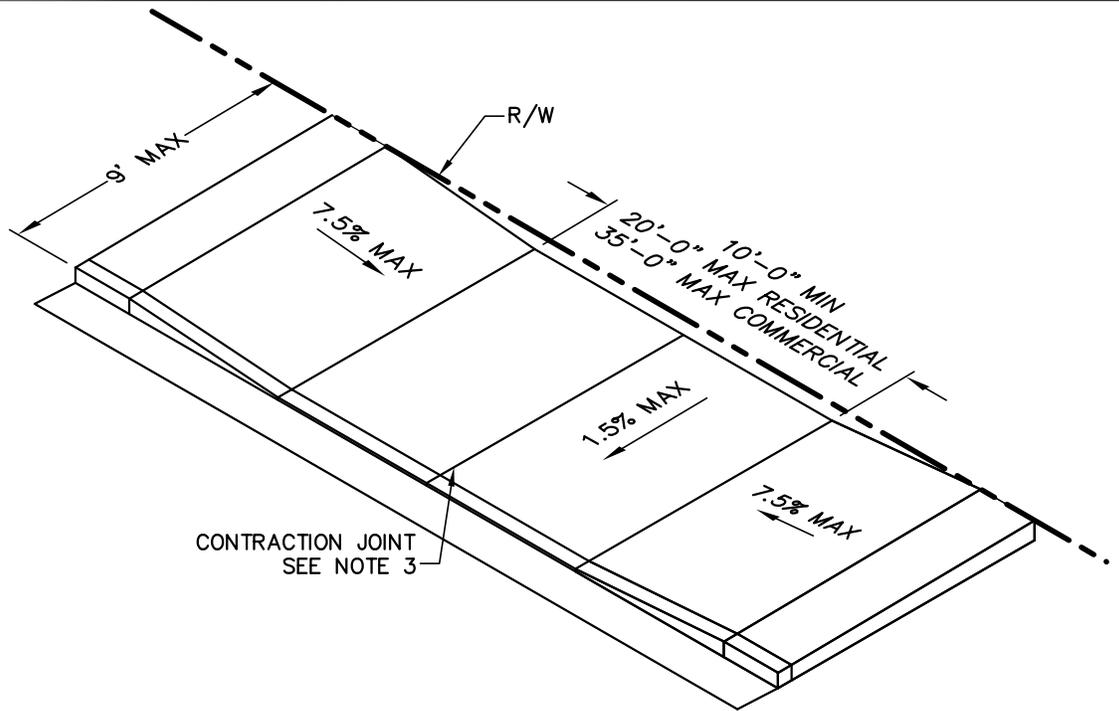
NOTES:

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			APPROVAL REC. <small>DocuSigned by:</small> D4349C62408A4D8...		
			APPROVED		
TYPE 308A			APPROVED <small>DocuSigned by:</small> FD617EF5B3ED407... COUNTY ENGINEER		
REVISIONS					
DRAWN EKL	CHECKED AKL	DATE JULY 2022	SCALE NONE	FILE NO. SD-308A	1 OF 1

C:\Users\amberl\OneDrive - Alameda County\Desktop\SD-308AB EKL.dwg 8-16-22 05:26:59 PM amberl

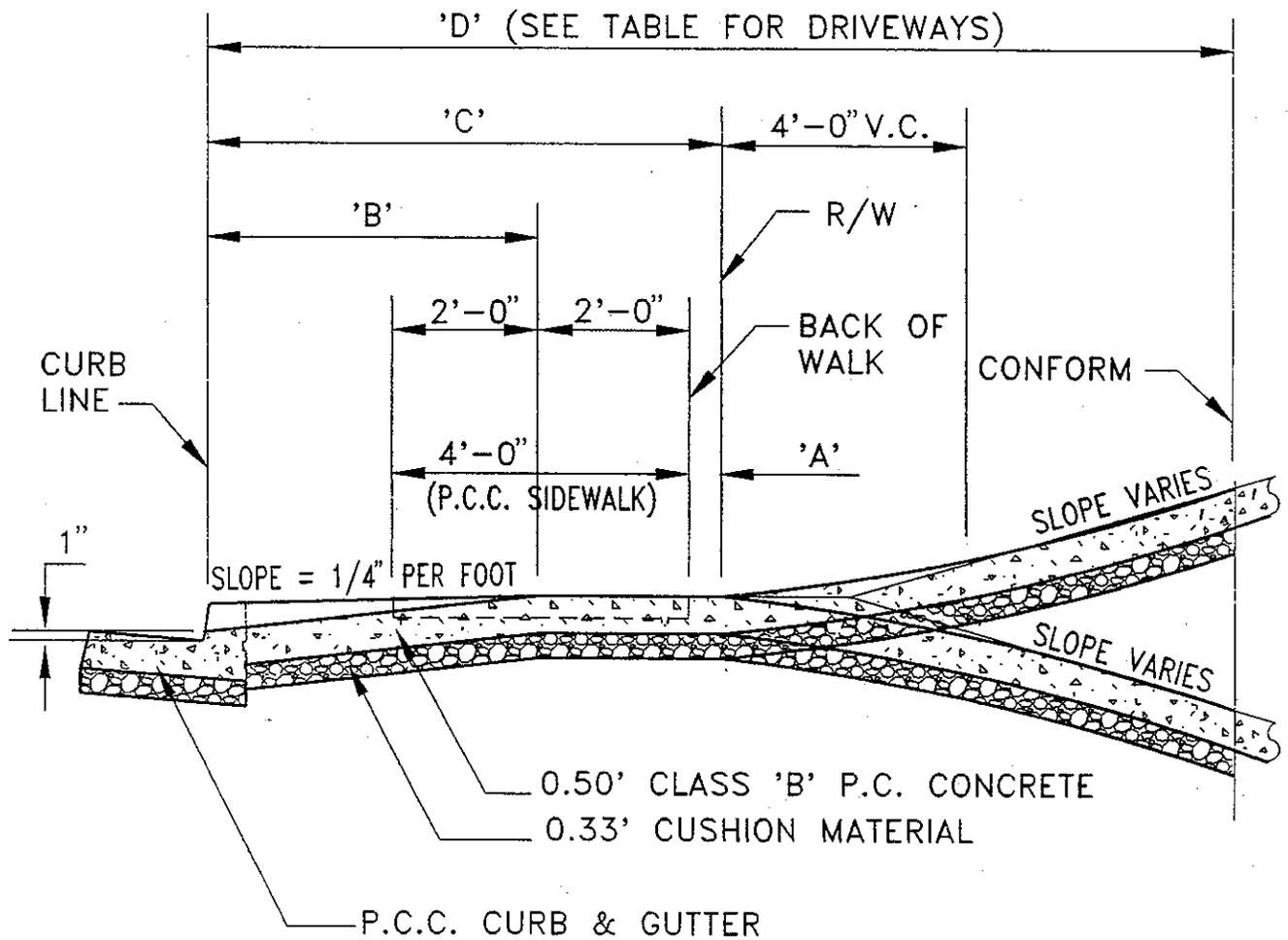


NOTES:

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					APPROVAL REC. <small>DocuSigned by:</small> D4349C62408A408...	
					APPROVED	
TYPE 308B					APPROVED	
					<small>DocuSigned by:</small> FD817EF5B3ED467... COUNTY ENGINEER	
REVISIONS			DATE	SCALE	FILE NO.	
DRAWN	CHECKED					
EKL	AKL		JULY 2022	NONE	SD-308B	1 OF 1



'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.
Christina
APPROVED

APPROVED
Tawan
aw

COUNTY ENGINEER

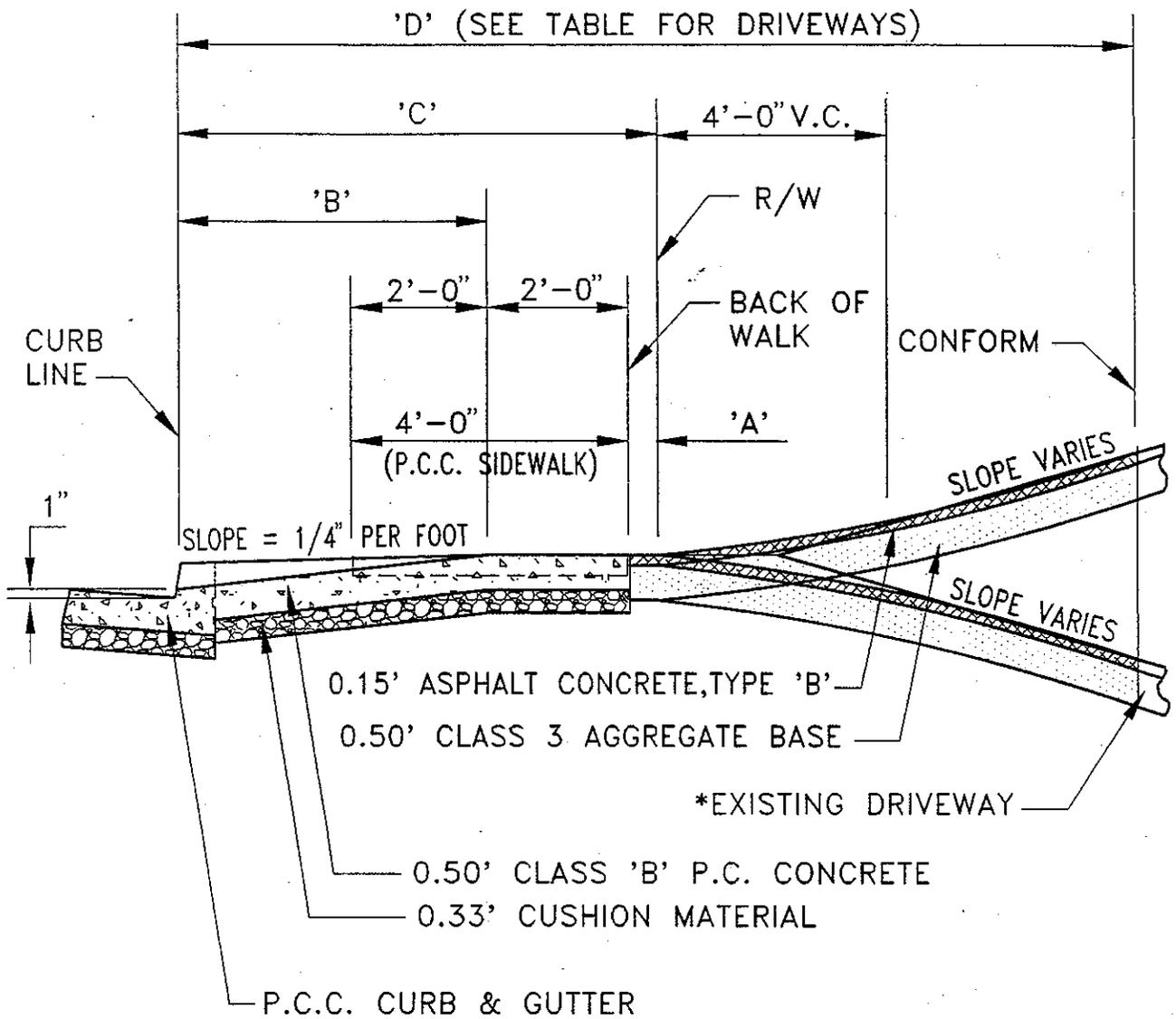
DRAWN
EA

CHECKED

DATE
JAN. 1993

SCALE
NONE

FILE NO.
SD-313 1 of 3



'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

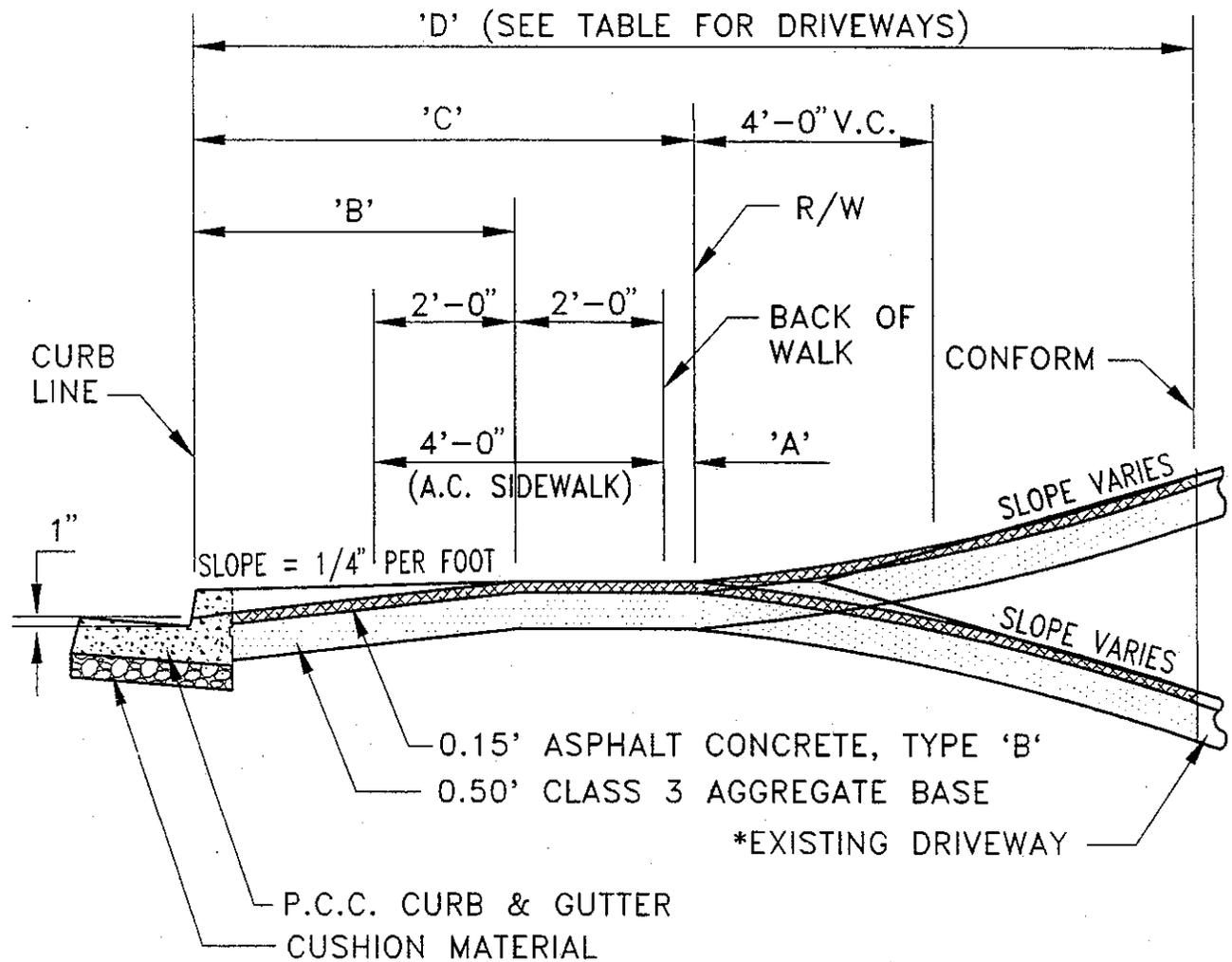
APPROVAL REC.
Stendrip
 APPROVED

APPROVED
Sawar am
 COUNTY ENGINEER

DRIVEWAY DETAILS

REVISIONS

DRAWN EA	CHECKED	DATE JAN. 1993	SCALE NONE	FILE NO. 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.

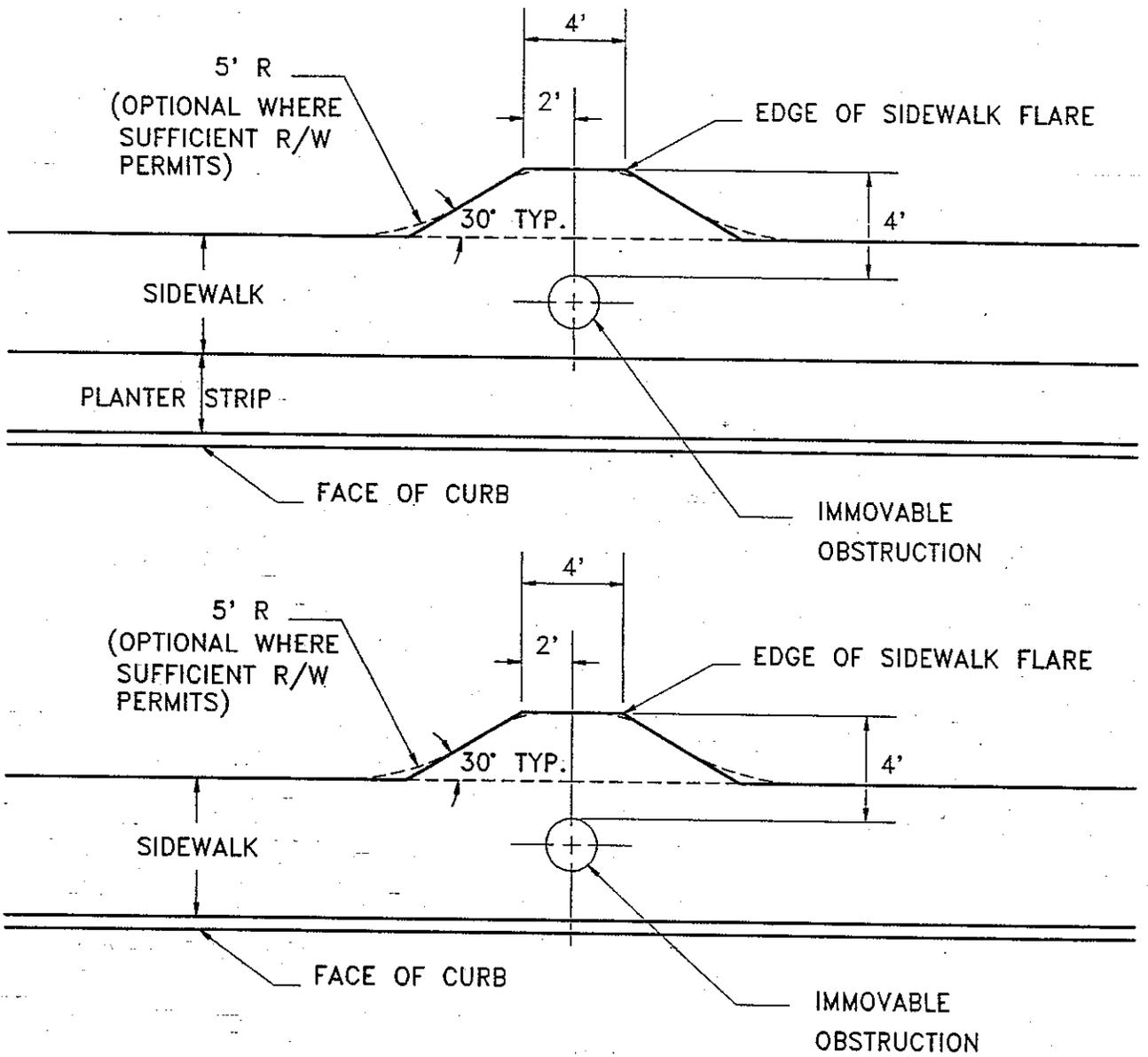
COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

DRIVEWAY DETAILS

APPROVAL REC.
Atendrip
 APPROVED

APPROVED
aw
 COUNTY ENGINEER

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



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

RETROFIT
SIDEWALK FLARE
FOR OBSTRUCTIONS

APPROVAL REC.
APPROVED *[Signature]*
APPROVED *[Signature]*
COUNTY ENGINEER AND COUNTY SURVEYOR

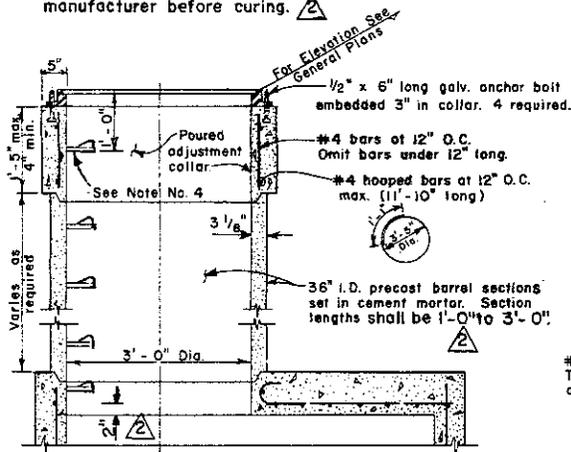
REVISIONS

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

SD-400 SERIES DRAINAGE STRUCTURES

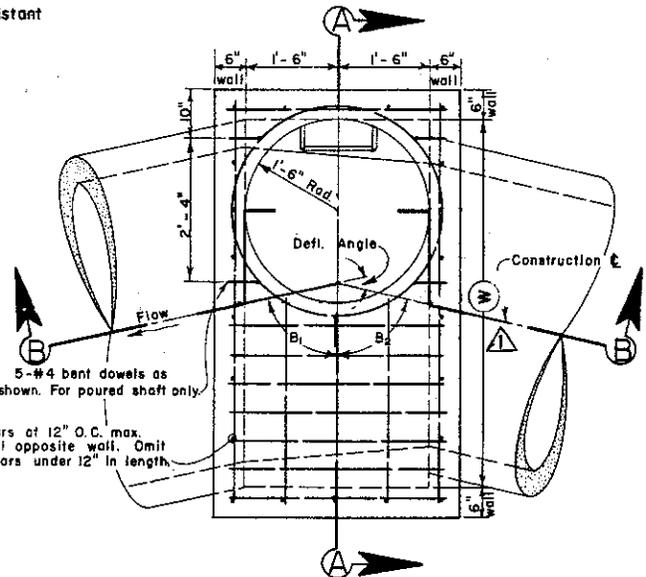
GENERAL NOTES:

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, B₁, B₂, W and H.
4. For step details, see Design Guidelines File No. SD-517
5. On adjustment collars less than 1'-0" in length, install step equidistant between frame rim and next step.
6. Steps shall be fixed into each precast barrel section by the manufacturer before curing.



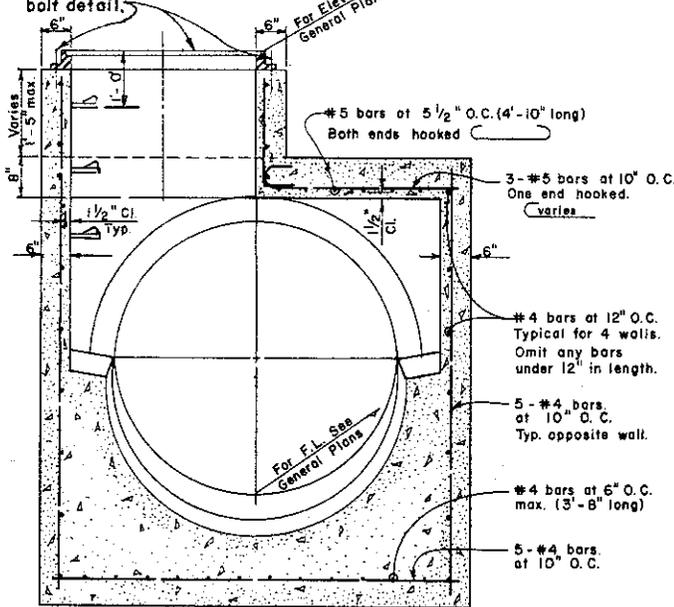
SECTION A-A

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



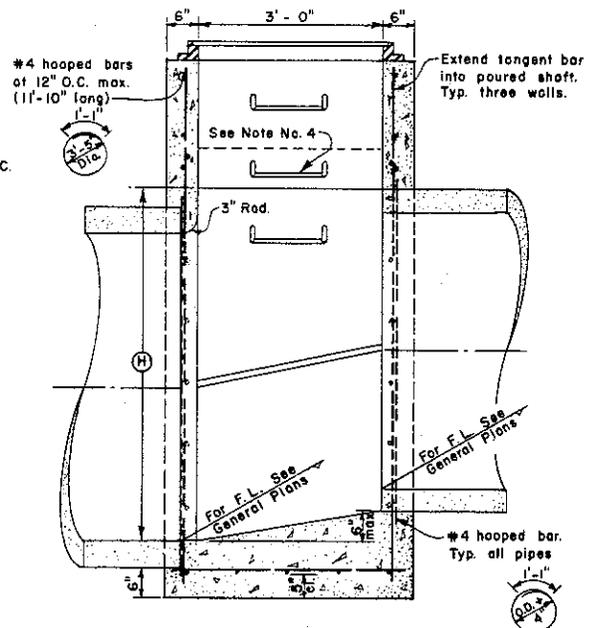
PLAN OF MANHOLE BASE WITH TOP SLAB REINFORCEMENT (SHAFT REMOVED)

- 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

	Step Detail	7/91
	Frame & Cover	12/82
	Steps & Barrel Sect.	11/73
	Dimension Rev.	10/71

REVISIONS

DRAWN	FC	CHECKED	TMC
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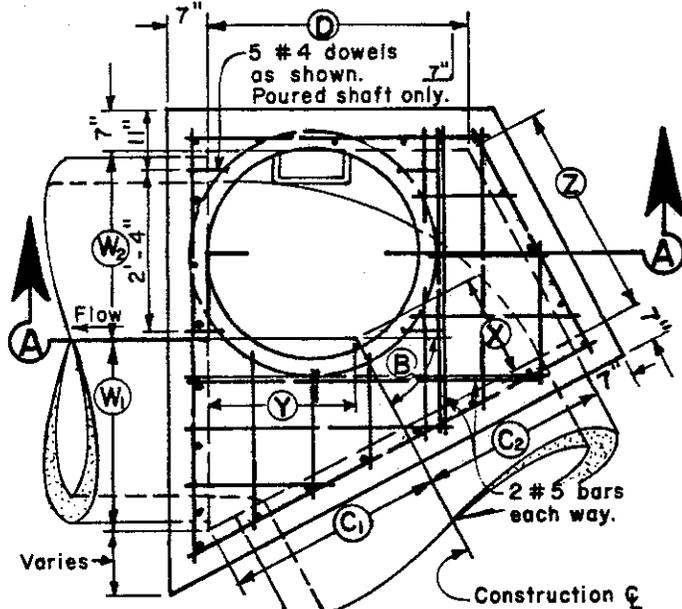
DATE Nov. 1970

SCALE None

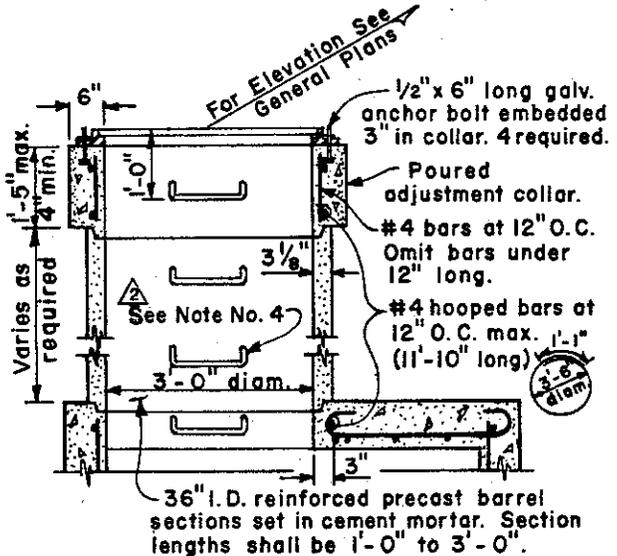
APPROVAL REC. *ans Kawan*
APPROVED *Paul C. Bitten*
APPROVED *Walter J. ...*
 Director of Public Works and Road Commissioner

FILE NO. SD-401 **1 of 1**

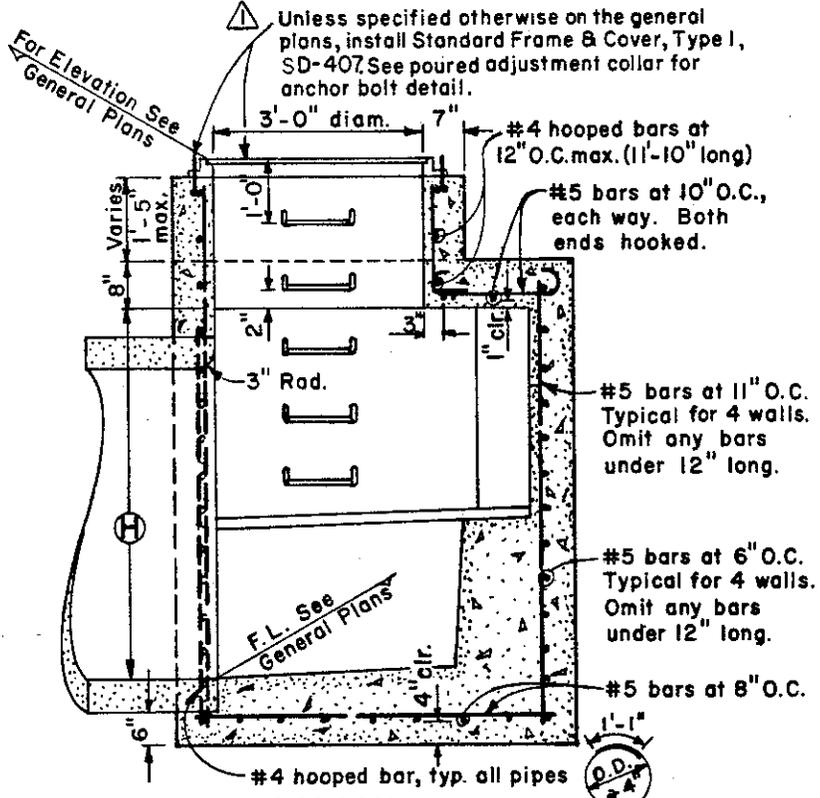
MANHOLE TYPE II



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.
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.

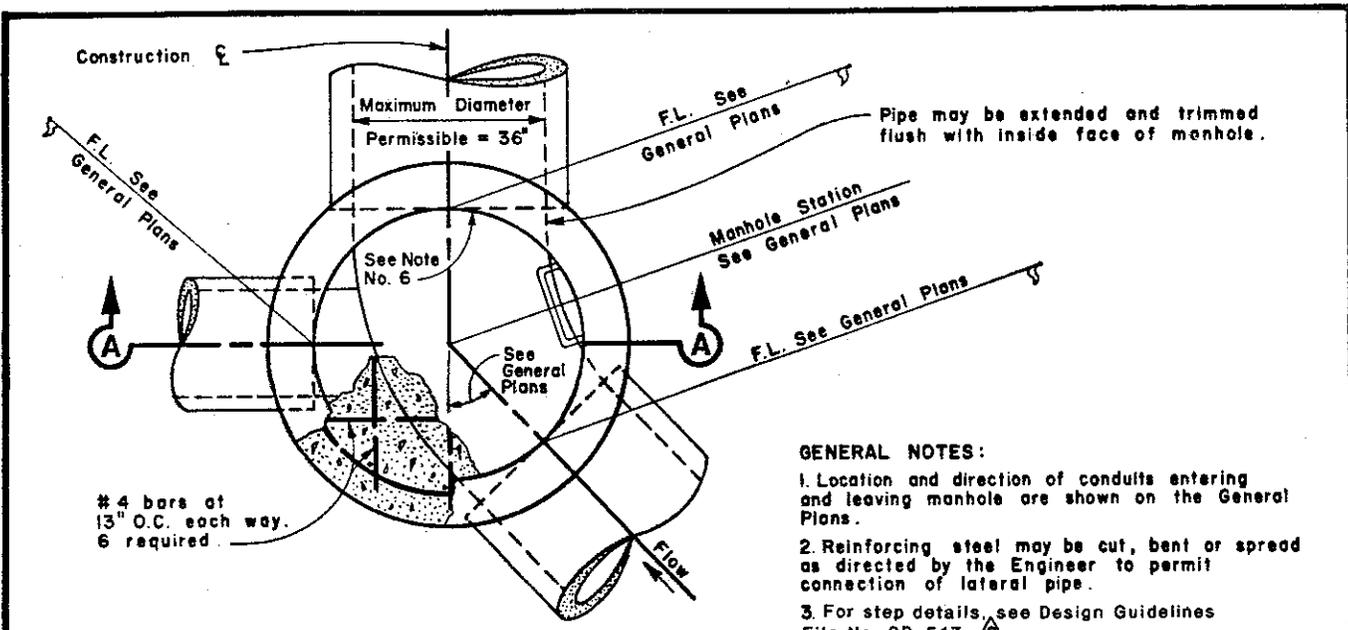
COUNTY OF ALAMEDA * PUBLIC WORKS AGENCY

△	Step Detail	7/91
▲	Frame & Cover	12/82
REVISIONS		

MANHOLE TYPE III

APPROVAL REC.	<i>Amir Kassar</i>
APPROVED	<i>Robert C. Bill</i>
APPROVED	<i>William J. ...</i>
Director of Public Works and Road Commissioner	

DRAWN	FC	CHECKED	<i>AMT TME</i>	DATE	June 1976	SCALE	None	FILE NO.	SD-402	1 of 1
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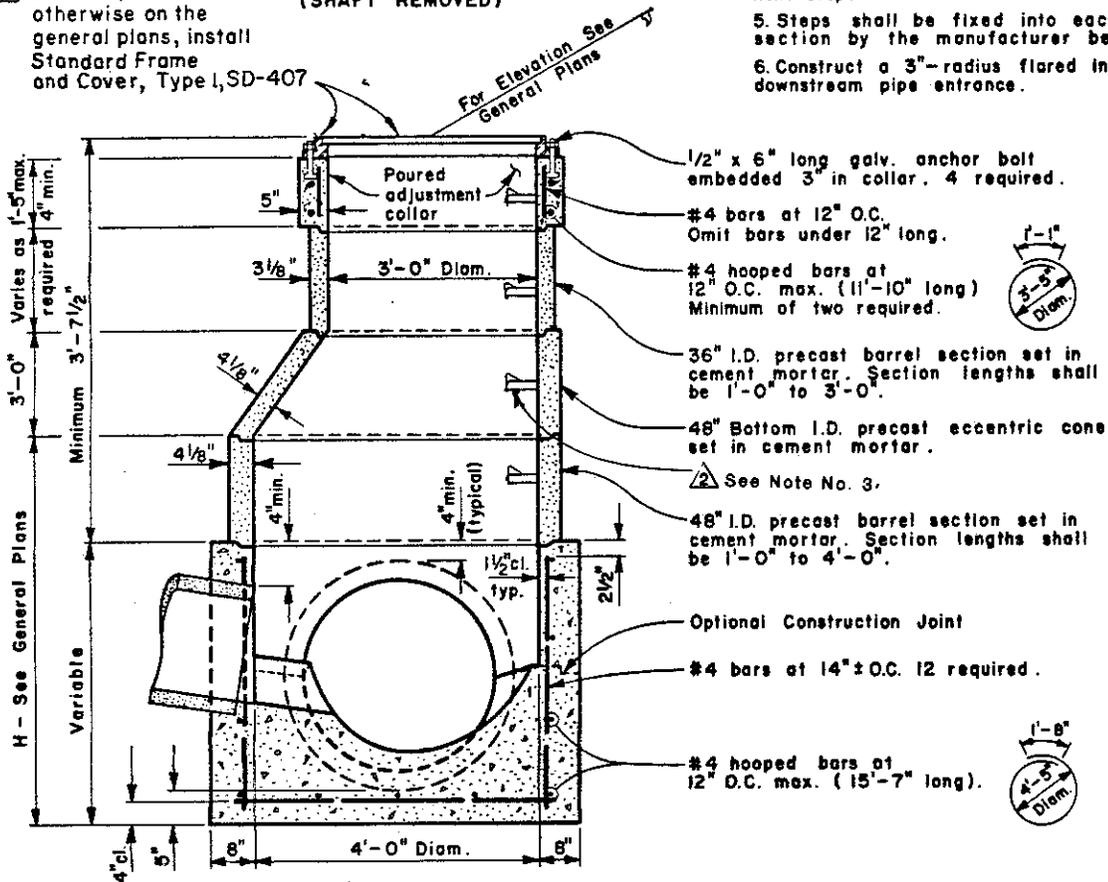


GENERAL NOTES:

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 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.

PLAN
(SHAFT REMOVED)

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



SECTION A-A

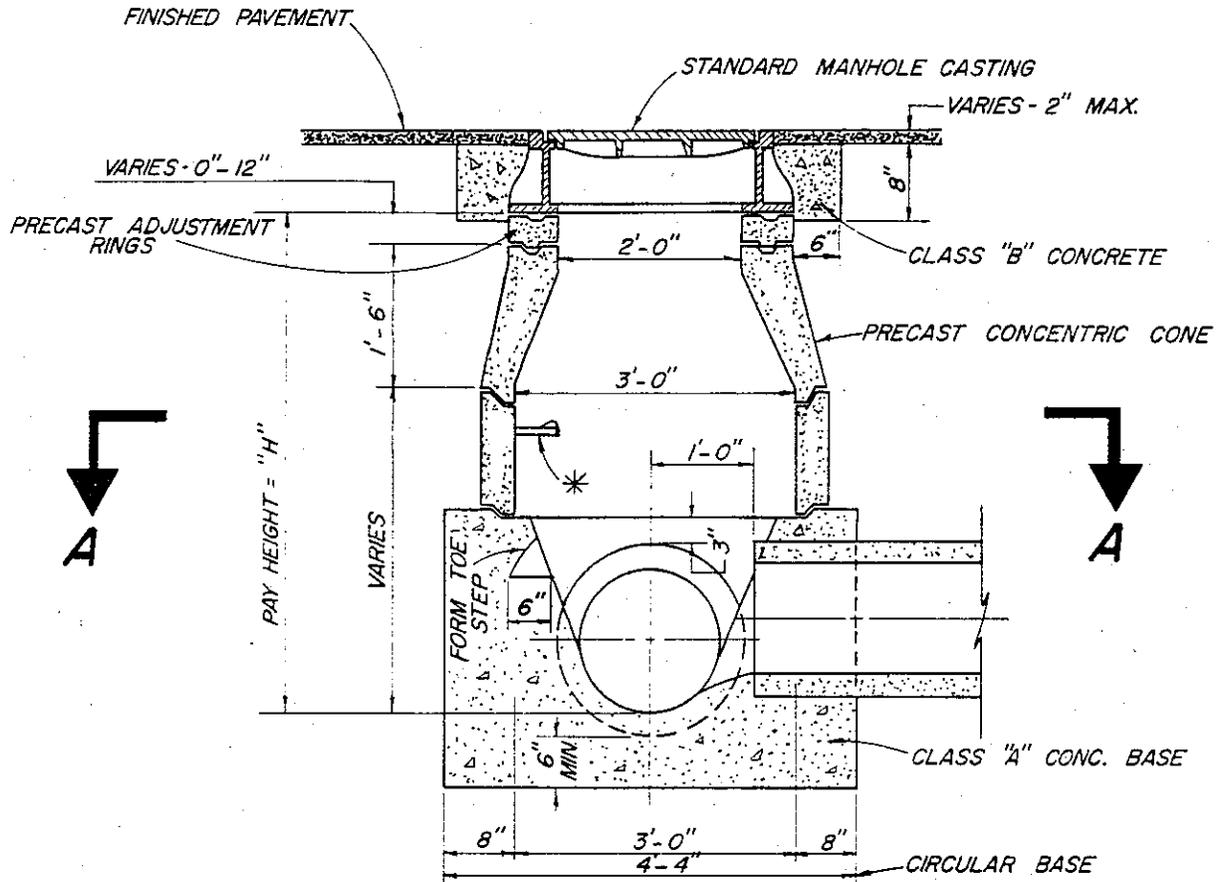
COUNTY OF ALAMEDA * PUBLIC WORKS AGENCY

	Step Detail	7/91
	Frame & Cover	12/82
REVISIONS		

MANHOLE TYPE V

APPROVAL REC	<i>Lawar</i>
APPROVED	<i>Robert C. Bilton</i>
APPROVED	<i>Director of Public Works and Road Commissioner</i>

DRAWN	PLC	CHECKED	<i>TME</i>	DATE	Sept. 1976	SCALE	None	FILE NO.	SD-404	1 of 1
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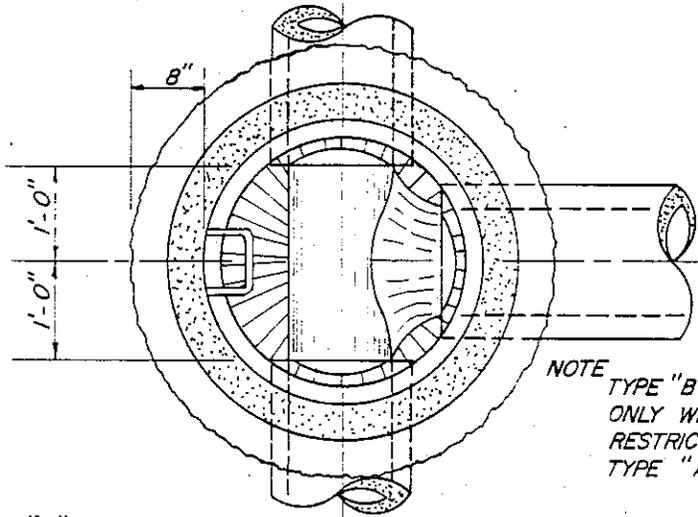


MINIMUM HEIGHT FOR TYPE "B" MANHOLE

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

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

SECTION A-A



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

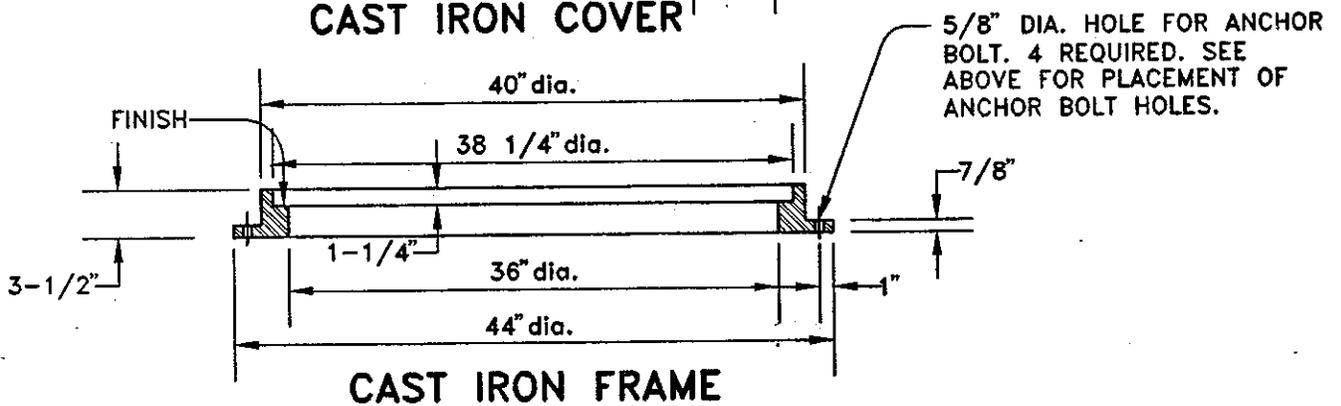
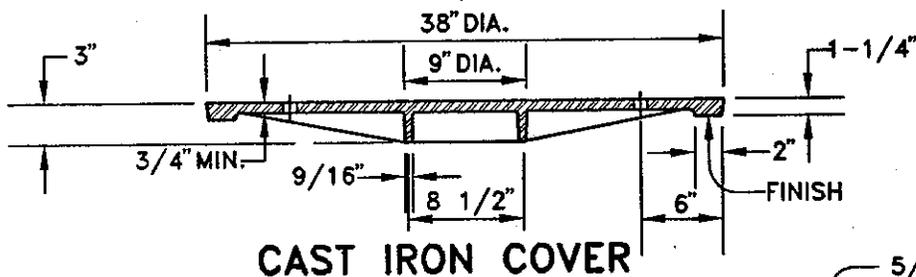
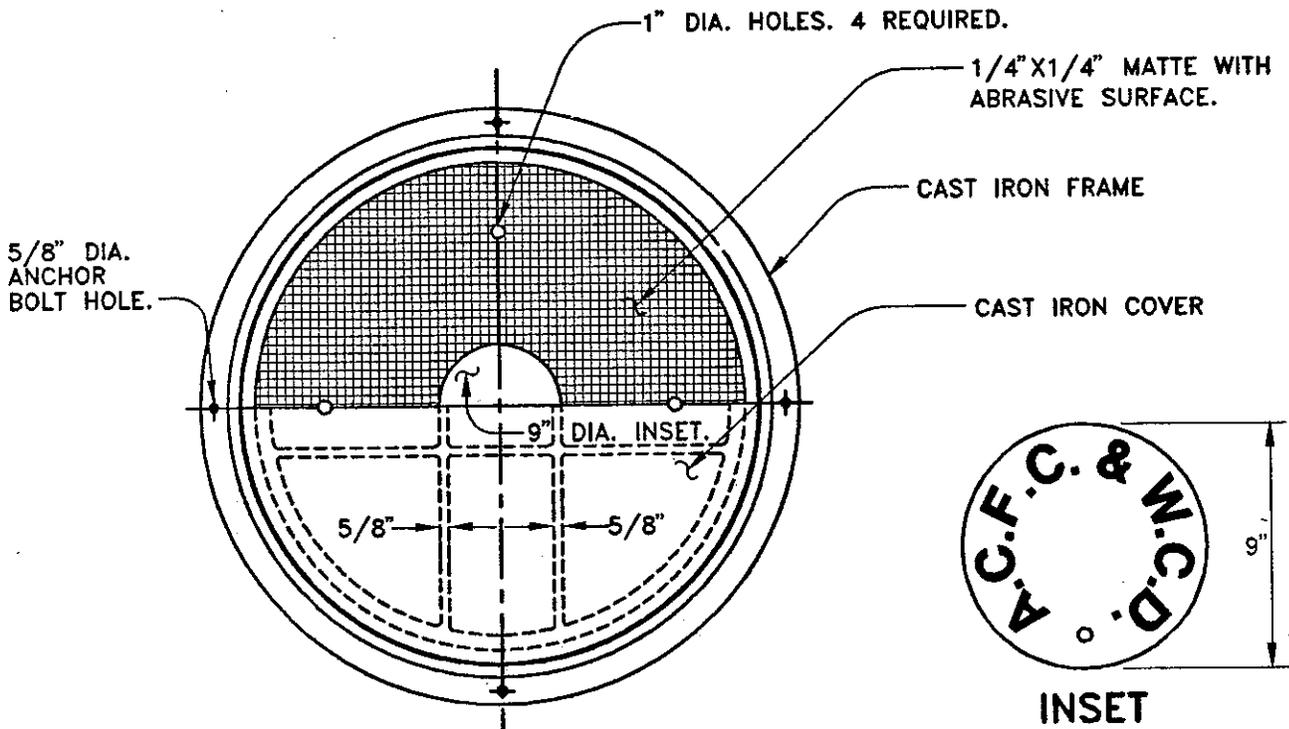
COUNTY OF ALAMEDA * PUBLIC WORKS AGENCY

MANHOLE TYPE "B"

	Step Detail	7/91
REVISIONS		

APPROVAL REC. <i>am Lawar</i>
APPROVED <i>Robert C. Bille</i>
APPROVED <i>Walter B...</i>
Director of Public Works and Road Commissioner

DRAWN JJJ	CHECKED <i>at TMC</i>	DATE April 1976	SCALE None	FILE NO. SD-406	1 of 1
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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

MANHOLE FRAME AND COVER
 TYPE I

APPROVAL REC.
Paul Robinson
 APPROVED
S.A. Swanson
 APPROVED
Lawson
 C.E.M.

REVISIONS

COUNTY ENGINEER

DRAWN
 KT

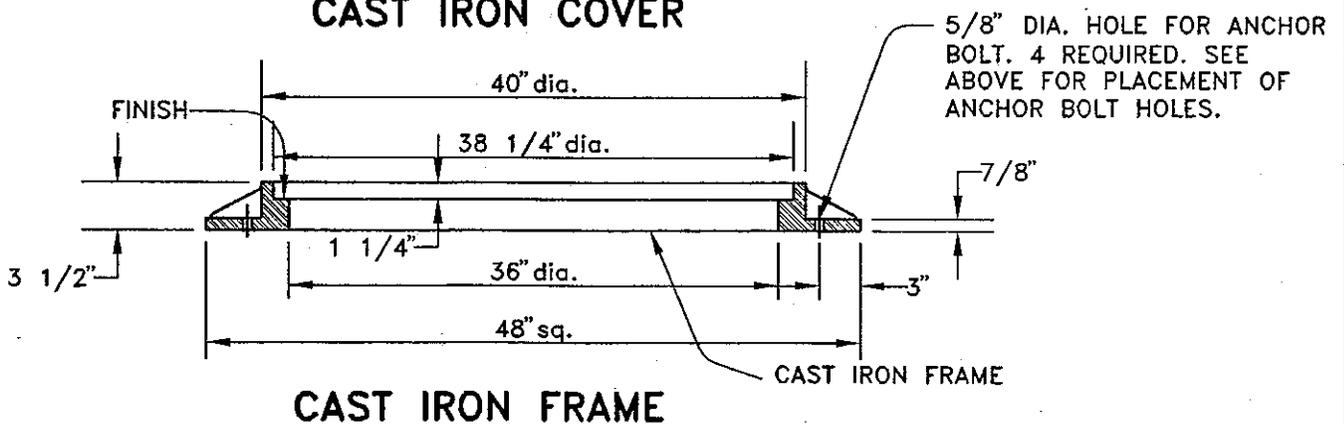
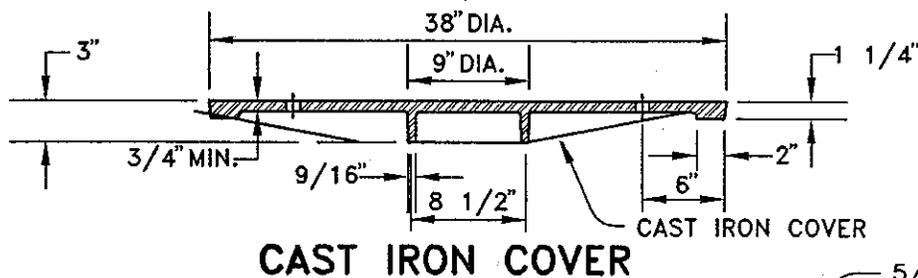
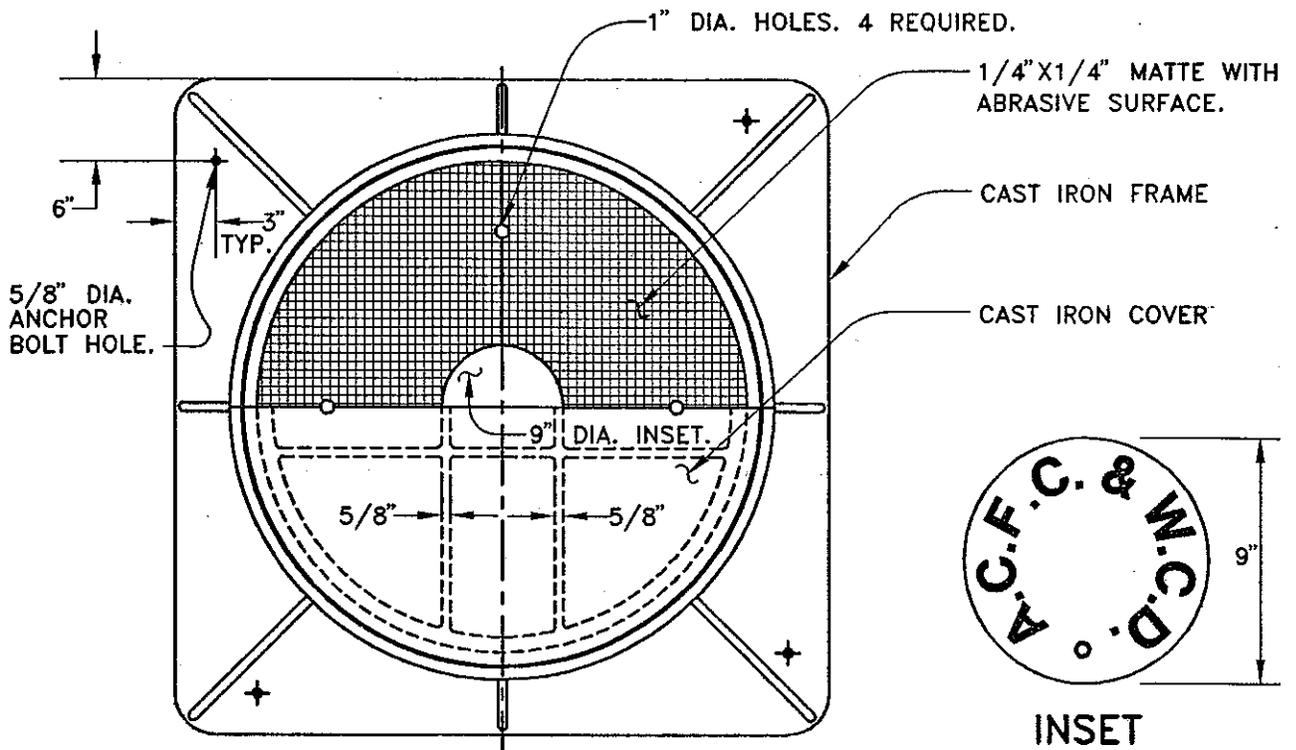
CHECKED

DATE
 JAN. 1994

SCALE
 NONE

FILE NO.
 SD-407

1 of 1



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

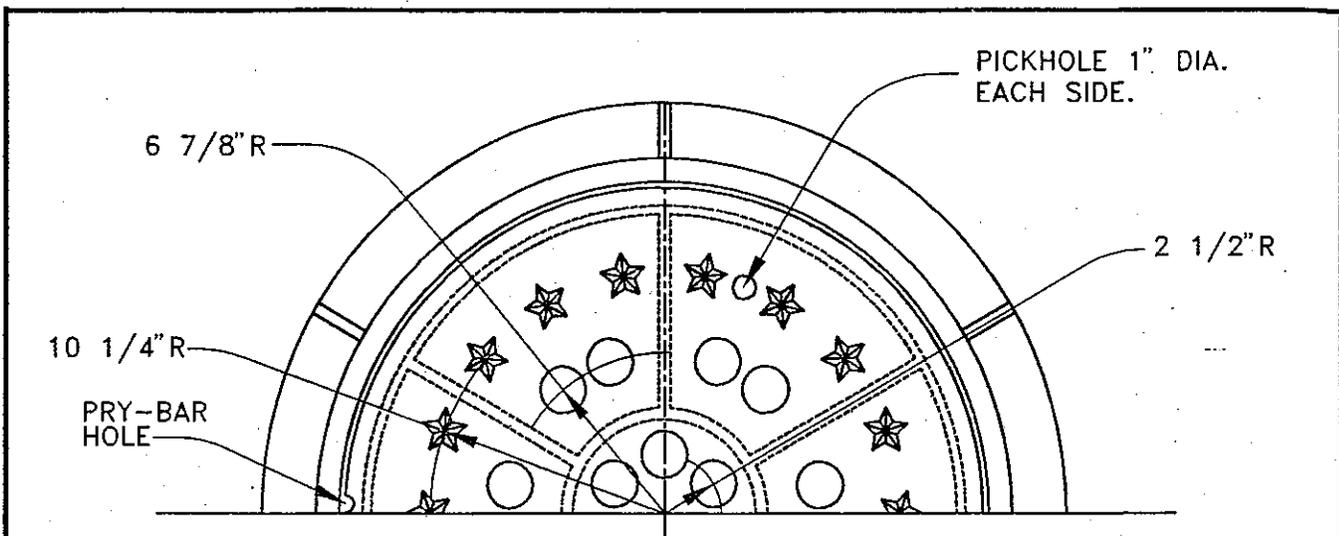
**MANHOLE FRAME AND COVER
TYPE II**

APPROVAL REC.	<i>Hank Ackerman</i>
APPROVED	<i>J. Swanson</i>
APPROVED	<i>J. Swanson</i>
	<i>am</i>

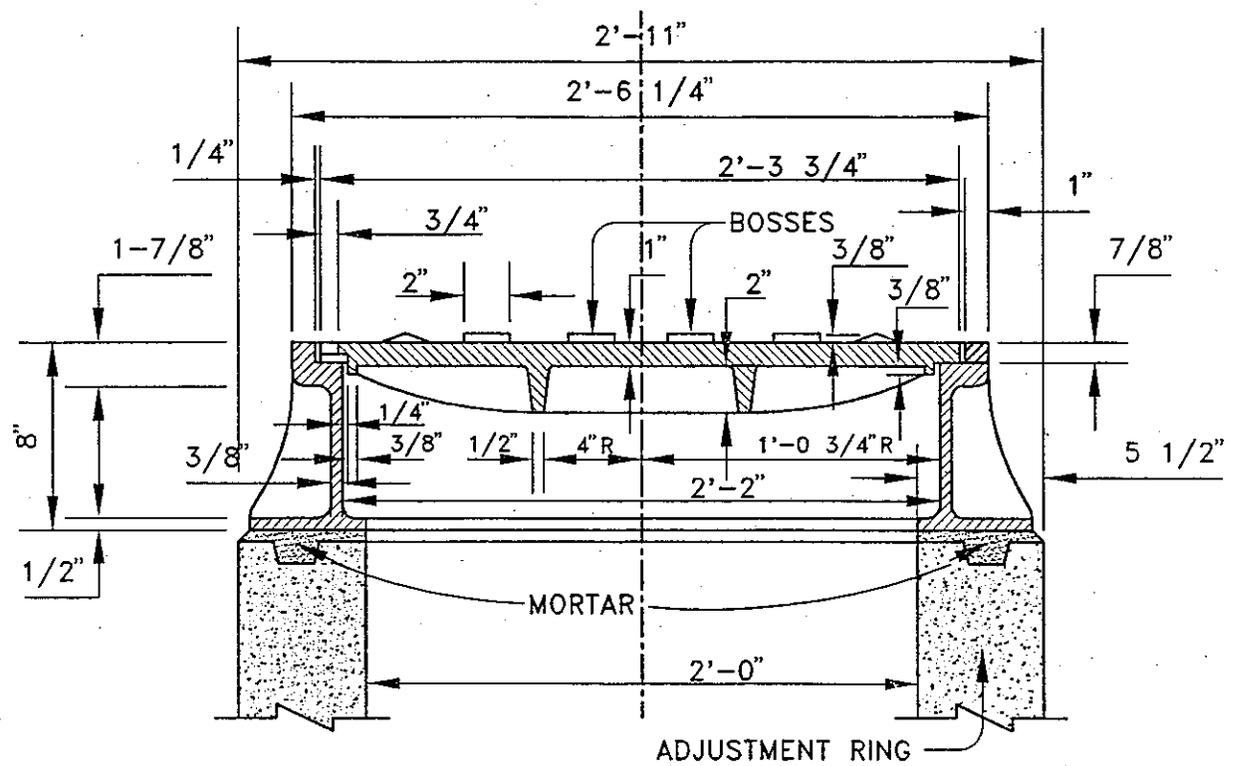
REVISIONS	
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COUNTY ENGINEER

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



HALF PLAN OF TOP



SECTION

NOTE:

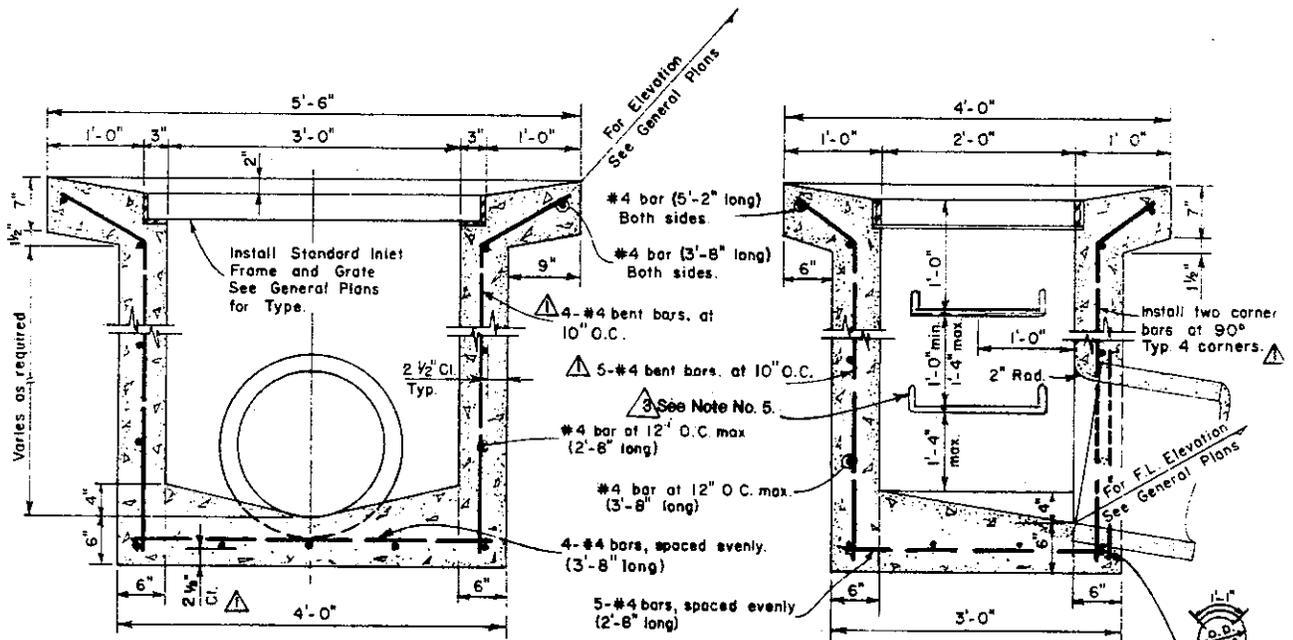
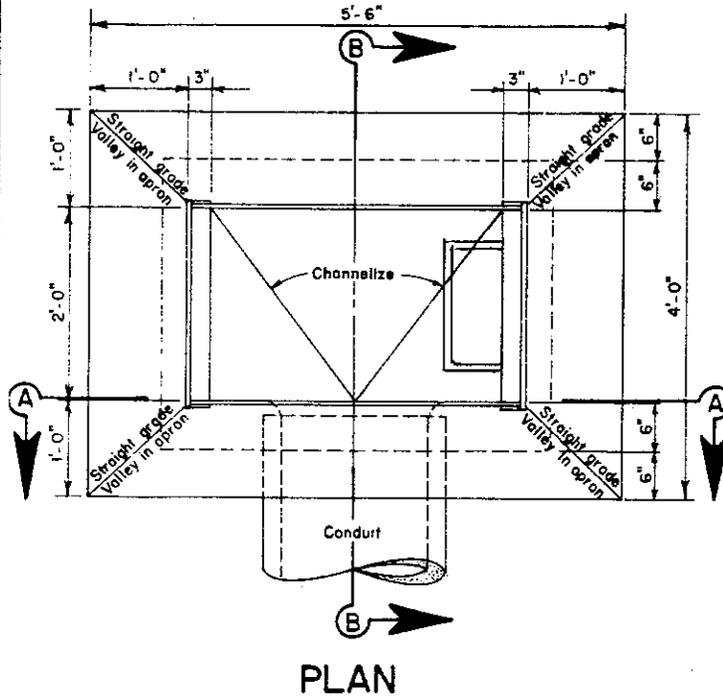
MANHOLE FRAMES AND COVERS SHALL BE MATCH-MARKED IN PAIRS. EACH COVER SHALL BE GROUND OR OTHERWISE FINISHED SO THAT IT WILL FIT IN ITS FRAME WITHOUT ROCKING.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

REVISIONS		<p style="text-align: center;">MANHOLE CASTING</p>		APPROVAL REC. <i>Hank Ackerman</i>	
				APPROVED <i>J. Swanson</i>	
				APPROVED <i>Cowan</i>	
				<i>aw</i> COUNTY ENGINEER	
DRAWN	CHECKED	DATE	SCALE	FILE NO.	
KT		JAN. 1994	NONE	SD-409	1 of 1

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. \triangle



SECTION A-A

SECTION B-B

COUNTY OF ALAMEDA * PUBLIC WORKS AGENCY

\triangle	Step Detail	7/91
\triangle	Note Changes	7/72
\triangle	Note Changes	8/69

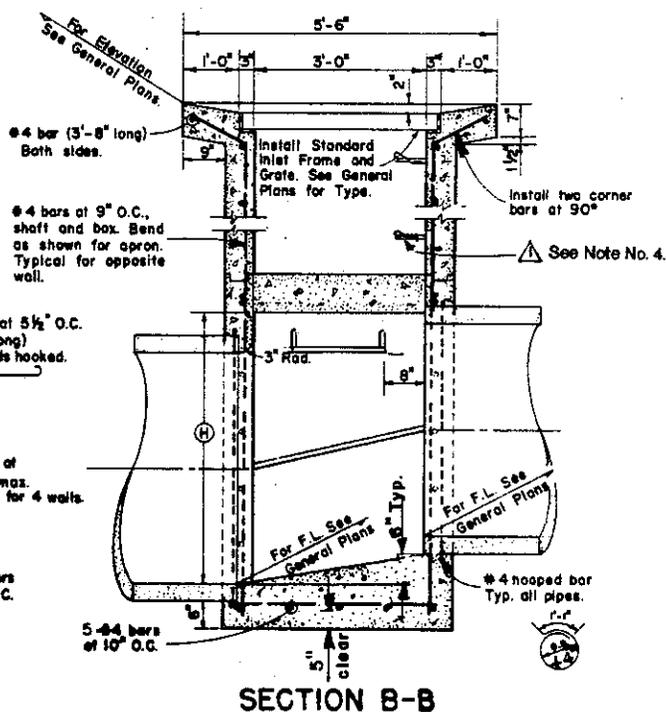
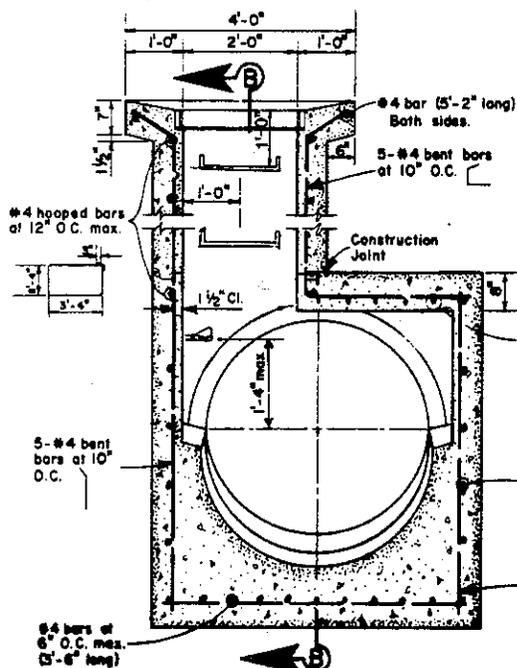
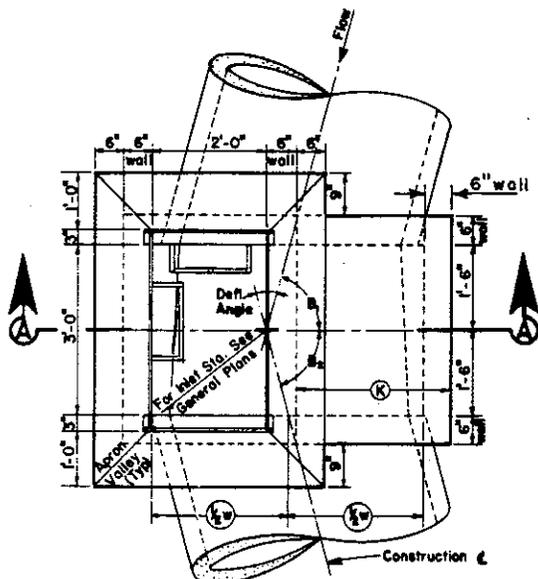
INLET TYPE II

APPROVAL REC *ans sawar*
 APPROVED *Paul C. Miller*
 APPROVED *Walter...*
 Director of Public Works
 and Road Commissioner

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
FC	<i>at TMC</i>	March 1969	None	SD-412	1 of 1

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 B₁, B₂, W, H, and K [K determines the location of the shaft.]
4. For step details, see Design Guidelines File No. SD-517. ⚠

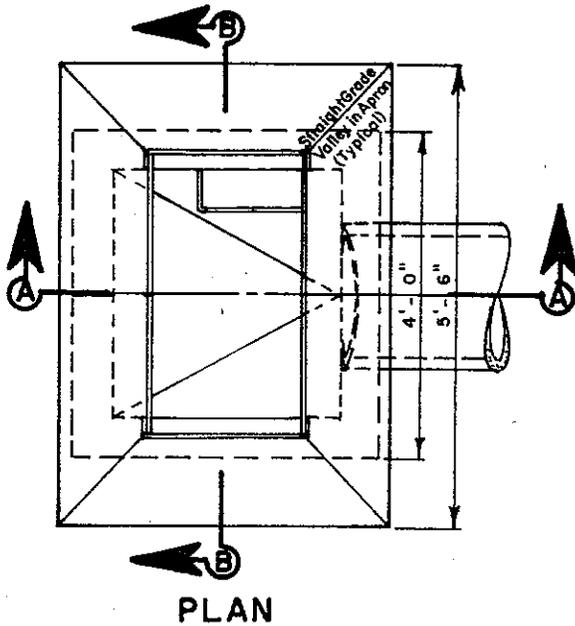


COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

INLET TYPE III

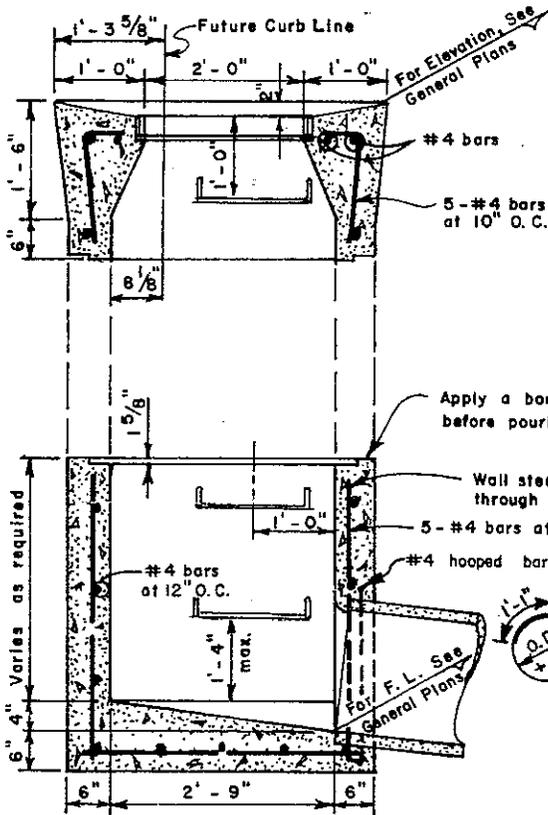
Step Detail	7/91
REVISIONS	
DRAWN	RLJ
CHECKED	RLJ TML
DATE	July 1969
SCALE	None

APPROVAL REC.	<i>am Kanwar</i>
APPROVED	<i>John C. Witt</i>
APPROVED	<i>W. M. ...</i>
Director of Public Works and Road Commissioner	
FILE NO.	SD-413
	1 of 1

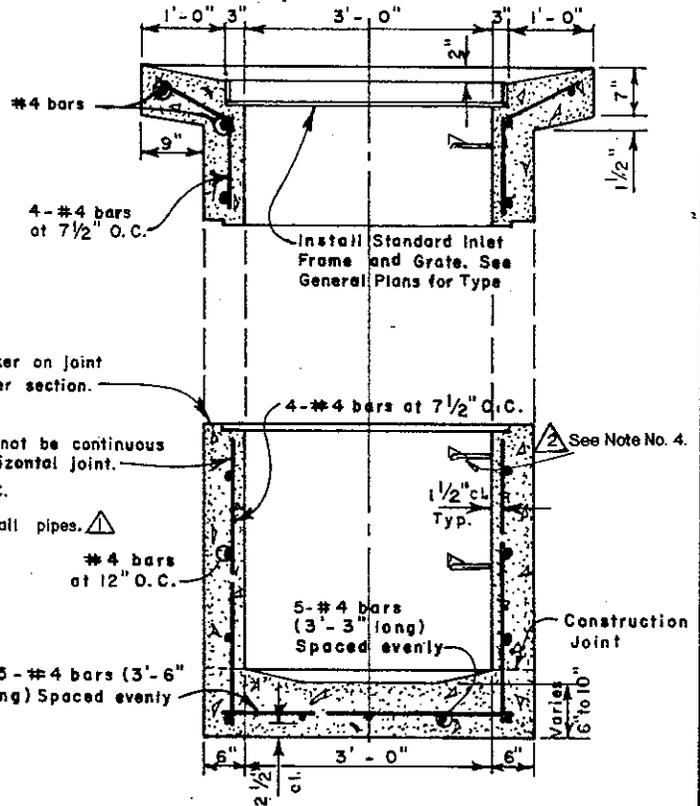


GENERAL NOTES:

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.
5. Omit steps on inlets less than 4 feet deep.



SECTION A-A



SECTION B-B

COUNTY OF ALAMEDA * PUBLIC WORKS AGENCY

2	Step Detail	7/91
1	Modified hooped bar note.	7/72
REVISIONS		

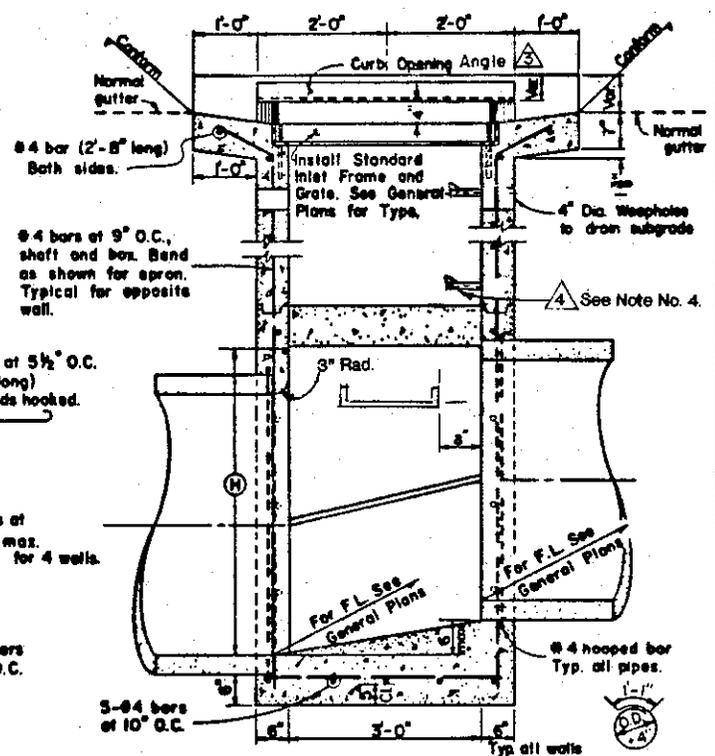
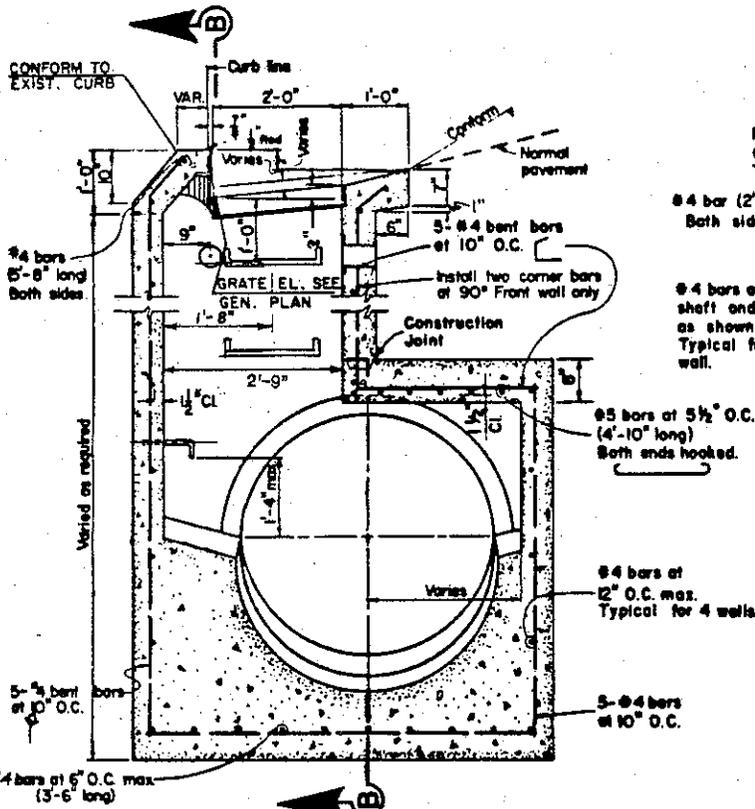
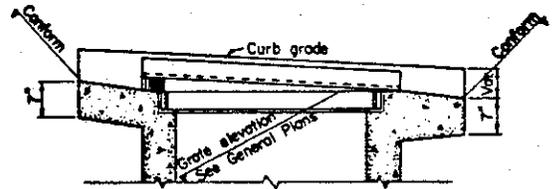
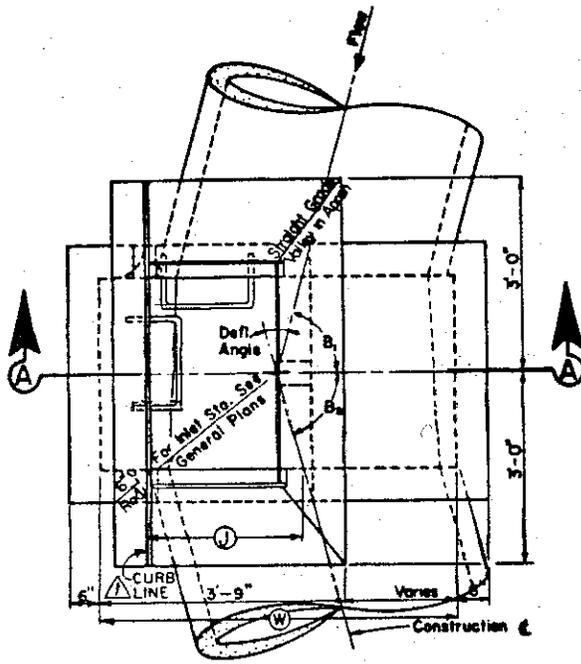
INLET TYPE IV

APPROVAL REC	<i>am</i> <i>Kawar</i>
APPROVED	<i>[Signature]</i>
APPROVED	<i>[Signature]</i>
Director of Public Works and Road Commissioner	

DRAWN	FC	CHECKED	<i>[Signature]</i> <i>TME</i>	DATE	July 1969	SCALE	None	FILE NO.	SD-414	1 of 1
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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 B₁, B₂, W, H, and J [J determines the location of the conduit centerline.]
4. For step details, see Design Guidelines File No. SD-517. **A**
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.



COUNTY OF ALAMEDA * PUBLIC WORKS AGENCY

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

REVISIONS

INLET TYPE VI

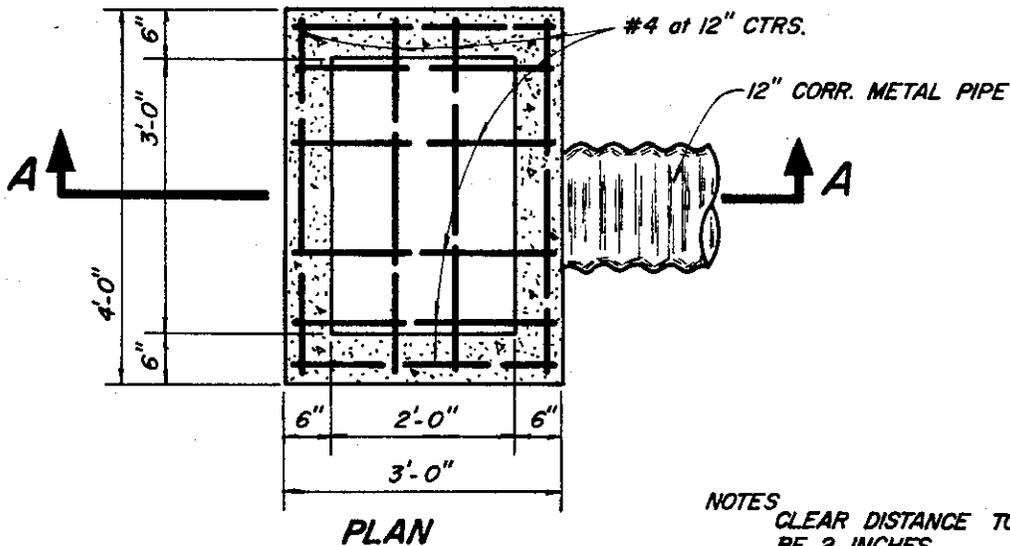
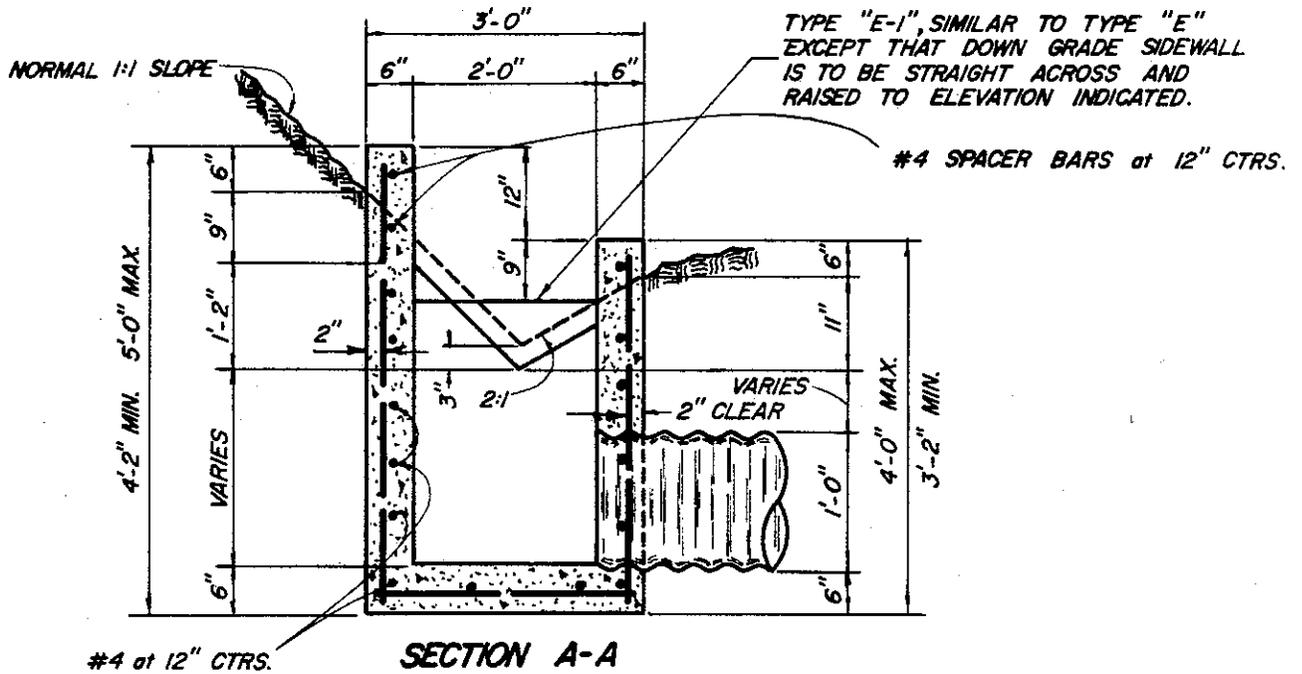
APPROVAL REC. *and Lawar*

APPROVED *[Signature]*

APPROVED *[Signature]*

Director of Public Works and Road Commissioner

DRAWN	CHECKED	DATE	SCALE	FILE NO.
TAT	<i>[Signature]</i> TMC	Feb. 1975	None	SD-416 1 of 1



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

SHOWING WALL AND BOTTOM SLAB REINFORCING

NOTES
 CLEAR DISTANCE TO STEEL SHALL BE 2 INCHES.
 ALL REINFORCING TO BE #4 BARS.
 STEEL SPACING SHOWN IS MAX. ALLOWABLE.

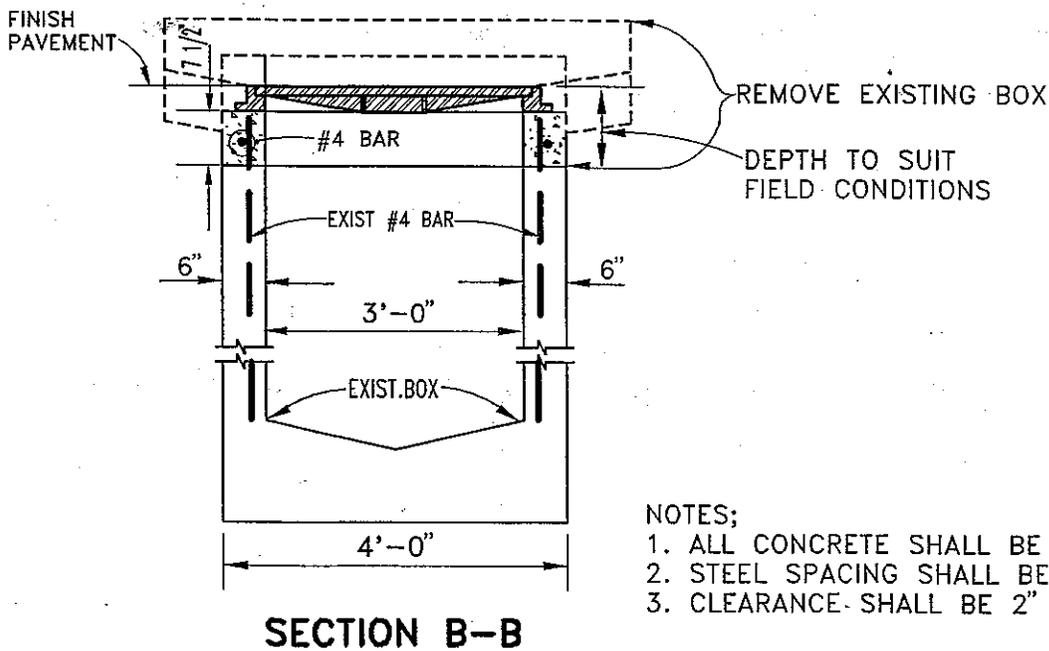
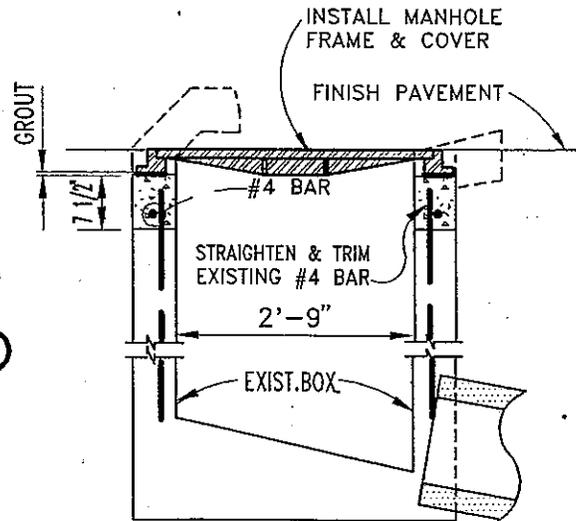
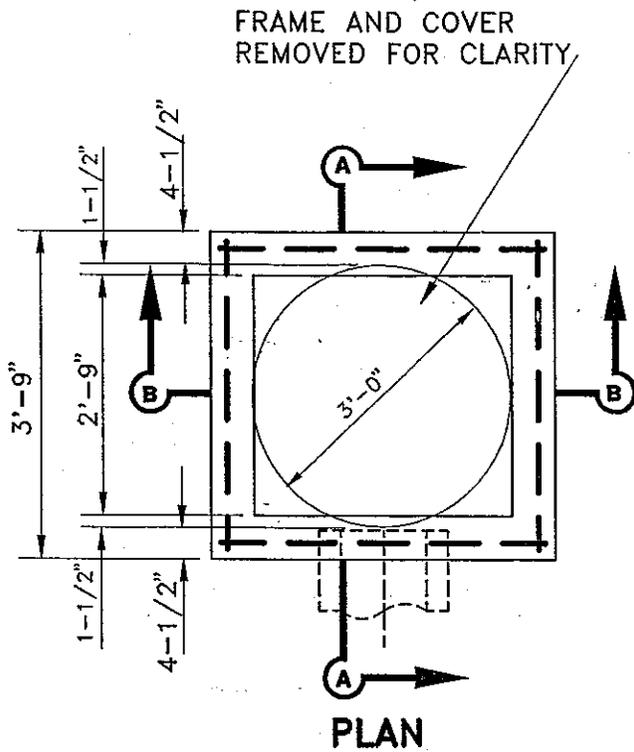
COUNTY OF ALAMEDA * PUBLIC WORKS AGENCY

**DROP INLET
 TYPE "E" AND "E-1"**

APPROVAL REC. *Lawar*
 APPROVED *Robert C. Bille*
 APPROVED *William J. ...*
 Director of Public Works
 and Road Commissioner

REVISIONS

DRAWN	JJJ	CHECKED	<i>AT TML</i>	DATE	April 1976	SCALE	None	FILE NO.	SD-417	1 of 1
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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

APPROVAL REC.

APPROVED

APPROVED

COUNTY ENGINEER

REVISIONS

DRAWN

EA

CHECKED

DATE

JUNE 1993

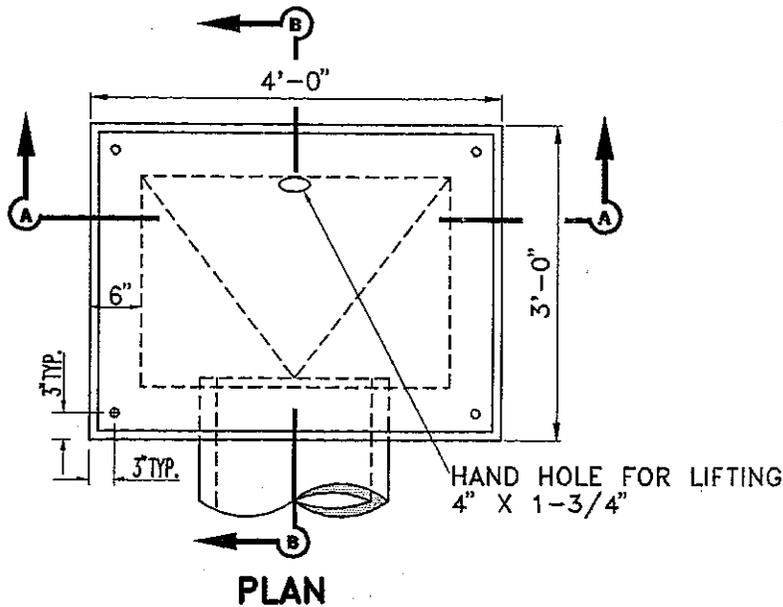
SCALE

NONE

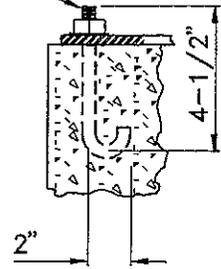
FILE NO.

SD-422

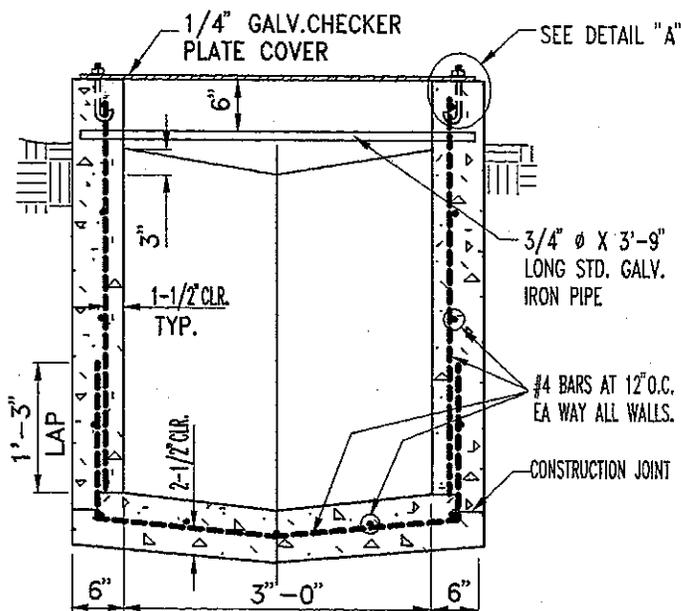
1 of 1



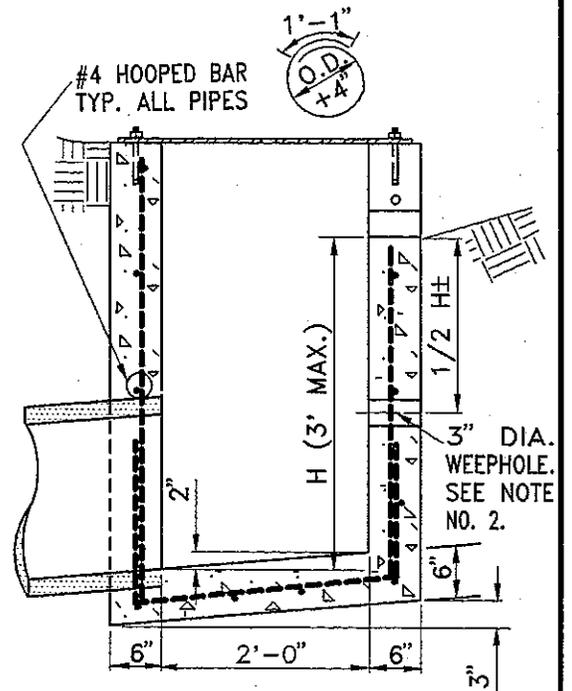
3/8" Ø GALV. 'J' BOLT
AND NUT. 4 REQUIRED.
1/4" MAXIMUM EXPOSED
THREADS.



DETAIL "A"



SECTION A-A



SECTION B-B

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

FIELD INLET
TYPE IV

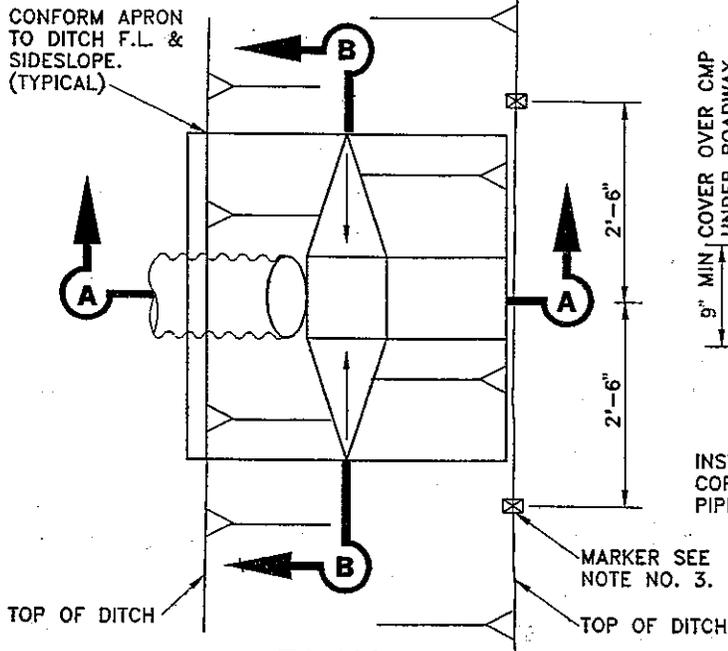
APPROVAL REC.

APPROVED *Stendrip*
APPROVED *Kawan*
CMM

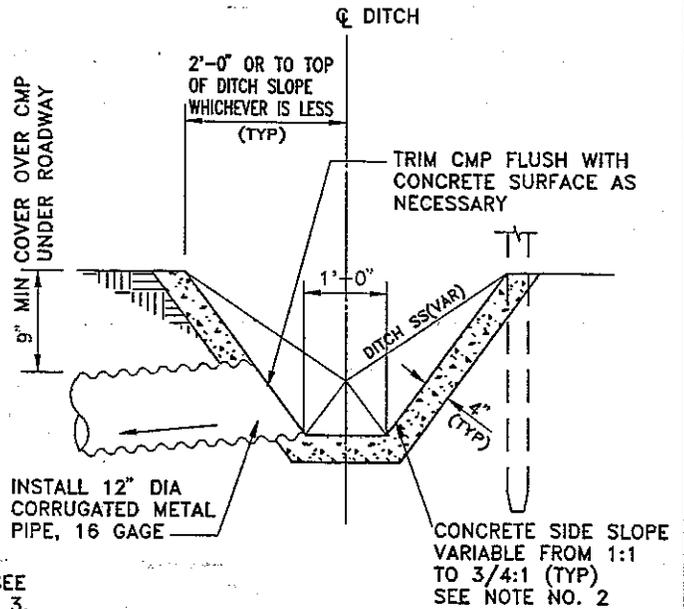
COUNTY ENGINEER

REVISIONS

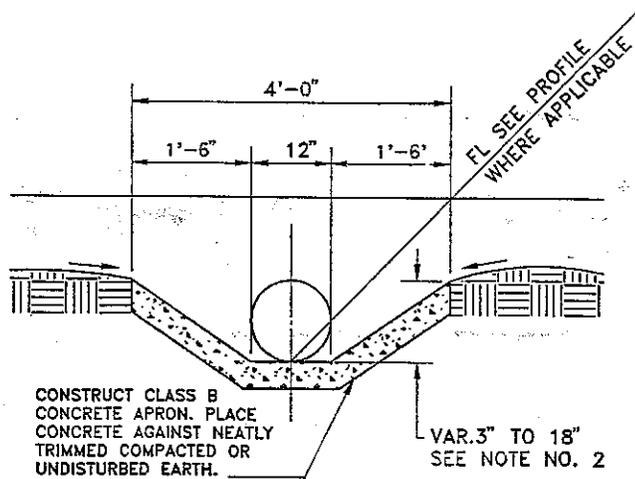
DRAWN	CHECKED	DATE	SCALE	FILE NO.
EA		JULY 1993	NONE	SD-426 1 of 1



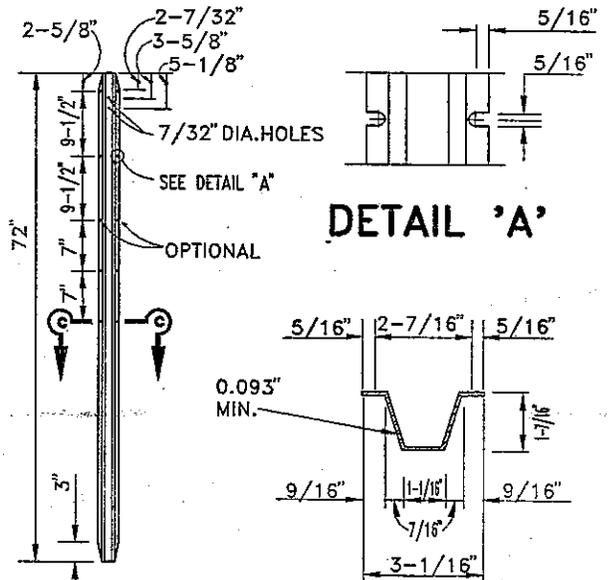
PLAN



SECTION A-A



SECTION B-B



METAL POST PLAN

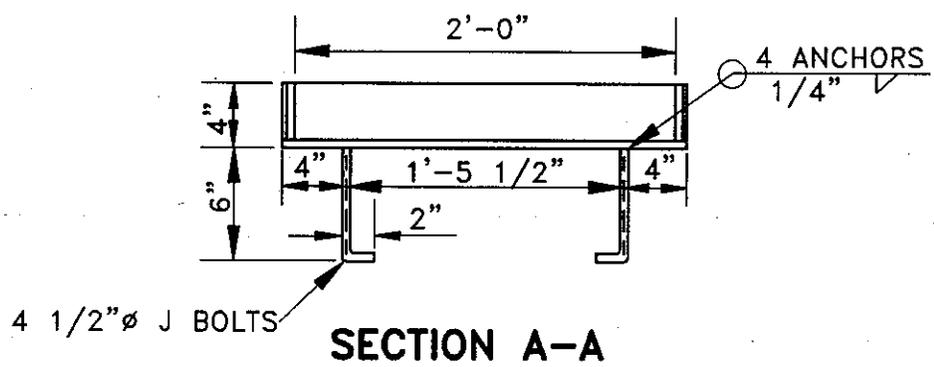
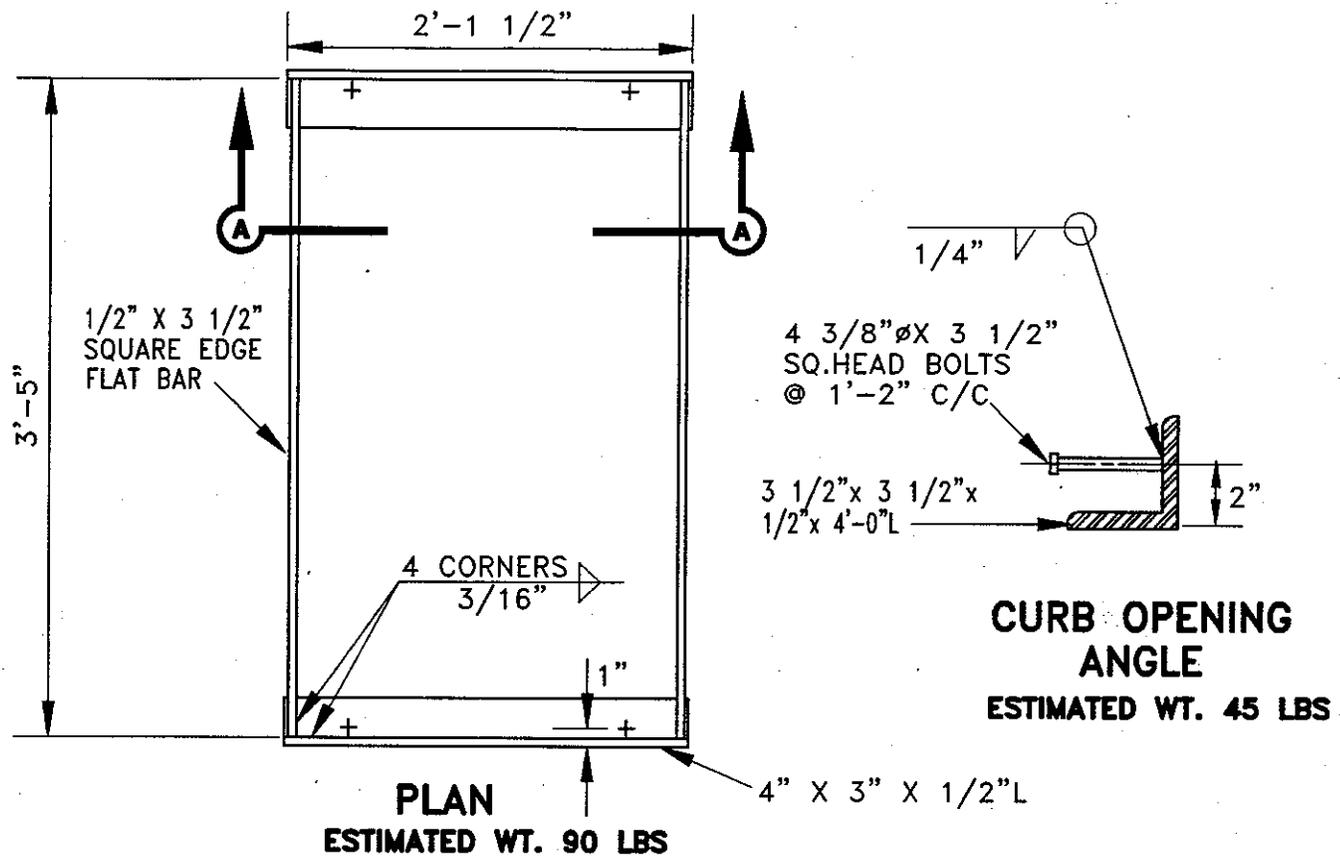
SECTION C-C

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

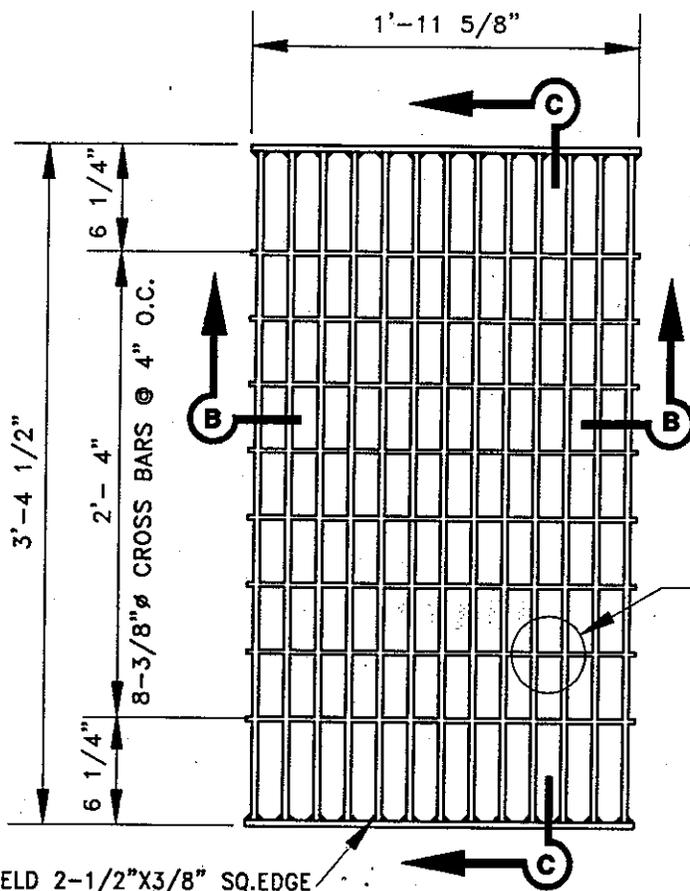
				APPROVAL REC.	
FIELD INLET TYPE V				APPROVED <i>[Signature]</i>	
				APPROVED <i>[Signature]</i> AM	
REVISIONS				COUNTY ENGINEER	
DRAWN	CHECKED	DATE	SCALE	FILE NO.	
EA		SEPT. 1993	NONE	SD-427	1 of 1



NOTES:

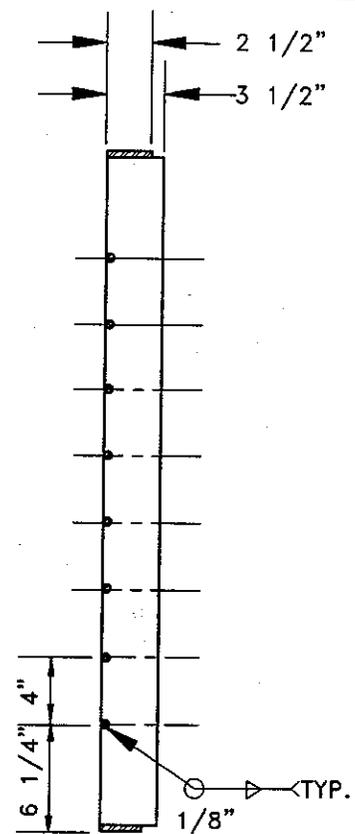
1. ALL METAL SHALL BE STRUCTURAL GRADE STEEL OR BETTER.
2. GRATINGS AND FRAMES ARE TO BE ASSEMBLED AND MADE TO FIT BEFORE DELIVERY TO THE JOB SITE.
3. ALL STEEL COMPONENTS SHALL BE GALVANIZED AFTER FABRICATION. GALVANIZED SURFACES THAT ARE ABRADED SHALL BE REPAIRED AS SPECIFIED IN SECTION 75-1.05 "GALVANIZING" 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					
BICYCLE TYPE FRAME AND GRATE				APPROVAL REG. <i>J. Brown</i> APPROVED <i>Ray J. ...</i> APPROVED <i>[Signature]</i> COUNTY ENGINEER	
REVISIONS					
DRAWN	KT	CHECKED	JC, AC	DATE	DEC 1999
				SCALE	NONE
				FILE NO.	SD-434A
				1 of 2	

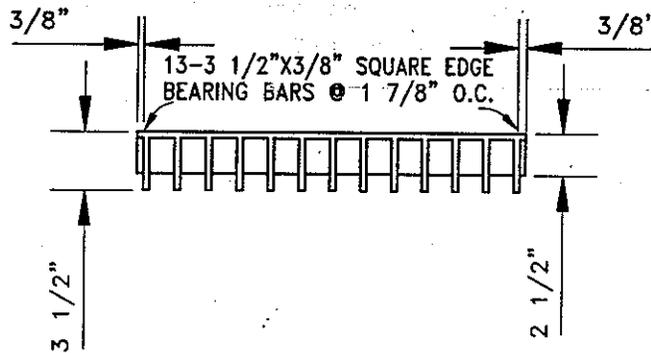


WELD 2-1/2"X3/8" SQ. EDGE
END BARS 3/16" FILLET WELD
FULL DEPTH BOTH SIDES.

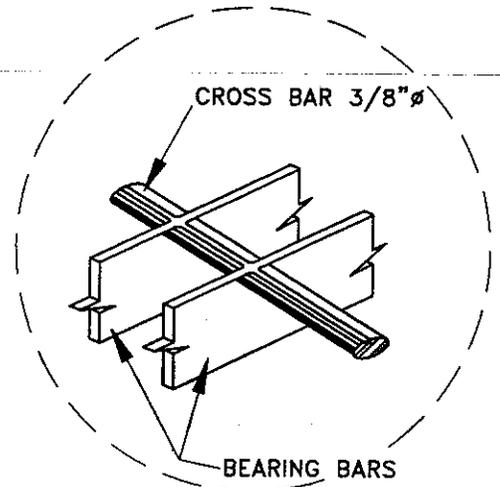
PLAN



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.

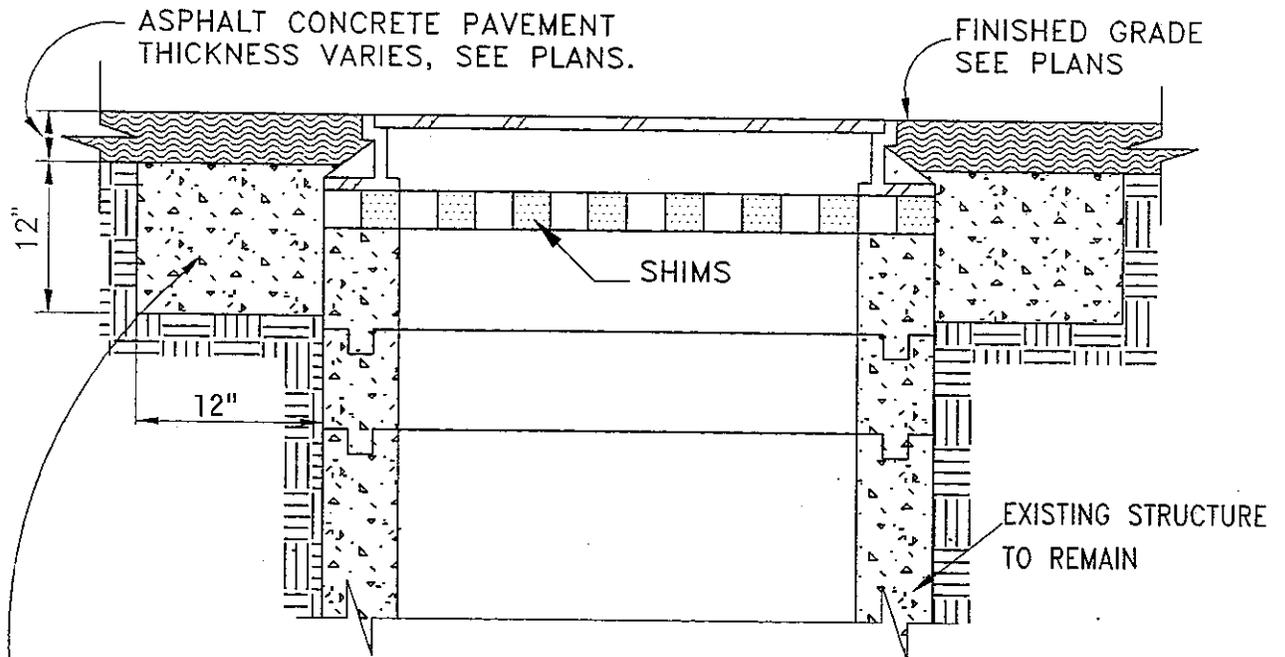
COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

**BICYCLE TYPE
FRAME AND GRATE**

APPROVAL REC
 APPROVED *[Signature]*
 APPROVED *[Signature]*
 APPROVED *[Signature]*
 COUNTY ENGINEER

REVISIONS

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



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

**FRAME AND COVER
ADJUSTMENT DETAIL**

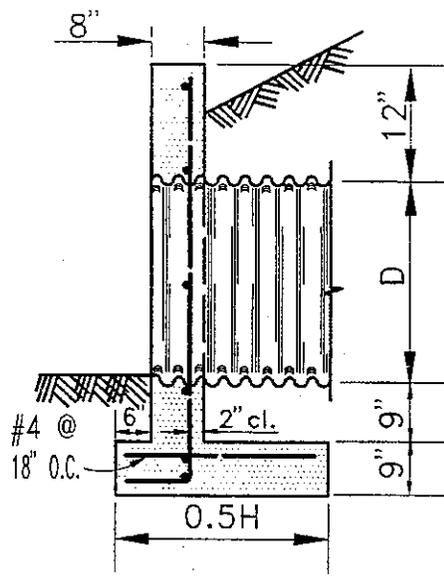
APPROVAL REC.
[Signature]
APPROVED
[Signature]
APPROVED
[Signature]
am

COUNTY ENGINEER

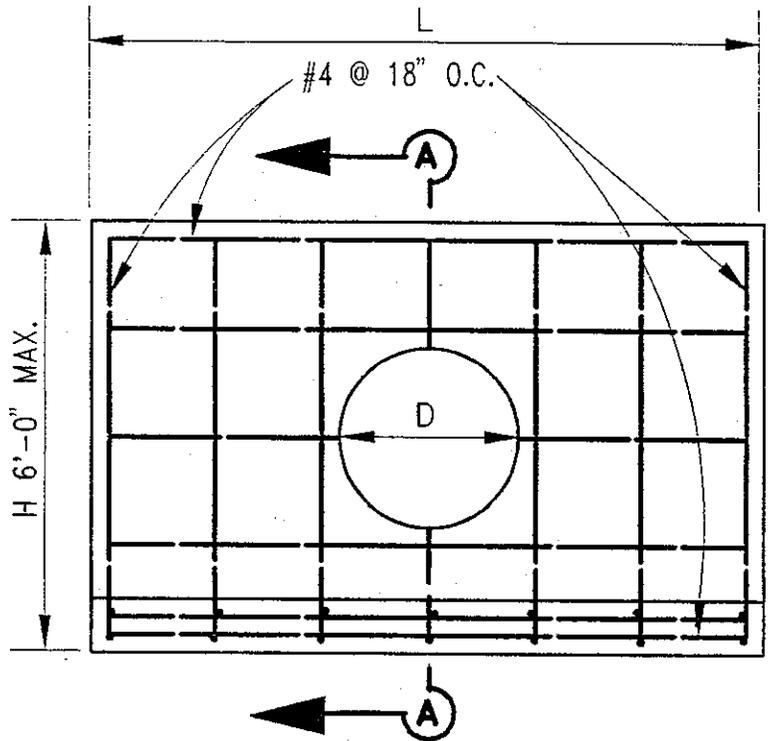
REVISIONS

DRAWN JR	CHECKED	DATE JAN. 1995	SCALE NONE	FILE NO. SD-436	1 of 1
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SD-500 SERIES MISCELLANEOUS STRUCTURES

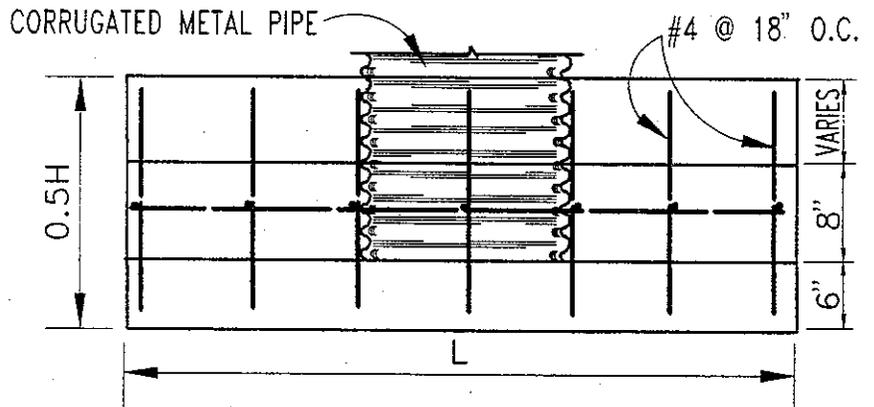


SECTION A-A



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

STRAIGHT HEADWALL
TYPE 'A'

APPROVAL REC.

APPROVED

APPROVED

COUNTY ENGINEER

REVISIONS

DRAWN

EA

CHECKED

DATE

JAN. 1993

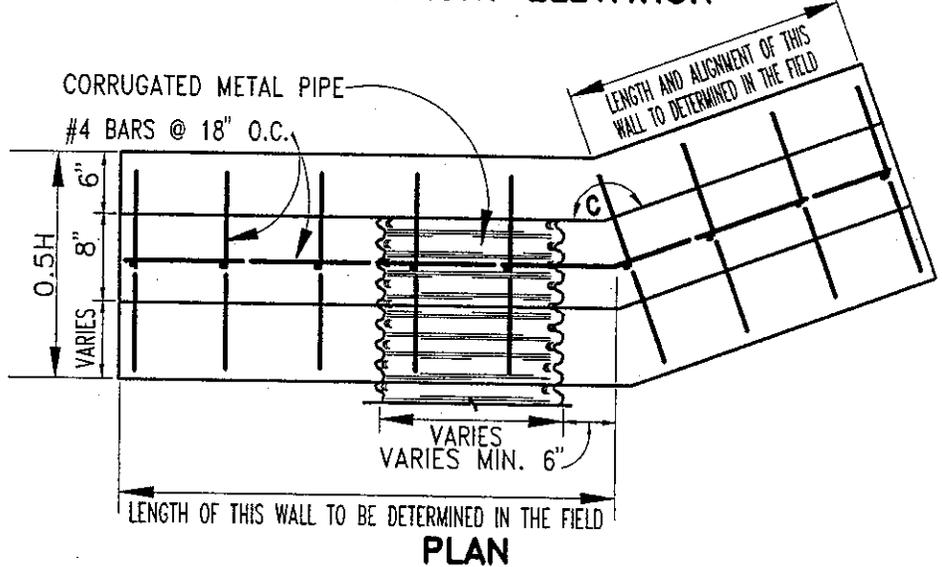
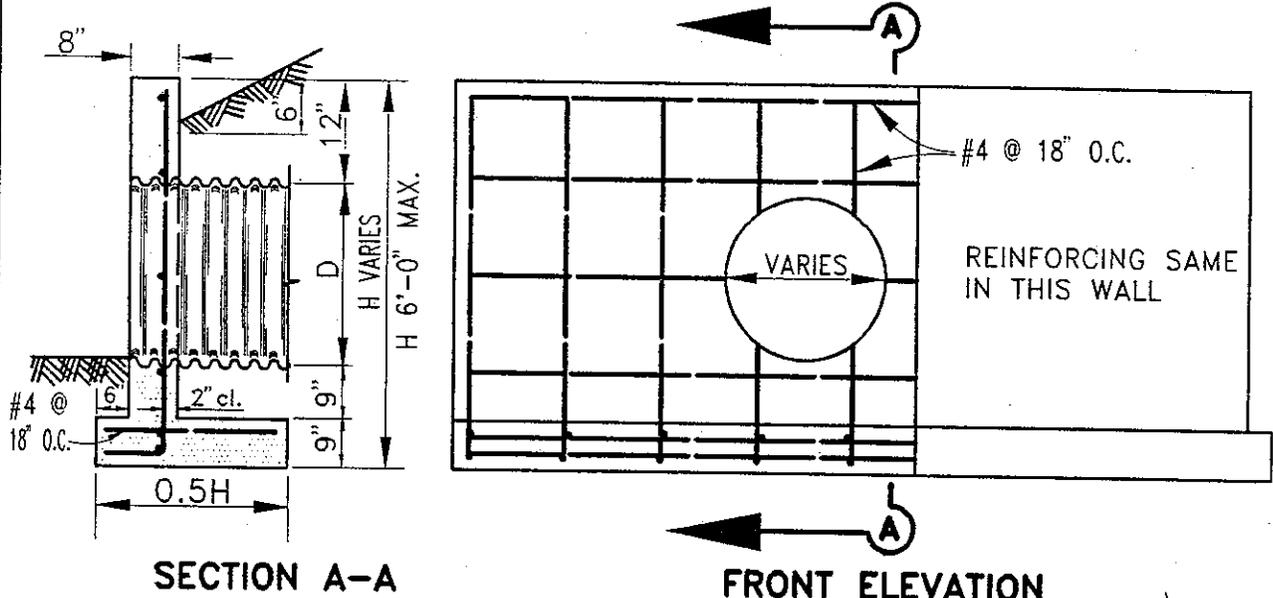
SCALE

NONE

FILE NO.

SD-500

1 of 1



- 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

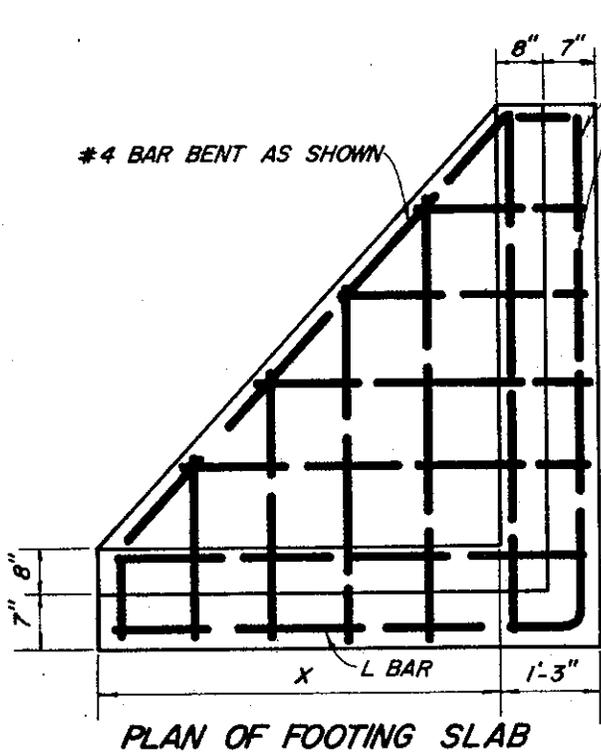
STRAIGHT HEADWALL
TYPE "B"

APPROV. REC.
Blindis
APPROVED
APPROVED
awan
COUNTY ENGINEER

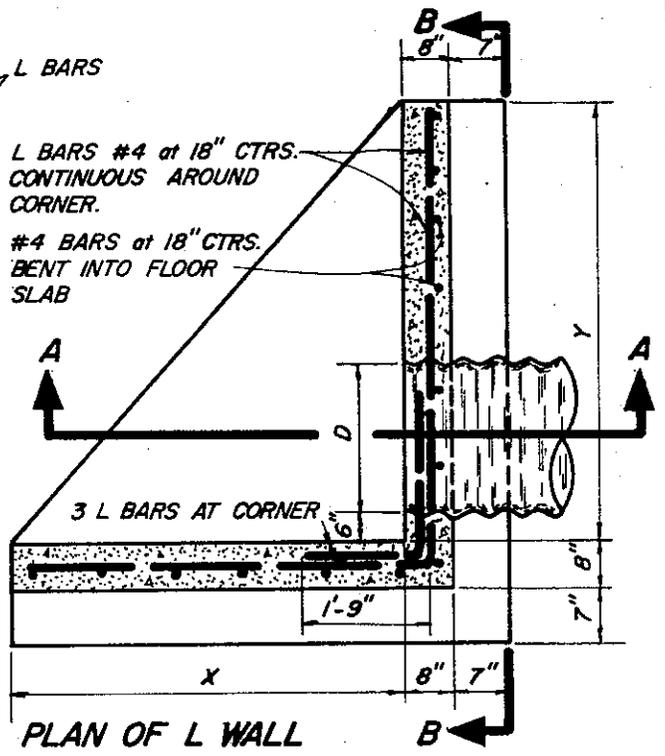
REVISIONS

DRAWN EA CHECKED DATE MARCH 1993 SCALE NONE

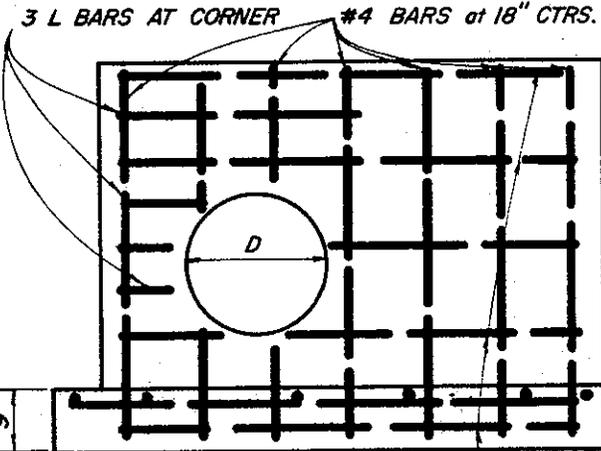
FILE NO. SD-501 1 of 1



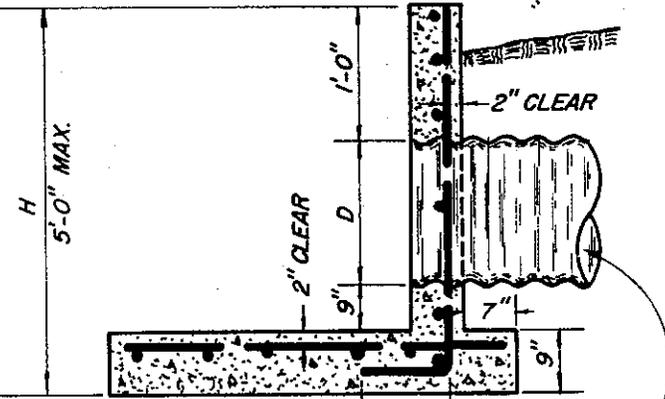
PLAN OF FOOTING SLAB



PLAN OF L WALL



SECTION B-B



SECTION A-A

L BARS #4 at 18" CTRS.

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.

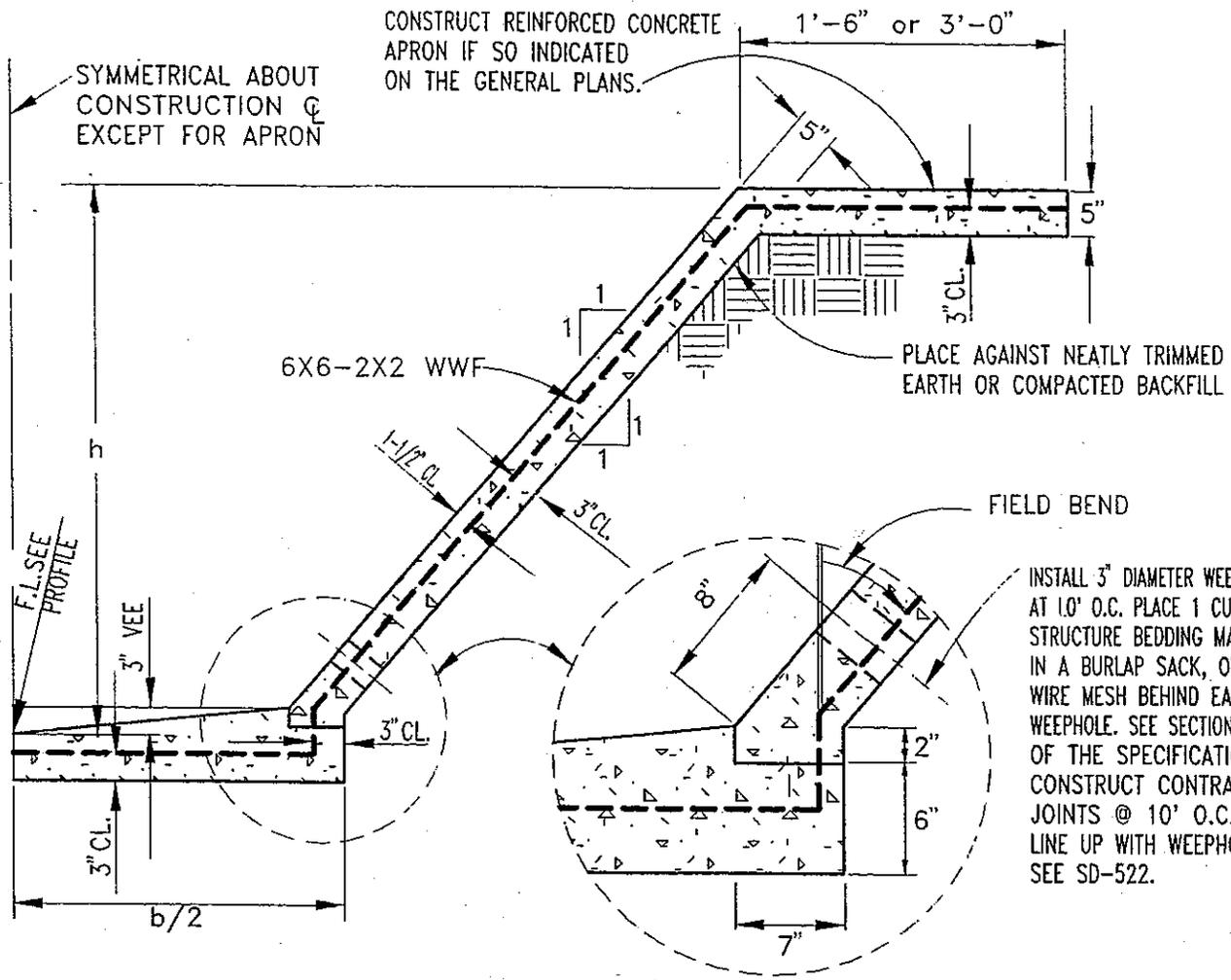
D	X	Y
12"	3'-6"	3'-6"
15"	3'-10"	3'-10"
18"	4'-3"	4'-3"
21"	4'-8"	4'-8"
24"	5'-0"	5'-0"
30"	5'-9"	5'-9"

COUNTY OF ALAMEDA * PUBLIC WORKS AGENCY

L HEADWALL
 TYPE "D"

APPROVAL REC. *AW Lawar*
 APPROVED *Robert C. Blitt*
 APPROVED *William J. ...*
 Director of Public Works
 and Road Commissioner

DRAWN JJJ		CHECKED <i>AT TME</i>		DATE April 1976	SCALE None	FILE NO. SD-502	1 of 1
REVISIONS							



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.

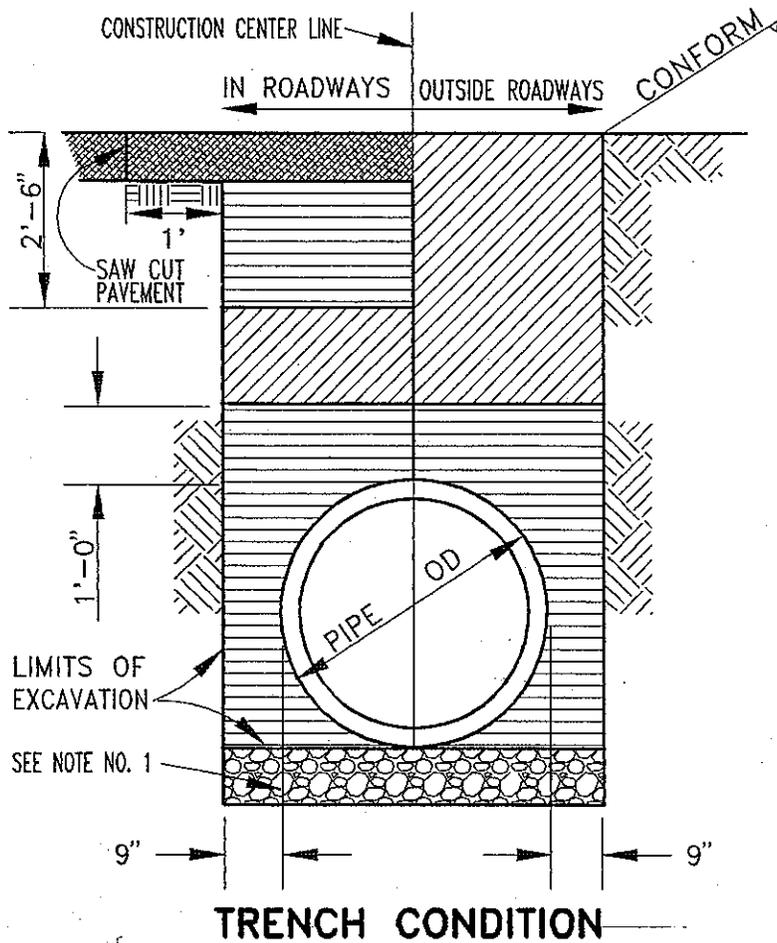
HEIGHT	5'	6'	7'	8'	9'	10'
VOLUME OF BOTH WALLS (CU.FT.PER LINEAR FT.)	5.79	6.97	8.15	9.33	10.51	11.69
VOLUME OF BASE SLAB (CU.FT.PER LINEAR FT.)	$1/12(6.5b+7)$					$1/12(6.5b+7)$
VOLUME OF 3'-0" APRON	1.09 CU. FT. PER LINEAR FOOT					
VOLUME OF 1'-6" APRON	0.47 CU. FT. PER LINEAR FOOT					

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

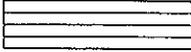
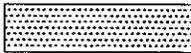
**REINFORCED
CONCRETE CHANNEL
1:1 SIDE SLOPE**

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

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



LEGEND (SEE NOTE NO.2)

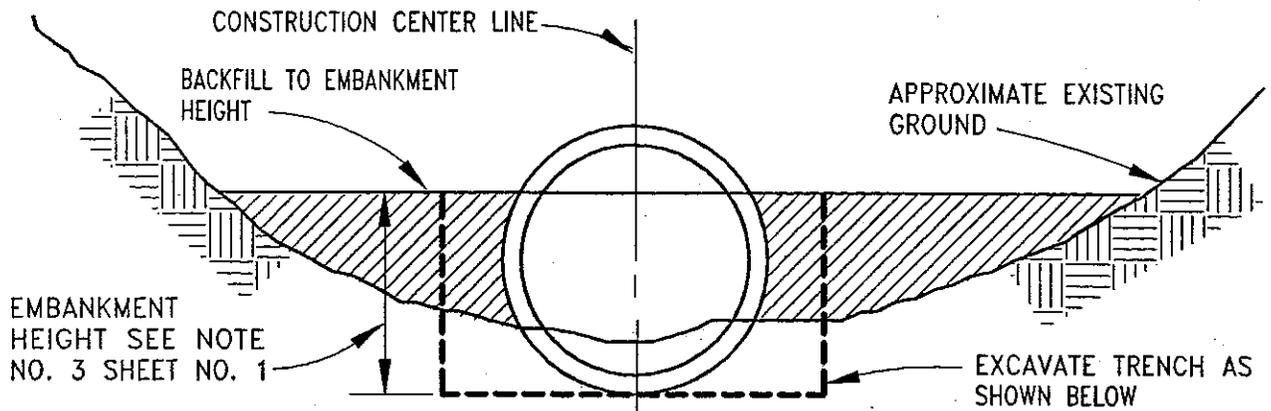
-  ROADWAY STRUCTURAL SECTION (SEE PLANS)
-  STRUCTURAL BACKFILL (CULVERT) 95% RELATIVE COMPACTION
-  STRUCTURAL BACKFILL (CULVERT) 90% RELATIVE COMPACTION
-  CULVERT BEDDING (SEE NOTE NO. 1)
-  STRUCTURAL EXCAVATION
-  ORIGINAL GROUND

NOTES:

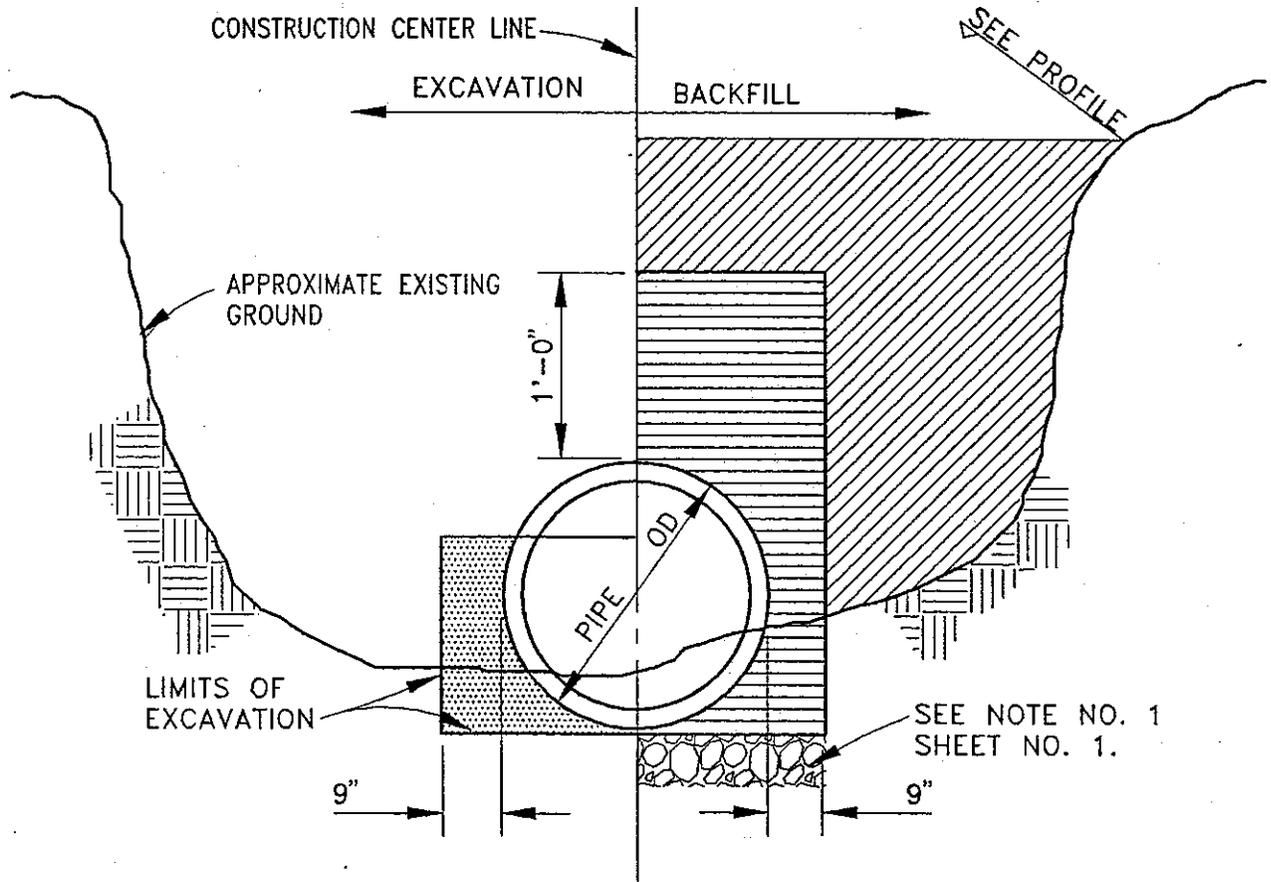
1. EXCAVATE UNSUITABLE SUBGRADE BELOW THE LIMIT OF EXCAVATION AND REPLACE WITH CULVERT BEDDING MATERIAL, ONLY IF SO DIRECTED BY THE ENGINEER. OVER EXCAVATION DUE TO FAILURE OF THE CONTRACTOR TO MAINTAIN SUBGRADE SHALL BE REPLACED WITH CULVERT BEDDING AT THE CONTRACTOR'S EXPENSE.
2. MATERIALS SHALL CONFORM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

		TYPICAL PIPE SECTION			APPROVAL REC. <i>H. E. Ackerman</i>	
					APPROVED <i>[Signature]</i>	
REVISIONS					APPROVED <i>[Signature]</i> COUNTY ENGINEER	
DRAWN EA	CHECKED <i>HEA</i>	DATE MARCH 1994	SCALE NONE	FILE NO. SD-504	1 of 2	



EMBANKMENT REQUIREMENT PRIOR TO EXCAVATION



**EXCAVATION AND BACKFILL REQUIREMENTS
EMBANKMENT CONDITION**

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

TYPICAL PIPE SECTION

APPROVAL REC
H. E. Nelson
 APPROVED
J. Swanson
 APPROVED
J. Swanson
 COUNTY ENGINEER

REVISIONS

DRAWN
EA

CHECKED
HEB

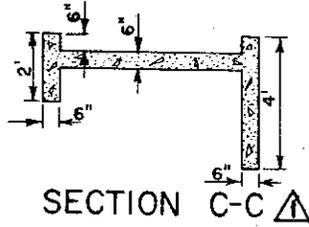
DATE
MARCH 1994

SCALE
NONE

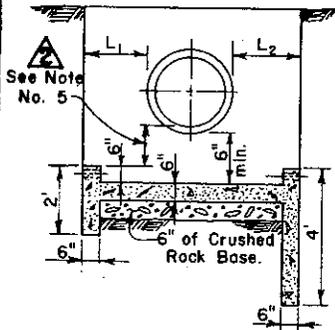
FILE NO.
SD-504

2 of 2

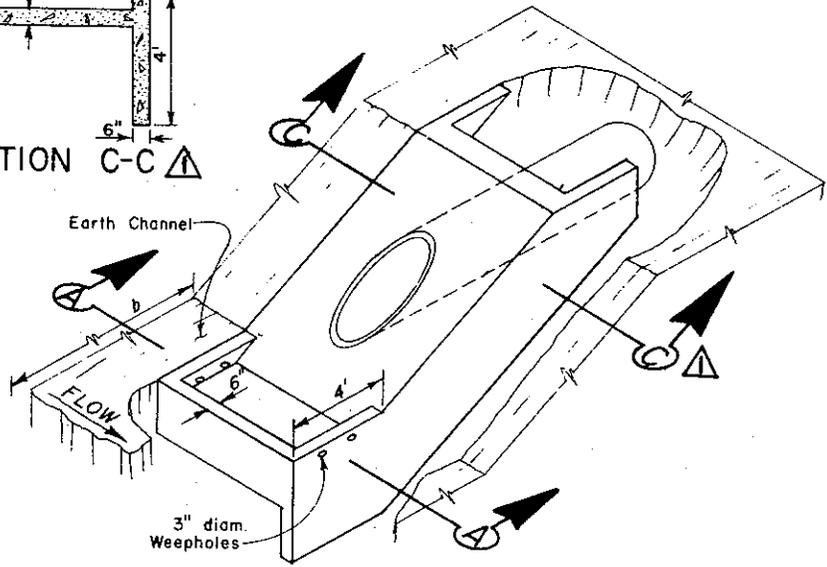
PIPE SIZE	L ₁	L ₂
12" to 24"	2'	2'
27" to 48"	2'	3'



SECTION C-C



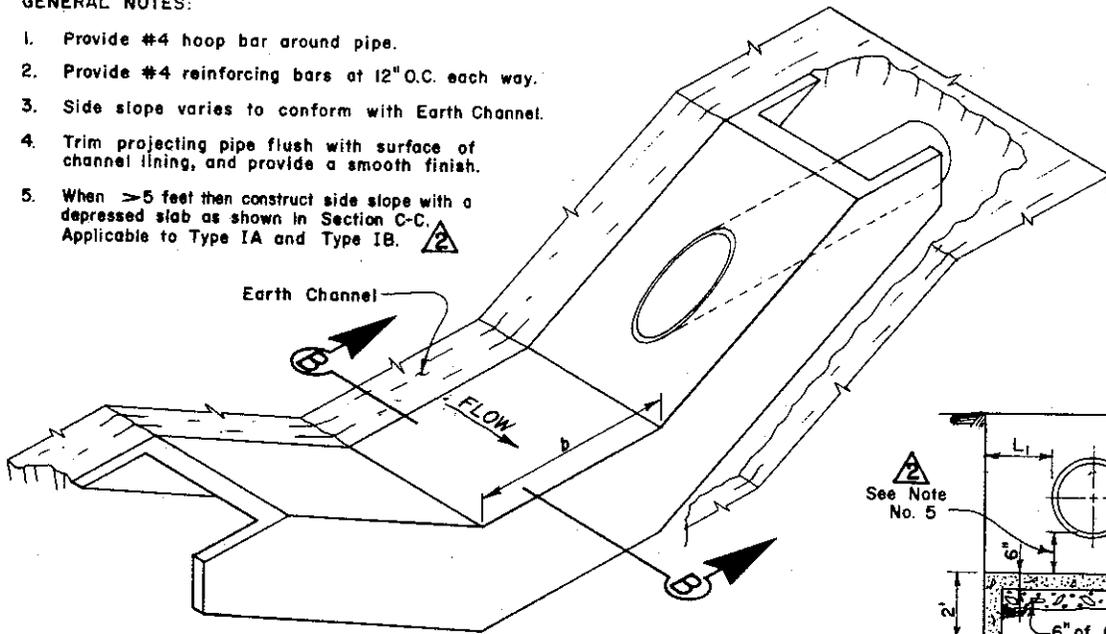
SECTION A-A



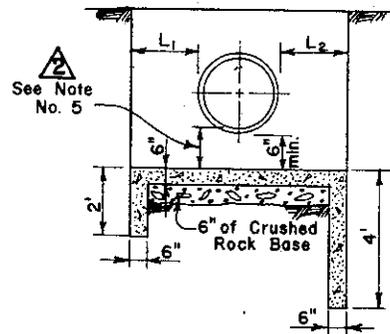
TYPE IA
(CHANNEL BOTTOM WIDTH $b > 8$ FEET)

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.



TYPE IB
(CHANNEL BOTTOM WIDTH $b \leq 8$ FEET)



SECTION B-B

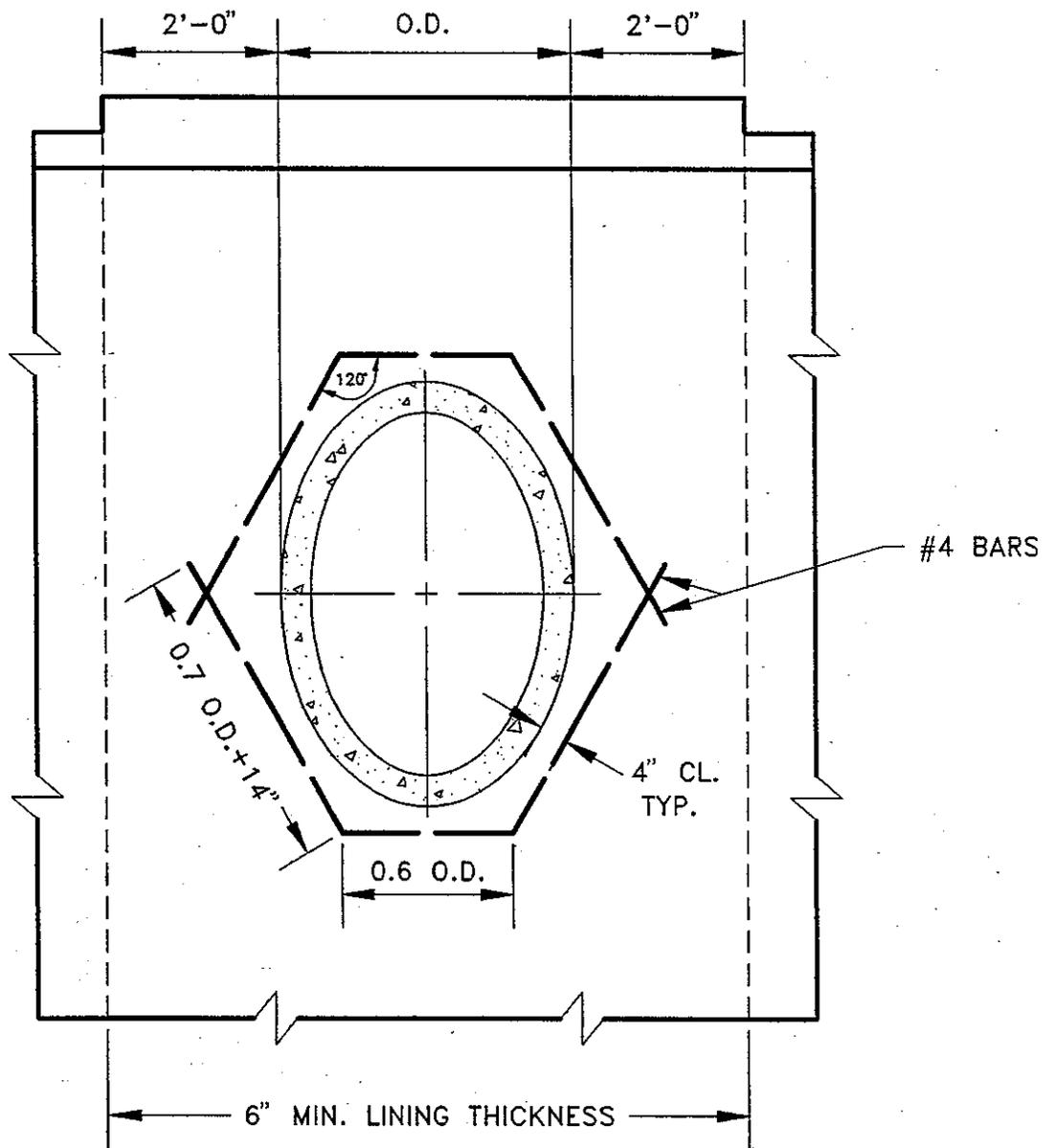
COUNTY OF ALAMEDA * PUBLIC WORKS AGENCY

LATERAL PIPE ENTRY
TO EARTH CHANNEL
TYPE I

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

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

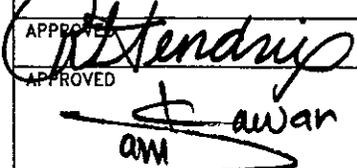
DRAWN FC	CHECKED <i>[Signature]</i>	DATE Nov. 1969	SCALE None	FILE NO. SD-505	1 of 1
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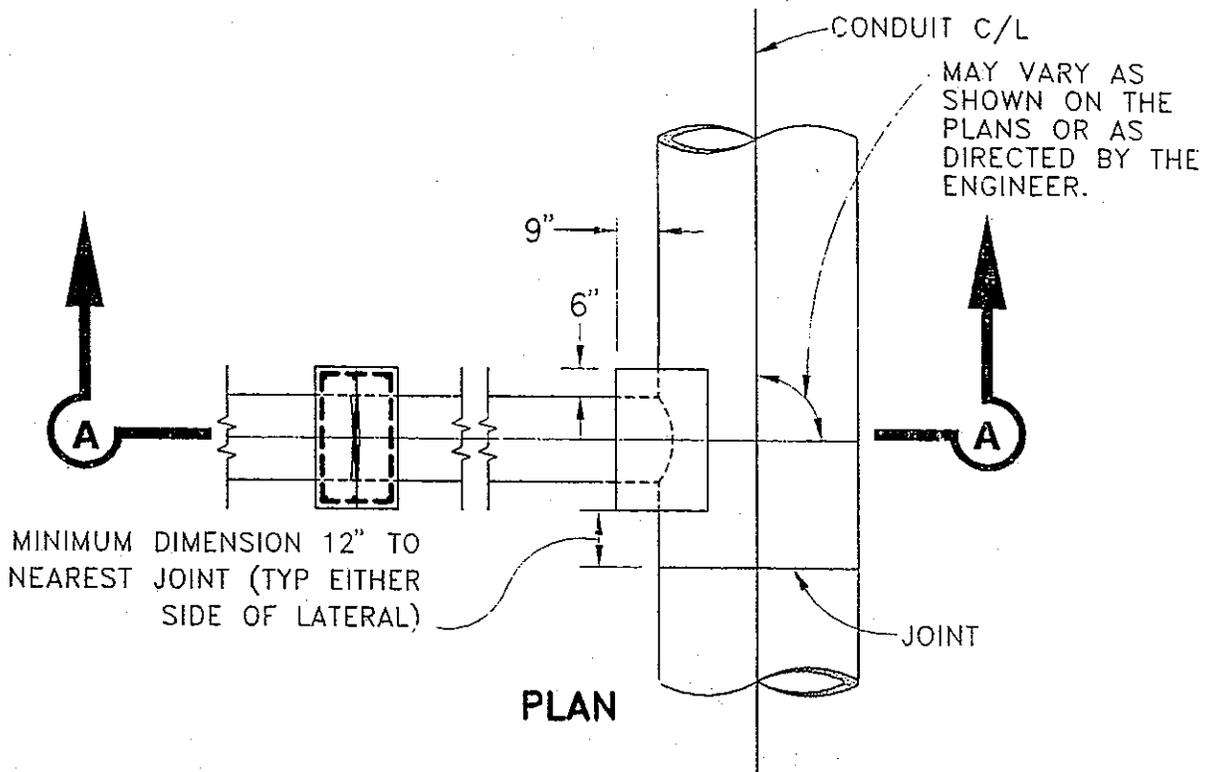
GENERAL NOTES:

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.

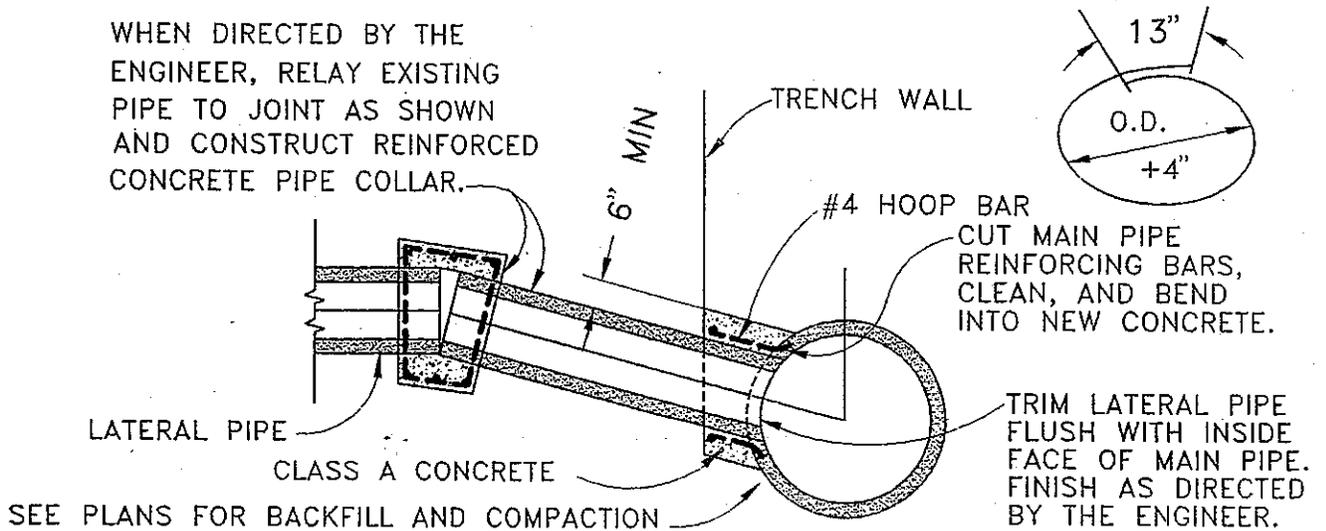
COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

		PIPE ENTRY		APPROVAL REC.	
				APPROVED	 J. Awan am
				APPROVED	
REVISIONS				COUNTY ENGINEER AND COUNTY SURVEYOR	
DRAWN	TK	CHECKED	EA	DATE	JULY 1992
		SCALE	NTS		FILE NO.
				SD-508	1 of 1

PLU1 SCALE: 1 = 5



WHEN DIRECTED BY THE ENGINEER, RELAY EXISTING PIPE TO JOINT AS SHOWN AND CONSTRUCT REINFORCED CONCRETE PIPE COLLAR.



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

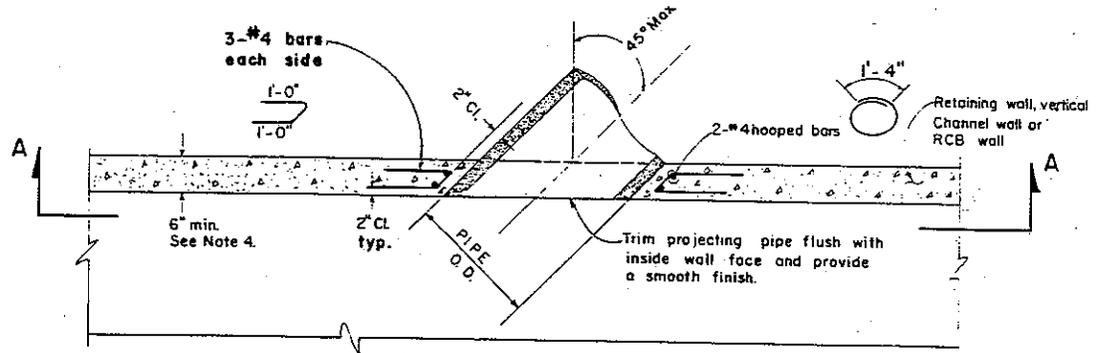
REVISIONS	

**LATERAL PIPE CONNECTION
TYPE I**

APPROVAL REC.
[Signature]
APPROVED

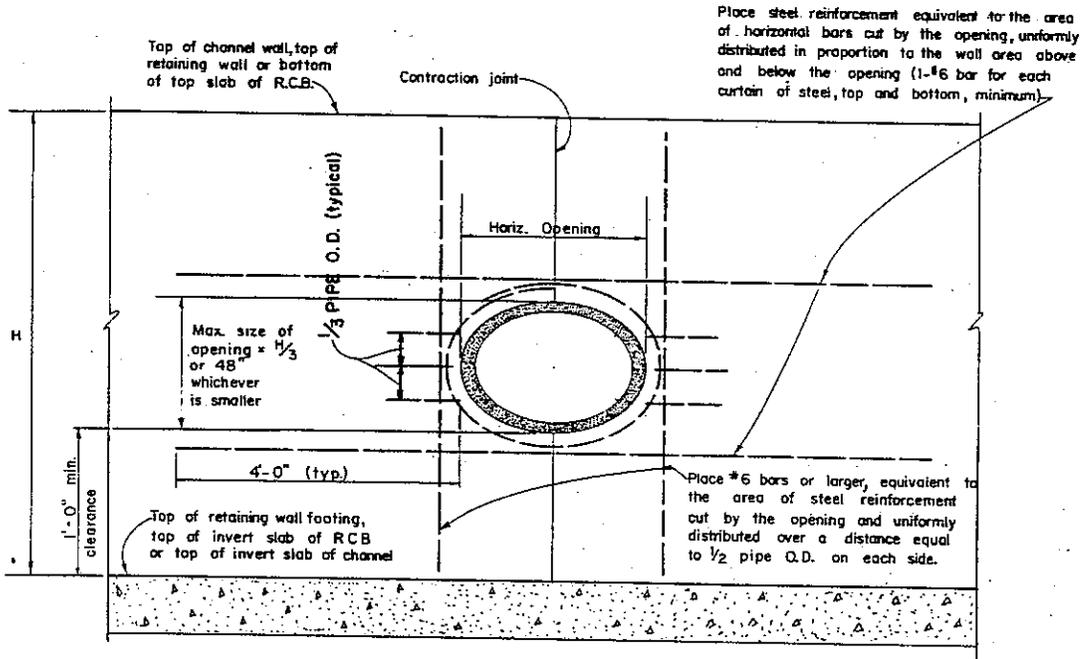
APPROVED
[Signature]
am
COUNTY ENGINEER

DRAWN	JC	CHECKED		DATE	DEC 1994	SCALE	NONE	FILE NO.	SD-509	1 of 1
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PART PLAN-SECTION

(STANDARD REINFORCEMENT NOT SHOWN)



SECTION A-A

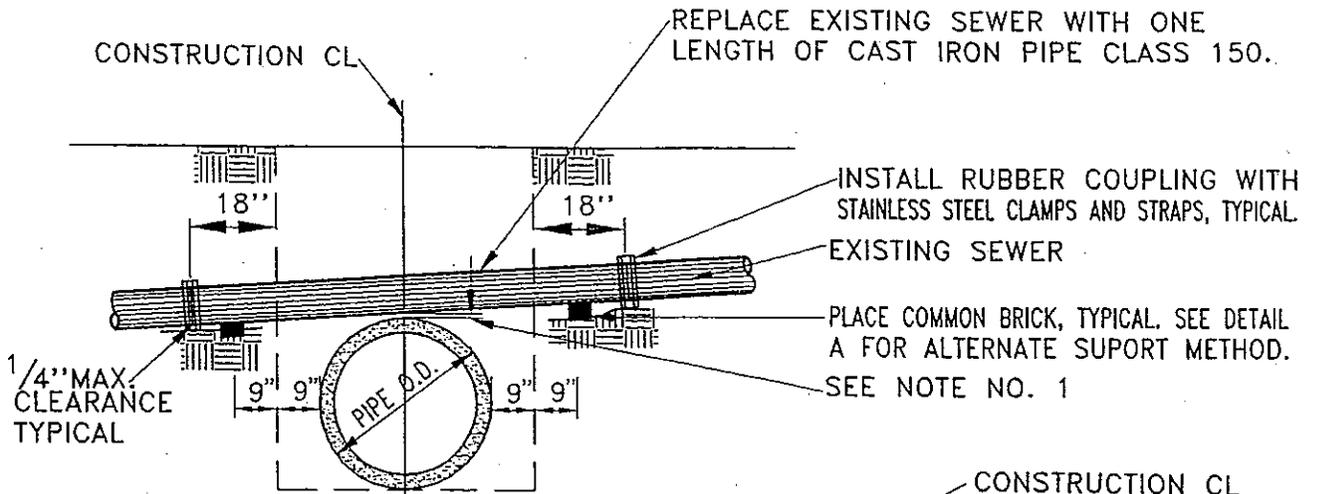
(STANDARD REINFORCEMENT NOT SHOWN)

GENERAL NOTES

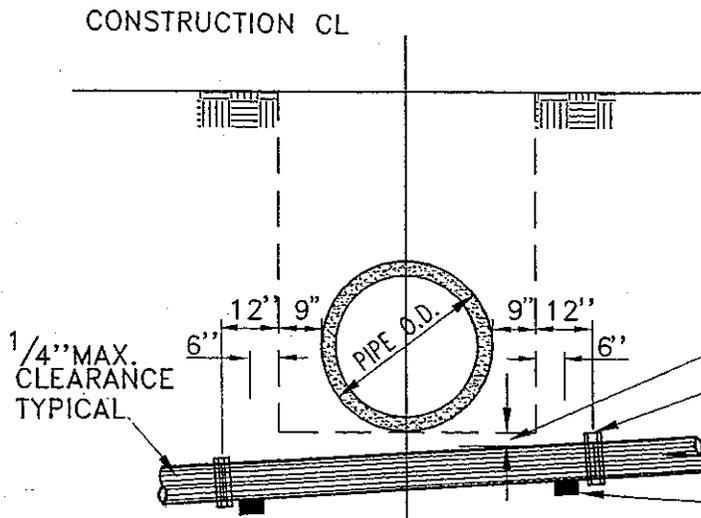
1. See General Plans for locations of laterals and for standard reinforcement.
2. Standard wall reinforcing steel may be bent, cut or spread as necessary to allow connection of lateral pipe.
3. No expansion joint shall be placed within 4' of outside of opening.
4. If wall thickness is less than 6", it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

COUNTY OF ALAMEDA * PUBLIC WORKS AGENCY

LATERAL PIPE CONNECTION				TYPE II			
REVISIONS				APPROVAL REC <i>am Kawan</i> APPROVED <i>Robert C. Bitter</i> APPROVED <i>William J. ...</i> Director of Public Works and Road Commissioner			
DRAWN	WG	CHECKED	<i>AME</i>	DATE	Jan. 1984	SCALE	None
						FILE NO.	SD-510
						1 of 1	

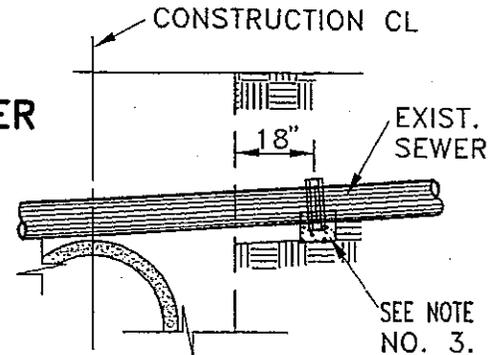


CROSSING UNDER SANITARY SEWER



WHEN REQUIRED, REPLACE EXISTING SEWER WITH ONE LENGTH OF CAST IRON PIPE, CLASS 150.

CROSSING OVER SANITARY SEWER



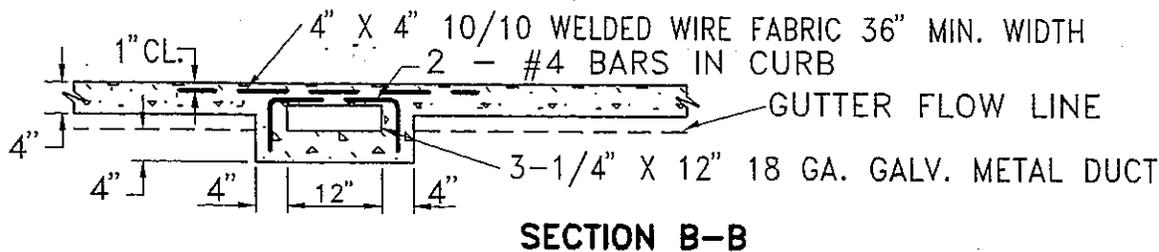
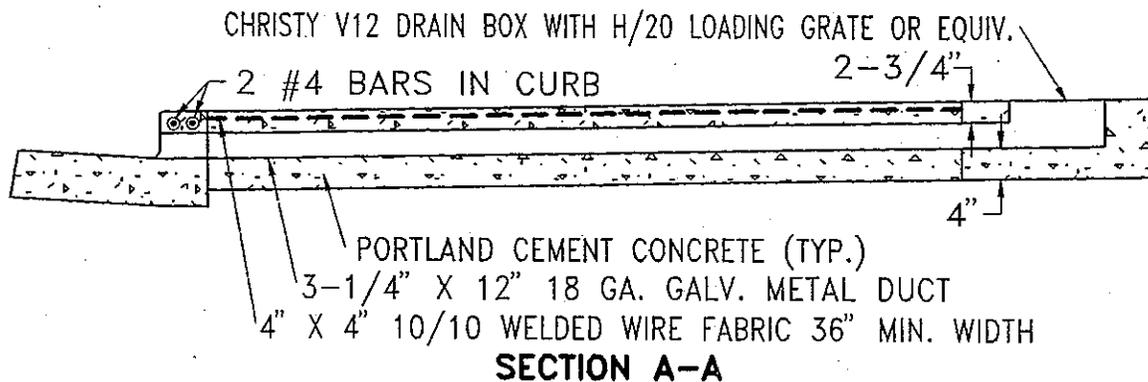
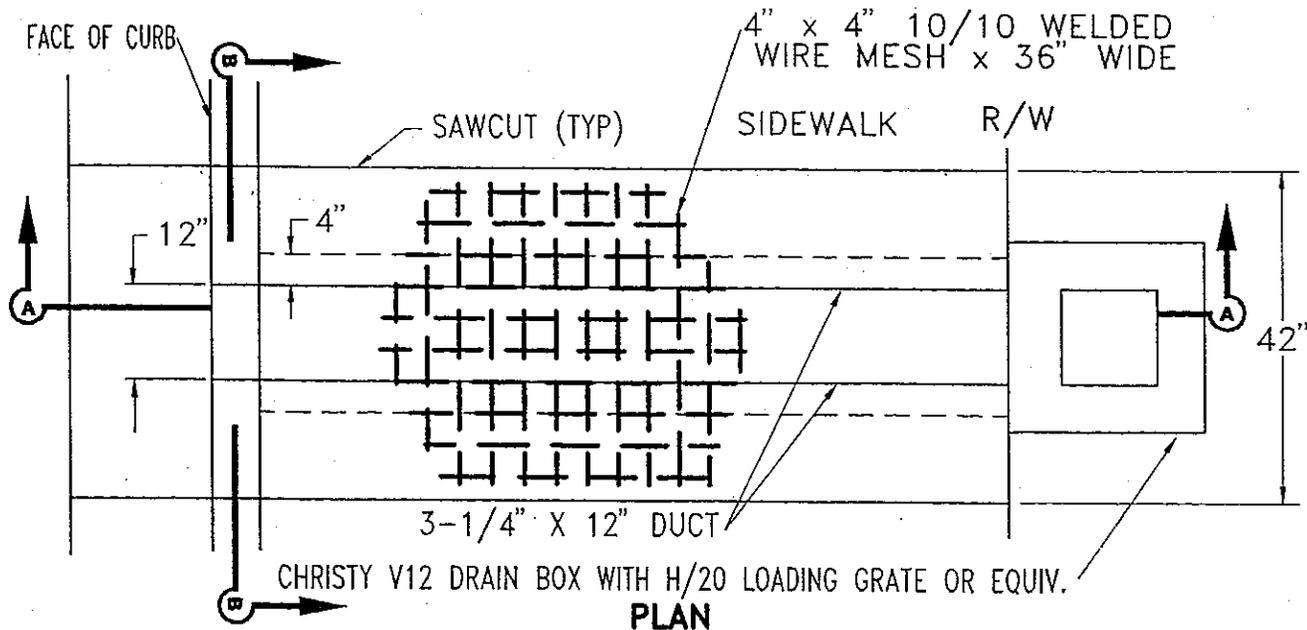
DETAIL A

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		APPROVAL REC. APPROVER APPROVED COUNTY ENGINEER	
REVISIONS					
DRAWN	JR	CHECKED		DATE	JAN. 1995
				SCALE	NONE
				FILE NO.	SD-511 1 of 1



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

DRAWN	JC	CHECKED	
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DATE
OCT. 1994

SCALE
NONE

APPROVAL REC.
[Signature]
APPROVED

APPROVED
[Signature]
COUNTY ENGINEER

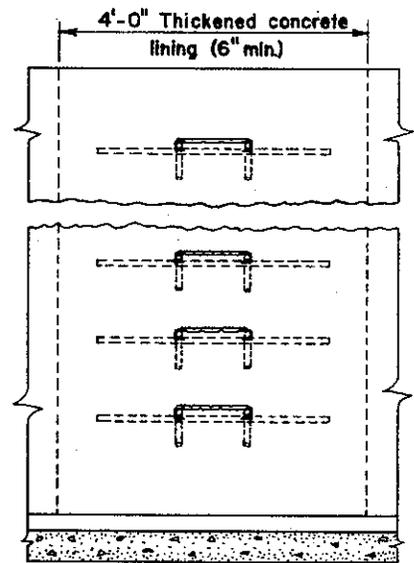
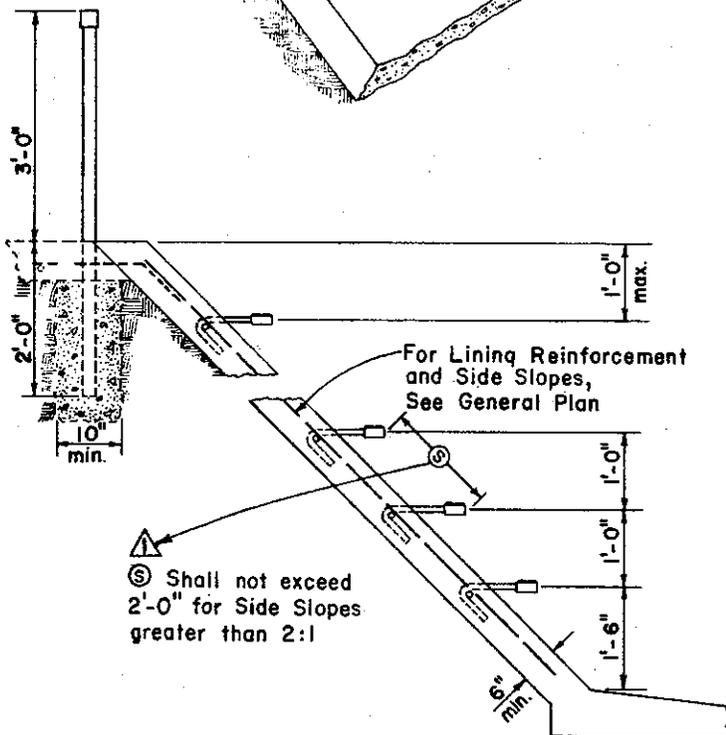
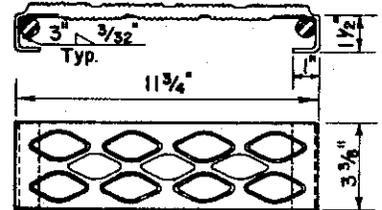
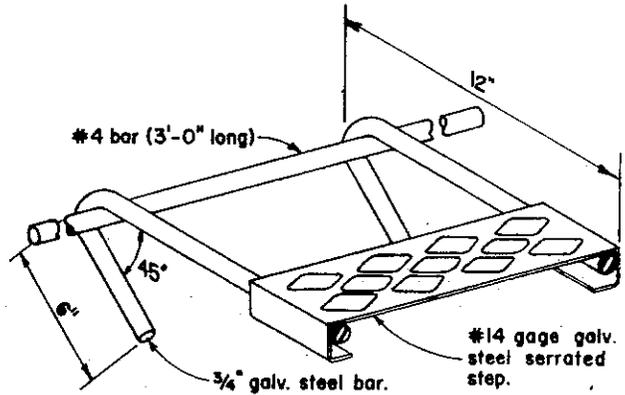
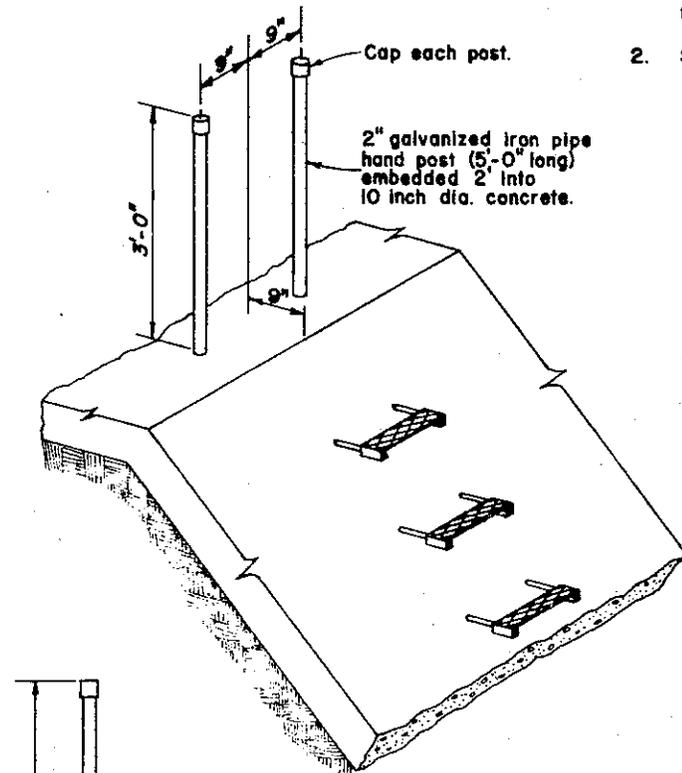
SIDEWALK DRAIN

FILE NO.
SD-513 1 of 1

PLOT SCALE: 1 = 2

GENERAL NOTES:

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



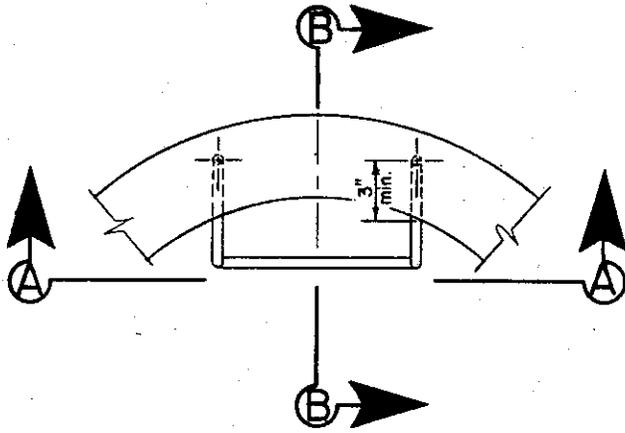
COUNTY OF ALAMEDA * PUBLIC WORKS AGENCY

**METAL STEP DETAIL
TYPE I**

APPROVAL REC. *am Kawan*
 APPROVED *Robert C. Bitt*
 APPROVED *W. H. ...*
 Director of Public Works
 and Road Commissioner

1	Added S dimension	9/81
REVISIONS		

DRAWN RLJ	CHECKED <i>TH</i> TMC	DATE March 1969	SCALE None	FILE NO. SD-515	1 of 1
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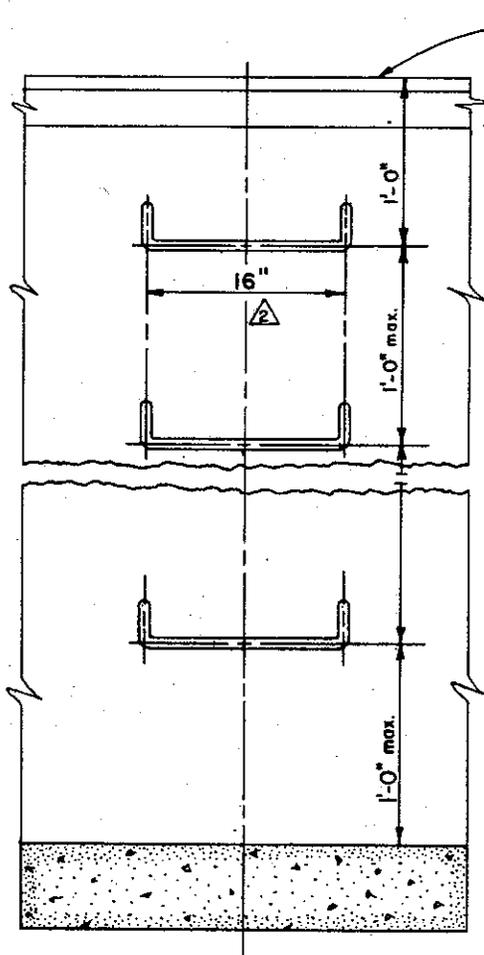
PLAN

GENERAL NOTES:

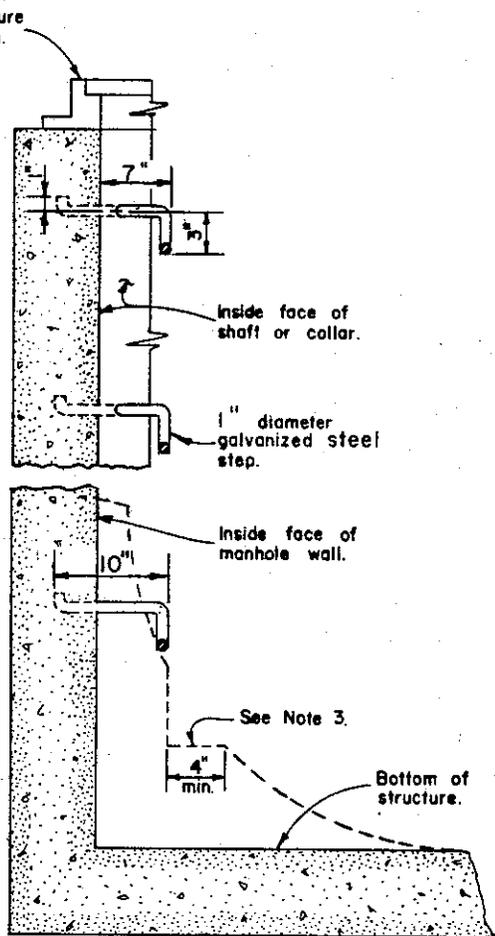
1. All miscellaneous iron and steel shall be galvanized after fabrication.
2. See General Plans for location of steps.
3. Omit metal step in channelization of any channelized manhole and provide a notched step as directed by the Engineer.



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

METAL STEP DETAIL
TYPE III

ADD NOTE 4	8/2021
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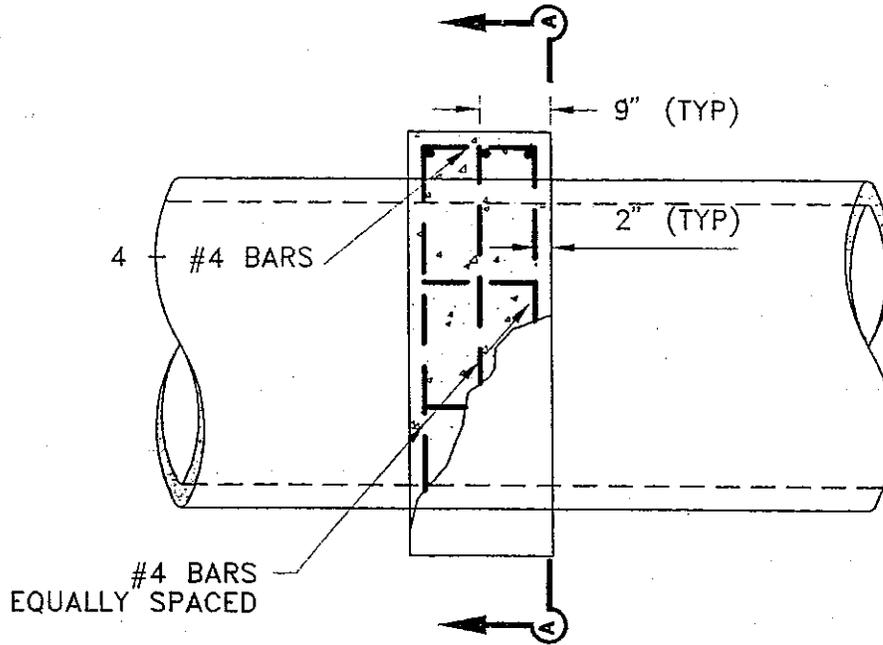
REVISIONS

DRAWN	RLJ	CHECKED	<i>TME</i>
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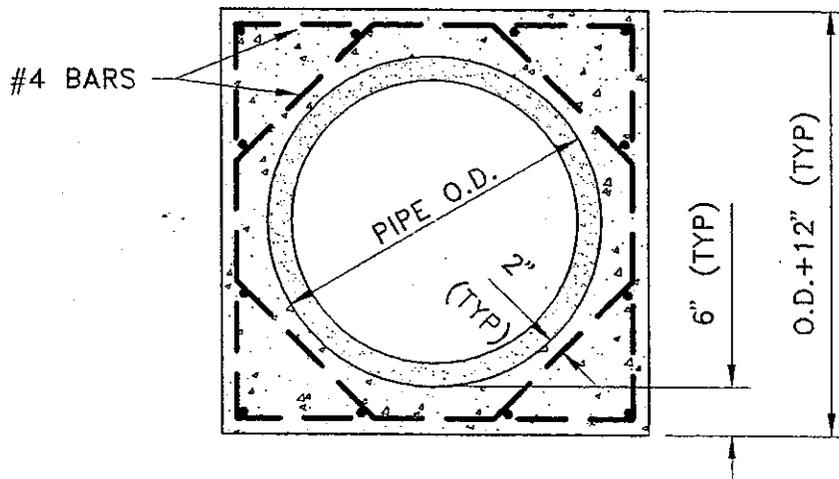
DATE	Nov. 1970
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SCALE	None
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APPROVAL REC.	<i>am Lawan</i>
APPROVED	<i>Robert C. Blitt</i>
APPROVED	<i>William J. ...</i>
Director of Public Works and Road Commissioner	
FILE NO.	SD-516
	1 of 1



PLAN



SECTION A-A

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

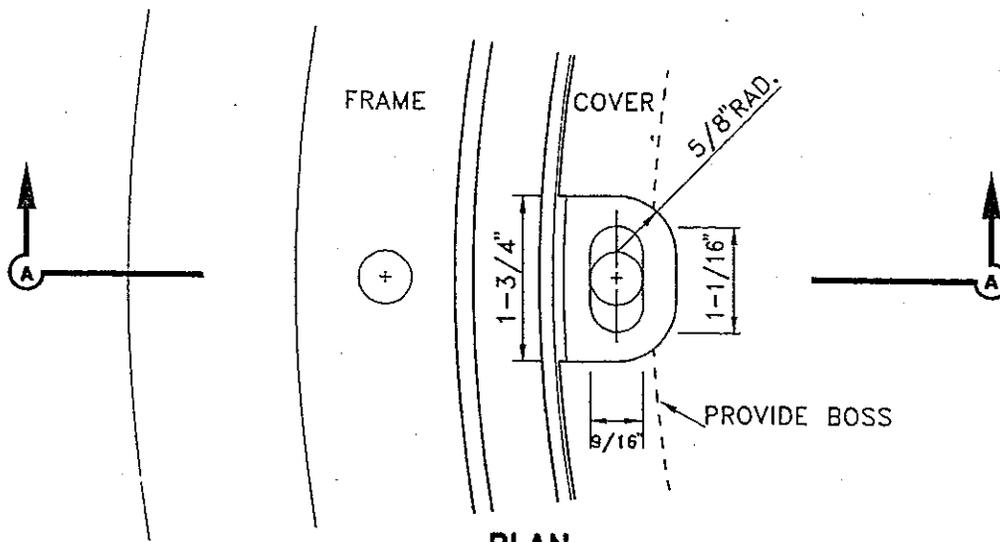
REINFORCED CONCRETE
PIPE COLLAR

APPROVAL REC.
[Signature]
APPROVED
[Signature]
APPROVED
[Signature]
AM
COUNTY ENGINEER

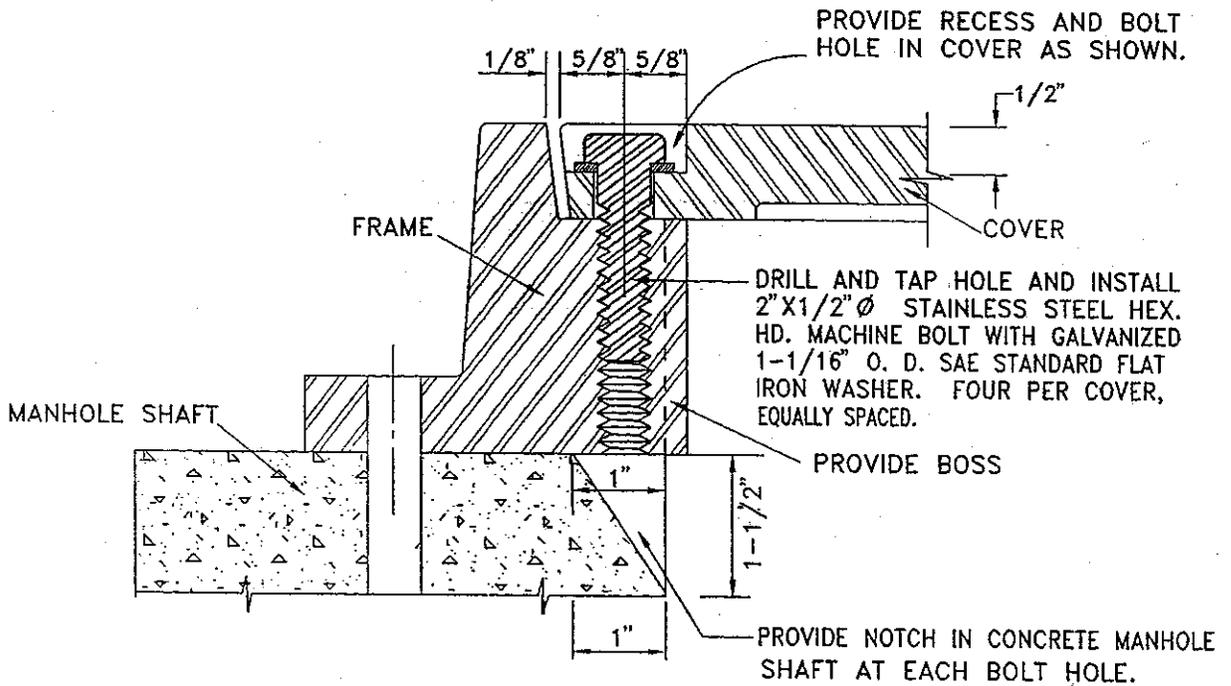
REVISIONS

DRAWN	JC	CHECKED	DATE	JAN. 1995	SCALE	NONE	FILE NO.	SD-520	1 of 1
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PLOT 1=2



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**

APPROVAL REC.
[Signature]
APPROVED
[Signature]
APPROVED
[Signature]
AM
COUNTY ENGINEER

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

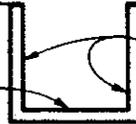
Construct Type IC
Contraction Joints
at 20' O.C.



BOX CULVERT

Construct Type II
Contraction Joints
at 10' O.C.

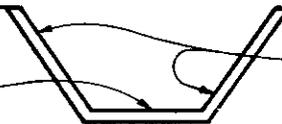
Construct Type IC
Contraction Joints at
8' O.C. or as shown on
the Contract drawings.



RECTANGULAR CHANNEL

Construct Type II
Contraction Joints at
8' o.c. or as shown on
the Contract drawings.

Construct Type IC
Contraction Joints
at 10' O.C.



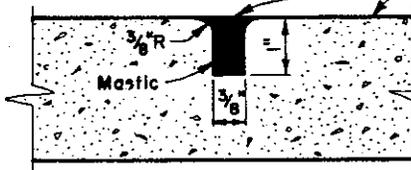
TRAPEZOIDAL CHANNEL

Construct Type IA
or IB Contraction
Joints at 10' O.C.

LOCATION AND SPACING OF JOINTS

TYPE I

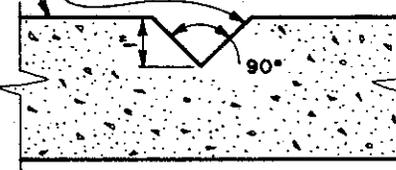
Construct Joint with $\frac{3}{8}$ " thick board. See Note 2.



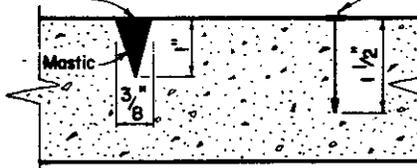
(A)

TYPE II

Construct Joint with chamfer strip attached firmly to forms.

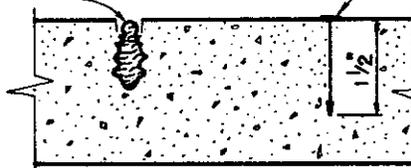


Construct Joint with 1" groover. See Note 2.



(B)

Install Plastic Strip, approved by the Engineer. See Note 3.



(C)

Inside Face, Typical

Plastic pull-top strip may be used. See note 4.

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

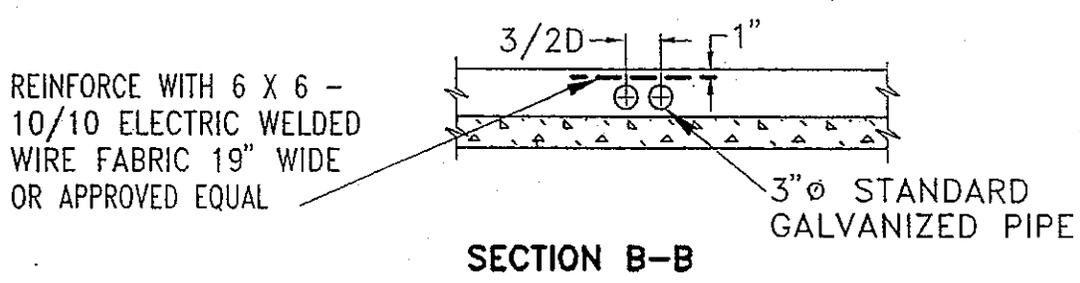
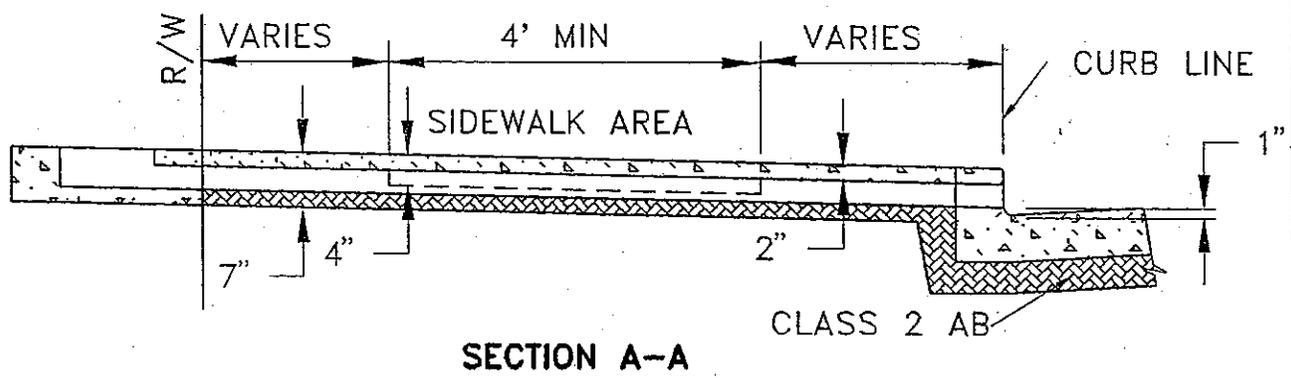
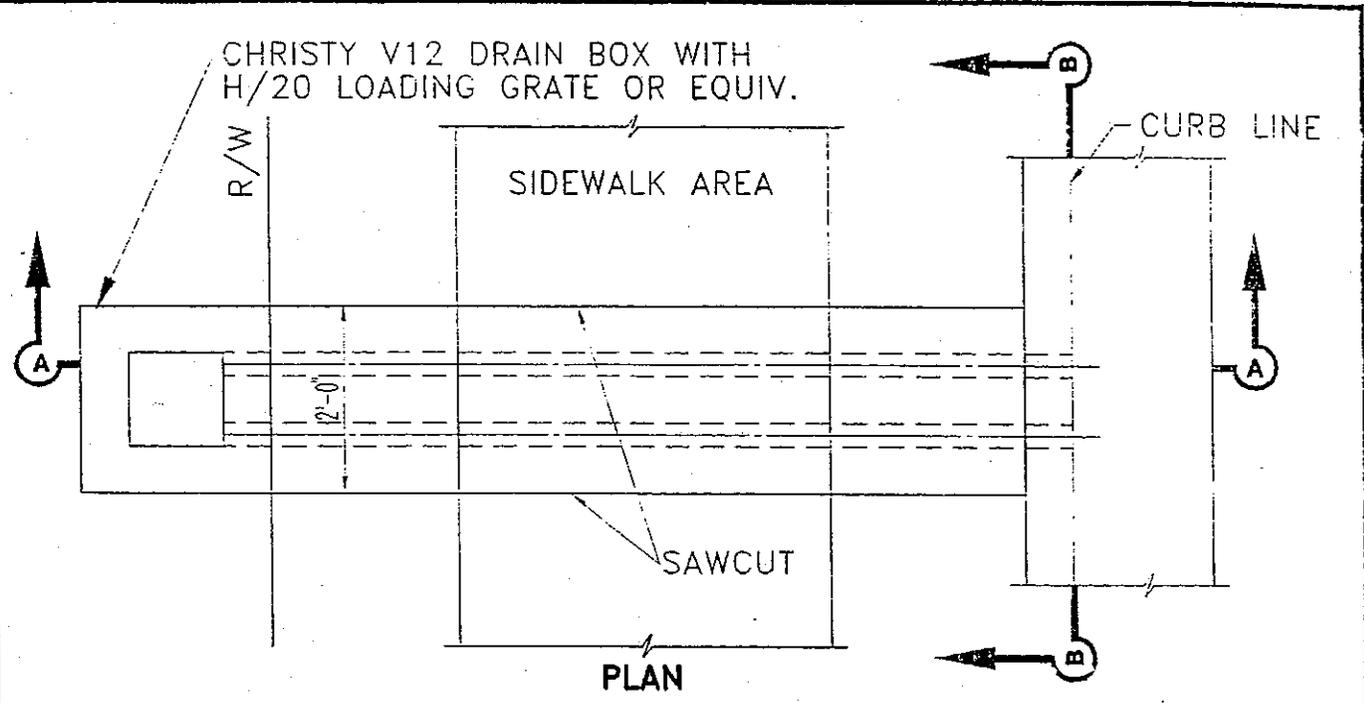
COUNTY OF ALAMEDA * PUBLIC WORKS AGENCY

△	Chang'd dimension	
△	Add "Zip Strip"	6/81
REVISIONS		

CONTRACTION JOINTS

APPROVAL REC	<i>Lawan</i>
APPROVED	<i>Paul C. Bitt</i>
APPROVED	<i>[Signature]</i>
Director of Public Works and Road Commissioner	

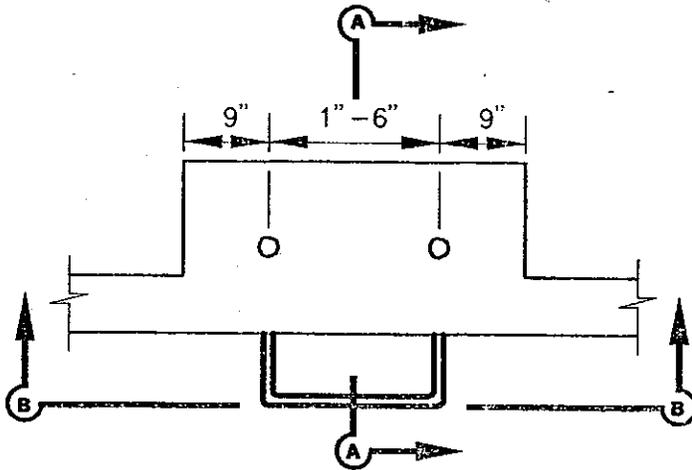
DRAWN	PLC	CHECKED	<i>AT TME</i>	DATE	May 1977	SCALE	None	FILE NO.	SD-522	1 of 1
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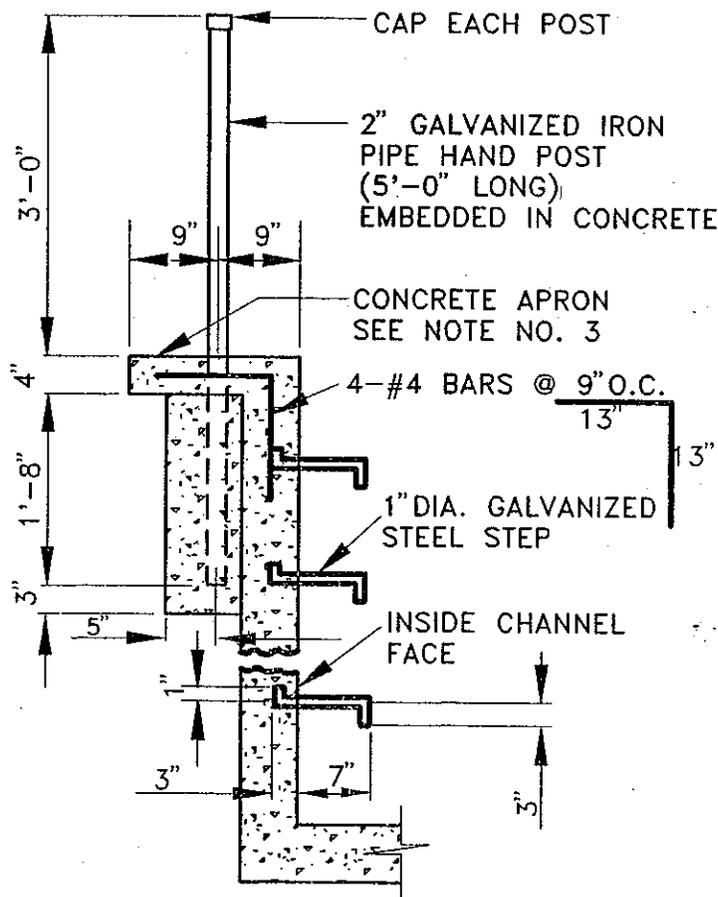
COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY													
<table border="1"> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </table>										SIDEWALK DRAIN TYPE II SINGLE FAMILY RESIDENTIAL LOTS			
<table border="1"> <tr> <td>APPROVAL REC.</td> <td><i>[Signature]</i></td> </tr> <tr> <td>APPROVED</td> <td></td> </tr> <tr> <td>APPROVED</td> <td><i>[Signature]</i></td> </tr> <tr> <td></td> <td>CM</td> </tr> <tr> <td></td> <td>COUNTY ENGINEER</td> </tr> </table>		APPROVAL REC.	<i>[Signature]</i>	APPROVED		APPROVED	<i>[Signature]</i>		CM		COUNTY ENGINEER		
APPROVAL REC.	<i>[Signature]</i>												
APPROVED													
APPROVED	<i>[Signature]</i>												
	CM												
	COUNTY ENGINEER												
<table border="1"> <tr> <td>REVISIONS</td> <td> </td> </tr> </table>		REVISIONS		<table border="1"> <tr> <td>DATE</td> <td>OCT. 1994</td> </tr> </table>	DATE	OCT. 1994	<table border="1"> <tr> <td>SCALE</td> <td>NONE</td> </tr> </table>	SCALE	NONE				
REVISIONS													
DATE	OCT. 1994												
SCALE	NONE												
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DRAWN	JC												
CHECKED													
FILE NO.	SD-527												
	1 of 1												

GENERAL NOTES

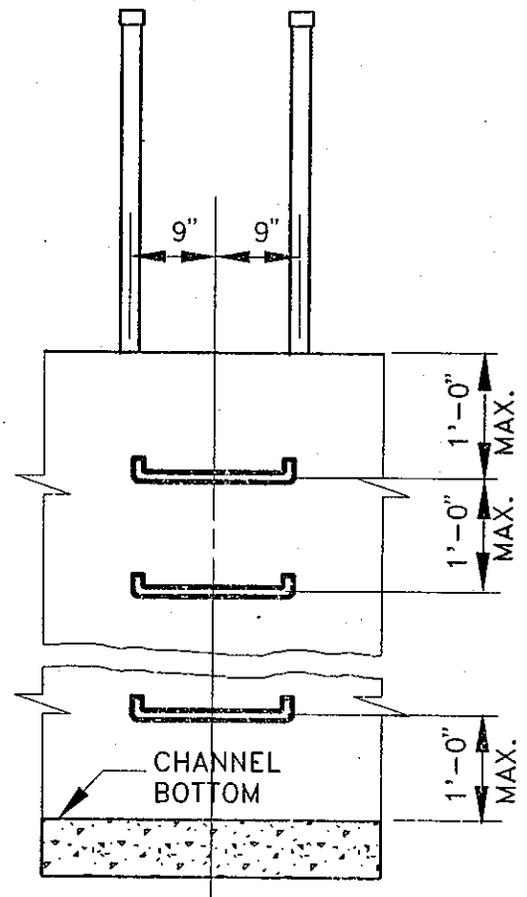
1. ALL MISCELLANEOUS IRON AND STEEL SHALL BE GALVANIZED AFTER FABRICATION.
2. SEE GENERAL PLANS FOR LOCATION OF STEPS.
3. THE CONCRETE APRON SHOWN IS ONLY FOR CHANNELS WITHOUT APRONS. FOR CHANNELS WITH APRONS, USE THE APRON PROVIDED.



PLAN



SECTION A-A



SECTION B-B

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

METAL STEP AND HAND POST DETAIL FOR VERTICAL CHANNEL WALLS

APPROVAL REC.

APPROVED

REVISIONS

DRAWN

EA

CHECKED

DATE

JAN. 1994

SCALE

NONE

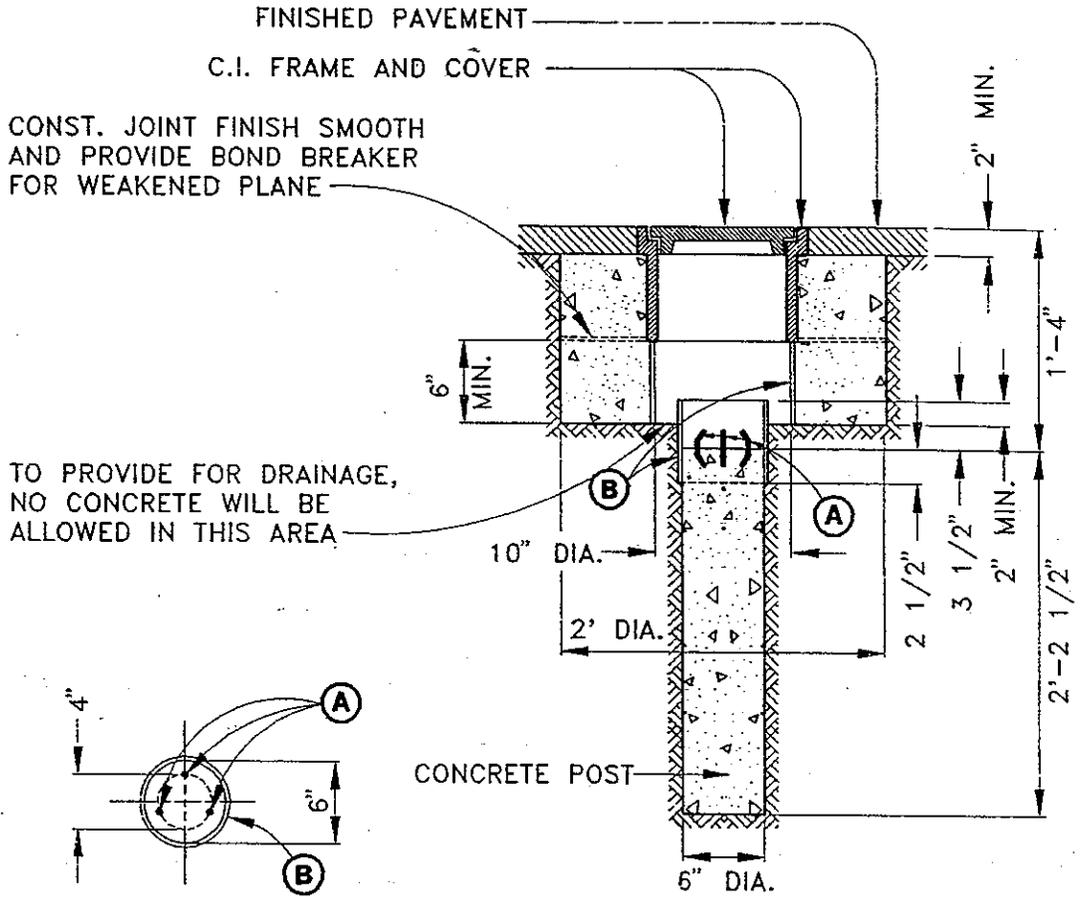
FILE NO.

SD-528

1 of 1

COUNTY ENGINEER

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.

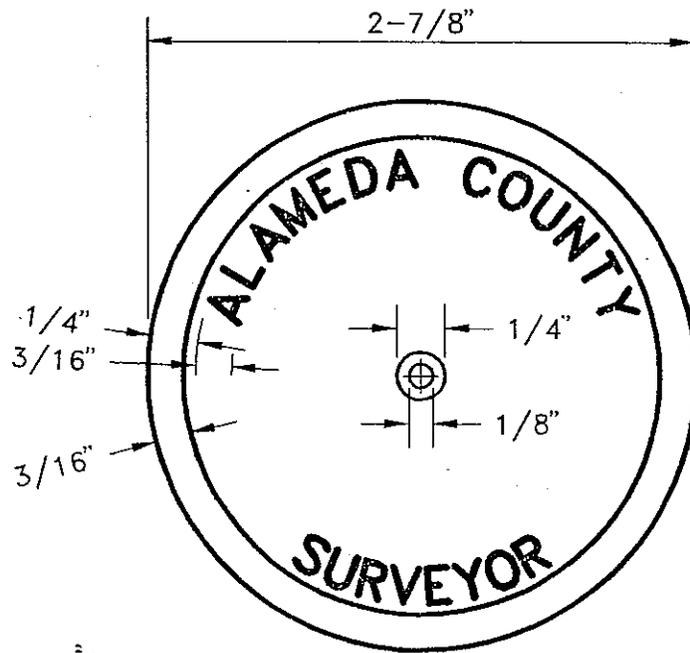
COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

CONCRETE MONUMENT SECTION WITHOUT DISC

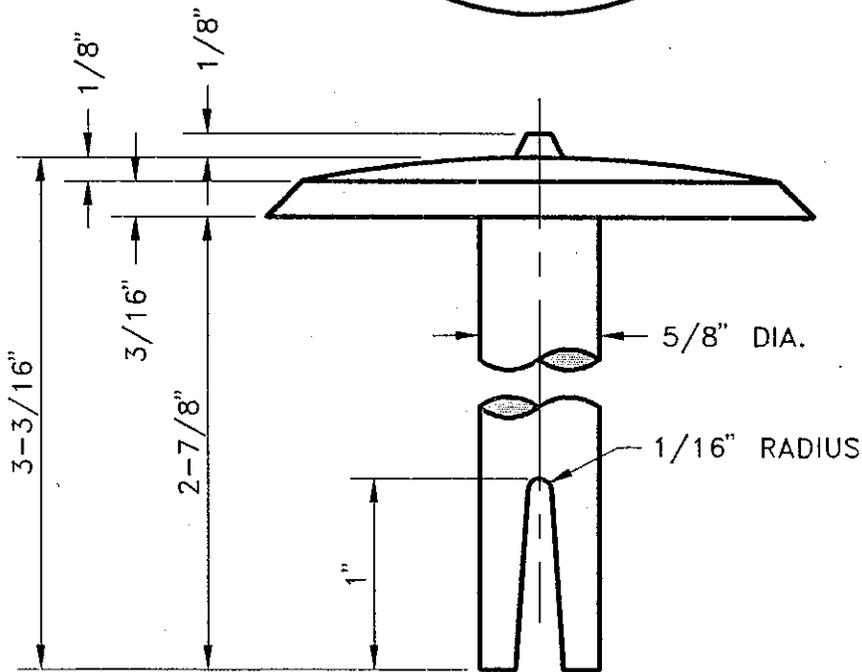
APPROVAL REF. *Richard Hendry 9/2/92*
 APPROVED *Richard Hendry*
 APPROVED *Cowan*
 C.M.

COUNTY ENGINEER AND COUNTY SURVEYOR

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



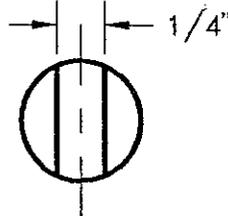
LETTERS TO BE STAMPED
OR CAST AS DEEP AS
POSSIBLE



NOTE:

BRONZE TO BE COMPOSED
APPROXIMATELY AS FOLLOWS:

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



COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

MONUMENT DISC

APPROVAL REC.

APPROVED *[Signature]*
APPROVED *[Signature]*
am

REVISIONS

COUNTY ENGINEER AND COUNTY SURVEYOR

DRAWN

JPB

CHECKED

DATE

FEB. 1994

SCALE

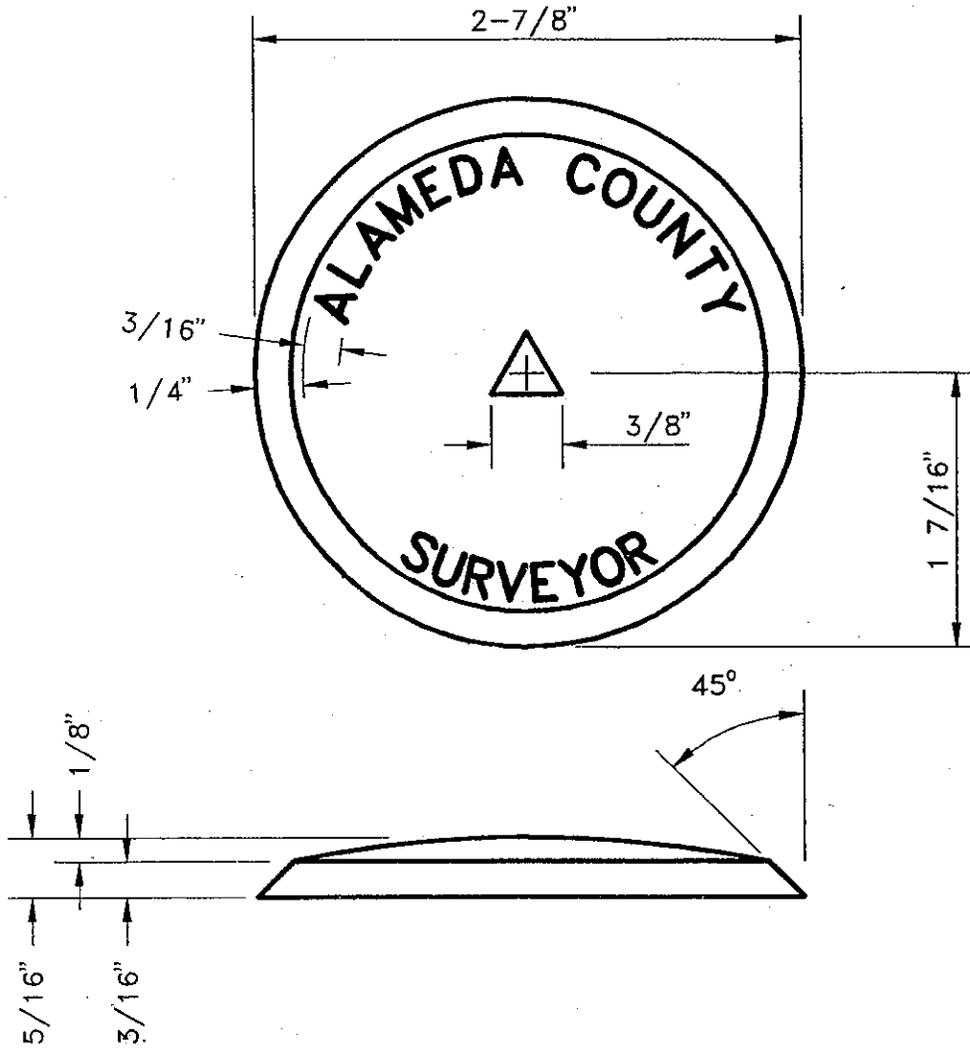
None

FILE NO.

SD-601

1 of 1

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

APPROVAL REC.

APPROVED *Stendrip*

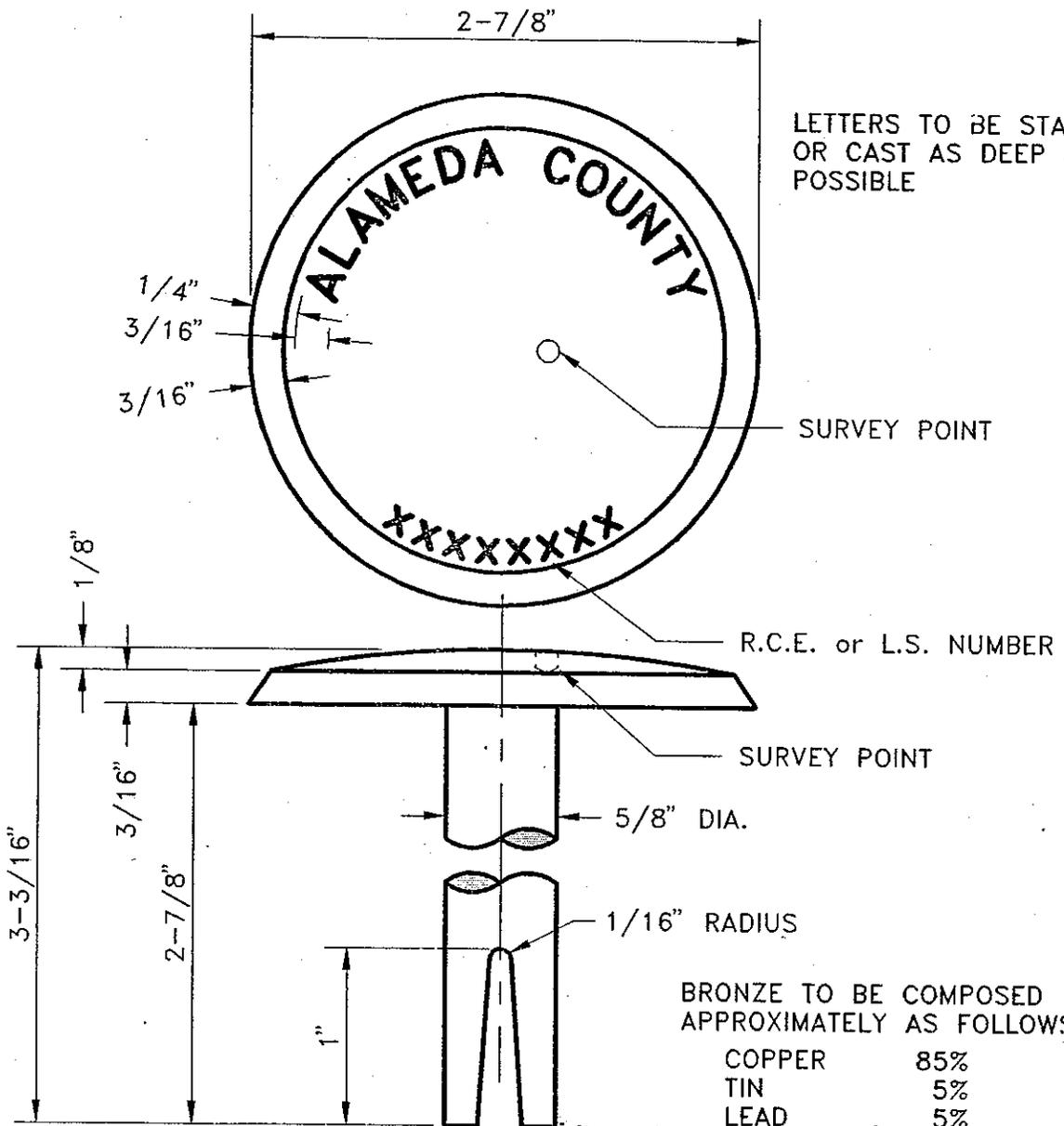
APPROVED *Fawar*

am

COUNTY ENGINEER AND COUNTY SURVEYOR

REVISIONS

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



LETTERS TO BE STAMPED OR CAST AS DEEP AS POSSIBLE

BRONZE TO BE COMPOSED APPROXIMATELY AS FOLLOWS:

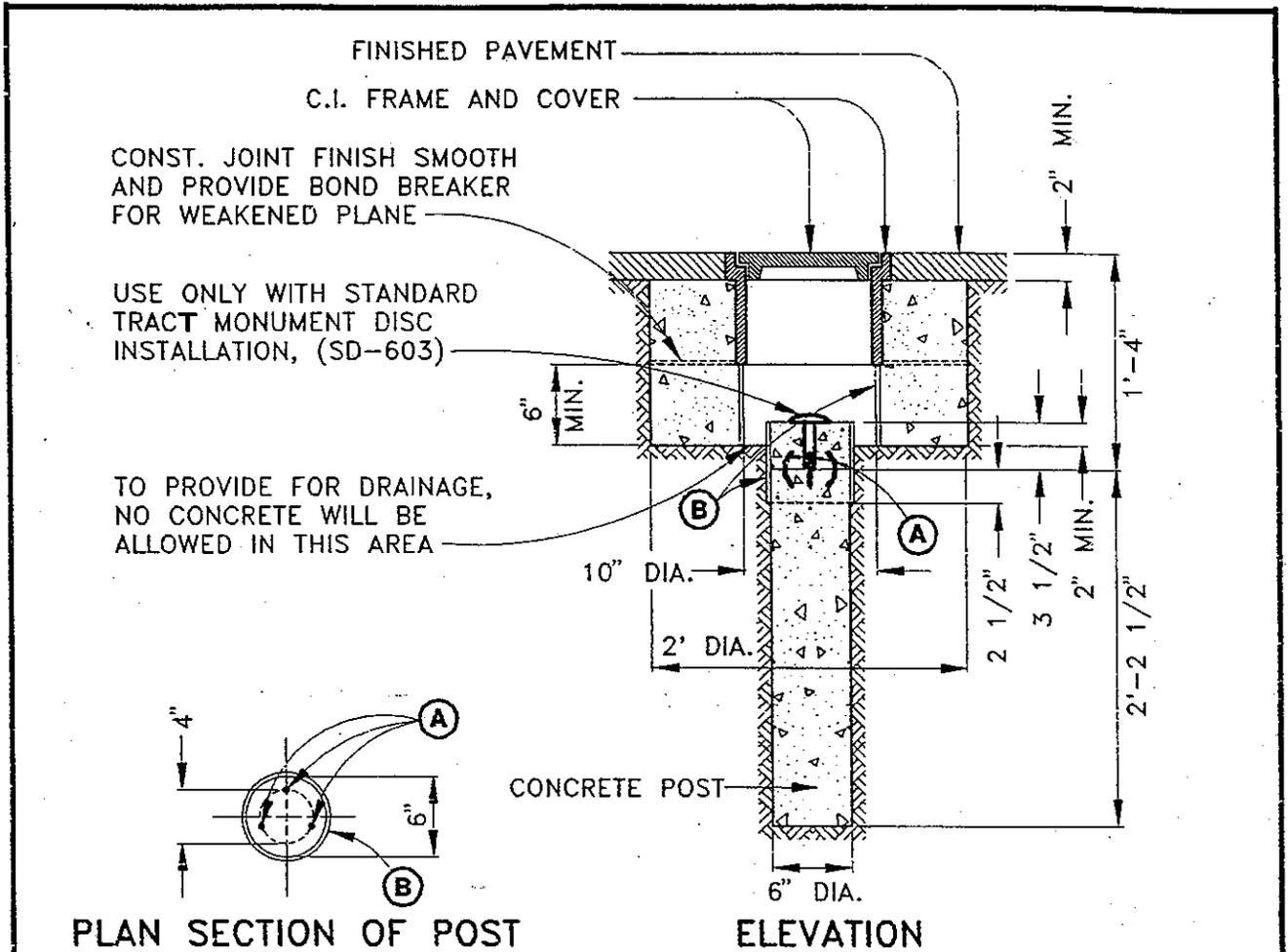
COPPER	85%
TIN	5%
LEAD	5%
ZINC	5%

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

REVISIONS		<p style="text-align: center;">TRACT MONUMENT DISC</p>		<p>APPROVAL REC.</p> <p>APPROVED <i>Stendrup</i></p> <p>APPROVED <i>Lawan</i></p> <p style="text-align: center;">AM</p>	
<p>DRAWN JPB</p>				<p>COUNTY ENGINEER AND COUNTY SURVEYOR</p>	
<p>CHECKED</p>		<p>DATE FEB. 1994</p>	<p>SCALE None</p>	<p>FILE NO. SD-603</p>	<p>1 of 1</p>



PLAN SECTION OF POST

ELEVATION

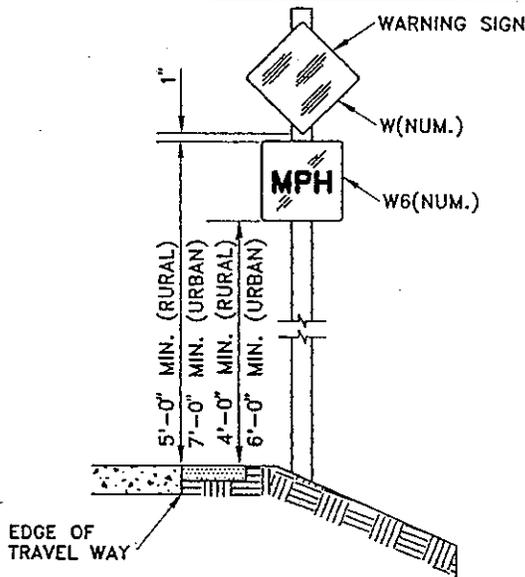
NOTES:

- 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-600 FOR CONCRETE MONUMENT SECTION WITHOUT DISC.

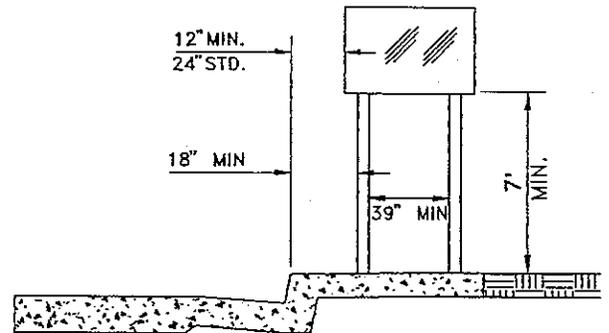
COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

		<p>CONCRETE MONUMENT SECTION WITH DISC</p>		<p>APPROVAL REC. <i>[Signature]</i> 9/2/92 APPROVED <i>[Signature]</i> APPROVED <i>[Signature]</i> all COUNTY ENGINEER AND COUNTY SURVEYOR</p>	
REVISIONS					
DRAWN	TK, MTF	CHECKED	DATE	SCALE	FILE NO.
			JULY 1992	NTS	SD-604
					1 of 1

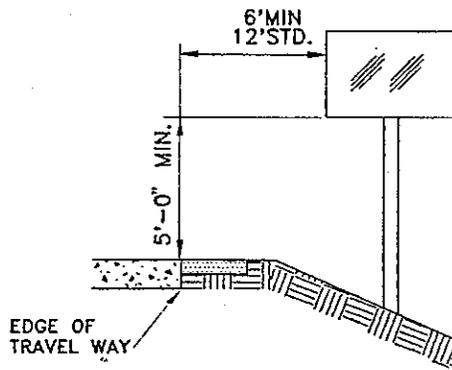
SD-700 SERIES SIGNING DETAILS



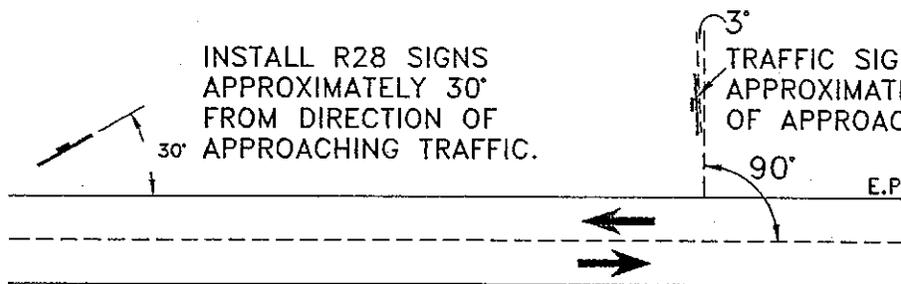
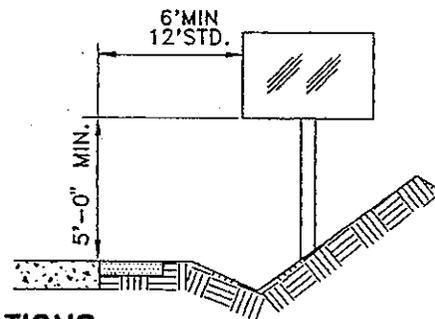
ADVISORY SPEED SIGN INSTALLATION



URBAN LOCATIONS



RURAL LOCATIONS



INSTALL R28 SIGNS
APPROXIMATELY 30°
FROM DIRECTION OF
APPROACHING TRAFFIC.

TRAFFIC SIGNS SHALL BE MOUNTED
APPROXIMATELY 93' FROM DIRECTION
OF APPROACHING TRAFFIC.

NOTES:

1. ALL SIGN POSTS SHALL BE UNISTRUT TELES PAR 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

SIGN MOUNTING DETAILS

APPROVAL REC.
Stendrup
APPROVED
APPROVED *awan*
COM

COUNTY ENGINEER

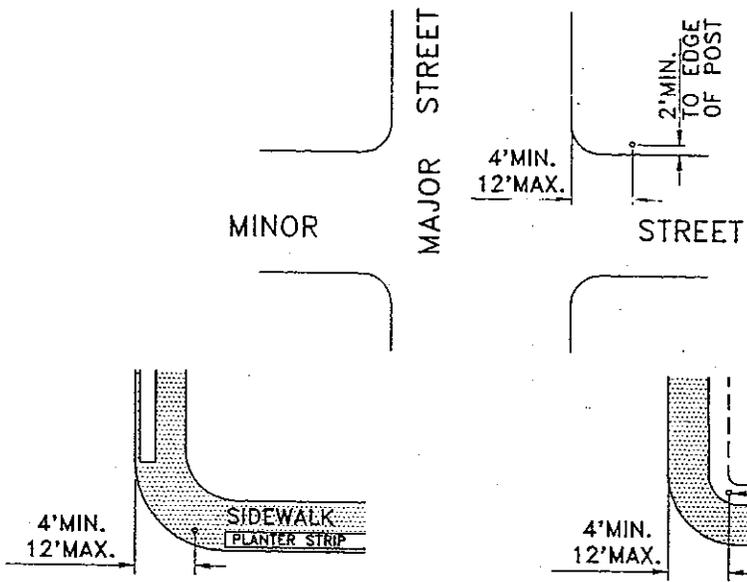
DRAWN EA

CHECKED

DATE DEC 1994

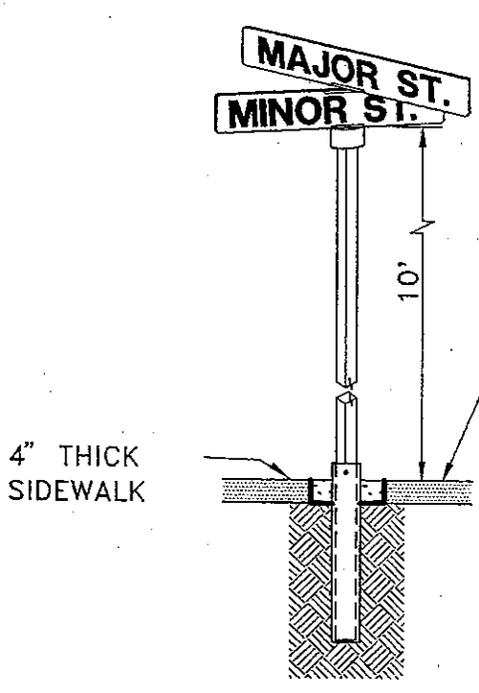
SCALE NONE

FILE NO. SD-700 1 of 2

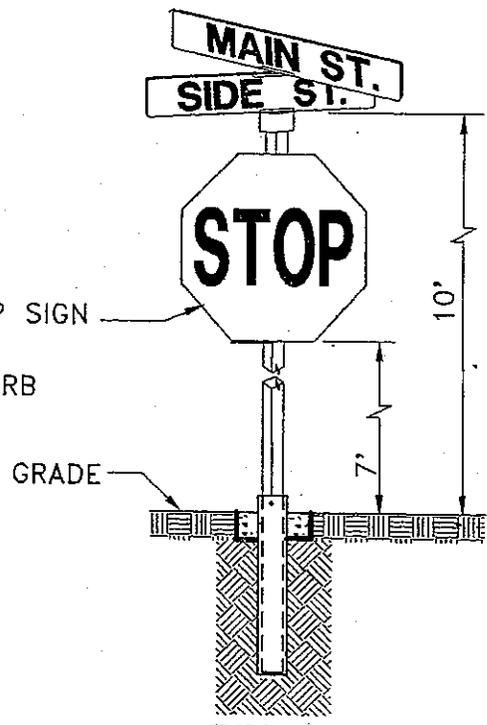


SEPARATED SIDEWALK LOCATION

MONOLITHIC SIDEWALK LOCATION



TYPE I



TYPE II

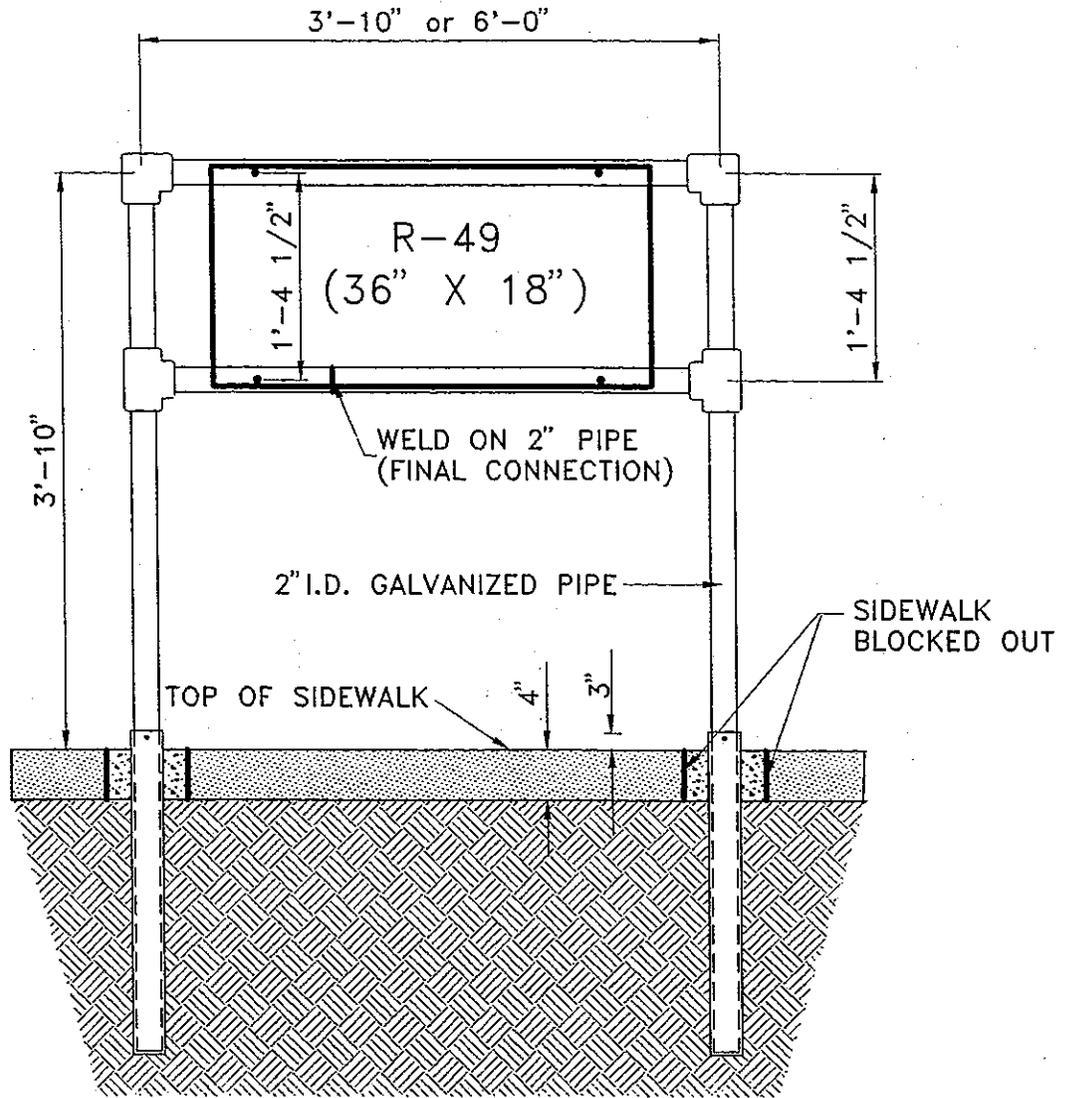
- NOTES:**
1. SIGN POST SHALL BE "UNISTRUT TELES PAR 2" X 2" POST WITH YIELDING BREAKAWAY BASE" OR EQUIVALENT.
 2. SEE SD-700 FOR DETAILS NOT SHOWN.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

**STREET NAME SIGN
INSTALLATION DETAIL**

APPROVAL REC
Frank McKinnon
APPROVED
Susan A. Swanson
APPROVED
Susan A. Swanson
am
COUNTY ENGINEER

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



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.

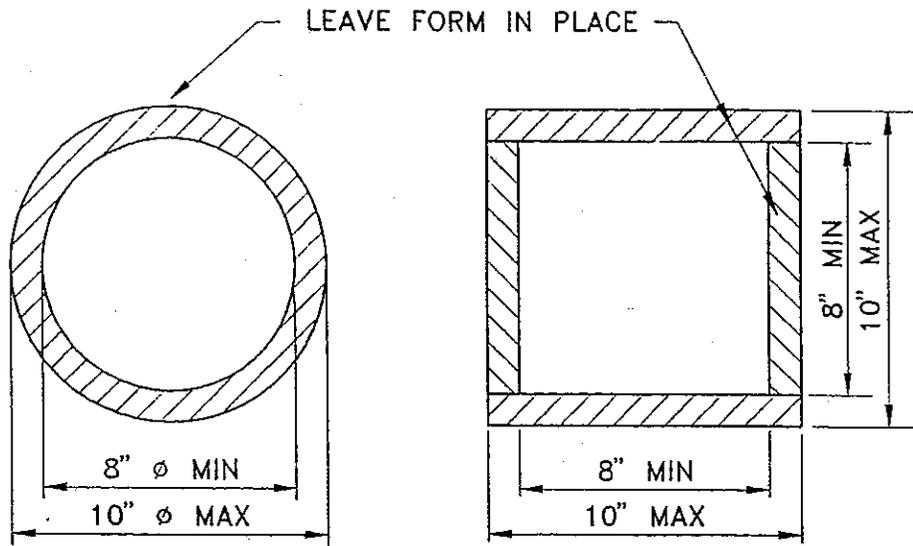
COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

9/94	CHANGED HATCHING	EA
REVISIONS		

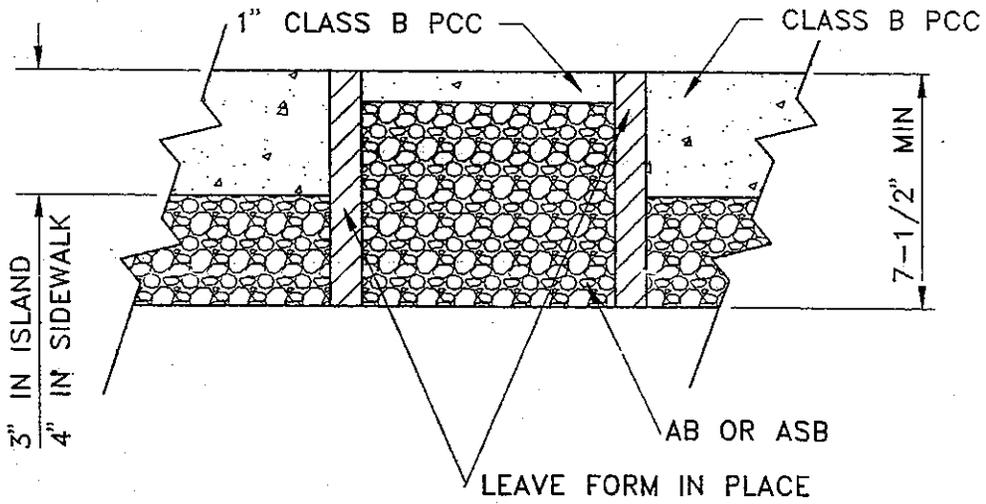
R-49 SIGN MOUNT

APPROVED BY: *[Signature]*
 APPROVED
 APPROVED: *[Signature]*
 COUNTY ENGINEER

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



PLAN



SECTION

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

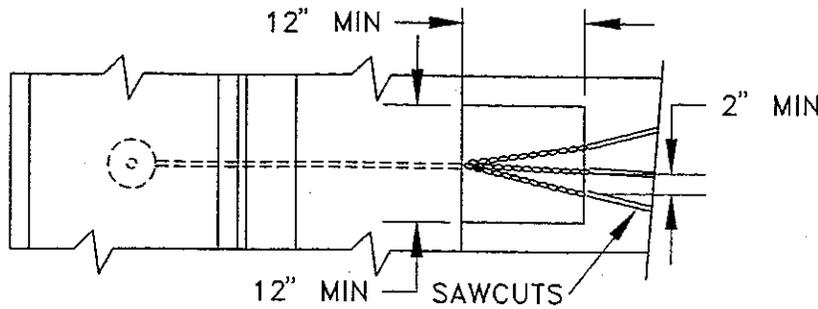
SIGN POST
BLOCKOUT HOLE DETAIL

APPROVAL REC.
[Signature]
APPROVED
[Signature]
APPROVED
[Signature]
[Signature]

COUNTY ENGINEER

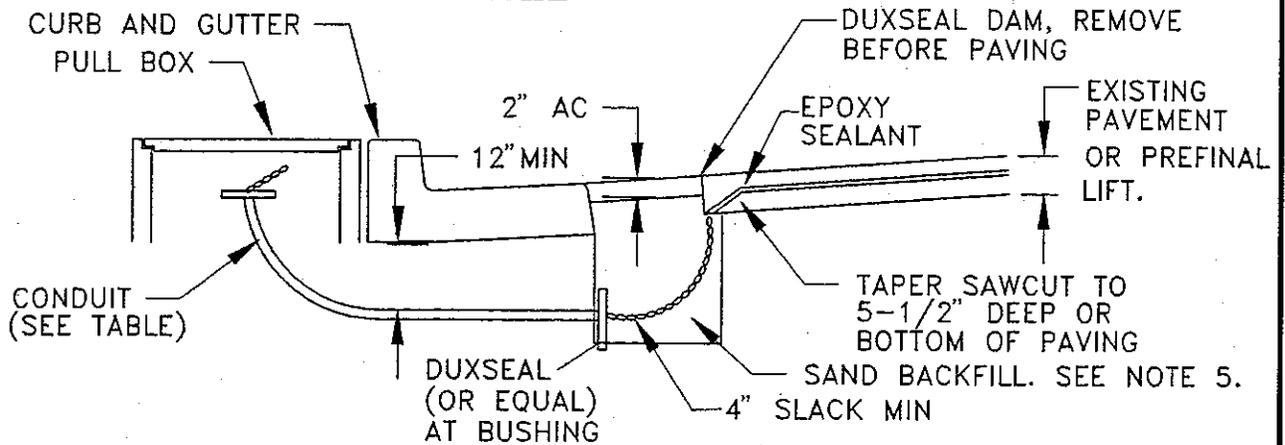
REVISIONS

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

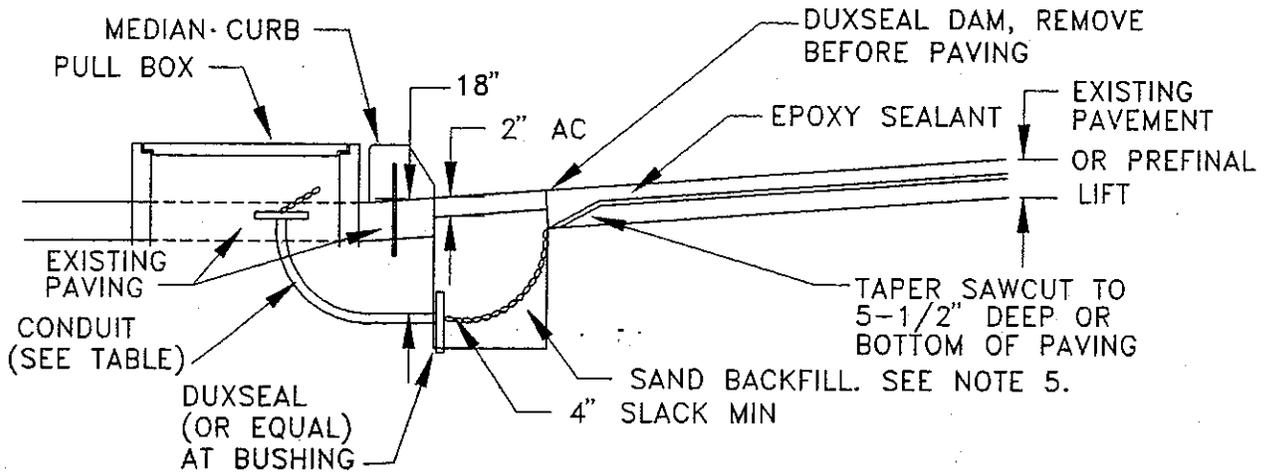


MIN SIZE CONDUIT	# OF WIRES
1"	1-6
1-1/2"	7-16
2"	17-24

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

**RIGID CONDUIT STUB
DETECTOR LEAD IN**

APPROVAL REC. *D. Hendrup*
APPROVED

APPROVED *J. C. Wan*
am

COUNTY ENGINEER

REVISIONS

DRAWN

JC

CHECKED

DATE

MAR 1995

SCALE

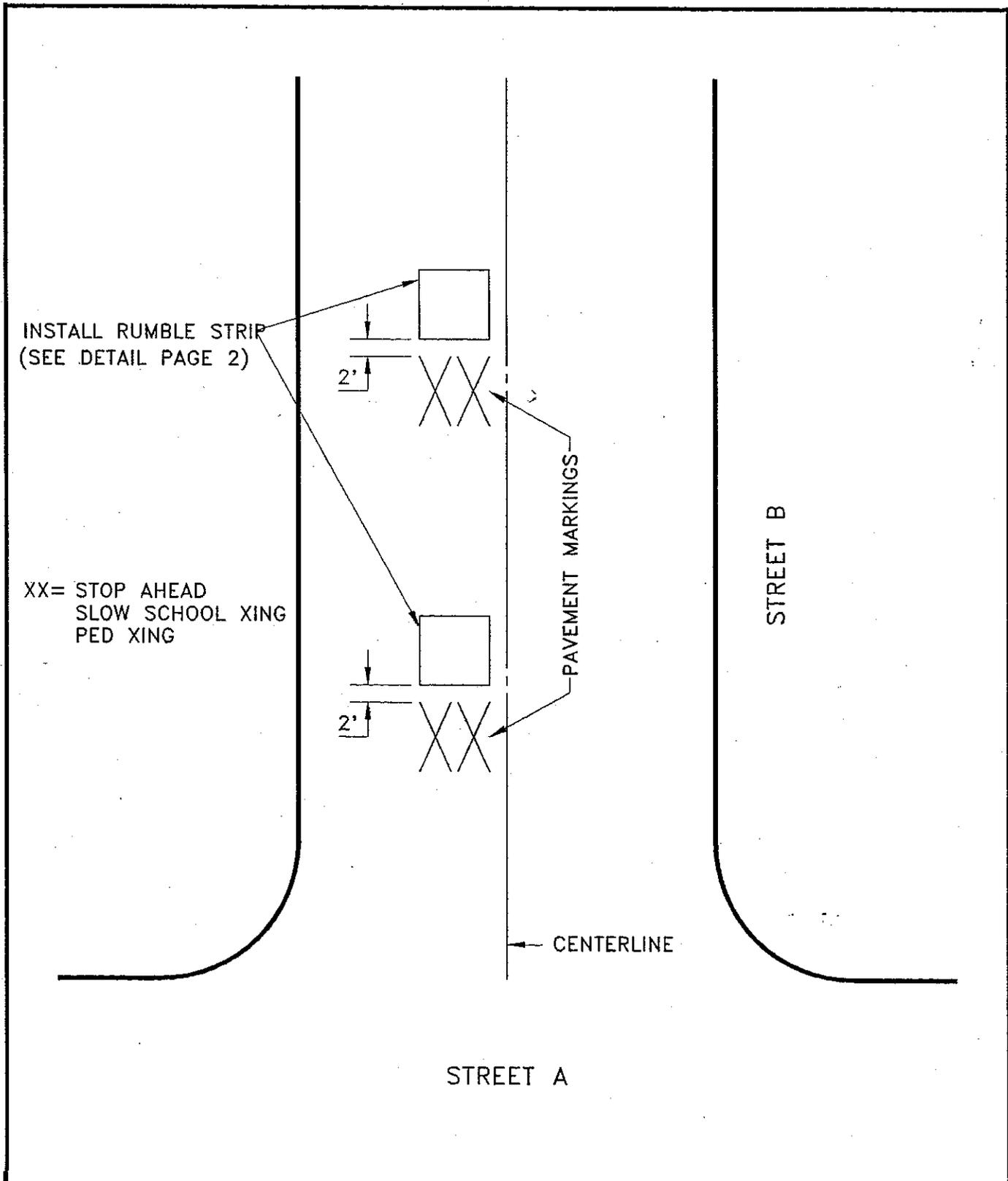
NONE

FILE NO.

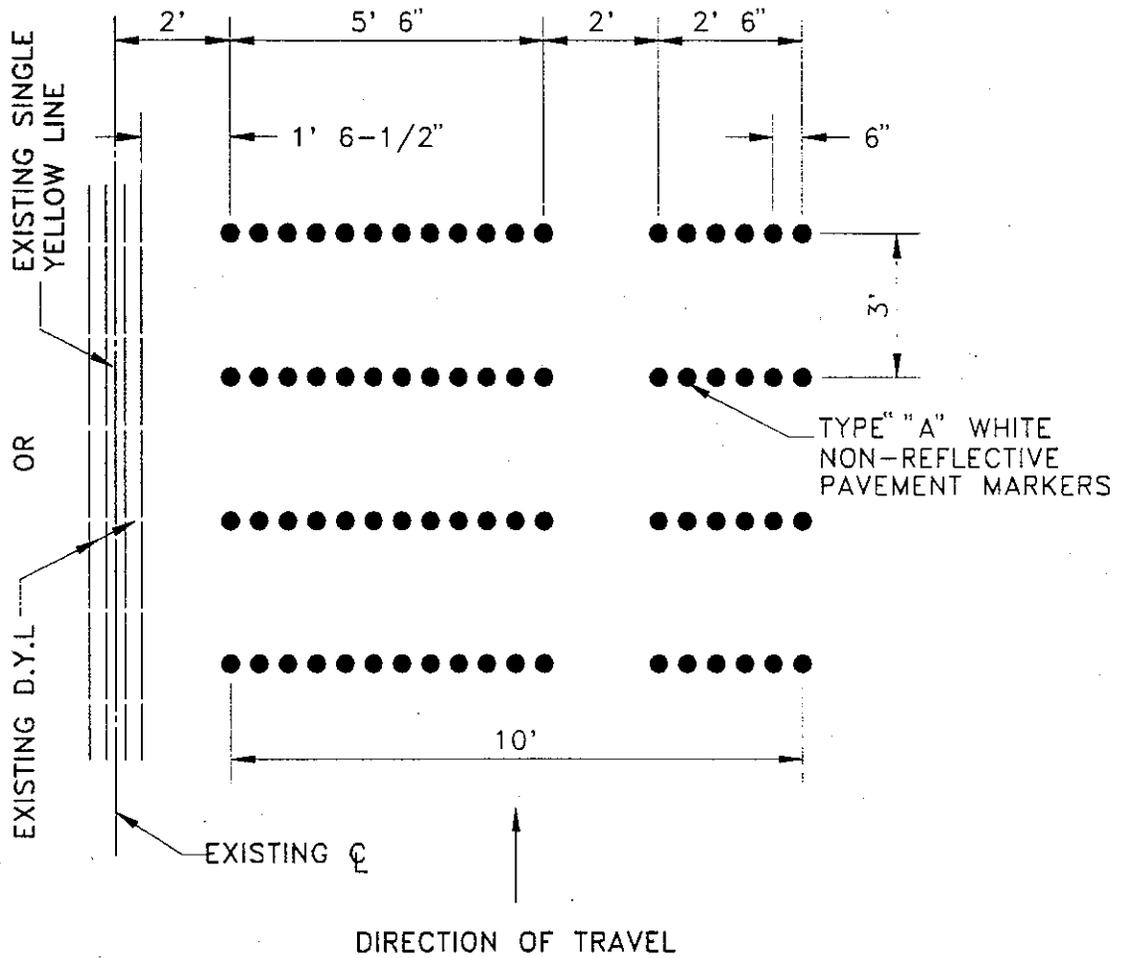
SD-705

1 of 1

PLOT 1=1



COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY					
TYPICAL RUMBLE STRIP INSTALLATION			APPROVAL REC. APPROVED <i>[Signature]</i> APPROVED <i>[Signature]</i> <i>am</i> COUNTY ENGINEER AND COUNTY SURVEYOR		
REVISIONS					
DRAWN	JPB	CHECKED	DATE	SCALE	FILE NO.
			October 1992	None	SD-706
					1 of 2



NOTE: DIMENSIONS ARE CENTER TO CENTER

RUMBLE STRIP DETAIL

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

TYPICAL RUMBLE STRIP
INSTALLATION

APPROVAL REC.

APPROVED *Stendrup*

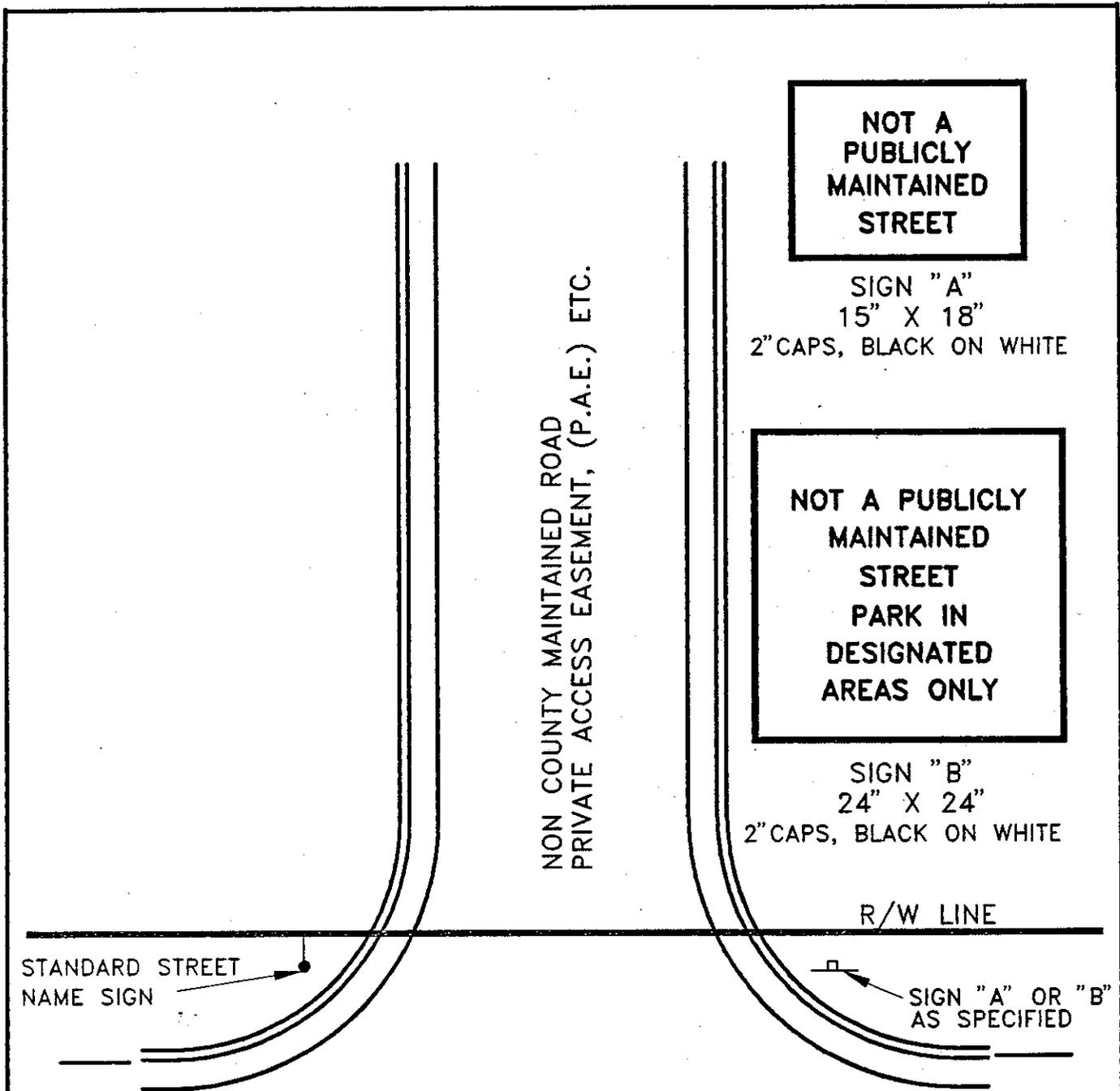
APPROVED *Tawan*

am

COUNTY ENGINEER AND COUNTY SURVEYOR

REVISIONS

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



COUNTY MAINTAINED ROAD OR STATE HIGHWAY

- 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			<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="font-size: small;">APPROVAL REC.</td> <td><i>[Signature]</i></td> </tr> <tr> <td style="font-size: small;">APPROVED</td> <td><i>[Signature]</i></td> </tr> <tr> <td style="font-size: small;">APPROVED</td> <td><i>[Signature]</i></td> </tr> <tr> <td style="font-size: small;">COUNTY ENGINEER</td> <td><i>[Signature]</i></td> </tr> </table>			APPROVAL REC.	<i>[Signature]</i>	APPROVED	<i>[Signature]</i>	APPROVED	<i>[Signature]</i>	COUNTY ENGINEER	<i>[Signature]</i>
APPROVAL REC.	<i>[Signature]</i>												
APPROVED	<i>[Signature]</i>												
APPROVED	<i>[Signature]</i>												
COUNTY ENGINEER	<i>[Signature]</i>												
REVISIONS			DATE	SCALE	FILE NO.								
DRAWN	CHECKED	DATE	SCALE	FILE NO.	PAGE								
EA		FEB. 1994	NONE	SD-707	1 of 2								

**NOT A
PUBLICLY
MAINTAINED
STREET**

SIGN "A"
15" X 18"
2" CAPS, BLACK ON WHITE

**NOT A PUBLICLY
MAINTAINED
STREET
PARK IN
DESIGNATED
AREAS ONLY**

SIGN "B"
24" X 24"
2" CAPS, BLACK ON WHITE

NON COUNTY MAINTAINED ROAD
PRIVATE ACCESS EASEMENT, (P.A.E.) ETC.

R/W LINE

STANDARD STREET
NAME SIGN

SIGN "A" OR "B"
AS SPECIFIED

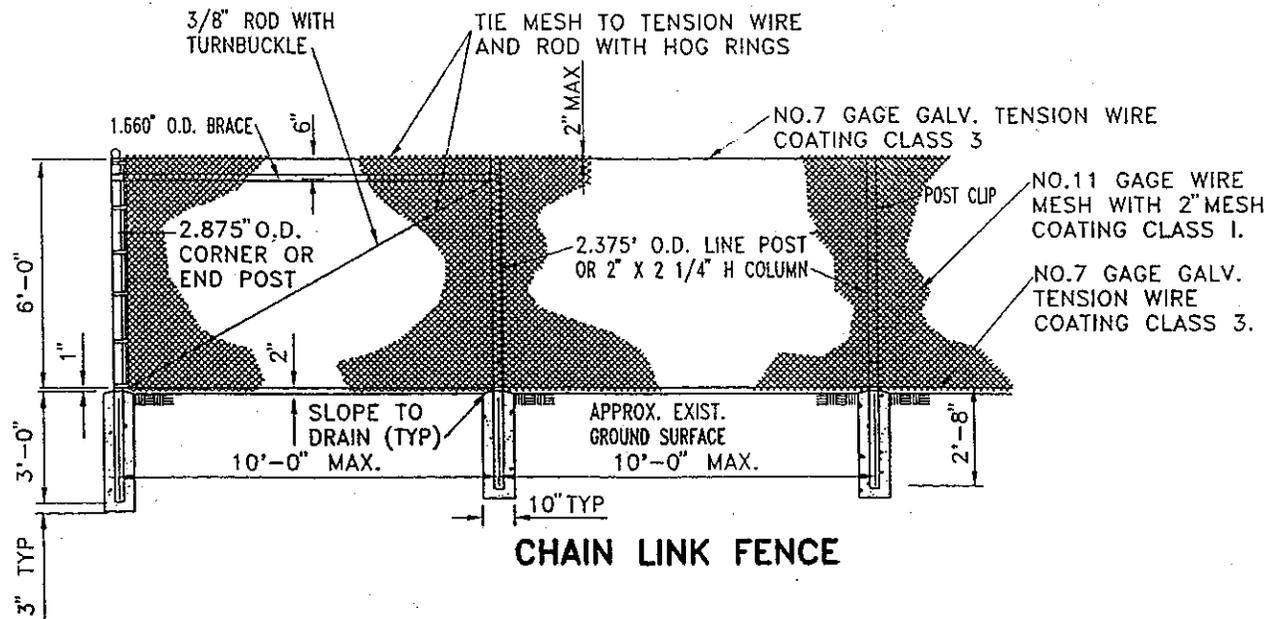
COUNTY MAINTAINED ROAD OR STATE HIGHWAY

NOTE: REFER TO SD-702 FOR SIGN MOUNTING DETAILS

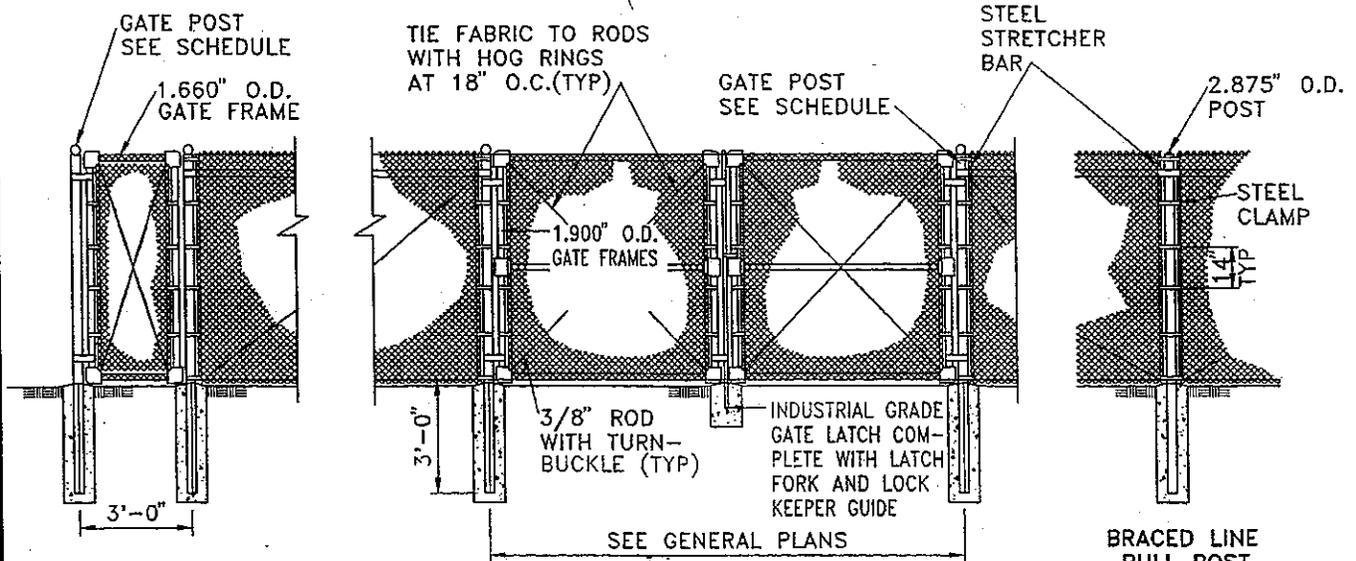
COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

REVISIONS		<p align="center">SIGNING</p> <p align="center">NON-COUNTY MAINTAINED ROAD</p> <p align="center">DRIVEWAY TYPE ENTRANCE</p>	<p>APPROVAL DEC. <i>Frank Adams</i></p>		
			<p>APPROVED <i>[Signature]</i></p> <p>APPROVED <i>[Signature]</i></p> <p align="center">AM</p> <p align="right">COUNTY ENGINEER</p>		
DRAWN	CHECKED	DATE	SCALE	FILE NO.	
EA		FEB. 1994	NONE	SD-707	2 of 2

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:

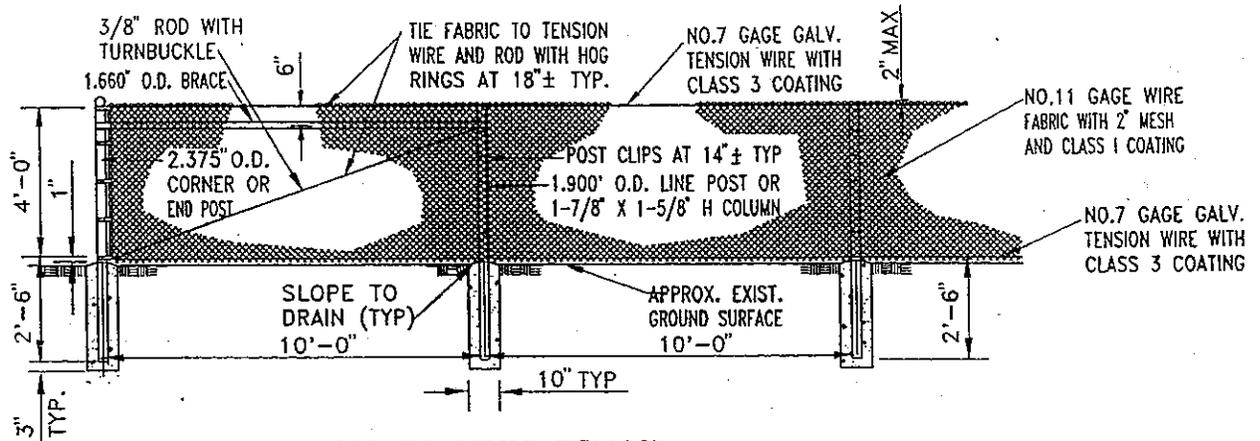
1. CENTER LINE OF CHAIN LINK FENCE SHALL BE 6" INSIDE RIGHT OF WAY UNLESS OTHERWISE INDICATED.
2. ALL HARDWARE SHALL BE INDUSTRIAL HARDWARE GRADE.
3. BRACING IS THE SAME ON BOTH SIDES OF CORNER POSTS.
4. INSTALL INDUSTRIAL GRADE GATE STOPS AS DIRECTED BY THE ENGINEER.
5. TIE WIRE AND HOG RINGS SHALL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

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

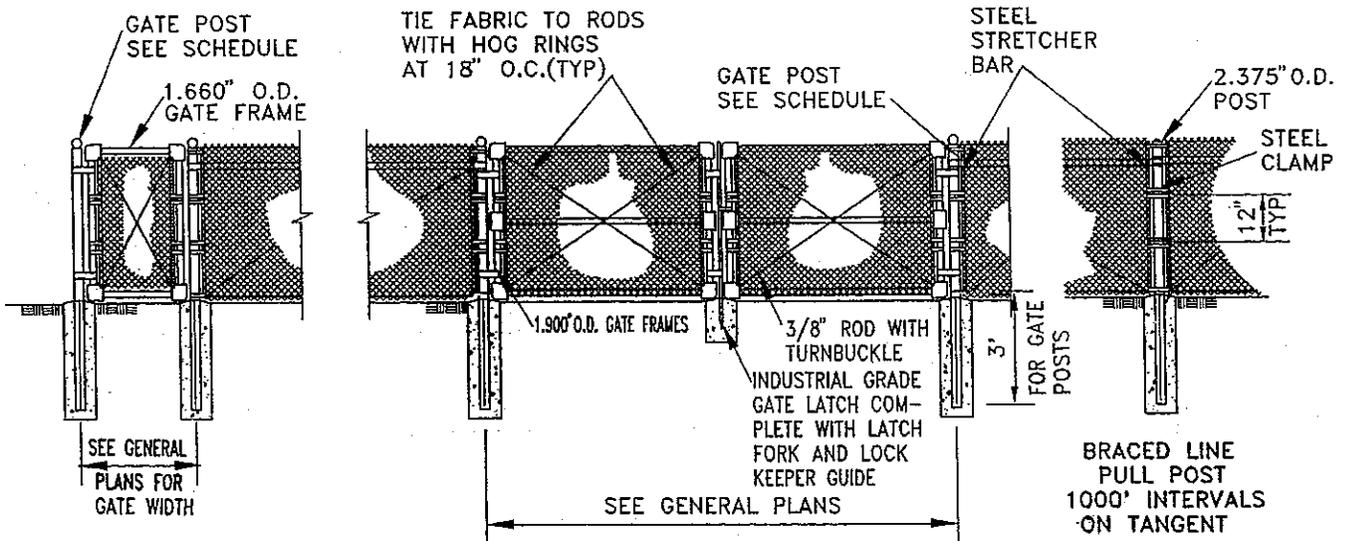
6' HIGH CHAIN-LINK FENCE AND CHAIN-LINK GATES

APPROVAL REG.
Hunt Baker
 APPROVED
Stewartson
 APPROVED
Stewartson
 am
 COUNTY ENGINEER

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



CHAIN LINK FENCE



CHAIN LINK GATES

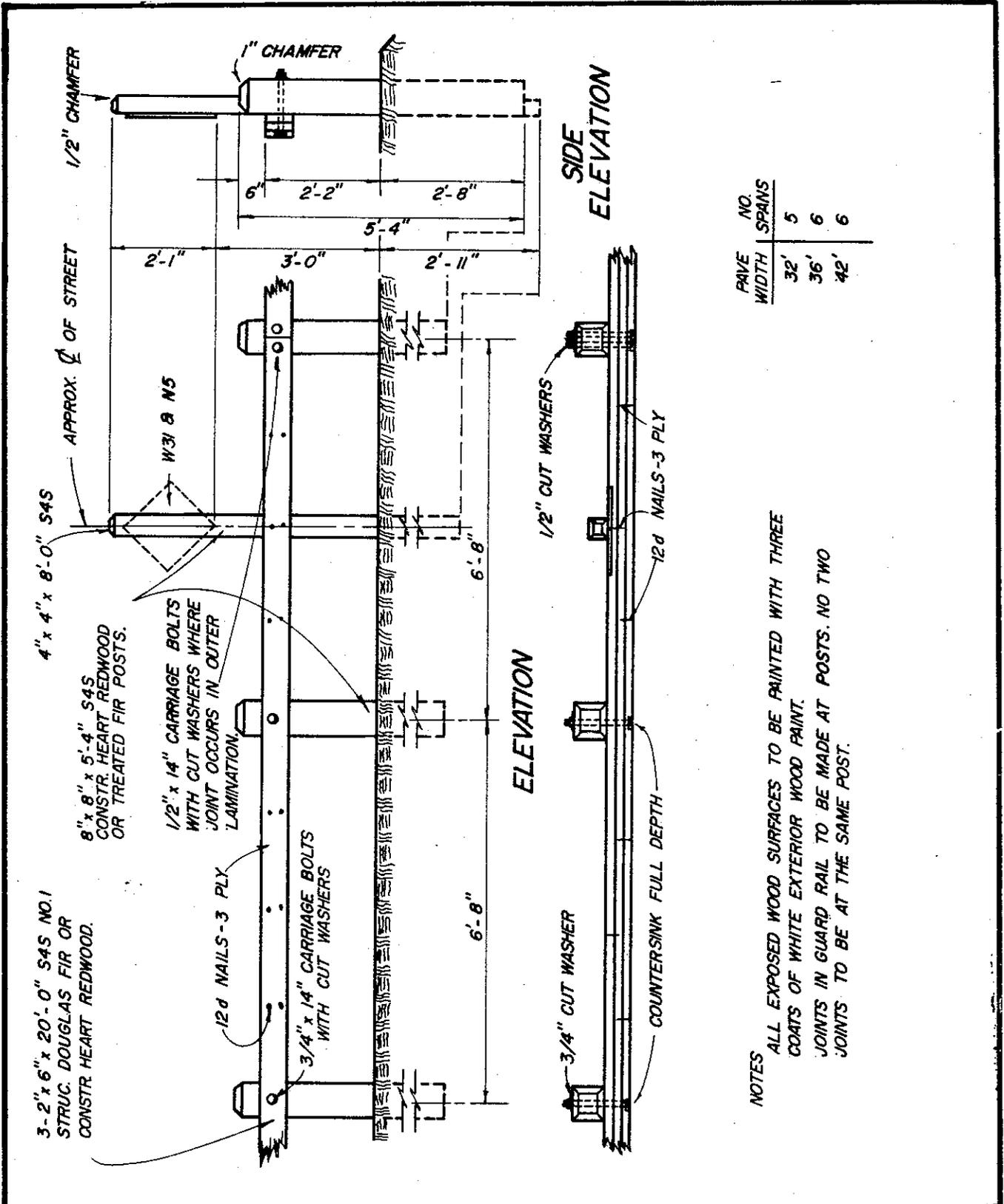
GATE POST	
GATE WIDTH	O.D.
≤ 6'	2.875"
> 6' & ≤ 13'	4.0"
> 13' & ≤ 18'	6.625"

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

<p>4' HIGH CHAIN-LINK FENCE AND CHAIN-LINK GATES</p>		<p>APPROVAL REC. <i>Paul Pelt</i></p>
		<p>APPROVED <i>A Swanson</i></p>
<p>REVISIONS</p>		<p>APPROVED <i>A Swanson</i></p>
<p>DRAWN JC</p>		<p>COUNTY ENGINEER <i>AW</i></p>
<p>CHECKED</p>	<p>DATE JAN. 1995</p>	<p>SCALE NONE</p>
<p>FILE NO. SD-801</p>		<p>1 of 1</p>



PAVE WIDTH	NO SPANS
32'	5
36'	6
42'	6

NOTES

ALL EXPOSED WOOD SURFACES TO BE PAINTED WITH THREE COATS OF WHITE EXTERIOR WOOD PAINT.

JOINTS IN GUARD RAIL TO BE MADE AT POSTS. NO TWO JOINTS TO BE AT THE SAME POST.

COUNTY OF ALAMEDA * PUBLIC WORKS AGENCY

REVISIONS

TIMBER BARRICADE

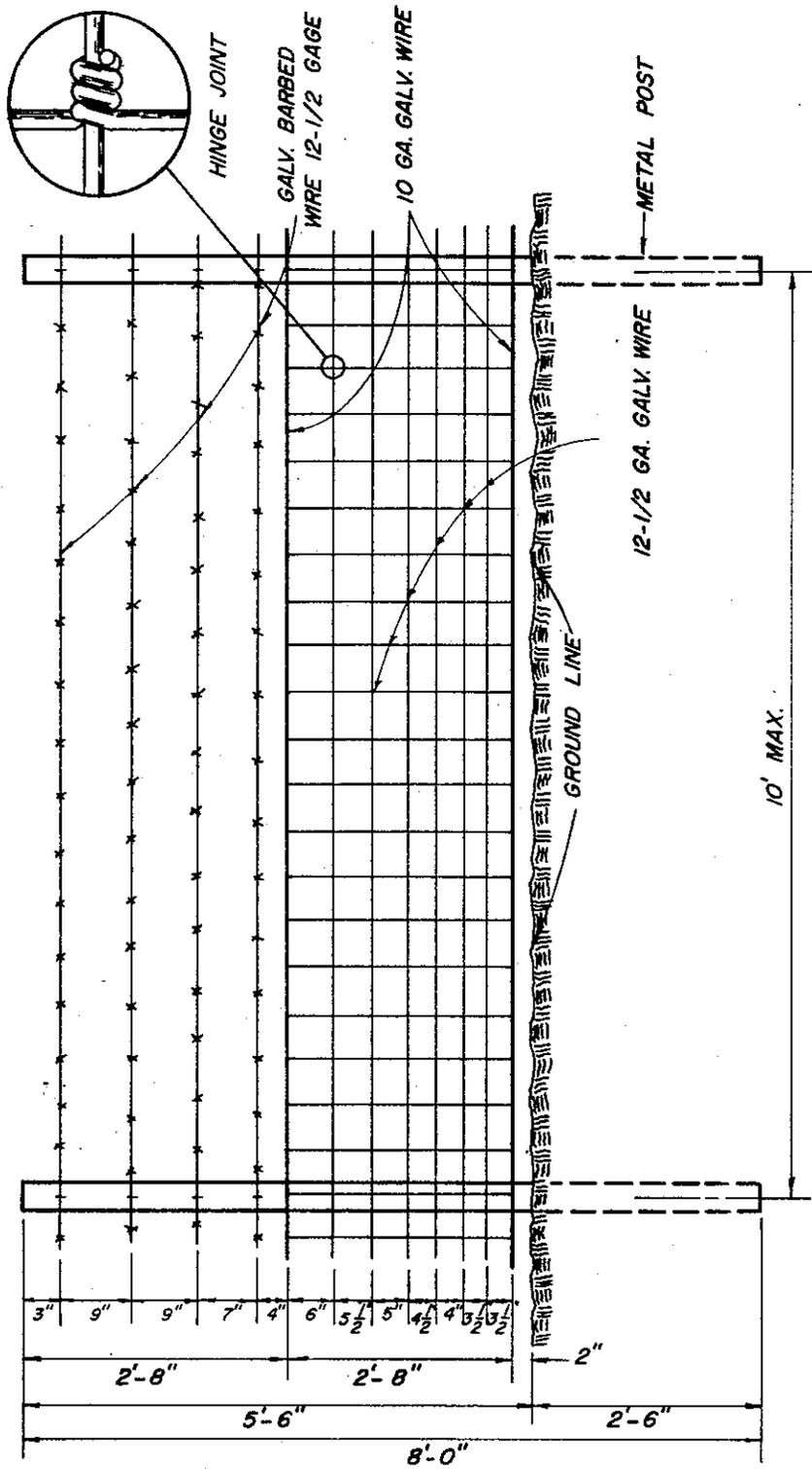
APPROVAL REC. *and Kanar*

APPROVED *Robert C. Miller*

APPROVED *Walter...*

Director of Public Works and Road Commissioner

DRAWN JJJ	CHECKED <i>at TME</i>	DATE Apr. 1976	SCALE None	FILE NO. 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. 1 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

APPROVAL REC. *and Kawan*

APPROVED *P. J. C. Bitt*

APPROVED *[Signature]*
 Director of Public Works and Road Commissioner

REVISIONS	DRAWN JJJ	CHECKED <i>RM</i> <i>TMC</i>	DATE Apr. 1976	SCALE None	FILE NO. SD-809	1 of 1
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