

STANDARD DETAILS/ DESIGN GUIDELINES (SD)



Public Works Agency
— *Alameda County* —

**399 ELMHURST STREET
HAYWARD, CA 94544-1395**

PUBLIC WORKS DESIGN GUIDELINES (SD)
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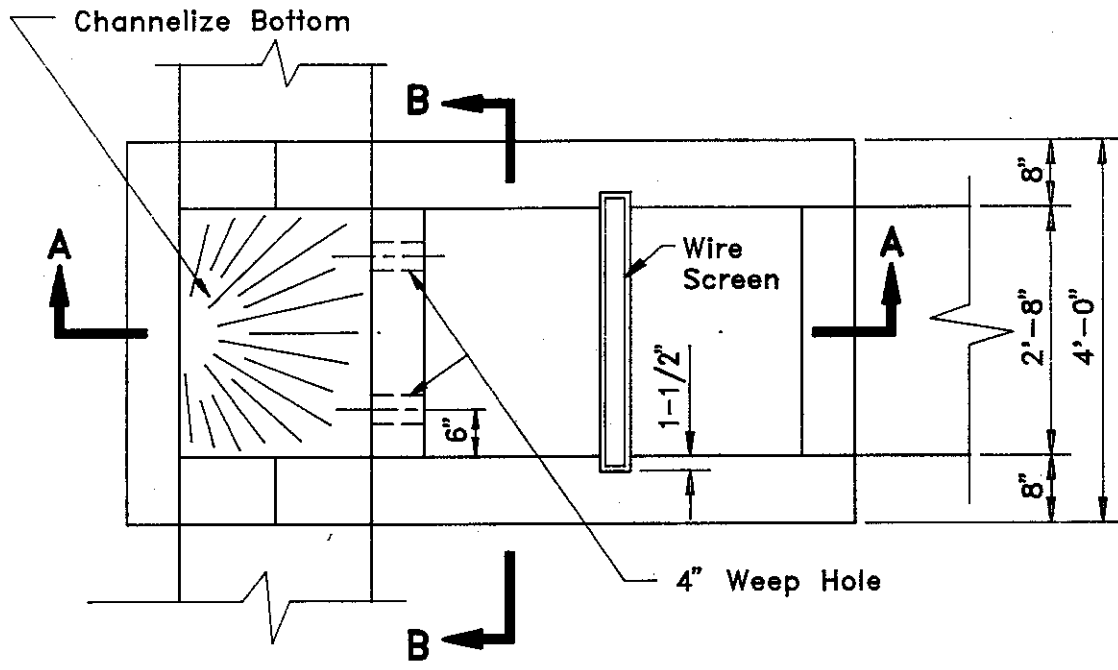
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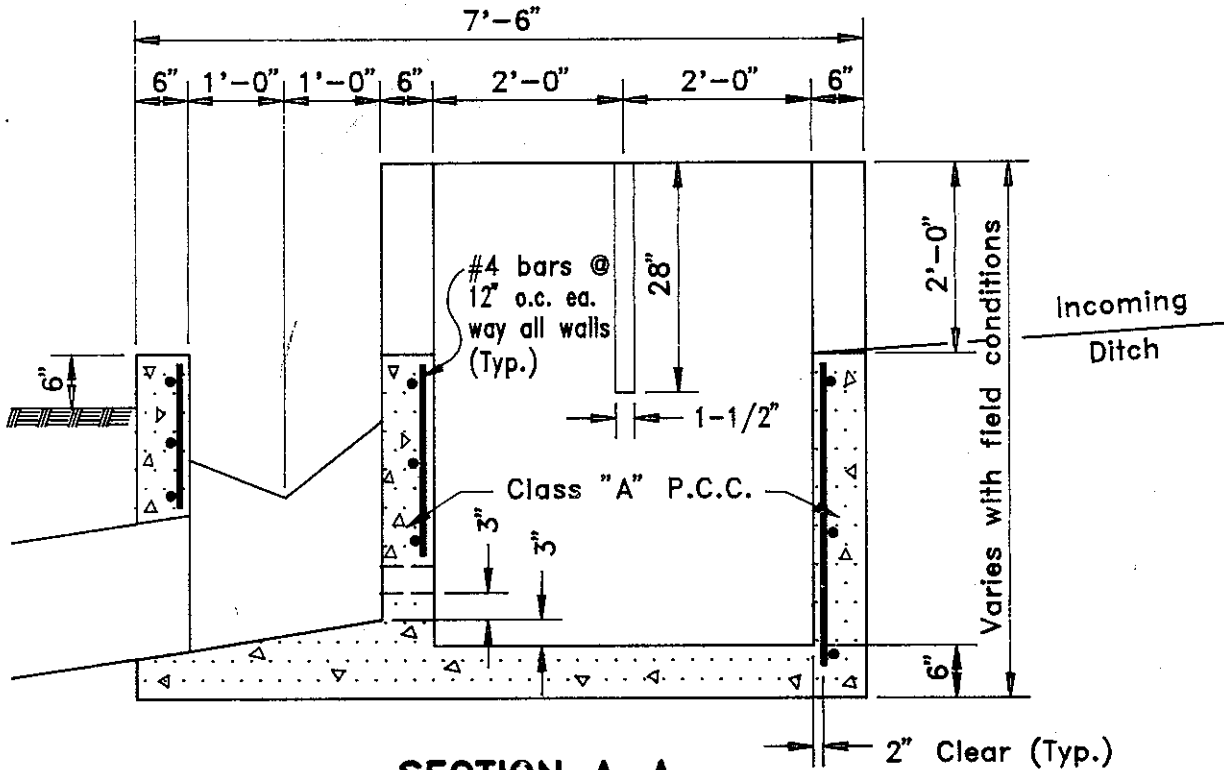
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PLAN



SECTION A-A

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

SILT BASIN

APPROVAL REC.

APPROVED *[Signature]*

APPROVED *[Signature]*

am

COUNTY ENGINEER AND ROAD COMMISSIONER

REVISIONS

DRAWN KS

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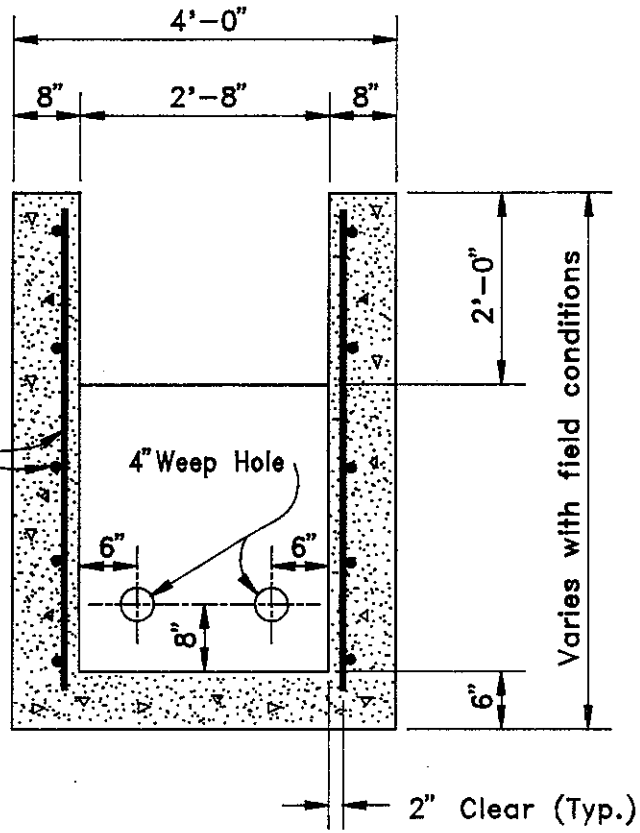
DATE August 1991

SCALE None

FILE NO. SD-100

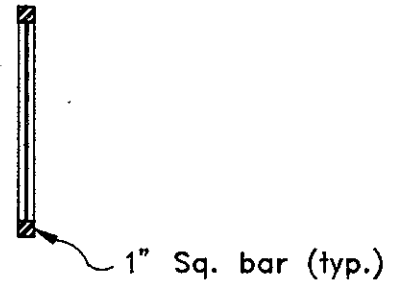
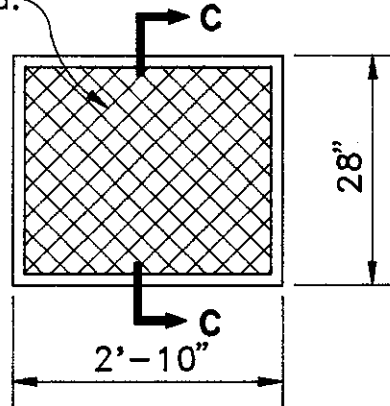
1 of 2

#4 bars @ 12 o.c.
ea. way all walls
(Typ.)



SECTION B-B

1"X1" Sq. #18 ga.



SECTION C-C

SCREEN DETAIL

Note: Screen to be galvanized after fabrication.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

SILT BASIN

APPROVAL REC.

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

COUNTY ENGINEER AND ROAD COMMISSIONER

REVISIONS

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KS

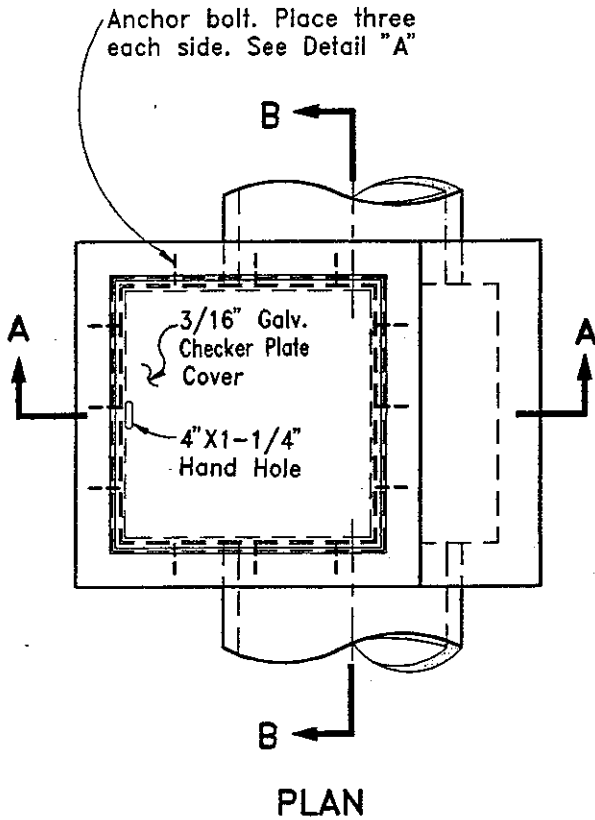
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DATE
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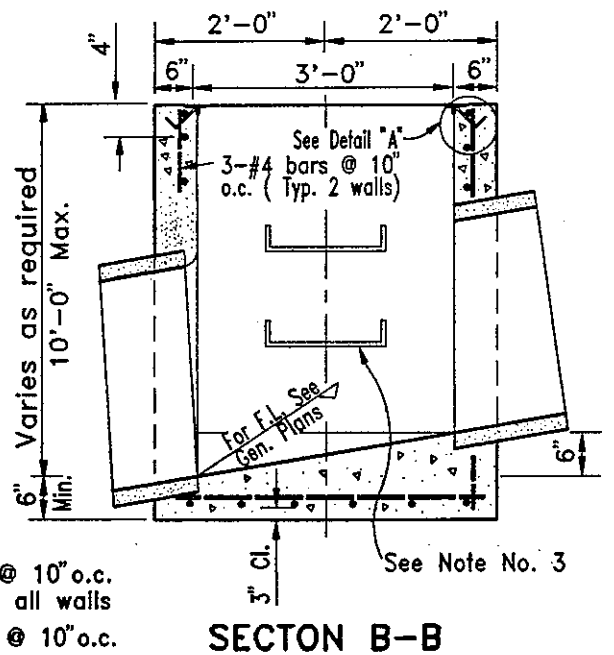
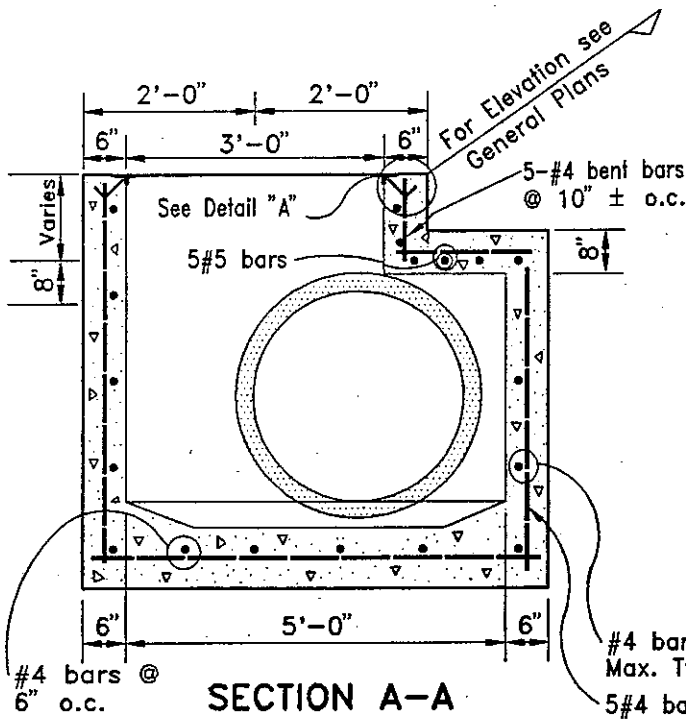
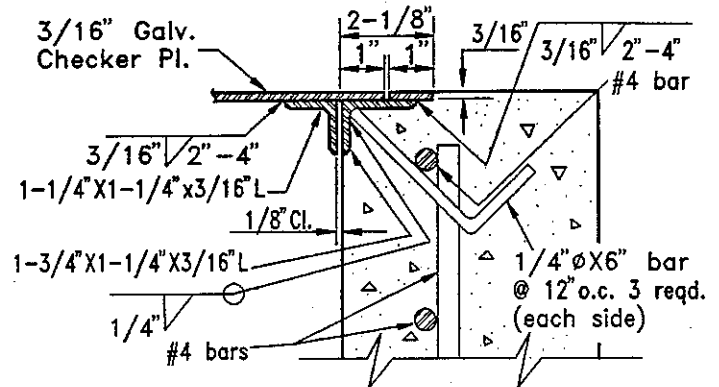
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SD-100

2 of 2



GENERAL NOTES:

1. Location and direction of conduits entering and leaving the junction box are shown on the General Plans.
2. Omit steps on junction boxes less than 4 feet deep.
3. For step details, see Design Guidelines File No. SD-517.
4. All miscellaneous iron and steel to be galvanized after fabrication.
5. Modified Junction Box is limited to a maximum pipe size of 60-inches.



COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

REVISIONS	

MODIFIED JUNCTION BOX

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 APPROVED *[Signature]*
 APPROVED *[Signature]*
 COUNTY ENGINEER AND COUNTY SURVEYOR

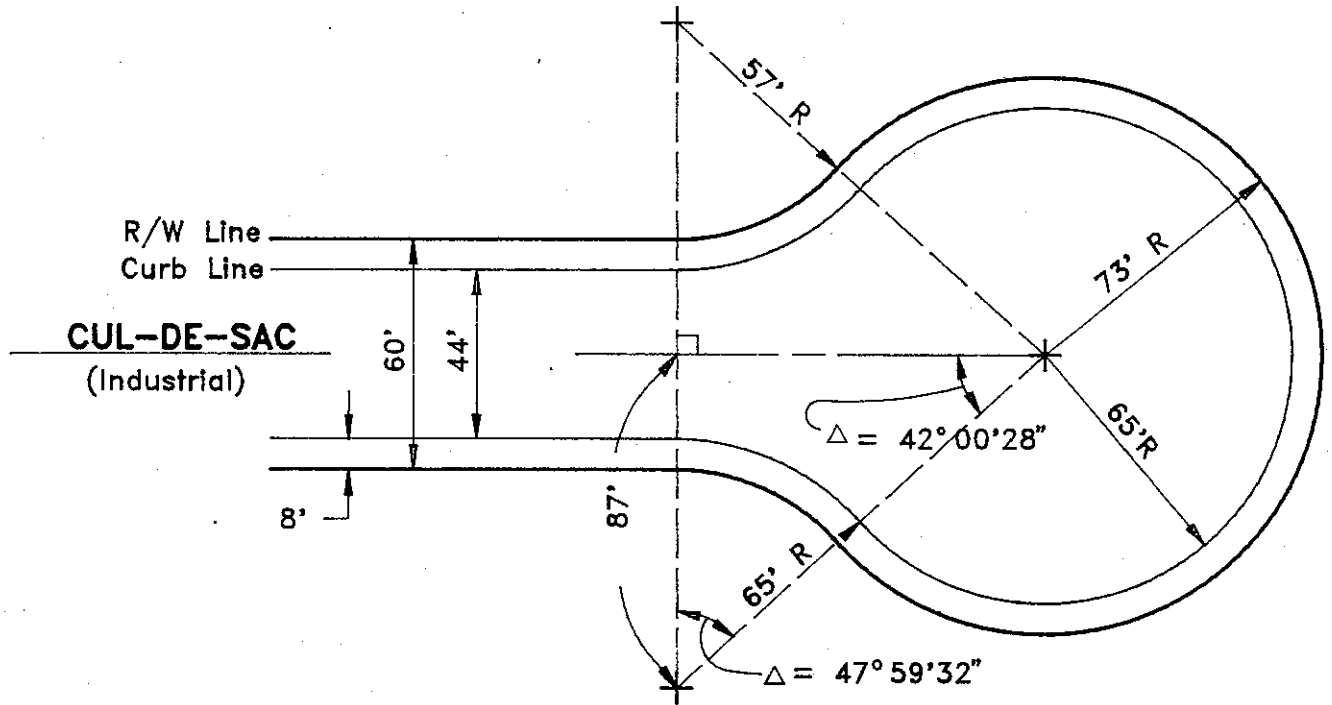
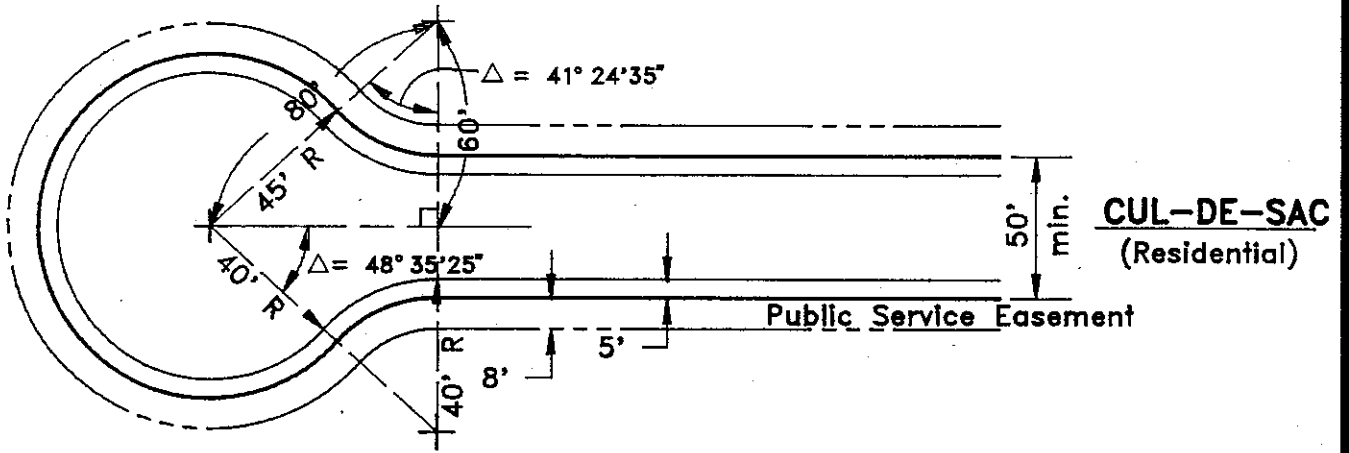
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		GRADES ON COUNTY ROADS		
		MINOR (1) (2) (3)	COLLECTOR	ARTERIAL (3)
MINIMUM		0.30%	0.30%	0.30%
MAX.	DESIRABLE	12%	10%	6%
	ACCEPTABLE	15%	12%	8%

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

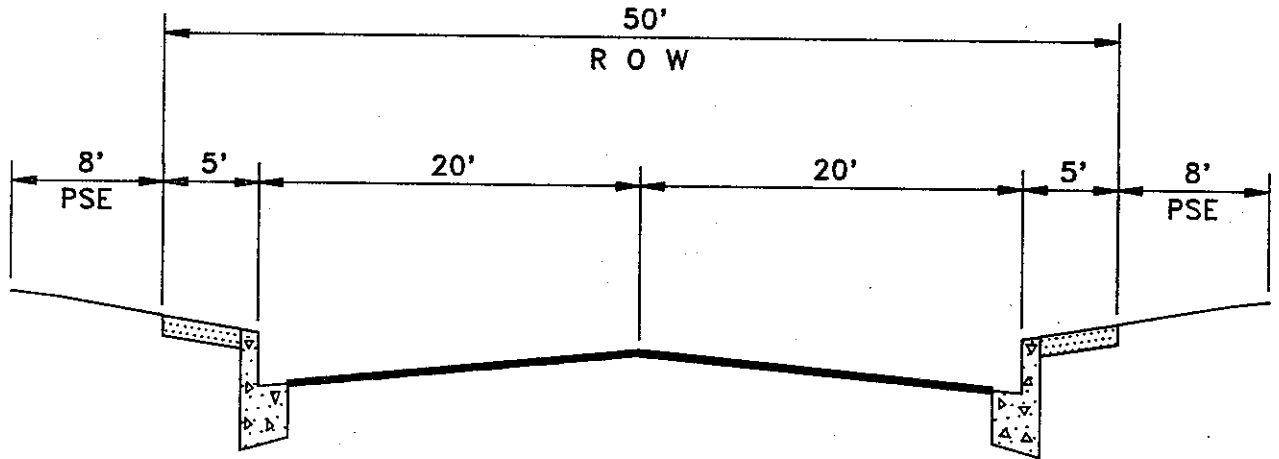
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DATE
June 1991

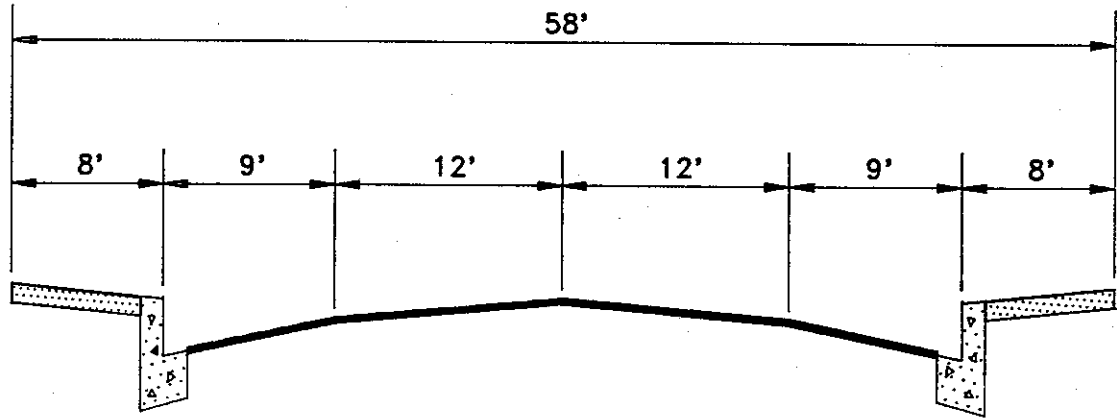
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None

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> am		
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
C. Hendrix

APPROVED
C. Lawan
CWA

COUNTY ENGINEER AND ROAD COMMISSIONER

REVISIONS

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KS

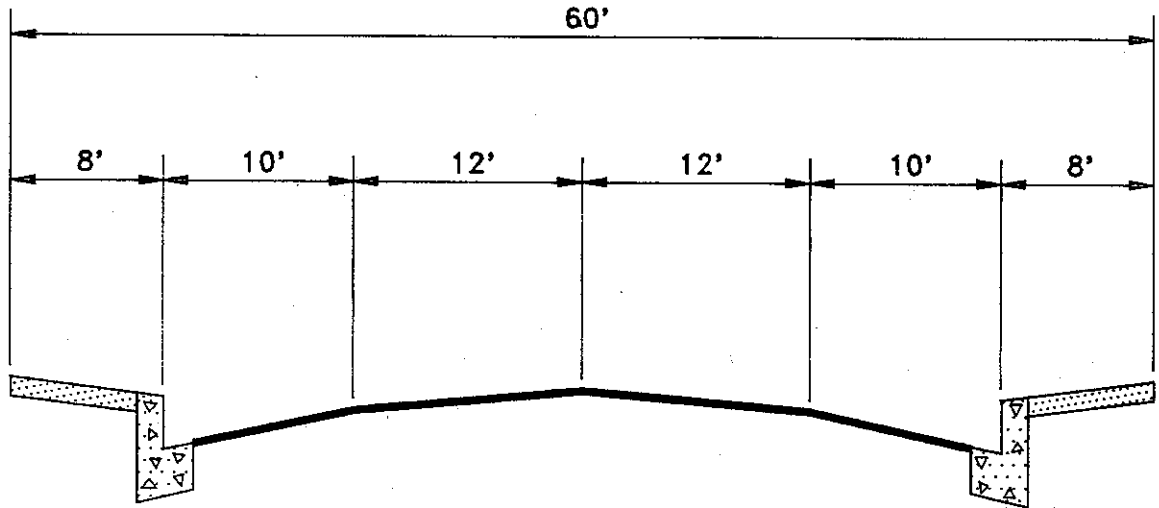
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DATE
August 1991

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

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DATE

August 1991

SCALE

None

APPROVAL REC.

APPROVED
 APPROVED

Attendrip
Kawan
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COUNTY ENGINEER AND ROAD COMMISSIONER

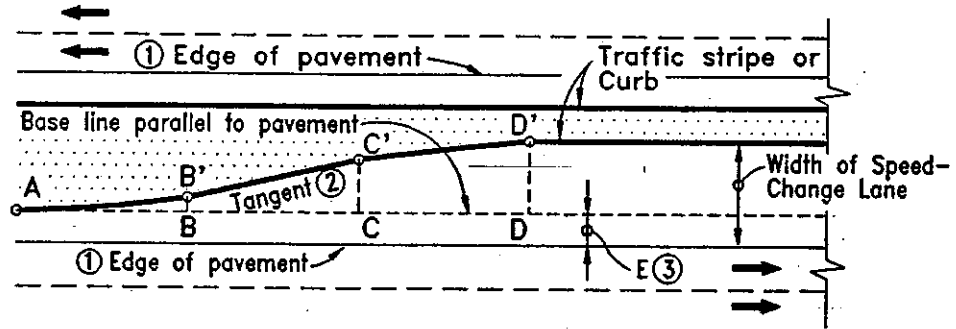
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SD-204

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TYPICAL SECTION
 2-LANE ARTERIAL

TAPER FOR MEDIAN SPEED-CHANGE LANES



AD = Length of Taper.
 AB = BC = CD = $\frac{1}{3}$ AD
 AB' & 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*
aw

COUNTY ENGINEER AND COUNTY SURVEYOR

REVISIONS

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KS

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DATE

October 1991

SCALE

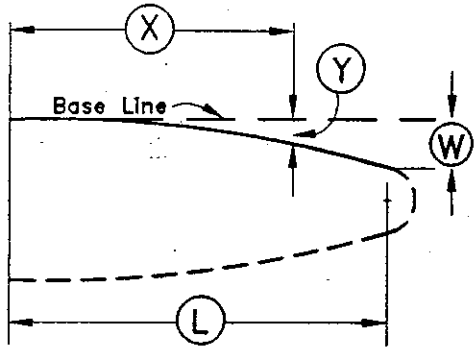
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FILE NO.

SD-205

1 of 1

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 Length of flare (L)	(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

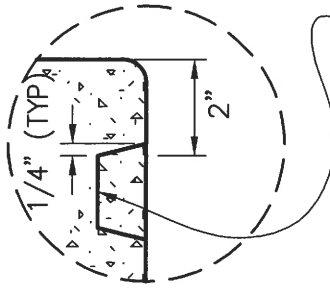
COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

MEDIAN FLARES

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

REVISIONS

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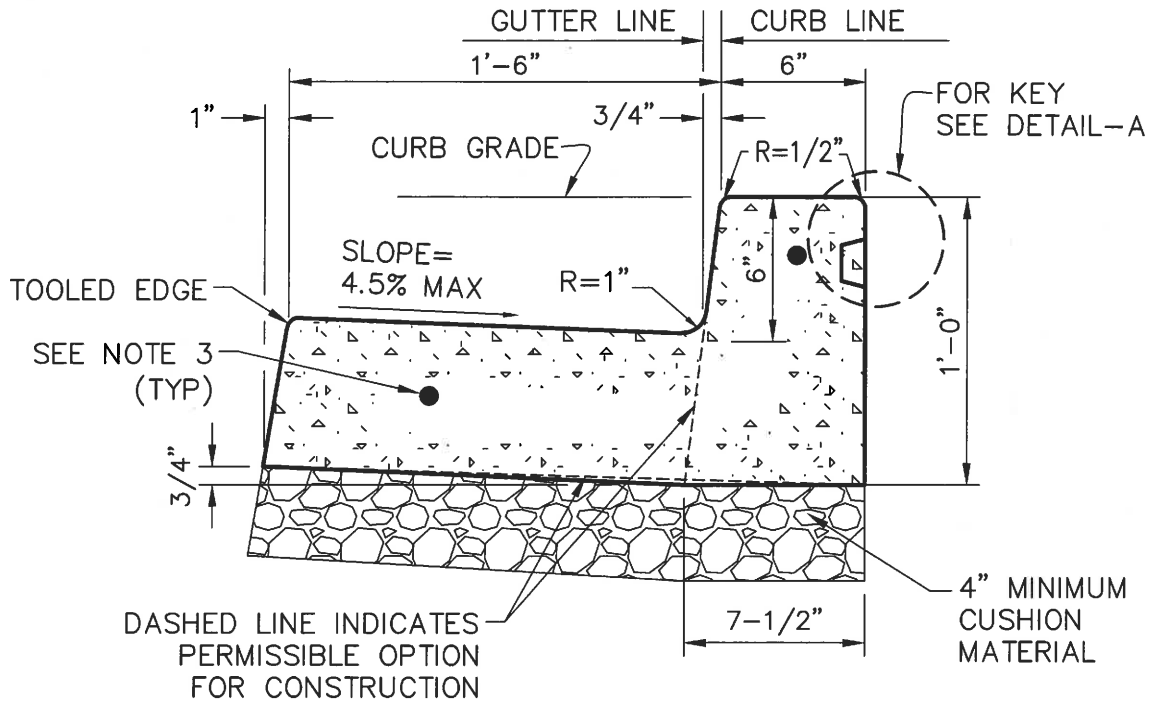
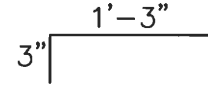
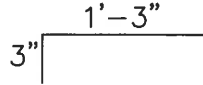


DETAIL-A

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

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

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




PCC CURB AND GUTTER AREA = 1.284 SQ FT

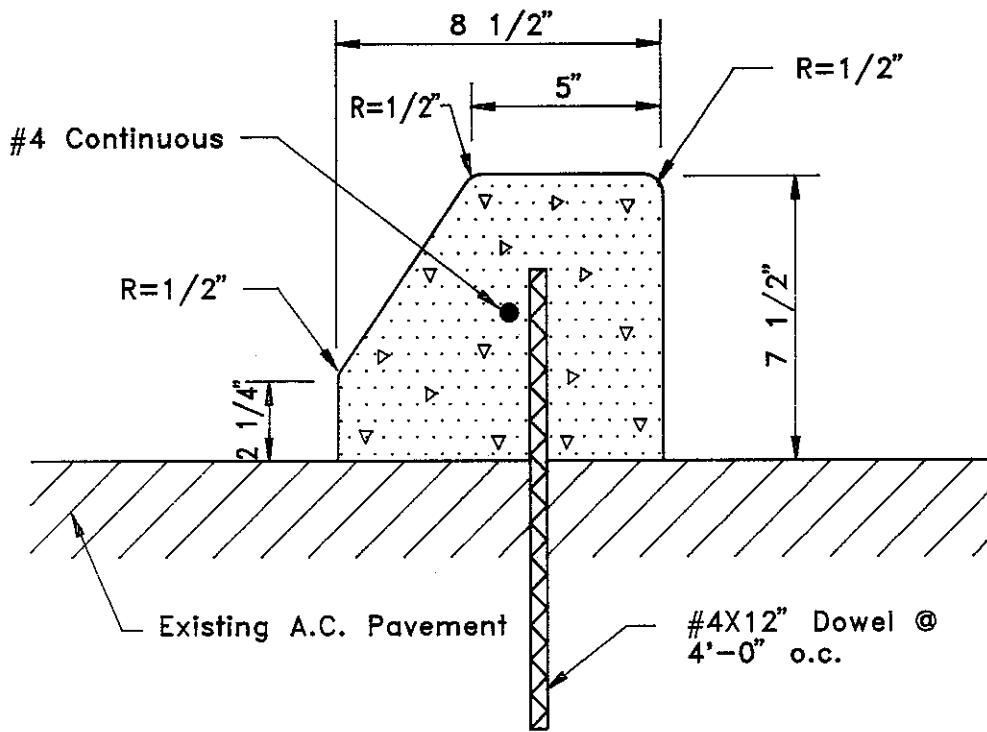
NOTES:

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

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

			APPROVAL REC.		
			APPROVED		
			APPROVED		
			 COUNTY ENGINEER		
1 ADD KEY/REV SLOPE JUN 2018					
REVISIONS			PCC CURB AND GUTTER		
DRAWN J RINGOT	CHECKED J CHU	DATE JUNE 2018			

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

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

P.C.C. MEDIAN CURB

APPROVAL REC.
 APPROVED *[Signature]*
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REVISIONS

COUNTY ENGINEER AND ROAD COMMISSIONER

DRAWN
 KS

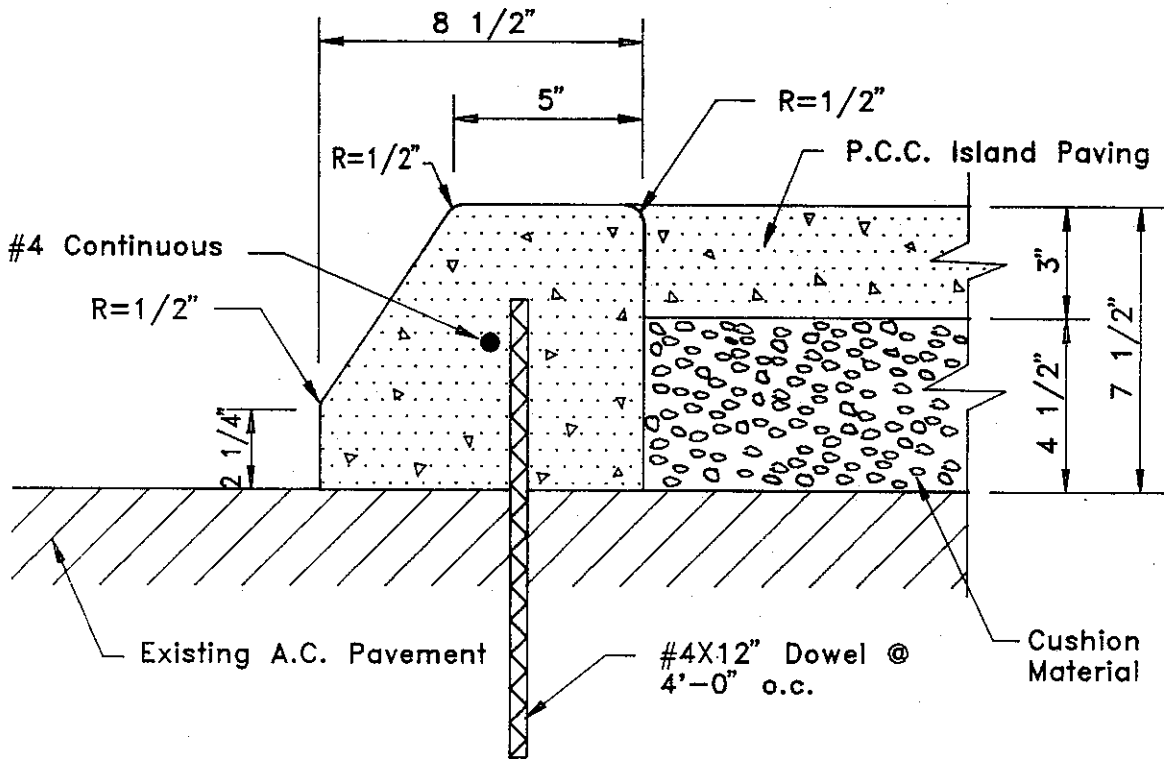
CHECKED

DATE
 August 1991

SCALE
 None

FILE NO.
 SD-301

1 of 1



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]*
 APPROVED *[Signature]*
 OWA

COUNTY ENGINEER AND ROAD COMMISSIONER

DRAWN

KS

CHECKED

DATE

August 1991

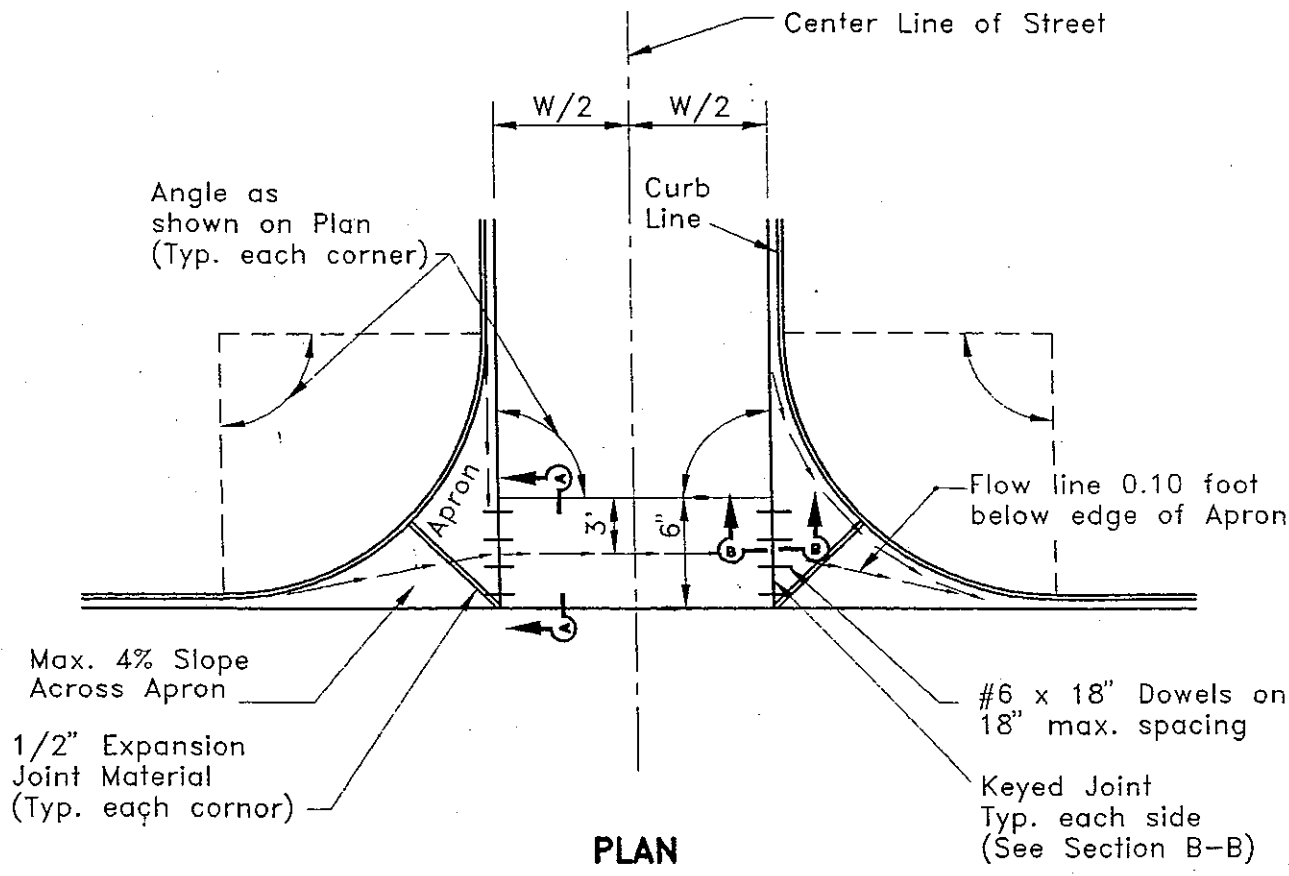
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None

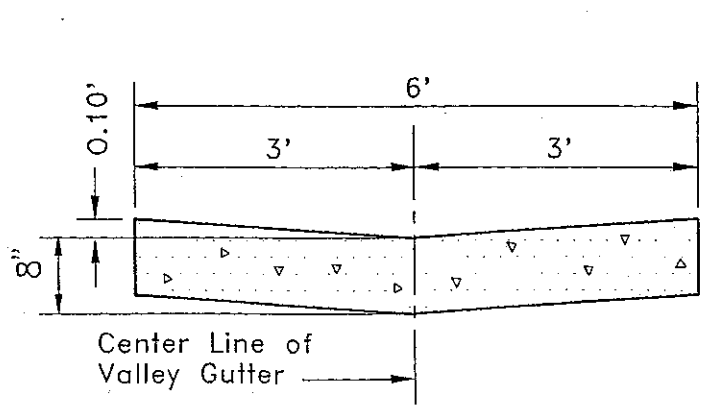
FILE NO.

SD-302

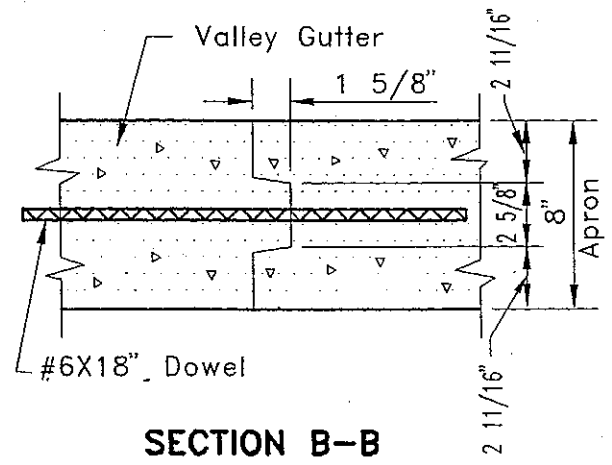
1 of 1



PLAN



SECTION A-A



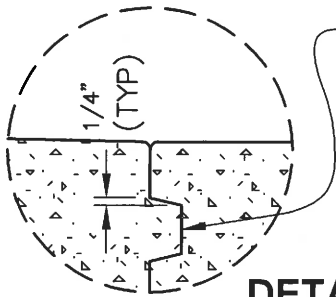
SECTION B-B

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

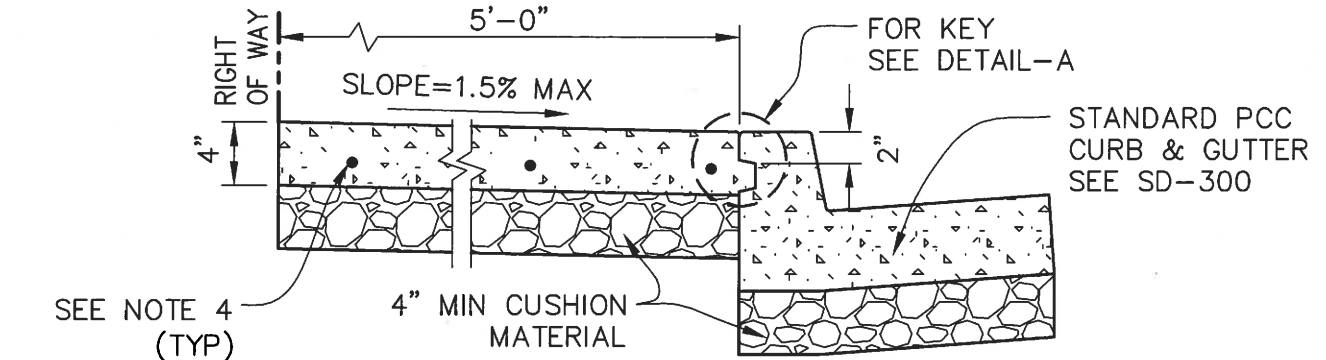
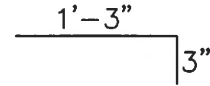
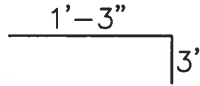


FORM KEY JOINT WITH 1" X 2" KEY STRIP
NAILED TO REAR FORM BOARD AT CURB POUR.

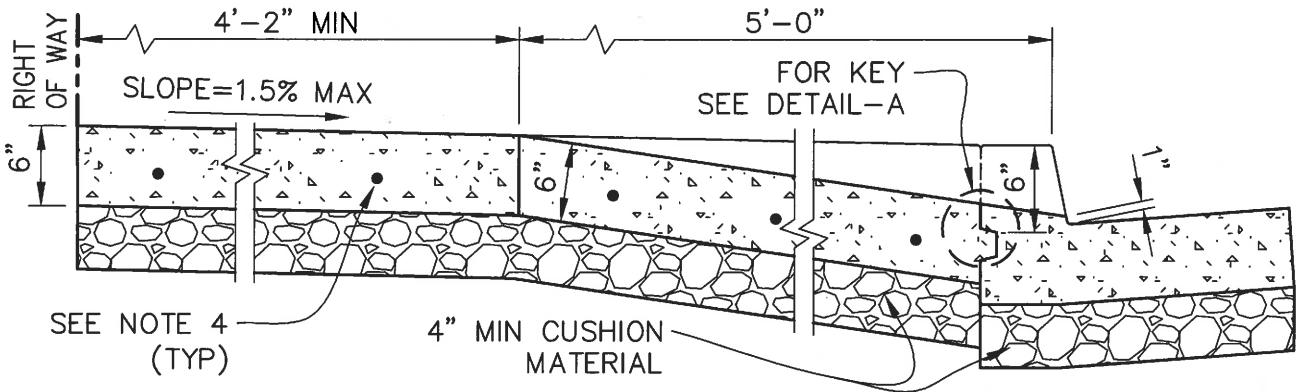
FOR DRIVEWAYS:
KEY JOINT MAY BE
REPLACED WITH
NO. 4 DOWELS @ 24" O.C.

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.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

**CURB AND GUTTER
WITH ADJACENT
SIDEWALK OR DRIVEWAY
OF SEPARATE POUR**

APPROVAL REC.

APPROVED

APPROVED

[Signature]
6/6/18
COUNTY ENGINEER

1	REV DWY/SLOPE/NOTES	JUN 2018
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REVISIONS

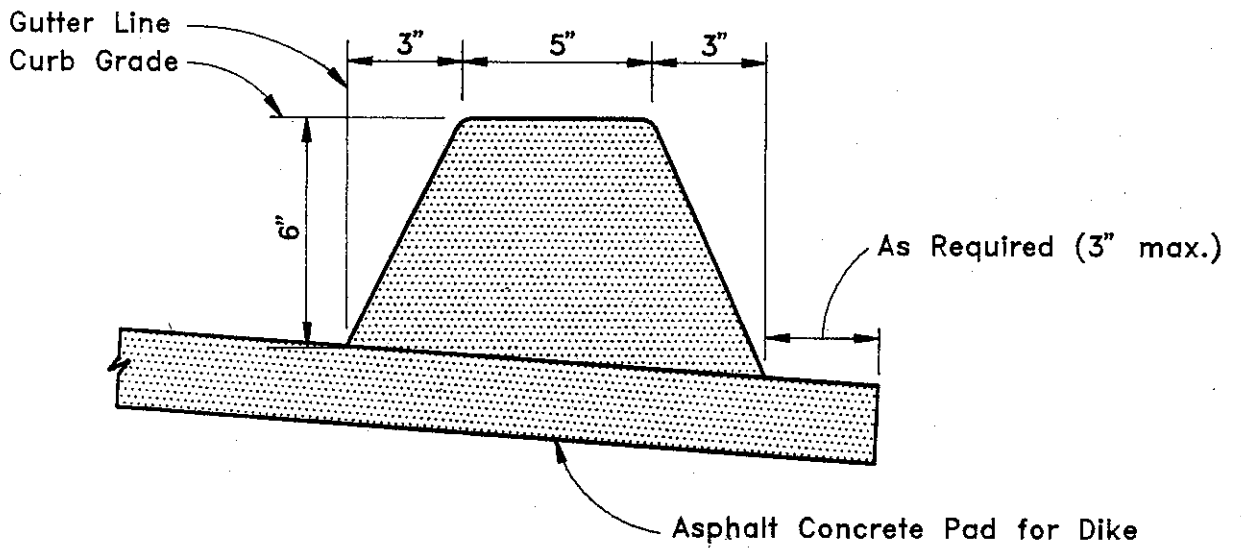
DRAWN	CHECKED
J RINGOT	J CHU

DATE
JUNE 2018

SCALE
NTS

FILE NO.
SD-304

1 OF 1



TYPICAL X-SECTION

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

ASPHALT CONCRETE DIKE

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

REVISIONS

COUNTY ENGINEER AND ROAD COMMISSIONER

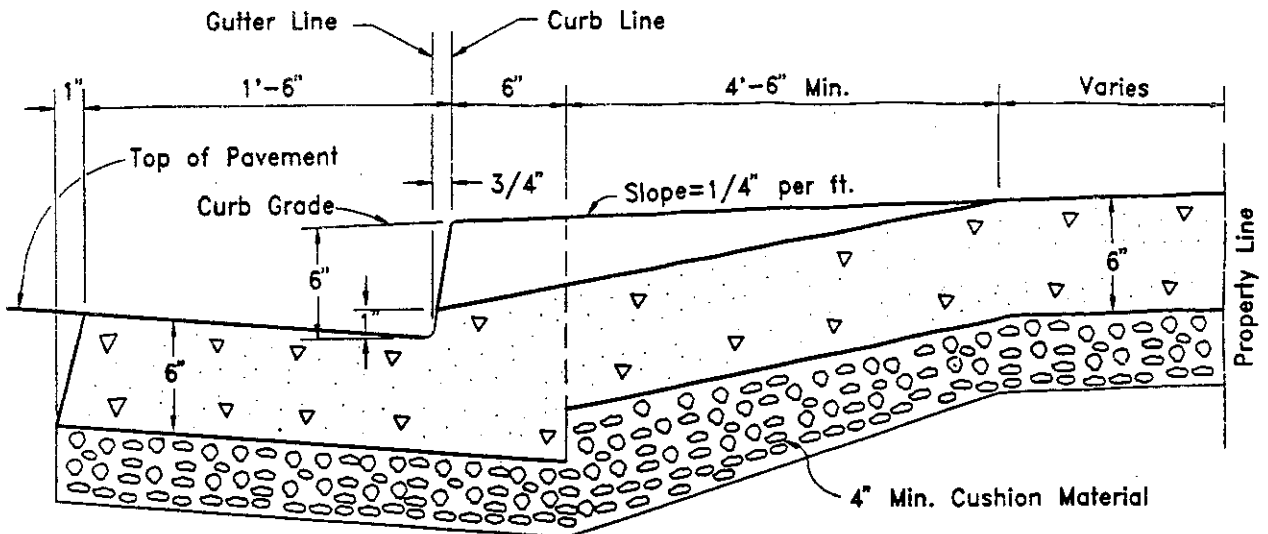
DRAWN JPB, CEG

CHECKED

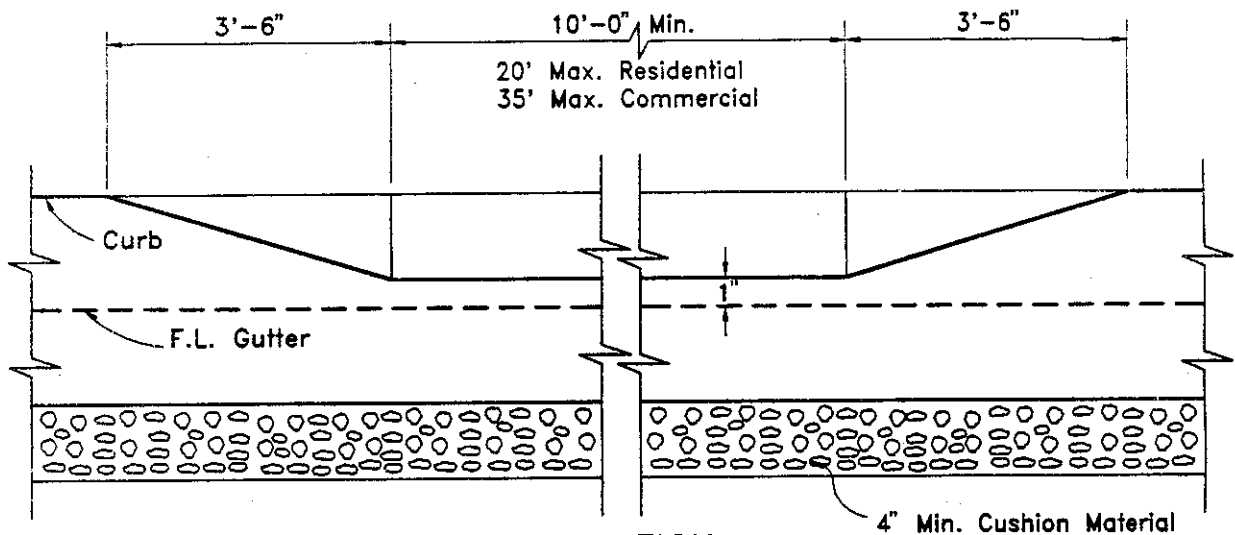
DATE June 1991

SCALE None

FILE NO. SD-305 1 of 1



SECTION



ELEVATION

NOTES:

1. For standard concrete driveway with sidewalk separated from curb, see drawing SD-307.
2. Spacing between driveways shall be 20 feet, or multiples of 20 feet, or less than 7 feet, except driveways located adjacent to unimproved property shall be 10 feet from property line. All driveway spacings shall be measured from top of driveway flare. If driveway is poured separately, see SD-304. Minimum spacing between adjacent driveway flares shall be 3 feet.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

**CONCRETE DRIVEWAY
(SIDEWALK CONTIGUOUS TO CURB)**

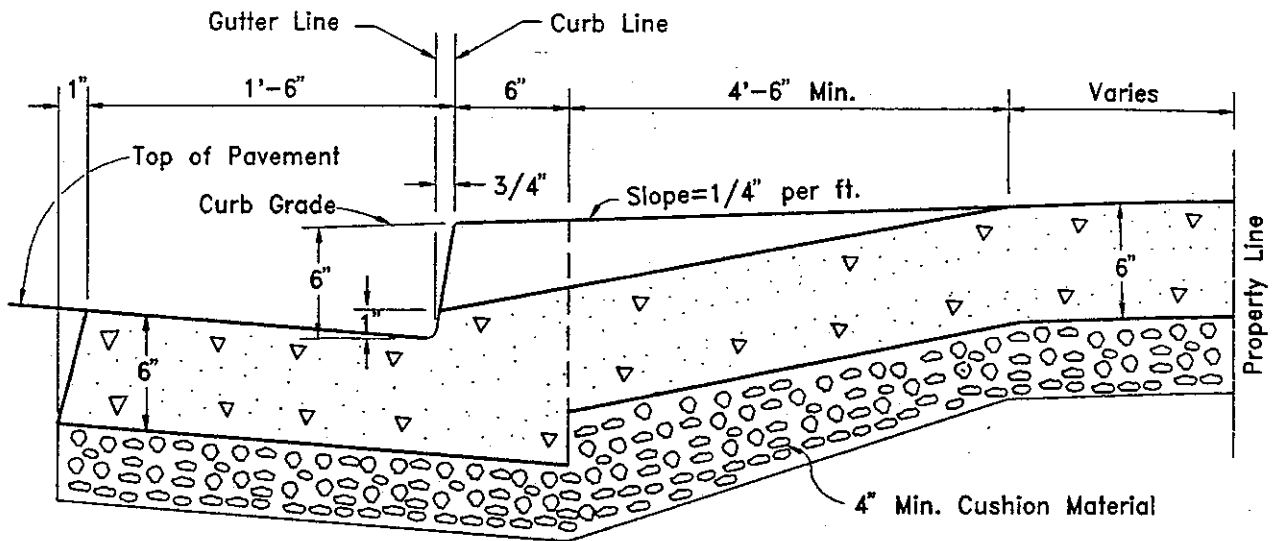
APPROVAL REC.

APPROVED *Stendris*
 APPROVED *Fawan*
am

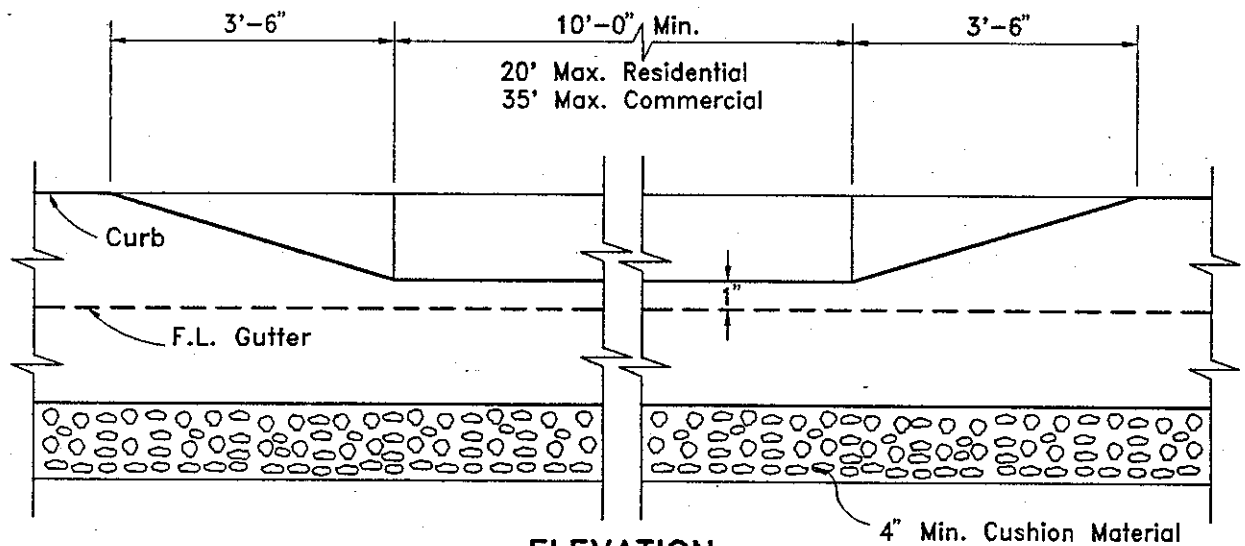
COUNTY ENGINEER AND COUNTY SURVEYOR

REVISIONS

DRAWN KS	CHECKED	DATE October 1991	SCALE None	FILE NO. SD-306	1 of 1
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SECTION



ELEVATION

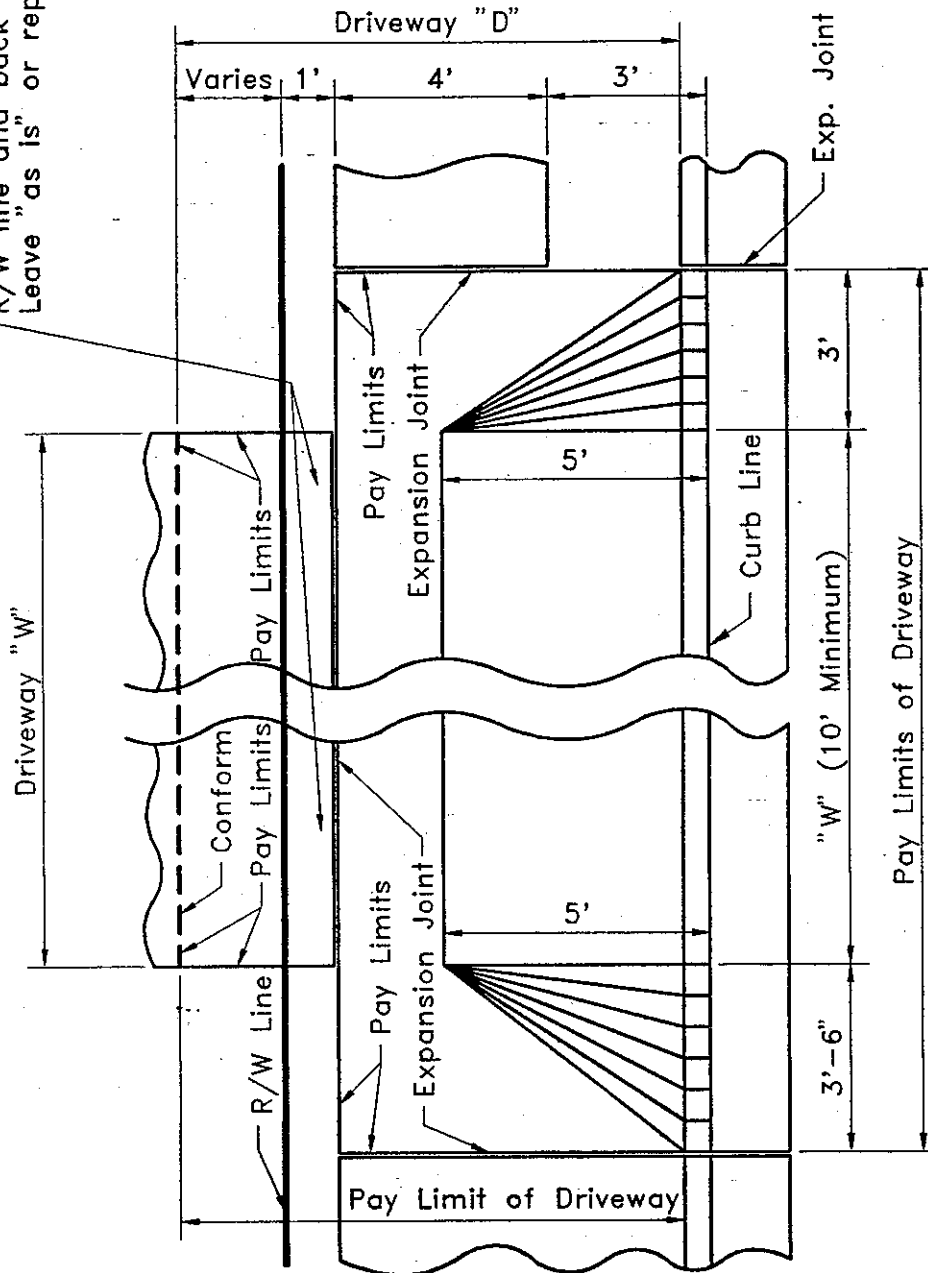
NOTES:

1. This is a driveway section when curb and sidewalk are separated. For section showing driveway construction when sidewalk is adjacent to curb, see drawing SD-306.
2. Spacing between driveways shall be 20 feet, or multiples of 20 feet, or less than 7 feet, except driveways located adjacent to unimproved property shall be 10 feet from property line. All driveway spacings shall be measured from top of driveway flare. If driveway is poured separately, see SD-304, Minimum spacing between adjacent driveway flares shall be 3 feet.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

				APPROVAL REC.	
		CONCRETE DRIVEWAY (CURB AND SIDEWALK SEPARATED)		APPROVED <i>Stendrip</i>	
				APPROVED <i>awan</i>	
REVISIONS				COUNTY ENGINEER AND COUNTY SURVEYOR	
DRAWN	CHECKED	DATE	SCALE	FILE NO.	
KS		October 1991	None	SD-307	1 of 1

If existing driveway is not PCC do not place PCC between R/W line and back of sidewalk. Leave "as is" or replace in kind.



COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

TYPICAL PAY LIMITS
CONCRETE DRIVEWAY

APPROVAL REC.

APPROVED

APPROVED

COUNTY ENGINEER AND COUNTY SURVEYOR

FILE NO.

REVISIONS

DRAWN

JPB

CHECKED

DATE

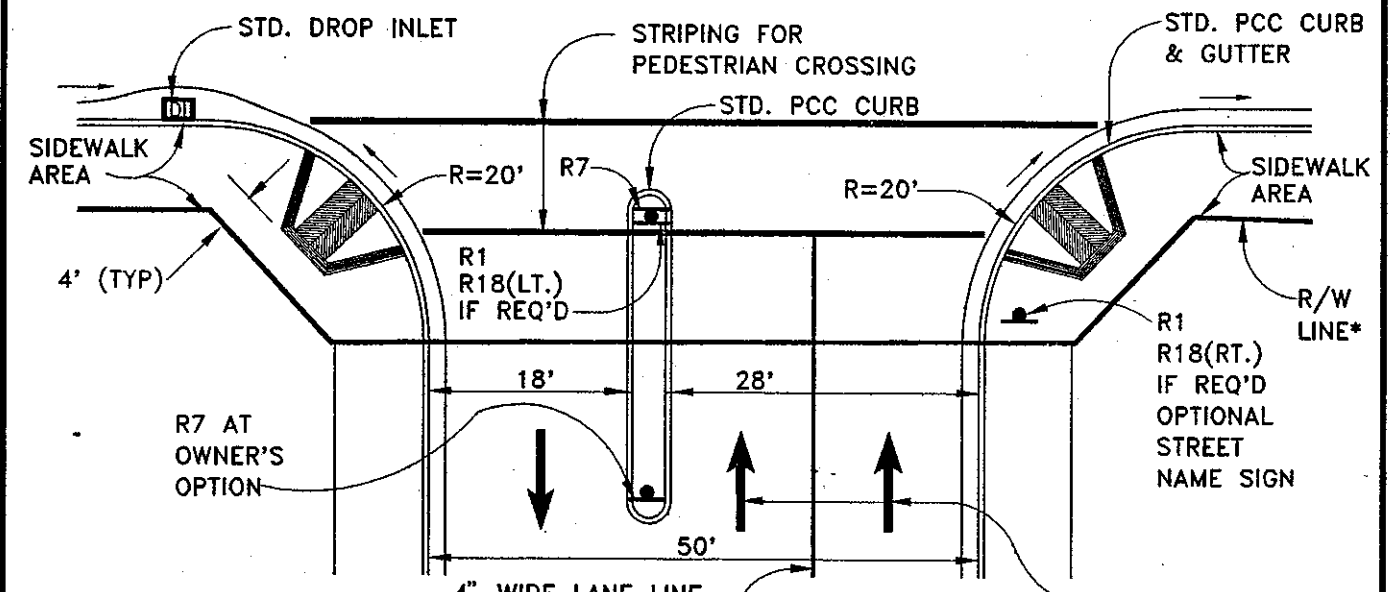
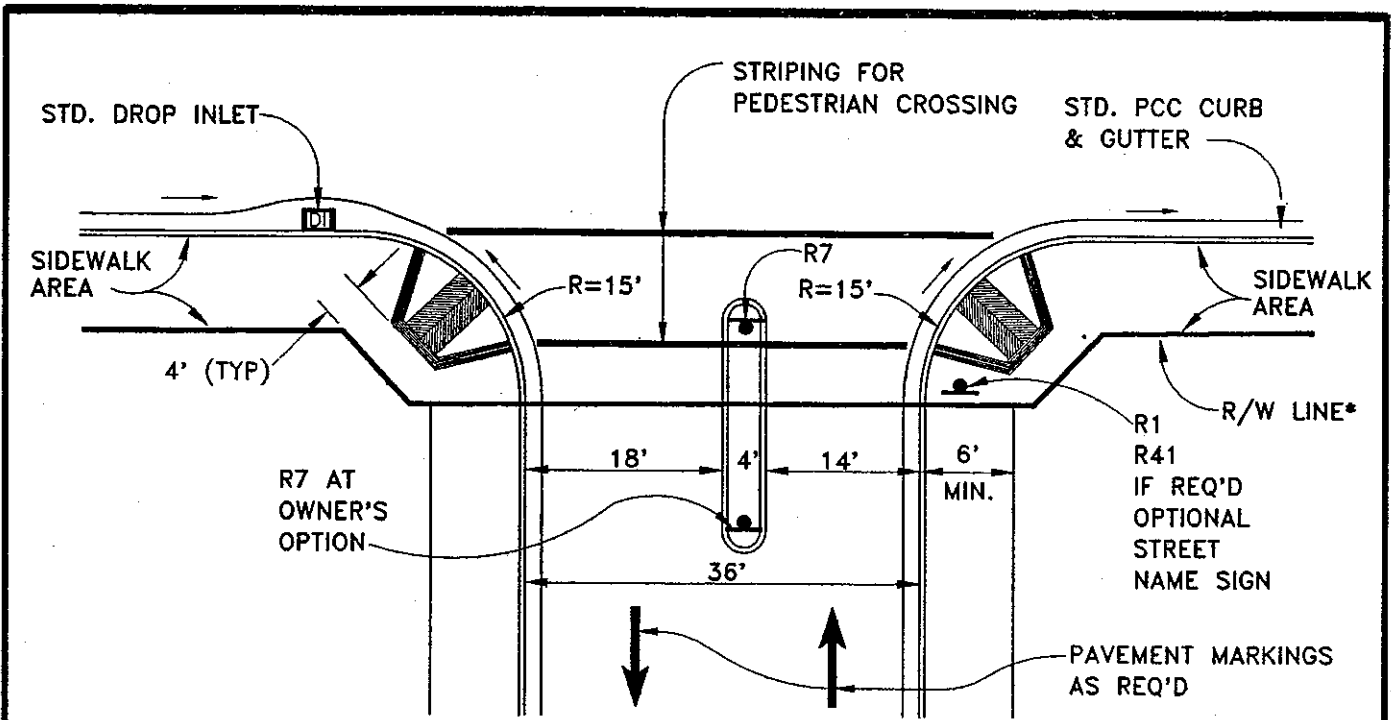
AUGUST 1992

SCALE

NONE

SD-308

1 of 1



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

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

**PRIMARY ACCESS TO
MAJOR OFF-STREET
PARKING FACILITIES**

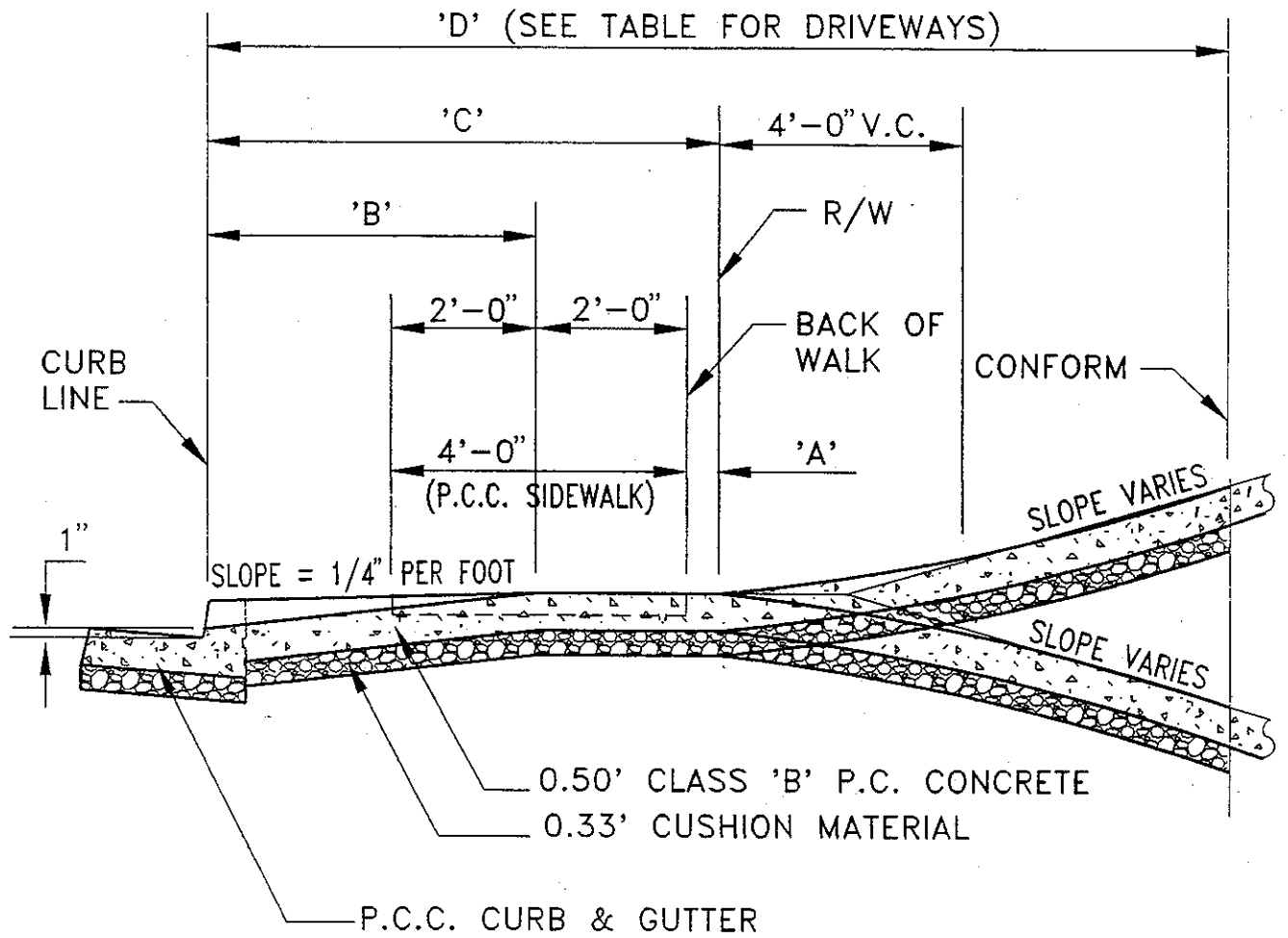
APPROVAL REC.
APPROVED
APPROVED
COUNTY ENGINEER

REVISIONS
DRAWN MTF
CHECKED

DATE
JULY 1992

SCALE
NTS

FILE NO.
SD-312 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

DRIVEWAY DETAILS

APPROVAL REC.
Christina
 APPROVED

APPROVED
Tawan
 aw

COUNTY ENGINEER

DRAWN

EA

CHECKED

DATE

JAN. 1993

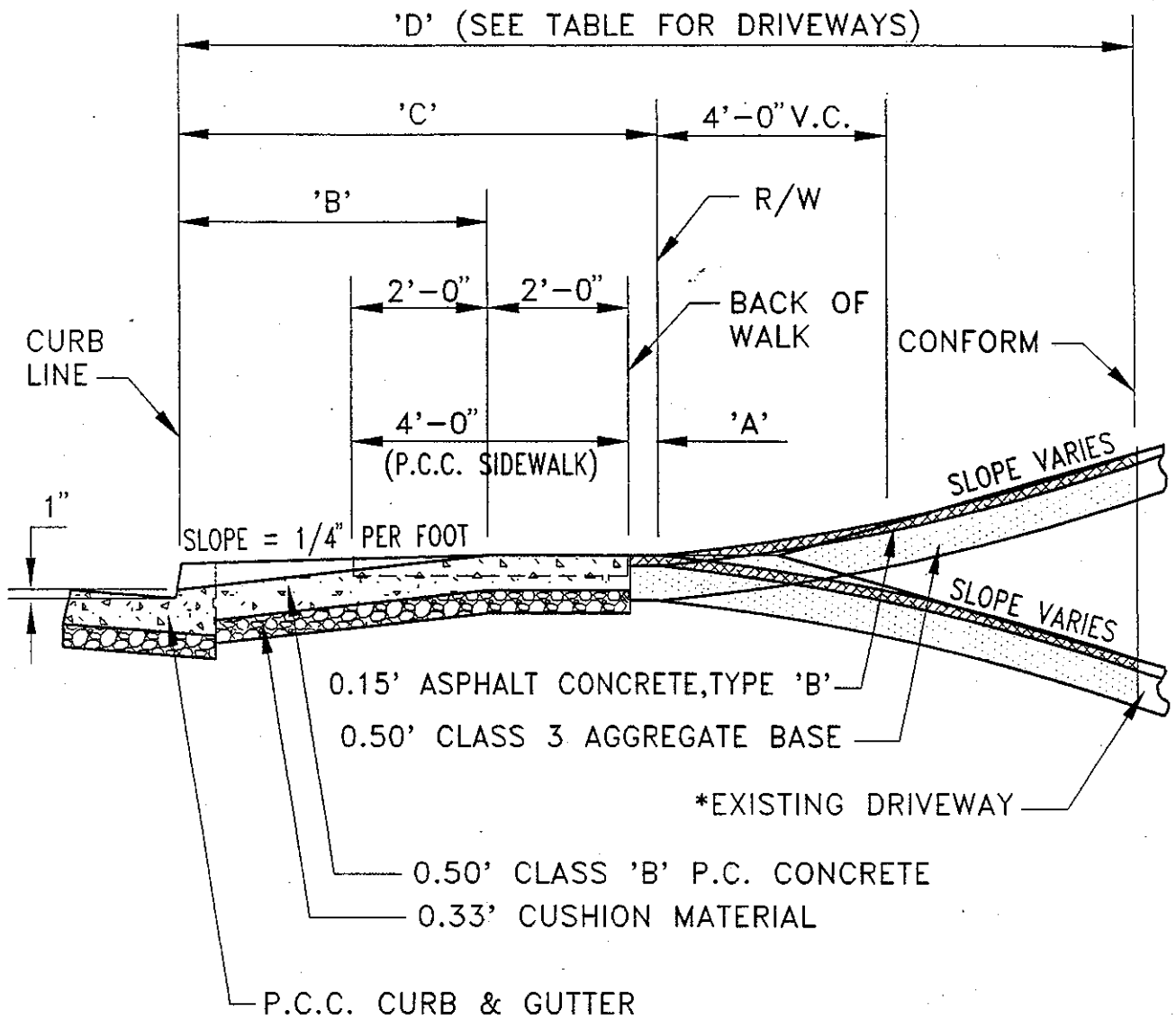
SCALE

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

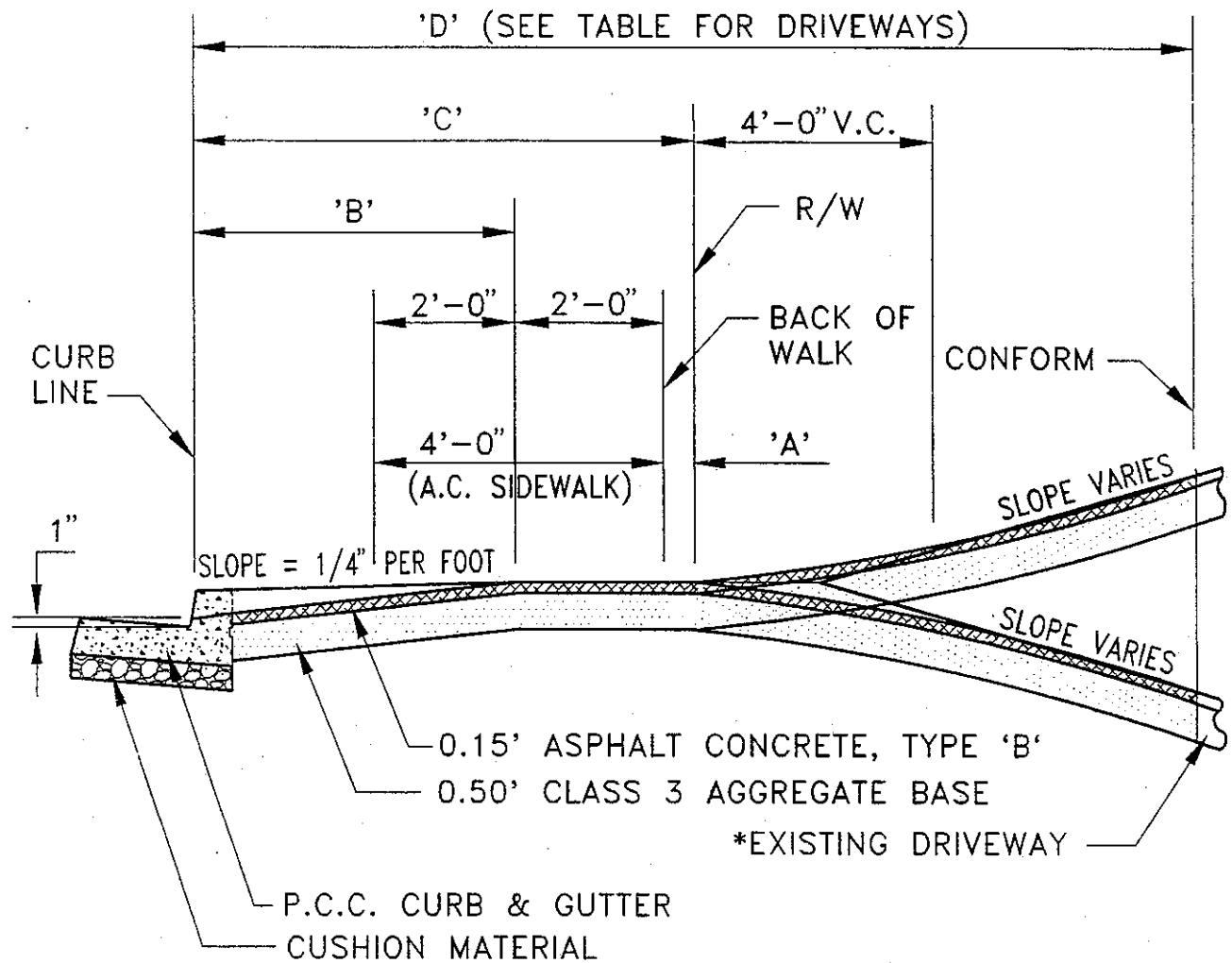
APPROVAL REC.
Stendrip
 APPROVED

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.

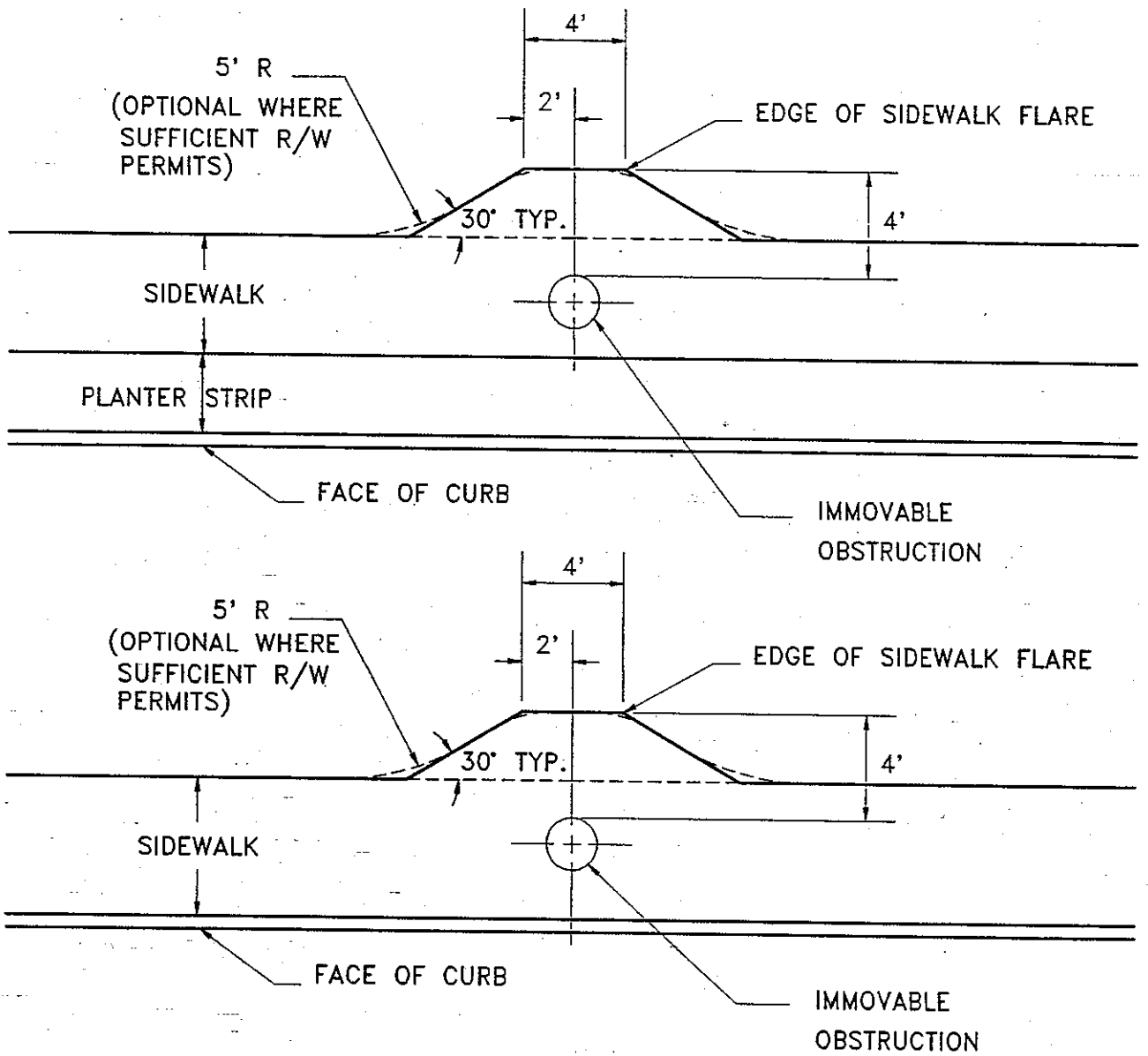
COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

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



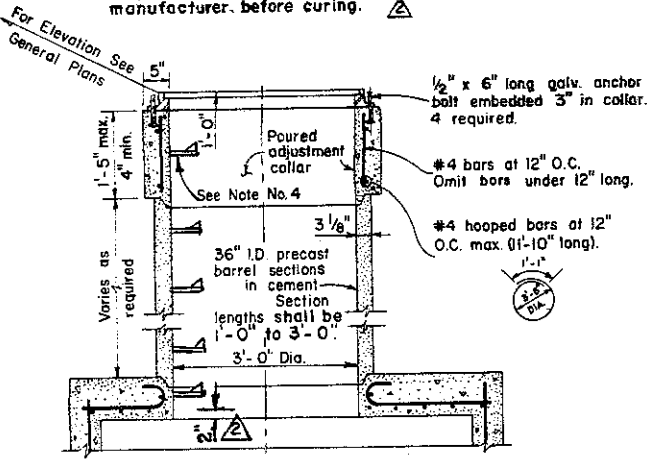
NOTES:

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					
RETRIFIT SIDEWALK FLARE FOR OBSTRUCTIONS			APPROVAL REC. <i>[Signature]</i> APPROVED <i>[Signature]</i> APPROVED <i>[Signature]</i>		
REVISIONS			COUNTY ENGINEER AND COUNTY SURVEYOR		
DRAWN	CHECKED	DATE	SCALE	FILE NO.	
TK		JUNE 1992	NTS	SD-314	1 of 1

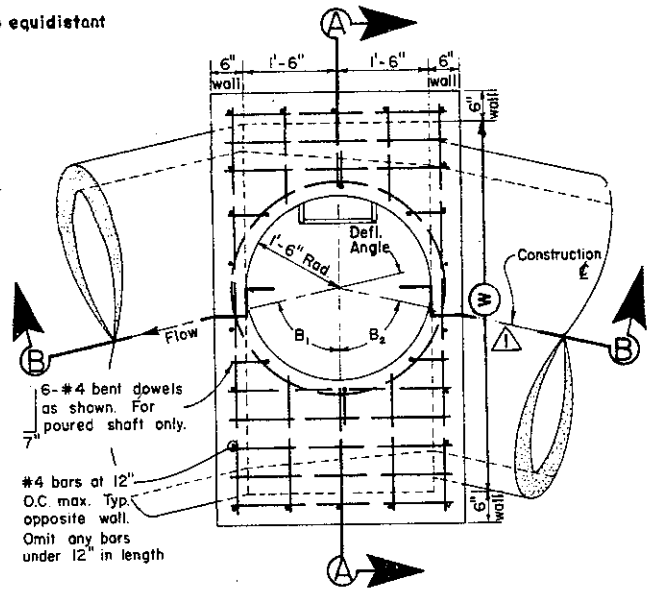
GENERAL NOTES:

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 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.

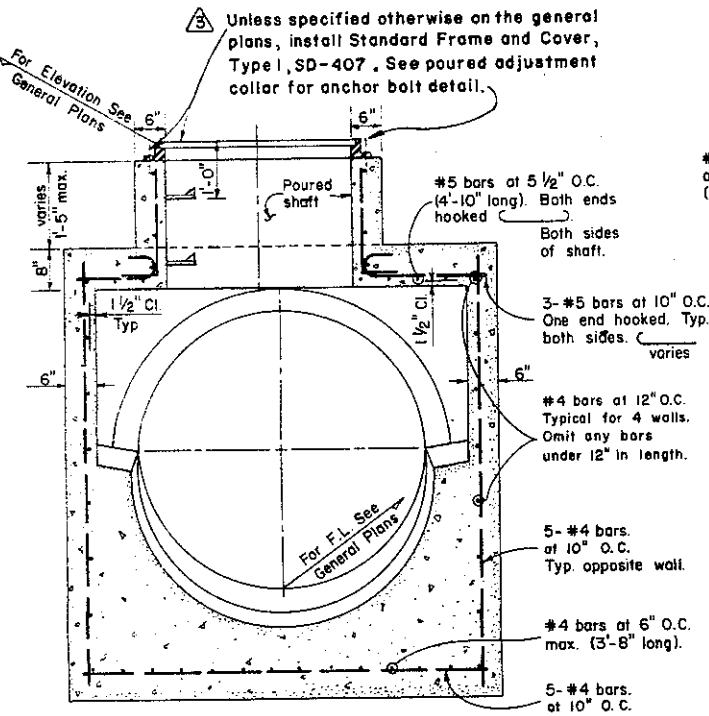


SECTION A-A

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

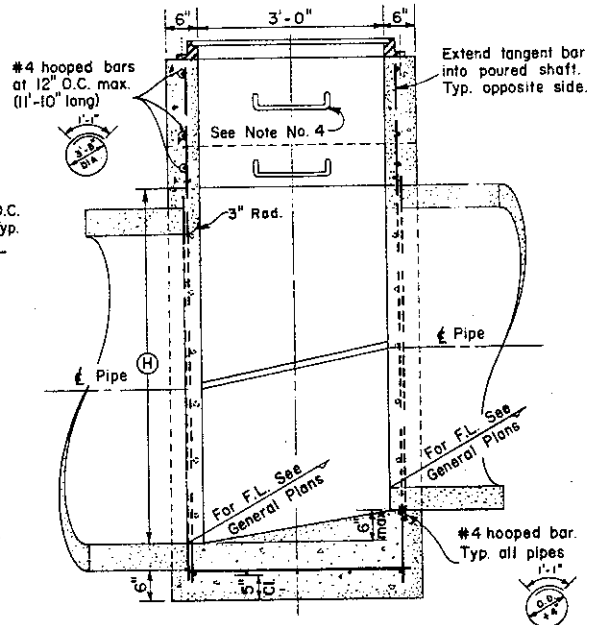


PLAN OF MANHOLE BASE WITH TOP SLAB REINFORCEMENT (SHAFT REMOVED)



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
	Dimensions Rev.	10/71

REVISIONS

DRAWN	RLJ & FC	CHECKED	<i>RLJ</i>
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DATE **Nov. 1970**

SCALE **None**

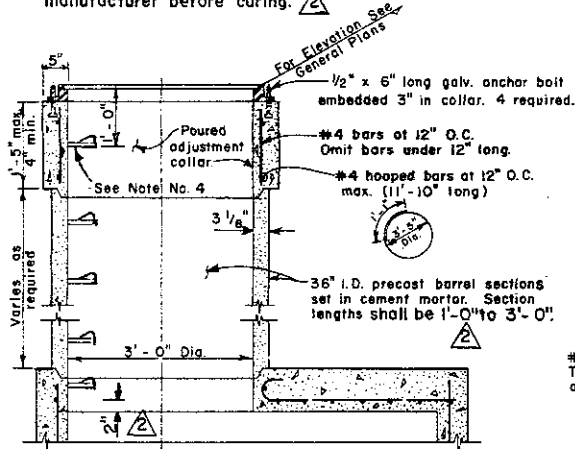
APPROVAL REC *and Lawar*
 APPROVED *Robert C. Bittner*
 APPROVED *William J. ...*
 Director of Public Works and Road Commissioner

FILE NO. **SD-400** 1 of 1

MANHOLE TYPE I

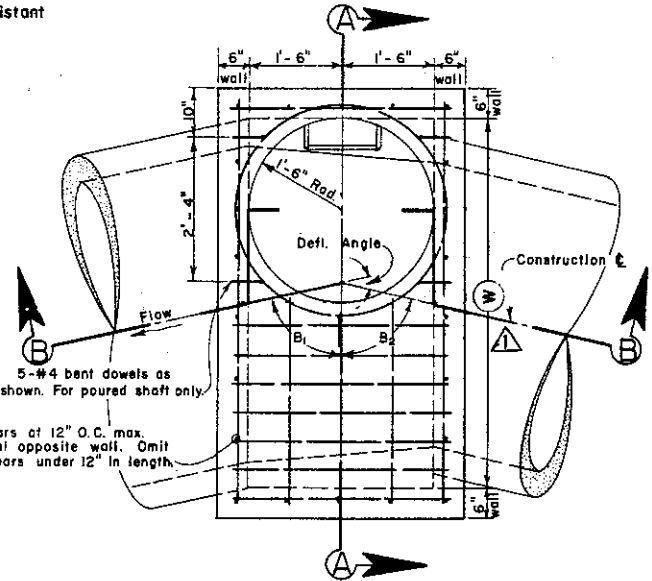
GENERAL NOTES:

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.



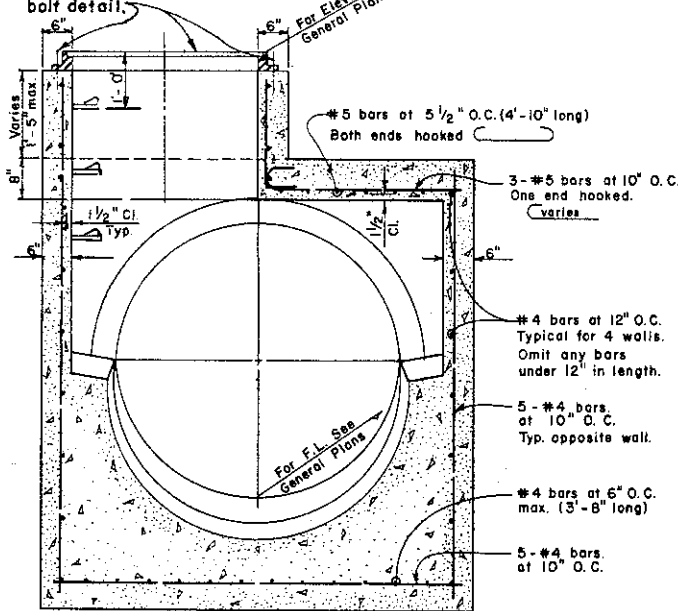
SECTION A-A

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



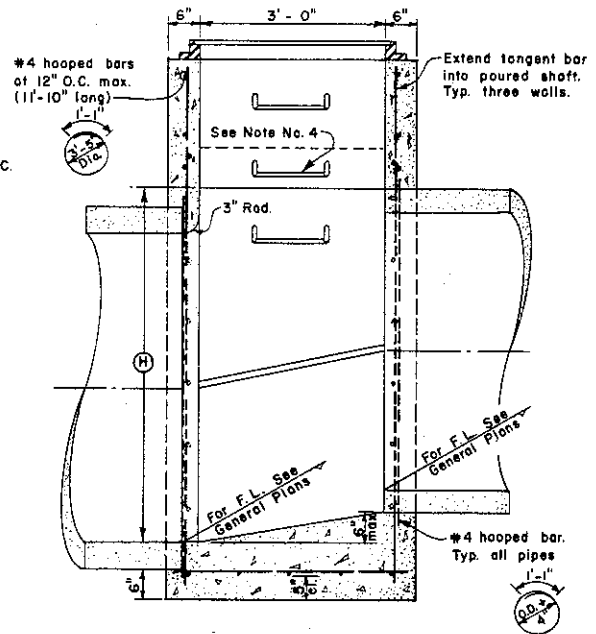
PLAN OF MANHOLE BASE WITH TOP SLAB REINFORCEMENT (SHAFT REMOVED)

- 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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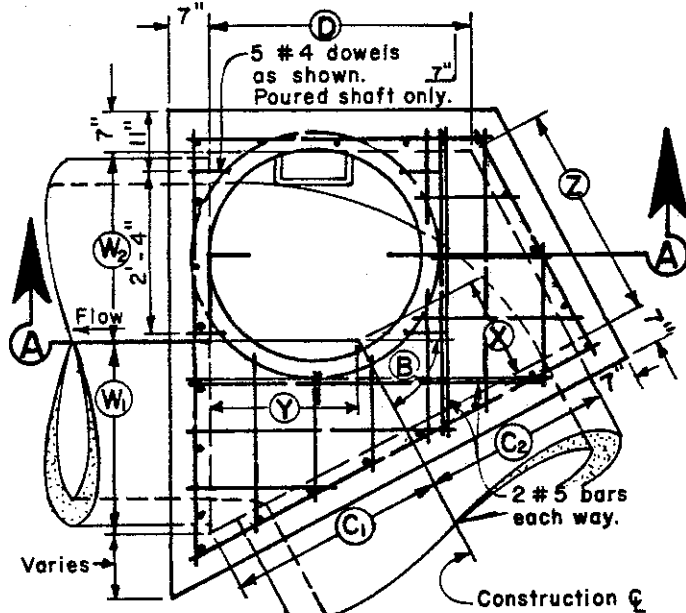
DATE Nov. 1970

SCALE None

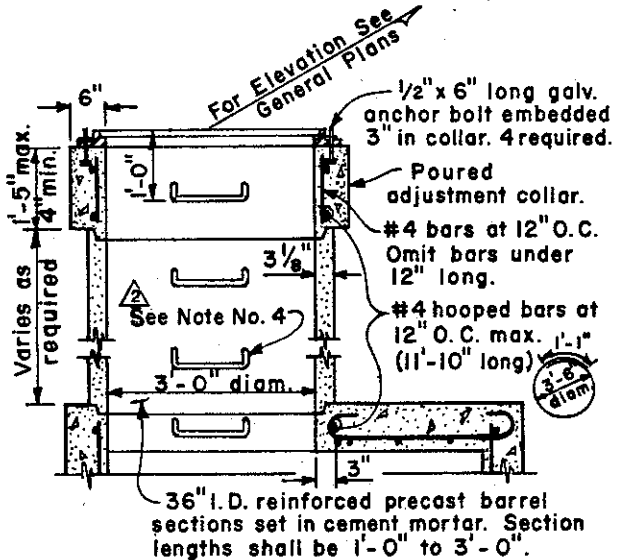
APPROVAL REC. *ans Kawan*
APPROVED *Paul C. Bitten*
APPROVED *Walter...*
 Director of Public Works and Road Commissioner

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

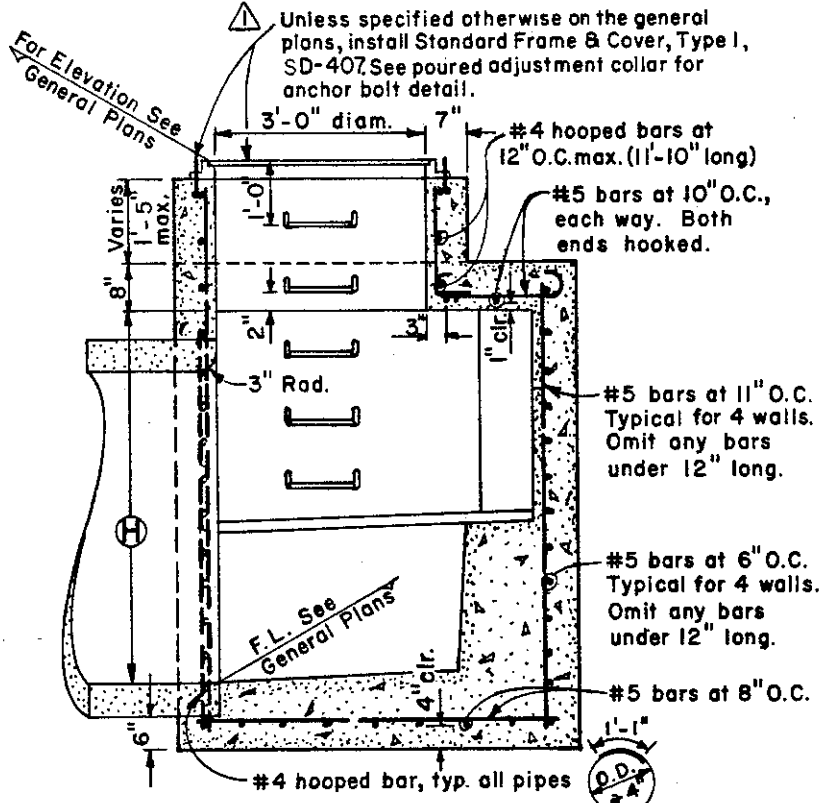
MANHOLE TYPE II



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.

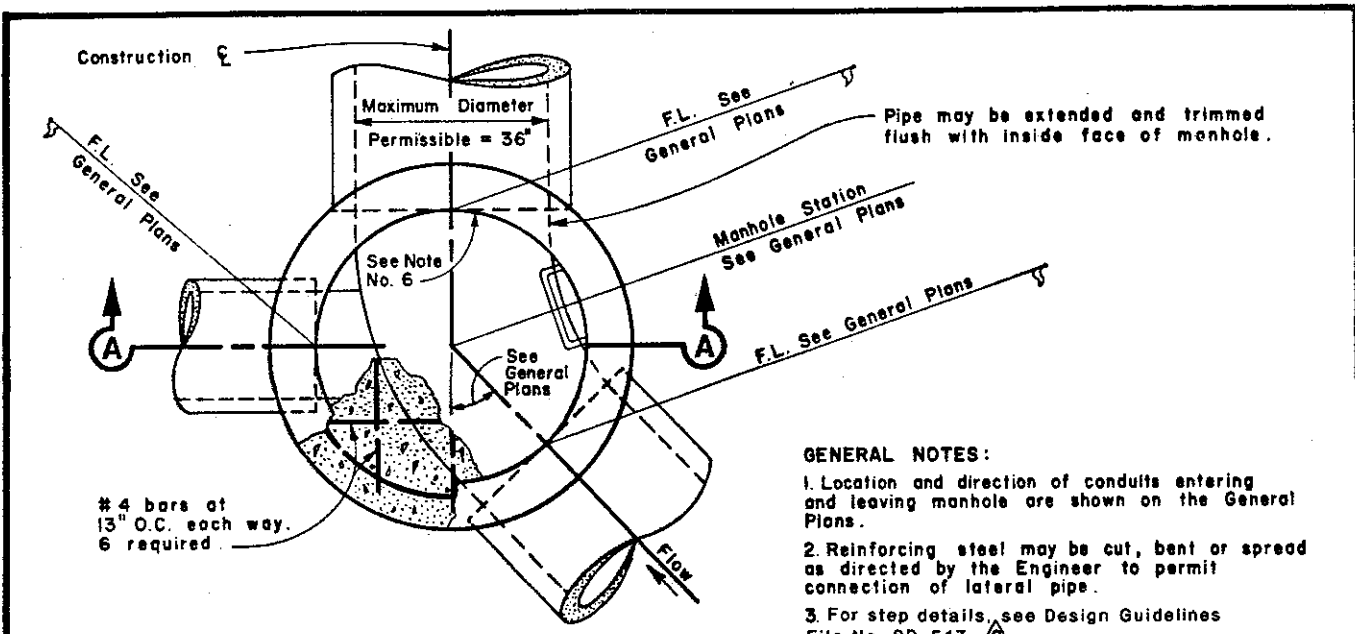
COUNTY OF ALAMEDA * PUBLIC WORKS AGENCY

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

MANHOLE TYPE III

APPROVAL REC.	<i>Amir Kassar</i>
APPROVED	<i>[Signature]</i>
APPROVED	<i>[Signature]</i>
Director of Public Works and Road Commissioner	

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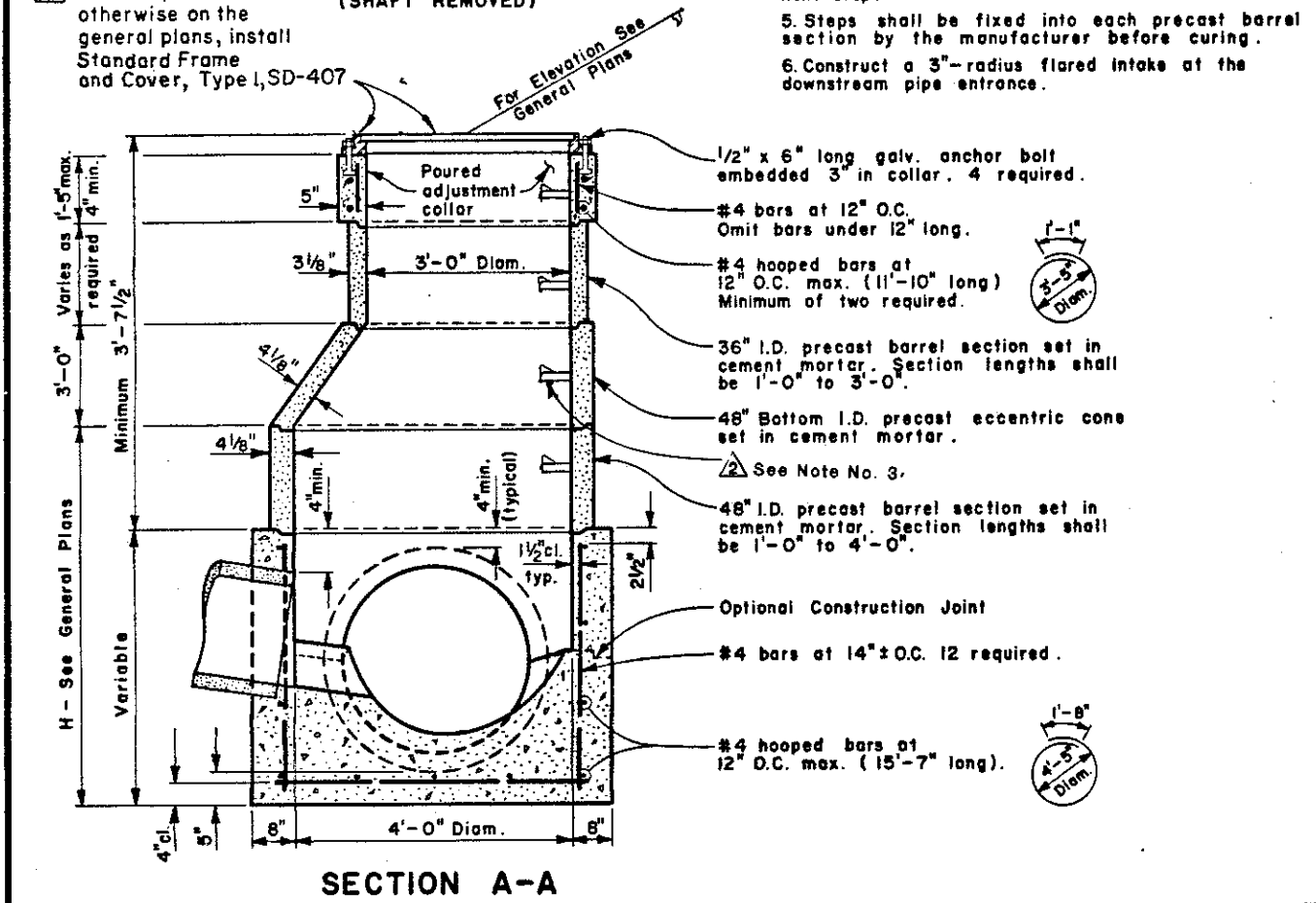


GENERAL NOTES:

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

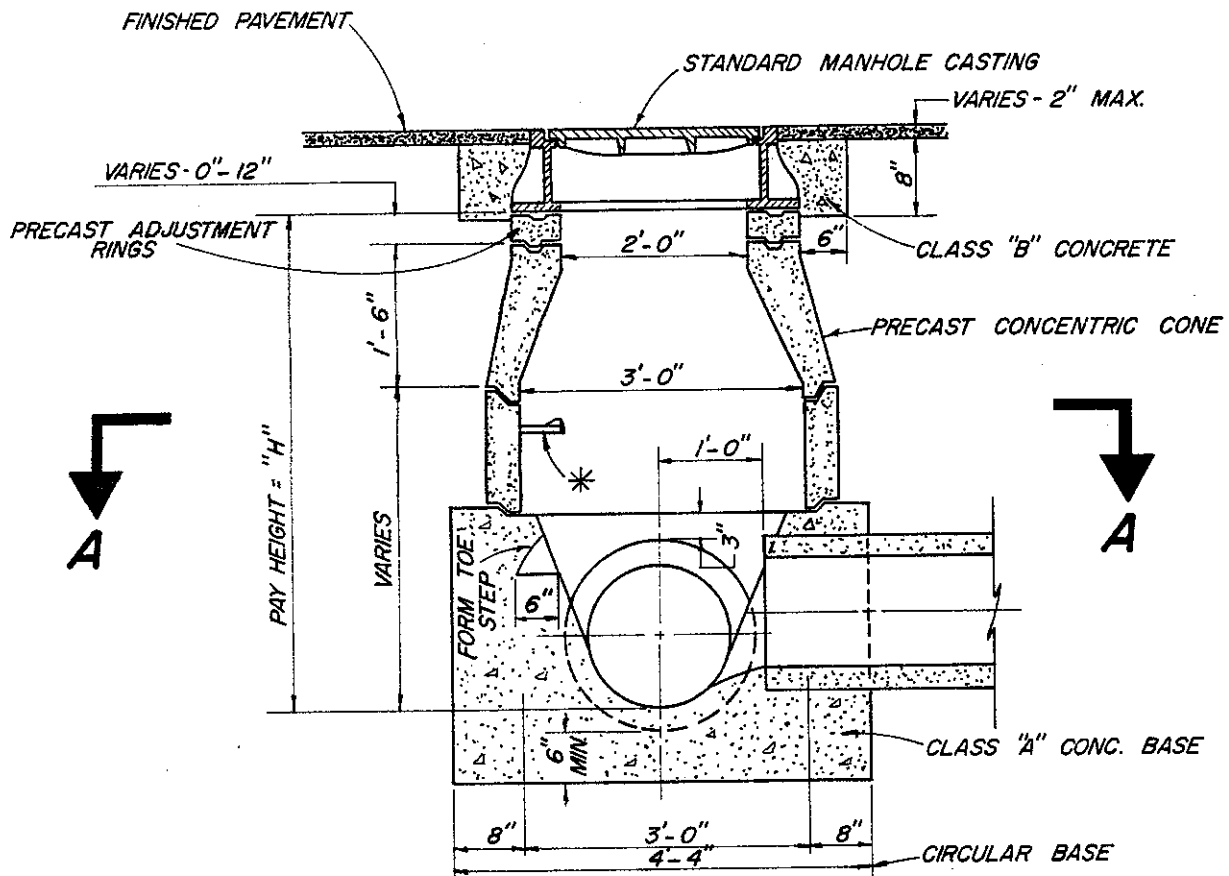
COUNTY OF ALAMEDA * PUBLIC WORKS AGENCY

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

MANHOLE TYPE V

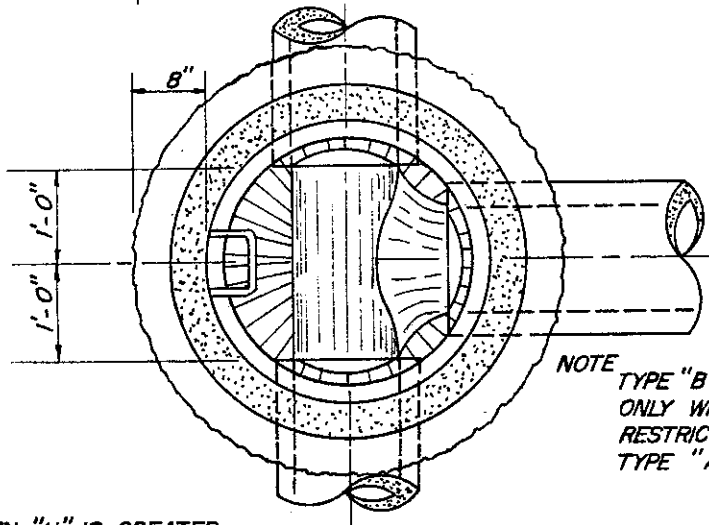
APPROVAL REC <i>Lawar</i>
APPROVED <i>Robert C. Bille</i>
APPROVED <i>[Signature]</i> Director of Public Works and Road Commissioner

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



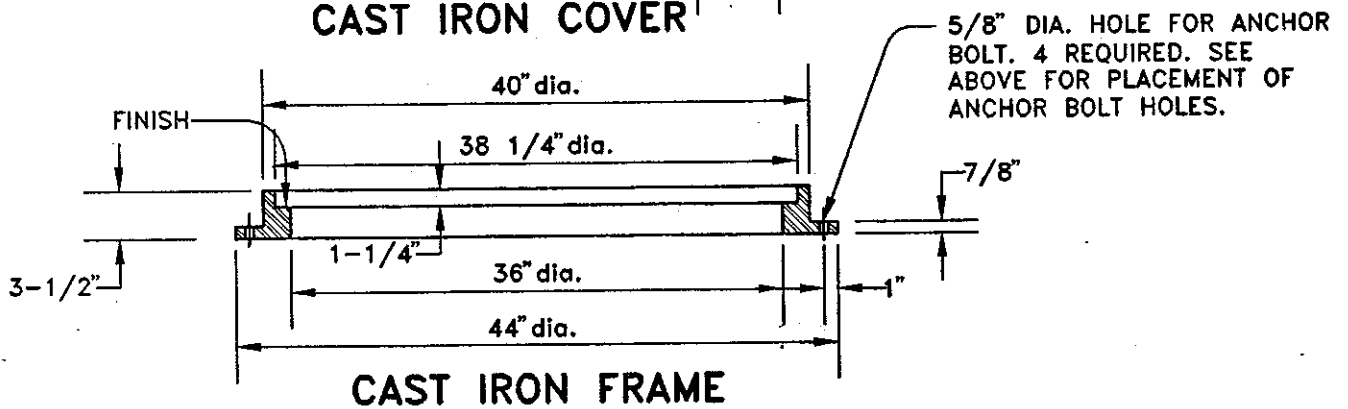
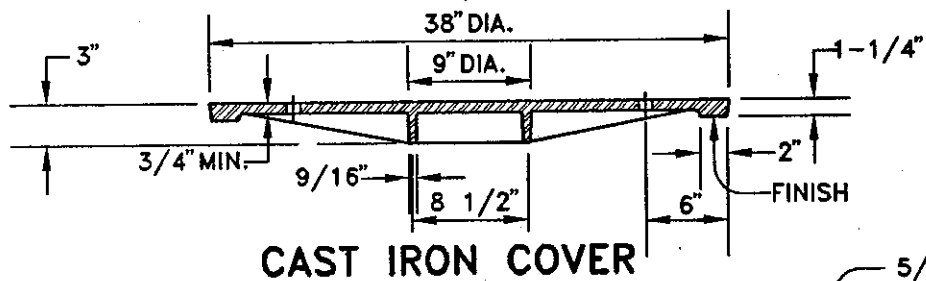
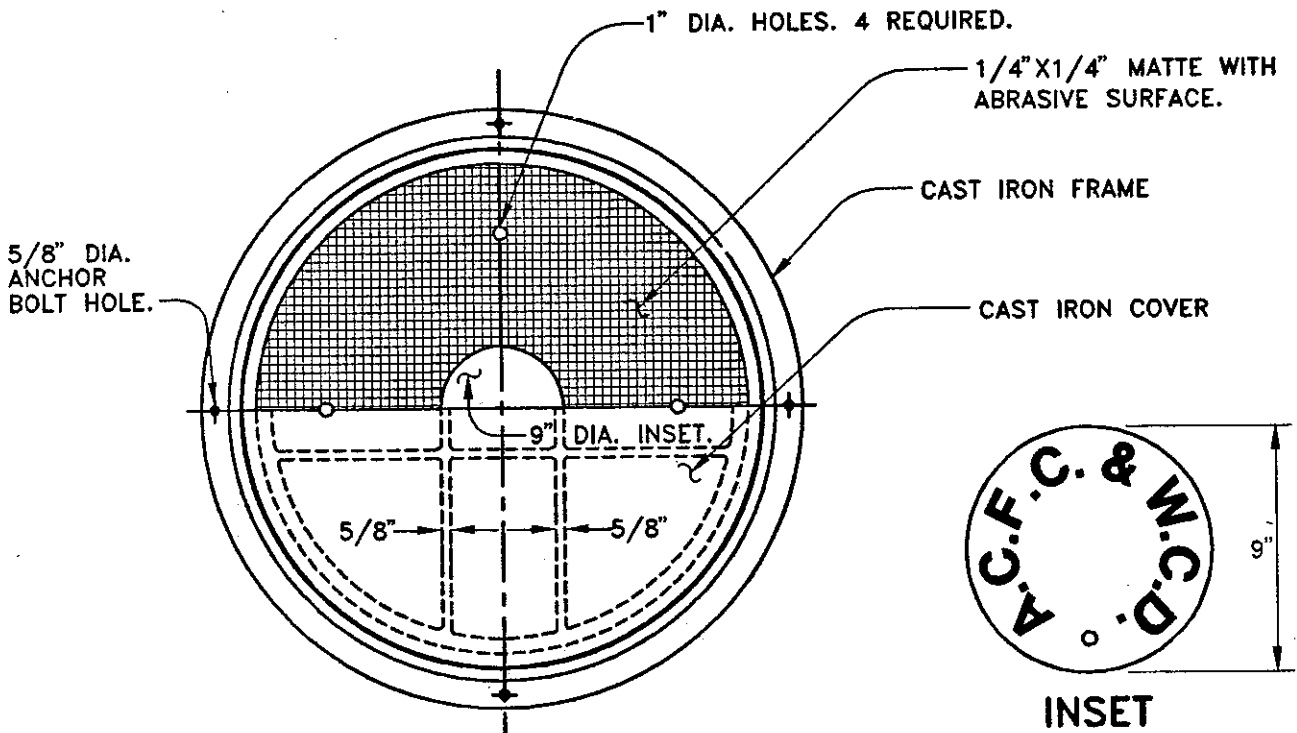
NOTE
TYPE "B" MANHOLE TO BE USED ONLY WHERE AVAILABLE HEIGHT RESTRICTS THE USE OF A TYPE "A" MANHOLE.

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

SECTION A-A

COUNTY OF ALAMEDA * PUBLIC WORKS AGENCY

				APPROVAL REC. <i>am Lawar</i>	
				APPROVED <i>Robert C. Blitt</i>	
				APPROVED <i>William J. ...</i>	
				Director of Public Works and Road Commissioner	
				FILE NO. SD-406 1 of 1	
MANHOLE TYPE "B"	DRAWN JJJ	CHECKED <i>RM TMC</i>	DATE April 1976	SCALE None	
⚠ Step Detail	7/91				
REVISIONS					



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.

REVISIONS

COUNTY ENGINEER

DRAWN
 KT

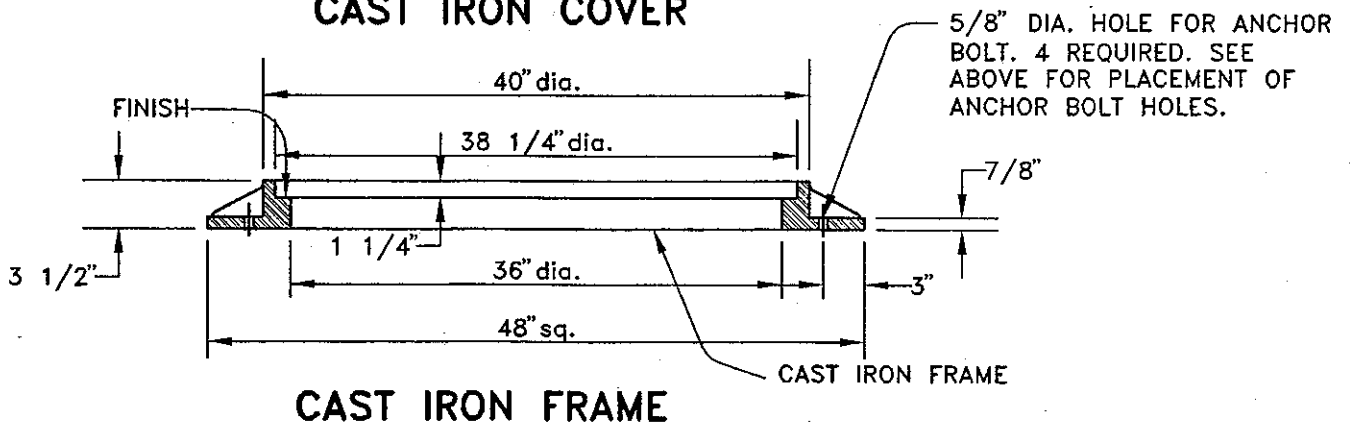
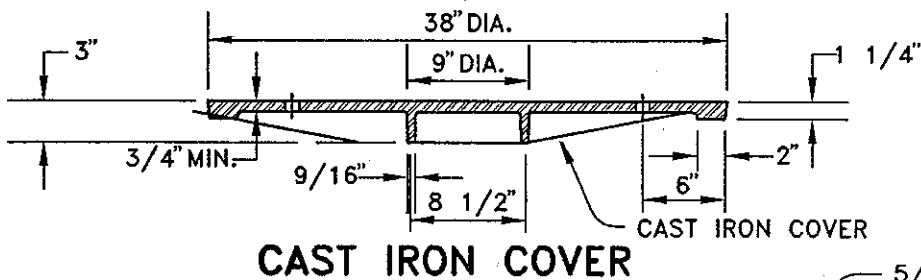
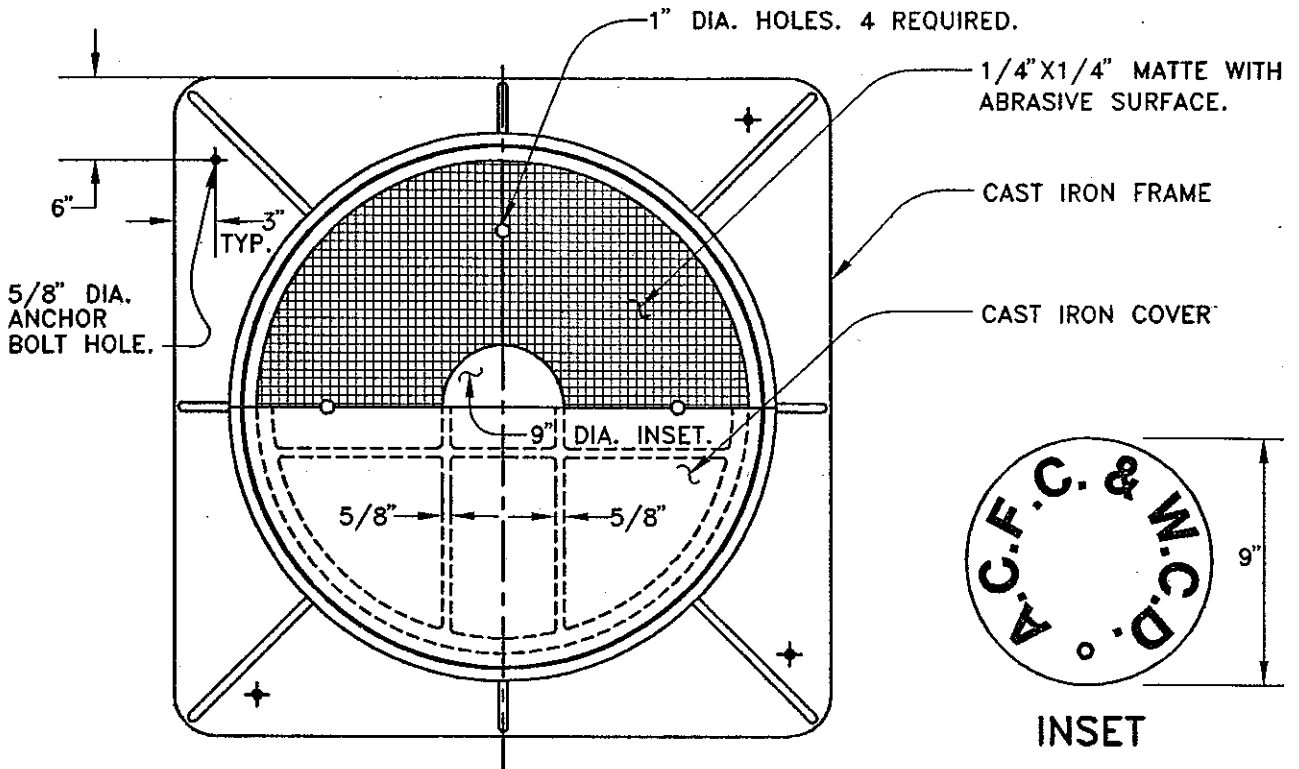
CHECKED

DATE
 JAN. 1994

SCALE
 NONE

FILE NO.
 SD-407

1 of 1



NOTE:

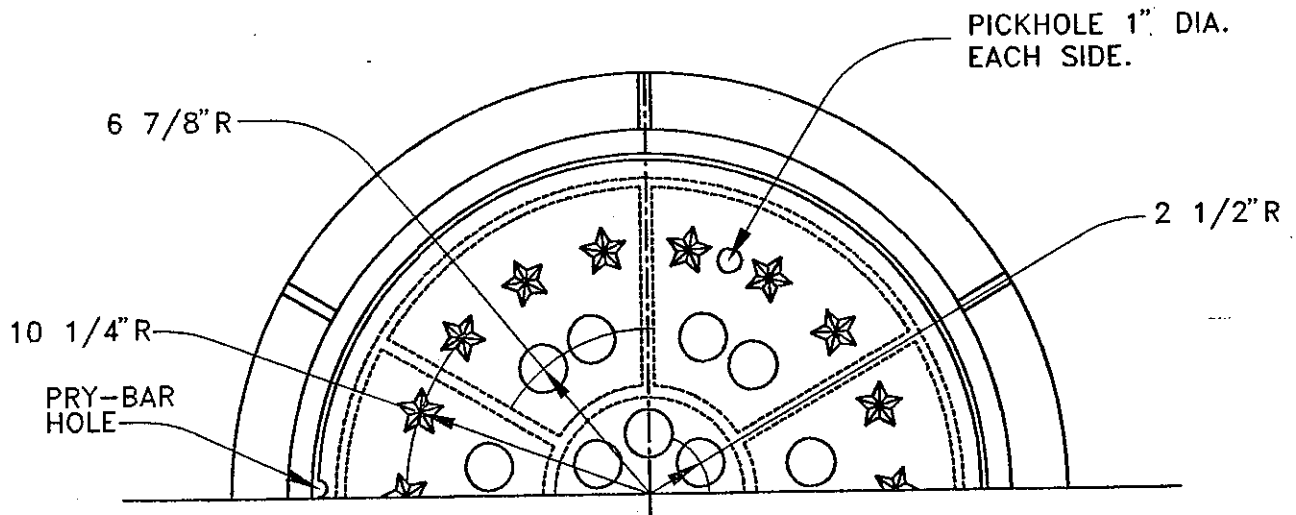
ALL CONTACT END BEARING SURFACES OF BOTH FRAME AND COVER SHALL BE MACHINED TO FIT ACCURATELY SO THAT COVERS WILL NOT ROCK AND SHALL BE MATCH-MARKED IN PAIRS BEFORE DELIVERY.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

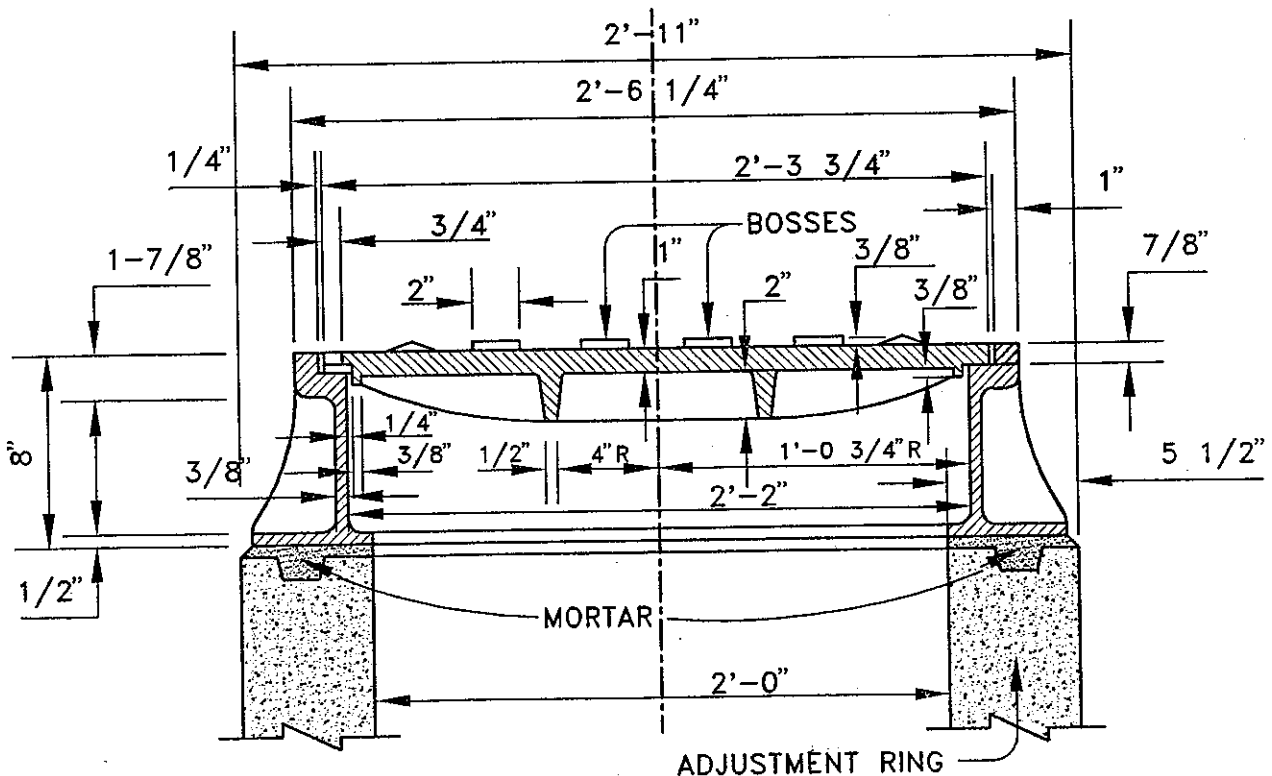
**MANHOLE FRAME AND COVER
TYPE II**

APPROVAL REC.
<i>Frank Robinson</i>
APPROVED
<i>J. Swanson</i>
APPROVED
<i>J. Swanson</i>
<i>am</i>
COUNTY ENGINEER

REVISIONS	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

MANHOLE CASTING

APPROVAL REC
Hank Ackerman
 APPROVED
A. Swanson
 APPROVED
C. Awan
 CM

REVISIONS

COUNTY ENGINEER

DRAWN

KT

CHECKED

DATE

JAN. 1994

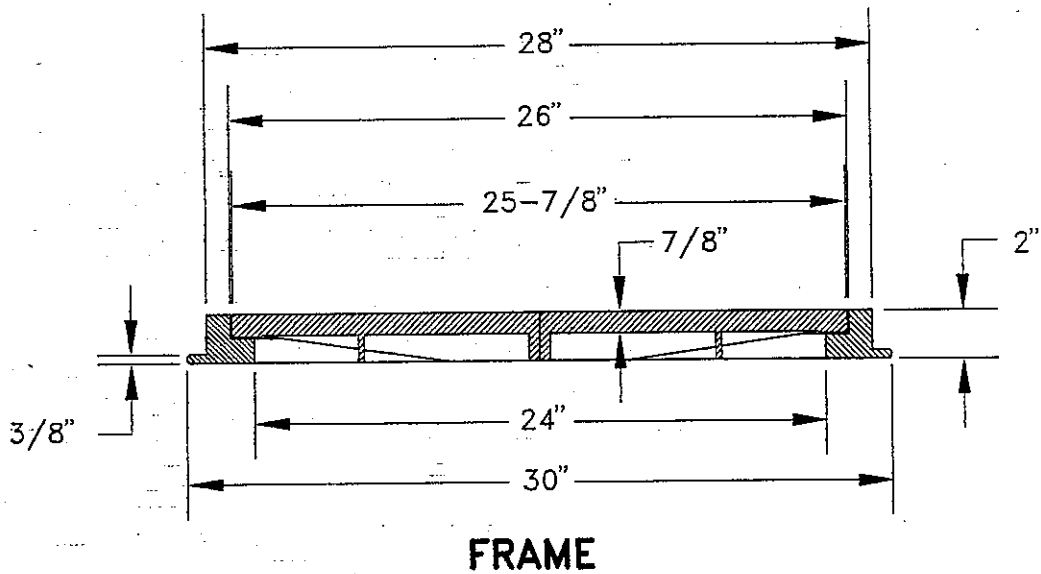
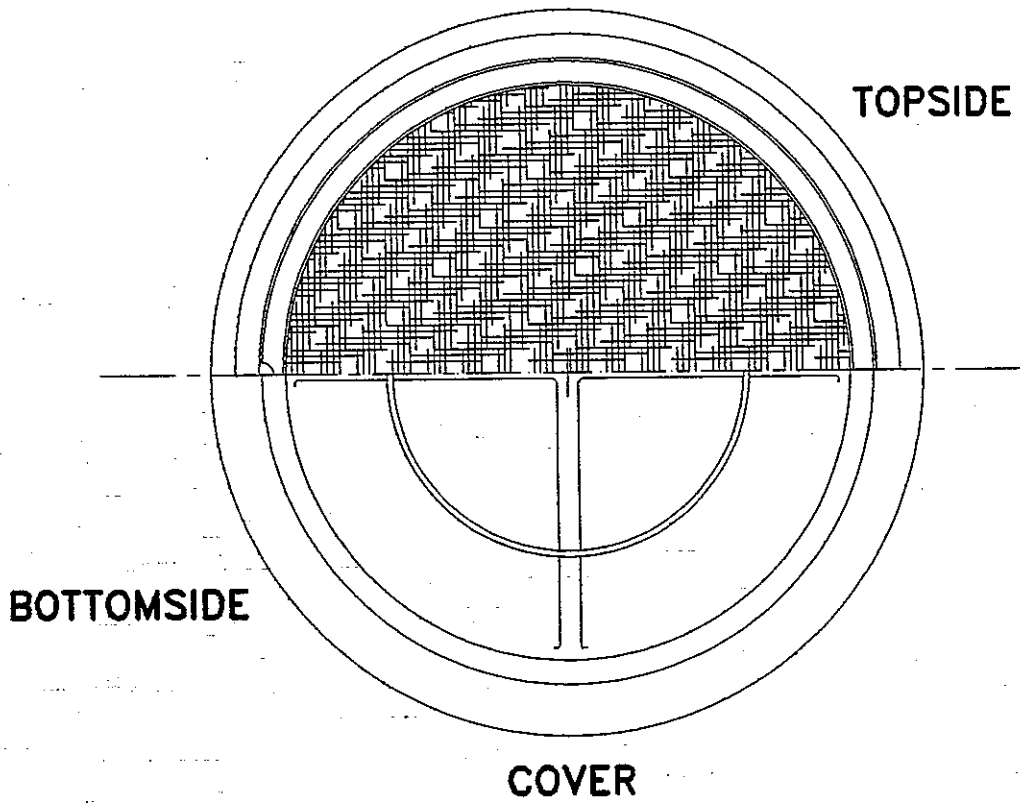
SCALE

NONE

FILE NO.

SD-409

1 of 1



NOTE: FOR USE IN SIDEWALK AREA ONLY

APPROX. WT. 140 LBS.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

MANHOLE LIGHT CASTING

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

REVISIONS

COUNTY ENGINEER AND COUNTY SURVEYOR

DRAWN

TK

CHECKED

DATE

JULY 1992

SCALE

NTS

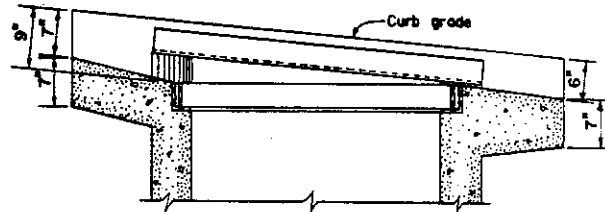
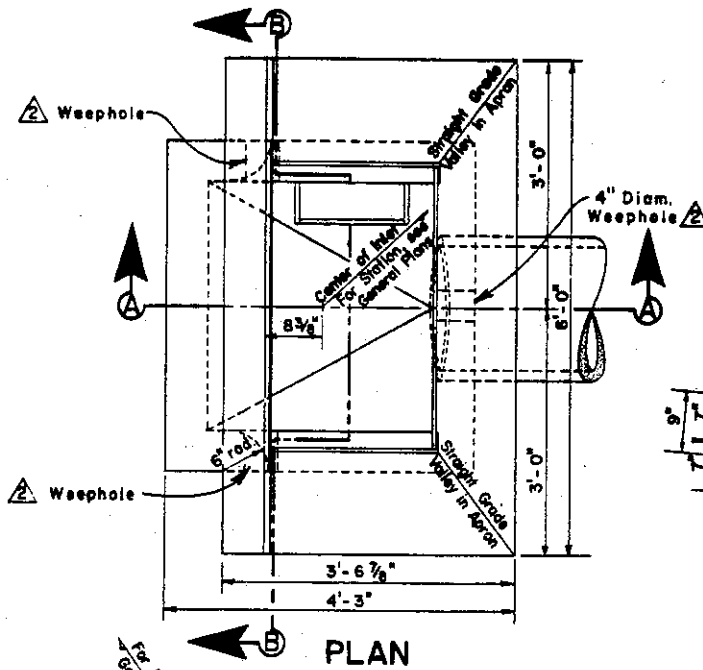
FILE NO.

SD-410

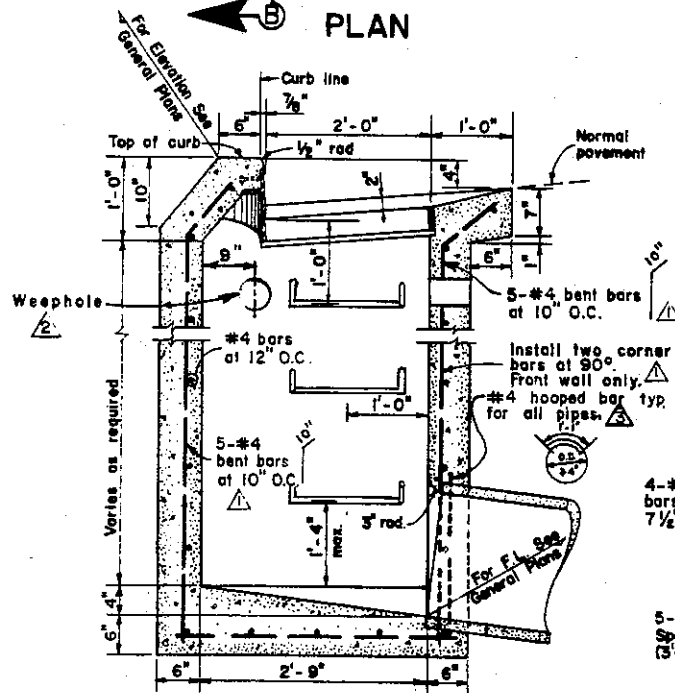
1 of 1

GENERAL NOTES:

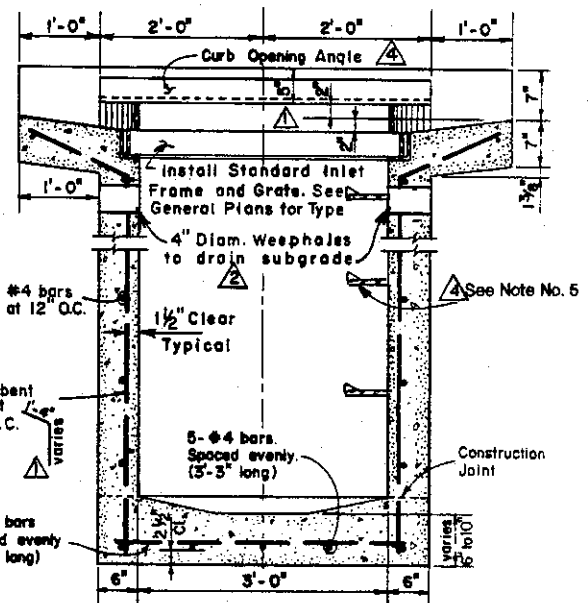
1. Location and direction of conduits entering and leaving inlet are shown on the General Plans.
2. Reinforcing steel may be bent, cut or spread as directed by the Engineer, to permit connection of lateral pipe.
3. Inlets with conduits entering and leaving the inlet shall be channelized to the springline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



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



SECTION A-A



SECTION B-B

COUNTY OF ALAMEDA * PUBLIC WORKS AGENCY

△ Step Detail	7/91
△ Mod. Hooped Bar	7/72
△ Added Weepholes	8/72
△ Note Additions	8/69

REVISIONS

DRAWN RLJ	CHECKED <i>Att TMC</i>
-----------	------------------------

DATE July 1969

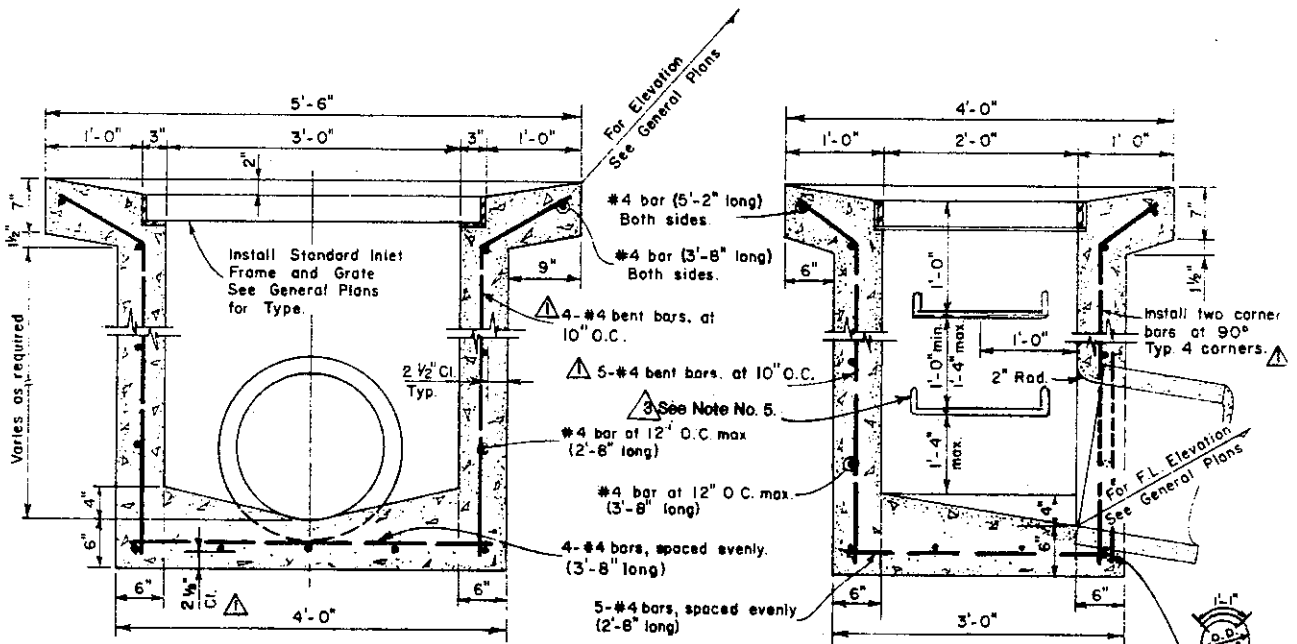
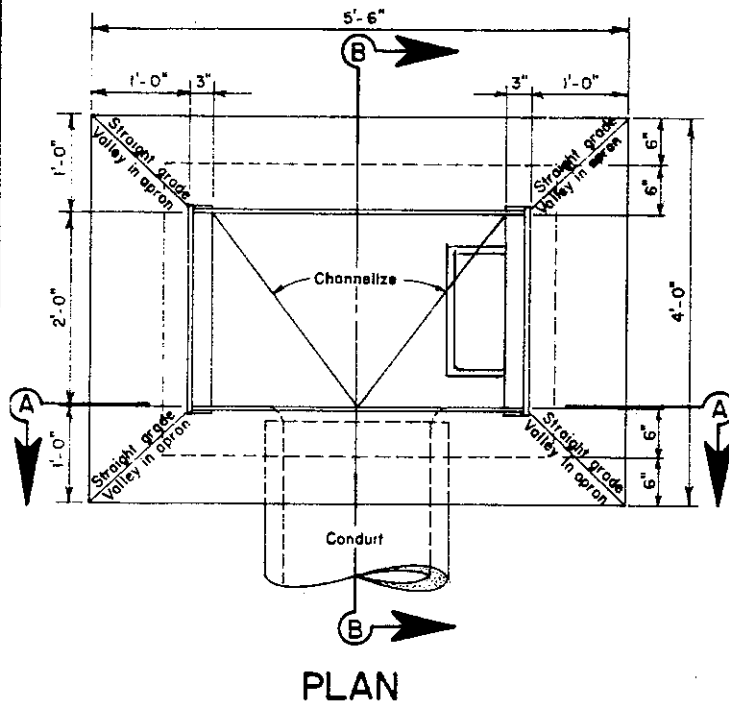
SCALE None

APPROVAL REC <i>and Lawar</i>
APPROVED <i>R. F. Bitt</i>
APPROVED <i>W. H. ...</i>
Director of Public Works and Road Commissioner
FILE NO. SD-411
1 of 1

INLET TYPE I

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

\triangle #4 hooped bar typ. for all pipes

COUNTY OF ALAMEDA * PUBLIC WORKS AGENCY

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

REVISIONS

DRAWN	CHECKED	DATE
FC	at TMC	March 1969

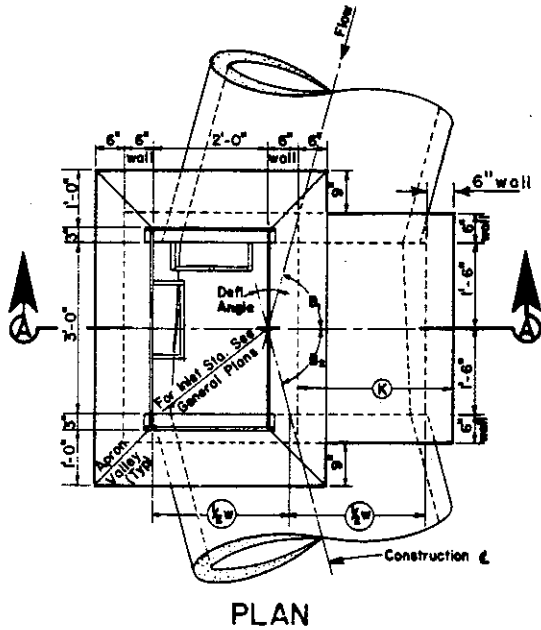
INLET TYPE II

APPROVAL REC	<i>ans sawar</i>
APPROVED	<i>Paul C. Miller</i>
APPROVED	<i>Walter...</i>
Director of Public Works and Road Commissioner	

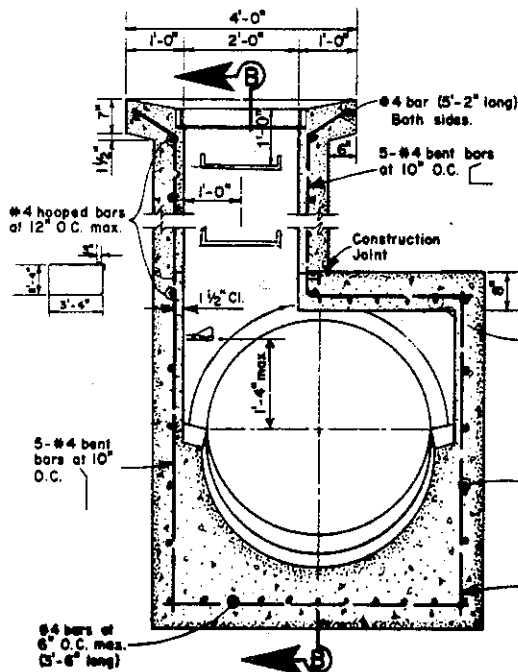
SCALE	FILE NO.	1 of 1
None	SD-412	

GENERAL NOTES:

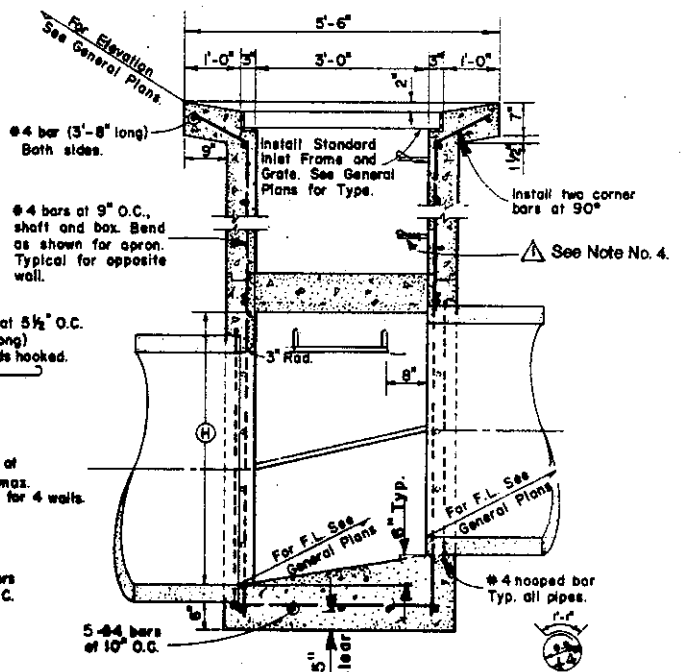
1. Location and direction of conduits entering and leaving inlet are shown on the General Plans.
2. Reinforcing steel may be bent, cut, or spread as directed by the Engineer to permit connection of lateral pipe.
3. See General Plans for information of B₁, B₂, W, H, and K [K determines the location of the shaft.]
4. For step details, see Design Guidelines File No. SD-517. ⚠



PLAN



SECTION A-A



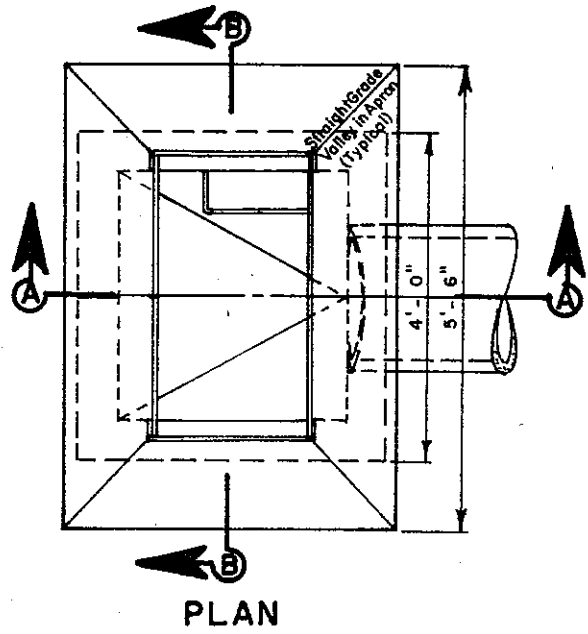
SECTION B-B

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

INLET TYPE III

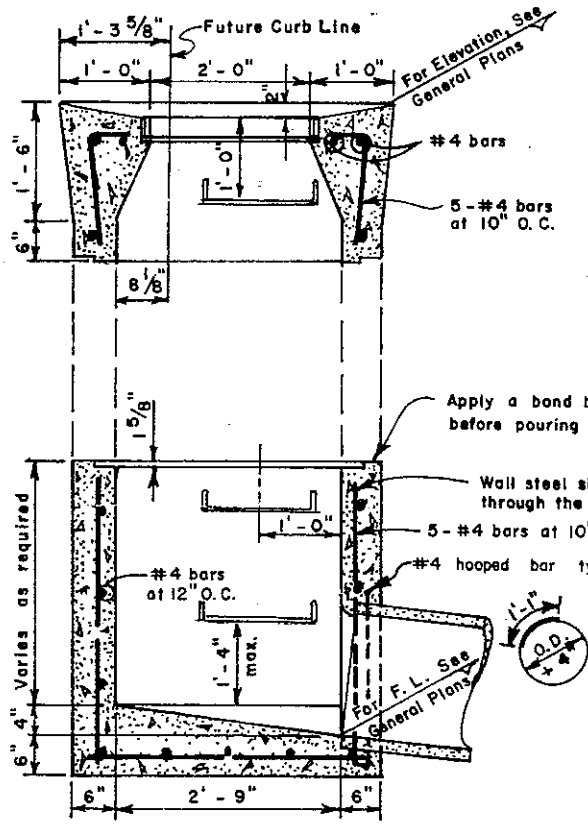
Step Detail	7/91
REVISIONS	
DRAWN	RLJ
CHECKED	RLJ TML
DATE	July 1969
SCALE	None

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

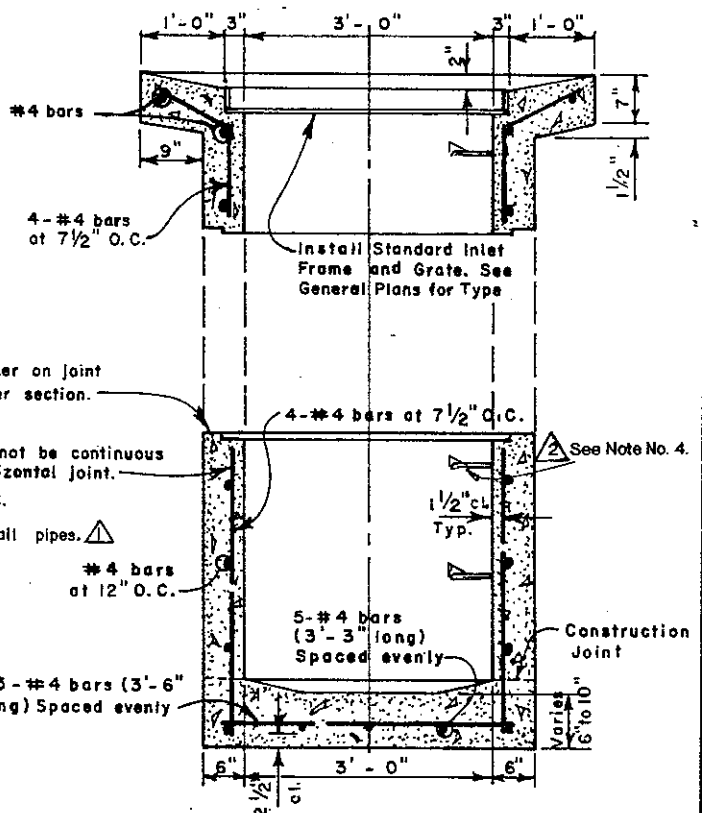


GENERAL NOTES:

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		

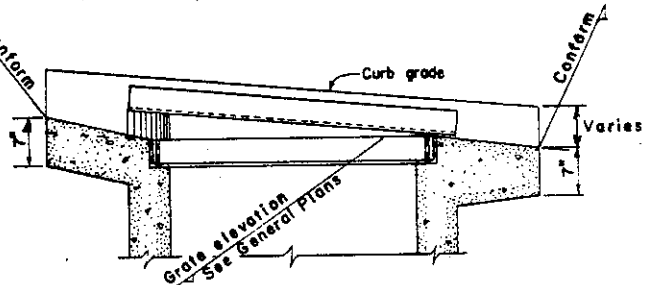
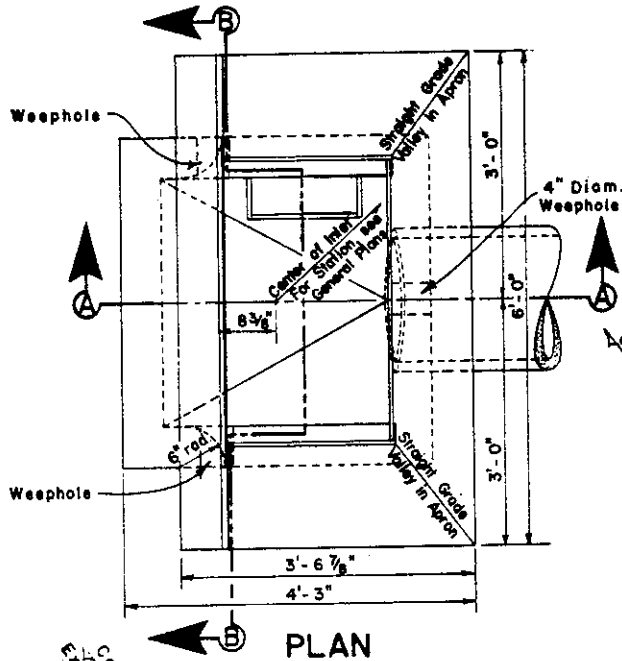
INLET TYPE IV

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

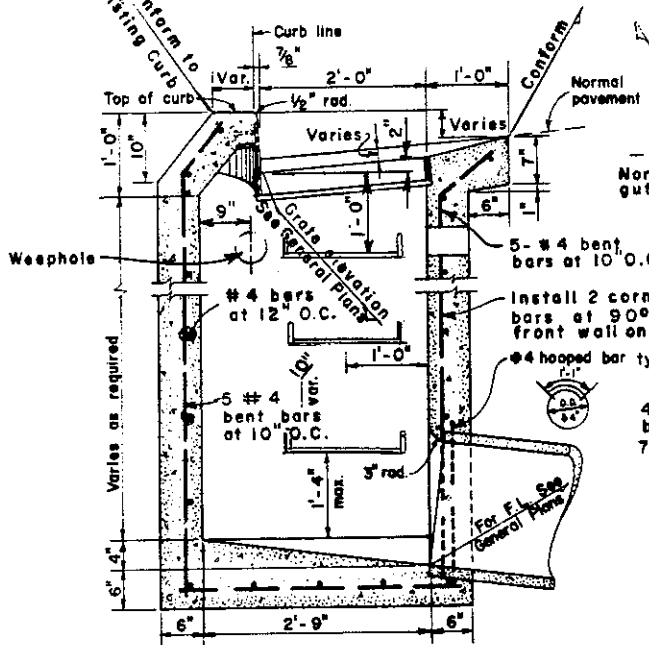
DRAWN	FC	CHECKED	<i>[Signature]</i> TME	DATE	July 1969	SCALE	None	FILE NO.	SD-414	1 of 1
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GENERAL NOTES:

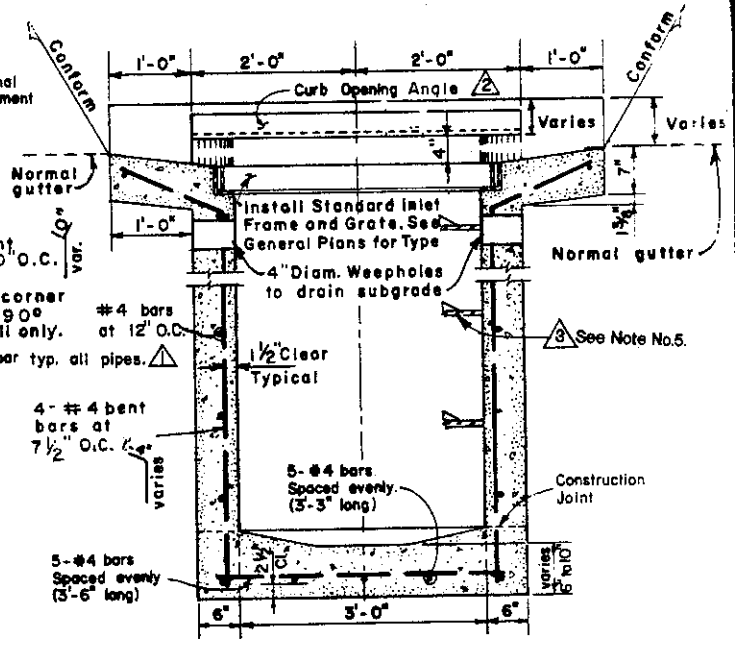
1. Location and direction of conduits entering and leaving inlet are shown on General Plans.
2. Reinforcing steel may be bent, cut or spread as directed by the Engineer, to permit connection of lateral pipe.
3. Inlets with conduits entering and leaving the inlet shall be channelized to the springline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



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






SECTION A-A



SECTION B-B

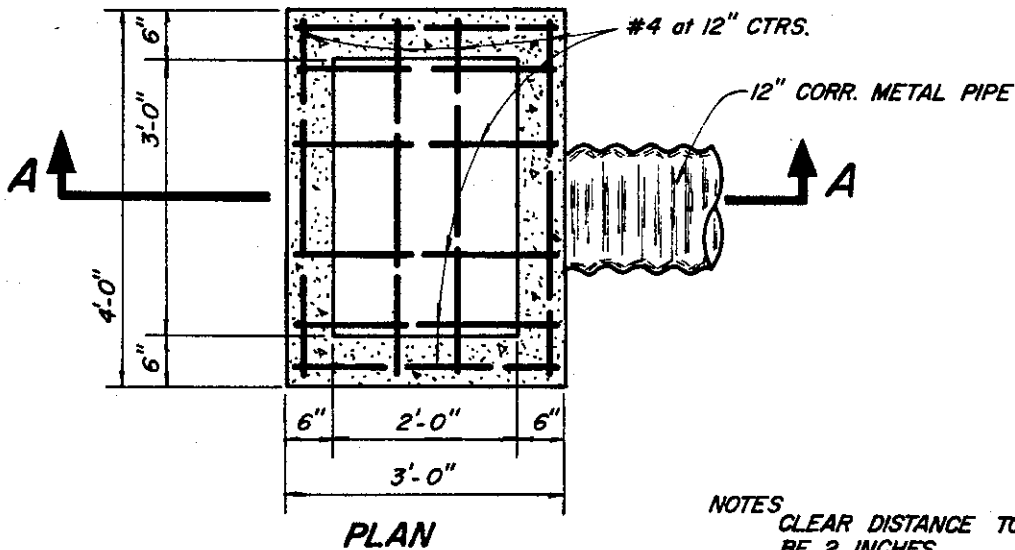
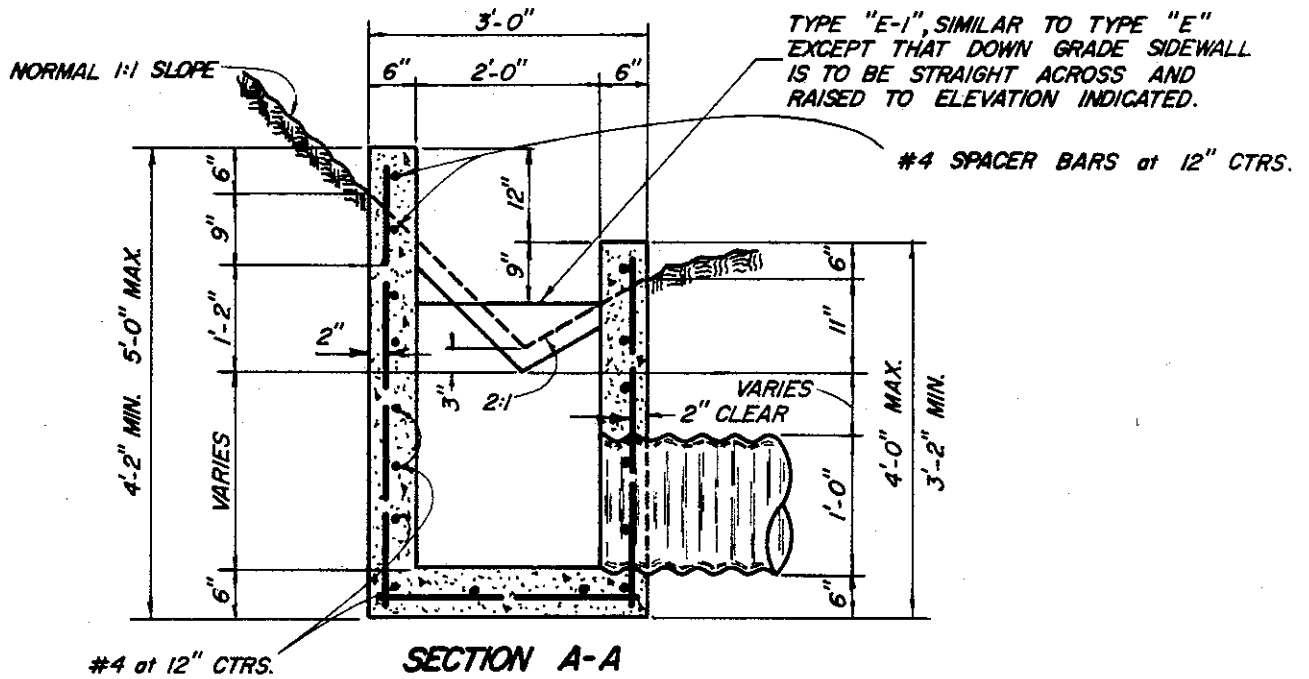
COUNTY OF ALAMEDA * PUBLIC WORKS AGENCY

	Step Detail	7/91
	Note revised	4/77
	Modified hooped bar note.	7/72
REVISIONS		

INLET TYPE V

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

DRAWN RLJ&FC	CHECKED <i>at TMC</i>	DATE May 1972	SCALE None	FILE NO. SD-415	1 of 1
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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"**

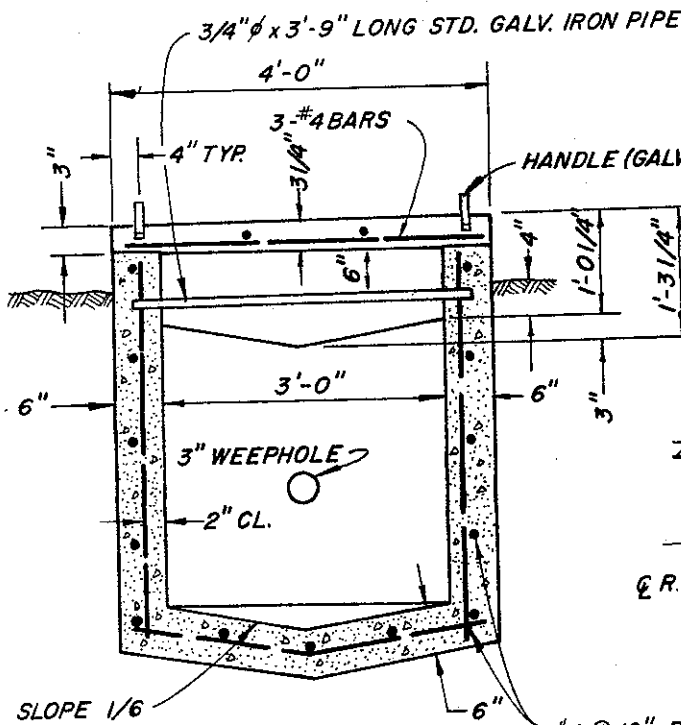
APPROVAL REC. *am Lawar*

APPROVED *Robert C. Bille*

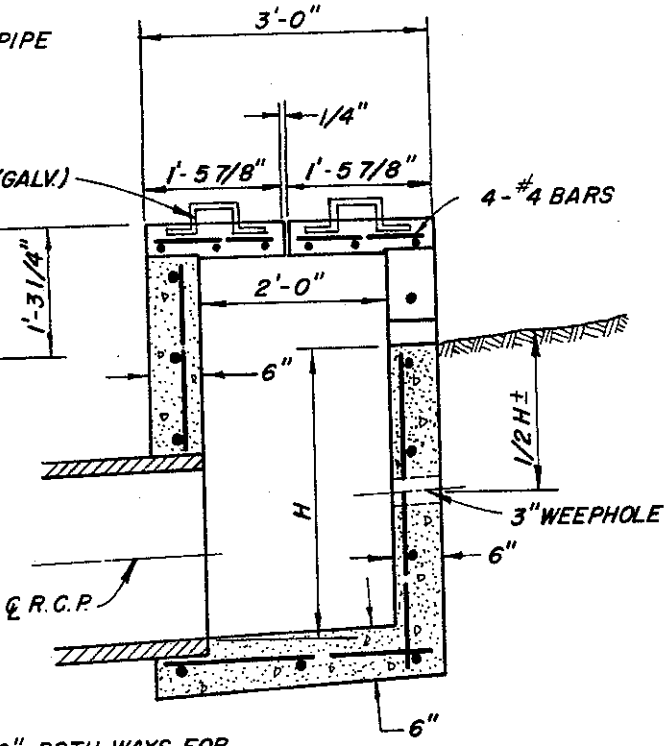
APPROVED *William J. ...*
Director of Public Works
and Road Commissioner

REVISIONS

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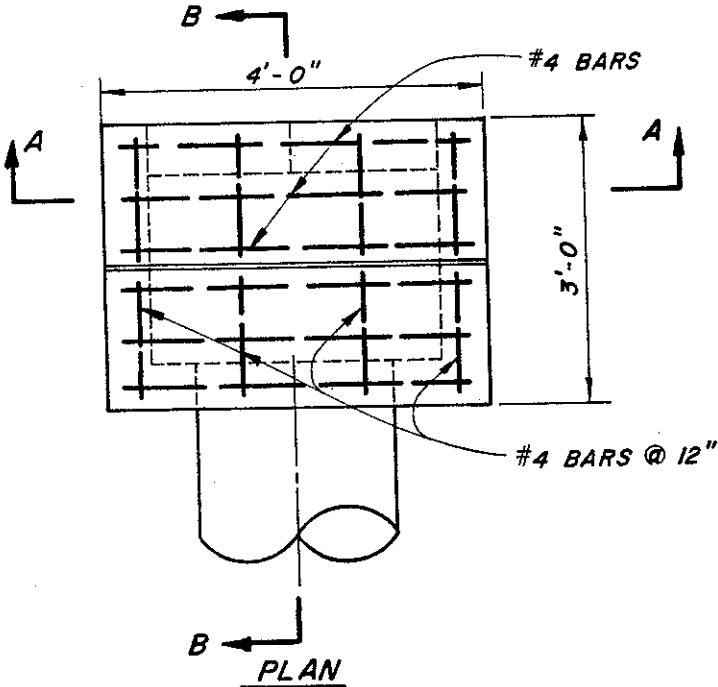
SECTION A-A



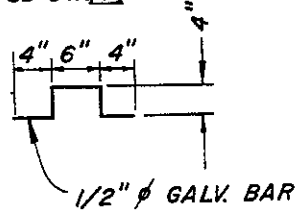
SECTION B-B

#4 @ 12" BOTH WAYS FOR WALLS AND BOTTOM SLAB

NOTE: STEPS REQUIRED WHEN H EXCEEDS 3'-6", FOR STEP DETAILS. SEE DESIGN GUIDELINES FILE NO. SD-517.



PLAN



HANDLE DETAIL

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

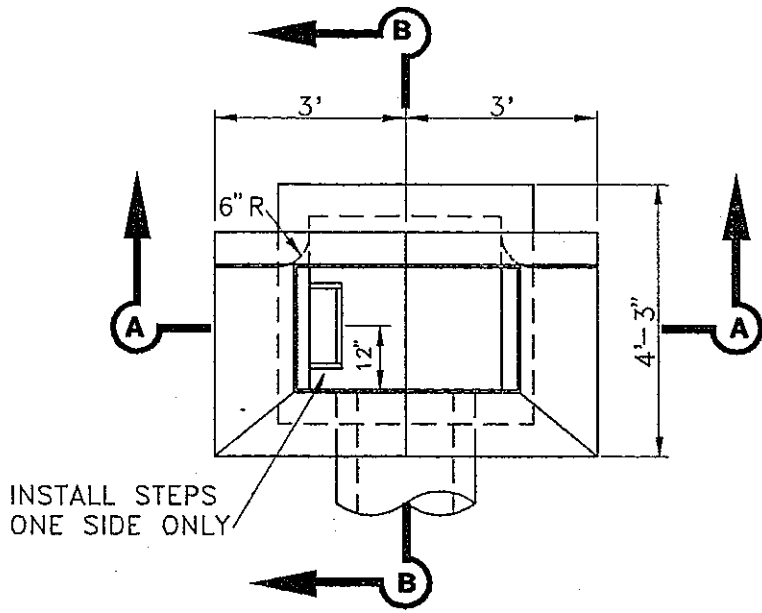
COUNTY OF ALAMEDA * PUBLIC WORKS AGENCY

REVISIONS	
Step Detail	7/91

DROP INLET TYPE "G"

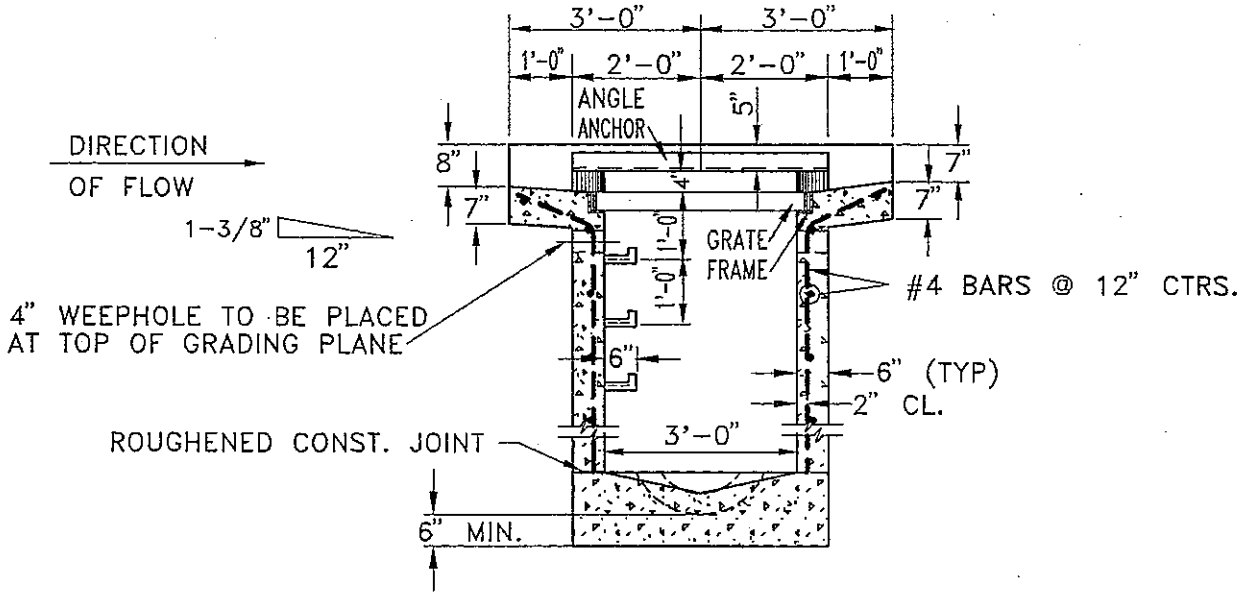
APPROVAL REC. *and Lawar*
 APPROVED *Paul F. Bille*
 APPROVED *Walter...*
 Director of Public Works and Road Commissioner

DRAWN PCL	CHECKED <i>TME</i>	DATE Apr. 1976	SCALE None	FILE NO. SD-418	1 of 1
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INSTALL STEPS
ONE SIDE ONLY

PLAN



SECTION A-A

- NOTES:
1. FOR SECTION B-B SEE SHEET SD-421.
 2. FOR ANGLE ANCHOR, GRATE AND FRAME SEE SHEET SD-434.
 3. FOR STEP DETAILS SEE SHEET SD-517.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

DROP INLET WITHOUT TAPER

APPROVAL REC.

APPROVED *[Signature]*

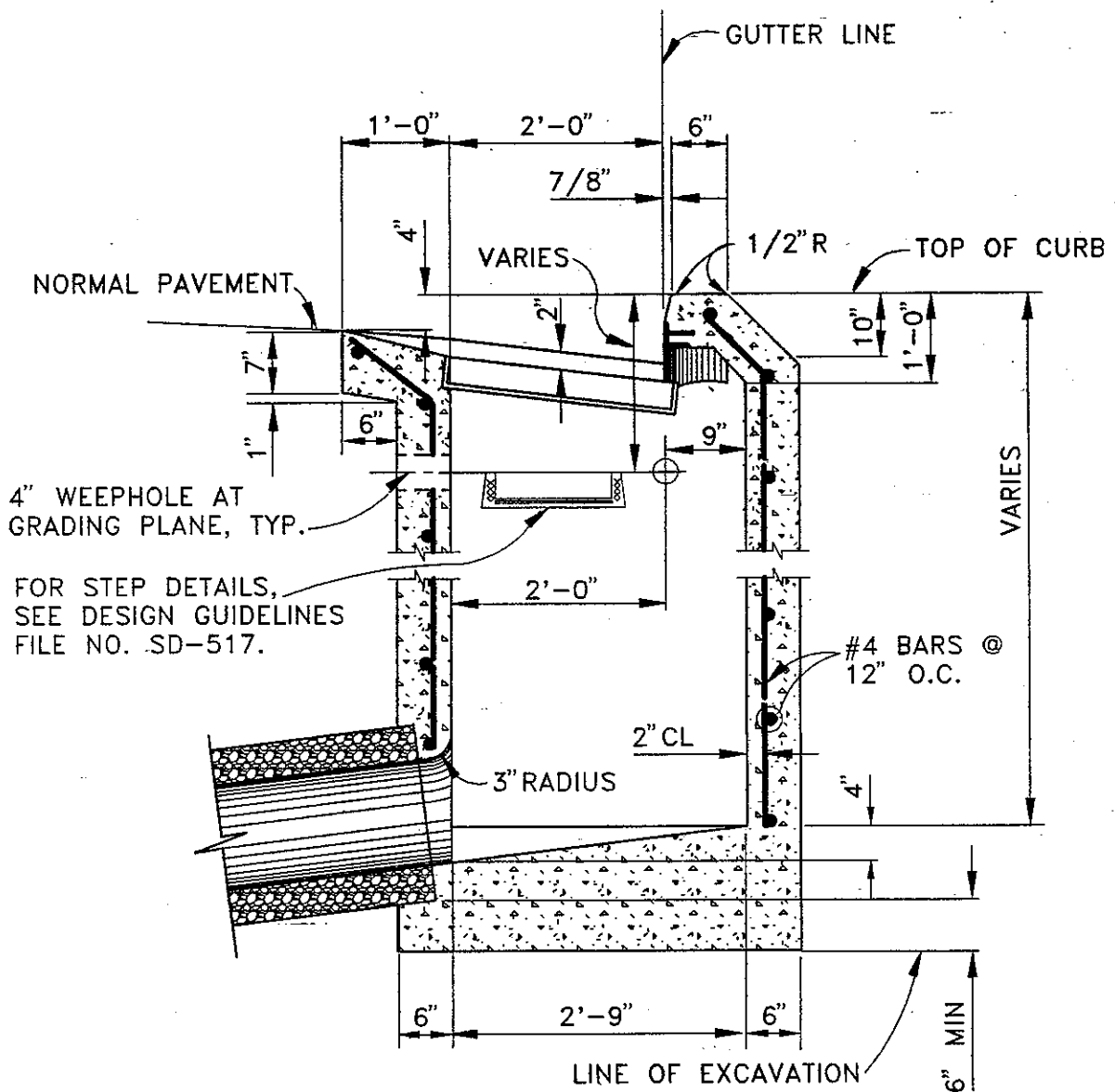
APPROVED *[Signature]*

APPROVED *[Signature]*

COUNTY ENGINEER

REVISIONS		DRAWN	CHECKED	DATE	SCALE	FILE NO.	
		JC		OCT. 1994	NONE	SD-420	1 of 1

PLOT SCALE: 1"=3'

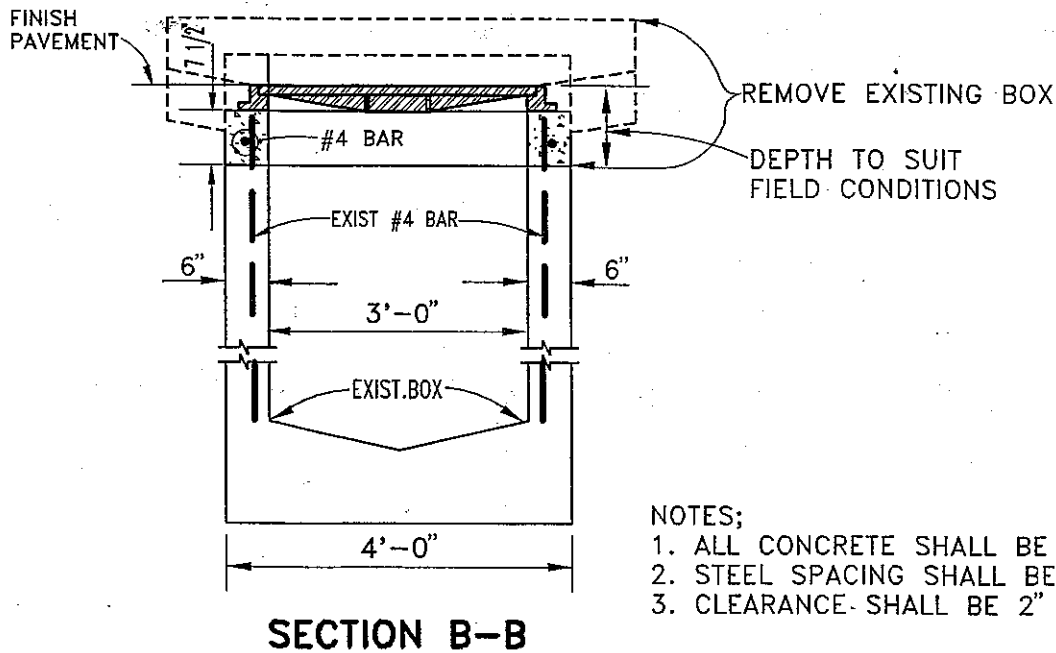
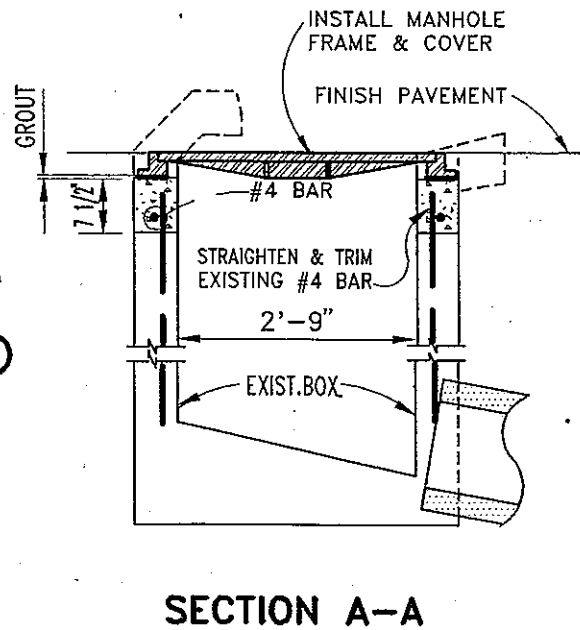
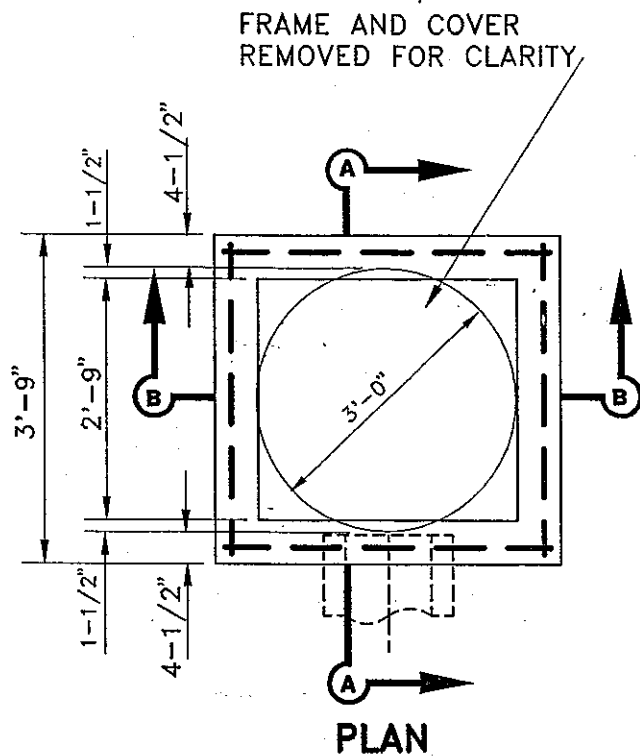


SECTION B-B

NOTE: THIS DETAIL APPLICABLE TO SD-419 AND SD-420.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

		DROP INLET		APPROVAL REC.	
				APPROVED <i>[Signature]</i>	
				APPROVED <i>[Signature]</i>	
				<i>am</i>	
				COUNTY ENGINEER	
REVISIONS		DRAWN	CHECKED	DATE	SCALE
		EA		APRIL 1993	NONE
				FILE NO.	1 of 1
				SD-421	



- 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
Andrews
APPROVED

COUNTY ENGINEER

REVISIONS

DRAWN

EA

CHECKED

DATE

JUNE 1993

SCALE

NONE

FILE NO.

SD-422

1 of 1

Mortar grating
in place

12" Concrete
Sewer Pipe.
(see note)

Locate as shown on
the General Plans
or as directed by
the Engineer.

Mortar in
place

Exposed reinforcement
shall be painted with
galvanized paint to avoid
rust

14-1/4" O.D. Cast Iron Circular
Grate Empire Foundry,
No. GF6 143B, or 15" O.D.
Phoenix Iron Works No. P-1058,
or equivalent.

Length as directed
by the Engineer

Circular section to be
removed from pipe. Do
not remove reinforcing steel.

NOTE:

Inlet pipe size to main pipe
size shall be at least 1:3 ratio

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

**FIELD INLET
TYPE I**

APPROVAL REC.
 APPROVED *Stendrip*
 APPROVED *Jawan*
aw

REVISIONS

COUNTY ENGINEER AND COUNTY SURVEYOR

DRAWN
LB/BTF

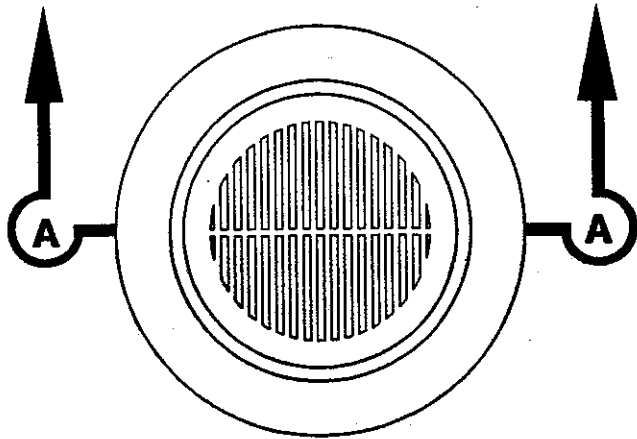
CHECKED

DATE
August 1992

SCALE
NO SCALE

FILE NO.
SD-423

1 of 1



PLAN

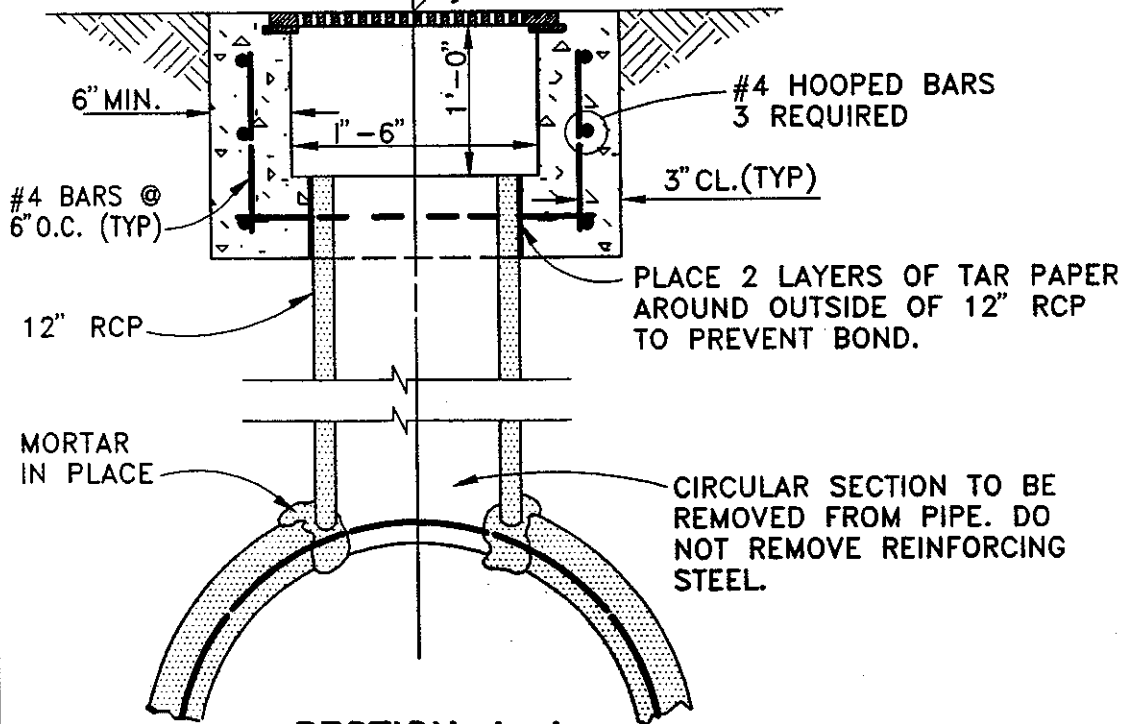
NOTES:

1. FRAME AND GRATING TO BE EMPIRE FOUNDRY CO. CATALOG NO. GF7 201LT, 20" BOLT DOWN GRATE AND FRAME FOR MEDIUM TRAFFIC; OR PHOENIX IRON WORKS CATALOG NO. P-1071, 19 5/8" GRATE AND FRAME WITH TWO COUNTERSUNK LOCK SCREWS; OR EQUIVALENT.

2. BOTH THE EXTERIOR AND INTERIOR SHAPE OF THE INLET MAY BE VARIED SOMEWHAT AS DIRECTED BY THE ENGINEER TO SIMPLIFY FORM WORK.

☉ OF INLET. SEE GENERAL PLANS FOR LOCATION AND STATIONING

FOR ELEVATION SEE PROFILE



SECTION A-A

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

FIELD INLET
TYPE II

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

REVISIONS

DRAWN EA

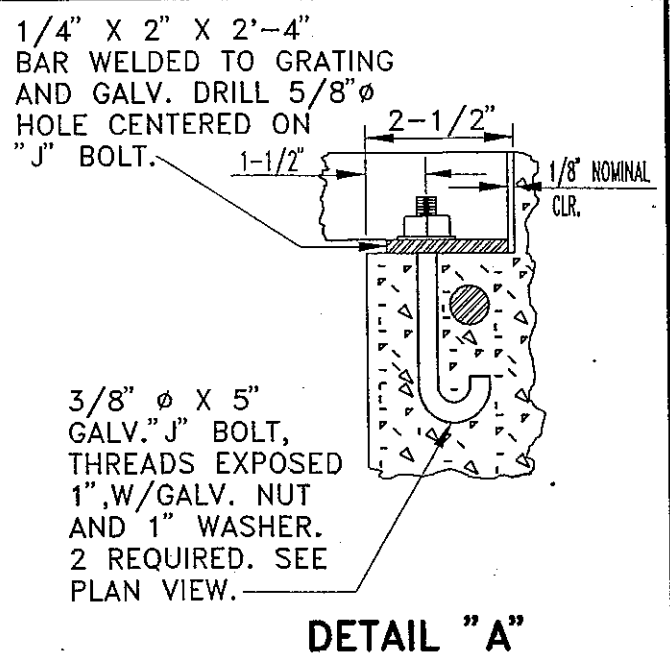
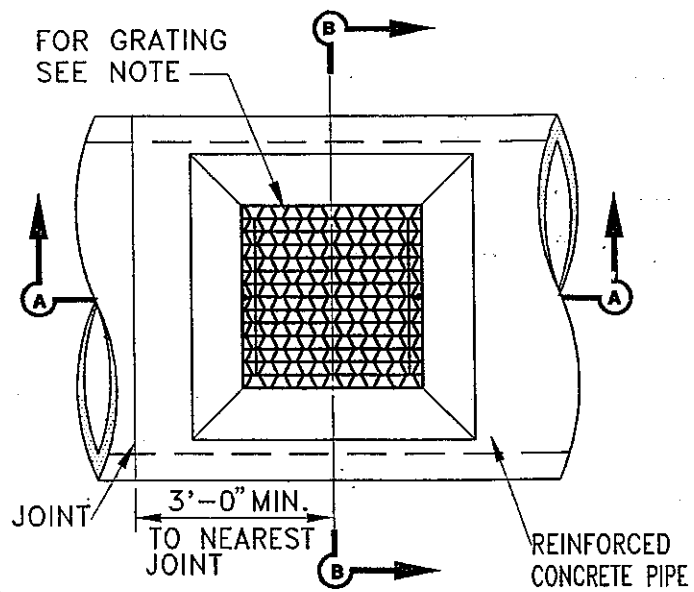
CHECKED

DATE MAY 1993

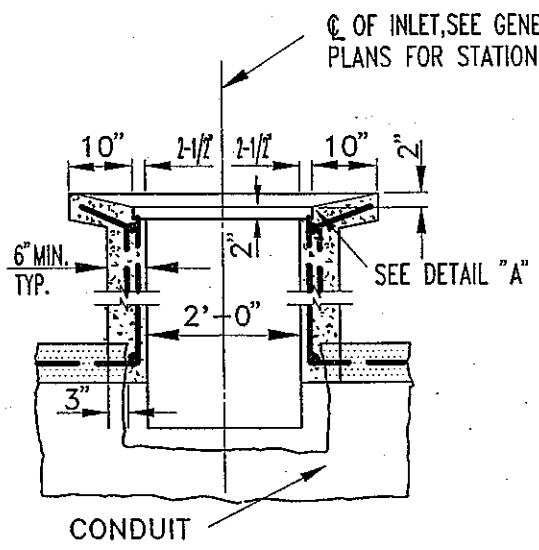
SCALE NONE

FILE NO. SD-424

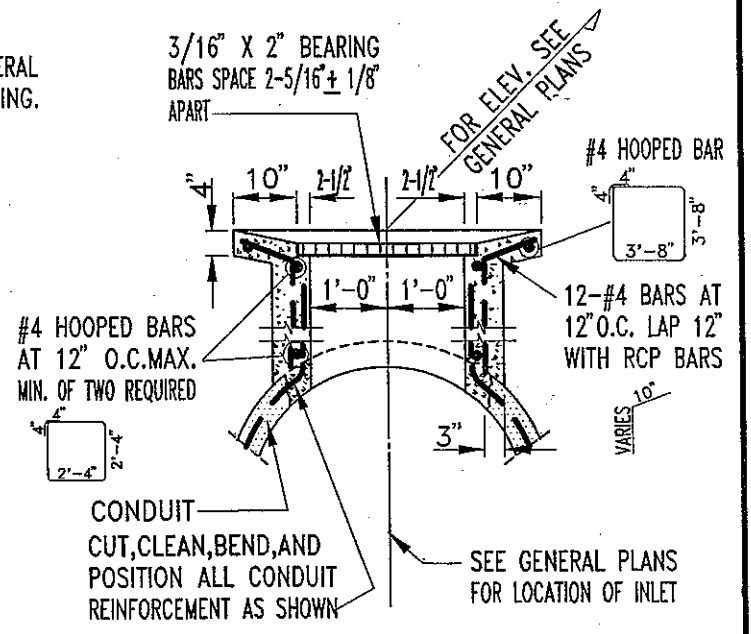
1 of 1



PLAN



SECTION A-A

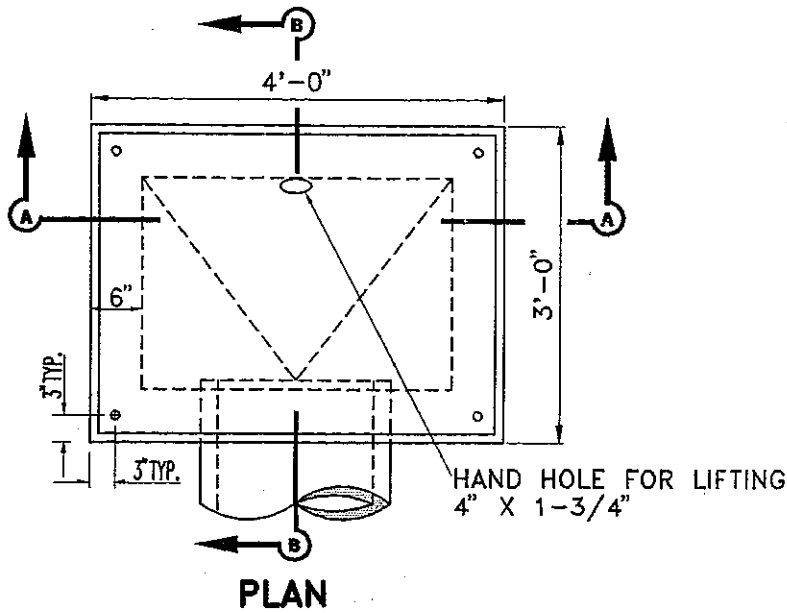


SECTION B-B

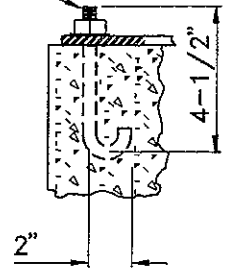
NOTE:
GRATING TO BE IRVING RIVETED "RETICULINE DESIGN", TYPE S OR V AS MANUFACTURED BY IRVING SUBWAY GRATING CO., INC. OR "BUFNEL BRIDGE DECKING" AS MANUFACTURED BY BUFNEL CO., OR APPROVED EQUAL. BENT BRACING BARS TO BE FLUSH TOP AND RIVETED TO ALL MAIN MEMBERS ON FIVE INCH CENTERS ALONG EACH BEARING BAR. GRATING IS TO SAFELY SUSTAIN A UNIFORMLY DISTRIBUTED LOAD OF 2,000 LBS. PER SQ. FT. ON A 24" SPAN. MATERIAL TO BE STEEL. GRATING TO BE GALVANIZED AFTER FABRICATION.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

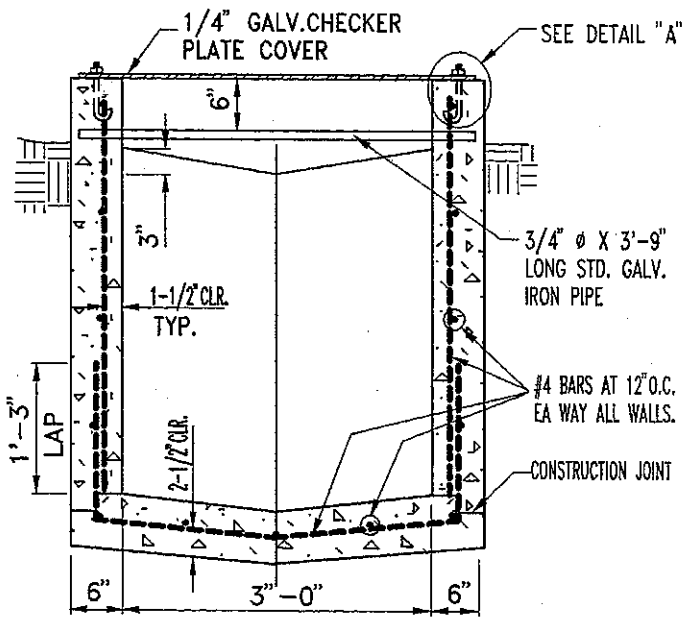
<p>FIELD INLET TYPE III</p>				<p>APPROVAL REC.</p> <p>APPROVED: <i>Stendrip</i></p> <p>APPROVED: <i>Kawan</i></p> <p>CCM</p> <p>COUNTY ENGINEER</p>	
				<p>REVISIONS</p>	
<p>DRAWN</p> <p>EA</p>	<p>CHECKED</p>	<p>DATE</p> <p>JULY 1993</p>	<p>SCALE</p> <p>NONE</p>	<p>FILE NO.</p> <p>SD-425</p>	<p>1 of 1</p>



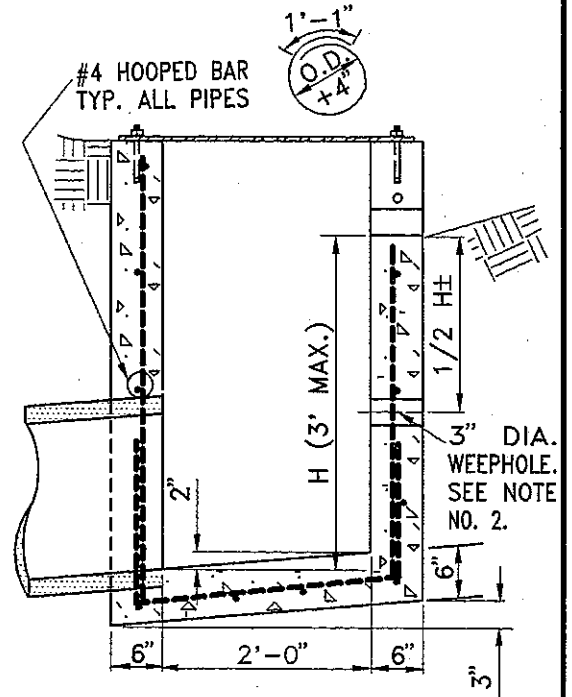
3/8" Ø GALV. 'J' BOLT
AND NUT. 4 REQUIRED.
1/4" MAXIMUM EXPOSED
THREADS.



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

EA

CHECKED

DATE

JULY 1993

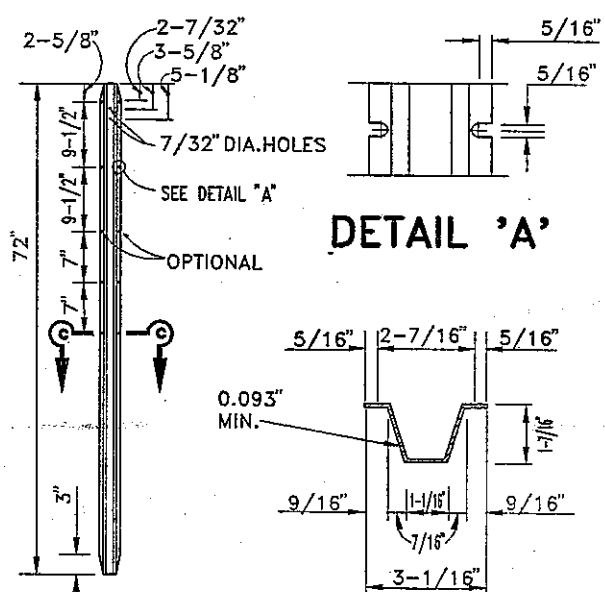
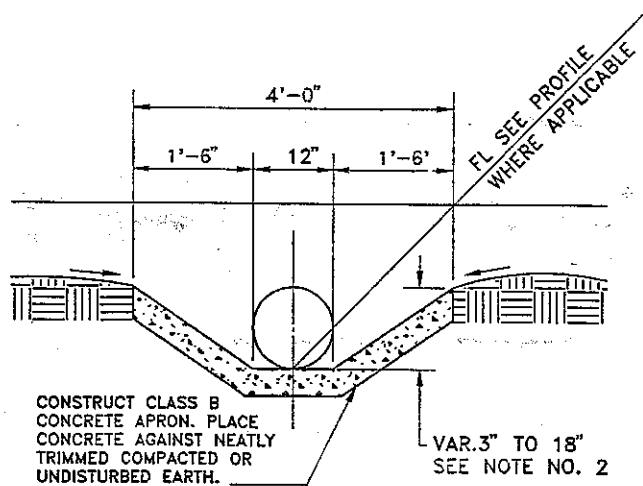
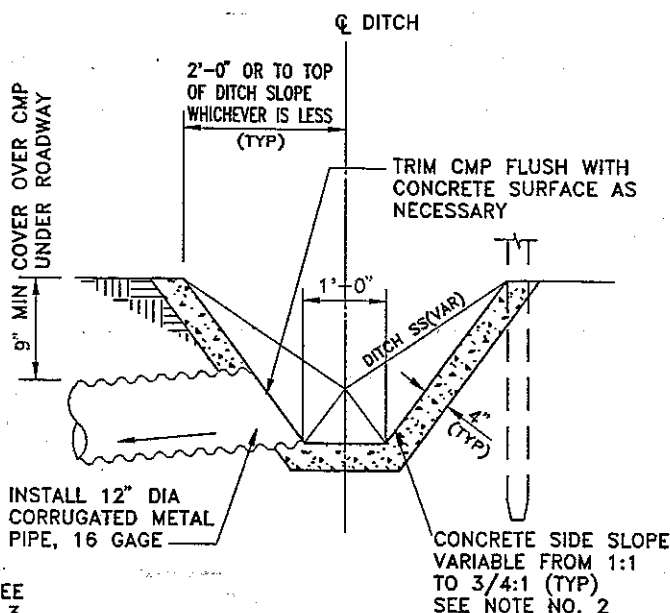
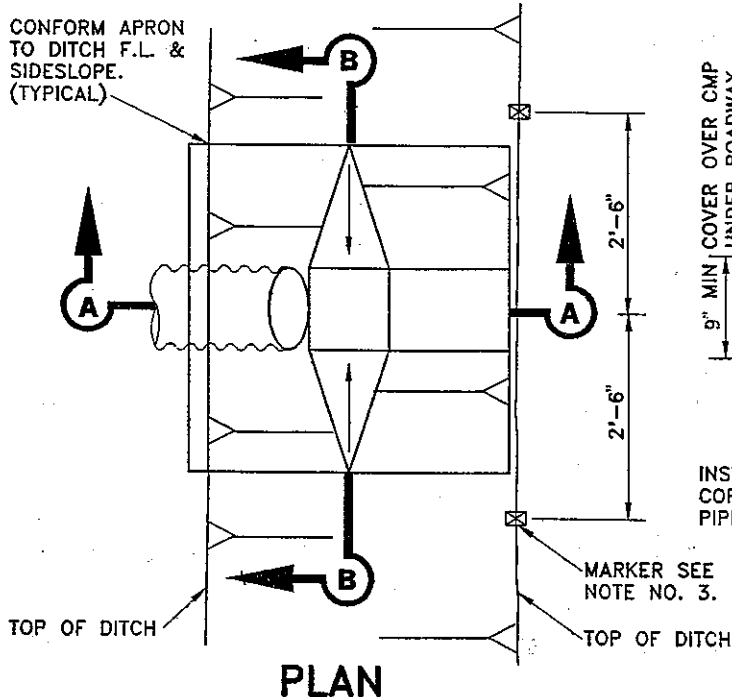
SCALE

NONE

FILE NO.

SD-426

1 of 1



- 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

FIELD INLET
TYPE V

APPROVAL REC.

APPROVED *[Signature]*

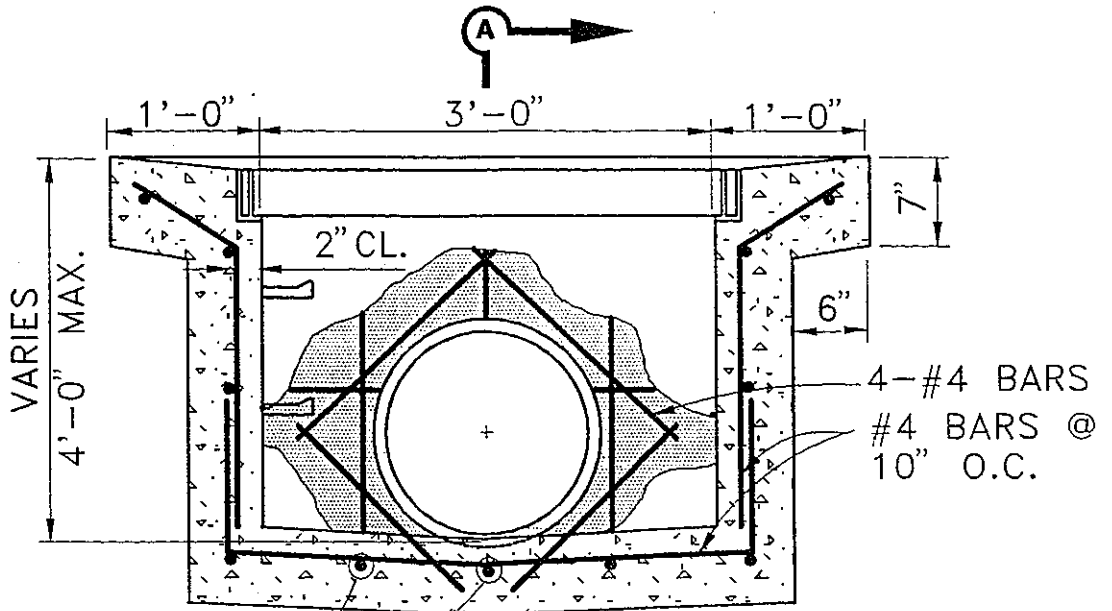
APPROVED *[Signature]*

AMM

COUNTY ENGINEER

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

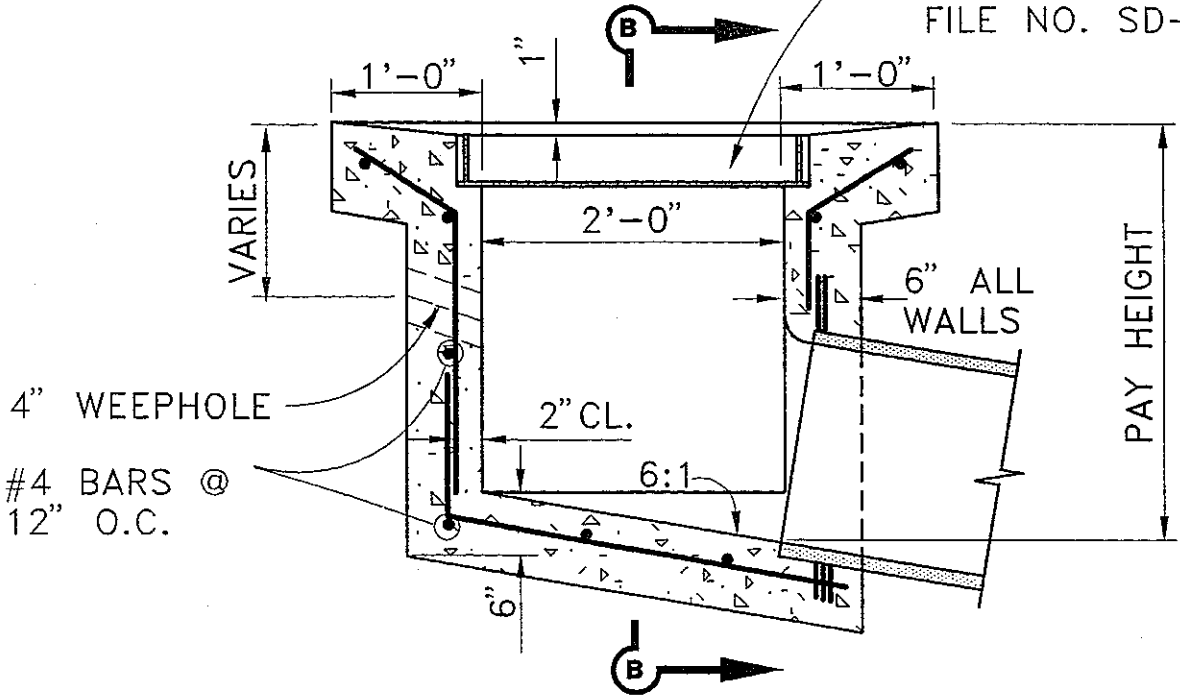
FOR STEP DETAILS SEE
DESIGN GUIDELINES
FILE NO. SD-517



#4 BARS @
10" O.C.

SECTION B-B

STD. D.I. FRAME
& GRATE SEE
DESIGN GUIDELINES
FILE NO. SD-434



4" WEEPHOLE

#4 BARS @
12" O.C.

SECTION A-A

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

FIELD INLET

APPROVAL REC.
Handwritten signature
APPROVED
Handwritten signature
APPROVED
Handwritten signature
Handwritten signature

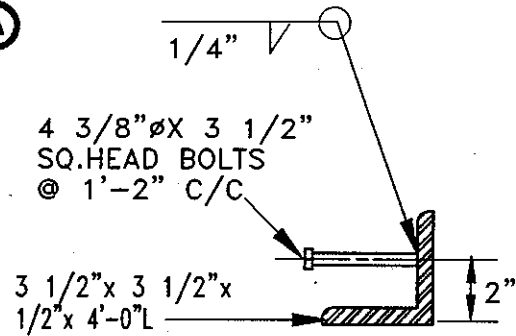
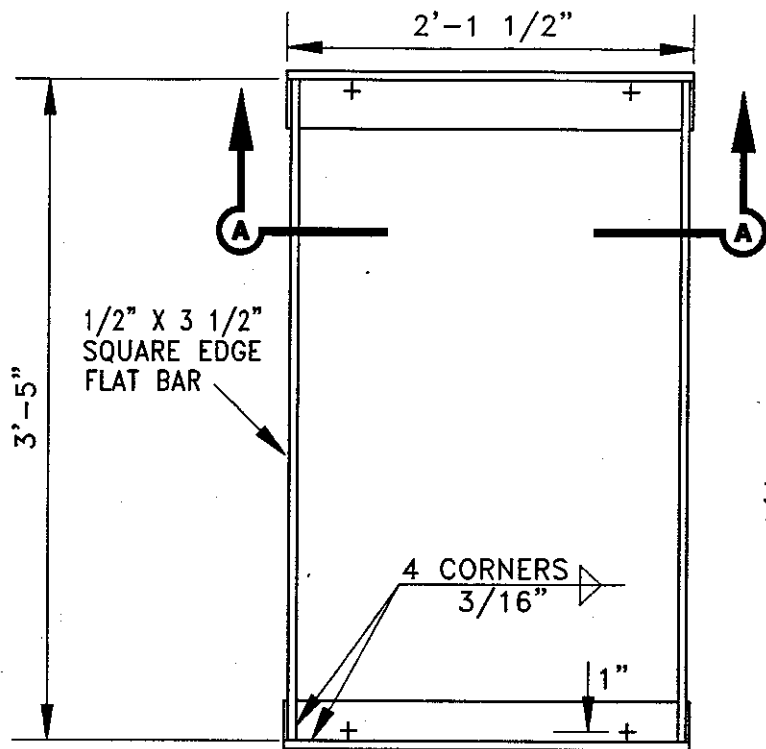
COUNTY ENGINEER

REVISIONS		
DRAWN	EA	CHECKED

DATE
JAN. 1995

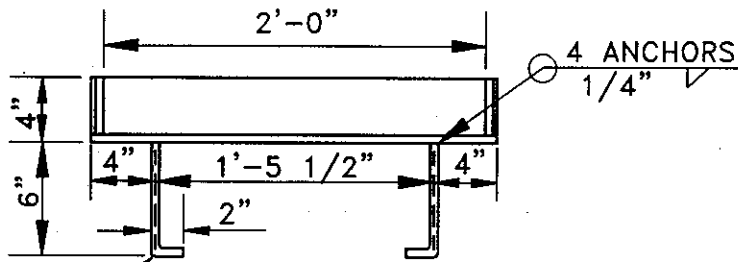
SCALE
NONE

FILE NO.
SD-428 1 of 1



**CURB OPENING
ANGLE**
ESTIMATED WT. 45 LBS

PLAN
ESTIMATED WT. 90 LBS



4 1/2" ϕ J BOLTS

SECTION A-A

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.

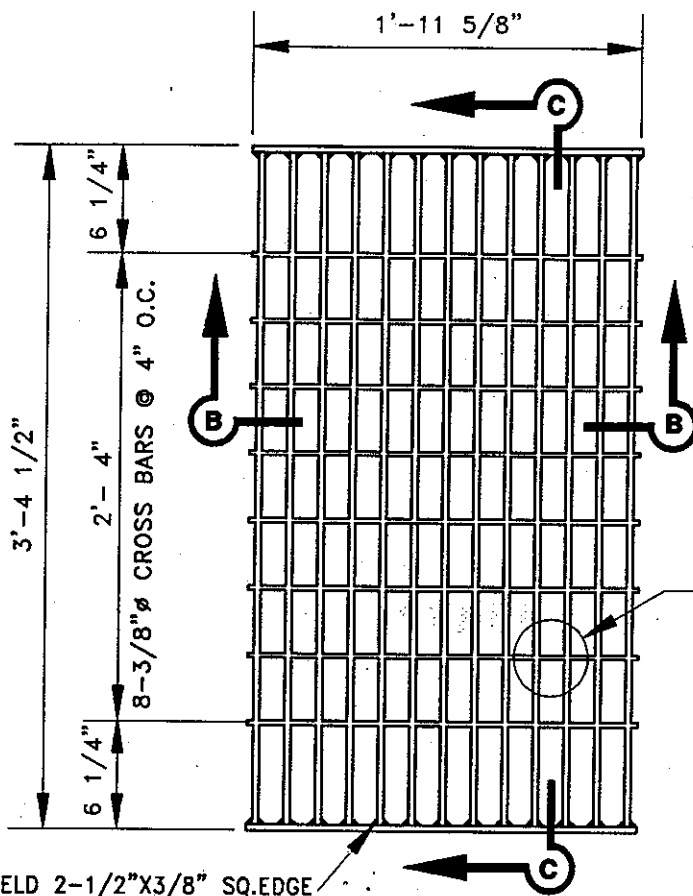
COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

**BICYCLE TYPE
FRAME AND GRATE**

APPROVAL REG. *Jabbar*
 APPROVED *Roger J. ...*
 APPROVED *...*
 COUNTY ENGINEER

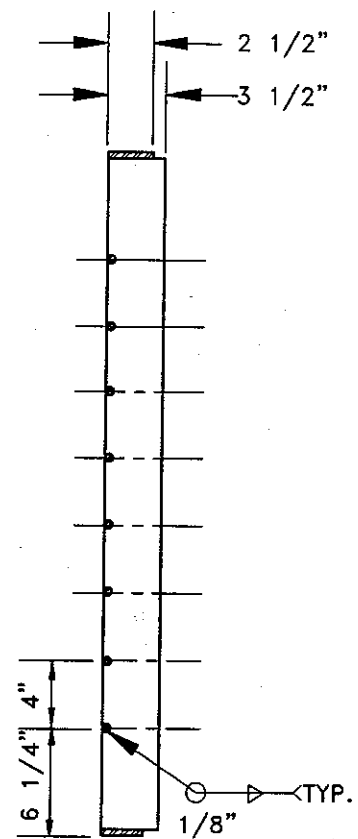
REVISIONS

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

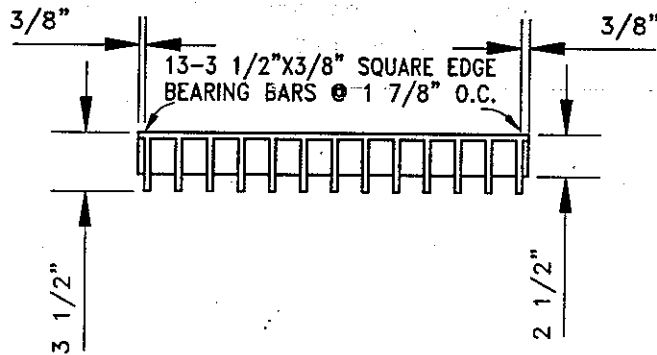


WELD 2-1/2"X3/8" SQ. EDGE
END BARS 3/16" FILLET WELD
FULL DEPTH BOTH SIDES.

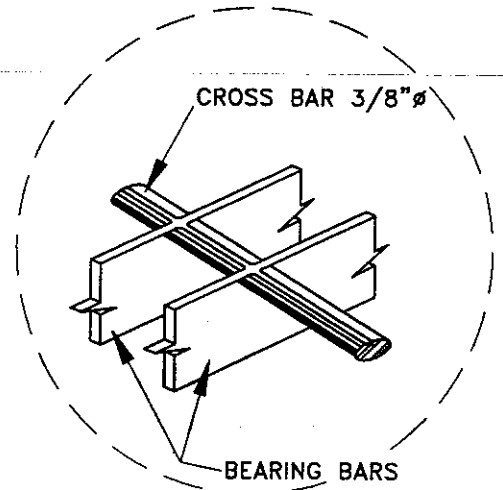
PLAN



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.

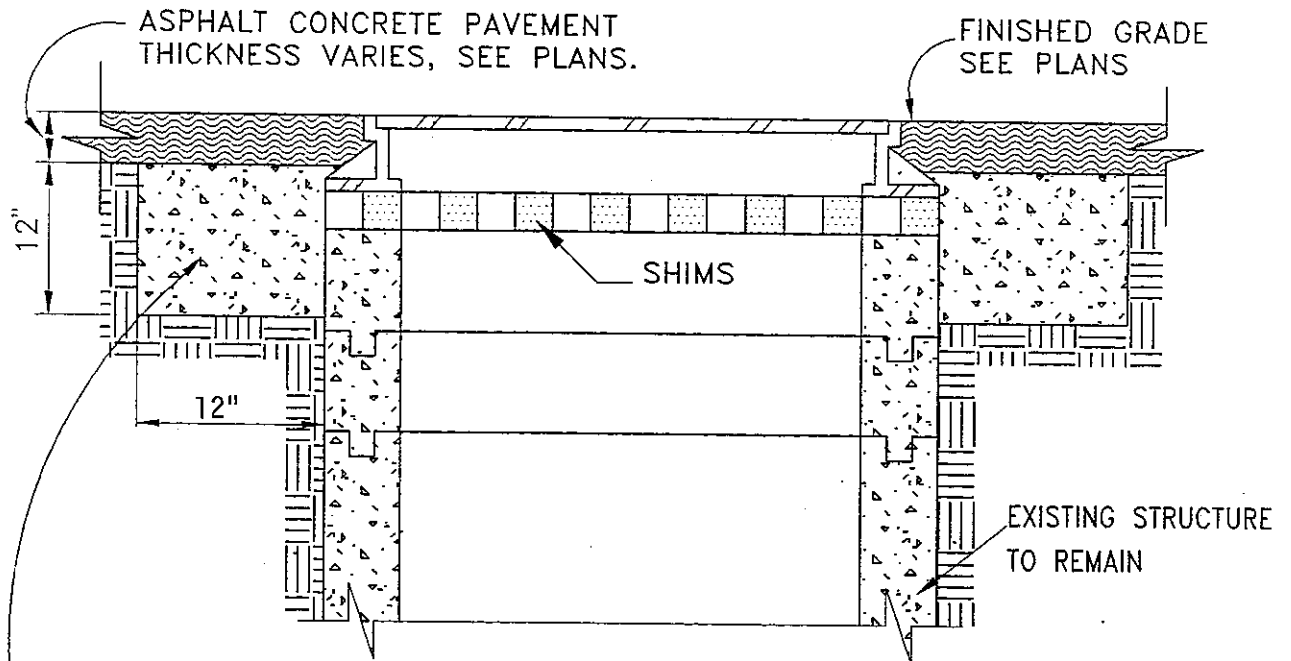
COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

**BICYCLE TYPE
FRAME AND GRATE**

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

REVISIONS

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

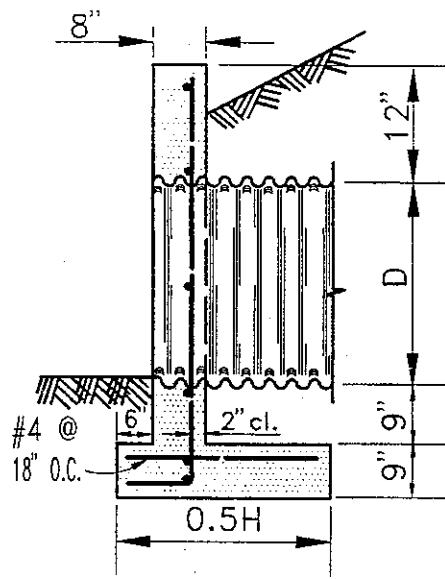
**FRAME AND COVER
ADJUSTMENT DETAIL**

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

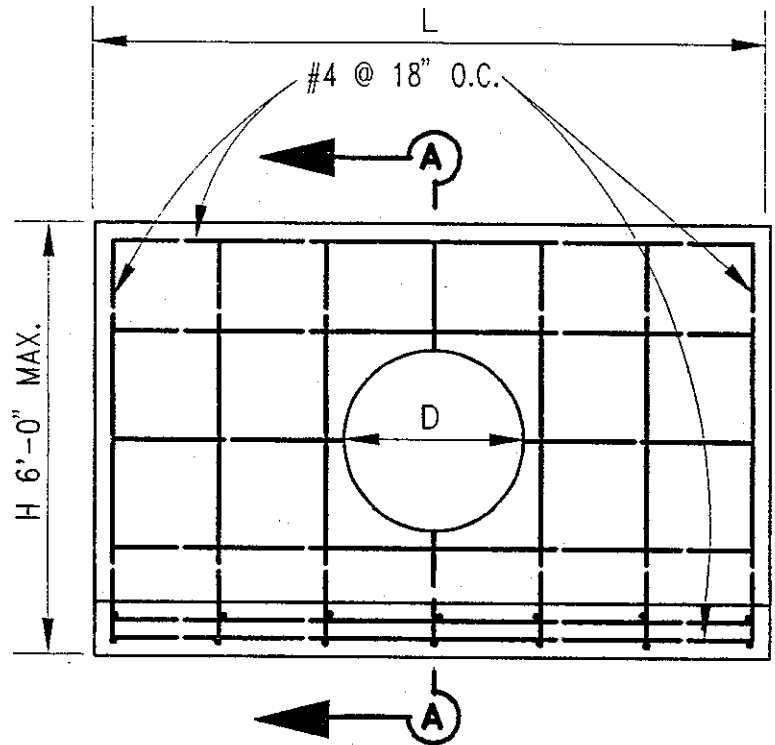
COUNTY ENGINEER

REVISIONS

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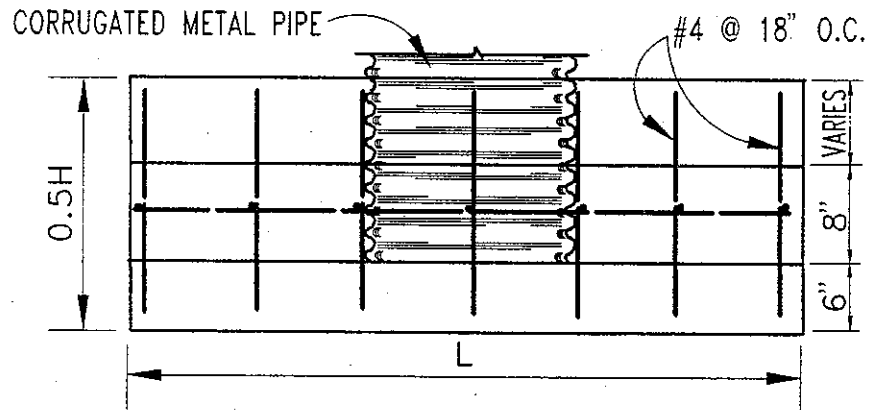


SECTION A-A



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

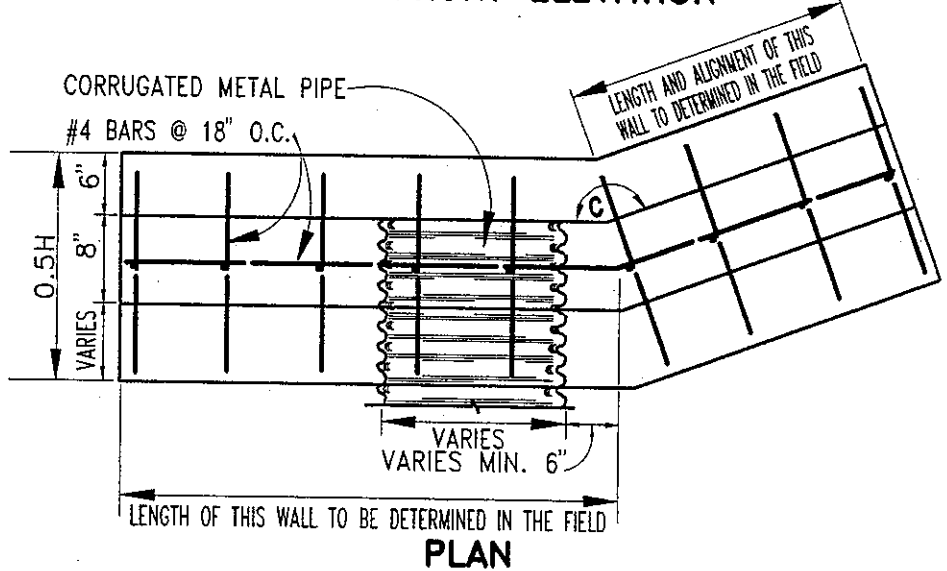
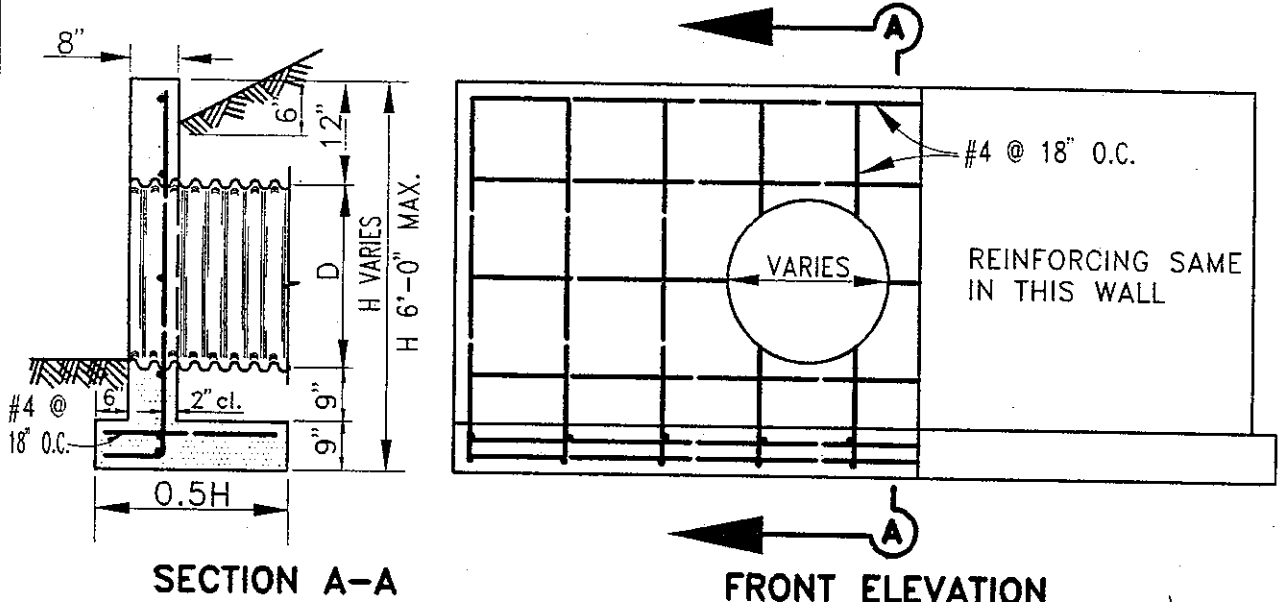
SCALE

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.

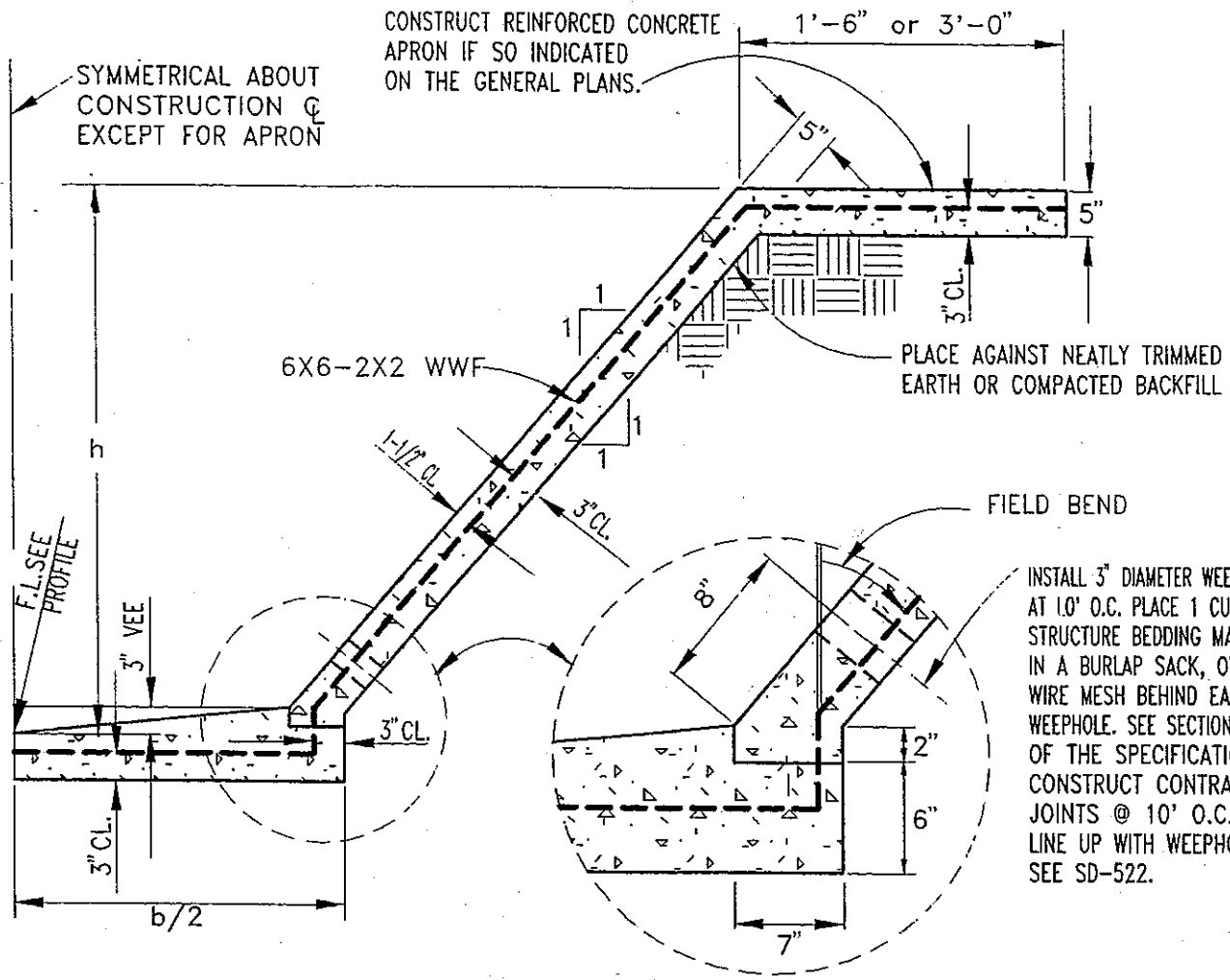
COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

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
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TYPICAL HALF SECTION

NOTES:

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

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

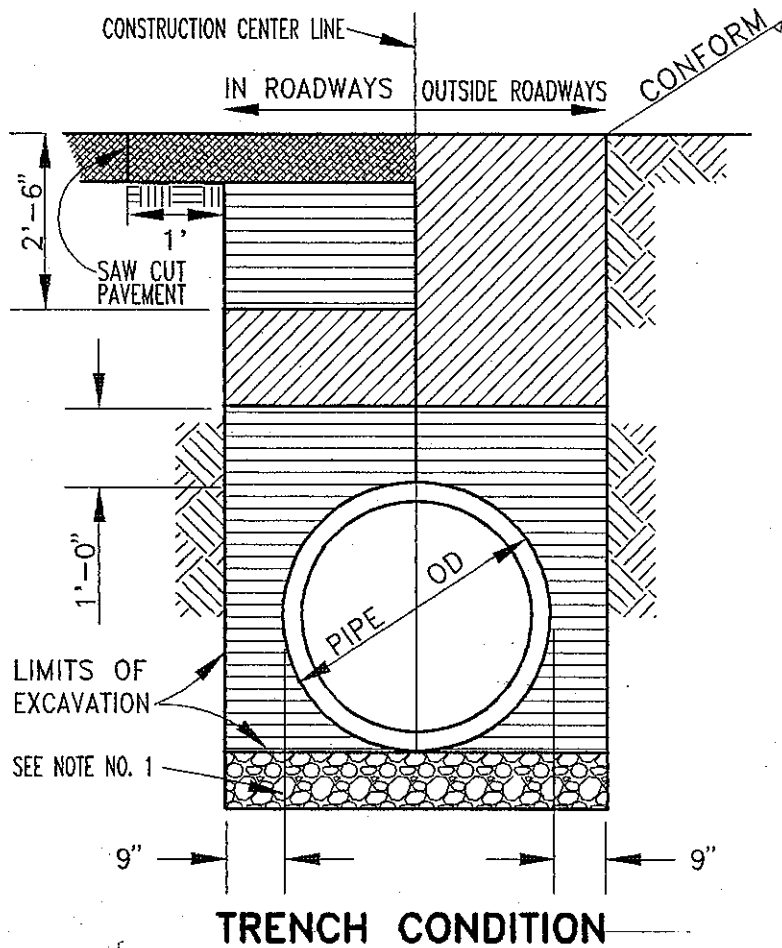
COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

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





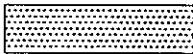

APPROVAL REC.
[Signature]
APPROVED
[Signature]
APPROVED
[Signature]

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.

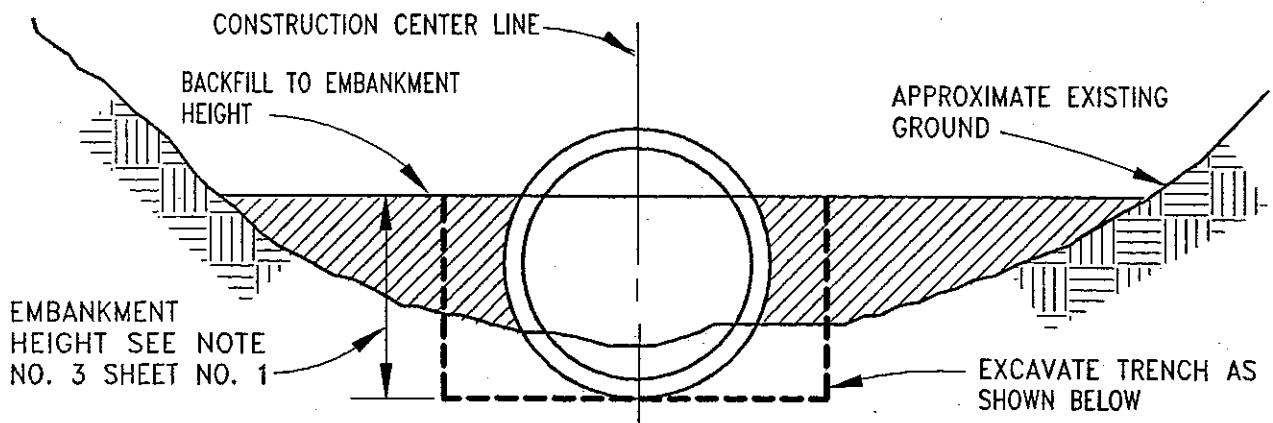
COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

TYPICAL PIPE SECTION

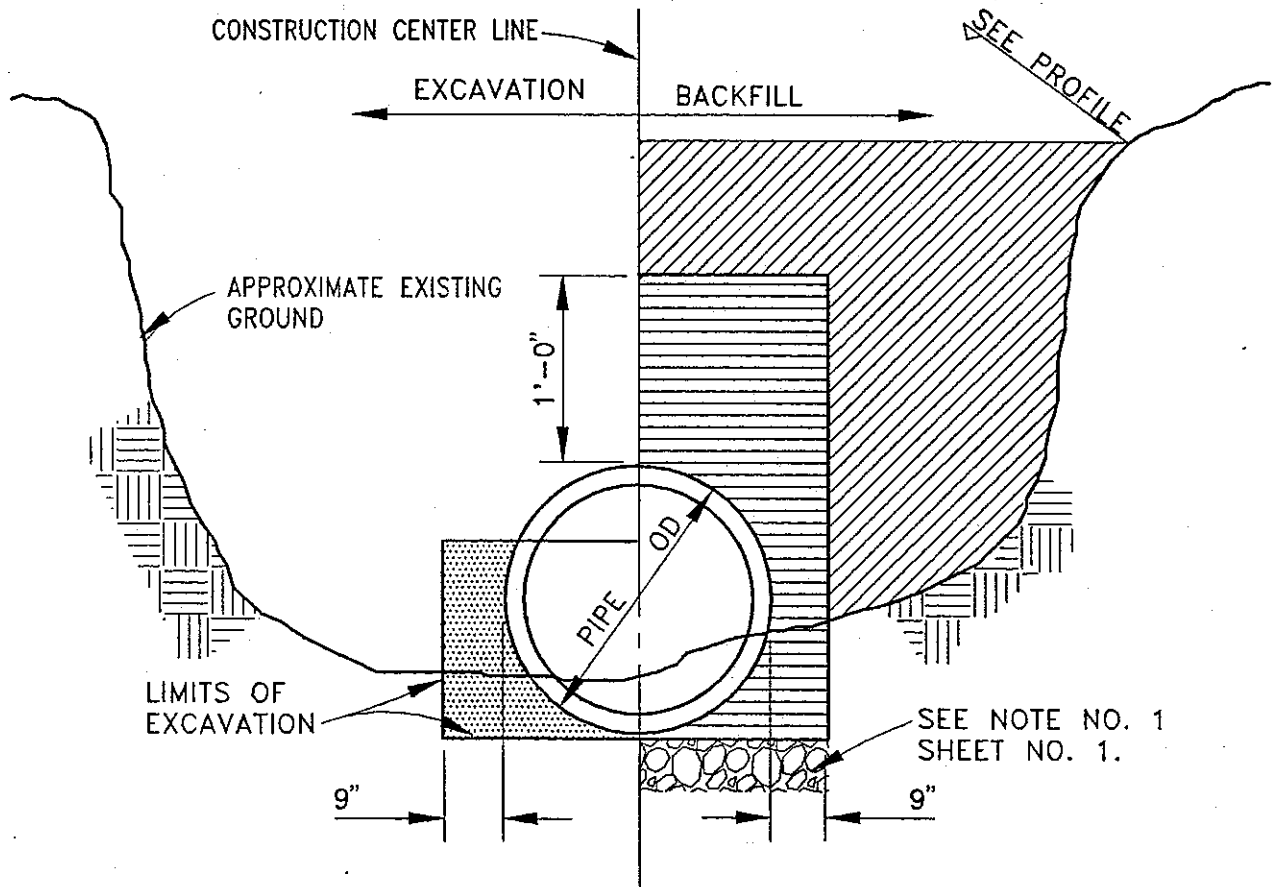
APPROVAL REC.
H. E. Ackerman
 APPROVED
S. A. ...
 APPROVED
F. Awan
 COUNTY ENGINEER

REVISIONS

DRAWN EA	CHECKED <i>HEA</i>	DATE MARCH 1994	SCALE NONE	FILE NO. SD-504	1 of 2
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EMBANKMENT REQUIREMENT PRIOR TO EXCAVATION



**EXCAVATION AND BACKFILL REQUIREMENTS
EMBANKMENT CONDITION**

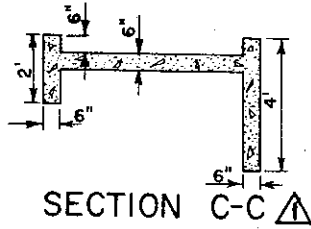
COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

TYPICAL PIPE SECTION

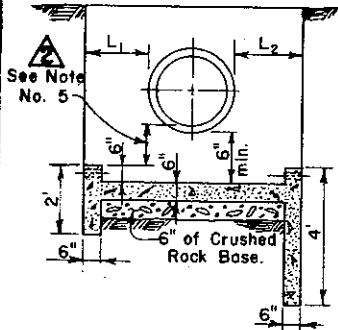
APPROVAL REC
H. E. Ackerman
 APPROVED
J. Swanson
 APPROVED
J. Swanson
 COUNTY ENGINEER

REVISIONS		DRAWN	CHECKED	DATE	SCALE	FILE NO.	
		EA	<i>HEA</i>	MARCH 1994	NONE	SD-504	2 of 2

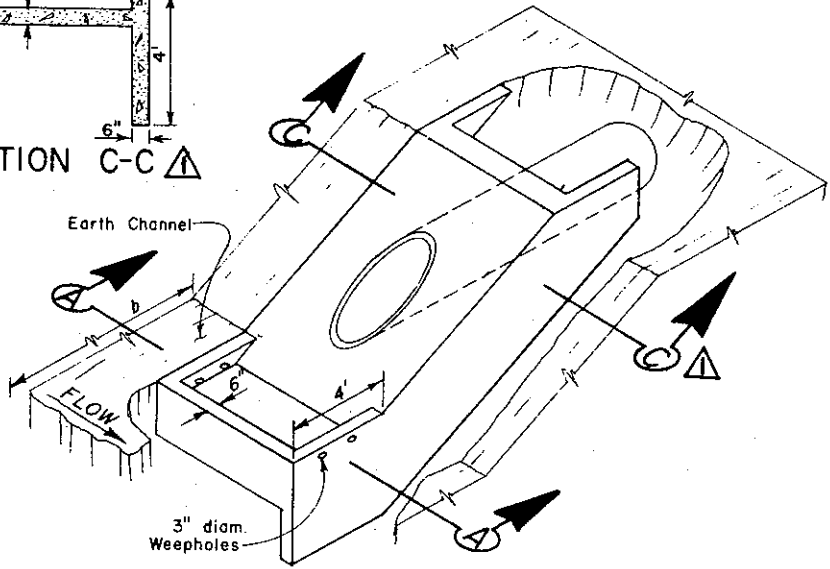
PIPE SIZE	L ₁	L ₂
12" to 24"	2'	2'
27" to 48"	2'	3'



SECTION C-C



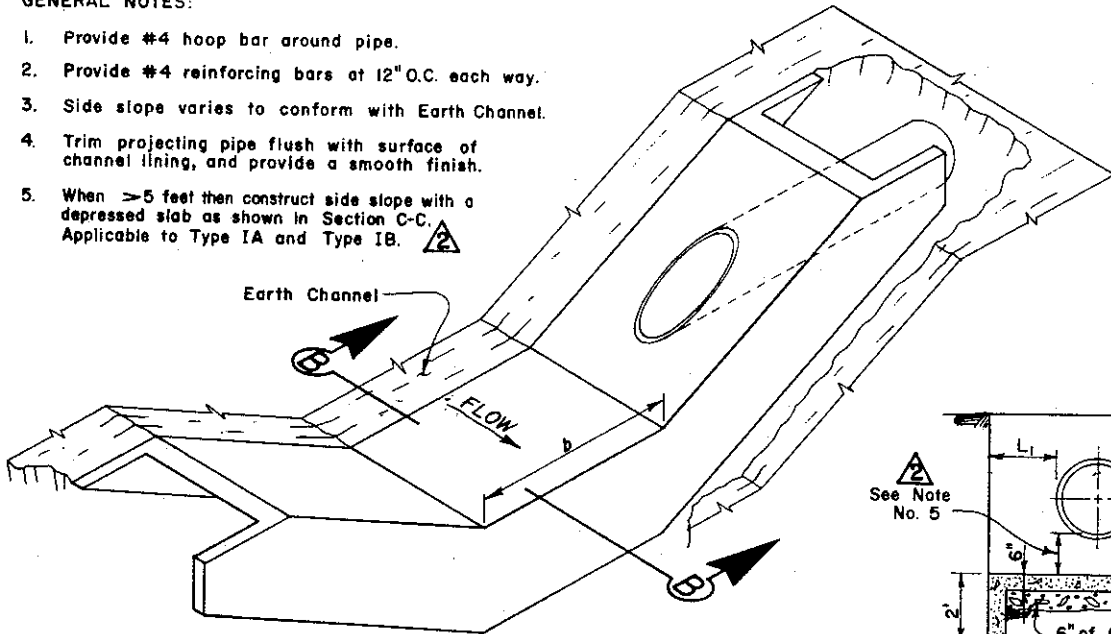
SECTION A-A



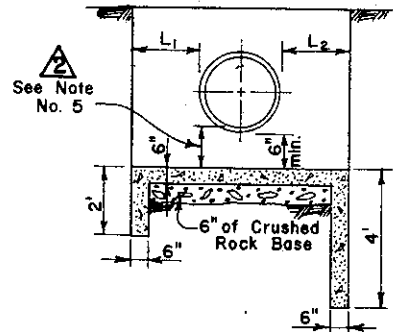
TYPE IA
(CHANNEL BOTTOM WIDTH $b > 8$ FEET)

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

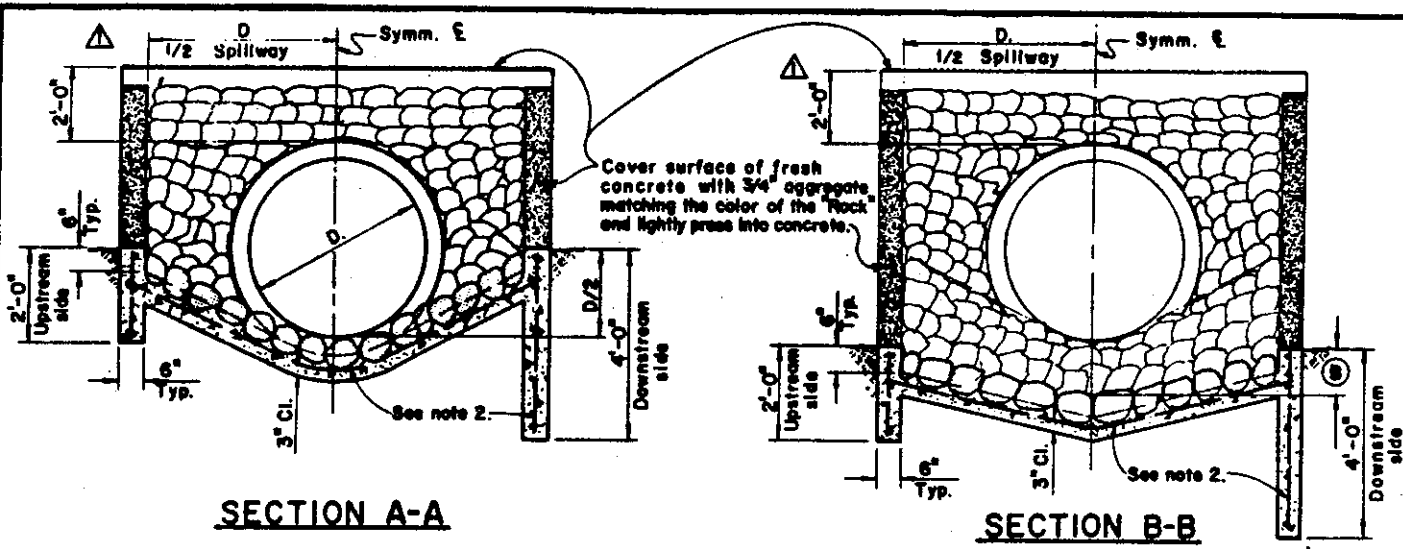
COUNTY OF ALAMEDA * PUBLIC WORKS AGENCY

LATERAL PIPE ENTRY
TO EARTH CHANNEL
TYPE I

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

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

DRAWN FC	CHECKED <i>AT TML</i>	DATE Nov. 1969	SCALE None	FILE NO. SD-505	1 of 1
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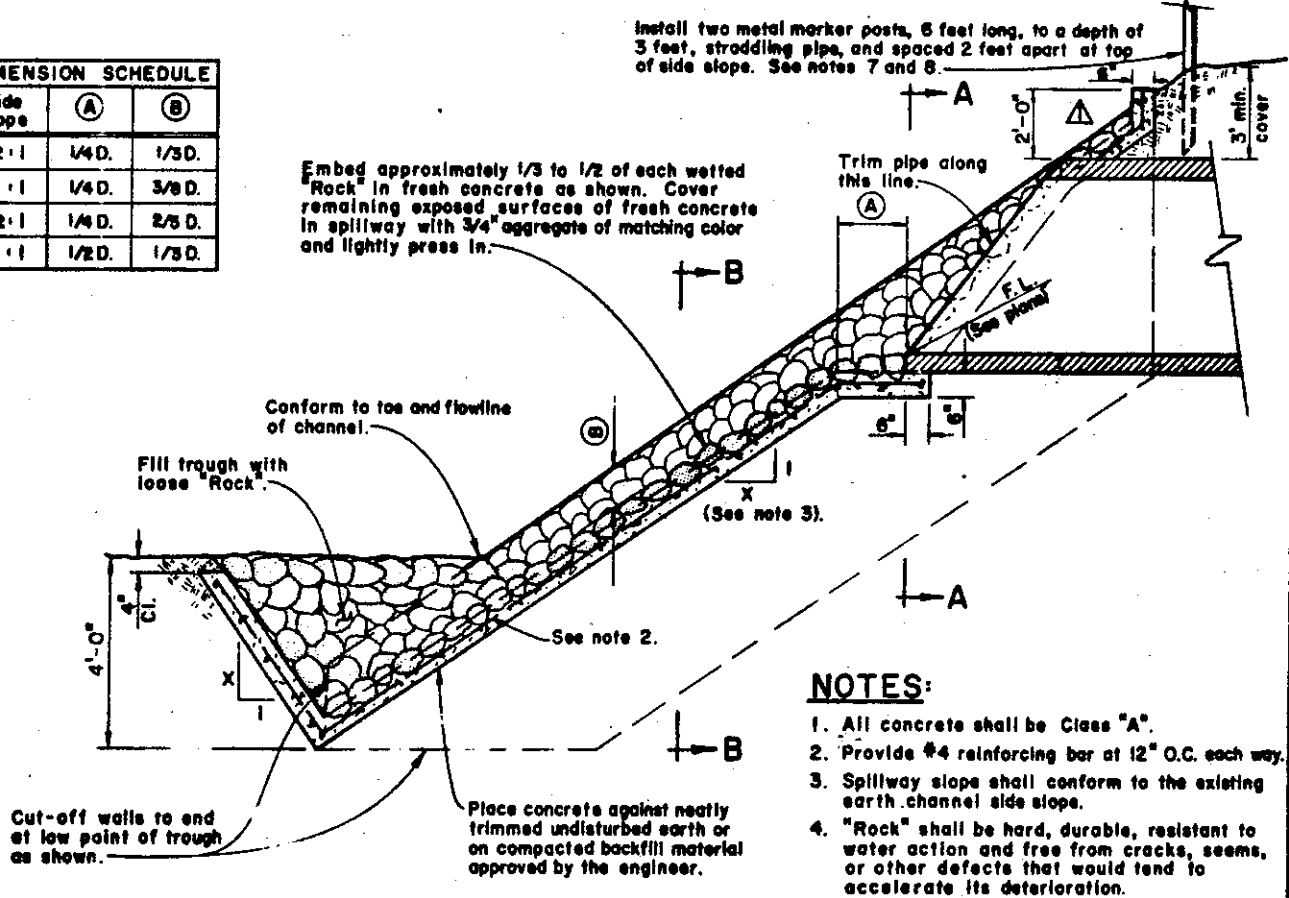
SECTION A-A

SECTION B-B

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

Install two metal marker posts, 6 feet long, to a depth of 3 feet, straddling pipe, and spaced 2 feet apart at top of side slope. See notes 7 and 8.

Embed approximately 1/3 to 1/2 of each wetted "Rock" in fresh concrete as shown. Cover remaining exposed surfaces of fresh concrete in spillway with 3/4" aggregate of matching color and lightly press in.



SECTION THROUGH SPILLWAY AND PIPE

NOTES:

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

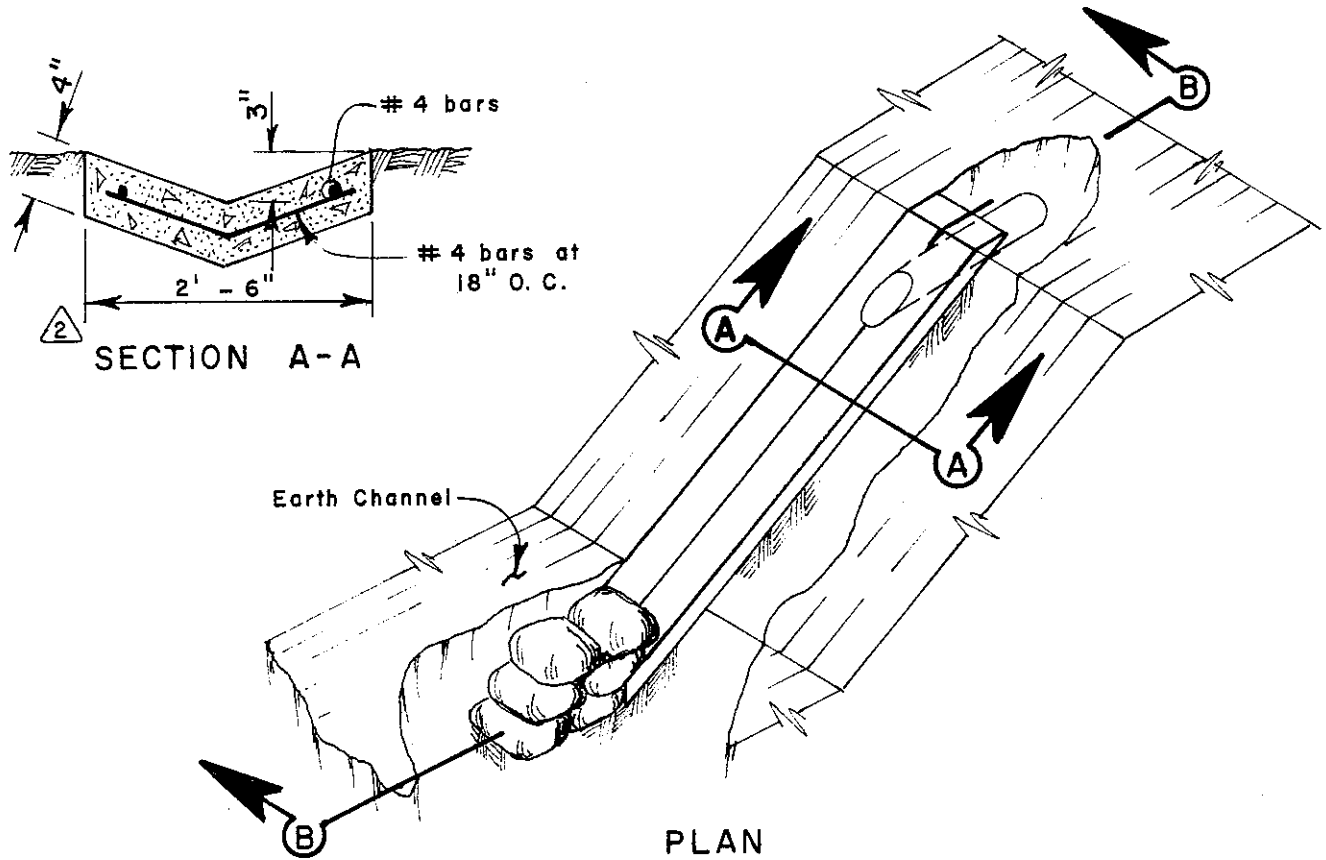
COUNTY OF ALAMEDA * PUBLIC WORKS AGENCY

LATERAL PIPE ENTRY TO EARTH CHANNEL TYPE II

APPROVAL REC. *an Kawar*
 APPROVED *Robert C. Bilton*
 APPROVED *[Signature]*
 Director of Public Works and Road Commissioner

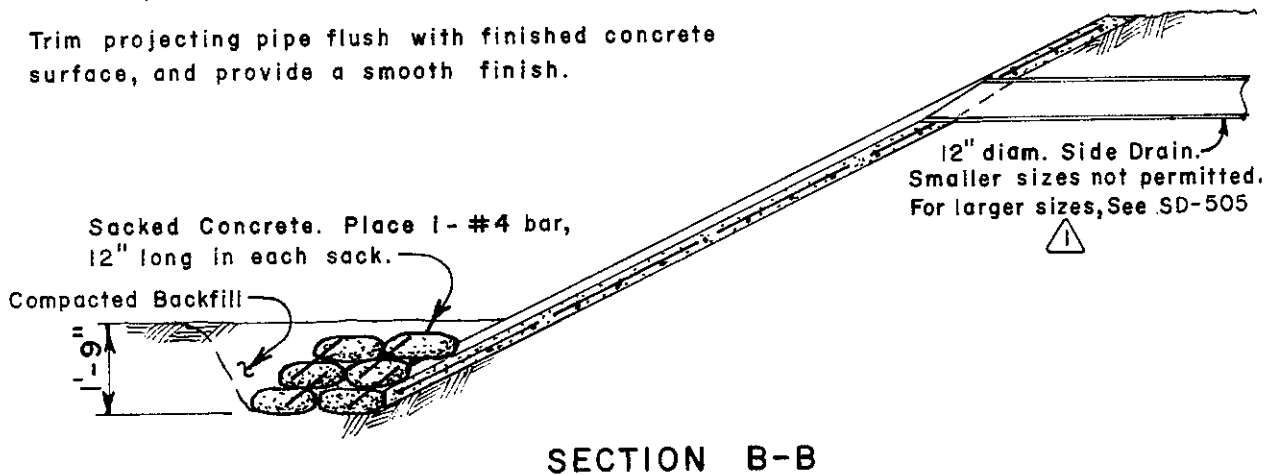
Ext. Rock Lining	2/77
REVISIONS	

DRAWN JD	CHECKED <i>at TME</i>	DATE Dec. 1975	SCALE None	FILE NO. SD-506	1 of 1
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GENERAL NOTES:

1. Pour concrete against neatly trimmed backfill or undisturbed earth.
2. Provide #4 hoop bar around pipe.
3. Side slope varies to conform with Earth Channel.
4. Trim projecting pipe flush with finished concrete surface, and provide a smooth finish.



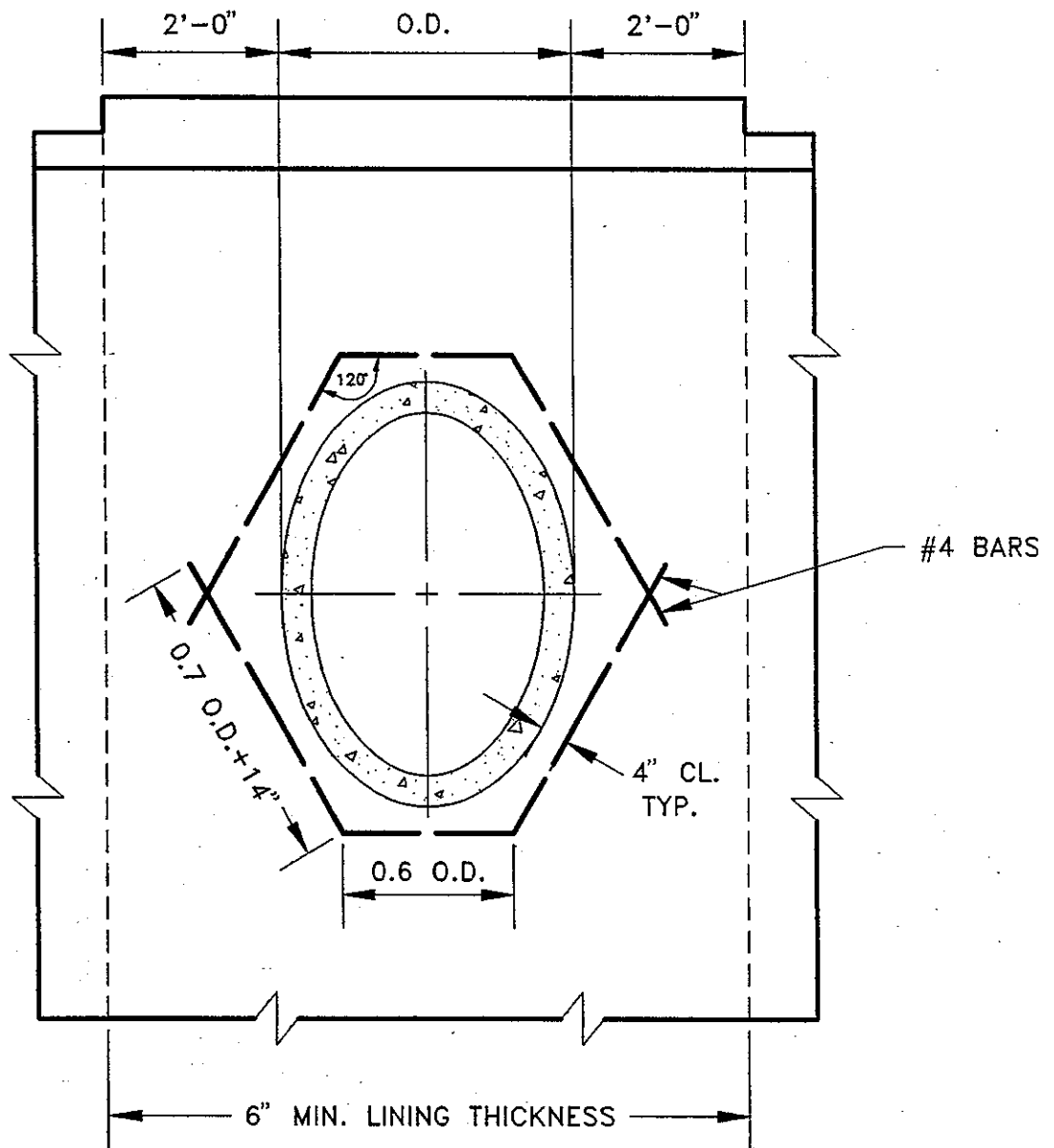
COUNTY OF ALAMEDA * PUBLIC WORKS AGENCY

2	Changed apron width	5/73
1	Changed pipe size	3/73
REVISIONS		

**LATERAL PIPE ENTRY
TO EARTH CHANNEL
TYPE III**

APPROVAL REC. <i>am Eawar</i>
APPROVED <i>Robert C. Miller</i>
APPROVED <i>William J. ...</i>
Director of Public Works and Road Commissioner

DRAWN FC	CHECKED <i>TME</i>	DATE Nov. 1970	SCALE None	FILE NO. SD-507	1 of 1
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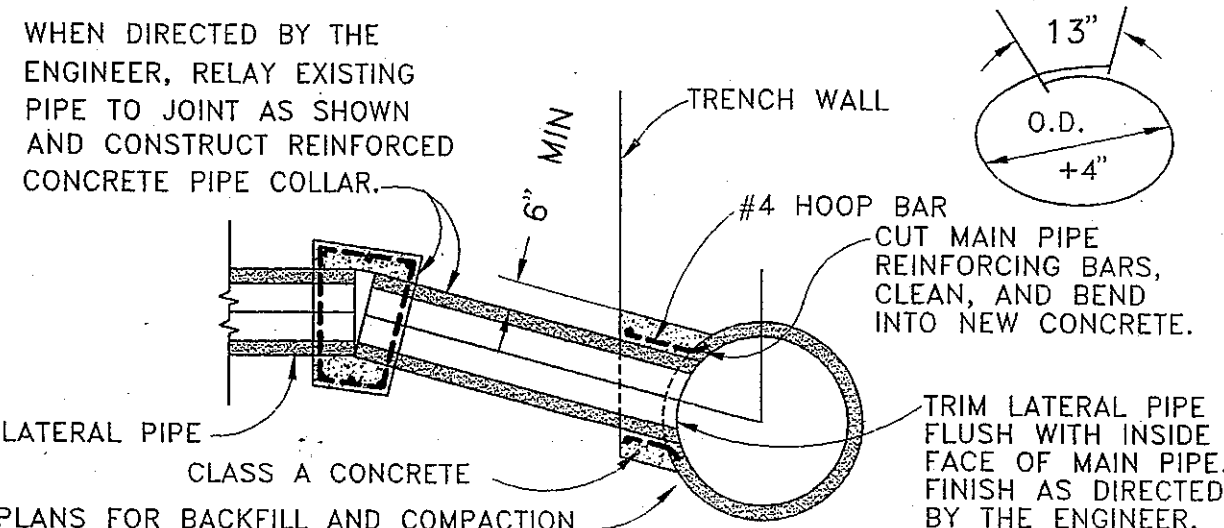
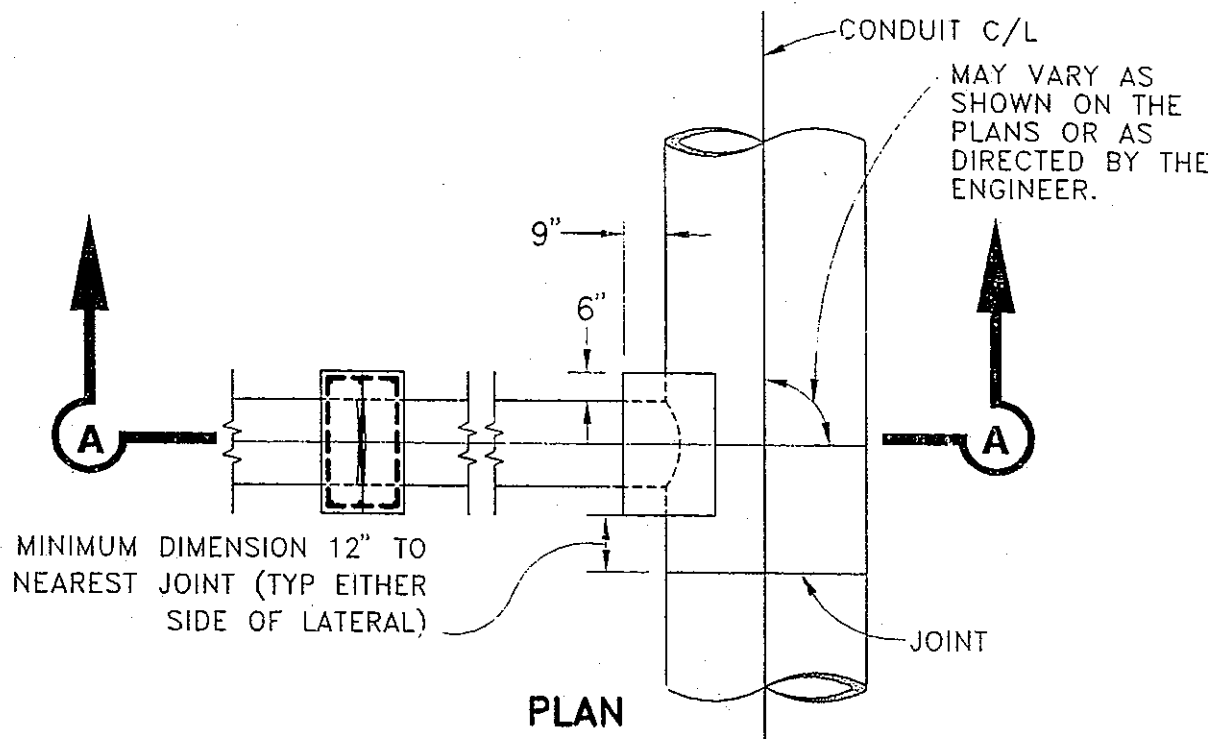
GENERAL NOTES:

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

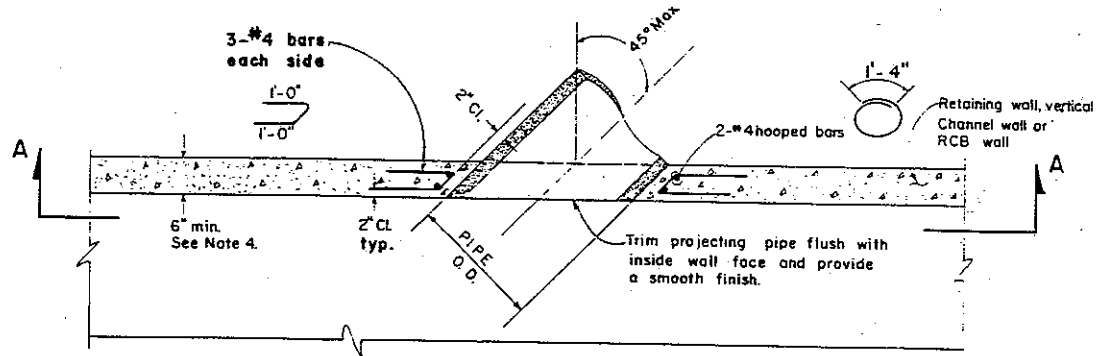
PIPE ENTRY				APPROVAL REC. APPROVED <i>Attending</i> APPROVED <i>Lawan</i> AM	
REVISIONS				COUNTY ENGINEER AND COUNTY SURVEYOR	
DRAWN	CHECKED	DATE	SCALE	FILE NO.	
TK	EA	JULY 1992	NTS	SD-508	1 of 1

PLU1 SCALE: 1 = 5



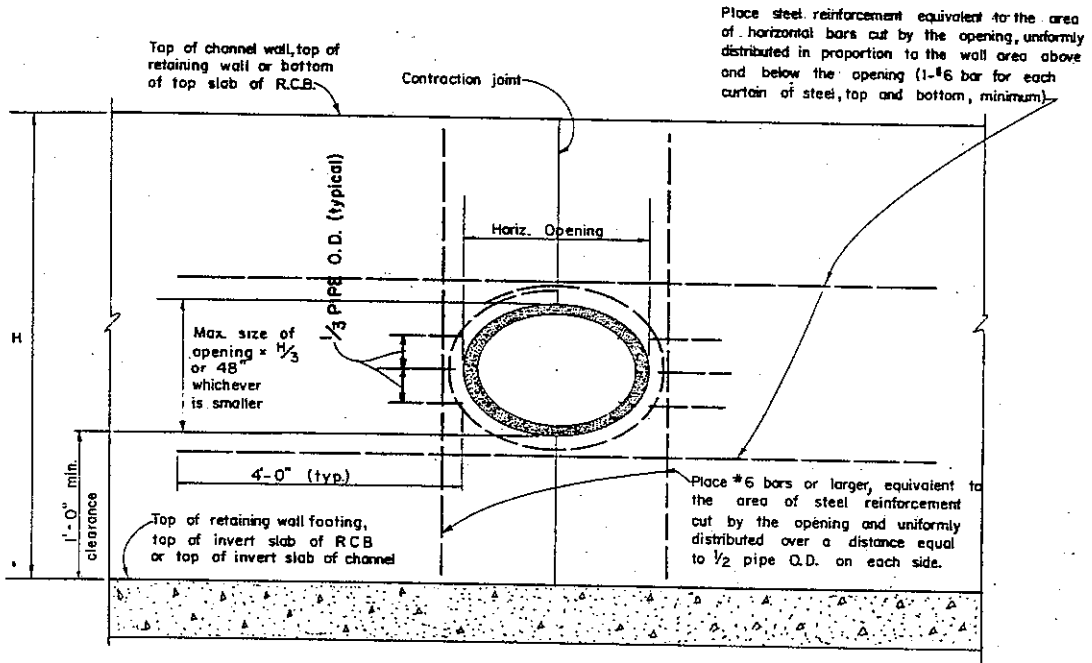
- SECTION A-A**
- NOTES:
1. LATERAL PIPE SIZE NOT TO EXCEED 18".
 2. MAIN PIPE SIZE TO LATERAL PIPE SIZE SHALL BE AT LEAST 3:1 RATIO.
 3. MINIMUM LATERAL PIPE SIZE NOT TO BE LESS THAN 12".
- | LATERAL SIZE | MIN MAIN SIZE |
|--------------|---------------|
| 12" | 36" |
| 15" | 45" |
| 18" | 54" |

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY					
LATERAL PIPE CONNECTION TYPE I				APPROVAL REC. APPROVED	
REVISIONS				APPROVED COUNTY ENGINEER	
DRAWN	JC	CHECKED	DATE	SCALE	FILE NO.
			DEC 1994	NONE	SD-509
					1 of 1



PART PLAN-SECTION

(STANDARD REINFORCEMENT NOT SHOWN)



SECTION A-A

(STANDARD REINFORCEMENT NOT SHOWN)

GENERAL NOTES

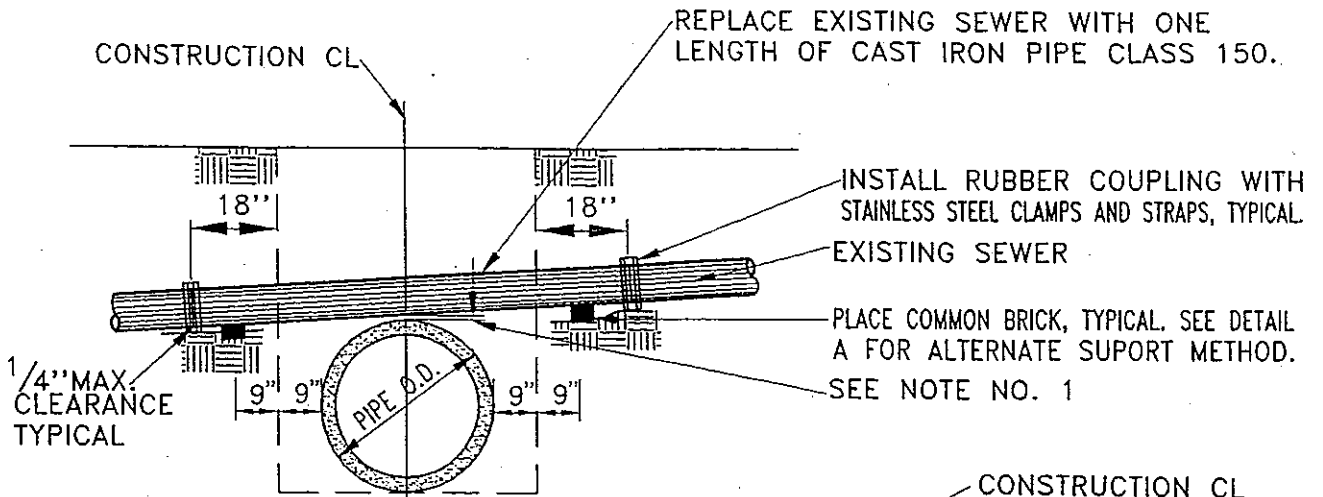
1. See General Plans for locations of laterals and for standard reinforcement.
2. Standard wall reinforcing steel may be bent, cut or spread as necessary to allow connection of lateral pipe.
3. No expansion joint shall be placed within 4' of outside of opening.
4. If wall thickness is less than 6", it 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

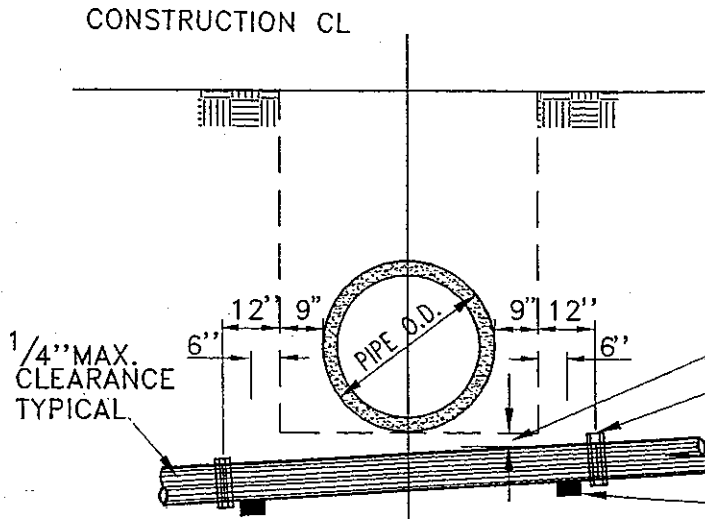
**LATERAL PIPE CONNECTION
TYPE II**

APPROVAL REC *am Kawan*
 APPROVED *Robert C. Bitten*
 APPROVED *William J. ...*
 Director of Public Works
 and Road Commissioner

REVISIONS	DRAWN WG	CHECKED <i>AME</i>	DATE Jan. 1984	SCALE None	FILE NO. SD-510	1 of 1
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CROSSING UNDER SANITARY SEWER



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

CROSSING OVER SANITARY SEWER

NOTES:

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

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

REVISIONS		<p>SANITARY SEWER CROSSING</p>		<p>APPROVAL REC.</p> <p><i>[Signature]</i></p> <p>APPROVER</p> <p><i>[Signature]</i></p> <p>APPROVED</p> <p><i>[Signature]</i></p> <p>am</p> <p>COUNTY ENGINEER</p>	
DRAWN	CHECKED			DATE	SCALE
JR		JAN. 1995	NONE	SD-511	1 of 1

BEND LONGITUDINAL REINFORCING BARS TO THE APPROPRIATE RADII TO MAINTAIN THE SPACING SHOWN ON THE GENERAL PLANS.

ALTERNATE BARS MAY BE CUT AT A LENGTH EQUIVALENT TO 20 BAR DIAMETERS BEYOND THE LENGTH REQUIRED TO REACH A POINT WHERE 1/2 SPACING REQUIREMENT IS MET.

FOR ALL TRANSVERSE REINFORCING BARS, THE SPACING AS SHOWN ON THE VARIOUS CONCRETE SECTIONS ON THE GENERAL PLANS IS TO BE MAINTAINED AT THE OUTER WALL.

PLACE BARS RADIALLY

OUTSIDE WALL

INSIDE WALL
B.C.

MINIMUM CLEARANCE
2" + 1 BAR DIAMETER
BETWEEN BARS

CONSTRUCTION ϕ FOR REINFORCED CONCRETE CHANNEL OR BOX CULVERT

PLAN

NOTES:

- 1. SEE GENERAL PLANS FOR ACTUAL REINFORCEMENT.
- 2. REINFORCEMENT LAYOUT APPLIES TO TOP AND BOTTOM SLABS OF BOX CULVERT.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

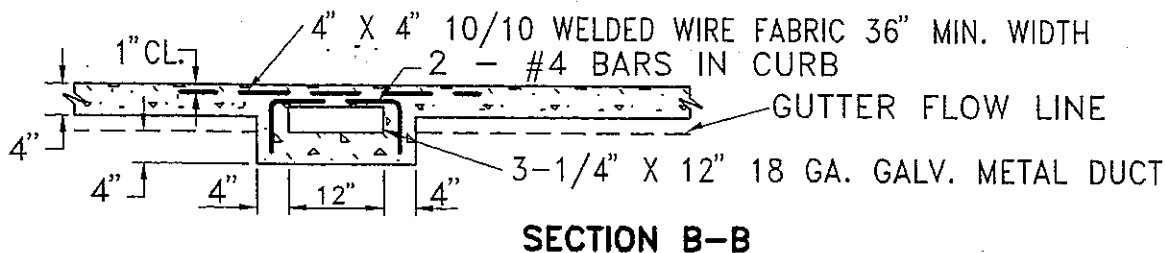
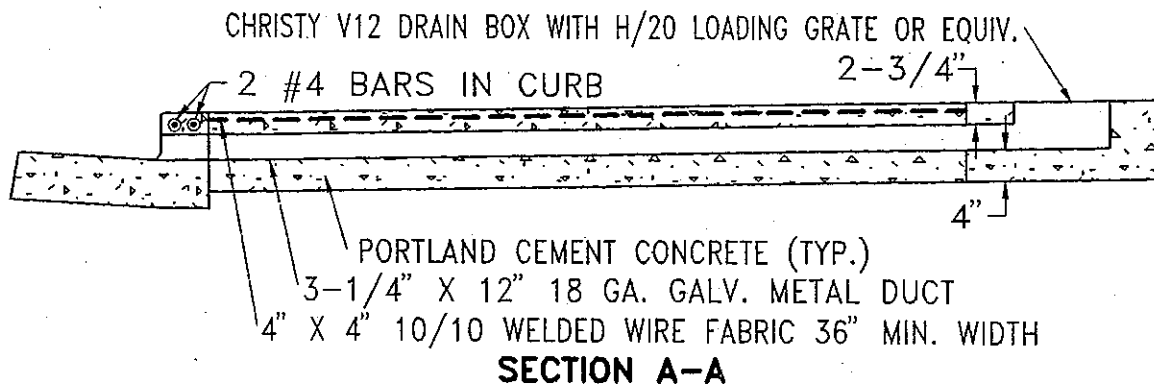
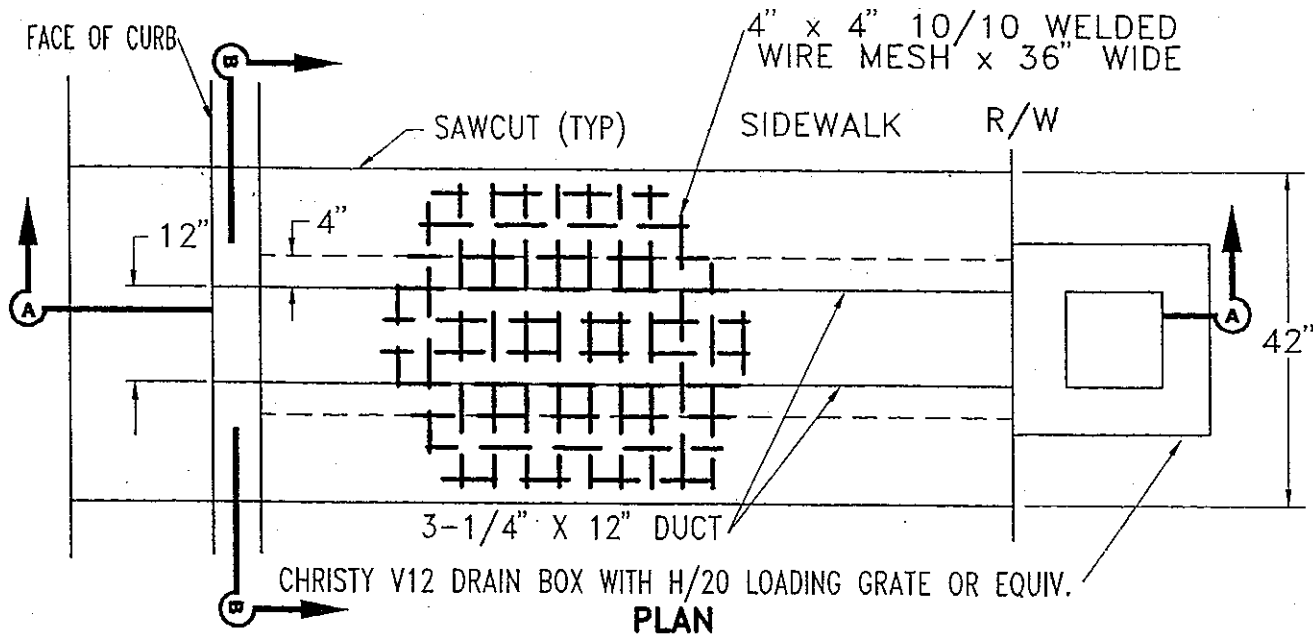
**REINFORCED STEEL
PLACEMENT
AT CURVED ALIGNMENT**

APPROVAL REC.
Frank Deke
APPROVED
Swanson
APPROVED
Swan
am

COUNTY ENGINEER

REVISIONS

DRAWN	CHECKED	DATE	SCALE	FILE NO.
JR		JAN. 1995	NONE	SD-512 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

DATE OCT. 1994

SCALE NONE

APPROVAL REC. *[Signature]*

APPROVED

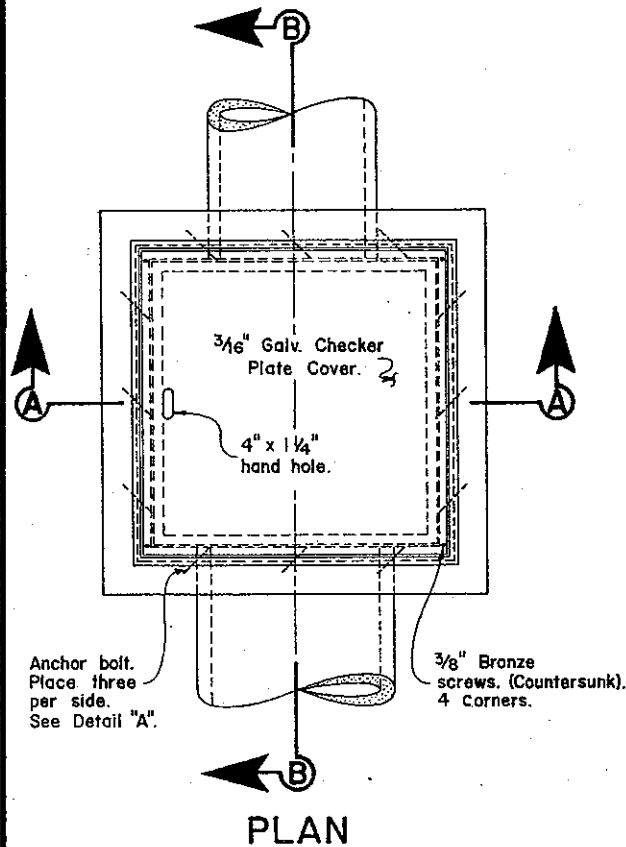
APPROVED *[Signature]*

COUNTY ENGINEER

FILE NO. SD-513 1 of 1

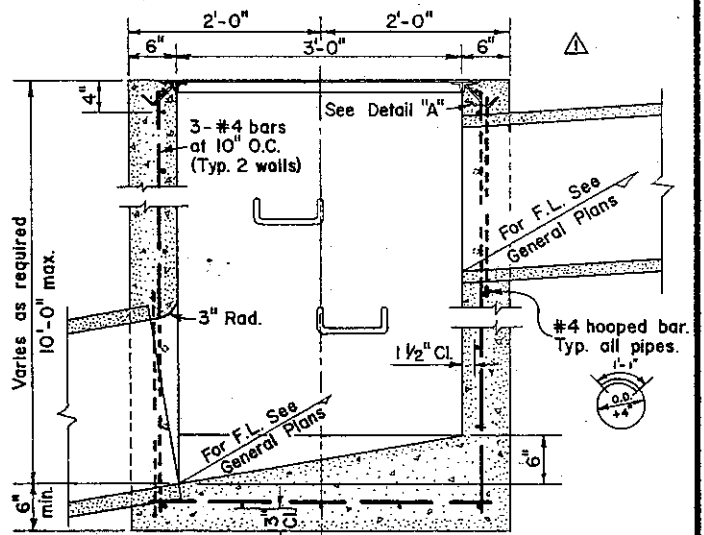
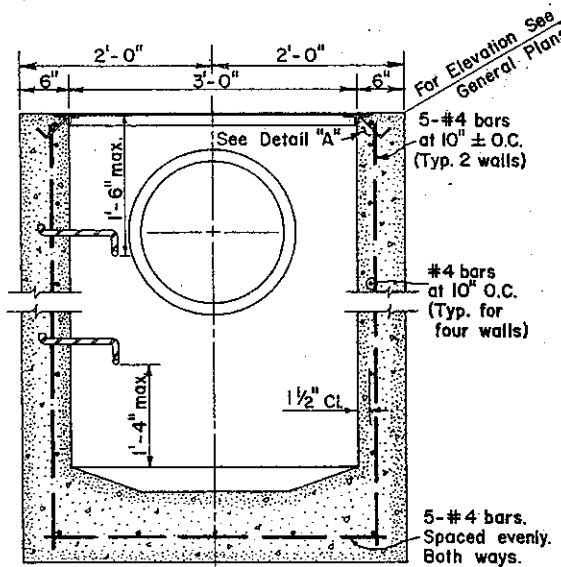
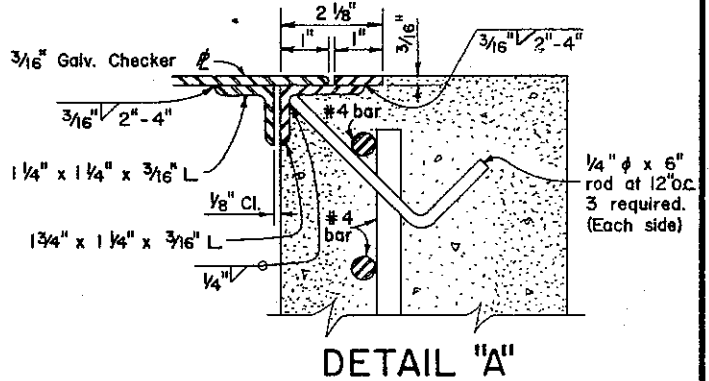
SIDEWALK DRAIN

PLOT SCALE: 1 = 2



GENERAL NOTES:

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



COUNTY OF ALAMEDA * PUBLIC WORKS AGENCY

JUNCTION BOX

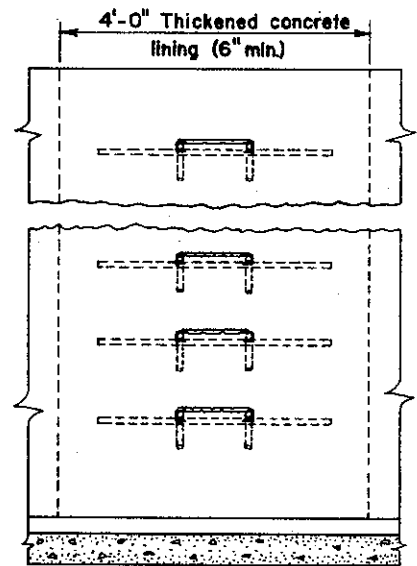
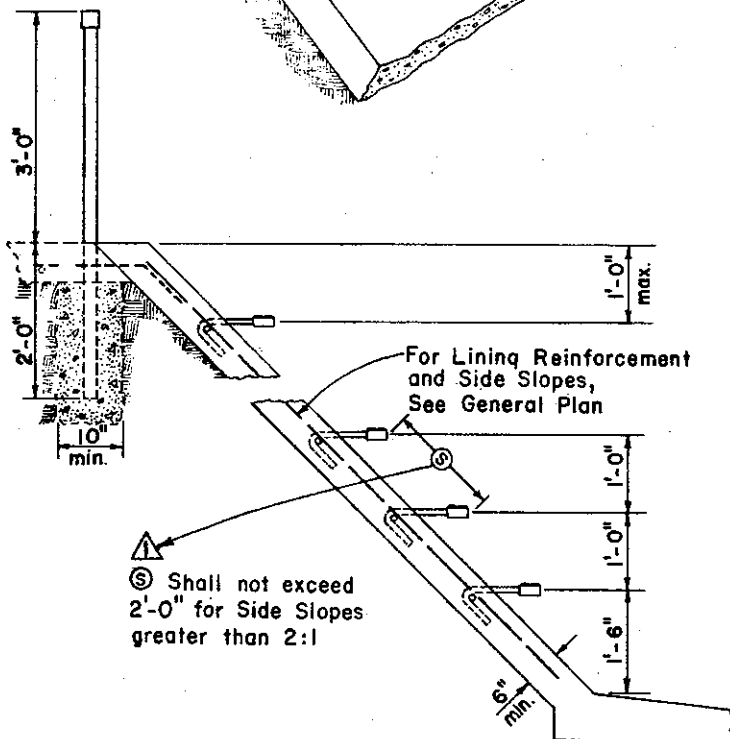
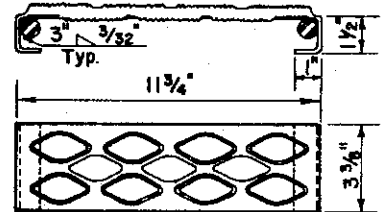
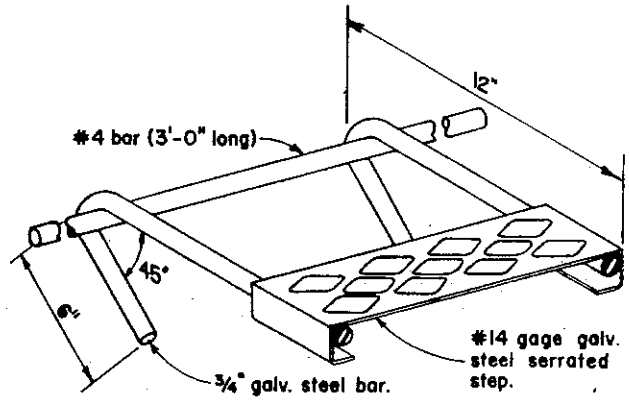
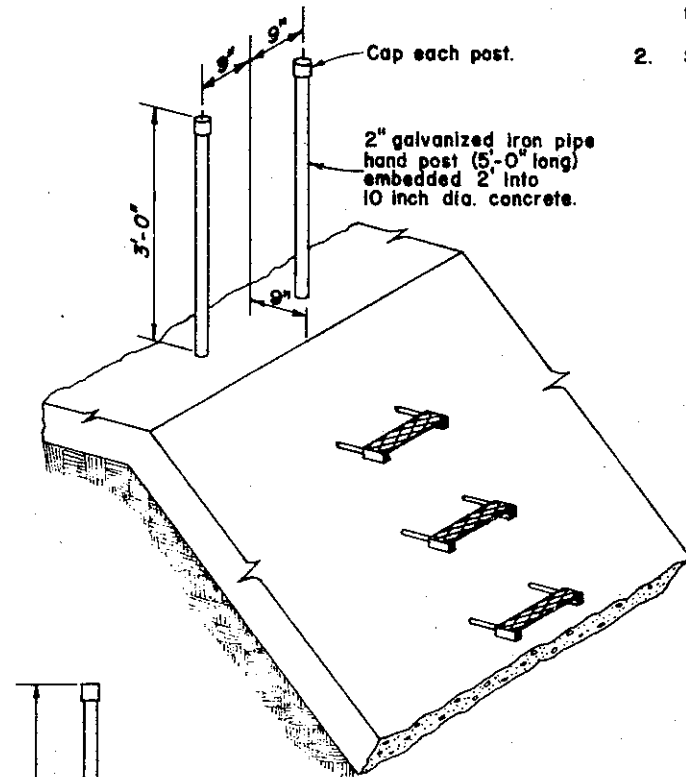
1	NOTE CHANGES	8/69
REVISIONS		
DRAWN	CHECKED	DATE
RLJ	TME	March 1969

APPROVAL REC.	<i>am kawar</i>
APPROVED	<i>Robert C. Blitt</i>
APPROVED	<i>Walter J. ...</i>
Director of Public Works and Road Commissioner	
FILE NO.	SD-514
	1 of 1

SCALE None

GENERAL NOTES:

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



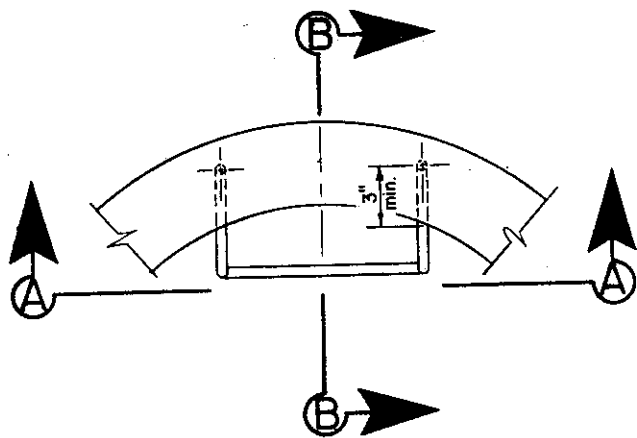
COUNTY OF ALAMEDA * PUBLIC WORKS AGENCY

**METAL STEP DETAIL
TYPE I**

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

1	Added S dimension	9/81
REVISIONS		

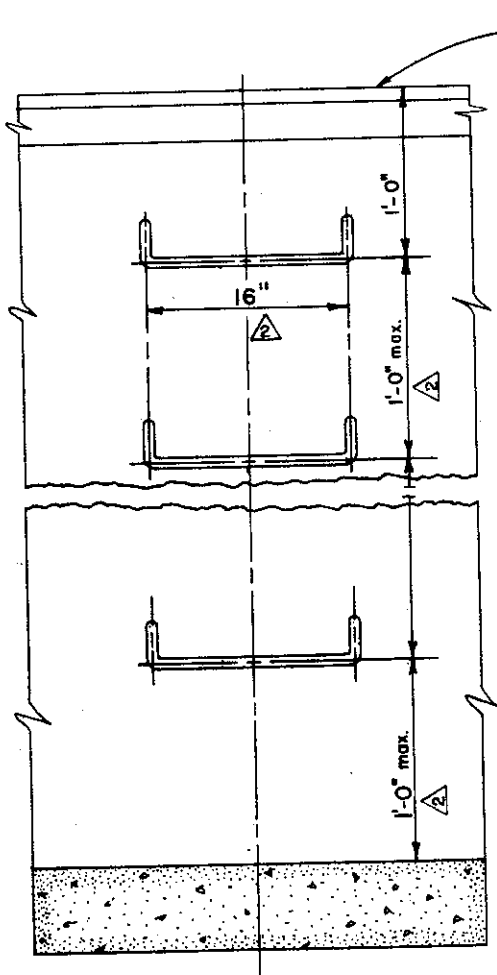
DRAWN RLJ	CHECKED <i>OT</i> TMC	DATE March 1969	SCALE None	FILE NO. SD-515	1 of 1
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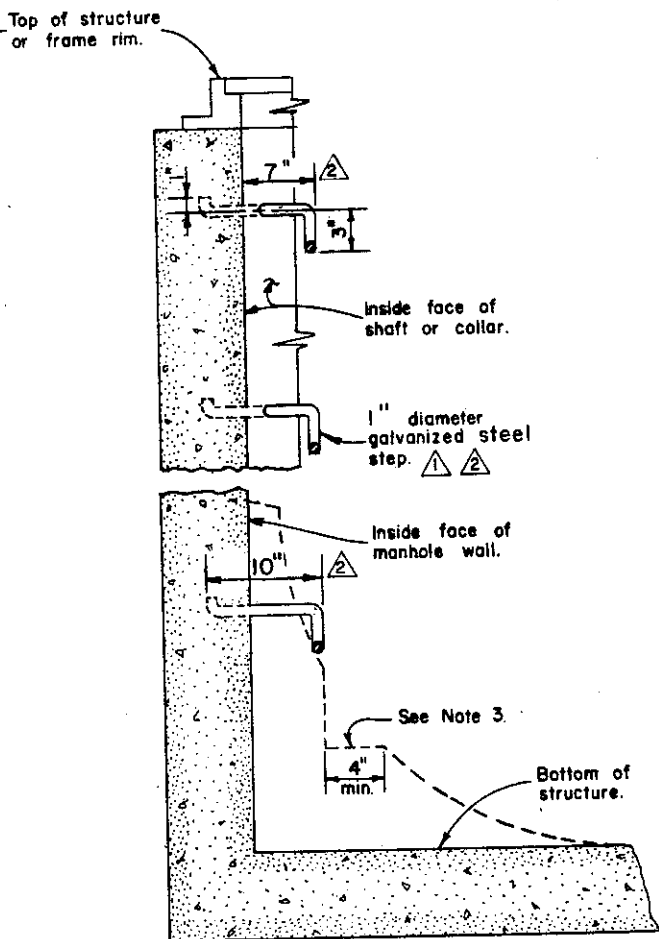
PLAN

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.



SECTION A-A



SECTION B-B

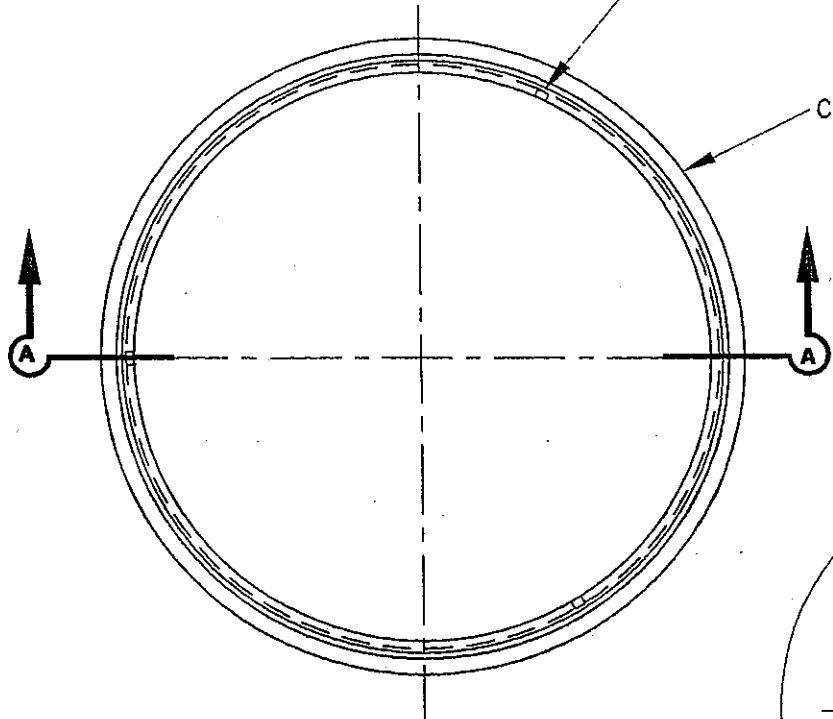
COUNTY OF ALAMEDA * PUBLIC WORKS AGENCY

METAL STEP DETAIL
TYPE III

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

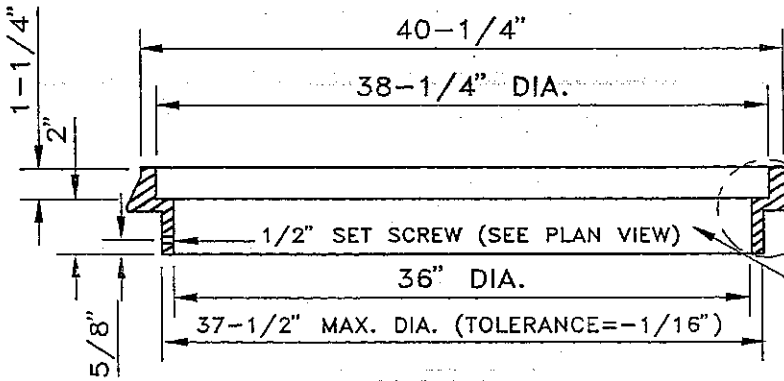
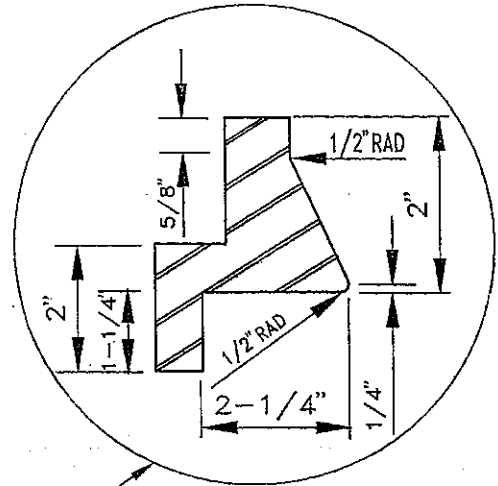
DRAWN	RLJ	CHECKED	<i>RLJ</i>	DATE	Nov. 1970	SCALE	None	FILE NO.	SD-516	1 of 1
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1/2 THREADED HOLES WITH 1" LONG HEADLESS SET SCREWS AT 1/3 POINTS ON RING. TOTAL OF 3 REQUIRED.



CAST IRON RISER RING

PLAN



CAST IRON RISER RING

SECTION A-A

NOTES:

1. ALL CONTACT AND BEARING SURFACES OF RISER RING SHALL BE MACHINED FLAT AND TRUE.
2. THE MANHOLE RISER RING SHALL BE CAST IRON CONFORMING TO ASTM SERIAL DESIGNATION A-48, CLASS 30.
3. TOLERANCES FOR DIMENSIONS SHOWN SHALL BE OF AN ORDER EQUIVALENT TO THE STANDARD FOR THE INDUSTRY UNLESS OTHERWISE INDICATED.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

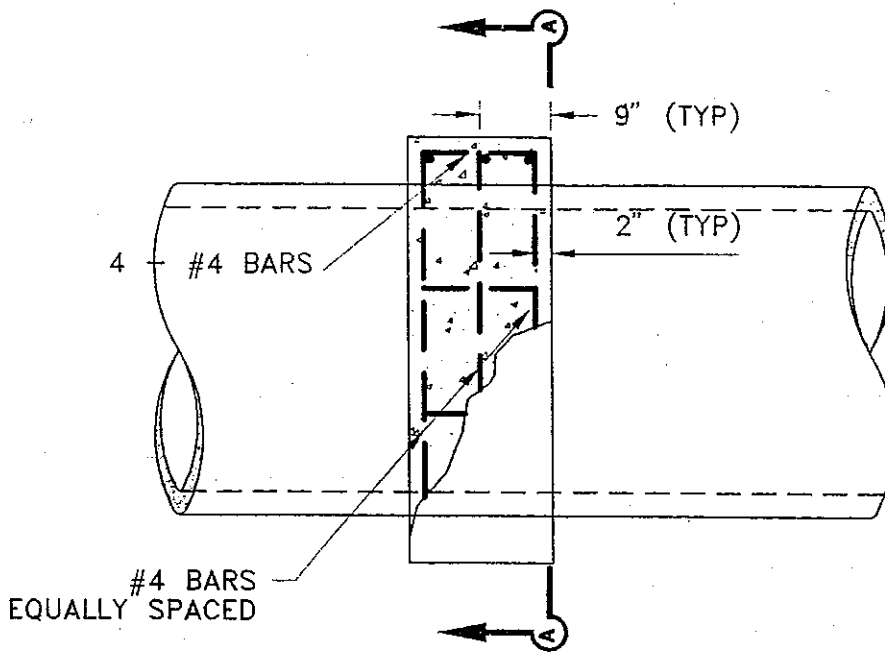
MANHOLE RISER RING
TYPE 1

APPROVAL REC.
Paul Baker
APPROVED
A. Swanson
APPROVED
am
COUNTY ENGINEER

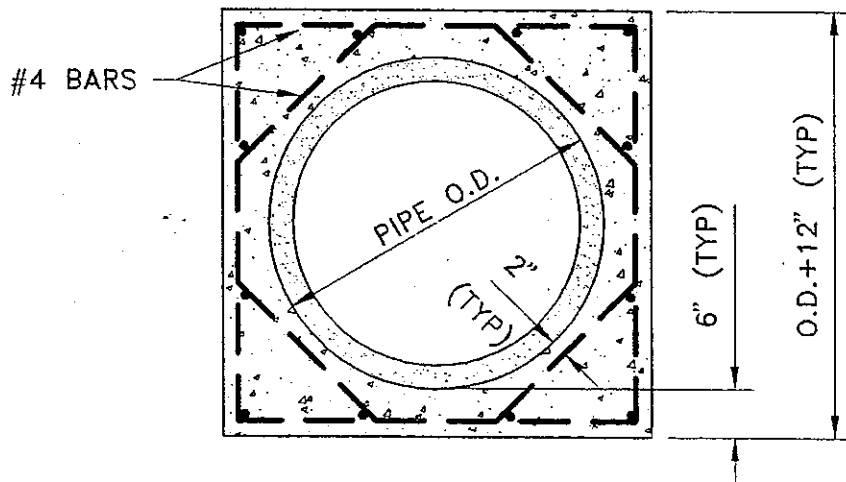
REVISIONS

DRAWN	CHECKED	DATE	SCALE	FILE NO.
JR		JAN. 1995	NONE	SD-519 1 of 1

PLOT 1 = 12



PLAN



SECTION A-A

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

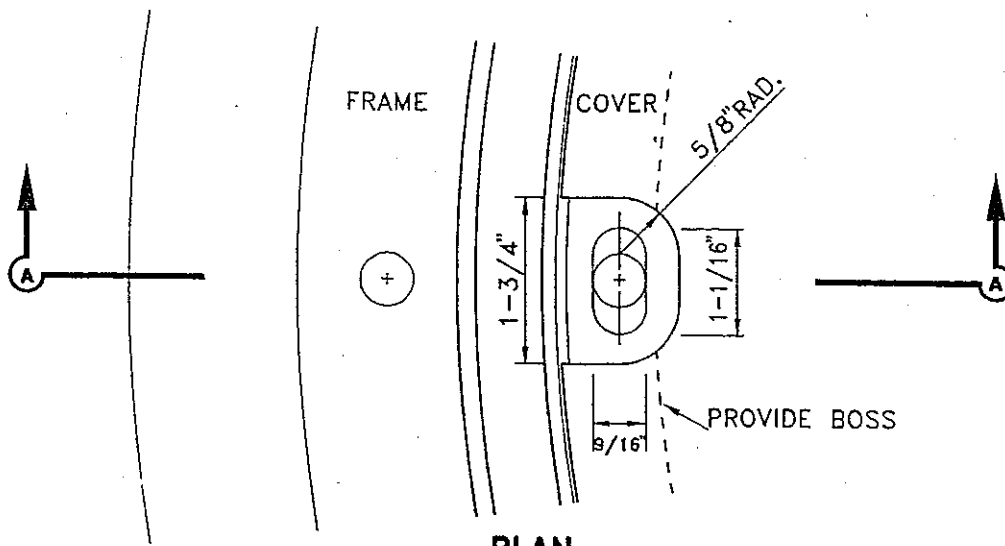
REINFORCED CONCRETE
PIPE COLLAR

APPROVAL REC.
Paul Acker
APPROVED
SA Dawson
APPROVED
Dawson
am
COUNTY ENGINEER

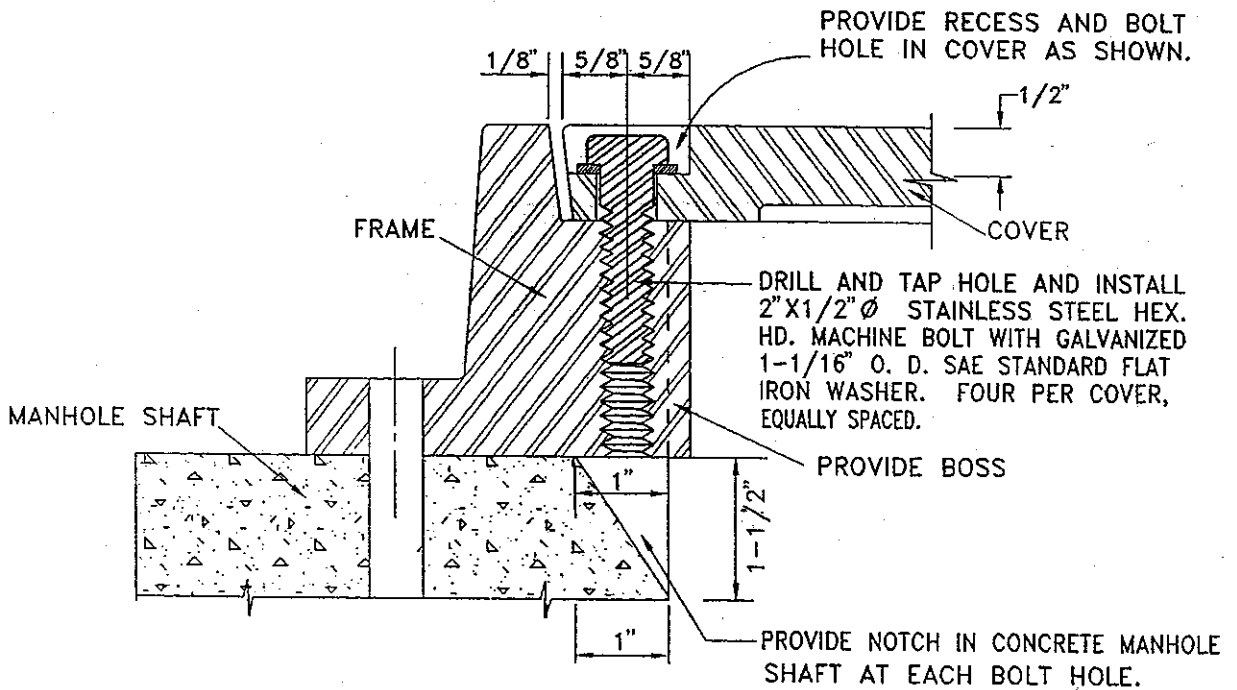
REVISIONS

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.

Handwritten signature

APPROVED

Handwritten signature

APPROVED

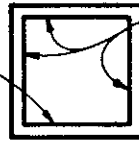
Handwritten signature
AM

COUNTY ENGINEER

REVISIONS

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

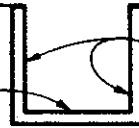
Construct Type IC
Contraction Joints
at 20' O.C.



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

BOX CULVERT

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



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

RECTANGULAR CHANNEL

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



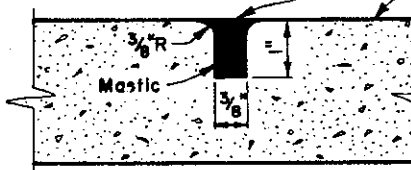
Construct Type IA
or IB Contraction
Joints at 10' O.C.

TRAPEZOIDAL CHANNEL

LOCATION AND SPACING OF JOINTS

TYPE I

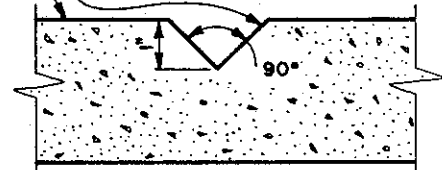
Construct Joint with $\frac{3}{8}$ " thick board. See Note 2.



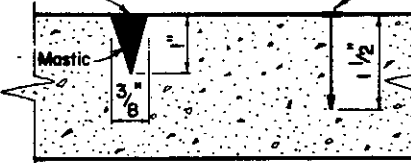
(A)

TYPE II

Construct Joint with chamfer strip attached firmly to forms.

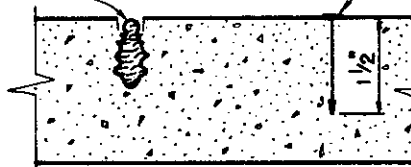


Construct Joint with 1" groover. See Note 2.



(B)

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



(C)

Inside Face, Typical

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

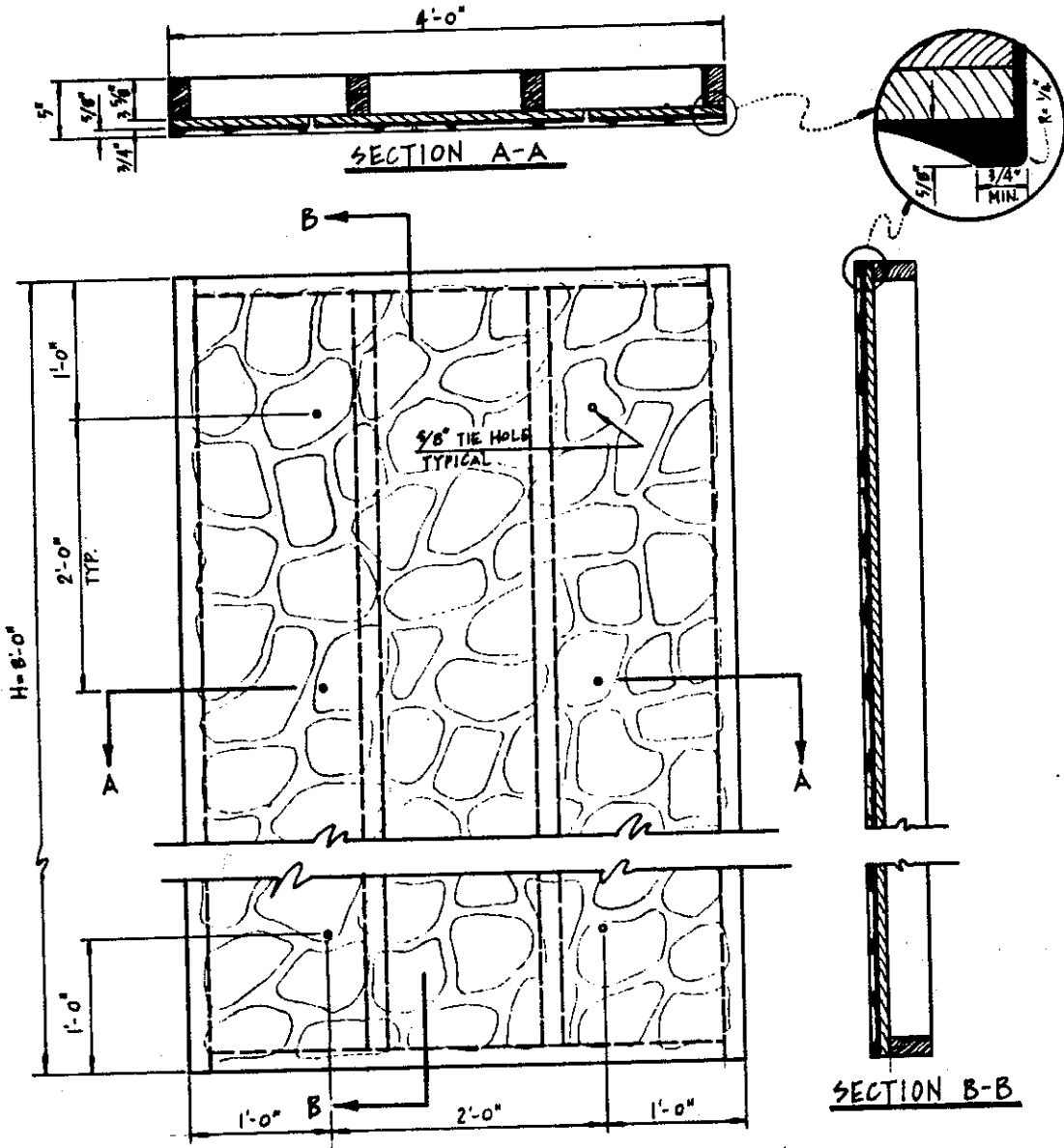
COUNTY OF ALAMEDA * PUBLIC WORKS AGENCY

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

CONTRACTION JOINTS

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

DRAWN	PLC	CHECKED	<i>[Signature]</i> TME	DATE	May 1977	SCALE	None	FILE NO.	SD-522	1 of 1
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GENERAL NOTES:

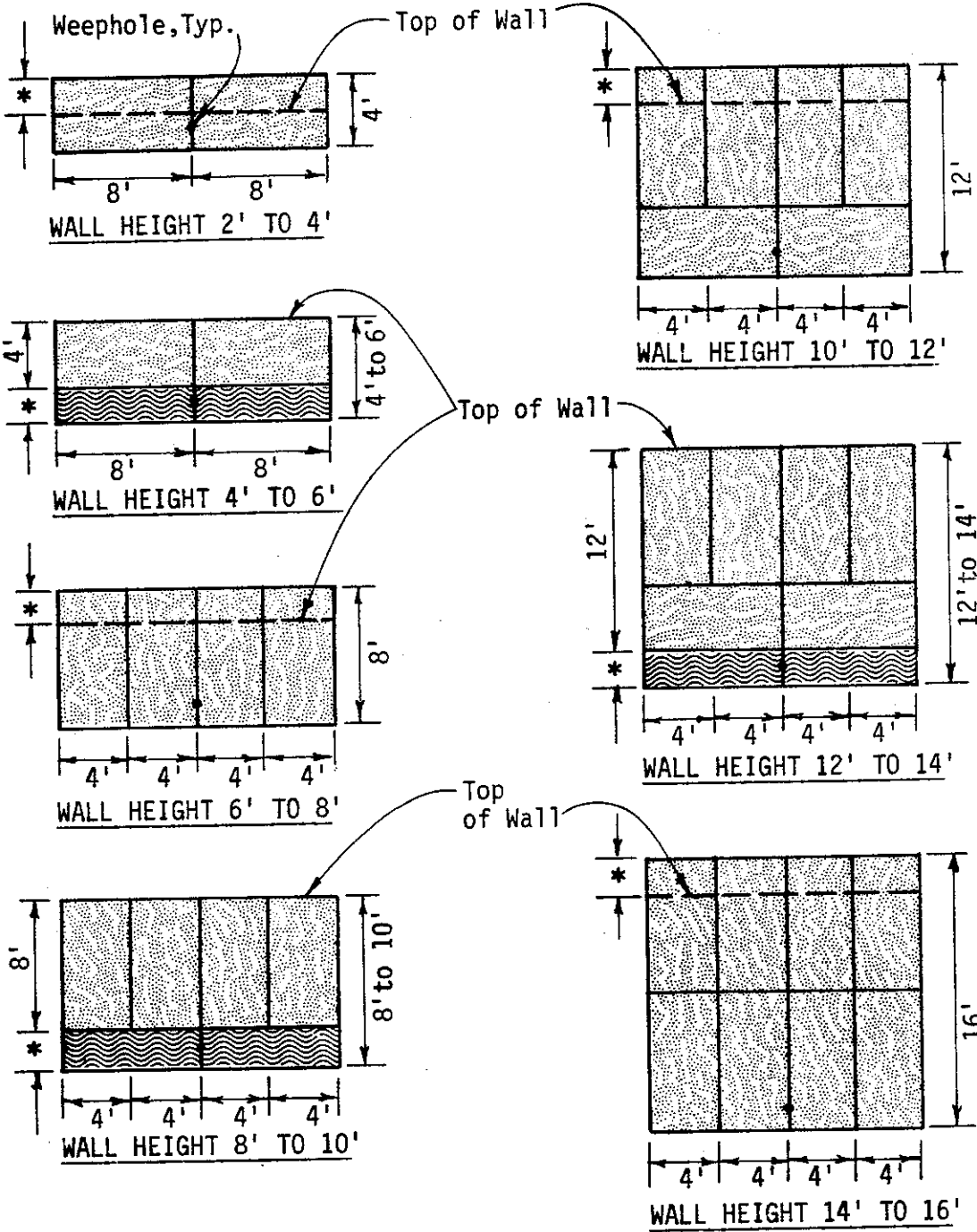
1. Forms consist of a fiberglass liner mounted on 3/4" plywood backed with 2 x 4's as shown. See Specifications for the number of inside wall forms to be furnished by the District.
2. Forms may be examined prior to bid opening at the District's Corporation Yard, 951 Turner Court, Hayward.
3. All forms shall be picked up and returned to the District's Corporation yard by the Contractor at his expense.



COUNTY OF ALAMEDA * PUBLIC WORKS AGENCY

**SIMULATED STONE PATTERN
CONCRETE FORM**

APPROVAL REC. *and Lawan*
 APPROVED *Robert C. Bitt*
 APPROVED *[Signature]*
 Director of Public Works
 and Road Commissioner

DRAWN EA	CHECKED <i>TME</i>	DATE Nov. 1983	SCALE None	FILE NO. SD-523	1 of 1
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- * VARIES 0' TO 2'
-  SIMULATED STONE PATTERN FORM. (SEE SD-523)
(FURNISHED BY DISTRICT)
-  PLAIN FORM
(FURNISHED BY CONTRACTOR)

See Sheet No. 3 for
General Notes

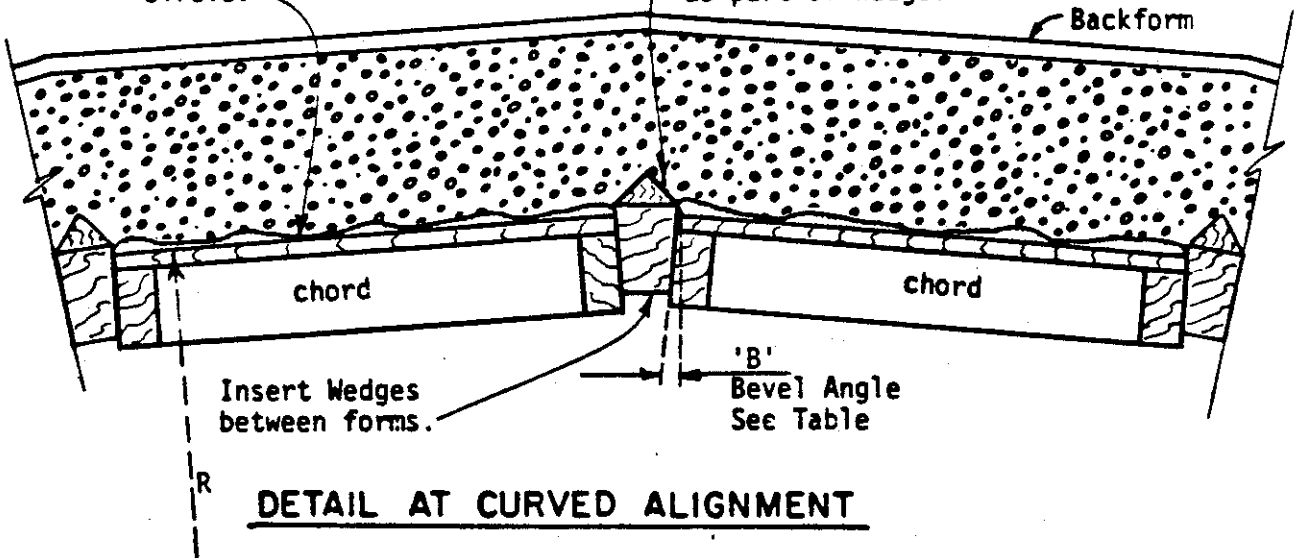
COUNTY OF ALAMEDA * PUBLIC WORKS AGENCY

**SIMULATED STONE PATTERN
LAYOUT
VARIOUS WALL HEIGHTS**

APPROVAL REC <i>am Kawan</i>
APPROVED <i>Robert C. Bille</i>
APPROVED <i>[Signature]</i> Director of Public Works and Road Commissioner

Form inside face of wall using the 8' or 4' side of panels as chords of a circle.

Connect 1" chamfer strip at Contraction Joint or shape as part of wedge.



APPROXIMATE BEVEL ANGLE IN DEGREES FOR 4' CHORDS

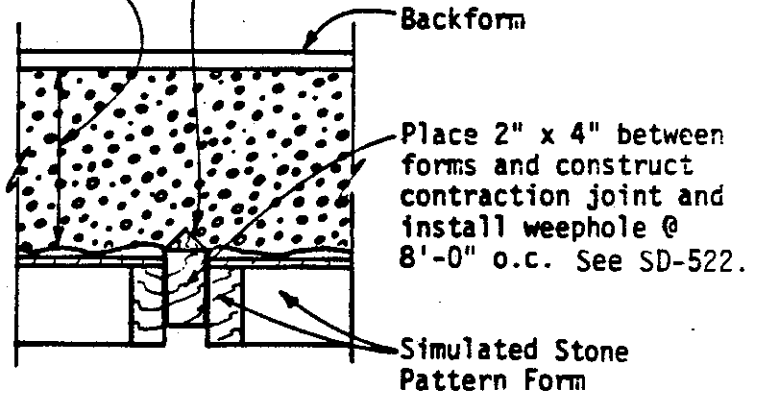
RADIUS FEET	'B'
40	5.7
60	3.8
80	2.9
100	2.3
120	1.9
140	1.6
160	1.4
180	1.3
200	1.2
400	.57

$$B = 2(\text{Arc Sine } \frac{C}{2R})$$

For 8-Foot Chord Lengths use twice the value of 'B' shown.

Concrete Wall thickness. See General Plan.

Connect 1" chamfer strip to 2" x 4". Do not nail to textured face of forms.



See Sheet 3 for General Notes.

COUNTY OF ALAMEDA * PUBLIC WORKS AGENCY

SIMULATED STONE PATTERN LAYOUT VARIOUS WALL HEIGHTS

APPROVAL REC *am Kawan*

APPROVED *R. F. C. Bitt*

APPROVED *W. H. ...*

Director of Public Works and Road Commissioner

REVISIONS

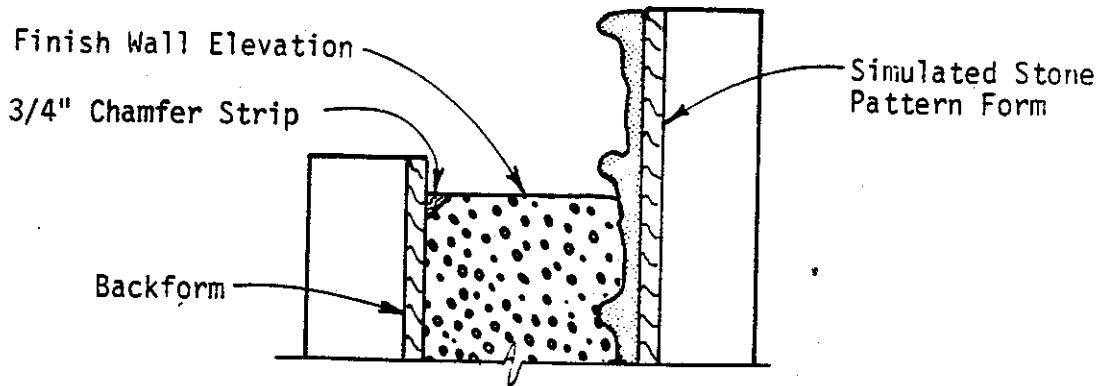
DRAWN EA

CHECKED *AT TMC*

DATE Nov. 1983

SCALE None

FILE NO. SD-524 2 of 3



ELEVATION

GENERAL NOTES:

1. The size of the Standard Simulated Stone Pattern Form is approximately 8' x 4'.
2. Forms may be oriented as directed by the Engineer to achieve the wall height and curvature indicated on the General Plans.
3. Nail 3/4" Chamfer strip to backforms at required wall height, provide a smooth finish to top of wall.
4. See General Plans for locations of weepholes and required height of walls.

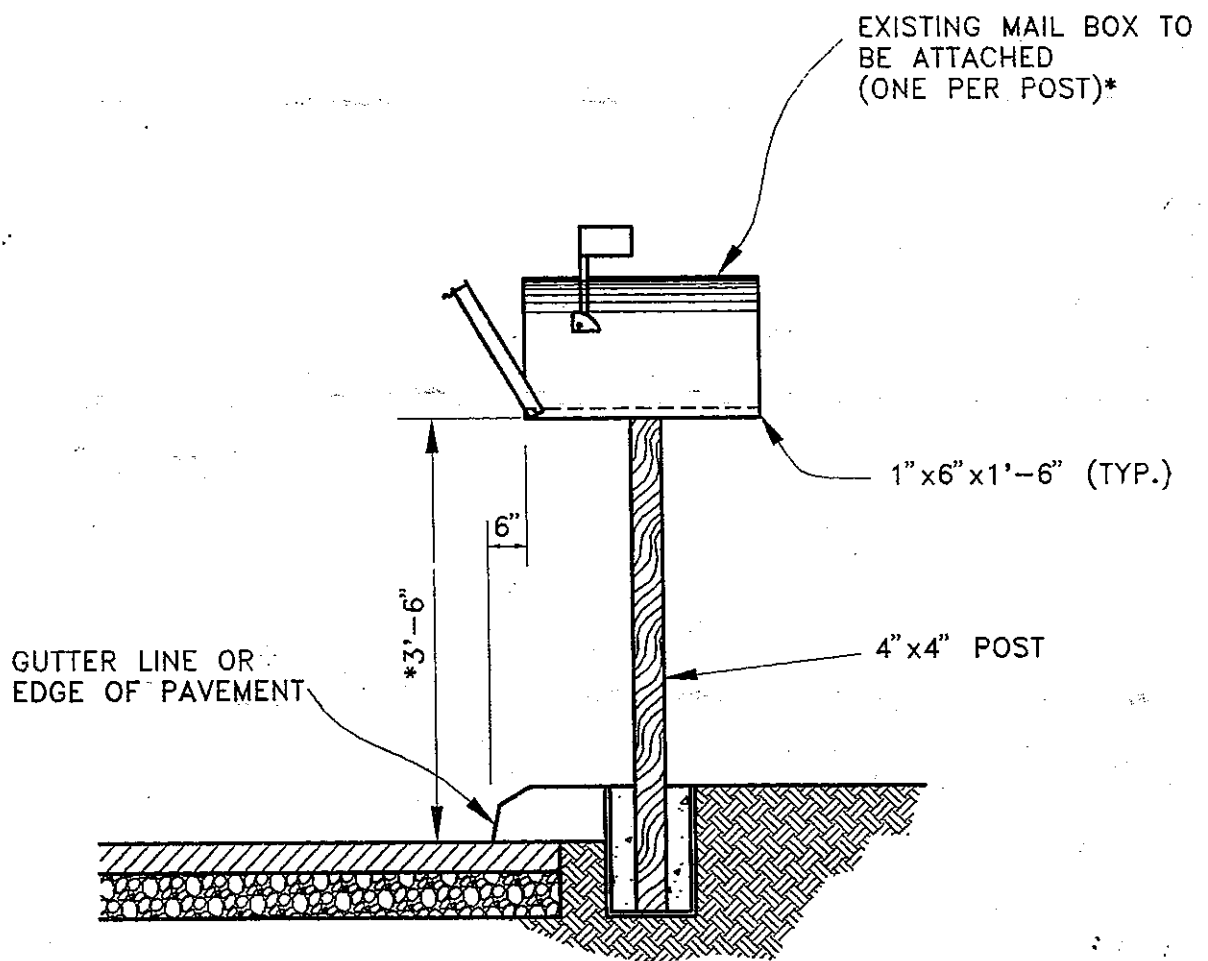
COUNTY OF ALAMEDA * PUBLIC WORKS AGENCY

**SIMULATED STONE PATTERN
LAYOUT
VARIOUS WALL HEIGHTS**

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

REVISIONS

DRAWN	EA	CHECKED	<i>TME</i>	DATE	Nov. 1983	SCALE	None	FILE NO.	SD-524	3 of 3
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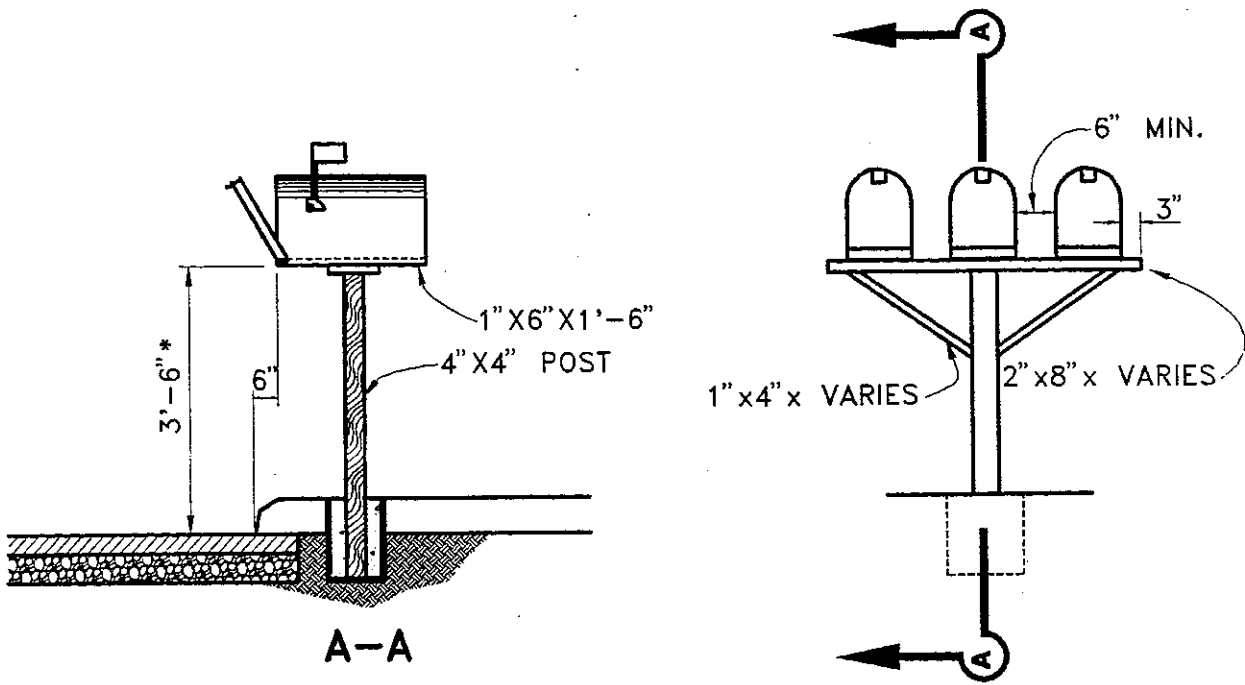


NOTES:

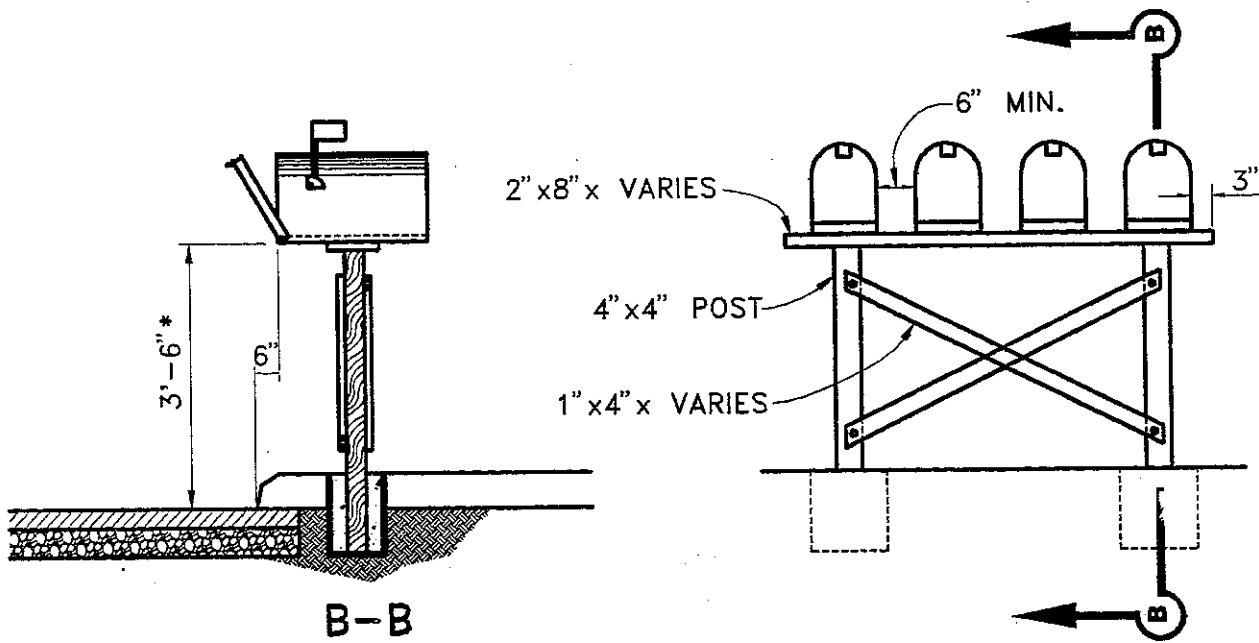
1. ALL WOOD SHALL BE REDWOOD, CONSTRUCTION HEART GRADE, S4S.
2. 5 GALLON STEEL BUCKET SHALL BE FILLED WITH CLASS "B" CONCRETE.*
3. BUCKET SHALL BE SET FLUSH WITH SURFACE BEHIND CURB OR BERM.

* OR, AS DIRECTED BY THE ENGINEER

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY					
					APPROVAL REC. <i>Frank Beckman</i> APPROVED <i>Scott A. Swann</i> APPROVED <i>Swann</i> COUNTY ENGINEER
MAILBOX DETAILS					
REVISIONS					
DRAWN	JJ	CHECKED	<i>HEA</i>	DATE	JUNE 1994
		SCALE	NONE		FILE NO.
				SD-525	1 of 2



GROUPED MAIL BOXES (3 MAX)



GROUPED MAIL BOXES

*OR AS DIRECTED BY THE ENGINEER

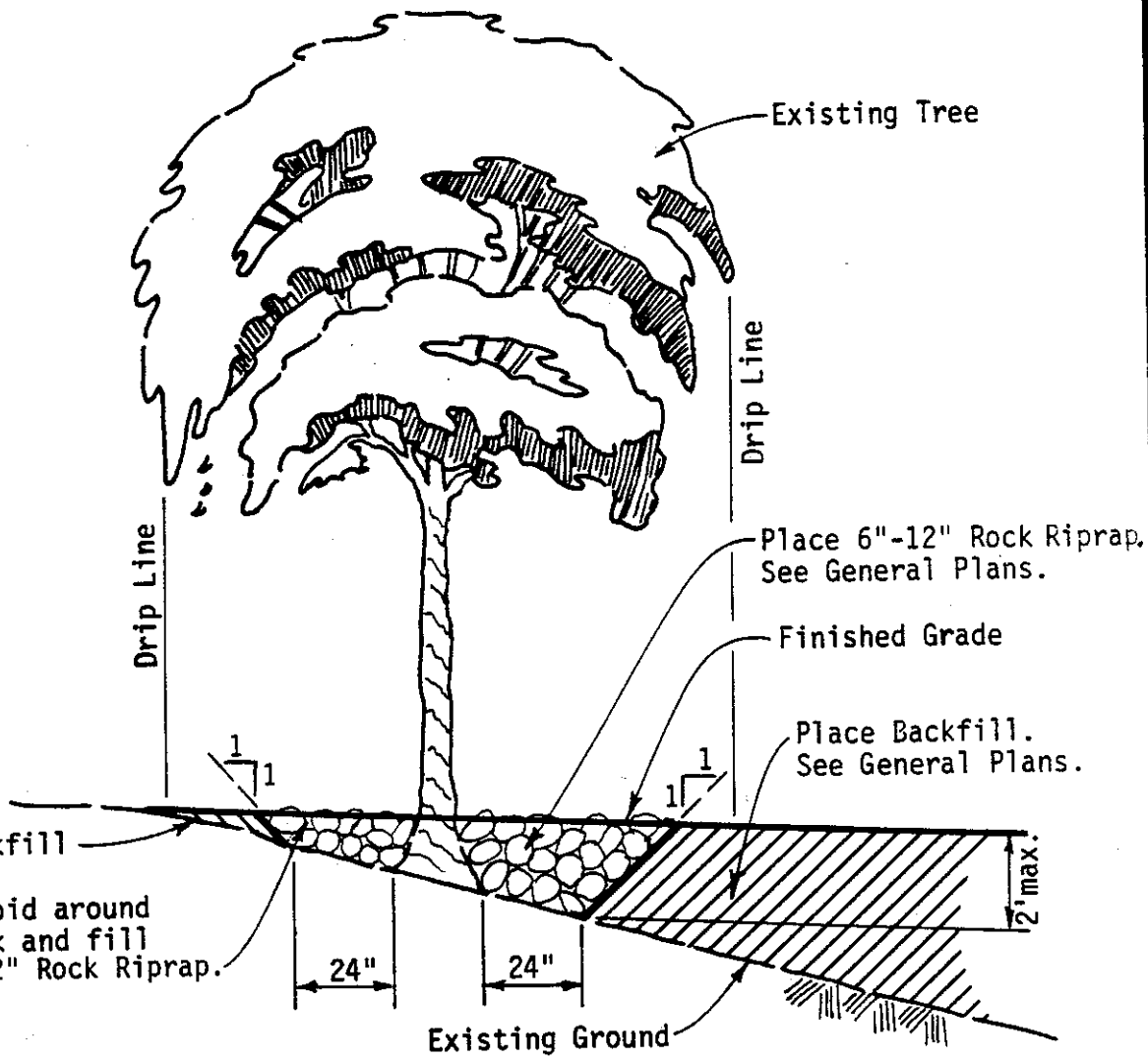
COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

MAILBOX DETAILS

APPROVAL REC.
Mark Ack
 APPROVED
Scott Swanson
 APPROVED
Cawan
 am
 COUNTY ENGINEER

REVISIONS

DRAWN	CHECKED	DATE	SCALE	FILE NO.
JJ	<i>HEA</i>	JUNE 1994	NONE	SD-525 2 of 2



SHALLOW TREE-WELL
2' Depth or Less

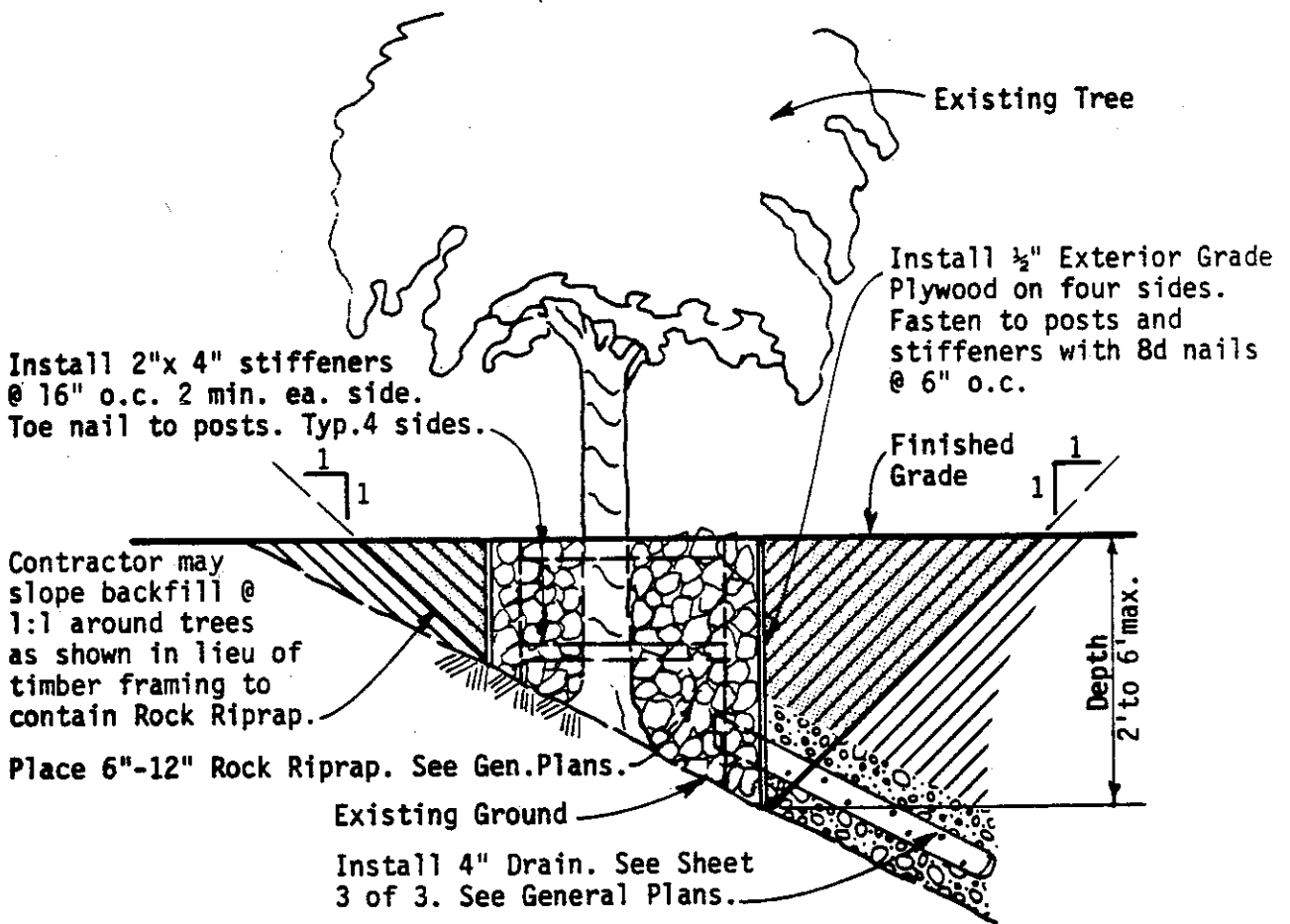
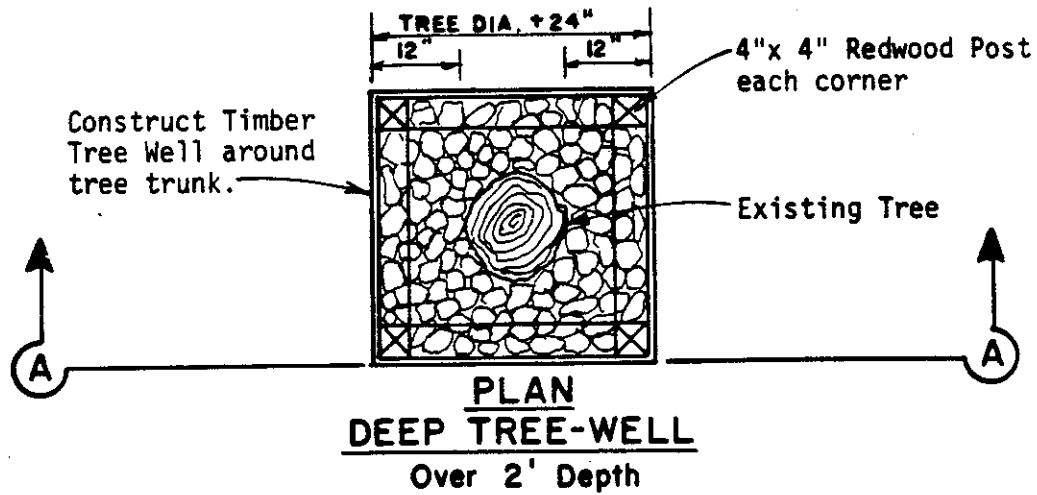
COUNTY OF ALAMEDA * PUBLIC WORKS AGENCY

REVISIONS

TREE-WELLS

APPROVAL REC. *Tom Kawan*
 APPROVED *Robert C. Bitt*
 APPROVED *William...*
 Director of Public Works
 and Road Commissioner

DRAWN EA	CHECKED <i>Tom</i>	DATE Oct. 1983	SCALE None	FILE NO. SD-526	1 of 3
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SECTION A-A
DEEP TREE-WELL

COUNTY OF ALAMEDA * PUBLIC WORKS AGENCY

REVISIONS

TREE-WELLS

APPROVAL REC. *am Kawan*

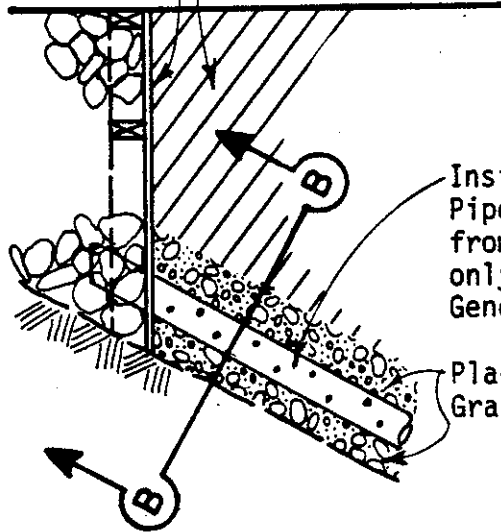
APPROVED *Paul C. Miller*

APPROVED *Walter J. ...*
Director of Public Works and Road Commissioner

DRAWN EA	CHECKED <i>Tom</i>	DATE Oct. 1983	SCALE None	FILE NO. SD-526	2 of 3
----------	--------------------	----------------	------------	-----------------	--------

Tree Well. See Sheet 2 of 3.

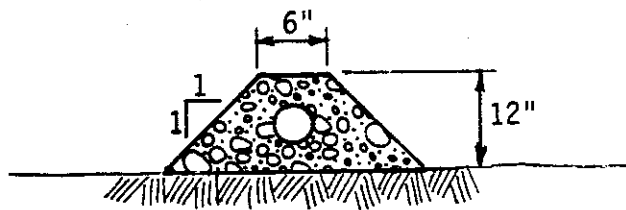
Place Backfill. See General Plans.



Install 4" Perforated PVC Pipe radially downslope from Tree-Well to drip line only if so indicated on the General Plans.

Place Crushed Rock or Gravel. See Specifications.

TREE-WELL DRAIN



SECTION B-B

COUNTY OF ALAMEDA * PUBLIC WORKS AGENCY

NO.	DESCRIPTION	DATE

REVISIONS

DRAWN

EA

CHECKED

RM

DATE

SCALE

None

APPROVAL REC. *am Lawar*

APPROVED *R. C. Bitt*

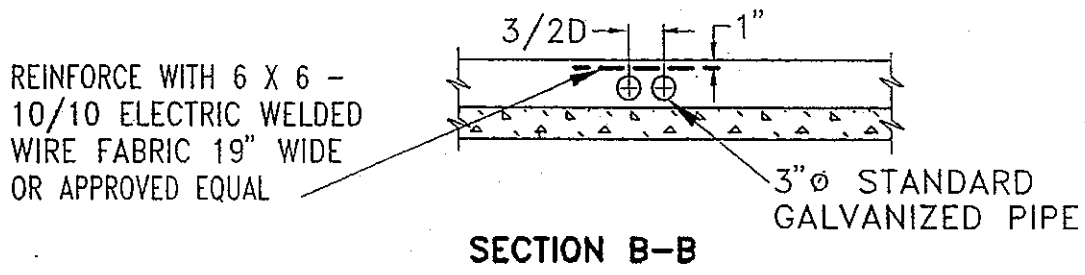
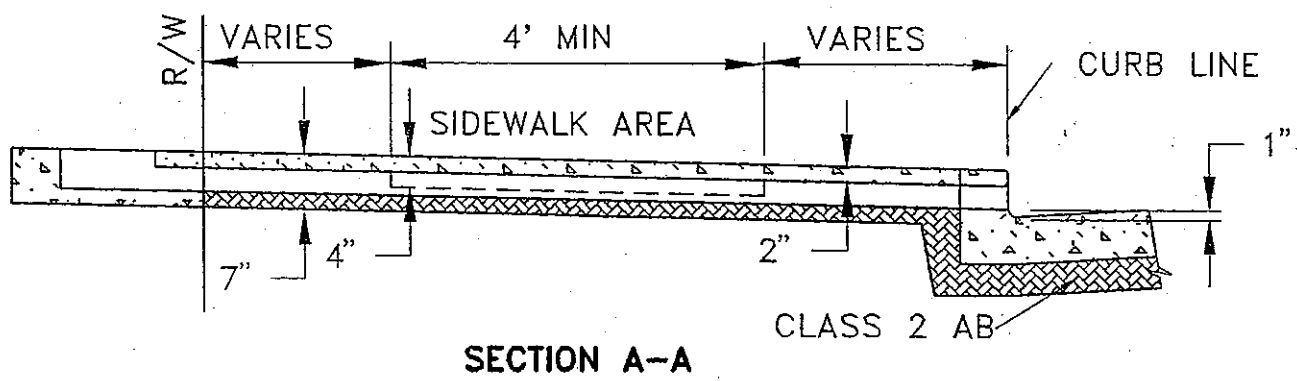
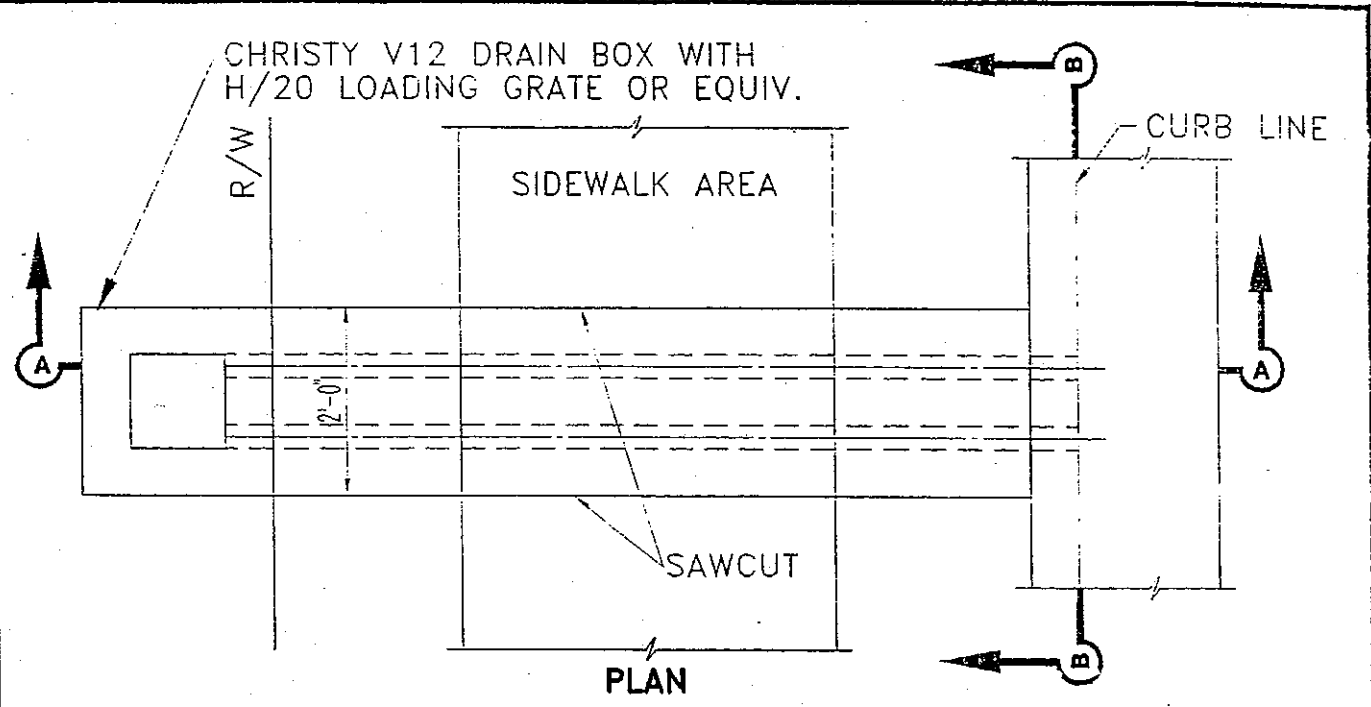
APPROVED *[Signature]*

Director of Public Works
and Road Commissioner

FILE NO.

SD-526

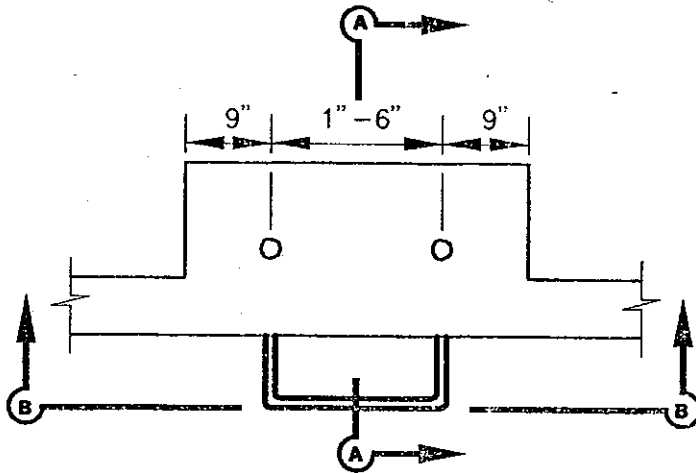
3 of 3



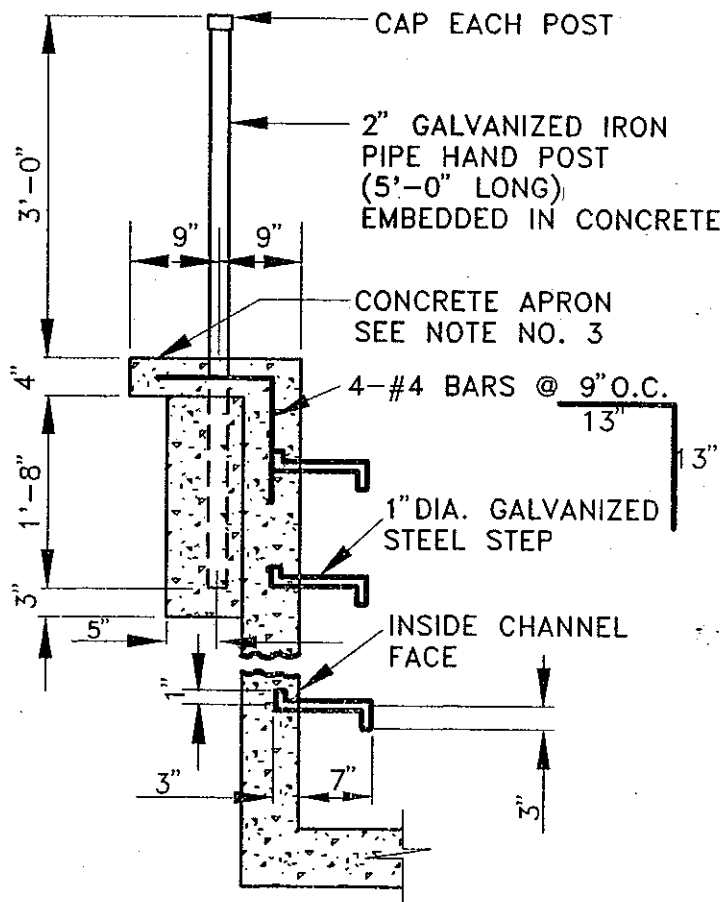
COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY											
<table border="1"> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </table>										SIDEWALK DRAIN TYPE II SINGLE FAMILY RESIDENTIAL LOTS	
<table border="1"> <tr> <td style="text-align: center;">APPROVAL REC. <i>[Signature]</i> APPROVED</td> </tr> <tr> <td style="text-align: center;">APPROVED <i>[Signature]</i> AM COUNTY ENGINEER</td> </tr> </table>		APPROVAL REC. <i>[Signature]</i> APPROVED	APPROVED <i>[Signature]</i> AM COUNTY ENGINEER	<table border="1"> <tr> <td style="text-align: center;">FILE NO.</td> <td style="text-align: center;">SD-527</td> <td style="text-align: center;">1 of 1</td> </tr> </table>		FILE NO.	SD-527	1 of 1			
APPROVAL REC. <i>[Signature]</i> APPROVED											
APPROVED <i>[Signature]</i> AM COUNTY ENGINEER											
FILE NO.	SD-527	1 of 1									
REVISIONS		DATE	SCALE								
DRAWN	CHECKED	OCT. 1994	NONE								
JC											

GENERAL NOTES

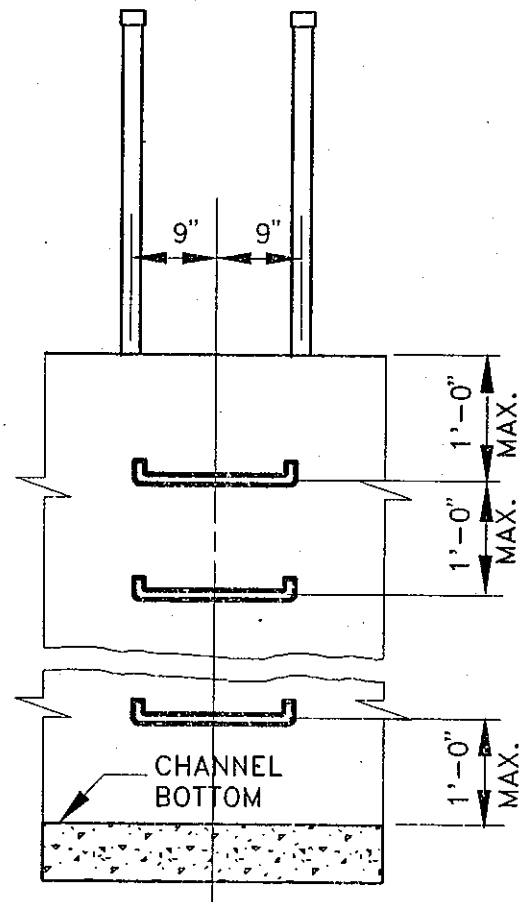
1. ALL MISCELLANEOUS IRON AND STEEL SHALL BE GALVANIZED AFTER FABRICATION.
2. SEE GENERAL PLANS FOR LOCATION OF STEPS.
3. THE CONCRETE APRON SHOWN IS ONLY FOR CHANNELS WITHOUT APRONS. FOR CHANNELS WITH APRONS, USE THE APRON PROVIDED.



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

APPROVED

APPROVED

APPROVED

APPROVED

APPROVED

APPROVED

APPROVED

APPROVED

APPROVED

APPROVED

APPROVED

REVISIONS

DRAWN

EA

CHECKED

DATE

JAN. 1994

SCALE

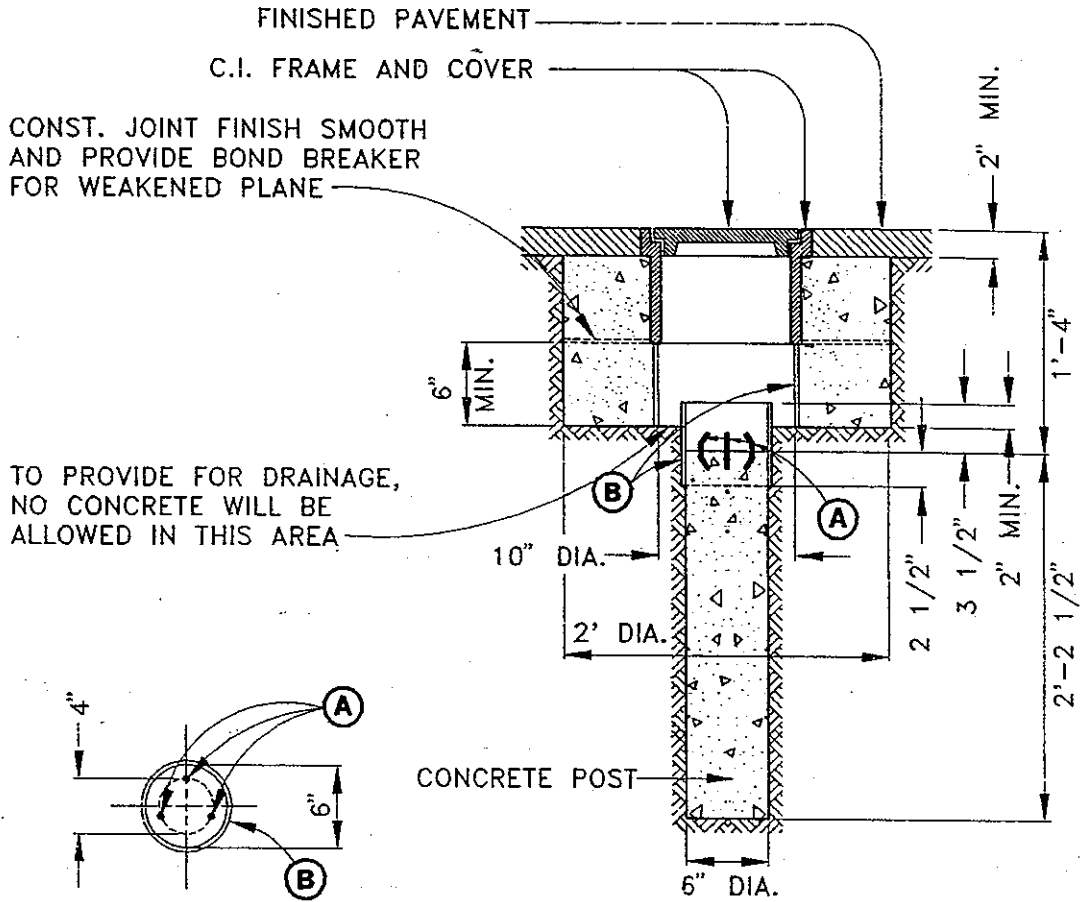
NONE

FILE NO.

SD-528

1 of 1

COUNTY ENGINEER



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 TK, MTF

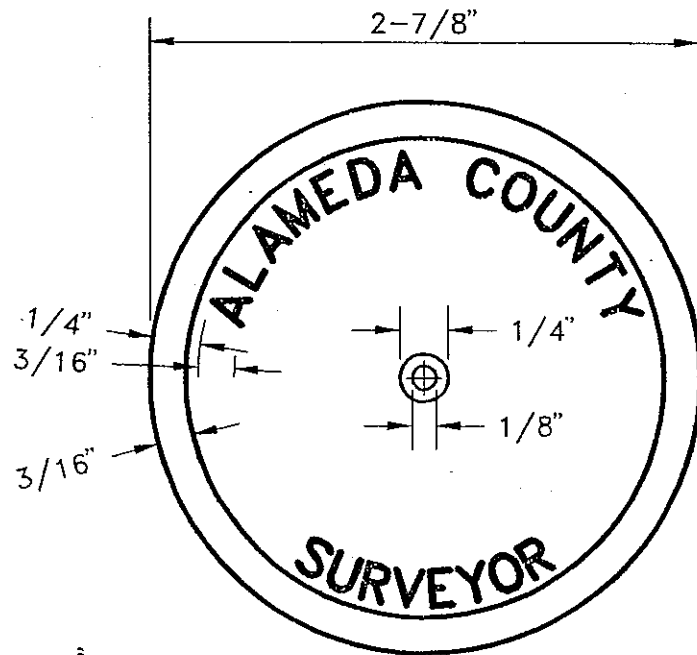
CHECKED

DATE JULY 1992

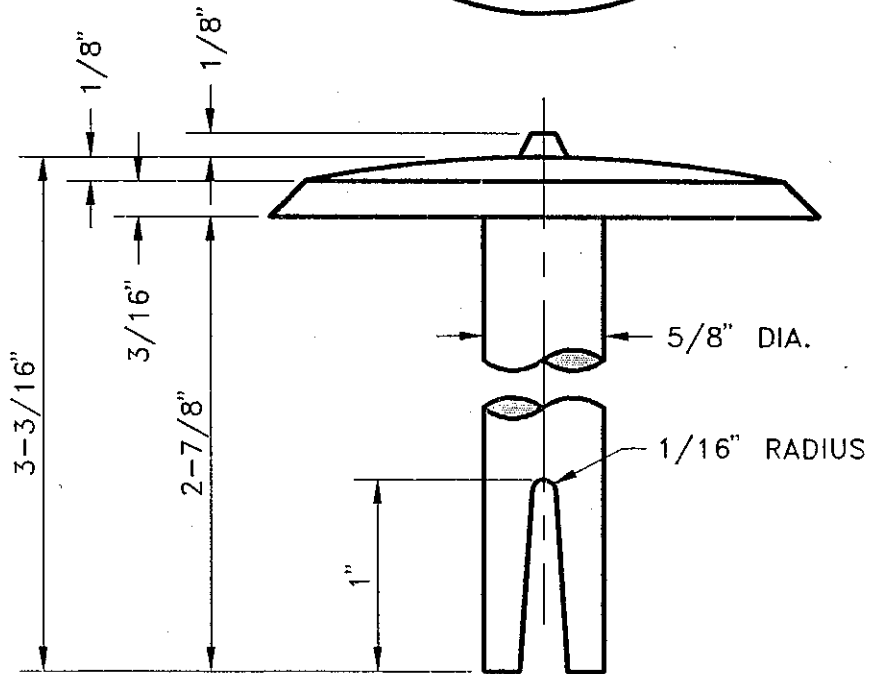
SCALE NTS

FILE NO. SD-600 1 of 1

REVISIONS



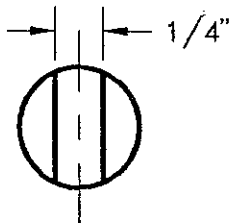
LETTERS TO BE STAMPED
OR CAST AS DEEP AS
POSSIBLE



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

COUNTY ENGINEER AND COUNTY SURVEYOR

REVISIONS

DRAWN JPB

CHECKED

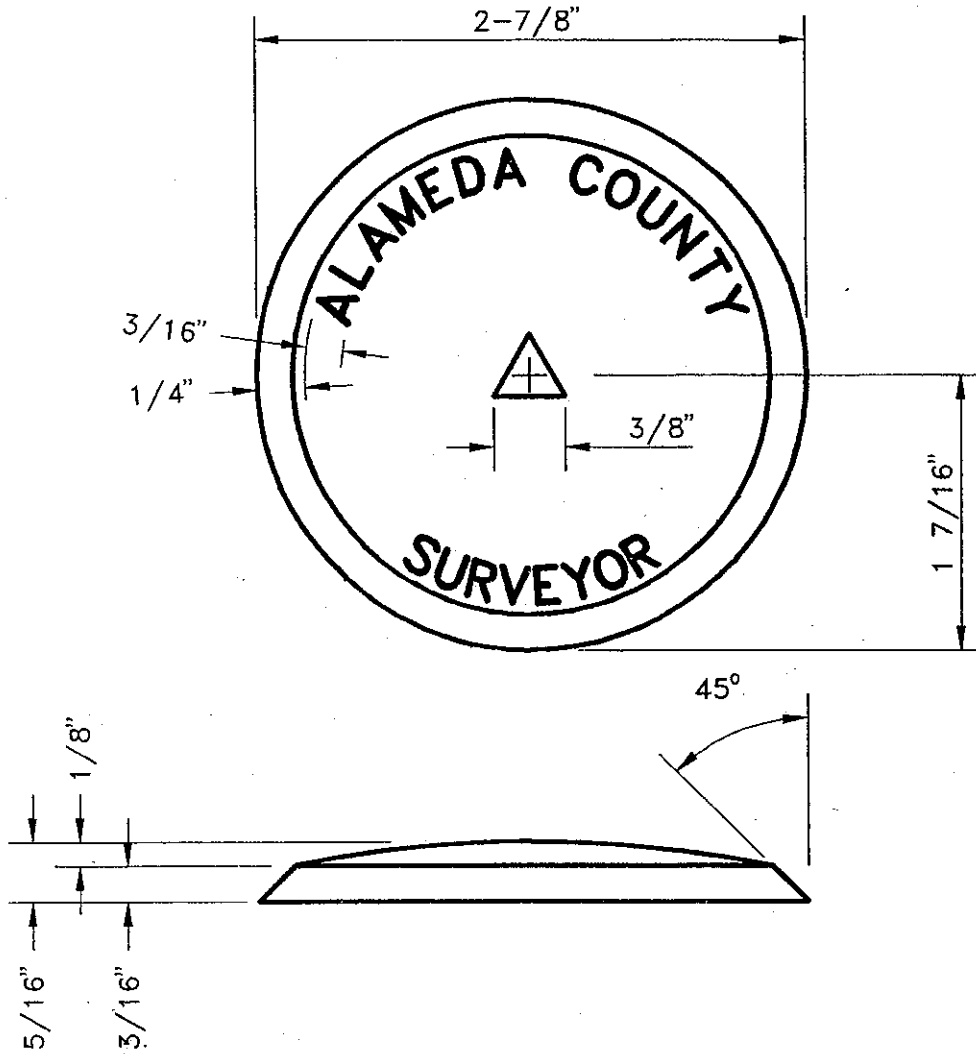
DATE FEB. 1994

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*

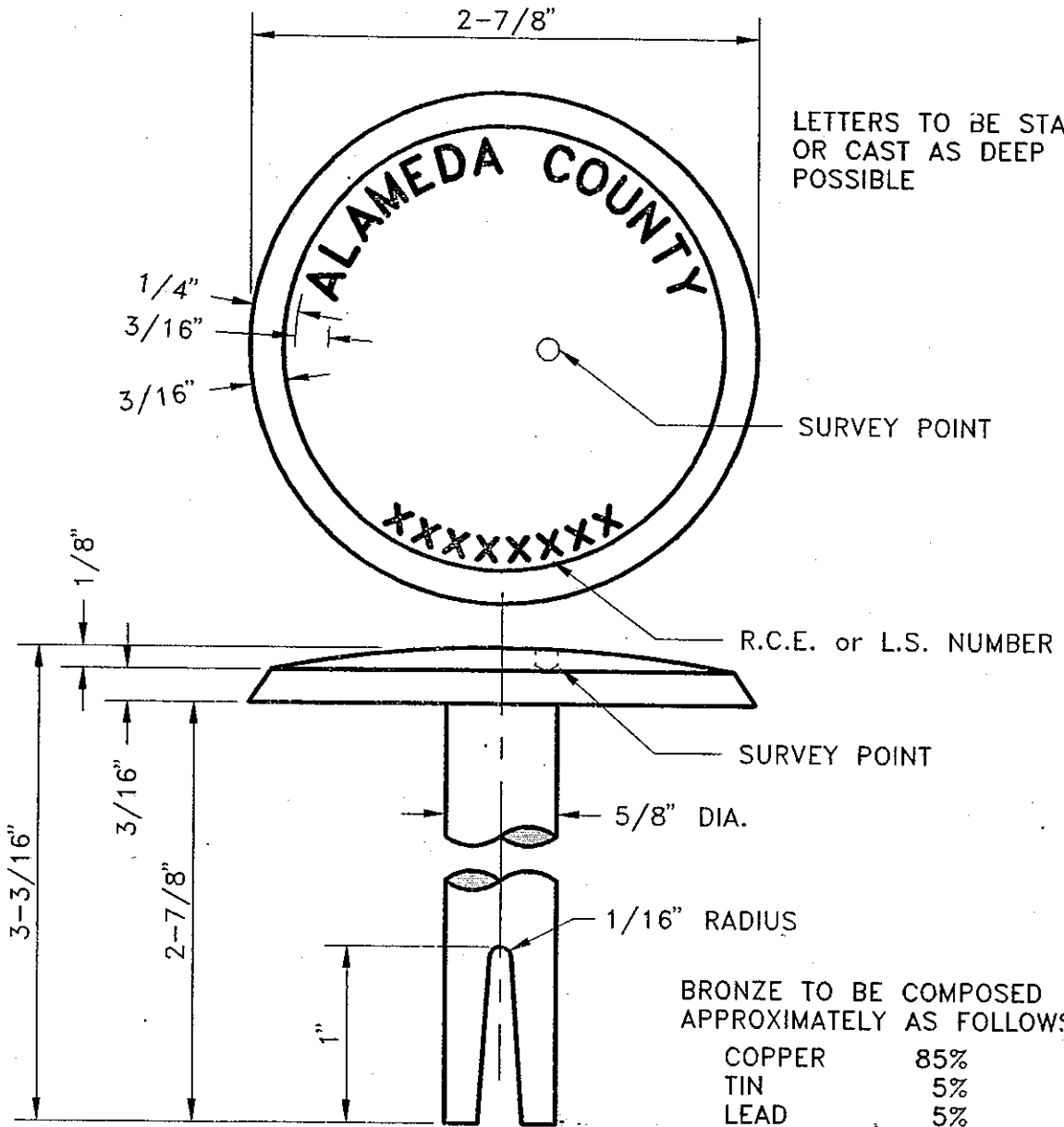
APPROVED *Fawar*

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:

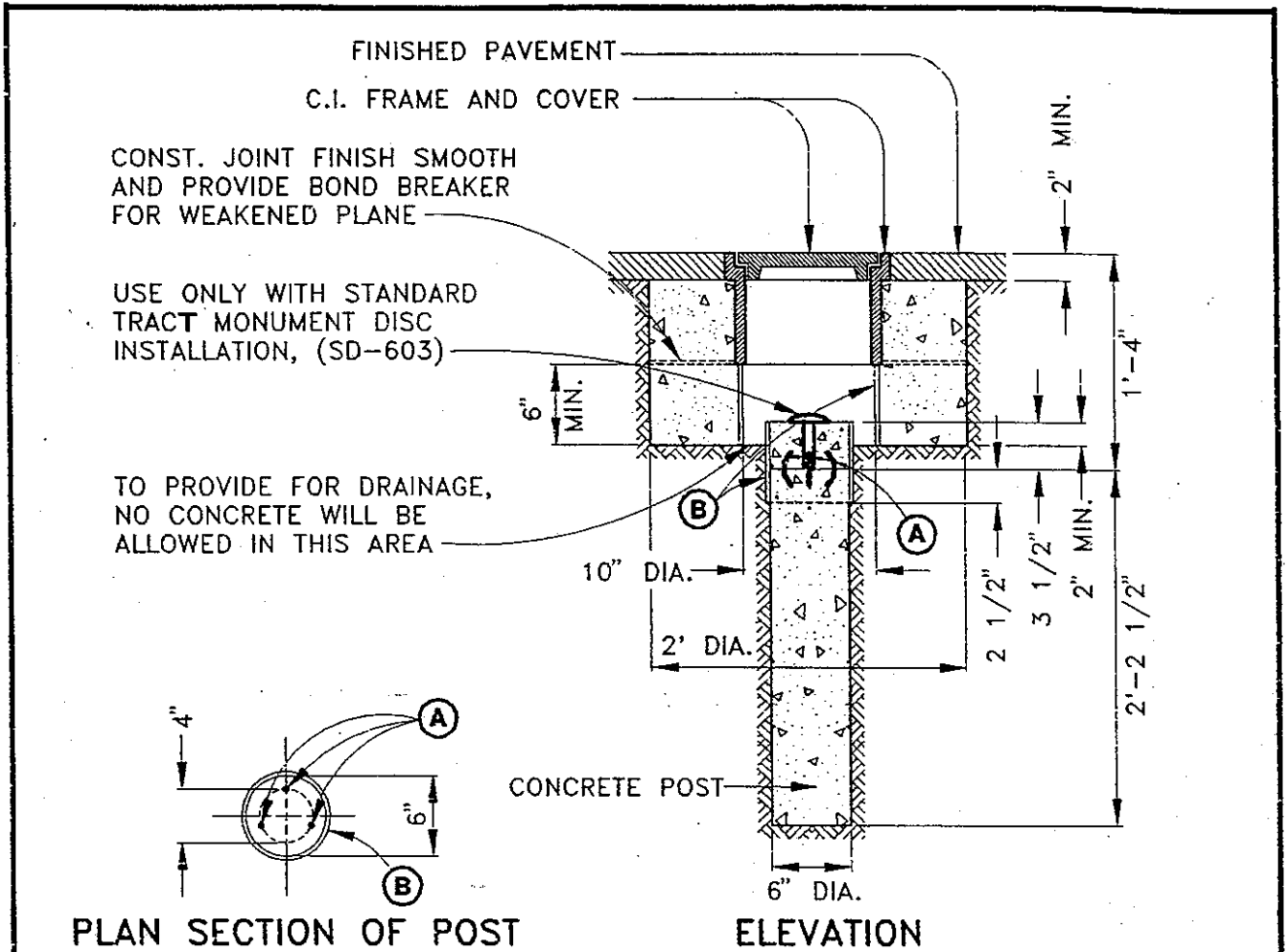
COPPER	85%
TIN	5%
LEAD	5%
ZINC	5%

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

				APPROVAL REC.	
		TRACT MONUMENT DISC		APPROVED <i>Stendrup</i>	
				APPROVED <i>Lawan</i>	
REVISIONS				COUNTY ENGINEER AND COUNTY SURVEYOR	
DRAWN	CHECKED	DATE	SCALE	FILE NO.	
JPB		FEB. 1994	None	SD-603	1 of 1



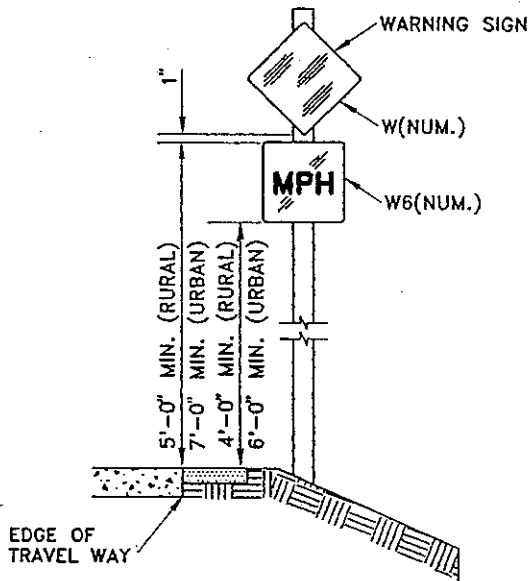
NOTES:

MONUMENT FRAMES AND COVERS SHALL BE:

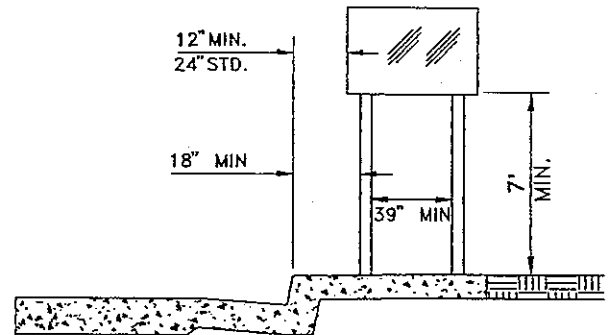
1. NEENAH FOUNDRY COMPANY, CATALOG NO. R-1975-B, LID TYPE C WITH "MONUMENT" ON THE LID.
2. CHRISP CASTING PART NO. 9279, 9277M.
3. OTHER MANUFACTURERES MODELS APPROVED BY THE ALAMEDA COUNTY ROAD DEPARTMENT SHALL BE EQUAL IN SERVICE AND FUNCTION. EACH COVER SHALL BE GROUND OR OTHERWISE FINISHED SO THAT 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

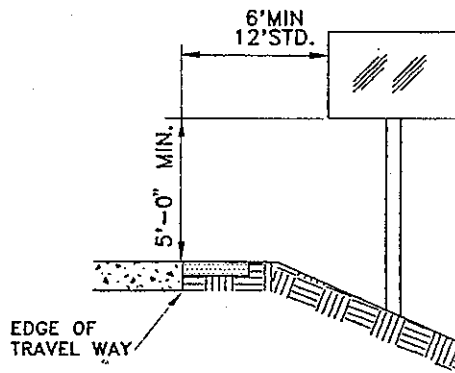
<p>CONCRETE MONUMENT SECTION WITH DISC</p>				<p>APPROVAL REC. <i>[Signature]</i> 9/2/92 APPROVED <i>[Signature]</i> APPROVED <i>[Signature]</i> COUNTY ENGINEER AND COUNTY SURVEYOR</p>			
<p>REVISIONS</p>							
DRAWN	CHECKED	DATE	SCALE	FILE NO.			
TK, MTF		JULY 1992	NTS	SD-604	1 of 1		



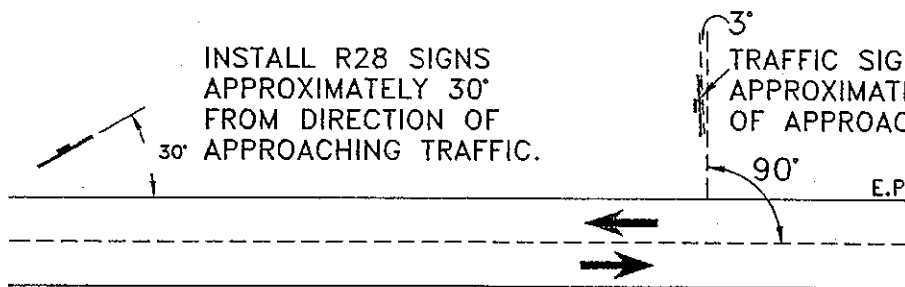
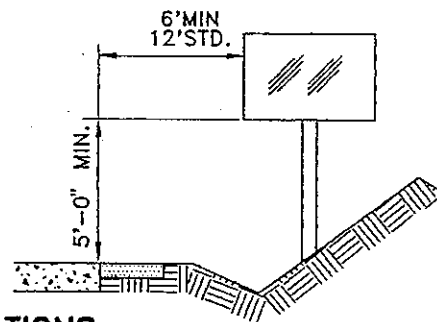
ADVISORY SPEED SIGN INSTALLATION



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

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

SIGN MOUNTING DETAILS

APPROVAL REC.
Stendrip
APPROVED
APPROVED *awan*
COM

COUNTY ENGINEER

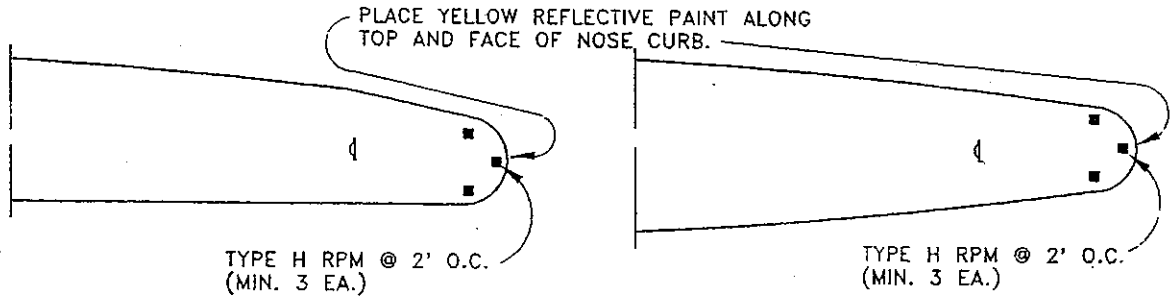
DRAWN
EA

CHECKED

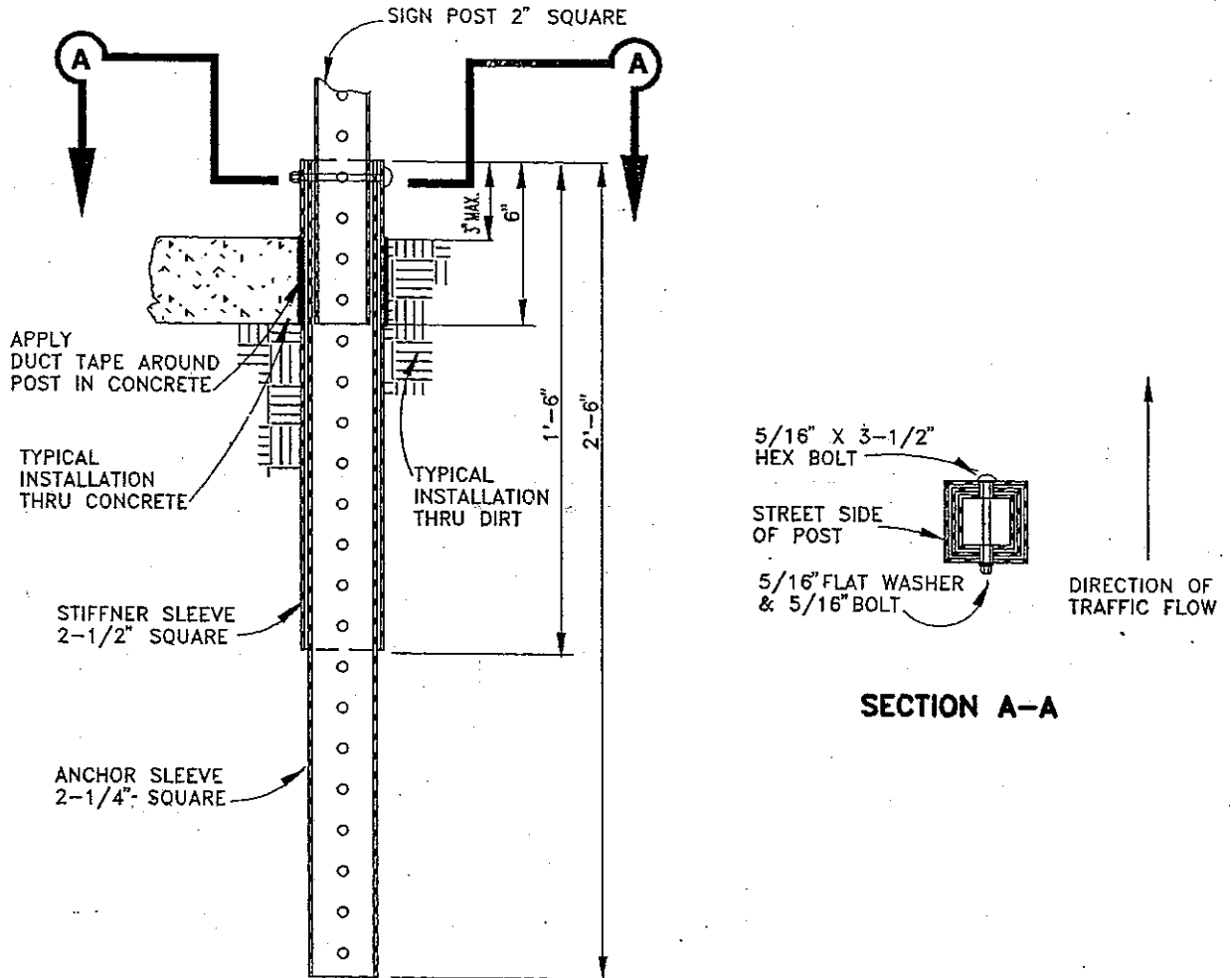
DATE
DEC 1994

SCALE
NONE

FILE NO.
SD-700 1 of 2



CONCRETE MEDIAN



SECTION A-A

TYPICAL SECTION

NOTE: ANCHOR SLEEVE + STIFFNER SLEEVE = ANCHOR ASSEMBLY

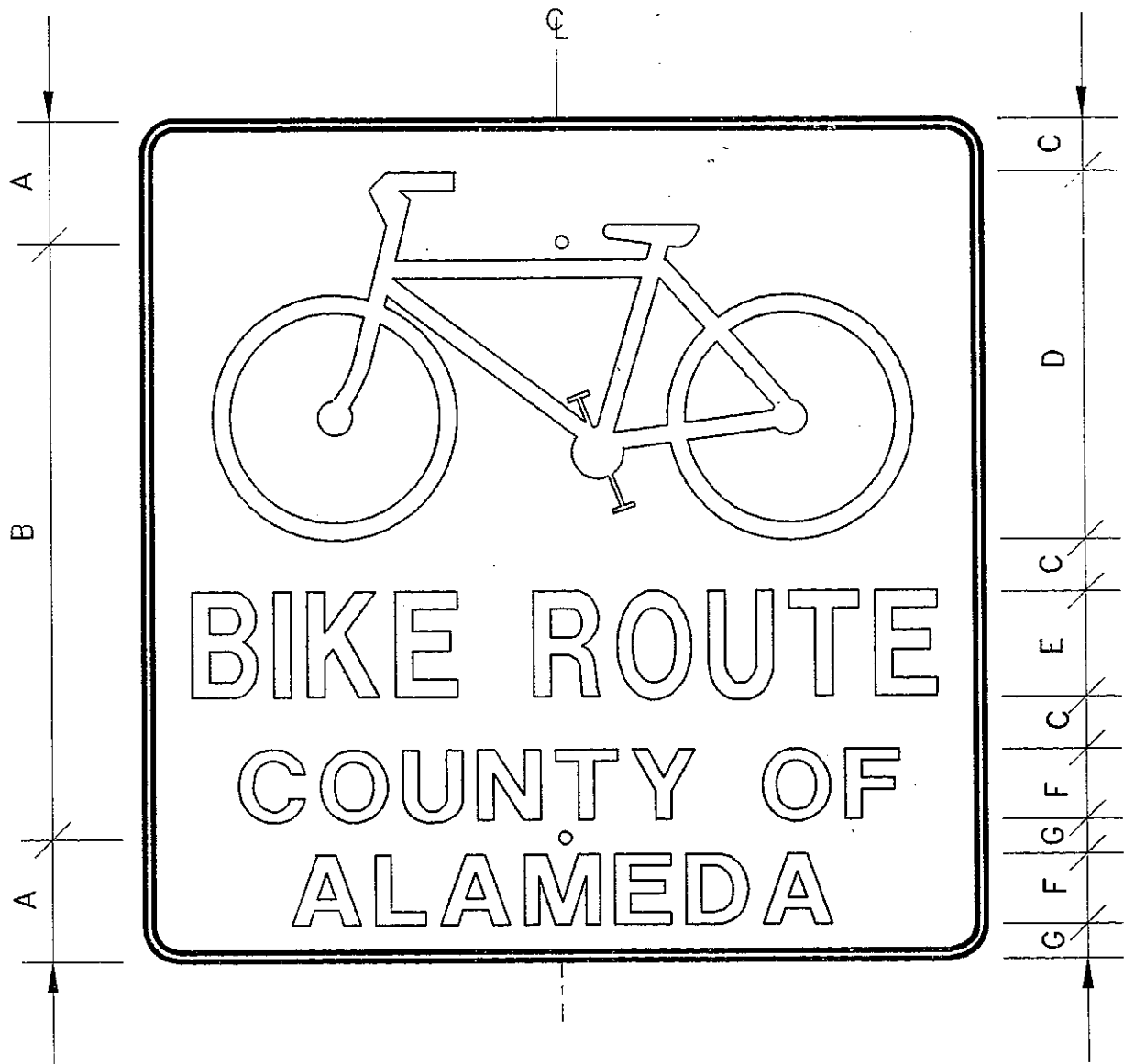
COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

SIGN MOUNTING DETAILS

APPROVAL REC
Frank Debra
 APPROVED
Scott A. Swanson
 APPROVED
Swanson
 COUNTY ENGINEER

REVISIONS

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



SIZE	BORDER WIDTH	MARGIN WIDTH	LETTER SIZE, SERIES & STROKE WIDTH			RADIUS (CORNER)
			LINE 1	LINE 2	LINE 3	
24 X 24	1/2	--	3 C	2 B	2 B	1-1/2

SIZE	DIMENSIONS						
	A	B	C	D	E	F	G
24 X 24	3-1/2	17	1-1/2	10-1/2	3	2	1

NOTES:

1. ALL DIMENSIONS ARE IN INCHES.
2. SIGN SHALL HAVE: A GREEN BACKGROUND, WHITE BORDER AND SYMBOL, REFLECTIVE MESSAGE, SYMBOL AND BORDER.
3. HOLES ARE 3/8" DIAMETER.

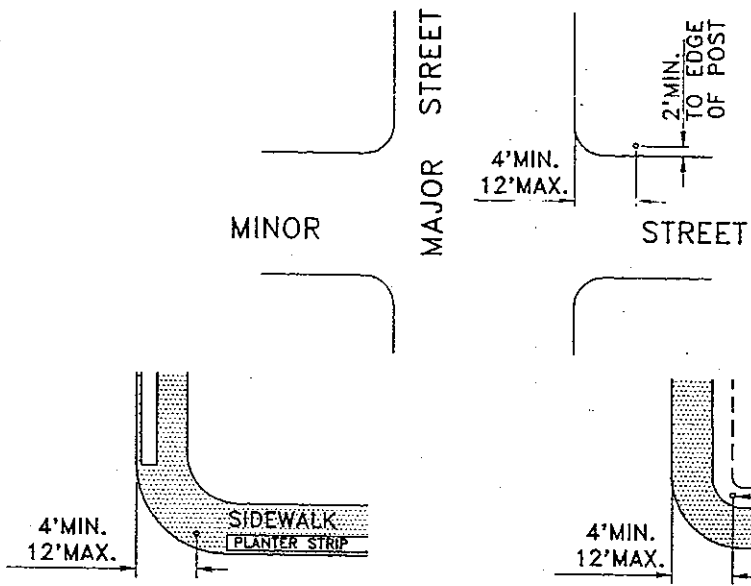
COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

NO.	DATE	DESCRIPTION

BICYCLE ROUTE SIGN

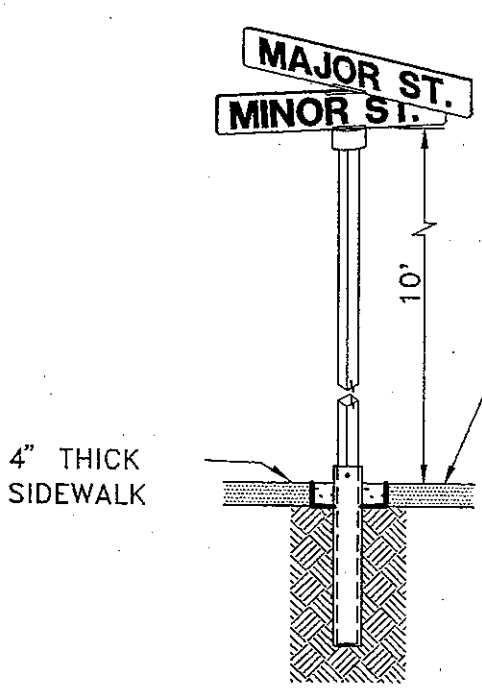
APPROVAL DEC
[Signature]
 APPROVED
[Signature]
 APPROVED
[Signature]
 COUNTY ENGINEER

DRAWN EA	CHECKED <i>HER</i>	DATE JULY 1994	SCALE NONE	FILE NO. SD-701	1 of 1
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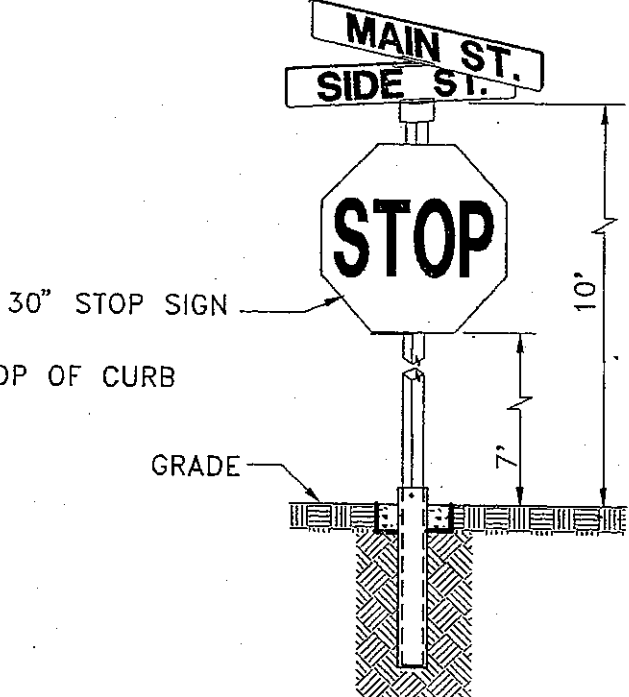


SEPARATED SIDEWALK LOCATION

MONOLITHIC SIDEWALK LOCATION



TYPE I



TYPE II

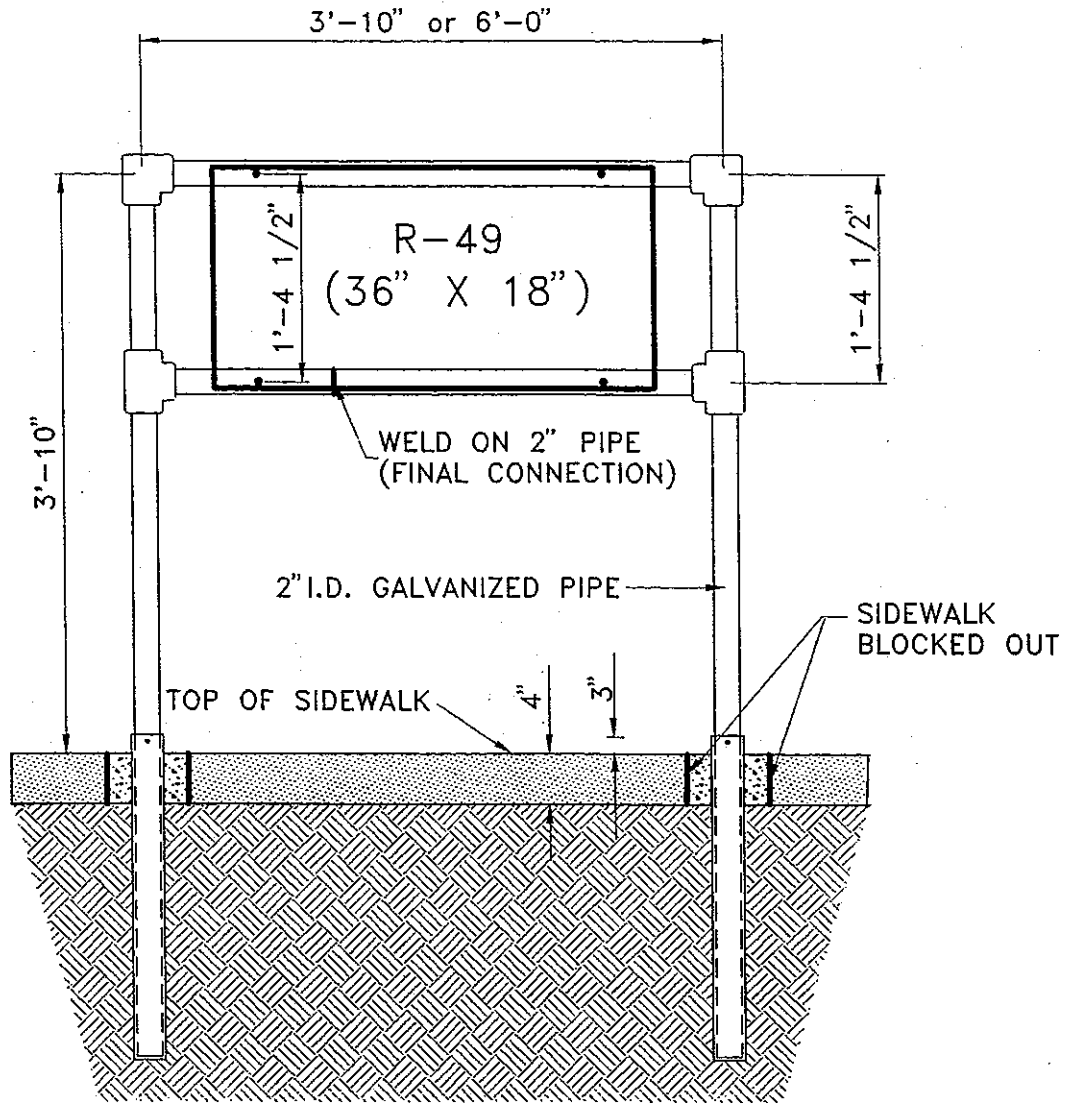
- NOTES:
1. SIGN POST SHALL BE "UNISTRUT TELES PAR 2" X 2" POST WITH YIELDING BREAKAWAY BASE" OR EQUIVALENT.
 2. SEE SD-700 FOR DETAILS NOT SHOWN.

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.

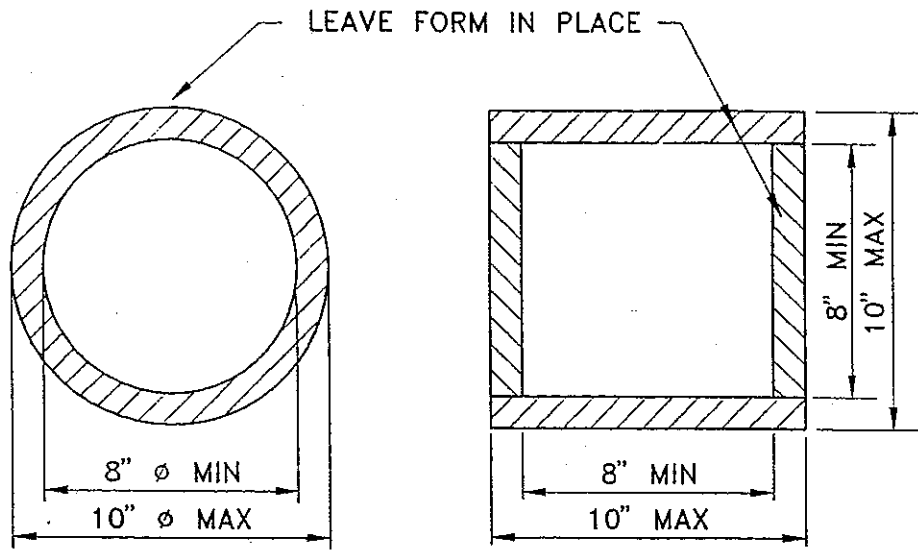
COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

9/94	CHANGED HATCHING	EA
REVISIONS		

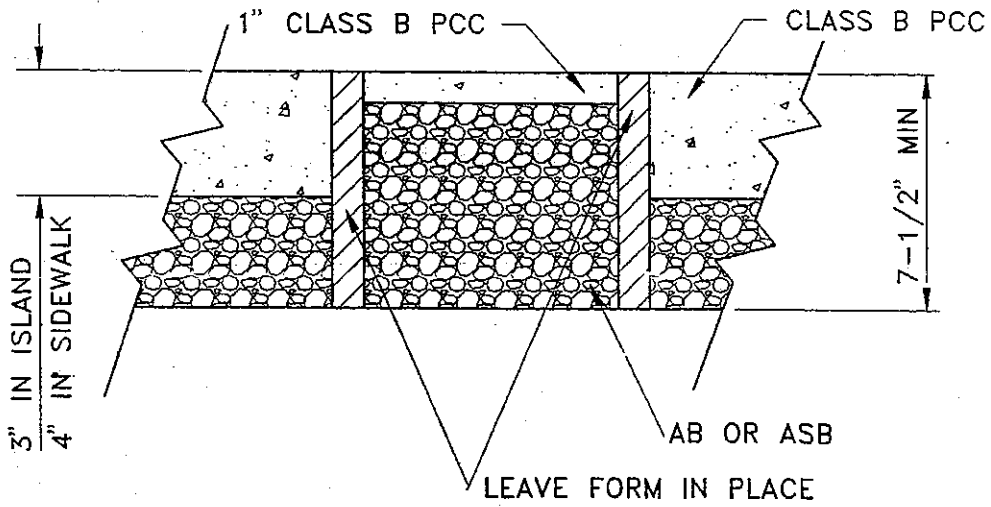
R-49 SIGN MOUNT

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

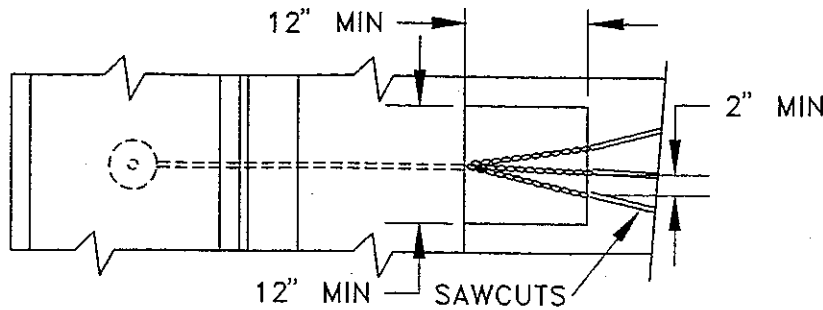
**SIGN POST
BLOCKOUT HOLE DETAIL**

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

COUNTY ENGINEER

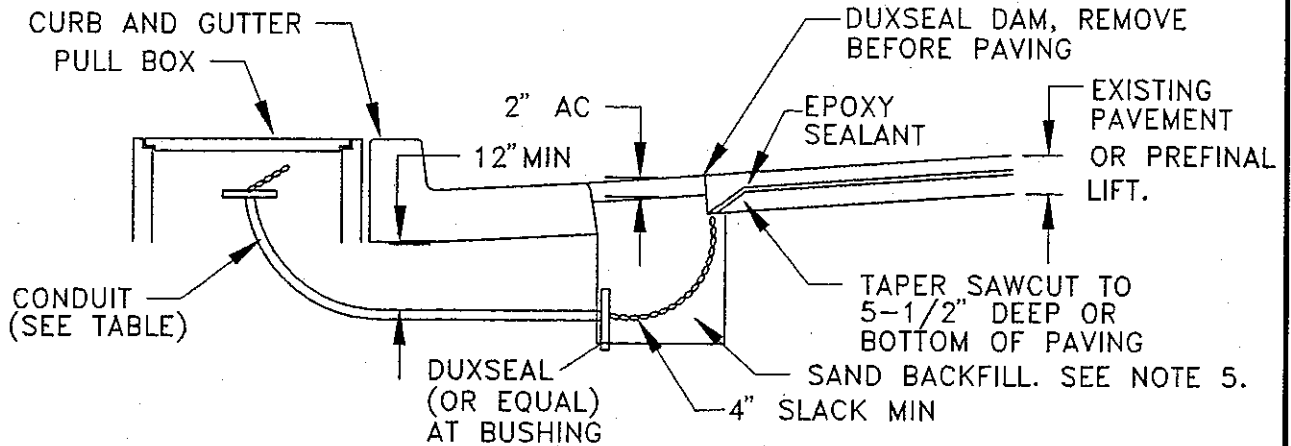
REVISIONS

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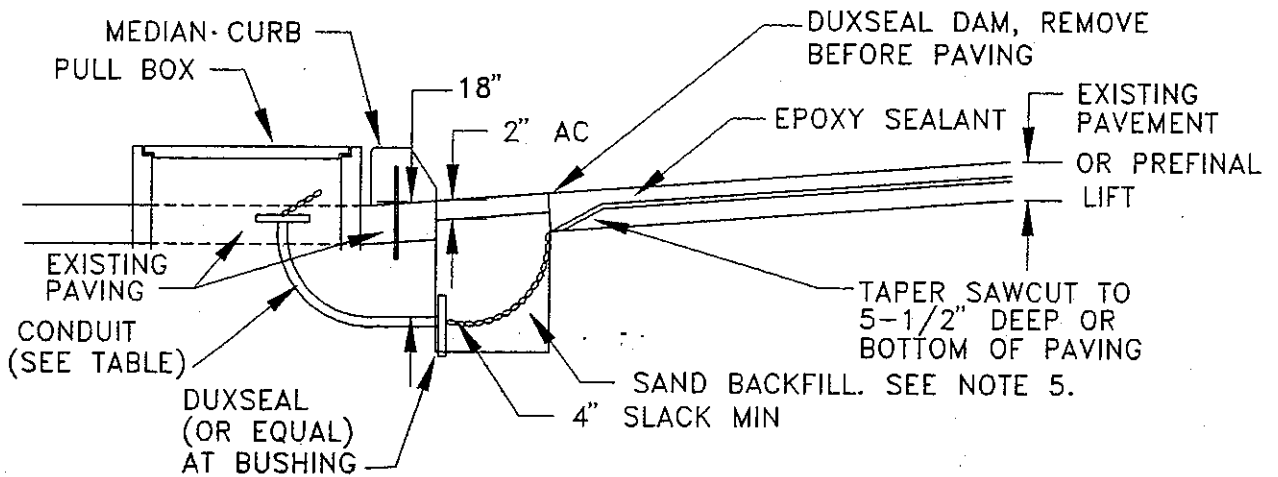


MIN SIZE CONDUIT	# OF WIRES
1"	1-6
1-1/2"	7-16
2"	17-24

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 *am*
am

COUNTY ENGINEER

REVISIONS

DRAWN

JC

CHECKED

DATE

MAR 1995

SCALE

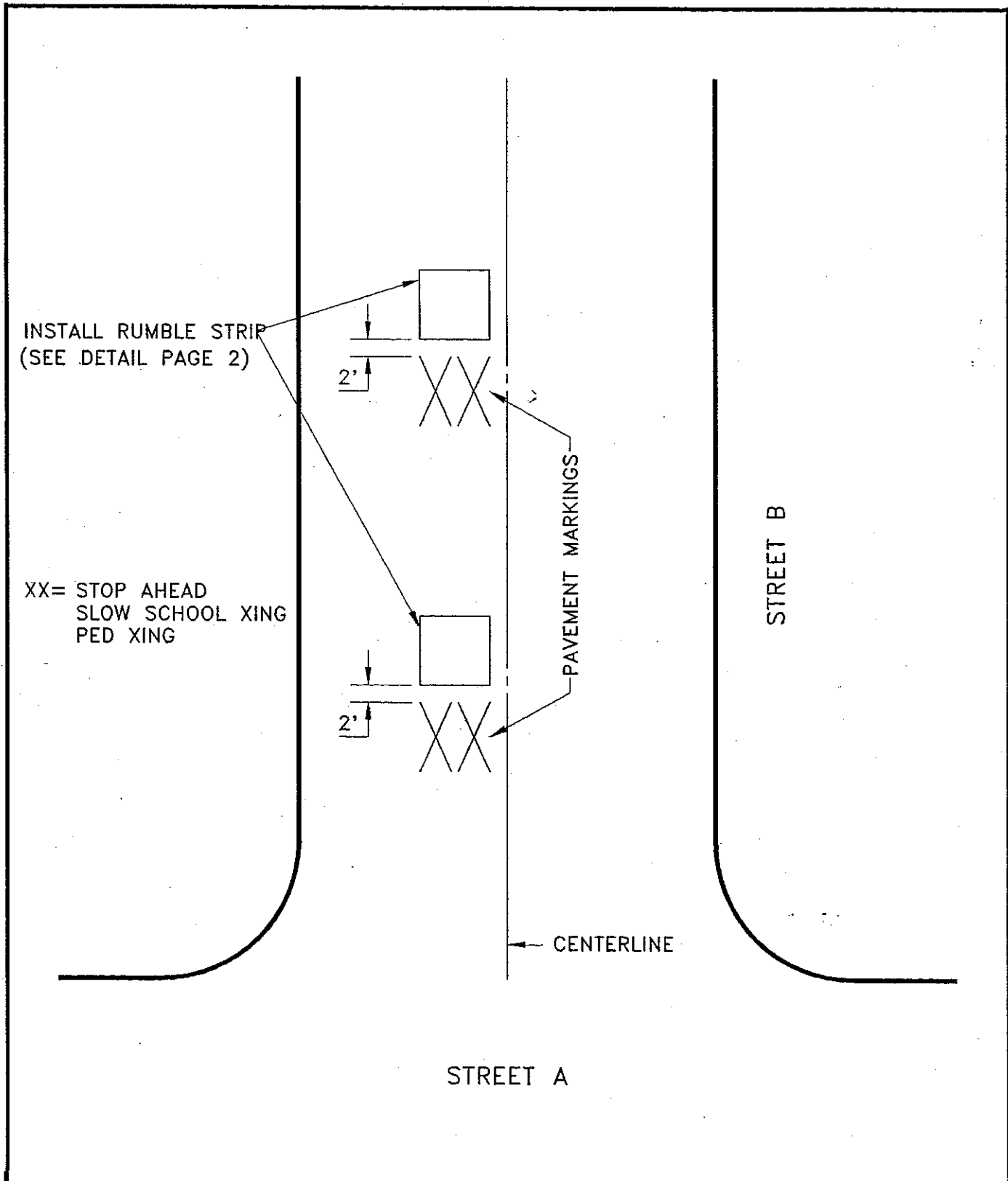
NONE

FILE NO.

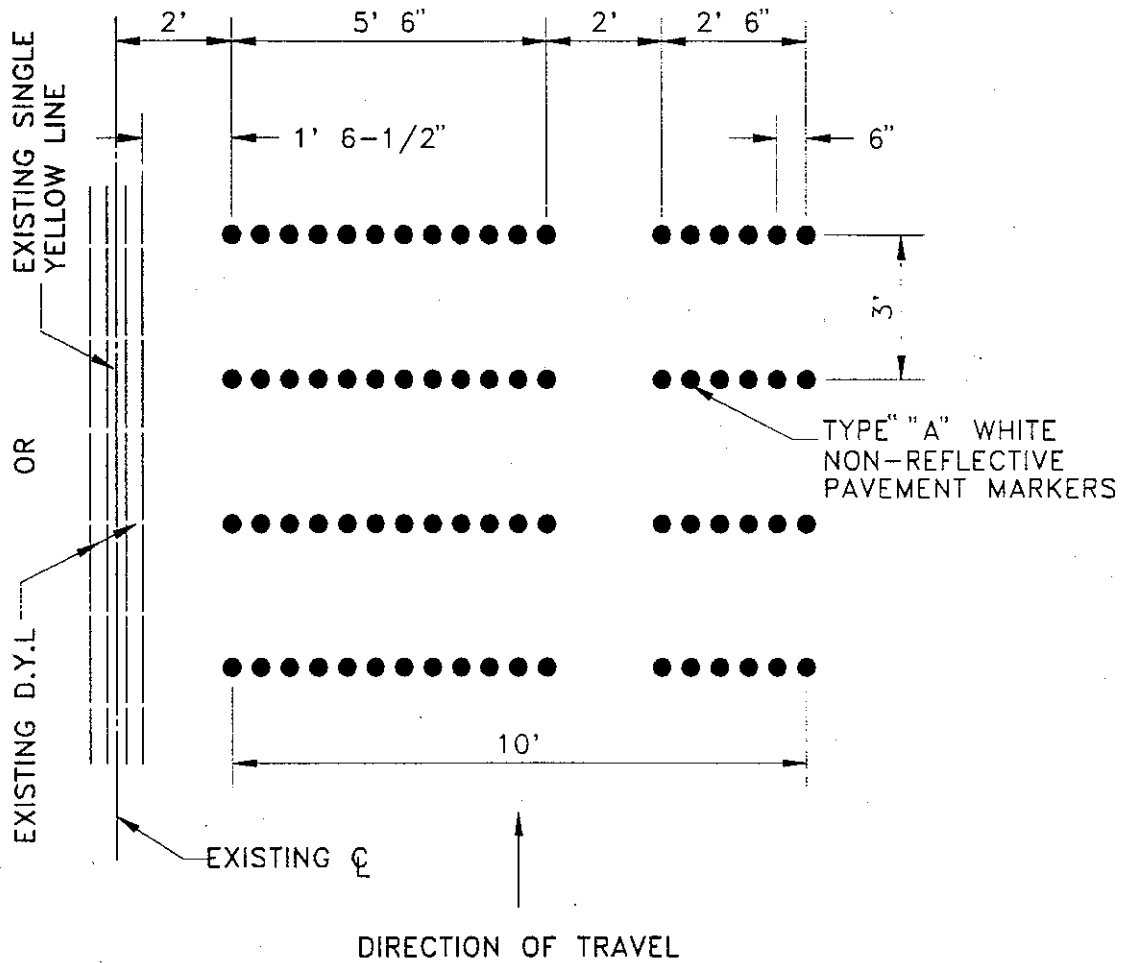
SD-705

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*

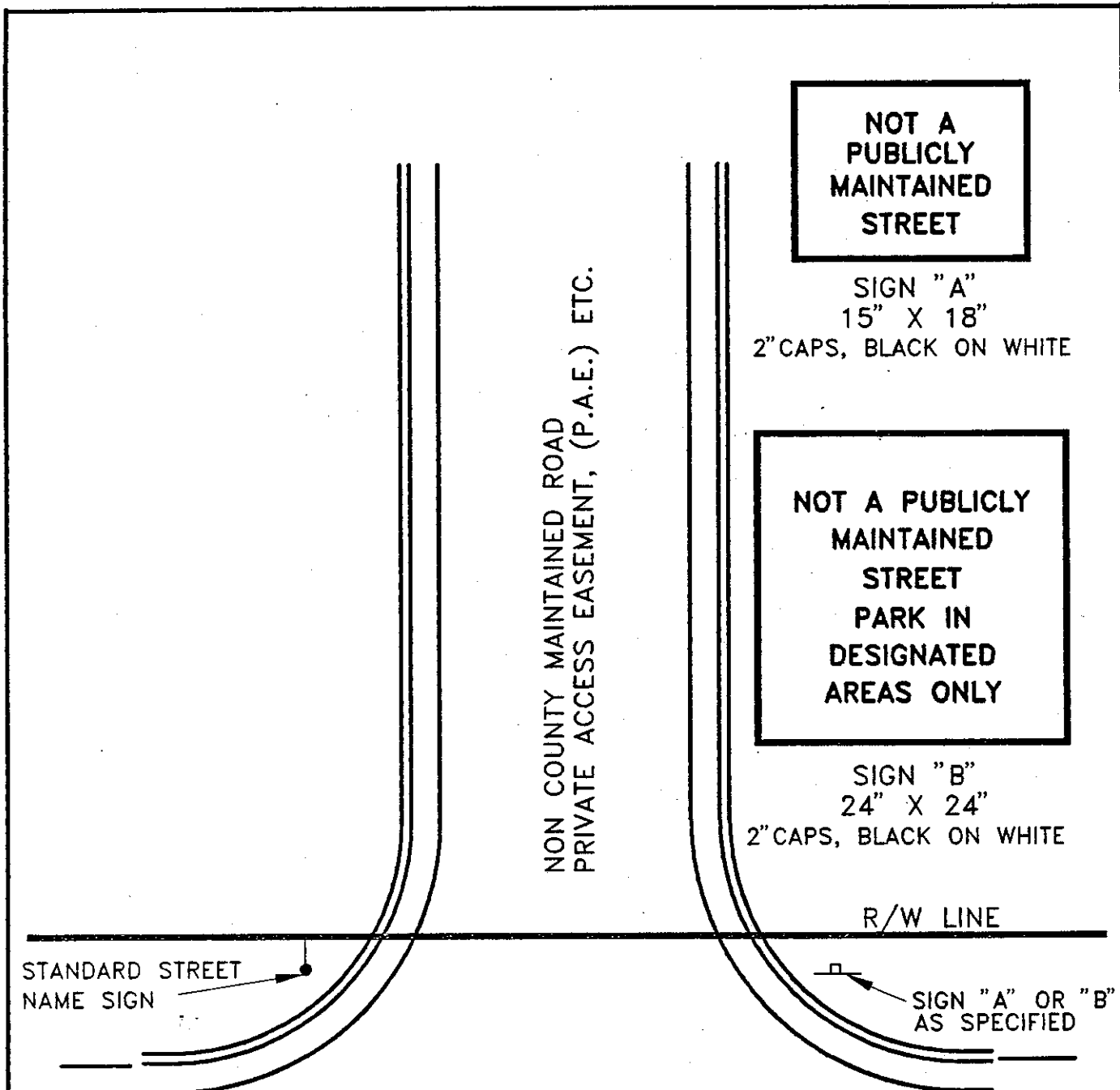
APPROVED *Lawan*

am

COUNTY ENGINEER AND COUNTY SURVEYOR

REVISIONS

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

STANDARD STREET
NAME SIGN

R/W LINE

SIGN "A" OR "B"
AS SPECIFIED

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**

APPROVAL REC. <i>Hank DeLeon</i>
APPROVED <i>J. Swanson</i>
APPROVED <i>J. Swanson</i> OAH
COUNTY ENGINEER

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

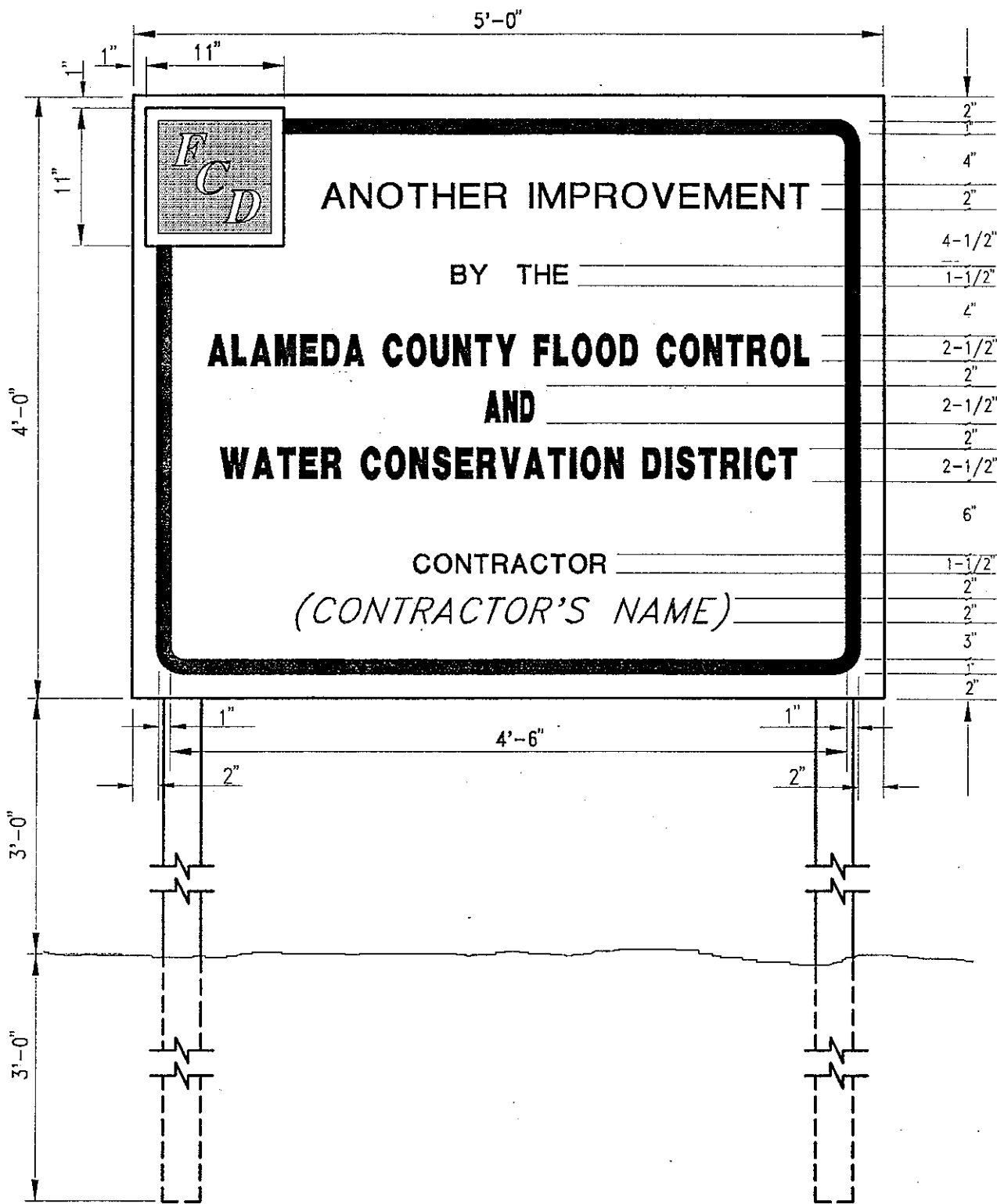
SIGN "A" OR "B"
AS SPECIFIED

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



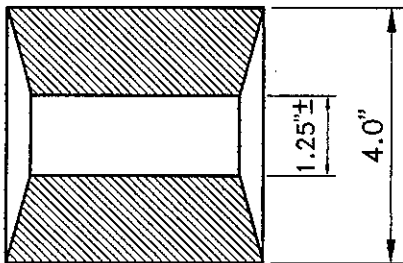
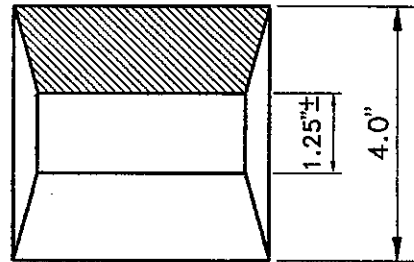
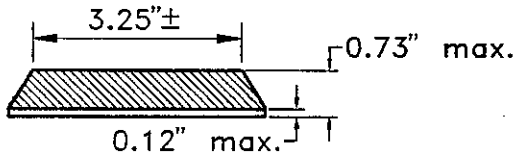
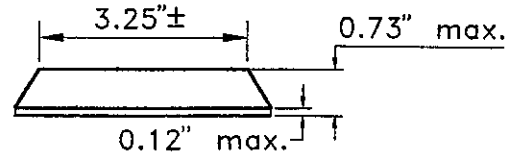
COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

PROJECT SIGN

APPROVAL DEC.
Hank Nelson
 APPROVED
J. Burson
 APPROVED
away
am

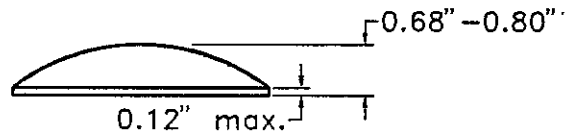
COUNTY ENGINEER

REVISIONS		DRAWN	CHECKED	DATE	SCALE	FILE NO.	
		EA		JAN. 1994	NONE	SD-708	1 of 1



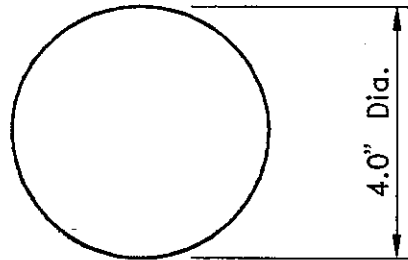
TYPE G : One-way clear reflective marker (High intensity)

TYPE H : One-way yellow reflective marker (High intensity)



TYPE D : Two-way yellow reflective marker (High intensity)

TYPE C : Red-Clear reflective marker (High intensity)



TYPE A : Non-reflective white marker

TYPE AY: Non-reflective yellow marker

 Marker Reflective Face

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

PAVEMENT MARKER DETAILS

APPROVAL REC.
APPROVED <i>[Signature]</i>
APPROVED <i>[Signature]</i>
COUNTY ENGINEER AND COUNTY SURVEYOR

REVISIONS

DRAWN JPB

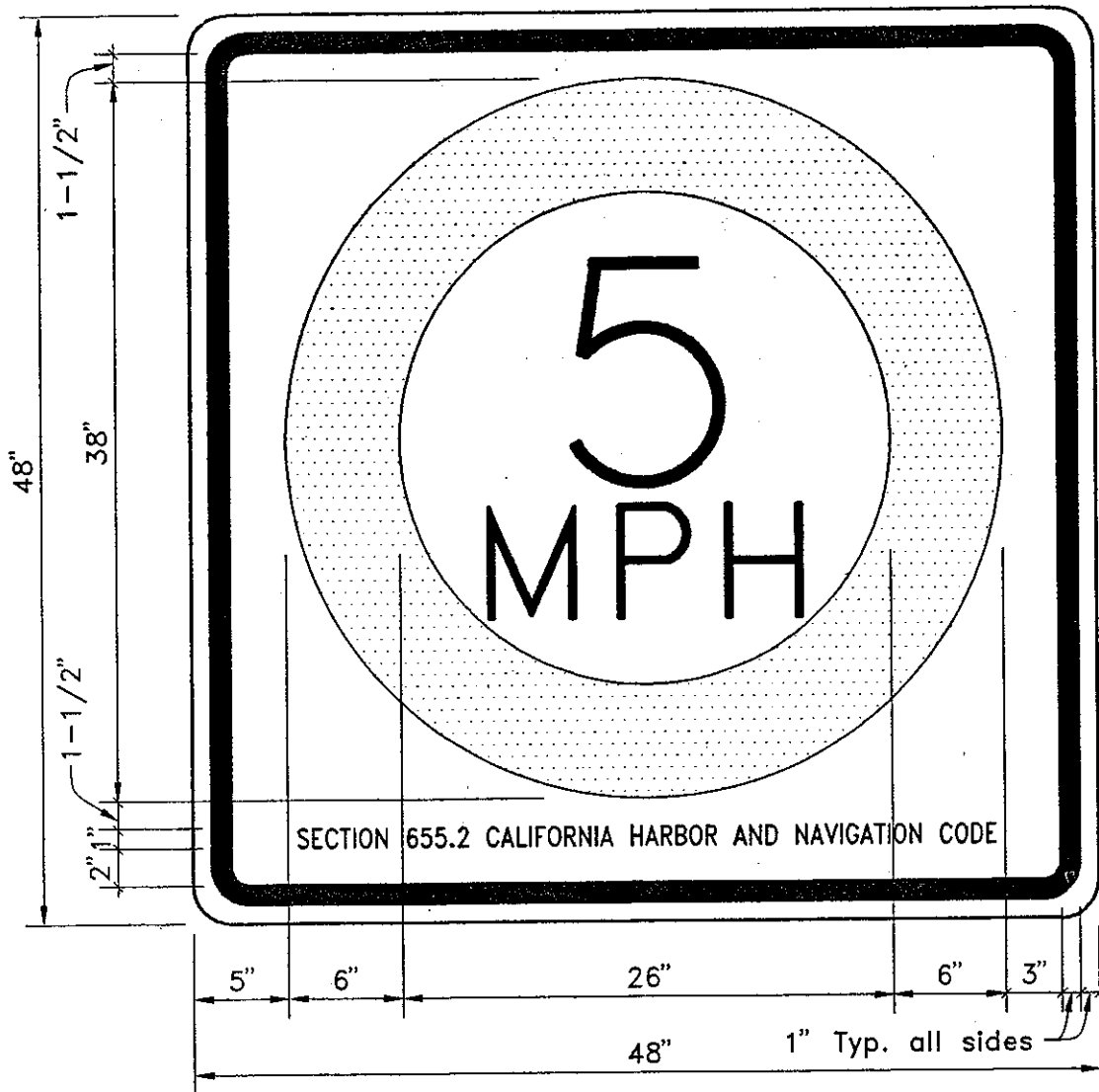
CHECKED

DATE OCTOBER 1992

SCALE None

FILE NO. SD-709

1 of 1

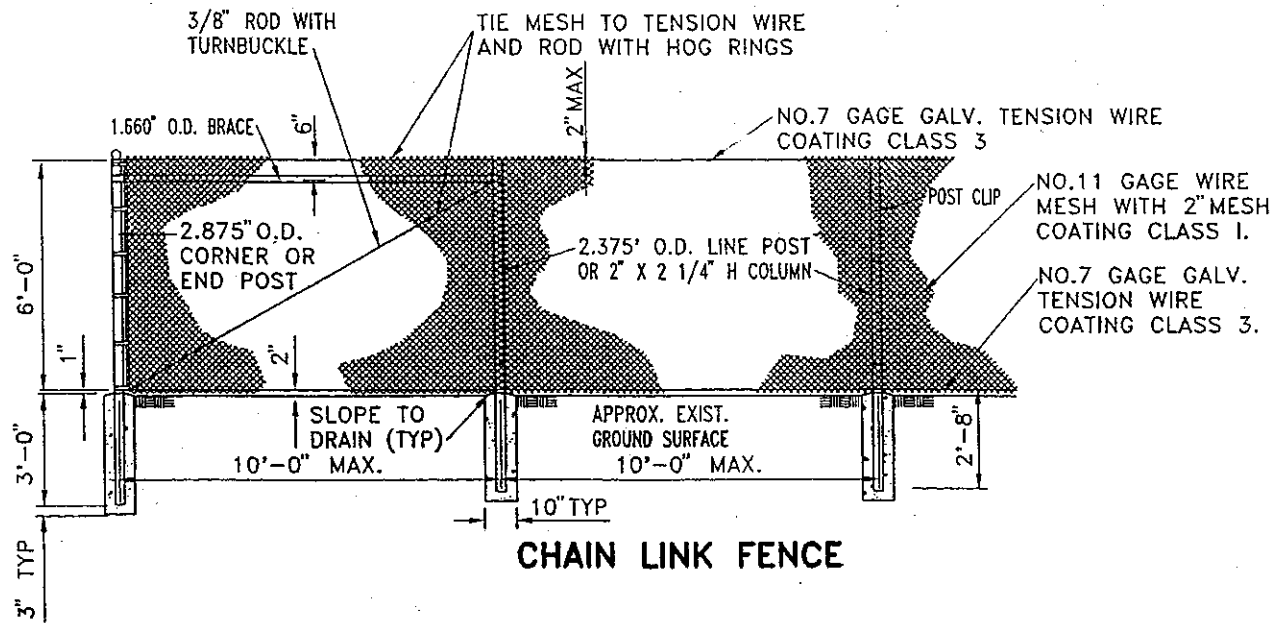


NOTES: Background shall be white engineering grade reflective material, circle shall be international orange engineering grade reflective material, all letters and the one inch border shall be black, signs shall be punched with three holes on each side and on the top and bottom, holes shall be spaced to avoid the border and printing, sign back shall be 0.080 aluminum or 0.135 polyplate.

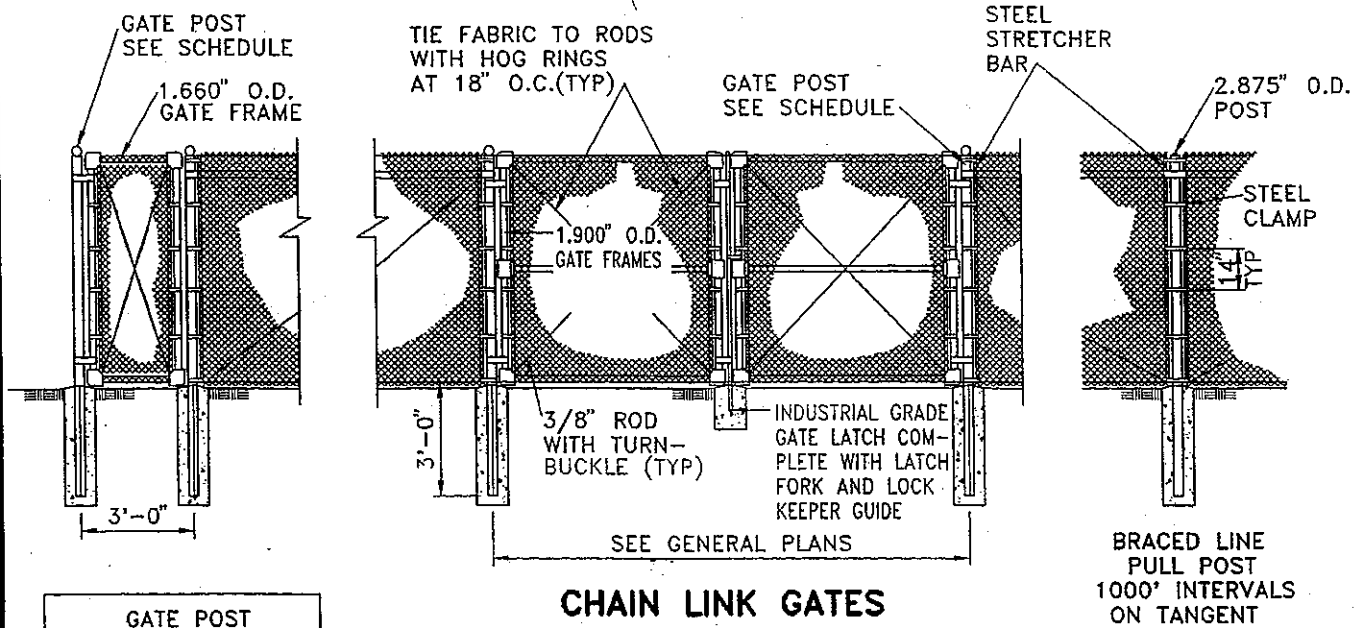
COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

				APPROVAL REC.	
				APPROVED <i>Costendrip</i>	
				APPROVED <i>awan</i>	
				AM	
				COUNTY ENGINEER AND COUNTY SURVEYOR	
REVISIONS		DATE		SCALE	
DRAWN JPB		CHECKED		None	
		October 1992		FILE NO. SD-710 1 of 1	

SPEED SIGN LIMIT
ESTUARY



CHAIN LINK FENCE



CHAIN LINK GATES

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

NOTES:

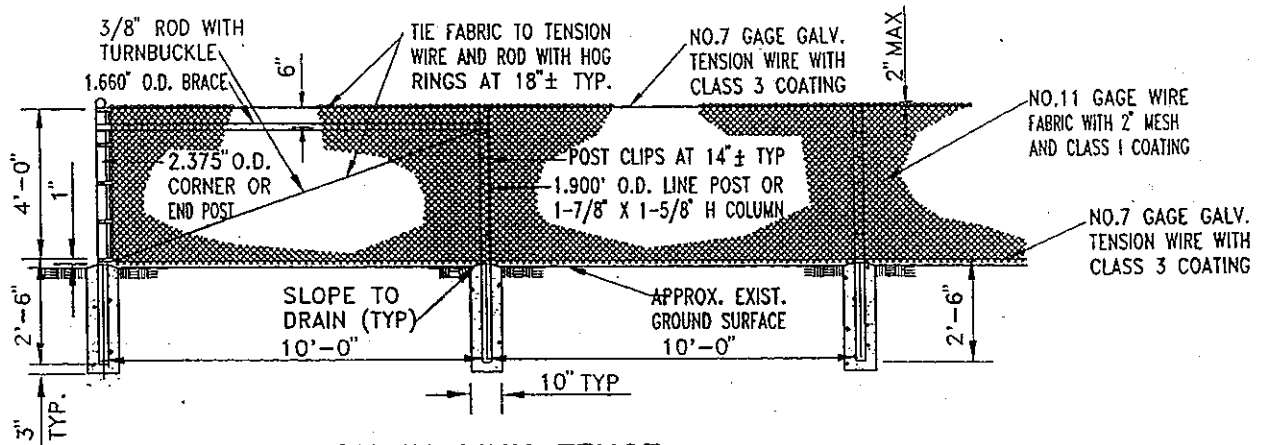
1. CENTER LINE OF CHAIN LINK FENCE SHALL BE 6" INSIDE RIGHT OF WAY UNLESS OTHERWISE INDICATED.
2. ALL HARDWARE SHALL BE INDUSTRIAL HARDWARE GRADE.
3. BRACING IS THE SAME ON BOTH SIDES OF CORNER POSTS.
4. INSTALL INDUSTRIAL GRADE GATE STOPS AS DIRECTED BY THE ENGINEER.
5. TIE WIRE AND HOG RINGS SHALL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

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

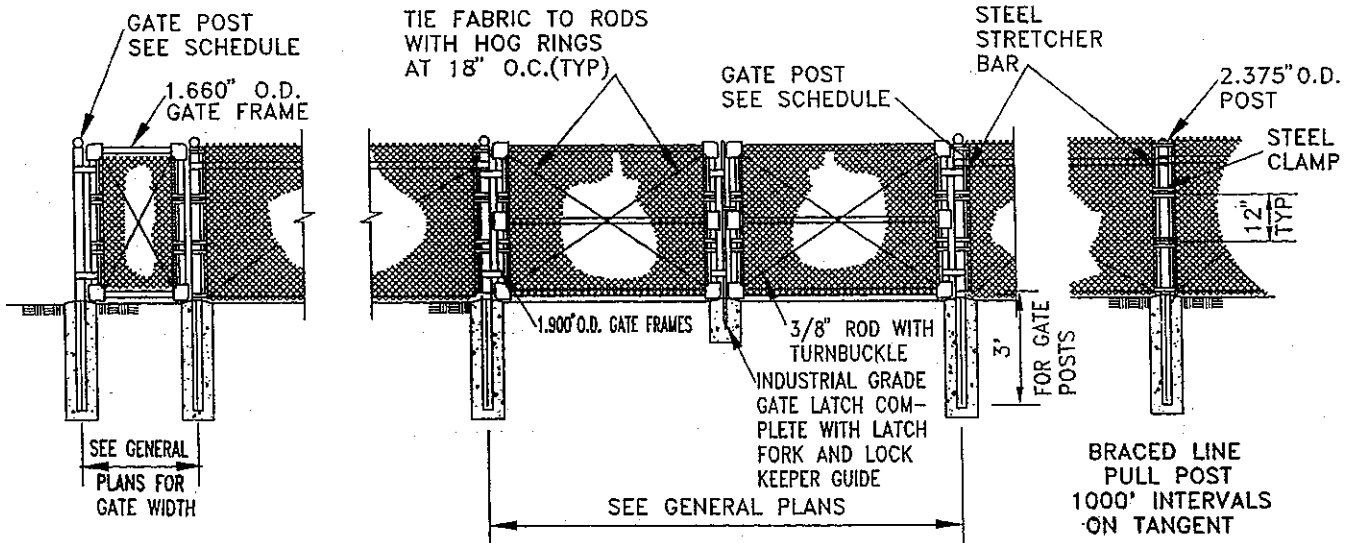
6' HIGH CHAIN-LINK FENCE AND CHAIN-LINK GATES

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

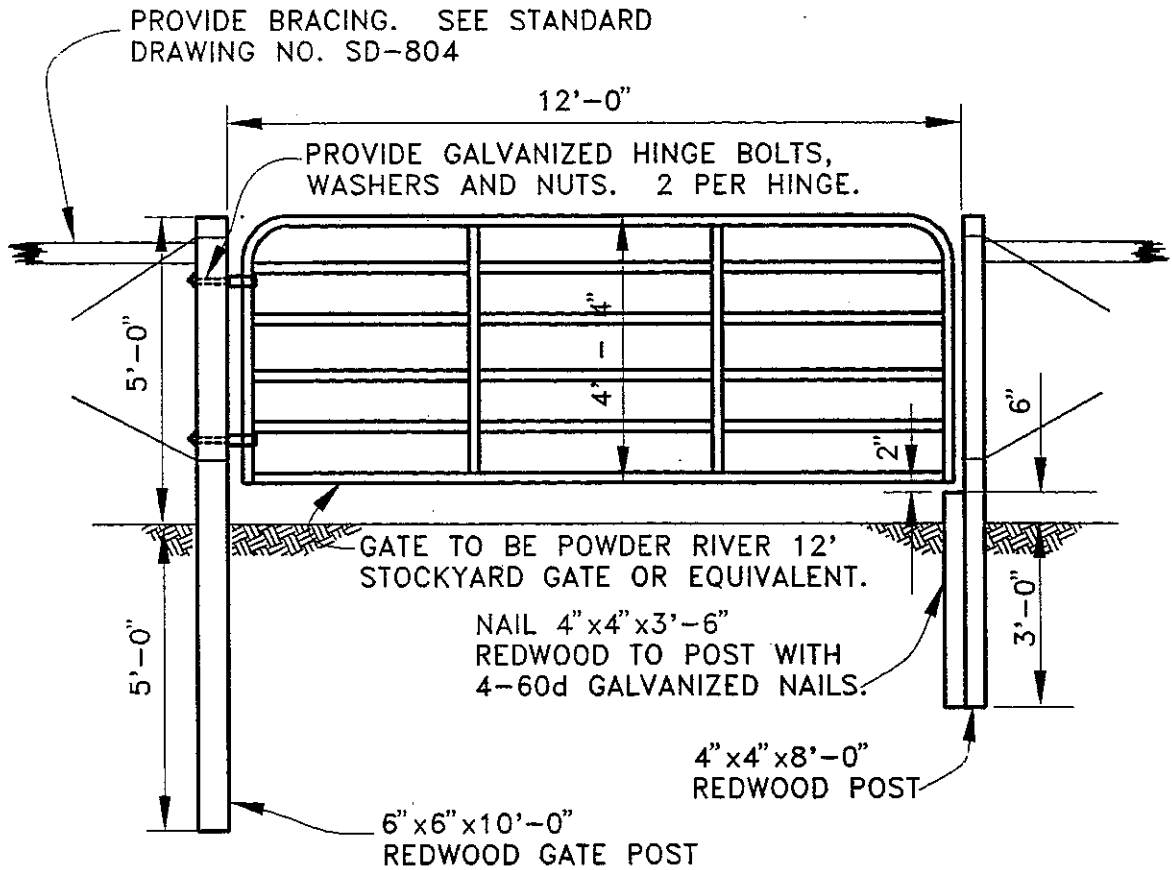
GATE POST	
GATE WIDTH	O.D.
≤ 6'	2.875"
> 6' & ≤ 13'	4.0"
> 13' & ≤ 18'	6.625"

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>APPROVED <i>A. Swanson</i></p> <p>aw</p> <p>COUNTY ENGINEER</p>
<p>REVISIONS</p>		<p>FILE NO. SD-801 1 of 1</p>
<p>DRAWN JC</p>	<p>CHECKED</p>	<p>DATE JAN. 1995</p>
<p>SCALE NONE</p>		<p>FILE NO. SD-801 1 of 1</p>



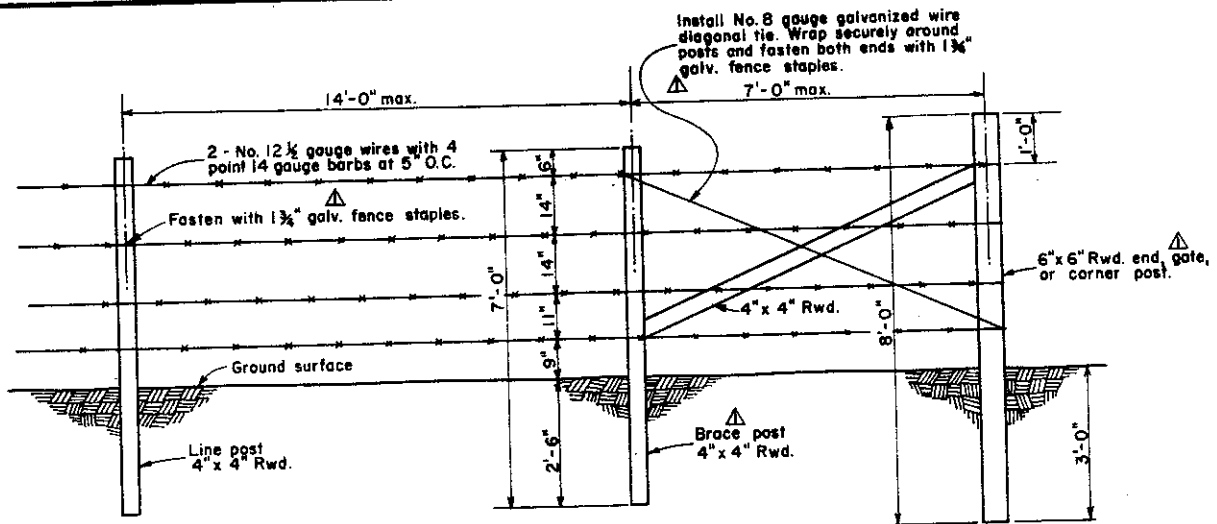
NOTES:

1. GATE SHALL BE PROVIDED WITH SUITABLE STEEL OR IRON LATCH AND WITH HINGES WHICH PERMIT GATE TO SWING A MINIMUM OF 180°.
2. GATE SHALL BE DIP COATED WITH ENAMEL PAINT.
3. WHEN DIRECTED BY THE ENGINEER, 2 - 4"x4"x2' REDWOOD GATE STOP POSTS SHALL BE INSTALLED.
4. FOR LOCKING, GATE SHALL BE PROVIDED WITH A 2' LENGTH OF 1/4" COMMON CHAIN SECURELY NAILED TO POST 3' ABOVE GROUND.
5. REDWOOD POSTS SHALL BE CONSTRUCTION HEART.
6. HINGE BOLTS SHALL BE 1/4"Ø X 7" LONG.

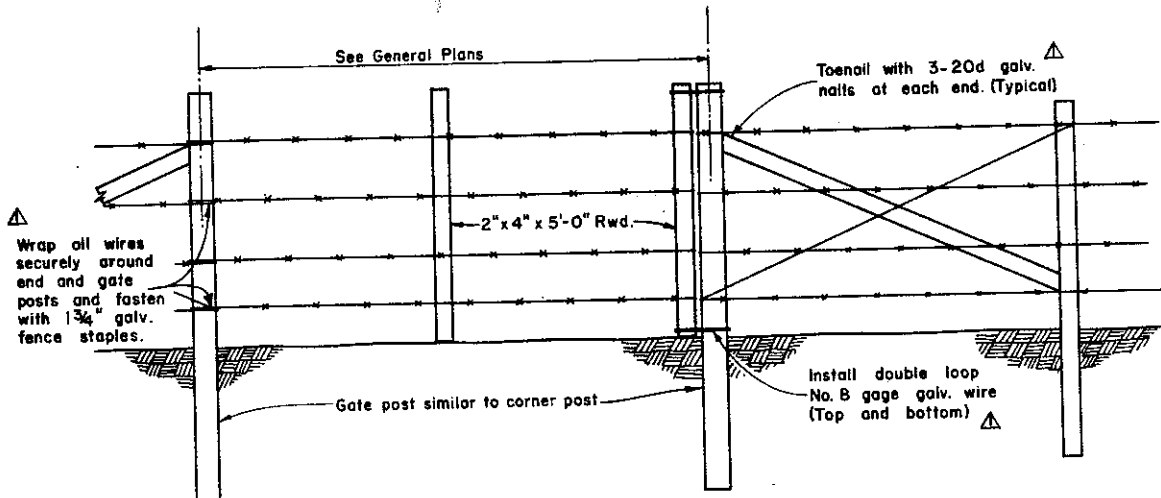
COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

				APPROVAL REC. <i>Frank Adams</i>	
				APPROVED <i>Scott A Swanson</i>	
				APPROVED <i>Fawar</i>	
				am	
				COUNTY ENGINEER	
REVISIONS					
DRAWN	CHECKED	DATE	SCALE	FILE NO.	
JJ	<i>HEA</i>	June 1994	None	SD-802	1 of 1

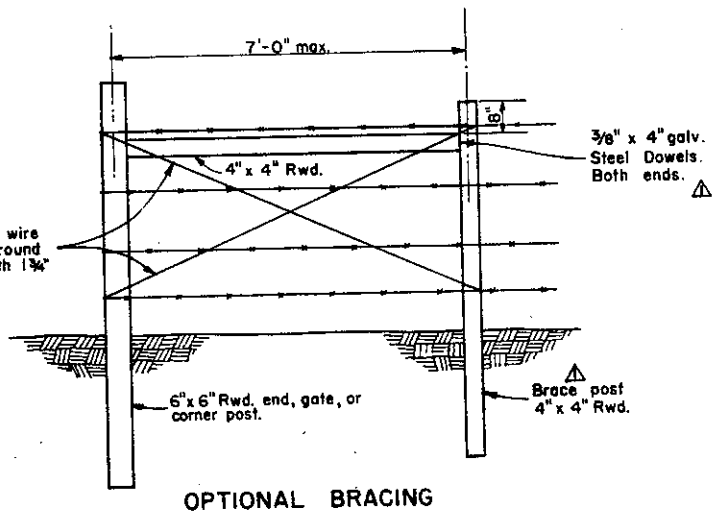
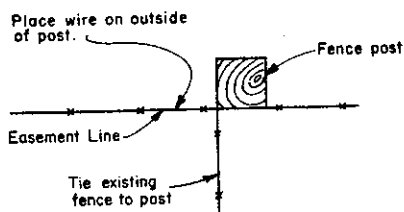
STEEL DRIVE GATE



FENCE



GATE



OPTIONAL BRACING

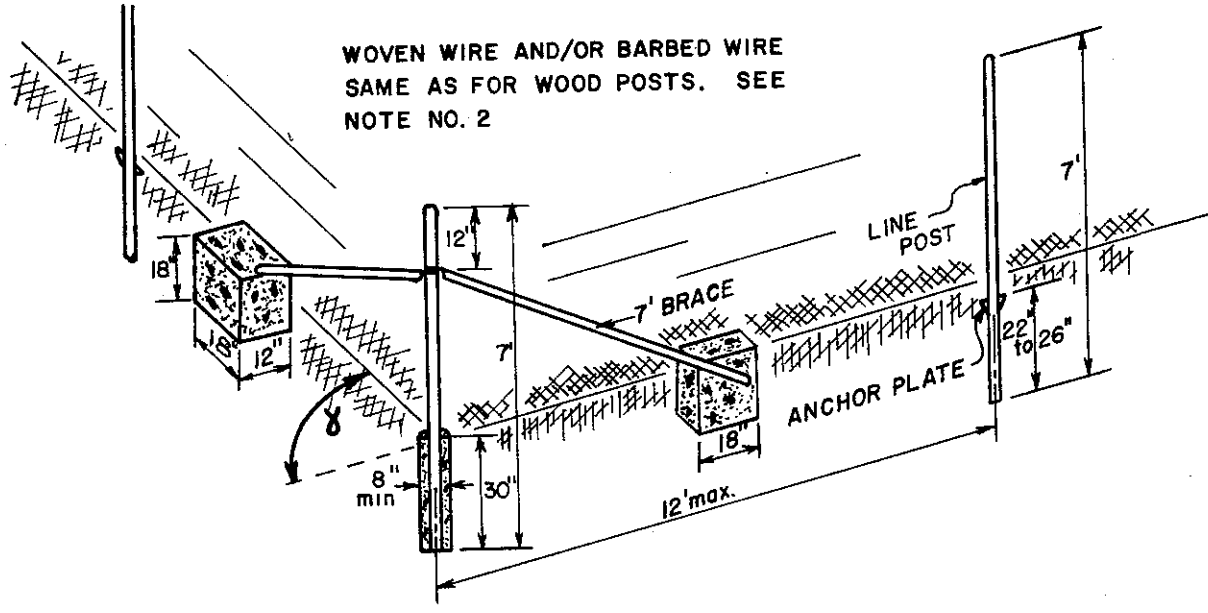
COUNTY OF ALAMEDA * PUBLIC WORKS AGENCY

BARBED WIRE FENCE
AND
BARBED WIRE GATE

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

1	Note Additions	3/69
REVISIONS		

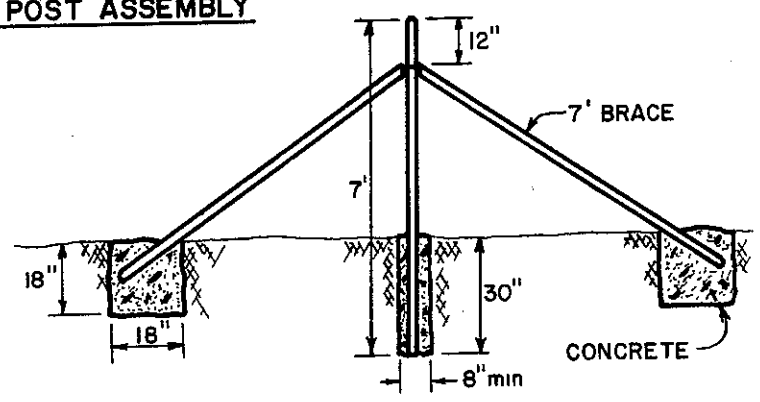
DRAWN DR	CHECKED <i>TM</i>	DATE Mar. 1969	SCALE None	FILE NO. SD-804	1 of 1
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END CORNER AND GATE POST ASSEMBLY

GENERAL NOTES:

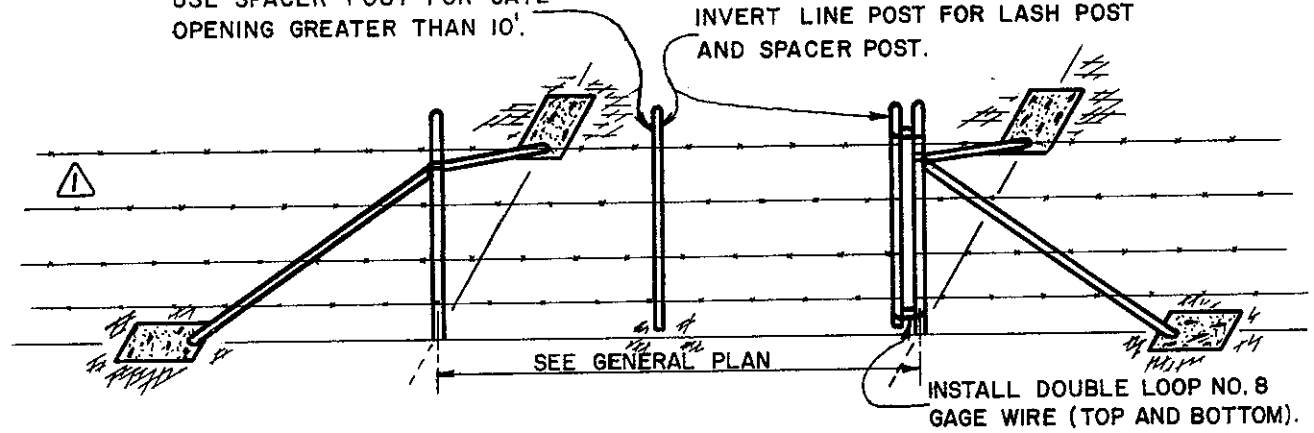
1. SEE GENERAL PLAN FOR TYPE OF FENCING TO BE USED.
2. SEE PLAN AND SD-803 OR SD-804 FOR WOVEN WIRE AND/OR BARBED WIRE SPACING AND ARRANGEMENT.



PULL POST ASSEMBLY
at 500' maximum intervals

USE SPACER POST FOR GATE
OPENING GREATER THAN 10'.

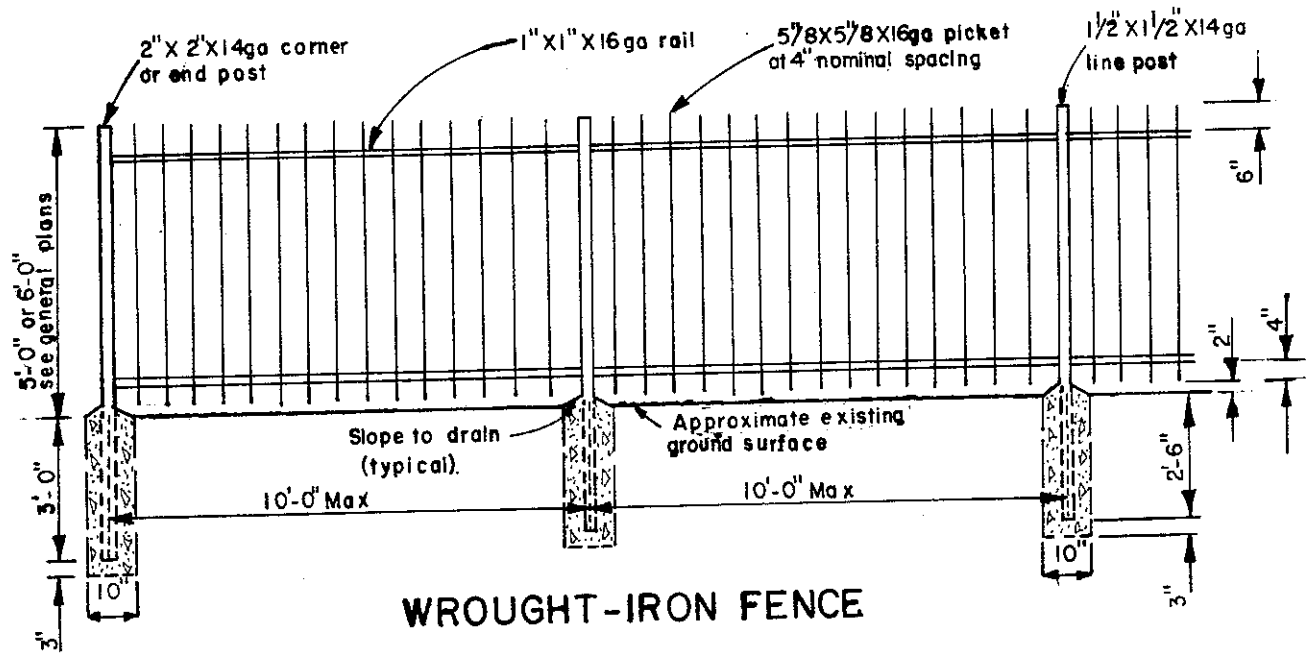
INVERT LINE POST FOR LASH
POST AND SPACER POST.



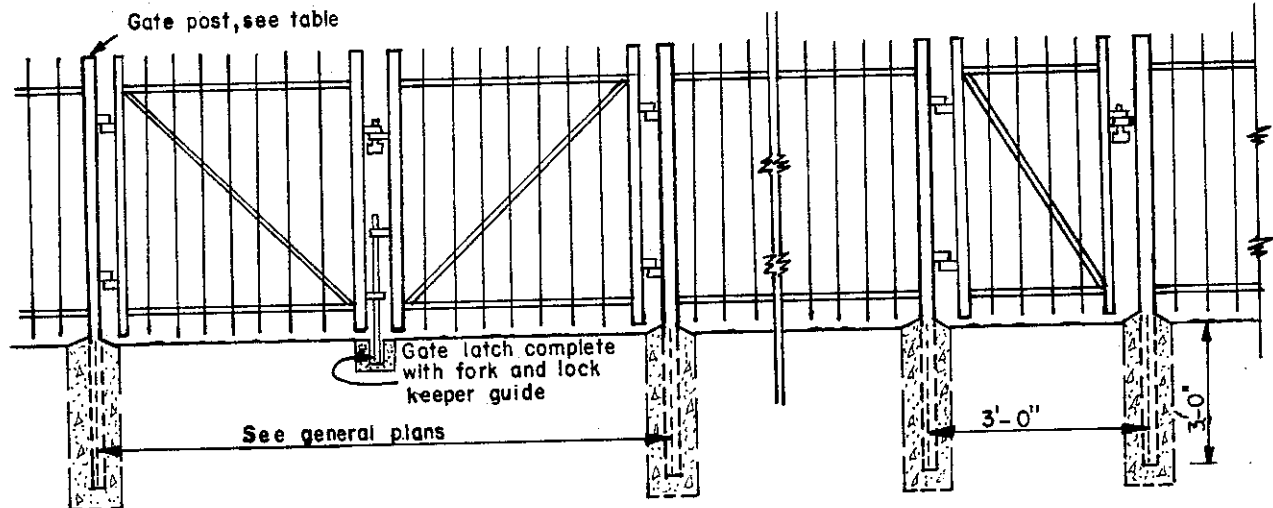
GATE COMPONENTS

COUNTY OF ALAMEDA * PUBLIC WORKS AGENCY

				APPROVAL REC <i>and Lawar</i>	
				APPROVED <i>Paul C. Bitt</i>	
				APPROVED <i>W. H. ...</i>	
				Director of Public Works and Road Commissioner	
				FILE NO. SD-805	1 of 1
DRAWN SAS		CHECKED <i>TMC</i>		DATE Jan. 1972	SCALE None
REVISIONS		① 4 Strands Delineated 5/73			
METAL POST INSTALLATION					



WROUGHT-IRON FENCE



WROUGHT-IRON GATES

GATE POST	
GATE WIDTH	Size
Up thru 6'	2" X 2" X 14ga
6' thru 12'	2 1/2" X 2 1/2" X 14ga
12' thru 18'	3" X 3" X 14ga
18' thru 24'	3 1/2" X 3 1/2" X 14ga

GENERAL NOTES:

1. All material, including bolts, shall be A36 steel
2. All hardware shall be standard Hardware Grade
3. Install gate stops as directed by the Engineer

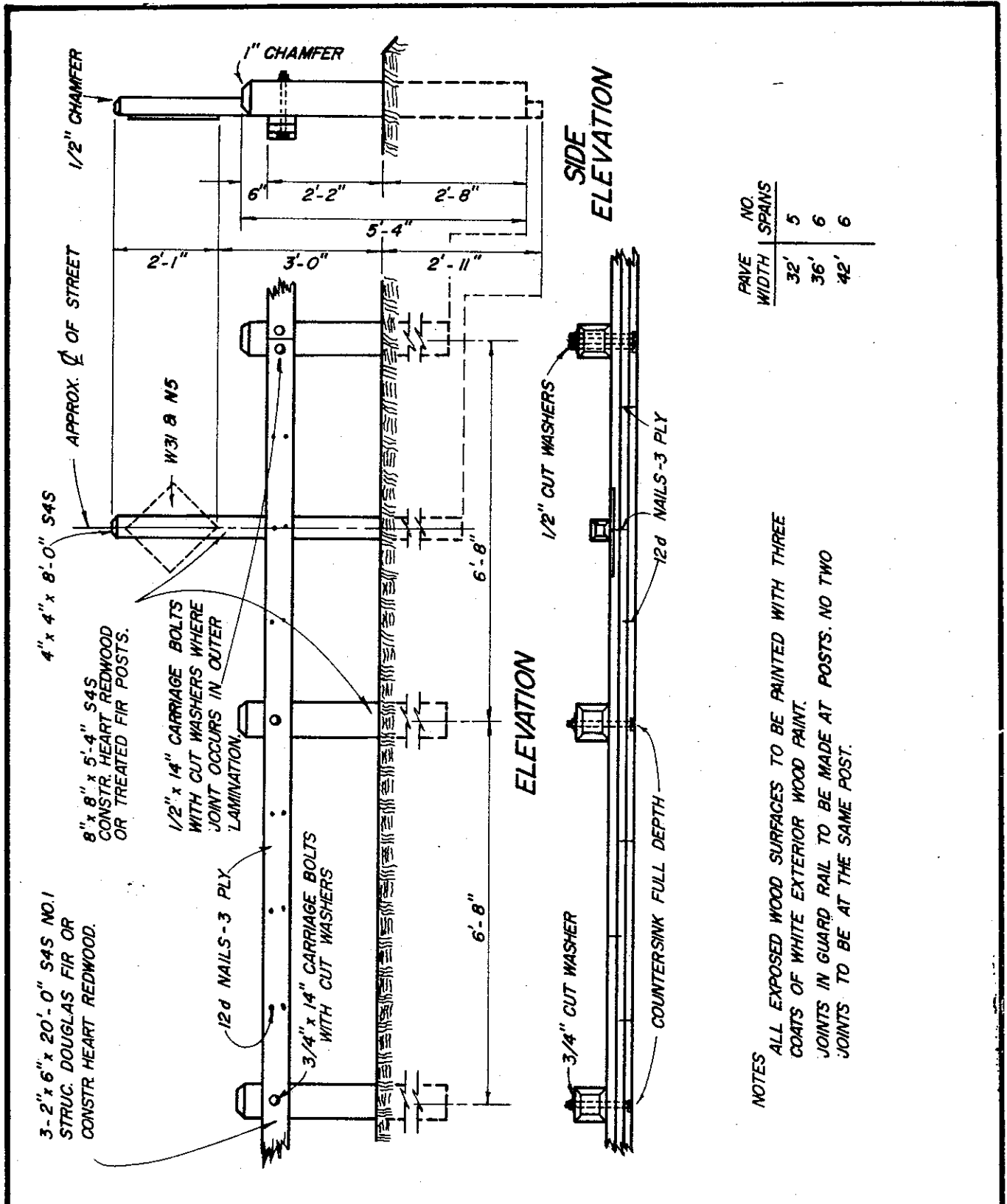
COUNTY OF ALAMEDA * PUBLIC WORKS AGENCY

REVISIONS	

WROUGHT IRON FENCE

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

DRAWN	MA	CHECKED	<i>ATM TME</i>	DATE	Nov. 1981	SCALE	None	FILE NO.	SD-806	1 of 1
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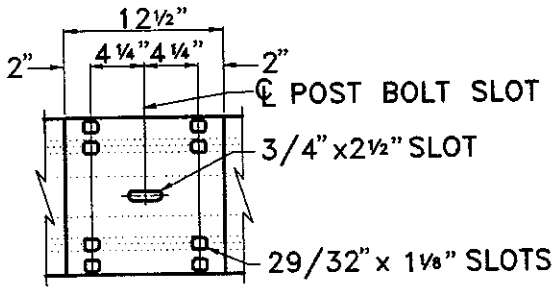
NOTES
ALL EXPOSED WOOD SURFACES TO BE PAINTED WITH THREE
COATS OF WHITE EXTERIOR WOOD PAINT.
JOINTS IN GUARD RAIL TO BE MADE AT POSTS. NO TWO
JOINTS TO BE AT THE SAME POST.

COUNTY OF ALAMEDA * PUBLIC WORKS AGENCY

REVISIONS	

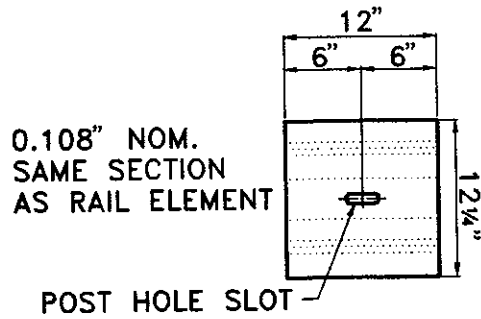
TIMBER BARRICADE

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



5/8" x 1/4" BUTTON HEAD OVAL SHOULDER BOLTS WITH 1/4" RECESSED HEX NUTS—TOTAL 8 PER SPLICE AND 4 PER TERMINAL SECTION. LAP IN DIRECTION OF TRAFFIC.

RAIL SPLICE

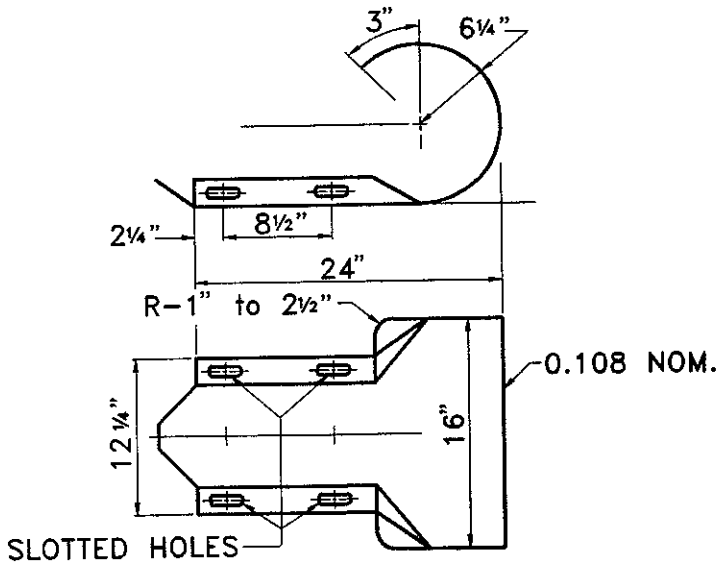


0.108" NOM.
SAME SECTION
AS RAIL ELEMENT

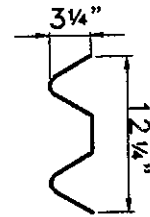
POST HOLE SLOT

(FOR USE ON STEEL POST GUARD RAIL AT POSTS BETWEEN RAIL SPLICES)

BACK-UP PLATE



TERMINAL SECTION



SECTION THRU RAIL ELEMENT

NOTE:
MATERIALS AND CONSTRUCTION SHALL CONFORM TO SECTION 83-1.02B "METAL BEAM GUARD RAILING" OF THE CALIFORNIA DEPARTMENT OF TRANSPORTATION, STANDARD SPECIFICATIONS, JULY, 1992 EDITION.

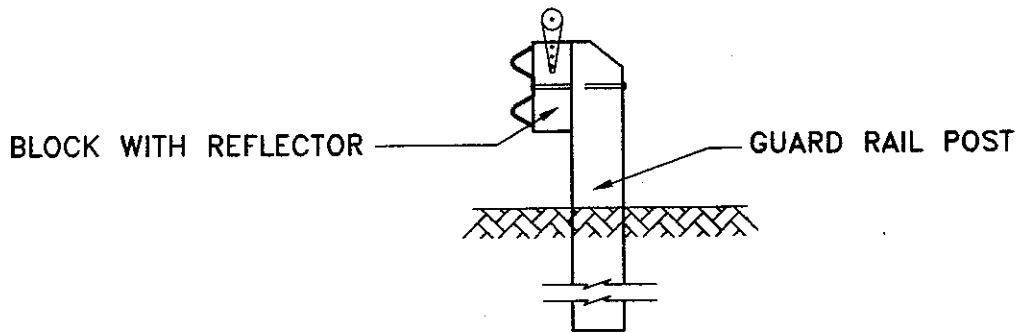
COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

METAL BEAM GUARD RAIL

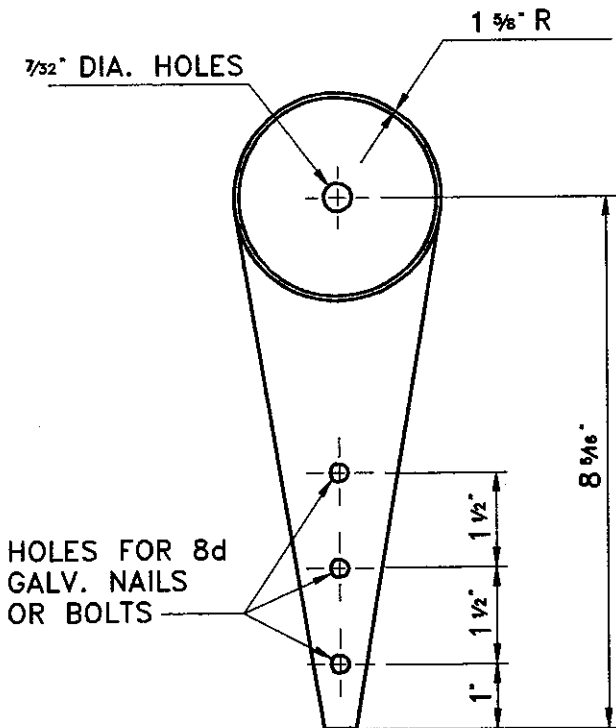
APPROVAL REC.
APPROVED *[Signature]*
APPROVED *[Signature]*
am
COUNTY ENGINEER

REVISIONS

DRAWN bg	CHECKED	DATE MAY 1993	SCALE NONE	FILE NO. SD-808	2 of 3
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REFLECTOR LOCATION



MATERIAL .080 ALUM.
(6061 T6 ALLOY)

REFLECTOR

NOTES:

1. 3-1/4" CLEAR REFLECTOR ON ONE-WAY ROADWAY.
2. 3-1/4" CLEAR REFLECTOR BACK TO BACK ON TWO-WAY ROADWAY.
3. REFLECTORS TO BE CENTER MOUNTED

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

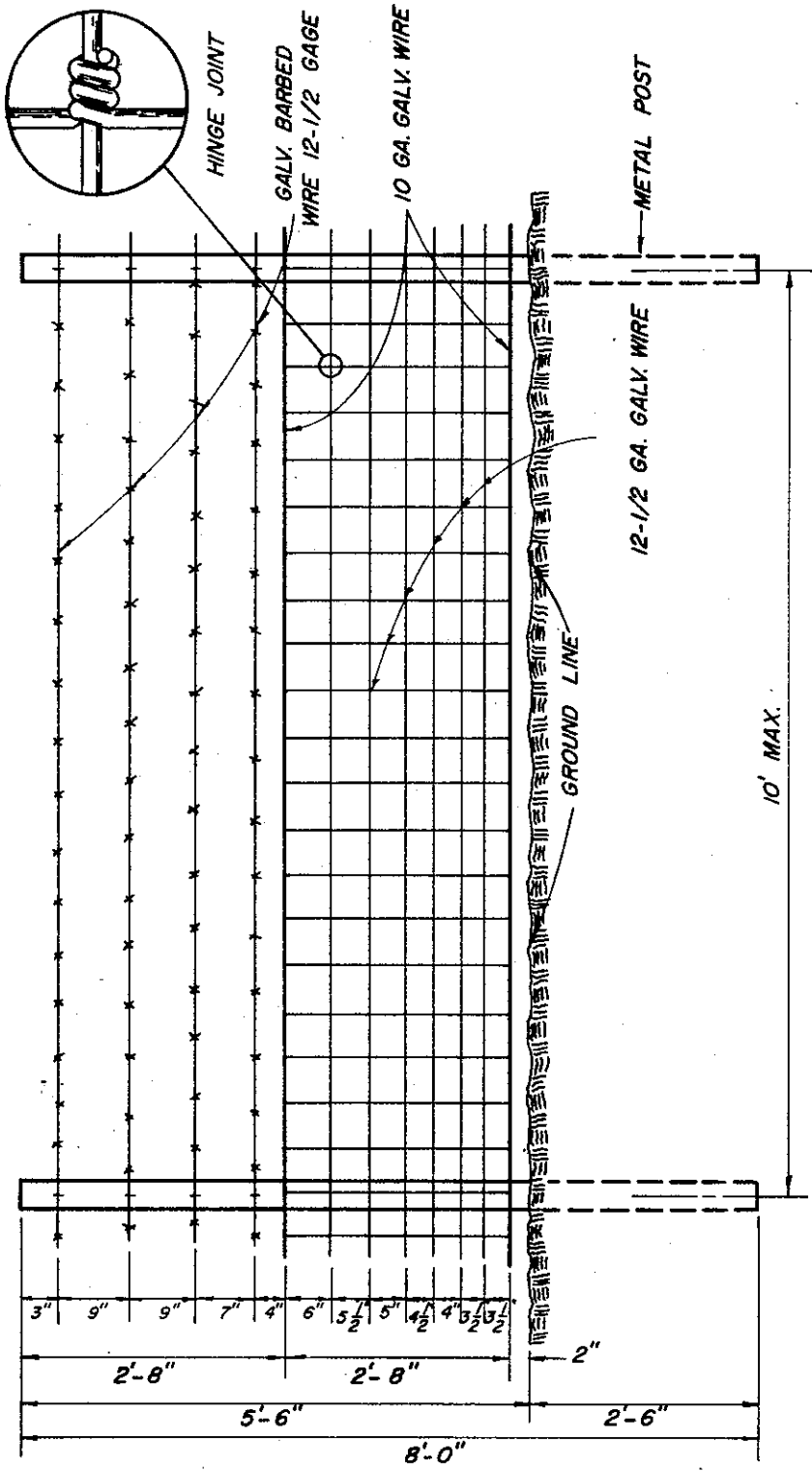
METAL BEAM GUARD RAIL REFLECTOR ASSEMBLY

APPROVAL REC *Talberg*
 APPROVED *Stendrip*
 APPROVED *AM*

COUNTY ENGINEER

REVISIONS

DRAWN bg	CHECKED	DATE MAY 1993	SCALE NTS	FILE NO. SD-808	3 of 3
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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 Lawar*
 APPROVED *[Signature]*
 APPROVED *[Signature]*
 Director of Public Works and Road Commissioner

REVISIONS

DRAWN JJJ CHECKED *[Signature]* TME DATE Apr. 1976 SCALE None

FILE NO. SD-809 1 of 1