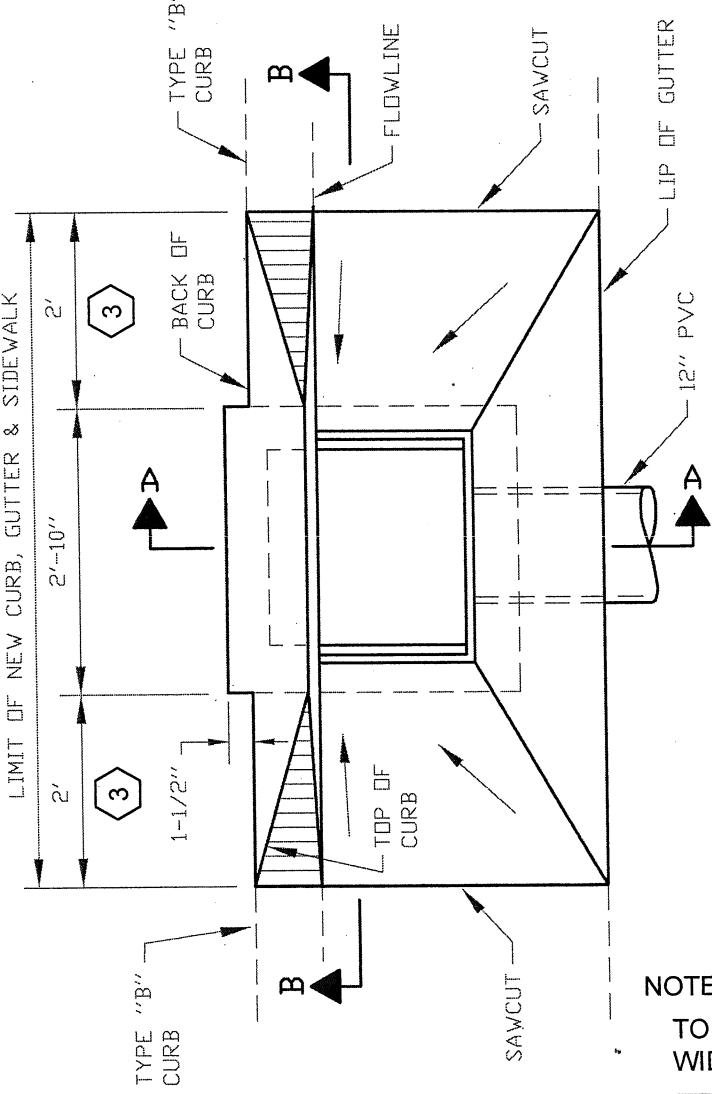


STORM DRAIN STRUCTURES & APPURTENANCES

CONSTRUCTION NOTES:

- 1 INSTALL SANTA ROSA CAST PRODUCTS PH-204 FRAME AND GRATE OR APPROVED EQUAL.
- 2 INSTALL SANTA ROSA CAST PRODUCTS PELICAN SERIES MODEL A2 INLET HOOD FIBERGLASS LINER ASSEMBLY OR APPROVED EQUAL.
- 3 CONSTRUCT 2' TRANSITION FROM TYPE "B" (ROLLED) TO TYPE "A" (VERTICAL) CURB.
- 4 560-B-3250 POURED CONCRETE.
- 5 SANTA ROSA PRECAST CONCRETE DROP INLET MODEL 2K OR APPROVED EQUAL.



NOTE:

TO BE USED ONLY WITH TYPE "B" CURB AND GUTTER
WIDTH OF CURB AND GUTTER AS SHOWN : 3'-6"



ENGINEERING DEPARTMENT

STANDARD TYPE "F-1" CATCH BASIN

DATE

P

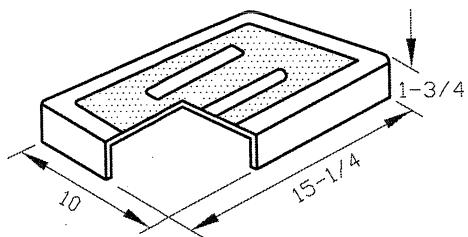
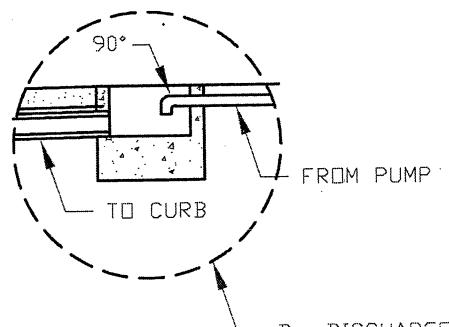
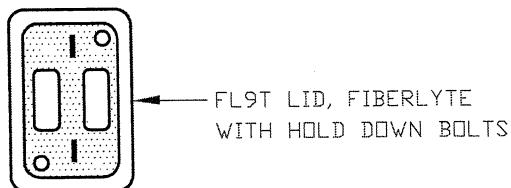
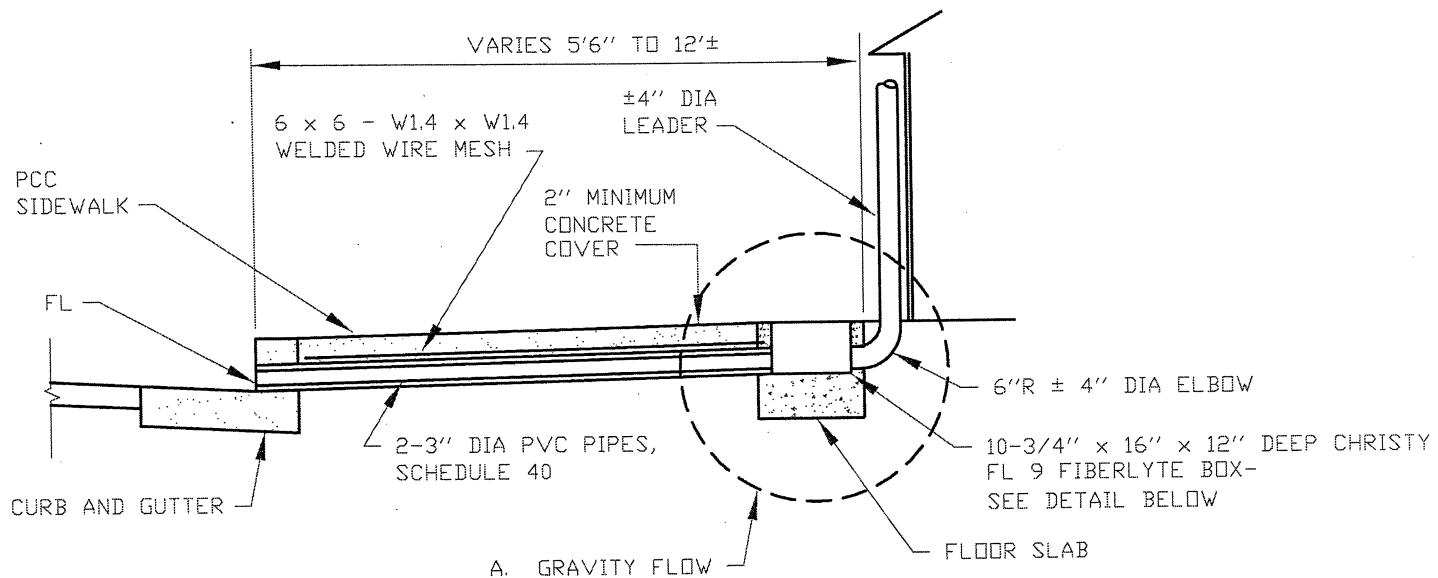
00

APPROV

APPROVED 
Mark L. Beams CITY ENGINEER

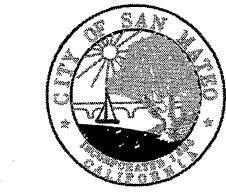
CALIFORNIA 94403

The image contains two technical drawings of a component. The top drawing is a side view with a horizontal line extending from its right side, ending in an arrowhead that points to the bottom drawing. The top drawing is labeled 'SECTIONAL A-A' in capital letters. The bottom drawing is a front view of the same component, also with a horizontal line extending from its right side, ending in an arrowhead that points to the top drawing. The bottom drawing is labeled 'SECTIONAL B-B' in capital letters.



NOTES:

1. FLOOR SLAB DIMENSIONS: 20" x 16" x 6". FILL BOX WITH CONCRETE AS NECESSARY TO MAKE 2% GRADE TO GUTTER FLOW LINE.
2. BOX TO BE FIBERLYTE FL9 BOX 10" x 17" AS MANUFACTURED BY CHRISTY (657-7070) OR CITY APPROVED EQUAL.
3. CURB & GUTTER & SIDEWALK MUST BE SAW CUT ON SCORE MARKS. CORE DRILLING EXISTING CURB IS NOT ALLOWED.
4. CURB & GUTTER MUST BE SAWCUT A MINIMUM OF 2' WIDE & SHALL MATCH SIDEWALK SCORE MARKS UNLESS APPROVED IN ADVANCE BY CITY. DOWEL WITH #4 x 12" @ 18" O.C.
5. SIZE OF BOX SHALL BE DETERMINED BY LICENSED CIVIL ENGINEER TO ACCOMMODATE DISCHARGE FLOW WITHOUT CREATING A FLOODING SITUATION.

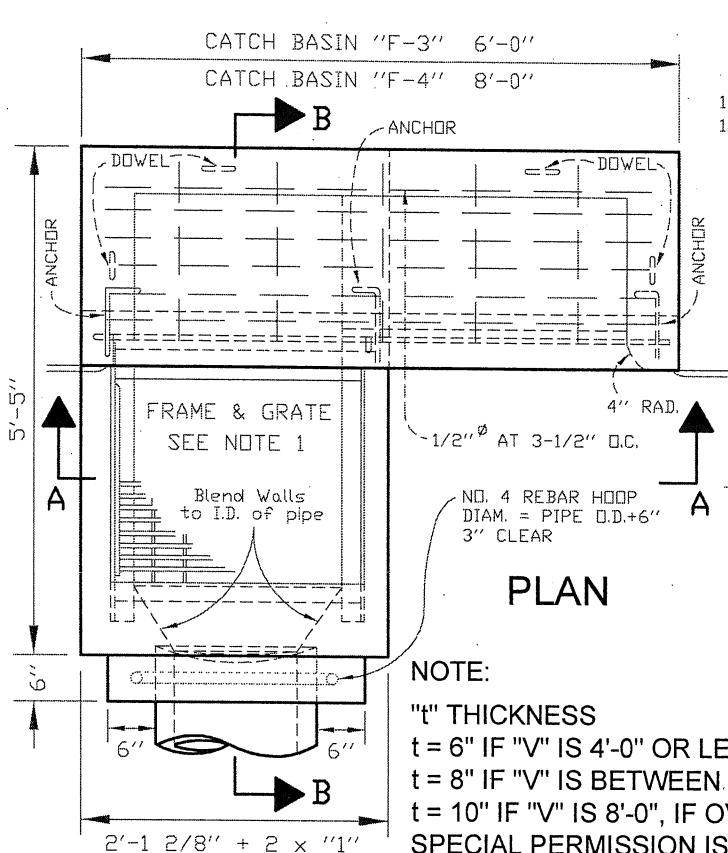


ENGINEERING DEPARTMENT

CALIFORNIA 94403

STANDARD SIDEWALK UNDERDRAIN

DATE	DRAWN BY	CHECKED BY	APPROVED	CASE	DRAWER	SET
2002	PC	OC	 CITY ENGINEER	3	1	120



PLAN

NOTE:

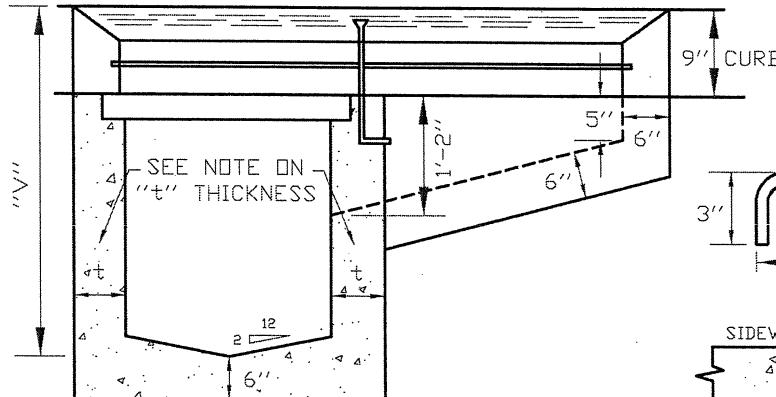
"t" THICKNESS

t = 6" IF "V" IS 4'-0" OR LESS.

t = 8" IF "V" IS BETWEEN 4'-0" & 8'-0"

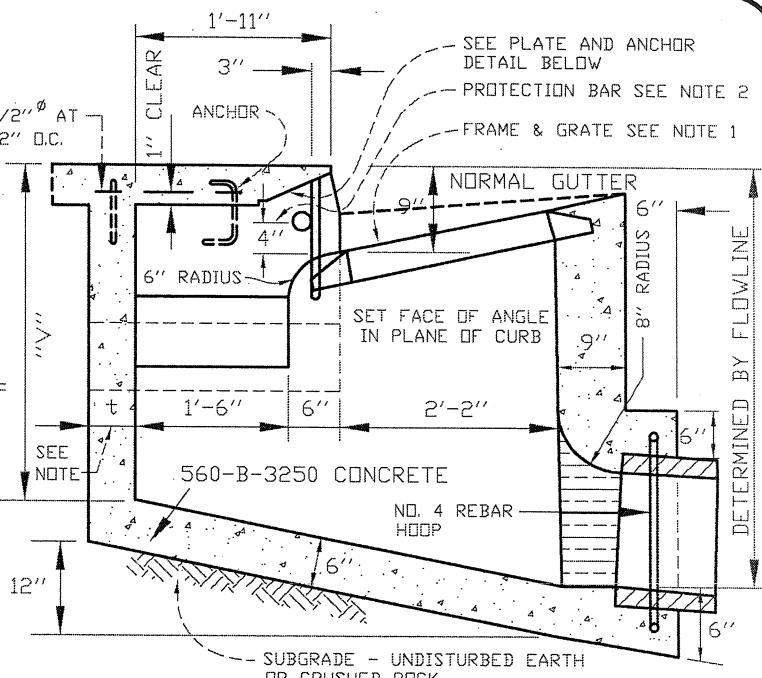
t = 10" IF "V" IS 8'-0", IF OVER 8' THEN SPECIAL PERMISSION IS REQUIRED FROM THE CITY ENGINEER.

CATCH BASIN "F-3" 5'-0"
CATCH BASIN "F-4" 7'-0"

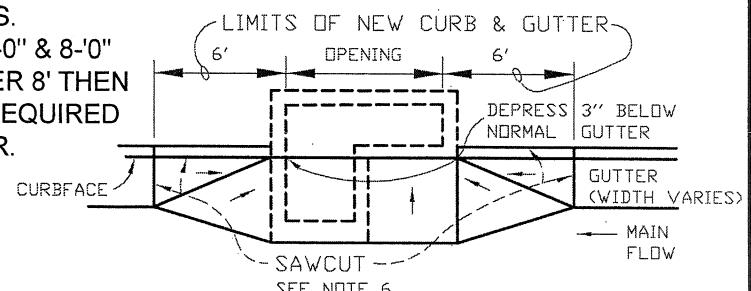


SECTION A-A

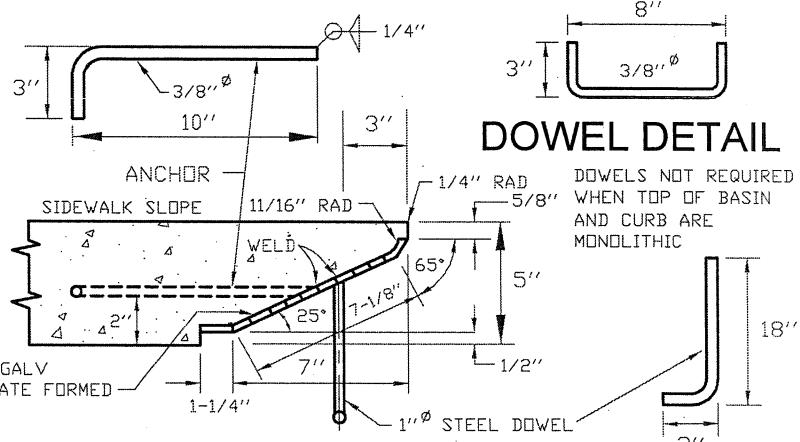
STEEL LIST						
CATCH BASIN TYPE	6-1/2" Ø DEF. BAR	1/2" Ø x 24" DEF. BAR	PLATE	ANCHORS	DOWELS	NO. 4 DEF. BAR HOOP
"F-3"	5'-6"	5	6'-0"	3	4	1
"F-4"	7'-6"	7	8'-0"	3	4	1



SECTION B-B

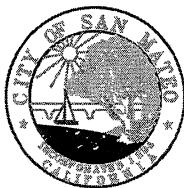


DEPRESSION DETAIL



NOTES:

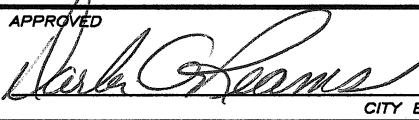
1. FOR DETAILS OF FRAME AND GRATE, TYPE "3" SEE DWG 3-1-125
2. FOR DETAIL OF PROTECTION BAR, SEE DWG 3-1-133
3. CONNECTION PIPES TO BE LOCATED ACCORDING TO PLANS.
4. ALL REINFORCING STEEL TO BE ONE INCH CLEAR EXCEPT AS NOTED.
5. CONCRETE 560-B-3250
6. SAWCUT WHEN CONSTRUCTION IS IN AREAS OF EXISTING CURB AND GUTTER.



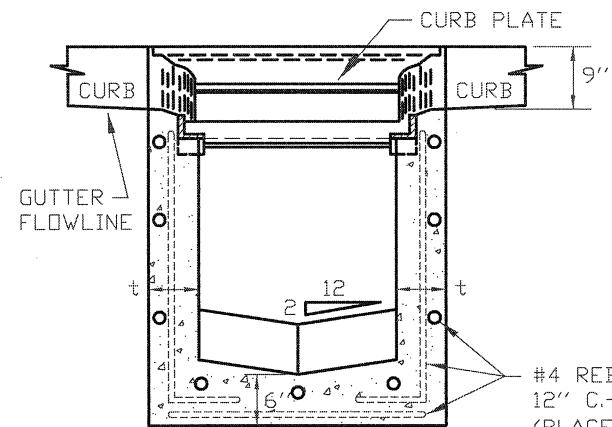
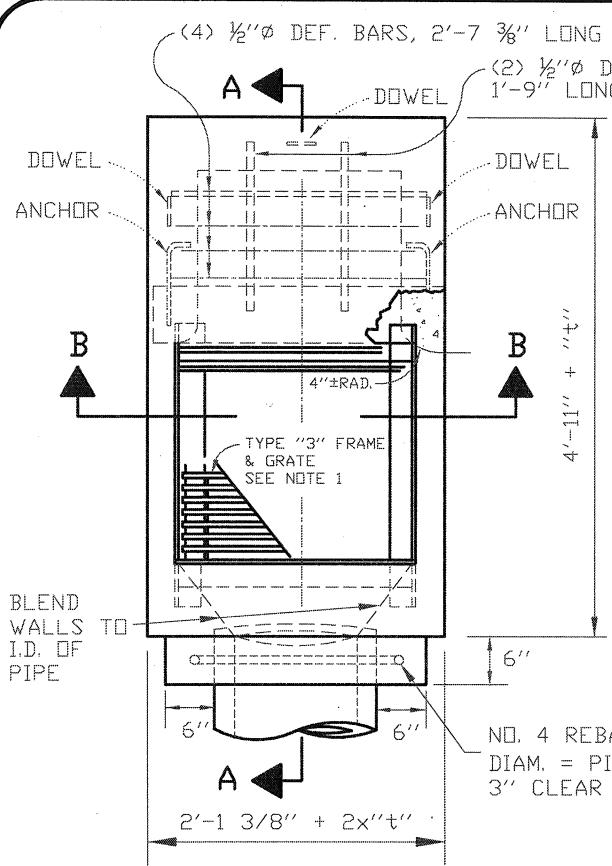
ENGINEERING DEPARTMENT

STANDARD CATCH BASINS TYPE "F-3" & "F-4"

CALIFORNIA 94403

DATE	DRAWN BY	CHECKED BY	APPROVED	CASE	DRAWER	SET
2002	PC	OC		3	1	121

CITY ENGINEER

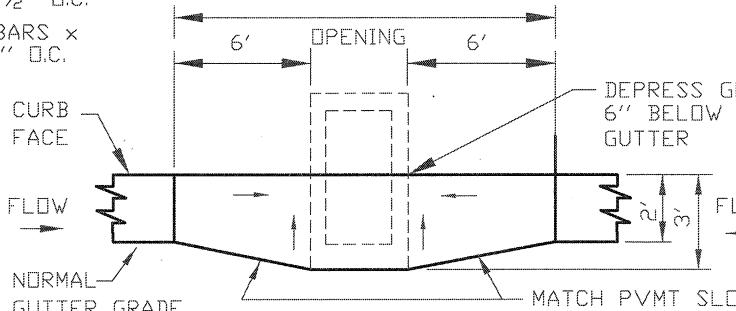
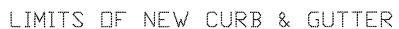


SECTION B-B

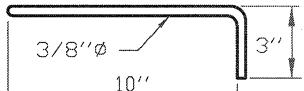
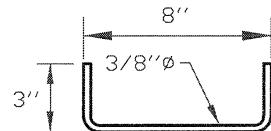
NOTES:

1. FOR DETAILS OF FRAME AND GRATE, TYPE "3", SEE DWG. 3-1-125.
2. CONNECTION PIPES TO BE LOCATED ACCORDING TO PLANS AND BOTTOM OF BASIN TO BE SLOPED TO OUTLET.
3. ALL REINF. STEEL TO BE ONE INCH CLEAR.
4. IF "V" IS OVER 8' THEN SPECIAL PERMISSION IS REQUIRED FROM CITY ENGINEER.
5. USE 560-B-3250 CONCRETE.
6. INSTALL PROTECTION BAR, STD. DWG. 3-1-133.

TO BE USED ONLY WITH SPECIAL PERMISSION OF THE CITY ENGINEER.

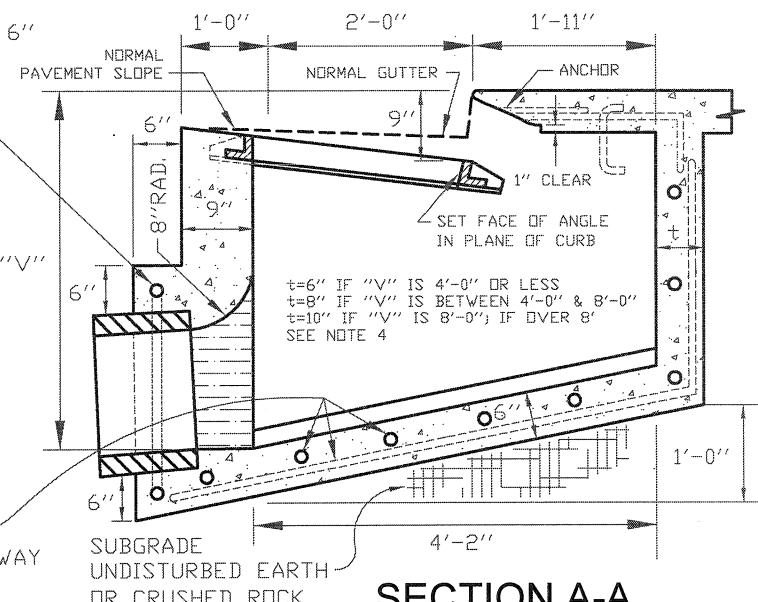


DEPRESSION DETAIL

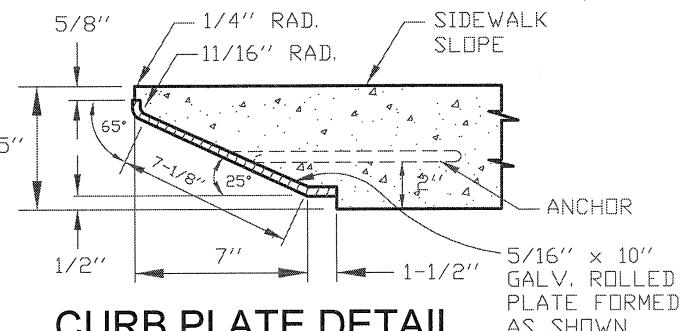


DOWEL DETAIL

3 REQUIRED WHEN
TOP AT BASIN AND
SIDEWALK ARE NOT
MONOLITHIC



SECTION A-A



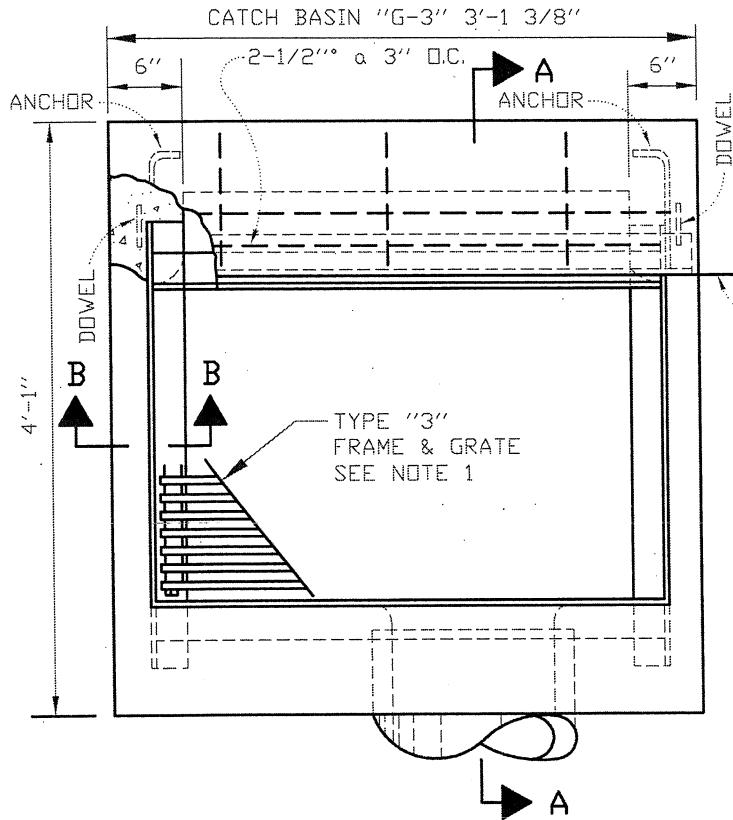
CURB PLATE DETAIL



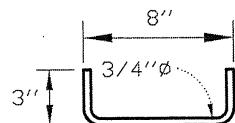
ENGINEERING DEPARTMENT

STANDARD TYPE "F-2" CATCH BASIN

DATE	DRAWN BY	CHECKED BY	APPROVED		CITY ENGINEER	CASE	DRAWER	SET
2002	PC	OC				3	1	122

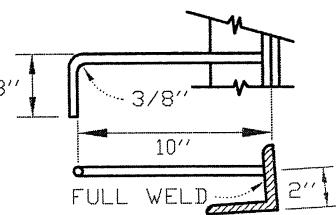


PLAN

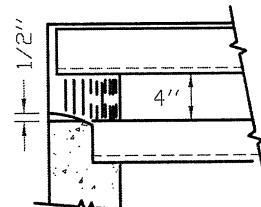


DOWEL DETAIL

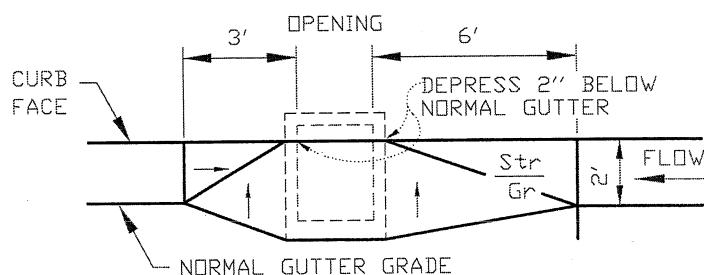
DOWELS NOT REQUIRED WHEN SIDEWALK AND TOP OF BASIN ARE Poured MONOLITHICALLY



ANCHOR DETAIL



SECTION B-B



DEPRESSION DETAIL

(TO BE USED UNLESS OTHERWISE SPECIFIED ON PLAN)

STEEL LIST

Catch Basin Type	$\frac{1}{2}'' \text{Ø} \times 12''$ def. bars	$1-3 \frac{1}{2}'' \times 3 \frac{1}{2}'' \times \frac{5}{16}''$ Galv. angle	$2 \frac{1}{2}'' \text{Ø}$ def. bars	Anchors	Dowels
"G-3"	3	3'-0"	3'-0"	2	2

NOTES:

1. FOR DETAILS OF TYPE "3" FRAME AND GRATE, SEE DWG. 3-1-125.
2. CONNECTION PIPES TO BE LOCATED ACCORDING TO PLANS AND BOTTOM OF BASIN TO BE SLOPED TO OUTLET.
3. ALL REINF. STEEL TO BE 1 INCH CLEAR.

SECTION A-A

TO BE USED BY SPECIAL PERMISSION FROM CITY ENGINEER.

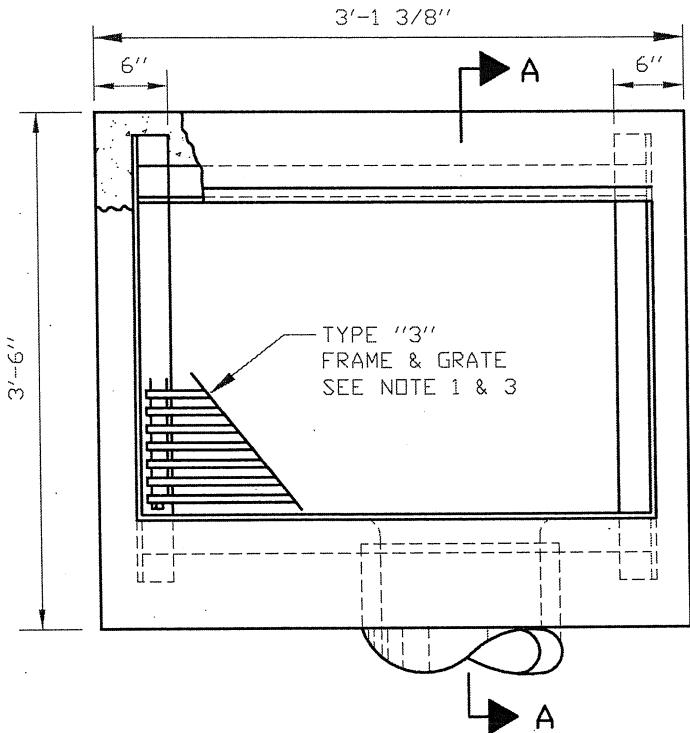


ENGINEERING DEPARTMENT

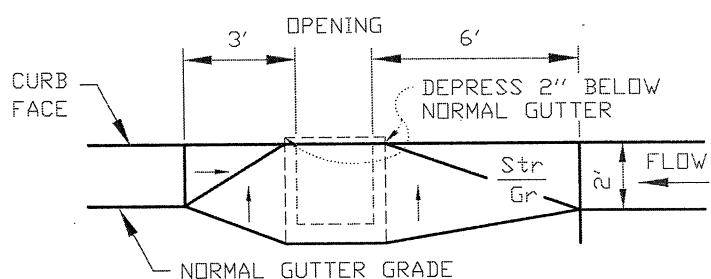
CALIFORNIA 94403

STANDARD TYPE "G-3" CATCH BASIN

DATE	DRAWN BY	CHECKED BY	APPROVED	CASE	DRAWER	SET
2002	PC	OC	 CITY ENGINEER	3	1	123

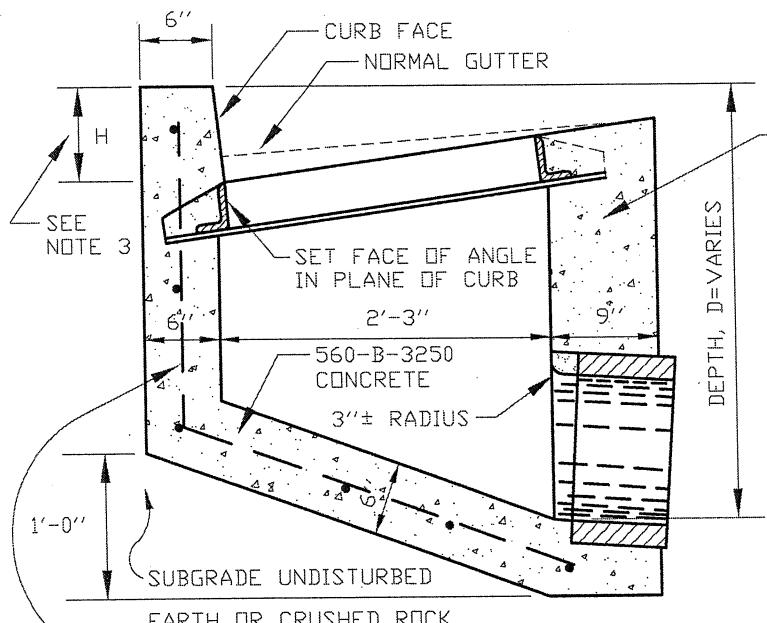


PLAN



DEPRESSION DETAIL

(TO BE USED UNLESS OTHERWISE SPECIFIED)
SEE NOTE 3



NOTES:

1. FOR DETAILS OF FRAME GRATE, TYPE "3", SEE DWG. 3-1-125.
2. CONNECTION PIPES TO BE LOCATED ACCORDING TO PLANS AND BOTTOM OF BASIN TO BE SLOPED TO OUTLET.
3. WHERE CATCH BASIN IS USED AS AN OUTLET, ELIMINATE DEPRESSION IN GUTTER AND INSTALL FRAME AND GRATE IN PLANE OF NORMAL GUTTER OTHERWISE H=9".
4. TO BE USED ONLY AT THE DIRECTION OF THE CITY ENGINEER.

SECTION A-A

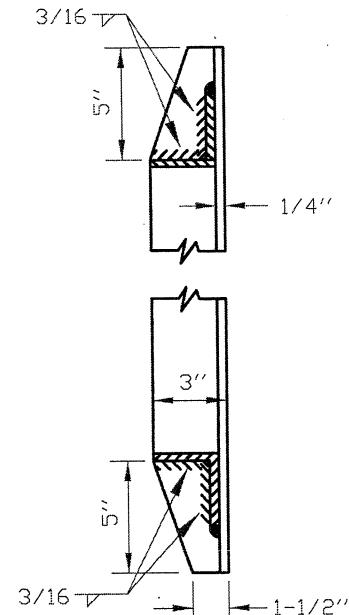
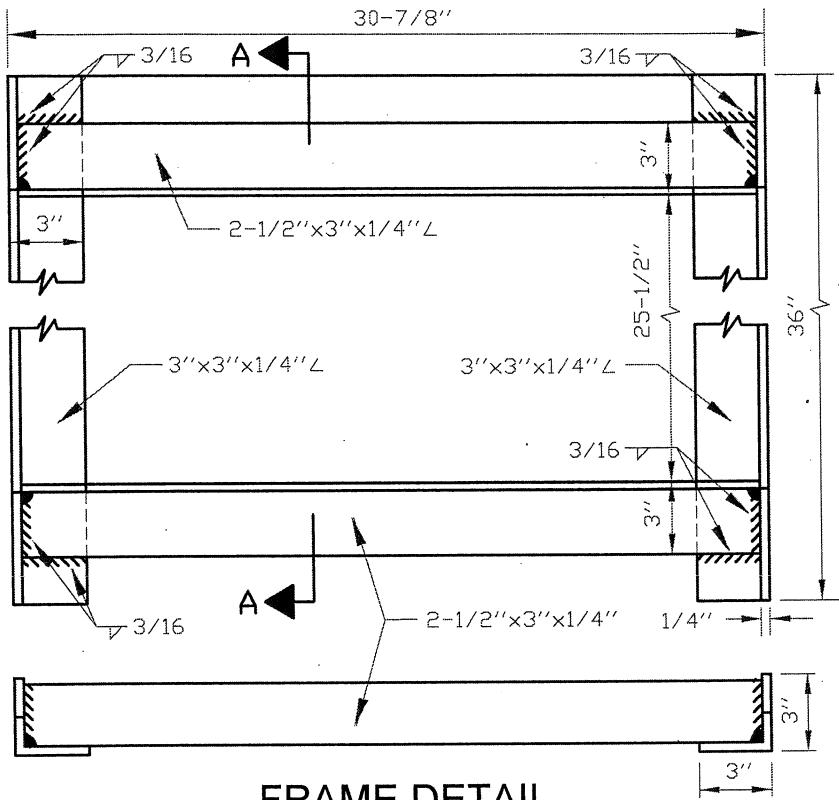


ENGINEERING DEPARTMENT

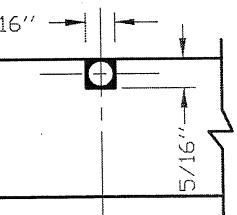
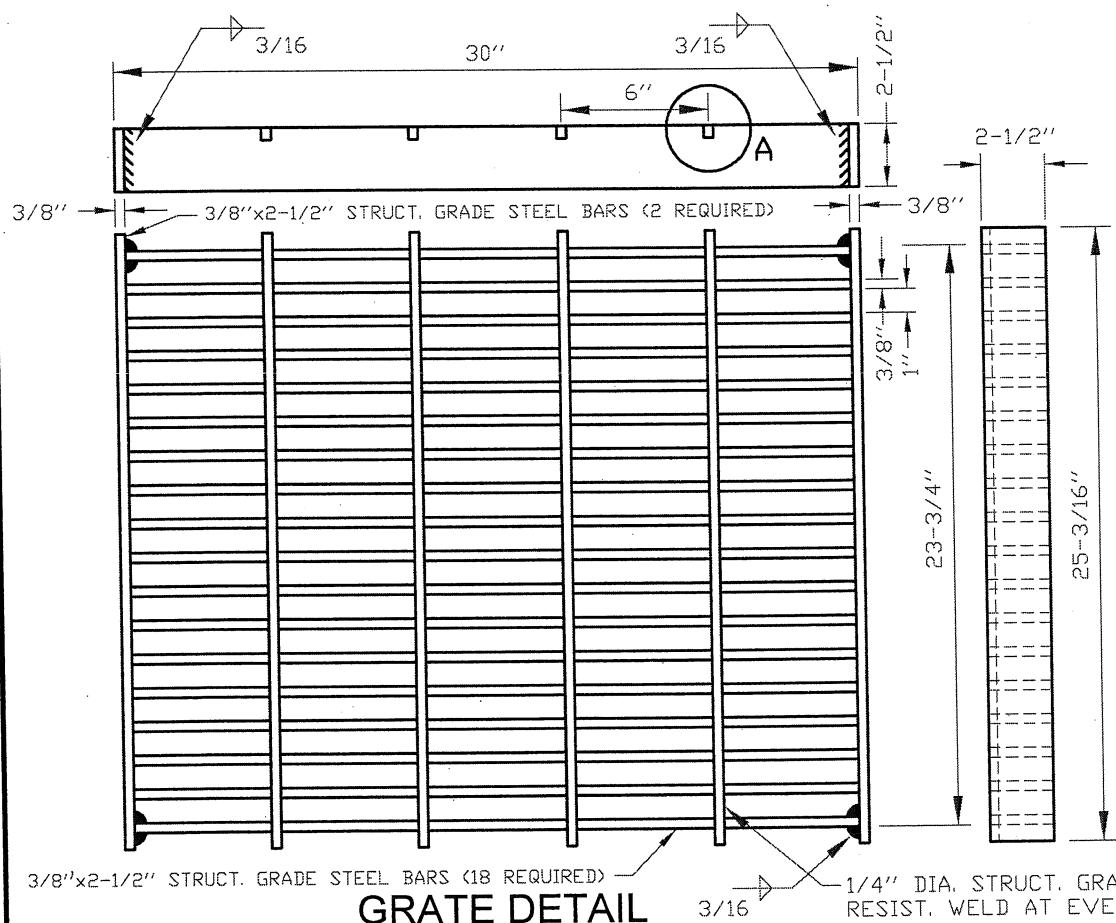
CALIFORNIA 94403

STANDARD TYPE "E-3" CATCH BASIN

DATE	DRAWN BY	CHECKED BY	APPROVED	CASE	DRAWER	SET
2002	PC	OC	<i>Clark Beane</i> CITY ENGINEER	3	1	124



FRAME DETAIL



3/8" x 2-1/2" STRUCT. GRADE STEEL BARS (18 REQUIRED)
GRATE DETAIL

1/4" DIA. STRUCT. GRADE STEEL BAR, ARC OR
RESIST. WELD AT EVERY 4TH BAR

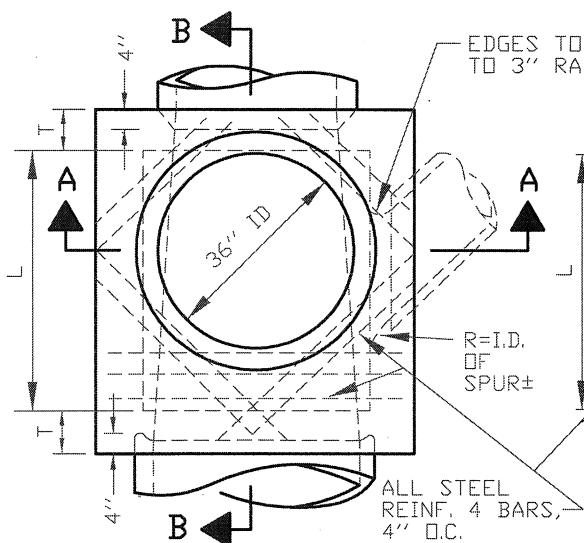


ENGINEERING DEPARTMENT

STANDARD CATCH BASIN
FRAME & GRATE DETAIL, TYPE "3"

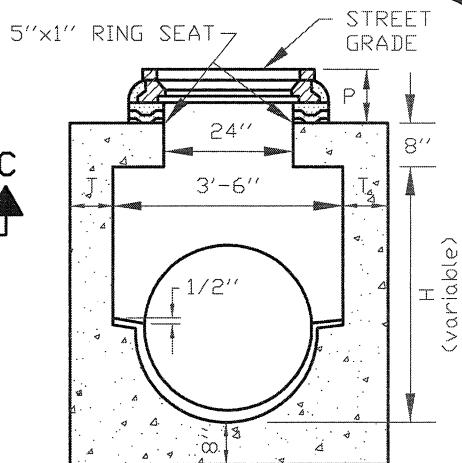
CALIFORNIA 94403

DATE	DRAWN BY	CHECKED BY	APPROVED	CASE	DRAWER	SET
2002	PC	OC	<i>Karen O'Regan</i> CITY ENGINEER	3	1	125

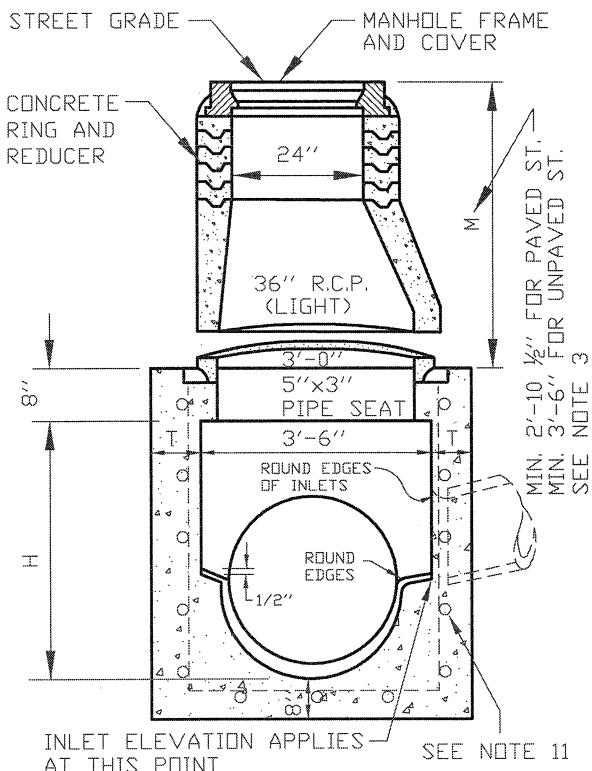


PLAN+

DETAIL N PLAN+

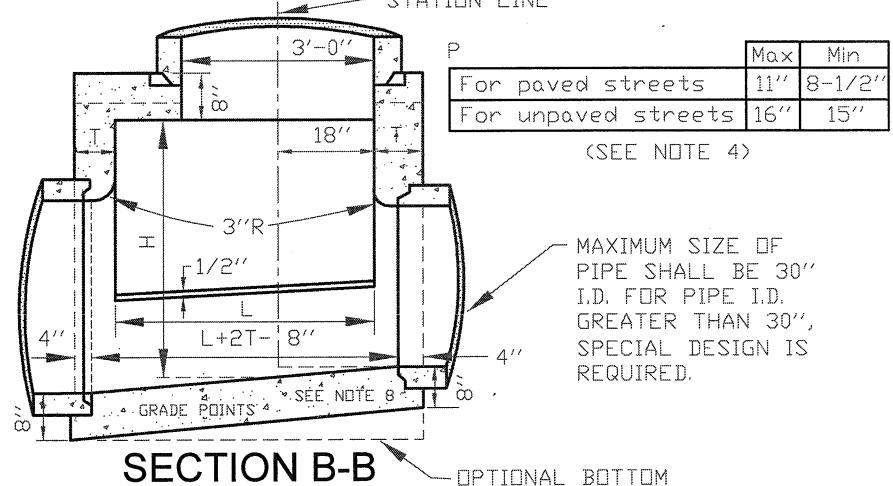


SECTION C-C



SECTION A-A

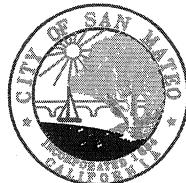
STATION LINE



SECTION B-B

NOTES:

1. HEIGHT H (IN SEC. A-A AND SEC. B-B) SHALL BE NOT LESS THAN 4'-0", BUT MAY BE INCREASED PROVIDED THAT THE VALUE OF M SHALL BE NOT LESS THAN THE MIN. SPECIFIED AND THAT THE REDUCER SHALL BE USED.
2. LENGTH L SHALL BE 4'-0" UNLESS OTHERWISE SHOWN ON PLAN. L MAY BE INCREASED OR LOCATION OF MANHOLE SHIFTED TO MEET PIPE ENDS.
3. SHAFT SHALL BE CONSTRUCTED AS PER SEC. C-C AND DETAIL N WHEN DEPTH M FROM STREET GRADE TO TOP OF BOX IS LESS THAN 2-10 1/2" FOR PAVED STREETS OR 3'-6" FOR UNPAVED STREETS.
4. DEPTH P MAY BE REDUCED TO AN ABSOLUTE LIMIT OF 8" WHEN LARGER VALUES OF P WOULD REDUCE H (IN SEC. C-C) TO 3'-6" OR LESS.
5. T SHALL BE 8" FOR VALUES OF H UP TO AND INCLUDING 8", 10" FOR VALUE OF H OVER 8".
6. REINFORCING STEEL SHALL BE STRAIGHT BARS 1-1/2" CLEAR FROM FACE OF CONCRETE.
7. STATIONS OF MANHOLES SHOWN ON PLAN APPLY AT CENTER LINE OF SHAFT. ELEVATIONS ARE SHOWN AT SHAFT CENTER AND REFER TO THE PROLONGED INVERT GRADE LINE. SEE NOTE 2 FOR SHIFTING LOCATION.
8. FLOOR OF MANHOLE SHALL BE STEEL-TROWELED.
9. RINGS, REDUCER, AND PIPE FOR ACCESS SHAFT SHALL BE SEATED IN MORTAR AND NEATLY POINTED OR WIPE INSIDE SHAFT.
10. USE 560-B-3250 CONCRETE.
11. WALL REINFORCING IS #4 BARS @ 12" O.C. EACH WAY.

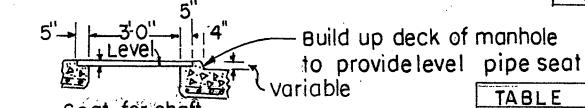
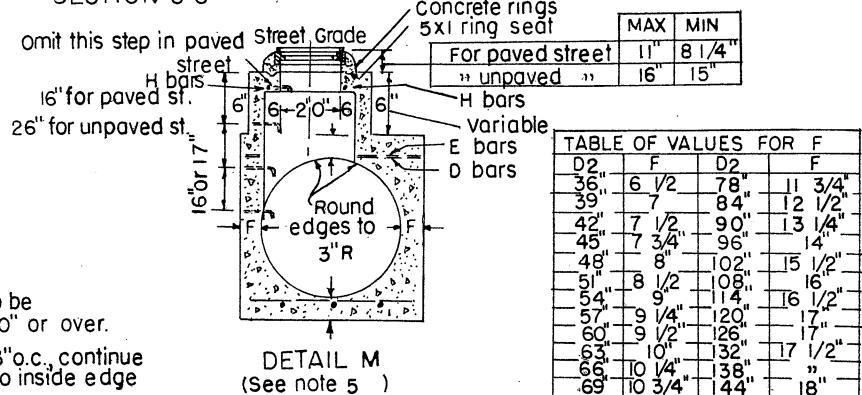
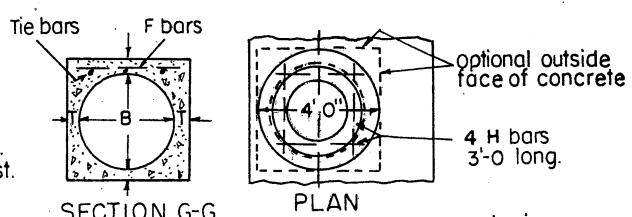
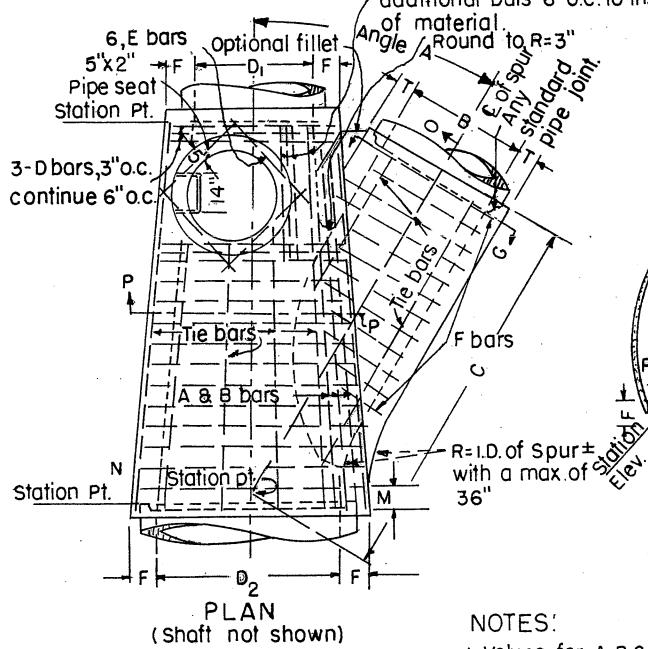
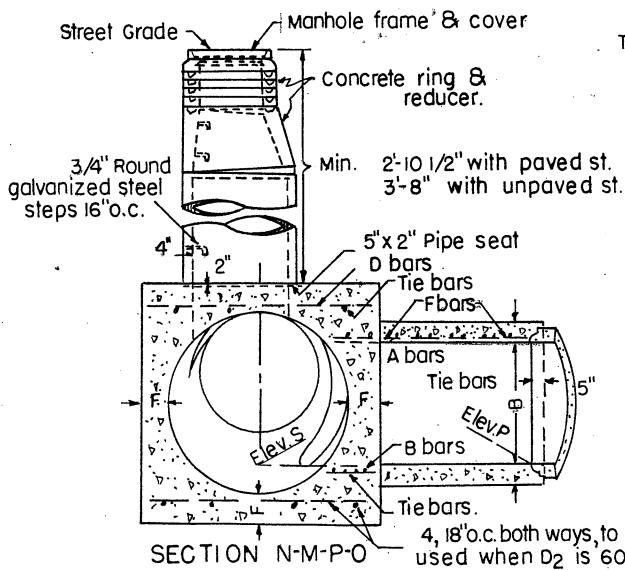


ENGINEERING DEPARTMENT

CALIFORNIA 94403

STANDARD STORM DRAIN MANHOLE

DATE	DRAWN BY	CHECKED BY	APPROVED	CASE	DRAWER	SET
2002	PC	OC	<i>Mark Beams</i> CITY ENGINEER	3	1	126



	MAX	MIN
For paved street	11"	8 1/4"
" unpaved "	16"	15"

TABLE OF VALUES FOR F			
D_2	F	D_2	F
36"	6 1/2"	78"	11 3/4"
39"	7	84"	12 1/2"
42"	7 1/2"	90"	13 1/4"
45"	7 3/4"	96"	14"
48"	8"	102"	15 1/2"
51"	8 1/2"	108"	16"
54"	9"	114"	16 1/2"
57"	9 1/4"	120"	17"
60"	9 1/2"	126"	17 1/2"
63"	10"	132"	17 1/2"
66"	10 1/4"	138"	"
69"	10 3/4"	144"	18"
72"	11"		

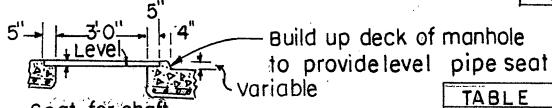


TABLE OF BAR SIZES			
D_2 or B	A & B bars	D or F bars	
12"-39"	#5 @ 3	# 4 @ 6	
42"-84"	#6 @ 3	# 5 @ 6	
90"-144"	#7 @ 3	# 6 @ 6	

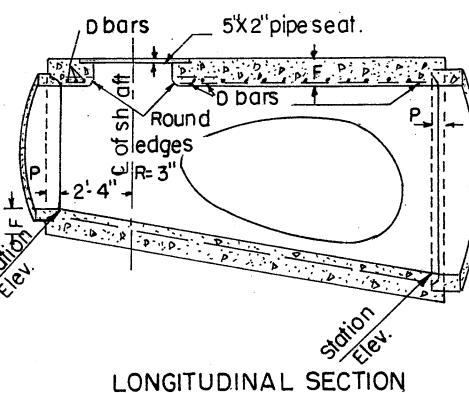


TABLE OF VALUES FOR T			
B	T	B	T
12"	4"	60"	9 1/2"
15"	4 1/4"	63"	10"
18"	4 1/2"	66"	10 1/4"
21"	5"	69"	10 3/4"
24"	5 1/4"	72"	11"
27"	5 1/2"	78"	11 3/4"
30"	6"	84"	12 1/2"
33"	6 1/4"	90"	13 1/4"
36"	6 1/2"	96"	14"
39"	7"	102"	15 1/2"
42"	7 1/2"	108"	16"
45"	7 3/4"	114"	16 1/2"
48"	8"	120"	17"
51"	8 1/2"	126"	17 1/2"
54"	9"	132"	17 1/2"
57"	9 1/4"	138"	18"
60"	144"		

NOTES:
1. Values for A, B, C, D, D₂, Elevation R, and Elevation S are shown on the Plan. Table of values for F and T is shown hereon.

- If laterals enter on both sides of manhole, access shaft shall be located on side receiving the smaller lateral.
- Center of manhole shaft shall be located over centerline of storm drain when D_1 is 48" or less, in which case place 4 E bars symmetrically around shaft 45° with centerline.
- Length of manhole may be increased to meet pipe ends, but any change in location of spur must be approved by the City Engineer.
- when depth of manhole from street to top of box is less than 2'-10 1/2" for paved street or 3'-6" for unpaved street, construct monolithic shaft as per Detail M. Construction of shaft as per Detail M for any depth of manhole is optional. When $D = 48$ " or less, center of shaft shall be located as per Note 3.
- Reinforcing steel shall be straight bars, 1 1/2" clear from face of concrete unless shown otherwise. Tie bars shall be 3 and spaced 18" o.c. or less. Steel schedule detailed on plan.
- Embedment P shall be 5" for D_2 96" or less and 8" for D_2 over 96".
- Steps shall be 3/4" round, galvanized steel and anchored not less than 6" in the walls of structures. Unless otherwise shown, the spacing shall be 16" o.c. The lowest step shall be not more than 2' above the invert.
- Rings, reducer and pipe for access shaft shall be seated in 1:2 mix mortar and neatly pointed or wiped inside shaft.
- Floor of manhole shall be steel-troweled to spring line.
- Body of manhole, including spur, shall be poured in one continuous operation, except that a construction joint at the spring line with a longitudinal keyway is permitted.
- Elevation S applies at center of main line on prolongation of invert spur.
- USE 560-B 3250 CONCRETE.

SAN MATEO

CALIFORNIA

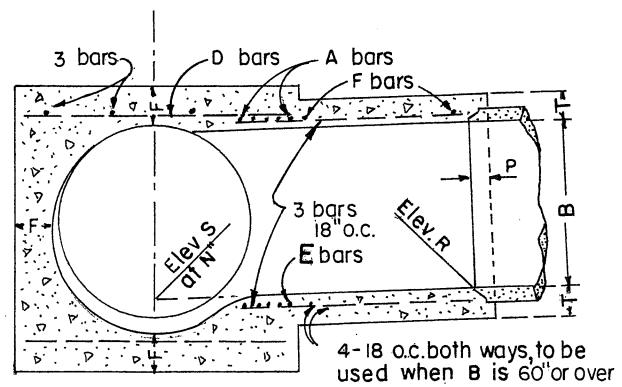
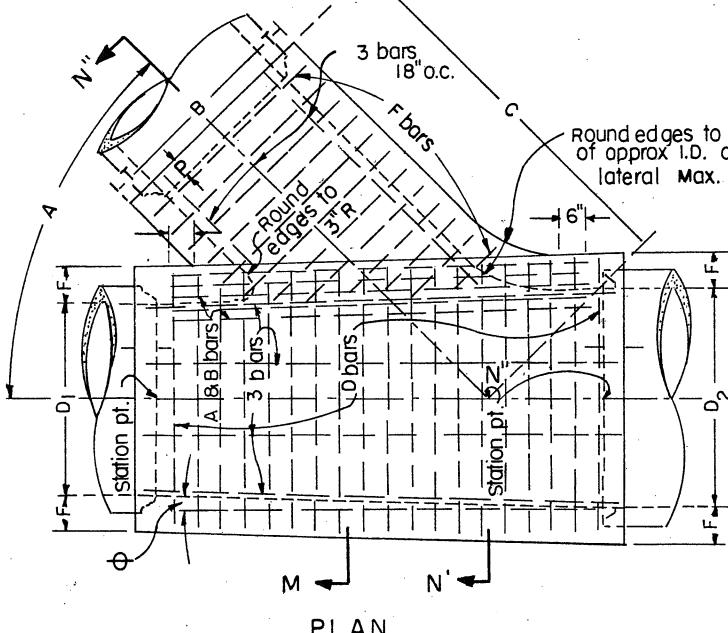
STORM DRAIN MANHOLE

DATE	DRAWN BY	CHK. BY	APPROVED	PLAN CASE	DRAWER	SHEET
1973	RUUJ	JEG		3	1	128

CITY ENGINEER

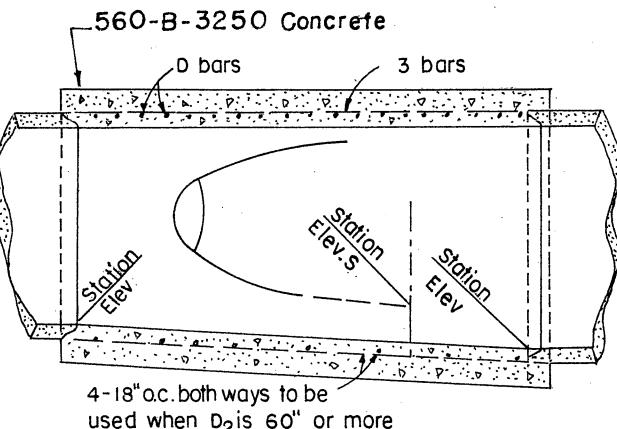
REVISION JUNE 1, 1988 (3) REVISION 3/21/96

REVISION JUNE 28, 1989



TABLE

D ₂ or B	F or T	A or B bars	D or F bars	P
12"	4"			
15"	4 1/4"			
18"	4 1/2"			
21"	5"			
24"	5 1/4"			
27"	5 1/2"			
30"	6"	# 5-3" O.C.	# 4-6" O.C.	
33"	6 1/4"			
36"	6 1/2"			
39"	7"			
42"	7 1/2"			
45"	7 3/4"			
48"	8"			
51"	8 1/2"			
54"	9"			
57"	9 1/4"			
60"	9 1/2"			
63"	10"			
66"	10 1/4"			
69"	10 3/4"			
72"	11"			
78"	11 3/4"			
84"	12 1/2"			
90"	13 1/4"			
96"	14"			
102"	15 1/2"			
108"	16"			
114"	16 1/2"			
120"	17"			
126"	17"			
132"	17 1/2"			
138"	17 1/2"			
144"	18"			



NOTES:

1. The horizontal angle of convergence or divergence, θ shall not exceed $5^{\circ} 45'$.
2. Values for A, B, C, D, D₂, Elev. R and Elev. S are shown on the project drawings.
3. Reinforcing steel shall be a minimum of 1 1/2" clear from face of concrete unless otherwise shown. Longitudinal bars shall be 3 spaced 18" o.c. or less.
4. Floor of structure shall be steel-troweled to the spring line.
5. Elevation S applies at center of main line on prolonged invert of spur.
6. Transition structure shall be poured in one continuous operation, except that the Contractor shall have the option of placing at the spring line a construction joint with a longitudinal keyway.
7. The length of the structure may be increased at the option of Contractor to meet pipe ends, using bars in extended portion of same diameter and spacing as specified in the table, but any change in the location of the spur must be approved by the City Engineer.
8. Embedment P shall be as specified in the table unless otherwise shown on the project drawing.
9. When dimension C is not specified the spur shall not be constructed and A and B bars shall be omitted.



SAN MATEO

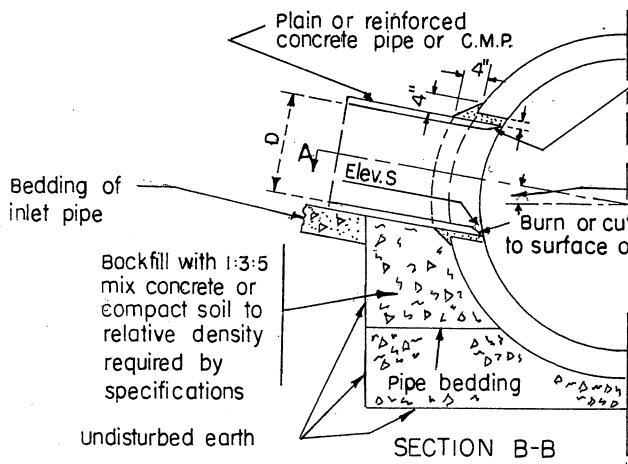
(2) (3)

CALIFORNIA

TRANSITION STRUCTURE (STORM DRAIN)

DATE	DRAWN BY	CHK. BY	APPROVED	PLAN CASE	DRAWER	SHEET
1973	R.U.J.	J.E.G.		3	1	129

CITY ENGINEER



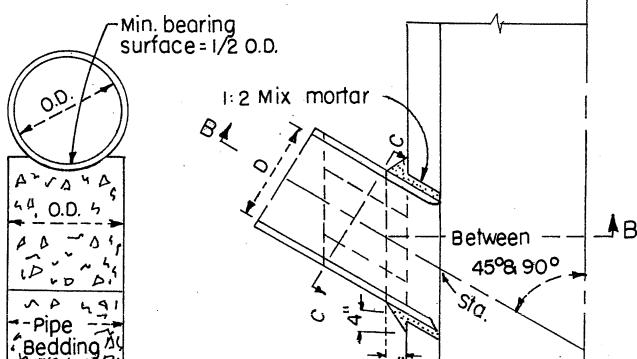
Round edges of concrete pipe or R.C.P.
Chip pipe to surface of concrete and round edges

For outlet see Standard catch basin plans.

catch Basin Floor

1:3:5 Mix concrete encasement

CATCH BASIN ABOVE STORM DRAIN

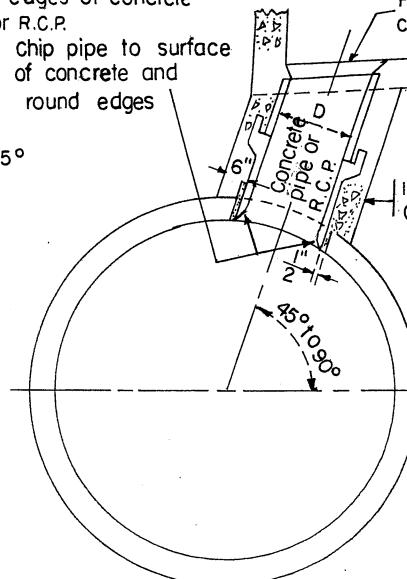


CASE 1 - SIDE INLET

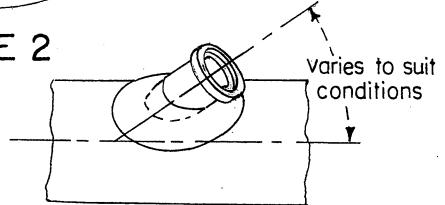
NOTES

CASES 1 & 2

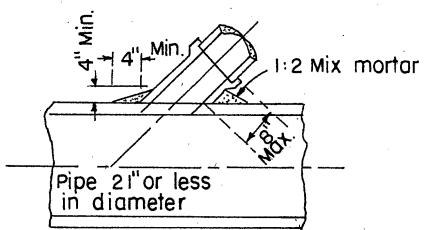
1. D shall be 24" or less. For larger values of D use Transition structure.
2. In no case shall the outside diameter of inlet pipe exceed one-half the inside diameter of the main storm line.
3. Centerline of inlet shall be on radius of main storm line except where elevation S is shown on project drawing.
4. The minimum opening into the existing storm drain shall be the outside diameter of the connecting pipe plus one inch.
5. All corrugated metal pipe and fittings shall be galvanized.



CASE 2



PLAN



CASE 3 - SADDLE CONNECTION

CASE 3

1. Connections to pipes 21" or less in diameter without junction structures or pre-cast Y branches shall be made with saddles.
2. Trim or cut saddle to fit snugly over the outside of the main pipe, and so its axis will be on the line and grade of the connecting pipe.
3. The opening into the pipe shall be cut and trimmed to fit the saddle so that no part will project within the bore of the saddle pipe.
4. The connecting pipe shall be supported as shown in Cases 1 and 2.

SAN MATEO

CALIFORNIA

JUNCTION STRUCTURE (STORM DRAIN)

DATE
1973

DRAWN BY
RUJ

CHK. BY
JEG

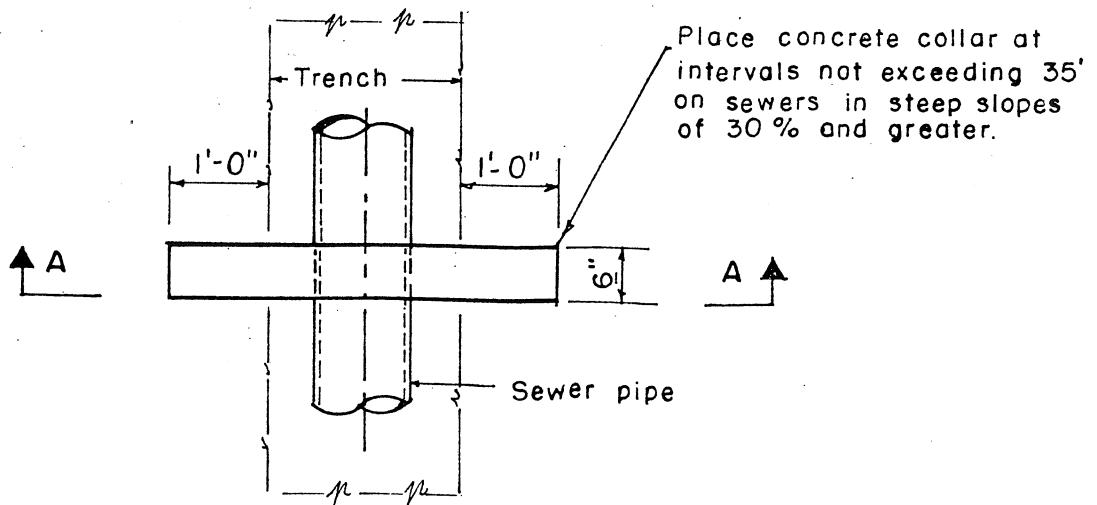
APPROVED

CITY ENGINEER

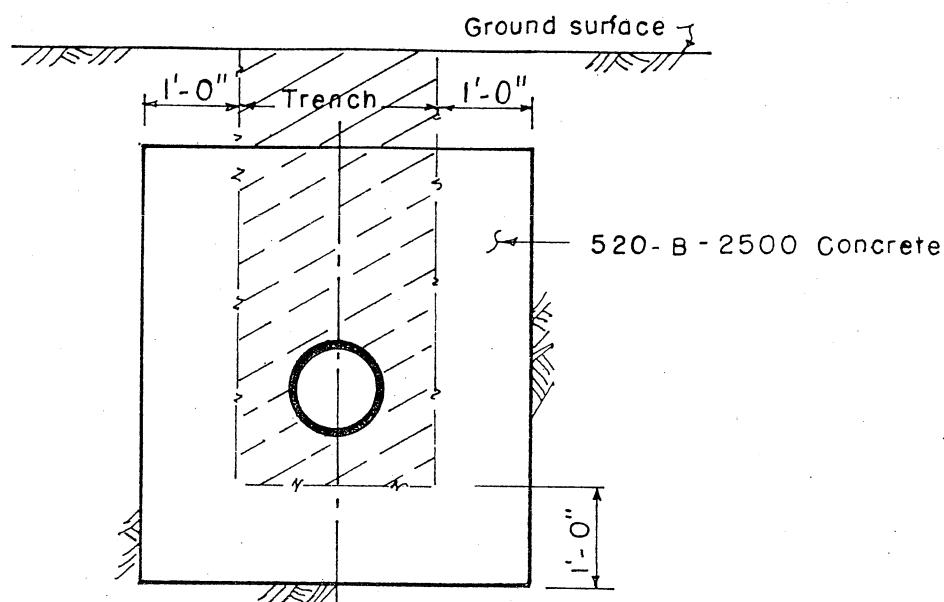
PLAN CASE
3

DRAWER
1

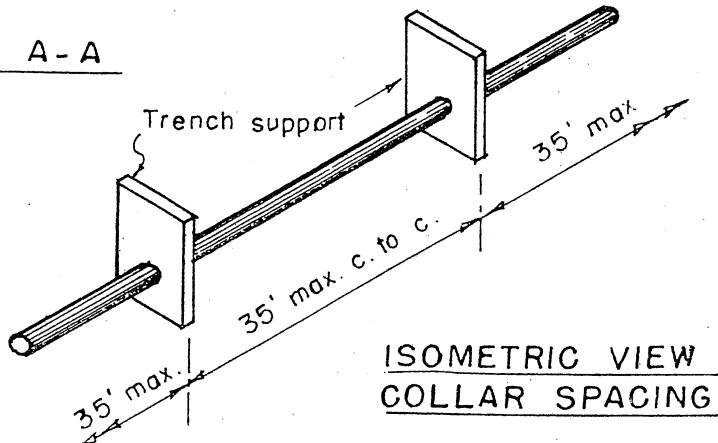
SHEET
130



PLAN



SECTION A-A



ISOMETRIC VIEW
COLLAR SPACING

Not to scale

SAN MATEO

STANDARD

CALIFORNIA

TRENCH SUPPORT CONCRETE COLLAR

DATE
SEPT.
1973

DRAWN BY
L.B.

CHK. BY
JDM

APPROVED

DIRECTOR OF PUBLIC WORKS

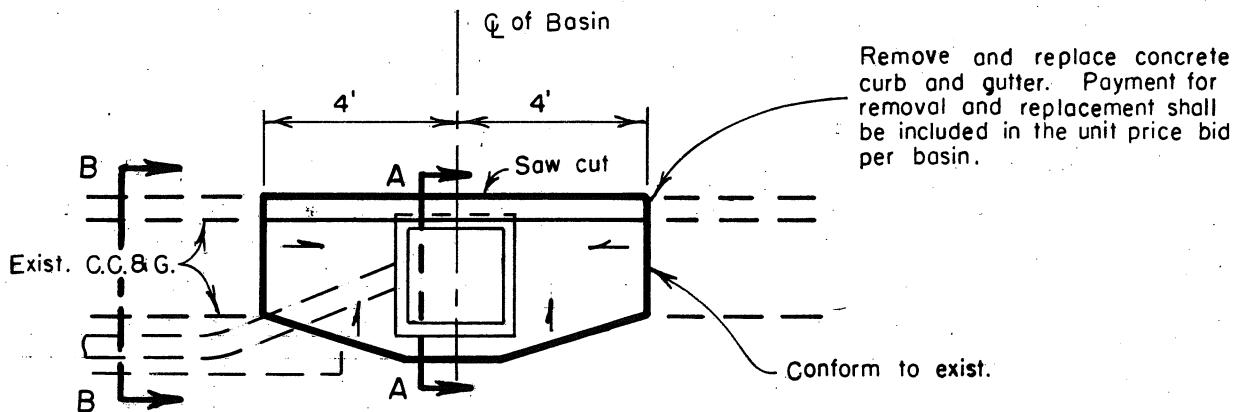
PLAN CASE
3

DRAWER
1

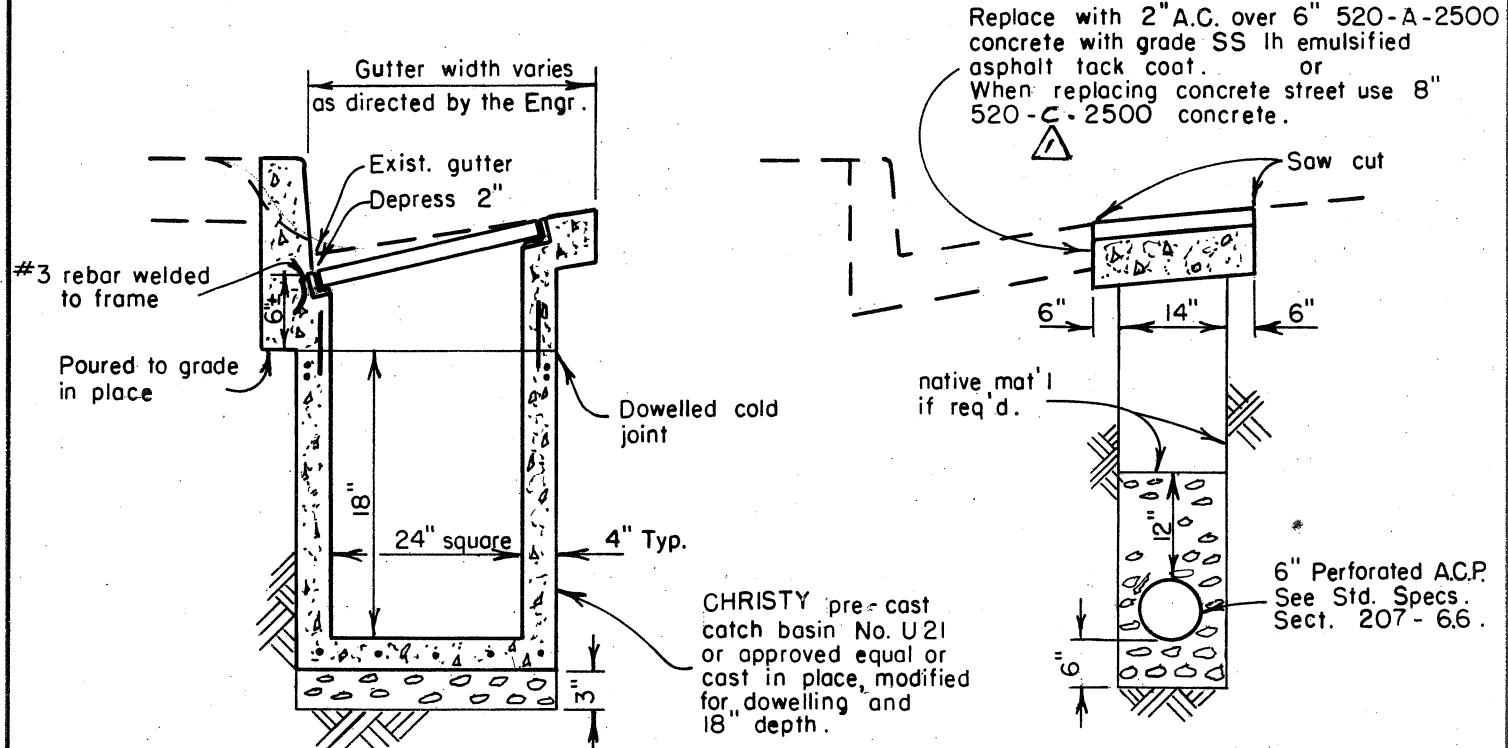
SHEET
131

NOTES:

1. 6" pipe shall be connected to the nearest storm sewer and shall slope to drain.
2. Use 560 - B - 3250 concrete for curb and gutter.
3. Permeable material for drain rock shall conform to the requirements of Sect. 200 - I.2 for 3/4" crushed rock.
4. Grate and frame shall be CHRISTY 120 lb. No. 71R 422 or approved equal.



DEPRESSION DETAIL



Not to scale

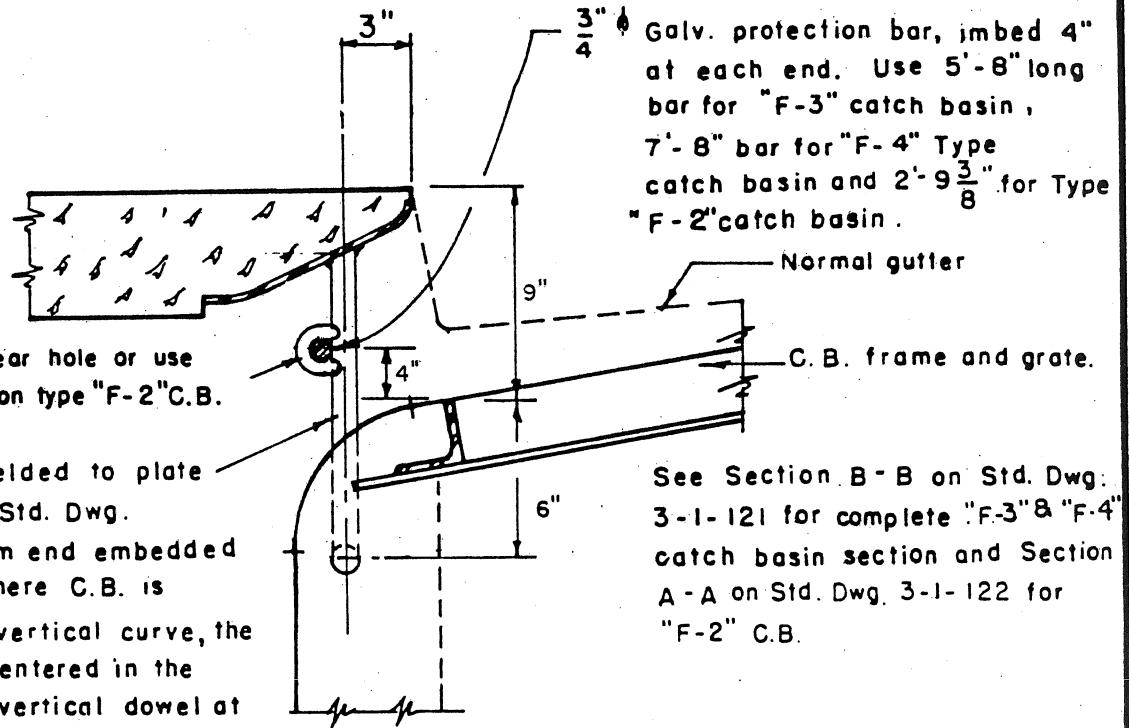


REVISION JUNE 28, 1989

**STANDARD
"BIRD - BATH" DRAINAGE BASIN**
SAN MATEO, CALIF.

DATE	DRAWN BY	CHK. BY	APPROVED	PLAN CASE	DRAWER	SHEET
1978	GJ	EJ	<i>Alec Perry</i>	3	1	132

CITY ENGINEER



DETAIL OF STD. CATCH BASIN PROTECTION BAR
FOR TYPE "F-2", "F-3" & "F-4" C.B.

Note - Omit vertical bar on Type "F-2" catch basin.

REVISED 7/90

CITY OF SAN MATEO

CALIFORNIA 94403

**DETAIL OF STANDARD
CATCH BASIN PROTECTION BAR**

DATE	DRAWN BY	CHECKED	APPROVED	CASE	DRAWER	SET
1987	RLG	EB	<i>John Parry</i> CITY ENGINEER	3	1	133